SiUS332501E

R-32

Service Manual

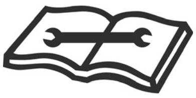
Standard: RXTA-AA Series
Aurora: RXLA-AA Series

Heat Pump 60 Hz

Introduction

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

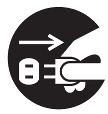
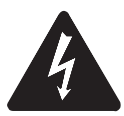
The caution items are classified into ⚠**Warning** and ⚠**Caution**. The ⚠**Warning** items are especially important since death or serious injury can result if they are not followed closely. The ⚠**Caution** items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.

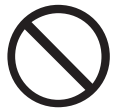
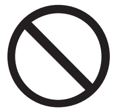
Pictograms

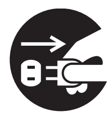
△ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.
○ This symbol indicates a prohibited action.
The prohibited item or action is shown in the illustration or near the symbol.
● This symbol indicates an action that must be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

1.1 Warnings and Cautions Regarding Safety of Workers

Servicing shall be performed only as recommended by the manufacturer and licensed or certified in their jurisdiction.

⚠ 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.	

INFORMATION ON SERVICING

■ 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 minimised. 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 minimise the risk of a flammable gas or vapour 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 minimise 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.	
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.	

⚠ Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet securely. If the plug 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.	
Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.	
The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).	
Do not pierce or burn.	
Be aware that refrigerants may not contain an odor. Comply with national gas regulations.	
That pipe-work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed;	
After completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements:	
The minimum test pressure for the low side of the system shall be the low side maximum allowable pressure and the minimum test pressure for the high side of the system shall be the high side maximum allowable pressure, unless the high side of the system cannot be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side maximum allowable pressure.	
The field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure. No leak shall be detected.	
Mechanical ventilation openings The upper edge of the air extraction opening from the room shall be located equal or below the refrigerant release point. The mechanical ventilation air extracted from the space shall be positioned relative to the mechanical ventilation air intake openings such that the makeup air will mix with the leaked refrigerant.	
Functionality of the safety measures are periodically automatically checked. In case of detection when a refrigerant leaks of indoor unit, the fan of indoor unit rotates at a low speed to stop the outdoor unit.	

Warning	
REFRIGERANT SENSORS for REFRIGERANT DETECTION SYSTEMS shall only be replaced with sensors specified by the appliance manufacture.	
An unventilated area where the appliance using flammable refrigerants is installed shall be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard.	
Only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork. The manufacturer shall list in the instructions all approved auxiliary devices by manufacturer and model number for use with the specific appliance, if those devices have a potential to become an ignition source.	
Non-duct connected appliances containing A2L refrigerants with the supply and return air openings in the conditioned space may have the body of the appliance may be installed in open areas such as false ceilings not being used as return air plenums, as long as the conditioned air does not directly communicate with the air of the false ceiling.	
For duct connected appliances, false ceilings or drop ceilings may be used as a return air plenum if a refrigerant detection system is provided in the appliance and any external connections are also provided with a sensor immediately below the return air plenum duct joint.	
That room shall be without continuously operating open flames (e.g. an operating gas appliance) or other POTENTIAL IGNITION SOURCES (for e.g. an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest	
“Auxiliary devices which may be a potential ignition source shall not be installed in the duct work. Examples of such potential ignition sources are hot surfaces with a temperature exceeding 1292°F (700°C) and electric switching devices”;	
Make sure installation, servicing, maintenance and repair comply with instructions from Daikin and with applicable legislation (for example national gas regulations) and are executed only by authorized persons.	

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
03 / 2025	SiUS332501E	First edition

Part 1
General Information

1. Model Names and Power Supply

1.1 Outdoor Unit

Capacity range	ton	2	3	4	5	Power supply, Standard
	kW	7	10.6	14.1	17.6	
Capacity index		24	36	48	60	
Standard series	RXTA	24AA	36AA	48AA	60AA	VJU
Aurora series	RXLA	—	36AA	48AA	—	

VJ: 1 phase, 208/230 V, 60 Hz
U(VJU): Standard symbol

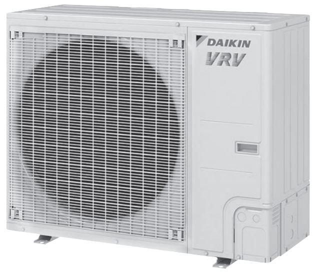
1.2 Indoor Unit

Capacity range	ton	0.5	0.6	0.8	1	1.25	1.5	2	2.5	3	3.5	4	4.5	5	Power supply, Standard
	kW	1.7	2.2	2.8	3.5	4.4	5.3	7	8.8	10.6	12.3	14.1	15.8	17.6	
Capacity index		5.8	7.5	9.5	12	15	18	24	30	36	42	48	54	60	
Ceiling mounted cassette (Round flow with sensing) type	FXFA	—	07AA	09AA	12AA	15AA	18AA	24AA	30AA	36AA	—	48AA	54AA	—	VJU
MSP concealed ducted unit type	FXSA	05AA	07AA	09AA	12AA	15AA	18AA	24AA	30AA	36AA	—	48AA	54AA	—	
HSP concealed ducted unit type	FXMA	—	—	—	—	15AA	18AA	24AA	30AA	36AA	—	48AA	54AA	—	
Air handling unit type	FXTA	—	—	09AA	12AA	—	18AA	24AA	30AA	36AA	42AA	48AA	54AA	60AA	VJUA
		—	—	09AA	12AA	—	18AA	24AA	30AA	36AA	42AA	48AA	54AA	60AA	VJUD

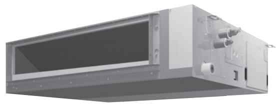
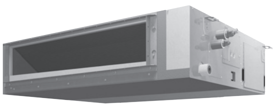
VJ: 1 phase, 208/230 V, 60 Hz
U(VJU): Standard symbol
A(VJUA): Without factory disconnect (only FXTA-AA)
D(VJUD): With factory disconnect (only FXTA-AA)

2. External Appearance

2.1 Outdoor Unit

2, 3, 4, 5 ton
 RXTA24AAVJU RXTA36AAVJU RXLA36AAVJU RXTA48AAVJU RXLA48AAVJU RXTA60AAVJU

2.2 Indoor Unit

Ceiling mounted cassette (Round flow with sensing) type FXFA-AA  Shown with BYCQ54GEFU	HSP concealed ducted unit type FXMA-AA 
MSP concealed ducted unit type FXSA-AA 	Air handling unit type FXTA-AA 

3. Capacity Range

3.1 Connection Ratio

$$\text{Connection ratio} = \frac{\text{Total capacity index of the indoor units}}{\text{Capacity index of the outdoor unit}}$$

Type	Min. connection ratio	Max. connection ratio
		Types of connected indoor units
		VRV indoor units
Single outdoor unit	50%	130%

3.2 Outdoor Unit Combinations

Model	**RXTA24AAVJU**	**RXTA36AAVJU** **RXLA36AAVJU**	**RXTA48AAVJU** **RXLA48AAVJU**	**RXTA60AAVJU**
Capacity range (ton)	2	3	4	5
Capacity index	24	36	48	60
Maximum number of connectable indoor units	4	6	8	9
Total capacity index of indoor units to be connected	12.0 ~ 31.2	18.0 ~ 46.8	24.0 ~ 62.4	30.0 ~ 78.0

4. Specifications

Model name			RXTA24AAVJU	RXTA36AAVJU
Power supply			1 phase, 208/230 V, 60 Hz	1 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	24,000 (7.0)	36,000 (10.6)
	Rated (Non-ducted)		23,000 (6.7)	34,200 (10.0)
	Rated (Ducted)		23,000 (6.7)	34,200 (10.0)
★2 Heating capacity	Nominal	Btu/h (kW)	27,000 (7.9)	40,000 (11.7)
	Rated (Non-ducted)		25,800 (7.6)	37,000 (10.8)
	Rated (Ducted)		25,000 (7.3)	37,000 (10.8)
Casing color			Ivory white	Ivory white
Dimensions: (H × W × D)		in (mm)	34-1/4 × 43-5/16 × 18-1/8 (870 × 1,100 × 460)	34-1/4 × 43-5/16 × 18-1/8 (870 × 1,100 × 460)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed swing type	Hermetically sealed swing type
	Motor output	kW	2.2	3.4
Fan	Type		Propeller fan	Propeller fan
	Motor output	kW	0.234	0.234
	Airflow rate	cfm (m^3/min)	3,000 (85)	3,000 (85)
	Drive		Direct drive	Direct drive
Sound pressure level (Reference data)	Cooling	dBA	56	56
	Heating	dBA	59	59
Sound power level (Reference data)	Cooling	dB	74	74
	Heating	dB	77	77
Connecting pipes	Liquid pipe	in (mm)	ϕ 3/8 (9.5) (Flare connection)	ϕ 3/8 (9.5) (Flare connection)
	Gas pipe	in (mm)	ϕ 5/8 (15.9) (Flare connection)	ϕ 5/8 (15.9) (Flare connection)
Mass		lbs (kg)	234 (106)	234 (106)
Safety devices			High pressure switch, Outdoor fan driver overload protector, Inverter overload protector, Fusible plug, Fuse, Bimetal thermostat (External overload relay)	High pressure switch, Outdoor fan driver overload protector, Inverter overload protector, Fusible plug, Fuse, Bimetal thermostat (External overload relay)
Defrost method			Reverse cycle defrosting	Reverse cycle defrosting
Capacity control		%	13-100	13-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	7.5 (3.4)	7.5 (3.4)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Clamps, Insulation tube, General Safety Considerations, etc.	Installation manual, Operation manual, Clamps, Insulation tube, General Safety Considerations, etc.
Drawing No.			4D154505A	4D154505A

Notes:

★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Equivalent piping length: 25 ft (7.6 m), height difference: 0 ft (0 m).

★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Equivalent piping length: 25 ft (7.6 m), height difference: 0 ft (0 m).

Model name			**RXTA48AAVJU**	**RXTA60AAVJU**
Power supply			1 phase, 208/230 V, 60 Hz	1 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	48,000 (14.1)	60,000 (17.6)
	Rated (Non-ducted)		45,500 (13.3)	57,500 (16.9)
	Rated (Ducted)		45,500 (13.3)	57,500 (16.9)
★2 Heating capacity	Nominal	Btu/h (kW)	52,000 (15.2)	60,000 (17.6)
	Rated (Non-ducted)		47,500 (13.9)	57,000 (16.7)
	Rated (Ducted)		46,000 (13.5)	57,000 (16.7)
Casing color			Ivory white	Ivory white
Dimensions: (H × W × D)		in (mm)	34-1/4 × 43-5/16 × 18-1/8 (870 × 1,100 × 460)	34-1/4 × 43-5/16 × 18-1/8 (870 × 1,100 × 460)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed swing type	Hermetically sealed swing type
	Motor output	kW	4.2	5.0
Fan	Type		Propeller fan	Propeller fan
	Motor output	kW	0.234	0.234
	Airflow rate	cfm (m^3/min)	3,000 (85)	3,000 (85)
	Drive		Direct drive	Direct drive
Sound pressure level (Reference data)	Cooling	dBA	56	57
	Heating	dBA	59	59
Sound power level (Reference data)	Cooling	dB	74	75
	Heating	dB	77	77
Connecting pipes	Liquid pipe	in (mm)	ϕ 3/8 (9.5) (Flare connection)	ϕ 3/8 (9.5) (Flare connection)
	Gas pipe	in (mm)	ϕ 5/8 (15.9) (Flare connection)	ϕ 5/8 (15.9) (Flare connection)
Mass		lbs (kg)	234 (106)	234 (106)
Safety devices			High pressure switch, Outdoor fan driver overload protector, Inverter overload protector, Fusible plug, Fuse, Bimetal thermostat (External overload relay)	High pressure switch, Outdoor fan driver overload protector, Inverter overload protector, Fusible plug, Fuse, Bimetal thermostat (External overload relay)
Defrost method			Reverse cycle defrosting	Reverse cycle defrosting
Capacity control		%	10-100	9-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	7.5 (3.4)	7.5 (3.4)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Clamps, Insulation tube, General Safety Considerations, etc.	Installation manual, Operation manual, Clamps, Insulation tube, General Safety Considerations, etc.
Drawing No.			4D154506A	4D154506A

Notes:
★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Equivalent piping length: 25 ft (7.6 m), height difference: 0 ft (0 m).
★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Equivalent piping length: 25 ft (7.6 m), height difference: 0 ft (0 m).

Model name			**RXLA36AAVJU**	**RXLA48AAVJU**
Power supply			1 phase, 208/230 V, 60 Hz	1 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	36,000 (10.6)	48,000 (14.1)
	Rated (Non-ducted)		34,200 (10.0)	45,500 (13.3)
	Rated (Ducted)		34,200 (10.0)	45,500 (13.3)
★2 Heating capacity	Nominal	Btu/h (kW)	40,000 (11.7)	52,000 (15.2)
	Rated (Non-ducted)		37,000 (10.8)	47,500 (13.9)
	Rated (Ducted)		37,000 (10.8)	46,000 (13.5)
Casing color			Ivory white	Ivory white
Dimensions: (H × W × D)		in (mm)	34-1/4 × 43-5/16 × 18-1/8 (870 × 1,100 × 460)	34-1/4 × 43-5/16 × 18-1/8 (870 × 1,100 × 460)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed swing type	Hermetically sealed swing type
	Motor output	kW	3.4	4.2
Fan	Type		Propeller fan	Propeller fan
	Motor output	kW	0.234	0.234
	Airflow rate	cfm (m^3/min)	3,000 (85)	3,000 (85)
	Drive		Direct drive	Direct drive
Sound pressure level (Reference data)	Cooling	dBA	56	56
	Heating	dBA	60	60
Sound power level (Reference data)	Cooling	dB	74	74
	Heating	dB	78	78
Connecting pipes	Liquid pipe	in (mm)	ϕ 3/8 (9.5) (Flare connection)	ϕ 3/8 (9.5) (Flare connection)
	Gas pipe	in (mm)	ϕ 5/8 (15.9) (Flare connection)	ϕ 5/8 (15.9) (Flare connection)
Mass		lbs (kg)	234 (106)	234 (106)
Safety devices			High pressure switch, Outdoor fan driver overload protector, Inverter overload protector, Fusible plug, Fuse, Bimetal thermostat (External overload relay)	High pressure switch, Outdoor fan driver overload protector, Inverter overload protector, Fusible plug, Fuse, Bimetal thermostat (External overload relay)
Defrost method			Reverse cycle defrosting	Reverse cycle defrosting
Capacity control		%	11-100	9-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	7.5 (3.4)	7.5 (3.4)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Clamps, Insulation tube, General Safety Considerations, etc.	Installation manual, Operation manual, Clamps, Insulation tube, General Safety Considerations, etc.
Drawing No.			4D154507A	4D154507A

Notes:

★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Equivalent piping length: 25 ft (7.6 m), height difference: 0 ft (0 m).

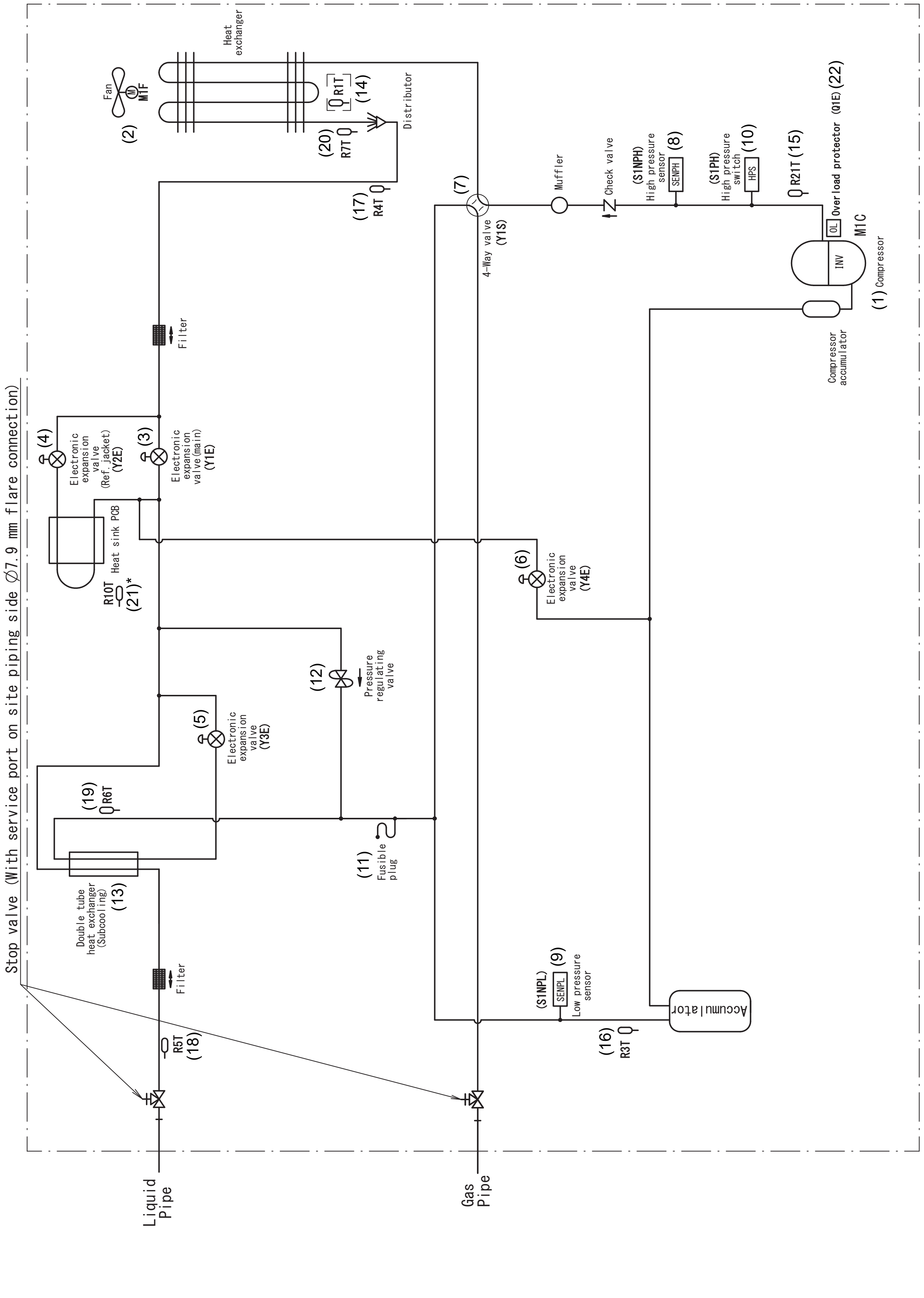
★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Equivalent piping length: 25 ft (7.6 m), height difference: 0 ft (0 m).

Part 2
Refrigerant Circuit

1. Refrigerant Circuit (Piping Diagrams)

1.1 Outdoor Unit

No. in piping diagram	Electric symbol	Name	Function
(1)	M1C	Compressor	Compressor is operated in multi-steps according to Te or Tc by using inverter.
(2)	M1F	Fan motor	The fan rotation speed is varied by using inverter.
(3)	Y1E	Electronic expansion valve (Main)	Fully open during cooling operation. While in heating operation, PI control is applied to keep the outlet superheating degree of air heat exchanger constant.
(4)	Y2E	Electronic expansion valve (Inverter cooling)	Used in heating operation to control inverter fin temperature by adjusting the refrigerant flow.
(5)	Y3E	Electronic expansion valve (Subcooling heat exchanger)	PI control is applied to keep the outlet superheating degree of subcooling heat exchanger constant.
(6)	Y4E	Electronic expansion valve (Injection)	
(7)	Y1S	Solenoid valve (Four way valve)	Used to switch the operation mode between cooling and heating.
(8)	S1NPH	High pressure sensor	Used to detect the high pressure.
(9)	S1NPL	Low pressure sensor	Used to detect the low pressure.
(10)	S1PH	High pressure switch	In order to prevent the increase of high pressure when an error occurs, this switch is activated at high pressure of 4.0 MPa (580 psi) or more to stop the compressor operation.
(11)	—	Fusible plug	In order to prevent the increase of pressure when abnormal heating is caused by fire or others, the fusible part of the plug is molten at a temperature of 70 to 75°C (158 to 167°F) to release the pressure into the atmosphere.
(12)	—	Pressure regulating valve	This valve opens at a pressure of 4.0 MPa (580 psi) for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage.
(13)	—	Double tube heat exchanger (Subcooling heat exchanger)	Used to subcool liquid refrigerant from the electronic expansion valve.
(14)	R1T	Thermistor (Outdoor air)	Used to detect outdoor air temperature, correct discharge pipe temperature and for other purposes.
(15)	R21T	Thermistor (Discharge pipe)	Used to detect discharge pipe temperature, make the temperature protection control of compressor, and for other purposes.
(16)	R3T	Thermistor (Suction pipe)	Used to detect suction pipe temperature and for other purposes.
(17)	R4T	Thermistor (Heat exchanger liquid pipe)	This detects temperature of liquid pipe between the air heat exchanger and main electronic expansion valve. Used to make judgments on the recover or discharge refrigerants to the refrigerant regulator.
(18)	R5T	Thermistor (Subcooling liquid pipe)	This detects temperature of liquid pipe after subcooling heat exchanger.
(19)	R6T	Thermistor (Subcooling gas pipe)	This detects temperature of gas pipe on the evaporation side of subcooling heat exchanger. Used to exercise the constant control of superheating degree at the outlet of subcooling heat exchanger.
(20)	R7T	Thermistor (Deicer)	Used to detect liquid pipe temperature of air heat exchanger.
(21)	R10T	Thermistor (Radiation fin)	Used for outdoor fan speed control and inverter radiation fin temperature control.
(22)	Q1E	Overload protector	Detects compressor surface temperature, this switch is activated at surface temperature of 125°C (257°F) or more to stop the compressor.



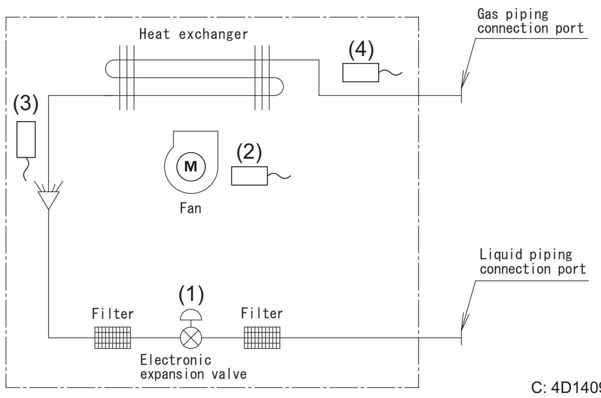
* The radiation fin thermistor (21) is located near the electrical component box.

1.2 Indoor Unit

No. in piping diagram	Name	Symbol			Function
		FXFA-AA	FXSA-AA FXMA-AA	FXTA-AA	
(1)	Electronic expansion valve	Y1E	Y1E	Y1E	Used for gas superheating degree control while in cooling or subcooling degree control while in heating.
(2)	Suction air thermistor	R1T	R1T	R1T (∗1)	Used for thermostat control.
(3)	Liquid pipe thermistor	R2T	R2T	R2T	Used for gas superheating degree control while in cooling or subcooling degree control while in heating.
(4)	Gas pipe thermistor	R3T	R3T	R3T	Used for gas superheating degree control while in cooling.
(5)	Discharge air thermistor	—	R4T	—	Used for discharge air temperature control.

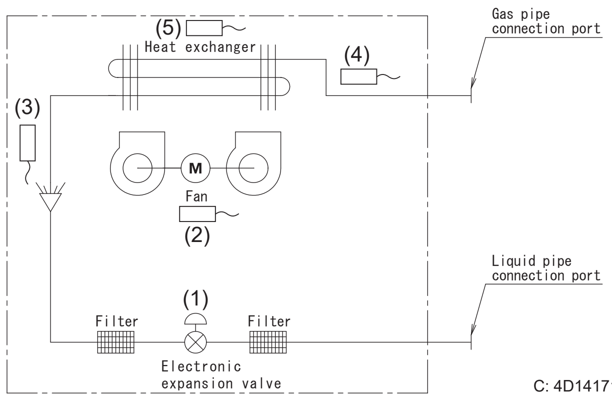
∗1. R1T is for remote controller thermistor or optional remote sensor.

■ **FXFA-AA**



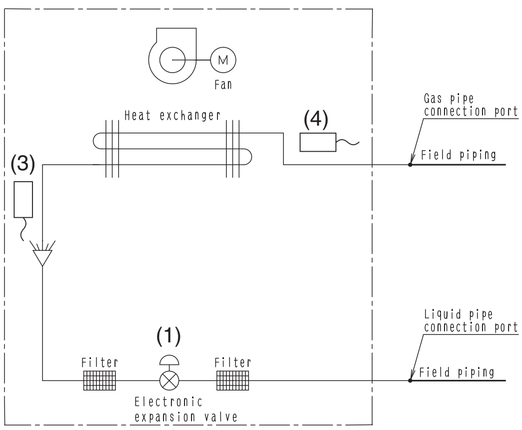
C: 4D140941

■ **FXSA-AA, FXMA-AA**



C: 4D141716

■ **FXTA-AA**



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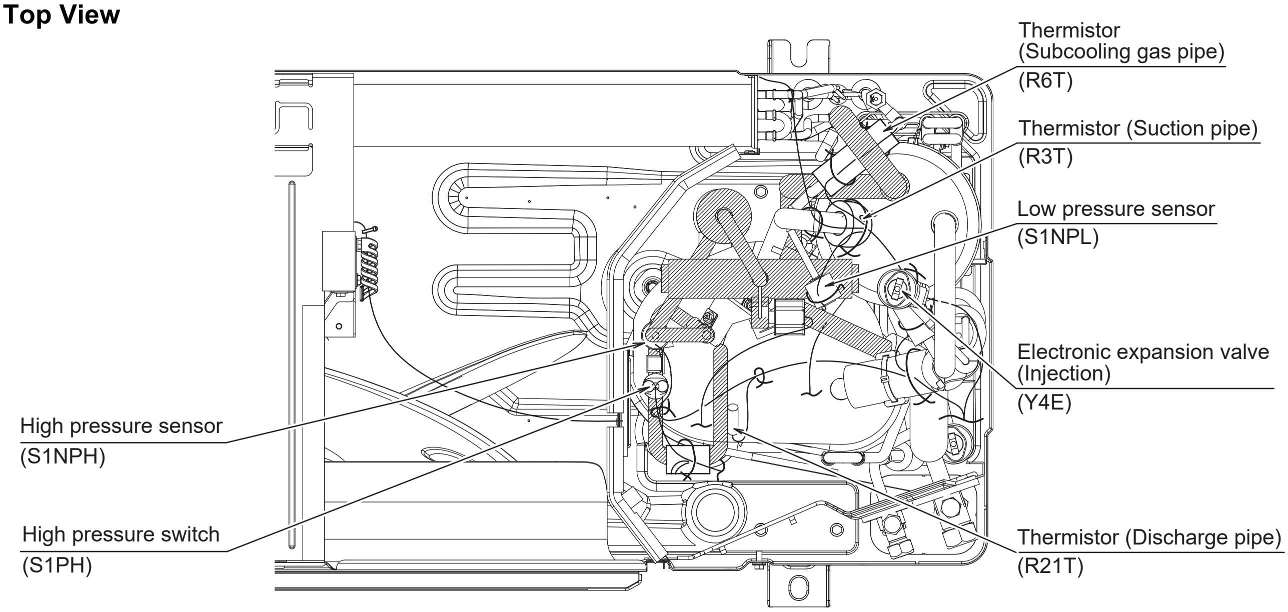
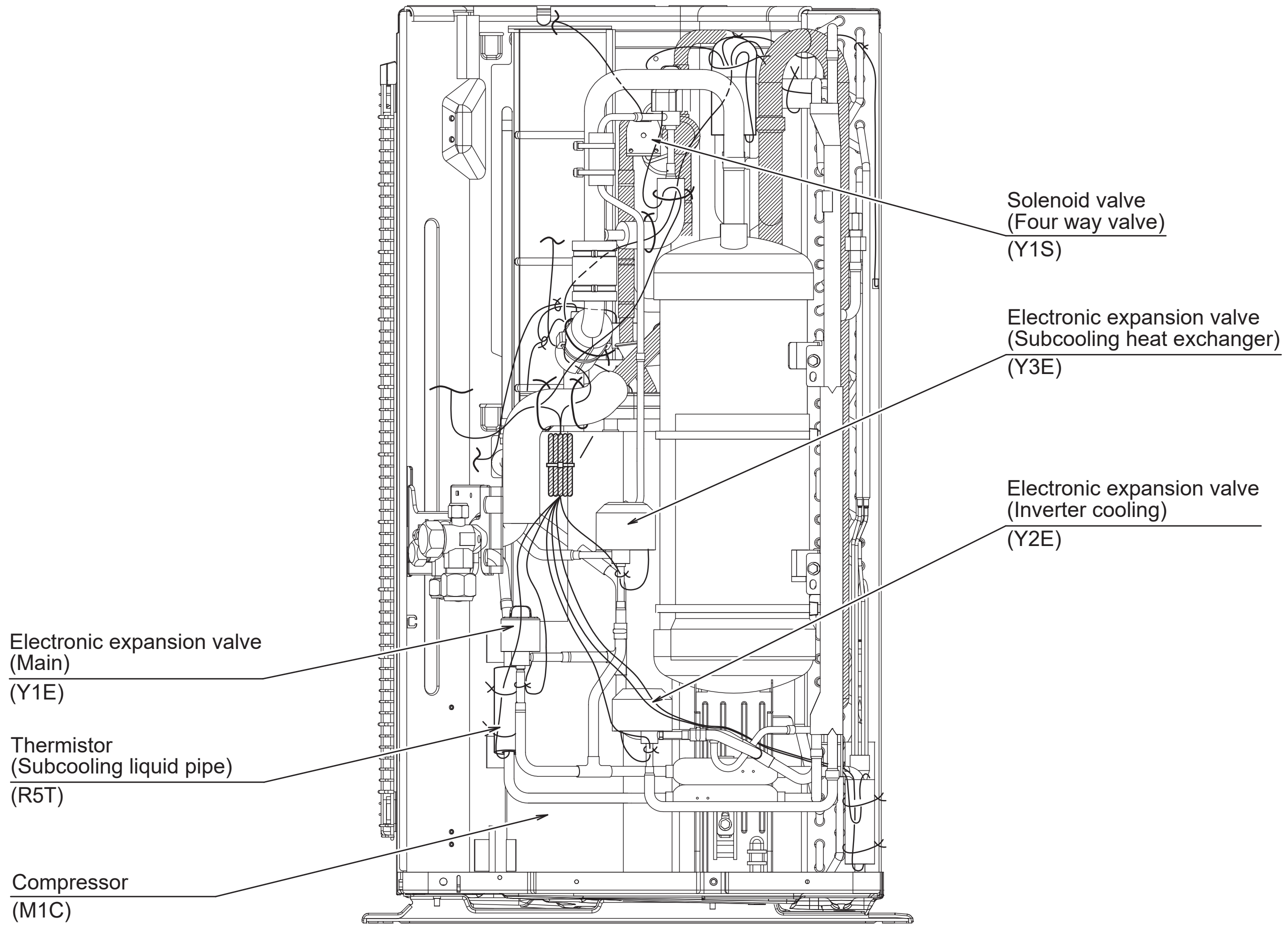
2. Functional Parts Layout

Top View

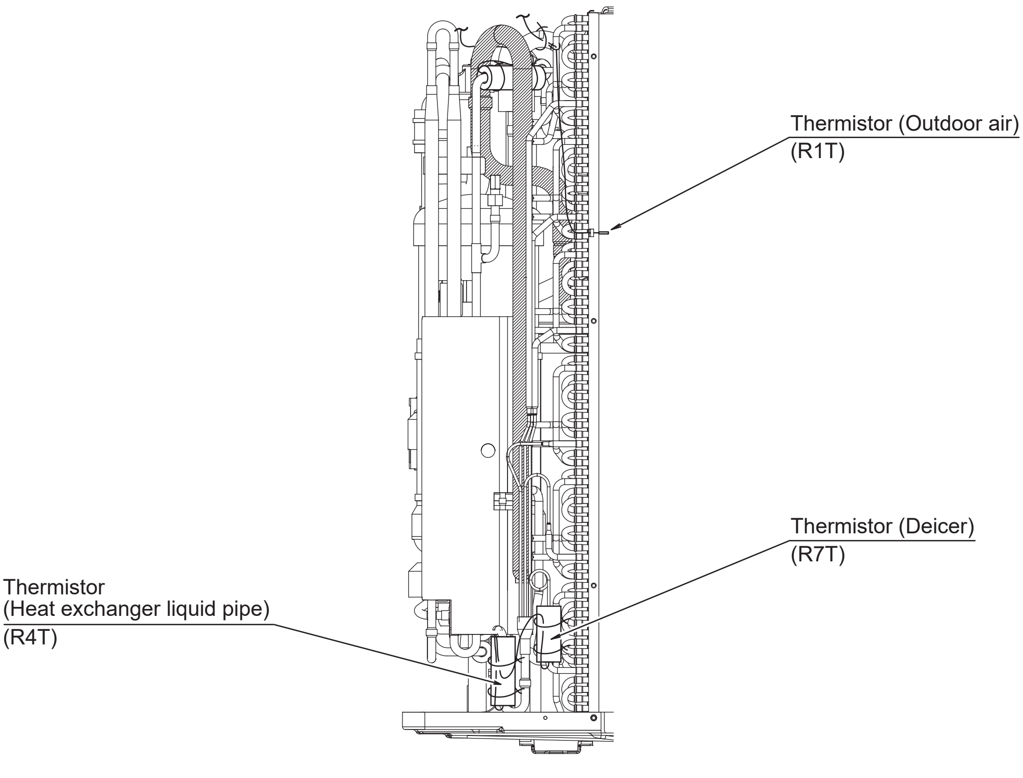


Side View



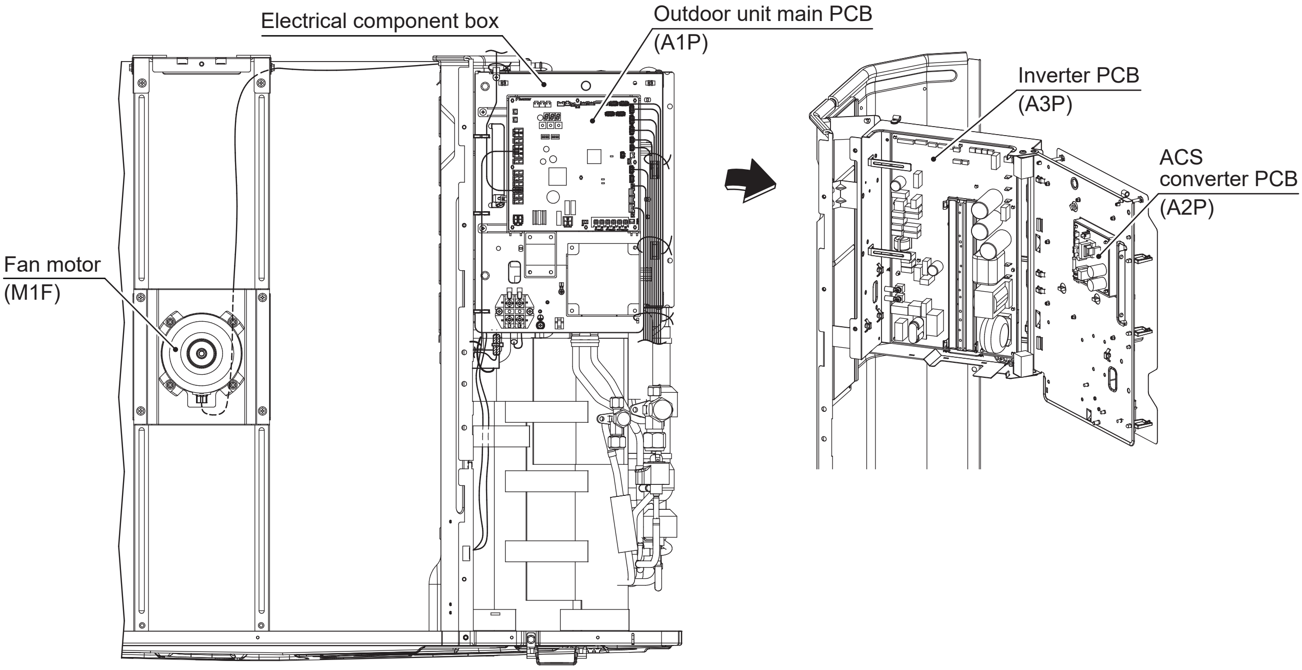
C: 1P787007E

Back View



C: 1P787007E

Front View

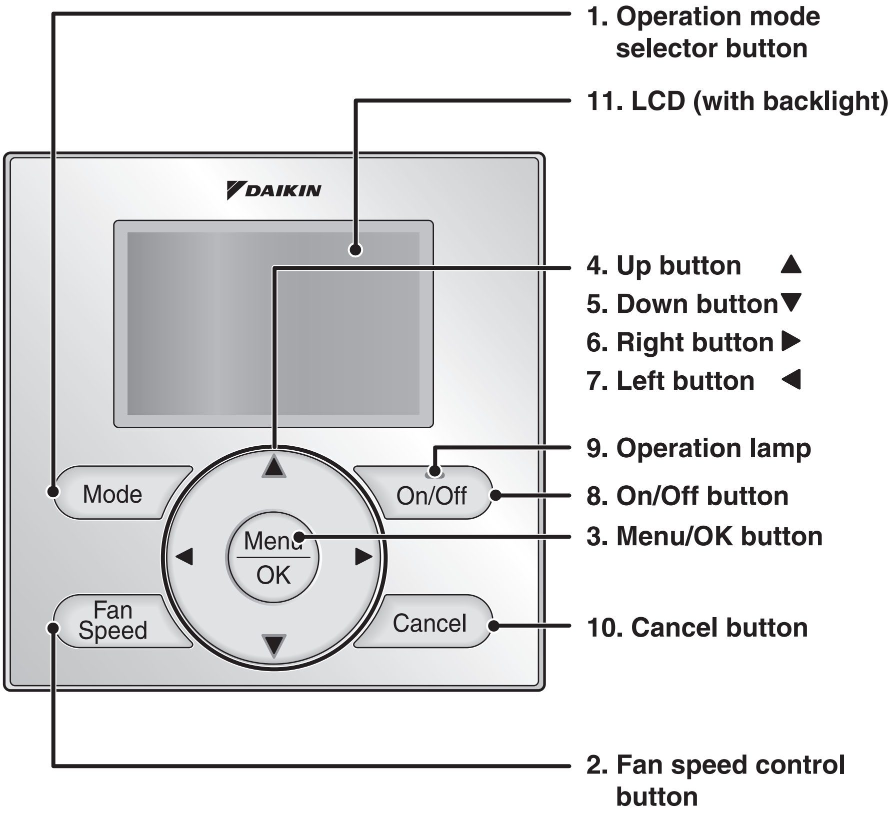


Reference Refer to page 300 for **Opening and Closing the Electrical Component Box**.

Part 3
Remote Controller

1. Names and Functions

1.1 BRC1NRV71



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

Note(s)

- 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.

1. Operation mode selector button

- Press this button to select the operation mode of your preference.

∗ Available modes vary with the indoor unit model.

2. Fan speed control button

- Press this button to select the fan speed of your preference.

∗ Available fan speeds vary with the indoor unit model.

3. Menu/OK button

- Used to enter the main menu.
- 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.

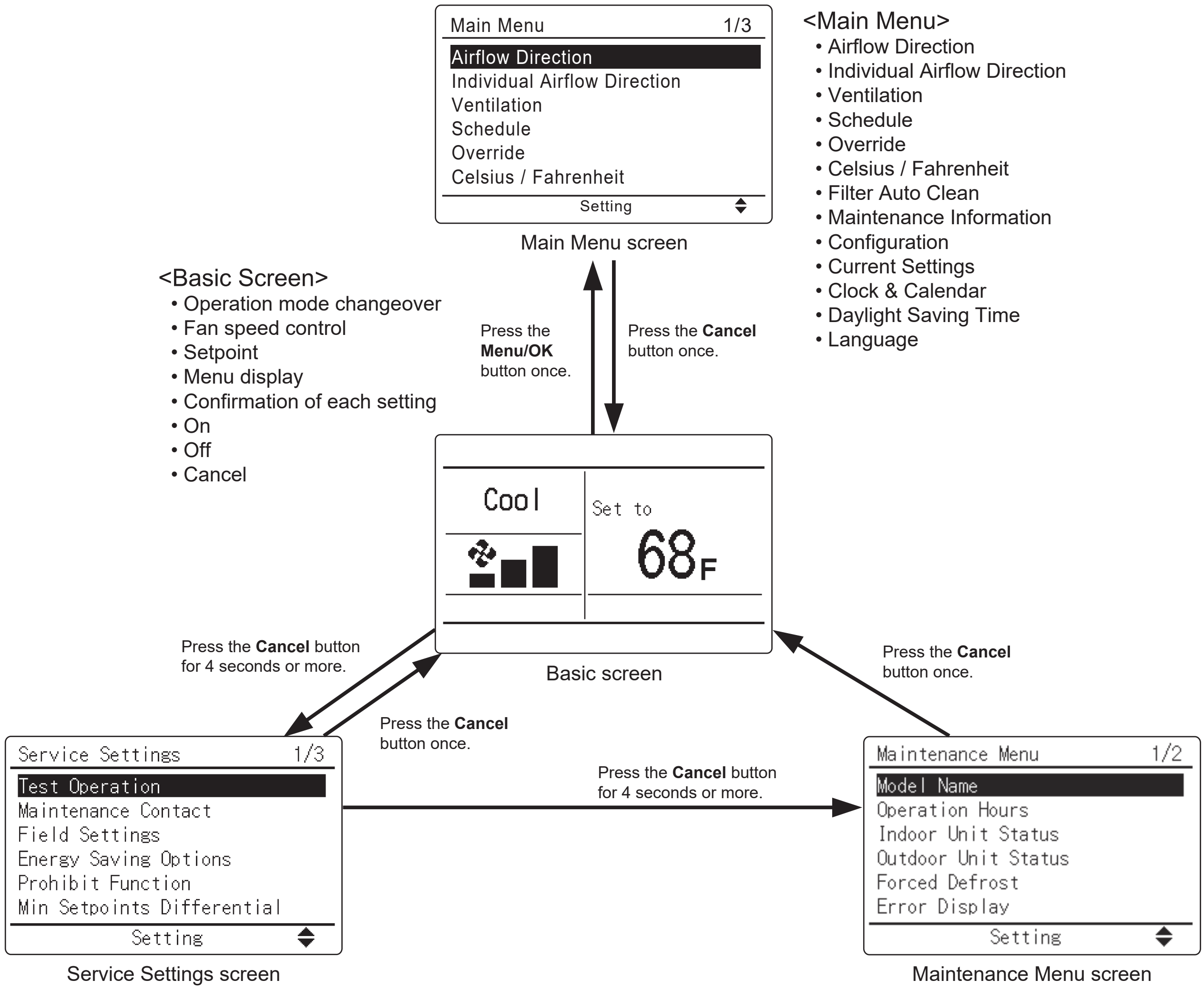
8. On/Off button
- Press this button and system will start.
- Press this button again to stop the system.

9. Operation lamp
- This lamp illuminates solid green during normal operation.
- This lamp blinks 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 indoor unit, only the controller accessed first will have backlight functionality.

Service Check Function



<Main Menu>
- Airflow Direction
- Individual Airflow Direction
- Ventilation
- Schedule
- Override
- Celsius / Fahrenheit
- Filter Auto Clean
- Maintenance Information
- Configuration
- Current Settings
- Clock & Calendar
- Daylight Saving Time
- Language

<Basic Screen>
- Operation mode changeover
- Fan speed control
- Setpoint
- Menu display
- Confirmation of each setting
- On
- Off
- Cancel

<Service Settings>
- Test Operation
- Maintenance Contact
- Field Settings
- Energy Saving Options
- Prohibit Function
- Min Setpoints Differential
- Group Address
- Indoor unit AirNet Address
- Outdoor unit AirNet Address
- Error History
- Indoor Unit Status
- Outdoor Unit Status
- Forced Fan ON
- Switch Main Sub Controller
- Filter Indicator
- Test Filter Auto Clean
- Brush / Filter Ind.
- Disable Filter Auto Clean

<Maintenance Menu>
- Model Name
- Operation Hours
- Indoor Unit Status
- Outdoor Unit Status
- Forced Defrost
- Error Display
- Swap Unit No.
- Addressed Sensor Value

2. Main/Sub Setting

Situation

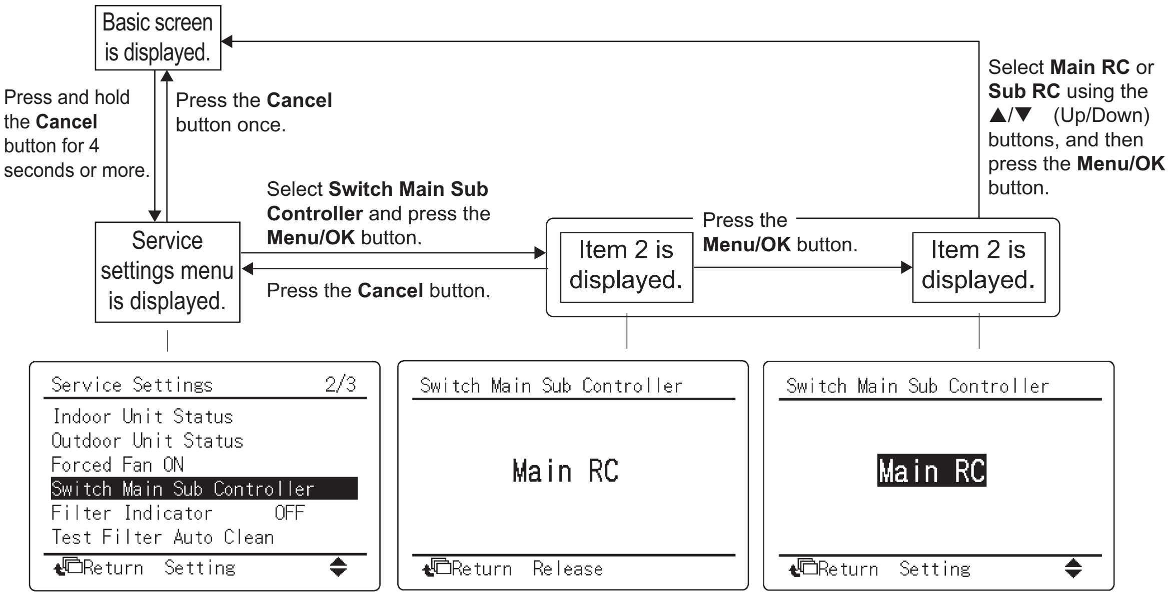
The Main/Sub setting is necessary when 1 indoor unit is controlled by 2 remote controllers. When you use 2 remote controllers (control panel and separate remote controller), set one to Main and the other to Sub.

Setting

The remote controllers are factory setting to Main, so you only have to change one remote controller from Main to Sub. To change a remote controller from Main to Sub, proceed as follows:

2.1 Field Settings

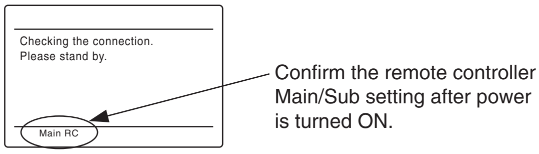
The designation of the main and sub remote controllers can be swapped. Note that this change requires turning the power OFF and then ON again.



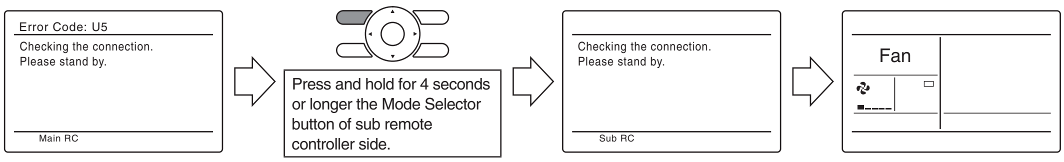
2.2 When an Error Occurred

U5: there are 2 main remote controllers when power is turned ON
→Change the setting from Main to Sub on the remote controller you want to be Sub.
U8: there are 2 sub remote controllers when power is turned ON
→Change the setting from Sub to Main on the remote controller you want to be Main.

How to confirm Main/Sub setting
The Main/Sub setting of the remote controller is displayed on the bottom of the screen while **Checking the connection. Please stand by.** is displayed.



How to change Main/Sub setting
You may change the Main/Sub setting of the remote controller while **Checking the connection. Please stand by.** is displayed by pressing and holding the **Mode Selector** button for 4 seconds or longer.



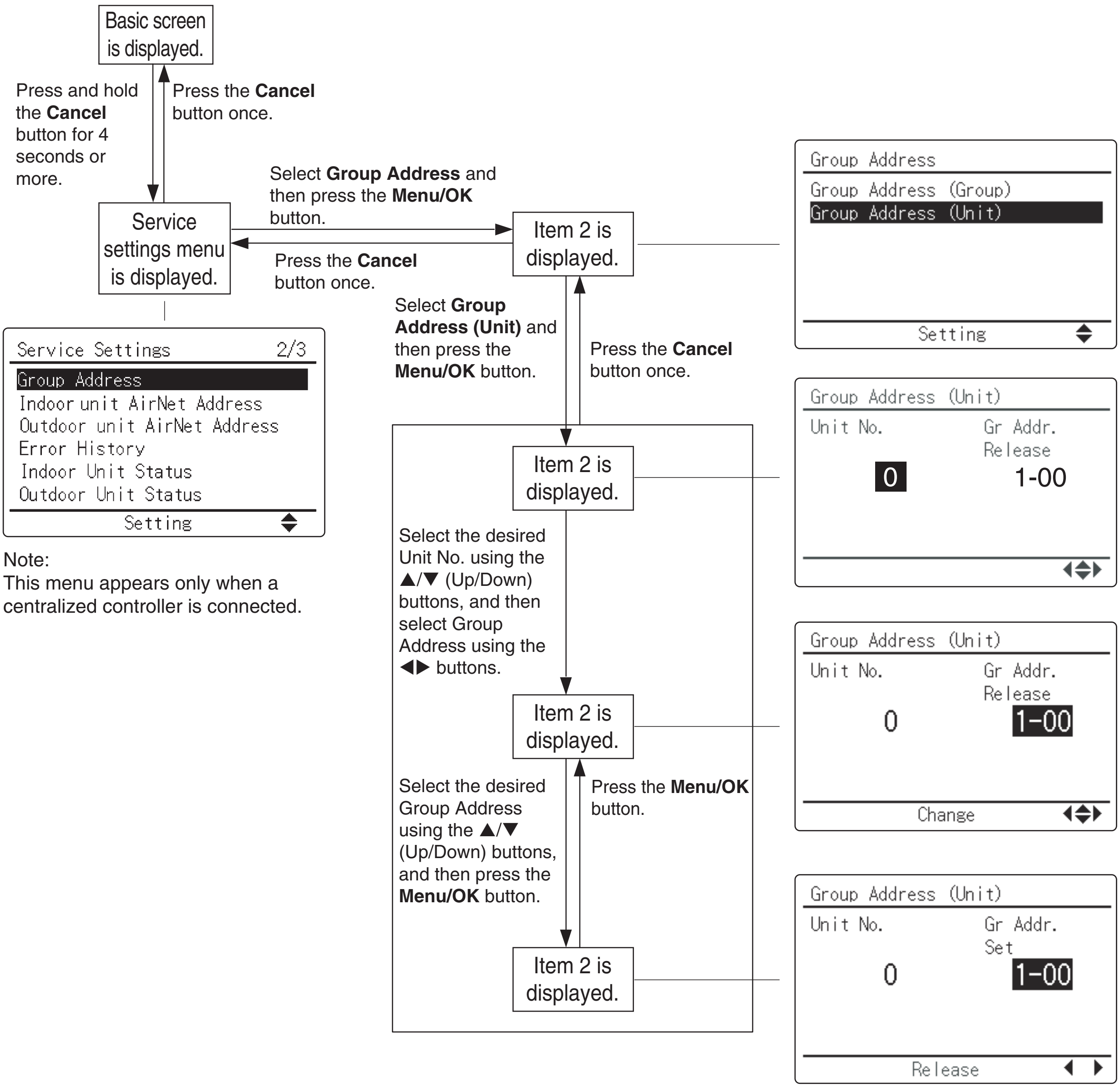
Note(s)

1. It is not possible to change the Main/Sub setting from Main to Sub when only one remote controller is connected.
2. When 2 remote controllers are being used, it is not possible to change the setting from Main to Sub if one of the remote controllers is already set as Main.

3. Centralized Control Group No. Setting

In order to conduct the centralized remote control using the central remote controller and the unified ON/OFF controller, Group No. settings should be made by group using the operating remote controller.
Make Group No. settings for centralized remote control using the operating remote controller.

When Initializing Group Address



Service settings menu	Item 2
Group Address	Group Address (Group)
	Group Address (Unit)

■ **Description**

This menu is used to make group address setting for centralized control.
It is also used to make group address setting by indoor unit.

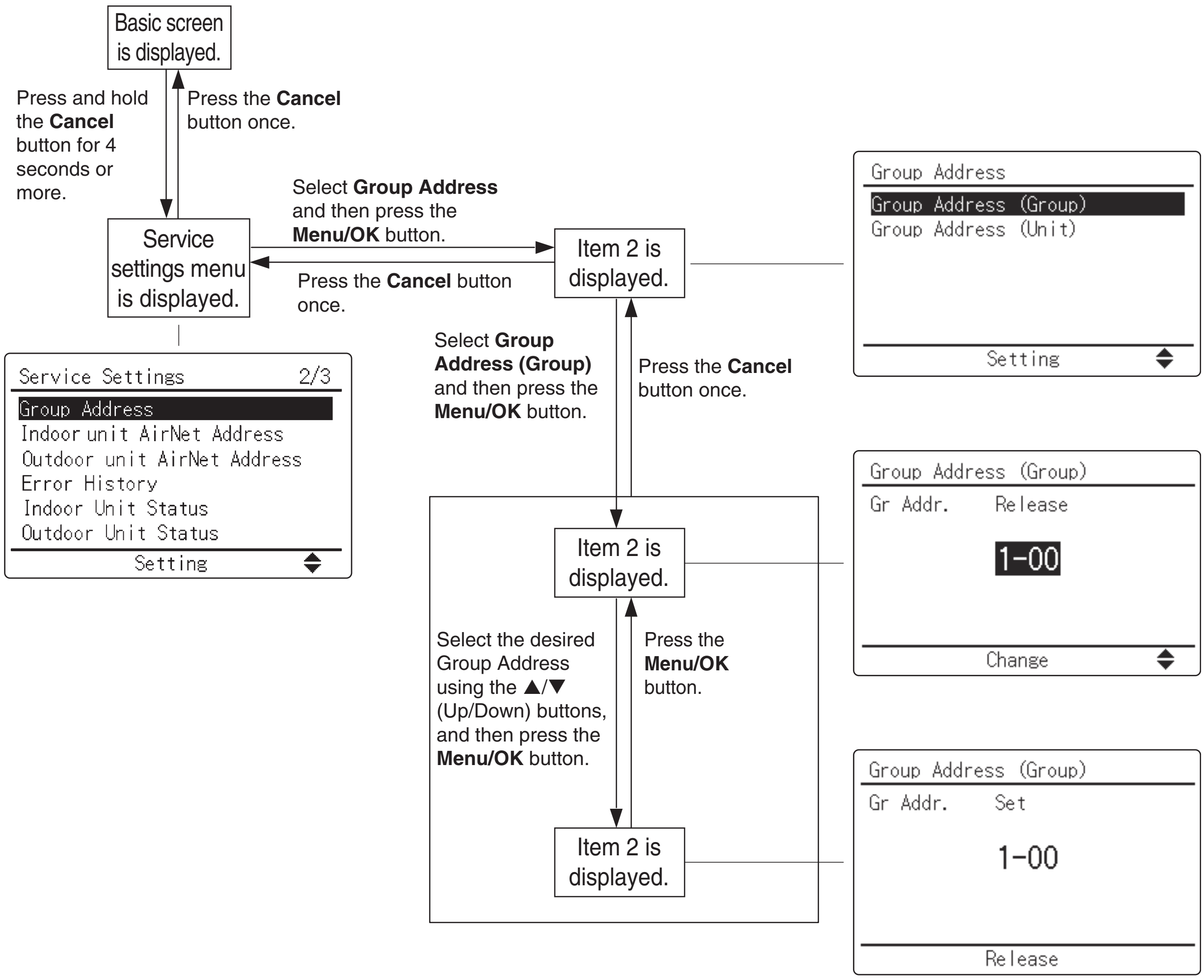
Note(s)

For setting group No. of Energy recovery ventilator and wiring adaptor for other air conditioners, etc., refer to the instruction manual.

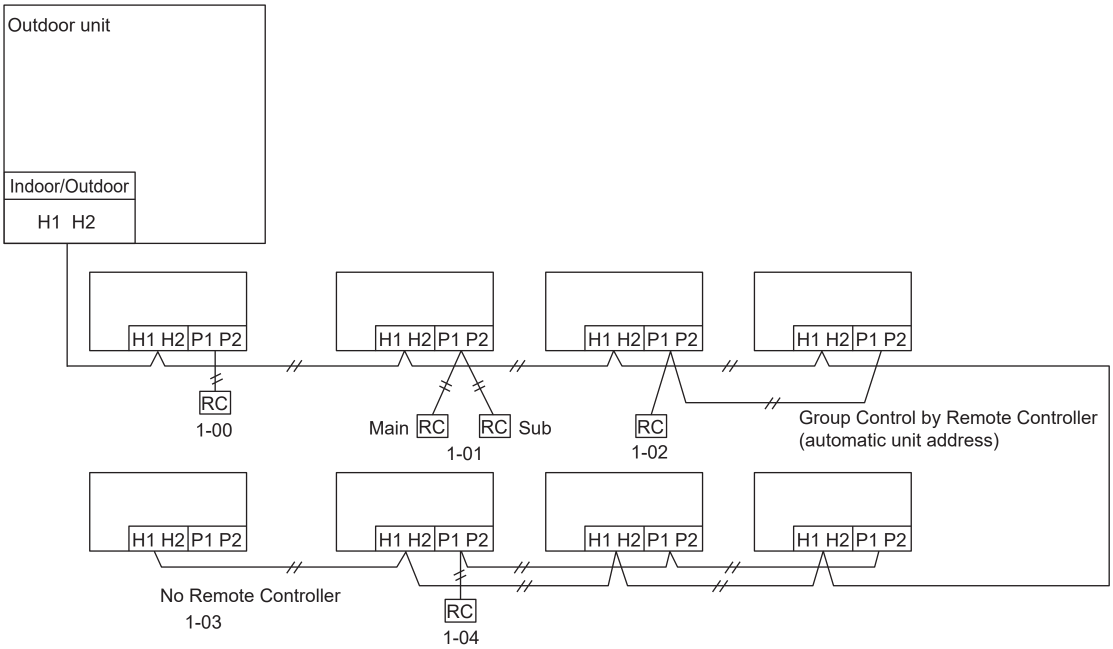
NOTICE

Enter the group No. and installation place of the indoor unit into the installation table. Be sure to keep the installation table with the operation manual for maintenance.

Group Address (Group)



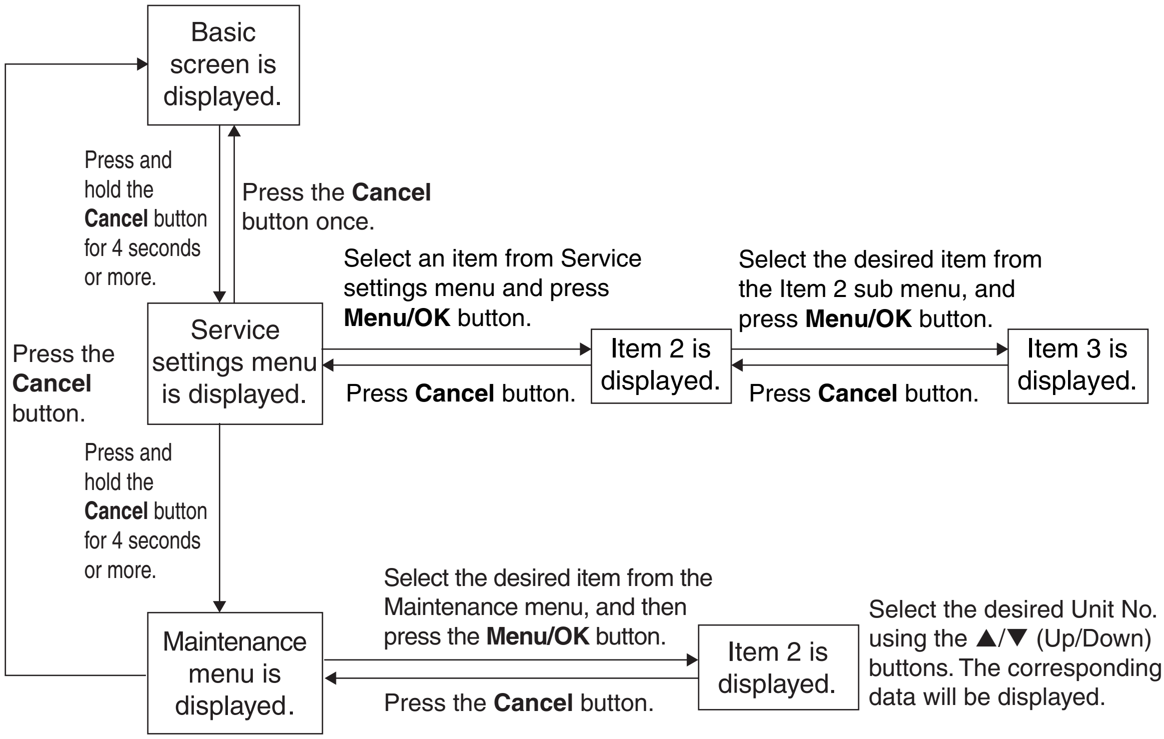
3.1 Group No. Setting Example



Caution When turning the power supply on, the unit may often not accept any operation after all indications were displayed once for about 1 minute on the liquid crystal display. This is not an operative fault.

4. Service Settings Menu, Maintenance Menu

Operating the remote controller allows service data to be acquired and various services to be set.



4.1 Service Settings Menu

Service settings menu	Item 2	Remarks
Test Operation	—	—
Maintenance Contact	None	—
	Maintenance Contact	—, 0 to 9 (in order)
Field Settings	Indoor Unit No.	—
	Mode No.	—
	First Code No.	—
	Second Code No.	—
Energy Saving Options	Setpoint Range Limitation	Temperature
	Setback Configuration	Recovery Differential
	Auto-setback by Sensor	Enable/Disable, Settings
	Auto-off by Sensor	Enable/Disable, Auto-off in (hours)
Prohibit Function	Prohibit Buttons	Up/Down, Left, Right, On/Off, Mode, Fan Speed
	Prohibit Mode	Fan, Cool, Heat, Auto, Dry, Vent Clean
Min setpoints Differential	None, Single SP, 0 to 8°F	—
Indoor Unit Label Setting	Unit No.	—
	Label No.	001-128
Outdoor Unit Label Setting	Unit No.	—
	Label No.	001-020
Group Address	Group Address (Group)	Gr Addr. Set
	Group Address (Unit)	Unit No., Gr Addr. Set
Indoor unit Airnet Address	Unit No., Address Set	—
Outdoor unit Airnet Address	Unit No., Address Set	—
Error History	RC Error History	Unit No., Error, Date, Time (Up to 10 errors received by the remote controller can be displayed.)
	Indoor Unit Error History	Unit No., Error, Date, Time (Up to 5 errors from the indoor unit error record can be displayed.)
Indoor Unit Status	Unit No.	—
	Th1	Suction air thermistor
	Th2	Heat exchanger liquid pipe thermistor
	Th3	Heat exchanger gas pipe thermistor
	Th4	Discharge air thermistor
	Th5	Remote controller thermistor (FXSA-AA, FXMA-AA) Floor temperature thermistor (FXFA-AA)
	Th6	Control temperature (FXFA-AA)
Outdoor Unit Status	Unit No.	—
	Th1	—
	Th2	—
	Th3	—
	Th4	—
	Th5	—
	Th6	—
Forced Fan ON	Unit No.	—
Switch Main Sub controller	—	—
Filter Indicator	—	—
Test Filter Auto Clean	—	—
Brush / Filter Ind	—	—
Disable Filter Auto Clean	No, Yes	—

4.2 Maintenance Menu

Maintenance Menu	Item 2	Remarks
Model Name	Unit No.	Select the unit number you want to check.
	Indoor unit	The model names are displayed. (A model code may be displayed instead, depending on the particular model.)
	Outdoor unit	
Operation Hours	Unit No.	Select the unit number you want to check.
	Indoor unit operation hours	All of these are displayed in hours.
	Indoor fan operation hours	
	Indoor unit energized hours	
	Outdoor unit operation hours	
	Outdoor fan 1 operation hours	
	Outdoor fan 2 operation hours	
	Outdoor compressor 1 operation hours	
	Outdoor compressor 2 operation hours	
Indoor Unit Status	Unit No.	Select the unit number you want to check.
	FAN	Fan tap (∗1)
	Speed	Fan speed (rpm)
	FLAP	Swing, fixed (∗2)
	EV	Degree that electronic expansion valve is open (pulse)
	MP	Drain pump ON/OFF (∗3)
	EH	Electric heater ON/OFF
	Hu	Humidifier ON/OFF (∗4)
	TBF	Anti-freezing control ON/OFF
	FLOAT	Float switch OPEN/CLOSE (∗5)
	T1/T2	T1/T2 external input OPEN/CLOSE
	Th1	Suction air thermistor
	Th2	Heat exchanger liquid pipe thermistor
	Th3	Heat exchanger gas pipe thermistor
	Th4	Discharge air thermistor
	Th5	Remote controller thermistor (FXSA-AA, FXMA-AA) Floor temperature thermistor (FXFA-AA)
	Th6	Control temperature (FXFA-AA)
Outdoor Unit Status	Unit No.	Select the Unit No. you want to check.
	FAN step	Fan tap
	COMP	Compressor power supply frequency (Hz)
	EV1	Degree that electronic expansion valve is open (pulse)
	SV1	Solenoid valve ON/OFF
	Th1	—
	Th2	—
	Th3	—
	Th4	—
	Th5	—
	Th6	—
Forced Defrost	Forced defrost ON	Enables the forced defrost operation.
	Forced defrost OFF	Disables the forced defrost operation.
Error Display	Display error ON	Displays the error on the screen.
	Display error OFF	Displays neither errors nor warnings.
	Display warning ON	Displays a warning on the screen if an error occurs.
	Display warning OFF	No warning is displayed.
Swap Unit No.	Current Unit No.	A unit No. can be transferred to another.
	Transfer Unit No.	

Maintenance Menu	Item 2	Remarks
Addressed Sensor Value	Unit No.: 0 - 15	Select the unit number you want to check.
	Code 00: 01: 02: 03: 04: 05: 06: 07: 08: 09: 10 and over:	 Remote controller thermistor (°C) Suction air thermistor (°C) Heat exchanger liquid pipe thermistor (°C) Heat exchanger gas pipe thermistor (°C) Indoor unit address No. Outdoor unit address No. Branch Selector unit address No. Zone control address No. Cooling/Heating batch address No. Demand/low-noise address No. Differs depending on the connected indoor/outdoor unit (∗6).
	Data	The corresponding data will be displayed, based on the unit number and Code selected.

∗1 (For FXTA-AA models)
The actual fan speed is converted into the fan tap to be displayed. Therefore, if the fan speed is changed by controls or external factors, the airflow rate set with the remote controller may differ from the fan tap display.

∗2 (For FXTA-AA models)
P0 is always displayed.

∗3 (For FXTA-AA models)
OFF is always displayed.

∗4 (For FXTA-AA models)
The ON/OFF status of the humidifier connected to HUMIDIFIER on the X1M terminal of the indoor unit PCB is not displayed. The ON/OFF status of the humidifier connected to the wiring adaptor is displayed.

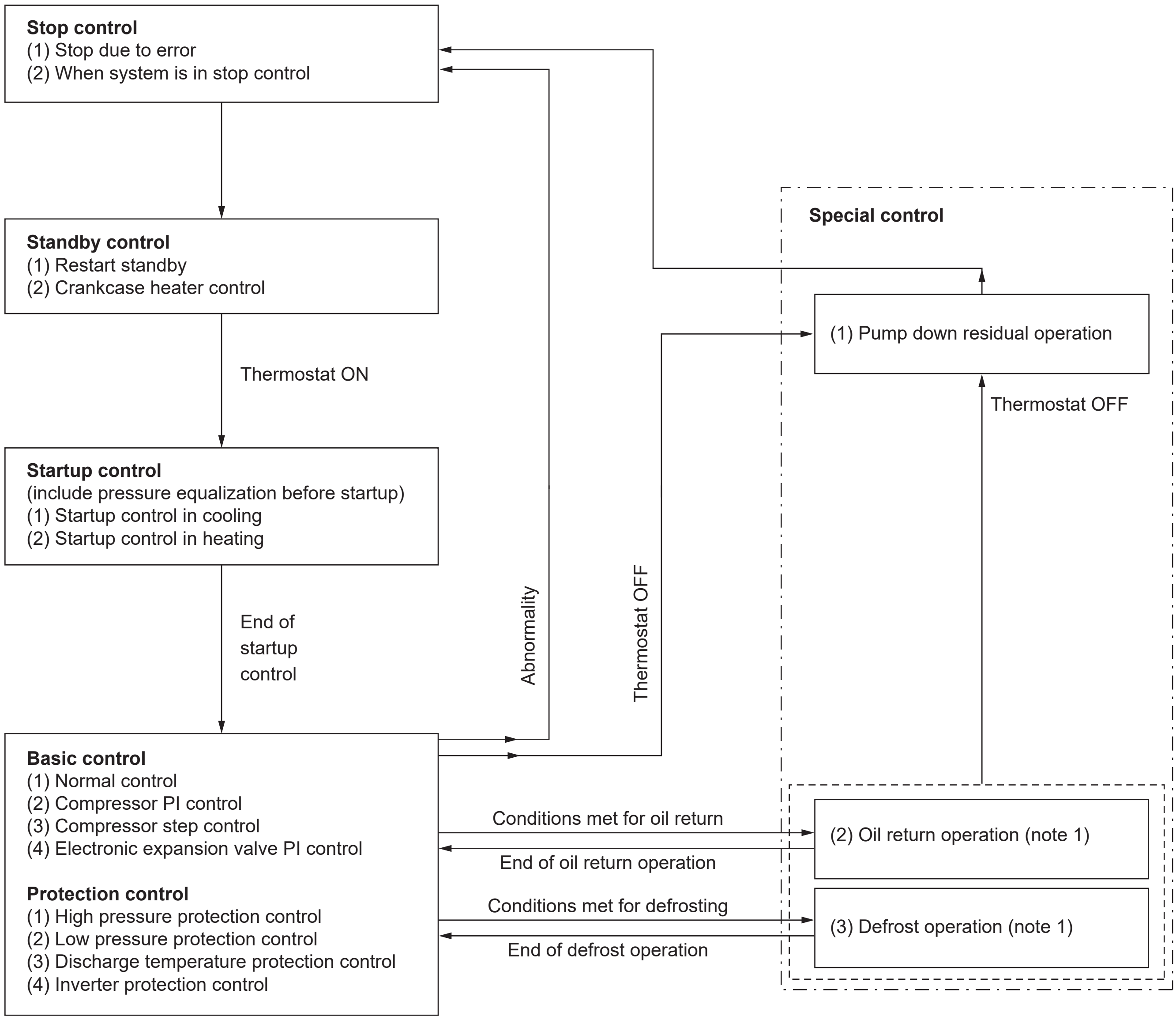
∗5 (For FXTA-AA models)
open is always displayed.

∗6 (For FXTA-AA models)
Code
35: Current airflow volume: (unit: 100 CFM)
38: Refrigerant leak detection sensor detection concentration (%LFL)
39: Refrigerant leak detection output status (00: OFF, 01: ON)

Part 4
Functions and Control

1. Operation Mode

For detailed description of each function in the flow below, refer to the details on related function on the following pages.



Note(s)

1. If the indoor unit stops or the thermostat turns OFF while in oil return operation or defrost operation, pump down residual operation is performed on completion of the oil return operation or defrost operation.

2. Stop Control

2.1 Stop due to Error

In order to protect compressors, if any of the abnormal state occurs, the system will stop with thermostat OFF and the error will be determined when the retry times reaches certain number. (Refer to **Error Codes and Descriptions** on page 146 of the troubleshooting for the items to determine the error.)

2.2 When System is in Stop Control

The four way valves retain the condition (ON) when heating operation is stopped.

3. Standby Control

3.1 Restart Standby

Used to forcedly stop the compressor for a period of 2 minutes, in order to prevent the frequent ON/OFF of the compressor and equalize the pressure within the refrigerant system. (The compressor may stop for up to 10 minutes for equipment protection.)
In addition, the outdoor fan carry out the residual operation for a while to accelerate pressure equalizing and to suppress refrigerant stagnation in the evaporator.

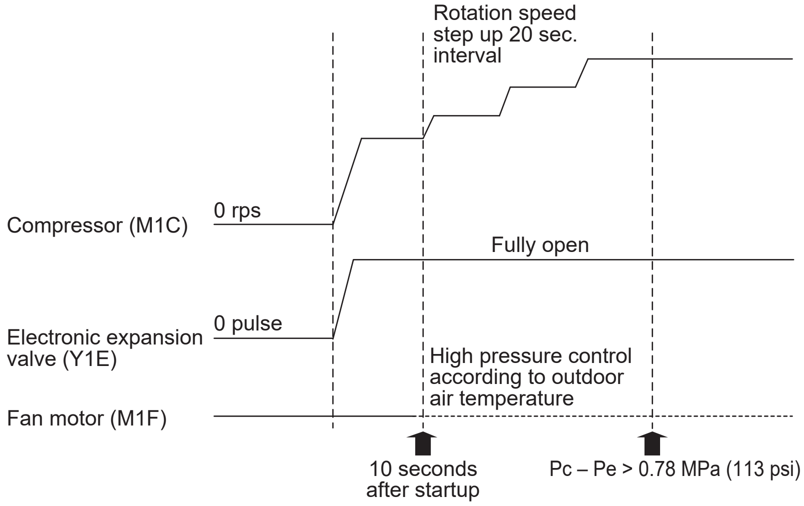
3.2 Crankcase Heater Control

In order to prevent the refrigerant from migrating into the compressor oil while not operating, outdoor air temperature and discharge pipe temperature are used to control the crankcase heater.

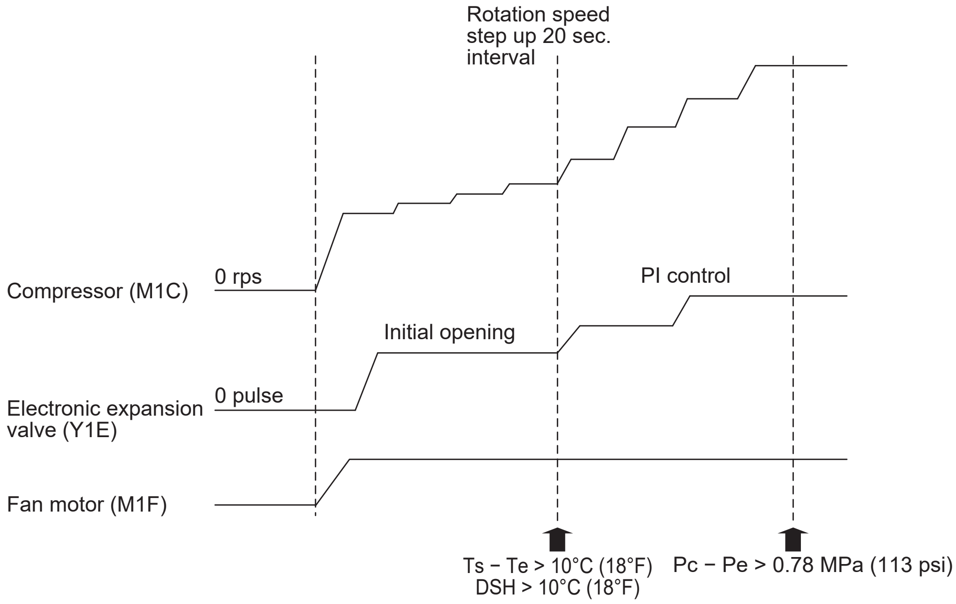
4. Startup Control

This control is used to equalize the pressure in the suction and discharge sides of the compressor prior to the startup of the compressor, thus reducing startup loads. Furthermore, the inverter is turned ON to charge the capacitor.
To avoid stresses to the compressor due to liquid floodback or else after the startup, the following control is made and the position of the four way valve is also determined.
DSH: Discharge pipe superheating degree
Pc: High pressure sensor detection value
Pe: Low pressure sensor detection value
Ts: Suction pipe temperature
Te: Low pressure equivalent saturation temperature

4.1 Startup Control in Cooling



4.2 Startup Control in Heating



5. Basic Control

5.1 Normal Operation

Outdoor unit actuator	Electric symbol	Function	
		Normal cooling	Normal heating
Compressor	M1C	PI control (High pressure protection, Low pressure protection, Td protection, Inverter protection)	PI control (High pressure protection, Low pressure protection, Td protection, Inverter protection)
Outdoor fan	M1F	Cooling fan control	Heating fan control
Electronic expansion valve (Main)	Y1E	Fully open	Superheating degree control
Electronic expansion valve (Inverter cooling)	Y2E	Fully open	Cooling inverter temperature control
Electronic expansion valve (Subcooling heat exchanger)	Y3E	Superheating degree control (Discharge temperature protection)	Superheating degree control (Discharge temperature protection)
Electronic expansion valve (Injection)	Y4E	Discharge temperature protection control	Discharge temperature protection control
Solenoid valve (Four way valve)	Y1S	OFF	ON

5.2 Compressor PI Control

In order to provide a steady capacity, the compressor capacity is controlled to achieve temperature Te (or Tc) during cooling (or heating) operation.

During cooling (or heating) operation

The compressor capacity is controlled so Te (or Tc) approaches TeS (or TcS) (target value of temperature).

1. VRTsmart Control

■ When all the connected indoor units are VRTsmart control applicable models

The required capacity is calculated based on the operation condition of each individual indoor unit and this data is transmitted to the outdoor unit. The outdoor unit adjusts the refrigerant temperature of the whole system to an adequate value according to the indoor unit that needs the most capacity.

In case of target evaporation (or condensation) temperature adjustment, first the capacity is adjusted by changing the indoor unit airflow to L tap. If the capacity is still too much, the target evaporation (or condensation) temperature is elevated further to adjust.

2. VRT Control

■ When one or more of the connected indoor units are not VRTsmart control applicable models

If the required capacity becomes low (or high) in all indoor units (Room temperature Th1 - set temperature), the target evaporation (or condensation) temperature is elevated further to adjust. In the outdoor unit, the difference of temperature (ΔT) in all indoor units is checked and the set temperature is changed. Unlike VRTsmart control, there is no airflow control of the indoor units.

3. Te fix Control (for cooling)

The target evaporation temperature is not changed.

Te value (Set in mode 2-8)

Standard (Factory setting)	High				
6°C (43°F)	7°C (45°F)	8°C (46°F)	9°C (48°F)	10°C (50°F)	11°C (52°F)

Te: Low pressure equivalent saturation temperature

TeS: Te target value (varies according to Te setting, compressor operation frequency, etc.)

4. Tc fix Control (for heating)

The target condensation temperature is not changed.

Tc value (Set in mode 2-9)

Low	Standard	High (Factory setting)
41°C (106°F)	43°C (109°F)	46°C (115°F)

Tc: High pressure equivalent saturation temperature

TcS: Tc target value (varies according to Tc setting)

5.3 Compressor Step Control

The compressor operation varies in the following steps according to information in Compressor PI Control. Refer to page 47.
Depending on the operating conditions of compressors, the compressors may run in patterns other than the following.

Step No.	rps
1	—
2	—
3	—
4	—
5	—
6	—
7	—
8	—
9	—
10	—
11	15.0
12	15.3
13	15.6
14	16.0
15	16.5
16	17.0
17	17.5
18	17.9
19	18.2
20	18.6
21	19.0
22	19.5
23	20.0
24	20.5
25	20.9
26	21.2
27	21.4
28	21.7
29	22.0
30	22.4
31	22.9
32	23.4
33	24.0
34	24.6
35	25.3
36	26.0

Step No.	rps
37	26.6
38	27.2
39	27.8
40	28.5
41	29.3
42	30.1
43	31.0
44	31.9
45	32.7
46	33.5
47	34.4
48	35.4
49	35.4
50	37.5
51	38.5
52	39.5
53	39.5
54	41.5
55	42.5
56	42.5
57	44.5
58	44.5
59	44.5
60	44.5
61	50.5
62	50.5
63	50.5
64	52.5
65	52.5
66	53.5
67	54.5
68	55.6
69	56.8
70	58.0
71	59.1
72	59.1

Step No.	rps	
73	59.1	
74	65.1	
75	65.1	
76	65.1	
77	65.1	
78	66.3	
79	69.8	
80	69.8	
81	69.8	
82	71.0	
83	72.3	
84	77.6	
85	77.6	←RXTA24/36AA Cooling/heating upper limit
86	77.6	
87	77.6	
88	77.6	
89	80.4	
90	85.0	
91	85.0	
92	85.0	
93	86.5	
94	88.0	
95	88.0	
96	93.0	
97	93.0	←RXLA36AA Cooling/heating upper limit
98	94.6	
99	96.3	←RXTA48AA Cooling/heating upper limit
100	98.0	
101	99.6	
102	99.6	
103	103.1	←RXTA60AA, RXLA48AA Cooling upper limit
104	107.0	
105	107.0	
106	109.0	←RXTA60AA, RXLA48AA Heating upper limit

5.4 Electronic Expansion Valve PI Control

Main Electronic Expansion Valve Control

Carries out main electronic expansion valve (Y1E) PI control to maintain the evaporator outlet superheating degree at constant during heating operation, thus making maximum use of the outdoor heat exchanger (evaporator).

Subcooling Heat Exchanger Electronic Expansion Valve Control

Carries out PI control of subcooling heat exchanger electronic expansion valve (Y3E) to keep the superheating degree of the outlet gas pipe on the evaporator side for the full use of the subcooling heat exchanger.

Injection Electronic Expansion Valve Control

Carries out PI control of injection electronic expansion valve (Y4E) to maintain the discharge pipe temperature below a certain temperature, and to protect the compressor.

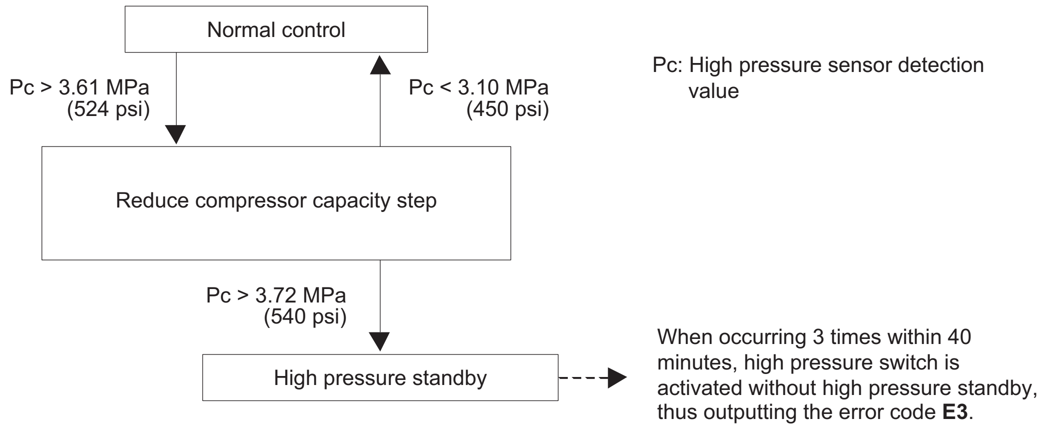
6. Protection Control

6.1 High Pressure Protection Control

This high pressure protection control is used to prevent the activation of protection devices due to abnormal increase of high pressure and to protect compressors against the transient increase of high pressure.

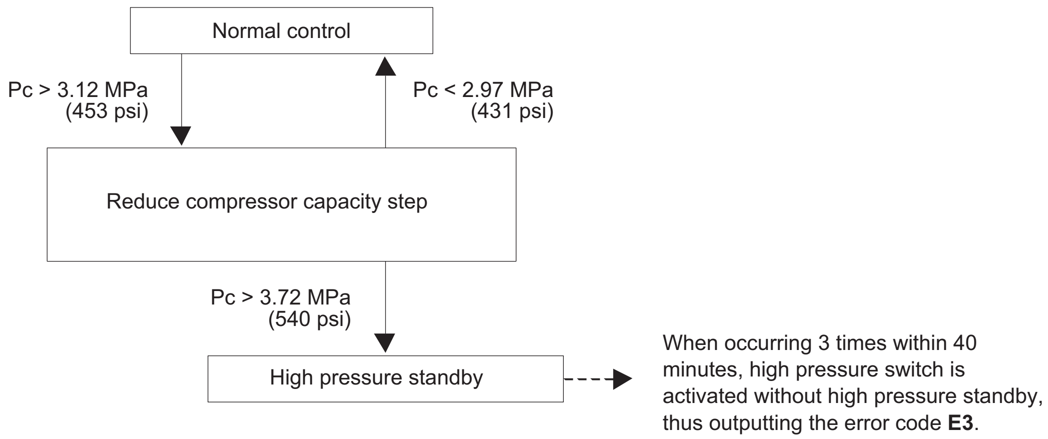
Cooling

The following control is performed in the entire system.



Heating

The following control is performed in the entire system.

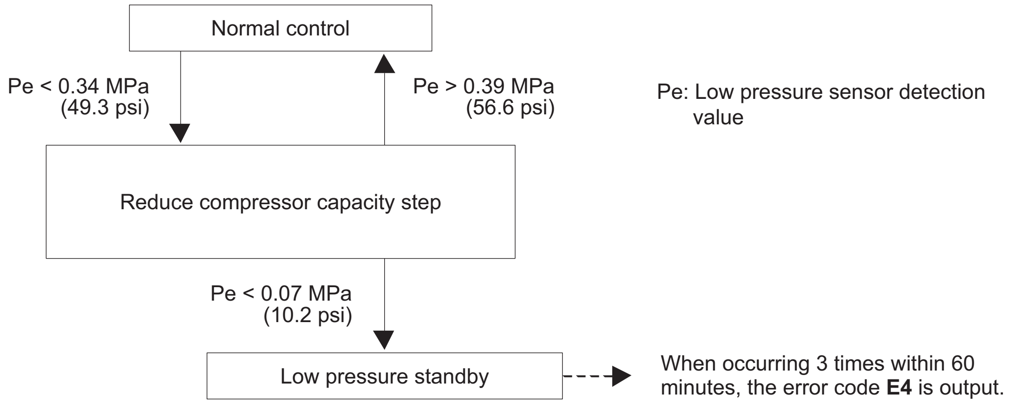


6.2 Low Pressure Protection Control

This low pressure protection control is used to protect compressors against the transient decrease of low pressure.

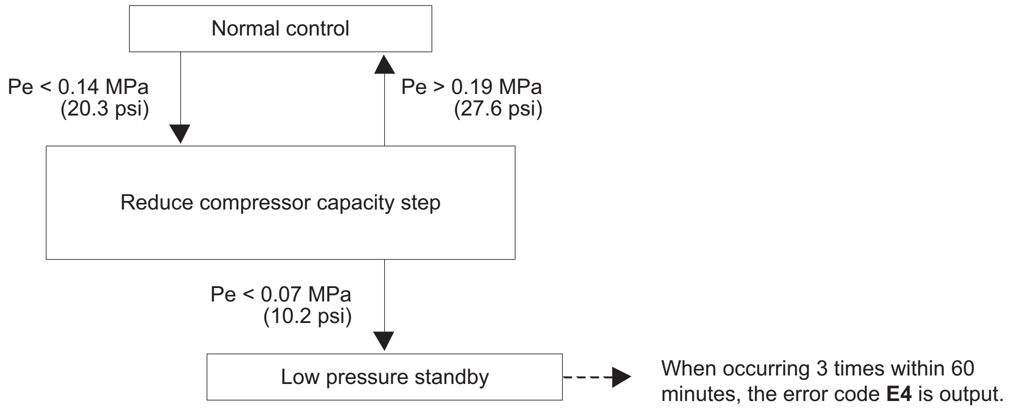
Cooling

Because of common low pressure, the following control is performed in the system.



Heating

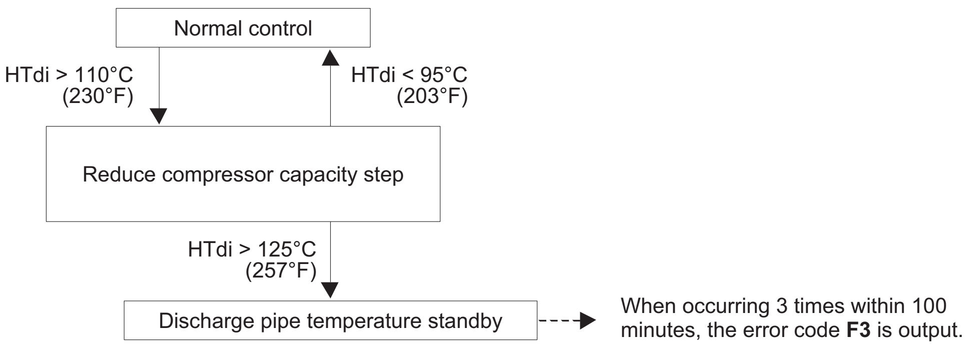
The following control is performed in the system.



6.3 Discharge Temperature Protection Control

This discharge temperature protection control is used to protect the compressor internal temperature against an error or transient increase of discharge pipe temperature.
HTdi: Value of compressor discharge pipe temperature (Tdi) compensated with outdoor air temperature

The following control is performed in the entire system.

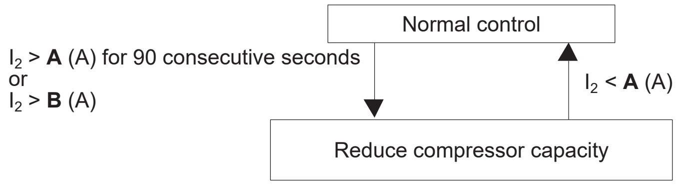


6.4 Inverter Protection Control

Inverter current protection control and radiation fin temperature control are performed to prevent tripping due to an abnormality, or transient inverter overcurrent, and fin temperature increase.

Inverter Overcurrent Protection Control

I_2: Inverter secondary current (A)

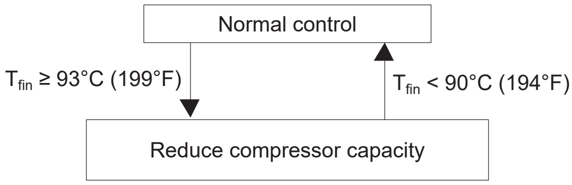


Current upper limit

	A (A)	**B** (A)
Cooling	18.1	18.5
Heating	19.1	19.5

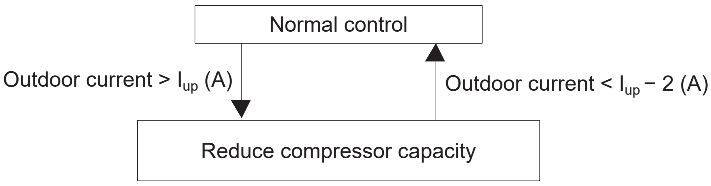
Radiation Fin Temperature Control

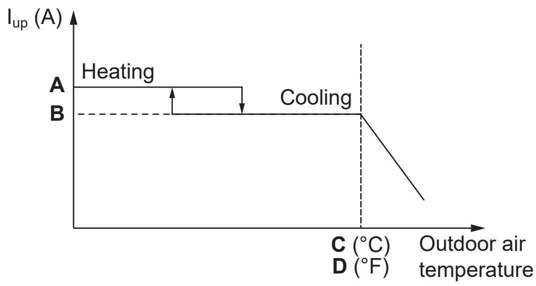
T_{fin}: Radiation fin thermistor



Outdoor Overcurrent Protection Control

I_{up}: Current upper limit (A)





Model		**A** (A)	**B** (A)	**C** (°C)	**D** (°F)
Standard	RXTA24/36AA	17.0	16.5	31.4	88.5
	RXTA48AA	25.7	23.5	34.1	93.4
	RXTA60AA	30.4	27.5	34.4	93.9
Aurora	RXLA36AA	21.5	16.5	49.9	121.8
	RXLA48AA	30.4	20.5	50.0	122.0

7. Special Control

7.1 Pump Down Residual Operation

If the liquid refrigerant stays in the evaporator at the startup of a compressor, this liquid refrigerant enters the compressor, thus resulting in diluted oil in the compressor and then degraded lubrication performance.
Consequently, in order to recover the refrigerant in the evaporator while the compressor stops, the pump down residual operation is conducted.

Outdoor unit actuator	Electric symbol	Function of functional part
Compressor	M1C	Compressor speed down
Outdoor fan	M1F	For heat exchanger mode
Electronic expansion valve (Main)	Y1E	Minimum opening → 0 pulse
Electronic expansion valve (Inverter cooling)	Y2E	0 pulse
Electronic expansion valve (Subcooling heat exchanger)	Y3E	Same as normal control
Electronic expansion valve (Injection)	Y4E	Same as normal control
Solenoid valve (Four way valve)	Y1S	Hold

7.2 Cooling Oil Return Control

In order to prevent the compressor from running out of oil, the oil return operation is conducted to recover oil that has flowed out from the compressor to the system side.
The cooling oil return operation starts at the following timings.
- After 2 hours for the first time the power is turned on.
- Every 1 to 2 hours in low-load operation
- Every 8 hours in high-load operation.

Outdoor unit actuator	Electric symbol	Function of functional part
Compressor	M1C	Constant low pressure control
Outdoor fan	M1F	Same as normal control
Electronic expansion valve (Main)	Y1E	Same as normal control
Electronic expansion valve (Inverter cooling)	Y2E	Same as normal control
Electronic expansion valve (Subcooling heat exchanger)	Y3E	0 pulse
Electronic expansion valve (Injection)	Y4E	Same as normal control
Solenoid valve (Four way valve)	Y1S	Hold

Indoor unit actuator	Cooling oil return operation	
Fan	Thermostat ON unit	Remote controller setting
	Non-operating unit	OFF
	Thermostat OFF unit	Remote controller setting
Electronic expansion valve	Thermostat ON unit	Normal control
	Non-operating unit	224 pulse
	Thermostat OFF unit	Forced thermostat ON (PI control)

7.3 Defrost Control, Heating Oil Return Operation

Defrost operation starts at the following timings to melt the frost on the outdoor heat exchanger during heating operation and restore the heating capacity.

Defrost operation
- Every 1 hour in high-load operation
- Every 2 hours in low-load operation.

Heating oil return operation
- After 2 hours for the first time the power is turned on.
- Every 1 to 2 hours in low-load operation
- Every 8 hours in high-load operation.

Outdoor unit actuator	Electric symbol	Function of functional part
Compressor	M1C	Compressor speed up
Outdoor fan	M1F	High pressure control
Electronic expansion valve (Main)	Y1E	100%
Electronic expansion valve (Inverter cooling)	Y2E	100%
Electronic expansion valve (Subcooling heat exchanger)	Y3E	0 pulse
Electronic expansion valve (Injection)	Y4E	Same as normal control
Solenoid valve (Four way valve)	Y1S	OFF

<table>
<tr><th>Indoor unit actuator</th><th colspan="2">Defrost operation, heating oil return operation</th></tr>
<tr><td rowspan="3">Fan</td><td>Thermostat ON unit</td><td>OFF</td></tr>
<tr><td>Non-operating unit</td><td>OFF</td></tr>
<tr><td>Thermostat OFF unit</td><td>OFF</td></tr>
<tr><td rowspan="3">Electronic expansion valve</td><td>Thermostat ON unit</td><td>Defrost EV opening degree</td></tr>
<tr><td>Non-operating unit</td><td>Defrost EV opening degree</td></tr>
<tr><td>Thermostat OFF unit</td><td>Defrost EV opening degree</td></tr>
</table>

7.4 Drain Pan Heater Operation (Option)

To use the drain pan heater, enable it in the field setting mode 2-19. The drain pan heater starts operating under the following conditions.

&
- Heating operation
- Outside temperature 3°C (37°F) or lower
- Compressor in operation

If snow falls inside the outdoor unit, set it to **always ON**. The drain pan heater will operate even when the heating operation is not running.

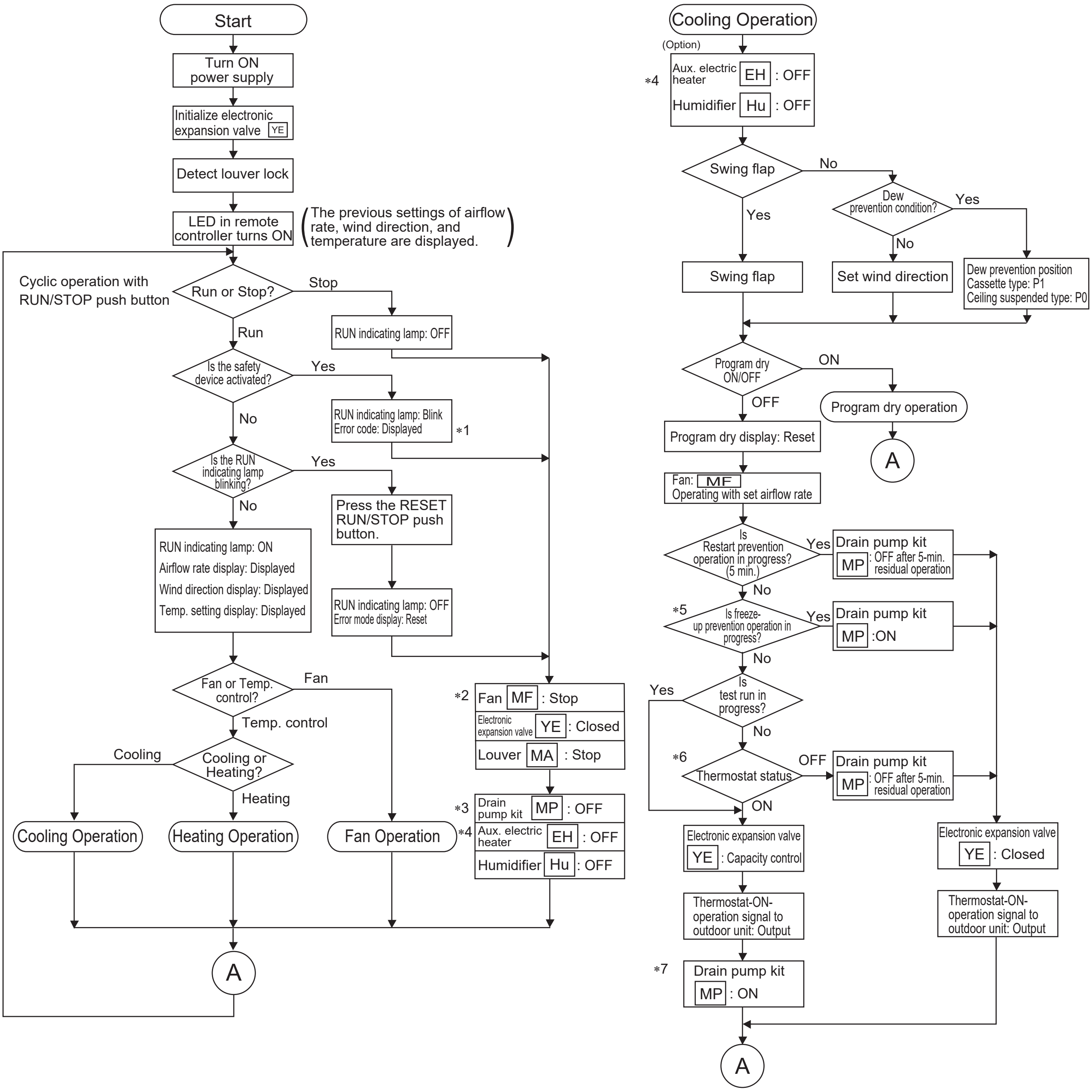
8. Other Control

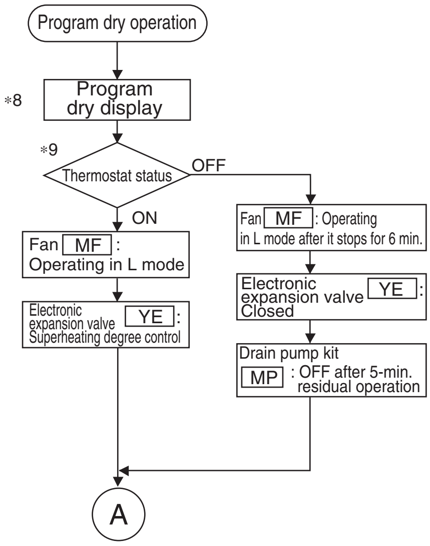
8.1 Heating Operation Prohibition

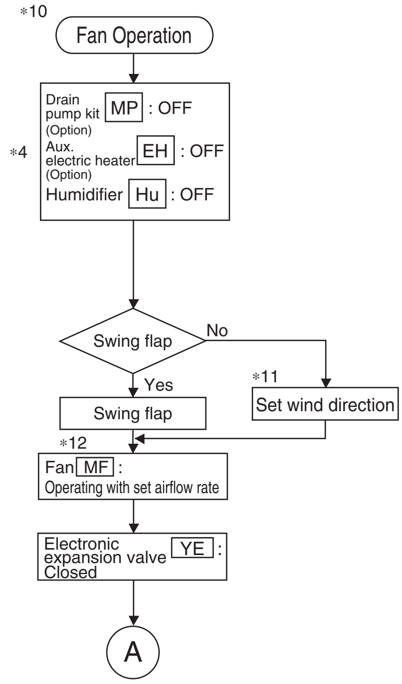
- When outdoor air temperature is too high, outdoor unit cannot operate in heating mode because:
  - Low pressure sensor can give pressure value above upper limit of sensor: error **JC**.
  - Mechanical internal load on compressor increases.
  - Low compression ratio can result in insufficient compressor internal oil lubrication.
- Heating is disabled when outdoor air temperature is above 26°C (78.8°F).
  - Forced thermostat-OFF on indoor units.
  - Outdoor fan operates ≥ 200 rpm.
- Heating operation is enabled when outdoor air temperature drops below 24°C (75.2°F).

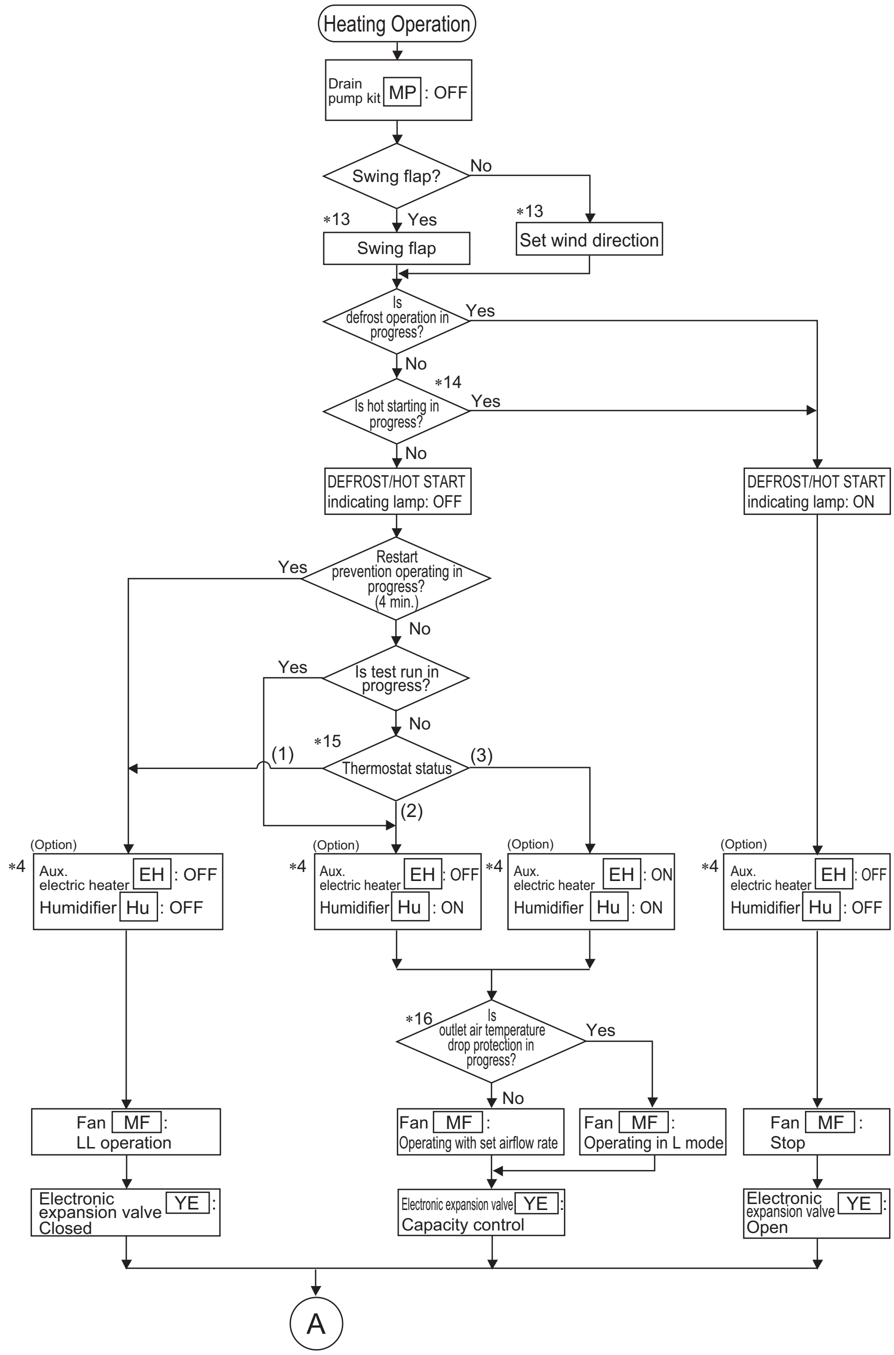
9. Outline of Control (Indoor Unit)

9.1 Operation Flowchart




Program dry operation
*8
Program dry display
*9
Thermostat status
OFF
ON
Fan MF : Operating in L mode
Electronic expansion valve YE : Superheating degree control
Fan MF : Operating in L mode after it stops for 6 min.
Electronic expansion valve YE : Closed
Drain pump kit MP : OFF after 5-min. residual operation
A


*10
Fan Operation
*4
Drain pump kit (Option) MP : OFF
Aux. electric heater (Option) EH : OFF
Humidifier Hu : OFF
Swing flap
No
Yes
Swing flap
*11
Set wind direction
*12
Fan MF : Operating with set airflow rate
Electronic expansion valve YE : Closed
A



Note(s)

*1. If any error occurs, the relevant error code will be displayed according to the error code display of the remote controller.

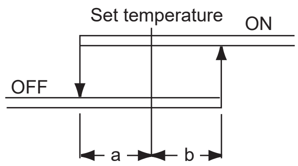
*2. When the auxiliary electric heater turns ON, the fan will stop after it conducts residual operation.

*3. When the drain pump kit turns ON, the drain pump kit will stop after it conducts residual operation for a period of 5 min.

*4. The control of auxiliary electric heater connected to FXTA-AA models differ from this flowchart. For details, refer to **Heater Control (FXTA-AA Models)** on page 73.

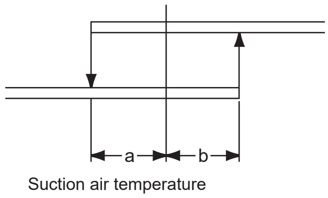
*5. If the evaporator inlet temperature is kept at less than –5°C (23°F) for a period of cumulative 10 min. or less than –1°C (30.2°F) for a cumulative period of 40 min., freeze-up prevention operation will be conducted. If the evaporator inlet temperature is kept at more than 7°C (44.6°F) for a consecutive period of 10 min., the freeze-up prevention operation will be reset.

∗6. Thermostat status

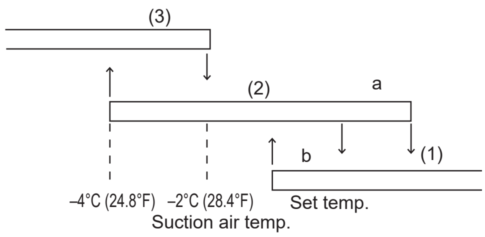


a = b = 1°C (1.8°F) or 0.5°C (0.9°F)
The values a and b depend on the field setting 12 (22)-2.

∗7. The following models have the drain pump as standard equipment:
FXFA-AA, FXSA-AA, FXMA-AA
∗8. Program dry display
No set temperature and airflow rate of the remote controller are displayed.
∗9. Thermostat status
Set temperature when operating the program dry mechanism.



∗10. Fan operation
By setting the remote controller to Fan, the fan will operate with thermostat OFF in set temperature control operation mode.
∗11. Set wind direction
According to wind direction instruction from the remote controller, the wind direction is set to 100% horizontal while in heating operation.
∗12. Fan
According to fan speed instruction from the remote controller, the fan is put into operation in LL mode while in heating operation.
∗13. Wind direction
When the heating thermostat turns OFF, the wind direction will be set to 100% horizontal.
∗14. Hot start
After the start of heating operation or the end of defrost operation, the hot start control will terminate if the temperature at the condenser outlet (indoor heat exchanger liquid pipe temperature) exceeds 34°C (93.2°F), or if Tc is above 52°C (125.6°F), or if 3 minutes have elapsed.
∗15. Thermostat status



∗16. Outlet air temperature drop protection
When the set temperature is below 24°C (75.2°F) or the electronic expansion valve opening is small, the protection will be activated.
∗17. **Hu** indicates the Humidifier connected to the wiring modification adaptor.
It is not related to the Humidifier terminals on the PCB of FXTA-AA.

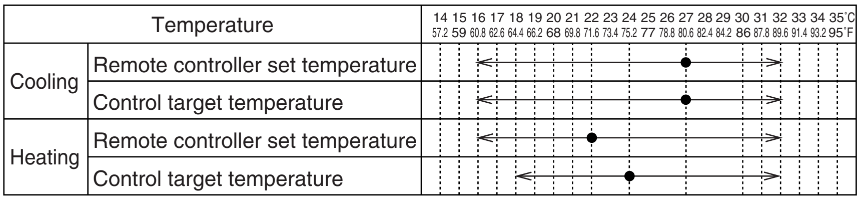
9.2 Set Temperature and Control Target Temperature

9.2.1 Without Infrared Floor Sensor

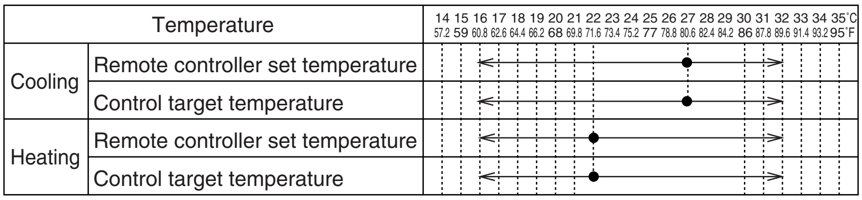
The relationship between remote controller set temperature and control target temperature is described below.

- When the suction air thermistor is used for controlling (Default), the control target temperature is determined as follows to prevent insufficient heating in heating operation.
  Control target temperature = remote controller displayed temperature + 2°C (3.6°F)
- The temperature difference for cooling ⇔ heating mode switching is 5°C (9°F).
- The above also applies to automatic operation.

■ **When setting the suction air thermistor (Default setting)**



■ **When using the remote controller thermistor (Field setting is required)**



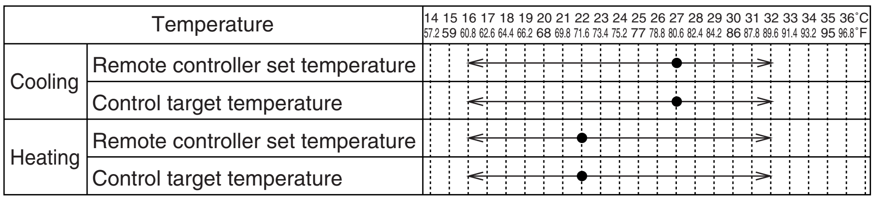
Examples are given to illustrate a control target temperature that satisfies the remote controller set temperature.

9.2.2 With Infrared Floor Sensor

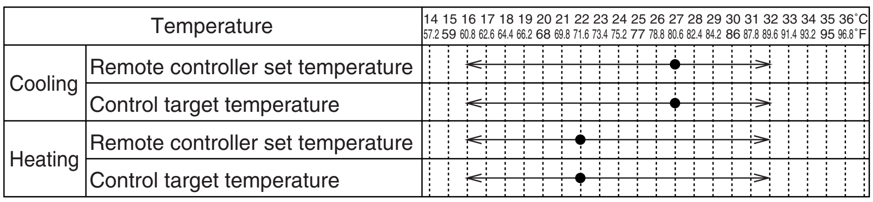
The relationship between remote controller set temperature and control target temperature is described below.

- The temperature difference for cooling ⇔ heating mode switching is 5°C (9°F).
- When using the floor temperature as the control target, the remote controller set temperature is equal to the actual control target temperature in heating operation.
- The above also applies to automatic operation.

■ **When setting the suction air thermistor (Default setting)**



■ **When using the remote controller thermistor (Field setting is required)**



Examples are given to illustrate a control target temperature that satisfies the remote controller set temperature.

Regarding control target temperature

When using the infrared floor sensor, the temperature around people will be treated as the control target temperature for operation.

What is the temperature around people?

The temperature around people refers to the temperature of the living space, obtained from the temperature around the ceiling and the temperature underfoot. The temperature is calculated using the detected values of the suction air thermistor and the infrared floor sensor.
It is difficult to use only suction air temperature control for underfoot air conditioning.

9.3 Remote Controller Thermistor

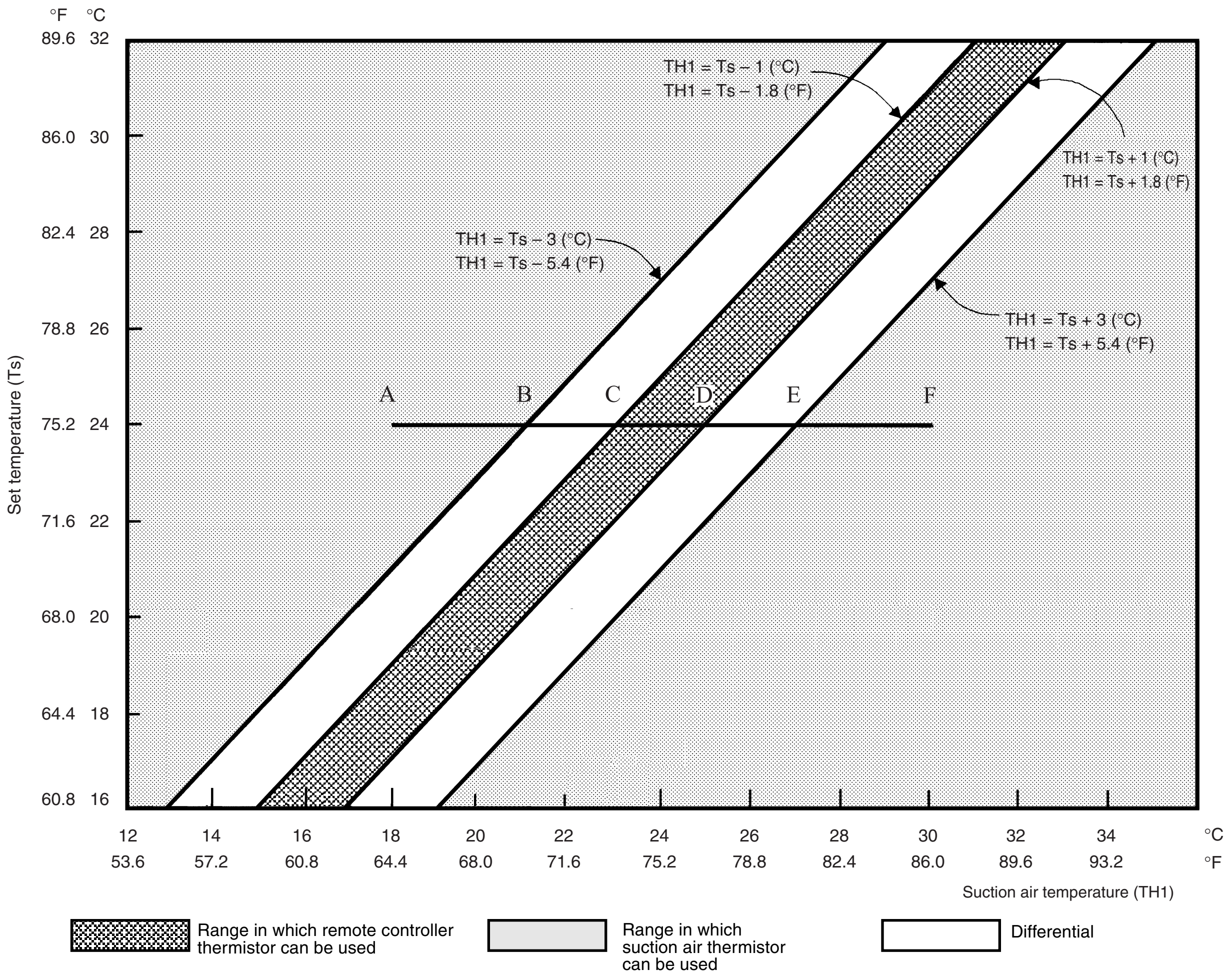
Temperature is controlled by both the remote controller thermistor and suction air thermistor for the indoor unit. (This is however limited to when the field setting for the remote controller thermistor is set to Use.)

Note(s)

When fresh air intake kit is used, outdoor air is mixed with indoor air, and the room temperature may not reach the set temperature, since TS and TH1 do not enter the area in which remote controller thermistor can be used. In such case, install the remote sensor (optional accessory) in your room, and set the field settings to not use the remote controller thermistor.
∗ FXTA-AA models do not have this control because they do not have suction air thermistor. The thermistor is selectable manually when remote sensor (optional accessory) is installed.

Cooling

If there is a significant difference in the set temperature and the suction temperature, fine adjustment control is carried out using a suction air thermistor, or using the remote controller thermistor near the position of the user when the suction temperature is near the set temperature.



■ **Assuming the set temperature in the figure above is 24°C (75°F), and the suction temperature has changed from 18°C (64°F) to 30°C (86°F) (A → F):**

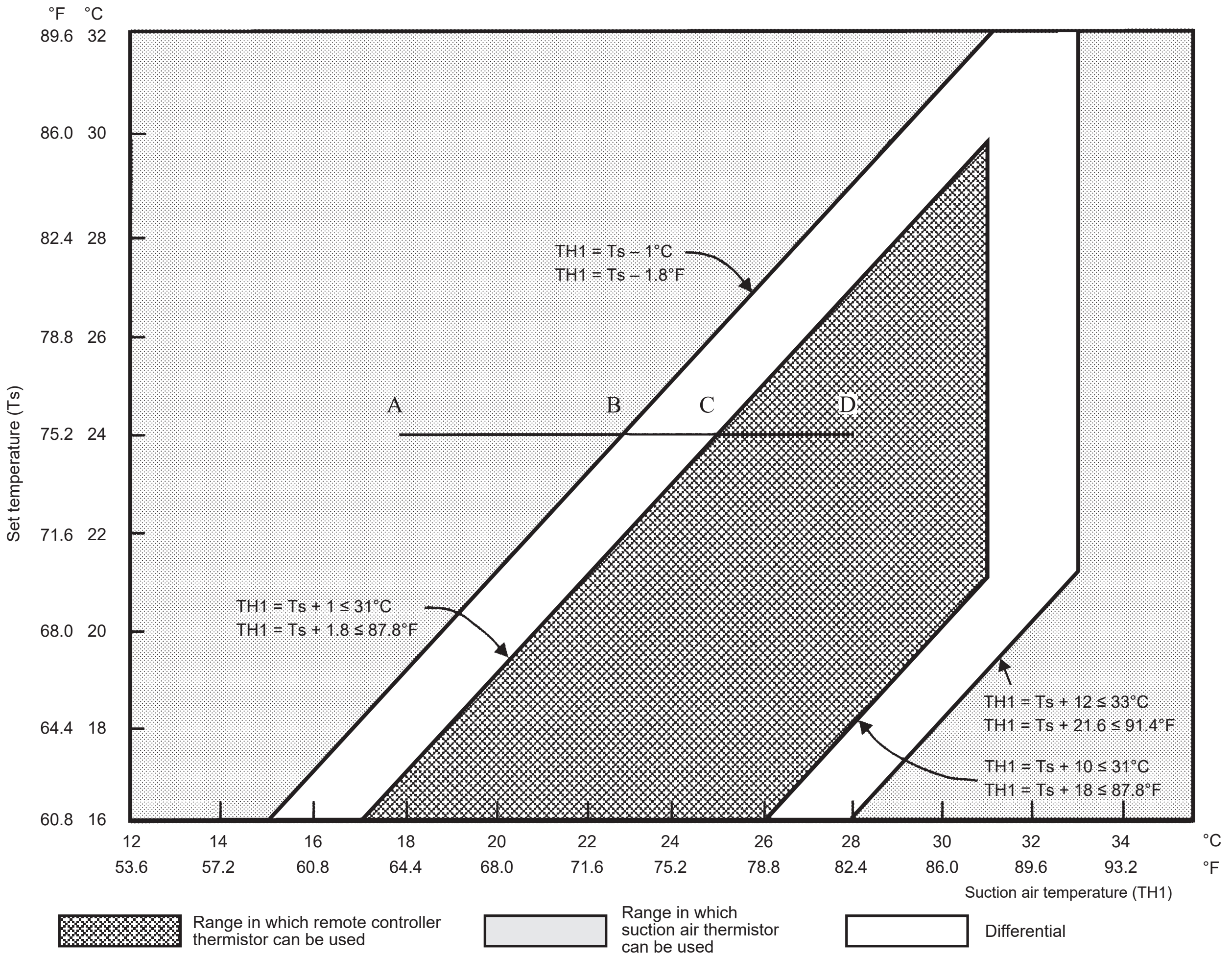
(This example also assumes there are several other air conditioners, and the suction temperature changes even when the thermostat is off.)
Suction air thermistor is used for temperatures from 18°C (64°F) to 23°C (73°F) (A → C).
Remote controller thermistor is used for temperatures from 23°C (73°F) to 27°C (81°F) (C → E).
Suction air thermistor is used for temperatures from 27°C (81°F) to 30°C (86°F) (E → F).

■ **Assuming suction temperature has changed from 30°C (86°F) to 18°C (64°F) (F → A):**

Suction air thermistor is used for temperatures from 30°C (86°F) to 25°C (77°F) (F → D).
Remote controller thermistor is used for temperatures from 25°C (77°F) to 21°C (70°F) (D → B).
Suction air thermistor is used for temperatures from 21°C (70°F) to 18°C (64°F) (B → A).

Heating

When heating, the hot air rises to the top of the room, resulting in the temperature being lower near the floor where the occupants are. When controlling by suction air thermistor only, the indoor unit may therefore be turned off by the thermostat before the lower part of the room reaches the set temperature. The temperature can be controlled so the lower part of the room where the occupants are does not become cold by widening the range in which remote controller thermistor can be used so that suction temperature is higher than the set temperature.



■ **Assuming the set temperature in the figure above is 24°C (75°F), and the suction temperature has changed from 18°C (64°F) to 28°C (82°F) (A → D):**

(This example also assumes there are several other air conditioners, and the suction temperature changes even when the thermostat sensor is off.)
Suction air thermistor is used for temperatures from 18°C (64°F) to 25°C (77°F) (A → C).
Remote controller thermistor is used for temperatures from 25°C (77°F) to 28°C (82°F) (C → D).

■ **Assuming suction temperature has changed from 28°C (82°F) to 18°C (64°F) (D → A):**

Remote controller thermistor is used for temperatures from 28°C (82°F) to 23°C (73°F) (D → B).
Suction air thermistor is used for temperatures from 23°C (73°F) to 18°C (64°F) (B → A).

9.4 Thermostat Control

The thermostat ON/OFF differential value (factory setting) differs depending on the models.

Differential value	Model
1°C (1.8°F)	FXTA-AA
0.5°C (0.9°F)	FXFA-AA, FXSA-AA, FXMA-AA

9.4.1 Without Infrared Floor Sensor

Whether the thermostat is turned ON or OFF is determined by the difference between the remote controller set temperature and the actual detected room temperature (∗1).

Normal Operation

- Cooling operation

Normal operation (Thermostat ON) $\xrightarrow{\Delta T \leq -1.0^{\circ}C\ (-1.8^{\circ}F)}$ Thermostat OFF

Normal operation (Thermostat ON) $\xleftarrow{\Delta T \geq +1.0^{\circ}C\ (+1.8^{\circ}F)}$ Thermostat OFF

- Heating operation

Normal operation (Thermostat ON) $\xrightarrow{\Delta T \geq +1.0^{\circ}C\ (+1.8^{\circ}F)}$ Thermostat OFF

Normal operation (Thermostat ON) $\xleftarrow{\Delta T \leq -1.0^{\circ}C\ (-1.8^{\circ}F)}$ Thermostat OFF

Dry Operation

- When Tro < 24.5°C (76.1°F)

Dry operation $\xrightarrow{Tr < Tro - 1.0^{\circ}C\ (-1.8^{\circ}F)}$ Thermostat OFF

Dry operation $\xleftarrow{Tr > Tro + 1.0^{\circ}C\ (+1.8^{\circ}F)}$ Thermostat OFF

- When Tro ≥ 24.5°C (76.1°F)

Dry operation $\xrightarrow{Tr < Tro - 1.5^{\circ}C\ (-2.7^{\circ}F)}$ Thermostat OFF

Dry operation $\xleftarrow{Tr > Tro + 0.5^{\circ}C\ (+0.9^{\circ}F)}$ Thermostat OFF

If the field setting 11 (21)-12 is set to **02**, Tro will be the same as the cooling set temperature.

Dry operation $\xrightarrow{Tr < Tro - 1.0^{\circ}C\ (-1.8^{\circ}F)}$ Thermostat OFF

Dry operation $\xleftarrow{Tr > Tro + 1.0^{\circ}C\ (+1.8^{\circ}F)}$ Thermostat OFF

ΔT = Room temperature – Remote controller set temperature
Tro: Room temperature at the start of dry operation
Tr: Room temperature

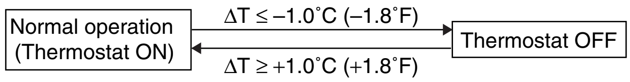
∗1: The thermistor for room temperature detection depends on the field setting 10 (20)-2.

9.4.2 With Infrared Floor Sensor

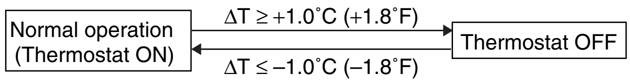
Whether the thermostat is turned on or off is determined by the difference between the remote controller set temperature and the detected temperature around people.

Normal Operation

- Cooling operation

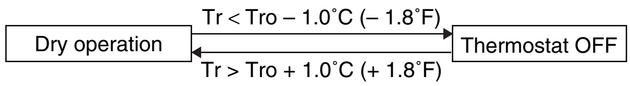


- Heating operation

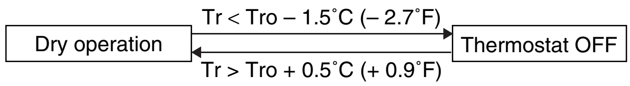


Dry Operation

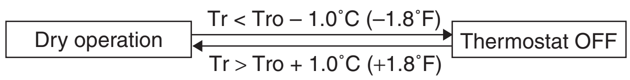
- When Tro ≤ 24.5°C (76.1°F)



- When Tro > 24.5°C (76.1°F)



If the field setting 11 (21)-12 is set to **02**, Tro will be the same as the cooling set temperature.



ΔT = Room temperature or temperature around people – Remote controller set temperature
Tro: Room temperature or temperature around people at the start of dry operation
Tr: Room temperature or temperature around people

Control range of temperature around people

When the floor temperature is very low, operation using the temperature around people may cause the suction air temperature to operate outside of use range.
To avoid the above condition, a limit based on the suction air temperature is set for the use range of the temperature around people.

Cooling operation

- When the floor temperature is lower than suction air temperature (R1T), R1T will be treated as the control target temperature for operation.
- When the temperature around people is 15°C (59°F) or lower, R1T will be treated as the control temperature for operation.

Heating operation

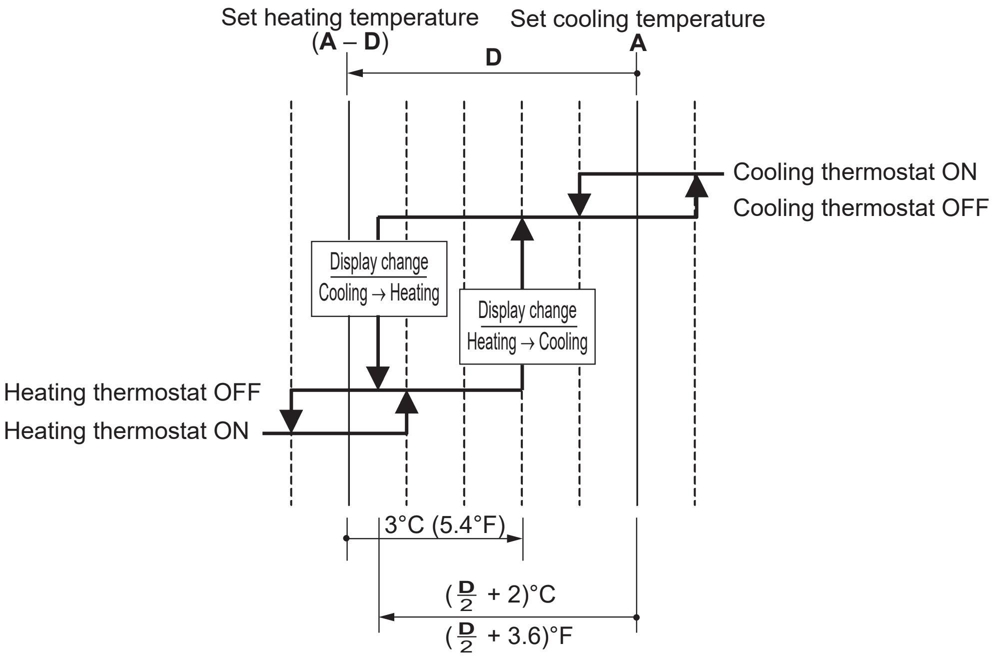
- When the floor temperature is higher than suction air temperature (R1T), R1T will be treated as the control target temperature in operation.
- When the temperature around people is 33°C (91.4°F) or higher, R1T will be treated as the control temperature for operation.

9.4.3 Thermostat Control with Operation Mode Set to AUTO

The system will conduct this temperature control shown below, only when the wireless remote controller or any central remote controller is connected. Furthermore, setting changes of the differential value (**D**) can be made.

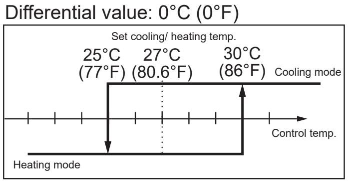
★: Factory setting

Mode No.	First code No.	Contents of setting	Second code No.							
			01★	02	03	04	05	06	07	08
12 (22)	4	Automatic mode differential	**0°C** **0°F** ★	1°C 1.8°F	2°C 3.6°F	3°C 5.4°F	4°C 7.2°F	5°C 9.0°F	6°C 10.8°F	7°C 12.6°F

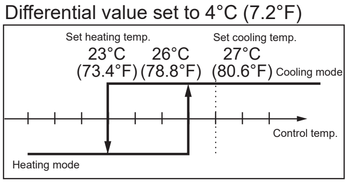


(Ex.) When automatic cooling temperature is set to 27°C (80.6°F):

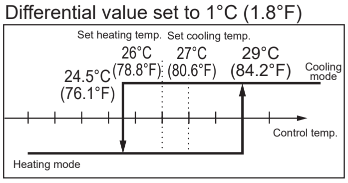
Differential value: 0°C (0°F)



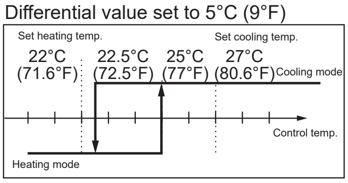
Differential value set to 4°C (7.2°F)



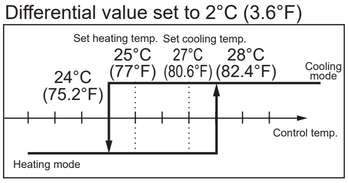
Differential value set to 1°C (1.8°F)



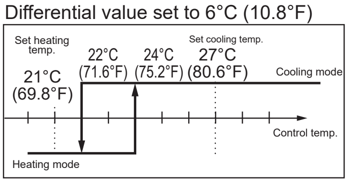
Differential value set to 5°C (9°F)



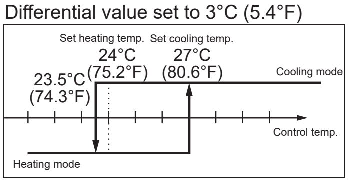
Differential value set to 2°C (3.6°F)



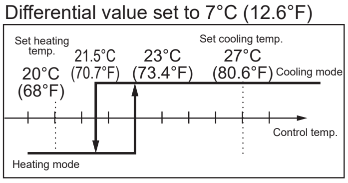
Differential value set to 6°C (10.8°F)



Differential value set to 3°C (5.4°F)

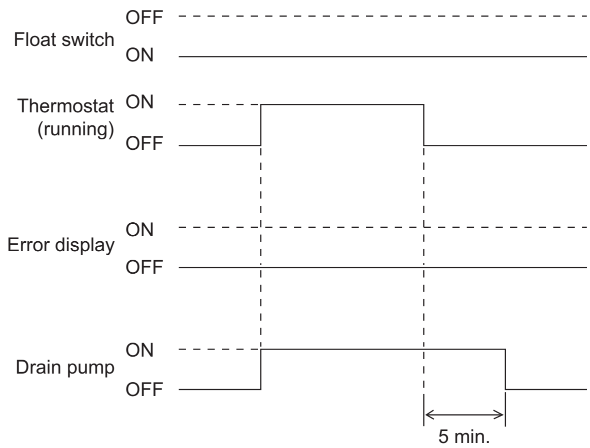


Differential value set to 7°C (12.6°F)



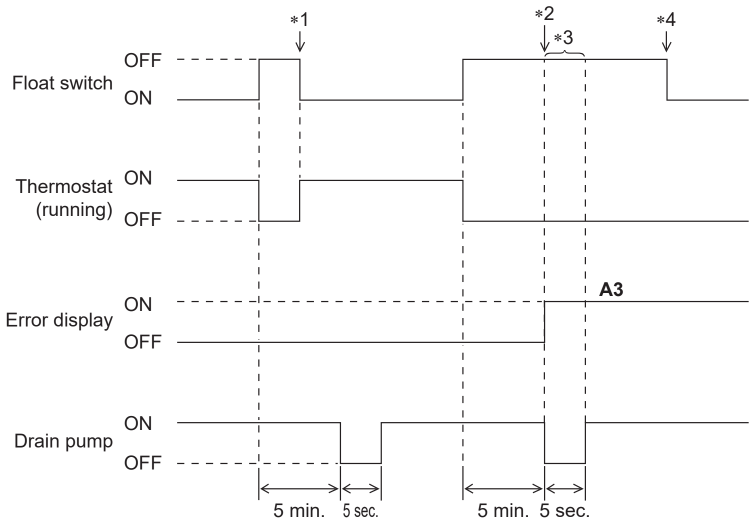
9.5 Drain Pump Control

9.5.1 Normal Operation



- 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 for another 5 minutes.
- The aim of residual operation after thermostat OFF is to eliminate the dew that condenses on the indoor heat exchanger during cooling operation.

9.5.2 If the Float Switch is OFF with the Thermostat ON in Cooling Operation



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

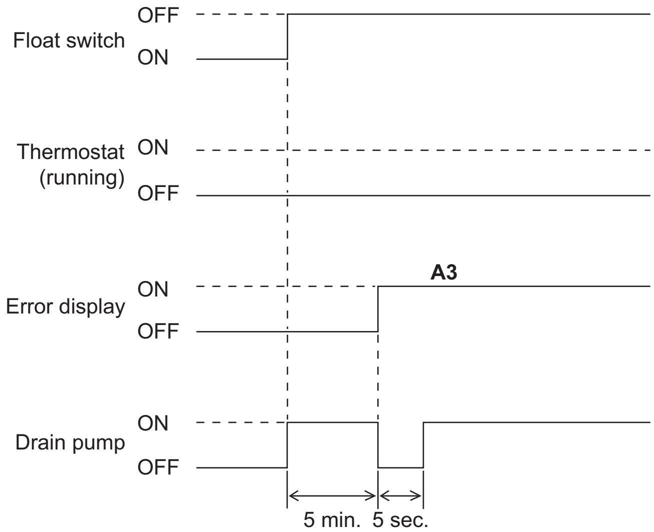
∗1. If the float switch turns ON again during the residual operation of the drain pump, cooling operation also turns on again (thermostat ON).

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

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

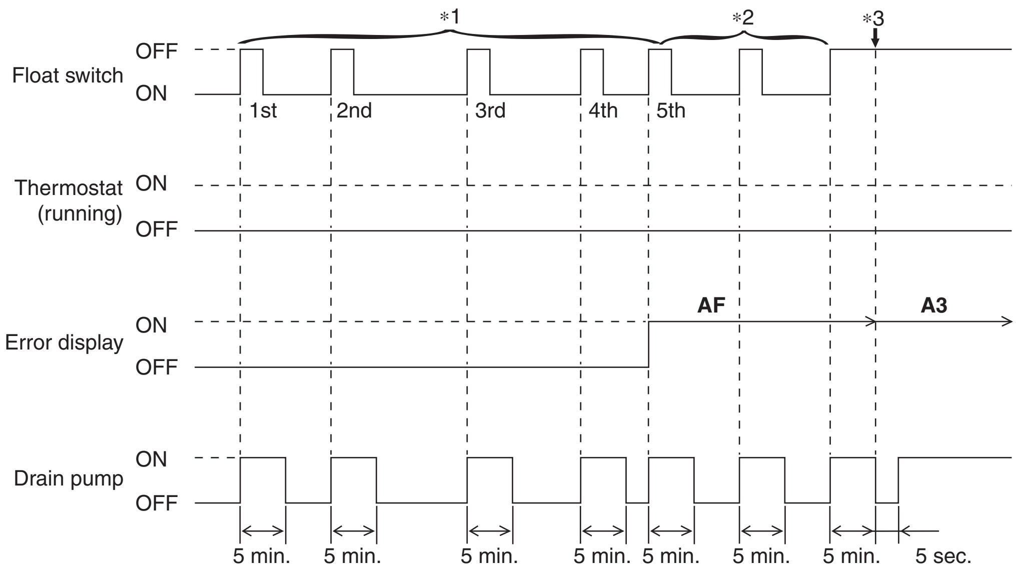
∗4. After **A3** is displayed and the unit comes to an abnormal stop, the thermostat will remain OFF even if the float switch turns ON again.

9.5.3 If the Float Switch is OFF with the Thermostat OFF in Cooling Operation



- When the float switch turns OFF, the drain pump turns ON simultaneously.
- If the float switch remains OFF even after the residual operation of the drain pump has ended, the error code **A3** is displayed on the remote controller.
- The drain pump turns OFF once residual operation has ended, then turns ON again after 5 seconds.

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



- When the float switch turns OFF, the drain pump turns ON simultaneously.

∗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 displayed on the remote controller.

∗2: The drain pump continues to turn ON/OFF in accordance with the float switch ON/OFF even after **AF** is displayed on the remote controller.

∗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 displayed on the remote controller.

9.6 Control of Electronic Expansion Valve

Electronic expansion valves in indoor units have the functions of conducting superheating degree control in cooling operation and subcooling degree control in heating operation. However, if the indoor units receive any control command such as a protection control command or a special control command from the outdoor unit, the units will give a priority to the control command.

- **Superheating degree control in cooling operation**

This function is used to adjust the opening of the electronic expansion valve so that superheating degree (SH), which is calculated from the detection temperature (Tg) of the gas pipe thermistor (R3T) and the detection temperature (Tl) of the liquid temperature thermistor (R2T) of the indoor unit, will come close to a target superheating degree (SHS).
At that time, correction to the superheating degree is made according to the differences (ΔT) between set temperature and suction air temperature.

SH = Tg – Tl

Where,
SH: Evaporator outlet superheating degree
Tg: Indoor unit gas pipe temperature (R3T)
Tl: Indoor unit liquid pipe temperature (R2T)
SHS: Target superheating degree

SHS (Target SH value)
- Normally 5°C (9°F).
- As ΔT (Remote controller set temp. – Suction air temp.) becomes larger, SHS becomes lower.
- As ΔT (Remote controller set temp. – Suction air temp.) becomes smaller, SHS becomes higher.

- **Subcooling degree control in heating operation**

This function is used to adjust the opening of the electronic expansion valve so that the high pressure equivalent saturated temperature (Tc), which is converted from the detected pressure of the high pressure sensor in the outdoor unit, and the subcooling degree (SC), which is calculated from the detected temperature (Tl) of the liquid temperature thermistor (R2T) in the indoor unit, will come close to the target subcooling degree (SCS).
At that time, corrections to the subcooling degree are made according to differences (ΔT) between set temperature and suction air temperatures.

SC = Tc – Tl

Where,
SC: Condenser outlet subcooling degree
Tc: High pressure equivalent saturated temperature detected by the high pressure sensor (S1NPH)
Tl: Indoor unit liquid pipe temperature (R2T)
SCS: Target subcooling degree

SCS (Target SC value)
- Normally 5°C (9°F).
- As ΔT (Remote controller set temp. – Suction air temp.) becomes larger, SCS becomes lower.
- As ΔT (Remote controller set temp. – Suction air temp.) becomes smaller, SCS becomes higher.

9.7 Freeze-Up Prevention

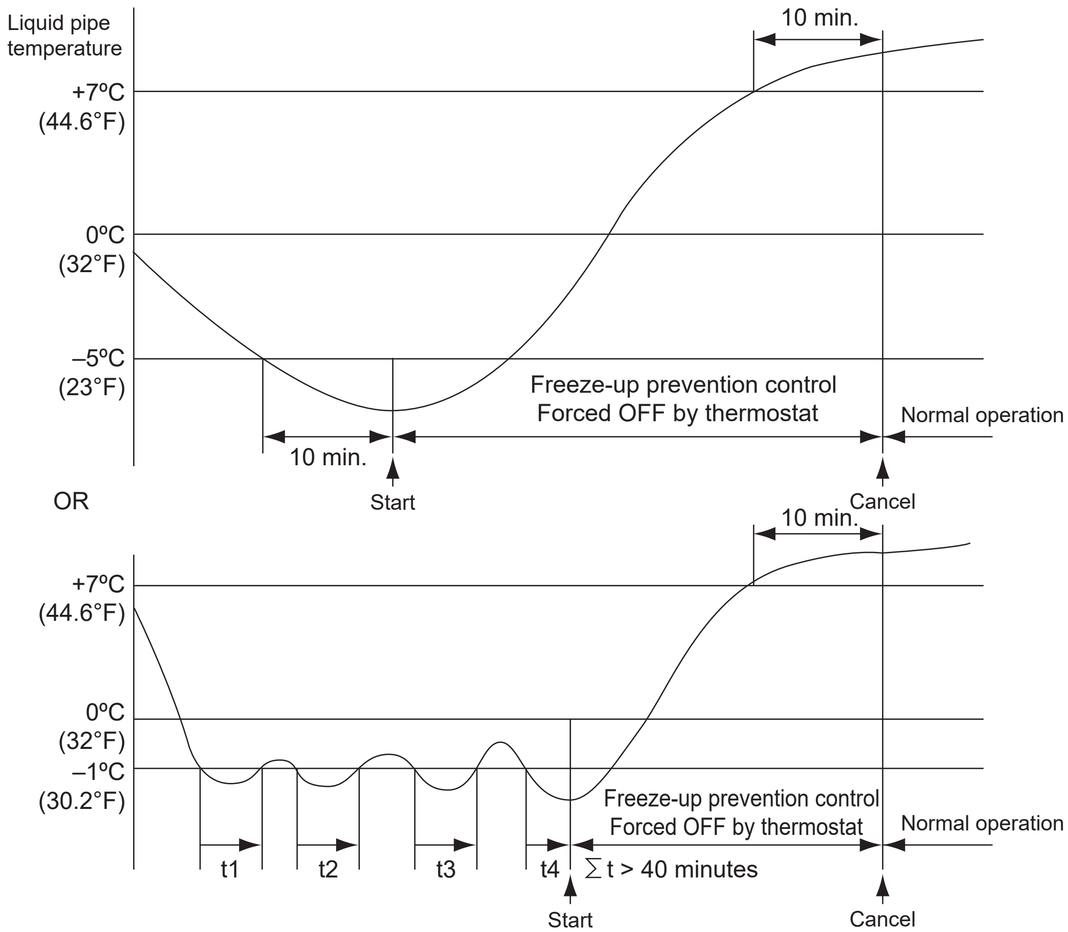
Freeze-Up Prevention by Off Cycle (Indoor Unit)

When the temperature detected by the liquid pipe temperature thermistor of the indoor heat exchanger drops too low, the unit enters freeze-up prevention control in accordance with the following conditions, and is also set in accordance with the conditions given below. (Thermostat OFF)

When freeze-up prevention is activated, the electronic expansion valve is closed, the drain pump turns on and the airflow rate is fixed to L tap. When the following conditions for cancelling are satisfied, it will reset.

Conditions for starting:
Liquid pipe temperature ≤ – 1°C (30.2°F) (for total of 40 minutes)
or
Liquid pipe temperature ≤ – 5°C (23°F) (for total of 10 minutes)

Condition for cancelling:
Liquid pipe temperature ≥ +7°C (44.6°F) (for 10 minutes continuously)

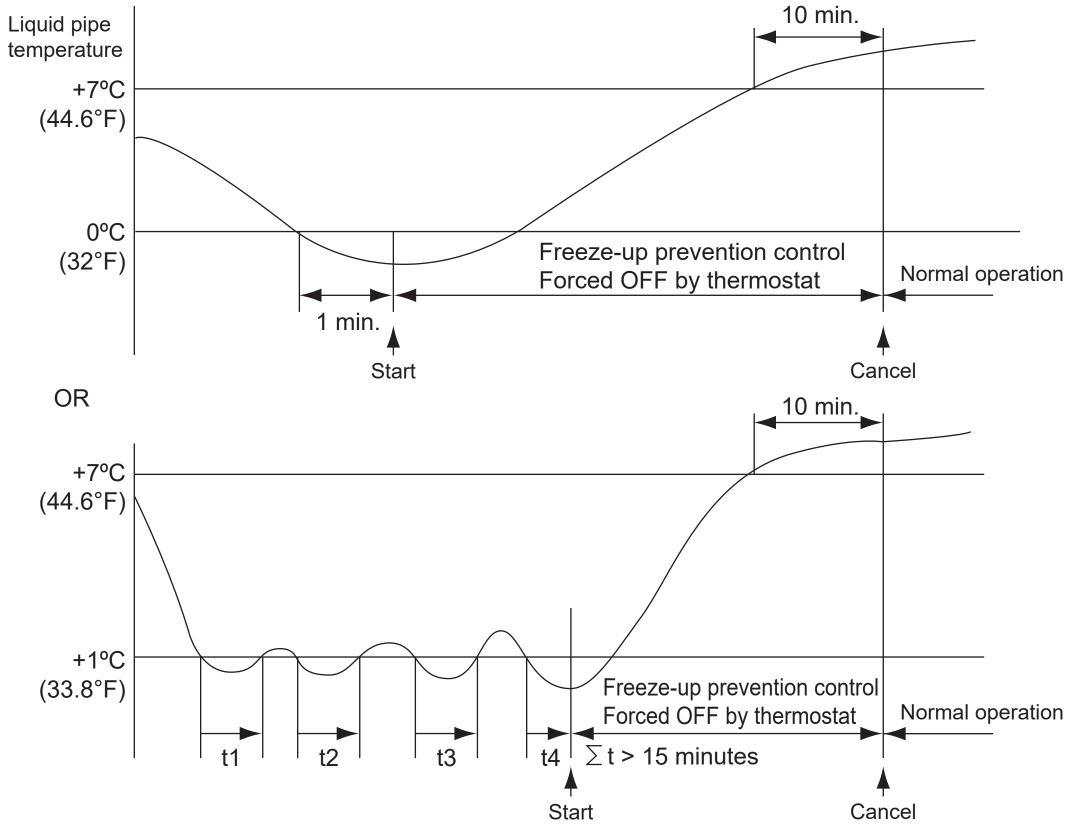


Concept of freeze-up prevention control
System avoids freeze-up
· For comfort, system avoids unnecessary thermostat ON/OFF
· For ensuring compressor reliability, system avoids unnecessary compressor ON/OFF
When freeze-up prevention control starts, system makes sure the frost is completely removed.
· System avoids water leakage.

Note(s)

When the indoor unit is FXFA-AA, if the air outlet is set as dual-directional or tri-directional, the starting conditions will be changed as follows.
Liquid pipe temperature ≤ 1°C (33.8°F) (for total of 15 minutes)

or
Liquid pipe temperature ≤ 0°C (32°F) (for 1 minute continuously)
During freeze-up prevention control, the airflow rate is fixed to LL.
(The cancelling conditions are same as the standard.)



9.8 List of Swing Flap Operations

Swing flaps operate as shown in table below.

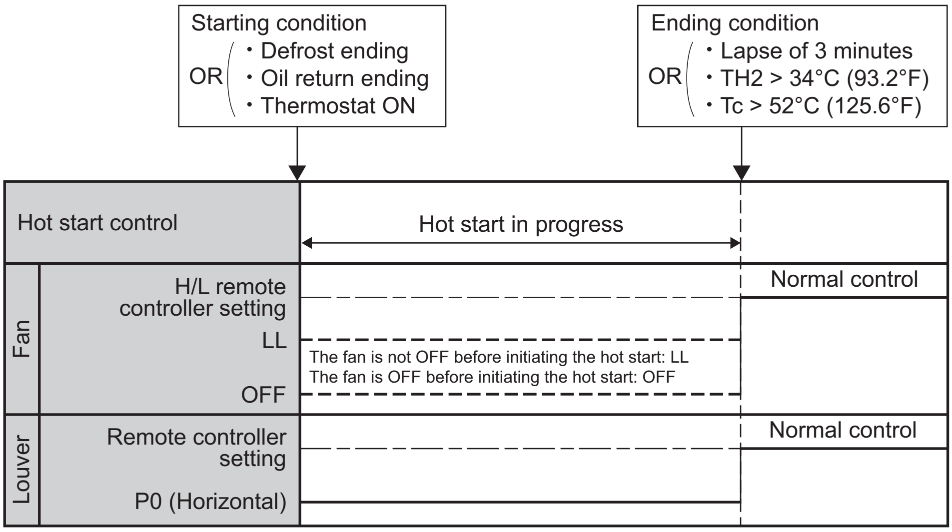
			Fan	Flap
				FXFA-AA
Heating	Hot start from defrost operation	Swing	OFF	Horizontal
		Airflow direction set	OFF	Horizontal
	Defrost operation	Swing	OFF	Horizontal
		Airflow direction set	OFF	Horizontal
	Thermostat OFF	Swing	LL	Horizontal
		Airflow direction set	LL	Horizontal
	Hot start from thermostat OFF mode (for prevention of cold air)	Swing	LL	Horizontal
		Airflow direction set	LL	Horizontal
	Stop	Swing	OFF	Horizontal
		Airflow direction set	OFF	Horizontal
Cooling	Thermostat ON in program dry	Swing	L or LL	Swing
		Airflow direction set	L or LL	Set
	Thermostat OFF in program dry	Swing	OFF or L	Swing
		Airflow direction set		Horizontal or Set
	Thermostat OFF in cooling	Swing	Set	Swing
		Airflow direction set	Set	Set
	Stop	Swing	OFF	Horizontal
		Airflow direction set	OFF	Horizontal
	Microcomputer control (including cooling operation)	Swing	L	Swing
		Airflow direction set	L	Set

9.9 Hot Start Control (In Heating Operation Only)

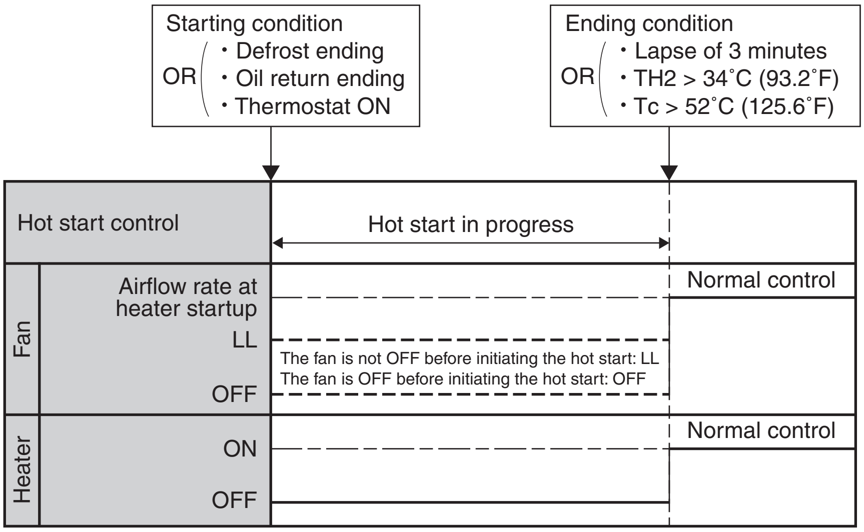
At startup with thermostat ON or after the completion of defrosting in heating operation, the indoor fan is controlled to prevent cold air from blasting out and ensure startup capacity.

TH2: Temperature detected with the gas thermistor

Tc: High pressure equivalent saturated temperature

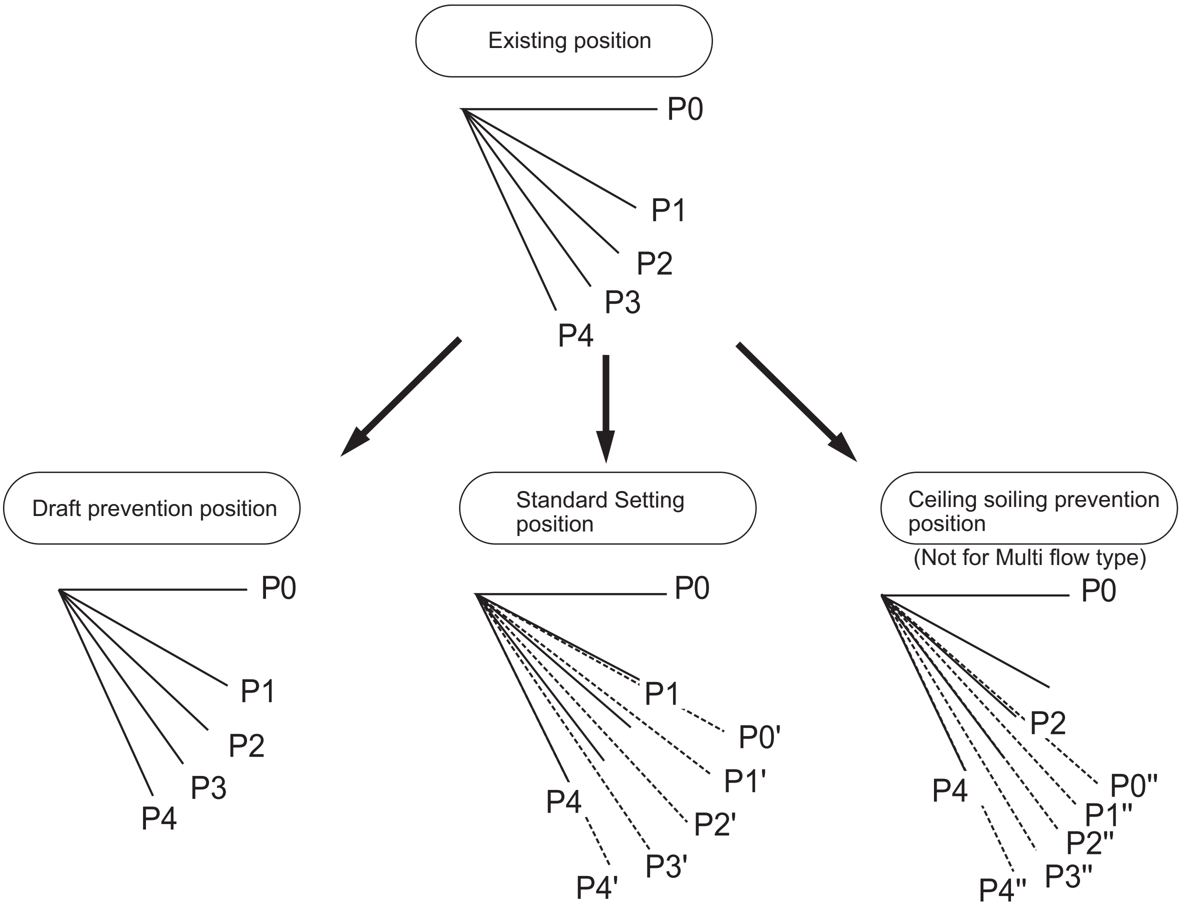


■ **FXTA-AA (when the heater is to be used)**



9.10 Louver Control for Preventing Ceiling Dirt

We have added a control feature that allows you to select the range of in which air direction can be adjusted in order to prevent the ceiling surrounding the air discharge outlet of ceiling mounted cassette type units from being soiled. (This feature is available on FXFA-AA models)



Draft prevention position	P0	P1	P2	P3	P4	Same as existing position	
		Range of direction adjustment					
Standard position	Prohibited	P0'	P1'	P2'	P3'	P4'	Separated into 5 positions (P1 - 4)
		Range of direction adjustment					
Dirt prevention position	Prohibited	P0''	P1''	P2''	P3''	P4''	Separated into 5 positions (P2 - 4)

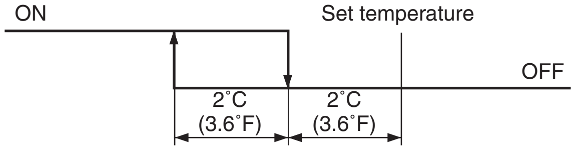
9.11 Heater Control (Except FXTA-AA Models)

Note(s) Optional PCB KRP1B... is required.

The heater control is conducted in the following manner.

Normal control

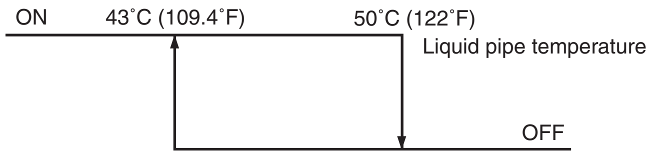
While in heating, the heater control (ON/OFF) is conducted as shown below.



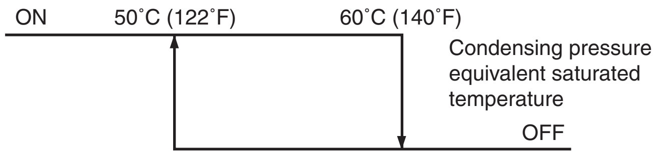
Overload control

When the system is overloaded in heating, the heater will be turned OFF in the following 2 manners.

1. The heater control (ON/OFF) is conducted through the liquid pipe temperature (R2T) of the indoor unit.



2. The heater control (ON/OFF) is conducted by converting the heater temperature into the condensing pressure equivalent saturated temperature (Tc) according to the temperature detection through the high pressure sensor (S1NPH) of the outdoor unit.



Fan residual operation

While the heater turns OFF, in order to prevent the activation of the thermal protector, the fan conducts residual operation for a given period of time after the heater turns OFF. (This operation is conducted regardless of with or without heater equipped.)

Residual operation time: 100 seconds on ceiling suspended type or 60 seconds on other types

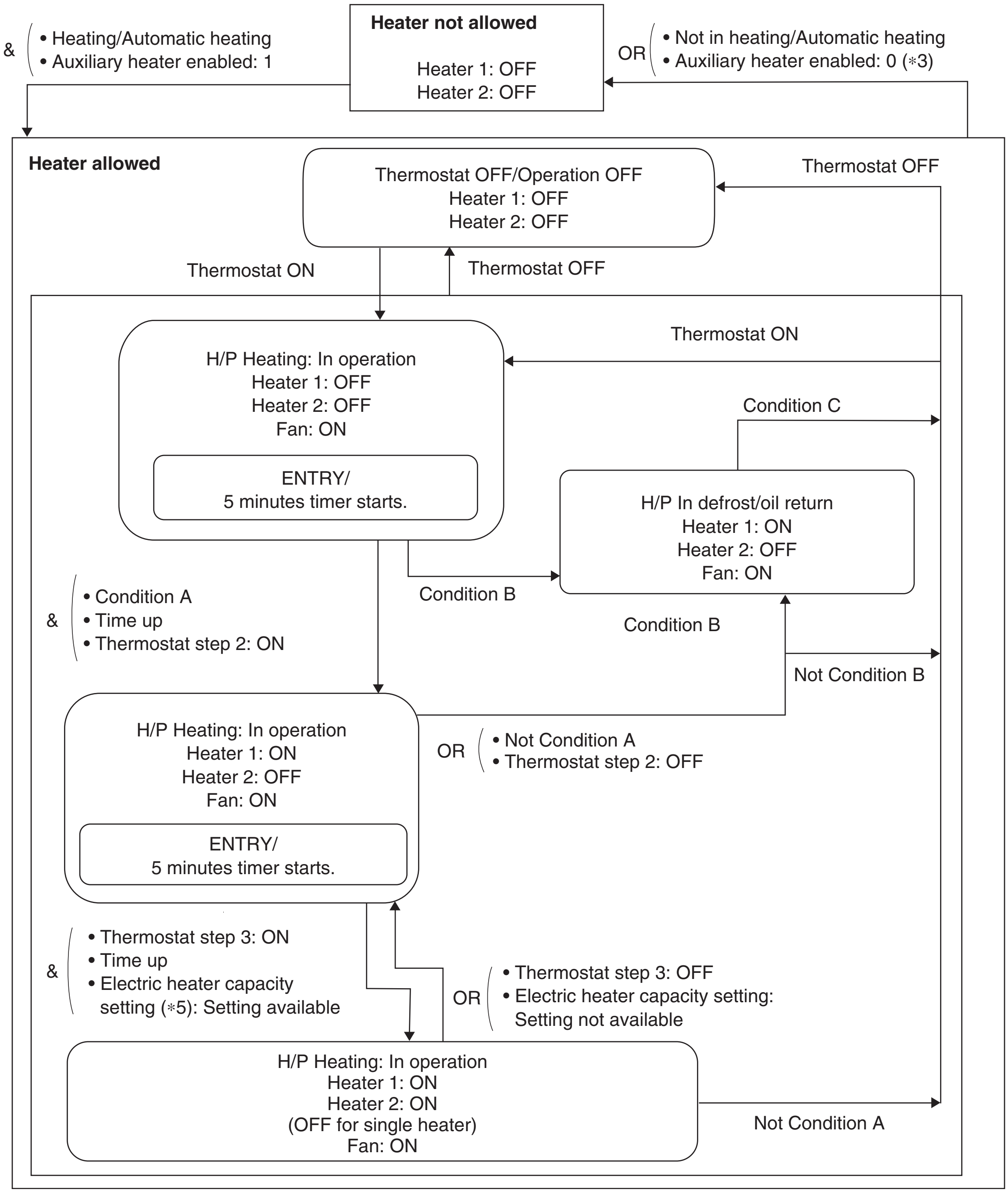
9.12 Heater Control (FXTA-AA Models)

Note(s)

Optional heater kit HKTS... is required.
For FXTA-AA models, heater ON/OFF output from wiring adaptor interlocks with the operation of heater kit HKTS… (When the heater 1 turns ON/OFF, heater output of wiring adaptor turns ON/OFF.). Fan residual operation also interlocks with the fan residual operation of heater kit HKTS…. The residual time will be 90 seconds. (Refer to **Fan Control (Heater Residual) (FXTA-AA Models)** on page 76.)

9.12.1 Auxiliary Electric Heater Control

If heating is insufficient in heat pump system alone, an electric heater is to be used as the auxiliary heater. The following shows the ON/OFF conditions for the electric heater.



Condition A

& (
- No fan motor system error
- High pressure condition: ON (∗1)
- Liquid pipe temperature condition: ON (∗2)
- OR (
  - & (
    - Heater ON permission (Defrost/oil Return): 0 (∗4)
    - Not during defrost/oil return
  - Heater ON permission (Defrost/oil return): 1 (∗4)

Condition B

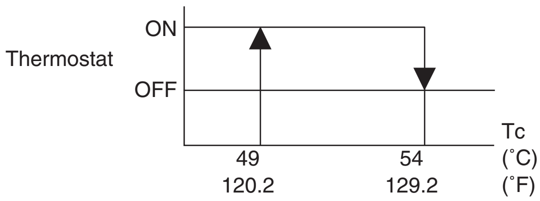
& (
- No fan motor system error
- During defrost/oil return
- Heater ON permission (Defrost/oil return): 1 (∗4)

Condition C

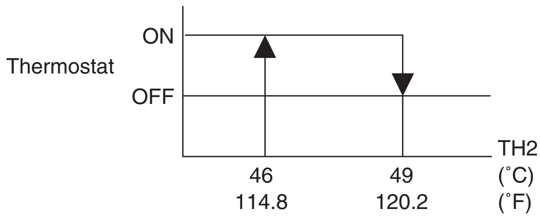
OR (
- Not during defrost/oil return
- Fan motor system error
- Heater ON permission (Defrost/oil return): 0 (∗4)

Note(s)

∗1: High pressure condition



∗2: Liquid pipe temperature condition



∗3. Auxiliary heater enabled

1: & (
- Electric heater function setting (Field setting 39 (49)-0.): **02, 08** (∗6)
- Electric heater capacity setting ≠ **01** (∗5)

0: Other than the above

∗4. Heater ON permission (Defrost/oil return)

1: Electric heater function setting (Field setting 39 (49)-0.): **08** (∗6)
0: Electric heater function setting (Field setting 39 (49)-0.): **02** (∗6)

∗5. Field setting 39 (49)-1. Refer to page 102.

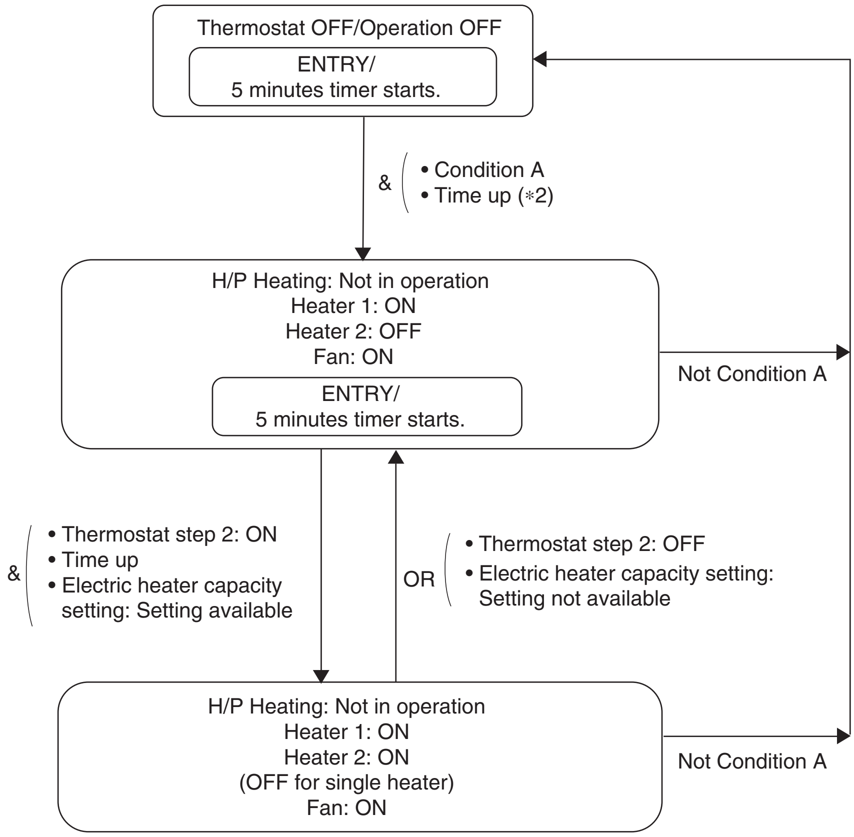
∗6. Field setting 39 (49)-0. Refer to page 101.

9.12.2 Heat Pump Lockout Control

For heating operation, users can select to use electric heater. For this, signals are sent using ABC terminal of outdoor unit PCB.

When the hot-water heating signal is received from the outdoor unit PCB, heating operation is performed only with the electric heater as manual backup operation (∗3).

The ON/OFF conditions for the electric heater are shown below.



Condition A

& (
- Heating or automatic heating mode
- Thermostat step 1: ON
- No fan motor system error
- OR (
  - Hot-water heater: 1 (ON)
  - Lockout signal from remote controller: 1 (ON), and 10 minutes after compressor stop or communication error between outdoor unit)
- Heater backup prohibiting conditions (∗1) not met (Not Condition B))

Condition B: Heater backup prohibiting conditions (∗1)

OR (
- Indoor unit error (Abnormal stop)
- Indoor unit error (Remote controller thermistor error)
- Indoor unit error (Remote sensor error)
- Electric heater capacity setting: 01 (No heater kit))

Note(s)

∗1. The heater backup prohibiting conditions are prioritized. Even when the heater ON conditions are met, the heater is turned OFF when the prohibiting conditions are met.

∗2. When the remote controller is ON, Time-up will be set to the initial value.

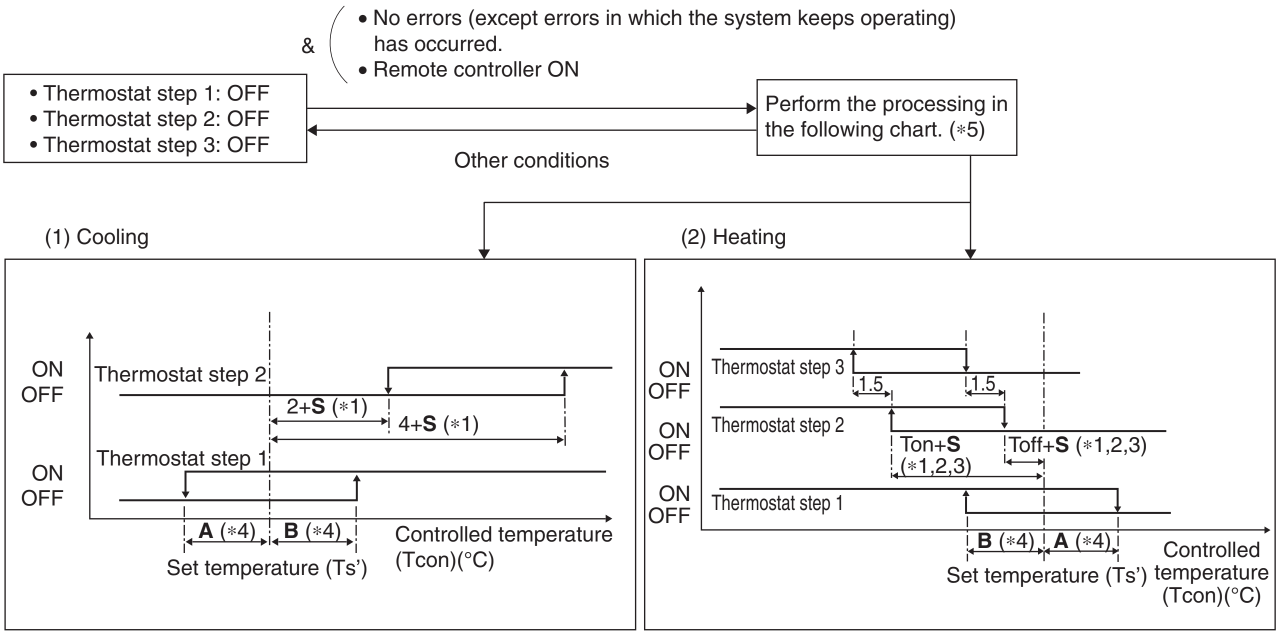
∗3. If the remote controller is equipped with a lockout function, it is possible to send a similar signal from the remote controller.

9.13 3-Step Thermostat Processing (FXTA-AA Models)

Outline

The thermostat ON/OFF for the indoor unit is controlled in accordance with Thermostat step 1.
The heater ON/OFF operation during heating is controlled as follows:
Thermostat step 2, 3: Auxiliary electric heater control
Thermostat step 1, 2: Heat pump lockout control
For more details of the heater, refer to **Heater Control (FXTA-AA Models)** on page 73.

Detail



Note(s)

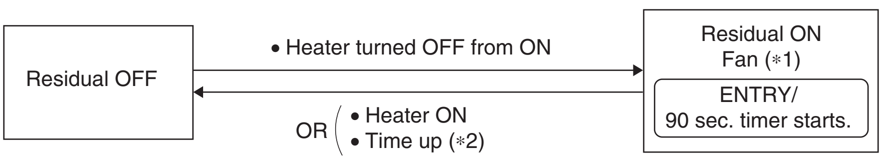
∗1. **S** value varies automatically based on the room temperature trend.
∗2. Ton + **S** > –**B** (°C), Toff + **S** < **A** (°C)
∗3. For parameters, refer to page 90.
∗4. **A** and **B** values vary automatically based on the field setting 12 (22)-2.
∗5. If, directly after a change in conditions, it is such that the thermostat could be either ON or OFF (controlled temperature is within ranges **A** and **B**), the thermostat will be switched to ON.

9.14 Fan Control (Heater Residual) (FXTA-AA Models)

Outline

If the indoor heater turned OFF from ON during heating operation, the fan will keep operating for further period of time in order to cool the heater.

Detail



∗1. When the heater is ON, the airflow rate of the fan will be whichever is the largest between the CFM dictated by the heater's own capacity, or the fan tap CFM determined by other controls.
∗2. Fan residual operation will continue, even if the indoor unit is turned off with the remote controller operation button.

9.15 Interlocked with External Equipment (FXTA-AA Models)

9.15.1 Air Purifier (UV Lamp)

When an air purifier is connected onsite, the fan is operated with the airflow rate set of the remote controller or with the H tap.

& (• Remote control operation (including thermostat OFF)
• External input: ON (∗1)) → Fan operation at preset tap (Fan tap can be changed by field setting 39 (49)-5.)

∗1. External input ON is an input signal to the X1M-AIR CLEANER terminal on the PCB.

9.15.2 Humidifier

When a humidifier is connected onsite, the fan operates with the airflow rate set of the remote controller or with the H tap.

& (• Remote control operation: ON (including thermostat OFF)
• External input: ON (∗1)) → Fan operation at preset tap (Fan tap can be changed by field setting 39 (49)-5.)

& (• Remote control operation: ON (including thermostat OFF)
• When the external input changes from ON to OFF.) → Fan residual operation for 30 seconds (Fan tap can be changed by field setting 39 (49)-5.)

∗1. External input ON is an input signal to the X1M-HUMIDIFIER terminal on the PCB.

Note(s) This control is not applicable to the humidifier connected to the wiring adaptor, but to the humidifier connected to HUMIDIFIER on the X1M terminal of the indoor unit PCB.

9.15.3 Economizer

When indoor and outdoor air temperatures are reversed, the compressor is stopped to let in the outdoor air to save energy.
This operation is called economizer operation, and the equipment to detect indoor and outdoor air temperatures and open and close the damper to perform this operation is called an economizer.
The economizer detects indoor and outdoor air temperatures, informs the air conditioner that the economizer operation is ready, and opens and closes the damper.
The indoor unit stops the outdoor unit when it receives a signal from the economizer and performs air supply operation.
When the indoor air temperature is cooled down sufficiently by the economizer operation, and it is no longer necessary (thermostat OFF), the indoor unit outputs a signal to the economizer to close the damper.

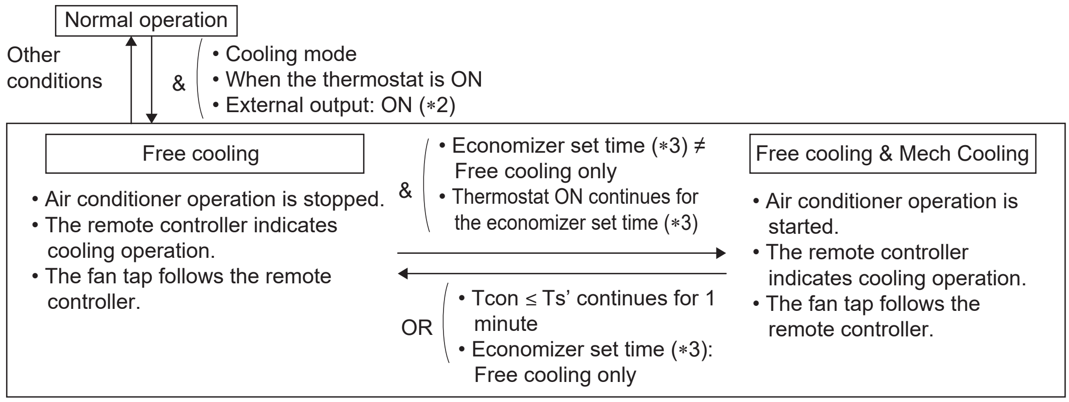
■ **Thermostat ON signal**

& (• Cooling mode
• When the thermostat is ON)

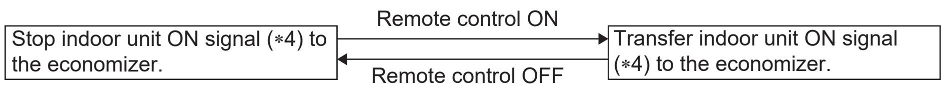
Stop the thermostat ON signal (∗1) to the economizer. → Transfer the thermostat ON signal (∗1) to the economizer.

Transfer the thermostat ON signal (∗1) to the economizer. → Stop the thermostat ON signal (∗1) to the economizer.: Other conditions

■ **Operation**



■ **Indoor unit ON signal**



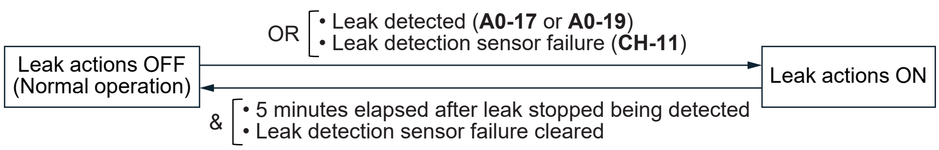
Note(s)

∗1. Thermostat ON signal: A signal to turn ON the indoor unit thermostat and allow the economizer to open the damper. It turns ON the relay on the X2M-ECONOMIZER2 on the PCB.
∗2. External input ON is an input signal to the X1M-ECONOMIZER1 terminal on the PCB.
∗3. Refer to **Optional Kit Setting (UV lamp + Humidifier + Economizer) (for FXTA-AA models)** on page 103.
∗4. Remote control ON signal: Contact output which shows the operating status of the indoor unit. This signal turns on the relay X2M-CONTROL ON/OFF on the PCB.

9.16 Refrigerant Detection System (RDS) Function (FXTA-AA Models)

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**
Fan motor	Run at specified tap (∗5)
Electronic expansion valve	Closed
Leak detection output (∗1) (∗6) (A2P PCB, terminal TB11-13, TB12-13 [Relay K6R])	Energized
Accessory contacts output (∗2) (∗6) (A2P PCB, terminal TB6-8, dry contact)	Energized (When energized, the terminals (TB6-8) are closed)
Connector X40A (∗3) (∗6) (A1P PCB, with option relay PCB kit)	Energized
Buzzer signal (∗4)	ON



Note(s)

∗1. Refer to the following **Leak Detection Output (Relay K6R) (FXTA-AA Models)**.
∗2. Only when the field setting 39 (49)-6 is set to 01: synchronized with leak detection.
Refer to **Accessory Contact Output (TB6 and TB8) (for FXTA-AA Models)** on page 103.

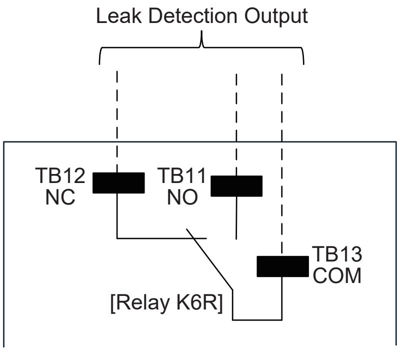
∗3. Refer to the relay PCB instruction manual of the option kit for the detailed specifications.
∗4. Buzzer signal is activated only when connected remote controller or centralized controller is equipped with the buzzer function AND a leak is detected for a certain set timeframe or multiple times within a short timeframe (error code **A0-17** only)
∗5. The fan tap can be changed through field setting 39 (49)-3.
Refer to **Fan Tap in Refrigerant Leak Detection Mitigation Mode (for FXTA-AA Models)** on page 102.
∗6. In order to comply with the requirements of safety standards, wiring work should be done using these contacts so that optional kits and other equipment will operate safely (dampers will open fully and equipment that could be a potential ignition source will shut down) in the event of leak detected or leak detection sensor failure.

9.17 Leak Detection Output (Relay K6R) (FXTA-AA Models)

A2P PCB is equipped with three Refrigerant Leak Detection terminals, labeled TB11, TB12 and TB13.
These terminals are used for the control of optional kits (zoning damper, UV light, ventilator and/or any accessories that could be a potential ignition source) when refrigerant leak is detected (error code **A0-17** or **A0-19**) and/or leak detection sensor fails (error code **CH-11**).
TB12-13 are normally closed, and TB11-13 are normally opened.
When the **A0-19, A0-17** or **CH-11** error code is issued, TB12-13 is open, and TB11-13 is closed. See the following table for the conditions of relay K6R when the error code is issued.

Relay K6R action when **A0-19/A0-17/CH-11** is issued

Items	When **A0-19/A0-17/CH-11** not issued	When **A0-19/A0-17/CH-11** issued
Terminal TB12-TB13 (NC)	CLOSE	OPEN
Terminal TB11-TB13 (NO)	OPEN	CLOSE

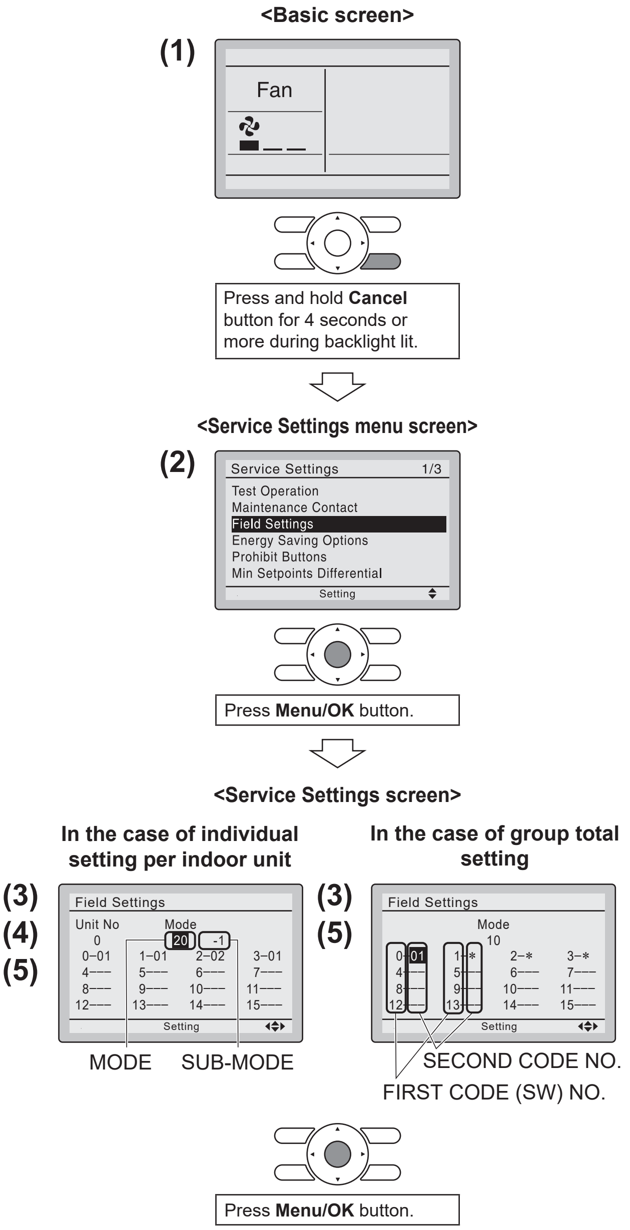


Part 5 Field Settings and Test Operation

1. Field Settings for Indoor Unit

1.1 Field Setting from Remote Controller

Individual function of indoor unit can be changed from the remote controller. At the time of installation or after service inspection / repair, make the field setting in accordance with the following description. Wrong setting may cause error. (When optional accessory is mounted on the indoor unit, setting for the indoor unit may be required to change.)



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

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

3. Highlight the mode, and select desired **Mode No.** by using ▲▼ (Up/Down) button.
∗ Depending on the mode number, sub mode number is displayed. See the unit's manual for details.

4. In the case of setting per indoor unit during group control (When Mode No. such as **20**, **21**, **22**, **23, 24**, **25, 49** are selected), highlight the unit No. and select **Indoor unit No.** to be set by using ▲▼ (Up/Down) button.
(In the case of group total setting, this operation is not needed.)

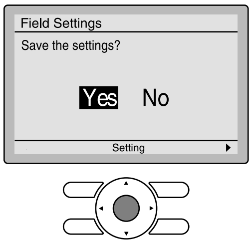
In the case of individual setting per indoor unit, current settings are displayed. And, SECOND CODE NO. " - " means no function.

5. 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 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.

<Setting confirmation screen>

(6)
(7)



Press **Menu/OK** button.

Setting confirmation

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

NOTE

- Installation of optional accessories on the indoor unit may require changes to field settings. See the manual of the optional accessory.
- For field setting details related to the indoor unit, see installation manual shipped with the indoor unit.

1.2 List of Field Settings for Indoor Unit

★: Factory setting

Mode No. (Note 2)	First Code No.	Setting Contents	Second Code No. 01	02	03	04	Reference Page
10 (20)	0	Filter cleaning sign interval – Ultra long life filter	Light★ **Approx. 10,000 hrs.**★	Heavy Approx. 5,000 hrs.	—	—	87
		Filter cleaning sign interval – Long life filter	Light★ **Approx. 2,500 hrs.**★	Heavy Approx. 1,250 hrs.			
	0	Filter lifetime	**Standard**★	Short	—	—	87
	1	Filter type	**Long life filter**★	Ultra long life filter	—	—	87
	1	Filter cleaning sign interval	**Standard interval**★	Long interval	—	—	87
	2	Remote controller thermistor	Refer to page on the right for details.				87
	3	Filter cleaning sign	**Displayed**★	Not displayed	—	—	88
	5	Information for intelligent Touch Manager / intelligent Touch Controller	Refer to page on the right for details.				89
	6	Remote controller thermistor control during group control	**Not permitted**★	Permitted	—	—	87
	7	Time for absence area detection	**30 minutes**★	60 minutes	—	—	89
	10	Dry operation time during VRTsmart control	**30 minutes**★	60 minutes	90 minutes	Continuous (not returning to cooling)	90
	11	Low airflow setting when thermostat OFF during VRTsmart control	Disabled	**Enabled**★	—	—	90
11 (21)	1	Auxiliary electric heater ON temperature: Ton	Refer to page on the right for details.				90
	2	Auxiliary electric heater OFF temperature: Toff					
	3	Setting of airflow rate when heating	**Standard**★	Slightly increased	Increased	—	91
	6	Detection rate setting	High sensitivity	Low sensitivity	**Standard sensitivity**★	Infrared presence sensor disabled	91
	7	Automatic airflow adjustment	**OFF**★	Completion of airflow adjustment	Start of airflow adjustment	—	91
	8	Compensating the temperature around people	Suction air temperature only	Priorities given on the suction air temperature	**Standard**★	Priorities given on the floor temperature	92
	9	Compensating the floor temperature when heating	–4°C (–7.2°F)	–2°C (–3.6°F)	**0°C (0°F)**★	+2°C (+3.6°F)	92
	12	Dry mode set temperature	**Room temperature**★	Same as cooling mode set temperature	—	—	93
12 (22)	0	Optional accessories output selection	Refer to page on the right for details.				93
	1	External ON/OFF input	Refer to page on the right for details.				93
	2	Thermostat differential changeover (Note 5)	1°C (1.8°F)	0.5°C (0.9°F)	—	—	94
	3	Airflow setting when heating thermostat is OFF	**LL tap**★	Set fan speed	OFF	—	94
	4	Automatic mode differential	Refer to page on the right for details.				94
	5	Auto restart after power failure	OFF	**ON**★	—	—	95
	6	Airflow setting when cooling thermostat is OFF	LL tap	**Set fan speed**★	OFF	—	95
	11	Compensating the floor temperature when cooling	+4°C (+7.2°F)	+2°C (+3.6°F)	**0°C (0°F)**★	–2°C (–3.6°F)	95

Mode No. (Note 2)	First Code No.	Setting Contents	Second Code No. 01	02	03	04	Reference Page
13 (23)	0	Ceiling height setting, setting of normal airflow	**Standard★**	High ceiling 1	High ceiling 2	—	96
	1	Airflow direction setting	**4-direction airflow★**	3-direction airflow	2-direction airflow	—	96
	2	Swing pattern settings	All direction synchronized swing	—	**Facing swing★**	—	97
	4	Airflow direction adjustment range	Draft prevention	**Standard★**	Ceiling soiling prevention	—	97
	6	External static pressure settings	Refer to page on the right for details.				97
	7	Setting of swing patterns when cooling thermostat is OFF	Refer to page on the right for details.				98
14 (24)	2	Dust collection sign interval display	Approx. 1,250 hrs.	**Approx. 2,500 hrs.★**	Approx. 5,000 hrs.	—	98
	3	Interval of filter replacement sign display	**Not displayed★**	Approx. 32,000 hrs.	Approx. 48,000 hrs.	Approx. 72,000 hrs.	99
	4	Panel indicator (green) ON/OFF	The indicator lights up during both air conditioning operation and filter auto cleaning.	The indicator can light up only during filter auto cleaning.	**The indicator does not light up during both air conditioning operation and filter auto cleaning.★**	—	99
	8	Selection of the auto control operation lock mode	ON	**OFF★**	—	—	99
	9	Dust amount setting	**Standard dust amount★**	Heavy dust amount	—	—	100
15 (25)	1	Humidification when heating thermostat is OFF	**Not equipped★**	Equipped	—	—	100
	2	Direct duct connection	**Not equipped★**	Equipped	—	—	100
	5	Individual ventilation setting	**Normal★**	Individual	—	—	100
	10	Discharge air temperature lower limit setting	Refer to page on the right for details.				101
	13	Refrigerant leak sensor setting	Disabled	**Enabled★**	—	—	101
	14	Refrigerant leak sensor replacement	**Normal★**	Completion of replacement	—	—	101
39 (49)	0	Electric heater function setting	Refer to page on the right for details.				101
	1	Electric heater capacity setting	Refer to page on the right for details.				102
	3	Fan tap in refrigerant leak detection mitigation mode	LL	**L★**	M	H	102
	4	Refrigerant leak test	**OFF★**	ON (60 minutes)	ON (120 minutes)	ON (180 minutes)	102
	5	Optional kit setting (UV lamp + humidifier + economizer)	Refer to page on the right for details.				103
	6	Accessory contact output (TB6 and TB8)	Refer to page on the right for details.				103
1b	4	Display of error codes on the remote controller	—	Two-digit display	—	**Four-digit display★**	103
1c	0	Room temperature display	Not displayed	**Displayed★**	—	—	103
	1	Thermistor sensor for auto changeover and setback control by the remote controller	Utilize the return air thermistor	**Utilize the remote controller thermistor★**	—	—	104
	3	Access permission level setting	**Level 2★**	Level 3	—	—	104
1e	2	Setback availability	**N/A★**	Heat only	Cool only	Cool/heat	104

Note(s)

1. Settings are made simultaneously for the entire group, however, if you select the mode No. inside parentheses, you can also set by each individual unit. Setting changes however cannot be checked except in the individual mode for those in parentheses.

2. The mode numbers inside parentheses cannot be used by wireless remote controllers, so they cannot be set individually. Setting changes also cannot be checked.
3. Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
4. **88** or **Checking the connection. Please stand by.** may be displayed to indicate the remote controller is resetting when returning to the normal mode.
5. The factory set second code No. depends on the type of indoor unit.

Field setting	First Code No.	Setting Modes	FXFA-AA	FXSA-AA	FXMA-AA	FXTA-AA
10 (20)	0	Filter cleaning sign interval	●	●	●	—
	0	Filter lifetime	—	—	—	●
	1	Filter type	●	●	●	—
	1	Filter cleaning sign interval	—	—	—	●
	2	Remote controller thermistor	●	●	●	●
	3	Filter cleaning sign	●	●	●	●
	5	Information for intelligent Touch Manager/intelligent Touch Controller	●	●	●	●
	6	Remote controller thermistor control during group control	●	●	●	●
	7	Time for absence area detection	●	—	—	—
	10	Dry operation time during VRTsmart control	●	●	●	—
	11	Low airflow setting when thermostat OFF during VRTsmart control	●	●	●	—
11 (21)	1	Auxiliary electric heater ON temperature	●	●	●	●
	2	Auxiliary electric heater OFF temperature	●	●	●	●
	3	Setting of airflow rate when heating	●	—	—	—
	6	Detection rate setting	●	—	—	—
	7	Automatic airflow adjustment	—	●	●	—
	8	Compensating the temperature around people	●	—	—	—
	9	Compensating the floor temperature when heating	●	—	—	—
	12	Dry mode set temperature	●	●	●	●
12 (22)	0	Optional accessories output selection	●	●	●	●
	1	External ON/OFF input	●	●	●	●
	2	Thermostat differential changeover	●	●	●	●
	3	Airflow setting when heating thermostat is OFF	●	●	●	●
	4	Automatic mode differential	●	●	●	●
	5	Auto restart after power failure	●	●	●	●
	6	Airflow setting when cooling thermostat is OFF	●	●	●	●
	11	Compensating the floor temperature when cooling	●	—	—	—
13 (23)	0	Ceiling height setting, setting of normal airflow	●	—	—	—
	1	Airflow direction setting	●	—	—	—
	2	Swing pattern settings	●	—	—	—
	4	Airflow direction adjustment range	●	—	—	—
	6	External static pressure settings	—	●	●	—
	7	Setting of swing patterns when cooling thermostat is OFF	●	—	—	—
14 (24)	2	Dust collection sign interval display	●	—	—	—
	3	Interval of filter replacement sign display	●	—	—	—
	4	Panel indicator (green) ON/OFF	●	—	—	—
	8	Selection of the auto control operation lock mode	●	—	—	—
	9	Dust amount setting	●	—	—	—
15 (25)	1	Humidification when heating thermostat is OFF	●	●	●	●
	2	Direct duct connection	●	—	—	—
	5	Individual ventilation setting	●	●	●	●
	10	Discharge air temperature lower limit setting	—	●	●	—
	13	Refrigerant leak sensor setting	●	●	●	●
	14	Refrigerant leak sensor replacement	●	●	●	—
39 (49)	0	Electric heater function setting	—	—	—	●
	1	Electric heater capacity setting	—	—	—	●
	3	Fan tap in refrigerant leak detection mitigation mode	—	—	—	●
	4	Refrigerant leak test	—	—	—	●
	5	Optional kit setting (UV lamp + humidifier + economizer)	—	—	—	●
	6	Accessory contact output (TB6 and TB8)	—	—	—	●
1b	4	Display of error codes on the remote controller	●	●	●	●
1c	0	Room temperature display	●	●	●	●
	1	Thermistor sensor for auto changeover and setback control by the remote controller	●	●	●	●
	3	Access permission level setting	●	●	●	●
1e	2	Setback availability	●	●	●	●

● : Available
—: Not available

1.3 Details of Field Settings for Indoor Unit

1.3.1 Filter Cleaning Sign Interval, Filter Lifetime, Filter Type

★: Factory setting

Setting	10 (20)-1	**01: Long life filter★**		02: Ultra long life filter	
	Filter contamination heavy/light 10 (20)-0	**Light 01★**	Heavy 02	Light 01	Heavy 02
Model	FXFA-AA	**2,500 hrs.★**	1,250 hrs.	10,000 hrs.	5,000 hrs.
	FXSA-AA				
	FXMA-AA				

Setting	10 (20)-1	**01: Standard interval★**		02: Long interval	
	Filter lifetime 10 (20)-0	**Standard 01★**	Short 02	Standard 01	Short 02
Model	FXTA-AA	**2,500 hrs.★**	1,250 hrs.	10,000 hrs.	5,000 hrs.

1.3.2 Remote Controller Thermistor

Select a thermistor to control the room temperature.

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

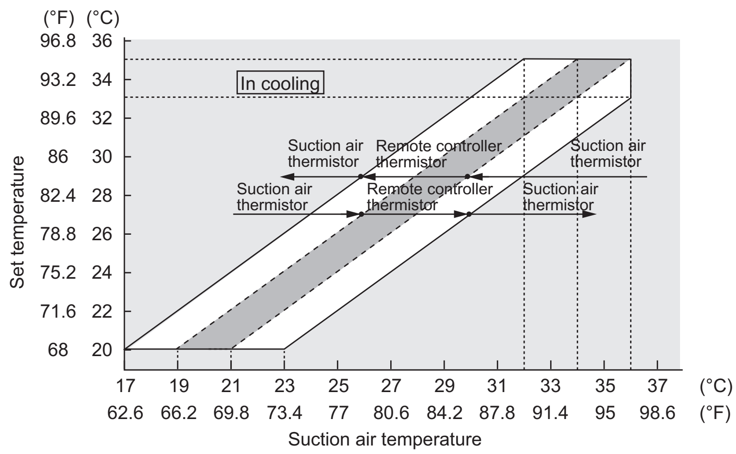
Mode No.	First Code No.	Second Code No.	Contents
10 (20)	2	01	Remote controller thermistor and suction air thermistor
		02★	**Suction air thermistor only★**
		03	Remote controller thermistor only

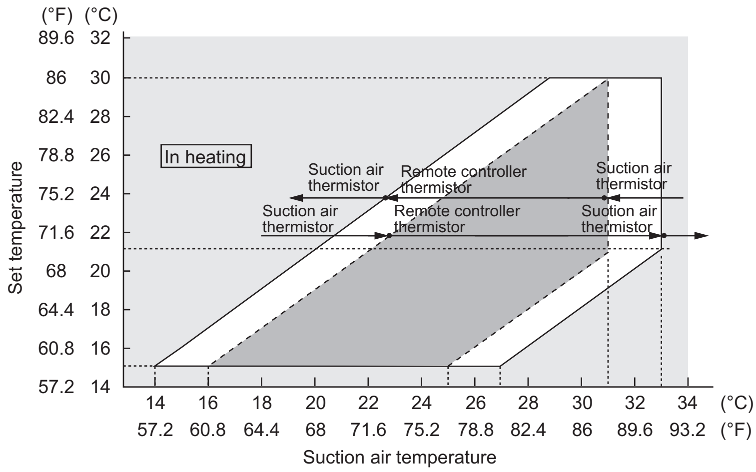
The factory setting for the Second Code No. is **02** and room temperature is controlled by the suction air thermistor. When the Second Code No. is set to **01**, room temperature is controlled by the suction air thermistor and remote controller thermistor. When the Second Code No. is set to **03**,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

■ **FXTA-AA** ★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
10 (20)	2	01	—
		02	Remote sensor thermistor only
		03★	**Remote controller thermistor only★**

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





When the unit is equipped with an infrared floor sensor: ★: Factory setting

Mode No.	First Code No.	Second Code No.					
10 (20)	2	01	02	02	**02**★	02	03
11 (21)	8	01	01	02	**03**★	04	01
The thermistor to be used		↓	↓	↓	↓	↓	↓
Remote controller thermistor		●	—	—	—	—	●
Suction air thermistor		●	●	●	●	●	—
Infrared floor sensor		—	—	●	●	●	—

The infrared floor sensor is not used

Only the suction air thermistor is used

Priority given to the suction air temperature (∗)

Standard setting (Factory setting)

Priority given to the floor temperature (∗)

Only the remote controller thermistor is used

∗Refer to **Compensating the Temperature around People** on page 92.

Note(s)

The control is automatically switched to the one performed only by the suction air thermistor for indoor unit when the Second code No. is **01** during group control.
To use the **remote controller thermistor control during group control**, select the Second code No. **02** in First code No. **6**.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
10 (20)	6	**01**★	**Remote controller thermistor control is not permitted during group control**★
		02	Remote controller thermistor control is permitted during group control.

Note(s)

When the 10 (20)-6 setting is changed to **02**, several indoor units are controlled by one remote controller thermistor, so note that the room temperature might be uneven.

1.3.3 Filter Cleaning Sign

Whether or not to display the sign after operation of a certain duration can be selected.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
10 (20)	3	**01**★	**Displayed**★
		02	Not displayed

∗ Filter cleaning sign is not displayed when a self-cleaning decoration panel is mounted.

1.3.4 Information for intelligent Touch Manager/intelligent Touch Controller

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
10 (20)	5	**<u>01</u>★**	**<u>Only indoor unit sensor value (or remote controller sensor value, if installed.)</u>★**
		02	Sensor values according to 10 (20)-2 and 10 (20)-6.

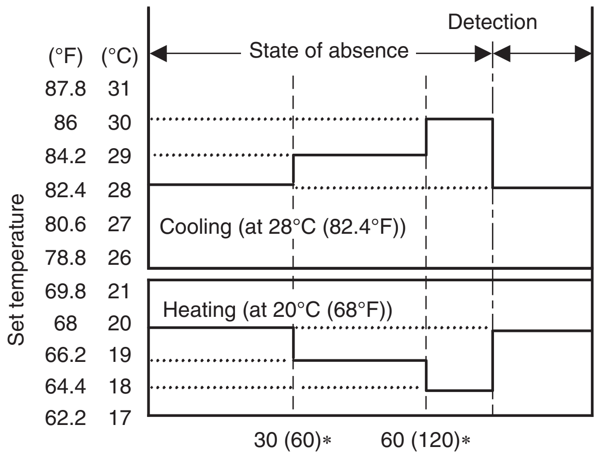
∗ When field setting 10 (20)-6-**02** is set at the same time as 10 (20)-2-**01, 02, 03,** field setting 10 (20)-2 has priority. When field setting 10 (20)-6-**01** is set at the same time as 10 (20)-2-**01, 02, 03,** field setting 10 (20)-6 has priority for group connection, and 10 (20)-2 has priority for individual connection.

1.3.5 Time for Absence Area Detection (For units with an infrared presence sensor only)

By selecting the energy-saving operation mode in the absence, the target temperature is shifted to the energy-saving end by 1°C (1.8°F) (maximum 2°C (3.6°F)) after the state of absence continues for a certain period of time. Absent time defined for detection can be selected as follows:

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
10 (20)	7	**<u>01</u>★**	**<u>30 minutes</u>★**
		02	60 minutes



∗ The values in parentheses represent the time when Second code No. is **02**.

- The set temperature displayed on the remote controller remains the same even if the target temperature is shifted.
- As soon as people are detected while the temperature is shifted, this control will be cancelled (reset).

1.3.6 Dry Operation Time during VRTsmart Control (Except FXTA-AA)

- If you switch the operation mode to dry while the VRTsmart control is enabled, the mode will automatically switch to cooling after a certain period of time is elapsed.
  If you want to increase the duration of dry operation, change the Second code No. as indicated in the following table.

Note 1) Increasing duration of dry operation degrades the energy efficiency

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
10 (20)	10	**01★**	**30 minutes★**
		02	60 minutes
		03	90 minutes
		04	Continuous (not returning to cooling)

Note 2) When group control is enabled, all indoor units in the same group have a same set value for duration of dry operation.

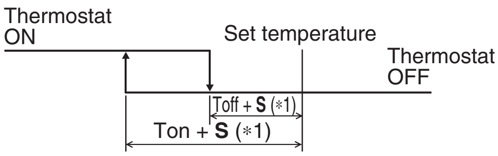
1.3.7 Low Airflow Setting when Thermostat OFF during VRTsmart Control (Except FXTA-AA)

This setting changes the airflow volume to LL in coordination with the VRTsmart control when cooling thermostat OFF is set. Also, the airflow direction is changed to horizontal.
When disabled:
12 (22)-6 (the airflow volume setting when cooling thermostat OFF is enabled)
13 (23)-7 (the swing setting when cooling thermostat OFF is enabled) is as set
When enabled: LL when Te ≥ 7°C (44.6°F)

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
10 (20)	11	01	Disabled
		02★	**Enabled★**

1.3.8 Auxiliary Electric Heater ON/OFF Temperature



Note(s) ∗1. **S** value varies automatically based on the room temperature trend.

★: Factory setting

Mode No.	First Code No.	Symbol	Second Code No.					
			01★	02	03	04	05	06
11 (21)	1	Ton	**–4°C (–7.2°F)** ★	–3.5°C (–6.3°F)	–3°C (–5.4°F)	–2.5°C (–4.5°F)	–2°C (–3.6°F)	–1.5°C (–2.7°F)
	2	Toff	**–2°C (–3.6°F)** ★	–1.5°C (–2.7°F)	–1°C (–1.8°F)	–0.5°C (–0.9°F)	0°C (0°F)	0.5°C (0.9°F)

There is a limitation of combination between Ton and Toff as below due to 2°C (3.6°F) hysteresis required for reliability.

Second Code No.			Ton [11 (21)-1]					
			01	02	03	04	05	06
			–4°C (–7.2°F)	–3.5°C (–6.3°F)	–3°C (–5.4°F)	–2.5°C (–4.5°F)	–2°C (–3.6°F)	–1.5°C (–2.7°F)
Toff [11 (21)-2]	06	0.5°C (0.9°F)	●	●	●	●	●	●
	05	0°C (0°F)	●	●	●	●	●	—
	04	–0.5°C (–0.9°F)	●	●	●	●	—	—
	03	–1°C (–1.8°F)	●	●	●	—	—	—
	02	–1.5°C (–2.7°F)	●	●	—	—	—	—
	01	–2°C (–3.6°F)	●	—	—	—	—	—

● : Available
— : Not available

1.3.9 Setting of Airflow Rate when Heating

The fan revolution is changed to maintain the sufficient distance for warm air to reach during the heating operation. The setting should be changed depending on the installation condition of the unit.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
11 (21)	3	**01**★	**Standard**★
		02	Slightly increased
		03	Increased

Note that this setting is effective only during the heating operation.

1.3.10 Detection Rate Setting (For units with an infrared presence sensor only)

Set the sensitivity of the infrared presence sensor.
■ The infrared presence sensor can be disabled by selecting the Second code No. **04**.
When the infrared presence sensor is disabled, the remote controller menu does not display some functions such as the automatic draft reduction, energy-saving operation in absence and halt in absence.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
11 (21)	6	01	High sensitivity
		02	Low sensitivity
		03★	**Standard sensitivity**★
		04	Infrared presence sensor disabled

1.3.11 Automatic Airflow Adjustment

Make external static pressure setting automatically using automatic airflow adjustment (11 (21)-7), or manually using external static pressure settings (13 (23)-6).
The volume of blow-off air is automatically adjusted to the rated quantity.
Make settings before performing the test operation of the outdoor unit.

Setting procedure

1. Make sure that electric wiring and duct construction have been completed. In particular, if the closing damper is installed on the way of the duct, make sure that it is open. In addition, make sure that a field-supplied air filter is installed within the air passageway on the suction port side.
2. If there are multiple blow-off and suction ports, adjust the throttle part so that the airflow volume ratio of each suction/blow-off port conforms to the designed airflow volume ratio. In that case, operate the unit with fan operation mode. When you want to change the airflow rate, adjust it by pressing the airflow rate control button to select High, Middle or Low.

3. Make settings to adjust the airflow rate automatically. After setting to fan operation mode, enter the field setting mode while operation is stopped and then select the Mode No. 11 (21), set the First Code No. to **7** and the Second Code No. to **03**. After setting, return to the basic screen (to the normal mode in the case of a wireless remote controller) and press the ON/OFF button. Fan operation for automatic airflow adjustment will start with the operation lamp turned ON. Do not adjust the throttle part of the suction and blow-off ports during automatic adjustment. After operation for approximately one to fifteen minutes, airflow adjustment automatically stops with the operation lamp turned OFF.
4. After operation stopped, make sure that the Second Code No. is set to **02** as in the following table by indoor unit with the Mode No. 11 (21). If operation does not stop automatically or the Second Code No. is not set to **02**, return to the step 3. above to make settings again.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
11 (21)	7	**01**★	**OFF**★
		02	Completion of airflow adjustment
		03	Start of airflow adjustment

Note(s)

1. Make sure that the external static pressure is within the range of specifications before making settings. If it is outside the range, automatic adjustment fails, which may cause an insufficient airflow volume or leakage of water.
2. If the air passageway including duct or blow-off ports is changed after automatic adjustment, make sure to perform automatic airflow adjustment again.

1.3.12 Compensating the Temperature around People (For units with the infrared floor sensor only)

Change the ratio between the suction air temperature and floor temperature used to calculate the temperature around people.

The temperature around people is calculated using the values of the suction air thermistor and the infrared floor sensor. The factory setting is standard (the average value of the suction air temperature and the floor temperature is applied). However, the rate at which the suction air thermistor and the infrared floor sensor affect the temperature around people can be changed with this setting.

- To reflect the effect of the temperature around the ceiling, select **02** for the second code.
- To reflect the effect of the temperature around the floor, select **04** for the second code.
- The infrared floor sensor can be disabled by selecting **01** for the second code.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
11 (21)	8	01	Suction air temperature only
		02	Priority given on the suction air temperature
		03★	**Standard**★
		04	Priority given on the floor temperature

1.3.13 Compensating the Floor Temperature when Heating (For units with an infrared floor sensor only)

Offset the detected value of the infrared floor sensor with a certain temperature. This setting should be used to have the actual floor temperature detected when, for example, the unit is installed close to a wall.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
11 (21)	9	01	–4°C (–7.2°F)
		02	–2°C (–3.6°F)
		03★	**0°C (0°F)**★
		04	+2°C (+3.6°F)

Actual procedure to use the setting

Although the standard setting is normally used with no problem, the setting should be changed in the following cases:

Environment	Problem	Setting Value
- The unit is installed close to a wall or a window. - High thermal capacity of the floor (such as concrete, etc.) - There are many heat sources including PC. - There is a non-negligible heat source such as floor heating.	Excessive heating	+2°C (+3.6°F)
	Insufficient heating	–2°C or –4°C (–3.6°F or –7.2°F)

1.3.14 Dry Mode Set Temperature

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
11 (21)	12	**01**★	**Room temperature**★
		02	Same as cooling mode set temperature

1.3.15 Optional Accessories Output Selection

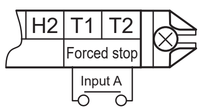
Using this setting, **operation output signal** and **abnormal output signal** can be provided. Output signal is output between terminals X1 and X2 of adaptor for wiring, an optional accessory.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	0	**01**★	**Indoor unit thermostat ON/OFF signal is provided.** ★
		02	—
		03	Output linked with ON/OFF of remote controller is provided.
		04	In case of Error Display appears on the remote controller, output is provided.
		05	—
		06	—
		07	Only for FXSA-AA, FXMA-AA Economizer (field supply) ON/OFF signal is provided.

1.3.16 External ON/OFF Input

This input is used for ON/OFF operation and protection device input from the outside. The input is performed from the T1-T2 terminal of the operation terminal block in the electrical component box. (For FXTA-AA models, the T1-T2 terminal is located at X1M area on the printed circuit board (A2P)).



★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	1	**01**★	**ON: Forced stop (prohibition of using the remote controller)** ★ **OFF: Permission of using the remote controller**★
		02	OFF → ON: Permission of operation ON → OFF: Stop
		03	ON: Operation OFF: The system stops, then the applicable unit indicates **A0**. The other indoor units indicate **U9**.
		04	—
		05	—
		06	—
		07	Only for FXSA-AA, FXMA-AA ON: Economizer (field supply) is connected. OFF: Not connected

1.3.17 Thermostat Differential Changeover

Differential value during thermostat ON/OFF control can be changed.

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	2	01	1°C (1.8°F)
		02	0.5°C (0.9°F)

Factory Setting

Model	Second Code No.	Contents
FXTA-AA	01	1°C (1.8°F)
FXFA-AA, FXSA-AA, FXMA-AA	02	0.5°C (0.9°F)

1.3.18 Airflow Setting when Heating Thermostat is OFF

This setting is used to set airflow when heating thermostat is OFF.
If the airflow setting when thermostat is OFF is set to 03: OFF, the air in the indoor unit will be stagnant and suction air thermistor may not detect room temperature correctly, resulting in problems that thermostat will not be ON easily. Use optional remote sensor in such conditions, or set the field setting 10 (20)-2 to **03** (only remote controller thermistor).

∗ When thermostat OFF airflow volume up mode is used, careful consideration is required before deciding installation location.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	3	**01**★	**LL tap**★
		02	Set fan speed
		03	OFF

1.3.19 Automatic Mode Differential

This setting makes it possible to change differential values for mode selection while in automatic operation mode, only when the wireless remote controller or any central remote controller is connected.

★: Factory setting

Mode No.	First Code No.	Second Code No.							
		01★	02	03	04	05	06	07	08
12 (22)	4	**0°C (0°F)**★	1°C (1.8°F)	2°C (3.6°F)	3°C (5.4°F)	4°C (7.2°F)	5°C (9.0°F)	6°C (10.8°F)	7°C (12.6°F)

The automatic operation mode setting is made by the use of the operation mode selector button.

1.3.20 Auto Restart after Power Failure

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	5	01	OFF
		02★	**ON**★

When the Auto Restart after Power Failure setting is turned OFF, all the units will remain OFF after power failure, or after the main power supply is restored. When this setting is turned ON (factory setting), the units that were operating before the power failure will automatically restart operation after power failure, or after the main power supply is restored.

Due to the aforementioned, when the Auto Restart after Power Failure setting is ON, be careful for the following situations that may occur.

Caution

1. **The air conditioner will start operation suddenly after power failure, or when the main power supply is restored. The user might be surprised and wonder why the air conditioner turned ON suddenly.**
2. **During maintenance, if the main power supply is turned OFF while the units are in operation, the units will automatically start operation (the fan will rotate) after the power supply is restored due to completion of the maintenance work.**

1.3.21 Airflow Setting when Cooling Thermostat is OFF

This is used to set airflow to LL airflow when cooling thermostat is OFF.
If the airflow setting when thermostat is OFF is set to 03: OFF, the air in the indoor unit will be stagnant and suction air thermistor may not detect room temperature correctly, resulting in problems that thermostat will not be ON easily. Use optional remote sensor in such conditions, or set the field setting 10 (20)-2 to **03** (only remote controller thermistor).

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	6	01	LL tap
		02★	**Set fan speed**★
		03	OFF

1.3.22 Compensating the Floor Temperature when Cooling (For units with an infrared floor sensor only)

Offset the detected value of the infrared floor sensor with a certain temperature. This setting should be used to have the actual floor temperature detected when, for example, the unit is installed close to a wall.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	11	01	+4°C (+7.2°F)
		02	+2°C (+3.6°F)
		03★	**0°C (0°F)**★
		04	–2°C (–3.6°F)

1.3.23 Ceiling Height Setting, Setting of Normal Airflow

Make the following setting according to the ceiling height. The second code No. is set to **01** at the factory.

■ **FXFA07-24AA**

★: Factory setting

Mode No.	First Code No.	Second Code No.	Setting	Ceiling Height			
				All round outlet	4-way outlets	3-way outlets	2-way outlets
13 (23)	0	**01★**	**Standard ★**	**Lower than 2.7 m (8-3/4 ft)★**	**Lower than 3.1 m (10-1/8 ft)★**	**Lower than 3.0 m (10 ft)★**	**Lower than 3.5 m (11-1/2 ft)★**
		02	High Ceiling (1)	Lower than 3.0 m (10 ft)	Lower than 3.4 m (11-1/8 ft)	Lower than 3.3 m (10-3/4 ft)	Lower than 3.8 m (12-1/2 ft)
		03	High Ceiling (2)	Lower than 3.5 m (11-1/2 ft)	Lower than 4.0 m (13-1/8 ft)	Lower than 3.5 m (11-1/2 ft)	—

Note(s)

1. The Second Code No. is factory set to Standard/All round outlet. For High ceiling (1) or (2), initial setting by remote controller is required.
2. A closing member kit (optional) is required for 4-, 3-, or 2-direction airflow.

■ **FXFA30-54AA**

★: Factory setting

Mode No.	First Code No.	Second Code No.	Setting	Ceiling Height			
				All round outlet	4-way outlets	3-way outlets	2-way outlets
13 (23)	0	**01★**	**Standard ★**	**Lower than 3.2 m (10-1/2 ft)★**	**Lower than 3.4 m (11-1/8 ft)★**	**Lower than 3.6 m (12 ft)★**	**Lower than 4.2 m (13-3/4 ft)★**
		02	High Ceiling (1)	Lower than 3.6 m (12 ft)	Lower than 3.9 m (12-3/4 ft)	Lower than 4.0 m (13-1/8 ft)	Lower than 4.2 m (13-3/4 ft)
		03	High Ceiling (2)	Lower than 4.2 m (13-3/4 ft)	Lower than 4.5 m (14-3/4 ft)	Lower than 4.2 m (13-3/4 ft)	—

Note(s)

1. The Second Code No. is factory set to Standard/All round outlet. For High ceiling (1) or (2), initial setting by remote controller is required.
2. A closing member kit (optional) is required for 4-, 3-, or 2-direction airflow.

1.3.24 Airflow Direction Setting

Set the airflow direction of indoor units as given in the table below. (Set when sealing material kit of air discharge outlet has been installed.) The second code No. is factory set to **01**.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	1	**01★**	**4-direction airflow★**
		02	3-direction airflow
		03	2-direction airflow

1.3.25 Swing Pattern Settings (For units with the infrared floor sensor only)

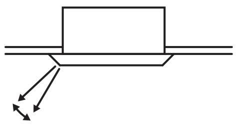
Set the flap operation in swing mode. With the factory swing, flaps facing each other are synchronized to operate, and flaps placed side by side are set to swing in an opposite direction to agitate airflow to reduce temperature irregularity. Conventional swing operation (all direction synchronized swing) can be set onsite.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	2	01	All direction synchronized swing
		02	—
		03★	**Facing swing★**

1.3.26 Airflow Direction Adjustment Range

Make the following airflow direction setting according to the respective purpose.



★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	4	01	Draft prevention (Upward)
		02★	**Standard★**
		03	Ceiling soiling prevention (Downward)

Note(s) When the model FXFA-AA is attached with a closing member kit, set the Second Code No. to **02** or **03**.

1.3.27 External Static Pressure Settings

Make external static pressure setting automatically using automatic airflow adjustment (11 (21)-7), or manually using external static pressure settings (13 (23)-6).

■ **FXSA-AA models** ★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	6	03	30 Pa (0.12 inWG) (∗1) (∗2)
		04	40 Pa (0.16 inWG) (∗1) (∗2)
		05★	**50 Pa (0.20 inWG) ★**
		06	60 Pa (0.24 inWG)
		07	70 Pa (0.28 inWG)
		08	80 Pa (0.32 inWG)
		09	90 Pa (0.36 inWG)
		10	100 Pa (0.40 inWG)
		11	110 Pa (0.44 inWG)
		12	120 Pa (0.48 inWG)
		13	130 Pa (0.52 inWG)
		14	140 Pa (0.56 inWG)
		15	150 Pa (0.60 inWG) (∗2)

∗1. FXSA18-48AA cannot be set to 30-40 Pa (0.12-0.16 inWG).
∗2. FXSA54AA cannot be set to 30-40 Pa (0.12-0.16 inWG) or 150 Pa (0.60 inWG).

■ **FXMA-AA models** ★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	6	02	50 Pa (0.20 inWG)
		03	60 Pa (0.24 inWG)
		04	70 Pa (0.28 inWG)
		05	80 Pa (0.32 inWG)
		06	90 Pa (0.36 inWG)
		07★	**100 Pa (0.40 inWG)** ★
		08	110 Pa (0.44 inWG)
		09	120 Pa (0.48 inWG)
		10	130 Pa (0.52 inWG)
		11	140 Pa (0.56 inWG)
		12	150 Pa (0.60 inWG) (∗1)
		13	160 Pa (0.64 inWG) (∗1)
		14	180 Pa (0.72 inWG) (∗1)
		15	200 Pa (0.80 inWG) (∗1)

∗1. FXMA54AA cannot be set to 150-200 Pa (0.60-0.80 inWG).

1.3.28 Setting of Swing Patterns when Cooling Thermostat is OFF

In cooling operation, when the airflow direction is set to swing, flaps usually swing even when the thermostat is OFF. This setting allows to change the airflow direction when the thermostat is OFF.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Fixed	Swing
13 (23)	7	01	Set Position	Swing
		02	Set Position	P0
		03★	**P0**★	**P0**★
		04	Set Position	Swing
		05	Set Position	P2
		06	P2	P2
		07	Set Position	Swing

1.3.29 Dust Collection Sign Interval Display

This setting is used to change the display interval (upper limit) of the dust collection sign when the self-cleaning decoration panel is connected. The interval is based on the cumulated operation hours and set according to the installation environment.

★: Factory setting

Mode No.	First Code No.	Second Code No.		
14 (24)	2	01	**02**★	03
		Approx. 1,250 hrs. (Heavy dust amount)	**Approx. 2,500 hrs. (Standard dust amount)**★	Approx. 5,000 hrs. (Light dust amount)

Change the field setting **Dust amount setting: Standard and Heavy [14(24)-9]** according to the installation environment. The dust collection sign intervals will be corrected each time by the learning function. The values set here will be controlled as an upper limit for the display interval.

1.3.30 Interval of Filter Replacement Sign Display

This function is used to change the sign display interval for replacing the filter when the self-cleaning decoration panel is connected. Set the interval according to the installation environment based on the cumulated fan operating time.

★: Factory setting

Mode No.	First Code No.	Second Code No.			
14 (24)	3	**01★**	02	03	04
		Not displayed★	Approx. 32,000 hrs.	Approx. 48,000 hrs.	Approx. 72,000 hrs.

If you select a setting other than **Not displayed** and the operation hours reach the set time, a message that requests you to check the filter condition is displayed on the remote controller.

1.3.31 Panel Indicator (Green) ON/OFF

This function is used to change the panel indicator display condition when the self-cleaning decoration panel is connected.

★: Factory setting

Mode No.	First Code No.	Second Code No.		
14 (24)	4	01	02	**03★**
		The indicator lights up during both air conditioning operation and filter auto cleaning.	The indicator can light up only during filter auto cleaning	**The indicator does not light up during both air conditioning operation and filter auto cleaning.★**

The panel indicator is turned on during the following operations.

Indicator (Green) Status	Operation Status
Lights up	Operation of air conditioner
Blinks	Filter auto cleaning operation

Change the setting according to the installation environment.
The indicator (red) that indicates the dust collection time cannot be set to OFF.

1.3.32 Selection of the Auto Control Operation Lock Mode

This function is used to change the filter auto cleaning operation mode from the specified time operation to auto control operation when the self-cleaning decoration panel is connected. The filter automatic cleaning operation modes are shown below.

Operation Mode	Description
Specified time operation	Performs filter auto cleaning during the designed period selected from 8 periods.
Auto control operation	Performs filter auto cleaning according to satisfy the condition of self-cleaning by judgement of product.

Select the setting according to usage.

★: Factory setting

Mode No.	First Code No.	Second Code No.	
14 (24)	8	01	**02★**
		ON	**OFF★**

If **ON** is selected, **Auto** is displayed on the remote controller **Main Menu** → **Setting Status List** → **Filter Auto Cleaning** screen.

∗ If the clock on the remote controller is not set or the clock is reset after the unit is installed, the auto operation mode is automatically selected, but if the clock is running, the operation is controlled by the specified time operation.

1.3.33 Dust Amount Setting

This function is used to change the setting according to the amount of the dust in the room when the self-cleaning decoration panel is connected. The filter is thoroughly cleaned by setting the dust amount to Heavy. Change the setting according to the installation environment.

★: Factory setting

Mode No.	First Code No.	Second Code No.	
14 (24)	9	**01★**	02
		Dust amount: Standard★	Dust amount: Heavy

Dust amount: Standard is for business offices. **Dust amount: Heavy** is for shops handling textiles, etc.

Change also the **Dust collection sign display interval [14(24)-2]** according to the installation environment. Changing the setting to **Dust amount: Heavy** may cause an increase in operating time (about double of the standard setting) and a shorter control parts life, so watch the situation if you change the setting.

1.3.34 Humidification when Heating Thermostat is OFF

Setting to **Equipped** turns ON the humidifier if suction air temperature is 20°C (68°F) or above and turns OFF the humidifier if suction air temperature is 18°C (64.4°F) or below when the heating thermostat is OFF.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	1	**01★**	**Not equipped★**
		02	Equipped

1.3.35 Direct Duct Connection

This is used when fresh air intake kit equipped with fan is connected by duct directly. The indoor fan carries out residual operation for 1 minute after the thermostat is stopped. (For the purpose of preventing dust on the air filter from falling off.) When the second code No. is set to **02**: Equipped, heat reclaim ventilation fan conducts the fan residual operation by linking to indoor unit.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	2	**01★**	**Not equipped★**
		02	Equipped

1.3.36 Individual Ventilation Setting

This is set to perform individual operation of Energy recovery ventilator using the remote controller/central unit when Energy recovery ventilator is built in.
(Switch only when Energy recovery ventilator is built in.)

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	5	**01★**	**Normal★**
		02	Individual

1.3.37 Discharge Air Temperature Lower Limit Setting (for FXSA-AA, and FXMA-AA models)

Enable this setting to turn OFF the thermostat when the discharge temperature drops in order to prevent condensation at the air outlet. Set the lower limit of the discharge temperature according to field conditions. A higher setting may result in insufficient capacity.
Setting the Second Code No. to **05** is recommended.

★: Factory setting

Mode No.	First Code No.	Second Code No.							
		01★	02	03	04	05	06	07	08
15 (25)	10	**OFF**★	10°C (50°F)	11°C (51.8°F)	12°C (53.6°F)	13°C (55.4°F)	14°C (57.2°F)	15°C (59°F)	16°C (60.8°F)

1.3.38 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**★

1.3.39 Refrigerant Leak Sensor Replacement (Except FXTA-AA)

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

1.3.40 Electric Heater Function Setting (for FXTA-AA models)

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents	
			Heater operation	Electric heater run for defrost/oil return operation
39 (49)	0	**01**★	**Electric heater with heat pump not allowed**★	**Not allowed**★
		02	Electric heater with heat pump allowed	Not allowed
		07	Electric heater with heat pump not allowed	Allowed
		08	Electric heater with heat pump allowed	Allowed

Note(s) When using an electric heater, settings on the outdoor unit side are also required. Refer to **Auxiliary Heat Control** on page 122 for more information.

1.3.41 Electric Heater Capacity Setting (for FXTA-AA models)

★: Factory setting

Model	Mode No.	First Code No.	Second Code No.									
			01★	02	03	04	05	06	07	08	09	10
			Heater (kW)									
			No heater kit★	Single phase								
				3	5	6	8	10	15	19	20	25
FXTA09	39 (49)	1	●★	●	●	—	—	—	—	—	—	—
FXTA12			●★	●	●	●	—	—	—	—	—	—
FXTA18			●★	●	●	●	●	●	—	—	—	—
FXTA24			●★	●	●	●	●	●	—	—	—	—
FXTA30			●★	●	●	●	●	●	—	—	—	—
FXTA36			●★	●	●	●	●	●	—	—	—	—
FXTA42			●★	—	●	●	●	●	●	●	—	—
FXTA48			●★	—	●	●	●	●	●	●	—	—
FXTA54			●★	—	●	●	●	●	●	—	●	●
FXTA60			●★	—	●	●	●	●	●	—	●	●

● : Available
— : Not available

1.3.42 Fan Tap in Refrigerant Leak Detection Mitigation Mode (for FXTA-AA Models)

When a leak is detected or leak detection sensor fails, the fan motor starts running to mitigate the leaked refrigerant. The fan tap for this mitigation can be changed as the following table.
∗ This system complies with ETRS (Enhanced Tightness Refrigerating System) of UL60335-2-40. So this unit is compatible with all of the following fan taps.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
39 (49)	3	01	LL
		02★	**L**★
		03	M
		04	H

1.3.43 Refrigerant Leak Test (for FXTA-AA Models)

Setting this to ON will force the leak detection output to ON.
Use this setting to ensure that dampers, UV lights, ventilators, and/or accessories that may be potential ignition sources connected to this output will operate as intended in the event of a leak being detected.
When this field setting is set to ON (**02, 03,** or **04**), the leak detection output circuits of connector X40A on A1P side PCB (∗1) and terminal (TB11-TB13 and TB12-TB13) or TB6-TB8 (∗2) on A2P side PCB are energized.
It remains energized until the field setting is set to **01** (OFF) or until the time specified in the following table has elapsed. After the specified time passes, the leak detection output circuit is automatically unenergized.
∗1. Relay PCB option is required.
∗2. Dry contact terminal and the setting 39 (49)-6 described in **Accessory Contact Output** are required.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
39 (49)	4	**01**★	**OFF**★
		02	ON (60 minutes)
		03	ON (120 minutes)
		04	ON (180 minutes)

1.3.44 Optional Kit Setting (UV lamp + Humidifier + Economizer) (for FXTA-AA models)

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents	
			UV lamp + humidifier fan speed	Economizer setting for Mech standby duration (minutes)
39 (49)	5	01	Refer to controller	10
		02	High	10
		03	Refer to controller	20
		04	High	20
		05	Refer to controller	30
		06	High	30
		07	Refer to controller	40
		08	High	40
		09	Refer to controller	50
		10	High	50
		11	Refer to controller	60
		12	High	60
		13	Refer to controller	Free cooling only
		14★	**High**★	**Free cooling only**★

1.3.45 Accessory Contact Output (TB6 and TB8) (for FXTA-AA Models)

Depending on the setting below, the accessory contact output (dry contact between terminal TB6 and TB8 on PCB (A2P side)) switches from open to close when a refrigerant leak is detected (including leak detection sensor failure) (∗1) or the fan operates.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
39 (49)	6	**01**★	**Synchronized with refrigerant leak detection**★
		02	Synchronized with fan ON/OFF

∗1. Refer to **Refrigerant Detection System (RDS) Function (FXTA-AA Models)** on page 78.

1.3.46 Display of Error Codes on the Remote Controller

Error code (four digits) is displayed for limited products. Select two-digit display if four-digit display is not preferred.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
1b	4	01	—
		02	Two-digit display
		03	—
		04★	**Four-digit display**★

1.3.47 Room Temperature Display

It is possible to change whether or not the room temperature is displayed for the detailed display screen.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
1c	0	01	Not displayed
		02★	**Displayed**★

1.3.48 Thermistor Sensor for Auto Changeover and Setback Control by the Remote Controller

Select a thermistor to utilize for the cool/heat mode automatic changeover and setback functions. The sensed temperature will be displayed on the remote controller as the room temperature.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
1c	1	01	Utilize the return air thermistor
		02★	**Utilize the remote controller thermistor**★

1.3.49 Access Permission Level Setting

There are 2 levels as follows:

- Level 2: The following buttons are selectable to be disable or enable.
- Level 3: No buttons are selectable and only **On/Off** button is available.

Button	Level 2	Level 3
▲▼◀▶	Selectable (Enable)	Unselectable (Disable)
On/Off	Selectable (Enable)	Unselectable (Enable)
Mode	Selectable (Enable)	Unselectable (Disable)
Fan Speed	Selectable (Disable)	Unselectable (Disable)
Menu/OK	Unselectable (Disable)	Unselectable (Disable)
Cancel	Unselectable (Disable)	Unselectable (Disable)

( ) shows the factory setting.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
1c	3	**01**★	**Level 2**★
		02	Level 3

1.3.50 Setback Availability

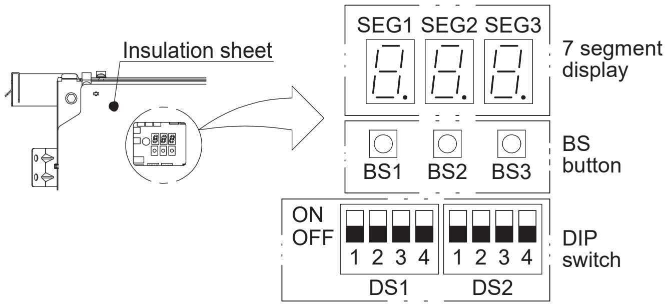
Select the operation mode in which the setback function is available.

★: Factory setting

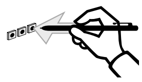
Mode No.	First Code No.	Second Code No.	Contents
1e	2	**01**★	**N/A**★
		02	Heat only
		03	Cool only
		04	Cool/heat

2. Field Settings from Outdoor Unit

2.1 Location of DIP Switches and BS Buttons



Operate the BS button using a plastic ballpoint pen or non-conductive object as shown in the figure, covered with an insulating sheet and with the power switched on.



2.2 Setting of DIP Switches

2.2.1 DIP Switch Settings on the Initially Mounted PCB

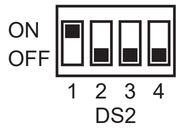
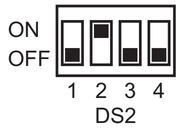
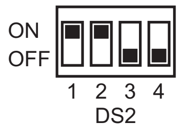
The following field settings can be made using the DIP switches on the initially mounted PCB. Do not change the factory settings except for DS1-1 and DS1-2.

DIP switch	Setting item	Setting	Description
DS1-1	Designation of remote controller for cooling/heating switching	**OFF (Factory setting)**★	Set this switch to ON when switching cooling/heating using the remote controller mounted on the outdoor unit.
		ON	
DS1-2	Switching the system between heat pump or cooling only	**OFF (Factory setting)**★	Set this switch to ON if using the system for cooling only.
		ON	
DS1-3 DS1-4 DS2-1 DS2-2 DS2-3 DS2-4	Not used	**OFF (Factory setting)**★	Do not change the factory settings.
		ON	

2.2.2 DIP Switch Settings when Replaced with Spare PCB

When replacing the PCB with a spare PCB, make sure to change the settings referring to the table below. Note that the settings of the spare PCB are different from those of the initially mounted PCB.

DIP switch	Setting item	Setting	Description
DS1-1	Designation of remote controller for cooling/heating switching	**OFF (Factory setting)**★	Remote controller mounted on the indoor unit switches cooling/heating.
		ON	Remote controller mounted on the outdoor unit switches cooling/heating.
DS1-2	Switching the system between heat pump or cooling only	**OFF (Factory setting)**★	When using for both cooling and heating
		ON	When using for cooling only
DS1-3 DS1-4	Not used	**OFF (Factory setting)**★	Do not change the factory settings.
		ON	

DIP switch	Setting item		Setting	Description
DS2-1 DS2-2 DS2-3 DS2-4	Model setting	RXTA24AA	**OFF (Factory setting)**★ 	No changes
		RXTA36AA RXLA36AA		Set DS2-1 to ON.
		RXTA48AA RXLA48AA		Set DS2-2 to ON.
		RXTA60AA		Set DS2-1 and DS2-2 to ON.

2.3 Operating the BS Buttons

Operating the BS buttons

By operating the BS buttons it is possible to:
- Perform special actions (test operation, etc.).
- Perform field settings (demand operation, low noise, etc.).

Below procedure explains how to operate the BS buttons to reach the required mode in the menu, select the correct setting and modify the value of the setting. This procedure can be used any time special settings and regular field setting are discussed in this manual.

Setting definition: [A-B] → C
A: mode
B: setting
C: setting value
A, B and C are numerical values for field settings. Parameter C has to be defined. It can be a chosen from a set (0, 1, 2, 3, 4, 5,…) or regarded as an ON/OFF (1 or 0) depending on the contents. This is informed when the field setting is explained.

INFORMATION **During special operation (e.g., test operation, etc.) or when an error happened, information will contain letters and numerical values.**

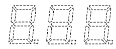
Initialization: Default Situation

Turn ON the power supply of the outdoor unit and all indoor units.
When the communication between indoor units and outdoor unit(s) is established and normal, the segment indication state will be as below (default situation when shipped from factory).

When turning ON the power supply, the display blinks ON and OFF. First checks of the power supply are executed (1 - 2 minutes).

When no trouble occurs: lighted as indicated (8~10 minutes).

Ready for operation: blank display indication as indicated.



When above situation cannot be confirmed after 12 minutes, the error code can be checked on the indoor unit user interface and the outdoor unit segment display. Solve the error code accordingly. The communication wiring should be checked at first.

INFORMATION **Be sure to turn the power on at least 6 hours before operation in order to have power running to the crankcase heater.**

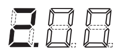
Accessing modes
The **MODE (BS1)** button is used to change the mode you want to access.

- **Access mode 1**

Press the **MODE (BS1)** button once. Segment indication changes to:

- **Access mode 2**

Press the **MODE (BS1)** button for at least 5 seconds. Segment indication changes to:



INFORMATION **If you get confused in the middle of the process, press the MODE (BS1) button. Then it returns to idle situation (no indication on segment displays: blank).**

Mode 1
Mode 1 is used to set basic settings and to monitor the status of the unit.

- Changing and access the setting in mode 1:

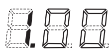
Once mode 1 is selected (press the **MODE (BS1)** button once), you can select the wanted setting. It is done by pressing the **SET (BS2)** button. Accessing the selected setting's value is done by pressing the **RETURN (BS3)** button once.

- To quit and return to the initial status, press the **MODE (BS1)** button.

Example:
Checking the content of parameter [1-10] (to know how many indoor units are connected to the system).

Mode: 1
Setting: 10

- Make sure the segment indication is displayed in operational default mode as shipped from factory.
- Press the **MODE (BS1)** button once; result segment display:



Result: mode 1 is accessed.

- Press the **SET (BS2)** button 10 times; result segment display:

Result: mode 1 setting 10 is addressed.

- Press the **RETURN (BS3)** button once; the value which is returned (depending on the actual field situation), is the amount of indoor units which are connected to the system.

Result: mode 1 setting 10 is addressed and selected, return value is monitored information.

- To leave the monitoring function, press the **MODE (BS1)** button once, you will return to the default situation when shipped from factory.

Mode 2

Mode 2 is used to set field settings of the outdoor unit and system.

- Changing and access the setting in mode 2:

Once mode 2 is selected (press the **MODE (BS1)** button for more than 5 seconds), you can select the wanted setting. It is done by pressing the **SET (BS2)** button.

Accessing the selected setting's value is done by pressing the **RETURN (BS3)** button once.

- To quit and return to the initial status, press the **MODE (BS1)** button.
- Changing the value of the selected setting in mode 2:
  - Once mode 2 is selected (press the **MODE (BS1)** button for more than 5 seconds) you can select the wanted setting. It is done by pressing the **SET (BS2)** button.
  - Accessing the selected setting's value is done by pressing the **RETURN (BS3)** button once.
  - Now the **SET (BS2)** button is used to select the required value of the selected setting.
  - When the required value is selected, you can define the change of value by pressing the **RETURN (BS3)** button once.
  - Press the **RETURN (BS3)** button again to start operation according to the chosen value.

Example:

Checking the content of parameter [2-18] (to define the high static pressure setting of the outdoor unit's fan).

Mode: 2
Setting: 18

Make sure the segment indication is as during normal operation (default situation when shipped from factory).

- Press the **MODE (BS1)** button for over 5 seconds; result segment display:

Result: mode 2 accessed.

- Press the **SET (BS2)** button 18 times; result segment display:

Result: mode 2 setting 18 is addressed.

- Press the **RETURN (BS3)** button once; the value which is returned (depending on the actual field situation), is the status of the setting. In the case of [2-18], default value is "0", which means the function is not active.

Result: mode 2 setting 18 is addressed and selected, return value is the current setting situation.

- To change the value of the setting, press the **SET (BS2)** button until the required value appears on the segment indication. When achieved, define the setting value by pressing the **RETURN (BS3)** button once. To start operation according to the chosen setting, confirm again by pressing the **RETURN (BS3)** button.
- To leave the field setting, press the **MODE (BS1)** button once, you will return to the default situation when shipped from factory.

2.4 Monitoring Function and Field Settings

The operation of the outdoor unit can further be defined by changing some field settings. Next to making field settings, it is also possible to confirm the current operation parameters of the unit. Below relevant monitoring mode (mode 1) and field setting mode (mode 2) settings are explained in detail.

2.4.1 Mode 1

Mode 1 can be used to monitor the current situation of the outdoor unit. Some field setting contents can be monitored as well.

Below the settings in mode 1 are explained.

[1-1]: shows the status of night-time low noise operation.

- 0: unit is currently not operating under low noise restrictions
- 1: unit is currently operating under low noise restrictions

Night-time low noise operation reduces the sound generated by the unit compared to nominal operating conditions.

Night-time low noise operation can be set in mode 2. There are two methods to activate night-time low noise operation of the outdoor unit system.

The first method is to enable an automatic night-time low noise operation by field setting. The unit will operate at the selected low noise level during the selected time frames.

The second method is to enable night-time low noise operation based on an external input. For this operation an optional accessory is required.

[1-2]: shows the status of demand (power consumption limitation) operation.

- 0: unit is currently not operating under power consumption limitations
- 1: unit is currently operating under power consumption limitation

Power consumption limitation reduces the power consumption of the unit compared to nominal operating conditions.
Power consumption limitation can be set in mode 2.
There are two methods to activate power consumption limitation of the outdoor unit system.

The first method is to enable a forced power consumption limitation by field setting. The unit will always operate at the selected power consumption limitation.
The second method is to enable power consumption limitation based on an external input. For this operation an optional accessory is required.

[1-5]: shows the current Te target parameter position.

[1-6]: shows the current Tc target parameter position.

[1-9]: shows the AIRNET address.

[1-10]: shows the total number of connected indoor units.
It can be convenient to check if the total number of indoor units which are installed match the total number of indoor units which are recognized by the system. In case there is a mismatch, it is advised to check the communication wiring path between outdoor and indoor units (**H1H2** communication line).

[1-15]: shows number of units in zone.

[1-16]: shows number of all indoor units of several systems if **H1H2 TO O/D UNIT** is wired between systems. (Number of terminal units: represents the number of indoor units connected to a single DIV-NET that is a communication line.)

[1-17]: shows the latest error code.

[1-18]: shows the 2nd last error code.

[1-19]: shows the 3rd last error code.
When the latest error codes were reset by accident on an indoor unit user interface, they can be checked again through this monitoring settings.

[1-40]: shows the current cooling comfort setting.

[1-41]: shows the current heating comfort setting.

[1-42]: shows the current high pressure sensor value (psi).

[1-43]: shows the current low pressure sensor value (psi).

[1-47]: shows the current compressor discharge thermistor value (°F).

[1-50]: shows the current outdoor air thermistor value (°F).

[1-51]: shows the current compressor suction thermistor value (°F).

[1-52]: shows the current subcooling gas thermistor value (°F).

[1-55]: shows the current deicer thermistor value (°F).

[1-56]: shows the compressor run time (hour divided by 100).

[1-61]: shows the current subcooling liquid thermistor value (°F).

[1-64]: shows the current heat exchanger liquid pipe thermistor value (°F).

[1-69]: shows the compressor average load.

2.4.2 Overview of Setting Mode (Mode 2)

This overview shows the available settings by using the press buttons on the outdoor unit PCB.

No. *1	Item	Description	7 segment display			Description	7 segment display Range		
			SEG 1	SEG 2	SEG 3		SEG 1	SEG 2	SEG 3
1	COOL/HEAT unified address	Used to make address setting for unified cooling/heating operation.	2.	0	1	Address: **0** ~ 31		 3	 **0** 1
2	Low noise/ demand address	Used to make address setting for low noise/demand operation.	2.	0	2	Address: **0** ~ 31		 3	 **0** 1
5	Indoor fan forced H	Used to force the fan of indoor unit to H tap.	2.	0	5	**Normal operation** Indoor fan H			**0** 1
6	Forced thermostat	Used to force all indoor units to operate forced thermostat ON.	2.	0	6	**Normal operation** Forced thermostat ON			**0** 1
7	Eco setting is available from an external input. When this configuration is set, it is not possible to turn the Eco refrigerant control ON/OFF using the remote controller. Also, depending on the settings, low noise operation or demand operation may not be performed using the external control adaptor.		2.	0	7	**Unavailable** Eco setting by low noise level input Eco setting by demand input			**0** 1 2
8	Te setting	Used to make setting of targeted evaporating temperature for cooling operation.	2.	0	8	Auto **6°C (43°F)** 7°C (45°F) 8°C (46°F) 9°C (48°F) 10°C (50°F) 11°C (52°F)			0 **2** 3 4 5 6 7
9	Tc setting	Used to make setting of targeted condensing temperature for heating operation.	2.	0	9	Auto 41°C (106°F) 43°C (109°F) **46°C (115°F)**			0 1 3 **6**
10	Defrost selection setting	Used to adjust the defrost start temperature of outdoor coil, to initiate defrosting earlier/later.	2.	1	0	Defrost IN –2°C (–3.6°F) **Normal** Defrost IN +2°C (+3.6°F)			0 **1** 2
12	External low noise setting/ demand setting	Used to receive external low noise or demand signal.	2.	1	2	Input LNO/DE **OFF** ON			 **0** 1
13	AIRNET address	Used to set address of AIRNET.	2.	1	3	Address: **0** ~ 63		 6	 **0** 3
18	High ESP setting FAN	Fan high static pressure setting	2.	1	8	**OFF** ON			**0** 1
19	Drain pan heater setting	Used to activate the drain pan heater. The drain pan heater turns on when the outside temperature is below 3°C (37°F). Set to always ON if snow is blowing in when the unit is stopped.	2.	1	9	OFF **ON (during heating operation)** Always ON			0 **1** 2
20	Additional refrigerant charge	Used to perform additional refrigerant charging operation (compressor operation).	2.	2	0	**OFF** Refrigerant charging ON			**0** 1
21	Refrigerant recovery and vacuuming	Used to set the system to refrigerant recovery mode (without compressor run).	2.	2	1	Refrigerant recovery **OFF** ON			 **0** 1
22	Automatic night-time low noise level	Enables automatic night-time low noise operation. Low noise levels can be set.	2.	2	2	**OFF** Level 1 Level 2 Level 3			**0** 1 2 3
25	External low noise level	Low noise level when the external low noise signal is input at option DTA104A62.	2.	2	5	Level 1 **Level 2** Level 3			1 **2** 3
26	Automatic night-time low noise operation starting time	Time to start automatic night-time low noise operation. (Night-time low noise level setting should also be made.)	2.	2	6	About 8:00 PM **About 10:00 PM** About 12:00 AM			1 **2** 3
27	Automatic night-time low noise operation ending time	Time to stop automatic night-time low noise operation. (Night-time low noise level setting should also be made.)	2.	2	7	About 6:00 AM About 7:00 AM **About 8:00 AM**			1 2 **3**

No. *1	Item	Description	7 segment display			Description	7 segment display Range		
			SEG 1	SEG 2	SEG 3		SEG 1	SEG 2	SEG 3
28	Power transistor check	Used to troubleshoot DC compressor. Inverter waveforms are output without wire connections to the compressor. It is useful to determine whether the relevant trouble has resulted from the compressor or inverter PCB.	2.	2	8	**OFF** ON (10 Hz)			**0** 1
29	Capacity priority	Cancel the low noise level control if capacity is required while low noise operation or night-time low noise operation is in progress.	2.	2	9	**OFF** ON			**0** 1
30	Demand 1 setting	Used to make a change to the targeted power consumption level when the demand 1 control signal is input.	2.	3	0	Level 1 (60%) Level 2 (65%) **Level 3 (70%)** Level 4 (75%) Level 5 (80%) Level 6 (85%) Level 7 (90%) Level 8 (95%)			1 2 **3** 4 5 6 7 8
31	Demand 2 setting	Used to use a targeted power current level when the demand 2 control signal is input.	2.	3	1	**Level 1 (40%)** Level 2 (50%) Level 3 (55%)			**1** 2 3
32	Constant demand setting	Used to set constant demand 1 or 2 control without inputting any external signal.	2.	3	2	**OFF** Demand 1 (Mode 2-30) Demand 2 (Mode 2-31)			**0** 1 2
62	Cooling/Heating capacity learning control	Adjust cooling and heating capacity learning control	2.	6	2	**OFF** Cooling adjustment Heating adjustment Cooling and heating adjustment			**0** 1 2 3
64	Used to set Eco mode invalid. When this configuration is set, it is not possible to turn the Eco mode ON/OFF using the external control adaptor.		2.	6	4	**Activated both cooling and heating** Activated heating only Activated cooling only Deactivated			**0** 1 2 3
72	VRT control Tc lower limit	Used to change lower limit of target condensation temperature in VRT control.	2.	7	2	**Standard** Low			**3** 4
81	Cooling comfort setting	Cooling comfort setting for VRT control	2.	8	1	Eco **Mild** Quick Powerful			0 **1** 2 3
82	Heating comfort setting	Heating comfort setting for VRT control	2.	8	2	Eco **Mild** Quick Powerful			0 **1** 2 3
89	Optional setting to prioritize VRT control	If indoor units are located throughout multiple spaces with different set points, it is recommended to keep this setting to 0. If all indoor units are located in the same space, the setting of 2 saves energy.	2.	8	9	**Prioritize largest demand** Prioritize smallest demand			**0** 2
90	Indoor unit without power	Multi-tenant function setting	2.	9	0	**Invalid** Valid (No U4 error generation) Valid (Operating with U4 warning)			**0** 1 2

No. ∗1	Item	Description	7 segment display			Description	7 segment display Range		
			SEG 1	SEG 2	SEG 3		SEG 1	SEG 2	SEG 3
97	Auxiliary heater maximum allowable temperature	Auxiliary heater is allowed to energize when the ambient temperature is smaller than the auxiliary heater maximum allowable temperature.	2.	9	7	**<u>–17.7°C (0°F)</u>** –15°C (5°F) –12.2°C (10°F) –9.4°C (15°F) –6.6°C (20°F) –3.8°C (25°F) –1.1°C (30°F) 1.6°C (35°F) 4.4°C (40°F) 7.2°C (45°F) 10°C (50°F) 12.7°C (55°F) 15.5°C (60°F) 18.3°C (65°F) Auxiliary heater always not allowed Auxiliary heater always allowed		 1 1 1 1 1 1	**<u>0</u>** 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5
98	Auxiliary heater maximum allowable temperature release differential	Auxiliary heater is not allowed to energize when the outdoor air temperature is recovered by differential above the auxiliary heater maximum allowable temperature.	2.	9	8	**<u>2.8°C (5°F)</u>** 5.6°C (10°F) 8.3°C (15°F)			**<u>0</u>** 1 2
99	VRT control Te upper limit	Used to change upper limit of target evaporation temperature in VRT control.	2.	9	9	**<u>Standard</u>** High			**<u>4</u>** 6

∗1: Numbers in the **No.** column represent the number of times to press the BS button.

∗ : Setting does not return to factory setting when exit mode 2. To cancel the function, change setting manually to factory setting.

∗ : Once function is activated **t01** appears. To stop current function, press once the **RETURN (BS3)** button. For detailed description about each setting, refer to **Details of Setting Mode 2** on page 114.
Indication **<u>bold underline</u>** means factory setting.

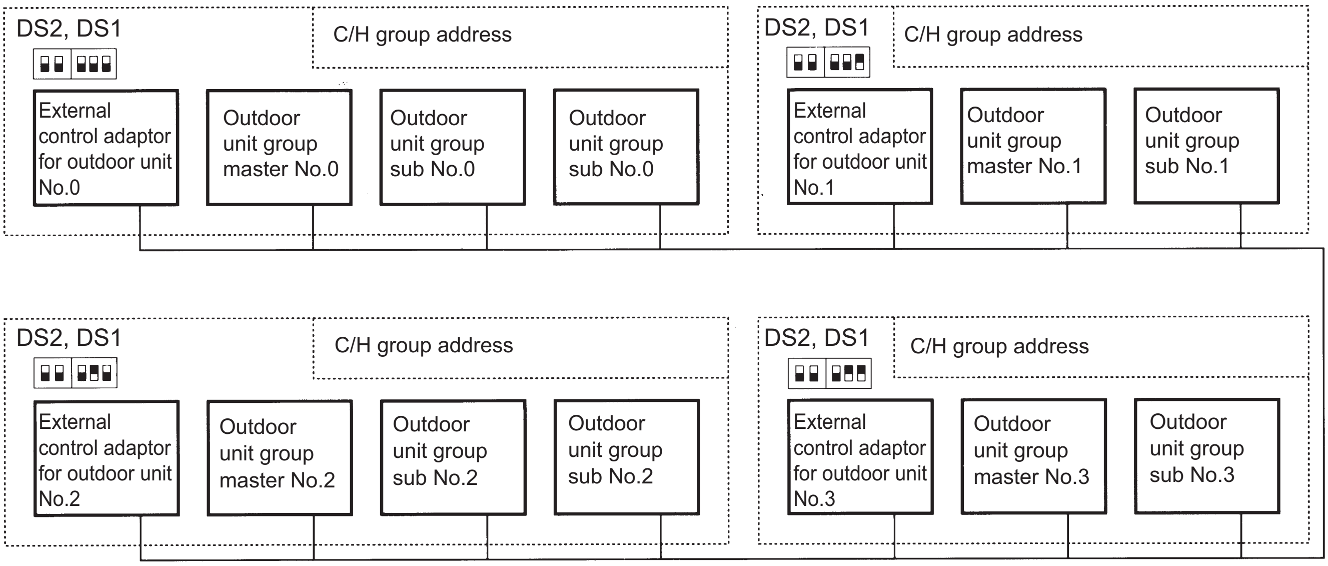
2.4.3 Details of Setting Mode 2

Mode 2 is used to change the field settings of the system.
Consulting the current field setting value and changing the current field setting value is possible.

In general, normal operation can be resumed without special intervention after changing field settings.

Some field settings are used for special operation (e.g., 1 time operation, recovery/vacuuming setting, adding refrigerant setting, etc.). In such a case, it is required to abort the special operation before normal operation can restart. It will be displayed in below explanations.

[2-1]: Cool/Heat unified address
Address for cool/heat unified operation.
■ When multiple heat pump systems need to change over together between cooling and heating (example multiple systems serve indoor units in landscape area). Per zone the optional PCB DTA104A62 needs to be installed.
■ The address set to the multiple systems need to operate as a zone, should be same as the address set by the DIP switches on the related optional PCB DTA104A62.



Default value: 0
■ Field setting: 1-31.
■ The source for cool/heat selection can be:
• Indoor unit: when outdoor unit DIP switch DS1-1 is at the OFF position.
• Cool/heat switch: set DIP switch DS1-1 on outdoor unit PCB to ON. Operation mode according to connections A-B-C to optional PCB BRP2A82.

[2-2]: Low noise/demand address
Address for low noise/demand operation.
1 or more systems (maximum 10 systems wired by **H1H2 TO O/D UNIT**) can operate use the LNO (Low Noise Operation) or/and the DE (Demand Operation) by instruction of field supplied input to optional PCB DTA104A62.
To link the system to the corresponding DTA104A62, set the address same as the DIP switches position on the related optional PCB DTA104A62.
Ensure that also field setting 2-12-1 is set to enable input from optional PCB DTA104A62.

[2-5]: Cross wiring check by indoor FAN forced H
Default value: 0. Not active.
Set 1: force all connected indoor units to operate the indoor fan on high speed. This setting can be made to check which units are missing in the communication if the number of indoor units do not correspond to the system lay out. Ensure that after cross wiring check was confirmed, to return setting to default 2-5-0. Once setting 2-5-1 is active, it is not automatically returning to default when exit mode 2.

[2-6]: Forced thermostat ON command all connected indoor units
Default value: 0. Not active.
Set 1: force all connected indoor units to operate under test (forced thermostat ON command to outdoor). Ensure that when the forced thermostat ON needs to be ended, to return setting to default 2-6-0. Once setting 2-6-1 is active, it is not automatically returning to default when exit mode 2.

[2-7]: Eco level setting for Eco mode via External control adaptor (Optional)

Eco mode can be activated by short circuit the terminal on External control adaptor (Optional) according to [2-7] setting. ([2-64] should be **0**).

This unit can operate with Te/Tc fix control and Eco mode.

If the terminal on external control adapter is not connected by short circuit with [2-7] ≠ 0, the system operates according to [2-8] or [2-9] setting.

Value [2-7]	Meaning	Level
0 (Default)	Inactive	—
1	Eco mode active by low noise terminal short-circuit	Standard
2	Eco mode active by demand terminal short-circuit	2-C short circuit: Low 3-C short circuit: Standard

[2-8]: Te target temperature during cooling operation
Default value: 2

Value [2-8]	**Te target**
0	Auto
2 (default)	6°C (43°F)
3	7°C (45°F)
4	8°C (46°F)
5	9°C (48°F)
6	10°C (50°F)
7	11°C (52°F)

Change [2-8] to 0, 2-7 in function of required operation method during cooling.
For more information and advice about the effect of these settings, refer to **Energy Saving and Optimum Operation** on page 128.

[2-9]: Tc target temperature during heating operation
Default value: 6

Value [2-9]	**Tc target**
0	Auto
1	41°C (106°F)
3	43°C (109°F)
6 (default)	46°C (115°F)

Change [2-9] to 0, 1, 3 or 6 in function of required operation method during heating.
For more information and advice about the effect of these settings, refer to **Energy Saving and Optimum Operation** on page 128.

[2-12]: Enable the night-time low noise function and/or power consumption limitation via external control adaptor (DTA104A62)
If the system needs to run under night-time low noise operation or under power consumption limitation conditions when an external signal is sent to the unit, this setting should be changed. This setting will only be effective when the optional external control adaptor (DTA104A62) is installed.

Default value: 0
To activate this function, change [2-12] to 1.

[2-13]: AIRNET address
When an AIRNET system will be used, outdoor unit needs an AIRNET address. Also to facilitate the recognition of a system in the map lay out of the service checker, set each system a unique address between 1 and 63.
When duplicating of AIRNET address, **UC** error code will appear on central control.

[2-18]: Fan high static pressure setting
In order to increase the static pressure the outdoor fan is delivering, this setting should be activated. For details about this setting, see technical specifications.

Default value: 0
To activate this function, change [2-18] to 1.

[2-19] Drain pan heater setting
In order to turn on the drain pan heater, this setting should be activated. The drain pan heater turns on when the outside temperature is below 3°C (37°F). Set to always ON if snow is blowing in when the unit is stopped.

Default value: 1 (ON during heating operation)
To deactivate this function, change [2-19] to 0.
To set to always ON, change [2-19] to 2.

[2-20]: Additional refrigerant charge
In order to activate the additional refrigerant charge function, the following setting should be applied.

Default value: 0
To activate additional refrigerant charge function, change [2-20] to 1.

To stop the additional refrigerant charge operation (when the required additional refrigerant amount is charged), press the **RETURN (BS3)** button. If this function was not aborted by pressing the **RETURN (BS3)** button, the unit will stop its operation after 30 minutes.
If 30 minutes was not sufficient to add the needed refrigerant amount, the function can be reactivated by changing the field setting again.

[2-21]: Refrigerant recovery/vacuuming mode
In order to achieve a free pathway to recovering refrigerant out of the system or to remove residual substances or to vacuum the system it is necessary to apply a setting which will open required valves in the refrigerant circuit so the recovering of refrigerant or vacuuming process can be done properly.

Default value: 0
To activate this function, change [2-21] to 1.

To stop the refrigerant recovery/vacuuming mode, press the **RETURN (BS3)** button. If the **RETURN (BS3)** button is not pressed, the system will remain in refrigerant recovery/vacuuming mode.

[2-22]: Automatic night-time low noise setting and level during night-time
By changing this setting, you can activate the automatic night-time low noise operation function of the unit and define the level of operation. Depending on the chosen level, the noise level will be lowered (3: Level 3 < 2: Level 2 < 1: Level 1). The starting and ending times for this function are defined under setting [2-26] and [2-27].

Default value: 0
Change [2-22] to 1, 2 or 3 in function of required level.

[2-25]: Night-time low noise operation level via the external control adaptor
If the system needs to run under night-time low noise operation conditions when an external signal is sent to the unit, this setting defines the level of night-time low noise that will be applied
(3: Level 3 < 2: Level 2 < 1: Level 1).
This setting will only be effective when the optional external control adaptor (DTA104A62) is installed and the setting [2-12] is activated.

Default value: 2
Change [2-25] to 1, 2 or 3 in function of required level.

[2-26]: Night-time low noise operation starting time
Change [2-26] to 1, 2 or 3 in function of required timing.
Default value: 2

Value [2-26]	Night-time low noise operation starting time (approximately)
1	About 8:00 PM
2 (default)	About 10:00 PM
3	About 12:00 AM

This setting is used in conjunction with setting [2-22].

[2-27]: Night-time low noise operation ending time
Default value: 3

Value [2-27]	Night-time low noise operation ending time (approximately)
1	About 6:00 AM
2	About 7:00 AM
3 (default)	About 8:00 AM

This setting is used in conjunction with setting [2-22].

[2-28]: Power transistor check mode
To evaluate the output of the power transistors. Use this function in case error code is displayed related to defective inverter PCB or compressor is locked.
Default value: 0. Power transistor check mode is not active.
Field setting 1: Power transistor check mode is active.

Function:
■ Inverter PCB gives output of 10 Hz in sequence by all 6 transistors. Remove the U/V/W terminals of the compressor, and connect to the inverter checker module. If all 6 LEDs blink, the transistors switch correctly.
■ When the power transistor check mode is interrupted, after internal power circuit is disconnected on the inverter PCB, 2 LEDs will light up to indicate discharge of the DC voltage. Wait till the LEDs are OFF before returning fasten terminals back to the compressor terminals.

Minimum requirements to refer to the result on the inverter checker module:

■ Line and neutral are available, and

■ Inverter PCB control is active. Check if the green LED HAP on the inverter PCB is blinking normally (approx. 1/second). If the LED is OFF, it is necessary to exit the standby mode of the inverter:

■ Disconnect and reconnect power supply control PCB, or

■ Forced thermostat ON condition, or

■ Briefly set 2-6-1 (forced thermostat ON indoor), or 2-20-1 (additional refrigerant charge).

■ Once the LED is blinking on the inverter PCB, change related setting immediately back to set 0 to deactivate related function.

■ Diode module generates the required 325 VDC.

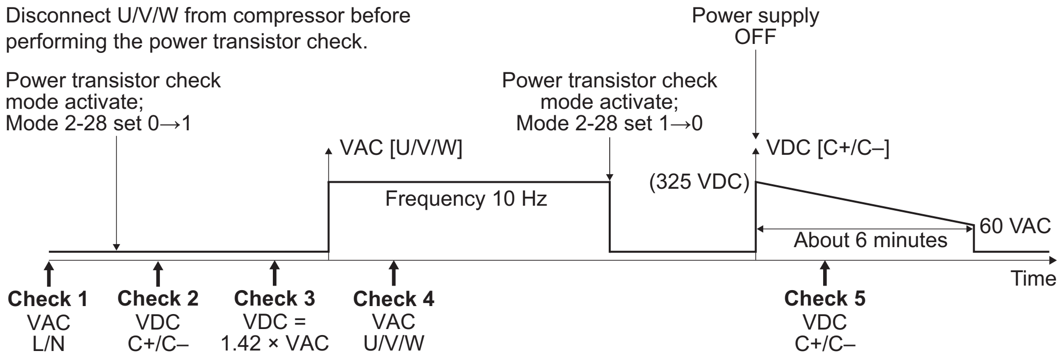
Cautions:

■ To stop the power transistor check mode, change setting to default 2-28-0.

■ Output to U/V/W will also stop when outdoor unit main PCB decides standby mode of inverter circuit.

Next time graph shows the different steps during the power transistor check mode.

■ Switching sequence during power transistor check mode:



Check 1: AC power input (L, N on X1M: power supply terminal block) around 208/230 V
Check 2: DC voltage on inverter circuit capacitor (C+,C–) increases to around 325 V.
Check 3: VDC = 1.42 × VAC power supply (calculation from **Check 1** and **Check 2**)
Check 4: AC U/V/W 10 Hz intermediate (at fasten U/V/W) around 10 V
Check 5: DC voltage drop (discharge inverter circuit capacitor DC) check difference between C+ and C– within 2 LED (V phase) brightness reduce till off.

*Note: Actual voltage value depends on meter characteristics.

[2-29]: **Capacity priority**. When the night-time low noise operation is in use, performance of system might drop because airflow rate of outdoor unit is reduced.
Default value: 0. Capacity priority cannot be used.
Field setting 1: capacity priority can temporary cancel the night-time low noise operation. Capacity priority can be initiated when certain operation parameters approach the safety setting:

■ Raise in high pressure during cooling.

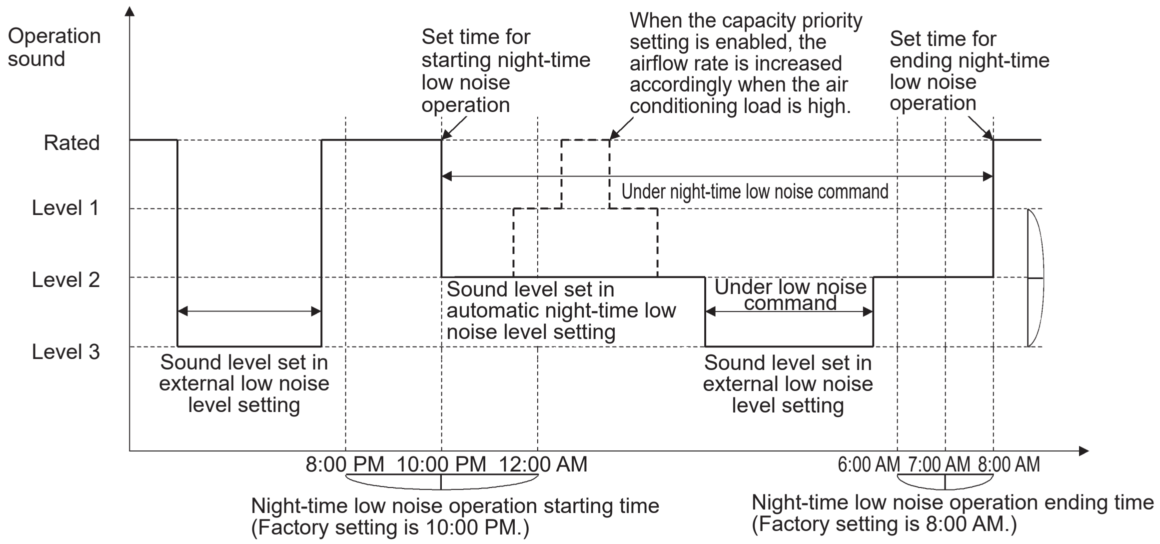
■ Drop in low pressure during heating.

■ Raise of discharge pipe temperature.

■ Raise of inverter current.

■ Raise of fin temperature inverter PCB.

When operation parameters return to normal range, the capacity priority is switched OFF, enable to reduce airflow rate depending on night-time low noise operation is still required (ending time for low night noise operation is not reached or external input night-time low noise operation is still closed).



[2-30]: Power consumption limitation level (step 1) via the external control adaptor (DTA104A62)
If the system needs to run under power consumption limitation conditions when an external signal is sent to the unit, this setting defines the level power consumption limitation that will be applied for step 1. The level is according to the table.

Default value: 3
Change [2-30]: 1,2,3,4,5,6,7 or 8 in function of required limitation

Value [2-30]	Power consumption limitation (Approximate)
1	60%
2	65%
3 (default)	70%
4	75%
5	80%
6	85%
7	90%
8	95%

[2-31]: Power consumption limitation level (step 2) via the external control adaptor (DTA104A62)
If the system needs to run under power consumption limitation conditions when an external signal is sent to the unit, this setting defines the level power consumption limitation that will be applied for step 2. The level is according to the table.

Default value: 1
Change [2-31] to 1, 2 or 3 in function of required limitation.

Value [2-31]	Power consumption limitation (approximately)
1 (default)	40%
2	50%
3	55%

[2-32]: Forced, all time, power consumption limitation operation (no external control adaptor is required to perform power consumption limitation)
If the system always needs to run under power consumption limitation conditions, this setting activates and defines the level power consumption limitation that will be applied continuously. The level is according to the table.

Default value: 0 (OFF).

Value [2-32]	Restriction reference
0 (default)	Function not active
1	Follows [2-30] setting
2	Follows [2-31] setting

[2-62]: Cooling and heating capacity learning control

Default value: 0.

Value [2-62]	Description
0 (default)	OFF
1	Cooling adjustment
2	Heating adjustment
3	Cooling and heating adjustment

Adjust cooling and heating system operation to achieve stable capacity.

Note(s) This setting may result in a longer reaction time to large load variations.

[2-64]: Eco mode control setting
Used to make setting of Eco mode invalid. When this configuration is set, it is not possible to turn Eco mode ON/OFF using external control adaptor or other setting.
Default value: 0.

Value [2-64]	Eco mode control setting
0 (default)	Activated both cooling and heating
1	Activated heating only
2	Activated cooling only
3	Deactivated

[2-81]: Cooling comfort setting
Default value: 1

Value [2-81]	Cooling comfort setting
0	Eco
1 (default)	Mild
2	Quick
3	Powerful

Change [2-81] to 0, 1, 2 or 3 in function of required limitation.
This setting is used in conjunction with setting [2-8].
When [2-81] is set to 0, the original refrigerant temperature target based on [2-8] is kept without any correction, unless for protection control.

For more information and advice about the effect of these settings, refer to **Energy Saving and Optimum Operation** on page 128.

[2-82]: Heating comfort setting
Default value: 1

Value [2-82]	Heating comfort setting
0	Eco
1 (default)	Mild
2	Quick
3	Powerful

Change [2-82] to 0, 1, 2 or 3 in function of required limitation.
This setting is used in conjunction with setting [2-9].
When [2-82] is set to 0, the original refrigerant temperature target based on [2-9] is kept without any correction, unless for protection control.

For more information and advice about the effect of these settings, refer to **Energy Saving and Optimum Operation** on page 128.

[2-89]: Optional setting to prioritize VRT control

Default value: 0.

Value [2-89]	Level
0 (default)	Prioritize largest demand
2	Prioritize smallest demand

Note(s) The setting of [2-89] = 2 saves energy but may increase the time required to reach set point.

[2-90]: Indoor unit without power
U4 error generation.
In case an indoor unit needs maintenance or repair on the electric side, it is possible to keep the rest of the VRV DX indoor units operating without power supply to some indoor unit(s).
Default value: 0 (not active)
Field setting 1: It is possible to operate system without **U4** error when some indoor units are temporarily without power supply.
Field setting 2: It is possible to operate system with **U4** warning when some indoor units are temporarily without power supply.
Following conditions need to fulfil:

- Maximum equivalent piping length of the farthest indoor less than 120 m.
- Index indoor units power simultaneously around 50% or less of the nominal outdoor.
- Total capacity is around 50% or less of the nominal one of the outdoor unit.
- Operation time is limited to 24 hours period.
- It is recommended to shut down connected indoor units at the same floor.
- Not possible to use service mode operation (e.g. recovery mode).
- Backup operation has priority over this special feature.

2.4.4 Auxiliary Heat Control

To improve efficiency the auxiliary heat can be lockout based on outdoor temperature.

Item	Description	Min	Max	Increments
Auxiliary heater allowable temperature	Below this temperature, auxiliary heater can be energized based on the indoor temperature condition.	0°F (−17.7°C)	65°F (18.3°C) (0°F (−17.7°C) default)	5°F (2.8°C)
Auxiliary heater allowable temperature release differential	When the outdoor temperature recovered by this temperature, auxiliary heater cannot be allowed.	5°F (2.8°C) (default) 10°F (5.6°C) 15°F (8.3°C)		

[2-97]: Auxiliary heater maximum allowable temperature
Auxiliary heater is allowed to energize when the ambient temperature is smaller than the auxiliary heater maximum allowable temperature.

Auxiliary heater maximum allowable temperature	Fahrenheit (°F)	Celsius (°C)
0 (default)	0	−17.7
1	5	−15
2	10	−12.2
3	15	−9.4
4	20	−6.6
5	25	−3.8
6	30	−1.1
7	35	1.6
8	40	4.4
9	45	7.2
10	50	10
11	55	12.7
12	60	15.5
13	65	18.3
14	Auxiliary heater always NOT allowed	
15	Auxiliary heater always allowed	

[2-98]: Auxiliary heater maximum allowable temperature release differential
Auxiliary heater is not allowed to energize when the outdoor air temperature is recovered by differential (below) above the auxiliary heater maximum allowable temperature.

Auxiliary heater max allowable temperature release differential	Fahrenheit (°F)	Celsius (°C)
0 (default)	5	2.8
1	10	5.6
2	15	8.3

2.5 Night-Time Low Noise Operation and Demand Operation

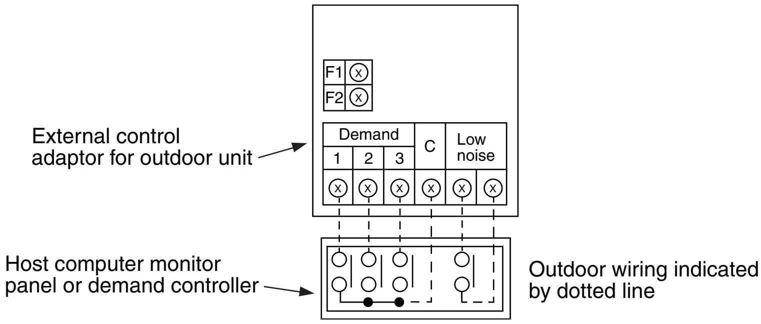
2.5.1 Night-Time Low Noise Operation

By connecting the external contact input to the low noise input of the outdoor unit external control adaptor (optional), you can lower operating noise.

Setting	Content
Level 1	Set the outdoor fan to Step 8 or lower.
Level 2	Set the outdoor fan to Step 7 or lower.
Level 3	Set the outdoor fan to Step 6 or lower.

A. When night-time low noise operation is carried out by external contact (with the use of the external control adaptor for outdoor unit).

1. Connect external control adaptor for outdoor unit and short circuit terminal of night-time low noise operation (Refer below figure). If carrying out demand or low noise input, connect the adaptor's terminals as shown below.

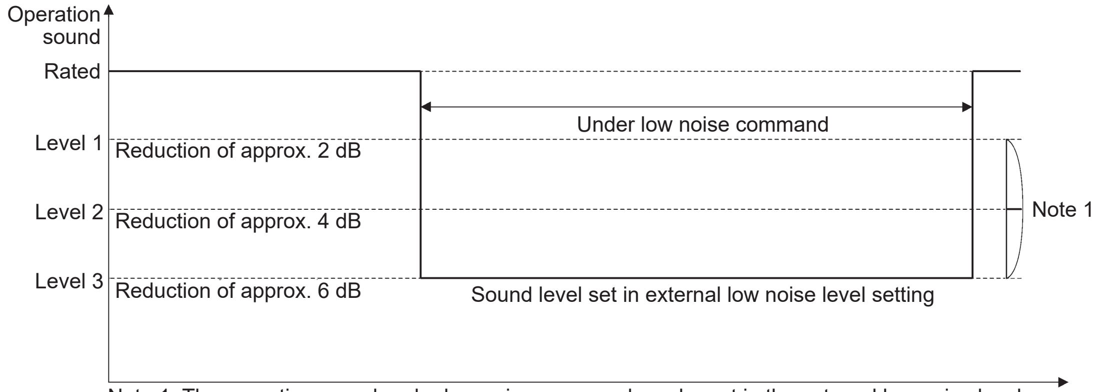


2. While in setting mode 2, set the item 2-12 (External low noise or demand setting) to ON.
3. If necessary, while in setting mode 2, select an external low noise level for the item 2-25.
4. If necessary, while in setting mode 2, set the item 2-29 (Capacity priority setting) to ON. (If the condition is set to ON, when the air conditioning load reaches a high level, the low noise operation command will be ignored to put the system into normal operation mode.)

B. When night-time low noise operation is carried out automatically. (External control adaptor for outdoor unit is not required.)

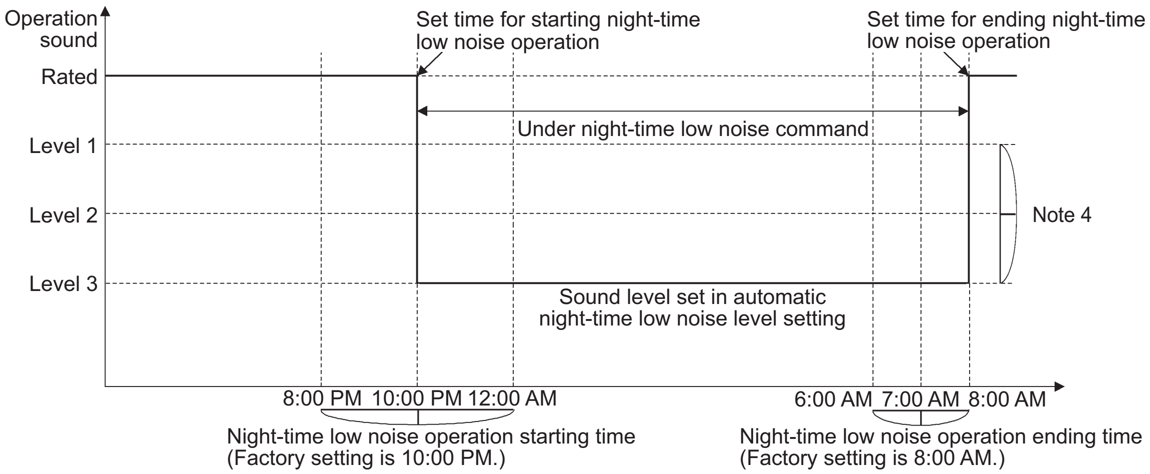
1. While in setting mode 2, select a night-time low noise operation level for the item 2-22.
2. If necessary, while in setting mode 2, select a starting time of night-time low noise operation (i.e., 8:00 PM, 10:00 PM, or 12:00 AM) for the item 2-26. (Use the starting time as a guide since it is estimated according to outdoor temperatures.)
3. If necessary, while in setting mode 2, select an ending time of night-time low noise operation (i.e., 6:00 AM, 7:00 AM, or 8:00 AM) for the item 2-27. (Use the ending time as a guide since it is estimated according to outdoor air temperatures.)
4. If necessary, while in setting mode 2, set the item 2-29 (Capacity priority setting) to ON. (If the condition is set to ON, when the air conditioning load reaches a high level, the system will be put into normal operation mode even during night-time.)

Image of operation in the case of A



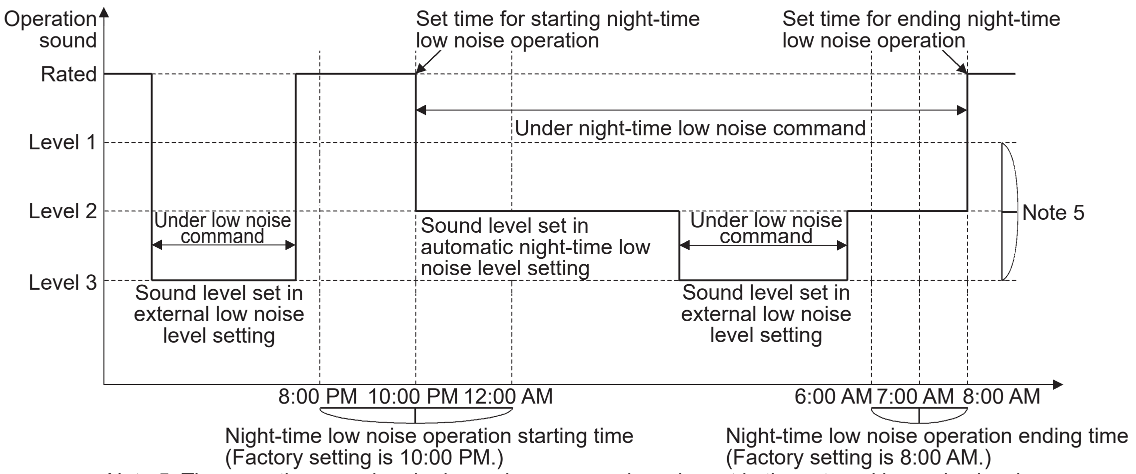
Note 1: The operating sound under low noise command can be set in the external low noise level setting **2-25**. Factory setting is **level 2**.
Note 2: Above values are for reference only (measured in silent room)
Note 3: Low noise setting may increase power consumption.

Image of operation in the case of B



Note 4: The operating sound under night-time low noise command can be set in the automatic night-time low noise level setting **2-22**. Factory setting is **OFF**.

Image of operation in the case of A and B



Note 5: The operating sound under low noise command can be set in the external low noise level setting **2-25**. Factory setting is **level 2**.
The operating sound under night-time low noise command can be set in the automatic night-time low noise level setting **2-22**. Factory setting is **OFF**.
In the event of an external low noise command during night-time low noise operation, priority is given to level 2 rather than level 1, and to level 3 rather than level 2.

2.5.2 Demand Operation

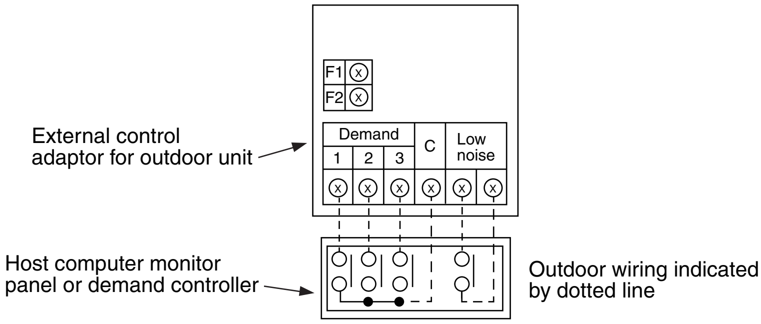
By connecting the external contact input to the demand input of the outdoor unit external control adaptor for outdoor unit (optional), the power consumption of unit operation can be saved suppressing the compressor operating condition.

Description of setting		Setting procedure	
Setting item	Description	External control adaptor for outdoor unit	Outdoor unit PCB
Demand 1	Operate with power of 60-95% or less of the rating.	Short circuit between 1 and C of the terminal block (TeS1).	Set the item 2-32 to Demand 1.
Demand 2	Operate with power of 40-55% or less of the rating.	Short circuit between 2 and C.	Set the item 2-32 to Demand 2.
Demand 3	Operate with forced thermostat OFF	Short circuit between 3 and C.	—

However, the demand operation does not occur in the following operation modes.

1. Startup control
2. Oil return operation
3. Defrost operation
4. Pump down residual operation

If carrying out demand or low noise input, connect the adaptor's terminals as shown below.



A. When the demand operation is carried out by external contact (with the use of the external control adaptor for outdoor unit).

1. Connect external control adaptor for outdoor unit and short circuit terminals as required (Refer to the figure above).
2. While in setting mode 2, set the item 2-12 (External low noise or demand setting) to ON.
3. If necessary, while in setting mode 2, select a demand 1 level for the item 2-30.

B. When the Normal demand operation is carried out. (Use of the external control adaptor for outdoor unit is not required.)

1. While in setting mode 2, set the item 2-32 (Setting of alternate demand) to ON.
2. While in setting mode 2, select a demand 1 level for the item 2-30.

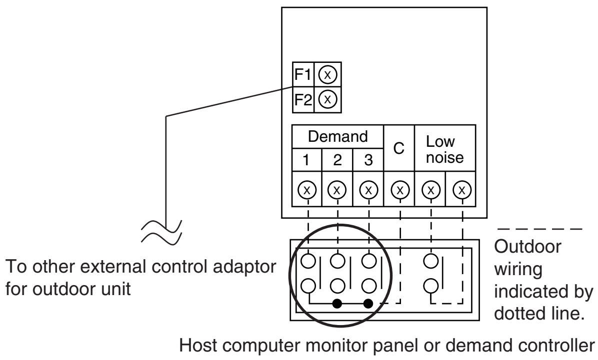


Image of operation in the case of A

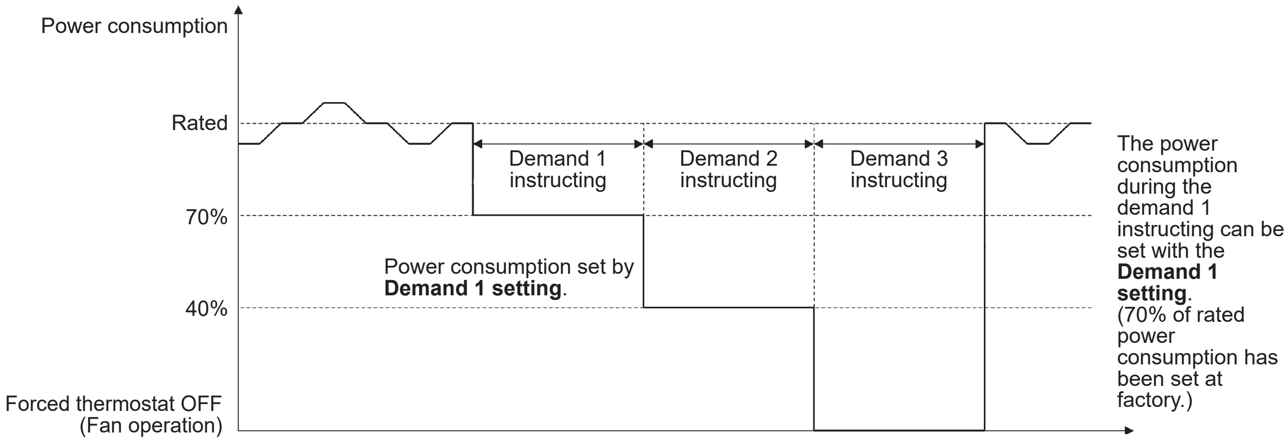


Image of operation in the case of B

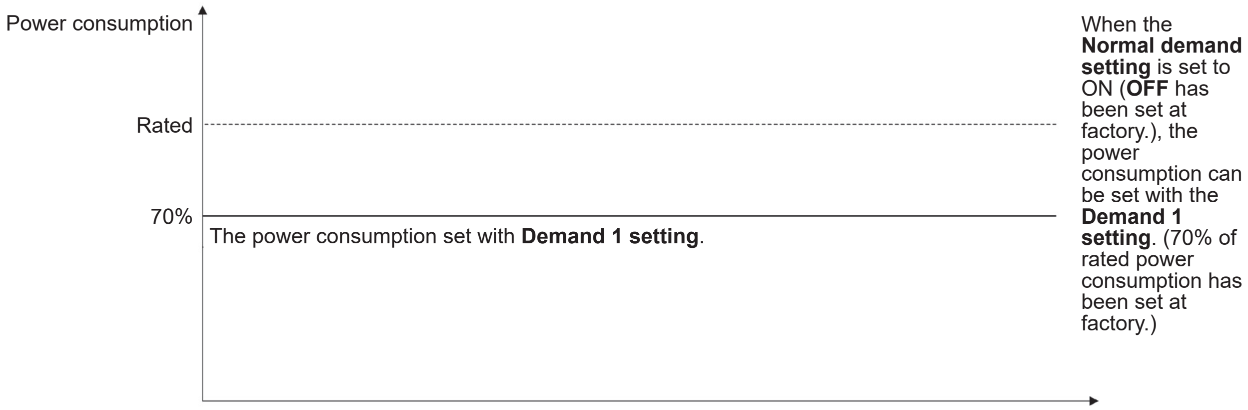
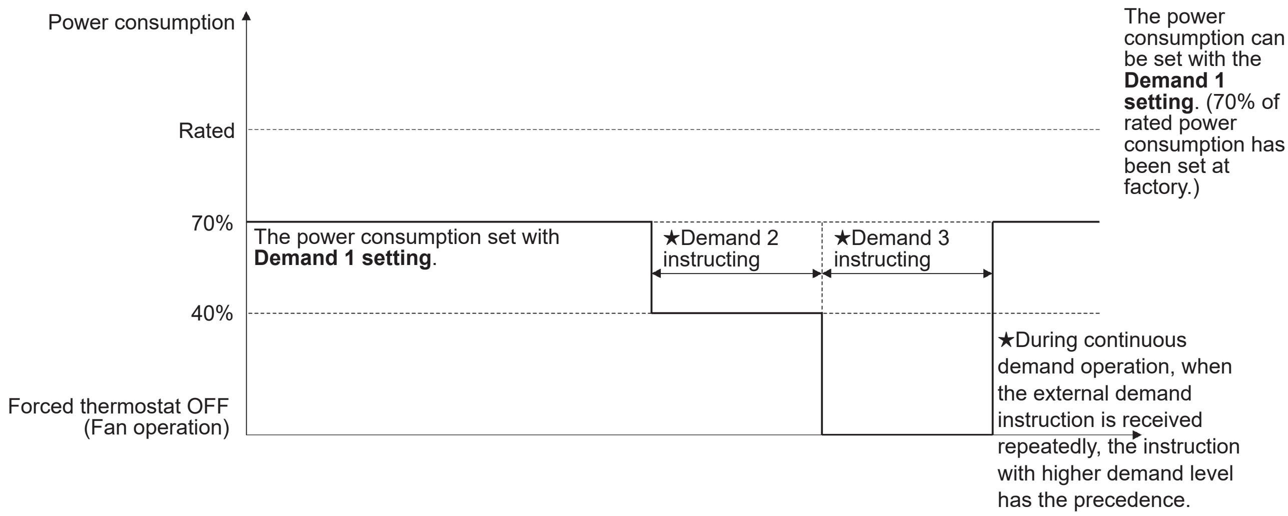


Image of operation in the case of A and B



2.5.3 Setting Procedure of Night-Time Low Noise Operation and Demand Operation

1. Setting mode 1 (H1P OFF)

In setting mode 2, press the **MODE (BS1)** button once → Setting mode 1 is entered and H1P turns OFF. While the setting mode 1 is displayed, **In night-time low noise operation** and **In demand operation** are displayed.

2. Setting mode 2 (H1P ON)

1. In setting 1, press and hold the **MODE (BS1)** button for more than 5 seconds. → Setting mode 2 is entered and H1P lights.
2. Press the **SET (BS2)** button several times and match the LED display with the Setting No. you want.
3. Press the **RETURN (BS3)** button once, and the present setting content is displayed. → Press the **SET (BS2)** button several times and match the LED display with the setting content you want.
4. Press the **RETURN (BS3)** button two times. → Returns to (1).
5. Press the **MODE (BS1)** button once → Returns to the setting mode 1 and H1P turns OFF.

2.6 Energy Saving and Optimum Operation

This system is equipped with two kinds of advanced energy saving functionality (VRT and VRTsmart control). After detecting all connected indoor unit type, advanced energy saving functionality type is selected automatically. Depending on the priority, emphasis can be put on energy saving or comfort level. Several parameters can be selected, resulting in the optimal balance between energy consumption and comfort for the particular application.

Several patterns are available and explained below. Modify the parameters to the needs of your building and to realize the best balance between energy consumption and comfort.

Precautions regarding VRTsmart control operation

When the operation mode is changed over from Cool to Dry during VRTsmart control, it will be back to Cool after a certain period of time to prevent the system from repeating ON/OFF for energy saving. The period of Dry operation can be changed by field setting.

2.6.1 Target Temperature Settings

• Basic

The refrigerant temperature is fixed independent from the situation.
It corresponds to the standard operation which is known and can be expected from/under previous systems:

- To activate this operation method under cooling operation: Change field setting [2-64] to 1 or disconnect the circuit between terminal on external control adaptor with [2-7] ≠ 0.
- To activate this operation method under heating operation: Change field setting [2-64] to 2 or disconnect the circuit between terminal on external control adaptor with [2-7] ≠ 0.

• Automatic for VRT control

The refrigerant temperature is set depending on the outdoor air conditions. As such adjusting the refrigerant temperature to match the required load (which is also related to the outdoor air conditions).
E.g., when your system is operating in cooling, you do not need as much cooling under low outdoor air temperatures (e.g., 77°F (25°C)) as under high outdoor air temperatures (e.g., 95°F (35°C)).
Using this idea, the system automatically starts increasing its refrigerant temperature, automatically reducing the delivered capacity and increasing the system's efficiency.

- This operation is selected automatically with checking connected indoor unit type.

E.g., when your system is operating in heating, you do not need as much heating under high outdoor air temperatures (e.g., 68°F (20°C)) as under low outdoor air temperatures (e.g., 23°F (–5°C)).
Using this idea, the system automatically starts decreasing its refrigerant temperature, automatically reducing the delivered capacity and increasing the system's efficiency.

- This operation is selected automatically with checking connected indoor unit type.

• Automatic for VRTsmart control

The refrigerant temperature is set depending on the required capacity sent from every indoor unit.

- This operation is selected automatically with checking connected indoor unit type.

• Hi-sensible

The refrigerant temperature is set higher/lower (cooling/heating) compared to basic operation.
The focus under high sensible mode is comfort feeling for the customer.
The selection method of indoor units is important and has to be considered as the available capacity is not the same as under basic operation. For details concerning to Hi-sensible applications, please contact your dealer.

- To activate this setting under cooling operation: change field setting [2-8] to the appropriate value, matching the requirements of the pre-designed system containing a high sensible solution.

Value [2-8]	Te target
0	Auto
2	43°F (6°C) (default)
3	45°F (7°C)
4	46°F (8°C)
5	48°F (9°C)
6	50°F (10°C)
7	52°F (11°C)

- To activate this setting under heating operation: change field setting [2-9] to the appropriate value, matching the requirements of the pre-designed system containing a high sensible solution.

Value [2-9]	Tc target
0	Auto
1	106°F (41°C)
3	109°F (43°C)
6	115°F (46°C) (default)

2.6.2 Comfort Settings

A comfort level can be set for VRT control/VRTsmart control mode and hi-sensible mode. The comfort level is related to the time and power (energy consumption) expended in order to achieve a certain room temperature. The requested conditions are achieved more quickly by temporarily changing the refrigerant temperature.

• Powerful

Overshoot (during heating operation) or undershoot (during cooling operation) is allowed compare to the requested refrigerant temperature, in order to achieve the required room temperature very fast. The overshoot or undershoot is allowed from the startup moment.
In case of cooling operation the evaporating temperature is allowed to go down to 37°F (3°C) on temporary base depending on the situation.
In case of heating operation the condense temperature is allowed to go up to 120°F (49°C) on temporary base depending on the situation.
When the request from the indoor units becomes more moderate, the system will eventually go to the steady state condition which is defined by the operation method above.

- To activate the powerful comfort setting under cooling operation, change field setting [2-81] to 3.
- To activate the powerful comfort setting under heating operation, change field setting [2-82] to 3.

• Quick

Overshoot (during heating operation) or undershoot (during cooling operation) is allowed compared to the requested refrigerant temperature, in order to achieve the required room temperature very fast. The overshoot or undershoot is allowed from the startup moment.
In case of cooling operation the evaporating temperature is allowed to go down to 43°F (6°C) on temporary base depending on the situation.
In case of heating operation the condense temperature is allowed to go up to 115°F (46°C) on temporary base depending on the situation.
When the request from the indoor units becomes more moderate, the system will eventually go to the steady state condition which is defined by the operation method above.

- To activate the quick comfort setting under cooling operation, change field setting [2-81] to 2.
- To activate the quick comfort setting under heating operation, change field setting [2-82] to 2.

• Mild (default)

Overshoot (during heating operation) or undershoot (during cooling operation) is allowed compared to the requested refrigerant temperature, in order to achieve the required room

temperature very fast. The overshoot or undershoot is not allowed from the startup moment. The startup occurs under the condition which is defined by the operation mode above.
In case of cooling operation the evaporating temperature is allowed to go down to 43°F (6°C) on temporary base depending on the situation.
In case of heating operation the condense temperature is allowed to go up to 115°F (46°C) on temporary base depending on the situation.
When the request from the indoor units becomes more moderate, the system will eventually go to the steady state condition which is defined by the operation method above.
The startup condition is different from the powerful and quick comfort setting.

- To activate the mild comfort setting under cooling operation, change field setting [2-81] to 1.
- To activate the mild comfort setting under heating operation, change field setting [2-82] to 1.

• Eco

The original refrigerant temperature target, which is defined by the operation method (see above) is kept without any correction, unless for protection control.

- To activate the eco comfort setting under cooling operation, change field setting [2-81] to 0.
- To activate the eco comfort setting under heating operation, change field setting [2-82] to 0.

No matter which control is selected, variations on the behavior of the system are still possible due to protection controls to keep the unit operating under reliable conditions. The intentional target, however, is fixed and will used to obtain the best balance between energy consumption and comfort, depending on the application type.

3. Test Operation

This unit is equipped with a crankcase heater to ensure smooth startup. Be sure to turn the power on at least 6 hours before operation in order to have power running to the crankcase heater.

Warning

When leaving the unit with the power on, be sure to switch with another person doing the installation or close the front panel.

Precautions before turning the power on
All indoor units connected with the outdoor unit will operate automatically. Complete work on the indoor units in order to ensure maximum safety.

Power On-Check Operation

- Make sure to perform the check operation after installation. (If the air conditioner is operated using the indoor remote controller without performing the check operation, the error code **U3** is displayed in the indoor remote controller, and normal operation is disabled.)
- When making settings on the outdoor unit PC board (A1P) after turning the power on, do not touch anything other than the BS buttons and DIP switches. (See the **Service Precautions** plate for the locations of the BS buttons (BS1-3) and DIP switches (DS1, 2) on the PC board (A1P).)
- When the unit configuration or transmission line connections has been changed (e.g., when using existing indoor or outdoor units, or an indoor unit or outdoor unit has been added, or indoor or outdoor unit PC board has been changed), be sure to perform the rewiring operation. The rewiring operation can be performed by pressing the **RETURN (BS3)** button for at least 5 seconds. If not, the addition or change cannot be recognized. After the rewiring operation, the unit cannot be run until the address (indoor-outdoor address, etc.) is automatically set. If ON button on the remote controller is pushed during this time, the error code **U4** is displayed on the remote controller. (Returns to normal when automatic setting is complete.) (See the **Service Precautions** plate for the location of the **RETURN (BS3)** button).
- During the operation, monitor the outdoor unit operation status and check for any incorrect wiring.

1. Close the outdoor unit's front panel. **Turn the power** on for the outdoor unit and the indoor unit.

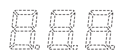
Caution

Be sure to turn the power on at least 6 hours before operation in order to have power running to the crankcase heater.

2. Open the outdoor unit's front panel. When the communication between indoor units and outdoor unit (s) is established and normal, the segment indication state will be as follows (default situation when shipped from factory):
When the power is turned on, the display lights up to confirm transmission.

When no trouble occurs: lighted as indicated
When there are zero connected indoor units: the display flashes on and off.

Ready for operation: blank display indication as indicated.



Warning

To avoid the risk of electric shock, do not touch anything other than the BS buttons on the PC board (A1P) when making settings. It may take up to several tens of minutes for the transmission confirmation to be completed. (Running a transmission line parallel to another system can cause signal congestion and take longer.)

3.
- When the customer requests low noise operation or demand operation, make these settings using the BS buttons (BS1-3) on the outdoor unit's PC board (A1P).
- When connecting Cool/Heat selector, turn ON the DIP switch DS1-1 on the outdoor unit's PC board (A1P). (Default: OFF) Refer to the manual of Cool/Heat selector.
- Operate the BS buttons through the opening after protecting it with an insulation cover. (See the **Service Precautions** label for details.)

Warning Use caution to avoid electric shock while working, since the outdoor unit is on.

- Only set the BS buttons (BS1-3) after making sure the operation pilot lamp on PC board is lit up.
- See the **Service Precautions** label on the back side of the front panel for details on how to make the settings. (Do not forget to write the settings down on the **Service Precautions** label.)
- The DIP switches (DS1-2~4, DS2-1~4) do not need to be set, so do not touch it. Doing so may cause malfunction.

4. Check that the liquid and gas-side stop valves are open, and if they are closed, open them.

Caution Do not leave any stop valve closed otherwise the compressor will fail.

5. Press the **SET (BS2)** button for at least five seconds and perform check operation. For details, see **How to perform check operation** on the **Service Precautions** label.

- The test operation is automatically carried out, the outdoor unit display will indicate **t01** and the indication **Test operation** and **Under centralized control** will display on the user interface of indoor units. Steps during the automatic system test run procedure:
  t01: control before start up (pressure equalization)
  t02: cooling start up control
  t03: cooling stable condition
  t04: communication check
  t05: stop valve check
  t06: pipe length check
  t07: —
  t08: —
  t09: pump down operation
  t10: unit stop

- During the test operation, the progress rate* will be displayed alternately with the display.
- During the test operation, it is not possible to stop the unit operation from a user interface. To abort the operation, press the **RETURN (BS3)** button. The unit will stop after ±30 seconds.
  * The progress rate is displayed in **00P-99P**, but it may advance rapidly.
- If you have to leave the outdoor unit during check operation, either switch with another worker or close the front panel.
- The system operates for about 30 minutes (60 minutes at maximum) and automatically stops the check operation.
- The system can start normal operation about 5 minutes **after the check operation** if the remote controller does not display any error code.
  The remote controller will show the test operation display during check operation.

6. Close the front panel of the outdoor unit after check operation is complete.

Precautions during check operation
- When above situation cannot be confirmed after 12 minutes, the error code can be checked on the indoor unit user interface and the outdoor unit segment display. Solve the error code accordingly. The communication wiring should be checked at first.

- In order to ensure uniform refrigerant distribution, it may take up to around 10 minutes for the compressor to start up after the unit begins running. This is not a malfunction.
- Each indoor unit cannot be checked individually for problems. After this operation is complete, run the unit normally using the remote controller.
- The check operation cannot be performed in other modes.
- If the discharge pipe thermistor (R21T), the suction pipe thermistor (R3T), and the pressure sensors (S1NPH and S1NPL) are removed before operation, the compressor might burn out, so avoid this under all circumstances.

Temperature Control Operation Checklist

Set the master unit (the indoor unit with rights of selection cooling or heating)

With a wired remote controller

- After check operation is complete, displays of all the connected remote controllers will flash "Switching mode".
- Ask the customer which indoor unit to set as the master unit. (Setting the most frequently used indoor unit as the master unit is recommended.)
- Press the mode-switch button on the remote controller for the master unit.
- That remote controller will then become the remote controller for switching between cooling and heating.
- All other remote controllers will display "Switching mode".

With wireless remote controller

- After check operation is complete, the timer lamps on all the indoor units which are connected will flash.
- Ask the customer which indoor unit to set as the master unit. (Setting the most frequently used indoor unit as the parent unit is recommended.)
- Press the mode-switch button on the remote controller for the master unit. A beeping sound will be emitted and the timer lamps on all the indoor units will go off.
- That indoor unit will be the indoor unit which has the right to switch between cooling and heating. For details, see the operation manual which comes with the unit.

After check operation is complete, check the temperature control using normal operation.
(Heating is not possible if the outdoor temperature is 75°F (24°C) or higher.)

1. Make sure the indoor and outdoor units are operating normally. (If liquid compression by the compressor or other abnormal noises can be heard, stop the unit immediately, heat the crankcase for a sufficient amount of time, and try again.)
2. Run each indoor unit one at a time and make sure the corresponding outdoor unit is also running.
3. Check to see if cold (or hot) air is coming out of the indoor unit.
4. Press the fan direction and fan speed buttons on the indoor unit to see if they operate properly.

Precautions during temperature control checks

- For around 5 minutes after the compressor stops, the compressor will not run even if the ON/OFF button on the remote controller is pressed.
- When the system operation is stopped by the remote controller, the outdoor unit may continue operating for up to 1 minute.
- Error code **U3** is displayed if check operation is not performed using the test run button the first time after installation. Perform the check operation in accordance with **Power On–Check Operation**.

Remote controller displays error code (Check on a remote controller.)

Error code	Installation error	Remedial action
E3	The stop valve of an outdoor unit is left closed.	Open the gas-side stop valve and the liquid-side stop valve.
	Refrigerant overcharge	Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery unit.
E4	The stop valve of an outdoor unit is left closed.	Open the gas-side stop valve and the liquid-side stop valve.
	Insufficient refrigerant	Check if the additional refrigerant charge has been finished correctly.
		Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.
F3	The stop valve of an outdoor unit is left closed.	Open the gas-side stop valve and the liquid-side stop valve.
	Insufficient refrigerant	Check if the additional refrigerant charge has been finished correctly.
		Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.
U2	Insufficient power supply voltage	Check to see if the power supply voltage is supplied properly.
U3	If a check operation has not been performed	Perform a check operation.
U4	No power is supplied to an outdoor unit.	Turn the power on for the outdoor unit.
UA	If no dedicated indoor unit is being used.	Check the indoor unit. If it is not a dedicated unit, replace the indoor unit.
UF	The stop valve of an outdoor unit is left closed.	Open the gas-side stop valve and the liquid-side stop valve.
	If the right indoor unit piping and wiring are not properly connected to the outdoor unit.	Make sure that the right indoor unit piping and wiring are properly connected to the outdoor unit.

When using a central controller, see the installation manual which came with the central controller.

If nothing is displayed on the remote controller

There might be a problem with the connections or communication between the indoor unit and the remote controller. Make sure all the wiring is properly connected.

Caution

To the piping installer, To the electrician

After the test operation, when handing the unit over to the customer, make sure the front panel on the unit and all screws are attached.

Part 6
Service Diagnosis

1. Servicing Items to be Confirmed

1.1 Troubleshooting

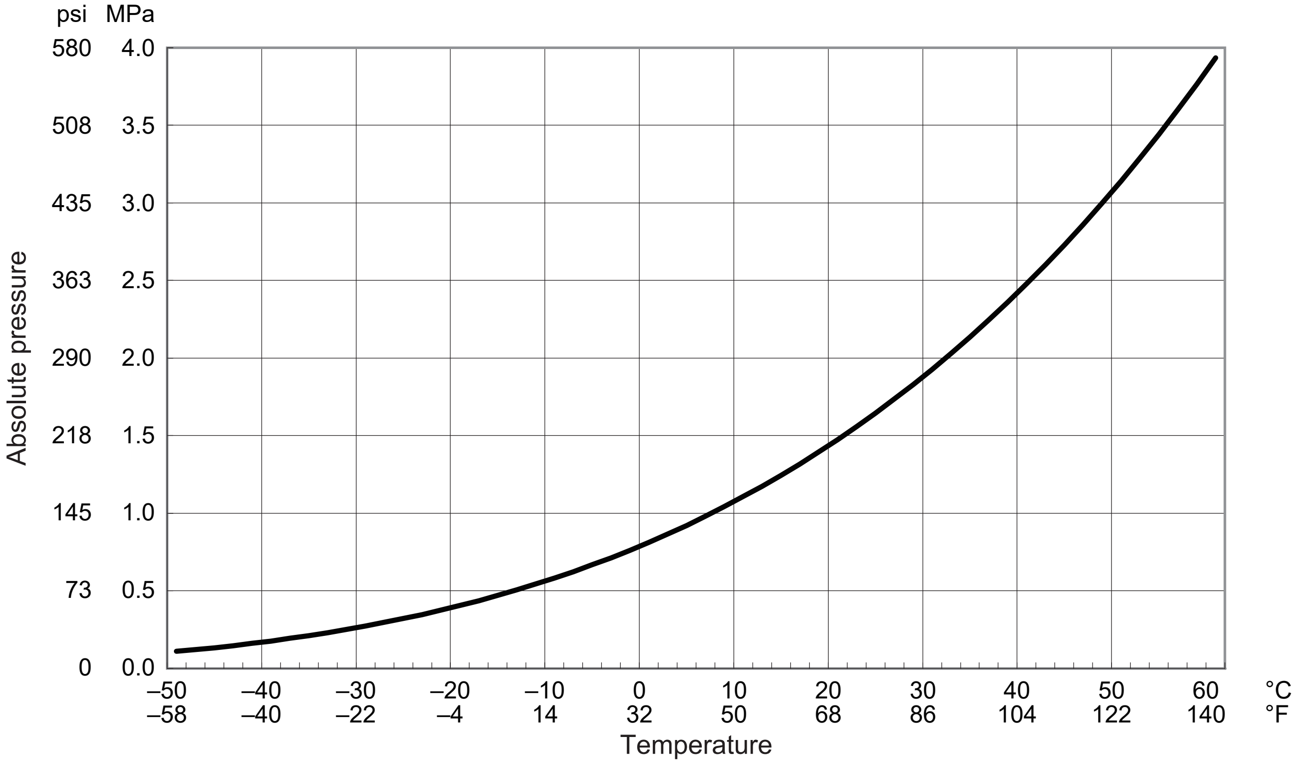
1. Initial verification and troubleshooting
   (1) Properly understand the end user's needs and issues.
   (2) Check the cause of errors according to the description provided by the end user.
   (3) Check if the remote controller displays any error codes (or use the outdoor unit monitoring mode to check for errors).
   (4) If there is no display of error codes, refer to **Symptom-based Troubleshooting** on page 140 for diagnosis.
   If an error code is displayed, refer to troubleshooting flowchart for diagnosis.
2. Take appropriate measures.
   (1) Repair the defect or replace the parts according to the troubleshooting results.
   (2) Turn off the power supply for 10 minutes before disassembling.
   (3) The refrigerant has to be collected before refrigerant system components are replaced.
3. Verification after taking appropriate measures
   (1) Run the unit after repairing the defect to confirm normal unit operation.
   (2) Record the check results and inform the client.

1.2 Precautions for Maintenance

Pay attention to the following matters in servicing.

1. Precaution for maintenance
   Touch the paint-free metal part of the product to release static electricity before starting work.
2. Before servicing, always measure the power terminal (X1M) with multimeter to confirm that the power has been switched off.
3. Be careful when touching the high-temperature components.
   There is a possibility that each component box can generate high temperature.
4. Be careful when touching a live part.
   Do not touch any live part until confirming that the residual voltage is lower than 50 V.
   (1) After switching off the power, put the unit aside for 10 minutes.
   (2) Always touch the grounding terminal with your hands to discharge the static electricity on your body (preventing damage to PCB).
   (3) Do not touch any live parts. Always measure the voltage at the measuring point of residual voltage.
   (4) After confirming the residual voltage, immediately unplug the connector of the exterior unit fan motor (when the fan of exterior unit rotates against a strong wind, the capacitor may accumulate electricity resulting in potential electric shock).
   ∗ **After completing service work, plug in the connector for the fan motor in the outdoor unit.**
   Refer to page 300 for **Opening and Closing the Electrical Component Box**.
5. Precautions for piping work and refrigerant charging:
   This unit uses R-32 refrigerant. Pay attention to the following conditions.
   (1) The charging pipe and the manifold tube use R-32 products for pressure maintenance and avoiding contamination by impurities (SUNISO oil, etc.).
   (2) Be sure to purge with nitrogen when brazing.
   (3) Properly perform airtightness test and vacuum drying. (Airtight test pressure: 4.0 MPa (580 psi))
   (4) Charge refrigerant in liquid state.
6. Precautions for operating in servicing mode (field setting):
   When a test operation is interrupted or after exiting service mode, please wait for at least one minute before entering service mode again. In case of continuous execution, the outdoor unit PCB may sometimes display an error code. If any error codes are displayed, press the **RETURN (BS3)** button. If performing the above operation still does not eliminate the error, reconnect the unit to the power supply.

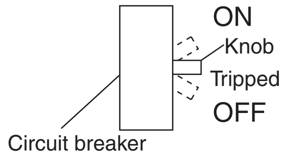
1.3 Refrigerant Characteristics (R-32)



Temperature		Absolute Pressure		Temperature		Absolute Pressure		Temperature		Absolute Pressure		Temperature		Absolute Pressure	
°C	°F	MPa	psi	°C	°F	MPa	psi	°C	°F	MPa	psi	°C	°F	MPa	psi
–50	–58	0.11	16.0	–20	–4	0.41	58.9	10	50.0	1.11	161	40	104.0	2.48	359
–48	–54.4	0.12	17.6	–18	–0.4	0.44	63.4	12	53.6	1.17	170	42	107.6	2.60	377
–46	–50.8	0.13	19.4	–16	3.2	0.47	68.3	14	57.2	1.24	180	44	111.2	2.73	396
–44	–47.2	0.15	21.4	–14	6.8	0.51	73.4	16	60.8	1.32	191	46	114.8	2.86	415
–42	–43.6	0.16	23.5	–12	10.4	0.54	78.8	18	64.4	1.39	202	48	118.4	3.00	435
–40	–40	0.18	25.7	–10	14	0.58	84.5	20	68.0	1.47	214	50	122.0	3.14	456
–38	–36.4	0.19	28.2	–8	17.6	0.62	90.5	22	71.6	1.56	226	52	125.6	3.29	477
–36	–32.8	0.21	30.7	–6	21.2	0.67	96.9	24	75.2	1.64	239	54	129.2	3.44	499
–34	–29.2	0.23	33.5	–4	24.8	0.71	104	26	78.8	1.74	252	56	132.8	3.60	522
–32	–25.6	0.25	36.5	–2	28.4	0.76	111	28	82.4	1.83	265	58	136.4	3.76	546
–30	–22	0.27	39.7	0	32	0.81	118	30	86.0	1.93	280	60	140.0	3.93	570
–28	–18.4	0.30	43.0	2	35.6	0.87	126	32	89.6	2.03	294	62	143.6	4.11	596
–26	–14.8	0.32	46.6	4	39.2	0.92	134	34	93.2	2.14	310	64	147.2	4.29	622
–24	–11.2	0.35	50.5	6	42.8	0.98	142	36	96.8	2.25	326	—	—	—	—
–22	–7.6	0.38	54.5	8	46.4	1.04	151	38	100.4	2.36	342	—	—	—	—

2. Symptom-based Troubleshooting

2.1 Indoor Unit Overall

<table>
<tr><th></th><th colspan="2">Symptom</th><th>Supposed Cause</th><th>Countermeasure</th></tr>
<tr><td rowspan="5">1</td><td colspan="2" rowspan="5">The system does not start operation at all.</td><td>Blowout of fuse(s)</td><td>Turn OFF the power supply and then replace the PCB(s).</td></tr>
<tr><td>Cutout of breaker(s)</td><td>• If the knob of any breaker is in its OFF position, turn ON the power supply.
• If the knob of any circuit breaker is in its tripped position, do not turn ON the power supply.

</td></tr>
<tr><td>Power failure</td><td>After the power failure is reset, restart the system.</td></tr>
<tr><td>The connector loose or not fully plugged in</td><td>Turn off the power supply to verify the connection of the connector.</td></tr>
<tr><td>Outdoor unit
Overload protector disconnected</td><td>If H5 is displayed when the power supply is reset, refer to the troubleshooting of H5 error.</td></tr>
<tr><td rowspan="2">2</td><td colspan="2" rowspan="2">The system starts operation but makes an immediate stop.</td><td>Blocked air inlet or outlet of indoor or outdoor unit</td><td>Remove obstacle(s).</td></tr>
<tr><td>Clogged air filter(s)</td><td>Clean the air filter(s).</td></tr>
<tr><td rowspan="11">3</td><td colspan="2" rowspan="11">The system does not cool or heat air well.</td><td>Blocked air inlet or outlet of indoor or outdoor unit</td><td>Remove obstacle(s).</td></tr>
<tr><td>Clogged air filter(s)</td><td>Clean the air filter(s).</td></tr>
<tr><td>Enclosed outdoor unit(s)</td><td>Remove the enclosure.</td></tr>
<tr><td>Improper set temperature</td><td>Set the temperature to a proper degree.</td></tr>
<tr><td>Airflow rate set to LOW</td><td>Set it to a proper airflow rate.</td></tr>
<tr><td>Improper direction of air diffusion</td><td>Set it to a proper direction.</td></tr>
<tr><td>Open window(s) or door(s)</td><td>Shut it tightly.</td></tr>
<tr><td>IN COOLING
Direct sunlight received</td><td>Hang curtains or shades on windows.</td></tr>
<tr><td>IN COOLING
Too many persons staying in a room</td><td rowspan="2">The model must be selected to match the air conditioning load.</td></tr>
<tr><td>IN COOLING
Too many heat sources (e.g. OA equipment) located in a room</td></tr>
<tr><td>IN DRYING
The reason is that the dry operation serves not to reduce the room temperature where possible.</td><td>Change the system to cooling operation.</td></tr>
<tr><td rowspan="4">4</td><td rowspan="4">The system does not operate.</td><td>The system stops and immediately restarts operation.</td><td rowspan="2">If the operation lamp on the remote controller turns ON, the system will be normal. These symptoms indicate that the system is controlled so as not to put unreasonable loads on the system.</td><td rowspan="2">Normal operation. The system will automatically start operation after a lapse of five minutes.</td></tr>
<tr><td>Pressing the temperature setting button immediately resets the system.</td></tr>
<tr><td>The remote controller displays CENTRAL CONTROL, which blinks for a period of several seconds when the OPERATION button is depressed.</td><td>The system is controlled with centralized controller. Blinking display indicates that the system cannot be operated using the remote controller.</td><td>Operate the system using the COOL/HEAT central remote controller.</td></tr>
<tr><td>The system stops immediately after turning ON the power supply.</td><td>The system is in preparation mode of microcomputer operation.</td><td>Wait for a period of approximately one minute.</td></tr>
<tr><td>5</td><td>The system makes intermittent stops.</td><td>The remote controller displays error codes U4 or U5, and the system stops but restarts after a lapse of several minutes.</td><td>The system stops due to an interruption in communication between units caused by electrical noises coming from equipment other than air conditioners.</td><td>Remove causes of electrical noises. If these causes are removed, the system will automatically restart operation.</td></tr>
</table>

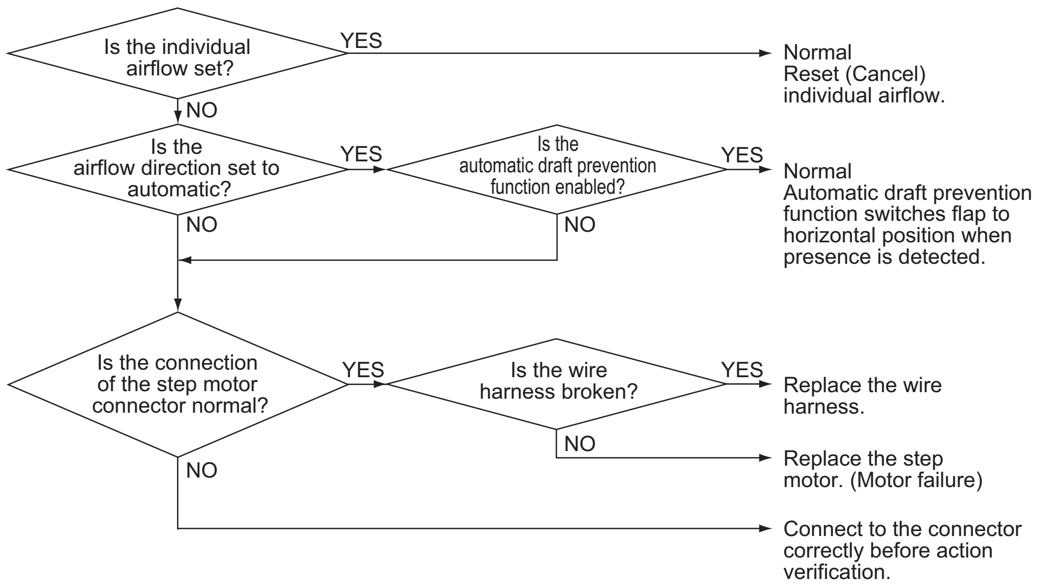
	Symptom		Supposed Cause	Countermeasure
6	COOL/HEAT selection is disabled.	The remote controller displays **CENTRAL CONTROL.**	This remote controller has no option to select cooling operation.	Use a remote controller with option to select cooling operation.
		The remote controller displays **CENTRAL CONTROL,** and the COOL/HEAT selection remote controller is provided.	COOL/HEAT selection is made using the COOL/HEAT selection remote controller.	Use the COOL/HEAT selection remote controller to select cool or heat.
7	The system conducts fan operation but not cooling or heating operation.	This symptom occurs immediately after turning ON the power supply.	The system is in preparation mode of operation.	Wait for a period of approximately 10 minutes.
		The remote controller displays **CENTRAL CONTROL;** no cooling or heating operation is performed. Switch to fan operation.	In thermal storage operation, the unit is set to fan operation in cooling or heating operation, and the remote controller shows **CENTRAL CONTROL.**	Normal operation.
8	The airflow rate is not reproduced according to the setting.	Even pressing the airflow rate setting button makes no changes in the airflow rate.	In heating operation, when the room temperature reaches the set degree, the outdoor unit will stop while the indoor unit is brought to fan LL operation so that no one gets cold air. Furthermore, if fan operation mode is selected when other indoor unit is in heating operation, the system will be brought to fan LL operation.	Normal operation.
9	The airflow direction is not reproduced according to the setting.	The airflow direction is not corresponding to that displayed on the remote controller. The flap does not swing.	Automatic control	Normal operation.
10	A white mist comes out from the system.	**Indoor unit** In cooling operation, the ambient humidity is high. (This indoor unit is installed in a place with much oil or dust.)	Uneven temperature distribution due to heavy stain of the inside of the indoor unit	Clean the inside of the indoor unit.
		Indoor unit Immediately after cooling operation stopping, the indoor air temperature and humidity are low.	Hot gas (refrigerant) that has flowed in the indoor unit results to be vapor from the unit.	Normal operation.
		Indoor and outdoor units After the completion of defrost operation, the system is switched to heating operation.	Defrosted moisture turns to be vapor and comes out from the units.	Normal operation.
11	The system produces sounds.	**Indoor unit** Immediately after turning ON the power supply, indoor unit produces ringing sounds.	These are operating sounds of the electronic expansion valve of the indoor unit.	Normal operation. This sound becomes low after a lapse of approximately one minute.
		Indoor and outdoor units Hissing sounds are continuously produced while in cooling or defrost operation.	These sounds are produced from gas (refrigerant) flowing respectively through the indoor and outdoor units.	Normal operation.
		Indoor and outdoor units Hissing sounds are produced immediately after the startup or stop of the system, or the startup or stop of defrost operation.	These sounds are produced when the gas (refrigerant) stops or changes flowing.	Normal operation.
		Indoor unit Faint sounds are continuously produced while in cooling operation or after stopping the operation.	These sounds are produced from the drain discharge device in operation.	Normal operation.
		Indoor unit Creaking sounds are produced while in heating operation or after stopping the operation.	These sounds are produced from resin parts expanding and contracting with temperature changes.	Normal operation.
		Indoor unit Sounds like trickling or the like are produced from indoor units in the stopped state.	On ***VRV*** systems, these sounds are produced when other indoor units in operation. The reason is that the system runs in order to prevent oil or refrigerant from stagnating.	Normal operation.
		Outdoor unit Pitch of operating sounds changes.	The reason is that the compressor changes the operating frequency.	Normal operation.

	Symptom		Supposed Cause	Countermeasure
12	Dust comes out from the system.	Dust comes out from the system when it restarts after the stop for an extended period of time.	Dust, which has deposited on the inside of indoor unit, is blown out from the system.	Normal operation.
13	Odors come out from the system.	In operation	Odors of room, cigarettes or else adsorbed to the inside of indoor unit are blown out.	The inside of the indoor unit should be cleaned.
14	Outdoor fan does not rotate.	In operation	The reason is that fan revolutions are controlled to put the operation to the optimum state.	Normal operation.
15	LCD display **88** or **Checking the connection. Please stand by.** appears on the remote controller.	Immediately after turning ON the power supply	The reason is that the system is checking to be sure the remote controller is normal.	Normal operation. This code is displayed for a period of approximately one minute at maximum.
16	The outdoor unit compressor or the outdoor fan does not stop.	After stopping operation	It stops in order to prevent oil or refrigerant from stagnating.	Normal operation. It stops after a lapse of approximately 5 to 10 minutes.
17	The outdoor gets hot.	While stopping operation	The reason is that the compressor is warmed up to provide smooth startup of the system.	Normal operation.
18	Hot air comes out from the system even though it stops.	Hot air is felt while the system stops.	On ***VRV*** systems, small quantity of refrigerant is fed to indoor units in the stopped state when other indoor units are in operation.	Normal operation.

2.2 With Infrared Presence/Floor Sensor

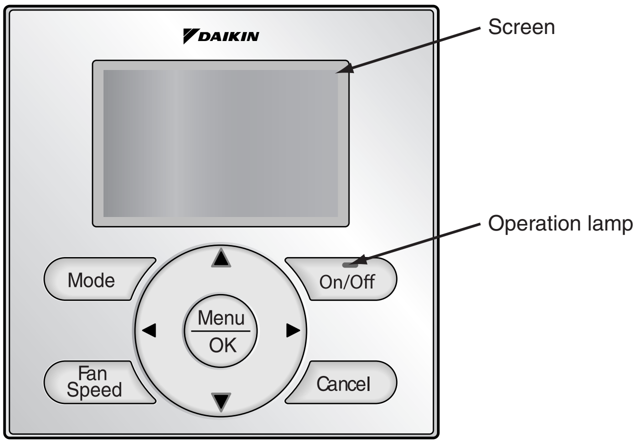
	Problem	Measure
1	Louver operation different from setting or no downward airflow in heating operation.	Refer to the flowchart below.
2	Individual airflow direction setting different from the actual airflow direction	Refer to the flowchart below.
3	While not operating, the louver does not close completely.	Turn off the circuit breaker and then turn it on again.
4	The remote controller menu does not display energy saving operating mode for when people are not present.	Refer to **Infrared presence/floor sensor error (CE)** in troubleshooting.
	The remote controller menu does not display the stop function for when people are not present.	
	The remote controller menu does not display the automatic draft prevention function.	
5	The menu does not display the eco-friendly display function.	No defect. Set the clock.
6	During cooling and dry operation, the louver automatically switches from horizontal (P0) to one-level downward (P1).	No defect. When relative ambient humidity is higher, automatic louver control will be activated.
7	During heating operation, the use of an airflow block will not cause other louvers to turn downward (P4).	No defect. In heating operation, if an airflow block is set, then the air outlet control outside the airflow block will be within the range P0-P3.
8	When using airflow block, the airflow block will be routinely lifted (become horizontal) during heating operation.	No defect. Set louver to horizontal (P0) during thermostat OFF.
9	The infrared presence sensor determines that there is someone in the room while no one is there.	Check if there are any objects that generate temperature change when moving. For example: · An electric heater with swing function · Doors, curtains, blind switches · Output of paper from a fax machine or a printer · Turning on/off of incandescent lights · Moving objects
10	The infrared presence sensor determines that there is no one in the room while someone is there.	Check for the following conditions. · Lack of movement · Facing away from the sensor · Little skin exposed · Slight movement in a place far from the sensor
11	Large difference between floor temperature and actual temperature	Check for the following conditions. · Sensor detection zone affected by solar radiation · High or low temperature objects in the sensor detection zone · Large difference between floor temperature and temperature of the living space · Sensors installed near walls may be affected by wall temperature.

Error diagnosis when the louver movement differs from the setting

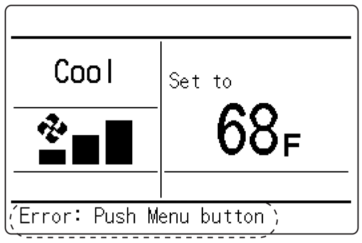
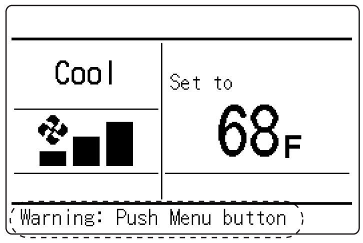


3. Error Code via Remote Controller

The following will be 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.



(1) Checking an error or warning.

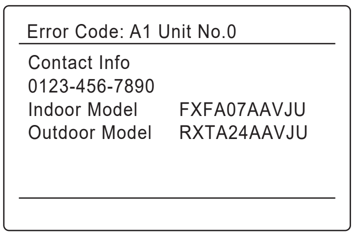
	Operation Status	Display	
Abnormal shutdown	The system stops operating.	The operation lamp (green) starts to blink. The message **Error: Push Menu button** will blink at the bottom of the screen.	
Warning	The system continues its operation.	The operation lamp (green) remains on. The message **Warning: Push Menu button** will blink at the bottom of the screen.	

(2) Taking corrective action.

Press the **Menu/OK** button to check the error code.

⇩

Take the corrective action specific to the model.

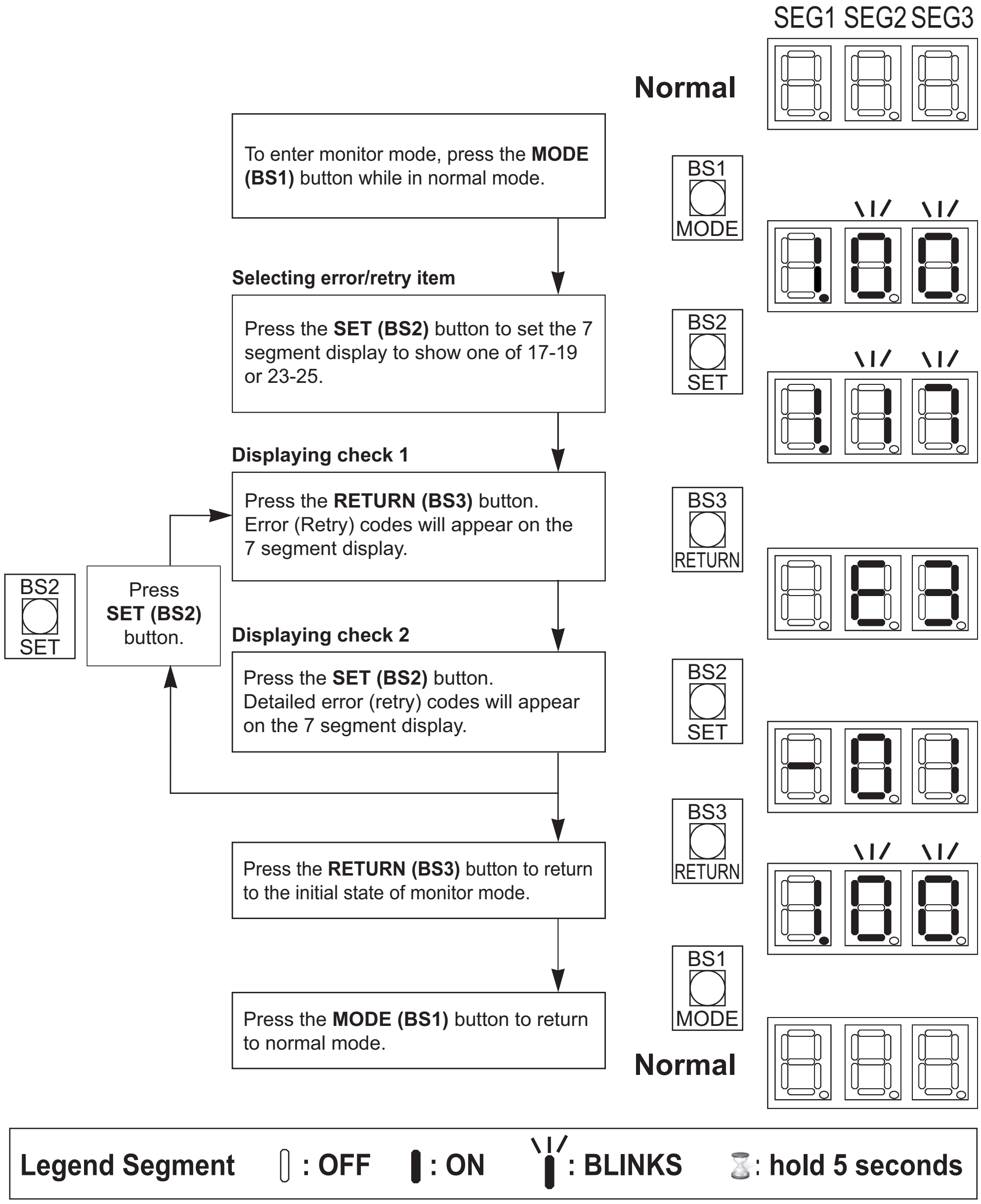


4. Error Code via Outdoor Unit PCB

Follow the procedure described below. This procedure is different than indicated in previous Monitor mode.

The error codes for forced stop outdoor or retry are item:

- 17, 18, 19: description of error (outdoor system stopped operation).
- 23, 24, 25: description of retry.



- The tables on next pages show a full list of possible error codes displayed on the 3 digit 7 segment display of the outdoor unit. The error code contains an upper and lower digit. To scroll between upper and lower error digit, use the **SET (BS2)** button when the select number in the monitor mode is chosen:
  - No. 17-19 for error: System operation stopped.
  - No. 23-25 for retry: System attempts to keep operation.
- The errors cover problems detected in the outdoor unit or the communication.
- Errors detected on the indoor unit are not shown on the outdoor display. For inspecting error code on indoor unit, please consult:
  - Display of the remote controller connected to the indoor units.
  - If there are no remote controllers, there should be a central control device set up. Prior to start up, make the necessary group number settings on each indoor unit.

5. Troubleshooting by Error Code

5.1 Error Codes and Descriptions

There are three abnormality levels (abnormal shutdown, warning, and alarm). The operation status and the display on the remote controller differ for each level. Refer to the following details for troubleshooting, inspection and repair.

Abnormality level	Operation lamp	Operation status	Display on the remote controller (BRC1NRV71)
Abnormal shutdown	◑: Blink	Suspended (∗1)	The operation lamp (green) blinks and the message **Error: Push Menu button** blinks at the bottom of the screen. Press the **Menu/OK** button to confirm the error code.
Warning	○: ON	Continued	The operation lamp (green) remains on and the message **Warning: Push Menu button** blinks at the bottom of the screen. Press the **Menu/OK** button to confirm the error code.
Alarm	○: ON	Continued	The operation lamp (green) remains on and the other displays are the same as in normal operation. Check the error code in the **Maintenance Information** on the main menu.)

∗1. In the case of an abnormal shutdown of the ***VRV*** indoor unit, the relevant unit may only be in thermostat-off state, without stopping operation.

○: ON ●: OFF ◑: Blink

	Error code	Operation lamp	Error contents	Reference page
Indoor Unit	A0	◑	External protection device abnormality	152
			Refrigerant leak detection (confirmed)	154
			Refrigerant leak detection (monitoring)	156
	A1	◑	Indoor unit control PCB abnormality	157
	A3	◑	Drain level control system abnormality	158
			Drain pump connector disconnection detected	160
	A6	◑	Indoor fan motor abnormality	161
			Indoor fan motor lock, overload	163
			Blower motor not running	165
			Indoor fan motor status abnormality	166
			Low indoor airflow	167
	A8	◑	Power supply voltage abnormality	168
	A9	◑	Electronic expansion valve coil abnormality, dust clogging	169
	AF (∗1)	○	Drain level above limit	170
	AH	○ / ◑ (∗3)	Self-cleaning decoration panel abnormality	171
	AJ	◑	Defective capacity setting	182
	C1	○ / ◑ (∗3)	Transmission abnormality between indoor unit control PCB and fan PCB	183
			Transmission abnormality between indoor unit A1P PCB and A2P PCB	185
			Blower motor communication error	186
	C4	◑	Indoor heat exchanger liquid pipe thermistor abnormality	187
	C5	○ / ◑ (∗3)	Indoor heat exchanger gas pipe thermistor abnormality	187
	C6	◑	Combination error between indoor unit control PCB and fan PCB	188
			Blower motor HP mismatch	189
	C9	○ / ◑ (∗3)	Suction air thermistor abnormality	187
			Remote sensor abnormality	190
	CA	○	Discharge air thermistor abnormality	187
	CE (∗1)	○	Infrared presence/floor sensor error	191
	CH	◑	Refrigerant leak detection sensor failure	196
			Refrigerant leak detection sensor disconnection	198
	CJ (∗2)	○ / ◑ (∗3)	Remote controller thermistor abnormality	200
Outdoor Unit	E1	◑	Outdoor unit main PCB abnormality	201
	E3	◑	Activation of high pressure switch	202
	E4	◑	Activation of low pressure sensor	204
	E5	◑	Compressor motor lock	205
	E7	◑	Outdoor fan motor abnormality	207
	E9	○ / ◑ (∗3)	Electronic expansion valve coil abnormality	209

	Error code	Operation lamp	Error contents	Reference page
Outdoor Unit	F3	◑	Discharge pipe temperature abnormality	210
	F4	○ / ◑ (∗3)	Compressor floodback alarm	212
	H5	◑	Defective overload protector	214
	H7	◑	Inverter PCB abnormality	215
	H9	◑	Outdoor air thermistor (R1T) abnormality	216
	J3	◑	Discharge pipe thermistor (R21T) abnormality	216
	J5	◑	Suction pipe thermistor (R3T) abnormality	216
	J6	◑	Deicer thermistor (R7T) abnormality	216
	J7	◑	Subcooling liquid pipe thermistor (R5T) abnormality	216
	J8	◑	Heat exchanger liquid pipe thermistor (R4T) abnormality	216
	J9	◑	Subcooling gas pipe thermistor (R6T) abnormality	216
	JA	◑	High pressure sensor abnormality	217
	JC	◑	Low pressure sensor abnormality	218
	L1	◑	Inverter PCB abnormality	219
	L4	◑	Radiation fin temperature rise abnormality	220
	L5	◑	Compressor instantaneous overcurrent	222
	L8	◑	Compressor overcurrent	224
	L9	◑	Compressor startup abnormality	226
	LC	◑	Transmission error between outdoor unit main PCB and inverter PCB	228
	P1	○	Voltage imbalance	230
	P4 (∗1)	◑	Radiation fin temperature abnormality	231
	PJ	◑	Combination of PCB abnormality	232
System	U0 (∗1)	○	Oil return failure alarm during cooling (due to shortage of refrigerant)	233
			Refrigerant accumulation alarm for non-operating units during heating (due to refrigerant shortage)	235
	U1	◑	Power supply frequency issue	237
	U2	◑	Abnormal power supply voltage	238
	U3	◑	Check operation not executed	240
	U4	◑	Transmission error between indoor and outdoor units	241
	U5	◑	Transmission error between remote controller and indoor unit	244
	U7	◑	Transmission error for optional adaptor/PCB	245
	U8	◑	Transmission error between main and sub remote controllers	249
	U9	◑	Transmission error between indoor and outdoor units in the same system	250
	UA	◑	Improper combination of indoor and outdoor units	251
			Incorrect electric heater capacity setting	253
	UC (∗1)	○	Address duplication of centralized controller	254
	UE	◑	Transmission error between centralized controller and indoor unit	255
	UF	○ / ◑ (∗3)	System not set yet	257
	UH	◑	System abnormality	259
	M1	◑	Defective PCB	260
	M8	◑	Transmission error (between centralized controllers)	261
	MA	◑	Poor centralized controller combination	262
	MC	◑	Address duplication, poor setting	263
	—	◑	Operation lamp blinking	264
	—	◑	Central control indicator lamp blinking (one blink)	266
	—	◑	Central control indicator lamp blinking (two blinks)	269

Note(s)

∗1. The system can keep operating, however, be sure to check and repair.
∗2. The system may continue operation depending on the conditions.
∗3. The operation lamp may change depending on the error state.

5.2 Error Codes (Sub Codes)

If an error code like the one shown below is displayed when a wired remote controller is in use, make a detailed diagnosis.

5.2.1 Indoor Unit

Error code	Troubleshooting	
	Error Description	**Diagnosis**
A0 - 01	External protection device abnormality	Refer to page 153.
A0 - 17	Refrigerant leak detection (confirmed)	Refer to page 154.
A0 - 19	Refrigerant leak detection (monitoring)	**For FXFA-AA, FXSA-AA, FXMA-AA** The sensor detects something and is checking if it is a refrigerant leak. If not, the error code will disappear in a while. **For FXTA-AA** Refer to page 156.
A3 - 08	Drain pump connector disconnection is detected.	Refer to page 160.
A6 - 01	Fan motor locked	A locked fan motor current has been detected. Turn the fan by hand to check for the connection of connectors.
A6 - 10	Fan overcurrent error	A fan motor overcurrent has been detected. Check for the connection of the connector between the fan motor and the fan PCB. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the fan PCB.
A6 - 11	Fan position detection error	An error in the detection of position of the fan motor. Check for the connection of the connector between the fan motor and the fan PCB. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the fan PCB.
A6 - 20	Indoor fan motor status abnormality	Refer to page 166.
A6 - 21	Low indoor airflow	Refer to page 167.
A8 - 01	Power supply voltage error	Check for the input voltage of the fan motor.
A9 - 01	Electronic expansion valve error	There is an error in the electronic expansion valve coil or a connector disconnected.
A9 - 02	Refrigerant leakage detection error	Refrigerant leaks even if the electronic expansion valve is closed. Replace the electronic expansion valve.
AH - 03	Transmission error (between the self-cleaning decoration panel and the indoor unit) (when the self-cleaning decoration panel is mounted)	Check for the connection of the harness connector between the panel PCB and the indoor unit PCB.
AH - 04	Dust detection sensor error (when the self-cleaning decoration panel is mounted)	Check for the connections of the connector X12A on the panel PCB and the connectors X18A and X19A on the sensor PCB.
AH - 05	Dust collection sign error (when the self-cleaning decoration panel is mounted)	Check for clogging with dust at the dust collection port as well as in the brush unit, S-shaped pipe, and dust box. Furthermore, check for any stains of the light receiving and emitting parts of the infrared unit.
AH - 06	Air filter rotation error (when the self-cleaning decoration panel is mounted)	Check for anything getting in the way of rotating the filter (e.g. the filter comes off or the drive gear is clogged with foreign matter).
AH - 07	Damper rotation error (when the self-cleaning decoration panel is mounted)	The damper does not rotate normally. Check for any foreign matter around the damper and for the operation of the gear and limit switch.
AH - 08	Filter auto clean operation error (when the self-cleaning decoration panel is mounted)	The unit has not yet completed the filter auto clean operation even after the lapse of specified period of time. Check for any external noise, etc.
AH - 09	Filter auto clean operation start disabled error (when the self-cleaning decoration panel is mounted)	The unit has been put into a state in which the filter auto clean operation is disabled. Check the unit for the operating conditions.
AJ - 01	Capacity setting error	There is an error in the capacity setting of the indoor unit PCB.
AJ - 02	Electronic expansion valve setting error	There is a fault in the setting of the gear type electronic expansion valve/direct acting type electronic expansion valve.
C1 - 01	Transmission abnormality between indoor unit PCB and fan PCB (FXSA-AA, FXMA-AA)	Check for the conditions of transmission between the indoor unit PCB and the fan PCB.
	Transmission abnormality between indoor unit A1P PCB and A2P PCB (FXTA-AA)	Check for the conditions of transmission between the indoor unit A1P PCB and A2P PCB.
C1 - 07	Blower motor communication error	Refer to page 186.
C6 - 01	Defective combination of indoor unit PCB and the fan PCB	A combination of indoor unit PCB and the fan PCB is defective. Check whether the capacity setting adaptor is correct and the type of the fan PCB is correct.
	Blower motor HP mismatch	Refer to page 189.
CH - 11	Refrigerant leak detection sensor failure	Refer to page 196.
CH - 14	Refrigerant leak detection sensor disconnection	Refer to page 198.
U4 - 01	Indoor-outdoor transmission error	Refer to the **U4** flowchart.

Error code	Troubleshooting	
	Error Description	Diagnosis
UA - 13	Refrigerant type error	The type of refrigerant used for the indoor unit is different from that used for the outdoor unit.
UA - 15	Not applicable for self-cleaning decoration panel [when the self-cleaning decoration panel is mounted]	An outdoor unit is not applicable for the self-cleaning decoration panel is connected.
UA - 17	Incorrect electric heater capacity setting	Refer to page 253.

5.2.2 Outdoor Unit, System

Error code	Troubleshooting	
	Error Description	Diagnosis
E1 - 01	Outdoor unit PCB error	Refer to the **E1** flowchart and make a diagnosis based on the Error code shown to the left.
E1 - 16	Communication error between DIV communication IC and microcontroller	
E1 - 17	Outdoor unit PCB error (external flash IC failure)	
E3 - 01	Activation of high pressure switch S1PH	Refer to the **E3** flowchart and make a diagnosis based on the Error code shown to the left.
E3 - 02	High pressure sensor error	
E3 - 13	Liquid stop valve check error	
E3 - 18	Overall retry of high pressure switch	
E4 - 01	Low pressure sensor error	Refer to the **E4** flowchart and make a diagnosis based on the Error code shown to the left.
E5 - 01	Compressor M1C lock	Refer to the **E5** flowchart and make a diagnosis based on the Error code shown to the left.
E7 - 01	Fan motor M1F lock	Refer to the **E7** flowchart and make a diagnosis based on the Error code shown to the left.
E7 - 05	Fan motor M1F momentary overcurrent	
E7 - 09	Fan motor M1F IPM error	
E9 - 01	Electronic expansion valve coil (Y1E) error	Refer to the **E9** flowchart and make a diagnosis of the relevant electronic expansion valve based on the Error code shown to the left.
E9 - 03	Electronic expansion valve coil (Y2E) error	
E9 - 04	Electronic expansion valve coil (Y3E) error	
E9 - 20	Defective electronic expansion valve coil (Y1E)	
E9 - 23	Defective electronic expansion valve coil (Y3E)	
E9 - 29	Electronic expansion valve coil (Y4E) error	
F3 - 01	Discharge pipe M1C high temperature error	Refer to the **F3** flowchart and make a diagnosis based on the Error code shown to the left.
F3 - 20	Compressor M1C overheat error	
F3 - 23	Compressor M1C overheat error	
F4 - 02	Floodback alarm for compressor M1C	Refer to the **F4** flowchart and make a diagnosis based on the Error code shown to the left.
F4 - 08	Floodback error for compressor M1C	
F4 - 14	Indoor unit failure alarm	
H5 - 01	Defective overload protector	Refer to the **H5** flowchart and make a diagnosis based on the Error code shown to the left.
H7 - 01	Defective inverter PCB (A3P): Fan M1F	Refer to the **H7** flowchart and make a diagnosis based on the Error code shown to the left.
H7 - 21	Defective inverter PCB (A3P): Fan M1F	
H9 - 01	Defective outdoor air thermistor (R1T)	Refer to the **H9** flowchart and make a diagnosis based on the Error code shown to the left.
J3 - 16	Defective discharge pipe thermistor (R21T): Open	Refer to the **J3** flowchart and make a diagnosis based on the Error code shown to the left.
J3 - 17	Defective discharge pipe thermistor (R21T): Short	
J3 - 56	Discharge pipe warning	
J5 - 01	Error detection of suction pipe thermistor (R3T)	Refer to the **J5** flowchart and make a diagnosis based on the Error code shown to the left.
J6 - 01	Defective deicer thermistor (R7T)	Refer to the **J6** flowchart and make a diagnosis based on the Error code shown to the left.
J7 - 06	Defective subcooling liquid pipe thermistor (R5T)	Refer to the **J7** flowchart and make a diagnosis based on the Error code shown to the left.
J8 - 01	Defective heat exchanger liquid pipe thermistor (R4T)	Refer to the **J8** flowchart and make a diagnosis based on the Error code shown to the left.
J9 - 01	Defective subcooling gas pipe thermistor (R6T)	Refer to the **J9** flowchart and make a diagnosis based on the Error code shown to the left.
JA - 06	Defective high pressure sensor (S1NPH): Open	Refer to the **JA** flowchart and make a diagnosis based on the Error code shown to the left.
JA - 07	Defective high pressure sensor (S1NPH): Short	
JC - 06	Defective low pressure sensor (S1NPL): Open	Refer to the **JC** flowchart and make a diagnosis based on the Error code shown to the left.
JC - 07	Defective low pressure sensor (S1NPL): Short	

Error code	Troubleshooting	
	Error Description	**Diagnosis**
L1 - 01	IPM error: Compressor M1C	Refer to the **L1** flowchart and make a diagnosis based on the Error code shown to the left.
L1 - 02	Defective current sensor 1: Compressor M1C	
L1 - 03	Defective current sensor 2: Compressor M1C	
L1 - 04	IGBT error: Compressor M1C	
L1 - 05	Jumper settings error	
L1 - 36	Defective inverter PCB EEPROM: Compressor M1C	
L1 - 47	15 V power supply error: Compressor M1C	
L4 - 01	Radiation fin temperature rise: Inverter PCB M1C	Refer to the **L4** flowchart and make a diagnosis based on the Error code shown to the left.
L4 - 06	Radiation fin temperature rise: Fan M1F	
L5 - 03	Compressor M1C momentary overcurrent	Refer to the **L5** flowchart and make a diagnosis based on the Error code shown to the left.
L8 - 03	Compressor M1C overcurrent	Refer to the **L8** flowchart and make a diagnosis based on the Error code shown to the left.
L9 - 01	Compressor M1C startup error	Refer to the **L9** flowchart and make a diagnosis based on the Error code shown to the left.
L9 - 13	Inverter output open phase M1C	
LC - 14	Transmission error (between outdoor unit main PCB and inverter PCB): M1C	Refer to the **LC** flowchart and make a diagnosis based on the Error code shown to the left.
P1 - 01	Inverter unbalanced voltage	Refer to the **P1** flowchart and make a diagnosis based on the Error code shown to the left.
P4 - 01	Defective inverter fin sensor M1C	Refer to the **P4** flowchart and make a diagnosis of the sensor based on the Error code shown to the left.
PJ - 04	Incorrect type of inverter PCB M1C	Refer to the **PJ** flowchart and make a diagnosis based on the Error code shown to the left.
U0 - 05	Oil return failure alarm during cooling (due to shortage of refrigerant)	Refer to the **U0** flowchart and make a diagnosis based on the Error code shown to the left.
U0 - 06	Refrigerant accumulation alarm for non-operating units during heating (due to shortage of refrigerant)	
U1 - 19	Power supply frequency issue	Refer to the **U1** flowchart and make a diagnosis based on the Error code shown to the left.
U2 - 01	Abnormal power supply voltage	Make a diagnosis based on the following. **Shortage of power supply voltage** If the other units detect shortage of power supply voltage, power supply voltage during operation may be unstable. Check the power supply condition. If a particular unit detects the error, operation of 52C may be defective. Follow the **U2** flowchart. **Open phase of power supply** The wiring between power supply and inverter PCB may be disconnected. Check that power supply is connected to terminal block, terminal block is connected to PCB without broken wire or disconnection, and reactor wiring is secured. If no abnormality is found, follow the **U2** flowchart. **Defective capacitor in main circuit** P-N on the inverter PCB (electrolytic capacitor, power module) may be damaged and short circuited. Operation of current limiting relay may be defective or the wiring between the reactor and PCB may be disconnected. Measure the resistance between C+ and C− on the inverter PCB and check for short circuit. If no abnormality is found, follow the **U2** flowchart.
U2 - 02	Open phase of inverter power supply	
U2 - 03	Defective capacitor in inverter main circuit	
U2 - 36	Fan motor 1 undervoltage	
U3 - 02	Initial installation warning	Refer to the **U3** flowchart and make a diagnosis based on the Error code shown to the left.
U3 - 03	Test operation not conducted	
U3 - 04	Abnormal end of test operation	
U3 - 05	Premature end of test operation during initial transmission error	
U3 - 06	Premature end of test operation during normal transmission error	
U3 - 07	Premature end of test operation due to transmission error of either unit	
U3 - 08	Premature end of test operation due to transmission error of all units	

Error code	Troubleshooting	
	Error Description	**Diagnosis**
U4 - 09	Indoor/outdoor transmission error (all indoor units 2: continuous)	Refer to the **U4** flowchart and make a diagnosis based on the Error code shown to the left.
U4 - 10	Indoor/outdoor transmission error (all indoor units 2: intermittent)	
U4 - 11	Indoor/outdoor transmission error (all indoor units 1: continuous)	
U4 - 12	Indoor/outdoor transmission error (all indoor units 1: intermittent)	
U4 - 13	Indoor/outdoor transmission error (some indoor units: continuous)	
U4 - 14	Indoor/outdoor transmission error (some indoor units: intermittent)	
U4 - 16	DIV communication disconnection error	
U4 - 17	Master candidate list not received during system recognition	
U4 - 18	LFC transmission error during system recognition	
U4 - 19	LFC transmission error during system recognition	
U7 - 01	Error when external control adaptor for outdoor unit is installed	Refer to the **U7** flowchart and make a diagnosis based on the Error code shown to the left.
U7 - 02	Warning when external control adaptor for outdoor unit is installed	
U7 - 11	Error in indoor unit connection capacity for test operation	
U9 - 01	Other indoor units abnormality	Refer to the **U9** flowchart and make a diagnosis based on the Error code shown to the left.
UA - 17	Connection of excessive indoor units	Refer to the **UA** flowchart and make a diagnosis based on the Error code shown to the left.
UA - 18	Connection of wrong models of indoor units	
UF - 01	Wrong wiring check error	Refer to the **UF** flowchart and make a diagnosis based on the Error code shown to the left.
UF - 05	Defective stop valve for test operation	
UF - 10	Failure to join network during system recognition	
UF - 19	Wrong wiring, wrong model connected to outdoor/outdoor communication wiring	
UF - 20	Wrong wiring, wrong connection port for communication wiring	
UF - 23	Wrong wiring, wrong model connected to indoor/outdoor communication wiring	
UF - 24	Wrong wiring, Not applicable indoor unit is connected.	
UF - 26	Communication wiring short circuit error during system recognition	
UF - 30	Wrong wiring, detection of miswiring of equipment within the system (directly below)	
UF - 31	Wrong wiring, detection of miswiring of equipment within the system (not directly below)	
UH - 01	Wiring error	Refer to the **UH** flowchart and make a diagnosis based on the Error code shown to the left.
UH - 13	Excessive connection of Master candidate during system recognition	
UH - 14	Number of blocklist entries is abnormal during system recognition.	

5.3 External Protection Device Abnormality

5.3.1 External Protection Device Abnormality (Except FXTA-AA)

Applicable Models

FXFA-AA, FXSA-AA, FXMA-AA

Error Code

A0

Method of Error Detection

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

Error Decision Conditions

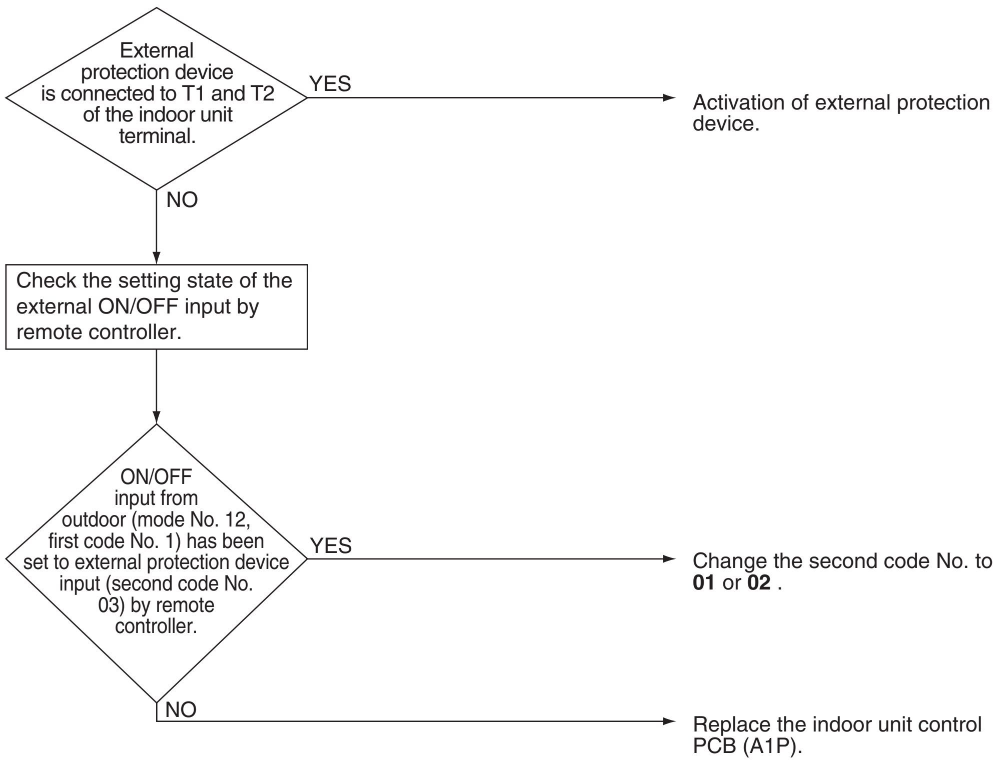
When an open circuit occurs between external input terminals with the remote controller set to external ON/OFF terminal.

Supposed Causes

- Activation of external protection device
- Improper field setting
- 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.



5.3.2 External Protection Device Abnormality (FXTA-AA Only)

Applicable Models

FXTA-AA

Error Code

A0-01

Method of Error Detection

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

Error Decision Conditions

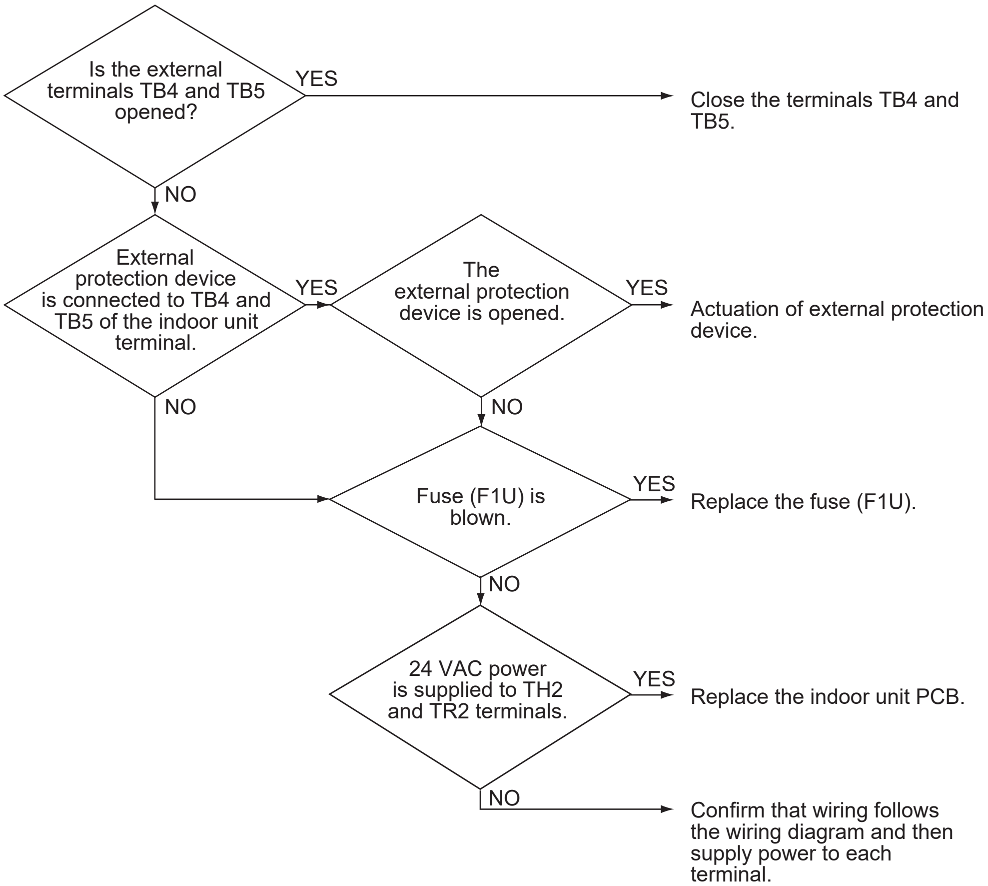
When an open circuit occurs between external input terminals.

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.



5.4 Refrigerant Leak Detection (Confirmed)

5.4.1 Refrigerant Leak Detection (Confirmed) (Except FXTA-AA)

Applicable Models

FXFA-AA, FXSA-AA, FXMA-AA

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

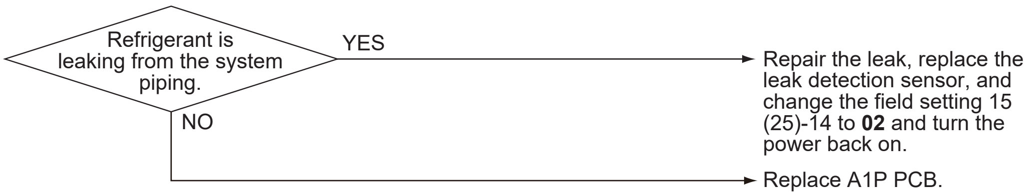
Supposed Causes

- 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.



5.4.2 Refrigerant Leak Detection (Confirmed) (FXTA-AA Only)

Applicable Models

FXTA-AA

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

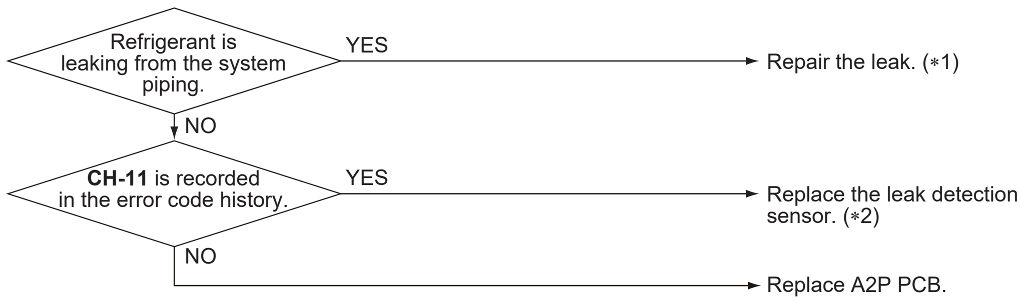
Supposed Causes

- Refrigerant leak from system piping
- Refrigerant leak detection sensor deterioration/failure
- Defective A2P 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.
- Even if no refrigerant is confirmed after detection, the leak detection function will continue for 5 minutes.



Note(s)

∗1. Sensor replacement is generally not necessary until **CH-11** or **CH-14** errors are detected.
∗2. For sensor replacement, refer to **Refrigerant Leak Detection Sensor Replacement (FXTA-AA models only)** on page 299.

5.5 Refrigerant Leak Detection (Monitoring) (FXTA-AA Only)

Applicable Models

FXTA-AA

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

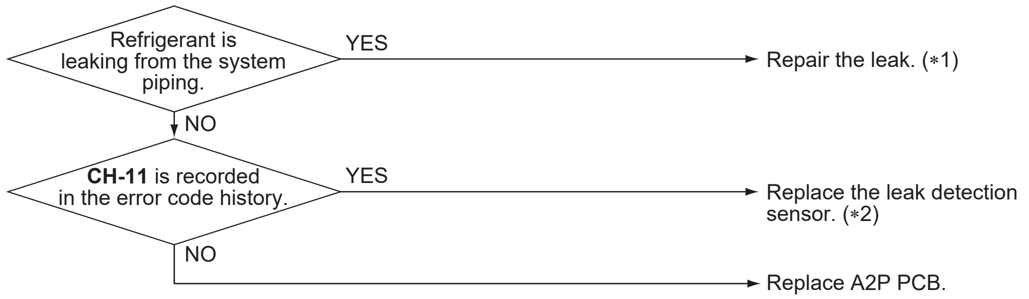
Supposed Causes

- Refrigerant leak from system piping
- Refrigerant leak detection sensor deterioration/failure
- Defective A2P 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.
- Even if no refrigerant is confirmed after detection, the leak detection function will continue for 5 minutes.



Note(s)

∗1. Sensor replacement is generally not necessary until **CH-11** or **CH-14** errors are detected.
∗2. For sensor replacement, refer to **Refrigerant Leak Detection Sensor Replacement (FXTA-AA models only)** on page 299.

5.6 Indoor Unit Control PCB Abnormality

Applicable Models

All indoor unit models

Error Code

A1

Method of Error Detection

Check data from EEPROM.

Error Decision Conditions

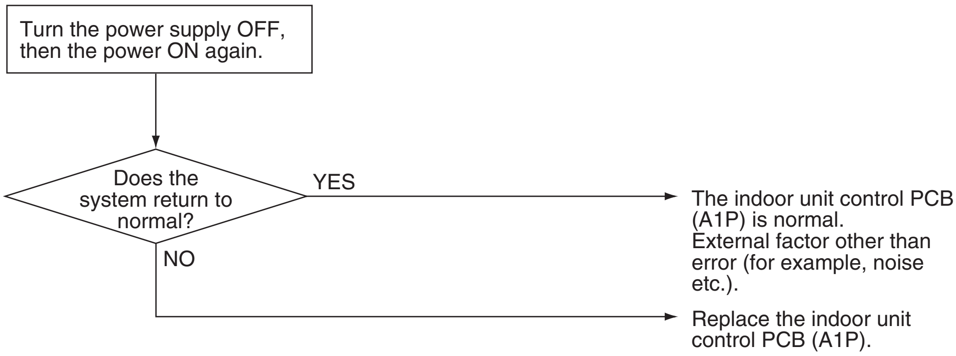
When data could not be correctly received from the EEPROM
EEPROM : Type of nonvolatile memory. Maintains memory contents even when the power supply is turned OFF.

Supposed Causes

- Defective indoor unit control 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.



5.7 Drain Level Control System Abnormality

Applicable Models

FXFA-AA, FXSA-AA, FXMA-AA

Error Code

A3

Method of Error Detection

By float switch OFF detection

Error Decision Conditions

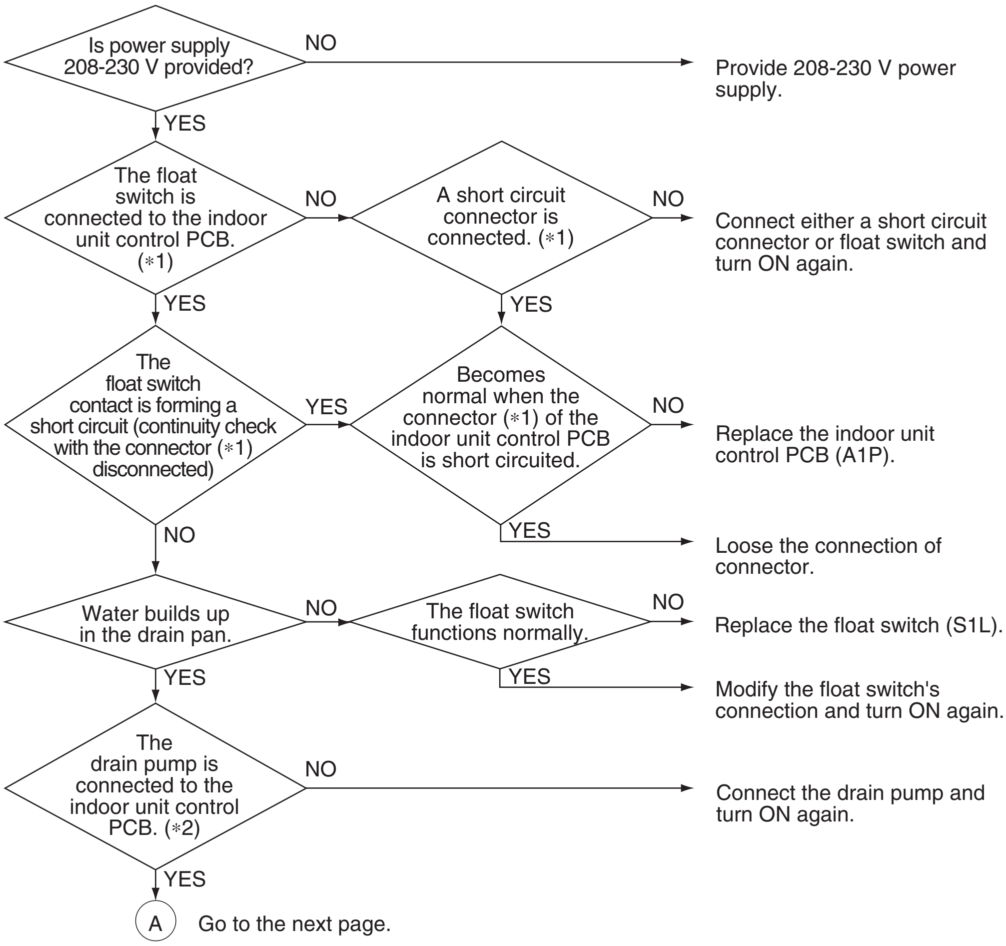
When rise of water level is not a condition and the float switch goes OFF.

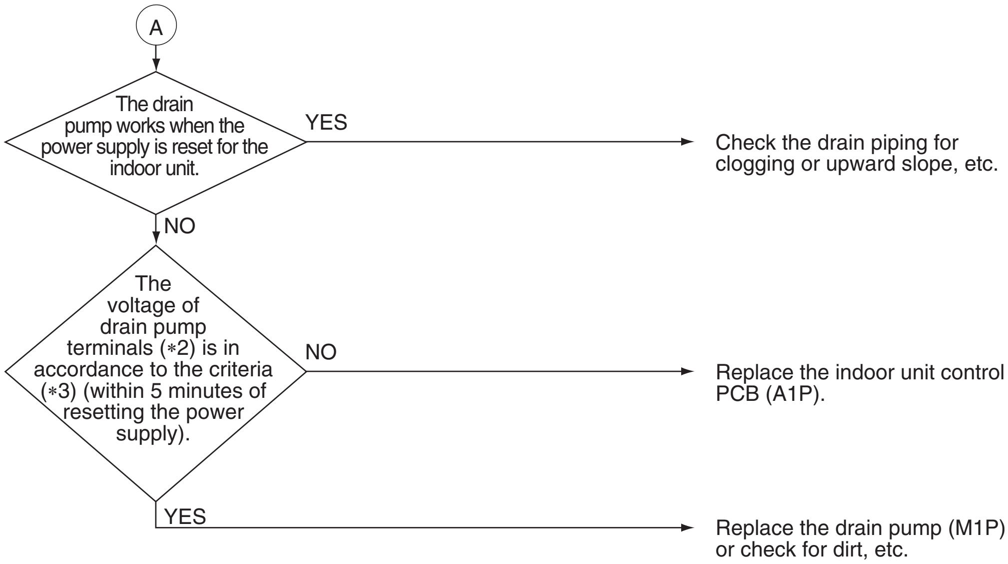
Supposed Causes

- 208-230 V power supply is not provided
- Defective float switch or short circuit connector
- Defective drain pump
- Drain clogging, upward slope, etc.
- Defective indoor unit control PCB
- Loose connection of connector

Troubleshooting

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





Note(s)

∗1: Float switch (S1L) / short circuit connector	∗2: Drain pump (M1P) connector	∗3: Drain pump (M1P) voltage
X15A	X25A	13 VDC

5.8 Drain Pump Connector Disconnection Detected

Applicable Models

FXFA-AA, FXSA-AA, FXMA-AA

Error Code

A3-08

Method of Error Detection

Communication status is checked by microcomputer.

Error Decision Conditions

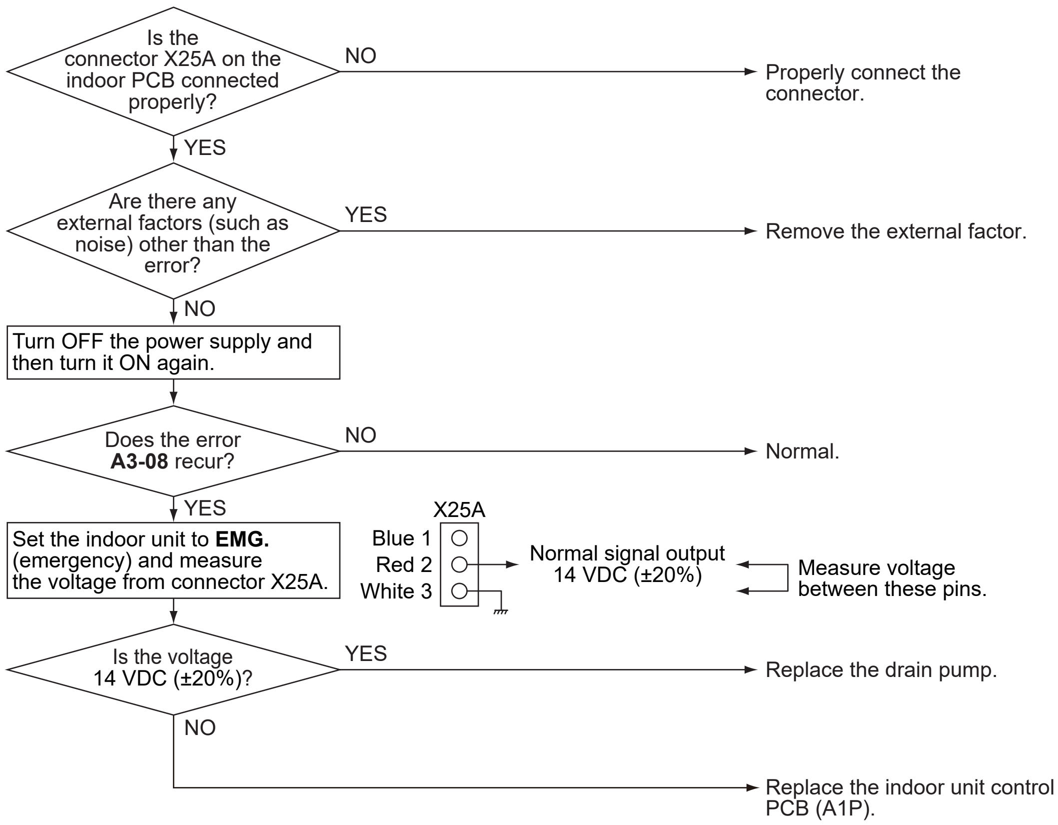
When no feedback is received within 10 seconds after the power is turned on and the drain pump is turned on

Supposed Causes

- Poor connection of drain pump lead wire connector (X25A)
- Defective indoor printed circuit board (A1P)
- External factors such as noise
- Defective drain pump

Troubleshooting

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



5.9 Indoor Fan Motor Abnormality

Applicable Models

FXFA-AA

Error Code

A6

Method of Error Detection

- Detection from the current flow on the PCB (A1P)
- Detection from the current flow on the PCB when the fan motor starting operation

Error Decision Conditions

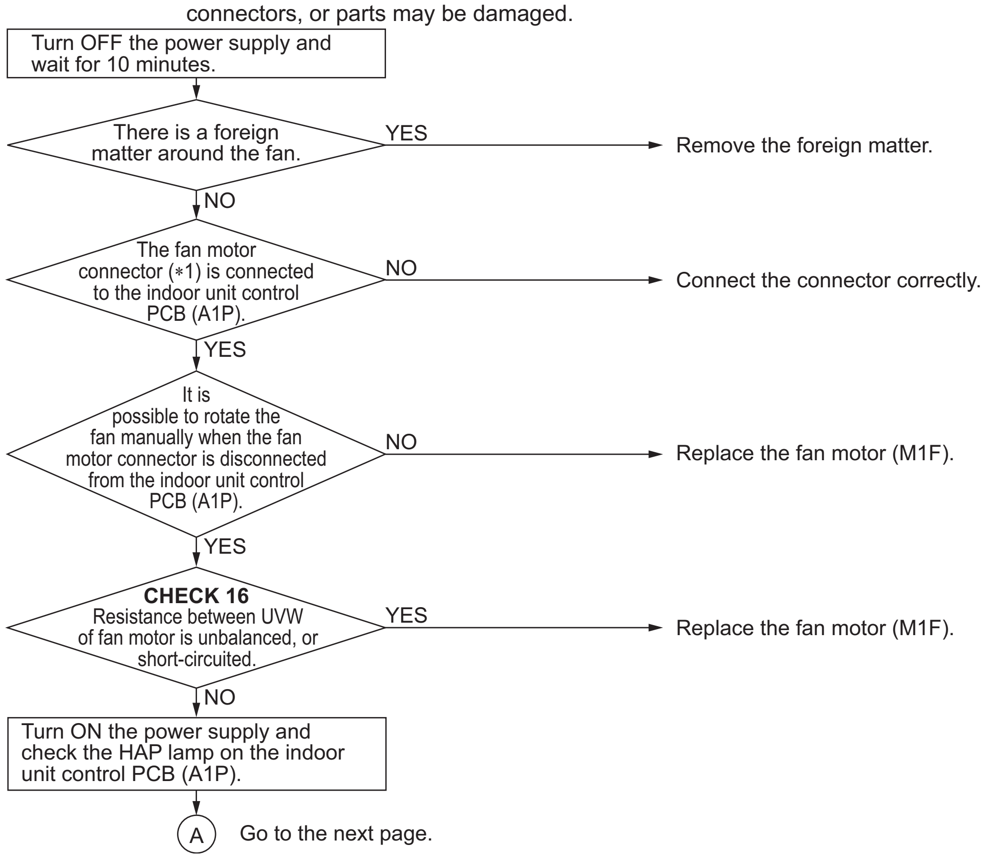
- An overcurrent flows
- The rotation speed is less than a certain level for 6 seconds.
- A position error in the fan rotor continues for 5 seconds or more.

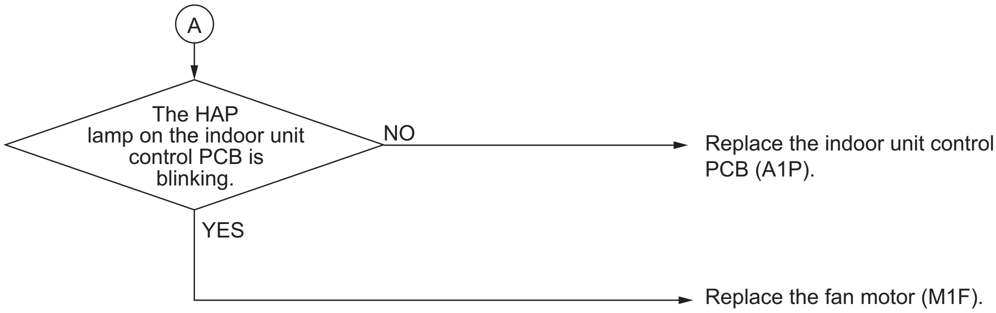
Supposed Causes

- Fan does not rotate due to clogged foreign matter.
- Disconnection, short circuit, or loose connection of the harness of the fan motor
- Fan motor lock (motor-related or external factors)
- Defective fan motor (disconnection or insulation failure)
- Defective indoor unit PCB

Troubleshooting

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





∗1. Check also if the relay connector between the indoor unit control PCB and the fan motor are correctly connected.

Reference **CHECK 16** Refer to page 285.

5.10 Indoor Fan Motor Lock, Overload

Applicable Models

FXSA-AA, FXMA-AA

Error Code

A6

Method of Error Detection

Abnormal fan revolutions are detected by a signal output from the fan motor.

Error Decision Conditions

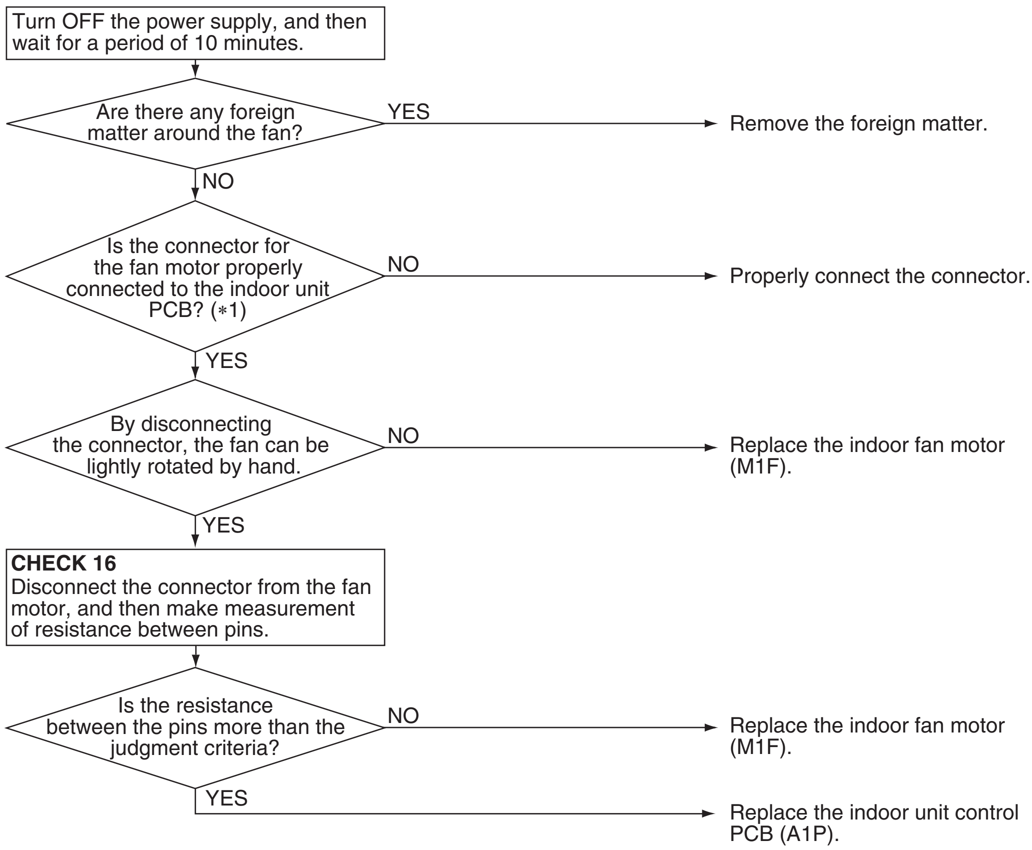
When the fan revolutions do not increase

Supposed Causes

- Broken wires in, short circuit of, or disconnection of connectors from the fan motor harness
- Defective fan motor (broken wires or defective insulation)
- Abnormal signal output from the fan motor (defective circuit)
- Defective indoor unit control PCB
- Instantaneous disturbance in the power supply voltage
- Fan motor lock (due to motor or external causes)
- The fan does not rotate due to foreign matter blocking the fan.
- Disconnection of the connector between the indoor unit control PCB (A1P) and the fan PCB (A3P)
- Blowout of the fuse connected between the indoor unit PCB and the fan motor harness

Troubleshooting

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



Note(s)

∗1. Check the following connectors.

Model	Connector	PCB
FXSA05-15AA	X901A, Relay connector	A3P
FXSA18-54AA	X1A	A3P
FXMA-AA	X1A	A3P

Reference

CHECK 16 Refer to page 285.

5.11 Blower Motor Not Running

Applicable Models

FXTA-AA

Error Code

A6

Method of Error Detection

Error is issued if the indoor unit determines that the indoor fan motor cannot rotate.

Error Decision Conditions

- Determining successive abnormalities
  Checks the rotation speed at 5-second intervals using the feedback of the fan motor.
  If that figure falls below 50 rpm for one minute continuously for the specified number of consecutive times successively, it is deemed abnormal operation.
  If, during operation, the rotation command is stopped, the 5-second interval check is halted and the counted number will be cleared.

- Determining long-term abnormalities
  Checks the rotation speed at 5-second intervals using the feedback of the fan motor.
  Performs rotation sampling 720 times (takes approximately one hour), and if the rotation speed falls below 50 rpm over 100 times, it is deemed abnormal operation.
  When the sampling reaches 720 times, the counted number will be cleared and the 720 times sampling restarts.
  If, during this, the rotation command is stopped, the 5-second interval check is halted, but the counted number will be kept.
  When the rotation command is restarted, the checks will resume.

Error Reset Conditions

Reset by remote controller

Supposed Causes

- Fan or motor obstruction
- Power interruption (low voltage)
- Incorrect or loose wiring

Corrective Actions

- Check for obstruction on the fan or motor.
- Verify the input voltage at the motor.
- Check wiring or tighten wiring connections if needed.
- Replace the indoor unit control PCB or motor.

Reference

CHECK 19 Refer to page 287.

5.12 Indoor Fan Motor Status Abnormality

Applicable Models

FXTA-AA

Error Code

A6-20

Method of Error Detection

The indoor unit periodically receives control status information from the fan motor.
Error is issued when the information shows abnormality for 2 minutes successively.

Error Decision Conditions

If the information shows Power Limit or Temp Limit status, it will be deemed a MOTOR LIMIT abnormal operation. (The system can keep operating.)

Error Reset Conditions

If the indoor unit stops receiving abnormal information, the error will be cleared.

Supposed Causes

- Fan or motor obstruction
- Blocked filters
- Power interruption (low voltage)
- Incorrect wiring
- Blockage in the airflow (ductwork) or ductwork undersized
- High loading conditions

Corrective Actions

- Check for obstruction on the fan, motor, or ductwork.
- Clean filters.
- Check filters, grille, duct system, heat exchanger air inlet/outlet for blockages.
- Verify the input voltage at the motor.
- Check wiring.
- Replace motor.

Reference

CHECK 19 Refer to page 287.

5.13 Low Indoor Airflow

Applicable Models

FXTA-AA

Error Code

A6-21

Method of Error Detection

Error is issued if the indoor unit determines that the indoor fan motor rotation is insufficient, regardless of the rotation command from indoor unit.

Error Decision Conditions

- Determining successive abnormalities
  Checks the rotation speed at 5-second intervals using the feedback of the fan motor.
  If that figure exceeds 50 rpm and falls below 150 rpm 10 times successively, it is deemed abnormal operation.
  If, during operation, the rotation command is stopped, the 5-second interval check is halted and the counted number will be cleared.
- Determining long-term abnormalities
  Checks the rotation speed at 5-second intervals using the feedback of the fan motor.
  Performs rotation sampling 720 times (takes approximately one hour), and if the rotation speed exceeds 50 rpm and falls below 150 rpm over 360 times, it is deemed abnormal operation.
  When the counter reaches 720 times, the counted number will be cleared and the 720 times sampling restarts.
  If, during this, the rotation command is stopped, the 5-second interval check is halted, but the counted number will be kept.
  When the rotation command is restarted, the checks will resume.

Error Reset Conditions

- Determining successive abnormalities
  Checks the rotation speed at 5-second intervals using the feedback of the fan motor. If that figure exceeds 150 rpm even once, the error will be cleared.
- Determining long-term abnormalities
  Checks the rotation speed at 5-second intervals using the feedback of the fan motor.
  If that figure exceeds 150 rpm 36 times successively, the error will be cleared.
  At that point, the counted number and sampling number will be cleared, and the 720 times sampling starts again from the beginning.

Supposed Causes

- Fan or motor obstruction
- Blocked filters
- Restrictive ductwork or ductwork undersized
- Wiring disconnected
- Wrong outdoor and indoor combination
- Indoor fan motor failure

Corrective Actions

- Check for obstruction on the fan or motor.
- Check ductwork and filter for blockage.
- Clean filters.
- Remove obstruction. Verify all registers are fully open.
- Check the connections and the rotation of the motor.
- Verify the input voltage at the motor.
- Verify ductwork is appropriately sized for system. Resize or replace ductwork if needed.
- Replace motor.

Reference

CHECK 19 Refer to page 287.

5.14 Power Supply Voltage Abnormality

Applicable Models

FXSA-AA, FXMA-AA

Error Code

A8

Method of Error Detection

Error is detected by checking the input voltage of the fan motor.

Error Decision Conditions

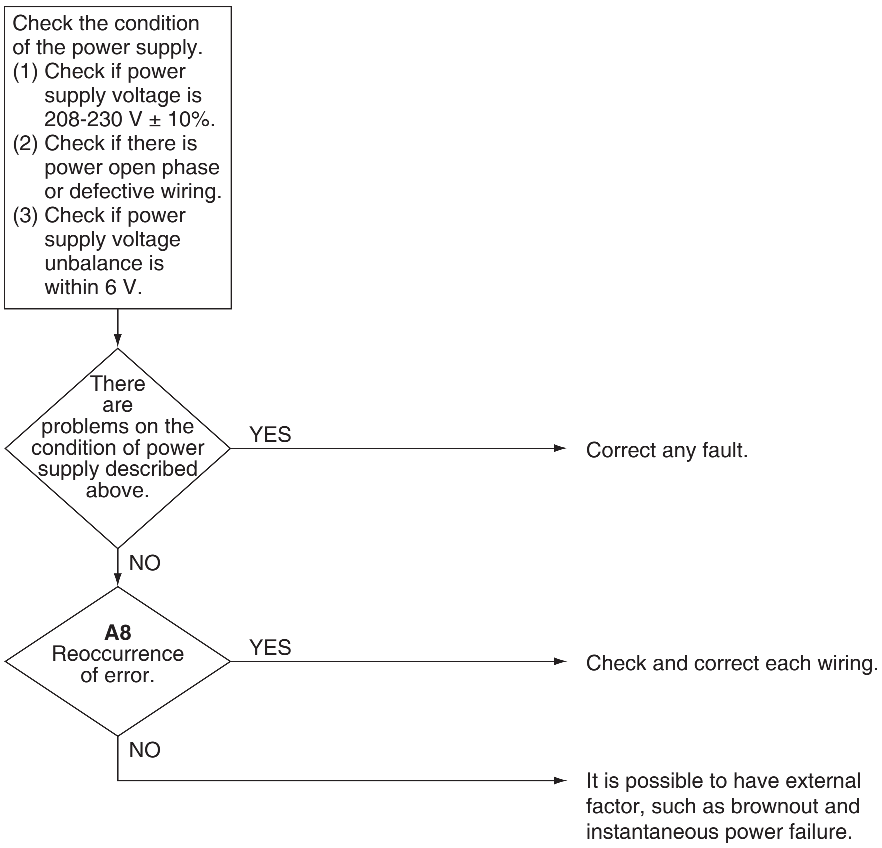
When the input voltage of fan motor is 150 V or less, or 386 V or more.

Supposed Causes

- Defective power supply voltage
- Defective connection on signal line
- Defective wiring
- Instantaneous power failure, others

Troubleshooting

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



5.15 Electronic Expansion Valve Coil Abnormality, Dust Clogging

Applicable Models

All indoor unit models

Error Code

A9

Method of Error Detection

Check coil condition of electronic expansion valve by using microcomputer.
Check dust clogging condition of electronic expansion valve main body by using microcomputer.

Error Decision Conditions

Pin input for electronic expansion valve coil is abnormal when initializing microcomputer.
Either of the following conditions is seen/caused/occurs while the unit stops operation.

- R1T – R2T > 8°C (14.4°F)
- R2T shows fixed degrees or below.

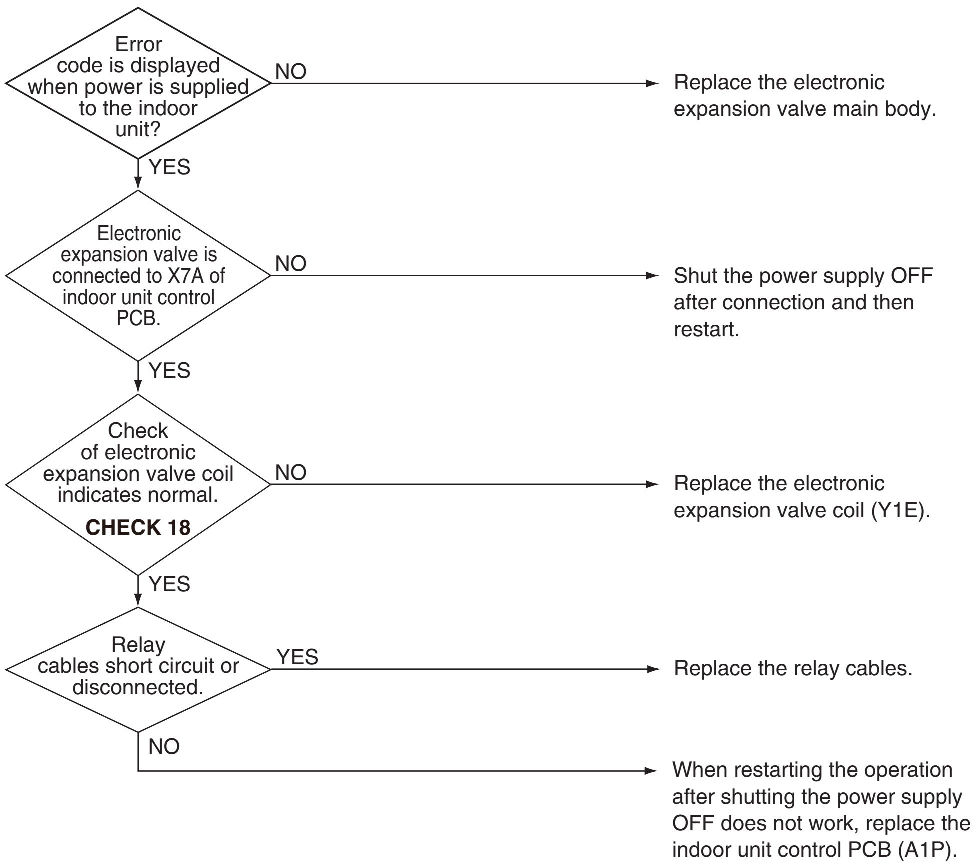
R1T: temperature of suction air
R2T: temperature of liquid pipe of heat exchanger

Supposed Causes

- Defective electronic expansion valve coil
- Defective indoor unit control PCB
- Defective relay cables

Troubleshooting

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



Reference **CHECK 18** Refer to page 286.

5.16 Drain Level above Limit

Applicable Models

FXFA-AA, FXSA-AA, FXMA-AA

Error Code

AF

Method of Error Detection

Water leakage is detected based on float switch ON/OFF operation while the compressor is not in operation.

Error Decision Conditions

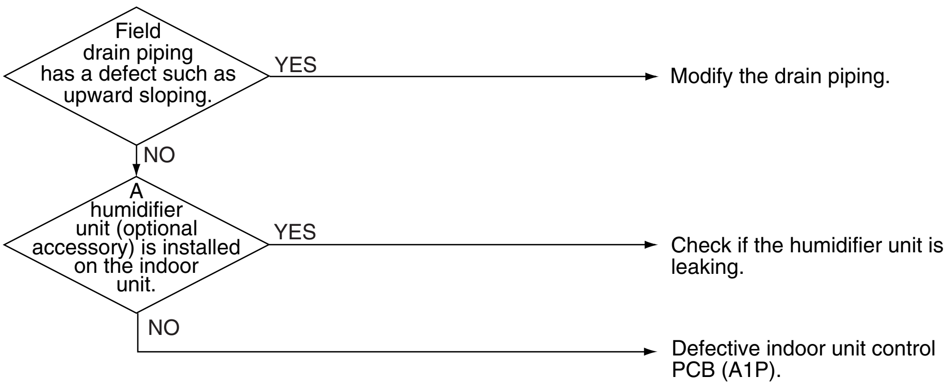
When the float switch changes from ON to OFF while the compressor is not in operation.
∗ Error code is displayed but the system operates continuously.

Supposed Causes

- Humidifier unit (optional accessory) leaking
- Defective drain pipe (upward slope, etc.)
- 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.



5.17 Self-Cleaning Decoration Panel Abnormality

Applicable Models

FXFA-AA (when self-cleaning decoration panel BYCQ54GEGFU is installed)

Error Code

AH

Method of Error Detection

Error is detected by abnormal signal from the self-cleaning decoration panel.

Error Decision Conditions

Any of the following conditions is met while the unit is in operation.

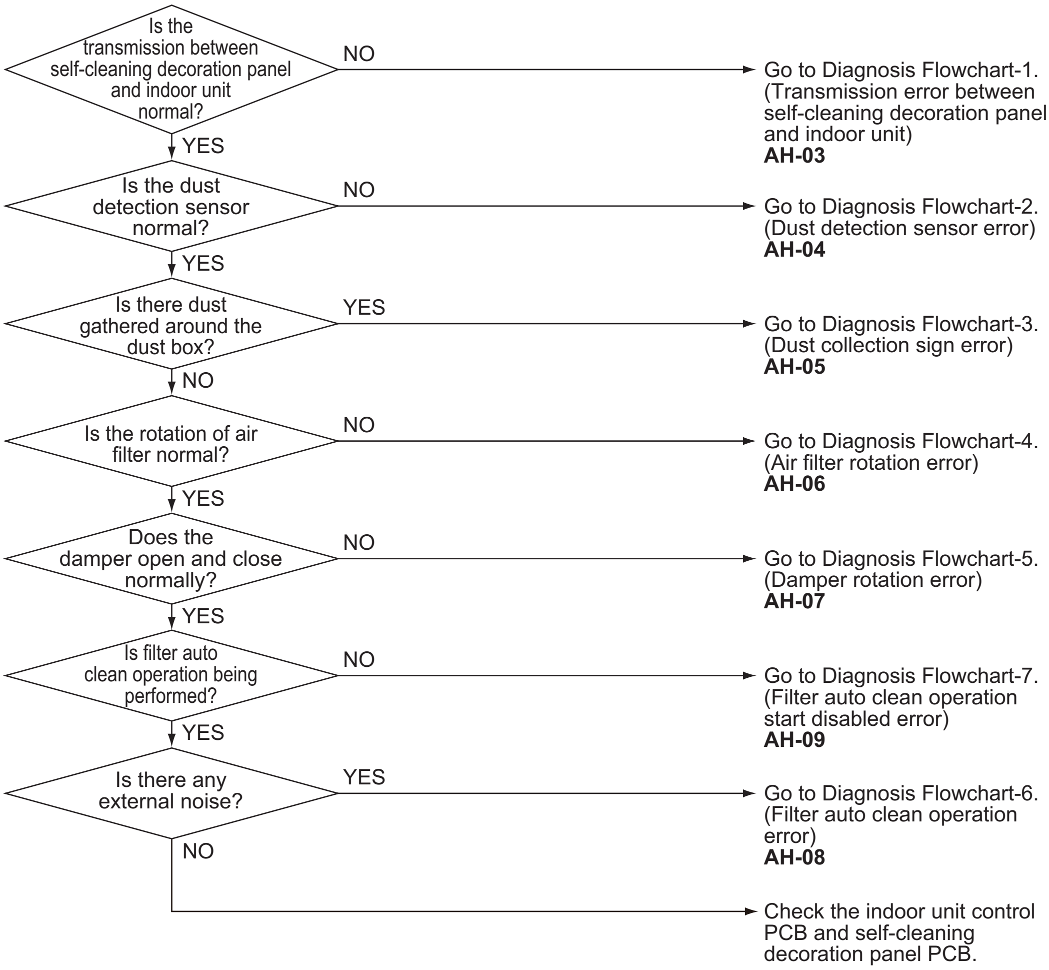
- There is a transmission error between self-cleaning decoration panel and indoor unit.
- Dust detection sensor (light receiving side) is short-circuited.
- The total of fan operation time exceeds a specified value after dust collection sign display.
- Limit switch does not detect when air filter rotates or air filter does not rotate.
- Limit switch does not detect when damper opens (or closes) or damper does not work.
- Filter auto clean operation does not complete even after a specified time has elapsed.
- Filter auto clean operation does not start even after a specified time has elapsed.

Supposed Causes

- Transmission error (between self-cleaning decoration panel and indoor unit)
- Dust detection sensor error
- Dust collection sign
- Air filter rotation error
- Damper rotation error
- Filter auto clean operation error
- Filter auto clean operation start disabled error

Troubleshooting

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

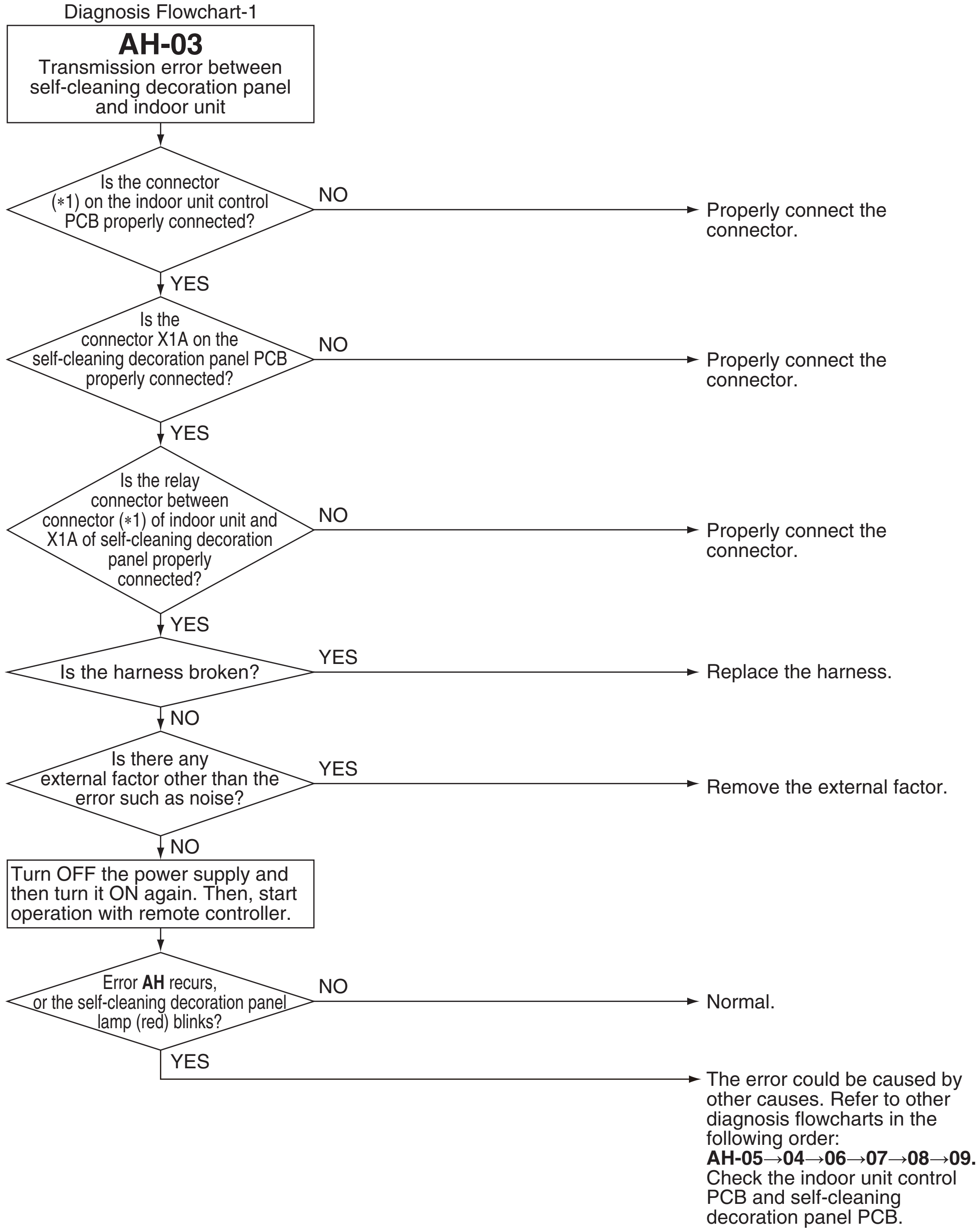


Reference Refer to the diagnosis flowchart below.

Error code	Diagnosis Flowchart
AH-03	Diagnosis Flowchart-1 on page 173
AH-04	Diagnosis Flowchart-2 on page 174
AH-05	Diagnosis Flowchart-3 on page 175
AH-06	Diagnosis Flowchart-4 on page 176
AH-07	Diagnosis Flowchart-5 on page 178
AH-08	Diagnosis Flowchart-6 on page 180
AH-09	Diagnosis Flowchart-7 on page 181

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

Diagnosis Flowchart-1

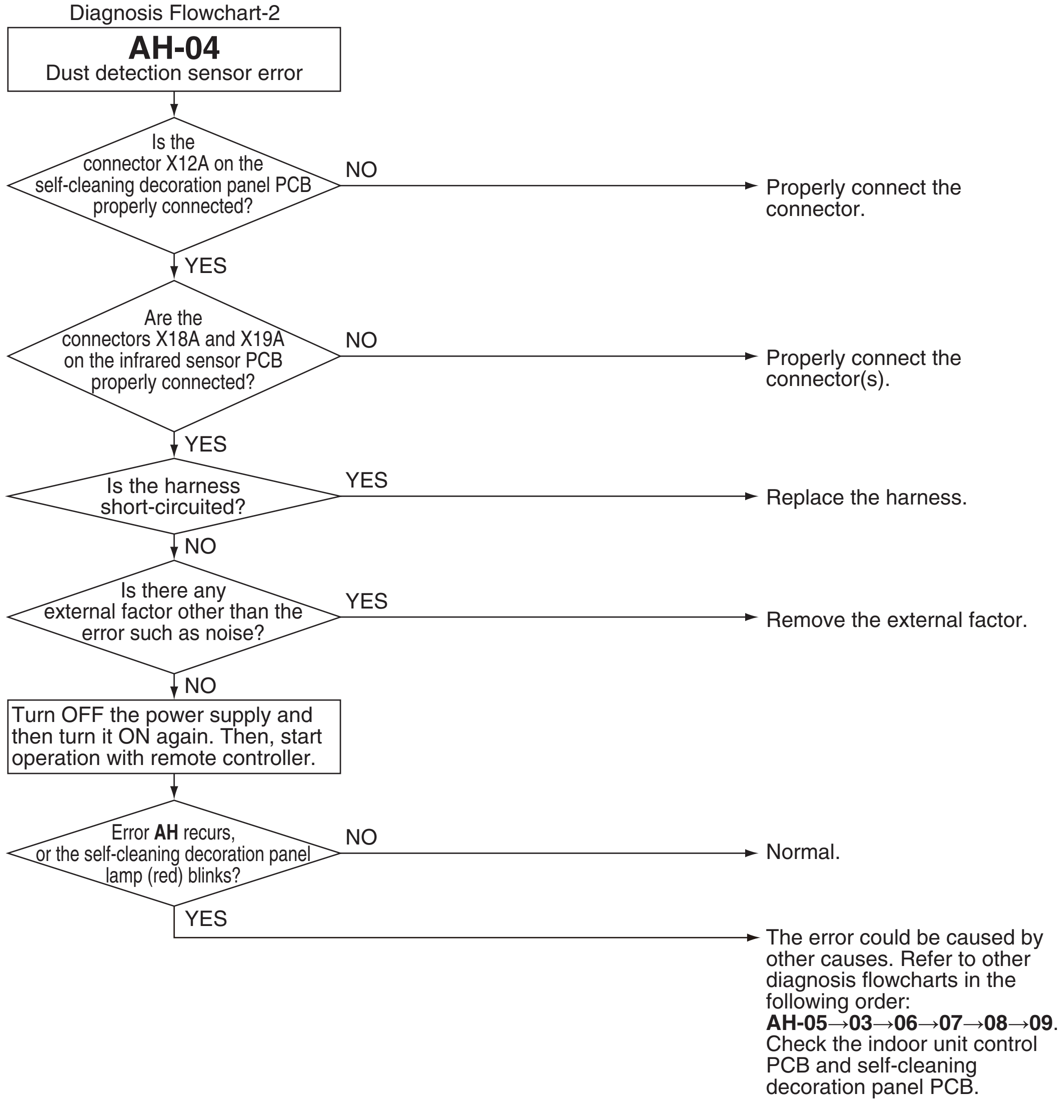


Note(s) ∗1. Connector

Model	Connector	PCB
FXFA-AA	X70A	A3P

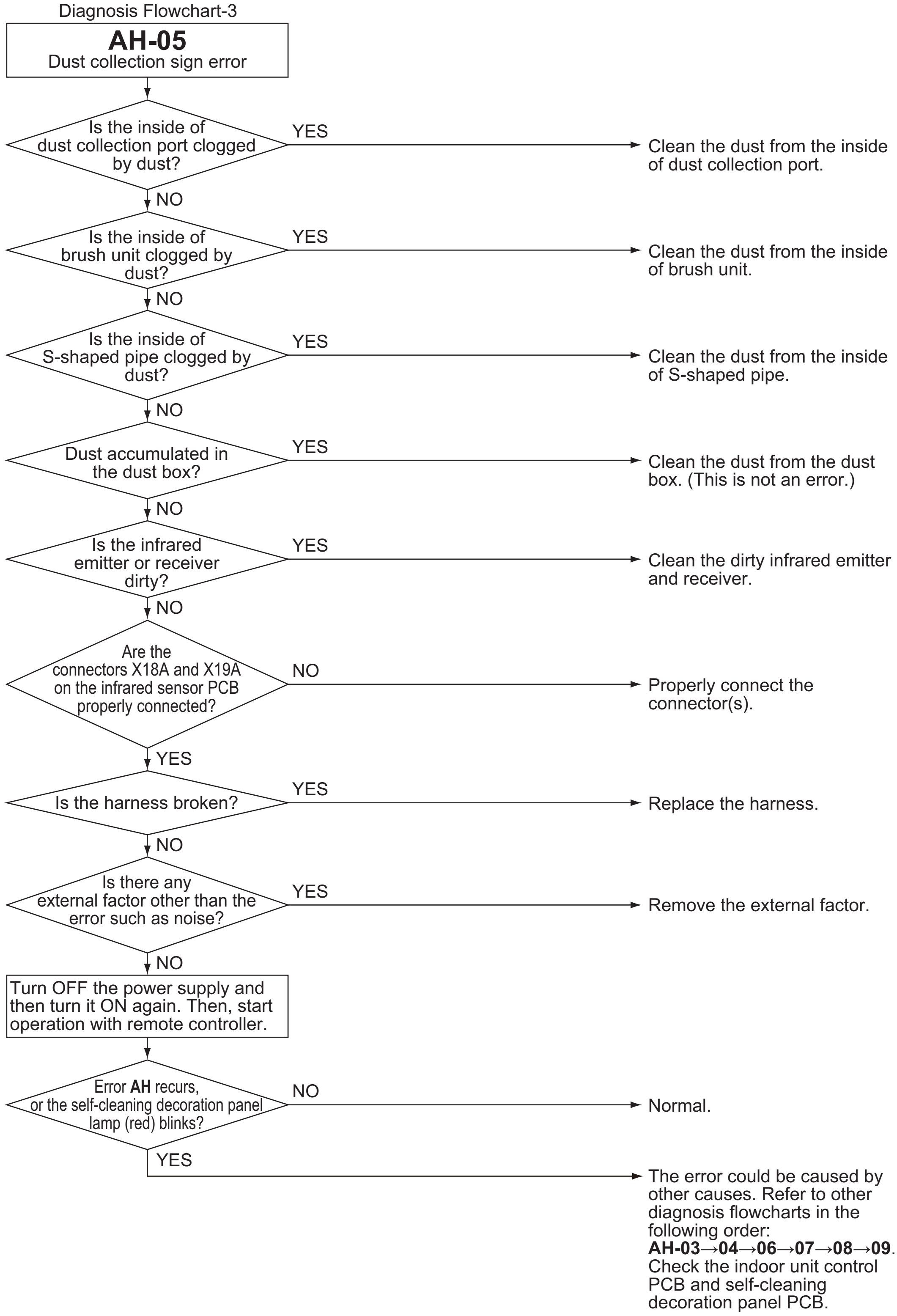
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Diagnosis Flowchart-2



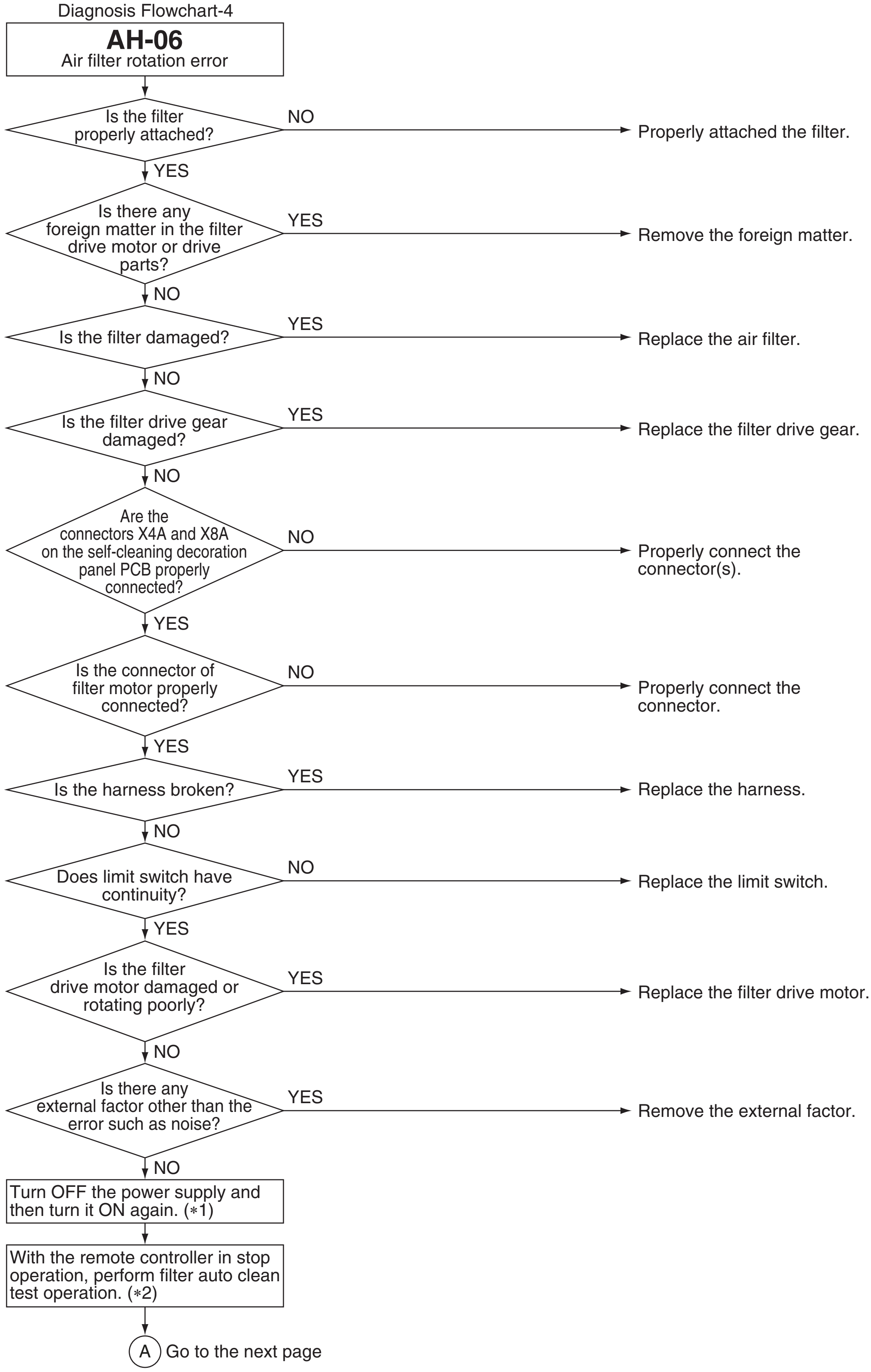
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Diagnosis Flowchart-3



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

Diagnosis Flowchart-4



(A) From the previous page

Start operation with remote controller.

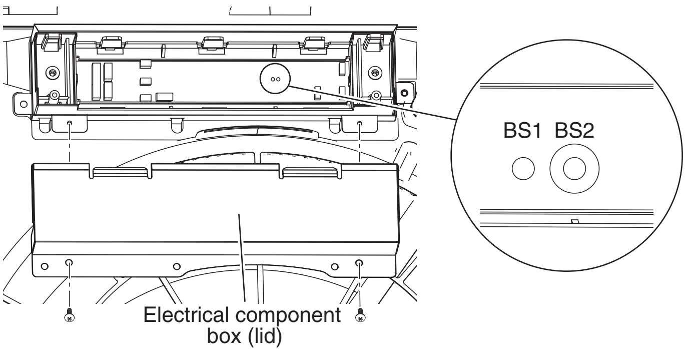
Error **AH** recurs, or the self-cleaning decoration panel lamp (red) blinks?

NO → Normal.

YES → The error could be caused by other causes. Refer to other diagnosis flowcharts in the following order: **AH-05→03→04→07→08→09**. Check the indoor unit control PCB and self-cleaning decoration panel PCB.

Note(s)

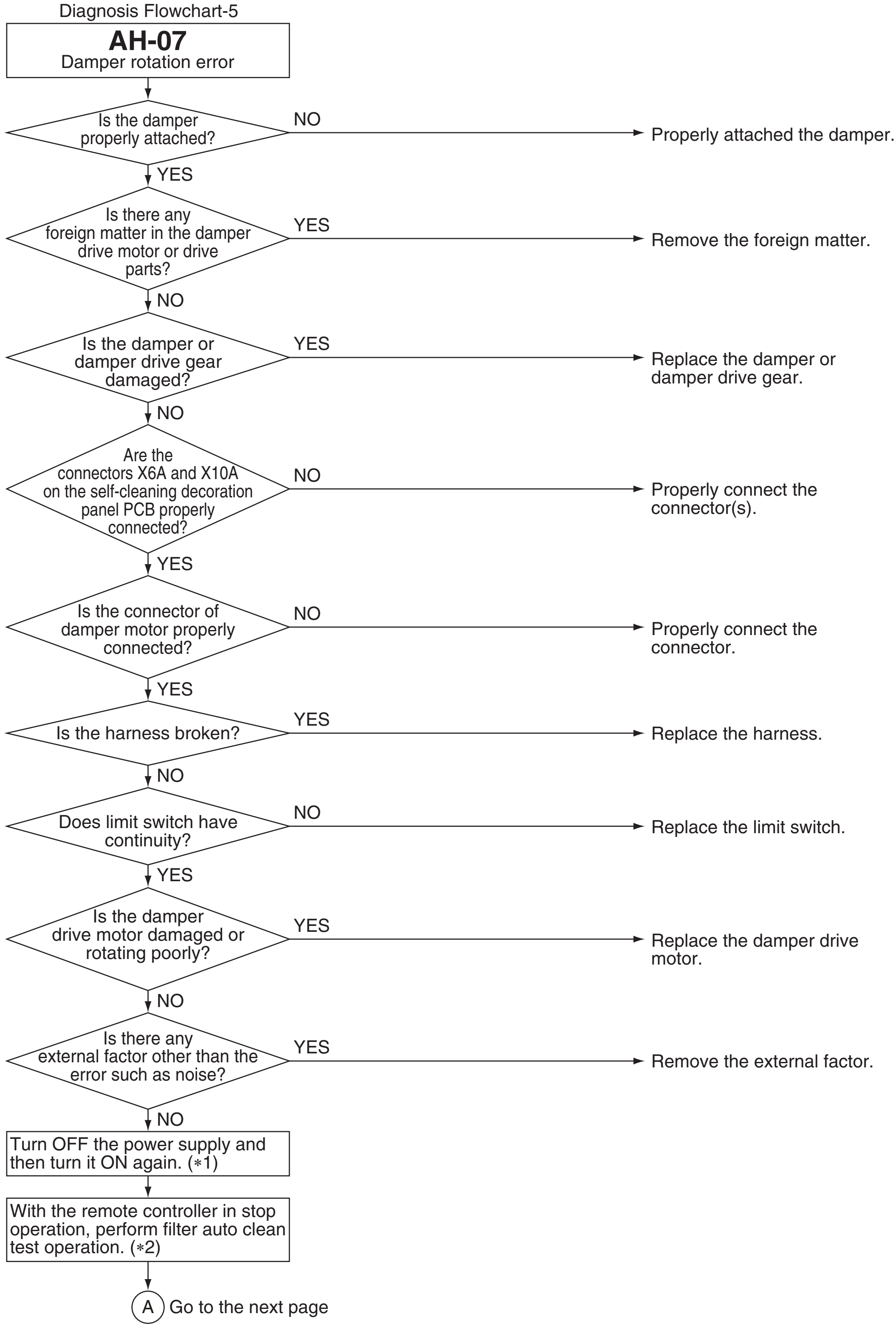
∗1. Temporary error code reset operation can be performed by pressing the push switch button **(BS2)** on the self-cleaning decoration panel PCB

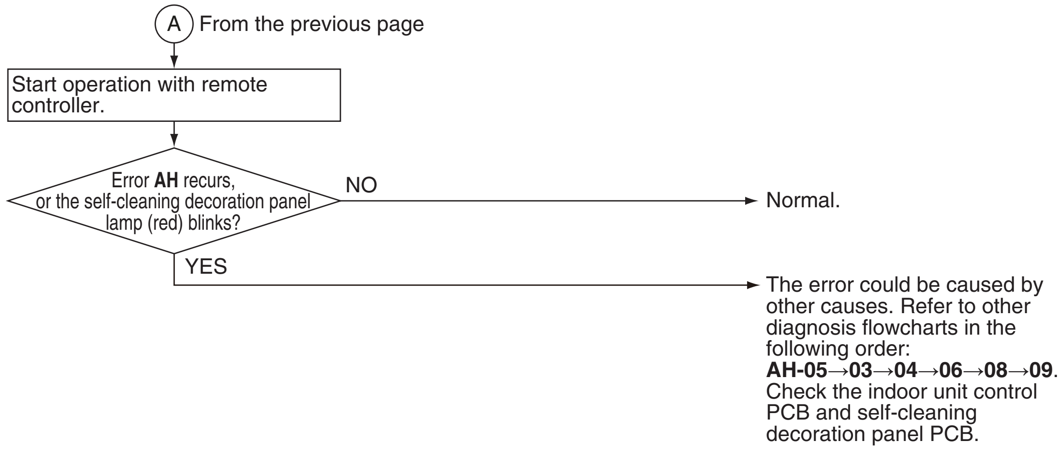


∗2. For details on performing filter auto clean test operation, refer to the operation manual of the self-cleaning decoration panel.

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

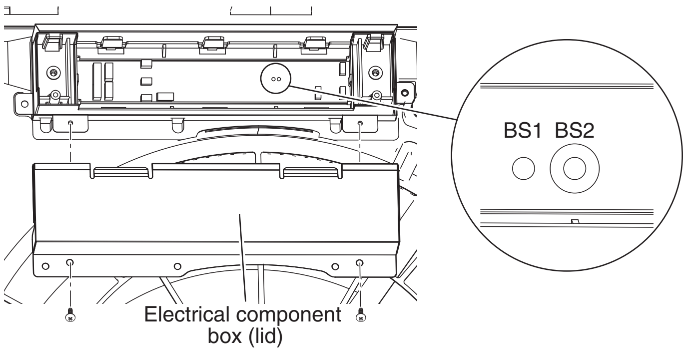
Diagnosis Flowchart-5





Note(s)

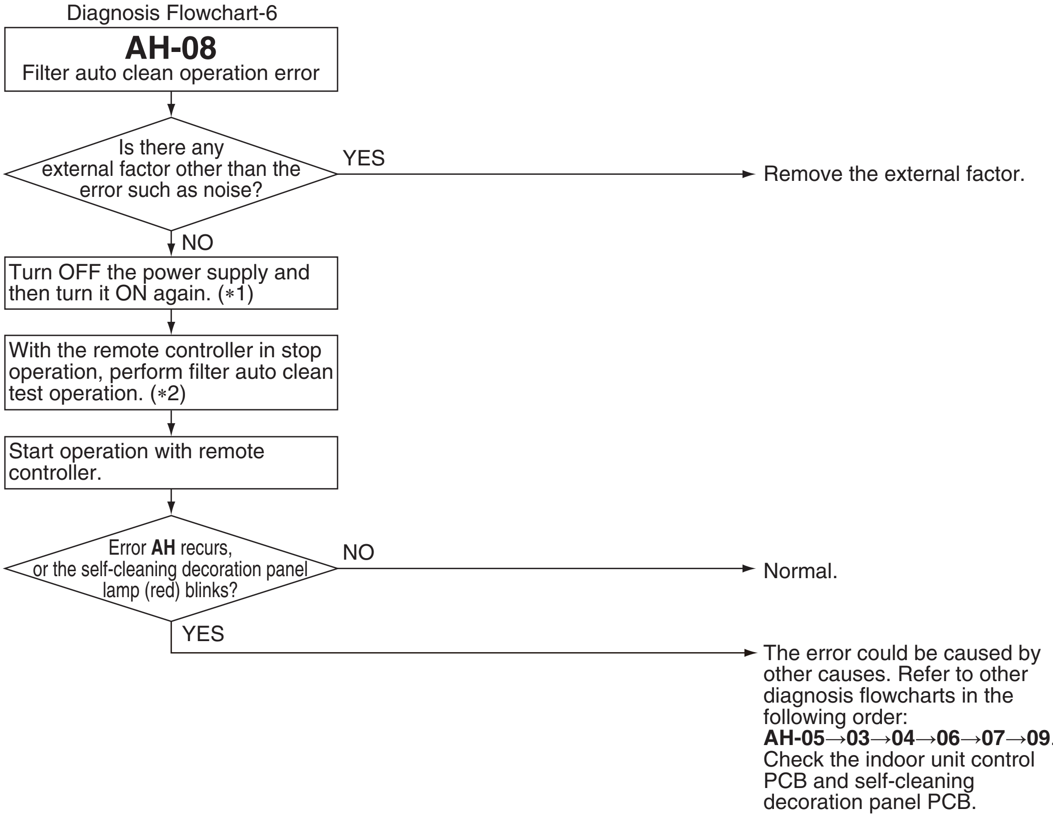
∗1. Temporary error code reset operation can be performed by pressing the push switch button **(BS2)** on the self-cleaning decoration panel PCB



∗2. For details on performing filter auto clean test operation, refer to the operation manual of the self-cleaning decoration panel.

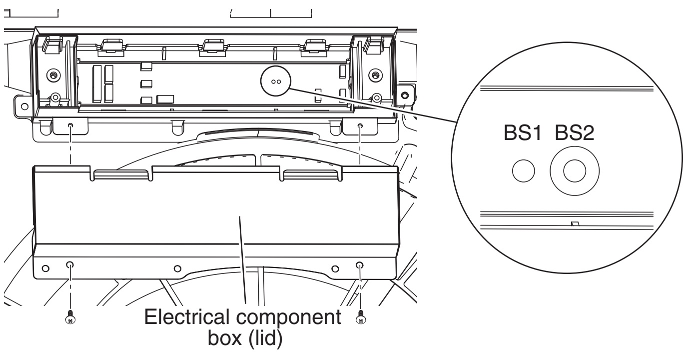
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Diagnosis Flowchart-6



Note(s)

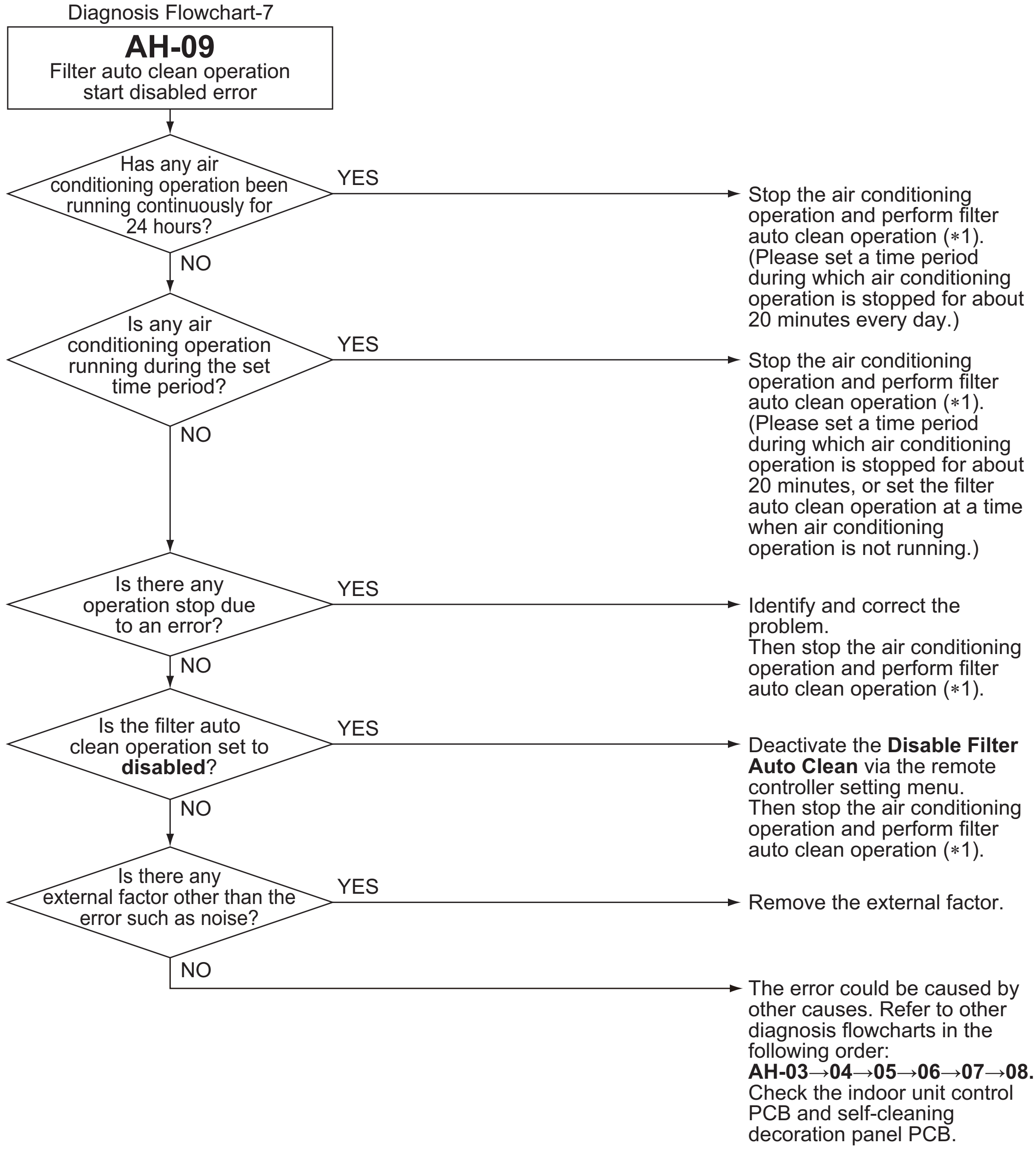
∗1. Temporary error code reset operation can be performed by pressing the push switch button **(BS2)** on the self-cleaning decoration panel PCB



∗2. For details on performing filter auto clean test operation, refer to the operation manual of the self-cleaning decoration panel.

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

Diagnosis Flowchart-7



Note(s)

∗1. If the filter auto clean operation mode is set to a designated time period, perform a filter auto clean operation as described below to clear the **AH** error code. (If scheduled operation time is not set, the filter auto clean operation will be performed automatically after air conditioning operation is stopped, so the following operation is unnecessary.)

1. On the remote controller, select **Filter Auto Clean** menu. The screen will change into a cleaning time period setting screen. Confirm the set time period. (Example: 0:00 to 3:00)
2. Select **Clock & Calendar** on the remote controller and set the current time to the time one minute before the beginning of the time set in step 1. (Example: If the set time is from 0:00 to 3:00, set the current time to 23:59, one minute before 0:00)
3. After about 1 minute, filter auto clean operation will start. (**AH** error cleared)
4. After confirming that the filter auto clean operation is finished, return the time changed in step 2 to the regular time.

5.18 Defective Capacity Setting

Applicable Models

All indoor unit models

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

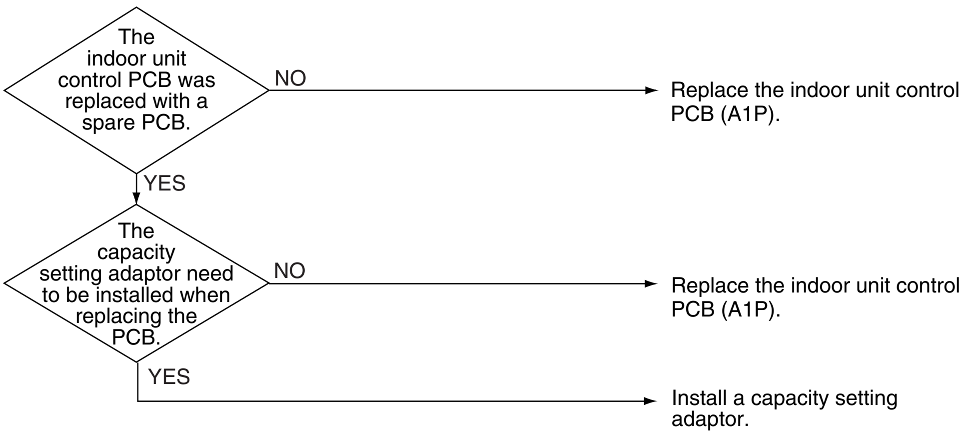
When the capacity code is not saved to the PCB, and the capacity setting adaptor is not connected. When a capacity that does not exist for that unit is set.

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.



5.19 Transmission Abnormality between Indoor Unit Control PCB and Fan PCB

Applicable Models

FXSA-AA, FXMA-AA

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

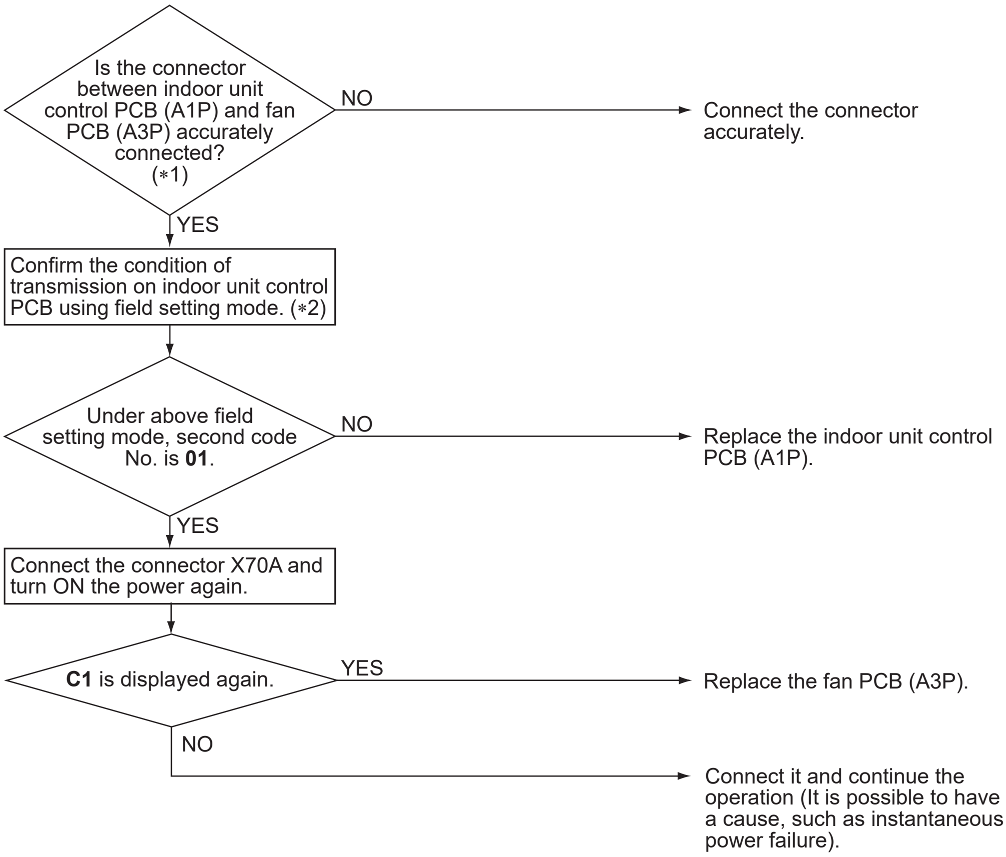
When normal transmission is not carried out for a certain duration.

Supposed Causes

- Defective connection of the connector between indoor unit control PCB (A1P) and fan PCB (A3P)
- Defective indoor unit control PCB (A1P)
- Defective fan PCB (A3P)
- 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.



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.

5.20 Transmission Abnormality between Indoor Unit A1P PCB and A2P PCB

Applicable Models
FXTA-AA

Error Code
C1-01

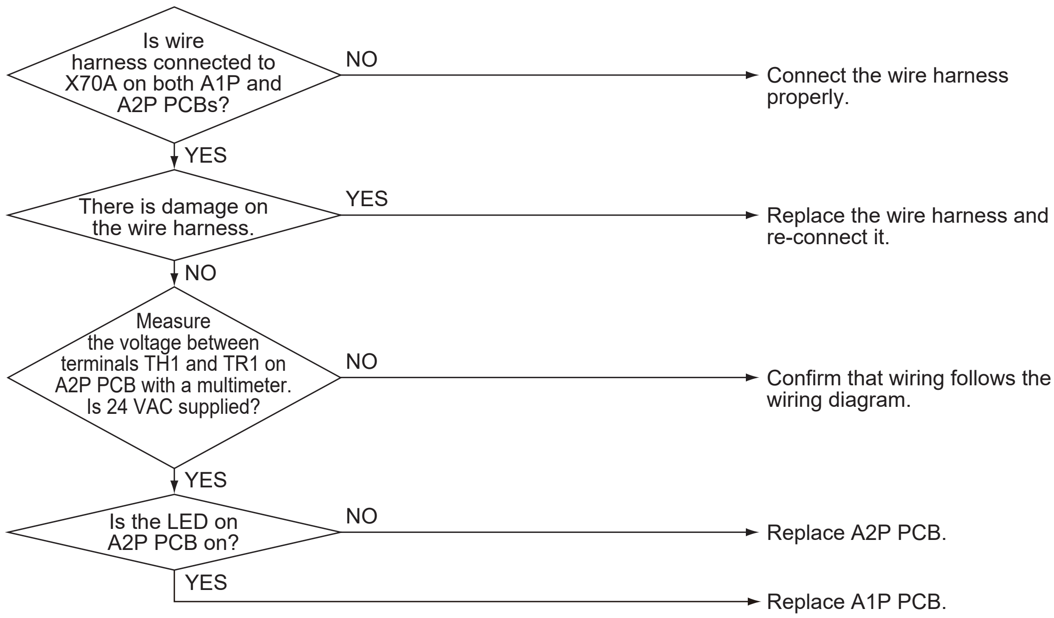
Method of Error Detection
Error is issued if the communication between A1P and A2P is not established.

Error Decision Conditions
When A2P control PCB cannot receive ACS communication from A1P PCB for 15 seconds continuously.

Supposed Causes
- Broken wires in, short circuit of, or disconnection of connector from A1P PCB
- Incorrect wiring
- Defective A1P or A2P PCB

Troubleshooting

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



5.21 Blower Motor Communication Error

Applicable Models	FXTA-AA
Error Code	**C1-07**
Method of Error Detection	Error is issued if transmission abnormalities occur between indoor unit and fan motor.
Error Decision Conditions	If the response message from the fan motor is an abnormal message, and determined as such by the indoor unit, the indoor unit will execute a retry. If everything fails for 5 seconds, it is deemed to be a transmission abnormality.
Error Reset Conditions	If the indoor unit receives even a single normal response message from the fan motor, the error will be cleared.
Supposed Causes	■ Incorrect or loose wiring ■ Power interruption (low voltage)
Corrective Actions	■ Check wiring or tighten wiring connections if needed. ■ Verify the input voltage at the motor. ■ Replace the indoor unit PCB or motor.

5.22 Thermistor Abnormality

Applicable Models

C4, C5: All indoor units
C9: FXFA-AA, FXSA-AA, FXMA-AA models
CA: FXSA-AA, FXMA-AA models

Error Code

C4, C5, C9, CA

Method of Error Detection

The error is determined by the temperature detected by the thermistor.

Error Decision Conditions

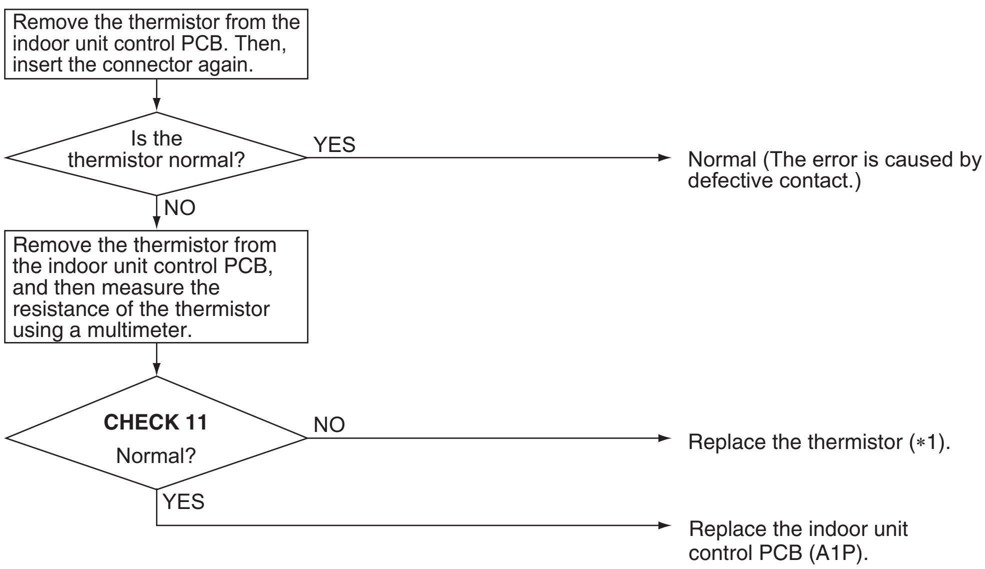
The thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

- Defective thermistor
- Defective indoor unit control PCB
- Defective connector connection
- Broken or disconnected wire

Troubleshooting

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



Note(s)

∗1. Error code and thermistor

Error Code	Thermistor	FXFA-AA	FXSA-AA FXMA-AA	FXTA-AA
C4	Indoor heat exchanger liquid pipe thermistor	R2T	R2T	R2T
C5	Indoor heat exchanger gas pipe thermistor	R3T	R3T	R3T
C9	Suction air thermistor	R1T	R1T	∗2
CA	Discharge air thermistor	—	R4T	—

∗2. Refer to page 190 for **C9** for FXTA-AA models.

Reference

CHECK 11 Refer to page 279.

5.23 Combination Error between Indoor Unit Control PCB and Fan PCB

Applicable Models

FXSA-AA, FXMA-AA

Error Code

C6

Method of Error Detection

Check the condition of transmission with fan PCB (A3P) using indoor unit control PCB (A1P).

Error Decision Conditions

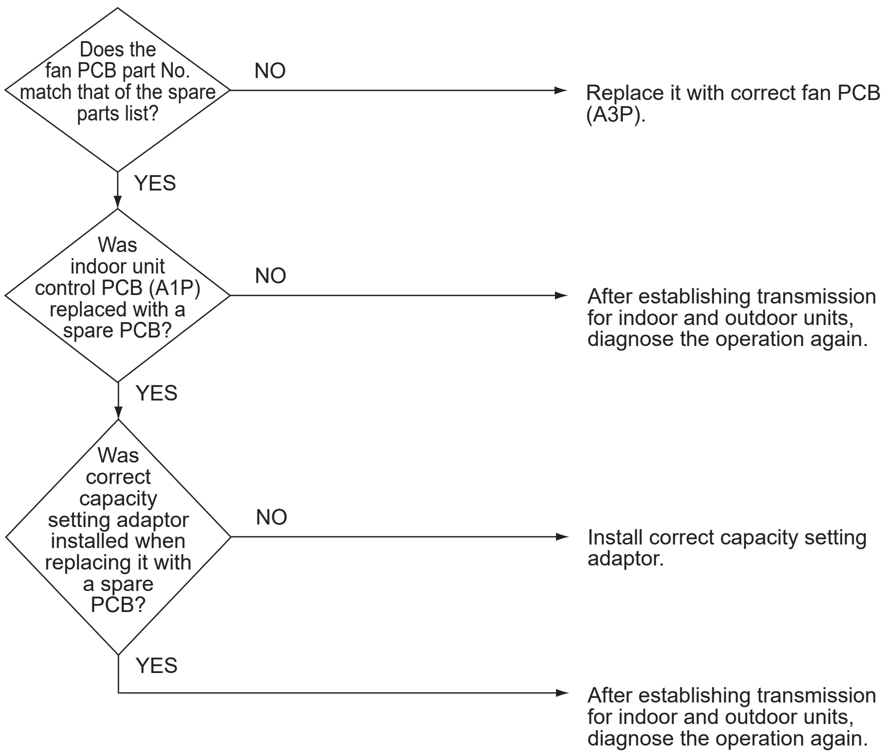
When the communication data of fan PCB (A3P) is determined as incorrect.

Supposed Causes

- Defective fan PCB (A3P)
- Defective connection of capacity setting adaptor
- Field setting error

Troubleshooting

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



5.24 Blower Motor HP Mismatch

Applicable Models	FXTA-AA
Error Code	**C6-01**
Method of Error Detection	Error is issued if the manufacturer ID and output of the connected fan motor do not match those recognized by the indoor unit.
Error Decision Conditions	Gathers information on the manufacturer ID and output of the fan motor when initializing the fan motor. If those figures are not the values recognized by the indoor unit, it will be deemed abnormal operation. If deemed abnormal operation, it will keep retrying until the figures match.
Error Reset Conditions	If the manufacturer ID and output match, the error will be cleared.
Supposed Causes	■ Incorrect size motor ■ Indoor unit capacity setting error
Corrective Actions	■ Correct motor installation. ■ Correct the indoor unit capacity setting.

5.25 Remote Sensor Abnormality

Applicable Models
FXTA-AA

Error Code
C9

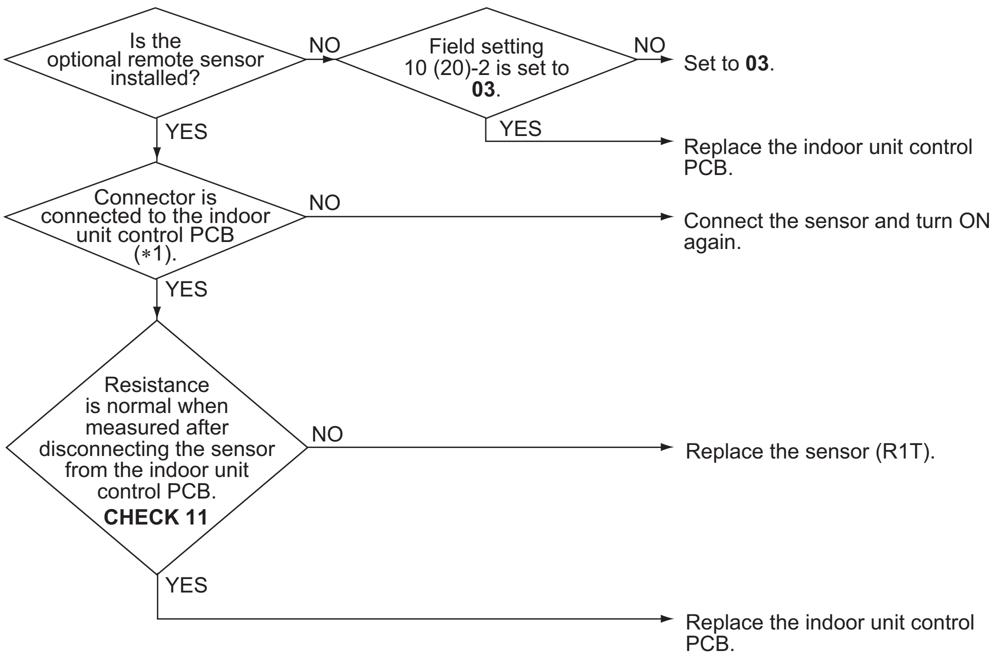
Method of Error Detection
The error is detected by remote sensor temperature.

Error Decision Conditions
When the remote sensor becomes disconnected or shorted while the unit is running.

Supposed Causes
- Defective indoor unit thermistor (R1T) for room temperature
- 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(s) ∗1. Connector and indoor unit control PCB

Connector for remote sensor	PCB
X16A	A1P

Reference **CHECK 11** Refer to page 279.

5.26 Infrared Presence/Floor Sensor Error

Applicable Models

FXFA-AA

Error Code

CE

Method of Error Detection

The contents of a failure vary with the detailed error code. Check the code and proceed with the flowchart.

Error Decision Conditions

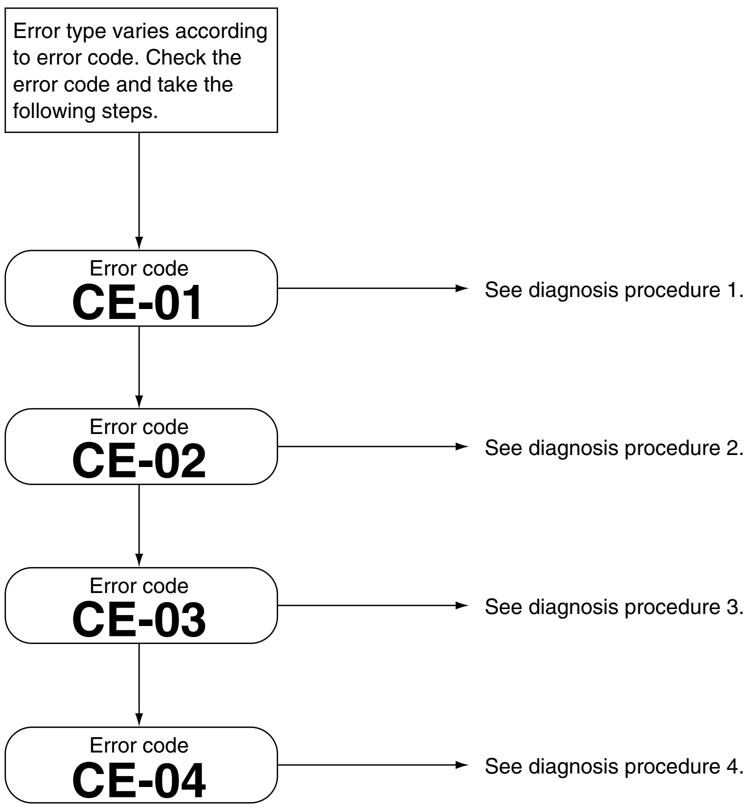
Error is detected based on sensor output signals

Supposed Causes

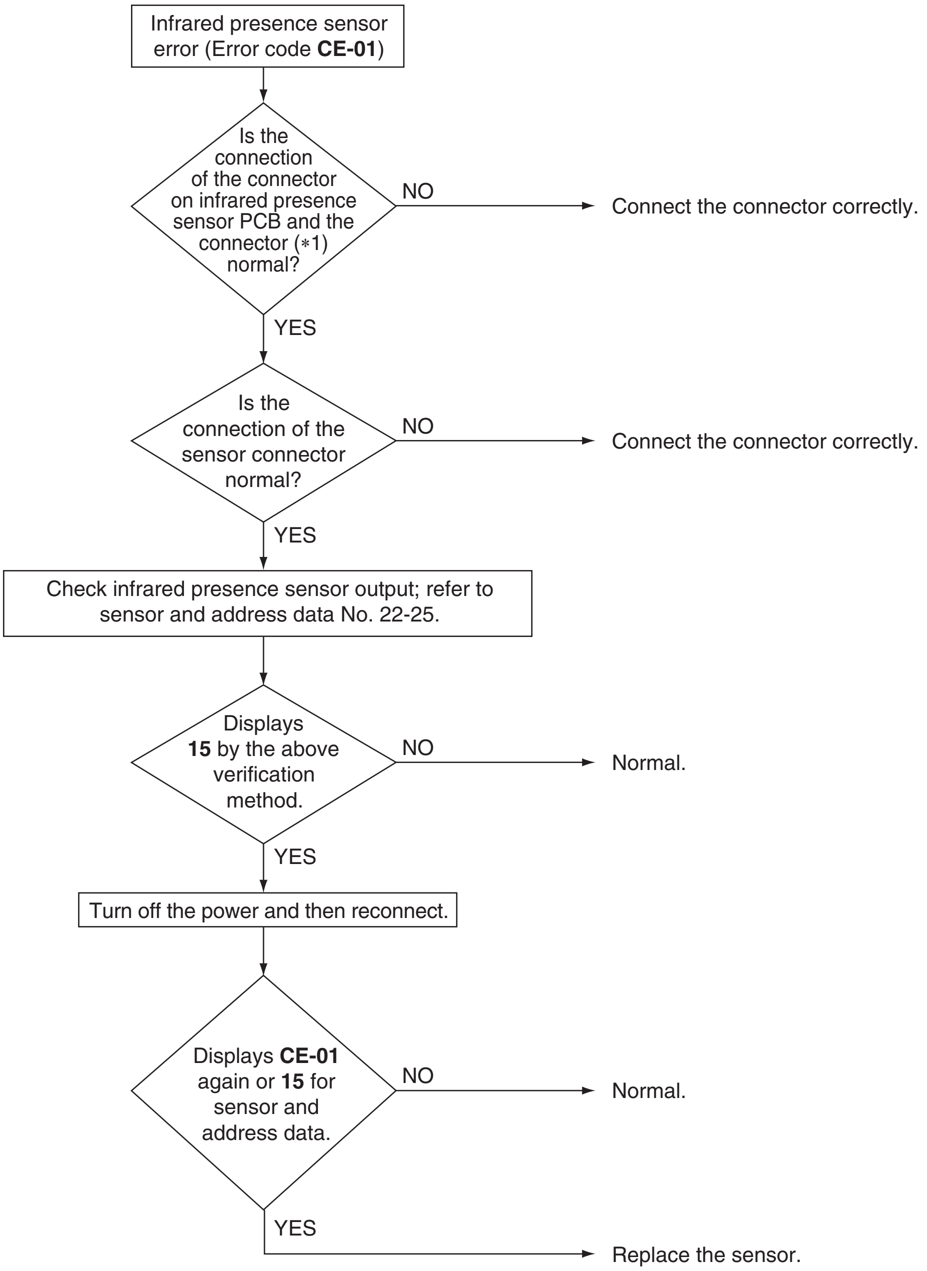
- Defective or disconnected infrared presence sensor connector: **CE-01**
- Defective infrared floor sensor (Temperature compensation circuit disconnection): **CE-02**
- Defective infrared floor sensor (Temperature compensation short circuit): **CE-03**
- Defective infrared floor sensor element: **CE-04**

Troubleshooting

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



Diagnosis procedure 1

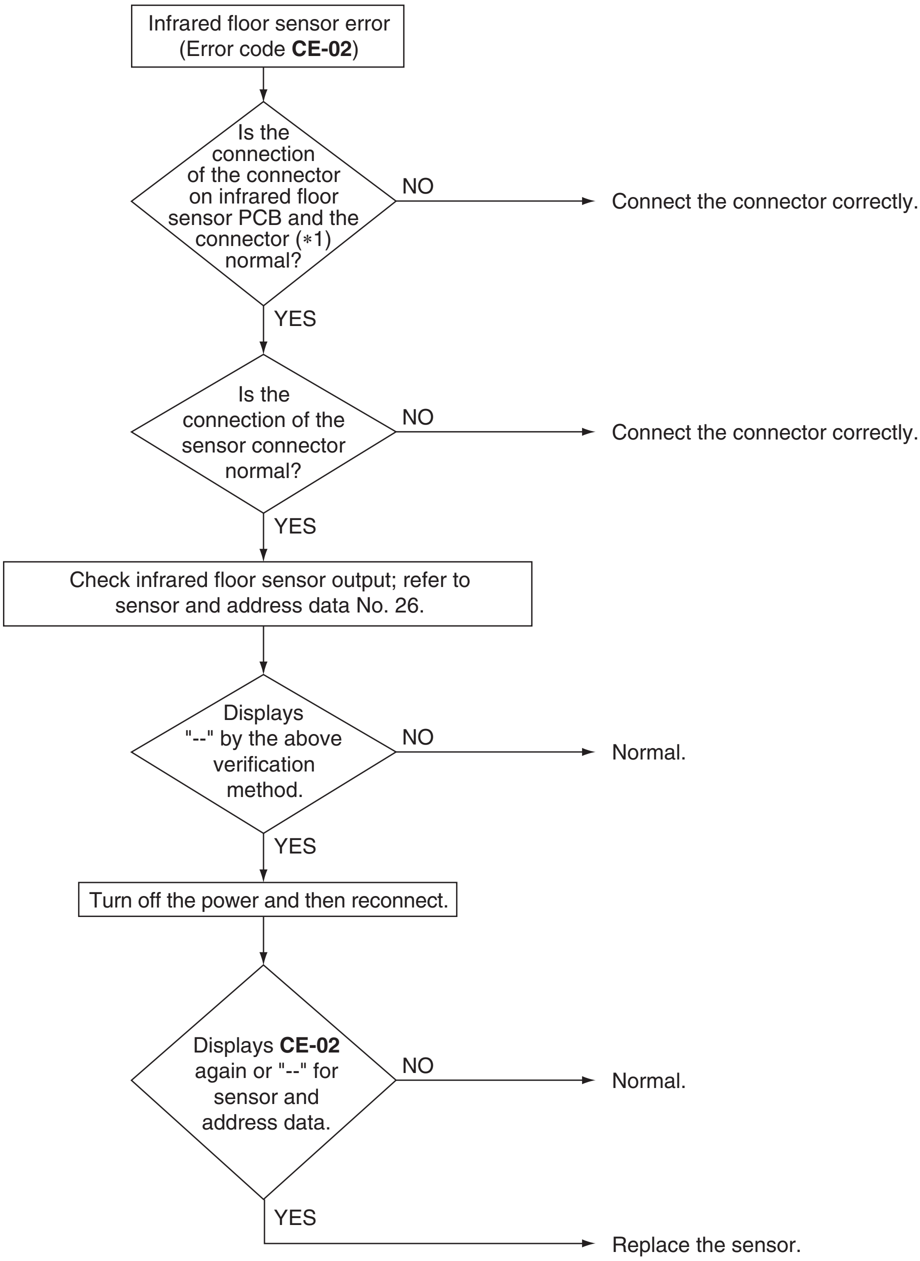


Note(s)

∗1. Infrared presence sensor PCB and connector

Infrared presence sensor PCB	Connector
A5P	X81A (A1P)

Diagnosis procedure 2

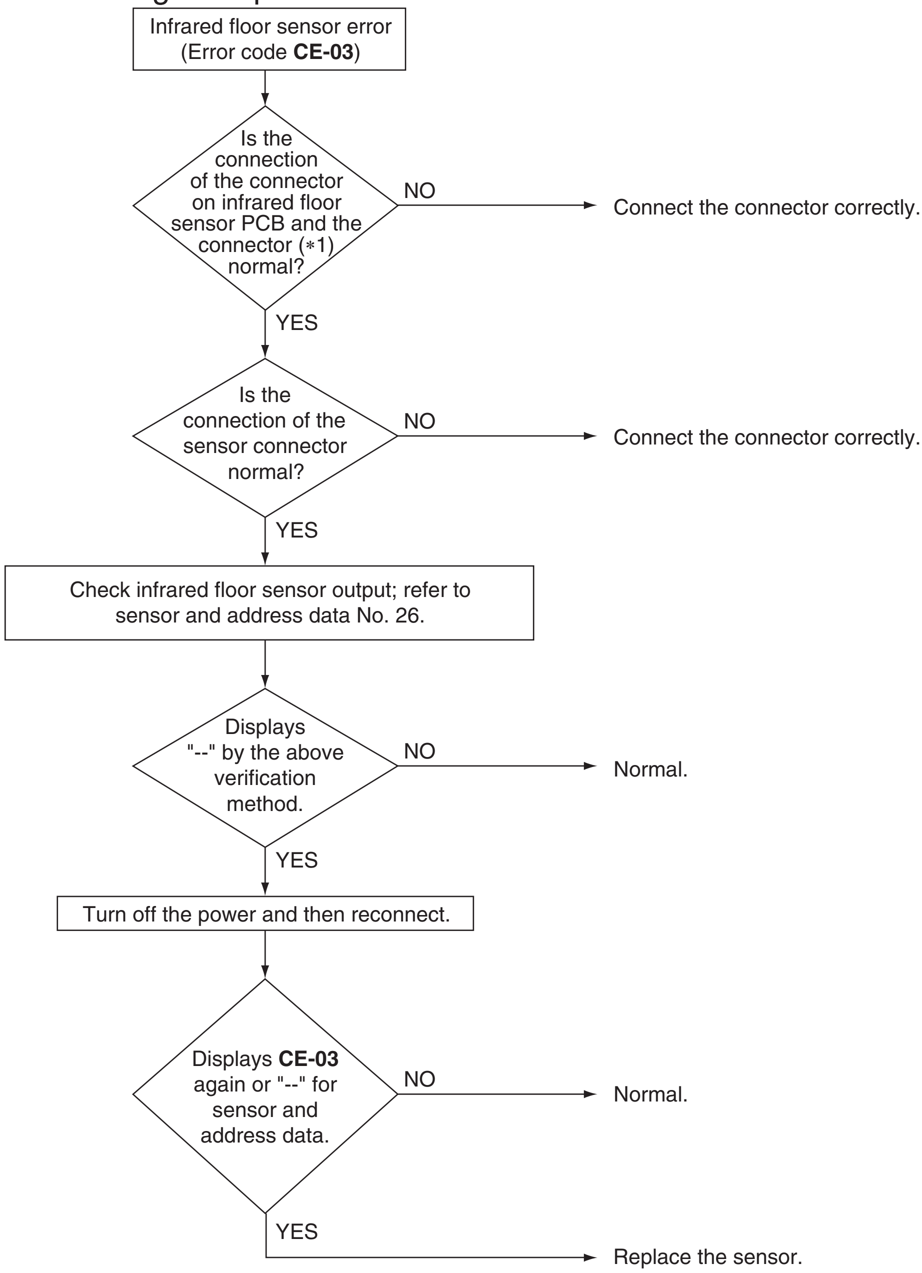


Note(s)

∗1. Infrared floor sensor PCB and connector

Infrared floor sensor PCB	Connector
A4P	X81A (A1P)

Diagnosis procedure 3

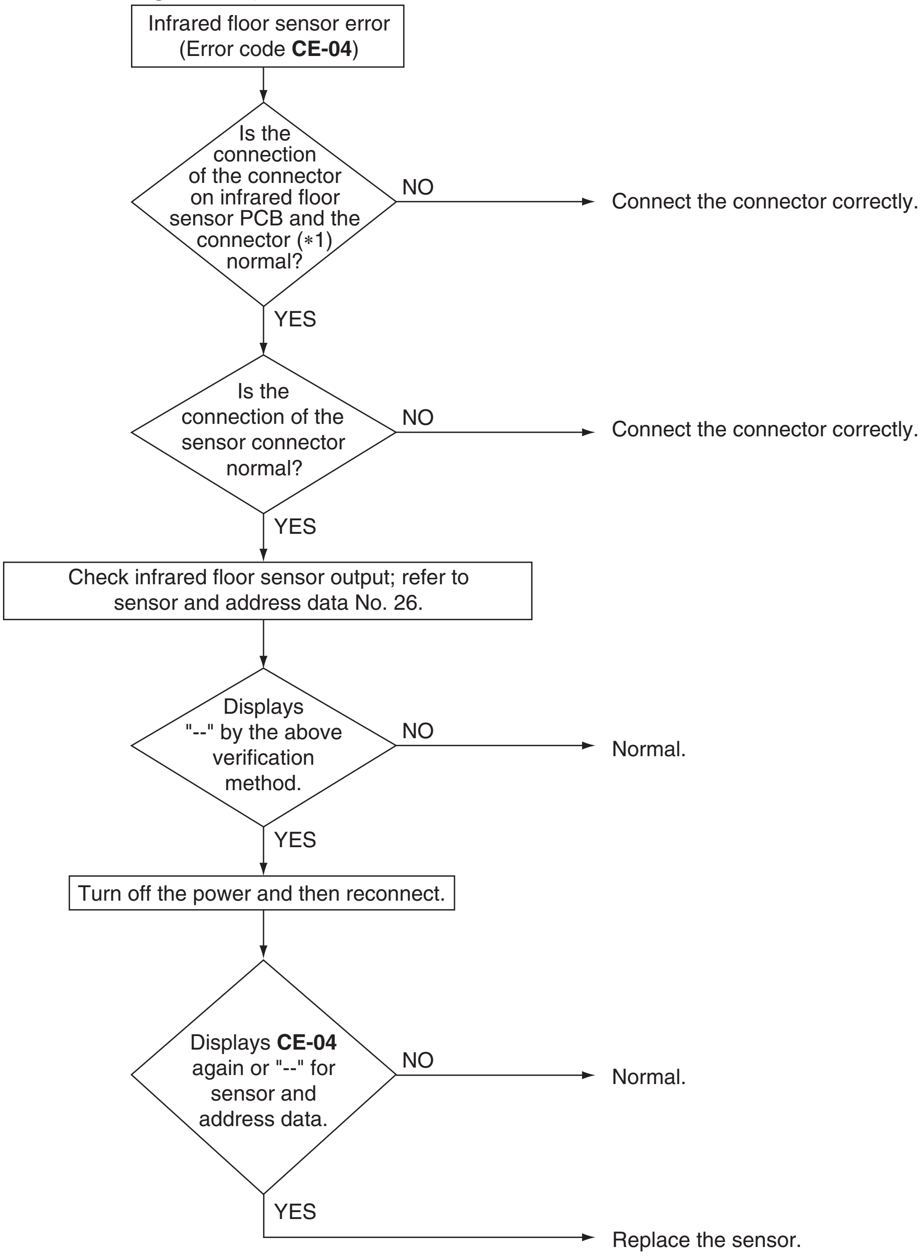


Note(s)

∗1. Infrared floor sensor PCB and connector

Infrared floor sensor PCB	Connector
A4P	X81A (A1P)

Diagnosis procedure 4



Note(s)

∗1. Infrared floor sensor PCB and connector

Infrared floor sensor PCB	Connector
A4P	X81A (A1P)

5.27 Refrigerant Leak Detection Sensor Failure

5.27.1 Refrigerant Leak Detection Sensor Failure (Except FXTA-AA)

Applicable Models

FXFA-AA, FXSA-AA, FXMA-AA

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.

5.27.2 Refrigerant Leak Detection Sensor Failure (FXTA-AA Only)

Applicable Models

FXTA-AA

Error Code

CH-11

Method of Error Detection

Error is issued when control PCB receives fault status from leak detection sensor or loses communication with leak detection sensor during operation.

Error Decision Conditions

- When leak detection sensor sends fault status information to control PCB for a certain set timeframe.
- When control PCB cannot receive communication signal from leak detection sensor for a certain set timeframe.

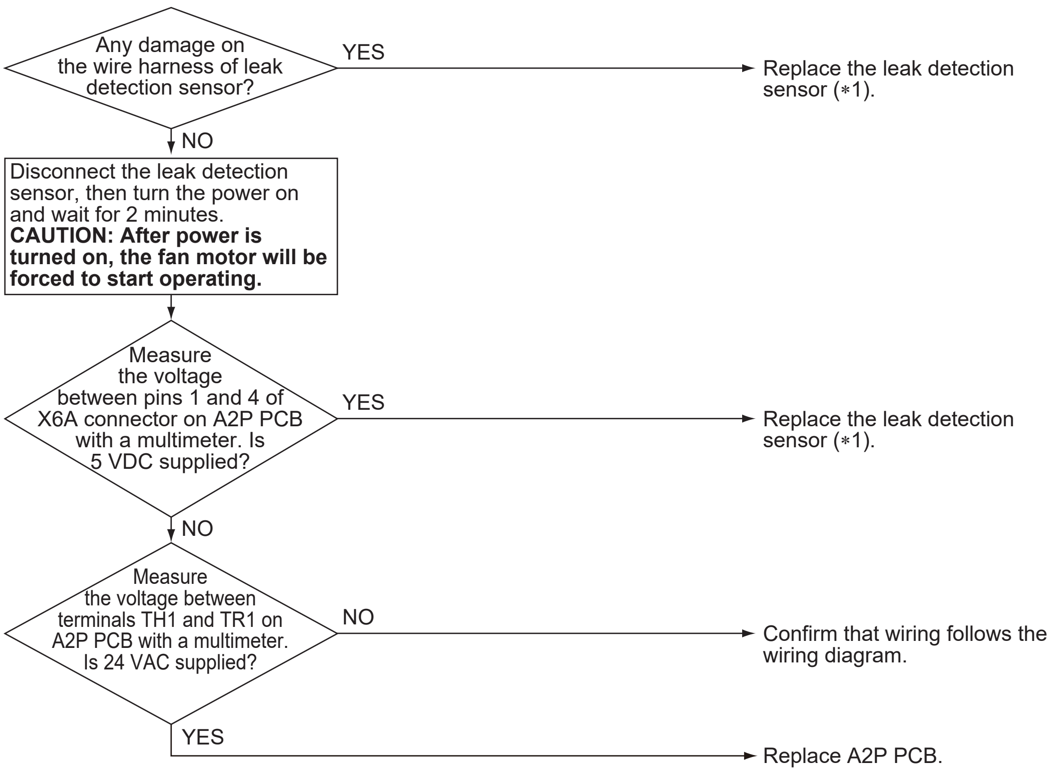
Supposed Causes

- Broken leak detection sensor
- Broken wires in, short circuit of, or disconnection of connector of leak detection sensor
- Incorrect wiring
- Defective A2P control PCB

Troubleshooting

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

While **CH-11** is being detected, the fan motor is forced to operate in compliance with safety standards.



Note(s)

∗1. For sensor replacement, refer to **Refrigerant Leak Detection Sensor Replacement (FXTA-AA models only)** on page 299.

5.28 Refrigerant Leak Detection Sensor Disconnection

5.28.1 Refrigerant Leak Detection Sensor Disconnection (Except FXTA-AA)

Applicable Models

FXFA-AA, FXSA-AA, FXMA-AA

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

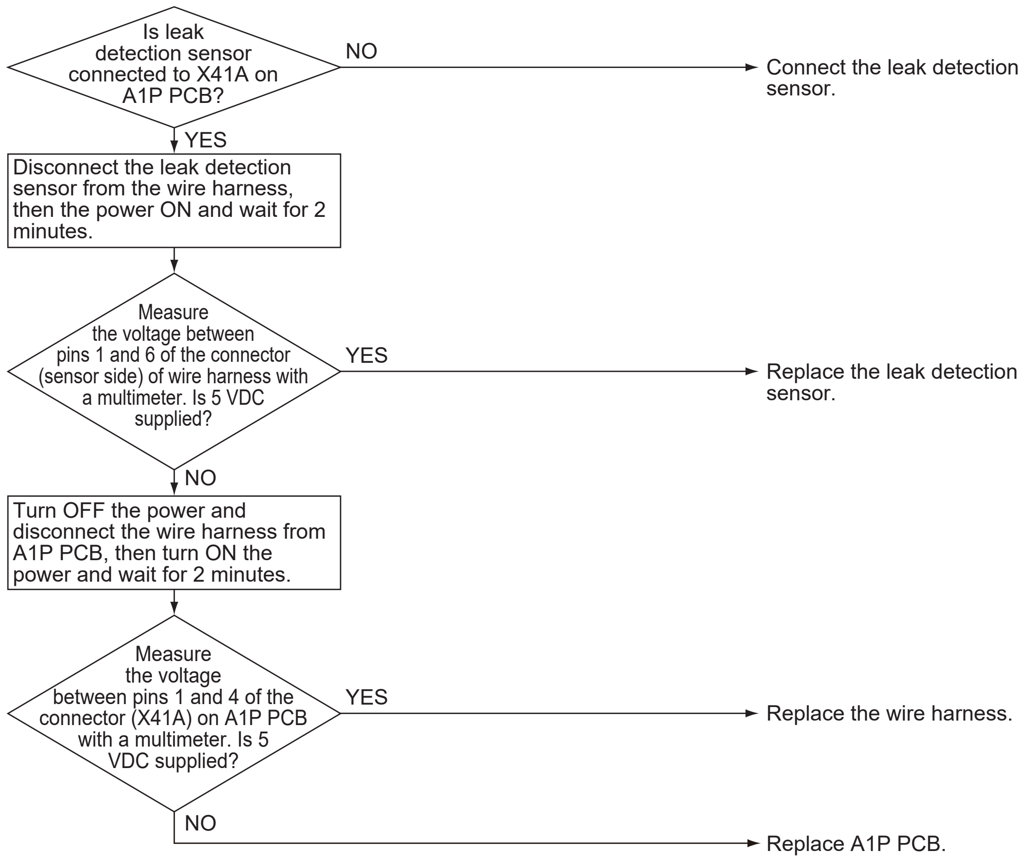
When A1P control PCB does not have a connection with leak detection sensor at startup.

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.



5.28.2 Refrigerant Leak Detection Sensor Disconnection (FXTA-AA Only)

Applicable Models
FXTA-AA

Error Code
CH-14

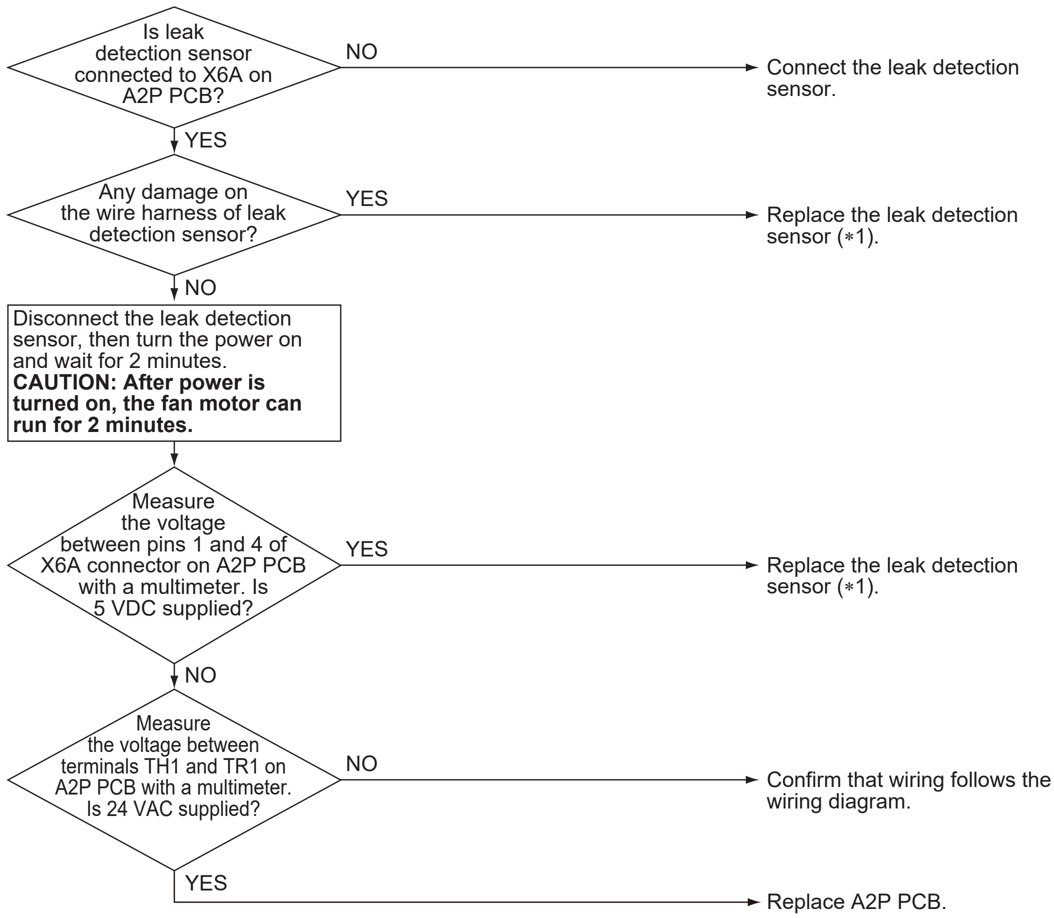
Method of Error Detection
Error is issued when leak detection sensor is not connected to A2P control PCB when powered up.

Error Decision Conditions
When A2P 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 A2P control PCB

Troubleshooting

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



Note(s)
∗1. For sensor replacement, refer to **Refrigerant Leak Detection Sensor Replacement (FXTA-AA models only)** on page 299.

5.29 Remote Controller Thermistor Abnormality

Applicable Models

All indoor unit models

Error Code

CJ

Method of Error Detection

Error detection is carried out by the temperature detected by the remote controller thermistor.

Error Decision Conditions

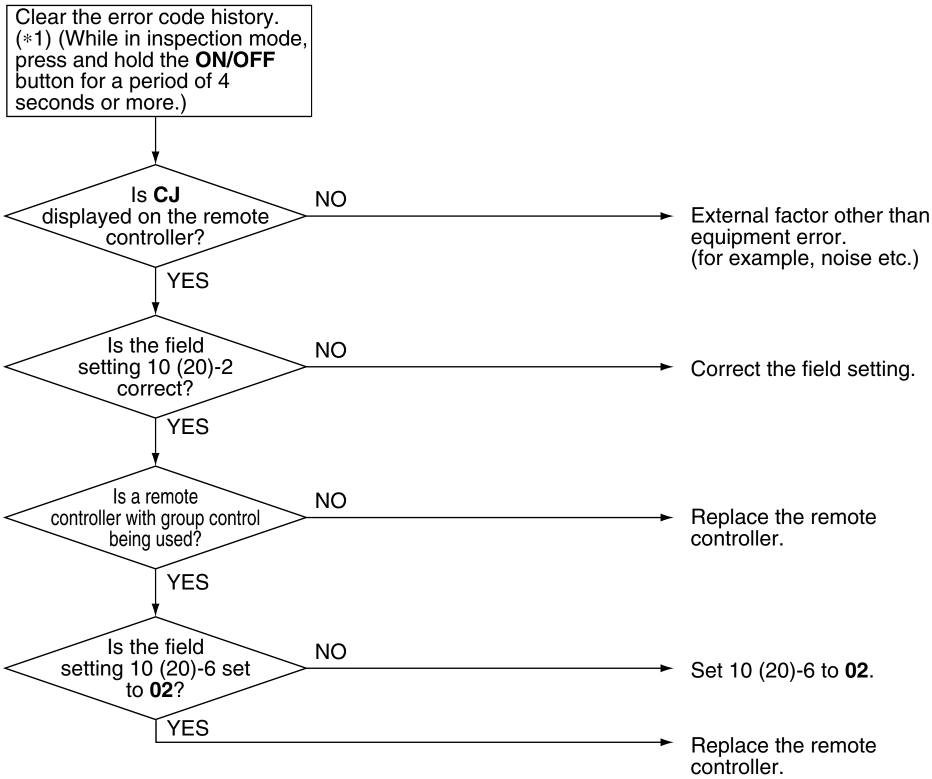
The remote controller thermistor becomes disconnected or shorted while the unit is running (∗2).
∗ Error code is displayed but the system operates continuously.

Supposed Causes

- Defective remote controller thermistor
- Defective remote controller PCB

Troubleshooting

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



Note(s)

∗1. To delete the history of error codes, press the **ON/OFF** button for 4 seconds and more while the error code is displayed in the inspection mode.
∗2. For FXTA-AA models, **CJ** error code may be recorded in the error history immediately after a power ON or automatic restart from a power outage, but this is not abnormal.

5.30 Outdoor Unit Main PCB Abnormality

Applicable Models

All outdoor unit models

Error Code

E1

Method of Error Detection

Abnormality is detected under the communication conditions in the hardware section between the indoor unit and outdoor unit.

Error Decision Conditions

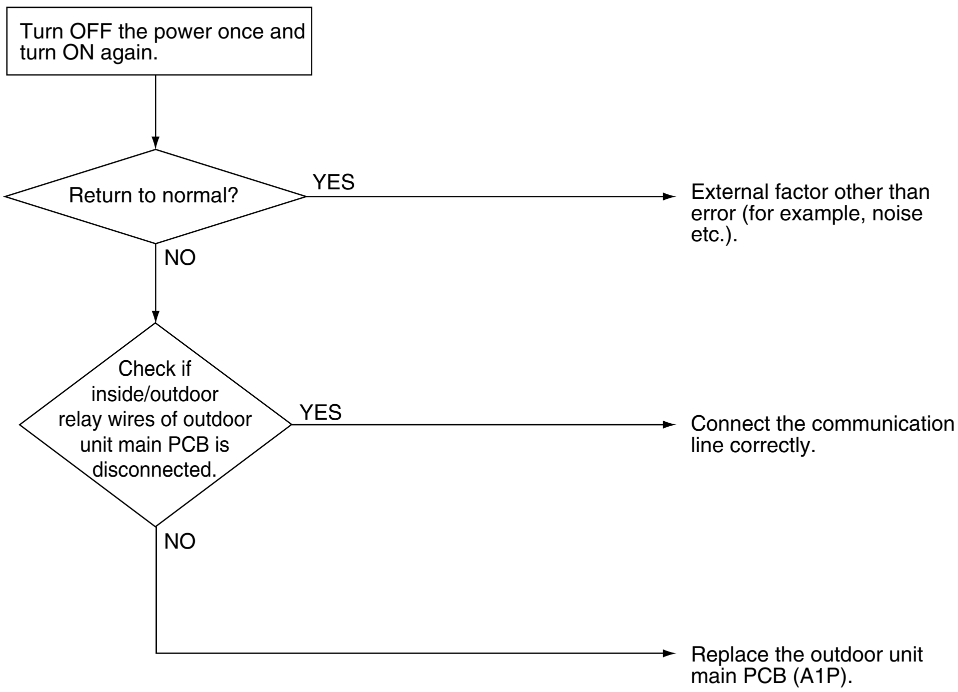
When the communication conditions in the hardware section between the indoor unit and the outdoor unit are not normal.

Supposed Causes

- Defective outdoor unit main PCB
- Defective connection communication line between indoor and outdoor units

Troubleshooting

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



5.31 Activation of High Pressure Switch

Applicable Models

All outdoor unit models

Error Code

E3

Method of Error Detection

Detect continuity across the high pressure switch in the protection device circuit.

Error Decision Conditions

When part of the protection device circuit opens.
(Reference) Operating pressure of the high pressure switch:

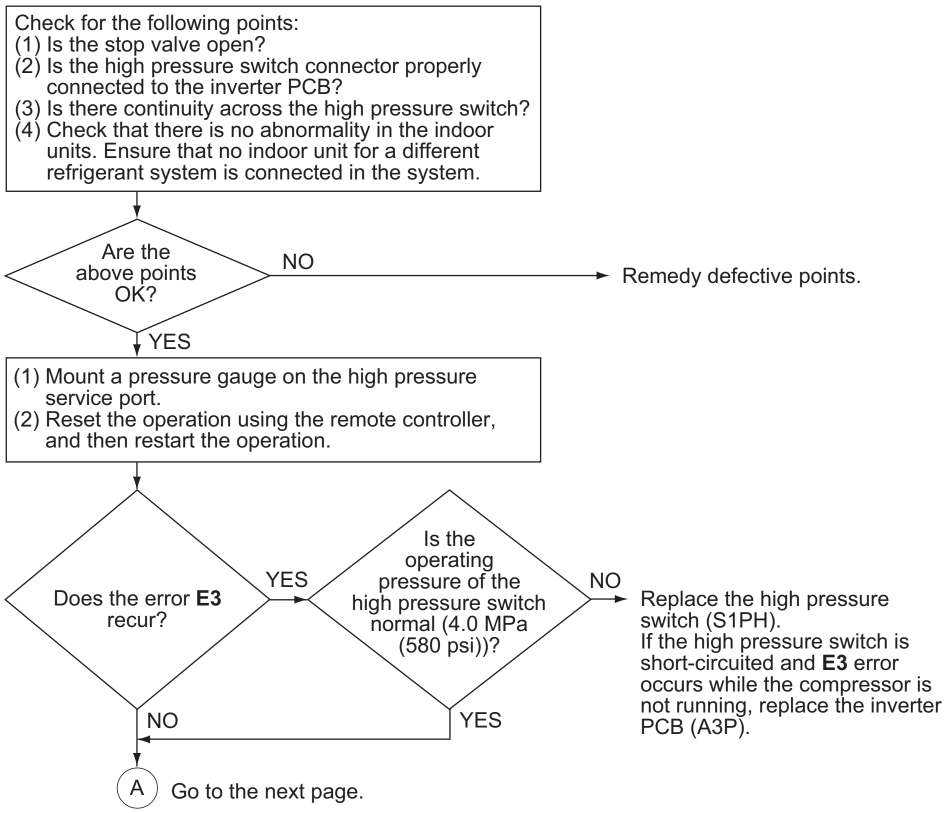
- Operating pressure: 4.0 MPa (580 psi)
- Resetting pressure: 3.0 MPa (435 psi)

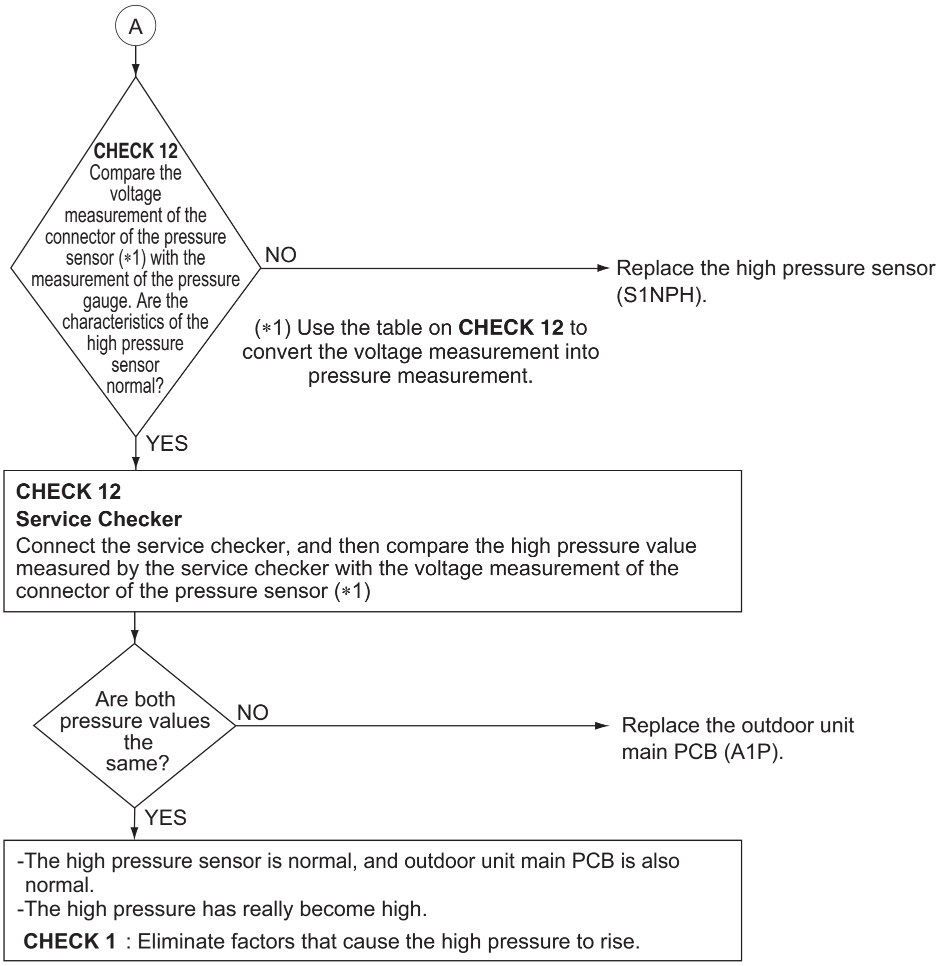
Supposed Causes

- Activation of high pressure switch
- Defective high pressure switch
- Defective outdoor unit main PCB
- Defective inverter PCB
- The stop valve is not opened.
- Momentary power failure
- Defective high pressure sensor

Troubleshooting

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





Reference **CHECK 1** Refer to page 270.

Reference **CHECK 12** Refer to page 281.

5.32 Activation of Low Pressure Sensor

Applicable Models

All outdoor unit models

Error Code

E4

Method of Error Detection

Make judgment of pressure detected by the low pressure sensor with the outdoor unit main PCB.

Error Decision Conditions

When low pressure caused a drop while the compressor is in operation:

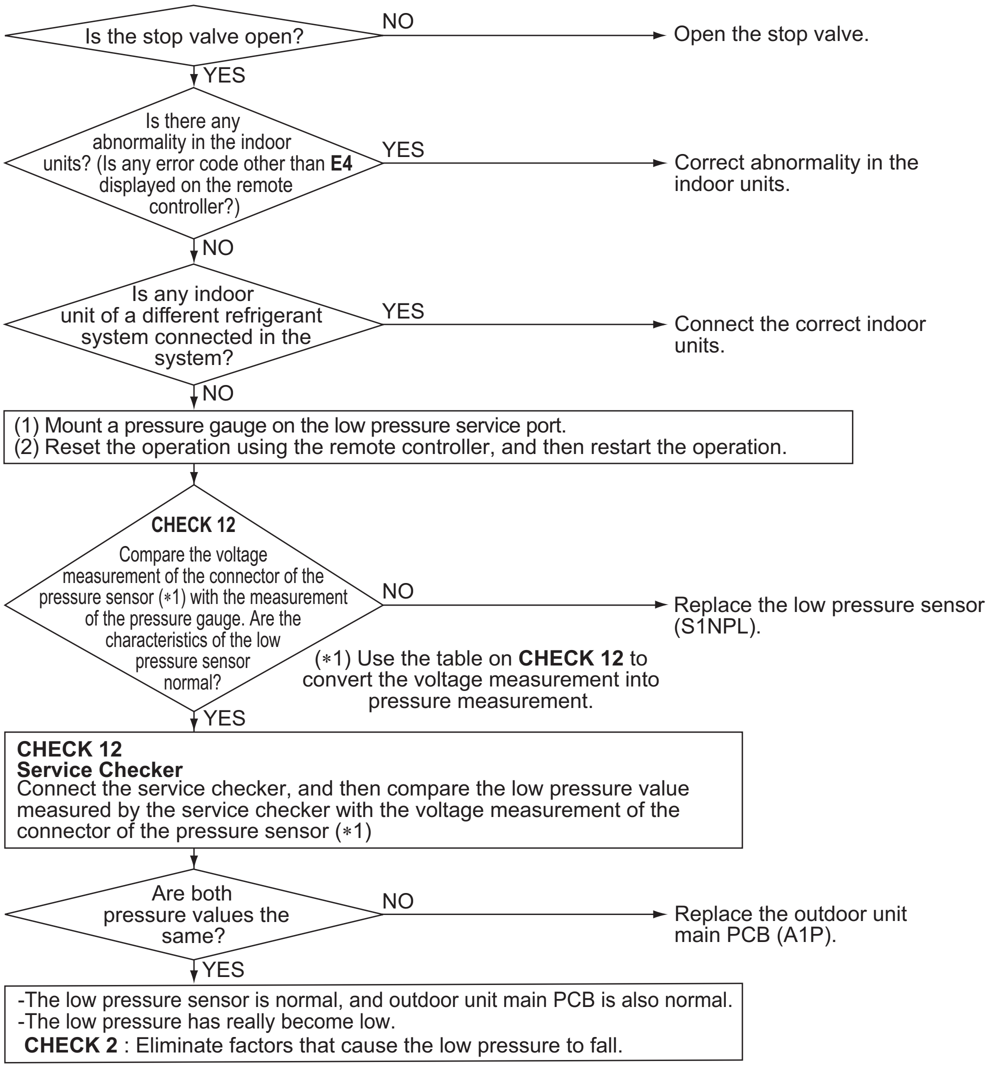
- Operating pressure: 0.07 MPa (10.2 psi)

Supposed Causes

- Abnormal drop in low pressure
- Defective low pressure sensor
- Defective outdoor unit main PCB
- The stop valve is not opened

Troubleshooting

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



Reference **CHECK 2** Refer to page 271.

Reference **CHECK 12** Refer to page 281.

5.33 Compressor Motor Lock

Applicable Models

All outdoor unit models

Error Code

E5

Method of Error Detection

Inverter PCB takes the position signal from UVW line connected between the inverter and compressor, and the error is detected when any abnormality is observed in the phase-current waveform.

Error Decision Conditions

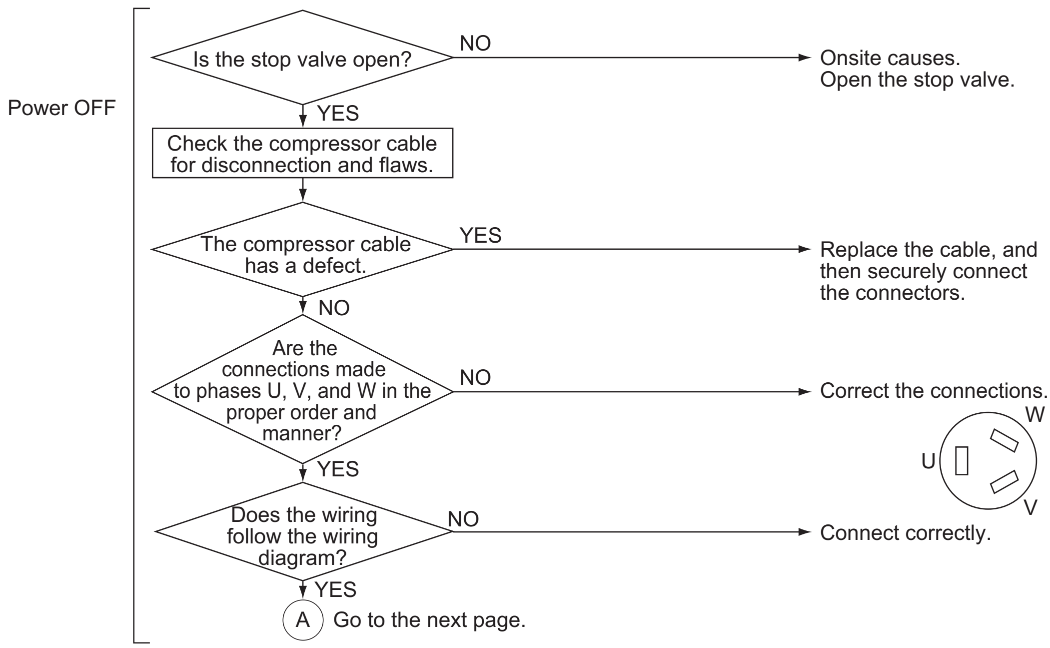
This error will be output when the compressor motor does not start up even in forced startup mode.

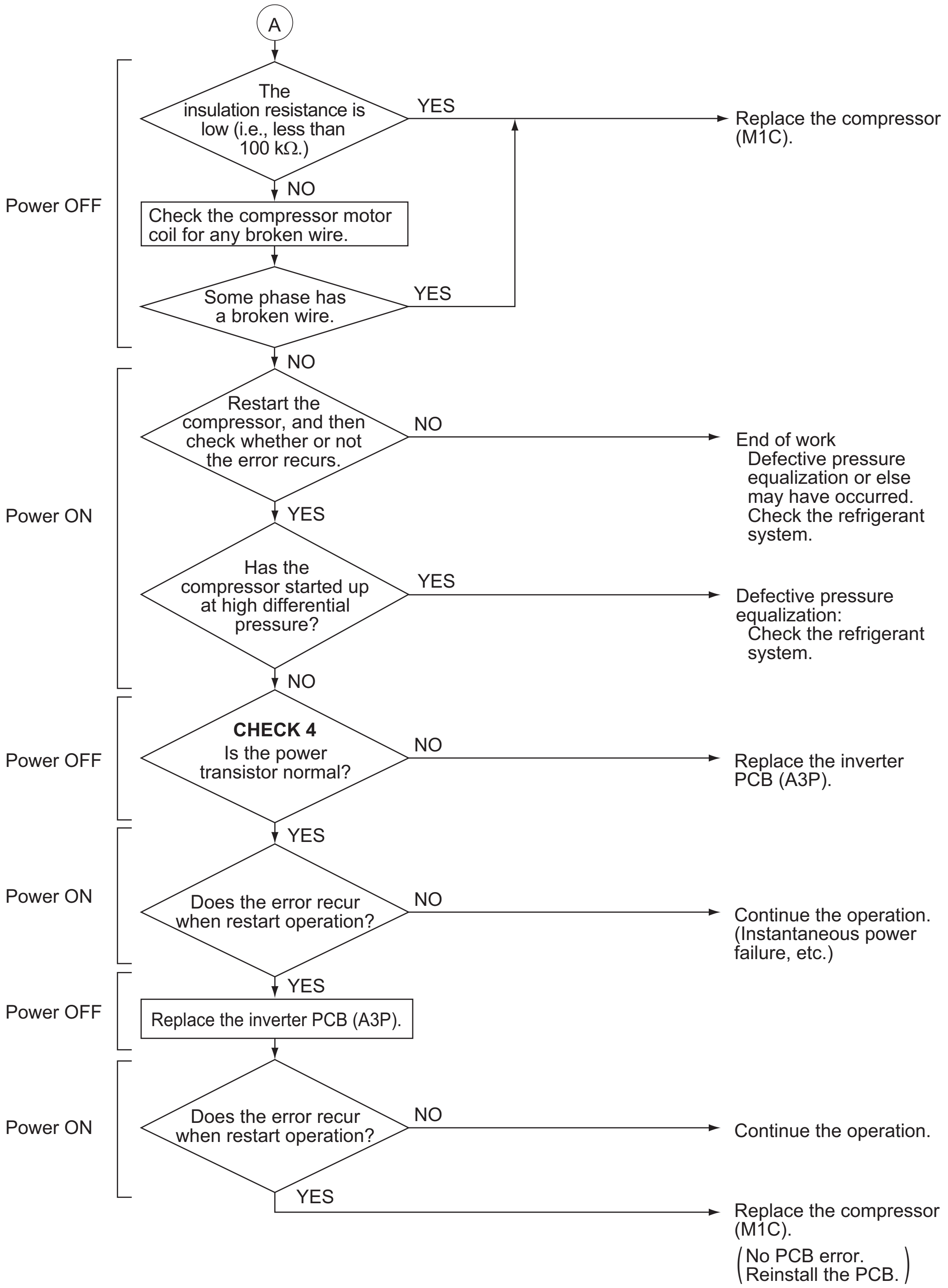
Supposed Causes

- Compressor lock
- High differential pressure
- Incorrect UVW wiring
- Defective inverter PCB
- Stop valve is not opened

Troubleshooting

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





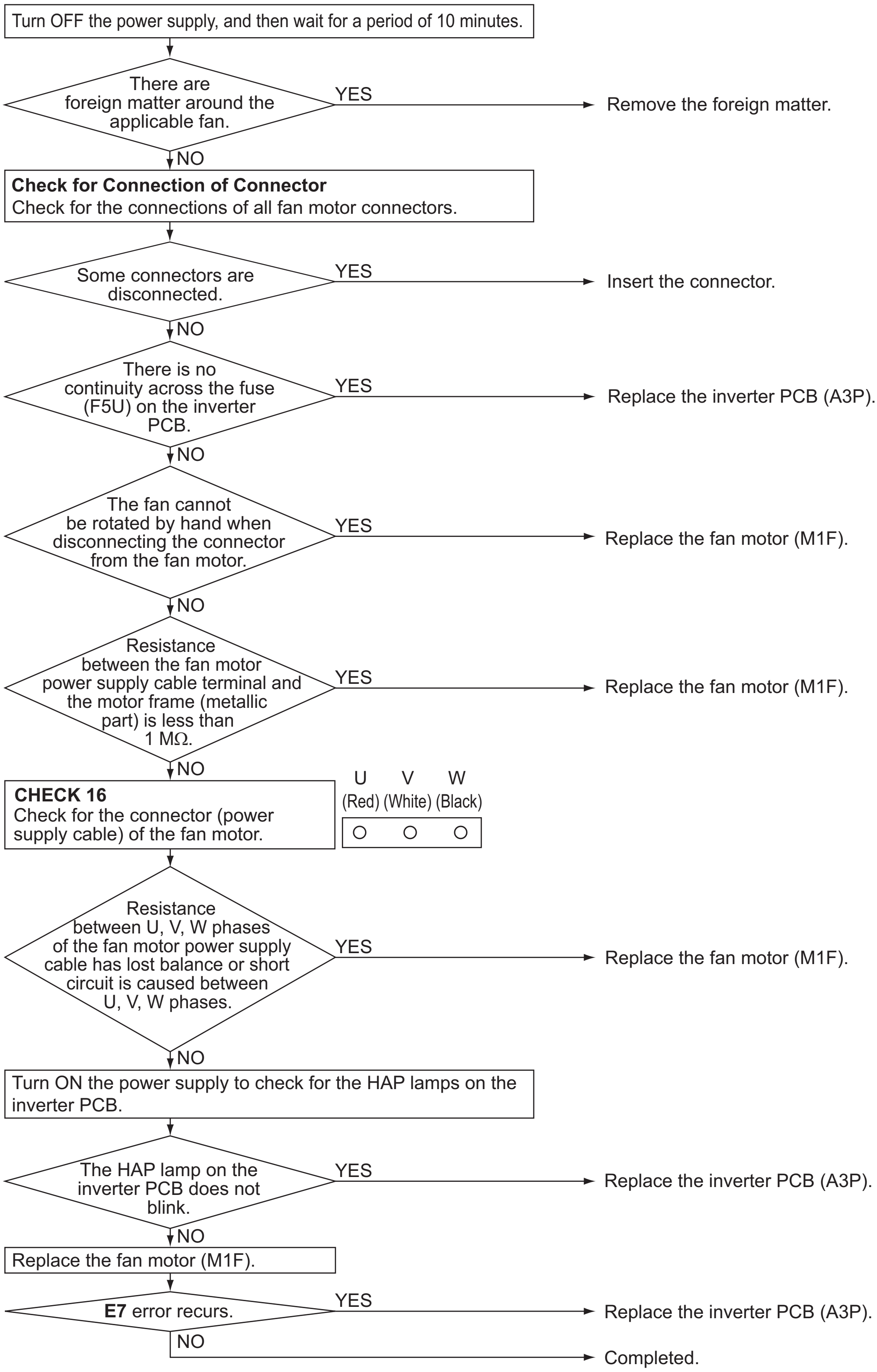
Reference **CHECK 4** Refer to page 273.

5.34 Outdoor Fan Motor Abnormality

Applicable Models	All outdoor unit models
Error Code	**E7**
Method of Error Detection	Detection is made by the value of current flowing through the inverter PCB.
Error Decision Conditions	Current does not increase at fan motor startup or while the fan motor is in operation (Detecting 4 times will shut down the system).
Supposed Causes	■ Fan motor failure ■ Neglect to connect or defective connection of harness/connector between the fan motor and the PCB ■ Fan does not rotate due to foreign matter caught in it. ■ Clearing condition: fan motor performs normal operation for a period of 5 minutes

Troubleshooting

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



Reference **CHECK 16** Refer to page 285.

5.35 Electronic Expansion Valve Coil Abnormality

Applicable Models

All outdoor unit models

Error Code

E9

Method of Error Detection

Detection is made by whether there is continuity across the electronic expansion valve coils.

Error Decision Conditions

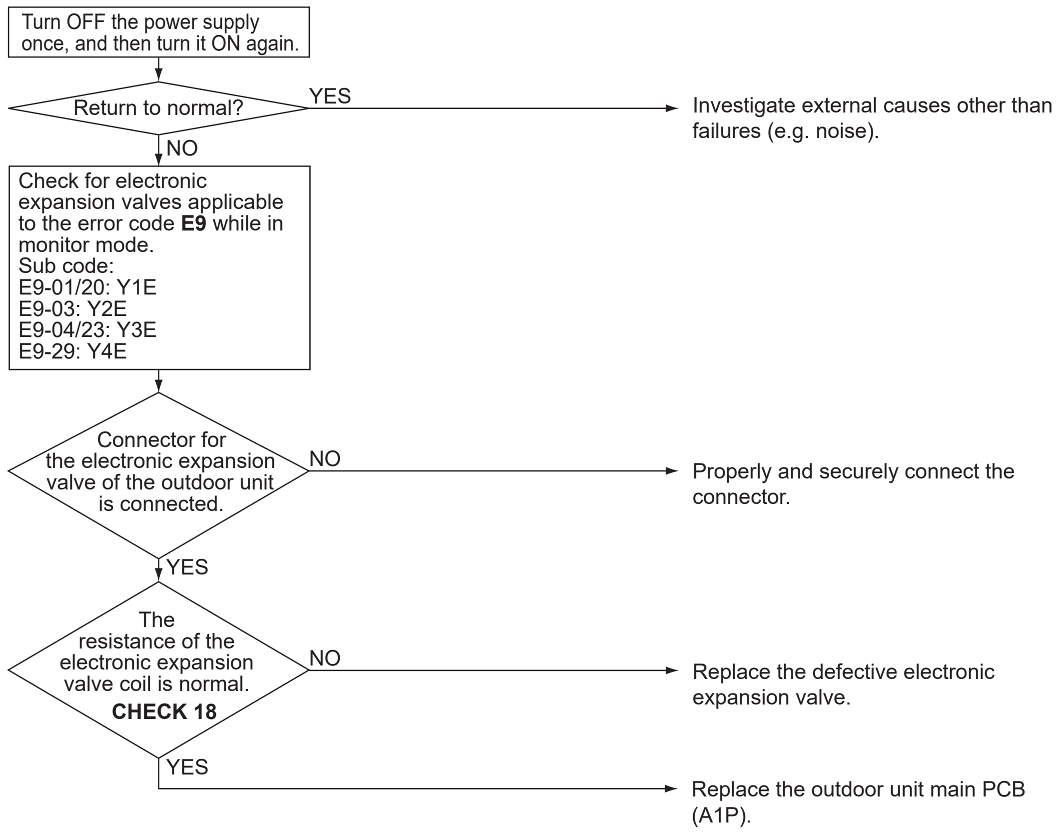
When no current flows through common (COM[+]) at the time of turning ON the power supply.

Supposed Causes

- Disconnection of connectors from electronic expansion valves
- Defective electronic expansion valve coil
- Defective outdoor unit main PCB

Troubleshooting

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



Reference

CHECK 18 Refer to page 286.

5.36 Discharge Pipe Temperature Abnormality

Applicable Models

All outdoor unit models

Error Code

F3

Method of Error Detection

- Detection is made by the discharge pipe temperature.
- The continuity of the overload protector is detected by the protection device circuit.

Error Decision Conditions

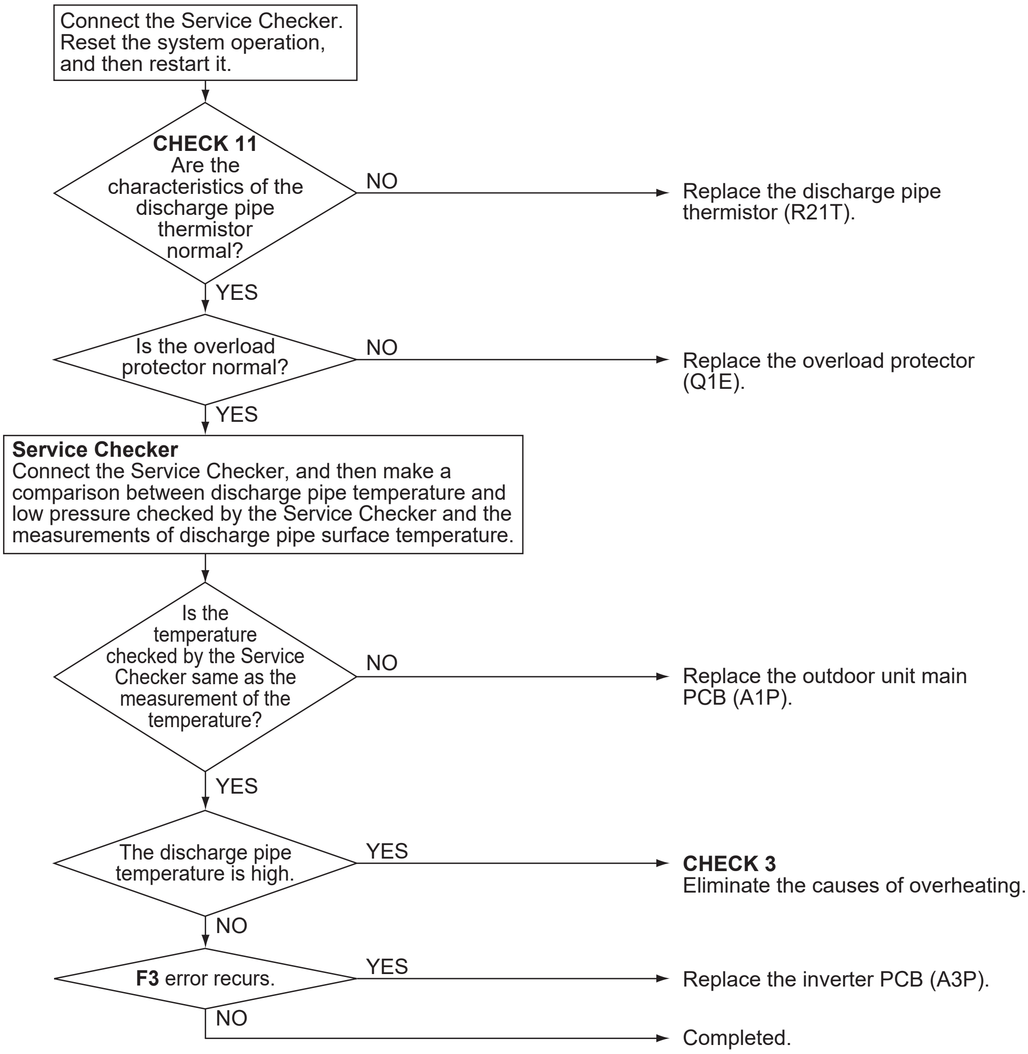
- When discharge pipe temperature becomes abnormally high (i.e., 135°C (275°F) or more)
- When discharge pipe temperature sharply rises (remains at 120°C (248°F) or more for a period of consecutive 10 minutes)
- Activation of overload protector

Supposed Causes

- Abnormal discharge pipe temperature
- Defective discharge pipe thermistor
- Abnormal compressor surface temperature
- Defective overload protector
- Defective inverter PCB

Troubleshooting

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



Reference **CHECK 3** Refer to page 272.

Reference **CHECK 11** Refer to page 279.

5.37 Compressor Floodback Alarm

Applicable Models

All outdoor unit models

Error Code

F4

Method of Error Detection

The condition in which liquid refrigerant returns to the compressor is detected by the temperature and pressure of each part.

Error Decision Conditions

- Liquid floodback state in outdoor unit:
  If the condition continues for a period of 180 minutes, an alert is issued.
  If the condition continues for a period of 240 minutes, an error is determined.

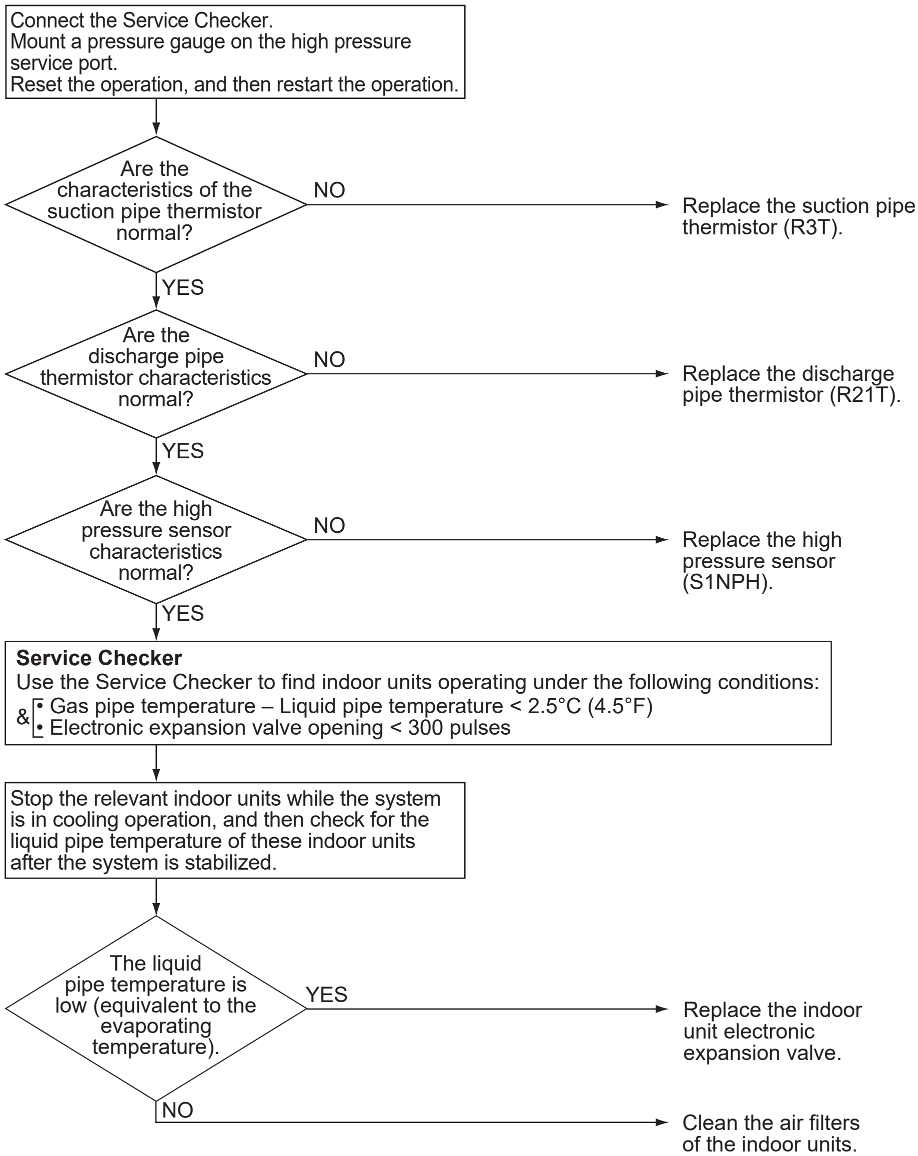
- Liquid floodback state in some of indoor units:
  If the condition continues for a period of 180 minutes, an alert is issued.

Supposed Causes

- Defective suction pipe thermistor
- Defective discharge pipe thermistor
- Defective high pressure sensor
- Defective low pressure sensor
- Defective indoor unit electronic expansion valve
- Dirty air filter

Troubleshooting

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



5.38 Defective Overload Protector

Applicable Models

All outdoor unit models

Error Code

H5

Method of Error Detection

Error is detected when there is no continuity in the overload protector.

Error Decision Conditions

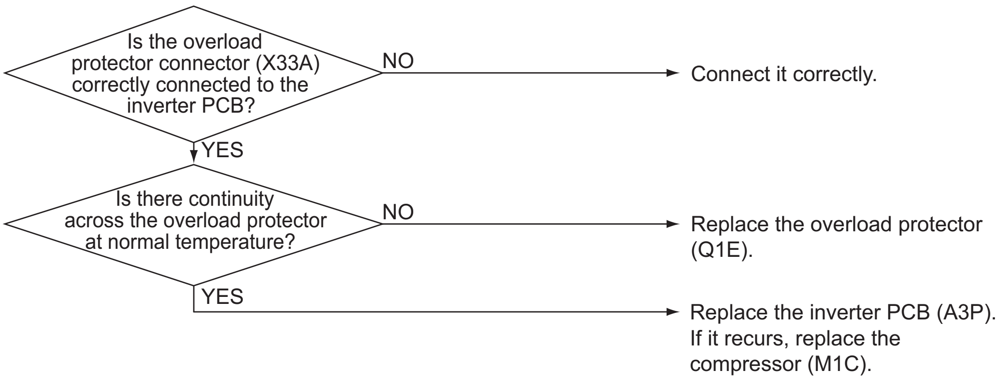
No continuity of the overload protector at the start of compressor operation.

Supposed Causes

- Defective inverter PCB
- Defective overload protector

Troubleshooting

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



5.39 Inverter PCB Abnormality

Applicable Models

All outdoor unit models

Error Code

H7

Method of Error Detection

Error is detected by the current sensor value.

Error Decision Conditions

If the current sensor value is abnormal, the error is determined.

Supposed Causes

Defective inverter PCB (circuit failure)

Troubleshooting

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

5.40 Thermistor Abnormality

Applicable Models

All outdoor unit models

Error Code

H9, J3, J5, J6, J7, J8, J9

Method of Error Detection

Detect according to temperature detected with individual thermistors.

Error Decision Conditions

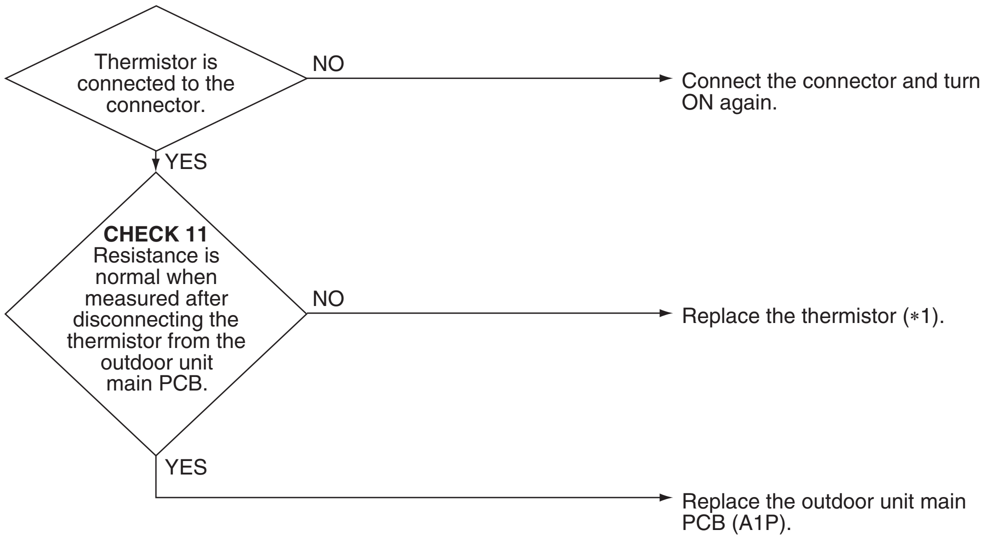
When the system is in operation and the thermistor causes wiring disconnection or short circuit in it.

Supposed Causes

- Defective connection of thermistor
- Defective thermistor
- Defective outdoor unit main PCB

Troubleshooting

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



Note(s)

∗1. Check the error code and sub code, and replace the corresponding thermistor.

Reference

CHECK 11 Refer to page 279.

5.41 High Pressure Sensor Abnormality

Applicable Models

All outdoor unit models

Error Code

JA

Method of Error Detection

Detects according to temperature detected with the high pressure sensor.

Error Decision Conditions

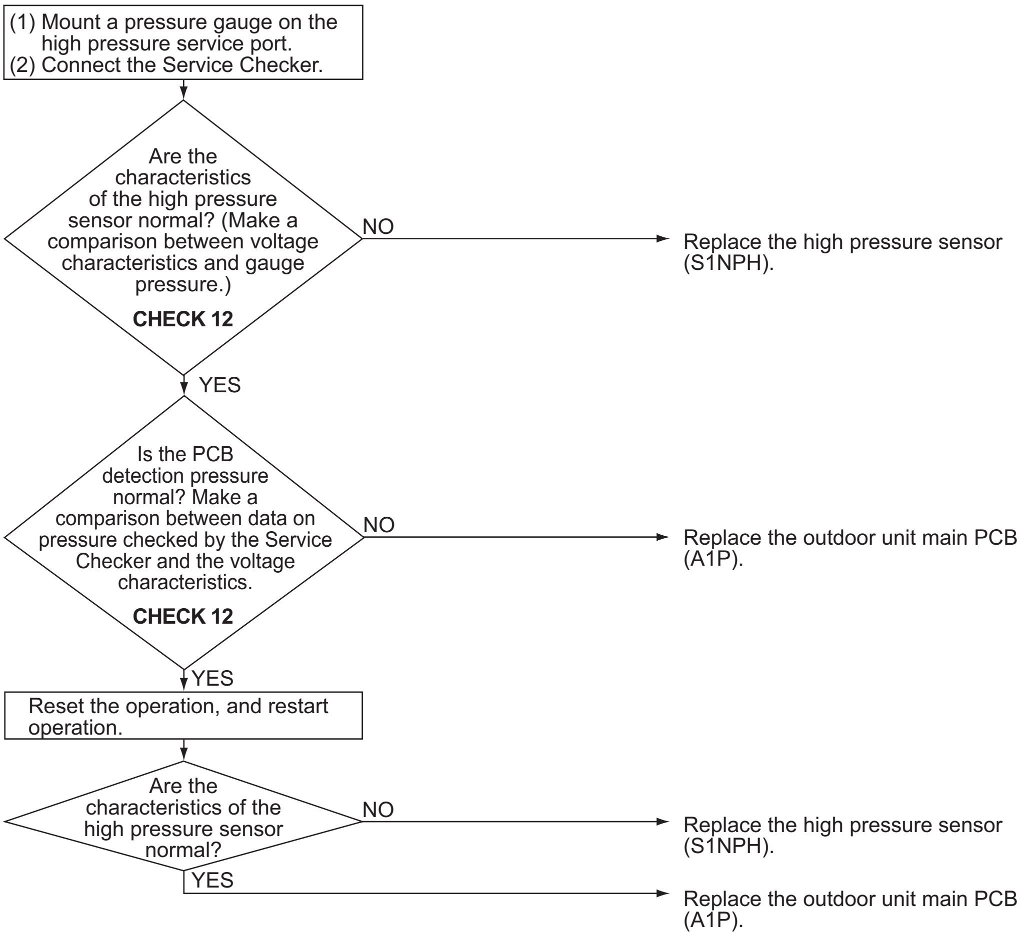
The high pressure sensor is short circuit or open circuit.
(Pressure range: 0-4.3 MPa (0-624 psi))

Supposed Causes

- Defective high pressure sensor
- Connection of low pressure sensor in mistake for high pressure sensor
- Defective outdoor unit main PCB
- Defective connection of high pressure sensor

Troubleshooting

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



Reference **CHECK 12** Refer to page 281.

5.42 Low Pressure Sensor Abnormality

Applicable Models

All outdoor unit models

Error Code

JC

Method of Error Detection

Detect according to temperature detected with the low pressure sensor.

Error Decision Conditions

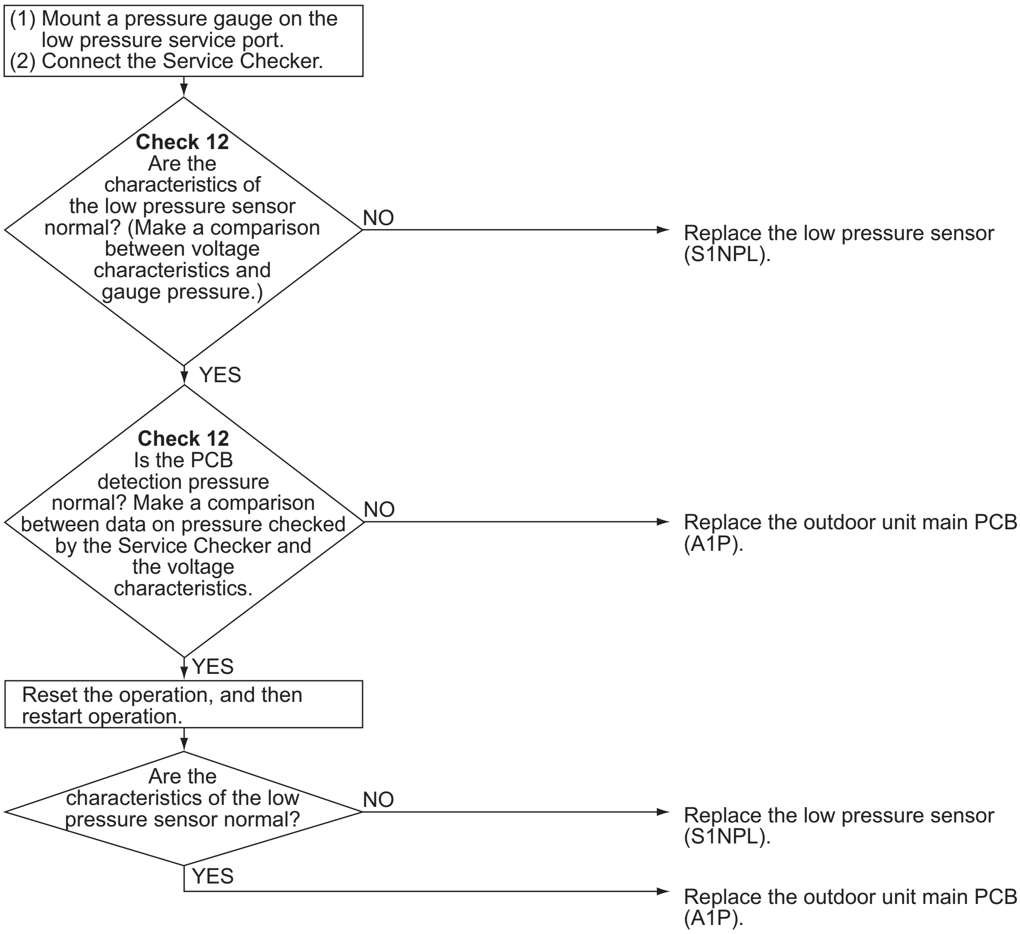
The low pressure sensor is short circuit or open circuit.
(Pressure range: 0-1.7 MPa (0-247 psi))

Supposed Causes

- Defective low pressure sensor
- Connection of high pressure sensor in mistake for low pressure sensor
- Defective outdoor unit main PCB
- Defective connection of low pressure sensor

Troubleshooting

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



Reference **CHECK 12** Refer to page 281.

5.43 Inverter PCB Abnormality

Applicable Models

All outdoor unit models

Error Code

L1

Method of Error Detection

- Detect current value during the output of waveform before compressor startup
- Detect current value with the current sensor during synchronous operation for startup

Error Decision Conditions

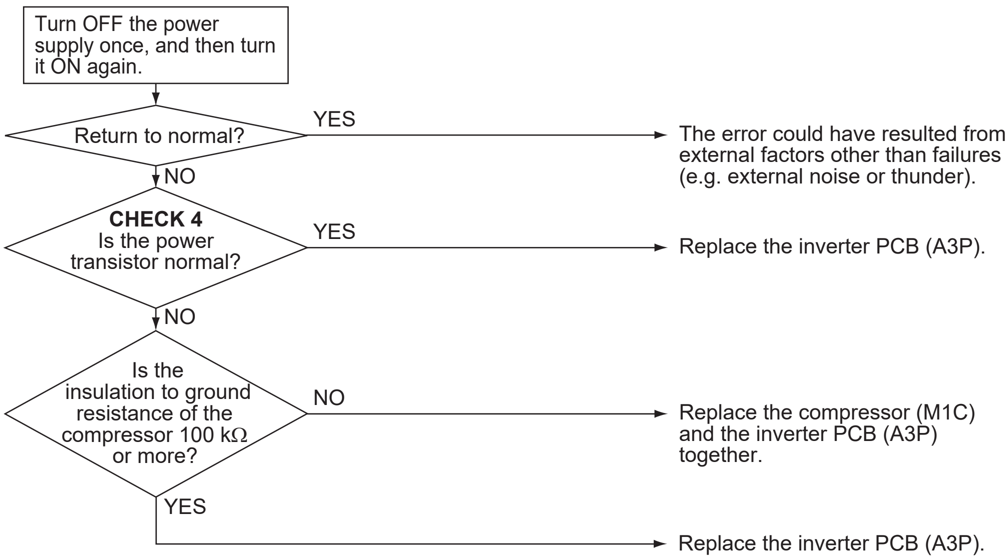
- When the overcurrent flows during the output of waveform
- When the current sensor error during synchronous operation
- When IPM error occurs

Supposed Causes

- Inverter PCB
  - IPM failure
  - Current sensor failure
  - Drive circuit failure

Troubleshooting

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



Reference

CHECK 4 Refer to page 273.

5.44 Radiation Fin Temperature Rise Abnormality

Applicable Models

All outdoor unit models

Error Code

L4

Method of Error Detection

Detect temperature of power module of the inverter PCB.

Error Decision Conditions

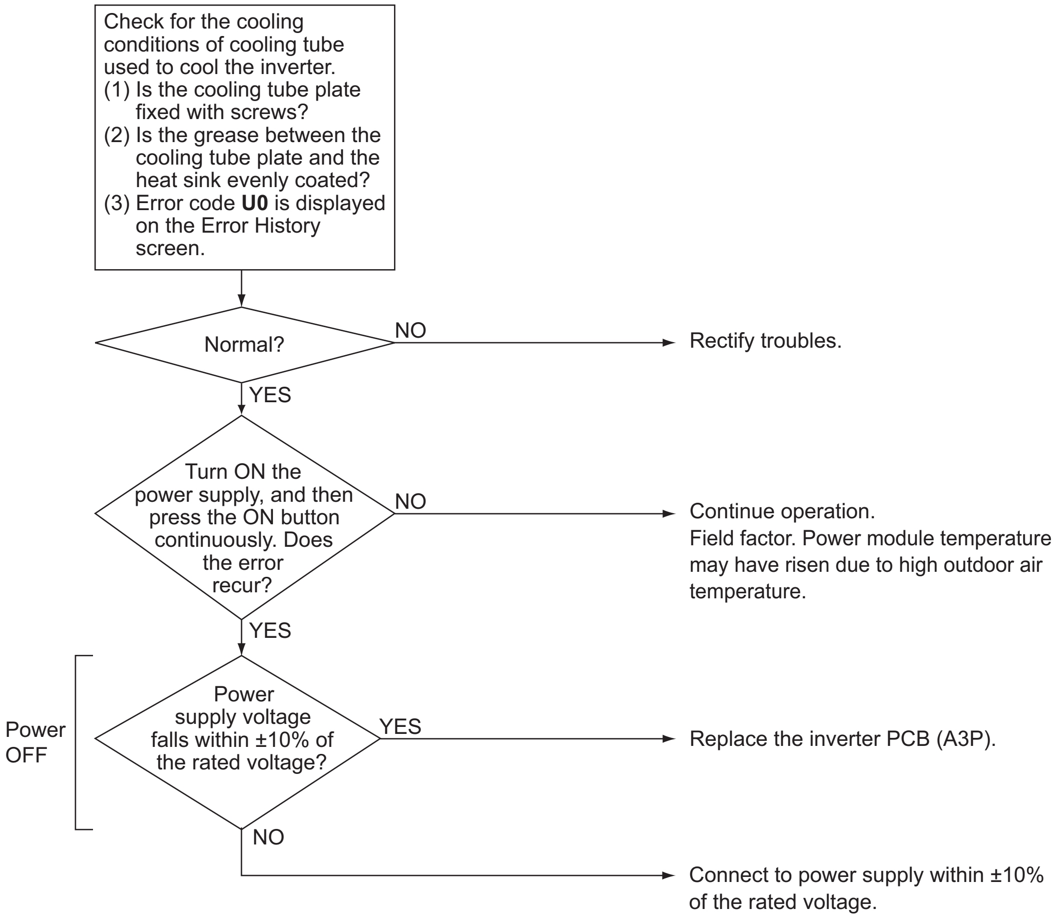
Thermistor located inside the power module of the inverter PCB for compressor and fan motor.
Cooling tube plate poor heat-exchange.

Supposed Causes

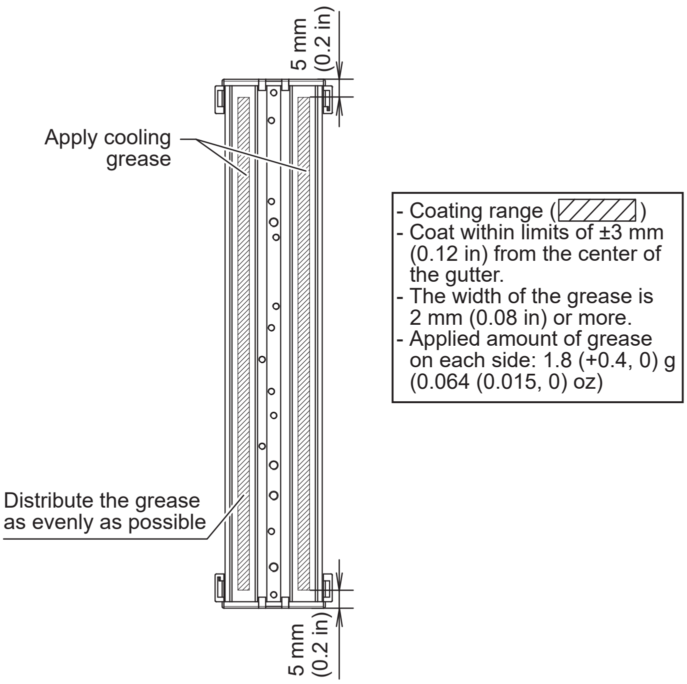
- Cooling tube plate not fixed with screws
- The grease between the cooling tube plate and the heat sink is unevenly coated.
- **U0** error
- Defective inverter PCB
- High outdoor air temperature
- Incorrect power supply voltage
- Defective connection of connectors

Troubleshooting

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



Note(s) Remove the grease and apply new grease as indicated.
Grease material: Shin Etsu G-776



5.45 Compressor Instantaneous Overcurrent

Applicable Models

All outdoor unit models

Error Code

L5

Method of Error Detection

Detect current flowing through the power transistor.

Error Decision Conditions

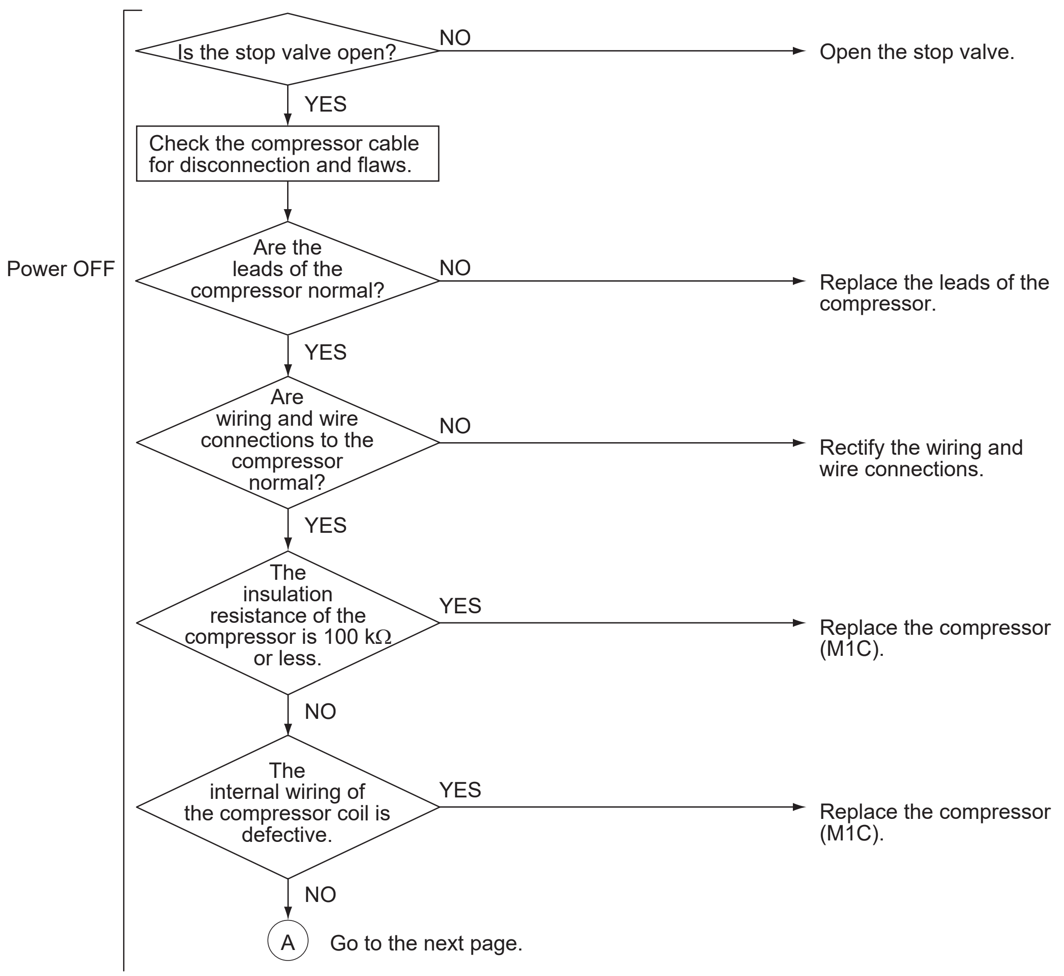
When overcurrent flows instantaneously through the power transistor.

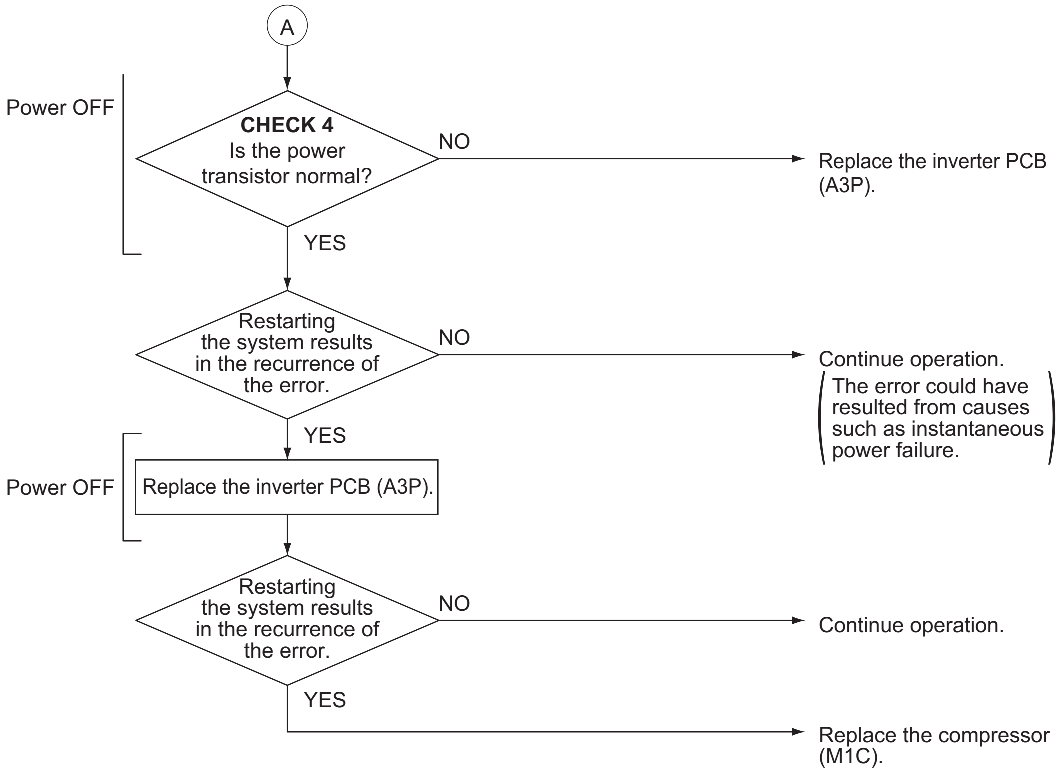
Supposed Causes

- Defective compressor coil (such as wiring disconnection or insulation failure)
- Compressor startup failure (mechanical lock)
- Defective inverter PCB

Troubleshooting

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





Reference **CHECK 4** Refer to page 273.

5.46 Compressor Overcurrent

Applicable Models

All outdoor unit models

Error Code

L8

Method of Error Detection

Detect current flowing through the power transistor.

Error Decision Conditions

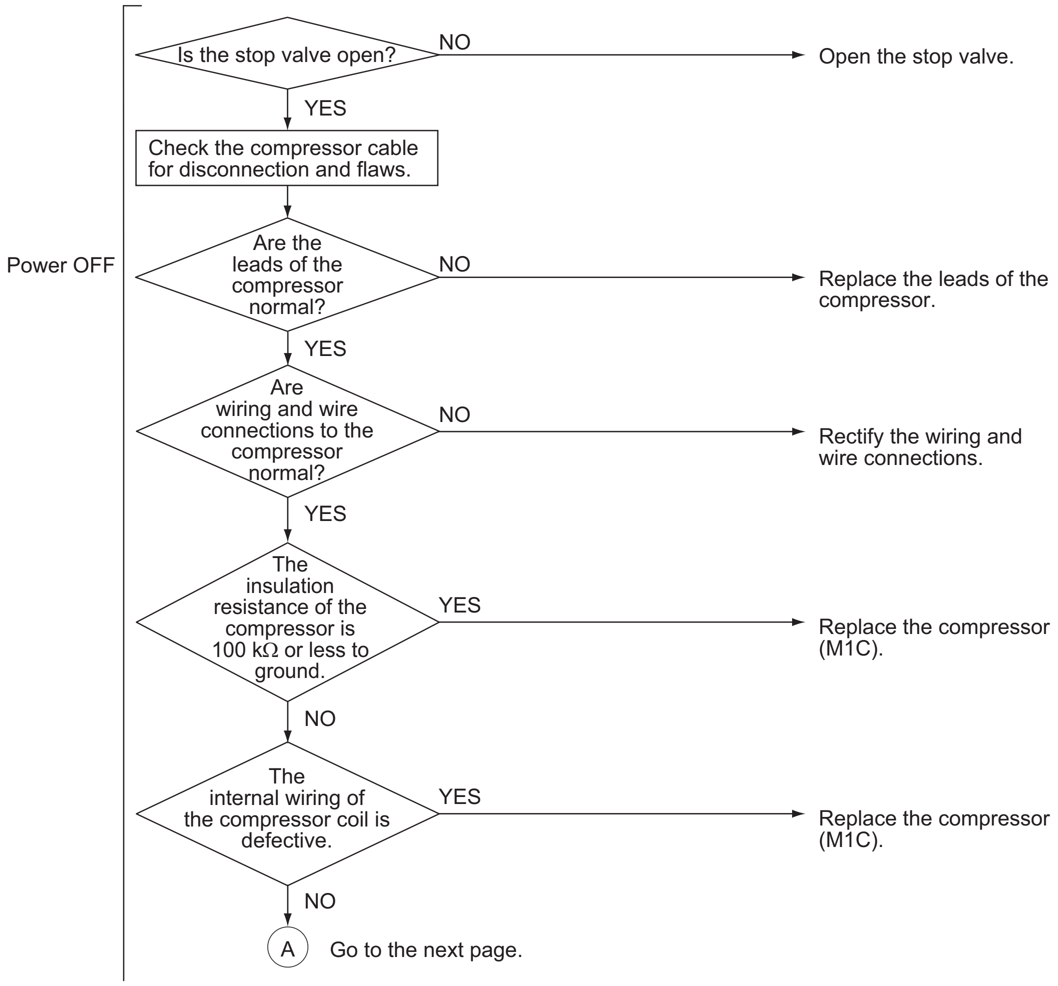
When the secondary-side inverter current exceeds a certain value.

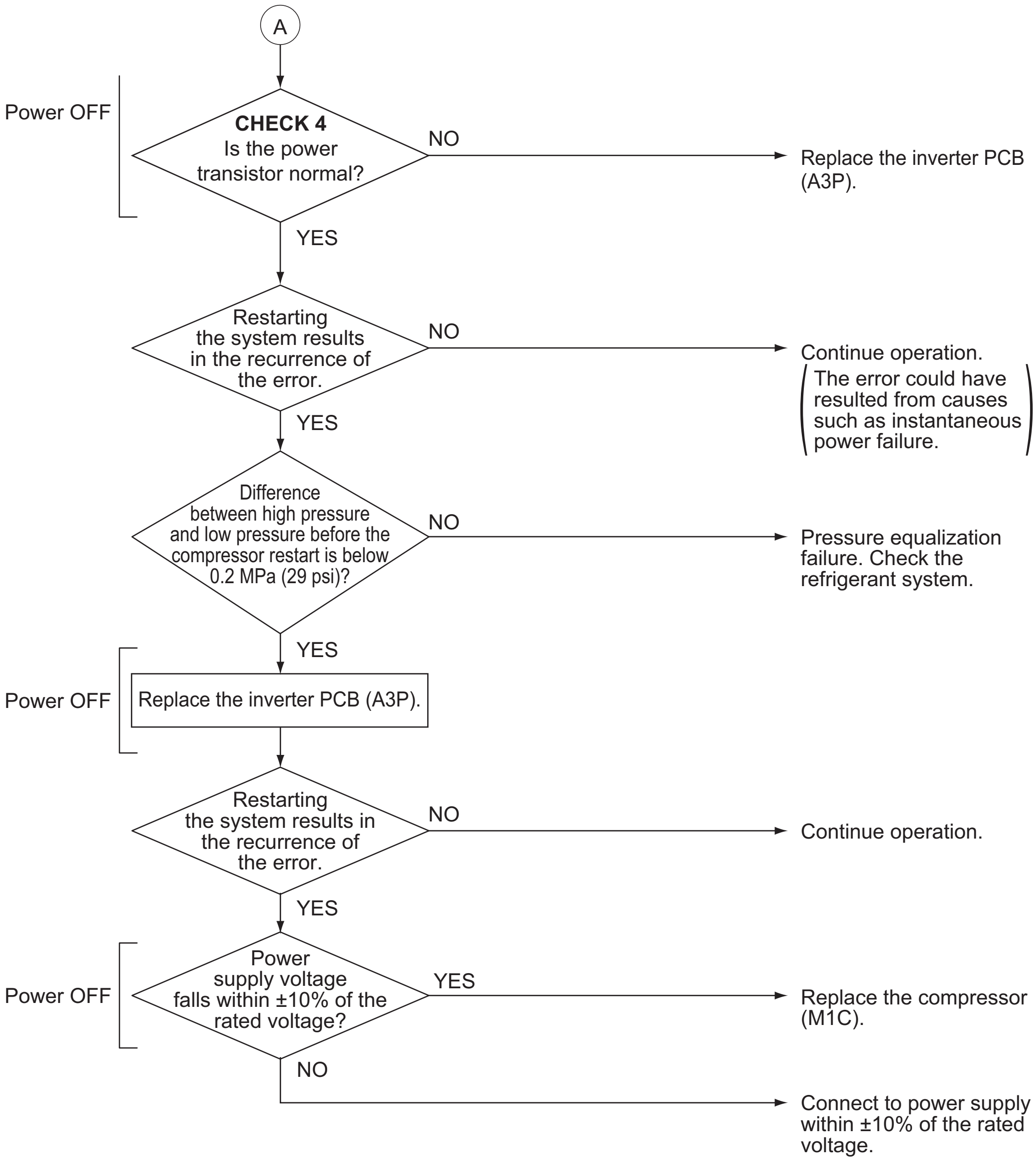
Supposed Causes

- Compressor overloaded
- Wiring disconnection in compressor coil
- Disconnection of compressor wiring
- Defective inverter PCB
- Incorrect power supply voltage

Troubleshooting

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





Reference **CHECK 4** Refer to page 273.

5.47 Compressor Startup Abnormality

Applicable Models

All outdoor unit models

Error Code

L9

Method of Error Detection

Detect error according to the signal waveform of compressor.

Error Decision Conditions

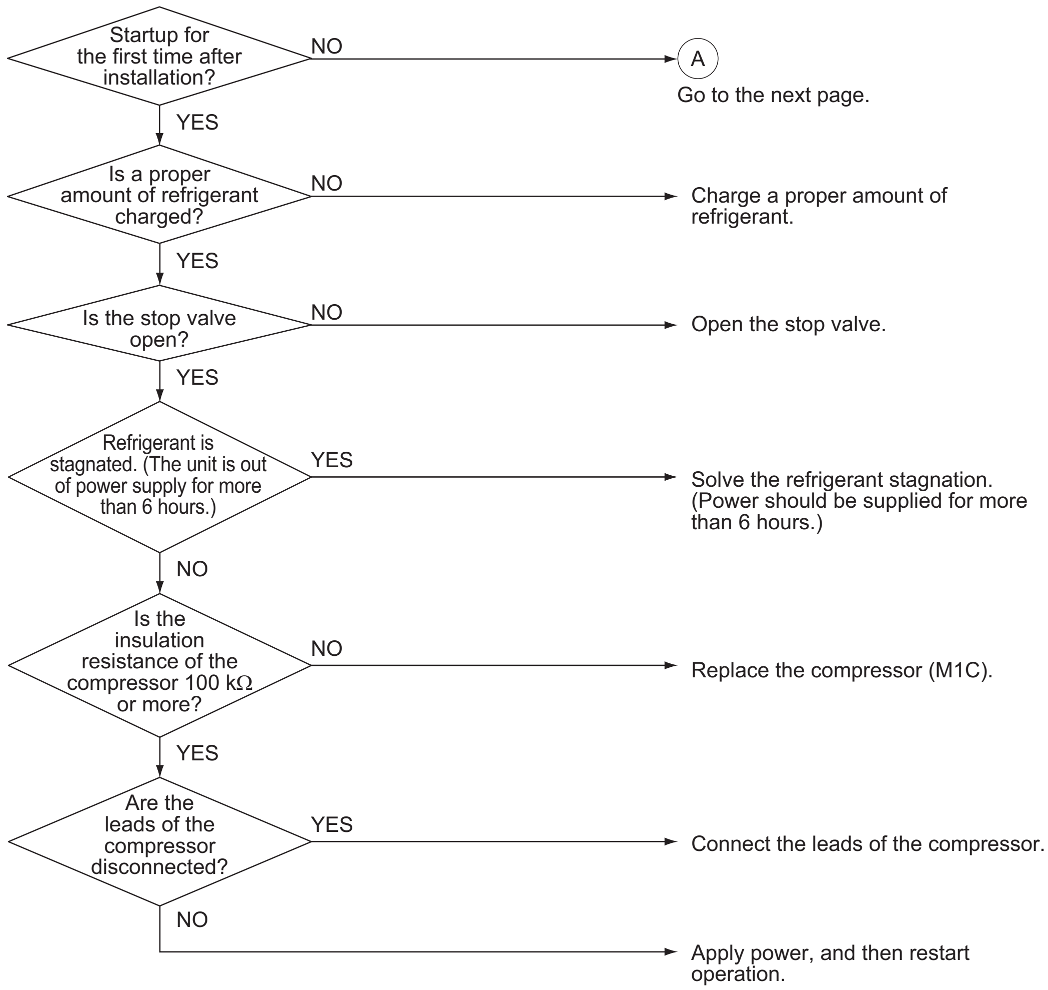
When compressor startup operation has not been completed.

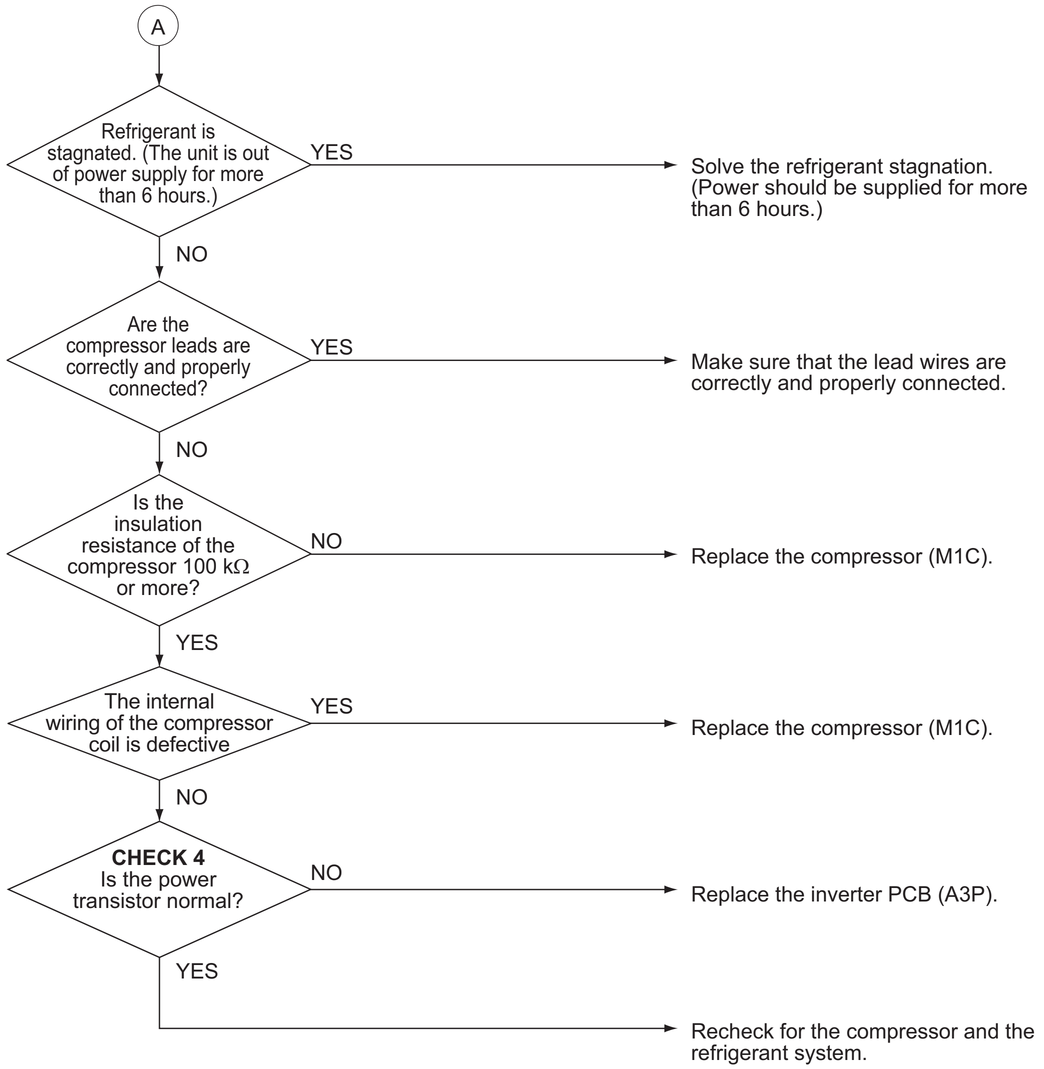
Supposed Causes

- The stop valve is not opened
- Defective compressor
- Error in wire connections to compressor
- Large differential pressure before compressor startup
- Defective inverter PCB
- Disconnection of compressor wiring

Troubleshooting

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





Reference **CHECK 4** Refer to page 273.

5.48 Transmission Error between Outdoor Unit Main PCB and Inverter PCB

Applicable Models
All outdoor unit models

Error Code
LC

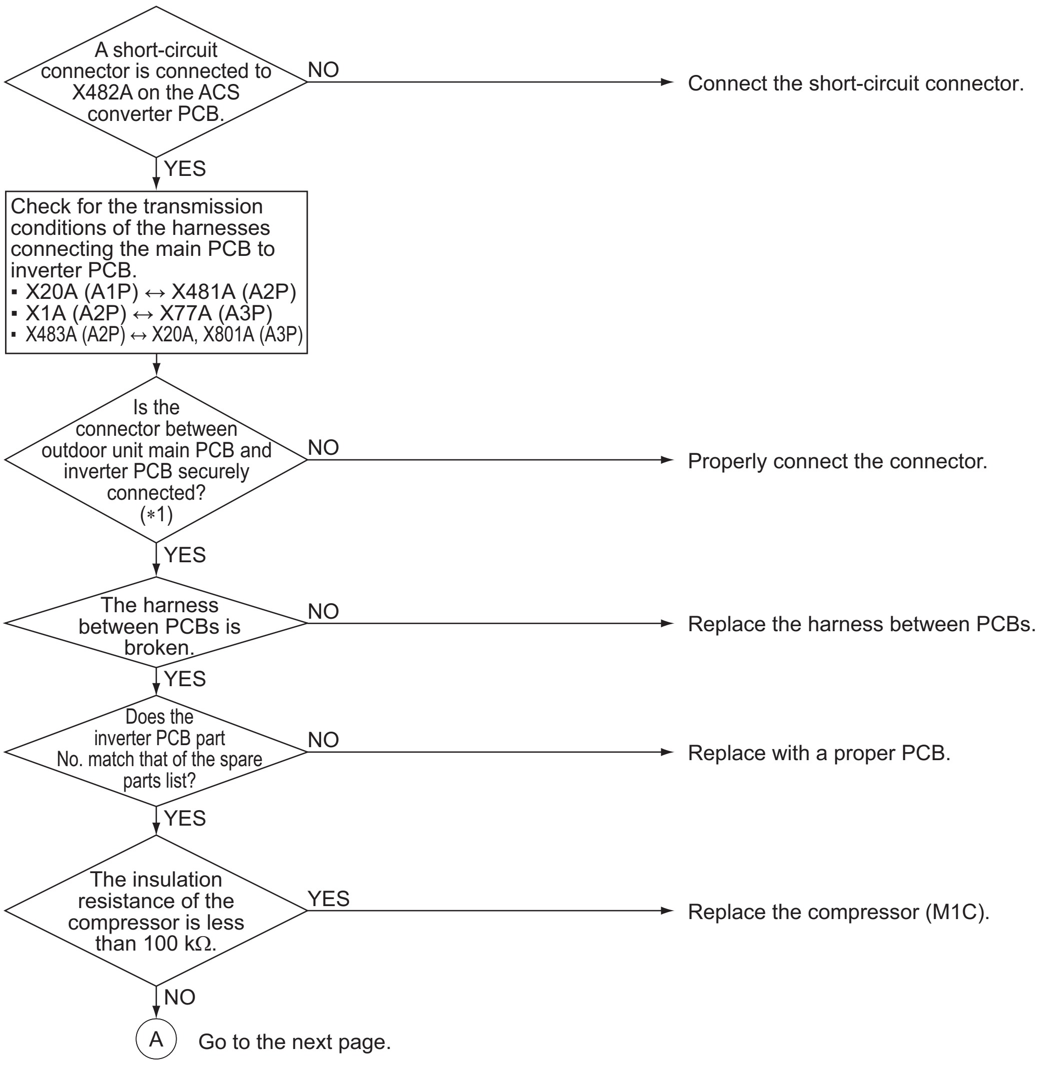
Method of Error Detection
Check for the transmission conditions between the outdoor unit main PCB and the inverter PCB using a microcomputer.

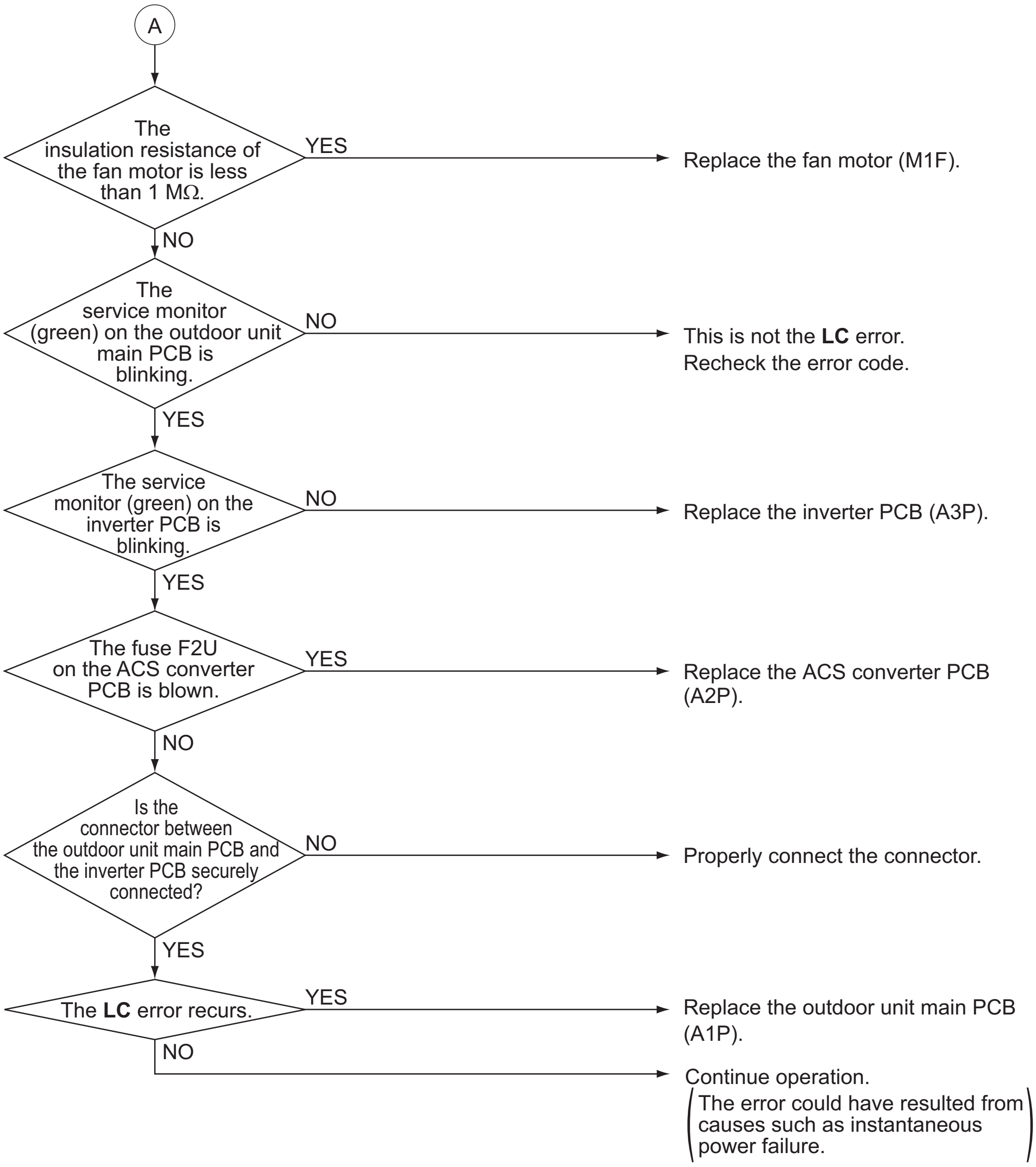
Error Decision Conditions
When normal transmission is disabled for a given period of time or more.

Supposed Causes
- Defective connection between the outdoor unit main PCB and the inverter PCB
- Defective outdoor unit main PCB (transmission block)
- Defective compressor or fan motor
- External factors (e.g. noise)
- Defective inverter PCB
- Defective ACS converter PCB

Troubleshooting

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





Note(s) ∗1. Connect and disconnect the connector once to ensure that it is securely connected.

5.49 Voltage Imbalance

Applicable Models

All outdoor unit models

Error Code

P1

Method of Error Detection

Detect voltage imbalance through inverter PCB.

Error Decision Conditions

When voltage imbalance exceeds approximately 70 V.

Error is not decided while the unit operation is continued.

Supposed Causes

- Defective capacitor in the main circuit on inverter PCB
- Defective inverter PCB
- Defective magnetic relay

Troubleshooting

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

Replace the inverter PCB (A3P).

5.50 Radiation Fin Temperature Abnormality

Applicable Models

All outdoor unit models

Error Code

P4

Method of Error Detection

Detect the resistance of the following thermistors while the compressor is not running:
- Radiation fin thermistor
- Thermistor located in PCB circuit

Error Decision Conditions

When the resistance of the thermistor comes to a value equivalent to open or short circuit.

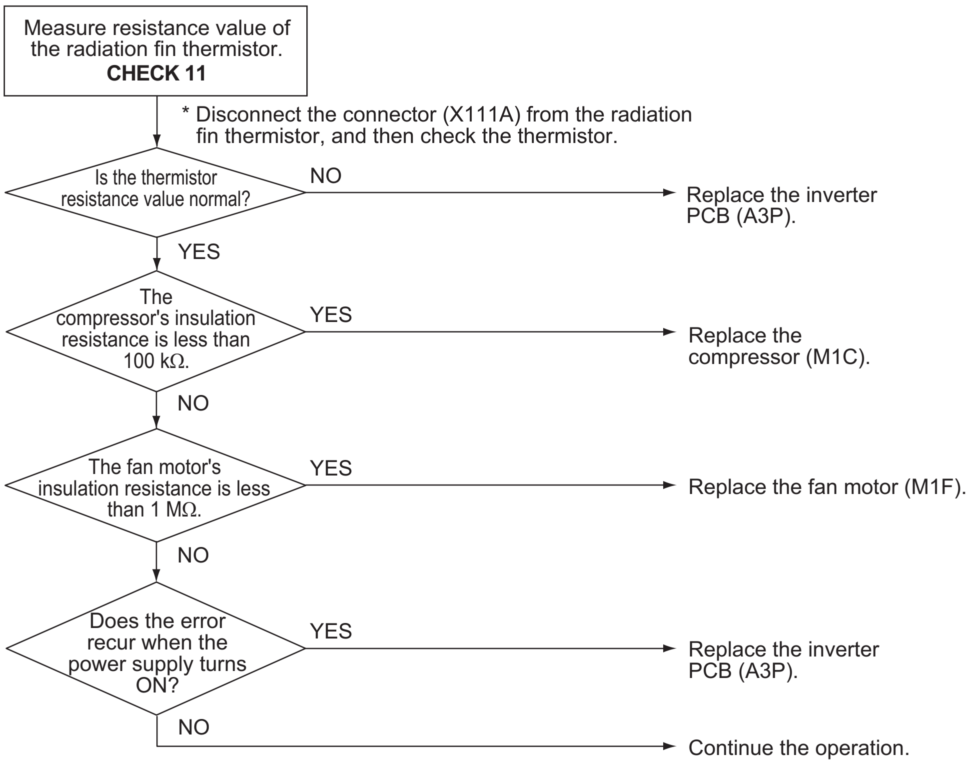
Error is not decided while the unit operation is continued.

Supposed Causes

- Defective inverter PCB
- Defective compressor
- Defective fan motor

Troubleshooting

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



Reference **CHECK 11** Refer to page 279.

5.51 Combination of PCB Abnormality

Applicable Models

All outdoor unit models

Error Code

PJ

Method of Error Detection

This error is detected according to communications with the inverter PCB.

Error Decision Conditions

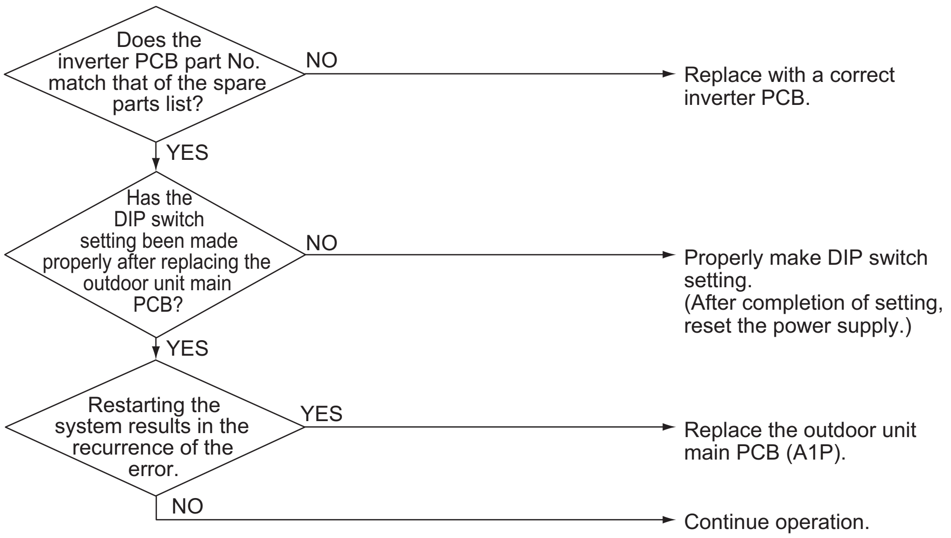
Make judgement according to communication data on whether or not the type of the inverter PCB is correct.

Supposed Causes

- Mismatching of type of PCB
- Improper (or no) field setting after replacing outdoor unit main PCB

Troubleshooting

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



5.52 Oil Return Failure Alarm during Cooling (Due to Shortage of Refrigerant)

Applicable Models

All outdoor unit models

Error Code

U0

Method of Error Detection

An abnormality is detected if the condition for ending the cooling oil return is not fulfilled.

Error Decision Conditions

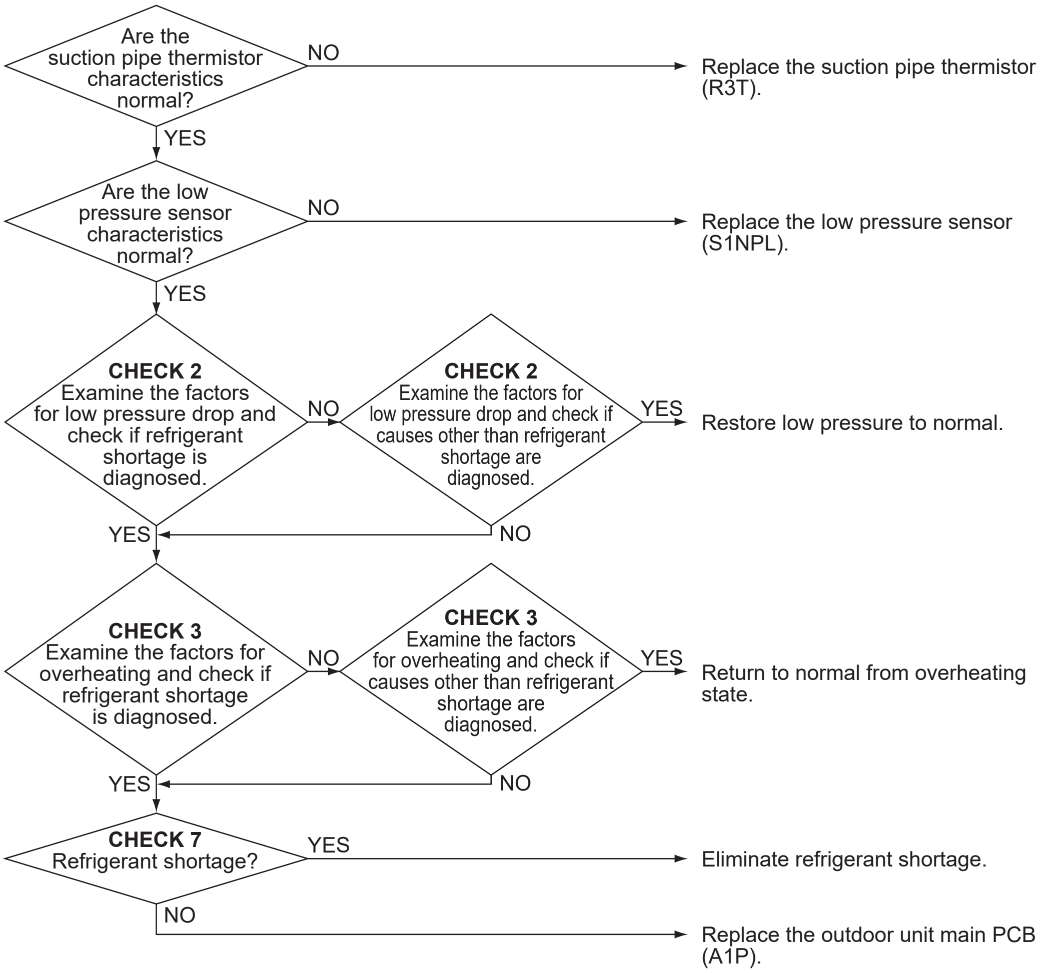
When the cooling oil return ending condition is not fulfilled and the end due to time expired is repeated 3 times, the system is deemed to be abnormal.
∗ The system continues operation without stopping.

Supposed Causes

- Refrigerant shortage or refrigerant clogging (mis-piping)
- Defective suction pipe thermistor
- Defective low pressure sensor
- Defective outdoor unit main PCB

Troubleshooting

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



Reference **CHECK 2** Refer to page 271.

Reference **CHECK 3** Refer to page 272.

Reference **CHECK 7** Refer to page 275.

5.53 Refrigerant Accumulation Alarm for Non-operating Units during Heating (Due to Refrigerant Shortage)

Applicable Models

All outdoor unit models

Error Code

U0

Method of Error Detection

Refrigerant shortage is detected from the temperature difference between the low pressure and the suction pipe, the opening of the main electronic expansion valve, high and low pressure drops or overheating.

Error Decision Conditions

An abnormality is detected when the following conditions have been fulfilled for more than 20 minutes.
∗ The system continues operation without stopping.

- Ts − Te > 30°C (54°F)
- Main electronic expansion valve opening > 430 pulse
- Discharge pipe temperature > 125°C (257°F)
  or
  Low pressure < 0.15 MPa (21.8 psi) and high pressure < 2.1 MPa (305 psi)

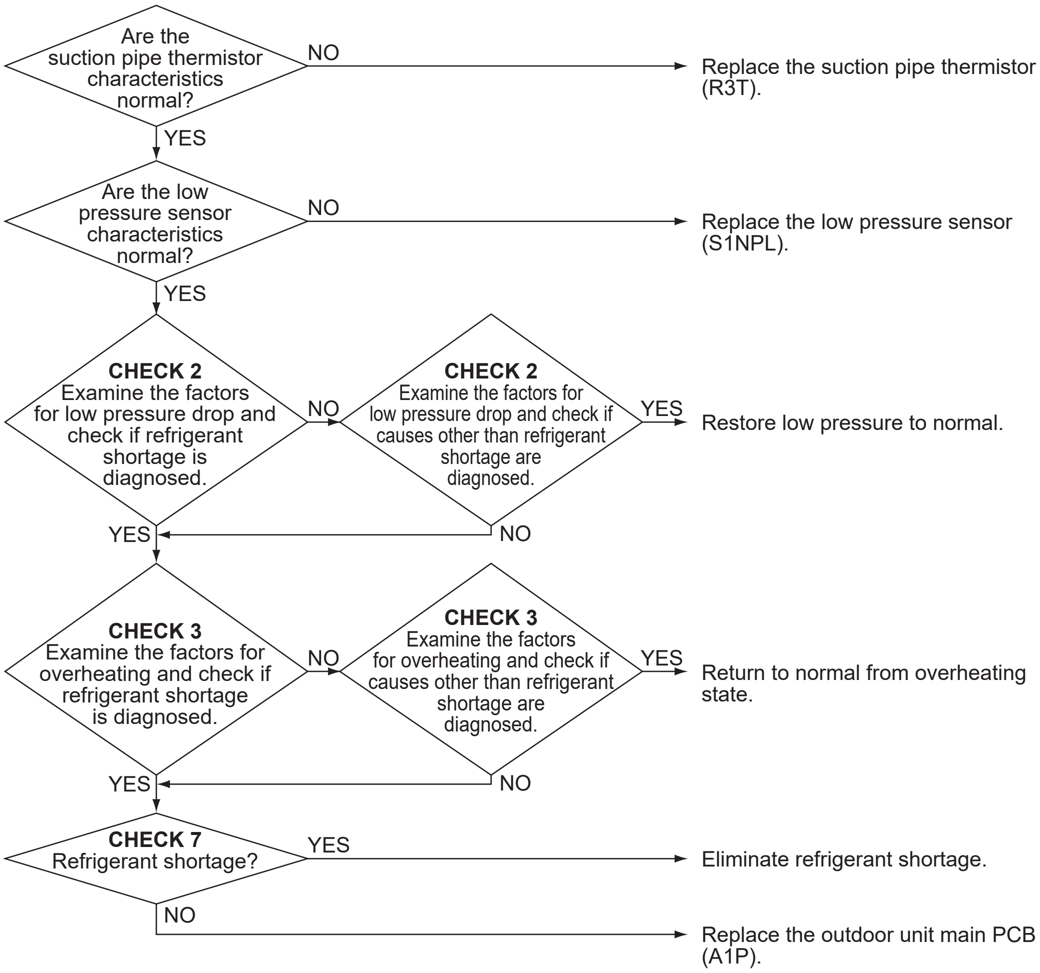
Ts: Suction pipe temperature
Te: Low pressure equivalent saturation temperature.

Supposed Causes

- Refrigerant shortage or refrigerant clogging (mis-piping)
- Defective suction pipe thermistor
- Defective low pressure sensor
- Defective outdoor unit main PCB

Troubleshooting

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



Reference **CHECK 2** Refer to page 271.

Reference **CHECK 3** Refer to page 272.

Reference **CHECK 7** Refer to page 275.

5.54 Power Supply Frequency Issue

Applicable Models

All outdoor unit models

Error Code

U1

Method of Error Detection

The power supply frequency is detected and judged by inverter circuit.

Error Decision Conditions

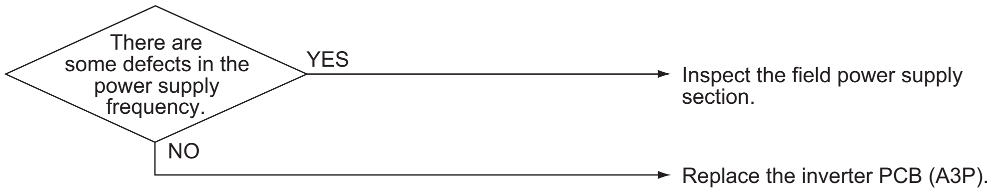
When the power supply frequency is out of the specified range.

Supposed Causes

- Defective inverter PCB
- Power supply frequency issue

Troubleshooting

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

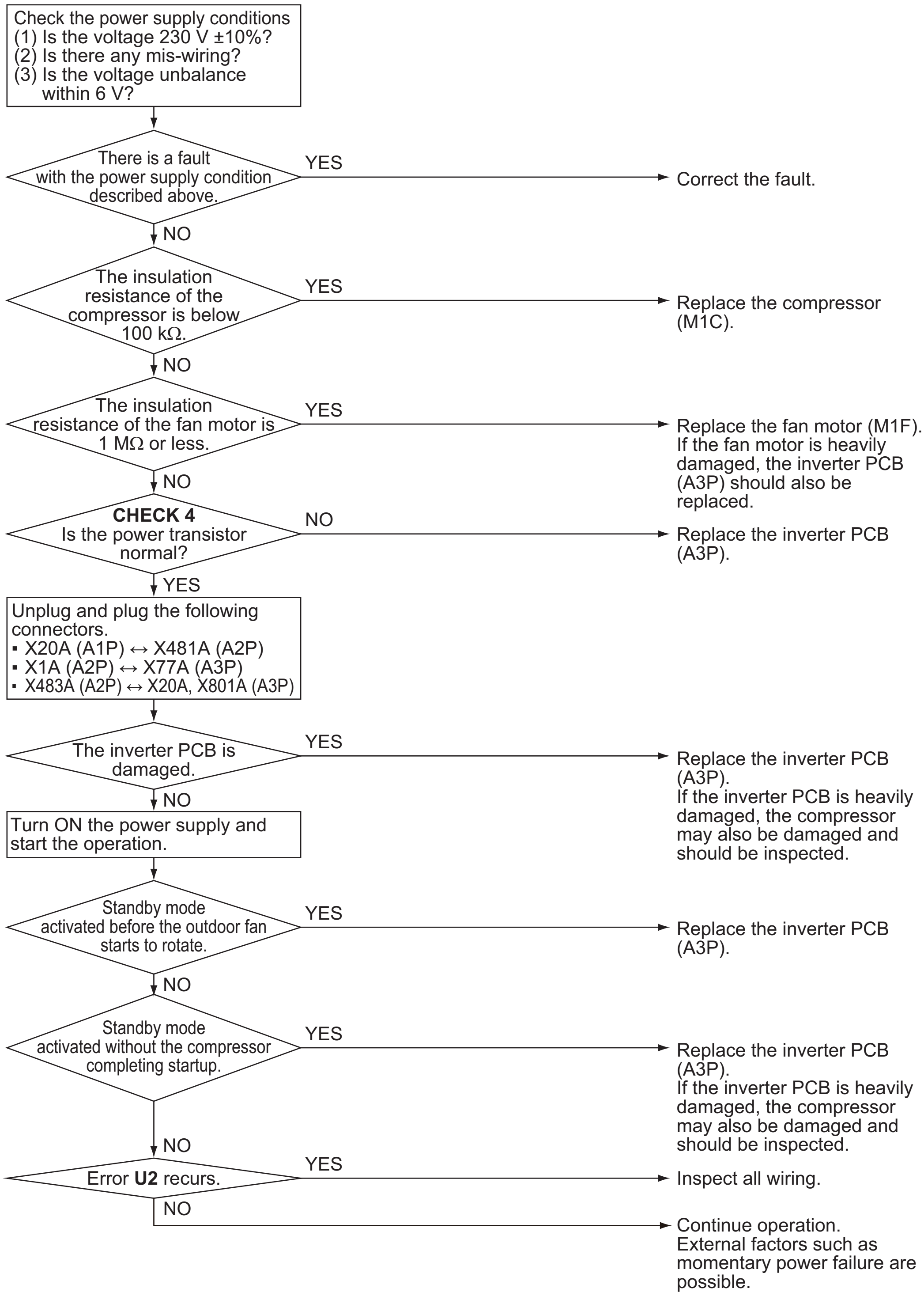


5.55 Abnormal Power Supply Voltage

Applicable Models	All outdoor unit models
Error Code	**U2**
Method of Error Detection	The voltage of the main circuit capacitor in the inverter is detected.
Error Decision Conditions	Error is detected when the inverter power supply voltage is high or low.
Supposed Causes	■ Abnormal power supply voltage ■ Instantaneous power failure ■ Defective inverter PCB ■ Defective outdoor unit main PCB ■ Defective compressor ■ Faulty main circuit wiring ■ Defective fan motor ■ Faulty signal line connection

Troubleshooting

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



Reference **CHECK 4** Refer to page 273.

5.56 Check Operation Not Executed

Applicable Models

All outdoor unit models

Error Code

U3

Method of Error Detection

The check operation has not been executed.

Error Decision Conditions

Error is decided when the unit starts operation without check operation.

Supposed Causes

Check operation not executed.

Troubleshooting

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

The contents of individual failures vary with sub code. Ensure the sub code, and then go to the following:

U3-03 → Conduct the test operation. (The test operation has not been conducted.)

U3-04 → Check for the refrigerant piping, and then conduct the test operation.

U3-05 → Conduct the test operation (due to the premature end of the test operation).

U3-06 → Conduct the test operation (due to the premature end of the test operation).

U3-07 → Check for transmission between indoor and outdoor units, and then conduct the test operation.

U3-08 → Check for transmission between indoor and outdoor units, and then conduct the test operation.

5.57 Transmission Error between Indoor and Outdoor Units

Applicable Models

All indoor unit models
All outdoor unit models

Error Code

U4

Method of Error Detection

Microcomputer checks if transmission between indoor and outdoor units is normal.

Error Decision Conditions

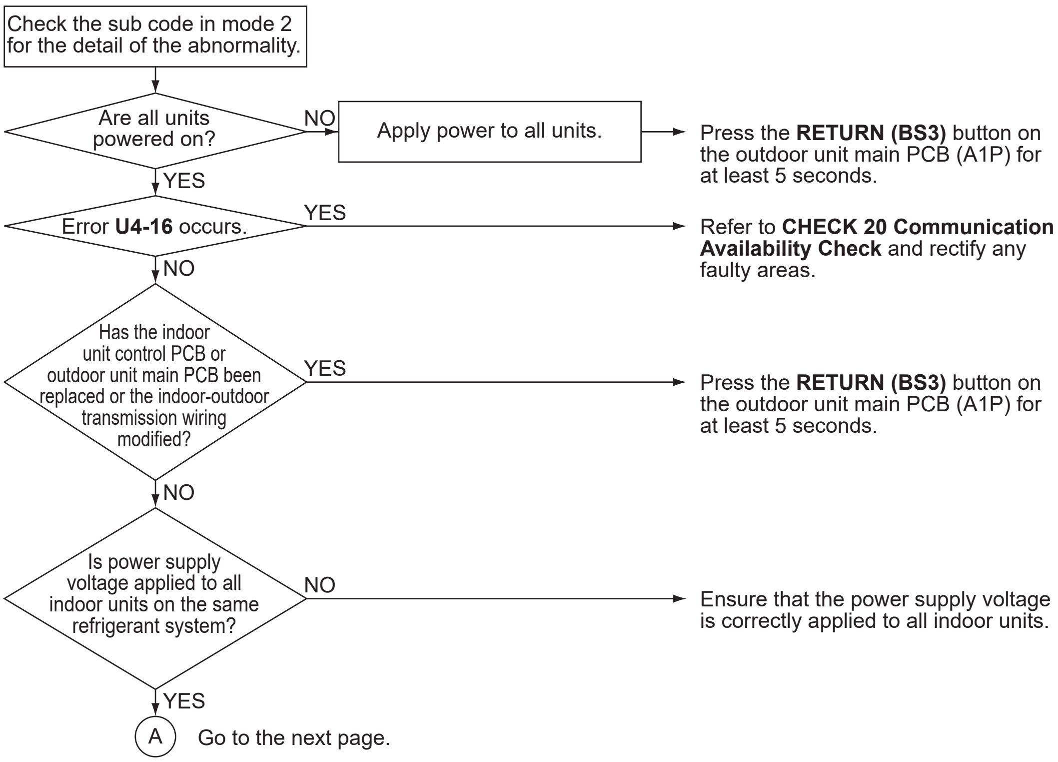
When transmission is not carried out normally for a certain amount of time

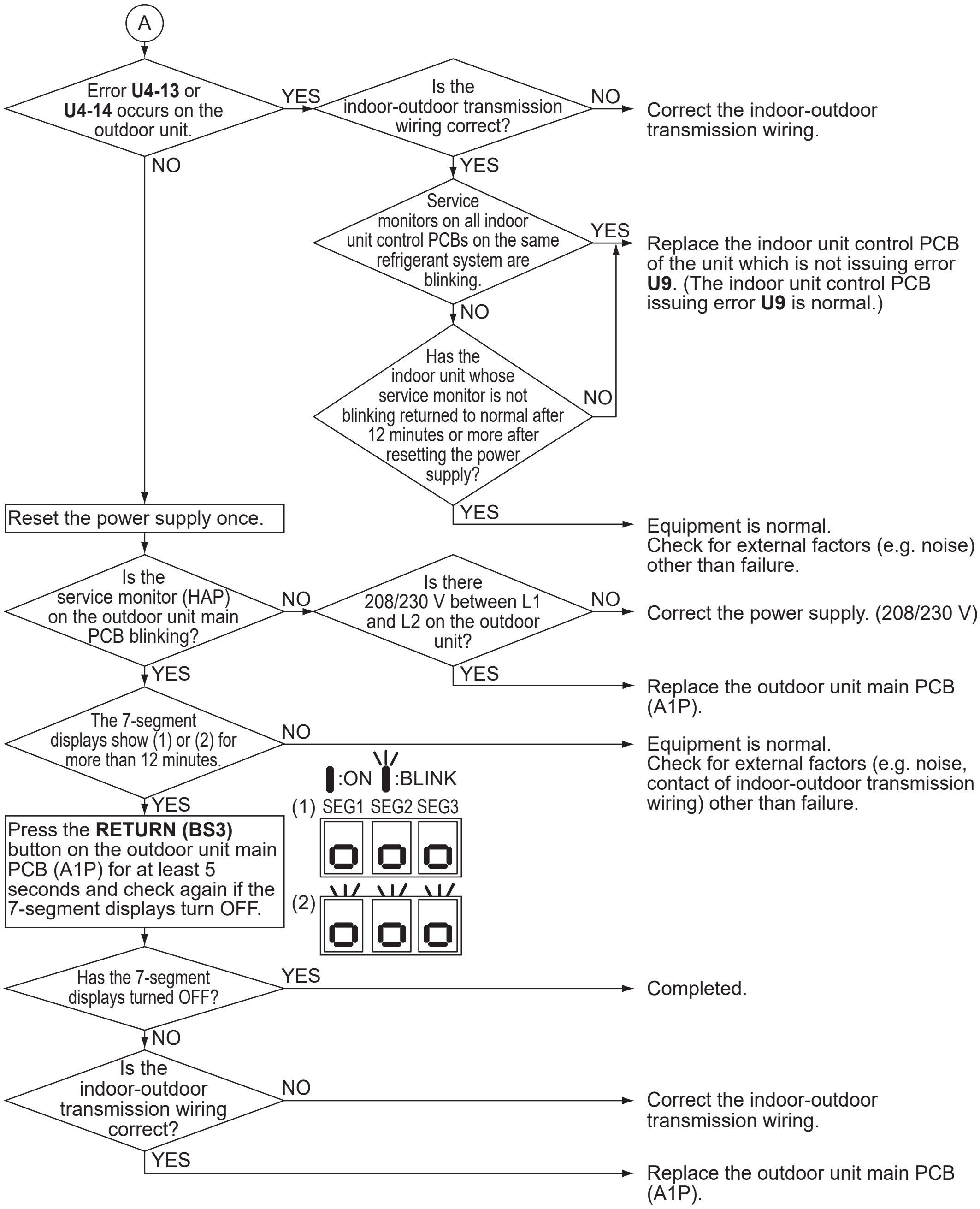
Supposed Causes

- Short circuit in indoor-outdoor transmission wiring (H1/H2), or wrong wiring
- Outdoor/indoor unit power supply is OFF
- System address does not match
- Defective indoor unit control PCB
- Defective outdoor unit main PCB
- External factors (e.g. noise)

Troubleshooting

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





Reference: 7-segment displays on outdoor unit (Error code details)

U4-10, U4-12, U4-14	U4-09, U4-11, U4-13
There are signs of DIV-NET communication abnormalities even before the error **U4** is determined, and communication abnormalities occur intermittently. In this case, the following possibilities are considered. - The power supply of the indoor unit sometimes fails due to momentary power failure, etc. - Communication sometimes fails due to inadequate contact of the transmission wiring. - Other factors (e.g. external noise) sometimes cause communication errors.	Before the error **U4** was determined, there was no sign of a DIV-NET communication abnormality, but communication abnormalities are occurring on a regular basis. In this case, the following possibilities are considered. - The power supply of the indoor unit has failed. - The transmission wiring has been broken (poor contact). - Other factors cause communication abnormalities on a regular basis.

Error code	Description
U4-09, U4-10	**U4-11** and **U4-12** were repeated for a certain period of time.
U4-11, U4-12	Transmission between the outdoor unit and all indoor units were not normal for more than a certain period of time.
U4-13, U4-14	Transmission between the outdoor unit and some of the indoor units were not normal for more than a certain period of time.

When the above error occurs, **U4-01** is displayed on the remote controller of the indoor unit.

Reference **CHECK 20** Refer to page 291.

5.58 Transmission Error between Remote Controller and Indoor Unit

Applicable Models

All indoor unit models

Error Code

U5

Method of Error Detection

Microcomputer checks if transmission between indoor unit and remote controller is normal.

Error Decision Conditions

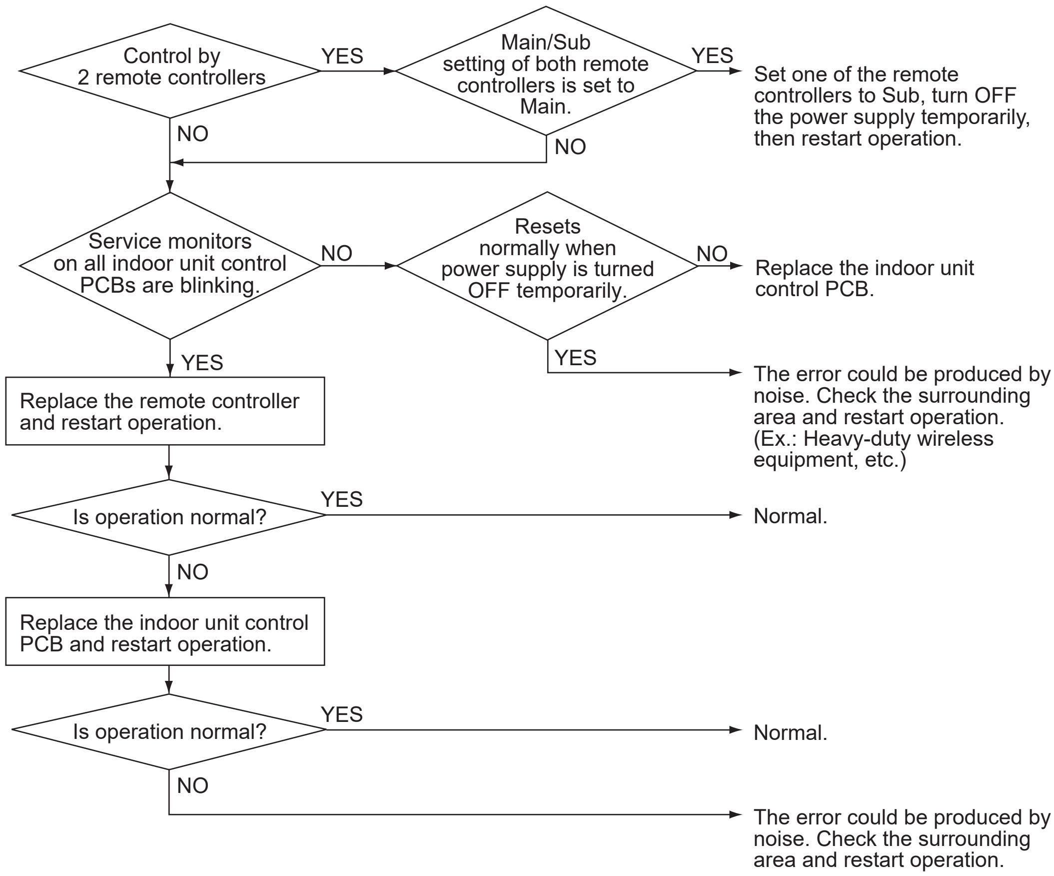
Transmission is not carried out normally for a certain amount of time.

Supposed Causes

- Transmission error between indoor unit and remote controller
- Connection of 2 main remote controllers (when using 2 remote controllers)
- Defective indoor unit control PCB
- Defective remote controller PCB
- 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.



Reference Refer to page 31 for Main/Sub setting.

5.59 Transmission Error for Optional Adaptor/PCB

Applicable Models

All outdoor unit models

Error Code

U7

Method of Error Detection

Microcomputer checks if transmission between outdoor unit and optional adaptor/PCB is normal.

Error Decision Conditions

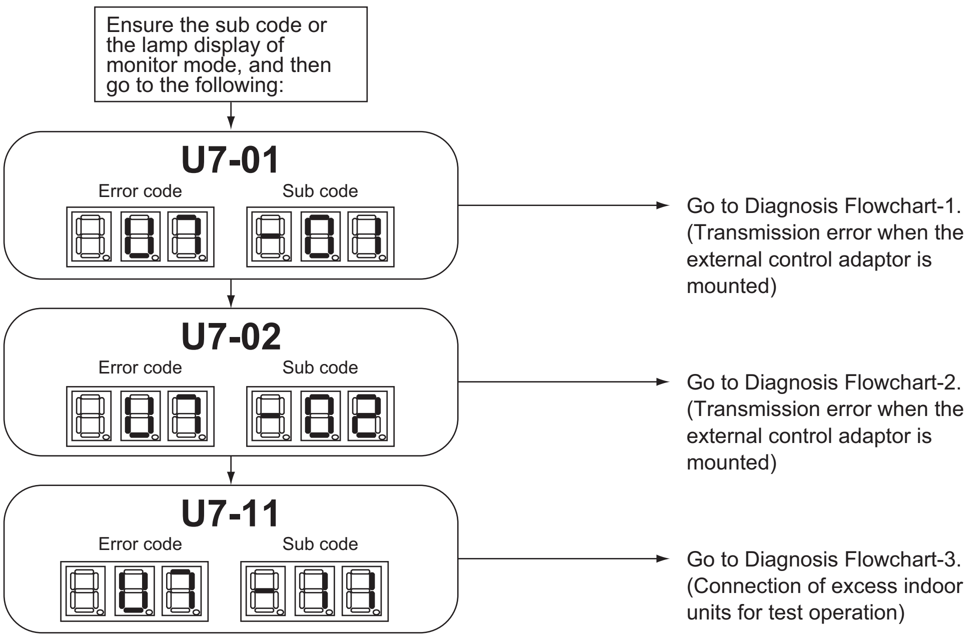
When transmission is not carried out normally for a certain amount of time

Supposed Causes

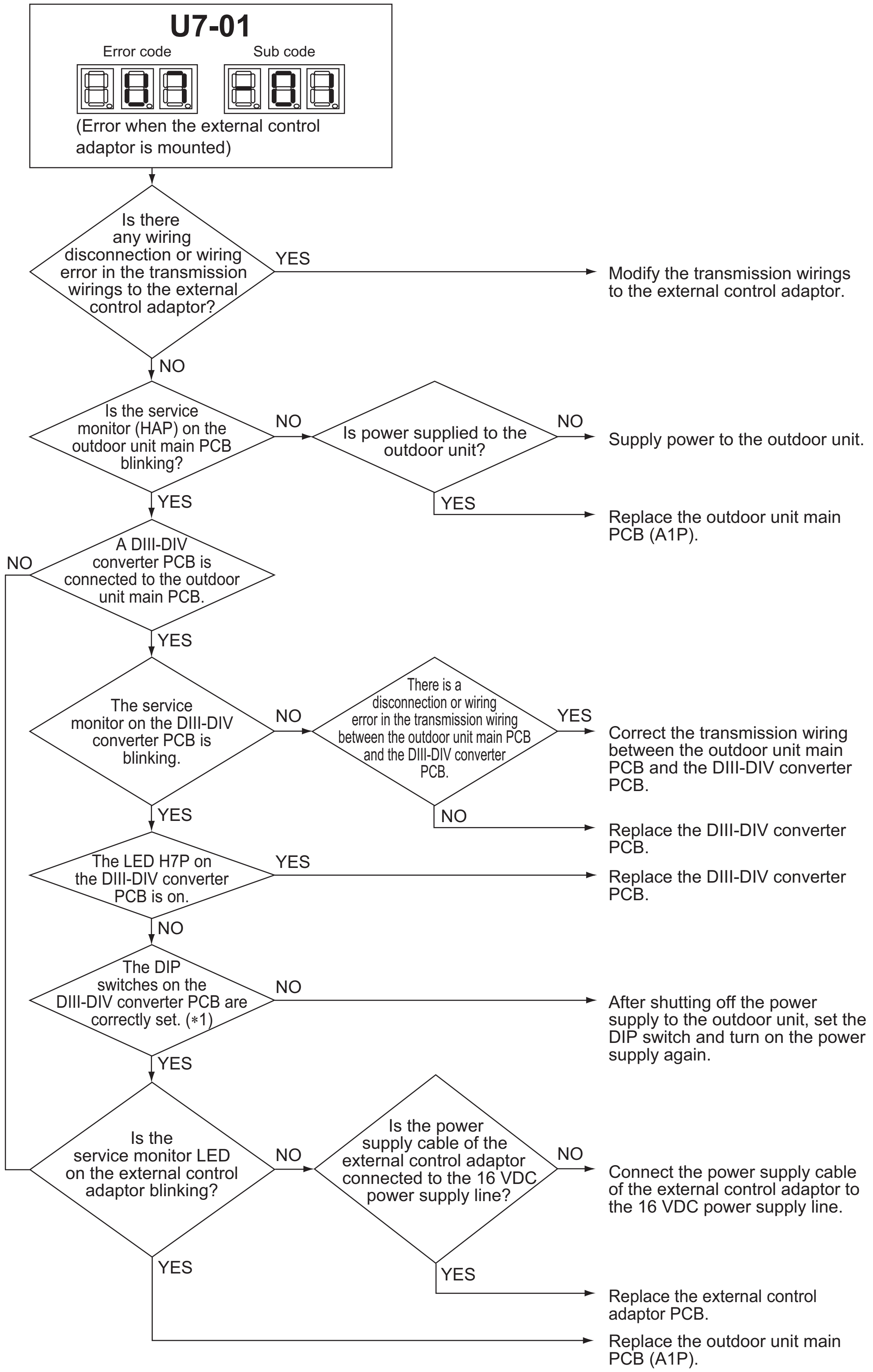
- Connection error of transmission wirings between outdoor unit and external control adaptor for outdoor unit
- Connection error between outdoor unit main PCB and DIII-DIV converter PCB
- Cool/Heat unified address setting error (functional unit, external control adaptor for outdoor unit)
- Defective outdoor unit main PCB
- Defective external control adaptor for outdoor unit
- Defective DIII-DIV converter PCB

Troubleshooting

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

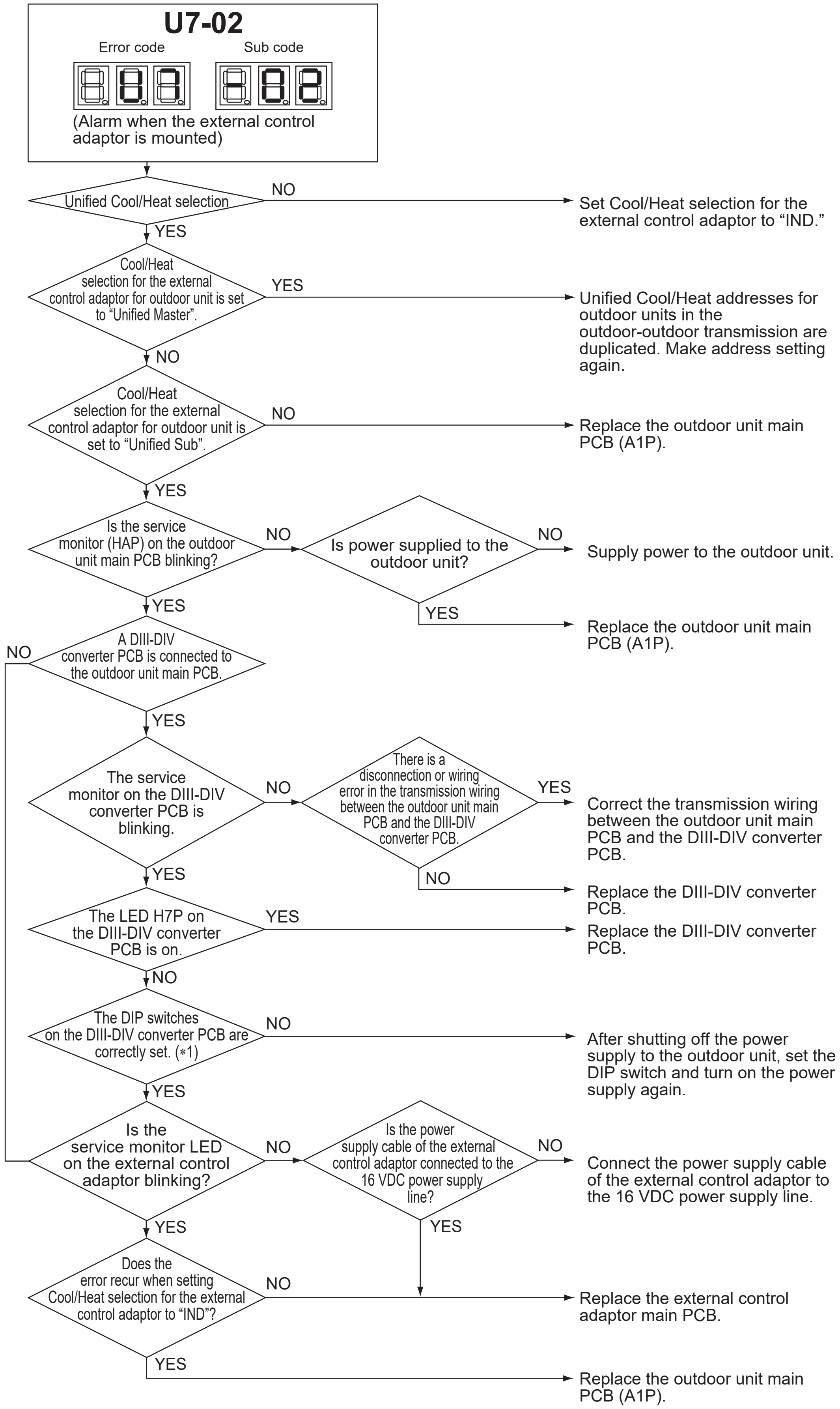


Diagnosis Flowchart-1



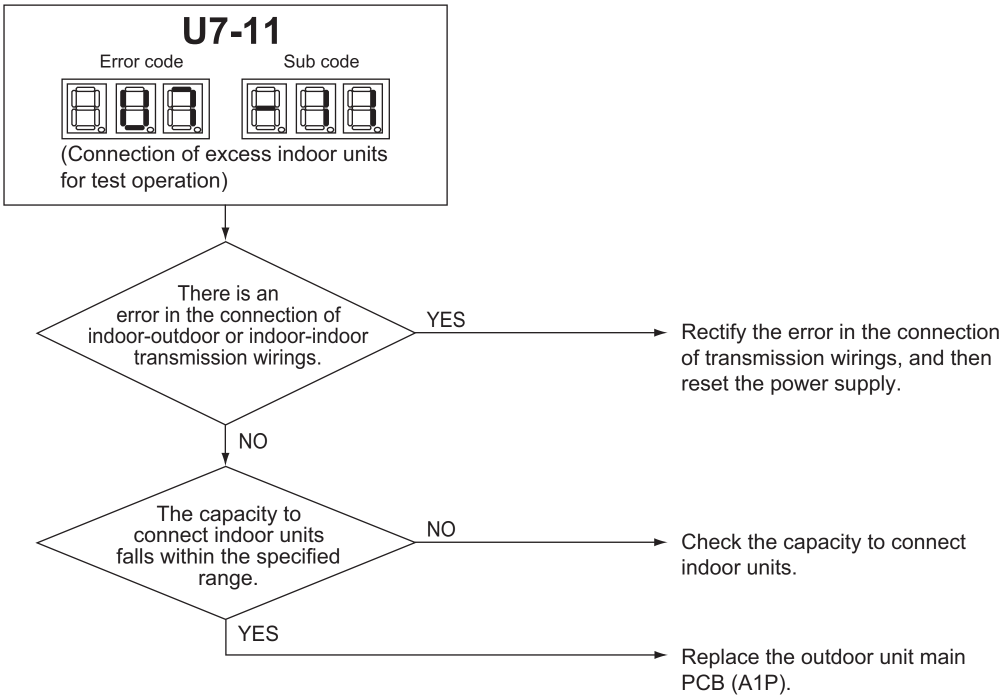
∗1. The DIP switch settings are described in the installation manual of the DIII-DIV converter PCB.

Diagnosis Flowchart-2



∗1. The DIP switch settings are described in the installation manual of the DIII-DIV converter PCB.

Diagnosis Flowchart-7



5.60 Transmission Error between Main and Sub Remote Controllers

Applicable Models

All indoor unit models

Error Code

U8

Method of Error Detection

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

Error Decision Conditions

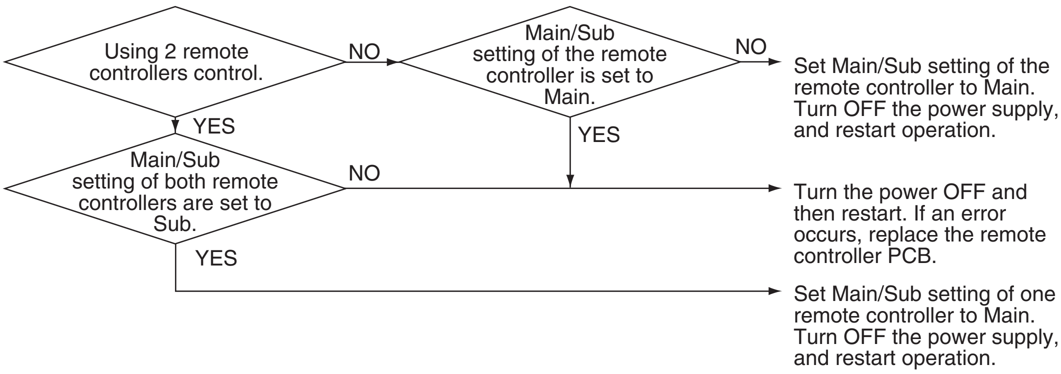
When transmission is not carried out normally for a certain amount of time.

Supposed Causes

- Transmission error between main and sub remote controller
- Connection between sub 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.



Reference Refer to page 31 for Main/Sub setting.

5.61 Transmission Error between Indoor and Outdoor Units in the Same System

Applicable Models

All indoor unit models
All outdoor unit models

Error Code

U9

Method of Error Detection

Detect the error signal for the other indoor unit within the circuit of outdoor unit main PCB.

Error Decision Conditions

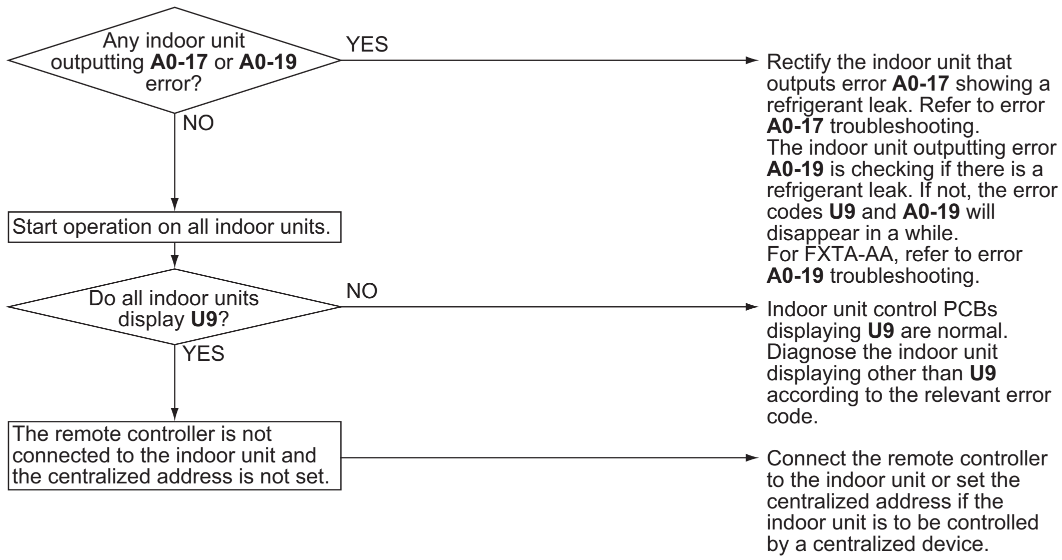
When the error decision is made on any other indoor unit within the system concerned

Supposed Causes

- Transmission error between other indoor unit and outdoor unit
- Defective electronic expansion valve of other indoor unit
- Defective indoor unit control PCB of other indoor unit
- Improper connection of transmission wiring between indoor and outdoor unit

Troubleshooting

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



5.62 Improper Combination of Indoor and Outdoor Units

Applicable Models

All indoor unit models
All outdoor unit models

Error Code

UA

Method of Error Detection

- A difference occurs in data by the type of refrigerant between indoor and outdoor units.
- The number of indoor units connected is out of the allowable range.
- Signal transmission between indoor and outdoor units is abnormal.

Error Decision Conditions

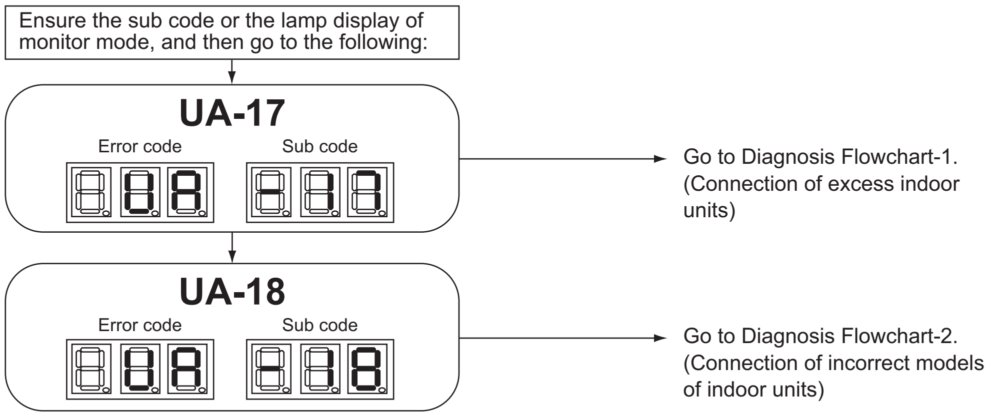
The error decision is made as soon as either of the abnormalities aforementioned is detected.

Supposed Causes

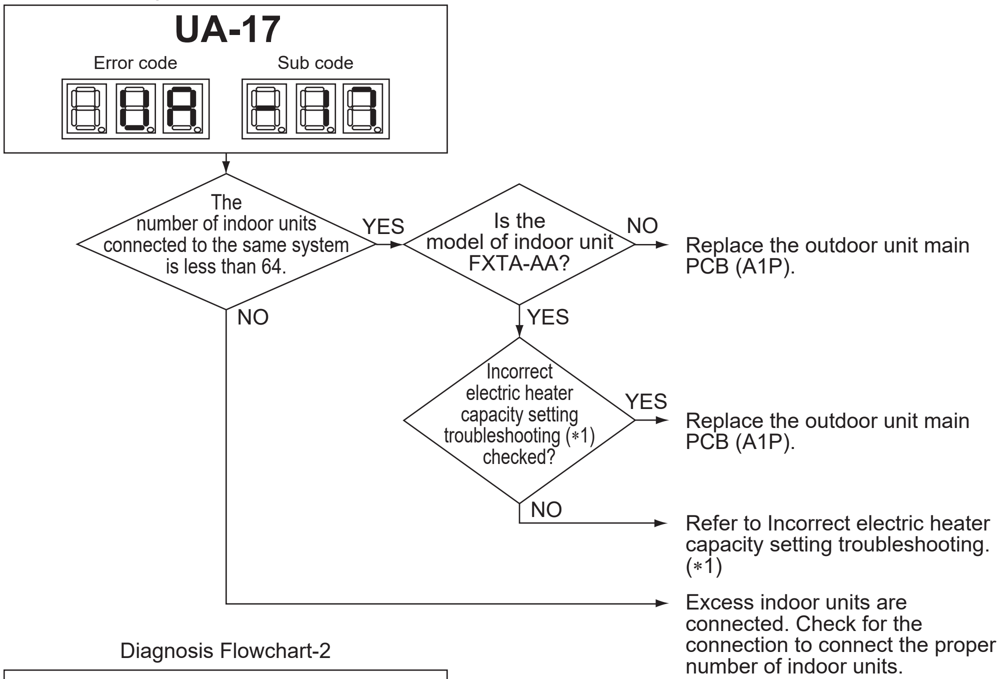
- Excess of connected indoor units
- Defective outdoor unit main PCB
- Mismatch of the refrigerant type of indoor and outdoor unit.
- Setting of outdoor unit main PCB was not carried out after replacing to spare PCB.
- Incorrect wiring connected to the terminals Q1/Q2 for the multi system

Troubleshooting

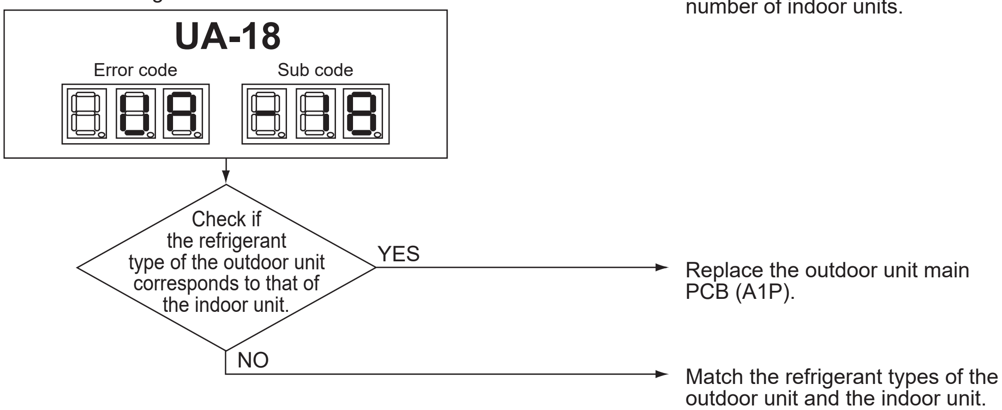
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



Diagnosis Flowchart-1



Diagnosis Flowchart-2



Note(s) ∗1. Refer to page 253.

5.63 Incorrect Electric Heater Capacity Setting

Applicable Models

FXTA-AA

Error Code

UA-17

Method of Error Detection

After attaching optional electric heater, if the electric heater capacity setting [39 (49)-1] is made mistakenly for heaters not featured in the lineup, heating via unintended levels of airflow will be prevented.
However, the electric heater will be operable for convenience.

Error Decision Conditions

Checks when the capacity setting [39 (49)-1] of the electric heater has been set to a non-applicable value.

Operation After Error Codes Decided

- The error code **UA-17** is displayed on the remote controller.
- Indoor units can operate continuously.
- Incorrect setting is kept.
- Even if the ON condition for electric heater 2 is established, only electric heater 1 will be set to ON.
  (Electric heater 1 set to ON, electric heater 2 set to OFF)
  (In order to deliver in terms of user-friendliness and safety, the electric heater can operate at the lowest possible power levels.)
- The airflow of the fan during operation of the electric heater will be set to the largest value within the CFM dictated by the capacity of each of the electric heaters (electric heater 1, electric heater 2 both set to ON).
- All other operations are the same as during normal operation.

5.64 Address Duplication of Centralized Controller

Applicable Models
All indoor unit models
Centralized controller

Error Code
UC

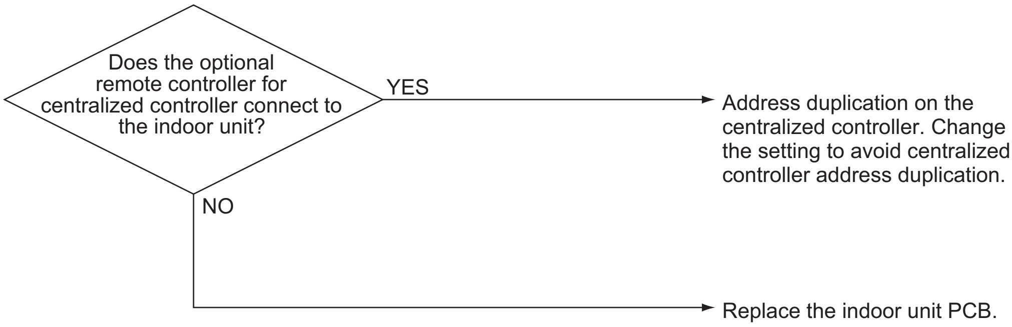
Method of Error Detection
The principal indoor unit detects the same address as that of its own on any other indoor unit.

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.



5.65 Transmission Error between Centralized Controller and Indoor Unit

Applicable Models

All indoor unit models
Centralized controller
Schedule timer
intelligent Touch Controller

Error Code

UE

Method of Error Detection

Microcomputer checks if transmission between indoor unit and centralized controller is normal.

Error Decision Conditions

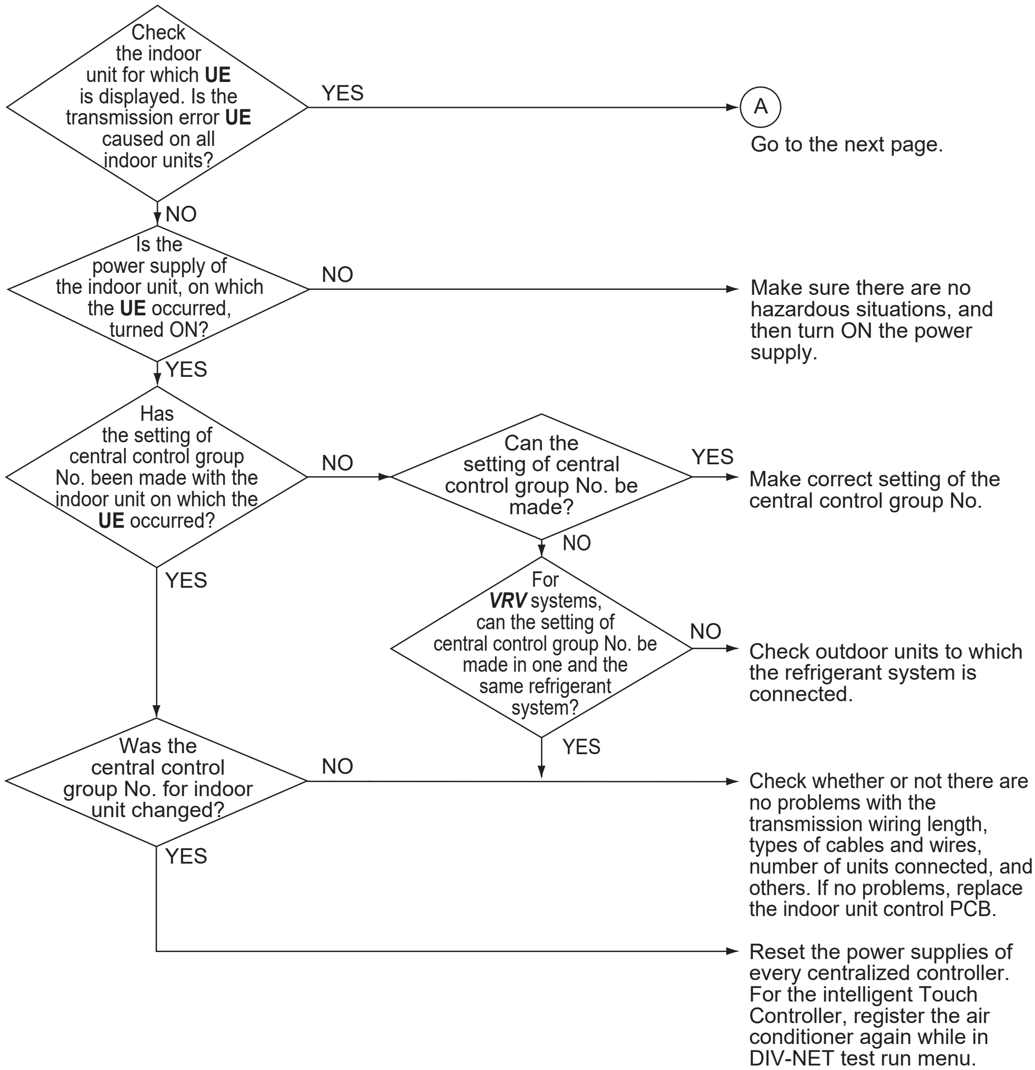
When transmission is not carried out normally for a certain amount of time

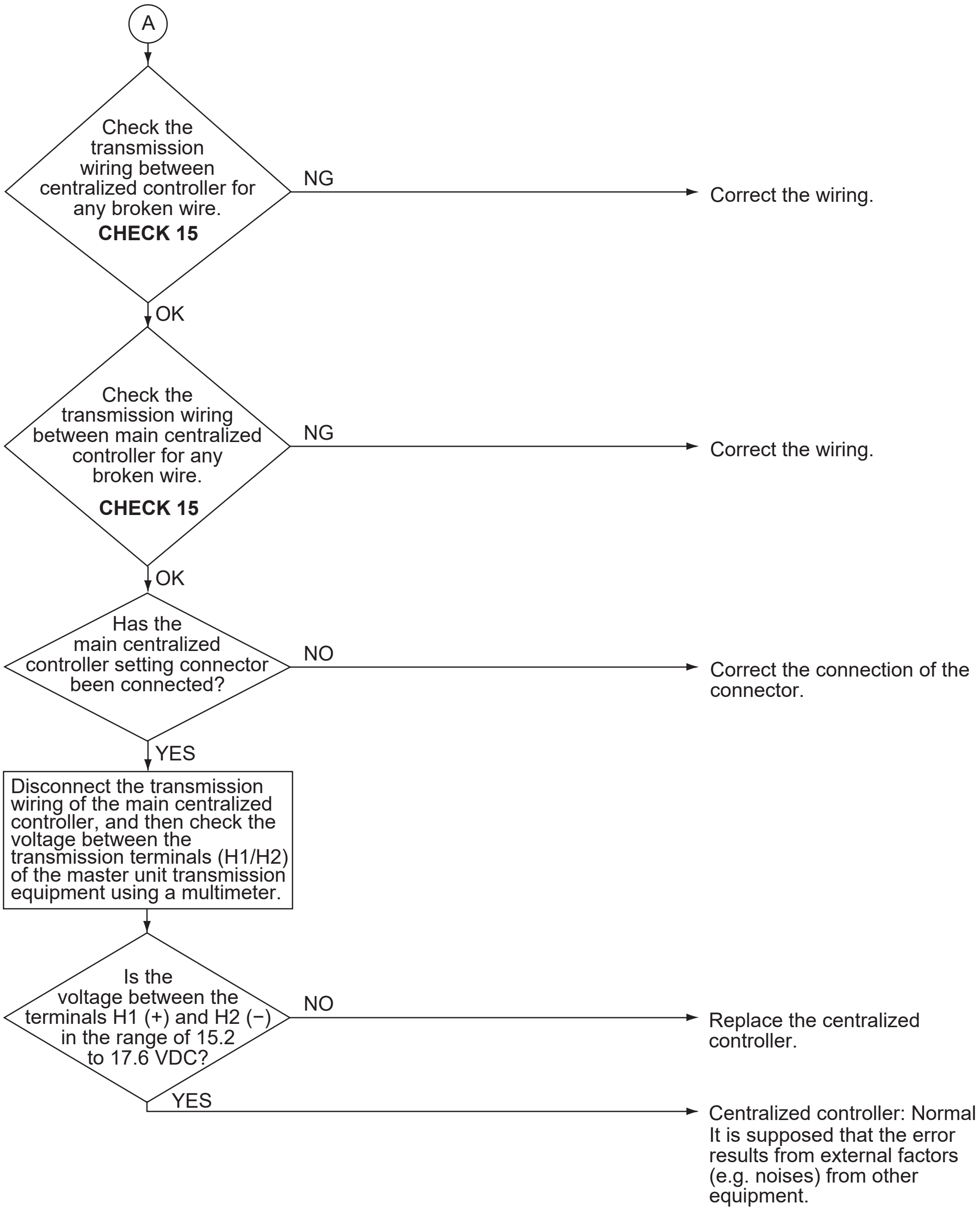
Supposed Causes

- Transmission error between optional controllers for centralized controller and indoor unit
- Connector for setting main controller is disconnected.
  (or disconnection of connector for independent / combined use changeover switch.)
- Defective PCB for 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.





Reference **CHECK 15** Refer to page 284.

5.66 System Not Set Yet

Applicable Models

All indoor unit models
All outdoor unit models

Error Code

UF

Method of Error Detection

On check operation, the number of indoor units in terms of transmission is not corresponding to that of indoor units that have made changes in temperature.

Error Decision Conditions

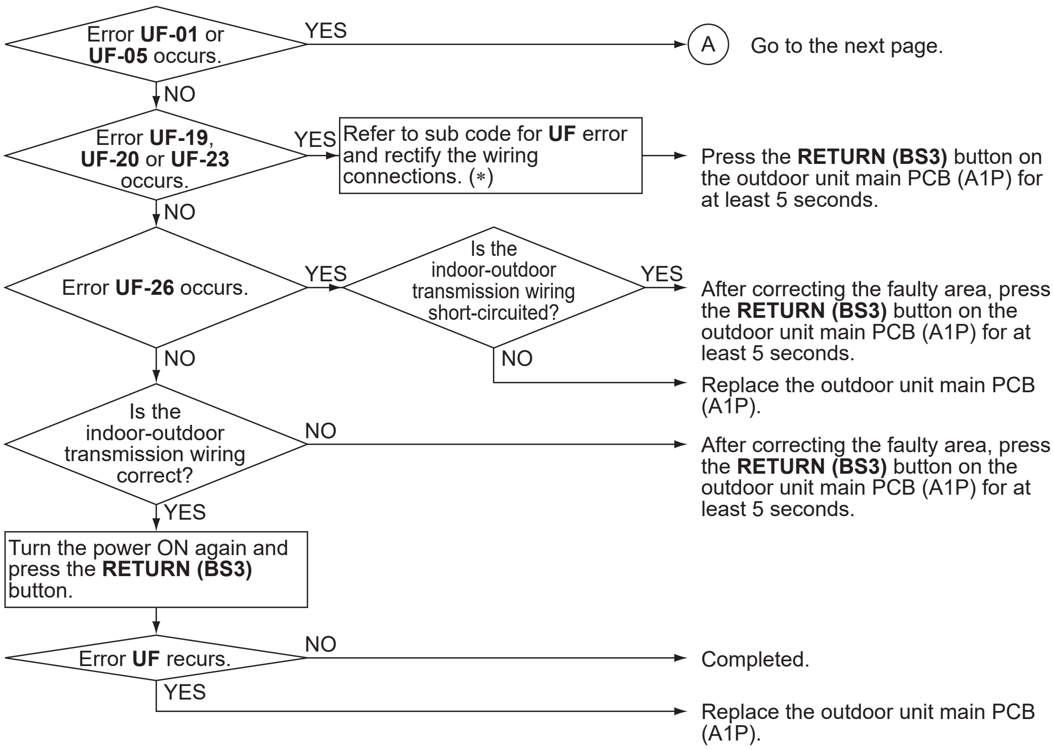
The error is determined as soon as the abnormality aforementioned is detected through checking the system for any erroneous connection of units on the check operation.

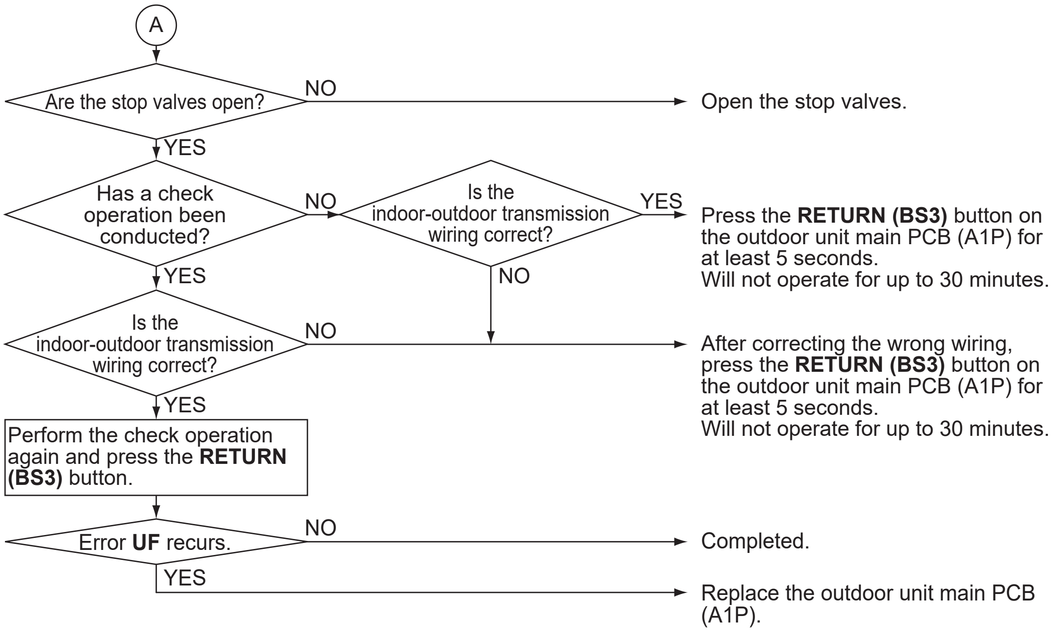
Supposed Causes

- Improper connection of transmission wiring between indoor-outdoor units
- Failure to execute check operation
- Defective indoor unit PCB
- Stop valve is not opened

Troubleshooting

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





∗ : Sub code for **UF** error

Sub code	Description	
UF-19	Wrong wiring to outdoor-outdoor terminal	A unit that should be connected to the indoor-outdoor terminal is connected to the outdoor-outdoor terminal.
UF-20	Wrong connection port for transmission wiring	The upper and lower ports of the transmission wiring are connected in reverse.
UF-23	Wrong wiring to indoor-outdoor terminal	Inappropriate equipment is connected to the indoor-outdoor terminal or the outdoor-outdoor terminal.

5.67 System Abnormality

Applicable Models

All indoor unit models
All outdoor unit models

Error Code

UH

Method of Error Detection

- Abnormality related to the number of connected models in the system detected.
- Abnormality related to refrigerant safety detected.

Error Decision Conditions

Immediately determined when the above are detected.

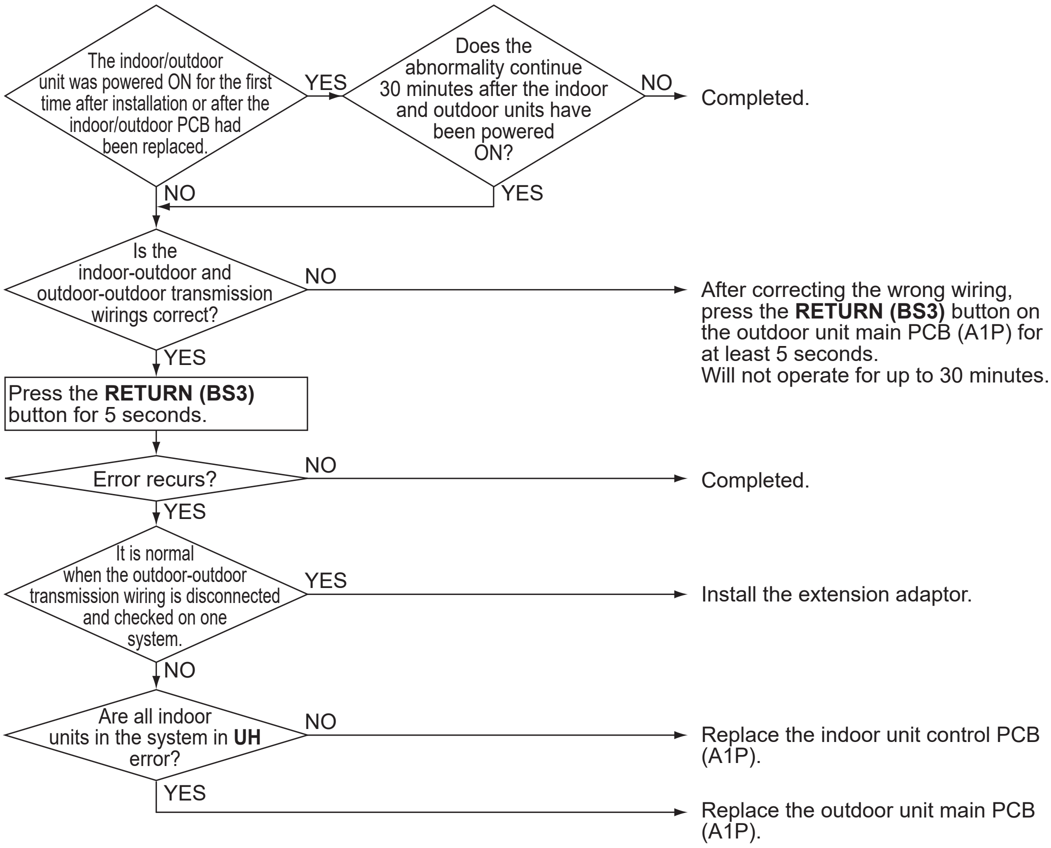
Supposed Causes

- Indoor-outdoor transmission wiring error
- Defective indoor unit control PCB
- Defective outdoor unit main PCB
- System design error

Troubleshooting

Sub code: 01, 13, 14

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



5.68 Defective PCB

Applicable Models

Centralized controller
intelligent Touch Controller
Schedule timer

Error Code

M1

Method of Error Detection

DIV-NET polarity circuit defective conditions are used to detect the error.

Error Decision Conditions

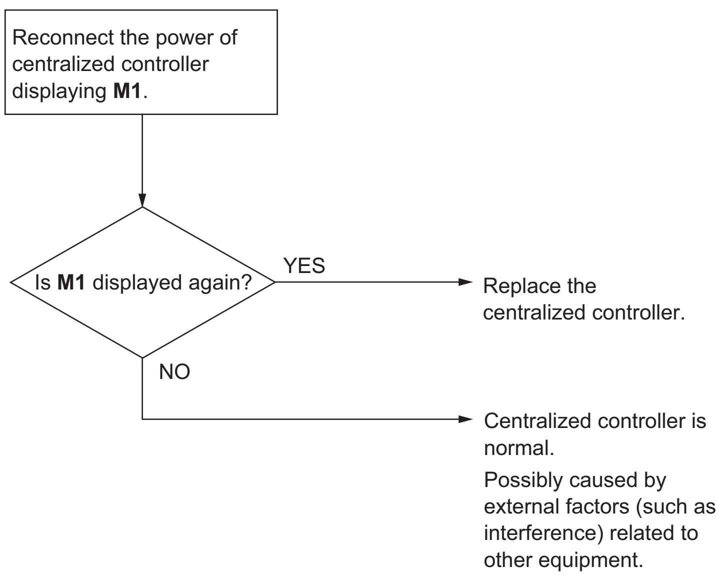
The test detects both positive polarity and negative polarity.

Supposed Causes

- Defective centralized controller PCB
- Defective intelligent touch controller PCB
- Defective schedule timer PCB

Troubleshooting

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



5.69 Transmission Error (between Centralized Controllers)

Applicable Models

Centralized controller
intelligent Touch Controller
Schedule timer

Error Code

M8

Method of Error Detection

DIV-NET communication data is used to detect the error. (Automatic reset)

Error Decision Conditions

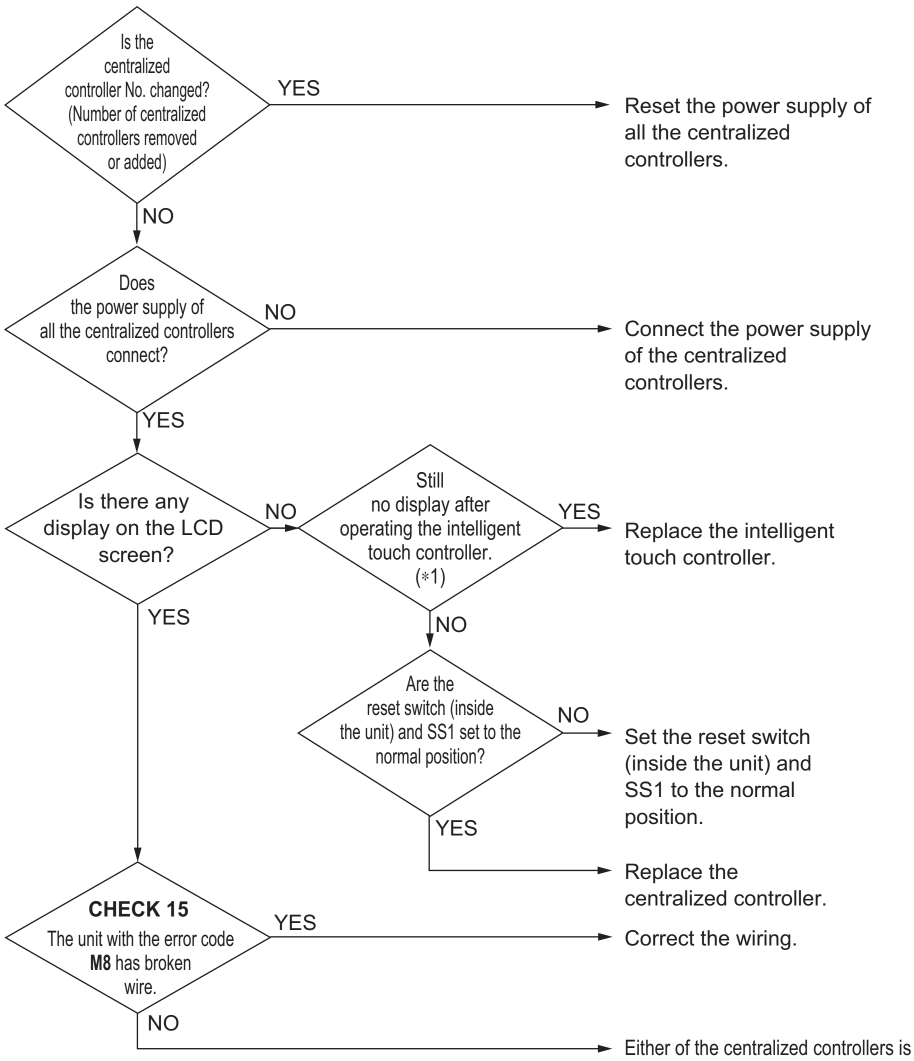
When the sub centralized controller is activated, there is no main centralized controller.
The previously connected centralized controller is not responding.

Supposed Causes

- Transmission defect between centralized controllers
- Defective centralized controller PCB

Troubleshooting

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



∗1. intelligent Touch Controller screen operation
If there is no display on the touch screen, adjust the contrast knob.

Reference **CHECK 15** Refer to page 284.

5.70 Poor Centralized Controller Combination

Applicable Models

Centralized controller
intelligent Touch Controller
Schedule timer

Error Code

MA

Method of Error Detection

DIV-NET communication data is used to detect the error.

Error Decision Conditions

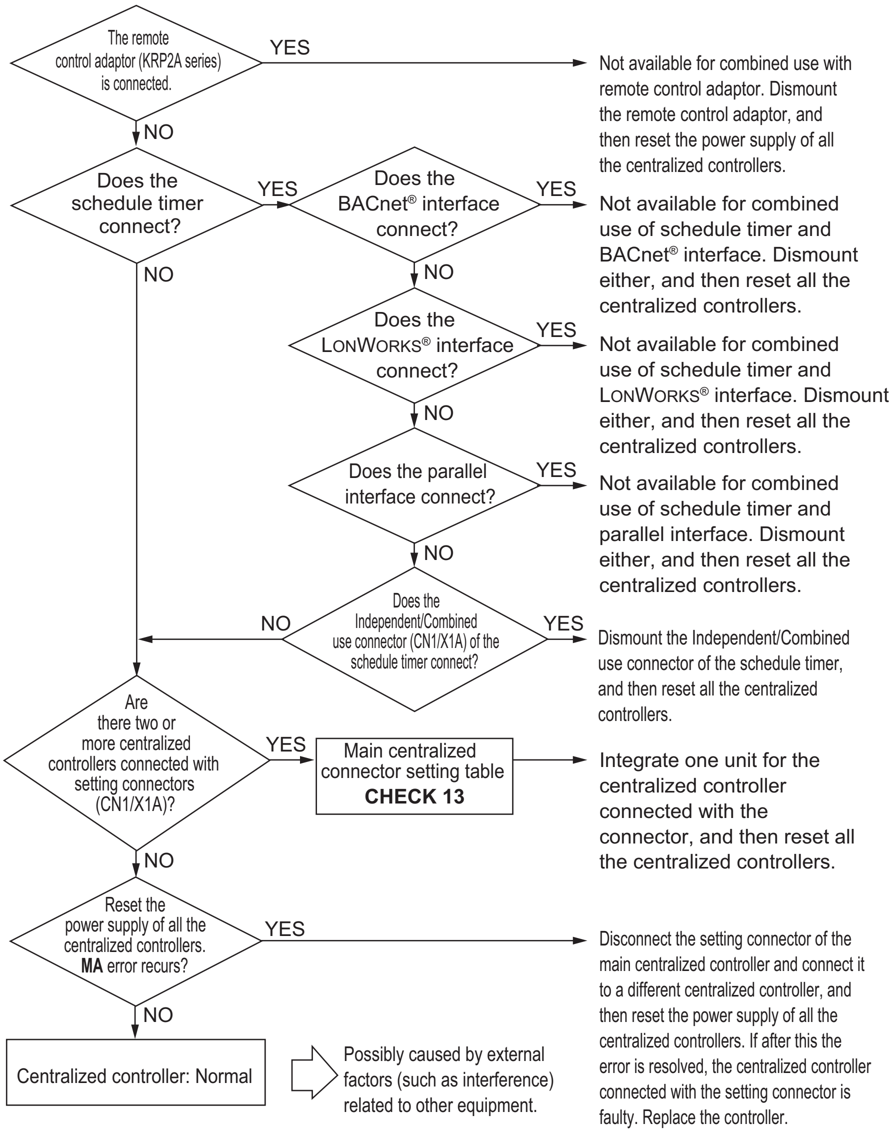
There are other centralized controllers but the schedule timer is set for individual use.
There are multiple main centralized controllers.
There is a remote control adaptor.

Supposed Causes

- Poor centralized controller combination
- Multiple main centralized controllers
- Defective centralized controller PCB

Troubleshooting

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



Reference **CHECK 13** Refer to page 282.

5.71 Address Duplication, Poor Setting

Applicable Models

Centralized controller
intelligent Touch Controller
Schedule timer

Error Code

MC

Method of Error Detection

DIV-NET communication data is used to detect the error.

Error Decision Conditions

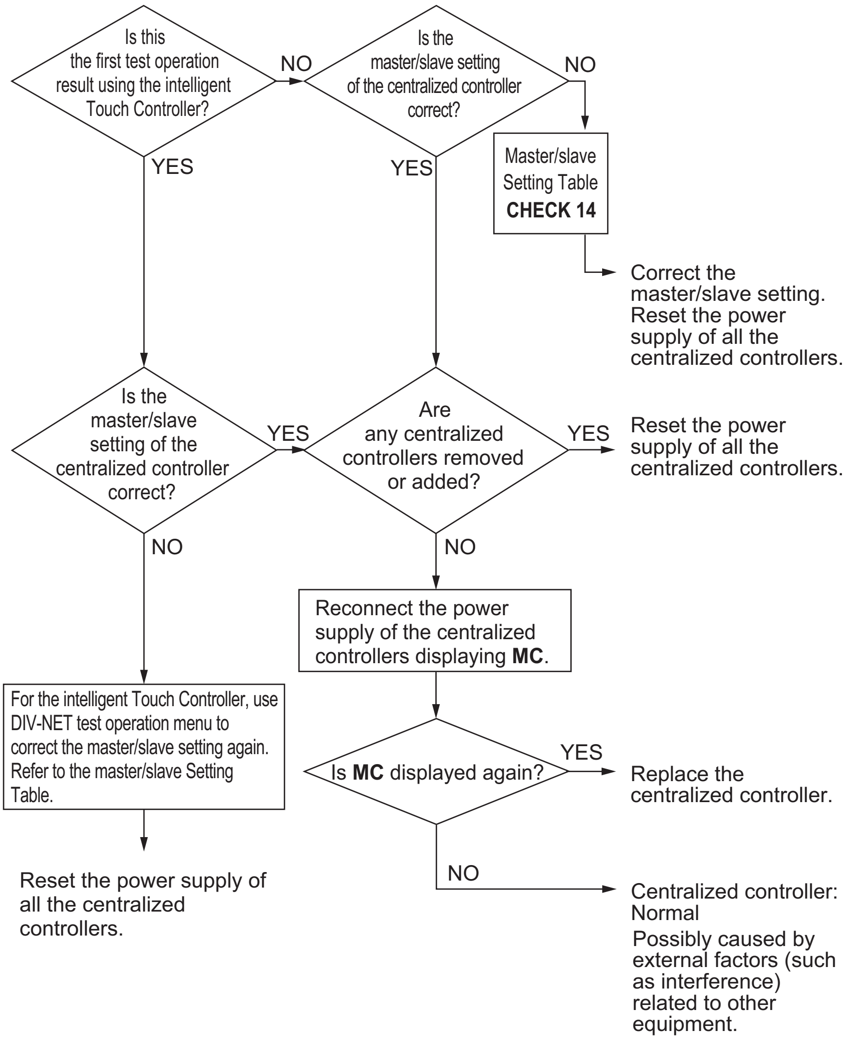
Multiple centralized controllers or intelligent touch controllers are connected, and the controllers are both set as main centralized controllers or sub centralized controllers.
Two schedule timers are connected.

Supposed Causes

- Centralized controller address duplication

Troubleshooting

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



Reference **CHECK 14** Refer to page 283.

5.72 Operation Lamp Blinking

Applicable Models

ON/OFF controller
Indoor unit

Error Code

—

Method of Error Detection

DIV-NET communication data is used to detect the error.

Error Decision Conditions

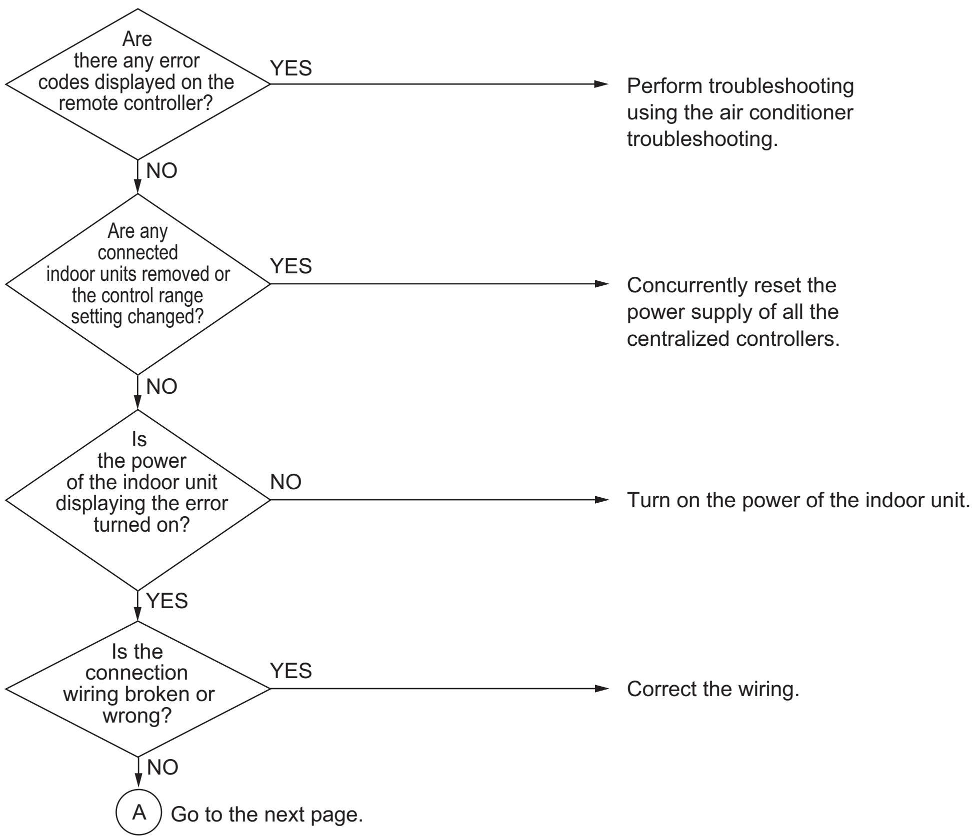
—

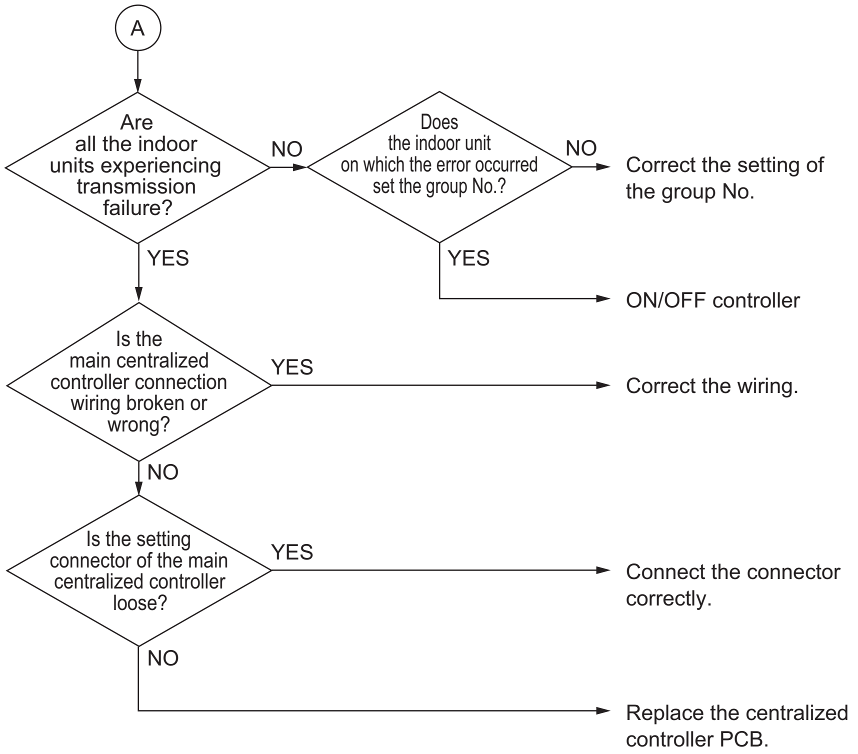
Supposed Causes

- Defective transmission between the centralized controller and an indoor unit
- Loosened setting connector of the main centralized controller
- Defective ON/OFF controller PCB
- Defective indoor unit PCB
- Defective air conditioner

Troubleshooting

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




A
Are all the indoor units experiencing transmission failure?
NO
Does the indoor unit on which the error occurred set the group No.?
NO
Correct the setting of the group No.
YES
YES
ON/OFF controller
Is the main centralized controller connection wiring broken or wrong?
YES
Correct the wiring.
NO
Is the setting connector of the main centralized controller loose?
YES
Connect the connector correctly.
NO
Replace the centralized controller PCB.

5.73 Central Control Indicator Lamp Blinking (One blink)

Applicable Models

ON/OFF controller
Centralized controller
Schedule timer

Error Code

—

Method of Error Detection

DIV-NET communication data is used to detect the error.

Error Decision Conditions

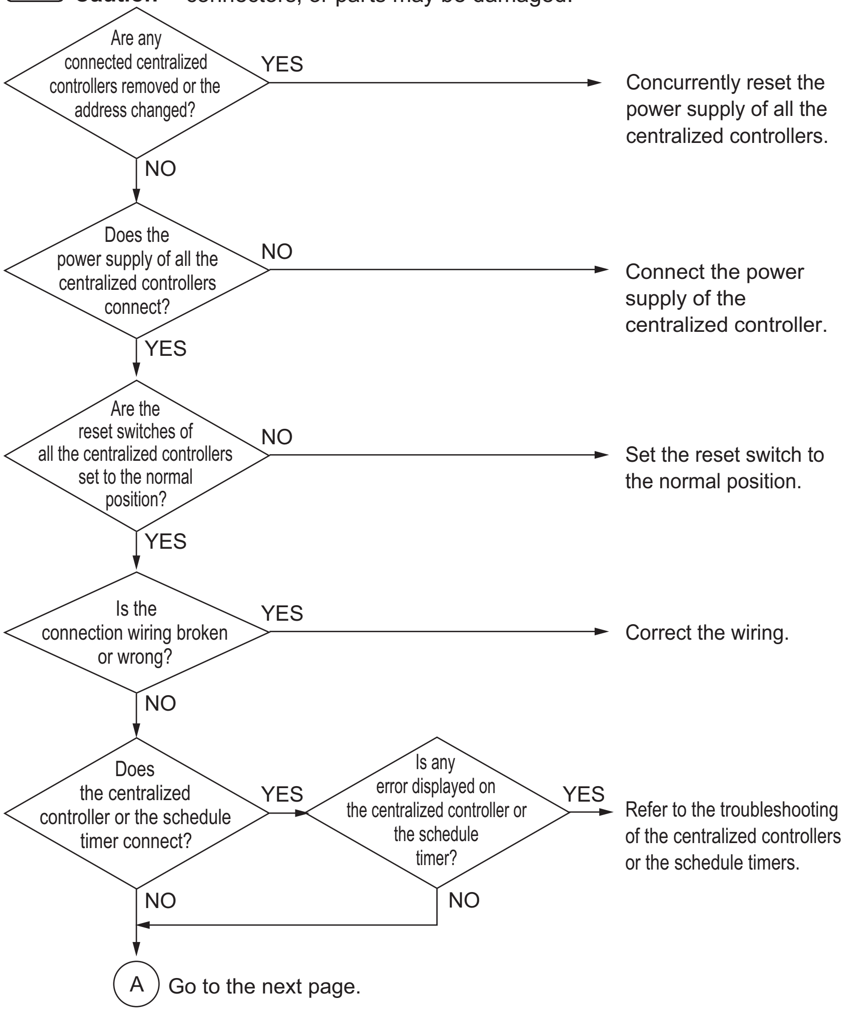
- The previously connected centralized controller is not responding.
- Control range duplication
- There are multiple main centralized controllers.
- There are other centralized controllers but the schedule timer is set for individual use.
- There is a remote control adapter.

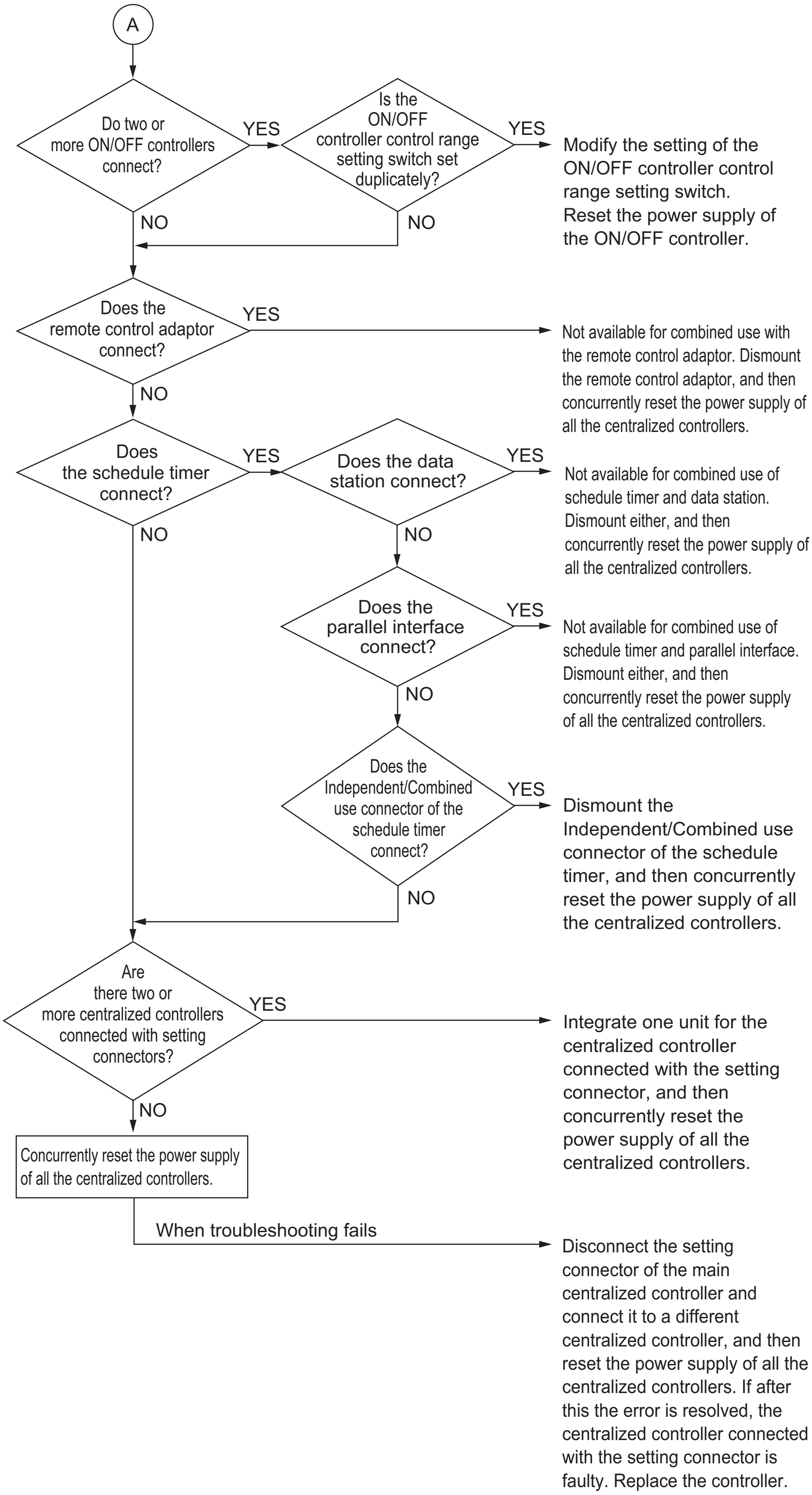
Supposed Causes

- Centralized controller address duplication
- Poor centralized controller combination
- Multiple main centralized controllers
- Transmission defect between centralized controllers
- Defective centralized controller PCB

Troubleshooting

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




A
Do two or more ON/OFF controllers connect?
YES
Is the ON/OFF controller control range setting switch set duplicately?
YES
Modify the setting of the ON/OFF controller control range setting switch. Reset the power supply of the ON/OFF controller.
NO
NO
Does the remote control adaptor connect?
YES
Not available for combined use with the remote control adaptor. Dismount the remote control adaptor, and then concurrently reset the power supply of all the centralized controllers.
NO
Does the schedule timer connect?
YES
Does the data station connect?
YES
Not available for combined use of schedule timer and data station. Dismount either, and then concurrently reset the power supply of all the centralized controllers.
NO
NO
Does the parallel interface connect?
YES
Not available for combined use of schedule timer and parallel interface. Dismount either, and then concurrently reset the power supply of all the centralized controllers.
NO
Does the Independent/Combined use connector of the schedule timer connect?
YES
Dismount the Independent/Combined use connector of the schedule timer, and then concurrently reset the power supply of all the centralized controllers.
NO
Are there two or more centralized controllers connected with setting connectors?
YES
Integrate one unit for the centralized controller connected with the setting connector, and then concurrently reset the power supply of all the centralized controllers.
NO
Concurrently reset the power supply of all the centralized controllers.
When troubleshooting fails
Disconnect the setting connector of the main centralized controller and connect it to a different centralized controller, and then reset the power supply of all the centralized controllers. If after this the error is resolved, the centralized controller connected with the setting connector is faulty. Replace the controller.

5.74 Central Control Indicator Lamp Blinking (Two blinks)

Applicable Models
ON/OFF controller

Error Code
—

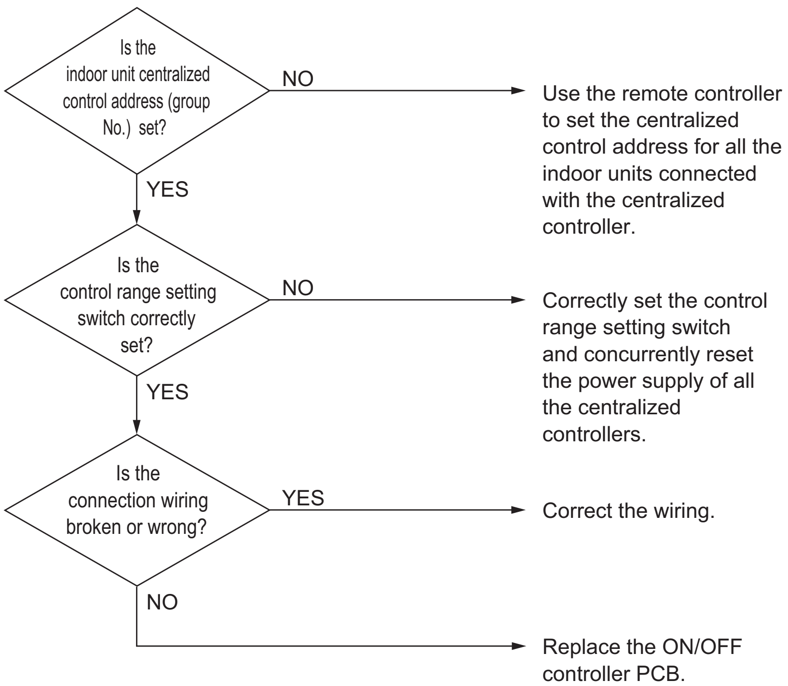
Method of Error Detection
DIV-NET communication data is used to detect the error.

Error Decision Conditions
The indoor unit has no centralized control address set
No indoor unit within the control range

Supposed Causes
- The indoor unit has no centralized control address set (Group No.)
- Control range setting switch set incorrectly
- Wiring connection error

Troubleshooting

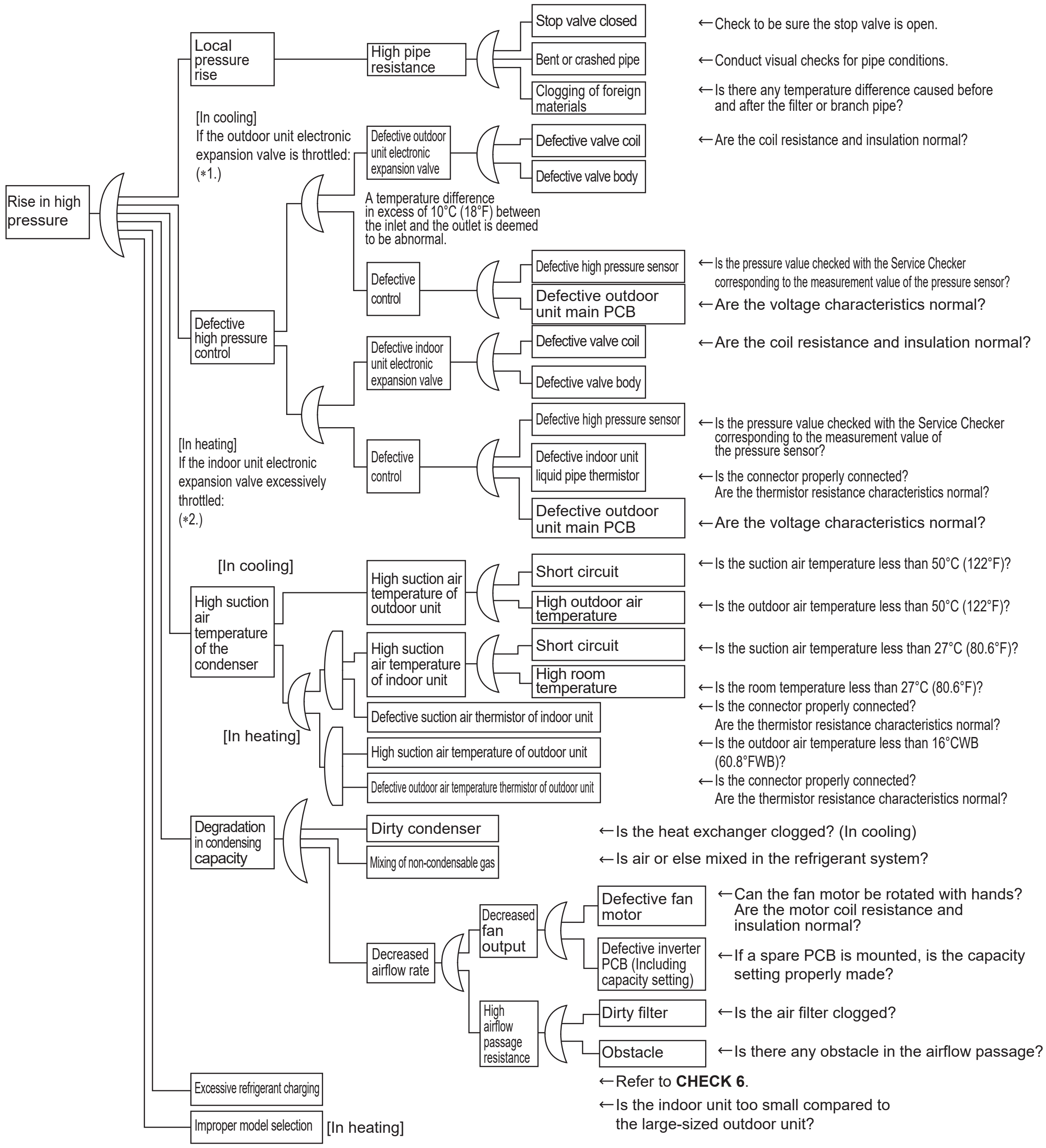
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



6. Check

6.1 High Pressure Check

CHECK 1 Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points.



Note(s)

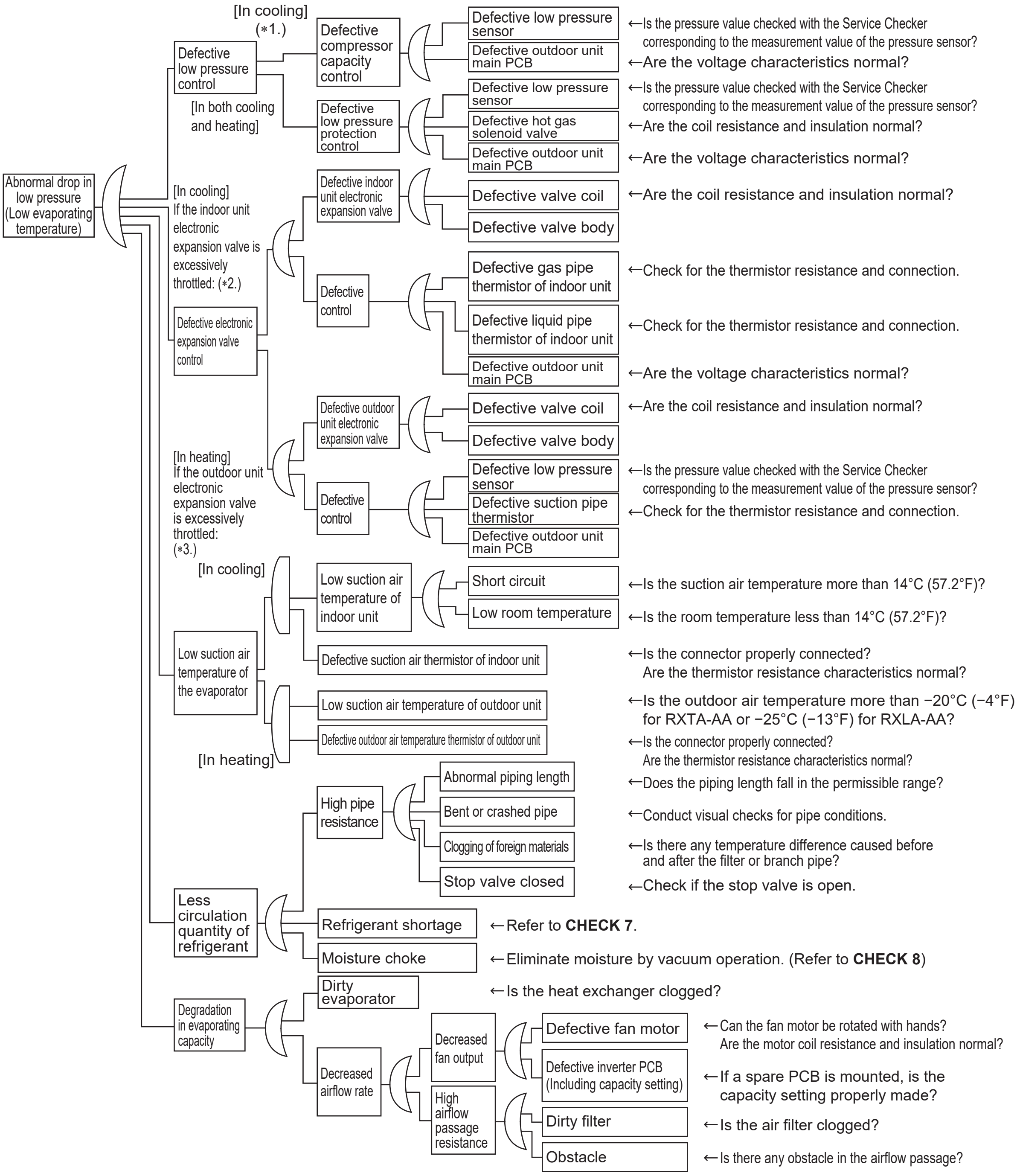
∗1. In cooling, it is normal if the outdoor unit electronic expansion valve (main) is fully open.
∗2. In heating, the indoor unit electronic expansion valve is used for subcooling degree control.

Reference

CHECK 6 Refer to page 274.

6.2 Low Pressure Check

CHECK 2 Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points



Note(s)

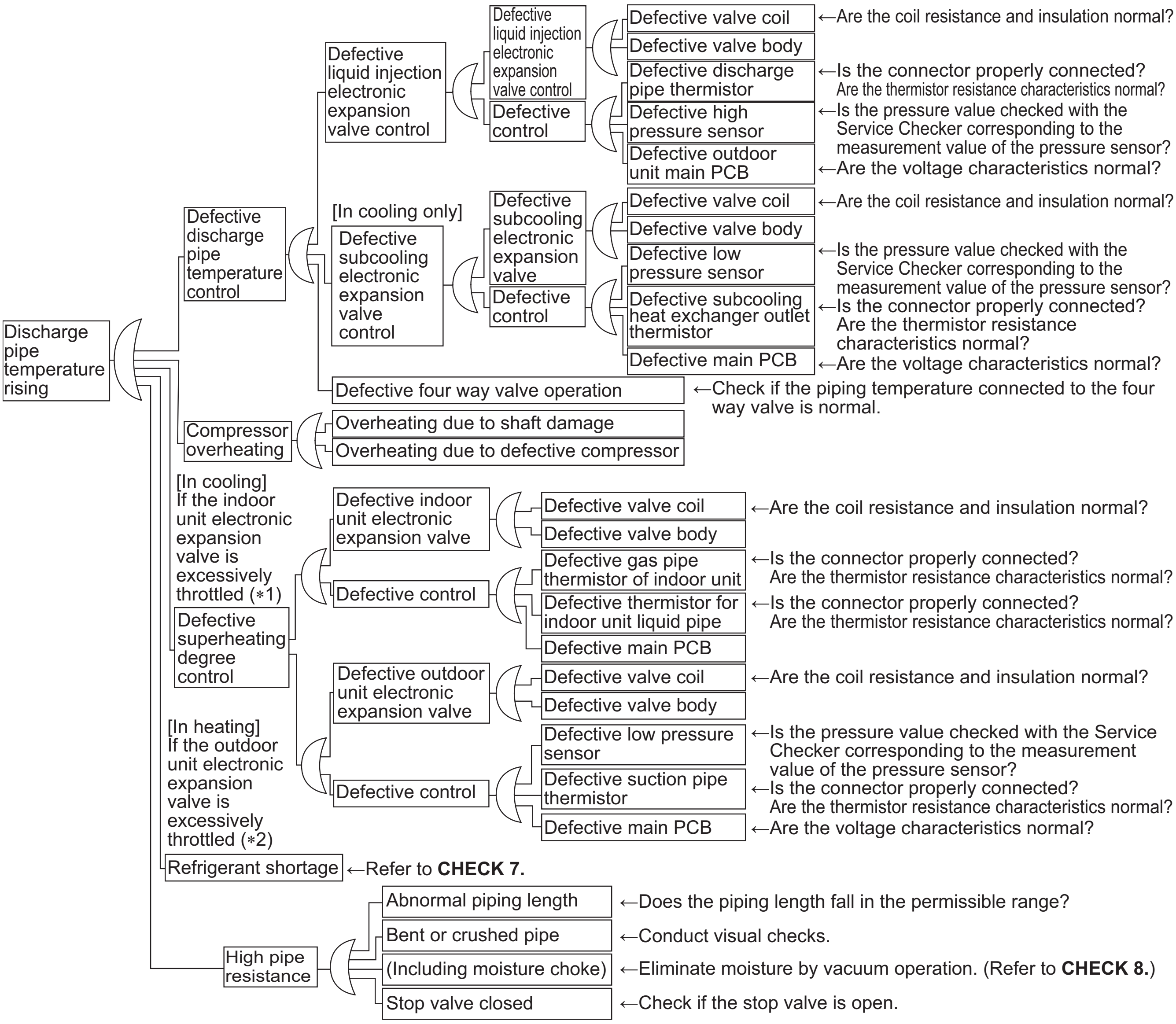
∗1. For details of compressor capacity control while in cooling, refer to **Compressor PI Control** on page 47.
∗2. In cooling, the indoor unit electronic expansion valve is used for superheating degree control.
∗3. In heating, the outdoor unit electronic expansion valve (main) is used for superheating degree control of outdoor heat exchanger.

Reference **CHECK 7** Refer to page 275.

Reference **CHECK 8** Refer to page 276.

6.3 Overheating Check

CHECK 3 Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points.



Note(s)

∗1. Superheating degree control in cooling is conducted by indoor unit electronic expansion valve.
∗2. Superheating degree control in heating is conducted by outdoor unit electronic expansion valve.
∗3. Judgment criteria of overheating: (1) Suction gas superheating degree: 10°C (18°F) and over. (2) Discharge gas superheating degree: 45°C (81°F) and over, except immediately after compressor starts up or is running under dropping control.
(Use the above values as a guide. Depending on the other conditions, the unit may be normal despite the values within the above range.)

Reference **CHECK 7** Refer to page 275.

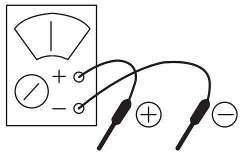
Reference **CHECK 8** Refer to page 276.

6.4 Power Transistor Check

CHECK 4

Perform the following procedures prior to check.
(1) Power OFF.
(2) Remove all the wiring connected to the PCB where power transistors are mounted on.

[Preparation]
· Multimeter



∗ Preparing a multimeter in the analog system is recommended.
A multimeter in the digital system with diode check function will be usable.

[Point of Measurement and Judgment Criteria]
· Measure the resistance value using a tester at each point of measurement below, 10 minutes later after power OFF.
To use analog multimeter:
Measurement in the resistance value mode in the range of multiplying 1 kΩ.

No.	Point of Measurement		Judgment Criteria	Remarks
	+	−		
1	C+	U	3 ~ 30 kΩ	—
2	C+	V		
3	C+	W		
4	U	C+	15 kΩ and above (including ∞)	Due to condenser charge and so on, resistance measurement may require some time.
5	V	C+		
6	W	C+		
7	C−	U		
8	C−	V		
9	C−	W		
10	U	C−	2 ~ 15 kΩ	—
11	V	C−		
12	W	C−		

To use digital multimeter:
Measurement is executed in the diode check mode.(—▸|—)

No.	Point of Measurement		Judgment Criteria	Remarks
	+	−		
1	C+	U	1.2 V and over	Due to condenser charge and so on, resistance measurement may require some time.
2	C+	V		
3	C+	W		
4	U	C+	0.5 ~ 1.4 V	—
5	V	C+		
6	W	C+		
7	C−	U	0.3 ~ 0.7 V	—
8	C−	V		
9	C−	W		
10	U	C−	1.2 V and over	Due to condenser charge and so on, resistance measurement may require some time.
11	V	C−		
12	W	C−		

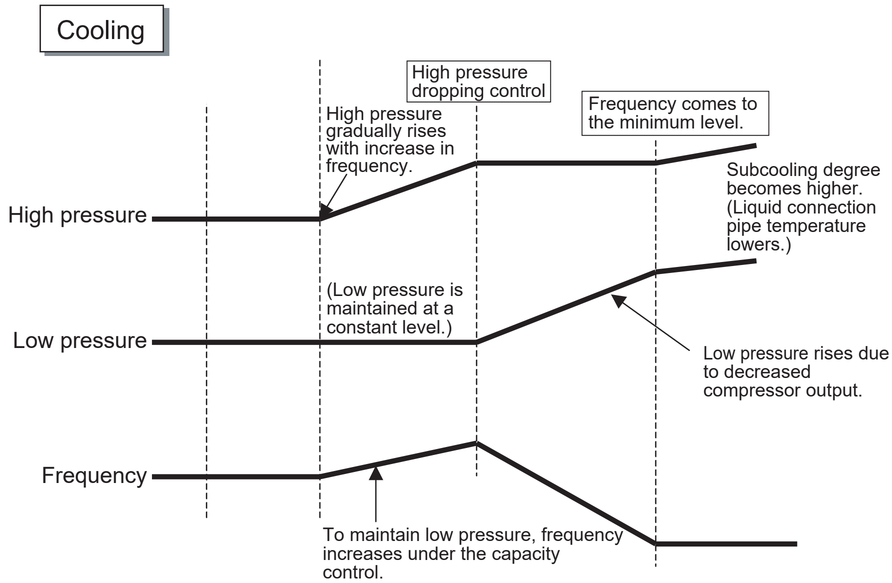
6.5 Refrigerant Overcharge Check

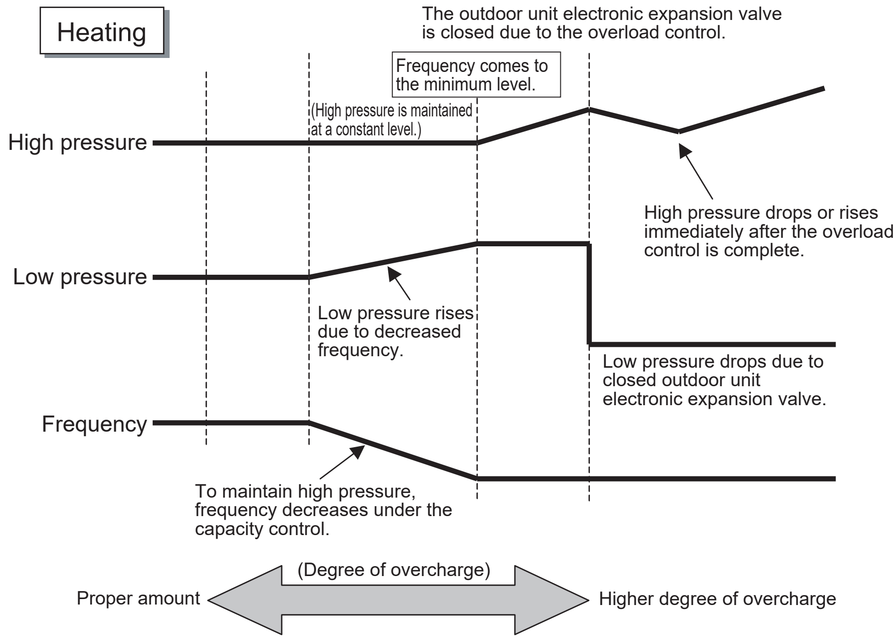
CHECK 6

The only way to judge as the overcharge of refrigerant is with operating conditions due to the relationship to pressure control and electronic expansion valve control.
As information for making a judgement, refer to the information below.

<u>Diagnosis of refrigerant overcharge</u>

1. High pressure rises. Consequently, overload control is conducted to cause insufficient cooling capacity.
2. The superheating degree of suction gas lowers (or compressor floodback occurs). Consequently, the compressor becomes lower in discharge pipe temperature despite of pressure loads.
3. The subcooling degree of condensate rises. Consequently, in heating, the temperature of discharge air through the subcooled section becomes lower.





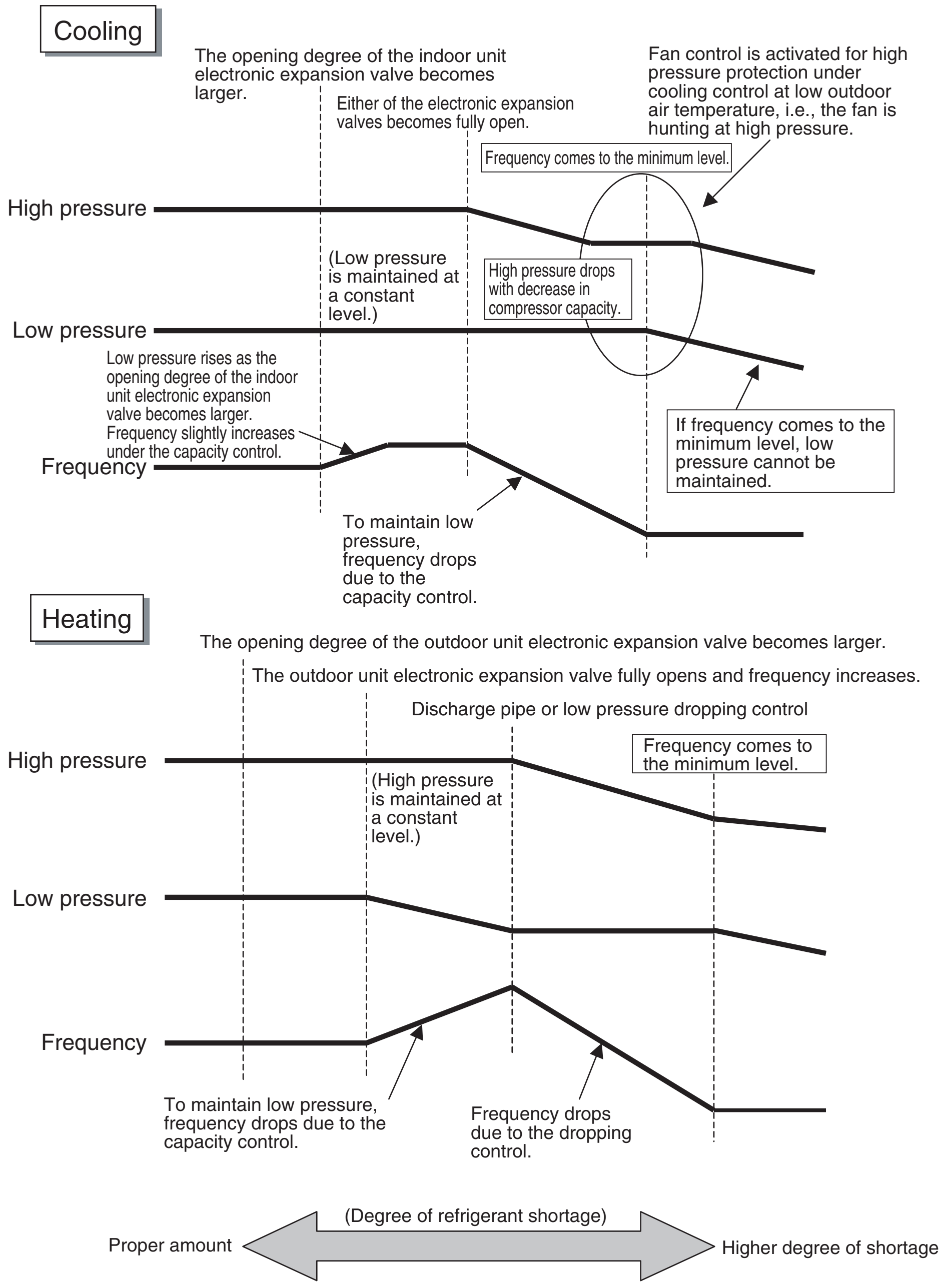
6.6 Refrigerant Shortage Check

CHECK 7

The only way to judge as the shortage of refrigerant is with operating conditions due to the relationship to pressure control and electronic expansion valve control.
As information for making a judgement, refer to the information below.

Diagnosis of shortage of refrigerant

1. The superheating degree of suction gas rises. Consequently, the compressor discharge gas temperature becomes higher.
2. The superheating degree of suction gas rises. Consequently, the electronic expansion valve turns open.
3. Low pressure drops to cause the unit not to demonstrate cooling/heating capacity.



6.7 Vacuuming and Dehydration Procedure

CHECK 8

Conduct vacuuming and dehydration in the piping system following the procedure for Normal vacuuming and dehydration described below.
Furthermore, if moisture may get mixed in the piping system, follow the procedure for Special vacuuming and dehydration described below.

Normal vacuuming and dehydration

1. Vacuuming and dehydration
   - Use a vacuum pump that enables vacuuming up to 500 microns.
   - Connect manifold gauges to the service ports of liquid pipe and gas pipe and run the vacuum pump for a period of 2 or more hours to conduct evacuation to 500 microns.
   - If the degree of vacuum does not reach 500 microns or less even though evacuation is conducted for a period of 2 hours, moisture will have entered the system or refrigerant leakage will have been caused. In this case, conduct evacuation for a period of another 1 hour.
   - If the degree of vacuum does not reach 500 microns or less even though evacuation is conducted for a period of 3 hours, conduct the leak tests.
2. Leaving in vacuum state
   - Leave the compressor at the degree of vacuum of 500 microns or less for a period of 1 hour or more, and then check to be sure that the vacuum gauge reading does not rise. (If the reading rises, moisture may have remained in the system or refrigerant leakage may have been caused.)
3. Additional refrigerant charge
   - Purge air from the manifold gauge connection hoses, and then charge a necessary amount of refrigerant.

Special vacuuming and dehydration

Use this procedure if moisture may get into the piping, such as construction during the rainy season (dew condensation may occur, or rainwater may enter the piping during construction work).

1. Vacuuming and dehydration
   - Follow the same procedure as that for normal vacuuming and dehydration described above.
2. Vacuum break
   - Pressurize with nitrogen gas up to 375,000 microns.
3. Vacuuming and dehydration
   - Conduct vacuuming and dehydration for a period of 1 hour or more. If the degree of vacuum does not reach 500 microns or less even though evacuation is conducted for a period of 2 hours or more, repeat vacuum break - vacuuming and dehydration.
4. Leaving in vacuum state
   - Leave the compressor at the degree of vacuum of 500 microns or less for a period of 1 hour or more, and then check to be sure that the vacuum gauge reading does not rise.
5. Additional refrigerant charge
   - Purge air from the manifold gauge connection hoses, and then charge a necessary amount of refrigerant.

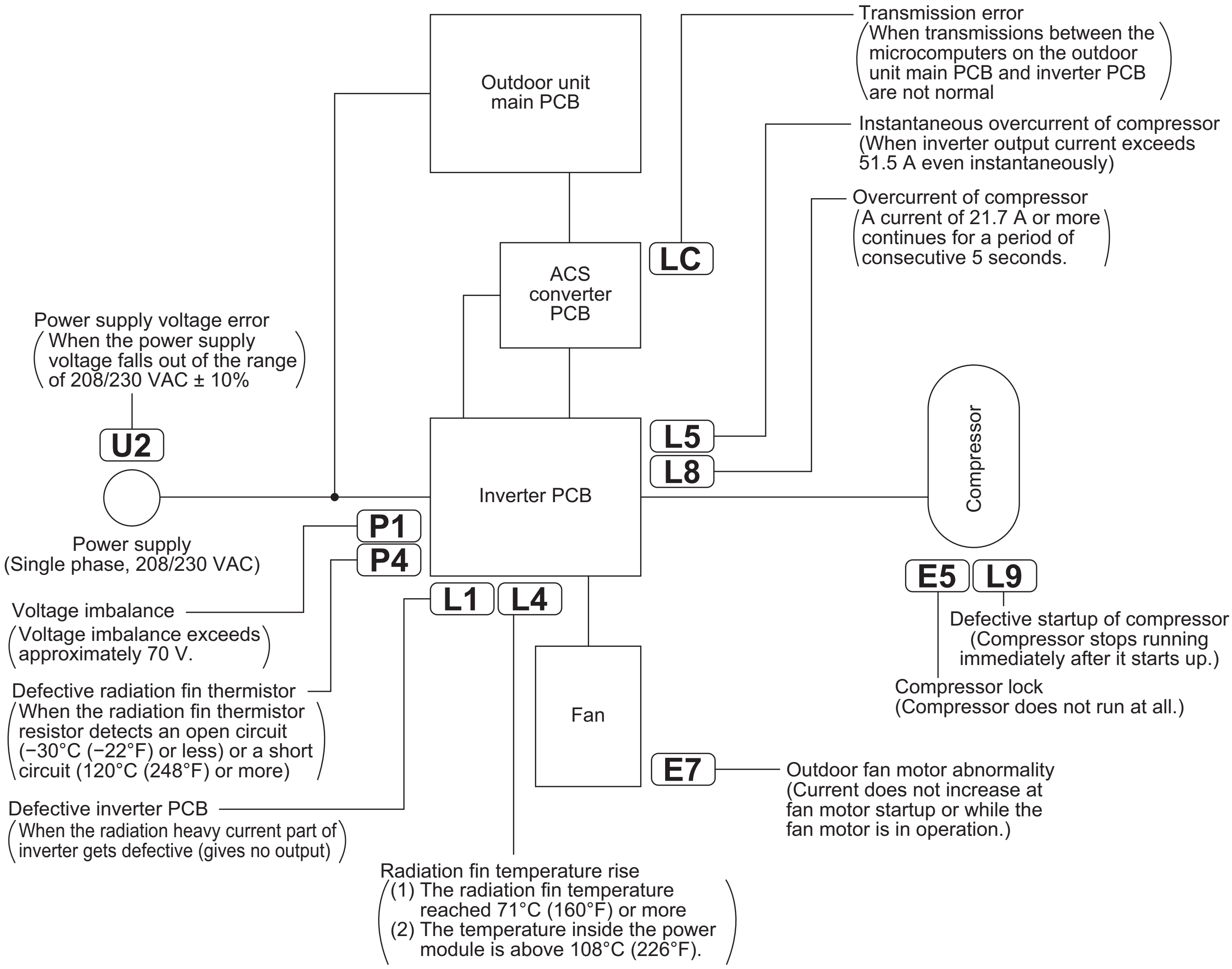
6.8 List of Inverter-Related Error Codes

CHECK 9

	Code	Name	Condition for determining error	Major cause
Compressor current	**L5**	Instantaneous overcurrent of compressor	• Inverter output current exceeds 51.5 A even instantaneously.	• Liquid sealing • Defective compressor • Defective inverter PCB
	L8	Overcurrent of compressor (Electronic overheating protection sensor)	• Compressor overload running A current of 21.7 A or more continues for a period of consecutive 5 seconds. • The inverter loses synchronization.	• Back-flow of compressor liquid • Sudden changes in loads • Disconnected compressor wiring • Defective inverter PCB
Protection device and others	**E5**	Compressor lock	• The compressor is in the locked status (does not rotate).	• Defective compressor
	E7	Outdoor fan motor abnormality	• Current does not increase at fan motor startup or while the fan motor is in operation.	• Defective fan motor • Defective inverter PCB
	L1	Defective inverter PCB	• No output is given.	• Defective heavy current part of compressor • Defective inverter PCB
	L4	Radiation fin temperature rise	• The radiation fin temperature reaches 71°C (160°F) or more (while in operation). • The temperature inside the power module is above 108°C (226°F).	• Defective fan • Running in overload for an extended period of time • Defective inverter PCB • Radiator pipe does not make contact properly with inverter PCB • Refrigerant shortage
	L9	Defective startup of compressor	• The compressor motor fails to start up.	• Liquid sealing or defective compressor • Excessive oil or refrigerant • Defective inverter PCB
	LC	Transmission error between microcomputers on the outdoor unit main PCB and inverter PCB	• No communications are carried out across the microcomputers on the outdoor unit main PCB and inverter PCB.	• Defective outdoor unit main PCB, inverter PCB, and ACS converter PCB
	P1	Voltage imbalance	• Voltage imbalance exceeds approximately 70 V.	• Defective inverter PCB
	P4	Defective radiation fin thermistor	• The radiation fin thermistor gets short circuited or open.	• Defective radiation fin thermistor
	U2	Power supply voltage error	• The inverter power supply voltage is high or low.	• Power supply error • Defective inverter PCB

6.9 Concept of Inverter-Related Error Codes

CHECK 10



6.10 Thermistor Check

CHECK 11

Thermistor type of indoor units

<table>
<tr><td rowspan="2">Model</td><td>Suction air thermistor</td><td>Indoor heat exchanger (liquid) thermistor</td><td>Indoor heat exchanger (gas) thermistor</td><td>Discharge air thermistor</td></tr>
<tr><td>R1T</td><td>R2T</td><td>R3T</td><td>R4T</td></tr>
<tr><td>FXFA-AA</td><td>Type C</td><td rowspan="4">Type A</td><td rowspan="4">Type A</td><td>—</td></tr>
<tr><td>FXSA-AA</td><td rowspan="2">Type B</td><td rowspan="2">Type J</td></tr>
<tr><td>FXMA-AA</td></tr>
<tr><td>FXTA-AA</td><td>—</td><td>—</td></tr>
</table>

Thermistor type of outdoor units

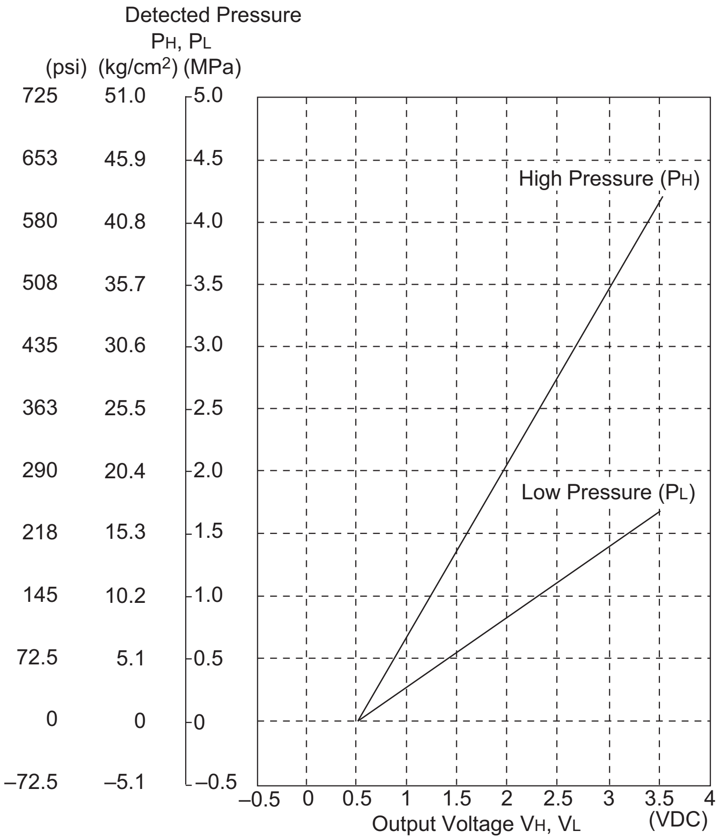
Electric symbol	Thermistor	Type
R1T	Outdoor air thermistor	E
R21T	Discharge pipe thermistor	H
R3T	Suction pipe thermistor	A
R4T	Heat exchanger liquid pipe thermistor	A
R5T	Subcooling liquid pipe thermistor	A
R6T	Subcooling gas pipe thermistor	A
R7T	Deicer thermistor	A
R10T	Radiation fin thermistor	K

Thermistor temperature		Resistance (kΩ)						
(°C)	(°F)	Type A	Type B	Type C	Type E	Type H	Type J	Type K
–30	–22	363.8	—	—	357.9	3407	352.1	350.6
–25	–13	266.8	—	—	263.5	2540	261.2	257.4
–20	–4	197.8	—	—	196.1	1910	195.4	191.0
–15	5	148.2	—	—	147.4	1449	147.3	143.2
–10	14	112.0	111.1	111.8	111.8	1108	111.8	108.4
–5	23	85.52	84.95	85.42	85.53	853.8	85.49	82.83
0	32	65.84	65.53	65.80	66.00	662.7	65.80	63.80
5	41	51.05	50.95	51.07	51.31	517.9	51.15	49.53
10	50	39.91	39.92	39.97	40.20	407.4	40.08	38.75
15	59	31.44	31.50	31.51	31.74	322.5	31.64	30.56
20	68	24.95	25.02	25.02	25.23	256.9	25.16	24.26
25	77	19.94	20.00	20.00	20.19	205.7	20.14	19.40
30	86	16.04	16.10	16.10	16.26	165.7	16.23	15.62
35	95	12.99	13.04	13.04	13.17	134.3	13.16	12.65
40	104	10.58	10.63	10.63	10.74	109.4	10.73	10.31
45	113	8.669	8.720	8.711	8.806	89.58	8.800	8.447
50	122	7.143	7.189	7.179	7.260	73.73	7.255	6.962
55	131	5.918	—	—	6.014	60.98	6.012	5.769
60	140	4.928	—	—	5.008	50.67	5.010	4.805
65	149	4.123	—	—	4.191	42.29	4.196	4.021
70	158	3.467	—	—	3.525	35.45	3.532	3.381
75	167	—	—	—	2.978	29.84	2.987	2.856
80	176	—	—	—	2.527	25.21	2.538	2.422
85	185	—	—	—	2.153	21.38	2.166	2.063
90	194	—	—	—	1.843	18.21	1.857	1.764
95	203	—	—	—	1.583	15.57	1.598	1.515
100	212	1.339	—	—	1.365	13.36	1.380	1.305
105	221	—	—	—	1.181	11.49	1.196	1.128
110	230	—	—	—	—	9.92	1.041	0.9781
115	239	—	—	—	—	8.594	0.908	0.8506
120	248	—	—	—	—	7.465	0.795	0.7420
125	257	—	—	—	—	6.499	0.698	0.6495
130	266	—	—	—	—	5.675	0.615	0.5700
135	275	—	—	—	—	4.968	0.543	—
140	284	—	—	—	—	4.360	0.481	—
145	293	—	—	—	—	3.836	0.428	—
150	302	—	—	—	—	3.384	0.381	—
Drawing No.		3SA48018 (AD94A045) 3SA48013 (AD100026)	3SA48001 (AD210486)	3S480014 (AD150384)	3S480025 (AD180054)	3SA48006 (AD190115)	3SA48005 (AD190114)	3P204139 (AD070077)

∗The data is for reference purpose only.

6.11 Pressure Sensor Check

CHECK 12



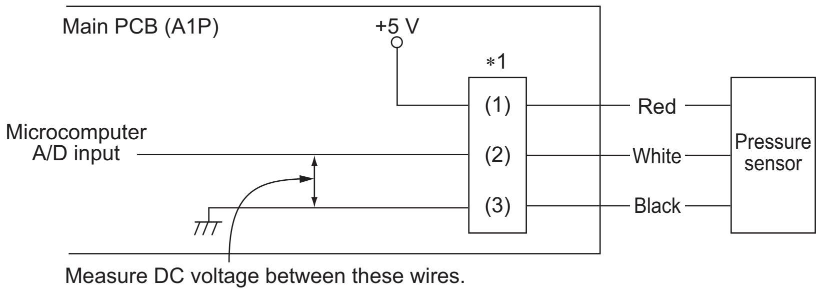
$P_H\ (\text{MPa}) = \frac{4.15}{3.0} \times V_H - \frac{4.15}{3.0} \times 0.5$

$P_L\ (\text{MPa}) = \frac{1.7}{3.0} \times V_L - \frac{1.7}{3.0} \times 0.5$

1 MPa = 145 psi

P_H : High pressure (MPa)
P_L : Low pressure (MPa)
V_H : Output Voltage (High Side) (VDC)
V_L : Output Voltage (Low Side) (VDC)

Voltage Measurement Point



∗1. Connector

Pressure sensor	Connector
High	X32A (Red)
Low	X31A (Blue)

6.12 Master Unit Centralized Connector Setting Table

CHECK 13

The master unit centralized setting connector (CN1/X1A) is mounted at the factory.

- To independently use a single unit of the intelligent Touch Controller or a single unit of the central remote controller, do not dismount the master unit centralized setting connector (i.e., use the connector with the factory setting unchanged).
- To independently use the schedule timer, insert an independent-use setting connector. No independent-use setting connector has been mounted at the factory. Insert the connector, which is attached to the casing of the master unit, in the PCB (CN1/X1A). (Independent-use connector: Master unit centralized setting connector)
- To use two or more centralized controller in combination, make settings according to the table shown below.

<table>
<tr><th rowspan="2">Pattern</th><th colspan="4">Central controller connection pattern</th><th colspan="4">Setting of master unit centralized setting connector (∗2)</th></tr>
<tr><th>intelligent Touch Controller</th><th>Central remote controller</th><th>Unified ON/OFF controller</th><th>Schedule timer</th><th>intelligent Touch Controller</th><th>Central remote controller</th><th>Unified ON/OFF controller</th><th>Schedule timer</th></tr>
<tr><td>(1)</td><td>1 to 2 units</td><td>—</td><td>—</td><td>× (∗1)</td><td>Only a single unit: Provided, Others: Not provided</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>(2)</td><td rowspan="2">1 unit</td><td rowspan="2">1 unit</td><td>—</td><td>× (∗1)</td><td rowspan="2">Provided</td><td rowspan="2">Not provided</td><td>—</td><td>—</td></tr>
<tr><td>(3)</td><td rowspan="2">1 to 8 units</td><td>× (∗1)</td><td rowspan="2">All not provided</td><td>—</td></tr>
<tr><td>(4)</td><td>1 to 2 units</td><td>—</td><td>× (∗1)</td><td>Only a single unit: Provided, Others: Not provided</td><td>—</td><td>—</td></tr>
<tr><td>(5)</td><td>—</td><td rowspan="4">1 to 4 units</td><td>—</td><td>—</td><td>—</td><td rowspan="4">Only a single unit: Provided, Others: Not provided</td><td>—</td><td>—</td></tr>
<tr><td>(6)</td><td>—</td><td rowspan="2">1 to 16 units</td><td>1 unit</td><td>—</td><td rowspan="2">All not provided</td><td>Not provided</td></tr>
<tr><td>(7)</td><td>—</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>(8)</td><td>—</td><td>—</td><td>1 unit</td><td>—</td><td>—</td><td>Not provided</td></tr>
<tr><td>(9)</td><td>—</td><td>—</td><td rowspan="2">1 to 16 units</td><td>—</td><td>—</td><td>—</td><td rowspan="2">Only a single unit: Provided, Others: Not provided</td><td>—</td></tr>
<tr><td>(10)</td><td>—</td><td>—</td><td>1 unit</td><td>—</td><td>—</td><td>Not provided</td></tr>
<tr><td>(11)</td><td>—</td><td>—</td><td>—</td><td>1 unit</td><td>—</td><td>—</td><td>—</td><td>Provided</td></tr>
</table>

Note(s)

∗1 The intelligent Touch Controller and the schedule timer are not available for combined use.
∗2 The intelligent Touch Controller, central remote controller, and the unified ON/OFF controller have been set to **Provided with the master unit centralized setting connector** at the factory. The schedule timer has been set to **Not provided with the master unit centralized setting connector** at the factory, which is attached to the casing of the master unit.

6.13 Master-Slave Unit Setting Table

CHECK 14

Combination of intelligent Touch Controller and Central Remote Controller

∗ Pattern	#1		#2		#3		#4	
	1-00~4-15	Master/ Slave	5-00~8-15	Master/ Slave	1-00~4-15	Master/ Slave	5-00~8-15	Master/ Slave
(1)	CRC	Master	CRC	Master	CRC	Slave	CRC	Slave
(2)	CRC	Master	—	—	CRC	Slave	—	—
(3)	intelligent Touch Controller	Master	—	—	intelligent Touch Controller	Slave	—	—
(4)	CRC	Master	—	—	intelligent Touch Controller	Slave	—	—
(5)	intelligent Touch Controller	Master	—	—	CRC	Slave	—	—
(6)	CRC	Master	—	—	—	—	—	—
(7)	intelligent Touch Controller	Master	—	—	—	—	—	—

Note(s)

CRC (Central remote controller): DCS302CA61
intelligent Touch Controller: DCS601C51
∗ The patterns marked with ∗ have nothing to do with those described in the list of setting of master unit centralized setting connector.

6.14 Broken Wire Check of the Relay Wires

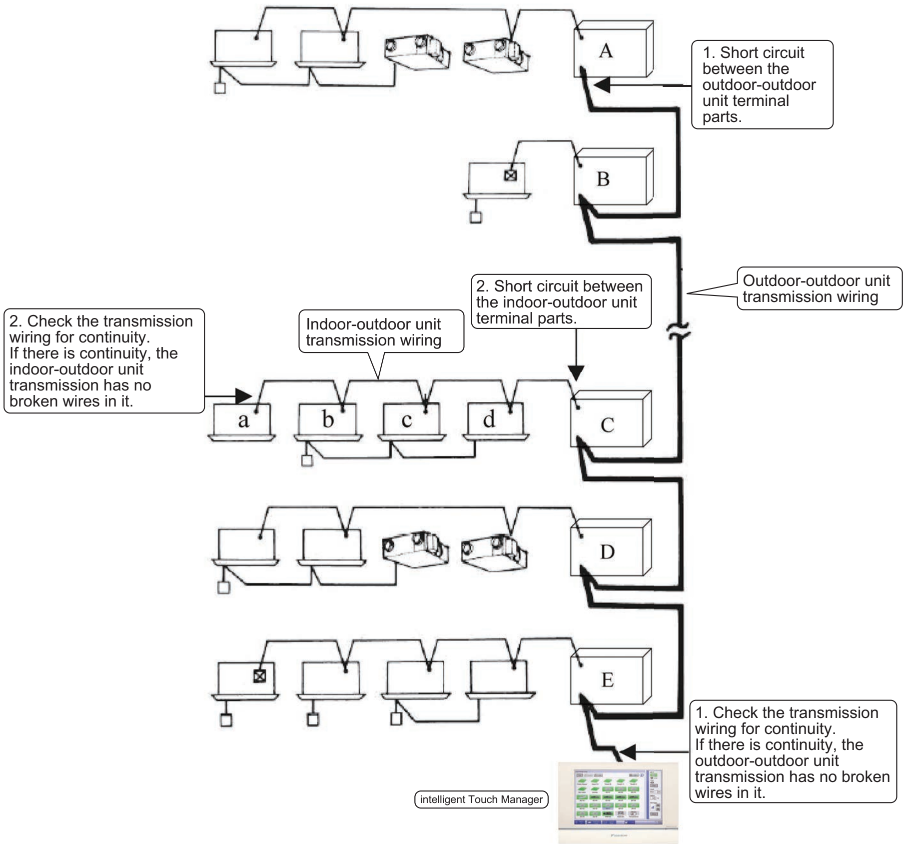
CHECK 15

1. **Procedure for checking outdoor-outdoor unit transmission wiring for broken wires**
   On the system shown in the following illustration, turn OFF the power supply to all equipment, short circuit between the outdoor-outdoor unit terminal F1/H1 and F2/H2 (∗1) in the outdoor unit **A** that is farthest from the centralized controller, and then conduct continuity checks between the transmission wiring terminal blocks H1 and H2 (∗2) of the central remote controller using a multimeter. If there is continuity between the said terminal blocks, the outdoor-outdoor unit transmission wiring has no broken wires in it.
   If there is no continuity, the transmission wiring may have broken wires. With the outdoor-outdoor unit terminal of the outdoor unit **A** short circuited, conduct continuity checks between the outdoor-outdoor unit terminal of the outdoor unit **E**, between the outdoor-outdoor unit terminal of the outdoor unit **D**, between the outdoor-outdoor unit terminal of the outdoor unit **C**, … in the order described, thus identifying the place with continuity.
   If the place with continuity can be identified, there may be broken wires in places before the said place with continuity.

2. **Procedure for checking indoor-outdoor unit transmission wiring for broken wires (for checking the indoor-outdoor unit transmission wiring of the outdoor unit C for broken wires)**
   Turn OFF the power supply to all equipment, short circuit between the indoor-outdoor unit terminal H1 and H2 (∗2) in the outdoor unit **C**, and then conduct continuity checks between the transmission wirings H1 and H2 (∗2) of the indoor unit **a** that is farthest from the outdoor unit **C** using a multimeter. If there is continuity between the said transmission wirings, the indoor-outdoor unit transmission wiring has no broken wires in it.
   If there is no continuity, the transmission wiring may have broken wires. With the indoor-outdoor unit terminal of the outdoor unit **C** short circuited, identify the place with continuity in the transmission wiring of the indoor unit **b**, transmission wiring of the indoor unit **c**, and transmission wiring of the indoor unit **d** in the order described.
   If the place with continuity can be identified, there may be broken wires in places before the said place with continuity.

Note(s)

∗1. F1/H1 and F2/H2 for DIV-NET communication compatible models; F1 and F2 for DIII-NET communication compatible models
∗2. H1 and H2 for DIV-NET communication compatible models; F1 and F2 for DIII-NET communication compatible models



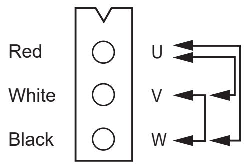
6.15 Fan Motor Connector Check

CHECK 16

Check the fan motor connector according to the following procedure.

1. Turn the power supply OFF.
2. Disconnect the fan motor connector from the PCB or relay connector and measure the resistances between U-V, V-W, and W-U to check that the values are balanced and there is no short circuiting, while connector or relay connector is disconnected.

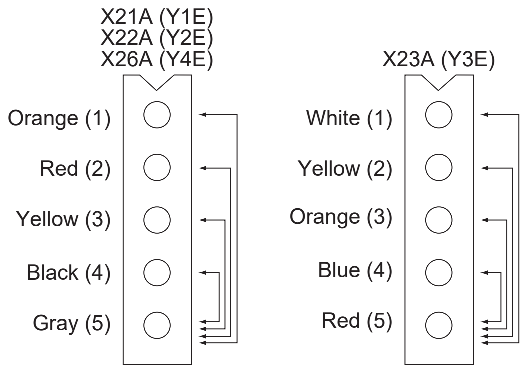
Judgment: Resistances must be balanced within 20%.



6.16 Electronic Expansion Valve Coil Check

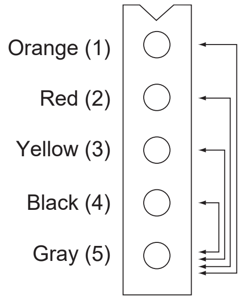
CHECK 18 Measure the connector pin-to-pin resistance and make sure that the resistance value is within the range listed in the table below.

Outdoor Unit



Measuring points	Judgment criteria
1 - 5	35-55 Ω
2 - 5	
3 - 5	
4 - 5	

Indoor Unit



Measuring points	Judgment criteria
1 - 5	35-55 Ω
2 - 5	
3 - 5	
4 - 5	

6.17 Fan Motor Connector Check for FXTA-AA

CHECK 19

CHECKING EMERSON ULTRATECH^{TM} ECM MOTORS

The FXTA-AA models utilize an Emerson, 4-wire variable speed ECM blower motor. The ECM blower motor provides constant CFM.
The motor is a serially communicating variable speed motor. Only four wires are required to control the motor: +Vdc, Common, Receive, and Transmit.
The +Vdc and Common wires provide power to the motor's low voltage control circuits.

General Checks / Considerations

1. Check power supply to the air handler or modular blower. Ensure power supply is within the range specified on rating plate.
2. Check motor power harness. Ensure wires are continuous and make good contact when seated in the connectors. Repair or replace as needed.
3. Check motor control harness. Ensure wires are continuous and make good contact when seated in the connectors. Repair or replace as needed.
4. Check blower wheel. Confirm wheel is properly seated on motor shaft. Set screw must be on shaft flat and torqued to 165 in-lbs minimum. Confirm wheel has no broken or loose blades. Repair or replace as needed.
5. Ensure motor and wheel turn freely. Check for interference between wheel and housing or wheel and motor. Repair or replace as needed.
6. Check housing for cracks and/or corrosion. Repair or replace as needed.
7. Check motor mounting bracket. Ensure mounting bracket is tightly secured to the housing. Ensure bracket is not cracked or broken.

Emerson UltraCheck-EZ^{TM} Diagnostic Tool

The Emerson UltraCheck-EZ^{TM} diagnostic tool may be used to diagnose the ECM motor.

Warning

HIGH VOLTAGE!
Disconnect ALL power before servicing or installing. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

To use the diagnostic tool, perform the following steps:

1. Disconnect power to the air handler.
2. Disconnect the 4-circuit control harness from the motor.
3. Plug the 4-circuit connector from the diagnostic tool into the motor control connector.
4. Connect one alligator clip from the diagnostic tool to a ground source.
5. Connect the other alligator clip to a 24VAC source.
   NOTE: The alligator clips are NOT polarized.
   NOTE: The Ultra Check-EZ^{TM} diagnostic tool is equipped with a non-replaceable fuse. Connecting the tool to a source other than 24VAC could damage the tool and cause the fuse to open. Doing so will render the diagnostic tool inoperable.
6. Turn on power to air handler or modular blower.

Warning

Line Voltage now present.

7. Depress the orange power button on the diagnostic tool to send a run signal to the motor. Allow up to 5 seconds for the motor to start.
   NOTE: If the orange power button does not illuminate when depressed, the tool either has an open fuse or is not properly connected to a 24VAC source.
8. The green LED on the diagnostic tool will blink indicating communications between the tool and motor. See the following table for indications of tool indicators and motor actions. Replace or repair as needed.

Power Button	Green LED	Motor Action	Indication(s)
OFF	OFF	Not Rotating	Confirm 24VAC to UltraCheck-EZ™ tool. If 24VAC is confirmed, diagnostic tool is inoperable.
ON	Blinking	Rotating	Motor and control/end bell are functioning properly.
ON	OFF	Rotating	Replace motor control/end bell.
ON	Blinking	Not Rotating	Check motor (refer to Motor Checks on page 290).
ON	OFF	Not Rotating	Replace motor control/end bell; verify motor (refer to Motor Checks on page 290).

9. Depress the orange power button to turn off motor.
10. Disconnect power. Disconnect diagnostic tool.
11. Reconnect the 4-wire harness from control board to motor.

Electrical Checks - High Voltage Power Circuits

Warning

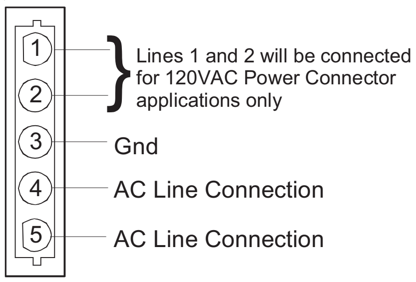
HIGH VOLTAGE!
Disconnect ALL power before servicing or installing. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

1. Disconnect power to air handler or modular blower.
2. Disconnect the 5-circuit power connector to the ECM motor.
3. Turn on power to air handler or modular.

Warning

Line Voltage now present.

4. Measure voltage between pins 4 and 5 on the 5-circuit connector. Measured voltage should be the same as the supply voltage to the air handler or modular.



5. Measure voltage between pins 4 and 3. Voltage should be approximately half of the voltage measured in step 4.
6. Measure voltage between pins 5 and 3. Voltage should be approximately half of the voltage measured in step 4.
7. If no voltage is present, check supply voltage to air handler or modular blower.
8. Disconnect power to air handler or modular blower. Reconnect the 5-circuit power harness disconnected in step 2.

Electrical Checks - Low Voltage Control Circuits

1. Turn on power to air handler or modular.

Warning

Line Voltage now present.

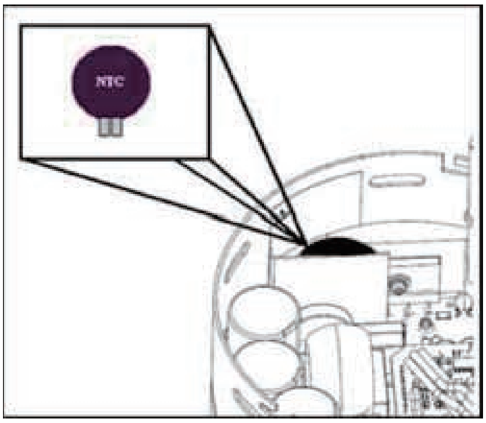
2. Check voltage between pins on the 4-wire motor control harness between the motor and control board.
3. Voltage on pins should read:
   Pins 1 to 4 = 3.3vdc
   Pins 1 to 2 = 3.3vdc
   Pins 3 to 4 = 15vdc

Motor Control/End Bell Checks

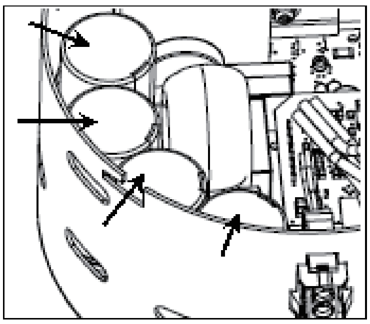
Warning

HIGH VOLTAGE!
Disconnect ALL power before servicing or installing. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

1. Disconnect power to air handler or modular blower.
   NOTE: Motor contains capacitors that can hold a charge for several minutes after disconnecting power. Wait 5 minutes after removing power to allow capacitors to discharge.
2. Disconnect the motor control harness and motor power harness.
3. Remove the blower assembly from the air handler or modular blower.
4. Remove the (3) screws securing the control/end bell to the motor. Separate the control/end bell. Disconnect the 3-circuit harness from the control/end bell to remove the control/end bell from the motor.
5. Inspect the NTC thermistor inside the control/end bell. Replace control/end bell if thermistor is cracked or broken.



6. Inspect the large capacitors inside the control/end bell. Replace the control/end bell if any of the capacitors are bulging or swollen.



7. Locate the 3-circuit connector in the control/end bell. Using an ohmmeter, check the resistance between each terminal in the connector. If the resistance is 1 MΩ or greater, the control/end bell is functioning properly. Replace the control/end bell if the resistance is lower than 1 MΩ.

8. Reassemble motor and control/end bell in reverse of disassembly. Replace blower assembly into air handler or modular blower.

Motor Checks

Warning

HIGH VOLTAGE!
Disconnect ALL power before servicing or installing. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

1. Disconnect power to air handler or modular blower.
   NOTE: Motor contains capacitors that can hold a charge for several minutes after disconnecting power. Wait 5 minutes after removing power to allow capacitors to discharge.
2. Disassemble motor as described in steps 2 through 4 above.
3. Locate the 3-circuit harness from the motor. Using an ohmmeter, measure the resistance between each motor phase winding. The resistance levels should be equal. Replace the motor if the resistance levels are unequal, open circuited or short circuited.
4. Measure the resistance between each motor phase winding and the motor shell. Replace the motor if any phase winding is short circuited to the motor shell.
5. Reassemble motor and control/end bell in reverse of disassembly. Replace blower assembly into air handler or modular blower.

6.18 Communication Availability Check (Only DIV-NET communication-enabled devices)

CHECK 20

HBPs and HCPs of LEDs mounted on PCBs can be used to identify trouble areas and factors such as disconnection of communication wiring or failure of PCBs when air conditioning units are not visible from centralized device, the number of indoor units recognized by the outdoor unit is fewer than expected, or communication errors are being issued.

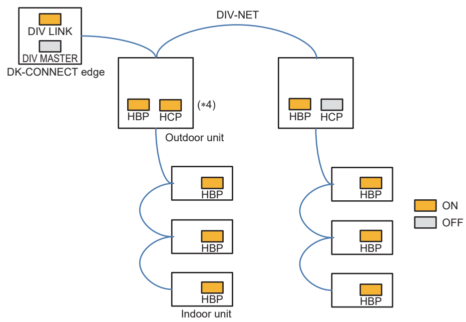
The HBP status confirms the following. (∗1) (∗2)
ON: The equipment is connected to the DIV-NET communication network and can communicate.
OFF: The equipment is not connected to the DIV-NET communication network and cannot communicate.

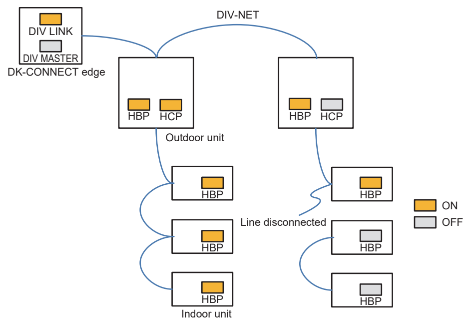
- For all devices, it is normal if HBP is ON.
- If HBP is OFF, the equipment cannot communicate and a communication error occurs.

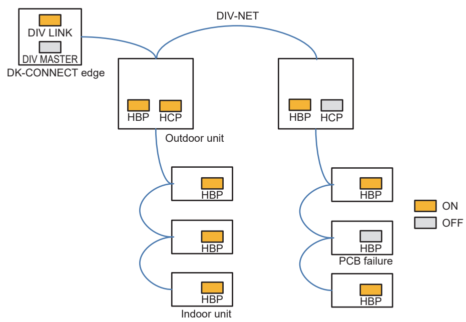
The HCP status confirms the following. (∗3)
ON: Master of the DIV-NET communication network (only one equipment on one line)
OFF: Terminals of the DIV-NET communication network (all equipment except the master)

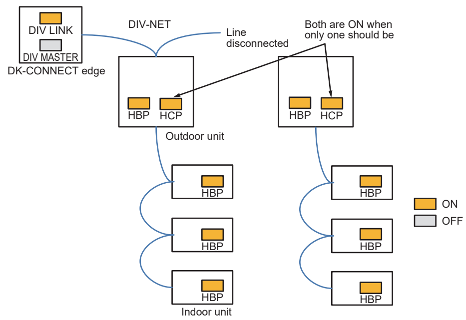
- The outdoor unit has priority as master.
- The state in which only one of the equipment on one line of DIV-NET communication is ON is normal.
- Even if the HCPs of several equipment are temporarily ON, they will decrease over time and settle on one equipment.

The HBPs and HCPs are turned ON/OFF in normal/abnormal conditions as follows.

<table>
<tr>
<td>
Normal condition
HBPs on all units are ON.
HCP on one of the outdoor units (including multi sub units) is ON.


</td>
<td>
Abnormal condition 1: Indoor-outdoor transmission wire disconnection
HBPs of the units that cannot receive communication due to wire disconnection are OFF.
HCP of one of the outdoor units (including the multi sub units) is ON.


</td>
</tr>
<tr>
<td>
Abnormal condition 2: Indoor unit PCB failure
HBP of the unit that cannot receive communication due to PCB failure is OFF.
HBPs of units connected further downstream may be OFF (depending on the PCB failure and communication wire length).
HCP of one of the outdoor units (including the multi sub unit) is on.


</td>
<td>
Abnormal condition 3: Outdoor-outdoor transmission wire disconnection
HBPs on all units are ON.
HCPs on two outdoor units (including multi sub units) are ON.


</td>
</tr>
</table>

Check whether the HBP of the equipment issuing a communication error is ON. If it is OFF, it may be due to a failure of equipment recognition during initial transmission, a broken communication line or disconnection from the terminal block, or a PCB failure. In addition, by specifying other equipment whose HBP is OFF, it is possible to identify the fault area/factor.

Perform the following and check if the error can be corrected.
1. Rewire and press the **RETURN (BS3)** button on the outdoor unit main PCB (A1P) for at least 5 seconds and check if the HBP turns ON.
2. Check for disconnection of communication wiring.
3. Check whether the communication wiring meets the wiring length requirements.
4. Replace the relevant PCB.

Note(s)

∗1. HBP turns ON if communication is possible even if the wiring is not correct, for example, if the wiring is reversed. Note that the ON state of the HBP does not mean that the wiring is correct.
∗2. Check the HBP only after the 7-segment display on the outdoor PCB has turned OFF and the unit is in normal transmission. Even if the HBP is ON during initial transmission, it may be OFF during normal transmission.
∗3. HCP is mounted on the outdoor PCB. It is not installed in the indoor unit, BS unit or ventilation unit.
4. When the unit configuration or transmission line connections has been changed (e.g., when using existing indoor or outdoor units, or an indoor unit or outdoor unit has been added, or indoor or outdoor unit PC board has been changed), be sure to perform the rewiring operation.

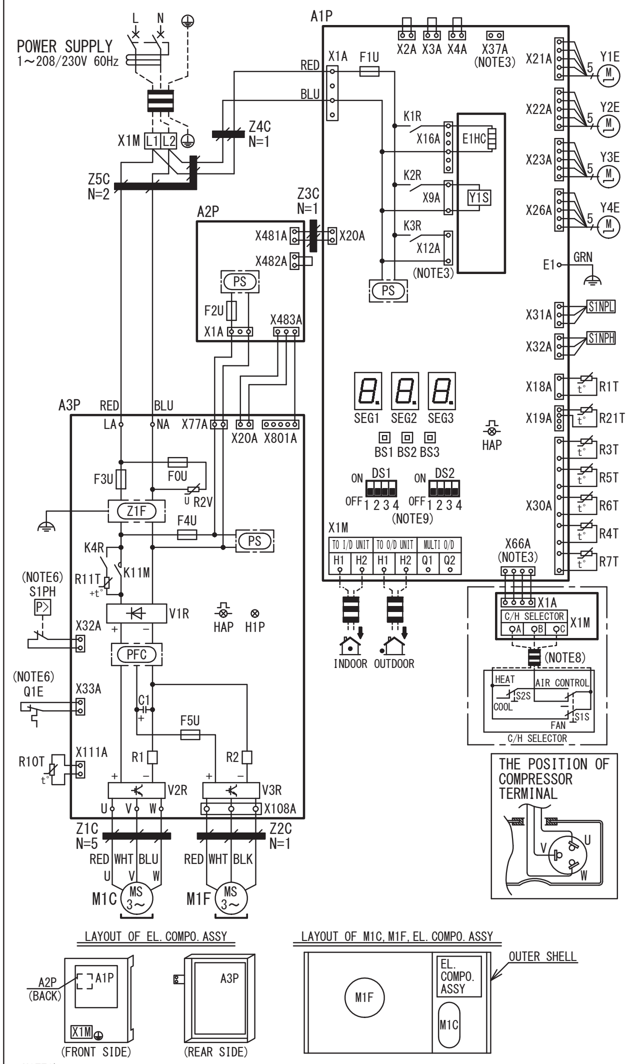
Part 7
Appendix

1. Wiring Diagrams

1.1 Outdoor Unit

RXTA24/36/48/60AAVJU, RXLA36/48AAVJU

WIRING DIAGRAM



NOTES)
1. THIS WIRING DIAGRAM APPLIES ONLY TO THE OUTDOOR UNIT.
2. :FIELD WIRING :PROTECTIVE GROUND (SCREW) :TERMINAL BLOCK :NOISELESS GROUND
:TERMINAL :CONNECTION :CONNECTOR
3. WHEN USING THE OPTIONAL ACCESSORIES, REFER TO THE INSTALLATION MANUAL OF THE OPTIONAL ACCESSORIES.
4. FOR CONNECTION WIRING FROM OUTDOOR-INDOOR TRANSMISSION H1・H2, OUTDOOR-OUTDOOR TRANSMISSION H1・H2 REFER TO INSTALLATION MANUAL.
5. HOW TO USE BS1～BS3 SWITCH, REFER TO "SERVICE PRECAUTIONS" LABEL ON BACK SIDE OF FRONT PLATE.
6. WHEN OPERATING, DO NOT SHORT-CIRCUIT PROTECTION DEVICES (S1PH AND Q1E).
7. COLOR: BLK: BLACK; RED: RED; BLU: BLUE; WHT: WHITE; GRN: GREEN.
8. CLASS 2 WIRE.
9. THE POSITIONS OF THE SELECTOR SWITCHES (DS1, DS2) INDICATE FACTORY SETTING.
REFER TO THE SERVICE MANUAL IN DETAIL.

A1P	PRINTED CIRCUIT BOARD (MAIN)	R10T	THERMISTOR (FIN)
A2P	PRINTED CIRCUIT BOARD (ACS)	R11T	PTC THERMISTOR
A3P	PRINTED CIRCUIT BOARD (COMP. INV.)	R21T	THERMISTOR (DISCHARGE PIPE)
C1	CAPACITOR	R2V	VARISTOR
BS1～BS3	PUSH BUTTON SWITCH (A1P) (MODE, SET, RETURN)	SEG1～SEG3	7-SEGMENT DISPLAY (A1P)
DS1, DS2	DIP SWITCH	S1NPH	PRESSURE SENSOR (HIGH)
E1HC	CRANKCASE HEATER	S1NPL	PRESSURE SENSOR (LOW)
F0U～F5U	FUSE	S1PH	PRESSURE SWITCH (HIGH)
H1P	PILOT LAMP (SERVICE MONITOR-RED)	V1R	DIODE BRIDGE
HAP	FLASHING LAMP (SERVICE MONITOR-GREEN)	V2R, V3R	IGBT POWER MODULE
K1R～K4R	MAGNETIC RELAY	X1M	TERMINAL BLOCK (POWER SUPPLY)
K11M	MAGNETIC CONTACTOR	X1M	TERMINAL BLOCK (CONTROL) (A1P)
M1C	MOTOR (COMPRESSOR)	Y1E	ELECTRONIC EXPANSION VALVE (MAIN)
M1F	MOTOR (FAN)	Y2E	ELECTRONIC EXPANSION VALVE (INVERTER COOLING)
PFC	POWER FACTOR CORRECTION	Y3E	ELECTRONIC EXPANSION VALVE (SUBCOOL HEAT EXC.)
PS	SWITCHING POWER SUPPLY	Y4E	ELECTRONIC EXPANSION VALVE (INJECTION)
Q1E	OVERLOAD PROTECTOR	Y1S	SOLENOID VALVE (4 WAY VALVE)
R1, R2	RESISTOR (CURRENT SENSOR)	Z1C～Z5C	FERRITE CORE
R1T	THERMISTOR (AIR)	Z1F	NOISE FILTER
R3T	THERMISTOR (SUCTION PIPE)		
R4T	THERMISTOR (HEAT EXC. LIQUID PIPE)	CONNECTOR FOR OPTIONAL ACCESSORIES	
R5T	THERMISTOR (SUBCOOLED LIQUID PIPE)	X12A	CONNECTOR (DRAIN PAN HEATER)
R6T	THERMISTOR (SUBCOOLED GAS PIPE)	X37A	CONNECTOR (OPTION ADAPTOR)
R7T	THERMISTOR (DEICER)	X66A	CONNECTOR (C/H SELECTOR)

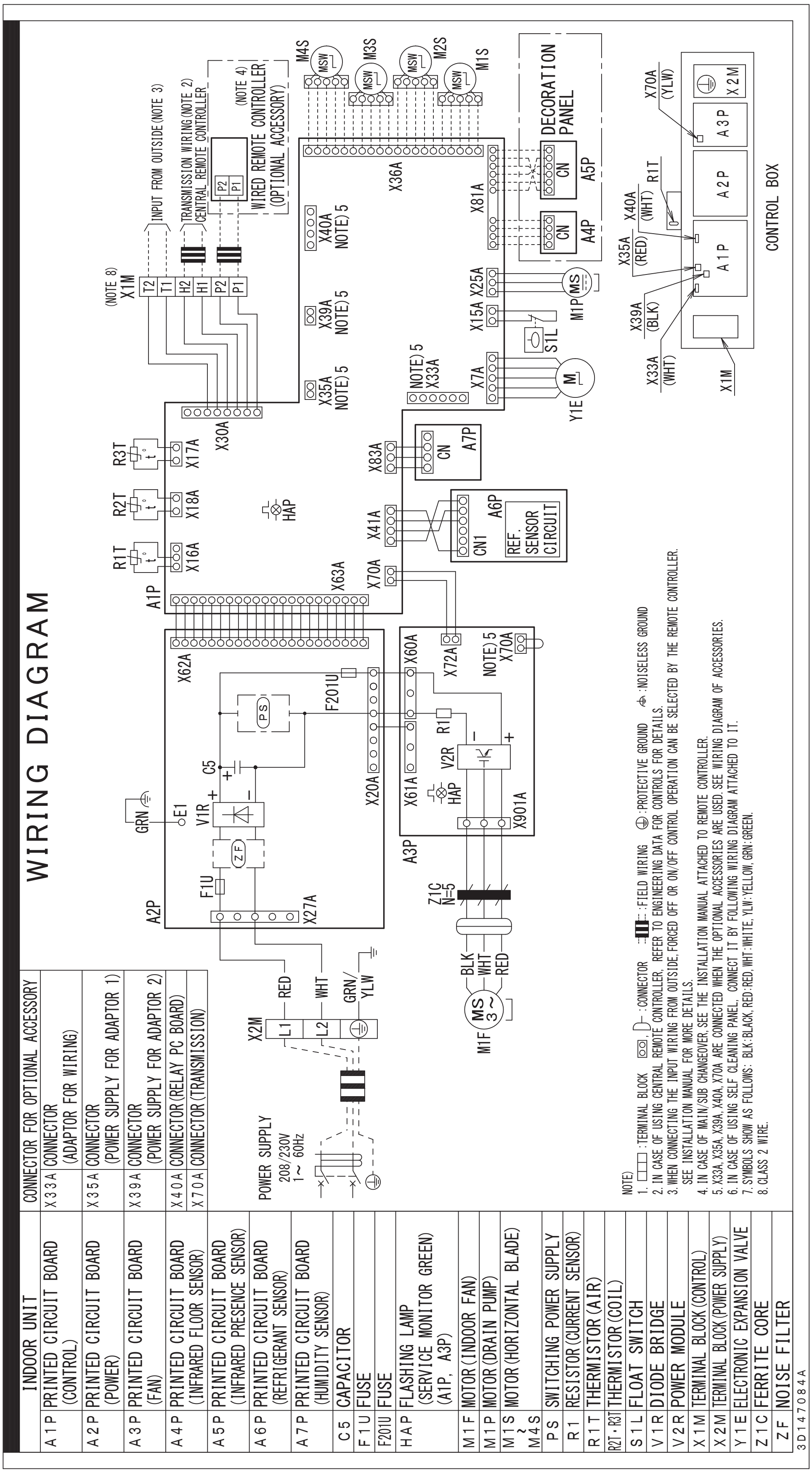
3D151135-1C

3D151135C

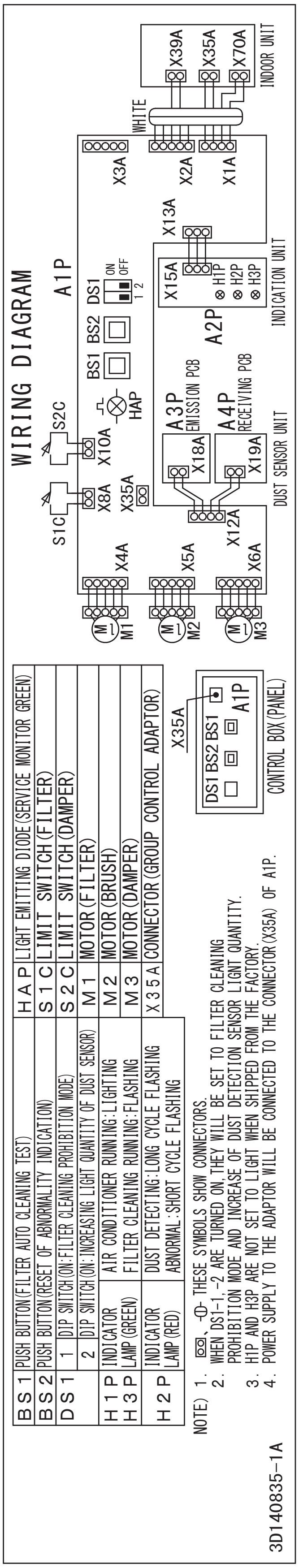
1.2 Indoor Unit

FXFA07/09/12/15/18/24/30/36/48/54AAVJU

3D147084A

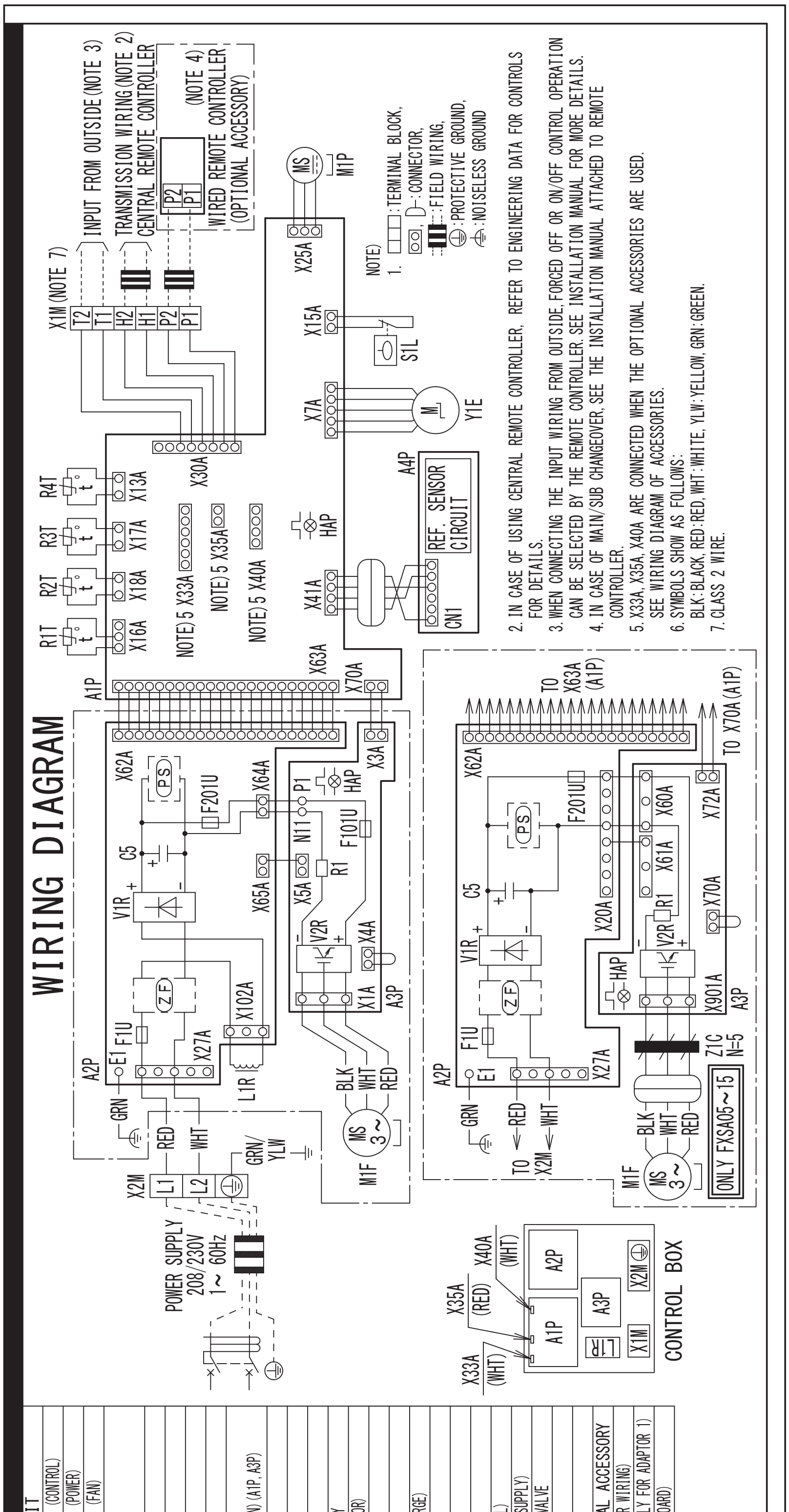


BYCQ54GEGFU (Self-Cleaning Filter Panel for FXFA-AA)



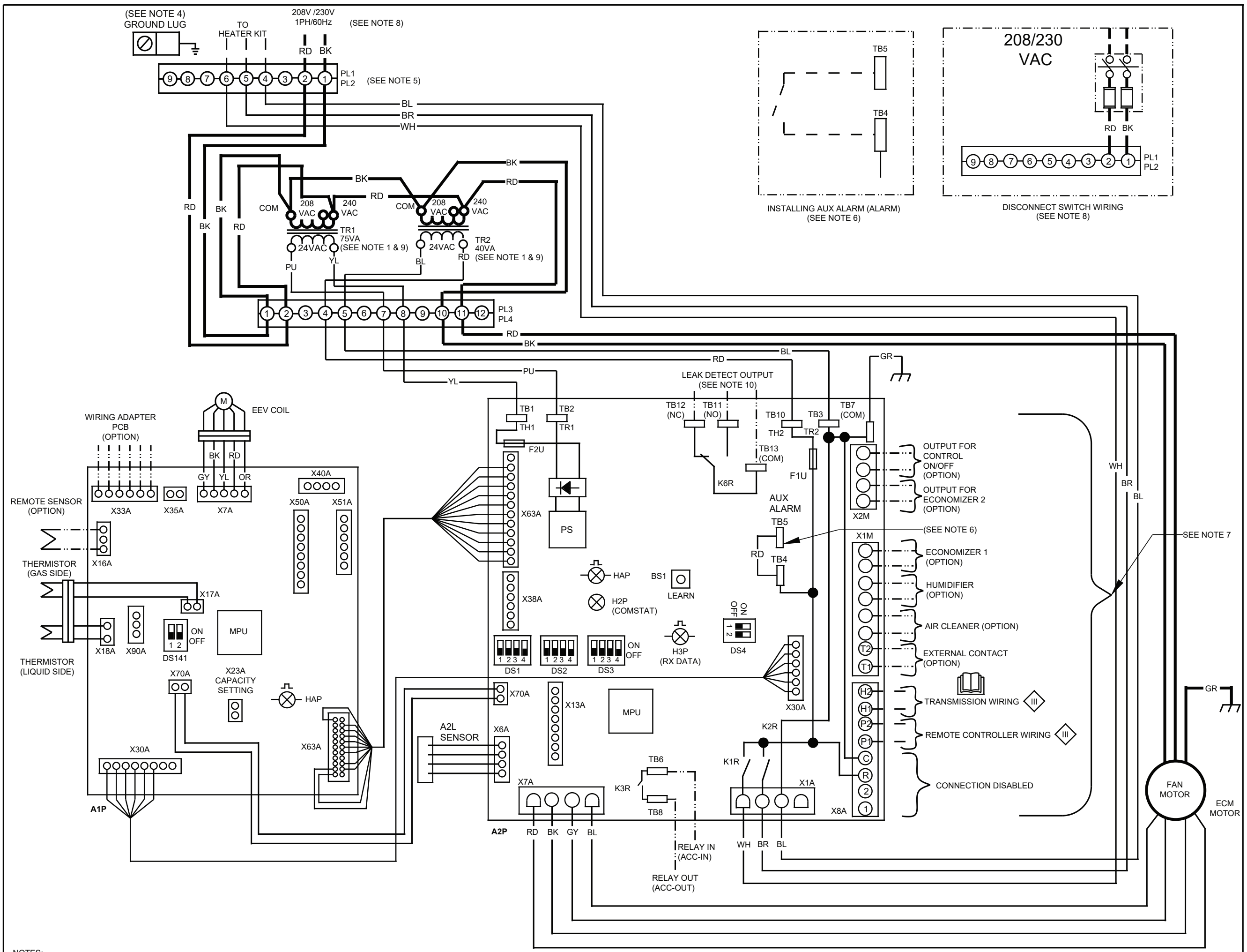
3D140835A

FXSA05/07/09/12/15/18/24/30/36/48/54AAVJU, FXMA15/18/24/30/36/48/54AAVJU



3D147935B

FXTA09/12/18/24/30/36/42/48/54/60AAVJUA, FXTA09/12/18/24/30/36/42/48/54/60AAVJUD



NOTES:

1. FOR 208V OPERATION, RELOCATE RED WIRE TERMINAL ON TRANSFORMERS (TR1) AND (TR2) FROM 240V TO 208V.
2. THE MANUFACTURER'S SPECIFIED REPLACEMENT PARTS MUST BE USED WHEN SERVICING.
3. IF ANY OF THE ORIGINAL WIRES AS SUPPLIED WITH THIS UNIT MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105°C. USE COPPER CONDUCTORS ONLY.
4. THE UNIT MUST BE PERMANENTLY GROUNDED AND CONFORM TO N.E.C AND LOCAL CODES.
5. DISCARD CONNECTOR PL1 WHEN INSTALLING OPTIONAL HEAT KIT.
6. REMOVE RED JUMPER ON INDOOR UNIT PCB BOARD (TB4 AND TB5) AND REPLACE WITH AUX ALARM SWITCH FROM THE KIT.
7. USE N.E.C CLASS 2 WIRE.
8. TO INSTALL THE DISCONNECT SWITCH, CONNECT RED AND BLACK WIRES TO THE LOAD SIDE OF THE DISCONNECT.
9. LOW VOLTAGE TRANSFORMER RATED 24VAC OUTPUT 40VA @ AMP 1.67A. AND 75VA @ AMP 3.125A.
10. THIS OUTPUT OPERATES WHEN A REFRIGERANT LEAKS IS DETECTED. (DRY CONTACT) USE THIS CONTACT WHEN INTERLOCKING UV LIGHT, DAMPER, VENTILATION, ETC.

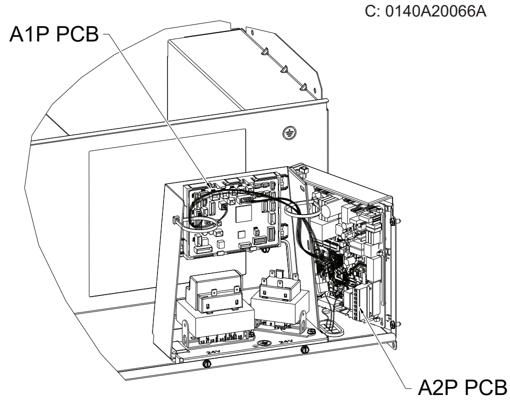
INTEGRATED CONTROL:
LOW VOLTAGE
LOW VOLTAGE FIELD
OPTIONAL LOW VOLTAGE
HIGH VOLTAGE
HIGH VOLTAGE FIELD
OPTIONAL HIGH VOLTAGE
JUNCTION
TERMINAL
PLUG CONNECTION
EQUIPMENT GROUND
FIELD GROUND

COLOR CODES:
BL - BLUE
RD - RED
YL - YELLOW
OR - ORANGE
BK - BLACK
GY - GREY
BR - BROWN
GR - GREEN
WH - WHITE
PU - PURPLE

COMPONENT CODES:
PL1, PL2 — POWER/HEATER KIT/ DISCONNECT SWITCH CONNECTOR
TR1, TR2 — TRANSFORMER
F1U, F2U — FUSE LINK
PL3, PL4 — TRANSFORMER CONNECTOR
MPU — MICROPROCESSOR
PS — POWER SUPPLY
BS1 — BUTTON SWITCH
— READ THE INSTRUCTIONS
— CLASS III
— DISCONNECT SWITCH
ON OFF — DIP SWITCH(OFF)
— FLASHING LED
— LED

0140A20066-A

C: 0140A20066A

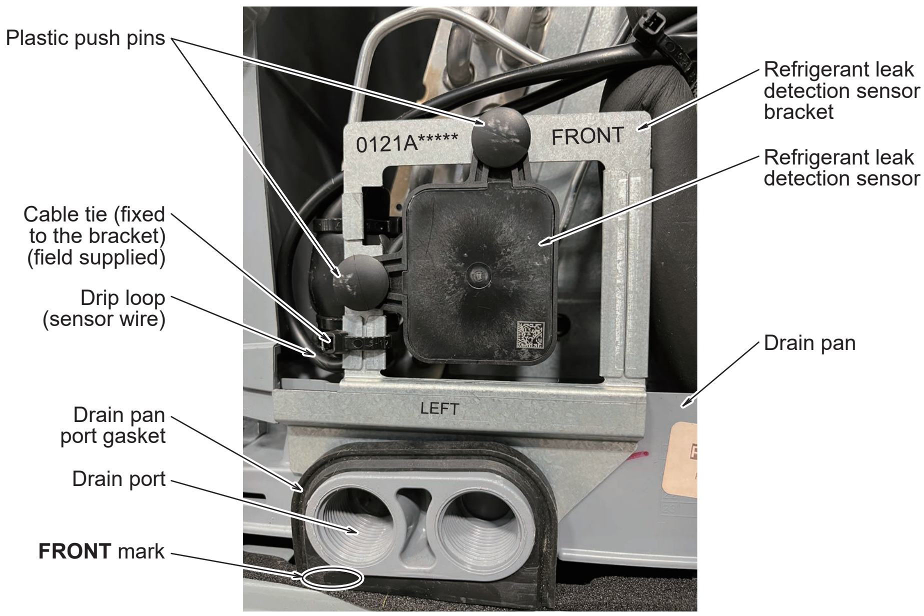


2. Refrigerant Leak Detection Sensor Replacement (FXTA-AA models only)

Procedure

1. Take off the blower side access panel and the coil side access panel.
2. Remove the drain pan port gasket from the drain port in front of the sensor bracket, then the sensor bracket assembly from the drain port.
3. Disconnect the refrigerant leak detection sensor wire (X6A) from the PCB (A2P).
4. Remove the plastic push pins and the non-functioning refrigerant leak detection sensor from the bracket.
5. Install new refrigerant leak detection sensor and plastic push pins to the sensor bracket.
6. Reinstall the sensor bracket assembly to the drain port correctly (∗). Refer to the indoor unit installation manual for wire routing.
7. The sensor wire drip loop should be formed using a cable tie as shown in the figure below and secured to the bracket.

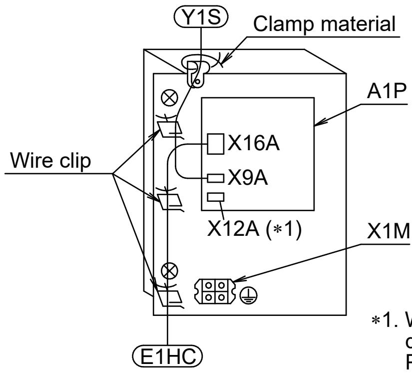
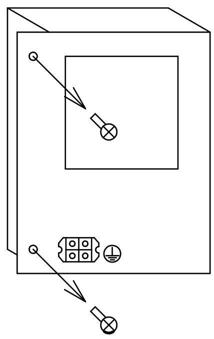
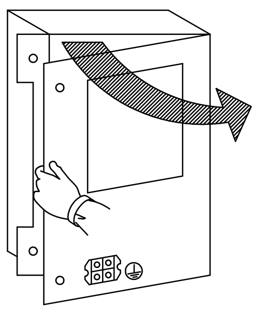
∗ The **FRONT 0121A***** printed on the sensor bracket should be facing away from the equipment. Place the gaskets back to the drain ports correctly. **FRONT** printed on the gaskets should be in the front, facing away from the equipment. Reassemble the blower side access panel and the coil side access panel to the unit.



A2L SYSTEM SERVICING
This system is charged with R-32 refrigerant. R-32 is classified as A2L (Mildly flammable) as per ASHRAE 34.
This product shall be maintained, serviced, and decommissioned with the prevailing local/federal codes for A2L refrigerant.

3. Opening and Closing the Electrical Component Box

How to open and close the electrical component box cover

Step	Procedure
1	Disconnect connectors X16A and X9A from the PCB (A1P) and remove the harness from the wire clips.
2	Remove clamp material.  ∗1. When using drain pan heater, disconnect X12A connector from the PCB (A1P).
3	Remove the 2 screws fixing the electrical component box cover.  ∗2. These 2 screws are class 3 (C type) hexagon head tapping screws. Use the same screws when reassembling.
4	Pull the left side and open the electrical component box. 
5	For closing the electrical component box, follow the procedures in the reverse order.

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.

●Specifications, designs and other content appearing in this brochure are current as of March 2025 but subject to change without notice.

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