DAIKIN

SiUS092519E

R-32

Service Manual

Inverter Pair
Duct Connected Type FDMA-A Series







[Applied Models]
●Inverter Pair : Heat Pump

Introduction 1

1. Safety Cautions 2
   - 1.1 Warnings and Cautions Regarding Safety of Workers 2
   - 1.2 Warnings and Cautions Regarding Safety of Users 7
2. Icons Used 10
3. Revision History 11

Part 1 General Information 12

1. Applicable Models 13
2. Functions 14

Part 2 Specifications 16

1. Specifications 17

Part 3 Printed Circuit Board Connector Wiring Diagram 20

1. Indoor Unit 21
2. Outdoor Unit 23
   - 2.1 RXP09/12AVJU9 23
   - 2.2 RXP15/18/24AVJU9 24

Part 4 Functions and Control 25

1. Common Functions 26
   - 1.1 Temperature Control 26
   - 1.2 Frequency Principle 26
   - 1.3 Fan Speed Control for Indoor Unit 28
   - 1.4 Program Dry Operation 28
   - 1.5 Automatic Cooling/Heating Change-over 29
   - 1.6 Clock and Calendar Setting (With BRC1NRV71) 30
   - 1.7 Schedule Timer Operation (With BRC1NRV71) 32
   - 1.8 Drain Pump Control 36
   - 1.9 Hot Start Control (In Heating Operation Only) 38
   - 1.10 Other Functions 39
2. Thermistor Functions 40
3. Control Specification 41
   - 3.1 Mode Hierarchy 41
   - 3.2 Frequency Control 41
   - 3.3 Controls at Mode Changing/Start-up 43
   - 3.4 Discharge Pipe Temperature Control 45
   - 3.5 Input Current Control 46
   - 3.6 High Pressure Protection Control 47
   - 3.7 Freeze-up Protection Control 47
   - 3.8 Heating Peak-cut Control 48
   - 3.9 Outdoor Fan Control 49
   - 3.10 Liquid Compression Protection Function 49
   - 3.11 Defrost Control 50
   - 3.12 Electronic Expansion Valve Control 53
   - 3.13 Malfunctions 56

Part 5 Remote Controller 57

1. Applicable Remote Controller 58
2. BRC1NRV71 59

Part 6 Service Diagnosis 65

1. General Problem Symptoms and Check Items 67
2. Troubleshooting with LED 68
   - 2.1 Indoor Unit 68
   - 2.2 Outdoor Unit 68
3. Service Diagnosis 69
   - 3.1 BRC1NRV71 69
4. Error Codes and Description 71
5. Troubleshooting for Indoor Unit 72
   - 5.1 External Protection Device Abnormality 72
   - 5.2 Refrigerant Leak Detection (Confirmed) 73
   - 5.3 Refrigerant Leak Detection (Monitoring) 75
   - 5.4 Indoor Unit PCB Abnormality 76
   - 5.5 Drain Level Control System Abnormality 77
   - 5.6 Indoor Fan Motor (DC Motor) or Related Abnormality 78
   - 5.7 Indoor Fan PCB Abnormality 80
   - 5.8 Humidifier or Related Abnormality 81
   - 5.9 Defective Capacity Setting 82
   - 5.10 Transmission Abnormality between Indoor Unit Control PCB and Fan PCB 83
   - 5.11 Thermistor or Related Abnormality 85
   - 5.12 Refrigerant Leak Detection Sensor Failure 86
   - 5.13 Refrigerant Leak Detection Sensor Disconnection 87
   - 5.14 Remote Controller Thermistor Abnormality 88
   - 5.15 Low-voltage Detection or Over-voltage Detection 89
   - 5.16 Signal Transmission Error (Between Indoor Unit and Outdoor Unit) 91
   - 5.17 Signal Transmission Error (Between Indoor Unit and Remote Controller) 93
   - 5.18 Signal Transmission Error (Between MAIN/SUB Remote Controllers) 94
   - 5.19 Unspecified Voltage (Between Indoor Unit and Outdoor Unit) 95
   - 5.20 Address Duplication of Centralized Controller 96
6. Troubleshooting for Outdoor Unit 97
   - 6.1 Outdoor Unit PCB Abnormality 97
   - 6.2 Actuation of High Pressure Switch 98
   - 6.3 OL Activation (Compressor Overload) 99
   - 6.4 Compressor Lock 101
   - 6.5 DC Fan Lock 102
   - 6.6 Input Overcurrent Detection 103
   - 6.7 Electronic Expansion Valve Coil Abnormality 104
   - 6.8 Four Way Valve Abnormality 105
   - 6.9 Discharge Pipe Temperature Control 107
   - 6.10 High Pressure Control in Cooling 108
   - 6.11 System Shutdown due to Temperature Abnormality in the Compressor 110
   - 6.12 Compressor Sensor System Abnormality 111
   - 6.13 High Pressure Switch System Abnormality 112

6.14 Position Sensor Abnormality 113
6.15 Fan IPM temperature error 116
6.16 DC Voltage/Current Sensor Abnormality 117
6.17 Thermistor or Related Abnormality (Outdoor Unit) 118
6.18 Electrical Box Temperature Rise 120
6.19 Radiation Fin Temperature Rise 121
6.20 Output Overcurrent Detection 122
6.21 IGBT temperature error 124
6.22 Signal Transmission Error on Outdoor Unit PCB 125
7. Check 126
7.1 Thermistor Resistance Check 126
7.2 Indoor Fan Motor Connector Check 127
7.3 Power Supply Waveform Check 127
7.4 Electronic Expansion Valve Check 128
7.5 Four Way Valve Performance Check 129
7.6 Inverter Unit Refrigerant System Check 129
7.7 Inverter Analyzer Check 130
7.8 Outdoor Fan Motor Check 132
7.9 Installation Condition Check 132
7.10 Discharge Pressure Check 133
7.11 Outdoor Fan System Check 133
7.12 Main Circuit Short Check 134
7.13 Power Module Check 136

Part 7 Trial Operation and Field Settings 138

1. Pump Down Operation 139
2. Forced Cooling Operation 140
3. Trial Operation 141
4. Field Settings 143
4.1 How to Change the Field Settings 143
4.2 Overview of Field Settings 145
4.3 MAIN/SUB Setting when Using 2 Wired Remote Controllers 148
5. Field Settings for Outdoor Unit 149
5.1 Facility Setting (cooling at low outdoor temperature) 149
5.2 Warmer Airflow Setting 150
5.3 Drain Pan Heater 151
6. Silicone Grease on Power Transistor/Diode Bridge 152

Part 8 Appendix 153

1. Piping Diagrams 154
1.1 Indoor Unit 154
1.2 Outdoor Unit 154
2. Wiring Diagrams 156
2.1 Indoor Unit 156
2.2 Outdoor Unit 157
3. Operation Limit 159

Introduction

1. Safety Cautions 2
   1.1 Warnings and Cautions Regarding Safety of Workers 2
   1.2 Warnings and Cautions Regarding Safety of Users 7
2. Icons Used 10
3. Revision History 11

1. Safety Cautions

Be sure to read the following safety cautions before conducting repair work.
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.

	This manual is for the person in charge of maintenance and inspection.	 Refrigerant Safety Group A2L	This appliance is filled with R-32.

Caution Items

The caution items are classified into ⚠**Warning** and ⚠**Caution**. The ⚠**Warning** items are especially important since death or serious injury can result 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.

Pictograms

△ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.
◯ This symbol indicates a prohibited action.
The prohibited item or action is shown in the illustration or near the symbol.
● This symbol indicates an action that must be taken, or an instruction.
The instruction is shown in the illustration or near the symbol.

1.1 Warnings and Cautions Regarding Safety of Workers

⚠ Warning	
Do not store equipment in a room with fire sources (e.g., naked flames, gas appliances, electric heaters).	
Be sure to disconnect the power cable from the socket before disassembling equipment for repair. Working on equipment that is connected to the power supply may cause an electrical shock. If it is necessary to supply power to the equipment to conduct the repair or inspect the circuits, do not touch any electrically charged sections of the equipment.	
If refrigerant gas is discharged during repair work, do not touch the discharged refrigerant gas. 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 gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it may cause injury.	
If refrigerant gas leaks during repair work, ventilate the area. Refrigerant gas may generate toxic gases when it contacts flames.	
Be sure to discharge the capacitor completely before conducting repair work. The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. A charged capacitor may cause an electrical shock.	

Warning	
Do not turn the air conditioner on or off by plugging in or unplugging the power cable. Plugging in or unplugging the power cable to operate the equipment may cause an electrical shock or fire.	
Be sure to wear a safety helmet, gloves, and a safety belt when working in a high place (more than 2 m (6.5 ft)). Insufficient safety measures may cause a fall.	
In case of R-32 / R-410A refrigerant models, be sure to use pipes, flare nuts and tools intended for the exclusive use with the R-32 / R-410A refrigerant. The use of materials for R-22 refrigerant models may cause a serious accident, such as a damage of refrigerant cycle or equipment failure.	
Do not mix air or gas other than the specified refrigerant (R-32 / R-410A / R-22) in the refrigerant system. If air enters the refrigerant system, an excessively high pressure results, causing equipment damage and injury.	

Caution	
Do not repair electrical components with wet hands. Working on the equipment with wet hands may cause an electrical shock.	
Do not clean the air conditioner with water. Washing the unit with water may cause an electrical shock.	
Be sure to provide an earth / 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 may 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.	
Conduct welding work in a well-ventilated place. Using the welder in an enclosed room may cause oxygen deficiency.	

■ **Checks to the area**
Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating system, provisions under **Work procedure** to **No ignition sources** below shall be completed prior to conducting work on the system.

■ **Work procedure**
Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.

■ **General work area**
All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

■ **Checking for presence of refrigerant**
The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres.
Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

■ **Presence of fire extinguisher**
If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

■ **No ignition sources**
No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.

■ **Ventilated area**
Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

■ **Checks to the refrigerating equipment**
Where electrical components are being changed, they shall be fit for the purpose and to the correct specification.
At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance.
The following checks shall be applied to installations using flammable refrigerants:
- The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed;
- The ventilation machinery and outlets are operating adequately and are not obstructed;
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

■ **Checks to electrical devices**

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

- that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- that there is continuity of earth bonding.

■ **Repairs to sealed components**

Sealed electrical components shall be replaced.

■ **Repair to intrinsically safe components**

Intrinsically safe components must be replaced.

■ **Cabling**

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

■ **Detection of flammable refrigerants**

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems. Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL (lower flammability limit) of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

Note: Examples of leak detection fluids are

- bubble method,
- fluorescent method agents.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to the following clause, **Removal and evacuation**.

■ **Removal and evacuation**

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

- safely remove refrigerant following local and national regulations;
- evacuate;
- purge the circuit with inert gas (optional for A2L);
- evacuate (optional for A2L);

- continuously flush or purge with inert gas when using flame to open circuit;
- open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.
For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.
The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

■ **Charging procedures**

In addition to conventional charging procedures, the following requirements shall be followed.
Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.

- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigerating system.
- Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas.

The system shall be leak-tested on completion of charging but prior to commissioning.
A follow up leak test shall be carried out prior to leaving the site.

■ **Decommissioning**

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.
a) Become familiar with the equipment and its operation.
b) Isolate system electrically.
c) Before attempting the procedure, ensure that:
  - mechanical handling equipment is available, if required, for handling refrigerant cylinders;
  - all personal protective equipment is available and being used correctly;
  - the recovery process is supervised at all times by a competent person;
  - recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.
e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
f) Make sure that cylinder is situated on the scales before recovery takes place.
g) Start the recovery machine and operate in accordance with instructions.
h) Do not overfill cylinders (no more than 80% volume liquid charge).
i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
k) Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

- **Labelling**
  Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

- **Recovery**
  When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
  When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
  The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.
  The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
  If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

1.2 Warnings and Cautions Regarding Safety of Users

⚠ Warning	
Do not store the equipment in a room with fire sources (e.g., naked flames, gas appliances, electric heaters).	
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 are scratched or have 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.	

Warning	
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 cables may cause an electrical shock or fire. Placing heavy items on the power cable, or heating or pulling the power cable may damage it.	
Do not mix air or gas other than the specified refrigerant (R-32 / R-410A / R-22) in the refrigerant system. If air enters the refrigerant 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 the refrigerant, make sure that there is no leak. If the leaking point cannot be located and the repair work must be stopped, be sure to pump-down, and close the service valve, to prevent refrigerant gas from leaking into the room. Refrigerant gas itself is harmless, but it may generate toxic gases when it contacts flames, such as those from fan type 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 or the installation work is not conducted securely, the equipment may fall and cause injury.	
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 is dusty or has a loose connection, it may cause an electrical shock or fire.	
When replacing the coin battery in the remote controller, be sure to dispose 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 combustible gas leaks and remains around the unit, it may cause a fire.	
Check to see if parts and wires are mounted and connected properly, and if connections at the soldered or crimped terminals are secure. Improper installation and connections may cause excessive heat generation, fire or an electrical shock.	

Caution	
If the installation platform or frame has corroded, replace it. A corroded installation platform or frame may cause the unit to fall, resulting in injury.	
Check the earth / grounding, and repair it if the equipment is not properly earthed / grounded. Improper earth / grounding may cause an electrical shock.	
Be sure to measure 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 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.	

2. Icons Used

The following icons are used to attract the attention of the reader to specific information.

Icon	Type of Information	Description
 Warning	Warning	**Warning** is used when there is danger of personal injury.
 Caution	Caution	**Caution** is used when there is danger that the reader, through incorrect manipulation, may damage equipment, lose data, get an unexpected result or have to restart (part of) a procedure.
 Note	Note	**Note** provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
 Reference	Reference	**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.

3. Revision History

Month/Year	Version	Revised contents
10 / 2025	SiUS092519E	First edition

Part 1
General Information

1. Applicable Models 13
2. Functions 14

1. Applicable Models

Indoor Unit	Outdoor Unit
FDMA09AVJU9	RXP09AVJU9
FDMA12AVJU9	RXP12AVJU9
FDMA15AVJU9	RXP15AVJU9
FDMA18AVJU9	RXP18AVJU9
FDMA24AVJU9	RXP24AVJU9

2. Functions

Category	Functions	FDMA Series
Basic Function	Inverter (with inverter power control)	●
	Operation limit	Refer to page 159
	PAM control	●
	Standby electricity saving	—
Compressor	Swing compressor	●
	Reluctance DC motor	●
Comfort Control	Auto fan speed	●
	Switchable fan speed	3 steps
	Indoor unit quiet operation	—
	2 selectable temperature sensors	●
	Hot-start function	●
	QUIET OUTDOOR UNIT operation	—
	INTELLIGENT EYE operation (auto energy saving)	—
	Quick warming function	●
	Automatic defrosting	●
Operation	Automatic cooling/heating change-over	●
	Program dry operation	●
	Fan only	●
Lifestyle Convenience	POWERFUL operation (inverter)	—
	ECONO operation	—
	Indoor unit **ON/OFF** switch	—
	Signal receiving sign	—
	Remote controller with back light	●
Health and Cleanliness	Titanium apatite deodorizing filter	—
	Mold proof air filter	—
	Filter cleaning indicator	●
	Silver ion anti-bacterial drain pan	●
Timer	WEEKLY TIMER operation	—
	Schedule timer	●
	Setpoint auto reset	—
	Setpoint range set	●
	24-hour ON/OFF TIMER	—
	72-hour ON/OFF TIMER	—
	Off timer (turns unit off after set time)	—
	NIGHT SET mode	—
Worry Free (Reliability & Durability)	Auto-restart (after power failure)	●
	Self-diagnosis (Remote controller, LED)	●
	Anti-corrosion treatment of outdoor heat exchanger	●
Flexibility	Multi-split/split type compatible indoor unit	●
	Chargeless	49.2 ft. (15 m)
	Either side drain (left or right)	—
	Drain pump	●
	Low temperature cooling operation (14°F) (–10°C)	●
	Low temperature cooling operation (–4°F) (–20°C) Requires wind baffle and field settings	●
	°F/°C changeover R/C temperature display (factory setting: °F)	●
Remote Control	Remote control adaptor (normal open pulse contact)	—
	Remote control adaptor (normal open contact)	—
	DIII-NET compatible (adaptor)	—
	Wireless LAN connection	—

Category	Functions	FDMA Series
Remote Controller	Wireless	—
	Wired	Option

● : Available
— : Not available

Part 2 Specifications

1. Specifications 17

1. Specifications

Model	Indoor Unit		FDMA09AVJU9		FDMA12AVJU9	
	Outdoor Unit		RXP09AVJU9		RXP12AVJU9	
			Cooling	Heating	Cooling	Heating
Power Supply			1 ϕ, 208 - 230 V, 60 Hz		1 ϕ, 208 - 230 V, 60 Hz	
Capacity Rated (Min. - Max.)		Btu/h	9,000 (4,400 ~ 9,400)	10,900 (4,400 ~ 12,800)	10,800 (4,400 ~ 12,400)	12,500 (4,400 ~ 17,000)
Running Current (Rated)		A	4.00 - 3.62	5.22 - 4.72	5.30 - 4.79	5.95 - 5.38
Power Consumption (Rated)		W	811 - 811	1,065 - 1,065	1,080 - 1,080	1,221 - 1,221
Power Factor (Rated)		%	97.5 - 97.3	98.1 - 98.2	98.0 - 98.1	98.7 - 98.6
SEER2			16.0	—	16.0	—
HSPF2			—	9.0	—	9.0
EER2 (Rated)		Btu/W·h	11.1	—	10.0	—
COP2 (Rated)		W/W	—	3.0	—	3.0
Piping Connections	Liquid	in. (mm)	ϕ1/4 (6.4)		ϕ1/4 (6.4)	
	Gas	in. (mm)	ϕ3/8 (9.5)		ϕ3/8 (9.5)	
	Drain	in. (mm)	I.D. ϕ1 (25) / O.D. ϕ1-1/4 (32)		I.D. ϕ1 (25) / O.D. ϕ1-1/4 (32)	
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Max. Interunit Piping Length		ft (m)	65-5/8 (20)		65-5/8 (20)	
Max. Interunit Height Difference		ft (m)	49-1/4 (15)		49-1/4 (15)	
Chargeless		ft (m)	49-1/4 (15)		49-1/4 (15)	
Amount of Additional Charge of Refrigerant		oz/ft (g/m)	0.22 (20)		0.22 (20)	
Indoor Unit			**FDMA09AVJU9**		**FDMA12AVJU9**	
Heat Exchanger	Rows × Stages, Fin per Inch		3 × 26, 18		3 × 26, 18	
	Fin Spec / Tube		Multi Slit Fin / ϕ5 Hi-XA Tube		Multi Slit Fin / ϕ5 Hi-XA Tube	
Airflow Rate	H / M / L	cfm	401 / 338 / 279	401 / 338 / 279	440 / 367 / 299	440 / 367 / 299
		m^3/min	11.4 / 9.6 / 7.9	11.35 / 9.6 / 7.9	12.5 / 10.4 / 8.5	12.45 / 10.4 / 8.5
Fan Motor	H / M / L	rpm	1,128 / 956 / 784	1,128 / 956 / 784	1,179 / 992 / 805	1,179 / 992 / 805
	Drive input	A	0.52		0.61	
Fan	Type		Sirocco Fan		Sirocco Fan	
External Static Pressure		inH_2O	Standard 0.20 (0.60 - 0.12)		Standard 0.20 (0.60 - 0.12)	
		Pa	Standard 50 (150 - 30)		Standard 50 (150 - 30)	
Running Current (Rated)		A	0.53 - 0.48	0.53 - 0.48	0.56 - 0.51	0.56 - 0.51
Power Consumption (Rated)		W	96 - 96	96 - 96	108 - 108	108 - 108
Power Factor (Rated)		%	86.9 - 87.0	86.9 - 87.0	92.6 - 91.2	92.6 - 91.2
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	9-5/8 × 27-9/16 × 31-1/2 (245 × 700 × 800)		9-5/8 × 27-9/16 × 31-1/2 (245 × 700 × 800)	
Packaged Dimensions (H × W × D)		in. (mm)	11-9/16 × 35-3/8 × 34-7/8 (293 × 899 × 886)		11-9/16 × 35-3/8 × 34-7/8 (293 × 899 × 886)	
Weight (Mass)		lbs (kg)	64 (29)		64 (29)	
Gross Weight (Gross Mass)		lbs (kg)	71 (32)		71 (32)	
Sound Pressure Level		dB(A)	32	32	33	33
Remote Controller (Option)		Wired	BRC1NRV71		BRC1NRV71	
		Wireless	—		—	
Outdoor Unit			**RXP09AVJU9**		**RXP12AVJU9**	
Casing Color			Ivory White		Ivory White	
Heat Exchanger	Fin Spec / Tube		Waffle Fin (PE) / ϕ7 Hi-XSL Tube		Waffle Fin (PE) / ϕ7 Hi-XSL Tube	
Fan Motor	Drive input	A	9.00		11.40	
Compressor	Type		Hermetically Sealed Swing Type		Hermetically Sealed Swing Type	
	Model		2Y147BKBX1A		2Y147BKBX1A	
Refrigerant Oil	Type		FW68DA		FW68DA	
	Charge	oz (L)	21.98 (0.65)		21.98 (0.65)	
Refrigerant	Type		R-32		R-32	
	Charge	lbs (kg)	1.74 (0.79)		1.74 (0.79)	
Airflow Rate		cfm (m^3/min)	1,126 (31.9)	1,126 (31.9)	1,126 (31.9)	1,126 (31.9)
Fan	Type		Propeller		Propeller	
Running Current (Rated)		A	3.47 - 3.14	4.69 - 4.24	4.74 - 4.28	5.39 - 4.87
Power Consumption (Rated)		W	715 - 715	969 - 969	972 - 972	1,113 - 1,113
Power Factor (Rated)		%	99.1 - 99.0	99.3 - 99.4	98.6 - 98.7	99.3 - 99.4
Dimensions (H × W × D)		in. (mm)	21-15/16 × 26-9/16 × 11-3/16 (557 × 675 × 284)		21-15/16 × 26-9/16 × 11-3/16 (557 × 675 × 284)	
Packaged Dimensions (H × W × D)		in. (mm)	24-7/16 × 31-1/4 × 14-1/8 (620 × 794 × 359)		24-7/16 × 31-1/4 × 14-1/8 (620 × 794 × 359)	
Weight (Mass)		lbs (kg)	72 (33)		72 (33)	
Gross Weight (Gross Mass)		lbs (kg)	77 (35)		77 (35)	
Sound Pressure Level		dB(A)	50	52	50	52
Conditions Based on	Indoor		80.0°FDB (26.7°CDB) / 67.0°FWB (19.4°CWB)	70.0°FDB (21.1°CDB) / 60.0°FWB (15.6°CWB)	80.0°FDB (26.7°CDB) / 67.0°FWB (19.4°CWB)	70.0°FDB (21.1°CDB) / 60.0°FWB (15.6°CWB)
	Outdoor		95.0°FDB (35.0°CDB) / 75.0°FWB (24.0°CWB)	47.0°FDB (8.3°CDB) / 43.0°FWB (6.1°CWB)	95.0°FDB (35.0°CDB) / 75.0°FWB (24.0°CWB)	47.0°FDB (8.3°CDB) / 43.0°FWB (6.1°CWB)
	Piping Length		25 ft		25 ft	
Drawing No.			3D159367		3D159367	
Note(s)			SL: The quiet fan level of the airflow rate setting. External static pressure is changeable in 13 stages by remote controller. Air filter is not standard accessory, but please mount it in the duct system of the suction side. Select its dust collection efficiency (gravity method) 50% or more.			

Conversion Formulae
kcal/h = kW × 860 Btu/h = kW × 3412 cfm = m^3/min × 35.3

Model	Indoor Unit		FDMA15AVJU9		FDMA18AVJU9	
	Outdoor Unit		RXP15AVJU9		RXP18AVJU9	
			Cooling	Heating	Cooling	Heating
Power Supply			1 ϕ, 208 - 230 V, 60 Hz		1 ϕ, 208 - 230 V, 60 Hz	
Capacity Rated (Min. - Max.)		Btu/h	14,400 (9,000 ~ 15,700)	18,000 (9,000 ~ 18,500)	17,600 (9,000 ~ 19,600)	21,600 (9,000 ~ 25,000)
Running Current (Rated)		A	6.36 - 5.75	9.03 - 8.17	7.83 - 7.08	10.62 - 9.6
Power Consumption (Rated)		W	1,220 - 1,220	1,758 - 1,758	1,517 - 1,517	2,110 - 2,110
Power Factor (Rated)		%	92.2 - 92.3	93.6 - 93.6	93.1 - 93.2	95.5 - 95.6
SEER2			18.0	—	18.0	—
HSPF2			—	9.2	—	9.2
EER2 (Rated)		Btu/W·h	11.8	—	11.6	—
COP2 (Rated)		W/W	—	3.0	—	3.0
Piping Connections	Liquid	in. (mm)	ϕ1/4 (6.4)		ϕ1/4 (6.4)	
	Gas	in. (mm)	ϕ1/2 (12.7)		ϕ1/2 (12.7)	
	Drain	in. (mm)	I.D. ϕ1 (25) / O.D. ϕ1-1/4 (32)		I.D. ϕ1 (25) / O.D. ϕ1-1/4 (32)	
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Max. Interunit Piping Length		ft (m)	98-1/2 (30)		98-1/2 (30)	
Max. Interunit Height Difference		ft (m)	65-5/8 (20)		65-5/8 (20)	
Chargeless		ft (m)	49-1/4 (15)		49-1/4 (15)	
Amount of Additional Charge of Refrigerant		oz/ft (g/m)	0.22 (20)		0.22 (20)	
Indoor Unit			**FDMA15AVJU9**		**FDMA18AVJU9**	
Heat Exchanger	Rows × Stages, Fin per Inch		3 × 26, 18		3 × 26, 18	
	Fin Spec / Tube		Multi Slit Fin / ϕ5 Hi-XA Tube		Multi Slit Fin / ϕ5 Hi-XA Tube	
Airflow Rate	H / M / L	cfm	471 / 382 / 284	471 / 382 / 284	609 / 498 / 373	609 / 498 / 373
		m^3/min	13.4 / 10.8 / 8.0	13.4 / 10.8 / 8.0	17.3 / 14.1 / 10.6	17.25 / 14.1 / 10.6
Fan Motor	H / M / L	rpm	1,019 / 862 / 704	1,019 / 862 / 704	1,100 / 936 / 762	1,110 / 936 / 762
	Drive input	A	0.87		1.12	
Fan	Type		Sirocco Fan		Sirocco Fan	
External Static Pressure		inH_2O	Standard 0.20 (0.60 - 0.20)		Standard 0.20 (0.60 - 0.20)	
		Pa	Standard 50 (150 - 50)		Standard 50 (150 - 50)	
Running Current (Rated)		A	0.62 - 0.56	0.62 - 0.56	0.75 - 0.68	0.75 - 0.68
Power Consumption (Rated)		W	115 - 115	115 - 115	148 - 148	148 - 148
Power Factor (Rated)		%	89.1 - 89.3	89.1 - 89.3	94.6 - 94.8	94.6 - 94.8
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	9-5/8 × 39-3/8 × 31-1/2 (245 × 1,000 × 800)		9-5/8 × 39-3/8 × 31-1/2 (245 × 1,000 × 800)	
Packaged Dimensions (H × W × D)		in. (mm)	11-9/16 × 47-3/16 × 34-7/8 (293 × 1,199 × 886)		11-9/16 × 47-3/16 × 34-7/8 (293 × 1,199 × 886)	
Weight (Mass)		lbs (kg)	82 (37)		82 (37)	
Gross Weight (Gross Mass)		lbs (kg)	88 (40)		88 (40)	
Sound Pressure Level		dB(A)	34	34	35	35
Remote Controller (Option)		Wired	BRC1NRV71		BRC1NRV71	
		Wireless	—		—	
Outdoor Unit			**RXP15AVJU9**		**RXP18AVJU9**	
Casing Color			Ivory White		Ivory White	
Heat Exchanger	Fin Spec / Tube		Waffle Fin (PE) / ϕ7 Hi-XSL Tube		Waffle Fin (PE) / ϕ7 Hi-XSL Tube	
Fan Motor	Drive input	A	12.70		17.40	
Compressor	Type		Hermetically Sealed Swing Type		Hermetically Sealed Swing Type	
	Model		2Y260BPAX1A		2Y260BPAX1A	
Refrigerant Oil	Type		FW68DA		FW68DA	
	Charge	oz (L)	30.43 (0.90)		30.43 (0.90)	
Refrigerant	Type		R-32		R-32	
	Charge	lbs (kg)	3.04 (1.38)		3.04 (1.38)	
Airflow Rate		cfm (m^3/min)	2,383 (67.5)	2,327 (65.9)	2,383 (67.5)	2,327 (65.9)
Fan	Type		Propeller		Propeller	
Running Current (Rated)		A	5.74 - 5.19	8.41 - 7.61	7.08 - 6.40	9.87 - 8.92
Power Consumption (Rated)		W	1,105 - 1,105	1,643 - 1,643	1,369 - 1,369	1,962 - 1,962
Power Factor (Rated)		%	92.6 - 92.6	93.9 - 93.9	93.0 - 93.0	95.6 - 95.6
Dimensions (H × W × D)		in. (mm)	29-1/2 × 34-1/4 × 12-5/8 (750 × 870 × 320)		29-1/2 × 34-1/4 × 12-5/8 (750 × 870 × 320)	
Packaged Dimensions (H × W × D)		in. (mm)	32-1/16 × 40-5/16 × 16 (814 × 1,024 × 406)		32-1/16 × 40-5/16 × 16 (814 × 1,024 × 406)	
Weight (Mass)		lbs (kg)	127 (58)		127 (58)	
Gross Weight (Gross Mass)		lbs (kg)	135 (61)		135 (61)	
Sound Pressure Level		dB(A)	55	57	55	57
Conditions Based on	Indoor		80.0°FDB (26.7°CDB) / 67.0°FWB (19.4°CWB)	70.0°FDB (21.1°CDB) / 60.0°FWB (15.6°CWB)	80.0°FDB (26.7°CDB) / 67.0°FWB (19.4°CWB)	70.0°FDB (21.1°CDB) / 60.0°FWB (15.6°CWB)
	Outdoor		95.0°FDB (35.0°CDB) / 75.0°FWB (24.0°CWB)	47.0°FDB (8.3°CDB) / 43.0°FWB (6.1°CWB)	95.0°FDB (35.0°CDB) / 75.0°FWB (24.0°CWB)	47.0°FDB (8.3°CDB) / 43.0°FWB (6.1°CWB)
	Piping Length		25 ft		25 ft	
Drawing No.			3D159368		3D159368	
Note(s)			SL: The quiet fan level of the airflow rate setting. External static pressure is changeable in 13 stages by remote controller. Air filter is not standard accessory, but please mount it in the duct system of the suction side. Select its dust collection efficiency (gravity method) 50% or more.			

Conversion Formulae
kcal/h = kW × 860
Btu/h = kW × 3412
cfm = m^3/min × 35.3

Model	Indoor Unit		FDMA24AVJU9	
	Outdoor Unit		RXP24AVJU9	
			Cooling	Heating
Power Supply			1 ϕ, 208 - 230 V, 60 Hz	
Capacity Rated (Min. - Max.)		Btu/h	21,800 (9,000 ~ 23,000)	24,000 (9,000 ~ 27,600)
Running Current (Rated)		A	10.32 - 9.33	11.39 - 10.30
Power Consumption (Rated)		W	2,117 - 2,117	2,345 - 2,345
Power Factor (Rated)		%	98.6 - 98.7	99.0 - 99.0
SEER2			18.3	—
HSPF2			—	9.2
EER2 (Rated)		Btu/W·h	10.3	—
COP2 (Rated)		W/W	—	3.0
Piping Connections	Liquid	in. (mm)	ϕ1/4 (6.4)	
	Gas	in. (mm)	ϕ5/8 (15.9)	
	Drain	in. (mm)	I.D. ϕ1 (25) / O.D. ϕ1-1/4 (32)	
Heat Insulation			Both Liquid and Gas Pipes	
Max. Interunit Piping Length		ft (m)	98-1/2 (30)	
Max. Interunit Height Difference		ft (m)	65-5/8 (20)	
Chargeless		ft (m)	49-1/4 (15)	
Amount of Additional Charge of Refrigerant		oz/ft (g/m)	0.22 (20)	
Indoor Unit			**FDMA24AVJU9**	
Heat Exchanger	Rows × Stages, Fin per Inch		3 × 26, 18	
	Fin Spec / Tube		Multi Slit Fin / ϕ5 Hi-XA Tube	
Airflow Rate	H / M / L	cfm	666 / 553 / 426	666 / 553 / 426
		m^3/min	18.9 / 15.7 / 12.1	18.85 / 15.7 / 12.1
Fan Motor	H / M / L	rpm	1,153 / 980 / 807	1,153 / 980 / 807
	Drive input	A	1.24	
Fan	Type		Sirocco Fan	
External Static Pressure		inH_2O	Standard 0.20 (0.60 - 0.20)	
		Pa	Standard 50 (150 - 50)	
Running Current (Rated)		A	0.81 - 0.73	0.81 - 0.73
Power Consumption (Rated)		W	164 - 164	164 - 164
Power Factor (Rated)		%	97.5 - 97.2	97.5 - 97.2
Temperature Control			Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	9-5/8 × 39-3/8 × 31-1/2 (245 × 1,000 × 800)	
Packaged Dimensions (H × W × D)		in. (mm)	11-9/16 × 47-3/16 × 34-7/8 (293 × 1,199 × 886)	
Weight (Mass)		lbs (kg)	82 (37)	
Gross Weight (Gross Mass)		lbs (kg)	88 (40)	
Sound Pressure Level		dB(A)	40	40
Remote Controller (Option)		Wired	BRC1NRV71	
		Wireless	—	
Outdoor Unit			**RXP24AVJU9**	
Casing Color			Ivory White	
Heat Exchanger	Fin Spec / Tube		Waffle Fin (PE) / ϕ7 Hi-XSL Tube	
Fan Motor	Drive input	A	17.60	
Compressor	Type		Hermetically Sealed Swing Type	
	Model		2Y260BPAX1A	
Refrigerant Oil	Type		FW68DA	
	Charge	oz (L)	30.43 (0.90)	
Refrigerant	Type		R-32	
	Charge	lbs (kg)	3.04 (1.38)	
Airflow Rate		cfm (m^3/min)	2,383 (67.5)	2,327 (65.9)
Fan	Type		Propeller	
Running Current (Rated)		A	9.51 - 8.60	10.58 - 9.57
Power Consumption (Rated)		W	1,953 - 1,953	2,181 - 2,181
Power Factor (Rated)		%	98.7 - 98.7	99.1 - 99.1
Dimensions (H × W × D)		in. (mm)	29-1/2 × 34-1/4 × 12-5/8 (750 × 870 × 320)	
Packaged Dimensions (H × W × D)		in. (mm)	32-1/16 × 40-5/16 × 16 (814 × 1,024 × 406)	
Weight (Mass)		lbs (kg)	127 (58)	
Gross Weight (Gross Mass)		lbs (kg)	135 (61)	
Sound Pressure Level		dB(A)	55	57
Conditions Based on	Indoor		80.0°FDB (26.7°CDB) / 67.0°FWB (19.4°CWB)	70.0°FDB (21.1°CDB) / 60.0°FWB (15.6°CWB)
	Outdoor		95.0°FDB (35.0°CDB) / 75.0°FWB (24.0°CWB)	47.0°FDB (8.3°CDB) / 43.0°FWB (6.1°CWB)
	Piping Length		25 ft	
Drawing No.			3D159368	
Note(s)			SL: The quiet fan level of the airflow rate setting. External static pressure is changeable in 13 stages by remote controller. Air filter is not standard accessory, but please mount it in the duct system of the suction side. Select its dust collection efficiency (gravity method) 50% or more.	

Conversion Formulae
kcal/h = kW × 860
Btu/h = kW × 3412
cfm = m^3/min × 35.3

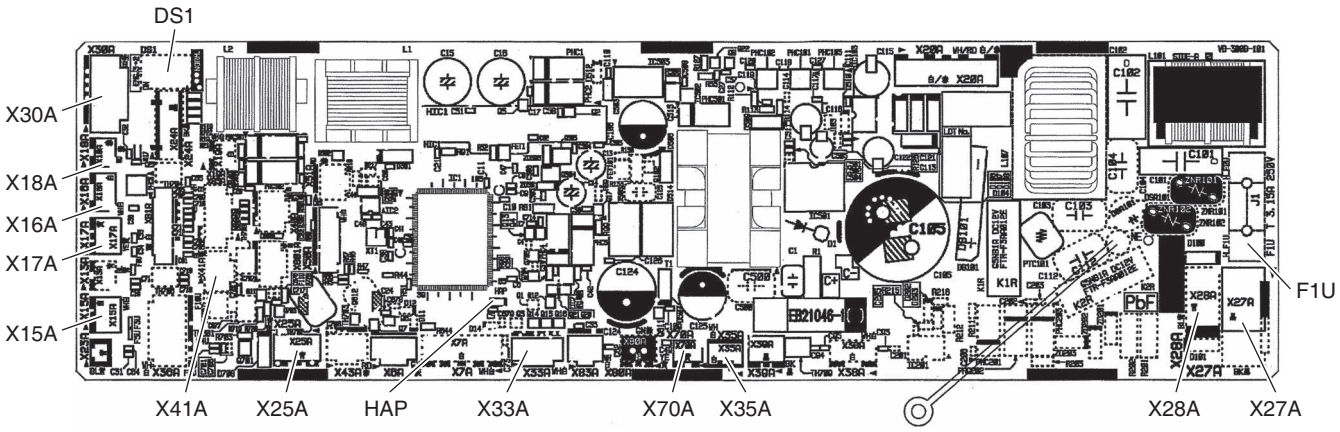
Part 3
Printed Circuit Board Connector Wiring Diagram

1. Indoor Unit.....21
2. Outdoor Unit.....23
   2.1 RXP09/12AVJU9.....23
   2.2 RXP15/18/24AVJU9.....24

1. Indoor Unit

Control PCB (A1P)

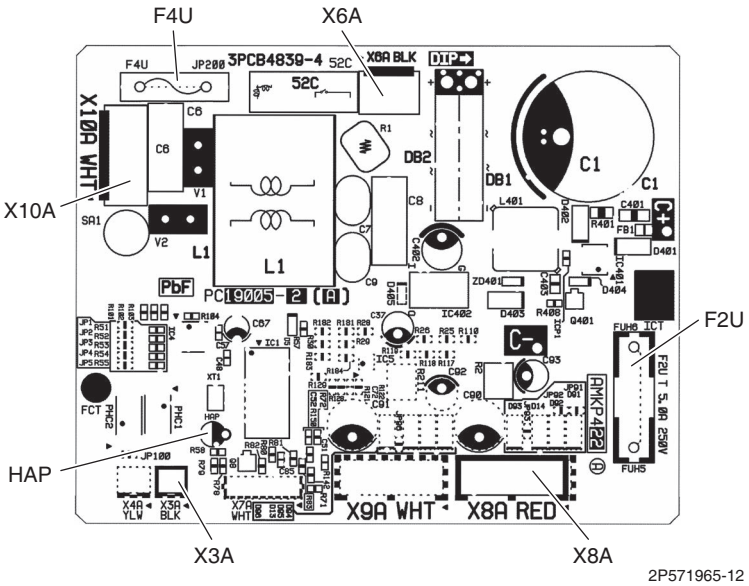
1)	X15A	Connector for float switch
2)	X16A	Connector for room temperature thermistor (suction air thermistor) (R1T)
3)	X17A, X18A	Connector for indoor heat exchanger thermistor (R2T, R3T)
4)	X25A	Connector for drain pump motor
5)	X27A	Connector for terminal block (for power supply)
6)	X28A	Connector for power supply wiring (option)
7)	X30A	Connector for terminal block (for wired remote controller)
8)	X33A	Connector for wiring (option)
9)	X35A	Connector for wiring adaptor (option)
10)	X41A	Connector for refrigerant sensor PCB (A3P)
11)	X70A	Connector for indoor fan PCB (A2P)
12)	F1U	Fuse (3.15 A, 250 V)
13)	HAP	LED for service monitor (green)
14)	DS1	DIP switch for emergency



2P801582-1

Indoor Fan PCB (A2P)

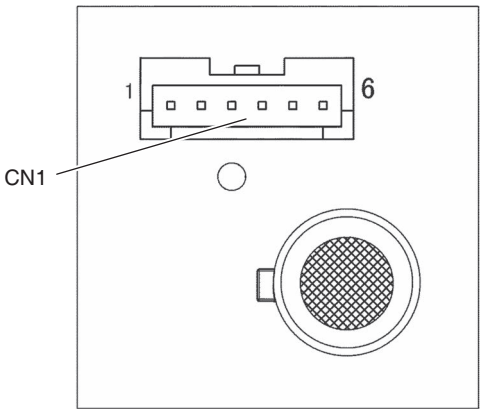
1)	X3A	Connector for control PCB (A1P)
2)	X6A	Connector for reactor
3)	X8A	Connector for DC fan motor
4)	X10A	Connector for terminal block (for power supply)
5)	F2U	Fuse (5 A, 250 V)
6)	F4U	Fuse (6.3 A, 250 V)
7)	HAP	LED for service monitor (green)



2P571965-12
2P571965-13

Refrigerant Sensor PCB (A3P)

1)	CN1	Connector for control PCB (A1P)



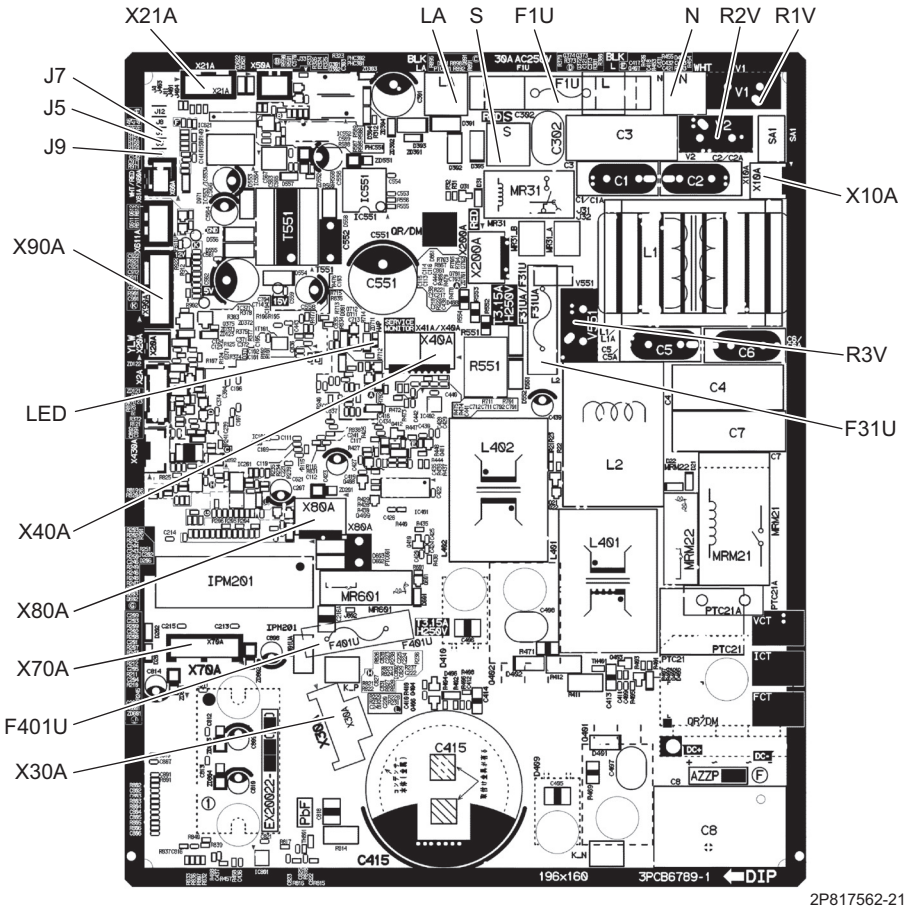
3S486006-3

2. Outdoor Unit

2.1 RXP09/12AVJU9

Main PCB (A1P)

1)	LA, N, S	Faston tab for terminal strip
2)	X10A	Connector for ground
3)	X21A	Connector for electronic expansion valve coil
4)	X30A	Connector for compressor
5)	X40A	Connector for overload protector and high pressure switch
6)	X70A	Connector for DC fan motor
7)	X80A	Connector for four way valve coil
8)	X90A	Connector for thermistors (outdoor temperature, outdoor heat exchanger, discharge pipe)
9)	F1U	Fuse (30 A, 250 V)
10)	F31U, F401U	Fuse (3.15 A, 250 V)
11)	J5	Jumper for warmer airflow setting Refer to page 150 for details.
12)	J7	Jumper for facility setting Refer to page 149 for details.
13)	J9	Jumper for drain pan heater Refer to page 151 for details.
14)	LED	LED for service monitor (green)
15)	R1V (V1), R2V (V2), R3V (V551)	Varistor



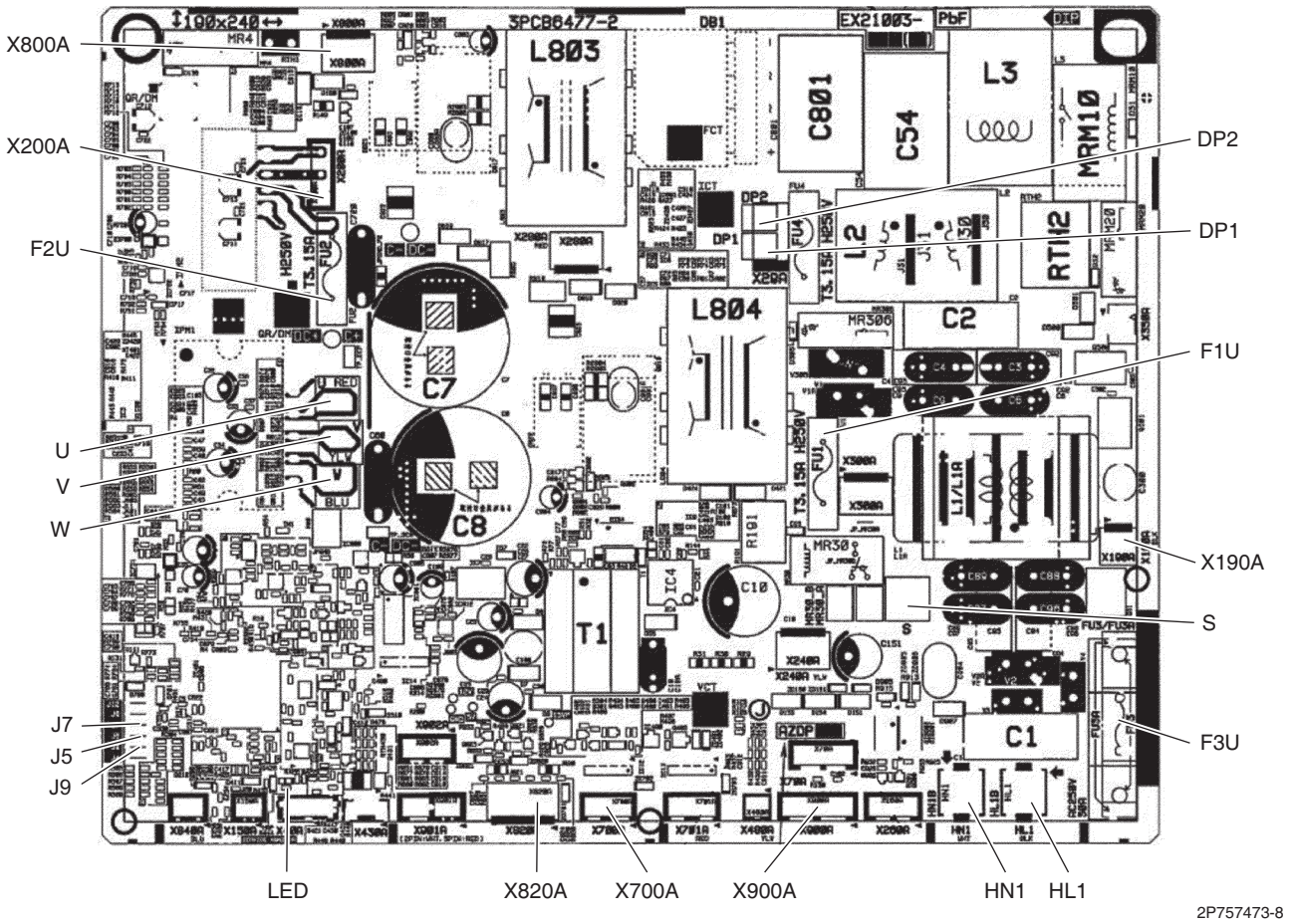
2P817562-21

Note The symbols in the parenthesis are the names written on the PCB.

2.2 RXP15/18/24AVJU9

Main PCB (A1P)

1)	X190A	Connector for ground wire
2)	X200A	Connector for DC fan motor
3)	X700A	Connector for electric expansion valve coil
4)	X800A	Connector for four way valve coil
5)	X820A	Connector for overload protector and high pressure switch
6)	X900A	Connector for thermistors (outdoor temperature, outdoor heat exchanger, discharge pipe)
7)	S, HL1, HN1	Faston tab for terminal strip
8)	U, V, W	Faston tab for compressor
9)	DP1, DP2	Faston tab for drain pan heater
10)	F1U (FU1), F2U (FU2)	Fuse (3.15 A, 250 V)
11)	F3U (FU3)	Fuse (30 A, 250 V)
12)	J5	Jumper for warmer airflow setting Refer to page 150 for details.
13)	J7	Jumper for facility setting Refer to page 149 for details.
14)	J9	Jumper for drain pan heater Refer to page 151 for details.
15)	LED	LED for service monitor (green)



2P757473-8

Note The symbols in the parenthesis are the names written on the PCB.

Part 4
Functions and Control

1. Common Functions 26
   1.1 Temperature Control 26
   1.2 Frequency Principle 26
   1.3 Fan Speed Control for Indoor Unit 28
   1.4 Program Dry Operation 28
   1.5 Automatic Cooling/Heating Change-over 29
   1.6 Clock and Calendar Setting (With BRC1NRV71) 30
   1.7 Schedule Timer Operation (With BRC1NRV71) 32
   1.8 Drain Pump Control 36
   1.9 Hot Start Control (In Heating Operation Only) 38
   1.10 Other Functions 39
2. Thermistor Functions 40
3. Control Specification 41
   3.1 Mode Hierarchy 41
   3.2 Frequency Control 41
   3.3 Controls at Mode Changing/Start-up 43
   3.4 Discharge Pipe Temperature Control 45
   3.5 Input Current Control 46
   3.6 High Pressure Protection Control 47
   3.7 Freeze-up Protection Control 47
   3.8 Heating Peak-cut Control 48
   3.9 Outdoor Fan Control 49
   3.10 Liquid Compression Protection Function 49
   3.11 Defrost Control 50
   3.12 Electronic Expansion Valve Control 53
   3.13 Malfunctions 56

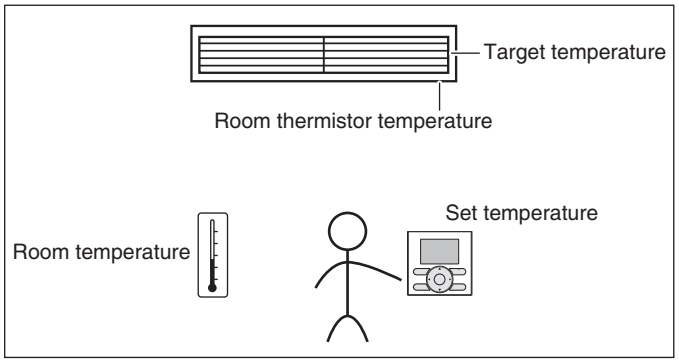
1. Common Functions

1.1 Temperature Control

Definitions of Temperatures

The definitions of temperatures are classified as following.

- Room temperature: temperature of lower part of the room
- Set temperature: temperature set by remote controller
- Room thermistor temperature: temperature detected by room temperature thermistor
- Target temperature: temperature determined by microcomputer



R4004275

Temperature Control

The temperature of the room is detected by the room temperature thermistor. However, there is a difference between the temperature detected by room temperature thermistor and the temperature of lower part of the room, depending on the type of the indoor unit or installation condition. In practice, the temperature control is done by the target temperature appropriately adjusted for the indoor unit and the temperature detected by room temperature thermistor.

1.2 Frequency Principle

Control Parameters

The frequency of the compressor is controlled by the following 2 parameters:

- The load condition of the operating indoor unit
- The difference between the room thermistor temperature and the target temperature

The target frequency is adapted by additional parameters in the following cases:

- Frequency restrictions
- Initial settings
- Forced cooling operation

Inverter Principle

To regulate the capacity, a frequency control is needed. The inverter makes it possible to control the rotation speed of the compressor. The followings explain the inverter principle:

Phase 1

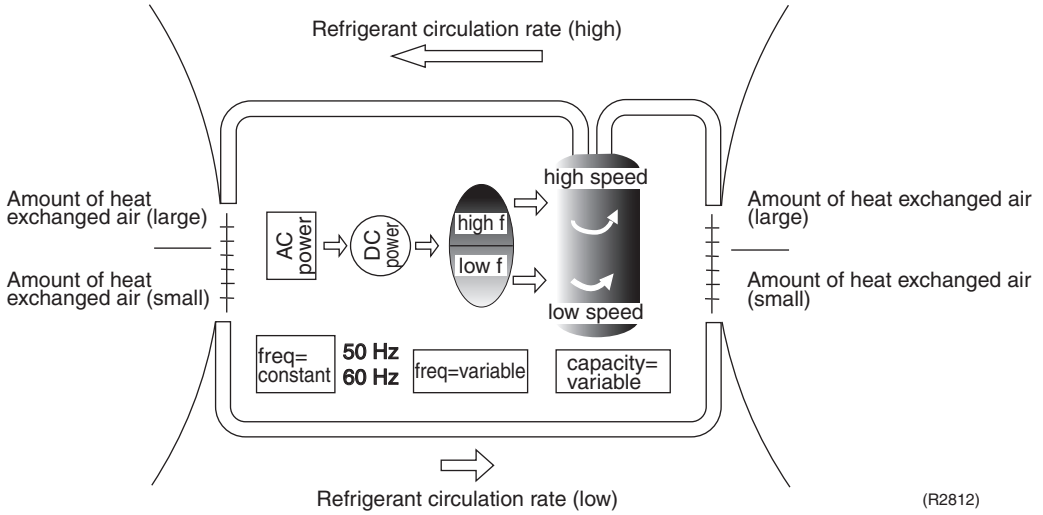
The supplied AC power source is converted into the DC power source for the present.

Phase 2

The DC power source is reconverted into the three phase AC power source with variable frequency.

- When the frequency increases, the rotation speed of the compressor increases resulting in an increase of refrigerant circulation. This leads to a larger amount of heat exchange per unit.
- When the frequency decreases, the rotation speed of the compressor decreases resulting in a decrease of refrigerant circulation. This leads to a smaller amount of heat exchange per unit.

The following drawing shows a schematic view of the inverter principle:



Inverter Features

The inverter provides the following features:

- The regulating capacity can be changed according to the changes in the outdoor temperature and cooling/heating load.
- Quick heating and quick cooling
  The rotation speed of the compressor is increased when starting the heating (cooling). This enables to reach the set temperature quickly.
- Even during extreme cold weather, high capacity is achieved. It is maintained even when the outdoor temperature is 2°C (35.6°F).
- Comfortable air conditioning
  A fine adjustment is integrated to keep the room temperature constant.
- Energy saving heating and cooling
  Once the set temperature is reached, the energy saving operation enables to maintain the room temperature at low power.

Frequency Limits

The following functions regulate maximum frequency:

Low frequency

- Four way valve operation compensation. Refer to page 43.

High frequency

- Compressor protection function. Refer to page 44.
- Discharge pipe temperature control. Refer to page 45.
- Input current control. Refer to page 46.
- Freeze-up protection control. Refer to page 47.
- Heating peak-cut control. Refer to page 48.
- Defrost control. Refer to page 50.

Forced Cooling Operation

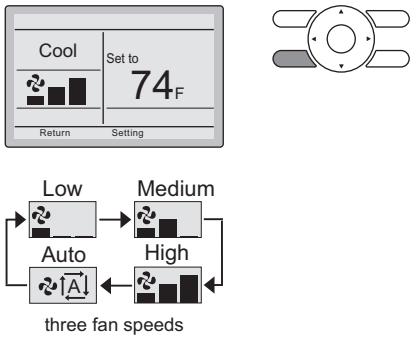
Refer to page 140 for details.

1.3 Fan Speed Control for Indoor Unit

■ **With Wired Remote Controller (BRC1NRV71)**

To change the fan speed, press **Fan Speed** button and select the fan speed from Low/Medium/High/Auto.

- Auto cannot be selected if the indoor unit does not have Auto Fan speed function.
- The system may change the fan speed automatically for equipment protection purposes.
- The system may turn off the fan when the room temperature is satisfied.
- It is normal for delays to occur when changing the fan speed.
- If the Auto is selected for the fan speed, the fan speed varies automatically based on the difference between set temperature and room temperature.



R4003380

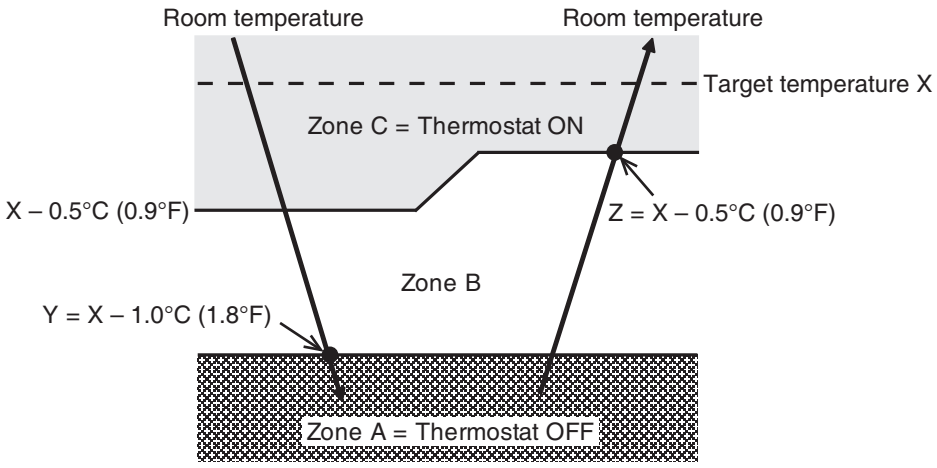
1.4 Program Dry Operation

Outline

Program dry operation removes humidity while preventing the room temperature from lowering. Since the microcomputer controls both the temperature and airflow rate, the temperature adjustment and **FAN** setting buttons are inoperable.

Details

The microcomputer automatically sets the temperature and airflow rate. The difference between the room thermistor temperature at start-up and the target temperature is divided into two zones. Then, the unit operates in an appropriate capacity for each zone to maintain the temperature and humidity at a comfortable level.



R4004276

Room thermistor temperature at start-up	Target temperature X	Thermostat OFF point Y	Thermostat ON point Z
16.5°C or more (61.7°F or more)	Room thermistor temperature at start-up	X – 1.0°C (X – 1.8°F)	X – 0.5°C (X – 0.9°F)
16°C or less (60.8°F or less)	16°C (60.8°F)	X – 2.0°C (X – 3.6°F)	X – 1.0°C = 15°C (X – 1.8°F = 59°F)

1.5 Automatic Cooling/Heating Change-over

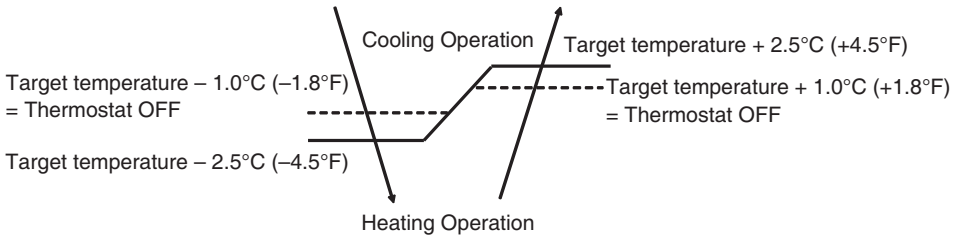
Outline

When the automatic operation is selected with the remote controller, the microcomputer automatically determines the operation mode as cooling or heating according to the room temperature and the set temperature at start-up.
The unit automatically switches the operation mode to maintain the room temperature at the set temperature.

Details

Ts: set temperature (set by remote controller)
Tt: target temperature (determined by microcomputer)
Tr: room thermistor temperature (detected by room temperature thermistor)
C: correction value

1. The set temperature (Ts) determines the target temperature (Tt).
   (Ts = 17 ~ 32°C (63 ~ 90°F))
2. The target temperature (Tt) is calculated as;
   Tt = Ts + C
   where C is the correction value.
   C = 0°C (0°F)
3. Thermostat ON/OFF point and operation mode switching point are as follows.
   (1) Heating → Cooling switching point:
   Tr ≥ Tt + 2.5°C (+ 4.5°F)
   (2) Cooling → Heating switching point:
   Tr < Tt – 2.5°C (– 4.5°F)
   (3) Thermostat ON/OFF point is the same as the ON/OFF point of cooling or heating operation.
4. During initial operation
   Tr ≥ Ts : Cooling operation
   Tr < Ts : Heating operation

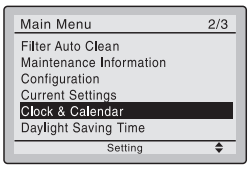


R4004277

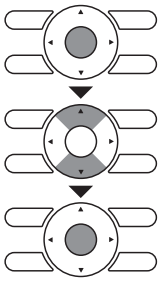
Ex: When the target temperature is 25°C (77°F)
Cooling → 24°C (75.2°F): Thermostat OFF → 22.5°C (72.5°F): Switch to heating
Heating → 26°C (78.8°F): Thermostat OFF → 27.5°C (81.5°F): Switch to cooling

1.6 Clock and Calendar Setting (With BRC1NRV71)

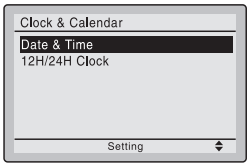
1



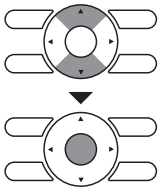
- Press **Menu/OK** button to display the main menu screen.
- Press ▼▲ buttons to select Clock & Calendar on the main menu screen.
  Press **Menu/OK** button to display the clock & calendar screen.



2



- Press ▼▲ buttons to select Date & Time on the clock & calendar screen.
  Press **Menu/OK** button to display the date & time screen.



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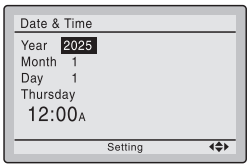
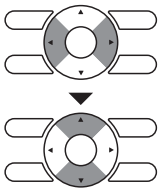
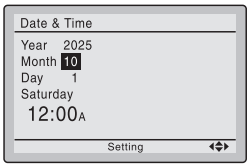


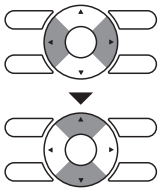
- Select **Year** with ◀▶ buttons.
  Change the year with ▼▲ buttons.
  Holding down the button causes the number to change continuously.



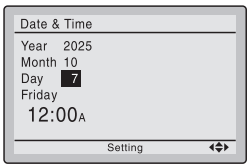
4



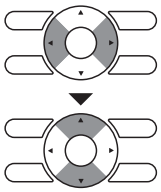
- Select **Month** with ◀▶ buttons.
  Change the month with ▼▲ buttons.
  Holding down the button causes the number to change continuously.



5



- Select **Day** with ◀▶ buttons.
  Change the day with ▼▲ buttons.
  Holding down the button causes the number to change continuously.
  Days of the week change automatically.



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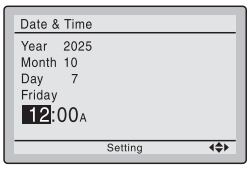
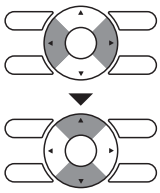
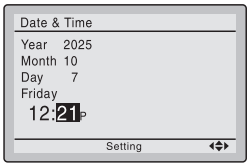
6



- Select **Hour** with ◀▶ buttons.
  Change the hour with ▼▲ buttons.
  Holding down the button causes the number to change continuously.

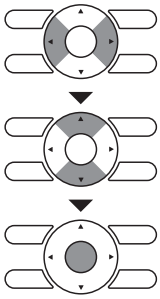


7



- Select **Minute** with ◀▶ buttons.
  Change the minute with ▼▲ buttons.
  Holding down the button causes the number to change continuously.
- Press **Menu/OK** button.
  The confirmation screen will appear.

Note:
The date can be set between January 1, 2020 and December 31, 2099.



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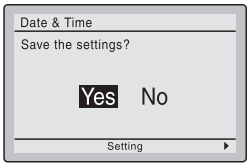
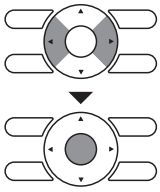


- Press ◀▶ button to select Yes on the confirmation screen.
  Press **Menu/OK** button to confirm the clock and return to the basic screen.

* When setting the schedule, the display returns to the settings screen.



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1.7 Schedule Timer Operation (With BRC1NRV71)

Outline

Day settings are selected from 4 patterns:

- 7 Days
- Weekday/Sat/Sun
- Weekday/Weekend
- Everyday

Up to 5 actions can be set for each day.

Details

Set the startup time and operation stop time.

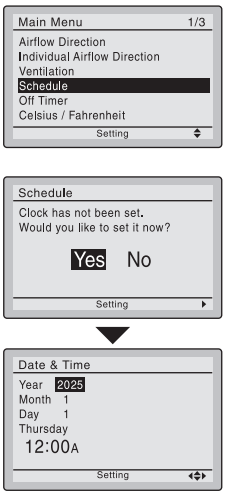
ON: Startup time, cooling and heating temperature setpoints can be configured.

OFF: Operation stop time, cooling and heating setback temperature setpoints can be configured.
(--: Indicates that the setback function is disabled for this time period.)

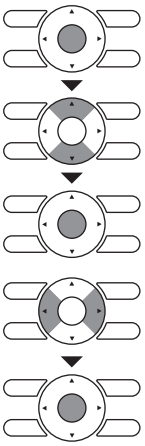
__: Indicates that the temperature setpoint and setback temperature setpoint for this time period is not specified. The last active setpoint will be utilized.

■ **Setting the schedule**

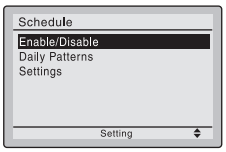
1



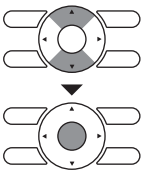
- Press **Menu/OK** button to display the main menu screen.
- Press ▼▲buttons to select Schedule. Press **Menu/OK** button to display the schedule screen.
- Before setting the schedule, the clock must be set.
- If the clock has not been set, a screen like the one on the left will appear. Press ◀▶ buttons to select Yes and press **Menu/OK** button.
- The date & time screen will appear.
- Set the current year, month, day, and time.



2



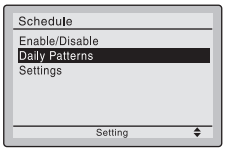
- Press ▼▲ buttons to select the desired function on the schedule screen and press **Menu/OK** button.



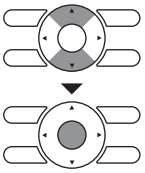
R4004250

■ Daily Patterns

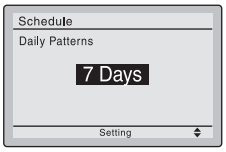
1



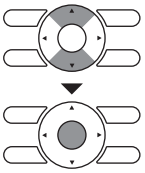
- The schedule screen will appear.
- Press ▼▲ buttons to select Daily Patterns on the schedule screen.
  The daily patterns screen will appear when **Menu/OK** button is pressed.



2



- Press ▼▲ buttons to select 7 Days, Weekday/Sat/Sun, Weekday/Weekend or Everyday on the daily patterns screen.
  The confirmation screen will appear when **Menu/OK** button is pressed.



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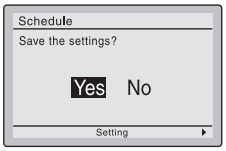
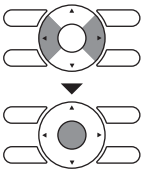


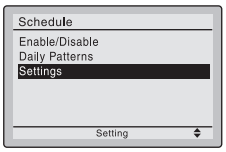
- Press ◀▶ buttons to select Yes on the confirmation screen.
  Pressing **Menu/OK** button enters the daily patterns in the schedule and takes you back to the main menu screen.



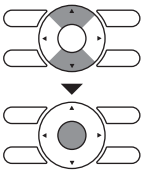
(R24074)

■ Settings

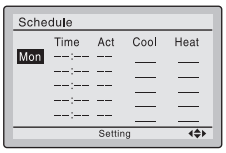
1



- The schedule screen will appear.
- Press ▼▲ buttons to select **Settings** on the schedule screen.
  The settings screen will appear when **Menu/OK** button is pressed.

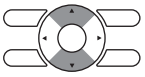


2

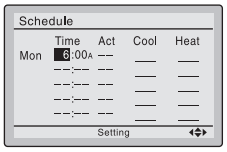


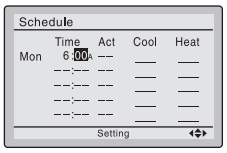
- Press ▼▲ buttons to select the day to be set.

* It cannot be selected in the case of **EVDY** .

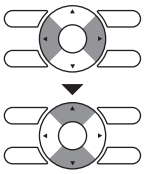


3





- Input the time for the selected day.
- Press ◀▶ buttons to move the highlighted item and press ▼▲ buttons to input the desired operation start time. Each press of ▼▲ buttons moves the numbers by 1 hour or 1 minute.



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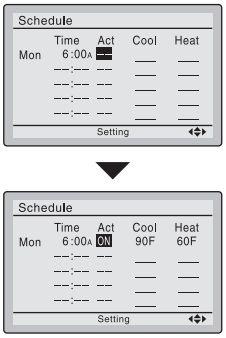
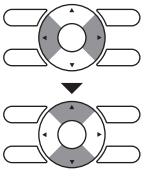
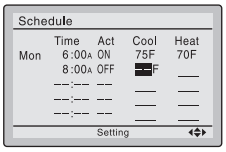
4



- Press ◀▶ buttons to move the highlighted item and press ▼▲ buttons to configure ON/OFF/-- settings.
  --, ON, or OFF changes in sequence when ▼▲ buttons are pressed.



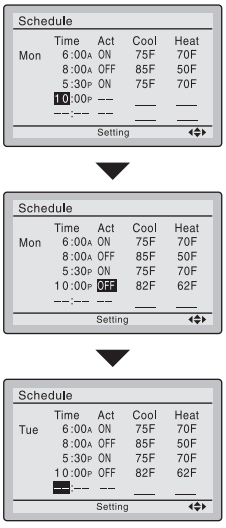
ON: The temperature setpoints can be configured.
OFF: The setback temperature setpoints can be configured.
– –: The temperature setpoints and setback temperature setpoints become disabled.



- The cooling and heating temperature setpoints for both ON and OFF (Setback) are configured.

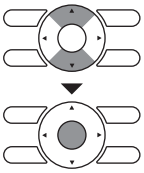
__: Indicates that the temperature setpoint and setback temperature setpoint for this time period is not specified. The last active setpoint will be utilized.
– –: Indicates that the setback function is disabled for this time period.

5

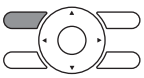


A maximum of five actions per day can be set.

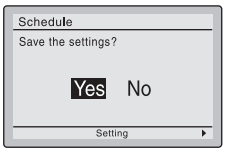
- Press **Menu/OK** button when settings for each day are completed. The confirmation screen will appear.



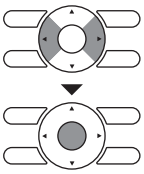
To copy the settings for the previous day, press **Mode** button so that the existing settings will be copied.
Example: The contents for Monday are copied by pressing **Mode** button after selecting Tuesday.



6



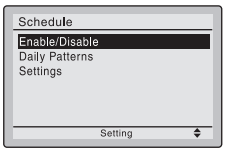
- Press ◀▶ buttons to select Yes on the confirmation screen.
  Pressing **Menu/OK** button confirms the settings for each day and takes you back to the basic screen.



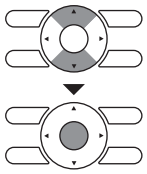
(R24075)

■ **Enabling or disabling the schedule**

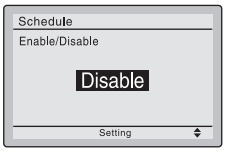
1



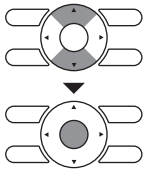
- Display the schedule screen.
- Press ▼▲ buttons to select Enable / Disable on the schedule screen.
  Press **Menu/OK** button to display the enable/disable screen.



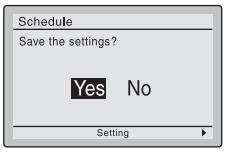
2



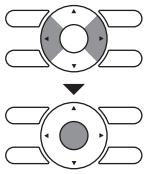
- Press ▼▲ buttons to select Enable or Disable on the enable/disable screen.
  Press **Menu/OK** button after selecting the item. The confirmation screen is displayed.



3



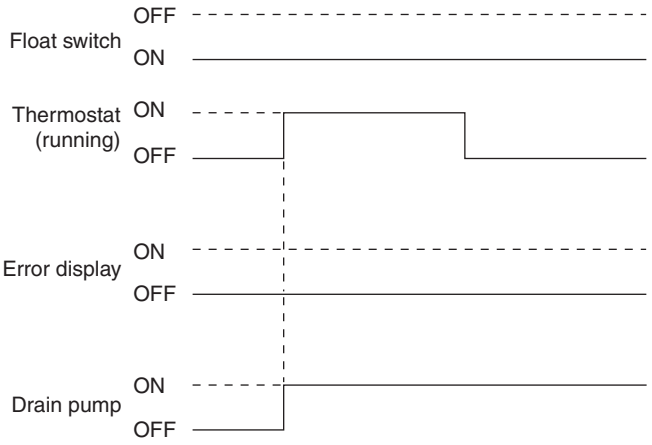
- Press ◀▶ buttons to select Yes on the confirmation screen.
  Pressing **Menu/OK** button confirms the enable/disable setting for the schedule and takes you back to the basic screen.



R4003458

1.8 Drain Pump Control

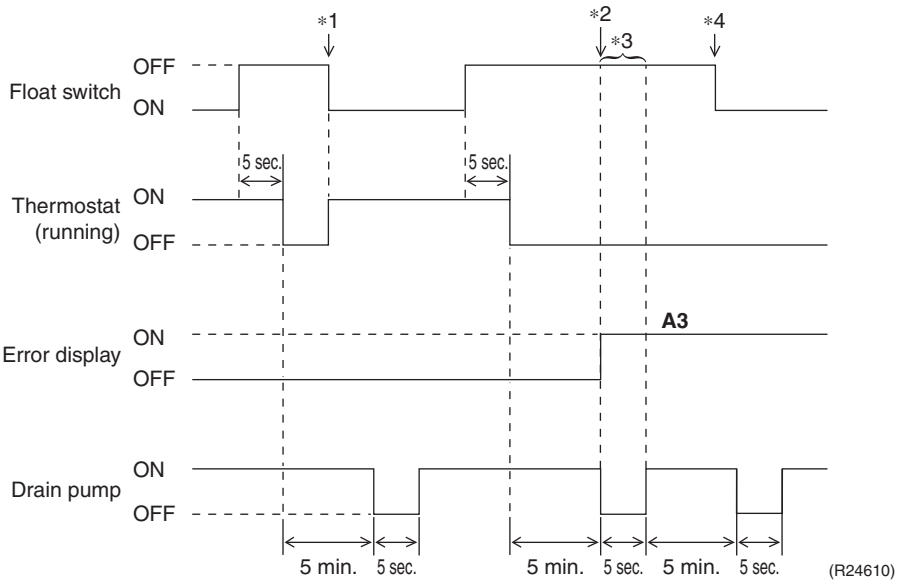
Normal Operation



(R24037)

- The float switch is ON in normal operation.
- When cooling operation starts (thermostat ON), the drain pump turns ON simultaneously.
- After the thermostat turns OFF, the drain pump continues to operate.

If Float Switch is OFF with Thermostat ON in Cooling Operation



- When the float switch stays OFF for 5 sec., the thermostat turns OFF.
- After the thermostat turns OFF, the drain pump continues to operate for another 5 minutes.

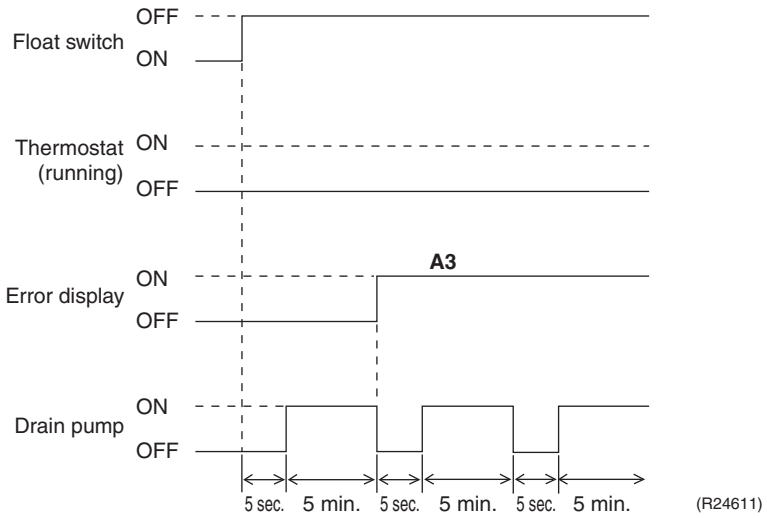
∗1. If the float switch turns ON again during the residual operation of the drain pump, cooling operation also turns on again (thermostat ON).

∗2. If the float switch remains OFF even after the residual operation of the drain pump has ended, the error code **A3** is determined.

∗3. The drain pump turns OFF once residual operation has ended, then turns ON again after 5 seconds.

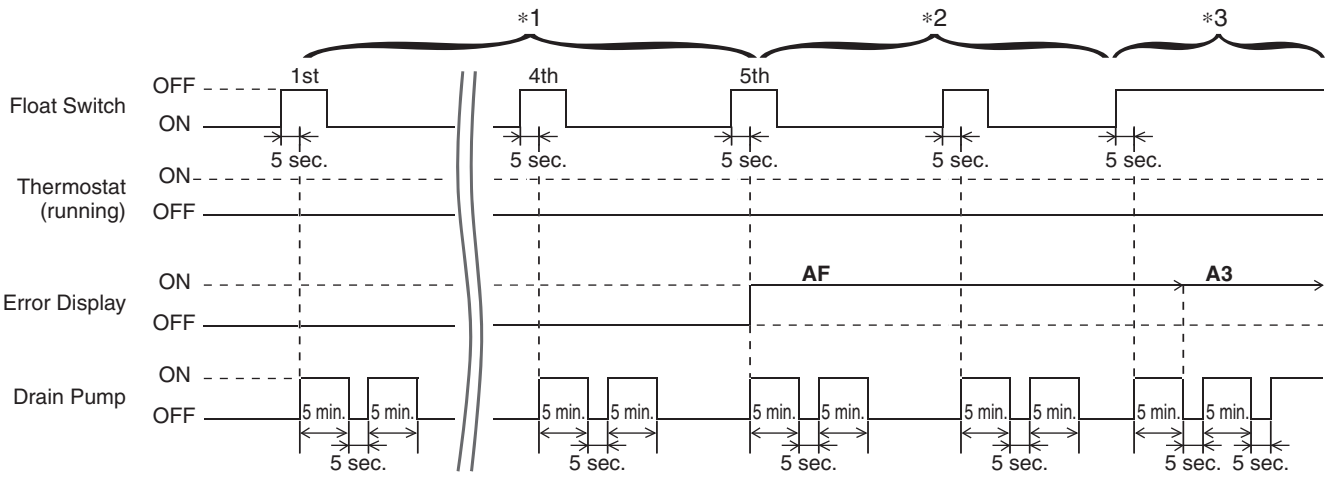
∗4. After **A3** is determined and the unit comes to an abnormal stop, the thermostat will remain OFF even if the float switch turns ON again.

If Float Switch is OFF with Thermostat OFF in Cooling Operation



- When the float switch stays OFF for 5 sec., the drain pump turns ON.
- If the float switch remains OFF even after the residual operation of the drain pump has ended, the error code **A3** is determined.
- The drain pump turns OFF once residual operation has ended, then turns ON again after 5 seconds.

If Float Switch Turns ON and OFF Continuously, or Float Switch Turns OFF While AF Displayed



(R24370)

■ When the float switch stays OFF for 5 sec., the drain pump turns ON.

∗1. If the float switch continues to turn OFF and ON 5 times consecutively, it is judged as a drain system error and the error code **AF** is determined.

∗2. The drain pump continues to turn ON/OFF in accordance with the float switch ON/OFF even after **AF** is determined.

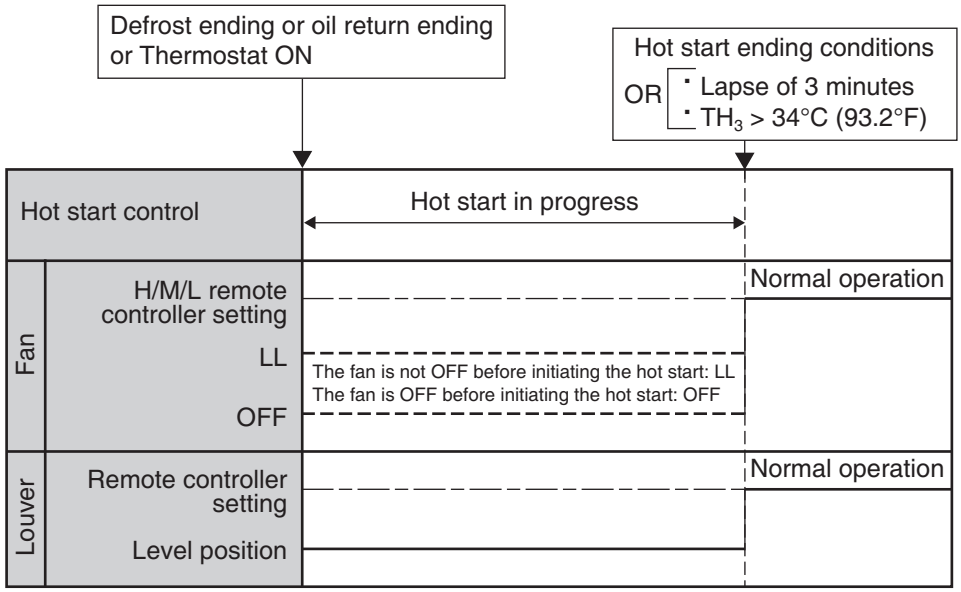
∗3. While the error code **AF** is displayed, if the float switch remains OFF even after the residual operation of the drain pump has ended, the error code **A3** will be determined.

1.9 Hot Start Control (In Heating Operation Only)

Outline

At startup with thermostat ON or after the completion of defrosting in heating operation, the indoor unit fan is controlled to prevent cold air from blasting out and ensure startup capacity.

Details



R4004278

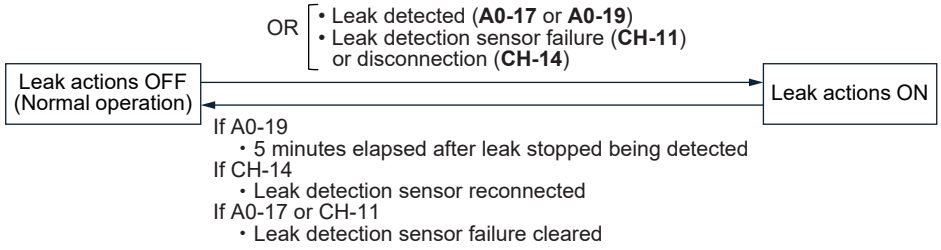
TH_3: Temperature detected by the indoor heat exchanger thermistor (R3T)

1.10 Other Functions

1.10.1 Refrigerant Detection System (RDS) Function

Refrigerant Detection System (RDS) is installed in this equipment to detect any refrigerant leakage in the coil and leak detection sensor failure and conduct safety actions in the following table to mitigate any risk of ignition/fire.
In case that a leak is detected, the safety actions start when a leak is detected by leak detection sensor and continue until 5 minutes elapsed after a leak stops being detected.
In case of leak detection sensor failure, the same safety actions are performed.

Item (function)	Leak actions
Remote controller	Display of error code **A0-17, A0-19** or **CH-11, CH-14**
Fan motor	Run at LL or greater tap
Compressor	OFF

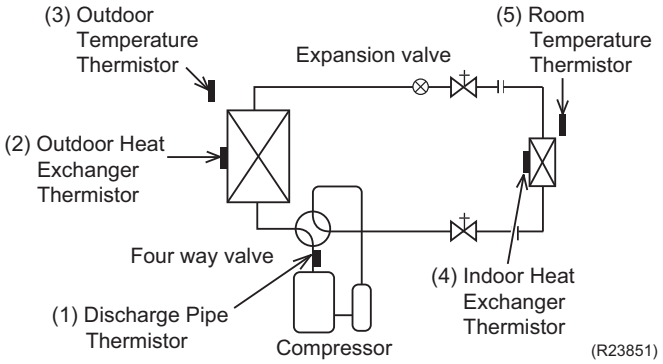


1.10.2 Auto-restart Function

If a power failure (even a momentary one) occurs during the operation, the system restarts automatically in the same conditions as before when the power supply is restored to the conditions prior to the power failure.

Note It takes 3 minutes to restart the operation because 3-minute standby function is activated.

2. Thermistor Functions



(1) Discharge Pipe Thermistor

- The discharge pipe thermistor is used for controlling discharge pipe temperature. If the discharge pipe temperature (used in place of the inner temperature of the compressor) rises abnormally, the operating frequency becomes lower or the operation halts.
- The discharge pipe thermistor is used for detecting disconnection of the discharge pipe thermistor.

(2) Outdoor Heat Exchanger Thermistor

- The outdoor heat exchanger thermistor is used for controlling the target discharge pipe temperature. The system sets the target discharge pipe temperature according to the outdoor and indoor heat exchanger temperature, and controls the electronic expansion valve opening so that the target discharge pipe temperature can be obtained.
- In cooling operation, the outdoor heat exchanger thermistor is used for detecting the disconnection of the discharge pipe thermistor. When the discharge pipe temperature drops below the outdoor heat exchanger temperature by more than a certain value, the discharge pipe thermistor is judged as disconnected.
- In cooling operation, the outdoor heat exchanger thermistor is used for high pressure protection.

(3) Outdoor Temperature Thermistor

- The outdoor temperature thermistor detects the outdoor air temperature and is used for refrigerant shortage detection, input current control, outdoor fan control, liquid compression protection function, and so on.

(4) Indoor Heat Exchanger Thermistor

- The indoor heat exchanger thermistor is used for controlling the target discharge pipe temperature. The system sets the target discharge pipe temperature according to the outdoor and indoor heat exchanger temperature, and controls the electronic expansion valve opening so that the target discharge pipe temperature can be obtained.
- In cooling operation, the indoor heat exchanger thermistor is used for freeze-up protection control. If the indoor heat exchanger temperature drops abnormally, the operating frequency becomes lower or the operation halts.
- In heating operation, the indoor heat exchanger thermistor is used for detecting the disconnection of the discharge pipe thermistor. When the discharge pipe temperature drops below the indoor heat exchanger temperature by more than a certain value, the discharge pipe thermistor is judged as disconnected.

(5) Room Temperature Thermistor

- The room temperature thermistor detects the room air temperature and is used for controlling the room air temperature.

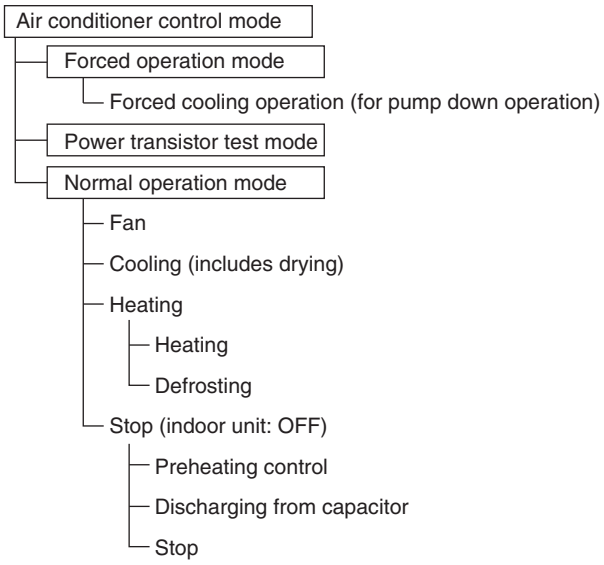
3. Control Specification

3.1 Mode Hierarchy

Outline

The air conditioner control has normal operation mode, forced operation mode, and power transistor test mode for installation and servicing.

Details

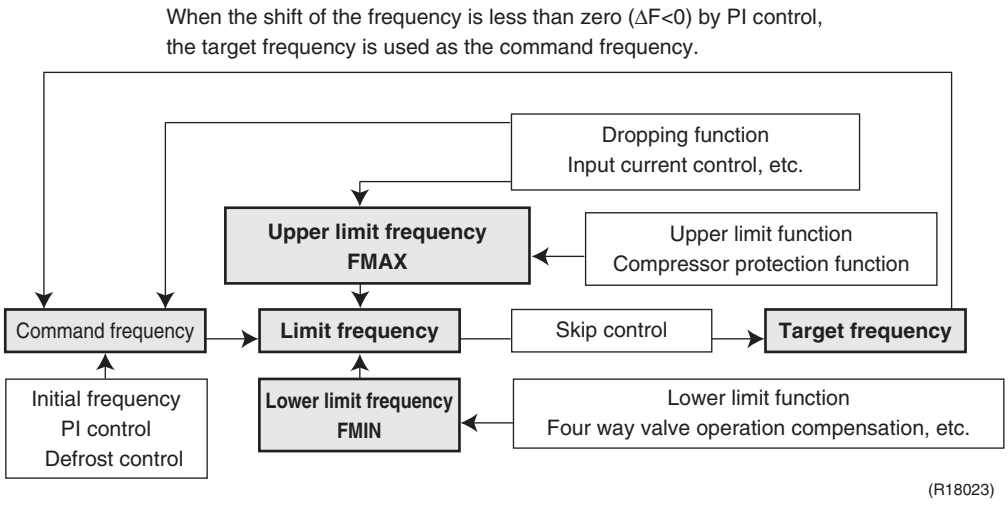


■ Unless specified otherwise, dry operation command is regarded as cooling operation.

3.2 Frequency Control

Outline

The compressor frequency is determined according to the difference between the room thermistor temperature and the target temperature.



Details

1. **Determine command frequency**
   Command frequency is determined in the following order of priority.
   (1) Limiting defrost control time
   (2) Forced cooling
   (3) Indoor frequency command

2. **Determine upper limit frequency**
   The minimum value is set as an upper limit frequency among the frequency upper limits of the following functions:
   Compressor protection, input current, discharge pipe temperature, heating peak-cut, freeze-up protection, defrost control.

3. **Determine lower limit frequency**
   The maximum value is set as an lower limit frequency among the frequency lower limits of the following functions:
   Four way valve operation compensation, draft prevention, pressure difference upkeep.

4. **Determine prohibited frequency**
   There is a certain prohibited frequency such as a power supply frequency.

Initial Frequency

When starting the compressor, the frequency is initialized according to the ΔD value of the indoor unit.

ΔD signal: Indoor frequency command
The difference between the room thermistor temperature and the target temperature is taken as the ΔD value and is used for ΔD signal of frequency command.

Temperature difference	ΔD signal	Temperature difference	ΔD signal	Temperature difference	ΔD signal	Temperature difference	ΔD signal
–1.0°C (–1.8°F)	∗OFF	0°C (0°F)	4	2.0°C (3.6°F)	8	4.0°C (7.2°F)	12
–0.8°C (–1.4°F)	1	0.5°C (0.9°F)	5	2.5°C (4.5°F)	9	4.5°C (8.1°F)	13
–0.5°C (–0.9°F)	2	1.0°C (1.8°F)	6	3.0°C (5.4°F)	10	5.0°C (9.0°F)	14
–0.3°C (–0.5°F)	3	1.5°C (2.7°F)	7	3.5°C (6.3°F)	11	5.5°C (9.9°F)	15

∗ OFF = Thermostat OFF

PI Control

1. **P control**
   The ΔD value is calculated in each sampling time (20 seconds), and the frequency is adjusted according to its difference from the frequency previously calculated.

2. **I control**
   If the operating frequency does not change for more than a certain fixed time, the frequency is adjusted according to the ΔD value.
   When ΔD value is low, the frequency is lowered.
   When ΔD value is high, the frequency is increased.

3. **Frequency control when other controls are functioning**
   - When frequency is dropping:
     Frequency control is carried out only when the frequency drops.
   - For limiting lower limit:
     Frequency control is carried out only when the frequency rises.

4. **Upper and lower limit of frequency by PI control**
   The frequency upper and lower limits are set according to the command of the indoor unit.
   When the indoor unit quiet or QUIET OUTDOOR UNIT operation command comes from the indoor unit, the upper limit frequency is lower than the usual setting.

3.3 Controls at Mode Changing/Start-up

3.3.1 Preheating Control

Outline

The inverter operation in open phase starts with the conditions of the outdoor temperature, the discharge pipe temperature, the radiation fin temperature and the preheating command from the indoor unit.

Details

- ON condition
  Discharge pipe temperature < **A**
  Outdoor temperature < **B**
  Radiation fin temperature < 85°C (185°F)
- OFF condition
  Discharge pipe temperature > **C**
  Outdoor temperature > **D**
  Radiation fin temperature ≥ 90°C (194°F)

	A		**B**		**C**		**D**	
	(°C)	(°F)	(°C)	(°F)	(°C)	(°F)	(°C)	(°F)
09/12 class	10	50	0	32	12	53.6	2	35.6
15/18/24 class	6.5	43.7	5	41	9	48.2	7	44.6

3.3.2 Four Way Valve Switching

Outline

The four way valve coil is energized/not energized depending on the operation mode.
(Heating: ON, Cooling/Dry/Defrost: OFF)
In order to eliminate the switching sound as the four way valve coil switches from ON to OFF when the heating is stopped, the OFF delay switch of the four way valve is carried out.

Details

OFF delay switch of four way valve
The four way valve coil is energized for 160* seconds after the operation is stopped.
*10 seconds in heating operation when the outdoor temperature is lower than –9 °C (15.8°F)

3.3.3 Four Way Valve Operation Compensation

Outline

At the beginning of operation as the four way valve is switched, the pressure difference to activate the four way valve is acquired when the output frequency is higher than a certain fixed frequency, for a certain fixed time.

Details

Starting Conditions
1. When the compressor starts and the four way valve switches from OFF to ON
2. When the four way valve switches from ON to OFF during operation
3. When the compressor starts after resetting
4. When the compressor starts after the fault of four way valve switching

The lower limit of frequency keeps **A** Hz for **B** seconds for any of the conditions above.
When the outdoor temperature is above **C** in heating, the frequency decreases depending on the outdoor temperature.

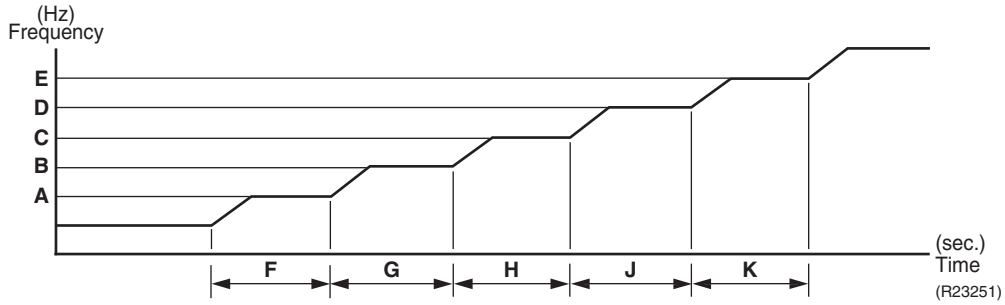
		09/12 class		15/18/24 class	
		Cooling	Heating	Cooling	Heating
A (Hz)		28	34	28	30
B (seconds)		60		70	
C	(°C)	10		20	
	(°F)	50		68	

3.3.4 3-Minute Standby

Turning on the compressor is prohibited for 3 minutes after turning off.
The function is not used when defrosting.

3.3.5 Compressor Protection Function

When turning the compressor from OFF to ON, the upper limit of frequency is set as follows.
The function is not used when defrosting.



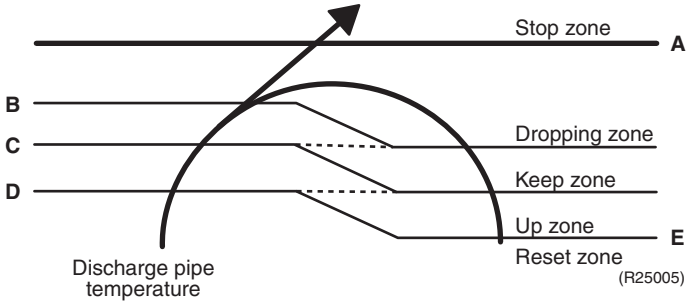
	09/12 class	15/18/24 class
A (rps)	36	30
B (rps)	48	48
C (rps)	68	62
D (rps)	80	80
E (rps)	110	—
F (seconds)	94	450
G (seconds)	420	450
H (seconds)	180	300
J (seconds)	180	470
K (seconds)	180	—

3.4 Discharge Pipe Temperature Control

Outline

The discharge pipe temperature is used as the internal temperature of the compressor. If the discharge pipe temperature rises above a certain level, the upper limit of frequency is set to keep the discharge pipe temperature from rising further.

Details



Zone	Control
Stop zone	When the temperature reaches the stop zone, the compressor stops.
Dropping zone	The upper limit of frequency decreases.
Keep zone	The upper limit of frequency is kept.
Up zone	The upper limit of frequency increases.
Reset zone	The upper limit of frequency is canceled.

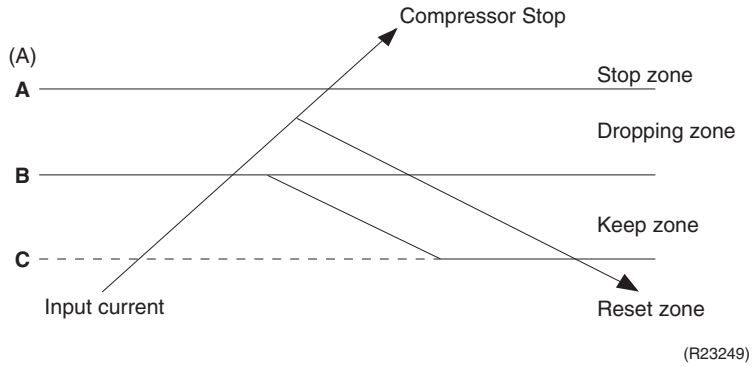
	09/12 class		15/18/24 class	
	(°C)	(°F)	(°C)	(°F)
A	118	244.4	118	244.4
B	105	221.0	108	226.4
C	98	208.4	103	217.4
D	91	195.8	97	206.6
E	79	174.2	85	185.0

3.5 Input Current Control

Outline

The microcomputer calculates the input current while the compressor is running, and sets the frequency upper limit based on the input current.
In case of heat pump models, this control is the upper limit control of the frequency and takes priority over the lower limit control of four way valve operation compensation.

Details



Frequency control in each zone

Stop zone

- After the input current remains in the stop zone for 2.5 seconds, the compressor is stopped.

Dropping zone

- The upper limit of the compressor frequency is defined as operation frequency – 2 Hz.
- After this, the output frequency is lowered by 2 Hz every second until it reaches the keep zone.

Keep zone

- The present maximum frequency goes on.

Reset zone

- Limit of the frequency is canceled.

	09/12 class		15/18 class		24 class	
	Cooling	Heating	Cooling	Heating	Cooling	Heating
A (A)	13	14	20		20	
B (A)	8.25	13.25	16.25	19	16.25	19.25
C (A)	7.5	12.5	15.25	18	15.25	18.25

Limitation of current dropping and stop value according to the outdoor temperature

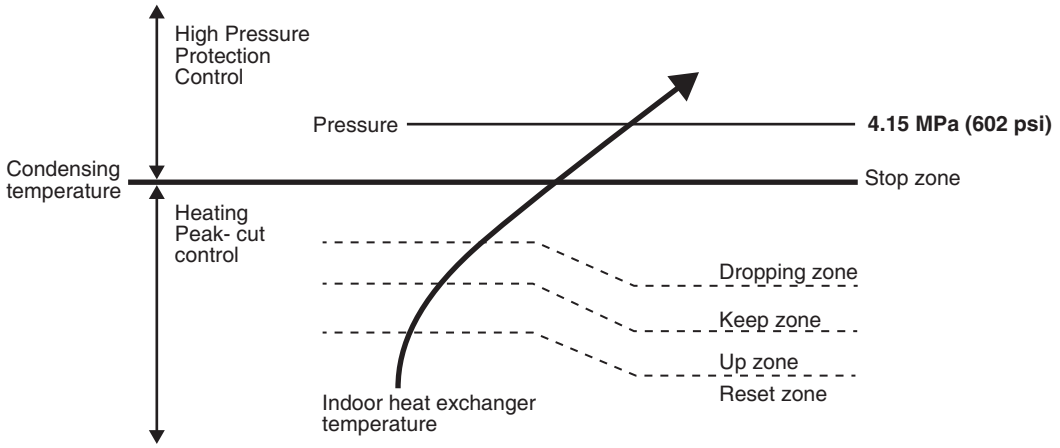
- The current drops when outdoor temperature becomes higher than a certain level (depending on the model).

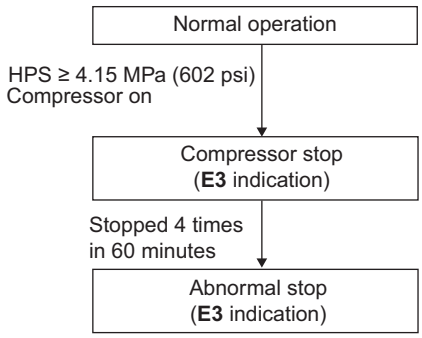
3.6 High Pressure Protection Control

Outline

In order to prevent abnormal high pressures in the system and hence avoiding activation of the high pressure safety device the below control function will be activated.

Details





3.7 Freeze-up Protection Control

Details

When the freeze-up protection control starts, the compressor stops, the airflow rate is fixed to L tap, and the drain pump turns ON. Conditions for starting and ending are as below.

Starting conditions

The freeze-up protection control starts when any of the following conditions is satisfied.

- The indoor heat exchanger temperature remains at **A** or lower for 1 minute.
- The accumulated time that the indoor heat exchanger temperature remains at **B** or lower
- reaches 40 minutes.

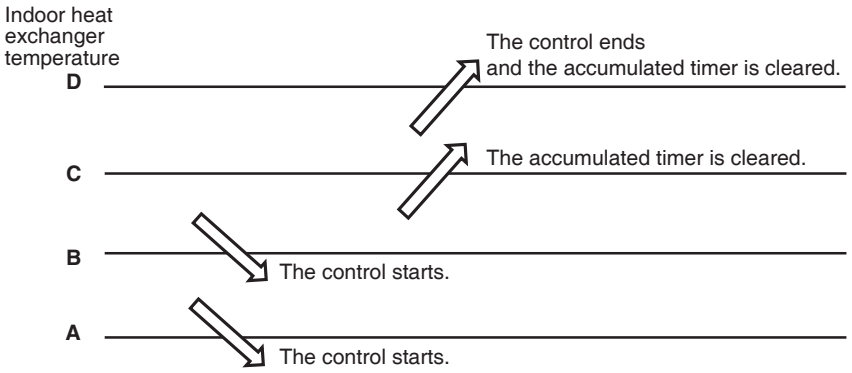
Accumulated timer clearing condition

- The indoor heat exchanger temperature remains at **C** or higher for 20 minutes.

Ending condition

- The indoor heat exchanger temperature remains at **D** or higher for 10 minutes.

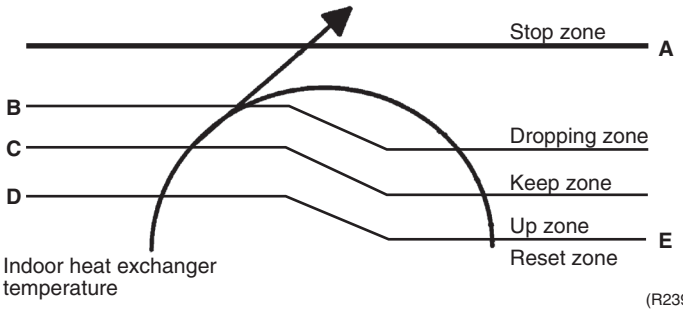
	(°C)	(°F)
A	–5	23.0
B	–1	30.2
C	4	39.2
D	7	44.6



R4003915

3.8 Heating Peak-cut Control

During heating operation, the indoor heat exchanger temperature determines the frequency upper limit to prevent abnormal high pressure.
The operating frequency limitation is judged with the indoor heat exchanger temperature.



(R23928)

Zone	Control
Stop zone	When the temperature reaches the stop zone, the compressor stops.
Dropping zone	The upper limit of frequency decreases.
Keep zone	The upper limit of frequency is kept.
Up zone	The upper limit of frequency increases.
Reset zone	The upper limit of frequency is canceled.

	09/12 class		15/18/24 class	
	(°C)	(°F)	(°C)	(°F)
A	59	138.2	59	138.2
B ★	54	129.2	55	131.0
C ★	51	123.8	52	125.6
D ★	48	118.4	50	122.0
E	44	111.2	45	113.0

★: The valves might drop when the outdoor temperature is low to protect the compressor.

3.9 Outdoor Fan Control

1. **Fan ON control to cool down the electrical box**
   The outdoor fan is turned ON when the electrical box temperature is high while the compressor is OFF.

2. **Fan OFF control during defrosting**
   The outdoor fan is turned OFF while defrosting.

3. **Fan OFF delay when stopped**
   The outdoor fan is turned OFF 60 ~ 70 seconds after the compressor stops.

4. **Fan speed control for pressure difference upkeep**
   The rotation speed of the outdoor fan is controlled for keeping the pressure difference during cooling operation with low outdoor temperature.
   - When the pressure difference is low, the rotation speed of the outdoor fan is reduced.
   - When the pressure difference is high, the rotation speed of the outdoor fan is controlled as well as normal operation.

5. **Fan speed control during forced operation**
   The outdoor fan is controlled as well as normal operation during forced operation.

6. **Fan speed control during indoor unit quiet/QUIET OUTDOOR UNIT operation**
   The rotation speed of the outdoor fan is reduced by the command of the indoor unit quiet/QUIET OUTDOOR UNIT operation.

7. **Fan ON/OFF control when operation (cooling, heating, dry) starts/stops**
   The outdoor fan is turned ON when the operation starts. The outdoor fan is turned OFF when the operation stops.

3.10 Liquid Compression Protection Function

Outline

The compressor stops according to the outdoor temperature for protection.

Details

Operation stops depending on the outdoor temperature.
The compressor turns off under the conditions that the system is in cooling operation and the outdoor temperature is below 0°C (32°F).
However, the cooling operation range can be extended to the lowest temperature of –20°C (–4°F) by changing facility setting. Refer to page 149 for details of facility setting.

3.11 Defrost Control

Outline

Defrosting is carried out by the cooling cycle (reverse cycle). The defrosting time or outdoor heat exchanger temperature must be more than a certain value to finish defrosting.

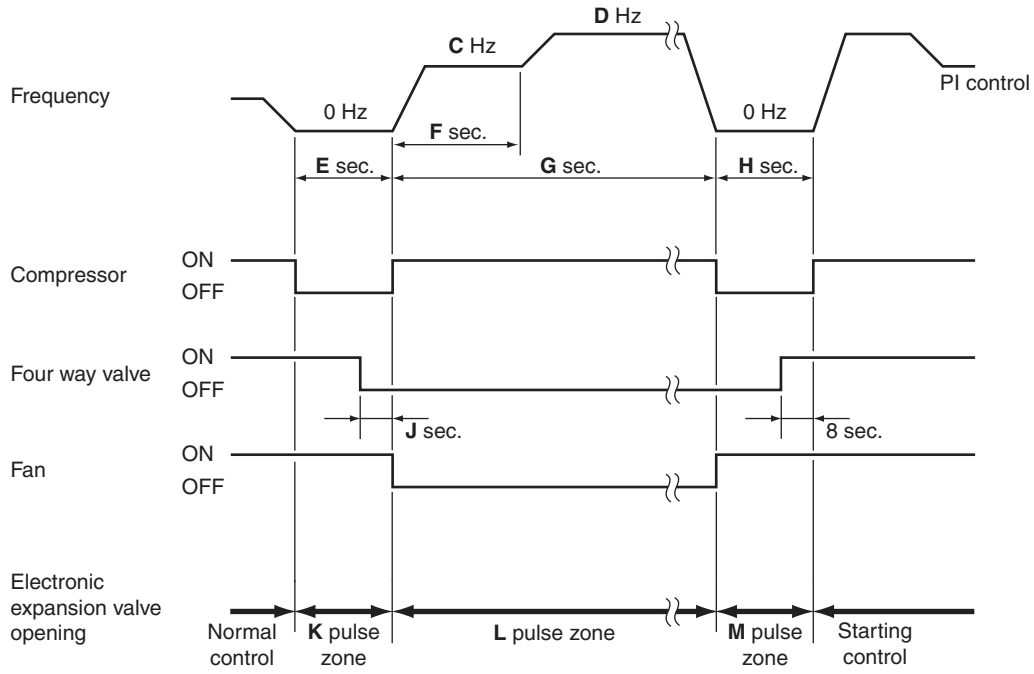
Details

Conditions for Starting Defrost

- The starting conditions are determined with the outdoor temperature and the outdoor heat exchanger temperature. (For details, refer to the table on the follow pages. (P. 51, 52))
- Furthermore, even if the above conditions are not met, if heating operation accumulates for approximately 6 hours under conditions where the outdoor temperature is below 2°C, the system start defrosting.
- The system is in heating operation.
- The compressor operates for 6 minutes.
- More than **A** minutes (depending on the duration of the previous defrost control) of accumulated time have passed since the start of the operation or ending the previous defrosting.

Conditions for Canceling Defrost

The judgment is made with the outdoor heat exchanger temperature (**B**).



(R21661)

		09/12 class	15/18/24 class
A (minute)		20 ~ 25	32
B	(°C)	2 ~ 13	4 ~ 12
	(°F)	35.6 ~ 55.4	39.2 ~ 53.6
C (Hz)		40	48
D (Hz)		40	62
E (seconds)		40	40
F (seconds)		60	60
G (seconds)		720	460
H (seconds)		50	80
J (seconds)		8	8
K (pulse)		400	288
L (pulse)		350	320
M (pulse)		400	256

09/12 class

Outdoor heat exchanger temperature of Defrost **IN**

Conpressor speed	Outdoor temperature (°F)							
	–13.0	–4.0	5.0	14.0	23.0	32.0	35.6	44.6
14	–14.8	–9.1	–1.6	8.8	13.3	20.7	23.7	24.8
16	–14.8	–9.4	–1.9	8.5	13.0	20.4	23.4	24.8
18	–14.8	–9.7	–2.3	8.2	12.6	20.1	23.1	24.8
20	–14.8	–10.0	–2.6	7.8	12.3	19.8	22.7	24.8
22	–14.8	–10.4	–2.9	7.5	12.0	19.4	22.4	24.8
24	–14.8	–10.7	–3.2	7.2	11.7	19.1	22.1	24.8
26	–14.8	–11.0	–3.6	6.9	11.3	18.8	21.8	24.8
28	–14.8	–11.3	–3.9	6.5	11.0	18.5	21.5	24.8
30	–14.8	–11.7	–4.2	6.2	10.7	18.1	21.1	24.8
32	–14.8	–12.0	–4.5	5.9	10.4	17.8	20.8	24.8
34	–14.8	–12.3	–4.9	5.6	10.0	17.5	20.5	24.8
36	–14.8	–12.6	–5.2	5.3	9.7	17.2	20.2	24.8
38	–14.8	–13.0	–5.5	4.9	9.4	16.9	19.8	24.8
40	–14.8	–13.3	–5.8	4.6	9.1	16.5	19.5	24.8
42	–14.8	–13.6	–6.2	4.3	8.8	16.2	19.2	24.8
44	–14.8	–13.9	–6.5	4.0	8.4	15.9	18.9	24.8
46	–14.8	–14.3	–6.8	3.6	8.1	15.6	18.5	24.8
48	–14.8	–14.6	–7.1	3.3	7.8	15.2	18.2	24.8
50	–14.8	–14.8	–7.4	3.0	7.5	14.9	17.9	24.8
52	–14.8	–14.8	–7.8	2.7	7.1	14.6	17.6	24.8
54	–14.8	–14.8	–8.1	2.3	6.8	14.3	17.2	24.7
56	–14.8	–14.8	–8.4	2.0	6.5	13.9	16.9	24.4
58	–14.8	–14.8	–8.7	1.7	6.2	13.6	16.6	24.1
60	–14.8	–14.8	–9.1	1.4	5.8	13.3	16.3	23.7
62	–14.8	–14.8	–9.4	1.0	5.5	13.0	16.0	23.4
64	–14.8	–14.8	–9.7	0.7	5.2	12.7	15.6	23.1
66	–14.8	–14.8	–10.0	0.4	4.9	12.3	15.3	22.8
68	–14.8	–14.8	–10.4	0.1	4.6	12.0	15.0	22.4
70	–14.8	–14.8	–10.7	–0.2	4.2	11.7	14.7	22.1
72	–14.8	–14.8	–11.0	–0.6	3.9	11.4	14.3	21.8
74	–14.8	–14.8	–11.3	–0.9	3.6	11.0	14.0	21.5
76	–14.8	–14.8	–11.7	–1.2	3.3	10.7	13.7	21.1
78	–14.8	–14.8	–12.0	–1.5	2.9	10.4	13.4	20.8
80	–14.8	–14.8	–12.3	–1.9	2.6	10.1	13.0	20.5
82	–14.8	–14.8	–12.6	–2.2	2.3	9.7	12.7	20.2
84	–14.8	–14.8	–12.9	–2.5	2.0	9.4	12.4	19.9
86	–14.8	–14.8	–13.3	–2.8	1.6	9.1	12.1	19.5
88	–14.8	–14.8	–13.6	–3.2	1.3	8.8	11.8	19.2
90	–14.8	–14.8	–13.9	–3.5	1.0	8.4	11.4	18.9
92	–14.8	–14.8	–14.2	–3.8	0.7	8.1	11.1	18.6
94	–14.8	–14.8	–14.6	–4.1	0.3	7.8	10.8	18.2

Outdoor heat exchanger temperature of Defrost **OUT**

Outdoor temperature (°F)	Outdoor heat exchanger temperature (°F)
44.6	55.4
42.8	55.4
41.0	55.4
39.2	55.4
37.4	55.4
35.6	55.4
33.8	55.4
32.0	55.4
30.2	55.4
28.4	55.4
26.6	55.4
24.8	55.4
23.0	55.4
21.2	55.4
19.4	55.4
17.6	55.4
15.8	55.4
14.0	55.4
12.2	55.4
10.4	55.4
8.6	55.4
6.8	55.4
5.0	55.4
3.2	55.4
1.4	55.4
–0.4	55.4
–2.2	55.4
–4.0	55.4
–5.8	55.4
–7.6	55.4
–9.4	55.4
–11.2	55.4
–13.0	55.4

15/18/24 class

Outdoor heat exchanger temperature of Defrost **IN**

Conpressor speed	Outdoor temperature (°F)							
	–13.0	–4.0	5.0	14.0	23.0	32.0	35.6	44.6
14	–13.9	–6.5	1.0	8.4	15.9	23.3	26.3	28.4
16	–14.2	–6.7	0.8	8.2	15.7	23.1	26.1	28.4
18	–14.4	–6.9	0.5	8.0	15.4	22.9	25.9	28.4
20	–14.6	–7.1	0.3	7.8	15.2	22.7	25.7	28.4
22	–14.8	–7.3	0.1	7.6	15.0	22.5	25.5	28.4
24	–15.0	–7.5	–0.1	7.4	14.8	22.3	25.3	28.4
26	–15.2	–7.8	–0.3	7.2	14.6	22.1	25.0	28.4
28	–15.4	–8.0	–0.5	6.9	14.4	21.8	24.8	28.4
30	–15.6	–8.2	–0.7	6.7	14.2	21.6	24.6	28.4
32	–15.8	–8.4	–0.9	6.5	14.0	21.4	24.4	28.4
34	–16.1	–8.6	–1.1	6.3	13.8	21.2	24.2	28.4
36	–16.3	–8.8	–1.4	6.1	13.6	21.0	24.0	28.4
38	–16.5	–9.0	–1.6	5.9	13.3	20.8	23.8	28.4
40	–16.7	–9.2	–1.8	5.7	13.1	20.6	23.6	28.4
42	–16.9	–9.4	–2.0	5.5	12.9	20.4	23.4	28.4
44	–17.1	–9.7	–2.2	5.3	12.7	20.2	23.1	28.4
46	–17.3	–9.9	–2.4	5.0	12.5	19.9	22.9	28.4
48	–17.5	–10.1	–2.6	4.8	12.3	19.7	22.7	28.4
50	–17.7	–10.3	–2.8	4.6	12.1	19.5	22.5	28.4
52	–18.0	–10.5	–3.0	4.4	11.9	19.3	22.3	28.4
54	–18.2	–10.7	–3.3	4.2	11.7	19.1	22.1	28.4
56	–18.4	–10.9	–3.5	4.0	11.4	18.9	21.9	28.4
58	–18.6	–11.1	–3.7	3.8	11.2	18.7	21.7	28.4
60	–18.8	–11.3	–3.9	3.6	11.0	18.5	21.5	28.4
62	–19.0	–11.6	–4.1	3.4	10.8	18.3	21.2	28.4
64	–19.2	–11.8	–4.3	3.1	10.6	18.1	21.0	28.4
66	–19.4	–12.0	–4.5	2.9	10.4	17.8	20.8	28.3
68	–19.6	–12.2	–4.7	2.7	10.2	17.6	20.6	28.1
70	–19.8	–12.4	–4.9	2.5	10.0	17.4	20.4	27.9
72	–20.1	–12.6	–5.2	2.3	9.8	17.2	20.2	27.6
74	–20.3	–12.8	–5.4	2.1	9.5	17.0	20.0	27.4
76	–20.5	–13.0	–5.6	1.9	9.3	16.8	19.8	27.2
78	–20.7	–13.2	–5.8	1.7	9.1	16.6	19.6	27.0
80	–20.9	–13.5	–6.0	1.5	8.9	16.4	19.3	26.8
82	–21.1	–13.7	–6.2	1.2	8.7	16.2	19.1	26.6
84	–21.3	–13.9	–6.4	1.0	8.5	15.9	18.9	26.4
86	–21.5	–14.1	–6.6	0.8	8.3	15.7	18.7	26.2
88	–21.7	–14.3	–6.8	0.6	8.1	15.5	18.5	26.0
90	–22.0	–14.5	–7.1	0.4	7.9	15.3	18.3	25.7
92	–22.0	–14.7	–7.3	0.2	7.6	15.1	18.1	25.5
94	–22.0	–14.9	–7.5	0.0	7.4	14.9	17.9	25.3
96	–22.0	–15.1	–7.7	–0.2	7.2	14.7	17.7	25.1
98	–22.0	–15.3	–7.9	–0.4	7.0	14.5	17.4	24.9
100	–22.0	–15.6	–8.1	–0.7	6.8	14.3	17.2	24.7
102	–22.0	–15.8	–8.3	–0.9	6.6	14.0	17.0	24.5

Outdoor heat exchanger temperature of Defrost **OUT**

Outdoor temperature (°F)	Outdoor heat exchanger temperature (°F)
44.6	48.3
42.8	49.6
41.0	50.9
39.2	52.1
37.4	53.4
35.6	53.6
33.8	53.6
32.0	53.6
30.2	53.6
28.4	53.6
26.6	53.6
24.8	53.6
23.0	53.6
21.2	53.6
19.4	53.6
17.6	53.6
15.8	53.6
14.0	53.6
12.2	53.6
10.4	53.6
8.6	53.6
6.8	53.6
5.0	53.6
3.2	53.6
1.4	53.6
–0.4	53.6
–2.2	53.6
–4.0	53.6
–5.8	53.6
–7.6	53.6
–9.4	53.6
–11.2	53.6
–13.0	53.6

3.12 Electronic Expansion Valve Control

Outline

The following items are included in the electronic expansion valve control.

Electronic expansion valve is fully closed

1. Electronic expansion valve is fully closed when turning on the power.
2. Pressure equalizing control

Open Control

1. Electronic expansion valve control when starting operation
2. Electronic expansion valve control when the frequency changes
3. Electronic expansion valve control for defrosting
4. Electronic expansion valve control when the discharge pipe temperature is abnormally high
5. Electronic expansion valve control when the discharge pipe thermistor is disconnected

Feedback Control

Target discharge pipe temperature control

Details

The followings are the examples of electronic expansion valve control for each operation mode.

Control \ Status	Power on ; Compressor stop	Operation start	Frequency change under starting control	During target discharge pipe temperature control	Frequency change under target discharge pipe temperature control	Discharge pipe thermistor disconnection	Frequency change under discharge pipe thermistor disconnection control	During defrost control
Starting operation control	—	●	—	—	—	—	—	—
Control when the frequency changes	—	—	●	—	●	—	—	—
Target discharge pipe temperature control	—	—	—	●	—	—	—	—
Discharge pipe thermistor disconnection control	—	—	—	—	—	●	●	—
High discharge pipe temperature control	—	●	●	●	●	—	—	—
Defrost control (heating only)	—	—	—	—	—	—	—	●
Pressure equalizing control	●	—	—	—	—	—	—	—
Opening limit control	—	●	●	●	●	●	●	—

● : Available
— : Not available

R4003560

3.12.1 Initialization as Power Supply On

The electronic expansion valve is initialized (fully closed) when the power is turned on. Then, the valve opening position is set and the pressure is equalized.

3.12.2 Pressure Equalizing Control

When the compressor is stopped, the pressure equalizing control is activated. The electronic expansion valve opens, and develops the pressure equalization.

3.12.3 Opening Limit Control

The maximum and minimum opening of the electronic expansion valve are limited.

	09/12 class	15/18/24 class
Maximum opening (pulse)	470	490
Minimum opening (pulse)	60	40

The electronic expansion valve is fully closed when cooling operation stops, and is opened at a fixed degree during defrosting.

3.12.4 Starting Operation Control

The electronic expansion valve opening is controlled when the operation starts, thus preventing superheating or liquid compression.

3.12.5 Control when the Frequency Changes

When the target discharge pipe temperature control is active, if the target frequency changes to a specified value in a certain time period, the target discharge pipe temperature control is canceled and the target opening of the electronic expansion valve is changed according to the frequency shift.

3.12.6 High Discharge Pipe Temperature Control

When the compressor is operating, if the discharge pipe temperature exceeds a certain value, the electronic expansion valve opens and the refrigerant runs to the low pressure side.
This procedure lowers the discharge pipe temperature.

3.12.7 Discharge Pipe Thermistor Disconnection Control

Outline

The disconnection of the discharge pipe thermistor is detected by comparing the discharge pipe temperature with the condensation temperature. If the discharge pipe thermistor is disconnected, the electronic expansion valve opens according to the outdoor temperature and the operation frequency, operates for a specified time, and then stops.
After 3 minutes, the operation restarts and checks if the discharge pipe thermistor is disconnected. If the discharge pipe thermistor is disconnected, the system stops after operating for a specified time.
If the disconnection is detected repeatedly, the system is shut down. When the compressor runs for 60 minutes without any error, the error counter is reset.

Details

Determining thermistor disconnection

When the starting control finishes, the detection timer for disconnection of the discharge pipe thermistor (**A** seconds) starts. When the timer is over, the following adjustment is made.

1. When the operation mode is cooling
   When the following condition is fulfilled, the discharge pipe thermistor disconnection is ascertained.
   Discharge pipe temperature +6°C (+10.8°F) < outdoor heat exchanger temperature
2. When the operation mode is heating
   When the following condition is fulfilled, the discharge pipe thermistor disconnection is ascertained.
   Discharge pipe temperature +6°C (+10.8°F) < indoor heat exchanger temperature

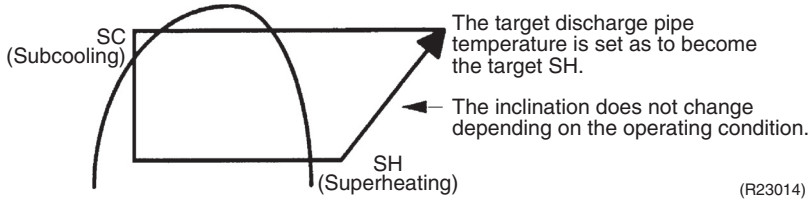
	A (seconds)		
	09/12 class	15 class	18/24 class
Other than below	720	540	1020
Heating (When outdoor temperature is below –15°C (5°F))	1200	1800	1800

When the thermistor is disconnected

When the disconnection is ascertained, the compressor continues operation for 9 minutes and then stops.
If the compressor stops repeatedly, the system is shut down.

3.12.8 Target Discharge Pipe Temperature Control

The target discharge pipe temperature is obtained from the indoor and outdoor heat exchanger temperature, and the electronic expansion valve opening is adjusted so that the actual discharge pipe temperature becomes close to the target discharge pipe temperature. (Indirect SH (superheating) control using the discharge pipe temperature)



The electronic expansion valve opening and the target discharge pipe temperature are adjusted every **A** seconds. The opening degree of the electronic expansion valve is adjusted by the following.

- Target discharge pipe temperature
- Actual discharge pipe temperature
- Previous discharge pipe temperature

	09/12 class	15/18/24 class
A (seconds)	10 ~ 20★	20

★ The time depends on the opening of the electronic expansion valve.

3.13 Malfunctions

3.13.1 Sensor Malfunction Detection

Sensor malfunction can be detected in the following thermistor:

1. Outdoor heat exchanger thermistor
2. Discharge pipe thermistor
3. Radiation fin thermistor
4. Outdoor temperature thermistor

3.13.2 Detection of Overcurrent and Overload

Outline

An excessive output current is detected and the OL temperature is observed to protect the compressor.

Details

- If the OL (compressor head) temperature exceeds 120 ~ 130°C (248 ~ 266°F) (depending on the model), the system shuts down the compressor.
- If the inverter current exceeds 12.0 ~ 20.0 A (depending on the model), the system shuts down the compressor.
  The upper limit of the current decreases when the outdoor temperature exceeds a certain level.

Part 5
Remote Controller

1. Applicable Remote Controller 58
2. BRC1NRV71 59

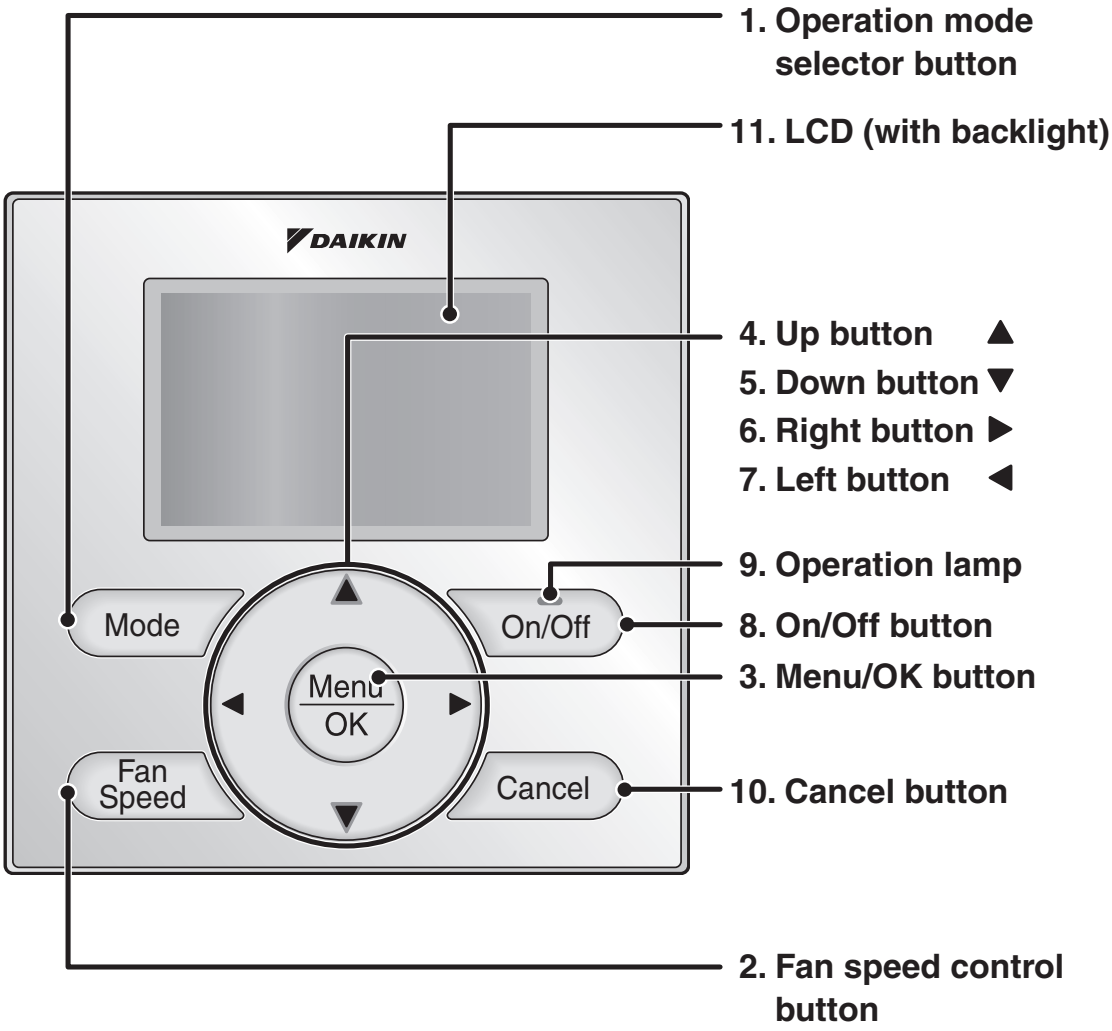
1. Applicable Remote Controller

Model Name	Wired R/C	Reference Page
FDMA09AVJU9	BRC1NRV71	59
FDMA12AVJU9		
FDMA15AVJU9		
FDMA18AVJU9		
FDMA24AVJU9		

Note

Refer to the operation manual of applicable model for details. You can download operation manuals from Daikin Business Portal:
Daikin Business Portal → Document Search → Item Category → Installation/Operation Manual
(URL: https://global1d.daikin.com/business_portal/login/)

2. BRC1NRV71



Functions other than basic operation items (i.e., On/Off, Operation Mode, Fan Speed, and Setpoint) are set from the menu screen.

NOTE

- **Do not install the remote controller in places exposed to direct sunlight, the LCD will be damaged.**
- **Do not pull or twist the remote controller cord, the remote controller may be damaged.**
- **Do not use objects with sharp ends to press the buttons on the remote controller, damage may result.**

R5000499

1. Operation mode selector button

- Press this button to select the operation mode of your preference. **(See page 10.)**
  * Available modes vary with the model of unit.

2. Fan speed control button

- Press this button to select the fan speed of your preference. **(See page 11.)**
  * Available fan speeds vary with the model of unit.

3. Menu/OK button

- Used to enter the main menu. **(See page 20 for the menu items.)**
- Used to enter the selected item.

4. Up button ▲

- Used to raise the setpoint.
- The item above the current selection will be highlighted. (The highlighted items will be scrolled continuously when the button is continuously pressed.)
- Used to change the selected item.

5. Down button ▼

- Used to lower the setpoint.
- The item below the current selection will be highlighted. (The highlighted items will be scrolled continuously when the button is continuously pressed.)
- Used to change the selected item.

6. Right button ▶

- Used to highlight the next items on the right-hand side.
- Each screen is scrolled in the right-hand direction.

7. Left button ◀

- Used to highlight the next items on the left-hand side.
- Each screen is scrolled in the left-hand direction.

8. On/Off button

- Press this button and system will start.
- Press this button again to stop the system.

9. Operation lamp

- This lamp illuminates solid green during normal operation.
- This lamp flashes if an error occurs.

10. Cancel button

- Used to return to the previous screen.

11. LCD (with backlight)

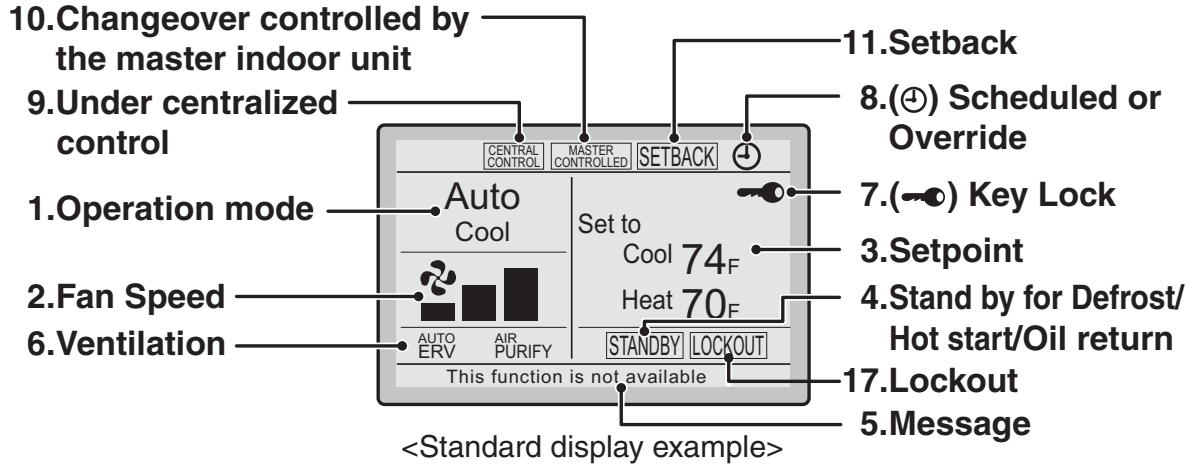
- The backlight will be illuminated for approximately 30 seconds by pressing any button.
- If two remote controllers are used to control a single unit, only the controller accessed first will have backlight functionality.

R5000500

Liquid Crystal Display

- Three types of display mode (Standard, Detailed and Simple) are available.
- Standard display is set by default.
- Detailed and Simple displays can be selected in the main menu. **(See page 44.)**

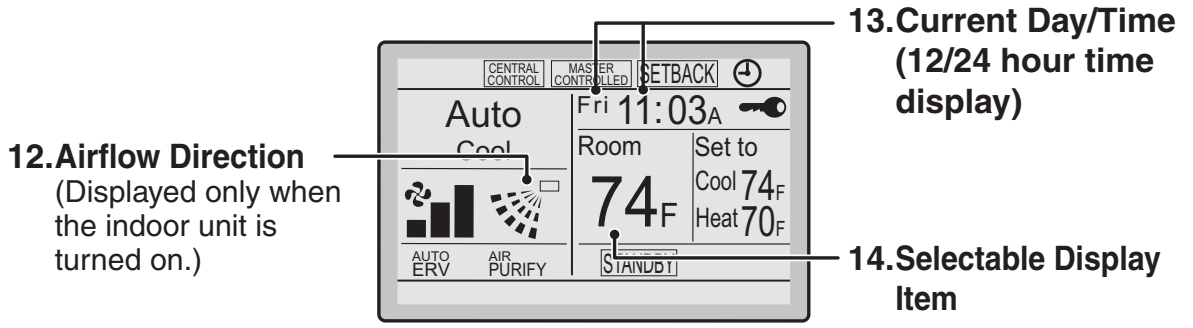
Standard display



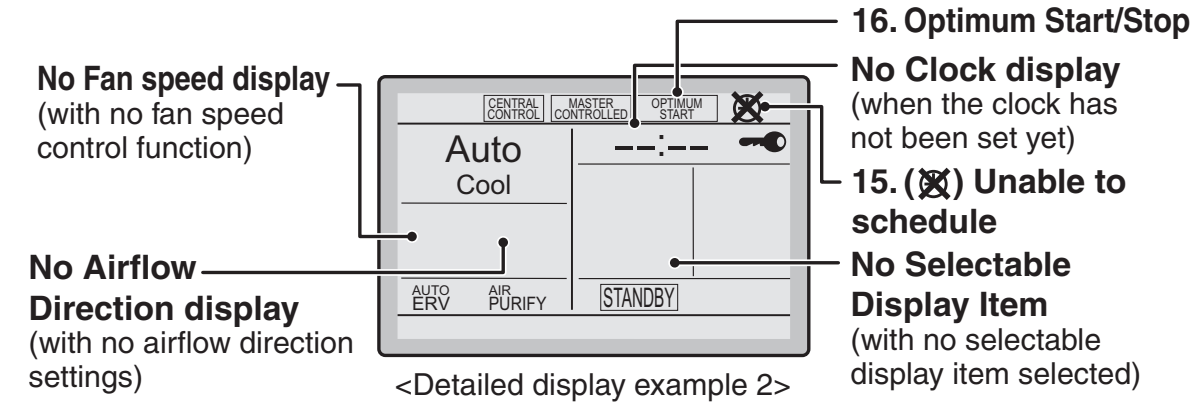
<Standard display example>

Detailed display

■ **The airflow direction, clock, and selectable item appear on Detailed display screen in addition to the items appearing on Standard display.**



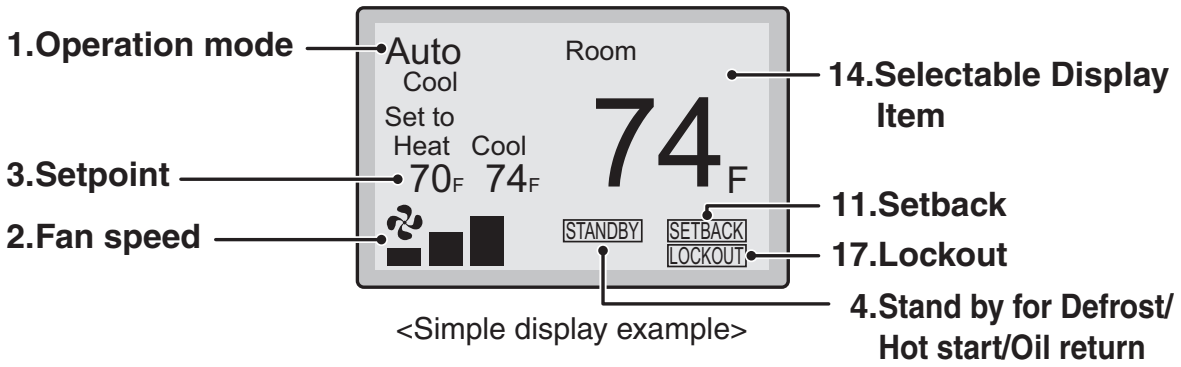
<Detailed display example 1>



<Detailed display example 2>

R5000501

Simple display



<Simple display example>

Note for all display modes

- Depending on the field settings, while the unit is stopped, OFF may be displayed instead of the operation mode and/or the setpoint may not be displayed.

R5000502

1. Operation mode

- Used to display the current operation mode: Cool, Heat, Vent, Fan, Dry or Auto.
- In Auto mode, the actual operation mode (Cool or Heat) will be also displayed.
- Operation mode cannot be changed when OFF is displayed.
  Operation mode can be changed after starting operation.

2. Fan Speed

- Used to display the fan speed that is set for the unit.
- The fan speed will not be displayed if the connected model does not have fan speed control functionality.

3. Setpoint

- Used to display the setpoint for the unit.
- Use the Celsius/Fahrenheit item in the main menu to select the temperature unit (Celsius or Fahrenheit).

4. Stand by for Defrost/Hot start/ Oil return " STANDBY " (See page 12.)

If ventilation icon is displayed in this field:

- Indicates that an energy recovery ventilator (ERV) is connected.
  For details, refer to the Operation Manual of the ERV.

5. Message

The following messages may be displayed.
"This function is not available"

- Displayed for a few seconds when an Operation button is pressed and the unit does not provide the corresponding function.
- In a remote control group, the message will not appear if at least one of the units provides the corresponding function.

"Error: Push Menu button"
"Warning: Push Menu button"

- Displayed if an error or warning is detected **(see page 54)**.

"Time to clean filter"
"Time to clean element"
"Time to clean filter & element"

- Displayed as a reminder when it is time to clean the filter and/or element **(see page 52).**

6. Ventilation

- Displayed when an energy recovery ventilator is connected.
- **Ventilation Mode icon.**" AUTO ERV ERV BYPASS "
  These icons indicate the current ventilation mode (ERV only) (AUTO, ERV, BYPASS).
- **Air Purify ICON** " AIR PURIFY "
  This icon indicates that the air purifying unit (Optional) is in operation.

7. Key Lock (See page 19.)

- Displayed when the key lock is set.

8. Scheduled or Override (See page 33, 38.)

- Displayed if the Schedule or Override is enabled.
- For Schedule, see page 33, for override, see page 38.
- When the Override is active, the icon will flash. " "

9. Under Centralized control " CENTRAL CONTROL "

- Displayed if the system is under the management of a multi-zone controller (Optional) and the operation of the system through the remote controller is limited.

10. Changeover controlled by the master indoor unit " MASTER CONTROLLED "

(VRV only)

- Displayed when another indoor unit on the system has the authority to change the operation mode between cool and heat.

R5000503

11.Setback " SETBACK " (See page 14.)

- The setback icon flashes when the unit is turned on by the setback control.

12.Airflow Direction " "

- Displayed when the airflow direction and swing are set **(see page 26)**.
- If the connected model does not include oscillating louvers this item will not be displayed.

13.Current Day/Time (12/24 hour time display)

- Displayed if the clock is set **(see page 46)**.
- If the clock is not set, " -- : -- " will be displayed.
- 12 hour time format is displayed by default.
- Select 12/24 hour time display option in the main menu under "Clock & Calendar".

14.Selectable Display Item

- Room temperature is selected by default.
- For other choices see page 45.

15. Unable to schedule

- Displayed when the clock needs to be set.
- The schedule function will not work unless the clock is set.

16.Optimum Start/Stop

" OPTIMUM START " " OPTIMUM STOP " (See page 40.)

- Displayed when the Optimum start or Optimum stop is enabled.
- " OPTIMUM START " or " OPTIMUM STOP " is flashing when the Optimum start or Optimum stop is active.

17.Lockout " LOCKOUT "

(Rooftop unit only)

- " LOCKOUT " is flashing when the lockout is active.

R5000504

Part 6
Service Diagnosis

1. General Problem Symptoms and Check Items 67
2. Troubleshooting with LED 68
   2.1 Indoor Unit 68
   2.2 Outdoor Unit 68
3. Service Diagnosis 69
   3.1 BRC1NRV71 69
4. Error Codes and Description 71
5. Troubleshooting for Indoor Unit 72
   5.1 External Protection Device Abnormality 72
   5.2 Refrigerant Leak Detection (Confirmed) 73
   5.3 Refrigerant Leak Detection (Monitoring) 75
   5.4 Indoor Unit PCB Abnormality 76
   5.5 Drain Level Control System Abnormality 77
   5.6 Indoor Fan Motor (DC Motor) or Related Abnormality 78
   5.7 Indoor Fan PCB Abnormality 80
   5.8 Humidifier or Related Abnormality 81
   5.9 Defective Capacity Setting 82
   5.10 Transmission Abnormality between Indoor Unit Control PCB and Fan PCB 83
   5.11 Thermistor or Related Abnormality 85
   5.12 Refrigerant Leak Detection Sensor Failure 86
   5.13 Refrigerant Leak Detection Sensor Disconnection 87
   5.14 Remote Controller Thermistor Abnormality 88
   5.15 Low-voltage Detection or Over-voltage Detection 89
   5.16 Signal Transmission Error (Between Indoor Unit and Outdoor Unit) 91
   5.17 Signal Transmission Error (Between Indoor Unit and Remote Controller) 93
   5.18 Signal Transmission Error (Between MAIN/SUB Remote Controllers) 94
   5.19 Unspecified Voltage (Between Indoor Unit and Outdoor Unit) 95
   5.20 Address Duplication of Centralized Controller 96
6. Troubleshooting for Outdoor Unit 97
   6.1 Outdoor Unit PCB Abnormality 97
   6.2 Actuation of High Pressure Switch 98
   6.3 OL Activation (Compressor Overload) 99
   6.4 Compressor Lock 101
   6.5 DC Fan Lock 102
   6.6 Input Overcurrent Detection 103
   6.7 Electronic Expansion Valve Coil Abnormality 104
   6.8 Four Way Valve Abnormality 105
   6.9 Discharge Pipe Temperature Control 107
   6.10 High Pressure Control in Cooling 108
   6.11 System Shutdown due to Temperature Abnormality in the

Compressor 110
6.12 Compressor Sensor System Abnormality 111
6.13 High Pressure Switch System Abnormality 112
6.14 Position Sensor Abnormality 113
6.15 Fan IPM temperature error 116
6.16 DC Voltage/Current Sensor Abnormality 117
6.17 Thermistor or Related Abnormality (Outdoor Unit) 118
6.18 Electrical Box Temperature Rise 120
6.19 Radiation Fin Temperature Rise 121
6.20 Output Overcurrent Detection 122
6.21 IGBT temperature error 124
6.22 Signal Transmission Error on Outdoor Unit PCB 125
7. Check 126
7.1 Thermistor Resistance Check 126
7.2 Indoor Fan Motor Connector Check 127
7.3 Power Supply Waveform Check 127
7.4 Electronic Expansion Valve Check 128
7.5 Four Way Valve Performance Check 129
7.6 Inverter Unit Refrigerant System Check 129
7.7 Inverter Analyzer Check 130
7.8 Outdoor Fan Motor Check 132
7.9 Installation Condition Check 132
7.10 Discharge Pressure Check 133
7.11 Outdoor Fan System Check 133
7.12 Main Circuit Short Check 134
7.13 Power Module Check 136

1. General Problem Symptoms and Check Items

Symptom	Check Item	Measures	Reference Page
The unit does not operate.	Check the power supply.	Check if the rated voltage is supplied.	—
	Check the type of the indoor unit.	Check if the indoor unit type is compatible with the outdoor unit.	—
	Check the outdoor temperature.	Heating/cooling operations are not available when the outdoor temperature is out of the operation limit. Check the reference page for the operation limit.	159
	Diagnose with remote controller indication.	—	71
	Check the remote controller addresses.	Check if address settings for the remote controller and indoor unit are correct.	67
Operation sometimes stops.	Check the power supply.	A power failure of 2 to 10 cycles stops air conditioner operation. (Operation lamp OFF)	—
	Check the outdoor temperature.	Heating/cooling operations are not available when the outdoor temperature is out of the operation limit. Check the reference page for the operation limit.	159
	Diagnose with remote controller indication.	—	71
The unit operates but does not cool, or does not heat.	Check for wiring and piping errors in the connection between the indoor unit and outdoor unit.	—	—
	Check for thermistor detection errors.	Check if the thermistor is mounted securely.	—
	Check for faulty operation of the electronic expansion valve.	Set the unit to cooling operation, and check the temperature of the liquid pipe to see if the electronic expansion valve works.	—
	Diagnose with remote controller indication.	—	71
	Diagnose by service port pressure and operating current.	Check for refrigerant shortage.	—
Large operating noise and vibrations	Check the resistance between the terminals of the power module.	—	136
	Check the power module.	—	—
	Check the installation condition.	Check if the required spaces for installation (specified in the installation manual) are provided.	—

2. Troubleshooting with LED

2.1 Indoor Unit

Operation Lamp

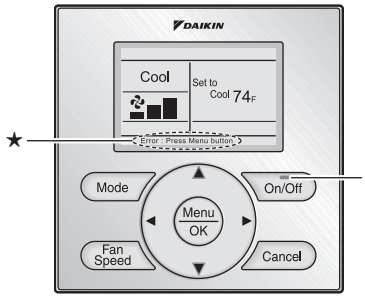
Check the interval time between blinks of the OPERATION lamp.

■ **FDMA Series with BRC1NRV71 Wired Remote Controller**

The operation lamp blinks when any of the following errors are detected.

1. When a protection device of the indoor or outdoor unit is activated, or when the thermistor malfunctions.
2. When a signal transmission error occurs between the indoor and outdoor units.

In either case, conduct the diagnostic procedure described in the following pages.



★The error or warning message also blinks on the basic screen.

R4003516

Service Monitor

The indoor unit has a green LED (HAP) on the control PCB. When the microcomputer works in order, the LED blinks. (Refer to page 21 for the location of LED.)

2.2 Outdoor Unit

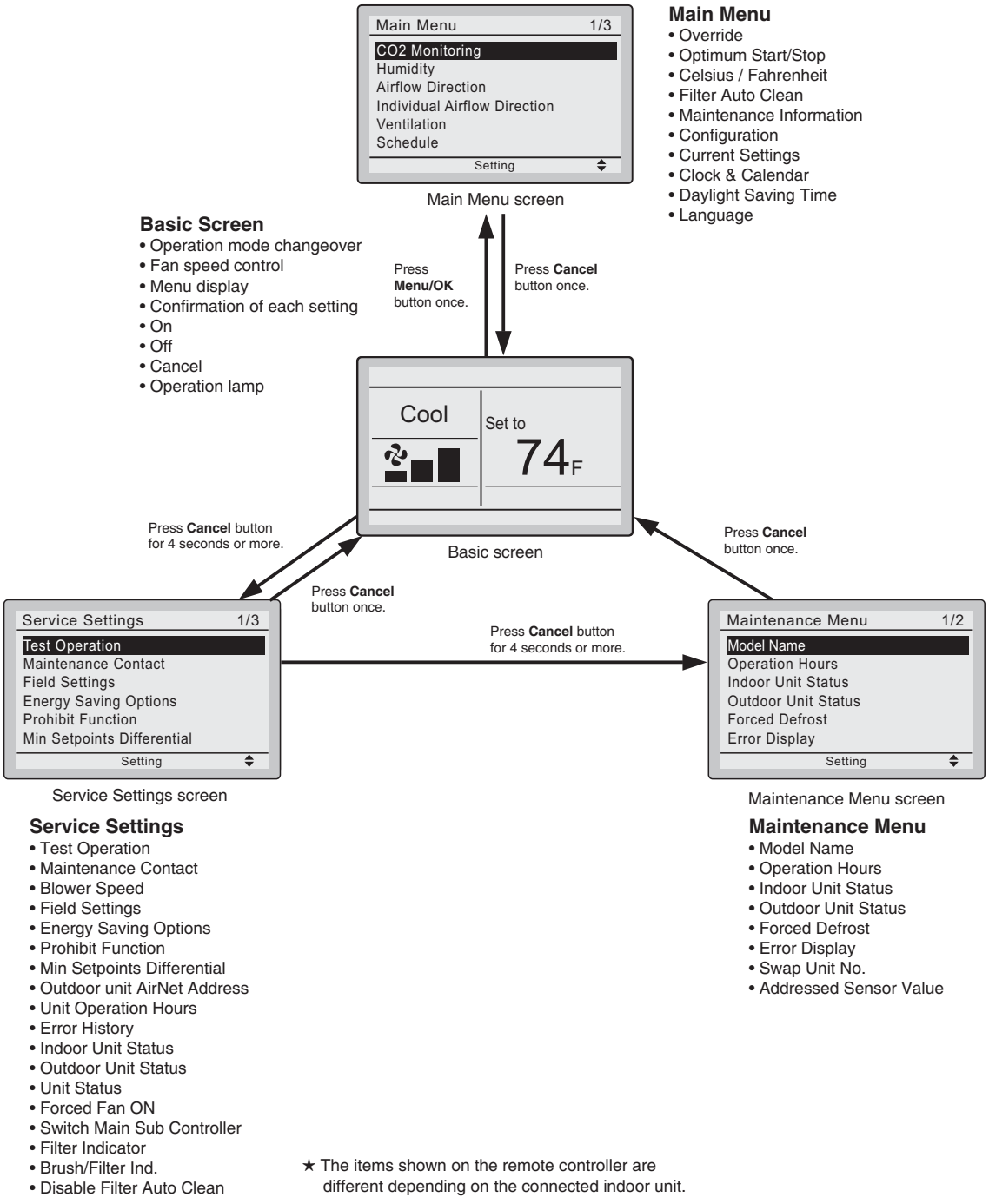
The outdoor unit has one green LED (LED A) on the PCB. When the microcomputer works in order, the LED A blinks. However, the LED A turns OFF while the standby electricity saving function is activated and the power supply is OFF.
Refer to page 23, 24 for the location of LED A.

3. Service Diagnosis

3.1 BRC1NRV71

Relations Between Modes

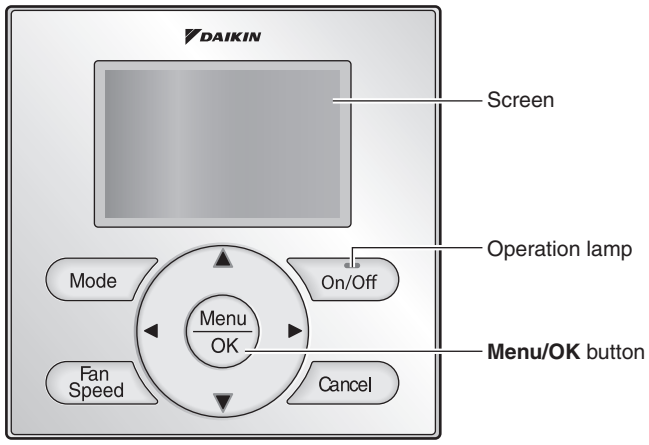
On power-up, the message "**Checking the connection. Please standby**." will be displayed on the remote controller screen temporarily and then the basic screen will be displayed. To access a mode from the basic screen, refer to the figure below.
When any of the operation buttons is pressed, the backlight will come on and remain lit for about 30 seconds. Be sure to press a button while the backlight is on.



R6001318

Service Diagnosis

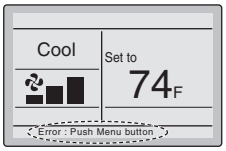
The following message is displayed on the screen when an error (or a warning) occurs during operation.
Check the error code and take the corrective action specified for the particular model.



(R18817)

Operation

1



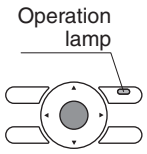
- If an error occurs, either one of the following items will flash in the basic screen.

Error: Push Menu button

* The Operation lamp will flash.
* For Simple display, the message is not displayed, and only the Operation lamp flashes.

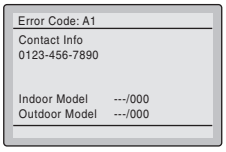
Warning: Push Menu button

* The Operation lamp will not flash.
* For Simple display, the message is not displayed, and the Operation lamp does not flash, either.



- Press **Menu/OK** button.

2



- The error code will flash and the service contact and model name or code may be displayed.
- Notify your Daikin dealer of the Error code and model name or code.

4. Error Codes and Description

	Error Codes	Description	Reference Page
System	**00**	Normal	—
	U0	Refrigerant shortage	—
	U2	Low-voltage detection or over-voltage detection	89
	U4	Signal transmission error (between indoor unit and outdoor unit)	91
	U5	Signal transmission error (between indoor unit and remote controller)	93
	U8	Signal transmission error (between MAIN/SUB remote controller)	94
	UA	Unspecified voltage (between indoor unit and outdoor unit)	95
	UC	Address duplication of centralized controller	96
	UF	Wrong wiring check error	—
Indoor Unit	**A0-01**	External protection device abnormality	72
	A0-17, 19	Refrigerant leak detection	73, 75
	A1	Indoor unit PCB abnormality	76
	A3	Drain level control system abnormality	77
	A6	Indoor fan motor (DC motor) or related abnormality	78
	A8	Indoor fan PCB abnormality	80
	AF	Humidifier or related abnormality	81
	AJ	Capacity setting error	82
	C1	Transmission abnormality between indoor unit PCB and fan PCB	83
	C4, C5	Indoor heat exchanger thermistor or related abnormality	85
	C9	Room temperature thermistor or related abnormality	85
	CH-11	Refrigerant leak detection sensor failure	86
	CH-14	Refrigerant leak detection sensor disconnection	87
	CJ	Remote controller thermistor abnormality	88
Outdoor Unit	**E1**	Outdoor unit PCB abnormality	97
	E3	Actuation of high pressure switch	98
	E5	OL activation (compressor overload)	99
	E6	Compressor lock	101
	E7	DC fan lock	102
	E8	Input overcurrent detection	103
	E9	Electronic expansion valve abnormality	104
	EA	Four way valve abnormality	105
	F3	Discharge pipe temperature control	107
	F6	High pressure control in cooling	108
	F8	System shutdown due to temperature abnormality in the compressor	110
	H0	Compressor system sensor abnormality	111
	H3	High pressure switch system abnormality	112
	H6	Position sensor abnormality	113
	H7	Fan IPM temperature error	116
	H8	DC Voltage/Current Sensor Abnormality	117
	H9	Outdoor temperature thermistor or related abnormality	118
	J3	Discharge pipe thermistor or related abnormality	118
	J6	Outdoor heat exchanger thermistor or related abnormality	118
	L3	Electrical box temperature rise	120
	L4	Radiation fin temperature rise	121
	L5	Output overcurrent detection	122
	LA	IGBT temperature error	124
	P4	Radiation fin thermistor or related abnormality	118
	U7	Signal transmission error on outdoor unit PCB	125

5. Troubleshooting for Indoor Unit

5.1 External Protection Device Abnormality

Error Code

A0-01

Method of Error Detection

Detect open or short circuit between external input terminals in indoor unit.

Error Decision Conditions

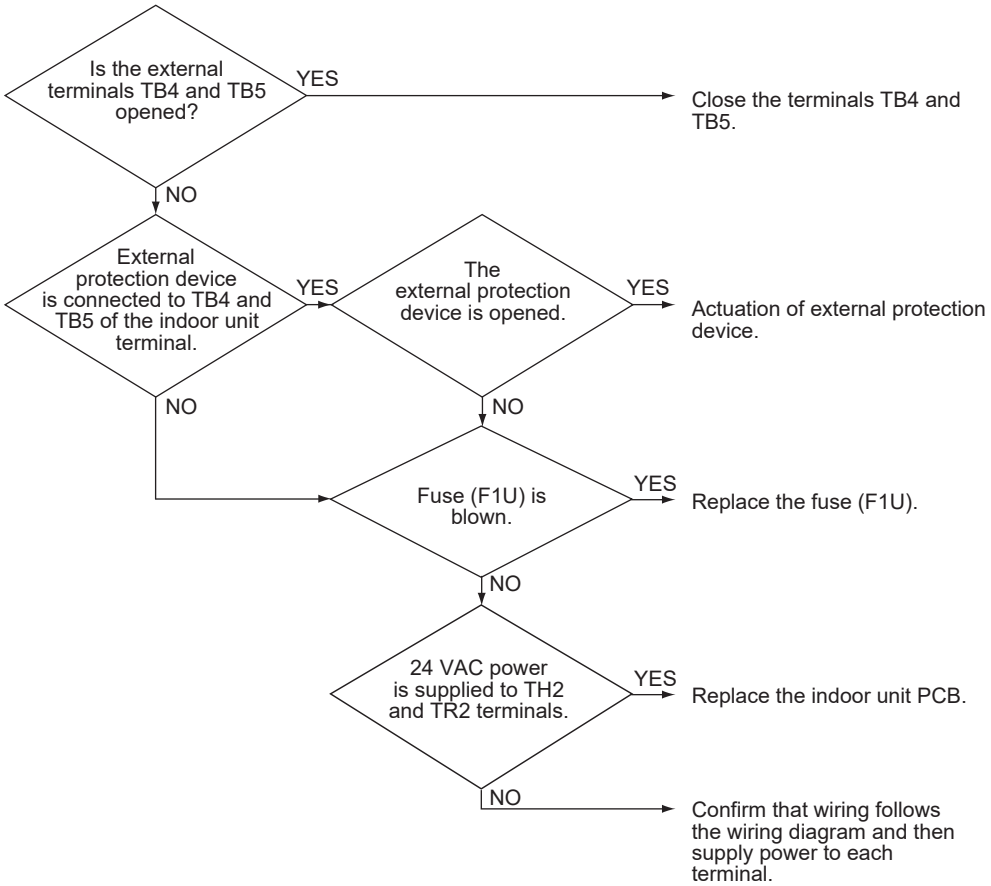
When an open circuit occurs between external input terminals.

Supposed Causes

- Open external input terminals (TB4-TB5)
- Activation of external protection device
- Defective indoor unit PCB
- Indoor unit fuse blown
- 24 VAC power is not supplied to TH2 and TR2 terminals on the indoor unit PCB.

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6001347

5.2 Refrigerant Leak Detection (Confirmed)

Error Code

A0-17

Method of Error Detection

Refrigerant leak detection sensor detects a refrigerant leak for a long period of time.

Error Decision Conditions

When the **A0-19** error detection status has occurred multiple times within a short period or continuously for a certain duration

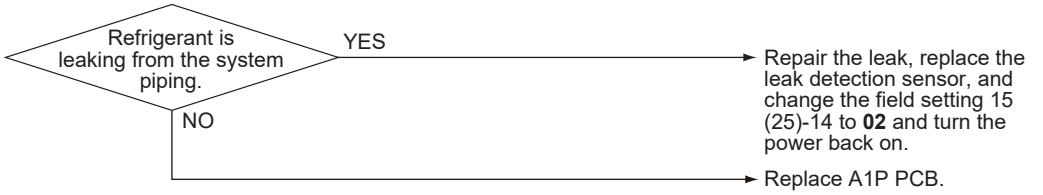
Supposed Causes

- Refrigerant leak from system piping
- Refrigerant leak detection sensor deterioration/failure
- Defective A1P control PCB

Troubleshooting

Caution

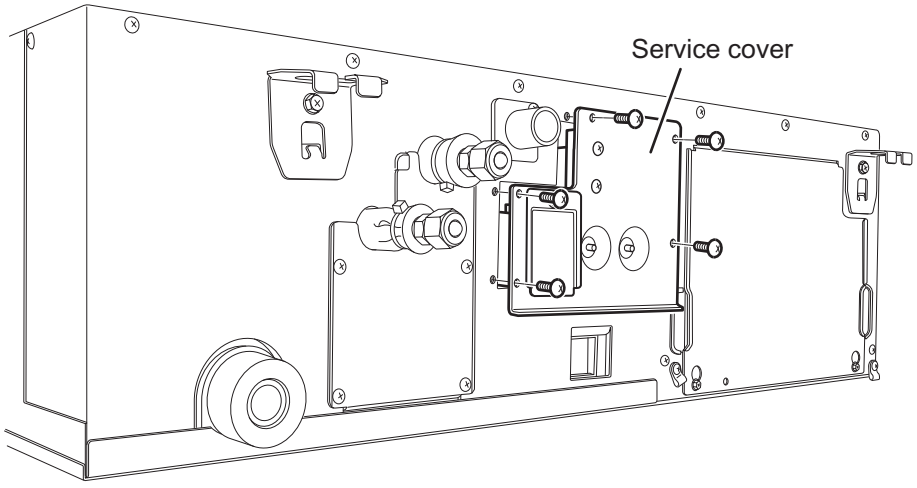
- Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.
- Refrigerant may be leaking.
- Please check the refrigerant leaking in a well-ventilated environment to prevent accumulation.
- Be careful to avoid generating fire or sparks.
- While this error is being detected, the unit will operate the fan to disperse the refrigerant. Be sufficiently careful not to injure yourself.



R6001341

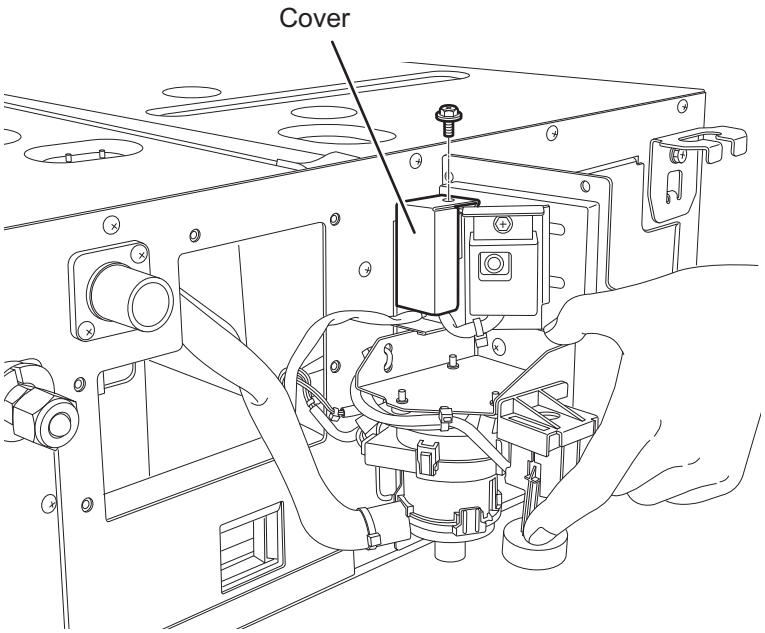
Replacing the refrigerant sensor

1. Remove the 5 screws and then the service cover.



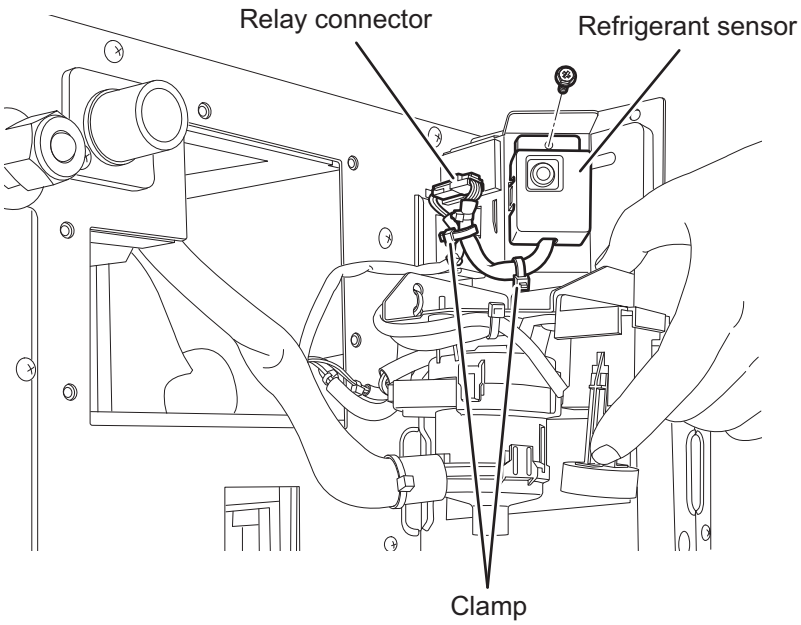
R6001348

2. Remove the screw and then the cover.



R6001349

3. Cut the 2 clamps.
   Disconnect the relay connector.
   Remove the screw and then the refrigerant sensor.



R6001350

5.3 Refrigerant Leak Detection (Monitoring)

Error Code

A0-19

Method of Error Detection

Refrigerant leak detection sensor detects a refrigerant leak.

Error Decision Conditions

When refrigerant concentrations exceeding the specified level are detected continuously during short-term sampling checks

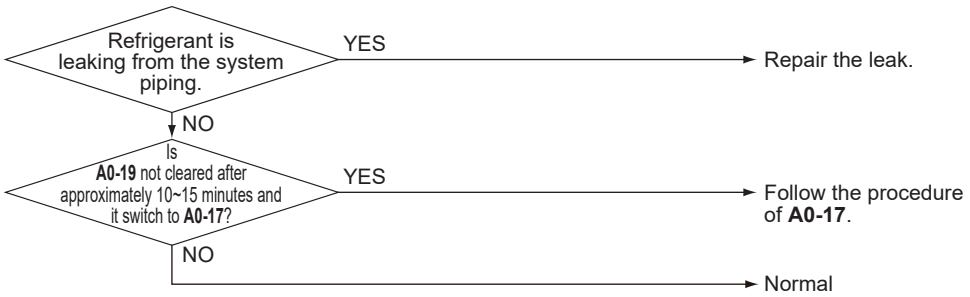
Supposed Causes

- Refrigerant leak from system piping

Troubleshooting

Caution

- Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.
- Refrigerant may be leaking.
- Please check the refrigerant leaking in a well-ventilated environment to prevent accumulation.
- Be careful to avoid generating fire or sparks.
- While this error is being detected, the unit will operate the fan to disperse the refrigerant. Be sufficiently careful not to injure yourself.
- Even if no refrigerant is confirmed after detection, the leak detection function will continue for 5 minutes.



R6001342

5.4 Indoor Unit PCB Abnormality

Error Code

A1

Method of Error Detection

The system checks the data from EEPROM.

Error Decision Conditions

When the data from the EEPROM is not received correctly

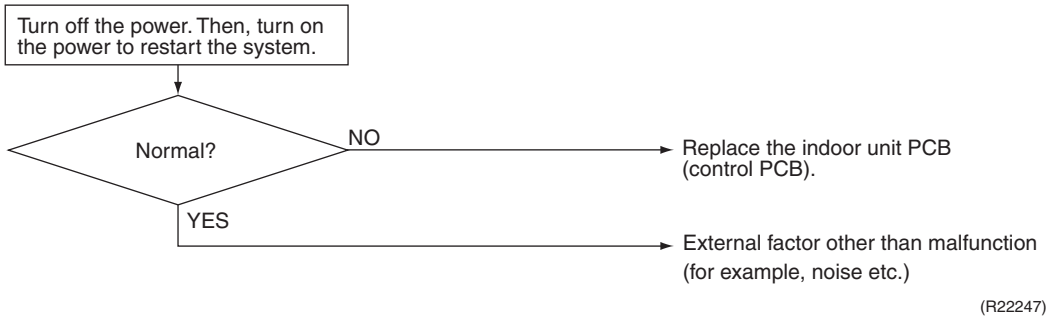
EEPROM (Electrically Erasable Programmable Read Only Memory): A memory chip that holds its content without power. It can be erased, either within the computer or externally and usually requires more voltage for erasure than the common +5 volts used in logic circuits. It functions like non-volatile RAM, but writing to EEPROM is slower than writing to RAM.

Supposed Causes

- Defective indoor unit PCB
- External factor (noise etc.)

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



(R22247)

5.5 Drain Level Control System Abnormality

Error Code

A3

Method of Error Detection

The float switch detects error.

Error Decision Conditions

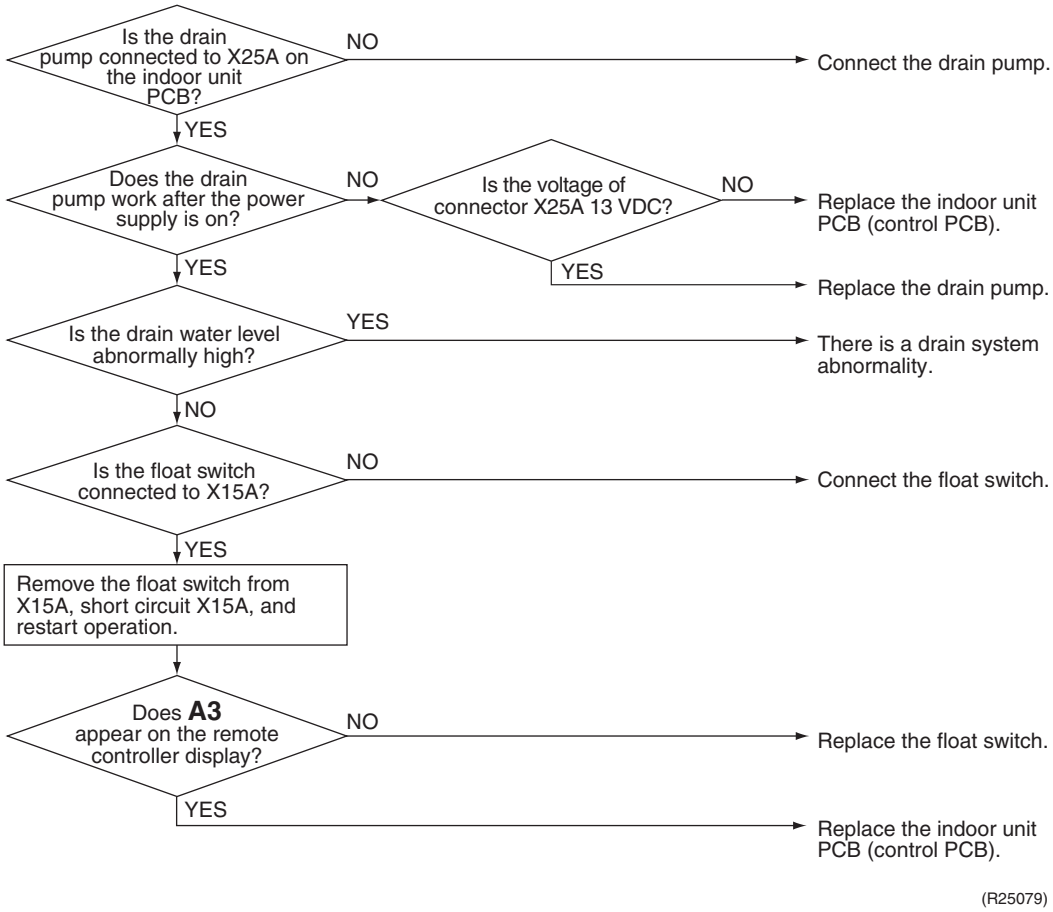
When the water level reaches its upper limit and when the float switch turns OFF

Supposed Causes

- Defective drain pump
- Improper drain piping work
- Clogged drain piping
- Defective float switch
- Defective indoor unit PCB
- Defective short circuit connector X15A, X25A on indoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



(R25079)

5.6 Indoor Fan Motor (DC Motor) or Related Abnormality

Error Code **A6**

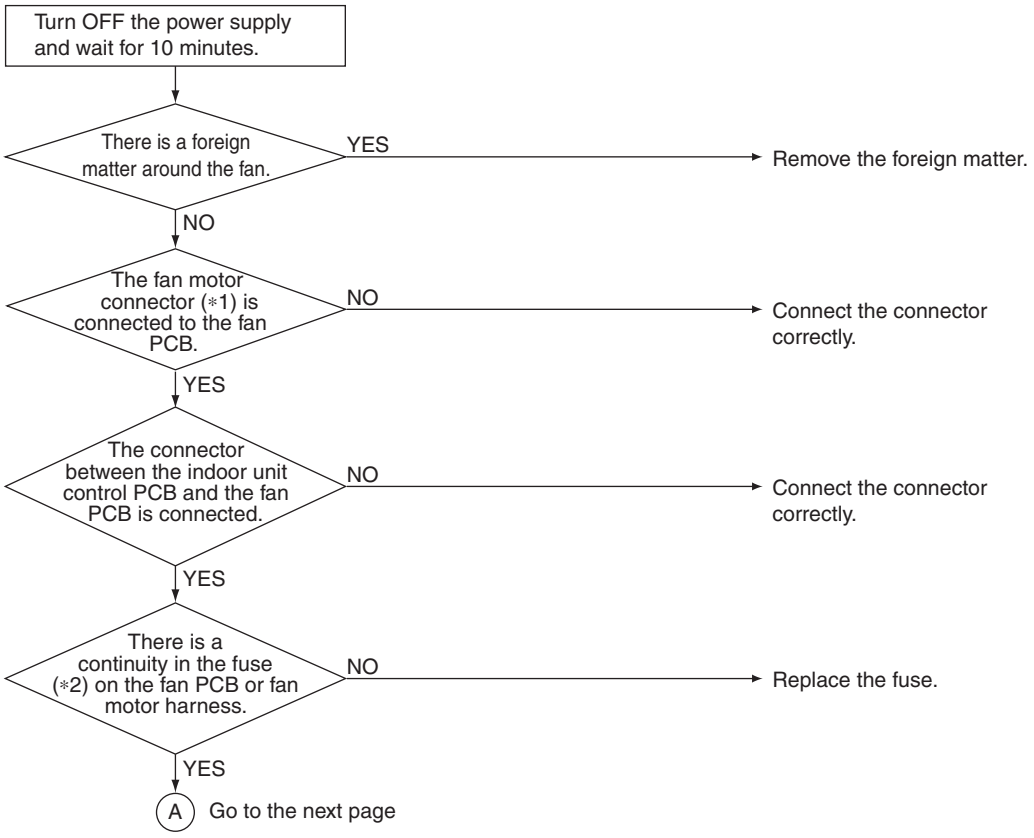
Method of Error Detection
- Detection from the current flow on the fan PCB
- Detection from the rotation speed of the fan motor in operation

Error Decision Conditions
The rotation speed is less than a certain level for 6 seconds.

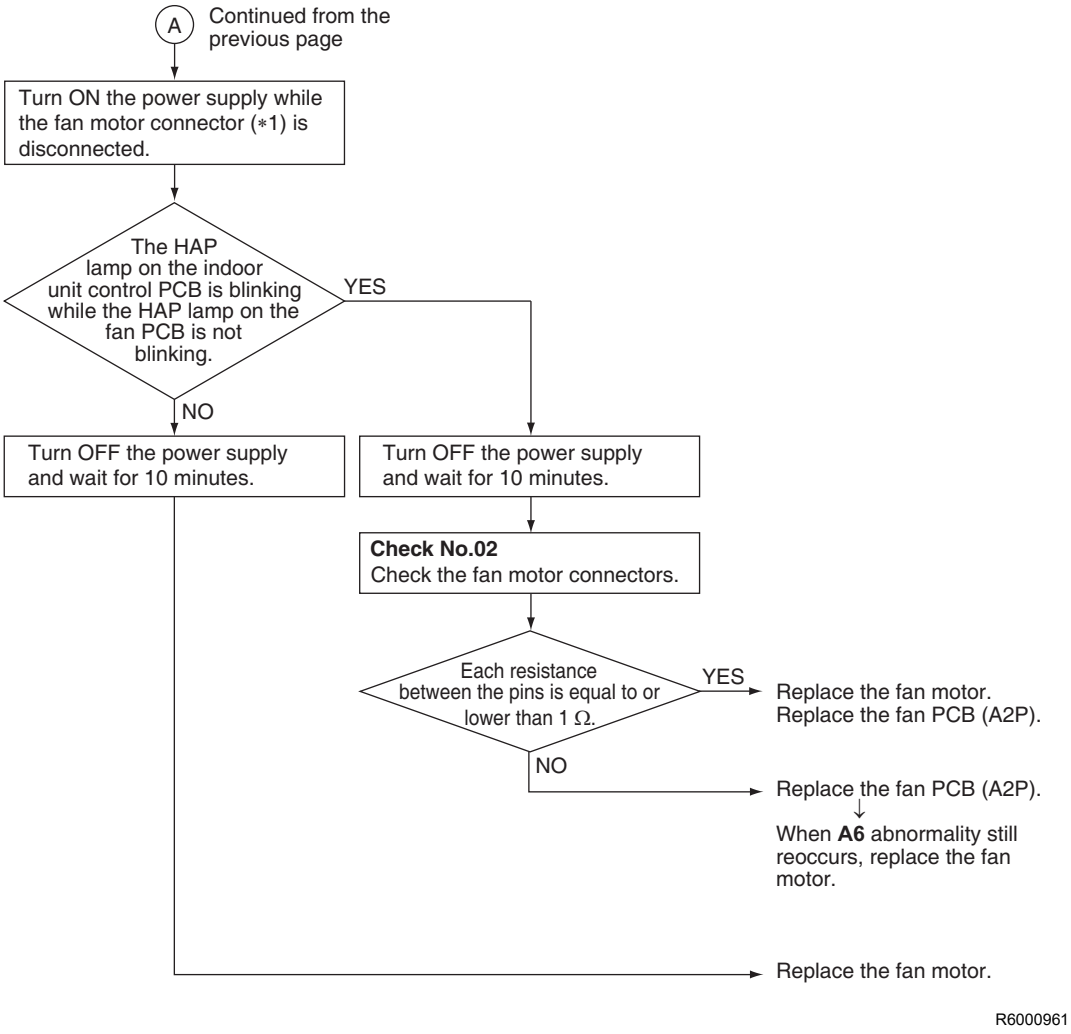
Supposed Causes
- Clogged foreign matter
- Disconnection of fan motor connectors
- Disconnection of the connector between the indoor unit PCB and the fan PCB
- Defective fan PCB
- Defective fan motor
- No fuse continuity

Trouble Shooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6000547



R6000961

Note Connector and indoor unit PCB

*1 Fan motor connector	*2 Fuse
X8A	F2U

Reference **Check No.02** Refer to P.127

5.7 Indoor Fan PCB Abnormality

Error Code **A8**

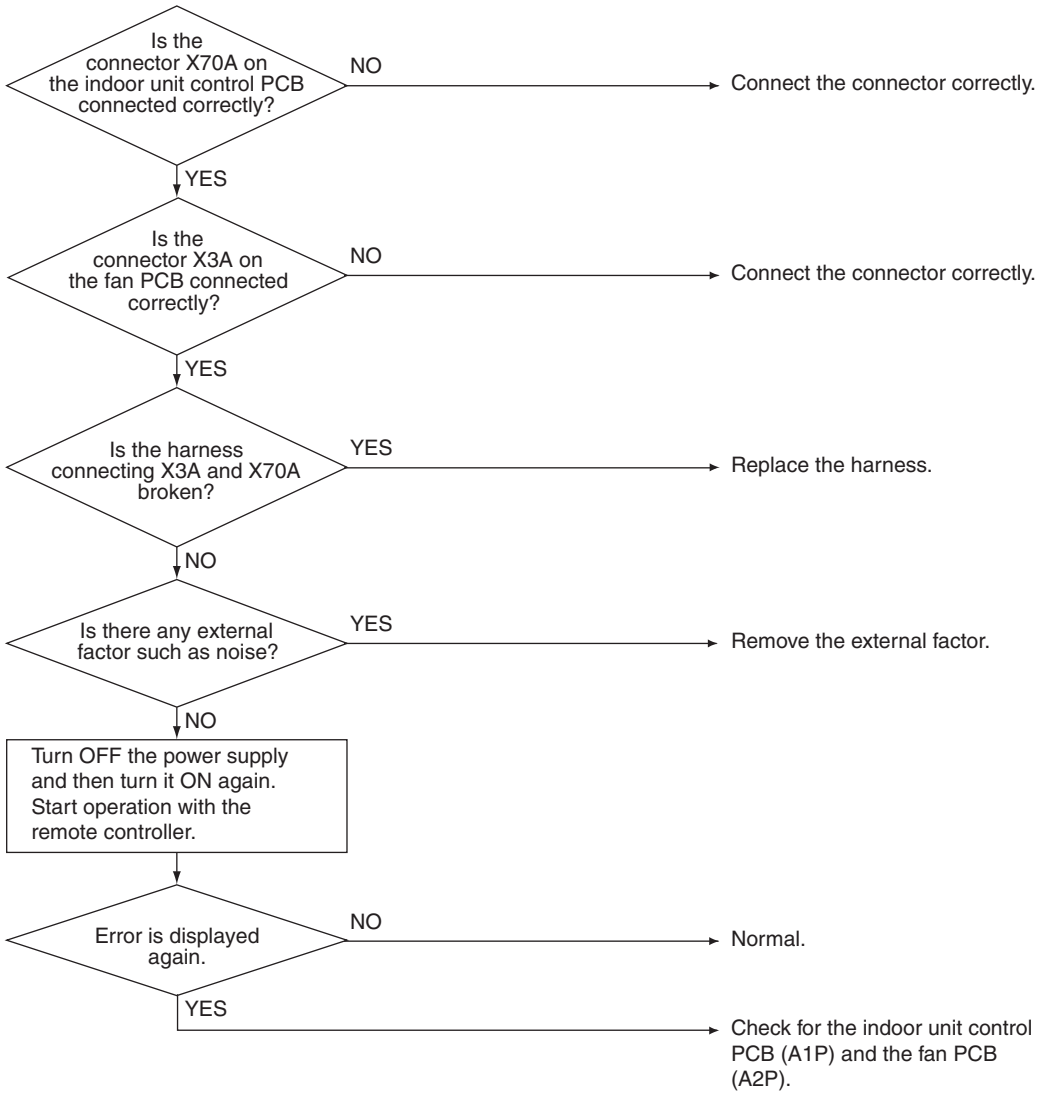
Method of Error Detection Microcomputer checks the voltage state of the fan PCB.

Error Decision Conditions Overvoltage or voltage drop is detected on the fan PCB.

Supposed Causes
- Defective fan PCB
- External factor such as noise

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6000549

5.8 Humidifier or Related Abnormality

Error Code

AF

Method of Error Detection

Water leakage from humidifier(s) is detected based on the float switch ON/OFF changeover while the system is not operating.

Error Decision Conditions

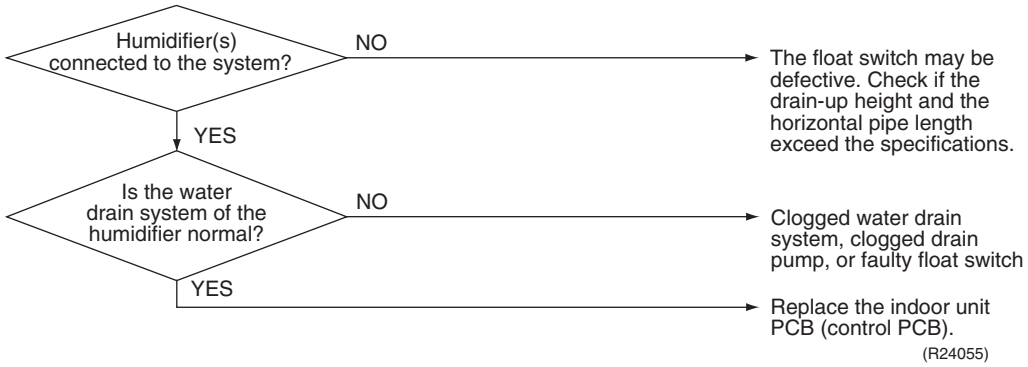
The float switch changes from ON to OFF while the system is OFF

Supposed Causes

- Defective float switch
- Error in water drain system of humidifier(s)
- Clogged electric expansion value in humidifier(s)
- Defective indoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



Note The system continues to operate with the thermostat OFF even while the error code is displayed.

5.9 Defective Capacity Setting

Error Code

AJ

Method of Error Detection

Capacity is determined according to resistance of the capacity setting adaptor and the memory inside the IC memory on the indoor unit control PCB, and whether the value is normal or abnormal is determined.

Error Decision Conditions

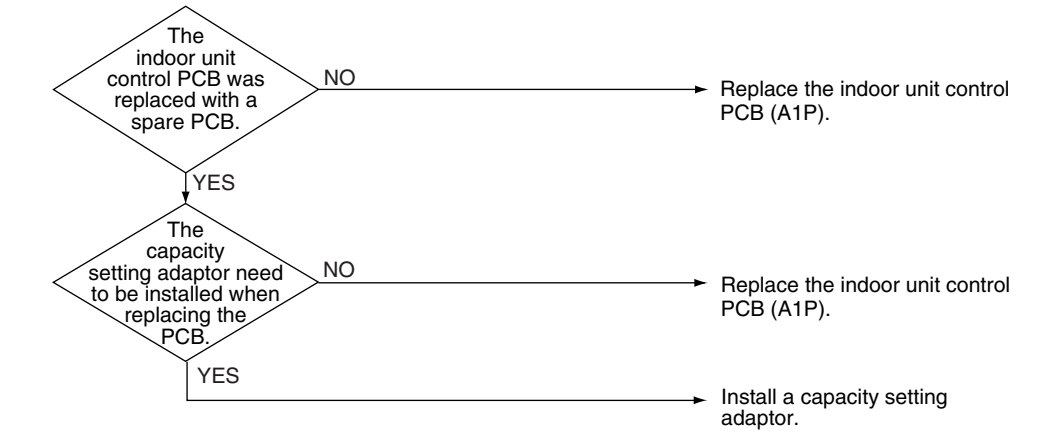
When the capacity code is not saved to the PCB, and the capacity setting adaptor is not connected. When a capacity that does not exist for that unit is set.

Supposed Causes

- The capacity setting adaptor was not installed.
- Defective indoor unit control PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6001344

5.10 Transmission Abnormality between Indoor Unit Control PCB and Fan PCB

Error Code

C1

Method of Error Detection

Transmission conditions between the indoor unit control PCB (A1P) and fan PCB (A3P) are checked via microcomputer.

Error Decision Conditions

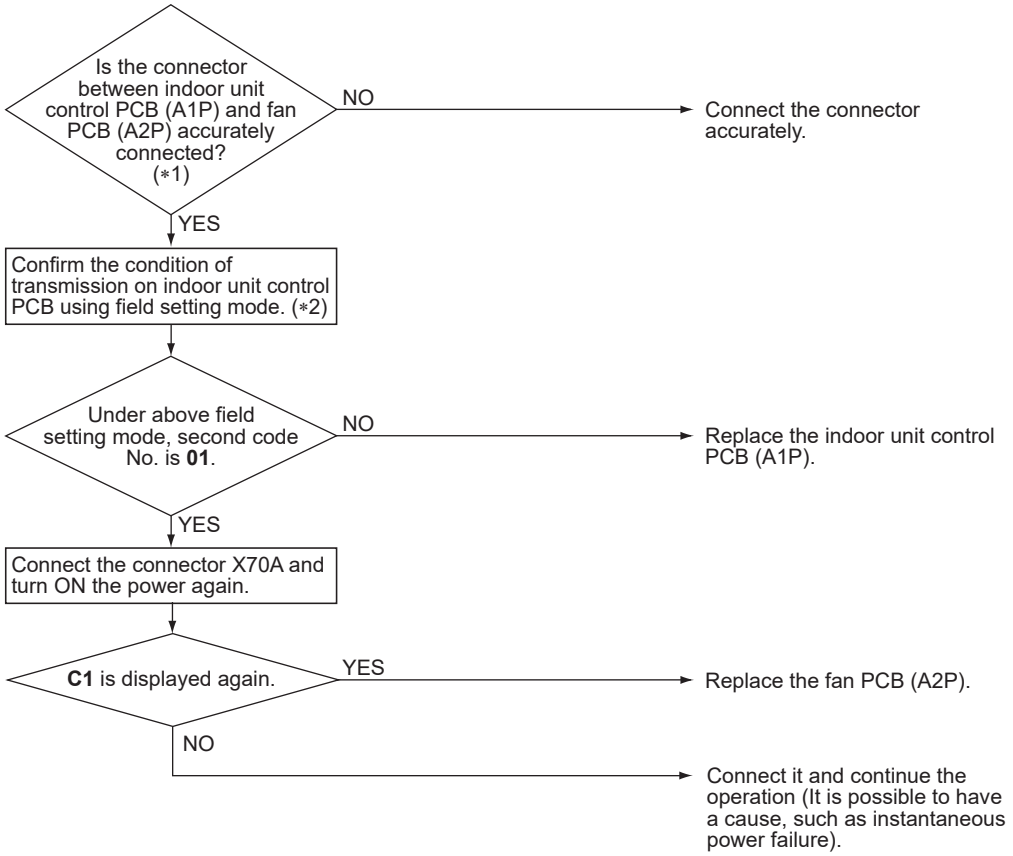
When normal transmission is not carried out for a certain duration.

Supposed Causes

- Defective connection of the connector between indoor unit control PCB (A1P) and fan PCB (A2P)
- Defective indoor unit control PCB (A1P)
- Defective fan PCB (A2P)
- External factor, such as instantaneous power failure

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6001345

Note(s)

∗1. Pull out and insert the connector once and check if it is absolutely connected.
∗2. Method to check transmission part of indoor unit control PCB.
(1) Turn OFF the power and remove the connector X70A of indoor unit control PCB (A1P).
(2) Short circuit X70A.
(3) After turning ON the power, check below numbers under field setting from remote controller.
(Confirmation: Second code No. at the condition of first code No. 21 on mode No. 41)

Determination	01: Normal
	Other than 01: Transmission error on indoor unit control PCB

* After confirmation, turn OFF the power, take off the short circuit and connect X70A back to original condition.

5.11 Thermistor or Related Abnormality

Error Code

C4, C5, C9

Method of Error Detection

The temperatures detected by the thermistors determine thermistor errors.

Error Decision Conditions

The thermistor is disconnected or shorted while the unit is running.

Supposed Causes

- Disconnection of connector
- Defective thermistor(s)
- Breaking of wires
- Defective indoor unit PCB

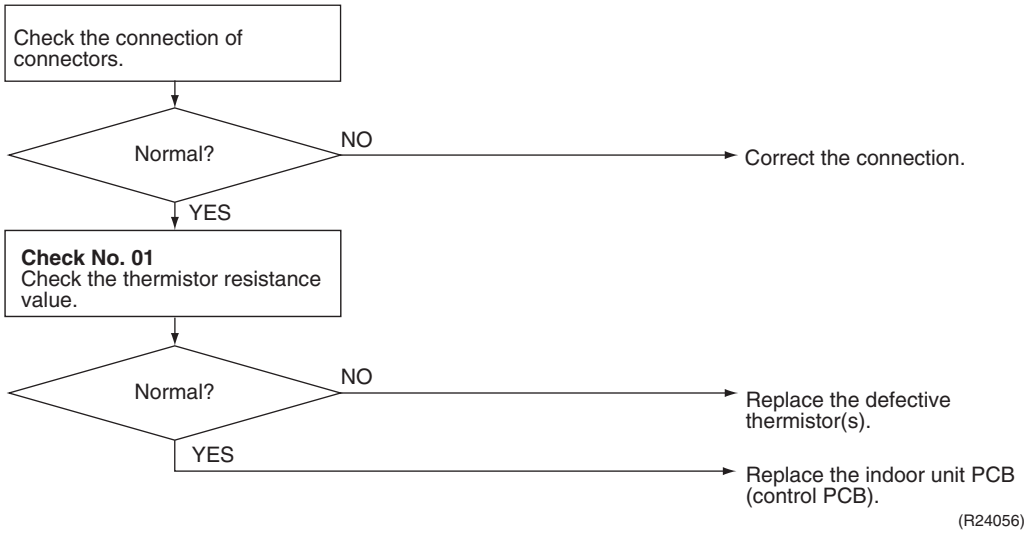
Troubleshooting

If the cause of the problem is related to the thermistors, the thermistors should be checked prior to changing the indoor unit PCB.

To check the thermistors, proceed as follows:

1. Disconnect the thermistor from the indoor unit PCB.
2. Read the temperature and the resistance value.
3. Check if the measured values correspond with the values in the table of thermistor resistance check.

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



C4: Indoor heat exchanger thermistor 1 (liquid pipe) (R2T)
C5: Indoor heat exchanger thermistor 2 (R3T)
C9: Room temperature thermistor (R1T)

Reference

Check No.01 Refer to P.126

5.12 Refrigerant Leak Detection Sensor Failure

Error Code	**CH-11**
Method of Error Detection	Error is issued when control PCB receives fault status from leak detection sensor during operation.
Error Decision Conditions	When leak detection sensor sends fault status information to control PCB for a certain set timeframe.
Supposed Causes	■ Broken leak detection sensor ■ Degraded leak detection sensor
Troubleshooting	■ Replace the leak detection sensor. ■ Change the field setting 15 (25)-14 to **02** and turn the power back on.

5.13 Refrigerant Leak Detection Sensor Disconnection

Error Code

CH-14

Method of Error Detection

Error is issued when leak detection sensor is not connected to A1P control PCB when powered up.

Error Decision Conditions

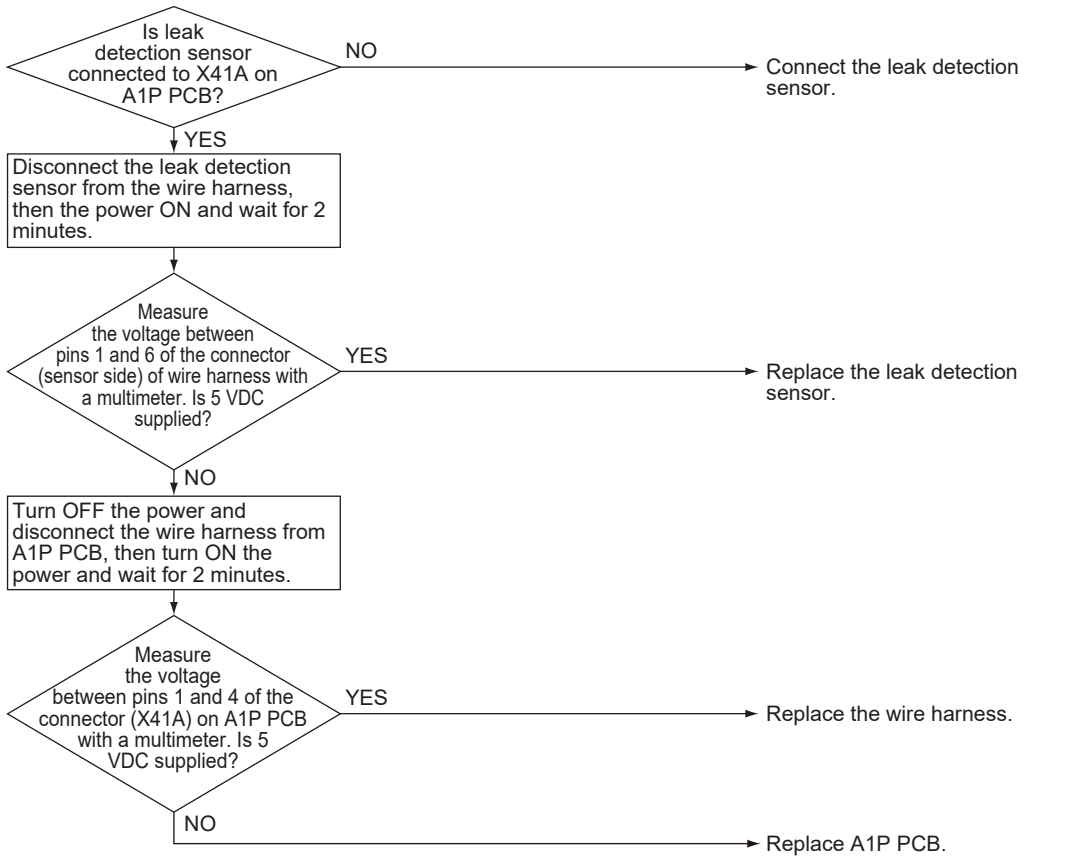
When A1P control PCB does not have a connection with leak detection sensor at startup.

Supposed Causes

- Disconnected leak detection sensor
- Broken wires in, short circuit of, or disconnection of connector of leak detection sensor
- Incorrect wiring
- Defective A1P control PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6001346

5.14 Remote Controller Thermistor Abnormality

Error Code

CJ

Method of Error Detection

Even if remote controller thermistor is faulty, system is possible to operate by system thermistor. Malfunction detection is carried out by the temperature detected by the remote controller thermistor.

Error Decision Conditions

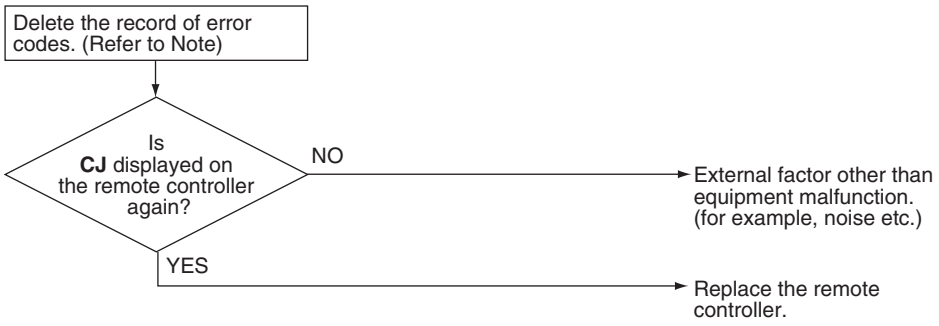
The remote controller thermistor is disconnected or shorted while the unit is running.

Supposed Causes

- Defective room temperature thermistor in the wired remote controller
- Defective wired remote controller PCB
- External factor such as noise

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



(R23951)

Note To delete the record of error codes, press **ON/OFF** button on the remote controller for 4 seconds or more while the error code is displayed in the inspection mode.

5.15 Low-voltage Detection or Over-voltage Detection

Error Code

U2

Method of Error Detection

Low-voltage detection:
An abnormal voltage drop is detected by the DC voltage detection circuit.

Over-voltage detection:
An abnormal voltage rise is detected by the over-voltage detection circuit.

Error Decision Conditions

Low-voltage detection:

- The voltage detected by the DC voltage detection circuit is below 170 V (depending on the model).
- The compressor stops if the error occurs, and restarts automatically after 3-minute standby.

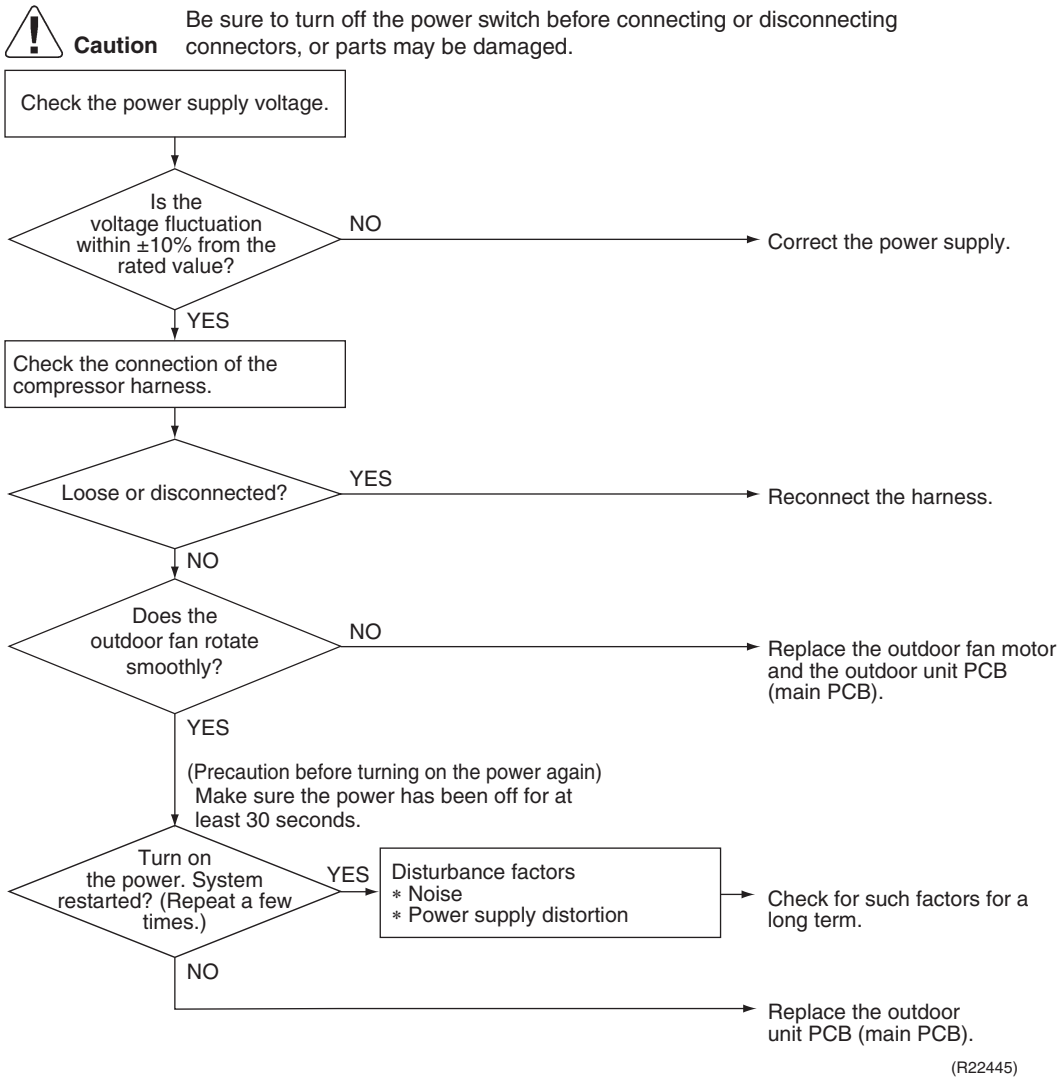
Over-voltage detection:

- An over-voltage signal is fed from the over-voltage detection circuit to the microcomputer (over 458 ~ 478 V, depending on the model).
- The compressor stops if the error occurs, and restarts automatically after 3-minute standby.

Supposed Causes

- Power supply voltage out of specification
- Defective DC voltage detection circuit
- Defective over-voltage detection circuit
- Defective PAM control part
- Disconnection of compressor harness
- Short circuit inside the fan motor winding
- Noise
- Momentary drop of voltage
- Momentary power failure
- Defective outdoor unit PCB

Troubleshooting

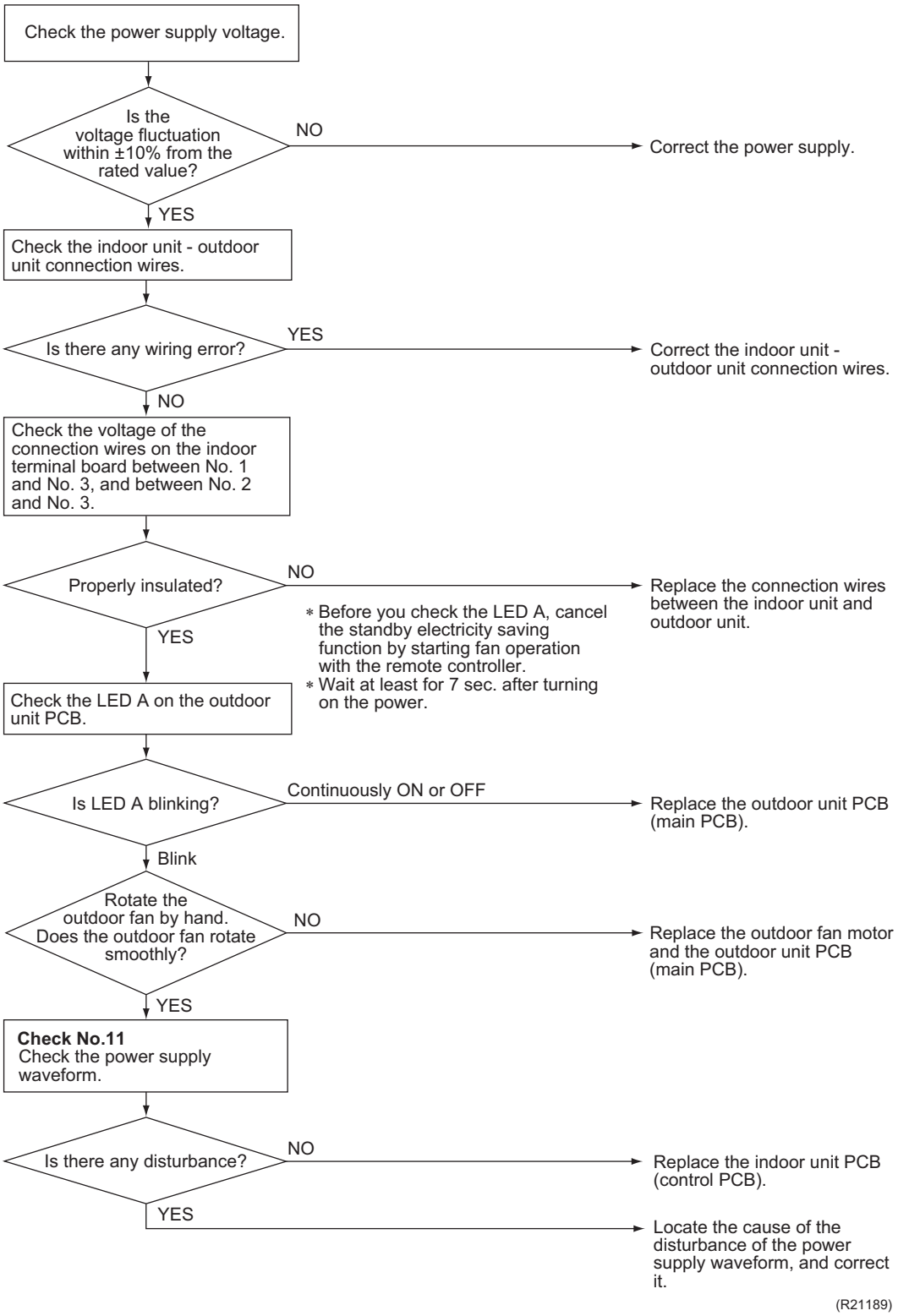


5.16 Signal Transmission Error (Between Indoor Unit and Outdoor Unit)

Error Code	**U4**
Method of Error Detection	The signal transmission data received from the outdoor unit is checked whether it is normal.
Error Decision Conditions	The data sent from the outdoor unit cannot be received normally, or the content of the data is abnormal.
Supposed Causes	■ Power supply voltage not as specified ■ Reduction of power supply voltage ■ Wiring error ■ Breaking of the connection wires between the indoor and outdoor units (wire No. 3) ■ Defective outdoor unit PCB ■ Short circuit inside the fan motor winding ■ Defective indoor unit PCB ■ Disturbed power supply waveform

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



(R21189)

Reference **Check No.11** Refer to P.127

5.17 Signal Transmission Error (Between Indoor Unit and Remote Controller)

Error Code

U5

Method of Error Detection

In case of controlling 1 indoor unit with 2 remote controllers, check the system using microcomputer if signal transmission between indoor unit and remote controller (main and sub) is normal.

Error Decision Conditions

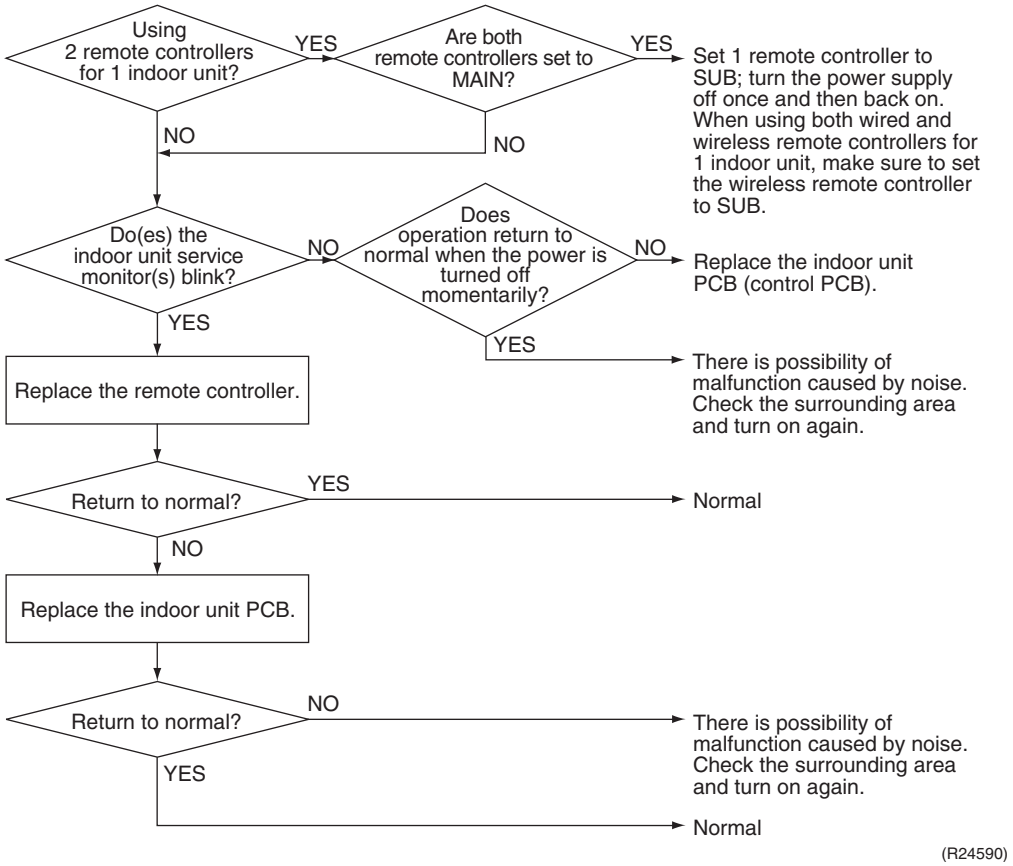
Normal transmission does not continue for specified period.

Supposed Causes

- Connection of 2 main remote controllers (when using 2 remote controllers)
- Defective indoor unit PCB
- Defective remote controller
- Transmission error caused by noise

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



Note For the way to change MAIN/SUB setting of remote controllers, refer to pages 148.

5.18 Signal Transmission Error (Between MAIN/SUB Remote Controllers)

Error Code

U8

Method of Error Detection

In case of controlling 1 indoor unit with 2 remote controllers, check the system using microcomputer if signal transmission between MAIN remote controller and SUB remote controller is normal.

Error Decision Conditions

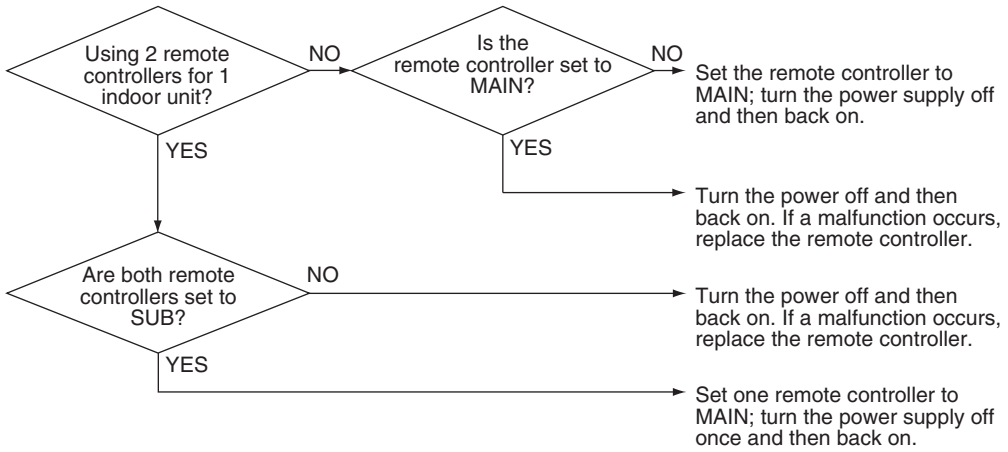
Normal transmission does not continue for specified period.

Supposed Causes

- Remote controller is set to SUB when using 1 remote controller
- Connection of 2 SUB remote controllers (when using 2 remote controllers)
- Defective remote controller PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



(R24058)

Note For the way to change MAIN/SUB setting of remote controllers, refer to pages 148.

5.19 Unspecified Voltage (Between Indoor Unit and Outdoor Unit)

Error Code

UA

Error Decision Conditions

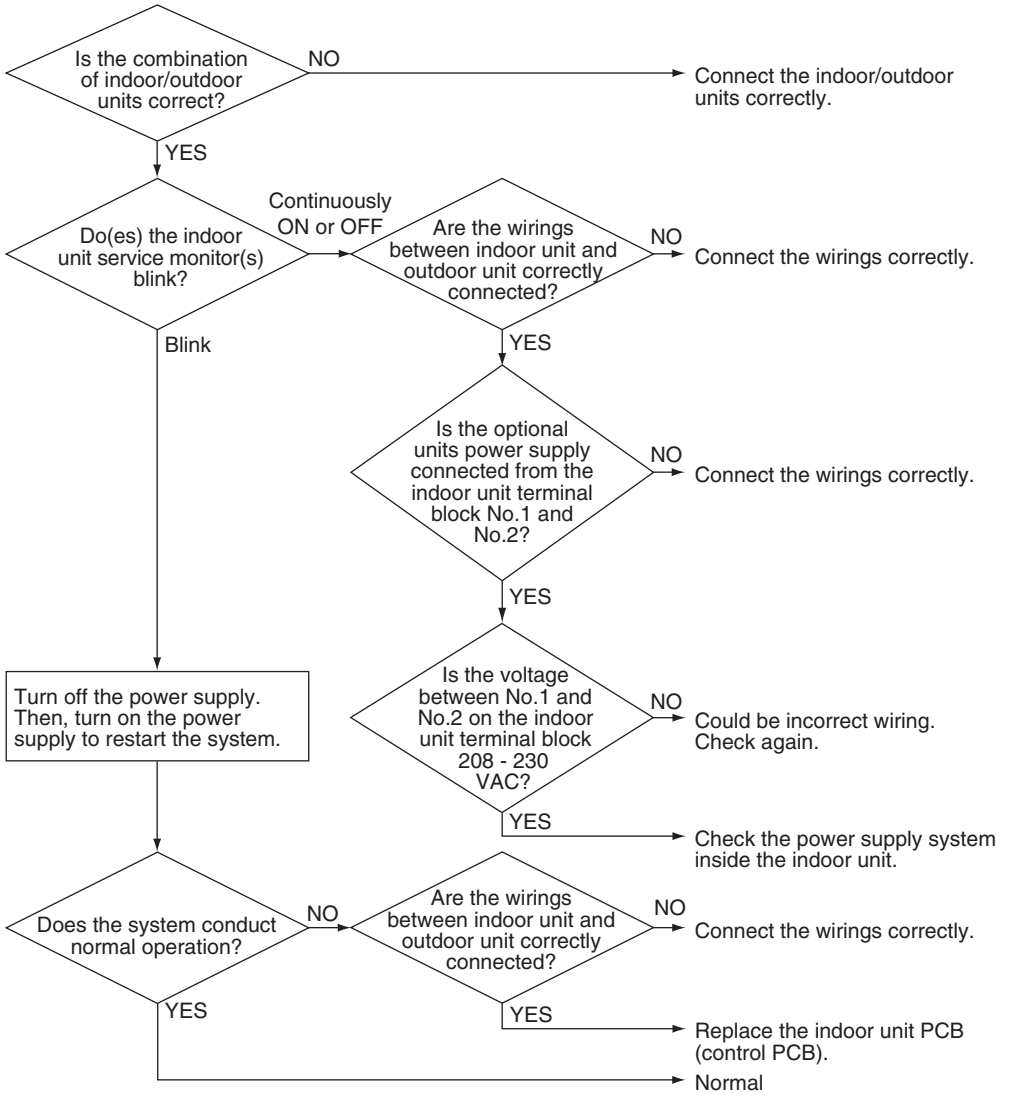
Improper combination of indoor and outdoor units

Supposed Causes

- Defective indoor unit PCB
- Indoor-outdoor unit transmission wiring error
- Defective optional unit(s) wirings
- Improper power supply wiring of indoor unit
- Improper wiring of connecting wires between indoor/outdoor units

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



(R24591)

5.20 Address Duplication of Centralized Controller

Error Code

UC

Method of Error Detection

The principal indoor unit detects the same address as that of its own on any other indoor unit.

Error Decision Conditions

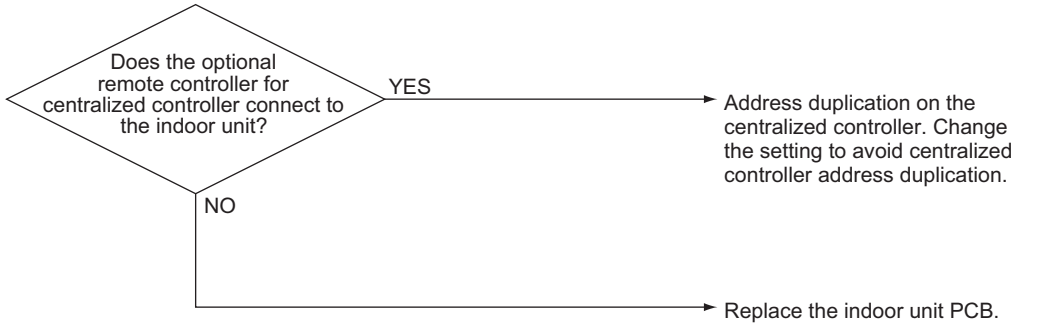
The error decision is made as soon as the abnormality aforementioned is detected.

Supposed Causes

- Address duplication of centralized controller
- Defective indoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6001343

6. Troubleshooting for Outdoor Unit

6.1 Outdoor Unit PCB Abnormality

Error Code

E1

Method of Error Detection

- The system checks if the microprocessor is working in order.
- The system checks if the zero-cross signal comes in properly.

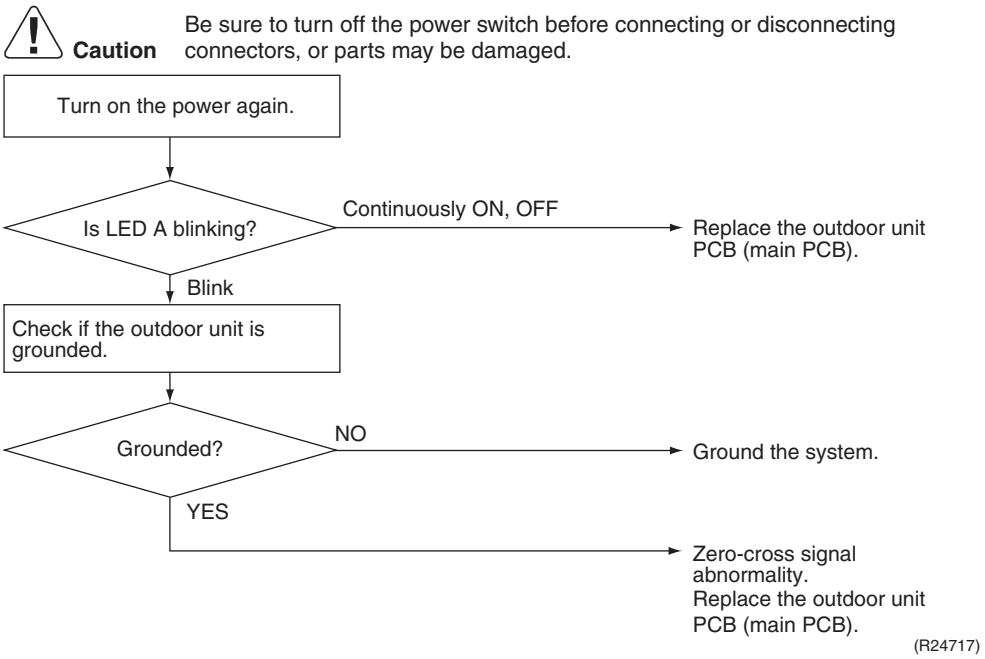
Error Decision Conditions

- The microprocessor program runs out of control.
- The zero-cross signal is not detected.

Supposed Causes

- Defective outdoor unit PCB
- Defective electronic expansion valve driver
- Defective IGBT temperature detection thermistor circuit (15-24 class only)
- Defective Fan IPM temperature detection thermistor circuit (15-24 class only)
- Noise
- Momentary drop of voltage
- Momentary power failure

Troubleshooting



6.2 Actuation of High Pressure Switch

Error Code

E3

Method of Error Detection

Abnormality is detected when the contact of the high pressure switch opens.

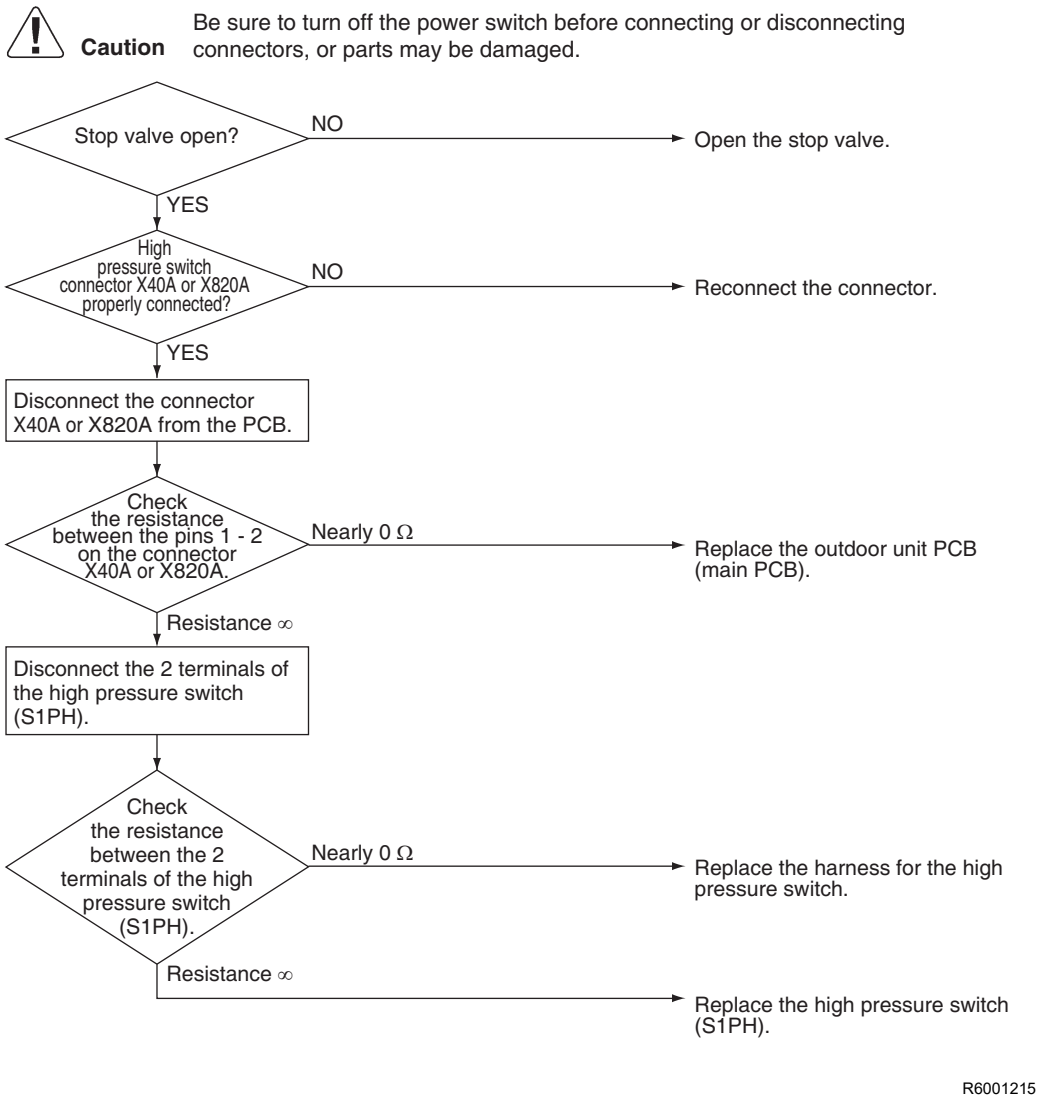
Error Decision Conditions

- High pressure switch (S1PH) activating pressure: 4.15 MPa (602 psi)
- High pressure switch (S1PH) recovery pressure: 3.2 MPa (464 psi)

Supposed Causes

- Actuation of high pressure switch (S1PH)
- Closed stop valve
- Disconnection of connector X40A or X820A
- Disconnection of 2 terminals of high pressure switch (S1PH)
- Defective outdoor unit PCB
- Broken S1PH harness
- Defective high pressure switch (S1PH)

Troubleshooting



R6001215

6.3 OL Activation (Compressor Overload)

Error Code

E5

Method of Error Detection

A compressor overload is detected through compressor OL.

Error Decision Conditions

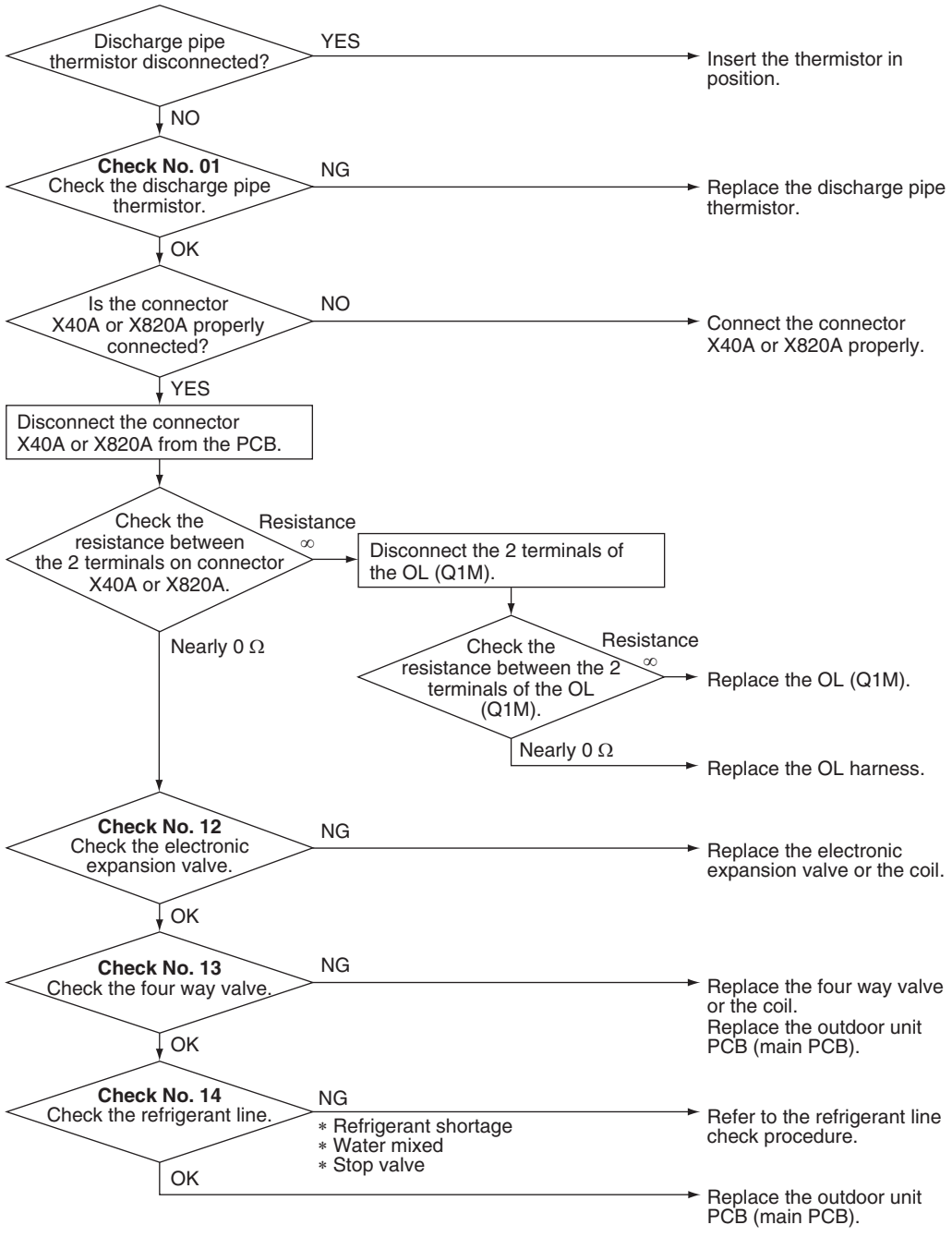
- If the error repeats, the system is shut down.
- Reset condition: Continuous run for about 60 minutes without any other error

Supposed Causes

- Disconnection of discharge pipe thermistor
- Defective discharge pipe thermistor
- Disconnection of connector X40A or X820A
- Disconnection of 2 terminals of OL (Q1M)
- Defective OL (Q1M)
- Broken OL harness
- Defective electronic expansion valve or coil
- Defective four way valve or coil
- Defective outdoor unit PCB
- Refrigerant shortage
- Water mixed in refrigerant
- Defective stop valve

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6001216

Notes
OL (Q1M) activating temperature: 120 ~ 130°C (248 ~ 266°F)
OL (Q1M) activating temperature: 110°C (230°F)

Reference **Check No.01** Refer to P.126

Reference **Check No.12** Refer to P.128

Reference **Check No.13** Refer to P.129

Reference **Check No.14** Refer to P.129

6.4 Compressor Lock

Error Code **E6**

Method of Error Detection
A compressor lock is detected by the current waveform generated when applying high-frequency voltage to the motor.

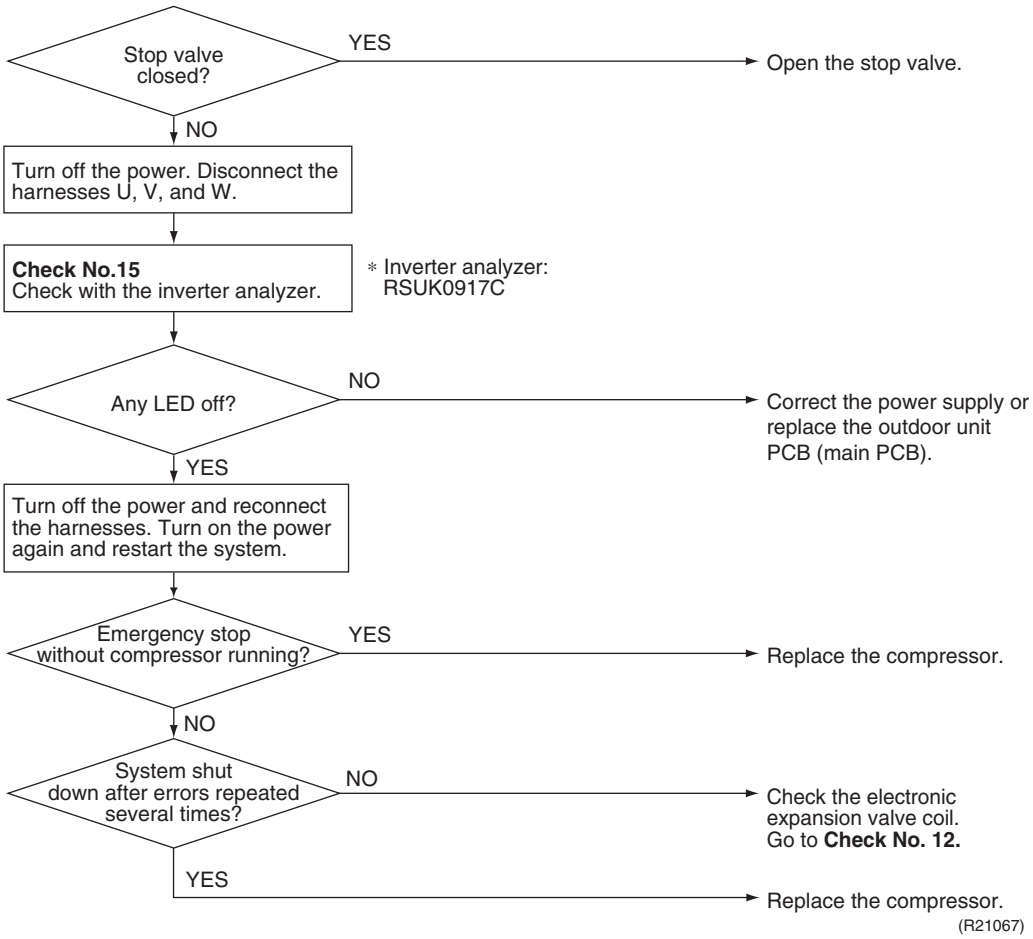
Error Decision Conditions
- If the error repeats, the system is shut down.
- Reset condition: Continuous run for about 11 minutes without any other error

Supposed Causes
- Closed stop valve
- Compressor locked
- Disconnection of compressor harness
- Defective electronic expansion valve

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

(Precaution before turning on the power again)
Make sure the power has been off for at least 30 seconds.



Reference **Check No.12** Refer to P.128

Reference **Check No.15** Refer to P.130

6.5 DC Fan Lock

Error Code

E7

Method of Error Detection

An error is determined with the high-voltage fan motor rotation speed detected by the Hall IC.

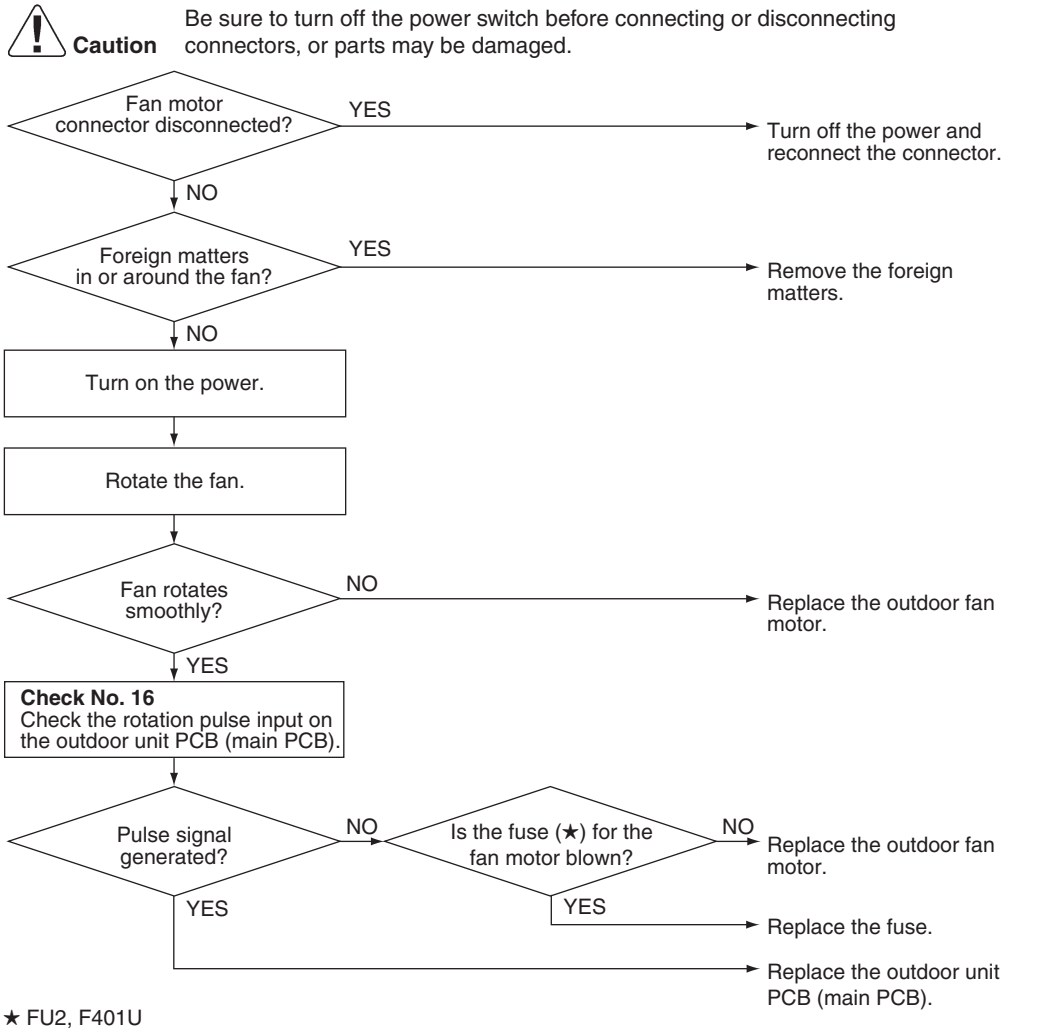
Error Decision Conditions

- The fan does not start in 15 ~ 30 seconds even when the fan motor is running.
- If the error repeats, the system is shut down.
- Reset condition: Continuous run for about 11 minutes without any other error

Supposed Causes

- Disconnection of the fan motor
- Foreign matter stuck in the fan
- Defective fan motor
- Defective outdoor unit PCB

Troubleshooting



R6001210

Reference **Check No.16** Refer to P.132

6.6 Input Overcurrent Detection

Error Code

E8

Method of Error Detection

An input overcurrent is detected by checking the input current value with the compressor running.

Error Decision Conditions

The current exceeds about 12.0 ~ 20.0 A (depending on the model) for 2.5 seconds with the compressor running.
The upper limit of the current decreases when the outdoor temperature exceeds a certain level.

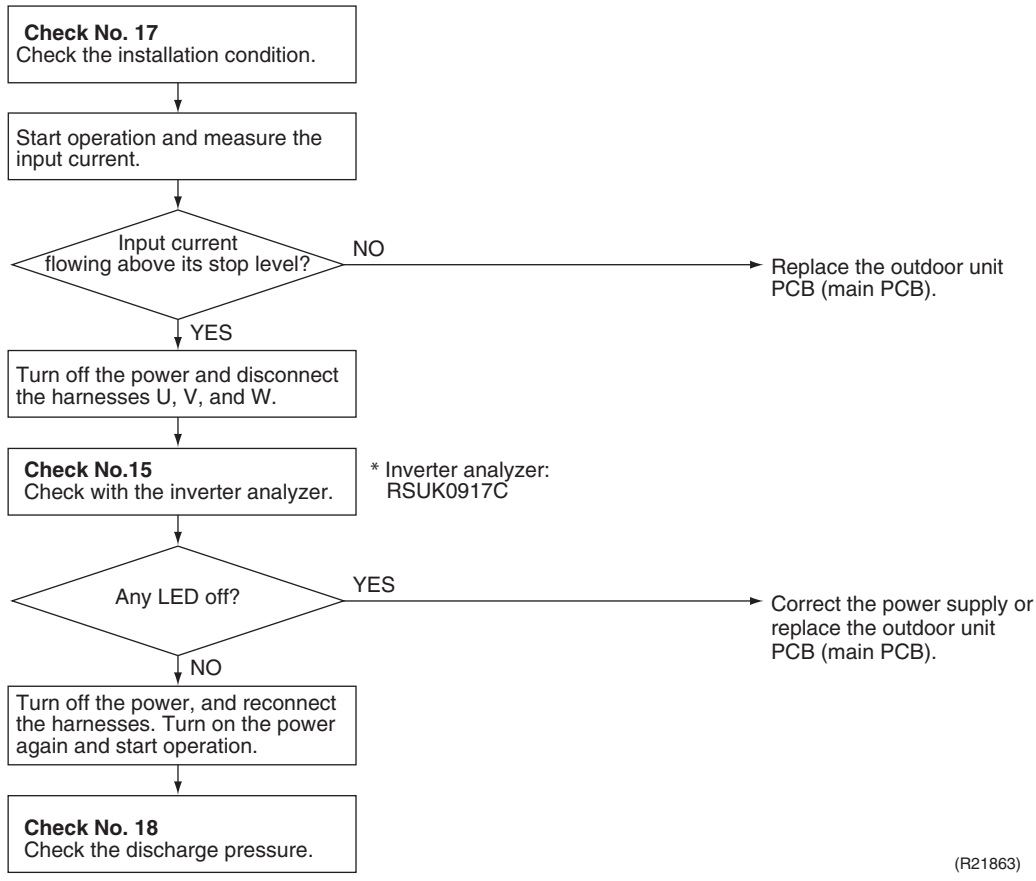
Supposed Causes

- Outdoor temperature is out of operation range.
- Defective compressor
- Defective power module
- Defective outdoor unit PCB
- Short circuit

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

* An input overcurrent may result from wrong internal wiring. If the system is interrupted by an input overcurrent after the wires have been disconnected and reconnected for part replacement, check the wiring again.



Reference **Check No.15** Refer to P.130

Reference **Check No.17** Refer to P.132

Reference **Check No.18** Refer to P.133

6.7 Electronic Expansion Valve Coil Abnormality

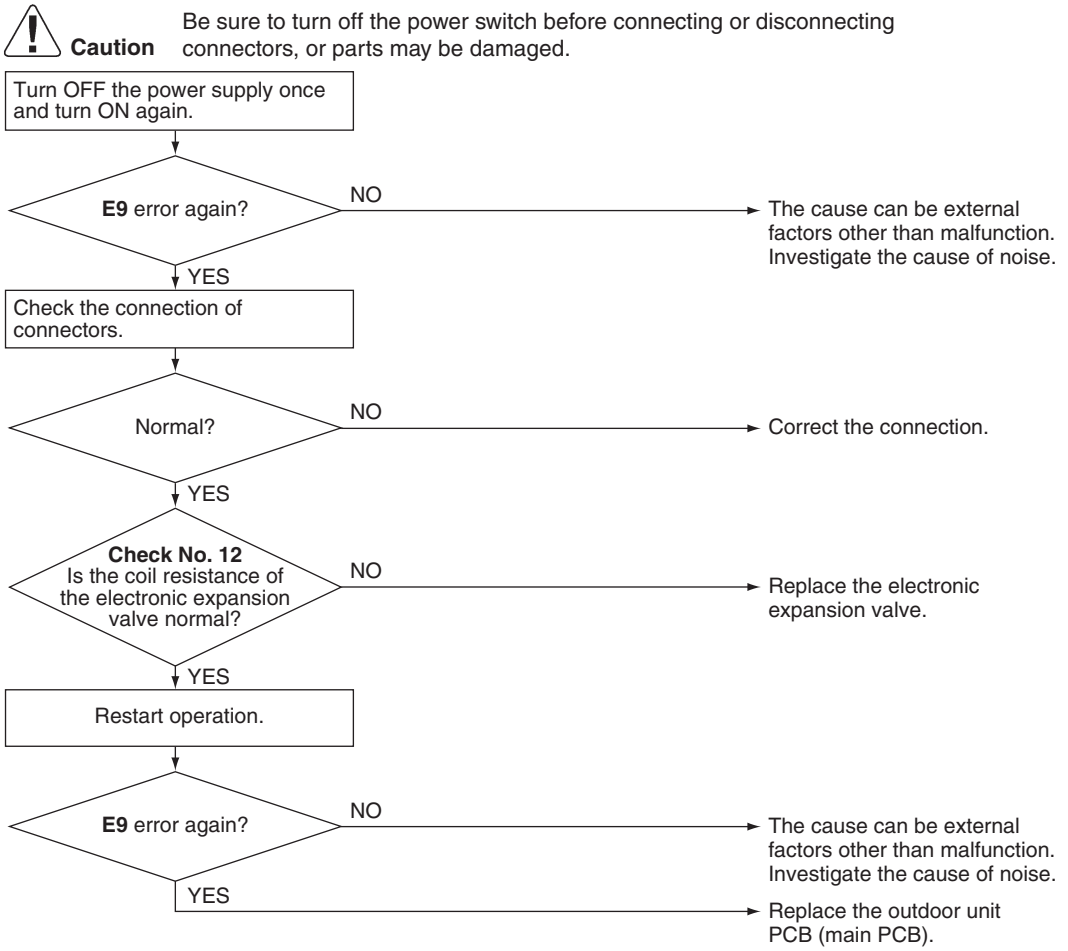
Error Code **E9**

Method of Error Detection
Detect errors based on check of continuity of the electronic expansion valve.

Error Decision Conditions
- High input voltage from electronic expansion valve to the microcomputer due to overcurrent.
- Low input voltage from electronic expansion valve to the microcomputer due to disconnected connectors.

Supposed Causes
- Defective electronic expansion coil
- Broken harness of electronic expansion coil
- Defective connection of electronic expansion coil connector
- Defective outdoor unit main PCB

Troubleshooting



R6001235

Reference **Check No.12** Refer to P.128

6.8 Four Way Valve Abnormality

Error Code

EA

Method of Error Detection

The room temperature thermistor and the indoor heat exchanger thermistor are checked if they function within their normal ranges in each operation mode.

Error Decision Conditions

The following condition continues over **C** seconds after operating for 5 minutes.

- Cooling/Dry
  A – **B** < –5°C (**A** – **B** < –9°F)
- Heating
  B – **A** < –5°C (**B** – **A** < –9°F)

  A: Room thermistor temperature
  B: Indoor heat exchanger temperature

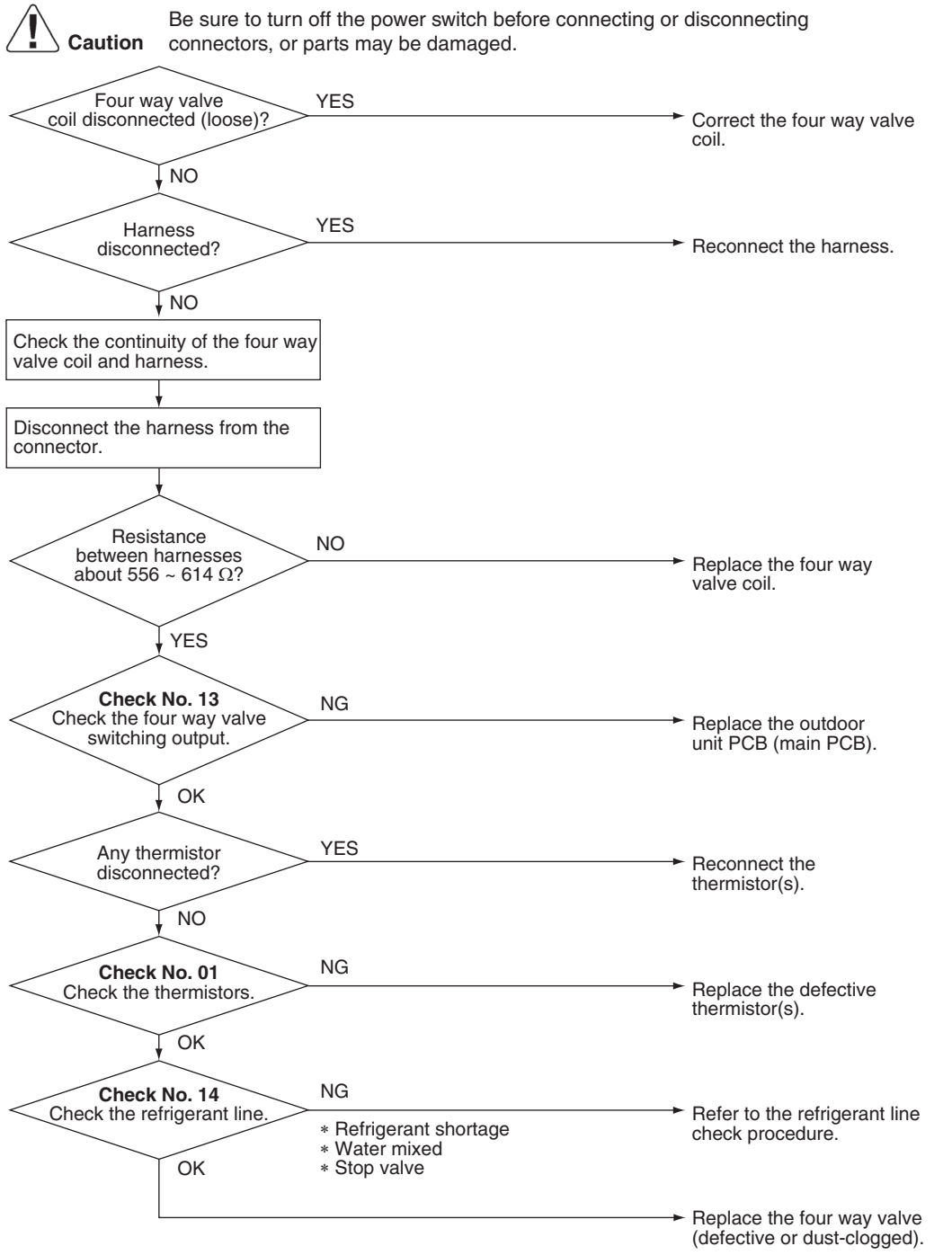
Outdoor temperature	**C** (seconds)				
	09 class	12 class	15 class	18 class	24 class
–15°C (5°F) or higher	300	300	300	300	300
Lower than –15°C (5°F)	600	300	1400	1400	1400

- If the error repeats, the system is shut down.
- Reset condition: Continuous run for about 60 minutes without any other error

Supposed Causes

- Disconnection of four way valve coil
- Defective four way valve, coil, or harness
- Defective outdoor unit PCB
- Defective thermistor(s)
- Refrigerant shortage
- Water mixed in refrigerant
- Defective stop valve

Troubleshooting



R6001164

Reference **Check No.01** Refer to P.126

Reference **Check No.13** Refer to P.129

Reference **Check No.14** Refer to P.129

6.9 Discharge Pipe Temperature Control

Error Code

F3

Method of Error Detection

An error is determined with the temperature detected by the discharge pipe thermistor.

Error Decision Conditions

- If the temperature detected by the discharge pipe thermistor rises above **A**, the compressor stops.
- The error is cleared when the discharge pipe temperature has dropped below **B**.
- If the error repeats, the system is shut down.
- Reset condition: Continuous run for about 60 minutes without any other error

	A		B	
	°C	°F	°C	°F
09 class	110	230	88	190.4
12 class	118	244.4	79	174.2
15/18/24 class	118	244.4	85	185

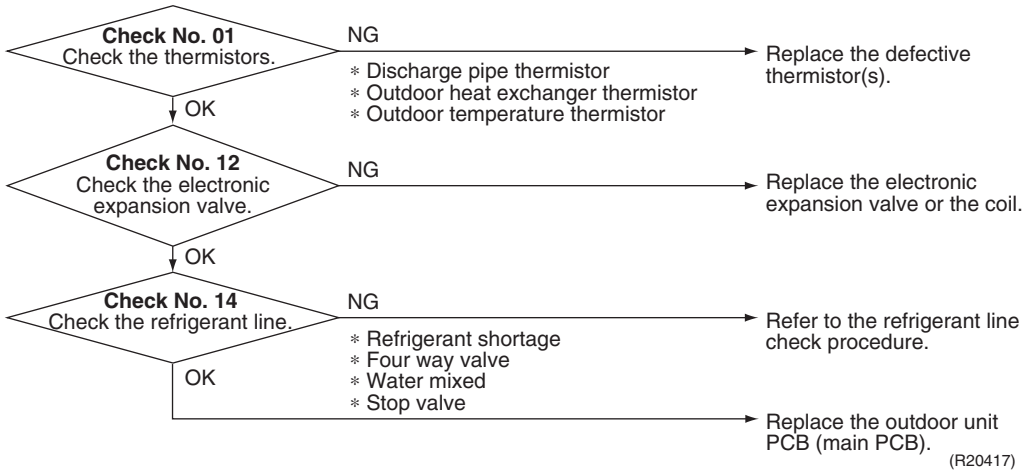
★ If the frequency drops, the temperature is lowered in compensation.

Supposed Causes

- Defective discharge pipe thermistor
  (Defective outdoor heat exchanger thermistor or outdoor temperature thermistor)
- Defective electronic expansion valve or coil
- Refrigerant shortage
- Defective four way valve
- Water mixed in refrigerant
- Defective stop valve
- Defective outdoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



Reference **Check No.01** Refer to P.126

Reference **Check No.12** Refer to P.128

Reference **Check No.14** Refer to P.129

6.10 High Pressure Control in Cooling

Error Code

F6

Method of Error Detection

High-pressure control (operation halt, frequency drop, etc.) is activated in cooling operation if the temperature sensed by the outdoor heat exchanger thermistor exceeds the limit.

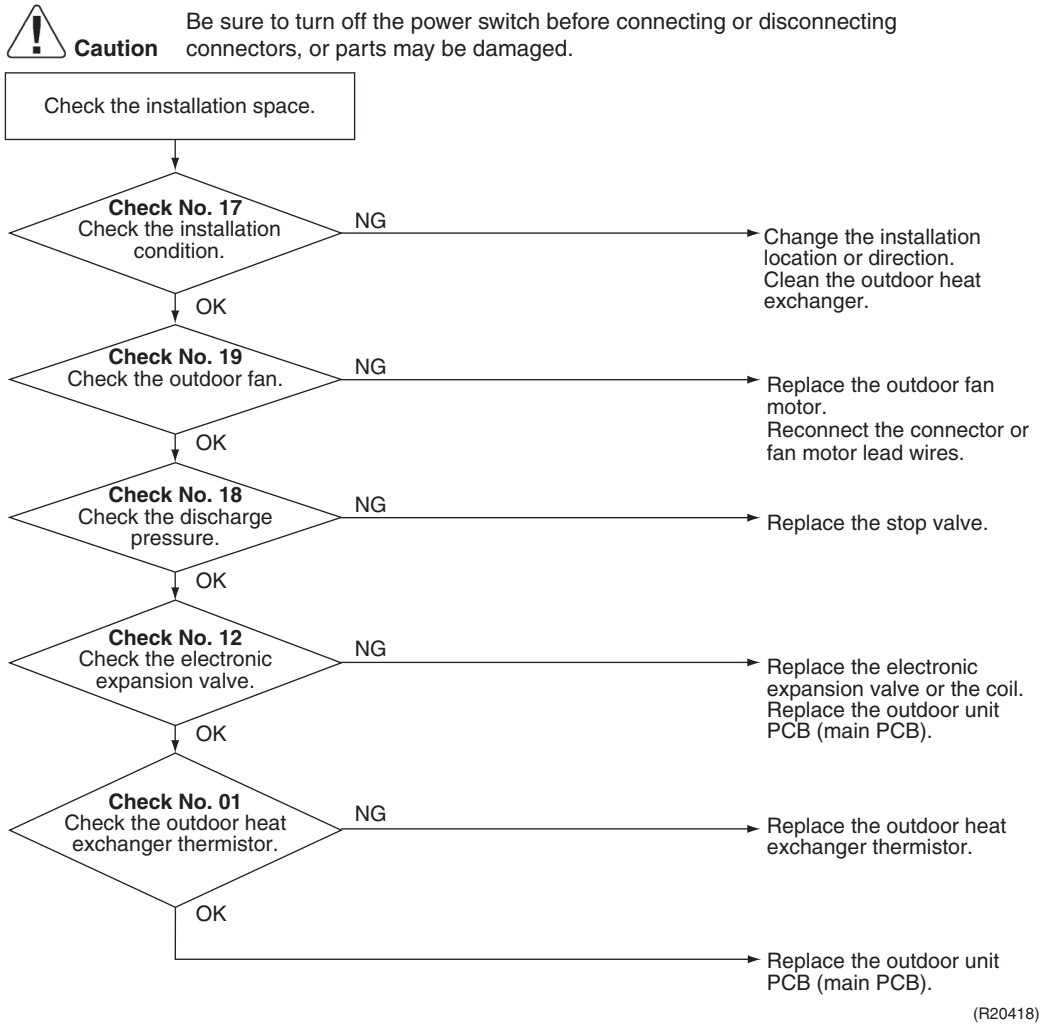
Error Decision Conditions

- The temperature sensed by the outdoor heat exchanger thermistor rises above 60 ~ 62°C (140 ~ 143.6°F) (depending on the model).
- The error is cleared when the temperature drops below 48.5 ~ 52°C (119.3 ~ 125.6°F) (depending on the model).

Supposed Causes

- Installation space not large enough
- Dirty outdoor heat exchanger
- Defective outdoor fan motor
- Defective stop valve
- Defective electronic expansion valve or coil
- Defective outdoor heat exchanger thermistor
- Defective outdoor unit PCB

Troubleshooting



Reference **Check No.01** Refer to P.126

Reference **Check No.12** Refer to P.128

Reference **Check No.17** Refer to P.132

Reference **Check No.18** Refer to P.133

Reference **Check No.19** Refer to P.133

6.11 System Shutdown due to Temperature Abnormality in the Compressor

Error Code F8

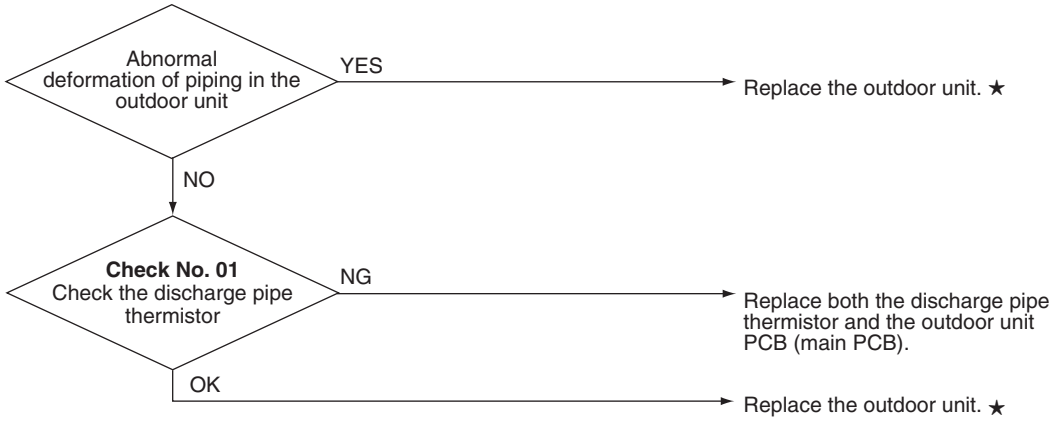
Method of Error Detection Operation is halted when the temperature detected by the discharge pipe thermistor exceeds the determined limit.

Error Decision Conditions Temperature exceeds the detection threshold of 127.5°C (261.5°F) during forced cooling operation.

Supposed Causes
- Abnormal operation due to air intrusion
- Defective discharge pipe thermistor

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



★ Replace the unit as directed in the installation manual, making sure that air does not intrude into the refrigerant piping.

(R23655)

Reference **Check No.01** Refer to P.126

6.12 Compressor Sensor System Abnormality

Error Code

H0

Method of Error Detection

The system checks the DC current before the compressor starts.

Error Decision Conditions

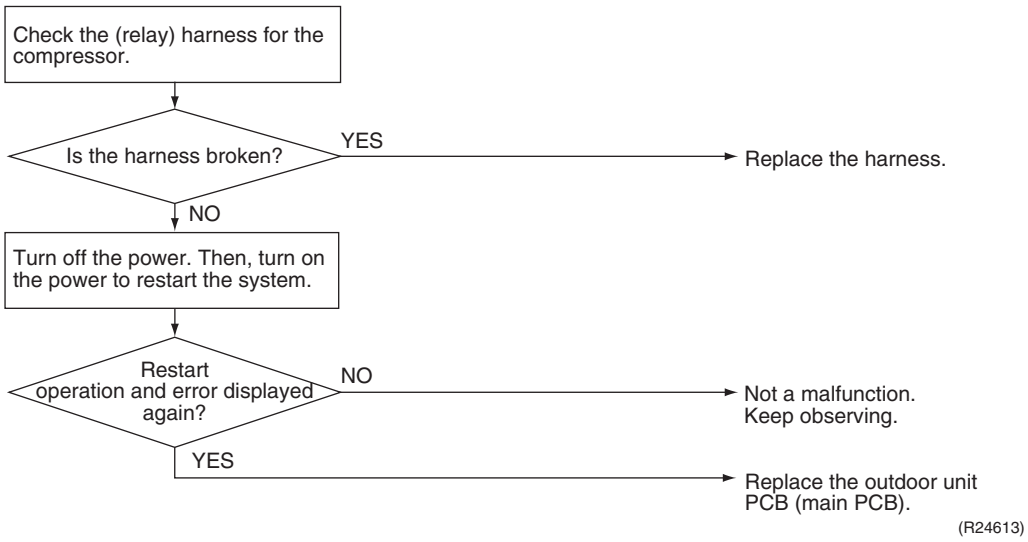
- The voltage converted from the DC current before compressor start-up is out of the range 0.5 ~ 4.5 V.
- The DC voltage before compressor start-up is below 50 V.

Supposed Causes

- Broken or disconnected harness
- Defective outdoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



6.13 High Pressure Switch System Abnormality

Error Code

H3

Method of Error Detection

The protection device circuit cheeks continuity in the high pressure switch.

Error Decision Conditions

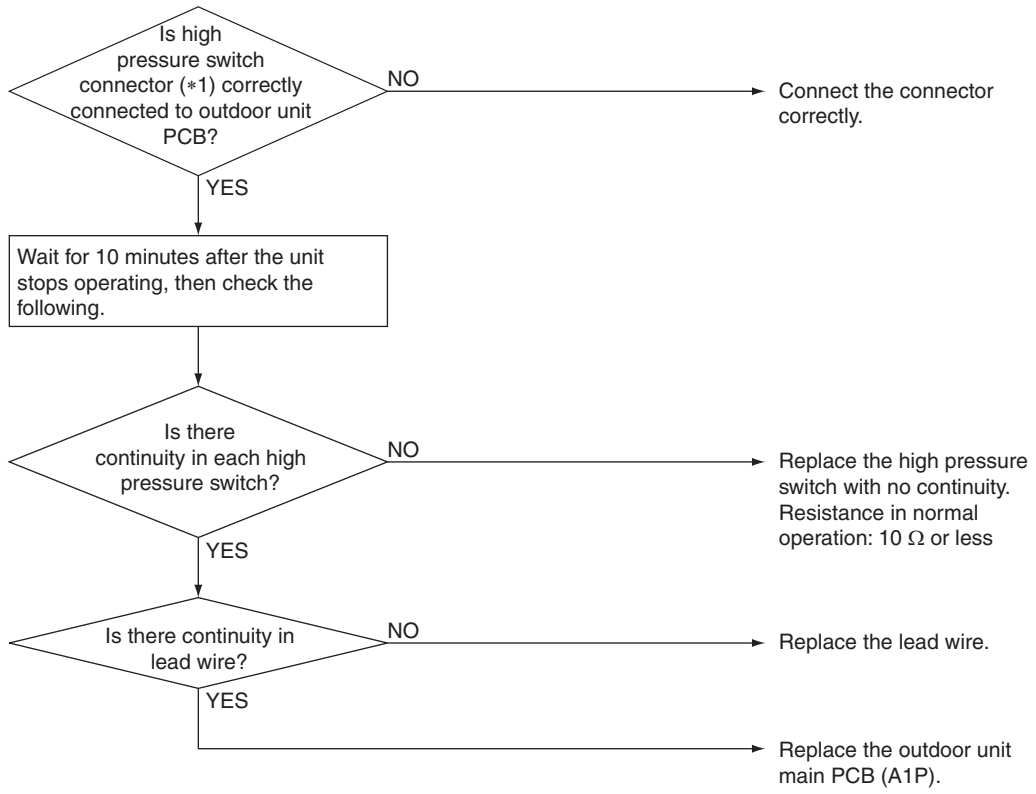
There is no continuity in the high pressure switch when the compressor stops operating.

Supposed Causes

- Defective high pressure switch
- Defective connection of high pressure switch connector
- Defective outdoor unit main PCB
- Disconnected lead wire

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6001112

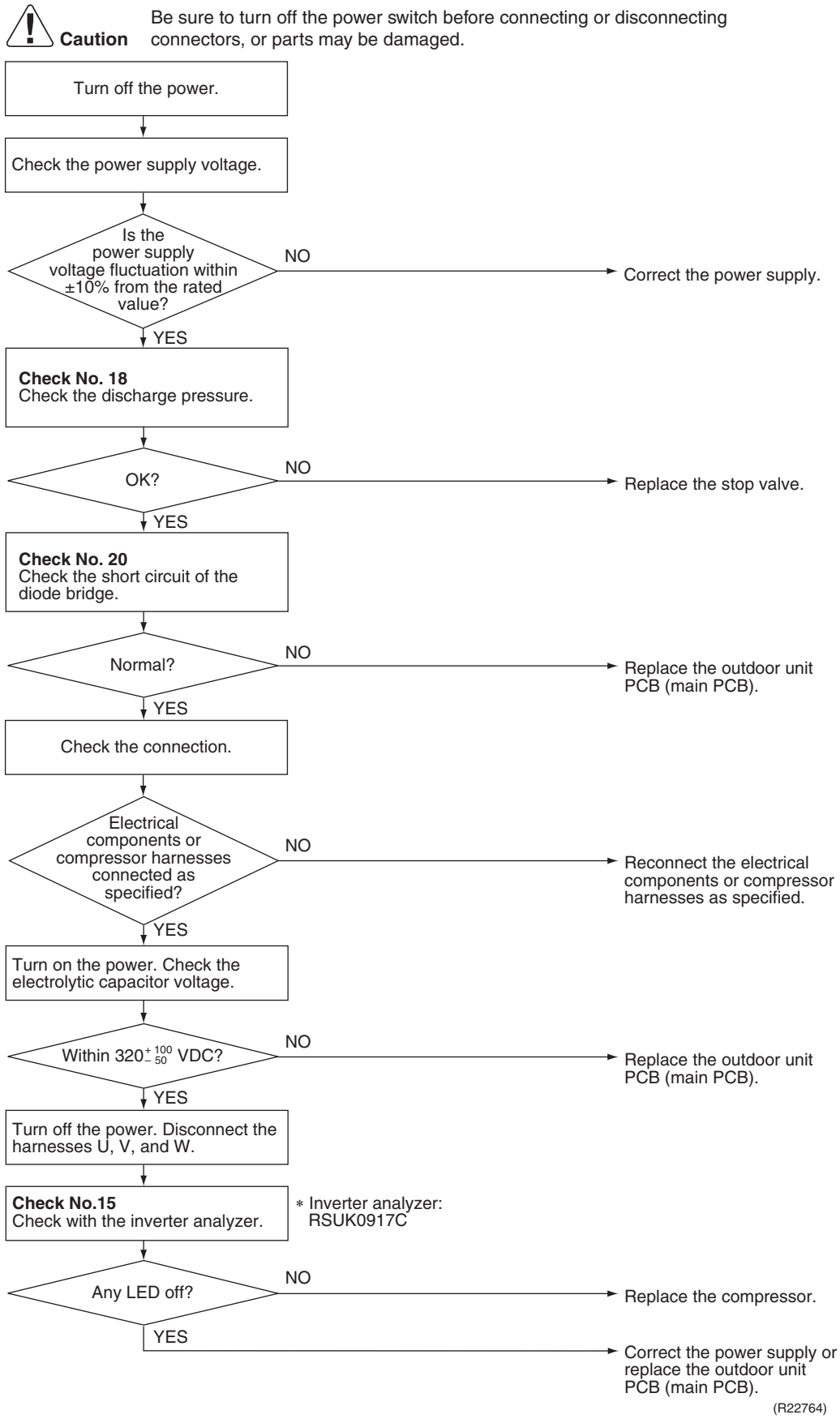
Note(s) ∗1. Connector and high pressure switch

High pressure switch	Connector for high pressure switch	Activation pressure
S1PH	X40A or X820A	4.15 MPa (602 psi)

6.14 Position Sensor Abnormality

Error Code	**H6**
Method of Error Detection	A compressor start-up failure is detected by checking the compressor running condition through the position detection circuit.
Error Decision Conditions	■ If the error repeats, the system is shut down. ■ Reset condition: Continuous run for about 11 minutes without any other error
Supposed Causes	■ Power supply voltage out of specification ■ Disconnection of the compressor harness ■ Defective compressor ■ Defective outdoor unit PCB ■ Start-up failure caused by the closed stop valve ■ Input voltage outside the specified range

Troubleshooting



Reference **Check No.15** Refer to P.130

Reference **Check No.18** Refer to P.133

Reference **Check No.20** Refer to P.134

6.15 Fan IPM temperature error

Applicable Models

RXP15/18/24AVJU9

Error Code

H7

Method of Error Detection

A radiation fin temperature rise is detected by checking the radiation fin temperature with the compressor on.

Error Decision Conditions

- The radiation fin temperature with the compressor on is above **A**.
- The error is cleared when the temperature drops below **B**.
- If the error repeats, the system is shut down.
- Reset condition: Continuous run for about 60 minutes without any other error

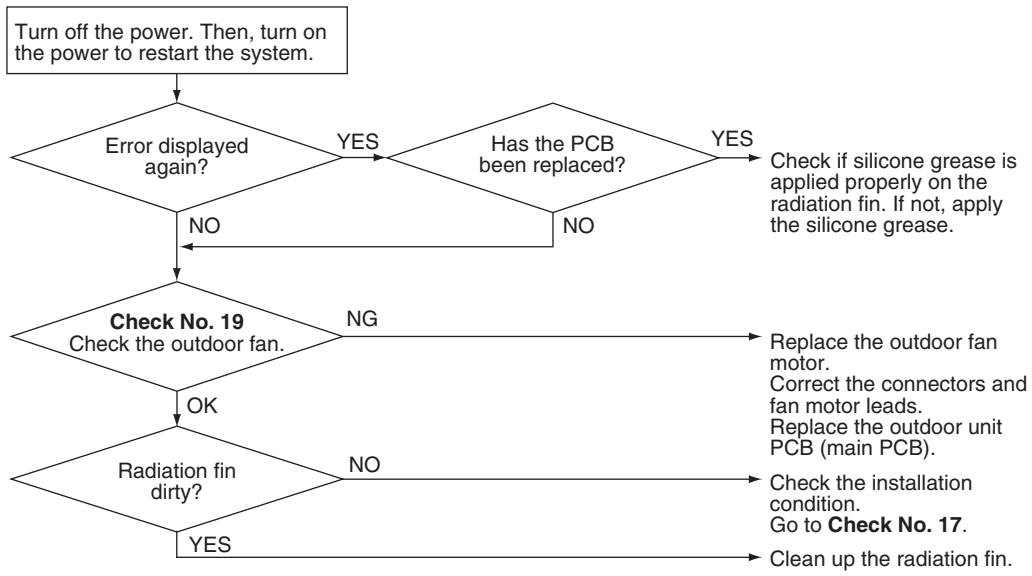
	°C	°F
A	100	212
B	90	194

Supposed Causes

- Defective outdoor fan motor
- Short circuit
- Defective radiation fin thermistor
- Disconnection of connector
- Defective outdoor unit PCB
- Silicone grease not applied properly on the radiation fin after replacing the outdoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6001182

Reference **Check No.17** Refer to P.132

Reference **Check No.19** Refer to P.133

6.16 DC Voltage/Current Sensor Abnormality

Error Code	**H8**
Method of Error Detection	DC voltage or DC current sensor abnormality is identified based on the compressor running frequency and the input current.
Error Decision Conditions	■ If the error repeats, the system is shut down. ■ Reset condition: Continuous run for about 60 minutes without any other error
Supposed Causes	■ Defective outdoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Replace the outdoor unit PCB (main PCB).

6.17 Thermistor or Related Abnormality (Outdoor Unit)

Error Code

H9, J3, J6, P4

Method of Error Detection

This fault is identified based on the thermistor input voltage to the microcomputer.
A thermistor fault is identified based on the temperature sensed by each thermistor.

Error Decision Conditions

- The voltage between the both ends of the thermistor is either 4.96 V or more, or 0.04 V or less with the power on.
- **J3** error is judged if the discharge pipe temperature is lower than the heat exchanger temperature.

Supposed Causes

- Disconnection of the connector for the thermistor
- Defective thermistor(s)
- Defective heat exchanger thermistor in the case of **J3** error (outdoor heat exchanger thermistor in cooling operation, or indoor heat exchanger thermistor in heating operation)
- Defective outdoor unit PCB

Troubleshooting

In case of P4

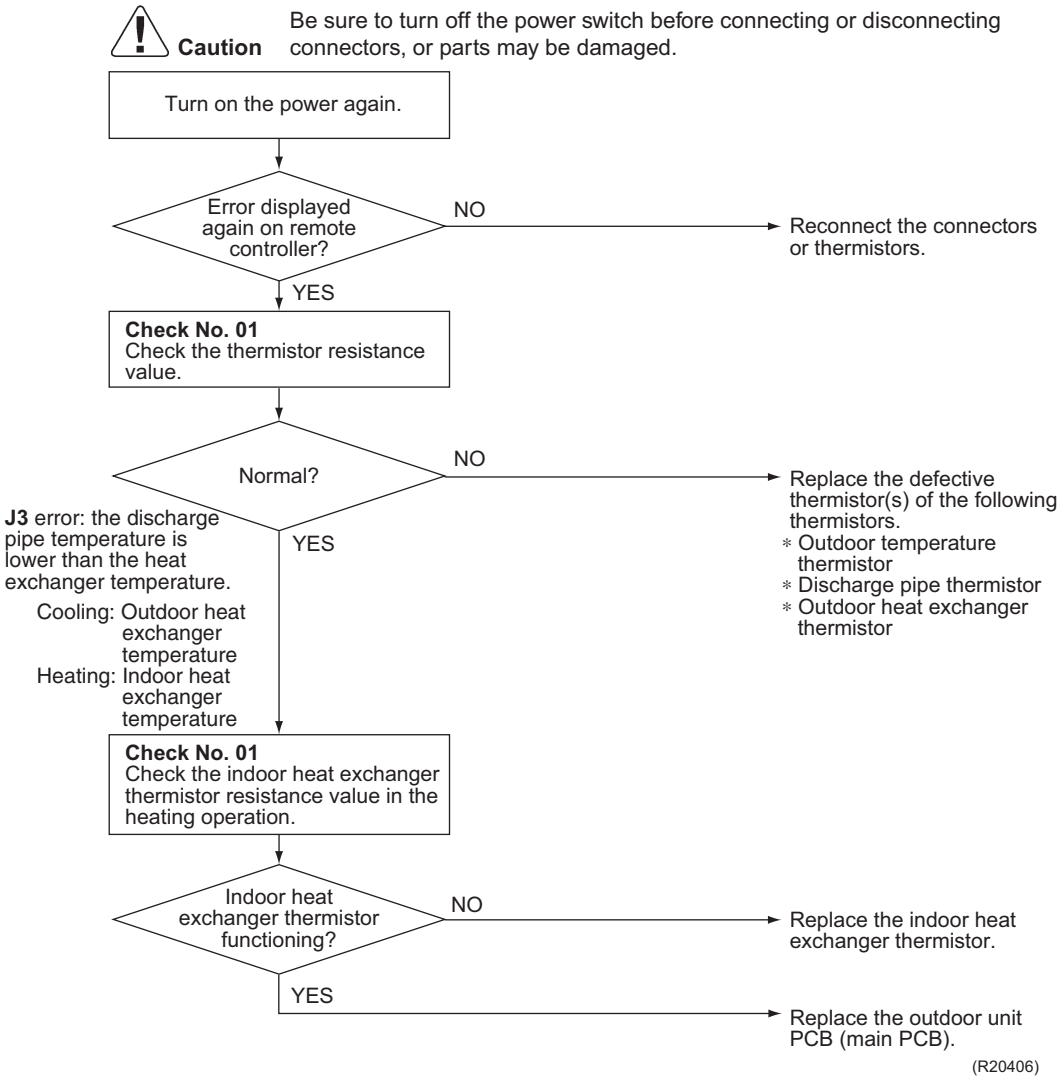
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Replace the outdoor unit PCB (main PCB).

P4 : Radiation fin thermistor

Troubleshooting

In case of H9, J3, J6



H9 : Outdoor temperature thermistor
J3 : Discharge pipe thermistor
J6 : Outdoor heat exchanger thermistor

Reference **Check No.01** Refer to P.126

6.18 Electrical Box Temperature Rise

Error Code

L3

Method of Error Detection

An electrical box temperature rise is detected by checking the radiation fin thermistor with the compressor off.

Error Decision Conditions

- With the compressor off, the radiation fin temperature is above **A**.
- The error is cleared when the radiation fin temperature drops below **B**.
- To cool the electrical components, the outdoor fan starts when the radiation fin temperature rises above **C** and stops when the radiation fin temperature drops below **B**.

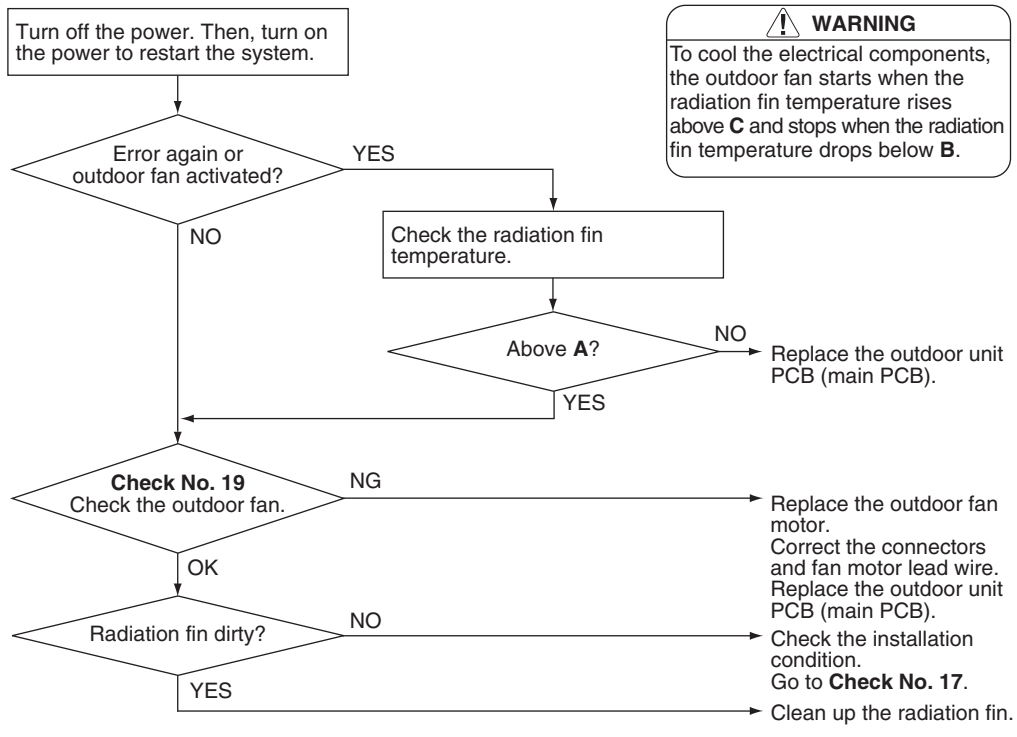
	A		B		C	
	(°C)	(°F)	(°C)	(°F)	(°C)	(°F)
09 class	82	179.6	65	149	70	158
12 class	90	194	75	167	81	177.8
15/18/24 class	100	212	70	158	77	170.6

Supposed Causes

- Defective outdoor fan motor
- Short circuit
- Defective radiation fin thermistor
- Disconnection of connector
- Defective outdoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



(R22998)

Reference **Check No.17** Refer to P.132

Reference **Check No.19** Refer to P.133

6.19 Radiation Fin Temperature Rise

Error Code

L4

Method of Error Detection

A radiation fin temperature rise is detected by checking the radiation fin thermistor with the compressor on.

Error Decision Conditions

- If the radiation fin temperature with the compressor on is above **A**.
- The error is cleared when the radiation fin temperature drops below **B**.
- If the error repeats, the system is shut down.
- Reset condition: Continuous run for about 60 minutes without any other error

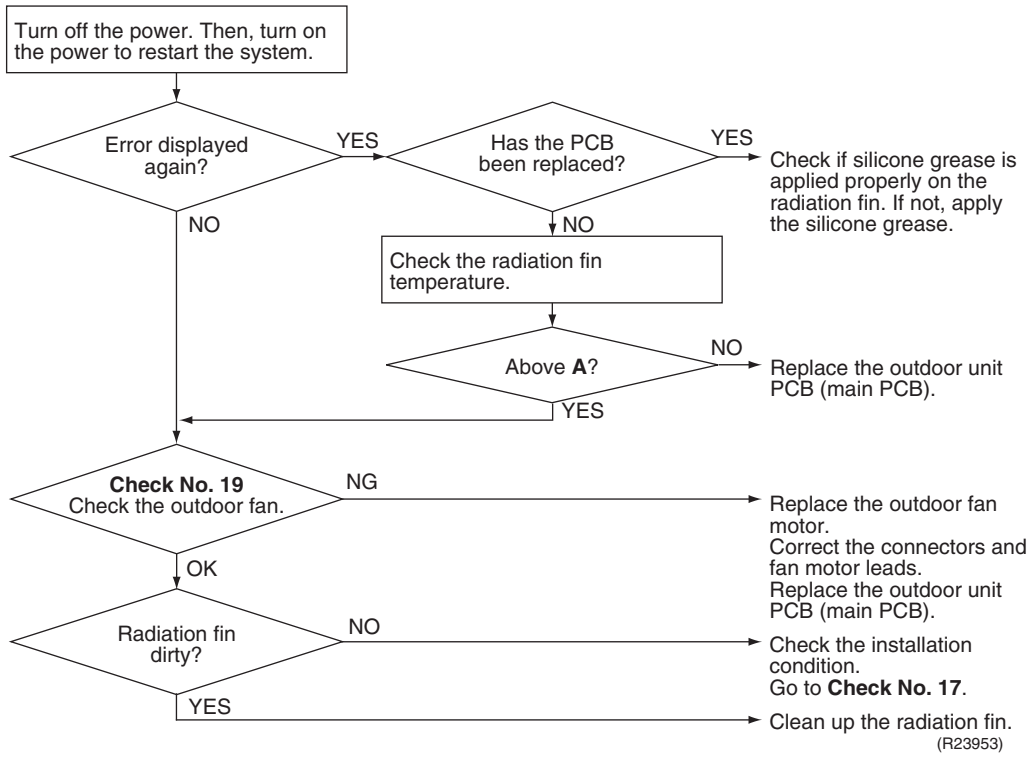
	A		B	
	(°C)	(°F)	(°C)	(°F)
09 class	99	210.2	70	158
12 class	90	194	84	183.2
15/18/24 class	95	203	85	185

Supposed Causes

- Defective outdoor fan motor
- Short circuit
- Defective radiation fin thermistor
- Disconnection of connector
- Defective outdoor unit PCB
- Silicone grease not applied properly on the radiation fin after replacing the outdoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



Note Refer to Silicone Grease on Power Transistor/Diode Bridge on page 152 for details.

Reference **Check No.17** Refer to P.132

Reference **Check No.19** Refer to P.133

6.20 Output Overcurrent Detection

Error Code

L5

Method of Error Detection

An output overcurrent is detected by checking the current that flows in the inverter DC section.

Error Decision Conditions

- A position signal error occurs while the compressor is running.
- A rotation speed error occurs while the compressor is running.
- An output overcurrent signal is fed from the output overcurrent detection circuit to the microcomputer.
- If the error repeats, the system is shut down.
- Reset condition: Continuous run for about 11 minutes without any other error

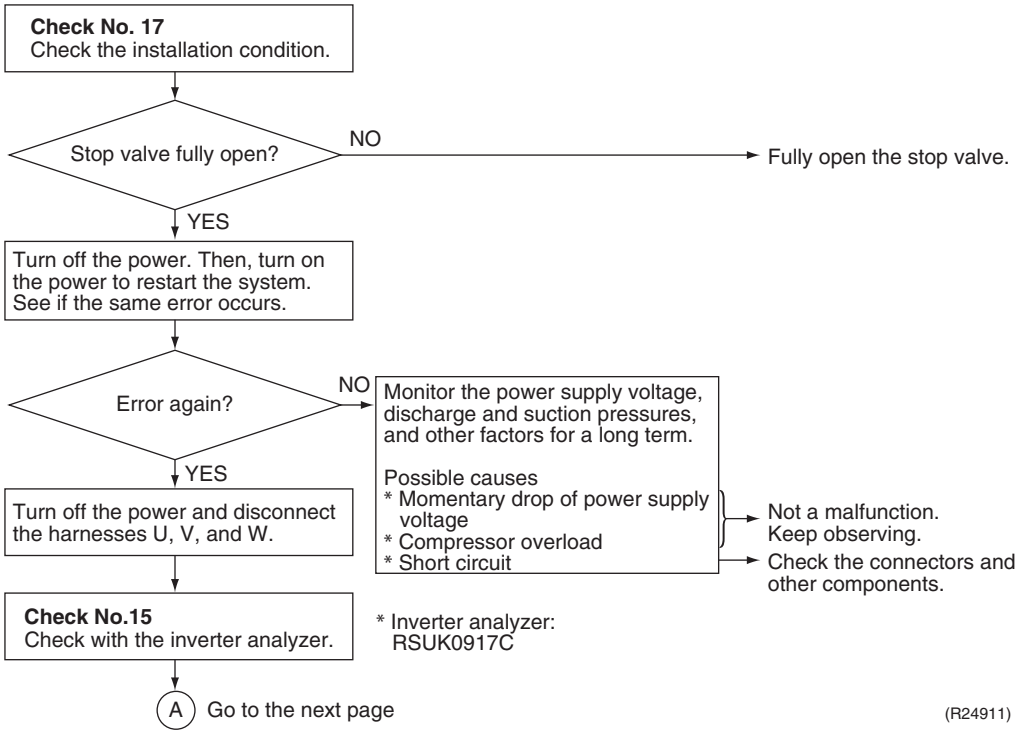
Supposed Causes

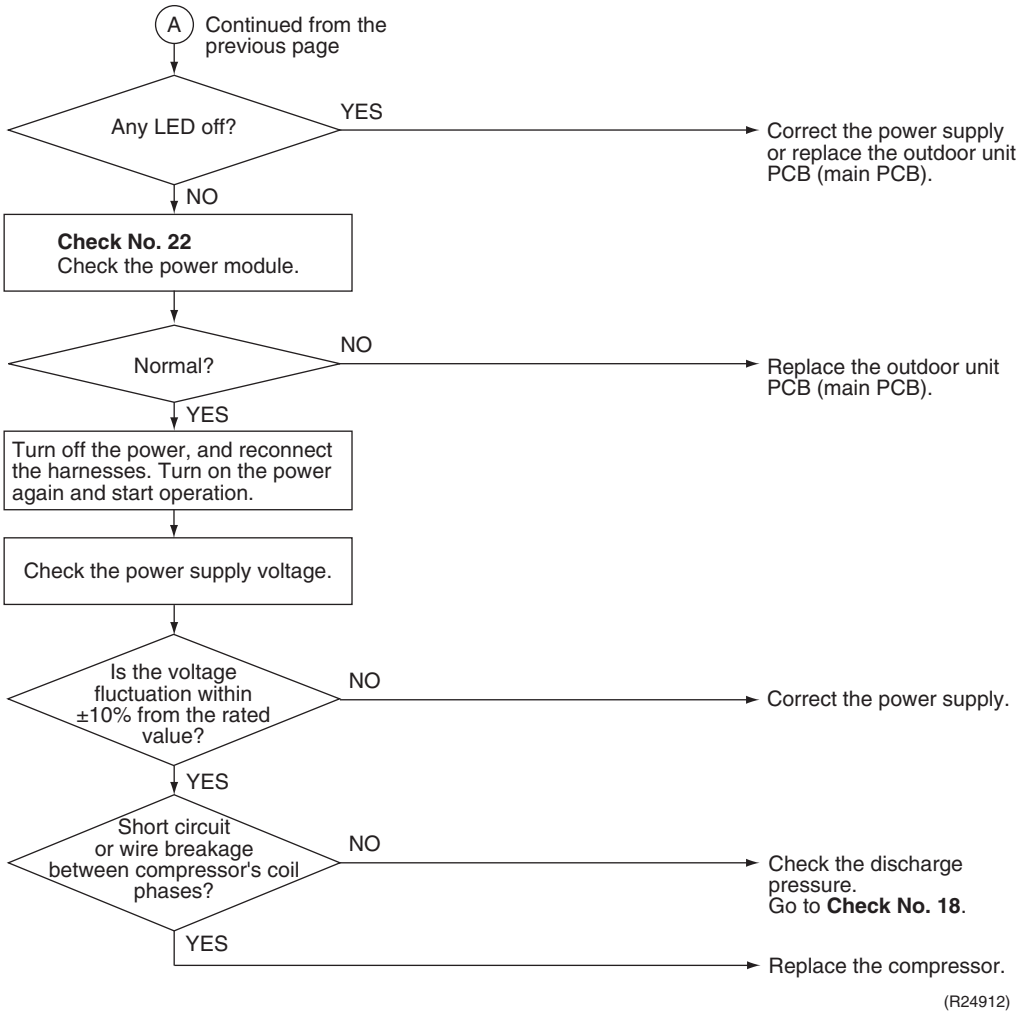
- Poor installation condition
- Closed stop valve
- Defective power module
- Wrong internal wiring
- Abnormal power supply voltage
- Defective outdoor unit PCB
- Power supply voltage out of specification
- Defective compressor

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

* An output overcurrent may result from wrong internal wiring. If the system is interrupted by an output overcurrent after the wires have been disconnected and reconnected for part replacement, check the wiring again.





Reference **Check No.15** Refer to P.130

Reference **Check No.17** Refer to P.132

Reference **Check No.18** Refer to P.133

Reference **Check No.22** Refer to P.136

6.21 IGBT temperature error

Applicable Models

RXP15/18/24AVJU9

Error Code

LA

Method of Error Detection

A radiation fin temperature rise is detected by checking the radiation fin temperature with the compressor on.

Error Decision Conditions

- The radiation fin temperature with the compressor on is above **A**.
- The error is cleared when the temperature drops below **B**.
- If the error repeats, the system is shut down.
- Reset condition: Continuous run for about 60 minutes without any other error

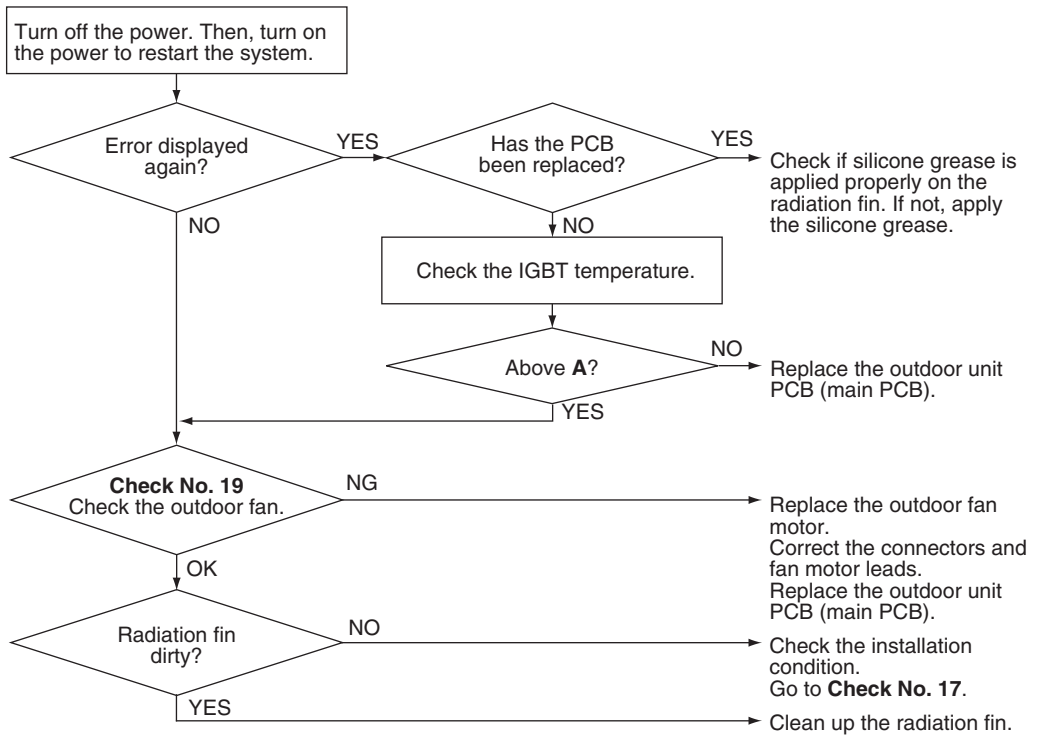
	°C	°F
A	90	194
B	85	185

Supposed Causes

- Defective outdoor fan motor
- Short circuit
- Defective radiation fin thermistor
- Disconnection of connector
- Defective outdoor unit PCB
- Silicone grease not applied properly on the radiation fin after replacing the outdoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



R6001154

Reference **Check No.17** Refer to P.132

Reference **Check No.19** Refer to P.133

6.22 Signal Transmission Error on Outdoor Unit PCB

Error Code

U7

Method of Error Detection

Communication error between microcomputer mounted on the main PCB and PM1.

Error Decision Conditions

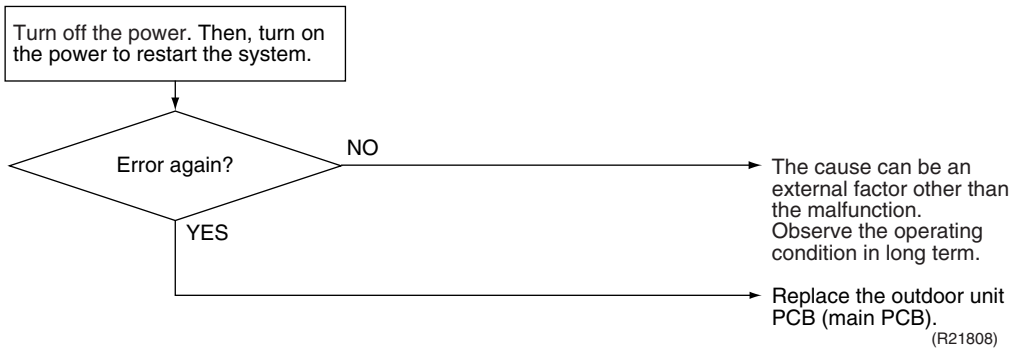
- The abnormality is determined when the data sent from the PM1 cannot be received for 9 seconds.
- The error counter is reset when the data from the PM1 can be successfully received.

Supposed Causes

- Defective outdoor unit PCB

Troubleshooting

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

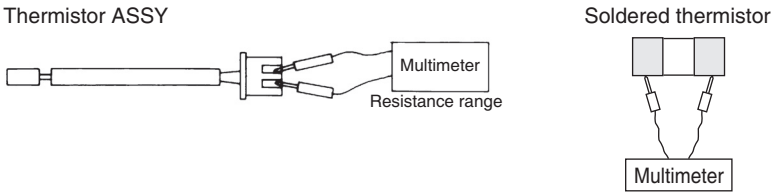


7. Check

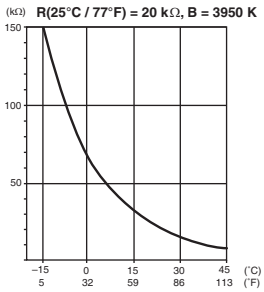
7.1 Thermistor Resistance Check

Check No.01 Measure the resistance of each thermistor using multimeter.
The resistance values are defined by below table.
If the measured resistance value does not match the listed value, the thermistor must be replaced.

- Disconnect the connector of thermistor ASSY from the PCB to measure the resistance between the pins using multimeter.
- To check the thermistor soldered on a PCB, disconnect the PCB from other PCB/parts, and measure the resistance between the both ends of soldered thermistor.



Thermistor temperature		Resistance (kΩ)
°C	°F	R(25°C / 77°F) = 20 kΩ B = 3950 K
–20	–4	197.8
–15	5	148.2
–10	14	112.1
–5	23	85.60
0	32	65.93
5	41	51.14
10	50	39.99
15	59	31.52
20	68	25.02
25	77	20.00
30	86	16.10
35	95	13.04
40	104	10.62
45	113	8.707
50	122	7.176



R6001195

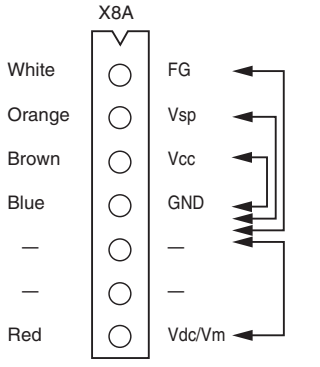
Note(s) When replacing the defective thermistor(s), replace the thermistor as ASSY.

7.2 Indoor Fan Motor Connector Check

Check No.02

1. Turn the power supply OFF.
2. With the fan motor connector disconnected, measure the resistance between each pin, then make sure that the resistance is more than the value mentioned in the following table.

Measuring points	Judgement
White - Blue	1 MΩ or more
Orange - Blue	100 kΩ or more
Brown - Blue	100 Ω or more
Red - Blue	100 kΩ or more



(R25080)

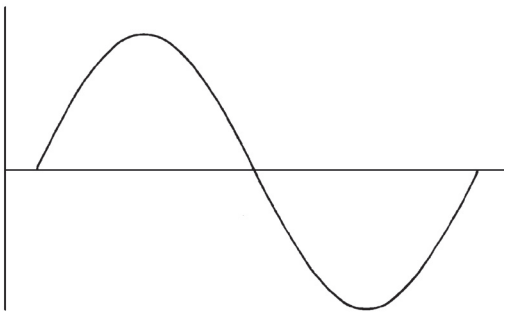
7.3 Power Supply Waveform Check

Check No.11

Measure the power supply waveform between No. 1 and No. 2 on the terminal strip, and check the waveform disturbance.

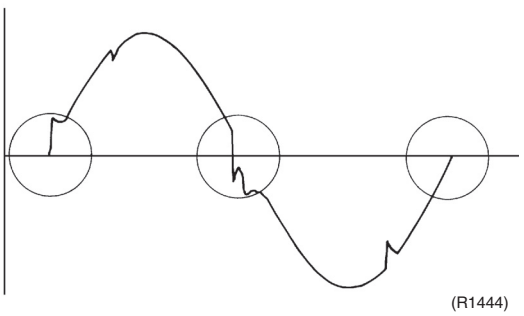
- Check if the power supply waveform is a sine wave (Fig.1).
- Check if there is waveform disturbance near the zero-cross (sections circled in Fig.2).

[Fig.1]



(R1736)

[Fig.2]



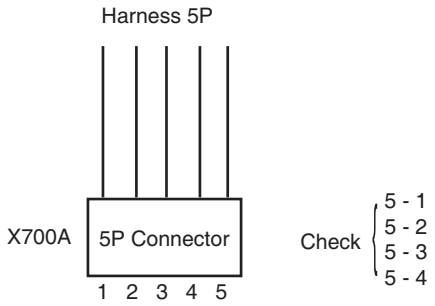
(R1444)

7.4 Electronic Expansion Valve Check

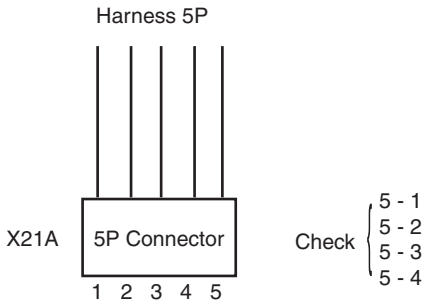
Check No.12

Conduct the following to check the electronic expansion valve (EV).

1. Check if the EV connector is correctly connected to the PCB.
2. Turn the power off and on again, and check if the EV generates a latching sound.
3. If the EV does not generate a latching sound in step 2, disconnect the connector and check the continuity using a multimeter.
4. Check the continuity between the pins 5 - 1, 5 - 2, 5 - 3, 5 - 4. If there is no continuity between the pins, the EV coil is faulty.
5. If the continuity is confirmed in step 3, the outdoor unit PCB (main PCB) is faulty.



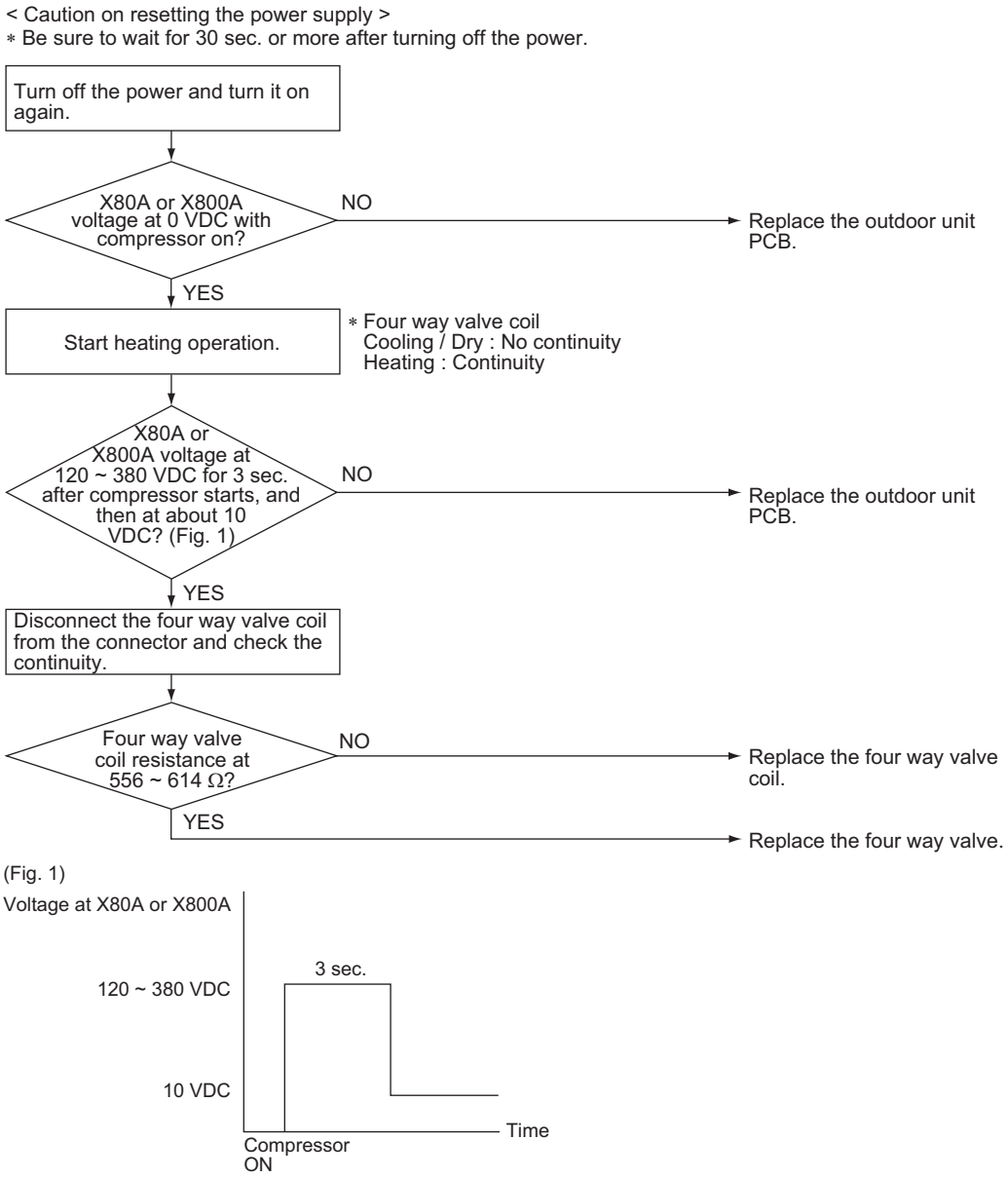
R6000952



R6001211

7.5 Four Way Valve Performance Check

Check No.13

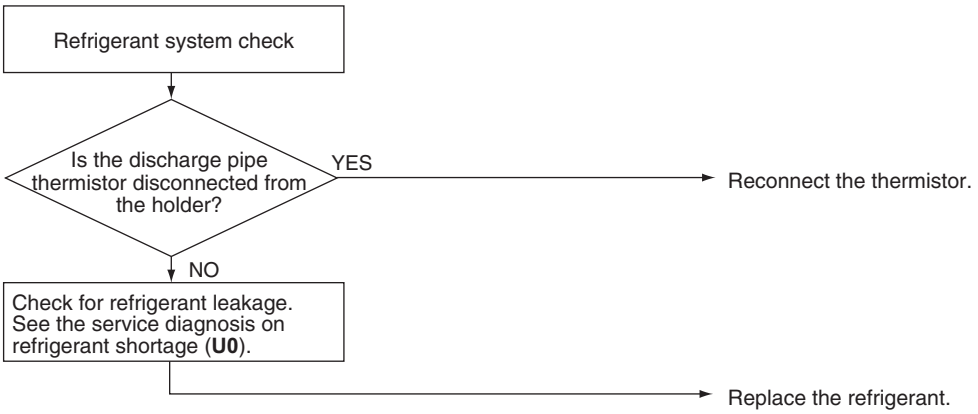


(Fig. 1)

R6001212

7.6 Inverter Unit Refrigerant System Check

Check No.14



R6000874

7.7 Inverter Analyzer Check

Check No.15

■ Characteristics

Inverter analyzer: RSUK0917C

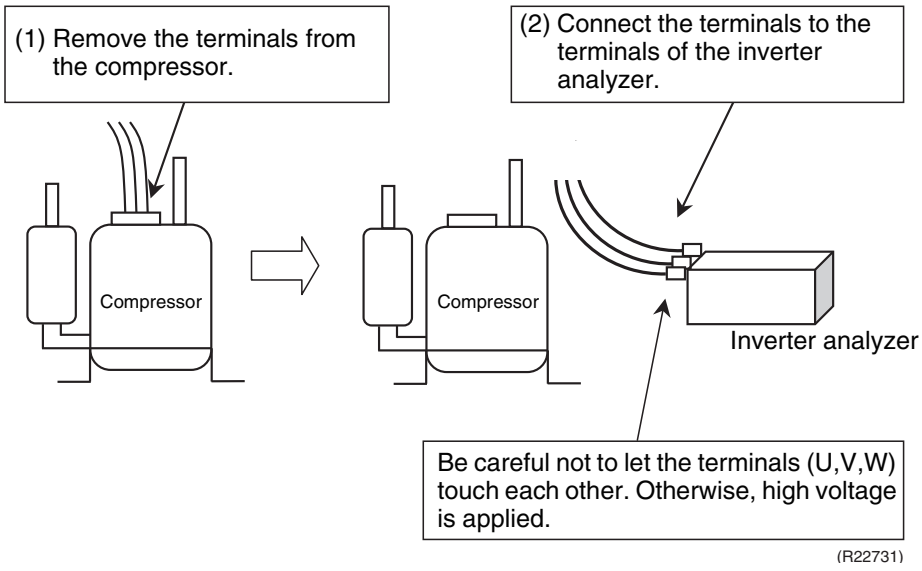
If an abnormal stop occurs due to compressor startup failure or overcurrent output when using an inverter unit, it is difficult to judge whether the stop is caused by the compressor failure or some other failure (main PCB, power module, etc.). The inverter analyzer makes it possible to judge the cause of trouble easily and securely. Connect an inverter analyzer as a quasi-compressor instead of compressor and check the output of the inverter.

■ Operation Method

Step 1
Be sure to turn the power off.

Step 2
Install an inverter analyzer instead of a compressor.

Note:
Make sure the charged voltage of the built-in smoothing electrolytic capacitor drops to 10 VDC or below before carrying out the service work.



Reference:
If the terminals of the compressor are not FASTON terminals (difficult to remove the wire on the terminals), it is possible to connect wires available on site to the outdoor unit from output side of PCB. Do not connect them to the compressor at the same time, otherwise it may result in incorrect detection.

Step 3
Activate the power transistor test operation from the outdoor unit.

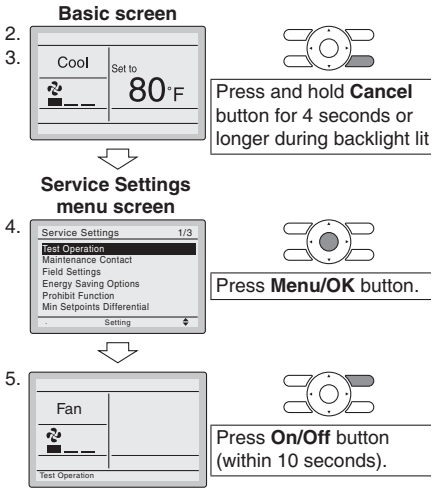
Note

Power transistor test operation can be activated only once after turning on the power supply. If reactivation of the power supply transistor operation is needed, turn the power supply off and then on again.

Vired Remote Controller (BRC1NRV71)

1. Turn the power on.
2. Set FAN operation using the remote controller.
3. Press and hold **Cancel** button for 4 seconds or longer.
4. Select **Test Operation** in the service settings menu, then press **Menu/OK** button.
   → Basic screen returns and "Test Operation" is displayed at the bottom.
5. Press **On/Off** button within 10 seconds.
   → 3 minutes after pressing **On/Off** button, power transistor test operation will start.

- Test operation will stop automatically after about 30 minutes.
  To stop the operation, press **On/Off** button.

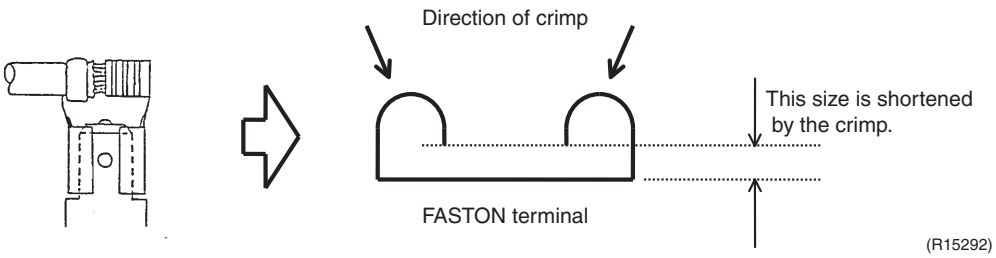


■ **Diagnose method (Diagnose according to 6 LEDs lighting status.)**

1. If all the LEDs are lit uniformly, the compressor is defective.
   → Replace the compressor.
2. If the LEDs are not lit uniformly, check the power module.
   → Refer to **Check No.22**.
3. If NG in **Check No.22**, replace the power module.
   (Replace the main PCB. The power module (IPM1) is united with the main PCB.)
   If OK in **Check No.22**, check if there is any solder cracking on the PCB.
4. If any solder cracking is found, replace the PCB or repair the soldered section.
   If there is no solder cracking, replace the PCB.

Caution

1. When the output frequency is low, the LEDs blink slowly. As the output frequency increases, the LEDs blink quicker. (The LEDs look like they are lit.)
2. On completion of the inverter analyzer diagnosis, be sure to re-crimp the FASTON terminals. Otherwise, the terminals may be burned due to loosening.

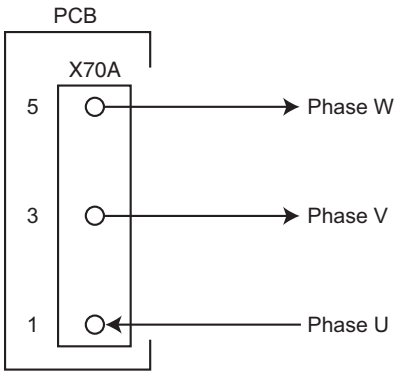


7.8 Outdoor Fan Motor Check

Check No.16 Outdoor fan motor

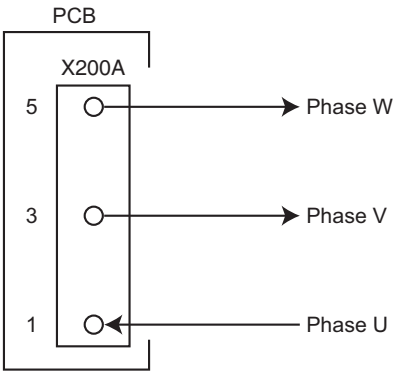
Check if the sinusoidal voltage is generated between pins 1 - 3 and 3 - 5 when the fan motor is manually rotated once.

■ **09/12 class**



R6001180

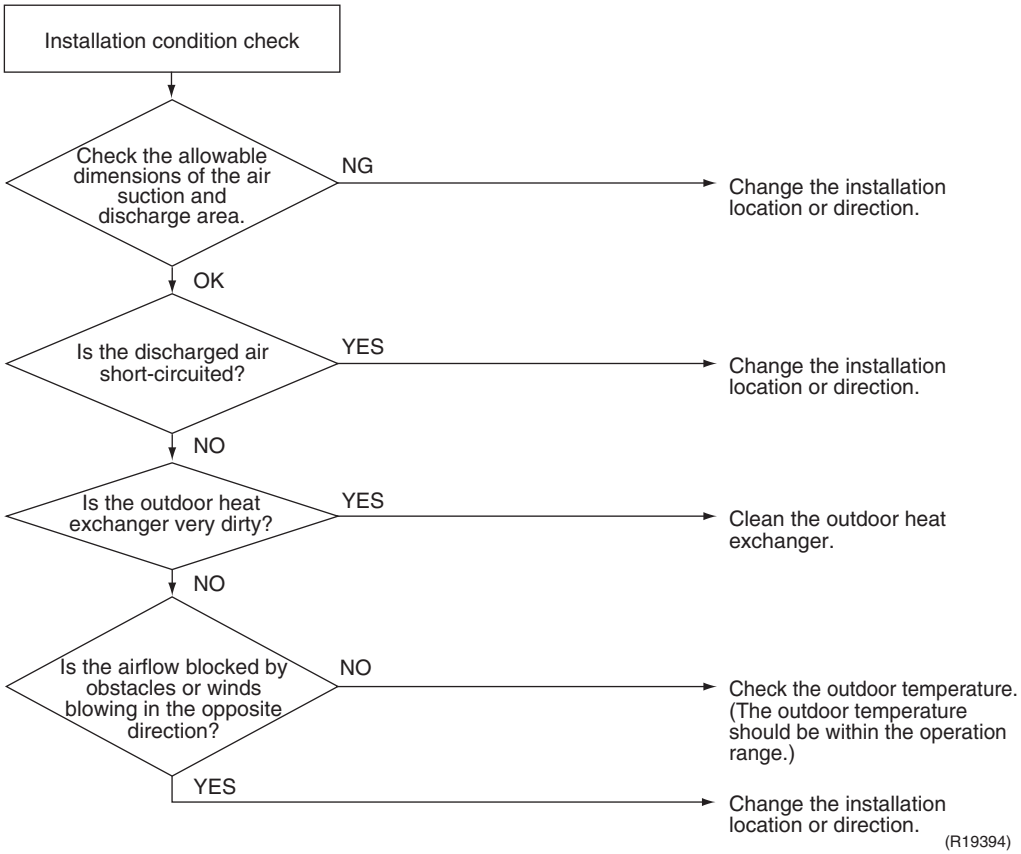
■ **15/18/24 class**



R6001127

7.9 Installation Condition Check

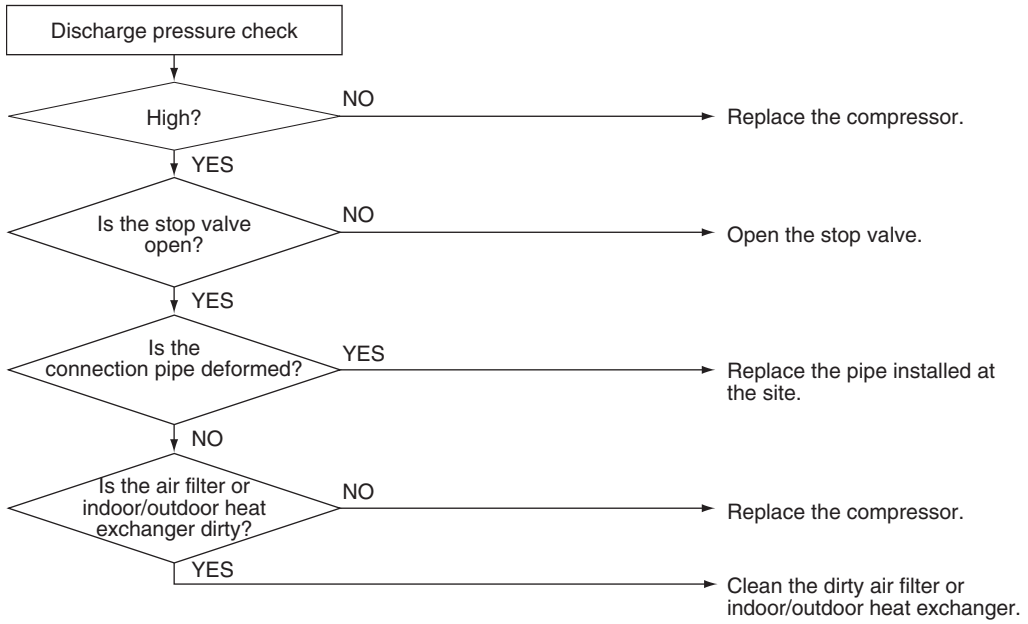
Check No.17



(R19394)

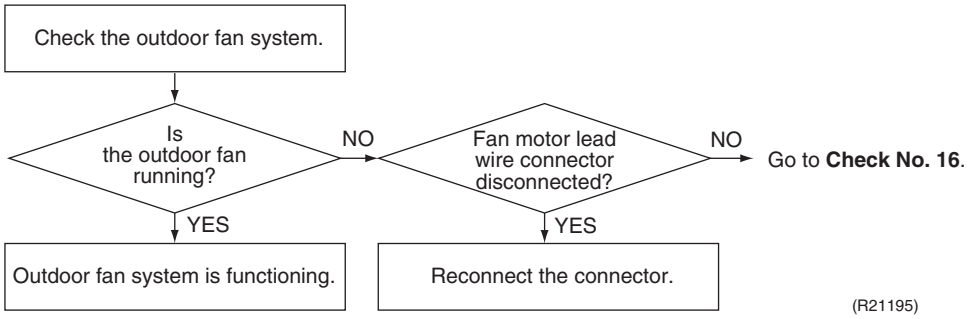
7.10 Discharge Pressure Check

Check No.18



7.11 Outdoor Fan System Check

Check No.19 **DC motor**



7.12 Main Circuit Short Check

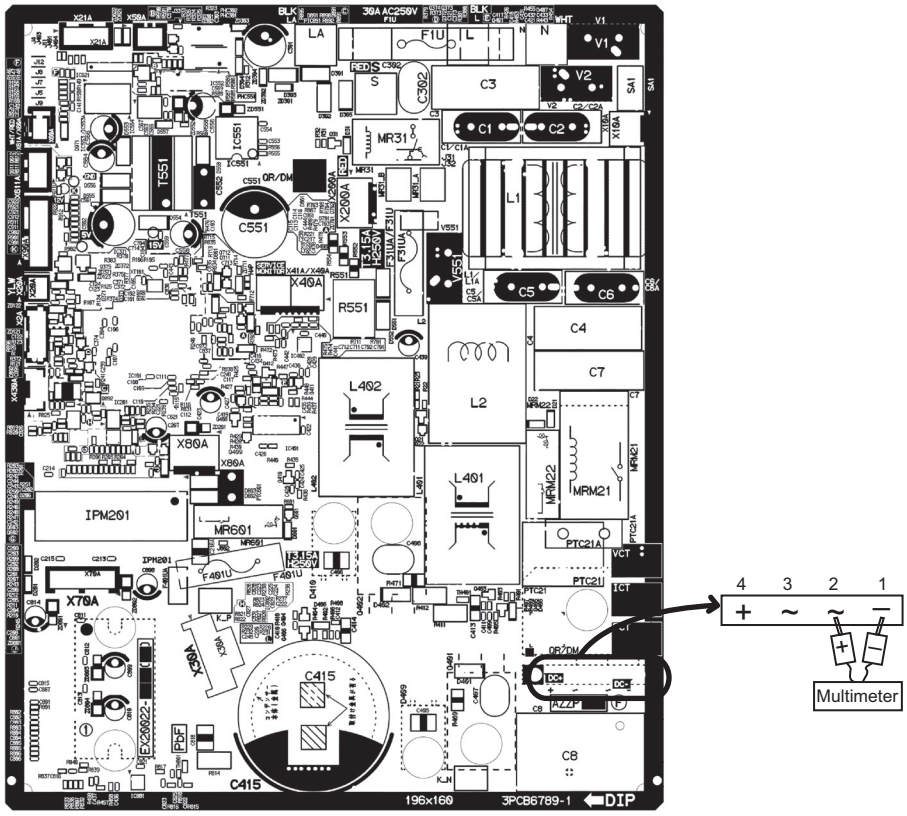
Check No.20

Check to make sure that the voltage between (+) and (–) of the diode bridge (DB1) is about 0 V before checking

- Measure the resistance between the pins of the DB1 referring to the table below.
- If the resistance is ∞ or less than 1 kΩ, short circuit occurs on the main circuit.

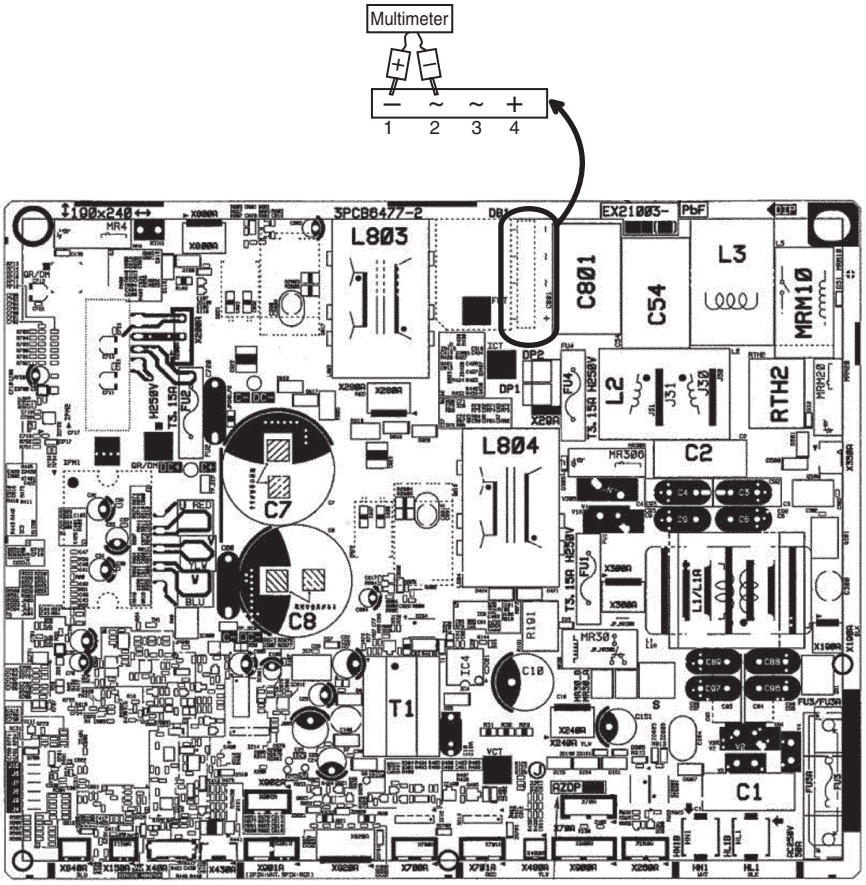
Positive terminal (+) of digital multimeter	~ (2, 3)	+ (4)	~ (2, 3)	– (1)
Negative terminal (–) of digital multimeter	+ (4)	~ (2, 3)	– (1)	~ (2, 3)
Resistance is OK.	several kΩ ~ several MΩ			
Resistance is NG.	0 Ω or ∞			

■ **09/12 class**



R6001208

■ **15/18/24 class**



R6001213

7.13 Power Module Check

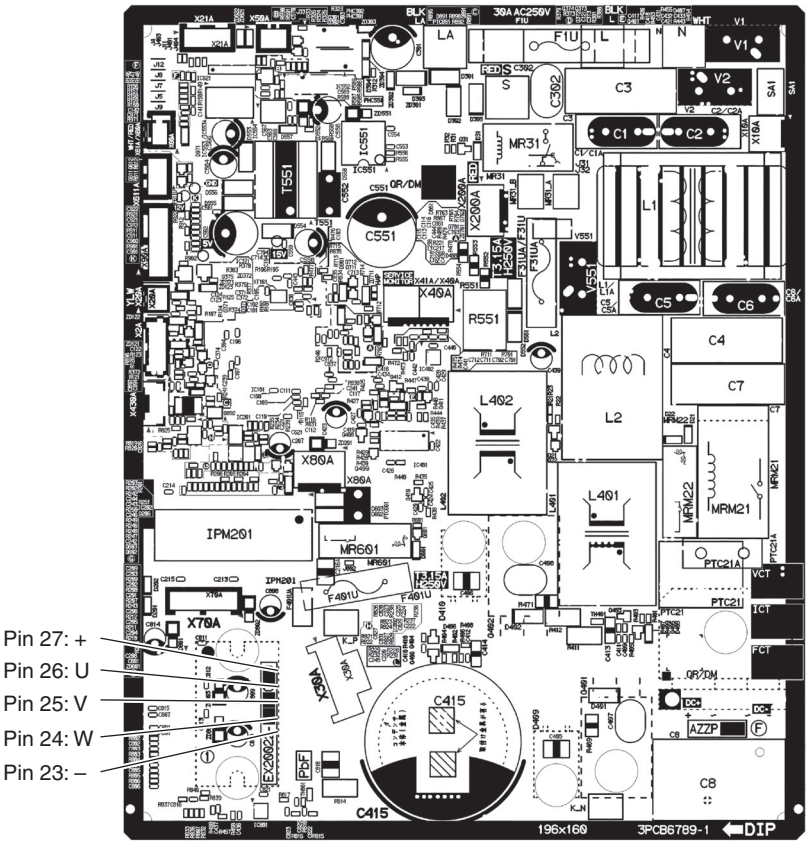
Check No.22

Check to make sure that the voltage between (+) and (–) of the power module is about 0 V before checking.

- Disconnect the compressor harness connector from the outdoor unit PCB. To disengage the connector, press the protrusion on the connector.
- Follow the procedure below to measure resistance between the terminals of the power module and the terminals of the compressor with a multimeter. Evaluate the measurement results referring to the following table.

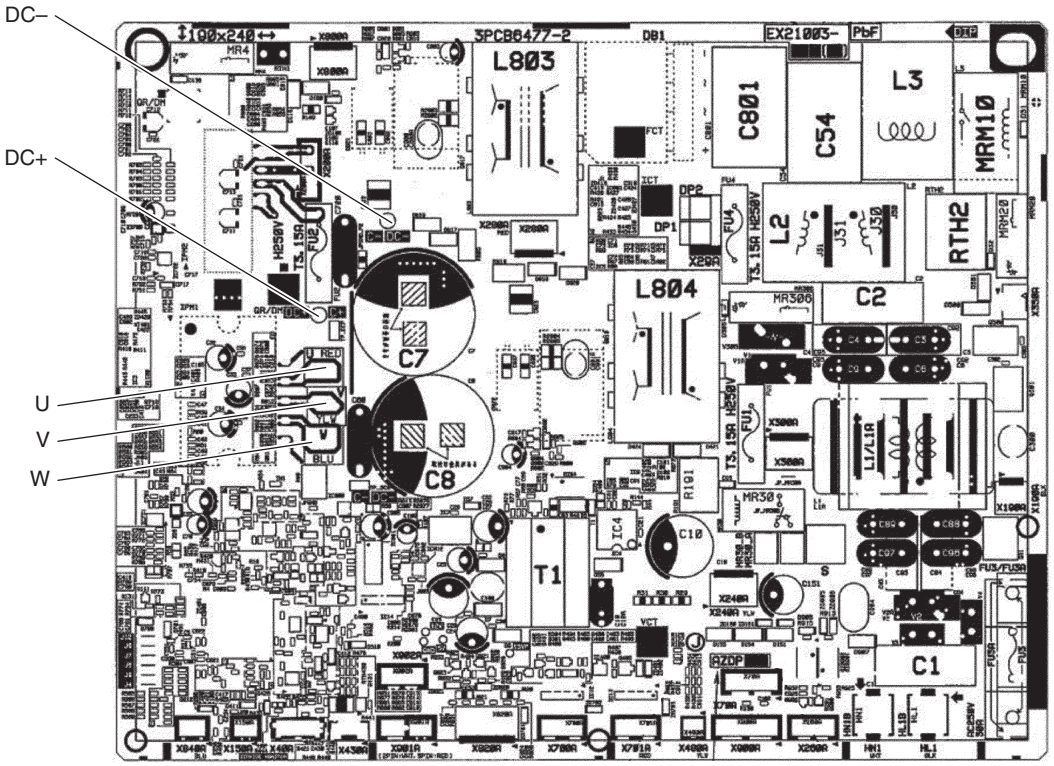
Positive terminal (+) of digital multimeter	Power module (+)	UVW	Power module (–)	UVW
Negative terminal (–) of digital multimeter	UVW	Power module (+)	UVW	Power module (–)
Resistance is OK.	several kΩ ~ several MΩ			
Resistance is NG.	0 Ω or ∞			

- **09/12 class**



R6001209

■ **15/18/24 class**



R6001214

Part 7
Trial Operation and Field Settings

1. Pump Down Operation 139
2. Forced Cooling Operation 140
3. Trial Operation 141
4. Field Settings 143
   4.1 How to Change the Field Settings 143
   4.2 Overview of Field Settings 145
   4.3 MAIN/SUB Setting when Using 2 Wired Remote Controllers 148
5. Field Settings for Outdoor Unit 149
   5.1 Facility Setting (cooling at low outdoor temperature) 149
   5.2 Warmer Airflow Setting 150
   5.3 Drain Pan Heater 151
6. Silicone Grease on Power Transistor/Diode Bridge 152

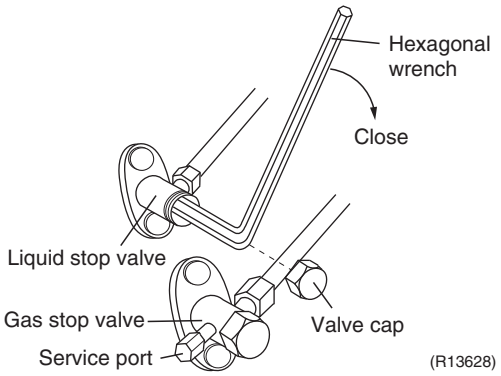
1. Pump Down Operation

Outline

In order to protect the environment, be sure to conduct pump down operation when relocating or disposing of the unit.

Details

1. Remove the valve caps from the liquid stop valve and the gas stop valve.
2. Carry out forced cooling operation.
3. After 5 to 10 minutes, close the liquid stop valve with a hexagonal wrench.
4. After 2 to 3 minutes, close the gas stop valve and stop the forced cooling operation.
5. Attach the valve cap once procedures are complete.



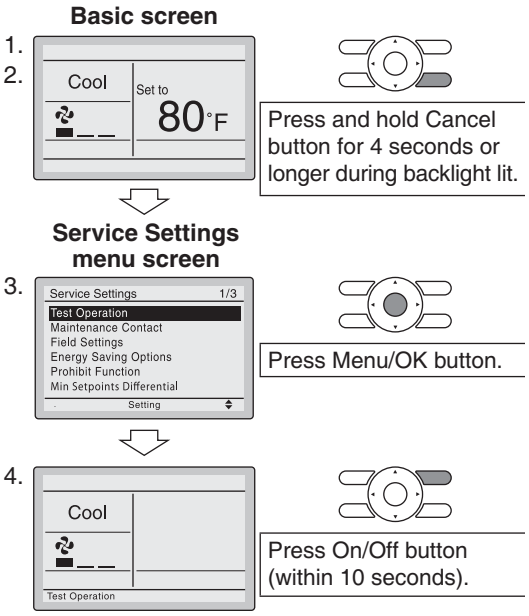
Reference Refer to Forced Cooling Operation on page 140 for details.

2. Forced Cooling Operation

■ **With Wired Remote Controller (BRC1NRV71)**

1. Set to COOL or HEAT operation using the remote controller.
2. Press and hold **Cancel** button for 4 seconds or longer. Service settings menu is displayed.
3. Select **Test Operation** in the service settings menu, and press **Menu/OK** button. Basic screen returns and “Test Operation” is displayed at the bottom.
4. Press **On/Off** button within 10 seconds, and the forced cooling operation starts.

◆ Forced cooling operation will stop automatically after about 15 minutes. To stop the operation, press **On/Off** button.



R7000500

3. Trial Operation

Outline

Trial operation should be carried out in either cooling or heating operation.

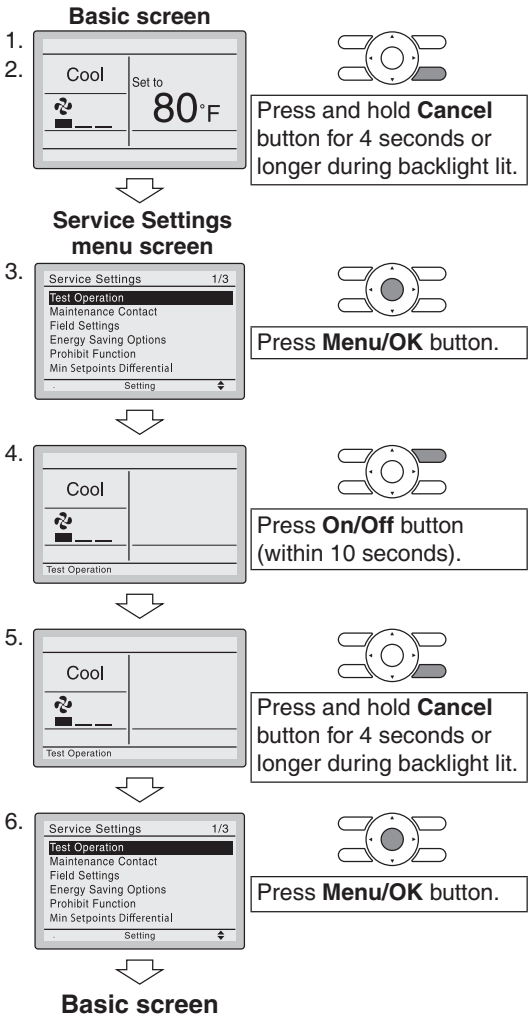
1. Measure the supply voltage and make sure that it is within the specified range.
2. In cooling operation, select the lowest programmable temperature;
   in heating operation, select the highest programmable temperature.
3. Carry out the trial operation following the instructions in the operation manual to ensure that all functions and parts, such as the movement of the flaps, are working properly.
   - To protect the air conditioner, restart operation is disabled for 3 minutes after the system has been turned off.
4. After trial operation is complete, set the temperature to a normal level (26°C to 28°C (78°F to 82°F) in cooling operation, 20°C to 24°C (68°F to 75°F) in heating operation).

Procedure

When operating the air conditioner in cooling operation in winter, or heating operation in summer, set it to the trial operation mode using the following method.

■ **With Wired Remote Controller (BRC1NRV71)**

1. Set to COOL or HEAT operation using the remote controller.
2. Press and hold **Cancel** button for 4 seconds or longer. Service settings menu is displayed.
3. In the case of a model having airflow direction function, select **Test Operation** in the service settings menu, and press **Menu/OK** button. Basic screen returns and “Test Operation” is displayed at the bottom.
4. Press **On/Off** button within 10 seconds, and the test operation starts.
   Monitor the operation of the indoor unit for a minimum of 10 minutes. During test operation, the indoor unit will continue to cool/heat regardless of the temperature setpoint and room temperature.
   - In the case of above-mentioned procedures 3 and 4 in reverse order, test operation can start as well.
5. Press and hold **Cancel** button for 4 seconds or longer in the basic screen.
   Service settings menu is displayed.
6. Select **Test Operation** in the service settings menu, and press **Menu/OK** button. Basic screen returns and normal operation is conducted.
   - Test operation will stop automatically after 15 ~ 30 minutes. To stop the operation, press **On/Off** button.



R7000501

Test Items

Test items	Symptoms
Indoor and outdoor units are installed securely.	Fall, vibration, noise
No refrigerant gas leaks.	Incomplete cooling/heating function
Refrigerant gas and liquid pipes and indoor drain hose extension are thermally insulated.	Water leakage
Draining line is properly installed.	Water leakage
The power supply voltage corresponds to that shown on the name plate.	No operation or burn damage
System is properly grounded.	Electrical leakage
Only specified wires are used for all wiring, and all wires are connected correctly.	No operation or burn damage
Indoor or outdoor unit's air inlet or air outlet are unobstructed.	Incomplete cooling/heating function
Refrigerant piping length and additional refrigerant charge are noted down.	The refrigerant charge in the system is not clear
Pipes and wires are connected to the corresponding connection ports / terminal blocks for the connected unit.	No cooling/heating
Stop valves are opened.	Incomplete cooling/heating function
The external static pressure is set correctly.	Incomplete cooling/heating function or water leakage

4. Field Settings

4.1 How to Change the Field Settings

Outline

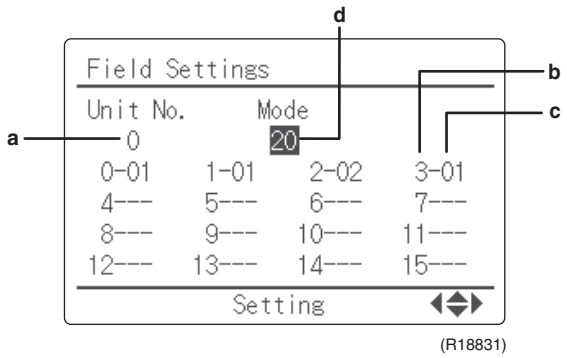
If optional accessories are mounted on the indoor unit, the indoor unit setting may have to be changed. Refer to the instruction manual for each optional accessory.

Note

When using 2 remote controllers for 1 indoor unit, change the field settings from MAIN remote controller. Note that the field settings cannot be set from SUB remote controller.

Procedure

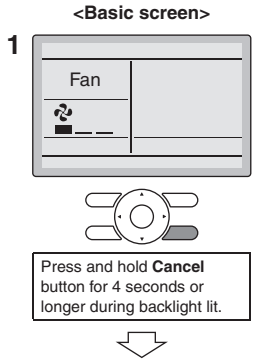
BRC1NRV71 Wired Remote Controller



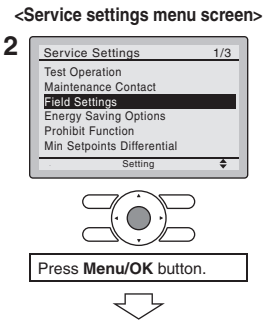
(R18831)

a Unit No.
b First code No.
c Second code No.
d Mode

1. Press and hold **Cancel** button for 4 seconds or longer.
   Service settings menu is displayed.



2. Select Field Settings in the Service Settings menu, and press **Menu/OK** button.
   Field settings screen is displayed.



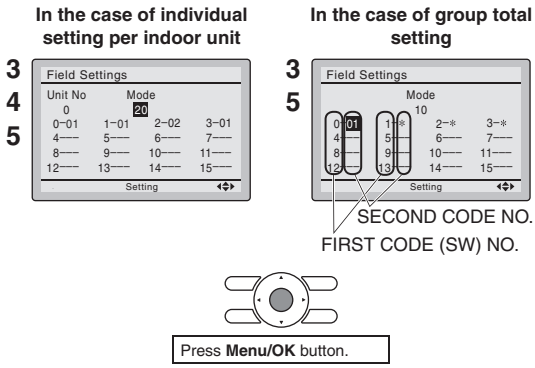
Highlight the mode, and select desired “Mode No.” by using ▲ ▼ **(Up/Down)** button.
In the case of setting per indoor unit during group control (When Mode No. such as 20, 22, 23, 25 are selected), highlight the unit No. and select “Indoor unit No.” to be set by using ▲ ▼ **(Up/Down)** button. (In the case of group setting, this operation is not needed.)

In the case of individual setting per indoor unit, current settings are displayed. And, SECOND CODE NO. “ - ” means no function.

Highlight SECOND CODE NO. of the FIRST CODE NO. to be changed, and select desired “SECOND CODE NO.” by using ▲ ▼ **(Up/Down)** button. Multiple identical mode number settings are available.

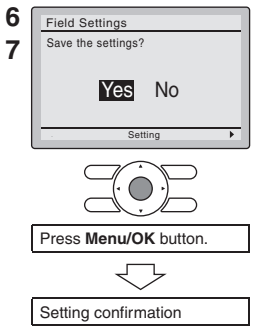
In the case of setting for all indoor units in the remote control group, available SECOND CODE NO. is displayed as “ ∗ ” which means it can be changed. When SECOND CODE NO. is displayed as “ - ”, there is no function.

<Service settings screen>



Press **Menu/OK** button. Setting confirmation screen is displayed.
Select Yes and press **Menu/OK** button. Setting details are determined and field settings screen returns.
In the case of multiple setting changes, repeat 3 to 7.
After all setting changes are completed, press **Cancel** button twice.
). Backlight goes out, and **[Checking the connection. Please stand by.]** is displayed for initialization. After the initialization, the basic screen returns.

<Setting confirmation screen>



4.2 Overview of Field Settings

Mode No.	First Code No.	Description of setting		Second Code No.									
				01		02		03	04	05	06		
10 (20)	0	Filter cleaning sign interval (used to change filter cleaning display interval according to filter contamination)	Longlife filter	Light★	Approx. 2,500 hrs.	Heavy	Approx. 1,250 hrs.	—	—	—	—		
			Standard filter		Approx. 200 hrs.		Approx. 100 hrs.	—	—	—	—		
	2	Remote controller thermistor		Refer to the table below.									
	3	Filter cleaning sign (used to set filter cleaning display ON/ OFF)		Display★		No display		—	—	—	—		
	6	Remote controller thermistor control during group control		**Not permitted★**		Permitted		—	—	—	—		
11 (21)	7	Air volume adjustment		OFF★		Air volume adjustment completion		Air volume adjustment start	—	—	—		
	8	Room temperature adjustment (Cooling)		Refer to the table below.									
	9	Room temperature adjustment (Heating)		Refer to the table below.									
13 (23)	6	External static pressure		Refer to the table below.									
15 (25)	13	Refrigerant leak sensor setting		Disabled		**Enabled★**		—	—	—	—		
	14	Refrigerant leak sensor replacement		**Normal★**		Completion of replacement		—	—	—	—		

★ Factory Setting

Note(s)

- Do not use any settings not listed in the table.
- For group control, refer to the installation manual attached to the indoor unit for group control.

4.2.1 Remote Controller Thermistor

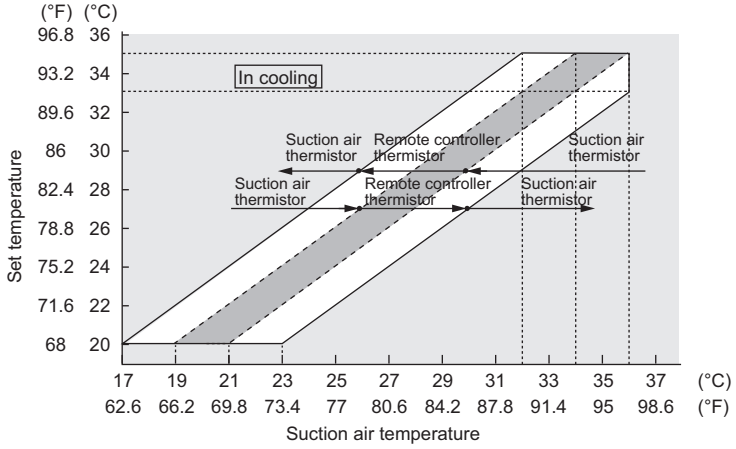
Select a thermistor to control the room temperature.

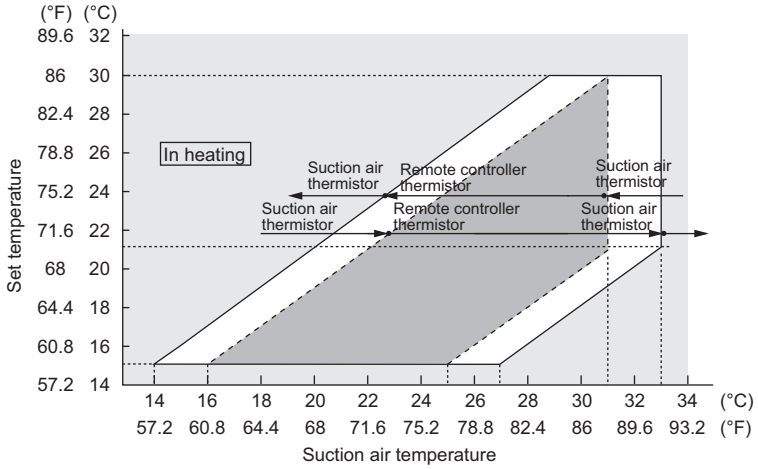
When the unit is not equipped with an infrared floor sensor:

Mode No.	First Code No.	Second Code No.	Contents
10 (20)	2	01	Remote controller thermistor and suction air thermistor
		02★	**Suction air thermistor only★**
		03	Remote controller thermistor only

★ Factory Setting

When the Second Code No. is set to **01**, room temperature is controlled by the suction air thermistor and remote controller thermistor. When the Second Code No. is set to **02**, room temperature is controlled by the suction air thermistor. When the Second Code No. is set to **03**, room temperature is controlled by the remote controller thermistor.





Room temperature adjustment (Cooling/Heating)

Mode No.	First Code No.	Second Code No.	Adjustment temperature
11 (21)	8.9	1	–3.5°C (–6.3°F)
		2	–3.0°C (–5.4°F)
		3	–2.5°C (–4.5°F)
		4	–2.0°C (–3.6°F)
		5	–1.5°C (–2.7°F)
		6	–1.0°C (–1.8°F)
		7	–0.5°C (–0.9°F)
		8 ★	**0.0°C (0.0°F) ★**
		9	+0.5°C (+0.9°F)
		10	+1.0°C (+1.8°F)
		11	+1.5°C (+2.7°F)
		12	+2.0°C (+3.6°F)
		13	+2.5°C (+4.5°F)
		14	+3.0°C (+5.4°F)
		15	+3.5°C (+6.3°F)

★ Factory Setting

External Static Pressure Settings

Mode No.	First Code No.	Second Code No.		External static pressure
		09/12 Class	15/18/24 Class	
13 (23)	6	03	—	30 Pa (0.12 inH_2O)
		04	—	40 Pa (0.16 inH_2O)
		05 ★	05 ★	50 Pa (0.20 inH_2O) ★
		06	06	60 Pa (0.24 inH_2O)
		07	07	70 Pa (0.28 inH_2O)
		08	08	80 Pa (0.32 inH_2O)
		09	09	90 Pa (0.36 inH_2O)
		10	10	100 Pa (0.40 inH_2O)
		11	11	110 Pa (0.44 inH_2O)
		12	12	120 Pa (0.48 inH_2O)
		13	13	130 Pa (0.52 inH_2O)
		14	14	140 Pa (0.56 inH_2O)
		15	15	150 Pa (0.60 inH_2O)

★ Factory Setting

4.2.2 Refrigerant Leak Sensor Setting

This is used when safety measures for refrigerant leak activated by the sensor is not required by the local and national codes based on the installation conditions such as refrigerant charge and room area.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	13	01	Disabled
		02★	**Enabled**★

4.2.3 Refrigerant Leak Sensor Replacement

After completion of replacement with a new sensor, change the Second Code No. to **02** to clear the error message on the remote controller. A reset of the power supply is also required to enable the setting.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	14	**01**★	**Normal**★
		02	Completion of replacement

4.3 MAIN/SUB Setting when Using 2 Wired Remote Controllers

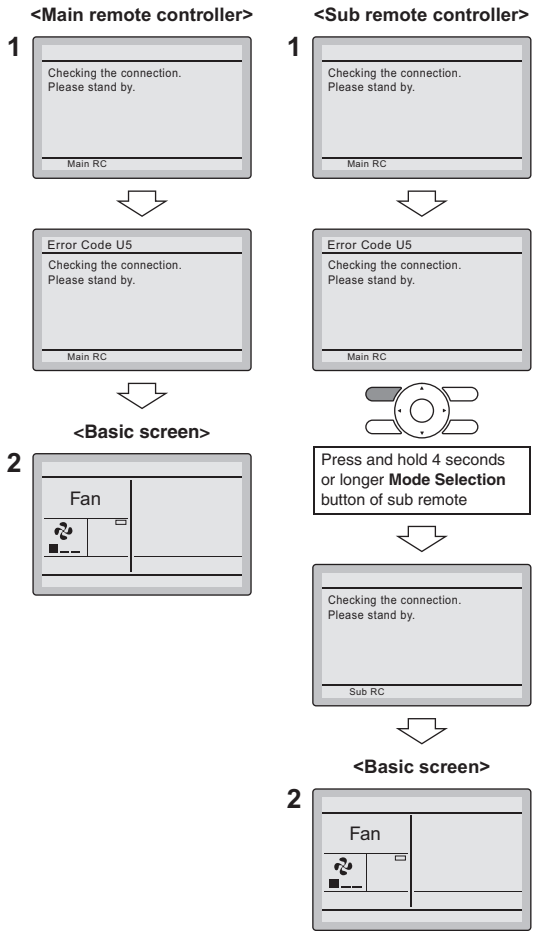
Outline

The MAIN/SUB setting is necessary when 1 indoor unit is controlled by 2 remote controllers. When you use 2 remote controllers, set one to MAIN and the other to SUB.

Details

1. The following message is displayed after power-on.
   Checking the connection.
   Please stand by.
   When the above message is displayed, the backlight will not be ON.
   [In the case that 1 indoor unit is controlled by 2 remote controllers:]
   Make sure to set the sub remote controller when the above message is displayed.
   Hold **Mode** button for 4 seconds or longer to set.
   When the display is changed from “Main RC” to “Sub RC”, the setting is completed.

2. Basic screen is displayed.



5. Field Settings for Outdoor Unit

5.1 Facility Setting (cooling at low outdoor temperature)

Outline

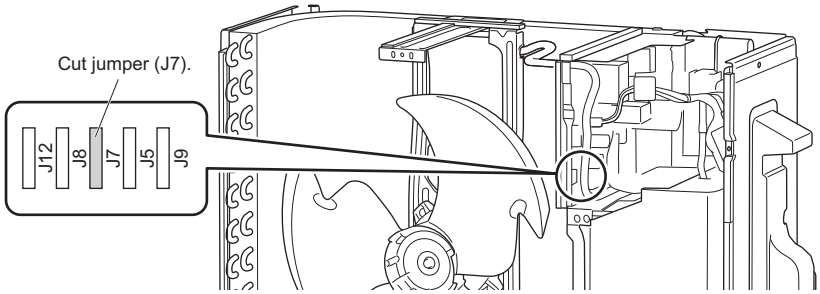
This function is limited only for facilities (the target of air conditioning is equipment such as computers). Never use it in a residence or office (the space where there is a human).

Details

■ **09/12 class**

Cutting the Jumper 7 (J7) on the circuit board will expand the operation range down to 14°F (–10°C). Installing an air direction adjustment grille (sold separately) will further extend the operation range to –4°F (–20°C). In these cases, the unit will stop operating if the outdoor temperature falls below –4°F (–20°C), restarting once the temperature rises above this level.

(1) Remove the top plate of the outdoor unit. (4 screws)
(2) Remove the front plate. (5 screws)
(3) Cut the Jumper 7 (J7) of the PCB inside.

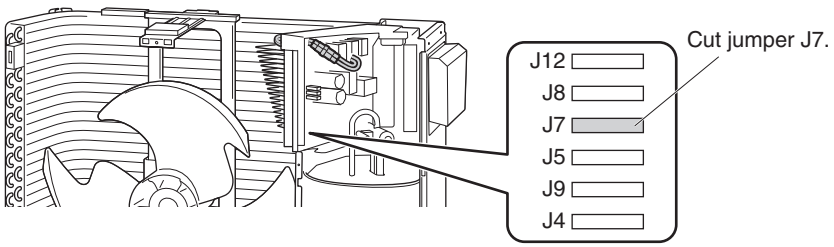


R7000502

■ **15/18/24 class**

Cutting jumper 7 (J7) on the PCB will extend the operation range to 14°F (–10°C). Installing an air direction adjustment grille (sold separately) will further extend the operation range to –4°F (–20°C). In these cases, the unit will stop operating if the outdoor temperature falls below –4°F (–20°C), restarting once the temperature rises above this level.

(1) Remove the top plate of the outdoor unit. (6 screws)
(2) Remove the front plate. (10 screws)
(3) Remove the anti-drip cover.
(4) Cut the jumper (J7) of the PCB inside.



R7000456

Reference

For the location of the jumper, refer to pages 23, 24.

Caution

- If the outdoor unit is installed where the heat exchanger of the unit is exposed to direct wind, provide a windbreak wall.
- Intermittent noises may be produced by the indoor unit due to the outdoor fan turning on and off when using facility settings.
- Do not place humidifiers or other items which might raise the humidity in rooms where facility settings are being used.
  A humidifier might cause dew jumping from the indoor unit outlet vent.

- Activating the facility setting sets the indoor fan tap to the highest position. Notify the user about this.

Caution

Replace the PCB if you cut a jumper unintentionally.
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

5.2 Warmer Airflow Setting

Outline

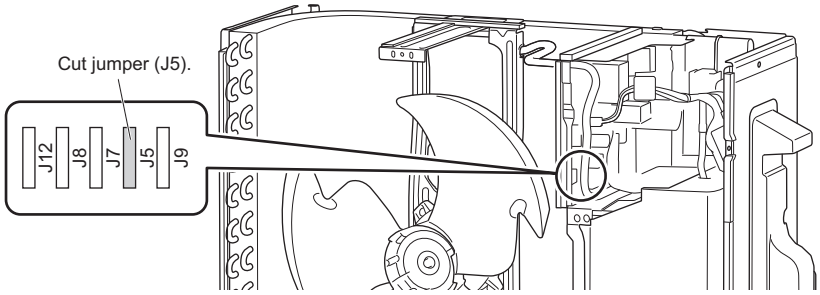
The temperature of discharge airflow in heating operation can be adjusted warmer.
- The room temperature will be high when getting close to the set temperature.
- The discharge airflow does not become warmer in other than heating operation.

Procedure

Warmer airflow can be enabled/disabled from remote controller or outdoor unit.

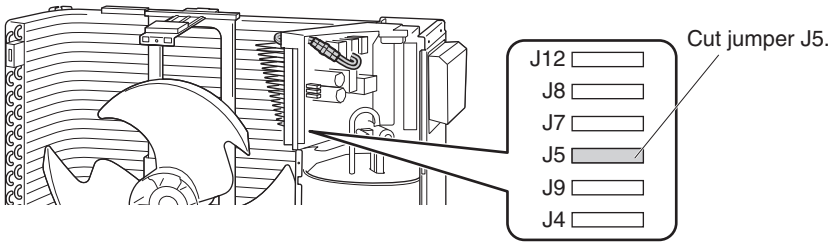
Cut the jumper (J5) of the PCB inside.

- **09/12 class**



R7000503

- **15/18/24 class**



R7000458

Reference

For the location of the jumper, refer to page 23, 24.

Note(s)

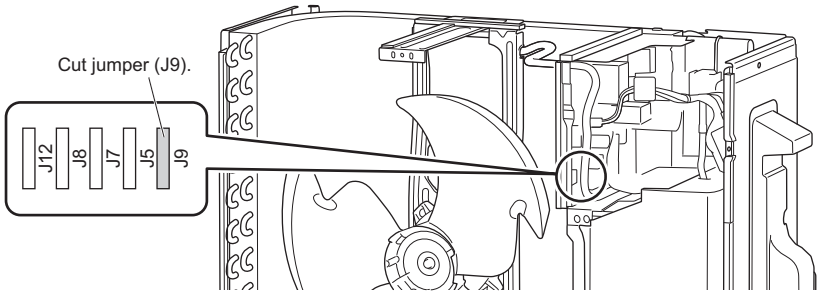
Warmer airflow can be enabled from either indoor or outdoor unit.
Warmer airflow becomes available when either one of the RC or outdoor unit setting is enabled. For example, if the outdoor unit has the switch for warmer airflow, it can be set even when it is disabled on the indoor unit.
Also, for the wireless remote controller with field setting function, warmer airflow is enabled when set on indoor unit with the remote controller field setting, even when it is disabled on outdoor unit.

5.3 Drain Pan Heater

In high humidity areas or heavy snow areas, it is recommended to attach a drain pan heater to prevent ice build-up from the bottom frame.

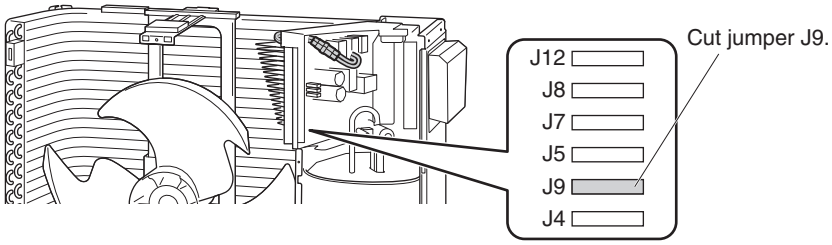
1. Attach the drain pan heater in accordance with the installation manual included with the drain pan heater.
2. Cut the jumper (J9) of the PCB inside.

■ **09/12 class**



R7000504

■ **15/18/24 class**



R7000460

Reference For the location of the jumper, refer to page 23, 24.

6. Silicone Grease on Power Transistor/Diode Bridge

Outline

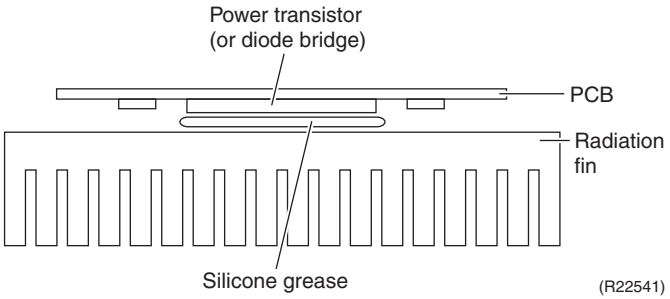
Apply the specified silicone grease to the heat generation part of a power transistor/diode bridge when you replace an outdoor unit PCB. The silicone grease encourages the heat dissipation of a power transistor/diode bridge.

Details

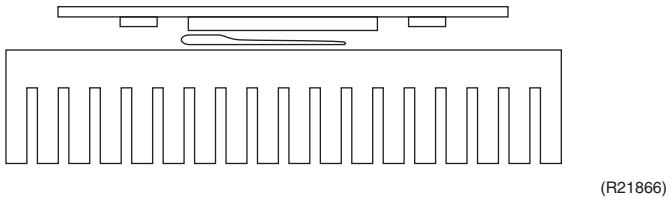
1. Wipe off the old silicone grease completely.
2. Apply the silicone grease evenly. See the illustrations below for examples of application.
3. Tighten the screws of the power transistor/diode bridge.
4. Make sure that the heat generation parts are firmly contacted to the radiation fin.

Note: Smoke emission may be caused by bad heat radiation when the silicone grease is not appropriately applied.

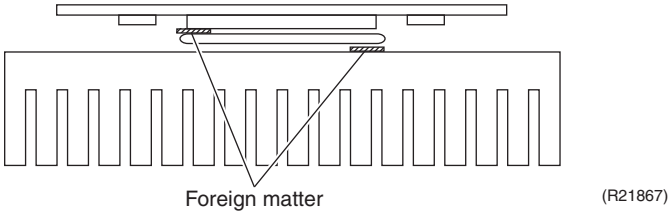
■ OK: Evenly applied



■ NG: Not evenly applied



■ NG: Foreign matter is stuck.



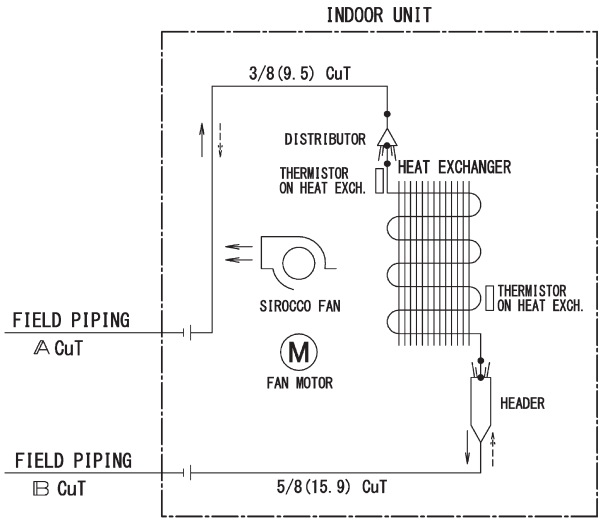
Part 8
Appendix

1. Piping Diagrams 154
   1.1 Indoor Unit 154
   1.2 Outdoor Unit 154
2. Wiring Diagrams 156
   2.1 Indoor Unit 156
   2.2 Outdoor Unit 157
3. Operation Limit 159

1. Piping Diagrams

1.1 Indoor Unit

FDMA09/12/15/18/24AVJU9

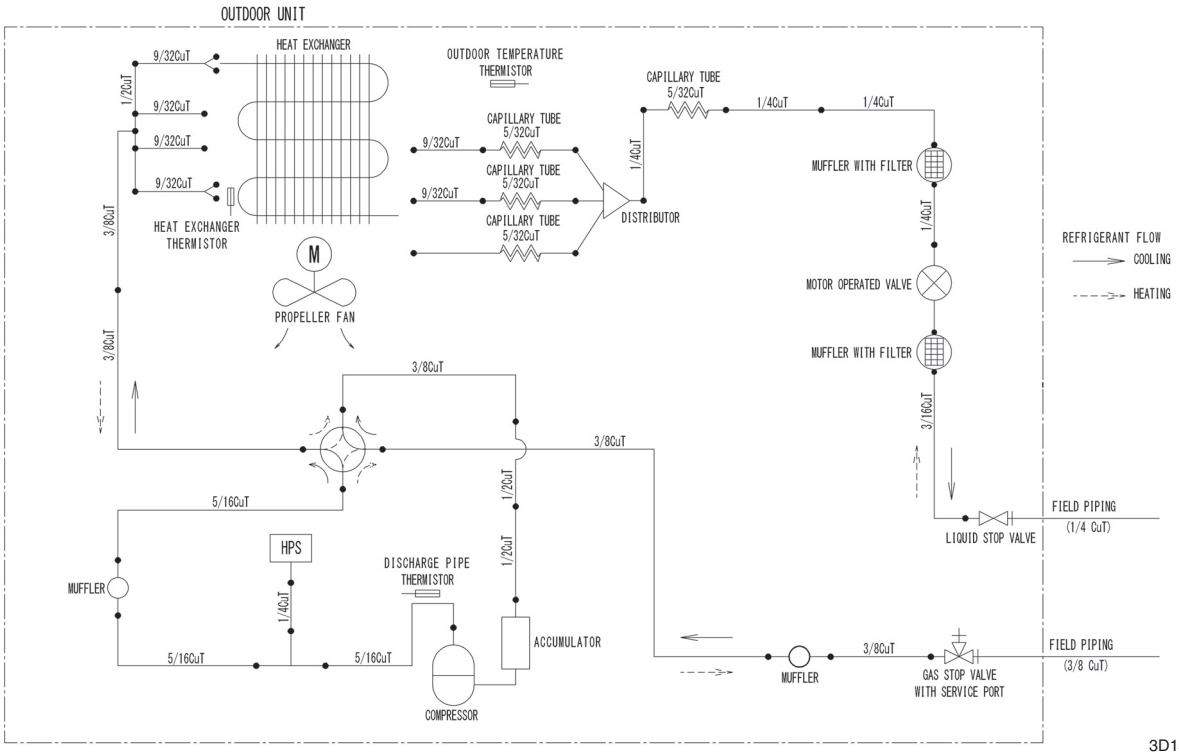


MODEL	Ⓐ	Ⓑ
FDMA09・12	1/4 (6.4)	3/8 (9.5)
FDMA15・18	1/4 (6.4)	1/2 (12.7)
FDMA24	1/4 (6.4)	5/8 (15.9)

C: 4D112974C

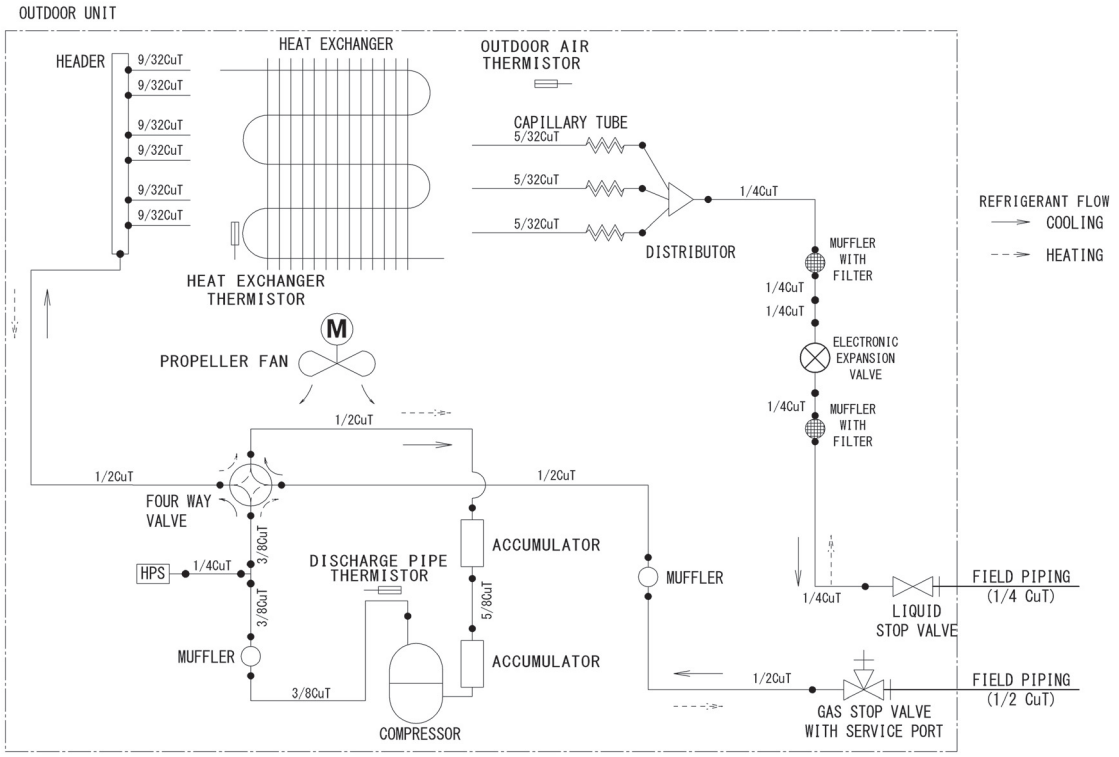
1.2 Outdoor Unit

RXP09/12AVJU9

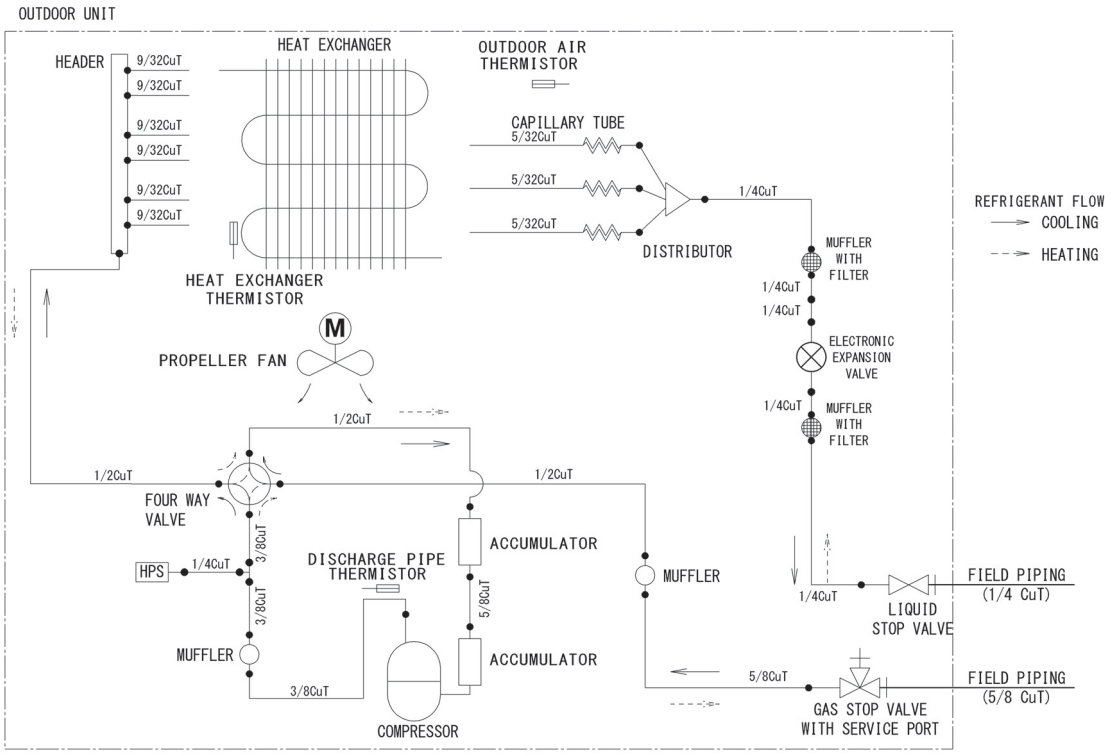


3D150947

RXP15/18AVJU9



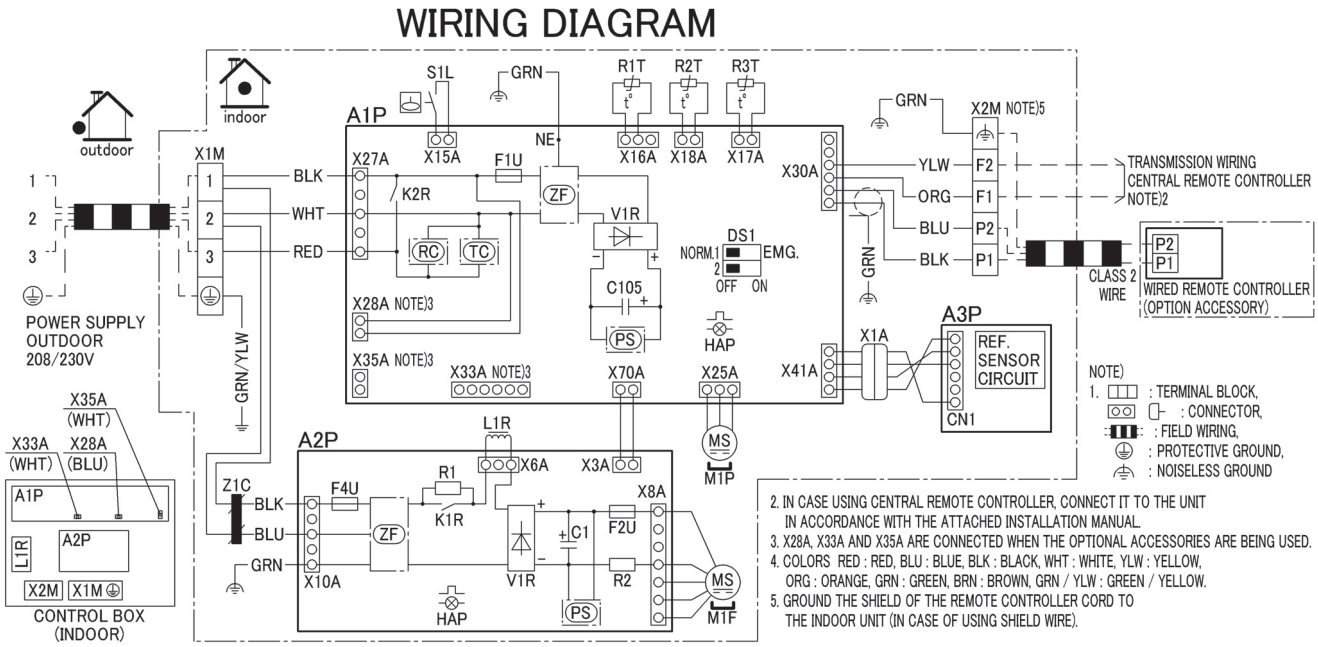
RXP24AVJU9



2. Wiring Diagrams

2.1 Indoor Unit

FDMA09/12/15/18/24AVJU9



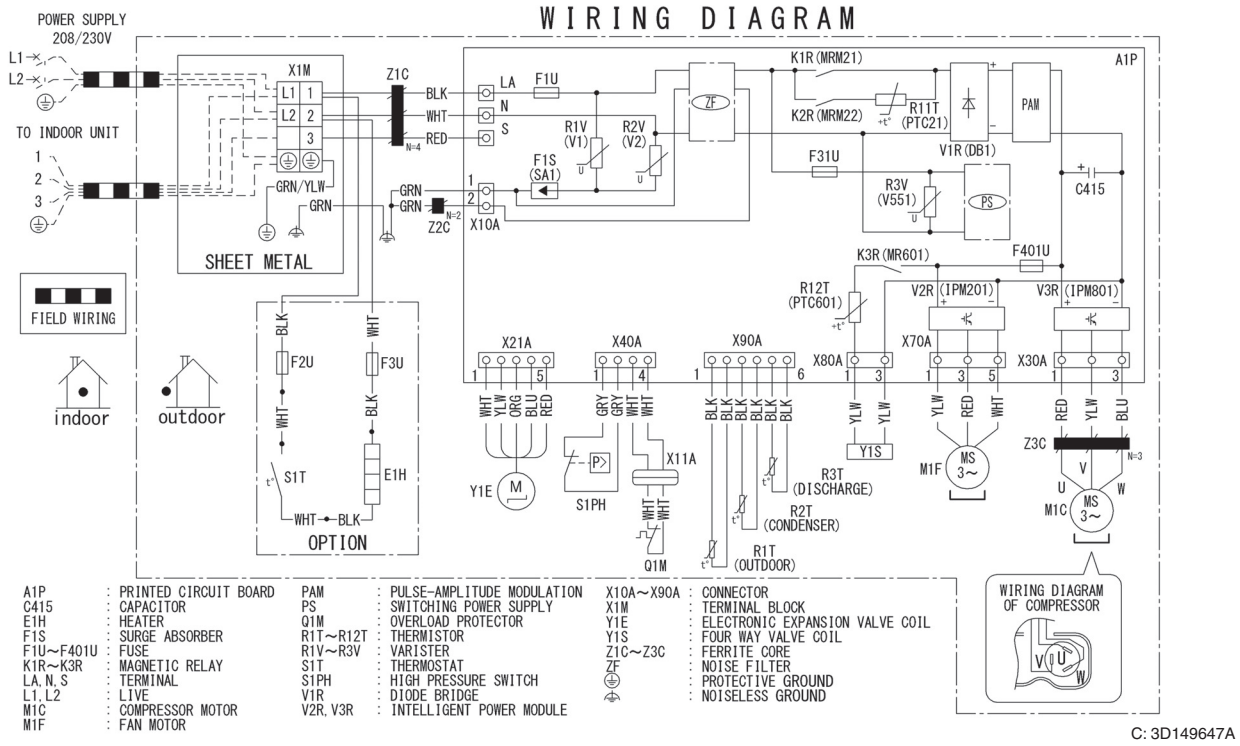
INDOOR UNIT		CONNECTOR OPTIONAL ACCESSORY	
A1P	PRINTED CIRCUIT BOARD	X28A	CONNECTOR (POWER SUPPLY FOR WIRING)
A2P	PRINTED CIRCUIT BOARD (FAN)	X33A	CONNECTOR (FOR WIRING)
A3P	PRINTED CIRCUIT BOARD (REFRIGERANT SENSOR)	X35A	CONNECTOR (ADAPTER)
C1	CAPACITOR		
C105	CAPACITOR		
DS1	DIP SWITCH (EMERGENCY)		
F1U	FUSE (T, 3.15A, 250V)		
F2U	FUSE (T, 5A, 250V)		
F4U	FUSE (T, 6.3A, 250V)		
HAP	PILOT LAMP (SERVICE MONITOR-GREEN)		
K1R	MAGNETIC RELAY		
K2R	MAGNETIC RELAY		
L1R	REACTOR		
M1F	MOTOR (FAN INDOOR)		
M1P	MOTOR (DRAIN PUMP)		
R1	RESISTOR (CURRENT LIMITING)		
R2	CURRENT SENSING DEVICE		
R1T	THERMISTOR (SUCTION AIR)		
R2T	THERMISTOR (HEAT EXCHANGER)		
R3T	THERMISTOR (HEAT EXCHANGER)		
S1L	FLOAT SWITCH		
V1R	DIODE BRIDGE		
X1M	TERMINAL BLOCK (POWER SUPPLY)		
X2M	TERMINAL BLOCK (CONTROL)		
ZF	NOISE FILTER		
Z1C	FERRITE CORE		
PS	SWITCHING POWER SUPPLY		
RC	RECEIVER		
TC	TRANSMITTER		

Notes

A1P: Control PCB
A2P: Indoor fan PCB
A3P: Refrigerant sensor PCB
Refer to page 21 for Printed Circuit Board Connector Wiring Diagram.

2.2 Outdoor Unit

RXP09/12AVJU9

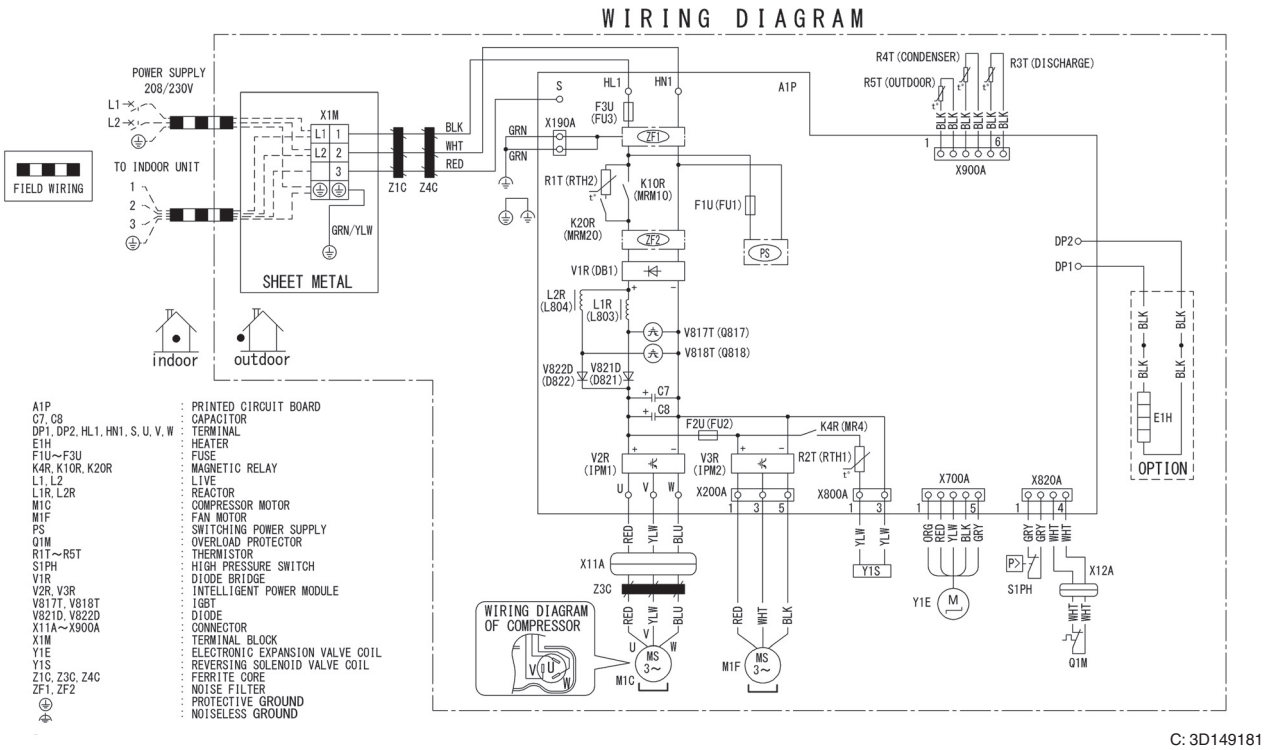


C: 3D149647A

Note(s) A1P: Main PCB

Refer to page 23 for Printed Circuit Board Connector Wiring Diagram.

RXP15/18/24AVJU9



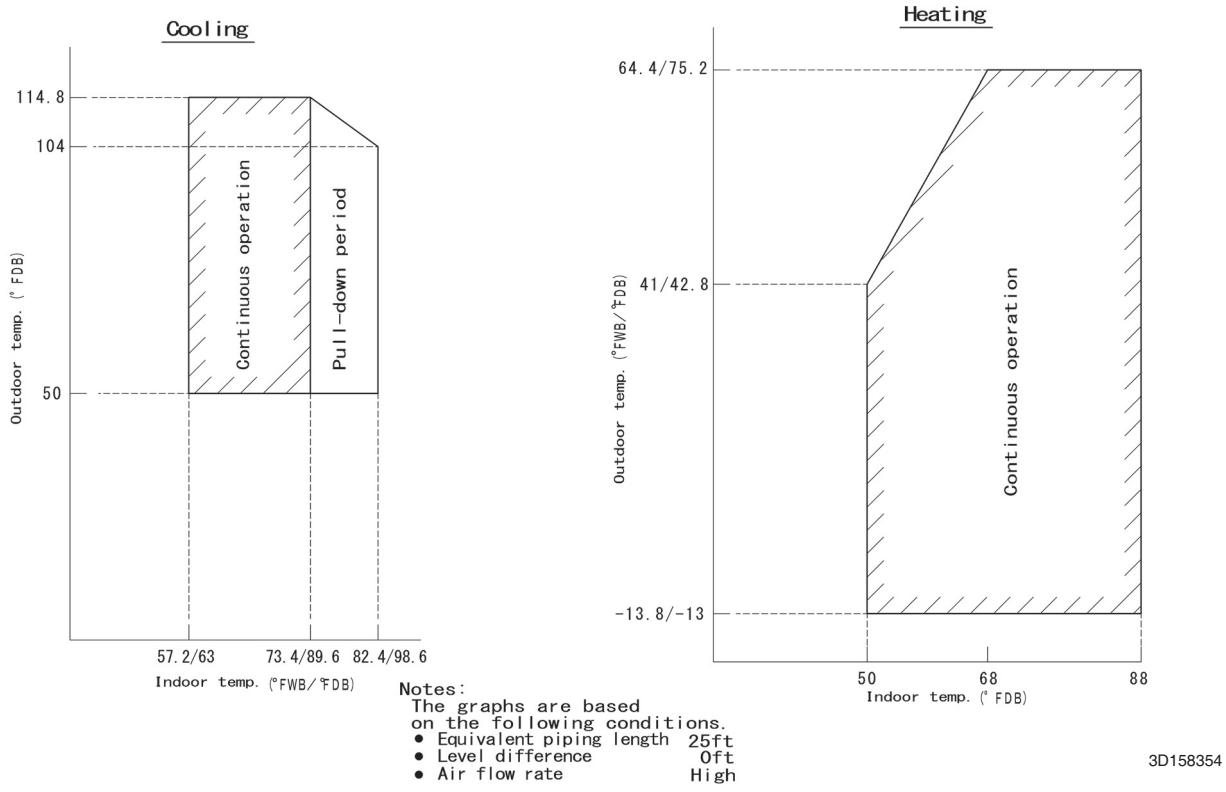
C: 3D149181

Note(s) PCB: Main PCB

Refer to page 24 for Printed Circuit Board Connector Wiring Diagram.

3. Operation Limit

RXP09/12/15/18/24AVJU9



Notes:
The graphs are based on the following conditions.
- Equivalent piping length 25ft
- Level difference 0ft
- Air flow rate High

3D158354

Warning

- Daikin products are manufactured for export to numerous countries throughout the world. Prior to purchase, please confirm with your local authorized importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.
- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- 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 unauthorized parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the user's manual carefully before using this product. The user's manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any inquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.

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10/2025 AK.K