



SiUS372517E

R-32

Service Manual



EMERION



REYA-AATJA, 208/230 V
REYA-AAYDA, 460 V
Heat Recovery 60 Hz

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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.
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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	
<p>Do not store equipment in a room with fire sources (e.g., naked flames, gas appliances, electric heaters).</p>	
<p>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.</p>	
<p>If refrigerant gas is discharged during repair work, do not touch the discharged refrigerant gas. Refrigerant gas may cause frostbite.</p>	
<p>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.</p>	
<p>If refrigerant gas leaks during repair work, ventilate the area. Refrigerant gas may generate toxic gases when it contacts flames.</p>	
<p>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.</p>	

 Warning	
<p>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.</p>	
<p>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.</p>	
<p>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.</p>	
<p>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.</p>	

 Caution	
<p>Do not repair electrical components with wet hands. Working on the equipment with wet hands may cause an electrical shock.</p>	
<p>Do not clean the air conditioner with water. Washing the unit with water may cause an electrical shock.</p>	
<p>Be sure to provide an earth / grounding when repairing the equipment in a humid or wet place, to avoid electrical shocks.</p>	
<p>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.</p>	
<p>Be sure to conduct repair work with appropriate tools. The use of inappropriate tools may cause injury.</p>	
<p>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.</p>	
<p>Conduct welding work in a well-ventilated place. Using the welder in an enclosed room may cause oxygen deficiency.</p>	

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 CO₂ 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	
<p>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.</p>	
<p>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.</p>	
<p>Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.</p>	
<p>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).</p>	
<p>Do not pierce or burn.</p>	
<p>Be aware that refrigerants may not contain an odor. Comply with national gas regulations.</p>	
<p>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;</p>	
<p>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:</p>	
<p>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.</p>	
<p>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.</p>	
<p>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.</p>	
<p>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.</p>	

 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	
<p>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.</p>	
<p>Check the earth / grounding, and repair it if the equipment is not properly earthed / grounded. Improper earth / grounding may cause an electrical shock.</p>	
<p>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.</p>	
<p>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.</p>	
<p>Do not tilt the unit when removing it. The water inside the unit may spill and wet the furniture and floor.</p>	

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
12 / 2025	SiUS372517E	First edition
02 / 2026	—	Addition of Safety Shut-Off Valve unit contents

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1. Model Names and Power Supply

1.1 Outdoor Unit

REYA-AATJA (208/230 V)

Capacity range (ton)	6	8	10	12	14	16	18	20	22	Power supply, Standard	
Capacity index	72	96	120	144	168	192	216	240	264		
Standard series	REYA	72AA	96AA	120AA	144AA	168AA	192AA	216AA	240AA	264AA	TJA

Capacity range (ton)	24	26	28	30	32	34	36	38	40	Power supply, Standard	
Capacity index	288	312	336	360	384	408	432	456	480		
Standard series	REYA	288AA	312AA	336AA	360AA	384AA	408AA	432AA	456AA	480AA	TJA

TJ: 3 phase, 208/230 V, 60 Hz

A: Minor revision

REYA-AAYDA (460 V)

Capacity range (ton)	6	8	10	12	14	16	18	20	22	Power supply, Standard	
Capacity index	72	96	120	144	168	192	216	240	264		
Standard series	REYA	72AA	96AA	120AA	144AA	168AA	192AA	216AA	240AA	264AA	YDA

Capacity range (ton)	24	26	28	30	32	34	36	38	40	Power supply, Standard	
Capacity index	288	312	336	360	384	408	432	456	480		
Standard series	REYA	288AA	312AA	336AA	360AA	384AA	408AA	432AA	456AA	480AA	YDA

YD: 3 phase, 460 V, 60 Hz

A: Minor revision

1.2 Branch Selector Unit (BS Unit)

Single Branch Selector Unit

Series	Model name			Power supply, Standard
BSA	36AA	60AA	96AA	VJ

VJ: 1 phase, 208/230 V, 60 Hz

Multi Branch Selector Unit

Series	Model name			Power supply, Standard
BSF	4A54AA	6A54AA	8A54AA	VJ

VJ: 1 phase, 208/230 V, 60 Hz

1.3 Safety Shut-Off Valve Unit (SSOV Unit)

Series	Model name		Power supply, Standard
SVA	60AA	96AA	VJ

VJ: 1 phase, 208/230 V, 60 Hz

1.4 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	6	8	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	21.1	28.1	
Capacity index		5.8	7.5	9.5	12	15	18	24	30	36	42	48	54	60	72	96	
Ceiling mounted cassette (Round flow with sensing)	FXFA	—	07AA	09AA	12AA	15AA	18AA	24AA	30AA	36AA	—	48AA	54AA	—	—	—	VJU
VISTA™ 2 × 2 cassette unit	FXZA	05AA	07AA	09AA	12AA	15AA	18AA	—	—	—	—	—	—	—	—	—	
MSP concealed ducted unit	FXSA	05AA	07AA	09AA	12AA	15AA	18AA	24AA	30AA	36AA	—	48AA	54AA	—	—	—	
HSP concealed ducted unit	FXMA	—	—	—	—	15AA	18AA	24AA	30AA	36AA	—	48AA	54AA	—	72AA	96AA	
Wall mounted type	FXAA	05AA	07AA	09AA	12AA	—	18AA	24AA	—	—	—	—	—	—	—	—	
Air handling unit	FXTA	—	—	09AB	12AB	—	18AB	24AB	30AB	36AB	42AB	48AB	54AB	60AB	—	—	VJUA
		—	—	09AB	12AB	—	18AB	24AB	30AB	36AB	42AB	48AB	54AB	60AB	—	—	VJUD

VJ: 1 phase, 208/230 V, 60 Hz

U(VJU): Standard symbol

A(VJU \underline{A}): Without factory disconnect (only FXTA-AB)

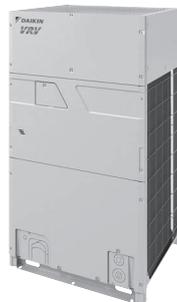
D(VJU \underline{D}): With factory disconnect (only FXTA-AB)

2. External Appearance

2.1 Outdoor Unit

Single Outdoor Unit

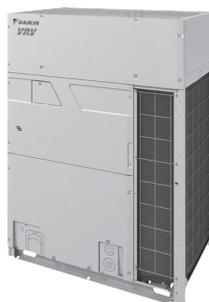
6 ton



REYA72AATJA

REYA72AAYDA

8, 10, 12, 14 ton



REYA96AATJA
REYA120AATJA
REYA144AATJA
REYA168AATJA

REYA96AAYDA
REYA120AAYDA
REYA144AAYDA
REYA168AAYDA

16, 18, 20 ton

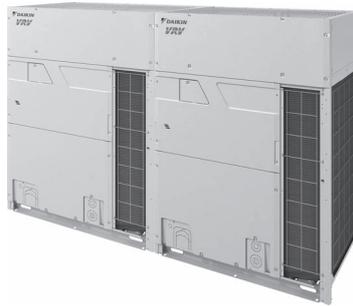


REYA192AATJA
REYA216AATJA
REYA240AATJA

REYA192AAYDA
REYA216AAYDA
REYA240AAYDA

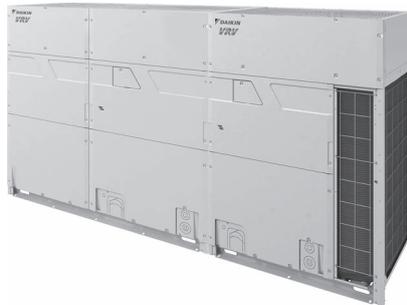
Double Outdoor Unit

22, 24, 26, 28 ton



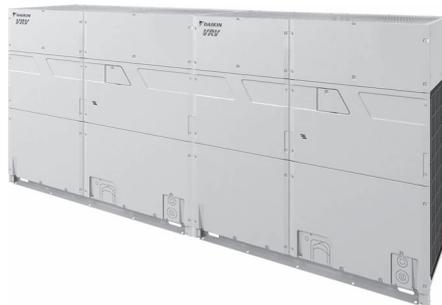
REYA264AATJA	REYA264AAYDA
REYA288AATJA	REYA288AAYDA
REYA312AATJA	REYA312AAYDA
REYA336AATJA	REYA336AAYDA

30 ton



REYA360AATJA	REYA360AAYDA
--------------	--------------

32, 34, 36, 38, 40 ton



REYA384AATJA	REYA384AAYDA
REYA408AATJA	REYA408AAYDA
REYA432AATJA	REYA432AAYDA
REYA456AATJA	REYA456AAYDA
REYA480AATJA	REYA480AAYDA

2.2 Branch Selector Unit

Single Branch Selector Unit

BSA-AA



Multi Branch Selector Unit

BSF4A54AA



BSF6A54AA



BSF8A54AA



2.3 Safety Shut-Off Valve Unit

SVA-AA



2.4 Indoor Unit

<p>Ceiling mounted cassette (Round flow with sensing) FXFA-AA</p>  <p>Shown with BYCQ54GEFU</p>	<p>HSP concealed ducted unit FXMA15-54AA</p>  <p>FXMA72/96AA</p> 
<p>VISTA™ 2 × 2 cassette unit FXZA-AA</p>  <p>Shown with BYFQ18GU</p>	<p>Wall mounted type FXAA-AA</p> 
<p>MSP concealed ducted unit FXSA-AA</p> 	<p>Air handling unit FXTA-AB</p> 

3. Combination of Outdoor Units

Model name	System capacity			Number of units	Module							
	Ton	HP	kW		72	96	120	144	168	192	216	240
REYA72AA	6	7.5	21.1	1	●							
REYA96AA	8	10.0	28.1	1		●						
REYA120AA	10	12.5	35.2	1			●					
REYA144AA	12	15.0	42.2	1				●				
REYA168AA	14	17.5	49.2	1					●			
REYA192AA	16	20.0	56.3	1						●		
REYA216AA	18	22.5	63.3	1							●	
REYA240AA	20	25.0	70.3	1								●
REYA264AA	22	27.5	77.4	2			●	●				
REYA288AA	24	30.0	84.4	2				●●				
REYA312AA	26	32.5	91.4	2				●	●			
REYA336AA	28	35.0	98.5	2					●●			
REYA360AA	30	37.5	105.5	2					●	●		
REYA384AA	32	40.0	112.5	2						●●		
REYA408AA	34	42.5	119.6	2						●	●	
REYA432AA	36	45.0	126.6	2							●●	
REYA456AA	38	47.5	133.6	2							●	●
REYA480AA	40	50.0	140.6	2								●●

- Notes:** For multiple connection, the following kits are required;
- Outdoor unit multi connection piping kit: BHFA26P100UA
 - Reducer piping kit: KHFA26P100UA

4. Capacity Range

4.1 Connection Ratio

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

Type		Min. connection ratio	Max. connection ratio *2 *3			
			Types of connected indoor units			
			When using only FXSA07AA, FXAA07-24AA	When using at least one FXFA07/09AA, FXZA05AA, FXSA05AA, FXAA05AA	When using at least one FXTA-AB	Other indoor unit models
Single outdoor units	6-14 ton	50%	200% *1	180% *1	130%	200% *1
	16-20 ton			180% *1		180% *1
Double outdoor units						160% *1

*1. If the operational capacity of indoor units is more than 130%, low airflow operation is enforced in all the indoor units. This limitation can be deactivated through field setting. Refer to page 203 for detail.

*2. For indoor units used for cooling only (do not connect to Branch Selector unit when using for heat recovery), total capacity index of cooling only indoor units must be 50% or less than the total capacity index of the outdoor units.

*3. Simultaneous operation of over 130% indoor units (cooling thermo-on capacity or heating thermo-on capacity) is not allowed. (If it happens, all indoor fans go to L-tap and the airflow decrease automatically. Also, as cold draft problem might happen due to shortage of capacity, limit indoor unit connection ratio to 130% or less if the simultaneous operation capacity cannot be controlled.) Refer to [2-34]: Indoor unit fan tap setting on page 203. With field setting, the above limitation can be abolished.

4.2 Outdoor Unit Combinations

Capacity range (Ton)	6	8	10	12	14	16	18
REYA	72AA	96AA	120AA	144AA	168AA	192AA	216AA
Max. number of connectable indoor units	12	16	20	25	29	33	37
Total capacity index of indoor units to be connected *1	36-93 (144)	48-124 (192)	60-156 (240)	72-187 (288)	84-218 (336)	96-249 (384)	108-280 (432)

Capacity range (Ton)	20	22	24	26	28	30	32
REYA	240AA	264AA	288AA	312AA	336AA	360AA	384AA
Max. number of connectable indoor units	41	45	49	54	58	62	64
Total capacity index of indoor units to be connected *1	120-312 (480)	132-343 (528)	144-374 (576)	156-405 (624)	168-436 (672)	180-468 (720)	192-499 (768)

Capacity range (Ton)	34	36	38	40
REYA	408AA	432AA	456AA	480AA
Max. number of connectable indoor units	64	64	64	64
Total capacity index of indoor units to be connected *1	204-530 (816)	216-561 (864)	228-592 (912)	240-624 (960)



Note(s)

*1. Values inside brackets are based on maximum connection ratio of indoor units rated at 200%.

4.3 Limitation of Capacity Index for Branch Selector Unit and Safety Shut-Off Valve Unit

Single Branch Selector Unit

Model	BSA36AAVJ	BSA60AAVJ	BSA96AAVJ
Maximum number of connectable indoor units	4	8	8
Total capacity index of connectable indoor units	36 or less	More than 36 and 60 or less	More than 60 and 96 or less

Multi Branch Selector Unit

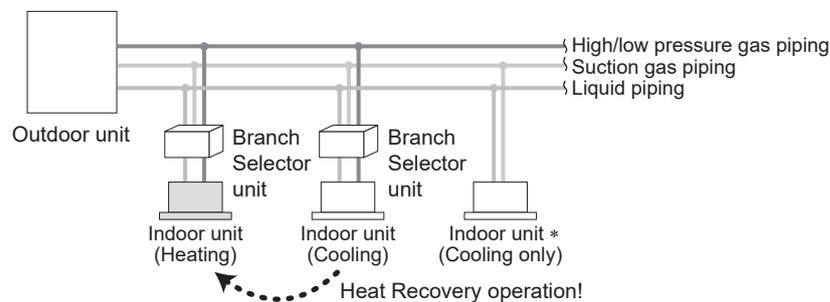
Model		BSF4A54AAVJ	BSF6A54AAVJ	BSF8A54AAVJ
Maximum number of connectable indoor units per branch		5	5	5
Number of branches		4	6	8
Maximum capacity index of connectable indoor units per branch *1		54 or less	54 or less	54 or less
Series configuration	Maximum capacity index of connectable indoor units per Branch Selector unit	144 or less	162 or less	162 or less
	Maximum capacity index of connectable indoor units with Branch Selector units connected in series	230 or less	230 or less	230 or less
Parallel configuration	Maximum capacity index of connectable indoor units	144 or less	216 or less	290 or less



Note(s)

*1. When the total capacity index of indoor units to be connected downstream is larger than 54 (Max. 96), use a joint kit (KHRA26A250A, optional parts) to join 2 branches downstream from the Branch Selector unit.

Heat Recovery



* For indoor units used for cooling only (do not connect to Branch Selector unit when using for Heat Recovery), total capacity index must be 50% or less than the capacity index of the outdoor units.

Safety Shut-Off Valve Unit

Model	SVA60AAVJ	SVA96AAVJ
Maximum number of connectable indoor units	16	16
Total capacity index of connectable indoor units	60 or less	More than 60 and 96 or less

5. Specifications

5.1 REYA-AATJA

Model name			REYA72AATJA	REYA96AATJA
Power supply			3 phase, 208/230 V, 60 Hz	3 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	72,000 (21.1)	96,000 (28.1)
	Rated	Btu/h (kW)	69,000 (20.2)	92,000 (27.0)
★2 Heating capacity	Nominal	Btu/h (kW)	81,000 (23.7)	108,000 (31.7)
	Rated	Btu/h (kW)	69,000 (20.2)	92,000 (27.0)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 36-5/8 × 30-1/8 (1,660 × 930 × 765)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	13.8	8.5 + 9.6
	Number of revolutions	r/min	4,062	3,990 + 4,524
	Motor output	kW	4.23	2.44 + 2.76
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.89 × 1	0.73 × 2
	Airflow rate	cfm (m ³ /min)	6,200 (175.6)	8,965 (253.9)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ3/8 (9.5) C1220T (brazing connection)	φ3/8 (9.5) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ3/4 (19.1) C1220T (brazing connection)	φ7/8 (22.2) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ5/8 (15.9) C1220T (brazing connection)	φ5/8 (15.9) C1220T (brazing connection)
Weight	lbs (kg)	549 (249)	736 (334)	
Sound pressure level (Reference data)	dB(A)	58	61	
Sound power level (Reference data)	dB	80	82	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	12-100	6-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	21.6 (9.8)	25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159145B	4D159145B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name			REYA120AATJA	REYA144AATJA
Power supply			3 phase, 208/230 V, 60 Hz	3 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	119,000 (34.9)	144,000 (42.2)
	Rated		114,000 (33.4)	138,000 (40.4)
★2 Heating capacity	Nominal	Btu/h (kW)	135,000 (39.6)	162,000 (47.5)
	Rated		114,000 (33.4)	138,000 (40.4)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	10.7 + 12.1	10.6 + 15.9
	Number of revolutions	r/min	5,052 + 5,730	4,986 + 4,686
	Motor output	kW	3.09 + 3.50	3.05 + 4.88
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.73 × 2	0.73 × 2
	Airflow rate	cfm (m ³ /min)	8,965 (253.9)	9,675 (274)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ1/2 (12.7) C1220T (brazing connection)	φ1/2 (12.7) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ7/8 (22.2) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ3/4 (19.1) C1220T (brazing connection)	φ3/4 (19.1) C1220T (brazing connection)
Weight	lbs (kg)	739 (335)	825 (374)	
Sound pressure level (Reference data)	dB(A)	61	65	
Sound power level (Reference data)	dB	82	85	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	6-100	4-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7)	25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159145B	4D159146B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name			REYA168AATJA	REYA192AATJA
Power supply			3 phase, 208/230 V, 60 Hz	3 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	162,000 (47.5)	192,000 (56.3)
	Rated		156,000 (45.7)	184,000 (53.9)
★2 Heating capacity	Nominal	Btu/h (kW)	189,000 (55.4)	216,000 (63.3)
	Rated		156,000 (45.7)	184,000 (53.9)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	12.0 + 18.1	14.9 + 16.0
	Number of revolutions	r/min	5,652 + 5,352	4,410 + 4,710
	Motor output	kW	3.45 + 5.58	4.59 + 4.91
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.73 × 2	0.89 × 2
	Airflow rate	cfm (m ³ /min)	9,675 (274)	13,650 (386.5)
	Drive		Direct drive	Direct drive
	Connecting pipes			
	Liquid pipe	in. (mm)	φ1/2 (12.7) C1220T (brazing connection)	φ1/2 (12.7) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ7/8 (22.2) C1220T (brazing connection)	φ7/8 (22.2) C1220T (brazing connection)
Weight		lbs (kg)	827 (375)	1,010 (458)
Sound pressure level (Reference data)		dB(A)	65	67
Sound power level (Reference data)		dB	85	88
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	4-100	6-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7)	25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159146B	4D159146B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name			REYA216AATJA	REYA240AATJA
Power supply			3 phase, 208/230 V, 60 Hz	3 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	216,000 (63.3)	238,000 (69.8)
	Rated		206,000 (60.4)	228,000 (66.8)
★2 Heating capacity	Nominal	Btu/h (kW)	243,000 (71.2)	270,000 (79.1)
	Rated		206,000 (60.4)	220,000 (64.5)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	16.8 + 17.8	18.0 + 19.0
	Number of revolutions	r/min	4,950 + 5,250	5,316 + 5,616
	Motor output	kW	5.16 + 5.47	5.54 + 5.85
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.89 × 2	0.89 × 2
	Airflow rate	cfm (m ³ /min)	14,505 (410.8)	14,505 (410.8)
	Drive		Direct drive	Direct drive
	Connecting pipes	Liquid pipe	in. (mm)	φ1/2 (12.7) C1220T (brazing connection)
Suction gas pipe		in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
High/Low pressure gas pipe		in. (mm)	φ7/8 (22.2) C1220T (brazing connection)	φ7/8 (22.2) C1220T (brazing connection)
Weight	lbs (kg)	1,010 (458)	1,010 (458)	
Sound pressure level (Reference data)	dB(A)	68	69	
Sound power level (Reference data)	dB	90	90	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	6-100	5-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7)	25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159147B	4D159147B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name (Combination unit)			REYA264AATJA	REYA288AATJA
Model name (Independent unit)			REYA120AATJA REYA144AATJA	REYA144AATJA REYA144AATJA
Power supply			3 phase, 208/230 V, 60 Hz	3 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	264,000 (77.4)	286,000 (83.8)
	Rated		252,000 (73.9)	274,000 (80.3)
★2 Heating capacity	Nominal	Btu/h (kW)	297,000 (87.0)	324,000 (95.0)
	Rated		252,000 (73.9)	274,000 (80.3)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765) + 65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765) + 65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	(9.8 + 11.2) + (11.3 + 17.1)	(10.4 + 15.6) + (10.4 + 15.6)
	Number of revolutions	r/min	(4,650 + 5,274) + (5,346 + 5,046)	(4,914 + 4,614) + (4,914 + 4,614)
	Motor output	kW	(2.84 + 3.22) + (3.27 + 5.26)	(3.00 + 4.81) + (3.00 + 4.81)
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.73 × 2 + 0.73 × 2	0.73 × 2 + 0.73 × 2
	Airflow rate	cfm (m ³ /min)	8,965 (253.9) + 9,675 (274)	9,675 (274) + 9,675 (274)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ5/8 (15.9) C1220T (brazing connection)	φ5/8 (15.9) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-3/8 (34.9) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
Weight	lbs (kg)	739 (335) + 825 (374)	825 (374) + 825 (374)	
Sound pressure level (Reference data)	dB(A)	67	69	
Sound power level (Reference data)	dB	88	89	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control			%	2-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7) + 25.8 (11.7)	25.8 (11.7) + 25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159151B	4D159151B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name (Combination unit)			REYA312AATJA	REYA336AATJA
Model name (Independent unit)			REYA144AATJA REYA168AATJA	REYA168AATJA REYA168AATJA
Power supply			3 phase, 208/230 V, 60 Hz	
★1 Cooling capacity	Nominal	Btu/h	310,000 (90.9)	
	Rated	(kW)	296,000 (86.7)	
★2 Heating capacity	Nominal	Btu/h	351,000 (103)	
	Rated	(kW)	296,000 (86.7)	
Casing color			Ivory white (5Y7.5/1)	
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765) + 65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)	
Heat exchanger			Cross fin coil	
Compressor	Type		Hermetically sealed scroll type	
	Volume	m³/h	(11.3 + 17.1) + (11.3 + 17.1)	
	Number of revolutions	r/min	(5,346 + 5,046) + (5,346 + 5,046)	
	Motor output	kW	(3.27 + 5.26) + (3.27 + 5.26)	
	Starting method		Soft start	
Fan	Type		Propeller fan	
	Motor output × Number of units	kW	0.73 × 2 + 0.73 × 2	
	Airflow rate	cfm (m³/min)	9,675 (274) + 9,675 (274)	
	Drive		Direct drive	
Connecting pipes	Liquid pipe	in. (mm)	φ5/8 (15.9) C1220T (brazing connection)	
	Suction gas pipe	in. (mm)	φ1-3/8 (34.9) C1220T (brazing connection)	
	High/Low pressure gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	
Weight	lbs (kg)	825 (374) + 827 (375)		
Sound pressure level (Reference data)	dB(A)	69		
Sound power level (Reference data)	dB	89		
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	
Defrost method			Deicer	
Capacity control		%	2-100	
Refrigerant	Refrigerant name		R-32	
	Charge	lbs (kg)	25.8 (11.7) + 25.8 (11.7)	
	Control		Electronic expansion valve	
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	
Drawing No.			4D159151B	

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name (Combination unit)			REYA360AATJA	REYA384AATJA
Model name (Independent unit)			REYA168AATJA REYA192AATJA	REYA192AATJA REYA192AATJA
Power supply			3 phase, 208/230 V, 60 Hz	3 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	358,000 (105)	382,000 (112)
	Rated		342,000 (100)	364,000 (107)
★2 Heating capacity	Nominal	Btu/h (kW)	405,000 (119)	432,000 (127)
	Rated		342,000 (100)	364,000 (107)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m³/h	(11.0 + 16.6) + (16.5 + 17.6)	(14.7 + 15.8) + (14.7 + 15.8)
	Number of revolutions	r/min	(5,202 + 4,896) + (4,878 + 5,178)	(4,350 + 4,650) + (4,350 + 4,650)
	Motor output	kW	(3.18 + 5.10) + (5.08 + 5.39)	(4.53 + 4.84) + (4.53 + 4.84)
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.73 × 2 + 0.89 × 2	0.89 × 2 + 0.89 × 2
	Airflow rate	cfm (m³/min)	9,675 (274) + 13,650 (386.5)	13,650 (386.5) + 13,650 (386.5)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ5/8 (15.9) C1220T (brazing connection)	φ5/8 (15.9) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-3/8 (34.9) C1220T (brazing connection)	φ1-3/8 (34.9) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
Weight	lbs (kg)	827 (375) + 1,010 (458)	1,010 (458) + 1,010 (458)	
Sound pressure level (Reference data)	dB(A)	70	71	
Sound power level (Reference data)	dB	91	93	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	2-100	3-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7) + 25.8 (11.7)	25.8 (11.7) + 25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159153B	4D159153B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name (Combination unit)			REYA408AATJA	REYA432AATJA
Model name (Independent unit)			REYA192AATJA REYA216AATJA	REYA216AATJA REYA216AATJA
Power supply			3 phase, 208/230 V, 60 Hz	3 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	406,000 (119)	430,000 (126)
	Rated		388,000 (114)	410,000 (120)
★2 Heating capacity	Nominal	Btu/h (kW)	459,000 (135)	486,000 (142)
	Rated		388,000 (114)	404,000 (118)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	(15.8 + 16.9) + (16.5 + 17.6)	(17.8 + 18.8) + (17.8 + 18.8)
	Number of revolutions	r/min	(4,674 + 4,974) + (4,878 + 5,178)	(5,244 + 5,544) + (5,244 + 5,544)
	Motor output	kW	(4.87 + 5.18) + (5.08 + 5.39)	(5.46 + 5.78) + (5.46 + 5.78)
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.89 × 2 + 0.89 × 2	0.89 × 2 + 0.89 × 2
	Airflow rate	cfm (m ³ /min)	13,650 (386.5) + 14,505 (410.8)	14,505 (410.8) + 14,505 (410.8)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ3/4 (19.1) C1220T (brazing connection)	φ3/4 (19.1) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-5/8 (41.3) C1220T (brazing connection)	φ1-5/8 (41.3) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
Weight	lbs (kg)	1,010 (458) + 1,010 (458)	1,010 (458) + 1,010 (458)	
Sound pressure level (Reference data)	dB(A)	71	72	
Sound power level (Reference data)	dB	94	95	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	3-100	3-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7) + 25.8 (11.7)	25.8 (11.7) + 25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159155B	4D159155B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name (Combination unit)			REYA456AATJA	REYA480AATJA
Model name (Independent unit)			REYA216AATJA REYA240AATJA	REYA240AATJA REYA240AATJA
Power supply			3 phase, 208/230 V, 60 Hz	3 phase, 208/230 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	454,000 (133)	472,000 (138)
	Rated		434,000 (127)	450,000 (132)
★2 Heating capacity	Nominal	Btu/h (kW)	513,000 (150)	540,000 (158)
	Rated		414,000 (121)	418,000 (123)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	(19.1 + 20.1) + (19.1 + 20.1)	(20.5 + 21.5) + (20.5 + 21.5)
	Number of revolutions	r/min	(5,628 + 5,934) + (5,628 + 5,934)	(6,042 + 6,348) + (6,042 + 6,348)
	Motor output	kW	(5.86 + 6.18) + (5.86 + 6.18)	(6.29 + 6.61) + (6.29 + 6.61)
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.89 × 2 + 0.89 × 2	0.89 × 2 + 0.89 × 2
	Airflow rate	cfm (m ³ /min)	14,505 (410.8) + 14,505 (410.8)	14,505 (410.8) + 14,505 (410.8)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ3/4 (19.1) C1220T (brazing connection)	φ3/4 (19.1) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-5/8 (41.3) C1220T (brazing connection)	φ1-5/8 (41.3) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
Weight	lbs (kg)	1,010 (458) + 1,010 (458)	1,010 (458) + 1,010 (458)	
Sound pressure level (Reference data)	dB(A)	72	73	
Sound power level (Reference data)	dB	95	95	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	3-100	3-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7) + 25.8 (11.7)	25.8 (11.7) + 25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159155B	4D159157B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

5.2 REYA-AAYDA

Model name			REYA72AAYDA	REYA96AAYDA
Power supply			3 phase, 460 V, 60 Hz	3 phase, 460 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h	72,000 (21.1)	96,000 (28.1)
	Rated	(kW)	69,000 (20.2)	92,000 (27.0)
★2 Heating capacity	Nominal	Btu/h	81,000 (23.7)	108,000 (31.7)
	Rated	(kW)	69,000 (20.2)	92,000 (27.0)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 36-5/8 × 30-1/8 (1,660 × 930 × 765)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	13.8	8.5 + 9.6
	Number of revolutions	r/min	4,062	3,990 + 4,524
	Motor output	kW	4.23	2.44 + 2.76
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.89 × 1	0.73 × 2
	Airflow rate	cfm (m ³ /min)	6,200 (175.6)	8,965 (253.9)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ3/8 (9.5) C1220T (brazing connection)	φ3/8 (9.5) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ3/4 (19.1) C1220T (brazing connection)	φ7/8 (22.2) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ5/8 (15.9) C1220T (brazing connection)	φ5/8 (15.9) C1220T (brazing connection)
Weight		lbs (kg)	564 (256)	752 (341)
Sound pressure level (Reference data)		dB(A)	58	61
Sound power level (Reference data)		dB	80	82
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	12-100	6-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	21.6 (9.8)	25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159148B	4D159148B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name			REYA120AAAYDA	REYA144AAAYDA
Power supply			3 phase, 460 V, 60 Hz	3 phase, 460 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	119,000 (34.9)	144,000 (42.2)
	Rated		114,000 (33.4)	138,000 (40.4)
★2 Heating capacity	Nominal	Btu/h (kW)	135,000 (39.6)	162,000 (47.5)
	Rated		114,000 (33.4)	138,000 (40.4)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	10.7 + 12.1	10.6 + 15.9
	Number of revolutions	r/min	5,052 + 5,730	4,986 + 4,686
	Motor output	kW	3.09 + 3.50	3.05 + 4.88
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.73 × 2	0.73 × 2
	Airflow rate	cfm (m ³ /min)	8,965 (253.9)	9,675 (274)
	Drive		Direct drive	Direct drive
	Connecting pipes			
	Liquid pipe	in. (mm)	φ1/2 (12.7) C1220T (brazing connection)	φ1/2 (12.7) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ7/8 (22.2) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ3/4 (19.1) C1220T (brazing connection)	φ3/4 (19.1) C1220T (brazing connection)
Weight		lbs (kg)	754 (342)	840 (381)
Sound pressure level (Reference data)		dB(A)	61	65
Sound power level (Reference data)		dB	82	85
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	6-100	4-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7)	25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159148B	4D159149B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name			REYA168AAAYDA	REYA192AAAYDA
Power supply			3 phase, 460 V, 60 Hz	3 phase, 460 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	162,000 (47.5)	192,000 (56.3)
	Rated		156,000 (45.7)	184,000 (53.9)
★2 Heating capacity	Nominal	Btu/h (kW)	189,000 (55.4)	216,000 (63.3)
	Rated		156,000 (45.7)	184,000 (53.9)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	12.0 + 18.1	14.9 + 16.0
	Number of revolutions	r/min	5,652 + 5,352	4,410 + 4,710
	Motor output	kW	3.45 + 5.58	4.59 + 4.91
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.73 × 2	0.89 × 2
	Airflow rate	cfm (m ³ /min)	9,675 (274)	13,650 (386.5)
	Drive		Direct drive	Direct drive
	Connecting pipes		in. (mm)	φ1/2 (12.7) C1220T (brazing connection)
Suction gas pipe		in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
High/Low pressure gas pipe		in. (mm)	φ7/8 (22.2) C1220T (brazing connection)	φ7/8 (22.2) C1220T (brazing connection)
Weight		lbs (kg)	842 (382)	1,025 (465)
Sound pressure level (Reference data)		dB(A)	65	67
Sound power level (Reference data)		dB	85	88
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	4-100	6-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7)	25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159149B	4D159149B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name			REYA216AAAYDA	REYA240AAAYDA
Power supply			3 phase, 460 V, 60 Hz	3 phase, 460 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	216,000 (63.3)	238,000 (69.8)
	Rated		206,000 (60.4)	228,000 (66.8)
★2 Heating capacity	Nominal	Btu/h (kW)	243,000 (71.2)	270,000 (79.1)
	Rated		206,000 (60.4)	220,000 (64.5)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)			in. (mm) 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	16.8 + 17.8	18.0 + 19.0
	Number of revolutions	r/min	4,950 + 5,250	5,316 + 5,616
	Motor output	kW	5.16 + 5.47	5.54 + 5.85
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.89 × 2	0.89 × 2
	Airflow rate	cfm (m ³ /min)	14,505 (410.8)	14,505 (410.8)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ1/2 (12.7) C1220T (brazing connection)	φ5/8 (15.9) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ7/8 (22.2) C1220T (brazing connection)	φ7/8 (22.2) C1220T (brazing connection)
Weight	lbs (kg)	1,025 (465)	1,025 (465)	
Sound pressure level (Reference data)	dB(A)	68	69	
Sound power level (Reference data)	dB	90	90	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control			% 6-100	5-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7)	25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159150B	4D159150B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name (Combination unit)			REYA264AAAYDA	REYA288AAAYDA
Model name (Independent unit)			REYA120AAAYDA REYA144AAAYDA	REYA144AAAYDA REYA144AAAYDA
Power supply			3 phase, 460 V, 60 Hz	3 phase, 460 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	264,000 (77.4)	286,000 (83.8)
	Rated		252,000 (73.9)	274,000 (80.3)
★2 Heating capacity	Nominal	Btu/h (kW)	297,000 (87.0)	324,000 (95.0)
	Rated		252,000 (73.9)	274,000 (80.3)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765) + 65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765) + 65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	(9.8 + 11.2) + (11.3 + 17.1)	(10.4 + 15.6) + (10.4 + 15.6)
	Number of revolutions	r/min	(4,650 + 5,274) + (5,346 + 5,046)	(4,914 + 4,614) + (4,914 + 4,614)
	Motor output	kW	(2.84 + 3.22) + (3.27 + 5.26)	(3.00 + 4.81) + (3.00 + 4.81)
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.73 × 2 + 0.73 × 2	0.73 × 2 + 0.73 × 2
	Airflow rate	cfm (m ³ /min)	8,965 (253.9) + 9,675 (274)	9,675 (274) + 9,675 (274)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ5/8 (15.9) C1220T (brazing connection)	φ5/8 (15.9) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-3/8 (34.9) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
Weight	lbs (kg)	754 (342) + 840 (381)	840 (381) + 840 (381)	
Sound pressure level (Reference data)	dB(A)	67	69	
Sound power level (Reference data)	dB	88	89	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	2-100	2-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7) + 25.8 (11.7)	25.8 (11.7) + 25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159152B	4D159152B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name (Combination unit)			REYA312AA YDA	REYA336AA YDA
Model name (Independent unit)			REYA144AA YDA REYA168AA YDA	REYA168AA YDA REYA168AA YDA
Power supply			3 phase, 460 V, 60 Hz	3 phase, 460 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	310,000 (90.9)	330,000 (96.7)
	Rated		296,000 (86.7)	316,000 (92.6)
★2 Heating capacity	Nominal	Btu/h (kW)	351,000 (103)	378,000 (111)
	Rated		296,000 (86.7)	310,000 (90.9)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765) + 65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765) + 65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	(11.3 + 17.1) + (11.3 + 17.1)	(12.0 + 18.1) + (12.0 + 18.1)
	Number of revolutions	r/min	(5,346 + 5,046) + (5,346 + 5,046)	(5,652 + 5,352) + (5,652 + 5,352)
	Motor output	kW	(3.27 + 5.26) + (3.27 + 5.26)	(3.45 + 5.58) + (3.45 + 5.58)
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.73 × 2 + 0.73 × 2	0.73 × 2 + 0.73 × 2
	Airflow rate	cfm (m ³ /min)	9,675 (274) + 9,675 (274)	9,675 (274) + 9,675 (274)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ5/8 (15.9) C1220T (brazing connection)	φ5/8 (15.9) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-3/8 (34.9) C1220T (brazing connection)	φ1-3/8 (34.9) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
Weight	lbs (kg)	840 (381) + 842 (382)	842 (382) + 842 (382)	
Sound pressure level (Reference data)	dB(A)	69	69	
Sound power level (Reference data)	dB	89	89	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control			%	2-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7) + 25.8 (11.7)	25.8 (11.7) + 25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159152B	4D159154B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name (Combination unit)			REYA360AAAYDA	REYA384AAAYDA
Model name (Independent unit)			REYA168AAAYDA REYA192AAAYDA	REYA192AAAYDA REYA192AAAYDA
Power supply			3 phase, 460 V, 60 Hz	3 phase, 460 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	358,000 (105)	382,000 (112)
	Rated		342,000 (100)	364,000 (107)
★2 Heating capacity	Nominal	Btu/h (kW)	405,000 (119)	432,000 (127)
	Rated		342,000 (100)	364,000 (107)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 48-13/16 × 30-1/8 (1,660 × 1,240 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m³/h	(11.0 + 16.6) + (16.5 + 17.6)	(14.7 + 15.8) + (14.7 + 15.8)
	Number of revolutions	r/min	(5,202 + 4,896) + (4,878 + 5,178)	(4,350 + 4,650) + (4,350 + 4,650)
	Motor output	kW	(3.18 + 5.10) + (5.08 + 5.39)	(4.53 + 4.84) + (4.53 + 4.84)
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.73 × 2 + 0.89 × 2	0.89 × 2 + 0.89 × 2
	Airflow rate	cfm (m³/min)	9,675 (274) + 13,650 (386.5)	13,650 (386.5) + 13,650 (386.5)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ5/8 (15.9) C1220T (brazing connection)	φ5/8 (15.9) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-3/8 (34.9) C1220T (brazing connection)	φ1-3/8 (34.9) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
Weight	lbs (kg)	842 (382) + 1,025 (465)	1,025 (465) + 1,025 (465)	
Sound pressure level (Reference data)	dB(A)	70	71	
Sound power level (Reference data)	dB	91	93	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	2-100	3-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7) + 25.8 (11.7)	25.8 (11.7) + 25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159154B	4D159154B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name (Combination unit)			REYA408AAAYDA	REYA432AAAYDA
Model name (Independent unit)			REYA192AAAYDA REYA216AAAYDA	REYA216AAAYDA REYA216AAAYDA
Power supply			3 phase, 460 V, 60 Hz	3 phase, 460 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	406,000 (119)	430,000 (126)
	Rated		388,000 (114)	410,000 (120)
★2 Heating capacity	Nominal	Btu/h (kW)	459,000 (135)	486,000 (142)
	Rated		388,000 (114)	404,000 (118)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m³/h	(15.8 + 16.9) + (16.5 + 17.6)	(17.8 + 18.8) + (17.8 + 18.8)
	Number of revolutions	r/min	(4,674 + 4,974) + (4,878 + 5,178)	(5,244 + 5,544) + (5,244 + 5,544)
	Motor output	kW	(4.87 + 5.18) + (5.08 + 5.39)	(5.46 + 5.78) + (5.46 + 5.78)
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.89 × 2 + 0.89 × 2	0.89 × 2 + 0.89 × 2
	Airflow rate	cfm (m³/min)	13,650 (386.5) + 14,505 (410.8)	14,505 (410.8) + 14,505 (410.8)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ3/4 (19.1) C1220T (brazing connection)	φ3/4 (19.1) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-5/8 (41.3) C1220T (brazing connection)	φ1-5/8 (41.3) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
Weight	lbs (kg)	1,025 (465) + 1,025 (465)	1,025 (465) + 1,025 (465)	
Sound pressure level (Reference data)	dB(A)	71	72	
Sound power level (Reference data)	dB	94	95	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	3-100	3-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7) + 25.8 (11.7)	25.8 (11.7) + 25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159156B	4D159156B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Model name (Combination unit)			REYA456AAAYDA	REYA480AAAYDA
Model name (Independent unit)			REYA216AAAYDA REYA240AAAYDA	REYA240AAAYDA REYA240AAAYDA
Power supply			3 phase, 460 V, 60 Hz	3 phase, 460 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	454,000 (133)	472,000 (138)
	Rated		434,000 (127)	450,000 (132)
★2 Heating capacity	Nominal	Btu/h (kW)	513,000 (150)	540,000 (158)
	Rated		414,000 (121)	418,000 (123)
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)	65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765) + 65-3/8 × 68-7/8 × 30-1/8 (1,660 × 1,750 × 765)
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Volume	m ³ /h	(19.1 + 20.1) + (19.1 + 20.1)	(20.5 + 21.5) + (20.5 + 21.5)
	Number of revolutions	r/min	(5,628 + 5,934) + (5,628 + 5,934)	(6,042 + 6,348) + (6,042 + 6,348)
	Motor output	kW	(5.86 + 6.18) + (5.86 + 6.18)	(6.29 + 6.61) + (6.29 + 6.61)
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output × Number of units	kW	0.89 × 2 + 0.89 × 2	0.89 × 2 + 0.89 × 2
	Airflow rate	cfm (m ³ /min)	14,505 (410.8) + 14,505 (410.8)	14,505 (410.8) + 14,505 (410.8)
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	in. (mm)	φ3/4 (19.1) C1220T (brazing connection)	φ3/4 (19.1) C1220T (brazing connection)
	Suction gas pipe	in. (mm)	φ1-5/8 (41.3) C1220T (brazing connection)	φ1-5/8 (41.3) C1220T (brazing connection)
	High/Low pressure gas pipe	in. (mm)	φ1-1/8 (28.6) C1220T (brazing connection)	φ1-1/8 (28.6) C1220T (brazing connection)
Weight	lbs (kg)	1,025 (465) + 1,025 (465)	1,025 (465) + 1,025 (465)	
Sound pressure level (Reference data)	dB(A)	72	73	
Sound power level (Reference data)	dB	95	95	
Safety devices			High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device	High pressure switch, Fan driver overload protector, Overcurrent fuse, Inverter overload protector, Leak detecting device
Defrost method			Deicer	Deicer
Capacity control		%	3-100	3-100
Refrigerant	Refrigerant name		R-32	R-32
	Charge	lbs (kg)	25.8 (11.7) + 25.8 (11.7)	25.8 (11.7) + 25.8 (11.7)
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations	Installation manual, Operation manual, Connection pipes, Clamps, General safety considerations
Drawing No.			4D159156B	4D159158B

Notes:

- ★1. Indoor temp.: 80°FDB (26.7°CDB), 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Rated capacity is certified under AHRI standard 1230.
- ★2. Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB), 43°FWB (6.1°CWB) / Rated capacity is certified under AHRI standard 1230.

Part 2

Refrigerant Circuit

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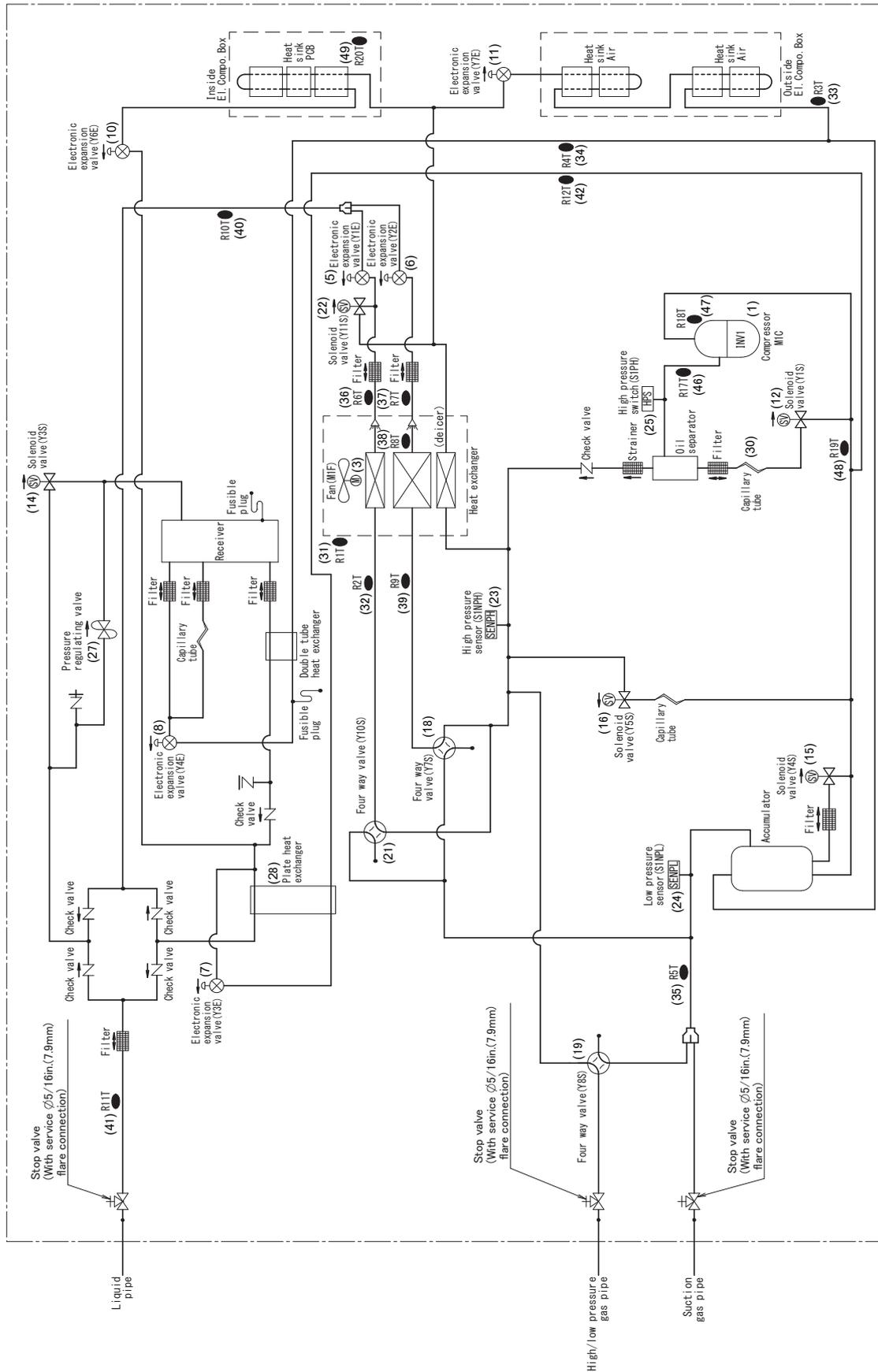
1. Refrigerant Circuit (Piping Diagrams)

1.1 Outdoor Unit

No. in piping diagram	Electric symbol	Name	Function
(1)	M1C	Compressor 1	Compressor is operated in multi-steps according to Te and Tc.
(2)	M2C	Compressor 2	
(3)	M1F	Fan motor 1	The fan rotation speed is varied by using inverter.
(4)	M2F	Fan motor 2	
(5)	Y1E	Electronic expansion valve (Heat exchanger right upper)	While being used as evaporator, PI control is applied to keep the outlet superheating degree of air heat exchanger constant.
(6)	Y2E	Electronic expansion valve (Heat exchanger right lower)	
(7)	Y3E	Electronic expansion valve (Subcooling heat exchanger)	PI control is applied to keep the outlet superheating degree of subcooling heat exchanger constant.
(8)	Y4E	Electronic expansion valve (Receiver gas purge)	Used to collect the refrigerant to receiver.
(9)	Y5E	Electronic expansion valve (Heat exchanger left)	While being used as evaporator, PI control is applied to keep the outlet superheating degree of air heat exchanger constant.
(10)	Y6E	Electronic expansion valve (Refrigerant cooling IPM)	Used to control the refrigerant flow to cool the diode bridge and power module of the inverter PCB.
(11)	Y7E	Electronic expansion valve (Refrigerant cooling air)	Used to control the refrigerant flow to cool the air inside the electrical component box.
(12)	Y1S	Solenoid valve (Oil separator oil return 1 for 72 type, Oil separator oil return 2 for 96-240 type)	Used to return oil from the oil separator to the compressor.
(13)	Y2S	Solenoid valve (Oil separator oil return 1 for 96-240 type)	
(14)	Y3S	Solenoid valve (Liquid shutoff)	Used to shut off liquid refrigerant flow to the receiver.
(15)	Y4S	Solenoid valve (Accumulator oil return)	Used to return oil from the accumulator to the compressor.
(16)	Y5S	Solenoid valve (Hot gas bypass)	Used to prevent the low pressure from transient falling.
(17)	Y6S	Solenoid valve (Injection)	Used to control compressor injection.
(18)	Y7S	Four way valve (Heat exchanger right lower)	Used to switch outdoor heat exchanger to evaporator or condenser.
(19)	Y8S	Four way valve (HP/LP gas pipe)	Used to switch dual pressure gas pipe to high pressure or low pressure.
(20)	Y9S	Four way valve (Heat exchanger left)	Used to switch outdoor heat exchanger to evaporator or condenser.
(21)	Y10S	Four way valve (Heat exchanger right upper)	
(22)	Y11S	Solenoid valve (Refrigerant cooling bypass)	Used when Y6E alone does not provide enough cooling.
(23)	S1NPH	High pressure sensor	Used to detect the high pressure.
(24)	S1NPL	Low pressure sensor	Used to detect the low pressure.
(25)	S1PH	High pressure switch (M1C)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
(26)	S2PH	High pressure switch (M2C)	
(27)	—	Pressure regulating valve (Liquid pipe)	This is used when pressure increases, to prevent any damage on components caused by pressure increase in transport or storage.
(28)	—	Subcooling heat exchanger (Plate heat exchanger)	Apply subcooling to liquid refrigerant.
(29)	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the compressor.
(30)	—	Capillary tube	
(31)	R1T	Thermistor (Outdoor air)	Used to detect outdoor air temperature, correct discharge pipe temperature and for other purposes.
(32)	R2T	Thermistor (Heat exchanger right upper gas pipe)	This detects temperature of gas pipe for air heat exchanger.
(33)	R3T	Thermistor (Electrical box air outlet)	Used to detect the outlet pipe temperature of refrigerant cooling air.
(34)	R4T	Thermistor (Receiver gas purge)	Used to detect gas pipe temperature of receiver gas purge piping.
(35)	R5T	Thermistor (Suction pipe before accumulator)	Used to detect temperature of the suction pipe before accumulator.

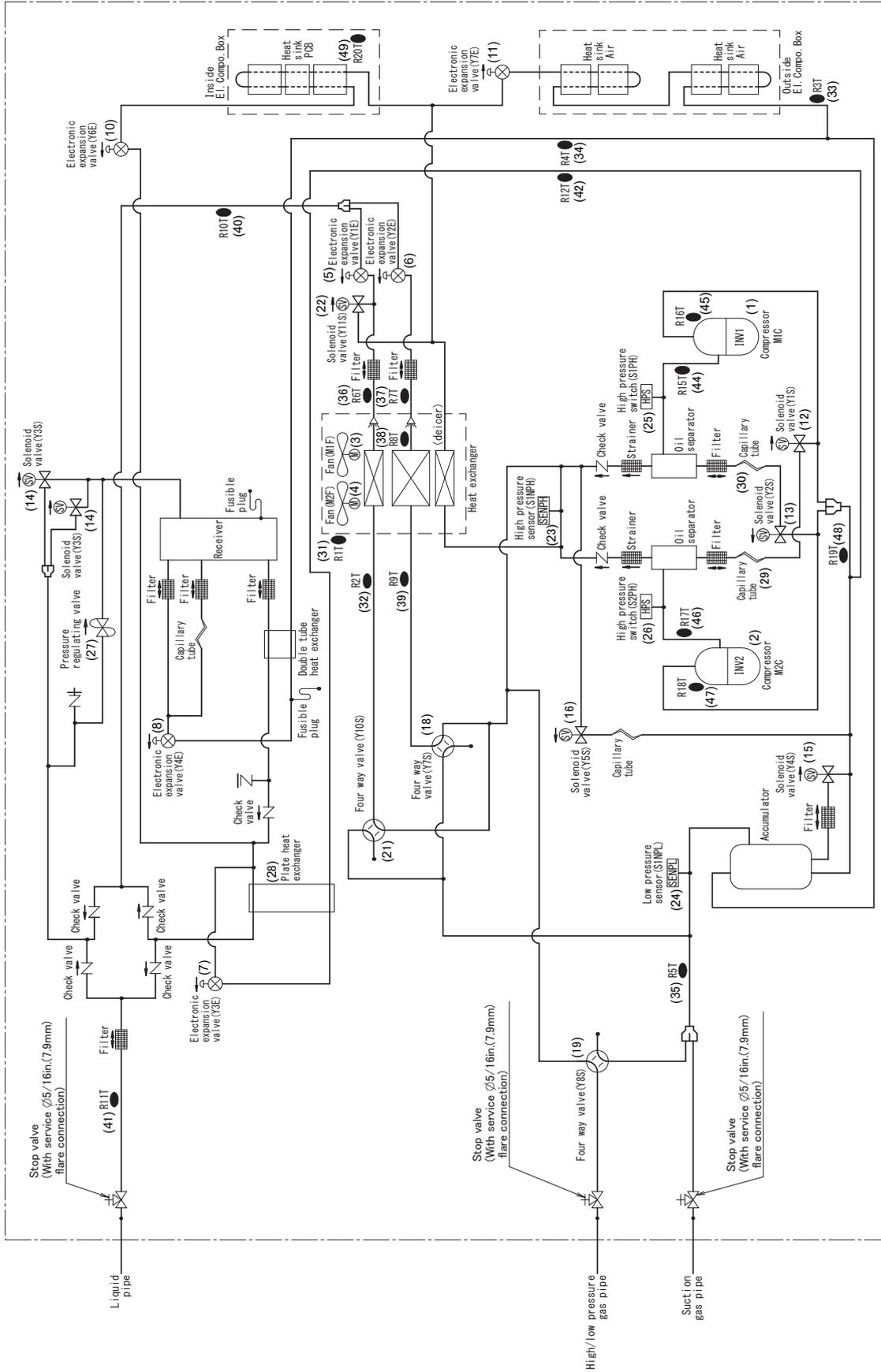
No. in piping diagram	Electric symbol	Name	Function
(36)	R6T	Thermistor (Heat exchanger right upper liquid pipe)	This detects temperature of liquid pipe for air heat exchanger.
(37)	R7T	Thermistor (Heat exchanger right lower liquid pipe)	
(38)	R8T	Thermistor (Heat exchanger right deicer)	Used to detect liquid pipe temperature of air heat exchanger. Used to make judgements on defrost operation.
(39)	R9T	Thermistor (Heat exchanger right lower gas pipe)	This detects temperature of gas pipe for air heat exchanger.
(40)	R10T	Thermistor (Liquid)	Used to detect liquid pipe temperature of receiver inlet.
(41)	R11T	Thermistor (Subcooling heat exchanger liquid pipe)	This detects temperature of liquid pipe for subcooling heat exchanger.
(42)	R12T	Thermistor (Subcooling heat exchanger gas pipe)	This detects temperature of gas pipe for subcooling heat exchanger.
(43)	R14T	Thermistor (Subcooling injection)	
(44)	R15T	Thermistor (M1C discharge for 96-240 type)	Used to detect discharge pipe temperature.
(45)	R16T	Thermistor (M1C body for 96-240 type)	Detects compressor surface temperature, this switch is activated at surface temperature of 120°C (248°F) or more to stop the compressor.
(46)	R17T	Thermistor (M1C discharge for 72 type, M2C discharge for 96-240 type)	Used to detect discharge pipe temperature.
(47)	R18T	Thermistor (M1C body for 72 type, M2C body for 96-240 type)	Detects compressor surface temperature, this switch is activated at surface temperature of 120°C (248°F) or more to stop the compressor.
(48)	R19T	Thermistor (Compressor suction)	Used to detect suction pipe temperature.
(49)	R20T	Thermistor (Box air)	Detects the air temperature inside the electrical component box.
(50)	R21T	Thermistor (Heat exchanger left gas pipe)	This detects temperature of gas pipe for air heat exchanger.
(51)	R22T	Thermistor (Heat exchanger left liquid pipe)	This detects temperature of liquid pipe for air heat exchanger.
(52)	R23T	Thermistor (Heat exchanger left deicer)	Used to detect liquid pipe temperature of air heat exchanger. Used to make judgements on defrost operation.

REYA72AA



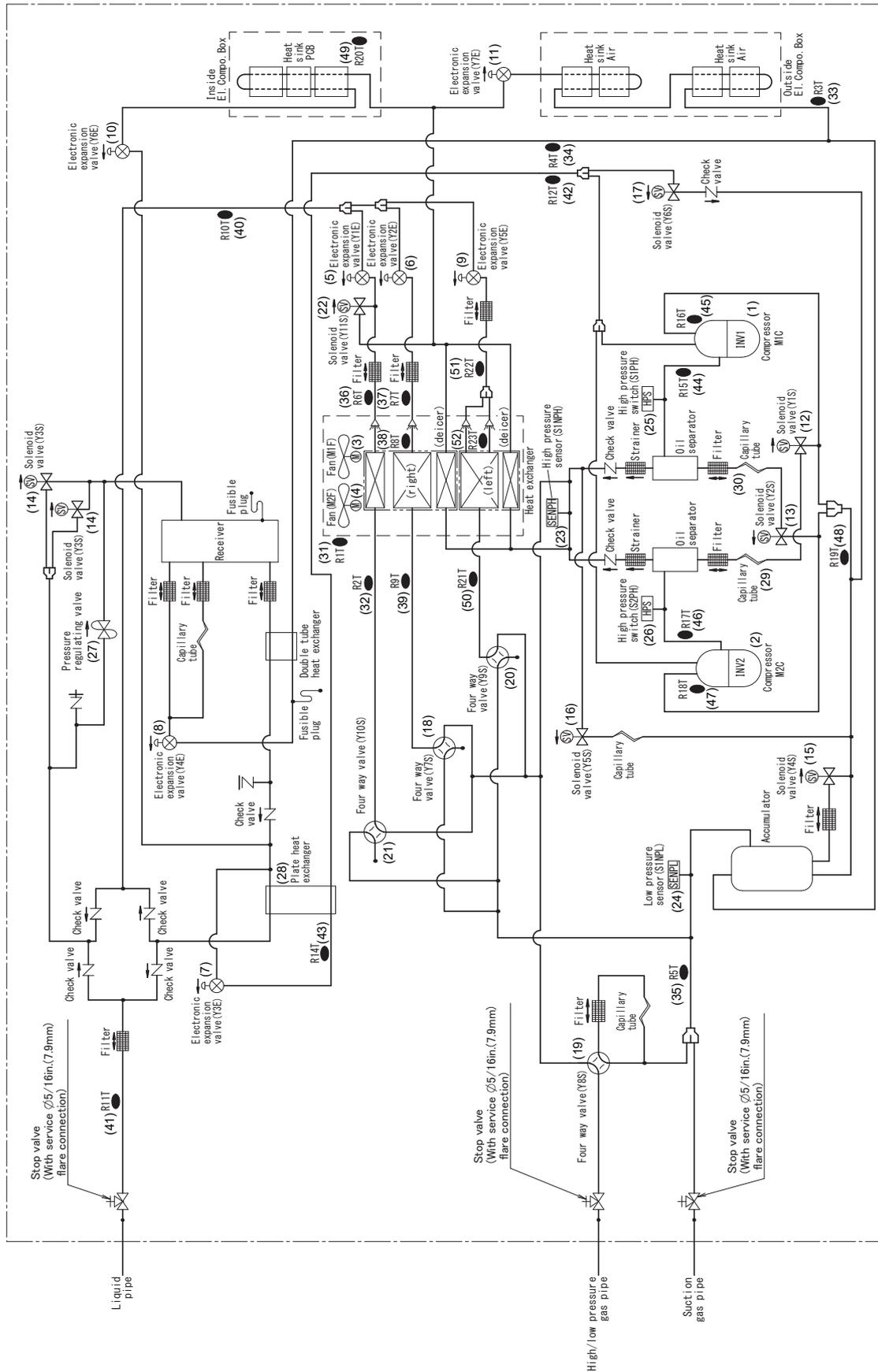
C: 3D158884

REYA96/120/144/168AA



C: 3D156865A

REYA192/216/240AA



C: 3D156866A

1.2 Branch Selector Unit

No.	Name	Function
(1)	Electronic expansion valve (Suction gas)	Opens while in cooling. Closes when a refrigerant leak or power outage is detected. (Max : 6,000 pulse)
(2)	Electronic expansion valve (Subcooling)	In simultaneous cooling and heating, it is used to subcooling liquid refrigerants when an indoor unit downstream of this Branch Selector unit is in heating. (Max : 480 pulse)
(3)	Electronic expansion valve (HP/LP gas)	Opens while in heating or all indoor units are in cooling. Closes when a refrigerant leak or power outage is detected. (Max : 6,000 pulse)
(4)	Electronic expansion valve (Liquid)	Opens when in cooling and heating. Closes when a refrigerant leak or power outage is detected. (Max: 6,000 pulse)



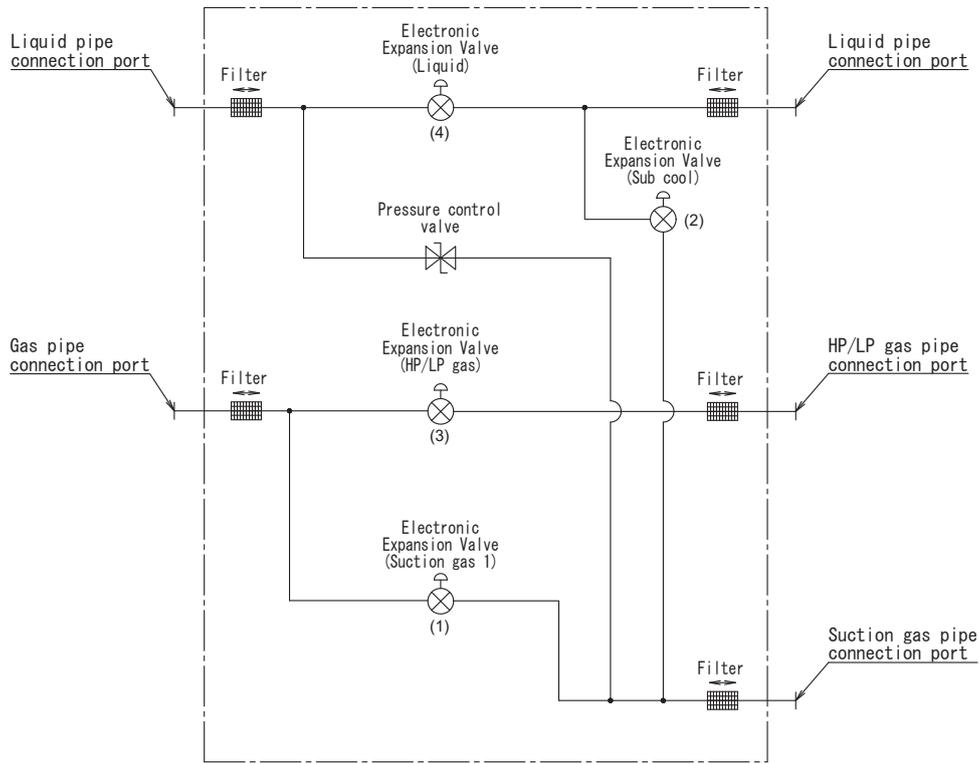
Note(s)

Factory setting of each electronic expansion valve opening:

- Single Branch Selector unit
 - Subcooling: 240 pulse
 - Suction gas, HP/LP gas, Liquid: 2,000 pulse
- Multi Branch Selector unit
 - Subcooling: 0 pulse
 - HP/LP gas: 1,000 pulse
 - Suction gas, Liquid: 3,000 pulse

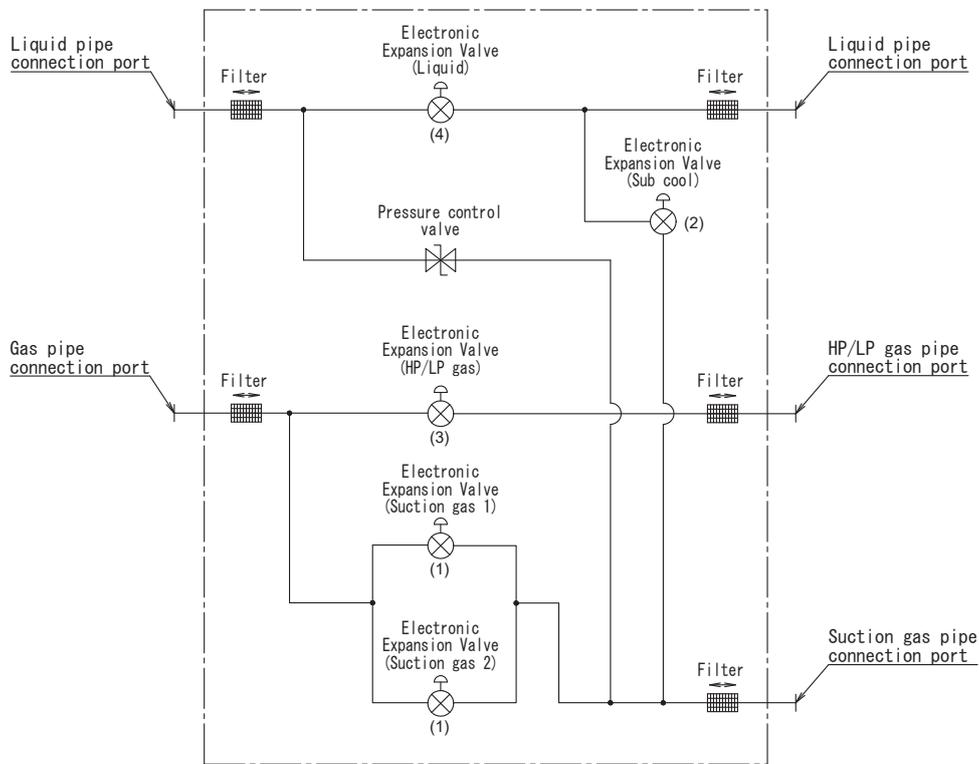
1.2.1 Single Branch Selector Unit

BSA36/60AAVJ



C: 4D155216

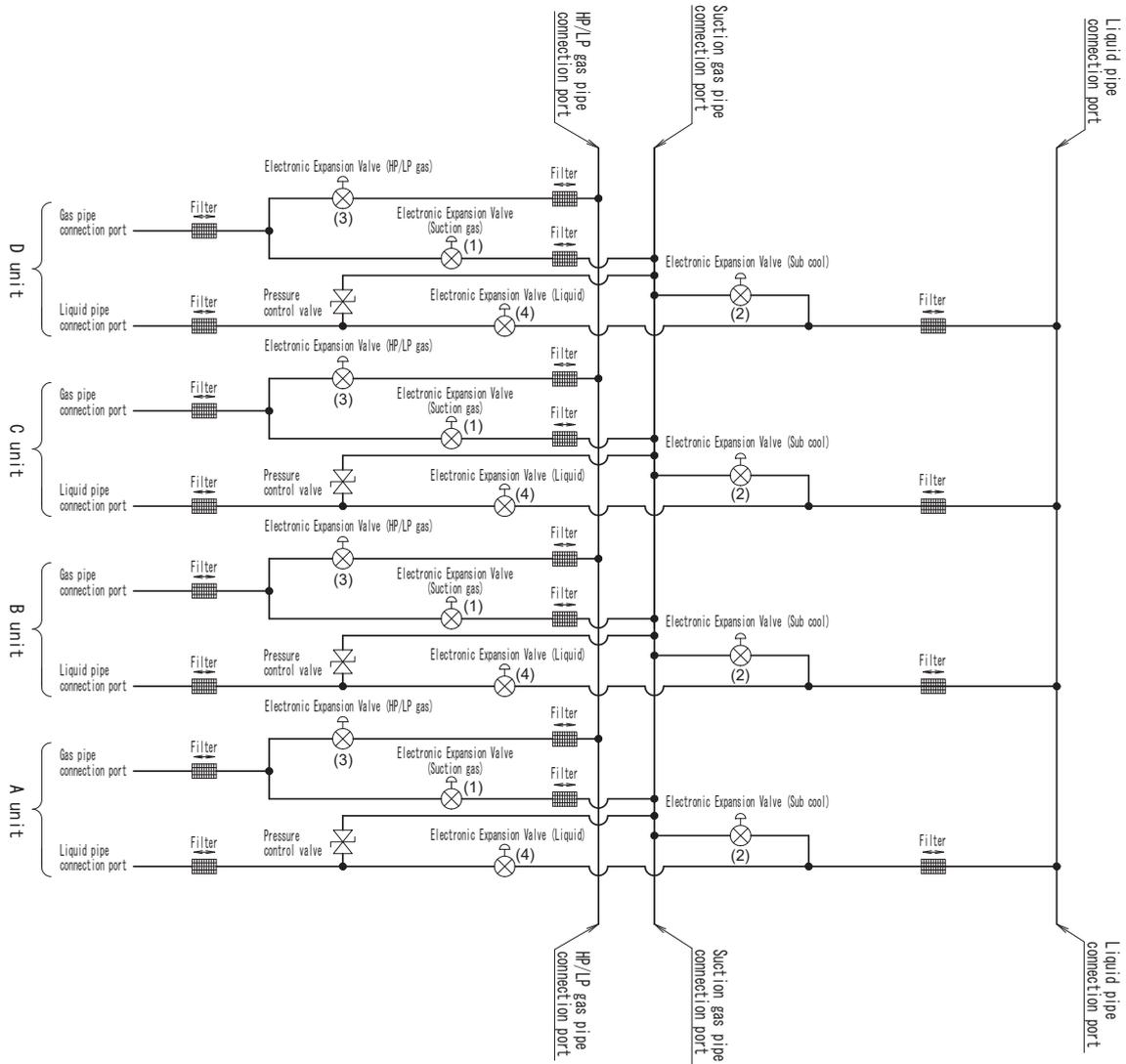
BSA96AAVJ



C: 4D155217

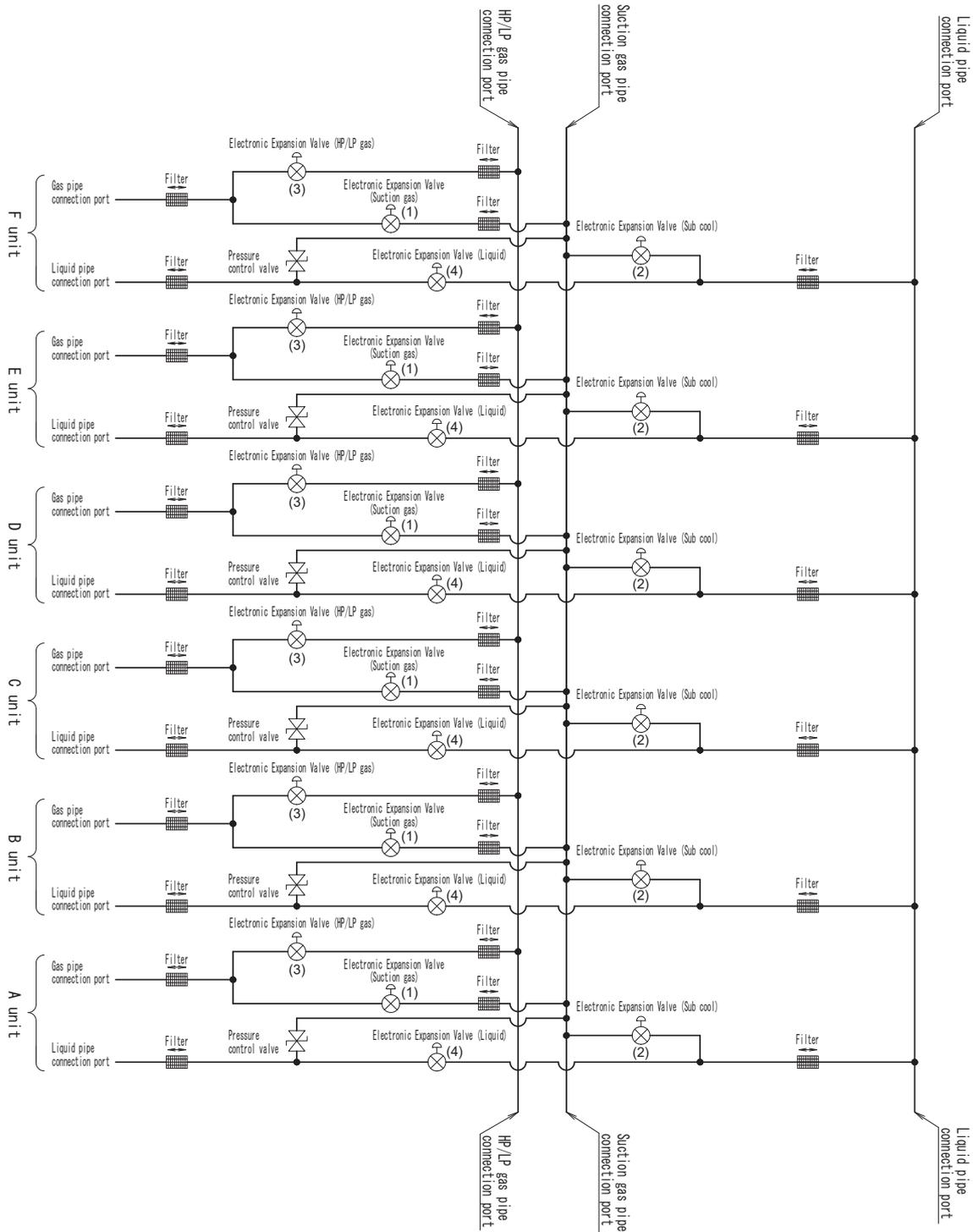
1.2.2 Multi Branch Selector Unit

BSF4A54AAVJ



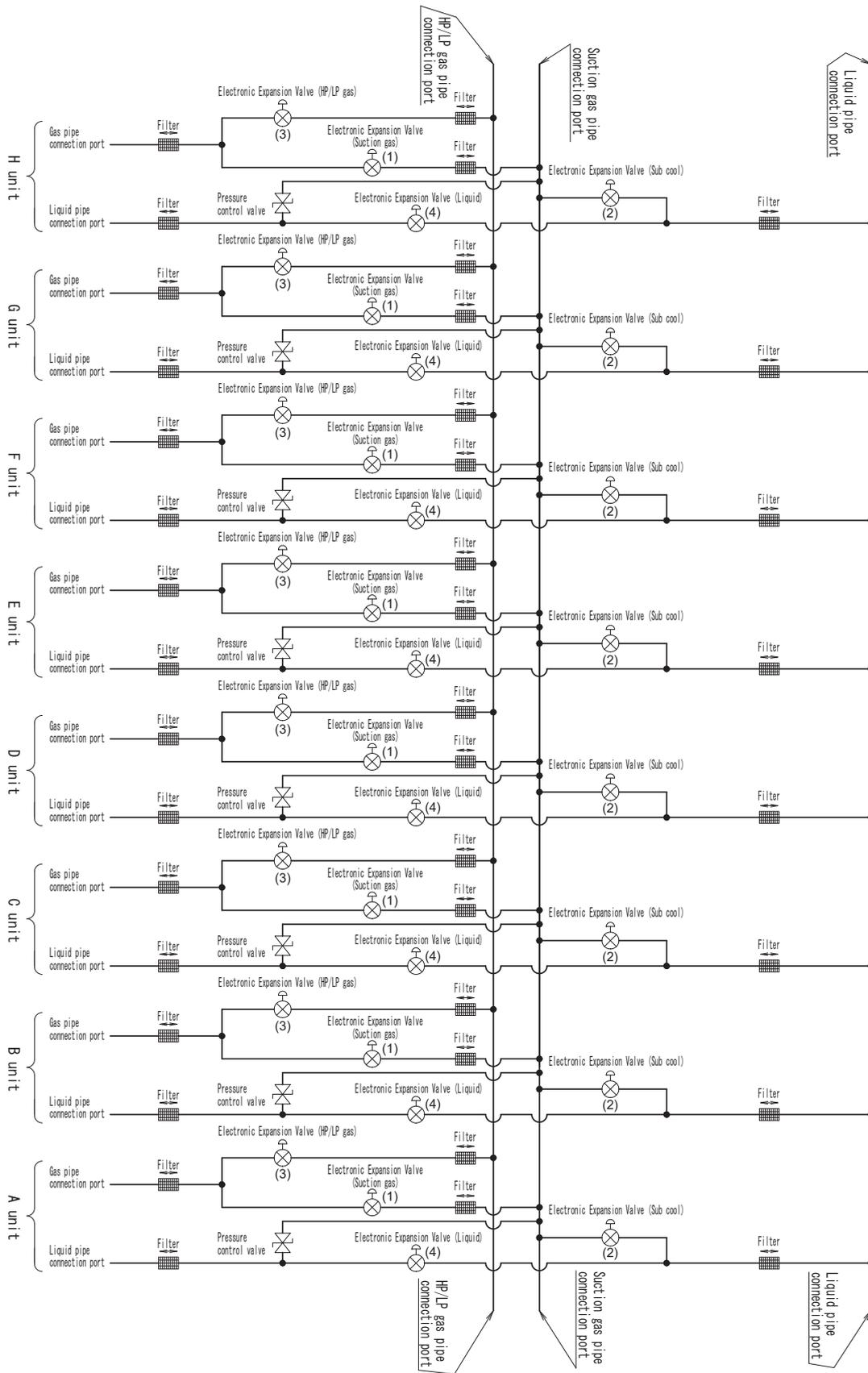
C: 3D155218A

BSF6A54AAVJ



C: 3D155219A

BSF8A54AAVJ



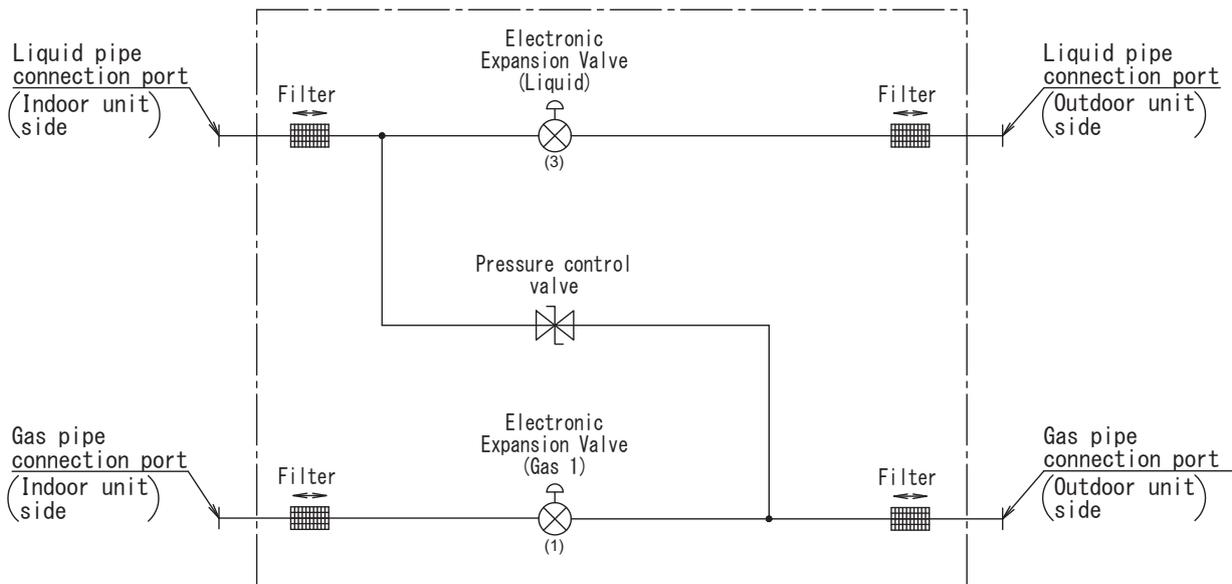
C: 3D155220A

1.3 Safety Shut-Off Valve Unit

No.	Name	Electric symbol	Function
(1)	Electronic expansion valve (Gas 1)	Y1E	Opens while in cooling and heating. Closes when a refrigerant leak or power outage is detected. (Max : 6,000 pulse)
(2)	Electronic expansion valve (Gas 2)	Y2E	
(3)	Electronic expansion valve (Liquid)	Y3E	

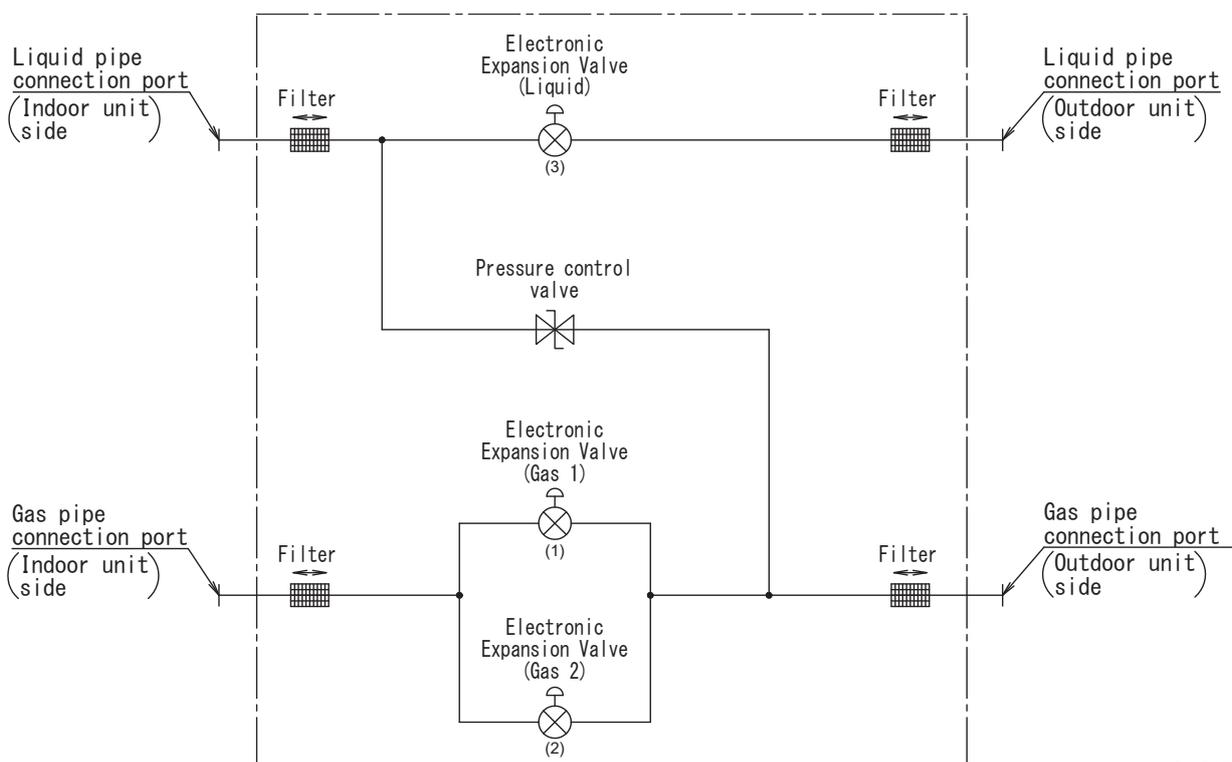
i Note(s) Factory setting of electronic expansion valve opening: 2,000 pulse

SVA60AAVJ



C: 4D155278

SVA96AAVJ



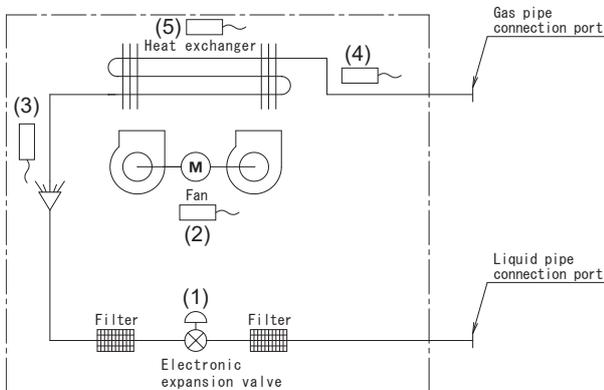
C: 4D155279

1.4 Indoor Unit

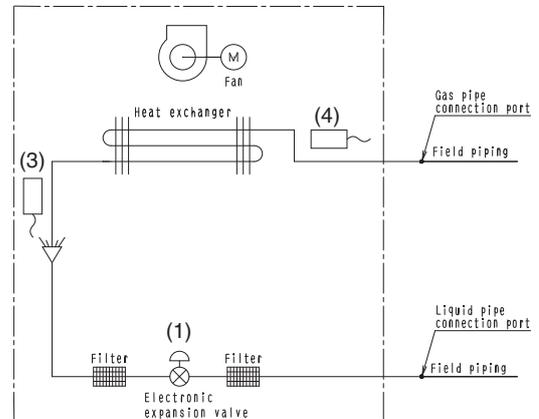
No. in piping diagram	Name	Symbol			Function
		FXFA-AA FXZA-AA FXMA72/96AA FXAA-AA	FXSA-AA FXMA15-54AA	FXTA-AB	
(1)	Electronic expansion valve	Y1E	Y1E	Y1E	Used for gas superheating degree control while in cooling or subcooling degree control while in heating.
(2)	Suction air thermistor	R1T	R1T	R1T (*1)	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, FXZA-AA, FXSA-AA, FXMA-AA, FXAA-AA



■ FXTA-AB



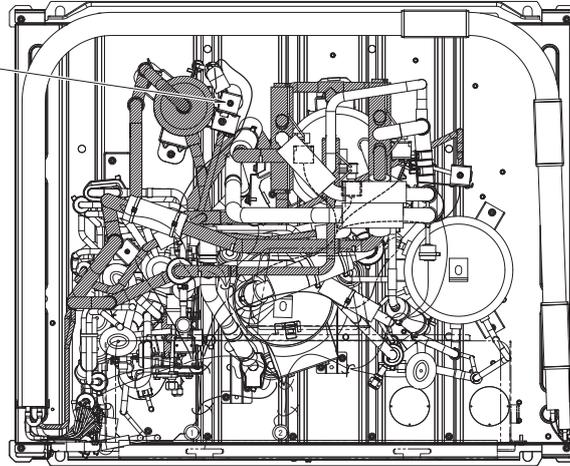
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2. Functional Parts Layout

2.1 REYA72AA

Plane View

Solenoid valve
(Oil separator oil return 1)
(Y1S)



Front View

Four way valve
(HP/LP gas pipe)
(Y8S)

High pressure sensor
(S1NPH)

High pressure switch (M1C)
(S1PH)

Thermistor (Outdoor air)
(R1T)

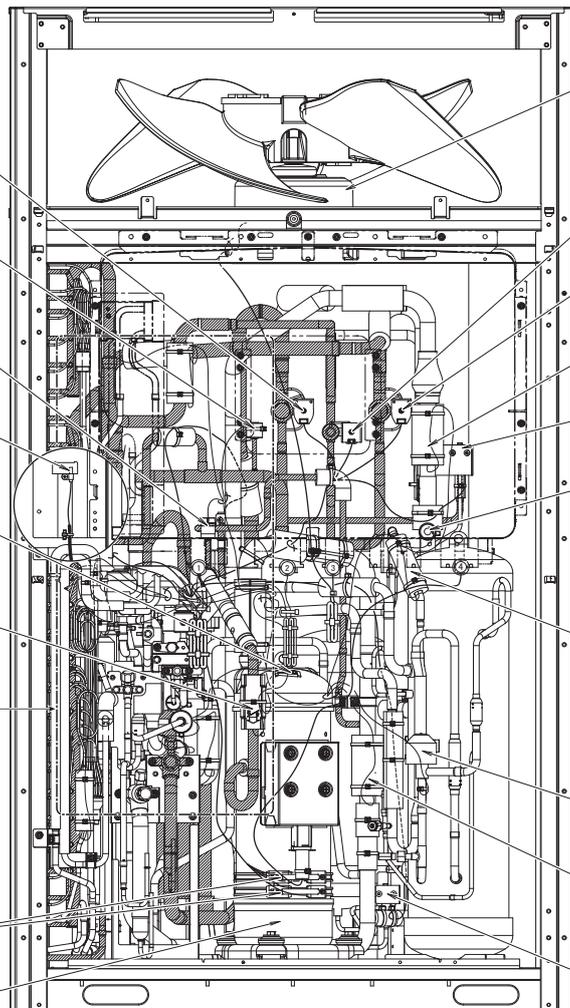
Thermistor (M1C body)
(R18T)

Thermistor
(M1C discharge pipe)
(R17T)

A

Crankcase heater
(E1HC)(E2HC)

Compressor
(M1C)



Fan motor
(M1F)

Four way valve
(Heat exchanger right upper)
(Y10S)

Four way valve
(Heat exchanger right lower)
(Y7S)

Thermistor
(Suction pipe before accumulator)
(R5T)

Solenoid valve
(Hot gas bypass)
(Y5S)

Low pressure sensor
(S1NPL)

Thermistor
(Receiver gas purge)
(R4T)

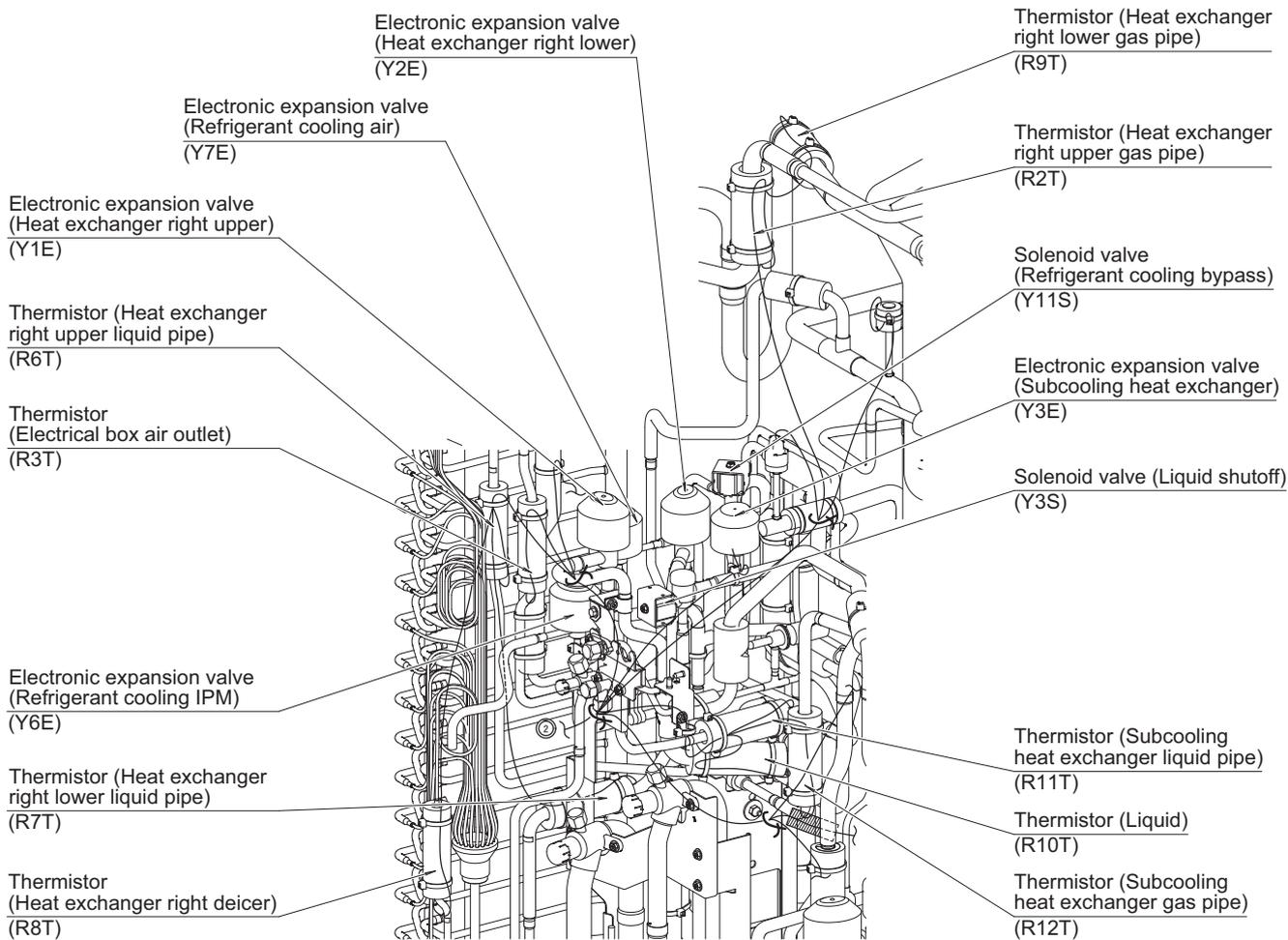
Electronic expansion valve
(Receiver gas purge)
(Y4E)

Thermistor
(Compressor suction)
(R19T)

Solenoid valve
(Accumulator oil return)
(Y4S)

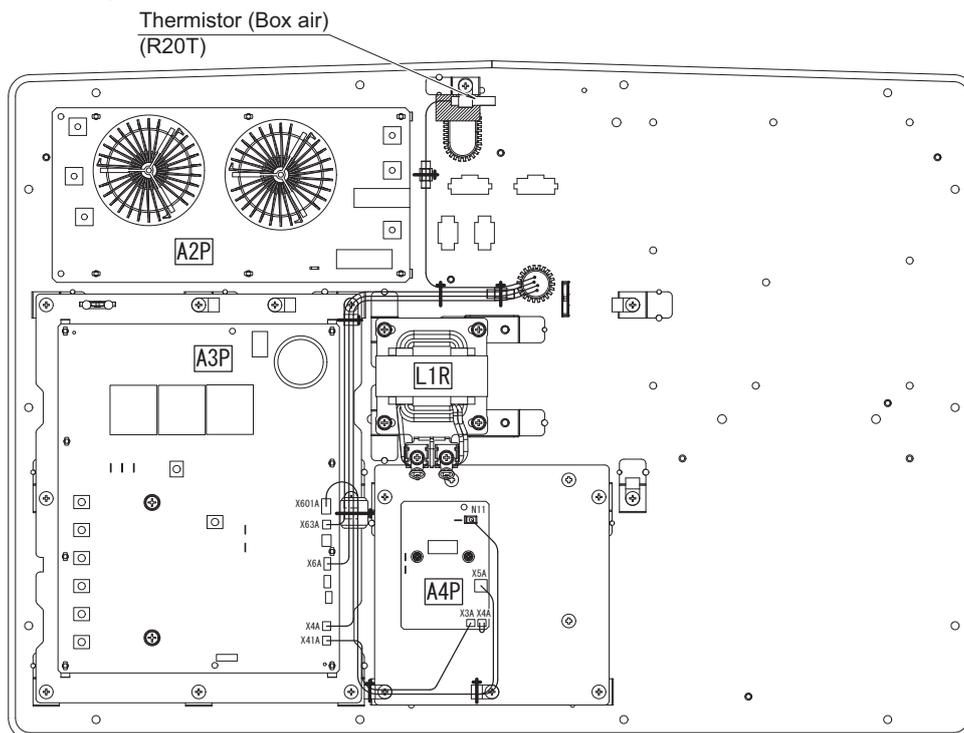
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Detail of A



C: 0P824192E

Inside Electrical Component Box



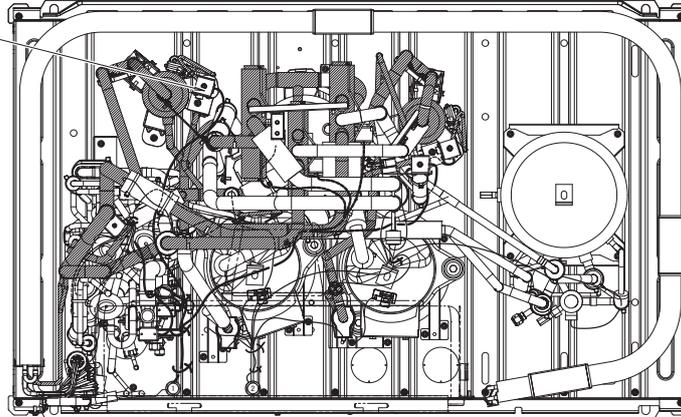
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* The illustration shown is of the 208/230 V models as a representative.

2.2 REYA96/120AA

Plane View

Solenoid valve
(Oil separator oil return 2)
(Y1S)



Front View

Fan motor 2
(M2F)

Four way valve
(Heat exchanger right upper)
(Y10S)

Four way valve
(HP/LP gas pipe)
(Y8S)

High pressure sensor
(S1NPH)

High pressure switch (M2C)
(S2PH)

Thermistor (Outdoor air)
(R1T)

Thermistor (M2C body)
(R18T)

Thermistor
(M2C discharge pipe)
(R17T)

A

Crankcase heater
(E3HC)(E4HC)

Compressor 2
(M2C)

Fan motor 1
(M1F)

Four way valve
(Heat exchanger right lower)
(Y7S)

High pressure switch (M1C)
(S1PH)

Thermistor
(M1C discharge pipe)
(R15T)

Thermistor
(Receiver gas purge)
(R4T)

Thermistor (M1C body)
(R16T)

Electronic expansion valve
(Receiver gas purge)
(Y4E)

Crankcase heater
(E1HC)(E2HC)

Compressor 1
(M1C)

C: 0P824193G

Detail of A

Thermistor (Heat exchanger right upper gas pipe)
(R2T)

Thermistor (Electrical box air outlet)
(R3T)

Thermistor (Heat exchanger right upper liquid pipe)
(R6T)

Thermistor (Heat exchanger right lower liquid pipe)
(R7T)

Thermistor (Heat exchanger right deicer)
(R8T)

Thermistor (Liquid)
(R10T)

Thermistor (Heat exchanger right lower gas pipe)
(R9T)

Thermistor (Suction pipe before accumulator)
(R5T)

Solenoid valve (Hot gas bypass)
(Y5S)

Low pressure sensor (S1NPL)

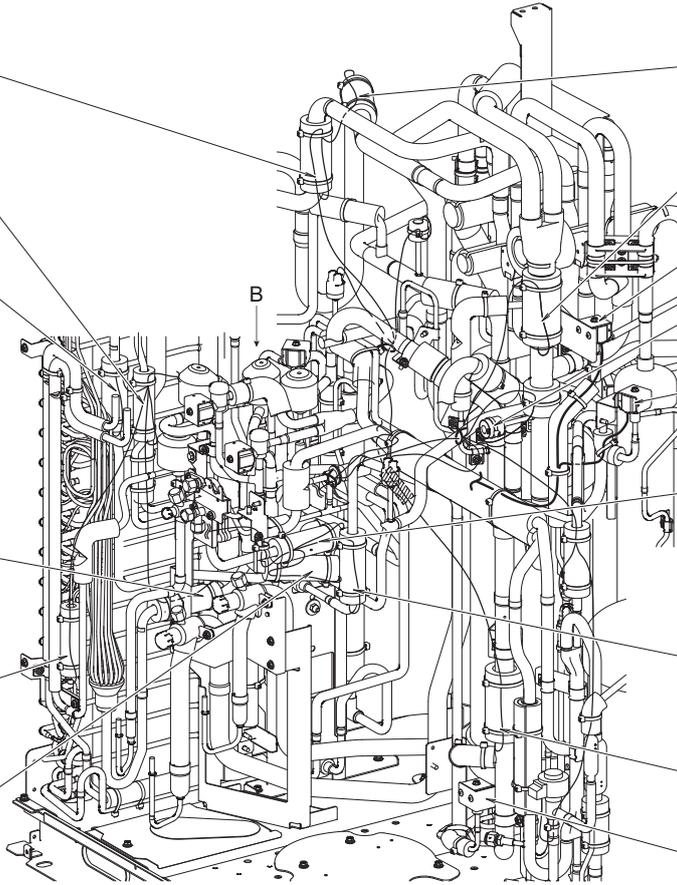
Solenoid valve (Oil separator oil return 1)
(Y2S)

Thermistor (Subcooling heat exchanger liquid pipe)
(R11T)

Thermistor (Subcooling heat exchanger gas pipe)
(R12T)

Thermistor (Compressor suction)
(R19T)

Solenoid valve (Accumulator oil return)
(Y4S)



Detail of B

Solenoid valve (Refrigerant cooling bypass)
(Y11S)

Electronic expansion valve (Heat exchanger right lower)
(Y2E)

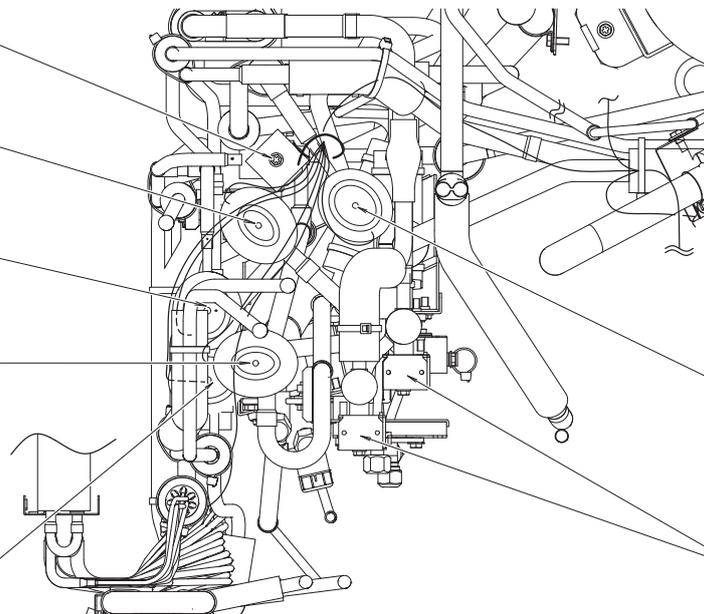
Electronic expansion valve (Refrigerant cooling air)
(Y7E)

Electronic expansion valve (Heat exchanger right upper)
(Y1E)

Electronic expansion valve (Refrigerant cooling IPM)
(Y6E)

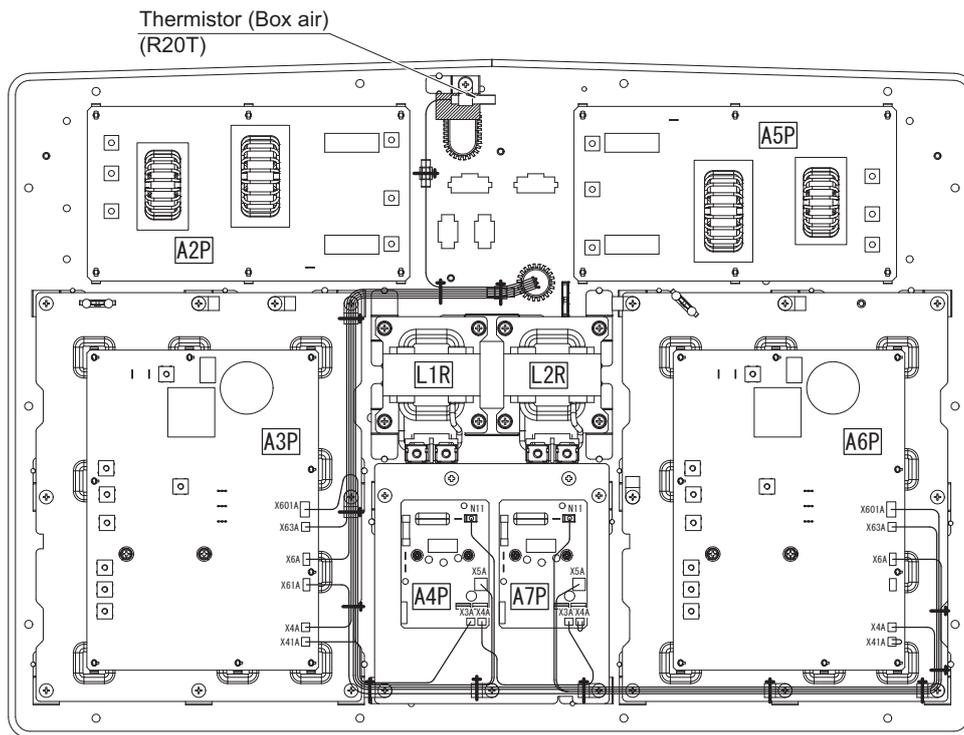
Electronic expansion valve (Subcooling heat exchanger)
(Y3E)

Solenoid valve (Liquid shutoff)
(Y3S)



C: 0P824193G

Inside Electrical Component Box



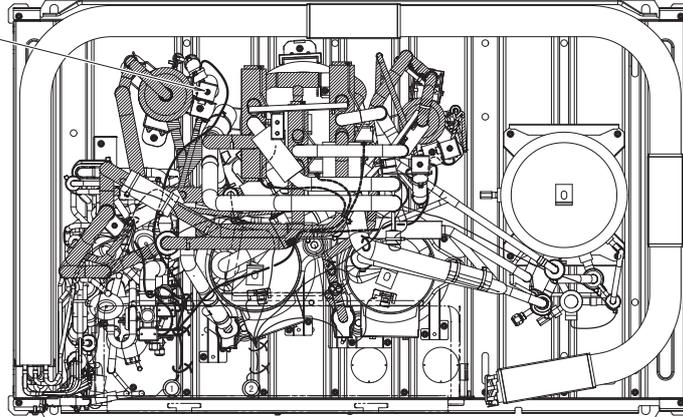
C: 2P816724B

* The illustration shown is of the 208/230 V models as a representative.

2.3 REYA144/168AA

Plane View

Solenoid valve
(Oil separator oil return 2)
(Y1S)



Front View

Fan motor 2
(M2F)

Four way valve
(Heat exchanger right upper)
(Y10S)

Four way valve
(HP/LP gas pipe)
(Y8S)

High pressure sensor
(S1NPH)

High pressure switch (M2C)
(S2PH)

Thermistor (Outdoor air)
(R1T)

Thermistor (M2C body)
(R18T)

Thermistor
(M2C discharge pipe)
(R17T)

A

Crankcase heater
(E3HC)(E4HC)

Compressor 2
(M2C)

Fan motor 1
(M1F)

Four way valve
(Heat exchanger right lower)
(Y7S)

High pressure switch (M1C)
(S1PH)

Thermistor
(M1C discharge pipe)
(R15T)

Thermistor
(Receiver gas purge)
(R4T)

Thermistor (M1C body)
(R16T)

Electronic expansion valve
(Receiver gas purge)
(Y4E)

Crankcase heater
(E1HC)(E2HC)

Compressor 1
(M1C)

C: 0P824194H

Detail of A

Thermistor (Heat exchanger right upper gas pipe)
(R2T)

Thermistor (Electrical box air outlet)
(R3T)

Thermistor (Heat exchanger right upper liquid pipe)
(R6T)

Thermistor (Heat exchanger right lower liquid pipe)
(R7T)

Thermistor (Heat exchanger right deicer)
(R8T)

Thermistor (Liquid)
(R10T)

Thermistor (Heat exchanger right lower gas pipe)
(R9T)

Thermistor (Suction pipe before accumulator)
(R5T)

Solenoid valve (Hot gas bypass)
(Y5S)

Low pressure sensor
(S1NPL)

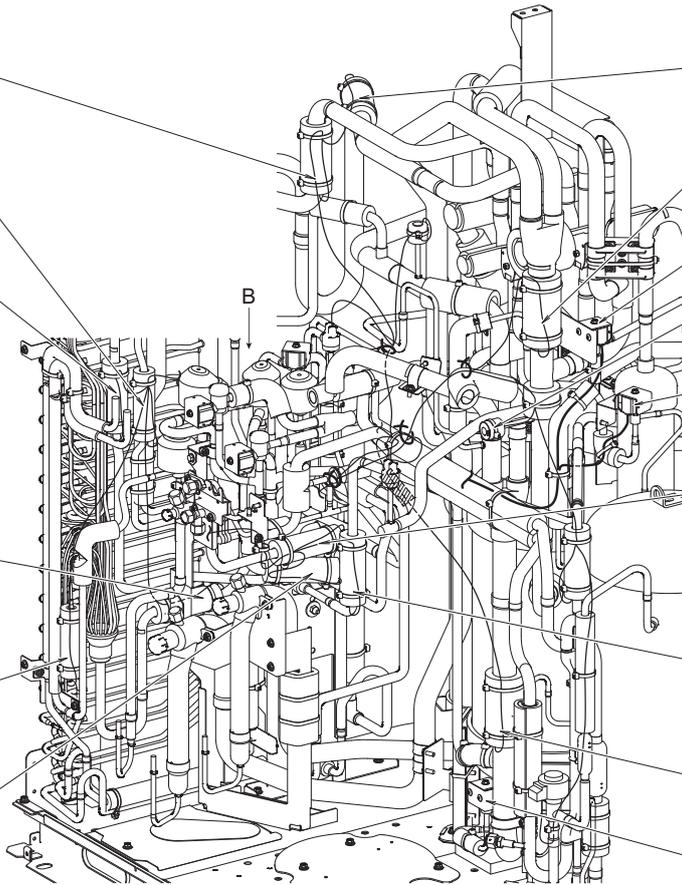
Solenoid valve (Oil separator oil return 1)
(Y2S)

Thermistor (Subcooling heat exchanger liquid pipe)
(R11T)

Thermistor (Subcooling heat exchanger gas pipe)
(R12T)

Thermistor (Compressor suction)
(R19T)

Solenoid valve (Accumulator oil return)
(Y4S)



Detail of B

Solenoid valve (Refrigerant cooling bypass)
(Y11S)

Electronic expansion valve (Heat exchanger right lower)
(Y2E)

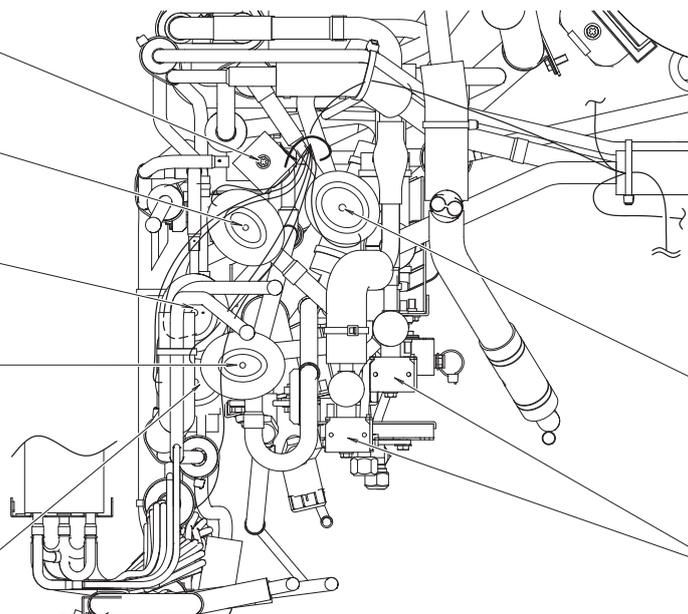
Electronic expansion valve (Refrigerant cooling air)
(Y7E)

Electronic expansion valve (Heat exchanger right upper)
(Y1E)

Electronic expansion valve (Refrigerant cooling IPM)
(Y6E)

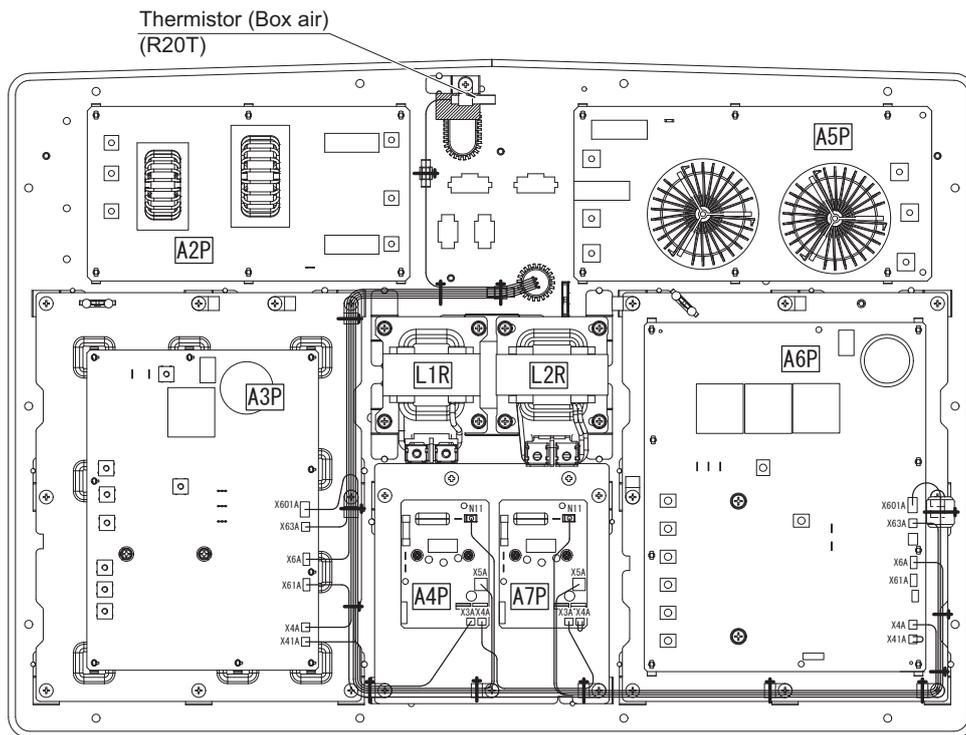
Electronic expansion valve (Subcooling heat exchanger)
(Y3E)

Solenoid valve (Liquid shutoff)
(Y3S)



C: 0P824194H

Inside Electrical Component Box

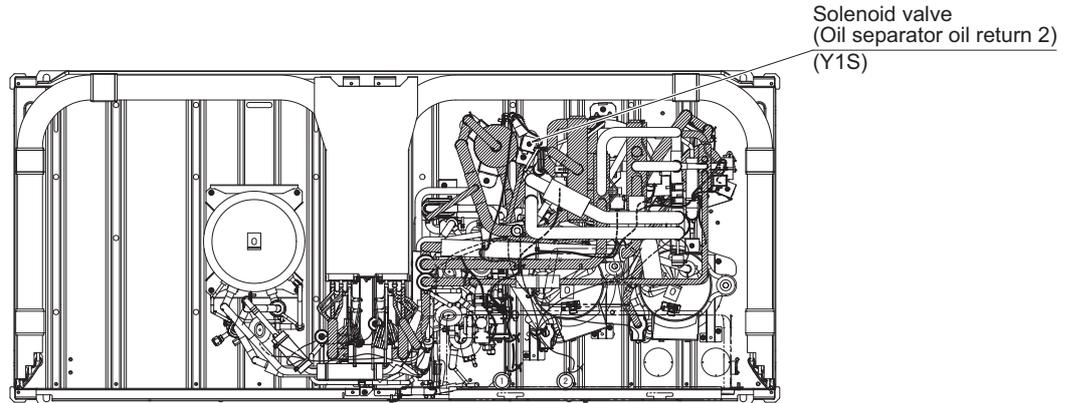


C: 2P816619A

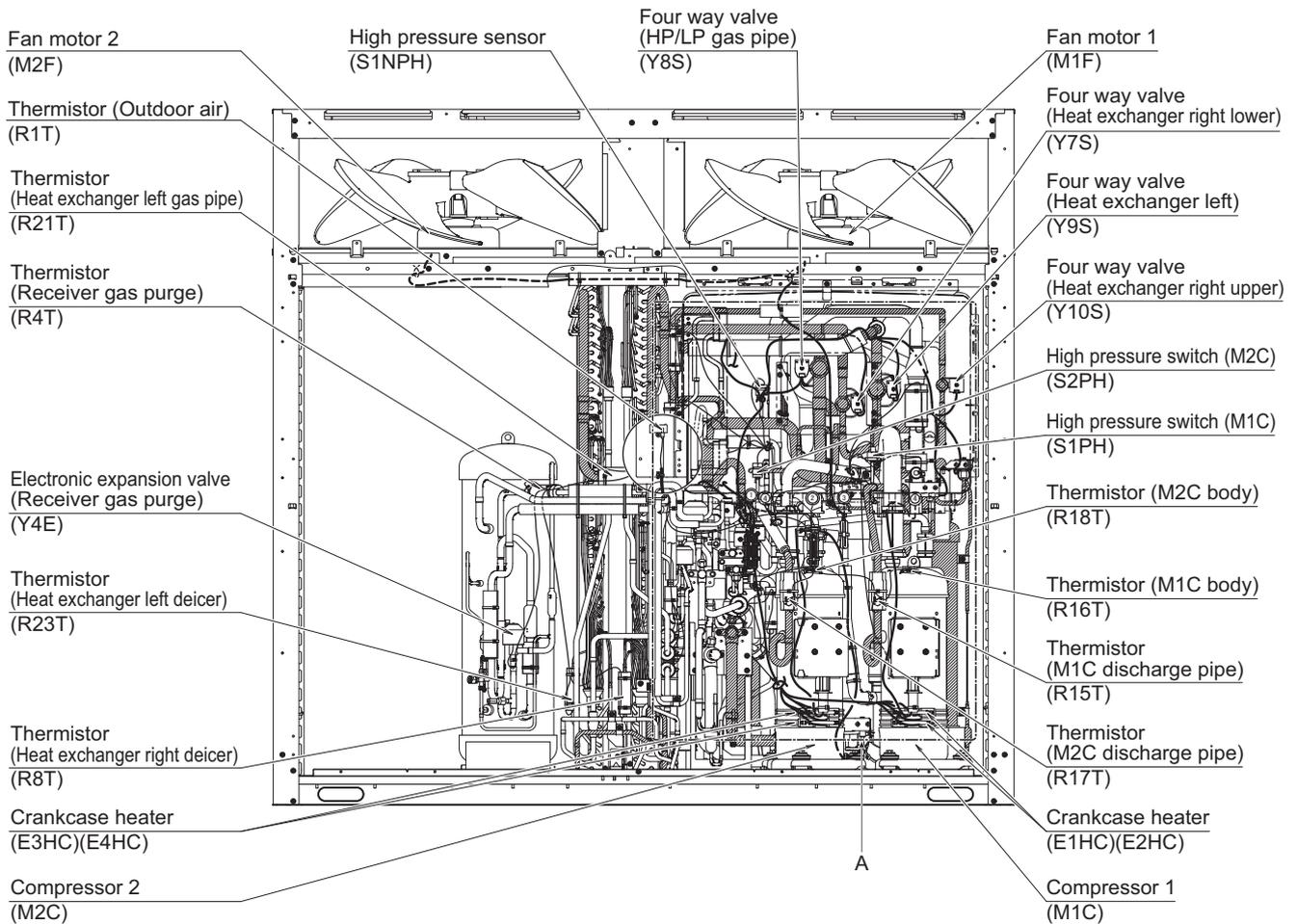
* The illustration shown is of the 208/230 V models as a representative.

2.4 REYA192/216/240AA

Plane View

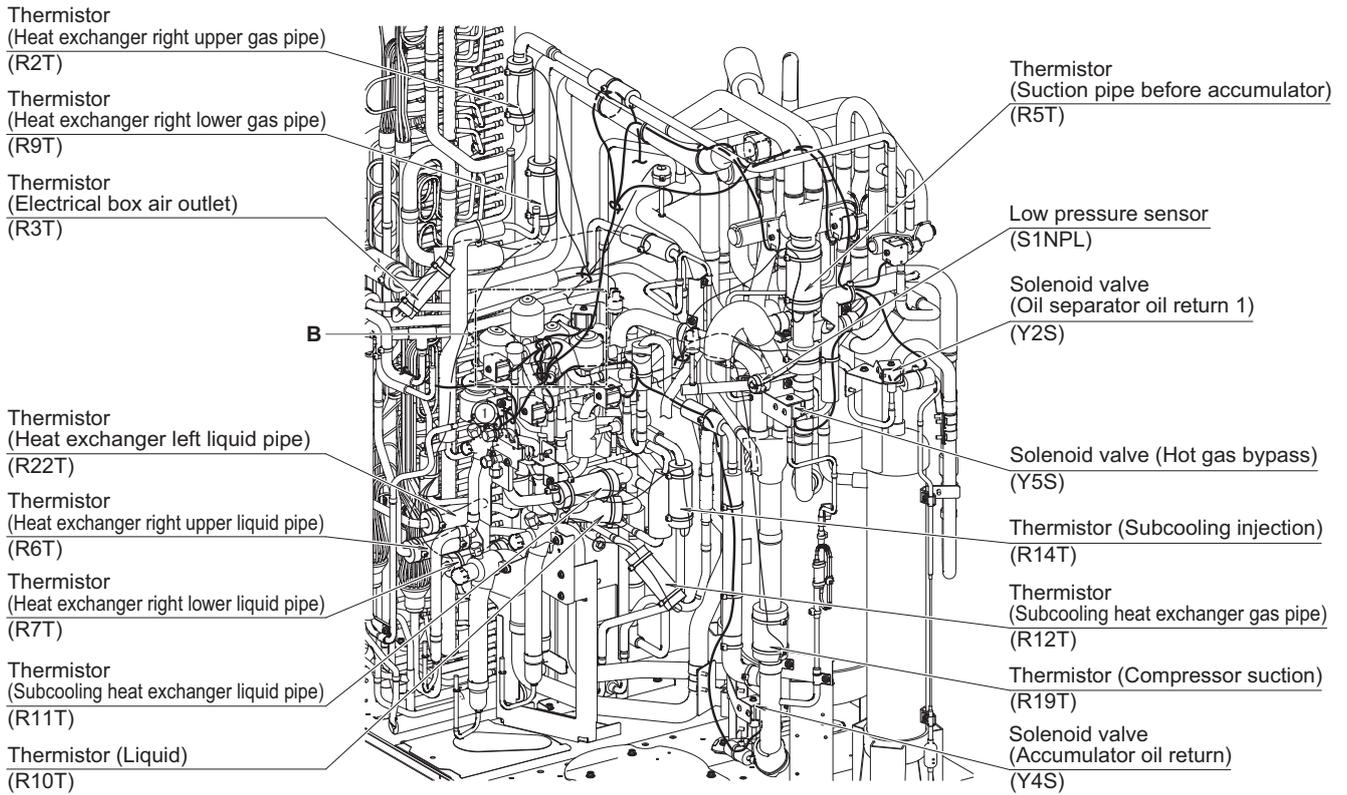


Front View

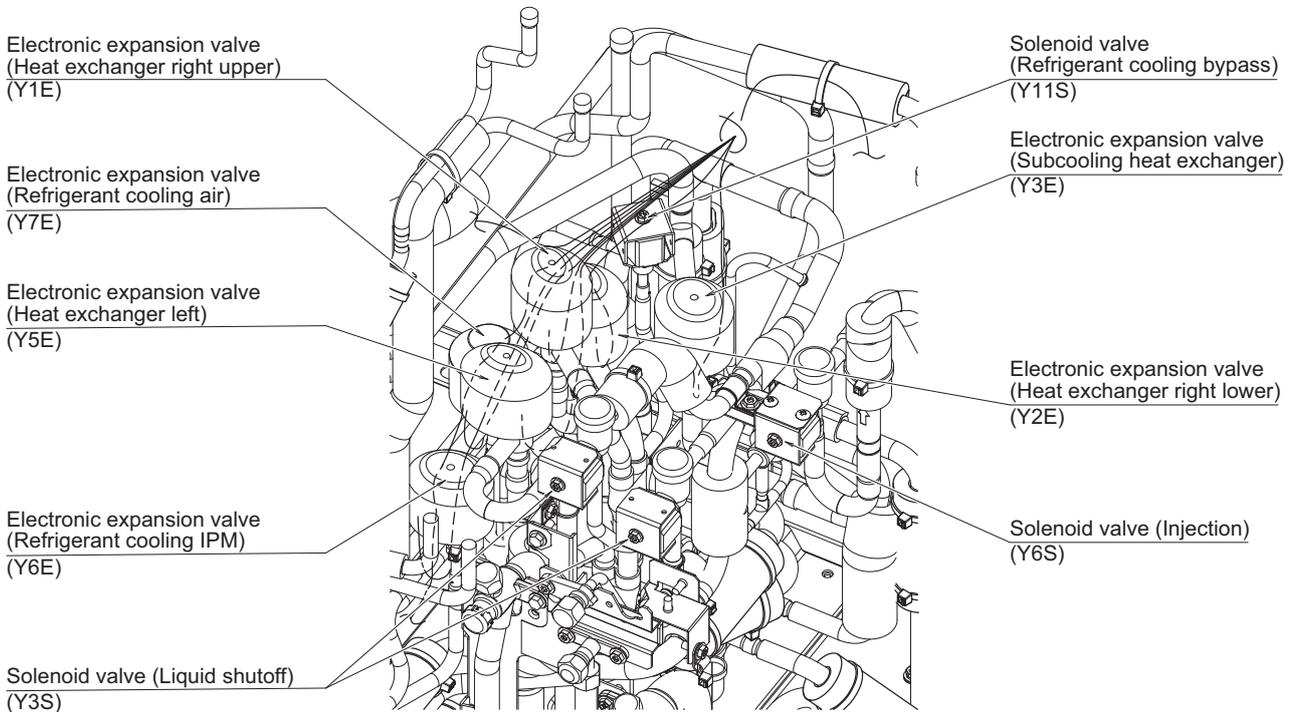


C: 0P824195F

Detail of A

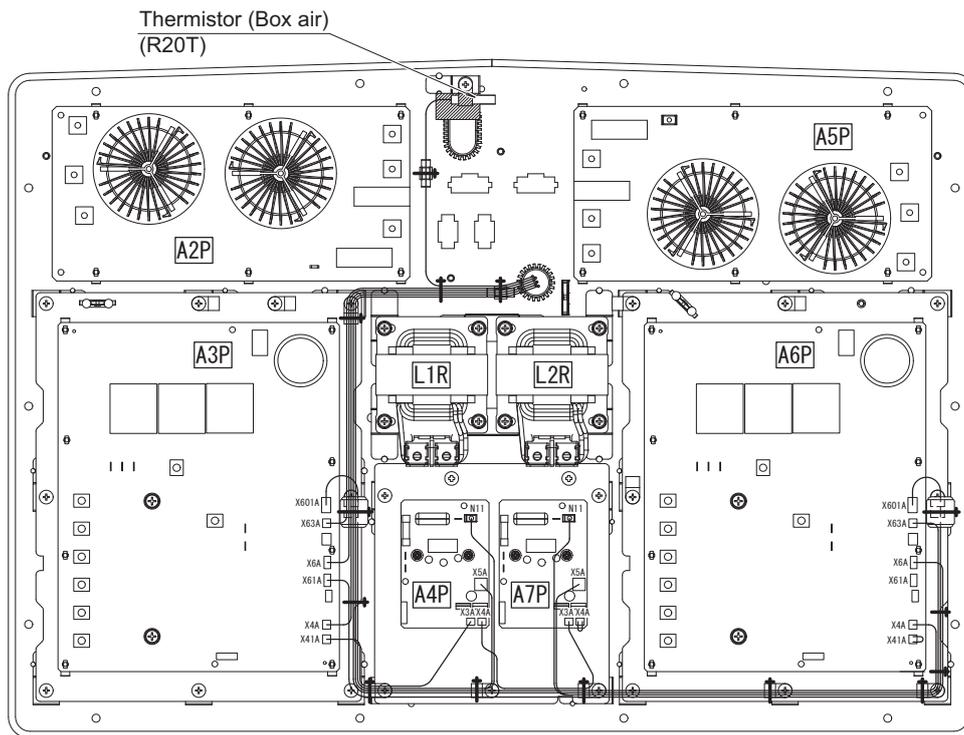


Detail of B



C: 0P824195F

Inside Electrical Component Box



C: 2P815742B

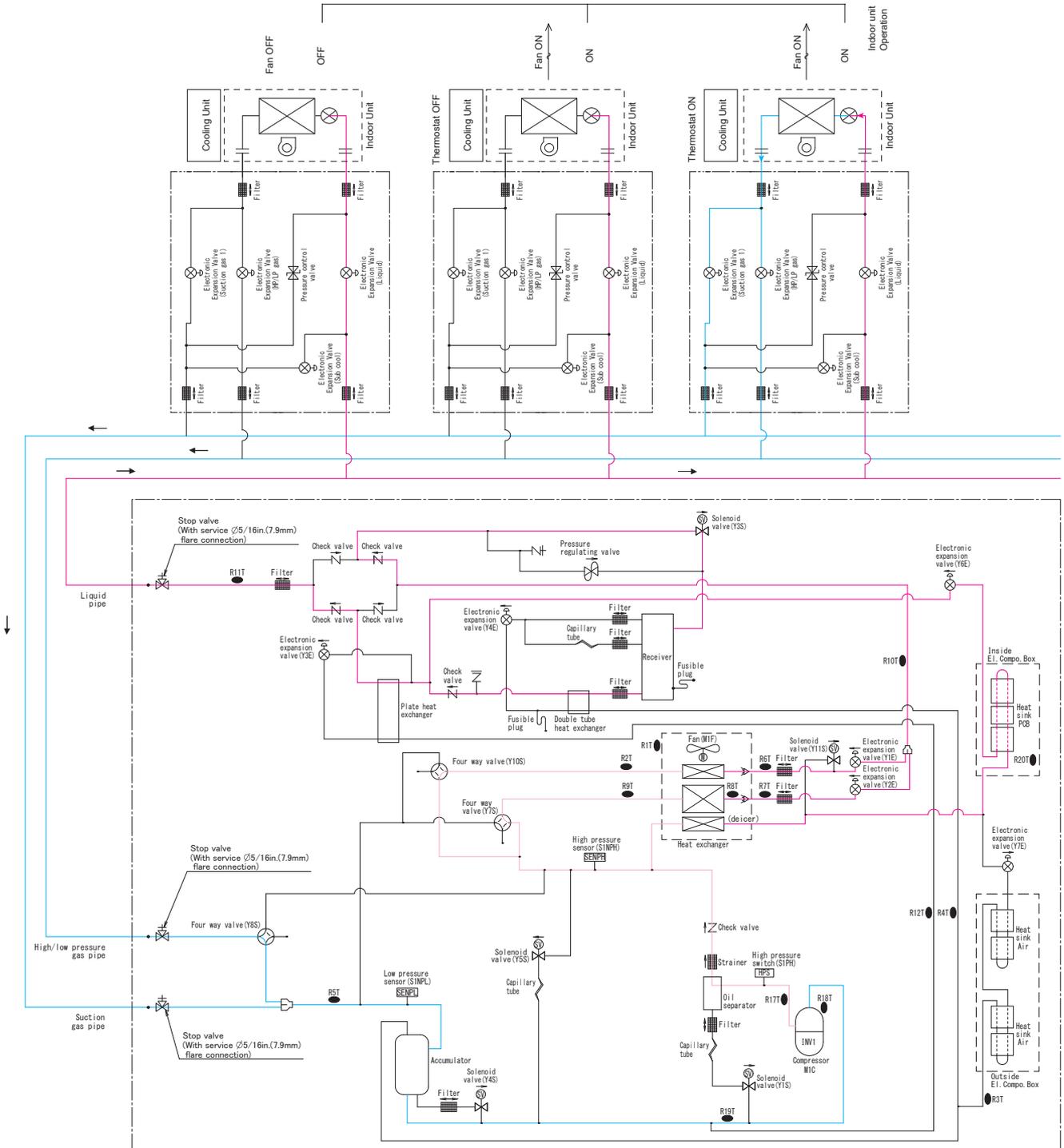
* The illustration shown is of the 208/230 V models as a representative.

3. Refrigerant Flow for Each Operation Mode

3.1 REYA72AA

Cooling Operation

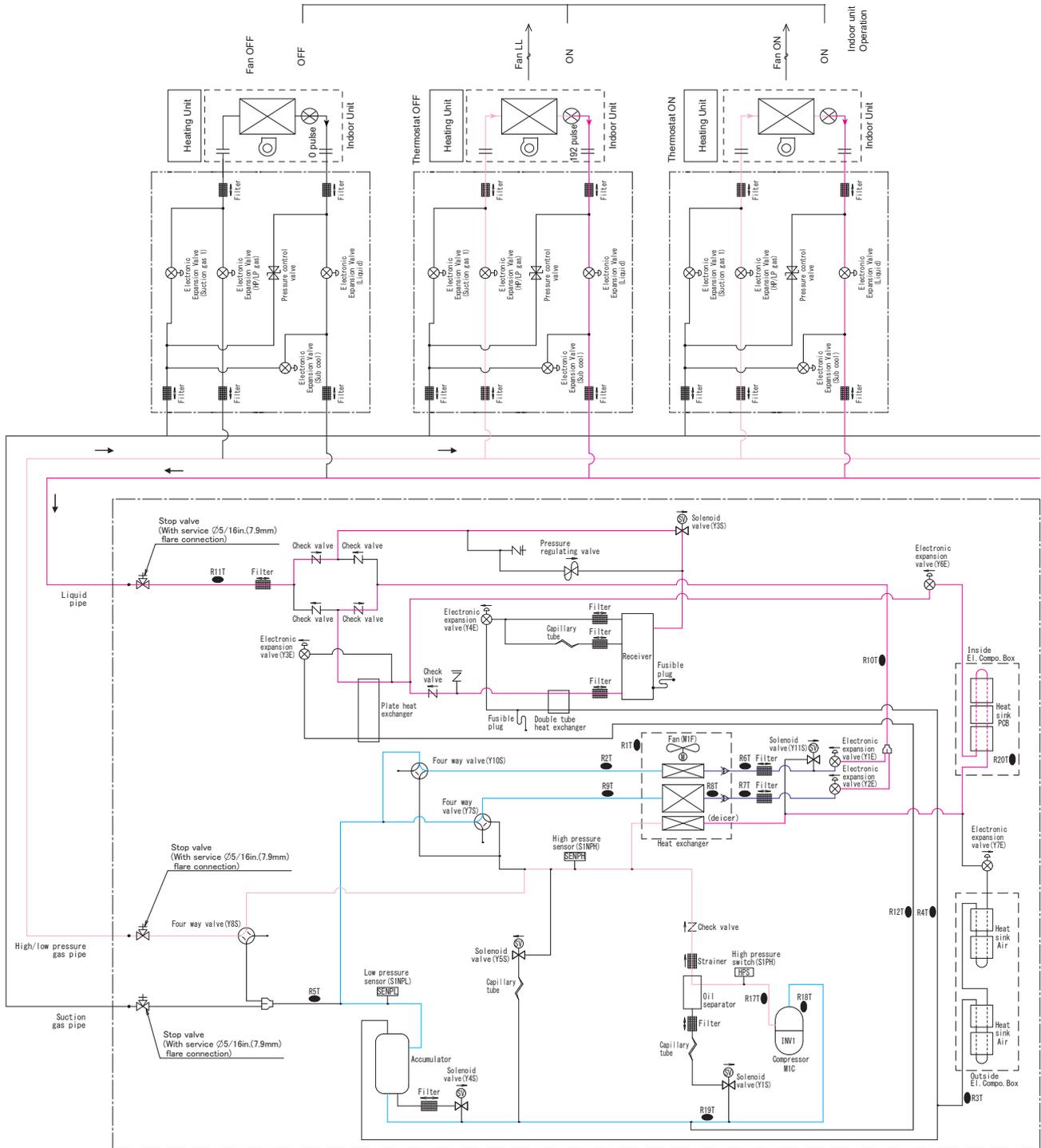
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D158884

Heating Operation

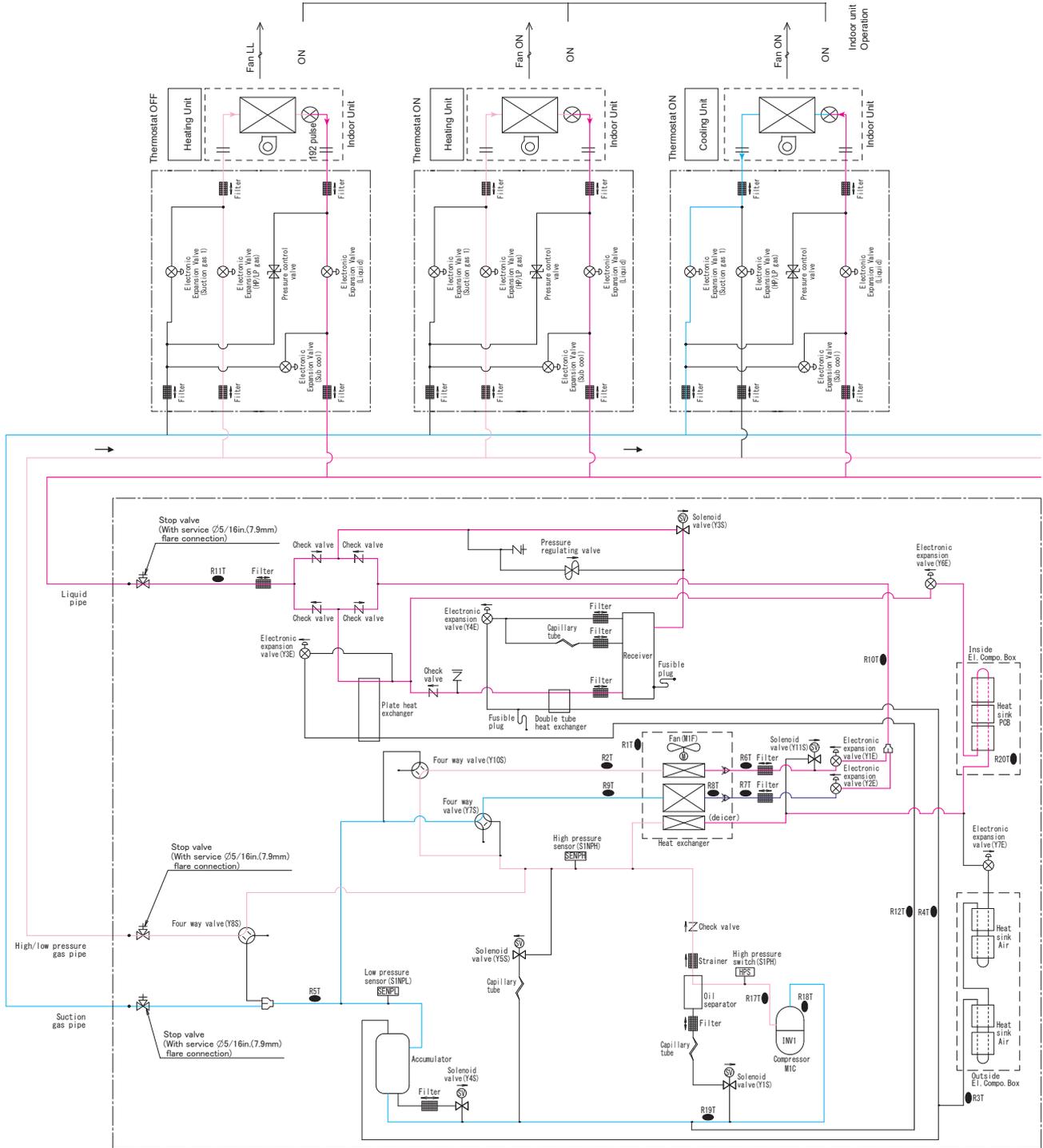
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15884

Simultaneous Cooling and Heating Operation

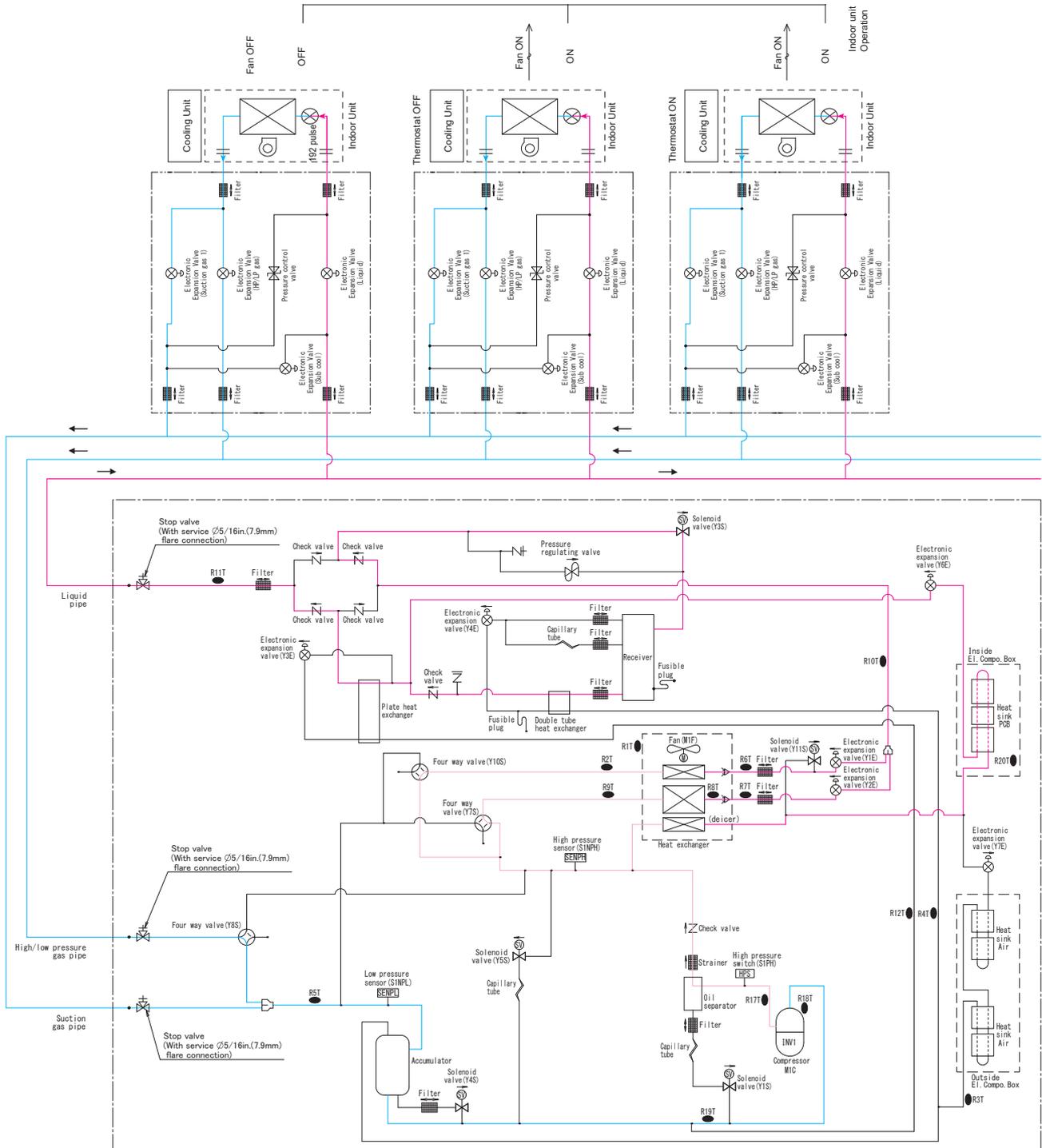
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D158884

Cooling Oil Return Operation

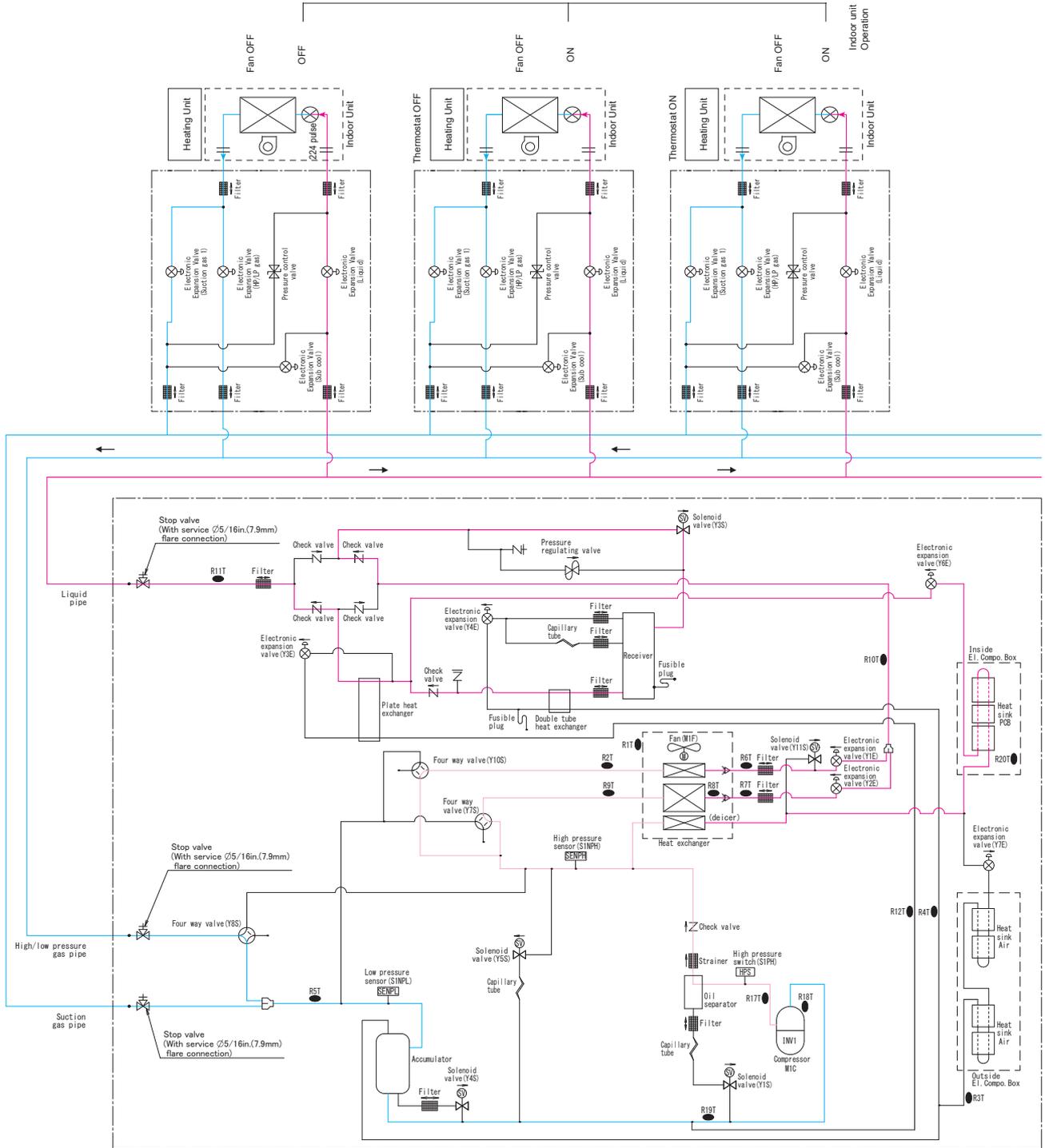
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15884

Defrost Heating Oil Return Operation

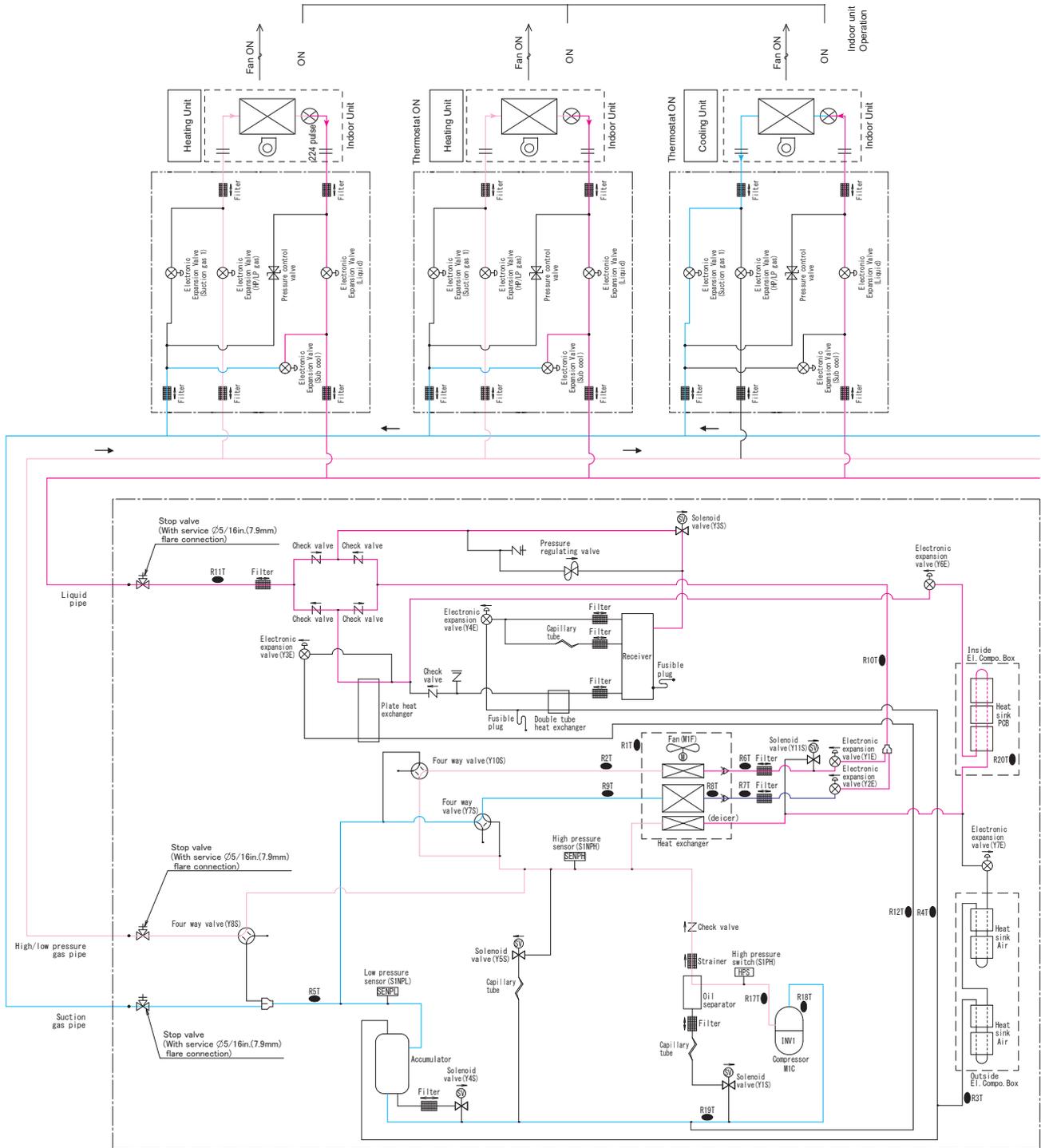
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D158884

Oil Return Operation at Simultaneous Cooling and Heating Operation

- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid

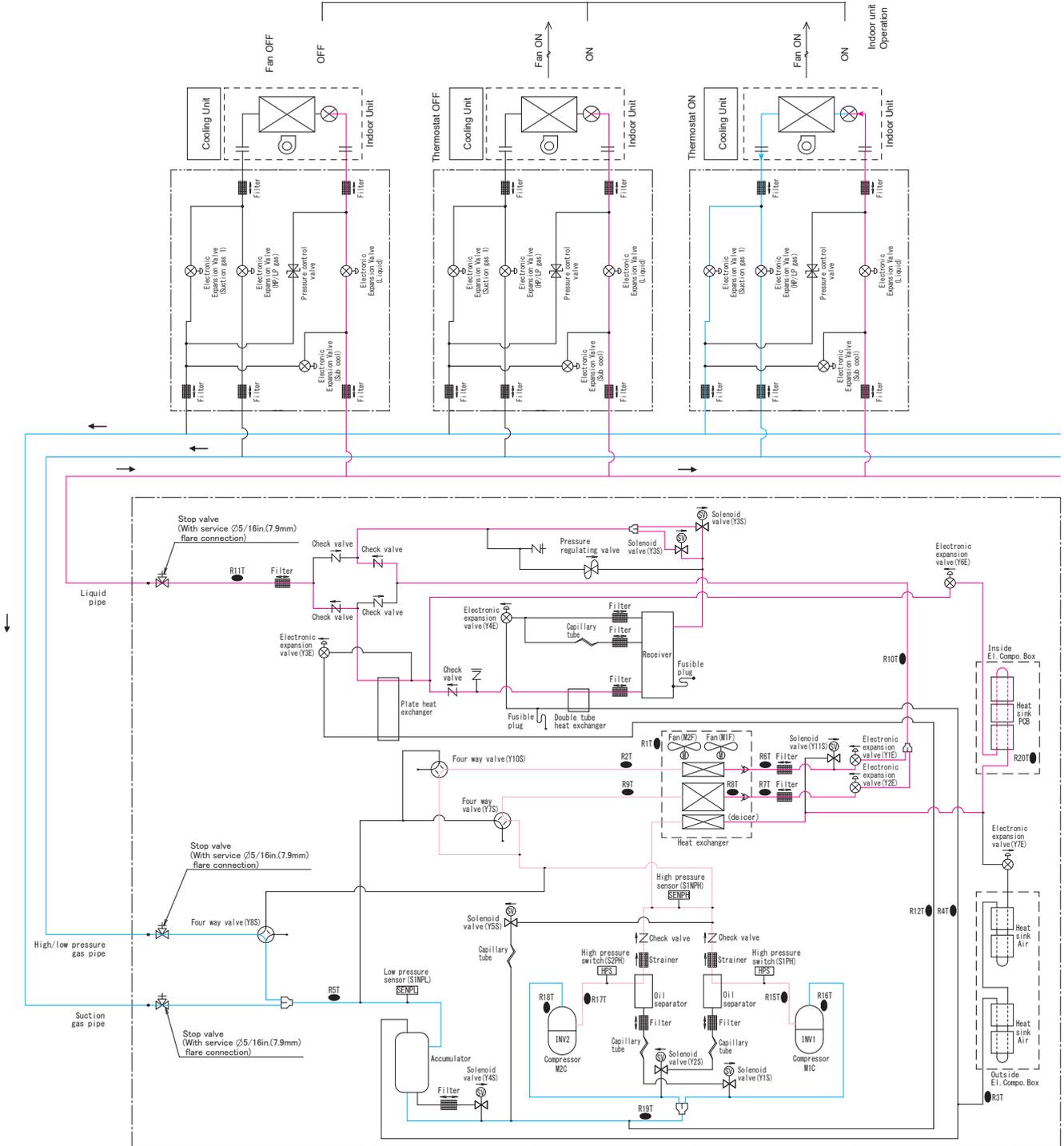


C: 3D158884

3.2 REYA96/120/144/168AA

Cooling Operation

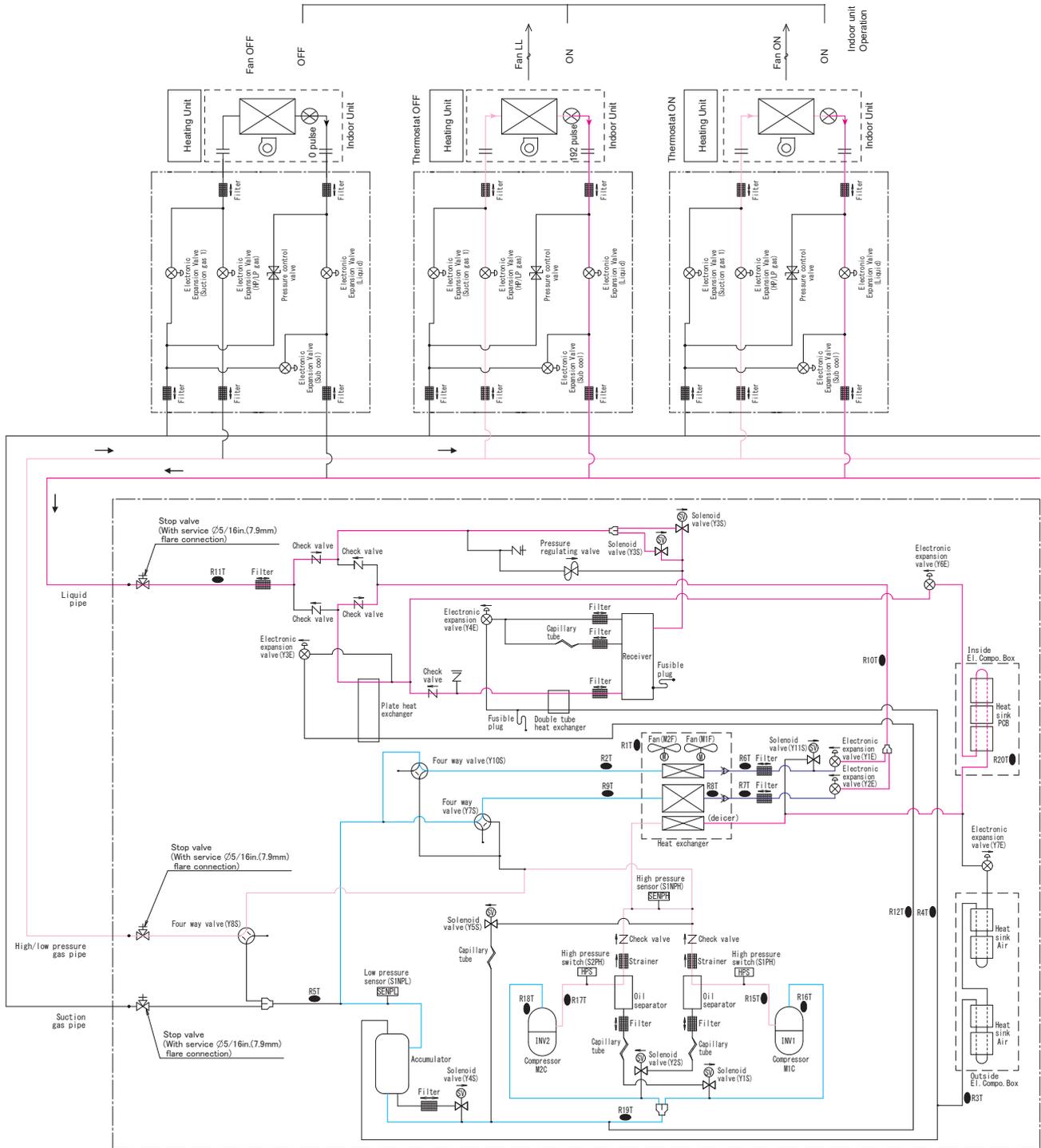
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D158885A

Heating Operation

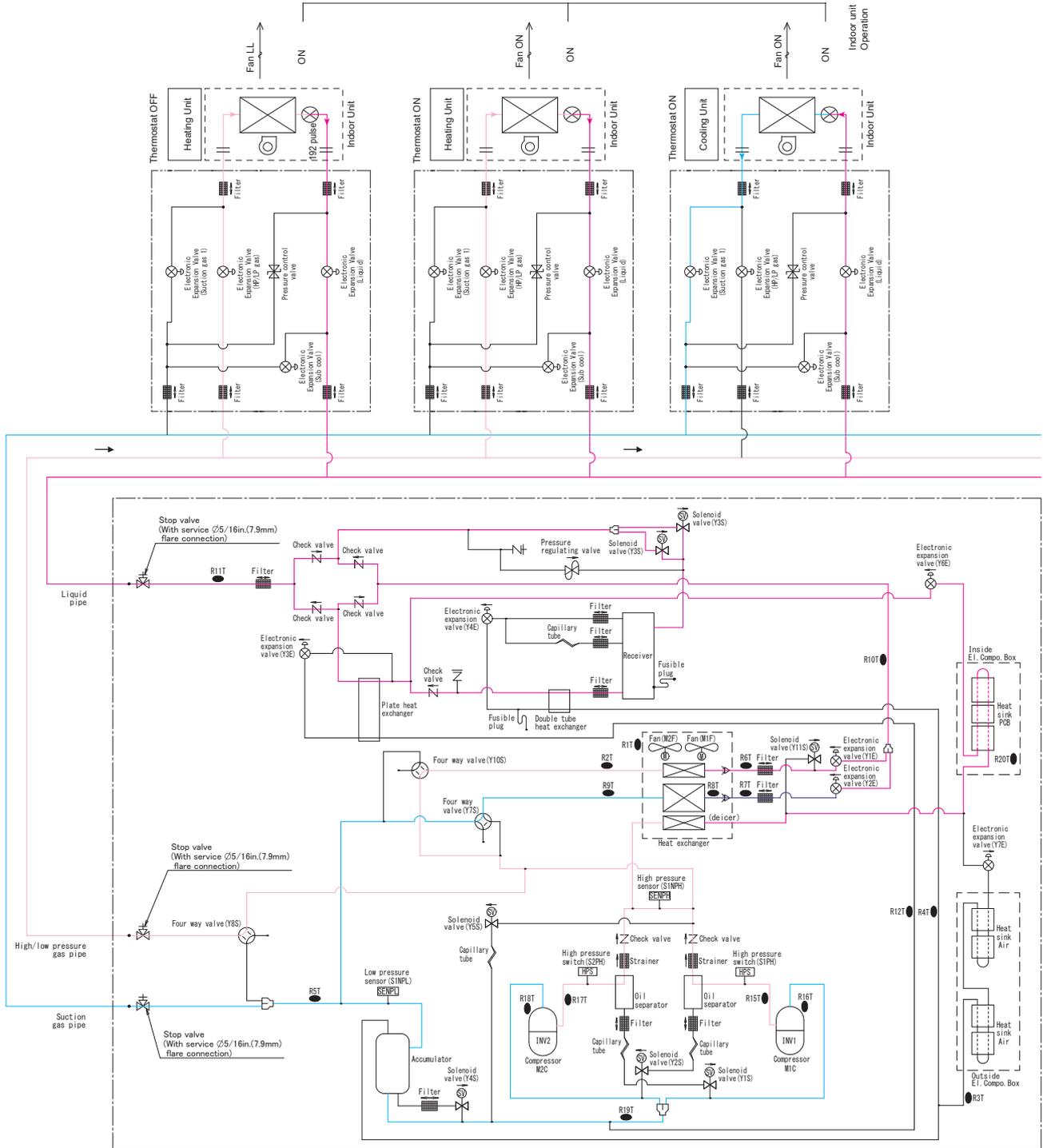
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15885A

Simultaneous Cooling and Heating Operation

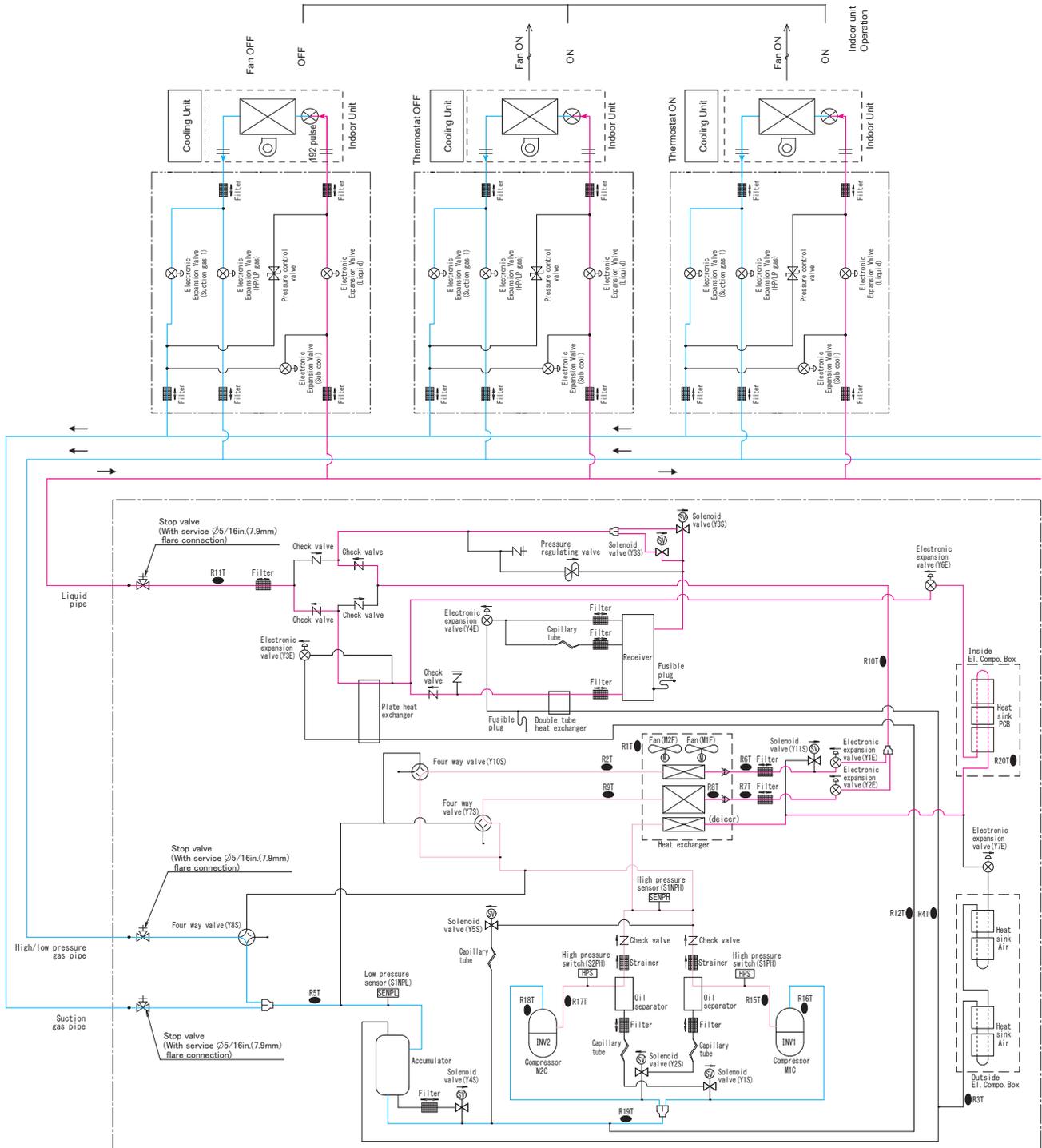
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15885A

Cooling Oil Return Operation

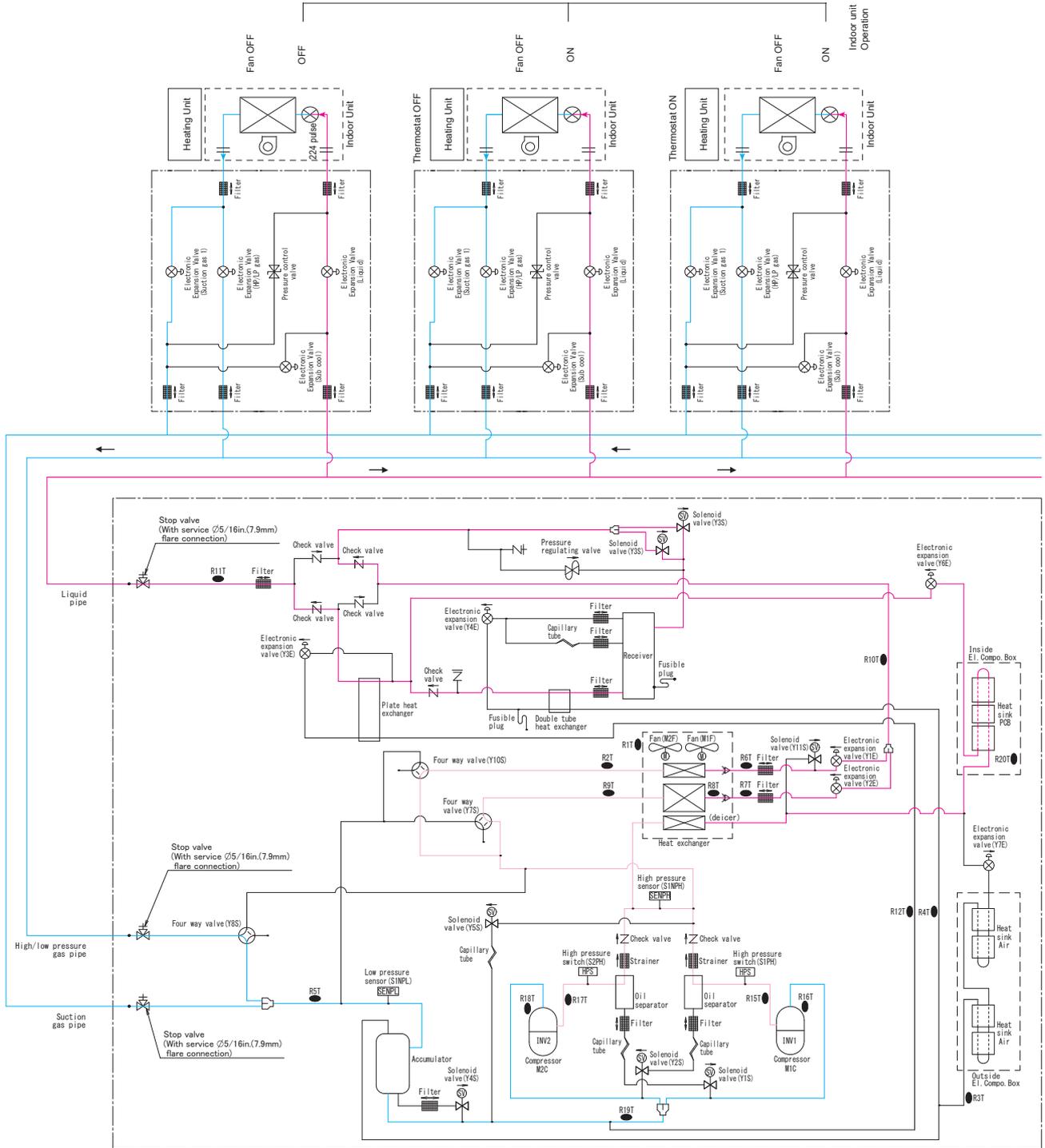
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15885A

Defrost Heating Oil Return Operation

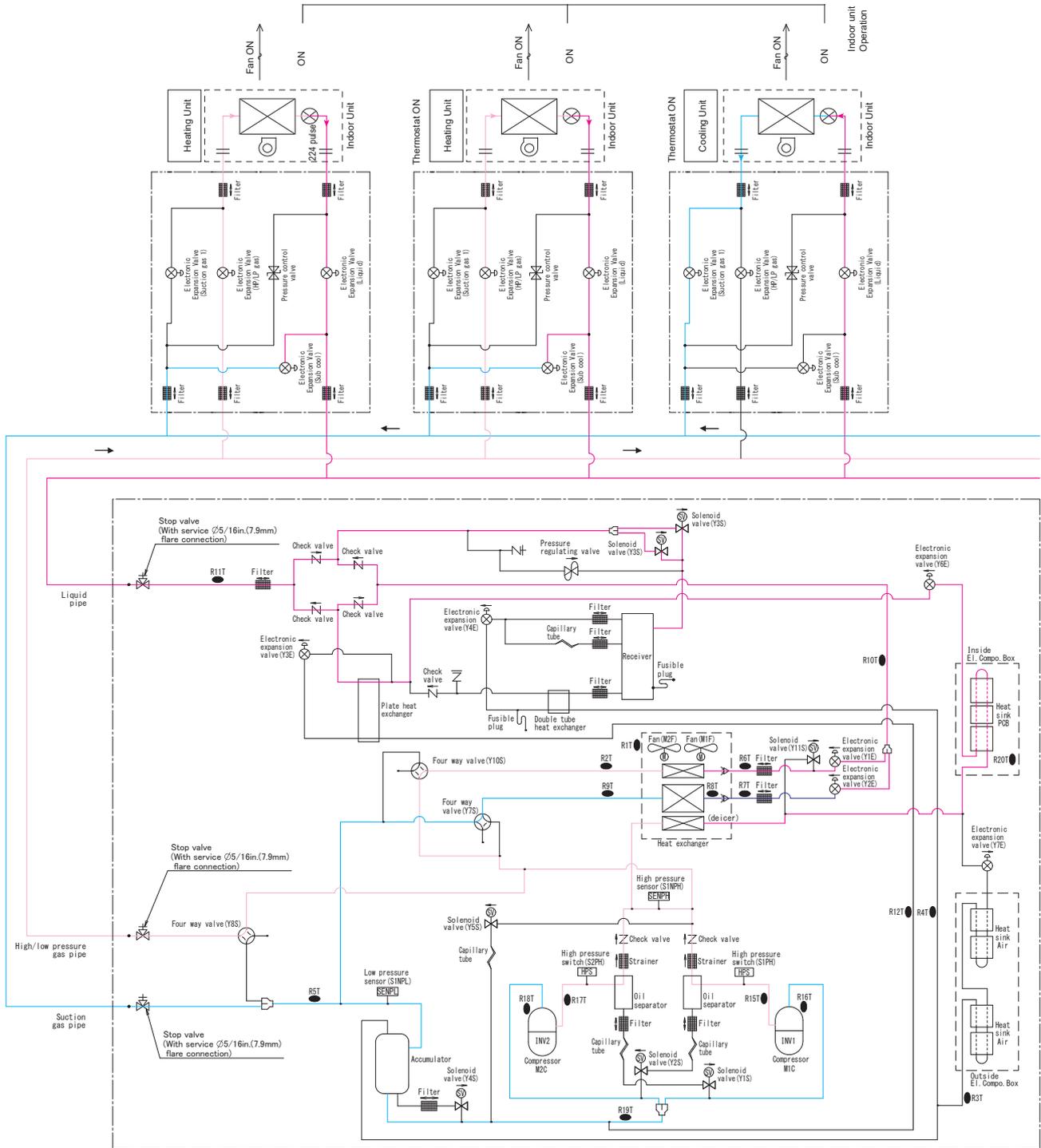
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15885A

Oil Return Operation at Simultaneous Cooling and Heating Operation

- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid

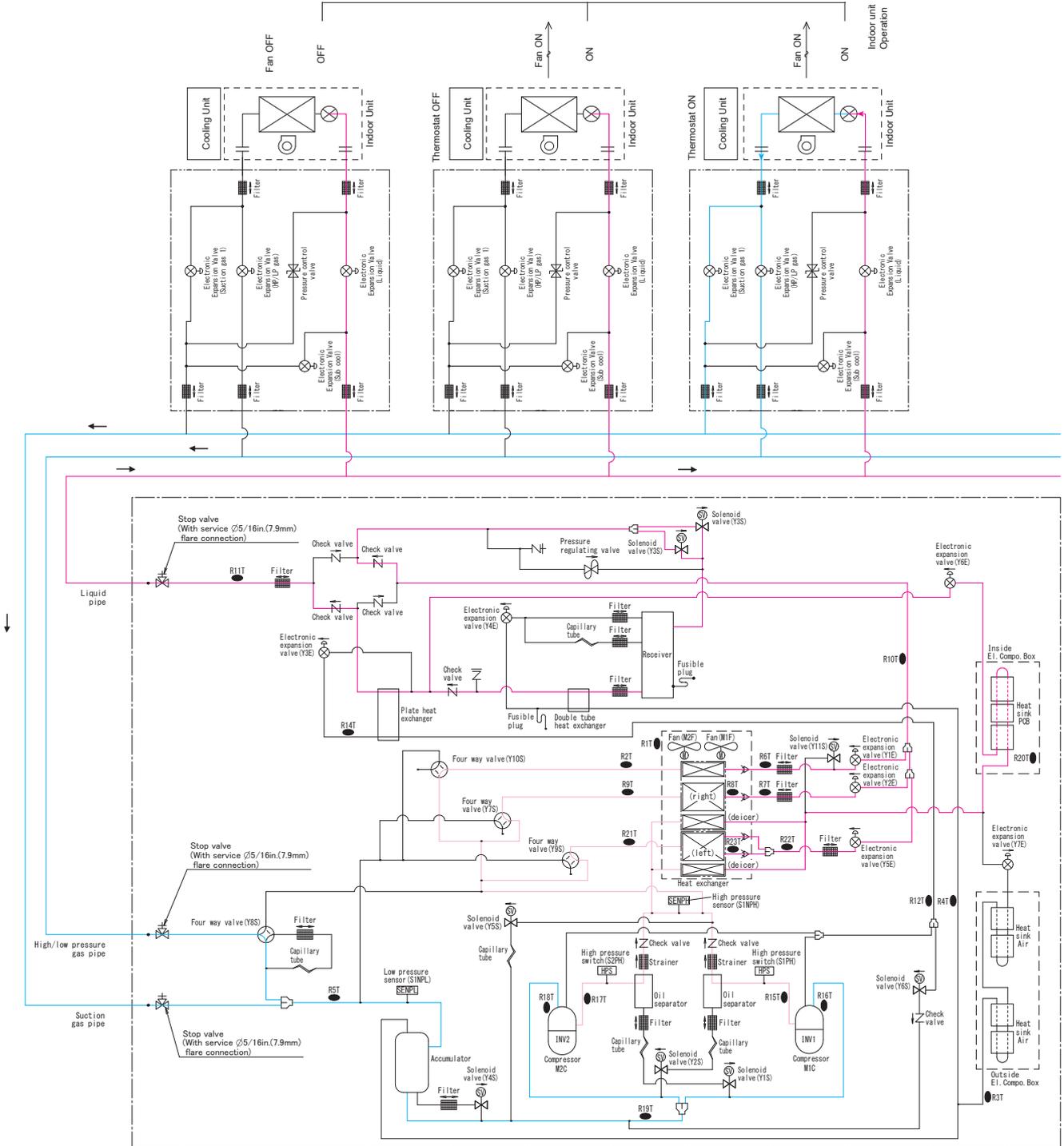


C: 3D15885A

3.3 REYA192/216/240AA

Cooling Operation

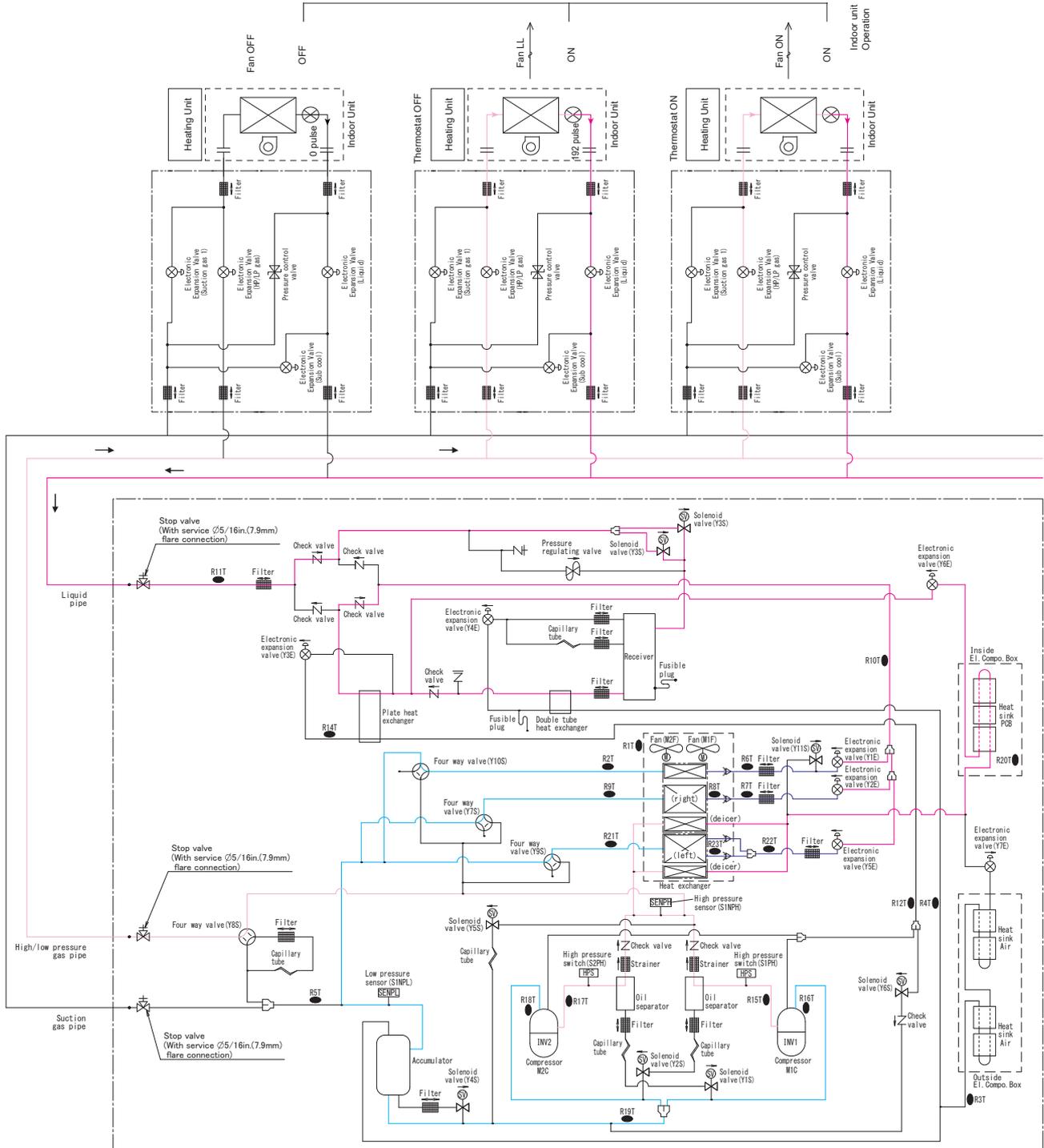
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D158886A

Heating Operation

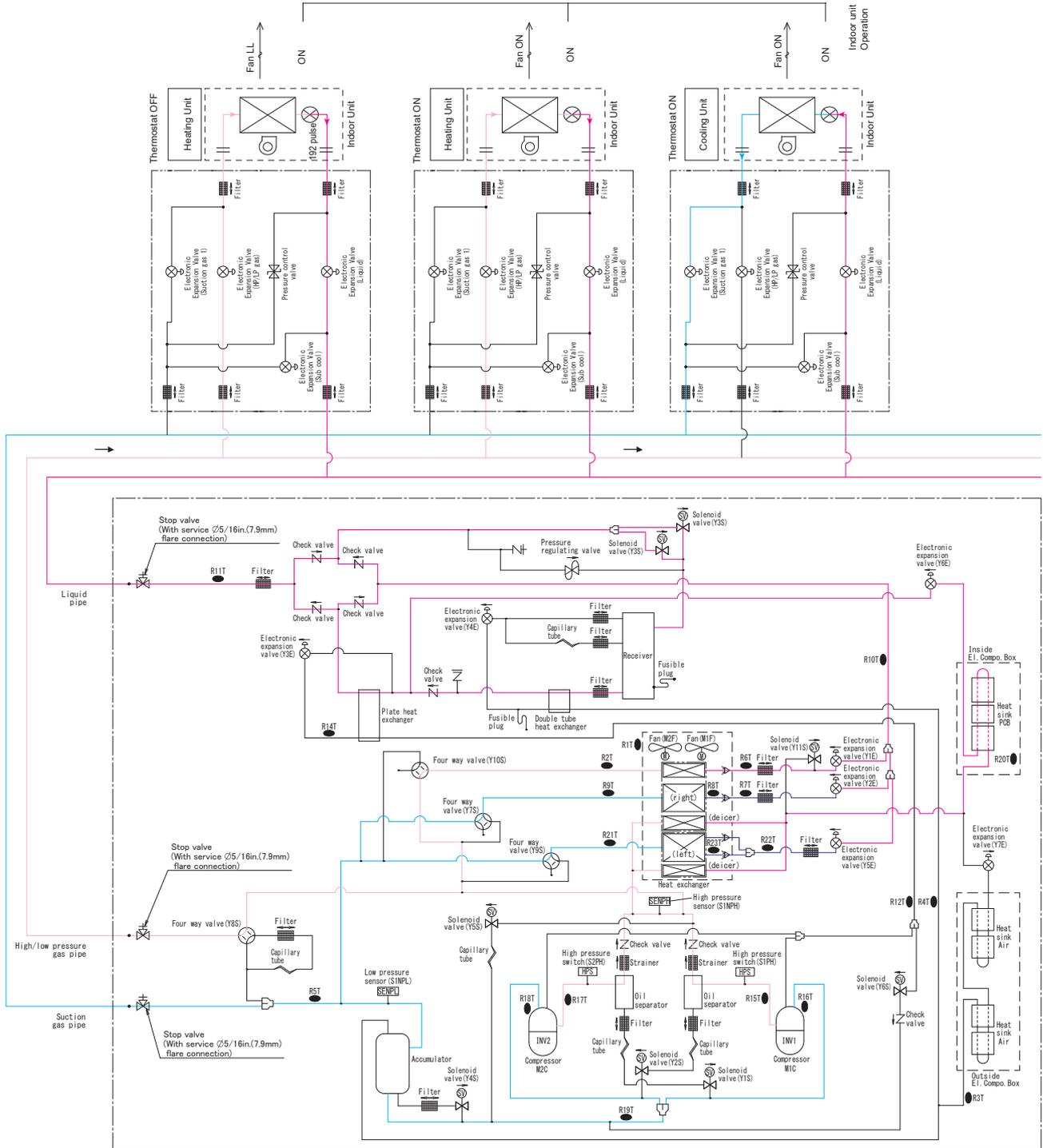
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15886A

Simultaneous Cooling and Heating Operation

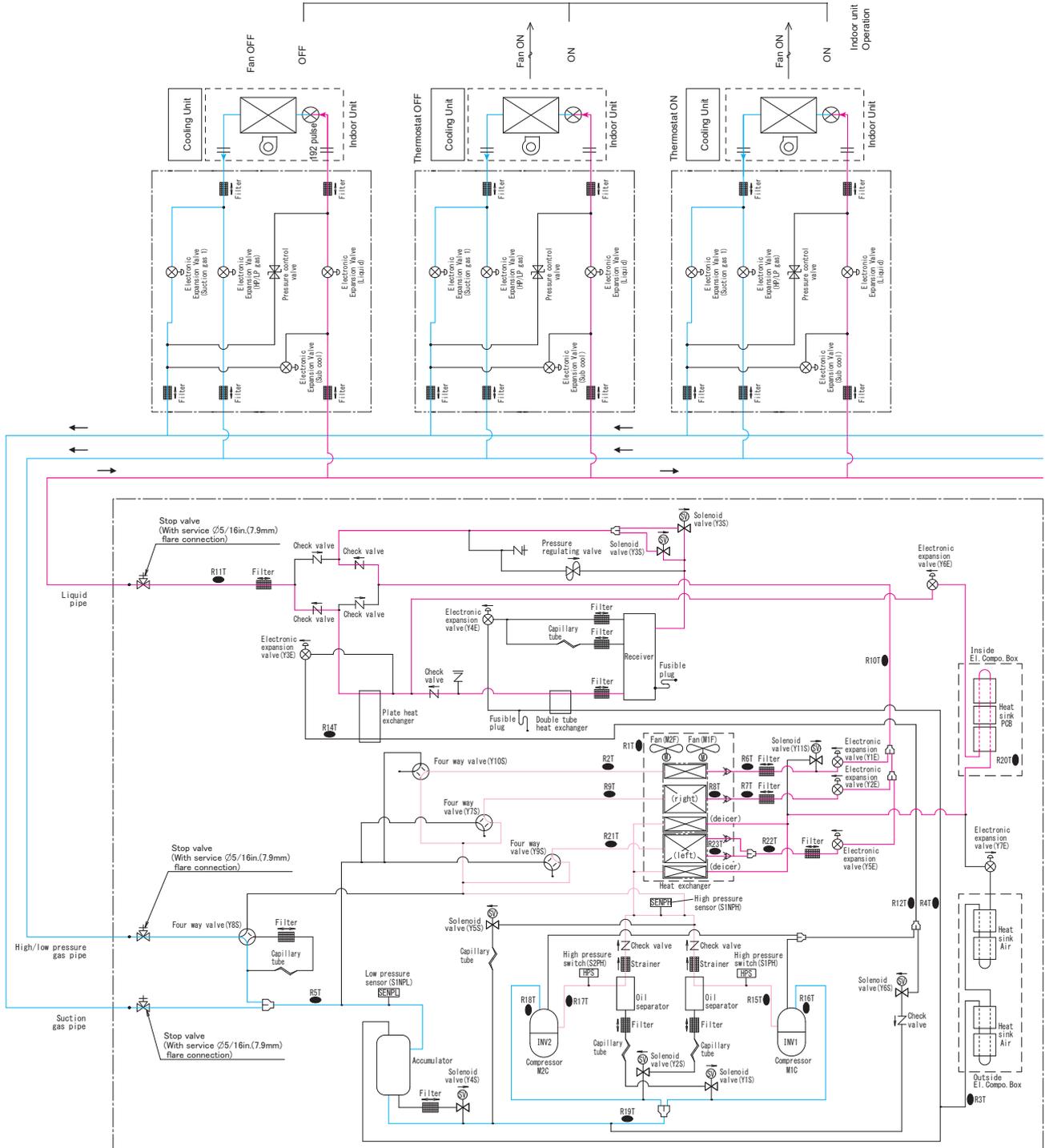
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15886A

Cooling Oil Return Operation

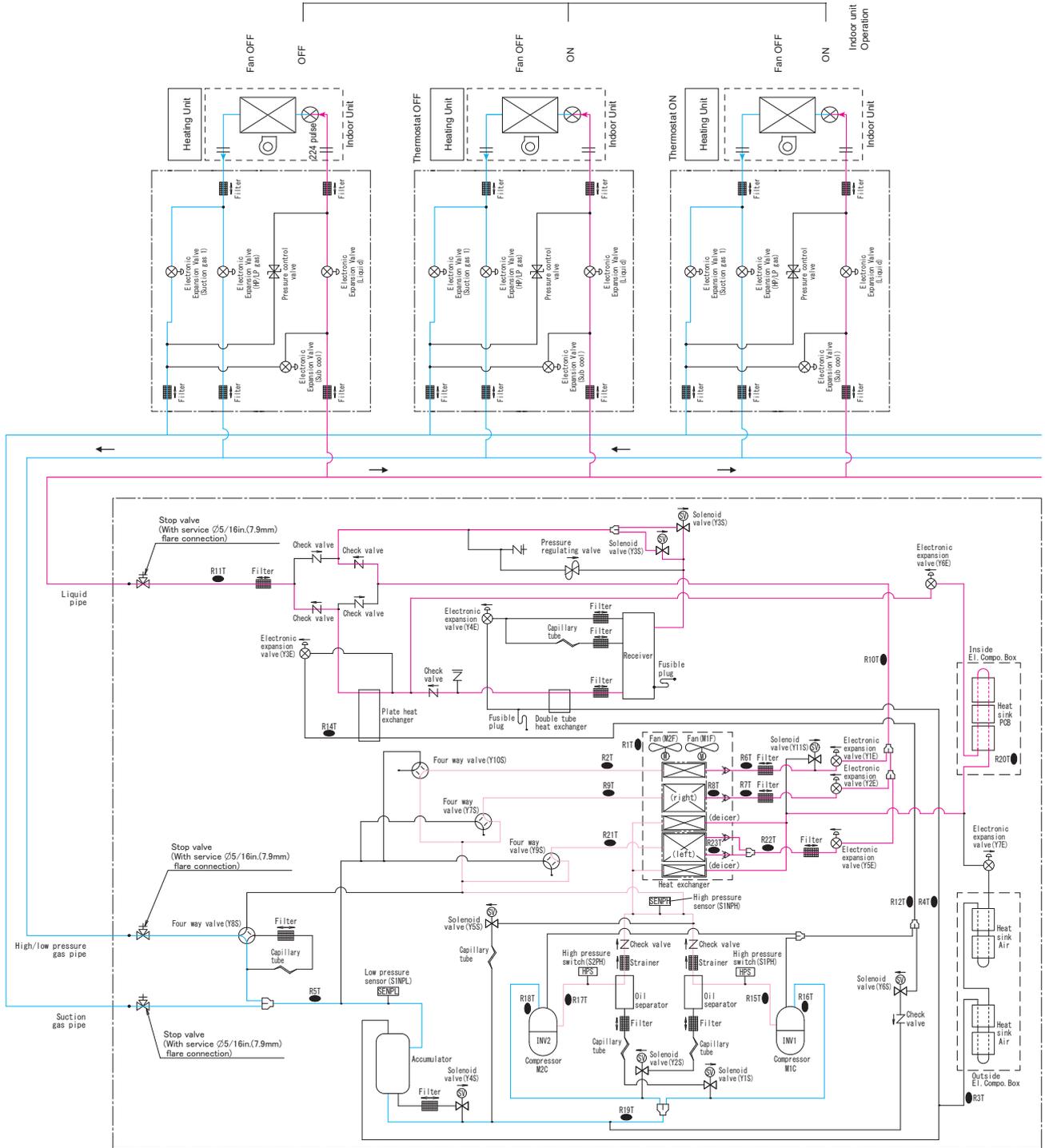
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15886A

Defrost Heating Oil Return Operation

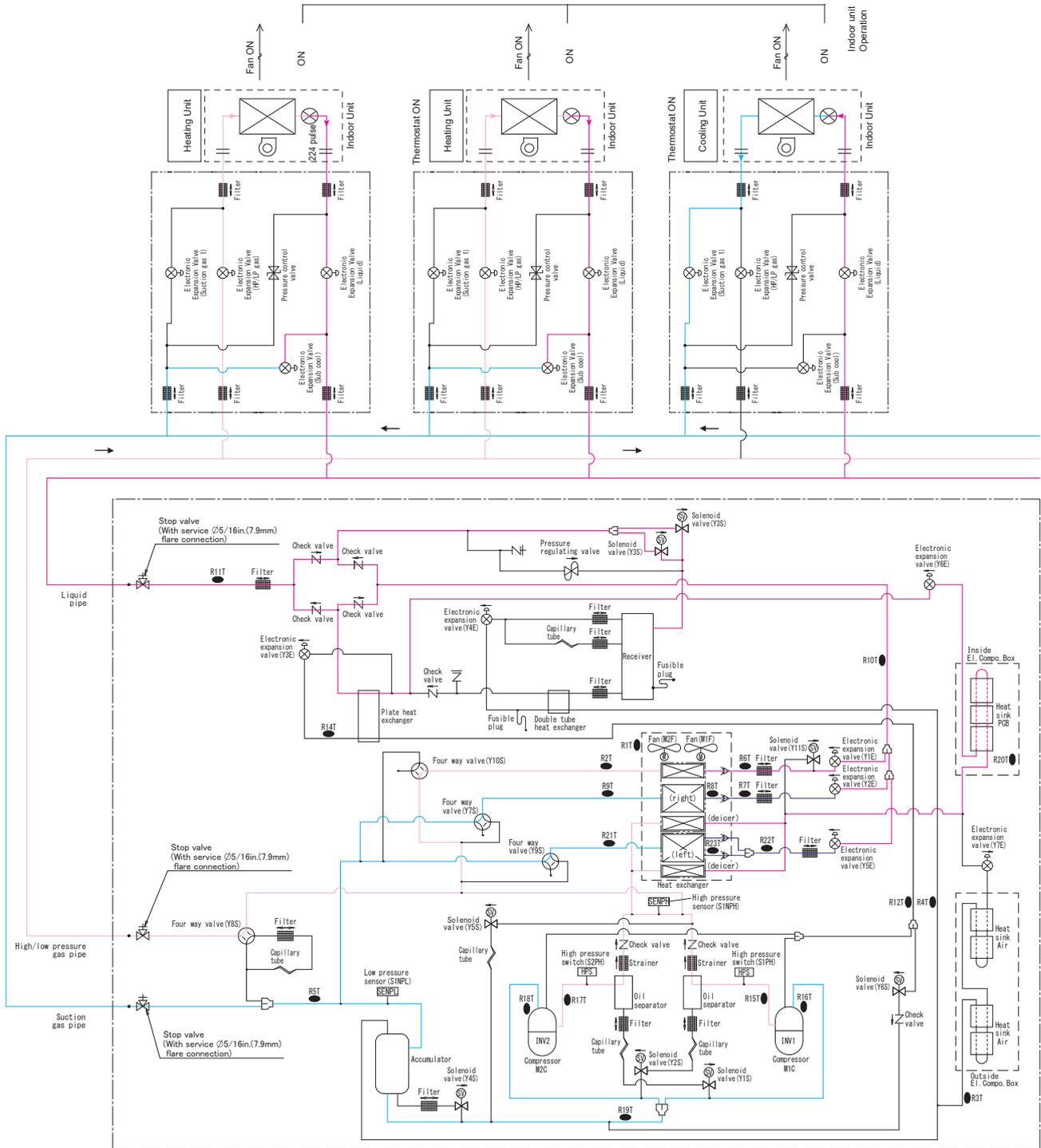
- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15886A

Oil Return Operation at Simultaneous Cooling and Heating Operation

- High temperature, high pressure gas
- High temperature, high pressure liquid
- Low temperature, low pressure gas
- Low temperature, low pressure liquid



C: 3D15886A

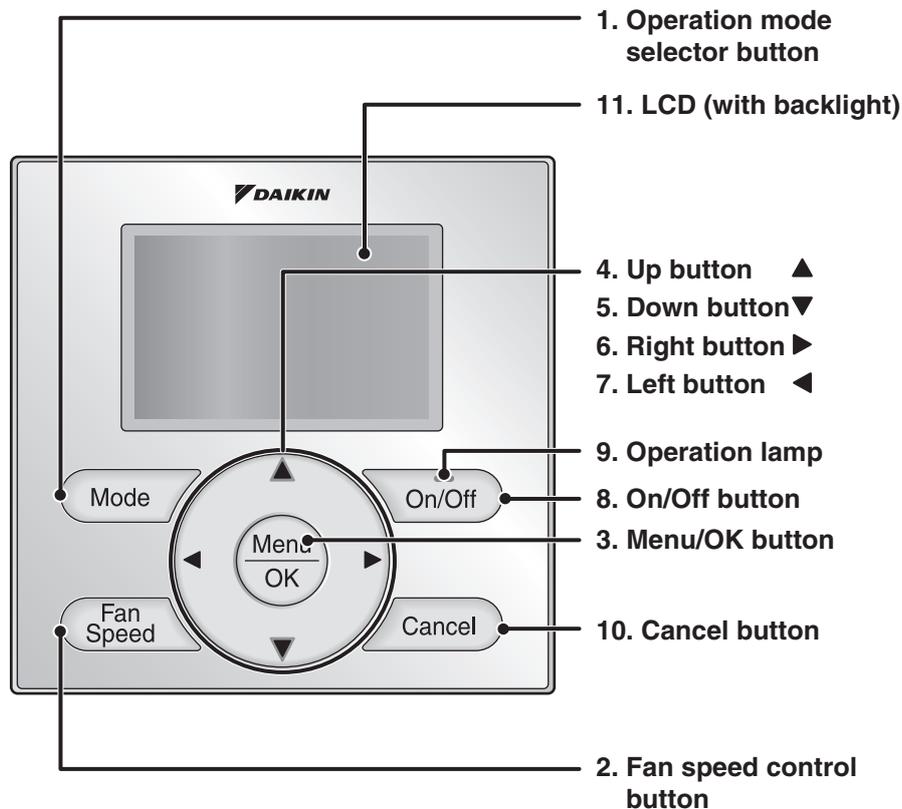
Part 3

Remote Controller

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1. Names and Functions

1.1 BRC1NRV72



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.

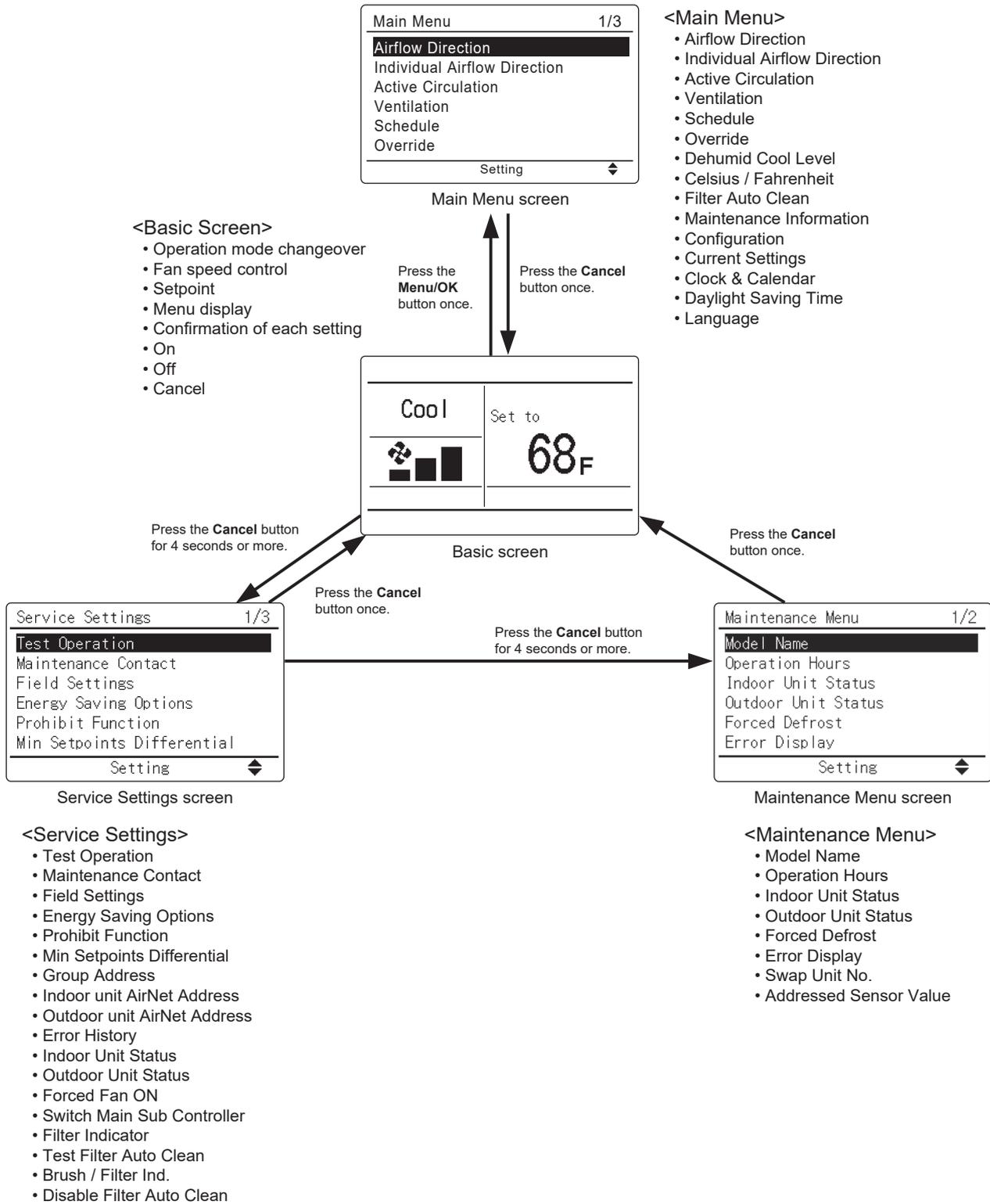
10. Cancel button

- 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



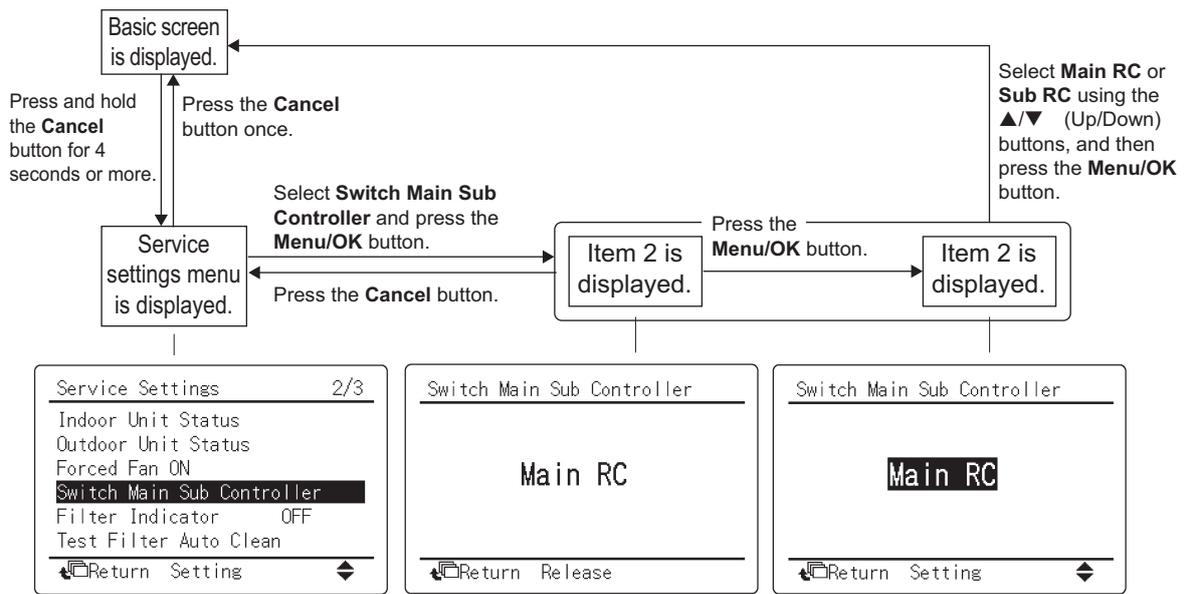
2. Main/Sub Setting

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

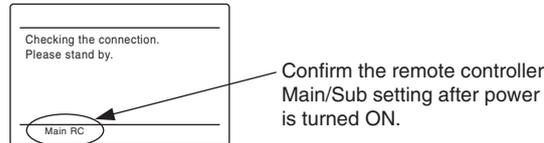
→Change the setting from Main to Sub on the remote controller you want to be Sub.

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.

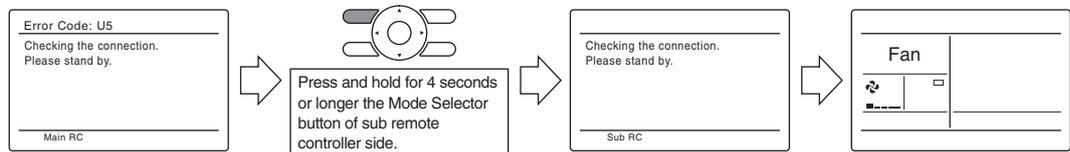
How to confirm Main/Sub setting

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)

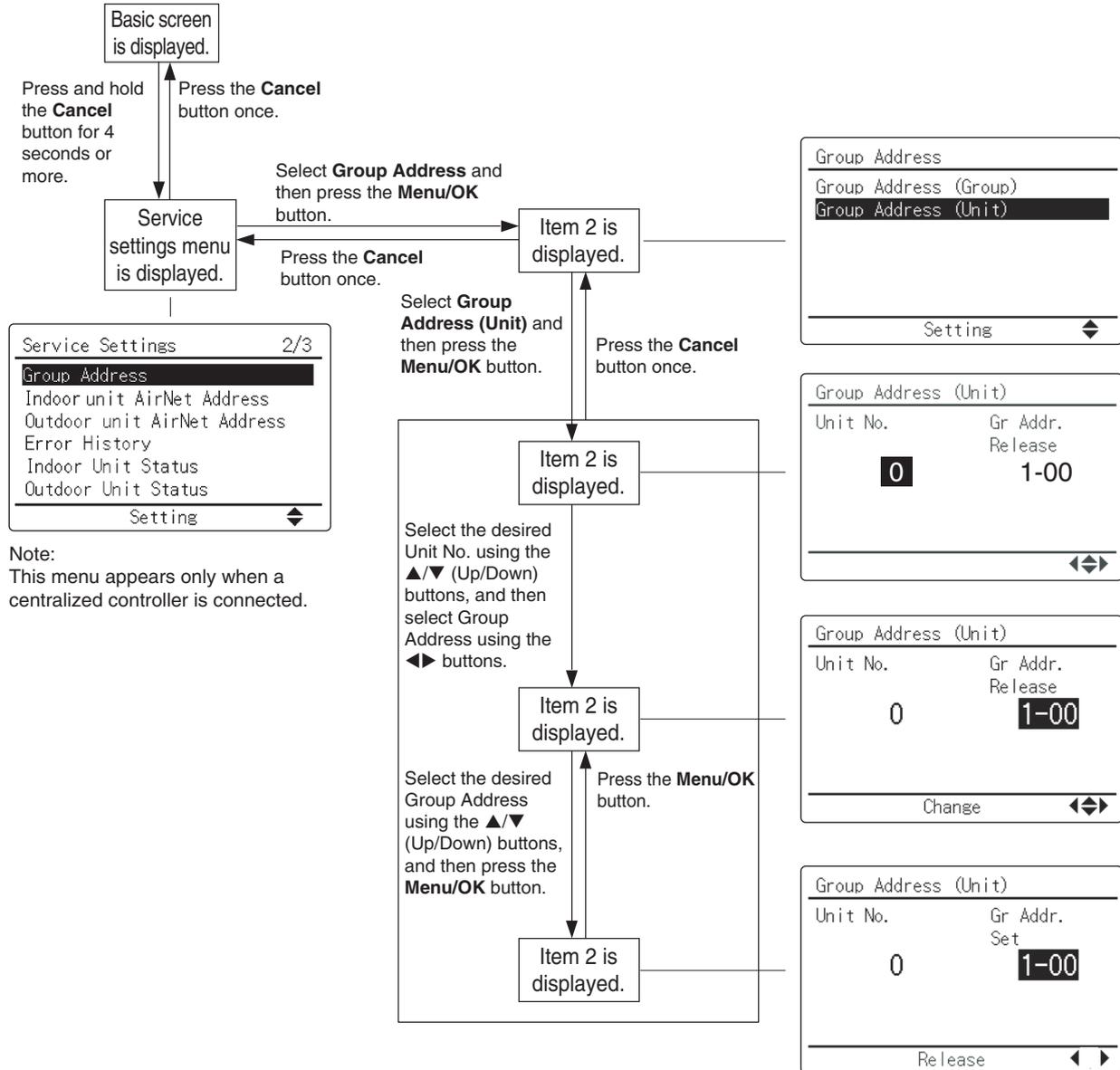
1. It is not possible to change the Main/Sub setting from Main to Sub when only one remote controller is connected.
2. When 2 remote controllers are being used, it is not possible to change the setting from Main to Sub if one of the remote controllers is already set as Main.

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



Note:
This menu appears only when a centralized controller is connected.

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.



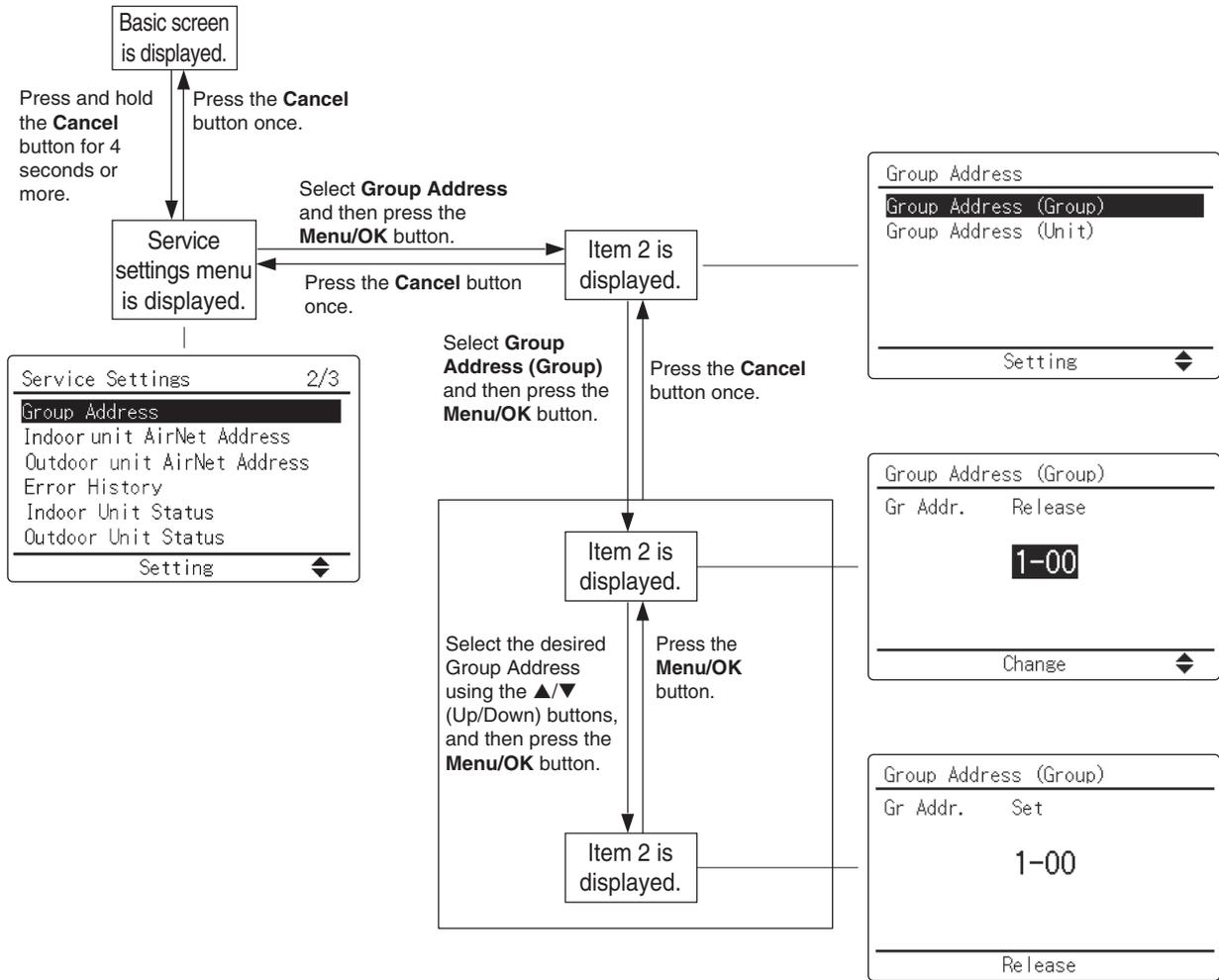
Note(s)

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

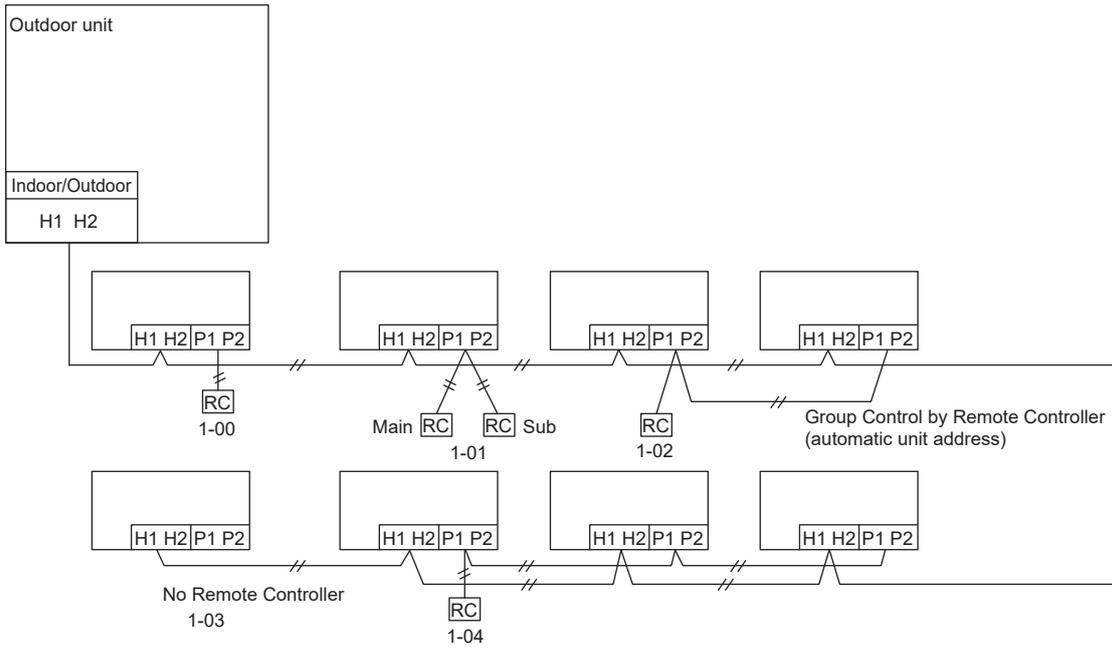
NOTICE

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

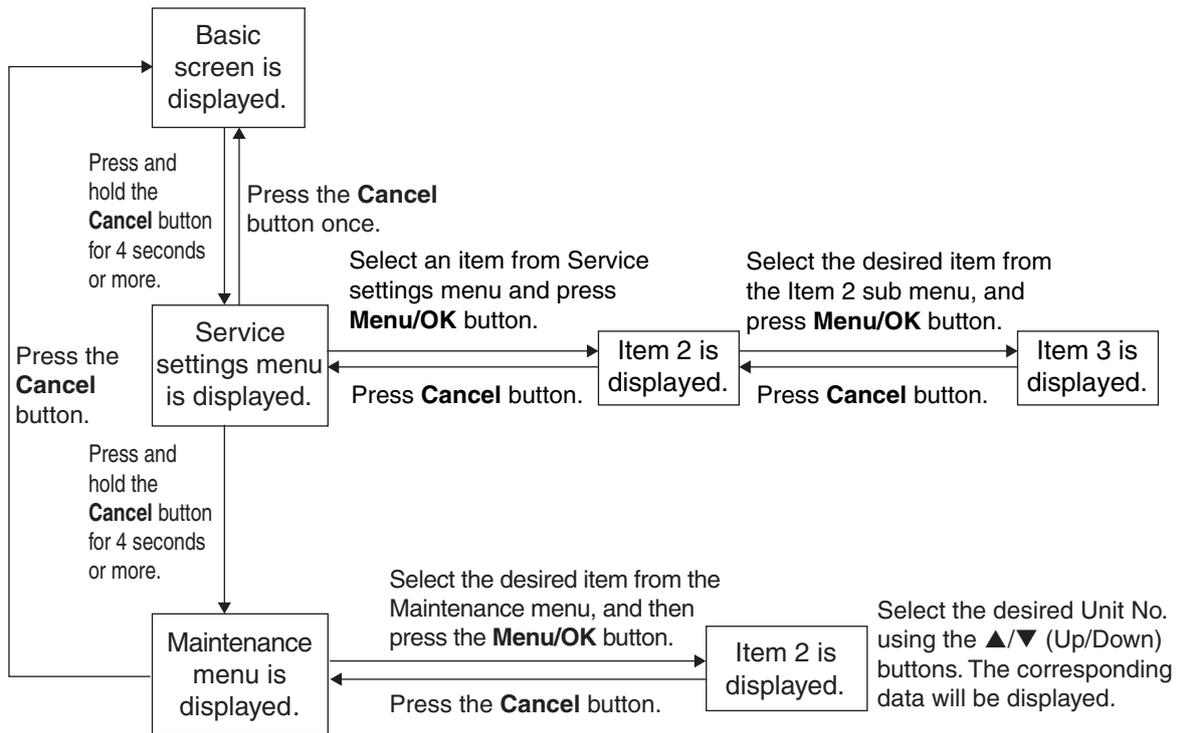


Caution

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	Floor temperature thermistor (*AA)
	Th6	Control temperature
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	—

*AA: Displays floor temperature used for control (including correction) when the sensor (kit) is connected.

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	Floor temperature thermistor (*AA)
	Th6	Control temperature
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-AB 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-AB models)
P0 is always displayed.
- *3: (For FXTA-AB models)
OFF is always displayed.
- *4: (For FXTA-AB 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-AB models)
open is always displayed.
- *6: (For FXTA-AB 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)
- *AA: Displays floor temperature used for control (including correction) when the sensor (kit) is connected.

Part 4

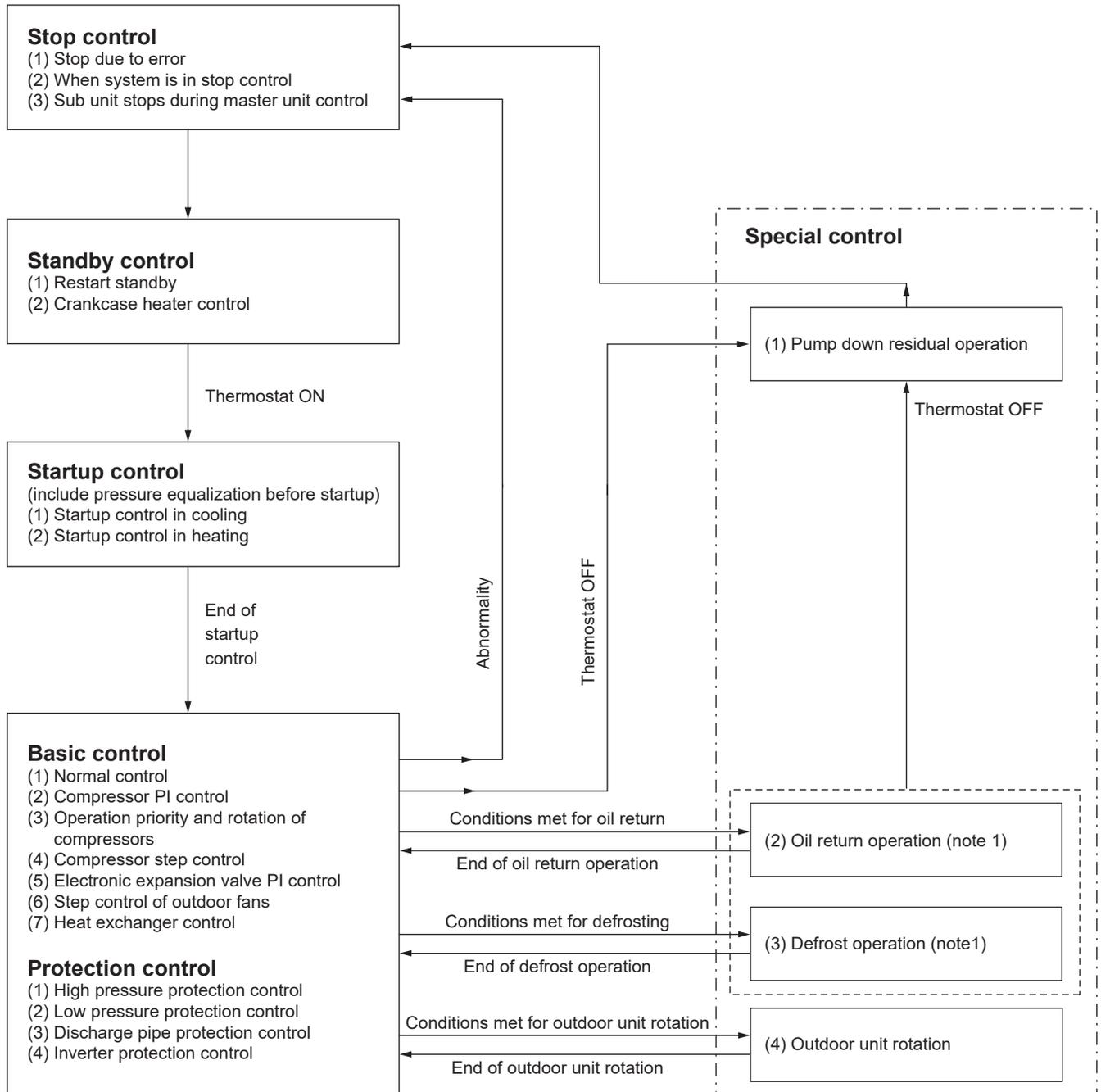
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1. Operation Flowchart

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 236 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.

2.3 Sub Unit Stops during Master Unit Control

When sub unit is stopped (because of low demand), conditions for this units are set same as system stop. System stops until this unit is required to operate (increase of load).

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.

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, compressor body temperature, etc., 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 refrigerant return or else after the startup, the following control is made and the position of the four way valve is also determined. Start both the master and the sub units simultaneously to position the four way valve.

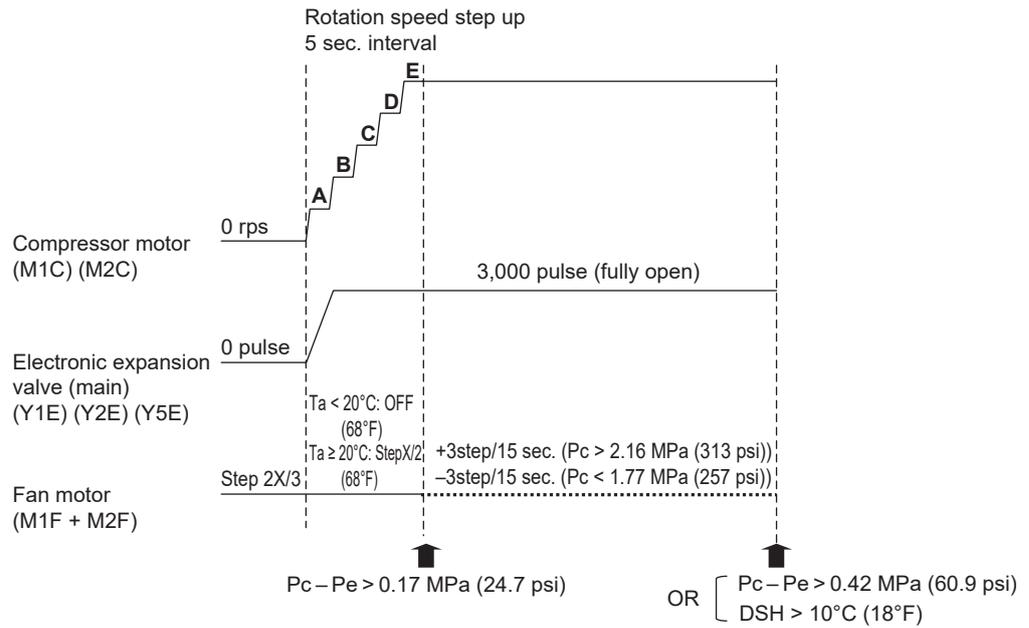
DSH: Discharge pipe superheating degree

Pc: High pressure sensor detection value

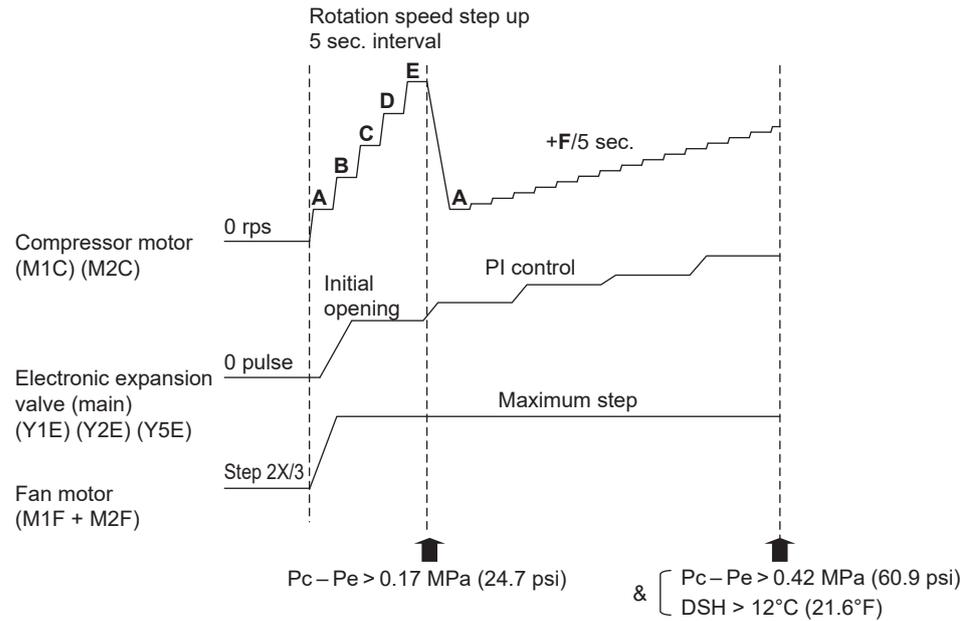
Pe: Low pressure sensor detection value

Ta: Outdoor air temperature

4.1 Startup Control in Cooling



4.2 Startup Control in Heating



Frequency (rps)	REYA72AA	REYA96/120AA		REYA144/168AA		REYA192/216/240AA	
		M1C	M2C	M1C	M2C	M1C	M2C
A	15	26	26	26	15	15	15
B	23	37	37	37	23	23	23
C	28	45	45	45	28	28	28
D	37.3	60	60	60	37.3	37.3	37.3
E	51.4	82	82	82	51.4	51.4	51.4
F	0.9	0.8	0.8	0.8	0.5	0.5	0.5



Reference Refer to page 112 for Step X.

5. Basic Control

5.1 Normal Operation

Part name	Electric symbol	Function		
		Normal cooling	Normal heating	Normal simultaneous cooling/heating
Compressor motor	M1C, M2C	PI control, High pressure protection, Low pressure protection, Td protection, Inverter protection	PI control, High pressure protection, Low pressure protection, Td protection, Inverter protection	PI control, High pressure protection, Low pressure protection, Td protection, Inverter protection
Fan motor	M1F, M2F	Cooling fan control	Maximum step	Outdoor heat exchanger: Condenser / Cooling fan control Outdoor heat exchanger: Evaporator / Maximum step
Electronic expansion valve (Heat exchanger right upper)	Y1E	Subcooling degree control	Superheating degree control (Subcooling degree control in low load)	Subcooling degree control (when HE is condenser) Superheating degree control (when HE is evaporator)
Electronic expansion valve (Heat exchanger right lower)	Y2E	Subcooling degree control (0 pulse in low load)	Superheating degree control (0 pulse in low load)	
Electronic expansion valve (Heat exchanger left)	Y5E			
Electronic expansion valve (Subcooling heat exchanger)	Y3E	Superheating degree control (discharge pipe protection)	Superheating degree control (discharge pipe protection)	Superheating degree control (discharge pipe protection)
Electronic expansion valve (Refrigerant cooling IPM)	Y6E	Cooling refrigerant control	Cooling refrigerant control	Cooling refrigerant control
Electronic expansion valve (Refrigerant cooling air)	Y7E			
Electronic expansion valve (Receiver gas purge)	Y4E	0 pulse	Gas purge control	Gas purge control
Solenoid valve (Oil separator oil return)	Y1S, Y2S	ON	ON	ON
Solenoid valve (Liquid shutoff)	Y3S	ON	ON	ON
Solenoid valve (Accumulator oil return)	Y4S	ON	ON	ON
Solenoid valve (Hot gas bypass)	Y5S	OFF	OFF	OFF
Solenoid valve (Injection)	Y6S	Compressor injection control	Compressor injection control	Compressor injection control
Four way valve (Heat exchanger right lower)	Y7S	OFF (ON in low load)	ON	OFF (In cooling) ON (In heating)
Four way valve (HP/LP gas pipe)	Y8S	ON	OFF	OFF
Four way valve (Heat exchanger left)	Y9S	OFF (ON in low load)	ON	OFF (In cooling) ON (In heating)
Four way valve (Heat exchanger right upper)	Y10S	OFF	ON (OFF in low load)	OFF (In cooling) ON (In heating)
Solenoid valve (Refrigerant cooling bypass)	Y11S	Cooling refrigerant control	OFF	OFF

Branch Selector unit actuator			Normal cooling	Normal simultaneous cooling/heating		Normal heating
				Cooling	Heating	
Electronic expansion valve (EVSC)	Y3E	Thermostat ON	0 pulse	0 pulse	Subcooling degree control	0 pulse
		Non-operating	0 pulse	0 pulse	0 pulse	0 pulse
		Thermostat OFF	0 pulse	0 pulse	0 pulse	0 pulse
Electronic expansion valve (EVH)	Y4E	Thermostat ON	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
		Non-operating	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
Electronic expansion valve (EVL)	Y1E Y2E	Thermostat ON	6,000 pulse	6,000 pulse	0 pulse	0 pulse
		Non-operating	6,000 pulse	6,000 pulse	0 pulse	0 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	0 pulse	0 pulse
Electronic expansion valve (EVSL)	Y5E	Thermostat ON	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
		Non-operating	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse

Safety Shut-Off Valve unit actuator			Normal cooling	Normal simultaneous cooling/heating		Normal heating
				Cooling	Heating	
Electronic expansion valve (EVSG)	Y1E Y2E	Thermostat ON	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
		Non-operating	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
Electronic expansion valve (EVSL)	Y3E	Thermostat ON	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
		Non-operating	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse

5.2 Compressor PI Control

Cooling

Controls compressor capacity to adjust Te to achieve target value (TeS).

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 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 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. Constant control

TeS is fixed to the set value.

Te setting

L	M	H					
3°C (37.4°F)	6°C (42.8°F)	7°C (44.6°F)	8°C (46.4°F)	9°C (48.2°F)	10°C (50.0°F)	11°C (51.8°F)	14°C (57.2°F)

Te: Low pressure equivalent saturation temperature

TeS: Target temperature of Te (Varies depending on Te setting, operating frequency, etc.)

Heating

Controls compressor capacity to adjust Tc to achieve target value (TcS).

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 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 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. Constant control

TcS is fixed to the set value.

Tc setting

L					M	H
41°C (105.8°F)	42°C (107.6°F)	43°C (109.4°F)	44°C (111.2°F)	45°C (113.0°F)	46°C (114.8°F)	48°C (118.4°F)

Tc: High pressure equivalent saturation temperature

TcS: Target temperature of Tc (Varies depending on Tc setting, operating frequency, etc.)

5.3 Compressor Step Control

The compressor operation varies in the following steps according to information in Compressor PI Control. Refer to page 105.

Depending on the operating conditions of compressors, the compressors may run in patterns other than the following.

REYA72AA

Step No.	rps	Step No.	rps	Step No.	rps
1	15.0	67	39.9	133	97.2
2	15.2	68	40.5	134	102.7
3	15.4	69	41.0	135	102.7
4	15.6	70	41.6	136	104.2
5	15.9	71	42.2	137	105.6
6	16.2	72	42.8	138	107.1
7	16.5	73	43.4	139	108.6
8	16.8	74	44.0	140	110.1
9	17.1	75	44.6	141	111.7
10	17.4	76	45.2	142	113.2
11	17.7	77	45.8	143	114.8
12	18.0	78	46.5	144	116.4
13	18.3	79	47.1	145	118.0
14	18.6	80	47.8	146	119.7
15	19.0	81	48.5	147	121.4
16	19.4	82	49.1	148	123.1
17	19.8	83	49.8	149	124.8
18	20.1	84	50.5	150	127.3
19	20.5	85	51.2		
20	20.7	86	52.0		
21	21.0	87	52.7		
22	21.3	88	53.4		
23	21.6	89	54.2		
24	21.9	90	54.9		
25	22.2	91	55.7		
26	22.5	92	56.5		
27	22.9	93	57.3		
28	23.2	94	58.1		
29	23.5	95	58.9		
30	23.8	96	59.7		
31	24.2	97	60.5		
32	24.5	98	61.4		
33	24.9	99	62.3		
34	25.2	100	63.1		
35	25.5	101	64.0		
36	25.9	102	64.9		
37	26.3	103	65.8		
38	26.6	104	66.8		
39	27.0	105	67.7		
40	27.4	106	68.6		
41	27.8	107	69.6		
42	28.1	108	70.6		
43	28.5	109	71.6		
44	29.0	110	72.6		
45	29.4	111	73.6		
46	29.8	112	74.6		
47	30.2	113	75.7		
48	30.6	114	76.7		
49	31.0	115	77.8		
50	31.5	116	78.9		
51	31.9	117	80.0		
52	32.4	118	81.1		
53	32.8	119	82.2		
54	33.3	120	83.4		
55	33.8	121	84.5		
56	34.2	122	85.7		
57	34.7	123	86.9		
58	35.2	124	88.1		
59	35.7	125	89.4		
60	36.2	126	90.6		
61	36.7	127	91.9		
62	37.2	128	93.2		
63	37.7	129	94.5		
64	38.3	130	95.8		
65	38.8	131	95.8		
66	39.3	132	97.2		

←REYA72AA Heating upper limit

←REYA72AA Cooling upper limit

REYA96/120AA

Step No.	Step up (rps)		Step down (rps)		Step No.	Step up (rps)		Step down (rps)		Step No.	Step up (rps)		Step down (rps)	
	M1C	M2C	M1C	M2C		M1C	M2C	M1C	M2C		M1C	M2C	M1C	M2C
1	24.1	0.0	24.1	0.0	76	68.4	0.0	32.3	36.1	151	90.3	102.4	90.3	102.4
2	24.4	0.0	24.4	0.0	77	69.4	0.0	32.8	36.6	152	91.5	103.9	91.5	103.9
3	24.8	0.0	24.8	0.0	78	70.3	0.0	33.2	37.1	153	92.8	105.3	92.8	105.3
4	25.1	0.0	25.1	0.0	79	71.3	0.0	33.7	37.6	154	94.1	106.8	94.1	106.8
5	25.5	0.0	25.5	0.0	80	72.3	0.0	34.2	38.1	155	95.5	108.3	95.5	108.3
6	25.8	0.0	25.8	0.0	81	73.3	0.0	34.6	38.7	156	96.8	109.8	96.8	109.8
7	26.2	0.0	26.2	0.0	82	74.4	0.0	35.1	39.2	157	98.1	111.3	98.1	111.3
8	26.5	0.0	26.5	0.0	83	75.4	0.0	35.6	39.8	158	99.5	112.9	99.5	112.9
9	26.9	0.0	26.9	0.0	84	76.5	0.0	36.1	40.3	159	100.9	114.5	100.9	114.5
10	27.3	0.0	27.3	0.0	85	77.5	0.0	36.6	40.9	160	102.3	116.1	102.3	116.1
11	27.7	0.0	27.7	0.0	86	78.6	0.0	37.2	41.4	161	103.7	117.7	103.7	117.7
12	28.1	0.0	28.1	0.0	87	79.7	0.0	37.7	42.0	162	105.2	119.4	105.2	119.4
13	28.5	0.0	28.5	0.0	88	80.8	0.0	38.2	42.6	163	106.7	121.0	106.7	121.0
14	28.9	0.0	28.9	0.0	89	82.0	0.0	38.7	43.2	164	108.2	122.7	108.2	122.7
15	29.3	0.0	29.3	0.0	90	83.1	0.0	39.3	43.8	165	109.7	124.4	109.7	124.4
16	29.7	0.0	29.7	0.0	91	84.3	0.0	39.8	44.4	166	111.2	126.2	111.2	126.2
17	30.1	0.0	15.0	15.0	92	85.5	0.0	40.4	45.0	167	112.8	127.9	112.8	127.9
18	30.5	0.0	15.2	15.3	93	86.7	0.0	41.0	45.7	168	114.4	129.7	114.4	129.7
19	30.9	0.0	15.3	15.6	94	87.9	0.0	41.5	46.3	169	116.0	131.5	116.0	131.5
20	31.4	0.0	15.5	15.9	95	89.1	0.0	42.1	47.0	170	117.6	133.4	117.6	133.4
21	31.8	0.0	15.6	16.2	96	90.4	0.0	42.7	47.6	171	119.3	135.2	119.3	135.2
22	32.3	0.0	15.8	16.5	97	91.6	0.0	43.3	48.3	172	120.9	137.1	120.9	137.1
23	32.7	0.0	15.9	16.8	98	92.9	0.0	43.9	49.0					
24	33.2	0.0	16.1	17.1	99	94.2	0.0	44.5	49.7					
25	33.6	0.0	16.2	17.4	100	95.5	0.0	45.1	50.4					
26	34.1	0.0	16.4	17.7	101	96.9	0.0	45.8	51.1					
27	34.6	0.0	16.6	18.0	102	98.2	0.0	46.4	51.8					
28	35.1	0.0	16.8	18.3	103	99.6	0.0	47.1	52.5					
29	35.6	0.0	17.0	18.6	104	101.0	0.0	47.7	53.3					
30	36.1	0.0	17.2	18.9	105	102.4	0.0	48.4	54.0					
31	36.6	0.0	17.4	19.2	106	103.9	0.0	49.1	54.8					
32	37.1	0.0	17.6	19.5	107	105.3	0.0	49.8	55.5					
33	37.6	0.0	17.8	19.8	108	106.8	0.0	50.4	56.3					
34	38.1	0.0	18.0	20.1	109	108.3	0.0	51.1	57.1					
35	38.7	0.0	18.3	20.4	110	109.8	0.0	51.8	57.9					
36	39.2	0.0	18.5	20.7	111	111.3	0.0	52.6	58.7					
37	39.8	0.0	18.8	21.0	112	112.9	0.0	53.3	59.5					
38	40.3	0.0	19.0	21.3	113	114.5	0.0	54.1	60.4					
39	40.9	0.0	19.3	21.6	114	116.1	0.0	54.8	61.2					
40	41.4	0.0	19.5	21.9	115	117.7	0.0	55.6	62.1					
41	42.0	0.0	19.8	22.2	116	119.4	0.0	56.4	62.9					
42	42.6	0.0	20.1	22.5	117	121.0	0.0	57.2	63.8					
43	43.2	0.0	20.4	22.8	118	122.7	0.0	58.0	64.7					
44	43.8	0.0	20.7	23.1	119	124.4	0.0	58.8	65.6					
45	44.4	0.0	21.0	23.4	120	126.2	0.0	59.6	66.5					
46	45.0	0.0	21.3	23.7	121	127.9	0.0	60.4	67.5					
47	45.7	0.0	21.6	24.1	122	129.7	0.0	61.3	68.4					
48	46.3	0.0	21.9	24.4	123	131.5	0.0	62.1	69.4					
49	47.0	0.0	22.2	24.8	124	133.4	0.0	63.0	70.3					
50	47.6	0.0	22.5	25.1	125	135.2	0.0	63.9	71.3					
51	48.3	0.0	22.8	25.5	126	137.1	0.0	64.8	72.3					
52	49.0	0.0	23.1	25.8	127	139.0	0.0	65.7	73.3					
53	49.7	0.0	23.5	26.2	128	140.0	0.0	65.6	74.4					
54	50.4	0.0	23.8	26.5	129	66.5	75.4	66.5	75.4					
55	51.1	0.0	24.2	26.9	130	67.4	76.5	67.4	76.5					
56	51.8	0.0	24.5	27.3	131	68.4	77.5	68.4	77.5					
57	52.5	0.0	24.8	27.7	132	69.3	78.6	69.3	78.6					
58	53.3	0.0	25.2	28.1	133	70.3	79.7	70.3	79.7					
59	54.0	0.0	25.5	28.5	134	71.3	80.8	71.3	80.8					
60	54.8	0.0	25.9	28.9	135	72.3	82.0	72.3	82.0					
61	55.5	0.0	26.2	29.3	136	73.3	83.1	73.3	83.1					
62	56.3	0.0	26.6	29.7	137	74.3	84.3	74.3	84.3					
63	57.1	0.0	27.0	30.1	138	75.4	85.5	75.4	85.5					
64	57.9	0.0	27.4	30.5	139	76.4	86.7	76.4	86.7					
65	58.7	0.0	27.8	30.9	140	77.5	87.9	77.5	87.9					
66	59.5	0.0	28.1	31.4	141	78.6	89.1	78.6	89.1					
67	60.4	0.0	28.5	31.8	142	79.7	90.4	79.7	90.4					
68	61.2	0.0	28.9	32.3	143	80.8	91.6	80.8	91.6					
69	62.1	0.0	29.3	32.7	144	81.9	92.9	81.9	92.9					
70	62.9	0.0	29.7	33.2	145	83.1	94.2	83.1	94.2					
71	63.8	0.0	30.2	33.6	146	84.2	95.5	84.2	95.5					
72	64.7	0.0	30.6	34.1	147	85.4	96.9	85.4	96.9					
73	65.6	0.0	31.0	34.6	148	86.6	98.2	86.6	98.2					
74	66.5	0.0	31.4	35.1	149	87.8	99.6	87.8	99.6					
75	67.5	0.0	31.9	35.6	150	89.0	101.0	89.0	101.0					

←REYA120AA Cooling upper limit

←REYA96AA Heating upper limit

←REYA120AA Heating upper limit

←REYA96AA Cooling upper limit

REYA144/168AA

Step No.	Step up (rps)		Step down (rps)		Step No.	Step up (rps)		Step down (rps)		Step No.	Step up (rps)		Step down (rps)	
	M1C	M2C	M1C	M2C		M1C	M2C	M1C	M2C		M1C	M2C	M1C	M2C
1	24.1	0.0	24.1	0.0	76	71.2	0.0	29.3	26.1	151	84.3	79.3	84.3	79.3
2	24.4	0.0	24.4	0.0	77	72.3	0.0	29.8	26.5	152	85.4	80.4	85.4	80.4
3	24.8	0.0	24.8	0.0	78	73.3	0.0	30.3	26.9	153	86.7	81.7	86.7	81.7
4	25.1	0.0	25.1	0.0	79	74.4	0.0	30.7	27.2	154	87.9	82.9	87.9	82.9
5	25.5	0.0	25.5	0.0	80	75.5	0.0	31.2	27.6	155	89.1	84.1	89.1	84.1
6	25.8	0.0	25.8	0.0	81	76.6	0.0	31.7	28.0	156	90.4	85.4	90.4	85.4
7	26.2	0.0	26.2	0.0	82	77.7	0.0	32.2	28.4	157	91.6	86.6	91.6	86.6
8	26.6	0.0	26.6	0.0	83	78.8	0.0	32.7	28.8	158	92.9	87.9	92.9	87.9
9	27.0	0.0	27.0	0.0	84	80.0	0.0	33.2	29.2	159	94.2	89.2	94.2	89.2
10	27.4	0.0	27.4	0.0	85	81.1	0.0	33.7	29.6	160	95.6	90.6	95.6	90.6
11	27.8	0.0	27.8	0.0	86	82.3	0.0	34.2	30.0	161	96.9	91.9	96.9	91.9
12	28.2	0.0	28.2	0.0	87	83.5	0.0	34.7	30.4	162	98.3	93.3	98.3	93.3
13	28.6	0.0	28.6	0.0	88	84.7	0.0	35.3	30.9	163	99.7	94.7	99.7	94.7
14	29.0	0.0	29.0	0.0	89	86.0	0.0	35.8	31.3	164	101.1	96.1	101.1	96.1
15	29.4	0.0	29.4	0.0	90	87.2	0.0	36.3	31.7	165	102.5	97.5	102.5	97.5
16	29.9	0.0	29.9	0.0	91	88.5	0.0	36.9	32.2	166	104.0	99.0	104.0	99.0
17	30.3	0.0	30.3	0.0	92	89.8	0.0	37.4	32.6	167	105.4	100.4	105.4	100.4
18	30.8	0.0	30.8	0.0	93	91.1	0.0	38.0	33.1	168	106.9	101.9	106.9	101.9
19	31.2	0.0	31.2	0.0	94	92.4	0.0	38.6	33.6	169	108.4	103.4	108.4	103.4
20	31.7	0.0	31.7	0.0	95	93.8	0.0	39.1	34.1	170	110.0	105.0	110.0	105.0
21	32.1	0.0	32.1	0.0	96	95.1	0.0	39.6	34.6	171	111.5	106.5	111.5	106.5
22	32.6	0.0	32.6	0.0	97	96.5	0.0	40.2	35.2	172	113.1	108.1	113.1	108.1
23	33.1	0.0	33.1	0.0	98	97.9	0.0	40.7	35.7	173	114.7	109.7	114.7	109.7
24	33.6	0.0	33.6	0.0	99	99.4	0.0	41.3	36.3	174	116.4	111.4	116.4	111.4
25	34.1	0.0	34.1	0.0	100	100.8	0.0	41.8	36.8	175	118.0	113.0	118.0	113.0
26	34.6	0.0	34.6	0.0	101	102.3	0.0	42.4	37.4	176	119.7	114.7	119.7	114.7
27	35.1	0.0	35.1	0.0	102	103.8	0.0	43.0	38.0	177	121.4	116.4	121.4	116.4
28	35.6	0.0	35.6	0.0	103	105.3	0.0	43.5	38.5	178	123.1	118.1	123.1	118.1
29	36.1	0.0	36.1	0.0	104	106.8	0.0	44.1	39.1	179	124.9	119.9	124.9	119.9
30	36.6	0.0	36.6	0.0	105	108.4	0.0	44.7	39.7	180	126.6	121.6	126.6	121.6
31	37.2	0.0	37.2	0.0	106	110.0	0.0	45.3	40.3	181	128.4	123.4	128.4	123.4
32	37.7	0.0	37.7	0.0	107	111.6	0.0	46.0	41.0	182	130.3	125.3	130.3	125.3
33	38.3	0.0	38.3	0.0	108	113.2	0.0	46.6	41.6	183	132.1	127.1	132.1	127.1
34	38.8	0.0	15.0	15.0	109	114.9	0.0	47.2	42.2	184	134.0	129.0	134.0	129.0
35	39.4	0.0	15.1	15.1	110	116.6	0.0	47.9	42.9	185	135.9	130.9	135.9	130.9
36	39.9	0.0	15.3	15.3	111	118.3	0.0	48.5	43.5	186	137.9	132.9	137.9	132.9
37	40.5	0.0	15.5	15.5	112	120.0	0.0	49.2	44.2	187	140.0	134.8	140.0	134.8
38	41.1	0.0	15.8	15.8	113	121.8	0.0	49.9	44.9	188	140.0	140.0	140.0	140.0
39	41.7	0.0	16.0	16.0	114	123.6	0.0	50.6	45.6					
40	42.3	0.0	16.2	16.2	115	125.4	0.0	51.3	46.3					
41	42.9	0.0	16.5	16.5	116	127.2	0.0	52.0	47.0					
42	43.6	0.0	16.7	16.7	117	129.1	0.0	52.7	47.7					
43	44.2	0.0	17.0	17.0	118	131.0	0.0	53.4	48.4					
44	44.9	0.0	17.2	17.2	119	132.9	0.0	54.1	49.1					
45	45.5	0.0	17.5	17.4	120	134.8	0.0	54.9	49.9					
46	46.2	0.0	17.8	17.6	121	136.8	0.0	55.6	50.6					
47	46.8	0.0	18.2	17.9	122	138.8	0.0	56.4	51.4					
48	47.5	0.0	18.5	18.1	123	140.0	0.0	57.2	52.2					
49	48.2	0.0	18.8	18.3	124	58.0	53.0	58.0	53.0					
50	48.9	0.0	19.1	18.5	125	58.8	53.8	58.8	53.8					
51	49.6	0.0	19.5	18.8	126	59.6	54.6	59.6	54.6					
52	50.3	0.0	19.8	19.0	127	60.4	55.4	60.4	55.4					
53	51.1	0.0	20.2	19.3	128	61.3	56.3	61.3	56.3					
54	51.8	0.0	20.5	19.5	129	62.1	57.1	62.1	57.1					
55	52.6	0.0	20.9	19.8	130	63.0	58.0	63.0	58.0					
56	53.3	0.0	21.2	20.0	131	63.8	58.8	63.8	58.8					
57	54.1	0.0	21.6	20.3	132	64.7	59.7	64.7	59.7					
58	54.9	0.0	21.9	20.5	133	65.6	60.6	65.6	60.6					
59	55.7	0.0	22.3	20.8	134	66.5	61.5	66.5	61.5					
60	56.5	0.0	22.7	21.1	135	67.5	62.5	67.5	62.5					
61	57.3	0.0	23.1	21.4	136	68.4	63.4	68.4	63.4					
62	58.2	0.0	23.4	21.6	137	69.4	64.4	69.4	64.4					
63	59.0	0.0	23.8	21.9	138	70.3	65.3	70.3	65.3					
64	59.9	0.0	24.2	22.2	139	71.3	66.3	71.3	66.3					
65	60.7	0.0	24.6	22.5	140	72.3	67.3	72.3	67.3					
66	61.6	0.0	25.0	22.8	141	73.3	68.3	73.3	68.3					
67	62.5	0.0	25.4	23.1	142	74.3	69.3	74.3	69.3					
68	63.4	0.0	25.8	23.4	143	75.4	70.4	75.4	70.4					
69	64.4	0.0	26.3	23.8	144	76.4	71.4	76.4	71.4					
70	65.3	0.0	26.7	24.1	145	77.5	72.5	77.5	72.5					
71	66.3	0.0	27.1	24.4	146	78.6	73.6	78.6	73.6					
72	67.2	0.0	27.5	24.7	147	79.7	74.7	79.7	74.7					
73	68.2	0.0	28.0	25.1	148	80.8	75.8	80.8	75.8					
74	69.2	0.0	28.4	25.4	149	81.9	76.9	81.9	76.9					
75	70.2	0.0	28.9	25.8	150	83.1	78.1	83.1	78.1					

REYA192/216/240AA

Step No.	Step up (rps)		Step down (rps)		Step No.	Step up (rps)		Step down (rps)		Step No.	Step up (rps)		Step down (rps)	
	M1C	M2C	M1C	M2C		M1C	M2C	M1C	M2C		M1C	M2C	M1C	M2C
1	15.0	0.0	15.0	0.0	76	43.0	0.0	19.0	24.0	151	122.2	0.0	58.5	63.6
2	15.2	0.0	15.2	0.0	77	43.6	0.0	19.2	24.4	152	123.9	0.0	59.4	64.4
3	15.4	0.0	15.4	0.0	78	44.3	0.0	19.5	24.7	153	125.6	0.0	60.3	65.3
4	15.6	0.0	15.6	0.0	79	44.9	0.0	19.9	24.9	154	127.4	0.0	61.2	66.2
5	15.8	0.0	15.8	0.0	80	45.5	0.0	20.2	25.2	155	129.2	0.0	62.0	67.1
6	16.0	0.0	16.0	0.0	81	46.1	0.0	20.5	25.5	156	131.0	0.0	63.0	68.0
7	16.3	0.0	16.3	0.0	82	46.8	0.0	20.9	25.9	157	132.8	0.0	63.9	68.9
8	16.5	0.0	16.5	0.0	83	47.5	0.0	21.2	26.2	158	134.7	0.0	64.8	69.8
9	16.7	0.0	16.7	0.0	84	48.1	0.0	21.5	26.5	159	136.6	0.0	65.8	70.8
10	17.0	0.0	17.0	0.0	85	48.8	0.0	21.9	26.9	160	138.5	0.0	66.7	71.7
11	17.2	0.0	17.2	0.0	86	49.5	0.0	22.2	27.2	161	140.0	0.0	67.5	72.5
12	17.5	0.0	17.5	0.0	87	50.2	0.0	22.5	27.6	162	68.4	73.5	68.4	73.5
13	18.0	0.0	18.0	0.0	88	50.9	0.0	22.9	27.9	163	69.4	74.5	69.4	74.5
14	18.2	0.0	18.2	0.0	89	51.6	0.0	23.3	28.3	164	70.4	75.5	70.4	75.5
15	18.5	0.0	18.5	0.0	90	52.3	0.0	23.6	28.6	165	71.4	76.5	71.4	76.5
16	18.7	0.0	18.7	0.0	91	53.0	0.0	24.0	29.0	166	72.5	77.5	72.5	77.5
17	19.0	0.0	19.0	0.0	92	53.8	0.0	24.4	29.4	167	73.5	78.5	73.5	78.5
18	19.2	0.0	19.2	0.0	93	54.5	0.0	24.7	29.7	168	74.6	79.6	74.6	79.6
19	19.5	0.0	19.5	0.0	94	55.3	0.0	25.1	30.1	169	75.7	80.7	75.7	80.7
20	19.8	0.0	19.8	0.0	95	56.0	0.0	25.5	30.5	170	76.8	81.8	76.8	81.8
21	20.1	0.0	20.1	0.0	96	56.8	0.0	25.9	30.9	171	77.9	82.9	77.9	82.9
22	20.4	0.0	20.4	0.0	97	57.6	0.0	26.3	31.3	172	79.0	84.0	79.0	84.0
23	20.6	0.0	20.6	0.0	98	58.4	0.0	26.7	31.7	173	80.1	85.2	80.1	85.2
24	20.9	0.0	20.9	0.0	99	59.2	0.0	27.1	32.1	174	81.3	86.3	81.3	86.3
25	21.2	0.0	21.2	0.0	100	60.1	0.0	27.5	32.5	175	82.5	87.5	82.5	87.5
26	21.5	0.0	21.5	0.0	101	60.9	0.0	27.9	33.0	176	83.7	88.7	83.7	88.7
27	21.8	0.0	21.8	0.0	102	61.8	0.0	28.4	33.4	177	84.9	89.9	84.9	89.9
28	22.1	0.0	22.1	0.0	103	62.6	0.0	28.8	33.8	178	86.1	91.1	86.1	91.1
29	22.5	0.0	22.5	0.0	104	63.5	0.0	29.2	34.2	179	87.4	92.4	87.4	92.4
30	22.8	0.0	22.8	0.0	105	64.4	0.0	29.7	34.7	180	88.6	93.6	88.6	93.6
31	23.1	0.0	23.1	0.0	106	65.3	0.0	30.1	35.1	181	89.9	94.9	89.9	94.9
32	23.4	0.0	23.4	0.0	107	66.2	0.0	30.6	35.6	182	91.2	96.2	91.2	96.2
33	23.7	0.0	23.7	0.0	108	67.1	0.0	31.0	36.0	183	92.5	97.5	92.5	97.5
34	24.1	0.0	24.1	0.0	109	68.1	0.0	31.5	36.5	184	93.8	98.9	93.8	98.9
35	24.4	0.0	24.4	0.0	110	69.0	0.0	32.0	37.0	185	95.1	100.2	95.1	100.2
36	24.8	0.0	24.8	0.0	111	70.0	0.0	32.5	37.5	186	96.5	101.6	96.5	101.6
37	25.1	0.0	25.1	0.0	112	71.0	0.0	33.0	38.0	187	97.9	103.0	97.9	103.0
38	25.5	0.0	25.5	0.0	113	72.0	0.0	33.5	38.5	188	99.3	104.4	99.3	104.4
39	25.8	0.0	25.8	0.0	114	73.0	0.0	34.0	39.0	189	100.7	105.8	100.7	105.8
40	26.2	0.0	26.2	0.0	115	74.0	0.0	34.5	39.5	190	102.2	107.2	102.2	107.2
41	26.5	0.0	26.5	0.0	116	75.0	0.0	35.0	40.0	191	103.7	108.7	103.7	108.7
42	26.9	0.0	26.9	0.0	117	76.1	0.0	35.5	40.5	192	105.2	110.2	105.2	110.2
43	27.3	0.0	27.3	0.0	118	77.2	0.0	36.0	41.1	193	106.6	111.7	106.6	111.7
44	27.7	0.0	27.7	0.0	119	78.3	0.0	36.6	41.6	194	108.2	113.2	108.2	113.2
45	28.0	0.0	28.0	0.0	120	79.4	0.0	37.1	42.2	195	109.7	114.8	109.7	114.8
46	28.5	0.0	28.5	0.0	121	80.5	0.0	37.7	42.7	196	111.3	116.3	111.3	116.3
47	28.9	0.0	28.9	0.0	122	81.6	0.0	38.3	43.3	197	112.9	117.9	112.9	117.9
48	29.3	0.0	29.3	0.0	123	82.8	0.0	38.9	43.9	198	114.5	119.5	114.5	119.5
49	29.7	0.0	29.7	0.0	124	83.9	0.0	39.4	44.5	199	116.1	121.2	116.1	121.2
50	30.0	0.0	15.0	15.0	125	85.1	0.0	40.0	45.0	200	117.8	122.9	117.8	122.9
51	30.4	0.0	15.0	15.3	126	86.3	0.0	40.6	45.6	201	119.5	124.5	119.5	124.5
52	30.8	0.0	15.2	15.6	127	87.5	0.0	41.2	46.2	202	121.2	126.2	121.2	126.2
53	31.2	0.0	15.3	15.9	128	88.7	0.0	41.8	46.9	203	123.0	128.0	123.0	128.0
54	31.7	0.0	15.4	16.2	129	90.0	0.0	42.5	47.5	204	124.7	129.7	124.7	129.7
55	32.1	0.0	15.5	16.5	130	91.2	0.0	43.1	48.1	205	126.5	131.5	126.5	131.5
56	32.5	0.0	15.6	16.9	131	92.5	0.0	43.7	48.7	206	128.3	133.3	128.3	133.3
57	33.0	0.0	15.8	17.2	132	93.8	0.0	44.4	49.4	207	130.1	135.2	130.1	135.2
58	33.5	0.0	15.9	17.5	133	95.1	0.0	45.0	50.0	208	132.0	137.0	132.0	137.0
59	34.0	0.0	16.0	17.9	134	96.5	0.0	45.7	50.7	209	133.9	138.9	133.9	138.9
60	34.4	0.0	16.1	18.2	135	97.8	0.0	46.4	51.4	210	135.0	140.0	135.0	140.0
61	34.9	0.0	16.3	18.6	136	99.2	0.0	47.0	52.1					
62	35.4	0.0	16.4	18.9	137	100.5	0.0	47.7	52.8					
63	35.9	0.0	16.6	19.3	138	102.0	0.0	48.5	53.5					
64	36.4	0.0	16.7	19.6	139	103.4	0.0	49.2	54.2					
65	36.9	0.0	16.9	20.0	140	104.8	0.0	49.9	54.9					
66	37.4	0.0	17.0	20.3	141	106.3	0.0	50.6	55.6					
67	38.0	0.0	17.2	20.7	142	107.8	0.0	51.4	56.4					
68	38.5	0.0	17.4	21.1	143	109.3	0.0	52.1	57.1					
69	39.0	0.0	17.5	21.5	144	110.8	0.0	52.9	57.9					
70	39.6	0.0	17.7	21.8	145	112.4	0.0	53.7	58.7					
71	40.1	0.0	17.9	22.2	146	114.0	0.0	54.5	59.5					
72	40.7	0.0	18.1	22.6	147	115.5	0.0	55.2	60.3					
73	41.3	0.0	18.3	23.0	148	117.2	0.0	56.0	61.1					
74	41.9	0.0	18.5	23.4	149	118.8	0.0	56.9	61.9					
75	42.5	0.0	18.7	23.7	150	120.5	0.0	57.7	62.7					

←REYA192AA Cooling upper limit

←REYA216/240AA Cooling upper limit

←REYA192AA Heating upper limit

←REYA216AA Heating upper limit

←REYA240AA Heating upper limit

5.4 Electronic Expansion Valve PI Control

Main electronic expansion valve EVM control

When the outdoor unit heat exchanging is performed via the condenser (Y7S, Y9S or Y10S is set to OFF), this function is used to exert PI control on the electronic expansion valve (Y1E, Y2E or Y5E) so that the condenser outlet subcooling degree (SC) will become constant.

$$SC = T_c - T_f$$

SC: Condenser outlet subcooling degree

T_c: High pressure equivalent saturated temperature

T_f: Liquid pipe temperature detected by heat exchanger liquid pipe thermistor R6T, R7T, R22T

When the outdoor unit heat exchanging is performed via the evaporator (Y7S, Y9S or Y10S is set to ON), this function is used to exert PI control on the electronic expansion valve (Y1E, Y2E or Y5E) so that the evaporator outlet superheating degree (SH) will become constant.

$$SH = T_g - T_e$$

SH: Evaporator outlet superheating degree

T_g: Suction pipe temperature detected by heat exchanger gas pipe thermistor R2T, R9T, R21T

T_e: Low pressure equivalent saturated temperature

Subcooling electronic expansion valve EVT control

In order to make the maximum use of the subcooling heat exchanger, this function is used to exert PI control on the electronic expansion valve (Y3E) so that the evaporator-side gas pipe superheating degree (SH) will become constant.

$$SH = T_{sh} - T_m$$

SH: Evaporator outlet superheating degree

T_{sh}: Suction pipe temperature detected by the subcooling heat exchanger outlet thermistor R12T

T_m: Low or middle pressure equivalent saturated temperature

5.5 Step Control of Outdoor Fans

Used to control the revolutions of outdoor fans in the steps listed in table below, according to condition changes.

Step X	Cooling	Heating/ Simultaneous
REYA72AA	30	30
REYA96AA	50	49
REYA120AA	50	49
REYA144AA	64	61
REYA168AA	64	62
REYA192AA	35	35
REYA216AA	37	37
REYA240AA	37	37

REYA72AA		
Step No.	Standard (default)	
	Cooling	Heating
0	0	0
1	200	200
2	209	209
3	219	219
4	230	230
5	240	240
6	252	252
7	264	264
8	276	276
9	290	290
10	303	303
11	318	318
12	333	333
13	349	349
14	366	366
15	384	384
16	402	402
17	422	422
18	442	442
19	464	464
20	486	486
21	510	510
22	535	535
23	561	561
24	588	588
25	617	617
26	647	647
27	679	679
28	713	713
29	748	748
30	776	807

REYA96/120AA				
Step No.	Standard (default)			
	Cooling		Heating	
	M1F	M2F	M1F	M2F
0	0	0	0	0
1	200	0	200	0
2	210	0	210	0
3	220	0	220	0
4	232	0	232	0
5	243	0	243	0
6	255	0	255	0
7	268	0	268	0
8	281	0	281	0
9	295	0	295	0
10	310	0	310	0
11	326	0	326	0
12	342	0	342	0
13	359	0	359	0
14	377	0	377	0
15	396	0	396	0
16	213	203	213	203
17	223	213	223	213
18	234	224	234	224
19	246	236	246	236
20	258	248	258	248
21	270	260	270	260
22	284	274	284	274
23	298	288	298	288
24	312	302	312	302
25	328	318	328	318
26	344	334	344	334
27	361	351	361	351
28	382	365	382	365
29	404	380	404	380
30	427	397	427	397
31	451	414	451	414
32	476	432	476	432
33	502	451	502	451
34	529	471	529	471
35	558	493	558	493
36	588	515	588	515
37	619	539	619	539
38	652	564	652	564
39	686	591	686	591
40	721	620	721	620
41	758	650	758	650
42	797	681	797	681
43	837	715	837	715
44	879	751	879	751
45	923	789	923	789
46	968	829	968	829
47	1,015	872	1,015	872
48	1,064	917	1,064	917
49	1,115	966	1,092	944
50	1,177	1,027	1,092	944

←Heating upper limit
 ←Cooling upper limit

REYA144/168AA

Step No.	Standard (default)			
	Cooling		Heating	
	M1F	M2F	M1F	M2F
0	0	0	0	0
1	200	0	200	0
2	205	0	205	0
3	211	0	211	0
4	217	0	217	0
5	223	0	223	0
6	230	0	230	0
7	236	0	236	0
8	244	0	244	0
9	251	0	251	0
10	259	0	259	0
11	267	0	267	0
12	276	0	276	0
13	285	0	285	0
14	295	0	295	0
15	305	0	305	0
16	316	0	316	0
17	327	0	327	0
18	338	0	338	0
19	351	0	351	0
20	363	0	363	0
21	377	0	377	0
22	391	0	391	0
23	406	0	406	0
24	216	206	216	206
25	224	214	224	214
26	233	223	233	223
27	242	232	242	232
28	251	241	251	241
29	261	251	261	251
30	272	262	272	262
31	283	273	283	273
32	294	284	294	284
33	307	297	307	297
34	319	309	319	309
35	333	323	333	323
36	347	337	347	337
37	362	351	362	351
38	380	364	380	364
39	399	377	399	377
40	419	391	419	391
41	440	406	440	406
42	462	422	462	422
43	485	439	485	439
44	509	456	509	456
45	534	475	534	475
46	561	494	561	494
47	588	515	588	515
48	617	537	617	537
49	646	560	646	560
50	678	585	678	585
51	710	610	710	610
52	744	638	744	638
53	780	667	780	667
54	816	698	816	698
55	855	730	855	730
56	895	765	895	765
57	937	801	937	801
58	980	840	980	840
59	1,025	882	1,025	882
60	1,072	925	1,072	925
61	1,121	972	1,147	997
62	1,171	1,021	1,201	1,051
63	1,224	1,074	1,201	1,051
64	1,302	1,154	1,201	1,051

REYA192AA

Step No.	Standard (default)			
	Cooling		Heating	
	M1F	M2F	M1F	M2F
0	0	0	0	0
1	200	200	200	200
2	213	203	213	203
3	222	212	222	212
4	232	222	232	222
5	241	231	241	231
6	252	242	252	242
7	262	252	262	252
8	274	264	274	264
9	286	276	286	276
10	298	288	298	288
11	311	301	311	301
12	325	315	325	315
13	345	324	345	324
14	365	334	365	334
15	386	345	386	345
16	408	356	408	356
17	431	368	431	368
18	455	382	455	382
19	479	396	479	396
20	505	411	505	411
21	531	428	531	428
22	558	445	558	445
23	586	465	586	465
24	614	485	614	485
25	644	508	644	508
26	674	532	674	532
27	705	559	705	559
28	736	587	736	587
29	769	618	769	618
30	801	651	801	651
31	835	688	835	688
32	868	727	868	727
33	902	770	902	770
34	936	816	936	816
35	971	911	954	894

REYA216/240AA

Step No.	Standard (default)			
	Cooling		Heating	
	M1F	M2F	M1F	M2F
0	0	0	0	0
1	200	200	200	200
2	213	203	213	203
3	222	212	222	212
4	232	222	232	222
5	241	231	241	231
6	252	242	252	242
7	262	252	262	252
8	274	264	274	264
9	286	276	286	276
10	298	288	298	288
11	311	301	311	301
12	325	315	325	315
13	345	324	345	324
14	365	334	365	334
15	386	345	386	345
16	408	356	408	356
17	431	368	431	368
18	455	382	455	382
19	479	396	479	396
20	505	411	505	411
21	531	428	531	428
22	558	445	558	445
23	586	465	586	465
24	614	485	614	485
25	644	508	644	508
26	674	532	674	532
27	705	559	705	559
28	736	587	736	587
29	769	618	769	618
30	801	651	801	651
31	835	688	835	688
32	868	727	868	727
33	902	770	902	770
34	936	816	936	816
35	970	867	970	867
36	1,004	922	1,004	922
37	1,027	967	1,027	967

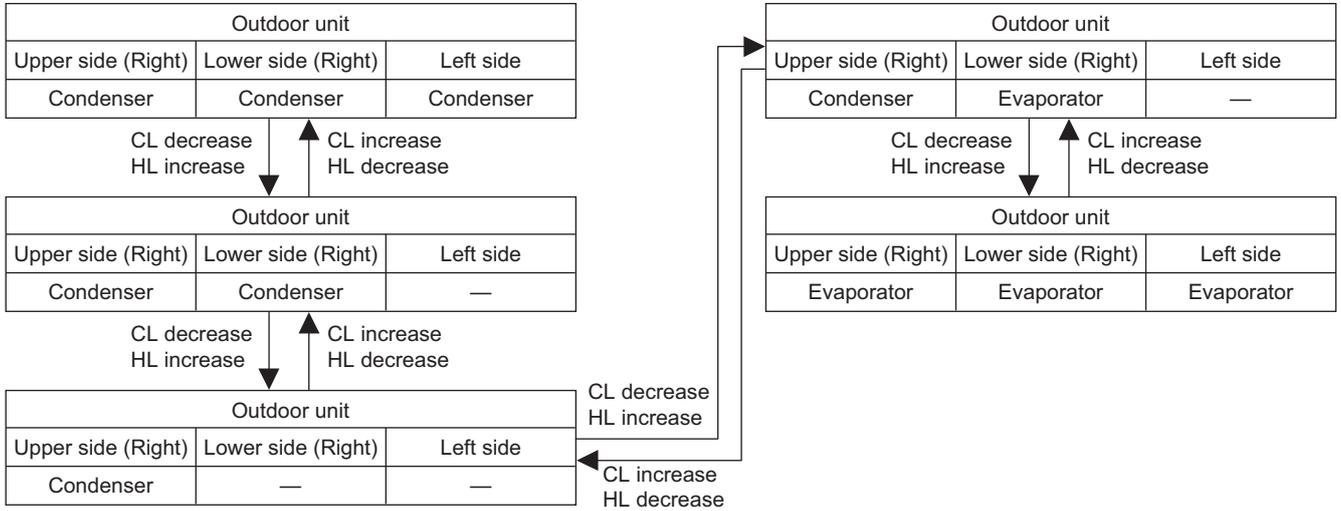
←REYA144/168AA Heating upper limit

←REYA144/168AA Cooling upper limit

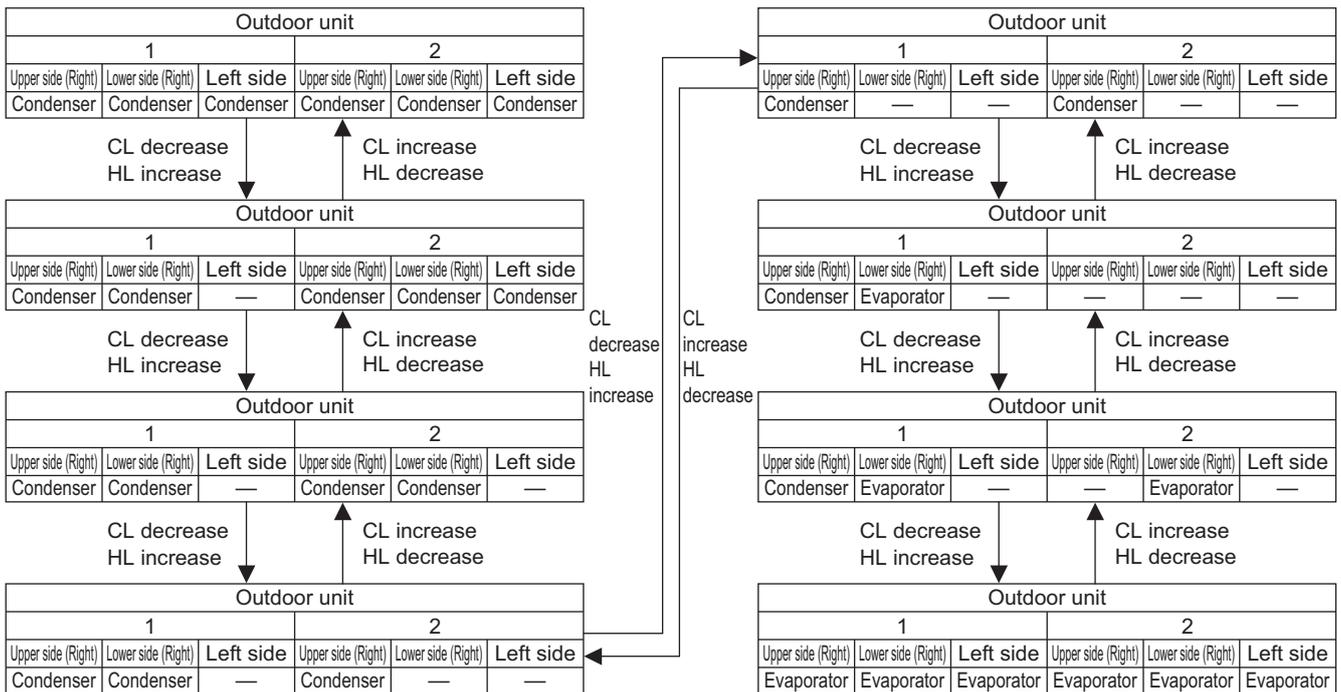
5.6 Heat Exchanger Control

While in heating or cool/heat simultaneous operation, ensure target condensing and evaporating temperature by changing over the air heat exchange of outdoor unit to the evaporator or the condenser in response to loads.

Single system



Multi outdoor unit system



<Symbol meanings>

CL: Cooling Load

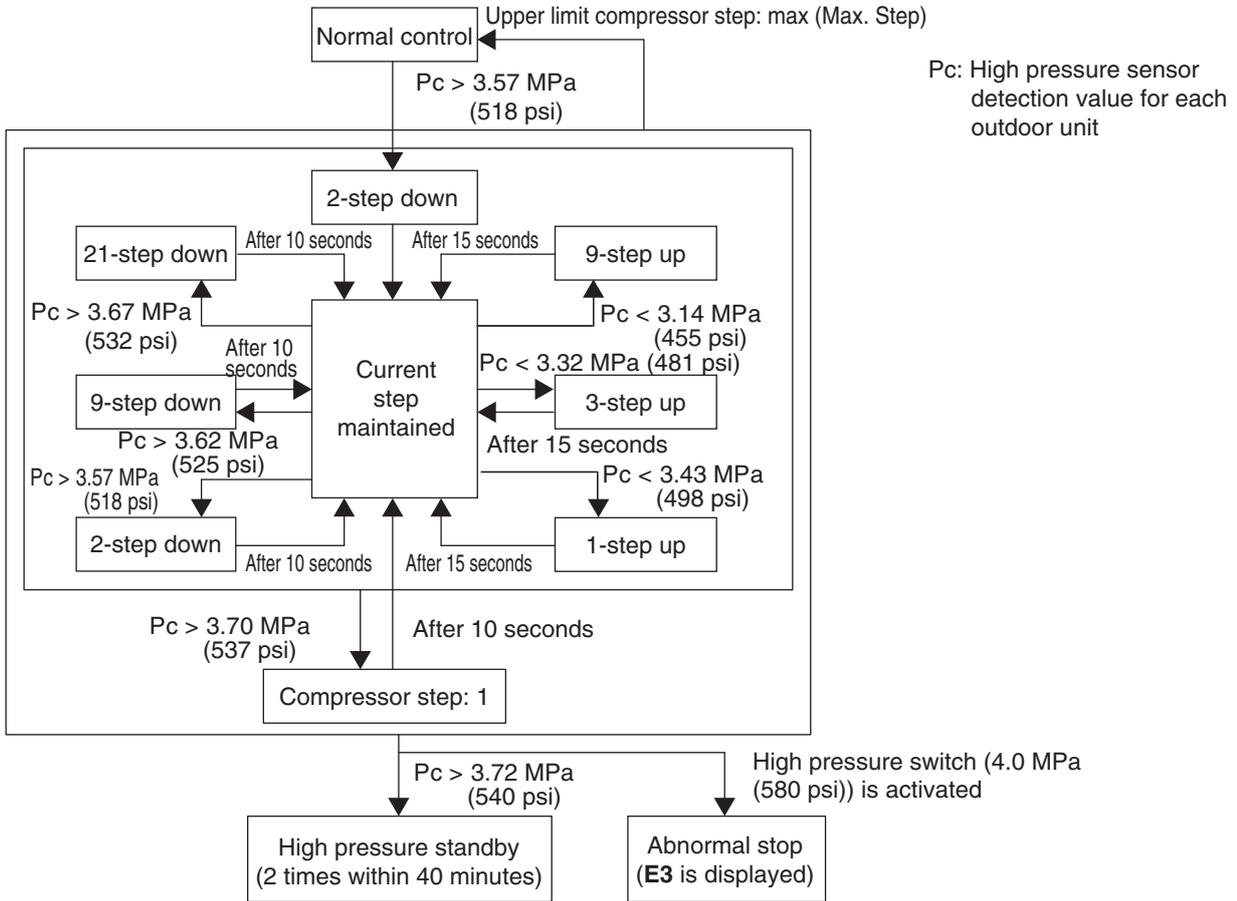
HL: Heating Load

6. Protection Control

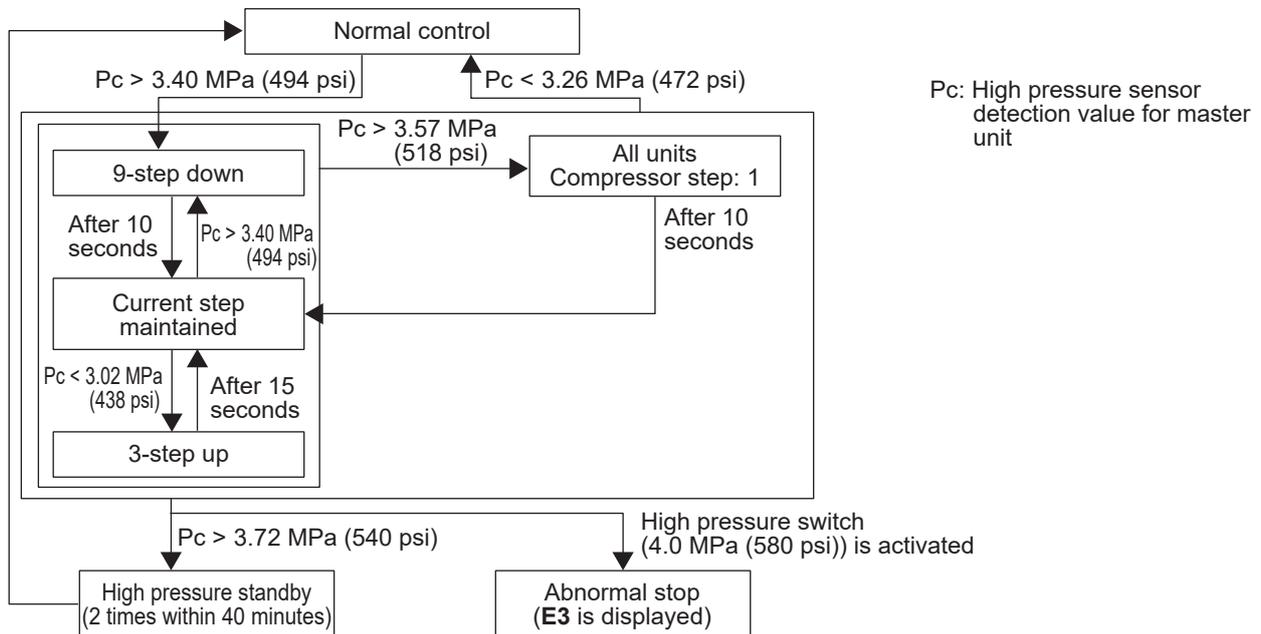
6.1 High Pressure Protection Control

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



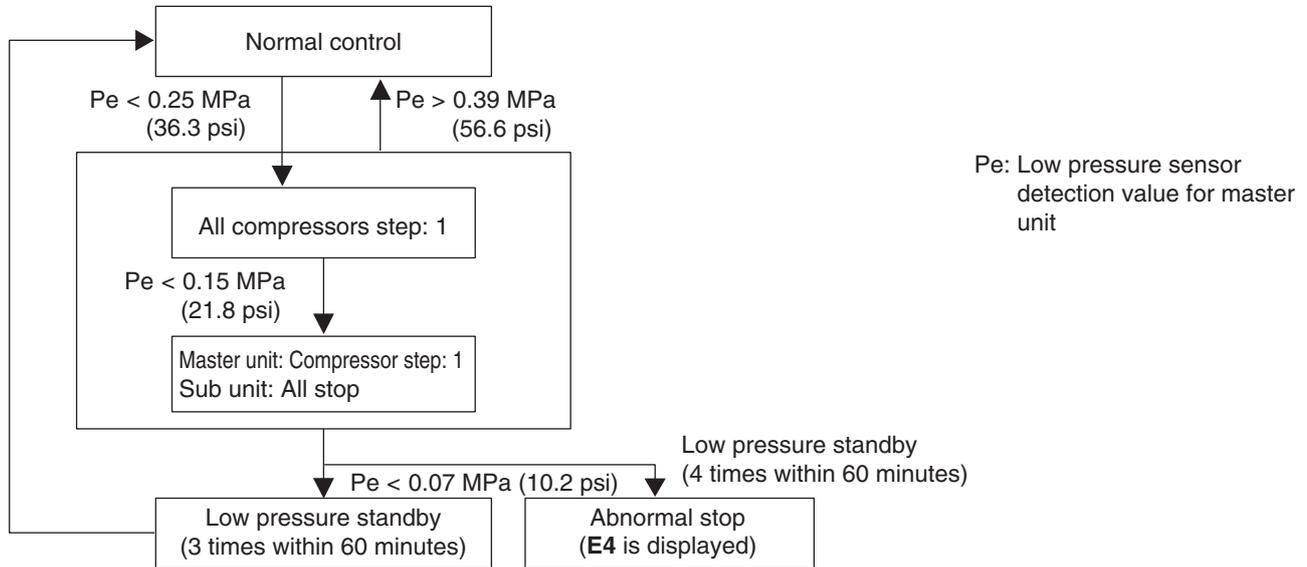
Heating



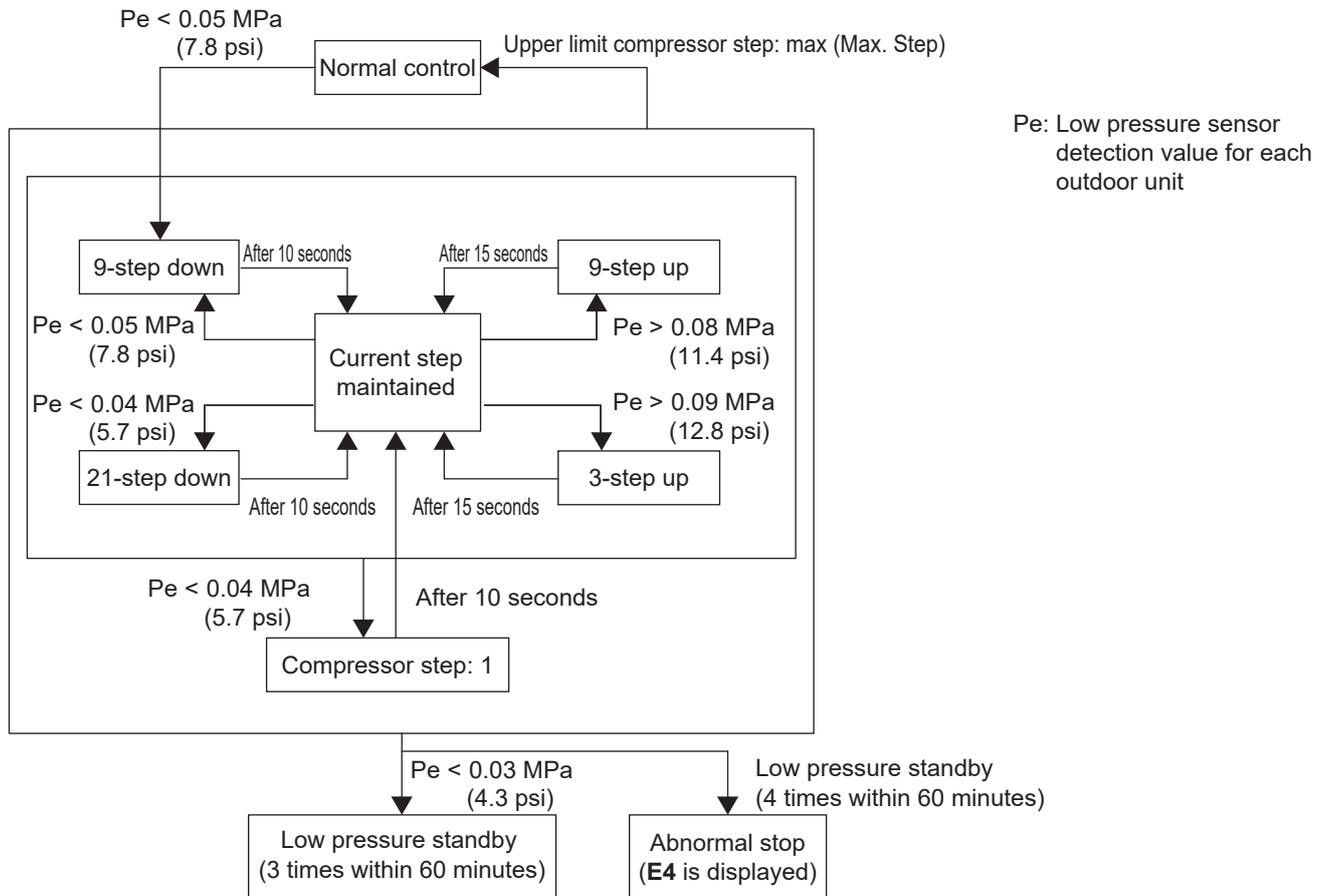
6.2 Low Pressure Protection Control

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

Cooling



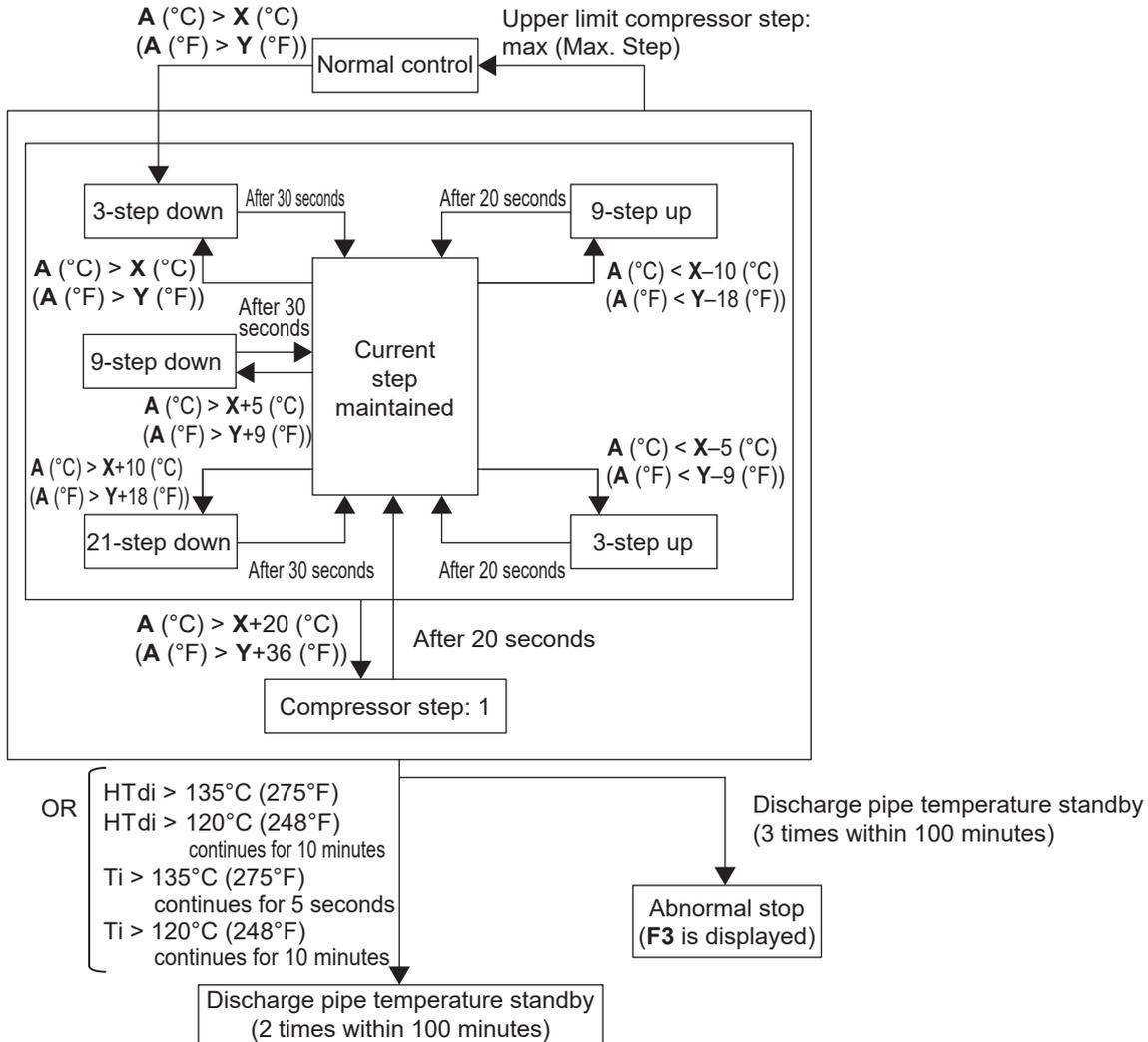
Heating



6.3 Discharge Temperature Protection Control

This discharge pipe 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
- Ti : Compressor body temperature
- A : Maximum of HTdi and Ti
- X (°C)(Y (°F)) : 110°C (230°F) (constant)

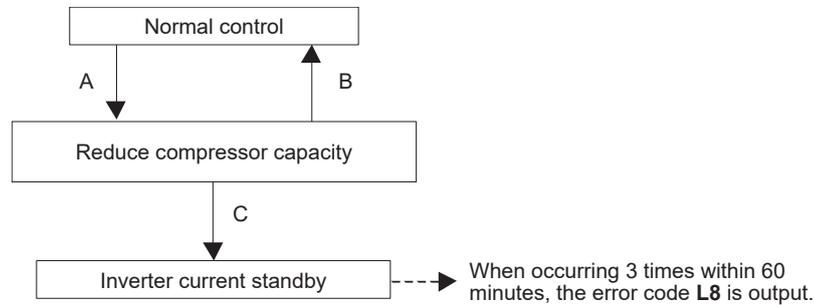


6.4 Inverter Protection Control

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. In the case of multi-outdoor-unit system, each compressor performs these controls in the following sequence.

Inverter Overcurrent Protection Control

This control is performed for each compressor.

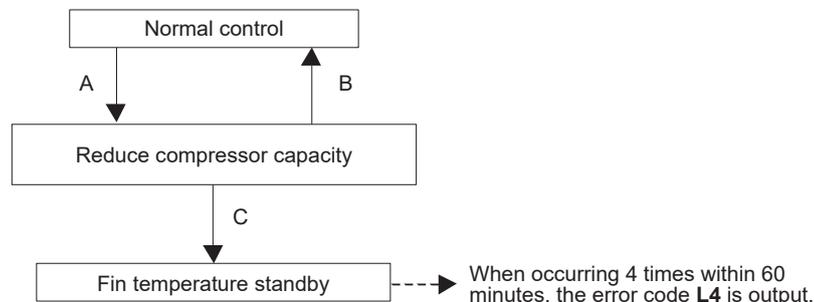


Condition	REYA72AATJA	REYA96/120AATJA		REYA144/168AATJA		REYA192/216/240AATJA	
		M1C	M2C	M1C	M2C	M1C	M2C
A	more than 49.0 A	more than 30.5 A	more than 30.5 A	more than 30.5 A	more than 49.0 A	more than 49.0 A	more than 49.0 A
B	less than 48.3 A	less than 29.4 A	less than 29.4 A	less than 29.4 A	less than 48.3 A	less than 48.3 A	less than 48.3 A
C	more than 51.0 A	more than 32.5 A	more than 32.5 A	more than 32.5 A	more than 51.0 A	more than 51.0 A	more than 51.0 A

Condition	REYA72AAAYDA	REYA96/120AAAYDA		REYA144/168AAAYDA		REYA192/216/240AAAYDA	
		M1C	M2C	M1C	M2C	M1C	M2C
A	more than 28.0 A	more than 19.0 A	more than 19.0 A	more than 19.0 A	more than 28.0 A	more than 28.0 A	more than 28.0 A
B	less than 27.2 A	less than 18.2 A	less than 18.2 A	less than 18.2 A	less than 27.2 A	less than 27.2 A	less than 27.2 A
C	more than 30.0 A	more than 21.0 A	more than 21.0 A	more than 21.0 A	more than 30.0 A	more than 30.0 A	more than 30.0 A

Radiation Fin Temperature Control

Perform the following control of integrated as well as multi units for each compressor.



Condition	REYA72AATJA	REYA96/120AATJA		REYA144/168AATJA		REYA192/216/240AATJA	
		M1C	M2C	M1C	M2C	M1C	M2C
A	more than 103°C (217°F)	more than 100°C (212°F)	more than 100°C (212°F)	more than 100°C (212°F)	more than 103°C (217°F)	more than 103°C (217°F)	more than 103°C (217°F)
B	less than 100°C (212°F)	less than 97°C (207°F)	less than 97°C (207°F)	less than 97°C (207°F)	less than 100°C (212°F)	less than 100°C (212°F)	less than 100°C (212°F)
C	more than 108°C (226°F)	more than 103°C (217°F)	more than 103°C (217°F)	more than 103°C (217°F)	more than 108°C (226°F)	more than 108°C (226°F)	more than 108°C (226°F)

Condition	REYA72AAAYDA	REYA96/120AAAYDA		REYA144/168AAAYDA		REYA192/216/240AAAYDA	
		M1C	M2C	M1C	M2C	M1C	M2C
A	more than 109°C (228°F)						
B	less than 106°C (223°F)						
C	more than 114°C (237°F)						

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.

Pc: High pressure sensor detection value

Pe: Low pressure sensor detection value

Ta: Outdoor air temperature

Te: Low pressure equivalent saturation temperature

DSH: Discharge pipe superheating degree

Part name	Electric symbol	Function of functional part	
		Cooling	Heating
Compressor motor	M1C, M2C	REYA72/192/216/240AA: 25 rps REYA96/120/144/168AA: 37 rps	REYA72/192/216/240AA: 80 rps REYA96/120/144/168AA: 75 rps
Fan motor	M1F, M2F	For heat exchanger mode	For heat exchanger mode
Electronic expansion valve (Heat exchanger right upper)	Y1E	Same as normal control	Same as normal control
Electronic expansion valve (Heat exchanger right lower)	Y2E		
Electronic expansion valve (Heat exchanger left)	Y5E		
Electronic expansion valve (Subcooling heat exchanger)	Y3E	0 pulse	0 pulse
Electronic expansion valve (Receiver gas purge)	Y4E	Open slightly	Open slightly
Electronic expansion valve (Refrigerant cooling IPM)	Y6E	Same as normal control	Same as normal control
Electronic expansion valve (Refrigerant cooling air)	Y7E		
Solenoid valve (Oil separator oil return)	Y1S, Y2S	ON	ON
Solenoid valve (Liquid shutoff)	Y3S	ON	ON
Solenoid valve (Accumulator oil return)	Y4S	OFF	OFF
Solenoid valve (Hot gas bypass)	Y5S	OFF	OFF
Solenoid valve (Injection)	Y6S	ON	ON
Four way valve (Heat exchanger right upper)	Y10S	Hold	Hold
Four way valve (Heat exchanger right lower)	Y7S		
Four way valve (Heat exchanger left)	Y9S		
Four way valve (HP/LP gas pipe)	Y8S		
Solenoid valve (Refrigerant cooling bypass)	Y11S	Same as normal control	Same as normal control
Ending condition		OR $\left\{ \begin{array}{l} \text{A lapse of 2 minutes} \\ \text{Master unit HTdi} > 118^{\circ}\text{C} (244.4^{\circ}\text{F}) \\ \text{Pc}_{\text{max}} > 2.94 \text{ MPa} (426 \text{ psi}) \end{array} \right.$	OR $\left\{ \begin{array}{l} \text{A lapse of 3 minutes} \\ \text{Pe}_{\text{min}} < 0.19 \text{ MPa} (27.6 \text{ psi}) \\ \text{Ta}_{\text{min}} - \text{Te}_{\text{max}} > 8^{\circ}\text{C} (14^{\circ}\text{F}) \\ \text{HTdi}_{\text{max}} > 118^{\circ}\text{C} (244.4^{\circ}\text{F}) \end{array} \right.$

7.2 Oil Return Operation

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.

Tc: High pressure equivalent saturation temperature

Te: Low pressure equivalent saturation temperature

TsA: Suction pipe temperature detected by thermistor R5T

Ts: Suction pipe before accumulator temperature

7.2.1 Oil Return Operation in Cooling Operation

Starting Conditions

- Oil return operation is not conducted before 2 hours have elapsed from the activation of power supply.
- After 2 hours have elapsed, oil return operation starts when the following item meets the reference value.
 - Total amount of oil discharged from the compressor
(The total amount of oil discharged from the compressor is computed from Tc, Te, and compressor loads.)
- Oil return control starts every 8 hours of cumulative operation of the compressor, even if the reference value is not met.

Part name	Electric symbol	Function of functional part
Compressor motor	M1C, M2C	Constant low pressure control
Fan motor	M1F, M2F	For heat exchanger mode
Electronic expansion valve (Heat exchanger right upper)	Y1E	Same as normal control
Electronic expansion valve (Heat exchanger right lower)	Y2E	
Electronic expansion valve (Heat exchanger left)	Y5E	
Electronic expansion valve (Subcooling heat exchanger)	Y3E	0 pulse
Electronic expansion valve (Receiver gas purge)	Y4E	0 pulse
Electronic expansion valve (Refrigerant cooling IPM)	Y6E	Same as normal control
Electronic expansion valve (Refrigerant cooling air)	Y7E	
Solenoid valve (Oil separator oil return)	Y1S, Y2S	ON
Solenoid valve (Liquid shutoff)	Y3S	ON
Solenoid valve (Accumulator oil return)	Y4S	ON
Solenoid valve (Hot gas bypass)	Y5S	OFF
Solenoid valve (Injection)	Y6S	ON
Four way valve (Heat exchanger right upper)	Y10S	Hold
Four way valve (Heat exchanger right lower)	Y7S	
Four way valve (Heat exchanger left)	Y9S	
Four way valve (HP/LP gas pipe)	Y8S	
Solenoid valve (Refrigerant cooling bypass)	Y11S	Same as normal control
Ending condition		& OR <ul style="list-style-type: none"> ● A lapse of 3 minutes ● TsA – Te < 3°C (5.4°F) ● A lapse of 6 minutes while the frequency is more than that of oil return operation.

Indoor unit actuator	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)

Branch Selector unit actuator		Normal cooling	
Electronic expansion valve (EVSC)	Y3E	Thermostat ON	0 pulse
		Non-operating	0 pulse
		Thermostat OFF	0 pulse
Electronic expansion valve (EVH)	Y4E	Thermostat ON	6,000 pulse
		Non-operating	6,000 pulse
		Thermostat OFF	6,000 pulse
Electronic expansion valve (EVL)	Y1E Y2E	Thermostat ON	6,000 pulse
		Non-operating	6,000 pulse
		Thermostat OFF	6,000 pulse
Electronic expansion valve (EVSL)	Y5E	Thermostat ON	6,000 pulse
		Non-operating	6,000 pulse
		Thermostat OFF	6,000 pulse

7.2.2 Oil Return Operation in Heating Operation

Part name	Electric symbol	Function of functional part
Compressor motor	M1C, M2C	Constant high pressure control
Fan motor	M1F, M2F	For heat exchanger mode
Electronic expansion valve (Heat exchanger right upper)	Y1E	Same as normal control
Electronic expansion valve (Heat exchanger right lower)	Y2E	
Electronic expansion valve (Heat exchanger left)	Y5E	
Electronic expansion valve (Subcooling heat exchanger)	Y3E	Same as normal control
Electronic expansion valve (Receiver gas purge)	Y4E	Same as normal control
Electronic expansion valve (Refrigerant cooling IPM)	Y6E	Same as normal control
Electronic expansion valve (Refrigerant cooling air)	Y7E	
Solenoid valve (Oil separator oil return)	Y1S, Y2S	ON
Solenoid valve (Liquid shutoff)	Y3S	Same as normal control
Solenoid valve (Accumulator oil return)	Y4S	ON
Solenoid valve (Hot gas bypass)	Y5S	OFF
Solenoid valve (Injection)	Y6S	Same as normal control
Four way valve (Heat exchanger right upper)	Y10S	Hold
Four way valve (Heat exchanger right lower)	Y7S	
Four way valve (Heat exchanger left)	Y9S	
Four way valve (HP/LP gas pipe)	Y8S	
Solenoid valve (Refrigerant cooling bypass)	Y11S	Same as normal control
Ending condition		A lapse of 6 minutes while the frequency is more than that of oil return operation.

Indoor unit actuator		Cooling	Heating
Fan	Thermostat ON unit	Remote controller setting	Remote controller setting
	Non-operating unit	OFF	OFF
	Thermostat OFF unit	Remote controller setting	Remote controller setting
Electronic expansion valve	Thermostat ON unit	Normal control	Normal control
	Non-operating unit	224 pulse	224 pulse
	Thermostat OFF unit	Forced thermostat ON	224 pulse

Branch Selector unit actuator			Normal simultaneous cooling/heating		Normal heating
			Cooling	Heating	
Electronic expansion valve (EVSC)	Y3E	Thermostat ON	0 pulse	Subcooling degree control	0 pulse
		Non-operating	0 pulse	0 pulse	0 pulse
		Thermostat OFF	0 pulse	0 pulse	0 pulse
Electronic expansion valve (EVH)	Y4E	Thermostat ON	0 pulse	6,000 pulse	6,000 pulse
		Non-operating	0 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	0 pulse	6,000 pulse	6,000 pulse
Electronic expansion valve (EVL)	Y1E Y2E	Thermostat ON	6,000 pulse	0 pulse	0 pulse
		Non-operating	6,000 pulse	0 pulse	0 pulse
		Thermostat OFF	6,000 pulse	0 pulse	0 pulse
Electronic expansion valve (EVSL)	Y5E	Thermostat ON	6,000 pulse	6,000 pulse	6,000 pulse
		Non-operating	6,000 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	6,000 pulse

7.3 Defrost Operation

To defrost the outdoor heat exchanger while in Evaporator, the defrost operation is conducted to recover the heating capacity.

Tb: Heat exchanger deicer temperature

Single system

Part name	Electric symbol	Function of functional part
Compressor motor	M1C, M2C	REYA72AA: 127.3 rps REYA96/120AA: 125.4 rps + 140.0 rps REYA144/168AA: 85.2 rps + 114.9 rps REYA192/216/240AA: 135.0 rps + 140.0 rps
Fan motor	M1F, M2F	With high pressure OFF ↔ Step X/2 ↔ Step X
Electronic expansion valve (Heat exchanger right upper)	Y1E	100%
Electronic expansion valve (Heat exchanger right lower)	Y2E	
Electronic expansion valve (Heat exchanger left)	Y5E	
Electronic expansion valve (Subcooling heat exchanger)	Y3E	Discharge temperature control
Electronic expansion valve (Receiver gas purge)	Y4E	Liquid recovery control
Electronic expansion valve (Refrigerant cooling IPM)	Y6E	Same as normal control
Electronic expansion valve (Refrigerant cooling air)	Y7E	
Solenoid valve (Oil separator oil return)	Y1S, Y2S	ON
Solenoid valve (Liquid shutoff)	Y3S	ON
Solenoid valve (Accumulator oil return)	Y4S	ON
Solenoid valve (Hot gas bypass)	Y5S	OFF
Solenoid valve (Injection)	Y6S	ON
Four way valve (Heat exchanger right upper)	Y10S	OFF
Four way valve (Heat exchanger right lower)	Y7S	OFF
Four way valve (Heat exchanger left)	Y9S	OFF
Four way valve (HP/LP gas pipe)	Y8S	ON
Solenoid valve (Refrigerant cooling bypass)	Y11S	Same as normal control
Ending condition		OR <ul style="list-style-type: none"> • A lapse of 15 minutes • Tb > 11°C (51.8°F) continues for 60 seconds or more

Indoor unit actuator		Defrost operation
Fan	Thermostat ON unit	OFF
	Non-operating unit	OFF
	Thermostat OFF unit	OFF
Electronic expansion valve	Thermostat ON unit	Defrost EV opening degree
	Non-operating unit	Defrost EV opening degree
	Thermostat OFF unit	Defrost EV opening degree

Branch Selector unit actuator			Normal cooling	Normal simultaneous cooling/heating		Normal heating
				Cooling	Heating	
Electronic expansion valve (EVSC)	Y3E	Thermostat ON	0 pulse	0 pulse	Subcooling degree control	0 pulse
		Non-operating	0 pulse	0 pulse	0 pulse	0 pulse
		Thermostat OFF	0 pulse	0 pulse	0 pulse	0 pulse
Electronic expansion valve (EVH)	Y4E	Thermostat ON	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
		Non-operating	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
Electronic expansion valve (EVL)	Y1E Y2E	Thermostat ON	6,000 pulse	6,000 pulse	0 pulse	0 pulse
		Non-operating	6,000 pulse	6,000 pulse	0 pulse	0 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	0 pulse	0 pulse
Electronic expansion valve (EVSL)	Y5E	Thermostat ON	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
		Non-operating	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse

Multi system

Part name	Electric symbol	Function of functional part	
		Defrosting unit	Evaporator unit
Compressor motor	M1C, M2C	REYA72AA: 127.3 rps REYA96/120AA: 125.4 rps + 140.0 rps REYA144/168AA: 85.2 rps + 114.9 rps REYA192/216/240AA: 135.0 rps + 140.0 rps	
Fan motor	M1F, M2F	With high pressure OFF ↔ Step X/2 ↔ Step X	MAX Step
Electronic expansion valve (Heat exchanger right upper)	Y1E	100%	Superheat control
Electronic expansion valve (Heat exchanger right lower)	Y2E		
Electronic expansion valve (Heat exchanger left)	Y5E		
Electronic expansion valve (Subcooling heat exchanger)	Y3E	Discharge temperature control	
Electronic expansion valve (Receiver gas purge)	Y4E	0 pulse	
Electronic expansion valve (Refrigerant cooling IPM)	Y6E	Same as normal control	
Electronic expansion valve (Refrigerant cooling air)	Y7E		
Solenoid valve (Oil separator oil return)	Y1S, Y2S	ON	
Solenoid valve (Liquid shutoff)	Y3S	ON	
Solenoid valve (Accumulator oil return)	Y4S	ON	
Solenoid valve (Hot gas bypass)	Y5S	OFF	
Solenoid valve (Injection)	Y6S	ON	
Four way valve (Heat exchanger right upper)	Y10S	OFF	ON
Four way valve (Heat exchanger right lower)	Y7S	OFF	ON
Four way valve (Heat exchanger left)	Y9S	OFF	ON
Four way valve (HP/LP gas pipe)	Y8S	OFF	
Solenoid valve (Refrigerant cooling bypass)	Y11S	Same as normal control	
Ending condition		OR <ul style="list-style-type: none"> • A lapse of 8 minutes • Tb > 11°C (51.8°F) continues for 60 seconds or more 	

Indoor unit actuator		Cooling	Heating
Fan	Thermostat ON unit	Remote controller setting	OFF
	Non-operating unit	OFF	OFF
	Thermostat OFF unit	Remote controller setting	OFF
Electronic expansion valve	Thermostat ON unit	Normal control	0 pulse
	Non-operating unit	0 pulse	0 pulse
	Thermostat OFF unit	0 pulse	0 pulse

Branch Selector unit actuator			Normal cooling	Normal simultaneous cooling/heating		Normal heating
				Cooling	Heating	
Electronic expansion valve (EVSC)	Y3E	Thermostat ON	0 pulse	0 pulse	Subcooling degree control	0 pulse
		Non-operating	0 pulse	0 pulse	0 pulse	0 pulse
		Thermostat OFF	0 pulse	0 pulse	0 pulse	0 pulse
Electronic expansion valve (EVH)	Y4E	Thermostat ON	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
		Non-operating	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
Electronic expansion valve (EVL)	Y1E Y2E	Thermostat ON	6,000 pulse	6,000 pulse	0 pulse	0 pulse
		Non-operating	6,000 pulse	6,000 pulse	0 pulse	0 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	0 pulse	0 pulse
Electronic expansion valve (EVSL)	Y5E	Thermostat ON	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
		Non-operating	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	6,000 pulse	6,000 pulse

7.4 Outdoor Unit Rotation

In the case of multi outdoor unit system, this outdoor unit rotation prevents the compressor from breaking down due to unbalanced oil level between outdoor units.

Details of outdoor unit rotation

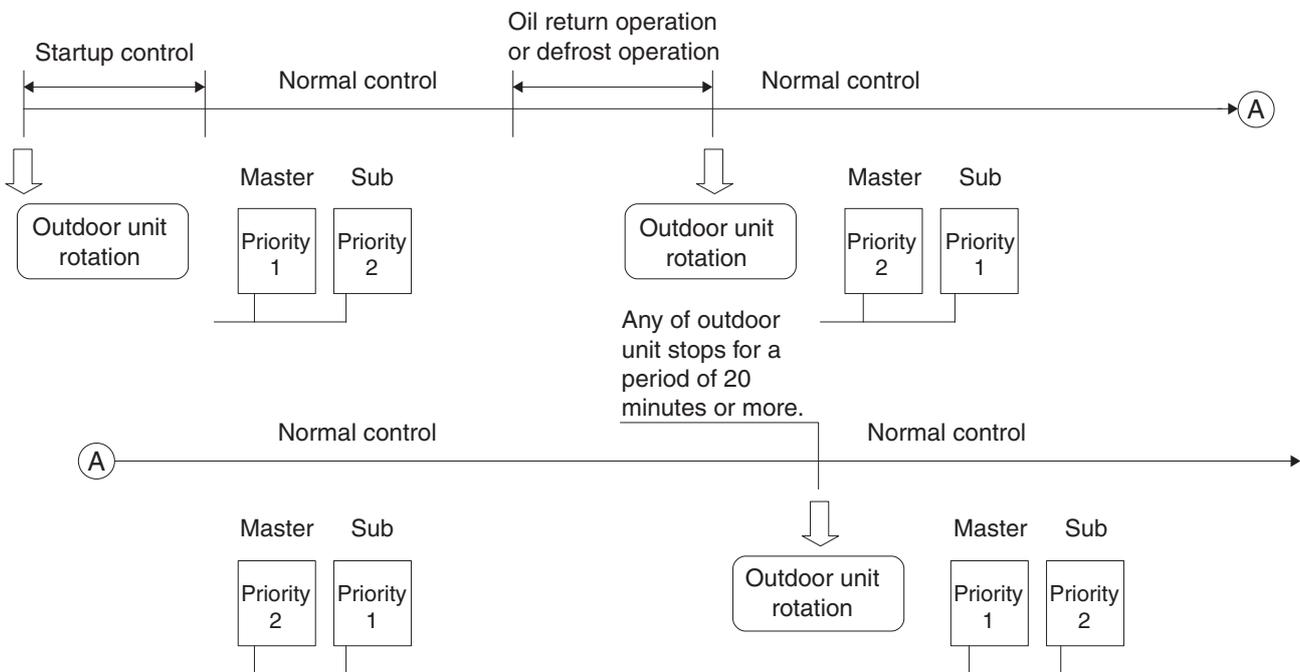
In the case of multi outdoor unit system, each outdoor unit is given an operating priority for the control.

The operating priority of outdoor units is changed by outdoor unit rotation. The outdoor unit rotation prevents unbalanced oil level between outdoor units by eliminating the long stop of compressors during partial load.

Timing of outdoor unit rotation

- At the beginning of the startup control, or;
- After oil return operation, or;
- After defrost operation, or;
- One of the outdoor units is stopped for 20 minutes or more (only in cooling).

Example) The following diagram shows outdoor unit rotation.



Note(s)

* Master unit and sub unit in this section are the names for installation.

They are determined in installation work, and not changed thereafter. (These names are different from master unit and sub unit for control.)

The outdoor unit connected the control wires (H1/H2) for the indoor unit should be designated as master unit.

Consequently, the LED display on the outdoor unit main PCB for master unit, sub unit does not change.

7.5 Cooling/Heating Mode Switching

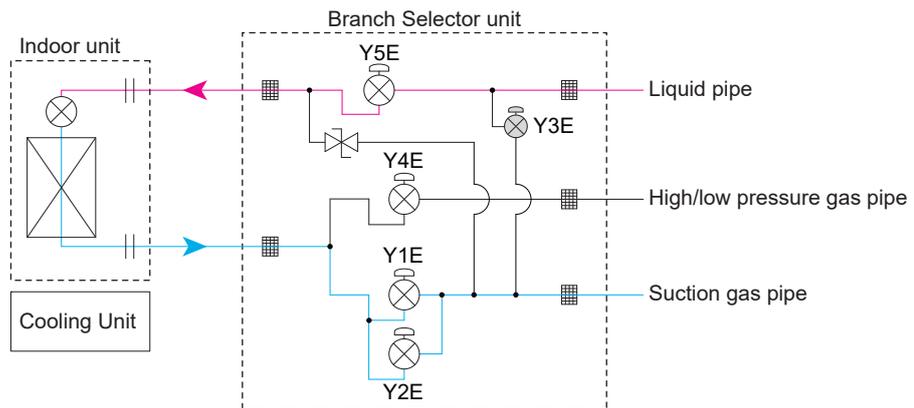
While in cooling/heating mixed mode, single-room cooling → heating

First, the electronic expansion valve of the indoor unit in cooling operation will close, and the Y4E, Y1E, and Y2E electronic expansion valves of the Branch Selector unit will all close once. Next, the Y4E electronic expansion valve will open little by little to perform pressure equalization.

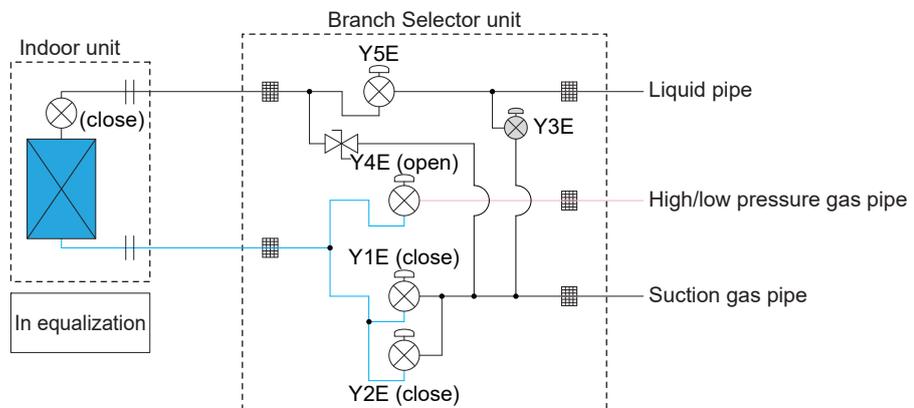
Then the electronic expansion valve will fully open, and the electronic expansion valve of the indoor unit will open to activate the heating circuit.

The required switching time is approximately 6 minutes. (Field settings, however, can shorten the time from 6 minutes to 4 minutes.)

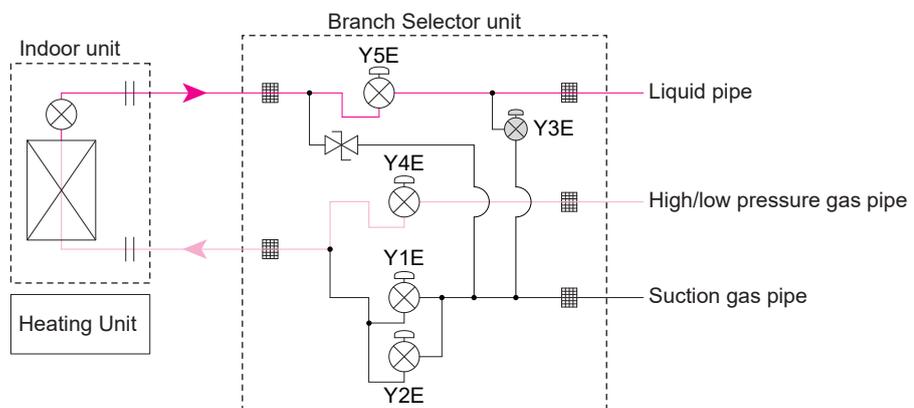
(1) In cooling operation



(2) In equalization



(3) To heating operation



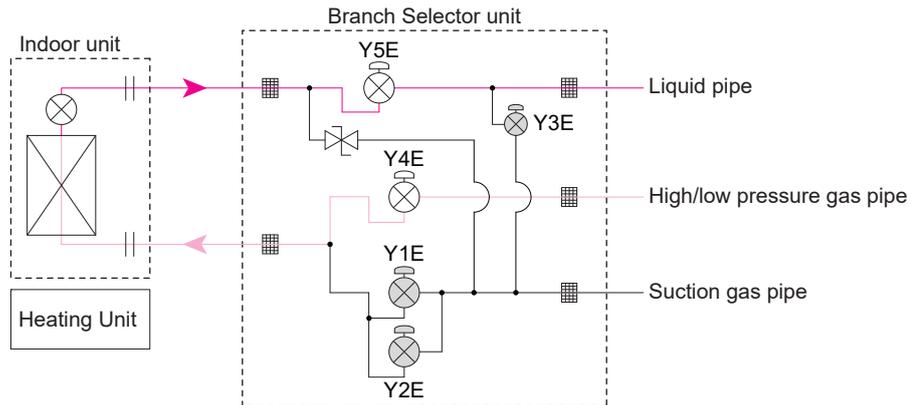
While in cooling/heating mixed mode, single-room heating → cooling

First, the electronic expansion valve of the indoor unit in heating operation will close, and the Y4E, Y1E, and Y2E electronic expansion valves of the Branch Selector unit will all close once. Next, the Y1E and Y2E electronic expansion valves will open little by little to perform pressure equalization.

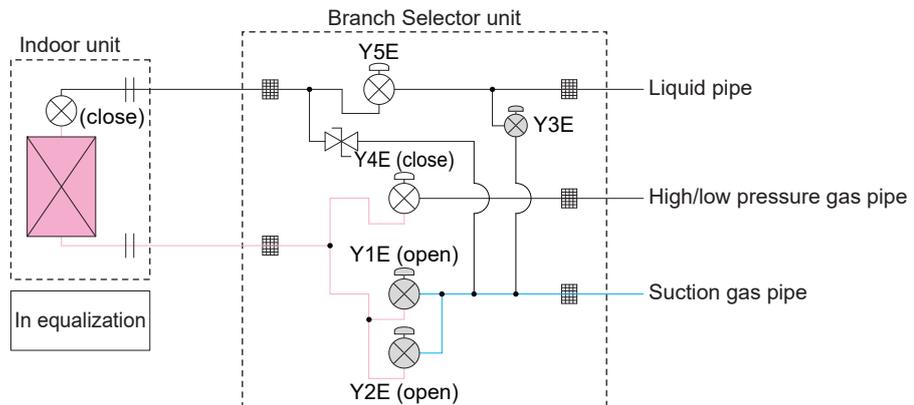
Then the electronic expansion valves will fully open, and the electronic expansion valve of the indoor unit will open to activate the cooling circuit.

The required switching time is approximately 6 minutes. (Field settings, however, can shorten the time from 6 minutes to 4 minutes.)

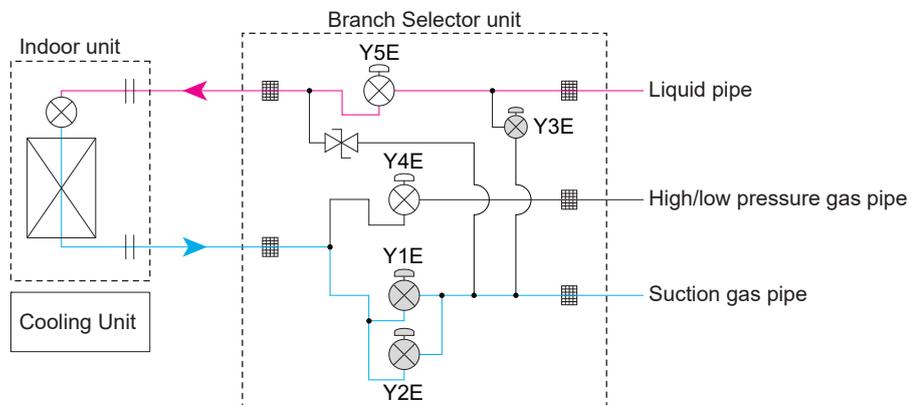
(1) In heating operation



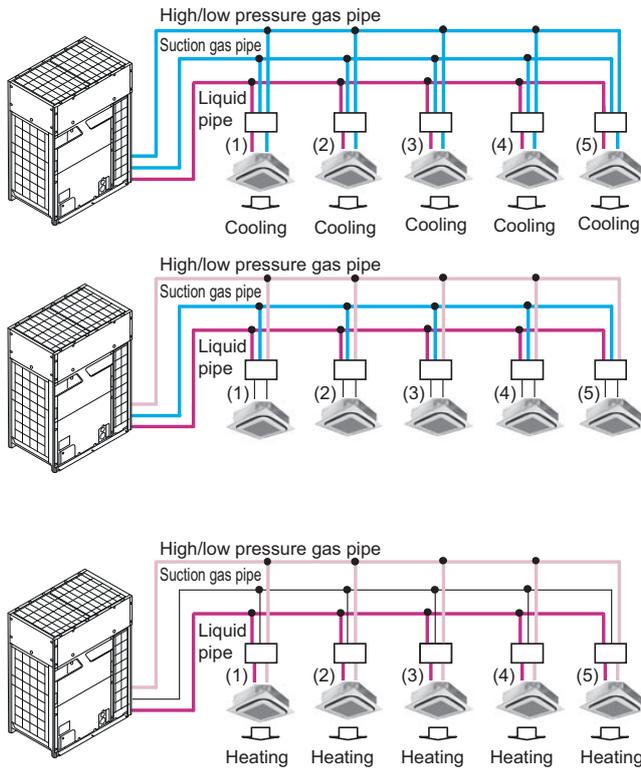
(2) In equalization



(3) To cooling operation



While in all-room cooling operation → All-room cooling/heating simultaneous operation

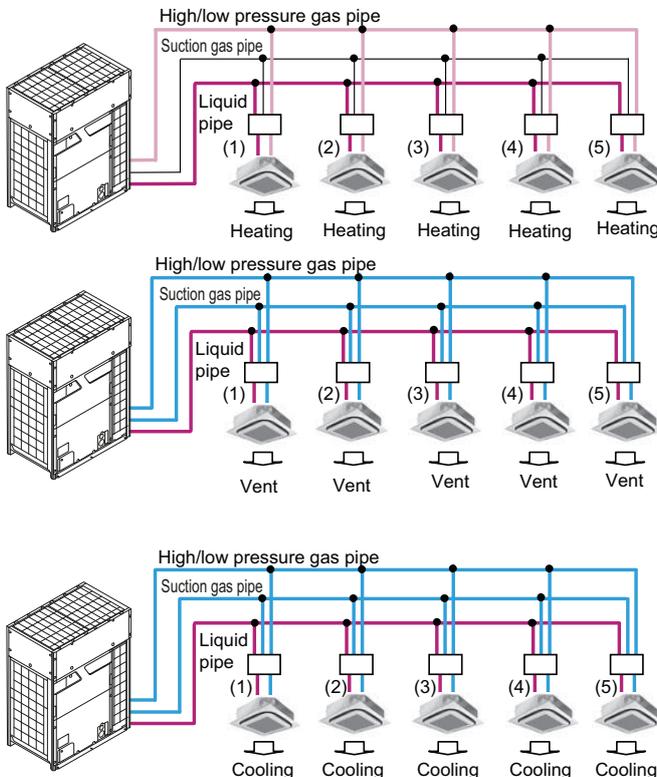


- (1) All the indoor units in cooling operation
 - ◆ Using the high/low pressure gas pipe as a suction gas pipe.
- (2) Pump-down residual operation
- (3) Pre-startup control
 - ◆ Switching between the electronic expansion valves of Branch Selector unit.
 - ◆ Required switching time: 30 seconds (switching control time)
(While switching: The compressor stops operating.)
- (4) Startup control
 - ◆ Switching the high/low pressure gas pipe from low pressure to high pressure.
- (5) Into heating operation or cooling and heating simultaneous operation

Each indoor unit

- ◆ In warm air supply operation under cool air prevention control (for 3 to 5 minutes).

While in all-room heating operation or cooling/heating simultaneous operation → All-room cooling



- (1) In heating operation or cooling and heating simultaneous operation
 - ◆ Using the high/low pressure gas pipe as a suction gas pipe.
- (2) Pump-down residual operation
- (3) Pre-startup control
 - ◆ Switching between the electronic expansion valves of Branch Selector unit.
 - ◆ Required switching time: 2 to 4 minutes (switching control time)
(While switching: The compressor stops operating.)
- (4) Startup control
 - ◆ Switching the high/low pressure gas pipe from low pressure to high pressure.
- (5) Into all-unit cooling operation
 - ◆ In cool air supply operation

8. Other Control

8.1 Backup Operation

If any of the compressors goes wrong, disable the relevant compressor or the relevant outdoor unit from operating, and then conduct emergency operation only with operational compressors or outdoor units.

Emergency operation with remote controller reset and emergency operation with outdoor unit PCB setting are available.

(1) Emergency operation with remote controller reset

[Operating method]

Reset the remote controller. (Press the **ON/OFF** button for 4 seconds or more.)

[Details of operation]

Disable the defective outdoor unit from operating temporarily, and then only operate other outdoor units.

(On the system with 1 compressor, this emergency operation is not available.)

(2) Emergency operation with outdoor unit PCB setting

[Setting method]

Make setting of the unit, the operation of which is to be disabled, in field setting mode (setting mode 2).

[Details of operation]

Disable the defective outdoor unit from operating, and then only operate other outdoor units.

(On the system with 1 compressor, this emergency operation is not available.)

8.2 Demand Operation

In order to limit the power consumption, the capacity of outdoor unit is forcibly reduced by using Demand 1 Setting or Demand 2 Setting.

To operate the unit with this mode, additional setting of Continuous Demand Setting or external input by external control adaptor for outdoor unit is required.

Setting item	Content
Demand 1 (step 1)	The compressor operates at the power of 60-95% or less of the rating.
Demand 2 (step 2)	The compressor operates at the power of 40-55% or less of the rating.
Demand 3	Forced thermostat OFF



Reference

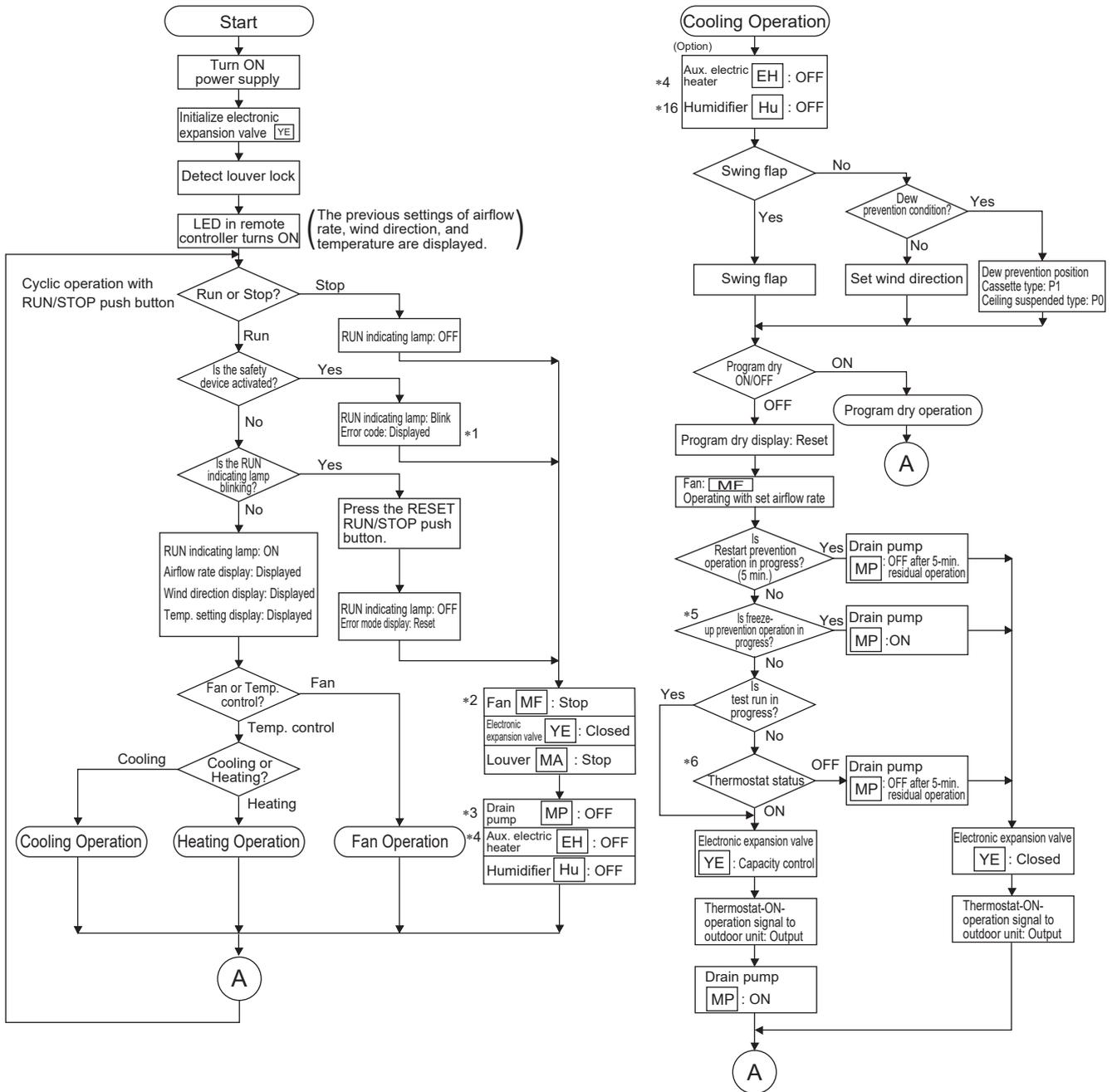
Refer to page 202 for the power consumption limitation details.

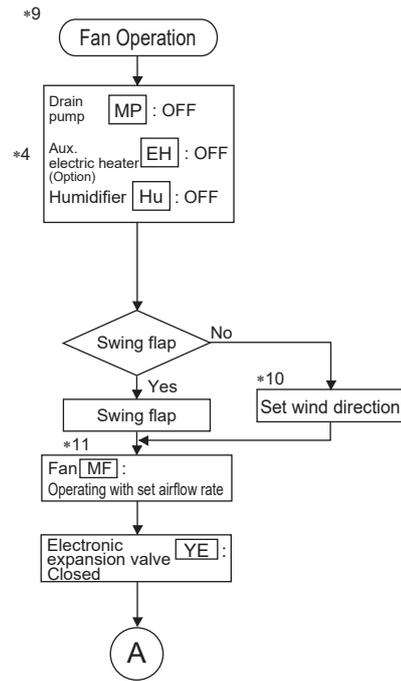
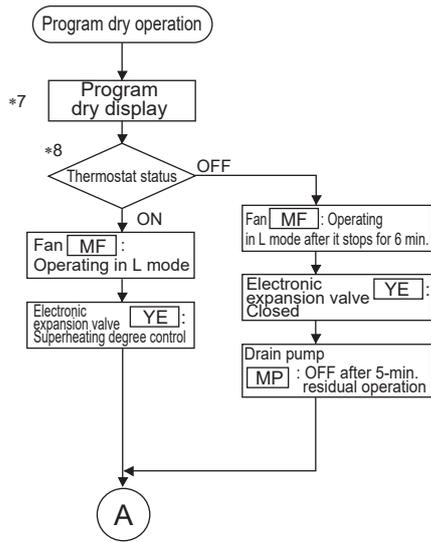
8.3 Heating Operation Prohibition

- 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 at step 1.
- Heating operation is enabled when outdoor air temperature drops below 24°C (75.2°F).

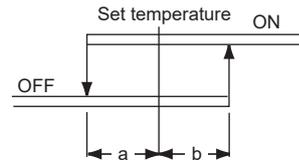
9. Outline of Control (Indoor Unit)

9.1 Operation Flowchart





*6. Thermostat status



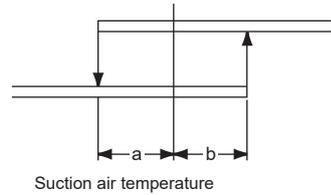
$a = b = 1^{\circ}\text{C} (1.8^{\circ}\text{F})$ or $0.5^{\circ}\text{C} (0.9^{\circ}\text{F})$
 The values a and b depend on the field setting 12 (22)-2.

*7. Program dry display

No set temperature and airflow rate of the remote controller are displayed.

*8. Thermostat status

Set temperature when operating the program dry mechanism.



*9. Fan operation

By setting the remote controller to Fan, the fan will operate with thermostat OFF in set temperature control operation mode.

*10. Set wind direction

According to wind direction instruction from the remote controller, the wind direction is set to 100% horizontal while in heating operation.

*11. Fan

According to fan speed instruction from the remote controller, the fan is put into operation in LL mode while in heating operation.

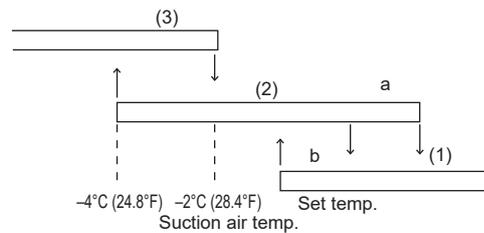
*12. Wind direction

When the heating thermostat turns OFF, the wind direction will be set to 100% horizontal.

*13. 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 $34^{\circ}\text{C} (93.2^{\circ}\text{F})$, or if T_c is above $52^{\circ}\text{C} (125.6^{\circ}\text{F})$, or if 3 minutes have elapsed.

*14. Thermostat status



*15. Outlet air temperature drop protection

When the set temperature is below $24^{\circ}\text{C} (75.2^{\circ}\text{F})$ or the electronic expansion valve opening is small, the protection will be activated.

*16. **Hu** indicates the Humidifier connected to the wiring modification adaptor.

It is not related to the Humidifier terminals on the PCB of FXTA-AB.

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)**

Temperature		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
		57.2	59	60.8	62.6	64.4	66.2	68	69.8	71.6	73.4	75.2	77	78.8	80.6	82.4	84.2	86	87.8	89.6	91.4	93.2	95	
Cooling	Remote controller set temperature	←-----●-----→																						
	Control target temperature	←-----●-----→																						
Heating	Remote controller set temperature	←-----●-----→																						
	Control target temperature	←-----●-----→																						

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

Temperature		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
		57.2	59	60.8	62.6	64.4	66.2	68	69.8	71.6	73.4	75.2	77	78.8	80.6	82.4	84.2	86	87.8	89.6	91.4	93.2	95	
Cooling	Remote controller set temperature	←-----●-----→																						
	Control target temperature	←-----●-----→																						
Heating	Remote controller set temperature	←-----●-----→																						
	Control target temperature	←-----●-----→																						

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)**

Temperature		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
		57.2	59	60.8	62.6	64.4	66.2	68	69.8	71.6	73.4	75.2	77	78.8	80.6	82.4	84.2	86	87.8	89.6	91.4	93.2	95	
Cooling	Remote controller set temperature	←-----●-----→																						
	Control target temperature	←-----●-----→																						
Heating	Remote controller set temperature	←-----●-----→																						
	Control target temperature	←-----●-----→																						

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

Temperature		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
		57.2	59	60.8	62.6	64.4	66.2	68	69.8	71.6	73.4	75.2	77	78.8	80.6	82.4	84.2	86	87.8	89.6	91.4	93.2	95	
Cooling	Remote controller set temperature	←-----●-----→																						
	Control target temperature	←-----●-----→																						
Heating	Remote controller set temperature	←-----●-----→																						
	Control target temperature	←-----●-----→																						

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.)



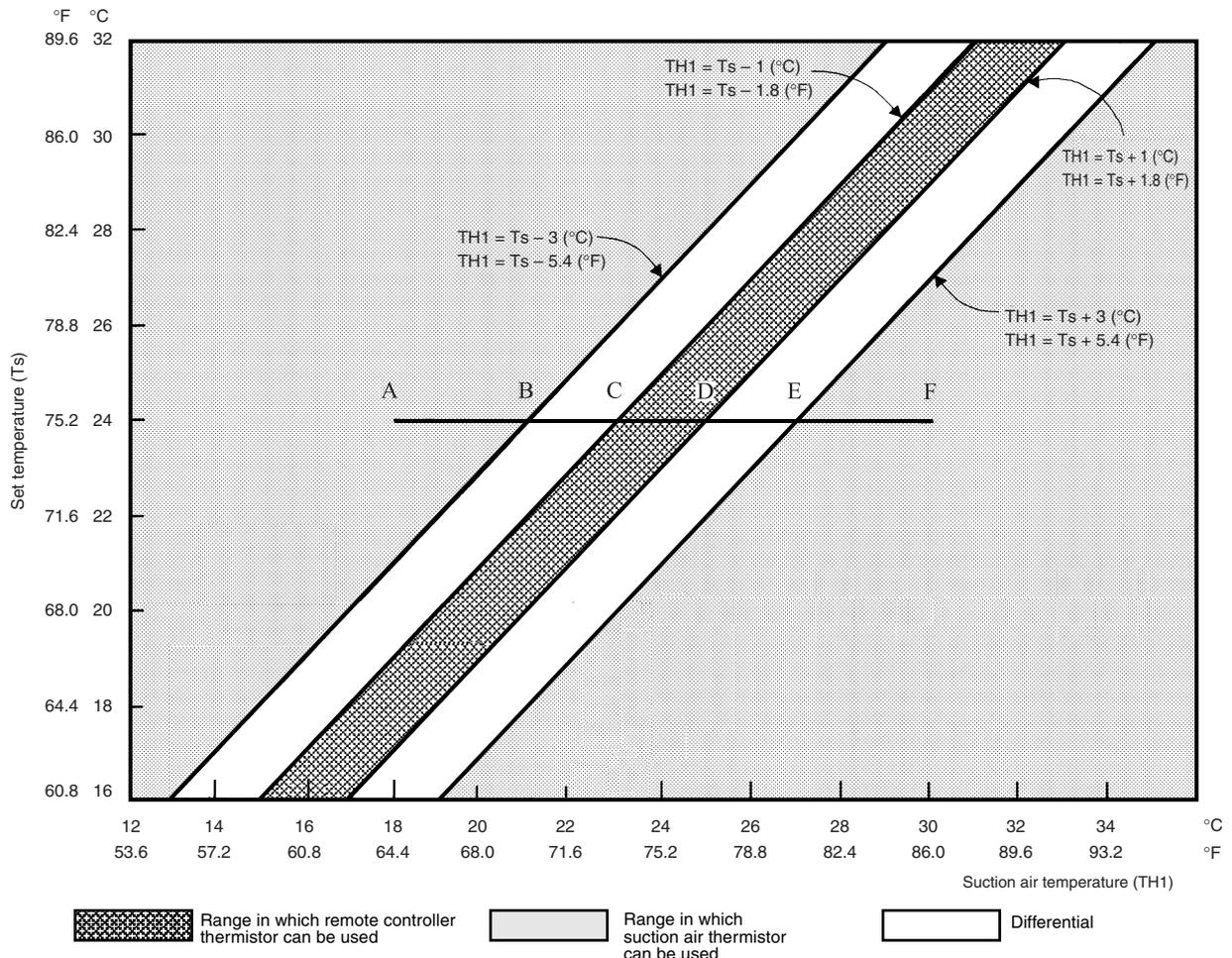
Note(s)

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-AB 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):

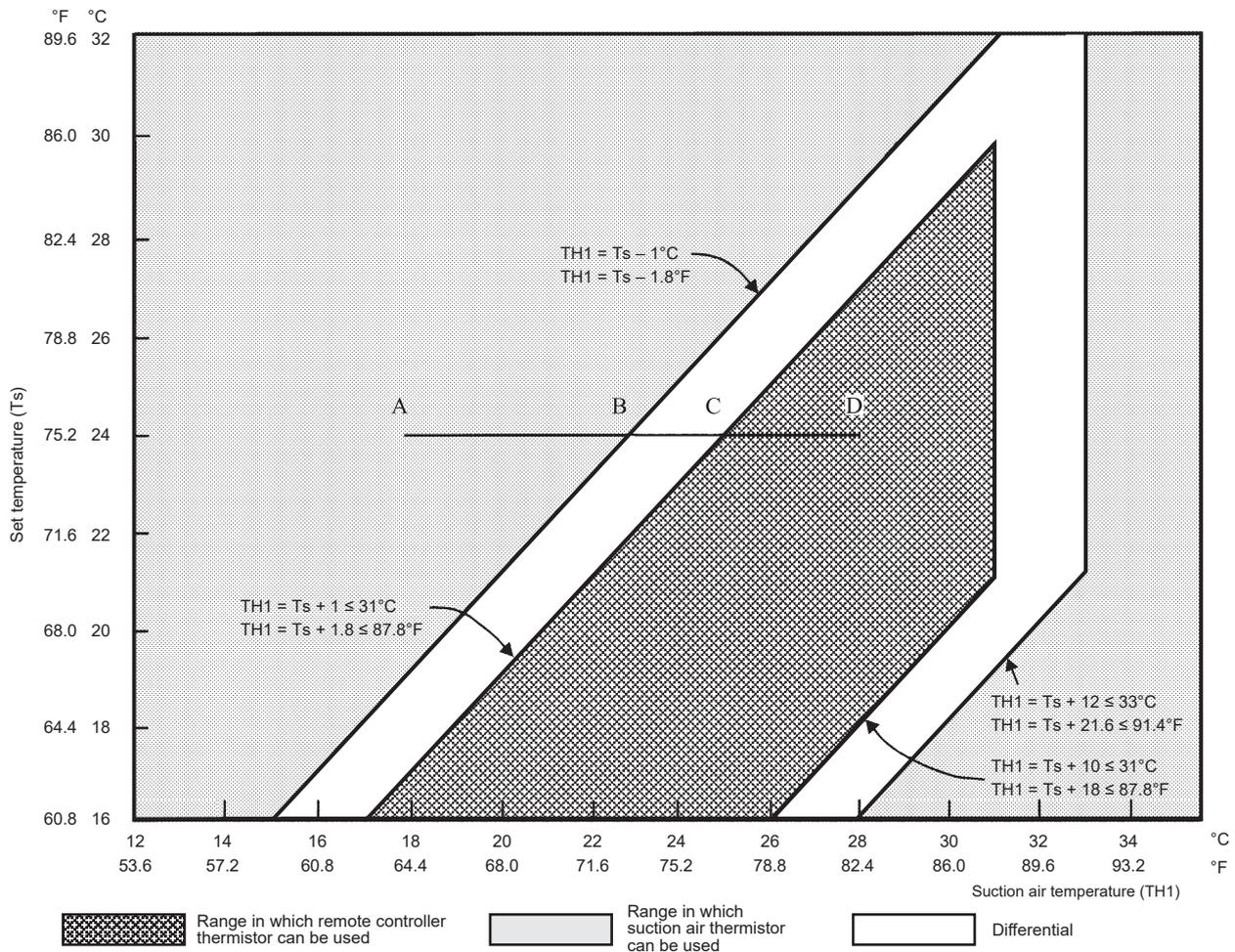
Suction air thermistor is used for temperatures from 30°C (86°F) to 25°C (77°F) (F → D).

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.

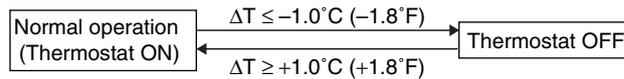
Differential value	Model
1°C (1.8°F)	FXTA-AB
0.5°C (0.9°F)	FXFA-AA, FXZA-AA, FXSA-AA, FXMA-AA, FXAA-AA

9.4.1 Without Infrared Floor Sensor

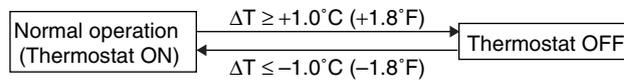
Whether the thermostat is turned ON or OFF is determined by the difference between the remote controller set temperature and the actual detected room temperature (*1).

Normal Operation

- ◆ Cooling operation

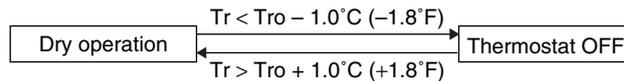


- ◆ Heating operation

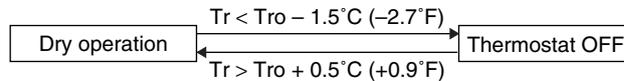


Dry Operation

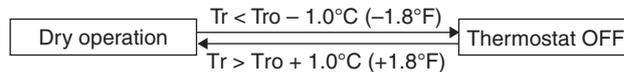
- ◆ When Tro < 24.5°C (76.1°F)



- ◆ 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 – Remote controller set temperature

Tro: Room temperature at the start of dry operation

Tr: Room temperature

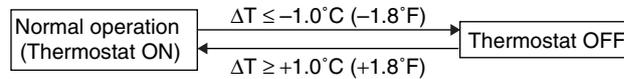
*1: The thermistor for room temperature detection depends on the field setting 10 (20)-2.

9.4.2 With Infrared Floor Sensor

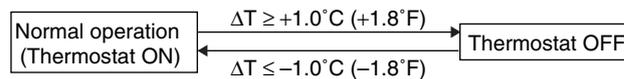
Whether the thermostat is turned on or off is determined by the difference between the remote controller set temperature and the detected temperature around people.

Normal Operation

- ◆ Cooling operation

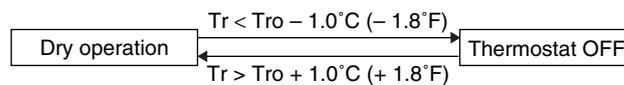


- ◆ Heating operation

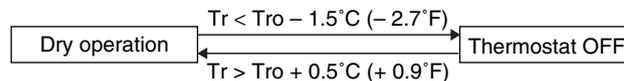


Dry Operation

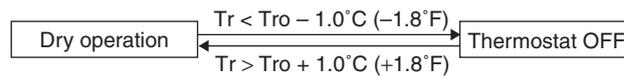
- ◆ When $T_{ro} \leq 24.5^{\circ}\text{C}$ (76.1°F)



- ◆ When $T_{ro} > 24.5^{\circ}\text{C}$ (76.1°F)



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



ΔT = Room temperature or temperature around people – Remote controller set temperature
 T_{ro} : Room temperature or temperature around people at the start of dry operation
 T_r : 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

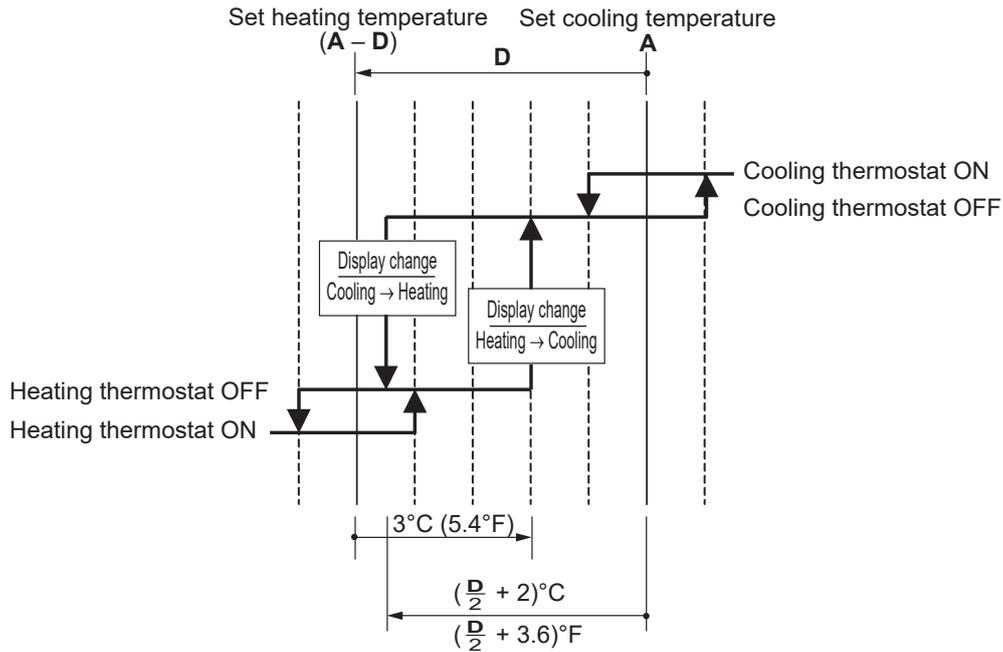
- ◆ When the floor temperature is higher than suction air temperature (R1T), R1T will be treated as the control target temperature in operation.
- ◆ When the temperature around people is 33°C (91.4°F) or higher, R1T will be treated as the control temperature for operation.

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.

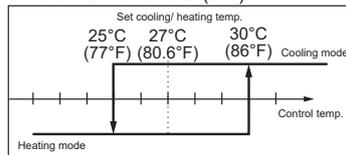
★: Factory setting

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

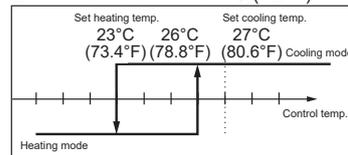


(Ex.) When automatic cooling temperature is set to 27°C (80.6°F):

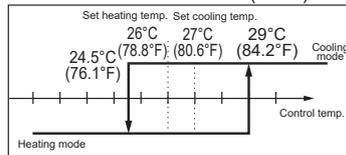
Differential value: 0°C (0°F)



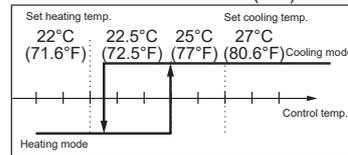
Differential value set to 4°C (7.2°F)



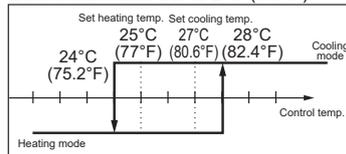
Differential value set to 1°C (1.8°F)



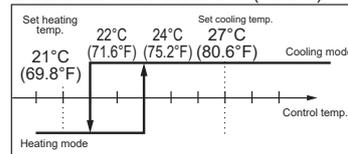
Differential value set to 5°C (9°F)



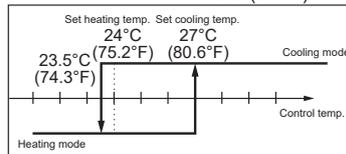
Differential value set to 2°C (3.6°F)



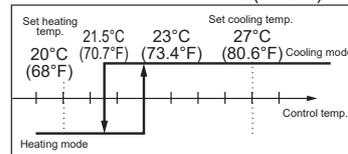
Differential value set to 6°C (10.8°F)



Differential value set to 3°C (5.4°F)

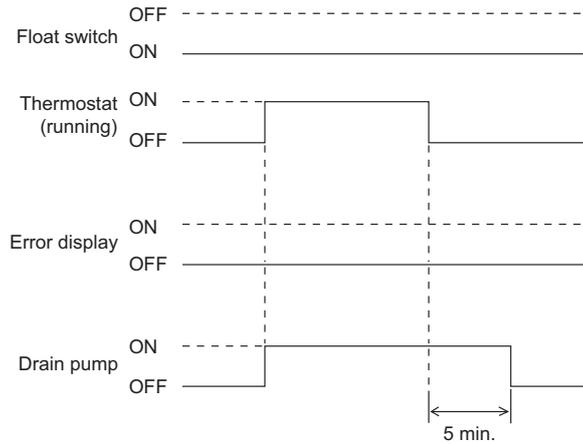


Differential value set to 7°C (12.6°F)



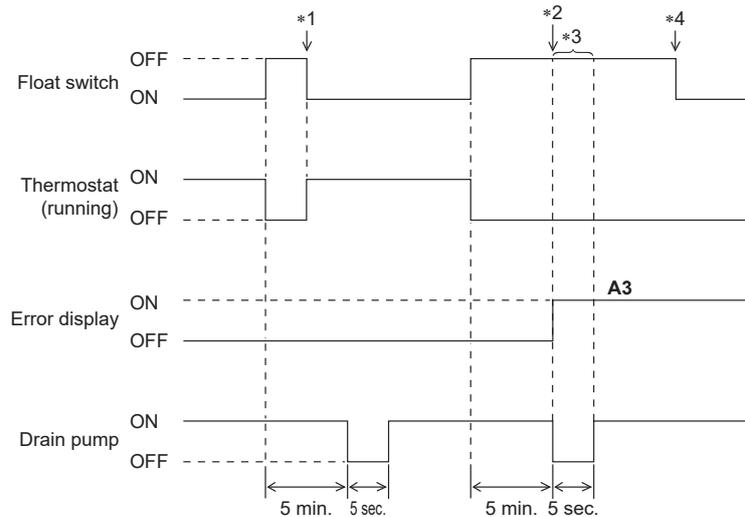
9.5 Drain Pump Control

9.5.1 Normal Operation



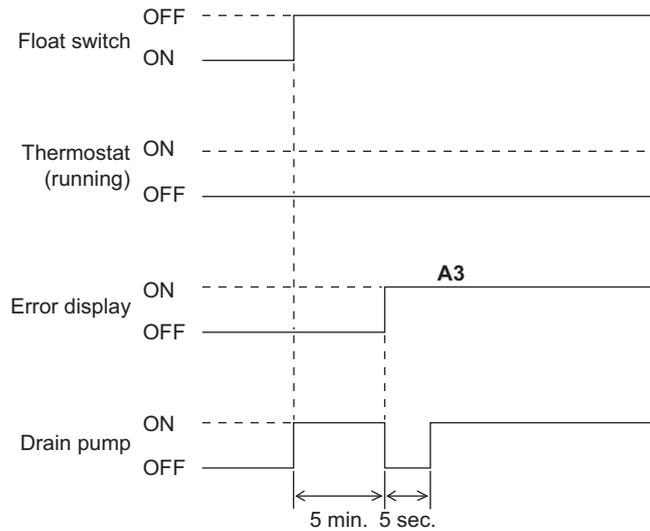
- ◆ The float switch is ON in normal operation.
- ◆ When cooling operation starts (thermostat ON), the drain pump turns ON simultaneously.
- ◆ After the thermostat turns OFF, the drain pump continues to operate for another 5 minutes.
- ◆ The aim of residual operation after thermostat OFF is to eliminate 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



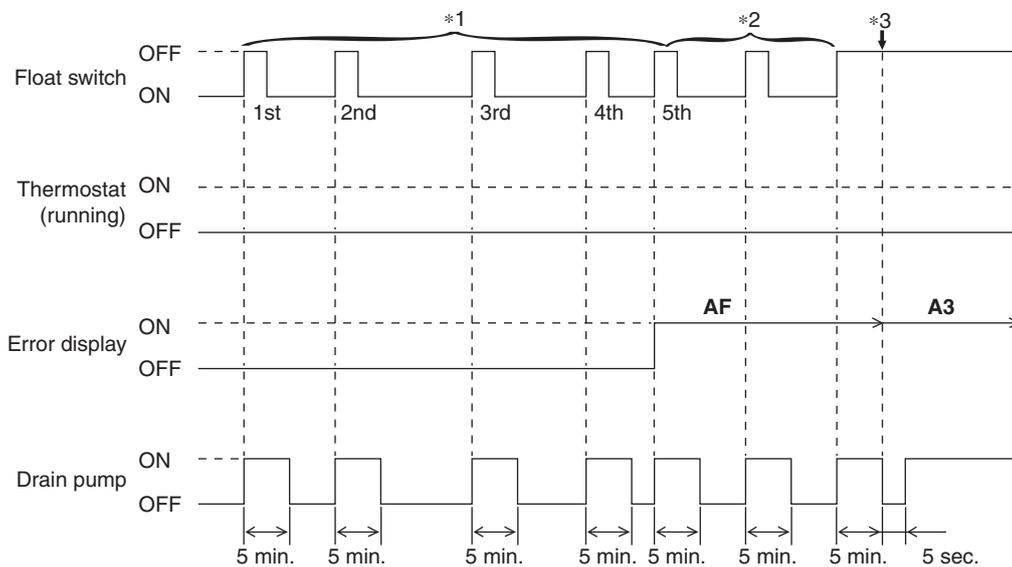
- ◆ When the float switch turns OFF, the thermostat turns OFF simultaneously.
- ◆ After the thermostat turns OFF, the drain pump continues to operate for another 5 minutes.
- *1. If the float switch turns ON again during the residual operation of the drain pump, cooling operation also turns on again (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 (TI) 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.

$$SH = T_g - T_I$$

Where,

SH: Evaporator outlet superheating degree

Tg: Indoor unit gas pipe temperature (R3T)

TI: 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 (TI) 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.

$$SC = T_c - T_I$$

Where,

SC: Condenser outlet subcooling degree

Tc: High pressure equivalent saturated temperature detected by the high pressure sensor (S1NPH)

TI: 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:

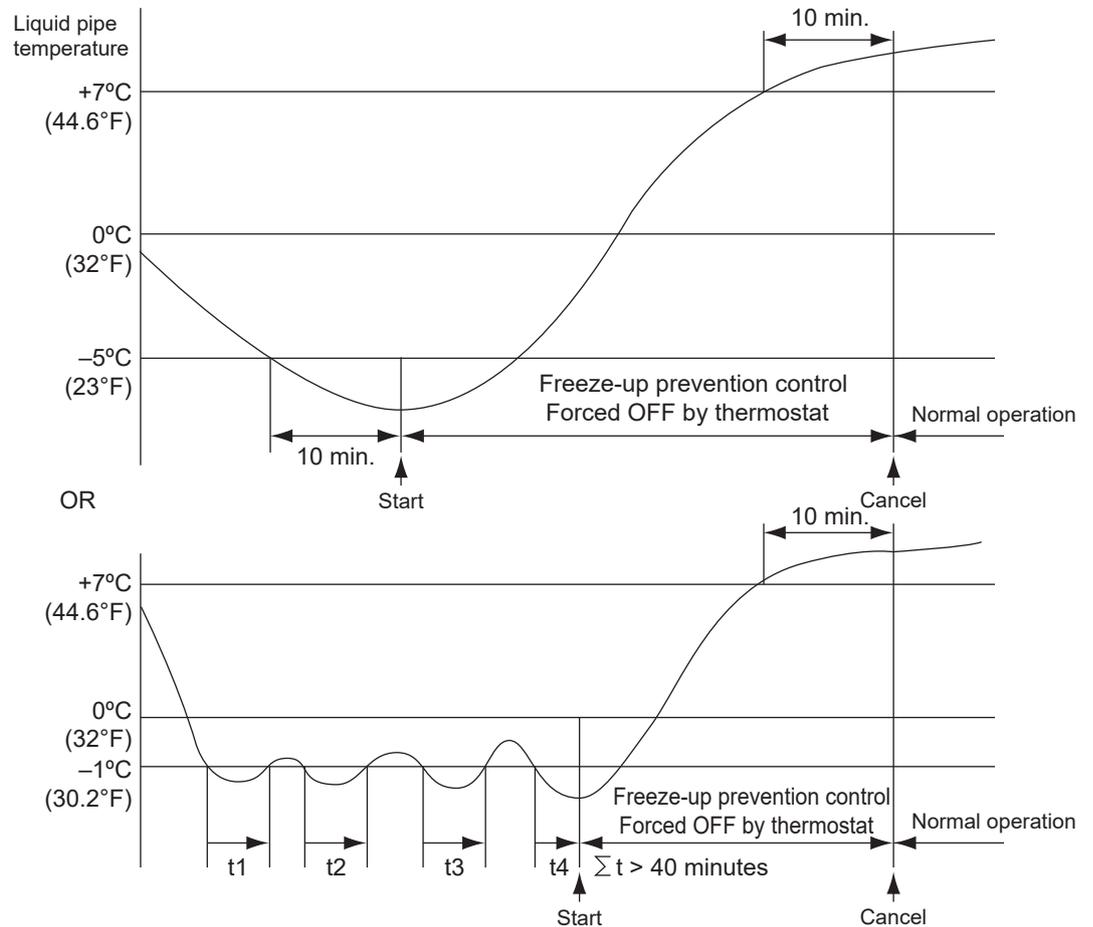
Liquid pipe temperature $\leq -1^{\circ}\text{C}$ (30.2°F) (for total of 40 minutes)

or

Liquid pipe temperature $\leq -5^{\circ}\text{C}$ (23°F) (for total of 10 minutes)

Condition for cancelling:

Liquid pipe temperature $\geq +7^{\circ}\text{C}$ (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.

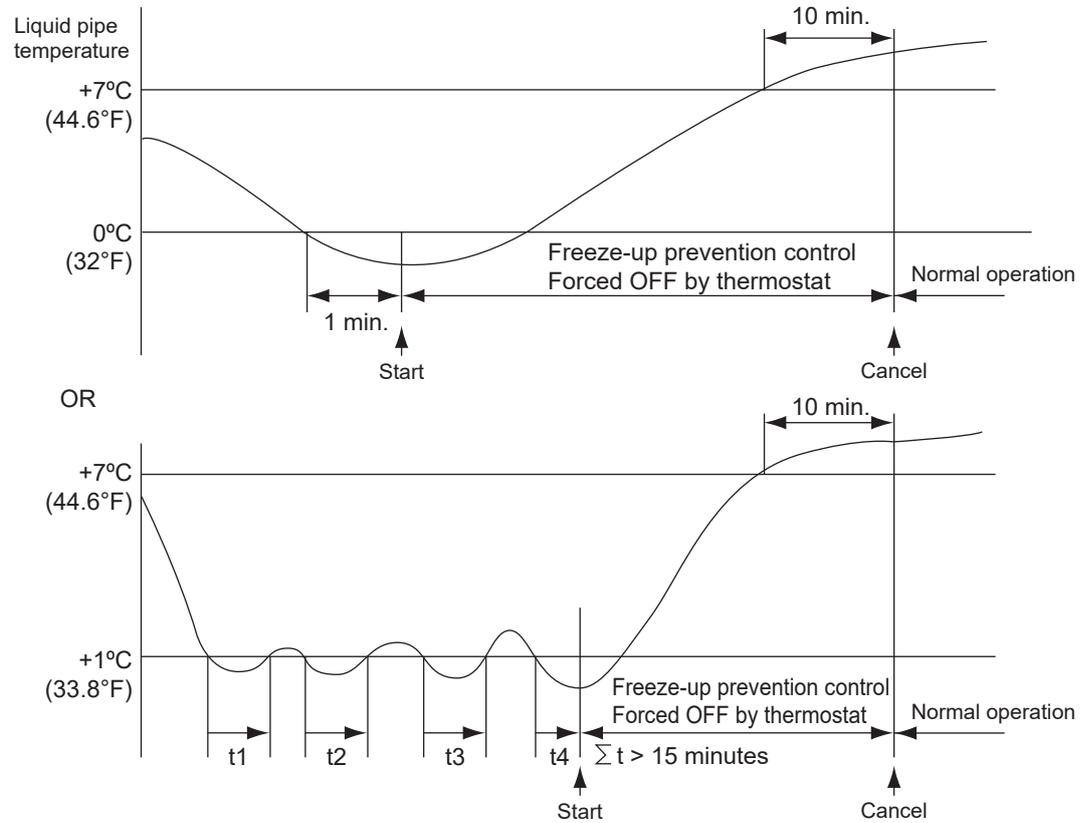


Note(s)

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 $\leq 1^{\circ}\text{C}$ (33.8°F) (for total of 15 minutes)

or
 Liquid pipe temperature $\leq 0^{\circ}\text{C}$ (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.

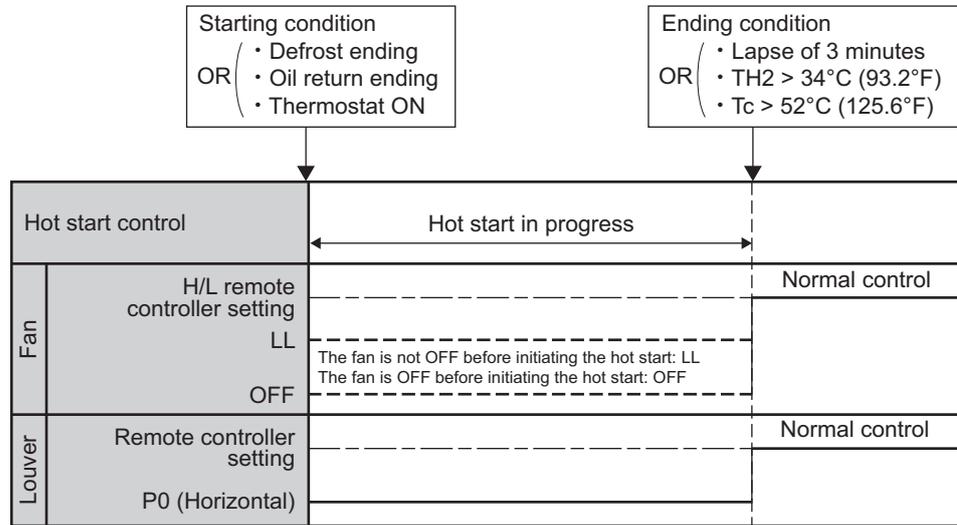
			Fan	Flap	
				FXFA-AA FXZA-AA	FXAA-AA
Heating	Hot start from defrost operation	Swing	OFF	Horizontal	Horizontal
		Airflow direction set	OFF	Horizontal	Horizontal
	Defrost operation	Swing	OFF	Horizontal	Horizontal
		Airflow direction set	OFF	Horizontal	Horizontal
	Thermostat OFF	Swing	LL	Horizontal	Horizontal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

9.9 Hot Start Control (In Heating Operation Only)

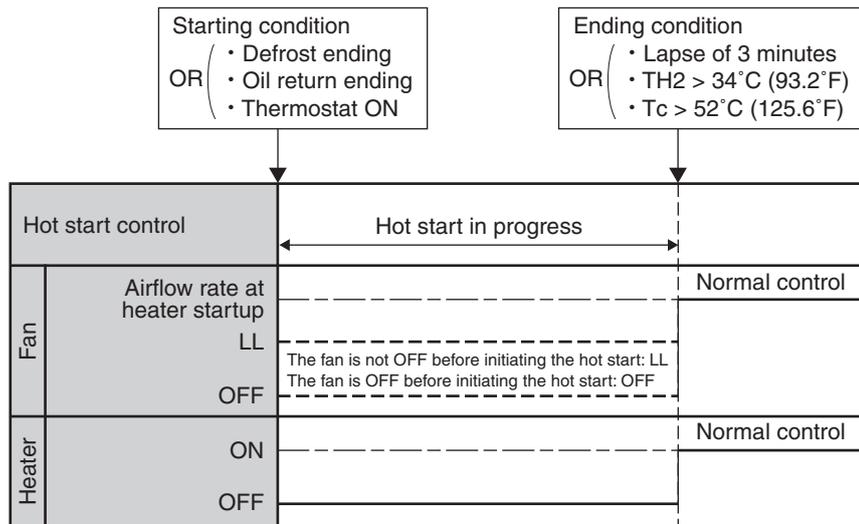
At startup with thermostat ON or after the completion of defrosting in heating operation, the indoor fan is controlled to prevent cold air from blasting out and ensure startup capacity.

TH2: Temperature detected with the gas thermistor

Tc: High pressure equivalent saturated temperature



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



9.10 Heater Control (Except FXTA-AB Models)

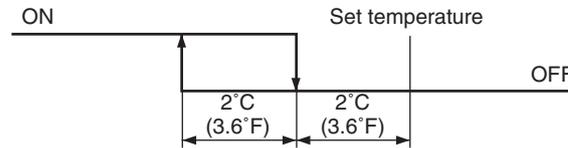


Note(s) Optional PCB KRP1B... is required.

The heater control is conducted in the following manner.

Normal control

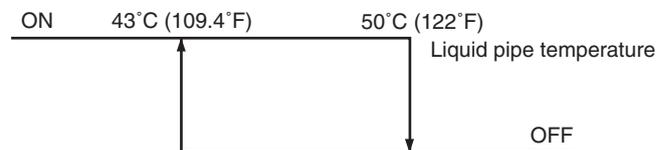
While in heating, the heater control (ON/OFF) is conducted as shown below.



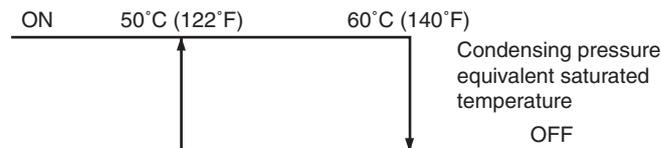
Overload control

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

9.11 Heater Control (FXTA-AB Models)

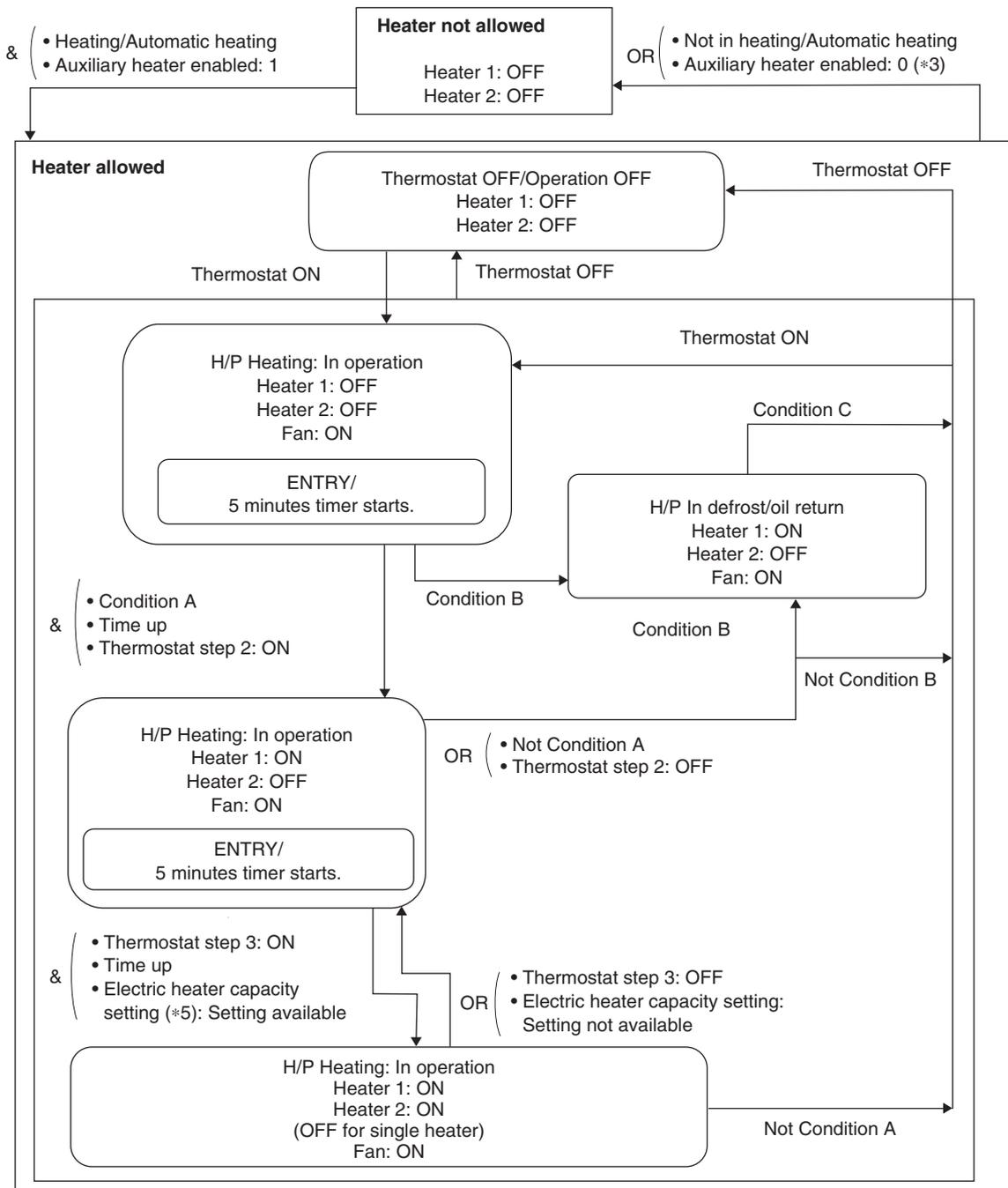


Note(s)

Optional heater kit HKTS... is required.
 For FXTA-AB 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-AB Models)** on page 150.)

9.11.1 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

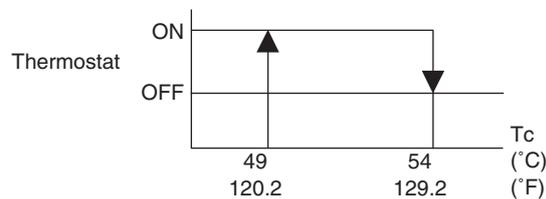
- No fan motor system error
- During defrost/oil return
- Heater ON permission (Defrost/oil return): 1 (*4)

Condition C

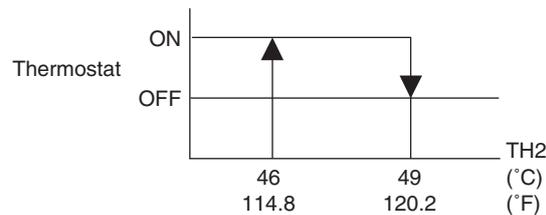
- OR (
- Not during defrost/oil return
- Fan motor system error
- Heater ON permission (Defrost/oil return): 0 (*4)

 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 \neq **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 179.

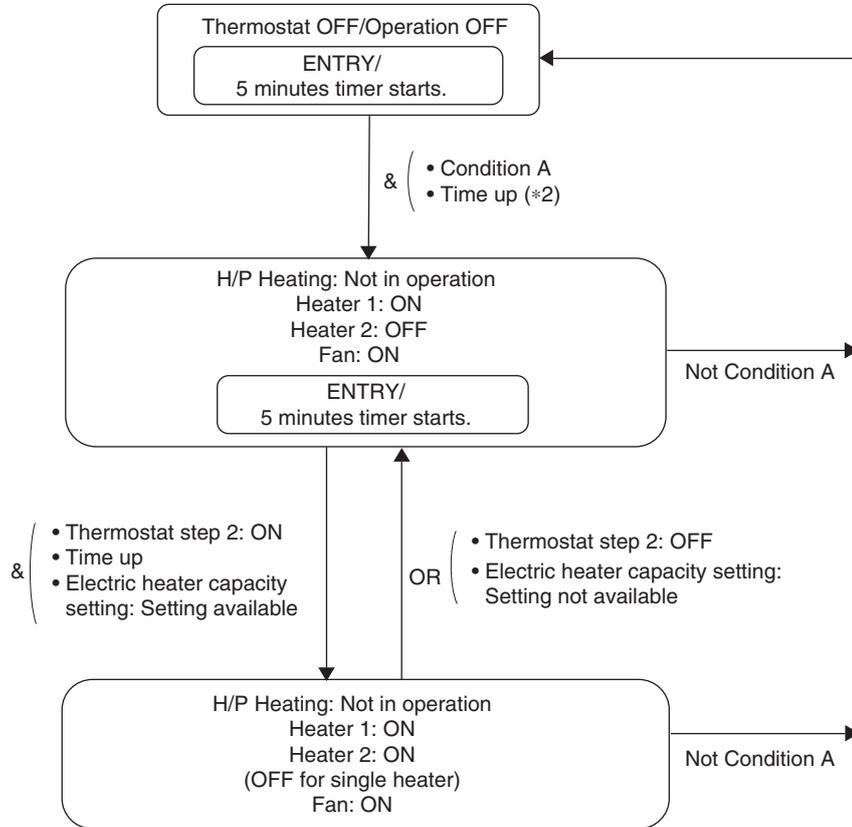
*6. Field setting 39 (49)-0. Refer to page 178.

9.11.2 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
 - Hot-water heater: 1 (ON)
- & OR (
- 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)

i Note(s)

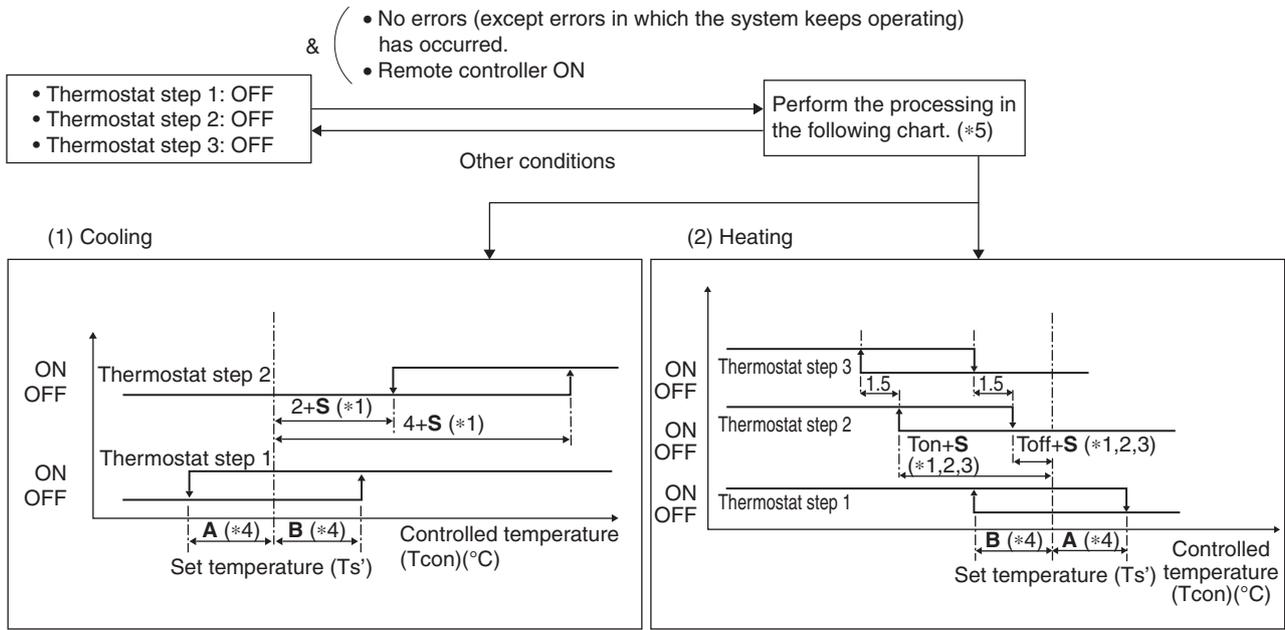
- *1. The heater backup prohibiting conditions are prioritized. Even when the heater ON conditions are met, the heater is turned OFF when the prohibiting conditions are met.
- *2. When the remote controller is ON, Time-up will be set to the initial value.
- *3. If the remote controller is equipped with a lockout function, it is possible to send a similar signal from the remote controller.

9.12 3-Step Thermostat Processing (FXTA-AB 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-AB Models)** on page 147.

Detail



Note(s)

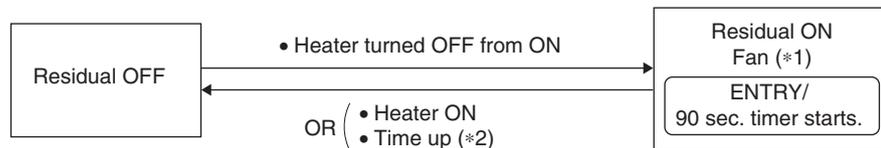
- *1. S value varies automatically based on the room temperature trend.
- *2. $T_{on} + S > -B$ (°C), $T_{off} + S < A$ (°C)
- *3. For parameters, refer to page 167.
- *4. A and B values vary automatically based on the field setting 12 (22)-2.
- *5. If, directly after a change in conditions, it is such that the thermostat could be either ON or OFF (controlled temperature is within ranges A and B), the thermostat will be switched to ON.

9.13 Fan Control (Heater Residual) (FXTA-AB 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.

9.14 Interlocked with External Equipment (FXTA-AB Models)

9.14.1 Air Purifier (UV Lamp)

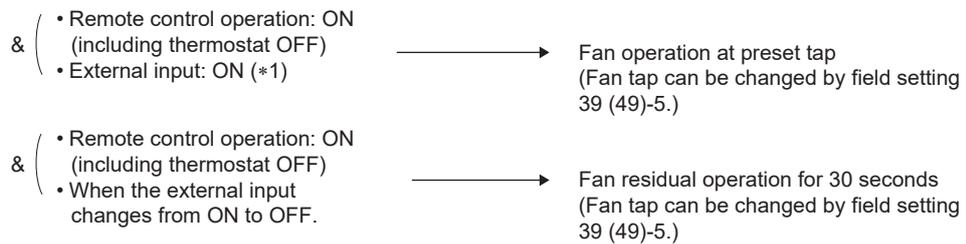
When an air purifier is connected onsite, the fan is operated with the airflow rate set of the remote controller or with the H tap.



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

9.14.2 Humidifier

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



*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.

9.14.3 Economizer

When indoor and outdoor air temperatures are reversed, the compressor is stopped to let in the outdoor air to save energy.

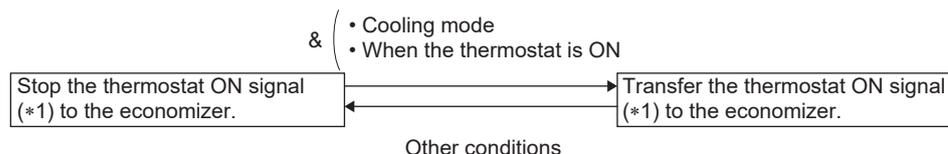
This operation is called economizer operation, and the equipment to detect indoor and outdoor air temperatures and open and close the damper to perform this operation is called an economizer.

The economizer detects indoor and outdoor air temperatures, informs the air conditioner that the economizer operation is ready, and opens and closes the damper.

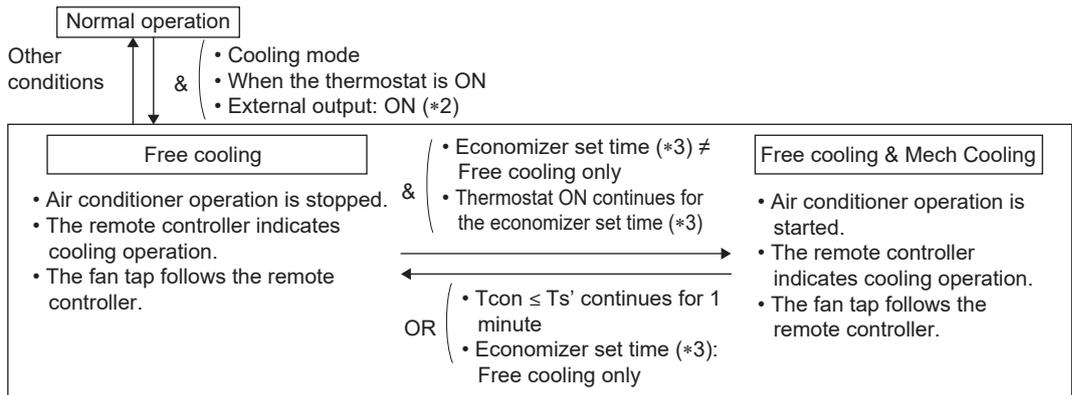
The indoor unit stops the outdoor unit when it receives a signal from the economizer and performs air supply operation.

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.

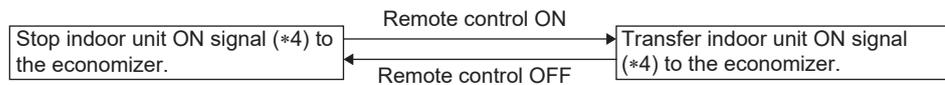
■ **Thermostat ON signal**



■ 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)** on page 180.
- *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.

9.15 Circulation Airflow

Unevenness of room temperature and the startup time are improved by repeating 2-direction horizontal blow-off and swing alternately.

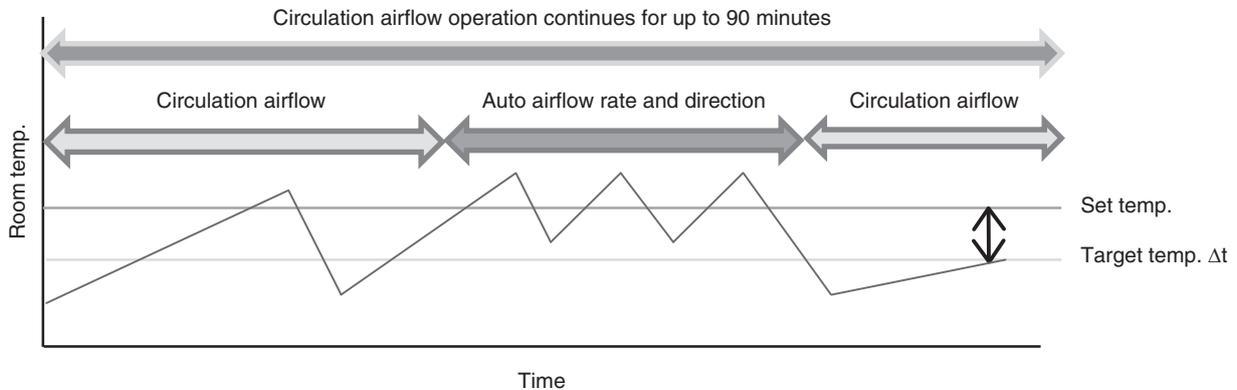
9.15.1 Initiation Conditions of Circulation Operation

When operation starts (in the startup state)

Circulation airflow operation is performed.

During normal operation

The unit automatically determines operation based on the room temperature condition and time to switch circulation airflow operation and the normal auto airflow rate and direction.



9.15.2 Operational Concept

Cooling

★: Factory setting

Movement pattern		(a)	(b)	(c)	(d)
Appearance Time (seconds) 13 (23)-14	01: Pattern 1★	120★	600★	120★	600★
	02: Pattern 2	120	600	0	0
	03: Pattern 3	0	0	120	600
	04: Pattern 4	120	600	120	600

Heating

★: Factory setting

Movement pattern		(a)	(b)	(c)	(d)
Appearance Time (seconds) 13 (23)-14	01: Pattern 1★	120★	120★	120★	120★
	02: Pattern 2	120	120	0	0
	03: Pattern 3	0	0	120	120
	04: Pattern 4	120	0	120	0

Indicates the horizontal flap is in the position of reducing airflow volume.

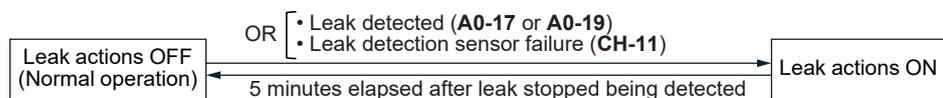
9.16 Refrigerant Detection System (RDS) Function (Except FXTA-AB)

Refrigerant Detection System (RDS) is installed in this equipment to detect any refrigerant leakage in the coil and leak detection sensor failure and to 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 LL tap
Electronic expansion valve (indoor unit)	Closed
Electronic expansion valve (Branch Selector unit and Safety Shut-Off Valve unit)	Closed
Connector X40A (*1) (*3) (A1P PCB, with Ventilation and alarm adaptor)	Energized
Buzzer signal (*3)	ON



i Note(s)

*1. Refer to the installation manual of Ventilation and alarm adaptor for the detailed specifications.

*2. 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)

*3. 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.

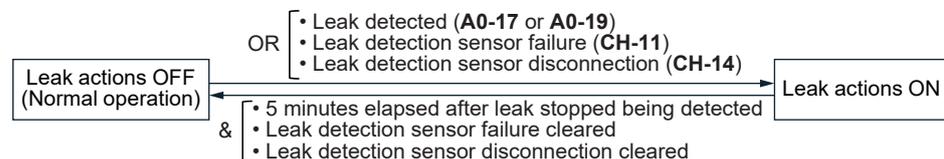
9.17 Refrigerant Detection System (RDS) Function (FXTA-AB Models)

Refrigerant Detection System (RDS) is installed in this equipment to detect any refrigerant leakage in the coil and leak detection sensor failure and to 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 or disconnection, the same safety actions are performed.

Item (function)	Leak actions
Remote controller	Display of error code A0-17 , A0-19 , CH-11 or CH-14
Fan motor	Run at specified tap (*5)
Electronic expansion valve (indoor unit)	Closed
Electronic expansion valve (Branch Selector unit and Safety Shut-Off Valve unit)	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 Ventilation and alarm adaptor)	Energized
Buzzer signal (*4)	ON



i Note(s)

*1. Refer to the following **Leak Detection Output (Relay K6R) (FXTA-AB 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)** on page 180.

*3. Refer to Ventilation and alarm adaptor 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** on page 179.

*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.

9.18 Leak Detection Output (Relay K6R) (FXTA-AB Models)

A2P PCB is equipped with three Refrigerant Leak Detection terminals, labeled TB11, TB12 and TB13.

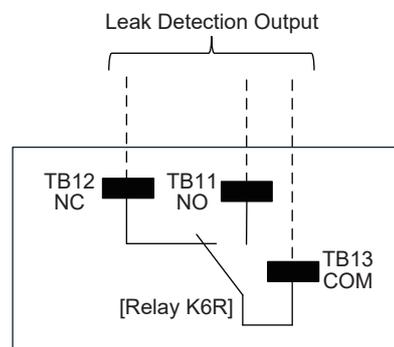
These terminals are used for the control of optional kits (zoning damper, UV light, ventilator and/or any accessories that could be a potential ignition source) when refrigerant leak is detected (error code **A0-17** or **A0-19**), leak detection sensor fails (error code **CH-11**), and/or leak detection sensor is disconnected (error code **CH-14**).

TB12-13 are normally closed, and TB11-13 are normally opened.

When the **A0-17**, **A0-19**, **CH-11**, or **CH-14** 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 **A0-17/A0-19/CH-11/CH-14** is issued

Items	When A0-17/A0-19/CH-11/CH-14 not issued	When A0-17/A0-19/CH-11/CH-14 issued
Terminal TB12-TB13 (NC)	CLOSE	OPEN
Terminal TB11-TB13 (NO)	OPEN	CLOSE



Part 5

Field Settings and

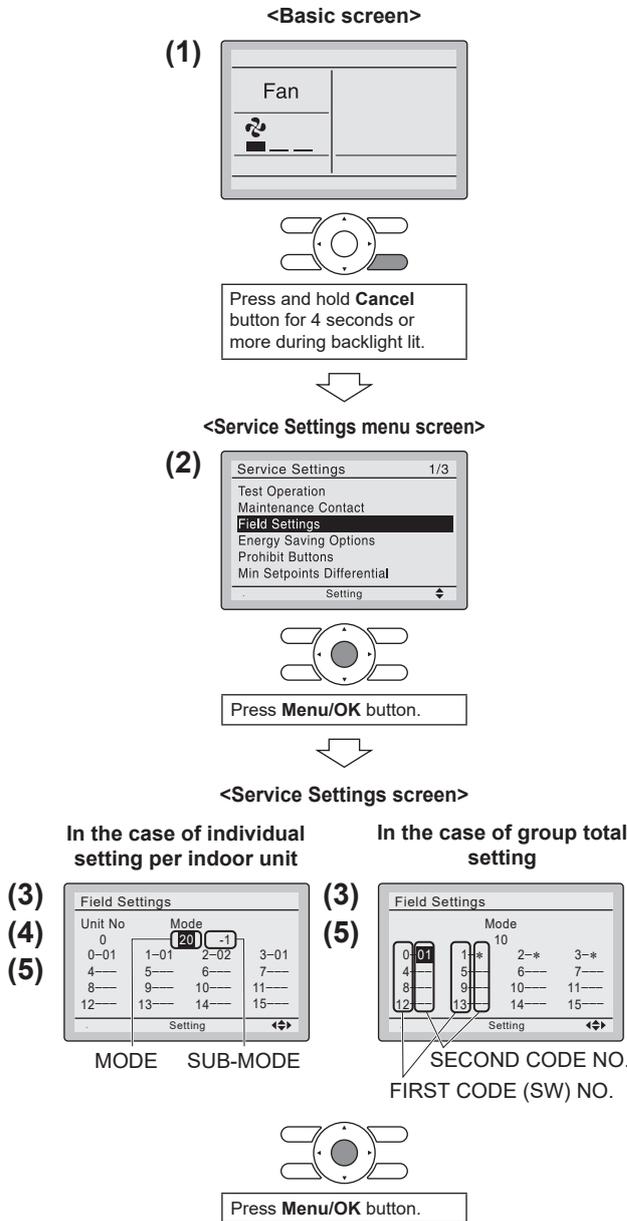
Test Operation

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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.)



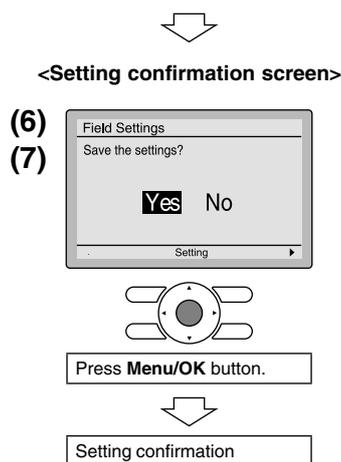
1. Press and hold **Cancel** button for 4 seconds or more. Service settings menu is displayed.
2. Select **Field Settings** in the Service Settings menu, and press **Menu/OK** button. Field settings screen is displayed.
3. Highlight the mode, and select desired **Mode No.** by using **▲▼** (Up/Down) 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.]



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.				Reference Page		
				01	02	03	04			
10 (20)	0	Filter cleaning sign interval	Ultra long life filter	Light★	Approx. <u>10,000 hrs.</u> ★	Heavy	Approx. 5,000 hrs.	—	—	164
			Long life filter		Approx. <u>2,500 hrs.</u> ★		Approx. 1,250 hrs.			
			Standard filter		Approx. <u>200 hrs.</u> ★		Approx. 100 hrs.			
	0	Filter lifetime		Standard★		Short		—	—	164
	1	Filter type		Long life filter★		Ultra long life filter		—	—	164
	1	Filter cleaning sign interval		Standard interval★		Long interval		—	—	164
	2	Remote controller thermistor		Refer to page on the right for details.				164		
	3	Filter cleaning sign		Displayed★		Not displayed		—	—	166
	5	Information for intelligent Touch Manager / intelligent Touch Controller		Refer to page on the right for details.				166		
	6	Remote controller thermistor control during group control		Not permitted★		Permitted		—	—	164
	10	Dry operation time during VRTsmart control		30 minutes★		60 minutes		90 minutes	Continuous (not returning to cooling)	166
11	Low airflow setting when thermostat OFF during VRTsmart control		Disabled		Enabled★		—	—	166	
11 (21)	1	Auxiliary electric heater ON temperature: Ton		Refer to page on the right for details.				167		
	2	Auxiliary electric heater OFF temperature: Toff								
	3	Setting of airflow rate when heating		Standard★		Slightly increased		Increased	—	167
	6	Detection rate setting		High sensitivity		Low sensitivity		Standard sensitivity★	Infrared presence sensor disabled	168
(21)	7	Automatic airflow adjustment		OFF★		Completion of airflow adjustment		Start of airflow adjustment	—	168
11 (21)	8	Compensating the temperature around people		Suction air temperature only		Priorities given on the suction air temperature		Standard★	Priorities given on the floor temperature	169
	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)	169
	12	Dry mode set temperature		Room temperature★		Same as cooling mode set temperature		—	—	169
12 (22)	0	Optional accessories output selection		Refer to page on the right for details.				170		
	1	External ON/OFF input		Refer to page on the right for details.				170		
	2	Thermostat differential changeover (Note 5)		1°C (1.8°F)		0.5°C (0.9°F)		—	—	170
	3	Airflow setting when heating thermostat is OFF		LL tap★		Set fan speed		OFF	—	171
	4	Automatic mode differential		Refer to page on the right for details.				171		
	5	Auto restart after power failure		OFF		ON★		—	—	171
	6	Airflow setting when cooling thermostat is OFF		LL tap		Set fan speed★		OFF	—	172
	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)	172

Mode No. (Note 2)	First Code No.	Setting Contents	Second Code No.				Reference Page
			01	02	03	04	
13 (23)	0	Ceiling height setting, setting of normal airflow	Standard★	High ceiling 1	High ceiling 2	—	172
	1	Airflow direction setting	4-direction airflow★	3-direction airflow	2-direction airflow	—	173
	2	Swing pattern settings	All direction synchronized swing	—	Facing swing★	—	173
	4	Airflow direction adjustment range	Draft prevention	Standard★	Ceiling soiling prevention	—	174
	6	External static pressure settings	Refer to page on the right for details.				174
	7	Setting of swing patterns when cooling thermostat is OFF	Refer to page on the right for details.				175
14 (24)	2	Dust collection sign interval display	Approx. 1,250 hrs.	Approx. 2,500 hrs.★	Approx. 5,000 hrs.	—	175
	3	Interval of filter replacement sign display	Not displayed★	Approx. 32,000 hrs.	Approx. 48,000 hrs.	Approx. 72,000 hrs.	176
	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.★	—	176
	8	Selection of the auto control operation lock mode	ON	OFF★	—	—	176
	9	Dust amount setting	Standard dust amount★	Heavy dust amount	—	—	177
15 (25)	1	Humidification when heating thermostat is OFF	Not equipped★	Equipped	—	—	177
	5	Individual ventilation setting	Normal★	Individual	—	—	177
	10	Discharge air temperature lower limit setting	Refer to page on the right for details.				177
	13	Refrigerant leak sensor setting	Disabled	Enabled★	—	—	178
	14	Refrigerant leak sensor replacement	Normal★	Completion of replacement	—	—	178
39 (49)	0	Electric heater function setting	Refer to page on the right for details.				178
	1	Electric heater capacity setting	Refer to page on the right for details.				179
	3	Fan tap in refrigerant leak detection mitigation mode	LL	L★	M	H	179
	4	Refrigerant leak test	OFF★	ON (60 minutes)	ON (120 minutes)	ON (180 minutes)	179
	5	Optional kit setting (UV lamp + humidifier + economizer)	Refer to page on the right for details.				180
	6	Accessory contact output (TB6 and TB8)	Refer to page on the right for details.				180
1b	4	Display of error codes on the remote controller	—	Two-digit display	—	Four-digit display★	180
1c	0	Room temperature display	Not displayed	Displayed★	—	—	180
	1	Thermistor sensor for auto changeover and setback control by the remote controller	Utilize the return air thermistor	Utilize the remote controller thermistor★	—	—	181
	3	Access permission level setting	Level 2★	Level 3	—	—	181
1e	2	Setback availability	N/A★	Heat only	Cool only	Cool/heat	181

**Note(s)**

- 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.
- 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	FXZA-AA	FXSA-AA	FXMA-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	●	●	●	●
	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	●	●*1	—	—
(21)	7	Automatic airflow adjustment	—	—	●	●
11 (21)	8	Compensating the temperature around people	●	●*1	—	—
	9	Compensating the floor temperature when heating	●	●*1	—	—
	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	●	●*1	—	—
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	●	●	—	—
	2	Dust collection sign interval display	●	—	—	—
14 (24)	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	—	—	—	—
	5	Individual ventilation setting	●	●	●	●
	10	Discharge air temperature lower limit setting	—	—	●	●*2
	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: Only when the optional sensor kit is installed.

*2: FXMA15-54AA only

Field setting	First Code No.	Setting Modes	FXAA-AA	FXTA-AB
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	●	●
	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	—	—
(21)	7	Automatic airflow adjustment	—	—
11 (21)	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	●	—
	2	Dust collection sign interval display	—	—
14 (24)	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	—	—
	1	Humidification when heating thermostat is OFF	—	●
15 (25)	5	Individual ventilation setting	●	●
	10	Discharge air temperature lower limit setting	—	—
	13	Refrigerant leak sensor setting	●	●
	14	Refrigerant leak sensor replacement	●	●
	0	Electric heater function setting	—	●
39 (49)	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.
	FXZA-AA				
	FXSA-AA				
	FXMA-AA				
	FXAA-AA	200 hrs.★	100 hrs.	—	—

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-AB	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:

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

Factory Setting

Model	Second Code No.
FXAA-AA	01
FXFA-AA, FXZA-AA, FXSA-AA, FXMA-AA	02

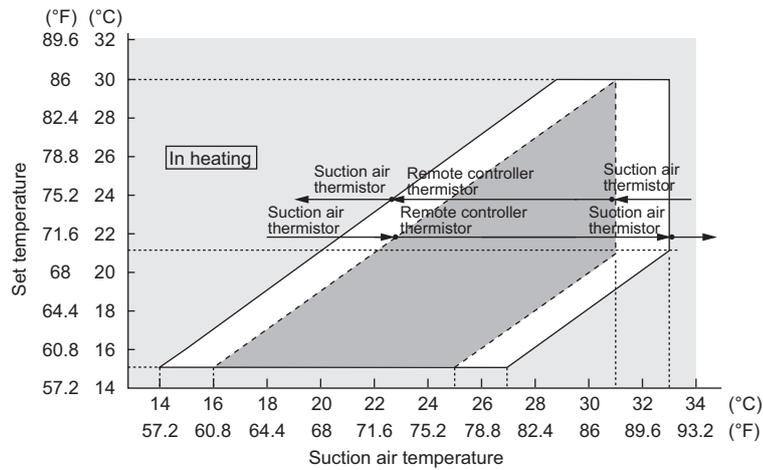
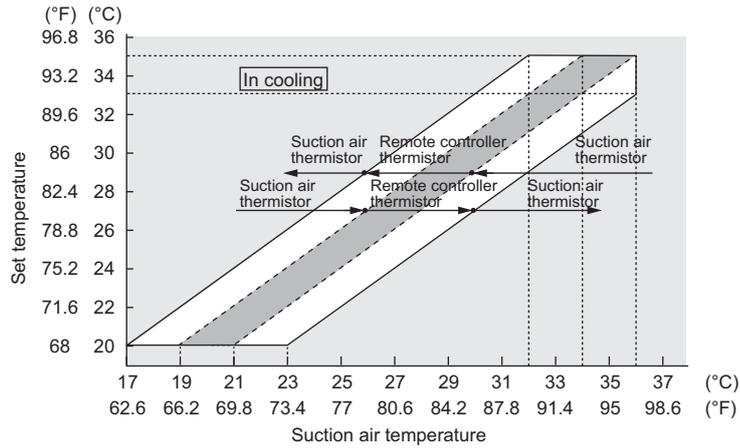
When the Second Code No. is set to **01**, room temperature is controlled by the suction air thermistor and remote controller thermistor. When the Second Code No. is set to **02**, room temperature is controlled by the suction air thermistor. When the Second Code No. is set to **03**, room temperature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

■ FXTA-AB

★: 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★

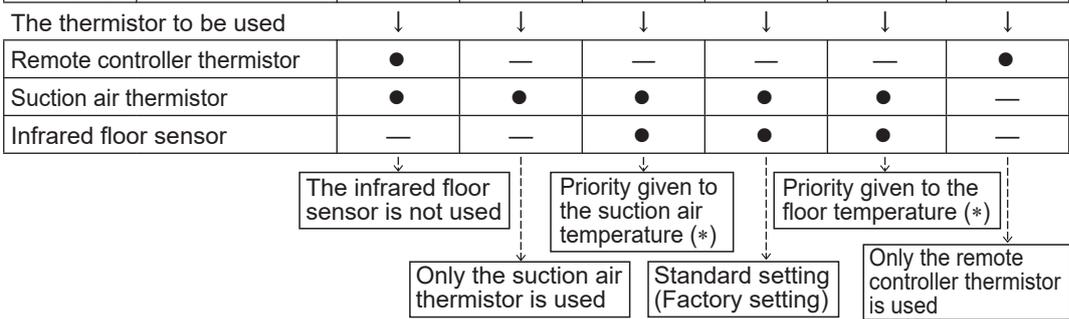
When the Second Code No. is set to **02**, room temperature is controlled by the remote sensor thermistor. When the Second Code No. is set to **03**, room temperature is controlled by the remote controller thermistor.



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



*Refer to **Compensating the Temperature around People** on page 169.



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	01★	<u>Only indoor unit sensor value</u> <u>(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 Dry Operation Time during VRTsmart Control

- 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.

1.3.6 Low Airflow Setting when Thermostat OFF during VRTsmart Control

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)

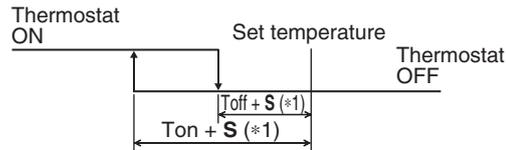
13 (23)-7 (the swing setting when cooling thermostat OFF is enabled) is as set

When enabled: LL when $T_e \geq 7^\circ\text{C}$ (44.6°F)

★: Factory setting

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

1.3.7 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

1.3.8 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.

1.3.9 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

1.3.10 Automatic Airflow Adjustment

Make external static pressure setting automatically using automatic airflow adjustment ((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. (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. of (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
(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.
3. The setting of air volume automatic adjustment function cannot be carried out as a group, so make an individual setting by connecting the remote controller to each indoor unit.

1.3.11 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

1.3.12 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)

1.3.13 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

1.3.14 Optional Accessories Output Selection

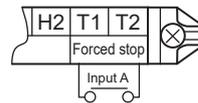
Using this setting, **operation output signal** and **abnormal output signal** can be provided. Output signal is output between terminals X1 and X2 of adaptor for wiring, an optional accessory.

★: 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	—

1.3.15 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-AB 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	—

1.3.16 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-AB	01	1°C (1.8°F)
FXFA-AA, FXZA-AA, FXSA-AA, FXMA-AA, FXAA-AA	02	0.5°C (0.9°F)

1.3.17 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

1.3.18 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.

1.3.19 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

- 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.**
- 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.**

1.3.20 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

1.3.21 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)

1.3.22 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)

- 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.
- 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.

■ FXZA-AA

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents	Ceiling height
13 (23)	0	01★	Standard★	Lower than 2.7 m (8-3/4 ft) ★
		02	High Ceiling 1	Lower than 3.0 m (10 ft)
		03	Higher Ceiling 2	Lower than 3.5 m (11-1/2 ft)

1.3.23 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

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

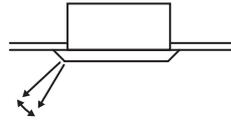
Set the flap operation in swing mode. With the factory swing, flaps facing each other are synchronized to operate, and flaps placed side by side are set to swing in an opposite direction to agitate airflow to reduce temperature irregularity. Conventional swing operation (all direction synchronized swing)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

1.3.25 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**.

1.3.26 External Static Pressure Settings

Make external static pressure setting automatically using automatic airflow adjustment ((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).

■ FXMA15-54AA 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).

■ FXMA72/96AA models

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	6	01	50 Pa (0.20 inWG)
		02	75 Pa (0.30 inWG)
		03	100 Pa (0.40 inWG)
		04	115 Pa (0.46 inWG)
		05	130 Pa (0.52 inWG)
		06★	150 Pa (0.60 inWG)★
		07	160 Pa (0.64 inWG)
		08	175 Pa (0.70 inWG)
		09	190 Pa (0.76 inWG)
		10	200 Pa (0.80 inWG)
		11	210 Pa (0.84 inWG)
		12	220 Pa (0.88 inWG)
		13	230 Pa (0.92 inWG)
		14	240 Pa (0.96 inWG)
		15	250 Pa (1.00 inWG)

1.3.27 Setting of Swing Patterns when Cooling Thermostat is OFF

In cooling operation, when the thermostat is OFF, flaps normally do not swing even if the airflow direction is set to swing. 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

1.3.28 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.

1.3.29 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.			
		01★	02	03	04
14 (24)	3	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.

1.3.30 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.		
		01	02	03★
14 (24)	4	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.

1.3.31 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.	
		01	02★
14 (24)	8	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.

1.3.32 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.

1.3.33 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

1.3.34 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

1.3.35 Discharge Air Temperature Lower Limit Setting

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)

1.3.36 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★

1.3.37 Refrigerant Leak Sensor Replacement

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

★: Factory setting

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

1.3.38 Electric Heater Function Setting

★: 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 208 and **Heat Pump Lockout** on page 209 for more information.

1.3.39 Electric Heater Capacity Setting

★: 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

1.3.40 Fan Tap in Refrigerant Leak Detection Mitigation Mode

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

1.3.41 Refrigerant Leak Test

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. Ventilation and alarm adaptor 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)

1.3.42 Optional Kit Setting (UV lamp + Humidifier + Economizer)

★: 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★

1.3.43 Accessory Contact Output (TB6 and TB8)

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-AB Models)** on page 154.

1.3.44 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★

1.3.45 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★

1.3.46 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★

1.3.47 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

1.3.48 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

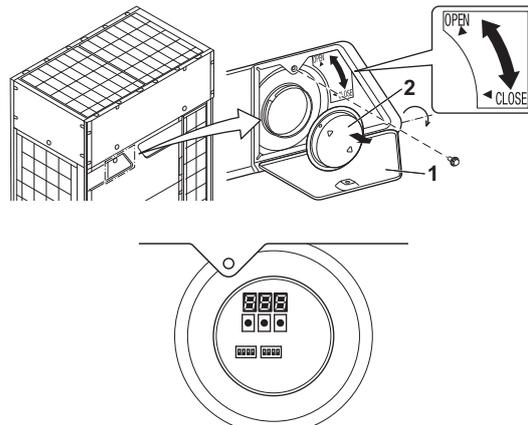
2. Field Settings from Outdoor Unit

To continue the configuration of the **VRV** system, it is required to give some input to the PCB of the unit. This chapter will describe how manual input is possible by operating the BS buttons or DIP switches on the PCB and reading the feedback from the 7 segment displays.

2.1 Location of the BS Buttons and the DIP Switches on the PCB

It is not required to open the complete electronic component box to access the BS buttons on the PCB and read out the seven-segment display(s).

1. Open the service window cover.
2. Open the inspection door.

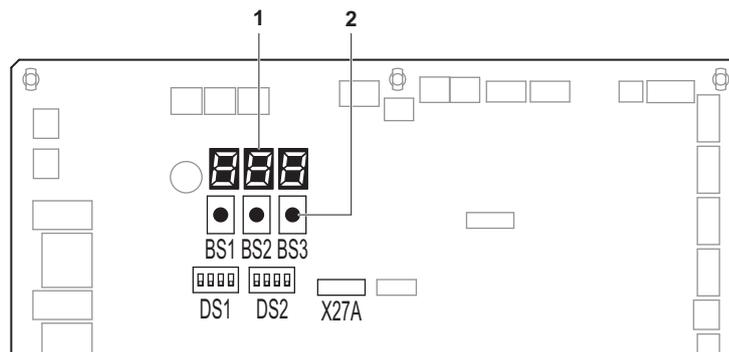


You can see the 3 BS buttons and the 3 seven-segment displays and DIP switches.

Operate the switches and BS buttons with an insulated stick (such as a closed ballpoint pen) to avoid touching of live parts.



Location of the seven-segment displays, buttons and DIP switches:



- MODE (BS1)** for changing setting mode
- SET (BS2), RETURN (BS3)** for changing field setting
- DS1, DS2** DIP switches
- 1** Seven-segment displays (3×)
- 2** BS buttons (3×)

Segment display indications:

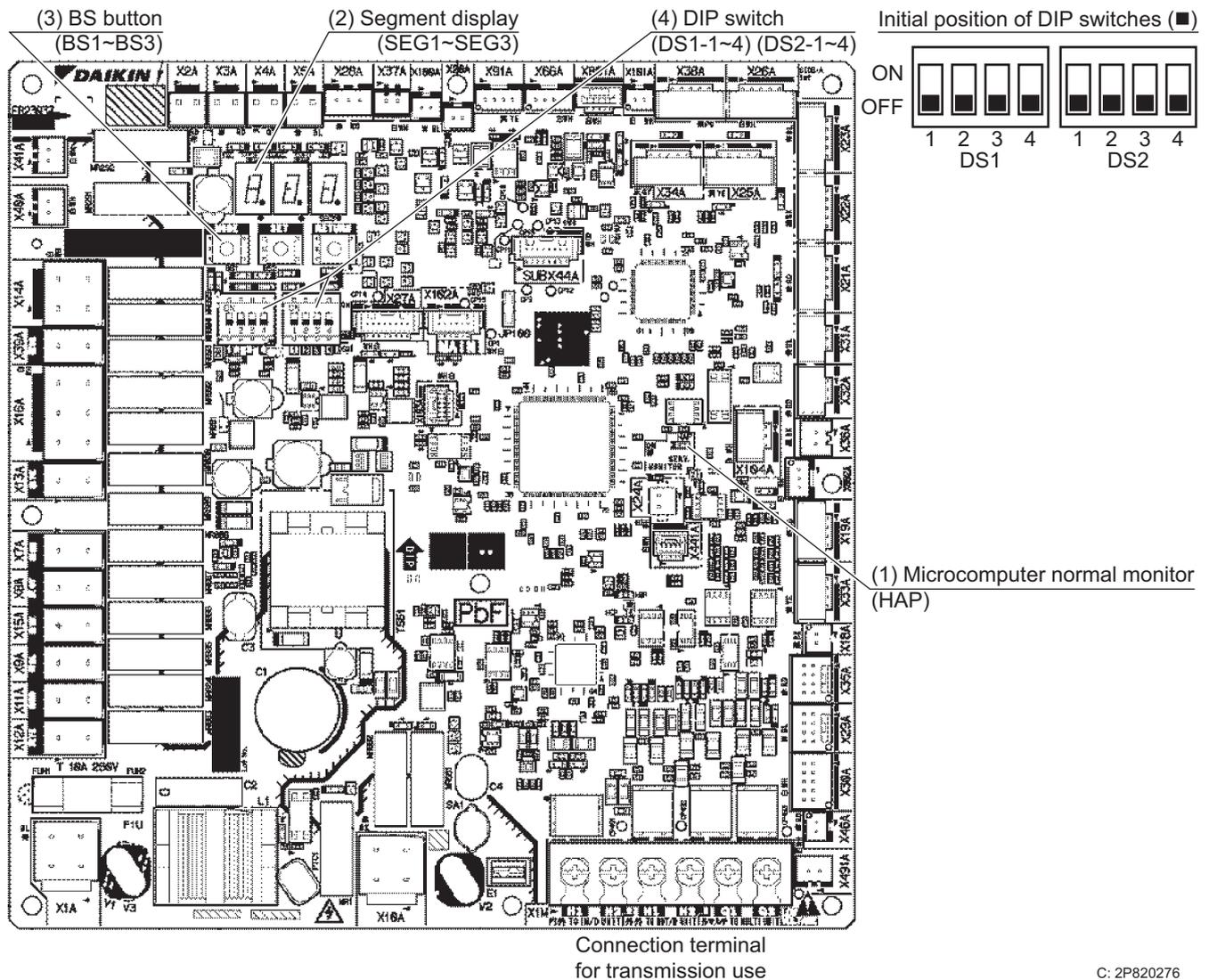


2.2 DIP Switch Setting when Mounting a Spare PCB



Caution

- After replacement with spare PCB, be sure to make settings shown in the table on the following page. The procedure for making settings of spare PCB is different from that used for factory settings described above. Be sure to refer to the table shown on the following page in order to make settings of spare PCB after replacement.
- Enforce a re-initialization of communication: hold press the **RETURN (BS3)** button for minimum 5 seconds.
- After initialization, a test operation is required from outdoor unit (hold the **SET (BS2)** button until indication **t01** appears).



- (1) Microcomputer normal monitor
This monitor blinks while in normal control, and turns ON or OFF when an error occurs.
- (2) Segment display
Used to check the transmission and display the transmission state between indoor and outdoor units, the contents of error, and the contents of field setting.
- (3) BS button
Used to change mode.
- (4) DIP switch
Used to make field settings.

The figure below shows the required position of the DIP switches on spare PCB. Change DIP switches at time of power disconnected.

Application model	The setting method (■ represents the position of switches)	
REYA72AA		Set DS2-2 to ON.
REYA96AA		Set DS2-1 and DS2-2 to ON.
REYA120AA		Set DS2-3 to ON.
REYA144AA		Set DS2-2 and DS2-3 to ON.
REYA168AA		Set DS2-1, DS2-2 and DS2-3 to ON.
REYA192AA		Set DS2-4 to ON.
REYA216AA		Set DS2-1 and DS2-4 to ON.
REYA240AA		Set DS2-1, DS2-2 and DS2-4 to ON.

2.3 Operating the BS Buttons on the PCB

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 lights up to confirm transmission. (1 - 2 minutes).

8.8.8 ~ 8.8.8

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

8.8.8

Ready for operation: blank display indication as indicated.

8.8.8

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:

8.00

- **Access mode 2**

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

2.00



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:

8.00

Result: mode 1 is accessed.

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

2.00

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:

2.00

Result: mode 2 accessed.

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

2.18

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.

Making settings is done via the master outdoor unit.

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.

[1-0]: shows whether the unit you are checking is a master or sub unit.

- No indication: undefined situation
- 0: outdoor unit is master unit
- 1: outdoor unit is sub unit

Master and sub indications are relevant in multiple outdoor unit system configurations. The allocation of which outdoor unit is master or sub is decided by the unit's logic.

The master unit must be used to input field settings in mode 2.

[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 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 (X0/X1 communication line).

- [1-11]: shows the total number of connected Branch Selector units and Safety Shut-Off Valve units.
Check if the total number of installed Branch Selector units and Safety Shut-Off Valve units match the total number of Branch Selector units and Safety Shut-Off Valve units recognized by the system. In case there is a mismatch, check the communication wiring path between outdoor and Branch Selector units/Safety Shut-Off Valve units (H1/H2 communication line).
For the Multi Branch Selector unit, the number of units in use is counted.
- [1-13]: shows the total number of connected outdoor units.
It can be convenient to check if the total number of outdoor units which are installed matches the total number of outdoor 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 outdoor units (Q1/Q2 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.
- [1-35]: shows the latest prediction code.
- [1-36]: shows the 2nd last prediction code.
- [1-37]: shows the 3rd last prediction code.
- [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).
- [1-44]: shows the current compressor speed (Hz).
- [1-45]: shows the current EEV (heat exchanger upper) opening (pulse divided by 10).
- [1-46]: shows the current EEV (heat exchanger lower) opening (pulse divided by 10).
- [1-47]: shows the current compressor 1 discharge thermistor value (°F).
- [1-48]: shows the current compressor 2 discharge thermistor value (°F).
- [1-49]: shows the current compressor 1 body 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).
- [1-53]: shows the current heat exchanger gas (upper) thermistor value (°F).
- [1-54]: shows the current heat exchanger gas (lower) thermistor value (°F).
- [1-55]: shows the current deicer right thermistor value (°F).
- [1-56]: shows the compressor run time (hour divided by 100).
- [1-57]: shows the current subcooling of (heat exchanger right) (°F).
- [1-58]: shows the current EEV (heat exchanger left) opening (pulse divided by 10).
- [1-59]: shows the current subcooling of (heat exchanger left) (°F).
- [1-60]: shows the current compressor 2 body thermistor value (°F).
- [1-61]: shows the current subcooling liquid thermistor value (°F).
- [1-62]: shows the current suction pipe thermistor value (°F).
- [1-63]: shows the current liquid thermistor value (°F).
- [1-64]: shows the current heat exchanger liquid (upper) thermistor value (°F).
- [1-65]: shows the current heat exchanger liquid (lower) thermistor value (°F).
- [1-66]: shows the current heat exchanger liquid (left) thermistor value (°F).
- [1-67]: shows the current deicer (left) thermistor value (°F).
- [1-68]: shows the current heat exchanger gas (left) thermistor value (°F).
- [1-69]: shows the compressor average load.
- [1-70]: shows the current receiver gas purge thermistor value (°F).
- [1-71]: shows the current subcooling injection thermistor value (°F).
- [1-72]: shows the current electrical components box thermistor value (°F).

[1-73]: shows the current cooling jacket outlet thermistor value (°F).

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		
			SEG 1	SEG 2	SEG 3		Range		
							SEG 1	SEG 2	SEG 3
0	COOL/HEAT selection setting	Several systems as 1 zone change over COOL/HEAT: ■ INDIVIDUAL: VRV indoor unit or A-B-C input set mode. ■ MASTER: System is the COOL/HEAT master unit. ■ SUB: System is not a COOL/HEAT master.	2.	0	0	Individual Unified Master Unified Sub			0 1 2
2	Low noise/demand address	Used to make address setting for low noise/demand operation.	2.	0	2	Address: 0 ~ 31		3	0 1
3	Outdoor unit label setting	Address setting when connected to centralized controller	2.	0	3	Address: 0 ~ 20		2	0 0
5	Indoor fan forced H	Used to force the indoor fan to H tap to check for cross wiring.	2.	0	5	Normal operation Indoor fan H			0 1
6	Forced thermostat ON	Used to force all indoor units to operate forced thermostat ON.	2.	0	6	Normal operation Forced thermostat ON			0 1
7	Eco level setting for Eco mode via external control adaptor	Used to make setting of Eco level for Eco mode via External control adaptor	2.	0	7	Inactive Eco mode active by low noise terminal short-circuit Eco mode active by demand terminal short-circuit			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	The heating capacity cut offset temperature setting	Used for heating capacity cut offset temperature setting.	2.	1	0	Default 2.0°C (3.6°F) 1.0°C (1.8°F) 0.5°C (0.9°F)			0 1 2
11	Refrigerant leak sensor connection	Set this when a refrigerant leak sensor is installed on the outdoor unit.	2.	1	1	Disconnected Connected			0 1
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
14	Outdoor unit refrigerant leak repair completed	Set this when the outdoor unit refrigerant leak or refrigerant leak sensor malfunction has been repaired.	2.	1	4	Default Completed			0 1
16	Auxiliary heater setting (Type I)	Used for heat pump lockout.	2.	1	6	OFF ON			0 1
18	Fan high static pressure setting	Used to increase the static pressure of the outdoor fan	2.	1	8	OFF ON			0 1
19	Field piping setting	The setting can be changed to suit the size of the connected main gas pipe. Changing the setting optimizes system operation and improves comfort.	2.	1	9	OFF Piping for phased installation Piping for reused R-410A standard Piping for reused R-410A size-up			0 1 2 3
20	Additional refrigerant charge	Used to perform additional refrigerant charging operation (compressor operation).	2.	2	0	OFF Refrigerant charging ON			0 1

No. *1	Item	Description	7 segment display			Description	7 segment display		
			Range				SEG 1	SEG 2	SEG 3
			SEG 1	SEG 2	SEG 3				
21	Refrigerant recovery and vacuuming	Used to set the system to refrigerant recovery mode (without compressor run).	2.	2	1	Refrigerant recovery OFF ON(1) ON(2) ON(3)			0 1 2 3
22	Automatic night-time low noise setting and level	Automatic night-time low noise operation. Time for the operation is subject to the start and end time settings.	2.	2	2	OFF Level 1 Level 2 Level 3			0 1 2 3
23	BS/SSOV unit refrigerant leak repair completed	Set this when repairs to a refrigerant leak or refrigerant leak sensor malfunction in the Branch Selector unit or Safety Shut-Off Valve unit are complete.	2.	2	3	Default Completed			0 1
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 start 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 stop 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
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	Intermittent fan operation	Used for intermittent fan operation setting.	2.	2	9	OFF 30 minutes OFF, 1 minute ON with medium fan speed 30 minutes OFF, 1 minute ON with high fan speed 15 minutes OFF, 1 minute ON with medium fan speed 15 minutes OFF, 1 minute ON with high fan speed 5 minutes OFF, 1 minute ON with medium fan speed 5 minutes OFF, 1 minute ON with high fan speed Continuously ON with medium fan speed			0 1 2 3 4 5 6 7
30	Demand 1 setting	Used to make a change to the targeted power consumption level when the demand 1 control signal is inputted.	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	Continuous demand setting	Used to set continuous demand 1 or 2 control without inputting any external signal.	2.	3	2	OFF Demand 1 [2-30] Demand 2 [2-31]			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				
34	Indoor fan tap setting	Indoor fan speed is limited to L tap depending on connection capacity and outdoor air temperature (Ta). *1.Indoor condition A: Temperature difference average of (indoor air temperature – set temperature) is less than 1.5°C (2.7°F). *2.Indoor condition B: Temperature difference average of (indoor air temperature – set temperature) is 3°C (5.4°F) or more.	2.	3	4	Indoor capacity ≥ 130%			0
						Indoor capacity ≥ 130% in heating			1
						Remote controller setting (Not limited)			2
						Limited in cooling when Ta < 29.5°C (85.1°F) and Indoor condition is in condition A (*1) Returned when Ta > 32.5°C (90.5°F) or Indoor condition is in condition B (*2)			3
						Limited in cooling when Ta < 23.5°C (74.3°F) and Indoor condition is in condition A (*1) Returned when Ta > 26.5°C (79.7°F) or Indoor condition is in condition B (*2)			4
						Limited in cooling when Ta < 19.3°C (66.7°F) and Indoor condition is in condition A (*1) Returned when Ta > 22.3°C (72.1°F) or Indoor condition is in condition B (*2)			5
						Limited in cooling when Ta < 29.5°C (85.1°F) Returned when Ta > 32.5°C (90.5°F)			6
						Limited in cooling when Ta < 23.5°C (74.3°F) Returned when Ta > 26.5°C (79.7°F)			7
			Limited in cooling when Ta < 19.3°C (66.7°F) Returned when Ta > 22.3°C (72.1°F)			8			
35	Height difference setting	To increase Tc target heating when the outdoor unit is installed at 40 m (130 ft) lower than the highest indoor unit.	2.	3	5	Level > 40 m (130 ft) Level max. 40 m (130 ft) Do not use			0 1 ~ 7
37	Auxiliary heater setting (Type II)	Used for heat pump lockout	2.	3	7	OFF Mode 1 Mode 2 Mode 3 Mode 4 Mode 5 Mode 6			0 1 2 3 4 5 6
38	Emergency operation (master)	To prohibit a compressor or complete in “Master”. Since module is permanent disabled, immediately replace the defective component(s).	2.	3	8	OFF Master INV. 1 OFF Master INV. 2 OFF Master unit OFF			0 1 2 3
39	Emergency operation (sub)	To prohibit a compressor or complete “sub 1”. Since module is permanent disabled, immediately replace the defective component(s).	2.	3	9	OFF Sub INV. 1 OFF Sub INV. 2 OFF Sub unit OFF			0 1 2 3
42	Outdoor fan noise countermeasure	To limit the outdoor fan speed to reduce noise.	2.	4	2	Standard Mode A Mode B			0 1 2
45	Low ambient cooling	Low ambient cooling function setting.	2.	4	5	Low ambient cooling not available Low ambient cooling available			0 1

No. *1	Item	Description	7 segment display			Description	7 segment display		
			Range				SEG 1	SEG 2	SEG 3
			SEG 1	SEG 2	SEG 3				
47	Te setting (Heat recovery operation)	Used to make setting of targeted evaporating temperature for heat recovery operation.	2.	4	7	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
49	Height difference setting	Set when the outdoor unit is installed at 50 m (164 ft) higher than the lowest indoor unit. (Max. 110 m (361 ft))	2.	4	9	Off (max. 50 m (164 ft)) On (max 110 m (361 ft))			0 1
51	Sequence multi outdoor	Sequence addressing between master and sub units.	2.	5	1	Automatic Forced master Forced sub			0 1 2
60	Gas furnace setting	Used for gas furnace connection	2.	6	0	No gas furnace connection Gas furnace connection			0 1
62	Cooling and 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	Eco mode invalid 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.	2.	6	4	Activated both cooling and heating Activated heating only Activated cooling only Deactivated			0 1 2 3
	Dehumidification cooling setting	If a Branch Selector unit or Safety Shut-Off Valve unit is connected as part of the system and a humidity sensor is connected to the indoor unit, dehumidifying cooling is performed.	2.	6	4	OFF Energy saving: High, Comfort: Low Energy saving: Middle, Comfort: Middle Energy saving: Low, Comfort: High			0 4 5 6
71	Branch Selector switching time	Used for changing Branch Selector switching time All piping length between Branch Selector unit and indoor units should be less than 9.7 m (32 ft).	2.	7	1	Standard Approximately 4 minutes			0 1
78	Heat pump lockout temperature	Heat pump is locked out when the outdoor air temperature is smaller than the heat pump lockout temperature.	2.	7	8	-26.1°C (-15°F) -23.3°C (-10°F) -20.5°C (-5°F) -17.7°C (0°F) -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) Forced heat pump lockout		1 1 1 1 1	0 1 2 3 4 5 6 7 8 9 0 1 2 3 4
79	Heat pump lockout release differential	Heat pump would be resumed when the outdoor air temperature is recovered by differential above the heat pump lockout temperature.	2.	7	9	2.8°C (5°F) 5.6°C (10°F) 8.3°C (15°F)			0 1 2
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
86	Multi-temperature refrigerant control settings	This function adjusts the refrigerant temperature of the indoor units connected to the Branch Selector unit or Safety Shut-Off Valve unit according to the indoor load.	2.	8	6	OFF ON			0 1

No. *1	Item	Description	7 segment display			Description	7 segment display		
			Range				SEG 1	SEG 2	SEG 3
			SEG 1	SEG 2	SEG 3				
88	Demand control among the system	When connecting different refrigerant systems with junction wiring using the same communication protocol, this setting can improve comfort during demand operation.	2.	8	8	Address: 0 ~ 10		1	0 0
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
92	Te target temperature upper limit	Used to make setting of targeted evaporating temperature upper limit for cooling and heat recovery operation.	2.	9	2	L M H			0 1 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.	2.	9	7	-17.7°C (0°F) -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	0 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	2.8°C (5°F) 5.6°C (10°F) 8.3°C (15°F)			0 1 2

- *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 196.
Indication **bold** 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/vacuumping 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.

[2-0]: Cool/Heat selection setting

Cool/Heat selection setting is used in case the optional Cool/Heat selector (KRC19-26A) is used. Depending on the outdoor unit setup (single outdoor unit setup or multi outdoor unit setup), the correct setting should be chosen. More details on how to use the Cool/Heat selector option can be found in the manual of the Cool/Heat selector.

Default value: 0.

■ 0: Each individual outdoor unit can select Cool/Heat operation (by Cool/Heat selector if installed).

■ 1: Master unit decides Cool/Heat operation when outdoor units are connected in multiple system combination

■ 2: Sub unit for Cool/Heat operation when outdoor units are connected in multiple system combination

Change [2-0] to 0, 1 or 2 in function of required functionality.

[2-2]: Low noise/demand address

Address for low noise/demand operation.

1 or more systems (maximum 10 systems wired by H1H2 OUT/D) 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.
 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 or Tc fix control and eco mode. Eco mode means VRT control.
 If the terminal on external control adaptor is not connected by short circuit with [2-7] ≠ 0, the system operates according to [2-8] or [2-9] setting.
 Default value: 0

Value [2-7]	Description	Level
0 (default)	Inactive	—
1	Eco mode active by low noise terminal short-circuit	Standard
2	Eco mode activate 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 218.

- [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 218.

- [2-10]: The heating capacity cut offset temperature setting.
 Sets the difference from the set temperature at which the heating capacity is cut.
 Default value: 0

Value [2-10]	Description
0 (default)	Set temperature +2.0°C (3.6°F)
1	Set temperature +1.0°C (1.8°F)
2	Set temperature +0.5°C (0.9°F)

[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 type III, 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]: Field piping setting

Default value: 0

Value [2-19]	Description
0 (default)	OFF
1	Piping for phased installation
2	Piping for reused R-410A standard
3	Piping for reused R-410A size-up

The setting can be changed to suit the size of the connected main gas pipe. Changing the setting optimizes system operation and improves comfort.

Conditions/rules apply for this setting. Refer to selection software or contact your Daikin sales representative for further details.

The existing piping can be reused only if there is no history of compressor failure.

[2-20]: Additional refrigerant charge

In order to activate the additional refrigerant charge function, 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/vacuumping mode
In order to achieve a free pathway to recover 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 vacuumping process can be done properly.

Default value: 0

To activate this function, change [2-21] to 1, 2, or 3.

[2-21]: 1

For the indoor unit, Branch Selector unit, and Safety Shut-Off Valve unit whose shut-off valves are closed due to refrigerant leakage or any other reason, the valves are kept closed. For the outdoor unit as well as the indoor unit, Branch Selector unit, and Safety Shut-Off Valve unit whose shut-off valves are not closed, electronic expansion valves are fully opened and the solenoid valves are turned on.

[2-21]: 2

For all outdoor units, indoor units, Branch Selector units, and Safety Shut-Off Valve units in the system, electronic expansion valves are fully opened and the solenoid valves are turned on. However, the electronic expansion valve of the indoor unit with the leaking refrigerant will not open.

[2-21]: 3

For the outdoor unit, electronic expansion valves is fully opened and the solenoid valve is turned on.

To stop the refrigerant recovery/vacuumping mode, press the **RETURN (BS3)** button. If the **RETURN (BS3)** button is not pressed, the system will remain in refrigerant recovery/vacuumping 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 start and stop moments 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 start time
Change [2-26] to 1, 2 or 3 in function of required timing.
Default value: 2

Value [2-26]	Start time automatic night-time low noise operation (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 stop time
Default value: 3

Value [2-27]	Stop time automatic night-time low noise operation (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:

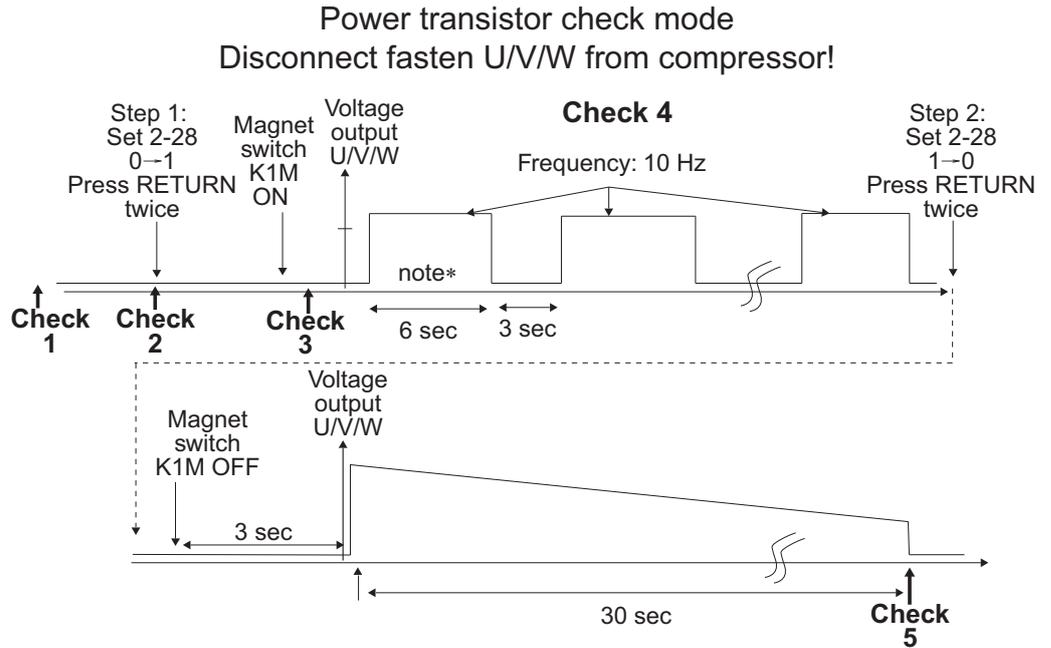
- Inverter PCB gives output of 10 Hz in sequence by all 6 transistors. Remove the U/V/W terminals of the compressor, and connect to the inverter checker module. If all 6 LEDs blink, the transistors switch correctly.
- When the power transistor check mode is interrupted, after internal power circuit is 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:

- All 3 phases and neutral are available, and
- Inverter PCB control is active. Check if the green LED HAP on the inverter PCBs are blinking normal (approx. 1/second). If LEDs are OFF, need 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 (manual 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 260 VDC for REYA-AATJ* or 600 VDC for REYA-AAYD*.

Cautions:

- In case there is more than 1 compressor in a system (outdoor is multi outdoor configuration), all compressor inverter PCBs will perform the power transistor check. In such case, disconnect U/V/W fasten terminals on all compressors. Avoid accidental touch of fasten terminals to short circuit or ground leak to casing.
- 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.



- Check 1 :** AC power input:
at terminal L1B, L2B, L3B for REYA-AATJ* (208/230 V unbalance maximum 2%).
at terminal L1B, L2B, L3B for REYA-AAJD* (460 V unbalance maximum 2%).
- Check 2 :** DC voltage:
at connector X3A increases to ± 260 VDC for REYA72AATJ*.
at connector X3A and X4A increases to ± 260 VDC for REYA96-240AATJ*.
at connector X3A increases to ± 600 VDC for REYA72AAJD*.
at connector X3A and X4A increases to ± 600 VDC for REYA96-240AAJD*.
- Check 3 :** DC = 1.42 x VAC power supply:
at connector X3A for REYA72AATJ*.
at connector X3A and X4A for REYA96-240AATJ*.
at connector X3A for REYA72AAJD*.
at connector X3A and X4A for REYA96-240AAJD*.
- Check 4 :** AC U/V/W 10 Hz intermediate:
check difference within 10 V (at fasten U/V/W)
- Check 5 :** Voltage drop (discharge capacitors DC)
at connector X3A increases to ± 260 VDC for REYA72AATJ*.
at connector X3A and X4A increases to ± 260 VDC for REYA96-240AATJ*.
at connector X3A increases to ± 600 VDC for REYA72AAJD*.
at connector X3A and X4A increases to ± 600 VDC for REYA96-240AAJD*.



Note(s)

Actual voltage value depends on multimeter characteristics:
* ± 57 VAC for REYA-AATJ* and ± 115 VAC for REYA-AAJD*.

[2-29]: Intermittent fan operation

Used for intermittent fan operation to assist snow discharge on outdoor fan.
Default value: 0.

Value [2-29]	Intermittent fan operation
0 (default)	OFF
1	30 minutes OFF, 1 minute ON with medium fan speed
2	30 minutes OFF, 1 minute ON with high fan speed
3	15 minutes OFF, 1 minute ON with medium fan speed
4	15 minutes OFF, 1 minute ON with high fan speed
5	5 minutes OFF, 1 minute ON with medium fan speed
6	5 minutes OFF, 1 minute ON with high fan speed
7	Continuously ON with medium fan speed

[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 (approximately)
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

Change [2-32]: 0,1 or 2 in function of required limitation.

[2-34]: Indoor fan tap setting
Indoor units fan speed limitation related to connection capacity and outdoor air temperature for energy saving

Value [2-34]	Indoor fan tap setting
0 (default)	Fan speed is limited to L tap when indoor units capacity \geq 130%.
1	In heating mode, fan speed is limited to L tap when indoor units capacity \geq 130%.
2	Fan speed follows the setting of remote controllers (not limited by indoor units connection capacity).
3	Limited in cooling when $T_a < 29.5^\circ\text{C}$ (85.1°F) and Indoor condition is in condition A (*1) Returned when $T_a > 32.5^\circ\text{C}$ (90.5°F) or Indoor condition is in condition B (*2)
4	Limited in cooling when $T_a < 23.5^\circ\text{C}$ (74.3°F) and Indoor condition is in condition A (*1) Returned when $T_a > 26.5^\circ\text{C}$ (79.7°F) or Indoor condition is in condition B (*2)
5	Limited in cooling when $T_a < 19.3^\circ\text{C}$ (66.7°F) and Indoor condition is in condition A (*1) Returned when $T_a > 22.3^\circ\text{C}$ (72.1°F) or Indoor condition is in condition B (*2)
6	Limited in cooling when $T_a < 29.5^\circ\text{C}$ (85.1°F) Returned when $T_a > 32.5^\circ\text{C}$ (90.5°F)
7	Limited in cooling when $T_a < 23.5^\circ\text{C}$ (74.3°F) Returned when $T_a > 26.5^\circ\text{C}$ (79.7°F)
8	Limited in cooling when $T_a < 19.3^\circ\text{C}$ (66.7°F) Returned when $T_a > 22.3^\circ\text{C}$ (72.1°F)

**Note(s)**

*1. Indoor condition A: Temperature difference Average of (indoor air temperature – set temperature) is less than 1.5°C (2.7°F).

*2. Indoor condition B: Temperature difference Average of (indoor air temperature – set temperature) is 3°C (5.4°F) or more.

[2-35]: Height difference setting
Default value: 1

In case the outdoor unit is installed in the lowest position (indoor units are installed on a higher position than outdoor units) and the height difference between the highest indoor unit and the outdoor unit exceeds 40 m (130 ft), the setting [2-35] should be changed to 0.

If the setting [2-35] is changed to 0, continuous heating will not be provided during defrost of oil return for conditions above ambient temp. 10°C (50°F) and room temp. 24°C (75°F).

[2-38]: Emergency operation Master
To disable compressor operation permanently: in case of single module or Master unit of a multi outdoor system, this setting allows:
Default value: 0. Compressor operation enabled.
Field setting:

- Set 1: Master INV. 1 is disabled permanently.
- Set 2: Master INV. 2 is disabled permanently
- Set 3: Master module is disabled permanently.

[2-39]: Emergency operation Sub
To disable compressor operation of Sub unit of a multi outdoor system permanently:
Default value: 0. Compressor operation enabled.
Field setting:

- Set 1: Sub INV. 1 is disabled permanently.
- Set 2: Sub INV. 2 is disabled permanently
- Set 3: Sub module is disabled permanently.

[2-42]: Outdoor fan noise countermeasure
Change fans rotational speed and reduce noise by the interference of air blow noise between outdoor units.

Default value: 0

Field setting:

■ Mode A: 1

■ Mode B: 2

[2-45]: Low ambient cooling

Default value: 0.

[2-45]	Description
0 (default)	No low ambient cooling available.
1	Low ambient cooling available.

This setting is not applicable to multi Branch Selector unit. Single Branch Selector unit or Safety Shut-Off Valve unit must be connected.

Refrigerant noise from the Branch Selector unit or the Safety Shut-Off Valve unit will become louder, so be sure to install where noise will not be a problem. If sound reduction is required, soundproof connection piping by wrapping them in soundproofing material etc.

[2-47]: Te target temperature during heat recovery operation

Default value: 2.

Value [2-47]	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 [2-47] to 0, 2-7 in function of required operation method during heat recovery operation.

For more information and advice about the effect of these settings, see **Energy Saving and Optimum Operation** on page 218.

[2-49]: Height difference setting

Default value: 0.

In case the outdoor unit is installed in the highest position (indoor units are installed on a lower position than outdoor units) and the height difference between the lowest indoor unit and the outdoor unit exceeds 50 m (164 ft), the setting [2-49] has to be changed to 1.

[2-51]: Master/Sub setting for multi outdoor system

When 2 modules are installed as a multi-outdoor (by common refrigerant piping and wiring by terminals Q1/Q2) configuration is automatically detected. In certain cases, the sequence of the Sub unit need to be set manually (in case of AIRNET monitoring).

Default value: 0. Automatic detection.

Field setting: ensure that the modules in a multi are set different status. Even some modules in a multi are set manually to same status, U7 error will appear.

■ 1: forced Master (H1/H2/Ind terminals should be connected to indoor units).

■ 2: forced Sub (only Q1/Q2 terminals should be wired to Master module).

[2-60]: Gas furnace setting

Default value: 0.

When a gas furnace is connected, the setting [2-60] has to be changed to 1.

[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 invalid 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

Dehumidification cooling setting

With this setting, indoor units with a built-in humidity sensor will prioritize controlling humidity, so the room feels less humid and more comfortable.

Value [2-64]	Dehumidification cooling setting
0 (default)	OFF
4	Energy saving: High, Comfort: Low
5	Energy saving: Middle, Comfort: Middle
6	Energy saving: Low, Comfort: High



Note(s)

The following conditions/restrictions apply when using dehumidification cooling.

- Available only when all units are operating in cooling operation.
- Use this setting when [2-86] multi-temperature refrigerant control settings have been set.
- Branch Selector unit or Safety Shut-Off Valve unit must be connected.
- All indoor units within the system must support VRTsmart control.
- Any indoor unit you desire to set individually to dehumidification cooling operation needs to have a built-in humidity sensor.
- If it is to be enabled, it is necessary to use the remote controller to activate dehumidification cooling operation.
- Refrigerant noise from the Branch Selector unit or Safety Shut-Off Valve unit will become louder, so be sure to install where noise will not be a problem. If sound reduction is required, soundproof connection piping by wrapping them in soundproofing material etc.
- Cannot be used while cooling and heating are in simultaneous operation.

[2-71]: Branch Selector switching time

Default value: 0.

Used for changing Branch Selector switching time.

*All piping length between Branch Selector unit and indoor units should be less than 9.7 m (32 ft).

[2-81]: Cooling comfort setting for VRT control
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] and [2-47].

When [2-81] is set to 0, the original refrigerant temperature target based on [2-8] and [2-47] 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 218.

[2-82]: Heating comfort setting for VRT control
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 218.

[2-86]: Multi-temperature refrigerant control settings
Default value: 0.

Multi-temperature refrigerant control is a function that adjusts the refrigerant temperature of the indoor unit connected to the Branch Selector unit or Safety Shut-Off Valve unit according to room load.

When multiple indoor units are connected by pipe to 1 Branch Selector unit, the refrigerant temperature is adjusted in accordance with the operation of a representative indoor unit.

Value [2-86]	Multi-temperature refrigerant control settings
0 (default)	OFF
1	ON

Note(s)

The following conditions/restrictions apply when using multi-temperature refrigerant control.

- All indoor units within the system must support VRTsmart control.
- When the multi-temperature refrigerant control is enabled, all Branch Selector units or Safety Shut-Off Valve units in the same system will be set to enabled.
- Refrigerant noise from the Branch Selector unit or Safety Shut-Off Valve unit will become louder, so be sure to install where noise will not be a problem. If sound reduction is required, soundproof connection piping by wrapping them in soundproofing material etc.
- Cannot be used while cooling and heating are in simultaneous operation.
- Available only when all units are operating in cooling operation.
- Branch Selector unit or Safety Shut-Off Valve unit must be connected.
- When multiple indoor units are connected by pipe to 1 Branch Selector unit or 1 Safety Shut-Off Valve unit, the refrigerant temperature is adjusted in accordance with the operation of a representative indoor unit.

- [2-88]: Demand control among the system
 While the demand control was previously configured separately for each system, setting the inter-system demand control value can increase comfort during demand operation. Transition wiring with an identical communication protocol must be used to connect different refrigerant systems. Make the setting so that the systems to be coordinated have the same set value.
 The setting range is from 1 to 10 (default: 0).
 Up to three systems can have the same set value.
 To set the demand limitation levels of the individual systems, use [2-30] or [2-31] as before.

Restrictions:

This effect will be achieved when all indoor units in the refrigerant systems to be linked are installed within the same space.
 Even when inter-system demand control is set, it may become ineffective during protection controls.

- [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)

Setting [2-89] to 2 saves energy, but the time to reach the set point may be longer.

- [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 (394 ft).
- Index indoor units power simultaneously less than 30% of the nominal outdoor.
- Total capacity is less than 30% 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.

- [2-92]: Te target temperature upper limit
 Default value: 1.

Value [2-92]	Te target temperature upper limit
0	L
1 (default)	M
2	H

If Auto Te, then use this setting to address different load profiles. If the frequent operation is at lower system load, then use a higher setting under [2-92].



Note(s)

In high humid areas, it is recommended to keep this setting to 0 or 1.

2.4.4 Auxiliary Heat Control

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

Item	Description	Min	Max	Default	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)	35°F (1.6°C)	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) 10°F (5.6°C) (default) 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.

Value [2-97]	Fahrenheit (°F)	Celsius (°C)
0	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 (default)	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.

Value [2-98]	Fahrenheit (°F)	Celsius (°C)
0	5	2.8
1 (default)	10	5.6
2	15	8.3

2.4.5 Heat Pump Lockout

Control logic to provide more application options for cold climates.
 Outside temperature can now be measured directly from the outdoor unit coil sensor.
 This field setting can switch automatically to emergency heat if there is a system fault.

Item	Description	Min	Max	Increments
Heat pump lockout temperature	Below this temperature, heat pump is locked out.	-15°F (-26.1°C) (default)	50°F (10°C)	5°F (2.8°C)
Heat pump lockout release differential	When the outdoor air temperature is recovered by this temperature, heat pump is resumed.	5°F (2.8°C) 10°F (5.6°C) (default) 15°F (8.3°C)		

[2-16]: Auxiliary heater setting (Type I)

Value [2-16]	Auxiliary heater
0 (default)	OFF
1	ON

[2-37]: Auxiliary heater setting (Type II)

Value [2-37]	Controlling mode
0 (default)	OFF
1	Mode 1
2	Mode 2
3	Mode 3
4	Mode 4
5	Mode 5
6	Mode 6

Type	Description	Actions					
		Field setting	Shorted between	Heating thermostat ON		Heating thermostat OFF	
				Auxiliary heater	Indoor fan	Auxiliary heater	Indoor fan
I	Heat pump heating is always locked out	2-16: ON	—	ON	ON (H/L)	OFF	LL
II	Mode 1 Lockout is controlled by ABC terminals	2-37: Mode 1	A-C	ON	ON (H/L)	OFF	LL
			B-C				OFF
	Mode 2*	2-37: Mode 2	A-C	ON	LL	OFF	LL
			B-C				OFF
	Mode 3	2-37: Mode 3	Same as 2-37: Mode 1 & A-C shorted				
	Mode 4	2-37: Mode 4	Same as 2-37: Mode 1 & B-C shorted				
Mode 5*	Lockout is controlled by the outdoor air temperature and setpoint which is configured by the field setting [2-78] and [2-79]	2-37: Mode 5	Same as 2-37: Mode 2 & A-C shorted				
Mode 6*		2-37: Mode 6	Same as 2-37: Mode 2 & B-C shorted				

* For a heater which does not need airflow

- [2-78]: Heat pump lockout temperature
Heat pump would be locked out when the outdoor air temperature is smaller than the Heat Pump Lockout Temperature below – this setting is only effective when heat pump lockout mode has been set. Unit will switch to heat pump lockout.

Value [2-78]	Fahrenheit (°F)	Celsius (°C)
0 (default)	-15	-26.1
1	-10	-23.3
2	-5	-20.5
3	0	-17.7
4	5	-15
5	10	-12.2
6	15	-9.4
7	20	-6.6
8	25	-3.8
9	30	-1.1
10	35	1.6
11	40	4.4
12	45	7.2
13	50	10
14	Forced heat pump lockout	

- [2-79]: Heat pump lockout release differential
Heat pump would be resumed when the outdoor air temperature is recovered by differential (below) above the heat pump lockout temperature.

Value [2-79]	Fahrenheit (°F)	Celsius (°C)
0	5	2.8
1 (default)	10	5.6
2	15	8.3

When heat pump lockout mode has been set the auto backup function will automatically be set. This will allow the auxiliary or secondary heat source to be automatically energized in the event of a system failure.

Error codes capable of auto backup are listed in the table below.
Please be aware that the error codes that are not listed do not auto backup in order to protect the unit.

Error contents	Error code (Auto backup possible)
Activation of high pressure switch	E3
Activation of low pressure sensor	E4
Compressor motor lock	E5
Compressor damage alarm	E6
Outdoor fan motor abnormality	E7
Electronic expansion valve coil abnormality	E9
Four way valve abnormality Opposite air conditioning alarm	EA
Box air thermistor abnormality	H1
Harness abnormality (between outdoor unit main PCB and inverter PCB)	H3
Outdoor fan PCB abnormality	H7
Outdoor air thermistor abnormality	H9
Discharge pipe temperature abnormality	F3
Compressor floodback	F4
Branch Selector unit or Safety Shut-Off Valve unit electronic expansion valve abnormality	F9
Discharge pipe thermistor abnormality Compressor body thermistor abnormality	J3
Compressor suction thermistor abnormality Suction pipe before accumulator thermistor abnormality	J5
Heat exchanger deicer thermistor abnormality Heat exchanger gas pipe thermistor abnormality	J6
Liquid thermistor abnormality Subcooling heat exchanger liquid pipe thermistor abnormality Subcooling injection thermistor abnormality	J7
Heat exchanger liquid pipe thermistor abnormality	J8
Subcooling heat exchanger gas pipe thermistor abnormality Receiver gas purge thermistor abnormality Electrical box air outlet thermistor abnormality	J9
High pressure sensor abnormality	JA
Low pressure sensor abnormality	JC
Inverter PCB abnormality	L1
Inverter radiation fin temperature rise abnormality	L4
Compressor instantaneous overcurrent	L5
Compressor overcurrent	L8
Compressor startup abnormality	L9
Transmission error between inverter and outdoor unit main PCB	LC

2.5 Cool/Heat Mode Changeover



Caution

R-32 model is equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected. Please follow the procedure below for the operation.

- Be sure to set the DIP switches before power-on.
- When you need to set the DIP switch after power on or require a power reset for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before the settings (it may take up to 2 hours if the capacitor is fully charged).



Note(s)

When it takes time to discharge the charge stored in the backup PCBs, such as when supplied with power for a long time before work, refer to the method described in **Method for Forced Power Reset** on page 456.

Set Cool/Heat Separately for Each Branch Selector Unit by Cool/Heat Selector.

Set remote controller changeover switch DS1-1 as following:

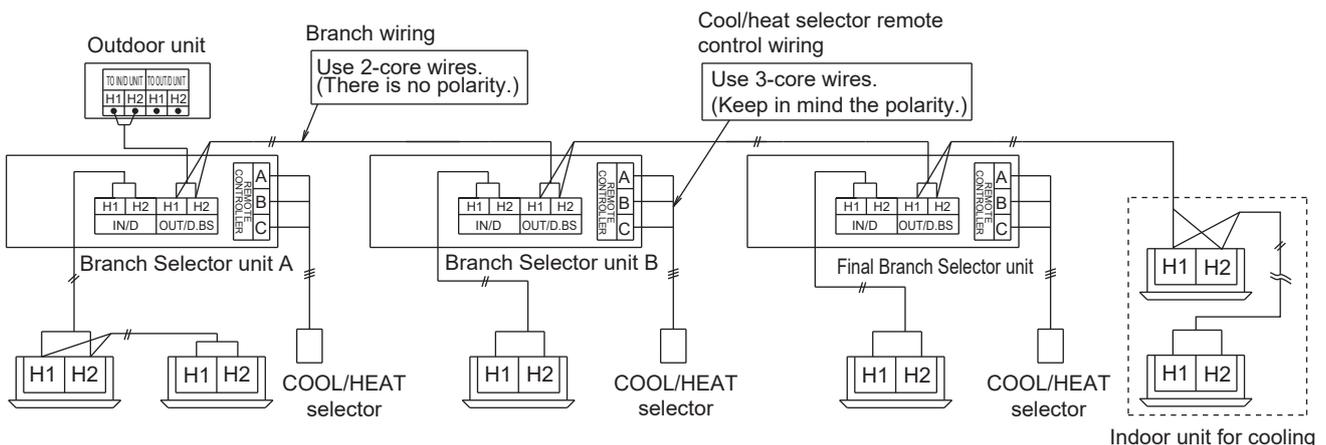
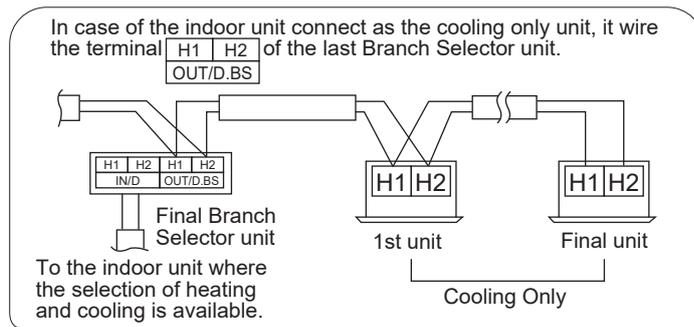
- ◆ Set the DIP switch (DS1-1) on printed circuit board (A1P) as shown below before turning on the power to the Branch Selector unit.



When using cool/heat selector, connect to the terminal A, B and C on the PCB of the electrical component box.

EXAMPLE OF TRANSMISSION LINE CONNECTION

- ◆ Example of connecting transmission wiring.
Connect the transmission wirings as shown in the figure below.



2.6 Night-Time Low Noise Operation and Demand Operation

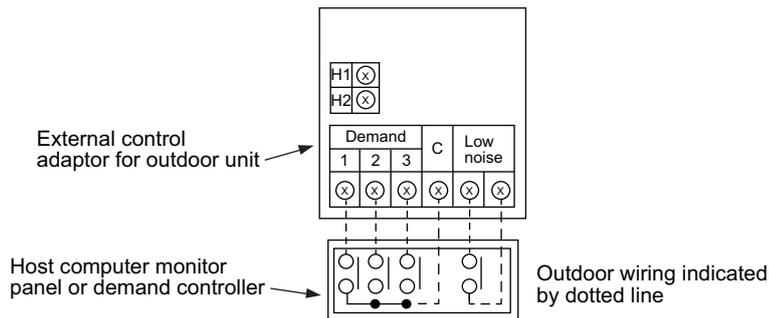
2.6.1 Night-Time Low Noise Operation

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 6 or lower.
Level 2	Set the outdoor fan to Step 5 or lower.
Level 3	Set the outdoor fan to Step 4 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.

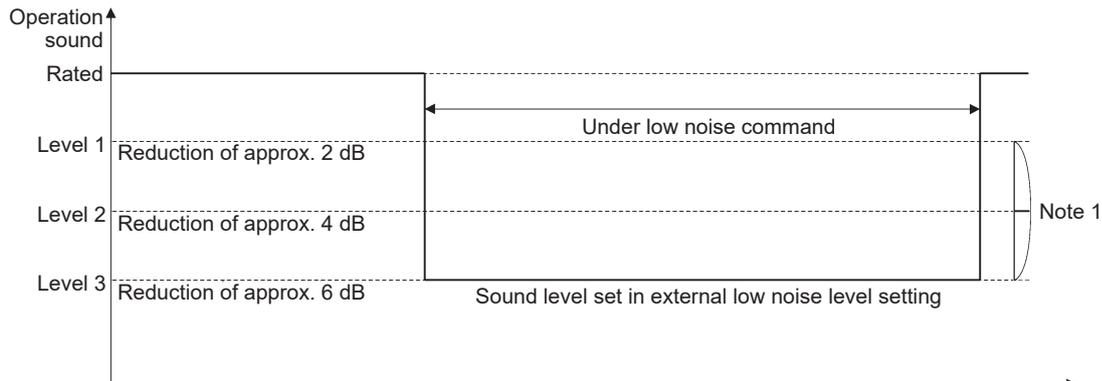


2. While in setting mode 2, set the item 2-12 (External low noise or demand setting) to ON.
3. If necessary, while in setting mode 2, select an external low noise level for the item 2-25.

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

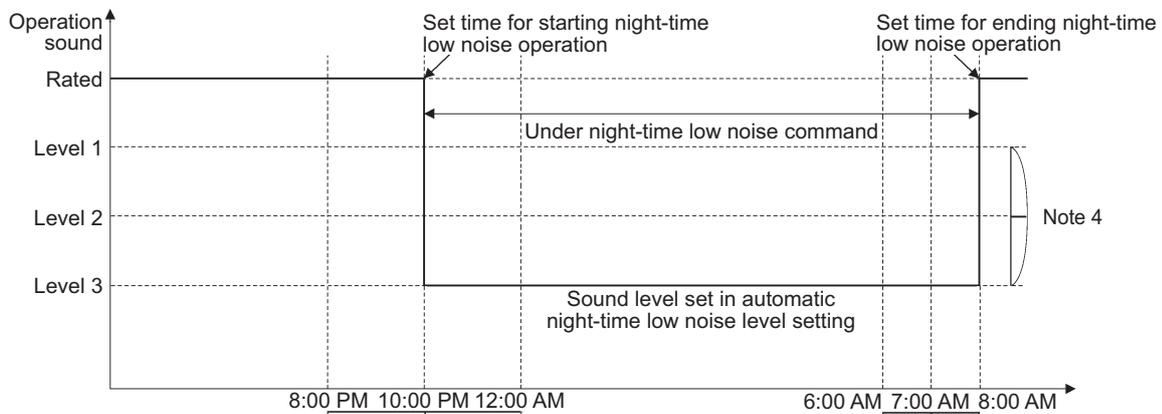
1. While in setting mode 2, select a night-time low noise operation level for the item 2-22.
2. If necessary, while in setting mode 2, select a starting time of night-time low noise operation (i.e., 8:00 PM, 10:00 PM, or 12:00 AM) for the item 2-26. (Use the starting time as a guide since it is estimated 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.)

Image of operation in the case of A



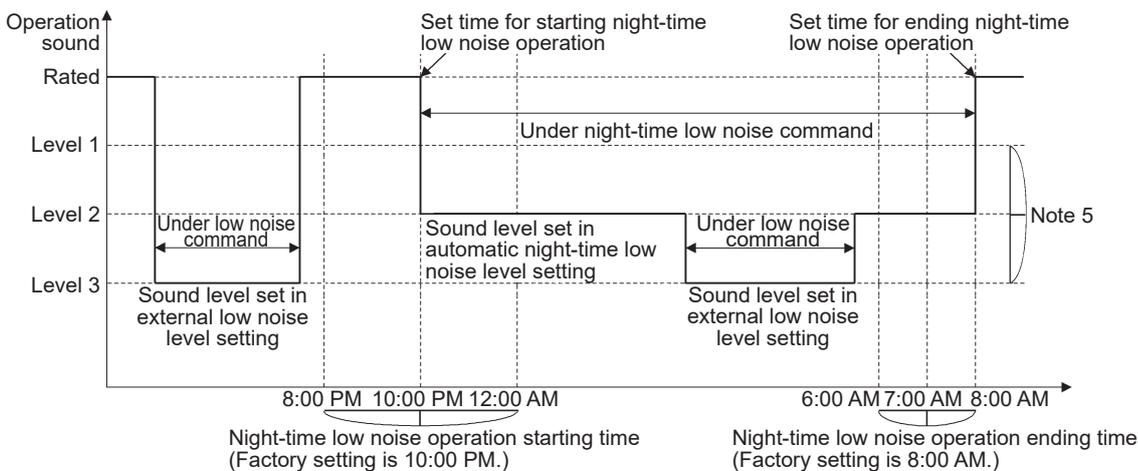
Note 1: The operating sound under low noise command can be set in the external low noise level setting **2-25**. Factory setting is **level 2**.
 Note 2: Above values are for reference only (measured in silent room)
 Note 3: Low noise setting may increase power consumption.

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.

2.6.2 Demand Operation

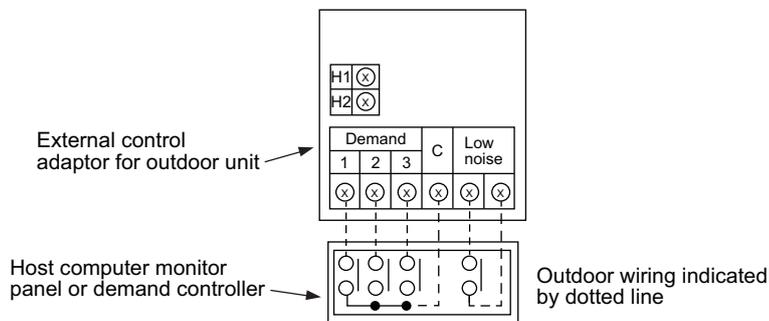
By connecting the external contact input to the demand input of the outdoor unit external control adaptor for outdoor unit (optional), the power consumption of unit operation can be saved suppressing the compressor operating condition.

Description of setting		Setting procedure	
Setting item	Description	External control adaptor for outdoor unit	Outdoor unit PCB
Demand 1	Operate with power of 70% 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% 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.

If carrying out demand or low-noise input, connect the terminals of the external control adaptor for outdoor unit as shown below.

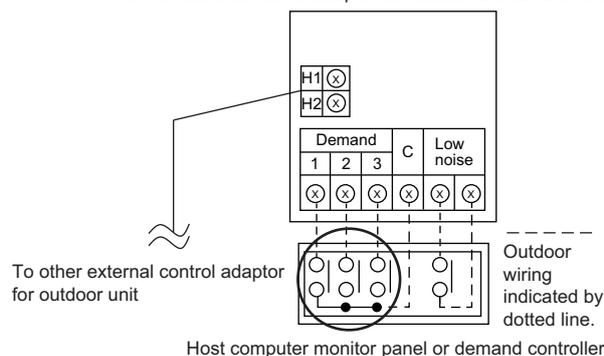


Image of operation in the case of A

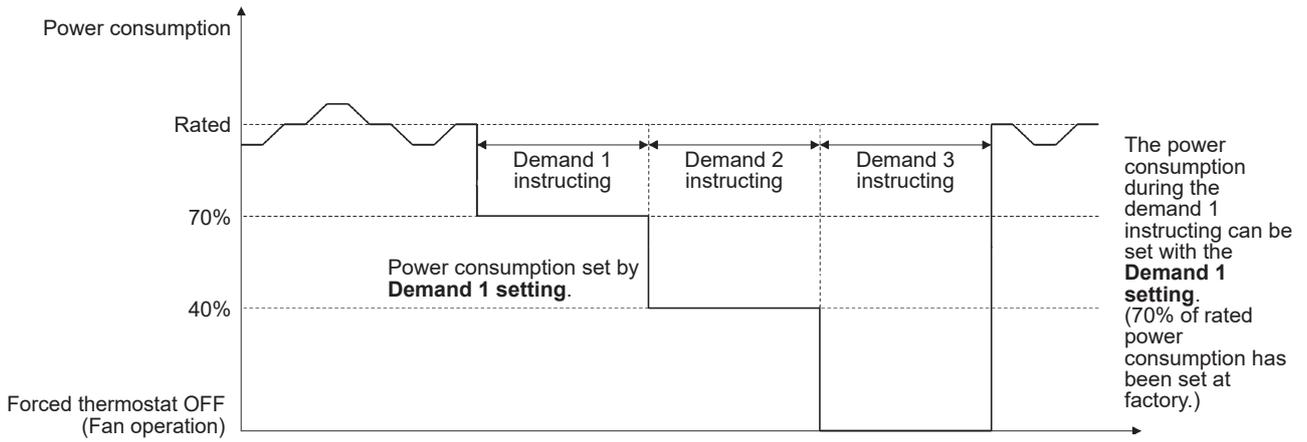


Image of operation in the case of B

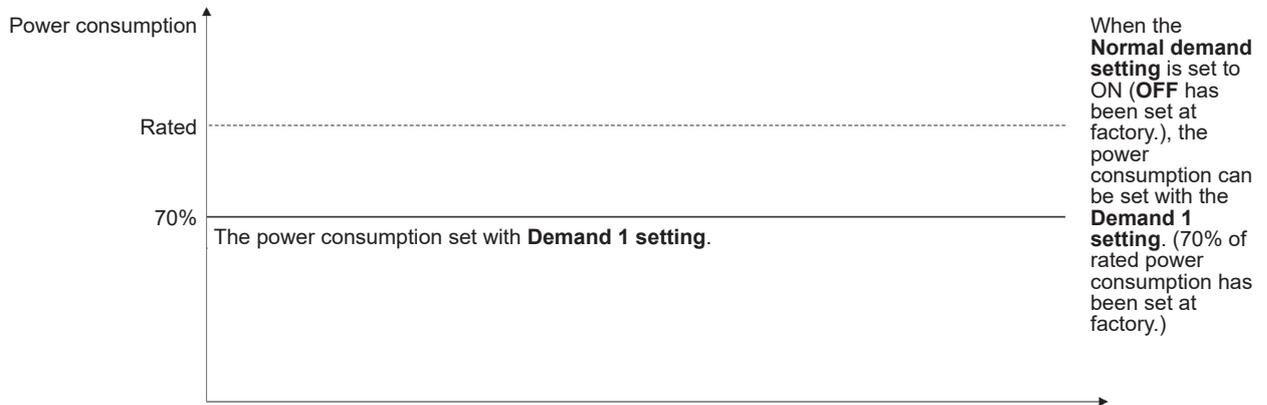
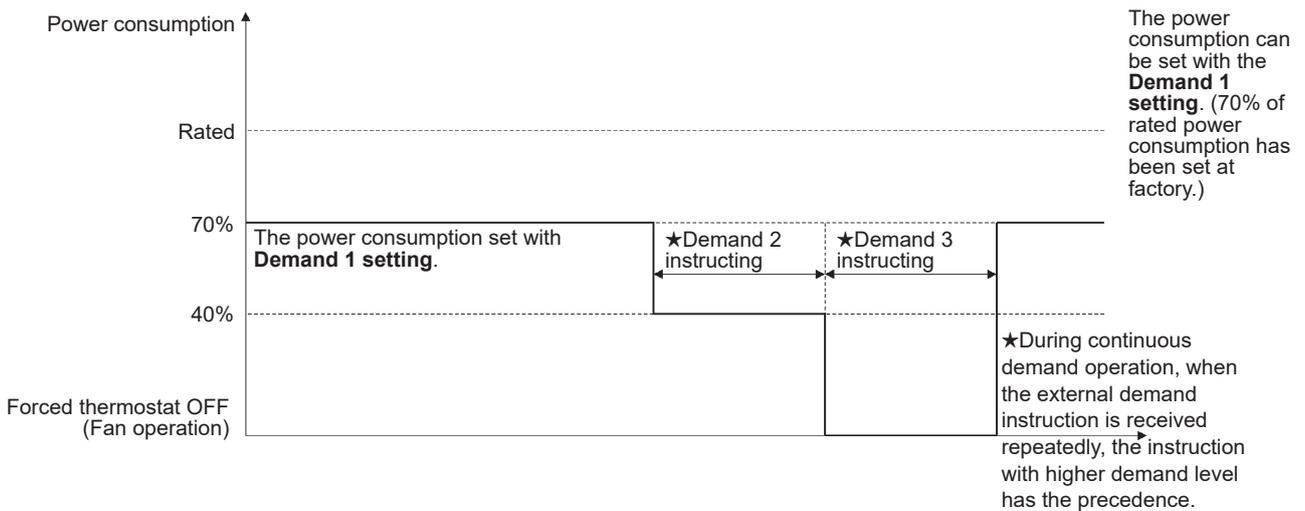


Image of operation in the case of A and B



2.6.3 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.

2.7 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.

2.7.1 Target Refrigerant 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. And also change field setting [2-81] to 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. And also change field setting [2-82] to 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)

2.7.2 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 be used to obtain the best balance between energy consumption and comfort, depending on the application type.

3. Field Settings for Branch Selector Unit

3.1 Field Settings for Single Branch Selector Unit

Follow the instructions below to set the DIP switches as necessary.



Warning

Electric shock hazard! Before performing work, be sure to disconnect any power source connected to the unit.



Caution

R-32 model is equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected. Please follow the procedure below for the operation.

- Be sure to set the DIP switches before power-on.
- When you need to set the DIP switch after power on or require a power reset for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before the settings (it may take up to 2 hours if the capacitor is fully charged).



Note(s)

When it takes time to discharge the charge stored in the backup PCBs, such as when supplied with power for a long time before work, refer to the method described in **Method for Forced Power Reset** on page 456.

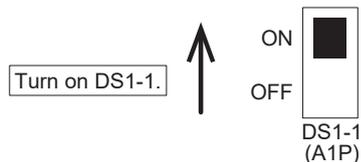
3.1.1 Setting for when connecting the COOL/HEAT SELECTOR to the Branch Selector unit

Setting description

Set the input signal from the COOL/HEAT SELECTOR (sold separately) to ON/OFF.

Setting method

Set the DIP switches (DS1-1) on PCB (A1P) as shown below before turning on the power to the Branch Selector unit.



Note(s)

This setting is enabled when the Branch Selector unit power is turned on.

- ◆ Be sure to make the setting before turning on the power.
- ◆ Always close the control box cover after making the setting.

3.2 Field Settings for Multi Branch Selector Unit

Follow the instructions below to set the DIP switches as necessary.



Warning

Electric shock hazard! Before performing work, be sure to disconnect any power source connected to the unit.



Caution

R-32 model is equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected. Please follow the procedure below for the operation.

- Be sure to set the DIP switches before power-on.
- When you need to set the DIP switch after power on or require a power reset for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before the settings (it may take up to 2 hours if the capacitor is fully charged).



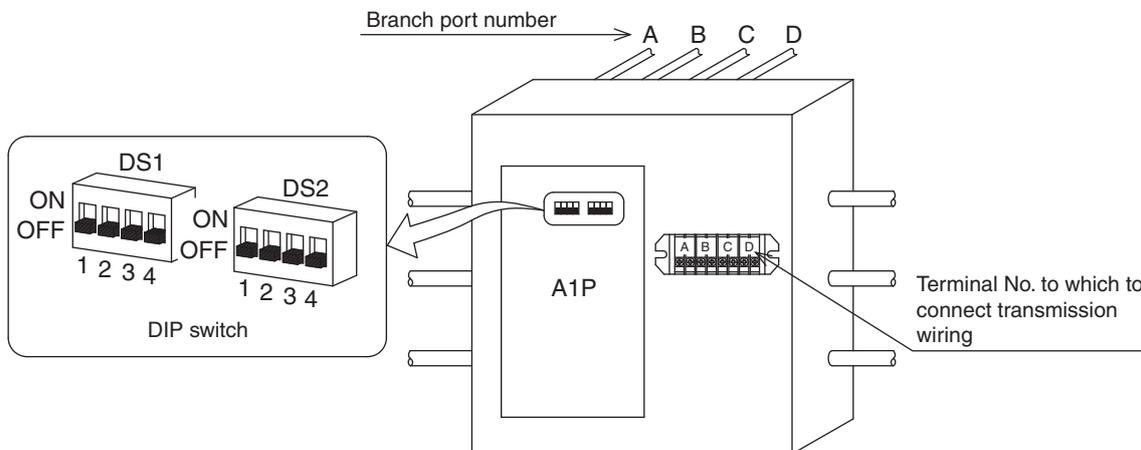
Note(s)

When it takes time to discharge the charge stored in the backup PCBs, such as when supplied with power for a long time before work, refer to the method described in **Method for Forced Power Reset** on page 456.

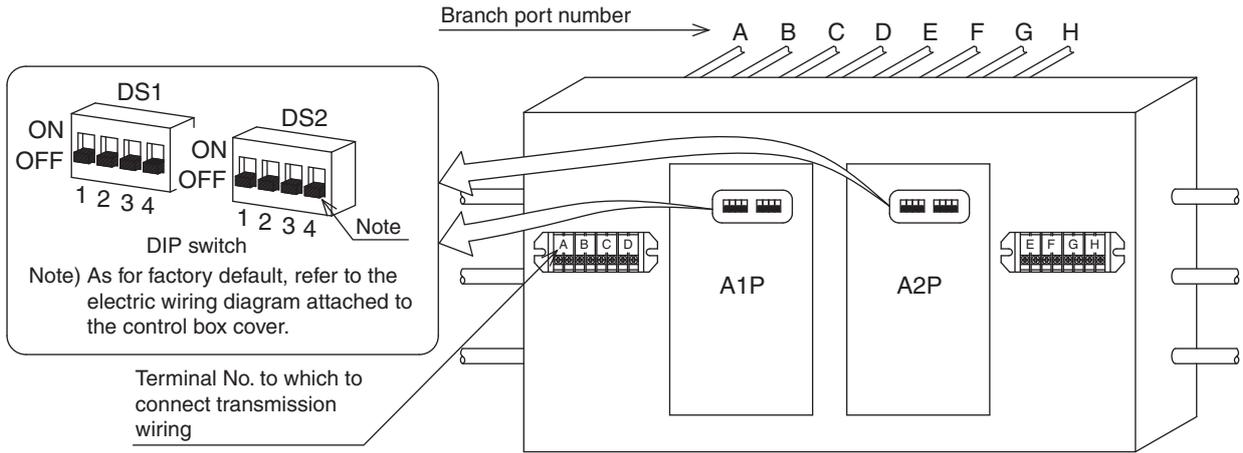
Procedure

1. Disconnect the power supply.
2. Set the DIP switches (DS1, DS2) for the corresponding branch ports based on the following table.
3. Once work is complete, be sure to close the control box cover.

BSF4A54AAVJ



BSF6/8A54AAVJ



Setting

1. Setting for branch ports to which no indoor unit is connected

	Setting	Setting for branch ports to which no indoor unit is connected (Example 1)							
	DIP switch setting	ON (Not connected) OFF (Factory default)							
	DIP switch No.	DS1 (A1P)				DS1 (A2P)			
		1	2	3	4	1	2	3	4
BSF4A54AAVJ	Target branch port								
BSF6A54AAVJ									
BSF8A54AAVJ		Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G	Unit H

(Example 1)
When not connecting the indoor unit to the A and B branch ports

DS1 (A1P)
ON OFF 1 2 3 4

2. Setting when joining branch ports

	Setting	Setting when joining branch ports (Example 2)			
	DIP switch setting	ON (Joined) OFF (Factory default)			
	DIP switch No.	DS2 (A1P)		DS2 (A2P)	
		1	2	1	2
BSF4A54AAVJ	Target branch port				
BSF6A54AAVJ		Unit A and B joined	Unit C and D joined	Unit E and F joined	Unit G and H joined
BSF8A54AAVJ					

(Example 2)
When joining the A and B branch ports

DS2 (A1P)
ON OFF 1 2 3 4

When joining branches, only the branch port combinations shown in the above table can be used. (For example, units B and C cannot be joined.)

3.3 How to Check Miswiring for Multi Branch Selector Unit

When miswiring of the transmission wire between the Branch Selector unit and the indoor unit is suspected

It is possible to check the miswiring by operating the DIP switches to turn ON the corresponding indoor fans to see which wires are miswired according to the procedure below.



Caution

R-32 model is equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected. Please follow the procedure below for the operation.

- Be sure to set the DIP switches before power-on.
- When you need to set the DIP switch after power on or require a power reset for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before the settings (it may take up to 2 hours if the capacitor is fully charged).



Note(s)

When it takes time to discharge the charge stored in the backup PCBs, such as when supplied with power for a long time before work, refer to the method described in **Method for Forced Power Reset** on page 456.

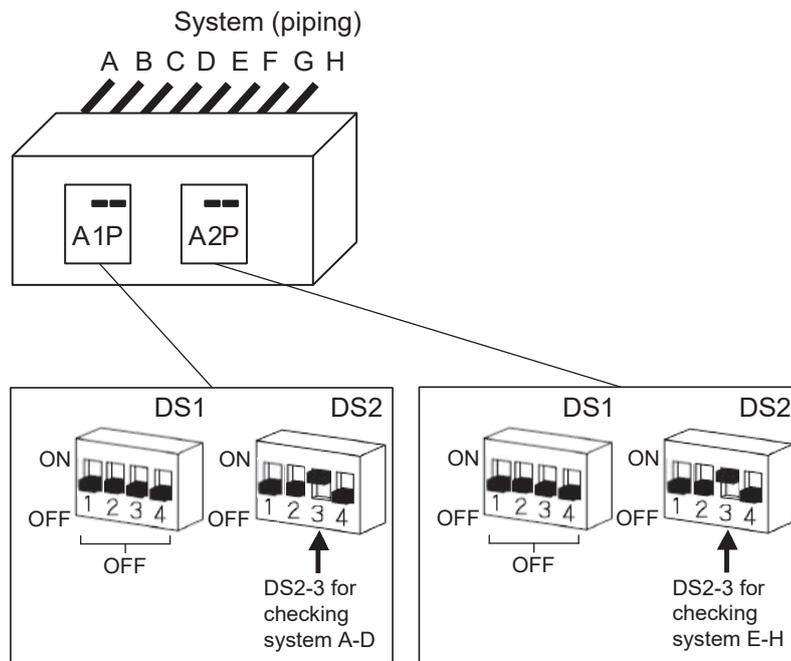


Caution

All the DIP switches must be restored to their original position after the check. Do not touch any switches other than those indicated.

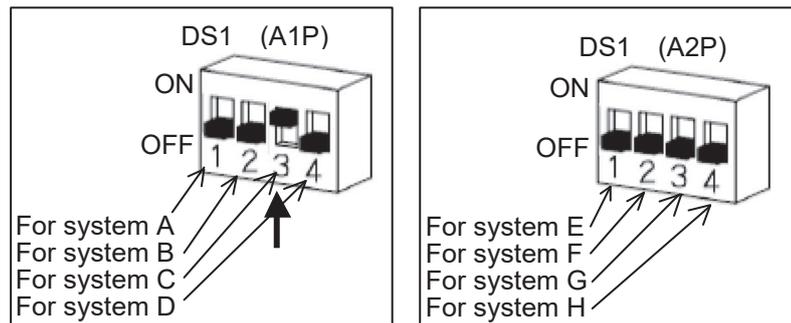
In case of BSF8A54AAVJ

1. Turn OFF the power of the Branch Selector unit.
2. Turn OFF all the DIP switches of DS1 on the PCBs.
3. Turn ON all the DS2-3.



4. Turn ON the power of the Branch Selector unit.

5. Turn ON the DIP switch of DS1 corresponding to the system to be checked.
(For example, when checking the system C, Turn ON DS1-3 on A1P.)



6. If the relevant indoor fan is on, it is OK. If another indoor fan is on, correct the wiring.
7. After the check is completed, turn OFF the power of the Branch Selector unit.
8. Turn OFF all the DS2-3.
9. If there is a branch port to which no indoor unit is connected, or if the branch ports are to be joined, perform field setting referring to pages 222.
10. Turn ON the power of the Branch Selector unit.

4. Test Operation

4.1 Checks before Test Operation

Before carrying out a test operation, proceed as follows:

Step	Action
1	Make sure the voltage at the primary side of the safety breaker is: 187 - 253 V (-AATJA) or 416 - 508 V (-AAYDA)
2	Fully open the liquid, the high/low pressure gas and the suction gas stop valves.

4.2 Checkpoints

To carry out a test operation, check the following:

- Check that the temperature setting of the remote controller is at the lowest level in cooling mode or use test mode.
- Go through the following checklist:

Checkpoints	Cautions or warnings
Are all units securely installed?	<ul style="list-style-type: none"> ● Dangerous for turning over during storm ● Possible damage to pipe connections
Is the ground wire installed according to the applicable local standard?	Dangerous if electric leakage occurs
Are all air inlets and outlets of the indoor and outdoor units unobstructed?	<ul style="list-style-type: none"> ● Poor cooling ● Poor heating
Does the drain flow out smoothly?	Water leakage
Is piping adequately heat-insulated?	Water leakage
Have the connections been checked for gas leakage?	<ul style="list-style-type: none"> ● Poor cooling ● Poor heating ● Stop
Is the supply voltage conform to the specifications on the name plate?	Incorrect operation
Are the cable sizes as specified and according to local regulations?	Damage of cables
Are the remote controller signals received by the unit?	No operation

Part 6

Service Diagnosis

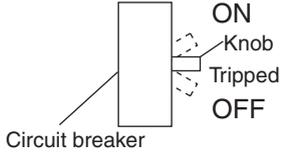
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1. Symptom-based Troubleshooting

1.1 Indoor Unit Overall

	Symptom	Supposed Cause	Countermeasure	
1	The system does not start operation at all.	Blowout of fuse(s)	Turn OFF the power supply and then replace the fuse (s).	
		Cutout of breaker(s)	<ul style="list-style-type: none"> 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. 	
		Power failure	After the power failure is reset, restart the system.	
		The connector loose or not fully plugged in	Turn off the power supply to verify the connection of the connector.	
2	The system starts operation but makes an immediate stop.	Blocked air inlet or outlet of indoor or outdoor unit	Remove obstacle(s).	
		Clogged air filter(s)	Clean the air filter(s).	
3	The system does not cool or heat air well.	Blocked air inlet or outlet of indoor or outdoor unit	Remove obstacle(s).	
		Clogged air filter(s)	Clean the air filter(s).	
		Enclosed outdoor unit(s)	Remove the enclosure.	
		Improper set temperature	Set the temperature to a proper degree.	
		Airflow rate set to LOW	Set it to a proper airflow rate.	
		Improper direction of air diffusion	Set it to a proper direction.	
		Open window(s) or door(s)	Shut it tightly.	
		IN COOLING Direct sunlight received	Hang curtains or shades on windows.	
		IN COOLING Too many persons staying in a room	The model must be selected to match the air conditioning load.	
		IN COOLING Too many heat sources (e.g. OA equipment) located in a room		
	IN DRYING The reason is that the dry operation serves not to reduce the room temperature where possible.	Change the system to cooling operation.		
4	The system does not operate.	The system stops and immediately restarts operation.	Normal operation. The system will automatically start operation after a lapse of five minutes.	
		Pressing the temperature setting button immediately resets the system.		
		The remote controller displays CENTRAL CONTROL , which blinks for a period of several seconds when the OPERATION button is depressed.	The system is controlled with centralized controller. Blinking display indicates that the system cannot be operated using the remote controller.	Operate the system using the COOL/HEAT central remote controller.
		The system stops immediately after turning ON the power supply.	The system is in preparation mode of microcomputer operation.	Wait for a period of approximately one minute.
5	The system makes intermittent stops.	The remote controller displays error codes U4 or U5 , and the system stops but restarts after a lapse of several minutes.	The system stops due to an interruption in communication between units caused by electrical noises coming from equipment other than air conditioners.	Remove causes of electrical noises. If these causes are removed, the system will automatically restart operation.

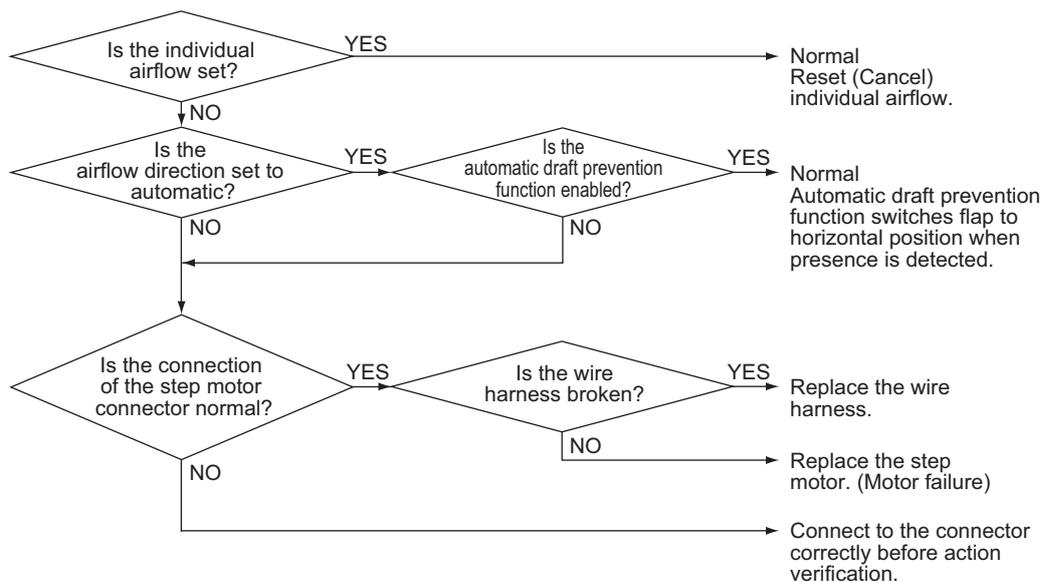
	Symptom	Supposed Cause	Countermeasure	
6	COOL/HEAT selection is disabled.	The remote controller displays CENTRAL CONTROL .	This remote controller has no option to select cooling operation.	Use a remote controller with option to select cooling operation.
		The remote controller displays CENTRAL CONTROL , 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.

1.2 With Infrared Presence/Floor Sensor

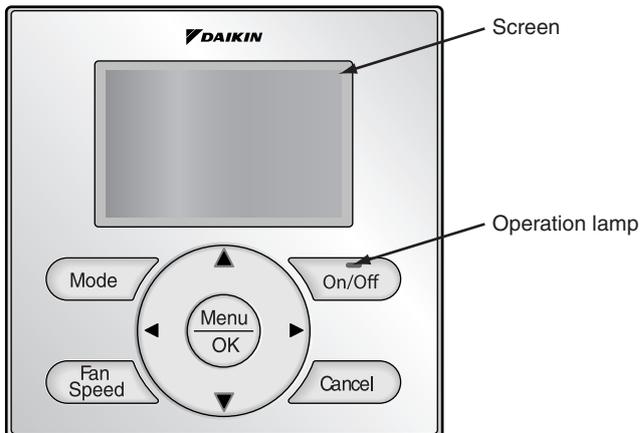
	Problem	Measure
1	Louver operation different from setting or no downward airflow in heating operation.	Refer to the flowchart below.
2	Individual airflow direction setting different from the actual airflow direction	Refer to the flowchart below.
3	While not operating, the louver does not close completely.	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	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.
6	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.
7	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.
8	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
	The infrared presence sensor determines that there is no one in the room while someone is there.	
9	Large difference between floor temperature and actual temperature	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
10	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



2. 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.

Error Code: A1 Unit No.0

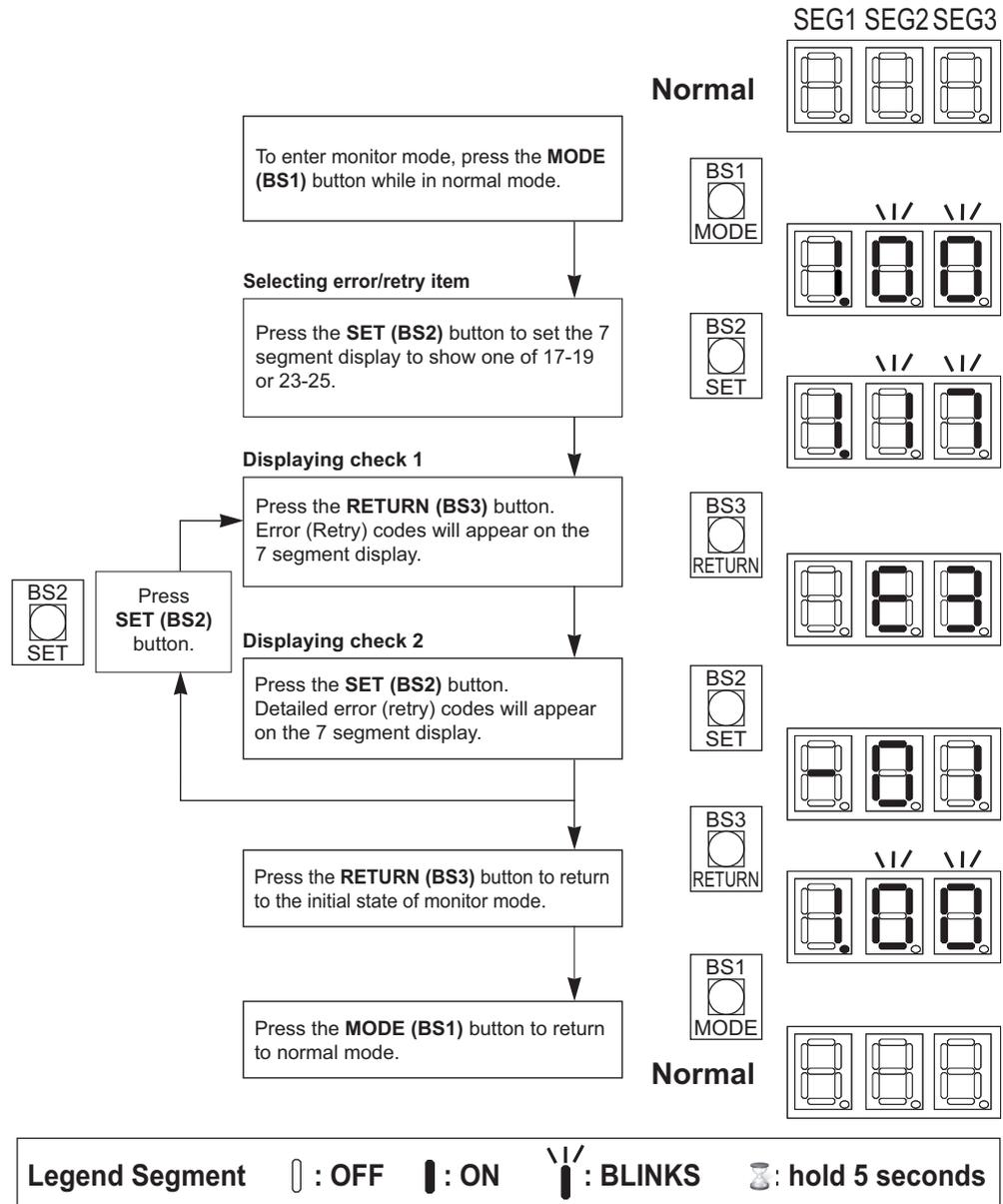
Contact Info
 0123-456-7890
 Indoor Model FXFA07AAVJU
 Outdoor Model REYA72AATJA

3. 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.

4. Troubleshooting by Error Code

4.1 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 (BRC1NRV72)
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	251	
			Refrigerant leak detection (confirmed)	253	
			Refrigerant leak detection (monitoring)	255	
	A1	●	Indoor unit control PCB abnormality	258	
	A3	●	Drain level control system abnormality	259	
			Drain pump connector disconnection detected	261	
	A6	●	Indoor fan motor abnormality	262	
			Indoor fan motor lock, overload	267	
			Blower motor not running	269	
			Indoor fan motor status abnormality	270	
				Low indoor airflow	271
	A8	●	Power supply voltage abnormality	272	
	A9	●	Electronic expansion valve coil abnormality	273	
			Electronic expansion valve coil abnormality, dust clogging	274	
	AF (*1)	○	Drain level above limit	275	
	AH	○ / ● (*3)	Self-cleaning decoration panel abnormality	276	
	AJ	●	Defective capacity setting	287	
	C1	○ / ● (*3)	Transmission abnormality between indoor unit control PCB and fan PCB	288	
			Transmission abnormality between indoor unit A1P PCB and A2P PCB	289	
			Blower motor communication error	290	
	C4	●	Indoor heat exchanger liquid pipe thermistor abnormality	291	
	C5	○ / ● (*3)	Indoor heat exchanger gas pipe thermistor abnormality	291	
	C6	●	Combination error between indoor unit control PCB and fan PCB	292	
Capacity setting abnormality			293		
Blower motor HP mismatch			294		
Indoor unit A1P abnormality			295		
C9	○ / ● (*3)	Suction air thermistor abnormality	291		
		Remote sensor abnormality	296		
CA	○	Discharge air thermistor abnormality	291		
CE (*1)	○	Infrared presence/floor sensor error	297		
CH	●	Refrigerant leak detection sensor failure	302		
		Refrigerant leak detection sensor disconnection	304		
CJ (*2)	○ / ● (*3)	Remote controller thermistor abnormality	308		
Branch Selector unit or Safety Shut-Off Valve unit	A0	●	Branch Selector unit or Safety Shut-Off Valve unit refrigerant leak detection	256	
	CH	●	Branch Selector unit or Safety Shut-Off Valve unit refrigerant leak repair completion pending	306	
			Branch Selector unit or Safety Shut-Off Valve unit refrigerant leak detection sensor failure or disconnection	307	
	E1	●	Branch Selector unit PCB or Safety Shut-Off Valve unit PCB abnormality	310	
F9	●	Defective electronic expansion valve of Branch Selector unit or Safety Shut-Off Valve unit	333		

	Error code	Operation lamp	Error contents	Reference page
Outdoor unit	E0	●	Outdoor unit refrigerant leak detection	309
	E1	●	Outdoor unit main/sub PCB abnormality	310
	E2	●	Detection of ground leakage by leak detection circuit	312
			Missing of ground leakage detection core	313
	E3	●	Activation of high pressure switch	314
	E4	●	Activation of low pressure sensor	316
	E5	●	Compressor motor lock	317
	E6	●	Compressor damage alarm	319
	E7	●	Outdoor fan motor abnormality	321
	E9	●	Electronic expansion valve coil abnormality	323
			Sub PCB momentary overcurrent	323
	EA	●	Four way valve abnormality (intermediate stop)	324
			Four way valve abnormality (not switching)	325
			Opposite air conditioning alarm	327
	F3	●	Discharge pipe temperature abnormality	328
	F4	○ / ● (*3)	Compressor floodback alarm	330
	F6	●	Refrigerant overcharged	332
	H1	●	Box air thermistor abnormality	336
	H3	●	Harness abnormality (between outdoor unit main PCB and inverter PCB)	337
	H7	●	Outdoor fan PCB abnormality	338
	H9	●	Outdoor air thermistor abnormality	336
	J3	●	Discharge pipe thermistor abnormality	336
			Compressor body thermistor abnormality	
	J5	●	Compressor suction thermistor abnormality	336
			Suction pipe before accumulator thermistor abnormality	
	J6	●	Heat exchanger deicer thermistor abnormality	336
			Heat exchanger gas pipe thermistor abnormality	
	J7	●	Liquid thermistor abnormality	336
			Subcooling heat exchanger liquid pipe thermistor abnormality	
			Subcooling injection thermistor abnormality	
	J8	●	Heat exchanger liquid pipe thermistor abnormality	336
	J9	●	Subcooling heat exchanger gas pipe thermistor abnormality	336
			Receiver gas purge thermistor abnormality	
			Electrical box air outlet thermistor abnormality	
	JA	●	High pressure sensor abnormality	339
	JC	●	Low pressure sensor abnormality	340
	JH	●	Outdoor unit refrigerant leak detection sensor abnormality	341
			Outdoor unit refrigerant leak detection sensor replacement completion pending	343
	L1	●	Inverter PCB abnormality	344
	L2	●	Momentary power failure during test operation	345
L4	●	Inverter radiation fin temperature rise abnormality	346	
L5	●	Compressor instantaneous overcurrent	349	
L8	●	Compressor overcurrent	351	
L9	●	Compressor startup abnormality	353	
LC	●	Transmission error between outdoor unit main PCB and inverter PCB	355	
		Transmission error between Branch Selector unit or Safety Shut-Off Valve unit main PCB and Safety ventilated enclosure kit sub-PCB	357	
P1	●	Power supply voltage imbalance	358	
P4 (*1)	●	Inverter radiation fin temperature abnormality	360	
PJ	●	Field setting abnormality after replacing outdoor unit main PCB or combination of PCB abnormality	362	
System	U0 (*1)	○	Refrigerant shortage	363
	U1	●	Reverse phase, Open phase, Power supply frequency issue	364
	U2	●	Power supply insufficient or instantaneous abnormality	365
	U3	●	Check operation not executed	367
	U4	●	Transmission error between units, open phase in power supply wiring	368
	U5	●	Transmission error between remote controller and indoor unit	372
	U7	●	Transmission error between outdoor units	373
	U8	●	Transmission error between main and sub remote controllers	379
	U9	●	Transmission error between units in the same system	380
	UA	●	Improper combination of indoor and outdoor units	381
			Incorrect electric heater capacity setting	389
	UC (*1)	○	Address duplication of centralized controller	390
	UC	●	Inter-system demand interlock warning	391
	UE	●	Transmission error between centralized controller and indoor unit	393
	UF	●	System not set yet	396
	UH	●	System abnormality	400

	Error code	Operation lamp	Error contents	Reference page
System	M1	●	Defective PCB	401
	M8	●	Transmission error (between centralized controllers)	402
	MA	●	Poor centralized controller combination	403
	MC	●	Address duplication, poor setting	404
	—	●	Operation lamp blinking	405
	—	●	Central control indicator lamp blinking (one blink)	407
	—	●	Central control indicator lamp blinking (two blinks)	410

**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.

4.2 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.

4.2.1 Indoor Unit

Error code	Troubleshooting	
	Error Description	Diagnosis
A0 - 01	External protection device abnormality	Refer to page 252.
A0 - 17	Refrigerant leak detection (confirmed)	Refer to page 253.
A0 - 19	Refrigerant leak detection (monitoring)	For FXFA-AA, FXZA-AA, FXSA-AA, FXMA-AA, FXAA-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-AB Refer to page 255.
A3 - 08	Drain pump connector disconnection detected	Refer to page 261.
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 - 20	Indoor fan motor status abnormality	Refer to page 270.
A6 - 21	Low indoor airflow	Refer to page 271.
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	Electronic expansion valve 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 (FXFA-AA, FXSA-AA, FXMA-AA, FXAA-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-AB)	Check for the conditions of transmission between the indoor unit A1P PCB and A2P PCB.
C1 - 07	Blower motor communication error	Refer to page 290.
C6 - 01	Combination error between indoor unit control PCB and 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 294.
C6 - 05	Indoor unit A1P abnormality	Refer to page 295.
CH - 11	Refrigerant leak detection sensor failure	Refer to page 302.
CH - 14	Refrigerant leak detection sensor disconnection	Refer to page 304.
U4 - 01	Indoor-outdoor transmission error	Refer to the U4 flowchart.
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 389.

4.2.2 Branch Selector Unit, Safety Shut-Off Valve Unit

Error code	Troubleshooting	
	Error Description	Diagnosis
A0 - 20	Branch Selector unit or Safety Shut-Off Valve unit refrigerant leak detection	Refer to the A0 flowchart and make a diagnosis based on the Error code shown to the left.
CH - 20	Branch Selector unit or Safety Shut-Off Valve unit refrigerant leak repair completion pending	Refer to the CH flowchart and make a diagnosis based on the Error code shown to the left.
CH - 21	Branch Selector unit or Safety Shut-Off Valve unit refrigerant leak detection sensor failure or disconnection	
E1 - 15	Branch Selector unit PCB or Safety Shut-Off Valve unit PCB abnormality	Refer to the E1 flowchart and make a diagnosis based on the Error code shown to the left.
F9 - 01	Branch Selector unit or Safety Shut-Off Valve unit electronic expansion valve abnormality	Refer to the F9 flowchart and make a diagnosis based on the Error code shown to the left.
F9 - 02		
F9 - 05		
F9 - 06		
F9 - 07		
F9 - 08	Branch Selector unit or Safety Shut-Off Valve unit electronic expansion valve overcurrent	
F9 - 12	Branch Selector unit or Safety Shut-Off Valve unit electronic expansion valve abnormality	
F9 - 13	Defective Branch Selector unit or Safety Shut-Off Valve unit electronic expansion valve	

4.2.3 Outdoor Unit, System

Error code	Troubleshooting	
	Error Description	Diagnosis
E0 - 11	Outdoor unit refrigerant leak abnormality	Refer to the E0 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
E0 - 12	Outdoor unit refrigerant leak detection monitoring	
E1 - 01	Outdoor unit PCB error	Refer to the E1 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
E1 - 02	Defective outdoor unit PCB	
E1 - 08	Outdoor unit sub PCB error (Master)	
E1 - 09	Outdoor unit sub PCB error (Sub)	
E1 - 16	Transmission error between DIV communication IC and microcomputer	
E1 - 17	External flash memory malfunctioned	
E2 - 01	Ground leakage detection error (Master)	
E2 - 02	Ground leakage detection error (Sub)	
E2 - 06	Missing of ground leakage detection core (Master)	
E2 - 07	Missing of ground leakage detection core (Sub)	
E3 - 01	Activation of high pressure switch S1PH (Master)	Refer to the E3 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
E3 - 02	High pressure sensor error (Master)	
E3 - 03	Activation of high pressure switch S1PH (Sub)	
E3 - 04	High pressure sensor error (Sub)	
E3 - 07	High pressure standby E3 latch error (System integrated)	
E3 - 13	Liquid stop valve check error (Master)	
E3 - 14	Liquid stop valve check error (Sub)	
E3 - 18	Overall retry of high pressure switch	
E3 - 20	Activation of high pressure switch S2PH (Master)	
E3 - 21	Activation of high pressure switch S2PH (Sub)	
E4 - 01	Low pressure sensor error (Master)	
E4 - 02	Low pressure sensor error (Sub)	
E5 - 01	Compressor M1C lock (Master)	Refer to the E5 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
E5 - 02	Compressor M1C lock (Sub)	
E5 - 07	Compressor M2C lock (Master)	
E5 - 08	Compressor M2C lock (Sub)	

Error code	Troubleshooting		
	Error Description	Diagnosis	
E6 - 11	Compressor damage error: Compressor M1C (Master)	Refer to the E6 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.	
E6 - 12	Compressor damage error: Compressor M2C (Master)		
E6 - 13	Compressor damage error: Compressor M1C (Sub)		
E6 - 14	Compressor damage error: Compressor M2C (Sub)		
E6 - 17	Compressor damage warning: Compressor M1C (Master)		
E6 - 18	Compressor damage warning: Compressor M2C (Master)		
E6 - 19	Compressor damage warning: Compressor M1C (Sub)		
E6 - 20	Compressor damage warning: Compressor M2C (Sub)		
E7 - 01	Fan motor M1F lock (Master)	Make a diagnosis of the fan motor of the relevant unit based on the following. Fan motor lock: 01, 02, 13, 14 Momentary overcurrent: 05, 06, 17, 18 IPM error: 09, 10, 21, 22	
E7 - 02	Fan motor M2F lock (Master)		
E7 - 05	Fan motor M1F momentary overcurrent (Master)		
E7 - 06	Fan motor M2F momentary overcurrent (Master)		
E7 - 09	Fan motor M1F IPM error (Master)		
E7 - 10	Fan motor M2F IPM error (Master)		
E7 - 13	Fan motor M1F lock (Sub)		
E7 - 14	Fan motor M2F lock (Sub)		
E7 - 17	Fan motor M1F momentary overcurrent (Sub)		
E7 - 18	Fan motor M2F momentary overcurrent (Sub)		
E7 - 21	Fan motor M1F IPM error (Sub)		
E7 - 22	Fan motor M2F IPM error (Sub)		
E9 - 01	Electronic expansion valve coil (Y1E) error (Master)		Refer to the E9 flowchart and make a diagnosis of the relevant electronic expansion valve of the relevant unit based on the Error code shown to the left.
E9 - 03	Electronic expansion valve coil (Y2E) error (Master)		
E9 - 04	Electronic expansion valve coil (Y3E) error (Master)		
E9 - 05	Electronic expansion valve coil (Y1E) error (Sub)		
E9 - 06	Electronic expansion valve coil (Y2E) error (Sub)		
E9 - 07	Electronic expansion valve coil (Y3E) error (Sub)		
E9 - 11	Electronic expansion valve coil (Y6E) error (Master)		
E9 - 12	Electronic expansion valve coil (Y6E) error (Sub)		
E9 - 14	Defective electronic expansion valve coil (Y7E) (Master)		
E9 - 15	Defective electronic expansion valve coil (Y7E) (Sub)		
E9 - 20	Defective electronic expansion valve coil (Y1E) (Master)		
E9 - 21	Defective electronic expansion valve coil (Y1E) (Sub)		
E9 - 23	Defective electronic expansion valve coil (Y3E) (Master)		
E9 - 24	Defective electronic expansion valve coil (Y3E) (Sub)		
E9 - 26	Electronic expansion valve coil (Y4E) error (Master)		
E9 - 27	Electronic expansion valve coil (Y4E) error (Sub)		
E9 - 29	Electronic expansion valve coil (Y5E) error (Master)		
E9 - 30	Electronic expansion valve coil (Y7E) error (Master)		
E9 - 33	Defective electronic expansion valve coil (Y5E) (Master)		
E9 - 34	Electronic expansion valve coil (Y5E) error (Sub)		
E9 - 35	Electronic expansion valve coil (Y7E) error (Sub)		
E9 - 38	Defective electronic expansion valve coil (Y5E) (Sub)		
E9 - 44	Defective electronic expansion valve coil (Y2E) (Master)		
E9 - 45	Defective electronic expansion valve coil (Y2E) (Sub)		
E9 - 57	Sub PCB momentary overcurrent (Master)		
E9 - 58	Sub PCB momentary overcurrent (Sub)		

Error code	Troubleshooting		
	Error Description	Diagnosis	
EA - 02	Defective four way valve (intermediate stop) (Y10S) (Master)	Refer to the EA flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.	
EA - 03	Defective four way valve (intermediate stop) (Y7S) (Master)		
EA - 04	Defective four way valve (intermediate stop) (Y9S) (Master)		
EA - 05	Defective four way valve (intermediate stop) (Y8S) (Master)		
EA - 06	Defective four way valve (intermediate stop) (Y10S) (Sub)		
EA - 07	Defective four way valve (intermediate stop) (Y7S) (Sub)		
EA - 08	Defective four way valve (intermediate stop) (Y9S) (Sub)		
EA - 09	Defective four way valve (intermediate stop) (Y8S) (Sub)		
EA - 14	Defective four way valve (not switching) (Y10S) (Master)		
EA - 15	Defective four way valve (not switching) (Y7S) (Master)		
EA - 16	Defective four way valve (not switching) (Y9S) (Master)		
EA - 17	Defective four way valve (not switching) (Y8S) (Master)		
EA - 18	Defective four way valve (not switching) (Y10S) (Sub)		
EA - 19	Defective four way valve (not switching) (Y7S) (Sub)		
EA - 20	Defective four way valve (not switching) (Y9S) (Sub)		
EA - 21	Defective four way valve (not switching) (Y8S) (Sub)		
EA - 26	Opposite air conditioning at indoor unit		
F3 - 01	Discharge pipe M1C high temperature error (Master)		Refer to the F3 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
F3 - 03	Discharge pipe M1C high temperature error (Sub)		
F3 - 20	Compressor M1C overheat error (Master)		
F3 - 21	Compressor M1C overheat error (Sub)		
F3 - 25	Compressor M2C overheat error (Master)		
F3 - 26	Compressor M2C overheat error (Sub)		
F4 - 02	Compressor floodback alarm for compressor M1C (Master)	Refer to the F4 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.	
F4 - 03	Compressor floodback alarm for compressor M2C (Master)		
F4 - 04	Compressor floodback alarm for compressor M1C (Sub)		
F4 - 05	Compressor floodback alarm for compressor M2C (Sub)		
F4 - 08	Compressor floodback error for compressor M1C (Master)		
F4 - 09	Compressor floodback error for compressor M2C (Master)		
F4 - 10	Compressor floodback error for compressor M1C (Sub)		
F4 - 11	Compressor floodback error for compressor M2C (Sub)		
F4 - 14	Indoor unit failure alarm		
F6 - 02	Refrigerant overcharged	Refrigerant overcharge was detected during test operation.	
H1 - 01	Defective box air thermistor (R20T) (Master)	Refer to the H1 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.	
H1 - 02	Defective box air thermistor (R20T) (Sub)		
H3 - 02	Harness abnormality (Main & inverter PCB 1) - Master unit	Refer to the H3 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.	
H3 - 03	Harness abnormality (Main & inverter PCB 2) - Master unit		
H3 - 04	Harness abnormality (Main & inverter PCB 1) - Sub unit		
H3 - 05	Harness abnormality (Main & inverter PCB 2) - Sub unit		
H7 - 21	Defective fan PCB (Master): M1F		Refer to the H7 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
H7 - 22	Defective fan PCB (Master): M2F		
H7 - 23	Defective fan PCB (Sub): M1F		
H7 - 24	Defective fan PCB (Sub): M2F		
H9 - 01	Defective outdoor air thermistor (R1T) (Master)	Refer to the H9 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.	
H9 - 02	Defective outdoor air thermistor (R1T) (Sub)		

Error code	Troubleshooting		
	Error Description	Diagnosis	
J3 - 16	Defective M1C discharge pipe thermistor (R15T*): Open (Master) *In case of 72A type, R17T	Refer to the J3 flowchart and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.	
J3 - 17	Defective M1C discharge pipe thermistor (R15T*): Short (Master) *In case of 72A type, R17T		
J3 - 18	Defective M2C discharge pipe thermistor (R17T): Open (Master)		
J3 - 19	Defective M2C discharge pipe thermistor (R17T): Short (Master)		
J3 - 22	Defective M1C discharge pipe thermistor (R15T*): Open (Sub) *In case of 72A type, R17T		
J3 - 23	Defective M1C discharge pipe thermistor (R15T*): Short (Sub) *In case of 72A type, R17T		
J3 - 24	Defective M2C discharge pipe thermistor (R17T): Open (Sub)		
J3 - 25	Defective M2C discharge pipe thermistor (R17T): Short (Sub)		
J3 - 38	Defective M2C compressor body thermistor (R18T): Open (Master)		
J3 - 39	Defective M2C compressor body thermistor (R18T): Short (Master)		
J3 - 42	Defective M2C compressor body thermistor (R18T): Open (Sub)		
J3 - 43	Defective M2C compressor body thermistor (R18T): Short (Sub)		
J3 - 47	Defective M1C compressor body thermistor (R16T*): Open (Master) *In case of 72A type, R18T		
J3 - 48	Defective M1C compressor body thermistor (R16T*): Short (Master) *In case of 72A type, R18T		
J3 - 49	Defective M1C compressor body thermistor (R16T*): Open (Sub) *In case of 72A type, R18T		
J3 - 50	Defective M1C compressor body thermistor (R16T*): Short (Sub) *In case of 72A type, R18T		
J3 - 56	Discharge pipe warning (Master)		
J3 - 57	Discharge pipe warning (Sub)		
J5 - 01	Defective compressor suction thermistor (R19T) (Master)		Refer to the J5 flowchart and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.
J5 - 03	Defective compressor suction thermistor (R19T) (Sub)		
J5 - 18	Error detection of suction pipe before accumulator thermistor (R5T) (Master)		
J5 - 19	Error detection of suction pipe before accumulator thermistor (R5T) (Sub)		

Error code	Troubleshooting	
	Error Description	Diagnosis
J6 - 01	Defective heat exchanger right deicer thermistor (R8T) (Master)	Refer to the J6 flowchart and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.
J6 - 02	Defective heat exchanger right deicer thermistor (R8T) (Sub)	
J6 - 08	Defective heat exchanger right upper gas pipe thermistor (R2T) (Master)	
J6 - 09	Defective heat exchanger right upper gas pipe thermistor (R2T) (Sub)	
J6 - 11	Defective heat exchanger right lower gas pipe thermistor (R9T) (Master)	
J6 - 12	Defective heat exchanger right lower gas pipe thermistor (R9T) (Sub)	
J6 - 14	Error detection of heat exchanger right upper gas pipe thermistor (R2T) (Master)	
J6 - 15	Error detection of heat exchanger right upper gas pipe thermistor (R2T) (Sub)	
J6 - 17	Error detection of heat exchanger right lower gas pipe thermistor (R9T) (Master)	
J6 - 18	Error detection of heat exchanger right lower gas pipe thermistor (R9T) (Sub)	
J6 - 22	Defective heat exchanger left deicer thermistor (R23T) (Master)	
J6 - 23	Defective heat exchanger left deicer thermistor (R23T) (Sub)	
J6 - 25	Defective heat exchanger left gas pipe thermistor (R21T) (Master)	
J6 - 26	Defective heat exchanger left gas pipe thermistor (R21T) (Sub)	
J6 - 33	Error detection of heat exchanger left gas pipe thermistor (R21T) (Master)	Refer to the J7 flowchart and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.
J6 - 34	Error detection of heat exchanger left gas pipe thermistor (R21T) (Sub)	
J7 - 01	Defective liquid thermistor (R10T) (Master)	
J7 - 02	Defective liquid thermistor (R10T) (Sub)	
J7 - 06	Defective subcooling heat exchanger liquid pipe thermistor (R11T) (Master)	
J7 - 07	Defective subcooling heat exchanger liquid pipe thermistor (R11T) (Sub)	
J7 - 17	Standby for preventing fusible plug removal	
J7 - 18	Defective subcooling injection thermistor (R14T) (Master)	
J7 - 19	Defective subcooling injection thermistor (R14T) (Sub)	
J8 - 01	Defective heat exchanger right upper liquid pipe thermistor (R6T) (Master)	
J8 - 02	Defective heat exchanger right upper liquid pipe thermistor (R6T) (Sub)	
J8 - 08	Defective heat exchanger right lower liquid pipe thermistor (R7T) (Master)	
J8 - 09	Defective heat exchanger right lower liquid pipe thermistor (R7T) (Sub)	
J8 - 11	Defective heat exchanger left liquid pipe thermistor (R22T) (Master)	
J8 - 12	Defective heat exchanger left liquid pipe thermistor (R22T) (Sub)	

Error code	Troubleshooting	
	Error Description	Diagnosis
J9 - 01	Defective subcooling heat exchanger gas pipe thermistor (R12T) (Master)	Refer to the J9 flowchart and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.
J9 - 02	Defective subcooling heat exchanger gas pipe thermistor (R12T) (Sub)	
J9 - 08	Error detection of subcooling heat exchanger gas pipe thermistor (R12T) (Master)	
J9 - 09	Error detection of subcooling heat exchanger gas pipe thermistor (R12T) (Sub)	
J9 - 11	Defective receiver gas purge thermistor (R4T) (Master)	
J9 - 12	Defective receiver gas purge thermistor (R4T) (Sub)	
J9 - 17	Defective electrical box air outlet thermistor (R3T) (Master)	
J9 - 18	Defective electrical box air outlet thermistor (R3T) (Sub)	
JA - 06	Defective high pressure sensor (S1NPH): Open (Master)	Refer to the JA flowchart and make a diagnosis of the relevant sensor based on the Error code shown to the left.
JA - 07	Defective high pressure sensor (S1NPH): Short (Master)	
JA - 08	Defective high pressure sensor (S1NPH): Open (Sub)	
JA - 09	Defective high pressure sensor (S1NPH): Short (Sub)	
JC - 06	Defective low pressure sensor (S1NPL): Open (Master)	Refer to the JC flowchart and make a diagnosis of the relevant sensor based on the Error code shown to the left.
JC - 07	Defective low pressure sensor (S1NPL): Short (Master)	
JC - 08	Defective low pressure sensor (S1NPL): Open (Sub)	
JC - 09	Defective low pressure sensor (S1NPL): Short (Sub)	
JH - 02	Outdoor unit refrigerant leak detection sensor failure or disconnection	Refer to the JH flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
JH - 05	Outdoor unit refrigerant sensor replacement pending abnormality Awaiting confirmation of refrigerant leak repair completion	
JH - 06	Outdoor unit refrigerant sensor connection error	

Error code	Troubleshooting	
	Error Description	Diagnosis
L1 - 01	IPM error: Compressor M1C (Master)	Refer to the L1 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
L1 - 02	Defective current sensor 1: Compressor M1C (Master)	
L1 - 03	Defective current sensor 2: Compressor M1C (Master)	
L1 - 04	IGBT error: Compressor M1C (Master)	
L1 - 05	Jumper 1 settings error (Master)	
L1 - 07	IPM error: Compressor M1C (Sub)	
L1 - 08	Defective current sensor 1: Compressor M1C (Sub)	
L1 - 09	Defective current sensor 2: Compressor M1C (Sub)	
L1 - 10	IGBT error: Compressor M1C (Sub)	
L1 - 15	Jumper 1 settings error (Sub)	
L1 - 17	IPM error: Compressor M2C (Master)	
L1 - 18	Defective current sensor 1: Compressor M2C (Master)	
L1 - 19	Defective current sensor 2: Compressor M2C (Master)	
L1 - 20	IGBT error: Compressor M2C (Master)	
L1 - 21	Jumper 2 settings error (Master)	
L1 - 22	IPM error: Compressor M2C (Sub)	
L1 - 23	Defective current sensor 1: Compressor M2C (Sub)	
L1 - 24	Defective current sensor 2: Compressor M2C (Sub)	
L1 - 25	IGBT error: Compressor M2C (Sub)	
L1 - 26	Jumper 2 settings error (Sub)	
L1 - 36	Defective inverter PCB EEPROM: Compressor M1C (Master)	
L1 - 37	Defective inverter PCB EEPROM: Compressor M2C (Master)	
L1 - 38	Defective inverter PCB EEPROM: Compressor M1C (Sub)	
L1 - 39	Defective inverter PCB EEPROM: Compressor M2C (Sub)	
L1 - 47	15 V power supply error: Compressor M1C (Master)	
L1 - 48	15 V power supply error: Compressor M2C (Master)	
L1 - 49	15 V power supply error: Compressor M1C (Sub)	
L1 - 50	15 V power supply error: Compressor M2C (Sub)	
L2 - 01	Momentary power failure during test operation (Master)	Refer to the L2 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
L2 - 02	Momentary power failure during test operation (Sub)	
L2 - 04	Switch ON the power supply (Master)	
L2 - 05	Switch ON the power supply (Sub)	
L4 - 01	Radiation fin temperature rise: Inverter PCB M1C (Master)	
L4 - 02	Radiation fin temperature rise: Inverter PCB M1C (Sub)	
L4 - 06	Radiation fin temperature rise: Fan M1F (Master)	
L4 - 07	Radiation fin temperature rise: Fan M2F (Master)	
L4 - 09	Radiation fin temperature rise: Inverter PCB M2C (Master)	
L4 - 10	Radiation fin temperature rise: Inverter PCB M2C (Sub)	
L4 - 12	Inverter radiation fin temperature rise abnormality M1C (Master)	
L4 - 13	Inverter radiation fin temperature rise abnormality M1C (Sub)	
L4 - 15	Inverter radiation fin temperature rise abnormality M2C (Master)	
L4 - 16	Inverter radiation fin temperature rise abnormality M2C (Sub)	
L4 - 18	Radiation fin temperature rise: Fan M1F (Sub)	
L4 - 19	Radiation fin temperature rise: Fan M2F (Sub)	
L5 - 03	Compressor M1C momentary overcurrent (Master)	Refer to the L5 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
L5 - 05	Compressor M1C momentary overcurrent (Sub)	
L5 - 14	Compressor M2C momentary overcurrent (Master)	
L5 - 15	Compressor M2C momentary overcurrent (Sub)	

Error code	Troubleshooting	
	Error Description	Diagnosis
L8 - 03	Compressor M1C overcurrent (Master)	Refer to the L8 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
L8 - 06	Compressor M1C overcurrent (Sub)	
L8 - 11	Compressor M2C overcurrent (Master)	
L8 - 12	Compressor M2C overcurrent (Sub)	
L9 - 01	Compressor M1C startup error (Master)	Refer to the L9 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
L9 - 05	Compressor M1C startup error (Sub)	
L9 - 10	Compressor M2C startup error (Master)	
L9 - 11	Compressor M2C startup error (Sub)	
L9 - 13	Inverter output open phase M1C (Master)	
L9 - 14	Inverter output open phase M1C (Sub)	
L9 - 16	Inverter output open phase M2C (Master)	
L9 - 17	Inverter output open phase M2C (Sub)	Refer to the LC flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
LC - 14	Transmission error (Between outdoor units, inverter PCB) (Master): M1C	
LC - 15	Transmission error (Between outdoor units, inverter PCB) (Sub): M1C	
LC - 19	Transmission error (Between outdoor units, fan PCB) (Master): M1F	
LC - 20	Transmission error (Between outdoor units, fan PCB) (Sub): M1F	
LC - 24	Transmission error (Between outdoor units, fan PCB) (Master): M2F	
LC - 25	Transmission error (Between outdoor units, fan PCB) (Sub): M2F	
LC - 30	Transmission error (Between outdoor units, inverter PCB) (Master): M2C	
LC - 31	Transmission error (Between outdoor units, inverter PCB) (Sub): M2C	
LC - 33	Transmission error (Between outdoor units, sub PCB) (Master)	
LC - 34	Transmission error (Between outdoor units, sub PCB) (Sub)	
LC - 41	Transmission error (Between Branch Selector unit or Safety Shut-Off Valve unit main PCB and Safety ventilated enclosure kit sub-PCB)	
P1 - 01	Inverter 1 power supply unbalanced voltage (Master)	Refer to the P1 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
P1 - 02	Inverter 1 power supply unbalanced voltage (Sub)	
P1 - 07	Inverter 2 power supply unbalanced voltage (Master)	
P1 - 08	Inverter 2 power supply unbalanced voltage (Sub)	
P4 - 02	Defective fan M1F fin sensor (Master)	Refer to the P4 flowchart and make a diagnosis of the relevant sensor based on the Error code shown to the left.
P4 - 03	Defective fan M2F fin sensor (Master)	
P4 - 09	Defective inverter diode bridge fin sensor M1C (Master)	
P4 - 10	Defective inverter diode bridge fin sensor M1C (Sub)	
P4 - 12	Defective inverter diode bridge fin sensor M2C (Master)	
P4 - 13	Defective inverter diode bridge fin sensor M2C (Sub)	
P4 - 15	Defective fan M1F fin sensor (Sub)	
P4 - 16	Defective fan M2F fin sensor (Sub)	
PJ - 04	Incorrect type of inverter PCB M1C (Master)	Refer to the PJ flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
PJ - 05	Incorrect type of inverter PCB M1C (Sub)	
PJ - 09	Incorrect type of fan PCB (Master): M1F	
PJ - 10	Incorrect type of fan PCB (Master): M2F	
PJ - 12	Incorrect type of inverter PCB M2C (Master)	
PJ - 13	Incorrect type of inverter PCB M2C (Sub)	
PJ - 15	Incorrect type of fan PCB (Sub): M1F	
PJ - 17	Incorrect type of fan PCB (Sub): M2F	Refer to the U0 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
U0 - 05	Refrigerant shortage warning (cooling)	
U0 - 06	Refrigerant shortage warning (heating)	

Error code	Troubleshooting		
	Error Description	Diagnosis	
U1 - 01	Reverse phase/open phase of power supply (Master)	Refer to the U1 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.	
U1 - 04	Reverse phase/open phase of power supply (when power ON) (Master)		
U1 - 05	Reverse phase/open phase of power supply (Sub)		
U1 - 06	Reverse phase/open phase of power supply (when power ON) (Sub)		
U1 - 19	Power supply frequency issue (Master)		
U1 - 20	Power supply frequency issue (Sub)		
U2 - 01	Shortage of inverter 1 power supply voltage (Master)	<p>Make a diagnosis of the relevant unit based on the following.</p> <p>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.</p> <p>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.</p> <p>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 P-N on the inverter PCB and check for short circuit. If no abnormality is found, follow the U2 flowchart.</p>	
U2 - 02	Open phase of inverter 1 power supply (Master)		
U2 - 03	Defective capacitor in inverter 1 main circuit (Master)		
U2 - 08	Shortage of inverter 1 power supply voltage (Sub)		
U2 - 09	Open phase of inverter 1 power supply (Sub)		
U2 - 10	Defective capacitor in inverter 1 main circuit (Sub)		
U2 - 22	Shortage of inverter 2 power supply voltage (Master)		
U2 - 23	Open phase of inverter 2 power supply (Master)		
U2 - 24	Defective capacitor in inverter 2 main circuit (Master)		
U2 - 25	Shortage of inverter 2 power supply voltage (Sub)		
U2 - 26	Open phase of inverter 2 power supply (Sub)		
U2 - 27	Defective capacitor in inverter 2 main circuit (Sub)		
U2 - 36	Fan motor 1 undervoltage (Master)		
U2 - 37	Fan motor 2 undervoltage (Master)		
U2 - 38	Fan motor 1 undervoltage (Sub)		
U2 - 39	Fan motor 2 undervoltage (Sub)		
U3 - 02	Initial installation warning		Refer to the U3 flowchart and make a diagnosis of the relevant unit 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		
U4 - 01	Transmission error between indoor units and outdoor units	Refer to the U4 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.	
U4 - 03	Transmission error between indoor unit and system		
U4 - 09	Transmission error between indoor units and outdoor units		
U4 - 10	Transmission error between indoor units and outdoor units		
U4 - 11	Transmission error between indoor units and outdoor units		
U4 - 12	Transmission error between indoor units and outdoor units		
U4 - 13	Transmission error between indoor units and outdoor units		
U4 - 14	Transmission error between indoor units and outdoor units		
U4 - 15	Branch Selector unit or Safety Shut-Off Valve unit transmission error		
U4 - 16	DIV communication connection failure error		
U4 - 17	Master candidate list not received during system recognition		
U4 - 18	LFC transmission error during system recognition		
U4 - 19	LFC reception error during system recognition		

Error code	Troubleshooting		
	Error Description	Diagnosis	
U7 - 01	Error when external control adaptor for outdoor unit is installed	Refer to the U7 flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.	
U7 - 02	Warning when external control adaptor for outdoor unit is installed		
U7 - 03	Transmission error between Master and Sub units		
U7 - 05	Multi system error		
U7 - 06	Error in address settings of Sub unit		
U7 - 07	Connection of four or more outdoor units in the same system		
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 of the relevant unit based on the Error code shown to the left.	
U9 - 06	Inter-system demand feature communication error warning		
UA - 17	Connection of excessive indoor units, Branch Selector units or Safety Shut-Off Valve units	Refer to the UA flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.	
UA - 18	Connection of wrong models of indoor units		
UA - 20	Improper combination of outdoor units		
UA - 21	Connection error		
UA - 23	Connection of excessive indoor units under Branch Selector unit or Safety Shut-Off Valve unit		
UA - 27	Zero indoor unit under Branch Selector unit or Safety Shut-Off Valve unit		
UA - 31	Multi-unit combination error		
UA - 35	Multi-unit combination error (exceeding 54 HP)		
UA - 53	Branch Selector unit DIP switch settings error (Centralized type)		
UA - 60	Branch Selector unit or Safety Shut-Off Valve unit backup PCB connection error		
UA - 61	Branch Selector unit or Safety Shut-Off Valve unit backup PCB output error		
UA - 62	Branch Selector unit or Safety Shut-Off Valve unit power outage detection		
UC - 03	Inter-system demand interlock single unit warning		Refer to the UC flowchart and make a diagnosis of the relevant unit based on the Error code shown to the left.
UC - 04	Inter-system demand interlock excessive number warning		

Error code	Troubleshooting		
	Error Description	Diagnosis	
UF - 01	Wrong wiring check error	Refer to the UF flowchart and make a diagnosis of the relevant unit 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 Unable to receive response from control to participation request		
UF - 13	Branch Selector unit or Safety Shut-Off Valve unit electronic expansion valve coil failure alarm		
UF - 18	Wrong wiring check error for wrong wiring automatic operation		
UF - 19	Wrong wiring, wrong model connected to Branch Selector unit, Safety Shut-Off Valve unit/outdoor communication wiring		
UF - 20	Wrong wiring, wrong connection port for communication wiring		
UF - 23	Wrong wiring, wrong model connected to outdoor-outdoor communication wiring		
UF - 24	Wrong wiring, wrong model connected to indoor-outdoor communication wiring		
UF - 25	Wrong wiring, wrong model connected to Branch Selector unit or Safety Shut-Off Valve unit communication wiring		
UF - 26	Communication wiring short circuit error during system recognition		
UF - 28	Wrong wiring, short circuit between Branch Selector unit or Safety Shut-Off Valve unit and indoor wiring		
UF - 29	DIV Plus wrong wiring		
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)		
UF - 32	Centralized controller wrong wiring		
UF - 33	DIV Plus wrong wiring		
UH - 01	Wiring error		Refer to the UH flowchart and make a diagnosis of the relevant unit 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.		

4.3 External Protection Device Abnormality

4.3.1 External Protection Device Abnormality (Except FXTA-AB)

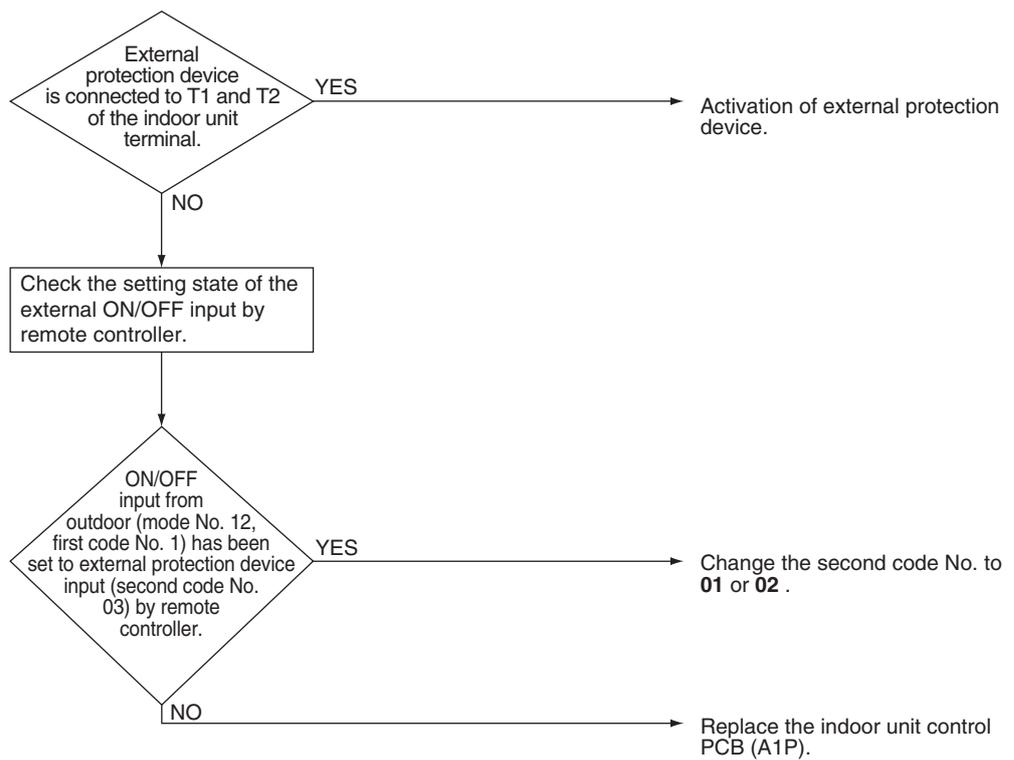
Applicable Models	FXFA-AA, FXZA-AA, FXSA-AA, FXMA-AA, FXAA-AA
Error Code	A0
Method of Error Detection	Error is determined when open or short circuit occurs between external input terminals in indoor unit.
Error Decision Conditions	An open circuit occurs between external input terminals with the remote controller set to external ON/OFF terminal.
Supposed Causes	<ul style="list-style-type: none"> ■ Activation of external protection device ■ Improper field setting ■ Defective indoor unit control PCB (A1P)

Troubleshooting



Caution

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



4.3.2 External Protection Device Abnormality (FXTA-AB Only)

Applicable Models

FXTA-AB

Error Code

A0-01

Method of Error Detection

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

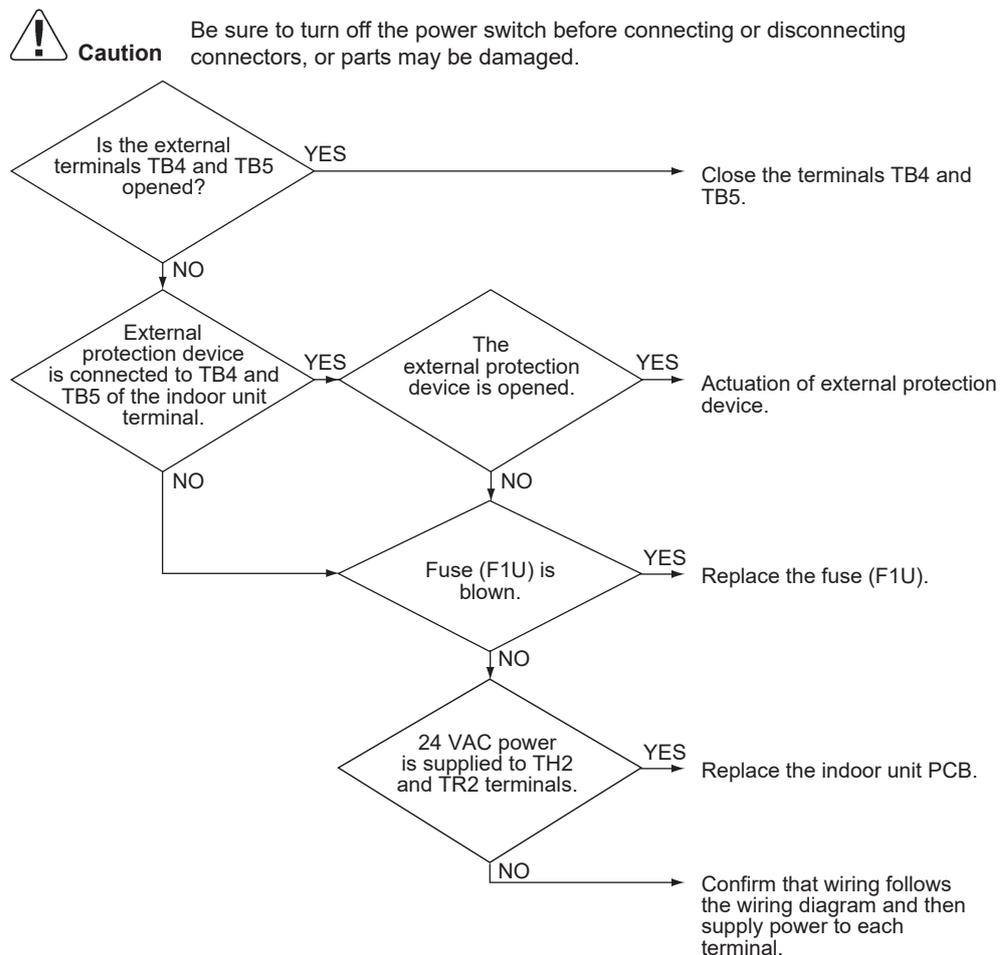
Error Decision Conditions

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



4.4 Refrigerant Leak Detection (Confirmed)

4.4.1 Refrigerant Leak Detection (Confirmed) (Except FXTA-AB)

Applicable Models FXFA-AA, FXZA-AA, FXSA-AA, FXMA-AA, FXAA-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

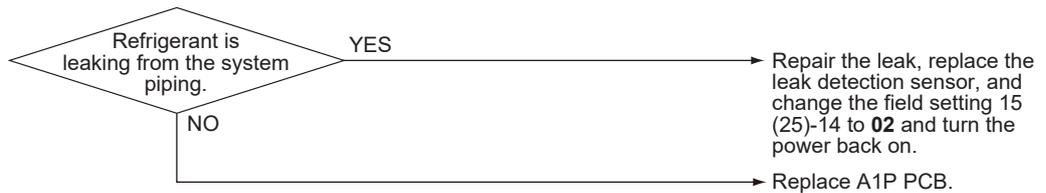
- Supposed Causes**
- Refrigerant leak from system piping
 - Refrigerant leak detection sensor deterioration/failure
 - Defective A1P control PCB

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.



4.4.2 Refrigerant Leak Detection (Confirmed) (FXTA-AB Only)

Applicable Models

FXTA-AB

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

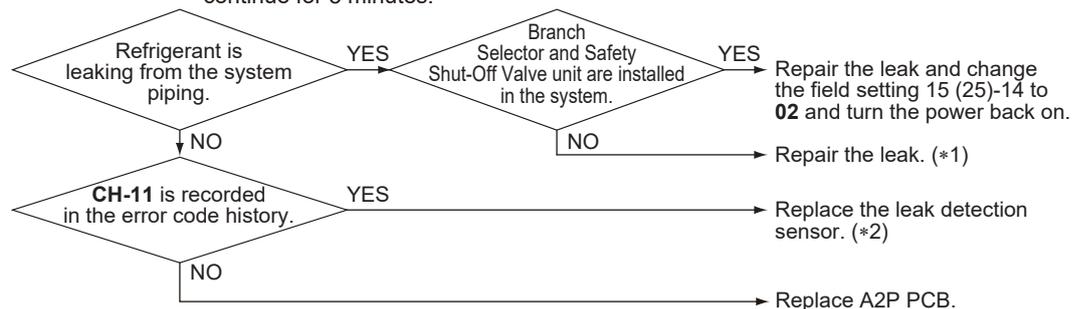
- Refrigerant leak from system piping
- Refrigerant leak detection sensor deterioration/failure
- Defective A2P control PCB

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)

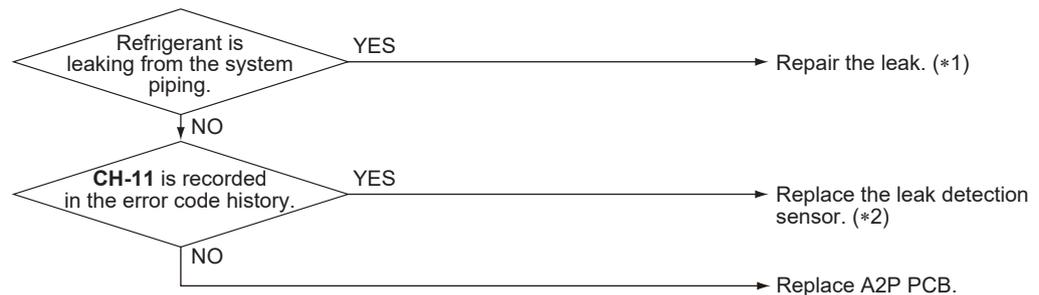
- *1. Sensor replacement is generally not necessary until **CH-11** or **CH-14** errors are detected.
- *2. For sensor replacement, refer to **Refrigerant Leak Detection Sensor Replacement (FXTA-AB models only)** on page 451.

4.5 Refrigerant Leak Detection (Monitoring) (FXTA-AB Only)

Applicable Models	FXTA-AB
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	<ul style="list-style-type: none"> ■ 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-AB models only)** on page 451.

4.6 Branch Selector Unit or Safety Shut-Off Valve Unit Refrigerant Leak Detection

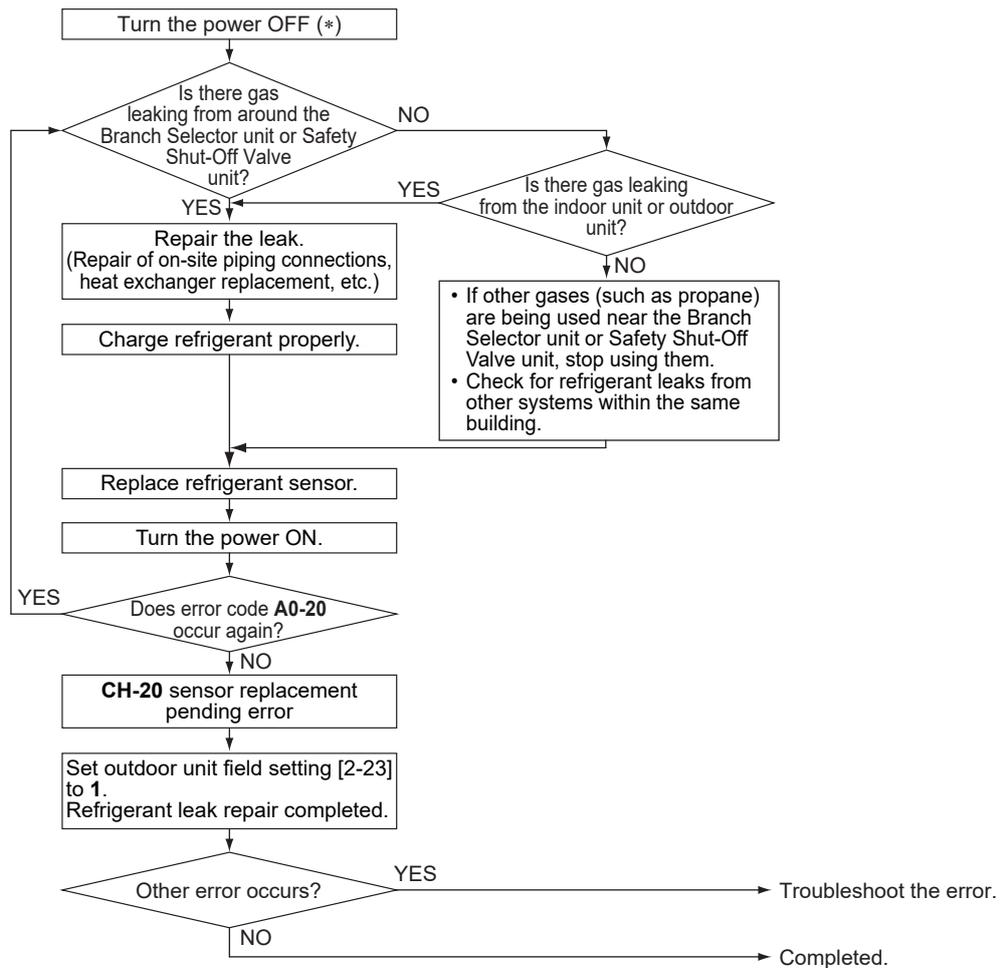
Applicable Models	Branch Selector unit Safety Shut-Off Valve unit Safety ventilated enclosure kit (BS-EBF04/07-AA, BS-EBSVA-AA)
Error Code	A0-20
Method of Error Detection	Refrigerant leak detection sensor detects a refrigerant leak.
Error Decision Conditions	The refrigerant leak detection sensor detects gases such as refrigerant gas when the gas concentration exceeds a specified level.
Supposed Causes	<ul style="list-style-type: none">■ Refrigerant leak from system piping■ Refrigerant leak detection sensor deterioration/failure■ Gas detection due to refrigerant leakage from another system in the same room■ Detection of gas other than refrigerant■ Defective Safety ventilated enclosure kit sub-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.
- The shut-off valve closes completely.
- The Branch Selector unit and Safety Shut-Off Valve unit of the R-32 model are equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected.
- When a power reset is required for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before performing the work. (it may take up to 2 hours if the capacitor is fully charged).



Note(s)

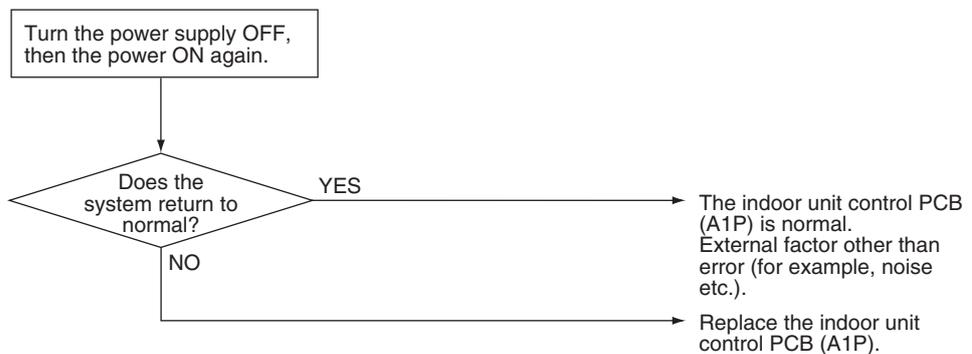
* When it takes time to discharge the charge stored in the backup PCBs, refer to the method described in **Method for Forced Power Reset** on page 456.

4.7 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	<ul style="list-style-type: none"> ■ Defective indoor unit control PCB (A1P) ■ External factor (Noise, etc.)
Troubleshooting	


Caution

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



4.8 Drain Level Control System Abnormality

Applicable Models FXFA-AA, FXZA-AA, FXSA-AA, FXMA15-54AA

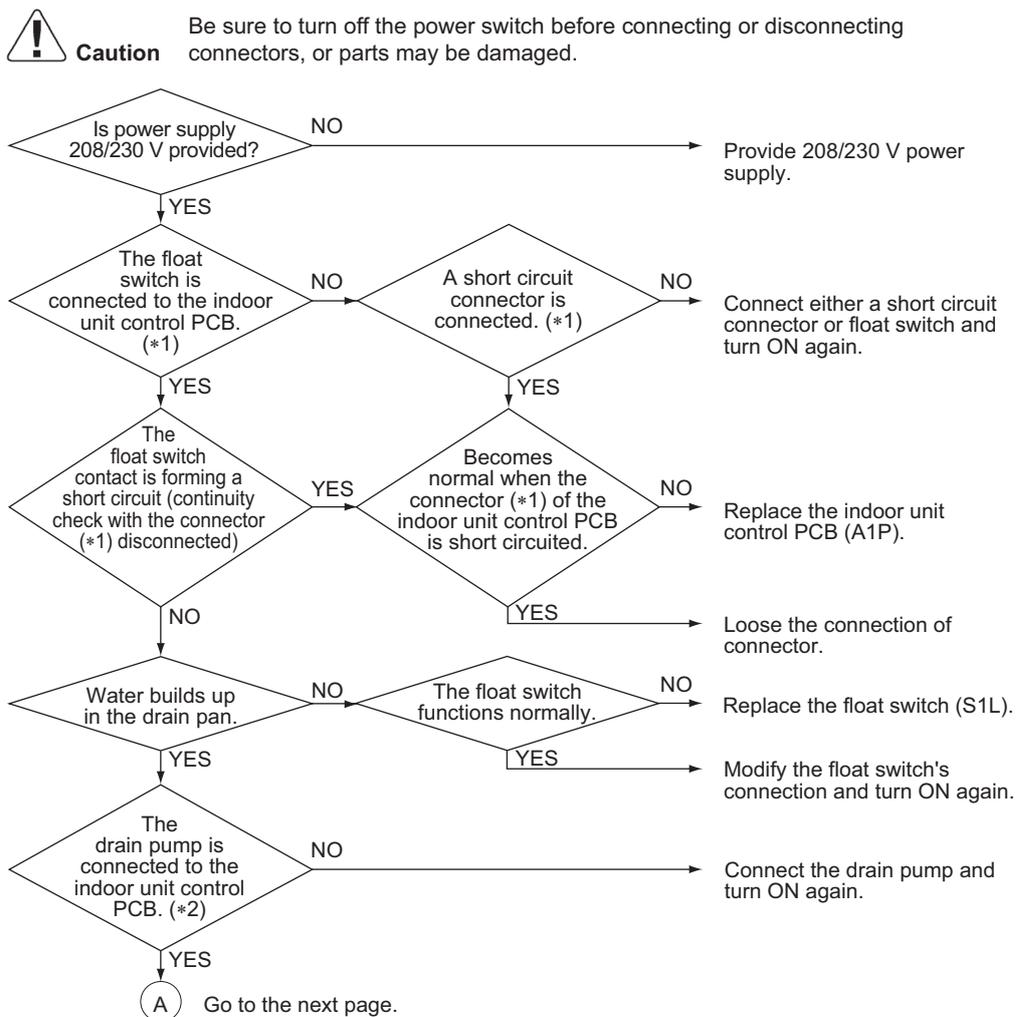
Error Code **A3**

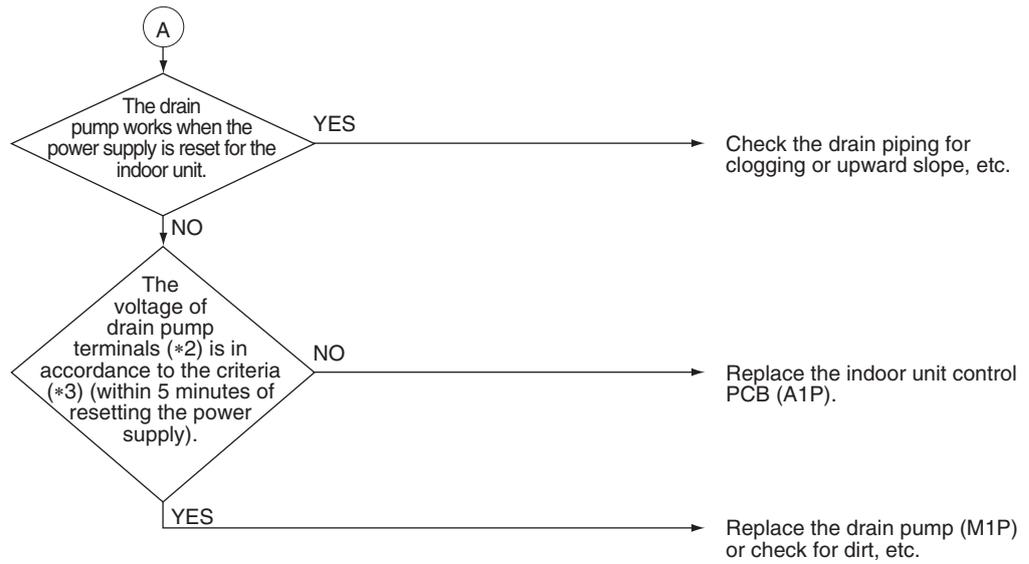
Method of Error Detection By float switch OFF detection

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 (A1P)
 - Loose connection of connector

Troubleshooting





i Note(s)

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

4.9 Drain Pump Connector Disconnection Detected

Applicable Models FXFA-AA, FXZA-AA, FXSA-AA, FXMA15-54AA

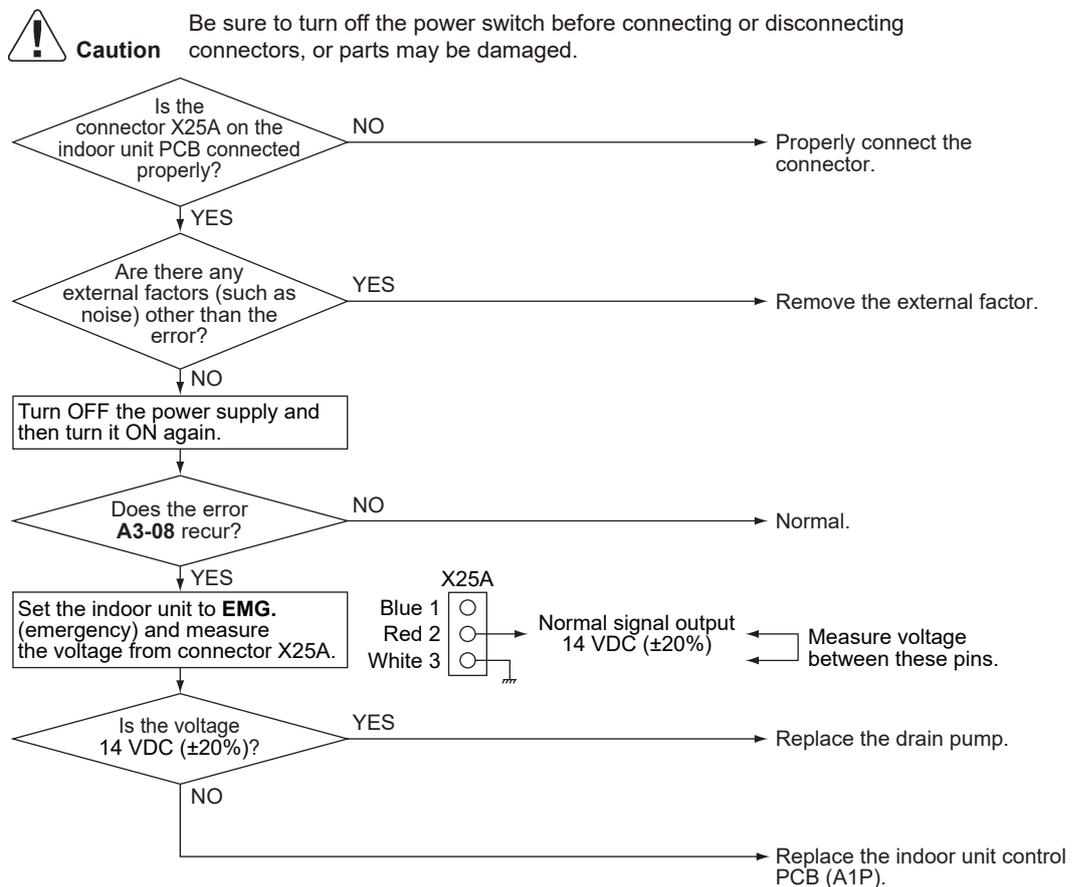
Error Code **A3-08**

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



4.10 Indoor Fan Motor Abnormality

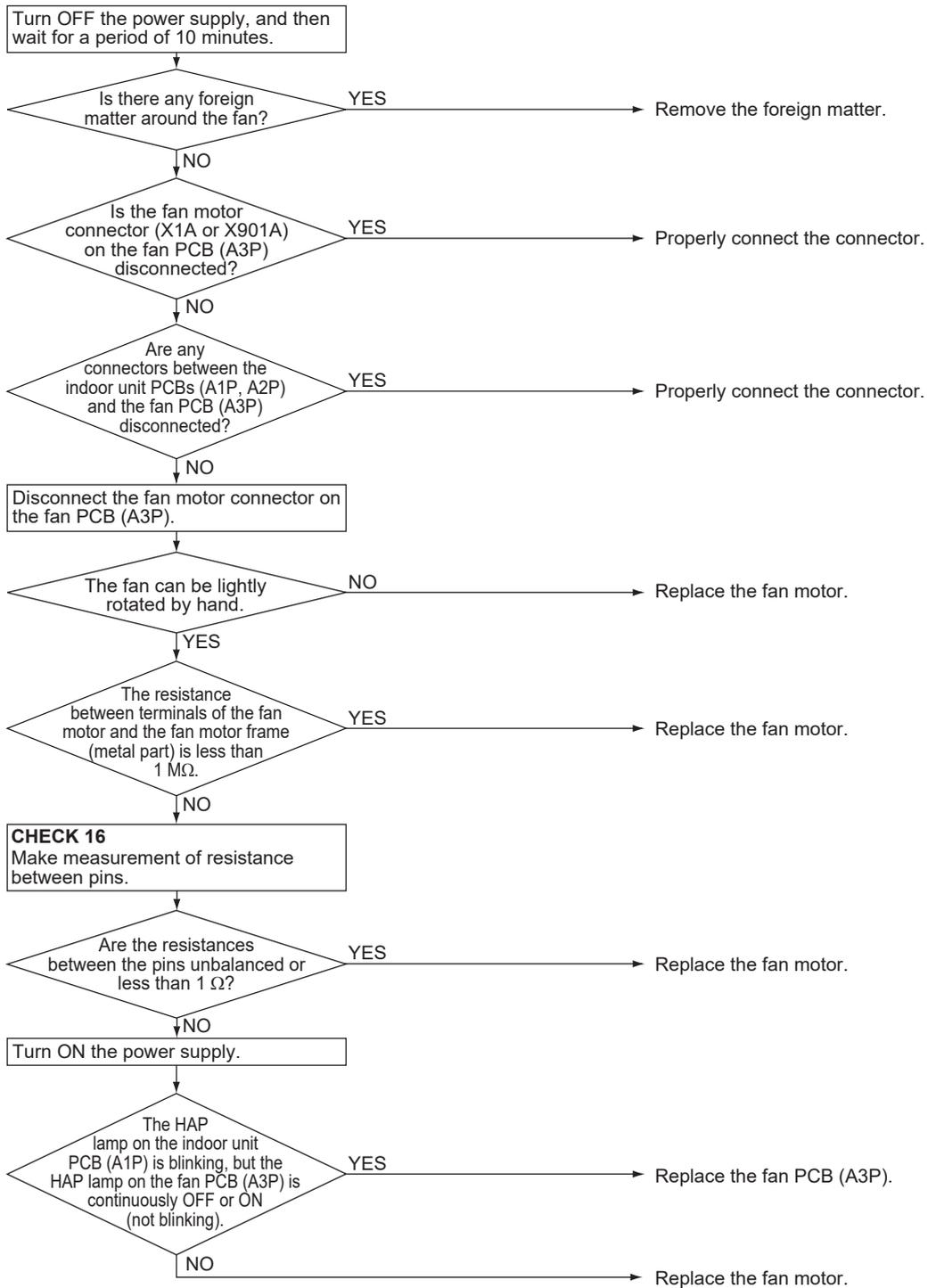
4.10.1 Indoor Fan Motor Abnormality (FXFA-AA, FXSA-AA, FXMA15-54AA, FXAA-AA)

Applicable Models	FXFA-AA, FXSA-AA, FXMA15-54AA, FXAA-AA
Error Code	A6-10
Method of Error Detection	<ul style="list-style-type: none">■ Detection from the current flow on the fan PCB (A3P)■ Detection from the rotation speed of the fan motor when instructed to rotate
Error Decision Conditions	<ul style="list-style-type: none">■ An overcurrent flows.■ The rotation speed is less than a certain level for 6 seconds.
Supposed Causes	<ul style="list-style-type: none">■ Entangled foreign matter■ Disconnection of fan motor connector (X1A or X901A)■ Disconnection of connector between the indoor unit PCB (A1P, A2P) and the fan PCB (A3P)■ Defective fan PCB (A3P)■ 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 16 Refer to page 427.

4.10.2 Indoor Fan Motor Abnormality (FXMA72/96AA)

Applicable Models

FXMA72/96AA

Error Code**A6****Method of Error Detection**

- Error from the current flow on the fan PCB (A3P)
 - Error from the rotation speed of the fan motor in operation
 - Error from the position signal of the fan motor
 - Error from the current flow on the fan PCB (A3P) 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

- Entangled foreign matter
- Disconnection of the fan motor connectors (X1A and X2A)
- Disconnection of the connectors between the indoor unit control PCB (A1P) and fan PCB (A3P)
- Defective fan PCB (A3P)
- Defective fan motor

Troubleshooting



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

Turn off the power and wait for 10 minutes.

There is a foreign matter around the fan.

YES

Remove the foreign matter.

NO

The fan motor connectors (X1A and X2A) of the fan PCB (A3P) are disconnected.

YES

Connect the connector properly.

NO

The connectors between the indoor unit PCB (A1P) and the fan PCB (A3P) are disconnected.

YES

Connect the connector properly.

NO

The fuse (F3U) on the fan PCB (A3P) has continuity.

NO

Replace the fan PCB (A3P).

YES

Disconnect the fan motor connectors (X1A and X2A).

The fan can be rotated lightly by hand.

NO

Replace the indoor fan motor (M1F).

YES

The resistance between the power wire terminals of the fan motor and motor frame (metal part) is 1 MΩ or below.

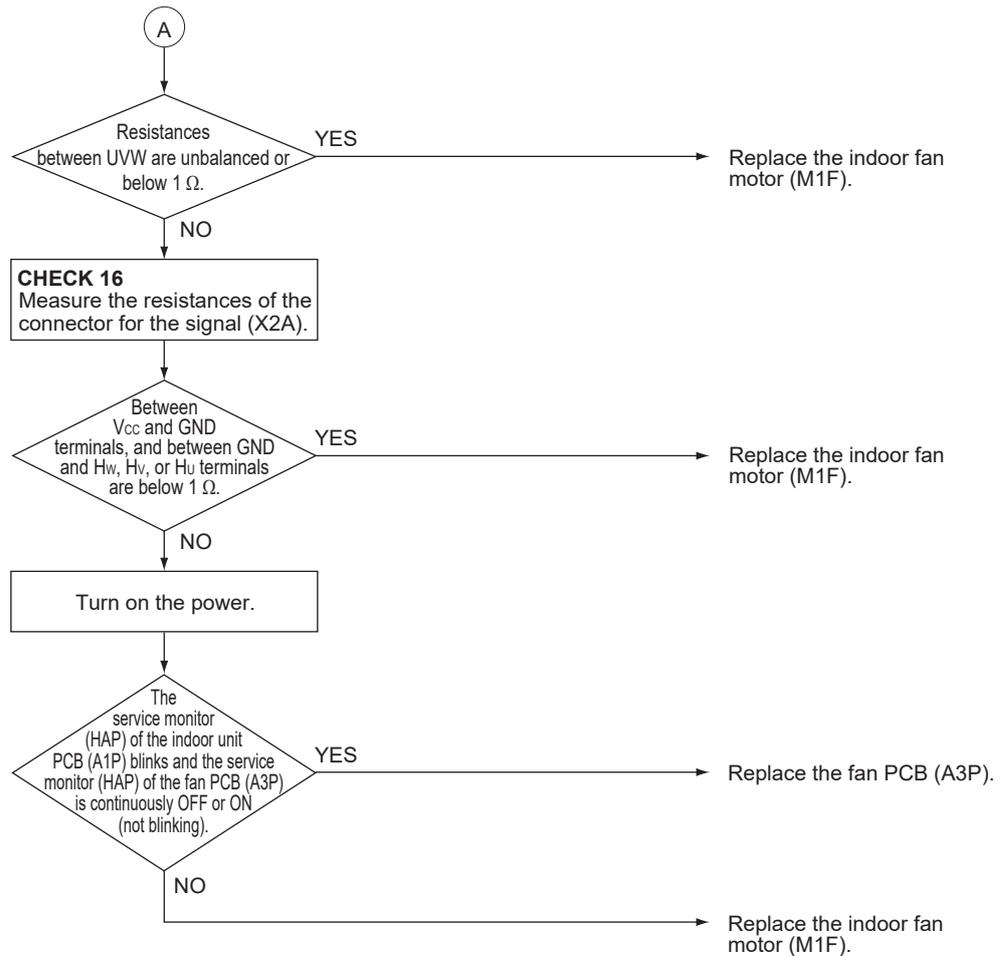
YES

Replace the indoor fan motor (M1F).

NO

CHECK 16
Measure the resistances of the connector for the power supply (X1A).

A Go to the next page.



Reference **CHECK 16** Refer to page 427.

4.11 Indoor Fan Motor Lock, Overload

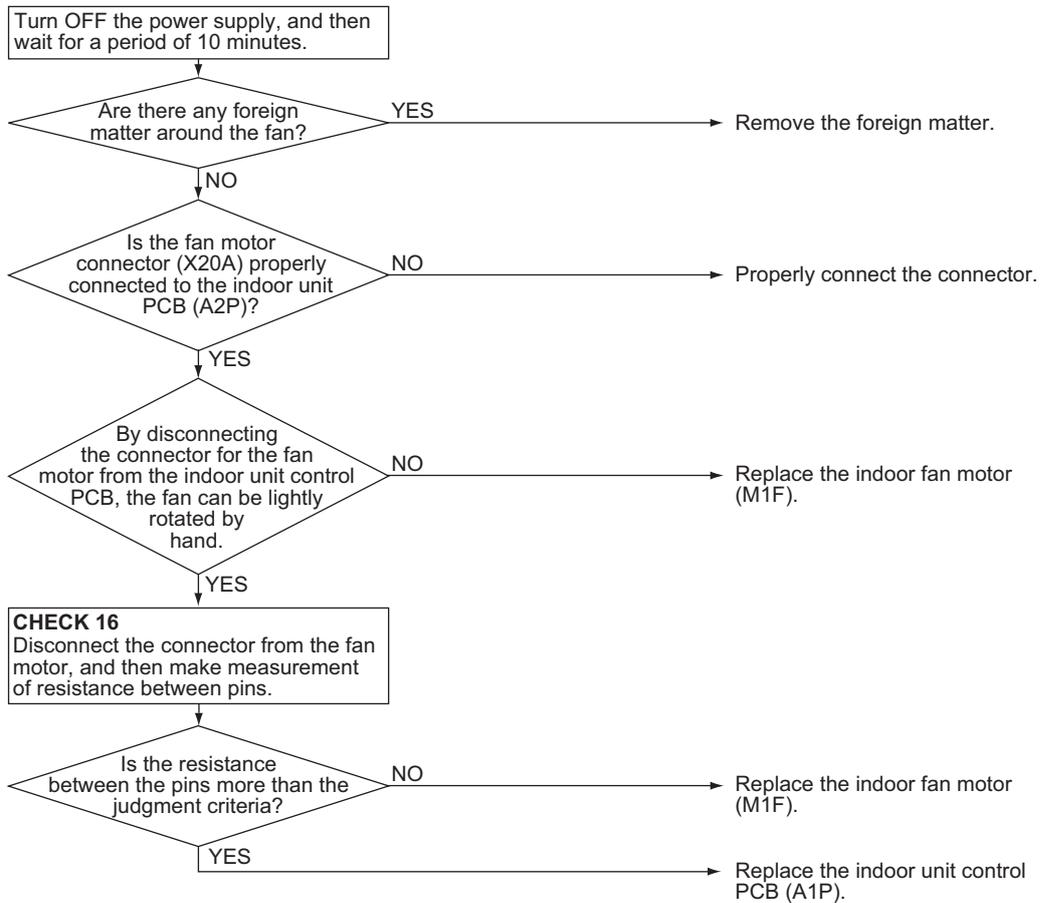
Applicable Models	FXZA-AA
Error Code	A6
Method of Error Detection	Abnormal fan revolutions are detected by a signal output from the fan motor.
Error Decision Conditions	When the fan revolutions do not increase
Supposed Causes	<ul style="list-style-type: none"> ■ Broken wires in, short circuit of, or 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 (A1P) ■ 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 motor

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 427.

4.12 Blower Motor Not Running

Applicable Models	FXTA-AB
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	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ Fan or motor obstruction ■ Power interruption (low voltage) ■ Incorrect or loose wiring
Corrective Actions	<ul style="list-style-type: none"> ■ 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 431.

4.13 Indoor Fan Motor Status Abnormality

Applicable Models	FXTA-AB
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	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ 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 431.

4.14 Low Indoor Airflow

Applicable Models	FXTA-AB
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	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ Fan or motor obstruction ■ Blocked filters ■ Restrictive ductwork or ductwork undersized ■ Wiring disconnected ■ Wrong outdoor and indoor combination ■ Indoor fan motor failure
Corrective Actions	<ul style="list-style-type: none"> ■ 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 431.

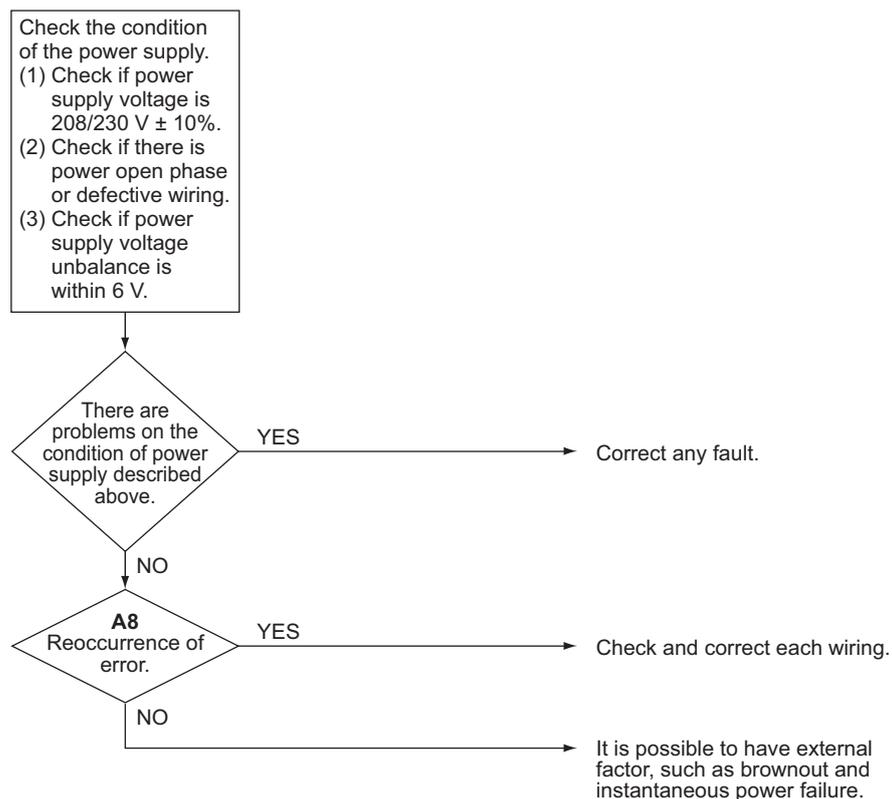
4.15 Power Supply Voltage Abnormality

Applicable Models	FXFA-AA, FXSA-AA, FXMA-AA, FXAA-AA
Error Code	A8-01
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	<ul style="list-style-type: none"> ■ 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.



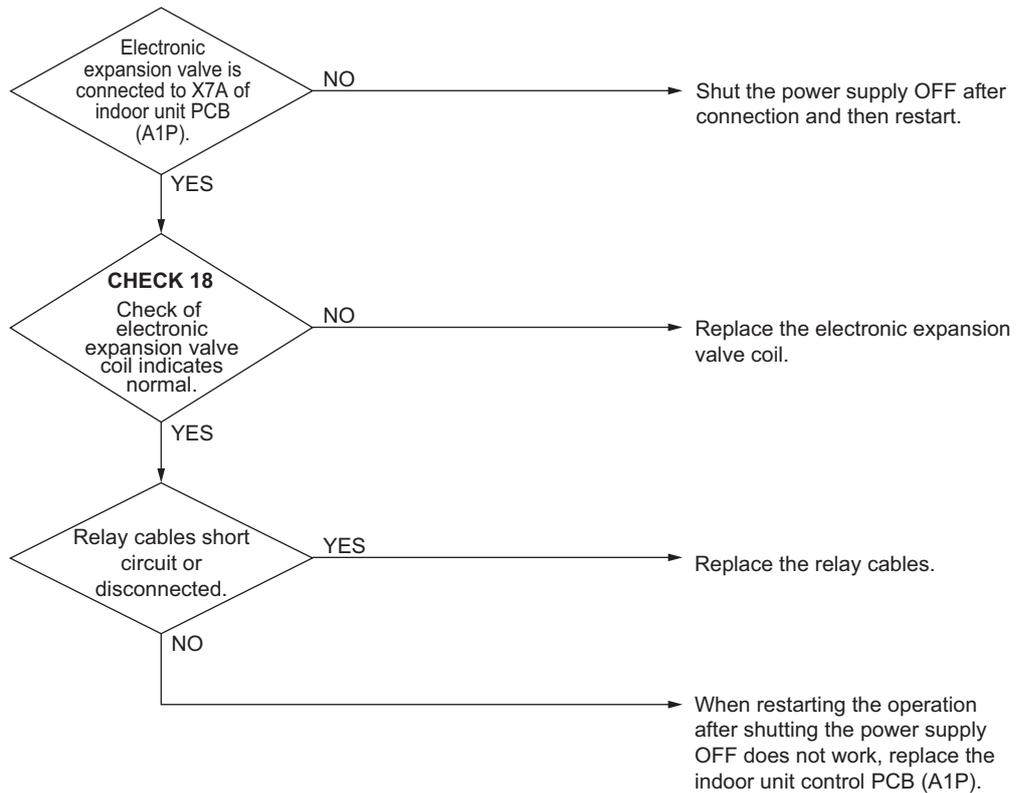
4.16 Electronic Expansion Valve Coil Abnormality

Applicable Models	All indoor unit models
Error Code	A9-01
Method of Error Detection	Electronic expansion valve coil conditions are checked via microcomputer.
Error Decision Conditions	Pin input for electronic expansion valve coil is abnormal when initializing microcomputer.
Supposed Causes	<ul style="list-style-type: none"> ■ Defective electronic expansion valve coil ■ Defective indoor unit control PCB (A1P) ■ Defective relay cables

Troubleshooting



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

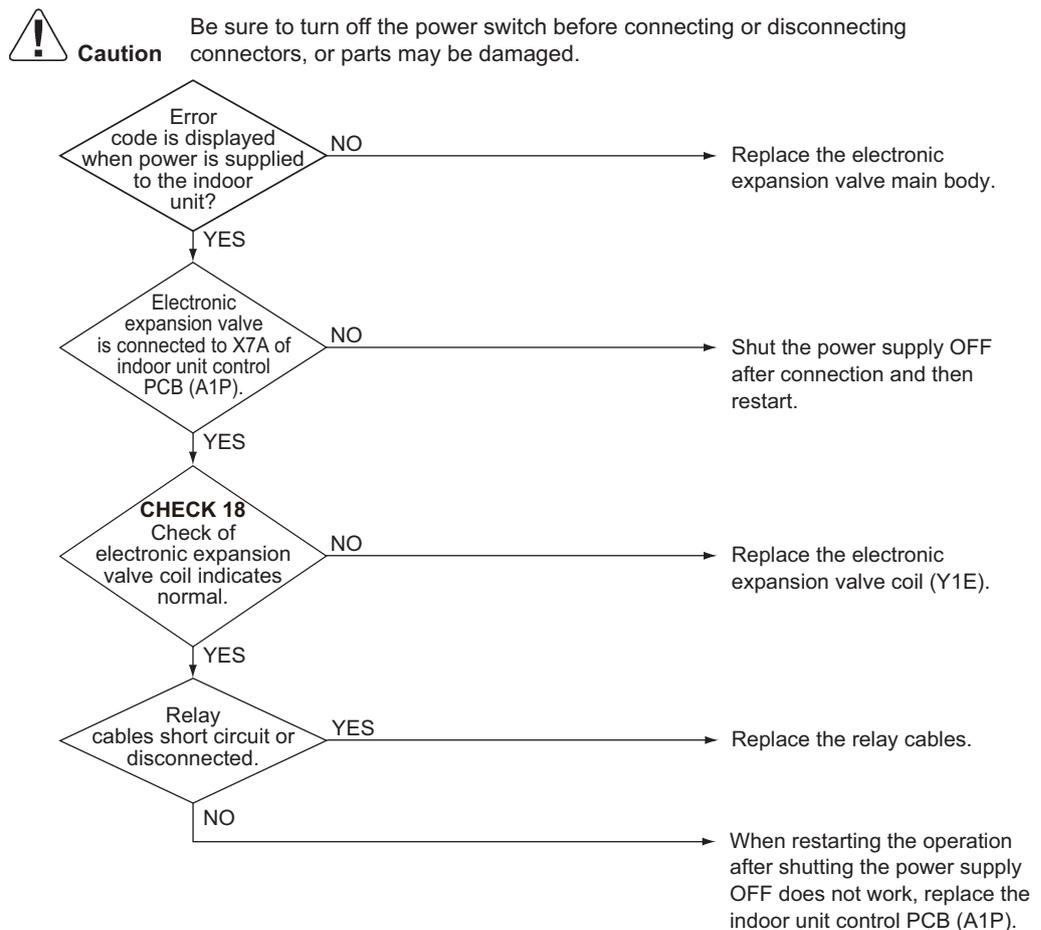


Reference **CHECK 18** Refer to page 429.

4.17 Electronic Expansion Valve Coil Abnormality, Dust Clogging

Applicable Models	All indoor unit models
Error Code	A9-02
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. <ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ■ Defective electronic expansion valve coil ■ Defective indoor unit control PCB (A1P) ■ Defective relay cables

Troubleshooting



Reference

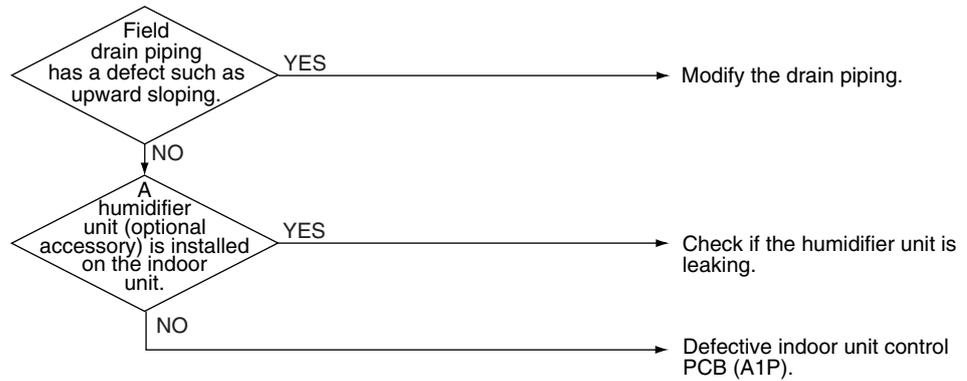
CHECK 18 Refer to page 429.

4.18 Drain Level above Limit

Applicable Models	FXFA-AA, FXZA-AA, FXSA-AA, FXMA15-54AA
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	<ul style="list-style-type: none"> ■ Humidifier unit (optional accessory) leaking ■ Defective drain pipe (upward slope, etc.) ■ Defective indoor unit control PCB (A1P)

Troubleshooting

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



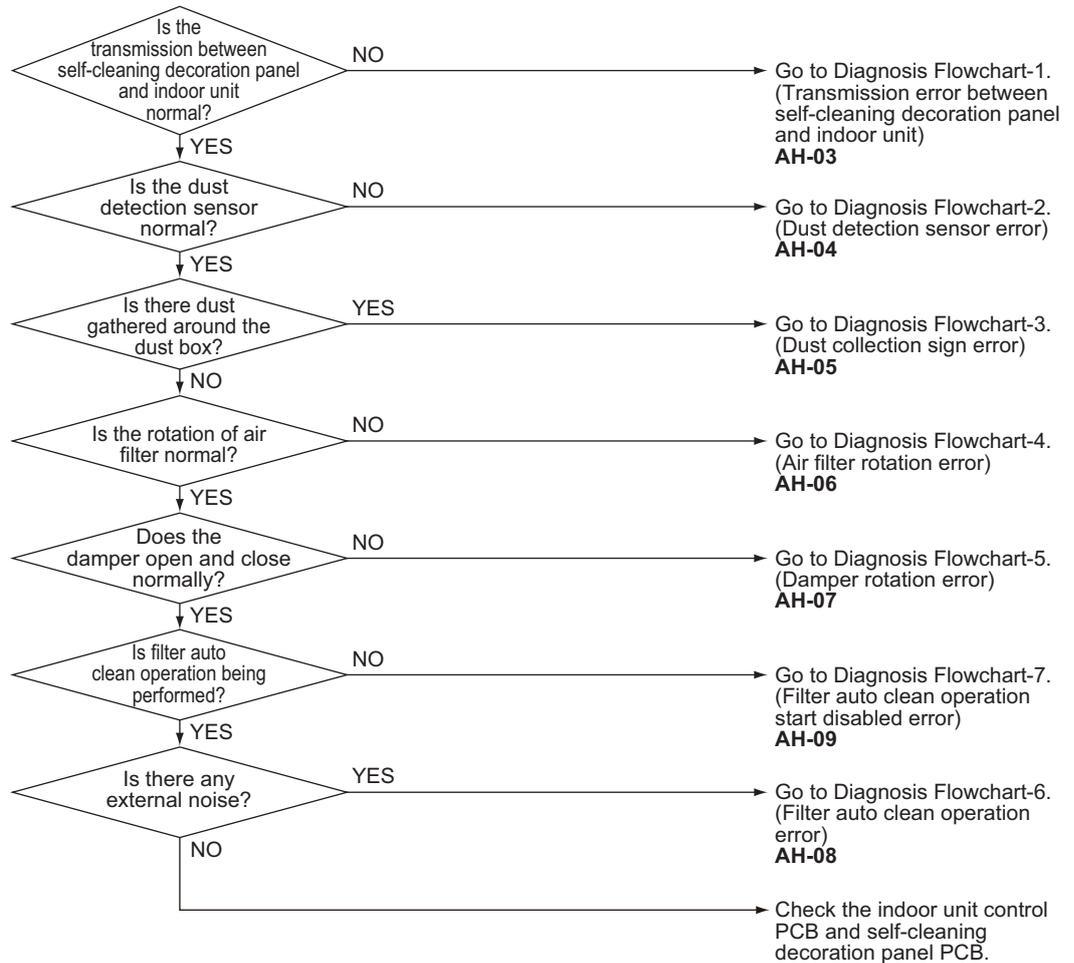
4.19 Self-Cleaning Decoration Panel Abnormality

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	<p>Any of the following conditions is met while the unit is in operation.</p> <ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ 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.



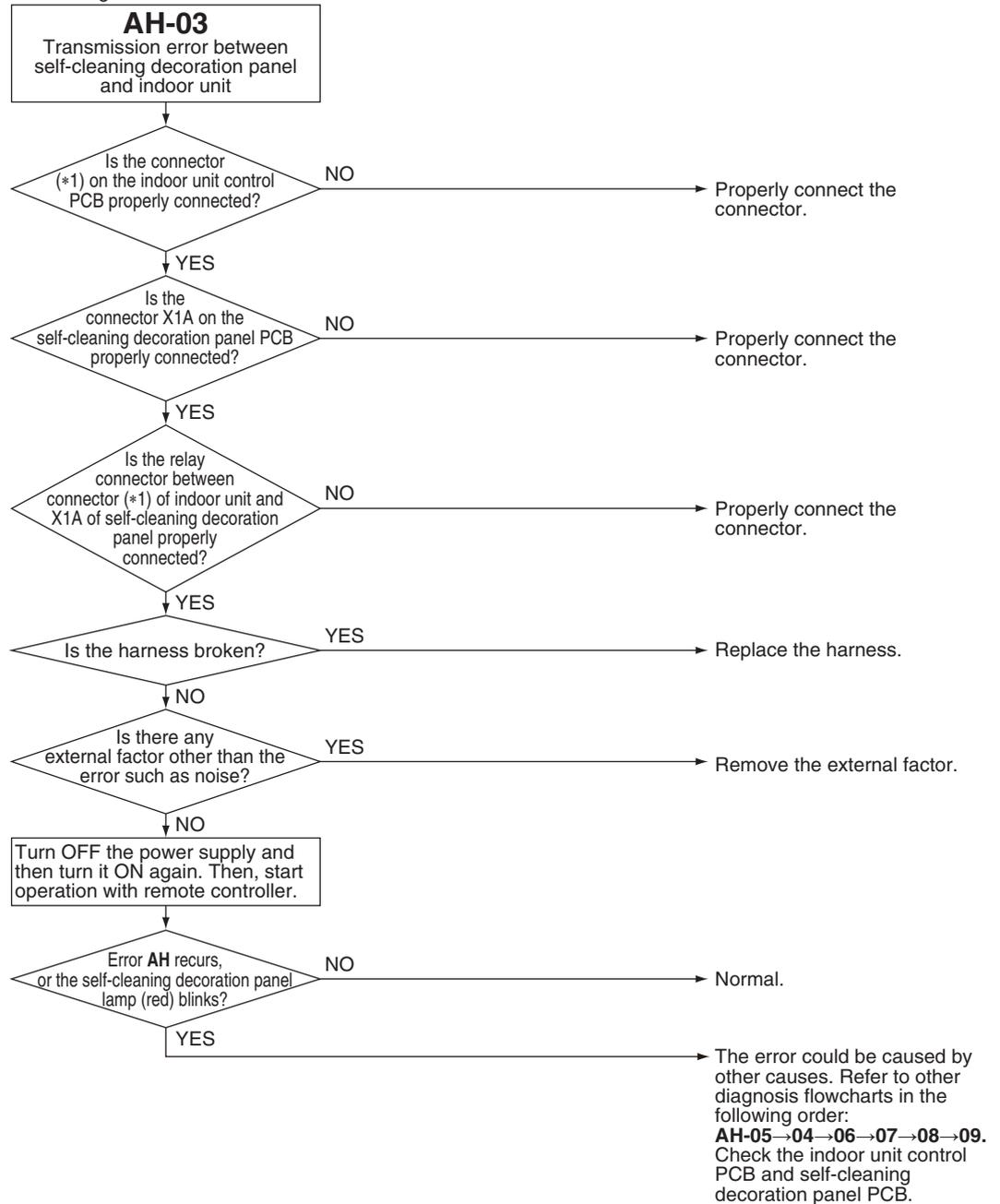
Reference

Refer to the diagnosis flowchart below.

Error code	Diagnosis Flowchart
AH-03	Diagnosis Flowchart-1 on page 278
AH-04	Diagnosis Flowchart-2 on page 279
AH-05	Diagnosis Flowchart-3 on page 280
AH-06	Diagnosis Flowchart-4 on page 281
AH-07	Diagnosis Flowchart-5 on page 283
AH-08	Diagnosis Flowchart-6 on page 285
AH-09	Diagnosis Flowchart-7 on page 286

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

Diagnosis Flowchart-1



Note(s)

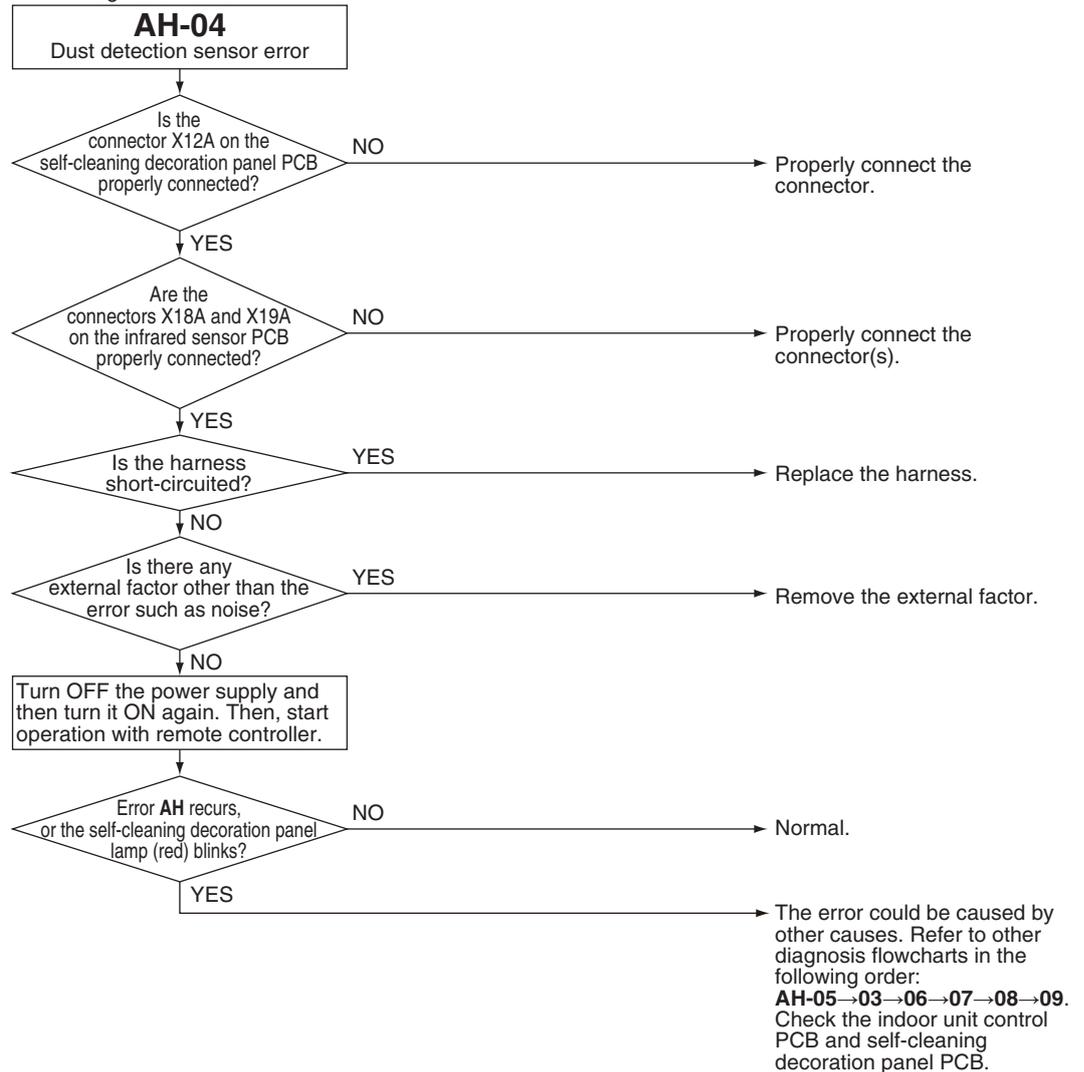
*1. Connector

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.

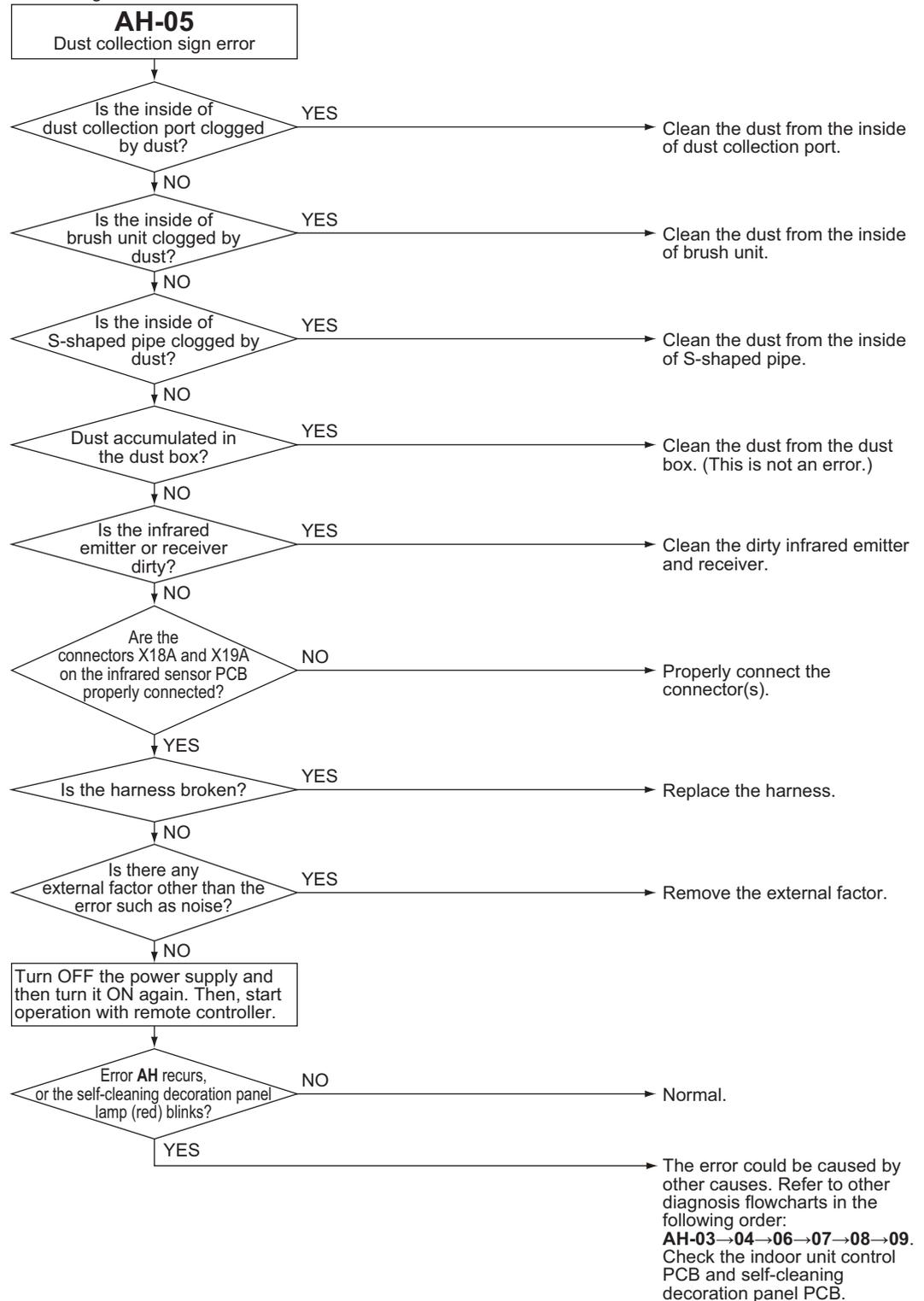
Diagnosis Flowchart-2





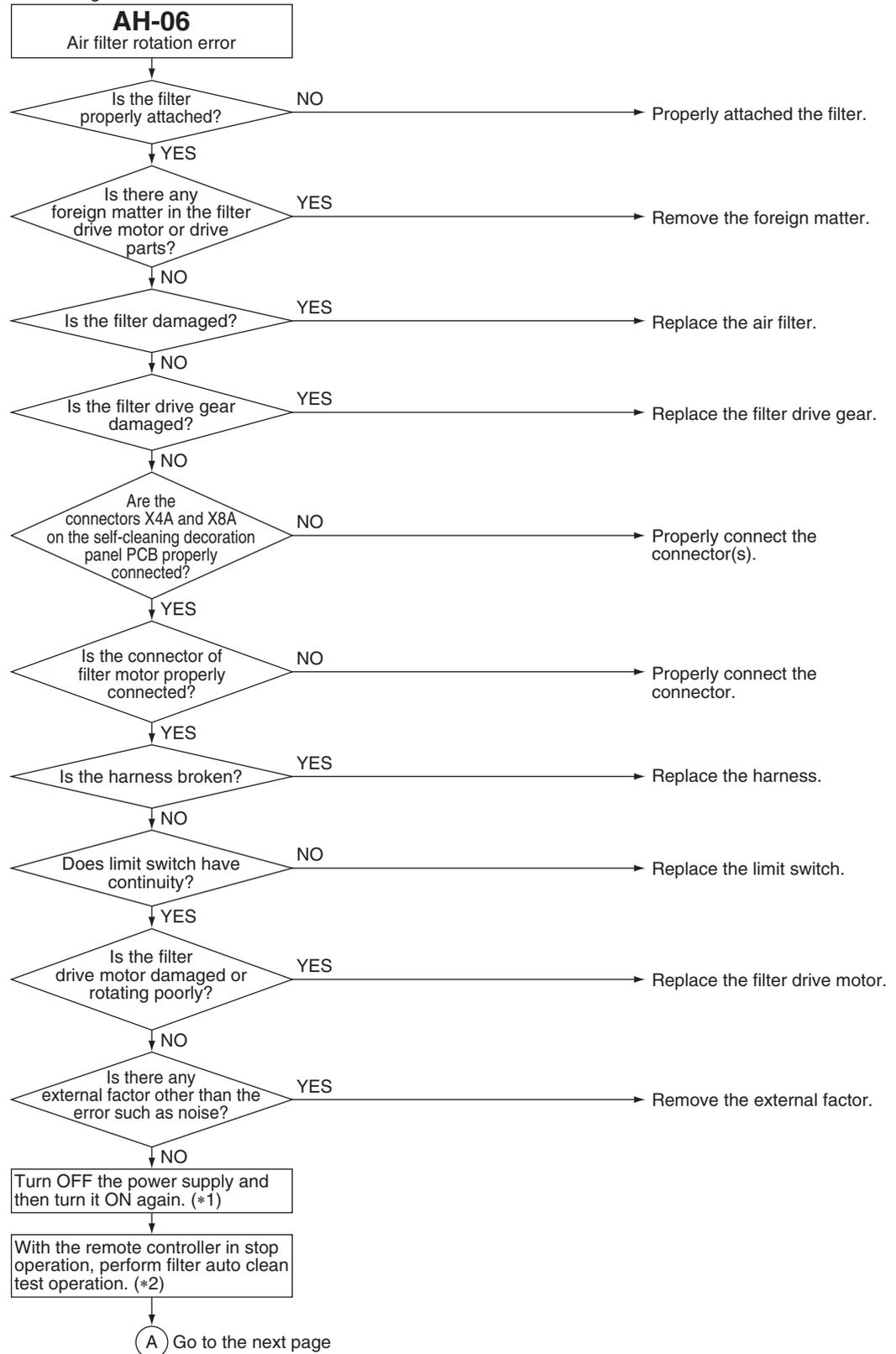
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

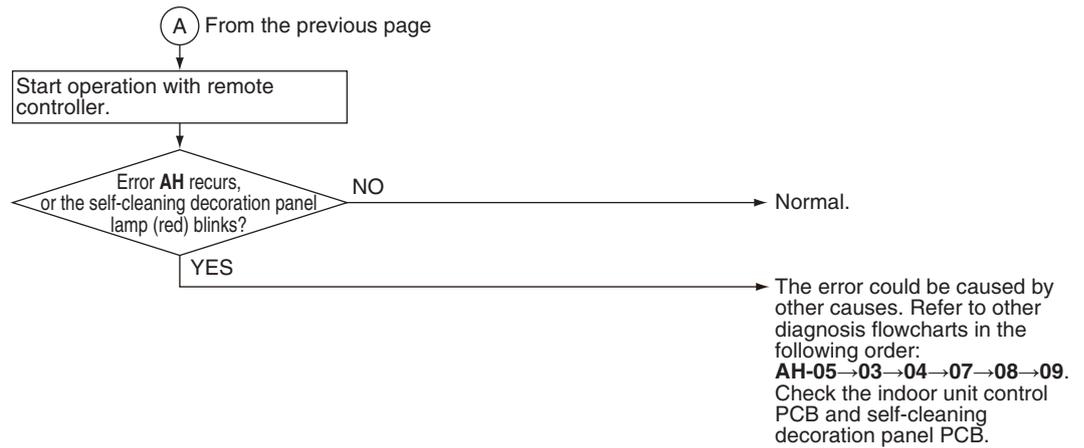
Diagnosis Flowchart-3



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

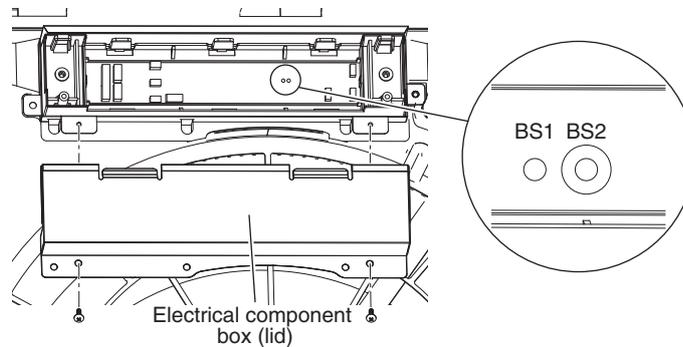
Diagnosis Flowchart-4





Note(s)

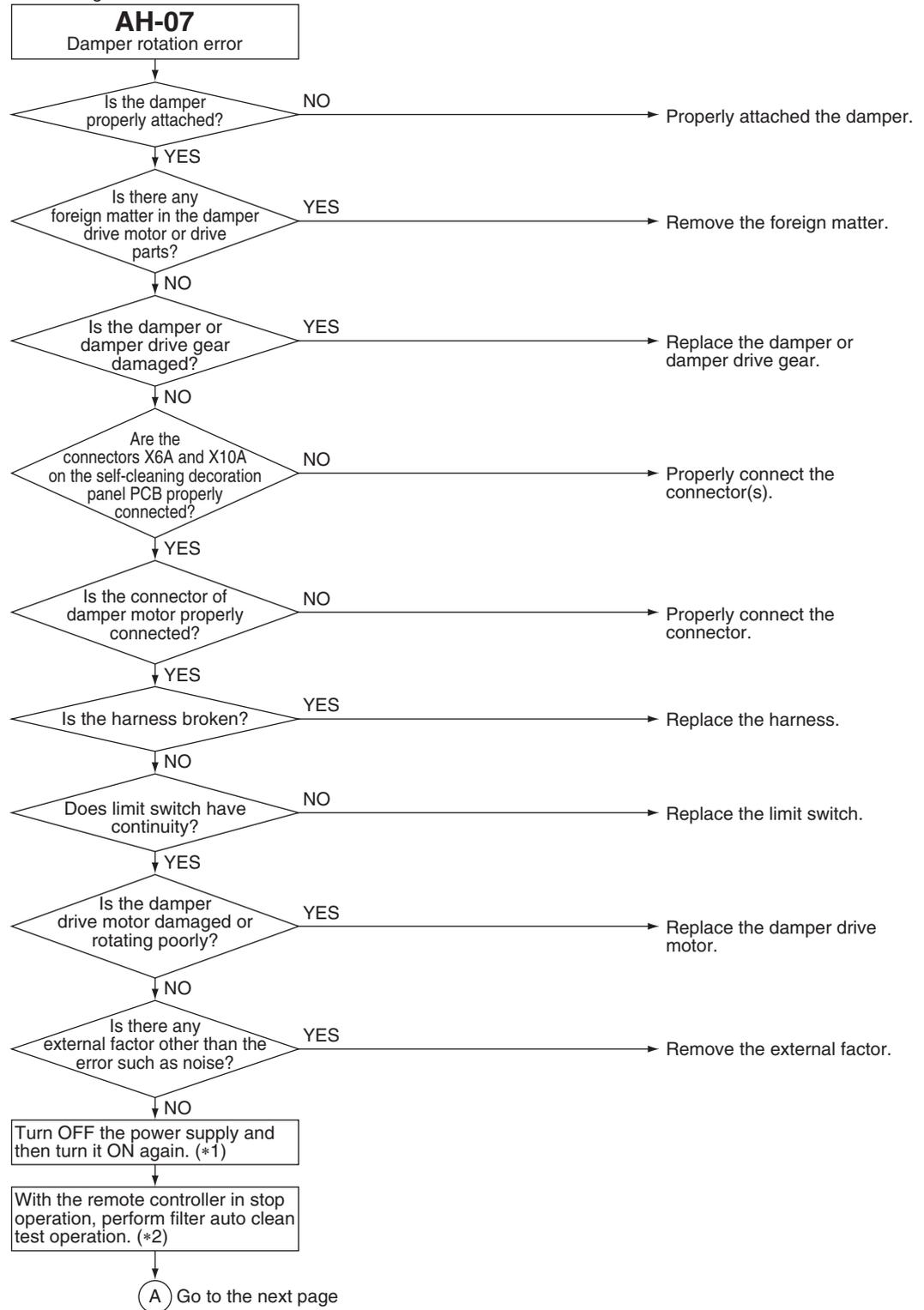
- *1. Temporary error code reset operation can be performed by pressing the push switch button **(BS2)** on the self-cleaning decoration panel PCB

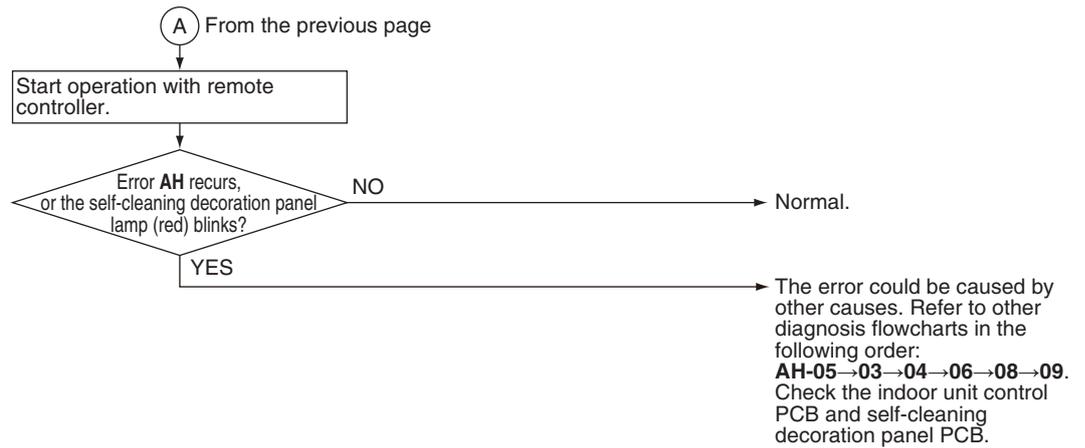


- *2. For details on performing filter auto clean test operation, refer to the operation manual of the self-cleaning decoration panel.

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

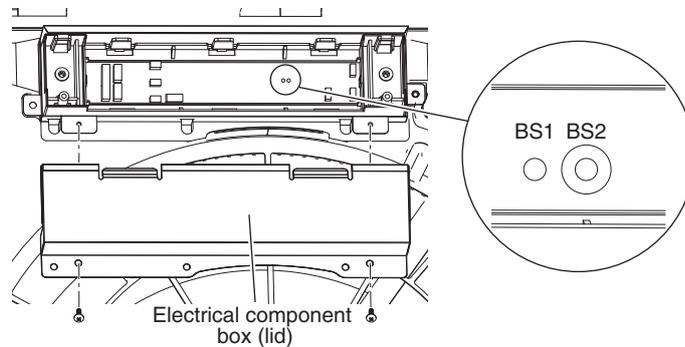
Diagnosis Flowchart-5



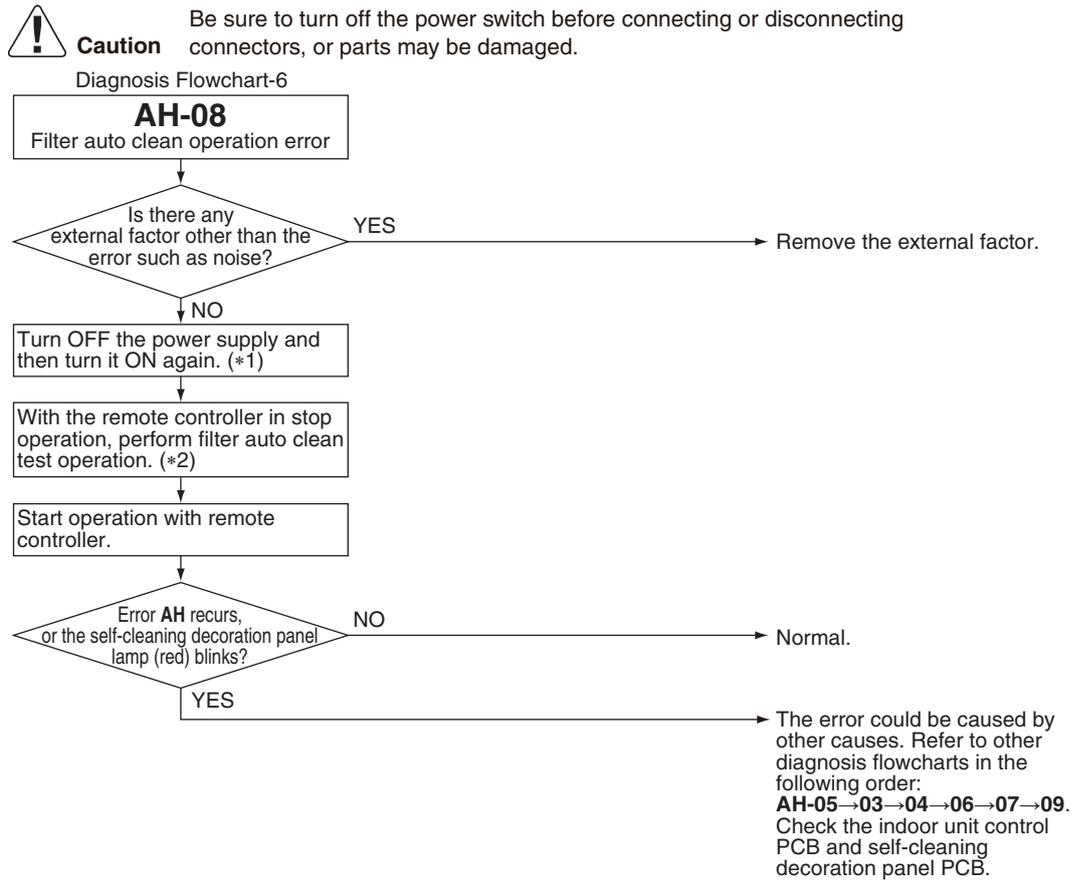


Note(s)

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

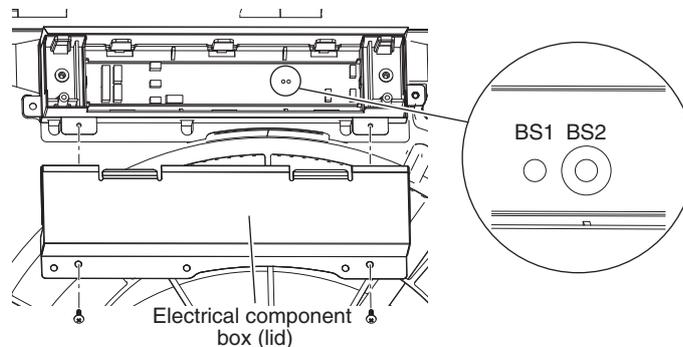


- *2. For details on performing filter auto clean test operation, refer to the operation manual of the self-cleaning decoration panel.



i 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

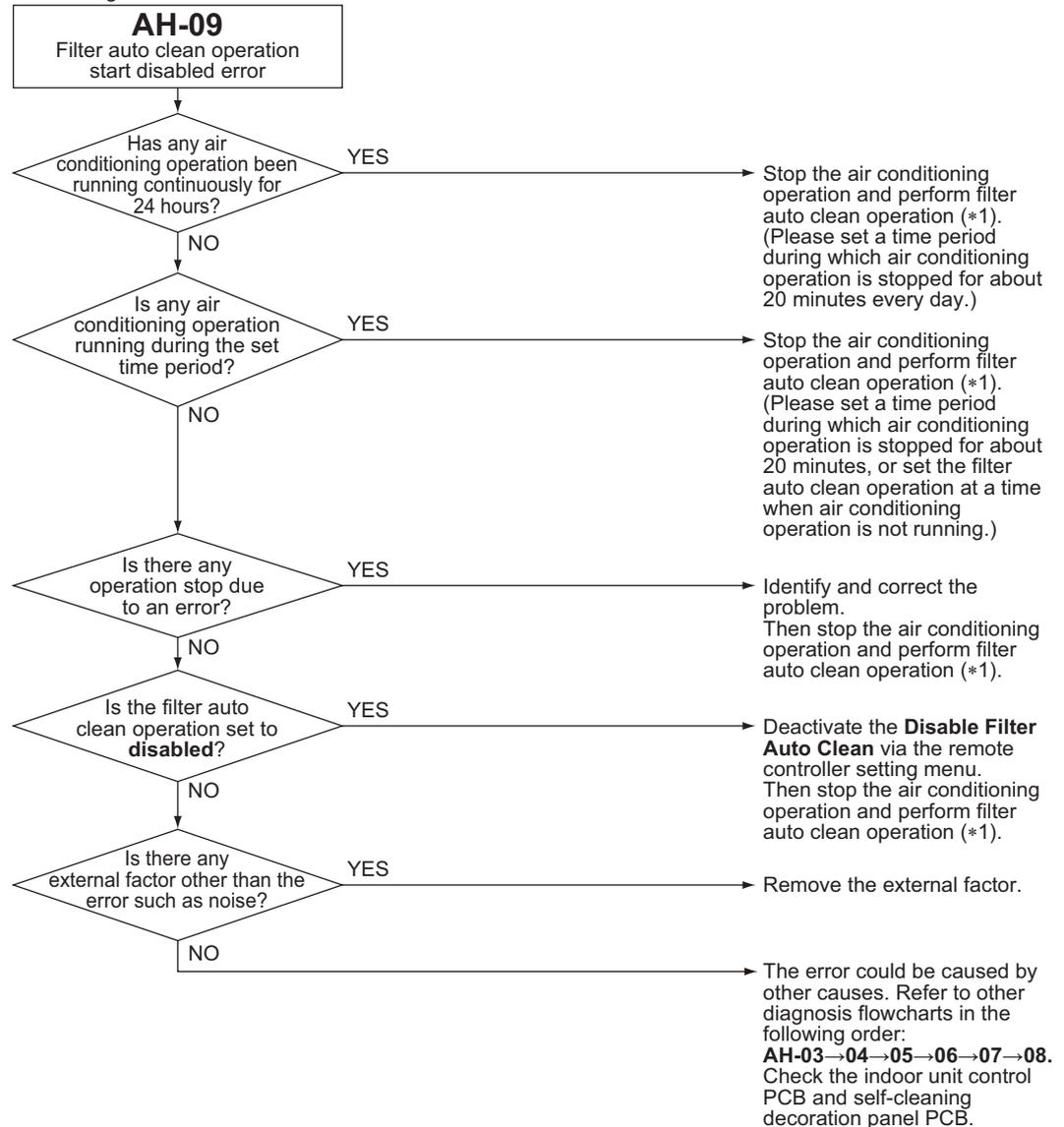


*2. For details on performing filter auto clean test operation, refer to the operation manual of the self-cleaning decoration panel.



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.)

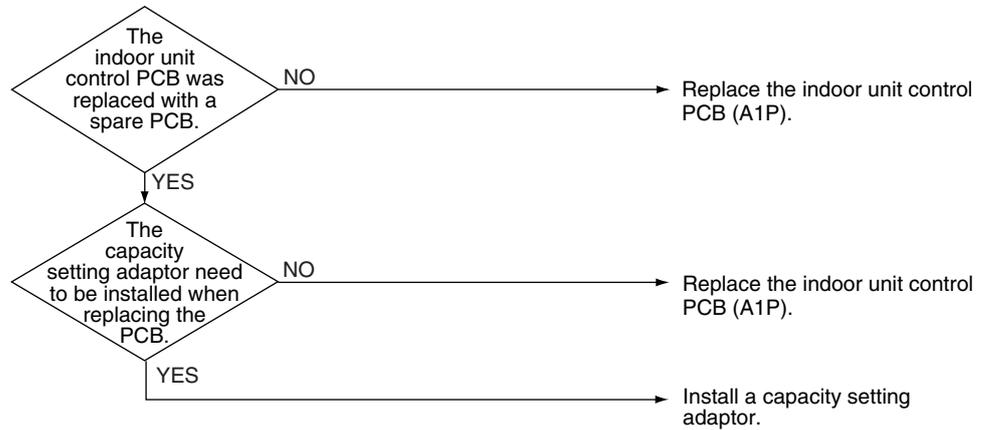
1. On the remote controller, select **Filter Auto Clean** menu. The screen will change into a cleaning time period setting screen. Confirm the set time period. (Example: 0:00 to 3:00)
2. Select **Clock & Calendar** on the remote controller and set the current time to the time one minute before the beginning 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.

4.20 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 (A1P), 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	<ul style="list-style-type: none"> ■ The capacity setting adaptor was not installed. ■ Defective indoor unit control PCB (A1P)

Troubleshooting

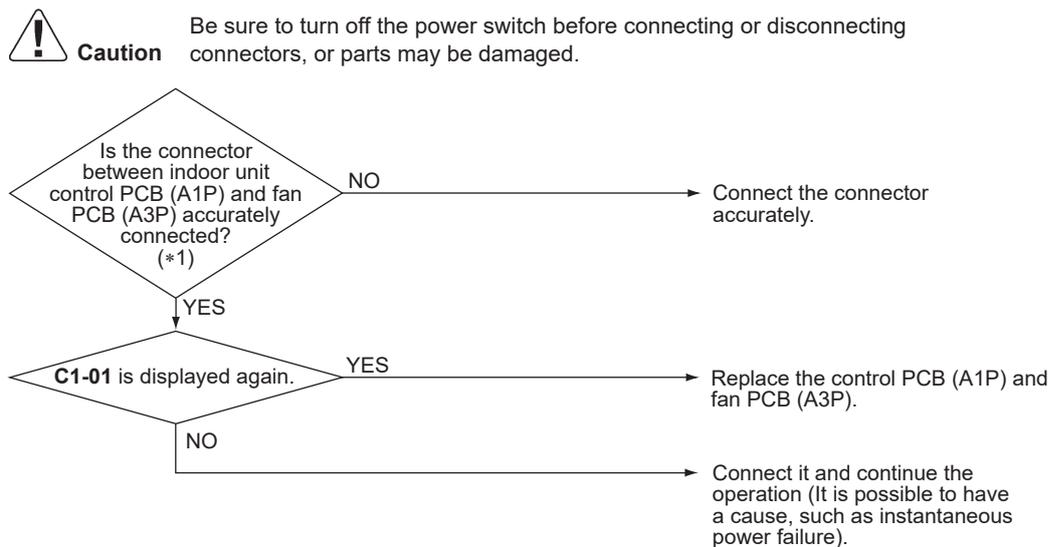
 **Caution** Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



4.21 Transmission Abnormality between Indoor Unit Control PCB and Fan PCB

Applicable Models	FXFA-AA, FXSA-AA, FXMA-AA, FXAA-AA
Error Code	C1-01
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	<ul style="list-style-type: none"> ■ 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



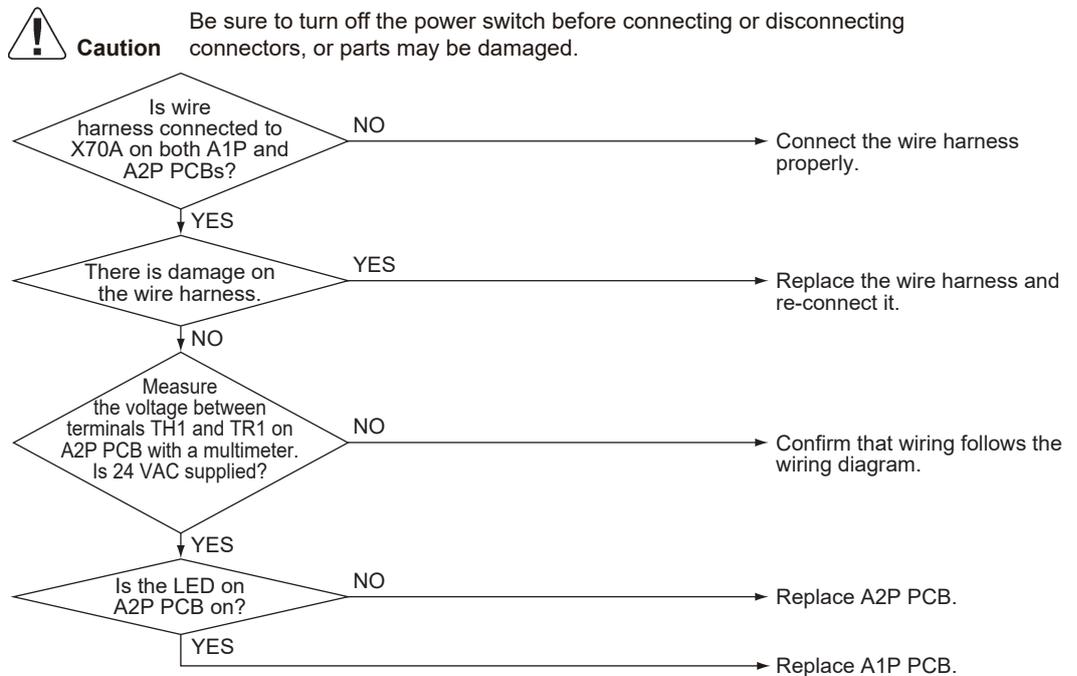
Note(s)

*1. Pull out and insert the connector once and check if it is absolutely connected.

4.22 Transmission Abnormality between Indoor Unit A1P PCB and A2P PCB

Applicable Models	FXTA-AB
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	<ul style="list-style-type: none"> ■ Broken wires in, short circuit of, or disconnection of connector from A1P PCB ■ Incorrect wiring ■ Defective A1P or A2P PCB

Troubleshooting



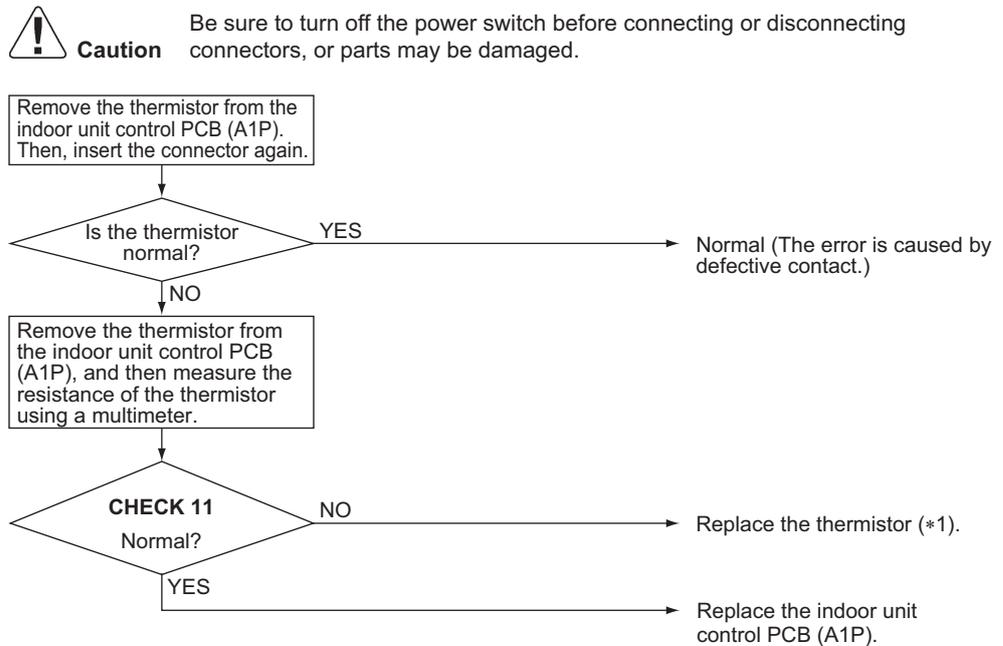
4.23 Blower Motor Communication Error

Applicable Models	FXTA-AB
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	<ul style="list-style-type: none">■ Incorrect or loose wiring■ Power interruption (low voltage)
Corrective Actions	<ul style="list-style-type: none">■ Check wiring or tighten wiring connections if needed.■ Verify the input voltage at the motor.■ Replace the indoor unit PCB or motor.

4.24 Thermistor Abnormality

Applicable Models	C4, C5: All indoor units C9: FXFA-AA, FXZA-AA, FXSA-AA, FXMA-AA, FXAA-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	<ul style="list-style-type: none"> ■ Defective thermistor ■ Defective indoor unit control PCB (A1P) ■ Defective connector connection ■ Broken or disconnected wire

Troubleshooting



 **Note(s)**

*1. Error code and thermistor

Error Code	Thermistor	FXFA-AA FXZA-AA FXMA72/96AA FXAA-AA	FXSA-AA FXMA15-54AA	FXTA-AB
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 296 for **C9** for FXTA-AB models.

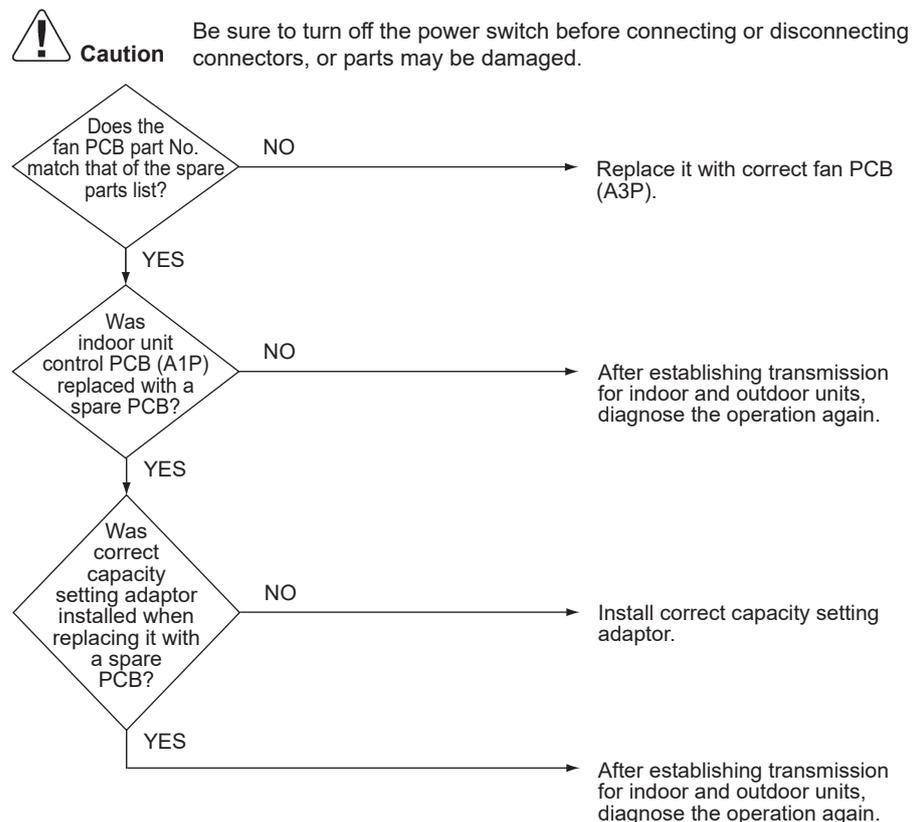
 **Reference**

CHECK 11 Refer to page 420.

4.25 Combination Error between Indoor Unit Control PCB and Fan PCB

Applicable Models	FXSA-AA, FXMA15-54AA, FXAA-AA
Error Code	C6-01
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	<ul style="list-style-type: none"> ■ Defective fan PCB (A3P) ■ Defective connection of capacity setting adaptor ■ Field setting error

Troubleshooting

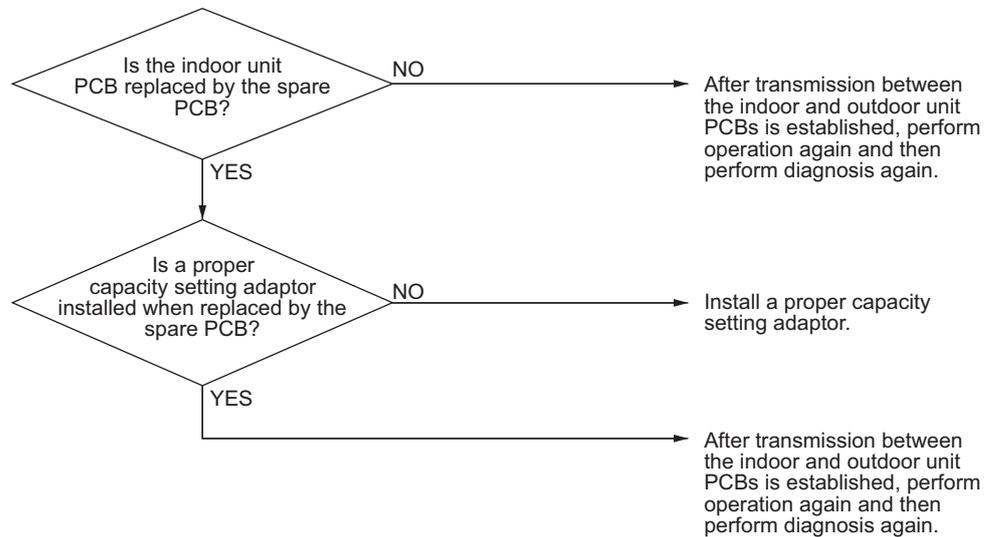


4.26 Capacity Setting Abnormality

Applicable Models	FXMA72/96AA
Error Code	C6-01
Method of Error Detection	This error is detected by checking communication between the PCB (A1P) and the fan microcomputer.
Error Decision Conditions	Based on the communication data, decide whether the combination of capacity setting and the type of fan driver is correct.
Supposed Causes	<ul style="list-style-type: none"> ■ Defective connection of the capacity setting adaptor ■ Wrong field setting
Troubleshooting	



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



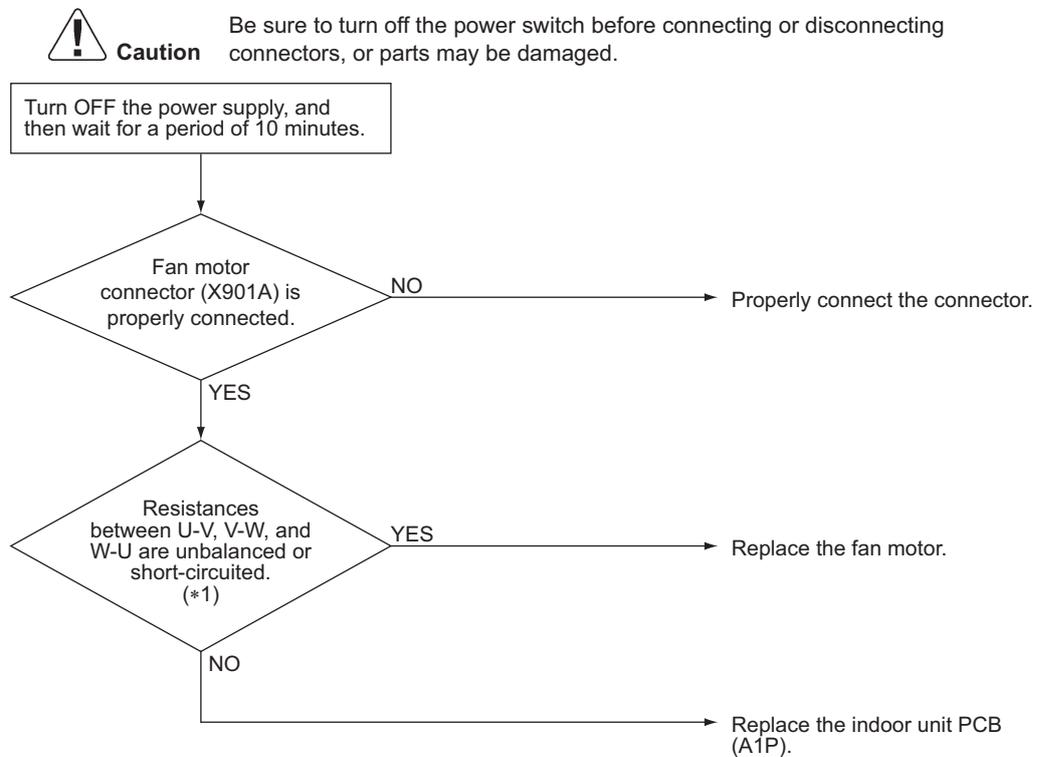
4.27 Blower Motor HP Mismatch

Applicable Models	FXTA-AB
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	<ul style="list-style-type: none">■ Incorrect size motor■ Indoor unit capacity setting error
Corrective Actions	<ul style="list-style-type: none">■ Correct motor installation.■ Correct the indoor unit capacity setting.

4.28 Indoor Unit A1P Abnormality

Applicable Models	FXFA-AA
Error Code	C6-05
Method of Error Detection	An error will be detected based on the current sensor value.
Error Decision Conditions	In case an abnormal signal is detected during the start-up of the fan motor
Supposed Causes	<ul style="list-style-type: none"> ■ Disconnection of fan motor lead wire connector ■ Defective fan motor (broken wire, insulation failure) ■ Defective indoor unit control PCB (A1P)

Troubleshooting



 **Note(s)** *1. U: Red, V: White, W: Black

4.29 Remote Sensor Abnormality

Applicable Models FXTA-AB

Error Code **C9**

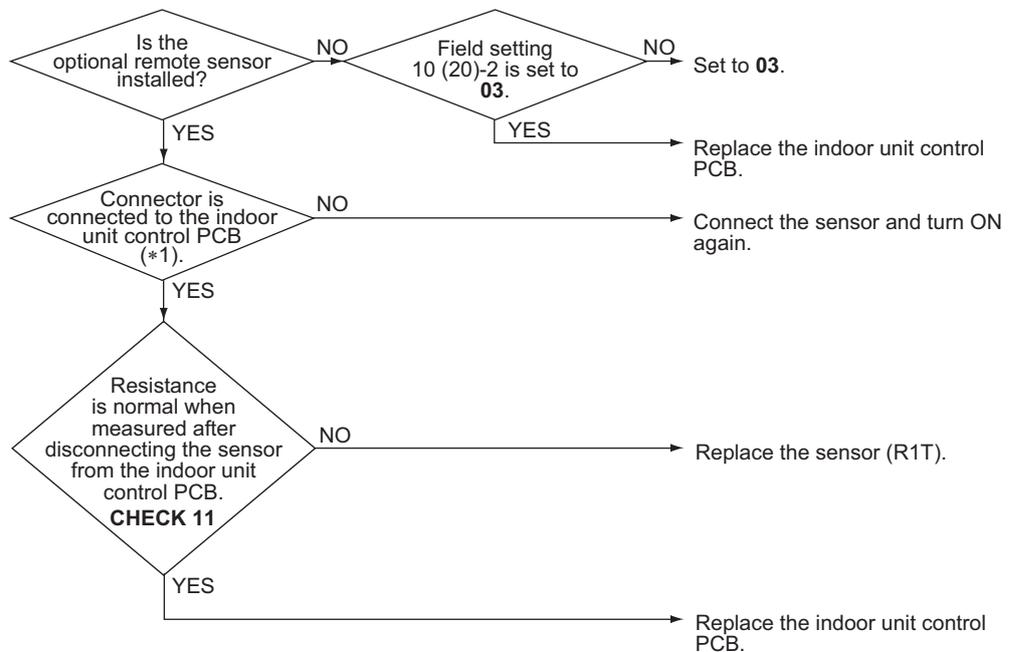
Method of Error Detection The error is detected by remote sensor temperature.

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 420.

4.30 Infrared Presence/Floor Sensor Error

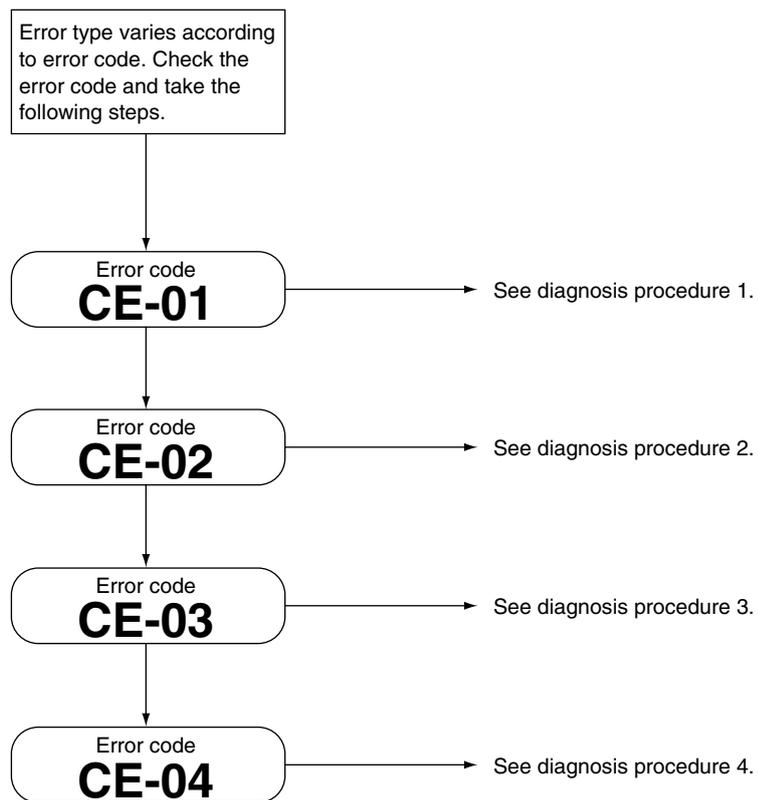
Applicable Models	FXFA-AA, FXZA-AA (when sensor kit is installed)
Error Code	CE
Method of Error Detection	The contents of a failure vary with the detailed error code. Check the code and proceed with the flowchart.
Error Decision Conditions	Error is detected based on sensor output signals
Supposed Causes	<ul style="list-style-type: none"> ■ 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

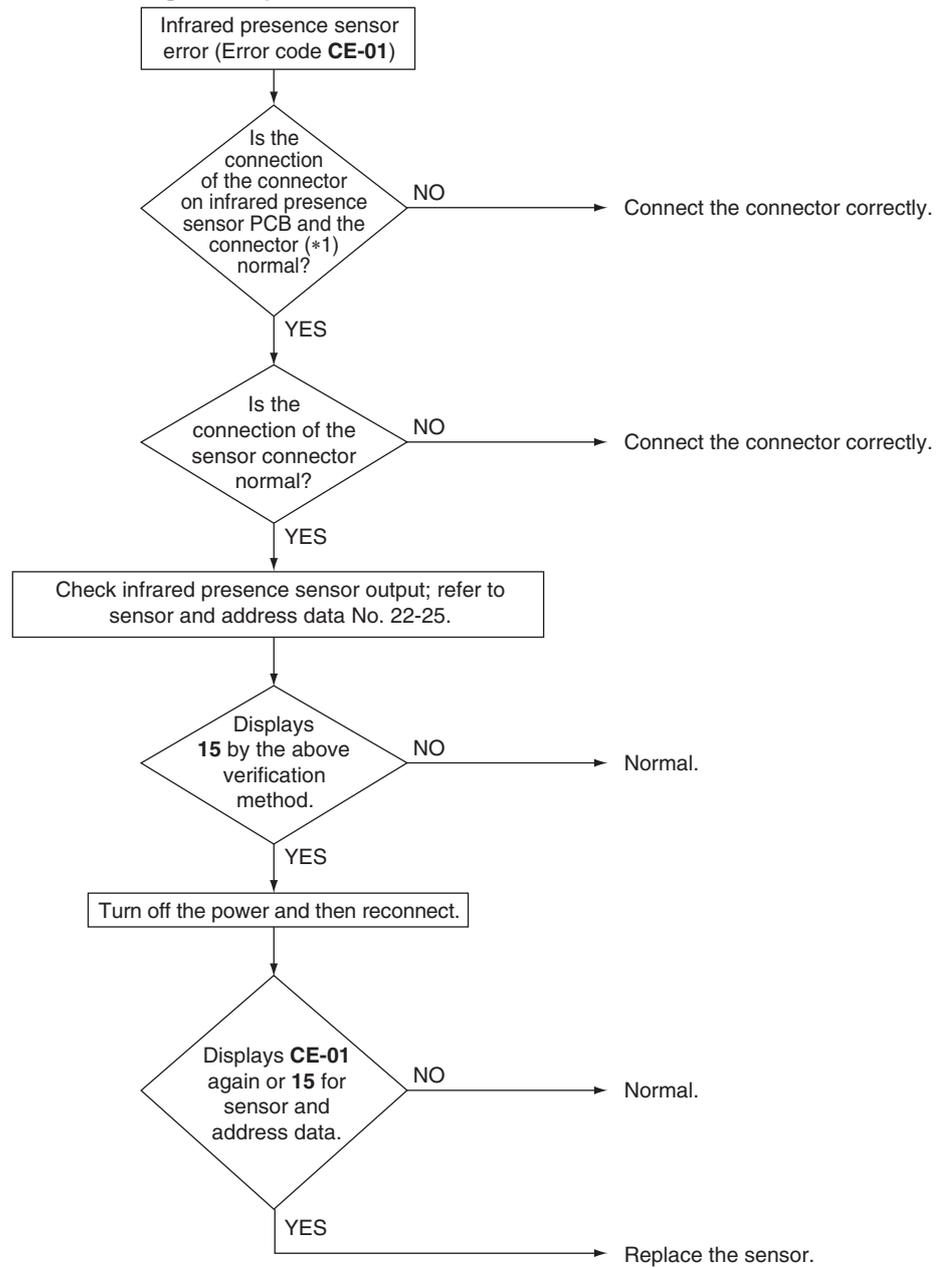


Caution

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



Diagnosis procedure 1

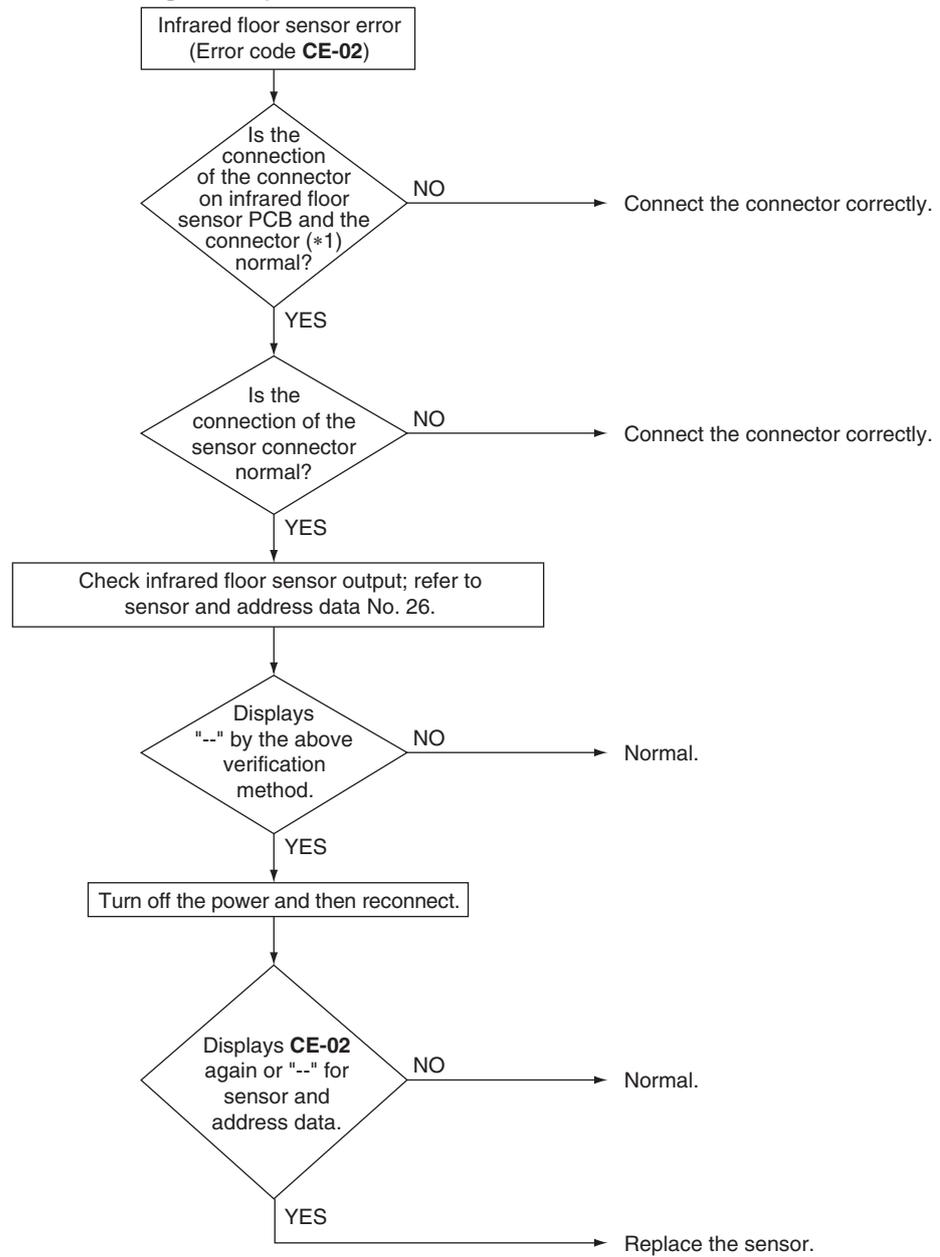


Note(s)

*1. Infrared presence sensor PCB and connector

Infrared presence sensor PCB	Connector
A5P	X81A (A1P)

Diagnosis procedure 2

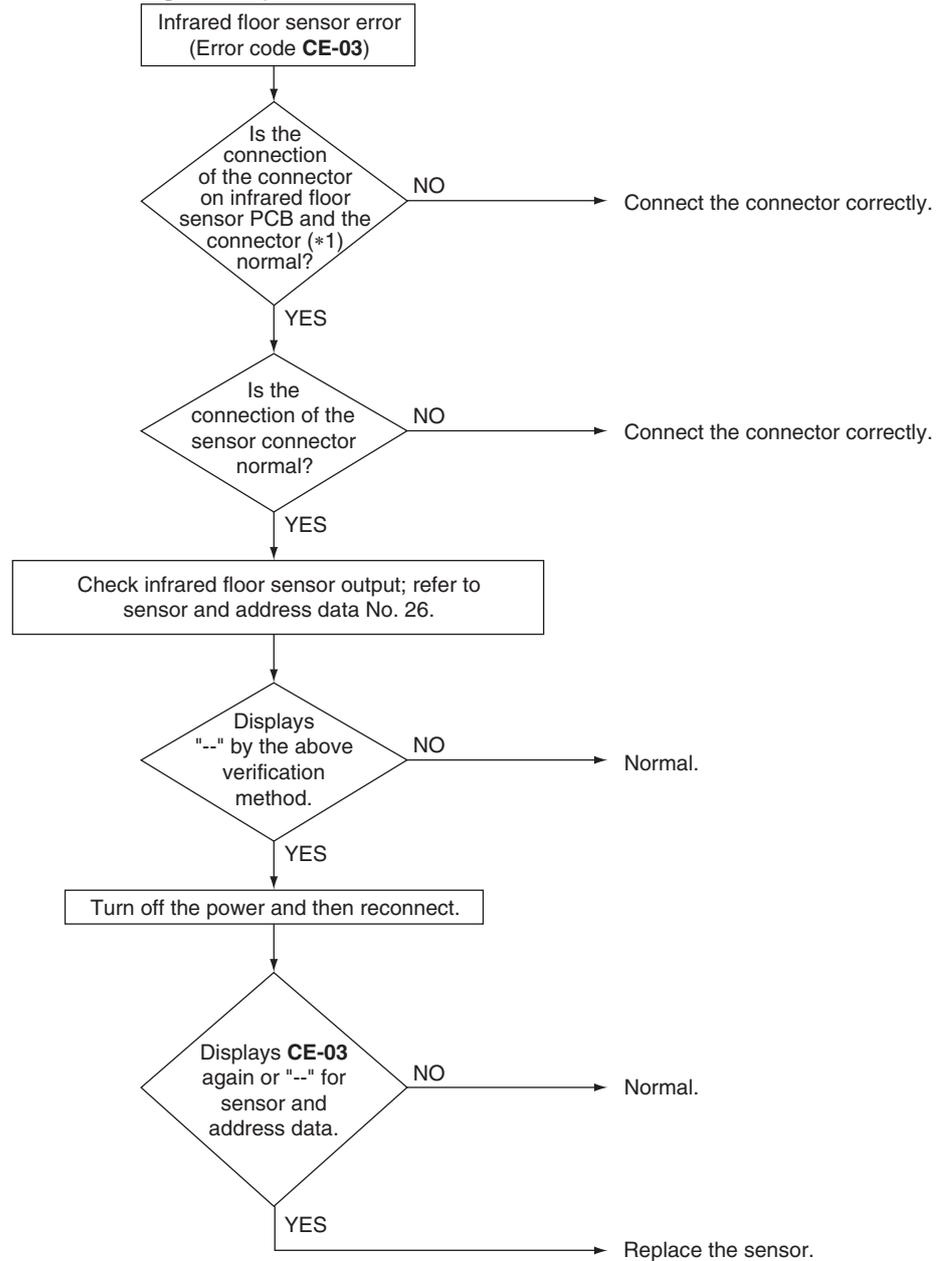


Note(s)

*1. Infrared floor sensor PCB and connector

Infrared floor sensor PCB	Connector
A4P	X81A (A1P)

Diagnosis procedure 3

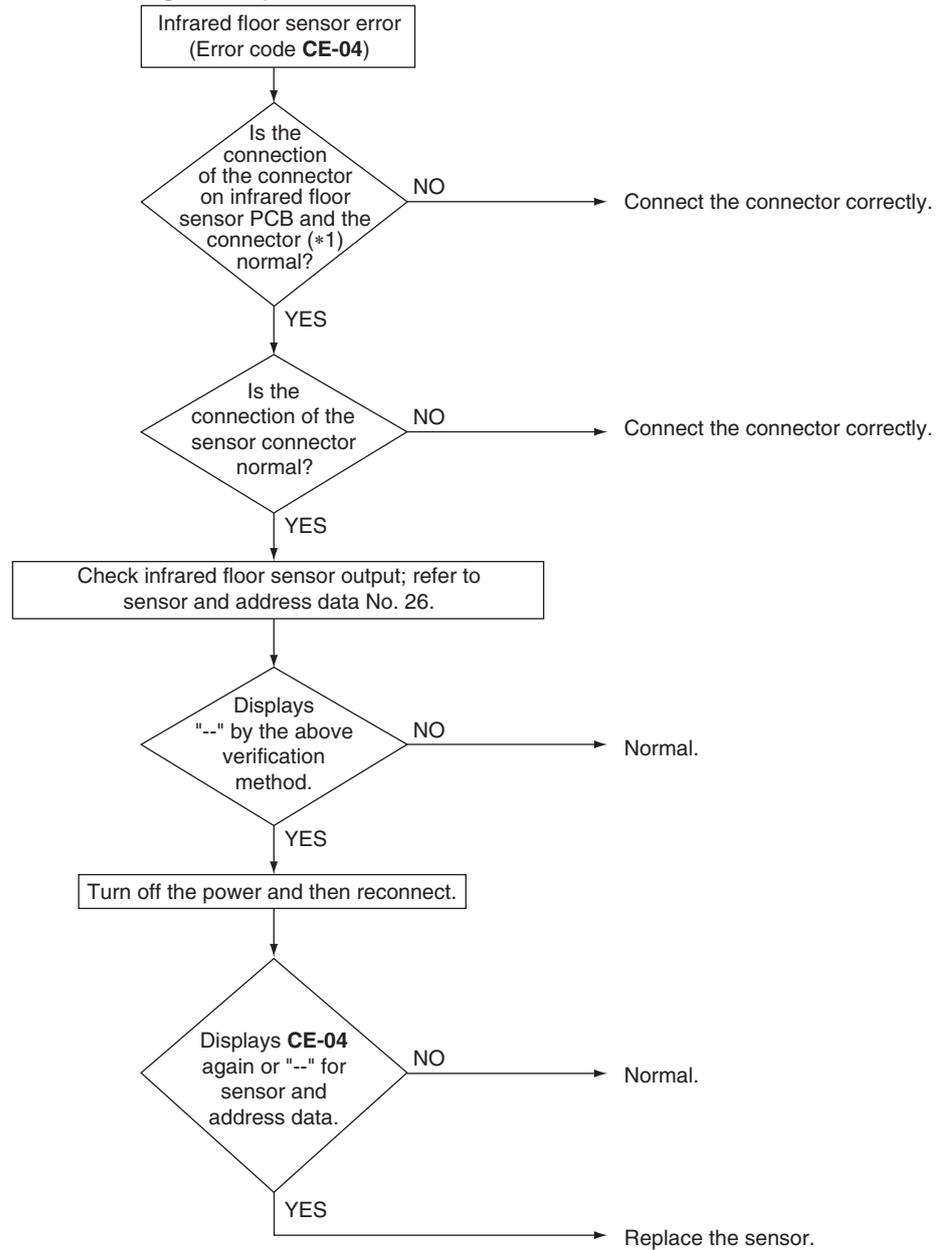


Note(s)

*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)

4.31 Refrigerant Leak Detection Sensor Failure

4.31.1 Refrigerant Leak Detection Sensor Failure (Except FXTA-AB)

Applicable Models	FXFA-AA, FXZA-AA, FXSA-AA, FXMA-AA, FXAA-AA
Error Code	CH-11
Method of Error Detection	Error is issued when control PCB (A1P) receives fault status from leak detection sensor during operation.
Error Decision Conditions	When leak detection sensor sends fault status information to control PCB (A1P) for a certain set timeframe.
Supposed Causes	<ul style="list-style-type: none">■ Broken leak detection sensor■ Degraded leak detection sensor
Troubleshooting	<ul style="list-style-type: none">■ Replace the leak detection sensor.■ Change the field setting 15 (25)-14 to 02 and turn the power back on.

4.31.2 Refrigerant Leak Detection Sensor Failure (FXTA-AB Only)

Applicable Models

FXTA-AB

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

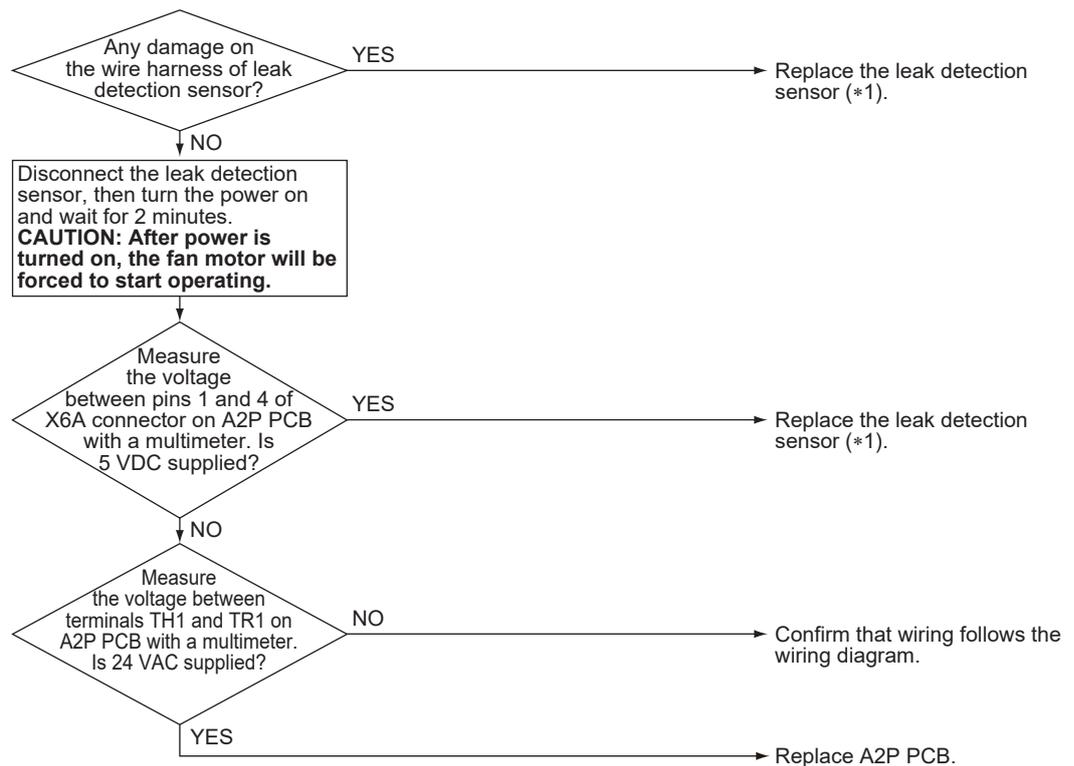
Troubleshooting



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-AB models only)** on page 451.

4.32 Refrigerant Leak Detection Sensor Disconnection

4.32.1 Refrigerant Leak Detection Sensor Disconnection (Except FXTA-AB)

Applicable Models FXFA-AA, FXZA-AA, FXSA-AA, FXMA-AA, FXAA-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.

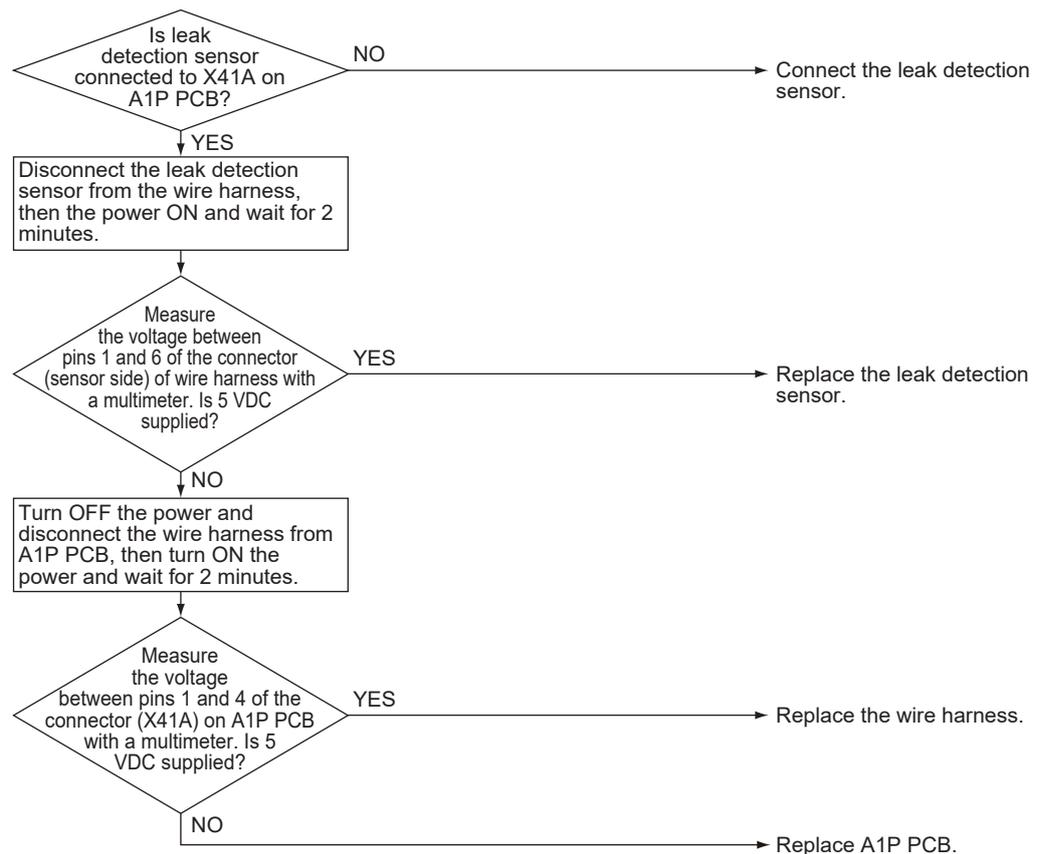
Supposed Causes

- 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.



4.32.2 Refrigerant Leak Detection Sensor Disconnection (FXTA-AB Only)

Applicable Models

FXTA-AB

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.

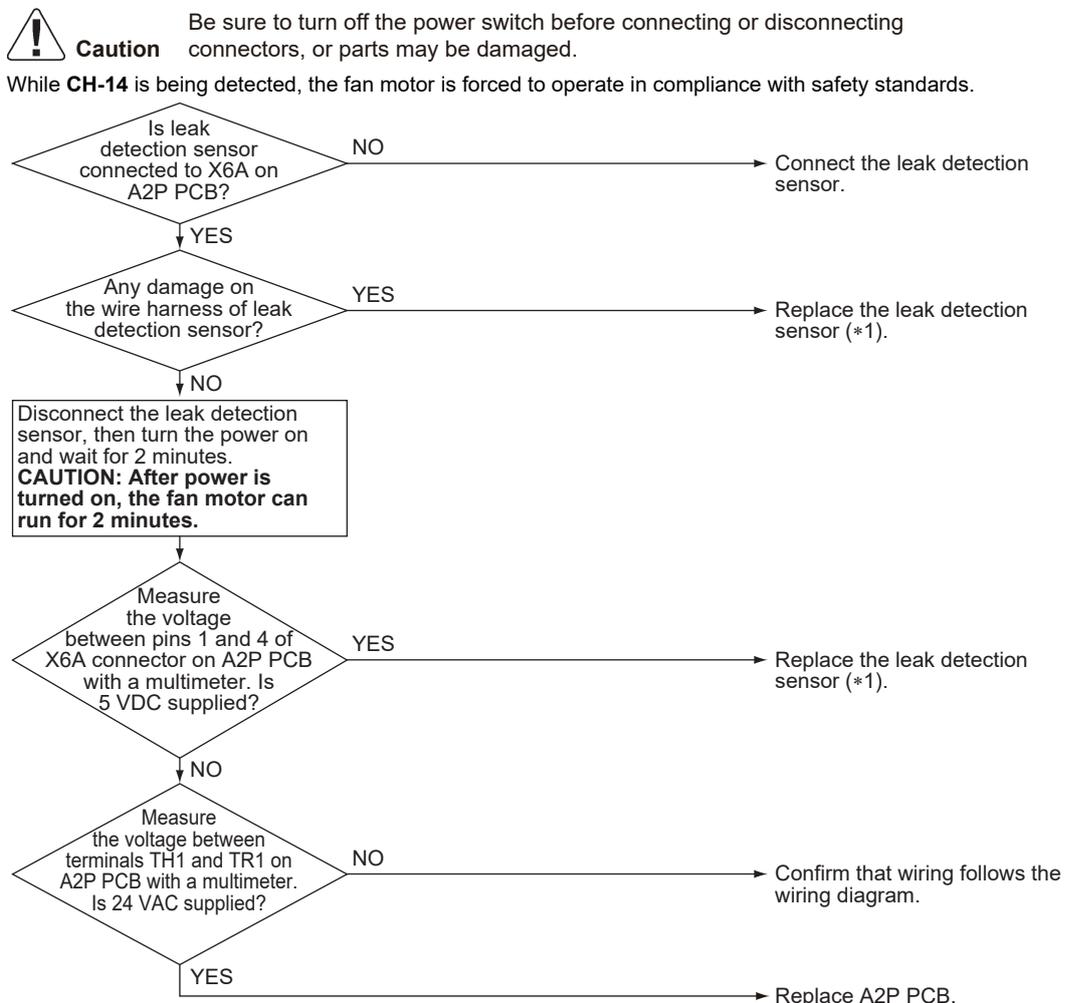
Error Decision Conditions

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



 **Note(s)**

*1. For sensor replacement, refer to **Refrigerant Leak Detection Sensor Replacement (FXTA-AB models only)** on page 451.

4.33 Branch Selector Unit or Safety Shut-Off Valve Unit Refrigerant Leak Repair Completion Pending

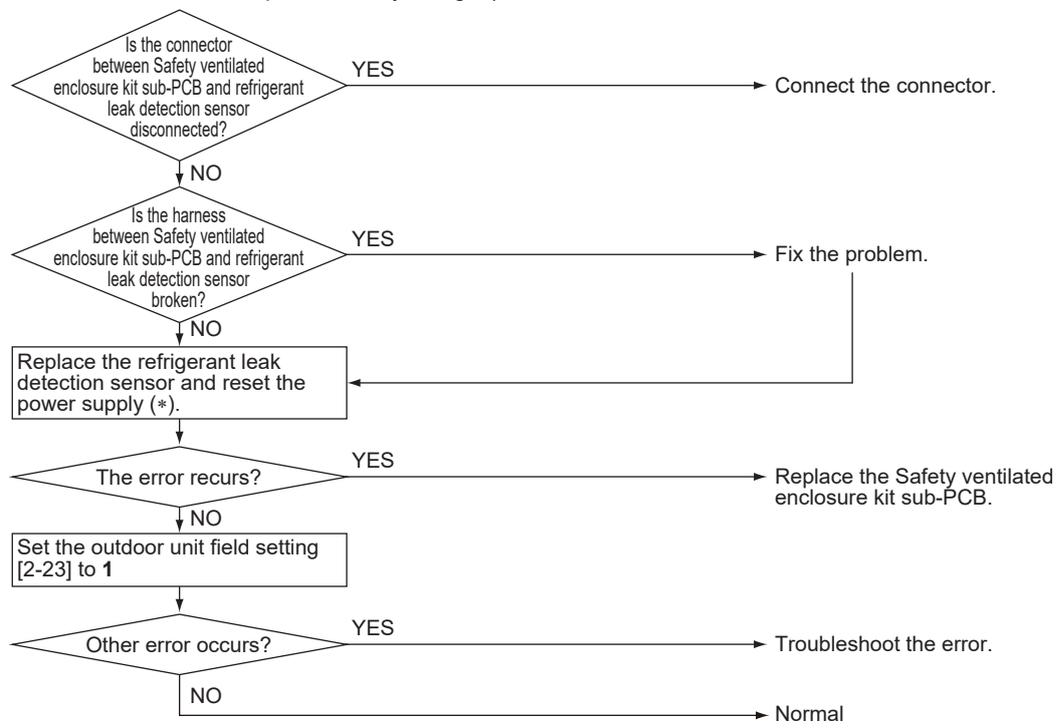
Applicable Models	Branch Selector unit Safety Shut-Off Valve unit
Error Code	CH-20
Method of Error Detection	<ul style="list-style-type: none">■ Refrigerant leak detection■ Sensor failure or disconnection detection
Error Decision Conditions	The confirmation of refrigerant leak repair or sensor malfunction recovery is pending.
Supposed Causes	<ul style="list-style-type: none">■ Refrigerant leak detection■ Sensor failure or disconnection detection
Troubleshooting	Set the outdoor unit field setting [2-23] to 1.

4.34 Branch Selector Unit or Safety Shut-Off Valve Unit Refrigerant Leak Detection Sensor Failure or Disconnection

Applicable Models	Branch Selector unit Safety Shut-Off Valve unit Safety ventilated enclosure kit (BS-EBF04/07-AA, BS-EBSVA-AA)
Error Code	CH-21
Method of Error Detection	Error is issued when control PCB receives fault status from leak detection sensor.
Error Decision Conditions	When leak detection sensor sends fault status information to control PCB for a certain set timeframe
Supposed Causes	<ul style="list-style-type: none"> ■ Defective refrigerant leak detection sensor ■ Refrigerant leak detection sensor connector disconnected or broken ■ Defective Safety ventilated enclosure kit sub-PCB

Troubleshooting

-  **Caution**
- Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.
 - The Branch Selector unit and Safety Shut-Off Valve unit of the R-32 model are equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected.
 - When a power reset is required for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before performing the work. (it may take up to 2 hours if the capacitor is fully charged).



 **Note(s)** * When it takes time to discharge the charge stored in the backup PCBs, refer to the method described in **Method for Forced Power Reset** on page 456.

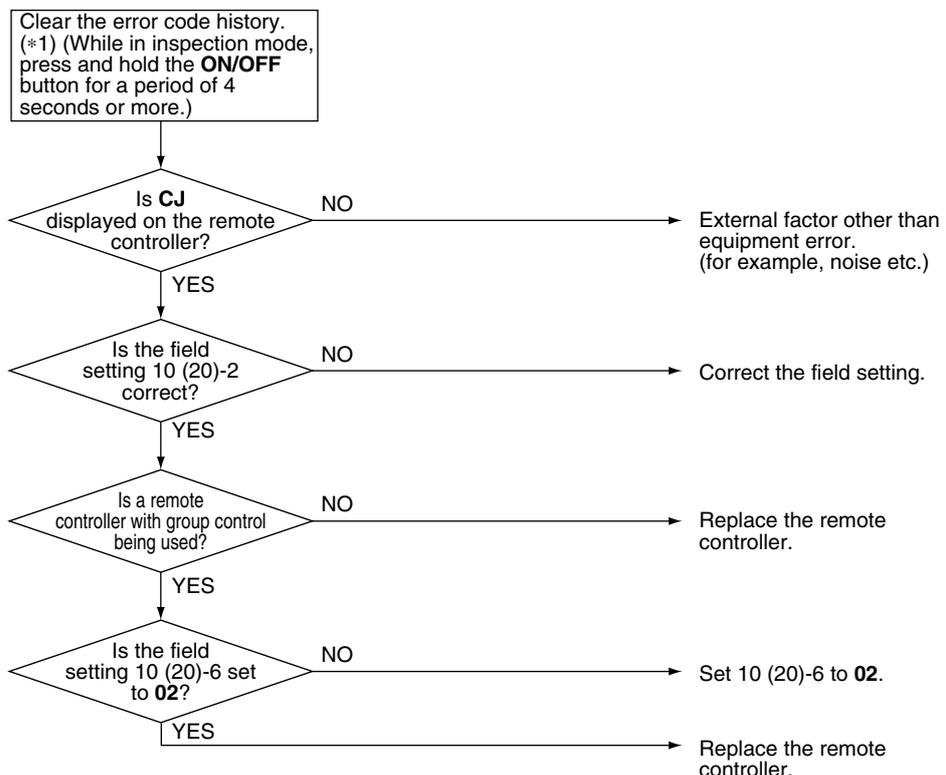
4.35 Remote Controller Thermistor Abnormality

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	<ul style="list-style-type: none"> ■ 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-AB 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.

4.36 Outdoor Unit Refrigerant Leak Detection

Applicable Models All outdoor unit models

Error Code **E0**

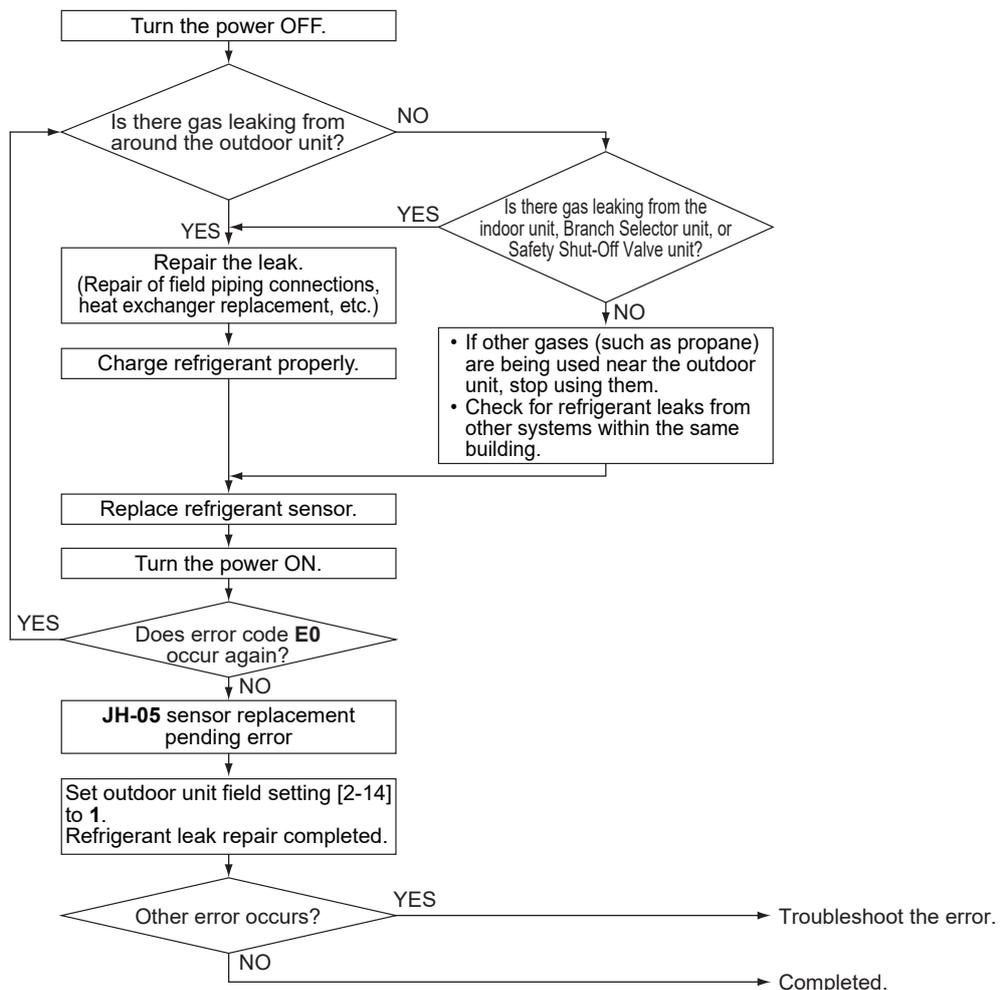
Method of Error Detection Refrigerant leak detection sensor detects a refrigerant leak.

Error Decision Conditions When the **E0-12** error detection status has occurred multiple times within a short period or continuously for a certain duration.

- Supposed Causes**
- Refrigerant leak from system piping
 - Detection of gas other than refrigerant
 - Gas detection due to refrigerant leakage from another system in the same room
 - Refrigerant leak detection sensor deterioration or failure
 - Defective outdoor unit sub 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.



4.37 Outdoor Unit Main/Sub PCB, Branch Selector Unit PCB or Safety Shut-Off Valve Unit PCB Abnormality

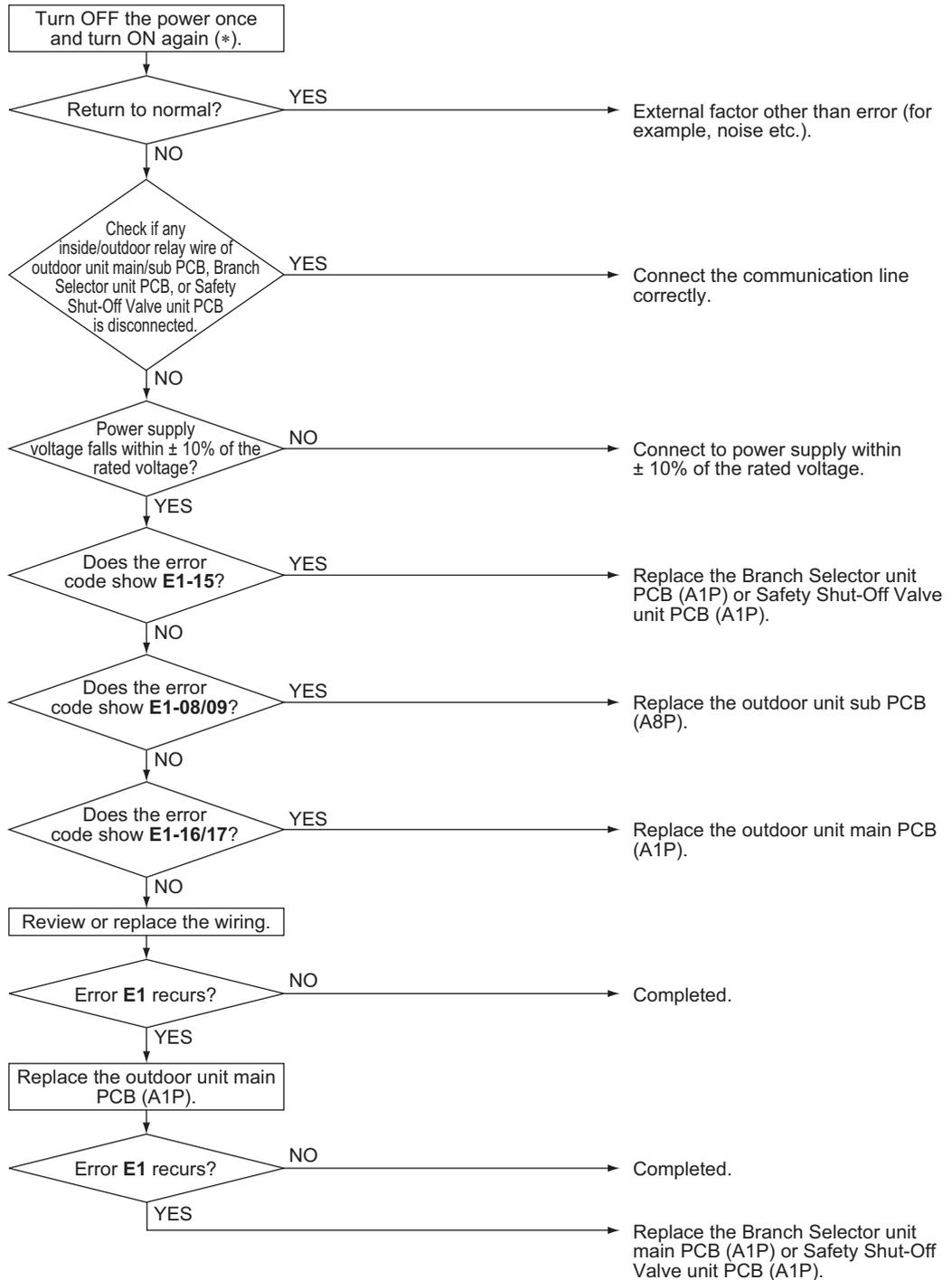
Applicable Models	All outdoor unit models Branch Selector unit Safety Shut-Off Valve unit
Error Code	E1
Method of Error Detection	Abnormality is detected under the communication conditions in the hardware section between the indoor unit and outdoor unit.
Error Decision Conditions	When the communication conditions in the hardware section between the indoor unit and the outdoor unit are not normal.
Supposed Causes	<ul style="list-style-type: none">■ Defective outdoor unit main PCB (A1P)■ Defective outdoor unit sub PCB (A8P)■ Defective Branch Selector unit main PCB (A1P)■ Defective Safety Shut-Off Valve unit main PCB (A1P)■ Incorrect power supply voltage■ Defective connection of connectors■ 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.
- The Branch Selector unit and Safety Shut-Off Valve unit of the R-32 model are equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected.
- When a power reset is required for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before performing the work. (it may take up to 2 hours if the capacitor is fully charged).



Note(s)

* When it takes time to discharge the charge stored in the backup PCBs, refer to the method described in **Method for Forced Power Reset** on page 456.

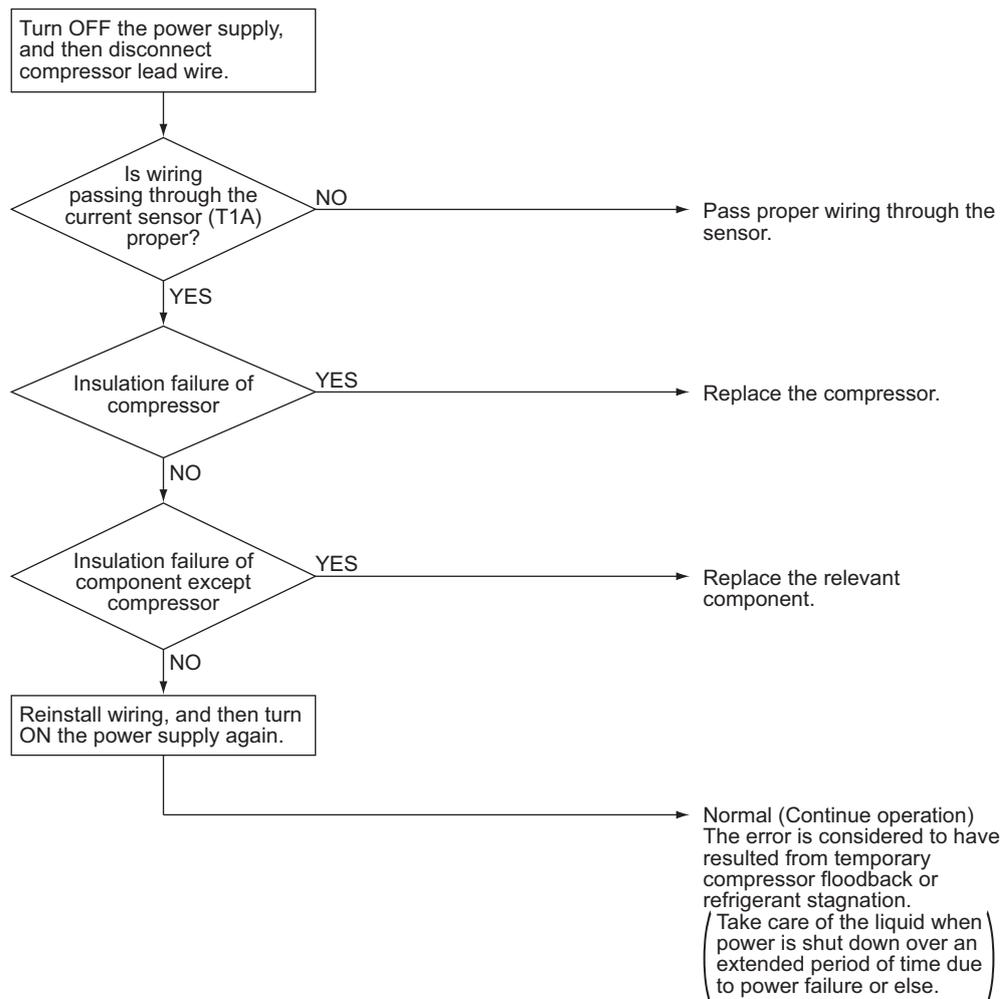
4.38 Detection of Ground Leakage by Leak Detection Circuit

Applicable Models	All outdoor unit models
Error Code	E2 Sub code: 01, 02
Method of Error Detection	Detect leakage current in the ground leakage detection circuit and detect error on the outdoor unit main PCB.
Error Decision Conditions	The leakage current is detected.
Supposed Causes	<ul style="list-style-type: none"> ■ Ground fault ■ Improper wiring passing through the current sensor ■ Temporary liquid compression or melting in compressor

Troubleshooting


Caution

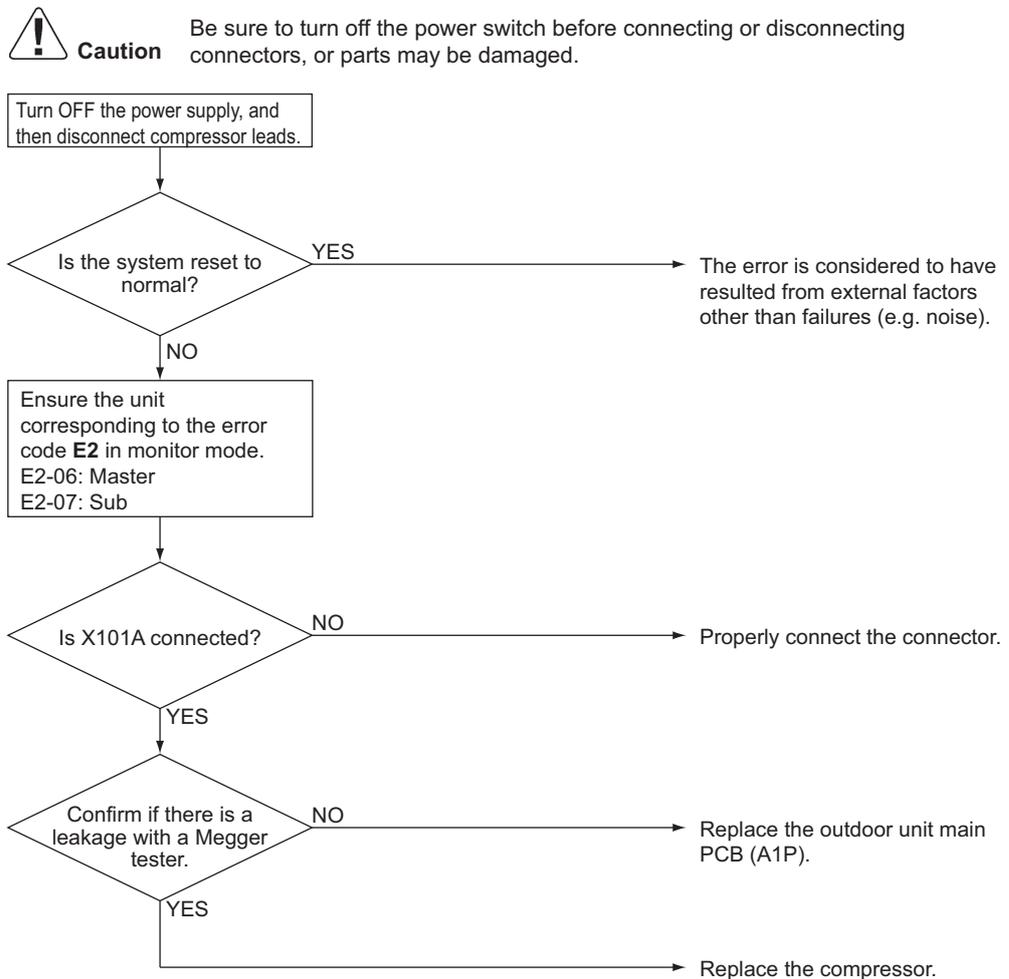
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



4.39 Missing of Ground Leakage Detection Core

Applicable Models	All outdoor unit models
Error Code	E2 Sub code: 06, 07
Method of Error Detection	Error is detected according to whether or not there is continuity across the connector X101A for leakage detection circuit (Q1LD).
Error Decision Conditions	No current flows at the time of turning ON the power supply.
Supposed Causes	<ul style="list-style-type: none"> ■ Disconnection of connector X101A ■ Wiring disconnection ■ Defective outdoor unit main PCB

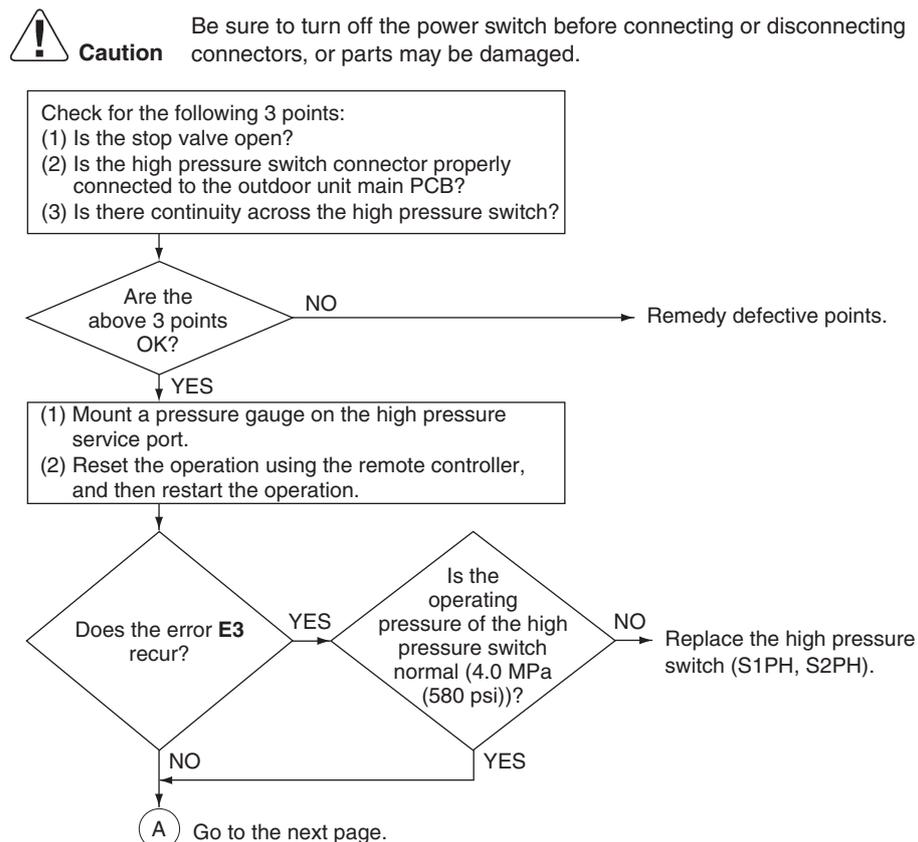
Troubleshooting

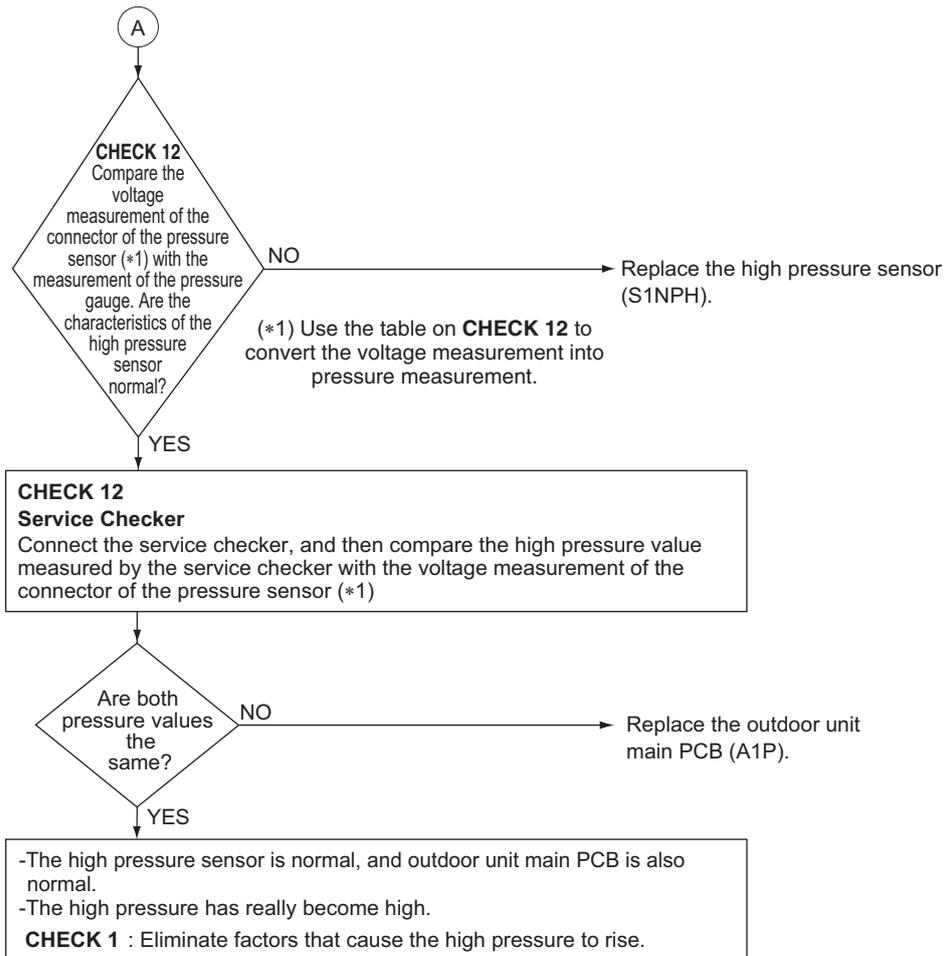


4.40 Activation of High Pressure Switch

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: <ul style="list-style-type: none"> ■ Operating pressure: 4.0 MPa (580 psi) ■ Resetting pressure: 3.0 MPa (435 psi)
Supposed Causes	<ul style="list-style-type: none"> ■ Activation of high pressure switch ■ Defective high pressure switch ■ Defective outdoor unit main PCB (A1P) ■ Momentary power failure ■ Defective high pressure sensor

Troubleshooting





Reference **CHECK 1** Refer to page 411.

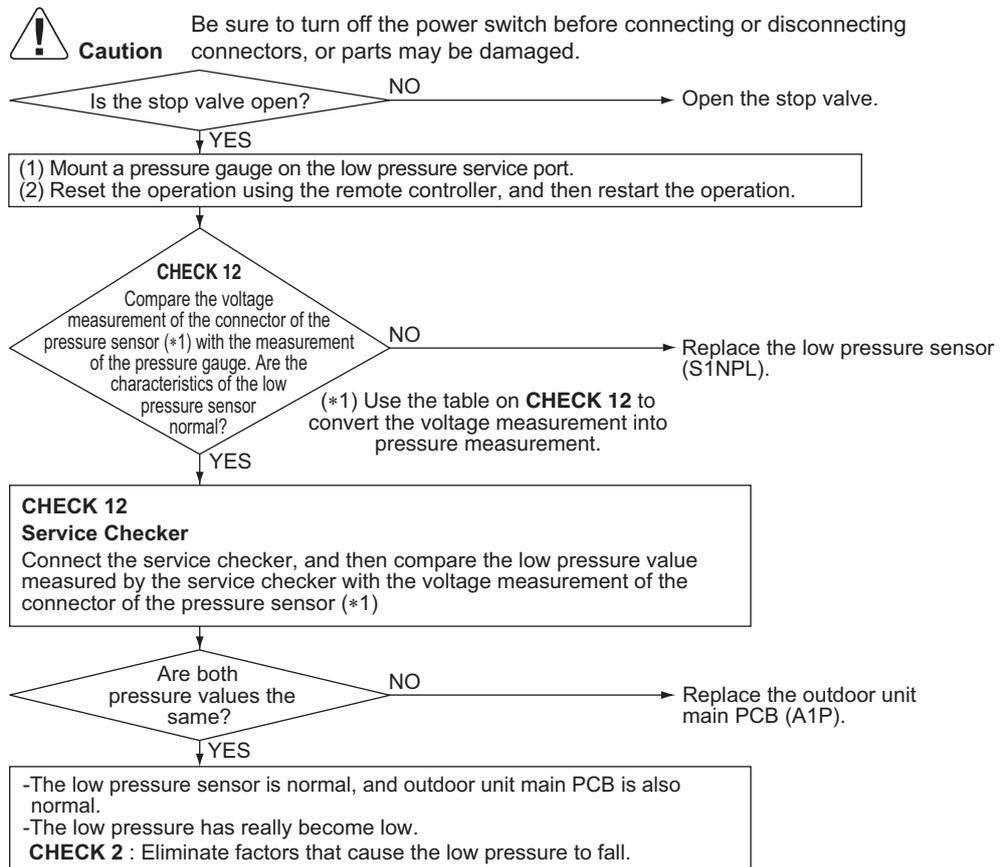


Reference **CHECK 12** Refer to page 422.

4.41 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: <ul style="list-style-type: none"> ■ Operating pressure: 0.07 MPa (10.2 psi)
Supposed Causes	<ul style="list-style-type: none"> ■ Abnormal drop in low pressure ■ Defective low pressure sensor ■ Defective outdoor unit main PCB ■ The stop valve is not opened

Troubleshooting



Reference

CHECK 2 Refer to page 412.

Reference

CHECK 12 Refer to page 422.

4.42 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.

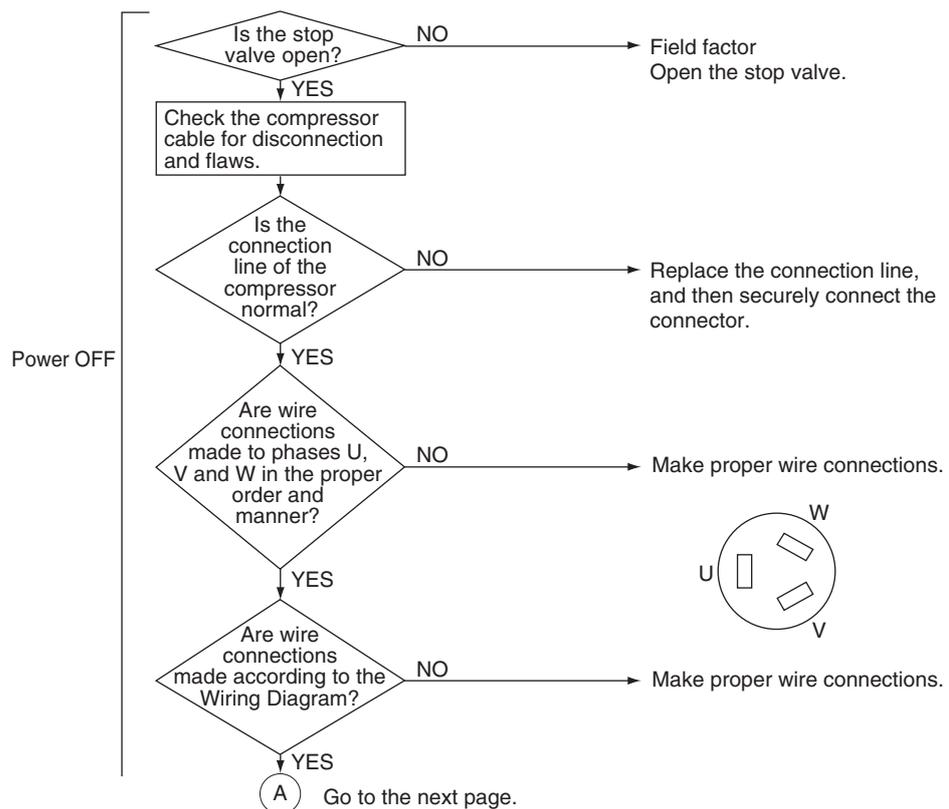
Error Decision Conditions This error will be output when the compressor motor does not start up even in forced startup mode.

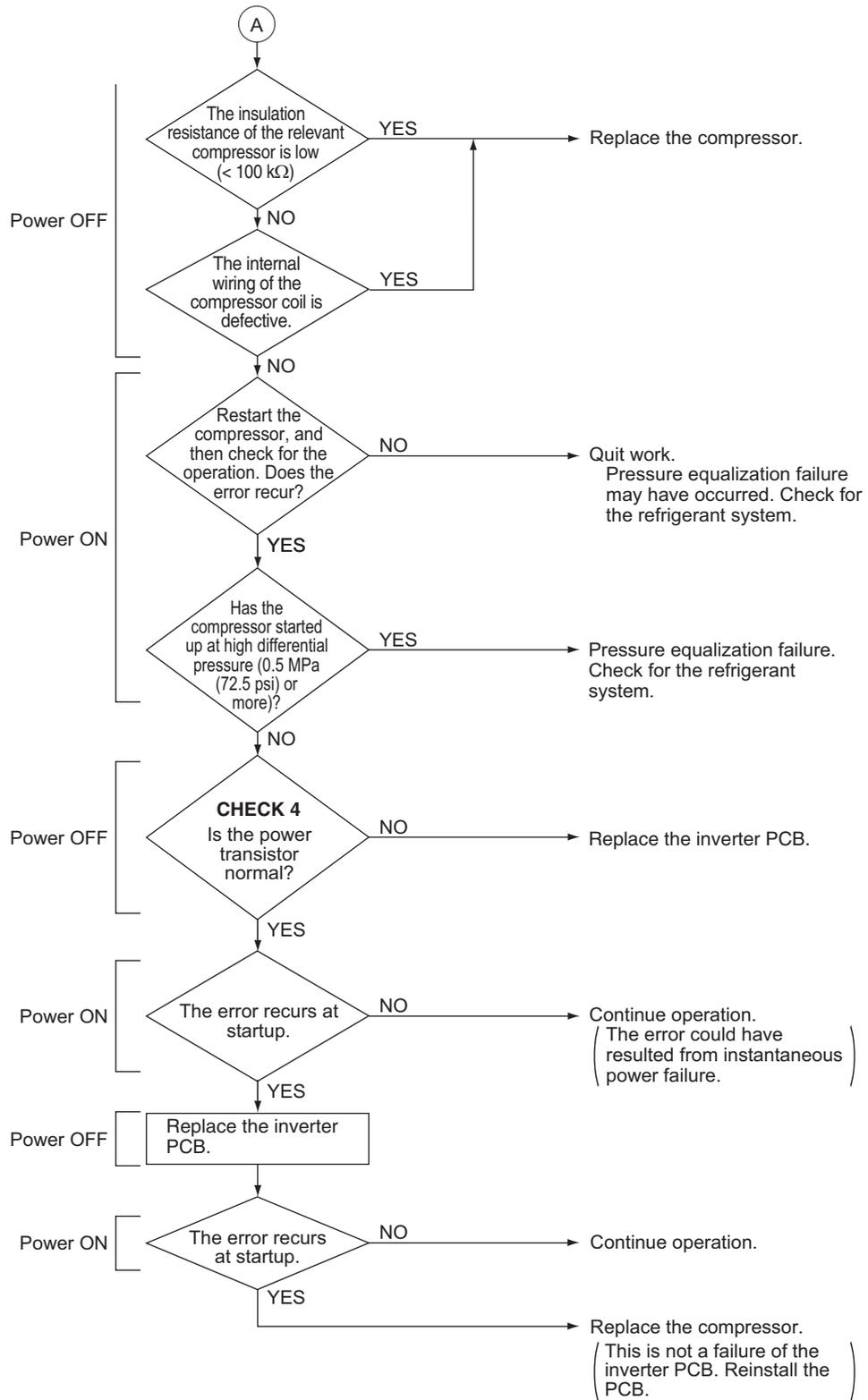
- Supposed Causes**
- Compressor lock
 - High differential pressure (0.5 MPa (72.5 psi) or more)
 - UVW connection error
 - Defective inverter PCB
 - Stop valve is not opened

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 414.

4.43 Compressor Damage Alarm

Applicable Models All outdoor unit models

Error Code **E6**

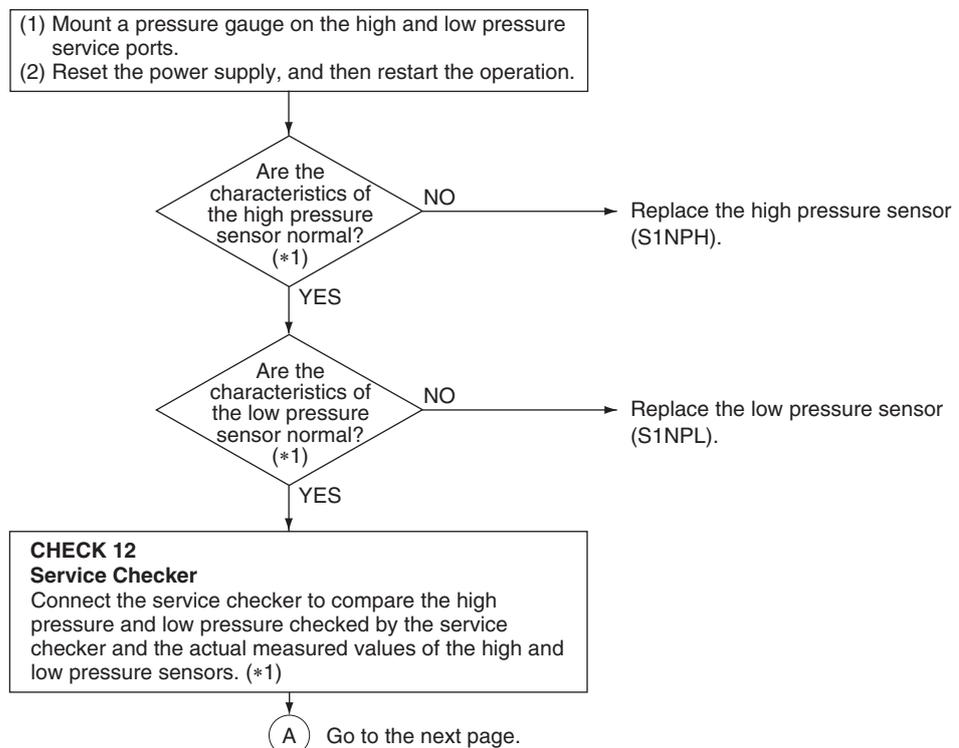
Method of Error Detection Determine the symptom to be error by detecting the revolutions of the compressor and pressure values detected by the high and low pressure sensors, and further making a comparison between a theoretical current value of the compressor calculated from parameters detected and an actual current value detected by the power transistor.

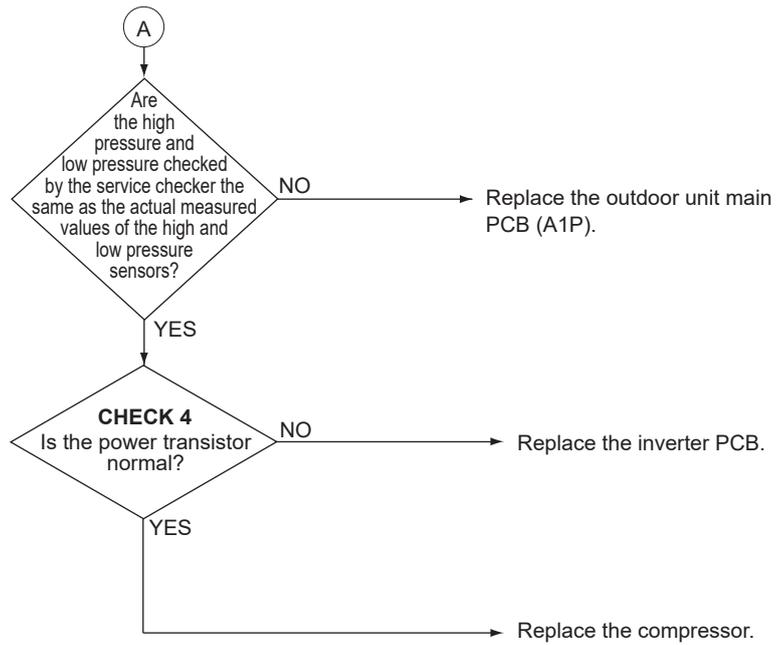
Error Decision Conditions When a state in which the actual current value of the compressor is abnormally high (by 130% or more) compared to the theoretical current value continues for a period of 30 minutes.
 * In case of a system with multi outdoor units, the system will return an alarm if there is any operational unit other than that applicable to **E6** or determine to be error if not.

- Supposed Causes**
- Defective compressor
 - Defective high pressure sensor
 - Defective low pressure sensor
 - Defective outdoor unit main PCB
 - 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 414.

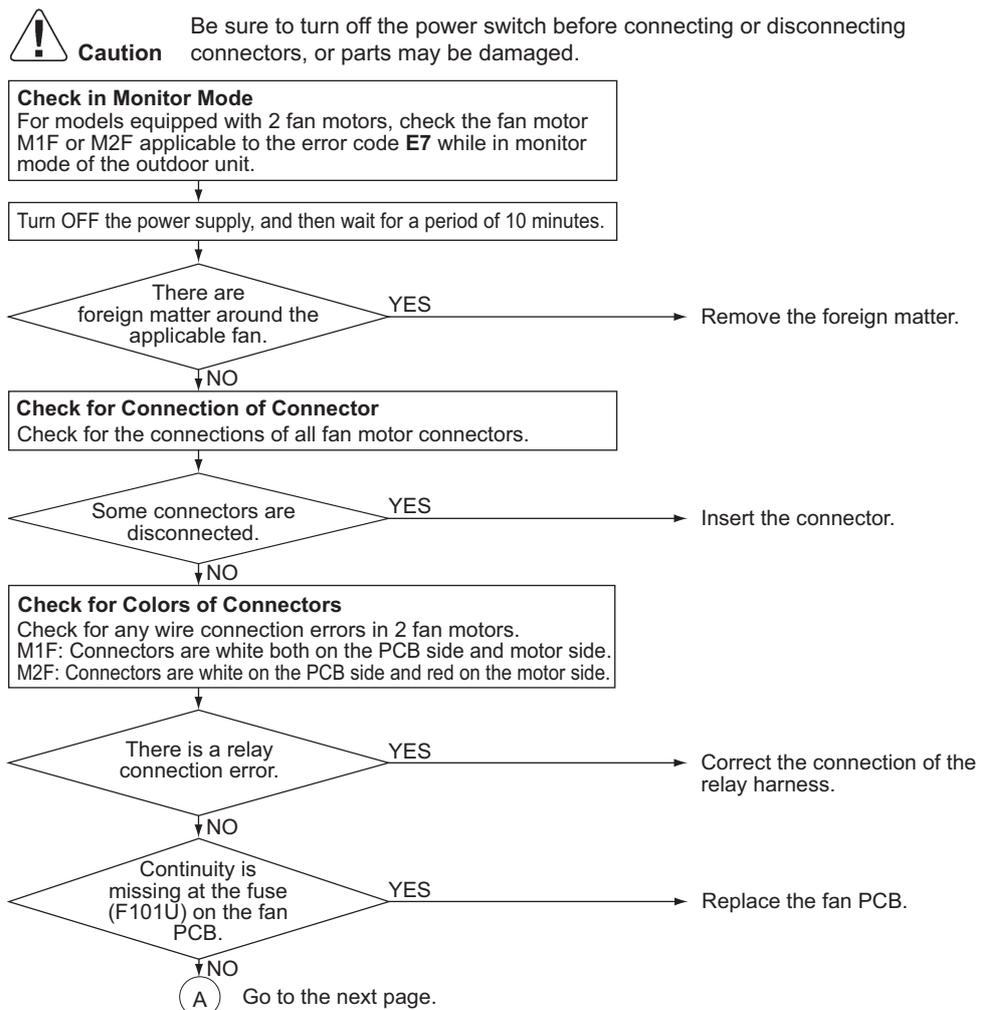


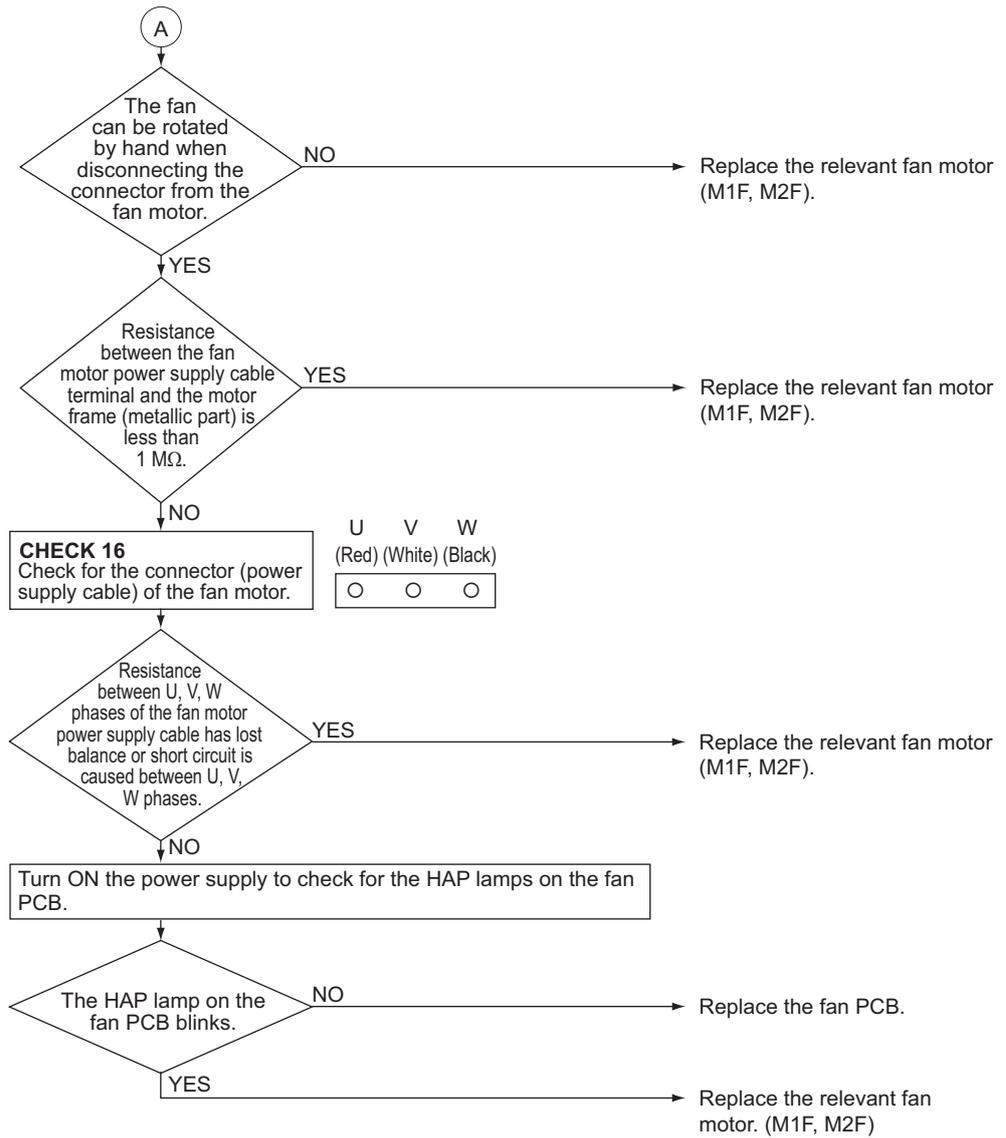
Reference **CHECK 12** Refer to page 422.

4.44 Outdoor Fan Motor Abnormality

Applicable Models	All outdoor unit models
Error Code	E7
Method of Error Detection	Detects according to the value of current flowing through the fan PCB.
Error Decision Conditions	<ul style="list-style-type: none"> ■ Overcurrent is detected from the fan PCB (Detecting overcurrent 4 times will shut down the system). ■ 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	<ul style="list-style-type: none"> ■ 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





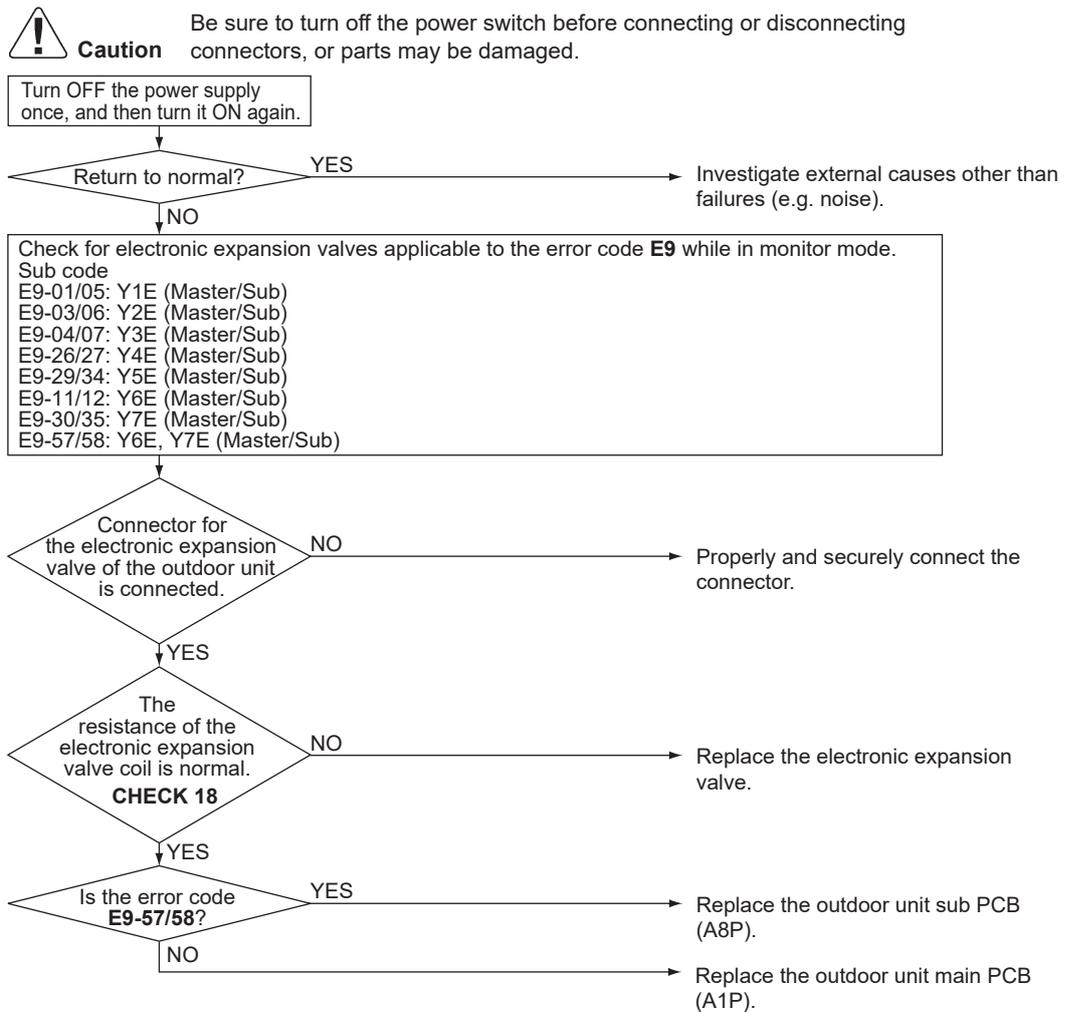
Reference

CHECK 16 Refer to page 427.

4.45 Electronic Expansion Valve Coil Abnormality or Sub PCB Momentary Overcurrent

Applicable Models	All outdoor unit models
Error Code	E9
Method of Error Detection	Detects according to whether or not 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	<ul style="list-style-type: none"> ■ Disconnection of connectors from electronic expansion valves ■ Defective electronic expansion valve coil ■ Defective outdoor unit main PCB ■ Sub PCB momentary overcurrent

Troubleshooting



Reference

CHECK 18 Refer to page 429.

4.46 Four Way Valve Abnormality (Intermediate Stop)

Applicable Models All outdoor unit models

Error Code **EA**

Sub code: 02-09

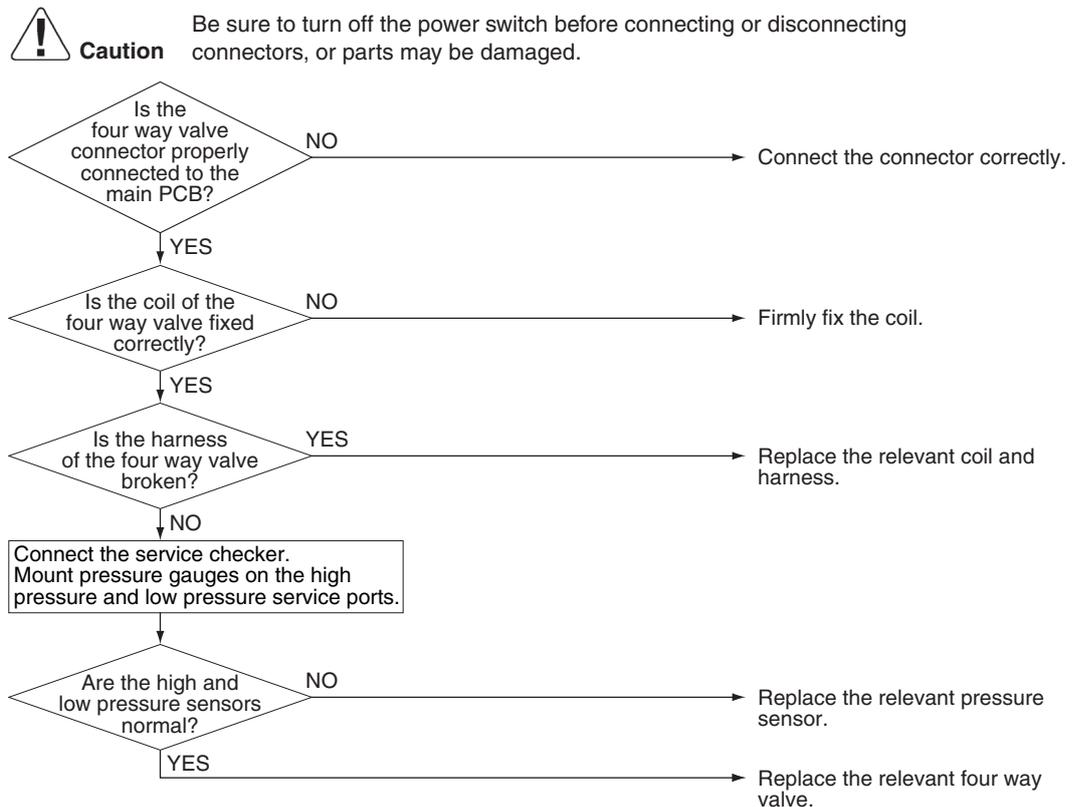
Method of Error Detection Detect the intermediate stop of the four way valve according to pressure sensors.

Error Decision Conditions When there is no pressure difference between high and low pressure.

Supposed Causes

- Defective high pressure sensor
- Defective low pressure sensor
- Defective coil or harness of four way valve
- Defective four way valve

Troubleshooting



4.47 Four Way Valve Abnormality (Not Switching)

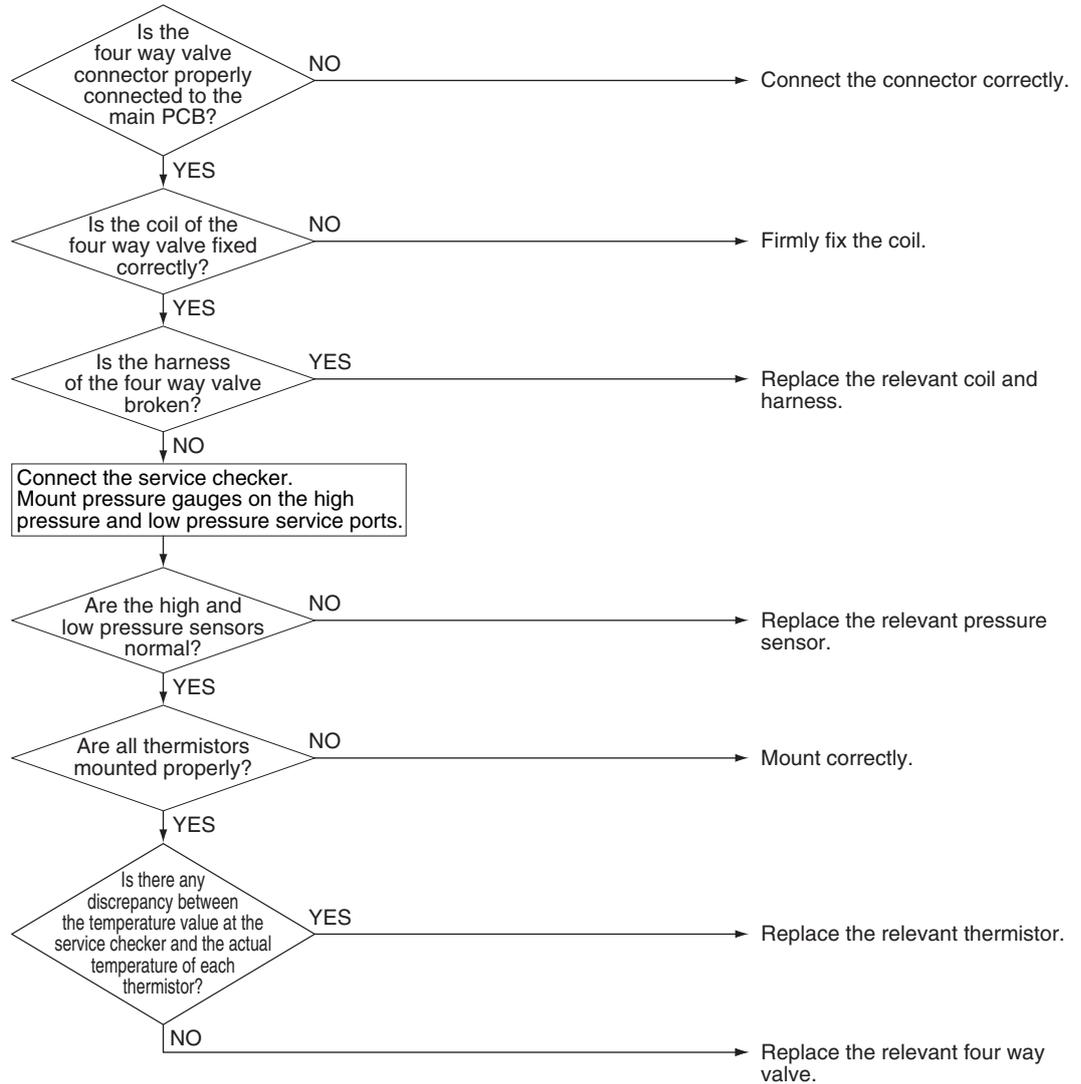
Applicable Models	All outdoor unit models
Error Code	EA Sub code: 14-21
Method of Error Detection	Detect the non-switching of the four way valve according to temperature and pressure.
Error Decision Conditions	<ul style="list-style-type: none"> ■ When the evaporator is in a condenser-like refrigerant state ■ When the condenser is in an evaporator-like refrigerant state.
Supposed Causes	<ul style="list-style-type: none"> ■ Defective high pressure sensor ■ Defective low pressure sensor ■ Defective outdoor air thermistor ■ Defective heat exchanger gas pipe thermistor ■ Defective heat exchanger liquid pipe thermistor ■ Defective suction pipe thermistor ■ Defective compressor suction thermistor ■ Defective indoor unit thermistor ■ Defective coil or harness of four way valve ■ Defective four way valve

Troubleshooting



Caution

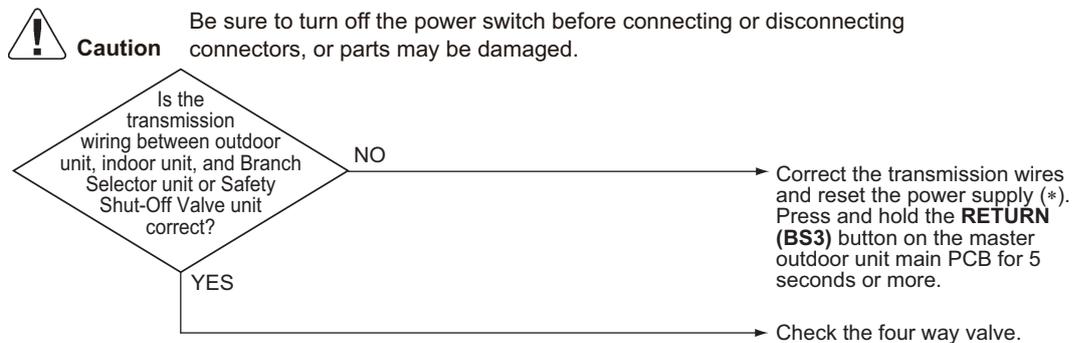
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



4.48 Opposite Air Conditioning Alarm

Applicable Models	All outdoor unit models
Error Code	EA Sub code: 26
Method of Error Detection	Detects by the temperature of each thermistor of the indoor unit.
Error Decision Conditions	<ul style="list-style-type: none"> ■ When the flow direction of the refrigerant is heating during cooling operation in the indoor unit. ■ When the flow direction of the refrigerant is cooling during heating operation in the indoor unit.
Supposed Causes	Wrong wiring between outdoor unit, indoor unit, and Branch Selector unit or Safety Shut-Off Valve unit

Troubleshooting



Note(s)

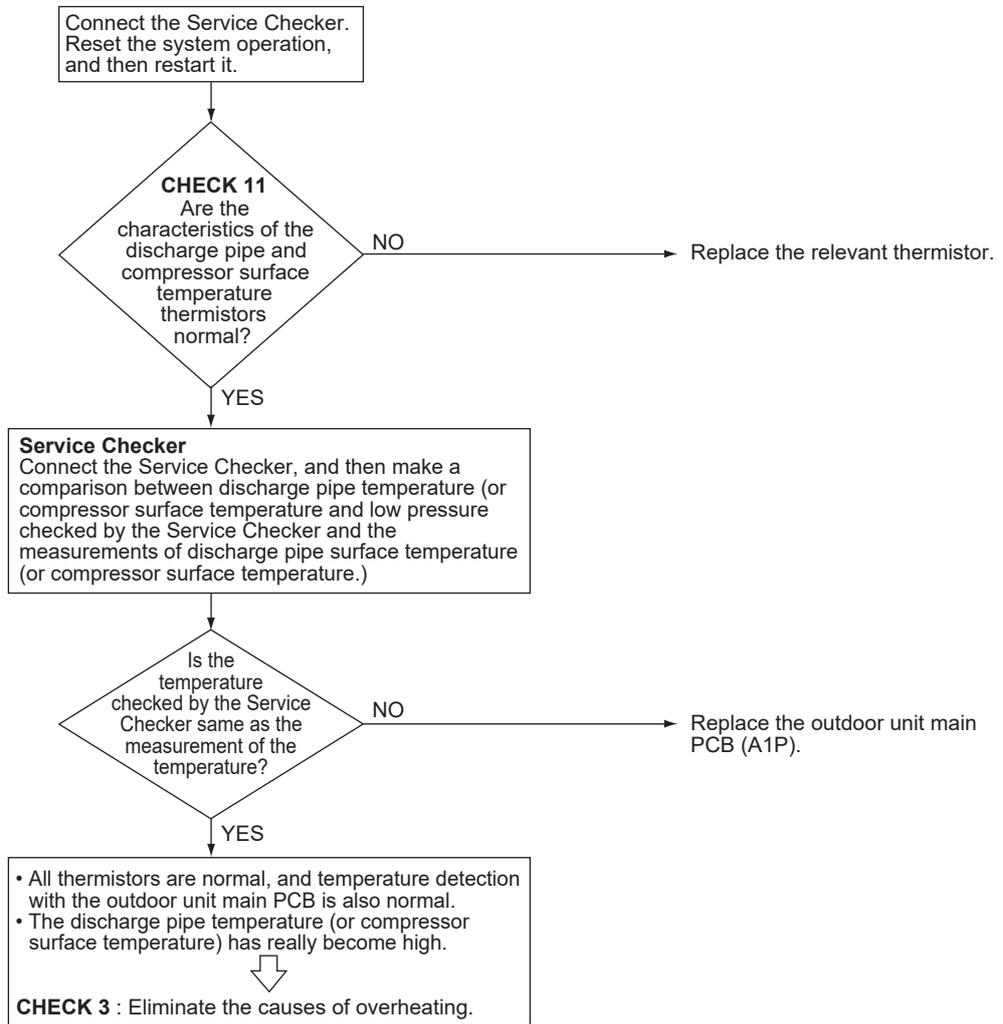
* When it takes time to discharge the charge stored in the backup PCB, refer to the method described in **Method for Forced Power Reset** on page 456.

4.49 Discharge Pipe Temperature Abnormality

Applicable Models	All outdoor unit models
Error Code	F3
Method of Error Detection	Detect according to temperature detected with the discharge pipe or compressor body thermistor.
Error Decision Conditions	<ul style="list-style-type: none">■ 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)■ When compressor surface temperature becomes abnormally high (i.e., 135°C (275°F) or more)■ When compressor surface temperature sharply rises (remains at 120°C (248°F) or more for a period of consecutive 10 minutes)
Supposed Causes	<ul style="list-style-type: none">■ Abnormal discharge pipe temperature■ Defective discharge pipe thermistor■ Abnormal compressor surface temperature■ Defective compressor body 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.



 **Reference** CHECK 3 Refer to page 413.

 **Reference** CHECK 11 Refer to page 420.

4.50 Compressor Floodback Alarm

Applicable Models All outdoor unit models

Error Code **F4**

Method of Error Detection In cooling operation, detect the condition under which liquid refrigerant returns to the compressor, according to the temperature and pressure of each part.

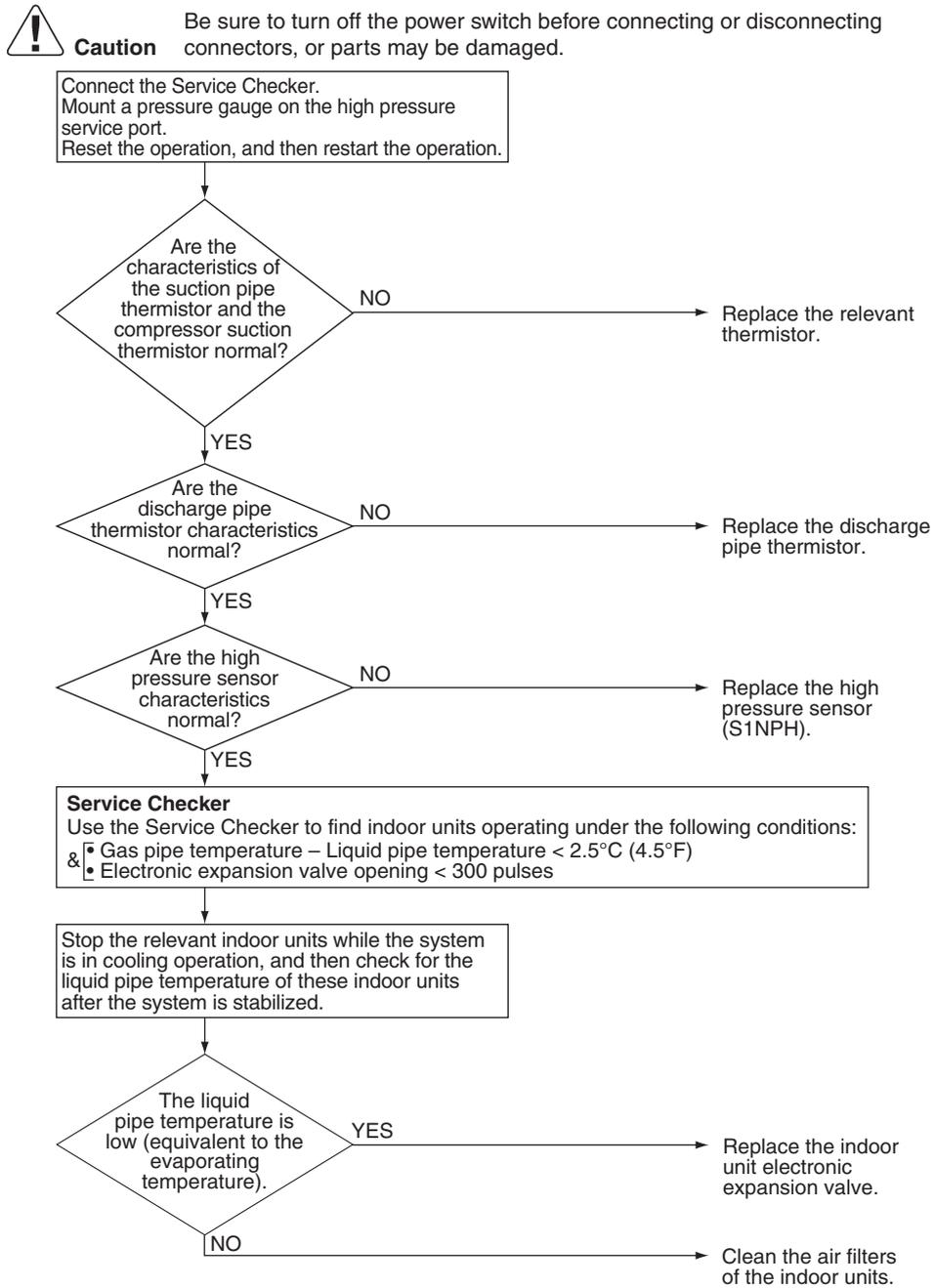
Error Decision Conditions

- Liquid floodback state in outdoor unit:
If the condition continues for a period of 90 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 45 minutes, an alert is issued.

Supposed Causes

- Defective suction pipe thermistor
- Defective compressor suction thermistor
- Defective discharge pipe thermistor
- Defective high pressure sensor
- Defective indoor unit electronic expansion valve
- Dirty air filter

Troubleshooting



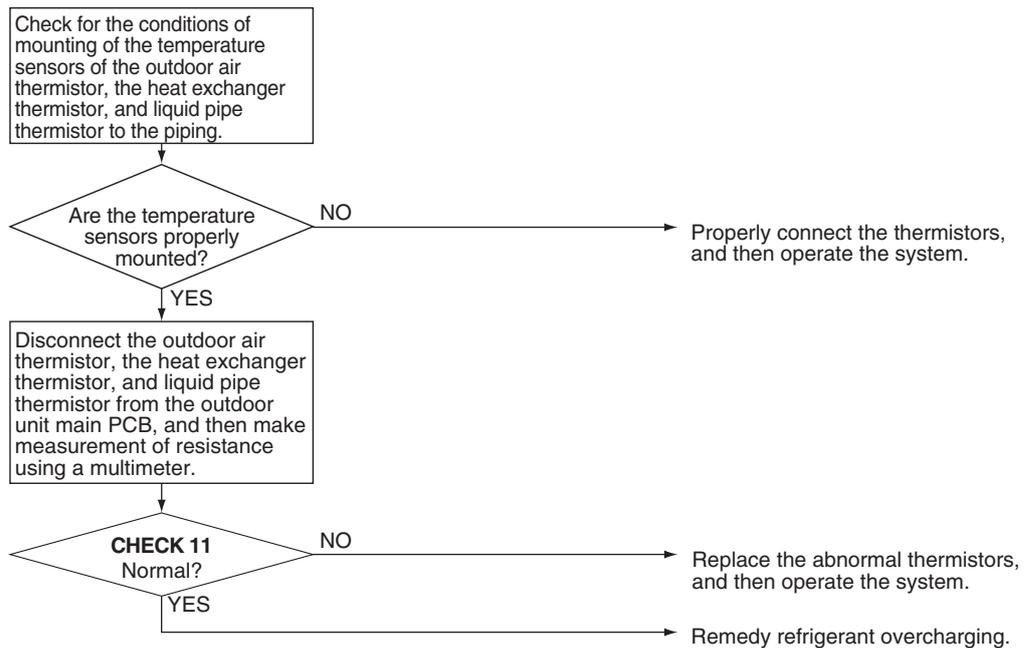
4.51 Refrigerant Overcharged

Applicable Models	All outdoor unit models
Error Code	F6
Method of Error Detection	Detect overcharged refrigerant according to outdoor air temperature, heat exchanger deicer temperature, and liquid pipe temperature during check operation.
Error Decision Conditions	When the amount of refrigerant, which is calculated using outdoor air temperature, heat exchanger deicer temperature, and liquid pipe temperature during check operation, exceeds the regular charge amount by 30% or more (If refrigerant is charged slightly over the regular charge amount, F6 may be displayed on the remote controller.)
Supposed Causes	<ul style="list-style-type: none"> ■ Refrigerant overcharged ■ Disconnection of outdoor air thermistor ■ Disconnection of heat exchanger deicer thermistor ■ Disconnection of liquid pipe temperature thermistor

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 420.

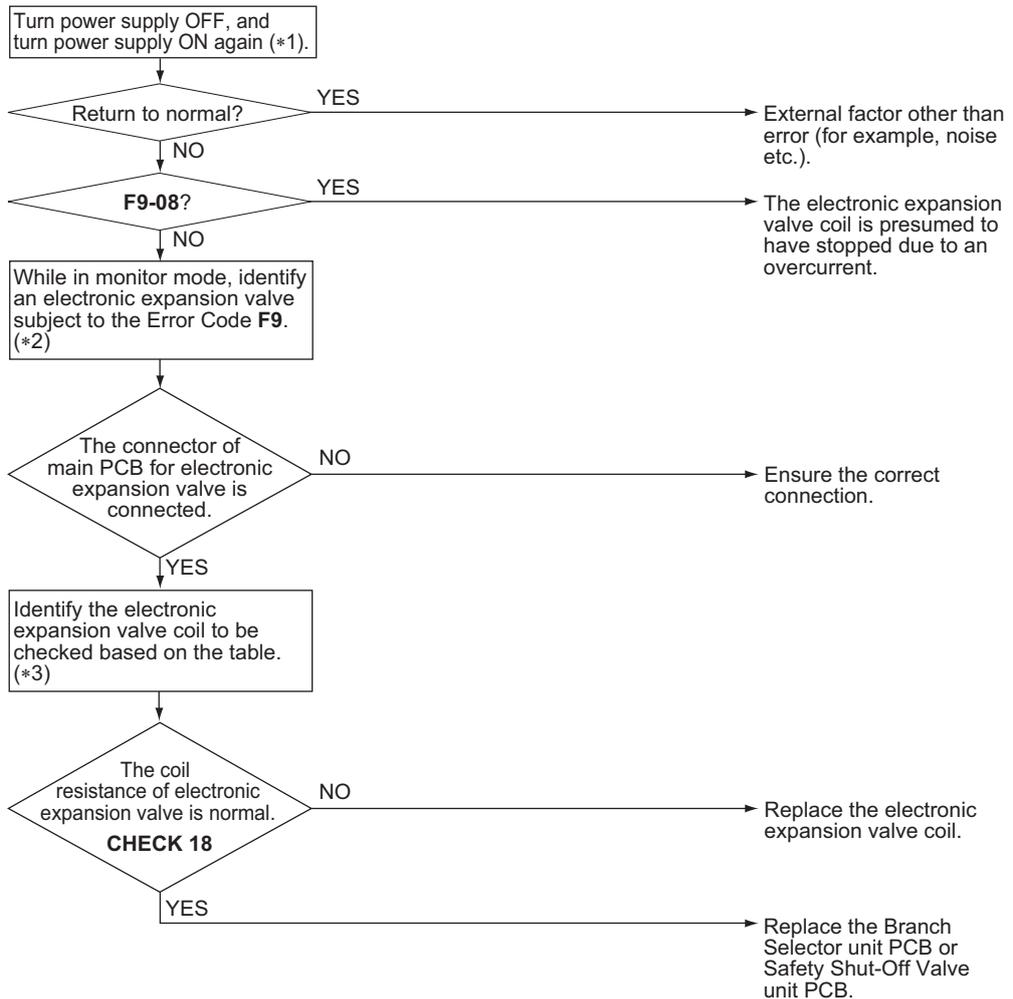
4.52 Defective Electronic Expansion Valve of Branch Selector Unit or Safety Shut-Off Valve Unit

Applicable Models	Branch Selector unit Safety Shut-Off Valve unit
Error Code	F9
Method of Error Detection	The error is detected by whether or not all coils of the electronic expansion valve have continuity.
Error Decision Conditions	The power supply turns ON, but there is no currents pass through the common (COM[+]).
Supposed Causes	<ul style="list-style-type: none"> ■ Disconnection of the electronic expansion valve connector ■ Defective electronic expansion valve coil ■ Defective PCB of Branch Selector unit or Safety Shut-Off Valve unit

Troubleshooting

 **Caution**

- Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.
- The Branch Selector unit and Safety Shut-Off Valve unit of the R-32 model are equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected.
- When a power reset is required for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before performing the work. (it may take up to 2 hours if the capacitor is fully charged).



**Note(s)**

*1. When it takes time to discharge the charge stored in the backup PCBs, refer to the method described in **Method for Forced Power Reset** on page 456.

*2. Use the sub code to identify the electronic expansion valve subject to error code **F9**.

Electronic expansion valve	Sub code
Electronic expansion valve (EVH)	01
Electronic expansion valve (EVL)	02
Electronic expansion valve (EVSC)	05
Electronic expansion valve (EVSL)	06
Electronic expansion valve (EVSG1)	07
Electronic expansion valve (EVSG2)	12

*3. Use the sub code to identify the electronic expansion valve for checking coil resistance subject to error code **F9**.

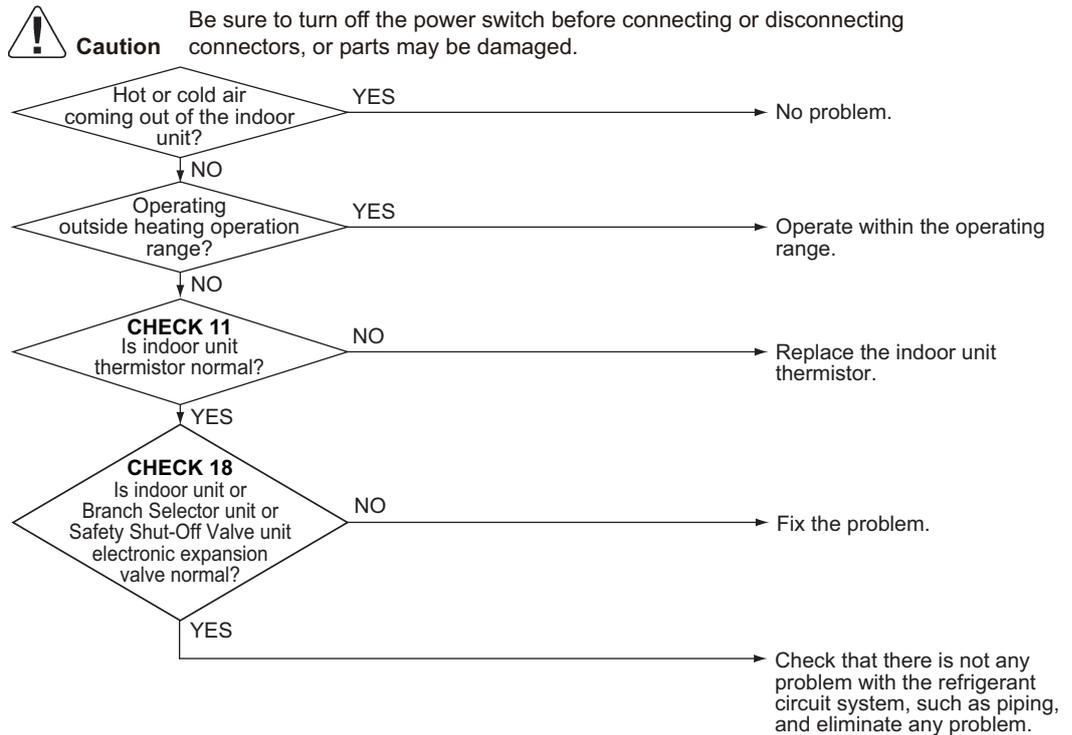
Model	Electronic expansion valve to be checked	Sub code
BSA-AA	All electronic expansion valves	Any code
SVA-AA		
BSF-A54AA	Electronic expansion valve (EVH)	01
	Electronic expansion valve (EVL)	02
	Electronic expansion valve (EVSC)	05
	Electronic expansion valve (EVSL)	06

**Reference**

CHECK 18 Refer to page 429.

Error Code	F9-13
Method of Error Detection	Error is detected by checking whether refrigerant is flowing to the connected indoor units.
Error Decision Conditions	All thermistor temperatures in the thermo-on indoor units are the same.
Supposed Causes	<ul style="list-style-type: none"> ■ Electronic expansion valve failure (remains fully closed and not opening) ■ Indoor unit thermistor failure ■ Operation outside the heating operation range

Troubleshooting



 **Reference** **CHECK 11** Refer to page 420.

 **Reference** **CHECK 18** Refer to page 429.

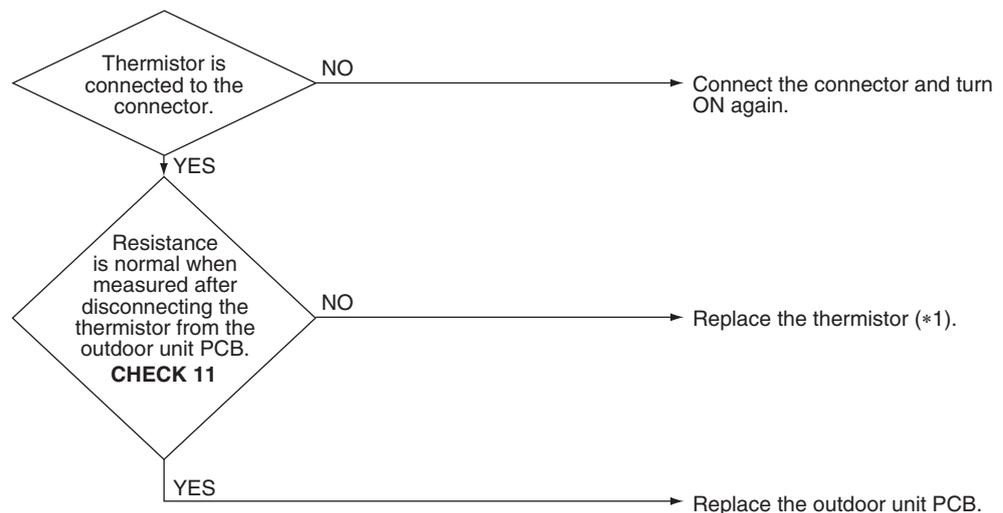
4.53 Thermistor Abnormality

Applicable Models	All outdoor unit models
Error Code	H1, H9, J3, J5, J6, J7, J8, J9
Method of Error Detection	Detect according to temperature detected with individual thermistors.
Error Decision Conditions	The system is in operation and the thermistor causes wiring disconnection or short circuit in it.
Supposed Causes	<ul style="list-style-type: none"> ■ Defective connection of thermistor ■ Defective thermistor ■ Defective outdoor 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. Check the error code and sub code, and replace the corresponding thermistor.



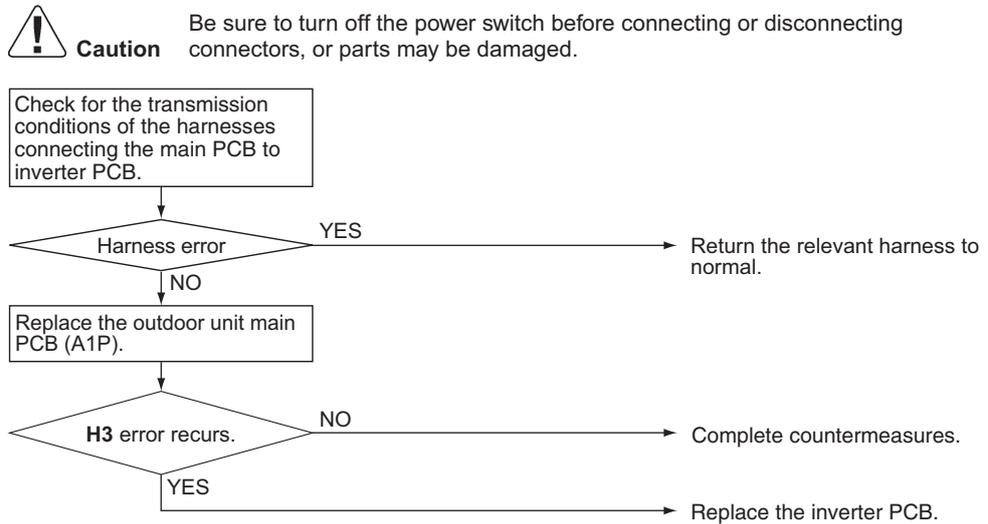
Reference

CHECK 11 Refer to page 420.

4.54 Harness Abnormality (between Outdoor Unit Main PCB and Inverter PCB)

Applicable Models	All outdoor unit models
Error Code	H3
Method of Error Detection	Check for the transmission conditions of the harnesses between the PCBs using microcomputer.
Error Decision Conditions	Normal transmission between the PCBs is disabled while the compressor is not running.
Supposed Causes	<ul style="list-style-type: none"> ■ Defective connection of jumpers between PCB ■ Defective outdoor unit main PCB (A1P) ■ Defective inverter PCB

Troubleshooting



4.55 Outdoor Fan PCB Abnormality

Applicable Models All outdoor unit models

Error Code **H7**

Method of Error Detection Detect with current sensor value.

Error Decision Conditions When the current sensor shows abnormality.

Supposed Causes Defective fan PCB

Troubleshooting



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

Check for fan PCB applicable to the error code **H7** while in monitor mode.

H7-21/23: Fan PCB (M1F) Master / Sub
H7-22/24: Fan PCB (M2F) Master / Sub

Turn OFF the power supply and wait for 10 minutes.

Is the connector of relevant fan motor normally connected?

NO

Properly connect the connector.

YES

Resistance between U, V, W phases of the fan motor power supply cable has lost balance or short circuit is caused between U, V, W phases.

NO

Replace the relevant fan motor. (M1F, M2F)

YES

Replace the fan PCB.

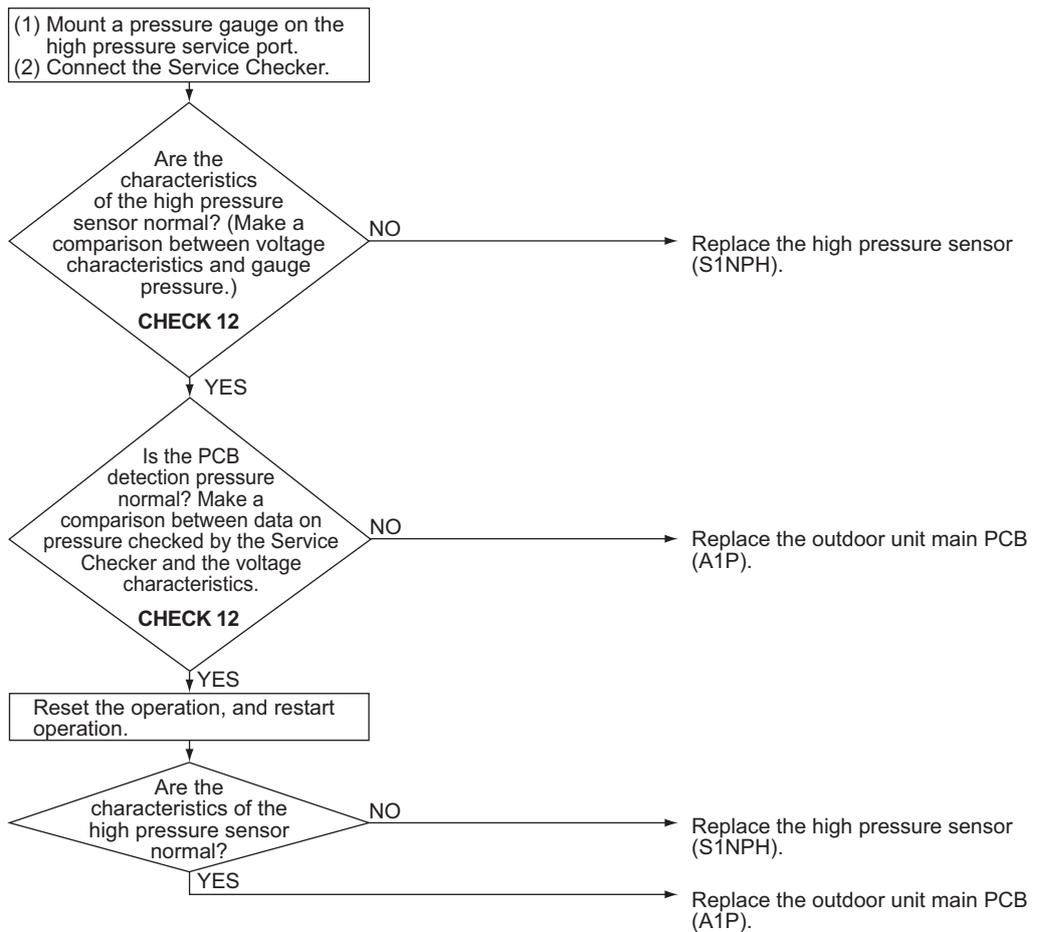
4.56 High Pressure Sensor Abnormality

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	<ul style="list-style-type: none"> ■ 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 422.

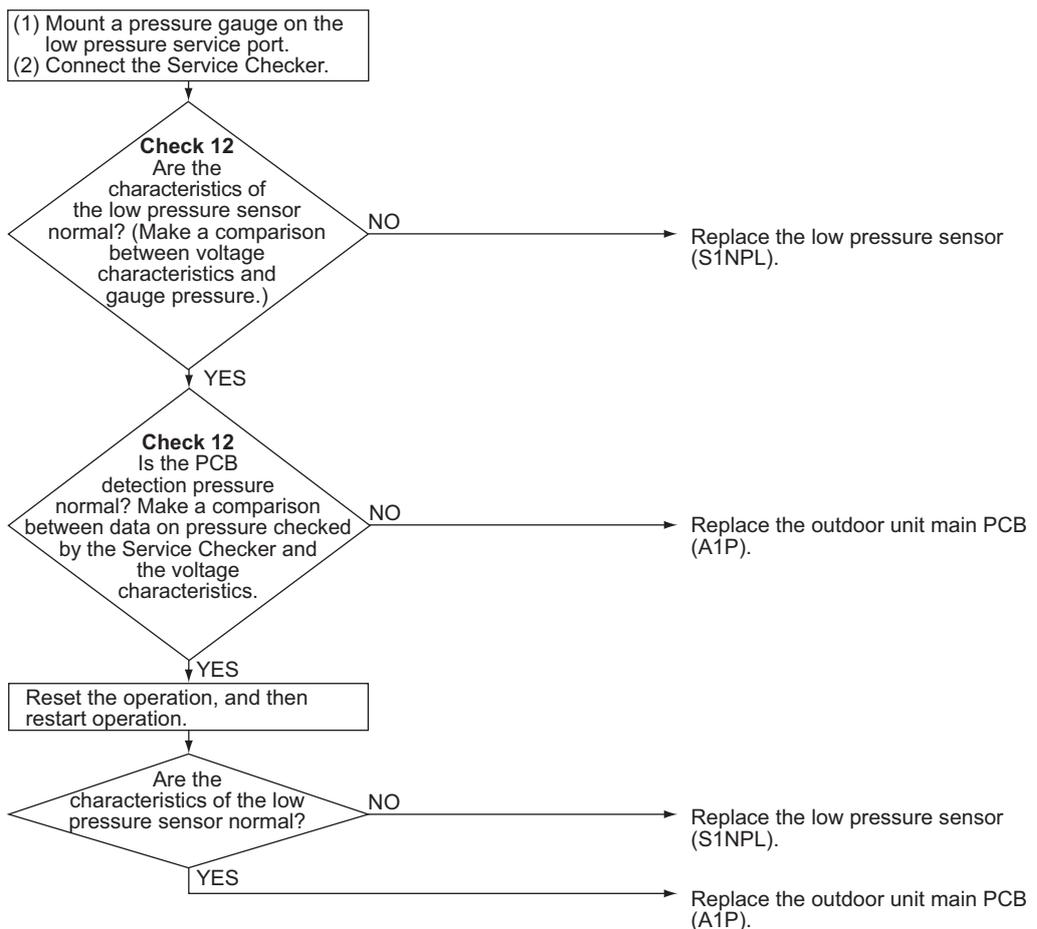
4.57 Low Pressure Sensor Abnormality

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	<ul style="list-style-type: none"> ■ 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 422.

4.58 Outdoor Unit Refrigerant Leak Detection Sensor Abnormality

Applicable Models All outdoor unit models

Error Code **JH-02, JH-06**

Method of Error Detection

- An error is issued when the control PCB receives a fault status from the leak detection sensor.
- Refrigerant sensor is not connected to the master unit.

Error Decision Conditions The error decision is made when refrigerant leak detection sensor is determined to be disconnected, broken, or connected incorrectly.

Supposed Causes

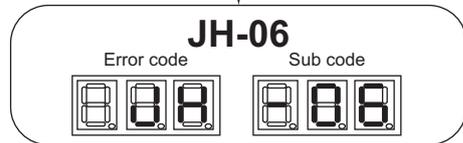
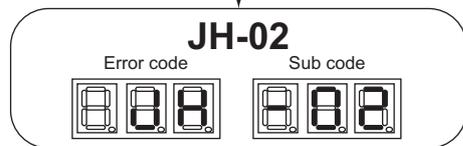
- Defective refrigerant leak detection sensor
- Poor connection of refrigerant leak detection sensor
- Outdoor unit refrigerant leak sensor connection not set
- Defective outdoor unit sub PCB

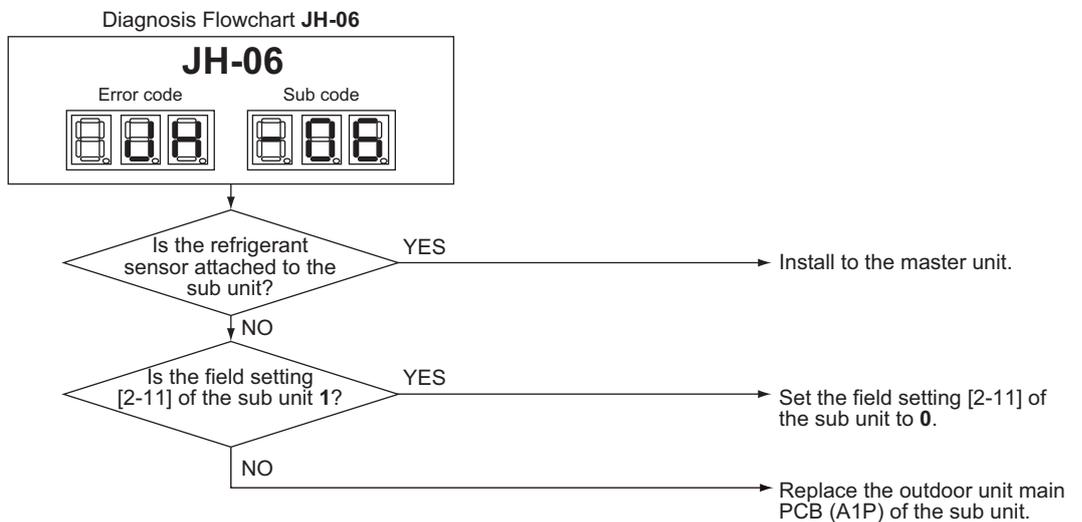
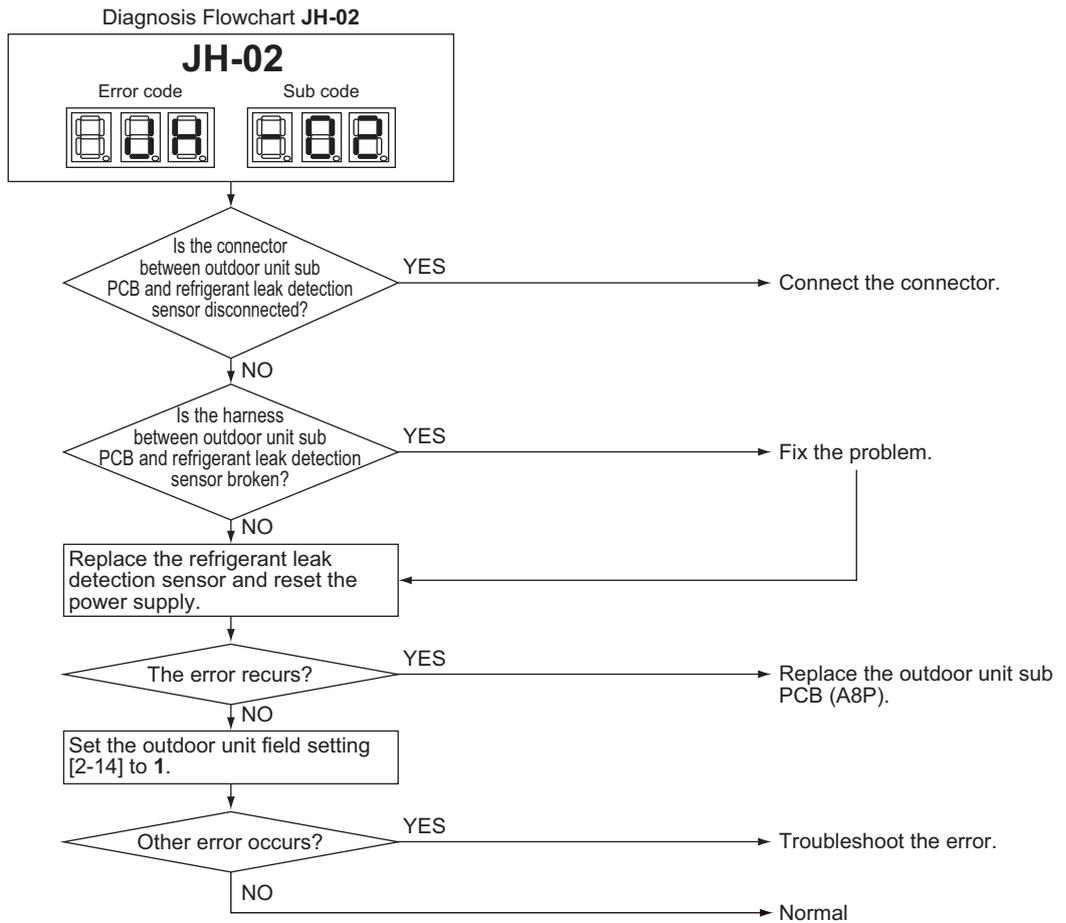
Troubleshooting



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

Ensure the sub code or the lamp display of monitor mode, and then go to the following:





4.59 Outdoor Unit Refrigerant Leak Detection Sensor Replacement Completion Pending

Applicable Models	All outdoor unit models
Error Code	JH-05
Method of Error Detection	<ul style="list-style-type: none"> ■ Refrigerant leak detection ■ Sensor failure or disconnection detection
Error Decision Conditions	The confirmation of refrigerant leak repair or sensor malfunction recovery is pending.
Supposed Causes	<ul style="list-style-type: none"> ■ Refrigerant leak detection ■ Sensor failure or disconnection detection
Troubleshooting	Set the outdoor unit field setting [2-14] to 1.

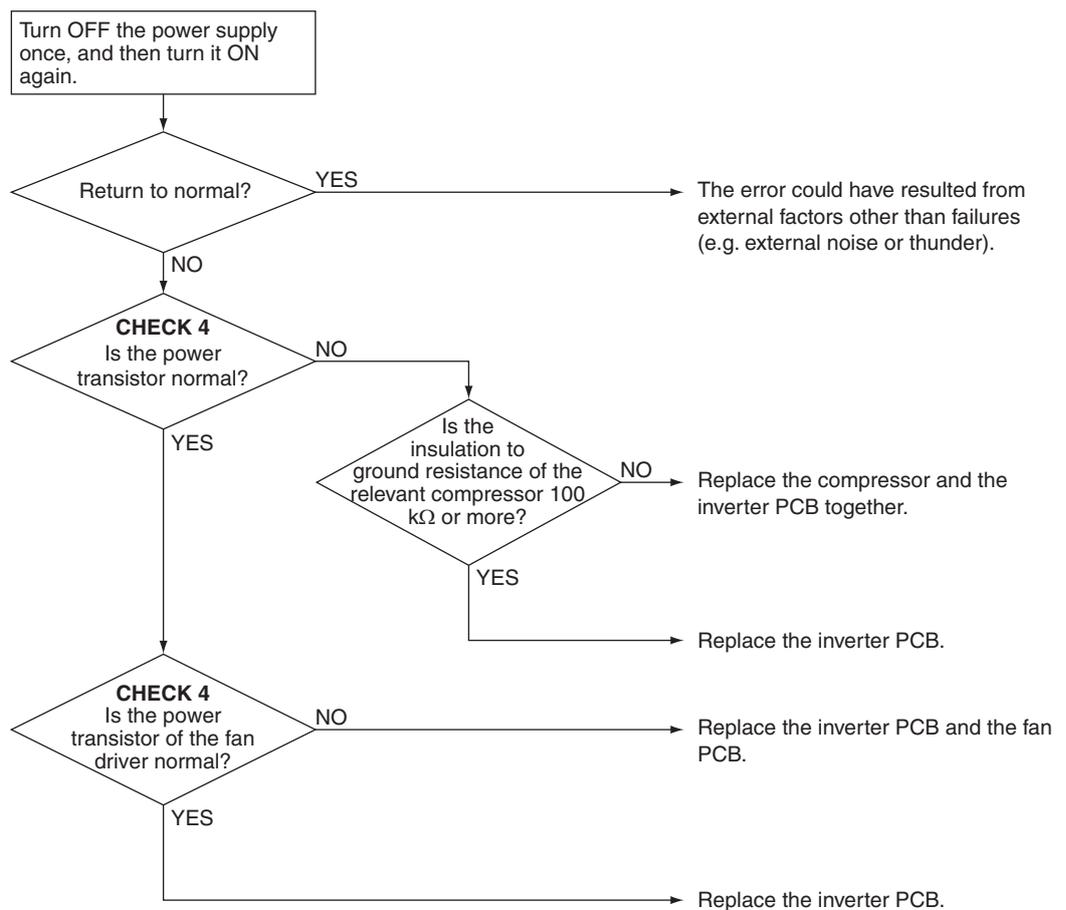
4.60 Inverter PCB Abnormality

Applicable Models	All outdoor unit models
Error Code	L1
Method of Error Detection	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ When the overcurrent flows during the output of waveform ■ When the current sensor error during synchronous operation ■ When IPM error occurs
Supposed Causes	<ul style="list-style-type: none"> ■ Inverter PCB <ul style="list-style-type: none"> ● 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 414.

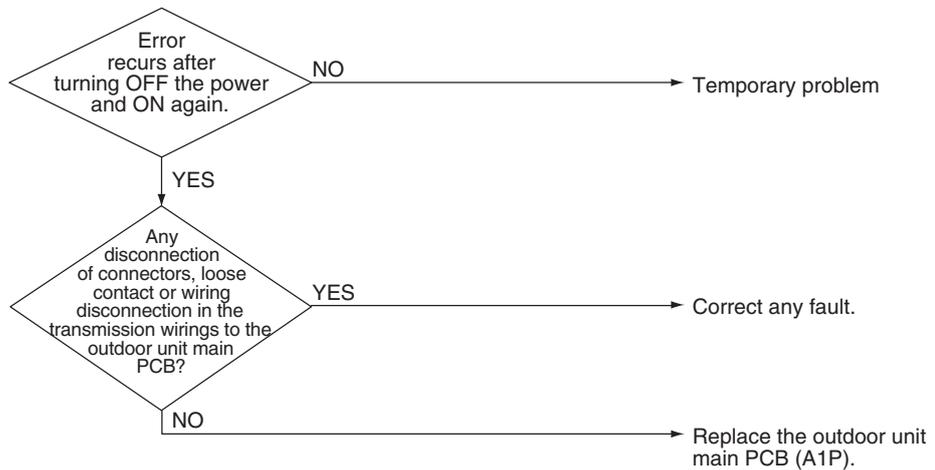
4.61 Momentary Power Failure during Test Operation

Applicable Models	All outdoor unit models
Error Code	L2
Method of Error Detection	Momentary power failure is detected by the PCB.
Error Decision Conditions	Judgment is made by AC power frequency detection circuit on the outdoor unit main PCB.
Supposed Causes	<ul style="list-style-type: none"> ■ Defective wiring ■ 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.



4.62 Inverter Radiation Fin Temperature Rise Abnormality

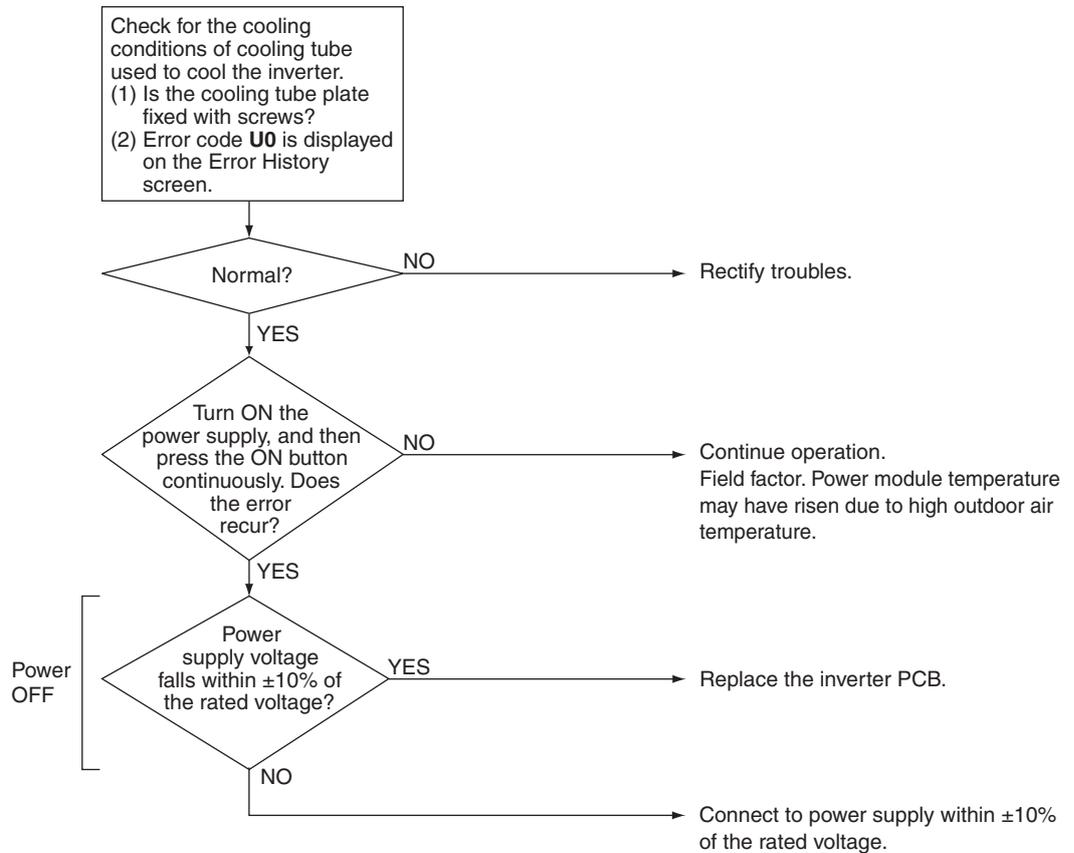
4.62.1 Inverter Radiation Fin Temperature Rise Abnormality (Inverter PCB)

Applicable Models	All outdoor unit models
Error Code	L4 Sub code: 01, 02, 09, 10
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	<ul style="list-style-type: none">■ Cooling tube plate not fixed with screws■ 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.



4.62.2 Inverter Radiation Fin Temperature Rise Abnormality (Fan PCB)

Applicable Models All outdoor unit models

Error Code **L4**
Sub code: 06, 07, 18, 19

Method of Error Detection Fan PCB radiation fin temperature is detected by the thermistor located inside the fan PCB circuit.

Error Decision Conditions Detected temperature exceeds a certain level.

Supposed Causes

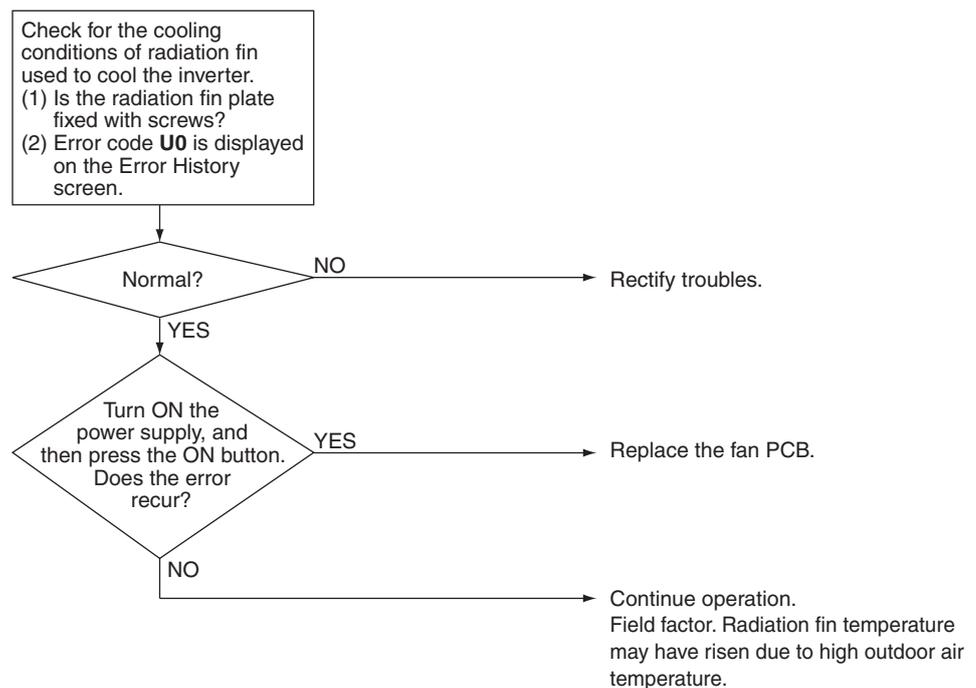
- Radiation fin plate not fixed with screws
- **U0** error
- Defective fan PCB
- High outdoor air temperature

Troubleshooting



Caution

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



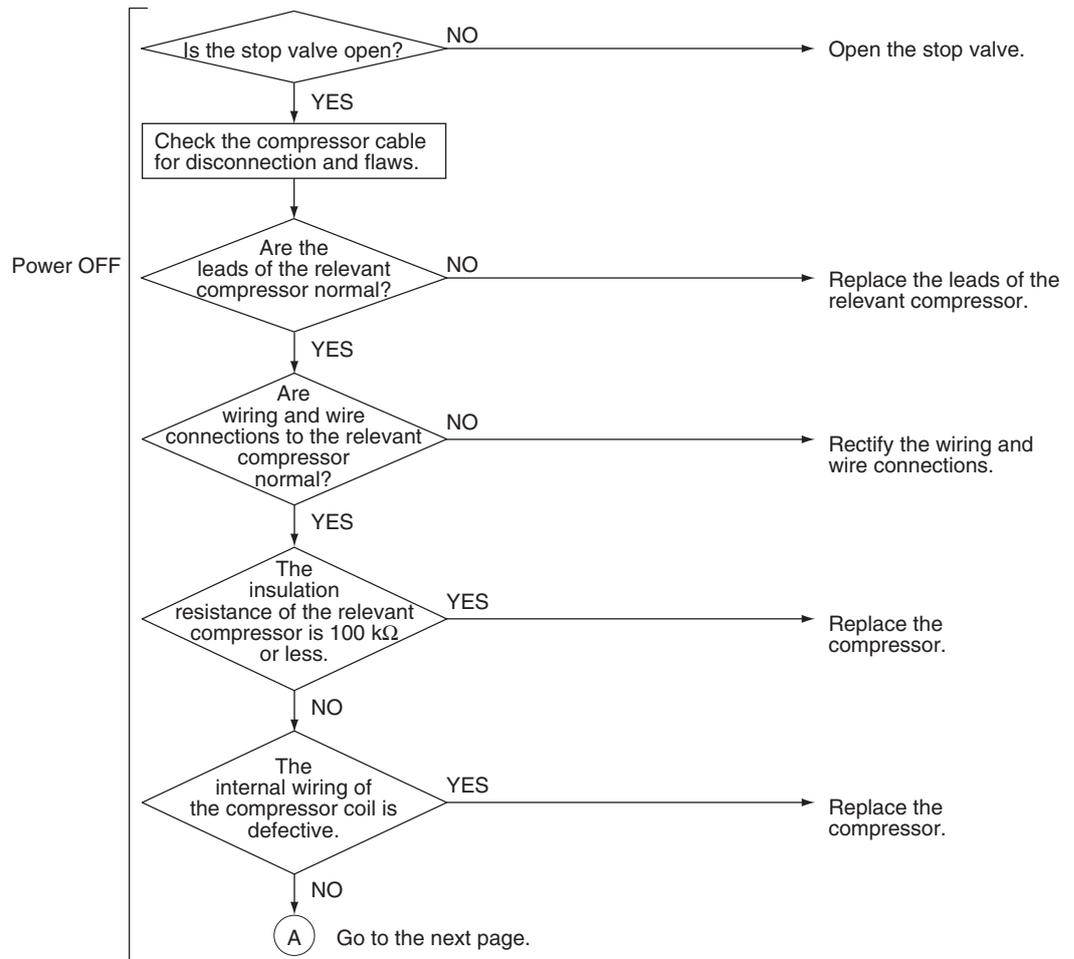
4.63 Compressor Instantaneous Overcurrent

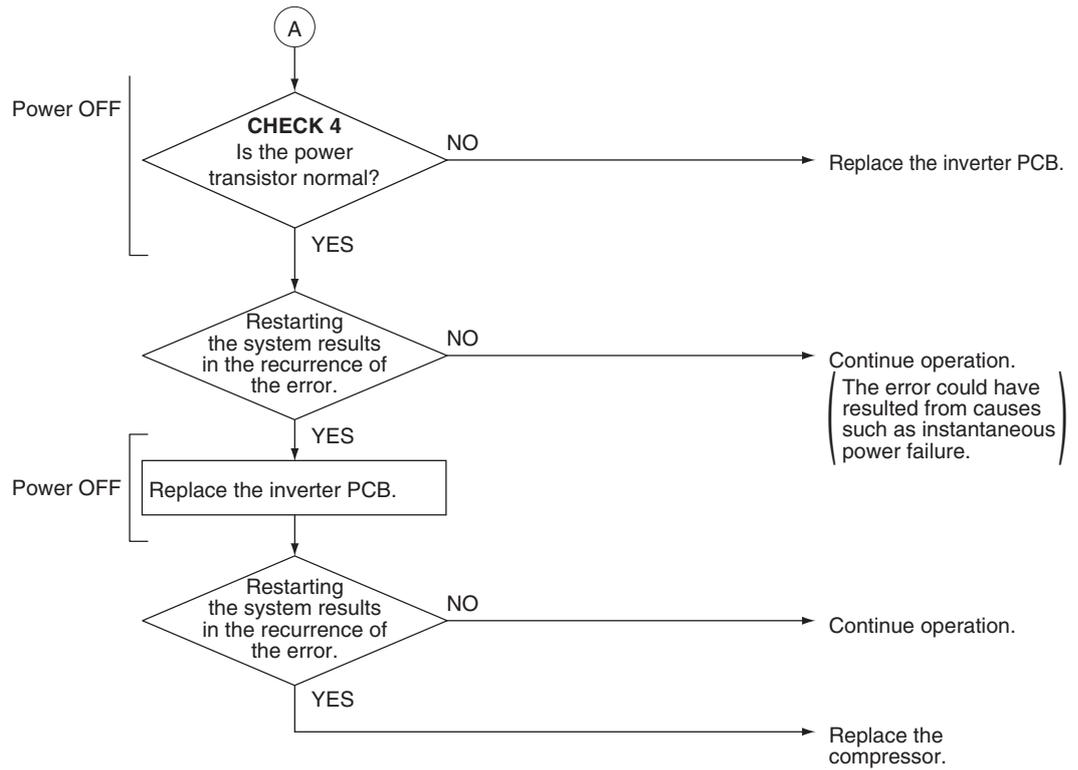
Applicable Models	All outdoor unit models
Error Code	L5
Method of Error Detection	Detect current flowing through the power transistor.
Error Decision Conditions	When overcurrent flows instantaneously through the power transistor.
Supposed Causes	<ul style="list-style-type: none"> ■ Defective compressor 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 414.

4.64 Compressor Overcurrent

Applicable Models All outdoor unit models

Error Code **L8**

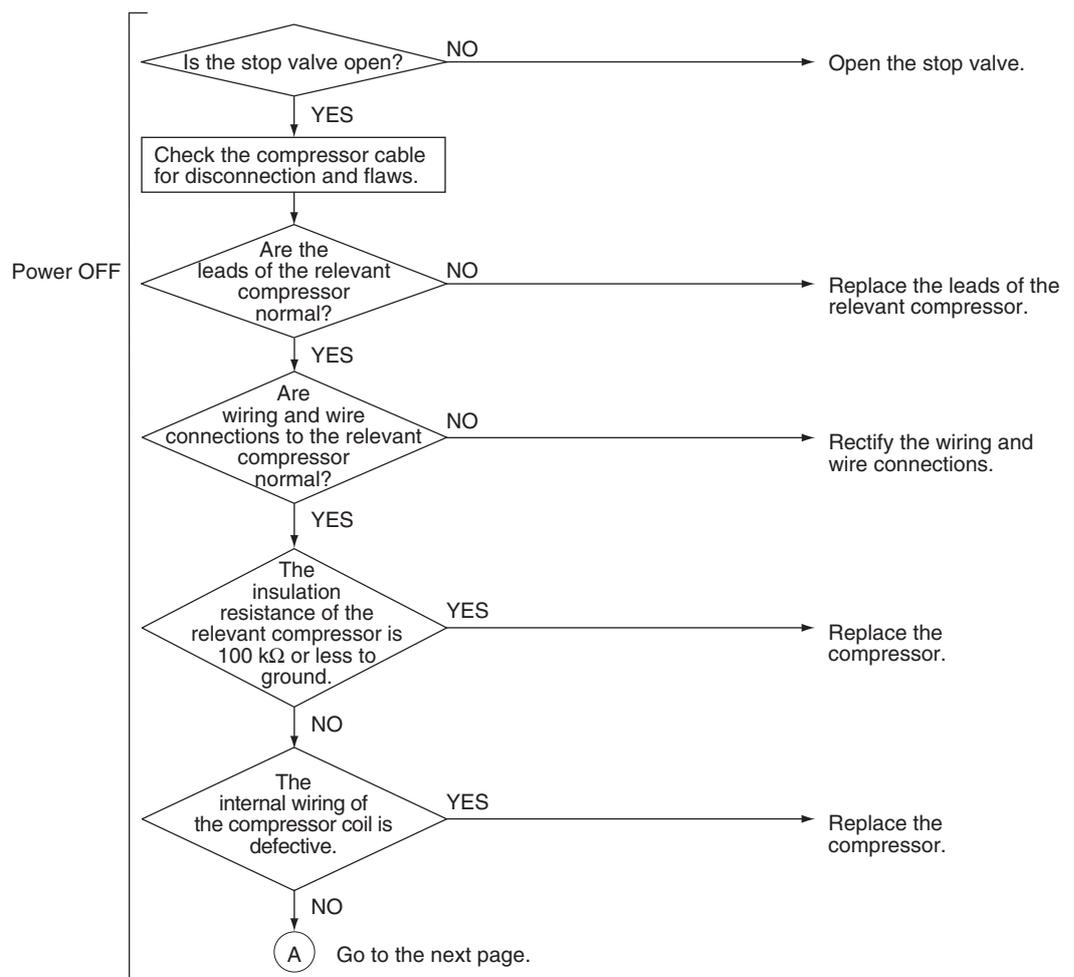
Method of Error Detection Detect current flowing through the power transistor.

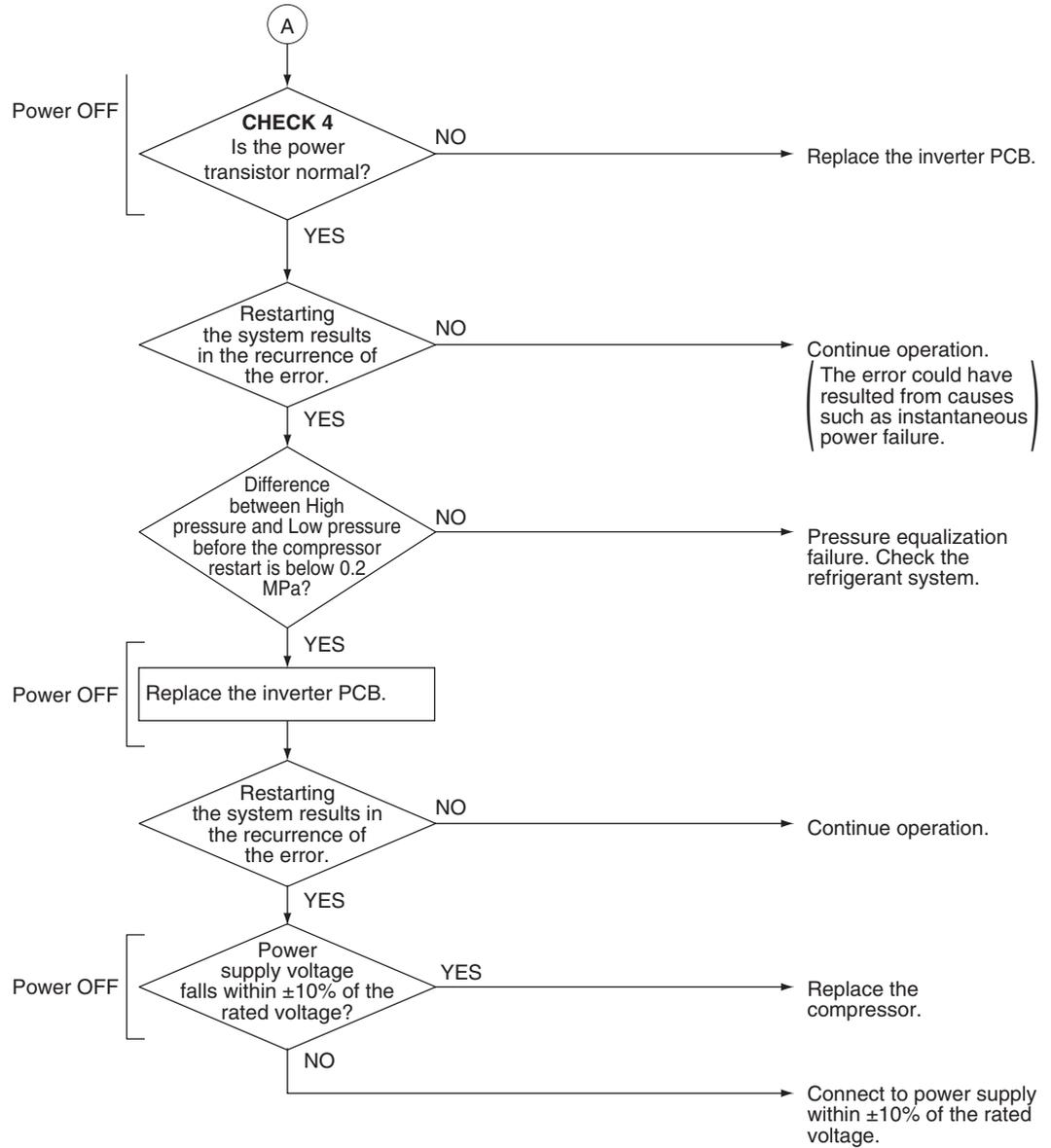
Error Decision Conditions When the secondary-side inverter current exceeds a certain value.

- 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.



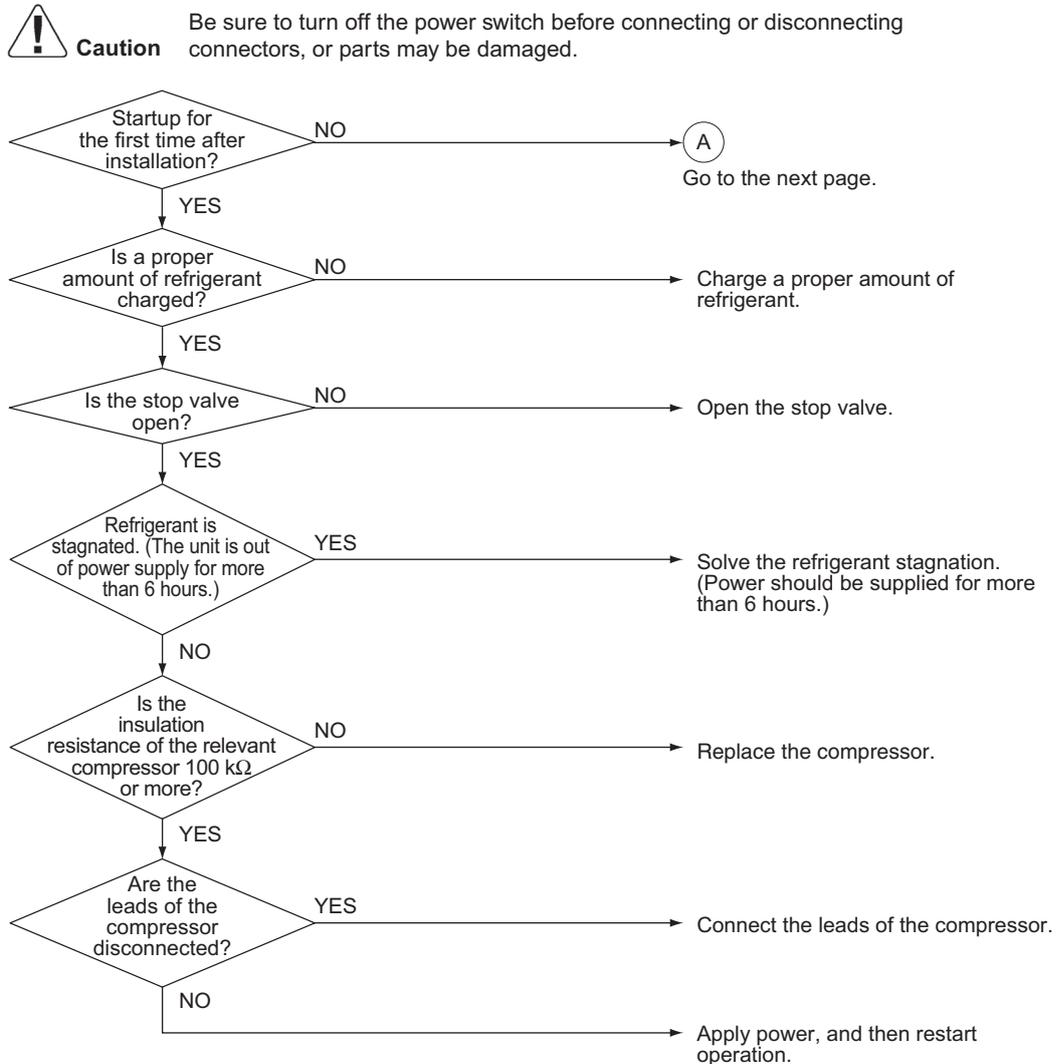


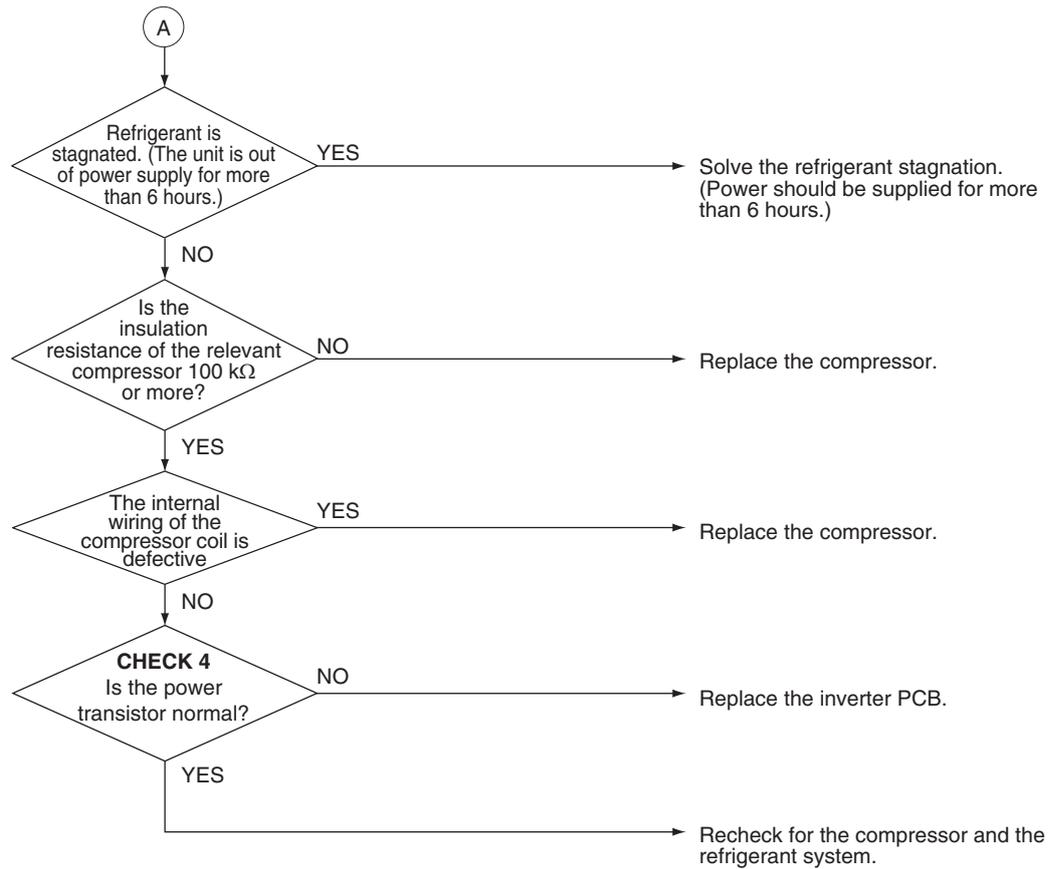
Reference CHECK 4 Refer to page 414.

4.65 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	<ul style="list-style-type: none"> ■ The stop valve is not opened ■ Defective compressor ■ Error in wire connections to compressor ■ Large differential pressure before compressor startup ■ Defective inverter PCB

Troubleshooting





Reference

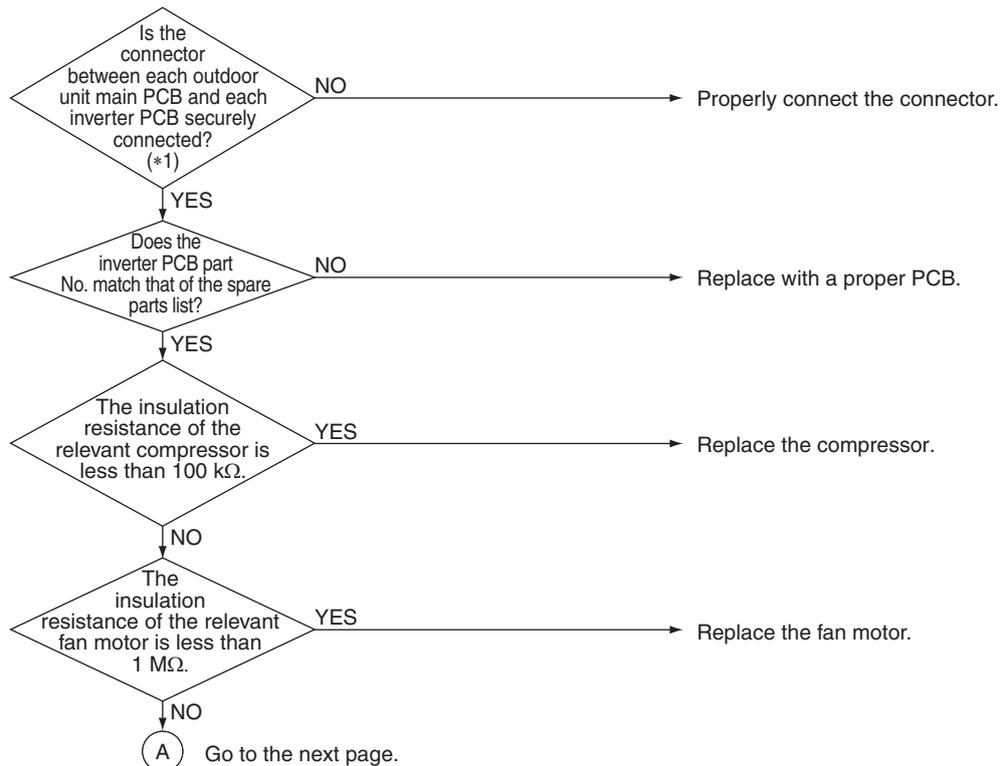
CHECK 4 Refer to page 414.

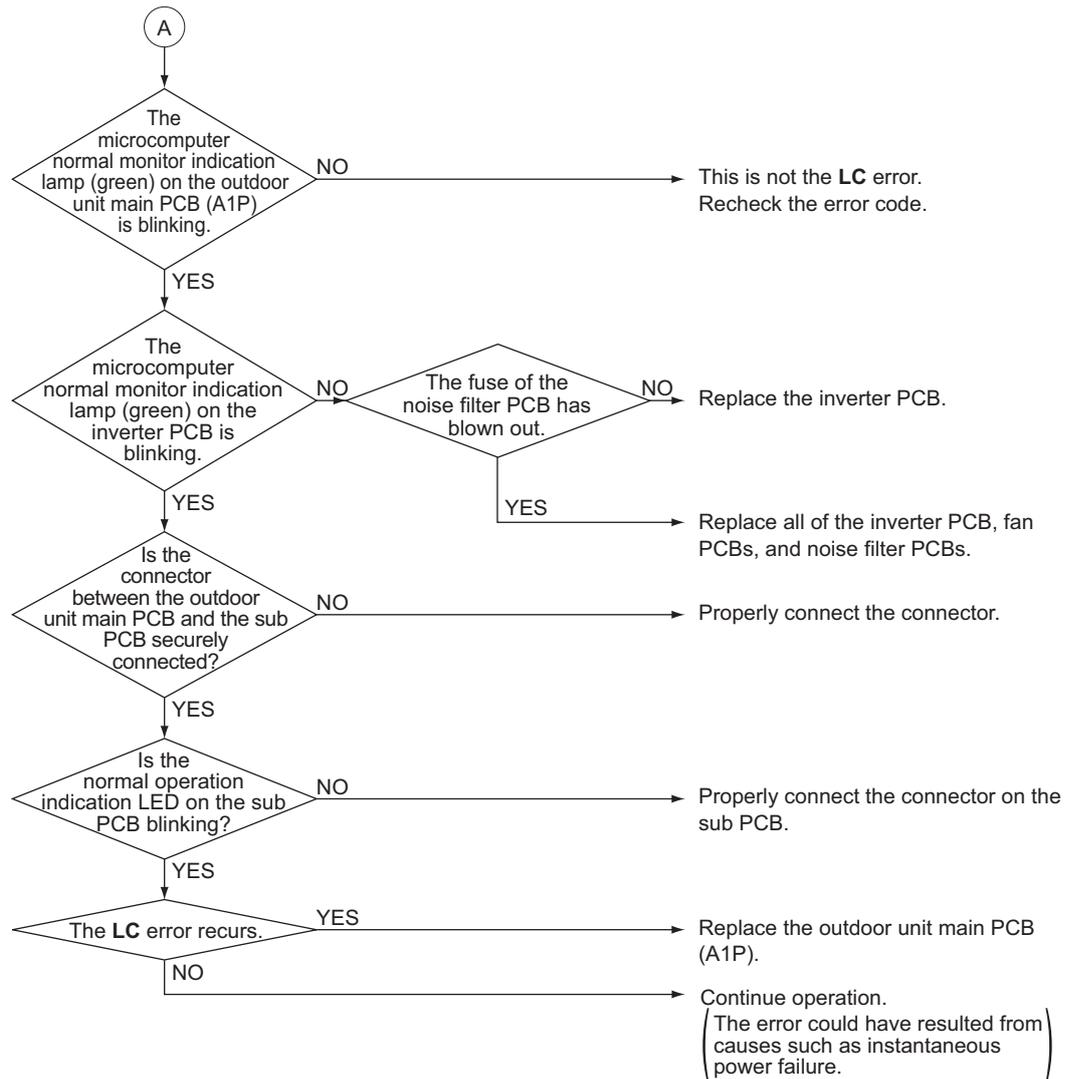
4.66 Transmission Error between Outdoor Unit Main PCB and Inverter PCB

Applicable Models	All outdoor unit models
Error Code	LC Sub code: 14, 15, 19, 20, 24, 25, 30, 31, 33, 34
Method of Error Detection	Check for the transmission conditions between the inverter PCB and the outdoor unit main PCB using a microcomputer.
Error Decision Conditions	When normal transmission is disabled for a given period of time or more.
Supposed Causes	<ul style="list-style-type: none"> ■ Defective connection between the inverter PCB and the outdoor unit main PCB ■ Defective outdoor unit main PCB (transmission block) ■ Defective noise filter, compressor or fan motor ■ External factors (e.g. noise) ■ Failure of inverter PCB or fan 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.

4.67 Transmission Error between Branch Selector Unit or Safety Shut-Off Valve Unit Main PCB and Safety Ventilated Enclosure Kit Sub-PCB

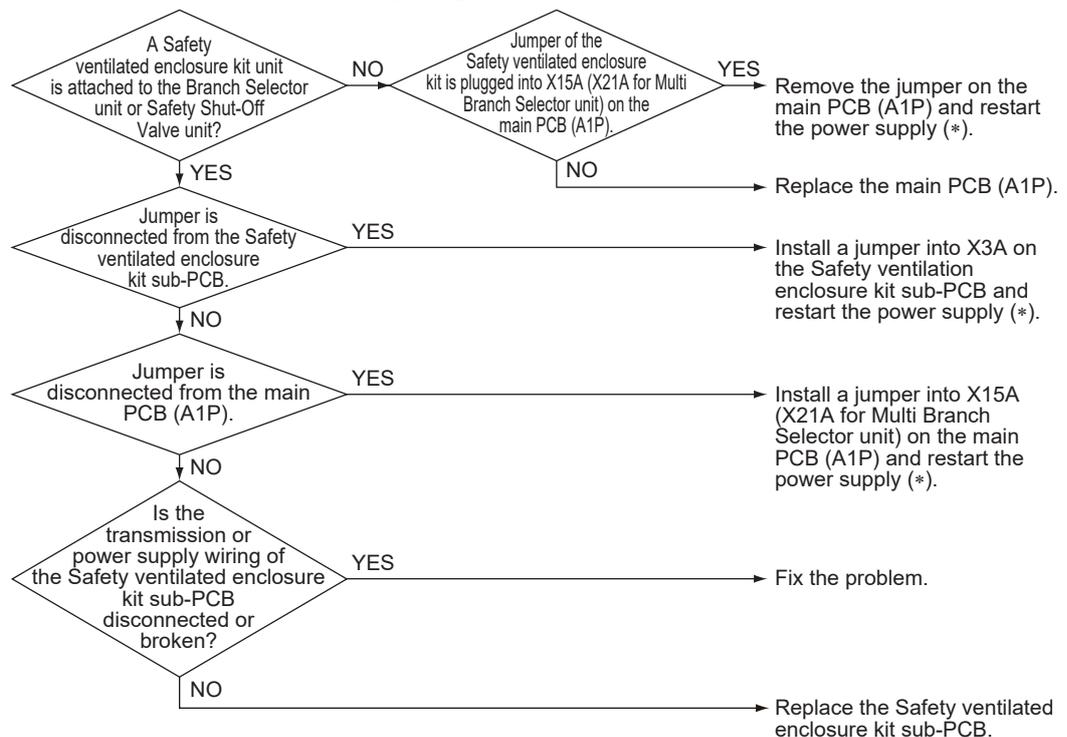
Applicable Models	Branch Selector unit Safety Shut-Off Valve unit Safety ventilated enclosure kit (BS-EBF04/07-AA, BS-EBSVA-AA)
Error Code	LC-41
Method of Error Detection	Communication error between Safety ventilated enclosure kit sub-PCB and Branch Selector unit main PCB or Safety Shut-Off Valve main PCB
Error Decision Conditions	When the initialization of the sub PCB is not completed within a certain time, or when communication is not restored
Supposed Causes	<ul style="list-style-type: none"> ■ Connection error between Branch Selector unit main PCB (A1P) or Safety Shut-Off Valve unit main PCB (A1P) and Safety ventilated enclosure kit sub-PCB ■ Jumper missing ■ Defective Branch Selector unit main PCB ■ Defective Safety Shut-Off Valve unit main PCB ■ Defective Safety ventilated enclosure kit sub-PCB

Troubleshooting



Caution

- Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.
- The Branch Selector unit and Safety Shut-Off Valve unit of the R-32 model are equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected.
- When a power reset is required for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before performing the work. (it may take up to 2 hours if the capacitor is fully charged).



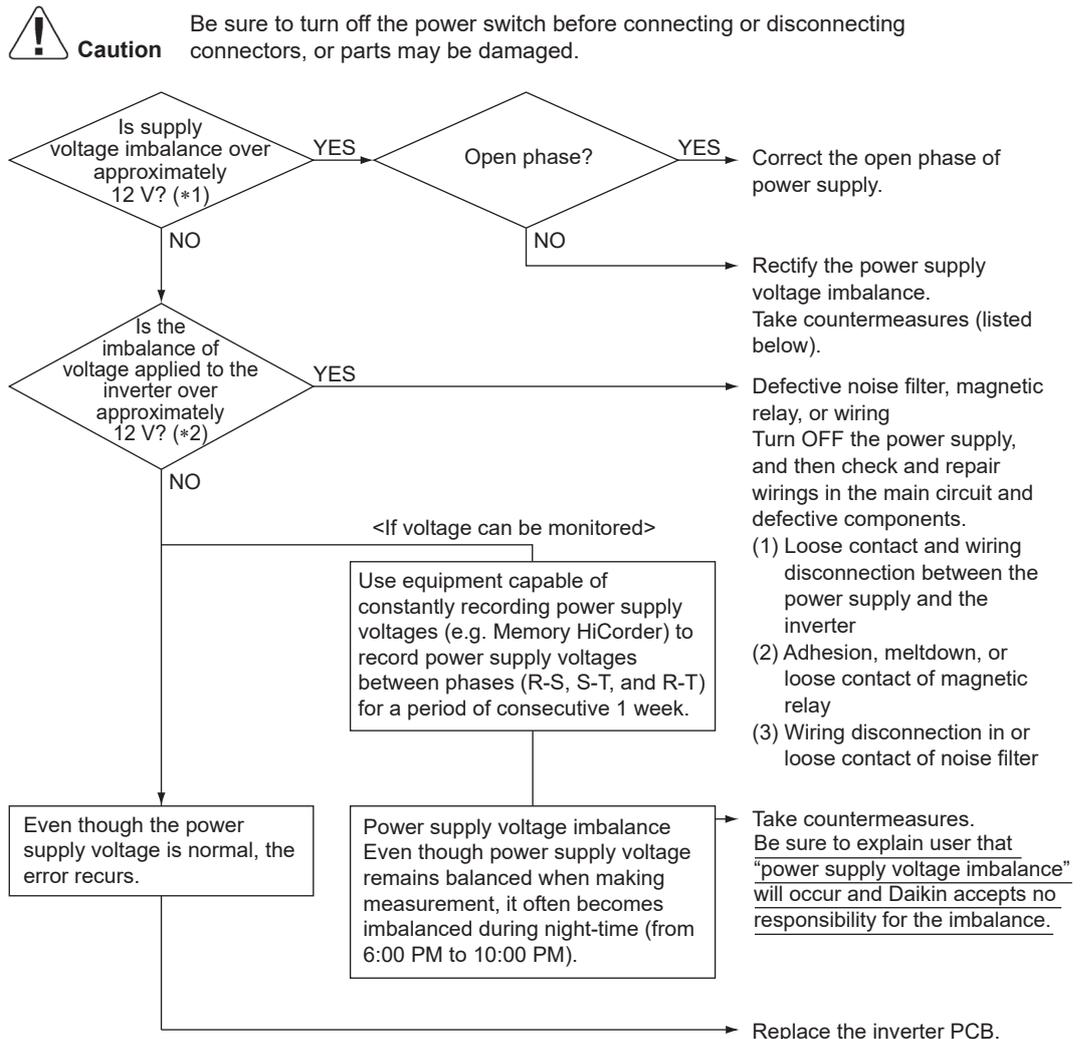
Note(s)

* When it takes time to discharge the charge stored in the backup PCBs, refer to the method described in **Method for Forced Power Reset** on page 456.

4.68 Power Supply 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 power supply voltage imbalance exceeds approximately 12 V. Error is not decided while the unit operation is continued. P1 will be displayed by pressing the inspection button.
Supposed Causes	<ul style="list-style-type: none"> ■ Open phase ■ Interphase voltage imbalance ■ Defective capacitor in the main circuit ■ Defective inverter PCB ■ Defective magnetic relay ■ Defective wiring in the main circuit

Troubleshooting



Note(s)

- *1. Make measurement of voltage at the power supply terminal block (X1M).

- *2. Make measurement of voltage at the L1, L2 and L3 terminals of diode module located on the inverter PCB during the compressor is in operation.

4.69 Inverter Radiation Fin Temperature Abnormality

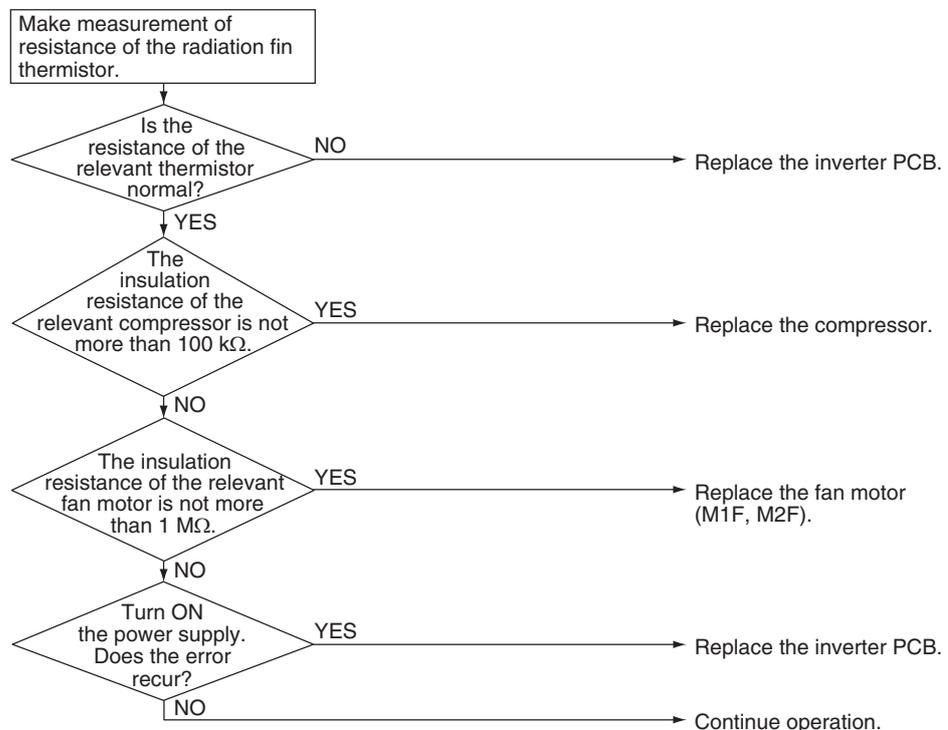
4.69.1 Inverter Radiation Fin Temperature Abnormality (Inverter PCB)

Applicable Models	All outdoor unit models
Error Code	P4 Sub code: 09-13
Method of Error Detection	Detect the resistance of the following thermistors while the compressor is not running: <ul style="list-style-type: none"> ■ Radiation fin thermistor ■ Thermistor located in PCB circuit ■ Heat sink thermistor
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. P4 will be displayed by pressing the inspection button.
Supposed Causes	<ul style="list-style-type: none"> ■ Defective radiation fin temperature thermistor ■ 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.



4.69.2 Inverter Radiation Fin Temperature Abnormality (Fan PCB)

Applicable Models All outdoor unit models

Error Code **P4**
Sub code: 02, 03, 15, 16

Method of Error Detection Detects the resistance of the thermistor located inside the fan PCB circuit while the fan motor is not in operation.

Error Decision Conditions The resistance of the thermistor comes to a value equivalent to open or short circuit.

Supposed Causes

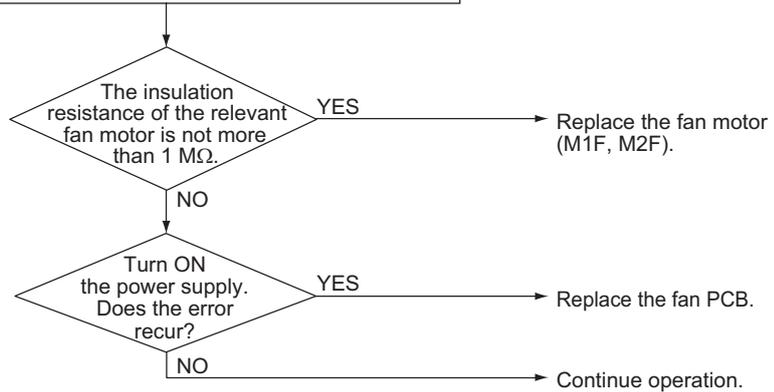
- Defective fan PCB
- Defective fan motor

Troubleshooting

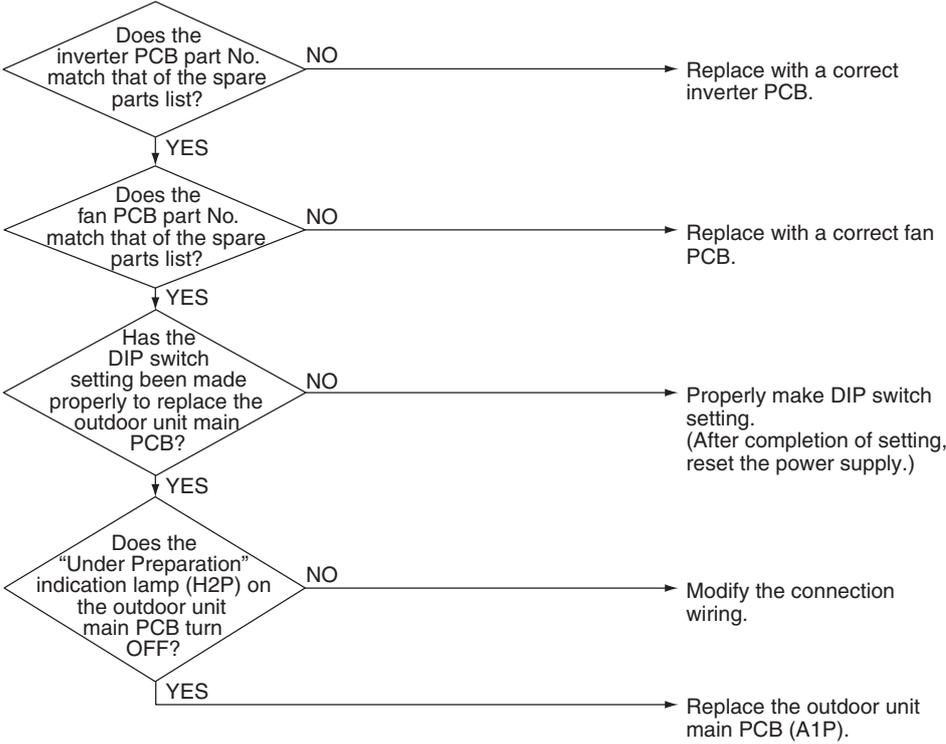


Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check for fan PCB applicable to the error code **P4** while in monitor mode.
P4-02/15: Fan PCB (M1F) Master / Sub
P4-03/16: Fan PCB (M2F) Master / Sub



4.70 Field Setting Abnormality after Replacing Outdoor Unit Main PCB or 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	<ul style="list-style-type: none"> ■ Mismatching of type of PCB ■ Improper (or no) field setting after replacing outdoor unit main PCB
Troubleshooting	<div style="text-align: center;">  Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged. </div> 

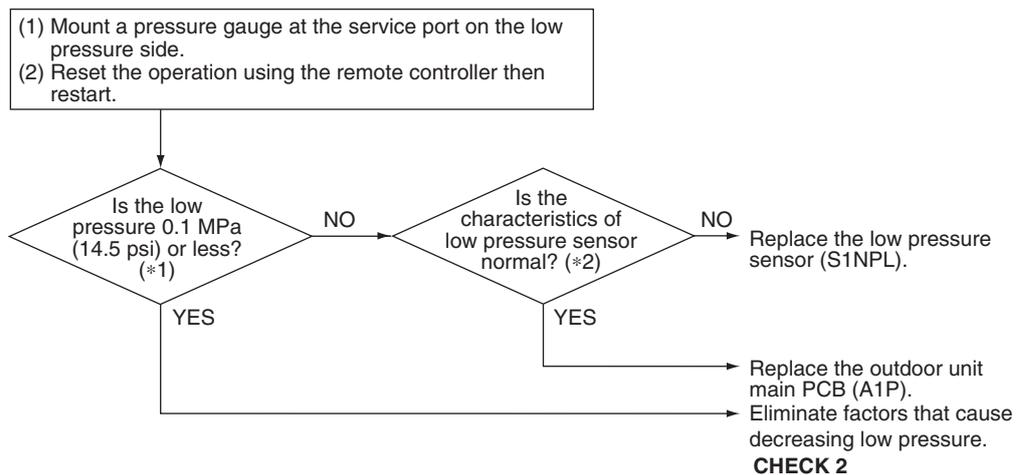
4.71 Refrigerant Shortage

Applicable Models	All outdoor unit models
Error Code	U0
Method of Error Detection	Detect refrigerant shortage according to a low pressure level or a difference in heat exchanging temperature from the suction pipe.
Error Decision Conditions	Low pressure becomes 0.1 MPa (14.5 psi) or less. * Error is not determined. The unit continues the operation.
Supposed Causes	<ul style="list-style-type: none"> ■ Refrigerant shortage or refrigerant clogging (wrong piping) ■ Defective 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.



Note(s)

- *1. Check the low pressure value by using pressure gauge in operation.
- *2. Compare the actual measurement value by pressure sensor with the value by the pressure gauge.
(To gain actual measurement value by pressure sensor, measure the voltage at the connector [between (2)-(3)] and then convert the value into pressure. **CHECK 12**)



Reference **CHECK 2** Refer to page 412.



Reference **CHECK 12** Refer to page 422.

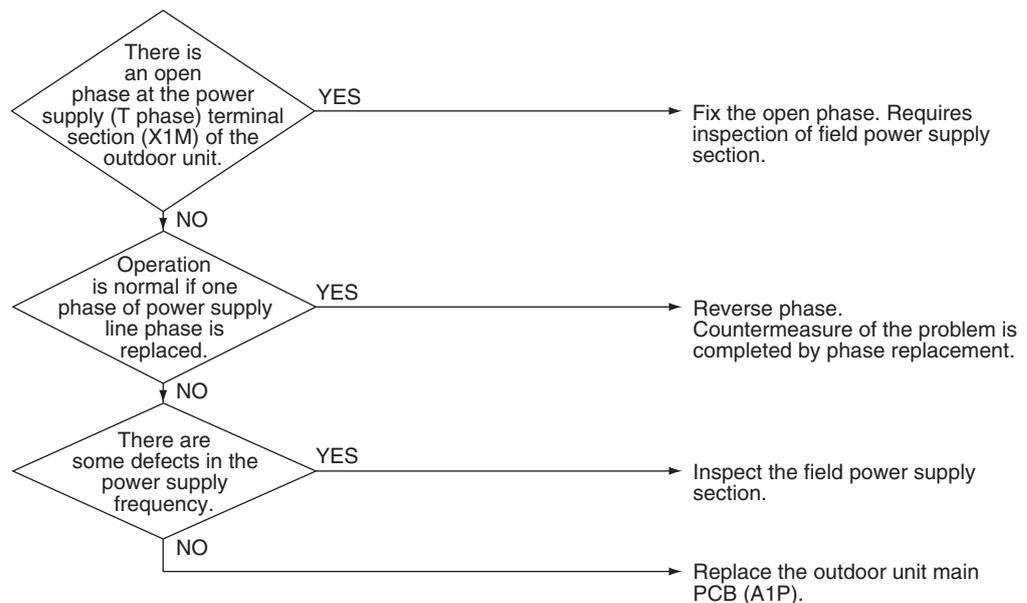
4.72 Reverse Phase, Open Phase, Power Supply Frequency Issue

Applicable Models	All outdoor unit models
Error Code	U1
Method of Error Detection	The phase of each phase are detected by reverse phase detection circuit and right phase or reverse phase are judged.
Error Decision Conditions	When a power supply is reverse phase, or T-phase is open phase.
Supposed Causes	<ul style="list-style-type: none"> ■ Power supply reverse phase ■ T phase open phase ■ Defective outdoor unit main PCB (A1P) ■ Power supply frequency issue

Troubleshooting



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



4.73 Power Supply Insufficient or Instantaneous Abnormality

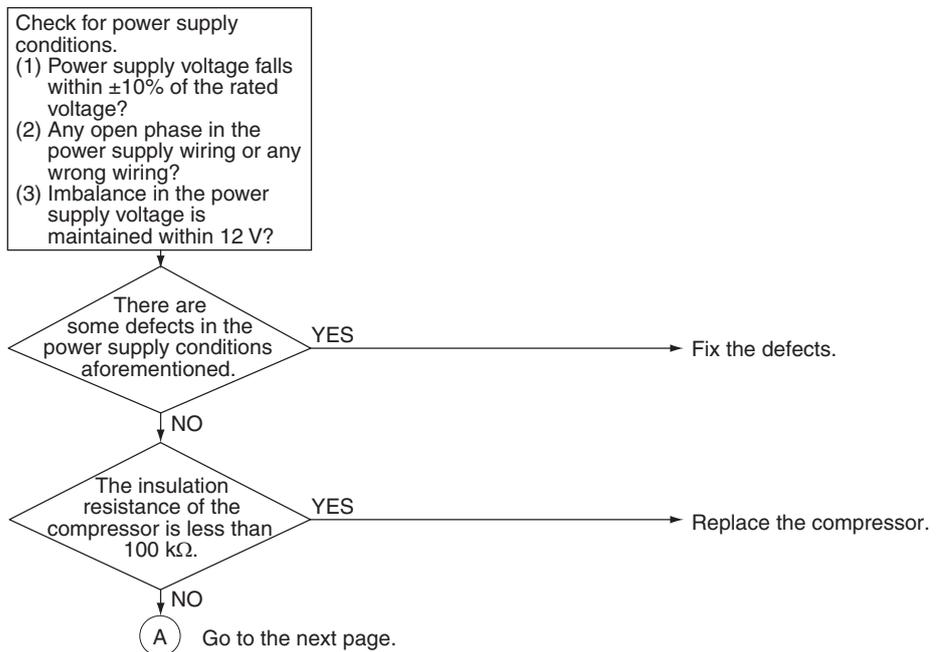
Applicable Models	All outdoor unit models
Error Code	U2
Method of Error Detection	Detect the voltage of capacitor of the main circuit in the inverter PCB.
Error Decision Conditions	When the voltage in the DC circuit (between diode module and power module) falls below 190 VDC (for 208/230 V models) or 380 VDC (for 460 V models).
Supposed Causes	<ul style="list-style-type: none"> ■ Abnormal power supply voltage ■ Instantaneous power failure ■ Open phase ■ Defective inverter PCB ■ Defective outdoor unit main PCB ■ Defective compressor ■ Defective main circuit wiring ■ Defective fan motor ■ Defective connection of signal cable

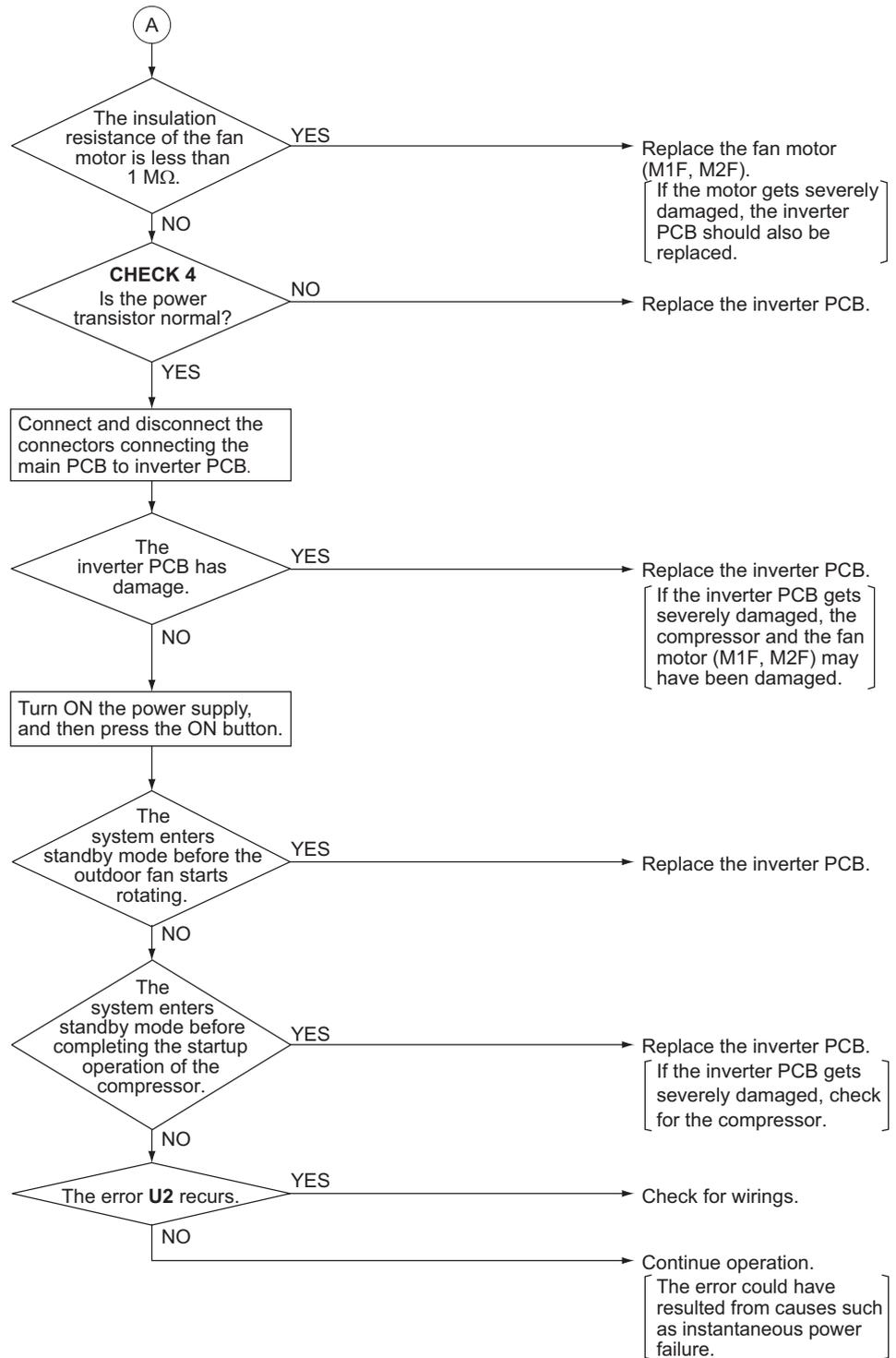
Troubleshooting



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 414.

4.74 Check Operation Not Executed

Applicable Models All outdoor unit models

Error Code **U3**

Method of Error Detection The check operation has not been executed.

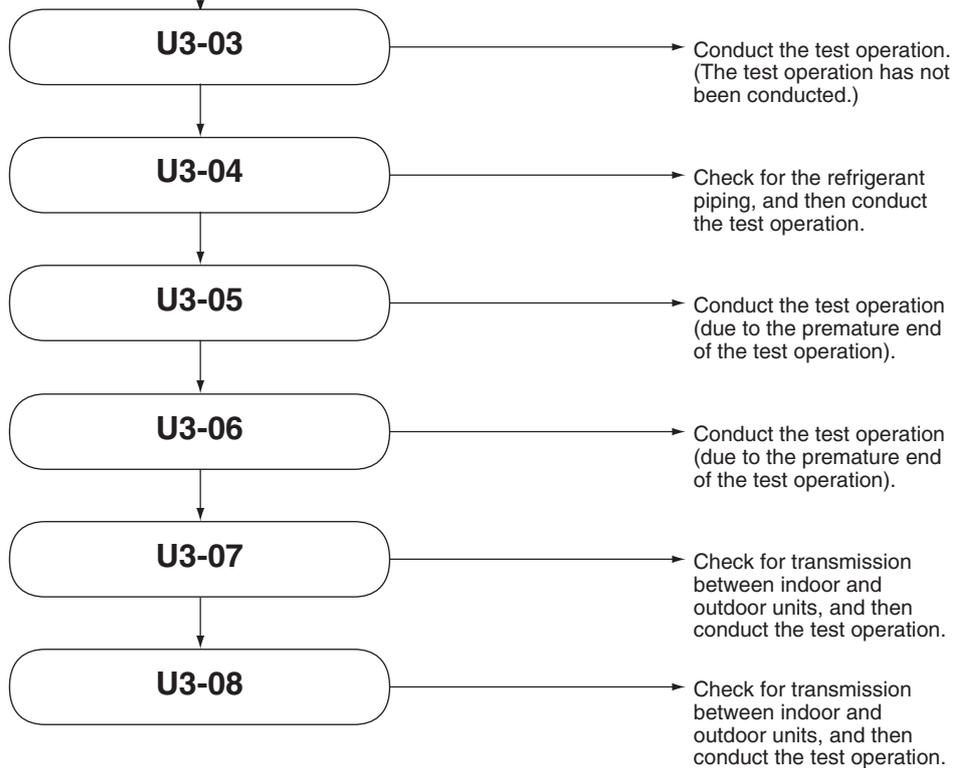
Error Decision Conditions Error is decided when the unit starts operation without check operation.

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.

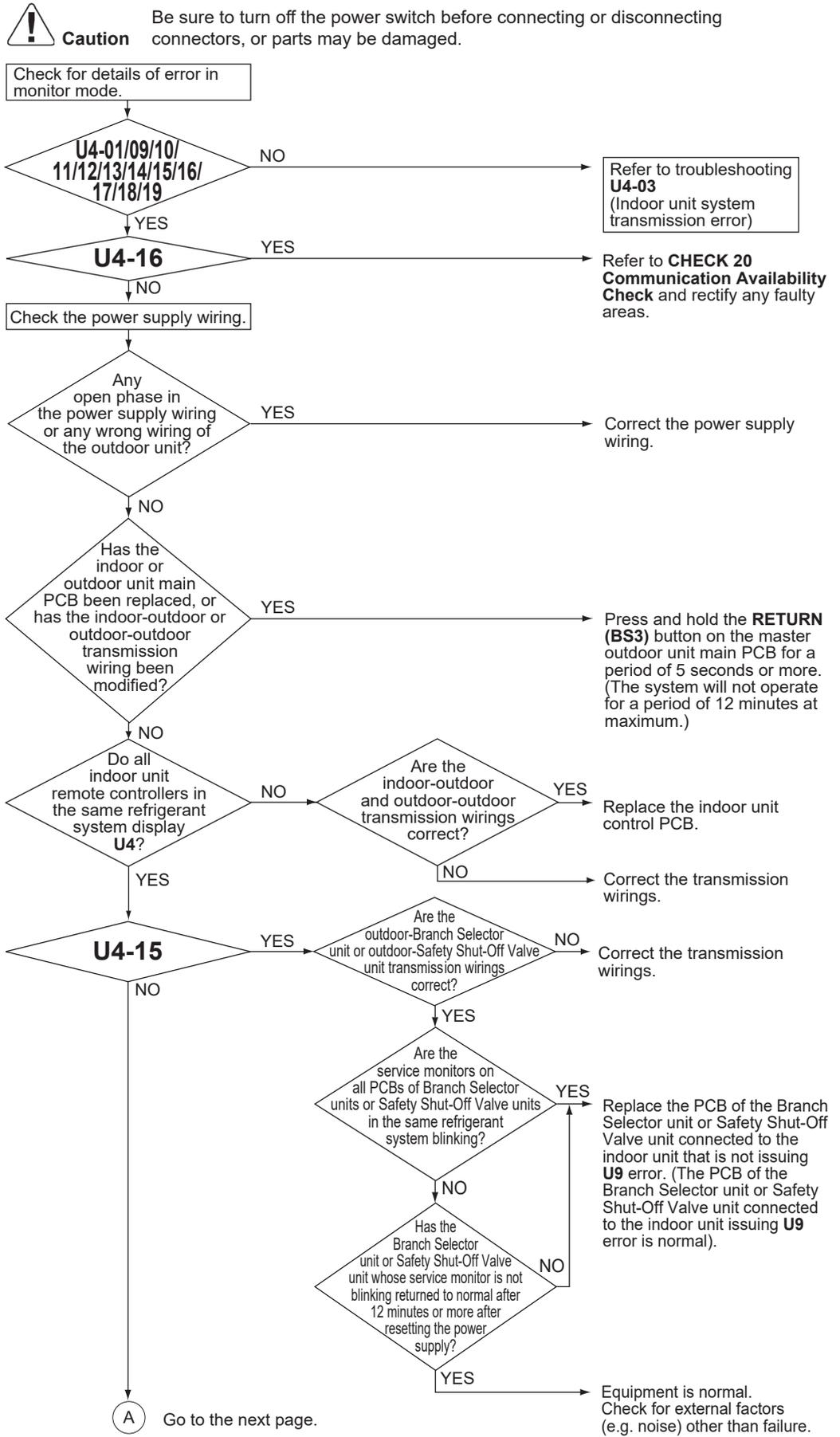
The contents of individual failures vary with sub code. Ensure the sub code, and then go to the following:

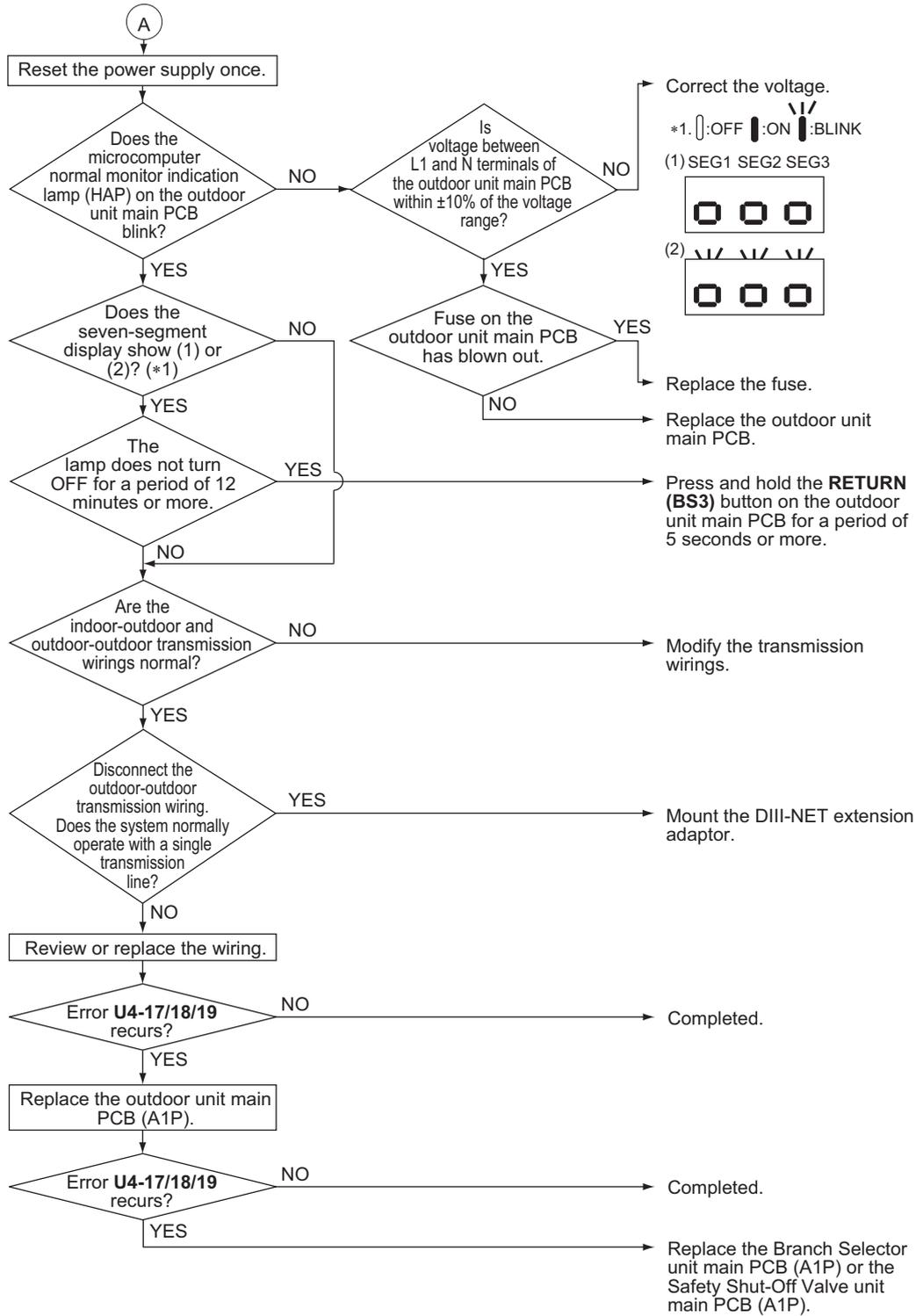


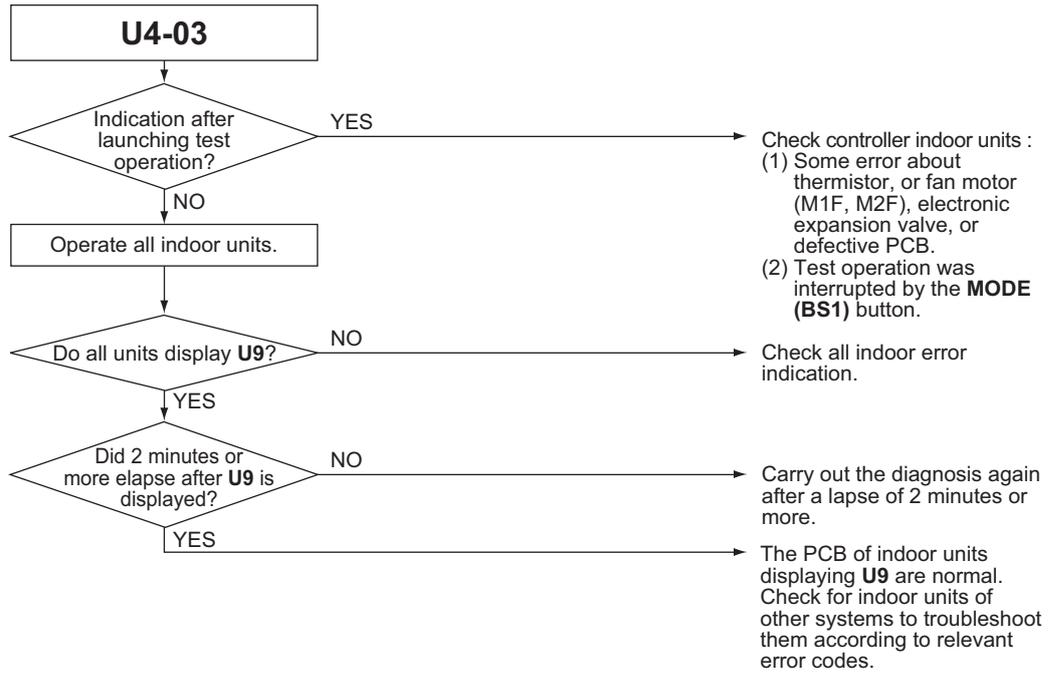
4.75 Transmission Error between Units, Open Phase in Power Supply Wiring

Applicable Models	All indoor unit models All outdoor unit models Branch Selector unit Safety Shut-Off Valve unit
Error Code	U4
Method of Error Detection	Microcomputer checks if transmission between indoor and outdoor units is normal.
Error Decision Conditions	Transmission is not carried out normally for a certain amount of time.
Supposed Causes	<ul style="list-style-type: none"> ■ Open phase in power supply wiring ■ Short circuit in indoor-outdoor or outdoor-outdoor transmission wiring (H1/H2), or wrong wiring ■ Outdoor unit, indoor unit, Branch Selector unit, or Safety Shut-Off Valve unit power supply is OFF ■ System address does not match ■ Defective indoor unit control PCB ■ Defective outdoor unit main PCB ■ Defective Branch Selector unit or Safety Shut-Off Valve unit main PCB ■ Multi-tenant function is ON.

Troubleshooting





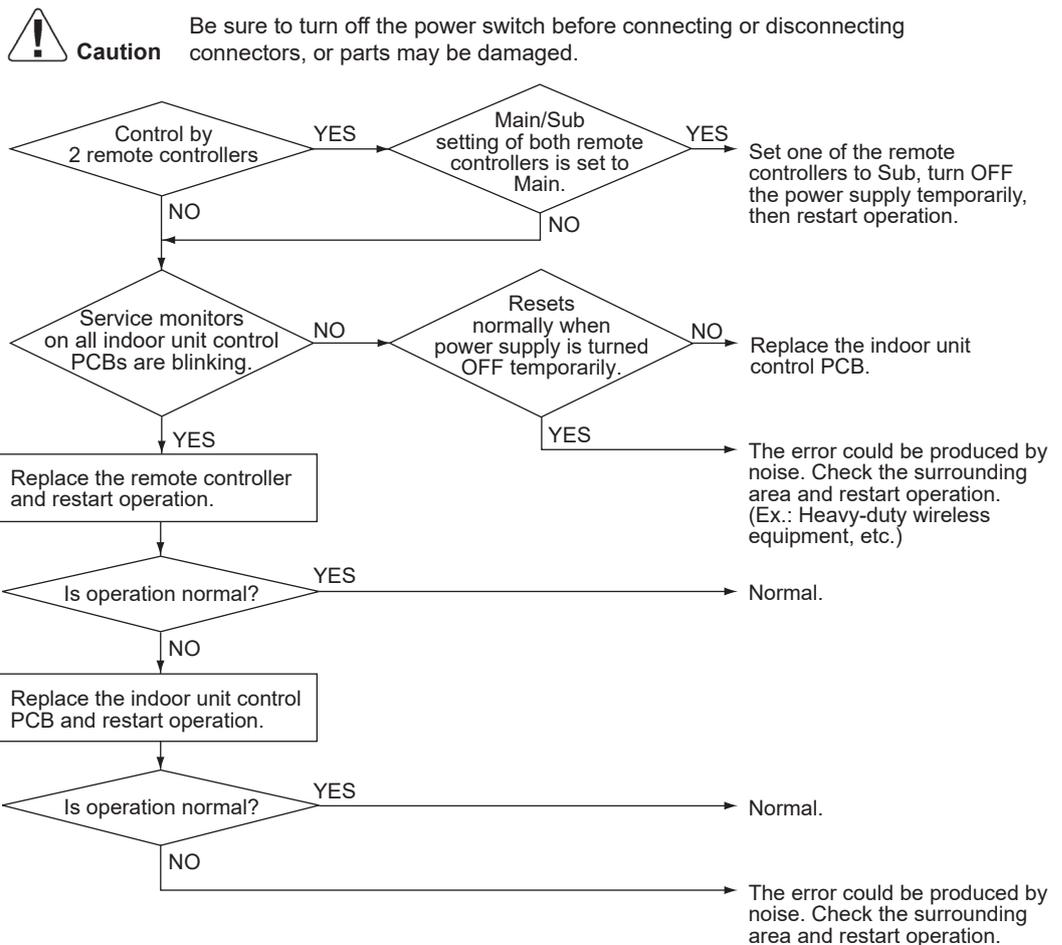


Reference **CHECK 20** Refer to page 435.

4.76 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	<ul style="list-style-type: none"> ■ Transmission error between indoor unit and remote controller ■ Connection of 2 main remote controllers (when using 2 remote controllers) ■ Defective indoor unit control PCB (A1P) ■ Defective remote controller PCB ■ Transmission error caused by noise

Troubleshooting



Reference

Refer to page 88 for Main/Sub setting.

4.77 Transmission Error between Outdoor Units

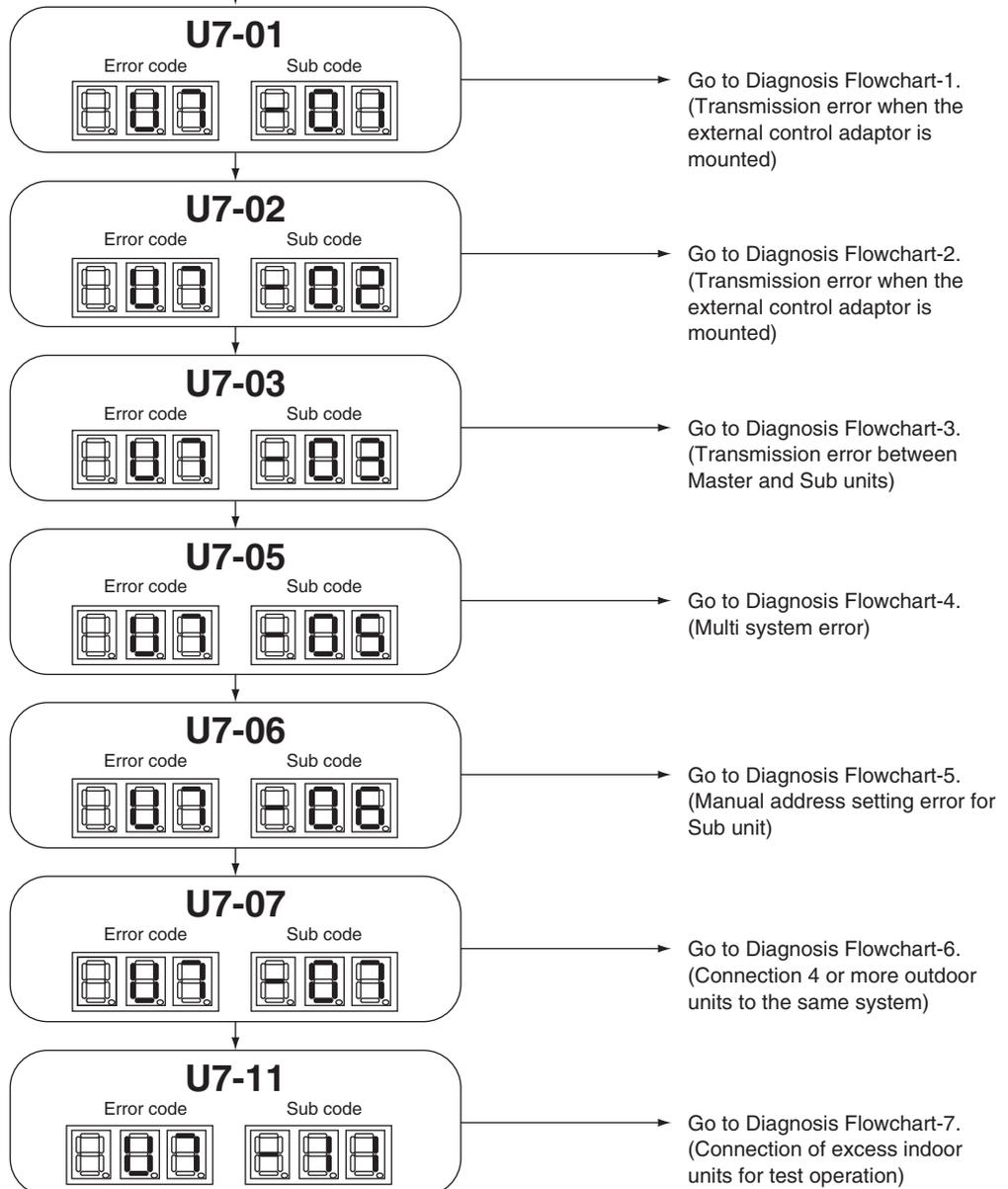
Applicable Models	All outdoor unit models
Error Code	U7
Method of Error Detection	Microcomputer checks if transmission between outdoor units is normal.
Error Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	<ul style="list-style-type: none"> ■ Connection error of transmission wirings between outdoor unit and external control adaptor for outdoor unit ■ Connection error of transmission wirings between outdoor units ■ Cool/Heat selection setting error ■ 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

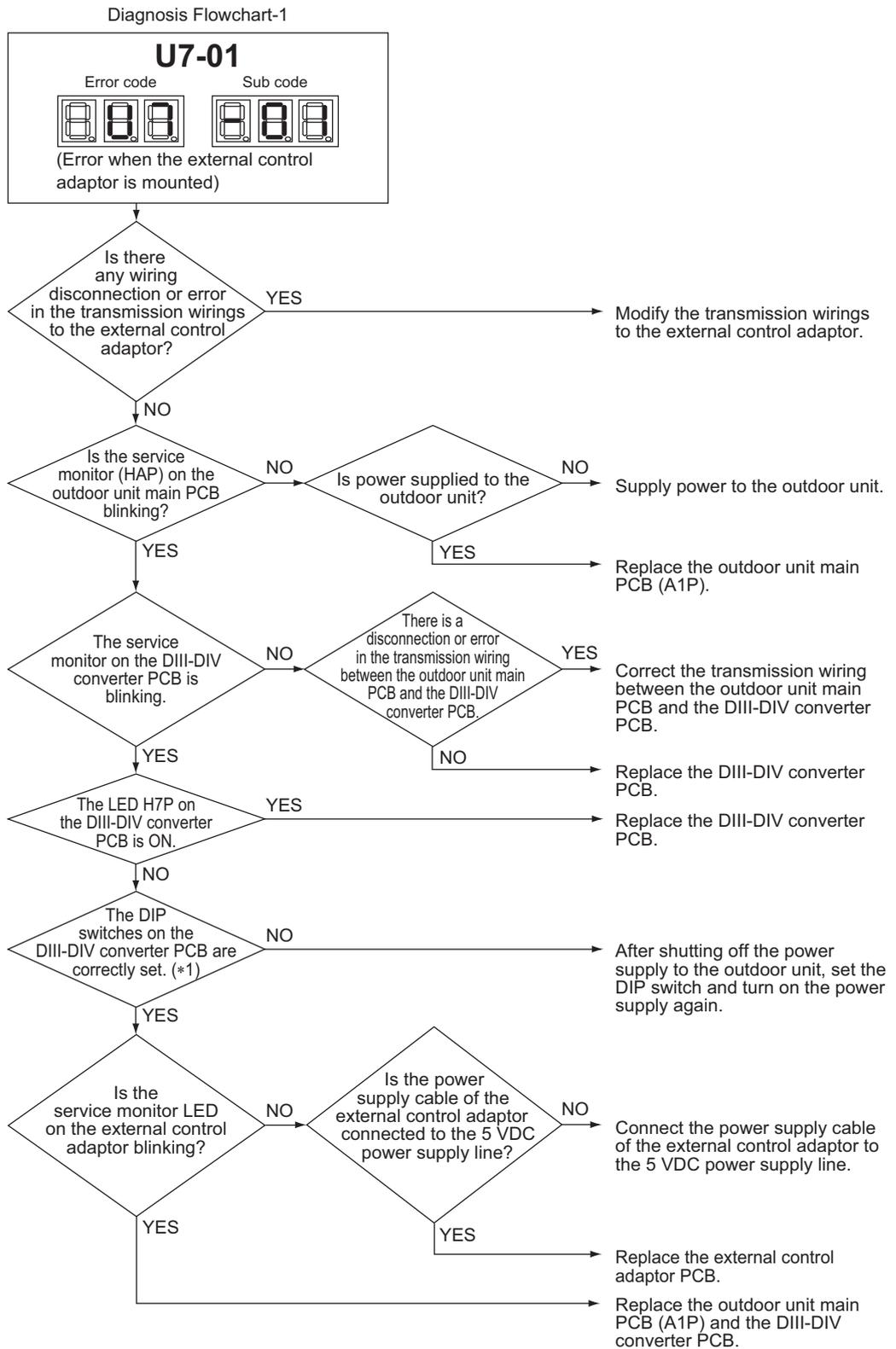
Troubleshooting



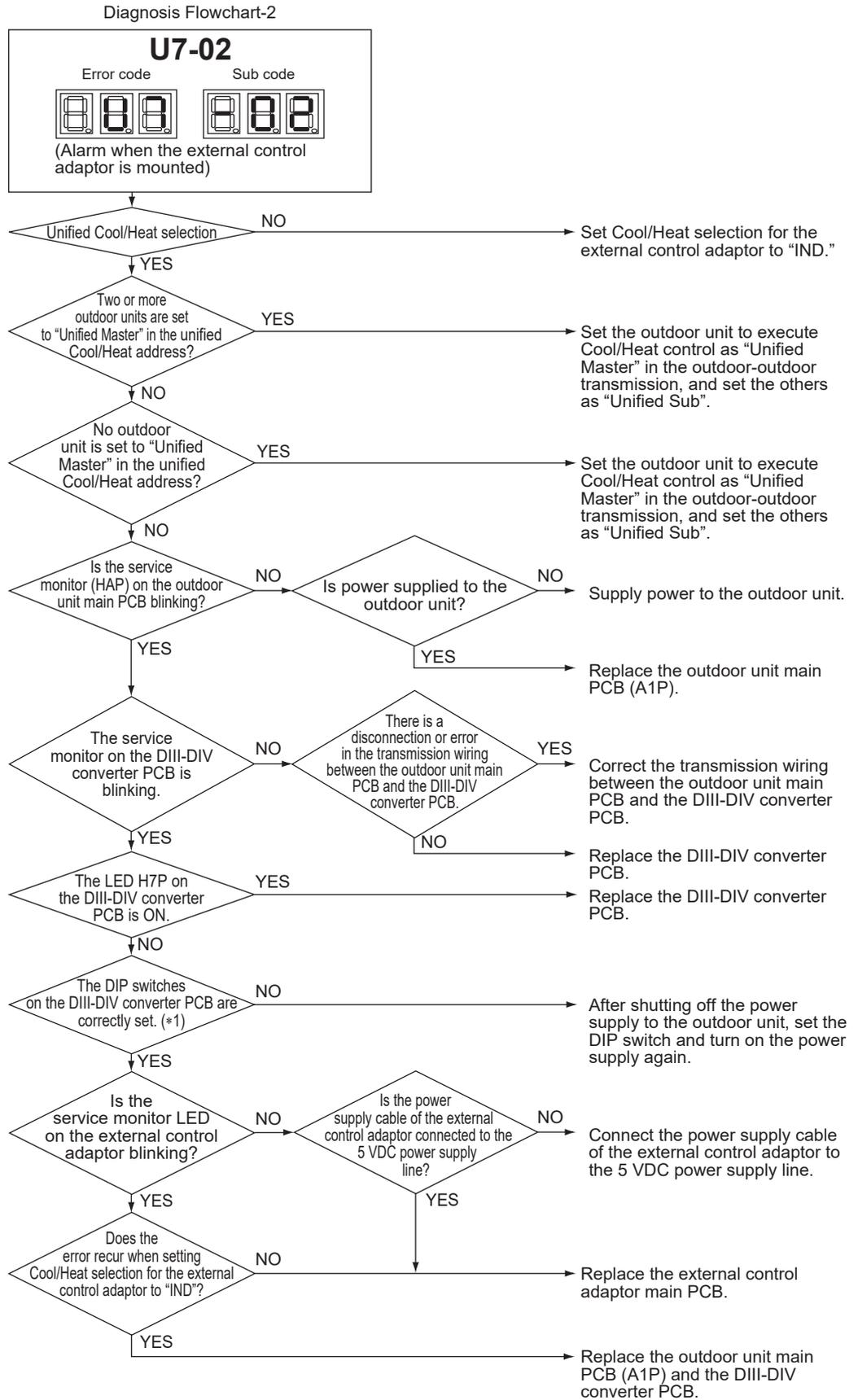
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Ensure the sub code or the lamp display of monitor mode, and then go to the following:



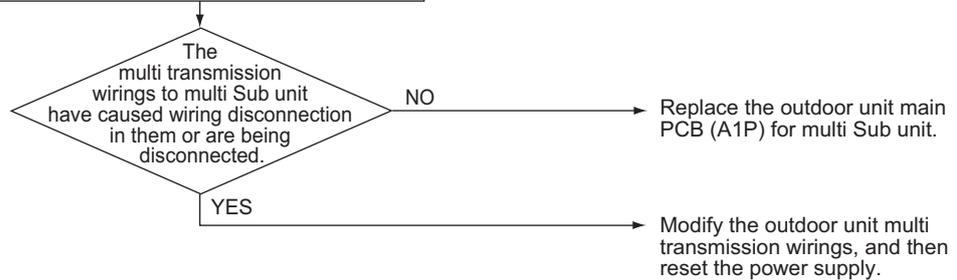
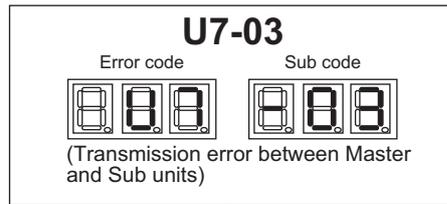


*1. The DIP switch settings are described in the installation manual of the external control adaptor.

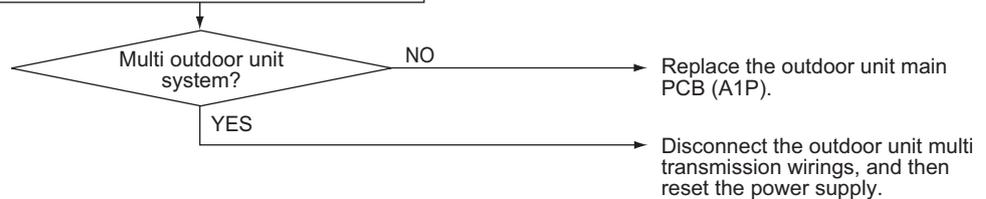
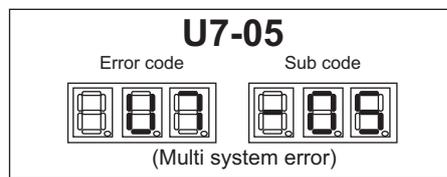


*1. The DIP switch settings are described in the installation manual of the external control adaptor.

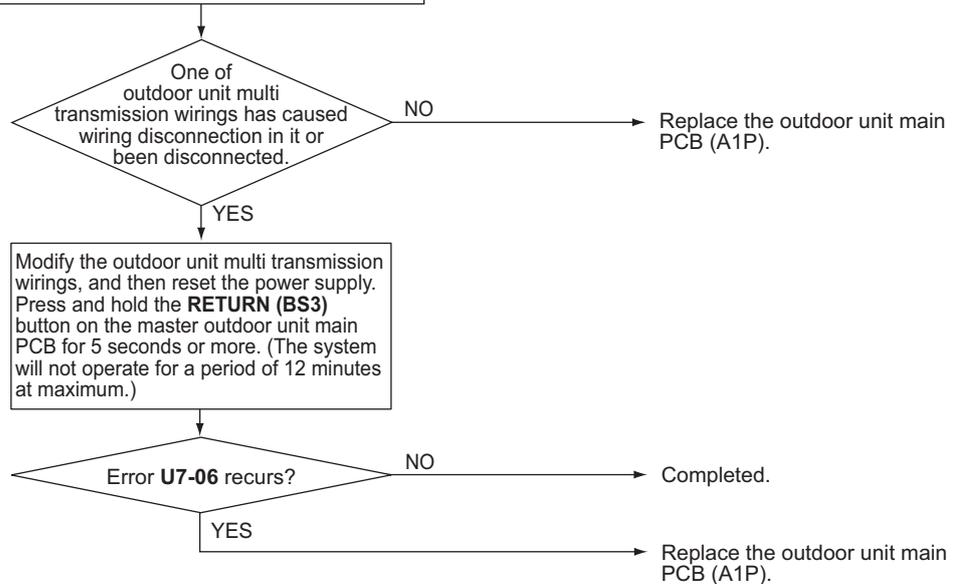
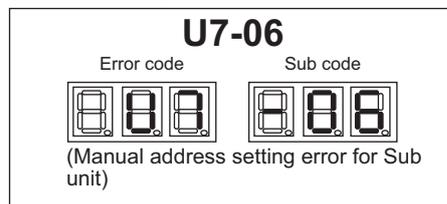
Diagnosis Flowchart-3

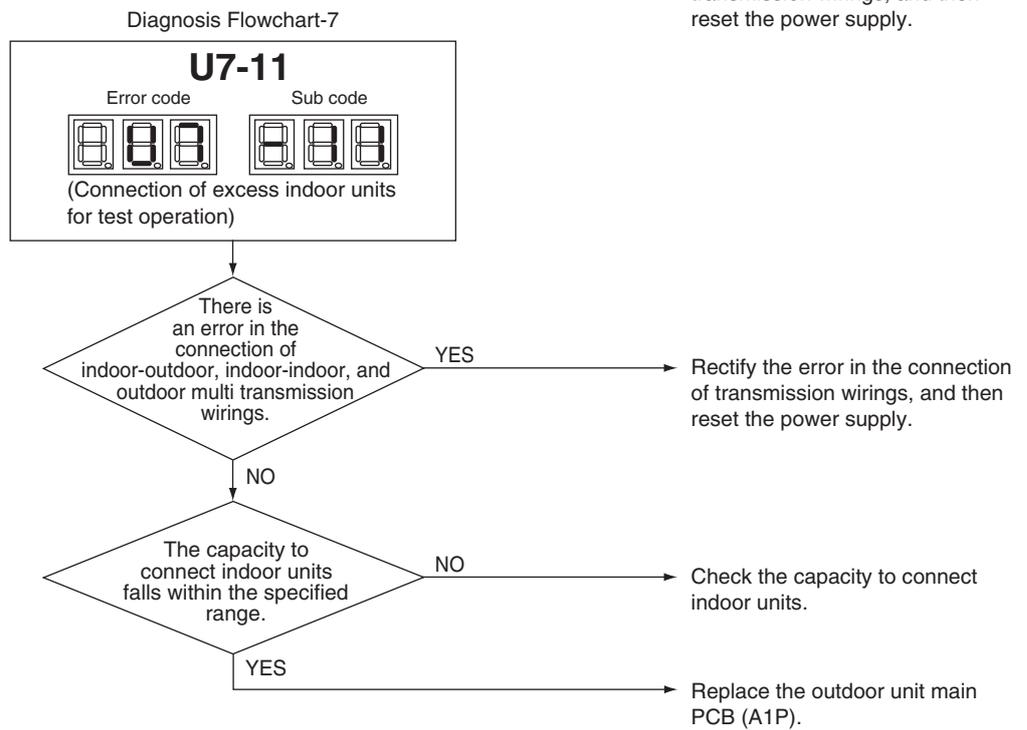
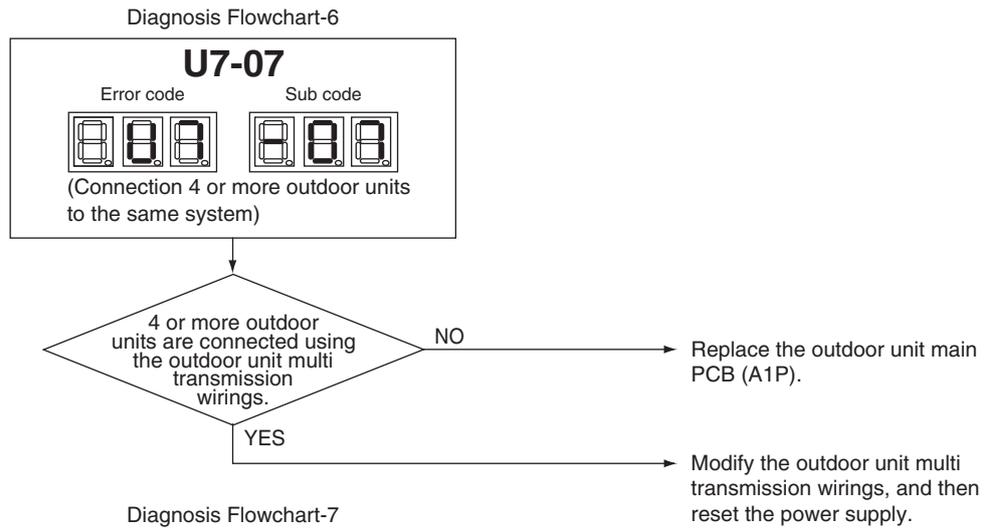


Diagnosis Flowchart-4



Diagnosis Flowchart-5

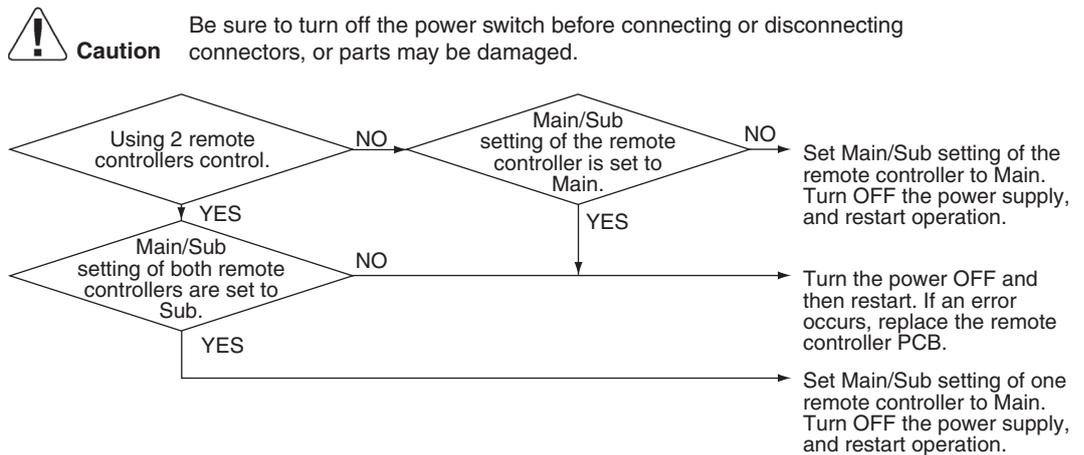




4.78 Transmission Error between Main and Sub Remote Controllers

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	<ul style="list-style-type: none"> ■ Transmission error between main and sub remote controller ■ Connection between sub remote controllers ■ Defective remote controller PCB

Troubleshooting

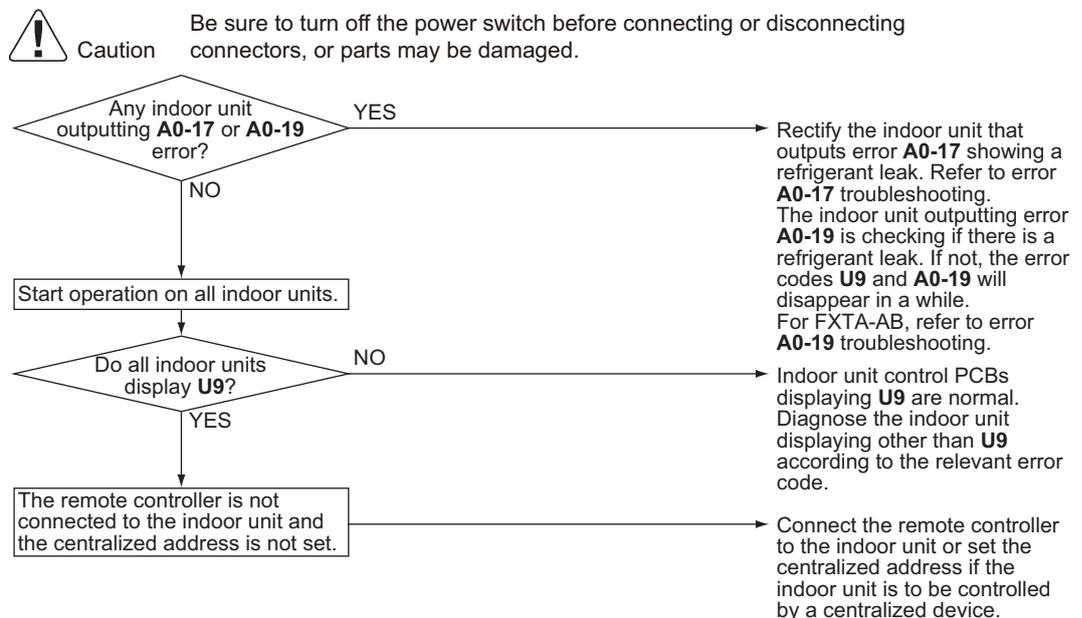


 **Reference** Refer to page 88 for Main/Sub setting.

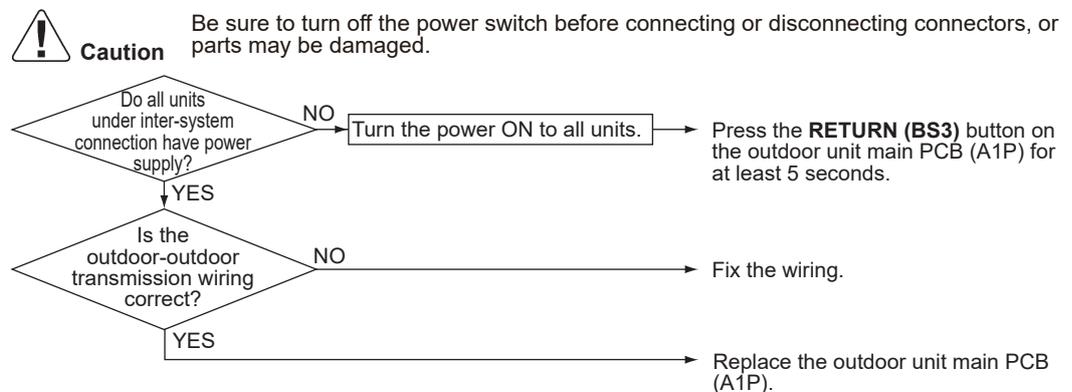
4.79 Transmission Error between Units in the Same System

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	<ul style="list-style-type: none"> ■ Transmission error between other indoor unit and outdoor unit ■ Defective electronic expansion valve of other indoor unit ■ Defective indoor unit control PCB (A1P) of other indoor unit ■ Improper connection of transmission wiring between indoor and outdoor unit

Troubleshooting



Sub code: 06

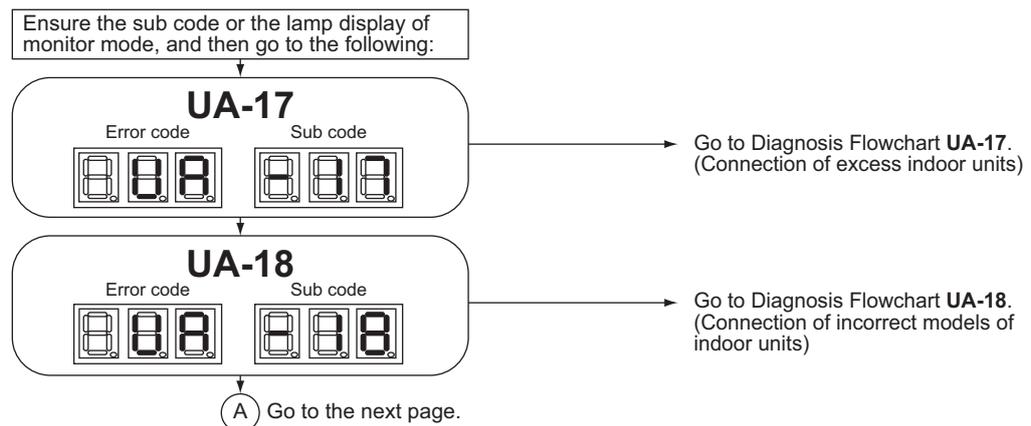


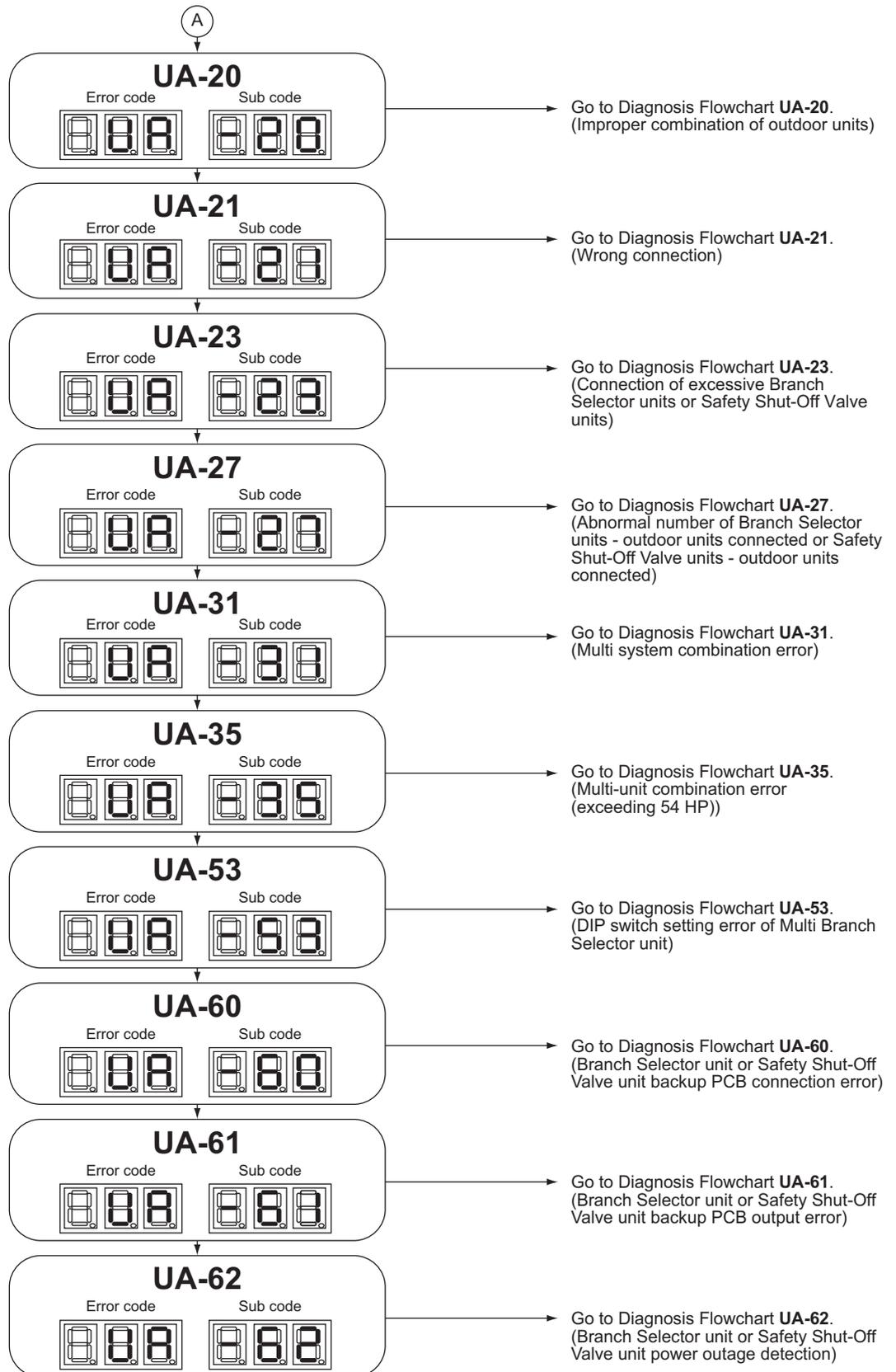
4.80 Improper Combination of Indoor and Outdoor Units

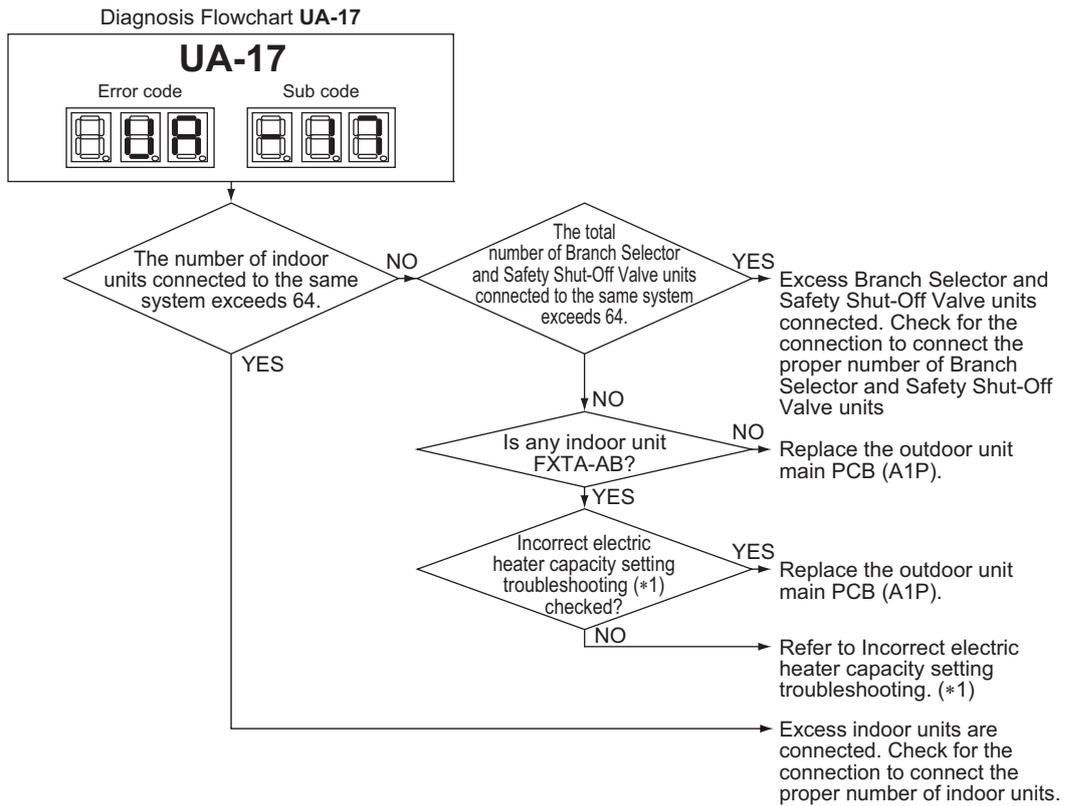
Applicable Models	All indoor unit models All outdoor unit models Branch Selector unit Safety Shut-Off Valve unit
Error Code	UA
Method of Error Detection	<ul style="list-style-type: none"> ■ A difference occurs in data by the type of refrigerant between indoor, Branch Selector or Safety Shut-Off Valve and outdoor units. ■ The number of indoor units is out of the allowable range. ■ Signal transmission between indoor, Branch Selector or Safety Shut-Off Valve and outdoor units is abnormal. ■ A backup PCB or power supply of Branch Selector unit or Safety Shut-Off Valve unit is abnormal.
Error Decision Conditions	The error decision is made as soon as either of the abnormalities aforementioned is detected.
Supposed Causes	<ul style="list-style-type: none"> ■ 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. ■ No power supply to Branch Selector unit or Safety Shut-Off Valve unit ■ Defective Branch Selector unit or Safety Shut-Off Valve unit backup PCB

Troubleshooting

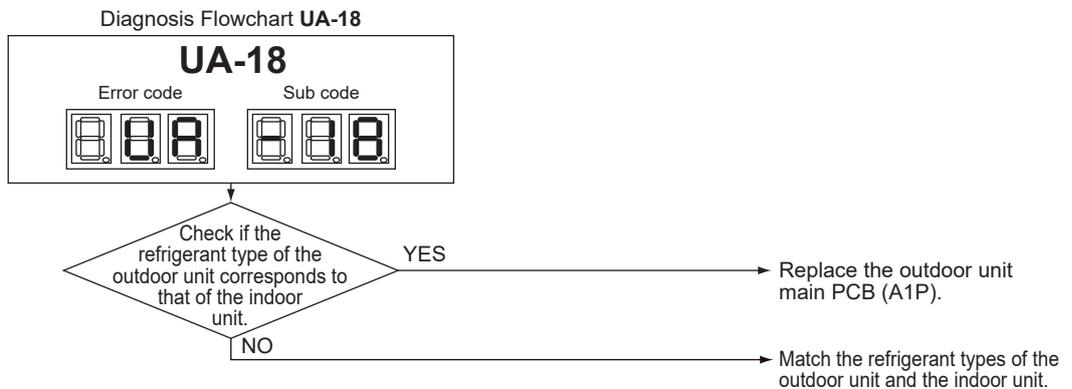
-  **Caution**
- Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.
 - The Branch Selector unit and Safety Shut-Off Valve unit of the R-32 model are equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected.
 - When a power reset is required for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before performing the work. (it may take up to 2 hours if the capacitor is fully charged).



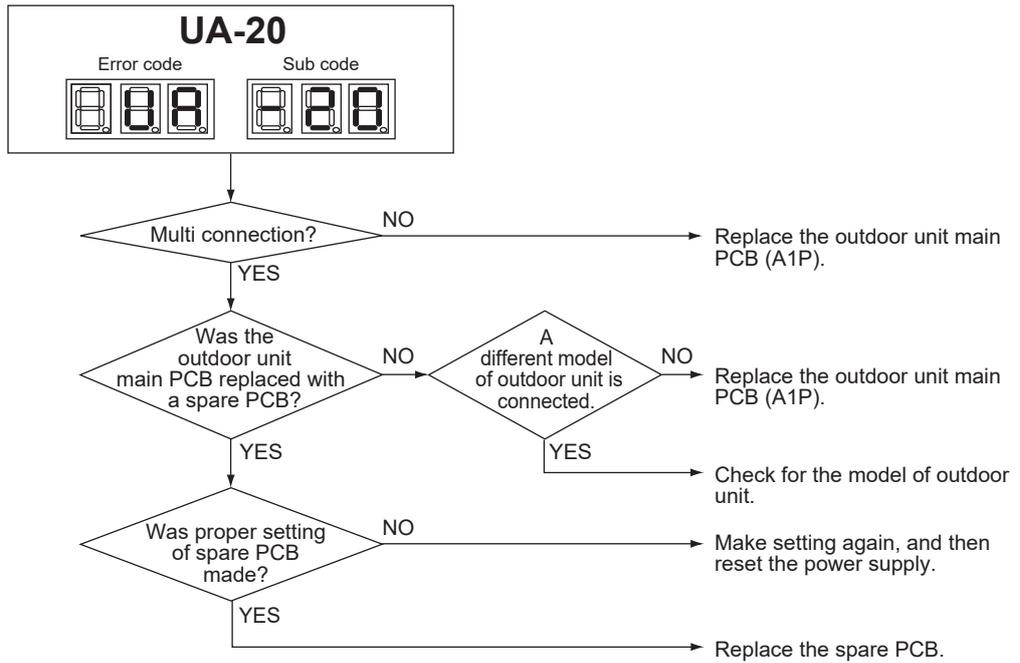




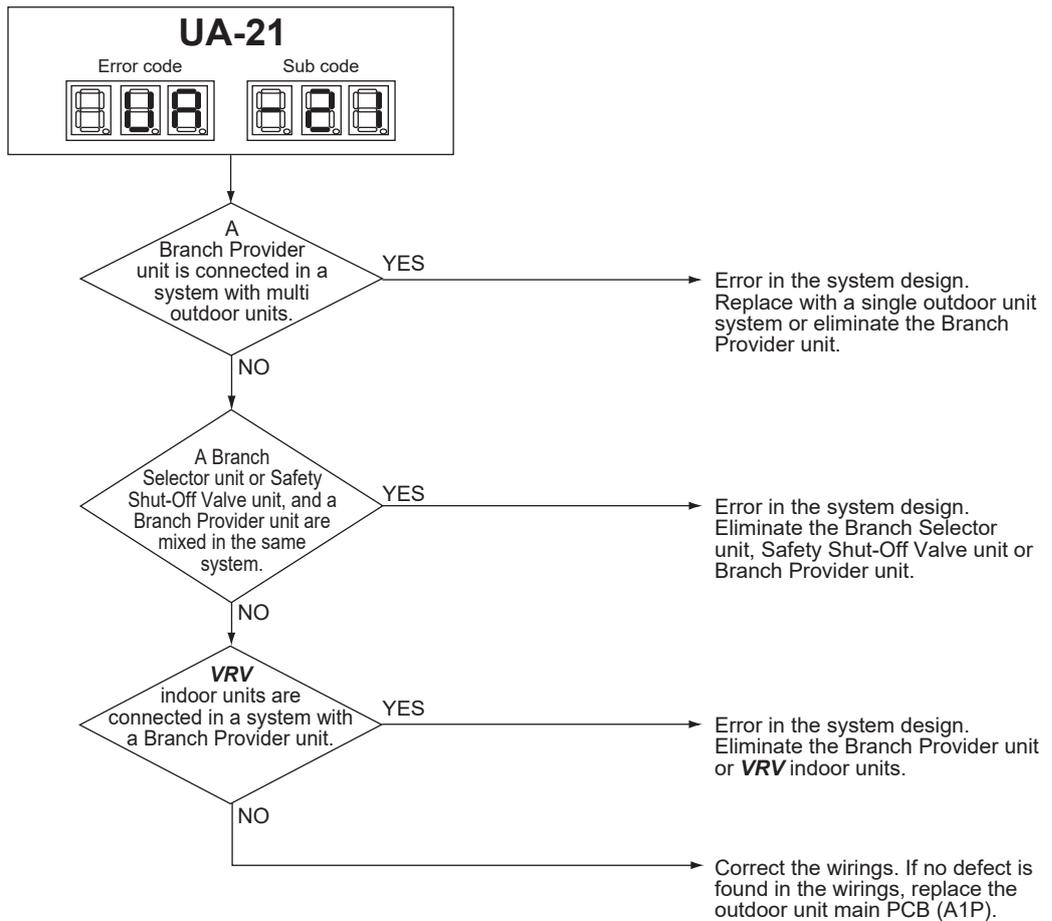
i Note(s) *1. Refer to page 389.



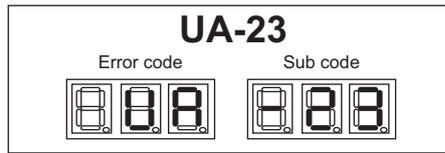
Diagnosis Flowchart UA-20



Diagnosis Flowchart UA-21



Diagnosis Flowchart UA-23



The number of indoor units connected to the Branch Selector unit or the Safety Shut-Off Valve unit is within the connectable range.

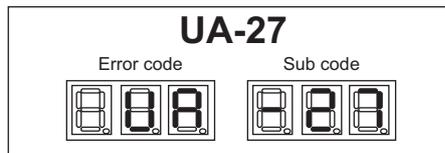
YES

Replace the outdoor unit main PCB (A1P).

NO

The number of indoor units connected to the Branch Selector unit or the Safety Shut-Off Valve unit exceeds the limit. Check the connections and modify them.

Diagnosis Flowchart UA-27



Are the transmission wires between indoor unit and Branch Selector unit or Safety Shut-Off Valve unit correct?

NO

Correct the transmission wires and reset the power supply (*). Press and hold the **RETURN (BS3)** button on the master outdoor unit main PCB for 5 seconds or more. (The system will not operate for a period of 12 minutes at maximum.)

YES

Is the Branch Selector unit PCB or the Safety Shut-Off Valve unit PCB correct?

NO

Replace the indoor unit PCB, the Branch Selector unit PCB or the Safety Shut-Off Valve unit PCB.

YES

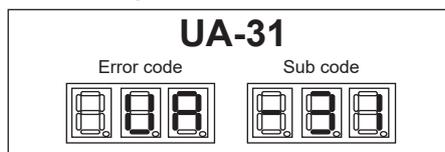
Replace the relevant Branch Selector unit PCB or the Safety Shut-Off Valve unit PCB.



Note(s)

* When it takes time to discharge the charge stored in the backup PCBs, refer to the method described in **Method for Forced Power Reset** on page 456.

Diagnosis Flowchart UA-31



Is the multi combination of outdoor units proper?

NO

Correct the multi combination of outdoor units.

YES

Was the outdoor unit PCB replaced with a spare PCB?

NO

Replace the outdoor unit main PCB (A1P).

YES

Is the procurement of the spare PCB proper?

NO

Procure a proper spare PCB.

YES

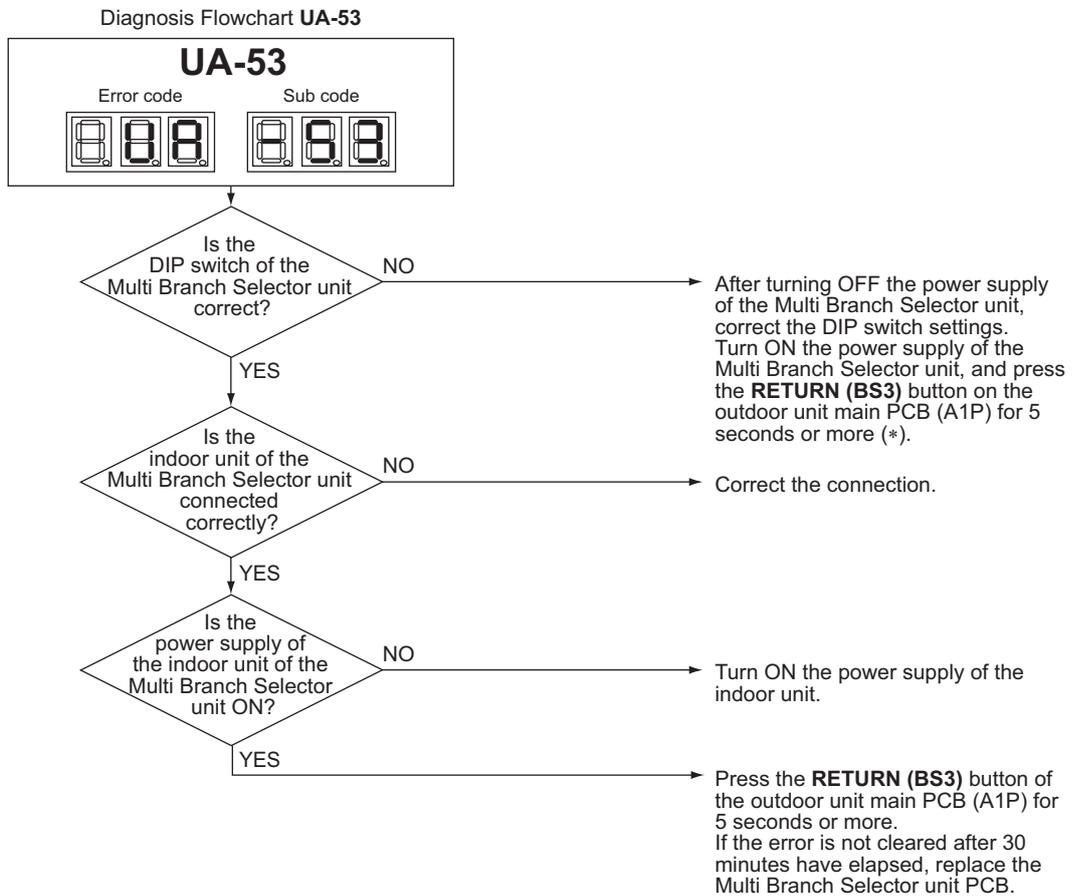
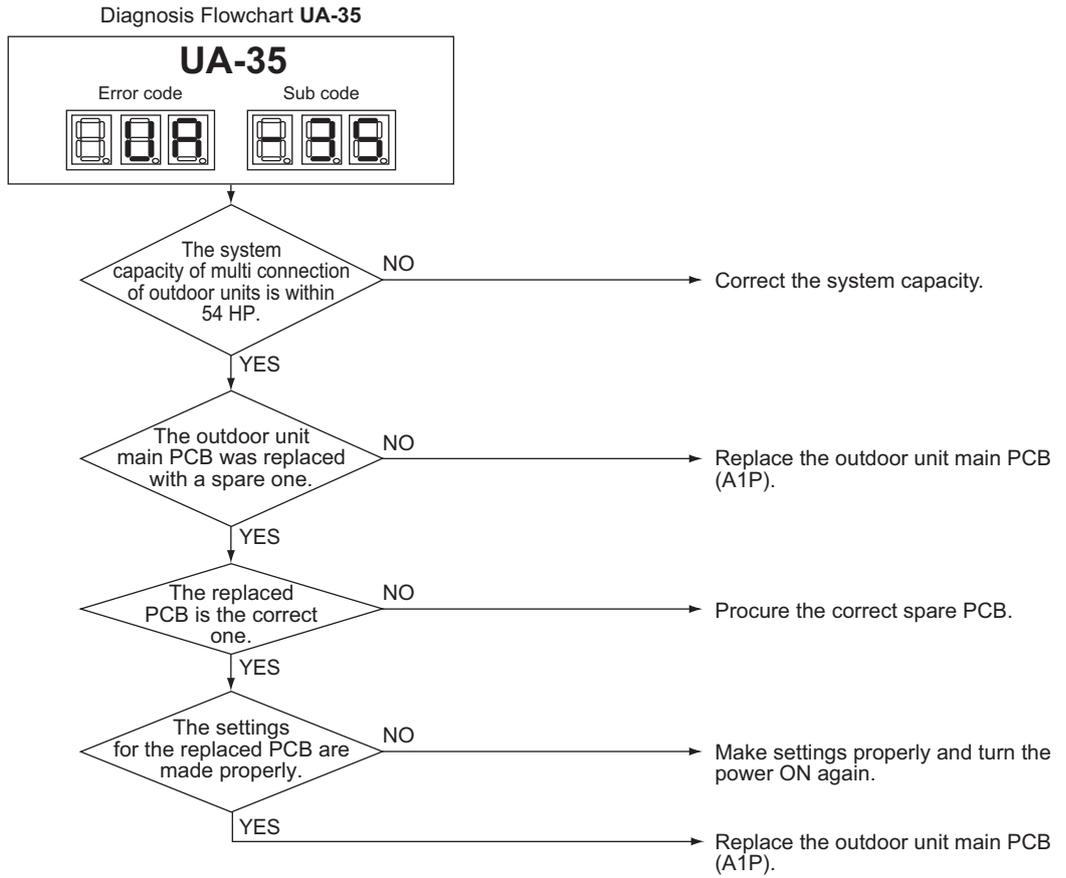
Is the setting of the spare PCB proper?

NO

Make setting again, and then reset the power supply.

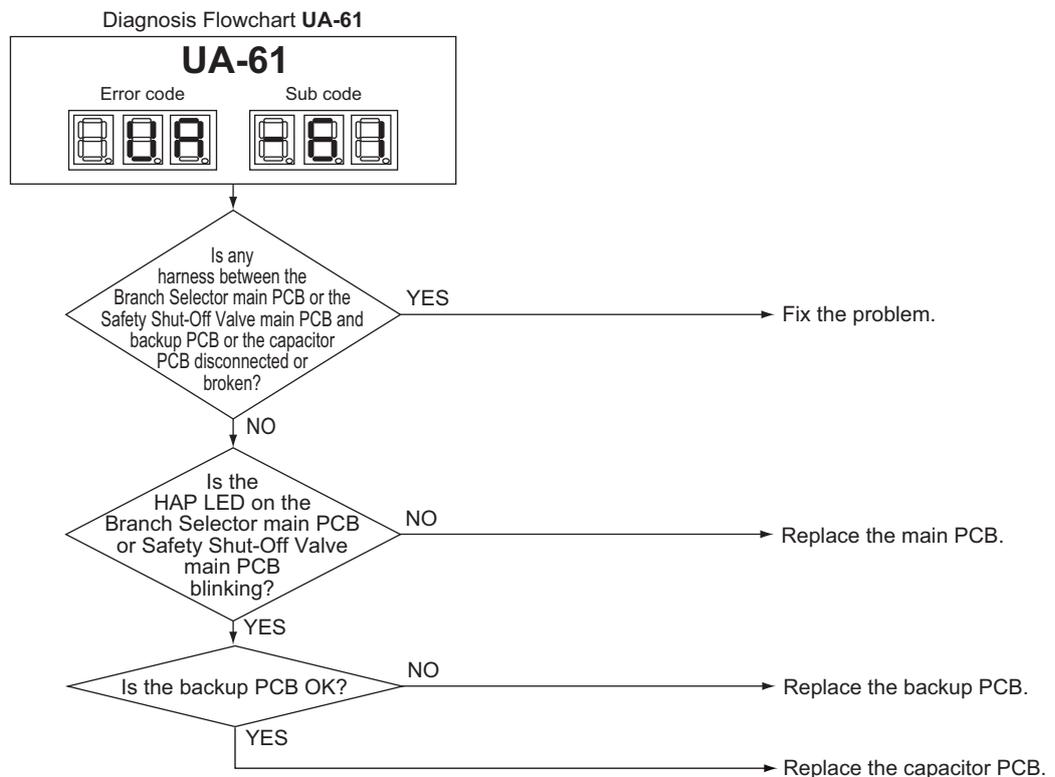
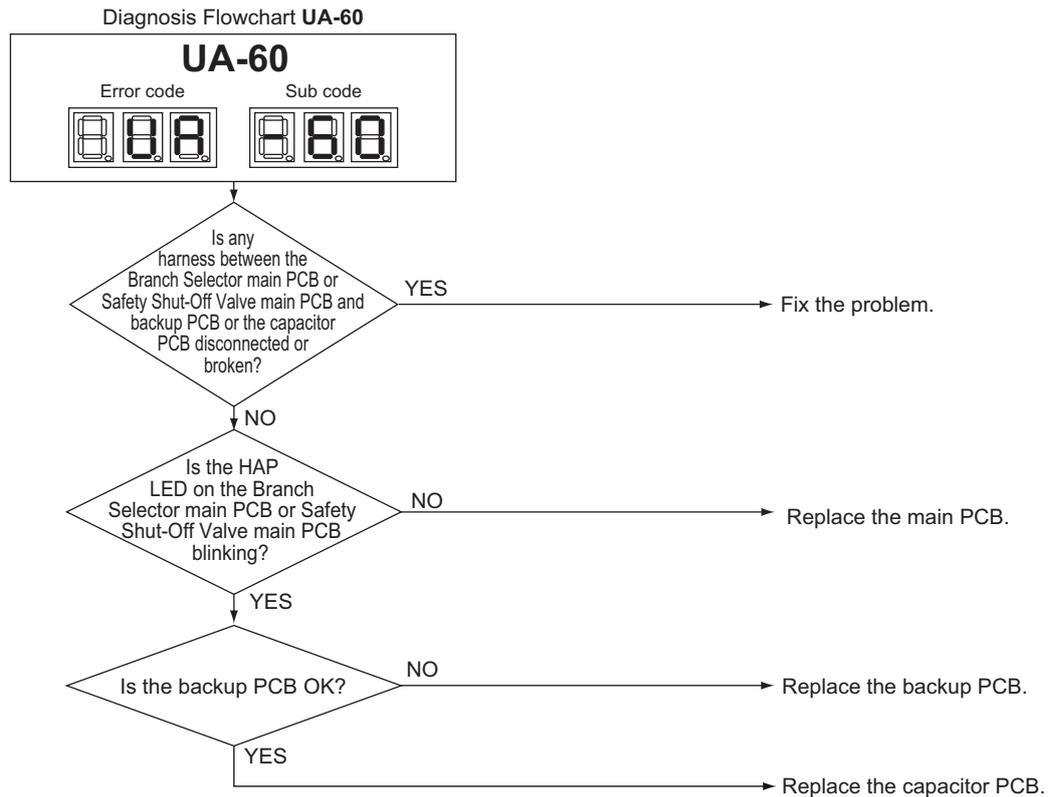
YES

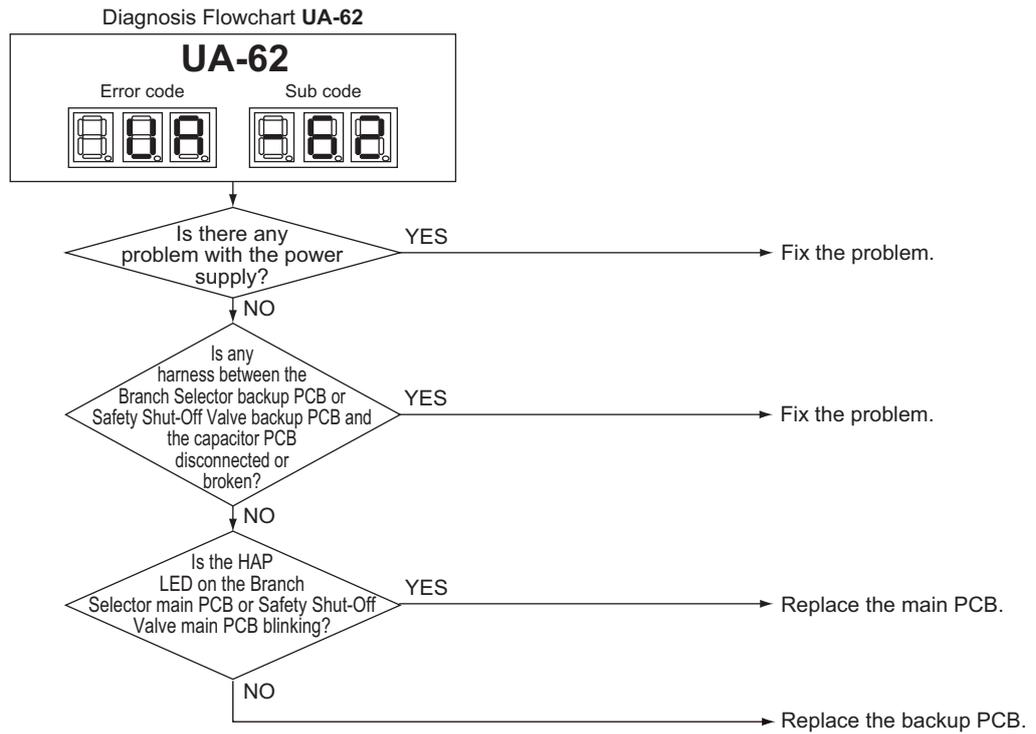
Replace the outdoor unit main PCB (A1P).



Note(s)

* When it takes time to discharge the charge stored in the backup PCBs, refer to the method described in **Method for Forced Power Reset** on page 456.





4.81 Incorrect Electric Heater Capacity Setting

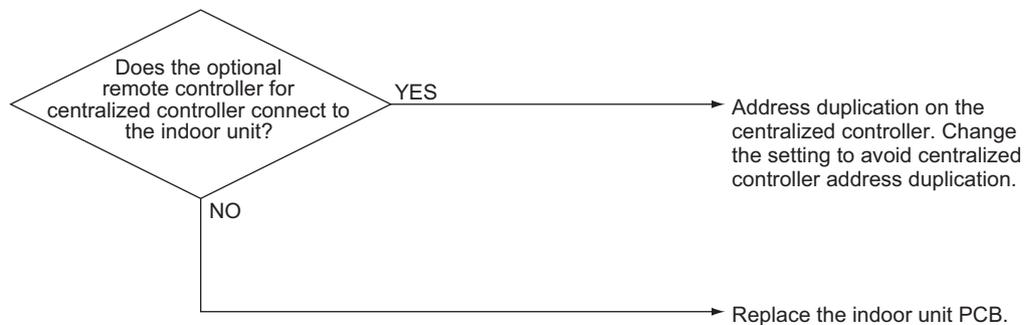
Applicable Models	FXTA-AB
Error Code	UA-17
Method of Error Detection	<p>After attaching optional electric heater, if the electric heater capacity setting [39 (49)-1] is made mistakenly for heaters not featured in the lineup, heating via unintended levels of airflow will be prevented.</p> <p>However, the electric heater will be operable for convenience.</p>
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	<ul style="list-style-type: none"> ■ 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.

4.82 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	<ul style="list-style-type: none"> ■ Address duplication of centralized controller ■ Defective indoor unit PCB (A1P)
Troubleshooting	

**Caution**

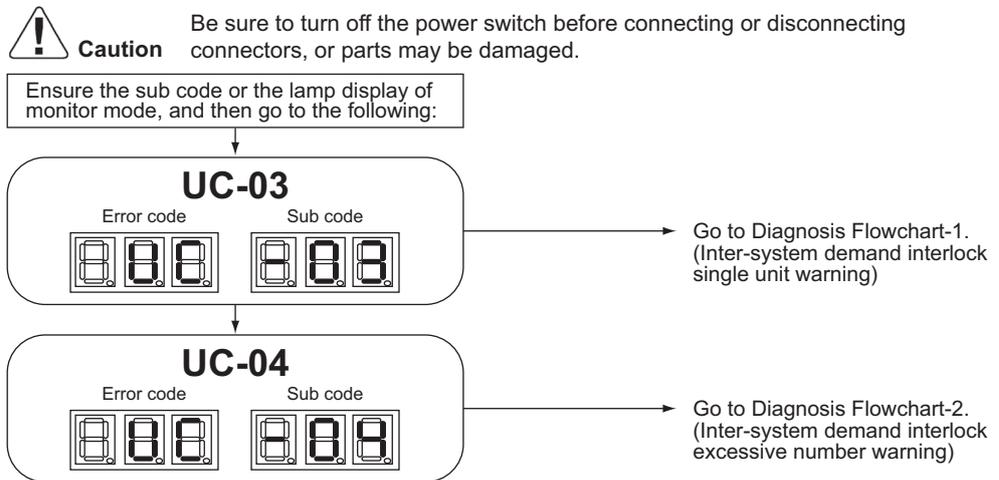
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

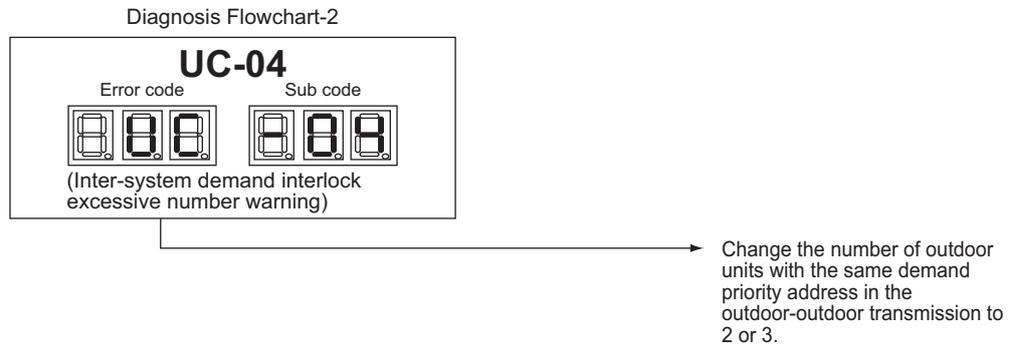
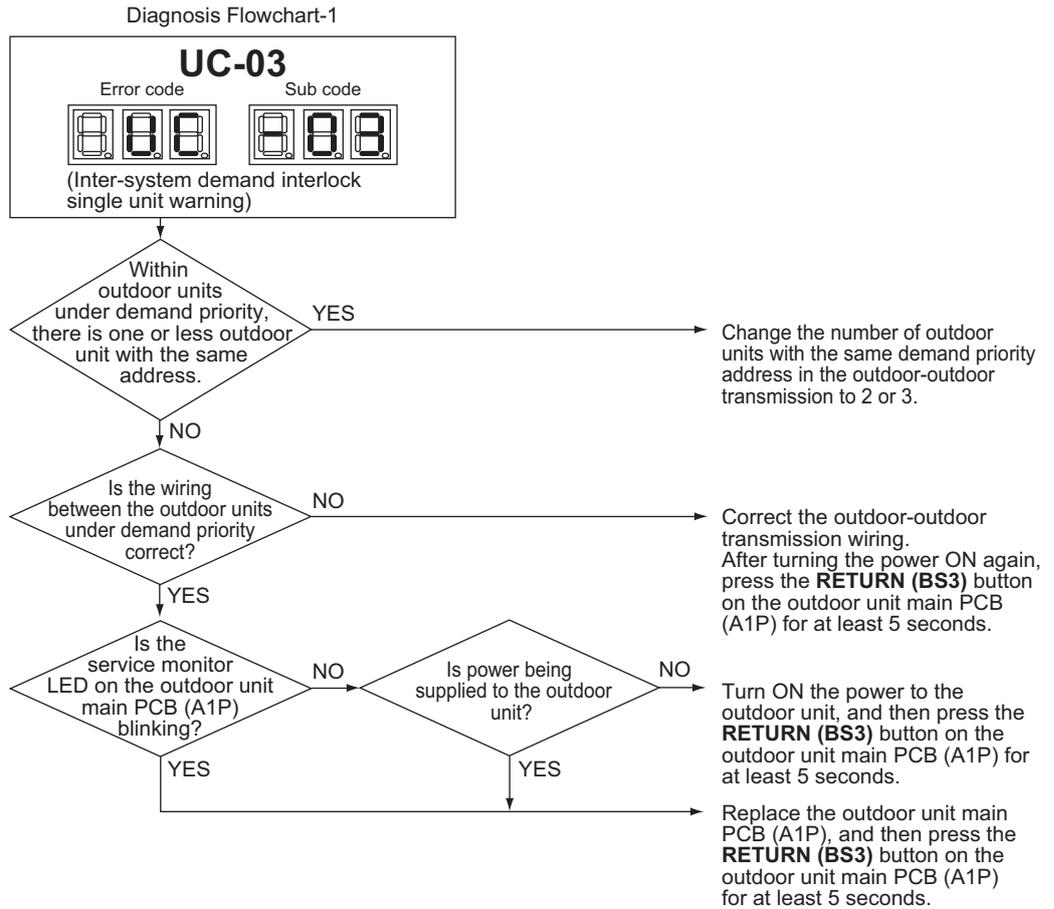


4.83 Inter-system Demand Interlock Warning

Applicable Models	All outdoor unit models
Error Code	UC
Method of Error Detection	In case of different field settings for inter-system interlocking control
Error Decision Conditions	The error decision is made as soon as either of the abnormalities aforementioned is detected.
Supposed Causes	<ul style="list-style-type: none"> ■ Defrost interlock setting error ■ Demand priority setting error ■ Load leveling setting error

Troubleshooting

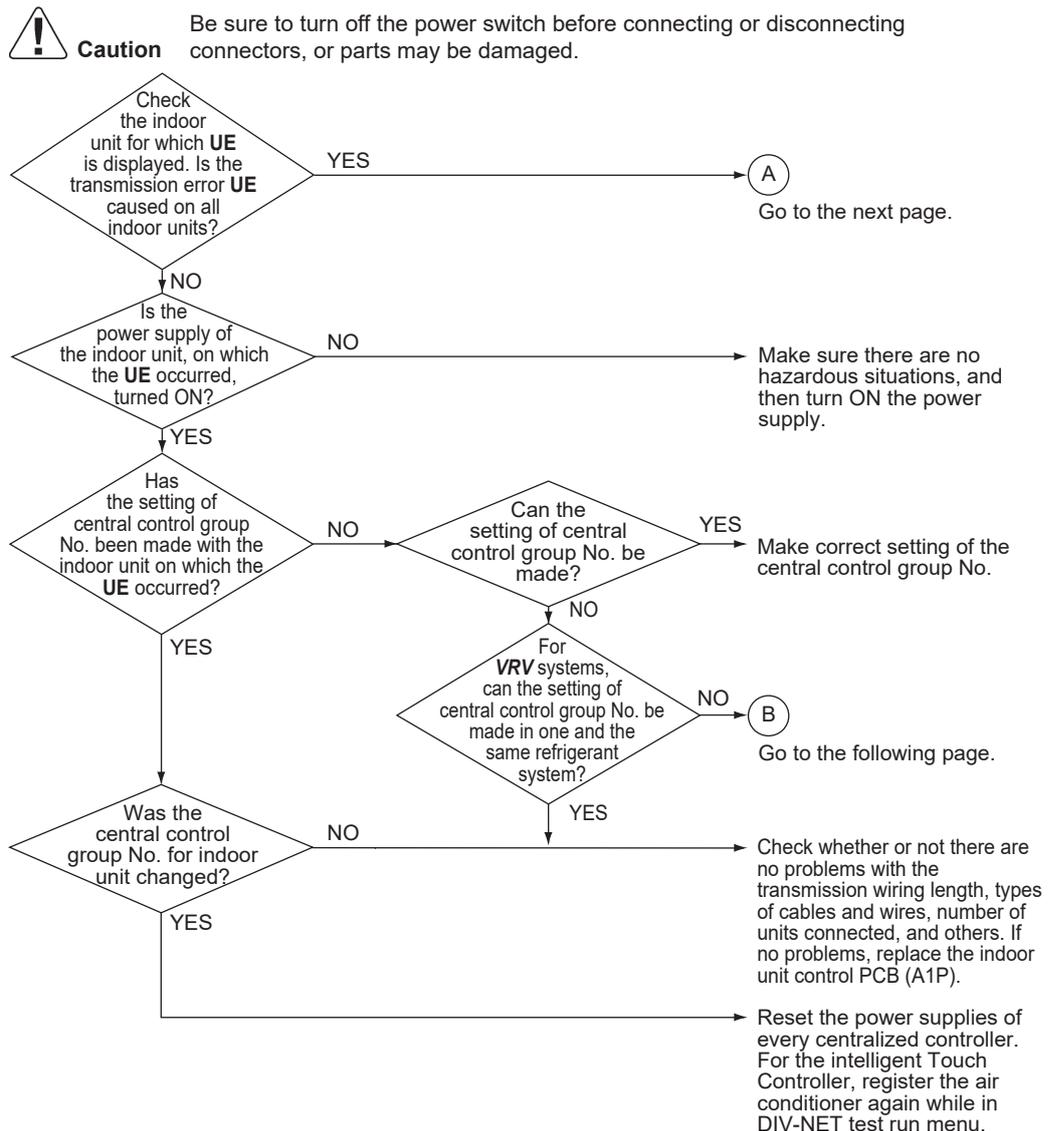


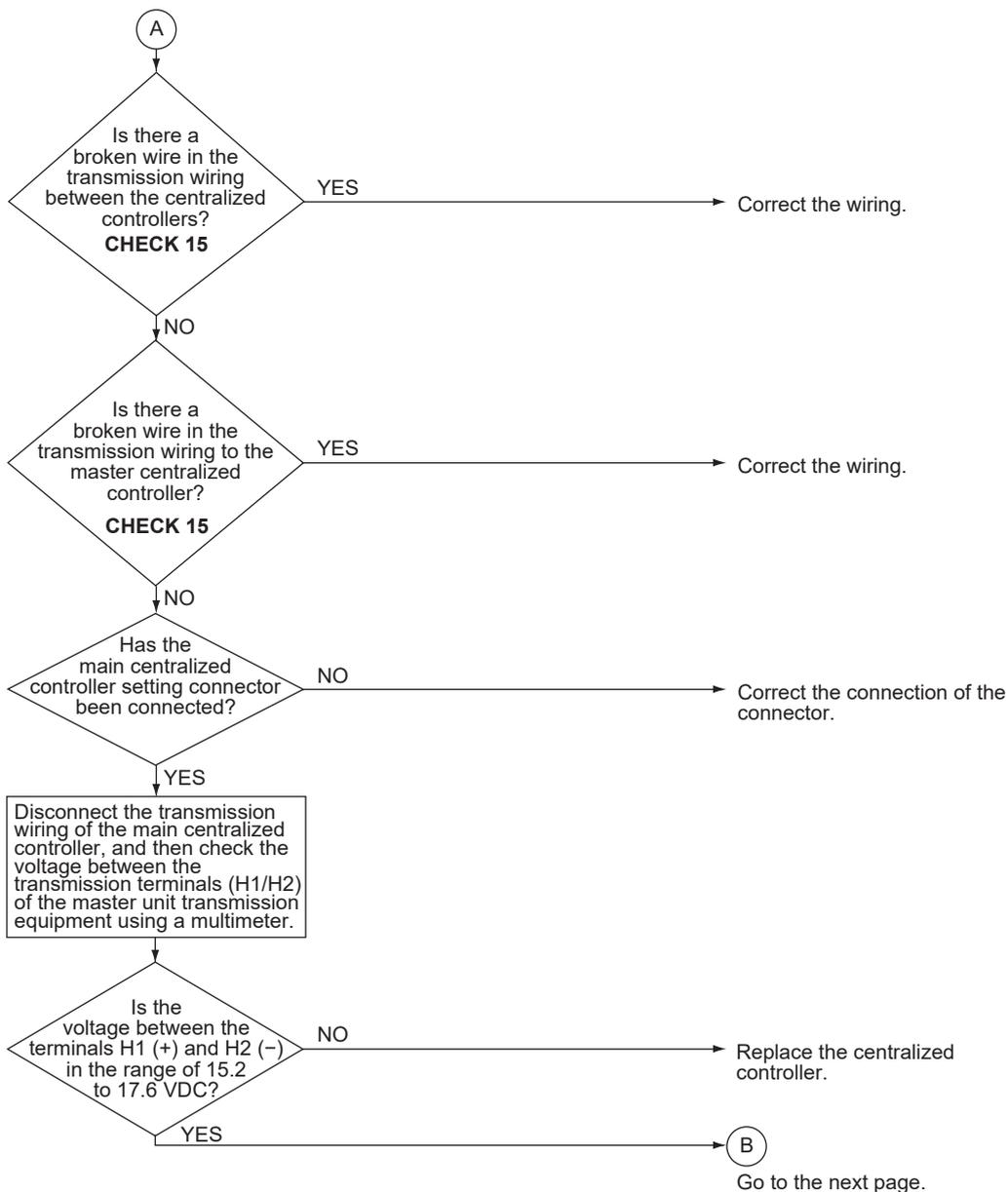


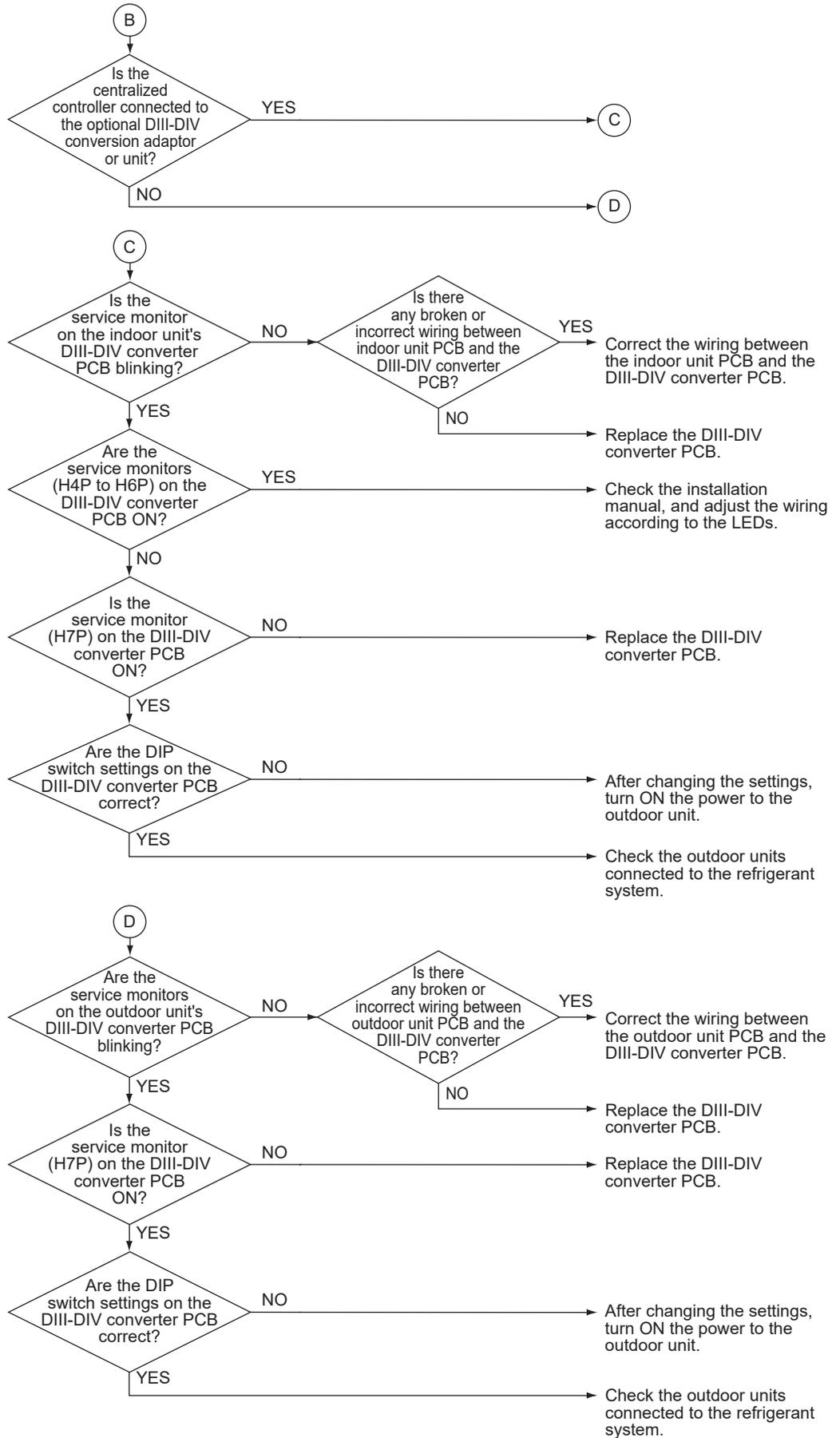
4.84 Transmission Error between Centralized Controller and Indoor Unit

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	<ul style="list-style-type: none"> ■ 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 (A1P)

Troubleshooting







Reference

CHECK 15 Refer to page 425.

4.85 System Not Set Yet

Applicable Models

All indoor unit models
All outdoor unit models
Branch Selector unit
Safety Shut-Off Valve unit

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

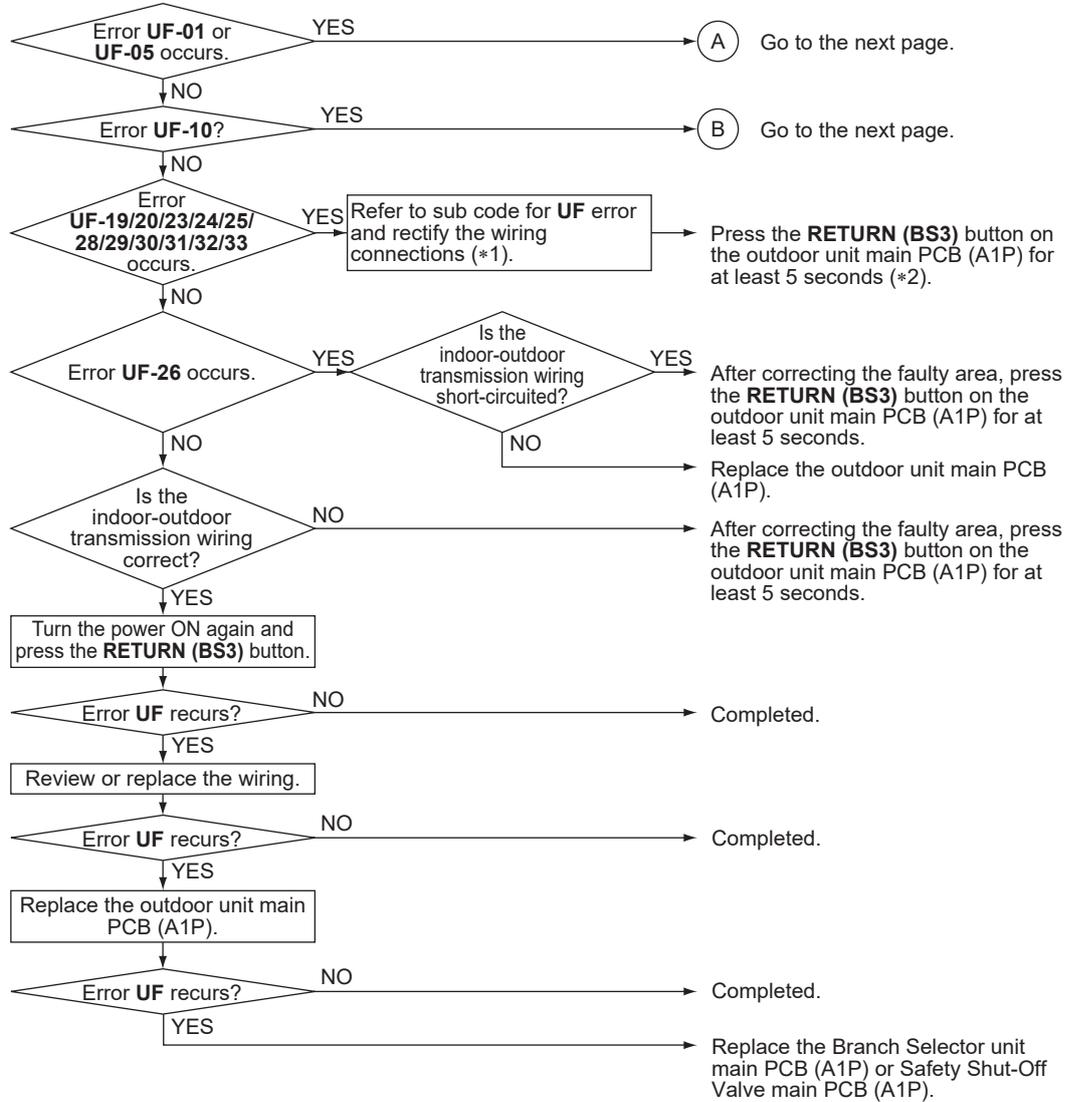
- Improper connection of transmission wiring between indoor-outdoor units
- Failure to execute check operation
- Defective indoor unit PCB (A1P)
- Stop valve is not opened

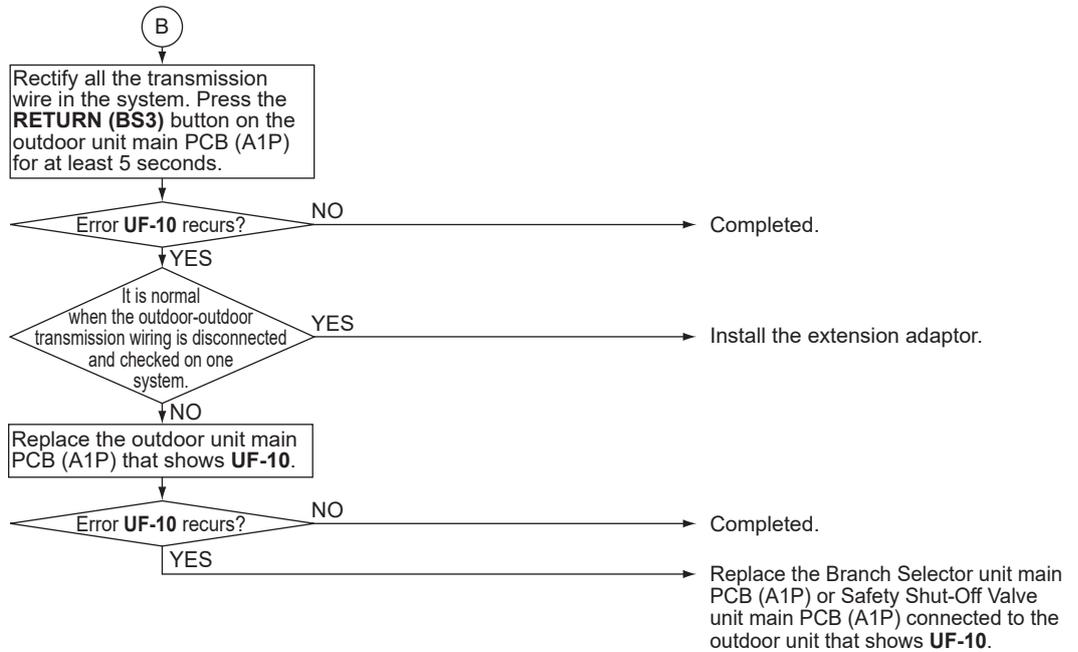
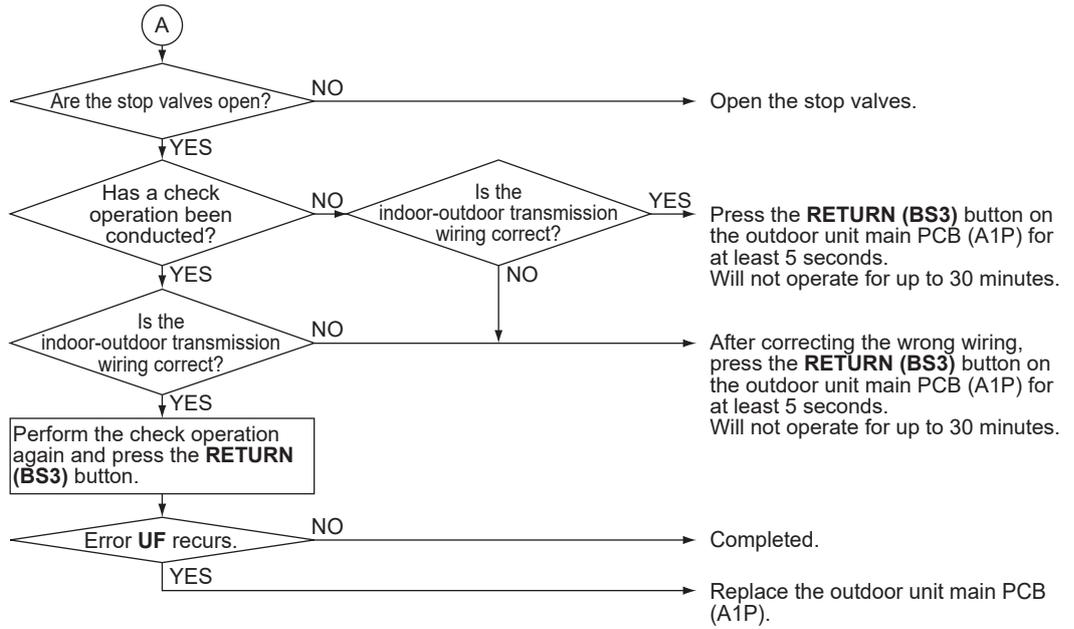
Troubleshooting



Caution

- Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.
- The Branch Selector unit and Safety Shut-Off Valve unit of the R-32 model are equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected.
- When a power reset is required for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before performing the work. (it may take up to 2 hours if the capacitor is fully charged).





*1. 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 UF-24 UF-30 UF-31	Wrong wiring to indoor-outdoor terminal	An inappropriate equipment is connected to the indoor-outdoor terminal or the outdoor-outdoor terminal.
UF-25	Wrong wiring to Branch Selector unit-indoor wiring or Safety Shut-Off Valve unit-indoor wiring	An inappropriate equipment is connected to the Branch Selector unit-indoor terminal or Safety Shut-Off Valve unit-indoor terminal.
UF-26	Short circuit between indoor-outdoor or outdoor-outdoor wiring	An indoor-outdoor or the outdoor-outdoor wiring of an outdoor unit is short-circuited. If the condition does not return to normal after correcting the transmission wiring, replace the outdoor main PCB (A1P).
UF-28	Short circuit between Branch Selector unit-indoor wiring or Safety Shut-Off Valve unit-indoor wiring	A wiring between a Branch Selector unit or a Safety Shut-Off Valve unit and an indoor unit is short-circuited. If the condition does not return to normal after correcting the transmission wiring, replace the Branch Selector unit PCB or the Safety Shut-Off Valve unit PCB.
UF-29 UF-33	Wrong wiring to the DIV Plus adaptor	An inappropriate equipment is connected to the transmission wiring of the DIV plus adaptor.
UF-32	Wrong wiring to the centralized controller	An inappropriate equipment is connected to the transmission wiring of the centralized controller.

*2. When it takes time to discharge the charge stored in the backup PCBs, refer to the method described in **Method for Forced Power Reset** on page 456.

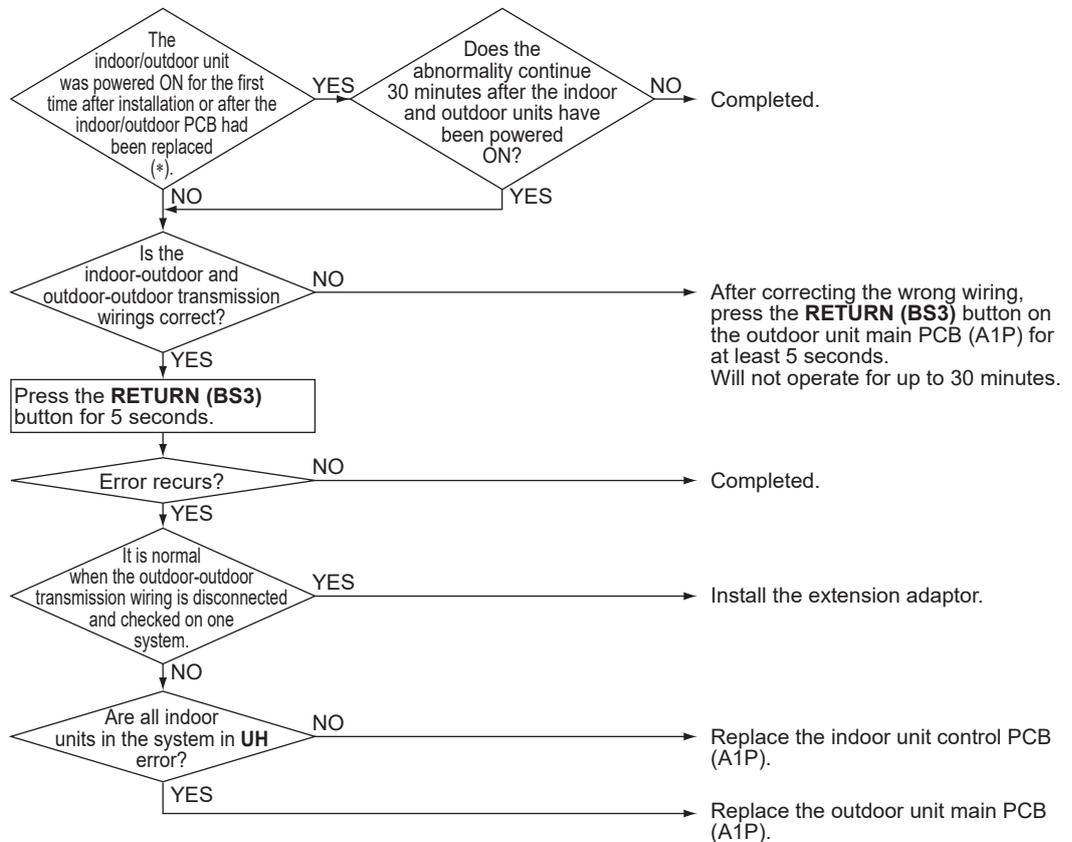
4.86 System Abnormality

Applicable Models	All indoor unit models All outdoor unit models
Error Code	UH
Method of Error Detection	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ Indoor-outdoor transmission wiring error ■ Defective indoor unit control PCB (A1P) ■ 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.
- The Branch Selector unit and Safety Shut-Off Valve unit of the R-32 model are equipped with a power backup PCBs. Therefore, even if the main power is turned off to disconnect power supply to the product, power may still be supplied from the backup PCBs. When a power reset is required, settings may not be reflected.
- When a power reset is required for troubleshooting, turn off the power and wait for the LEDs on the PCB to turn off before performing the work. (it may take up to 2 hours if the capacitor is fully charged).



Note(s)

* When it takes time to discharge the charge stored in the backup PCBs, refer to the method described in **Method for Forced Power Reset** on page 456.

4.87 Defective PCB

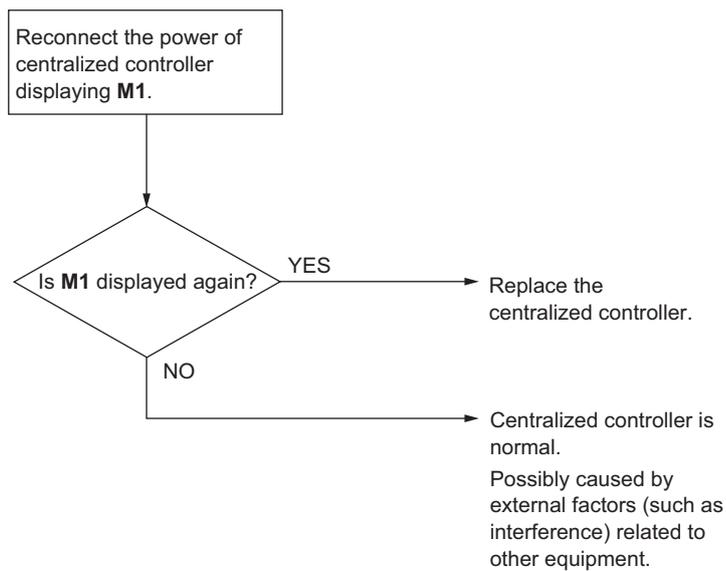
Applicable Models	Centralized controller intelligent Touch Controller Schedule timer
Error Code	M1
Method of Error Detection	DIV-NET polarity circuit defective conditions are used to detect the error.
Error Decision Conditions	The test detects both positive polarity and negative polarity.
Supposed Causes	<ul style="list-style-type: none"> ■ 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.

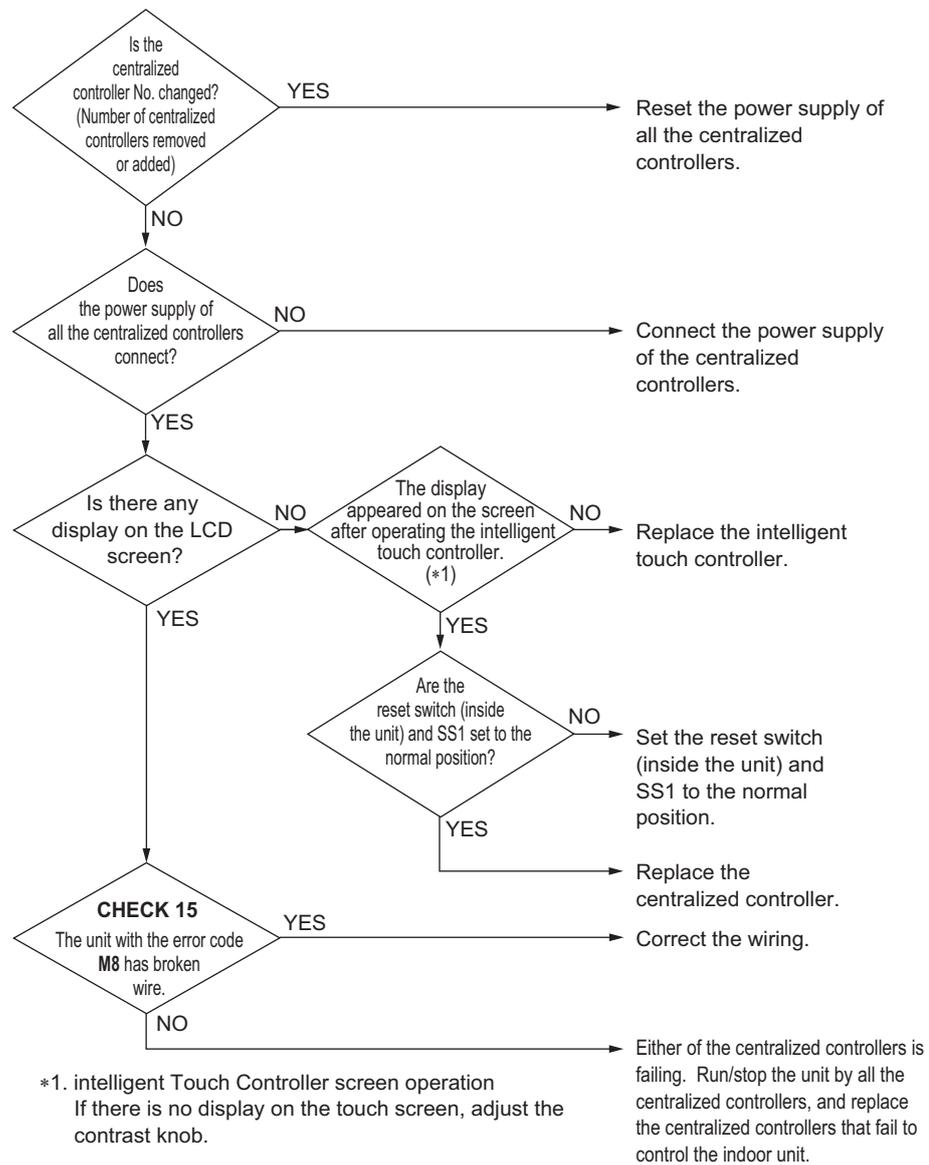


4.88 Transmission Error (between Centralized Controllers)

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	<ul style="list-style-type: none"> ■ 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.



Reference

CHECK 15 Refer to page 425.

4.89 Poor Centralized Controller Combination

Applicable Models
 Centralized controller
 intelligent Touch Controller
 Schedule timer

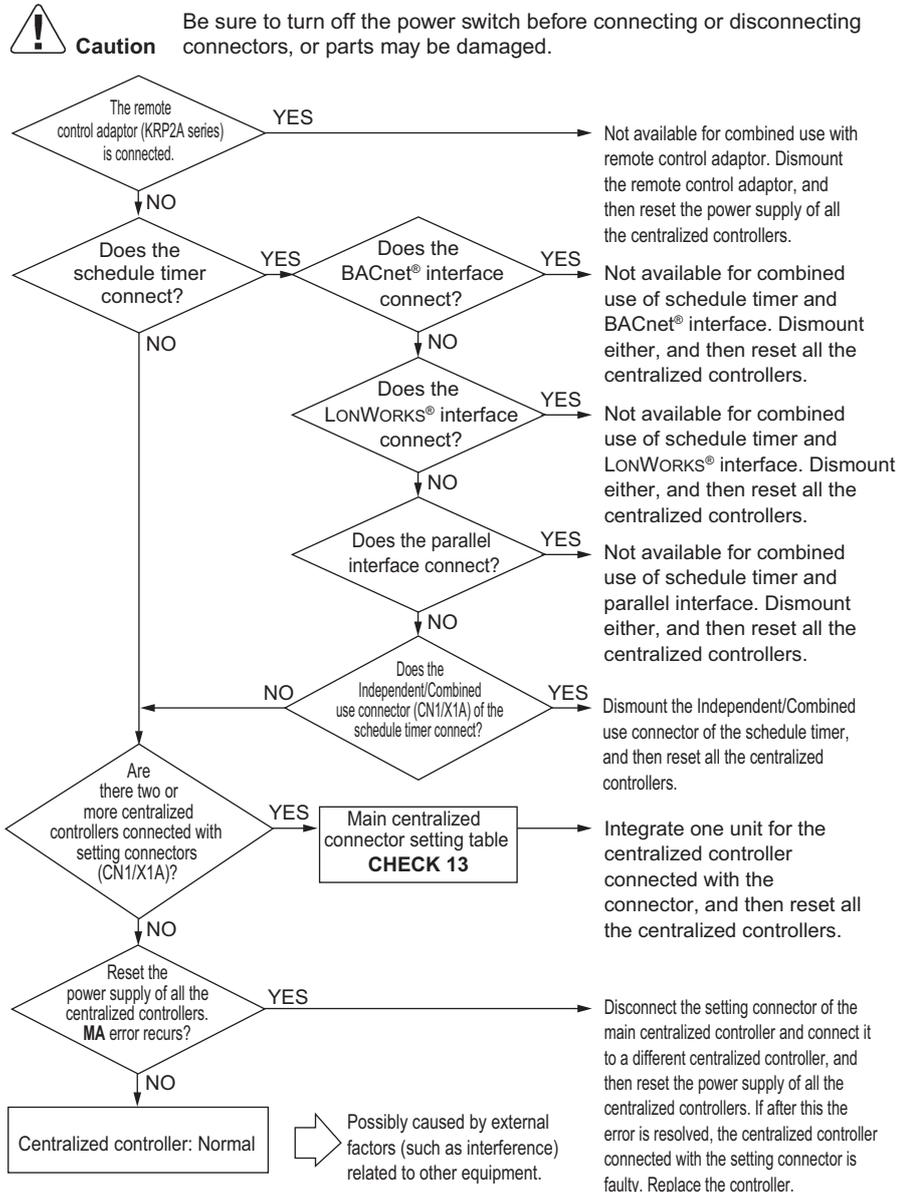
Error Code
MA

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



4.90 Address Duplication, Poor Setting

Applicable Models
 Centralized controller
 intelligent Touch Controller
 Schedule timer

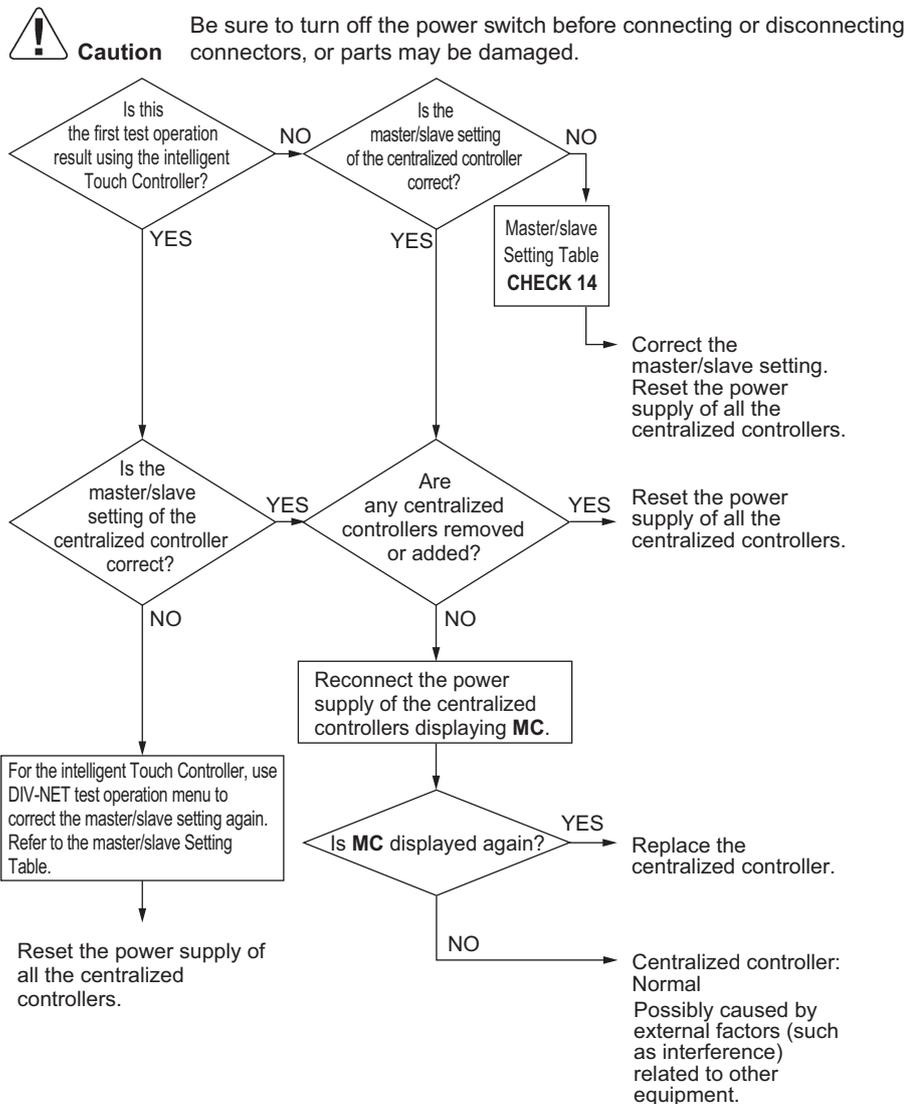
Error Code
MC

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

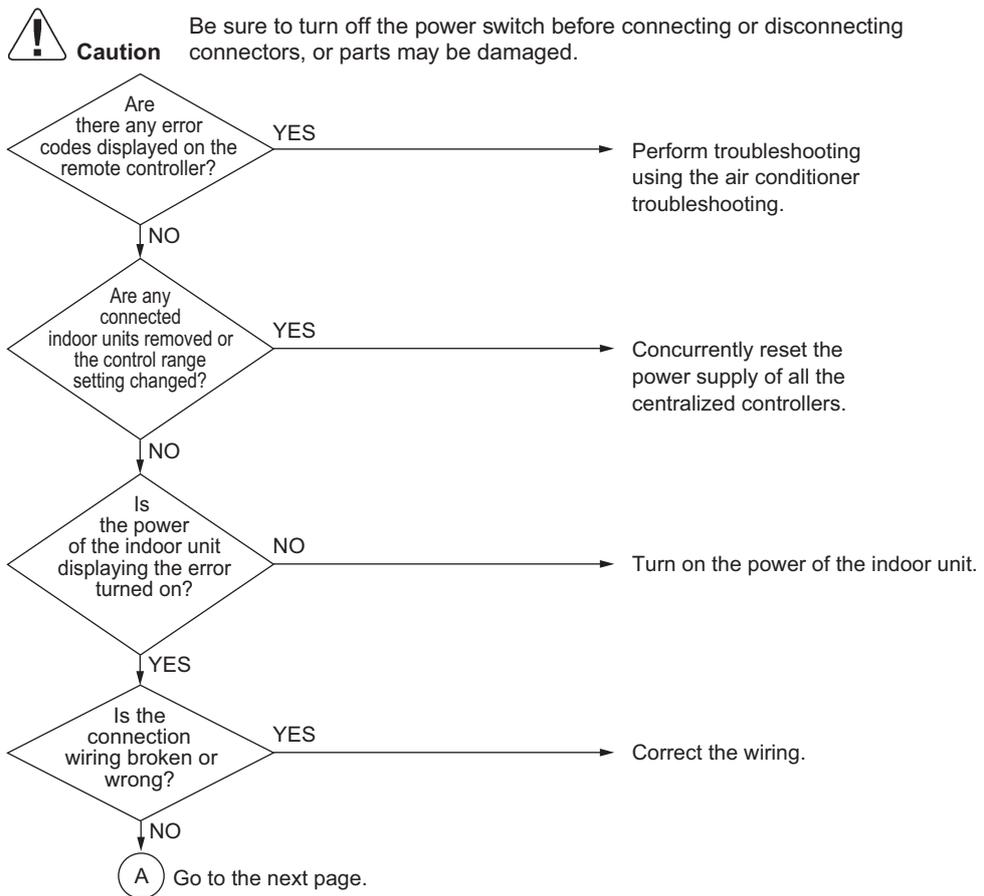


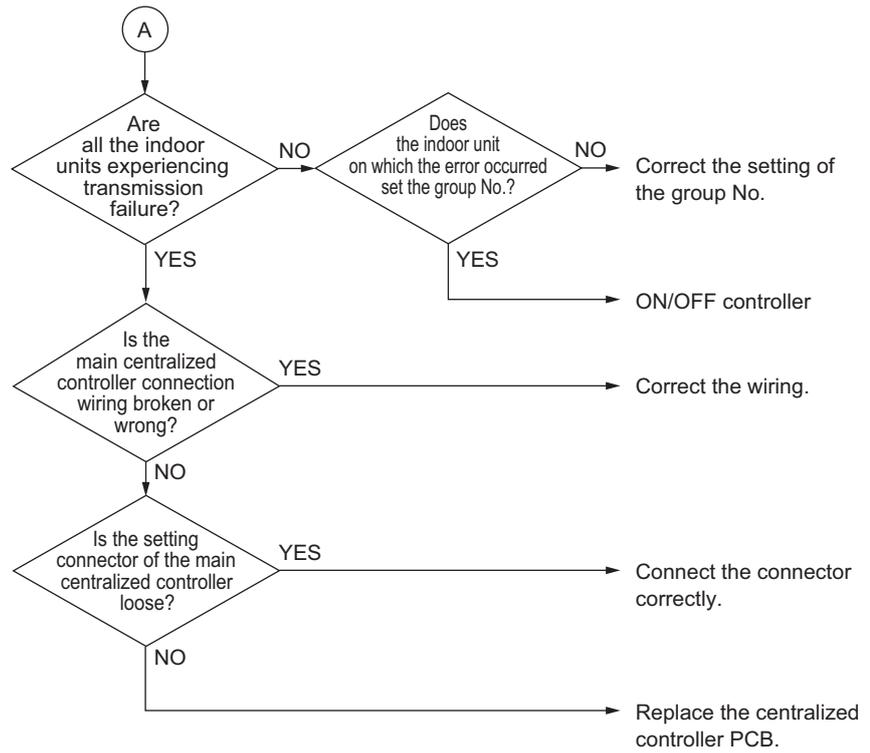
Reference **CHECK 14** Refer to page 424.

4.91 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	<ul style="list-style-type: none"> ■ 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 (A1P) ■ Defective air conditioner

Troubleshooting

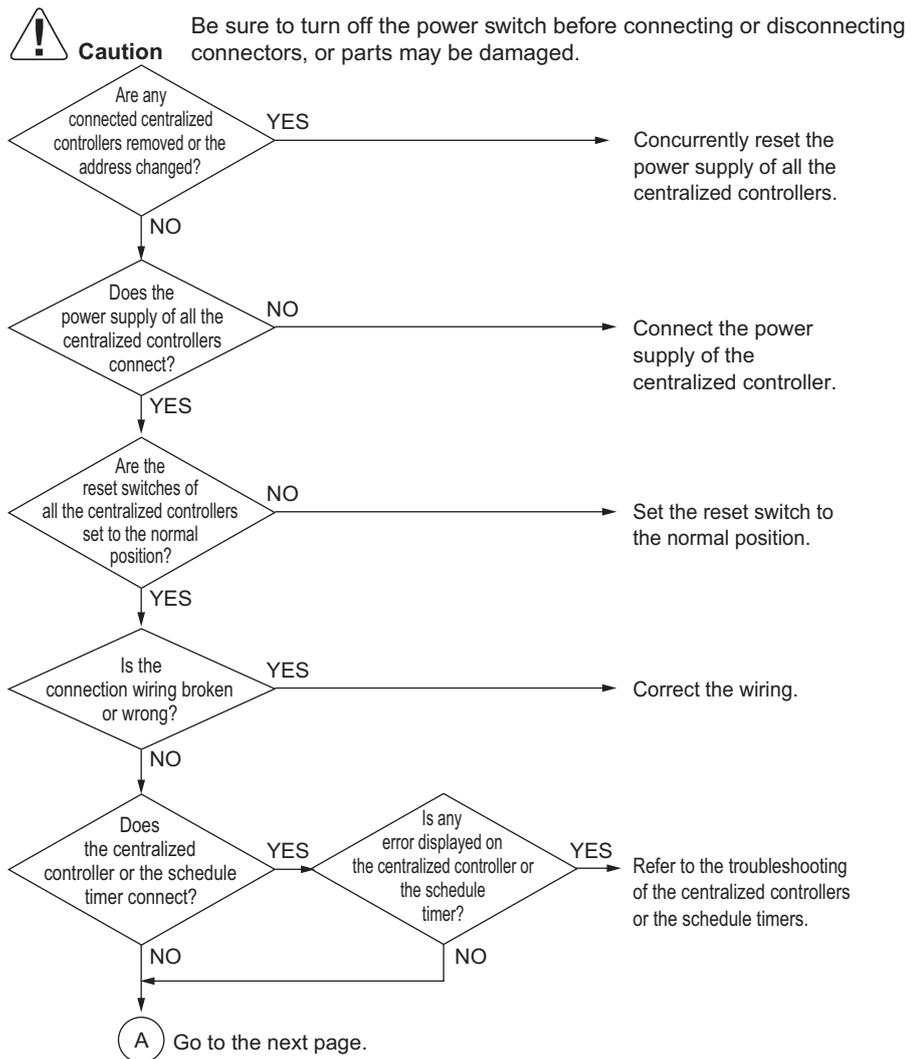


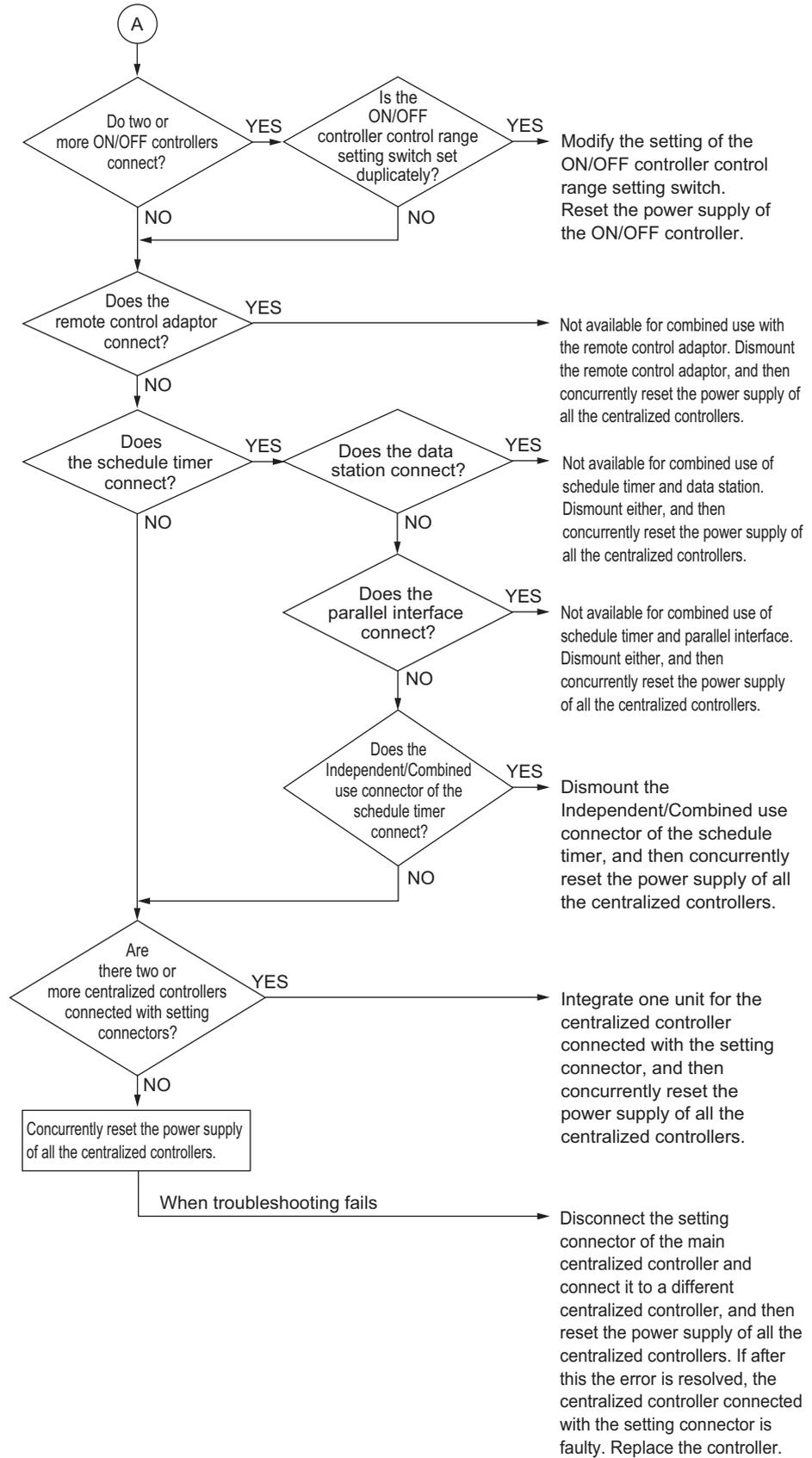


4.92 Central Control Indicator Lamp Blinking (One blink)

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	<ul style="list-style-type: none"> ■ 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 adaptor.
Supposed Causes	<ul style="list-style-type: none"> ■ Centralized controller address duplication ■ Poor centralized controller combination ■ Multiple main centralized controllers ■ Transmission defect between centralized controllers ■ Defective centralized controller PCB

Troubleshooting



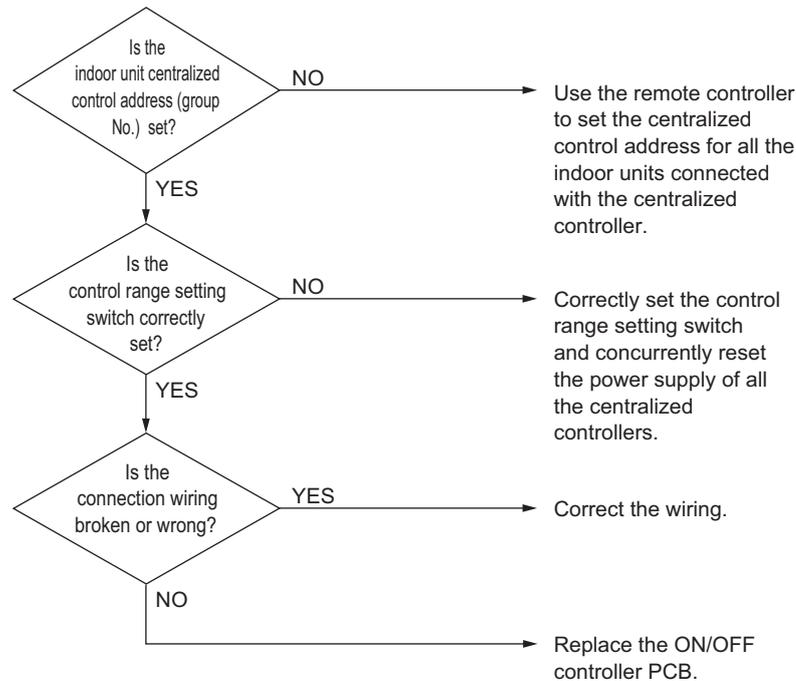


4.93 Central Control Indicator Lamp Blinking (Two blinks)

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	<ul style="list-style-type: none"> ■ 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.

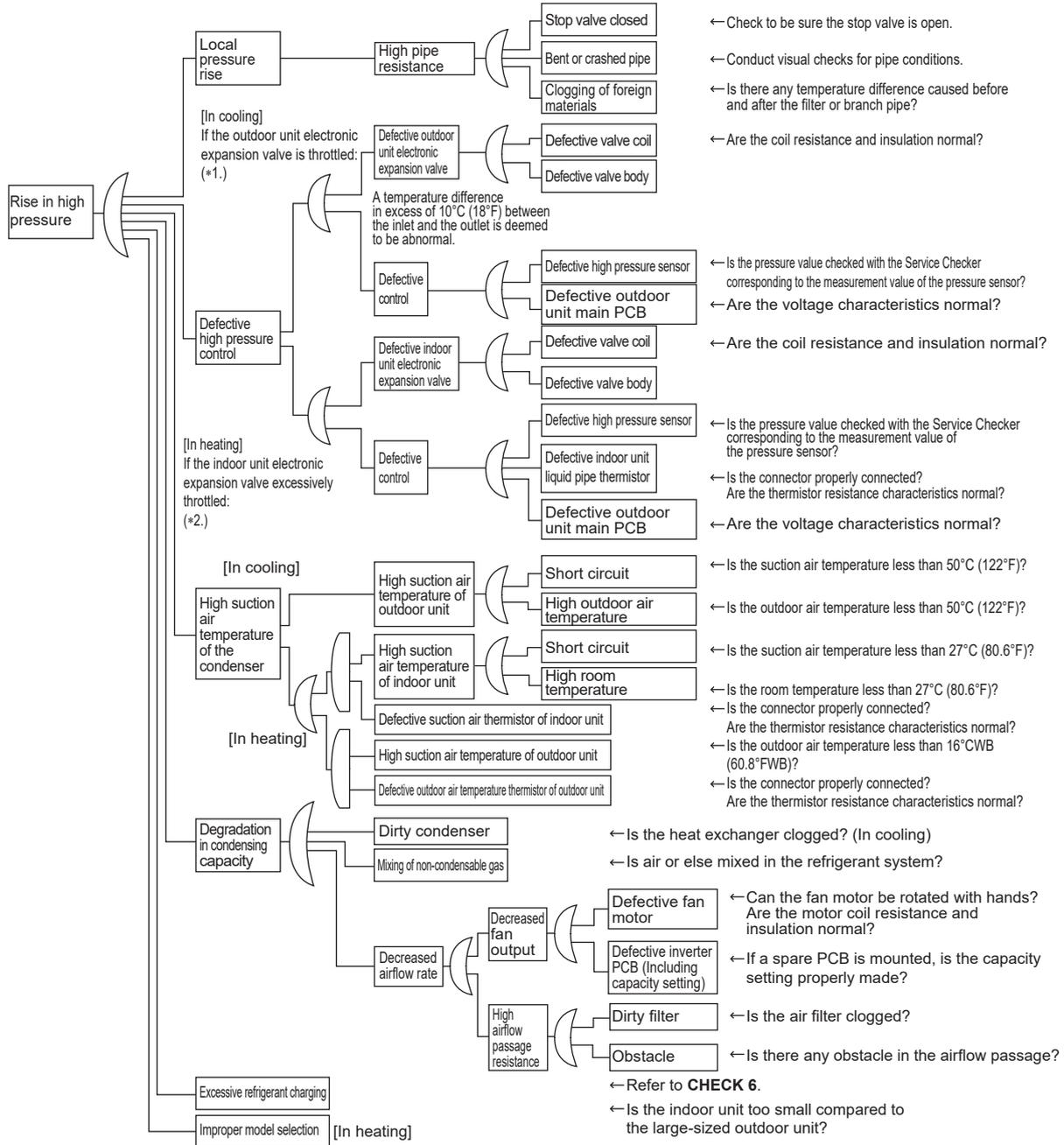


5. Check

5.1 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.

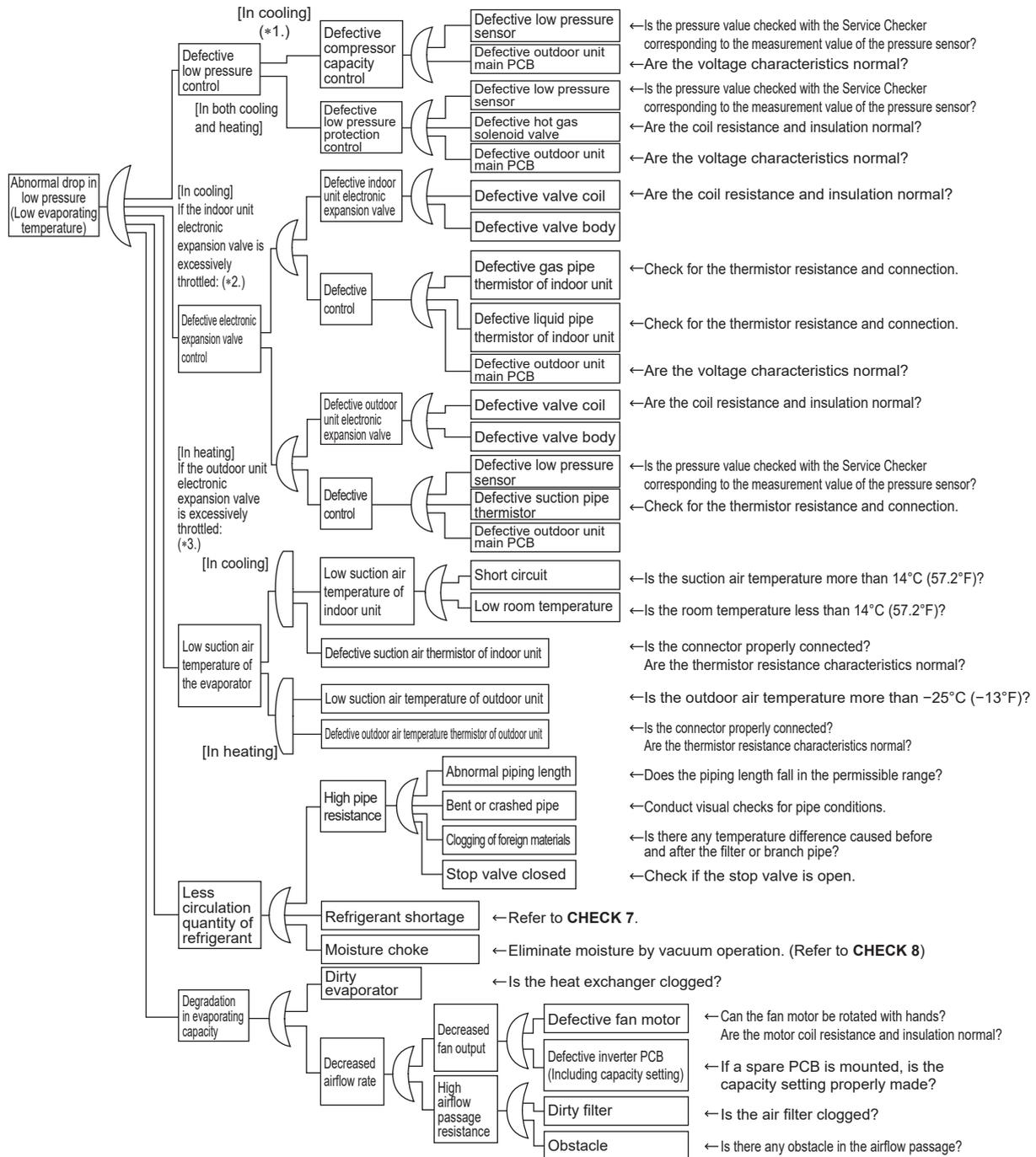
Reference

CHECK 6 Refer to page 415.

5.2 Low Pressure Check

CHECK 2

Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points



i Note(s)

- *1. For details of compressor capacity control while in cooling, refer to **Compressor PI Control** on page 105.
- *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.

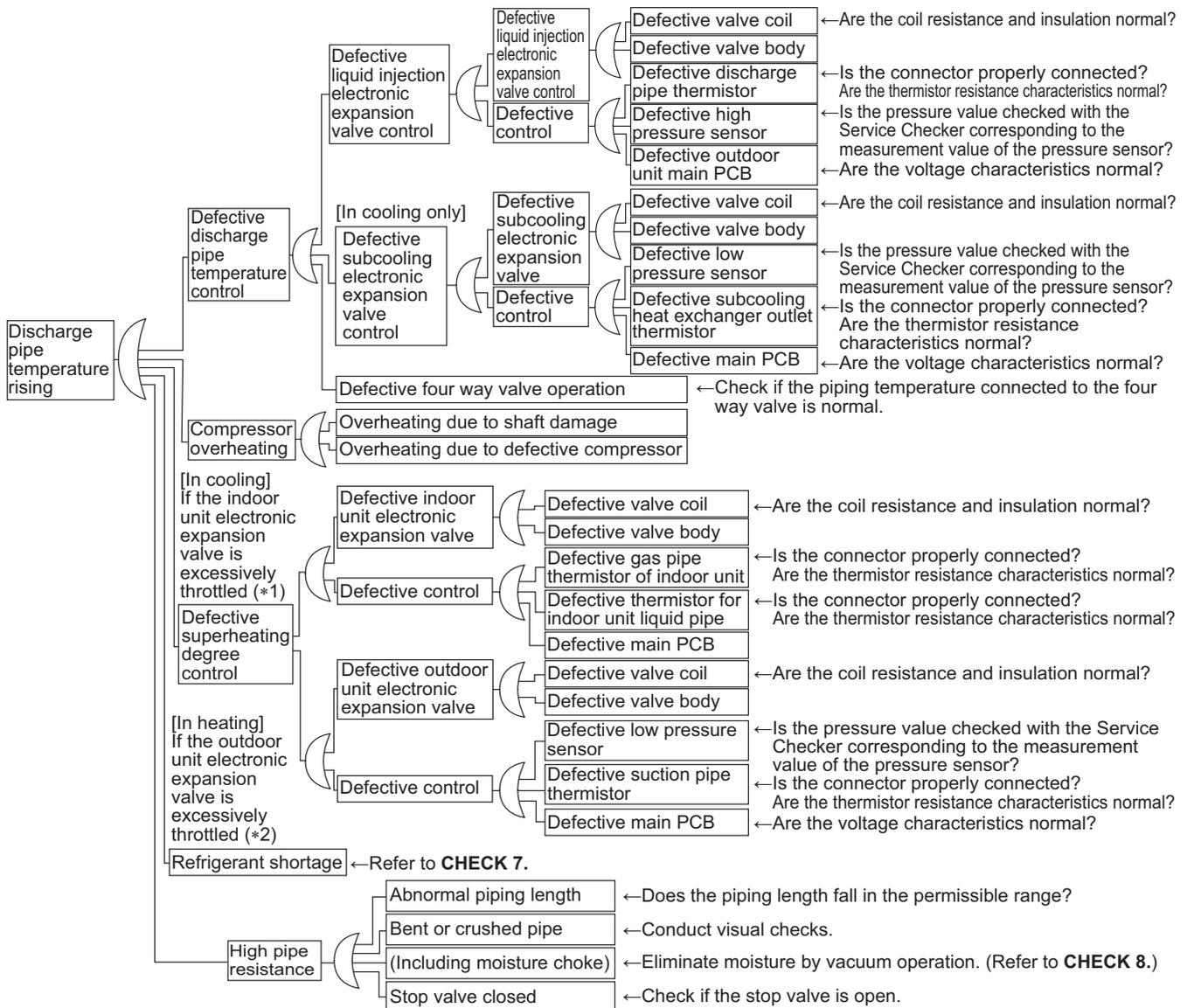
Reference **CHECK 7** Refer to page 416.

Reference **CHECK 8** Refer to page 417.

5.3 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 416.



Reference **CHECK 8** Refer to page 417.

5.4 Power Transistor Check

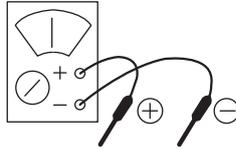
CHECK 4

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 k Ω .

No.	Point of Measurement		Judgment Criteria	Remarks
	+	-		
1	C+	U	3 ~ 30 k Ω	—
2	C+	V		
3	C+	W		
4	U	C+	15 k Ω 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	2 ~ 15 k Ω	—
10	U	C-		
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-		

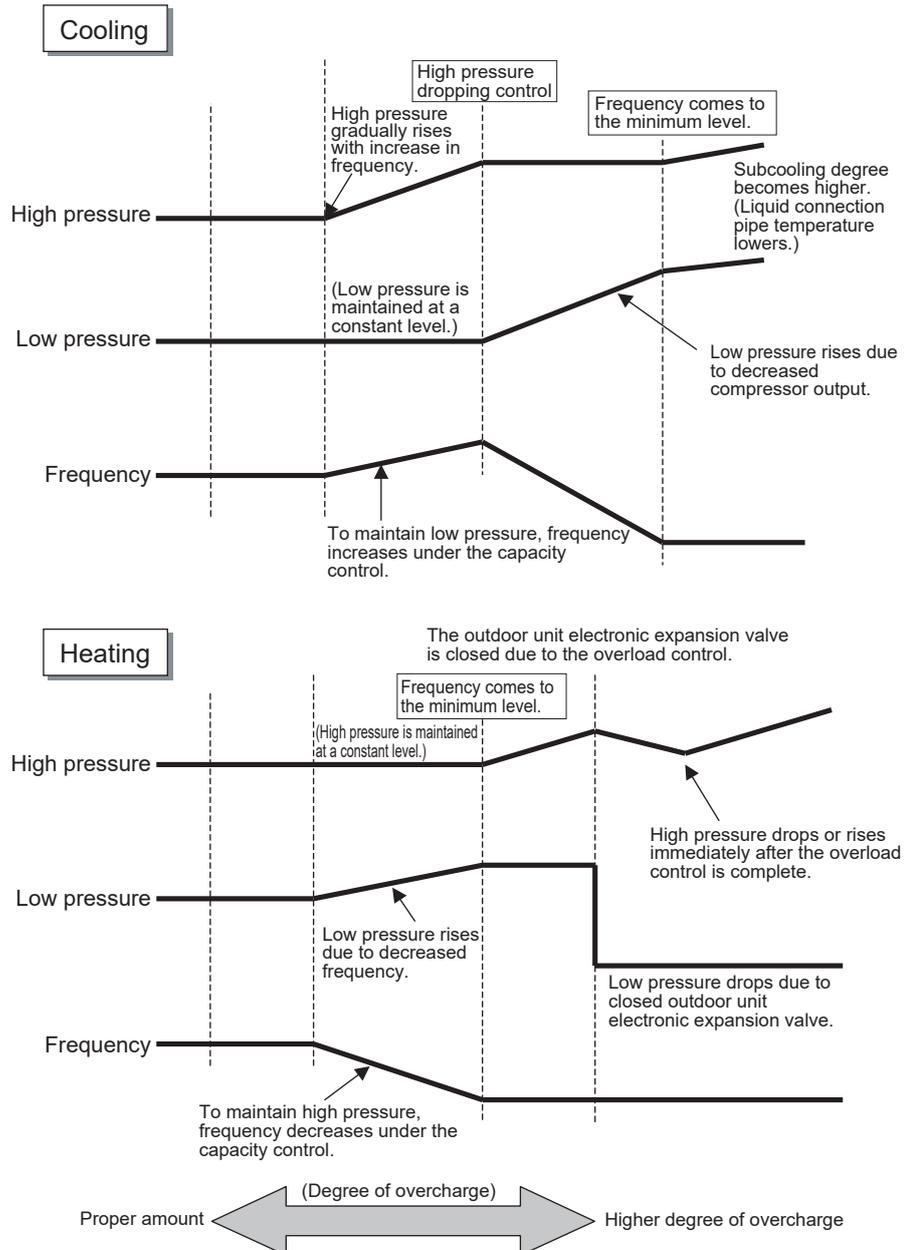
5.5 Refrigerant Overcharge Check

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.

Diagnosis of refrigerant overcharge

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.



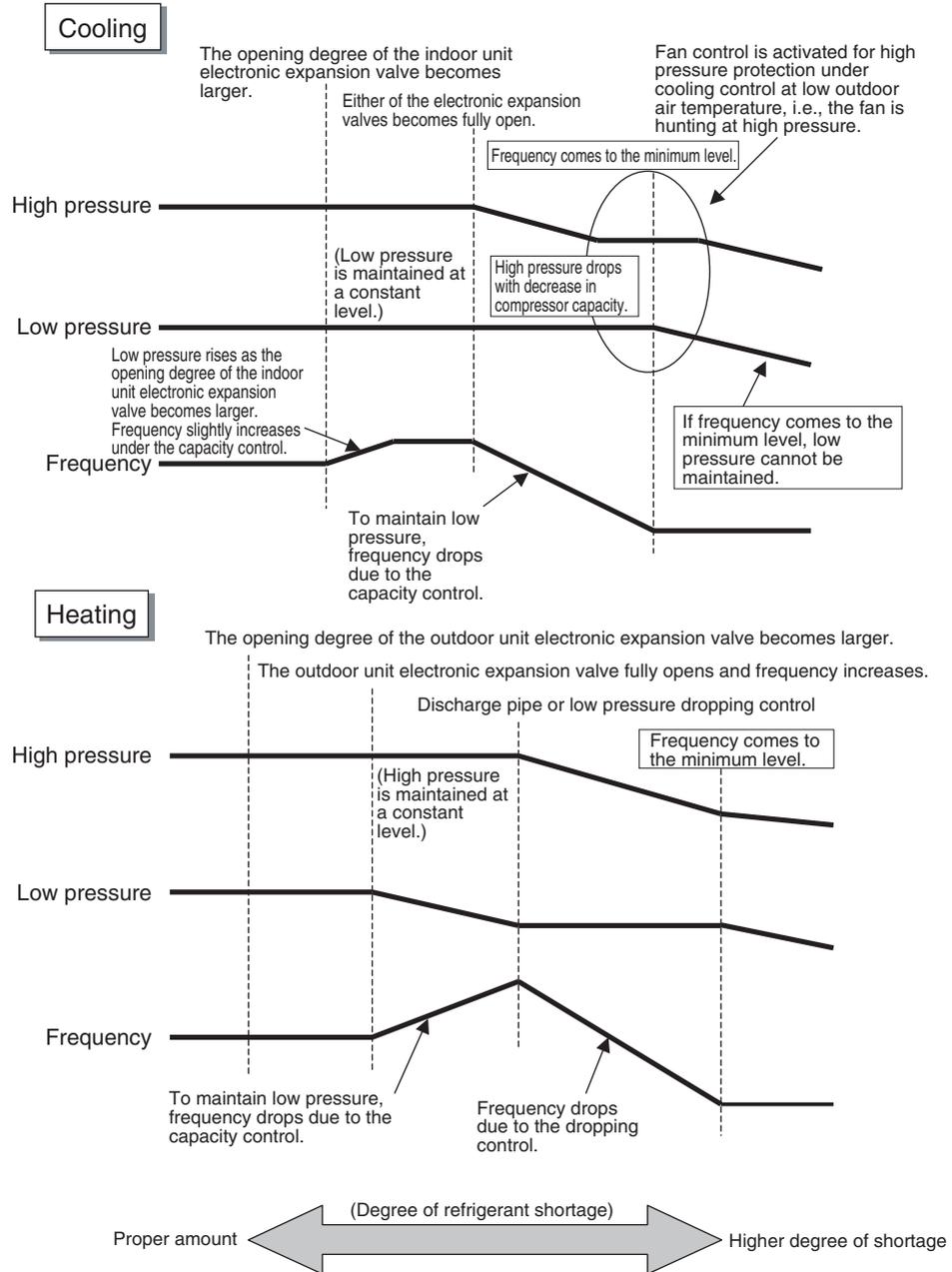
5.6 Refrigerant Shortage Check

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.



5.7 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.

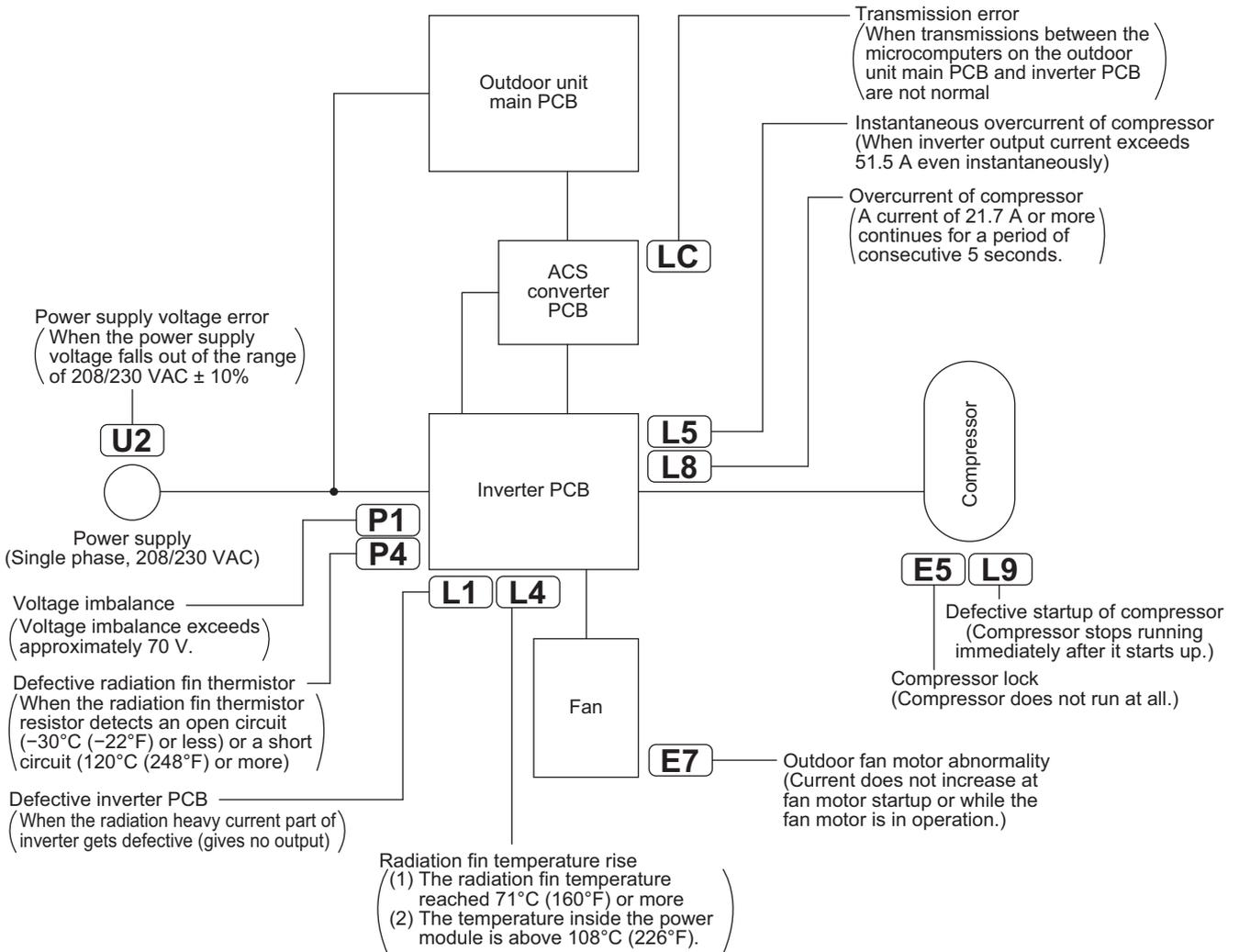
5.8 List of Inverter-Related Error Codes

CHECK 9

	Code	Name	Condition for determining error	Major cause
Compressor current	L5	Instantaneous overcurrent of compressor	<ul style="list-style-type: none"> Inverter output current exceeds 51.5 A even instantaneously. 	<ul style="list-style-type: none"> Liquid sealing Defective compressor Defective inverter PCB
	L8	Overcurrent of compressor (Electronic overheating protection sensor)	<ul style="list-style-type: none"> Compressor overload running A current of 21.7 A or more continues for a period of consecutive 5 seconds. The inverter loses synchronization. 	<ul style="list-style-type: none"> Back-flow of compressor liquid Sudden changes in loads Disconnected compressor wiring Defective inverter PCB
Protection device and others	E5	Compressor lock	<ul style="list-style-type: none"> The compressor is in the locked status (does not rotate). 	<ul style="list-style-type: none"> Defective compressor
	E7	Outdoor fan motor abnormality	<ul style="list-style-type: none"> Current does not increase at fan motor startup or while the fan motor is in operation. 	<ul style="list-style-type: none"> Defective fan motor Defective inverter PCB
	L1	Defective inverter PCB	<ul style="list-style-type: none"> No output is given. 	<ul style="list-style-type: none"> Defective heavy current part of compressor Defective inverter PCB
	L4	Radiation fin temperature rise	<ul style="list-style-type: none"> 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). 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> The compressor motor fails to start up. 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> No communications are carried out across the microcomputers on the outdoor unit main PCB and inverter PCB. 	<ul style="list-style-type: none"> Defective outdoor unit main PCB, inverter PCB, and ACS converter PCB
	P1	Voltage imbalance	<ul style="list-style-type: none"> Voltage imbalance exceeds approximately 70 V. 	<ul style="list-style-type: none"> Defective inverter PCB
	P4	Defective radiation fin thermistor	<ul style="list-style-type: none"> The radiation fin thermistor gets short circuited or open. 	<ul style="list-style-type: none"> Defective radiation fin thermistor
	U2	Power supply voltage error	<ul style="list-style-type: none"> The inverter power supply voltage is high or low. 	<ul style="list-style-type: none"> Power supply error Defective inverter PCB

5.9 Concept of Inverter-Related Error Codes

CHECK 10



5.10 Thermistor Check

CHECK 11

Thermistor type of indoor units

Model	Suction air thermistor	Indoor heat exchanger (liquid) thermistor	Indoor heat exchanger (gas) thermistor	Discharge air thermistor	
	R1T	R2T	R3T	R4T	
FXFA-AA	Type C	Type A	Type A	—	
FXZA-AA	Type B			Type A	—
FXSA-AA					Type J
FXMA15-54AA			Type J	—	
FXMA72/96AA				—	
FXAA-AA	—		—		
FXTA-AB	—		Type A	—	

Thermistor type of outdoor units

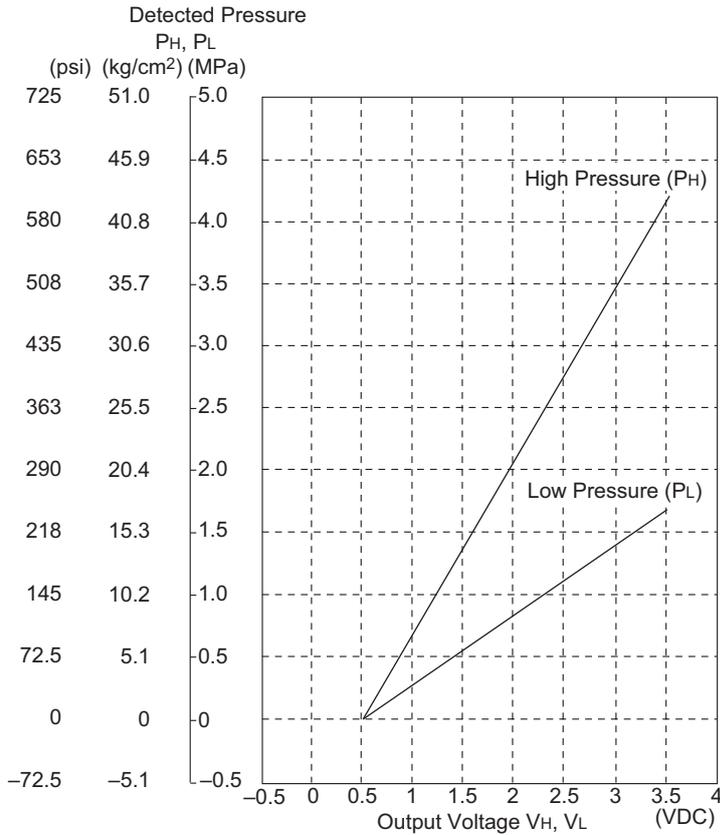
Electric symbol	Thermistor	Type
R1T	Thermistor (Outdoor air)	N
R2T	Thermistor (Heat exchanger right upper gas pipe)	A
R3T	Thermistor (Electrical box air outlet)	A
R4T	Thermistor (Receiver gas purge)	A
R5T	Thermistor (Suction pipe before accumulator)	A
R6T	Thermistor (Heat exchanger right upper liquid pipe)	A
R7T	Thermistor (Heat exchanger right lower liquid pipe)	A
R8T	Thermistor (Heat exchanger right deicer)	A
R9T	Thermistor (Heat exchanger right lower gas pipe)	A
R10T	Thermistor (Liquid)	A
R11T	Thermistor (Subcooling heat exchanger liquid pipe)	A
R12T	Thermistor (Subcooling heat exchanger gas pipe)	A
R14T	Thermistor (Subcooling injection)	A
R15T	Thermistor (M1C discharge for 96-240 type)	H
R16T	Thermistor (M1C body for 96-240 type)	H
R17T	Thermistor (M1C discharge for 72 type, M2C discharge for 96-240 type)	H
R18T	Thermistor (M1C body for 72 type, M2C body for 96-240 type)	H
R19T	Thermistor (Compressor suction)	A
R20T	Thermistor (Box air)	A
R21T	Thermistor (Heat exchanger left gas pipe)	A
R22T	Thermistor (Heat exchanger left liquid pipe)	A
R23T	Thermistor (Heat exchanger left deicer)	A

Thermistor temperature		Resistance (kΩ)					
(°C)	(°F)	Type A	Type B	Type C	Type H	Type J	Type N
-30	-22	363.8	—	—	3407	352.1	363.4
-25	-13	266.8	—	—	2540	261.2	266.7
-20	-4	197.8	—	—	1910	195.4	197.8
-15	5	148.2	—	—	1449	147.3	148.2
-10	14	112.0	111.1	111.8	1108	111.8	112.1
-5	23	85.52	84.95	85.42	853.8	85.49	85.51
0	32	65.84	65.53	65.80	662.7	65.80	65.80
5	41	51.05	50.95	51.07	517.9	51.15	51.11
10	50	39.91	39.92	39.97	407.4	40.08	40.01
15	59	31.44	31.50	31.51	322.5	31.64	31.54
20	68	24.95	25.02	25.02	256.9	25.16	25.04
25	77	19.94	20.00	20.00	205.7	20.14	20.00
30	86	16.04	16.10	16.10	165.7	16.23	16.09
35	95	12.99	13.04	13.04	134.3	13.16	13.02
40	104	10.58	10.63	10.63	109.4	10.73	10.60
45	113	8.669	8.720	8.711	89.58	8.800	8.685
50	122	7.143	7.189	7.179	73.73	7.255	7.153
55	131	5.918	—	—	60.98	6.012	5.923
60	140	4.928	—	—	50.67	5.010	4.929
65	149	4.123	—	—	42.29	4.196	4.122
70	158	3.467	—	—	35.45	3.532	3.463
75	167	—	—	—	29.84	2.987	—
80	176	—	—	—	25.21	2.538	—
85	185	—	—	—	21.38	2.166	—
90	194	—	—	—	18.21	1.857	—
95	203	—	—	—	15.57	1.598	—
100	212	1.339	—	—	13.36	1.380	—
105	221	—	—	—	11.49	1.196	—
110	230	—	—	—	9.92	1.041	—
115	239	—	—	—	8.594	0.908	—
120	248	—	—	—	7.465	0.795	—
125	257	—	—	—	6.499	0.698	—
130	266	—	—	—	5.675	0.615	—
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.		3SA48002 3SA48018 3SA48019 (AD94A045) 3SA48013 (AD100026) 3S480020 (AD160282) 3S480021 (AD160283)	3SA48001 3P283292 (AD210486)	3S480014 (AD150384)	3SA48006 (AD190115)	3SA48005 (AD190114)	3S480024 (AD180053)

*The data is for reference purpose only.

5.11 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

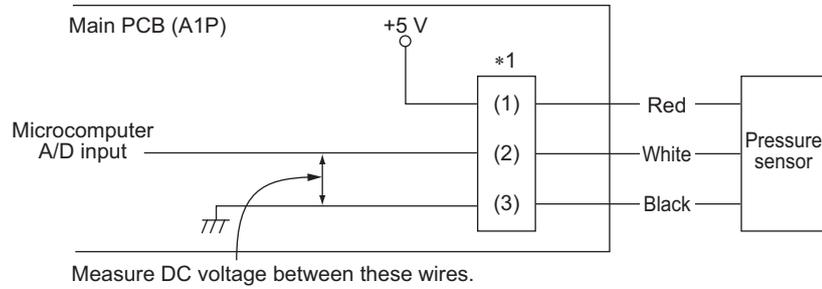
P_H : High pressure (MPa)

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)

5.12 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.

Pattern	Central controller connection pattern				Setting of master unit centralized setting connector (*2)			
	intelligent Touch Controller	Central remote controller	Unified ON/OFF controller	Schedule timer	intelligent Touch Controller	Central remote controller	Unified ON/OFF controller	Schedule timer
(1)	1 to 2 units	—	—	× (*1)	Only a single unit: Provided, Others: Not provided	—	—	—
(2)	1 unit	1 unit	—	× (*1)	Provided	Not provided	—	—
(3)			1 to 8 units	× (*1)			—	
(4)	1 to 2 units	—	1 to 8 units	× (*1)	Only a single unit: Provided, Others: Not provided	—	All not provided	—
(5)	—	1 to 4 units	—	—	—	Only a single unit: Provided, Others: Not provided	—	—
(6)	—		1 to 16 units	1 unit	—		All not provided	Not provided
(7)	—		—	—	—		—	—
(8)	—		—	1 unit	—		—	Not provided
(9)	—	—	1 to 16 units	—	—	—	Only a single unit: Provided, Others: Not provided	—
(10)	—	—		1 unit	—		—	Not provided
(11)	—	—	—	1 unit	—	—	—	Provided



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.

5.13 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.

5.14 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.

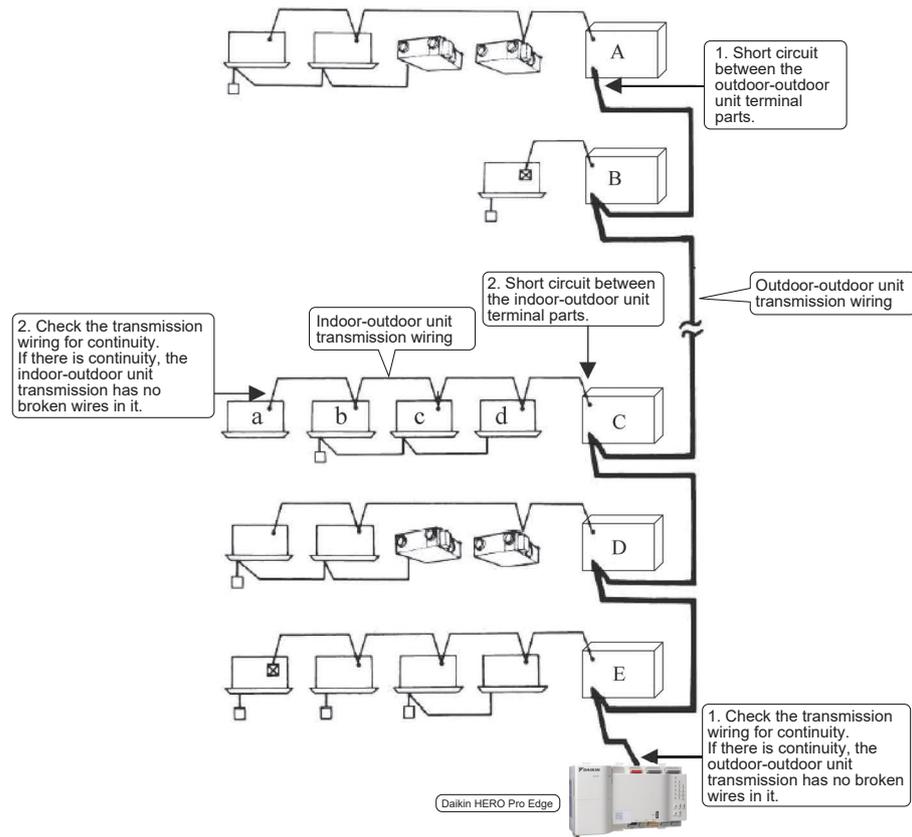
If the place with continuity can be identified, there may be broken wires in places before the said place with continuity.



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



5.15 Fan Motor Connector Check

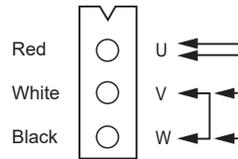
CHECK 16

Check the fan motor connector according to the following procedure.

Outdoor unit, FXFA-AA, FXSA-AA, FXMA15-54AA, FXAA-AA

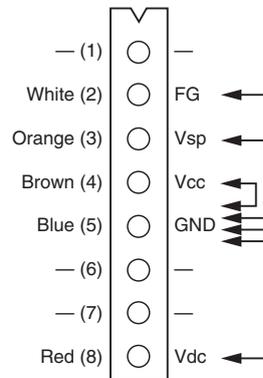
1. Turn the power supply OFF.
2. Disconnect the fan motor connector from the PCB or relay connector and measure the resistances between U-V, V-W, and W-U to check that the values are balanced and there is no short circuiting, while connector or relay connector is disconnected.

Judgment: Resistances must be balanced within 20%.



FXZA-AA

1. Turn the power supply OFF.
2. Disconnect the fan motor connector and measure the resistances.

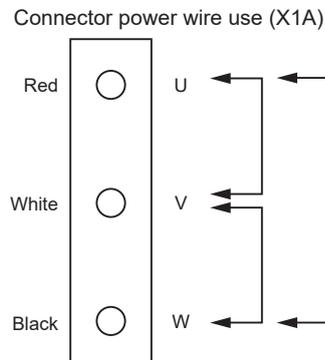


Measuring points	Judgment criteria
2 - 5	1 Ω or more
3 - 5	1 Ω or more
4 - 5	1 Ω or more
8 - 5	1 Ω or more

FXMA72/96AA**Power supply cable**

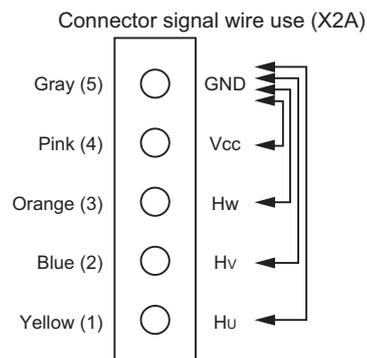
Measurement of power wire connector.

Remove the X1A connector from the fan PCB (A3P) and measure the resistance between the U and V, V and W, and W and U phases of the motor connector (with five conductors) and check that each phase are balanced (within a permissible dispersion range of $\pm 20\%$)

**Signal cable**

Measurement of signal wire connector.

Remove the X2A connector and measure the resistance between GND and Vcc, Hw, Hv, or Hu terminals of the motor connector (with five conductors).

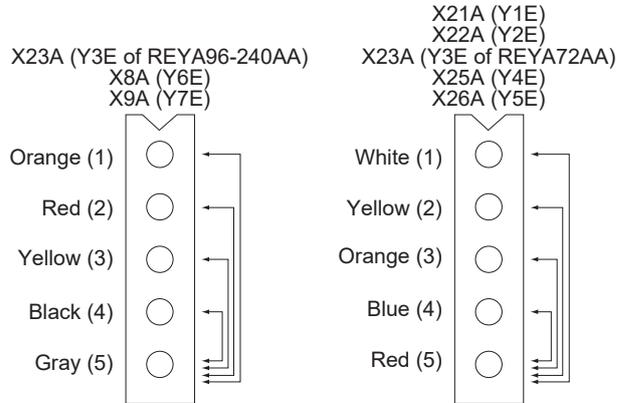


5.16 Electronic Expansion Valve Coil Check

CHECK 18

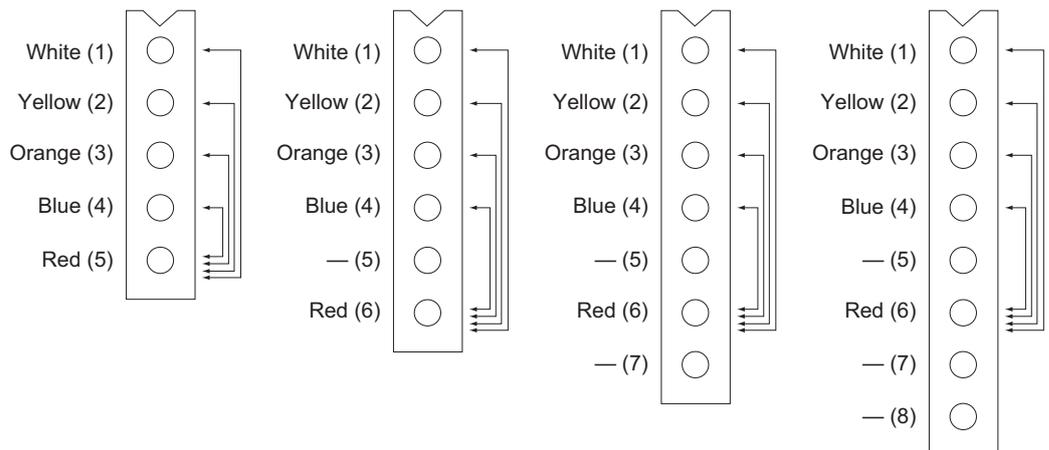
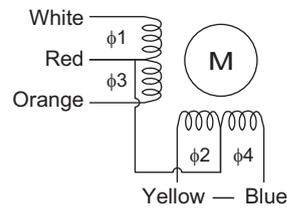
Measure the connector pin-to-pin resistance and make sure that the resistance value is within the range listed in the table below.

Outdoor Unit



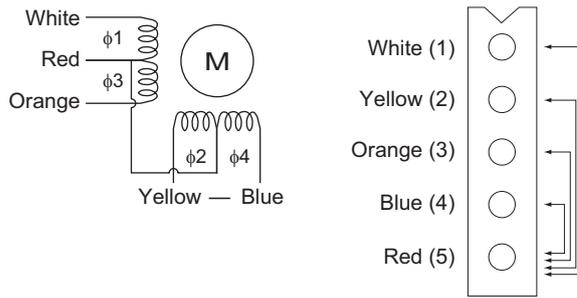
Measuring points	Judgment criteria	
	Y1E, Y2E, Y4E, Y5E	Y3E, Y6E, Y7E
1 - 5	120-180 Ω	35-55 Ω
2 - 5		
3 - 5		
4 - 5		

Branch Selector Unit



Measuring points	Judgment criteria	
	Suction gas HP/LP gas Liquid	Subcooling
White - Red	120-180 Ω	35-55 Ω
Yellow - Red		
Orange - Red		
Blue - Red		

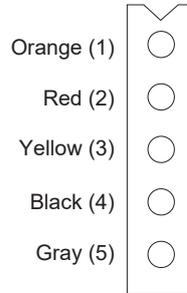
Safety Shut-Off Valve Unit



Measuring points	Judgment criteria
1 - 5	120-180 Ω
2 - 5	
3 - 5	
4 - 5	

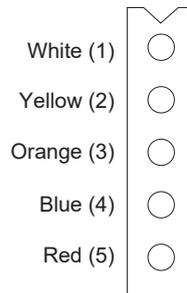
Indoor Unit

FXFA-AA, FXZA-AA, FXSA-AA, FXMA15-54AA



Measuring points	Judgment criteria at 68°F (20°C)
1 - 3	about 92 Ω
1 - 5	about 46 Ω
2 - 4	about 92 Ω
2 - 5	about 46 Ω

FXMA72-96AA



Measuring points	Judgment criteria at 68°F (20°C)
1 - 3	about 300 Ω
1 - 5	about 150 Ω
2 - 4	about 300 Ω
2 - 5	about 150 Ω

FXAA-AA



Measuring points	Judgment criteria at 68°F (20°C)
1 - 3	about 300 Ω
1 - 5	about 150 Ω
2 - 4	about 300 Ω
2 - 6	about 150 Ω

5.17 Fan Motor Connector Check for FXTA-AB

CHECK 19

CHECKING EMERSON ULTRATECH™ ECM MOTORS

The FXTA-AB 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™ Diagnostic Tool

The Emerson UltraCheck-EZ™ 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™ 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 434).
ON	OFF	Not Rotating	Replace motor control/end bell; verify motor (refer to Motor Checks on page 434).

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!

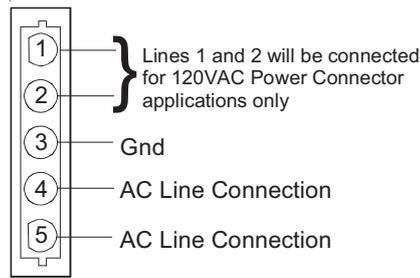
Disconnect ALL power before servicing or installing. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

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



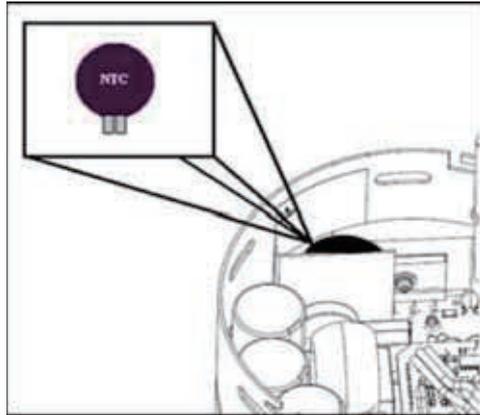
Warning

HIGH VOLTAGE!

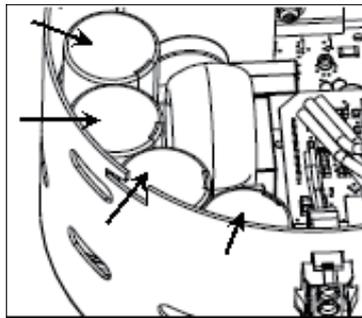
Disconnect ALL power before servicing or installing. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

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.

5.18 Communication Availability Check (Only DIV-NET communication-enabled devices)

CHECK 20

HBP and HCP 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. (*2) (*3)

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.

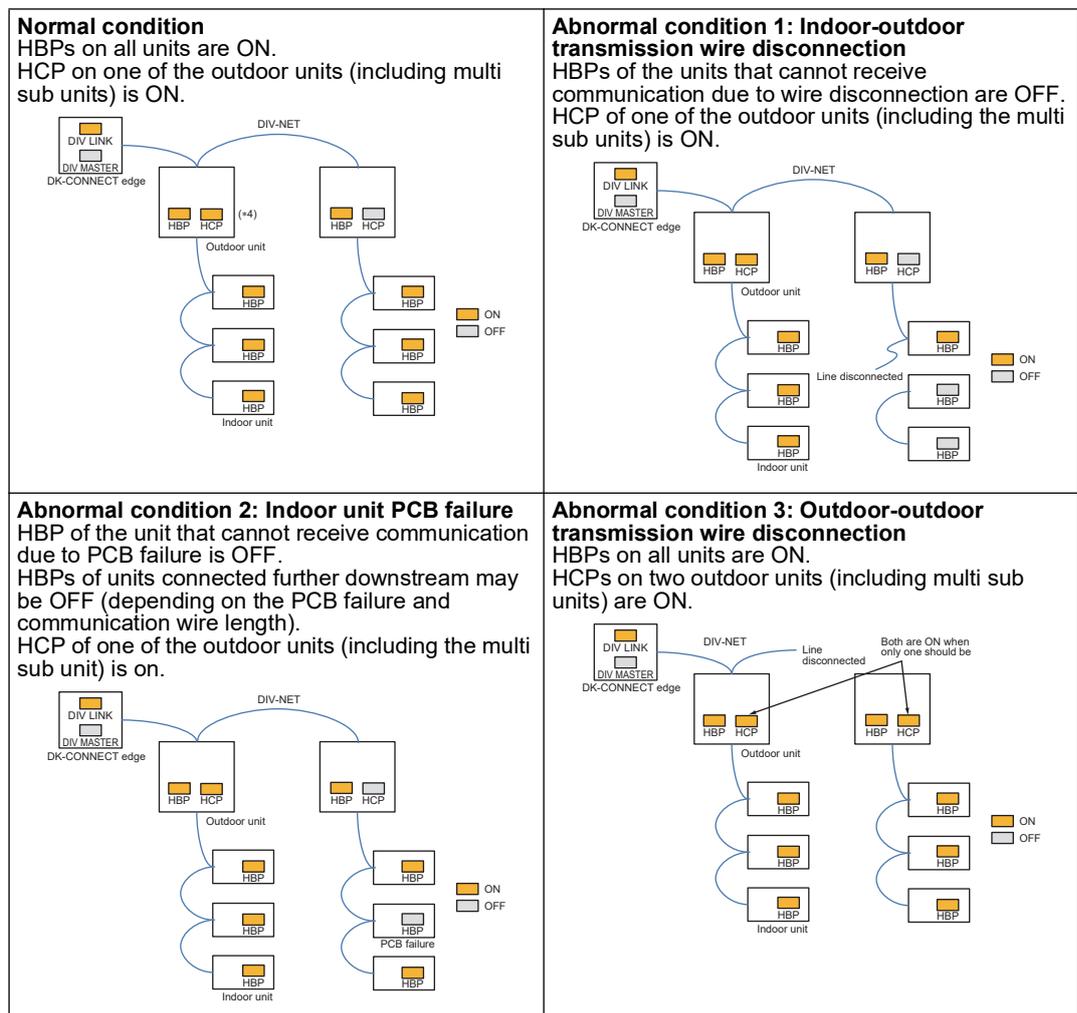
The HCP status confirms the following. (*4)

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.



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. In Daikin HERO Pro Edge, DIV LINK on the front LED display corresponds to HBP and DIV MASTER to HCP.
- *2. 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.
- *3. 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.
- *4. HCP is mounted on the outdoor PCB and Daikin HERO Pro Edge. It is not installed in the indoor unit, Branch Selector unit, Safety Shut-Off Valve unit, or ventilation unit.
- *5. 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.

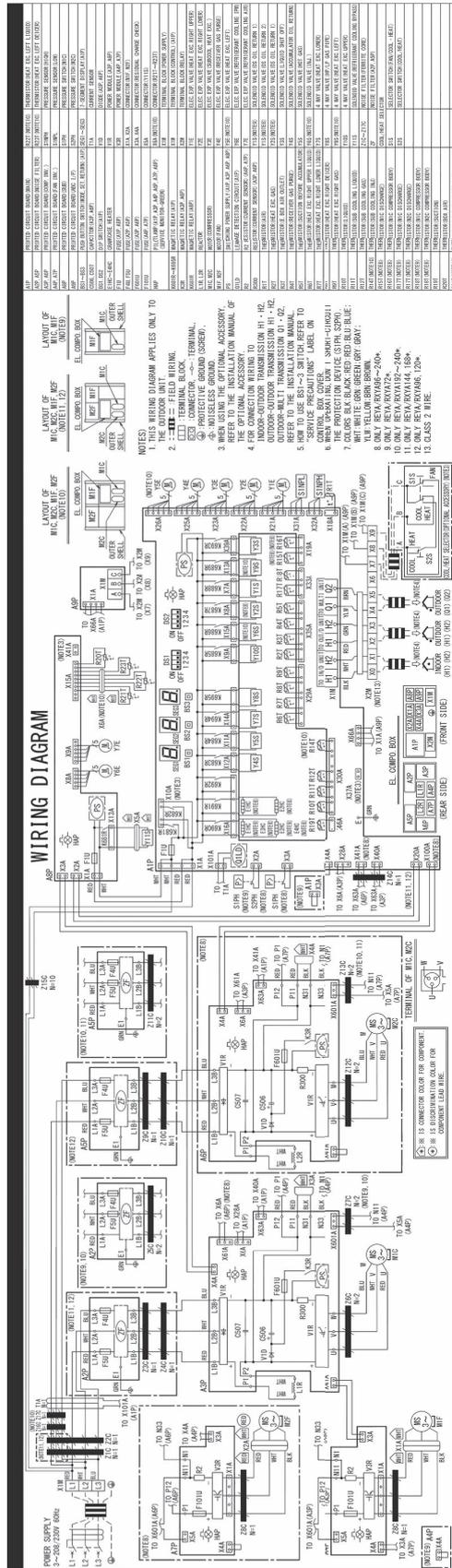
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1. Wiring Diagrams

1.1 Outdoor Unit

REYA72/96/120/144/168/192/216/240AATJA



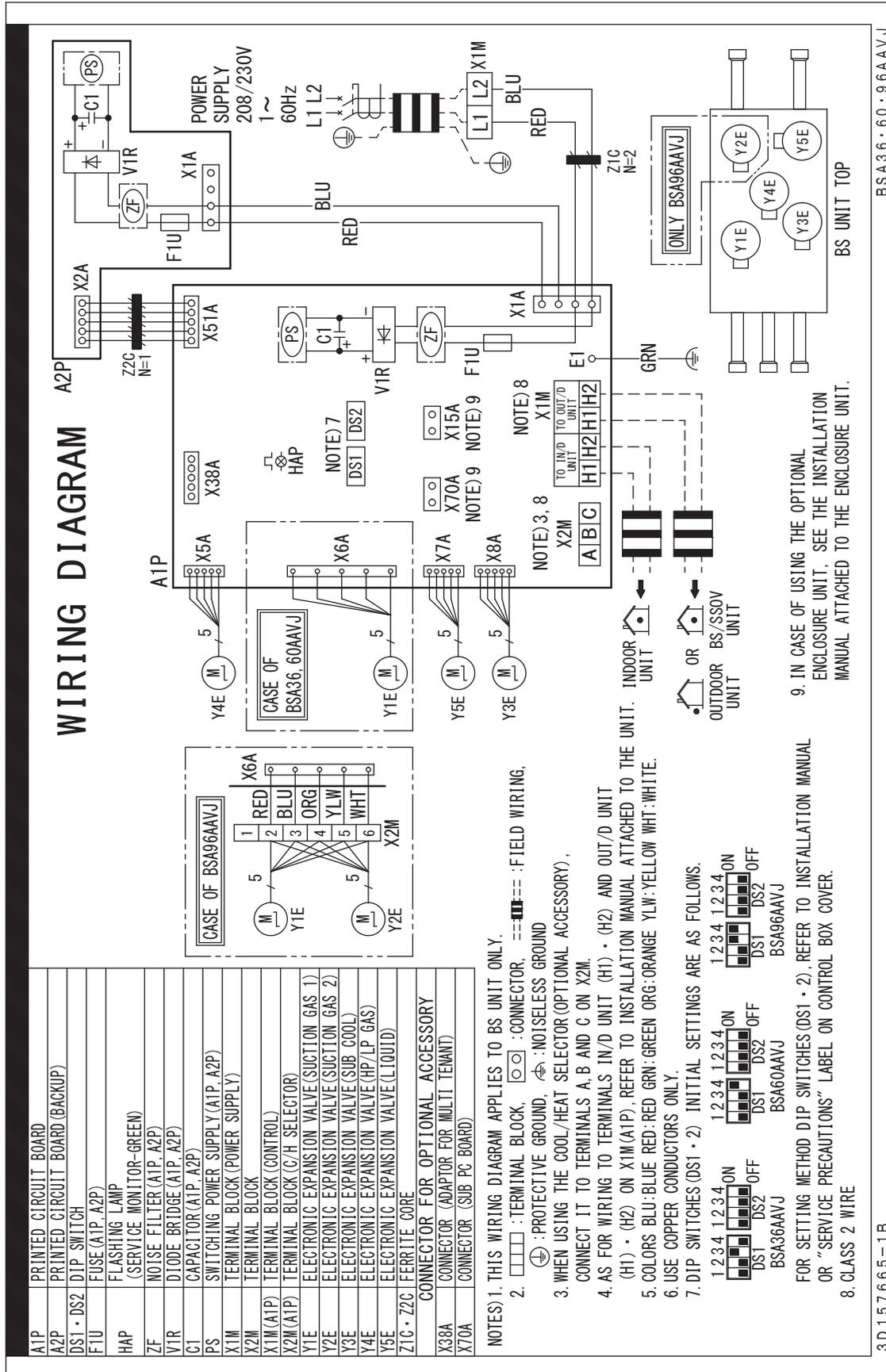
20157917-1A

C-2D157917B

1.2 Branch Selector Unit

1.2.1 Single Branch Selector Unit

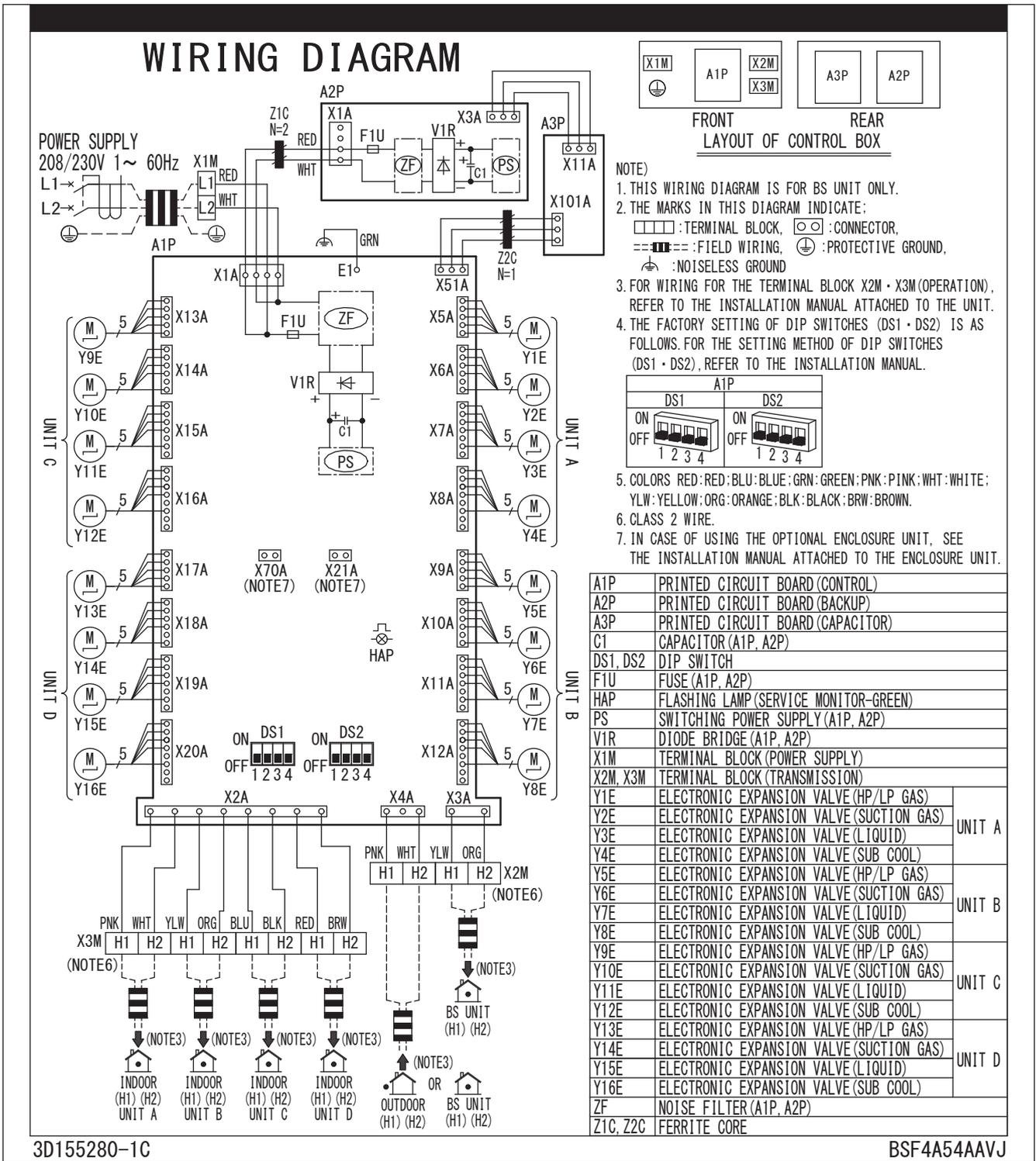
BSA36/60/96AAVJ



3D157665B

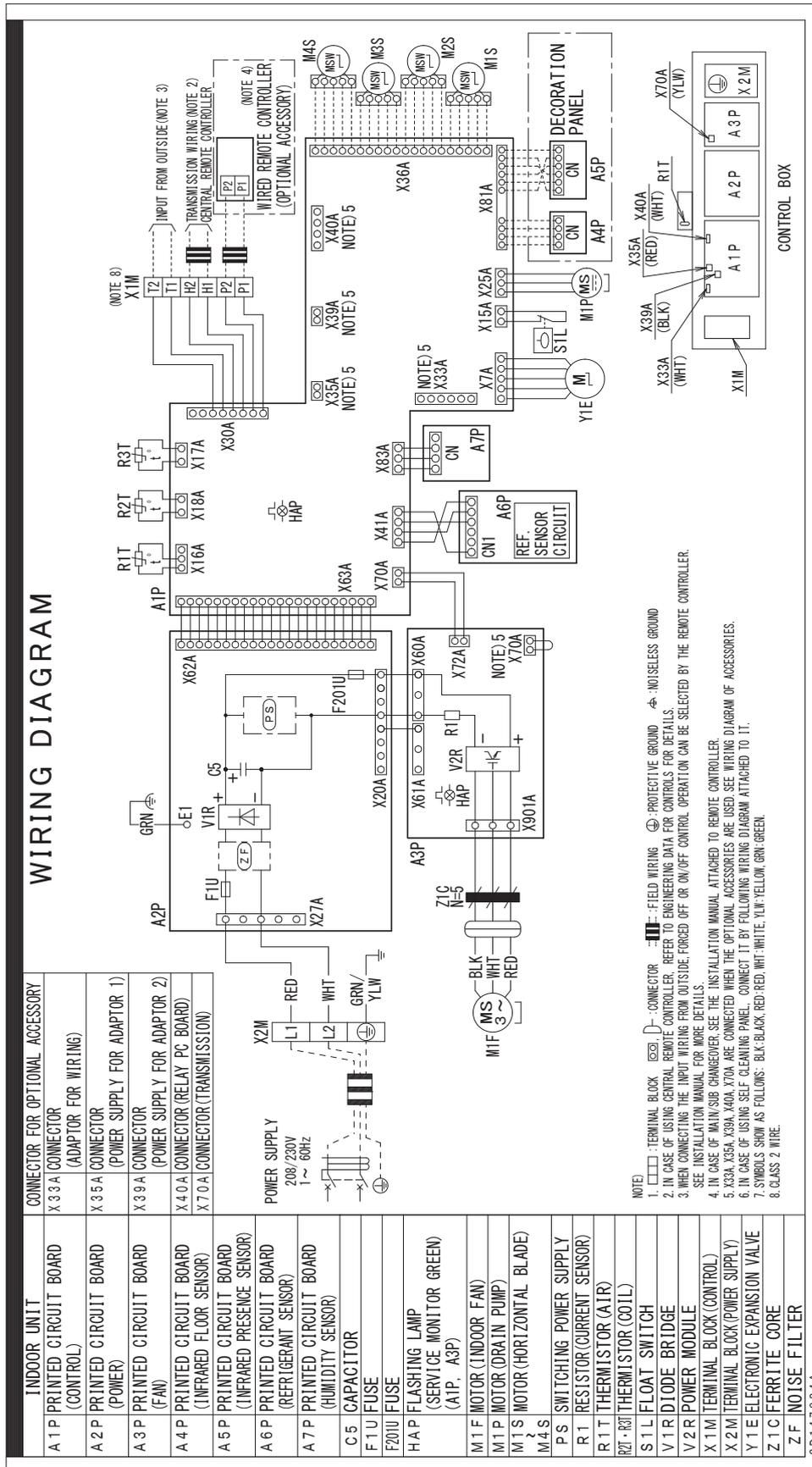
1.2.2 Multi Branch Selector Unit

BSF4A54AAVJ



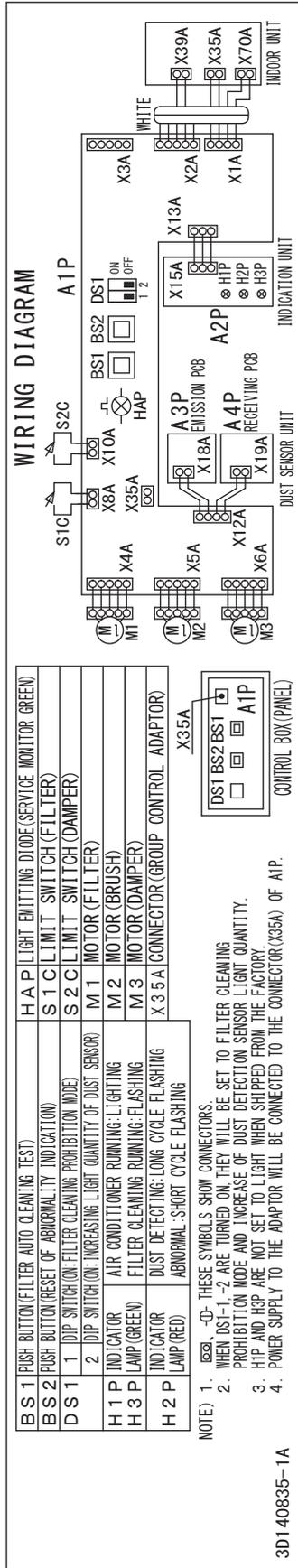
1.4 Indoor Unit

FXFA07/09/12/15/18/24/30/36/48/54AAVJU



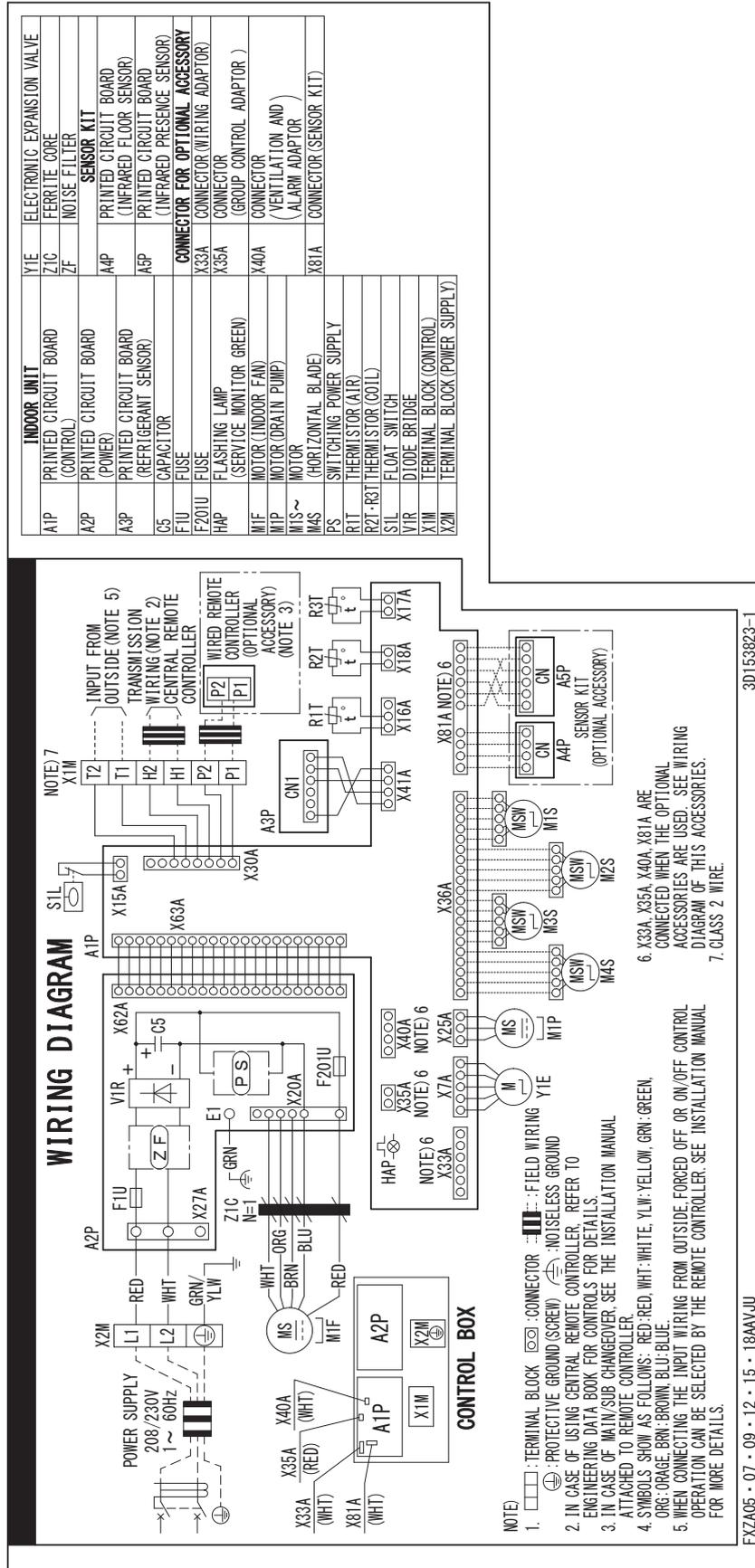
3D147084A

BYCQ54GEGFU (Self-Cleaning Filter Panel for FXFA-AA)



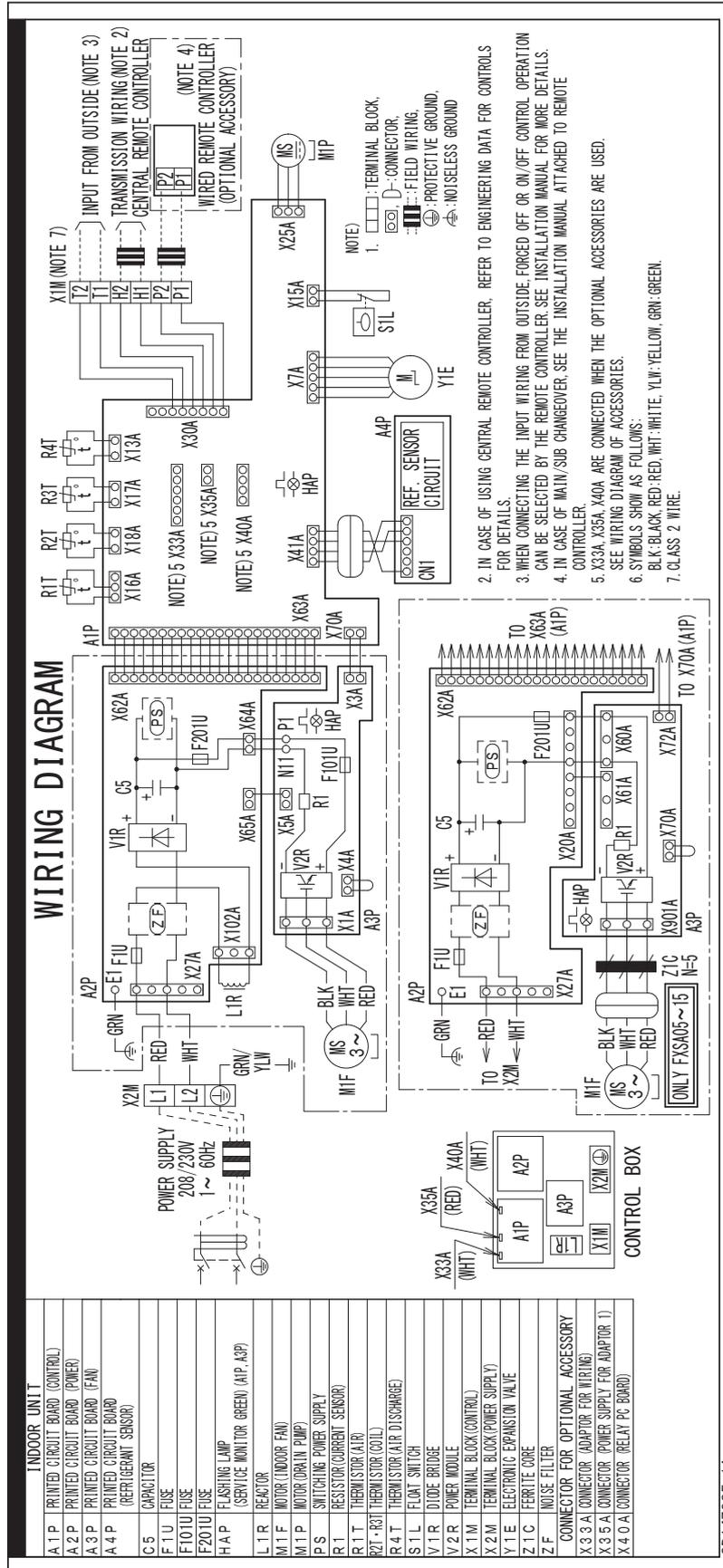
3D140835A

FXZA05/07/09/12/15/18AAVJU



3D153823

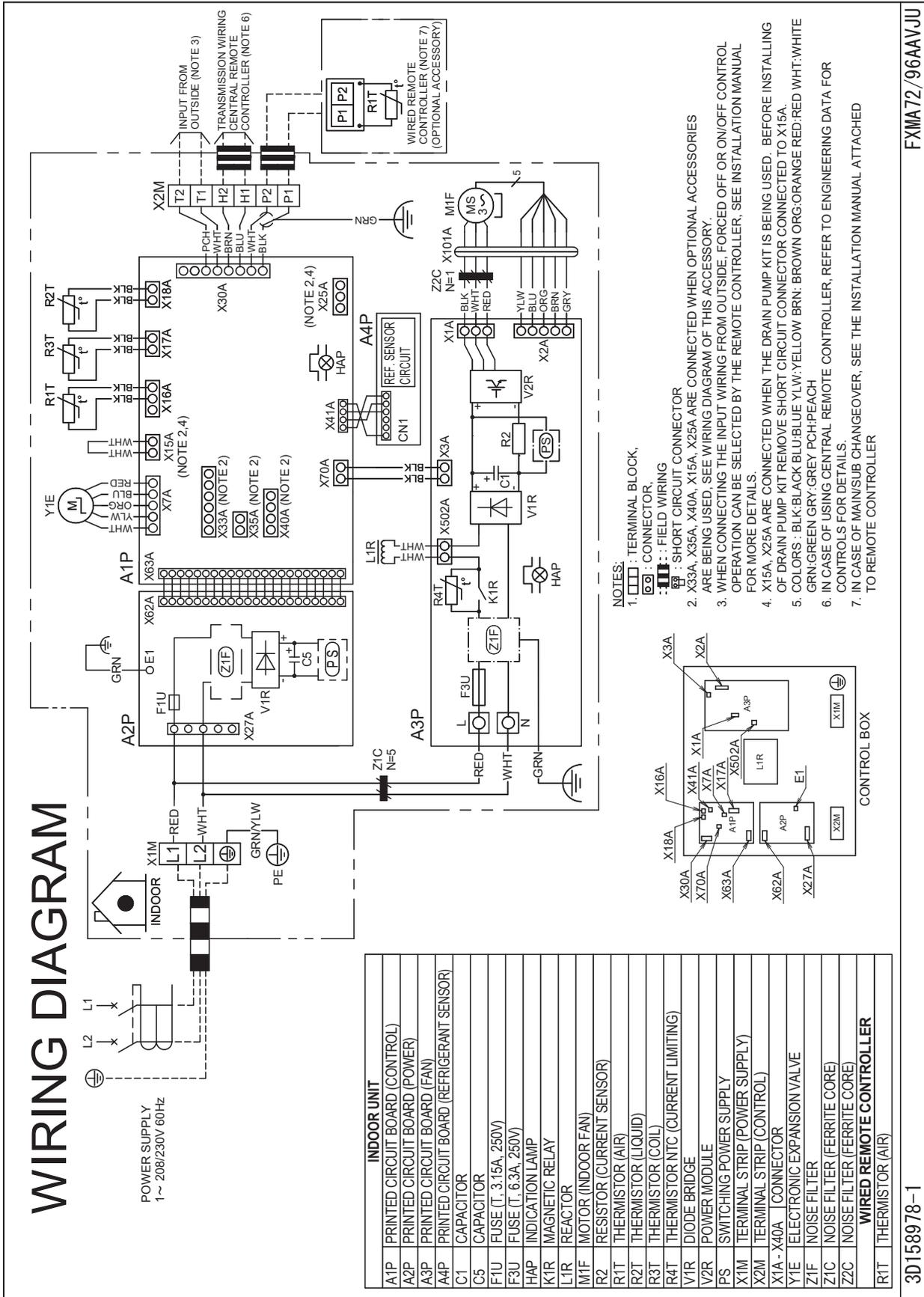
FXSA05/07/09/12/15/18/24/30/36/48/54AAVJU, FXMA15/18/24/30/36/48/54AAVJU



3D147935B

FXMA72/96AAVJU

WIRING DIAGRAM



INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD (CONTROL)
A2P	PRINTED CIRCUIT BOARD (POWER)
A3P	PRINTED CIRCUIT BOARD (FAN)
A4P	PRINTED CIRCUIT BOARD (REFRIGERANT SENSOR)
C1	CAPACITOR
C5	CAPACITOR
F1U	FUSE (T. 3.15A, 250V)
F3U	FUSE (T. 6.3A, 250V)
HAP	INDICATION LAMP
K1R	MAGNETIC RELAY
L1R	REACTOR
M1F	MOTOR (INDOOR FAN)
R2	RESISTOR (CURRENT SENSOR)
R1T	THERMISTOR (AIR)
R2T	THERMISTOR (LIQUID)
R3T	THERMISTOR (COIL)
R4T	THERMISTOR NTC (CURRENT LIMITING)
V1R	DIODE BRIDGE
V2R	POWER MODULE
PS	SWITCHING POWER SUPPLY
X1M	TERMINAL STRIP (POWER SUPPLY)
X2M	TERMINAL STRIP (CONTROL)
X1A-X40A	CONNECTOR
Y1E	ELECTRONIC EXPANSION VALVE
Z1F	NOISE FILTER
Z1C	NOISE FILTER (FERRITE CORE)
Z2C	NOISE FILTER (FERRITE CORE)
WIRED REMOTE CONTROLLER	
R1T	THERMISTOR (AIR)

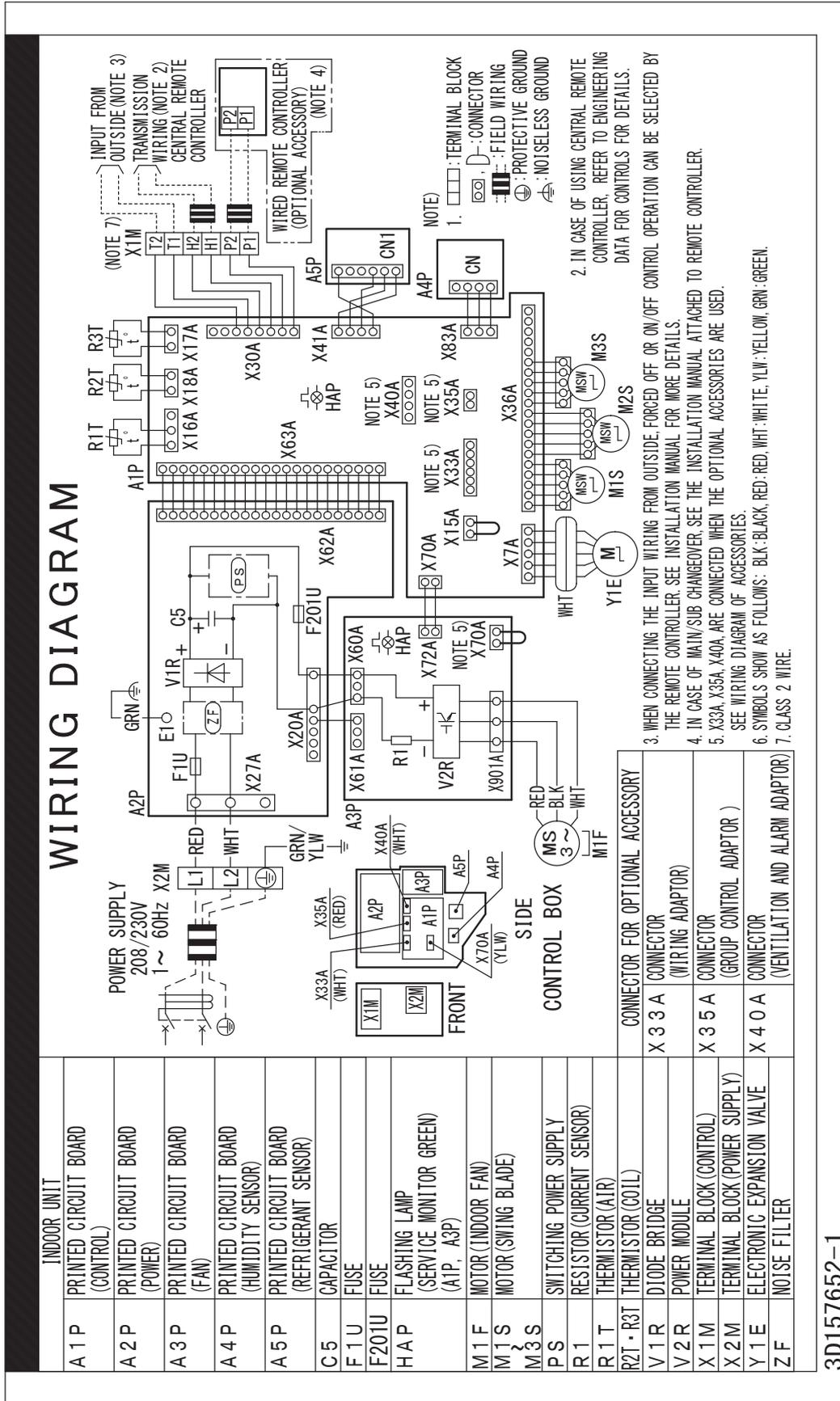
- NOTES:
1. □ □ □ □ : TERMINAL BLOCK, □ □ □ □ : CONNECTOR, □ □ □ □ : FIELD WIRING
 2. X33A, X35A, X40A, X15A, X25A ARE CONNECTED WHEN OPTIONAL ACCESSORIES ARE BEING USED. SEE WIRING DIAGRAM OF THIS ACCESSORY.
 3. WHEN CONNECTING THE INPUT WIRING FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY THE REMOTE CONTROLLER, SEE INSTALLATION MANUAL FOR MORE DETAILS.
 4. X15A, X25A ARE CONNECTED WHEN THE DRAIN PUMP KIT IS BEING USED. BEFORE INSTALLING OF DRAIN PUMP KIT REMOVE SHORT CIRCUIT CONNECTOR CONNECTED TO X15A.
 5. COLORS : BLK:BLACK BLU:BLUE YLW:YELLOW BRN: BROWN ORG:ORANGE RED:RED WHT:WHITE GRN:GREEN GRY:GREY PCH:PEACH
 6. IN CASE OF USING CENTRAL REMOTE CONTROLLER, REFER TO ENGINEERING DATA FOR CONTROLS FOR DETAILS.
 7. IN CASE OF MAIN/SUB CHANGE/COVER, SEE THE INSTALLATION MANUAL ATTACHED TO REMOTE CONTROLLER

FXMA72/96AAVJU

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FXAA05/07/09/12/18/24AAVJU



3D157652

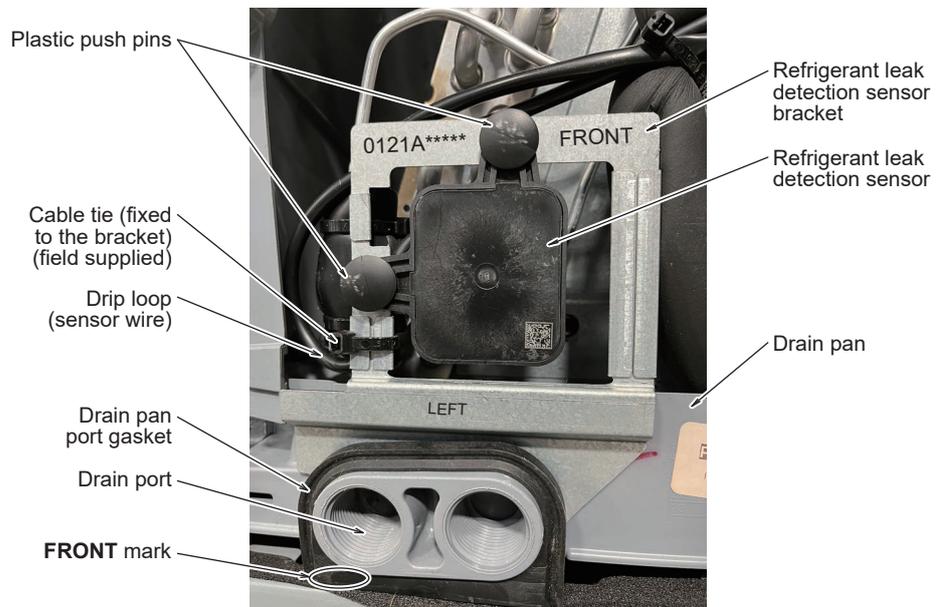
3D157652-1

2. Refrigerant Leak Detection Sensor Replacement (FXTA-AB 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.

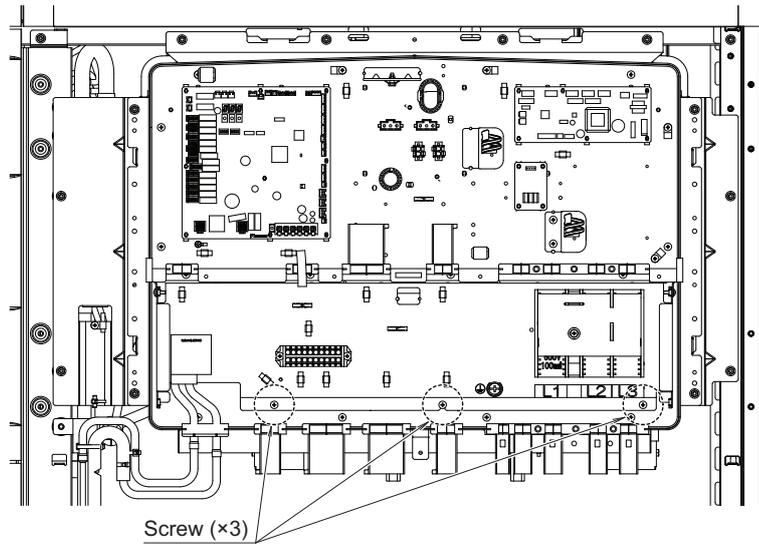


A2L SYSTEM SERVICING

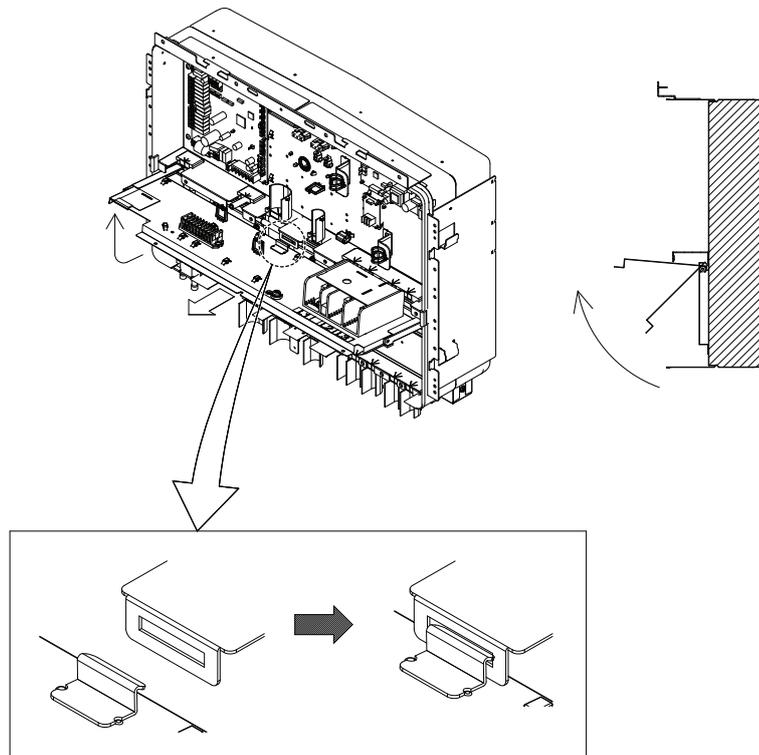
This system is charged with R-32 refrigerant. R-32 is classified as A2L (Mildly flammable) as per ASHRAE 34. This product shall be maintained, serviced, and decommissioned with the prevailing local/federal codes for A2L refrigerant.

3. Electrical Component Box Removal

1. Remove the screws.

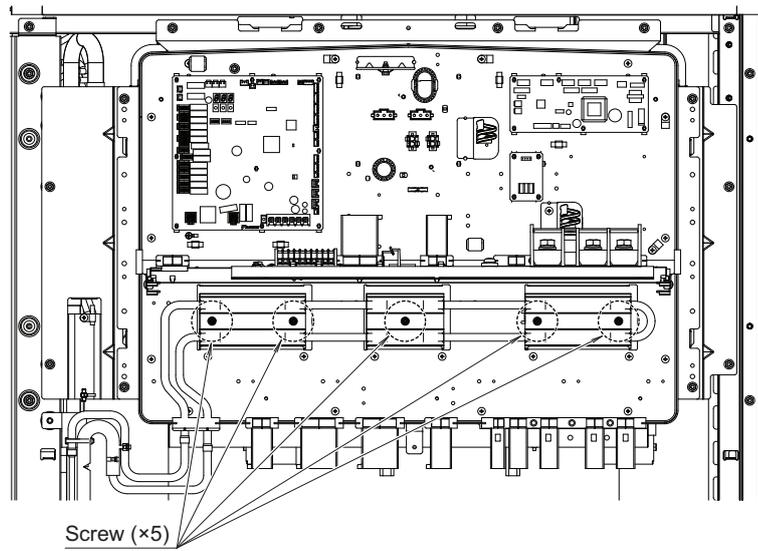


2. Lift the mounting plate up and fasten the hook.

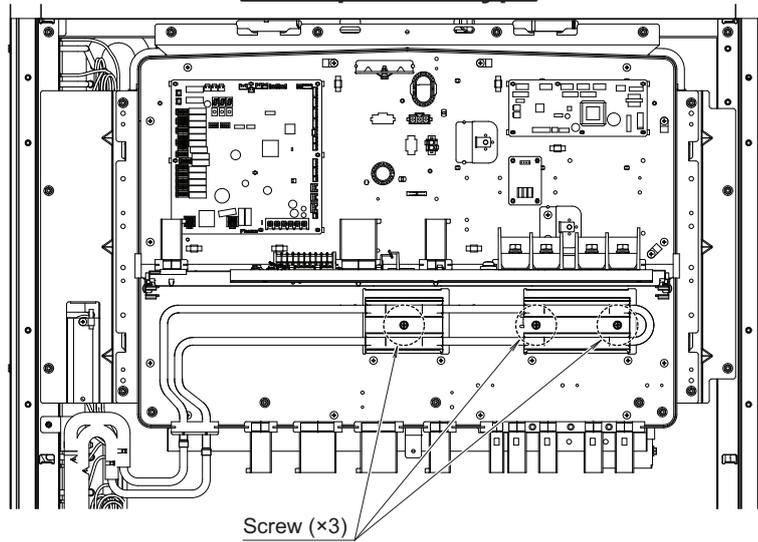


3. Remove the screws.

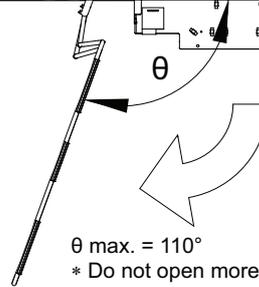
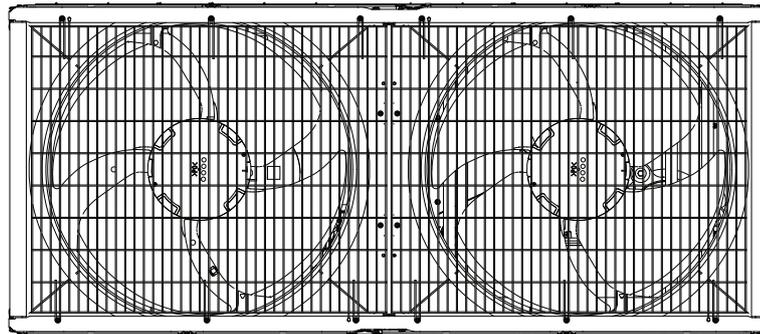
2-compressor Type



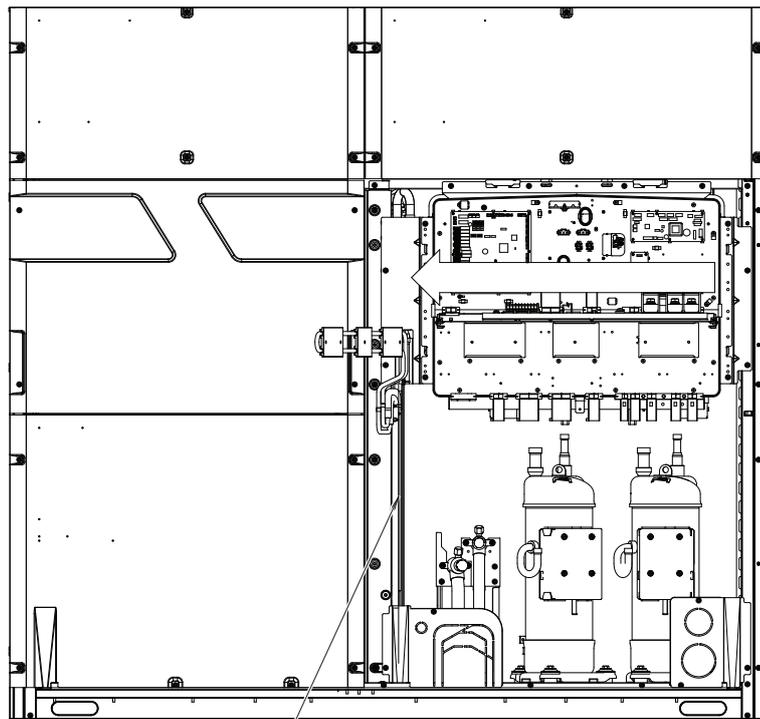
1-compressor Type



4. Pull out the refrigerant jacket.

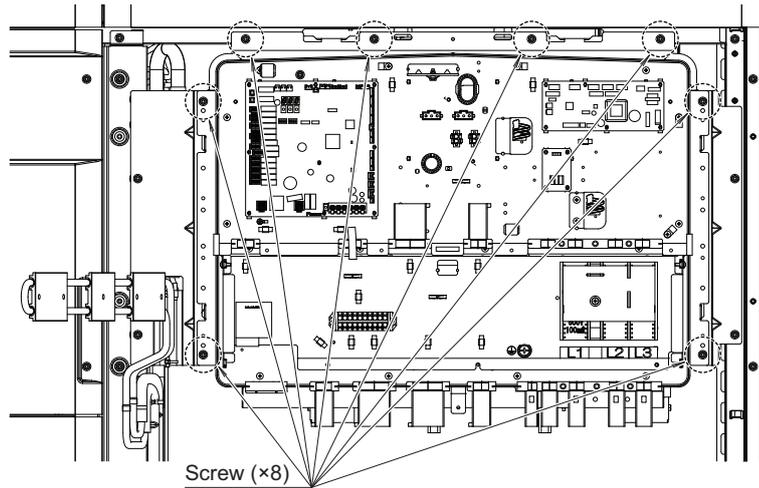


θ max. = 110°
* Do not open more than 110°
(The piping might crack when coming in contact with surrounding parts)

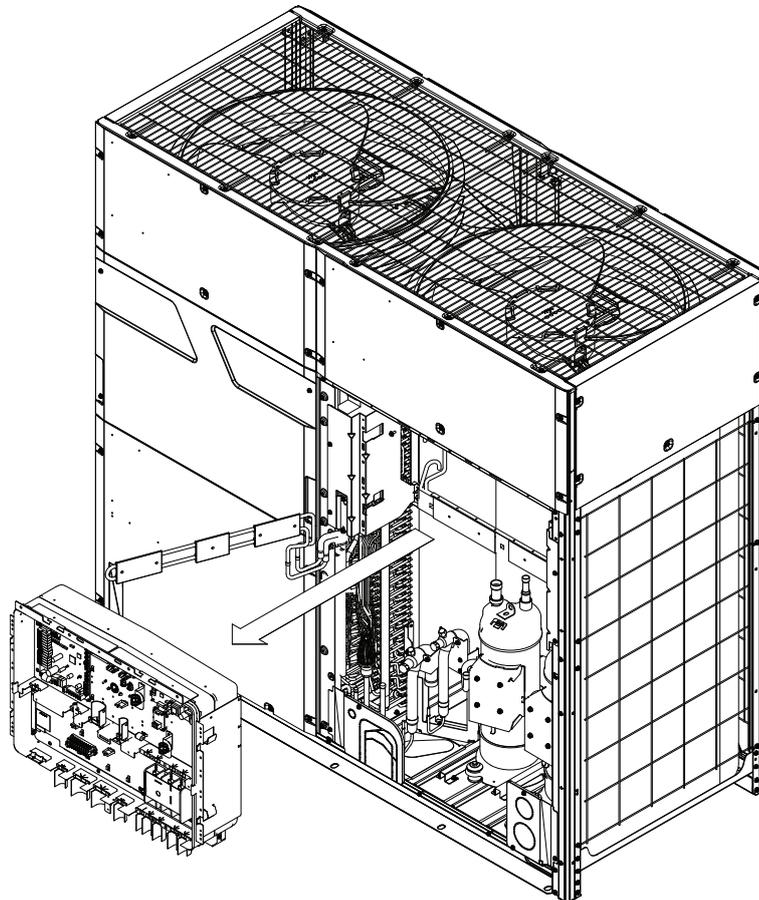


Axis of rotation

5. Remove the screws.



6. Remove the electrical component box.



4. Method for Forced Power Reset

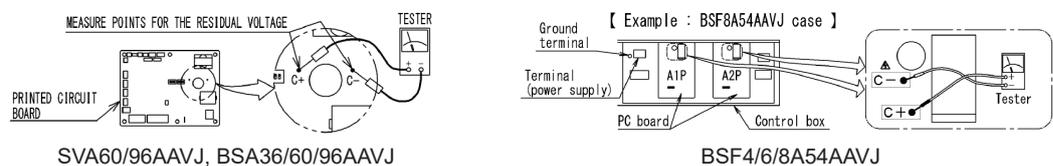
Applicable Models
Branch Selector unit
Safety Shut-Off Valve unit

Procedure
Please follow the steps below to proceed with the operation.

1. Do not open the control box cover for 10 minutes after turning off the power supply.
2. Open the control box cover and make sure that power supply is turned off with a multimeter.
3. Use a multimeter to measure the residual voltage at the measurement points without touching any live parts. (See below.) (1 test-point pair on each PCB)

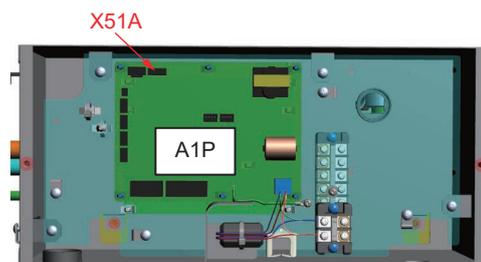
Do not touch the live parts unless it is confirmed that the residual voltage is 50 VDC or less.

4. Be sure to touch the ground terminal to eliminate static electricity in human body before touching a PCB.

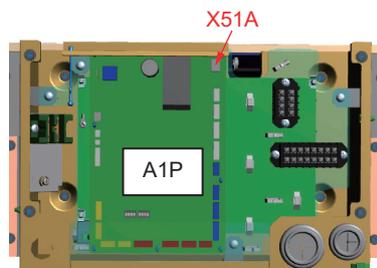


Only perform step 5 if you have completed steps 1 through 4.

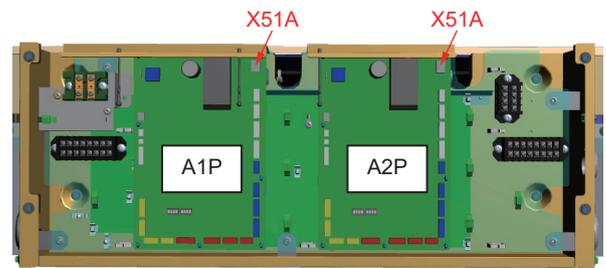
5. Disconnect the connectors on the PCB as specified below.
When disconnecting the connector, press down on the connector tab:
 - Safety Shut-Off Valve unit or single Branch Selector unit: X51A (A1P)
 - Multi Branch Selector unit: X51A (A1P, A2P)
6. The LEDs on the PCB will turn off. (When setting the DIP switch, please do so after the LED has turned off.)
7. **After confirming that the LED is off, be sure to reinsert the disconnected connectors back to their original position (X51A).**



Safety Shut-Off Valve unit and single Branch Selector unit
(SVA60/96AAVJ, BSA36/60/96AAVJ)



Multi Branch Selector unit
(BSF4A54AAVJ)



Multi Branch Selector unit
(BSF6/8A54AAVJ)

Warning



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

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

Cautions on product corrosion

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

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