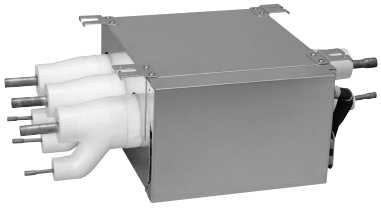
DAIKIN

SiUS181631EA

Service Manual

Multi-Split Type Air Conditioners
RMXS-L Series



[Applied Models]
● **Inverter Multi : Heat Pump**

Multi-Split Type Air Conditioners RMXS-L Series

●Heat Pump

Outdoor Unit

RMXS48LVJU

Branch Provider (BP) Unit

BPMKS048A2U
BPMKS049A3U

Indoor Unit

CTXG09QVJUW
CTXG09QVJUS
CTXG12QVJUW
CTXG12QVJUS
CTXG18QVJUW
CTXG18QVJUS

FDXS09LVJU
FDXS12LVJU
CDXS15LVJU
CDXS18LVJU
CDXS24LVJU

FVXS09NVJU
FVXS12NVJU
FVXS15NVJU
FVXS18NVJU

FFQ09Q2VJU
FFQ12Q2VJU
FFQ15Q2VJU
FFQ18Q2VJU

CTXS07JVJU
CTXS09HVJU
CTXS12HVJU
CTXS07LVJU
FTXS09LVJU
FTXS12LVJU
FTXS15LVJU
FTXS18LVJU
FTXS24LVJU

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1. Introduction

1.1 Safety Considerations

Read these ***SAFETY CONSIDERATIONS*** carefully before performing any repair work. Comply with these safety symbols without fail. Meanings of **DANGER**, **WARNING**, **CAUTION**, and **NOTE** Symbols:

⚠ **DANGER** ..... Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ **WARNING** ..... Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **CAUTION** ..... Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

⚠ **NOTE** ..... Indicates situations that may result in equipment or property-damage accidents only.

1.1.1 Safety Considerations for Repair

⚠ **DANGER**

- **If refrigerant gas leaks during repair or service, ventilate the area immediately. Refrigerant gas may produce toxic gas if it comes into contact with flames. Refrigerant gas is heavier than air and replaces oxygen. In the event of an accident, a massive leak could lead to oxygen depletion, especially in basements, and an asphyxiation hazard could occur which will result in serious injury or death.**
- **Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug if a plug is used. Plugging or unplugging the power cable plug to operate the equipment will result in an electrical shock or fire.**

⚠ **WARNING**

- **Use parts listed in the service parts list and appropriate tools to conduct repair work. The use of inappropriate parts or tools could result in an electrical shock or fire.**
- **Disconnect power before disassembling the equipment for repairs. Working on the equipment that is connected to the power supply could result in an electric shock. If it is necessary to supply power to the equipment to conduct repairs or to inspect the circuits, do not touch any electrically charged sections of the equipment.**
- **The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Discharge the capacitor completely before conducting repair work. A charged capacitor could result in an electrical shock.**
- **If refrigerant gas is discharged during repair work, do not touch the discharged refrigerant gas. The refrigerant gas could result in frostbite.**
- **Use only pipes, flare nuts, tools, and other materials designed specifically for R410A refrigerant systems. Never use tools or materials designed for R22 refrigerant systems on an R410A refrigerant system. Doing so could result in a serious accident or an equipment failure.**
- **Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections could result in excessive heat generation, fire or electrical shock.**
- **Securely fasten the outside unit terminal cover (panel). If the terminal cover/panel is not fastened properly, dust or water may enter the outside unit and could result in an electrical shock or fire.**
- **If refrigerant gas leaks, locate the leaking point and repair it before charging refrigerant. After charging refrigerant, check for refrigerant leaks. If the leaking point cannot be located and the repair work must be stopped, perform a pump-down and close the service valve to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it could generate toxic gases if it comes into contact with flames.**
- **Do not repair the electrical components with wet hands. Working on the equipment with wet hands could result in an electrical shock.**
- **Do not clean the air conditioner by splashing water on it. Washing the unit with water could result in an electrical shock.**

⚠ **CAUTION**

- **Prior to disconnecting the suction or discharge pipe from the compressor at the welded section, pump-down the refrigerant gas completely in a well-ventilated place first. If there is refrigerant gas or oil remaining inside the compressor, the refrigerant gas or oil can discharge when the pipe is being disconnected and it may result in an injury.**
- **Wear a safety helmet, gloves, and a safety belt when working at an elevated height of more than 6.5 ft (2 m). Insufficient safety measures may result in a falling injury.**
- **Do not mix air or gas other than the specified refrigerant R410A to the refrigerant system. If air enters the refrigerant systems, it may cause excessive high pressure and may result in equipment damage and injury.**

- When relocating the equipment, check if the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and the equipment is not properly secured, the equipment may fall and result in injury.
- When relocating the system, keep the refrigerant circuit free from substances other than the specified refrigerant (R-410A) such as air. Any presence of air or other foreign substance in the refrigerant circuit can result in an abnormal pressure rise or rupture, and may result in injury.
- Ground the unit when repairing equipment in a humid or wet place to avoid electrical shocks.
- Turn off the power when cleaning the equipment to prevent internal fans that rotate at high speed from starting suddenly or this could result in injury.
- Let the refrigerant lines cool down before performing any repair work. Working on the unit when the refrigerant lines are hot may result in burns.
- All welding and cutting operations must be done in a well-ventilated place to prevent the accumulation of toxic fumes or possibly oxygen deficiency to occur.
- Check the grounding and repair it if the equipment is not properly grounded. Improper grounding may result in an electrical shock.
- Measure the insulation resistance after the repair.

  The resistance must be 1MΩ or higher. Faulty insulation may result in an electrical shock.
- Check the drainage of the indoor unit after finishing repair work. Faulty drainage may result in water entering the room resulting in wet floors and furniture.
- Do not tilt the unit when removing it. The water inside the unit may spill resulting in wet floors and furniture.
- Dismantling of the unit, disposal of the refrigerant, oil, and additional parts, should be done in accordance with the relevant local, state, and national regulations.

1.1.2 Safety Considerations for Users

⚠ DANGER

- Never attempt to modify the equipment. Doing so will result in electrical shock, excessive heat generation or fire.

⚠ WARNING

- If the power cable and lead wires have scratches or have become deteriorated, have them replaced. Damaged cable and wires could result in an electrical shock or fire.
- Do not use a joined power cable or an extension cord, or share the same power outlet with other electrical appliances as it could result in an electrical shock or fire.
- Use an exclusive power circuit for the equipment. Insufficient circuit amperage capacity could result in an electrical shock or fire.
- Never remove the fan guard of the unit. A fan rotating at high speed without the fan guard is very dangerous and could result in injury.
- Check the unit foundation for damage on a continual basis, especially if it has been in use for a long time. If left in a damaged condition, the unit may fall which may result in injury. If the installation platform or frame has corroded, have it replaced. A corroded platform or frame could result in the unit falling and possible injury.

⚠ CAUTION

- Do not damage or modify the power cable. Damaged or modified power cables may result in an electrical shock or fire. Placing heavy items on the power cable or pulling the power cable may result in damage to the cable.
- If the unit has a power cable plug and it is dirty, clean the plug before securely inserting it into a power outlet. If the plug has a loose connection, tighten it or it may result in electrical shock or fire.
- After replacing the battery in the remote controller, dispose of the old battery to prevent children from swallowing it. If a child swallows the battery, see a doctor immediately.
- Before cleaning the unit, stop the operation of the unit by turning the power off or by pulling the power cable plug out from its receptacle. Otherwise an electrical shock or injury may result.

⚠ NOTE

- Do not wipe the controller operation panel with benzene, thinner, chemical dust cloth, etc. The panel may get discolored or the coating can peel off. If it is extremely dirty, soak a cloth in a water-diluted neutral detergent, squeeze it well, and wipe the panel clean. Then wipe it with another dry cloth.

1.2 Icons Used

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

Icon	Type of Information	Description
 Warning	Warning	A **Warning** is used when there is danger of personal injury.
 Caution	Caution	A **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	A **Note** provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
	Reference	A **Reference** guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

1.3 Legends

Ta Outdoor temperature
Tb Outdoor heat exchanger temperature
Tc High pressure equivalent saturation temperature
Tdi Discharge pipe temperature
Te Low pressure equivalent saturation temperature
Tfin Radiation fin temperature
Tl Liquid pipe temperature
Tp Value of compressor port temperature calculated by Tc and Te, and suction superheated degree
Tr Room thermistor temperature
Ts Set temperature
Ts1 Suction pipe temperature 1
Ts2 Suction pipe temperature 2
Tsh Subcooling heat exchanger gas pipe temperature
Tt Target temperature

HTdi Value of discharge pipe temperature (Tdi) compensated with outdoor temperature

SC Difference between the heat exchanger temperature and liquid pipe temperature of each indoor unit
SH Difference between the heat exchanger temperature and gas pipe temperature of each indoor unit

Pc High pressure sensor detection value
Pe Low pressure sensor detection value

Part 1
List of Functions

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1. Functions

1.1 Outdoor Unit

Category	Functions	RMXS48LVJU	Category	Functions	RMXS48LVJU
Basic Functions	Inverter (with inverter power control)	●	Health & Cleanliness	Air-purifying filter	—
	Operation limit for cooling	Refer to P. 287		Air-purifying filter with photocatalytic deodorizing function	—
	Operation limit for heating				
	PAM control	—		Titanium apatite deodorizing filter	—
Compressor	Oval scroll compressor	●		Longlife filter	—
	Swing compressor	—		Air filter (prefilter)	—
	Rotary compressor	—		Wipe-clean flat panel	—
	Reluctance DC motor	●		Washable grille	—
Comfortable Airflow	Power-airflow flap (horizontal blade)	—		Filter cleaning indicator	—
	Power-airflow dual flaps (horizontal blade)	—		Good-sleep cooling operation	—
	Power-airflow diffuser	—	Timer	WEEKLY TIMER operation	—
	Wide-angle louvers (vertical blades)	—		24-hour ON/OFF TIMER	—
	Auto-swing (up and down)	—		72-hour ON/OFF TIMER	—
	Auto-swing (right and left)	—		NIGHT SET mode	—
	3-D airflow	—	Worry Free (Reliability & Durability)	Auto-restart (after power failure)	—
	COMFORT AIRFLOW operation	—		Self-diagnosis (R/C, LED)	●
Comfort Control	Auto fan speed	—		Wiring error check function	●
	Indoor unit quiet operation	—		Automatic test operation	●
	NIGHT QUIET mode (automatic)	●		Memory function	●
	OUTDOOR UNIT QUIET operation (manual)	●		Anti-corrosion treatment of outdoor heat exchanger	●
	INTELLIGENT EYE operation	—			
	2-area INTELLIGENT EYE operation	—	Flexibility	Multi-split/split type compatible indoor unit	—
	Quick warming function	●		Flexible power supply correspondence	—
	Hot-start function	—		High ceiling application	—
	Automatic defrosting	●		Chargeless	—
Operation	Automatic operation	—		Either side drain (right or left)	—
	Program dry function	—		Power selection	—
	Fan only	—		°F/°C changeover R/C temperature display (factory setting: °F)	—
Lifestyle Convenience	POWERFUL operation (non-inverter)	—			
	POWERFUL operation (inverter)	—	Remote Control	Remote control adaptor (normal open pulse contact) (option)	—
	Priority-room setting	—			
	COOL/HEAT mode lock	—		Remote control adaptor (normal open contact) (option)	—
	HOME LEAVE operation	—			
	ECONO operation	—		DIII-NET compatible (adaptor) (option)	—
	Indoor unit **ON/OFF** button	—		Wireless LAN connection (option)	—
	Signal receiving sign	—	Remote Controller	Wireless	—
	R/C with back light	—		Wired	—
	Temperature display	—			

Note: ● : Available
— : Not available

1.2 Indoor Unit

Category	Functions	CTXG09/12/18QVJUW(S)	Category	Functions	CTXG09/12/18QVJUW(S)
Basic Functions	Inverter (with inverter power control)	●	Health & Cleanliness	Air-purifying filter	—
	Operation limit for cooling	—		Air-purifying filter with photocatalytic deodorizing function	—
	Operation limit for heating	—			
	PAM control	—		Titanium apatite deodorizing filter (option)	●
Compressor	Oval scroll compressor	—		Longlife filter (option)	—
	Swing compressor	—		Air filter (prefilter)	●
	Rotary compressor	—		Wipe-clean flat panel	●
	Reluctance DC motor	—		Washable grille	—
Comfortable Airflow	Power-airflow flap (horizontal blade)	—		Filter cleaning indicator	—
	Power-airflow dual flaps (horizontal blade)	●		Good-sleep cooling operation	—
	Power-airflow diffuser	—	Timer	WEEKLY TIMER operation	●
	Wide-angle louvers (vertical blades)	●		24-hour ON/OFF TIMER	●
	Auto-swing (up and down)	●		72-hour ON/OFF TIMER	—
	Auto-swing (right and left)	●		NIGHT SET mode	●
	3-D airflow	●	Worry Free (Reliability & Durability)	Auto-restart (after power failure)	●
	COMFORT AIRFLOW operation	●		Self-diagnosis (R/C, LED)	●
Comfort Control	Auto fan speed	●		Wiring error check function	—
	Indoor unit quiet operation	●		Automatic test operation	—
	NIGHT QUIET mode (automatic)	—		Memory function	—
	OUTDOOR UNIT QUIET operation (manual)	●		Anti-corrosion treatment of outdoor heat exchanger	—
	INTELLIGENT EYE operation	—			
	2-area INTELLIGENT EYE operation	●	Flexibility	Multi-split/split type compatible indoor unit	—
	Quick warming function	—		Flexible power supply correspondence	—
	Hot-start function	●		High ceiling application	—
	Automatic defrosting	—		Chargeless	—
Operation	Automatic operation	●		Either side drain (right or left)	●
	Program dry function	●		Power selection	—
	Fan only	●		°F/°C changeover R/C temperature display (factory setting: °F)	●
Lifestyle Convenience	POWERFUL operation (non-inverter)	—			
	POWERFUL operation (inverter)	●	Remote Control	Remote control adaptor (normal open pulse contact) (option)	●
	Priority-room setting	—			
	COOL/HEAT mode lock	—		Remote control adaptor (normal open contact) (option)	●
	HOME LEAVE operation	—			
	ECONO operation	●		DIII-NET compatible (adaptor) (option)	●
	Indoor unit **ON/OFF** button	●		Wireless LAN connection (option)	●
	Signal receiving sign	●	Remote Controller	Wireless	●
	R/C with back light	●		Wired (option)	●
	Temperature display	—			

Note: ● : Available
— : Not available

Category	Functions	CTXS07JVJU CTXS09/12HVJU	CTXS07LVJU FTXS09/12LVJU	Category	Functions	CTXS07JVJU CTXS09/12HVJU	CTXS07LVJU FTXS09/12LVJU
Basic Functions	Inverter (with inverter power control)	●	●	Health & Cleanliness	Air-purifying filter	—	—
	Operation limit for cooling	—	—		Air-purifying filter with photocatalytic deodorizing function	●	—
	Operation limit for heating	—	—				
	PAM control	—	—		Titanium apatite deodorizing filter	—	●
Compressor	Oval scroll compressor	—	—		Longlife filter (option)	—	—
	Swing compressor	—	—		Air filter (prefilter)	●	●
	Rotary compressor	—	—		Wipe-clean flat panel	●	●
	Reluctance DC motor	—	—		Washable grille	—	—
Comfortable Airflow	Power-airflow flap (horizontal blade)	—	—		Filter cleaning indicator	—	—
	Power-airflow dual flaps (horizontal blade)	●	●		Good-sleep cooling operation	—	—
				Timer	WEEKLY TIMER operation	—	●
	Power-airflow diffuser	—	—		24-hour ON/OFF TIMER	●	●
	Wide-angle louvers (vertical blades)	●	●		72-hour ON/OFF TIMER	—	—
	Auto-swing (up and down)	●	●		NIGHT SET mode	●	●
	Auto-swing (right and left)	●	●	Worry Free (Reliability & Durability)	Auto-restart (after power failure)	●	●
	3-D airflow	●	●		Self-diagnosis (R/C, LED)	●	●
	COMFORT AIRFLOW operation	—	●		Wiring error check function	—	—
Comfort Control	Auto fan speed	●	●		Automatic test operation	—	—
	Indoor unit quiet operation	●	●		Memory function	—	—
	NIGHT QUIET mode (automatic)	—	—		Anticorrosion treatment of outdoor heat exchanger	—	—
	OUTDOOR UNIT QUIET operation (manual)	●	●				
				Flexibility	Multi-split/split type compatible indoor unit	—	—
	INTELLIGENT EYE operation	●	●				
	2-area INTELLIGENT EYE operation	—	—		Flexible power supply correspondence	—	—
	Quick warming function	—	—		High ceiling application	—	—
	Hot-start function	●	●		Chargeless	—	—
	Automatic defrosting	—	—		Either side drain (right or left)	●	●
Operation	Automatic operation	●	●		Power selection	—	—
	Program dry function	●	●		°F/°C changeover R/C temperature display (factory setting: °F)	●	●
	Fan only	●	●				
Lifestyle Convenience	POWERFUL operation (non-inverter)	—	—	Remote Control	Remote control adaptor (normal open pulse contact) (option)	●	●
	POWERFUL operation (inverter)	●	●				
	Priority-room setting	—	—		Remote control adaptor (normal open contact) (option)	●	●
	COOL/HEAT mode lock	—	—				
	HOME LEAVE operation	●	—		DIII-NET compatible (adaptor) (option)	●	●
	ECONO operation	—	●		Wireless LAN connection (option)	—	—
	Indoor unit **ON/OFF** button	●	●	Remote Controller	Wireless	●	●
	Signal receiving sign	●	●		Wired (option)	●	●
	R/C with back light	●	●				
	Temperature display	—	—				

Note: ● : Available
— : Not available

Category	Functions	FTXS15/18/24LVJU	Category	Functions	FTXS15/18/24LVJU
Basic Functions	Inverter (with inverter power control)	●	Health & Cleanliness	Air-purifying filter	—
	Operation limit for cooling	—		Air-purifying filter with photocatalytic deodorizing function	—
	Operation limit for heating	—			
	PAM control	—		Titanium apatite deodorizing filter	●
Compressor	Oval scroll compressor	—		Longlife filter (option)	—
	Swing compressor	—		Air filter (prefilter)	●
	Rotary compressor	—		Wipe-clean flat panel	●
	Reluctance DC motor	—		Washable grille	—
Comfortable Airflow	Power-airflow flap (horizontal blade)	—		Filter cleaning indicator	—
	Power-airflow dual flaps (horizontal blade)	●		Good-sleep cooling operation	—
	Power-airflow diffuser	—	Timer	WEEKLY TIMER operation	●
	Wide-angle louvers (vertical blades)	●		24-hour ON/OFF TIMER	●
	Auto-swing (up and down)	●		72-hour ON/OFF TIMER	—
	Auto-swing (right and left)	●		NIGHT SET mode	●
	3-D airflow	●	Worry Free (Reliability & Durability)	Auto-restart (after power failure)	●
	COMFORT AIRFLOW operation	●		Self-diagnosis (R/C, LED)	●
Comfort Control	Auto fan speed	●		Wiring error check function	—
	Indoor unit quiet operation	●		Automatic test operation	—
	NIGHT QUIET mode (automatic)	—		Memory function	—
	OUTDOOR UNIT QUIET operation (manual)	●		Anticorrosion treatment of outdoor heat exchanger	—
	INTELLIGENT EYE operation	●			
	2-area INTELLIGENT EYE operation	—	Flexibility	Multi-split/split type compatible indoor unit	●
	Quick warming function	—		Flexible power supply correspondence	—
	Hot-start function	●		High ceiling application	—
	Automatic defrosting	—		Chargeless	—
Operation	Automatic operation	●		Either side drain (right or left)	●
	Program dry function	●		Power selection	—
	Fan only	●		°F/°C changeover R/C temperature display (factory setting: °F)	●
Lifestyle Convenience	POWERFUL operation (non-inverter)	—			
	POWERFUL operation (inverter)	●	Remote Control	Remote control adaptor (normal open pulse contact) (option)	●
	Priority-room setting	—			
	COOL/HEAT mode lock	—		Remote control adaptor (normal open contact) (option)	●
	HOME LEAVE operation	—			
	ECONO operation	●		DIII-NET compatible (adaptor) (option)	●
	Indoor unit **ON/OFF** button	●		Wireless LAN connection (option)	—
	Signal receiving sign	●	Remote Controller	Wireless	●
	R/C with back light	●		Wired (option)	●
	Temperature display	—			

Note: ● : Available
— : Not available

Category	Functions	FDXS09/12LVJU	CDXS15/18/24LVJU	Category	Functions	FDXS09/12LVJU	CDXS15/18/24LVJU
Basic Functions	Inverter (with inverter power control)	●	●	Health & Cleanliness	Air-purifying filter	—	—
	Operation limit for cooling	—	—		Air-purifying filter with photocatalytic deodorizing function	—	—
	Operation limit for heating	—	—				
	PAM control	—	—		Titanium apatite deodorizing filter	—	—
Compressor	Oval scroll compressor	—	—		Longlife filter (option)	—	—
	Swing compressor	—	—		Air filter (prefilter)	●	●
	Rotary compressor	—	—		Wipe-clean flat panel	—	—
	Reluctance DC motor	—	—		Washable grille	—	—
Comfortable Airflow	Power-airflow flap (horizontal blade)	—	—		Filter cleaning indicator	—	—
	Power-airflow dual flaps (horizontal blade)	—	—		Good-sleep cooling operation	—	—
				Timer	WEEKLY TIMER operation	—	—
	Power-airflow diffuser	—	—		24-hour ON/OFF TIMER	●	●
	Wide-angle louvers (vertical blades)	—	—		72-hour ON/OFF TIMER	—	—
	Auto-swing (up and down)	—	—		NIGHT SET mode	●	●
	Auto-swing (right and left)	—	—	Worry Free (Reliability & Durability)	Auto-restart (after power failure)	●	●
	3-D airflow	—	—		Self-diagnosis (R/C, LED)	●	●
	COMFORT AIRFLOW operation	—	—		Wiring error check function	—	—
Comfort Control	Auto fan speed	●	●		Automatic test operation	—	—
	Indoor unit quiet operation	●	●		Memory function	—	—
	NIGHT QUIET mode (automatic)	—	—		Anti-corrosion treatment of outdoor heat exchanger	—	—
	OUTDOOR UNIT QUIET operation (manual)	●	●				
				Flexibility	Multi-split/split type compatible indoor unit	●	—
	INTELLIGENT EYE operation	—	—				
	2-area INTELLIGENT EYE operation	—	—		Flexible power supply correspondence	—	—
	Quick warming function	—	—		High ceiling application	—	—
	Hot-start function	●	●		Chargeless	—	—
	Automatic defrosting	—	—		Either side drain (right or left)	—	—
Operation	Automatic operation	●	●		Power selection	—	—
	Program dry function	●	●		°F/°C changeover R/C temperature display (factory setting: °F)	●	●
	Fan only	●	●				
Lifestyle Convenience	POWERFUL operation (non-inverter)	—	—	Remote Control	Remote control adaptor (normal open pulse contact) (option)	●	●
	POWERFUL operation (inverter)	●	●				
	Priority-room setting	—	—		Remote control adaptor (normal open contact) (option)	●	●
	COOL/HEAT mode lock	—	—				
	HOME LEAVE operation	—	—		DIII-NET compatible (adaptor) (option)	●	●
	ECONO operation	●	●		Wireless LAN connection (option)	—	—
	Indoor unit **ON/OFF** button	●	●	Remote Controller	Wireless (option)	●	●
	Signal receiving sign	●	●		Wired (option)	●	●
	R/C with back light	●	●				
	Temperature display	—	—				

Note: ● : Available
— : Not available

Category	Functions	FVXS09/12/15/18NVJU	Category	Functions	FVXS09/12/15/18NVJU
Basic Functions	Inverter (with inverter power control)	●	Health & Cleanliness	Air-purifying filter	—
	Operation limit for cooling	—		Air-purifying filter with photocatalytic deodorizing function	—
	Operation limit for heating	—			
	PAM control	—		Titanium apatite deodorizing filter	●
Compressor	Oval scroll compressor	—		Longlife filter (option)	—
	Swing compressor	—		Air filter (prefilter)	●
	Rotary compressor	—		Wipe-clean flat panel	●
	Reluctance DC motor	—		Washable grille	—
Comfortable Airflow	Power-airflow flap (horizontal blade)	●		Filter cleaning indicator	—
	Power-airflow dual flaps (horizontal blade)	—		Good-sleep cooling operation	—
	Power-airflow diffuser	—	Timer	WEEKLY TIMER operation	●
	Wide-angle louvers (vertical blades)	●		24-hour ON/OFF TIMER	●
	Auto-swing (up and down)	●		72-hour ON/OFF TIMER	—
	Auto-swing (right and left)	—		NIGHT SET mode	●
	3-D airflow	—	Worry Free (Reliability & Durability)	Auto-restart (after power failure)	●
	COMFORT AIRFLOW operation	—		Self-diagnosis (R/C, LED)	●
Comfort Control	Auto fan speed	●		Wiring error check function	—
	Indoor unit quiet operation	●		Automatic test operation	—
	NIGHT QUIET mode (automatic)	—		Memory function	—
	OUTDOOR UNIT QUIET operation (manual)	●		Anti-corrosion treatment of outdoor heat exchanger	—
	INTELLIGENT EYE operation	—			
	2-area INTELLIGENT EYE operation	—	Flexibility	Multi-split/split type compatible indoor unit	—
	Quick warming function	—		Flexible power supply correspondence	—
	Hot-start function	●		High ceiling application	—
	Automatic defrosting	—		Chargeless	—
Operation	Automatic operation	●		Either side drain (right or left)	—
	Program dry function	●		Power selection	—
	Fan only	●		°F/°C changeover R/C temperature display (factory setting: °F)	●
Lifestyle Convenience	POWERFUL operation (non-inverter)	—			
	POWERFUL operation (inverter)	●	Remote Control	Remote control adaptor (normal open pulse contact) (option)	●
	Priority-room setting	—			
	COOL/HEAT mode lock	—		Remote control adaptor (normal open contact) (option)	●
	HOME LEAVE operation	—			
	ECONO operation	●		DIII-NET compatible (adaptor) (option)	●
	Indoor unit **ON/OFF** button	●		Wireless LAN connection (option)	—
	Signal receiving sign	●	Remote Controller	Wireless	●
	R/C with back light	●		Wired (option)	—
	Temperature display	—			

Note: ● : Available
— : Not available

Category	Functions	FFQ09/12/15/18Q2VJU with BYFQ60B3W1	FFQ09/12/15/18Q2VJU with BYFQ60C2W1W(S)	Category	Functions	FFQ09/12/15/18Q2VJU with BYFQ60B3W1	FFQ09/12/15/18Q2VJU with BYFQ60C2W1W(S)
Basic Functions	Inverter (with inverter power control)	●	●	Health & Cleanliness	Auto cleaning filter	—	—
	Operation limit for cooling	—	—		Air-purifying filter with photocatalytic deodorizing function	—	—
	Operation limit for heating	—	—				
	PAM control	—	—		Titanium apatite deodorizing filter	—	—
	Standby electricity saving	—	—		Longlife filter	●	●
Compressor	Oval scroll compressor	—	—		Air filter	—	—
	Swing compressor	—	—		Filter cleaning indicator	●	●
	Rotary compressor	—	—		Wipe-clean flat panel	—	—
	Reluctance DC motor	—	—		Washable grille	●	●
Comfortable Airflow	Power-airflow flap (horizontal blade)	—	—		MOLD PROOF operation	—	—
	Power-airflow dual flaps (horizontal blade)	—	—		Good-sleep cooling operation	—	—
				Timer	Schedule TIMER operation	●★1	●★1
	Power-airflow diffuser	—	—		72-hour ON/OFF TIMER	●★2	●★2
	Wide-angle louvers (vertical blades)	—	—		Off Timer (power off forget prevention)	●★1	●★1
	Auto-swing (up and down)	●	●		NIGHT SET mode	—	—
	Auto-swing (right and left)	—	—	Worry Free (Reliability & Durability)	Auto-restart (after power failure)	●	●
	Individual flap control	—	●★1		Self-diagnosis (R/C, LED)	●	●
	3-D airflow	—	—		Wiring error check function	—	—
	COMFORT AIRFLOW operation	—	—		Anti-corrosion treatment of outdoor heat exchanger	—	—
Comfort Control	Auto fan speed	●★1	●★1				
	Indoor unit quiet operation	—	—	Flexibility	Multi-split/split type compatible indoor unit	●	●
	NIGHT QUIET mode (automatic)	—	—				
	OUTDOOR UNIT QUIET operation (manual)	—	—		H/P, C/O compatible indoor unit	—	—
					Flexible power supply correspondence	—	—
	Presence and floor sensor (option)	—	●★1		Chargeless	—	—
	Hot-start function	●	●		Either side drain (right or left)	—	—
	Draft prevention with sensor	●	●		Power selection	—	—
	Automatic defrosting	●	●		°F/°C changeover R/C temperature display (factory setting: °F)	●★1	●★1
Operation	Automatic operation	●	●				
	Program dry function	●	●	Remote Control	Remote control adaptor (normal open pulse contact) (option)	—	—
	Fan only	●	●				
	Setback function	●★1	●★1		Remote control adaptor (normal open contact) (option)	—	—
Lifestyle Convenience	POWERFUL operation (non-inverter)	—	—				
	POWERFUL operation (inverter)	—	—		DIII-NET compatible (adaptor) (option)	—	—
	Priority-room setting	—	—	Remote Controller	Wireless (option)	●	●
	COOL/HEAT mode lock	—	—		Wired (option)	●	●
	HOME LEAVE operation	—	—				
	ECONO operation	—	—				
	Indoor unit **ON/OFF** button	—	—				
	Signal receiving sign	●★2 ★3	●★2 ★3				
	R/C with back light	●★1	●★1				

Note: ● : Available
— : Not available

★1: With wired remote controller
★2: With wireless remote controller
★3: Receiving sound only

Part 2
Specifications

1. Specifications 10
1.1 Outdoor Unit 10
1.2 Branch Provider (BP) Unit 11
1.3 Indoor Unit 12

1. Specifications

1.1 Outdoor Unit

60 Hz, 208 - 230 V

Model			RMXS48LVJU
Cooling Capacity		Btu/h	48,000
Heating Capacity		Btu/h	54,000
COP ★		W/W	3.0 ~ 3.9
EER ★		Btu/W·h	9.3 ~ 10.3
SEER ★			14.1 ~ 18.8
HSPF ★			9.6 ~ 11.3
Casing Color			Ivory White
Heat Exchanger			Cross Fin Coil
Compressor	Type		Hermetically Sealed Scroll Type
	Piston Displacement	ft³/h	791.5
	Number of Revolutions	r.p.m	6,480
	Motor Output (2.2 kW / 60 rps)	kW	3.0
	Starting Method		Direct on line
Refrigerant Oil	Model		DAPHNE FVC68D
	Charge	oz (L)	57.5 (1.7)
Refrigerant	Type		R-410A
	Charge	Lbs (kg)	8.8 (4.0)
	Control		Electronic Expansion Valve
Fan	Type		Propeller Fan
	Motor Output	kW	0.070 × 2
	Airflow rate	cfm	3,740
	Drive		Direct Drive
Dimensions (H × W × D)		in. (mm)	52-15/16 × 35-7/16 × 12-5/8 (1,345 × 900 × 320)
Weight (Mass)		Lbs (kg)	283 (129)
Piping Connections	Liquid	in. (mm)	ϕ 3/8 (ϕ 9.5) C1220T (Flare Connection)
	Gas	in. (mm)	ϕ 3/4 (ϕ 19.1) C1220T (Brazing Connection)
Defrost Method			Reverse Cycle Defrosting
Drawing No.			4D080735

Notes:

1. ★ Max.: for the combination of wall mounted type indoor units
   Min.: for the combination of duct connected type indoor units
2. The data are based on the conditions shown in the table below.

Cooling	Indoor ; 80°FDB (26.7°CDB) / 67°FWB (19.4°CWB) Outdoor ; 95°FDB (35°CDB)
Heating	Indoor ; 70°FDB (21°CDB) Outdoor ; 47°FDB (8.3°CDB) / 43°FWB (6°CWB)
Piping Length	O.U. – BP : 16.4 ft (5 m) BP – I.U. : 9.8 ft (3 m) Level Difference: 0 ft (0 m)

Conversion Formulae
kcal/h = kW × 860 Btu/h = kW × 3412 cfm = m³/min × 35.3

1.2 Branch Provider (BP) Unit

60 Hz, 208 - 230 V

Model					BPMKS048A2U	BPMKS049A3U
Power Consumption				W	10	10
Running Current				A	0.05	0.05
Refrigerant Type					R-410A	
Dimensions (H × W × D)				in. (mm)	7-1/16 × 11-9/16 [26-11/16]* × 13-3/4 (180 × 294 [678]* × 350)	
Packaged Dimensions (H × W × D)				in. (mm)	10-1/8 × 29-1/16 × 16-13/16 (257 × 738 × 427)	
Weight (Mass)				Lbs (kg)	18 (8)	20 (9)
Gross Weight (Gross Mass)				Lbs (kg)	27 (12)	29 (13)
Number of Wiring Connections	Power Supply				3 (including ground wiring)	
	O.U. – BP				2 (for DIII transmission)	
	BP – I.U.				4 (including ground wiring)	
Piping Connection (Flare)	Liquid	O.U. side		in. (mm)	ϕ 3/8 (ϕ 9.5) × 1	
		I.U. side			ϕ 1/4 (ϕ 6.4) × 2	ϕ 1/4 (ϕ 6.4) × 3
	Gas	O.U. side		in. (mm)	ϕ 5/8 (ϕ 15.9) × 1	
		I.U. side			ϕ 5/8 (ϕ 15.9) × 2	ϕ 5/8 (ϕ 15.9) × 3
	Drain				Drain Processingless	
Heat Insulation					Both Liquid and Gas Pipes	
Min. Combination				Btu/h	7,000	
Max. Combination				Btu/h	48,000	62,000
Drawing No.					4D080441	

Note: [ ]* : including auxiliary piping length

Conversion Formulae
kcal/h = kW × 860
Btu/h = kW × 3412
cfm = m³/min × 35.3

1.3 Indoor Unit

1.3.1 CTXG Series

60 Hz, 208 - 230 V

Model			CTXG09QVJUW		CTXG09QVJUS	
			Cooling	Heating	Cooling	Heating
Rated Capacity			9 kBtu/h Class		9 kBtu/h Class	
Front Panel Color			White		Silver	
Airflow Rate	H	cfm (m³/min)	279 (7.9)	367 (10.4)	279 (7.9)	367 (10.4)
	M		212 (6.0)	265 (7.5)	212 (6.0)	265 (7.5)
	L		162 (4.6)	205 (5.8)	162 (4.6)	205 (5.8)
	SL		134 (3.8)	117 (3.3)	134 (3.8)	117 (3.3)
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	29		29	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable, Washable, Mildew Proof		Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.07 - 0.07	0.13 - 0.12	0.07 - 0.07	0.13 - 0.12
Power Consumption (Rated)		W	13 - 13	26 - 26	13 - 13	26 - 26
Power Factor (Rated)		%	89.2 - 80.7	96.2 - 94.2	89.2 - 80.7	96.2 - 94.2
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	11-15/16 × 39-5/16 × 8-3/8 (303 × 998 × 212)		11-15/16 × 39-5/16 × 8-3/8 (303 × 998 × 212)	
Packaged Dimensions (H × W × D)		in. (mm)	12-11/16 × 43-3/8 × 15-5/16 (322 × 1,101 × 389)		12-11/16 × 43-3/8 × 15-5/16 (322 × 1,101 × 389)	
Weight (Mass)		Lbs (kg)	27 (12)		27 (12)	
Gross Weight (Gross Mass)		Lbs (kg)	36 (16)		36 (16)	
Sound Pressure Level	H / M / L / SL	dB(A)	38 / 32 / 25 / 21	41 / 34 / 28 / 21	38 / 32 / 25 / 21	41 / 34 / 28 / 21
Sound Power Level		dB	—	—	—	—
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 3/8 (ϕ 9.5)		ϕ 3/8 (ϕ 9.5)	
	Drain	in. (mm)	ϕ 11/16 (ϕ 18)		ϕ 11/16 (ϕ 18)	
Drawing No.			3D105562		3D105565	

Model			CTXG12QVJUW		CTXG12QVJUS	
			Cooling	Heating	Cooling	Heating
Rated Capacity			12 kBtu/h Class		12 kBtu/h Class	
Front Panel Color			White		Silver	
Airflow Rate	H	cfm (m³/min)	353 (10.0)	420 (11.9)	353 (10.0)	420 (11.9)
	M		230 (6.5)	300 (8.5)	230 (6.5)	300 (8.5)
	L		162 (4.6)	219 (6.2)	162 (4.6)	219 (6.2)
	SL		134 (3.8)	124 (3.5)	134 (3.8)	124 (3.5)
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	29		29	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable, Washable, Mildew Proof		Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.13 - 0.12	0.19 - 0.17	0.13 - 0.12	0.19 - 0.17
Power Consumption (Rated)		W	26 - 26	38 - 38	26 - 26	38 - 38
Power Factor (Rated)		%	96.1 - 94.2	96.1 - 97.1	96.1 - 94.2	96.1 - 97.1
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	11-15/16 × 39-5/16 × 8-3/8 (303 × 998 × 212)		11-15/16 × 39-5/16 × 8-3/8 (303 × 998 × 212)	
Packaged Dimensions (H × W × D)		in. (mm)	12-11/16 × 43-3/8 × 15-5/16 (322 × 1,101 × 389)		12-11/16 × 43-3/8 × 15-5/16 (322 × 1,101 × 389)	
Weight (Mass)		Lbs (kg)	27 (12)		27 (12)	
Gross Weight (Gross Mass)		Lbs (kg)	36 (16)		36 (16)	
Sound Pressure Level	H / M / L / SL	dB(A)	45 / 34 / 26 / 22	45 / 37 / 29 / 22	45 / 34 / 26 / 22	45 / 37 / 29 / 22
Sound Power Level		dB	—	—	—	—
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 3/8 (ϕ 9.5)		ϕ 3/8 (ϕ 9.5)	
	Drain	in. (mm)	ϕ 11/16 (ϕ 18)		ϕ 11/16 (ϕ 18)	
Drawing No.			3D105563		3D105566	

Conversion Formulae
kcal/h = kW × 860 Btu/h = kW × 3412 cfm = m³/min × 35.3

60 Hz, 208 - 230 V

Model			CTXG18QVJUW		CTXG18QVJUS	
			Cooling	Heating	Cooling	Heating
Rated Capacity			18 kBtu/h Class		18 kBtu/h Class	
Front Panel Color			White		Silver	
Airflow Rate	H	cfm (m^3/min)	364 (10.3)	438 (12.4)	364 (10.3)	438 (12.4)
	M		286 (8.1)	350 (9.9)	286 (8.1)	350 (9.9)
	L		233 (6.6)	265 (7.5)	233 (6.6)	265 (7.5)
	SL		219 (6.2)	121 (6)	219 (6.2)	121 (6)
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	29		29	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable, Washable, Mildew Proof		Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.14 - 0.14	0.21 - 0.21	0.14 - 0.14	0.21 - 0.21
Power Consumption (Rated)		W	28 - 28	42 - 42	28 - 28	42 - 42
Power Factor (Rated)		%	96.1 - 87.0	96.2 - 87.0	96.1 - 87.0	96.2 - 87.0
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	11-15/16 × 39-5/16 × 8-3/8 (303 × 998 × 212)		11-15/16 × 39-5/16 × 8-3/8 (303 × 998 × 212)	
Packaged Dimensions (H × W × D)		in. (mm)	12-11/16 × 43-3/8 × 15-5/16 (322 × 1,101 × 389)		12-11/16 × 43-3/8 × 15-5/16 (322 × 1,101 × 389)	
Weight (Mass)		Lbs (kg)	27 (12)		27 (12)	
Gross Weight (Gross Mass)		Lbs (kg)	36 (16)		36 (16)	
Sound Pressure Level	H / M / L / SL	dB(A)	46 / 40 / 35 / 32	47 / 41 / 35 / 32	46 / 40 / 35 / 32	47 / 41 / 35 / 32
Sound Power Level		dB	—	—	—	—
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 1/2 (ϕ 12.7)		ϕ 1/2 (ϕ 12.7)	
	Drain	in. (mm)	ϕ 11/16 (ϕ 18)		ϕ 11/16 (ϕ 18)	
Drawing No.			3D105564		3D105567	

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

1.3.2 CTXS, FTXS Series

60 Hz, 208 - 230 V

Model			CTXS07JVJU		CTXS09HVJU	
			Cooling	Heating	Cooling	Heating
Rated Capacity			7 kBtu/h Class		9 kBtu/h Class	
Front Panel Color			White		White	
Airflow Rate	H	cfm (m^3/min)	388 (11.0)	400 (11.3)	388 (11.0)	400 (11.3)
	M		335 (9.5)	357 (10.1)	335 (9.5)	357 (10.1)
	L		283 (8.0)	314 (8.9)	283 (8.0)	314 (8.9)
	SL		–	–	–	–
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	40		40	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable, Washable, Mildew Proof		Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.18	0.20	0.18	0.20
Power Consumption (Rated)		W	40	45	40	45
Power Factor (Rated)		%	96.6	97.8	96.6	97.8
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	11-7/16 × 31-5/16 × 9-3/8 (290 × 795 × 238)		11-7/16 × 31-5/16 × 9-3/8 (290 × 795 × 238)	
Packaged Dimensions (H × W × D)		in. (mm)	11 × 33-1/16 × 13-5/16 (280 × 840 × 338)		11 × 33-1/16 × 13-5/16 (280 × 840 × 338)	
Weight (Mass)		Lbs (kg)	20 (9)		20 (9)	
Gross Weight (Gross Mass)		Lbs (kg)	29 (13)		29 (13)	
Sound Pressure Level	H / M / L / SL	dB(A)	44 / 40 / 35 / –	44 / 39 / 34 / –	44 / 40 / 35 / –	44 / 39 / 34 / –
Sound Power Level		dB	–	–	–	–
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 3/8 (ϕ 9.5)		ϕ 3/8 (ϕ 9.5)	
	Drain	in. (mm)	ϕ 11/16 (ϕ 18.0)		ϕ 11/16 (ϕ 18.0)	
Drawing No.			3D066156A		3D062870A	

Model			CTXS12HVJU		CTXS07LVJU	
			Cooling	Heating	Cooling	Heating
Rated Capacity			12 kBtu/h Class		7 kBtu/h Class	
Front Panel Color			White		White	
Airflow Rate	H	cfm (m^3/min)	388 (11.0)	400 (11.3)	332 (9.4)	350 (9.9)
	M		335 (9.5)	357 (10.1)	261 (7.4)	290 (8.2)
	L		283 (8.0)	314 (8.9)	194 (5.5)	233 (6.6)
	SL		–	–	145 (4.1)	219 (6.2)
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	40		23	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable, Washable, Mildew Proof		Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.18	0.20	0.09 - 0.08	0.11 - 0.10
Power Consumption (Rated)		W	40	45	18 - 18	21 - 21
Power Factor (Rated)		%	96.6	97.8	96.2 - 97.8	91.8 - 91.3
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	11-7/16 × 31-5/16 × 9-3/8 (290 × 795 × 238)		11-5/8 × 31-1/2 × 8-7/16 (295 × 800 × 215)	
Packaged Dimensions (H × W × D)		in. (mm)	11 × 33-1/16 × 13-5/16 (280 × 840 × 338)		10-13/16 × 34-1/4 × 14-7/16 (274 × 870 × 366)	
Weight (Mass)		Lbs (kg)	20 (9)		20 (9)	
Gross Weight (Gross Mass)		Lbs (kg)	29 (13)		29 (13)	
Sound Pressure Level	H / M / L / SL	dB(A)	45 / 41 / 36 / –	45 / 40 / 35 / –	38 / 32 / 25 / 22	38 / 33 / 28 / 25
Sound Power Level		dB	–	–	54	54
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 3/8 (ϕ 9.5)		ϕ 3/8 (ϕ 9.5)	
	Drain	in. (mm)	ϕ 11/16 (ϕ 18.0)		ϕ 5/8 (ϕ 16.0)	
Drawing No.			3D062871A		3D075490	

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

60 Hz, 208 - 230 V

Model			FTXS09LVJU		FTXS12LVJU	
			Cooling	Heating	Cooling	Heating
Rated Capacity			9 kBtu/h Class		12 kBtu/h Class	
Front Panel Color			White		White	
Airflow Rate	H	cfm (m^3/min)	381 (10.8)	420 (11.9)	403 (11.4)	438 (12.4)
	M		279 (7.9)	321 (9.1)	307 (8.7)	335 (9.5)
	L		194 (5.5)	233 (6.6)	205 (5.8)	240 (6.8)
	SL		145 (4.1)	219 (6.2)	155 (4.4)	212 (6.0)
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	23		23	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable, Washable, Mildew Proof		Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.09 - 0.08	0.11 - 0.10	0.13 - 0.12	0.14 - 0.13
Power Consumption (Rated)		W	18 - 18	21 - 21	26 - 26	28 - 28
Power Factor (Rated)		%	96.2 - 97.8	91.8 - 91.3	96.2 - 94.2	96.2 - 93.6
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	11-5/8 × 31-1/2 × 8-7/16 (295 × 800 × 215)		11-5/8 × 31-1/2 × 8-7/16 (295 × 800 × 215)	
Packaged Dimensions (H × W × D)		in. (mm)	10-13/16 × 34-1/4 × 14-7/16 (274 × 870 × 366)		10-13/16 × 34-1/4 × 14-7/16 (274 × 870 × 366)	
Weight (Mass)		Lbs (kg)	20 (9)		22 (10)	
Gross Weight (Gross Mass)		Lbs (kg)	29 (13)		31 (14)	
Sound Pressure Level	H / M / L / SL	dB(A)	41 / 33 / 25 / 22	42 / 35 / 28 / 25	45 / 37 / 29 / 23	45 / 39 / 29 / 26
Sound Power Level		dB	57	58	61	61
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 3/8 (ϕ 9.5)		ϕ 3/8 (ϕ 9.5)	
	Drain	in. (mm)	ϕ 5/8 (ϕ 16)		ϕ 5/8 (ϕ 16)	
Drawing No.			3D075491A		3D075492A	

Model			FTXS15LVJU		FTXS18LVJU	
			Cooling	Heating	Cooling	Heating
Rated Capacity			15 kBtu/h Class		18 kBtu/h Class	
Front Panel Color			White		White	
Airflow Rate	H	cfm (m^3/min)	568 (16.1)	593 (16.8)	583 (16.5)	625 (17.7)
	M		477 (13.5)	505 (14.3)	484 (13.7)	526 (14.9)
	L		385 (10.9)	417 (11.8)	385 (10.9)	431 (12.2)
	SL		360 (10.2)	371 (10.5)	360 (10.2)	399 (11.3)
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	48		48	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable, Washable, Mildew Proof		Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.31 - 0.29	0.31 - 0.29	0.32 - 0.30	0.32 - 0.30
Power Consumption (Rated)		W	38 - 38	38 - 38	38 - 38	38 - 38
Power Factor (Rated)		%	58.9 - 57.0	58.9 - 57.0	57.1 - 55.1	57.1 - 55.1
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	13-3/8 × 41-5/16 × 9-3/4 (340 × 1,050 × 248)		13-3/8 × 41-5/16 × 9-3/4 (340 × 1,050 × 248)	
Packaged Dimensions (H × W × D)		in. (mm)	13 × 45-11/16 × 16-7/8 (331 × 1,160 × 429)		13 × 45-11/16 × 16-7/8 (331 × 1,160 × 429)	
Weight (Mass)		Lbs (kg)	31 (14)		31 (14)	
Gross Weight (Gross Mass)		Lbs (kg)	44 (20)		44 (20)	
Sound Pressure Level	H / M / L / SL	dB(A)	45 / 40 / 35 / 32	43 / 38 / 33 / 30	46 / 41 / 36 / 33	45 / 40 / 35 / 32
Sound Power Level		dB	61	59	62	61
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 1/2 (ϕ 12.7)		ϕ 1/2 (ϕ 12.7)	
	Drain	in. (mm)	ϕ 5/8 (ϕ 16)		ϕ 5/8 (ϕ 16)	
Drawing No.			3D075043A		3D075044A	

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

60 Hz, 208 - 230 V

Model			FTXS24LVJU	
			Cooling	Heating
Rated Capacity			24 kBtu/h Class	
Front Panel Color			White	
Airflow Rate	H	cfm (m^3/min)	643 (18.2)	699 (19.8)
	M		494 (14.0)	572 (16.2)
	L		350 (9.9)	445 (12.6)
	SL		328 (9.3)	403 (11.4)
Fan	Type		Cross Flow Fan	
	Motor Output	W	48	
	Speed	Steps	5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward	
Air Filter			Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.57 - 0.51	0.57 - 0.51
Power Consumption (Rated)		W	69 - 68	69 - 68
Power Factor (Rated)		%	58.2 - 58.0	58.2 - 58.0
Temperature Control			Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	13-3/8 × 41-5/16 × 9-3/4 (340 × 1,050 × 248)	
Packaged Dimensions (H × W × D)		in. (mm)	13 × 45-11/16 × 16-7/8 (331 × 1,160 × 429)	
Weight (Mass)		Lbs (kg)	31 (14)	
Gross Weight (Gross Mass)		Lbs (kg)	46 (21)	
Sound Pressure Level	H / M / L / SL	dB(A)	51 / 44 / 37 / 34	48 / 42 / 37 / 34
Sound Power Level		dB	67	64
Heat Insulation			Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 5/8 (ϕ 15.9)	
	Drain	in. (mm)	ϕ 5/8 (ϕ 16)	
Drawing No.			3D075045A	

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

1.3.3 CDXS, FDXS Series

60 Hz, 208 - 230 V

Model			FDXS09LVJU		FDXS12LVJU	
			Cooling	Heating	Cooling	Heating
Rated Capacity			9 kBtu/h Class		12 kBtu/h Class	
External Static Pressure		inAq (Pa)	0.12 (30)		0.12 (30)	
Airflow Rate	H	cfm (m^3/min)	305 (8.6)	305 (8.6)	305 (8.6)	305 (8.6)
	M		280 (7.9)	280 (7.9)	280 (7.9)	280 (7.9)
	L		260 (7.4)	260 (7.4)	260 (7.4)	260 (7.4)
	SL		235 (6.7)	235 (6.7)	235 (6.7)	235 (6.7)
Fan	Type		Sirocco Fan		Sirocco Fan	
	Motor Output	W	62		62	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Filter			Removable / Washable / Mildew Proof		Removable / Washable / Mildew Proof	
Running Current (Rated)		A	0.58 - 0.52	0.58 - 0.52	0.58 - 0.52	0.58 - 0.52
Power Consumption (Rated)		W	72 - 72	72 - 72	72 - 72	72 - 72
Power Factor (Rated)		%	59.7 - 60.2	59.7 - 60.2	59.7 - 60.2	59.7 - 60.2
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	7-7/8 × 27-9/16 × 24-7/16 (200 × 700 × 620)		7-7/8 × 27-9/16 × 24-7/16 (200 × 700 × 620)	
Packaged Dimensions (H × W × D)		in. (mm)	10-13/16 × 36-5/16 × 30-1/4 (274 × 923 × 768)		10-13/16 × 36-5/16 × 30-1/4 (274 × 923 × 768)	
Weight (Mass)		Lbs (kg)	47 (21)		47 (21)	
Gross Weight (Gross Mass)		Lbs (kg)	64 (29)		64 (29)	
Sound Pressure Level	H / M / L	dB(A)	35 / 33 / 31	35 / 33 / 31	35 / 33 / 31	35 / 33 / 31
Sound Power Level		dB	51	51	51	51
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 3/8 (ϕ 9.5)		ϕ 3/8 (ϕ 9.5)	
	Drain	in. (mm)	VP20 (O.D. ϕ 1-1/32 (ϕ 26), I.D. ϕ 25/32 (ϕ 20))		VP20 (O.D. ϕ 1-1/32 (ϕ 26), I.D. ϕ 25/32 (ϕ 20))	
Drawing No.			3D075493		3D075494	

Model			CDXS15LVJU		CDXS18LVJU	
			Cooling	Heating	Cooling	Heating
Rated Capacity			15 kBtu/h Class		18 kBtu/h Class	
External Static Pressure		inAq (Pa)	0.16 (40)		0.16 (40)	
Airflow Rate	H	cfm (m^3/min)	424 (12.0)	424 (12.0)	424 (12.0)	424 (12.0)
	M		388 (11.0)	388 (11.0)	388 (11.0)	388 (11.0)
	L		353 (10.0)	353 (10.0)	353 (10.0)	353 (10.0)
	SL		297 (8.4)	297 (8.4)	297 (8.4)	297 (8.4)
Fan	Type		Sirocco Fan		Sirocco Fan	
	Motor Output	W	130		130	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Filter			Removable, Washable, Mildew Proof		Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.79	0.79	0.79	0.79
Power Consumption (Rated)		W	172	172	172	172
Power Factor (Rated)		%	94.4	94.4	94.4	94.4
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	7-7/8 × 35-7/16 × 24-7/16 (200 × 900 × 620)		7-7/8 × 35-7/16 × 24-7/16 (200 × 900 × 620)	
Packaged Dimensions (H × W × D)		in. (mm)	10-1/2 × 43-9/16 × 29-9/16 (266 × 1,106 × 751)		10-1/2 × 43-9/16 × 29-9/16 (266 × 1,106 × 751)	
Weight (Mass)		Lbs (kg)	60 (27)		60 (27)	
Gross Weight (Gross Mass)		Lbs (kg)	75 (34)		75 (34)	
Sound Pressure Level	H / M / L / SL	dB(A)	37 / 35 / 33 / 31	37 / 35 / 33 / 31	37 / 35 / 33 / 31	37 / 35 / 33 / 31
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 1/2 (ϕ 12.7)		ϕ 1/2 (ϕ 12.7)	
	Drain	in. (mm)	VP20 (O.D. ϕ 1-1/32 (ϕ 26), I.D. ϕ 25/32 (ϕ 20))		VP20 (O.D. ϕ 1-1/32 (ϕ 26), I.D. ϕ 25/32 (ϕ 20))	
Drawing No.			C: 3D075721		C: 3D075722	

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

60 Hz, 208 - 230 V

Model			CDXS24LVJU	
			Cooling	Heating
Rated Capacity			24 kBtu/h Class	
External Static Pressure		inAq (Pa)	0.16 (40)	
Airflow Rate	H	cfm (m^3/min)	565 (16.0)	565 (16.0)
	M		523 (14.8)	523 (14.8)
	L		477 (13.5)	477 (13.5)
	SL		395 (11.2)	395 (11.2)
Fan	Type		Sirocco Fan	
	Motor Output	W	130	
	Speed	Steps	5 Steps, Quiet, Auto	
Air Filter			Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.79	0.79
Power Consumption (Rated)		W	160	160
Power Factor (Rated)		%	90.3	92.8
Temperature Control			Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	7-7/8 × 43-5/16 × 24-7/16 (200 × 1,100 × 620)	
Packaged Dimensions (H × W × D)		in. (mm)	10-1/2 × 52-1/16 × 30-1/4 (266 × 1,323 × 768)	
Weight (Mass)		Lbs (kg)	66 (30)	
Gross Weight (Gross Mass)		Lbs (kg)	84 (38)	
Sound Pressure Level	H / M / L / SL	dB(A)	38 / 36 / 34 / 32	38 / 36 / 34 / 32
Heat Insulation			Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 5/8 (ϕ 15.9)	
	Drain	in. (mm)	VP20 (O.D. ϕ 1-1/32 (ϕ 26), I.D. ϕ 25/32 (ϕ 20))	
Drawing No.			3D080590	

1.3.4 FVXS Series

60 Hz, 208 - 230 V

Model			FVXS09NVJU		FVXS12NVJU	
			Cooling	Heating	Cooling	Heating
Rated Capacity			9 kBtu/h Class		12 kBtu/h Class	
Front Panel Color			White		White	
Airflow Rate	H	cfm (m^3/min)	290 (8.2)	311 (8.8)	300 (8.5)	332 (9.4)
	M		230 (6.5)	244 (6.9)	237 (6.7)	258 (7.3)
	L		169 (4.8)	177 (5.0)	173 (4.9)	184 (5.2)
	SL		145 (4.1)	155 (4.4)	159 (4.5)	166 (4.7)
Fan	Type		Turbo Fan		Turbo Fan	
	Motor Output	W	12.3		13.4	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable, Washable, Mildew Proof		Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.14 - 0.13	0.15 - 0.14	0.14 - 0.13	0.15 - 0.14
Power Consumption (Rated)		W	15 - 15	17 - 17	15 - 15	17 - 17
Power Factor (Rated)		%	51.5 - 50.2	54.5 - 52.8	51.5 - 50.2	54.5 - 52.8
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	23-5/8 × 27-9/16 × 8-1/4 (600 × 700 × 210)		23-5/8 × 27-9/16 × 8-1/4 (600 × 700 × 210)	
Packaged Dimensions (H × W × D)		in. (mm)	27-3/8 × 30-15/16 × 11 (695 × 786 × 279)		27-3/8 × 30-15/16 × 11 (695 × 786 × 279)	
Weight (Mass)		Lbs (kg)	31 (14)		31 (14)	
Gross Weight (Gross Mass)		Lbs (kg)	40 (18)		40 (18)	
Sound Pressure Level	H / M / L / SL	dB(A)	38 / 32 / 26 / 23	38 / 32 / 26 / 23	39 / 33 / 27 / 24	39 / 33 / 27 / 24
Sound Power Level		dB	—	—	—	—
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 3/8 (ϕ 9.5)		ϕ 3/8 (ϕ 9.5)	
	Drain	in. (mm)	ϕ 13/16 (ϕ 20)		ϕ 13/16 (ϕ 20)	
Drawing No.			3D101722		3D101724	

Model			FVXS15NVJU		FVXS18NVJU	
			Cooling	Heating	Cooling	Heating
Rated Capacity			15 kBtu/h Class		18 kBtu/h Class	
Front Panel Color			White		White	
Airflow Rate	H	cfm (m^3/min)	378 (10.7)	417 (11.8)	378 (10.7)	417 (11.8)
	M		325 (9.2)	357 (10.1)	325 (9.2)	357 (10.1)
	L		275 (7.8)	300 (8.5)	275 (7.8)	300 (8.5)
	SL		233 (6.6)	251 (7.1)	233 (6.6)	251 (7.1)
Fan	Type		Turbo Fan		Turbo Fan	
	Motor Output	W	23.3		23.3	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable, Washable, Mildew Proof		Removable, Washable, Mildew Proof	
Running Current (Rated)		A	0.19 - 0.17	0.21 - 0.19	—	—
Power Consumption (Rated)		W	27 - 27	34 - 34	—	—
Power Factor (Rated)		%	68.3 - 69.1	77.8 - 77.8	—	—
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	23-5/8 × 27-9/16 × 8-1/4 (600 × 700 × 210)		23-5/8 × 27-9/16 × 8-1/4 (600 × 700 × 210)	
Packaged Dimensions (H × W × D)		in. (mm)	27-3/8 × 30-15/16 × 11 (696 × 786 × 280)		27-3/8 × 30-15/16 × 11 (695 × 786 × 279)	
Weight (Mass)		Lbs (kg)	31 (14)		31 (14)	
Gross Weight (Gross Mass)		Lbs (kg)	40 (18)		40 (18)	
Sound Pressure Level	H / M / L / SL	dB(A)	44 / 40 / 36 / 32	45 / 40 / 36 / 32	44 / 40 / 36 / 32	45 / 40 / 36 / 32
Sound Power Level		dB	—	—	—	—
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 1/2 (ϕ 12.7)		ϕ 1/2 (ϕ 12.7)	
	Drain	in. (mm)	ϕ 13/16 (ϕ 20.0)		ϕ 13/16 (ϕ 20)	
Drawing No.			3D101718		3D094866	

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

1.3.5 FFQ Series

60 Hz, 208 - 230 V

Model			FFQ09Q2VJU		FFQ12Q2VJU	
			Cooling	Heating	Cooling	Heating
Rated Capacity			9 kBtu/h Class		12 kBtu/h Class	
Decoration Panel (1)	Model		BYFQ60B3W1		BYFQ60B3W1	
	Color		White		White	
	Dimensions (H × W × D)	in. (mm)	2-3/16 × 27-9/16 × 27-9/16 (55 × 700 × 700)		2-3/16 × 27-9/16 × 27-9/16 (55 × 700 × 700)	
	Weight (Mass)	Lbs (kg)	6 (2.7)		6 (2.7)	
Decoration Panel (2)	Model		BYFQ60C2W1W / BYFQ60C2W1S		BYFQ60C2W1W / BYFQ60C2W1S	
	Color		White / Silver		White / Silver	
	Dimensions (H × W × D)	in. (mm)	1-13/16 × 24-7/16 × 24-7/16 (46 × 620 × 620)		1-13/16 × 24-7/16 × 24-7/16 (46 × 620 × 620)	
	Weight (Mass)	Lbs (kg)	6.2 (2.8)		6.2 (2.8)	
Airflow Rate	H	cfm (m^3/min)	378 (10.7)	399 (11.3)	406 (11.5)	427 (12.1)
	M		339 (9.6)	357 (10.1)	353 (10.0)	371 (10.5)
	L		268 (7.6)	282 (8.0)	268 (7.6)	282 (8.0)
Fan	Type		Turbo Fan		Turbo Fan	
	Motor Output	W	—		—	
	Speed	Steps	3 Steps		3 Steps	
Air Direction Control			—		—	
Running Current (Rated)		A	0.23 - 0.21	0.23 - 0.21	0.27 - 0.24	0.27 - 0.24
Power Consumption (Rated)		W	23	23	27	27
Power Factor		%	48.1 - 47.6	48.1 - 47.6	48.1 - 48.9	48-1 - 48.9
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	10-1/4 × 22-5/8 × 22-5/8 (260 × 575 × 575)		10-1/4 × 22-5/8 × 22-5/8 (260 × 575 × 575)	
Packaged Dimensions (H × W × D)		in. (mm)	11 × 27 × 23-1/2 (280 × 686 × 597)		11 × 27 × 23-1/2 (280 × 686 × 597)	
Weight (Mass)		Lbs (kg)	36 (16)		36 (16)	
Gross Weight (Gross Mass)		Lbs (kg)	40 (18)		40 (18)	
Sound Pressure Level	H / M / L	dB(A)	38 / 35 / 29	38 / 35 / 29	39 / 36 / 30	39 / 36 / 30
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 3/8 (ϕ 9.5)		ϕ 3/8 (ϕ 9.5)	
	Drain	in. (mm)	VP20 (O.D. ϕ 1-1/32 (ϕ 26))		VP20 (O.D. ϕ 1-1/32 (ϕ 26))	
Drawing No.			3D106061A		3D106062	

Model			FFQ15Q2VJU		FFQ18Q2VJU	
			Cooling	Heating	Cooling	Heating
Rated Capacity			15 kBtu/h Class		18 kBtu/h Class	
Decoration Panel (1)	Model		BYFQ60B3W1		BYFQ60B3W1	
	Color		White		White	
	Dimensions (H × W × D)	in. (mm)	2-3/16 × 27-9/16 × 27-9/16 (55 × 700 × 700)		2-3/16 × 27-9/16 × 27-9/16 (55 × 700 × 700)	
	Weight (Mass)	Lbs (kg)	6 (2.7)		6 (2.7)	
Decoration Panel (2)	Model		BYFQ60C2W1W / BYFQ60C2W1S		BYFQ60C2W1W / BYFQ60C2W1S	
	Color		White / Silver		White / Silver	
	Dimensions (H × W × D)	in. (mm)	1-13/16 × 24-7/16 × 24-7/16 (46 × 620 × 620)		1-13/16 × 24-7/16 × 24-7/16 (46 × 620 × 620)	
	Weight (Mass)	Lbs (kg)	6.2 (2.8)		6.2 (2.8)	
Airflow Rate	H	cfm (m^3/min)	420 (11.9)	441 (12.5)	448 (12.7)	498 (14.1)
	M		367 (10.4)	385 (10.9)	378 (10.7)	420 (11.9)
	L		293 (8.3)	307 (8.7)	275 (7.8)	307 (8.7)
Fan	Type		Turbo Fan		Turbo Fan	
	Motor Output	W	—		—	
	Speed	Steps	3 Steps		3 Steps	
Air Direction Control			—		—	
Running Current (Rated)		A	0.29 - 0.26	0.29 - 0.26	0.52 - 0.47	0.52 - 0.47
Power Consumption (Rated)		W	28	28	51 - 51	51 - 51
Power Factor		%	46.4 - 46.8	46.4 - 46.8	47.2 - 47.2	47.2 - 47.2
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H × W × D)		in. (mm)	10-1/4 × 22-5/8 × 22-5/8 (260 × 575 × 575)		10-1/4 × 22-5/8 × 22-5/8 (260 × 575 × 575)	
Packaged Dimensions (H × W × D)		in. (mm)	11 × 27 × 23-1/2 (280 × 686 × 597)		11 × 27 × 23-1/2 (280 × 686 × 597)	
Weight (Mass)		Lbs (kg)	36 (16)		39.0 (17.5)	
Gross Weight (Gross Mass)		Lbs (kg)	40 (18)		42.0 (19.0)	
Sound Pressure Level	H / M / L	dB(A)	40 / 37 / 31	40 / 37 / 31	44 / 40 / 32	44 / 40 / 32
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Piping Connections	Liquid	in. (mm)	ϕ 1/4 (ϕ 6.4)		ϕ 1/4 (ϕ 6.4)	
	Gas	in. (mm)	ϕ 1/2 (ϕ 12.7)		ϕ 1/2 (ϕ 12.7)	
	Drain	in. (mm)	VP20 (O.D. ϕ 1-1/32 (ϕ 26))		VP20 (O.D. ϕ 1-1/32 (ϕ 26))	
Drawing No.			3D106063A		3D106064	

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

Part 3
Printed Circuit Board Connector Wiring Diagram

1. Outdoor Unit 22
   1.1 RMXS48LVJU 22
2. Branch Provider (BP) Unit 25
   2.1 BPMKS048A2U, BPMKS049A3U 25
3. Indoor Unit 26
   3.1 CTXG09/12/18QVJUW(S) 26
   3.2 CTXS07JVJU, CTXS09/12HVJU 28
   3.3 CTXS07LVJU, FTXS09/12LVJU 30
   3.4 FTXS15/18/24LVJU 32
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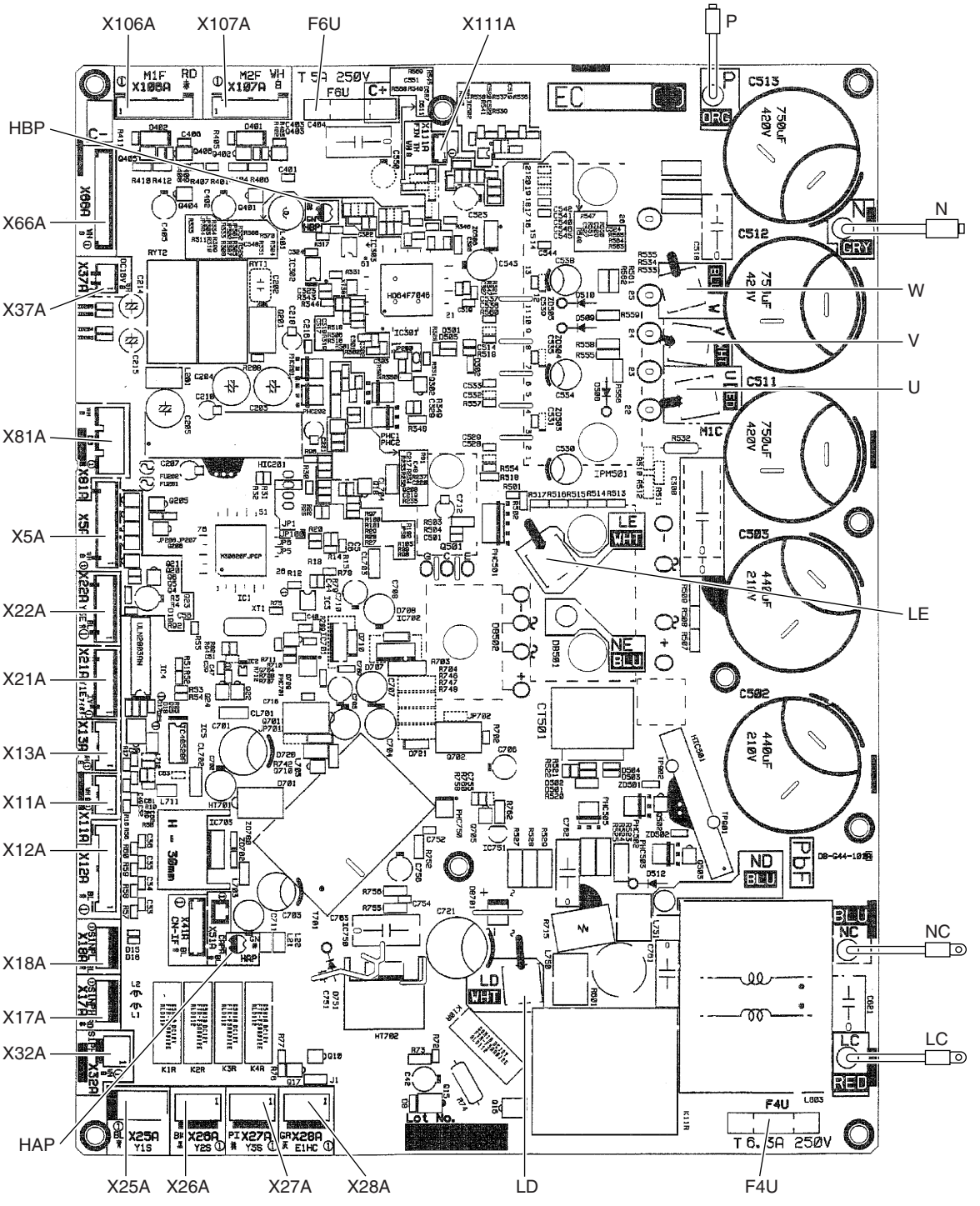
1. Outdoor Unit

1.1 RMXS48LVJU

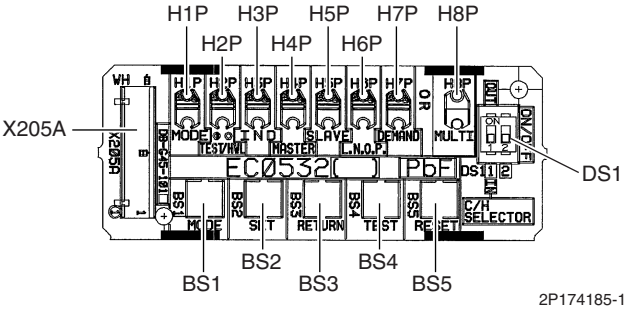
Main PCB (A1P)

1)	X5A	Connector to service PCB (A2P)
2)	X11A	Connector for outdoor temperature thermistor
3)	X12A	Connector for thermistors (suction pipe 1, suction pipe 2, outdoor heat exchanger, discharge pipe)
4)	X13A	Connector for thermistors (subcooling outlet, liquid pipe)
5)	X17A	Connector for high pressure sensor
6)	X18A	Connector for low pressure sensor
7)	X21A	Connector for electronic expansion valve coil (main)
8)	X22A	Connector for electronic expansion valve coil (subcooling)
9)	X25A	Connector for solenoid valve coil (four way valve)
10)	X26A	Connector for solenoid valve coil (hot gas bypass valve)
11)	X27A	Connector for solenoid valve coil (unloading)
12)	X28A	Connector for crankcase heater
13)	X32A	Connector for high pressure switch
14)	X37A	Connector for power supply for optional PCB (16 VDC)
15)	X66A	Connector for cool/heat selector PCB (A4P)
16)	X81A	Connector for terminal strip (inter-unit wiring)
17)	X106A	Connector for DC fan motor (upper)
18)	X107A	Connector for DC fan motor (lower)
19)	X111A	Connector for radiation fin thermistor
20)	LD, LE	Connector for reactor
21)	LC, NC	Terminal for noise filter PCB (A3P)
22)	P	Connector for capacitor C4 +
23)	N	Connector for capacitor C4 –
24)	U, V, W	Connector for compressor
25)	F4U	Fuse (6.3 A / 250 V)
26)	F6U	Fuse (5.0 A / 250 V)
27)	HAP	Operation pilot lamp (LED for service monitor: green)
28)	HBP	Inverter pilot lamp (LED for service monitor: green)


X106A
X107A
F6U
X111A
P
HBP
X66A
X37A
X81A
X5A
X22A
X21A
X13A
X11A
X12A
X18A
X17A
X32A
HAP
N
W
V
U
LE
NC
LC
X25A
X26A
X27A
X28A
LD
F4U
2P294944-17

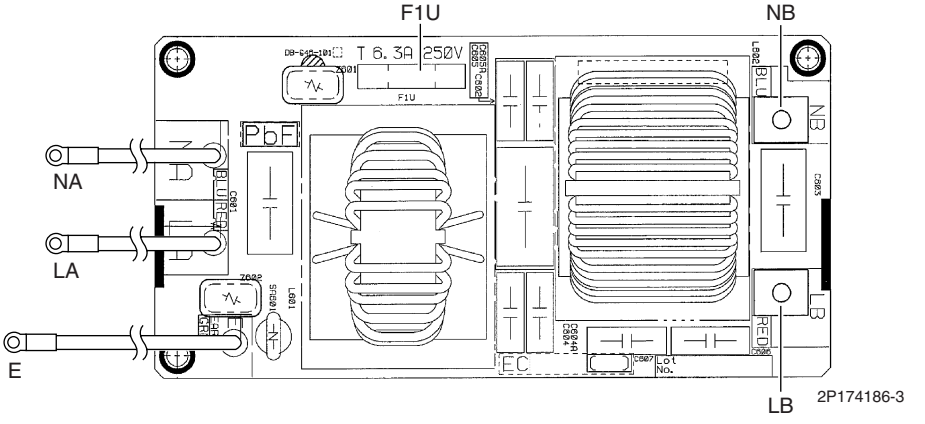
Service PCB (A2P)

1) X205A — Connector for main PCB (A1P)
2) H1P - H8P — LED for service monitor (orange)
3) BS1 - BS5 — Push button switch (mode, set, return, test, reset)
4) DS1 — DIP switch for cool/heat selector



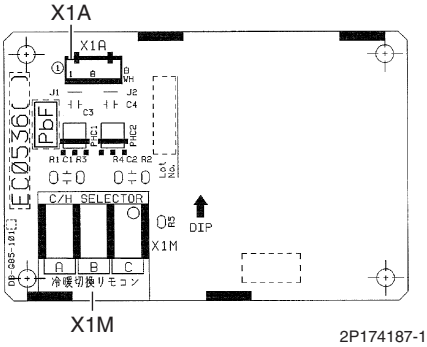
Noise Filter PCB (A3P)

1) LA, NA — Terminal for terminal strip (power supply)
2) LB, NB — Terminal for main PCB (A1P)
3) E — Terminal for ground wire
4) F1U — Fuse (6.3 A / 250 V)



Cool/Heat Selector PCB (A4P)

1) X1A — Connector for main PCB (A1P)
2) X1M — Terminal for cool/heat selector

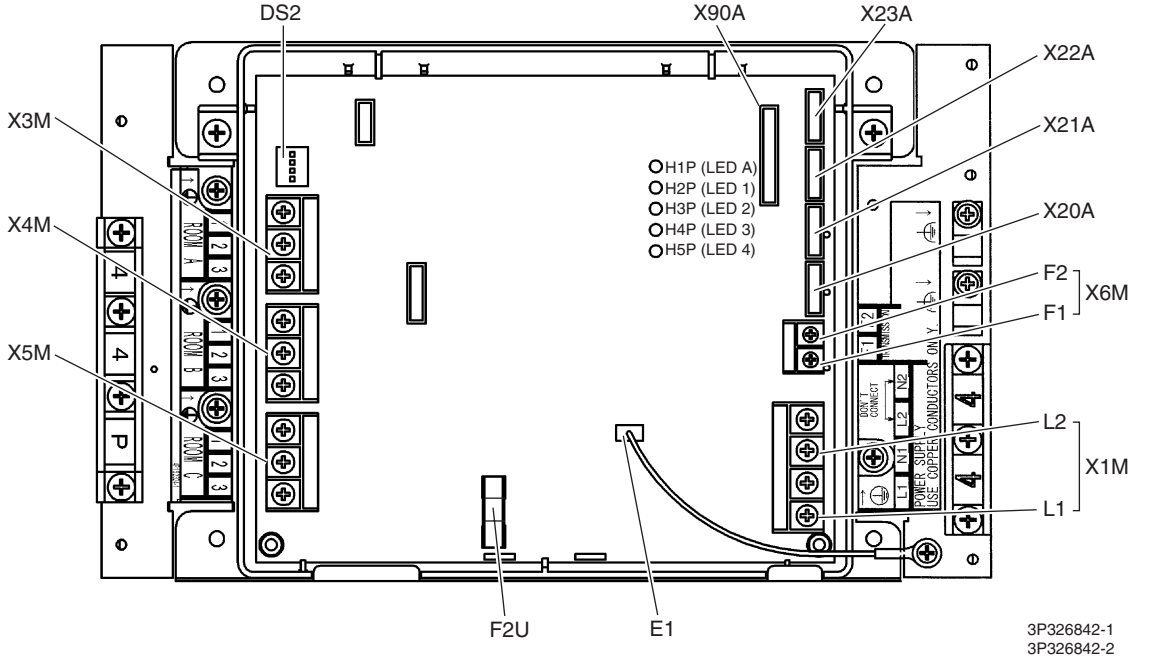


2. Branch Provider (BP) Unit

2.1 BPMKS048A2U, BPMKS049A3U

PCB ASSY

1)	X20A	Connector for bypass electronic expansion valve
2)	X21A - X23A	Connector for electronic expansion valve for room A, B, C (X23A for room C: BPMKS049A3U only)
3)	X90A	Connector for thermistors
4)	F2U	Fuse (3.15 A / 250 V)
5)	X3M	Terminal for inter-connecting wire to room A
6)	X4M	Terminal for inter-connecting wire to room B
7)	X5M	Terminal for inter-connecting wire to room C (BPMKS049A3U only)
8)	F1, F2 (on X6M)	Terminal for transmission to outdoor unit or other BP units
9)	L1, L2 (on X1M)	Terminal for power supply (60 Hz, 208 ~ 230 V)
10)	E1	Terminal for ground wire
11)	H1P (LED A)	LED for service monitor (green)
12)	H2P - H5P (LED 1 - 4)	LED for error indication (red)
13)	DS2	DIP switch

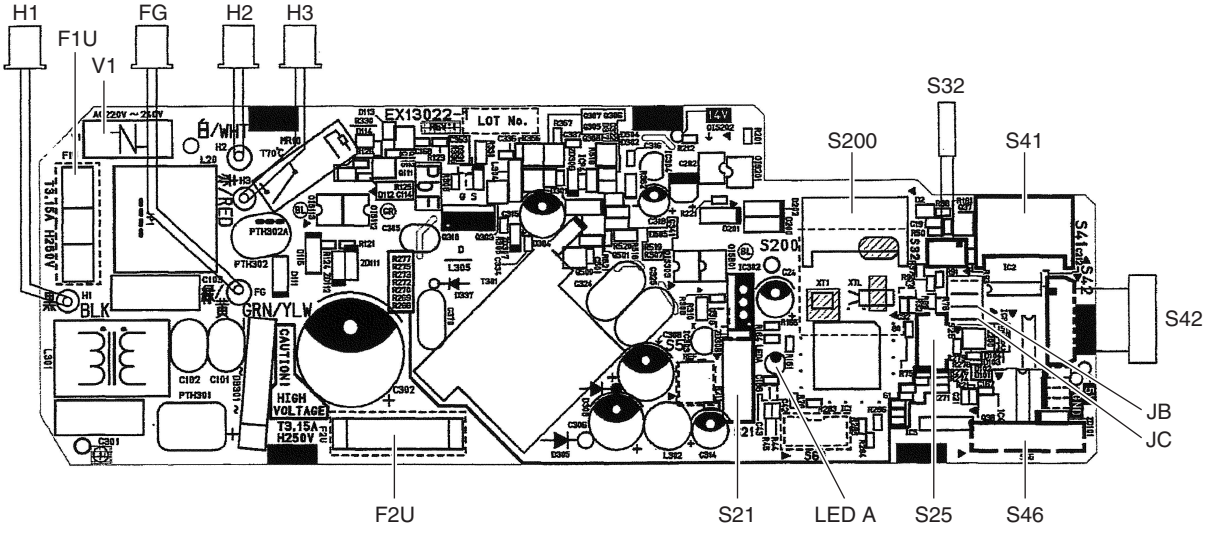


3. Indoor Unit

3.1 CTXG09/12/18QVJUW(S)

Control PCB (A1P)

1)	S21	Connector for centralized control (HA)
2)	S25	Connector for INTELLIGENT EYE sensor PCB (A3P)
3)	S32	Indoor heat exchanger thermistor
4)	S41	Connector for swing motors
5)	S42	Connector for reduction motor (front panel mechanism) and limit switch
6)	S46	Connector for display/signal receiver PCB (A2P)
7)	S200	Connector for DC fan motor
8)	H1, H2, H3	Connector for terminal strip (indoor - outdoor transmission)
9)	FG	Connector for terminal strip (frame ground)
10)	JB	Fan speed setting when compressor stops for thermostat OFF * Refer to page 143 for details.
11)	JC	Power failure recovery function (auto-restart) * Refer to page 143 for details.
12)	LED A	LED for service monitor (green)
13)	F1U, F2U	Fuse (3.15 A, 250 V)
14)	V1	Varistor



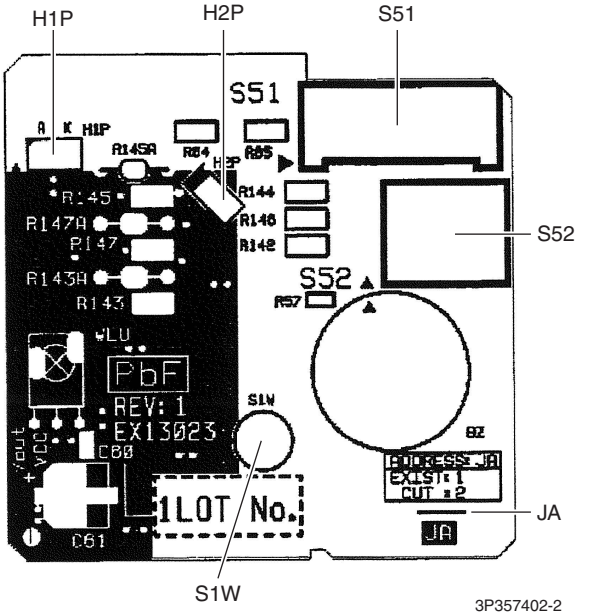
2P357399-6

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

Display/Signal Receiver PCB (A2P)

1) S51 Connector for control PCB (A1P)
2) S52 Connector for room temperature thermistor
3) S1W Indoor unit **ON/OFF** button
4) H1P LED for operation (multi-color)
5) H2P LED for INTELLIGENT EYE (green)
6) JA Address setting jumper

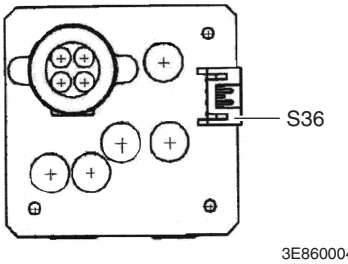
∗ Refer to page 141 for details.



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

INTELLIGENT EYE Sensor PCB (A3P)

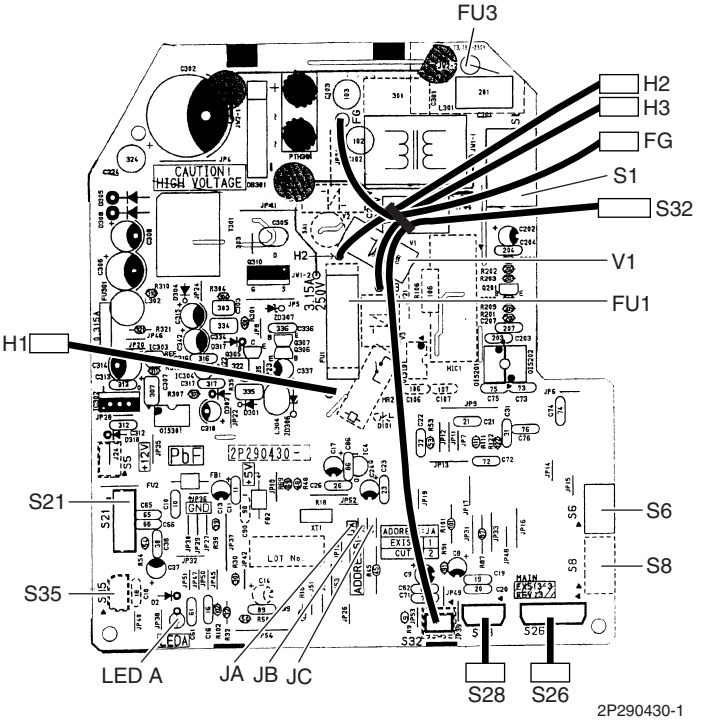
1) S36 Connector for control PCB (A1P)



3.2 CTXS07JVJU, CTXS09/12HVJU

Control PCB (PCB1)

1) S1	Connector for DC fan motor
2) S6	Connector for swing motor (horizontal blades)
3) S8	Connector for swing motor (vertical blades)
4) S21	Connector for centralized control (HA)
5) S26	Connector for buzzer PCB (PCB3)
6) S28	Connector for signal receiver PCB (PCB2)
7) S32	Indoor heat exchanger thermistor
8) S35	Connector for INTELLIGENT EYE sensor PCB (PCB5)
9) H1, H2, H3, FG	Connector for terminal strip
10) JA	Address setting jumper ∗ Refer to page 141 for details.
11) JB	Fan speed setting when compressor stops for thermostat OFF ∗ Refer to page 143 for details.
12) JC	Power failure recovery function (auto-restart) ∗ Refer to page 143 for details.
13) LED A	LED for service monitor (green)
14) FU1 (Fu), FU3	Fuse (3.15 A, 250 V)
15) V1	Varistor

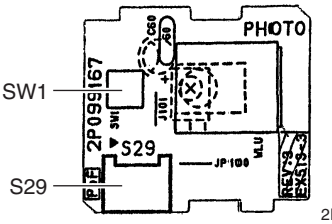


Caution **Replace the PCB if you accidentally cut a wrong jumper.**
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.

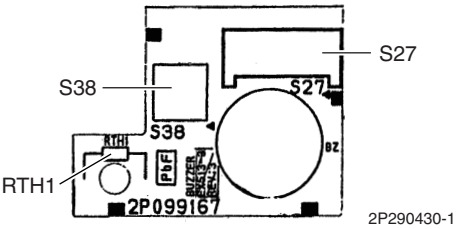
Signal Receiver PCB (PCB2)

1) S29 Connector for control PCB (PCB1)
2) SW1 (S1W) Indoor unit **ON/OFF** button



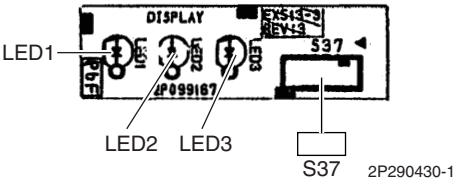
Buzzer PCB (PCB3)

1) S27 Connector for control PCB (PCB1)
2) S38 Connector for display PCB (PCB4)
3) RTH1 (R1T) Room temperature thermistor



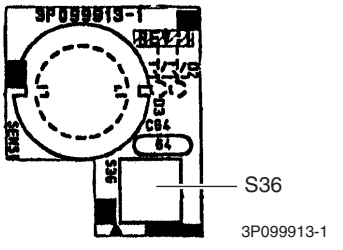
Display PCB (PCB4)

1) S37 Connector for buzzer PCB (PCB3)
2) LED1 (H1P) LED for operation (green)
3) LED2 (H2P) LED for timer (yellow)
4) LED3 (H3P) LED for HOME LEAVE operation (red)



INTELLIGENT EYE Sensor PCB (PCB5)

1) S36 Connector for control PCB (PCB1)

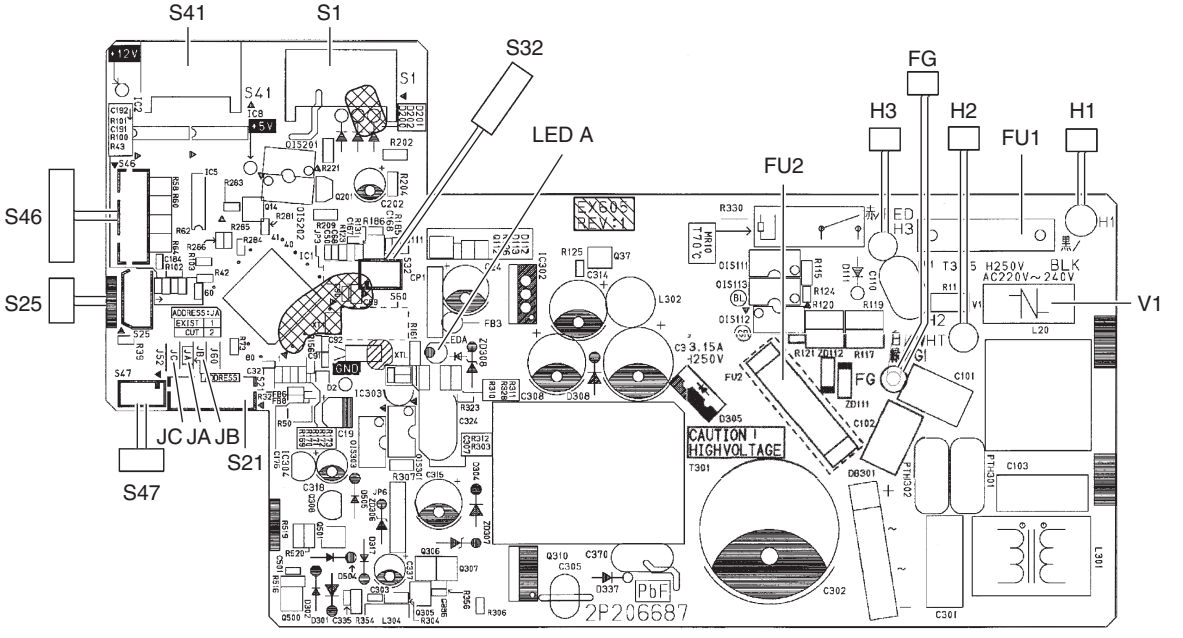


Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.

3.3 CTXS07LVJU, FTXS09/12LVJU

Control PCB (PCB1)

1) S1	Connector for DC fan motor
2) S21	Connector for centralized control (HA)
3) S25	Connector for INTELLIGENT EYE sensor PCB (PCB4)
4) S32	Indoor heat exchanger thermistor
5) S41	Connector for swing motors
6) S46	Connector for display PCB (PCB3)
7) S47	Connector for signal receiver PCB (PCB2)
8) H1, H2, H3, FG	Connector for terminal strip
9) JA	Address setting jumper ∗ Refer to page 141 for details.
10) JB	Fan speed setting when compressor stops for thermostat OFF ∗ Refer to page 143 for details.
11) JC	Power failure recovery function (auto-restart) ∗ Refer to page 143 for details.
12) LED A	LED for service monitor (green)
13) FU1 (F1U), FU2	Fuse (3.15 A, 250 V)
14) V1	Varistor



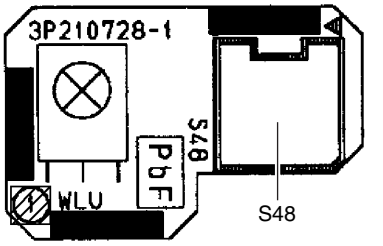
2P206687-4

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

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.

Signal Receiver PCB (PCB2)

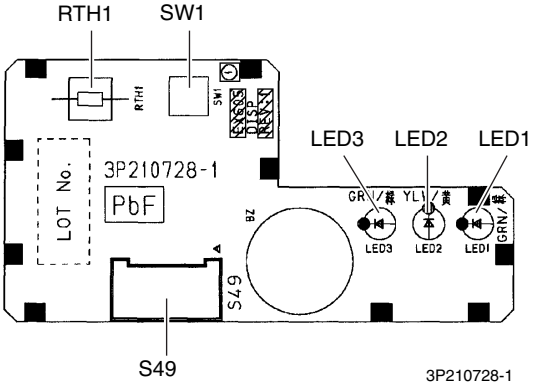
1) S48 Connector for control PCB (PCB1)



3P210728-1

Display PCB (PCB3)

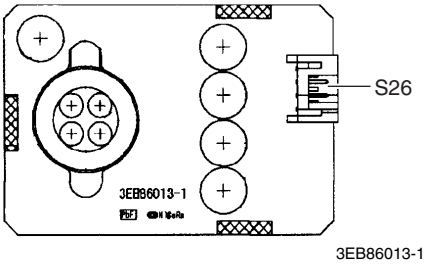
1) S49 Connector for control PCB (PCB1)
2) SW1 Indoor unit **ON/OFF** button
3) LED1 (H1P) LED for operation (green)
4) LED2 (H2P) LED for timer (yellow)
5) LED3 (H3P) LED for INTELLIGENT EYE (green)
6) RTH1 (R1T) Room temperature thermistor



3P210728-1

INTELLIGENT EYE Sensor PCB (PCB4)

1) S26 Connector for control PCB (PCB1)



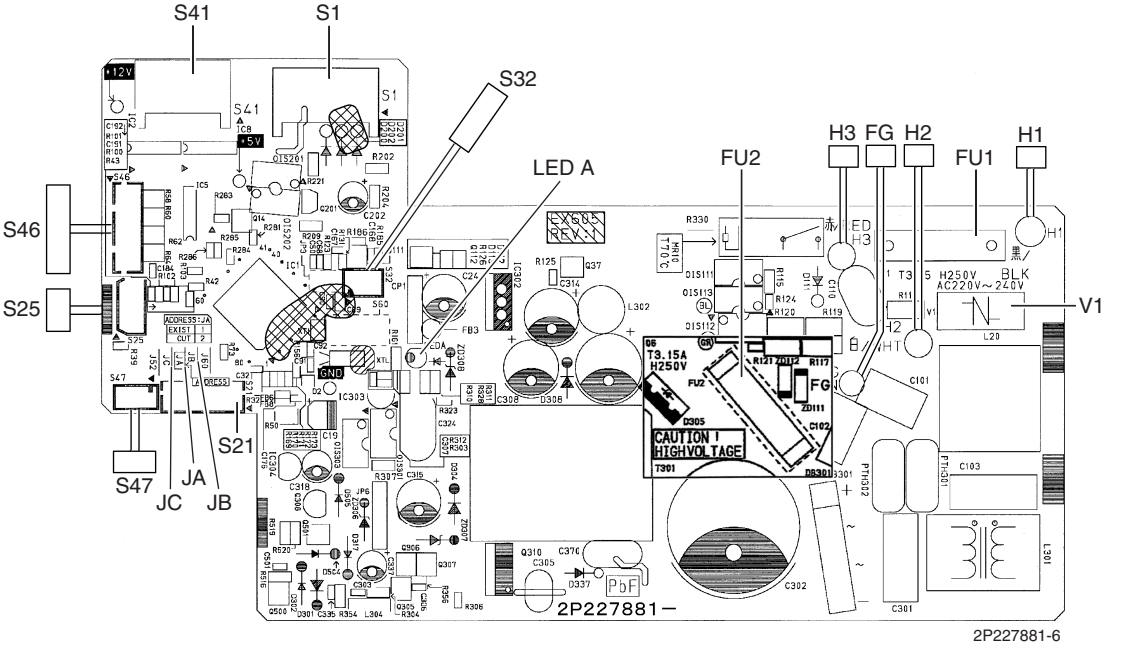
3EB86013-1

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.

3.4 FTXS15/18/24LVJU

Control PCB (PCB1)

1)	S1	Connector for DC fan motor
2)	S21	Connector for centralized control (HA)
3)	S25	Connector for INTELLIGENT EYE sensor PCB (PCB4)
4)	S32	Indoor heat exchanger thermistor
5)	S41	Connector for swing motors
6)	S46	Connector for display PCB (PCB3)
7)	S47	Connector for signal receiver PCB (PCB2)
8)	H1, H2, H3, FG	Connector for terminal strip
9)	JA	Address setting jumper ∗ Refer to page 141 for details.
10)	JB	Fan speed setting when compressor stops for thermostat OFF ∗ Refer to page 143 for details.
11)	JC	Power failure recovery function (auto-restart) ∗ Refer to page 143 for details.
12)	LED A	LED for service monitor (green)
13)	FU1 (F1U), FU2 (F2U)	Fuse (3.15 A, 250 V)
14)	V1	Varistor



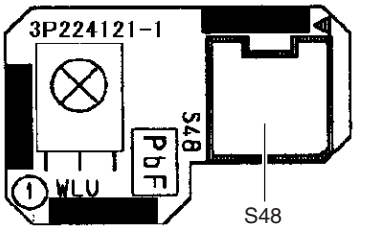
2P227881-6

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

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.

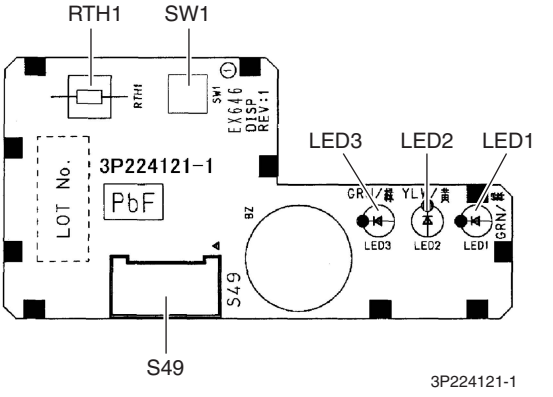
Signal Receiver PCB (PCB2)

1) S48 Connector for control PCB (PCB1)



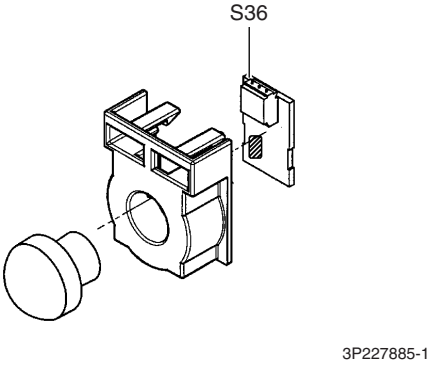
Display PCB (PCB3)

1) S49 Connector for control PCB (PCB1)
2) SW1 Indoor unit **ON/OFF** button
3) LED1 (H1P) LED for operation (green)
4) LED2 (H2P) LED for timer (yellow)
5) LED3 (H3P) LED for INTELLIGENT EYE (green)
6) RTH1 (R1T) Room temperature thermistor



INTELLIGENT EYE Sensor PCB (PCB4)

1) S36 Connector for control PCB (PCB1)

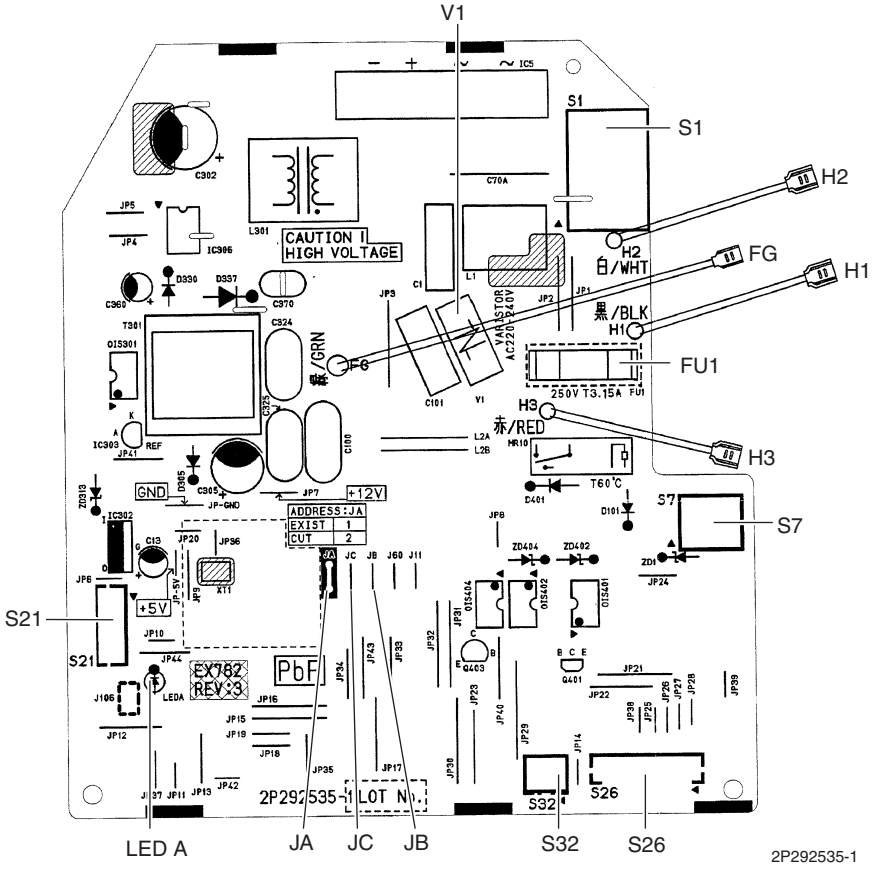


Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.

3.5 FDXS09/12LVJU, CDXS15/18/24LVJU

Control PCB (A1P)

1)	S1	Connector for AC fan motor
2)	S7	Connector for AC fan motor (Hall IC)
3)	S21	Connector for centralized control (HA)
4)	S26	Connector for display/signal receiver PCB (A2P)
5)	S32	Connector for indoor heat exchanger thermistor
6)	H1, H2, H3	Connector for terminal strip
7)	FG (GND)	Connector for terminal strip (ground)
8)	JA	Address setting jumper
		∗ Refer to page 141 for details.
9)	JB	Fan speed setting when compressor stops for thermostat OFF
		∗ Refer to page 143 for details.
10)	JC	Power failure recovery function (auto-restart)
		∗ Refer to page 143 for details.
11)	LED A	LED for service monitor (green)
12)	FU1 (F1U)	Fuse (3.15 A, 250 V)
13)	V1	Varistor

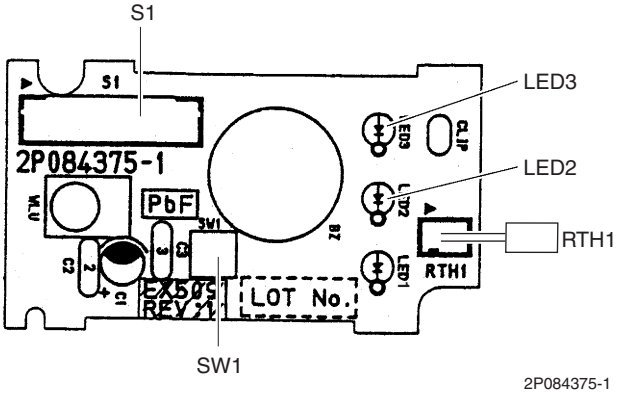


Caution **Replace the PCB if you accidentally cut a wrong jumper.**
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.

Display/Signal Receiver PCB (A2P)

1)	S1	Connector for control PCB (A1P)
2)	SW1 (S1W)	Indoor unit **ON/OFF** button
3)	LED2 (H2P)	LED for timer (yellow)
4)	LED3 (H3P)	LED for operation (green)
5)	RTH1 (R1T)	Room temperature thermistor



2P084375-1

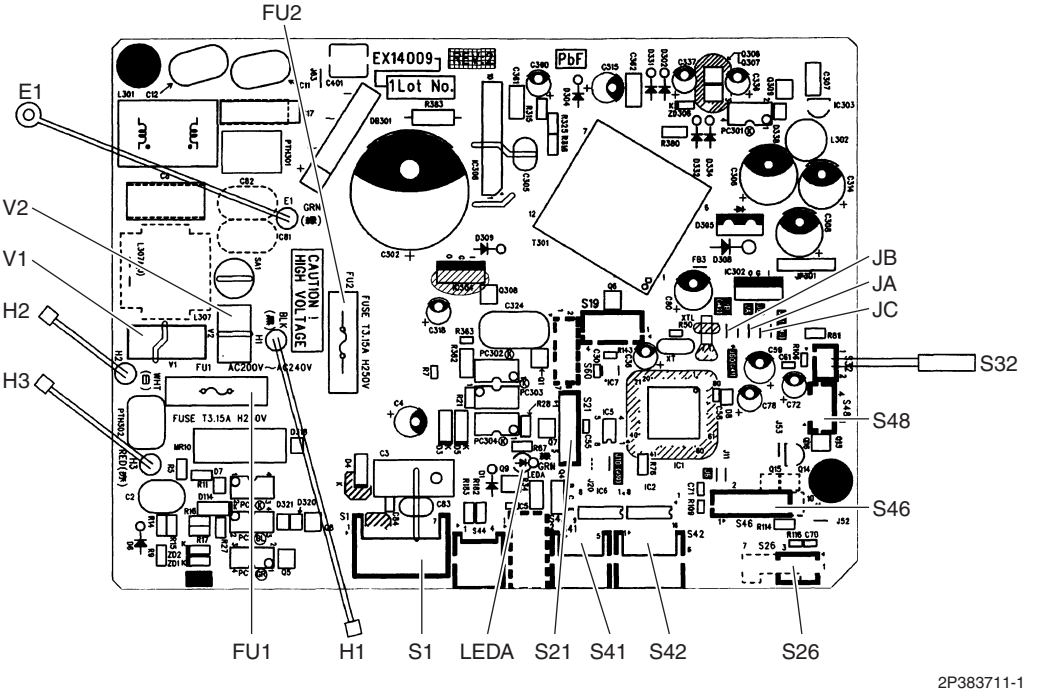
★LED 1 does not function.

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.

3.6 FVXS09/12/15/18NVJU

Control PCB (PCB2)

1) S1	Connector for DC fan motor
2) S21	Connector for centralized control (HA)
3) S26	Connector for service PCB (PCB3)
4) S32	Indoor heat exchanger thermistor
5) S41	Connector for lower air outlet motor
6) S42	Connector for swing motor
7) S46	Connector for display/signal receiver PCB (PCB4)
8) S48	Connector for sensor PCB (PCB1)
9) H1, H2, H3	Connector for terminal strip
10) E1	Terminal for ground wire
11) JA	Address setting jumper ∗ Refer to page 141 for details.
12) JB	Fan speed setting when compressor stops for thermostat OFF ∗ Refer to page 143 for details.
13) JC	Power failure recovery function ∗ Refer to page 143 for details.
14) FU1 (F1U), FU2 (F2U)	Fuse (3.15 A, 250 V)
15) LED A	LED for service monitor (green)
16) V1, V2	Varistor



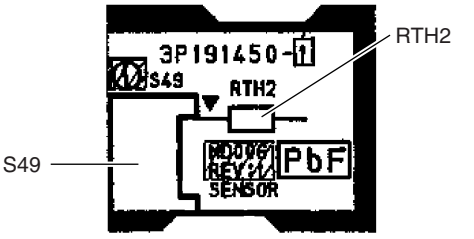
2P383711-1

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

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.

Sensor PCB (PCB1)

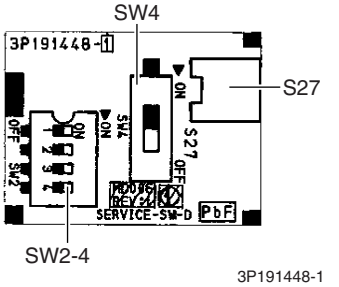
1) S49 Connector for control PCB (PCB2)
2) RTH2 (R1T) Room temperature thermistor



3P191450-1

Service PCB (PCB3)

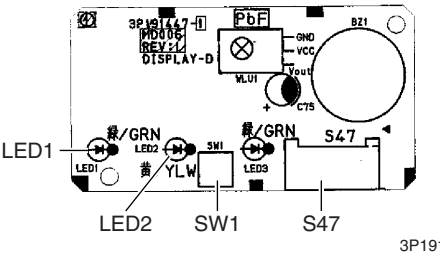
1) S27 Connector for control PCB (PCB2)
2) SW2 (S2W)-4 Switch for upward airflow limit setting
   * Refer to page 143 for details.
   * Keep the other switches as factory setting.
3) SW4 (S4W) Switch for airflow selection
   * Refer to page 76 for details.



3P191448-1

Display/Signal Receiver PCB (PCB4)

1) S47 Connector for control PCB (PCB2)
2) SW1 (S1W) Indoor unit **ON/OFF** button
3) LED1 (H1P) LED for operation (green)
4) LED2 (H2P) LED for timer (yellow)



3P191447-1

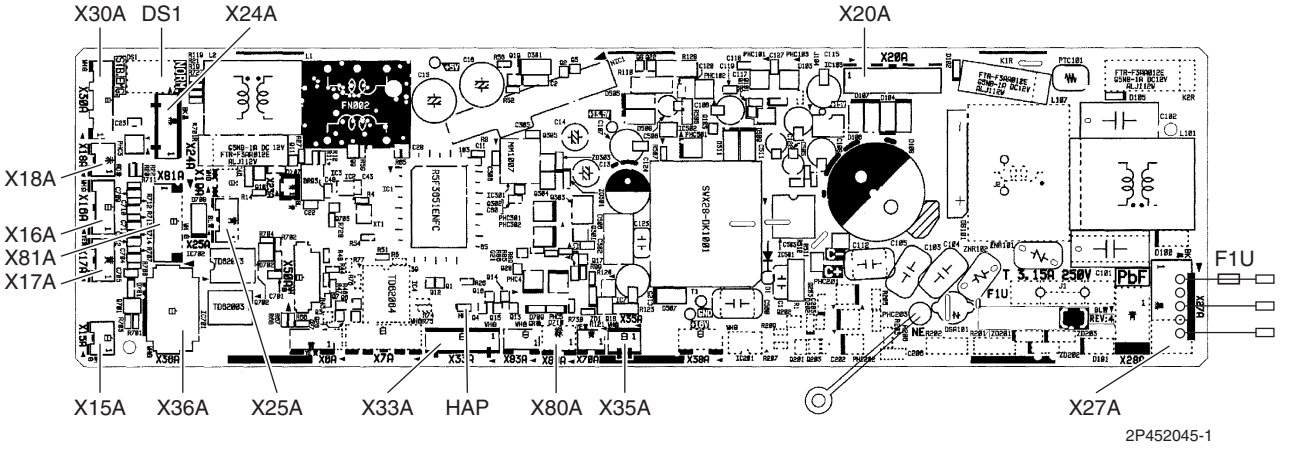
★ LED3 does not function.

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.

3.7 FFQ09/12/15/18Q2VJU

Control PCB (A1P)

1)	X15A	Connector for float switch
2)	X16A	Connector for room temperature thermistor (suction air thermistor)
3)	X17A, X18A	Connector for indoor heat exchanger thermistor
4)	X20A	Connector for DC fan motor
5)	X24A	Connector for transmitter board (A2P) (when the wireless remote controller (option) is used)
6)	X25A	Connector for drain pump motor
7)	X27A	Connector for terminal strip (for inter-unit wiring)
8)	X30A	Connector for terminal strip (for wired remote controller)
9)	X33A	Connector for adaptor for wiring (option)
10)	X35A	Connector for wiring adaptor for electrical appendices (option)
11)	X36A	Connector for swing motors on decoration panel (option)
12)	X80A	Connector for decoration panel (BYFQ60B3W1) (option)
13)	X81A	Connector for sensor kit (BRYQ60A2W(S)) (option)
14)	HAP	LED for service monitor (green)
15)	DS1	DIP switch
16)	F1U	Fuse (5A, 250V)

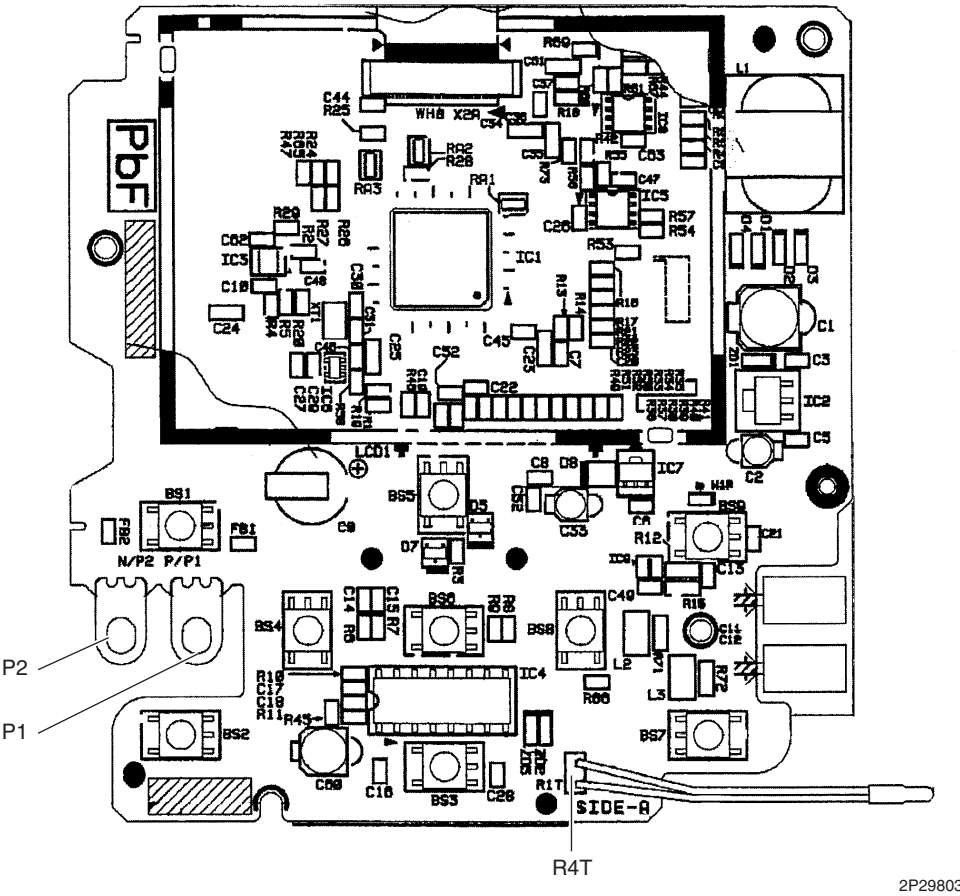


4. Wired Remote Controller

4.1 BRC1E73

PCB ASSY

1) P1, P2 Terminal for indoor unit
2) R4T Room temperature thermistor

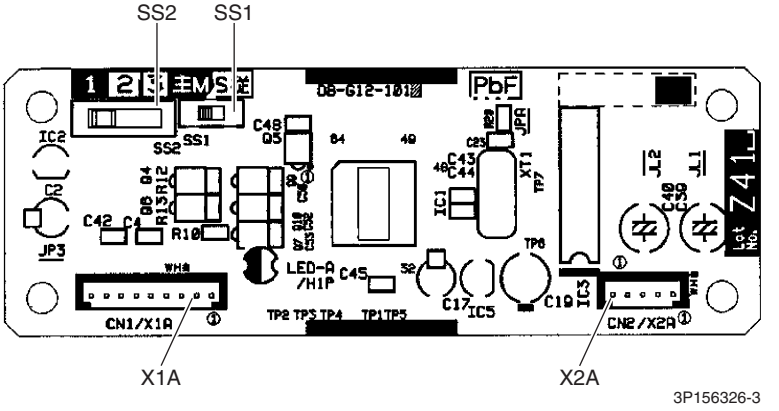


5. Wireless Remote Controller Kit

5.1 BRC082A41W, BRC082A42W(S)

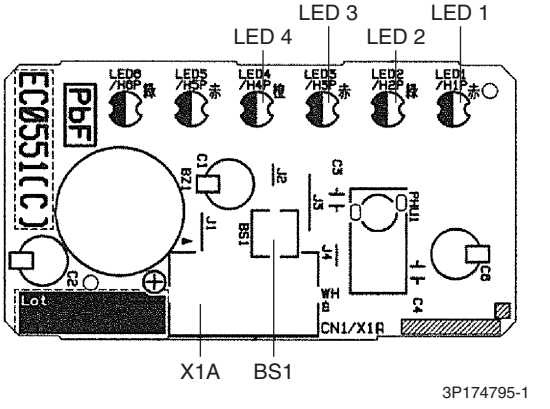
Transmitter Board (A2P)

1) X1A Connector for receiver (A3P)
2) X2A Connector for control PCB (A1P)
3) SS1 MAIN/SUB setting switch
   ∗ Refer to page 149 for details.
4) SS2 Address setting switch
   ∗ Refer to page 149 for details.



Receiver (A3P)

1) X1A Connector for transmitter board (A2P)
2) BS1 Emergency operation switch
3) LED1 (H1P) LED for operation (red)
4) LED2 (H2P) LED for timer (green)
5) LED3 (H3P) LED for filter cleaning sign (red)
6) LED4 (H4P) LED for defrost operation (orange)



★ LED5 and LED6 do not function.

Part 4
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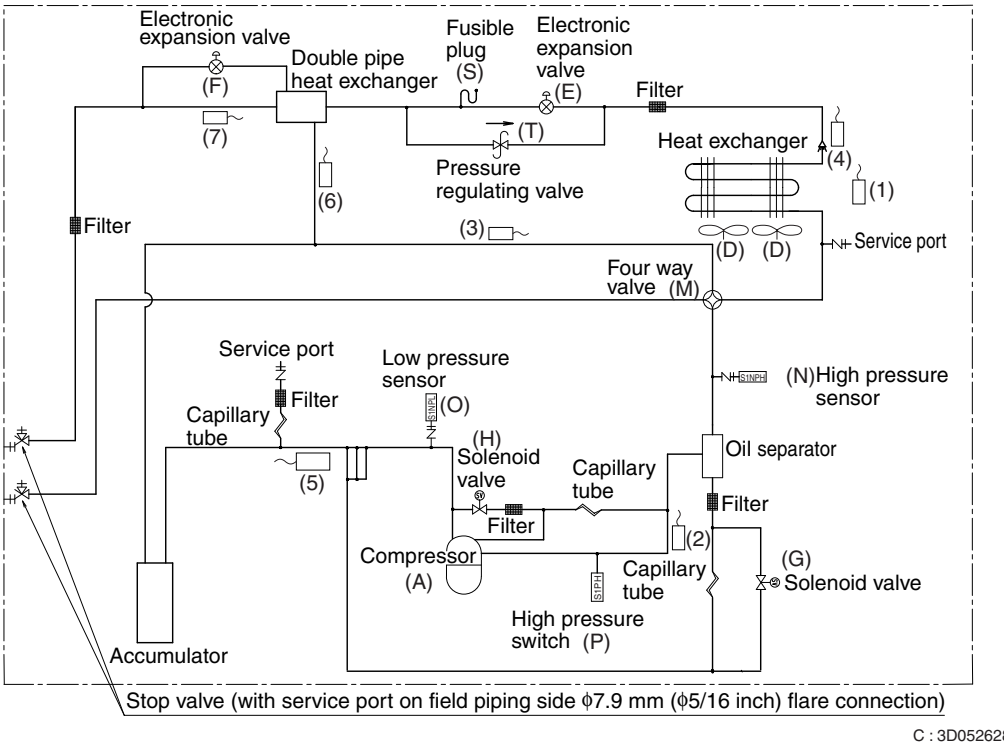
1. Refrigerant Circuit

1.1 Outdoor Unit

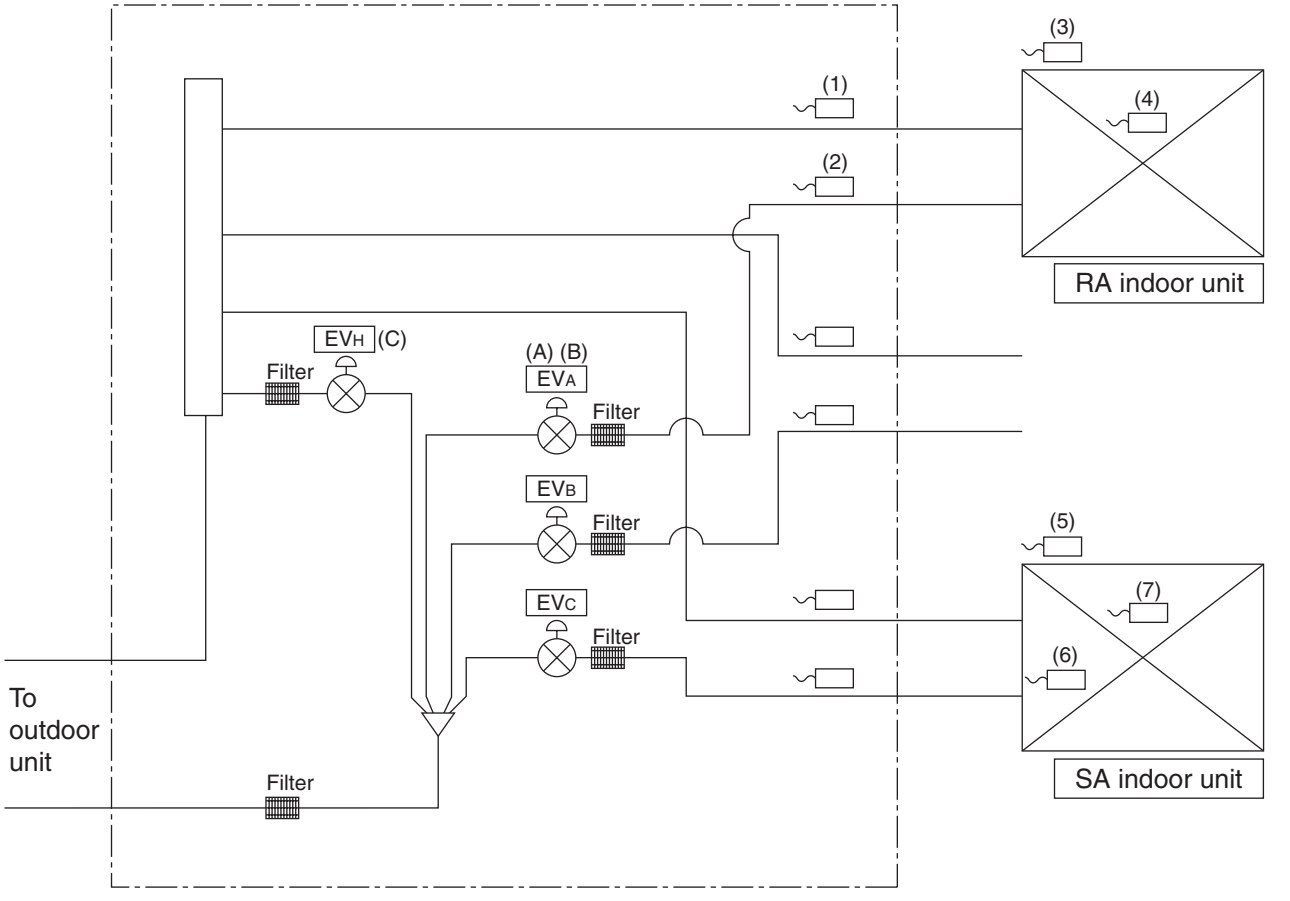
No. in diagram	Symbol	Name	Major Function
A	M1C	Compressor motor	The compressor is operated on frequencies between 36 Hz and 195 Hz by using the inverter. (31 steps)
D	M1F M2F	Fan motor	Since the system is of air heat exchanging type, the fan is operated at 8-step rotation speed by using the inverter.
E	Y1E	Electronic expansion valve (Main)	While in heating operation, PI control is applied to keep the outlet superheated degree of the air heat exchanger constant.
F	Y3E	Electronic expansion valve (Subcooling)	PI control is applied to keep the outlet superheated degree of the subcooling heat exchanger constant.
G	Y2S	Solenoid valve (Hot gas bypass)	Used to prevent the low pressure from temporary falling.
H	Y3S	Solenoid valve (Unload circuit)	Used for the unloading operation of the compressor.
M	Y1S	Four way valve	Used to switch the operation mode between cooling and heating.
N	S1NPH	High pressure sensor	Used to detect high pressure.
O	S1NPL	Low pressure sensor	Used to detect low pressure.
P	S1PH	High pressure switch	In order to prevent the increase of high pressure when an error occurs, this switch is activated at high pressure of 4.0 MPa (1338 ftÄq) or more to stop the compressor operation.
S	—	Fusible plug	In order to prevent the increase of pressure when abnormal heating is caused by fire, etc., the fusible part of the plug melts at a temperature of 70 ~ 75°C (158 ~ 167°F) to release the pressure into the atmosphere.
T	—	Pressure regulating valve (Receiver to discharge pipe)	This valve opens at a pressure of 4.0 MPa (1338 ftAq) to prevent pressure increase, thus protecting functional parts from damage due to the increase of pressure in transportation or storage.
1	R1T	Thermistor (Outdoor temperature: Ta)	Used to detect outdoor temperature, correct discharge pipe temperature, etc.
2	R2T	Thermistor (Discharge pipe: Tdi)	Used to detect discharge pipe temperature, for temperature protection control of the compressor, etc.
3	R3T	Thermistor (Suction pipe 1: Ts1)	Used to detect suction pipe temperature, keep the suction superheated degree constant in heating operation, etc.
4	R4T	Thermistor (Outdoor heat exchanger: Tb)	Used to detect liquid pipe temperature of the outdoor heat exchanger, determine defrosting operation, etc.
5	R5T	Thermistor (Suction pipe 2: Ts2)	Used to calculate the internal temperature of the compressor etc.
6	R6T	Thermistor (Subcooling heat exchanger gas pipe: Tsh)	Used to control the subcooling electronic expansion valve.
7	R7T	Thermistor (Liquid pipe: Tl)	Used to detect refrigerant overcharge in check operation, etc.



C : 3D052628

1.2 Branch Provider (BP) Unit

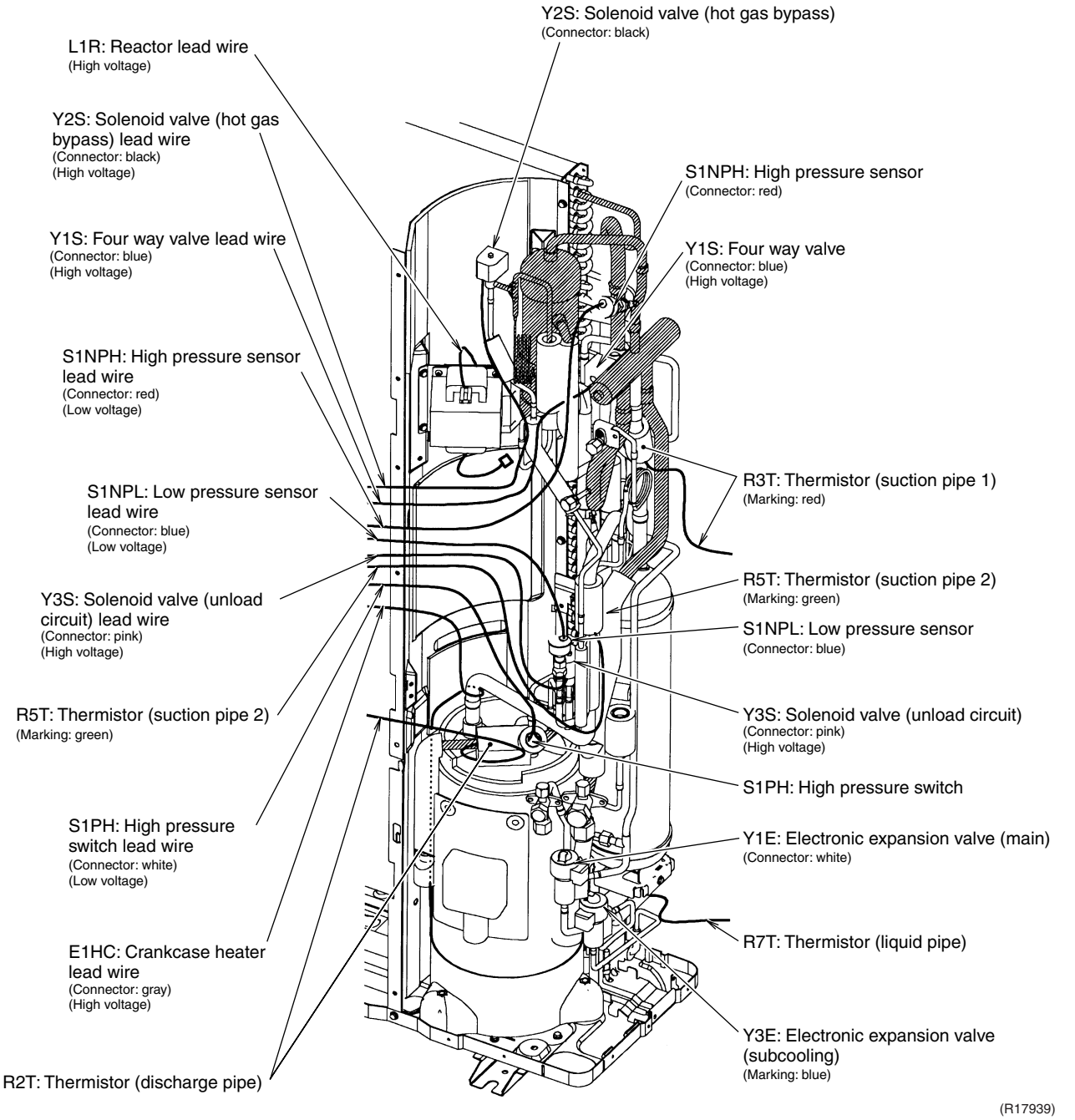
No. in diagram	Symbol	Name	Major Function
A	EVU	Electronic expansion valve (for operating room)	Among EVA, EVB and EVC, the electronic expansion valve of operating room is called EVU.
B	EVT	Electronic expansion valve (for non-operating room)	Among EVA, EVB and EVC, the electronic expansion valve of stopping room is called EVT.
C	EVH	Electronic expansion valve (Bypass)	During oil return operation, used to adjust the refrigerant circulating rate of the indoor unit.
1	DGA ~ DGC	Thermistor (Gas pipe)	During cooling operation, used to carry out the indoor unit SH control and cooling gas pipe isothermal control.
2	DLA ~ DLC	Thermistor (Liquid pipe)	During heating operation, used to carry out the indoor unit SC control.
3	R1T	Thermistor (Room temperature)	Used to detect room air temperature and instruct the capacity supply to the BP unit.
4	R2T	Thermistor (Indoor heat exchanger)	Used to detect heat exchanger temperature and carry out various protection functions and controls of capacity.
5	R1T	Thermistor (Room temperature)	Used to detect room air temperature and instruct the capacity supply to the BP unit.
6	R2T	Thermistor (Indoor heat exchanger 1: liquid pipe)	Used to detect heat exchanger temperature and carry out various protection functions and controls of capacity.
7	R3T	Thermistor (Indoor heat exchanger 2)	Used to detect heat exchanger temperature and carry out various protection functions and controls of capacity.



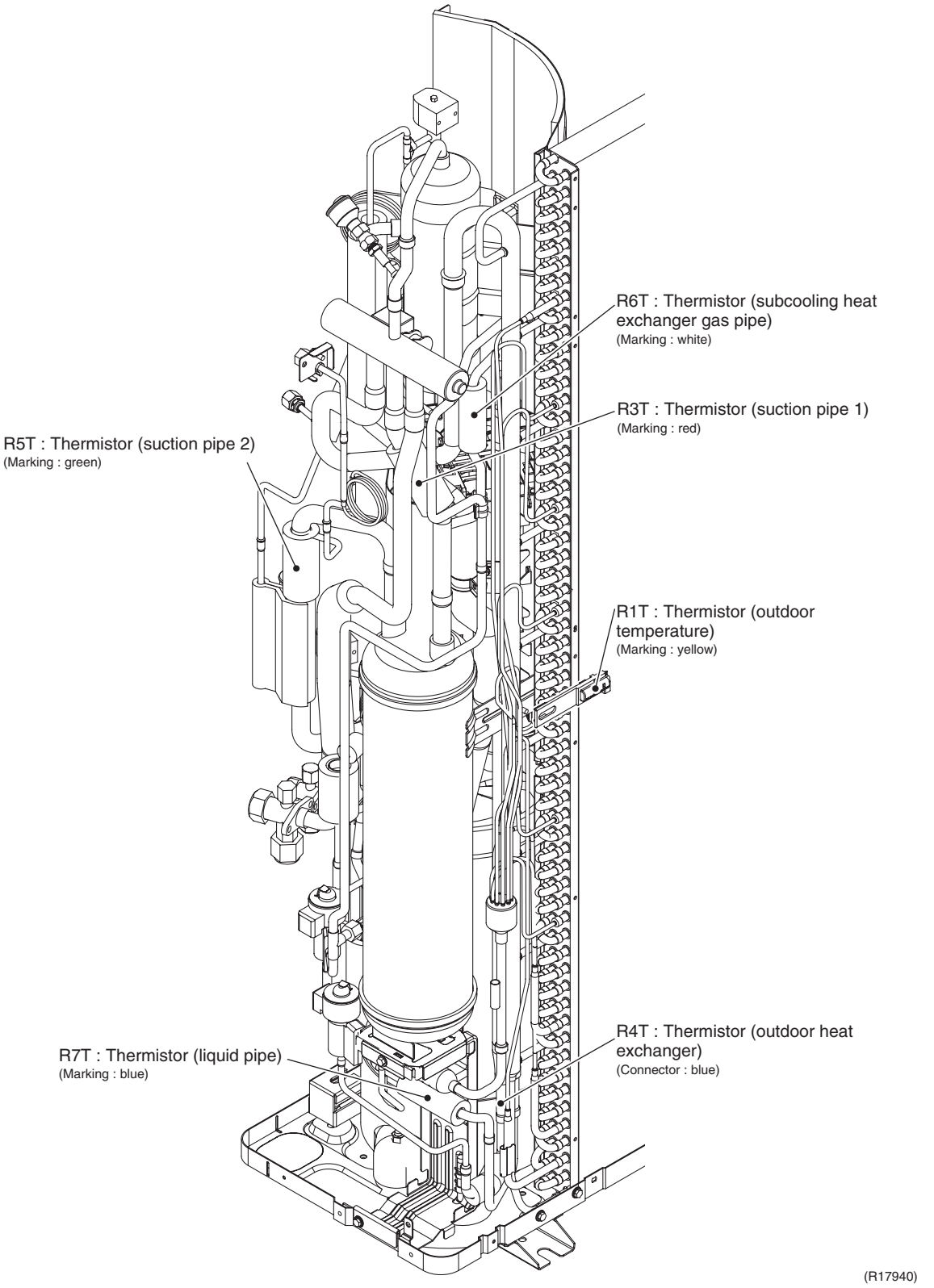
(Q0403)

2. Functional Parts Layout

Front View

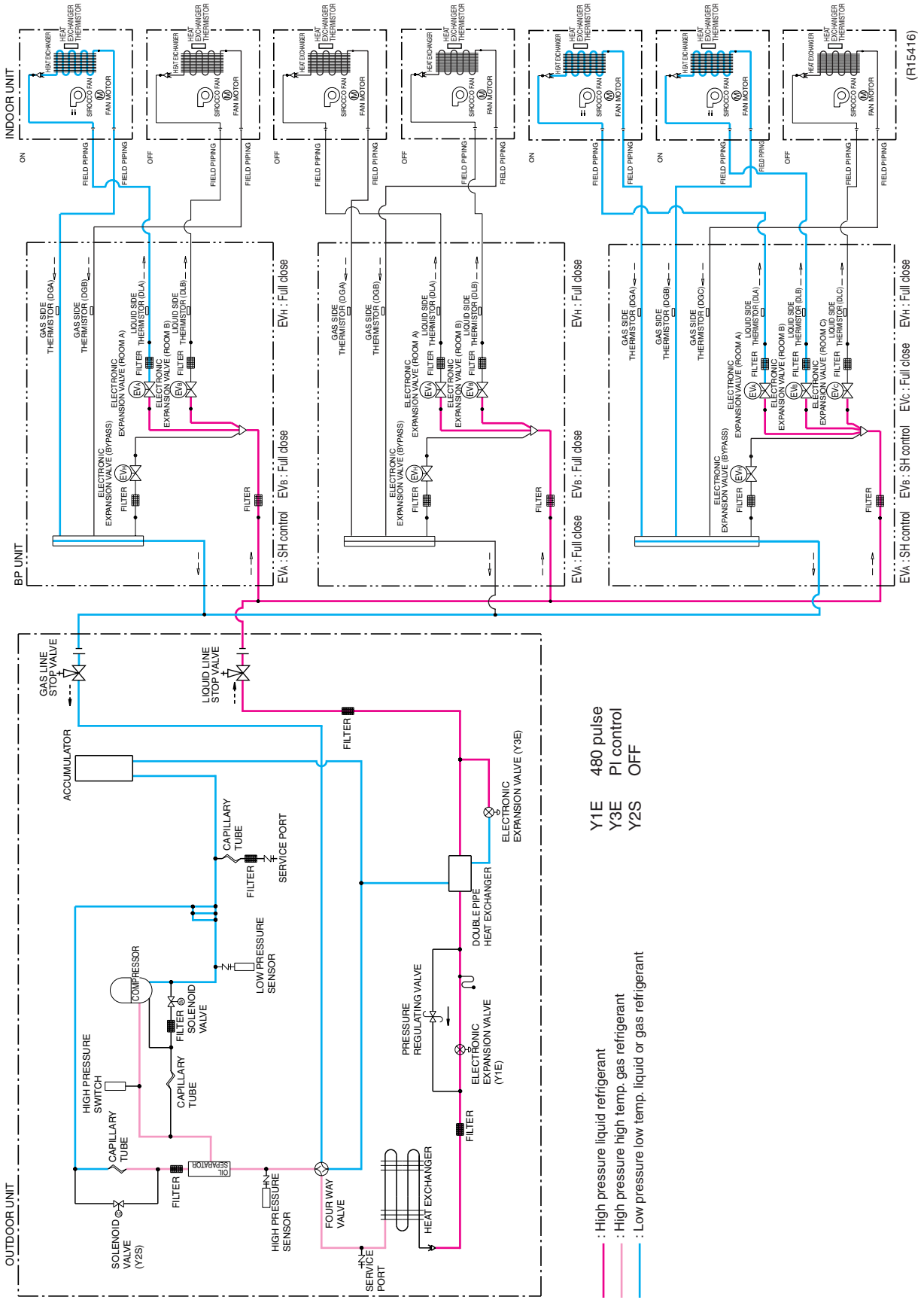


Back View

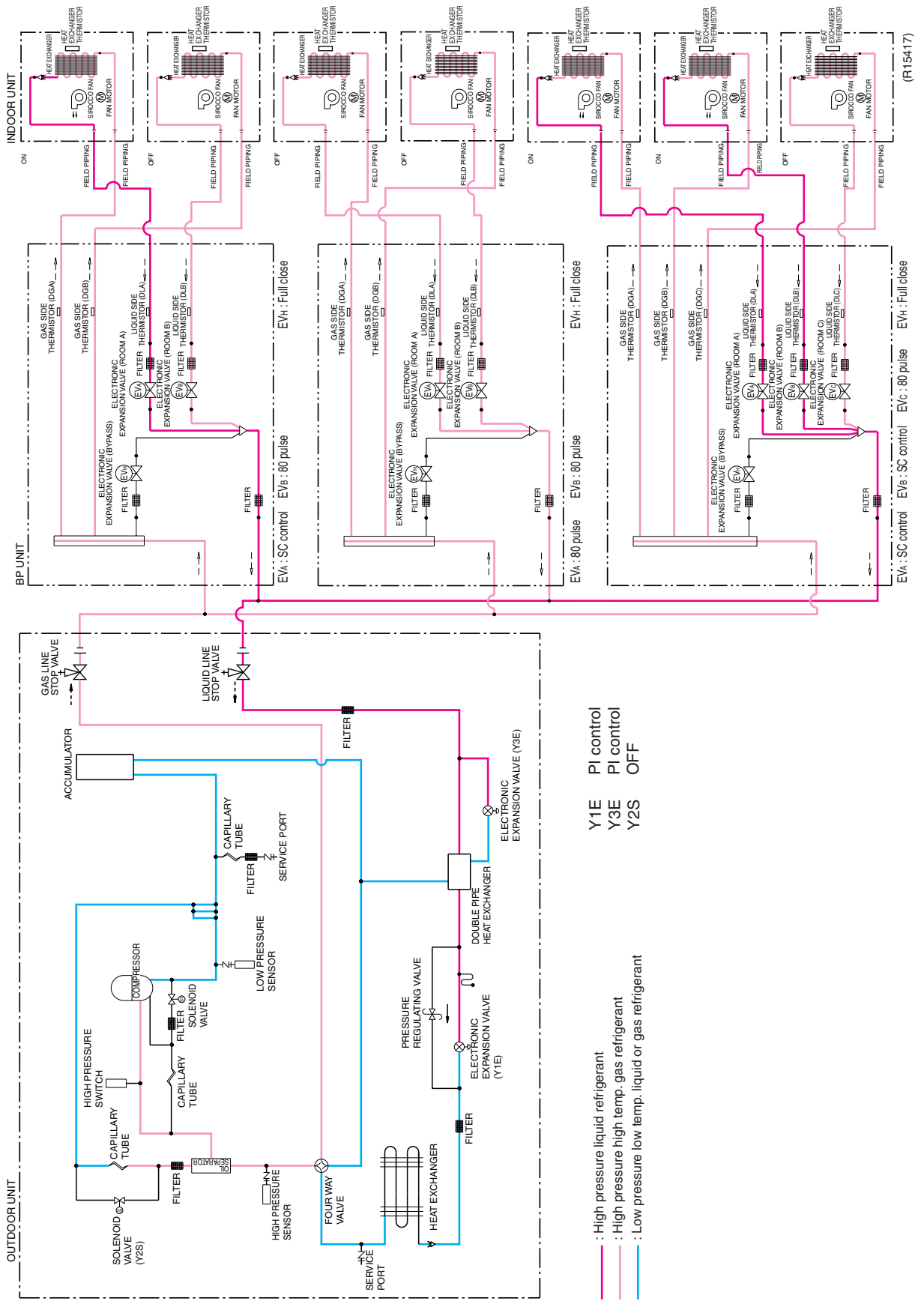

R6T : Thermistor (subcooling heat exchanger gas pipe)
(Marking : white)
R3T : Thermistor (suction pipe 1)
(Marking : red)
R5T : Thermistor (suction pipe 2)
(Marking : green)
R1T : Thermistor (outdoor temperature)
(Marking : yellow)
R4T : Thermistor (outdoor heat exchanger)
(Connector : blue)
R7T : Thermistor (liquid pipe)
(Marking : blue)
(R17940)

3. Refrigerant Flow for Each Operation Mode

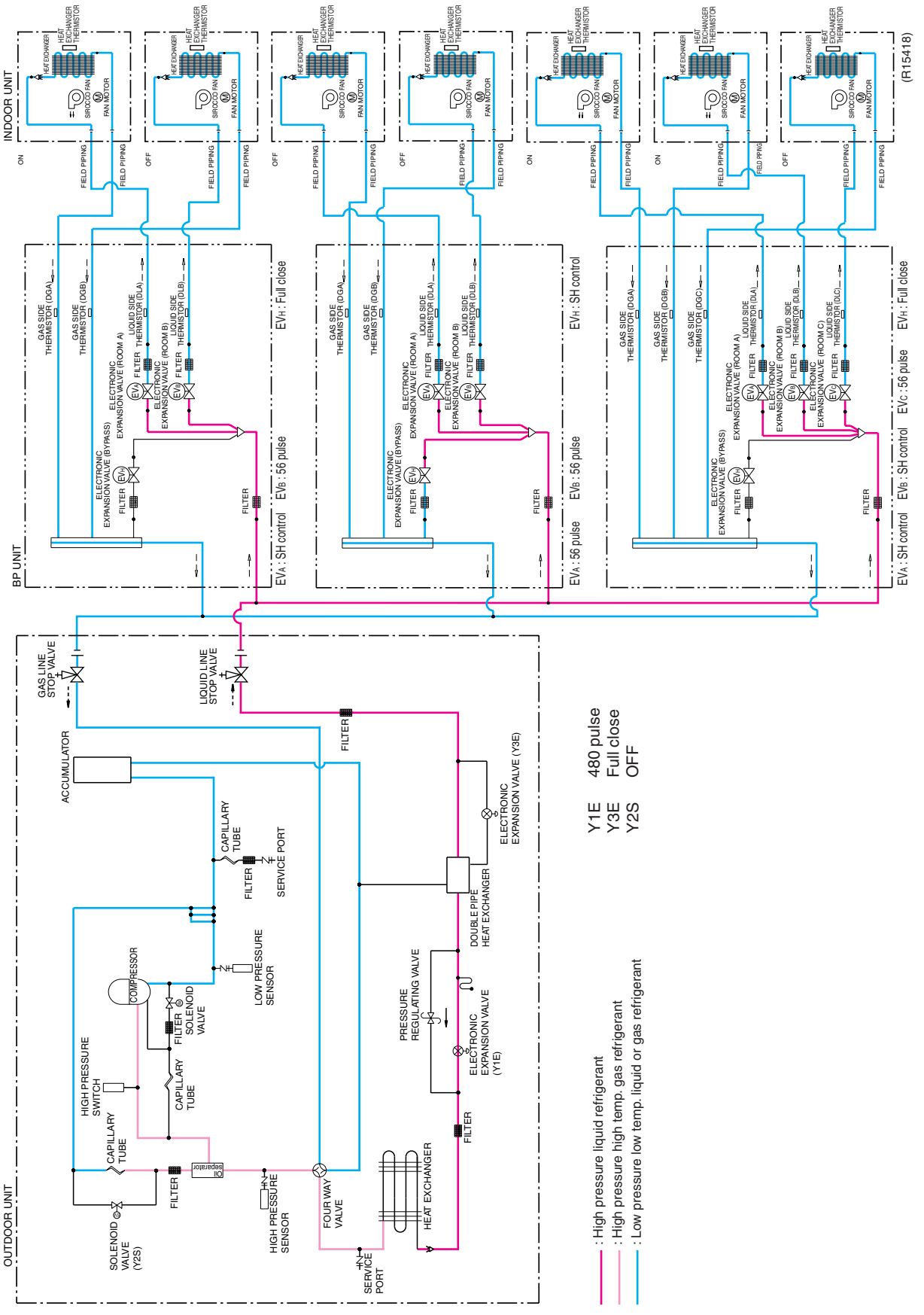
3.1 Cooling Operation



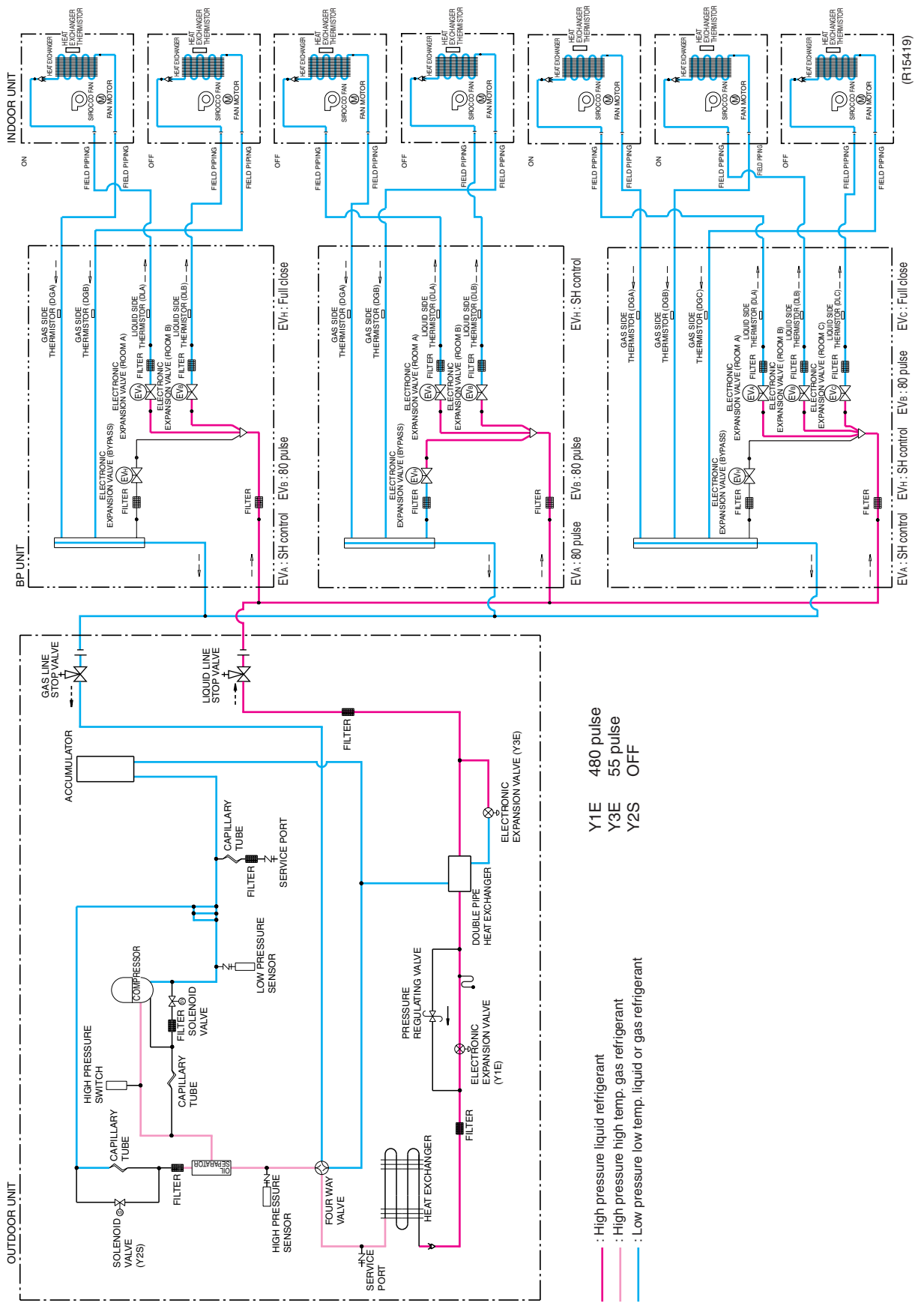
3.2 Heating Operation



3.3 Cooling Oil Return Operation



3.4 Heating Oil Return Operation & Defrost Operation



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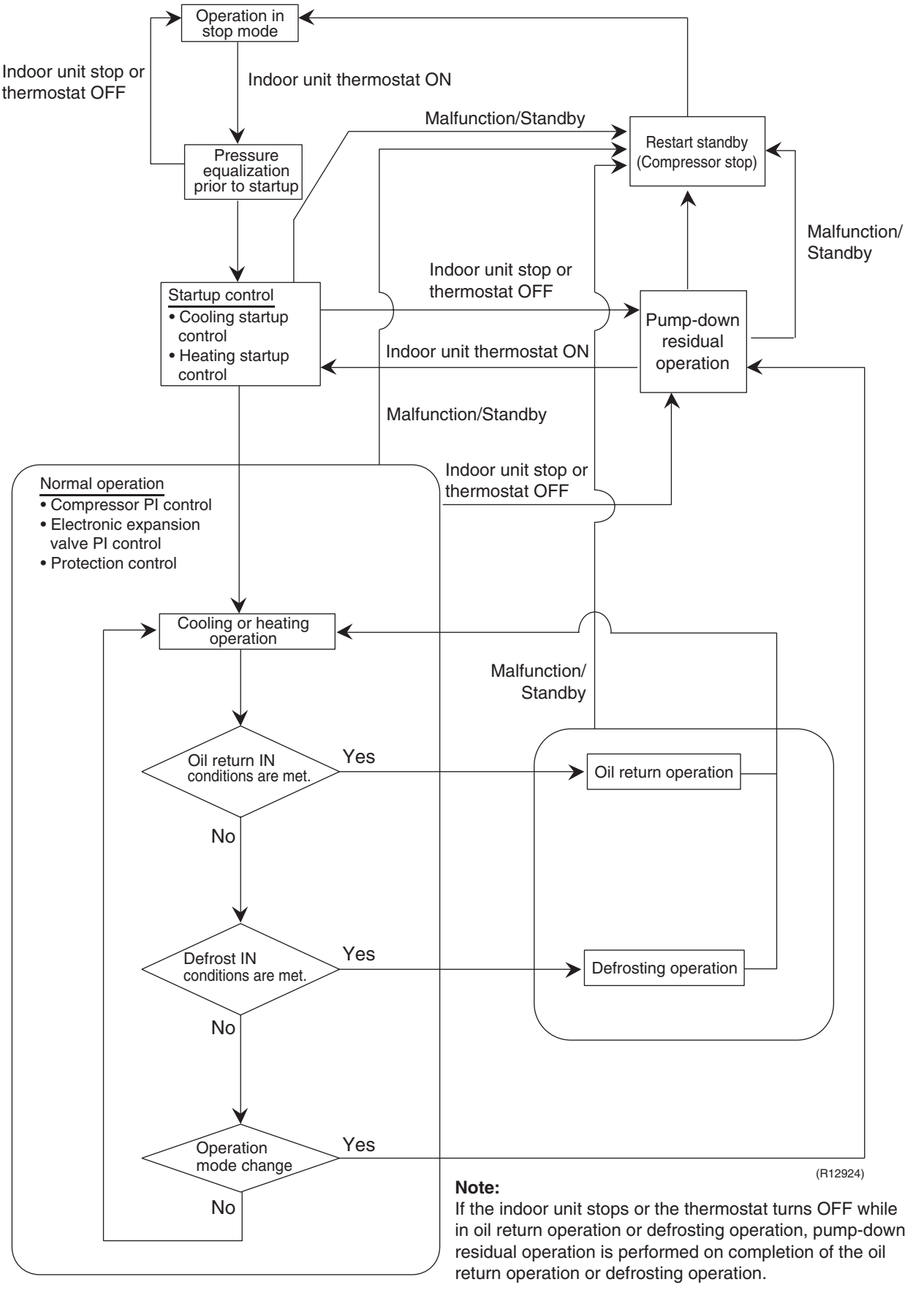
1. Operation Mode



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

2. Basic Control

2.1 Normal Operation

Cooling Operation

Actuator	Operation	Remarks
Compressor	Compressor PI control	Used for high pressure protection control, low pressure protection control, discharge pipe temperature protection control, and compressor operating frequency upper limit control with inverter protection control.
Outdoor fan	Cooling fan control	—
Four way valve (Y1S)	OFF	—
Main electronic expansion valve (Y1E)	480 pulse	—
Subcooling electronic expansion valve (Y3E)	PI control	—
Hot gas bypass solenoid valve (Y2S)	OFF	This valve turns on with low pressure protection control.

Heating Operation

Actuator	Operation	Remarks
Compressor	Compressor PI control	Used for high pressure protection control, low pressure protection control, discharge pipe temperature protection control, and compressor operating frequency upper limit control with inverter protection control.
Outdoor fan	STEP 7 or 8	—
Four way valve (Y1S)	ON	—
Main electronic expansion valve (Y1E)	PI control	—
Subcooling electronic expansion valve (Y3E)	PI control	—
Hot gas bypass solenoid valve (Y2S)	OFF	This valve turns on with low pressure protection control.

★Heating operation does not start when the outdoor temperature is above 24°CDB (75.2°FDB).

2.2 Compressor PI Control

The PI control of the compressor capacity is carried out to keep Te constant during cooling operation and Tc constant during heating operation to ensure stable unit performance.

Cooling operation

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

Te setting (Set in setting mode 2)

L	M (Normal) : factory setting	H
3°C (37.4°F)	6°C (42.8°F)	9°C (48.2°F)

Te: Low pressure equivalent saturation temperature
TeS: Target Te value
(Varies depending on Te setting, operating frequency, etc.)

Heating operation

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

Tc setting (Set in setting mode 2)

L	M (Normal) : factory setting	H
43°C (109.4°F)	46°C (114.8°F)	49°C (120.2°F)

Tc: High pressure equivalent saturation temperature
TcS: Target Tc value
(Varies depending on Tc setting, operating frequency, etc.)

Step	Full-load	Unload
1		36.0 Hz
2		39.0 Hz
3		43.0 Hz
4		47.0 Hz
5		52.0 Hz
6	52.0 Hz	57.0 Hz
7	57.0 Hz	64.0 Hz
8	62.0 Hz	71.0 Hz
9	68.0 Hz	78.0 Hz
10	74.0 Hz	
11	80.0 Hz	
12	86.0 Hz	
13	92.0 Hz	
14	98.0 Hz	
15	104.0 Hz	

Step	Full-load	Unload
16	110.0 Hz	
17	116.0 Hz	
18	122.0 Hz	
19	128.0 Hz	
20	134.0 Hz	
21	140.0 Hz	
22	146.0 Hz	
23	152.0 Hz	
24	158.0 Hz	
25	164.0 Hz	
26	170.0 Hz	
27	175.0 Hz	
28	180.0 Hz	
29	185.0 Hz	
30	190.0 Hz	
31	195.0 Hz	

∗ Compressors may operate in a pattern other than those listed in the above tables subject to the operating conditions. Selection of full load operation to/from unload operation is made with the unload circuit solenoid valve (Y3S). The full load operation is performed with the Y3S set to OFF, while the unload operation is performed with the Y3S set to ON.

2.3 Electronic Expansion Valve PI Control

Main Electronic Expansion Valve

The PI control of the main electronic expansion valve (Y1E) is carried out to keep the evaporator outlet superheated degree (SH) constant during heating operation in order to make maximum use of the outdoor unit heat exchanger (evaporator).

SH = Ts1 – Te

SH: Evaporator outlet superheated degree

Ts1: Suction pipe temperature detected by thermistor R3T

Te: Low pressure equivalent saturation temperature

The optimum initial value of the evaporator outlet superheated degree is 3°C (5.4°F), but varies depending on the discharge pipe superheated degree of the inverter compressor.

Subcooling Electronic Expansion Valve

The PI control of the subcooling electronic expansion valve (Y3E) is carried out to keep the evaporator outlet superheated degree (SH) of the gas pipe in order to make maximum use of the subcooling heat exchanger.

SH = Tsh – Te

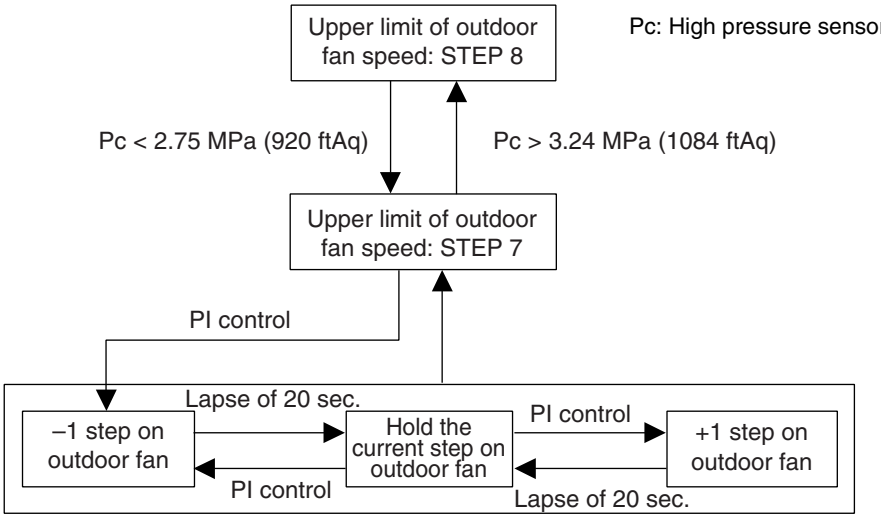
SH: Evaporator outlet superheated degree

Tsh: Subcooling heat exchanger gas pipe temperature detected by thermistor R6T

Te: Low pressure equivalent saturation temperature

2.4 Cooling Operation Fan Control

In cooling operation with low outdoor temperature, cooling operation fan control provides the adequate amount of circulating air with liquid pressure secured by high pressure control using the outdoor fan.
When the outdoor temperature is ≥ 20°C (68°F), the fan operates in STEP 7 or higher.
When the outdoor temperature is ≥ 18°C (64.4°F), it operates in STEP 5 or higher.
When the outdoor temperature is ≥ 12°C (53.6°F), it operates in STEP 1 or higher.



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Fan Steps

Cooling	M1F	M2F
STEP 0	0 rpm	0 rpm
STEP 1	250 rpm	0 rpm
STEP 2	400 rpm	0 rpm
STEP 3	285 rpm	250 rpm
STEP 4	360 rpm	325 rpm
STEP 5	445 rpm	410 rpm
STEP 6	580 rpm	545 rpm
STEP 7	715 rpm	680 rpm
STEP 8	850 rpm	815 rpm

3. Special Control

3.1 Startup Control

Startup control equalizes the pressure in the front and back of the compressor before 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 oil return operation, etc. after startup, the following control is made and the position of the four way valve is also determined. To position the four way valve, the master and slave units simultaneously start up.

3.1.1 Startup Control in Cooling Operation

Thermostat ON

	Pressure equalization control before startup	Startup control	
		STEP 1	STEP 2
Compressor	0 Hz	57 Hz Unload	57 Hz Unload +2 steps / 20 sec. (until Pc – Pe > 0.39 MPa (130 ftAq))
Outdoor fan	STEP 7	Ta < 20°C: OFF (68°F) Ta ≥ 20°C: STEP 4 (68°F)	+1 step / 15 sec. (when Pc > 2.16 MPa (723 ftAq)) –1 step / 15 sec. (when Pc < 1.77 MPa (592 ftAq))
Four way valve (Y1S)	Holds	OFF	OFF
Main electronic expansion valve (Y1E)	0 pulse	480 pulse	480 pulse
Subcooling electronic expansion valve (Y3E)	0 pulse	0 pulse	0 pulse
Hot gas bypass solenoid valve (Y2S)	OFF	OFF	OFF
Ending conditions	or • Pc – Pe < 0.3 MPa (100 ftAq) • A lapse of 1 to 5 min.	A lapse of 10 sec.	or • A lapse of 130 sec. • Pc – Pe > 0.39 MPa (130 ftAq)

3.1.2 Startup Control in Heating Operation

Thermostat ON

	Pressure equalization control before startup	Startup control	
		STEP 1	STEP 2
Compressor	0 Hz	57 Hz Unload	57 Hz Unload +2 steps / 20 sec. (until Pc – Pe > 0.39 MPa (130 ftAq))
Outdoor fan	From starting ~ 1 min. : STEP 7 1 ~ 3 min. : STEP 3 3 ~ 5 min. : OFF	STEP 8	STEP 8
Four way valve (Y1S)	Holds	ON	ON
Main electronic expansion valve (Y1E)	0 pulse	0 pulse	0 pulse
Subcooling electronic expansion valve (Y3E)	0 pulse	0 pulse	0 pulse
Hot gas bypass solenoid valve (Y2S)	OFF	OFF	OFF
Ending conditions	or • Pc – Pe < 0.3 MPa (100 ftAq) • A lapse of 1 to 5 min.	A lapse of 10 sec.	or • A lapse of 130 sec. • Pc > 2.70 MPa (903 ftAq) • Pc – Pe > 0.39 MPa (130 ftAq)

3.2 Oil Return Operation

In order to prevent the compressor from running out of oil, the oil return operation is conducted to recover oil flown out from the compressor to the system side.

3.2.1 Oil Return Operation in Cooling Operation

Conditions to start

Oil return operation in cooling operation is started referring to the following conditions:

- Cumulative oil feed rate
- Timer setting (Make this setting so as to start the oil return operation when the initial cumulative operating time reaches 2 hours after power supply is turned ON and then every 8 hours.)

The cumulative oil feed rate is computed from Tc, Te, and compressor loads.

Outdoor unit actuator	Oil return preparation operation	Oil return operation	Post-oil-return operation
Compressor	Take the current step as the upper limit.	52 Hz Full load (→ Low pressure constant control)	Same as in oil return operation mode.
Outdoor fan	Fan control (Normal cooling)	Fan control (Normal cooling)	Fan control (Normal cooling)
Four way valve (Y1S)	OFF	OFF	OFF
Main electronic expansion valve (Y1E)	480 pulse	480 pulse	480 pulse
Subcooling electronic expansion valve (Y3E)	SH control	0 pulse	0 pulse
Hot gas bypass solenoid valve (Y2S)	OFF	OFF	OFF
Ending conditions	20 sec.	or • 3 min. • Ts1 – Te < 5°C (9°F)	or • 3 min. • Pe < 0.6 MPa (201 ftAq) • HTdi > 110°C (230°F)

Indoor unit actuator		Cooling oil return operation
Indoor fan	Thermostat ON unit	Remote controller setting
	Stopping unit	OFF
	Thermostat OFF unit	Remote controller setting
Electronic expansion valve of BP unit	Thermostat ON unit	SH control
	Stopping unit	77 pulse
	Thermostat OFF unit	SH control

3.2.2 Oil Return Operation in Heating Operation

Conditions to start

Oil return operation in heating operation is started referring to the following conditions:

- Integrated amount of displaced oil
- Timer setting (Make this setting so as to start the oil return operation when the initial cumulative operating time reaches 2 hours after power supply is turned ON and then every 8 hours.)

The integrated amount of displaced oil is derived from Tc, Te, and the compressor load.

Outdoor unit actuator	Oil return preparation operation	Oil return operation	Post-oil-return operation
Compressor	Upper limit control	140 Hz Full load	36 Hz Unload +2 steps / 20 sec. (until Pc - Pe > 0.4 MPa (134 ftAq))
Outdoor fan	STEP 8	OFF	STEP 8
Four way valve (Y1S)	ON	OFF	ON
Main electronic expansion valve (Y1E)	SH control	480 pulse	55 pulse
Subcooling electronic expansion valve (Y3E)	0 pulse	0 pulse	0 pulse
Hot gas bypass solenoid valve (Y2S)	OFF	OFF	OFF
Ending conditions	2 min.	or [• 12 min. / & (• Ts1 – Te < 5°C (9°F) / • Tb > 11°C (51.8°F))]	or [• 160 sec. / • Pc – Pe > 0.4 MPa (134 ftAq)]

∗ From the preparation to the oil return operation, and from the oil return operation to the post-oil-return operation, the compressor stops for 1 minute to reduce noise on changing of the four way valve.

Indoor unit actuator		Heating oil return operation
Indoor fan	Thermostat ON unit	OFF
	Stopping unit	OFF
	Thermostat OFF unit	OFF
Electronic expansion valve of BP unit	Thermostat ON unit	SH control
	Stopping unit	80 pulse
	Thermostat OFF unit	SH control

3.3 Defrosting Operation

The defrosting operation is performed to solve frost on the outdoor unit heat exchanger when heating, in order to recover heating capacity.

Conditions to start

The defrosting operation is started referring to the following conditions:

- Outdoor heat exchanger heat transfer co-efficiency
- Outdoor heat exchanger temperature (Tb)
- Timer (2 hours at the minimum)

Outdoor heat-exchange co-efficiency is derived from Tc, Te, and the compressor load.

Outdoor unit actuator	Defrost preparation operation	Defrost operation	Post defrost operation
Compressor	Upper limit control	140 Hz Full load	36 Hz Unload +2 steps / 20 sec. (until Pc - Pe > 0.4 MPa (134 ftAq))
Outdoor fan	STEP 8	OFF	STEP 8
Four way valve (Y1S)	ON	OFF	ON
Main electronic expansion valve (Y1E)	SH control	480 pulse	55 pulse
Subcooling electronic expansion valve (Y3E)	0 pulse	0 pulse	0 pulse
Hot gas bypass solenoid valve (Y2S)	OFF	ON	ON
Ending conditions	2 min.	or [• 15 min. / & {• Tb > 11°C (51.8°F) / • Ts1 – Te < 5°C (9°F)}]	or [• 160 sec. / • Pc – Pe > 0.4 MPa (134 ftAq)]

∗ From the preparation to the defrost operation, and from the defrost operation to the post defrost operation, the compressor stops for 1 minute to reduce noise on changing of the four way valve.

Indoor unit actuator		Operation
Indoor fan	Thermostat ON unit	OFF
	Stopping unit	OFF
	Thermostat OFF unit	OFF
Electronic expansion valve of BP unit	Thermostat ON unit	SH control
	Stopping unit	80 pulse
	Thermostat OFF unit	SH control

3.4 Pump-down Residual Operation

Outline

When activating the compressor, if there is liquid refrigerant remaining in the heat exchanger, the liquid refrigerant enters into the compressor and dilutes the oil inside resulting in a decrease of lubricity. Therefore, the pump-down residual operation is performed to collect the refrigerant in the heat exchanger when the compressor is down.

3.4.1 Pump-down Residual Operation in Cooling Operation

Actuator	Pump-down residual operation	
	Step 1	Step 2
Compressor	124 Hz Full load	52 Hz Full load
Outdoor fan	Fan control	Fan control
Four way valve (Y1S)	OFF	OFF
Main electronic expansion valve (Y1E)	480 pulse	240 pulse
Subcooling electronic expansion valve (Y3E)	0 pulse	0 pulse
Hot gas bypass solenoid valve (Y2S)	OFF	OFF
Ending conditions	2 sec.	2 sec.

3.4.2 Pump-down Residual Operation in Heating Operation

Actuator	Pump-down residual operation
Compressor	124 Hz Full load
Outdoor fan	STEP 7
Four way valve (Y1S)	ON
Main electronic expansion valve (Y1E)	0 pulse
Subcooling electronic expansion valve (Y3E)	0 pulse
Hot gas bypass solenoid valve (Y2S)	OFF
Ending conditions	4 sec.

3.5 Restart Standby

Restart is prohibited to prevent frequent ON/OFF and to equalize pressure in the refrigerant system.

Actuator	Operation
Compressor	OFF
Outdoor fan	Ta > 30°C (86°F): STEP 4 Ta ≤ 30°C (86°F): OFF
Four way valve (Y1S)	Former condition remains.
Main electronic expansion valve (Y1E)	0 pulse
Subcooling electronic expansion valve (Y3E)	0 pulse
Hot gas bypass solenoid valve (Y2S)	OFF
Ending conditions	2 min.

3.6 Stopping Operation

Operation of the actuator is cleared up when the system is down.

Actuator	Operation
Compressor	OFF
Outdoor fan	OFF
Four way valve (Y1S)	Former condition remains.
Main electronic expansion valve (Y1E)	0 pulse
Subcooling electronic expansion valve (Y3E)	0 pulse
Hot gas bypass solenoid valve (Y2S)	OFF
Ending conditions	Indoor unit thermostat is turned ON.

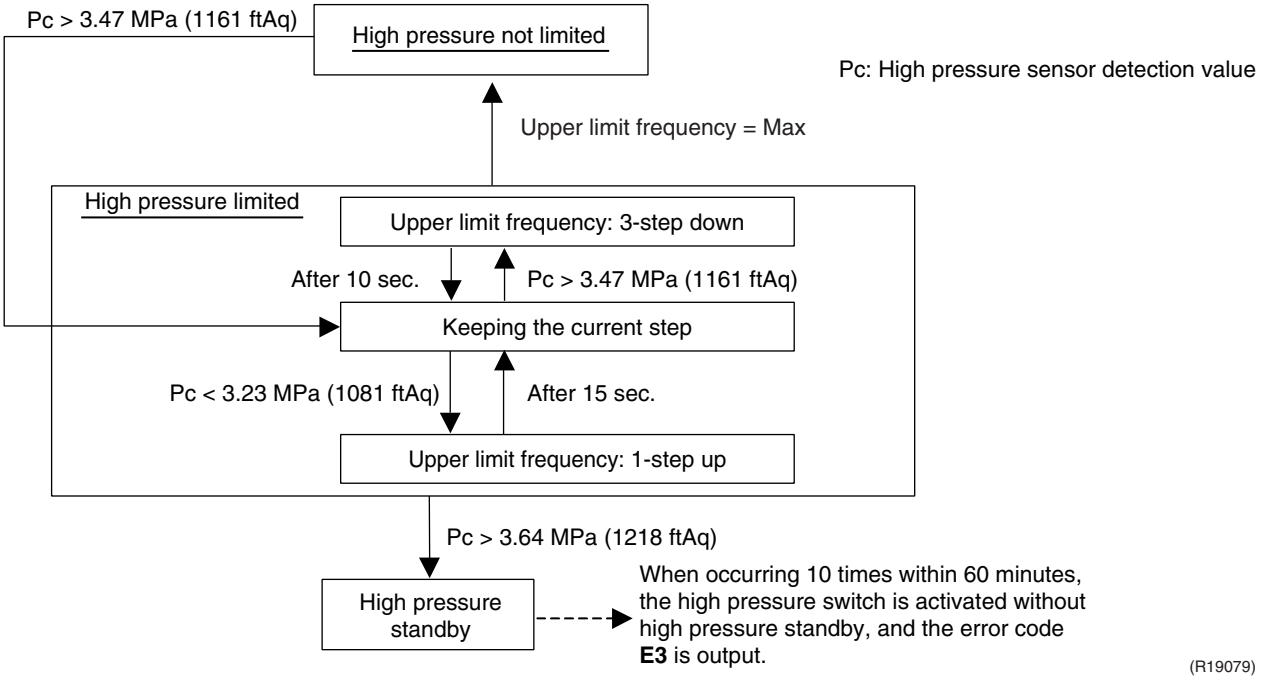
4. Protection Control

4.1 High Pressure Protection Control

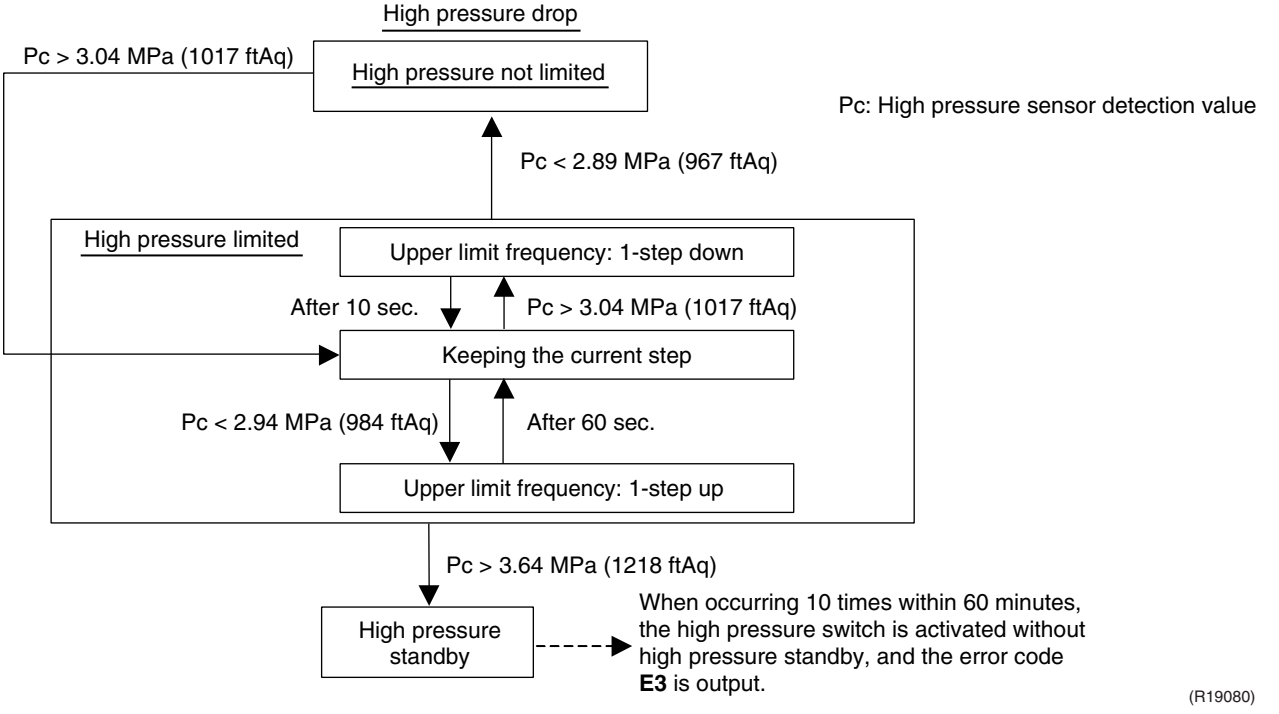
Outline

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

Cooling Operation



Heating Operation

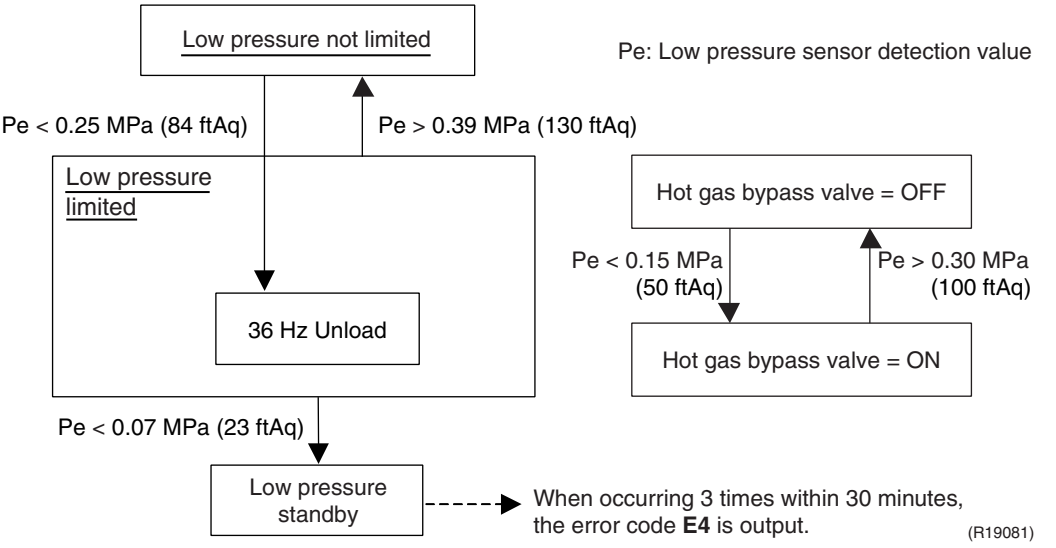


4.2 Low Pressure Protection Control

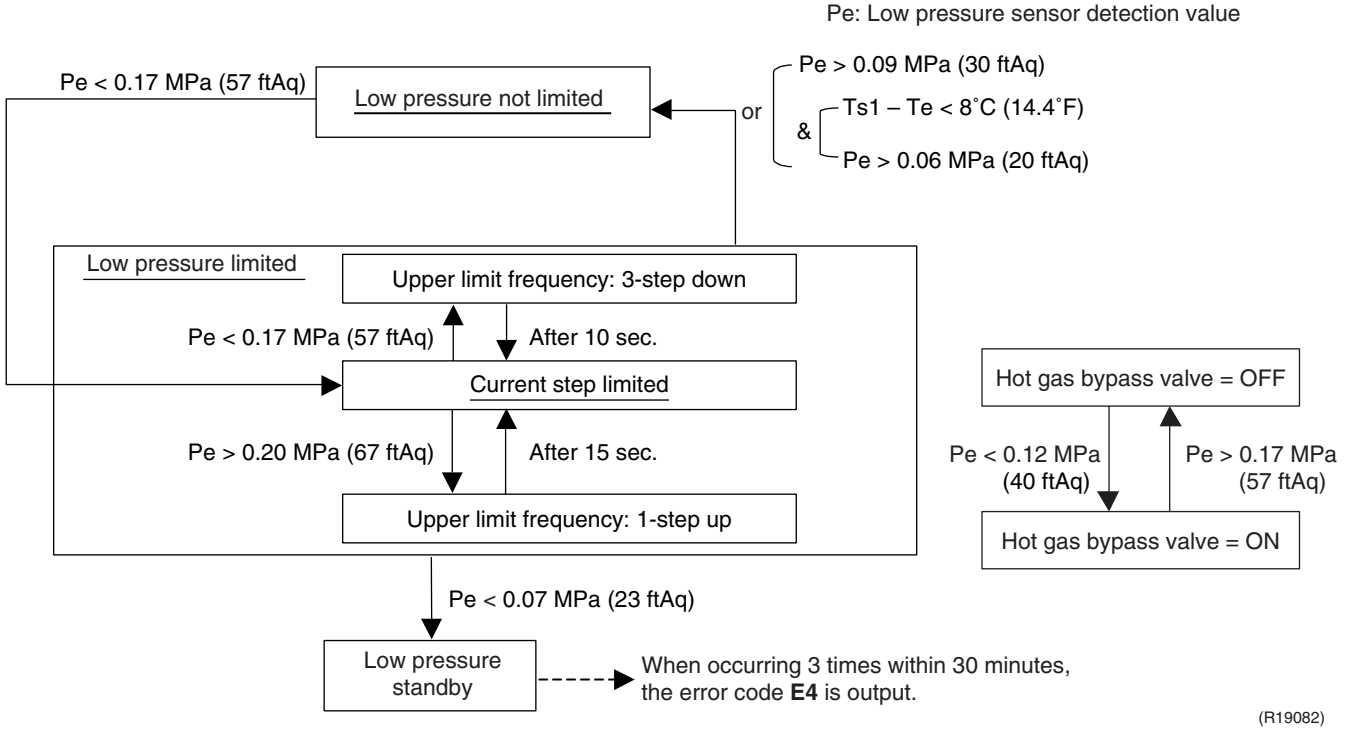
Outline

Low pressure protection control is used to protect compressors against the temporary decrease of low pressure.

Cooling Operation



Heating Operation

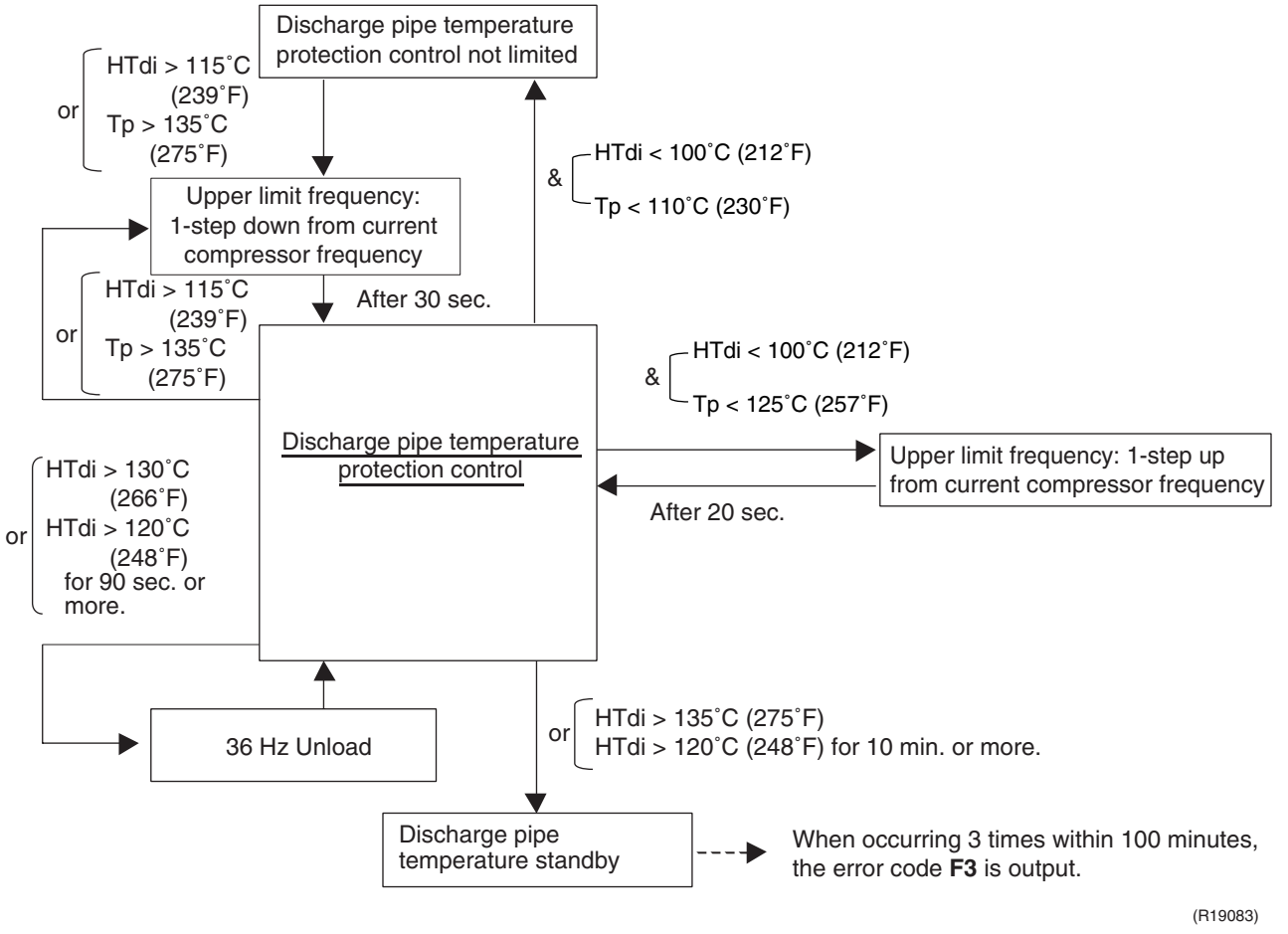


4.3 Discharge Pipe Temperature Protection Control

Outline

Discharge pipe temperature protection control protects the compressor internal temperature against a malfunction or temporary increase of discharge pipe temperature.

Compressor



HTdi : Value of discharge pipe temperature (Tdi) compensated with outdoor temperature

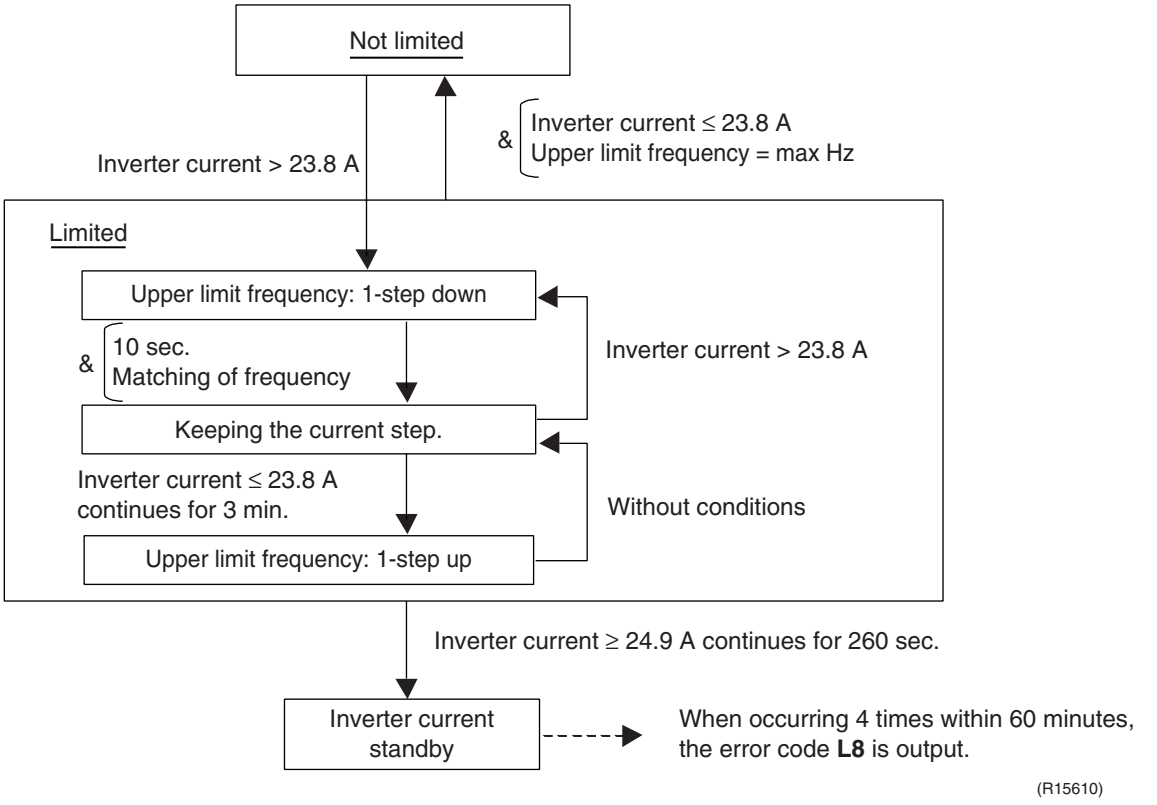
Tp : Value of compressor port temperature calculated by Tc and Te, and suction superheated degree.

4.4 Inverter Protection Control

Outline

Inverter overcurrent protection control and inverter fin temperature control are performed to prevent tripping due to a malfunction, temporary inverter overcurrent, or radiation fin temperature increase.

Inverter overcurrent protection control



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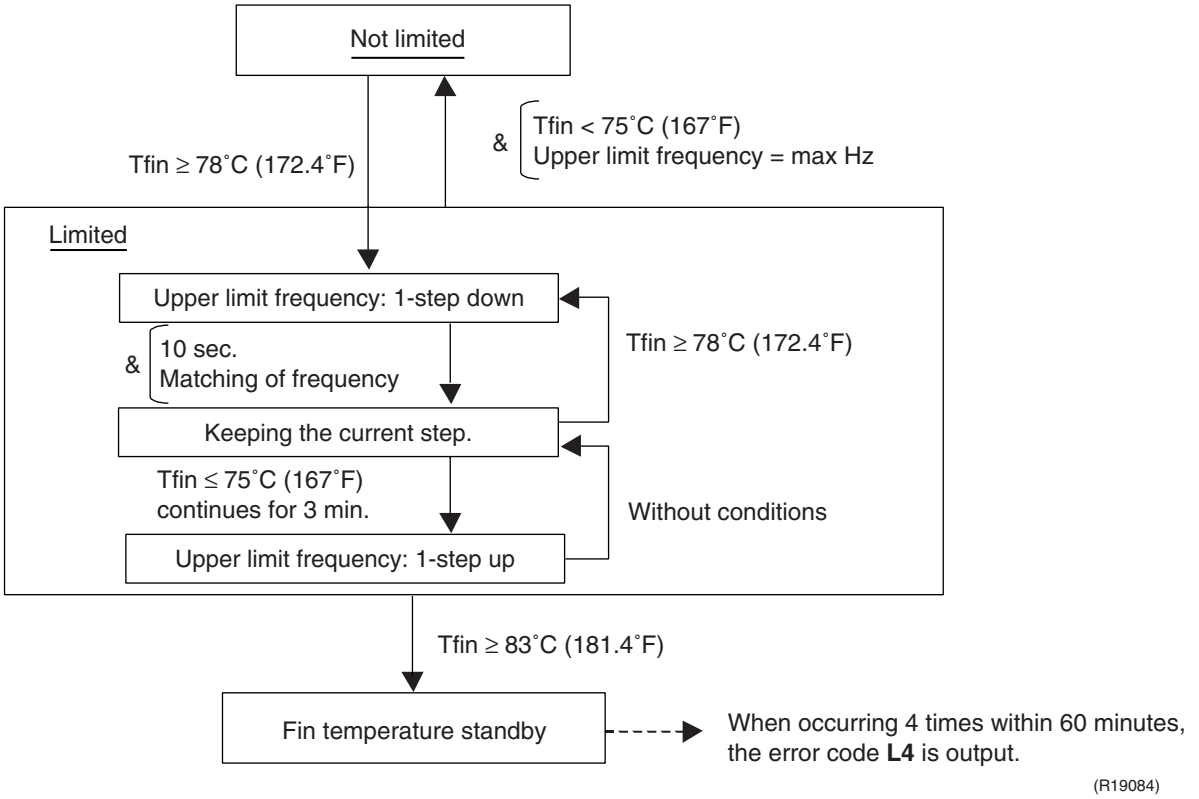
Inverter fin temperature control



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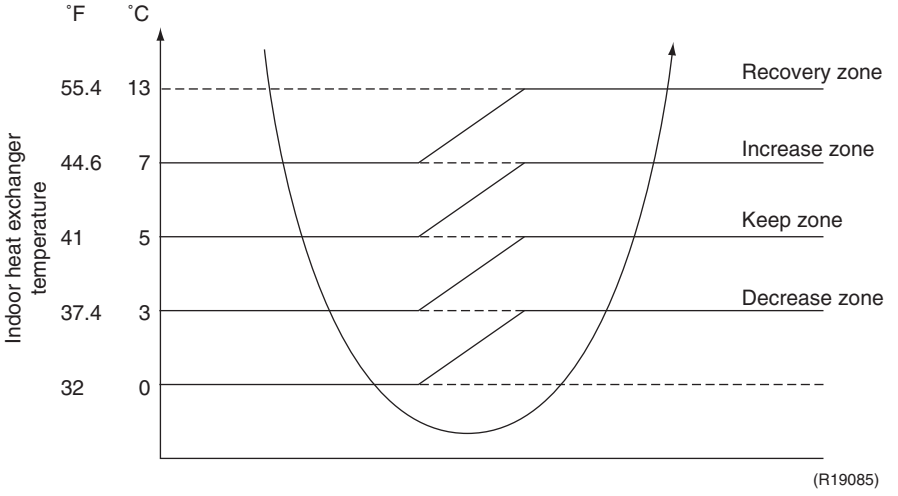
4.5 Freeze-up Protection Control

Outline

According to the freeze prevention status sent from the BP unit, the compressor output frequency is regulated to decrease compressor capacity in order to prevent the indoor heat exchanger from freezing.

Details

Zones are divided based on the freeze prevention status signal sent from the BP unit (indoor unit), and the freeze prevention control prevents freezing of the indoor unit.



Recovery zone: Lift the control
Increase zone: 1 step up / 60 sec.
Keep zone: Frequency is not controlled
Decrease zone: 1 step down / 60 sec.
Stop zone: Thermostat-OFF (only the target indoor unit)

The temperature in the above figure depends on the model (reference value).

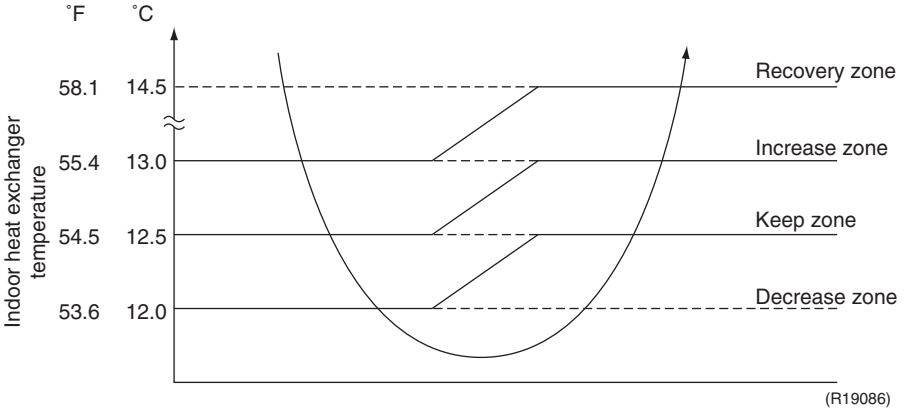
4.6 Dew Condensation Prevention Control

Outline

According to the dew condensation prevention status sent from the BP unit, the compressor output frequency is regulated to decrease compressor capacity in order to prevent the indoor unit from dew condensation.

Details

Zones are divided based on the dew condensation prevention status signal sent from the BP unit (indoor unit), and the dew condensation prevention control prevents dew condensation of the indoor unit.



Recovery zone: Lift the control
Increase zone: 1 step up / 60 sec.
Keep zone: Frequency is not controlled
Decrease zone: 1 step down / 60 sec.

The temperature in the above figure depends on the model and actual room temperature (reference value).

5. Other Control

5.1 Demand Control

In order to lower power consumption, the capacity of the outdoor unit is forcibly lowered using the Demand 1 Setting.
To operate the unit with this mode, additional setting of Constant Demand Setting is necessary.

Demand 1 setting

Setting	Standard for upper limit of power consumption
Demand 1 setting 1	Approximately 60%
Demand 1 setting 2 (factory setting)	Approximately 70%
Demand 1 setting 3	Approximately 80%

★ Other protection control functions have precedence over the above operation.

5.2 Heating Operation Prohibition Control

Heating operation is prohibited when the outdoor temperature is above 24°CDB (75.2°FDB).

6. Branch Provider (BP) Unit Control

6.1 Branch Provider (BP) Unit Command Conversion

1. ΔD (room thermistor temperature − target temperature) signals from BP units are converted to a capacity up/down signal.

ΔD signals from BP units are used as the capacity up/down signal in frequency commands (excludes during POWERFUL operation).

ΔD Signal	Capacity up/down signal
0	Thermostat OFF
1	Down
2	
3	Keep
4	
5	Up
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

2. Processing during POWERFUL operation

(1) When POWERFUL command is received from one or more indoor units

(2) Thermostats are not OFF at the indoor units from which POWERFUL commands are issued

When the above conditions are met, the POWERFUL operation is activated, and the POWERFUL operation signal is sent to the outdoor unit.

6.2 Branch Provider (BP) Unit Electronic Expansion Valve Control

This function provides instructions regarding the absolute flow rate, relative flow rate and fully closing from the outdoor unit to the BP unit in order to ensure outdoor unit compressor safety and optimum refrigerating cycle of the system.
With the transmission a permit/prohibit flag for each distribution control in the BP unit, the distribution control startup timing is controlled by the outdoor unit.

6.2.1 Electronic Expansion Valve Initial Opening Setting

Outline

This function improves stability of the system to set initial opening of the electronic expansion valve at starting operation.
When the EV opening command from outdoor unit is lifted, the following opening setting is performed.

Details

Cooling Operation

Tr: room thermistor temperature
Ta: outdoor temperature

$$\text{Target opening (pulse)} = \frac{5}{2} \times (Tr\ (^{\circ}C) - 14) + \mathbf{A} - \mathbf{B} \times (Ta\ (^{\circ}C) - Tr\ (^{\circ}C))$$

$$= \frac{25}{18} \times (Tr\ (^{\circ}F) - \frac{286}{5}) + \mathbf{A} - \mathbf{B} \times \frac{5}{9} \times (Ta\ (^{\circ}F) - Tr\ (^{\circ}F))$$

	A
07 ~ 12 class	140
15 ~ 18 class	156
24 class	170

	B
Ta ≤ Tr	0
Tr < Ta	2.5

Heating Operation

Target opening = 350 pulse

6.2.2 Electronic Expansion Valve Flow Rate Restriction

Outline

This function prevents deviation from the specified electronic expansion valve range by restricting the electronic expansion valve flow rates of the operating and non-operating indoor units during compressor operation. It also prevents the generation of abnormal noise such as refrigerant flowing sound by restricting the circulation of refrigerant according to the operating conditions (unit ON/OFF) of indoor units.

Details

Restriction of electronic expansion valve opening degrees of operating indoor units;
... Restriction of maximum and minimum flow rates based on constant
Restriction of electronic expansion valve opening degrees of non-heating indoor units;
... Restriction of minimum flow rate based on constant
... Maximum flow rate determined based on flow rates of operating indoor units

6.2.3 Full Closing of Electronic Expansion Valves

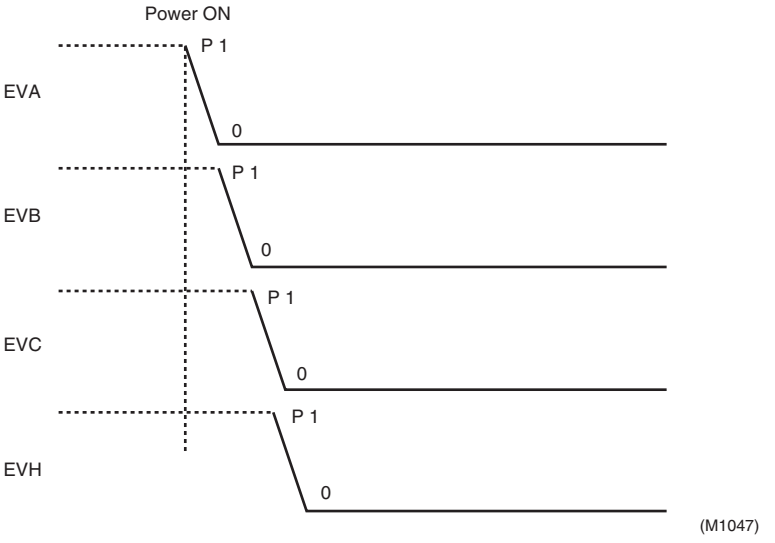
Outline

The electronic expansion valves are initialized when the power is turned on.

Details

The following processes are conducted.

1. Conducts P1 pulses close when power is turned on, and sets current opening to 0 pulse (fully closing process).
2. Sends electronic expansion valve initialization signal to outdoor unit.
3. Closes the electronic expansion valve of each chamber (sets the electronic expansion valve pulse to 0).
4. Stops transmission of electronic expansion valve initialization signal when EVH (bypass electronic expansion valve) retightening is completed.



6.2.4 Control Based on EV Opening Command from Outdoor Unit

Outline

This function operates the electronic expansion valve based on EV opening command sent from the outdoor unit.

Details

The electronic expansion valve operation based on EV opening command provides the following functions.

1) Pressure equalization prior to startup
2) Startup control
3) Restart standby
4) Pump-down residual operation
5) Oil return operation
6) Defrosting operation

6.3 SH Control in Cooling Operation

Outline

This function ensures appropriate refrigerant distribution when many indoor units are operating in cooling operation.

Details

The heat exchanger temperatures and gas pipe temperatures of operating indoor units are detected by the gas pipe thermistors, and the flow rates of the electronic expansion valve are corrected so as to adjust the difference between the heat exchanger temperature and gas pipe temperature of each indoor unit (hereafter referred to as SH) close to the target values.

When SH is higher than target value → Opens the valve of that indoor unit
When SH is lower than target value → Closes the valve of that indoor unit

When the liquid pipe temperature is lower than the heat exchanger temperature, the electronic expansion valve is opened more than normal opening.
(Protection function to prevent rotor dew condensation)

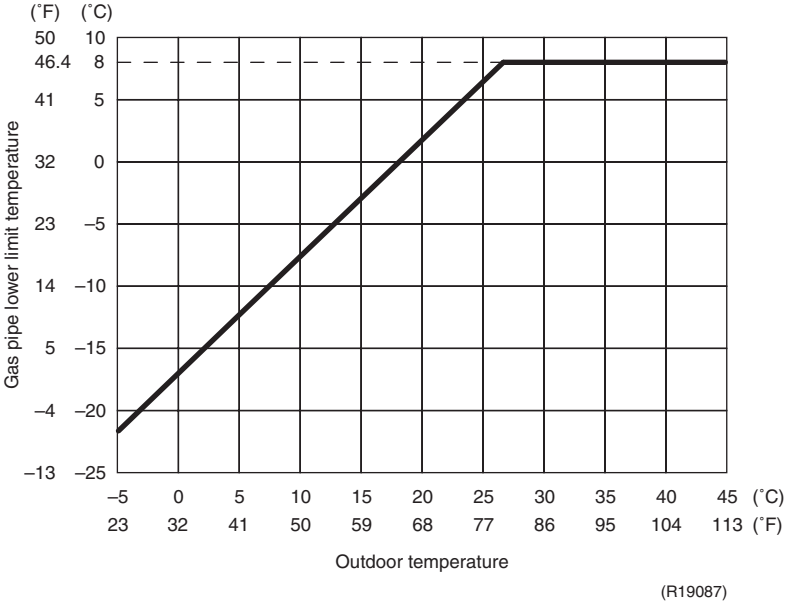
The gas pipe temperature and indoor heat exchanger temperature are detected with a sampling time of 40 seconds for the cooling SH control.

In order to prevent dew condensation in the connection pipe, the gas pipe lower-limit temperature is set as follows.

$$\text{Gas pipe lower limit temperature (˚C)} = \frac{240}{256} \times \text{outdoor temperature (˚C)} - 17$$

$$\text{(Gas pipe lower limit temperature (˚F)} = \frac{240}{256} \times \text{outdoor temperature (˚F)} - 28.6)$$

Gas pipe lower limit temperature ≤ 8˚C (46.4˚F)



Notes:

1. In SkyAir models, the indoor units are equipped with distribution capillary tubes; as a result, the heat exchangers may superheat even when the condition is met.
2. In SkyAir models, the heat exchanger intermediate position is provided on the liquid connection pipe side; as a result, superheated condition is difficult to detect.

6.4 SC Control in Heating Operation

Outline

This function ensures appropriate refrigerant distribution when many indoor units are operating in heating operation.

Details

The heat exchanger temperatures and liquid pipe temperatures of operating indoor units are detected by the liquid pipe thermistors, and the flow rates of the electronic expansion valve are corrected so as to adjust the difference between the heat exchanger temperature and liquid pipe temperature of each indoor unit (hereafter referred to as SC) close to the target values.

When SC is higher than target value → Opens the valve of that indoor unit
When SC is lower than target value → Closes the valve of that indoor unit

The liquid pipe temperature and indoor heat exchanger temperature are detected with a sampling time of 20 seconds for the heating SC control.

6.5 Heat Exchanger Isothermal Control in Heating Operation

Outline

This function ensures appropriate refrigerant distribution when indoor units are operating in heating operation.
It prevents abnormal increase of the high pressure and operation with gas shortage due to uneven refrigerant distribution (Protection function).

Details

The indoor heat exchanger thermistors (of all connected indoor units to the same BP unit including non-operating indoor units) in heating operation are detected. Then, the highest heat exchanger temperature is compared with the heat exchanger temperature of each indoor unit. If the temperature difference exceeds the predetermined value, it is judged that the indoor heat exchanger thermistor position is in subcooled zone, and the electronic expansion valves of indoor units with the temperature difference exceeding the predetermined level are opened to return to the saturation zone.
Since this is a protection function, it is effective for all connected indoor units in heating operation excluding those in defrosting operation. This function is inactive in indoor units with transmission problems.

The heat exchanger temperature is detected with a sampling time of 20 seconds of the heat exchanger isothermal control, and maximum value of each heat exchanger temperature is obtained.

If the temperature difference between the heat exchanger temperature and maximum heat exchanger temperature value exceeds 8°C (14.4°F), it is judged that the heat exchanger intermediate is in the subcooled zone, and the electronic expansion valve is opened.

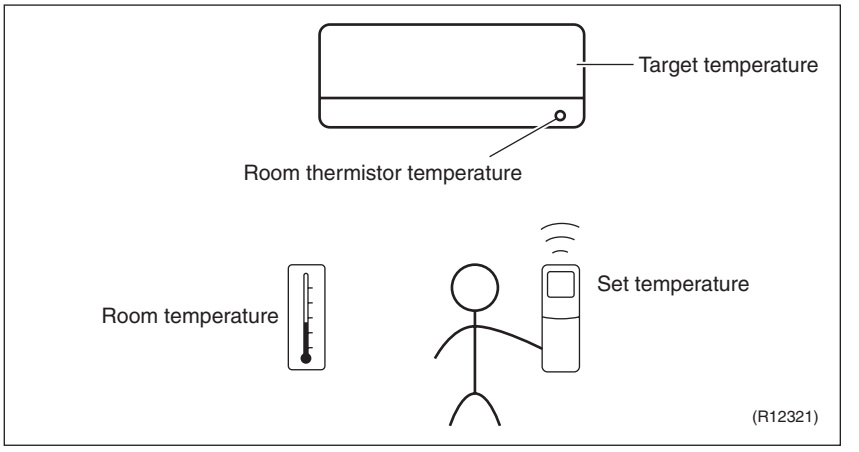
7. CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series Functions

7.1 Temperature Control

Definitions of Temperatures

The definitions of temperatures are classified as following.

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



★ The illustration is for CTXS, FTXS series as representative.

Temperature Control

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

7.2 Airflow Direction Control

Applicable Models

CTXG09/12/18QVJUW(S)
CTXS07JVJU
CTXS09/12HVJU
CTXS07LVJU
FTXS09/12/15/18/24LVJU
FVXS09/12/15/18NVJU

Power-Airflow (Dual) Flap(s)

The large flap sends a large volume of air downward to the floor and provides an optimum control in cooling, dry, and heating operation.

Cooling/Dry

During cooling or dry operation, the flap retracts into the indoor unit. Then, cool air can be blown far and distributed all over the room.

Heating

During heating operation, the large flap directs airflow downward to spread the warm air to the entire room.

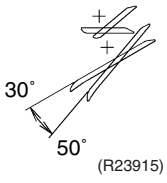
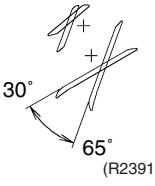
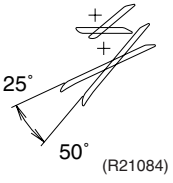
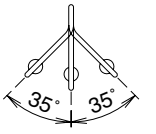
Wide-Angle Louvers

The louvers, made of elastic synthetic resin, provide a wide range of airflow that guarantees comfortable air distribution.

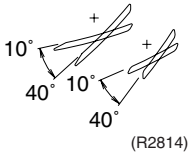
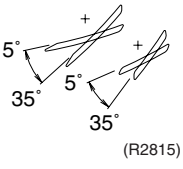
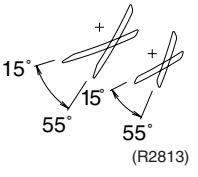
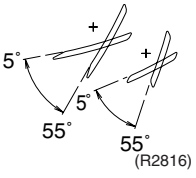
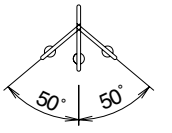
Auto-Swing

The following tables explain the auto-swing process for cooling, dry, heating and fan:

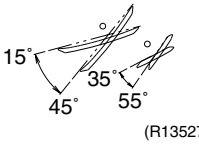
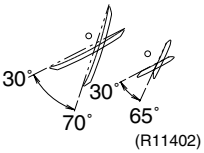
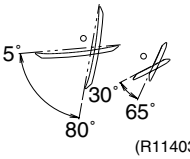
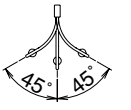
CTXG Series

Flap (up and down)			Louver (right and left)
Cooling/Dry	Heating	Fan	
 (R23915)	 (R23916)	 (R21084)	 (R21085)

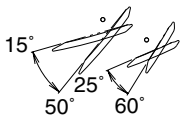
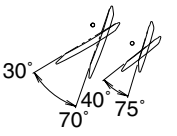
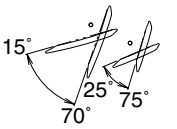
CTXS07JVJU, CTXS09/12HVJU

Flap (up and down)				Louver (right and left)
Cooling	Dry	Heating	Fan	
 (R2814)	 (R2815)	 (R2813)	 (R2816)	 (R2817)

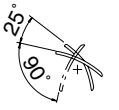
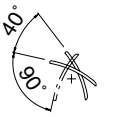
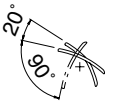
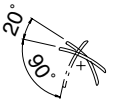
CTXS07LVJU, FTXS09/12LVJU

Flap (up and down)			Louver (right and left)
Cooling/Dry	Heating	Fan	
 (R13527)	 (R11402)	 (R11403)	 (R11404)

FTXS15/18/24LVJU

Flap (up and down)			Louver (right and left)
Cooling/Dry	Heating	Fan	
 (R9303)	 (R9304)	 (R9305)	 (R9306)

FVXS Series

	Flap (up and down)	
	Cooling/Dry	Heating
Upward airflow limit OFF	 (R6831)	 (R6829)
Upward airflow limit ON	 (R6832)	 (R6830)

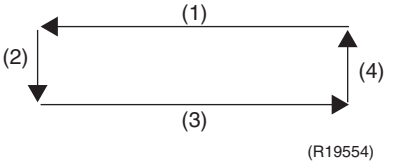
3-D Airflow

CTXG, CTXS, FTXS Series

Alternative repetition of vertical and horizontal swing motions enables uniform air-conditioning of the entire room.

When the horizontal swing and vertical swing are both set to automatic operation, the airflow becomes 3-D airflow. The horizontal and vertical swing motions are alternated and the airflow direction changes in the order shown in the following diagram.

(1) The louvers move from the right to the left.
(2) The flaps move downward.
(3) The louvers move from the left to the right.
(4) The flaps move upward.



(R19554)

COMFORT AIRFLOW Operation

CTXG, CTXS-L, FTXS-L Series

The horizontal blades (louvers) are controlled not to blow the air directly at the people in the room.

The airflow will be in the upward direction while in cooling operation and in the downward direction while in heating operation, which will provide a comfortable wind that will not come in direct contact with people.

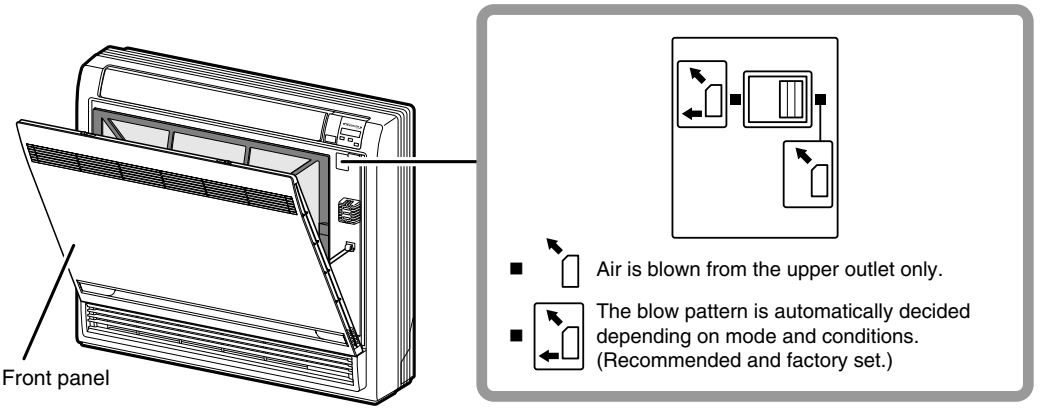
Airflow Selection Setting

FVXS Series

Airflow direction can be set with the airflow selection switch.

Open the front panel

- Open the front panel.

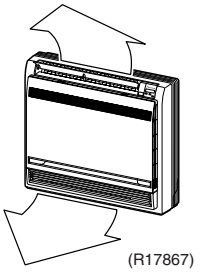


(R17866)

Caution: Before opening the front panel, be sure to stop the operation and turn the breaker off.
Do not touch the aluminum fins (indoor heat exchanger) inside of the indoor unit, as it may result in injury.

When setting the airflow selection switch to .

- The air conditioner automatically decides the appropriate blowing pattern depending on the operating mode/situation.

Operating mode	Situation	Blowing pattern
Cooling operation	When the room has become fully cool, or when 1 hour has passed since turning on the air conditioner.	Air is blown from the upper air outlet, so that air does not come into direct contact with people, and room temperature is equalized.
	At the start of operation or when the room is not fully cooled.	 (R17867) Air is blown from the upper and lower air outlets for high speed cooling during cooling operation, and for filling the room with warm air during heating operation.
Heating operation	Normal time	
	At the start or when air temperature is low.	Air is blown from the upper air outlet, so that air does not come into direct contact with people.

- During Dry operation, air is blown upper air outlet, so that cold air does not come into direct contact with people.

When setting the airflow selection switch to .

- Regardless of the operating mode or situation, air is blown from the upper air outlet.
- Use this switch when you do not want air coming out of the lower air outlet (e.g., while sleeping).

7.3 Fan Speed Control for Indoor Unit

Outline

Phase control and fan speed control contains 9 steps: LLL, LL, SL, L, ML, M, MH, H, and HH. The airflow rate can be automatically controlled depending on the difference between the room thermistor temperature and the target temperature.

Automatic Fan Speed Control

In automatic fan speed control, the step SL is not available.

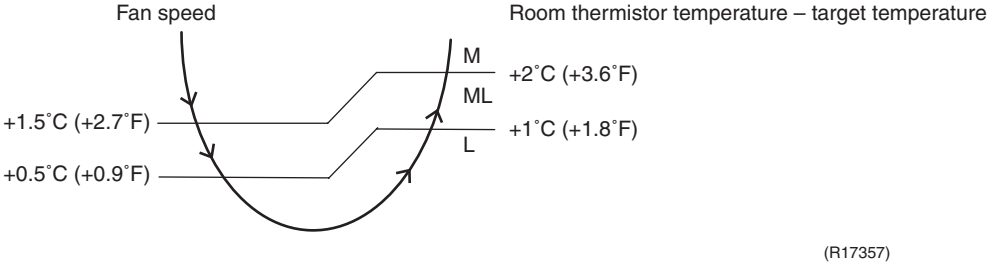
	CTXS-J, CTXS-H series		CTXG, CTXS-L, FTXS-L, CDXS, FDXS, FVXS series	
Step	**Cooling**	**Heating**	**Cooling**	**Heating**
LLL				
LL				
L				
ML				
M				
MH				
H				
HH (POWERFUL)	(R6833)	(R6834)	(R11681)	(R6834)

⟺ = The airflow rate is automatically controlled within this range when **FAN** button is set to automatic.

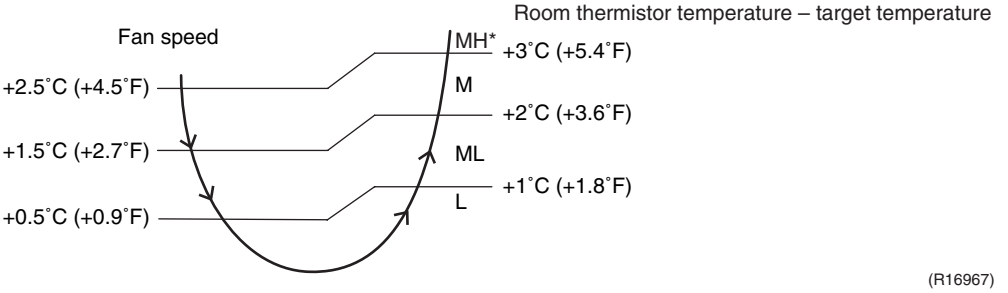
Cooling

The following drawings explain the principle of fan speed control for cooling.

CTXS-J, CTXS-H Series



CTXG, CTXS-L, FTXS-L, CDXS, FDXS, FVXS Series



*For CTXG, CTXS-L, FTXS-L, and FVXS series, the upper limit is M tap in 30 minutes from the operation start.

Heating

In heating operation, the fan speed is regulated according to the indoor heat exchanger temperature and the difference between the room thermistor temperature and the target temperature.

Note: The fan stops during defrost operation.

COMFORT AIRFLOW Operation

CTXG, CTXS-L, FTXS-L Series

- The fan speed is automatically controlled within the following steps.
  Cooling
  L tap ~ MH tap (same as AUTOMATIC)
  Heating
  In order to obtain a comfortable airflow, the fan speed may be set to a rate different from automatic fan speed control.

- The latest command has the priority between POWERFUL and COMFORT AIRFLOW.

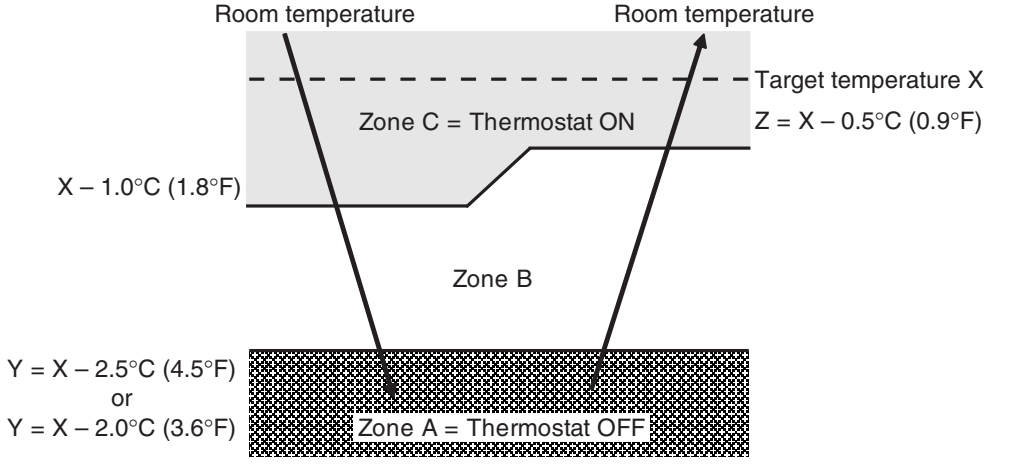
7.4 Program Dry Operation

Outline

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

Details

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



(R24029)

Room thermistor temperature at start-up	Target temperature X	Thermostat OFF point Y	Thermostat ON point Z ★
24°C or more (75.2°F or more)	Room thermistor temperature at start-up	X – 2.5°C (X – 4.5°F)	X – 0.5°C (X – 0.9°F)
18 ~ 23.5°C (64.4 ~ 74.3°F)		X – 2.0°C (X – 3.6°F)	X – 0.5°C (X – 0.9°F)
17.5°C or less (63.5°F or less)	18°C (64.4°F)	X – 2.0°C (X – 3.6°F)	X – 0.5°C = 17.5°C (X – 0.9°F = 63.5°F)

★ Thermostat turns on also when the room temperature is in the zone B for 10 minutes.

7.5 Automatic Operation

Outline

Automatic Cooling/Heating Function

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

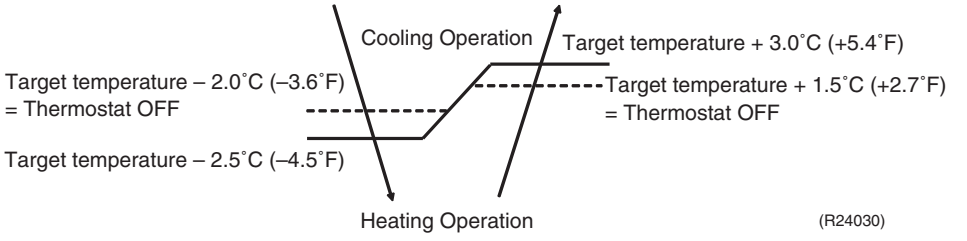
The unit automatically switches the operation mode to maintain the room temperature at the set temperature.

Details

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

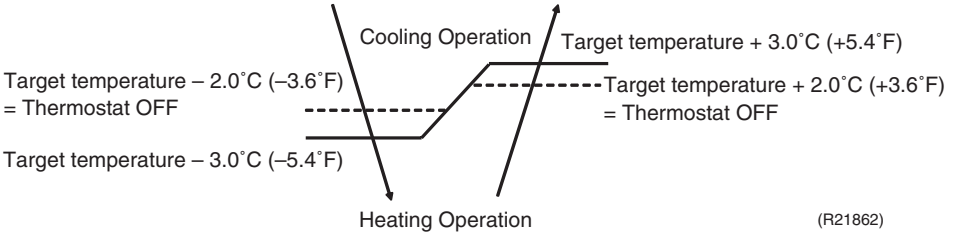
1. The set temperature (Ts) determines the target temperature (Tt).
   (Ts = 18 ~ 30°C, 64.4 ~ 86°F).
2. The target temperature (Tt) is calculated as:
   Tt = Ts + C
   where C is the correction value.
   C = 0°C (32°F)
3. Thermostat ON/OFF point and operation mode switching point are as follows:
   (1) Heating → Cooling switching point:
   Tr ≥ Tt + 3.0°C (+5.4°F) (CTXG, CTXS, FTXS series)
   Tr ≥ Tt + 2.5°C (+4.5°F) (CDXS, FDXS, FVXS series)
   (2) Cooling → Heating switching point:
   Tr < Tt – 2.5°C (–4.5°F) (CTXG series)
   Tr < Tt – 3.0°C (–5.4°F) (CTXS, FTXS, CDXS, FDXS, FVXS series)
   (3) Thermostat ON/OFF point is the same as the ON/OFF point of cooling or heating operation.
4. During initial operation
   Tr ≥ Ts : Cooling operation
   Tr < Ts : Heating operation

CTXG series



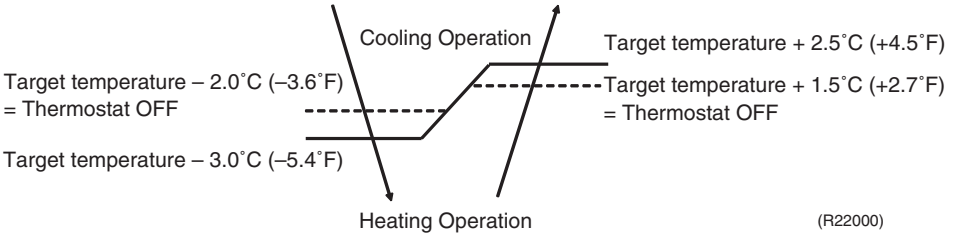
Ex: When the target temperature is 25°C (77°F)
Cooling → 23°C (73.4°F): Thermostat OFF → 22.5°C (72.5°F): Switch to heating
Heating → 26.5°C (79.7°F): Thermostat OFF → 28°C (82.4°F): Switch to cooling

CTXS, FTXS series



Ex: When the target temperature is 25°C (77°F)
Cooling → 23°C (73.4°F): Thermostat OFF → 22°C (71.6°F): Switch to heating
Heating → 27°C (80.6°F): Thermostat OFF → 28°C (82.4°F): Switch to cooling

CDXS, FDXS, FVXS series



Ex: When the target temperature is 25°C (77°F)
Cooling → 23°C (73.4°F): Thermostat OFF → 22°C (71.6°F): Switch to heating
Heating → 26.5°C (79.7°F): Thermostat OFF → 27.5°C (81.5°F): Switch to cooling

7.6 Thermostat Control

Outline

Thermostat control is based on the difference between the room thermistor temperature and the target temperature.

Details

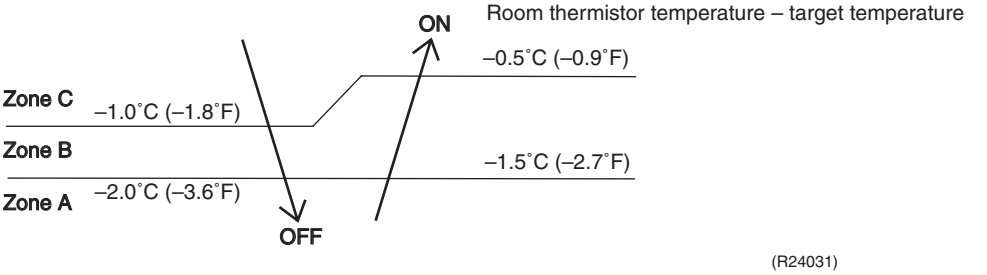
Thermostat OFF Condition

- The temperature difference is in the zone A.

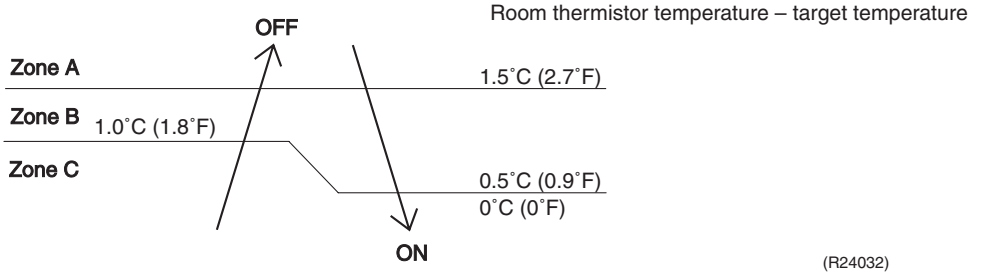
Thermostat ON Conditions

- The temperature difference returns to the zone C after being in the zone A.
- The system resumes from defrost control in any zones except A.
- The operation turns on in any zones except A.
- The monitoring time has passed while the temperature difference is in the zone B. (Cooling: 10 minutes, Heating: 10 seconds)

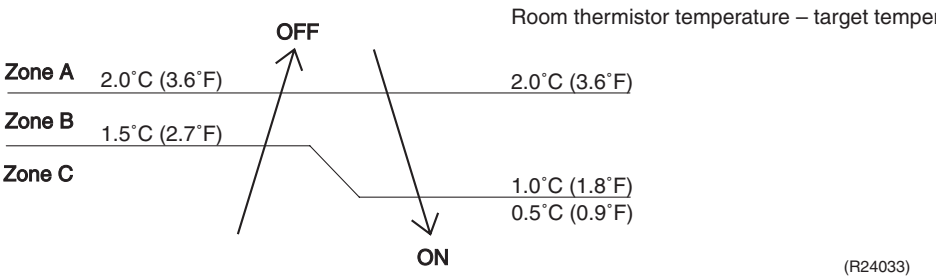
Cooling



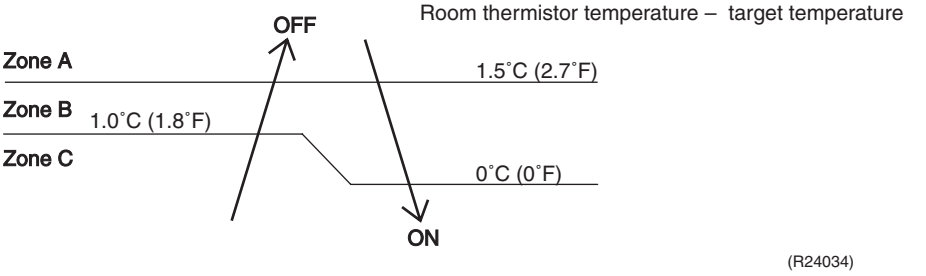
Heating
CTXG series



CTXS-L, FTXS series



CTXS-J, CTXS-H, CDXS, FDXS, FVXS series



Refer to Temperature Control on page 73 for details.

7.7 NIGHT SET Mode

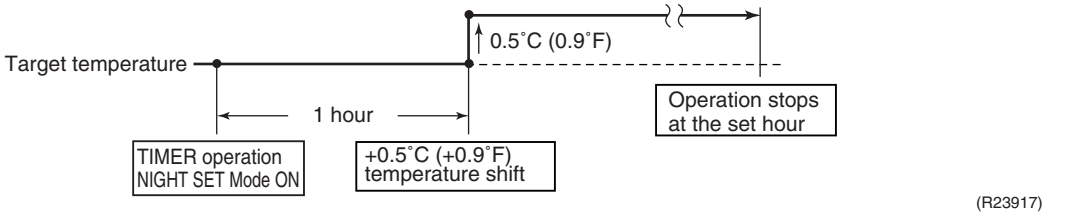
Outline

When the OFF timer is set, NIGHT SET Mode is automatically activated. NIGHT SET Mode keeps the airflow rate setting.

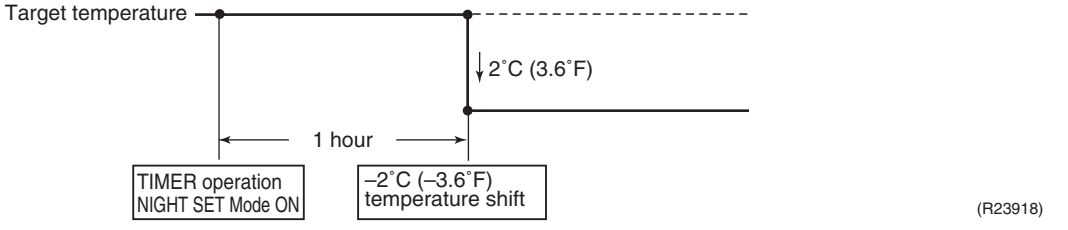
Details

NIGHT SET Mode continues operation at the target temperature for the first one hour, then automatically raises the target temperature slightly in cooling, or lowers it slightly in heating. This prevents excessive cooling or heating to ensure comfortable sleeping conditions, and also conserves electricity.

Cooling



Heating



7.8 ECONO Operation

Applicable Models

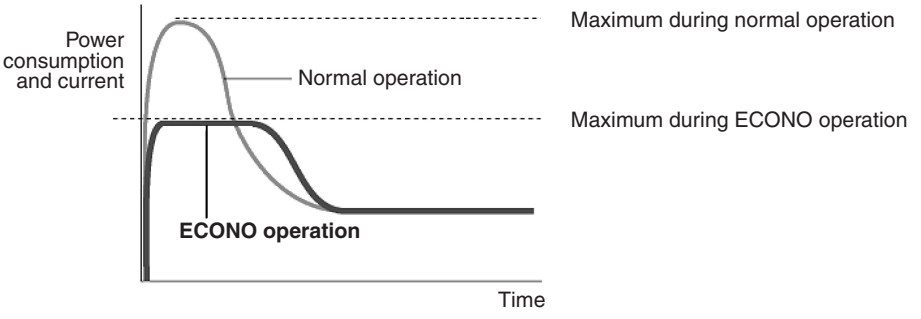
CTXG09/12/18QVJUW(S)
CTXS07LVJU
FTXS09/12/15/18/24LVJU
FDXS09/12LVJU
CDXS15/18/24LVJU
FVXS09/12/15/18NVJU

Outline

ECONO operation reduces the maximum operating current and the power consumption.
This operation is particularly convenient for energy-saving. It is also a major bonus when breaker capacity does not allow the use of multiple electrical devices and air conditioners.
It can be easily activated by pressing **ECONO** button on the wireless remote controller.

Details

- When this function is activated, the maximum capacity also decreases.
- The remote controller can send the ECONO command when the unit is in cooling, heating, dry, or automatic operation. This function can only be set when the unit is running. Press **ON/OFF** button on the remote controller to cancel the function.
- This function and Inverter POWERFUL operation cannot be used at the same time. The latest command has the priority.



(R22122)

7.9 HOME LEAVE Operation

Applicable Models

CTXS07JVJU
CTXS09/12HVJU

Outline

HOME LEAVE operation is a function that allows you to record your preferred set temperature and airflow rate. You can start your preferred operation mode simply by pressing **HOME LEAVE** button on the remote controller.

Details

The indoor unit is operated according to the set temperature and airflow rate for HOME LEAVE which were preset in the memory of the remote controller.

Start of Function

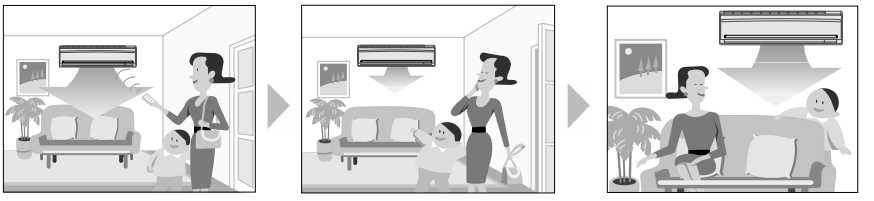
The function starts when **HOME LEAVE** button is pressed in cooling operation, heating operation (including POWERFUL operation), or while the operation is stopped.
A mark representing HOME LEAVE is indicated on the display of the remote controller, and the LED (red) of indoor unit representing HOME LEAVE lights up. (It goes out when the operation is stopped.)

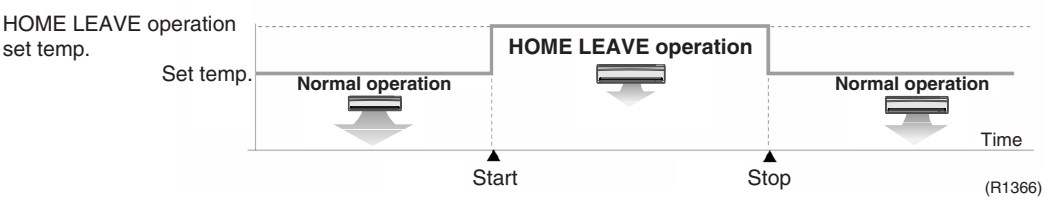
- If this button is pressed in POWERFUL operation, the POWERFUL operation is canceled and this function becomes effective.
- **HOME LEAVE** button is ineffective in dry operation and fan operation.

End of Function

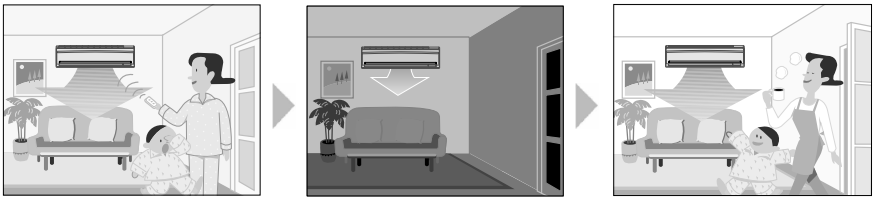
The function ends when **HOME LEAVE** button is pressed again during HOME LEAVE operation or when **POWERFUL** button is pressed.

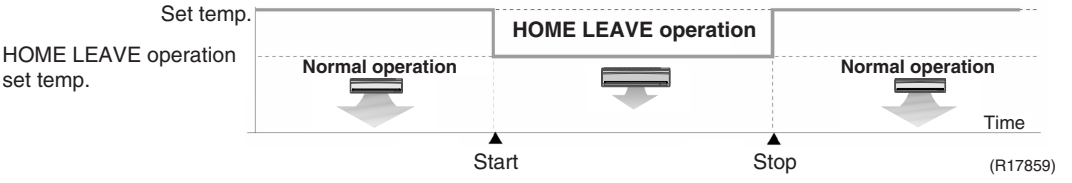
Cooling





Heating





Setting Temperature and Airflow Rate

When using HOME LEAVE operation for the first time, set your preferred temperature and airflow rate for HOME LEAVE operation.

	Initial setting		Selectable range	
	Temperature	Airflow rate	Temperature	Airflow rate
Cooling	25°C (77°F)	[A]	18 ~ 32°C (64.4 ~ 89.6°F)	5 steps, [A] ,
Heating	25°C (77°F)	[A]	10 ~ 30°C (50 ~ 86°F)	5 steps, [A] ,

1. Press **HOME LEAVE** button.
   Make sure is displayed on the remote controller.
2. Adjust the temperature with ▲ or ▼ button.
3. Adjust the airflow rate with **FAN** button.

HOME LEAVE operation will run with these settings the next time you start HOME LEAVE operation. To change the recorded information, repeat steps 1 – 3.

Notes:

1. The set temperature and airflow rate are recorded in the remote controller. When the remote controller is reset due to battery replacement, the temperature and airflow rate for HOME LEAVE operation needs to be set again.
2. The operation mode cannot be changed while HOME LEAVE operation is being used.

7.10 2-Area INTELLIGENT EYE Operation

Applicable Models

CTXG09/12/18QVJUW(S)

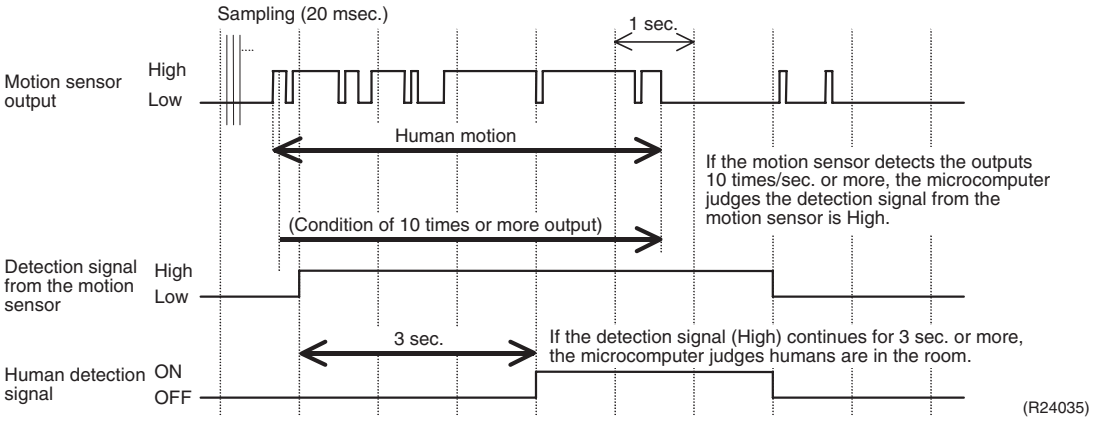
Outline

The following functions can be performed by the microcomputer with a motion sensor.

1. Reduction of the capacity when there is nobody in the room in order to save electricity (energy saving operation)
2. Dividing the room into plural areas and detecting presence of humans in each area. Moving the airflow direction to the area with no human automatically to avoid direct airflow on humans.

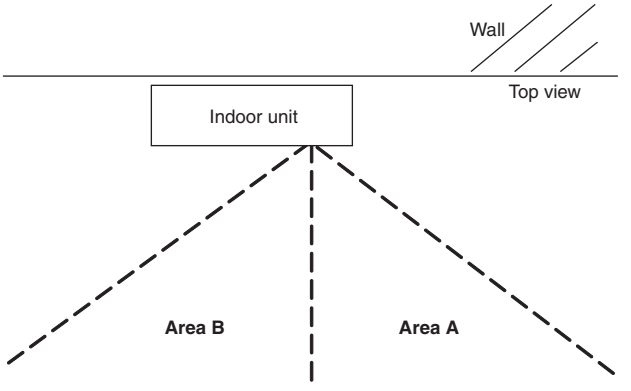
Details

1. INTELLIGENT EYE detection method



- The motion sensor detects human motion by receiving infrared rays and sends the pulse wave output.
- The microcomputer in the indoor unit carries out a sampling every 20 msec. If the motion sensor detects 10 times or more of the wave output in one second in total, and the High signal continues for 3 sec., the microcomputer judges humans are in the room as the human detection signal is ON.
- 2-area INTELLIGENT EYE motion sensor divides the area into 2 and detects presence of humans in each area.

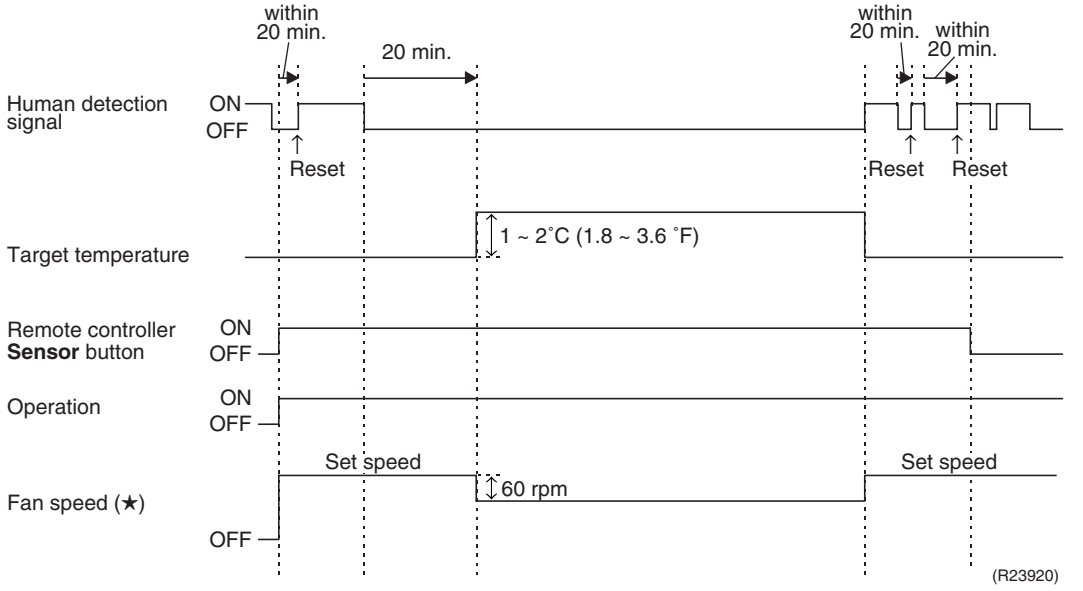
Image of 2-area INTELLIGENT EYE



A microcomputer judges human presence by the human detection signal from each area A and B.

(R22951)

2. Motions (in cooling)

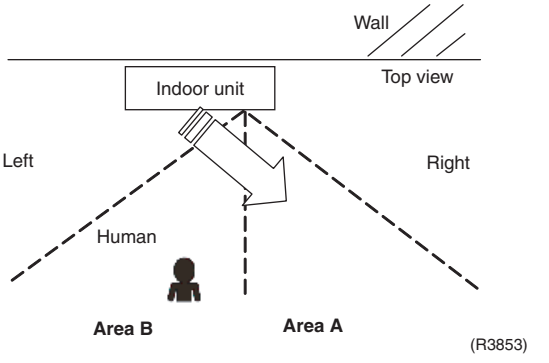


★ In FAN operation, the fan speed is reduced by 60 rpm when no one is in the area.

- When there is no signal from the motion sensor in 20 minutes, the microcomputer judges that nobody is in the room and operates the unit at a temperature shifted from the target temperature. (Cooling/Dry: 1 ~ 2°C (1.8 ~ 3.6°F) higher, Heating: 2°C (3.6°F) lower, Auto: according to the operation mode at that time.)

3. Airflow direction in 2-area INTELLIGENT EYE operation

- Detection method: The opposite area of detected area is set as the target direction.



1. Human detection signal ON in both area A and B: Shift the airflow direction to area B (left side)
2. Human detection signal ON in area A: Shift the airflow direction to area B (left side)
3. Human detection signal ON in area B: Shift the airflow direction to area A (right side)
4. Human detection signal OFF in both area A and B: No change

*When the human detection signal is OFF for 20 minutes in both area A and B, the unit starts energy saving operation.

Note: For dry operation, the target temperature is shifted internally. The temperature cannot be set with the remote controller.

7.11 INTELLIGENT EYE Operation

Applicable Models

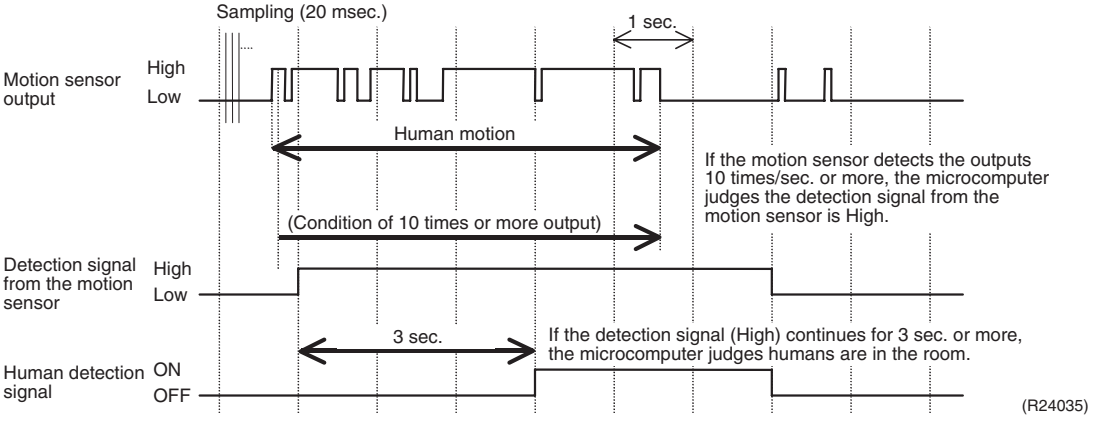
CTXS07JVJU
CTXS09/12HVJU
CTXS07LVJU
FTXS09/12/15/18/24LVJU

Outline

The microcomputer detects the presence of humans in the room with a motion sensor and reduces the capacity when there is nobody in the room in order to save electricity.

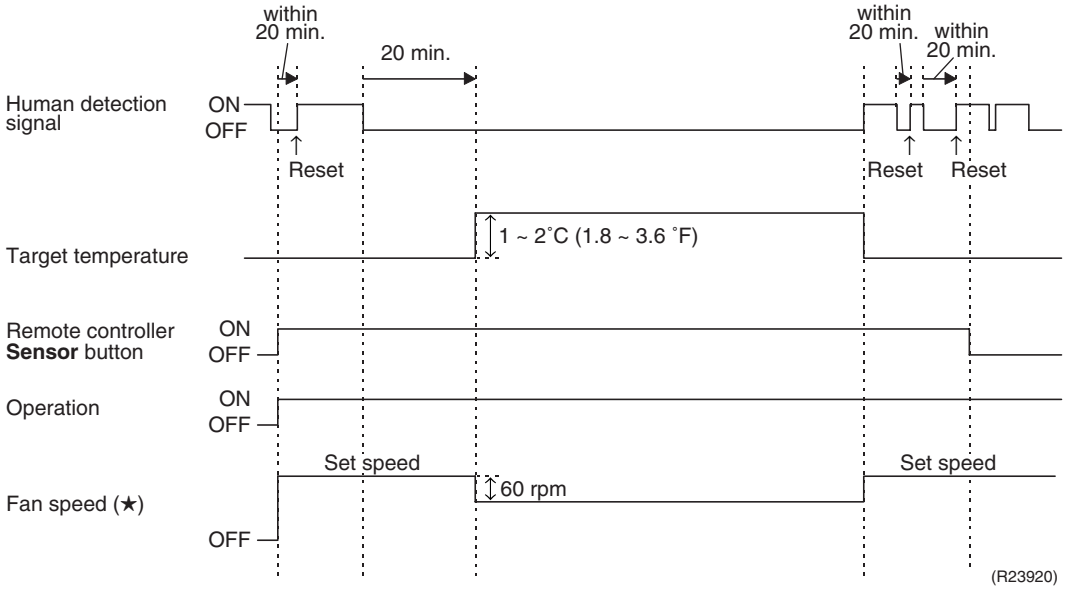
Details

1. INTELLIGENT EYE detection method



- The motion sensor detects human motion by receiving infrared rays and sends the pulse wave output.
- The microcomputer in the indoor unit carries out a sampling every 20 msec. If the motion sensor detects 10 times or more of the wave output in one second in total, and the High signal continues for 3 sec., the microcomputer judges humans are in the room as the human detection signal is ON.

2. Motions (in cooling)



★ In FAN operation, the fan speed is reduced by 60 rpm when no one is in the area.

- When there is no signal from the motion sensor in 20 minutes, the microcomputer judges that nobody is in the room and operates the unit at a temperature shifted from the target temperature. (Cooling/Dry: 1 ~ 2°C (1.8 ~ 3.6°F) higher, Heating: 2°C (3.6°F) lower, Auto: according to the operation mode at that time.)

Note: For dry operation, the target temperature is shifted internally. The temperature cannot be set with the remote controller.

7.12 POWERFUL Operation

Outline

In order to exploit the cooling and heating capacity to full extent, the air conditioner can be operated by increasing the indoor fan rotating speed and the compressor frequency.

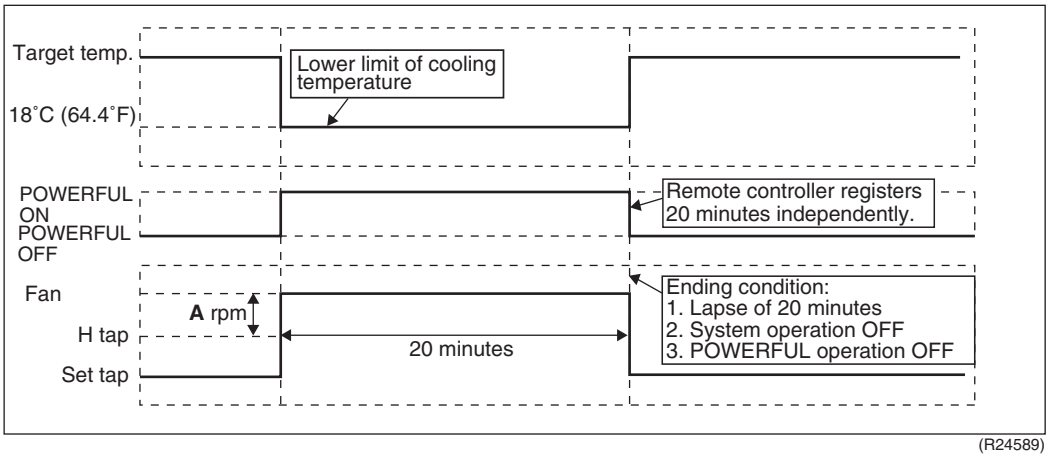
Details

When **POWERFUL** button is pressed, the fan speed and target temperature are converted to the following states for 20 minutes.

Operation mode	Fan speed	Target temperature
COOL	H tap + **A** rpm	18°C (64.4°F)
DRY	Dry rotating speed + **A** rpm	Lowered by 2 ~ 2.5°C (3.6 ~ 4.5°F)
HEAT	H tap + **A** rpm	30 ~ 31.5°C (86 ~ 88.7°F)
FAN	H tap + **A** rpm	—
AUTO	Same as cooling/heating in POWERFUL operation	The target temperature is kept unchanged.

A = 50 ~ 90 rpm (depending on the model)

Ex: POWERFUL operation in cooling



Note: POWERFUL operation cannot be used together with ECONO, COMFORT AIRFLOW or OUTDOOR UNIT QUIET operation.

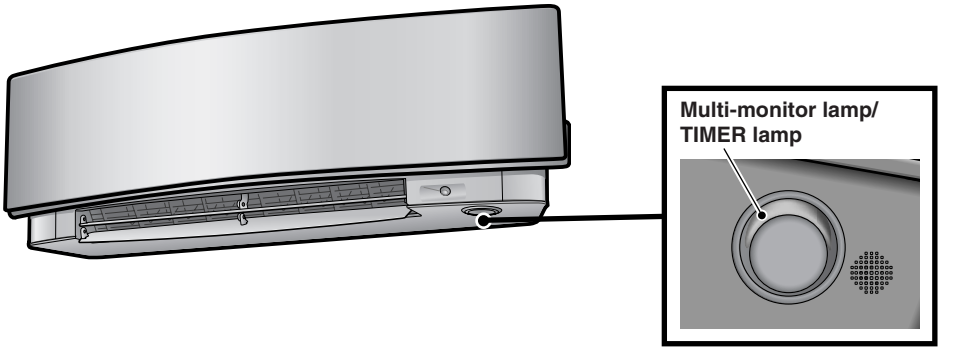
7.13 Multi-Monitor Lamp/TIMER Lamp

Applicable Models

CTXG09/12/18QVJUW(S)

Features

Current operation mode is displayed in color of the lamp of the indoor unit. Operating status can be monitored even in automatic operation in accordance with the actual operation mode.



(R19925)

The lamp color changes according to the operation.

- AUTO.....Red/Blue
- DRY .....Green
- COOL.....Blue
- HEAT .....Red
- FAN.....White
- TIMER.....Orange

Brightness Setting

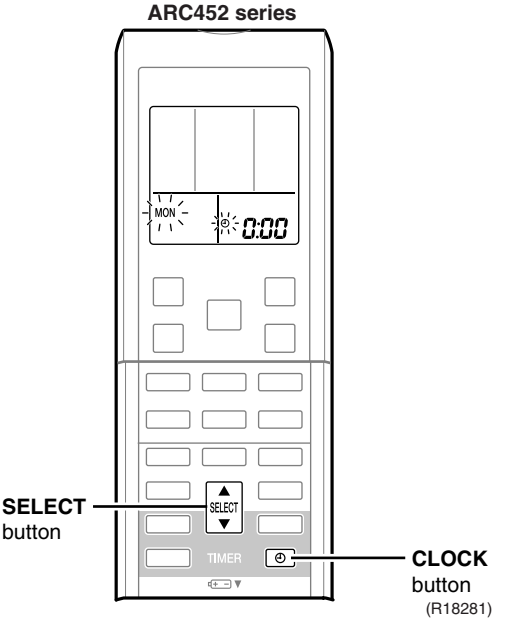
Each time **Brightness** button on the remote controller is pressed, the brightness of the multi-monitor lamp/TIMER lamp changes to high, low, or off.

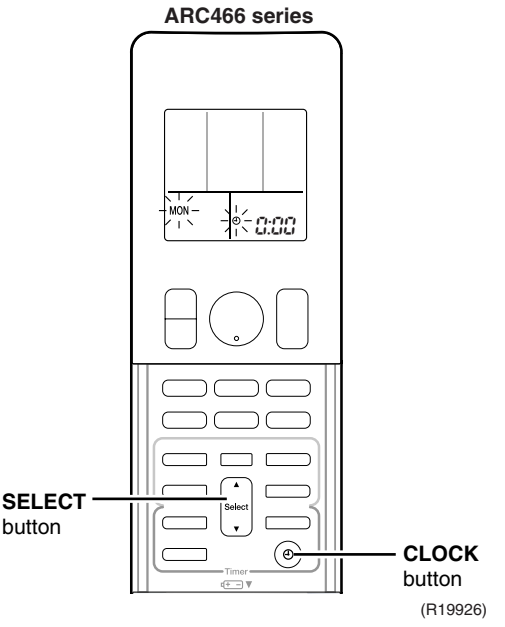
7.14 Clock Setting

ARC452 Series
ARC466 Series

The clock can be set by taking the following steps:

1. Press **CLOCK** button.
   → 0:00 is displayed. **MON** and ⏲ blink.
2. Press **SELECT ▲** or **SELECT ▼** button to set the clock to the current day of the week.
3. Press **CLOCK** button.
   → ⏲ blinks.
4. Press **SELECT ▲** or **SELECT ▼** button to set the clock to the present time.
   Holding down **SELECT ▲** or **SELECT ▼** button increases or decreases the time display rapidly.
5. Press **CLOCK** button to set the clock. (Point the remote controller at the indoor unit when pressing the button.)
   → : blinks and clock setting is completed.





7.15 WEEKLY TIMER Operation

Applicable Models

CTXG09/12/18QVJUW(S)
CTXS07LVJU
FTXS09/12/15/18/24LVJU
FVXS09/12/15/18NVJU

Outline

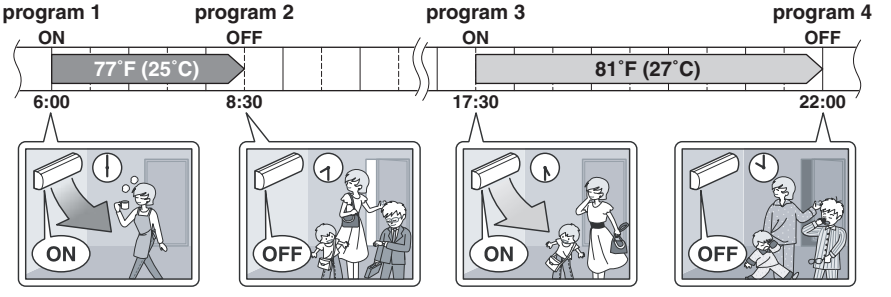
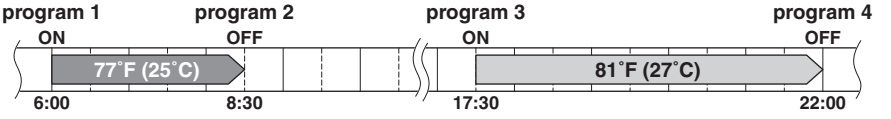
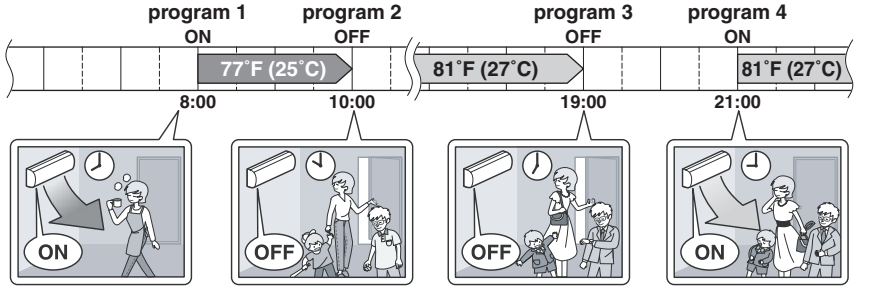
Up to 4 timer settings can be saved for each day of the week (up to 28 settings in total).
The 3 items: ON/OFF, temperature, and time can be set.

Details

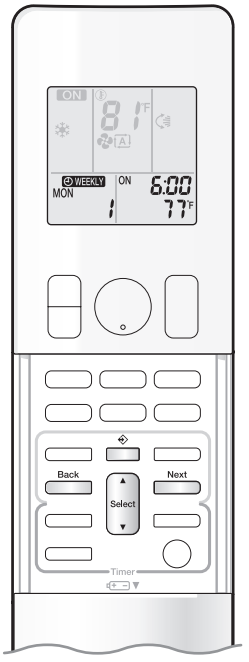
★ The illustrations are for CTXG series as representative.

Setting example of the WEEKLY TIMER

The same timer settings are used from Monday through Friday, while different timer settings are used for the weekend.

[Monday]	Make timer settings for programs 1-4. 
[Tuesday] to [Friday]	Use the copy mode to make settings for Tuesday to Friday, because these settings are the same as those for Monday. 
[Saturday]	No timer settings
[Sunday]	Make timer settings for programs 1-4. 

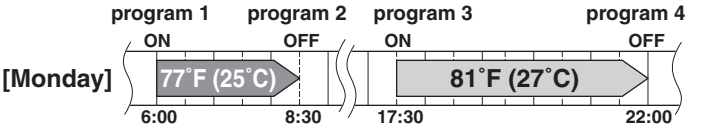
- Up to 4 reservations per day and 28 reservations per week can be set using the WEEKLY TIMER. The effective use of the copy mode simplifies timer programming.
- The use of ON-ON-ON-ON settings, for example, makes it possible to schedule operating mode and set temperature changes. Furthermore, by using OFF-OFF-OFF-OFF settings, only the turn off time of each day can be set. This will turn off the air conditioner automatically if you forget to turn it off.



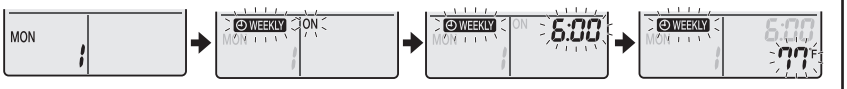
To use WEEKLY TIMER operation

Setting mode

• Make sure the day of the week and time are set.
If not, set the day of the week and time.



Setting Displays



1. Press ◈ .

• The day of the week and the reservation number of the current day will be displayed.
• 1 to 4 settings can be made per day.

2. Press Select to select the desired day of the week and reservation number.

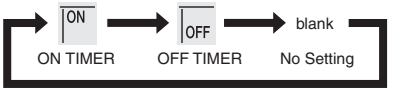
• Pressing Select changes the reservation number and the day of the week.

3. Press Next .

• The day of the week and reservation number will be set.
• " WEEKLY " and " ON" blink.

4. Press Select to select the desired mode.

• Pressing Select changes the " ON" or " OFF" setting in sequence.

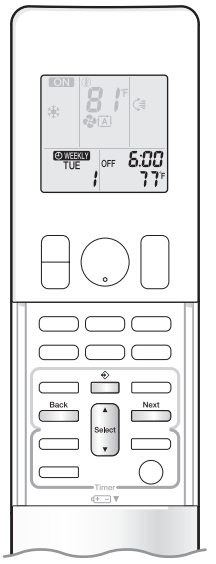


Pressing Select puts the sequence in reverse.

• In case the reservation has already been set, selecting " blank " deletes the reservation.
• Proceed to **STEP *9*** if " blank " is selected.
• To return to the day of the week and reservation number setting, press Back .

5. Press Next .

• The ON/OFF TIMER mode will be set.
• " WEEKLY " and the time blink.



6. Press Select to select the desired time.

- The time can be set between 0:00 and 23:50 in 10-minute intervals.
- To return to the ON/OFF TIMER mode setting, press Back.
- Proceed to **STEP *9*** when setting the OFF TIMER.

7. Press Next.

- The time will be set.
- " WEEKLY " and the temperature blink.

8. Press Select to select the desired temperature.

- The temperature can be set between 50˚F (10˚C) and 90˚F (32˚C).
  COOL or AUTO: The unit operates at 64˚F (18˚C) even if it is set at 50˚F (10˚C) to 63˚F (17˚C).
  HEAT or AUTO : The unit operates at 86˚F (30˚C) even if it is set at 87˚F (31˚C) to 90˚F (32˚C).
- To return to the time setting, press Back.
- The set temperature is only displayed when the mode setting is on.

9. Press Next.

- Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and blinking of the multi-monitor lamp.
- The multi-monitor lamp blinks twice.
- The temperature will be set and go to the next reservation.
- Temperature and time are set in the case of ON TIMER operation, and the time is set in the case of OFF TIMER operation.
- The next reservation screen will appear.
- To continue further settings, repeat the procedure from **STEP *4***.

10. Press to complete the setting.

- " WEEKLY " is displayed on the LCD and WEEKLY TIMER operation is activated.
- The TIMER lamp periodically lights orange.
  The multi-monitor lamp will not light orange if all the reservation settings are deleted.

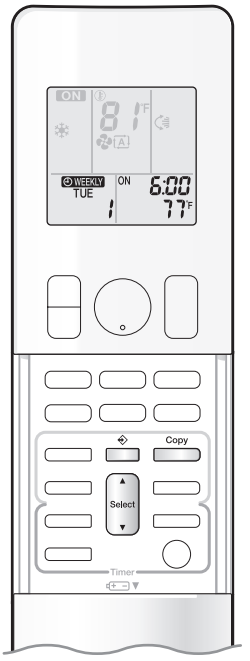
Display

- A reservation made once can be easily copied and the same settings used for another day of the week. Refer to **Copy mode**.

NOTE

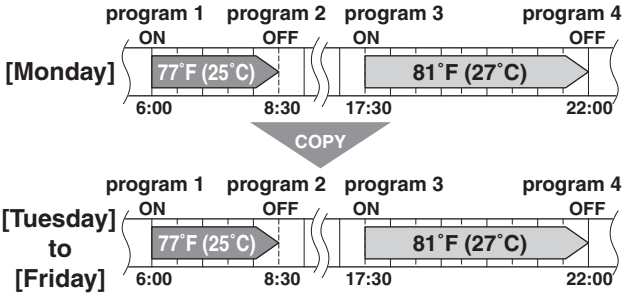
Notes on WEEKLY TIMER operation

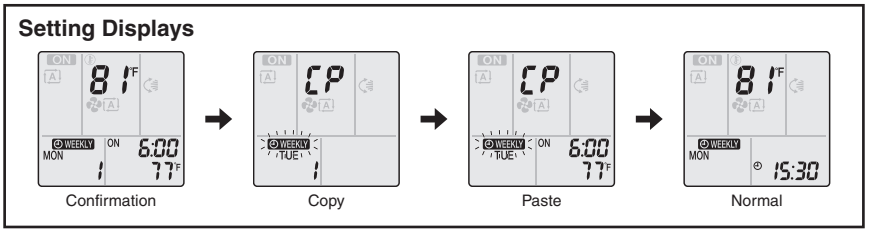
- Do not forget to set the clock on the remote controller first.
- The day of the week, ON/OFF TIMER mode, time and set temperature (only for ON TIMER mode) can be set with the WEEKLY TIMER. Other settings for the ON TIMER are based on the settings just before the operation.
- WEEKLY TIMER and ON/OFF TIMER operation cannot be used at the same time. The ON/OFF TIMER operation has priority if it is set while WEEKLY TIMER is still active. The WEEKLY TIMER will enter the standby state, and " WEEKLY " will disappear from the LCD. When the ON/OFF TIMER is up, the WEEKLY TIMER will automatically become active.
- Only the time and temperature can be set with the WEEKLY TIMER. Set the WEEKLY TIMER only after setting the operation mode, the airflow rate and the airflow direction ahead of time.
- Turning off the circuit breaker, power failure, and other similar events will render operation of the indoor unit's internal clock inaccurate. Reset the clock.
- Back can be used only for the time and temperature settings. It cannot be used to go back to the reservation number.



Copy mode

• A reservation made once can be copied to another day of the week. The whole reservation of the selected day of the week will be copied.





1. Press ◈.

2. Press Select to confirm the day of the week to be copied.

3. Press Copy.

• The whole reservation of the selected day of the week will be copied.

4. Press Select to select the destination day of the week.

5. Press Copy.

• Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and blinking of the multi-monitor lamp.
• The multi-monitor lamp blinks twice.
• The reservation will be copied to the selected day of the week. The whole reservation of the selected day of the week will be copied.
• To continue copying the settings to other days of the week, repeat **STEP *4*** and **STEP *5***.

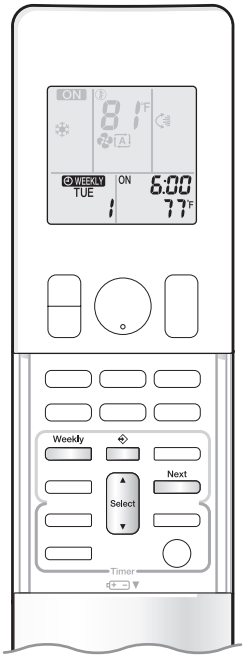
6. Press ◈ to complete the setting.

• " WEEKLY " is displayed on the LCD and WEEKLY TIMER operation is activated.
• The TIMER lamp periodically lights orange.

NOTE

Note on COPY MODE

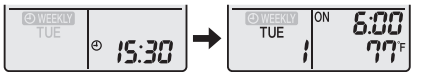
• The entire reservation of the source day of the week is copied in the copy mode.
In the case of making a reservation change for any day of the week individually after copying the content of weekly reservations, press ◈ and change the settings in the steps of **Setting mode**.



Confirming a reservation

• The reservation can be confirmed.

Setting Displays



Normal Confirmation

1. Press [◈].

• The day of the week and the reservation number of the current day will be displayed.

2. Press [Select] to select the day of the week and the reservation number to be confirmed.

• Pressing [Select] displays the reservation details.

• To change the confirmed reserved settings, select the reservation number and press [Next]. The mode is switched to setting mode. Proceed to **Setting mode** **STEP *4***.

3. Press [◈] to exit the confirmation mode.

• " WEEKLY " is displayed on the LCD and WEEKLY TIMER operation is activated.
• The TIMER lamp periodically lights orange.
The multi-monitor lamp will not light orange if all the reservation settings are deleted.

Display

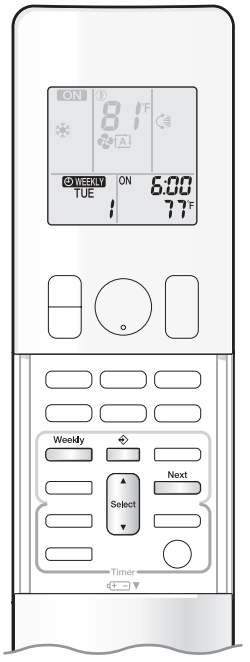
To deactivate WEEKLY TIMER operation

Press [Weekly] while " WEEKLY " is displayed on the LCD.

• " WEEKLY " disappears from the LCD.
• The TIMER lamp goes off.
• To reactivate the WEEKLY TIMER operation, press [Weekly] again.
• If a reservation deactivated with [Weekly] is activated once again, the last reservation mode will be used.

NOTE

• If not all the reservation settings are reflected, deactivate the WEEKLY TIMER operation once. Then press [Weekly] again to reactivate the WEEKLY TIMER operation.



To delete reservations

An individual reservation

1. Press .

- The day of the week and the reservation number will be displayed.

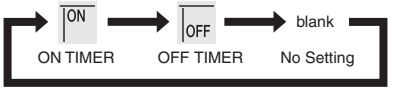
2. Press Select to select the day of the week and the reservation number to be deleted.

3. Press Next.

- " WEEKLY " and " ON" or " OFF" blink.

4. Press Select until no icon is displayed.

- Pressing Select changes the ON/OFF TIMER mode in sequence.
- Selecting "blank" will cancel any reservation you may have.



Pressing Select puts the sequence in reverse.

5. Press Next.

- The selected reservation will be deleted.
- Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and blinking of the multi-monitor lamp.

6. Press .

- If there are still other reservations, WEEKLY TIMER operation will be activated.

Reservations for each day of the week

- This function can be used for deleting reservations for each day of the week.
- It can be used while confirming or setting reservations.

1. Press .

- The day of the week and the reservation number will be displayed.

2. Press Select to select the day of the week to be deleted.

3. Hold Weekly for about 5 seconds.

- Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and blinking of the multi-monitor lamp.
- The reservation of the selected day of the week will be deleted.

4. Press .

- If there are still other reservations, WEEKLY TIMER operation will be activated.

All reservations

Hold Weekly for about 5 seconds with the normal display.

- Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and blinking of the multi-monitor lamp.
- The TIMER lamp goes off.
- This operation cannot be used for the WEEKLY TIMER setting display.
- All reservations will be deleted.

7.16 Other Functions

7.16.1 Hot-Start Function

In order to prevent the cold air blast that normally occurs when heating operation starts, the temperature of the indoor heat exchanger is detected, and the airflow is either stopped or significantly weakened resulting in comfortable heating.

Note: The cold air blast is prevented using similar control when defrost control starts or when the thermostat is turned ON.

7.16.2 Signal Receiving Sign

When the indoor unit receives a signal from the remote controller, the unit emits a signal receiving sound and the operation lamp blinks.

7.16.3 Indoor Unit ON/OFF Button

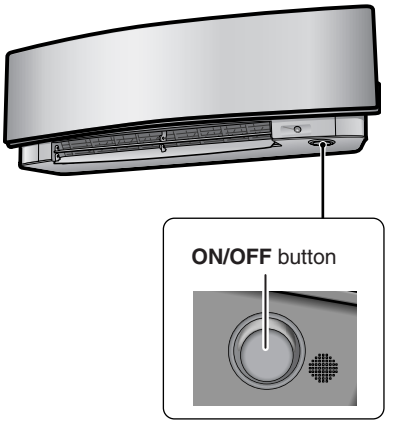
ON/OFF button is provided on the display of the unit.

- Press **ON/OFF** button once to start operation. Press once again to stop it.
- **ON/OFF** button is useful when the remote controller is missing or the battery has run out.

Operation mode	Temperature setting	Airflow rate
AUTO	25°C (77°F)	Automatic

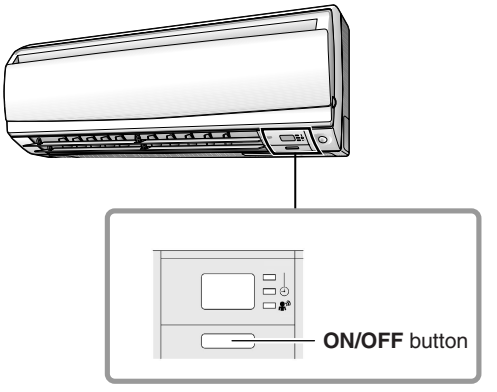
- In the case of multi system operation, there are times when the unit does not activate with this button.

CTXG Series



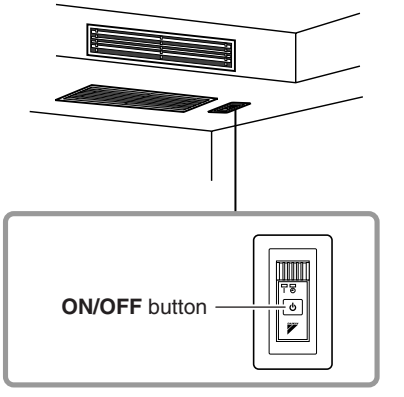
(R23923)

CTXS/FTXS Series



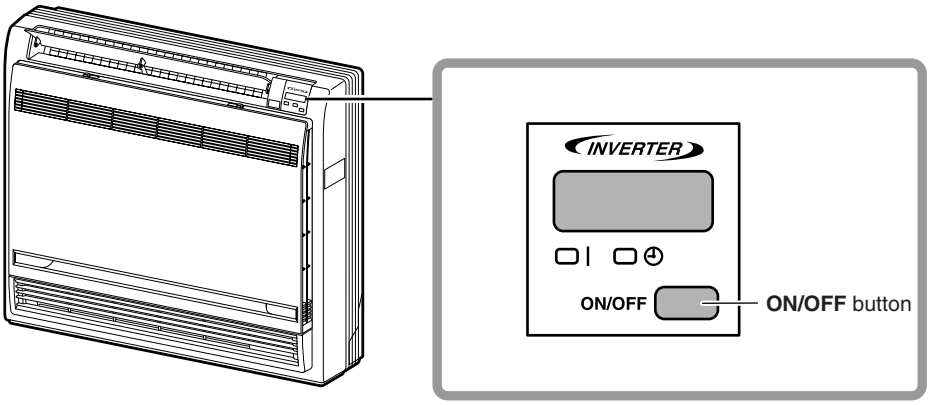
(R23924)

CDXS/FDXS Series



(R23925)

FVXS Series



(R23926)

7.16.4 Auto-restart Function

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

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

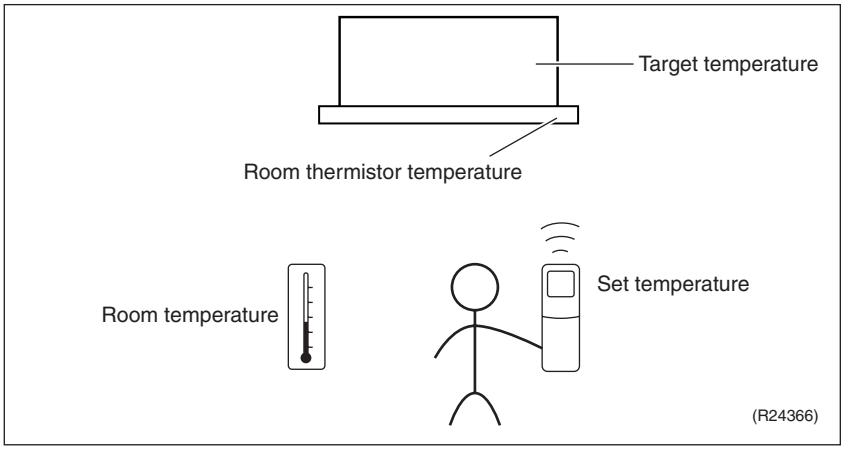
8. FFQ Series Function

8.1 Temperature Control

Definitions of Temperatures

The definitions of temperatures are classified as following.

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



Temperature Control

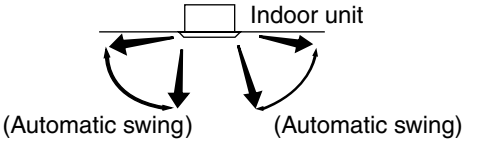
The temperature of the room is detected by the room temperature thermistor. However, there is a difference between the temperature detected by room temperature thermistor and the temperature of lower part of the room, depending on the installation condition. Practically, the temperature control is done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

8.2 Airflow Direction Control

Outline

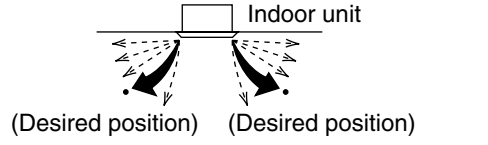
There are two types of airflow direction settings.

■ Automatic swing setting
The flaps automatically oscillate up and down.



(R24069)

■ Airflow direction fixed setting
You can select from one of the fixed directions.
The display of the remote controller and the actual angle of the flap do not match.



(R24070)

Flaps Movement

Under the operating conditions shown below, airflow direction is controlled automatically. Actual operation may be different from what is displayed on the remote controller.

- Room temperature is higher than the remote controller's set temperature in heating operation.
- When defrosting in heating operation. The airflow discharges horizontally to avoid blowing cold air directly on the room occupants.
- Under continuous operation with the airflow discharging horizontally.

Individual Flap Control

With decoration panels BYFQ60C2W1W(S) and wired remote controller (BRC1E73), you can control each one of the four flaps individually. The following marks are beside each air outlet: □, □□, □□□, □□□□.

8.3 Fan Speed Control for Indoor Unit

■ **With Wired Remote Controller (BRC1E73)**
To change the fan speed, press **Fan Speed** button and select the fan speed from Low/Medium/High/Auto for three-speed.
- The system may change the fan speed automatically for equipment protection purposes.
- The system may turn off the fan when the room temperature is satisfied.
- It is normal for a delay to occur when changing the fan speed.
- If the Auto is selected for the fan speed, the fan speed varies automatically based on the difference between set temperature and room temperature.

■ **With Wireless Remote Controller Kit (BRC082A41W, BRC082A42W(S))**
Press **FAN** button to select the fan speed, LOW, MEDIUM or HIGH.

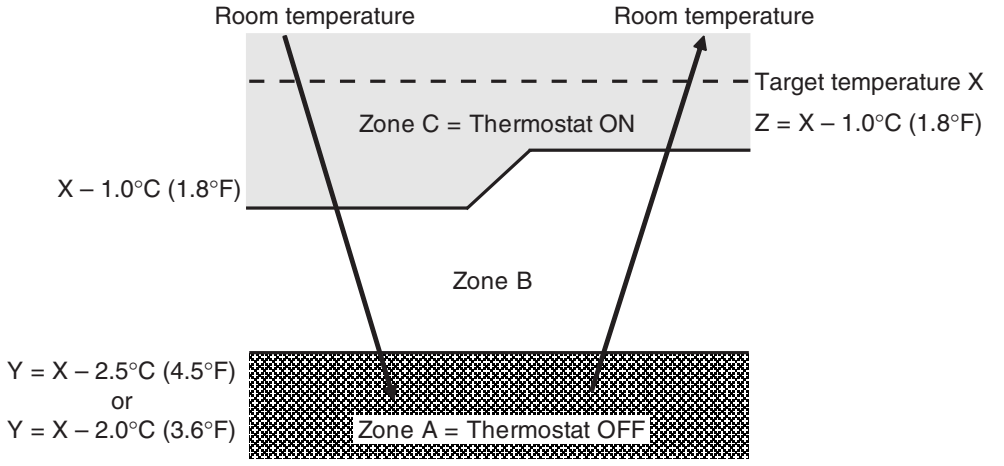
8.4 Program Dry Operation

Outline

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

Details

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

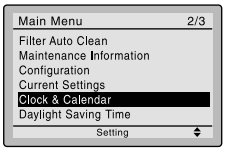


(R24367)

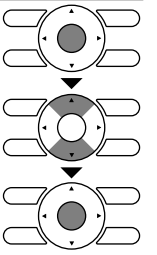
Room thermistor temperature at start-up	Target temperature X	Thermostat OFF point Y	Thermostat ON point Z
24.5°C or more (76.1°F or more)	Room thermistor temperature at start-up	X - 2.5°C (X - 4.5°F)	X - 1.0°C (X - 1.8°F)
16.5 ~ 24°C (61.7 ~ 75.2°F)		X - 2.0°C (X - 3.6°F)	X - 1.0°C (X - 1.8°F)
16°C or less (60.8°F or less)	16°C (60.8°F)	X - 2.0°C (X - 3.6°F)	X - 1.0°C = 15°C (X - 1.8°F = 59°F)

8.5 Clock and Calendar Setting (With Wired Remote Controller BRC1E73)

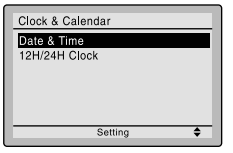
1



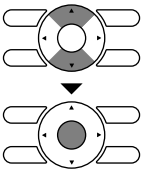
- Press **Menu/OK** button to display the main menu screen.
- Press ▼▲ buttons to select Clock & Calendar on the main menu screen.
  Press **Menu/OK** button to display the clock & calendar screen.



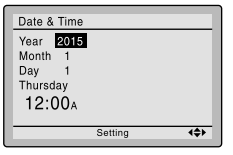
2



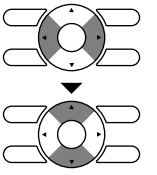
- Press ▼▲ buttons to select Date & Time on the clock & calendar screen.
  Press **Menu/OK** button to display the date & time screen.



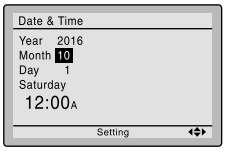
3



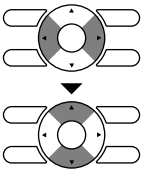
- Select **Year** with ◀▶ buttons.
  Change the year with ▼▲ buttons.
  Holding down the button causes the number to change continuously.



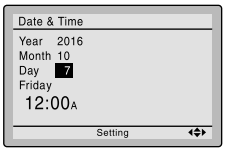
4



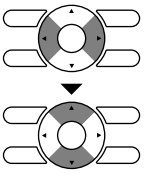
- Select **Month** with ◀▶ buttons.
  Change the month with ▼▲ buttons.
  Holding down the button causes the number to change continuously.



5

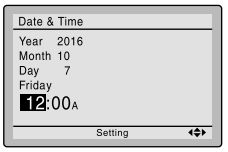


- Select **Day** with ◀▶ buttons.
  Change the day with ▼▲ buttons.
  Holding down the button causes the number to change continuously.
  Days of the week change automatically.

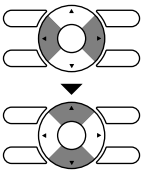


(R24368)

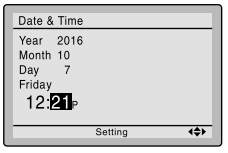
6



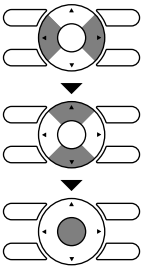
- Select **Hour** with ◀▶ buttons.
  Change the hour with ▼▲ buttons.
  Holding down the button causes the number to change continuously.



7



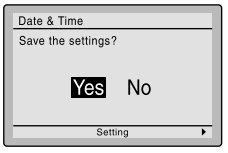
- Select **Minute** with ◀▶ buttons.
  Change the minute with ▼▲ buttons.
  Holding down the button causes the number to change continuously.
- Press **Menu/OK** button.
  The confirmation screen will appear.



Note:

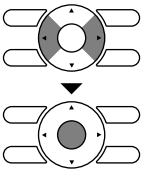
The date can be set between January 1, 2015 and December 31, 2099.

8



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

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



(R24072)

8.6 Schedule TIMER Operation (With Wired Remote Controller BRC1E73)

Outline

Day settings are selected from 4 patterns:

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

Up to 5 actions can be set for each day.

Details

Set the startup time and operation stop time.

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

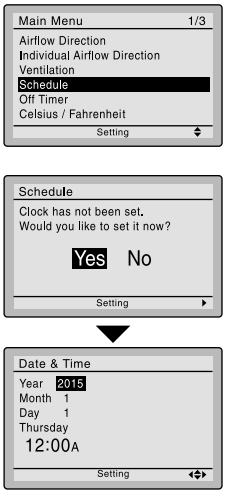
OFF: Operation stop time, cooling and heating setback temperature setpoints can be configured.
(--: Indicates that the setback function is disabled for this time period.)

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

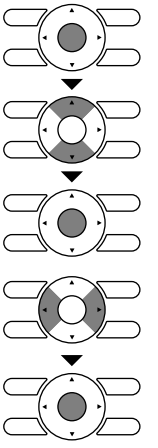
Refer to Setback function on page 107 for details of setback function.

■ **Setting the schedule**

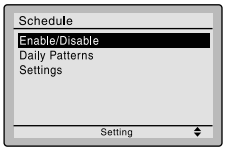
1



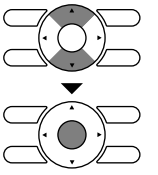
- Press **Menu/OK** button to display the main menu screen.
- Press ▼▲buttons to select Schedule . Press **Menu/OK** button to display the schedule screen.
- Before setting the schedule, the clock must be set.
- If the clock has not been set, a screen like the one on the left will appear. Press ◀▶ buttons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



2



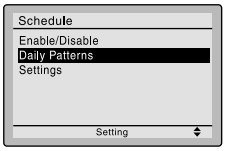
- Press ▼▲ buttons to select the desired function on the schedule screen and press **Menu/OK** button.



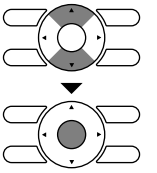
(R24369)

■ Daily Patterns

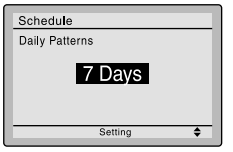
1



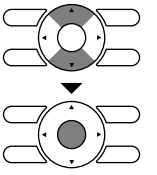
- The schedule screen will appear.
- Press ▼▲ buttons to select Daily Patterns on the schedule screen.
  The daily patterns screen will appear when **Menu/OK** button is pressed.



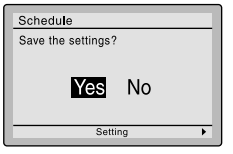
2



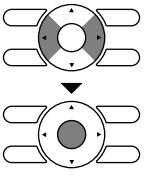
- Press ▼▲ buttons to select 7 Days , Weekday/Sat/Sun , Weekday/Weekend or Everyday on the daily patterns screen.
  The confirmation screen will appear when **Menu/OK** button is pressed.



3



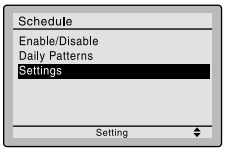
- Press ◀▶ buttons to select Yes on the confirmation screen.
  Pressing **Menu/OK** button enters the daily patterns in the schedule and takes you back to the main menu screen.



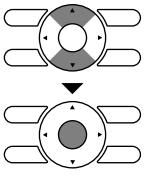
(R24074)

■ Settings

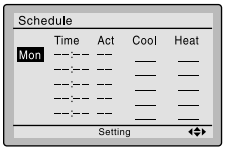
1



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

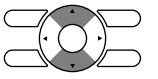


2

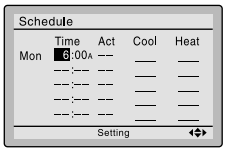


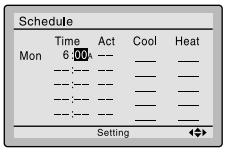
- Press ▼▲ buttons to select the day to be set.

* It cannot be selected in the case of EVDY .

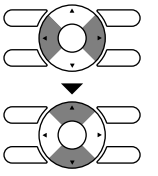


3

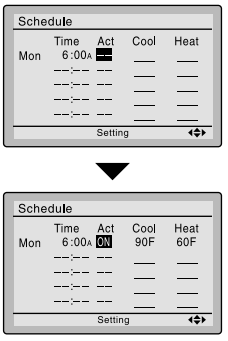




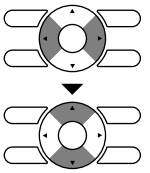
- Input the time for the selected day.
- Press ◀▶ buttons to move the highlighted item and press ▼▲ buttons to input the desired operation start time.
  Each press of ▼▲ buttons moves the numbers by 1 hour or 1 minute.



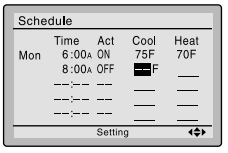
4



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



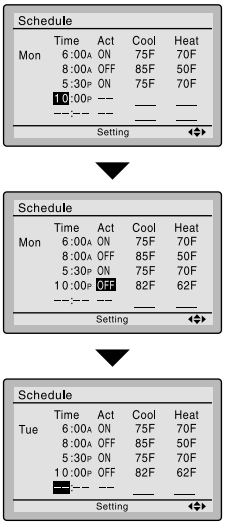
ON: The temperature setpoints can be configured.
OFF: The setback temperature setpoints can be configured.
– –: The temperature setpoints and setback temperature setpoints become disabled.



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

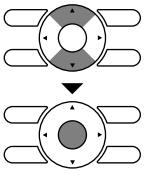
__: Indicates that the temperature setpoint and setback temperature setpoint for this time period is not specified. The last active setpoint will be utilized.
– –: Indicates that the setback function is disabled for this time period.

5

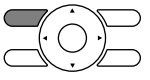


A maximum of five actions per day can be set.

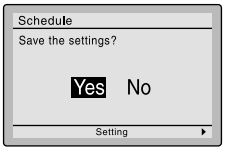
- Press **Menu/OK** button when settings for each day are completed. The confirmation screen will appear.



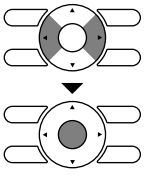
To copy the settings for the previous day, press **Mode** button so that the existing settings will be copied.
Example: The contents for Monday are copied by pressing **Mode** button after selecting Tuesday.



6



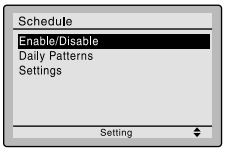
- Press ◀▶ buttons to select Yes on the confirmation screen.
  Pressing **Menu/OK** button confirms the settings for each day and takes you back to the basic screen.



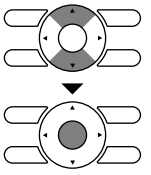
(R24075)

■ Enabling or disabling the schedule

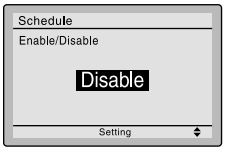
1



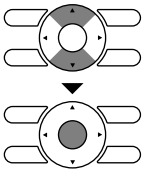
- Display the schedule screen.
- Press ▼▲ buttons to select Enable / Disable on the schedule screen.
  Press **Menu/OK** button to display the enable/disable screen.



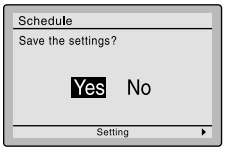
2



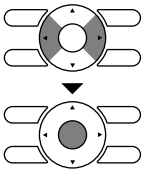
- Press ▼▲ buttons to select Enable or Disable on the enable/disable screen.
  Press **Menu/OK** button after selecting the item. The confirmation screen is displayed.



3



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



(R24076)

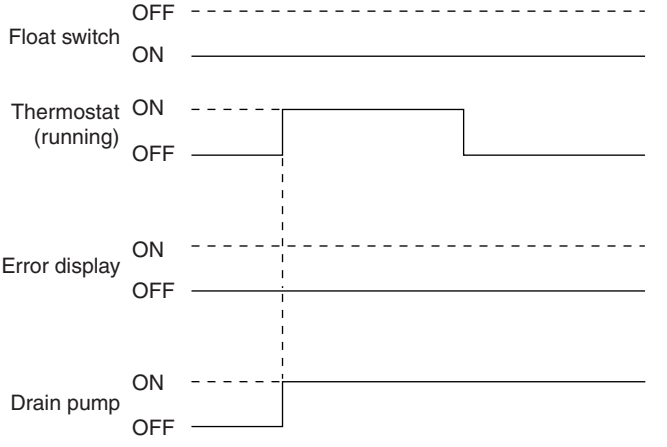
8.7 Setback Function (With Wired Remote Controller BRC1E73)

The Setback function can be used to maintain the space temperature in an assigned range for an unoccupied period.
The setback icon flashes on the LCD of wired remote controller when the unit is turned on by the setback control.

- When enabled, the Setback mode becomes active when the indoor unit is turned off by either the user, a schedule event or an off timer.
- Setback function is not available by default. It can be enabled by the system installer.

8.8 Drain Pump Control

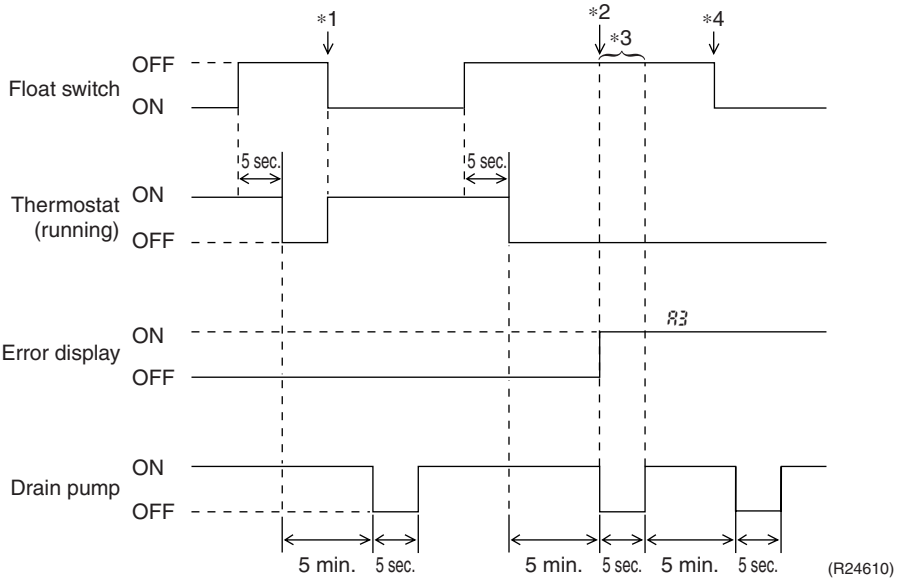
8.8.1 Normal Operation



(R24037)

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

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



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

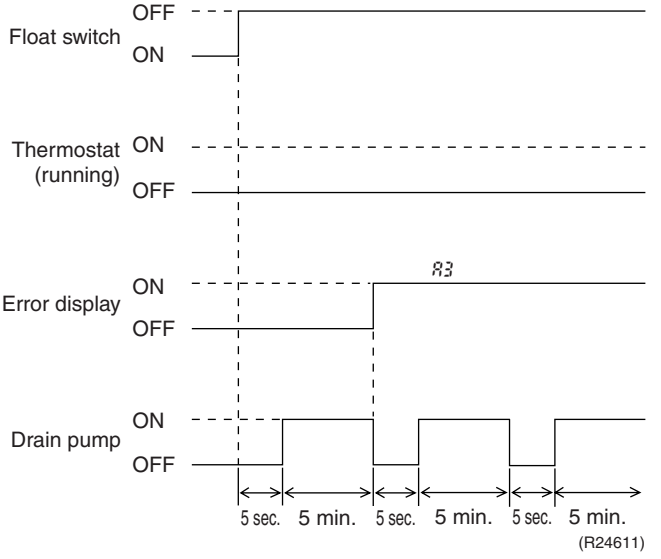
*1: If the float switch turns ON again during the residual operation of the drain pump, cooling operation also turns on again (thermostat ON).

*2: If the float switch remains OFF even after the residual operation of the drain pump has ended, the error code 83 is determined.

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

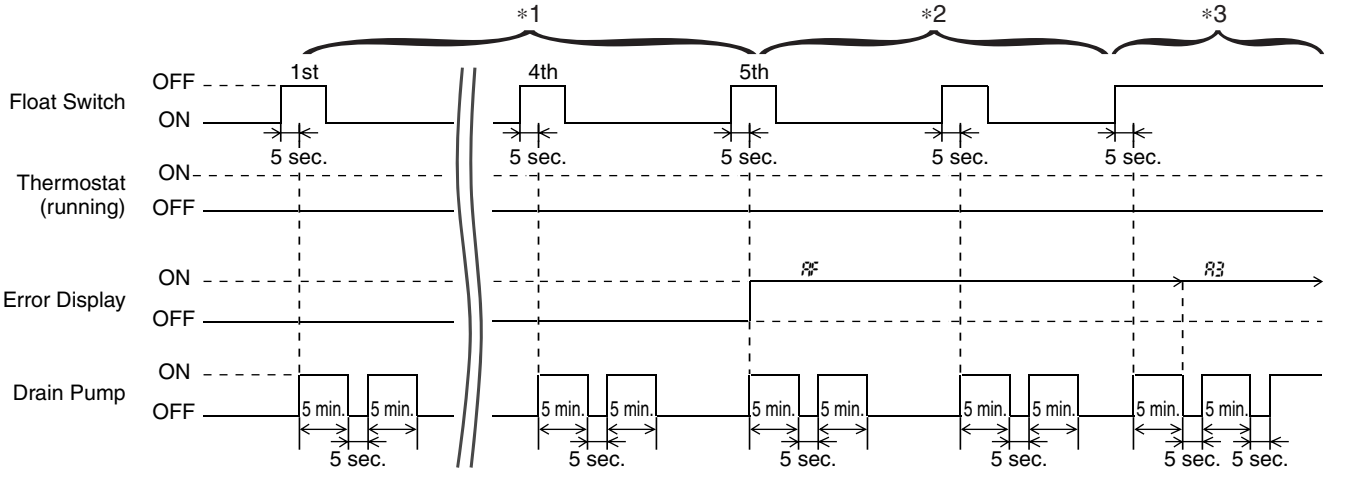
*4: After 83 is determined and the unit comes to an abnormal stop, the thermostat will remain OFF even if the float switch turns ON again.

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



- When the float switch stays OFF for 5 sec., the drain pump turns ON.
- If the float switch remains OFF even after the residual operation of the drain pump has ended, the error code 83 is determined.
- The drain pump turns OFF once residual operation has ended, then turns ON again after 5 seconds.

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



(R24370)

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

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

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

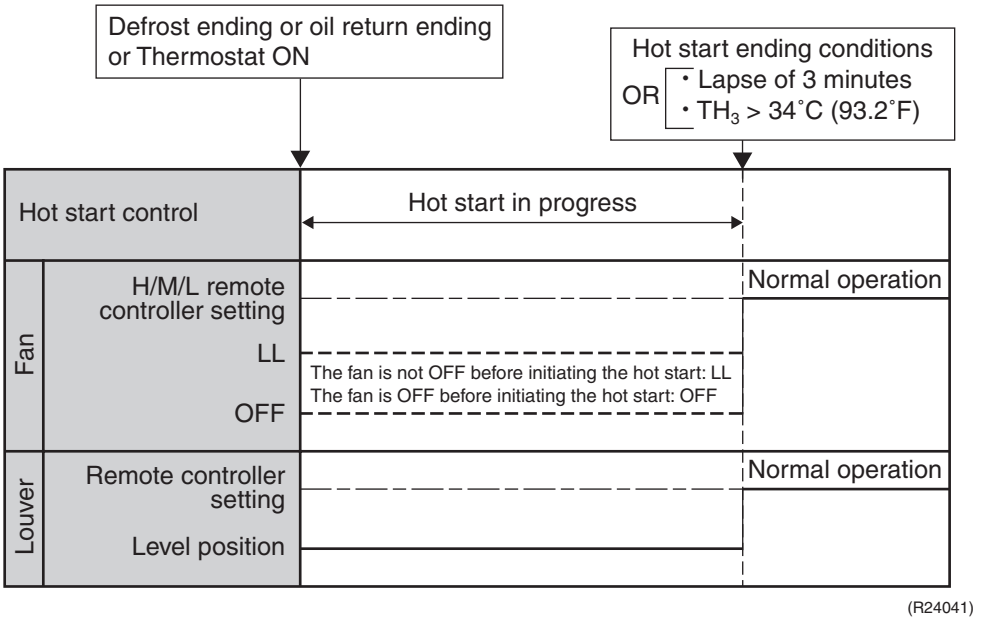
∗3: While the error code is active, if the float switch remains OFF even after the residual operation of the drain pump has ended, the error code will be determined.

8.9 Hot Start Control (In Heating Operation Only)

Outline

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

Details



(R24041)

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

8.10 Presence and Floor Sensors (Option)

Outline

With the human presence signal and the floor temperature signal from the optional sensor kit, the system provides the energy saving control, or the comfortable temperature control and airflow direction control preventing the direct draft to the human.
To use sensor related functions, a wired remote controller (BRC1E73) and optional sensor kit (BRYQ60A2W(S)) are necessary to be installed.

Details

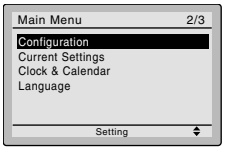
1. Draft prevention (with presence sensor)

When the sensor detects human presence during auto-swing operation, the system sets the airflow direction parallel to the floor (position 0) to reduce unpleasant draft.
The operation returns to the normal auto-swing as the sensor detects no human in the room.

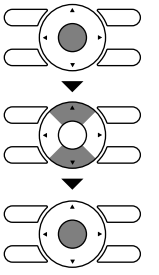
- Draft prevention is enabled only when decoration panel BYFQ60C2W1W(S), sensor kit BRYQ60A2W(S) and wired remote controller BRC1E73 are connected to the main unit and draft prevention is set to “enabled” on the wired remote controller.
- Factory setting is “disabled”.
- Draft prevention cannot be activated when individual flap control is set, even if draft prevention is enabled on the wired remote controller.

Setting on the wired remote controller

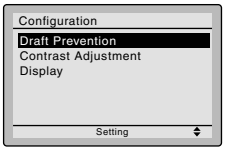
1



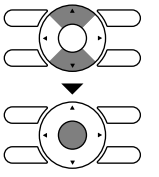
- Press **Menu/OK** button to display the main menu screen.
- Press ▼▲ buttons to select Configuration and press **Menu/OK** button.



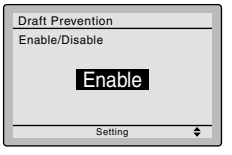
2



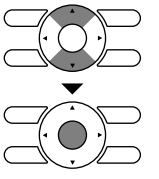
- Press ▼▲ buttons to select Draft Prevention and press **Menu/OK** button.



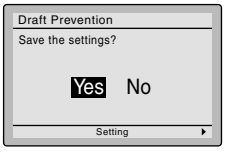
3



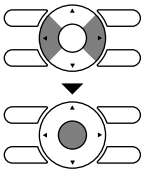
- Press ▼▲ buttons to select Enable.
- The confirmation screen will appear when **Menu/OK** button is pressed.



4



- Press ◀▶ buttons to select Yes.
- Press **Menu/OK** button to confirm the settings and to return to the basic screen.



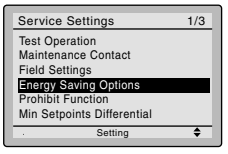
2. Auto-setback by sensor (with presence sensor)

After pre-determined time has elapsed without detection of human presence, the unit automatically shifts the target temperature gradually for energy saving.
The target temperature displayed on the remote controller remains same as the initial set value during the above change of target temperature.
The target temperature shifts within the range of the highest programmable temperature while in cooling operation and the lowest programmable temperature while in heating operation.
Upon human detection, the target temperature returns to the original setting.

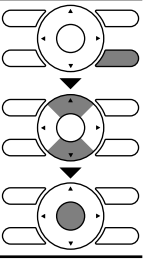
- Auto-setback by sensor is enabled only when decoration panel BYFQ60C2W1W(S), sensor kit BRYQ60A2W(S) and wired remote controller BRC1E73 are connected to the main unit and auto-setback by sensor is set to “enabled” on the wired remote controller.
- Factory setting is “disabled”.

Setting on the remote controller

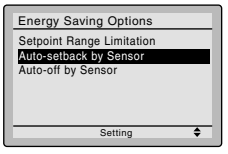
1



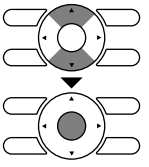
- Press **Cancel** button for 4 seconds on the basic screen to display Service Settings menu.
- Press ▼▲ buttons to select Energy Saving Options .
- Press **Menu/OK** button to display Energy Saving Options menu.



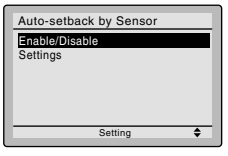
2



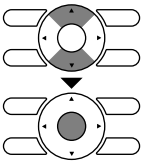
- Press ▼▲ buttons to select Auto-setback by Sensor .
- Press **Menu/OK** button to display Auto-setback by Sensor menu.



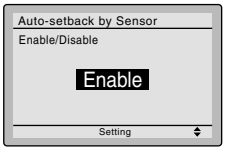
3



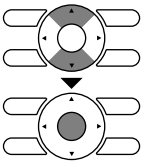
- Press ▼▲ buttons to select Enable/ Disable .
- Press **Menu/OK** button.



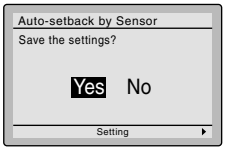
4



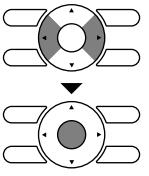
- Press ▼▲ buttons to select Enable .
- Press **Menu/OK** button after selecting the item. Then the confirmation screen is displayed.



5



- Press ◀▶ buttons to select Yes .
- Press **Menu/OK** button to confirm the settings and to return to the Service Settings menu.



3. Auto-off by sensor (with presence sensor)

After pre-determined time has elapsed without detection of human presence, the unit automatically stops operation.

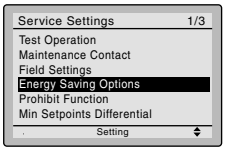
The auto-off time can be set between 1- 24 hours by the hour.

Once the unit stops operation by auto-off function, the system would not restart even if the human is detected again.

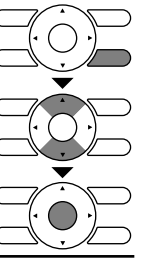
- Auto-off by sensor is enabled only when decoration panel BYFQ60C2W1W(S), sensor kit BRYQ60A2W(S) and wired remote controller BRC1E73 are connected to the main unit and auto-off by sensor is set to “enabled” on the wired remote controller.
- Factory setting is “disabled”.

Setting on the remote controller

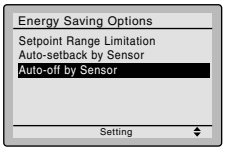
1



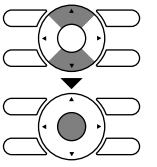
- Press **Cancel** button for 4 seconds on the basic screen to display Service Settings menu.
- Press ▼▲ buttons to select Energy Saving Options.
- Press **Menu/OK** button to display Energy Saving Options menu.



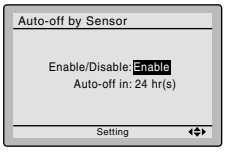
2



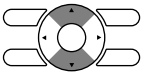
- Press ▼▲ buttons to select Auto-off by Sensor.
- Press **Menu/OK** button to display Auto-off by Sensor menu.



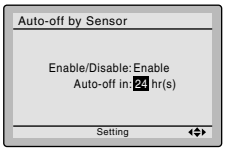
3



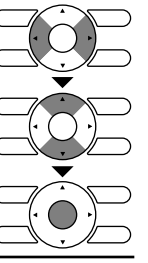
- Press ▼▲ buttons to select Enable.



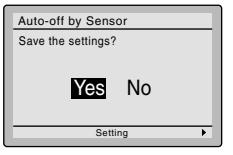
4



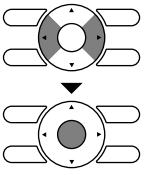
- Press ◀▶ buttons to go into the auto-off time setting.
- Press ▼▲ buttons to set auto-off hour(s) (1 ~ 24).
- Press **Menu/OK** button. Then the confirmation screen is displayed.



5



- Press ◀▶ buttons to select Yes.
- Press **Menu/OK** button to confirm the settings and to return to the Service Settings menu.



4. Room temperature adjustment by sensing (with floor sensor)

The system uses living space temperature calculated from temperatures detected by room temperature thermistor (suction air thermistor in the indoor unit) and floor sensor, as the target temperature.

Operation becomes more optimized by using not only suction air temperature but floor temperature.

- This function is enabled when decoration panel BYFQ60C2WAW(S) and sensor kit BRYQ60A2W(S) is connected to the main unit.

8.11 Other Functions

8.11.1 Signal Receiving Sign

When the indoor unit receives a signal from the remote controller, the unit emits a signal receiving sound.

8.11.2 Auto-restart Function

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

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

8.11.3 Emergency Operation Switch (With Wireless Remote Controller Kit BRC082A41W, BRC082A42W(S))

When the remote controller does not work due to battery failure or the absence thereof, use the emergency operation switch.

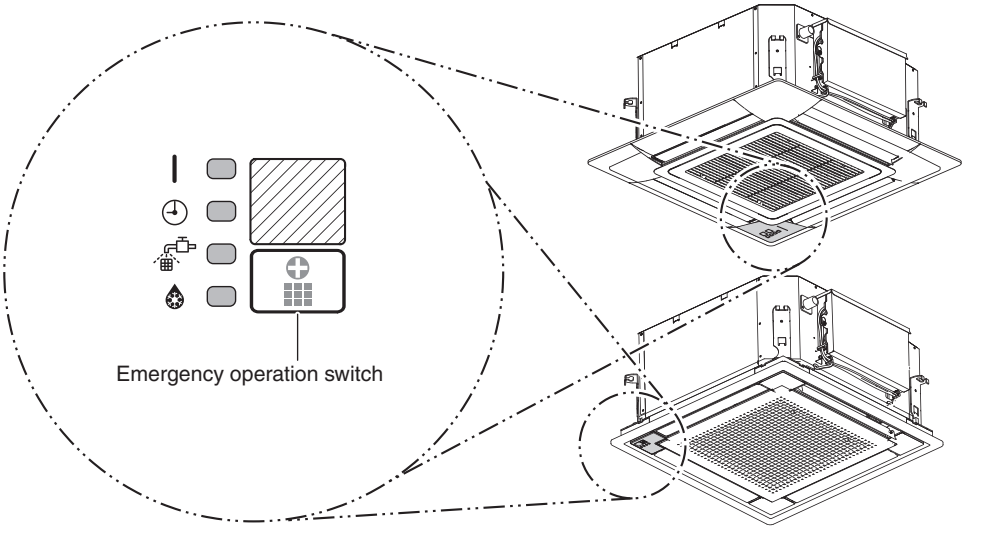
Start

Press emergency operation switch.

- The unit runs in the previous mode.
- The system operates with the previously set airflow direction.

Stop

Press emergency operation switch again.



(R24077)

Part 6
Test Operation and Field Settings

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   1.1 Procedure and Outline 115
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   2.1 Outdoor Unit 125
   2.2 CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series 139
   2.3 FFQ Series 144

1. Test Operation

1.1 Procedure and Outline

Follow the following procedure to conduct the initial test operation after installation.

1.1.1 Check Work Prior to Turn Power Supply On

Check the below items.
- Power wiring
- Control transmission wiring between units
- Ground wire

⇩

Check on refrigerant piping.

⇩

Check on amount of refrigerant charge.

(R12942)

- ○ Is the power supply single-phase 208 ~ 230 V, 60 Hz?
- ○ Have you finished a duct work to drain?
- ○ Have you detach transport fitting?
- ○ Is the wiring performed as specified?
- ○ Are the designated wires used?
- ○ Is the grounding work completed?
  Use a 500 V Megger tester to measure the insulation.
  Do not use a Megger tester for other than 208 - 230 V circuit.
- ○ Are the screws of wiring not loose?
- ○ Is the electrical component box covered with an insulation cover completely?

- ○ Is pipe size proper? (The design pressure of this product is 4.0 MPa (1338 ftAq).)
- ○ Are pipe insulation materials installed securely?
  Liquid and gas pipes need to be insulated. (Otherwise causes water leak.)
- ○ Are respective stop valves on liquid and gas line securely open?

- ○ Is refrigerant charged up to the specified amount?
  If insufficient, charge the refrigerant from the service port of stop valve on the liquid side with outdoor unit in stop mode after turning power on.

1.1.2 Turn Power On

Turn outdoor unit power on.

⇩

Turn indoor unit power on.

⇩

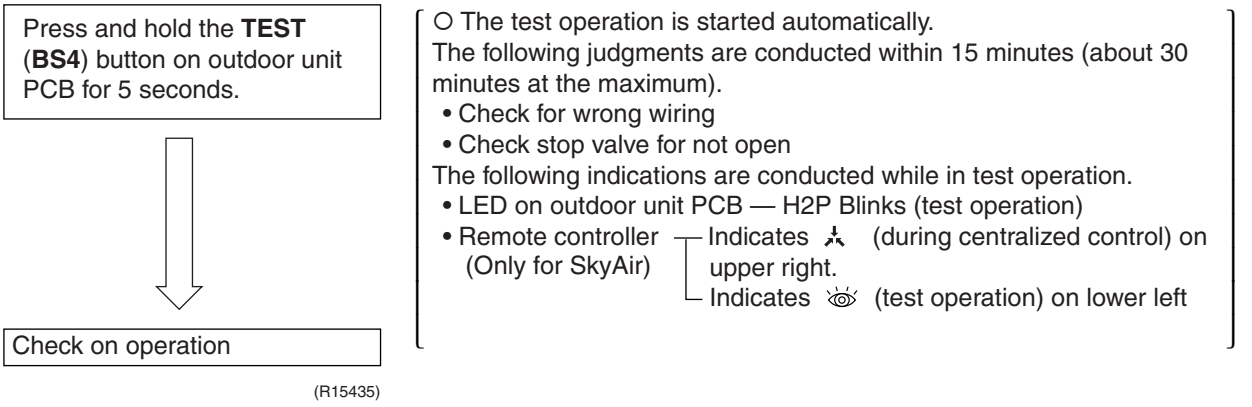
Carry out field setting on outdoor PCB.

(R12995)

- ○ Be sure to turn the power on 6 hours before starting operation to protect compressors.
- ○ Close outside panels of the outdoor unit.

1.1.3 Check Operation

* During check operation, mount front panel to avoid the misjudging.
* Check operation is mandatory for normal unit operation.
  (When the check operation is not executed, alarm code **U3** is displayed.)



On completion of test operation, LED on outdoor unit PCB displays the following.
H3P ON: Normal completion
H2P and H3P ON: Abnormal completion → Check the indoor unit remote controller for error code display and correct it.

Error code	Nonconformity during installation	Remedial action
E3	The stop valve of the outdoor unit is left closed.	Open the gas-side stop valve and the liquid-side stop valve.
	Refrigerant overcharged	Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.
E4	The stop valve of the outdoor unit is left closed.	Open the gas-side stop valve and the liquid-side stop valve.
	Refrigerant shortage	Check if the additional refrigerant charge has been finished correctly.
		Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.
F3	Refrigerant overcharged	Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.
	The stop valve of the outdoor unit is left closed.	Open the gas-side stop valve and the liquid-side stop valve.
	Refrigerant shortage	Check if the additional refrigerant charge has been finished correctly.
		Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.
F6	Refrigerant overcharged	Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.
U2	Insufficient power supply voltage	Check if the power supply voltage is supplied properly.
U3	If a check operation has not been performed.	Perform a check operation.
U4	No power is supplied to the outdoor unit.	Turn the power on for the outdoor unit.
UA	If no dedicated indoor unit is being used.	Check the indoor unit. If it is not a dedicated unit, replace the indoor unit.
UF	The stop valve of the outdoor unit is left closed.	Open the gas-side stop valve and the liquid-side stop valve.
	If the right indoor unit piping and wiring are not properly connected to the outdoor unit.	Make sure that the right indoor unit piping and wiring are properly connected to the outdoor unit.
UH	If the interunit wiring has not be connected or it has shorted.	Make sure the interunit wiring is correctly attached to terminals (X2M) F1/F2 on the outdoor unit circuit board.

1.1.4 Confirmation on Normal Operation

- Conduct normal unit operation after the check operation has been completed.
  (When outdoor air temperature is 24°CDB (75.2°FDB) or higher, the unit can not be operated with heating operation. See the installation manual attached.)
- Confirm that the indoor/outdoor units can be operated normally.
  (When an abnormal noise due to liquid compression by the compressor can be heard, stop the unit immediately, and turn on the crankcase heater to heat up it sufficiently, then start operation again.)
- Operate indoor unit one by one to check that the corresponding outdoor unit operates.
- Confirm that the indoor unit discharges cold air (or warm air).
- Operate the air direction control button and flow rate control button to check the function of the devices.

1.2 Operation when Power is Turned On

1.2.1 When Turning On Power First Time

The unit cannot be run for up to 12 minutes to automatically set the master power and address (indoor-outdoor address, etc.).

Status

Outdoor unit	Test lamp H2P .... Blinks Can also be set during operation described above.
Indoor unit	If **ON** button is pushed during operation described above, the **UH** malfunction indicator blinks. (Returns to normal when automatic setting is complete.)

1.2.2 When Turning On Power the Second Time and Subsequent

Push the **RESET** (**BS5**) button on the outdoor unit PCB. Operation becomes possible for about 2 minutes. If you do not push **RESET** button, the unit cannot be run for up to 10 minutes to automatically set master power.

Status

Outdoor unit	Test lamp H2P .... Blinks Can also be set during operation described above.
Indoor unit	If **ON** button is pushed during operation described above, the operation lamp lights but the compressor does not operate. (Returns to normal when automatic setting is complete.)

1.2.3 When an Indoor Unit or Outdoor Unit has been Added, or Indoor or Outdoor Unit PCB has been Changed

Be sure to push and hold **RESET** button for 5 seconds. If not, the addition cannot be recognized. In this case, the unit cannot be run for up to 12 minutes to automatically set the address (indoor-outdoor address, etc.)

Status

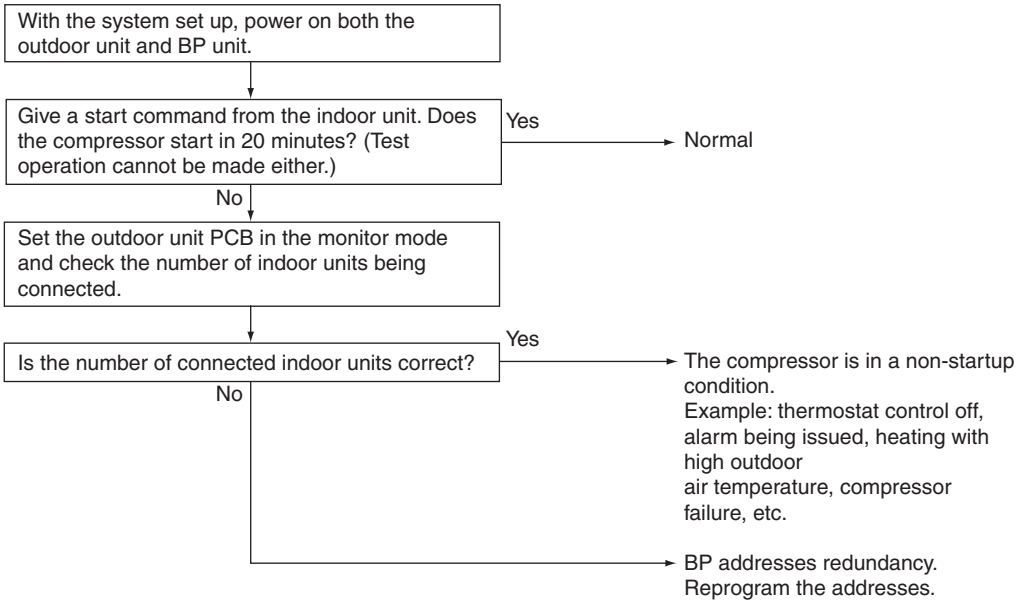
Outdoor unit	Test lamp H2P .... ON Can also be set during operation described above.
Indoor unit	If **ON** button is pushed during operation described above, the **UH** or **U4** malfunction indicator blinks. (Returns to normal when automatic setting is complete.)

1.3 Branch Provider (BP) Unit

1.3.1 Judging and reprogramming in case of redundant BP addresses

The BP unit of this system is provided with specific addresses in its production stage. These addresses are for various controls. If by any chance (on 3 out of 260000 units) these addresses are redundant, the system may get in trouble. When replacing the PCB of the BP unit too, these addresses may be used repeatedly.

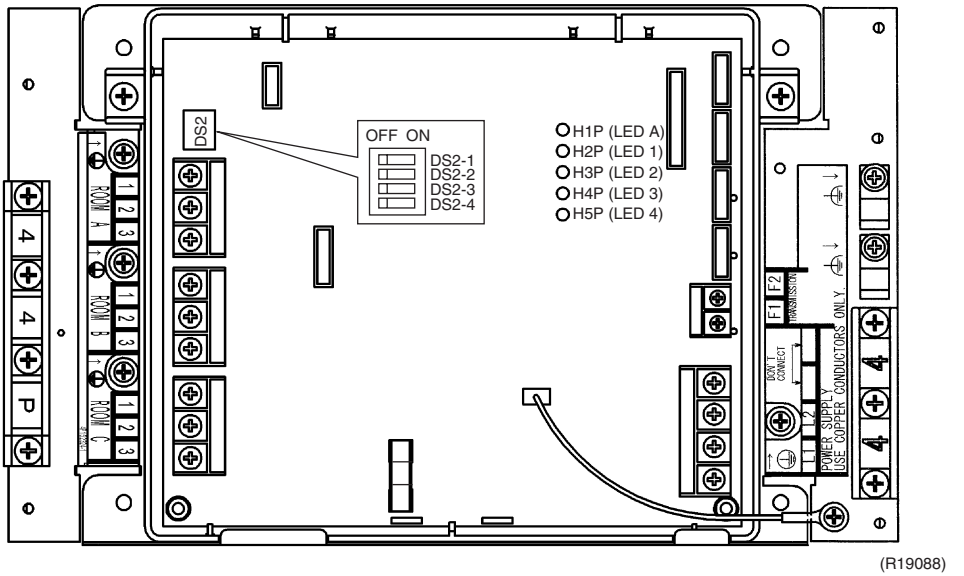
Address redundancy checking flowchart



(Q0517)

Reprogramming the PCB addresses of BP unit

Modify the DIP switch (DS2) settings on the BP unit's PCB in the following way.



(R19088)

Example of DIP switch (DS2) settings on the BP unit's PCB

	DS2-1	DS2-2	DS2-3	DS2-4
BP unit 1	OFF	OFF	ON	OFF
BP unit 2	OFF	OFF	OFF	ON
BP unit 3	OFF	OFF	ON	ON

DS1 ~ 4 : Factory setting is OFF.

The BP unit 1 through 3 show the first through third unit, respectively. The order of these BP units is flexible.

The above table is only for your reference. The redundancy of addresses can be avoided when the DIP switch settings are individually specified.

With the DIP switch settings reprogrammed, power on the outdoor unit and BP unit again. Check for address redundancy.

Note: If an error message is displayed on the indoor unit, BP unit or outdoor unit, follow its code and description.

1.4 CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series

Outline

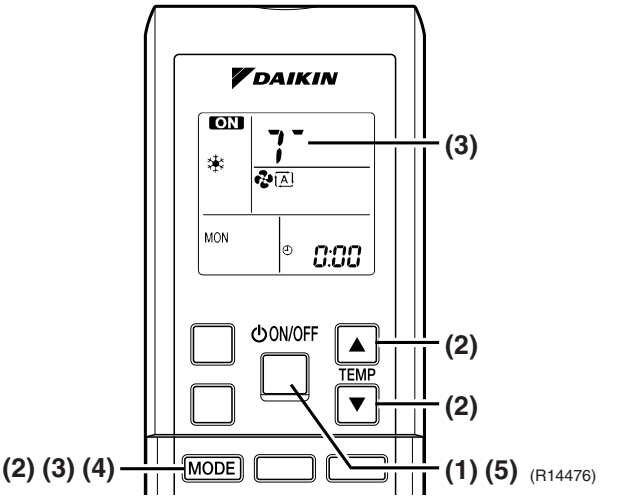
Carry out the trial operation in accordance with the operation manual to ensure that all functions and parts, such as flap movement, are working properly.
Trial operation should be carried out in either cooling or heating operation.

Details

1. Measure the power supply voltage and make sure that it falls within the specified range.
2. In cooling operation, select the lowest programmable temperature (18°C (64°F)); in heating operation, select the highest programmable temperature (30°C (86°F)).
   - Trial operation may be disabled in either operation mode depending on the room temperature.
   - After trial operation is complete, set the temperature to a normal level (26 ~ 28°C (78 ~ 82°F) in cooling, 20 ~ 24°C (68 ~ 75°F) in heating).
   - For protection, the system does not start for 3 minutes after it is turned off.

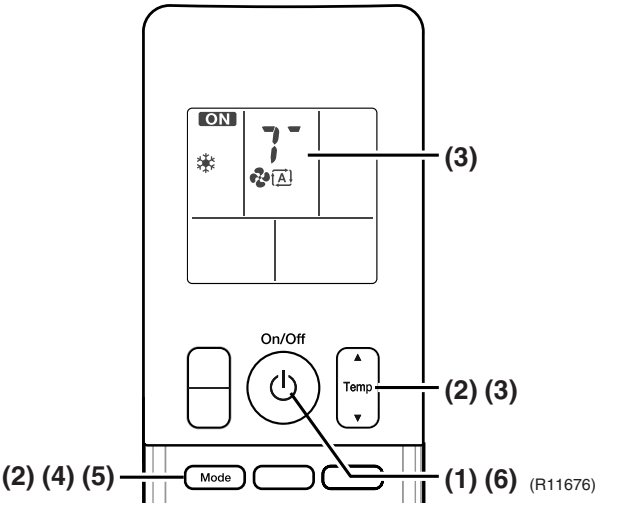
ARC452 Series

(1) Press **ON/OFF** button to turn on the system.
(2) Press both of **TEMP** buttons and **MODE** button at the same time.
(3) Press **MODE** button twice.
(7 is displayed on the screen to indicate that test operation is selected.)
(4) Press **MODE** button and select the operation mode.
(5) Test operation terminates in about 30 minutes and switches into normal mode. To quit test operation, press **ON/OFF** button.



ARC466 Series

(1) Press **On/Off** button to turn on the system.
(2) Press the center of **Temp** button and **Mode** button at the same time.
(3) Select 7- (test operation) with **Temp** ▲ or **Temp** ▼ button.
(4) Press **Mode** button to start the test operation.
(5) Press **Mode** button and select operation mode.
(6) Test operation terminates in about 30 minutes and switches into normal mode. To quit test operation, press **On/Off** button.



Test Items

Test items	Symptom (diagnostic display on RC)
Indoor and outdoor units are installed properly on solid bases.	Fall, vibration, noise
No refrigerant gas leaks.	Incomplete cooling/heating function
Refrigerant gas and liquid pipes and indoor drain hose extension are thermally insulated.	Water leakage
Draining line is properly installed.	Water leakage
System is properly grounded.	Electrical leakage
The specified wires are used for inter-unit wiring.	Inoperative or burn damage
Indoor or outdoor unit's air inlet or air outlet has clear path of air. Stop valves are opened.	Incomplete cooling/heating function
Indoor unit properly receives remote control commands.	Inoperative
The heat pump or cooling only mode is selectable with the DIP switch of the remote controller.	Remote controller malfunctioning

Note: The test items above are for CTXS, FTXS as representative.
Refer to the installation manual for other series.

1.5 FFQ Series

Outline

- Make sure to install the decoration panel before carrying out trial operation if the wireless remote controller is used.
- Trial operation should be carried out in either cooling or heating operation.

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

Caution When performing field settings or trial operation without attaching the decoration panel, do not touch the drain pump. This may cause electric shock.
After finishing the construction of refrigerant piping, drain piping, and electric wiring, conduct trial operation accordingly to protect the unit.

Procedure

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

■ **With Wired Remote Controller (BRC1E73)**

1. Set to COOL or HEAT operation using the remote controller.

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

3. Select **Test Operation** in the service settings menu, and press **Menu/OK** button. Basic screen returns and "Test Operation" is displayed at the bottom.

4. Press **On/Off** button within 10 seconds, and the test operation starts.
   Monitor the operation of the indoor unit for a minimum of 10 minutes. During test operation, the indoor unit will continue to cool/heat regardless of the temperature setpoint and room temperature.
   - In the case of above-mentioned procedures 3 and 4 in reverse order, test operation can start as well.

5. Press **Menu/OK** button in the basic screen. Main menu is displayed.

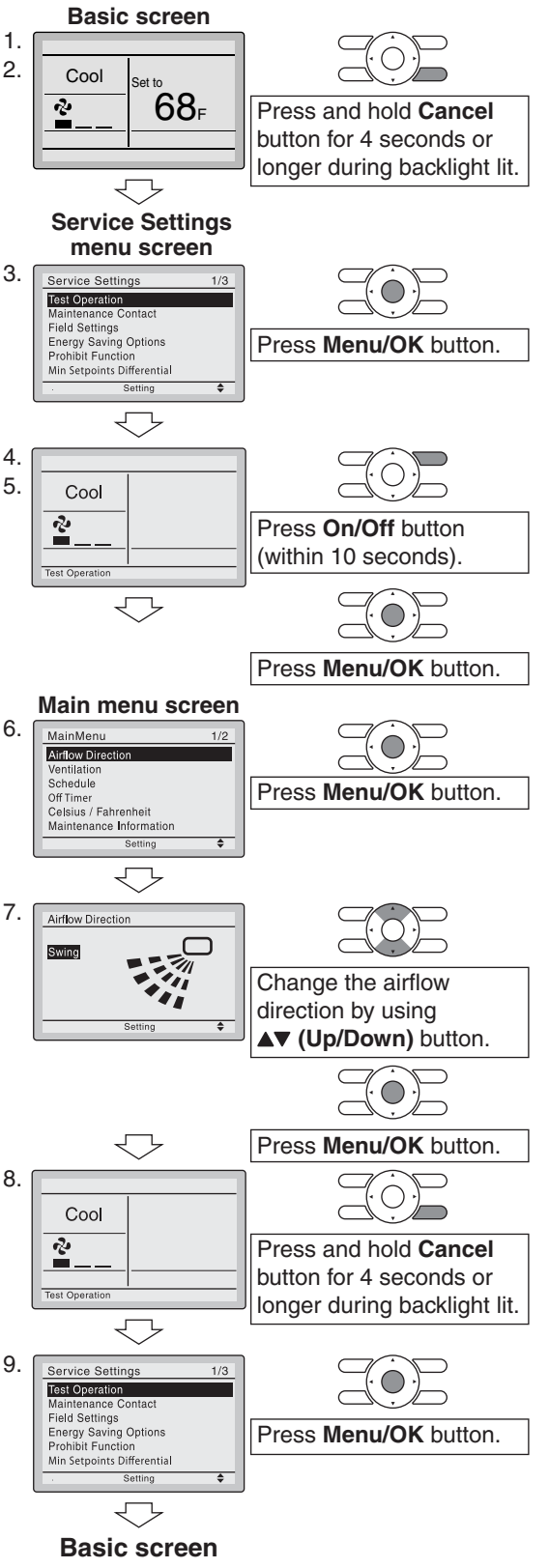
6. Select **Airflow Direction** in the main menu and press **Menu/OK** button. Check that airflow direction is actuated according to the setting. For operation of airflow direction setting, see the operation manual.

7. After the operation of airflow direction is confirmed, press **Menu/OK** button. Basic screen returns.

8. Press and hold **Cancel** button for 4 seconds or longer in the basic screen. Service settings menu is displayed.

9. Select **Test Operation** in the service settings menu, and press **Menu/OK** button. Basic screen returns and normal operation is conducted.
   - Test operation will stop automatically after 15 ~ 30 minutes. To stop the operation, press **On/Off** button.

10. If the decoration panel has not been installed, turn off the power after the test operation.



■ **With Wireless Remote Controller Kit (BRC082A41W, BRC082A42W(S))**

1. Press MODE button and select the COOL or HEAT operation.
2. Press /TEST button twice. **"**TEST**"** is displayed.
3. Press ON/OFF button within 10 seconds, and the test operation starts.

   Monitor the operation of the indoor unit for a minimum of 10 minutes. During test operation, the indoor unit will continue to cool/heat regardless of the temperature setpoint and room temperature.
   - In the case of above-mentioned procedures (1) and (2) in reverse order, test operation can start as well.
   - Test operation will stop automatically after 15 ~ 30 minutes. To stop the operation, press ON/OFF button.
   - Some of the functions cannot be used in the test operation mode.

Test Items

Test items	Symptom
Indoor and outdoor units are installed securely.	Fall, vibration, noise
Is the outdoor unit fully installed?	No operation or burn damage
No refrigerant gas leaks.	Incomplete cooling/heating function
Refrigerant gas and liquid pipes and indoor drain hose extension are thermally insulated.	Water leakage
Draining line is properly installed.	Water leakage
Does the power supply voltage correspond to that shown on the name plate?	No operation or burn damage
Only specified wires are used for all wiring, and all wires are connected correctly.	No operation or burn damage
System is properly grounded.	Electrical leakage
Is wiring size according to specifications?	No operation or burn damage
Is something blocking the air outlet or inlet of either the indoor or outdoor units?	Incomplete cooling/heating function
Are refrigerant piping length and additional refrigerant charge noted down?	The refrigerant charge in the system is not clear
Pipes and wires are connected to the corresponding connection ports/terminal blocks for the connected unit.	No cooling/heating
Stop valves are opened.	Incomplete cooling/heating function
Check that the connector of the lead wires of the decoration panel is connected securely.	Louvers do not move
Indoor unit properly receives wireless remote control commands.	No operation

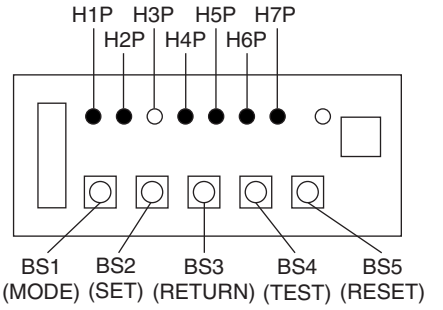
2. Field Settings

2.1 Outdoor Unit

2.1.1 Setting Mode and Monitor Mode

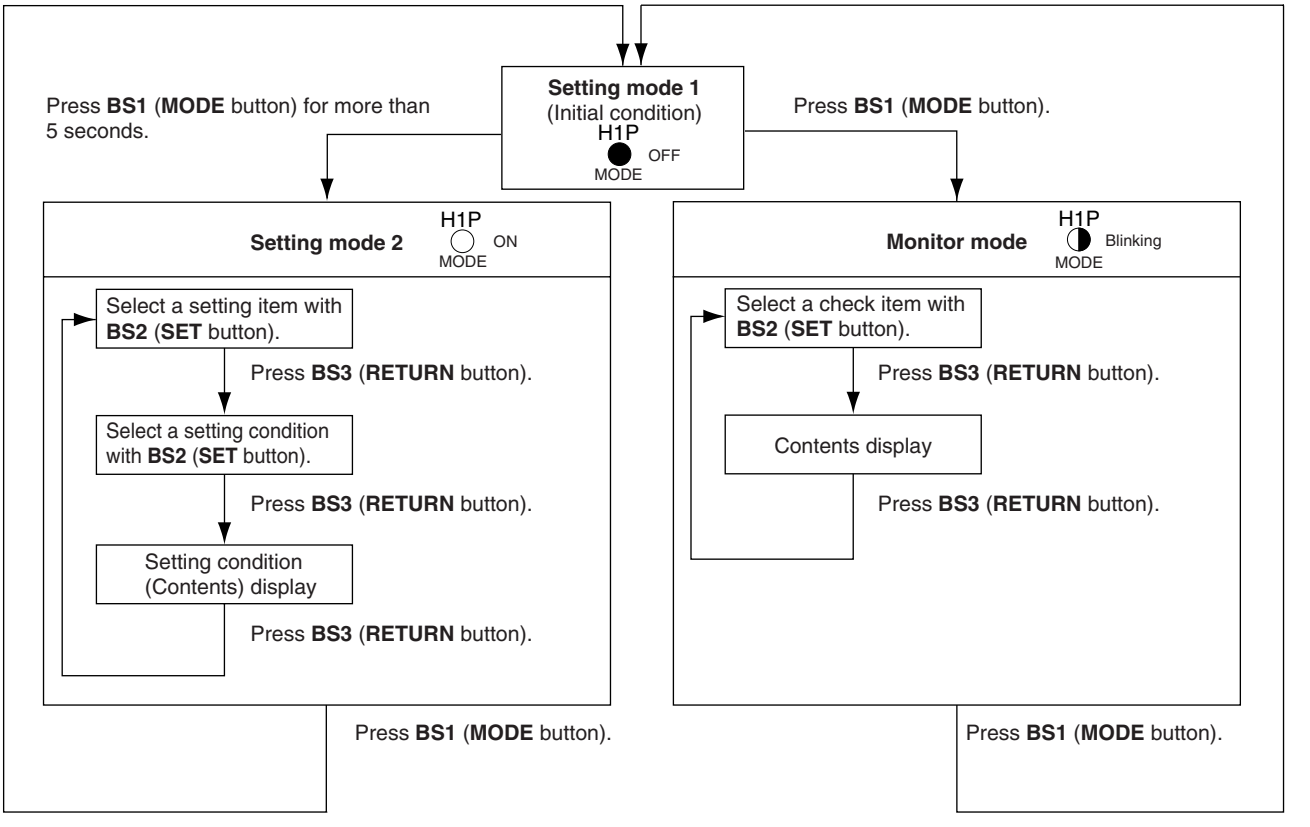
Outline

The following 3 modes can be changed over with the button switches on the service PCB and you can find the present mode by the status of the H1P indicator.



(R15629)

(1) Setting mode 1 (H1P off)
Initial status (normal) : Also indicates during abnormal.
(2) Setting mode 2 (H1P on)
Used to modify the operating status and to set program addresses, etc. Usually used in servicing the system.
(3) Monitor mode (H1P blinks)
Used to check the program made in setting mode 2.



(R23983)

Setting Mode 1

This mode is used to set and check the following items.

1. Set items ····· In order to make COOL/HEAT selection in a batch of outdoor unit group, change the setting.
   - COOL/HEAT selection (IND) ····· Used to select COOL or HEAT by individual outdoor unit (factory setting).
   - COOL/HEAT selection (MASTER) ····· Used to select COOL or HEAT by outdoor unit group with the master unit.
   - COOL/HEAT selection (SLAVE) ····· Used to select COOL or HEAT by outdoor unit group with the slave unit.
2. Check items ····· The following items can be checked.
   (1) Current operating conditions (Normal/Abnormal/In check operation)
   (2) Setting conditions of COOL/HEAT selection (Individual/Batch master/Batch slave)
   (3) Low noise operating conditions (In normal operation/In low noise operation)
   (4) Demand operating conditions (In normal operation/In demand operation)

Procedure for changing COOL/HEAT selection setting

Setting mode 1 is the initial status (normal). In case of other status, press **MODE** (**BS1**) button one time and return to the setting mode 1.

Press **SET** (**BS2**) button to set the blinking LED according to the pattern shown on the right.

Press **RETURN** (**BS3**) button to determine the setting.

The system returns to the initial status of setting mode 1.

○ ON
● OFF
◑ Blink

Setting (displaying) item	MODE H1P	TEST H2P	COOL/HEAT select			LOW NOISE H6P	DEMAND H7P
			IND H3P	MASTER H4P	SLAVE H5P		
For selection by individual outdoor unit (factory setting)	●	●	◑	●	●	●	●
For selection in a batch of outdoor unit group with master unit	●	●	●	◑	●	●	●
For selection in a batch of outdoor unit group with slave unit	●	●	●	●	◑	●	●

(R23984)

Procedure for checking

Setting mode 1 is the initial status (normal). In case of other status, press **MODE** (**BS1**) button one time and return to the setting mode 1.

Check the system for each condition through LED displays. (Refer to information in table on the right.)

Press **RETURN** (**BS3**) button and return to the initial status of setting mode 1.

MODE H1P	TEST H2P	COOL/HEAT select			Low noise H6P	Demand H7P
		IND H3P	MASTER H4P	SLAVE H5P		
●	●	○	●	●	●	●

Current operating conditions
- ● Normal
- ○ Abnormal
- ◑ In preparation or in check operation

Setting of COOL/HEAT selection
- ○ ● ● By individual outdoor unit
- ● ○ ● In a batch of outdoor unit group with master unit
- ● ● ○ In a batch of outdoor unit group with slave unit

Low noise operating conditions
- ● In normal operation
- ○ In low noise operation

Demand operating conditions
- ● In normal operation
- ○ In demand operation

(R23985)

Setting Mode 2

Press **MODE** (**BS1**) button for 5 seconds and enter the setting mode 2.

↓

Selection of setting items

Press **SET** (**BS2**) button and select a setting item according to the LED pattern shown in the table on the right.

↓

Press **RETURN** (**BS3**) button and decide the item. (The present setting condition is shown.)

↓

Selection of setting conditions

Press **SET** (**BS2**) button and select to the setting condition you want.

↓

Press **RETURN** (**BS3**) button and decide the condition.

↓

Press **RETURN** (**BS3**) button and return to the initial status of setting mode 2.

∗ If you become unsure of how to proceed, press **MODE** (**BS1**) button and return to the setting mode 1.

No.	Setting item	Description
1	Cool/heat unified address	Sets address for cool/heat unified operation.
2	Low noise/demand address	Address for low noise/demand operation
3	Test operation settings	Used to conduct test operation without making changes to the PCB and replacing the refrigerant, after the completion of maintenance.
5	Indoor unit forced fan H	Allows forced operation of indoor unit fan while unit is stopped. (H tap)
6	Indoor unit forced operation	Allows forced operation of indoor unit.
8	Te setting	Target evaporation temperature for cooling
9	Tc setting	Target condensation temperature for heating
10	Defrost changeover setting	Changes the temperature condition for defrost and sets to quick defrost or slow defrost.
12	External low noise setting/Demand setting	Reception of external low noise or demand signal
13	AIRNET address	Set address for AIRNET.
16	Setting of hot water heater	Make this setting to conduct heating operation with hot water heater.
20	Additional refrigerant charge operation setting	Carries out additional refrigerant charge operation.
21	Refrigerant recovery/vacuuming mode setting	Sets to refrigerant recovery or vacuuming mode.
22	Night-time low noise setting	Sets automatic nighttime low noise operation in a simple way. The operating time is based on Starting Set and Ending Set.
25	Setting of low noise level	Sets low noise level when the low noise signal is received.
26	Night-time low noise operation start setting	Sets starting time of nighttime low noise operation. (Night-time low noise setting is also required.)
27	Night-time low noise operation end setting	Sets ending time of nighttime low noise operation. (Night-time low noise setting is also required.)
28	Power transistor check mode ∗Check after disconnection of compressor wires	Used for trouble diagnosis of DC compressor. Since the waveform of inverter is output without wiring to the compressor, it is convenient to probe whether the trouble comes from the compressor or PCB.
29	Capacity precedence setting	If the capacity control is required, the low noise control is automatically released by this setting during carrying out low noise operation and nighttime low noise operation.
30	Demand setting 1	Changes target value of power consumption when demand control 1 is received.
32	Constant demand setting	Enables demand control 1 without external input. (Effective to prevent a problem that circuit breaker of small capacity is shut down due to large load.)

The numbers in the No. column represent the number of times to press **SET** (**BS2**) button.

No.	Setting item display								Setting condition display			
	Setting item	MODE H1P	TEST H2P	C/H selection			Low noise H6P	Demand H7P				✻ Factory setting
				IND H3P	Master H4P	Slave H5P						
1	Cool/heat unified address	○	●	●	●	●	●	○	Address Binary number (6 digits)	0 1 ~ 31	○●●●●●● ○●●●●●○ ○●○○○○○	✻
2	Low noise/demand address	○	●	●	●	●	○	●	Address Binary number (6 digits)	0 1 ~ 31	○●●●●●● ○●●●●●○ ○●○○○○○	✻
3	Test operation settings	○	●	●	●	●	○	○	Test operation : OFF Test operation : ON		○●●●●●○ ○●●●●○●	✻
5	Indoor unit forced fan H	○	●	●	●	○	●	○	Normal operation Indoor forced fan H		○●●●●●○ ○●●●●○●	✻
6	Indoor unit forced operation	○	●	●	●	○	○	●	Normal operation Indoor forced operation		○●●●●●○ ○●●●●○●	✻
8	Te setting	○	●	●	○	●	●	●	High Normal (factory setting) Low		○●●●○●● ○●●●●○● ○●●●●●○	✻
9	Tc setting	○	●	●	○	●	●	○	High Normal (factory setting) Low		○●●●○●● ○●●●●○● ○●●●●●○	✻
10	Defrost changeover setting	○	●	●	○	●	○	●	Quick defrost Normal (factory setting) Slow defrost		○●●●○●● ○●●●●○● ○●●●●●○	✻
12	External low noise setting/demand setting	○	●	●	○	○	●	●	External low noise/demand: NO External low noise/demand: YES		○●●●●●○ ○●●●●○●	✻
13	AIRNET address	○	●	●	○	○	●	○	Address Binary number (6 digits)	0 1 ~ 63	○●●●●●● ○●●●●●○ ○○○○○○○	✻
16	Setting of hot water heater	○	●	○	●	●	●	●	OFF ON		○●●●●●○ ○●●●●○●	✻
20	Additional refrigerant charge operation setting	○	●	○	●	○	●	●	Refrigerant charging: OFF Refrigerant charging: ON		○●●●●●○ ○●●●●○●	✻
21	Refrigerant recovery/ vacuuming mode setting	○	●	○	●	○	●	○	Refrigerant recovery/ vacuuming: OFF Refrigerant recovery/ vacuuming: ON		○●●●●●○ ○●●●●○●	✻
22	Night-time low noise setting	○	●	○	●	○	○	●	OFF Level 1 (outdoor fan with 6 step or lower) Level 2 (outdoor fan with 5 step or lower) Level 3 (outdoor fan with 4 step or lower)		○●●●●●● ○●●●●●○ ○●●●●○● ○●●●●○○	✻

The numbers in the No. column represent the number of times to press **SET** (**BS2**) button.

No.	Setting item display								Setting condition display
	Setting item	MODE H1P	TEST H2P	C/H selection			Low noise H6P	Demand H7P	✻ Factory setting
				IND H3P	Master H4P	Slave H5P			
25	Setting of low noise level	○	●	○	○	●	●	○	Level 1 (outdoor fan with 6 step or lower) ○ ● ● ● ● ● ○ Level 2 (outdoor fan with 5 step or lower) ○ ● ● ● ● ○ ● ✻ Level 3 (outdoor fan with 4 step or lower) ○ ● ● ● ○ ● ●
26	Night-time low noise operation start setting	○	●	○	○	●	○	●	About 20:00 ○ ● ● ● ● ● ○ About 22:00 (factory setting) ○ ● ● ● ● ○ ● ✻ About 24:00 ○ ● ● ● ○ ● ●
27	Night-time low noise operation end setting	○	●	○	○	●	○	○	About 6:00 ○ ● ● ● ● ● ○ About 7:00 ○ ● ● ● ● ○ ● About 8:00 (factory setting) ○ ● ● ● ○ ● ● ✻
28	Power transistor check mode	○	●	○	○	○	●	●	OFF ○ ● ● ● ● ● ○ ✻ ON ○ ● ● ● ● ○ ●
29	Capacity precedence setting	○	●	○	○	○	●	○	OFF ○ ● ● ● ● ● ○ ✻ ON ○ ● ● ● ● ○ ●
30	Demand setting 1	○	●	○	○	○	○	●	60 % demand ○ ● ● ● ● ● ○ 70 % demand ○ ● ● ● ● ○ ● ✻ 80 % demand ○ ● ● ● ○ ● ●
32	Constant demand setting	○	○	●	●	●	●	●	OFF ○ ● ● ● ● ● ○ ✻ ON ○ ● ● ● ● ○ ●

The numbers in the No. column represent the number of times to press **SET** (**BS2**) button.

Monitor Mode

Press **MODE** (**BS1**) button and enter the monitor mode.

Selection of check item

Press **SET** (**BS2**) button and select a check item according to the LED pattern.

Confirmation on check item

Press **RETURN** (**BS3**) button to display different data of check item.

Press **RETURN** (**BS3**) button and return to the initial status of monitor mode.

∗ If you become unsure of how to proceed, press **MODE** (**BS1**) button and return to the setting mode 1.

No.	Check item	LED display							Data display
		H1P	H2P	H3P	H4P	H5P	H6P	H7P	
0	Various setting	◑	●	●	●	●	●	●	See the note below.
1	Cool/heat unified address	◑	●	●	●	●	●	○	Lower 6 digits
2	Low noise/demand address	◑	●	●	●	●	○	●	
3	Not used	◑	●	●	●	●	○	○	
4	AIRNET address	◑	●	●	●	○	●	●	
5	Number of connected indoor units	◑	●	●	●	○	●	○	
7	Number of connected zone units (excluding outdoor and BS unit)	◑	●	●	●	○	○	○	
8	Number of outdoor units	◑	●	●	○	●	●	●	
11	Number of zone units (excluding outdoor and BS unit)	◑	●	●	○	●	○	○	Lower 6 digits
12	Number of terminal blocks	◑	●	●	○	○	●	●	Lower 4 digits: upper
13	Number of terminal blocks	◑	●	●	○	○	●	○	Lower 4 digits: lower
14	Contents of malfunction (the latest)	◑	●	●	○	○	○	●	Error code table Refer to pages 175 to 178.
15	Contents of malfunction (1 cycle before)	◑	●	●	○	○	○	○	
16	Contents of malfunction (2 cycle before)	◑	●	○	●	●	●	●	
20	Contents of retry (the latest)	◑	●	○	●	○	●	●	
21	Contents of retry (1 cycle before)	◑	●	○	●	○	●	○	
22	Contents of retry (2 cycle before)	◑	●	○	●	○	○	●	
25	Normal judgment of outdoor units PCB	◑	●	○	○	●	●	○	Lower 2 digits: ○● Abnormal ●○ Normal ●● Undetermined

The numbers in the No. column represent the number of times to press **SET** (**BS2**) button.

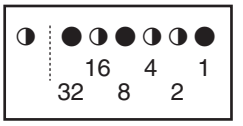
Note: Various Settings

		H1P	H2P	H3P	H4P	H5P	H6P	H7P
Emergency operation/ backup operation setting	ON	◑	●	●	○	●	●	●
	OFF	◑	●	●	●	●	●	●
Defrost select setting	Short	◑	●	●	●	○	●	●
	Medium	◑	●	●	●	◑	●	●
	Long	◑	●	●	●	●	●	●
Te setting	H	◑	●	●	●	●	○	●
	M	◑	●	●	●	●	◑	●
	L	◑	●	●	●	●	●	●
Tc setting	H	◑	●	●	●	●	●	○
	M	◑	●	●	●	●	●	◑
	L	◑	●	●	●	●	●	●

Press **BS2** (**SET** button) and match with the LEDs No. 1 - 15, press **BS3** (**RETURN** button), and confirm the data for each setting.

★ Data such as addresses and number of units is expressed as binary numbers; the two ways of expressing are as follows:

Figure 1

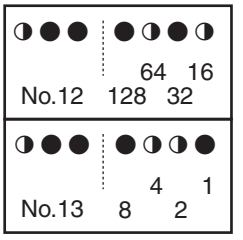


(R12951)

The No. 1 cool/heat unified address is expressed as a binary number consisting of the lower 6 digits. (0 - 63)

In the figure 1, the address is 010110 (binary number), which translates to 16 + 4 + 2 = 22 (base 10 number). In other words, the address is 22.

Figure 2



(R12952)

The number of terminal blocks for No. 12 and 13 is expressed as an 8-digit binary number, which is the combination of four upper, and four lower digits for No. 12 and 13 respectively. (0 - 128)
In the figure 2, the address for No. 12 is 0101, the address for No. 13 is 0110, and the combination of the two is 01010110 (binary number), which translates to 64 + 16 + 4 + 2 = 86 (base 10 number). In other words, the number of terminal block is 86.

★ Refer to the preceding page for a list of data, etc. for No. 0 - 25.

2.1.2 COOL/HEAT Changeover Setting by DIP Switches

The following field settings are made by DIP switches on the service PCB.

DIP switch		Setting item	Description
No.	Setting		
DS1-1	ON (OUT)	Cool/Heat changeover setting	It is used for changing over the unit which inputs the COOL/HEAT switching command.
	OFF (IN) (Factory setting)		
DS1-2	ON	Not used	Do not change the factory settings.
	OFF (Factory setting)		

Switching Mode (1):

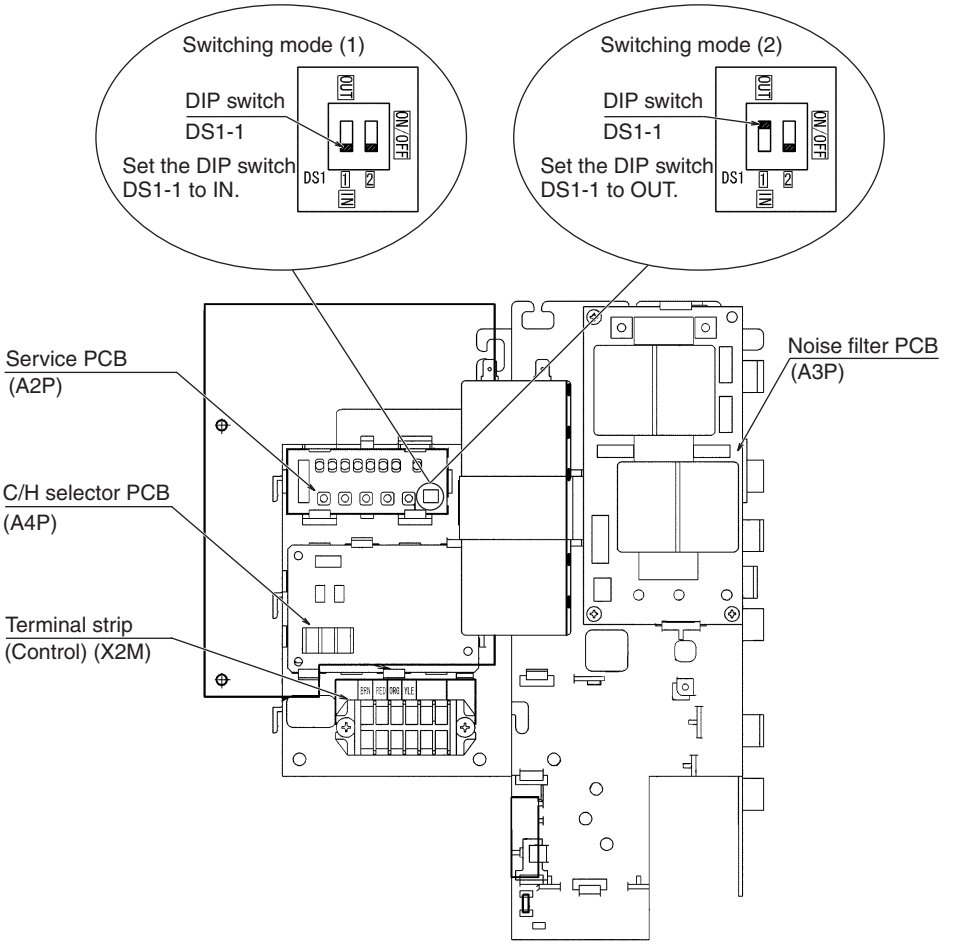
Set Cool/Heat Separately for Each Outdoor Unit System by Indoor Unit Remote Controller

- It does not matter whether or not there is outdoor - outdoor unit wiring.
- Set the DIP switch DS1-1 of the outdoor unit PCB (A2P) to **IN** (factory setting).
- Set cool/heat switching to **IND** (individual) in the setting mode 1 (factory setting). (Refer to page 126 for details.)

Switching Mode (2):

Set Cool/Heat Separately for Each Outdoor Unit System by Cool/Heat Selector

- Connect the cool/heat selector (option) to the terminals A, B, C on the outdoor unit PCB (A4P).
- It does not matter whether or not there is outdoor - outdoor unit wiring.
- Set the DIP switch DS1-1 of the outdoor unit PCB (A2P) to **OUT**.
- Set cool/heat switching to **IND** (individual) in the setting mode 1 (factory setting). (Refer to page 126 for details.)



Set the master unit (indoor unit having the right to select the cooling/heating operation mode).

In the case of wired remote controllers

- After the check operation, **"CHANGEOVER UNDER CONTROL"** is flashing in all connected remote controllers.
- Select an indoor unit to be used as the master unit in accordance with the request from the customer. (It is recommended to select an indoor unit which will be used most often as the master unit.)
- Press the operation mode selector button in the remote controller of the indoor unit selected as the master unit.
- In that remote controller, **"CHANGEOVER UNDER CONTROL"** disappears. That remote controller will control changeover of the cooling/heating operation mode.
- In other remote controllers, **"CHANGEOVER UNDER CONTROL"** lights.

In the case of wireless remote controllers

- After the check operation, the timer lamp is flashing in all connected indoor units.
- Select an indoor unit to be used as the master unit in accordance with the request from the customer. (It is recommended to select an indoor unit which will be used most often as the master unit.)
- Press the operation selector mode button in the remote controller of the indoor unit selected as the master unit.
  A "beep" sound is emitted, and the timer lamp turns off in all indoor units.
- That indoor unit will control changeover of the cooling/heating operation mode.

◆ **For the details, refer to the installation manual supplied together with the indoor unit.**

2.1.3 Setting of Low Noise Operation and Demand Operation

Setting of 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 by 2 ~ 3 dB.

When the low noise operation is automatically carried out at night (The external control adaptor for outdoor unit is not required)

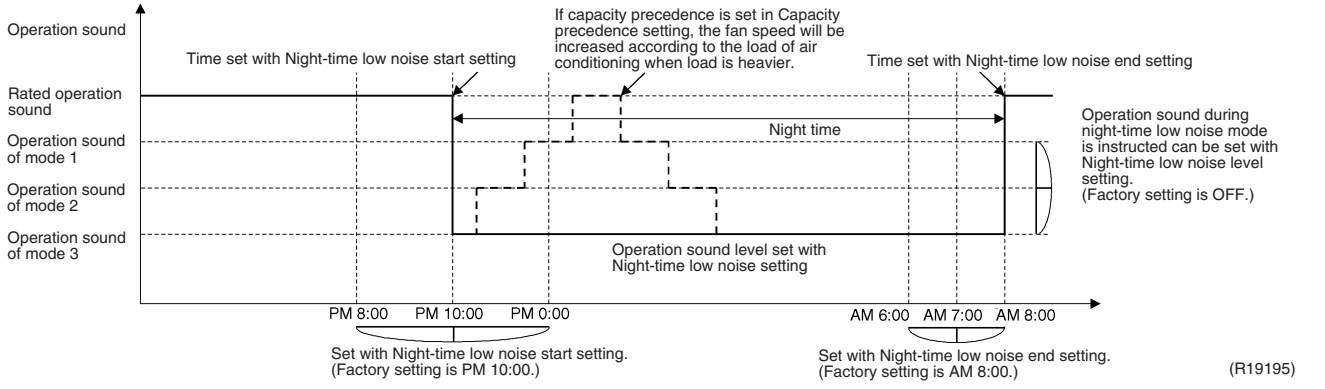
1. While in setting mode 2, select the setting condition (i.e., Mode 1, Mode 2, or Mode 3) for set item No. 22 (Setting of nighttime low noise level).

2. If necessary, while in setting mode 2, select the setting condition (i.e., 20:00, 22:00, or 24:00) for set item No. 26 (Setting of start time of nighttime low noise operation).
   (Use the start time as a guide since it is estimated according to outdoor temperatures.)

3. If necessary, while in setting mode 2, select the setting condition (i.e., 06:00, 07:00, or 08:00) for set item No. 27 (Setting of end time of nighttime low noise operation).
   (Use the end time as a guide since it is estimated according to outdoor temperatures.)

4. If necessary, while in setting mode 2, set the setting condition for set item No. 29 (Setting of capacity precedence) to ON.
   (If the condition is set to ON, when the air-conditioning load reaches a high level, the system enters to normal operation mode even during nighttime.)

Image of operation



Setting of Demand Operation

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

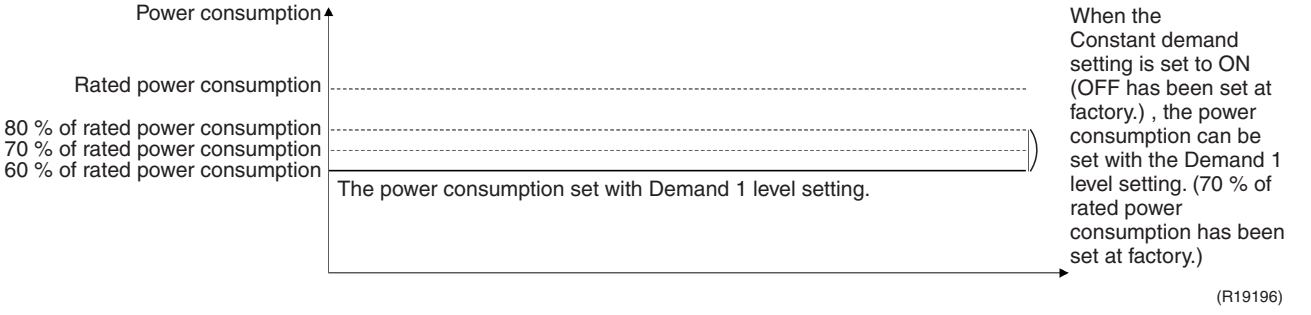
Set item	Condition	Content
Demand	Mode 1	The compressor operates at 60% or less of rating.
	Mode 2	The compressor operates at 70% or less of rating.
	Mode 3	The compressor operates at 80% or less of rating.

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

1. While in setting mode 2, make setting of the set item No. 32 (Setting of constant demand) to ON.

2. While in setting mode 2, select the set item No. 30 (Setting of Demand 1 level) and then set the setting condition to targeted mode.

Image of operation



Detailed Setting Procedure of Low Noise Operation and Demand Control

1. Setting mode 1 (H1P off)

In setting mode 2, press **BS1** (**MODE** button) one time. → The system enters setting mode 1 and the H1P goes off.

In setting mode 1, the H6P (In low noise operation) and the H7P (In demand control) keep lighting.

2. Setting mode 2 (H1P on)

(1) In setting mode 1, press and hold **BS1** (**MODE** button) for more than 5 seconds. → The system enters setting mode 2 and the H1P lights up.

(2) Press **BS2** (**SET** button) several times and match the LED display with the Setting No. you want.

(3) Press **BS3** (**RETURN** button) one time, and the present setting content is displayed.
→ Press **BS2** (**SET** button) several times and match the LED display with the setting content (as shown on next page) you want.

(4) Press **BS3** (**RETURN** button) two times. → The system returns to (1).

(5) Press **BS1** (**MODE** button) one time. → The system returns to setting mode 1 and the H1P goes off.

○: ON ●: OFF ◑: Blink

		(1)							(2)								(3)						
Setting No.	Setting contents	Setting No. indication							Setting No. indication							Setting contents	Setting contents indication (Initial setting)						
		H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P		H1P	H2P	H3P	H4P	H5P	H6P	H7P
12	External low noise setting/ Demand setting	○	●	●	●	●	●	●	○	●	●	○	○	●	●	NO (Factory setting)	○	●	●	●	●	●	◑
																YES	○	●	●	●	●	◑	●
22	Night-time low noise setting								○	●	○	●	○	○	●	OFF (Factory setting)	○	●	●	●	●	●	●
																Level 1	○	●	●	●	●	●	◑
																Level 2	○	●	●	●	●	◑	●
																Level 3	○	●	●	●	●	◑	◑
26	Night-time low noise operation start setting								○	●	○	○	●	○	●	PM 8:00	○	●	●	●	●	●	◑
																PM 10:00 (Factory setting)	○	●	●	●	●	◑	●
																PM 0:00	○	●	●	●	◑	●	●
27	Night-time low noise operation end setting								○	●	○	○	●	○	○	AM 6:00	○	●	●	●	●	●	◑
																AM 7:00	○	●	●	●	●	◑	●
																AM 8:00 (Factory setting)	○	●	●	●	◑	●	●
29	Capacity precedence setting								○	●	○	○	○	●	○	Low noise precedence (Factory setting)	○	●	●	●	●	●	◑
																Capacity precedence	○	●	●	●	●	◑	●
30	Demand setting 1								○	●	○	○	○	○	●	60 % of rated power consumption	○	●	●	●	●	●	◑
																70 % of rated power consumption (Factory setting)	○	●	●	●	●	◑	●
																80 % of rated power consumption	○	●	●	●	◑	●	●
32	Constant demand setting								○	○	●	●	●	●	●	OFF (Factory setting)	○	●	●	●	●	●	◑
																ON	○	●	●	●	●	◑	●

Setting mode indication section Setting No. indication section Set contents indication section

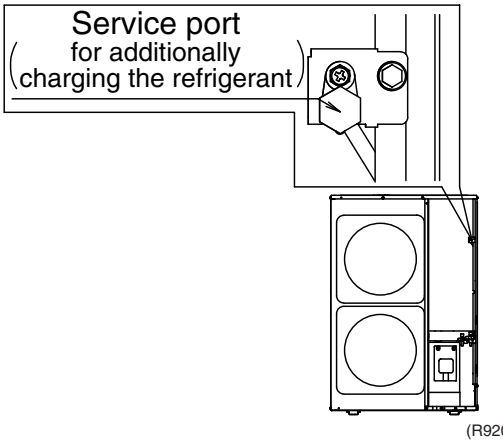
2.1.4 Setting of Refrigerant Additional Charging Operation

When the outdoor unit is stopped and the entire quantity of refrigerant cannot be charged from the stop valve on the liquid side, make sure to charge the remaining quantity of refrigerant using this procedure. If the refrigerant quantity is insufficient, the unit may malfunction.

(1) Turn ON the power of the indoor unit and the outdoor unit.
(2) Make sure to completely open the stop valve on the gas side and the stop valve on the liquid side.
(3) Connect the refrigerant charge hose to the service port (for additionally charging the refrigerant).
(4) In the stopped status, set to ON the refrigerant additional charging operation (A) in setting mode 2 (H1P: Turn on).
(5) The operation is automatically started.
(The LED indicator H2P flickers, and **Test Operation** and **Under Centralized Control** are displayed on the remote controller.)
(6) After charging the specified quantity of refrigerant, press **RETURN** (**BS3**) button to stop the operation.

(The operation is automatically stopped within 30 minutes.
If charging is not completed within 30 minutes, set and perform the refrigerant additional charging operation (A) again.
If the refrigerant additional charging operation is stopped soon, the refrigerant may be overcharged.
Never charge extra refrigerant.)

(7) Disconnect the refrigerant charge hose.



(R9208)

2.1.5 Setting of Refrigerant Recovery Mode

When carrying out the refrigerant collection on site, fully open the respective expansion valve of indoor and outdoor units.
All indoor and outdoor unit's operation are prohibited.

Operation procedure

(1) In setting mode 2 with units in stop mode, set the item No.21 (refrigerant recovery/vacuuming mode) to ON. The respective expansion valve of indoor and outdoor units are fully opened. **Test Operation** and **Under Centralized Control** are displayed on the remote controller, and the indoor/outdoor unit operation is prohibited.
After setting, do not cancel setting mode 2 until completion of refrigerant recovery operation.

(2) Collect the refrigerant using a refrigerant recovery unit. (See the instruction attached to the refrigerant recovery unit for more detail.)

(3) Press **MODE** (**BS1**) button once and return to setting mode 2.

2.1.6 Setting of Vacuuming Mode

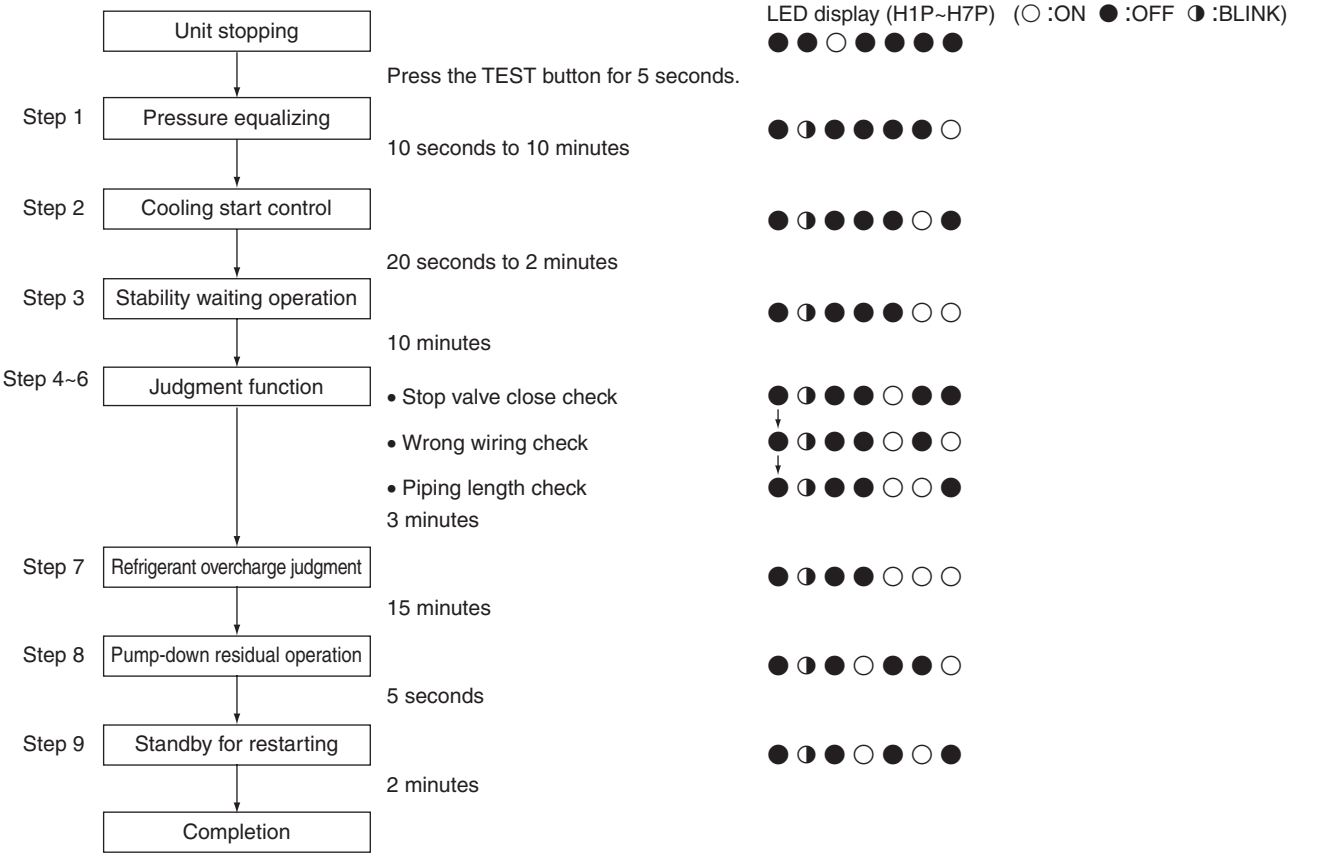
In order to perform vacuuming operation at site, fully open the expansion valves of indoor and outdoor units and turn on some solenoid valves.

Operating procedure

(1) In setting mode 2 with units in stop mode, set the item No.21 (refrigerant recovery/vacuuming mode) to ON. The respective expansion valve of indoor and outdoor units are fully opened. **Test Operation** and **Under Centralized Control** are displayed on the remote controller, and the indoor/outdoor unit operation is prohibited.
After setting, do not cancel setting mode 2 until completion of Vacuuming operation.
(2) Use the vacuum pump to perform vacuuming operation.
(3) Press **MODE** (**BS1**) button once and reset setting mode 2.

2.1.7 Check Operation

To prevent any trouble in the period of installation at site, the system is provided with a test operation mode enabling check for incorrect wiring, stop valve left in closed, coming out (or misplacing with suction pipe thermistor) or discharge pipe thermistor and judgment of piping length, refrigerant overcharging, and learning for the minimum opening degree of electronic expansion valve.



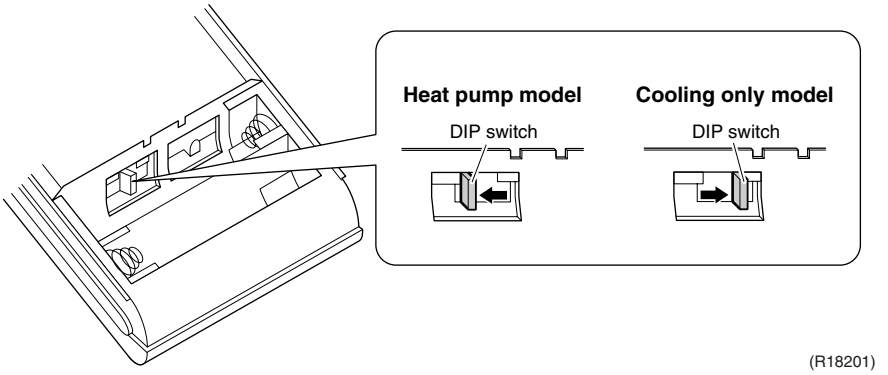
(R12957)

2.2 CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series

2.2.1 Model Type Setting

ARC452A21, ARC452A23

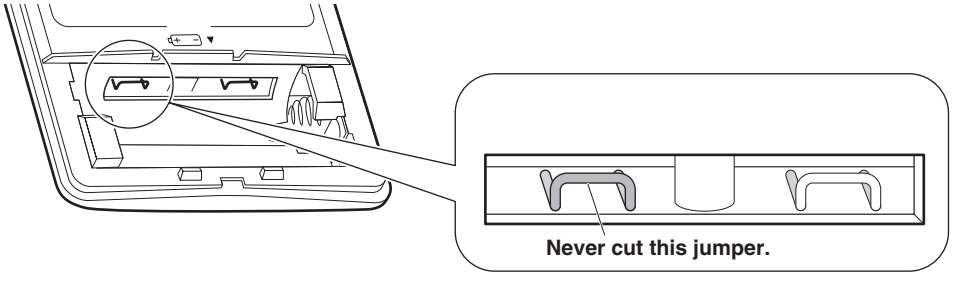
- The remote controller is common to the heat pump model and cooling only model.
- Make sure the DIP switch is set to the left side. The heating operation will not be available when the DIP switch is set to the right side.



(R18201)

ARC466A21, ARC466A36

- The remote controller is common to the heat pump model and cooling only model.



(R23955)

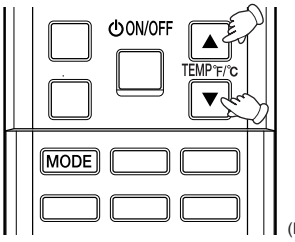
Caution **Replace the remote controller if you cut the jumper on the left side.**
The heating operation will not be available when the jumper on the left side is cut.

2.2.2 Temperature Display Switch

You can select Fahrenheit or Celsius for temperature display.

ARC452A9, ARC452A21, ARC452A23

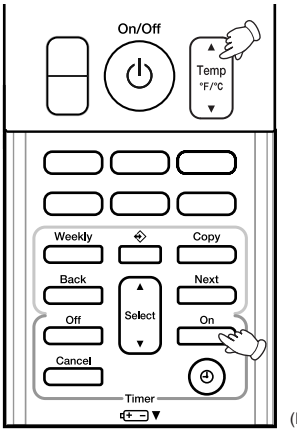
- Press **TEMP▲** and **TEMP▼** buttons at the same time for 5 seconds to change the unit of temperature display.



(R14477)

ARC466A21, ARC466A36

- Press the upper side of **Temp** button and **On** button at the same time for 5 seconds to change the unit of temperature display.



(R22009)

2.2.3 When 2 Units are Installed in 1 Room

Outline

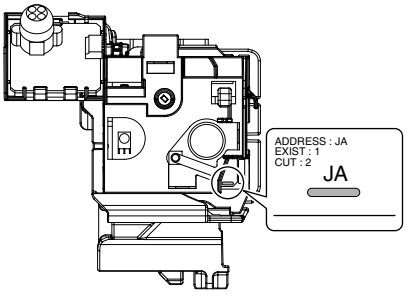
When 2 indoor units are installed in 1 room, 1 of the 2 indoor units and the corresponding wireless remote controller can be set for different address.
Both the indoor unit PCB and the wireless remote controller need alteration.

The method of address setting varies depending on the type of indoor unit and the series of wired remote controller. Refer to the following pages for the appropriate indoor unit and wireless remote controller.

CTXG, CTXS, FTXS Series

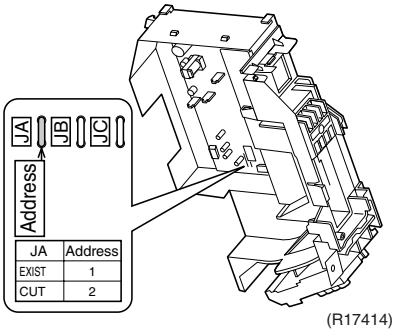
(1) Remove the front grille.
(2) Remove the electrical box.
(3) Remove the shield plate of the electrical box.
(4) Cut the address setting jumper JA on the PCB.

CTXG Series



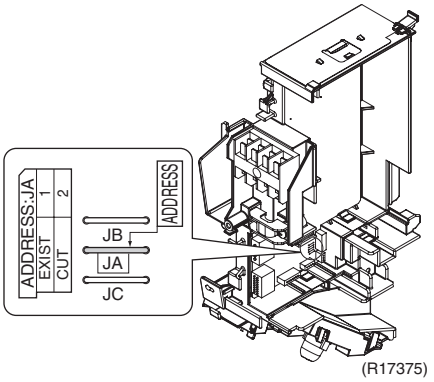
(Bottom of electrical box)
(R21128)

CTXS07JVJU, CTXS09/12HVJU



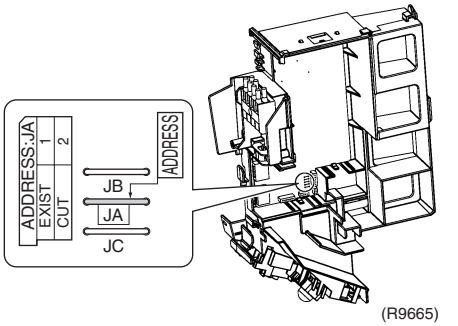
(R17414)

CTXS07LVJU, FTXS09/12LVJU



(R17375)

FTXS15/18/24LVJU

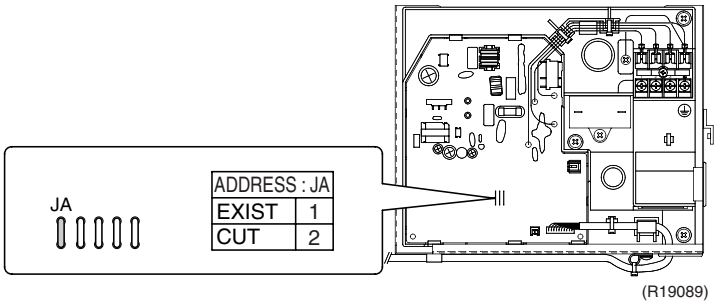


(R9665)

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

CDXS, FDXS Series

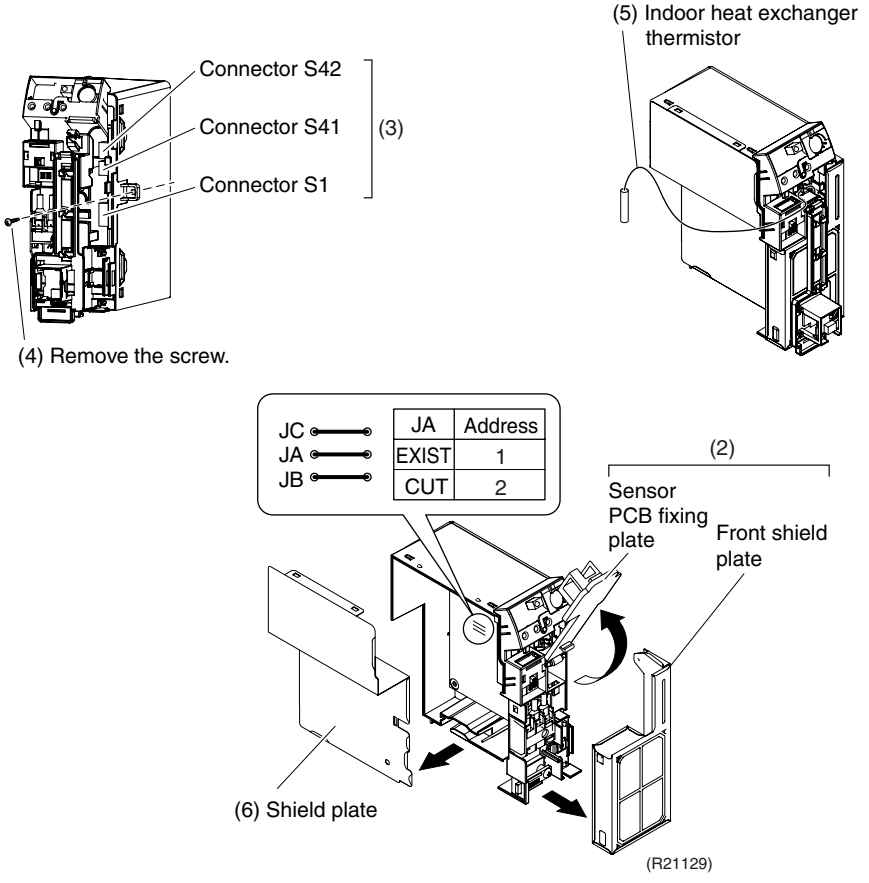
■ Cut the jumper JA on PCB.



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

FVXS Series

(1) Remove the front grille.
(2) Lift the sensor PCB fixing plate and remove the front shield plate.
(3) Disconnect the connectors S1, S41, S42.
(4) Remove the electric box (1 screw).
(5) Pull out the indoor heat exchanger thermistor.
(6) Remove the shield plate (8 tabs).
(7) Cut the address setting jumper JA on the indoor unit PCB.

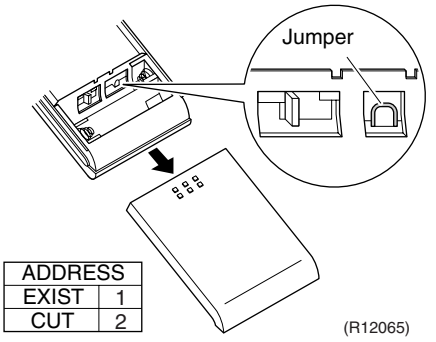


Caution **Replace the PCB if you accidentally cut a wrong jumper.**
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

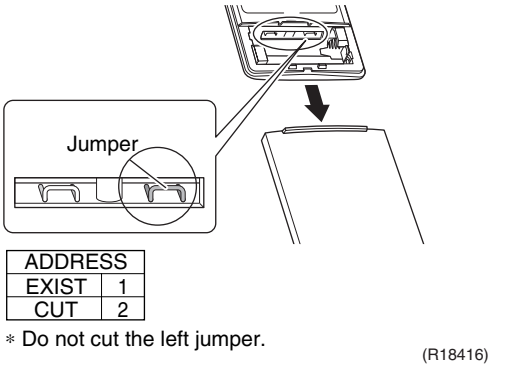
Wireless Remote Controller

(1) Remove the cover and take it off.
(2) Cut the address setting jumper.

ARC452 series



ARC466 series



∗ Do not cut the left jumper.

Caution **Replace the remote controller if you accidentally cut a wrong jumper.**
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

2.2.4 Jumper and Switch Settings

CTXG, CTXS, FTXS, CDXS, FDXS, FVXS series

Jumper (on indoor unit PCB)	Function	When connected (factory set)	When cut
JB	Fan speed setting when compressor stops for thermostat OFF. (effective only at cooling operation)	Fan speed setting; Remote controller setting	The fan stops.
JC	Power failure recovery function	Auto-restart	The unit does not resume operation after recovering from a power failure. Timer settings are cleared.

FVXS series only

Switch (on indoor unit PCB)	Function	OFF (factory setting)	ON
SW2-4	Upward airflow limit setting	Exposed or half embedded installation	Set the switch to ON position when you install the indoor unit embedded in the wall to avoid condensation.

For the location of the jumper and the switch, refer to the following pages.
CTXG09/12/18QVJUW(S): page 26
CTXS07JVJU, CTXS09/12HVJU: page 28
CTXS07LVJU, FTXS09/12LVJU: page 30
FTXS15/18/24LVJU: page 32
FDXS09/12LVJU, CDXS15/18/24LVJU: page 34
FVXS09/12/15/18NVJU: page 36, 37

2.3 FFQ Series

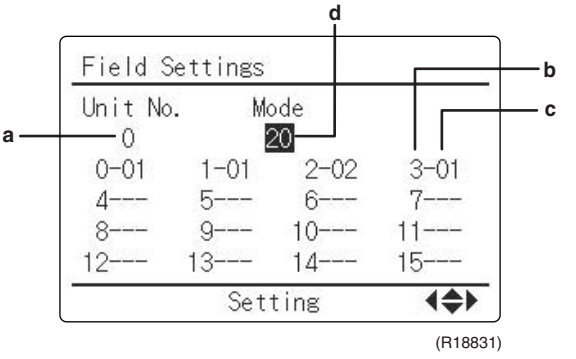
2.3.1 How to Change the Field Settings

Outline

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

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

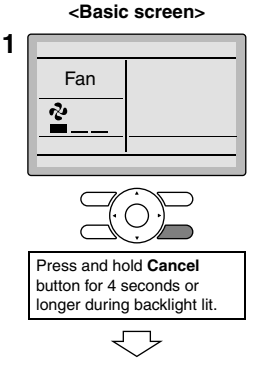
Wired Remote Controller (BRC1E73)



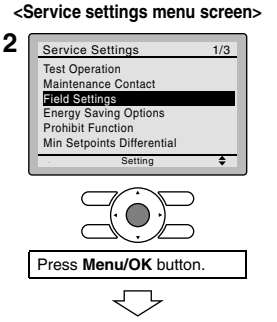
(R18831)

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

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



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



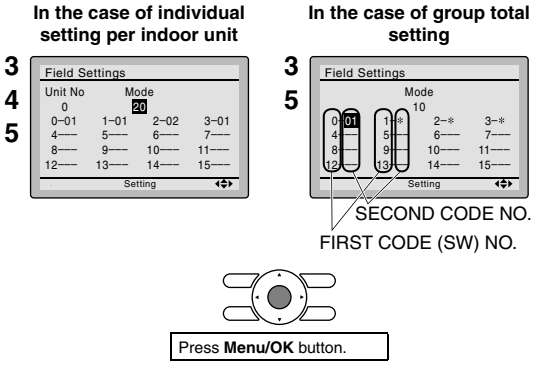
3. Highlight the mode, and select desired “Mode No.” by using ▲ ▼ **(Up/Down)** button.
4. In the case of setting per indoor unit during group control (When Mode No. such as 20, 22, 23, 25 are selected), highlight the unit No.and select “Indoor unit No.” to be set by using ▲ ▼ **(Up/Down)** button. (In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

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

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.

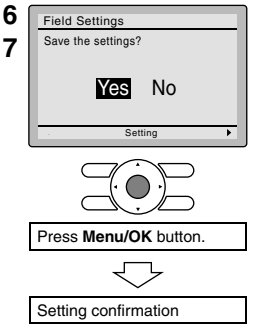
In the case of setting for all indoor units in the remote control group, available SECOND CODE NO. is displayed as “ ∗ ” which means it can be changed. When SECOND CODE NO. is displayed as “ - ”, there is no function.

<Service settings screen>

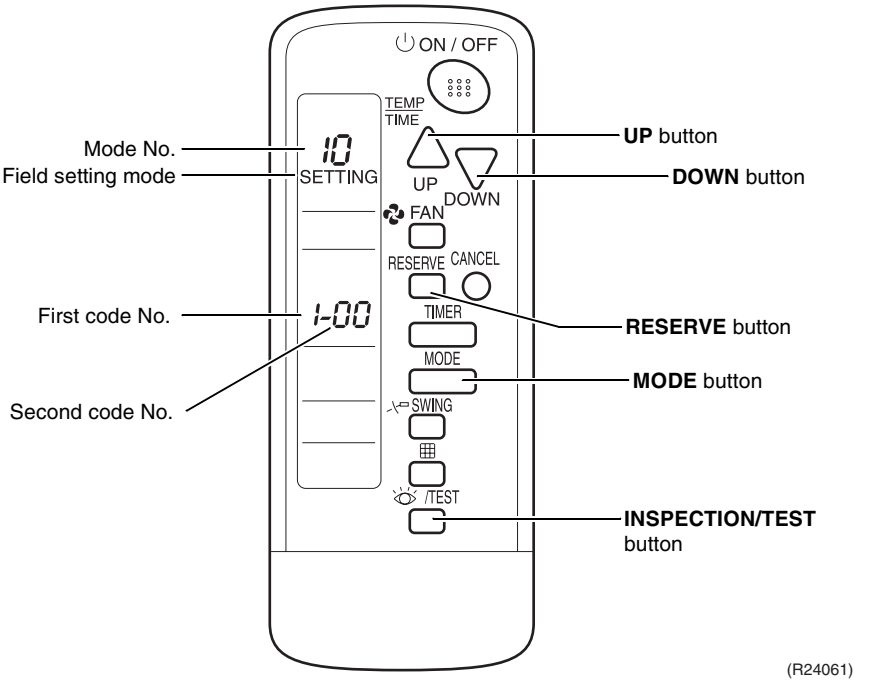


6. Press **Menu/OK** button. Setting confirmation screen is displayed.
7. Select Yes and press **Menu/OK** button. Setting details are determined and field settings screen returns.
8. In the case of multiple setting changes, repeat 3 to 7.
9. After all setting changes are completed, press **Cancel**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

<Setting confirmation screen>



Wireless Remote Controller Kit (BRC082A41W, BRC082A42W(S))



To set the field settings, you have to change:

- Mode No.
- First code No.
- Second code No.

1. When in normal mode, hold down the /TEST button for at least 4 seconds to enter the Field Set mode.
2. Select the desired Mode No. with the **MODE** button.
3. Press the UP button and select the First code No.
4. Press the DOWN button and select the Second code No.
5. Press the **RESERVE** button to confirm the settings.
6. Press the /TEST button to quit the Field Set mode and to return to normal display again.

2.3.2 Overview of the Field Settings

Mode No.	First Code No.	Description of setting		Second Code No.					
				01	02	03	04	05	06
10 (20)	0	Filter cleaning sign interval	Longlife filter	Light: Approx. 2,500 hrs.	Heavy: Approx. 1,250 hrs.	—	—	—	—
	2	Remote controller thermistor		Enabled	Disabled	—	—	—	—
	3	Filter cleaning sign		Display	No display	—	—	—	—
12 (22)	0	Optional accessories output selection (field selection of output for adaptor for wiring)		Compressor	—	Operation output	Error output	Outdoor air intake	Presence sensor
13 (23)	0	High air outlet velocity (for high ceiling applications)		≤ 2.7 m (≤ 8-7/8 ft)	2.7 ~ 3.0 m (8-7/8~9-13/16 ft)	3.0 ~ 3.5 m (9-13/16~11-1/2 ft)	—	—	—
	1	Selection of airflow direction (setting for when a blocking pad kit has been installed)		4-way flow	3-way flow	2-way flow	—	—	—
	4	Airflow direction range setting		Upper	Normal	Lower	—	—	—
15 (25)	3	Drain pump operation with humidifying		Not equipped	Equipped	—	—	—	—

: factory setting

Note: Any function that is not available on the indoor unit is not displayed.

2.3.3 MAIN/SUB Setting when Using 2 Wired Remote Controllers

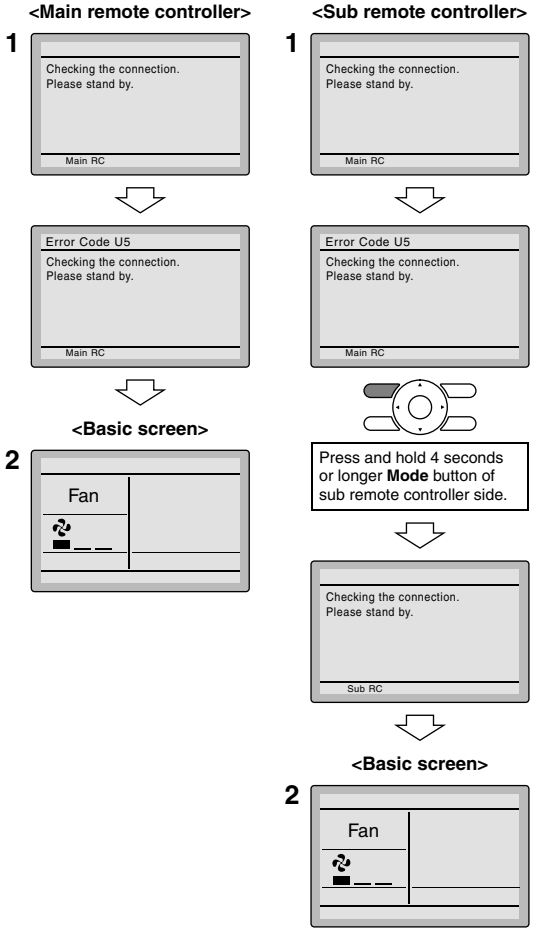
Outline

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

Details

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

2. Basic screen is displayed.



2.3.4 Address and MAIN/SUB Setting for Wireless Remote Controller

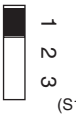
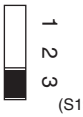
Outline

- If setting multiple wireless remote controllers to operate in one room, perform address setting for the receiver and the wireless remote controller.
- If using both a wired remote controller and a wireless remote controller with 1 indoor unit, change the MAIN/SUB switch of the transmitter board.

Transmitter Board

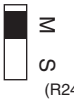
Wireless address switch

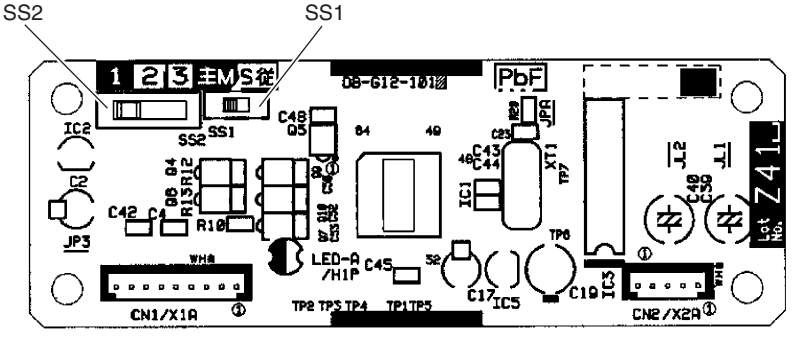
Set the wireless address setting switch (SS2) on the transmitter board according to the table below.

Unit No.	No.1	No.2	No.3
Wireless address switch (SS2)	 (S1935)	 (S1936)	 (S1937)

MAIN/SUB switch

When using both a wired and a wireless remote controller for 1 indoor unit, the wired controller should be set to MAIN. Therefore, set the MAIN/SUB switch (SS1) of the transmitter board to SUB.

	MAIN	SUB
MAIN/SUB switch (SS1)	 (R24062)	 (R24063)



(R24374)

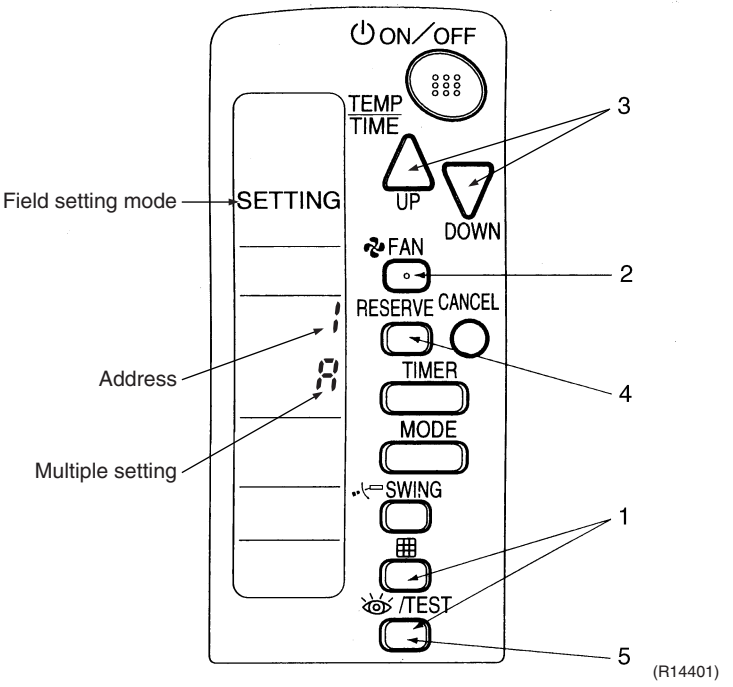
Wireless Remote Controller Address

Factory set is 1. Change the wireless remote controller address setting by the following steps, if necessary.

1. Hold down ▦ button and /TEST button at the same time for at least 4 seconds to enter the field setting mode. (SETTING is indicated on the display).
2. Press FAN button and select display setting (A or b). Each time the button is pressed, the display switches between A and b.
3. Press UP button and DOWN button to set the address.

   1 → 2 → 3 → 4 → 5 → 6

   Address can be set from 1 ~ 6, but set it to 1 ~ 3 and to same address as the transmitter board. (The transmitter board does not work with address 4 ~ 6.)
4. Press **RESERVE** button to confirm the setting.
5. Hold down /TEST button to quit the field setting mode and return to the normal display.



(R14401)

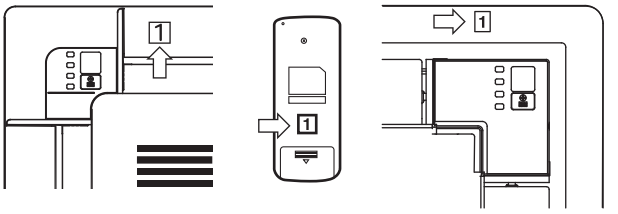
Display Settings A or b

When the indoor unit is controlled by an outside controller (central remote controller, etc.), the indoor unit sometimes does not respond to ON/OFF command or temperature setting command from the wireless remote controller. Check what setting the customer needs and make the multiple setting as shown below.

Display setting	Remote controller display	Result of the display setting in case the target indoor unit is simultaneously being controlled by more than 1 device
A: standard	All operational items are permanently displayed.	In the operation mode changeover, temperature setting or the like are carried out from the wireless remote controller, the indoor unit rejects the instruction. (Signal receiving sound, 1 long beep or 3 short beeps) As a result, a display discrepancy between the operation state of the indoor unit and the indication on the wireless remote controller display occurs.
b: multi system	Operations only remain displayed for a short time after execution of the commands.	Since the indications on the wireless remote controller are turned off, a discrepancy such as described above no longer occurs.

After Setting

Affix corresponding unit number labels onto both air outlet of the decoration panel and onto back of the wireless remote controller.



(R24066)

Note: Set the unit No. of the receiver and the wireless remote controller to be the equal. If the settings differ, the signal from the remote controller cannot be transmitted.

Part 7
Remote Controller

1. Applicable Remote Controller 153
2. ARC466A36 154
3. ARC452A9 156
4. ARC452A21 158
5. ARC452A23 160
6. ARC466A21 162
7. BRC1E73 (Wired Remote Controller) 164
8. BRC082A41W, BRC082A42W(S) (Wireless Remote Controller Kit) 170

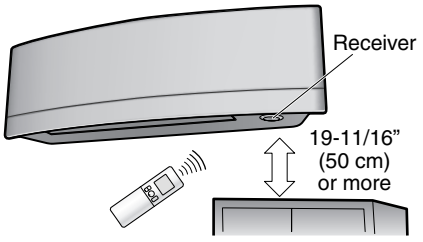
1. Applicable Remote Controller

Model Name	Remote Controller	Reference Page
CTXG09QVJUW(S)	ARC466A36	154
CTXG12QVJUW(S)		
CTXG18QVJUW(S)		
CTXS07JVJU	ARC452A9	156
CTXS09HVJU		
CTXS12HVJU		
CTXS07LVJU	ARC452A21	158
FTXS09LVJU		
FTXS12LVJU		
FTXS15LVJU		
FTXS18LVJU		
FTXS24LVJU		
FDXS09LVJU	ARC452A23	160
FDXS12LVJU		
CDXS15LVJU		
CDXS18LVJU		
CDXS24LVJU		
FVXS09NVJU	ARC466A21	162
FVXS12NVJU		
FVXS15NVJU		
FVXS18NVJU		
FFQ09Q2VJU	■ Wired Remote Controller BRC1E73 ■ Wireless Remote Controller BRC082A41W BRC082A42W(S)	■ Wired Remote Controller 164 ■ Wireless Remote Controller 170
FFQ12Q2VJU		
FFQ15Q2VJU		
FFQ18Q2VJU		

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

2. ARC466A36

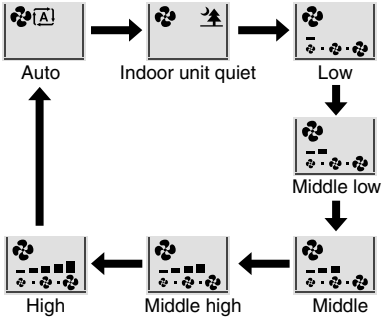
Signal transmitter



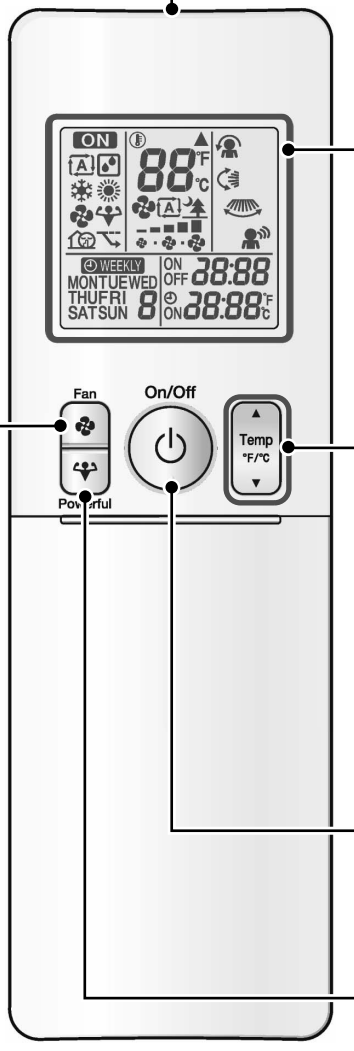
- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- The maximum distance for communication is about 19-11/16 ft (6 m).
  Make sure that there are no obstacles within 19-11/16 inch (50 cm) under the signal receiver.
  Such obstacles, if any, may have an adverse influence on the reception performance of the receiver and the reception distance may be shortened.

Fan setting button

- Selects the airflow rate setting.



- In indoor unit quiet operation, operation sound becomes weak. (The airflow rate also decreases.)
- In DRY operation, the airflow rate setting is not available.



< ARC466A36 >

(R24598)

Display (LCD)

- Displays the current settings.
  (In this illustration, each section is shown with all its displays on for the purpose of explanation.)

Temperature adjustment buttons

- Changes the temperature setting.

: AUTO	18 ~ 30 °C (64 ~ 86 °F)
: DRY	Not available
: COOL	18 ~ 32 °C (64 ~ 90 °F)
: HEAT	10 ~ 30 °C (50 ~ 86 °F)
: FAN	Not available

On/Off button

- Press this button once to start operation.
  Press once again to stop it.

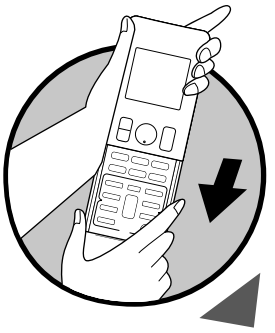
Powerful★1 button

- Starts POWERFUL operation.

Reference Refer to the following pages for details.

★1 POWERFUL operation P.87

Open the Front Cover



Mode button
- Selects the operation mode.

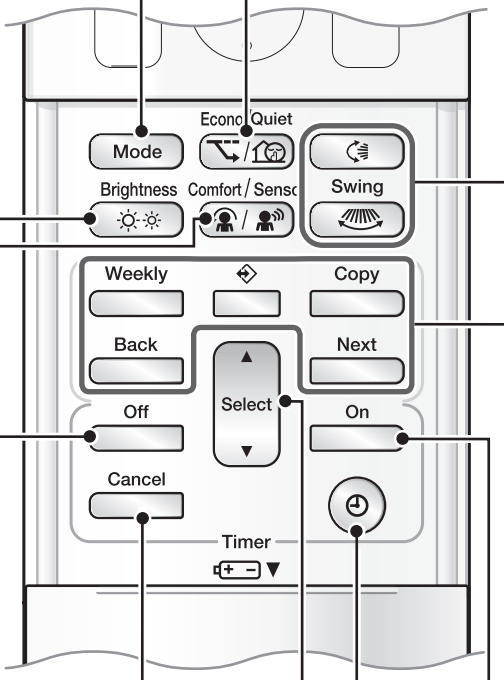
AUTO → DRY → COOL → HEAT → FAN

Econo★4 / Quiet button
- Every time you press **Econo/Quiet** button, the setting changes in the following order.

ECONO → OUTDOOR UNIT QUIET → Combination → Blank (No setting)

- OUTDOOR UNIT QUIET operation is not available in FAN and DRY operation.
- OUTDOOR UNIT QUIET operation and ECONO operation cannot be used at the same time with POWERFUL operation. Priority is given to the function you pressed last.

Lamp brightness setting button
- Each time you press **Brightness** button, the brightness of the indoor unit display changes to high, low, or off.



Comfort/Sensor button (COMFORT AIRFLOW Operation★2/ INTELLIGENT EYE Operation★3)
- Every time you press **Comfort/Sensor** button, the setting changes in the following order.

COMFORT AIRFLOW → INTELLIGENT EYE → Combination → Blank (No setting)

Swing★5 buttons
- Adjusts the airflow direction.
- When you press **Swing** button, the flap moves up and down, or (and) the louver moves right and left. The flap (louver) stops when you press **Swing** button again.

Select button
- Changes the ON/OFF TIMER and WEEKLY TIMER settings.

Clock★7 button

Off Timer button (NIGHT SET mode)
- Press this button and adjust the day and time with **Select** button.
  Press this button again to complete TIMER setting.

On Timer button
- Press this button and adjust the day and time with **Select** button.
  Press this button again to complete TIMER setting.

Timer Cancel button
- Cancels the timer setting.
- It cannot be used for the WEEKLY TIMER operation.

Weekly button (WEEKLY TIMER Operation★6)

Weekly : Weekly button
: Program button
Copy : Copy button
Back : Back button
Next : Next button

(R24616)

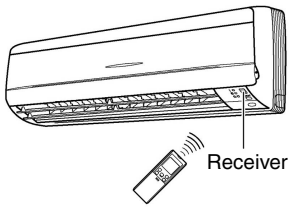
Reference

Refer to the following pages for details.

★2 COMFORT AIRFLOW operation P.75, 78
★3 2-area INTELLIGENT EYE operation P.84
★4 ECONO operation P.82
★5 Auto-swing P.74
★6 WEEKLY TIMER operation P.90
★7 Clock setting P.89

3. ARC452A9

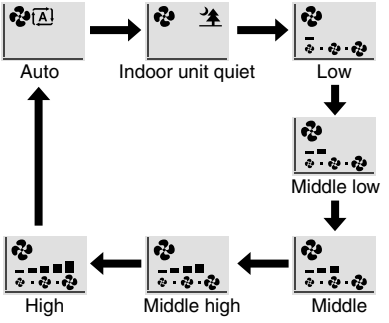
Signal transmitter



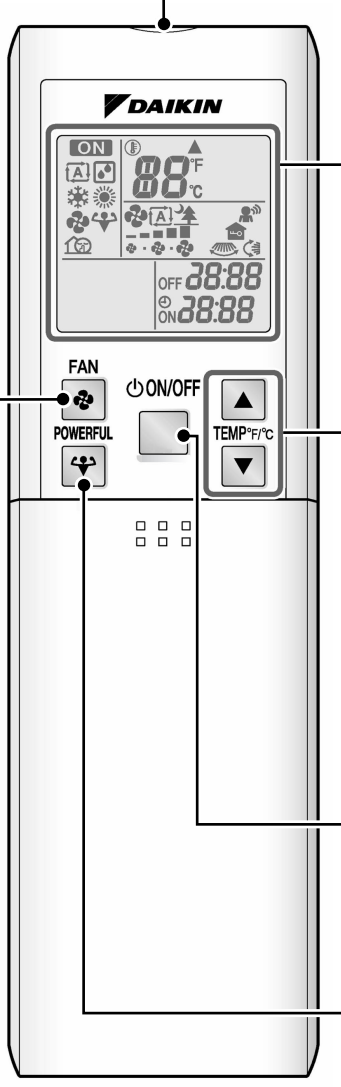
- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- Do not drop the remote controller. Do not get it wet.
- The maximum distance for communication is about 23 ft. (7 m).

FAN setting button

- Selects the airflow rate setting every time you press this button.



- In indoor unit quiet operation, operation sound becomes weak. (The airflow rate also decreases.)
- In DRY operation, the airflow rate setting is not available.



Display (LCD)

- Displays the current settings. (In this illustration, each section is shown with all its displays on for the purpose of explanation.)

TEMPERATURE adjustment buttons

- Changes the temperature setting.

: AUTO	18 ~ 30 °C (64 ~ 86 °F)
: DRY	Not available
: COOL	18 ~ 32 °C (64 ~ 90 °F)
: HEAT	10 ~ 30 °C (50 ~ 86 °F)
: FAN	Not available

ON/OFF button

- Press this button once to start operation. Press once again to stop it.

POWERFUL*1 button

- Starts POWERFUL operation.

(R24599)

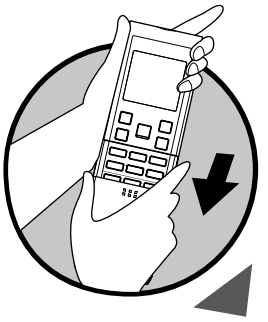
< ARC452A9 >

Reference

Refer to the following pages for details.

★1 POWERFUL operation P.87

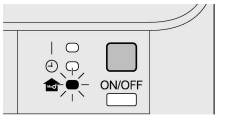
Open the Front Cover



MODE button
- Selects the operation mode.

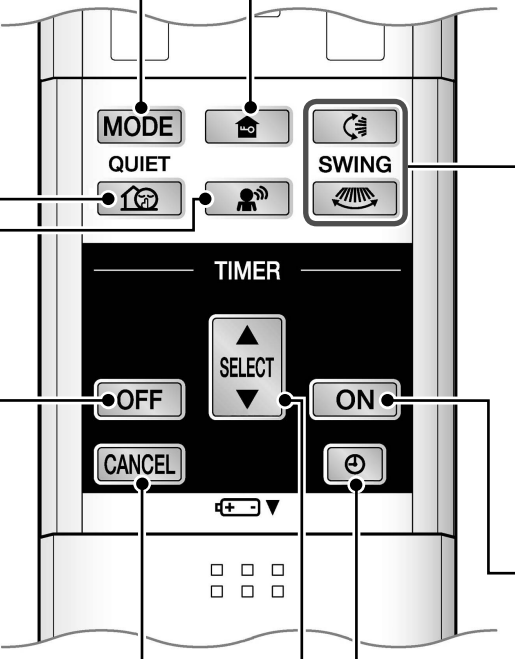
AUTO → DRY → COOL → HEAT → FAN

HOME LEAVE*3 button
- Press this button to start HOME LEAVE operation. The HOME LEAVE lamp lights up.



- Press the button again to cancel HOME LEAVE operation.

QUIET button
- OUTDOOR UNIT QUIET operation.
- OUTDOOR UNIT QUIET operation is not available in FAN and DRY operation.
- OUTDOOR UNIT QUIET operation and POWERFUL operation cannot be used at the same time. Priority is given to the function you pressed last.



SWING*4 button
- Adjusts the airflow direction.
- When you press **SWING** button, the louver moves up and down, or (and) the fin moves right and left. The louver (fin) stops when you press **SWING** button again.

SENSOR button (INTELLIGENT EYE operation*2)
- To start INTELLIGENT EYE operation, press **SENSOR** button.
  is displayed on the LCD.
- To cancel the INTELLIGENT EYE operation, press **SENSOR** button again.
  disappears from the LCD.

ON TIMER button
- Press this button and adjust the time with **SELECT** button.
  Press this button again to complete TIMER setting.

OFF TIMER button (NIGHT SET mode)
- Press this button and adjust the time with **SELECT** button. Press this button again to complete TIMER setting.

CLOCK*5 button

TIMER CANCEL button
- Cancels the timer setting.

SELECT button
- Changes the ON/OFF TIMER settings.

(R24624)

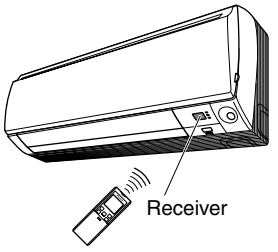
Reference

Refer to the following pages for details.

★2 INTELLIGENT EYE operation P.86
★3 HOME LEAVE operation P.82
★4 Auto-swing P.74
★5 Clock setting P.89

4. ARC452A21

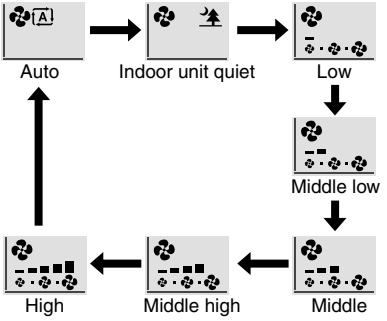
Signal transmitter



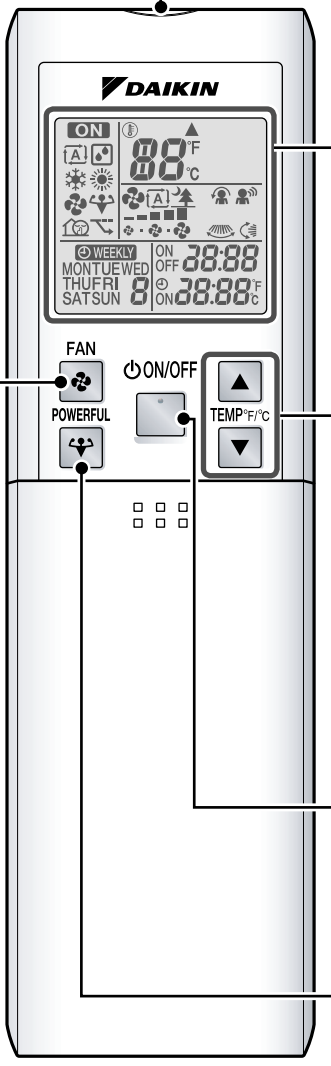
- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- Do not drop the remote controller. Do not get it wet.
- The maximum distance for communication is about 23 ft. (7 m).

FAN setting button

- Selects the airflow rate setting every time you press this button.



- In indoor unit quiet operation, operation sound becomes weak. (The airflow rate also decreases.)
- In DRY operation, the airflow rate setting is not available.



Display (LCD)

- Displays the current settings. (In this illustration, each section is shown with all its displays on for the purpose of explanation.)

TEMPERATURE adjustment buttons

- Changes the temperature setting.

: AUTO	18 ~ 30 °C (64 ~ 86 °F)
: DRY	Not available
: COOL	18 ~ 32 °C (64 ~ 90 °F)
: HEAT	10 ~ 30 °C (50 ~ 86 °F)
: FAN	Not available

ON/OFF button

- Press this button once to start operation. Press once again to stop it.

POWERFUL*1 button

- Starts POWERFUL operation.

(R24600)

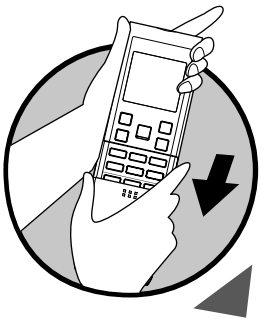
< ARC452A21 >

Reference

Refer to the following pages for details.

★1 POWERFUL operation P.87

Open the Front Cover



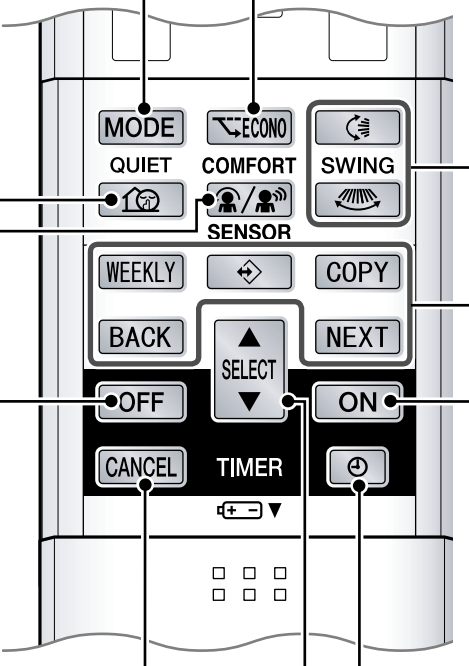
MODE button
- Selects the operation mode.

AUTO → DRY → COOL → HEAT → FAN

ECONO*4 button
- Starts ECONO operation.

QUIET button
- OUTDOOR UNIT QUIET operation.
- OUTDOOR UNIT QUIET operation is not available in FAN and DRY operation.
- OUTDOOR UNIT QUIET operation and POWERFUL operation cannot be used at the same time. Priority is given to the function you pressed last.

SWING*5 buttons
- Adjusts the airflow direction.
- When you press the **SWING** button, the flap moves up and down, or (and) the louver moves right and left. The flap (louver) stops when you press **SWING** button again.



WEEKLY button (WEEKLY TIMER*6 Operation)
- WEEKLY : **WEEKLY button**
- ⇔ : **PROGRAM button**
- COPY : **COPY button**
- BACK : **BACK button**
- NEXT : **NEXT button**

COMFORT*2/SENSOR*3 button
- Every time you press **COMFORT/SENSOR** button, the setting changes in the following order.

COMFORT AIRFLOW → INTELLIGENT EYE → Combination → blank No Setting → COMFORT AIRFLOW

ON TIMER button
- Press this button and adjust the day and time with **SELECT** button.
  Press this button again to complete TIMER setting.

CLOCK*7 button

OFF TIMER button (NIGHT SET mode)
- Press this button and adjust the day and time with **SELECT** button.
  Press this button again to complete TIMER setting.

TIMER CANCEL button
- Cancels the timer setting.
- Cannot be used for the WEEKLY TIMER operation.

SELECT button
- Changes the ON/OFF TIMER and WEEKLY TIMER settings.

(R24617)

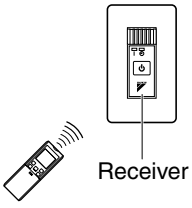
Reference

Refer to the following pages for details.

★2 COMFORT AIRFLOW operation P.75, 78
★3 INTELLIGENT EYE operation P.86
★4 ECONO operation P.82
★5 Auto-swing P.74
★6 WEEKLY TIMER operation P.90
★7 Clock setting P.89

5. ARC452A23

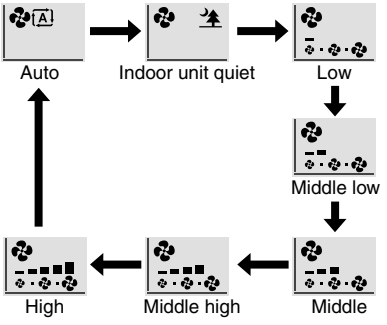
Signal transmitter



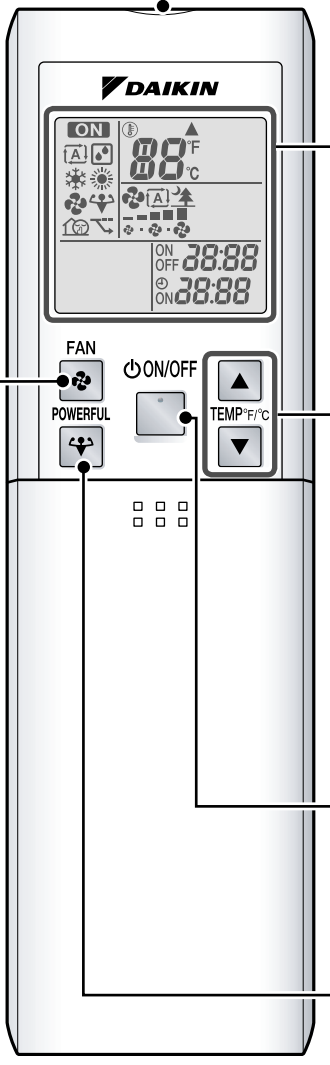
- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- Do not drop the remote controller. Do not get it wet.
- The maximum distance for communication is about 13 ft (4 m).

FAN setting button

- Selects the airflow rate setting every time you press this button.



- In indoor unit quiet operation, operation sound becomes weak. (The airflow rate also decreases.)
- In DRY operation, the airflow rate setting is not available.



Display (LCD)

- Displays the current settings. (In this illustration, each section is shown with all its displays on for the purpose of explanation.)

TEMPERATURE adjustment buttons

- Changes the temperature setting.

: AUTO	18 ~ 30 °C (64 ~ 86 °F)
: DRY	Not available
: COOL	18 ~ 32 °C (64 ~ 90 °F)
: HEAT	10 ~ 30 °C (50 ~ 86 °F)
: FAN	Not available

ON/OFF button

- Press this button once to start operation. Press once again to stop it.

POWERFUL★1 button

- Starts POWERFUL operation.

(R24601)

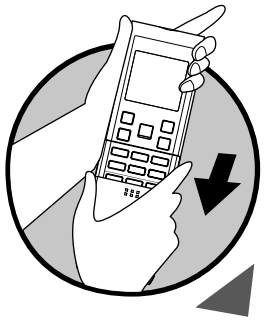
< ARC452A23 >

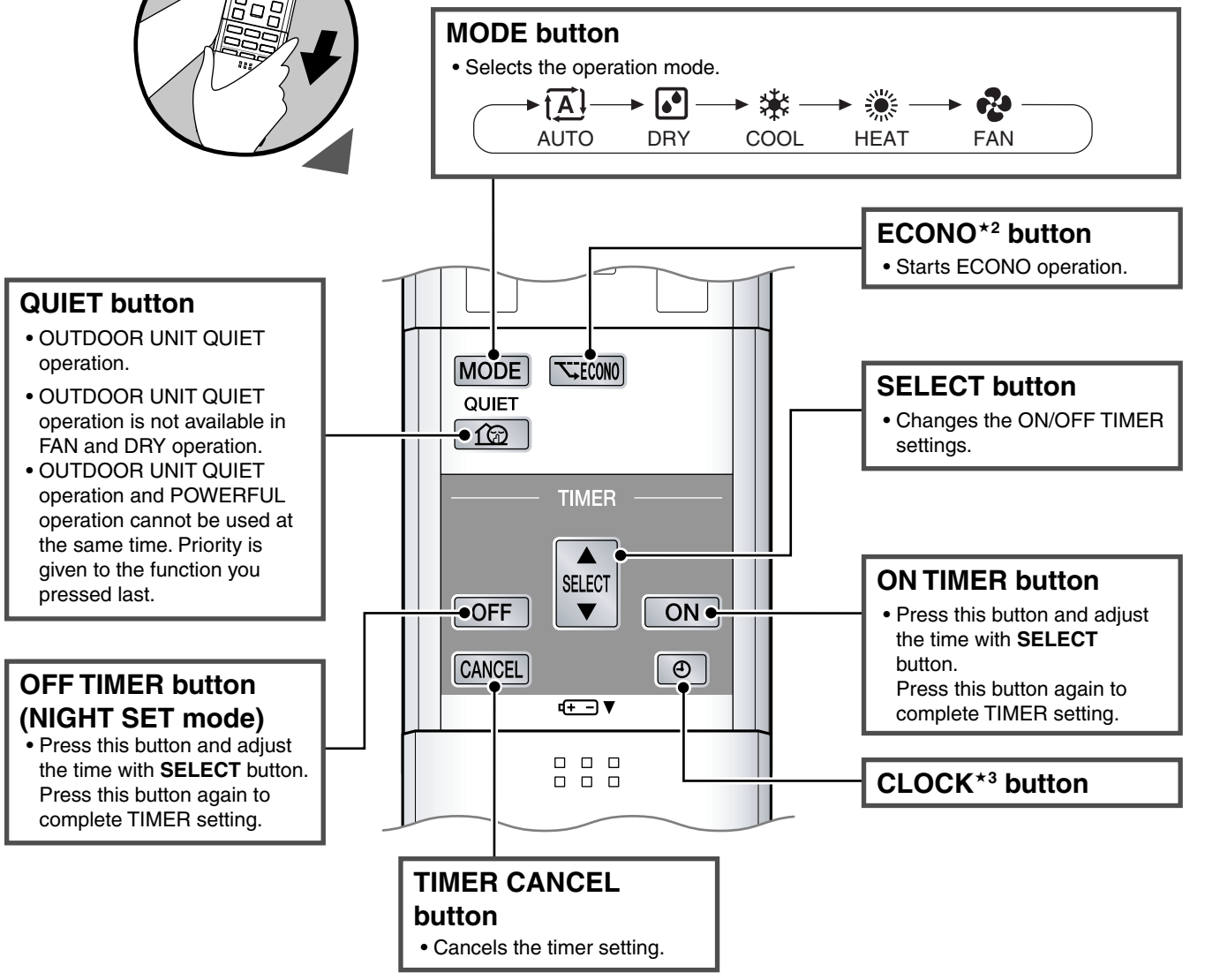
Reference

Refer to the following pages for details.

★1 POWERFUL operation P.87

Open the Front Cover





(R24618)

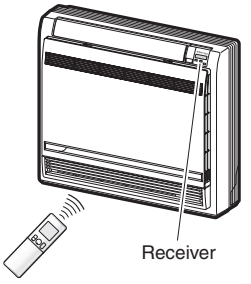
Reference

Refer to the following pages for details.

★2 ECONO operation.....P.82
★3 Clock setting P.89

6. ARC466A21

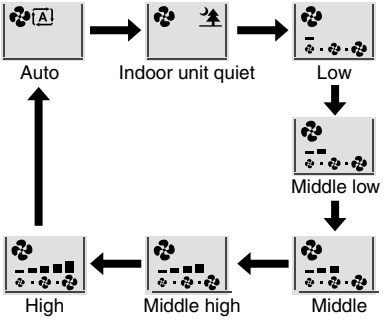
Signal transmitter



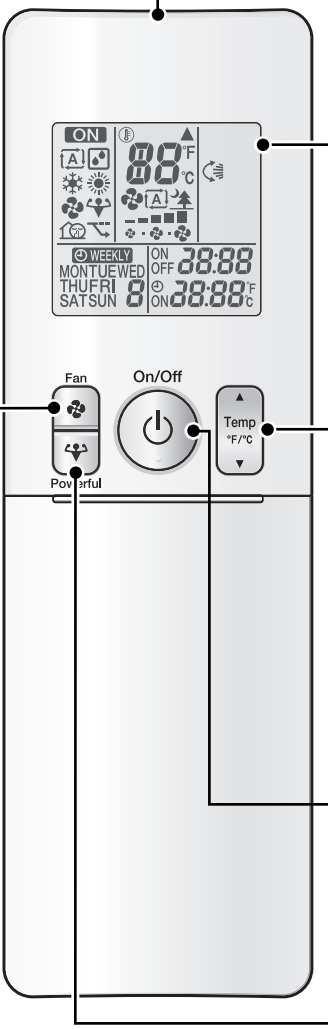
- To use the remote controller, aim the transmitter at the indoor unit. If there is anything blocking the signals between the unit and the remote controller, such as a curtain, the unit may not operate.
- The maximum transmission distance is about 23 ft (7 m).

Fan setting button

- Selects the airflow rate setting every time you press this button.



- In indoor unit quiet operation, operation sound becomes weak. (The airflow rate also decreases.)
- In DRY operation, the airflow rate setting is not available.



< ARC466A21 >

Display (LCD)

- Displays the current settings. (In this illustration, each section is shown with all its displays on for the purpose of explanation.)

Temperature adjustment buttons

- Changes the temperature setting.

: AUTO	18 ~ 30 °C (64 ~ 86 °F)
: DRY	Not available
: COOL	18 ~ 32 °C (64 ~ 90 °F)
: HEAT	10 ~ 30 °C (50 ~ 86 °F)
: FAN	Not available

On/Off button

- Press this button once to start operation. Press once again to stop it.

Powerful★1 button

- Starts POWERFUL operation.

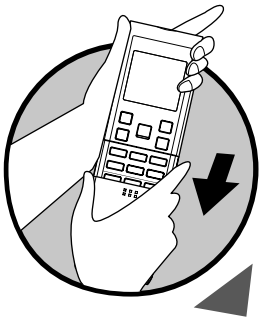
(R24602)

Reference

Refer to the following pages for details.

★1 POWERFUL operation P.87

Open the Front Cover



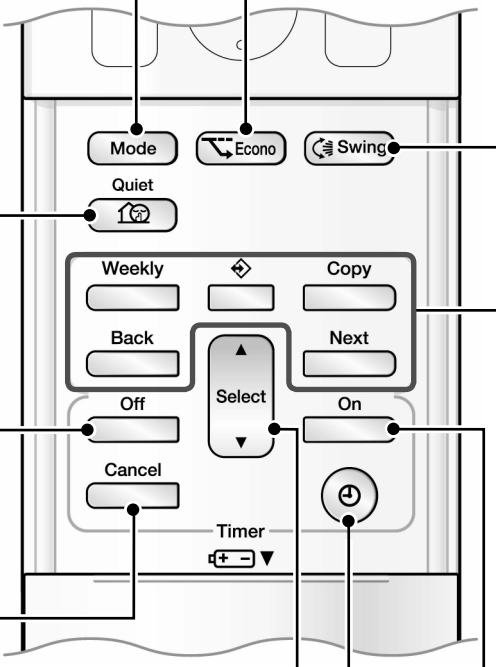
Mode button
• Selects the operation mode.

AUTO → DRY → COOL → HEAT → FAN

Econo★2 button
• Starts ECONO operation.

Quiet button
• OUTDOOR UNIT QUIET operation.
• OUTDOOR UNIT QUIET operation is not available in FAN and DRY operation.
• OUTDOOR UNIT QUIET operation and POWERFUL operation cannot be used at the same time. Priority is given to the function you pressed last.

Swing★3 button
• Adjusts the airflow direction.
• When you press **Swing** button, the flap moves up and down. The flap stops when you press **Swing** button again.



Weekly button (WEEKLY TIMER Operation★4)
Weekly : **Weekly button**
: **Program button**
Copy : **Copy button**
Back : **Back button**
Next : **Next button**

Off Timer button (NIGHT SET mode)
• Press this button and adjust the day and time with **Select** button.
Press this button again to complete TIMER setting.

Timer Cancel button
• Cancels the timer setting.
• Cannot be used for the WEEKLY TIMER operation.

On Timer button
• Press this button and adjust the day and time with **Select** button. Press this button again to complete TIMER setting.

Select button
• It changes the ON/OFF TIMER and WEEKLY TIMER settings.

Clock★5 button

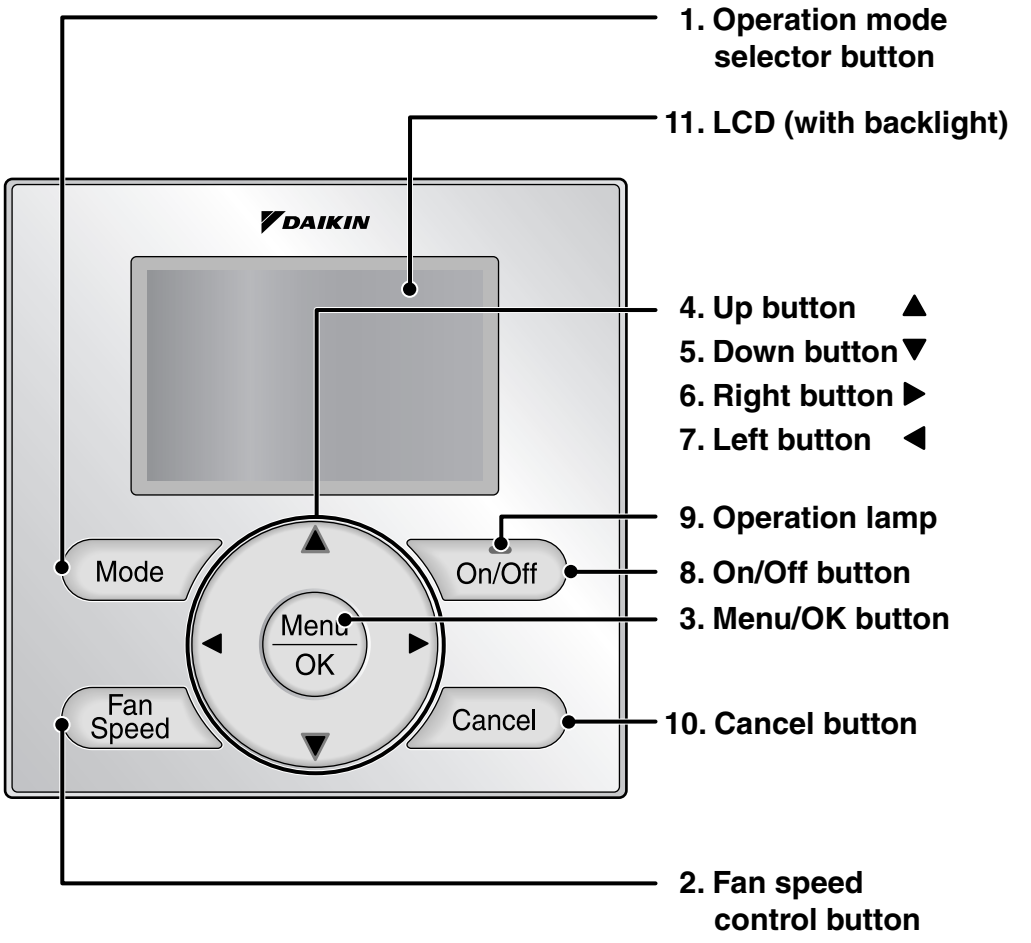
(R24619)

Reference

Refer to the following pages for details.

★2 ECONO operation.....P.82
★3 Auto-swing.....P.74
★4 WEEKLY TIMER operation.....P.90
★5 Clock setting.....P.89

7. BRC1E73 (Wired Remote Controller)



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 flashes if an error occurs.

10. Cancel button

- Used to return to the previous screen.

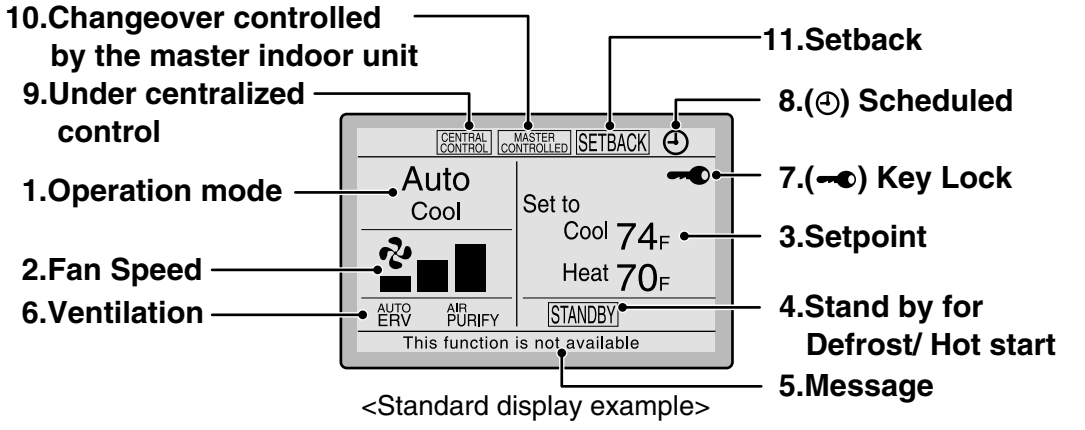
11. LCD (with backlight)

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

Liquid Crystal Display

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

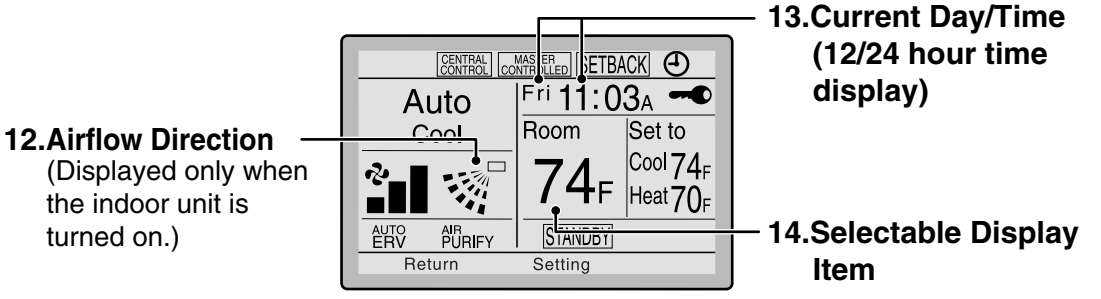
Standard display



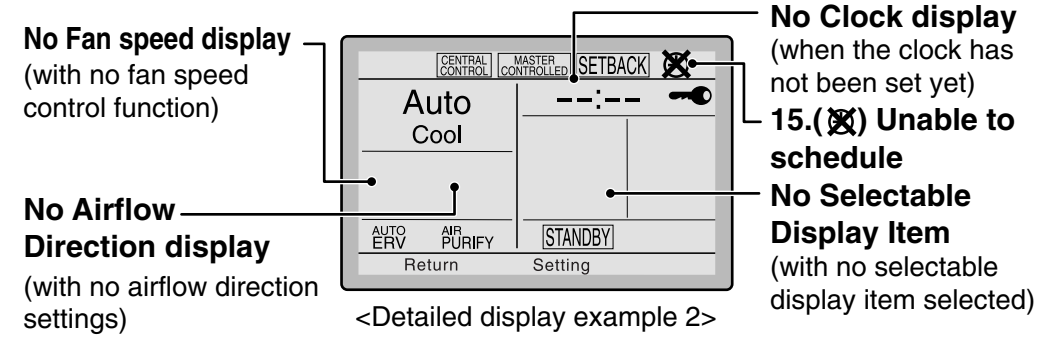
<Standard display example>

Detailed display

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

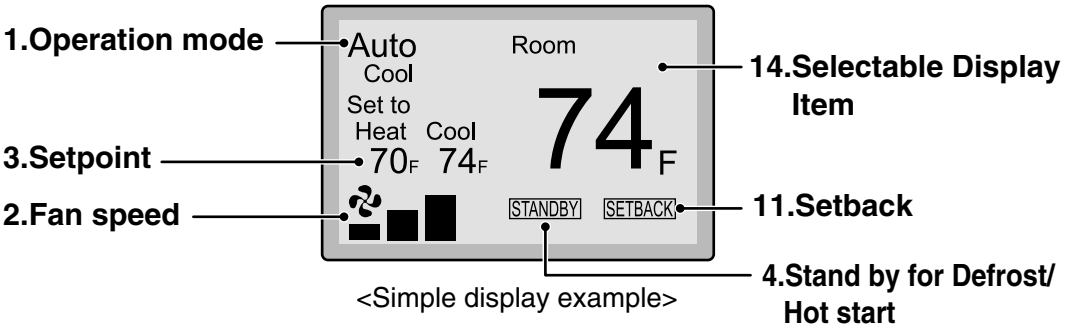


<Detailed display example 1>



<Detailed display example 2>

Simple display



<Simple display example>

Note for all display modes

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

1. Operation mode

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

2. Fan Speed

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

3. Setpoint

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

4. Stand by for Defrost/Hot start "STANDBY"

If ventilation icon is displayed in this field:

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

5. Message

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

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

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

- Displayed if an error or warning is detected.

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

- Displayed as a reminder when it is time to clean the filter and/or element.

6. Ventilation

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

7. Key Lock

- Displayed when the key lock is set.

8. Scheduled

- Displayed if the Schedule or Off timer is enabled.

9. Under Centralized control " CENTRAL CONTROL "

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

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

(VRV only)

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

11. Setback " SETBACK "

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

12. Airflow Direction " "

- Displayed when the airflow direction and swing are set.
- If the connected indoor unit model does not include oscillating louvers this item will not be displayed.

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

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

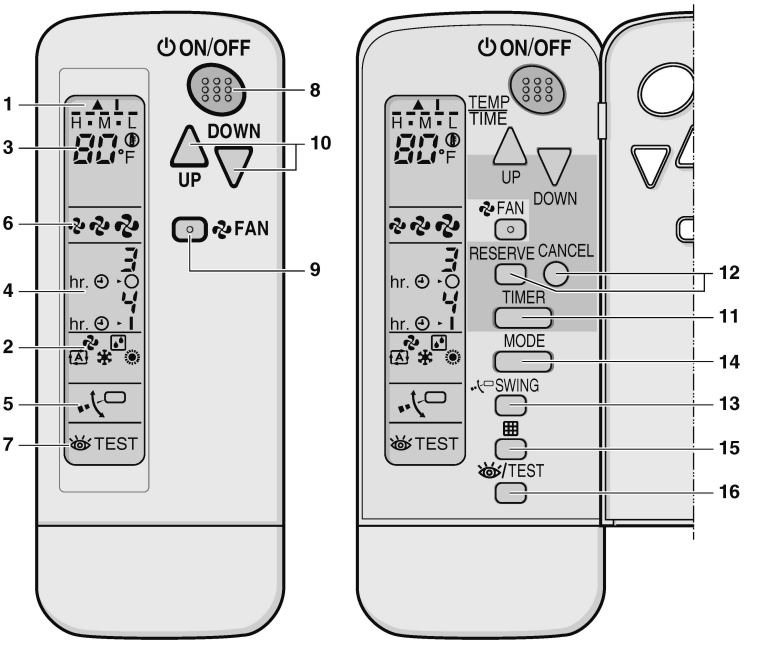
14. Selectable Display Item

- Room temperature is selected by default.
- For other choices see the operation manual.

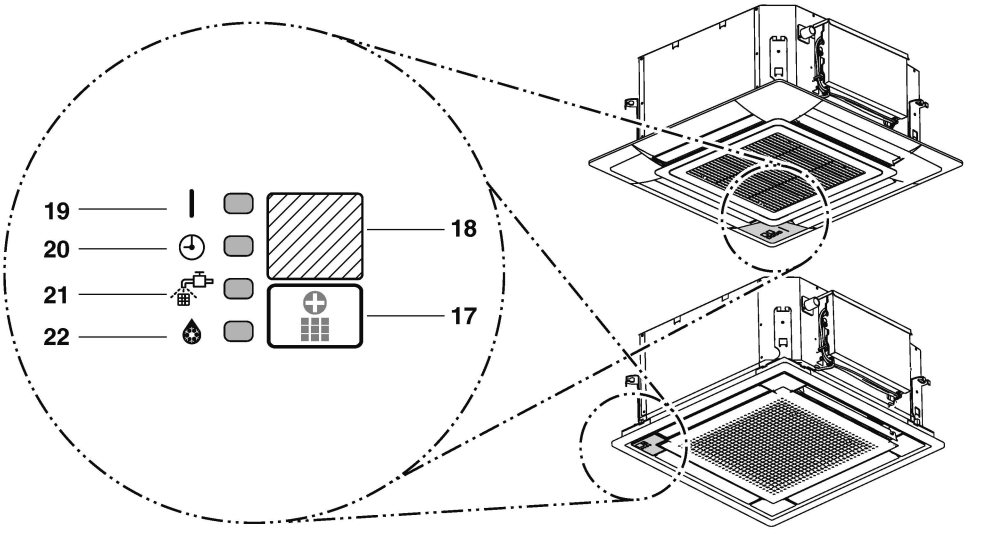
15. Unable to schedule

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

8. BRC082A41W, BRC082A42W(S) (Wireless Remote Controller Kit)



(R23936)



(R23937)

1	**DISPLAY ▲ (SIGNAL TRANSMISSION)**
	This lights up when a signal is being transmitted.
2	**DISPLAY , , , , (OPERATION MODE)**
	This display shows the current OPERATION MODE.
3	**DISPLAY H M L , 80 °F (SET TEMPERATURE)**
	This display shows the set temperature.
4	**DISPLAY hr. 3 0 hr. 4 1 (PROGRAMMED TIME)**
	This display shows PROGRAMMED TIME of the system start or stop.
5	**DISPLAY (SWING FLAP)**
6	**DISPLAY (FAN SPEED)**
	The display shows the set fan speed.
7	**DISPLAY /TEST (INSPECTION/TEST OPERATION)**
	When the **INSPECTION/TEST OPERATION** button is pressed, the display shows the system mode is in.
8	**ON/OFF BUTTON**
	Press the button and the system will start. Press the button again and the system will stop.
9	**FAN SPEED CONTROL BUTTON**
	Press this button to select the fan speed, LOW, MEDIUM or HIGH, of your choice.
10	**TEMPERATURE SETTING BUTTON**
	Use this button for setting temperature.

11	**TIMER MODE START/STOP BUTTON**
12	**TIMER RESERVE/CANCEL BUTTON**
13	**AIRFLOW DIRECTION ADJUST BUTTON**
14	**OPERATION MODE SELECTOR BUTTON**
	Press this button to select OPERATION MODE.
15	**FILTER SIGN RESET BUTTON**
16	**INSPECTION/TEST OPERATION BUTTON**
	This button is used only by qualified service persons for maintenance purposes.
17	**EMERGENCY OPERATION SWITCH**
	This switch is readily used if the remote controller does not work.
18	**RECEIVER**
	This receives the signals from the remote controller.
19	**OPERATION LAMP (Red)**
	This lamp stays lit while the air conditioner runs. It blinks when the unit is in trouble.
20	**TIMER LAMP (Green)**
	This lamp stays lit while the timer is set.
21	**AIR FILTER CLEANING TIME INDICATOR LAMP (Red)**
	Lights up when it is time to clean the air filter.
22	**DEFROST LAMP (Orange)**
	Lights up when the defrosting operation has started.

Part 8
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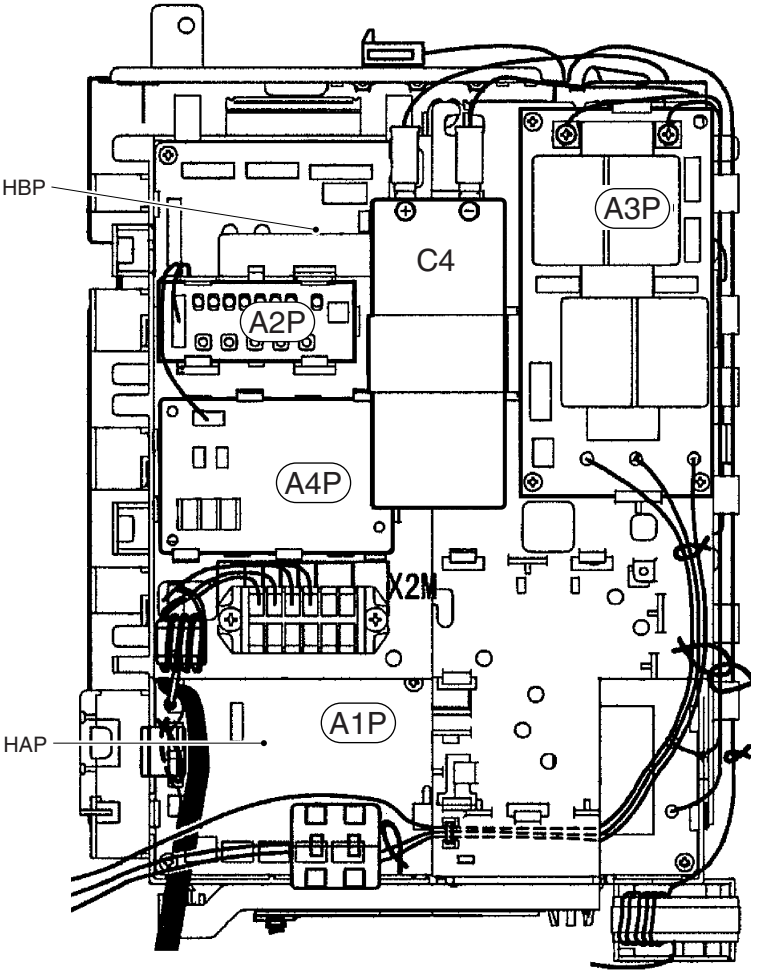
9. Pressure Sensor 269
10. Method of Replacing Inverter's Power Transistors Modules 270

1. Troubleshooting with LED

1.1 Outdoor Unit

1.1.1 Main PCB (A1P)

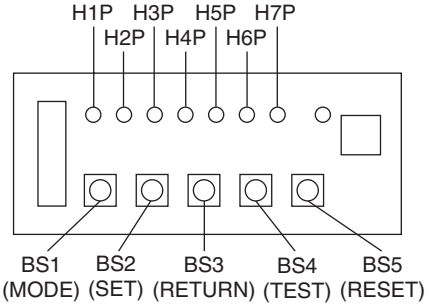
The main PCB (A1P) has green LEDs (HAP, HBP). When the microprocessors work in order, the LEDs blink.



(R22090)

1.1.2 Service PCB (A2P)

The error code can be identified with the orange LEDs (H1P~H7P) on the service PCB (A2P) in monitor mode.



(R13069)

Error code indication in monitor mode

Monitor mode

Press **MODE** (**BS1**) button and enter the monitor mode.

Selection of check item

Press **SET** (**BS2**) button and select a check item according to the LED pattern of No.14~16 and No.20~22. Refer to page 130 for check items.

Confirmation of malfunction 1

Press **RETURN** (**BS3**) button once to display the first digit of error code.

Confirmation of malfunction 2

Press **SET** (**BS2**) button once to display the second digit of error code.

Detail description on next page.

Confirmation of malfunction 3

Press **SET** (**BS2**) button once to display the malfunction location.

Confirmation of malfunction 4

Press **SET** (**BS2**) button once to display the malfunction unit and the malfunction location.

Press **RETURN** (**BS3**) button and return to the initial status of monitor mode.

* If you become unsure of how to proceed, press **MODE** (**BS1**) button and return to the setting mode 1.

Contents of malfunction		Error code
Outdoor unit PCB abnormality	Detection of DIII-Net	E1
Actuation of high pressure switch	High pressure switch activated (S1PH)	E3
Actuation of low pressure sensor	Abnormal Pe	E4
Compressor motor lock	Detection of compressor lock	E5
Outdoor fan motor abnormality	Detection of fan motor lock (M1F)	E7
	Detection of fan motor lock (M2F)	
Moving part of electronic expansion valve (Y1E, Y3E) abnormality	Y1E (main)	E9
	Y3E (subcooling)	
Outdoor temperature thermistor (R1T) abnormality	Short or open circuit (R1T)	H9
Discharge pipe temperature abnormality	Abnormal Tdi	F3
Refrigerant overcharged	Refrigerant overcharge	F6
Discharge pipe thermistor (R2T) abnormality	Short or open circuit (R2T)	J3
Suction pipe thermistor (R3T, R5T) abnormality	Short or open circuit (suction 1: R3T)	J5
	Short or open circuit (suction 2: R5T)	
Outdoor heat exchanger thermistor (R4T) abnormality	Short or open circuit (R4T)	J6
Outdoor liquid pipe thermistor (R7T) abnormality	Short or open circuit (R7T)	J7
Subcooling heat exchanger gas pipe thermistor (R6T) abnormality	Short or open circuit (R6T)	J9
High pressure sensor abnormality	Short or open circuit (S1NPH)	JA
Low pressure sensor abnormality	Short or open circuit (S1NPL)	JC
Outdoor unit PCB abnormality	Faulty IPM	L1
	Abnormal current sensor offset	
	Abnormal IGBT	
	Faulty current sensor	
	Abnormal SP-PAM overvoltage	
Radiation fin temperature rise	Overheating (FINTH)	L4
Inverter compressor abnormality	Inverter instantaneous overcurrent	L5
Inverter current abnormality	Electronic thermal switch 1	L8
	Electronic thermal switch 2	
	Out-of-step	
	Speed down after startup	
	Lightening detection	
Compressor start-up error	Stall prevention (Current increasing)	L9
	Stall prevention (Faulty start up)	
	Abnormal waveform in startup	
	Out-of-step	

○ : ON ● : OFF ◑ : Blink

Error code	Confirmation of malfunction 1							Confirmation of malfunction 2							Confirmation of malfunction 3							Confirmation of malfunction 4						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
E1	◑			●	●	◑	◑	◑			●	●	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
E3								◑			●	●	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	●		
E4								◑			●	◑	●	●	◑	○	●	●	●	●	●	◑	○	○	●	●		
E5								◑			●	◑	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●		
E7								◑			●	◑	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	◑	∗1	
															◑	○	●	●	●	●	◑	◑	○	○	●	◑		
E9								◑			◑	●	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●		
															◑	○	●	●	●	●	●	◑	○	○	◑	●		
H9	◑			●	◑	●	●	◑			◑	●	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	∗1	
F3	◑			●	◑	●	◑	◑			●	●	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	∗1	
F6								◑			●	◑	◑	●	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
J3	◑			●	◑	◑	●	◑			●	●	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	●		
J5								◑			●	◑	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●		
															◑	○	●	●	●	●	●	◑	○	○	●	◑		
J6								◑			●	◑	◑	●	◑	○	●	●	●	●	●	◑	○	○	●	●		
J7								◑			●	◑	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	∗1	
J9								◑			◑	●	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●		
JA								◑			◑	●	◑	●	◑	○	●	●	●	●	●	◑	○	○	●	●		
JC								◑			◑	◑	●	●	◑	○	●	●	●	●	●	◑	○	○	●	●		
L1	◑			●	◑	◑	◑	◑			●	●	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	●	●
															◑	○	●	●	●	●	●	◑	○	○	●	●	●	◑
															◑	○	●	●	●	●	●	◑	○	○	●	●	◑	●
															◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
															◑	○	●	●	●	●	●	◑	○	○	●	◑	●	●
L4								◑			●	◑	●	●	◑	○	●	●	●	●	●	◑	○	○	●	●		
L5								◑			●	◑	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●		
L8								◑			◑	●	●	●	◑	○	●	●	●	●	●	◑	○	○	●	●		
															◑	○	●	●	●	●	●	◑	○	○	●	◑		
															◑	○	●	●	●	●	●	◑	○	○	◑	●	∗1	
															◑	○	●	●	●	●	◑	◑	○	○	●	●		
L9								◑			◑	●	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●		
															◑	○	●	●	●	●	●	◑	○	○	●	◑		
															◑	○	●	●	●	●	●	◑	○	○	◑	●		

Display of contents of malfunction (first digit)

Display of contents of malfunction (second digit)

Display 1 of malfunction in detail

Display 2 of malfunction in detail

∗1		
	● ●	Master
	● ◑	Slave1
	◑ ●	Slave2
	◑ ◑	System

Monitor mode

Press **MODE** (**BS1**) button and enter the monitor mode.

Selection of check item

Press **SET** (**BS2**) button and select a check item according to the LED pattern of No.14~16 and No.20~22. Refer to page 130 for check items.

Confirmation of malfunction 1

Press **RETURN** (**BS3**) button once to display the first digit of error code.

Confirmation of malfunction 2

Press **SET** (**BS2**) button once to display the second digit of error code.

Confirmation of malfunction 3

Press **SET** (**BS2**) button once to display the malfunction location.

Confirmation of malfunction 4

Press **SET** (**BS2**) button once to display the malfunction unit and the malfunction location.

Press **RETURN** (**BS3**) button and return to the initial status of monitor mode.

∗ If you become unsure of how to proceed, press **MODE** (**BS1**) button and return to the setting mode 1.

Detail description on next page.

Contents of malfunction		Error code
High voltage of capacitor in main inverter circuit	Imbalance of inverter power supply voltage	P1
Radiation fin thermistor abnormality	Faulty thermistor of inverter fin	P4
Low pressure drop due to refrigerant shortage or electronic expansion valve abnormality	Refrigerant shortage alarm	U0
Power supply insufficient or instantaneous failure	Insufficient Inverter voltage	U2
	Faulty charge of capacitor in main inverter circuit	
	Malfunction due to SP-PAM overvoltage	
	Malfunction due to P-N short circuit	
Check operation is not conducted.		U3
Transmission error between indoor unit and BP unit	I/O transmission error	U4
	I/O transmission error	
Transmission error between indoor unit and outdoor unit in the same system	Indoor unit system abnormal in other system or other indoor unit system abnormal in own system	U9
Field setting switch abnormality or Excessive number of indoor units	System transmission malfunction	UA
	Overconnection malfunction of indoor units	
	Malfunction of field setting	
	Refrigerant abnormal	
	Connection error (BP unit)	
System abnormality, refrigerant system address undefined	Wiring error (Auto-address error)	UH
System is not set yet	Conflict in wiring and piping	UF

○ : ON ● : OFF ◑ : Blink

Error code	Confirmation of malfunction 1							Confirmation of malfunction 2							Confirmation of malfunction 3							Confirmation of malfunction 4						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
P1	◑			◑	●	●	●	◑			●	●	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	∗1		
P4								◑			●	◑	●	●	◑	○	●	●	●	●	●	◑	○	○	●	●			
U0	◑			◑	●	●	◑	◑			●	●	●	●	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
U2								◑			●	●	◑	●	◑	○	●	●	●	●	●	◑	○	○	●	●	∗1		
															◑	○	●	●	●	●	●		○	○	●	◑			
															◑	○	●	●	●	●	●	◑	○	○	●	●	◑	●
															◑	○	●	●	●	●	●	◑	○	○	●	●	●	◑
U3								◑			●	●	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
															◑	○	●	●	●	●	●	◑	○	○	●	◑	◑	◑
U4								◑			●	◑	●	●	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
															◑	○	●	●	●	●	●	◑	○	○	●	◑	◑	◑
U9								◑			◑	●	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
UA								◑			◑	●	◑	●	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
															◑	○	●	●	●	●	●	◑	○	○	●	◑	◑	◑
															◑	○	●	●	●	●	●	◑	○	○	◑	●	◑	◑
															◑	○	●	●	●	●	◑	◑	○	○	●	●	◑	◑
															◑	○	●	●	●	◑	●	◑	○	○	●	◑	◑	◑
UH								◑			◑	●	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
UF								◑			◑	◑	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑

Display of contents of malfunction (first digit)

Display of contents of malfunction (second digit)

Display 1 of malfunction in detail

Display 2 of malfunction in detail

∗1		
	● ●	Master
	● ◑	Slave1
	◑ ●	Slave2
	◑ ◑	System

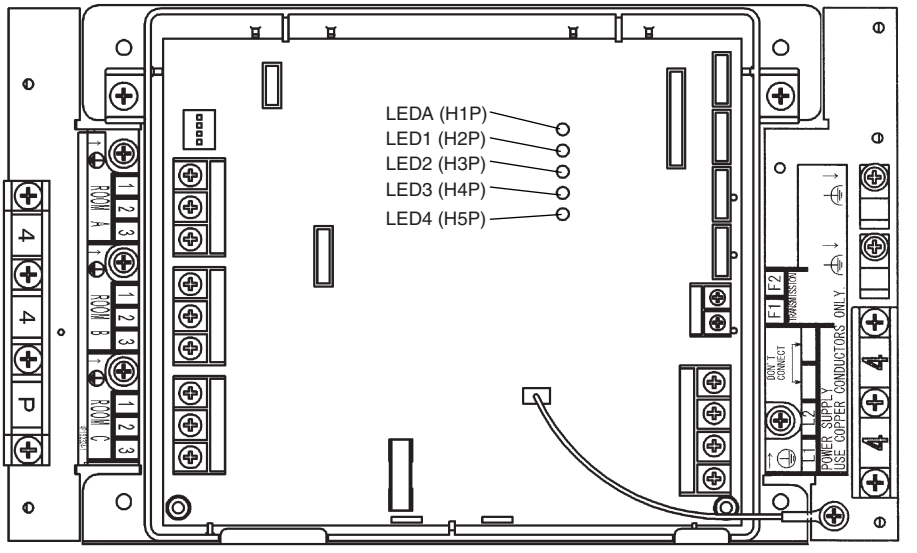
1.2 Branch Provider (BP) Unit

☼: ON, ●: OFF, ◑: Blinks, —: No matter

Green : Blinks in normal condition
Red : OFF in normal condition

BP Unit LED Indication					Description
Green	Red				
A	1	2	3	4	
◑	●	●	●	●	Normal condition
◑	☼	●	●	●	Defective electronic expansion valve or anti-icing control in non-operating indoor unit
◑	☼	☼	●	●	Defective thermistor
◑	☼	●	☼	☼	Freeze-up protection control in operating indoor unit or standby indoor unit
☼	—	—	—	—	Defective BP unit PCB (Refer to note.)
●	—	—	—	—	Power supply abnormality (Refer to note.)

Note: Turn the power off then on again. If the LED display recurs, the BP unit PCB is defective.



(R19090)

1.3 Indoor Unit

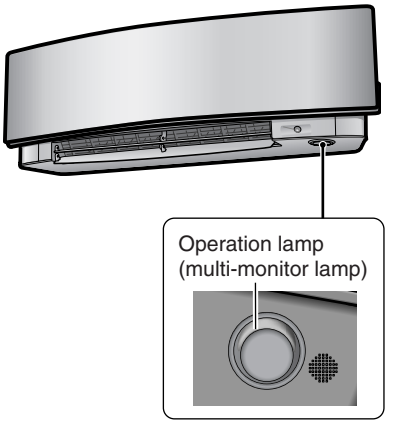
Operation Lamp

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

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

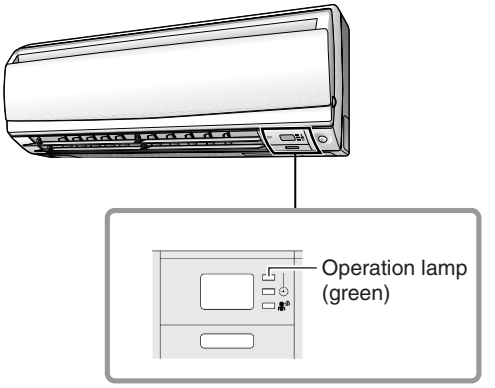
In either case, conduct the diagnostic procedure described in the following pages.

CTXG series



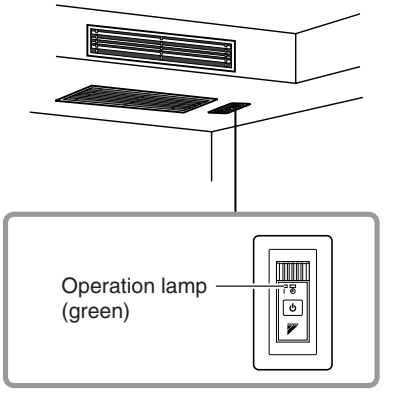
(R24043)

CTXS/FTXS series



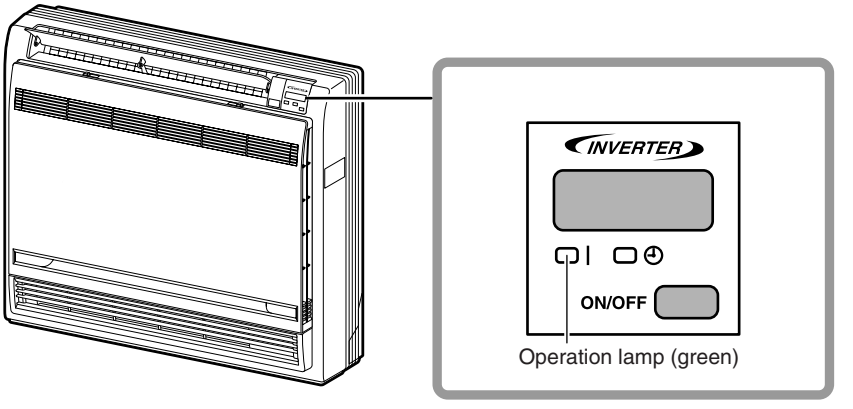
(R23939)

CDXS/FDXS series



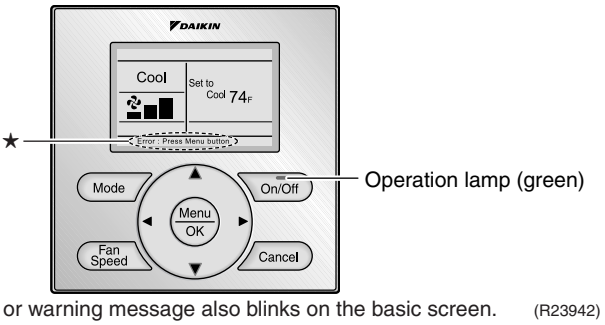
(R23940)

FVXS series



(R23941)

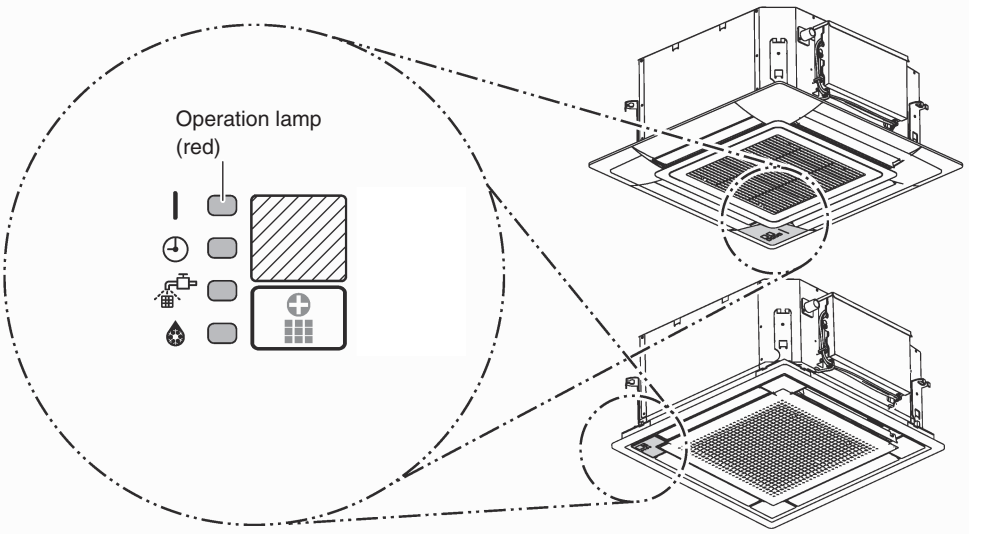
FFQ series with wired remote controller (BRC1E73)



★The error or warning message also blinks on the basic screen. (R23942)

FFQ series with wireless remote controller kit (BRC082A41W, BRC082A42W(S))

In case of wireless remote controller, a transmitter board (A2P) and a receiver (A3P) are installed on indoor unit. When the error occurs, the operation lamp on the receiver (A3P) blinks.



(R24044)

Caution: When operation stops suddenly and the operation lamp blinks, it could be operation mode conflict. For FFQ models, even if the operation mode conflict occurs, the operation lamp does not blink.

1) Check if the operation modes all the same for the indoor units connected to multi system outdoor unit?
2) If not, set all the indoor units to the same operation mode and confirm that the operation lamp is not blinking.
3) Moreover, when the operation mode is automatic, set all the indoor unit operation mode as cooling or heating and check again if the operation lamp is normal.
   If the lamp stops blinking after the above steps, there is no malfunction.

∗Operation stops and operation lamp blinks only for the indoor unit that has a different operation mode set later. (The first set operation mode has priority.)

Service Monitor

The indoor unit has a green LED (LED A or HAP) on the control PCB. When the microcomputer works in order, the LED blinks. (Refer to pages 26, 28, 30, 32, 34, 36 and 38 for the location of LED.)

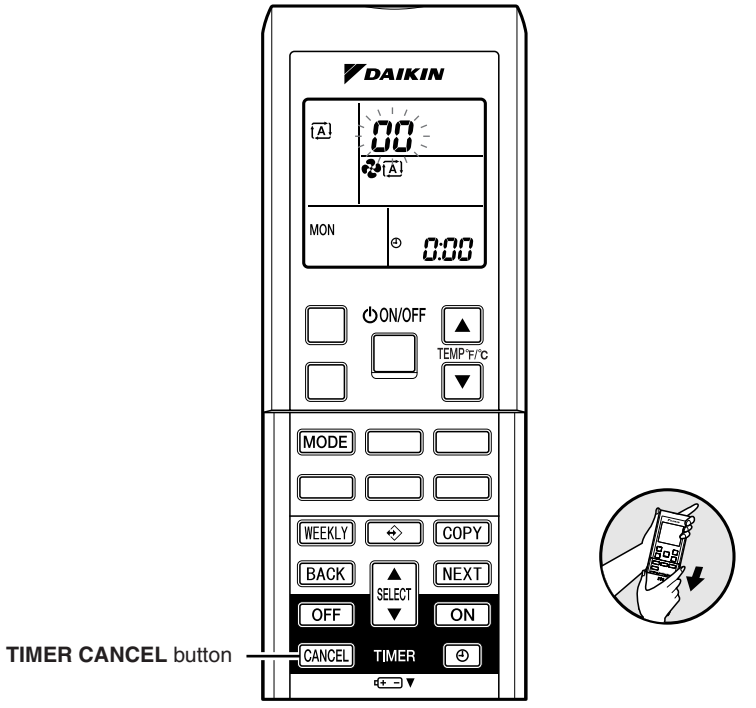
2. Service Diagnosis

2.1 CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series

2.1.1 ARC452 Series Remote Controller

Method 1

1. When **TIMER CANCEL** button is held down for 5 seconds, 00 is displayed on the temperature display screen.



< ARC452 Series >

(R23945)

2. Press **TIMER CANCEL** button repeatedly until a long beep sounds.

■ The code indication changes in the sequence shown below.

ARC452A9, A21, A23

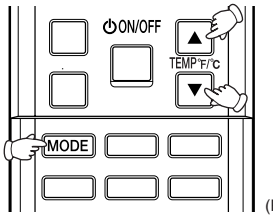
No.	Code	No.	Code	No.	Code
1	00	13	C7	25	UR
2	U4	14	R3	26	UH
3	L5	15	H8	27	P4
4	E6	16	H9	28	L3
5	H6	17	C9	29	L4
6	H0	18	C4	30	H7
7	R6	19	C5	31	U2
8	E7	20	J3	32	ER
9	U0	21	J6	33	RH
10	F3	22	E5	34	FR
11	R5	23	R1	35	H1
12	F6	24	E1	36	P9

Notes:

1. A short beep or two consecutive beeps indicate non-corresponding codes.
2. To return to the normal mode, hold down **TIMER CANCEL** button for 5 seconds. When the remote controller is left untouched for 60 seconds, it also returns to the normal mode.
3. Not all the error codes are displayed. When you cannot find the error code, try method 2. (→ Refer to page 183.)

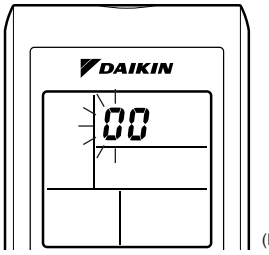
Method 2

1. Press the 3 buttons (**TEMP▲**, **TEMP▼**, **MODE**) at the same time to enter the diagnosis mode.



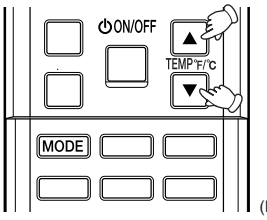
(R14550)

The left-side number blinks.



(R9430)

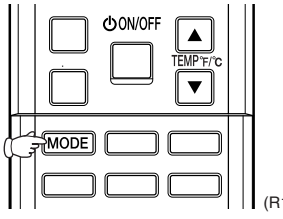
2. Press **TEMP ▲** or **TEMP ▼** button and change the number until you hear the two consecutive beeps or the long beep.



(R14551)

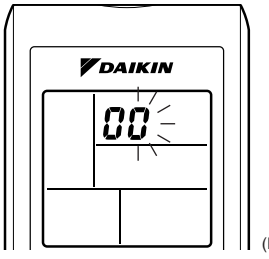
3. Diagnose by the sound.
   ★beep : The left-side number does not correspond with the error code.
   ★two consecutive beeps : The left-side number corresponds with the error code but the right-side number does not.
   ★long beep : Both the left-side and right-side number correspond with the error code. The numbers indicated when you hear the long beep are the error code.
   Refer to page 194, 195.

4. Press **MODE** button.



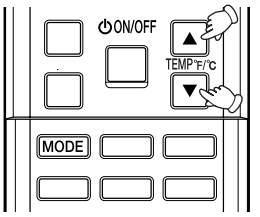
(R14552)

The right-side number blinks.



(R9429)

5. Press **TEMP ▲** or **TEMP ▼** button and change the number until you hear the long beep.

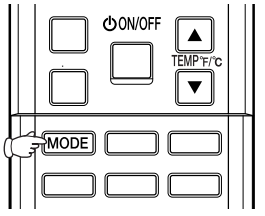


(R14547)

6. Diagnose by the sound.
   ★beep : The left-side number does not correspond with the error code.
   ★two consecutive beeps : The left-side number corresponds with the error code but the right-side number does not.
   ★long beep : Both the left-side and right-side number corresponds with the error code.

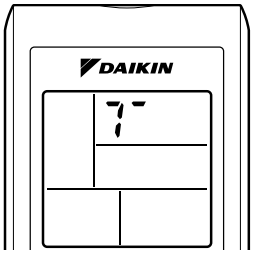
7. Determine the error code.
   The numbers indicated when you hear the long beep are the error code.
   Refer to page 194, 195.

8. Press **MODE** button to exit from the diagnosis mode.



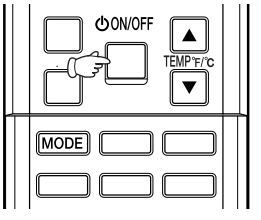
(R14548)

   The display 7- means the test operation mode.
   Refer to page 120 for test operation.



(R9879)

9. Press **ON/OFF** button twice to return to the normal mode.



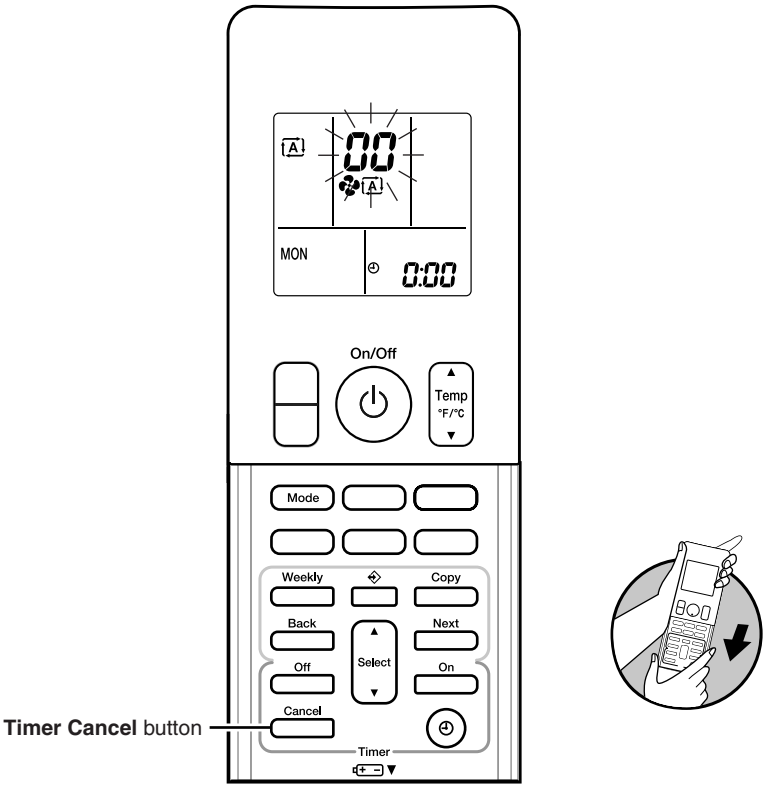
(R14549)

Note: When the remote controller is left untouched for 60 seconds, it returns to the normal mode.

2.1.2 ARC466 Series Remote Controller

Method 1

1. When **Timer Cancel** button is held down for 5 seconds, 00 is displayed on the temperature display screen.



< ARC466 Series > (R24045)

2. Press **Timer Cancel** button repeatedly until a long beep sounds.

■ The code indication changes in the sequence shown below.

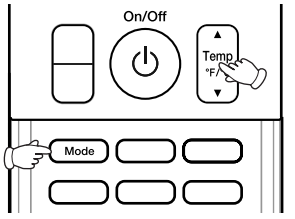
ARC466A21, A36

No.	Code	No.	Code	No.	Code
1	00	14	U0	27	U8
2	A5	15	C7	28	UK
3	E7	16	A3	29	P4
4	F3	17	H8	30	H7
5	F6	18	H9	31	U2
6	L3	19	C9	32	E8
7	L4	20	C4	33	AH
8	L5	21	C5	34	F8
9	U4	22	J3	35	H1
10	E6	23	J6	36	P9
11	H6	24	E5	37	E3
12	H0	25	A1	38	H3
13	A6	26	E1		

Notes:
1. A short beep or two consecutive beeps indicate non-corresponding codes.
2. To return to the normal mode, hold down **Timer Cancel** button for 5 seconds. When the remote controller is left untouched for 60 seconds, it also returns to the normal mode.
3. Not all the error codes are displayed. When you cannot find the error code, try method 2. (→ Refer to page 186.)

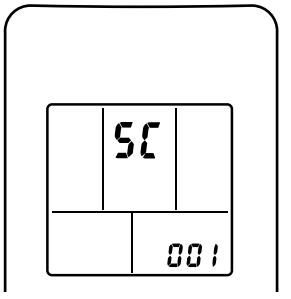
Method 2

1. Press the center of **Temp** button and **Mode** button at the same time.



(R24046)

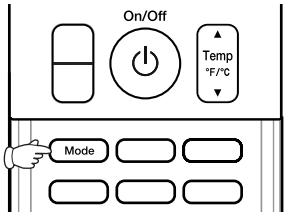
SC is displayed on the LCD.



(R11821)

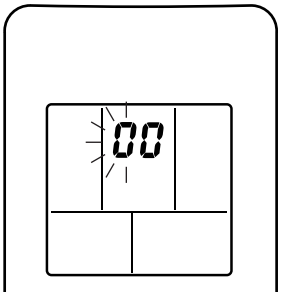
2. Select SC (service check) with **Temp ▲** or **Temp ▼** button.

3. Press **Mode** button to enter the service check mode.



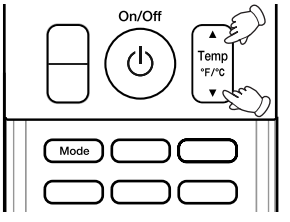
(R24047)

The left-side number blinks.



(R11670)

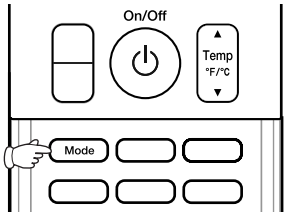
4. Press **Temp ▲** or **Temp ▼** button and change the number until you hear the two consecutive beeps or the long beep.



(R24048)

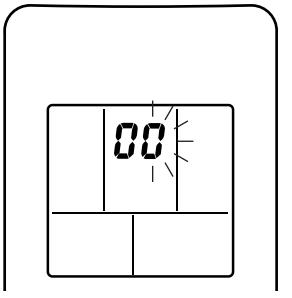
5. Diagnose by the sound.
   ★ beep: The left-side number does not correspond with the error code.
   ★ two consecutive beeps: The left-side number corresponds with the error code but the right-side number does not.
   ★ long beep: Both the left-side and right-side numbers correspond with the error code. The numbers indicated when you hear the long beep are the error code. Refer to page 194, 195.

6. Press **Mode** button.



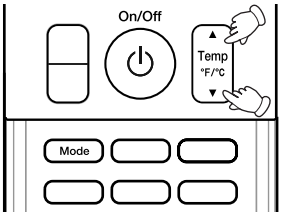
(R24047)

   The right-side number blinks.



(R11673)

7. Press **Temp ▲** or **Temp ▼** button and change the number until you hear the long beep.

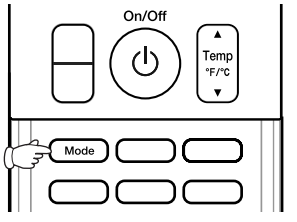


(R24048)

8. Diagnose by the sound.
   ★ beep: The left-side number does not correspond with the error code.
   ★ two consecutive beeps: The left-side number corresponds with the error code but the right-side number does not.
   ★ long beep: Both the left-side and right-side numbers correspond with the error code.

9. Determine the error code.
   The numbers indicated when you hear the long beep are the error code.
   Refer to page 194, 195.

10. Press **Mode** button for 5 seconds to exit from the service check mode.
    (When the remote controller is left untouched for 60 seconds, it returns to the normal mode also.)



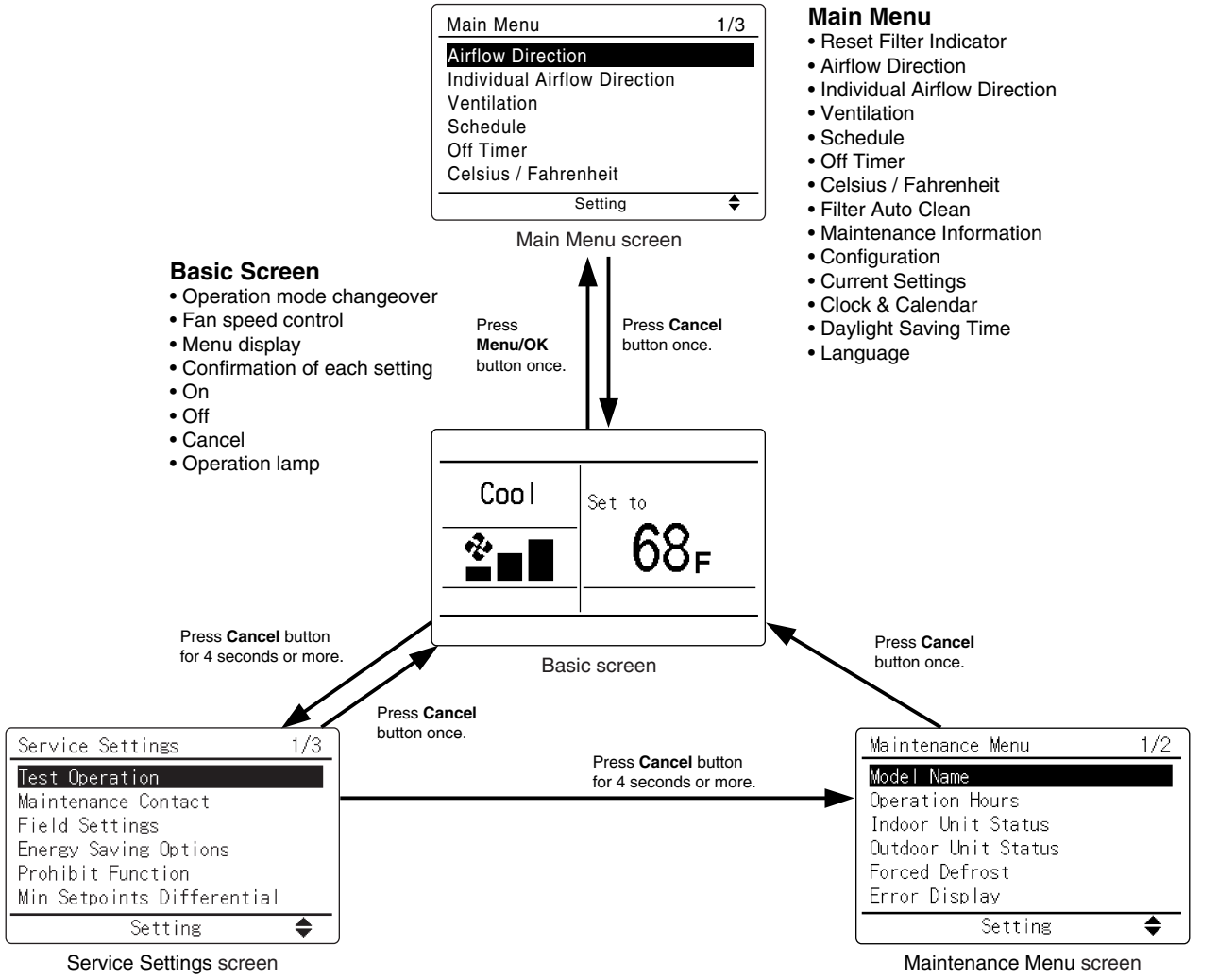
(R24047)

2.2 FFQ Series

2.2.1 Wired Remote Controller (BRC1E73)

Relations Between Modes

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

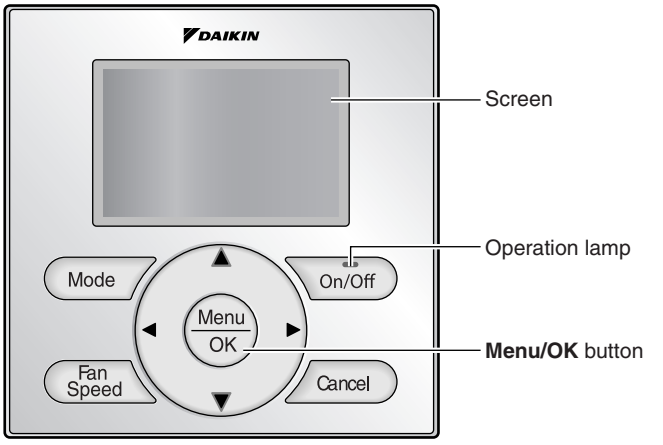


★ The items shown on the remote controller are different depending on the connected indoor unit.

(R24620)

Service Diagnosis

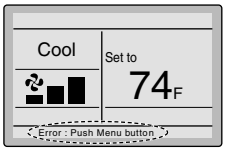
The following message is displayed on the screen when an error (or a warning) occurs during operation. Check the error code and take the corrective action specified for the particular model.



(R18817)

Operation

1



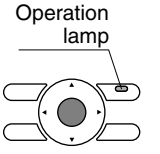
- If an error occurs, either one of the following items will flash in the basic screen.

Error: Push Menu button

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

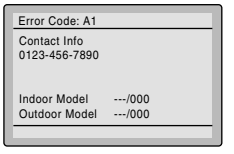
Warning: Push Menu button

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



- Press **Menu/OK** button.

2

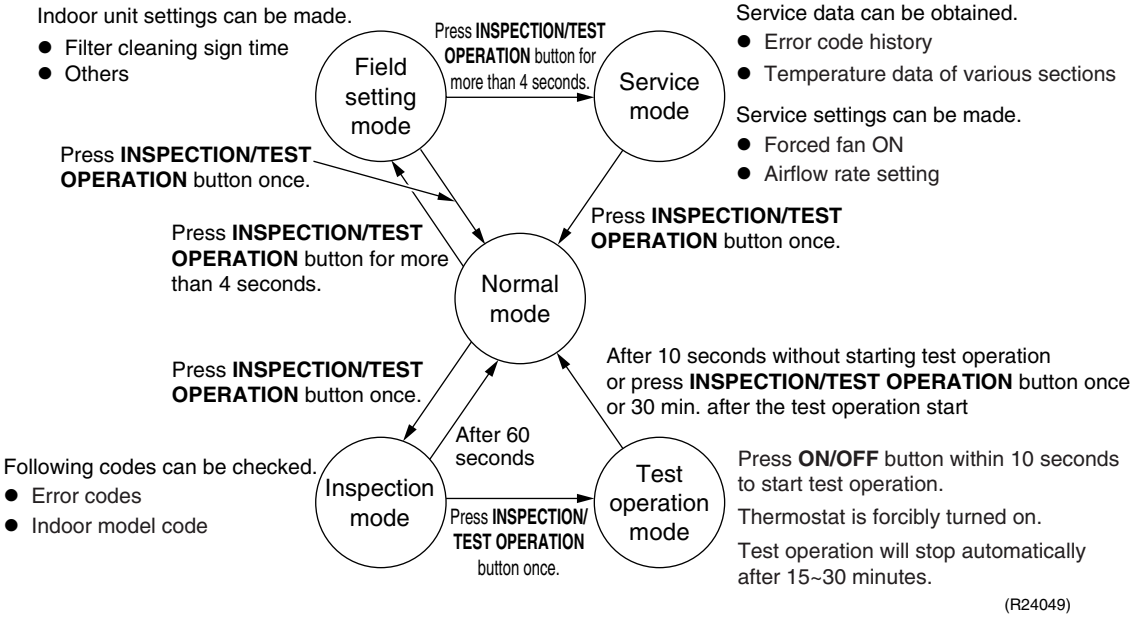


- The error code will flash and the service contact and model name or code may be displayed.
- Notify your Daikin dealer of the Error code and model name or code.

2.2.2 Wireless Remote Controller Kit (BRC082A41W, BRC082A42W(S))

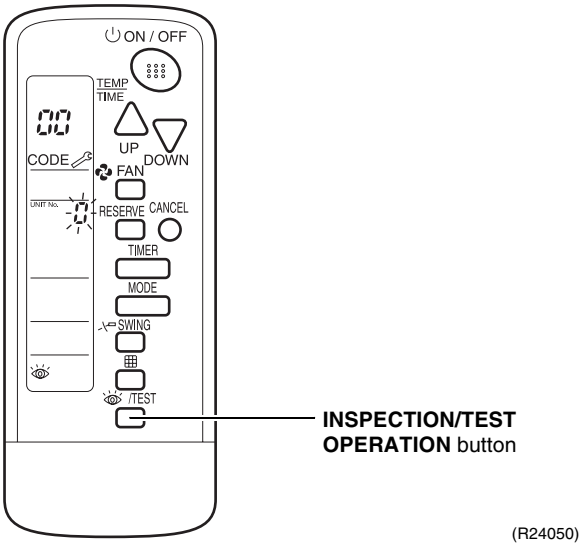
Relations Between Modes

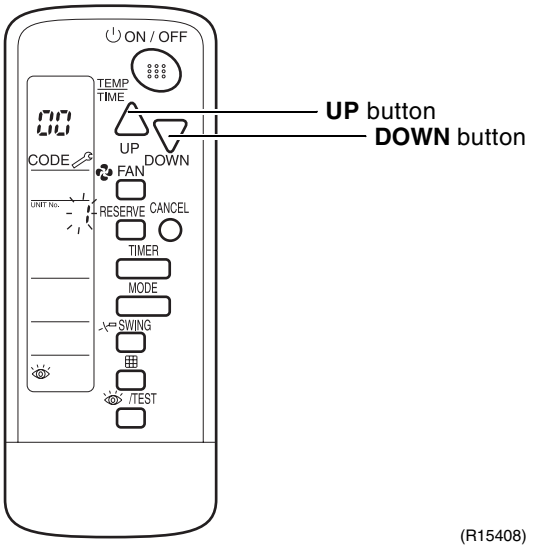
The following modes can be selected by using **INSPECTION/TEST OPERATION** button on the remote controller.

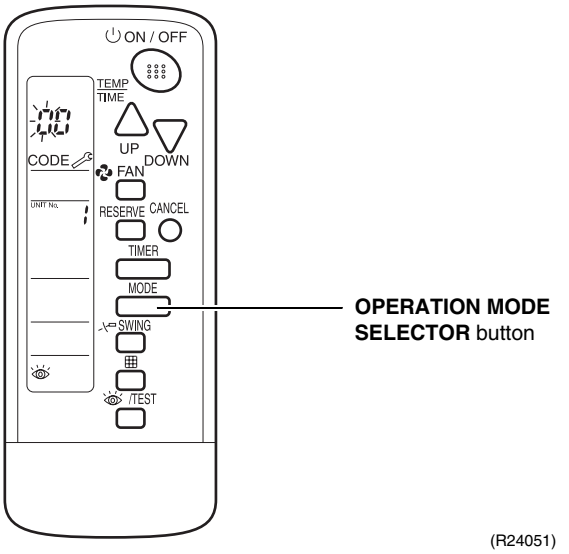


Service Diagnosis

To find the error code, proceed as follows:

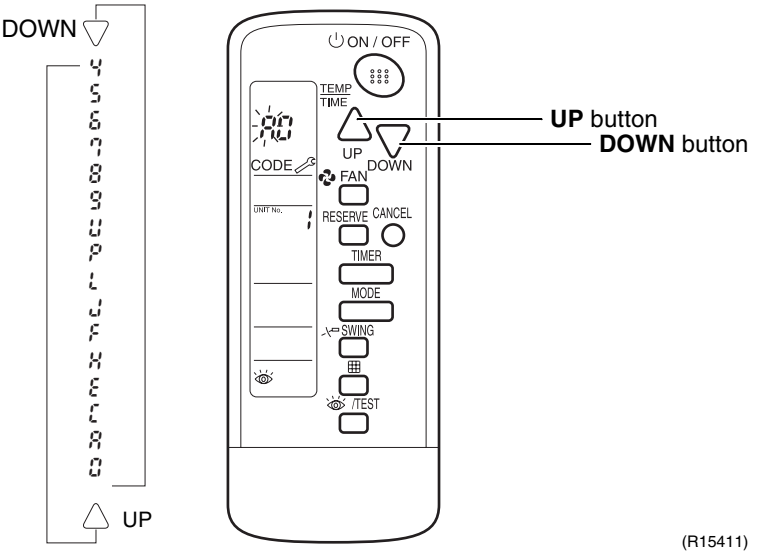
Step	Action
1	Press **INSPECTION/TEST OPERATION** button to enter the inspection mode. Then the figure 0 blinks on the UNIT No. display.  (R24050)

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>2</td><td>Press UP or DOWN button and change the UNIT No. until the indoor unit starts to beep.
 

(R15408)
<table>
<tr><th>If you hear...</th><th>Then...</th></tr>
<tr><td>3 short beeps</td><td>Follow all steps below.</td></tr>
<tr><td>1 short beep</td><td>Follow steps 3 and 4. Continue the operation in step 4 until you hear a long beep. This long beep indicates that the error code is confirmed.</td></tr>
<tr><td>1 long beep</td><td>There is no abnormality.</td></tr>
</table></td></tr>
<tr><td>3</td><td>Press OPERATION MODE SELECTOR button. The left ⌑ (upper digit) indication of the error code blinks.
 

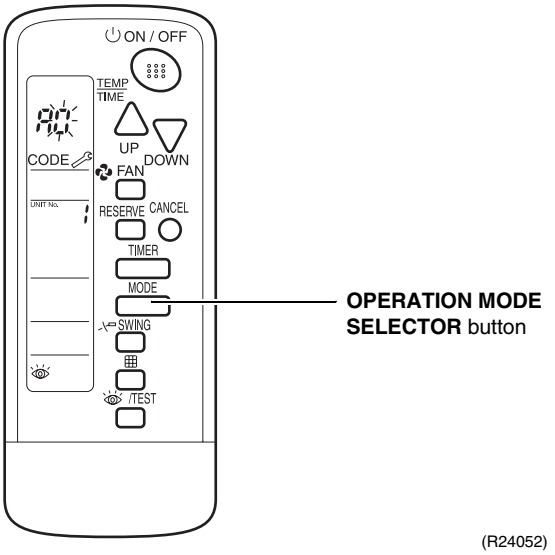
(R24051)</td></tr>
</table>

Step	Action
4	Press **UP** or **DOWN** button to change the error code upper digit until the indoor unit beeps.

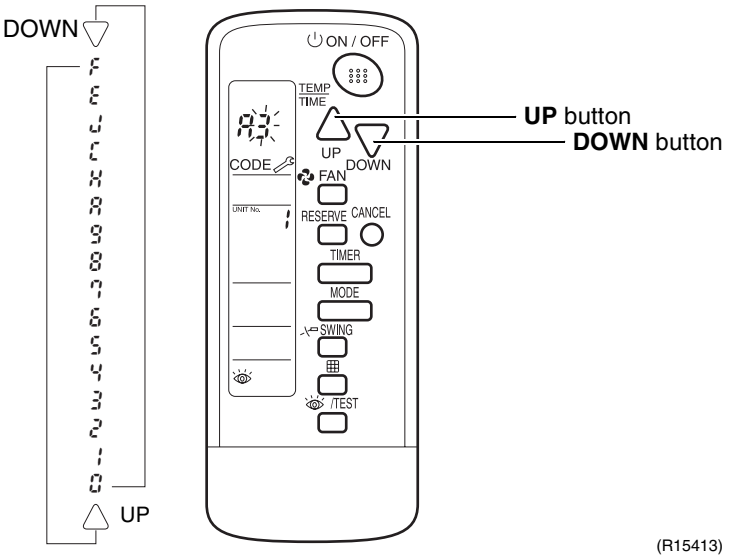


If you hear...	Then...
2 short beeps	The upper digit matches.
1 short beep	No digits match.
1 long beep	Both upper and lower digits match.

5	Press **OPERATION MODE SELECTOR** button. The right ⁻ (lower digit) indication of the error code blinks.

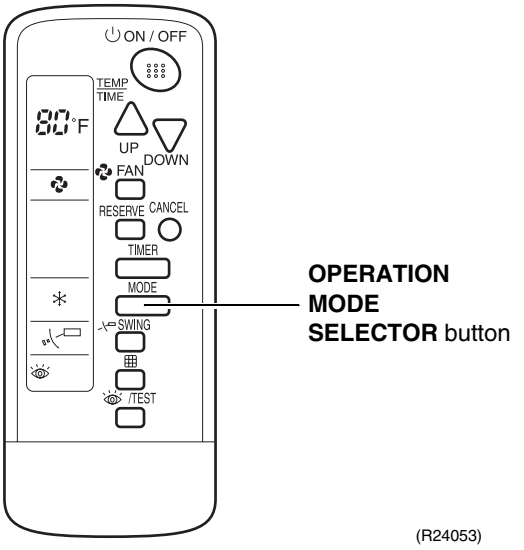


Step	Action
6	Press **UP** or **DOWN** button and change the error code lower digit until the indoor unit generates long beep.



If you hear...	Then...
2 short beeps	No digits match.
1 long beep	Both upper and lower digits match.

Step	Action
7	Press **OPERATION MODE SELECTOR** button to return to the normal mode. If you do not press any button for 1 minute, the remote controller automatically returns to the normal mode.



3. Error Codes and Description

	Error code	Description	Reference page			
			RA Indoor Unit	SA Indoor Unit	BP Unit	Outdoor Unit
Indoor Unit	**A1**	Indoor unit PCB abnormality	196	207	—	—
	A3	Drain level control system abnormality	—	208	—	—
	A5	Freeze-up protection control/heating peak-cut control	198	—	—	—
	A6	Indoor fan motor or related abnormality	199, 201	209	—	—
	A9	Electronic expansion valve abnormality	—	—	219	—
	AF	Humidifier or Related abnormality	—	211	—	—
	C4	Indoor heat exchanger thermistor 1 (liquid pipe) or related abnormality	203	212	—	—
	C5	Indoor heat exchanger thermistor 2 or related abnormality	—	212	—	—
	C7	Front panel open/close fault	204	—	—	—
	C9	Room temperature thermistor or related abnormality	203	212	—	—
	CE	Presence sensor or floor sensor abnormality	—	213	—	—
	CJ	Remote controller thermistor abnormality	—	214	—	—
Outdoor Unit	**E1**	Outdoor unit PCB abnormality	—	—	—	226
	E2	Branch provider (BP) unit PCB abnormality	—	—	220	—
	E3	Actuation of high pressure switch	—	—	—	227
	E4	Actuation of low pressure sensor	—	—	—	229
	E5	Compressor motor lock	—	—	—	231
	E7	Outdoor fan motor abnormality	—	—	—	232
	E9	Moving part of electronic expansion valve (Y1E, Y3E) abnormality	—	—	—	233
	F3	Discharge pipe temperature abnormality	—	—	—	235
	F6	Refrigerant overcharged	—	—	—	236
	H9	Outdoor temperature thermistor (R1T) abnormality	—	—	—	237
	J0	Branch provider (BP) liquid or gas pipe thermistor abnormality	—	—	221	—
	J3	Discharge pipe thermistor (R2T) abnormality	—	—	—	238
	J5	Suction pipe thermistor (R3T, R5T) abnormality	—	—	—	239
	J6	Outdoor heat exchanger thermistor (R4T) abnormality	—	—	—	240
	J7	Outdoor liquid pipe thermistor (R7T) abnormality	—	—	—	241
	J9	Subcooling heat exchanger gas pipe thermistor (R6T) abnormality	—	—	—	242
	JA	High pressure sensor abnormality	—	—	—	243

	Error code	Description	Reference page			
			RA Indoor Unit	SA Indoor Unit	BP Unit	Outdoor Unit
Outdoor Unit	**JC**	Low pressure sensor abnormality	—	—	—	244
	L1	Outdoor unit PCB abnormality	—	—	—	245
	L4	Radiation fin temperature rise	—	—	—	246
	L5	Inverter compressor abnormality	—	—	—	247
	L8	Inverter current abnormality	—	—	—	248
	L9	Compressor start-up error	—	—	—	249
	P1	High voltage of capacitor in main inverter circuit	—	—	—	250
	P4	Radiation fin thermistor abnormality	—	—	—	251
System	**U0**	Low pressure drop due to refrigerant shortage or electronic expansion valve abnormality	—	—	—	252
	U2	Power supply insufficient or instantaneous failure	—	—	—	254
	U3	Check operation is not conducted	—	—	—	255
	U4	Signal transmission error between indoor unit and Branch provider (BP) unit	—	—	222	—
	U5	Signal transmission error between indoor unit and remote controller	—	215	—	—
	U8	Signal transmission error between MAIN remote controller and SUB remote controller	—	216	—	—
System	**U9**	Signal transmission error between indoor unit and outdoor unit in the same system	—	—	—	256
	UA	Mismatching of indoor unit and outdoor unit	—	217	—	—
		Excessive number of indoor units	—	—	—	257
	UC	Address duplication of central remote controller	—	—	—	258
	UE	Transmission error between centralized remote controller and indoor unit	—	—	—	259
	UF	System is not set yet	—	—	—	261
	UH	System abnormality, refrigerant system address undefined	—	—	—	262
	UJ	Transmission error between outdoor unit and Branch provider (BP) unit	—	—	224	—

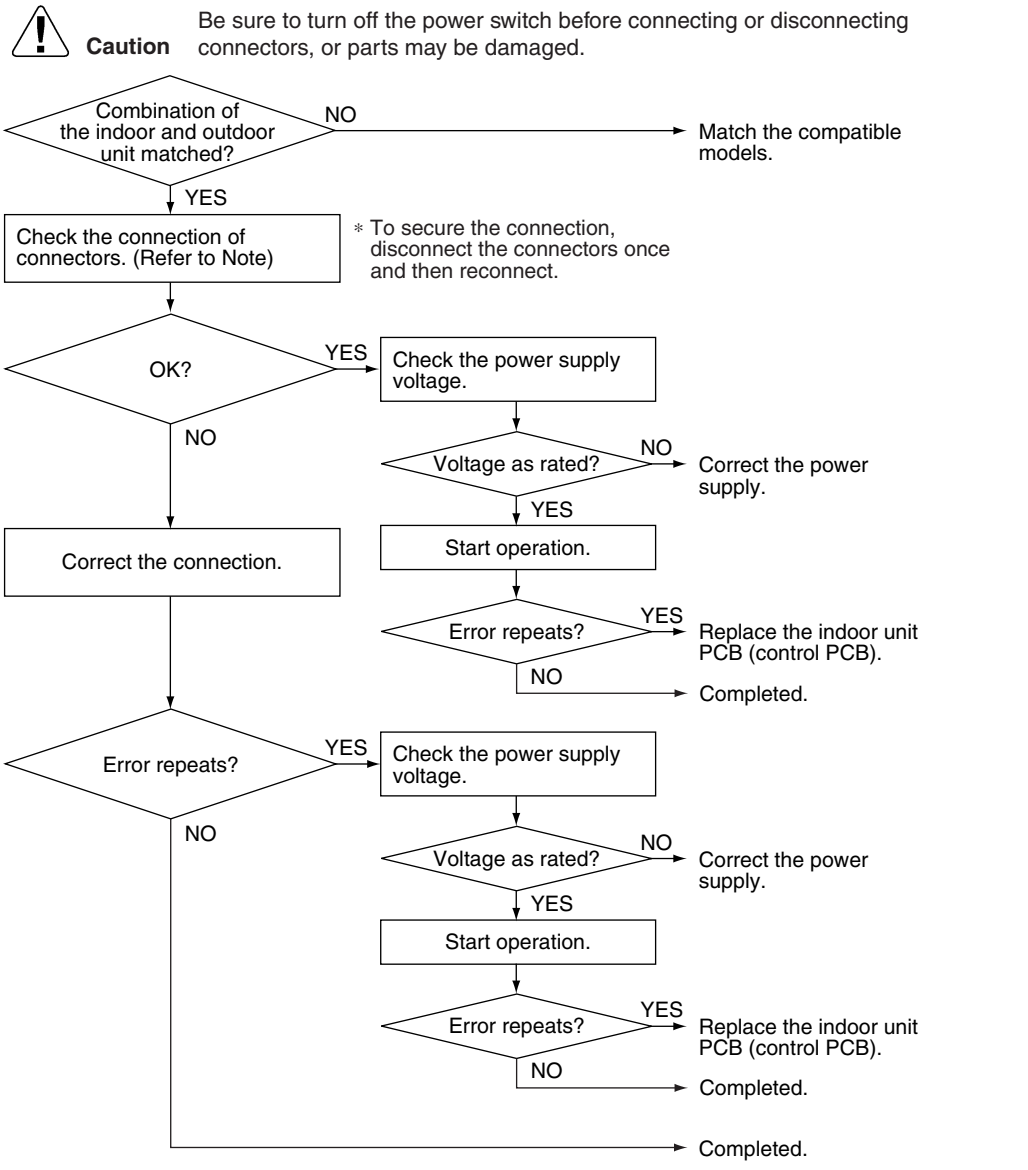
The system keeps operating even though the error code is indicated, however, be sure to check and repair.

4. Troubleshooting for CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series

4.1 Indoor Unit PCB Abnormality

Error Code	**A1**
Method of Error Detection	The system checks if the circuit works properly within the microcomputer of the indoor unit.
Error Decision Conditions	The system cannot set the internal settings.
Supposed Causes	■ Wrong models interconnected ■ Defective indoor unit PCB ■ Disconnection of connector ■ Reduction of power supply voltage

Troubleshooting



Note: Check the following connector.

Model Type	Connector
CTXG, CTXS, FTXS, FVXS series	Terminal strip ~ Control PCB (H1, H2, H3)
CDXS, FDXS series	Terminal block ~ Control PCB (H1, H2, H3)

4.2 Freeze-up Protection Control/Heating Peak-cut Control

Error Code **A5**

Method of Error Detection

- Freeze-up protection control
  During cooling operation, the freeze-up protection control (operation halt) is activated according to the temperature detected by the indoor heat exchanger thermistor.
- Heating peak-cut control
  During heating operation, the temperature detected by the indoor heat exchanger thermistor is used for the heating peak-cut control (operation halt, outdoor fan stop, etc.)

Error Decision Conditions

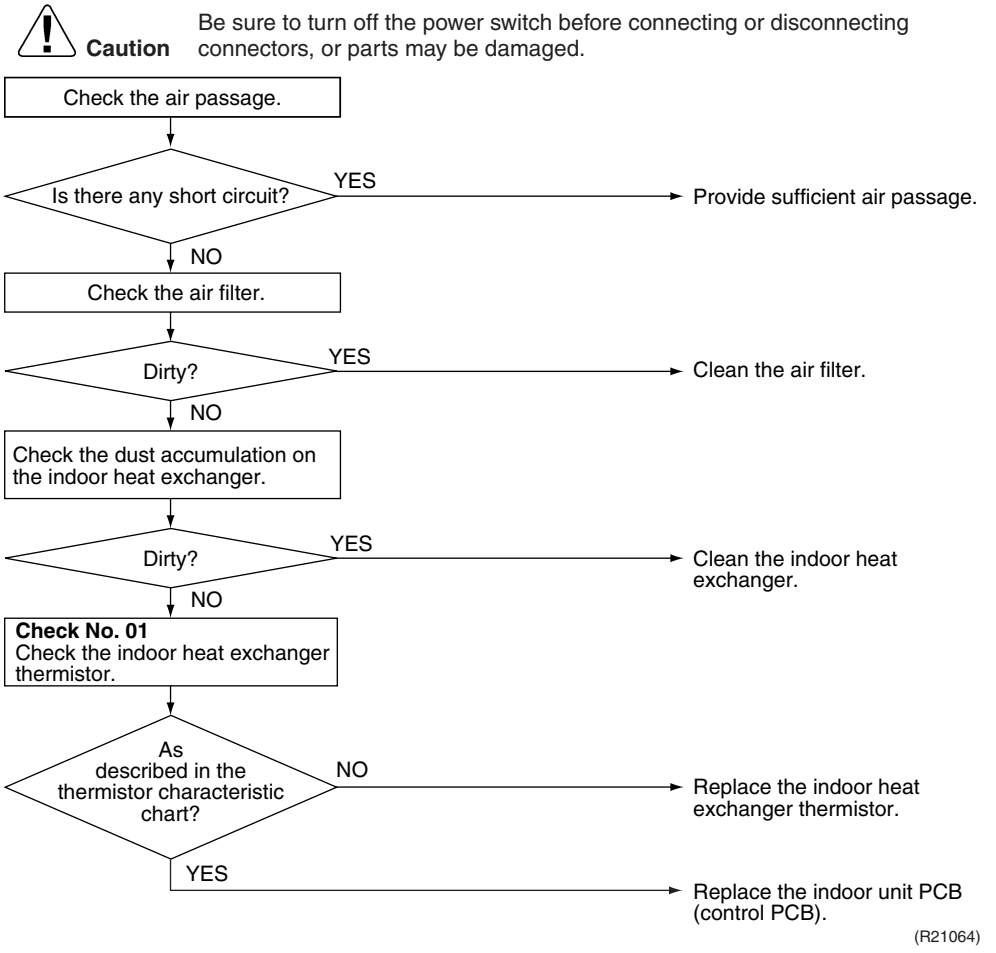
- Freeze-up protection control
  During cooling operation, the indoor heat exchanger temperature is below 0°C (32°F).
- Heating peak-cut control
  During heating operation, the indoor heat exchanger temperature is above 65°C (149°F).

Supposed Causes

- Short-circuited air
- Clogged air filter of the indoor unit
- Dust accumulation on the indoor heat exchanger
- Defective indoor heat exchanger thermistor
- Defective indoor unit PCB

Troubleshooting

Check No.01
Refer to P.205



4.3 Indoor Fan Motor or Related Abnormality

4.3.1 Indoor Fan Motor (DC Motor) or Related Abnormality

Applicable Models

CTXG09/12/18QVJUW(S)
CTXS07JVJU
CTXS09/12HVJU
CTXS07LVJU
FTXS09/12/15/18/24LVJU
FVXS09/12/15/18NVJU

Error Code

A6

Method of Error Detection

The rotation speed detected by the Hall IC during indoor fan motor operation is used to determine abnormal fan motor operation.

Error Decision Conditions

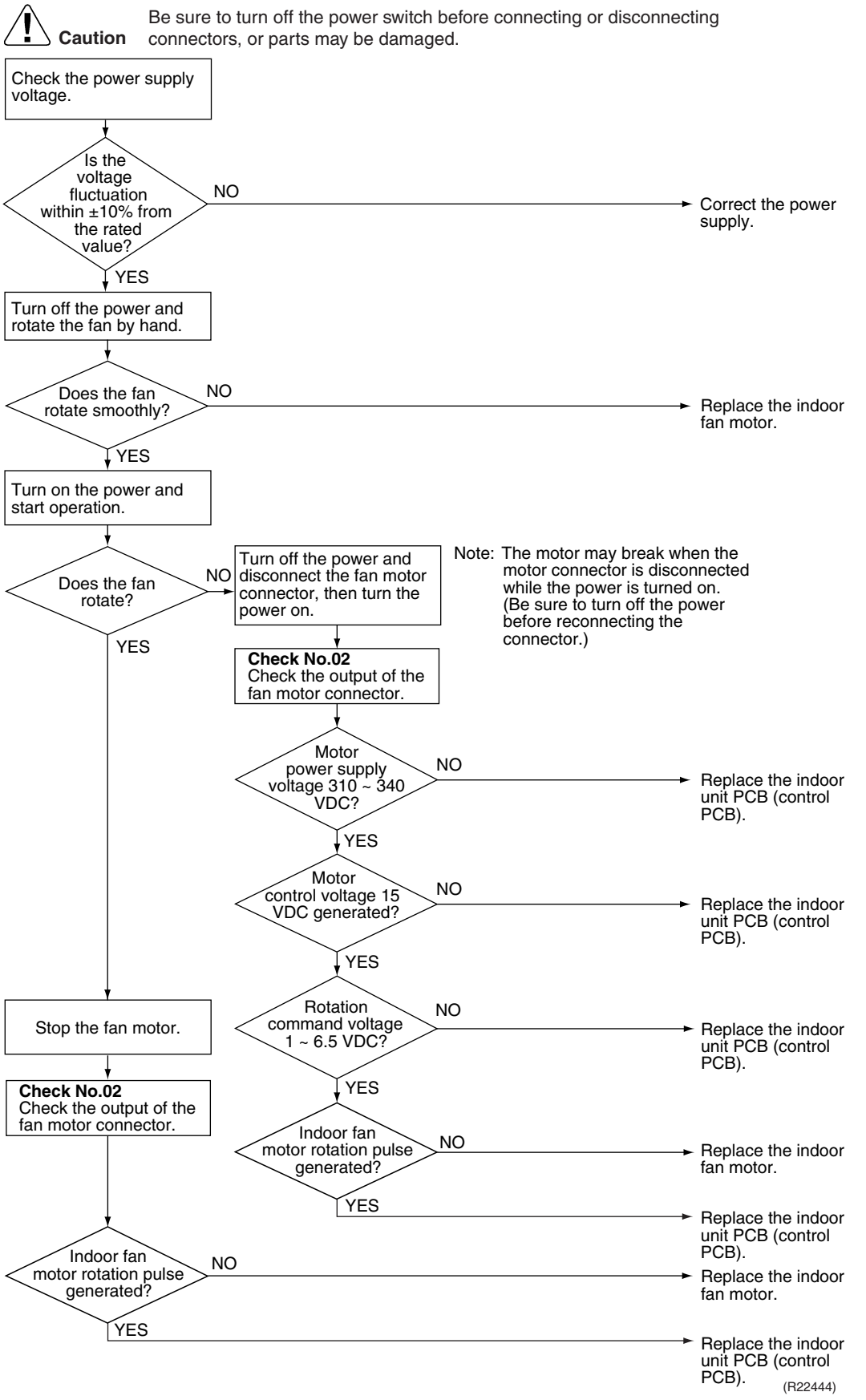
The detected rotation speed does not reach the demanded rotation speed of the target tap, and is less than 50% of the maximum fan motor rotation speed.

Supposed Causes

- Remarkable decrease in power supply voltage
- Layer short inside the fan motor winding
- Breaking of wire inside the fan motor
- Breaking of the fan motor lead wires
- Defective capacitor of the fan motor
- Defective indoor unit PCB

Troubleshooting

Check No.02
Refer to P.206



Note: The rotation pulse is the feedback signal from the indoor fan motor.

4.3.2 Indoor Fan Motor (AC Motor) or Related Abnormality (CDXS, FDXS Series)

Applicable Models
FDXS09/12LVJU
CDXS15/18/24LVJU

Error code
A6

Method of Error Detection
The rotation speed detected by the Hall IC during indoor fan motor operation determines abnormal fan motor operation.

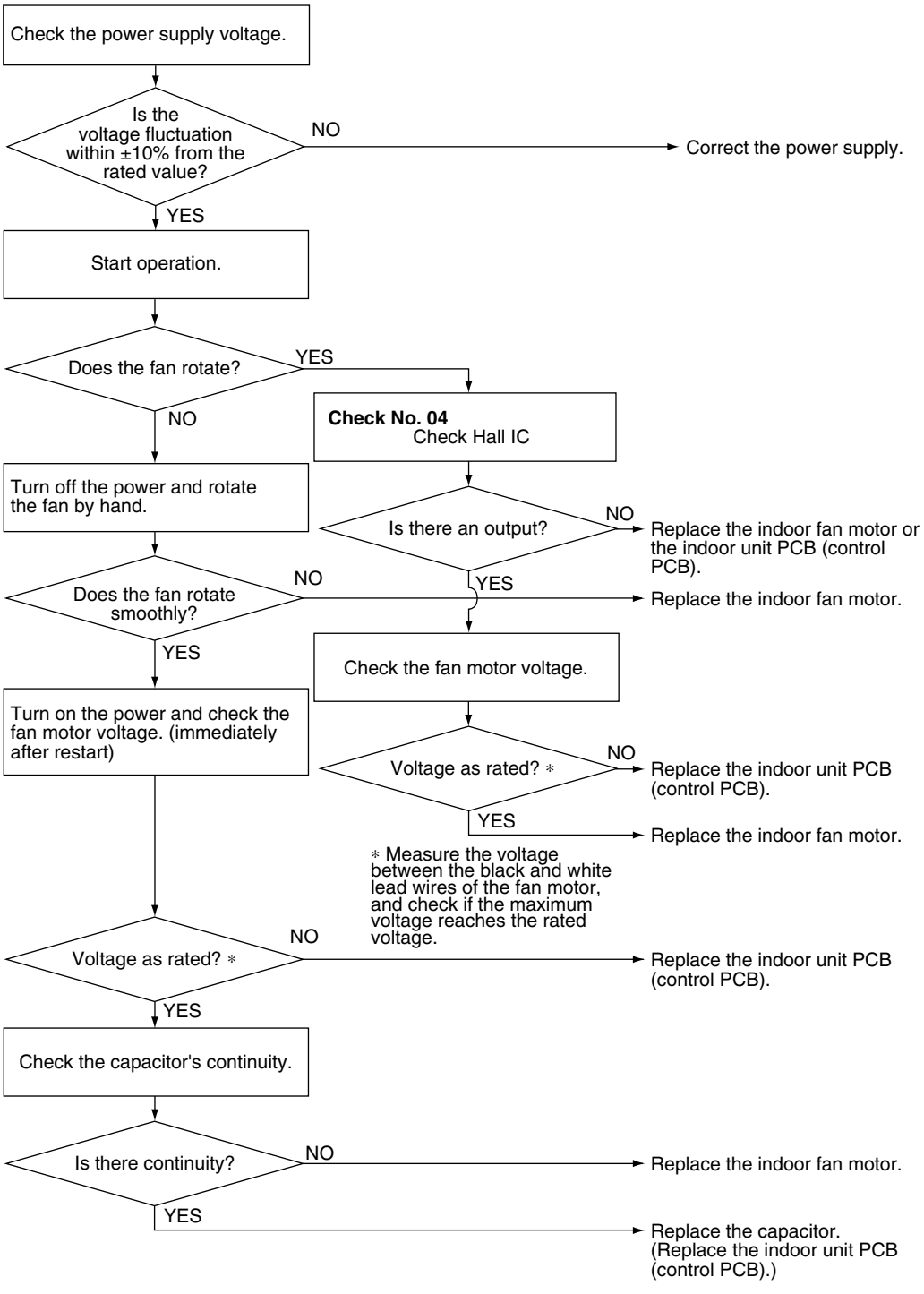
Error Decision Conditions
The detected rotation speed does not reach the demanded rotation speed of the target tap.

Supposed Causes
- Power supply voltage out of specification
- Layer short inside the fan motor winding
- Breaking of wire inside the fan motor
- Breaking of the fan motor lead wires
- Defective capacitor of the fan motor
- Defective indoor unit PCB

Troubleshooting

Check No.04
Refer to P.206

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



(R22267)

4.4 Thermistor or Related Abnormality

Error Code

C4, C9

Method of Error Detection

The temperatures detected by the thermistors are used to determine thermistor errors.

Error Decision Conditions

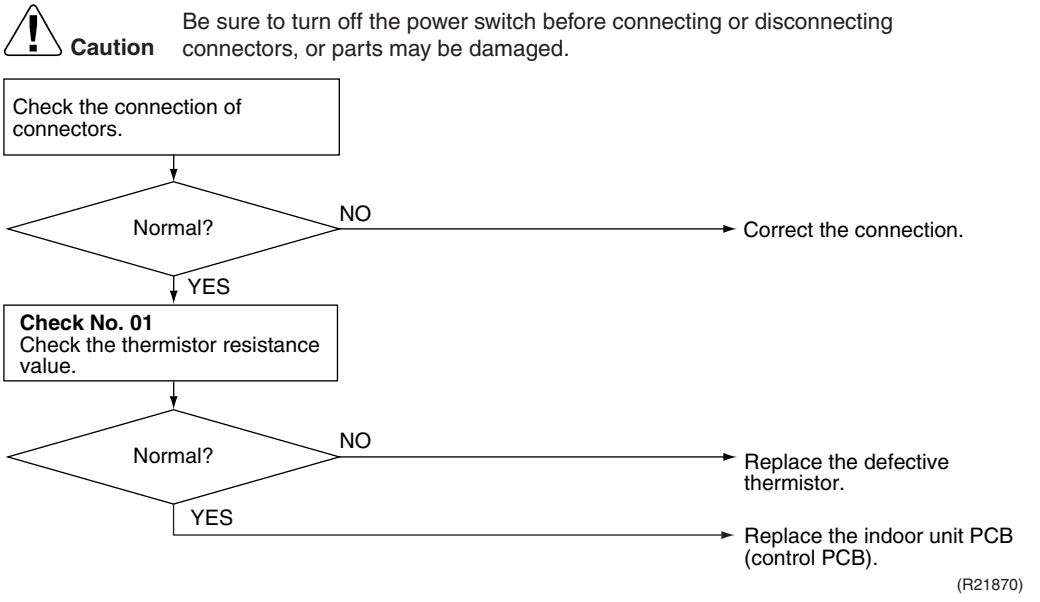
The voltage between both ends of the thermistor is either 4.96 V or more, or 0.04 V or less during compressor operation.

Supposed Causes

- Disconnection of connector
- Thermistor corresponding to the error code is defective.
- Defective indoor unit PCB

Troubleshooting

Check No.01
Refer to P.205



C4 : Indoor heat exchanger thermistor
C9 : Room temperature thermistor

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

4.5 Front Panel Open/Close Fault

Applicable Models

CTXG09/12/18QVJUW(S)

Error Code

C7

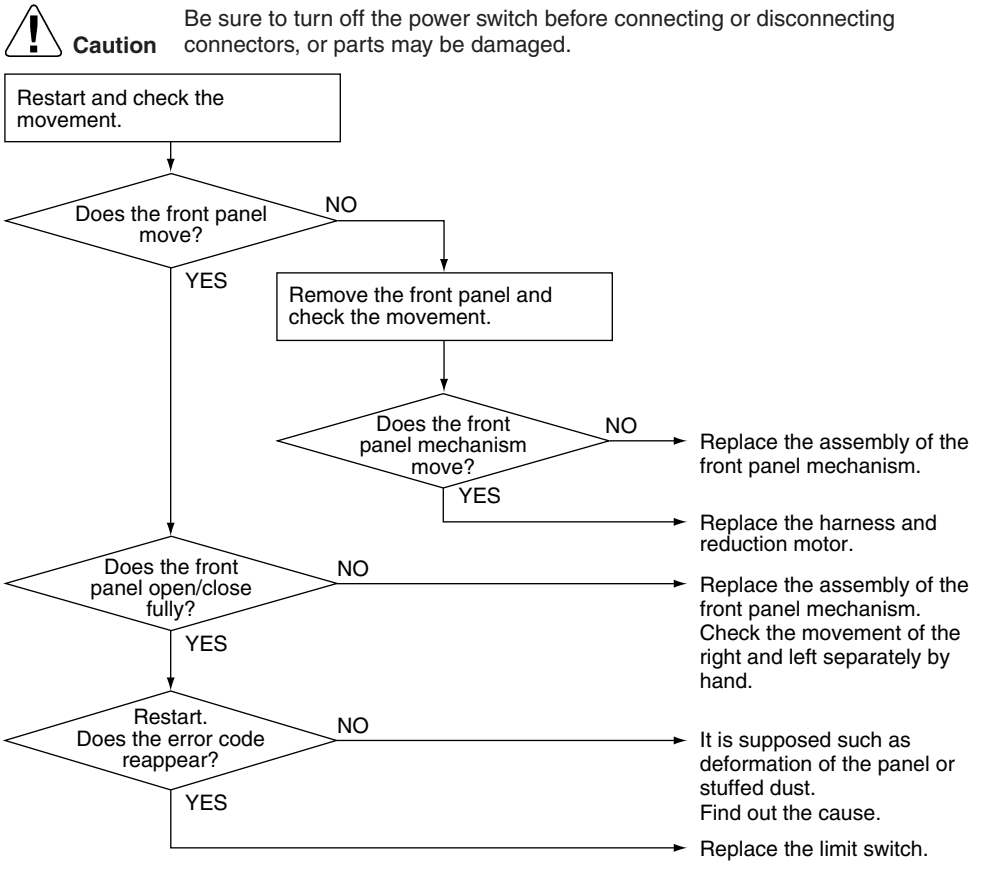
Error Decision Conditions

- If the error repeats, the system is shut down.

Supposed Causes

- Defective reduction motor
- Malfunction or deterioration of the front panel mechanism
- Defective limit switch

Troubleshooting



(R17249)

Note: You cannot operate the unit by the remote controller when the front panel mechanism breaks down.
<To the dealers: temporary measure before repair>

1. Turn off the power.
2. Remove the front panel.
3. Turn on the power.
   (Wait until the initialization finishes.)
4. Operate the unit by the indoor unit **ON/OFF** button.

4.6 Check for CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series

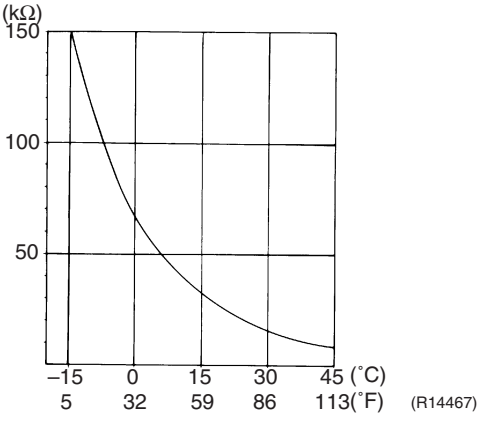
4.6.1 Thermistor Resistance Check

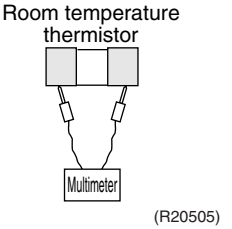
Check No.01 Disconnect the connectors of the thermistors from the PCB, and measure the resistance of each thermistor using a multimeter.

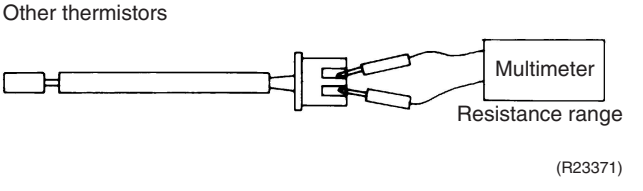
The data is for reference purpose only.

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

(R25°C (77°F) = 20 kΩ, B = 3950 K)





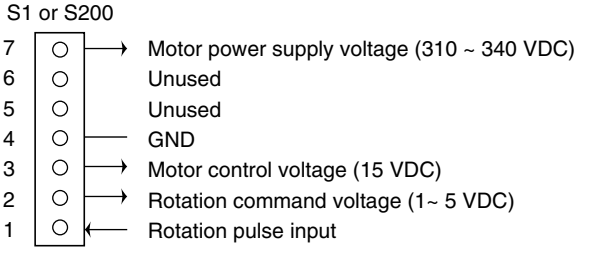


- When the room temperature thermistor is soldered on a PCB, remove the PCB from the control PCB to measure the resistance.
- When the connector of indoor heat exchanger thermistor is soldered on a PCB, remove the thermistor and measure the resistance.

4.6.2 Indoor Fan Motor Connector Check

Check No.02 **CTXG, CTXS, FTXS, FVXS Series**

1. Check the connection of connector.
2. Check motor power supply voltage output (pins 4 - 7).
3. Check motor control voltage (pins 4 - 3).
4. Check rotation command voltage output (pins 4 - 2).
5. Check rotation pulse input (pins 4 - 1).

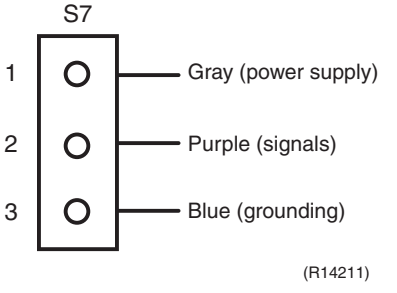


4.6.3 Hall IC Check

Check No.04 **CDXS, FDXS Series**

1. Check the connector connection.
2. With the power on, operation off, and the connector connected, check the following.
   (1) Output voltage of about 5 V between pins 1 and 3.
   (2) Generation of 3 pulses between pins 2 and 3 when the fan motor is operating.

   If NG in step (1) → Defective PCB → Replace the PCB (control PCB).
   If NG in step (2) → Defective Hall IC → Replace the fan motor.
   If OK in both steps (1) and (2) → Replace the PCB (control PCB).



5. Troubleshooting for FFQ Series

5.1 Indoor Unit PCB Abnormality

Error Code

A1

Method of Error Detection

The system checks the data from EEPROM.

Error Decision Conditions

The data from the EEPROM is not received correctly.

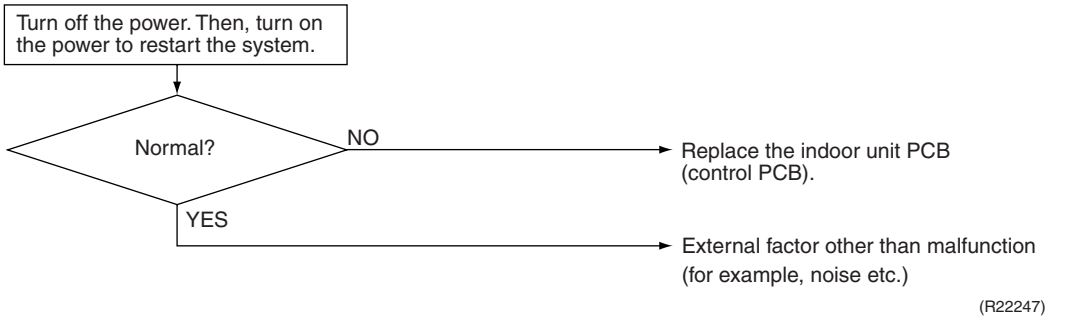
EEPROM (Electrically Erasable Programmable Read Only Memory): A memory chip that holds its content without power. It can be erased, either within the computer or externally and usually requires more voltage for erasure than the common +5 volts used in logic circuits. It functions like non-volatile RAM,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

Supposed Causes

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

Troubleshooting

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



(R22247)

5.2 Drain Level Control System Abnormality

Error Code **A3**

Method of Error Detection The float switch detects error.

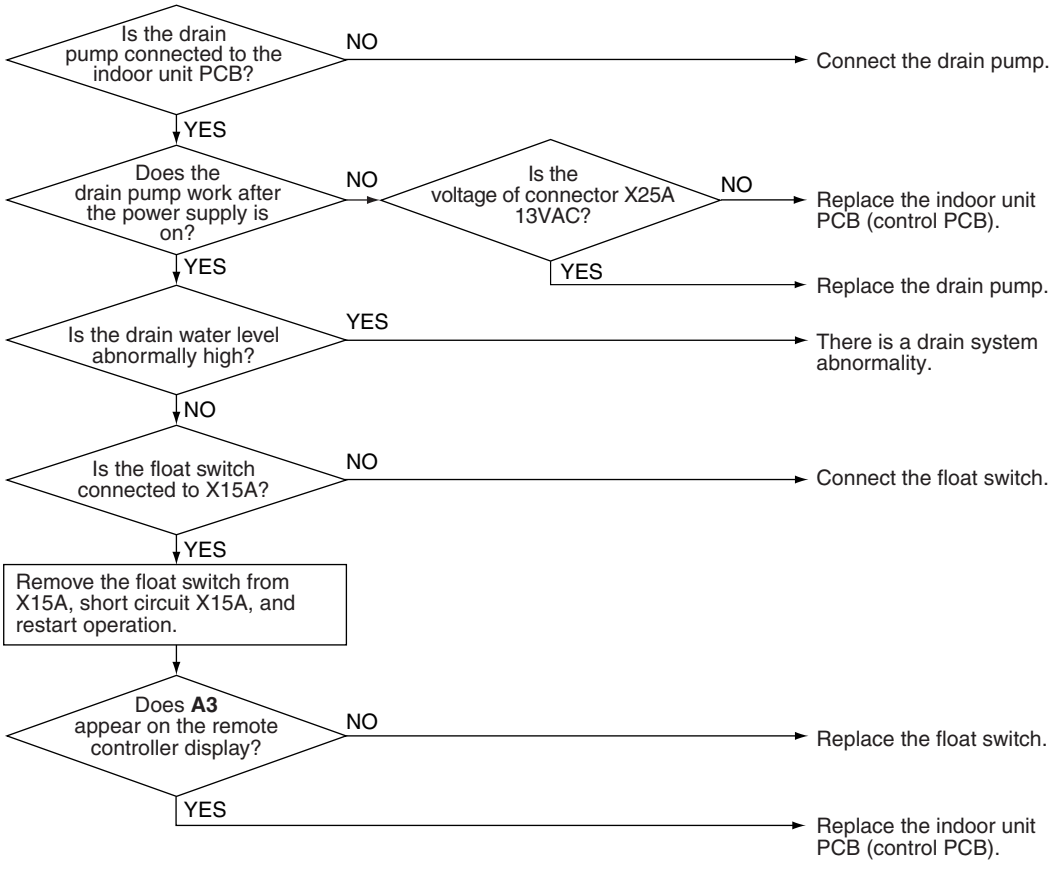
Error Decision Conditions The water level reaches its upper limit and the float switch turns OFF.

Supposed Causes

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

Troubleshooting

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



(R23965)

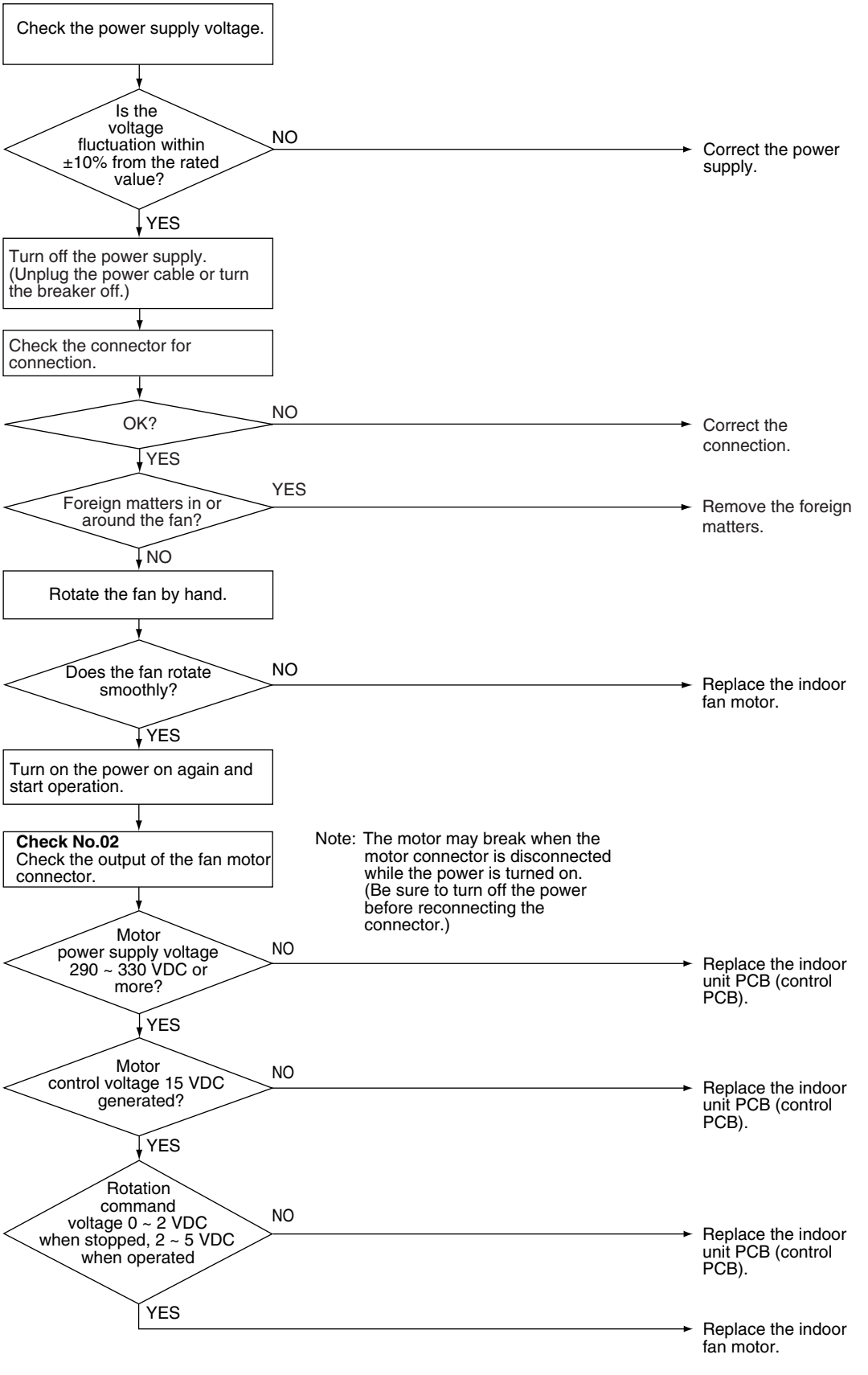
5.3 Indoor Fan Motor (DC Motor) or Related Abnormality

Error Code	**A6**
Method of Error Detection	The rotation speed detected by the Hall IC during fan motor operation determines abnormal fan motor operation.
Error Decision Conditions	The fan motor is not revved up.
Supposed Causes	■ Layer short inside the fan motor winding ■ Breaking of wire inside the fan motor ■ Breaking of the fan motor lead wires ■ Defective indoor unit PCB

Troubleshooting

Check No.02
Refer to P.218

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



(R24054)

5.4 Humidifier or Related Abnormality

Error Code

AF

Method of Error Detection

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

Error Decision Conditions

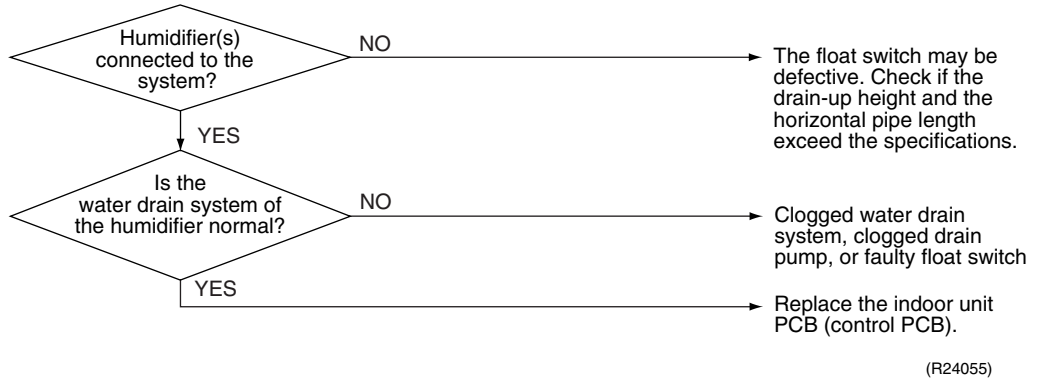
The float switch changes from ON to OFF while the system is OFF.

Supposed Causes

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

Troubleshooting

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



(R24055)

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

5.5 Thermistor or Related Abnormality

Error Code

C4, C5, C9

Method of Error Detection

The temperatures detected by the thermistors determine thermistor errors.

Error Decision Conditions

The voltage between the both ends of the thermistor is 4.96 V and more or 0.04 V and less during compressor operation.

Supposed Causes

- Disconnection of connector
- Thermistor corresponding to the error code is defective.
- Defective indoor unit PCB

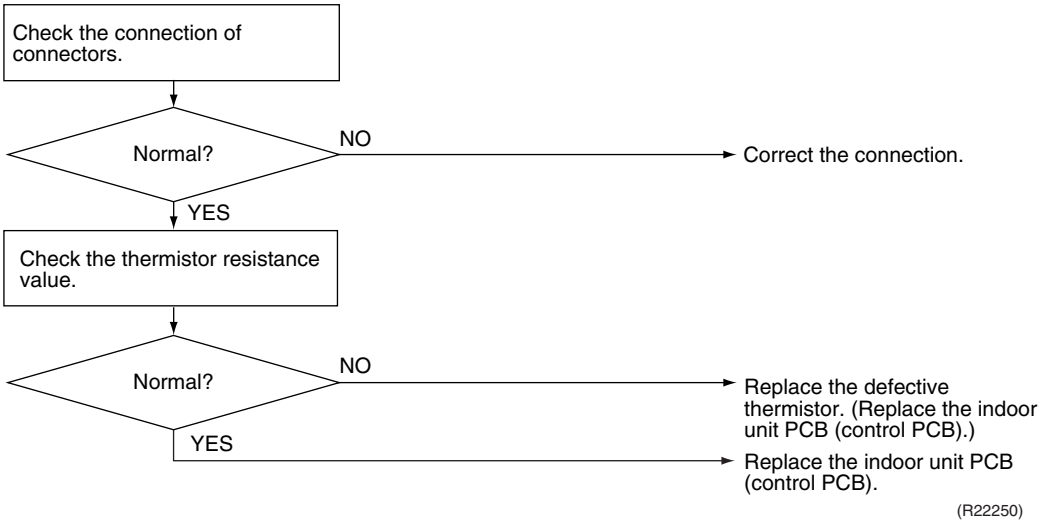
Troubleshooting

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

To check the thermistors, proceed as follows:

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

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



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

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

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

5.6 Presence Sensor or Floor Sensor Abnormality

Error Code

CE

Method of Error Detection

The system detects abnormality by the output signal from the sensor(s).

Error Decision Conditions

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

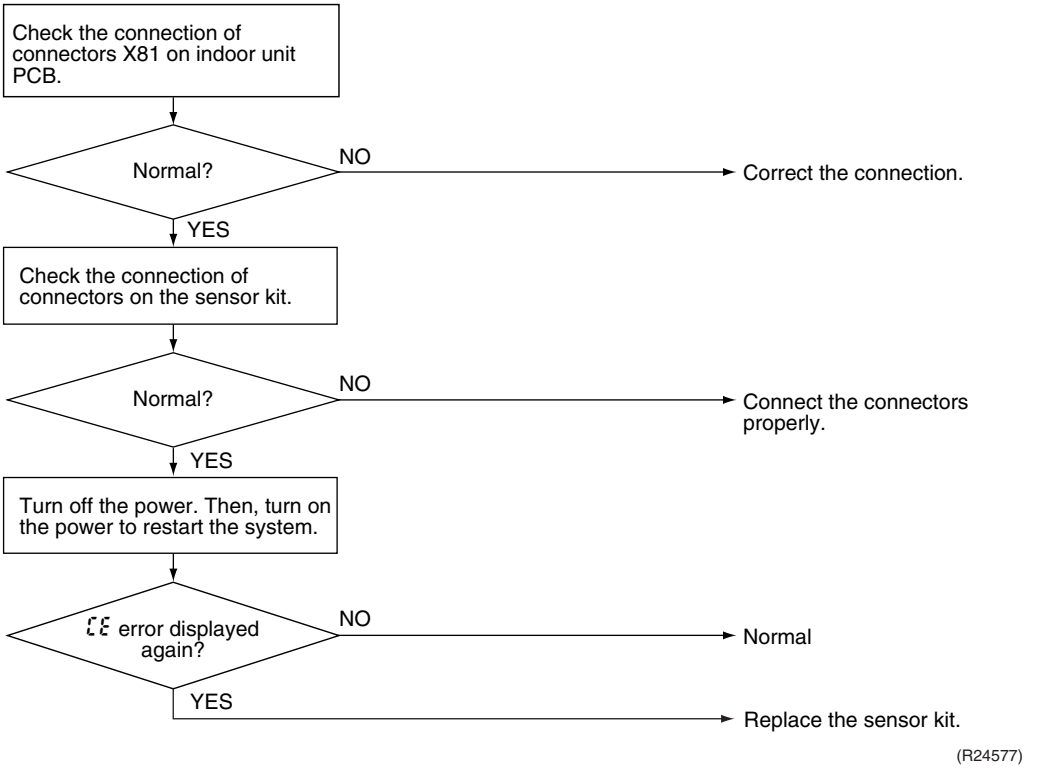
Supposed Causes

- Disconnection of connector
- Breaking of wires
- Defective sensor(s)
- Defective sensor kit PCB

Troubleshooting

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

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



Note: When replacing the defective sensor(s), replace the sensor kit as ASSY.

5.7 Remote Controller Thermistor Abnormality

Error Code

CJ

Method of Error Detection

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

Error Decision Conditions

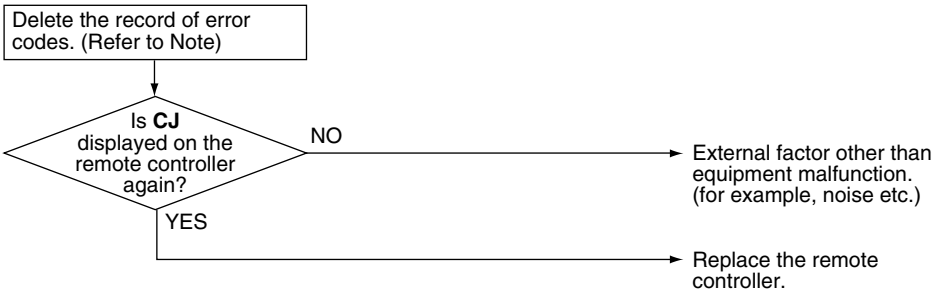
The remote controller thermistor disconnected or shorted while the unit is running.

Supposed Causes

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

Troubleshooting

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



(R24004)

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

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

Error Code **U5**

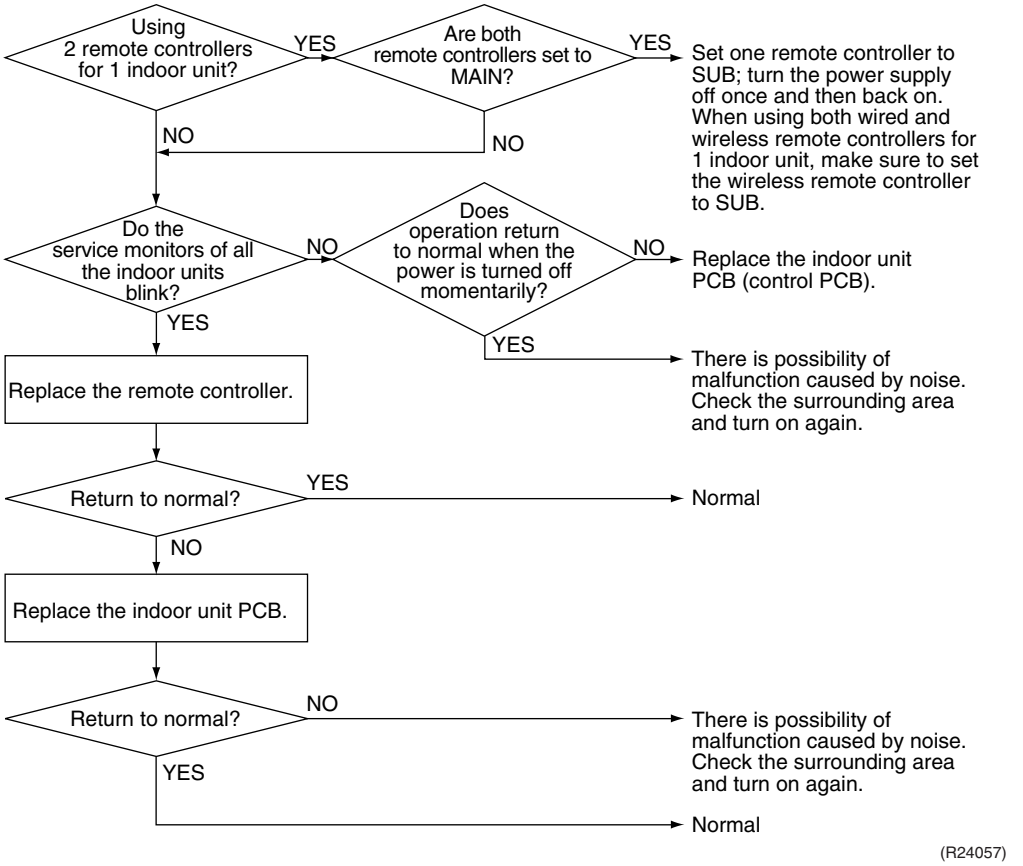
Method of Error Detection
In case of controlling 1 indoor unit with 2 remote controllers, check the system using microcomputer if signal transmission between indoor unit and remote controller (main and sub) is normal.

Error Decision Conditions
Normal transmission does not continue for specified period.

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

Troubleshooting

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



Note: For the way to change MAIN/SUB setting of remote controllers, refer to pages 148 and 149.

5.9 Signal Transmission Error (Between MAIN Remote Controller and SUB Remote Controller)

Error Code **U8**

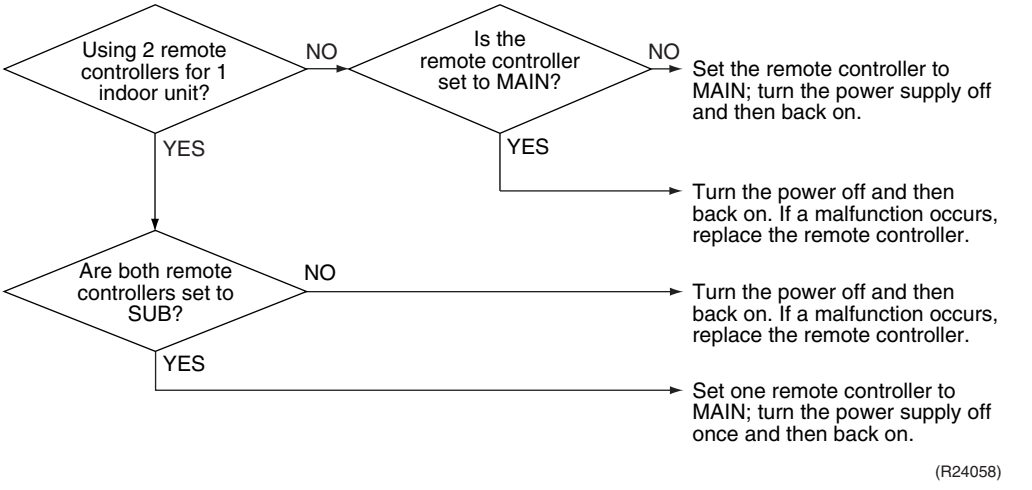
Method of Error Detection
In case of controlling 1 indoor unit with 2 remote controllers, check the system using microcomputer if signal transmission between MAIN remote controller and SUB remote controller is normal.

Error Decision Conditions
Normal transmission does not continue for specified period.

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

Troubleshooting

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



Note: For the way to change MAIN/SUB setting of remote controllers, refer to pages 148 and 149.

5.10 Mismatching of Indoor Unit and Outdoor Unit

Error Code **UA**

Error Decision Conditions

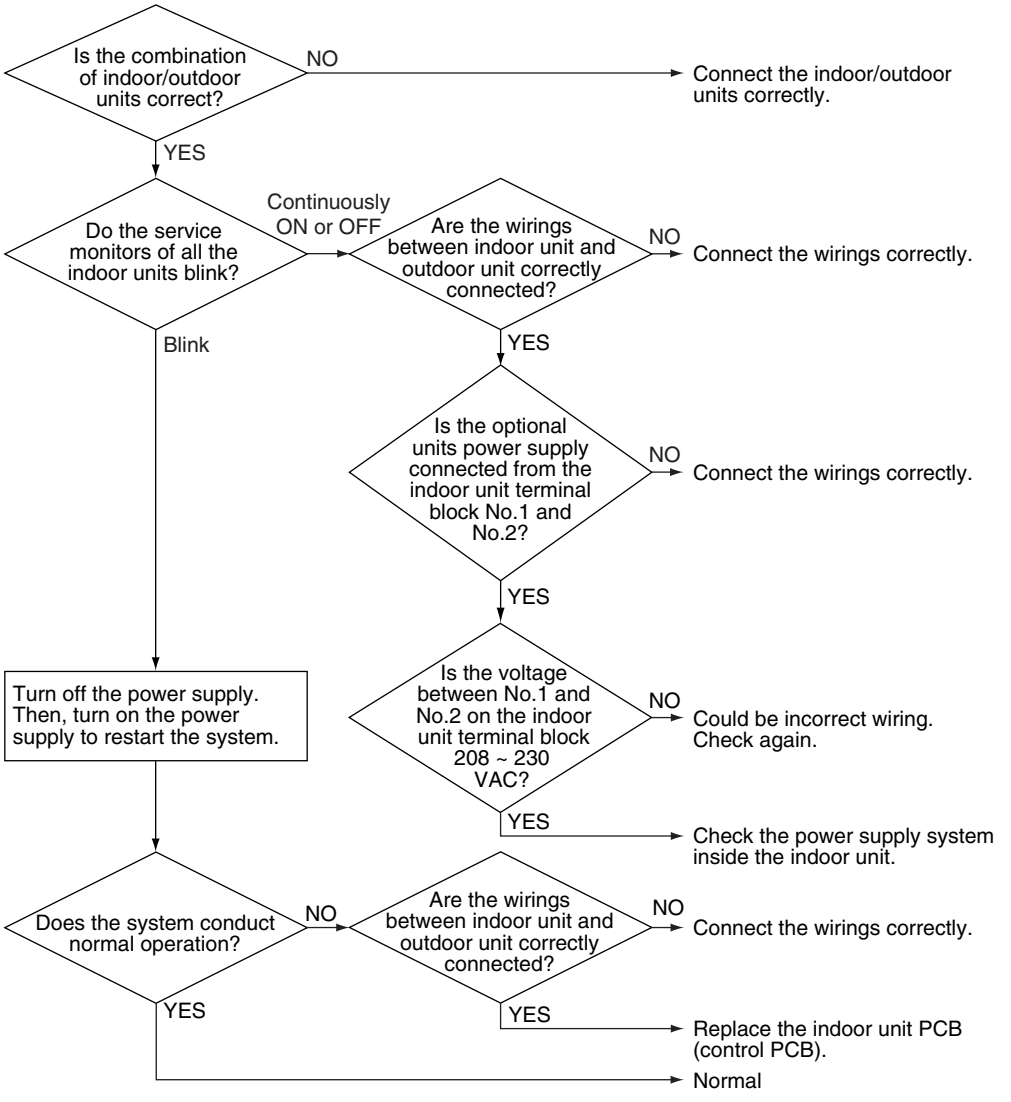
- Improper combination of indoor and outdoor units

Supposed Causes

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

Troubleshooting

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



(R24059)

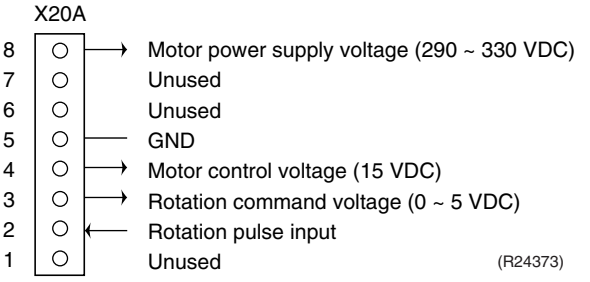
5.11 Check for FFQ Series

5.11.1 Indoor Fan Motor Connector Check

Check No.02

FFQ Series

1. Check the connection of connector.
2. Check motor power supply voltage output (pins 5 - 8).
3. Check motor control voltage (pins 5 - 4).
4. Check rotation command voltage output (pins 5 - 3).



6. Troubleshooting for Branch Provider (BP) Unit

6.1 Electronic Expansion Valve Abnormality

Error Code **A9**

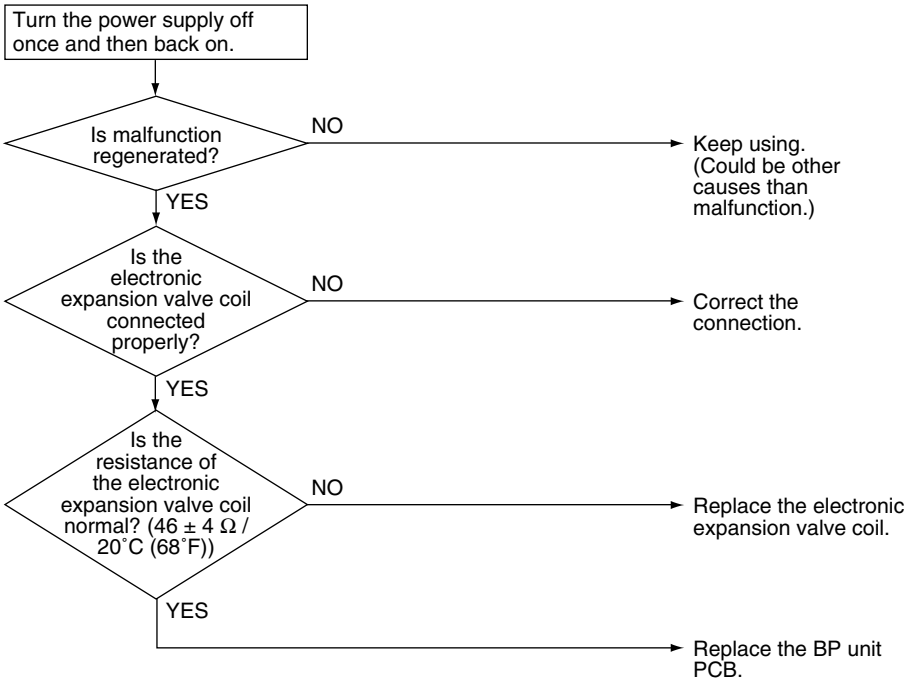
Method of Error Detection Detection by checking continuity and lack of connector

Error Decision Conditions No voltage applied when turning the power supply on

Supposed Causes
- Broken harness of electronic expansion valve coil
- Incorrect connection of connectors for electronic expansion valve coil

Troubleshooting

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



(R22091)

6.2 Branch Provider (BP) Unit PCB Abnormality

Error Code

E2

Method of Error Detection

Check data from EEPROM

Error Decision Conditions

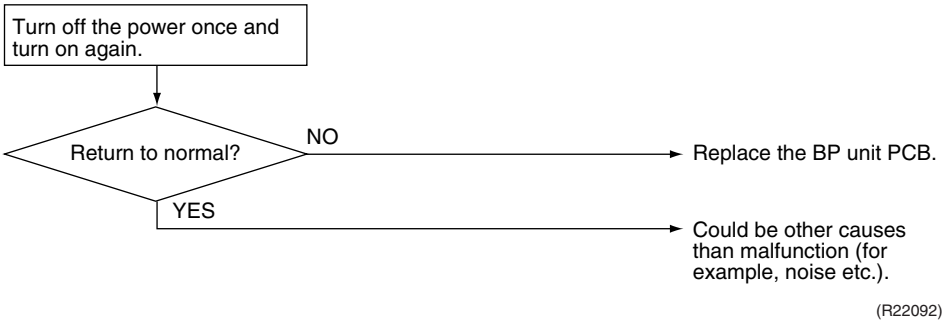
When data could not be correctly received from the EEPROM
EEPROM : Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.

Supposed Causes

- Defective BP unit PCB

Troubleshooting

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



(R22092)

6.3 Branch Provider (BP) Liquid or Gas Pipe Thermistor Abnormality

Error Code **J0**

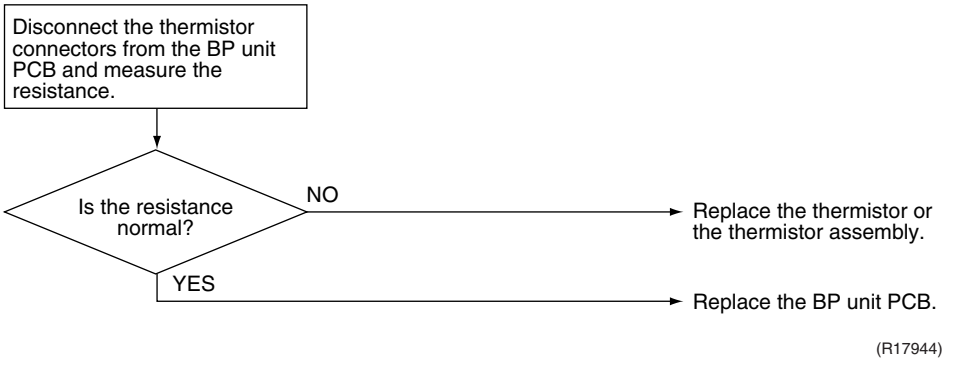
Method of Error Detection

Error Decision Conditions When the BP liquid or gas pipe thermistor has short circuit or open circuit

Supposed Causes
- Defective BP liquid or gas pipe thermistor
- Incorrect connection of BP liquid or gas pipe thermistor

Troubleshooting

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



Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

6.4 Signal transmission Error between Indoor Unit and Branch Provider (BP) Unit

Error Code

U4

Method of Error Detection

The signal transmission data from the BP unit is checked whether it is normal.

Error Decision Conditions

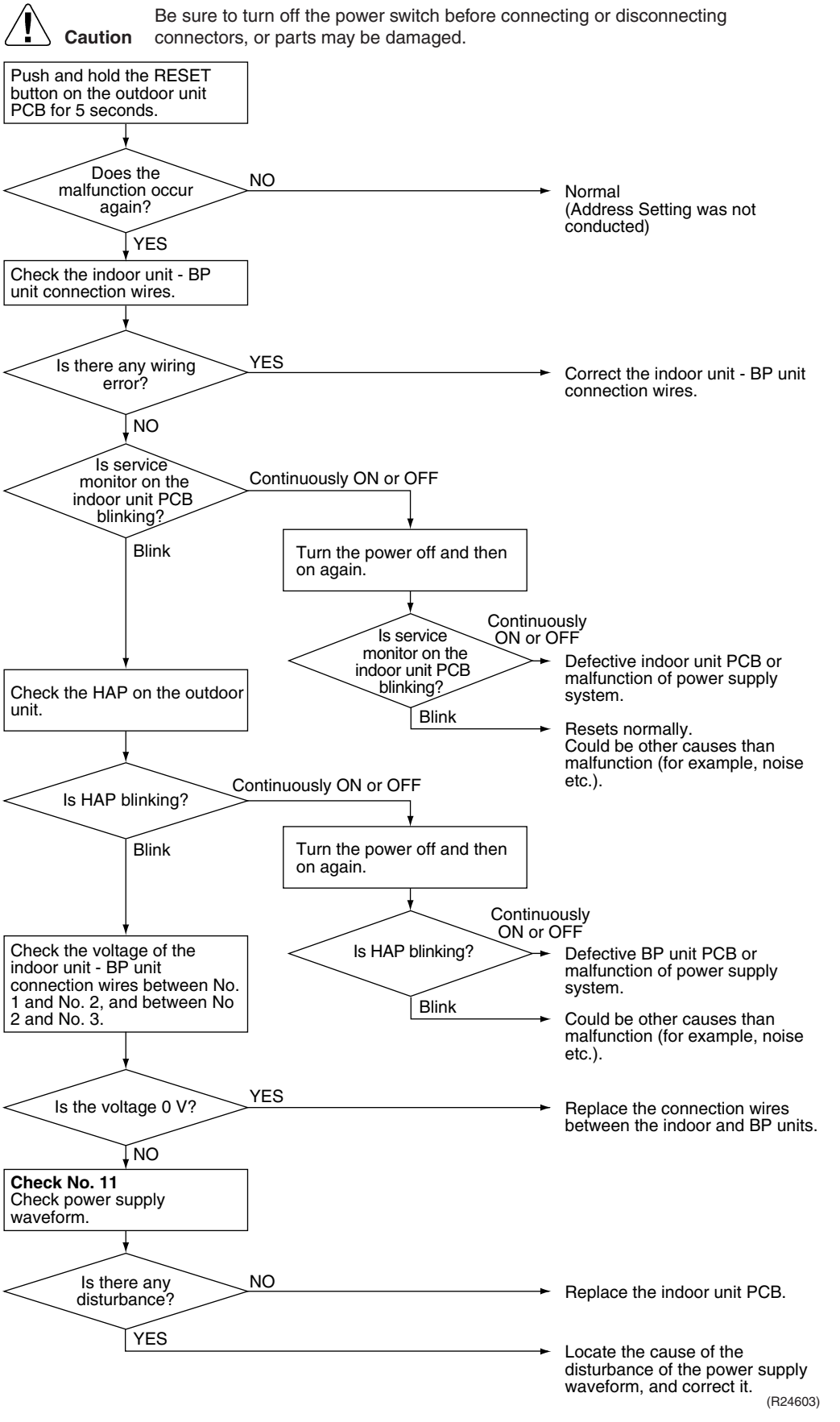
When the data sent from the BP unit cannot be received normally, or when the content of the data is abnormal.

Supposed Causes

- Defective BP unit PCB
- Defective indoor unit PCB
- Signal transmission error due to wiring error
- Signal transmission error due to disturbed power supply waveform
- Signal transmission error due to breaking of connection wires (wire No. 2)

Troubleshooting

Check No.11
Refer to P.225



6.5 Transmission Error between Outdoor Unit and Branch Provider (BP) Unit

Error Code

UJ

Method of Error Detection

Transmission error is detected when the outdoor unit could not received the data from BP unit correctly.

Error Decision Conditions

When the data from BP unit could not be correctly received continuously for 10 minutes

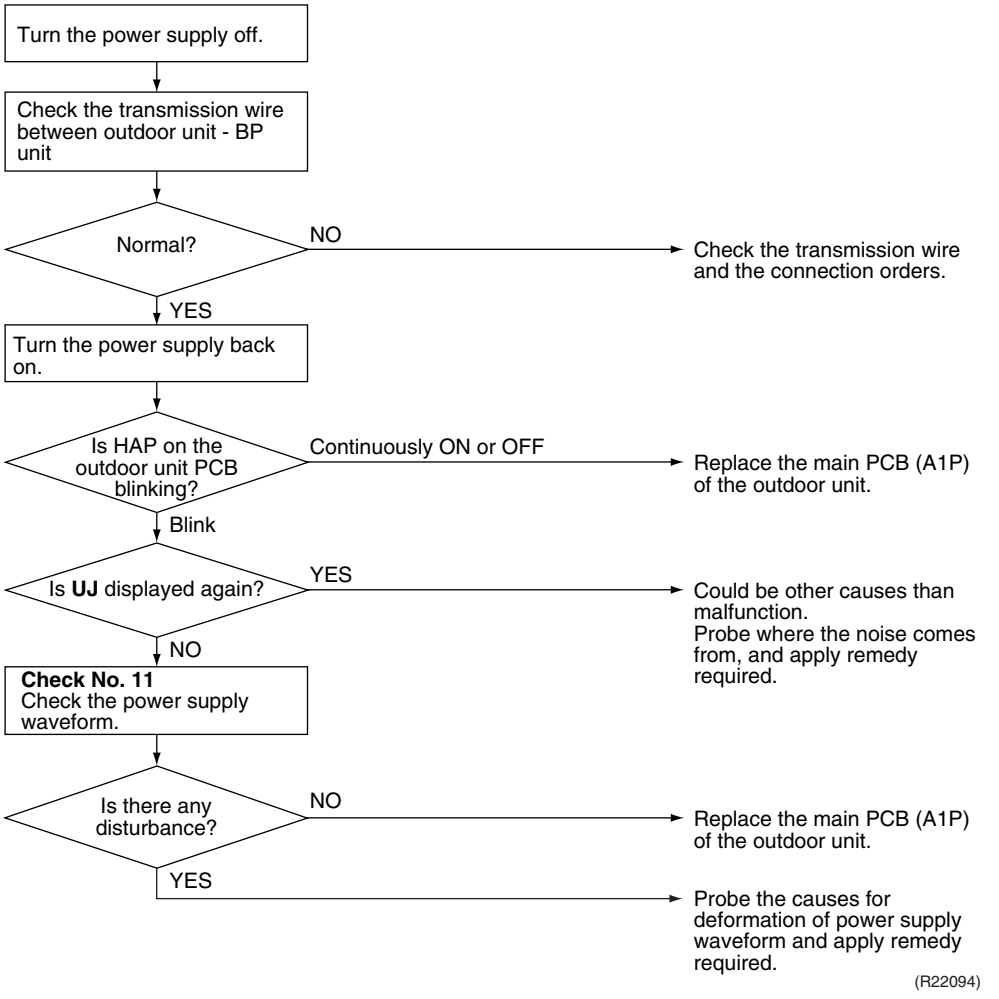
Supposed Causes

- Incorrect connection of transmission wire
- Faulty outdoor unit power supply
- Defective BP unit PCB
- Defective outdoor unit PCB
- Distortion of power supply waveform

Troubleshooting

Check No.11
Refer to P.225

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



6.6 Check for Branch Provider (BP) Unit

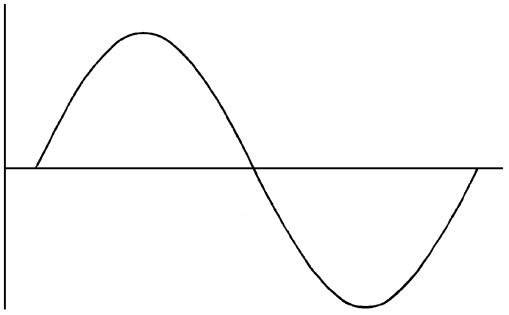
6.6.1 Power Supply Waveforms Check

Check No.11

Measure the power supply waveform between the pins L1 and L2 on the terminal board, and check the waveform disturbance.

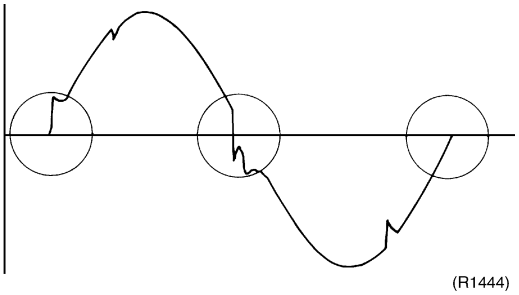
- Check if the power supply waveform is a sine wave (Fig.1).
- Check if there is waveform disturbance near the zero-cross (sections circled in Fig.2)

Fig.1



(R1736)

Fig.2



(R1444)

7. Troubleshooting for Outdoor Unit

7.1 Outdoor Unit PCB Abnormality

Error Code **E1**

Method of Error Detection Check data from EEPROM

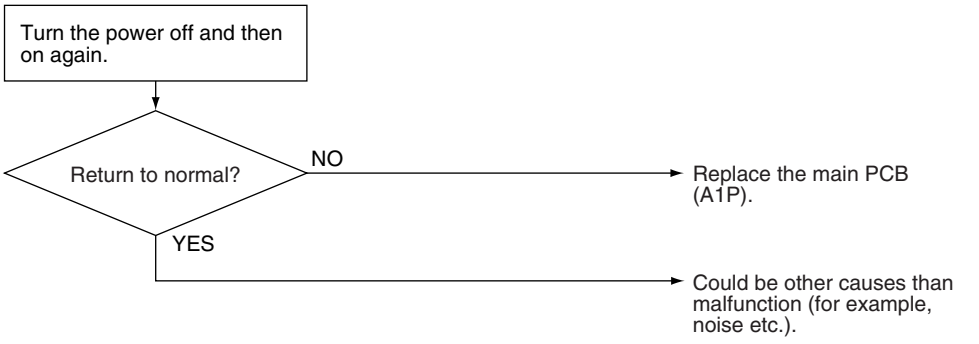
Error Decision Conditions When data could not be correctly received from the EEPROM
EEPROM: Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.

Supposed Causes

- Defective main PCB (A1P)

Troubleshooting

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



(R22095)

7.2 Actuation of High Pressure Switch

Error Code	**E3**
Method of Error Detection	Abnormality is detected when the contact of the high pressure switch opens.
Error Decision Conditions	When the high pressure switch activation count reaches the number specific to the operation mode (Reference) Operating pressure: 4.0 MPa (1338 ftAq) Reset pressure: 3.0 MPa (1004 ftAq)
Supposed Causes	■ Actuation of high pressure switch ■ Defective high pressure switch ■ Defective outdoor unit PCB ■ Instantaneous power failure ■ Defective high pressure sensor

Troubleshooting

Check No.30
Refer to P.263

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

Check for the points shown below.
(1) Is the stop valve open?
(2) Is the high pressure switch connector properly connected to the main PCB (A1P)?
(3) Does the high pressure switch have continuity?

Are the three points above OK?
- NO → Rectify the defective points.
- YES

(1) Mount a pressure gauge on the high pressure service port.
(2) Reset the operation using the remote controller, and then restart the operation.

Does the stop due to malfunction (**E3**) recur?
- YES → Is the high pressure switch operating value normal (4.0 MPa (1338 ftAq))?
  - NO → Replace the high pressure switch.
  - YES
- NO

Are the characteristics of the high pressure sensor normal? (See ∗1.)
- NO → Replace the high pressure sensor.
- YES

Service Checker
Connect the service checker to compare the high pressure value and the actual measurement value by pressure sensor by using the service checker. (See ∗2)

Are the high pressure value and the actual measurement value by pressure sensor the same?
- NO → Replace the main PCB (A1P).
- YES

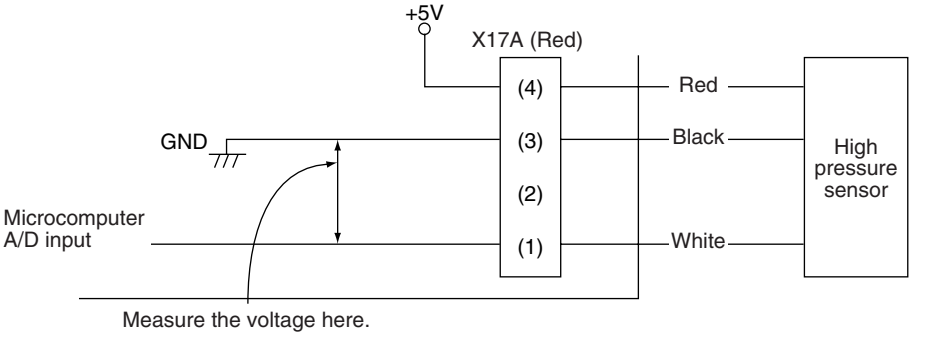
· The high pressure sensor is normal, and the pressure detected with the PCB is also normal.
· The high pressure has really become high.

Check No.30 Remove the causes by which the high pressure has become high.

(R19092)

∗1: Compare the voltages of the pressure sensor and the pressure gauge.
(For the voltage of the pressure sensor, measure the voltage at the connector, and then convert it to pressure, referring to page 269.)

∗2: Measure the voltage of the pressure sensor.



(R19189)

7.3 Actuation of Low Pressure Sensor

Error Code	**E4**
Method of Error Detection	Detection by the pressure value with the low pressure sensor
Error Decision Conditions	When the low pressure is dropped under specific pressure Operating pressure: 0.07 MPa (23 ftAq)
Supposed Causes	■ Abnormal drop of low pressure (Lower than 0.07 MPa (23 ftAq)) ■ Defective low pressure sensor ■ Defective outdoor unit PCB ■ Stop valve not opened

Troubleshooting

Check No.31
Refer to P.264

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

Is the stop valve open?
- NO → Open the stop valve.
- YES ↓

(1) Mount a pressure gauge on the low pressure service port.
(2) Reset the operation using the remote controller, and then restart the operation.

Are the characteristics of the low pressure sensor normal? (See ∗1.)
- NO → Replace the low pressure sensor.
- YES ↓

Service Checker
Connect the service checker to compare the low pressure value and the actual measurement value by pressure sensor by using the service checker. (See ∗2)

Check if the low pressure value and the actual measurement value by pressure sensor are the same.
- NO → Replace the main PCB (A1P).
- YES ↓

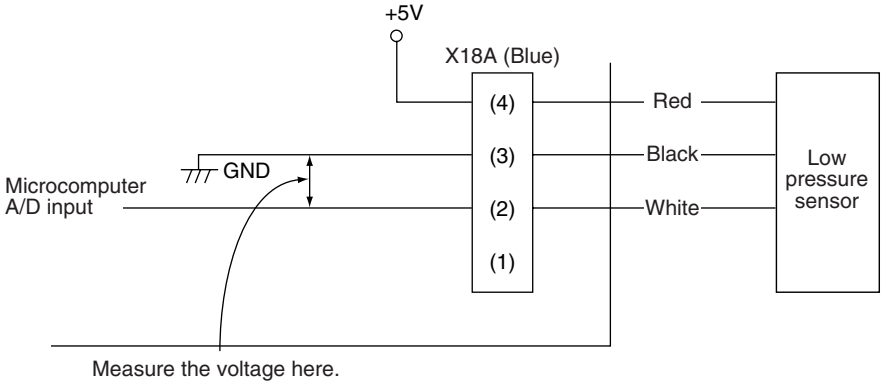
· The low pressure sensor is normal, and the pressure detected with the PCB is also normal.
· The low pressure has really become low.

Check No.31 Remove the causes by which the low pressure has become low.

(R15632)

∗1: Compare the voltages of the pressure sensor and the pressure gauge.
(For the voltage of the pressure sensor, measure the voltage at the connector, and then convert it to pressure, referring to page 269.)

∗2: Measure the voltage of the pressure sensor.



(R15587)

7.4 Compressor Motor Lock

Error Code

E5

Method of Error Detection

The position signal is taken from UVW line, and the malfunction is detected when any abnormality is observed in the phase-current waveform.

Error Decision Conditions

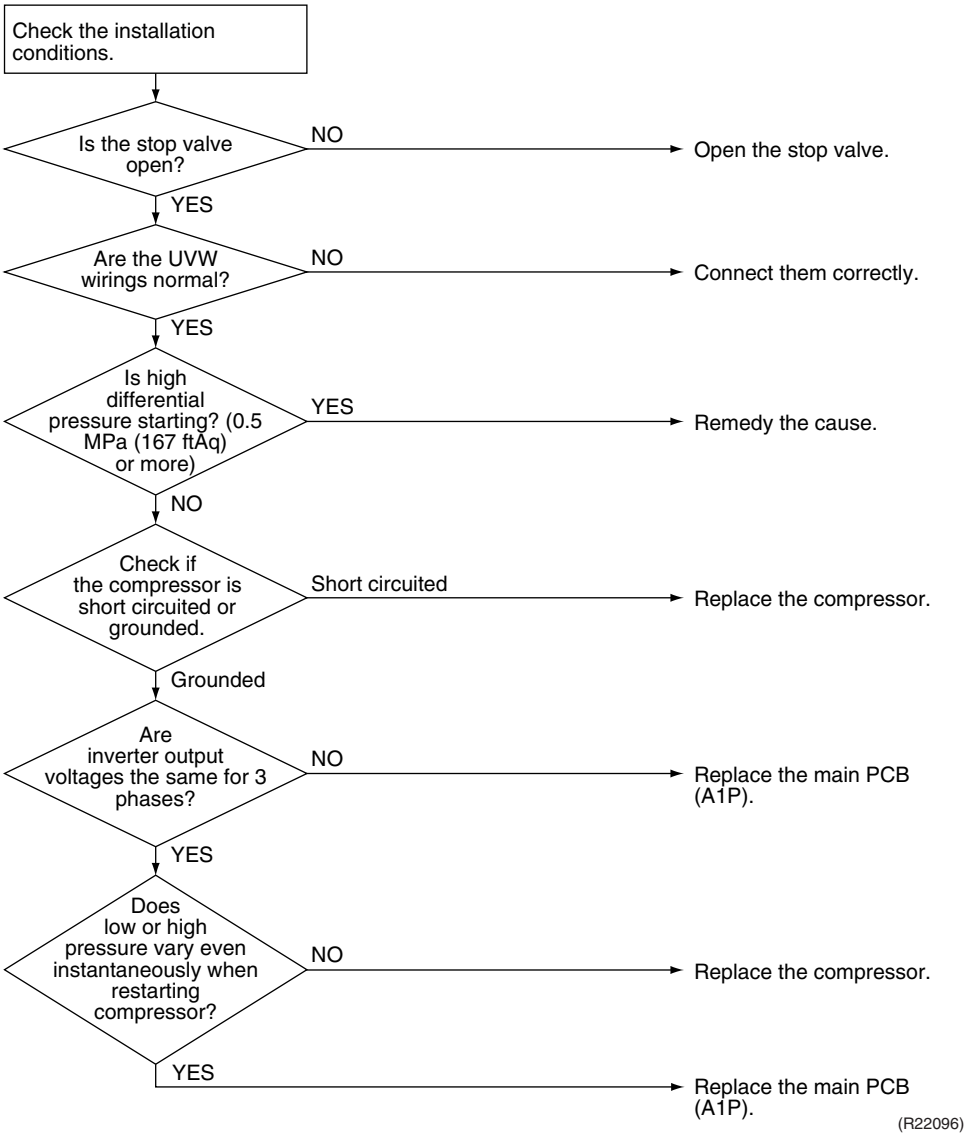
When the compressor motor does not start up even in forced startup mode

Supposed Causes

- Compressor lock
- High differential pressure (0.5 MPa (167 ftAq) or more)
- Incorrect UVW wiring
- Defective outdoor unit PCB
- Stop valve left closed

Troubleshooting

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



7.5 Outdoor Fan Motor Abnormality

Error Code **E7**

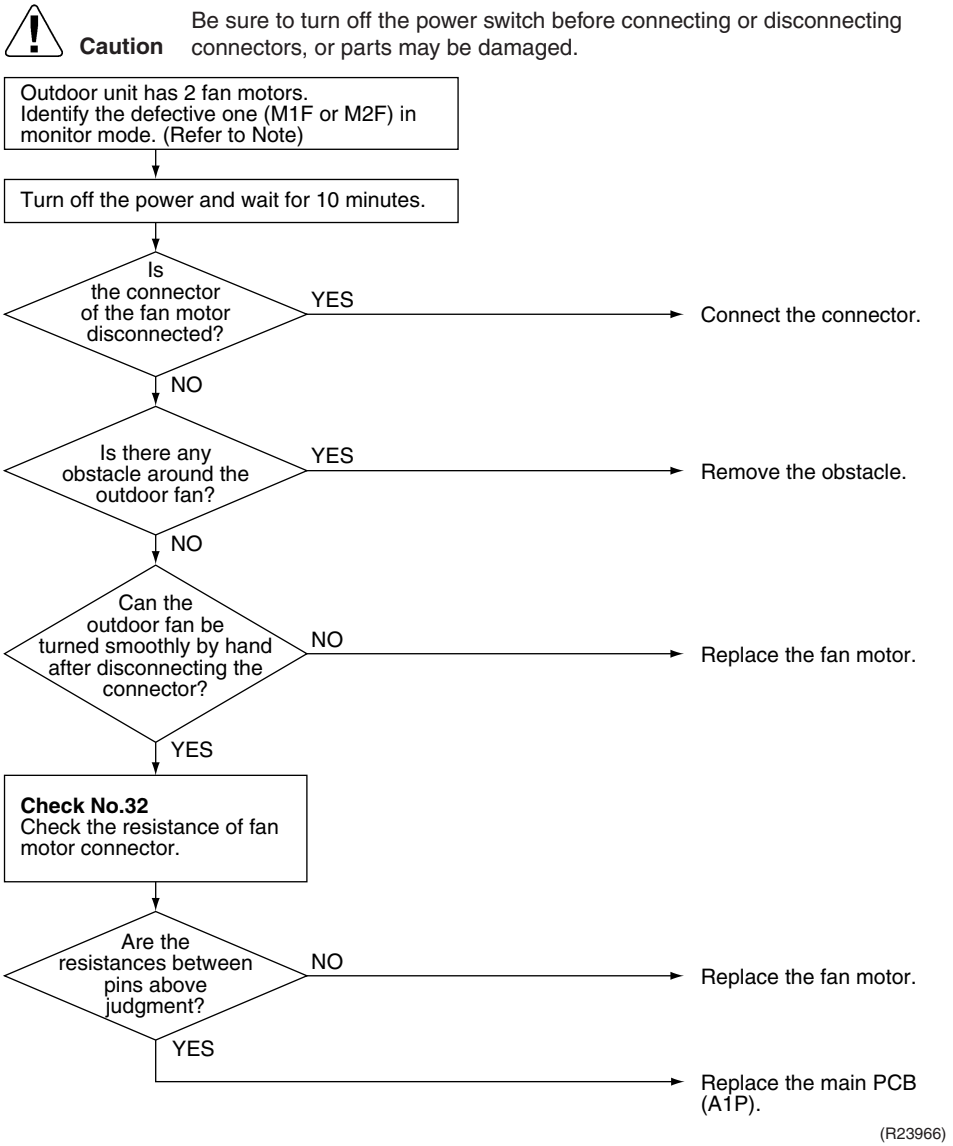
Method of Error Detection The error is determined according to the fan speed detected by Hall IC when the fan motor runs.

Error Decision Conditions
- When the fan runs with speed less than a specified one for 6 seconds or more when the fan motor running conditions are met
- When the error is generated 4 times, the system shuts down.
- Clearing condition: Operate for 5 minutes (normal)

Supposed Causes
- Defective fan motor
- Disconnection of connector
- Fan does not rotate due to tangled foreign matters

Troubleshooting

Check No.32
Refer to P.265



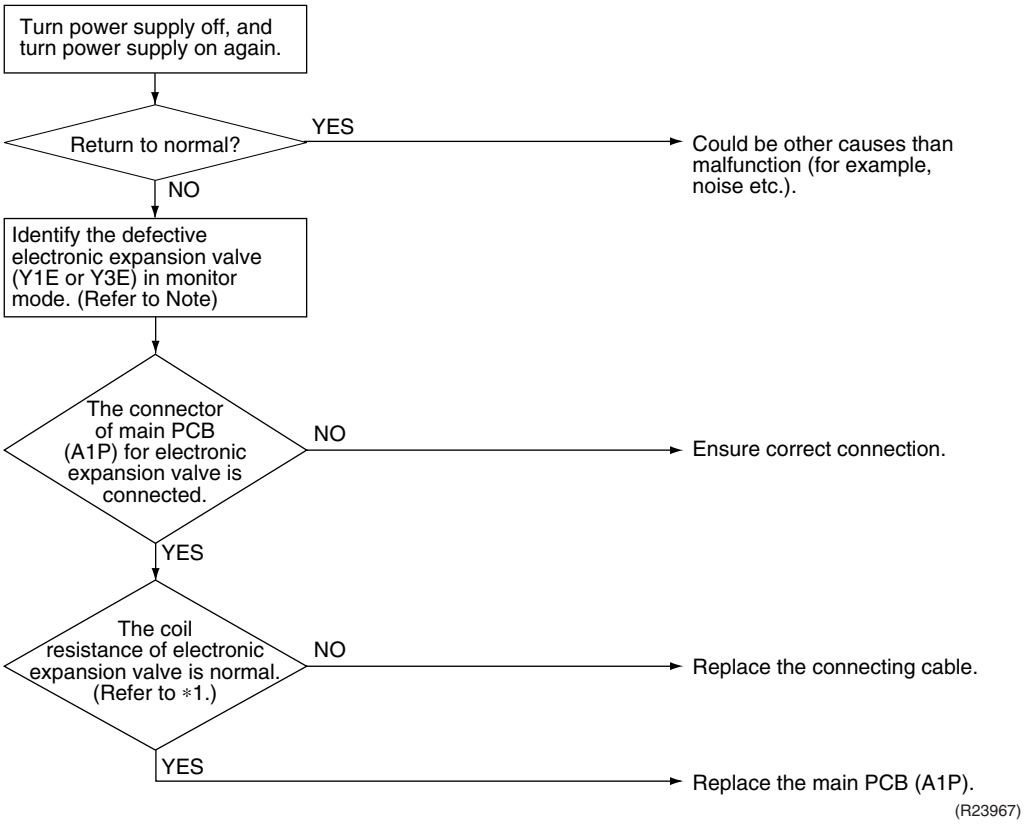
Note: Refer to page 175 for details about monitor mode.

7.6 Moving Part of Electronic Expansion Valve (Y1E, Y3E) Abnormality

Error Code	**E9**
Method of Error Detection	System checks if the connector is disconnected, and the detection is based on the continuity of electronic expansion valve coil.
Error Decision Conditions	No current is detected in the common (COM +) when power supply is ON.
Supposed Causes	■ Disconnection of connectors for electronic expansion valve Y1E or Y3E ■ Defective moving part of electronic expansion valve ■ Defective main PCB (A1P)

Troubleshooting

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



∗ 1. Make measurement of resistance between the connector pins, and then make sure the resistance falls in the range of 40 to 50 Ω.

Measuring points	Judgment criteria
1 - 6	40 ~ 50 Ω
2 - 6	
3 - 6	
4 - 6	

(R15616)

Note: Refer to page 175 for details about monitor mode.

7.7 Discharge Pipe Temperature Abnormality

Error Code

F3

Method of Error Detection

The temperature detected by the discharge pipe thermistor determines the error.

Error Decision Conditions

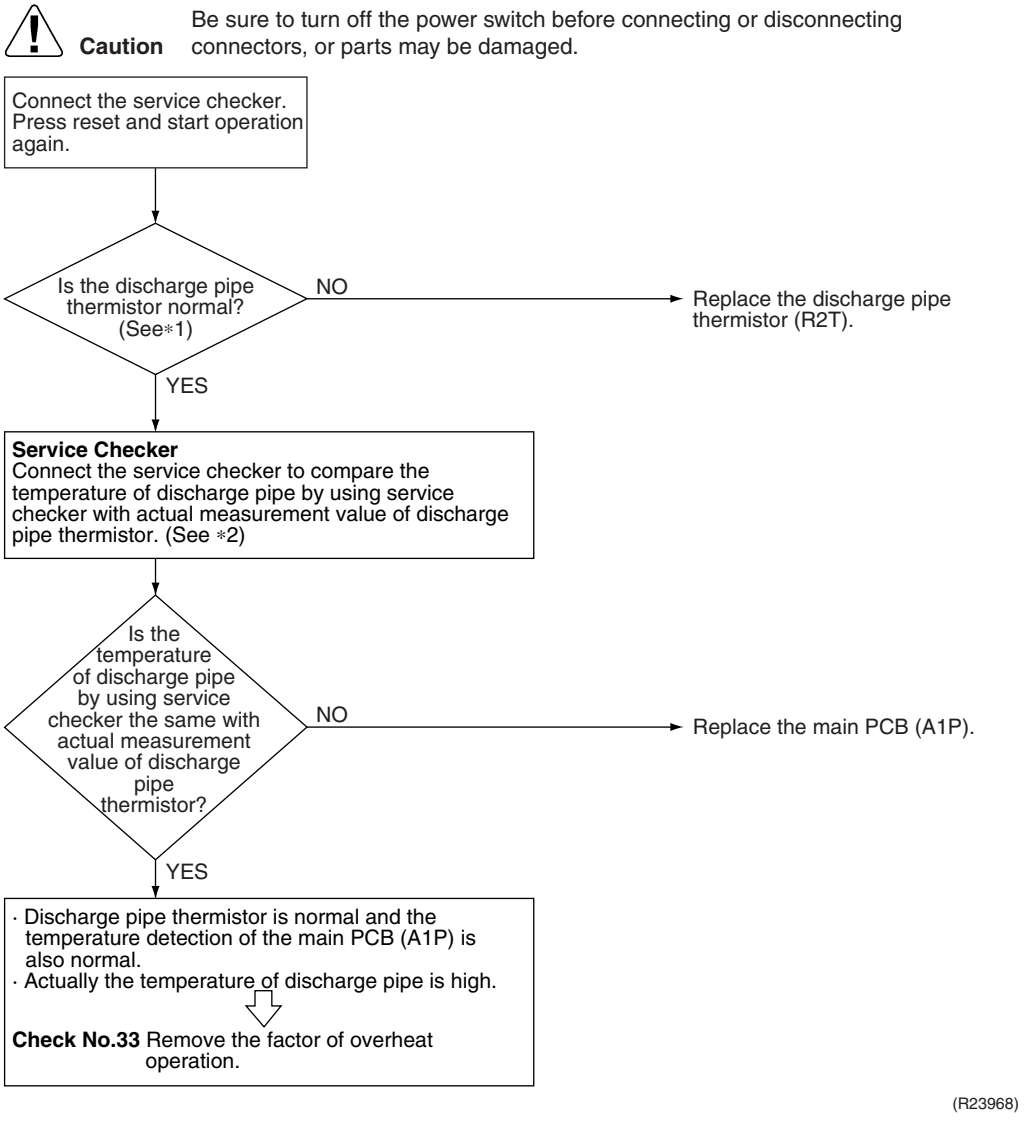
- When the discharge pipe temperature rises to an abnormally high level (135 °C (275°F) and above)
- When the discharge pipe temperature rises suddenly (120 °C (248°F) and above for 10 successive minutes)

Supposed Causes

- Defective discharge pipe thermistor
- Disconnection of discharge pipe thermistor (R2T)
- Defective main PCB (A1P)

Troubleshooting

Check No.33
Refer to P.266



∗1: Refer to Thermistor Resistance/Temperature Characteristics table 2 on page 268.
∗2: Compare the resistance value of discharge pipe thermistor and the value based on the surface thermometer.

7.8 Refrigerant Overcharged

Error Code

F6

Method of Error Detection

Excessive charging of refrigerant is detected during check operation by using outdoor temperature, outdoor heat exchanger temperature, and liquid pipe temperature.

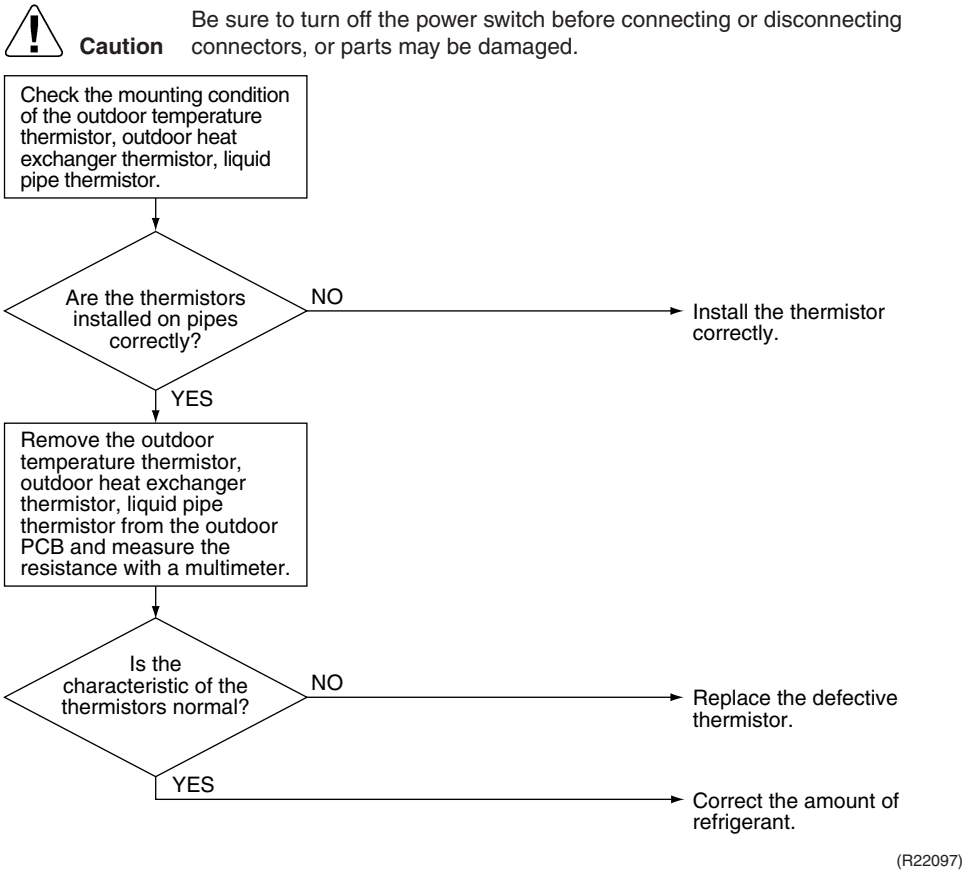
Error Decision Conditions

When the amount of refrigerant, which is calculated during check operation by using outdoor temperature, outdoor heat exchanger temperature, and liquid pipe temperature, exceeds the standard.

Supposed Causes

- Refrigerant overcharge
- Incorrect installation of outdoor temperature thermistor, outdoor heat exchanger thermistor, liquid pipe thermistor (R1T, R4T, R7T)
- Defective outdoor temperature thermistor, outdoor heat exchanger thermistor, liquid pipe thermistor (R1T, R4T, R7T)

Troubleshooting



Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

7.9 Outdoor Temperature Thermistor (R1T) Abnormality

Error Code **H9**

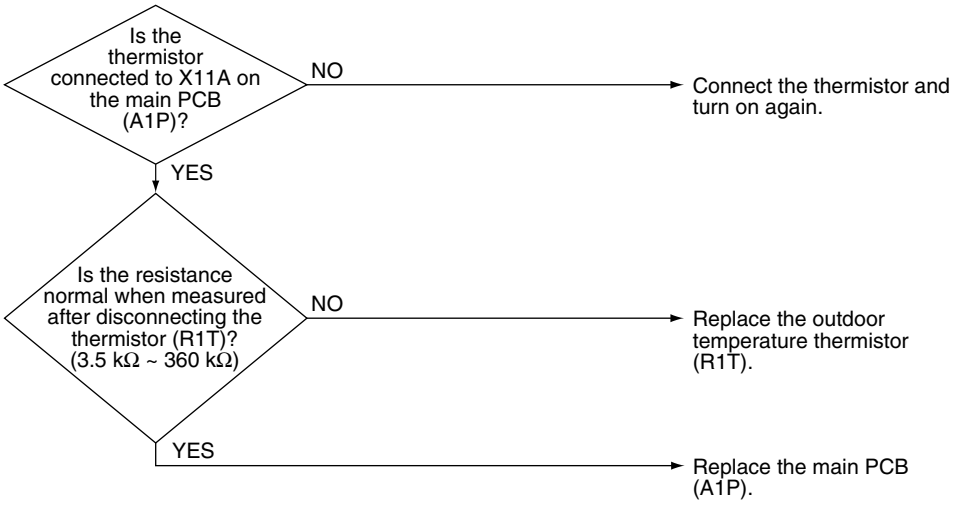
Method of Error Detection The temperature detected by the outdoor temperature thermistor determines the error.

Error Decision Conditions When the outdoor temperature thermistor has short circuit or open circuit

Supposed Causes
- Disconnection of thermistor
- Defective outdoor temperature thermistor (R1T)
- Defective main PCB (A1P)

Troubleshooting

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



(R15642)

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

7.10 Discharge Pipe Thermistor (R2T) Abnormality

Error Code **J3**

Method of Error Detection The temperature detected by discharge pipe thermistor determines the error.

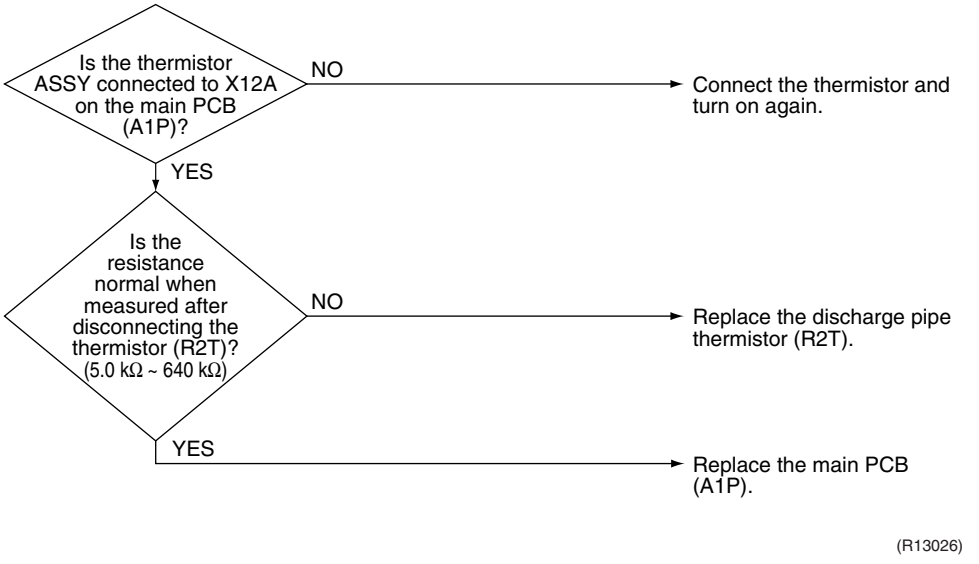
Error Decision Conditions When a short circuit or an open circuit in the discharge pipe thermistor is detected

Supposed Causes

- Disconnection of thermistor
- Defective discharge pipe thermistor (R2T)
- Defective main PCB (A1P)

Troubleshooting

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



(R13026)

Refer to Thermistor Resistance/Temperature Characteristics table 2 on page 268.

7.11 Suction Pipe Thermistor (R3T, R5T) Abnormality

Error Code **J5**

Method of Error Detection The temperature detected by the suction pipe thermistor determines the error.

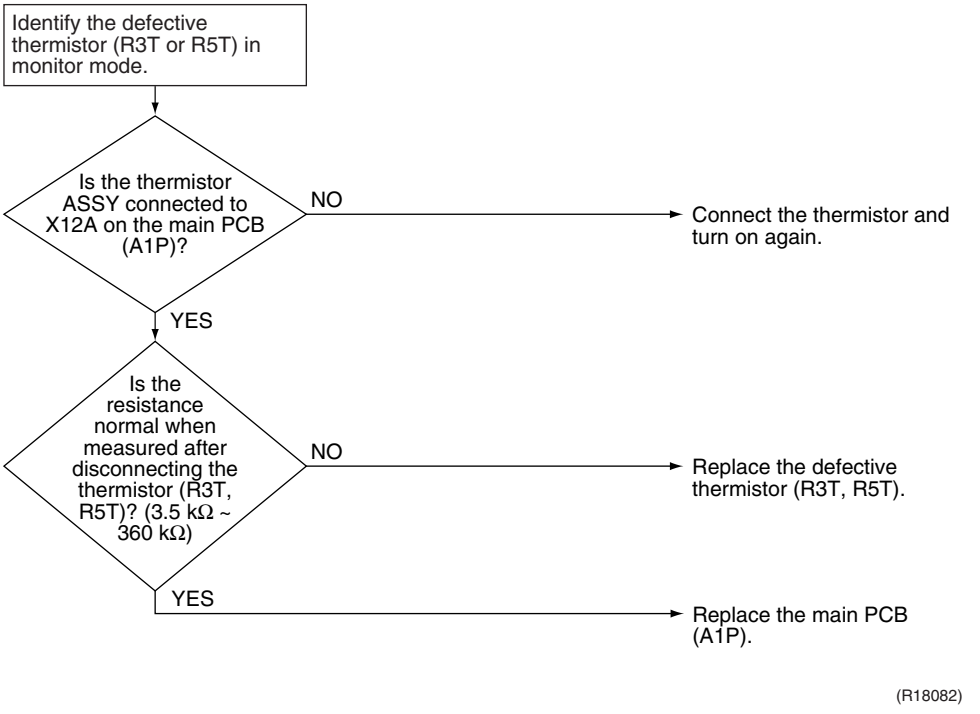
Error Decision Conditions When a short circuit or an open circuit in the suction pipe thermistor is detected

Supposed Causes

- Disconnection of thermistor
- Defective suction pipe thermistor (R3T, R5T)
- Defective main PCB (A1P)

Troubleshooting

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



Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

Refer to page 175 for details about monitor mode.

7.12 Outdoor Heat Exchanger Thermistor (R4T) Abnormality

Error Code **J6**

Method of Error Detection The temperature detected by the outdoor heat exchanger thermistor determines the error.

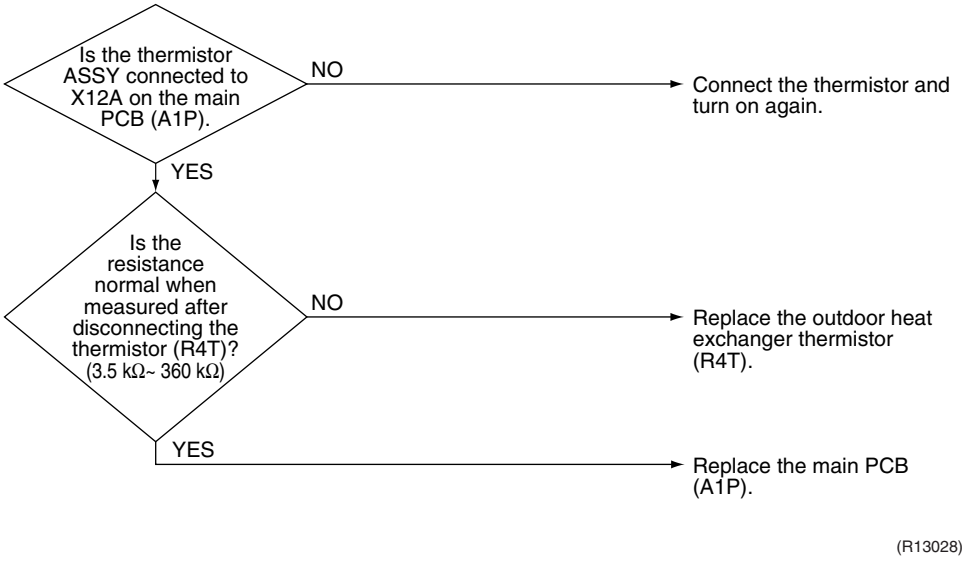
Error Decision Conditions When a short circuit or an open circuit in the outdoor heat exchanger thermistor is detected

Supposed Causes

- Disconnection of thermistor
- Defective outdoor heat exchanger thermistor (R4T)
- Defective main PCB (A1P)

Troubleshooting

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



Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

7.13 Outdoor Liquid Pipe Thermistor (R7T) Abnormality

Error Code **J7**

Method of Error Detection The temperature detected by the outdoor liquid pipe thermistor determines the error.

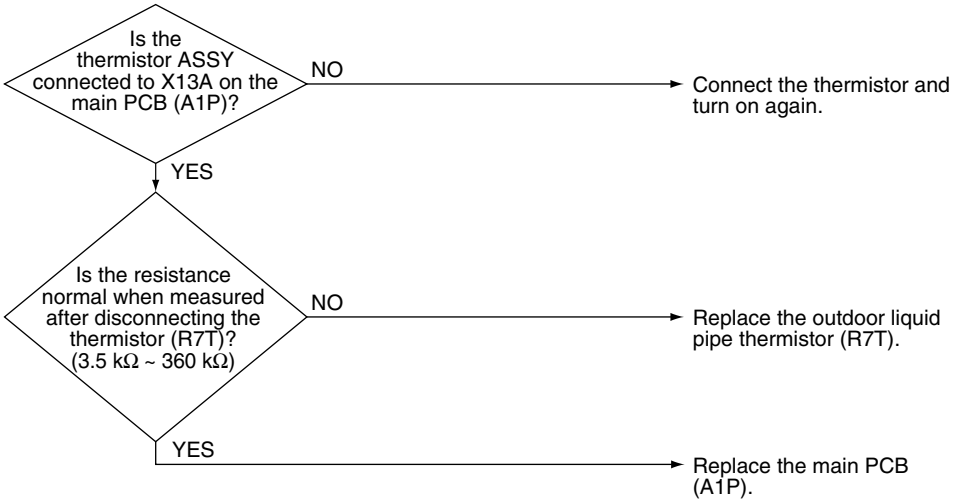
Error Decision Conditions When a short circuit or an open circuit in the outdoor liquid pipe thermistor is detected

Supposed Causes

- Disconnection of thermistor
- Defective outdoor liquid pipe thermistor (R7T)
- Defective main PCB (A1P)

Troubleshooting

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



(R13029)

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

7.14 Subcooling Heat Exchanger Gas Pipe Thermistor (R6T) Abnormality

Error Code

J9

Method of Error Detection

The temperature detected by subcooling heat exchanger gas pipe thermistor determines the error.

Error Decision Conditions

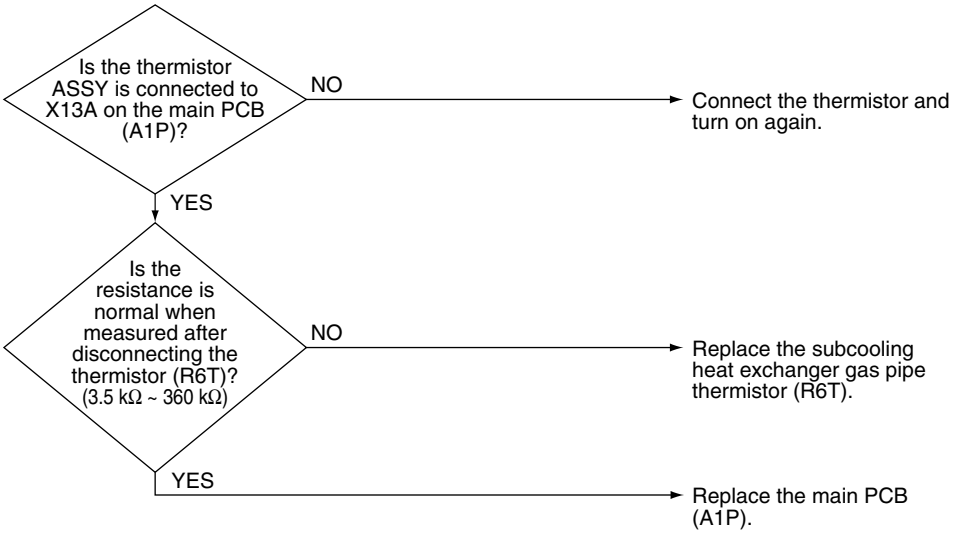
When the subcooling heat exchanger gas pipe thermistor is short circuited or open

Supposed Causes

- Disconnection of thermistor
- Defective subcooling heat exchanger gas pipe thermistor (R6T)
- Defective main PCB (A1P)

Troubleshooting

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



Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

7.15 High Pressure Sensor Abnormality

Error Code **JA**

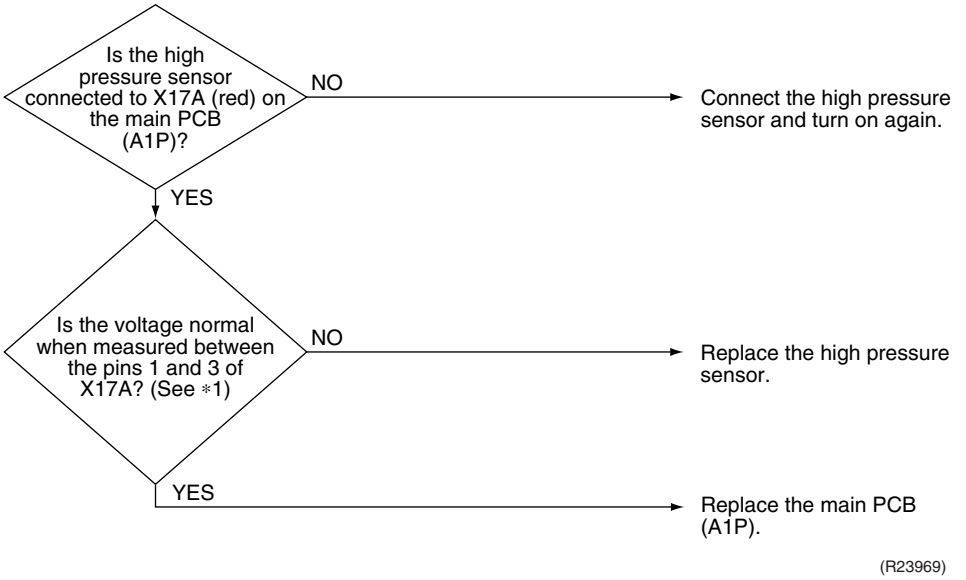
Method of Error Detection The pressure detected by high pressure sensor determines the error.

Error Decision Conditions When the high pressure sensor is short circuit or open circuit

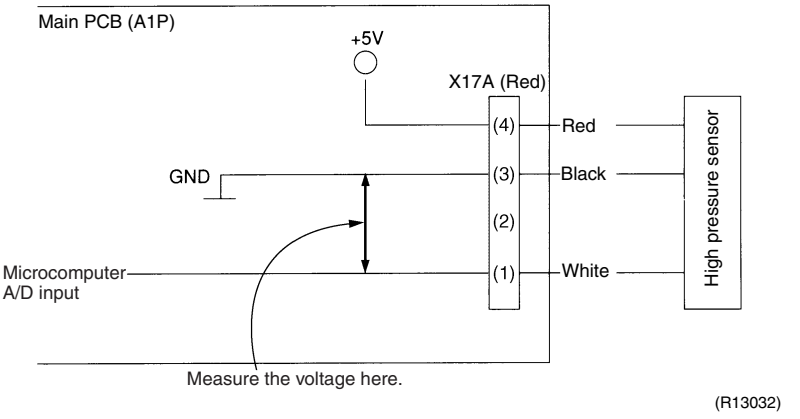
Supposed Causes
- Defective high pressure sensor
- Wrong connection with low pressure sensor
- Defective main PCB (A1P)

Troubleshooting

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



∗1: Voltage measurement point



For pressure/voltage characteristics graph, refer to Pressure Sensor on page 269.

7.16 Low Pressure Sensor Abnormality

Error Code

JC

Method of Error Detection

The pressure detected by low pressure sensor determines the error.

Error Decision Conditions

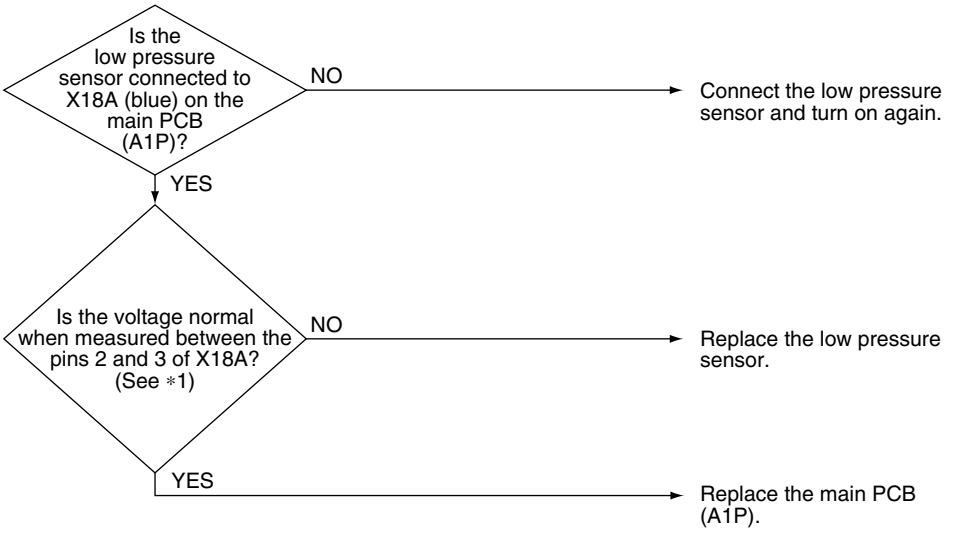
When the low pressure sensor is short circuit or open circuit

Supposed Causes

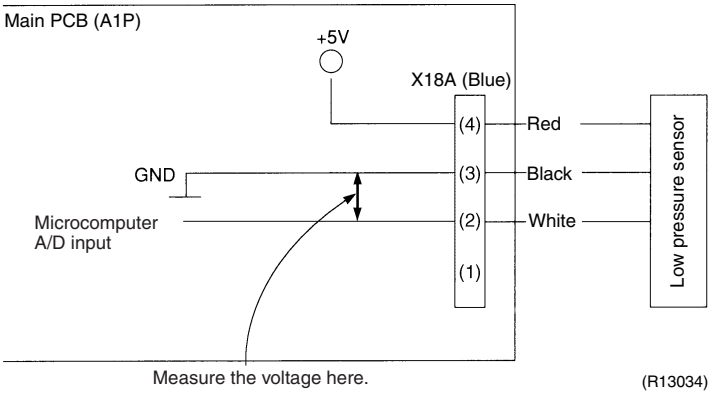
- Defective low pressure sensor
- Wrong connection with high pressure sensor
- Defective main PCB (A1P)

Troubleshooting

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



∗1: Voltage measurement point



For pressure/voltage characteristics graph, refer to Pressure Sensor on page 269.

7.17 Outdoor Unit PCB Abnormality

Error Code

L1

Method of Error Detection

- The error is detected based on the current value during waveform output before starting compressor.
- The error is detected based on the value from current sensor during synchronous operation when starting the unit.

Error Decision Conditions

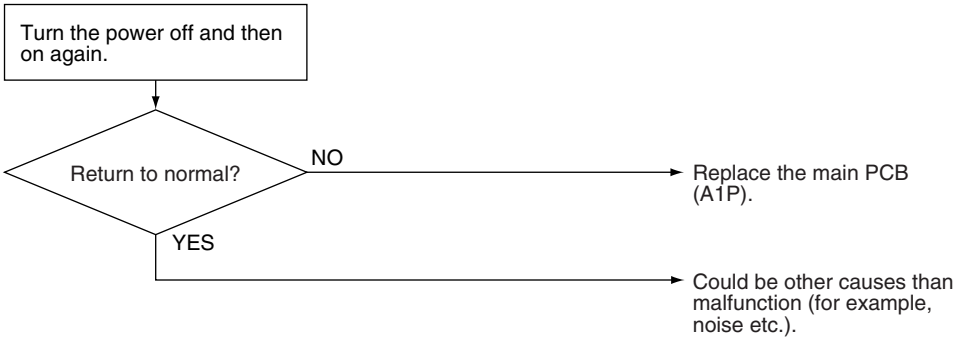
- Overcurrent (OCP) flows during waveform output.
- Malfunction of current sensor during synchronous operation
- IPM failure

Supposed Causes

- Defective main PCB (A1P)
  - IPM failure
  - Current sensor failure
  - Failure of IGBT or drive circuit

Troubleshooting

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



(R22095)

7.18 Radiation Fin Temperature Rise

Error Code **L4**

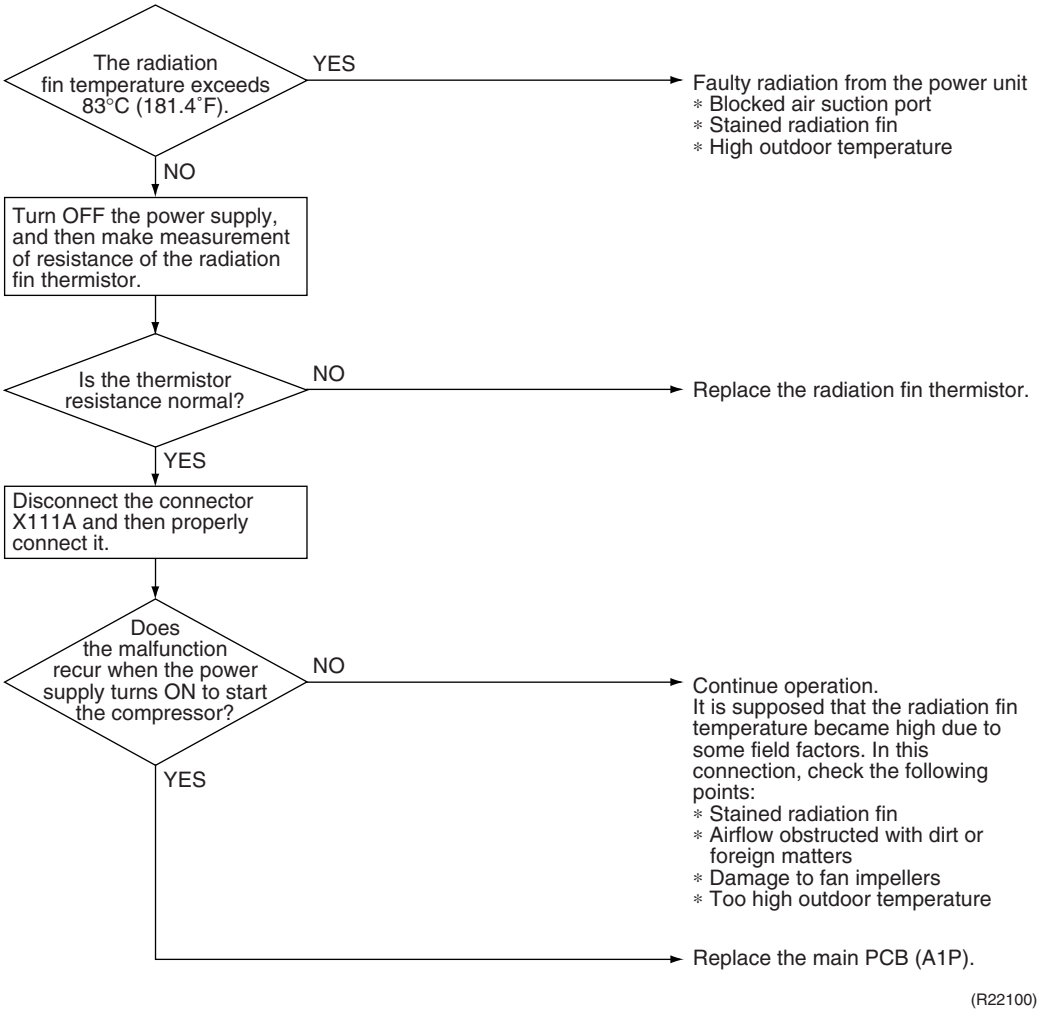
Method of Error Detection Fin temperature is detected by the thermistor of the radiation fin.

Error Decision Conditions When the radiation fin temperature increases above 83°C (181.4°F)

Supposed Causes
- Defective main PCB (A1P)
- Defective radiation fin thermistor (FINTH)

Troubleshooting

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



Refer to Thermistor Resistance/Temperature Characteristics table 2 on page 268.

7.19 Inverter Compressor Abnormality

Error Code **L5**

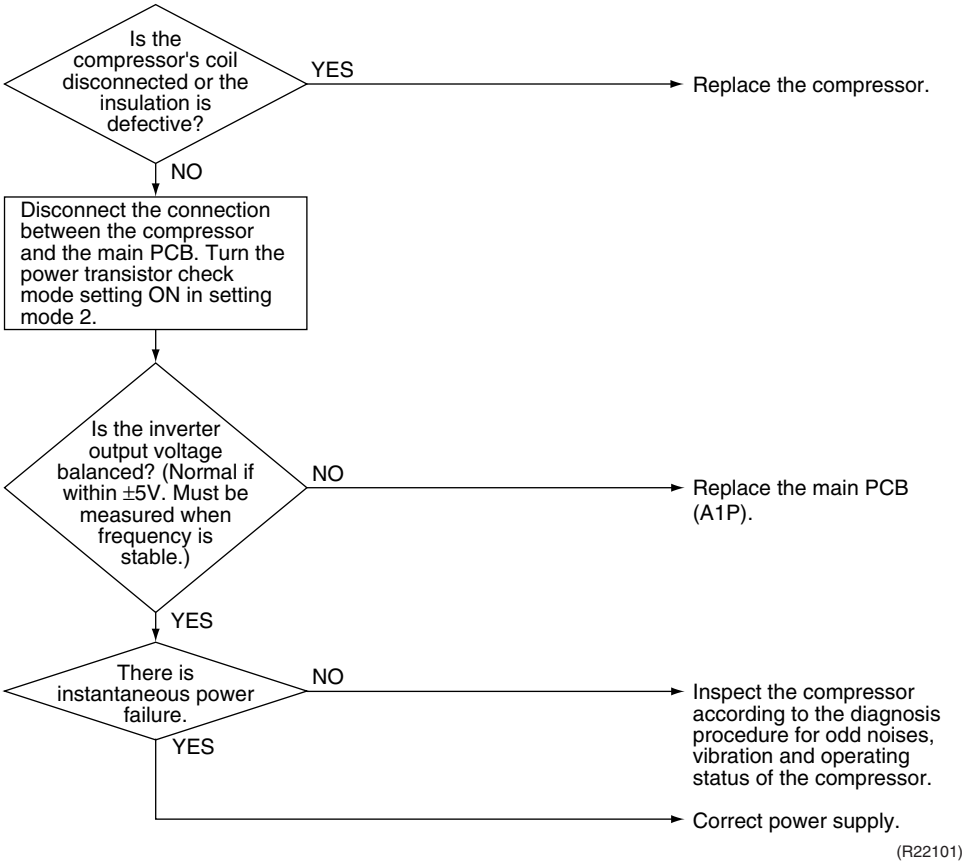
Method of Error Detection The error is detected from current flowing in the power transistor.

Error Decision Conditions When an excessive current flows in the power transistor (Instantaneous overcurrent also causes activation.)

Supposed Causes
- Defective compressor coil (disconnected, defective insulation)
- Compressor start-up malfunction (mechanical lock)
- Defective main PCB (A1P)

Troubleshooting

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



Note: Higher voltage than actual is displayed when the inverter output voltage is checked by multimeter.

7.20 Inverter Current Abnormality

Error Code **L8**

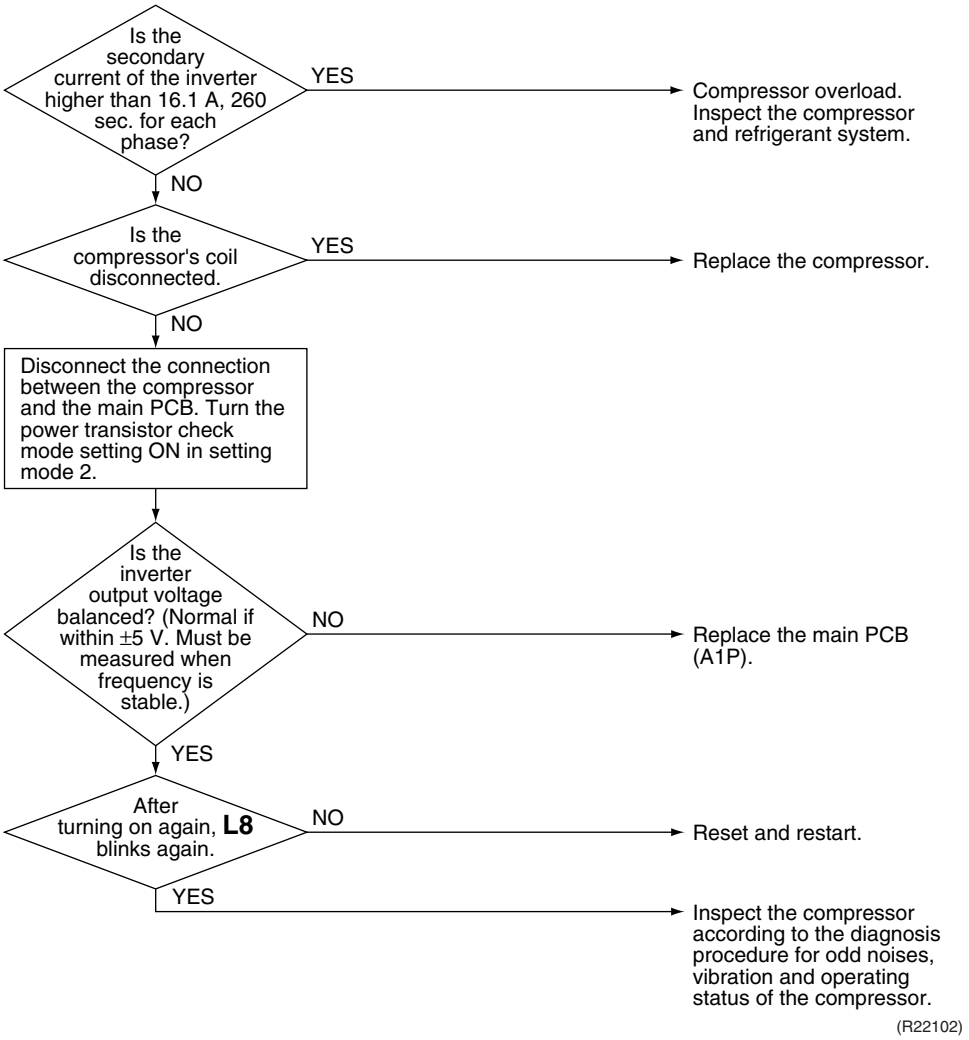
Method of Error Detection
The error is detected by current flowing in the power transistor.

Error Decision Conditions
When overload in the compressor is detected. (Inverter secondary current 16.1 A)
(1) 19.0 A and over continues for 5 seconds.
(2) 16.1 A and over continues for 260 seconds.

Supposed Causes
- Compressor overload
- Compressor coil disconnected
- Defective main PCB (A1P)

Troubleshooting

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



(R22102)

7.21 Compressor Start-up Error

Error Code **L9**

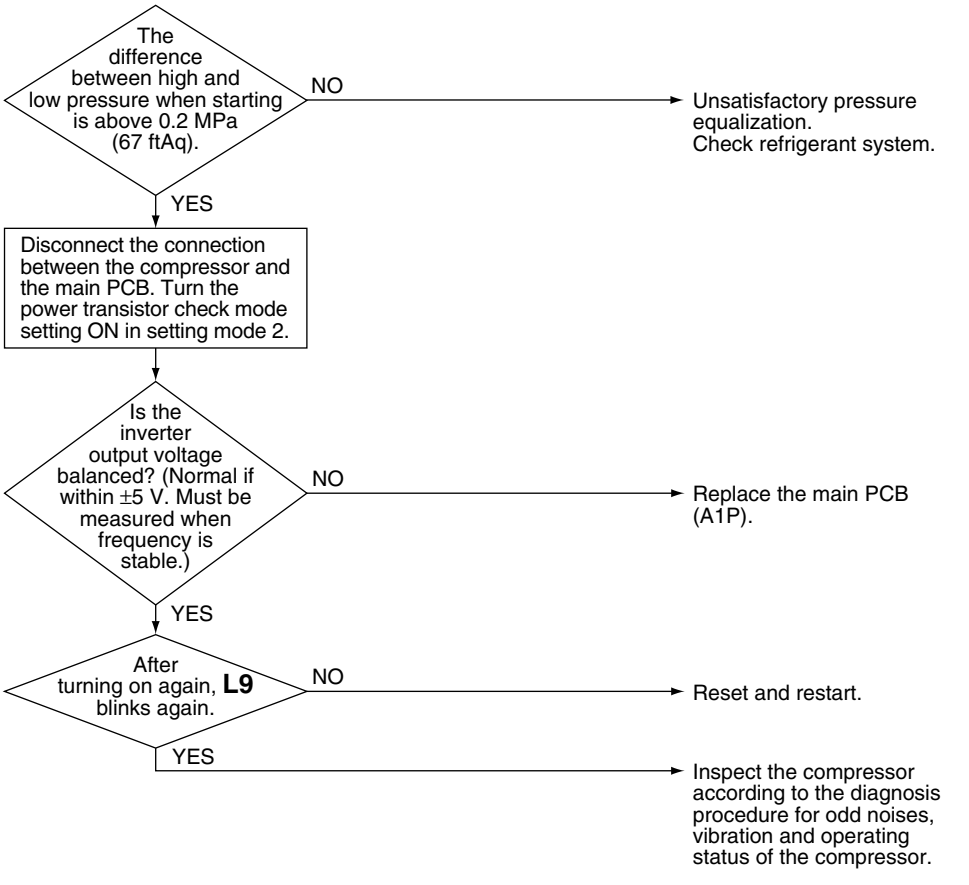
Method of Error Detection The error is detected from current flowing in the power transistor.

Error Decision Conditions Starting control of the compressor does not complete.

Supposed Causes
- Defective compressor
- Large pressure difference before starting the compressor
- Defective main PCB (A1P)

Troubleshooting

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



(R22103)

7.22 High Voltage of Capacitor in Main Inverter Circuit

Error Code

P1

Method of Error Detection

The error is detected according to the voltage waveform of main circuit capacitor built in the inverter.

Error Decision Conditions

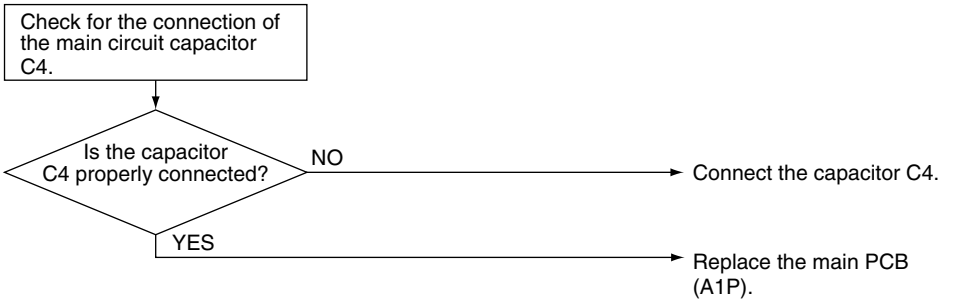
When the voltage waveform becomes identical with the waveform of the power supply open phase

Supposed Causes

- Defective main circuit capacitor
- Improper main circuit wiring
- Defective main PCB (A1P)

Troubleshooting

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



(R23971)

7.23 Radiation Fin Thermistor Abnormality

Error Code **P4**

Method of Error Detection Resistance of radiation fin thermistor is detected when the compressor is not operating.

Error Decision Conditions When the resistance value of thermistor becomes a value equivalent to open or short circuited status

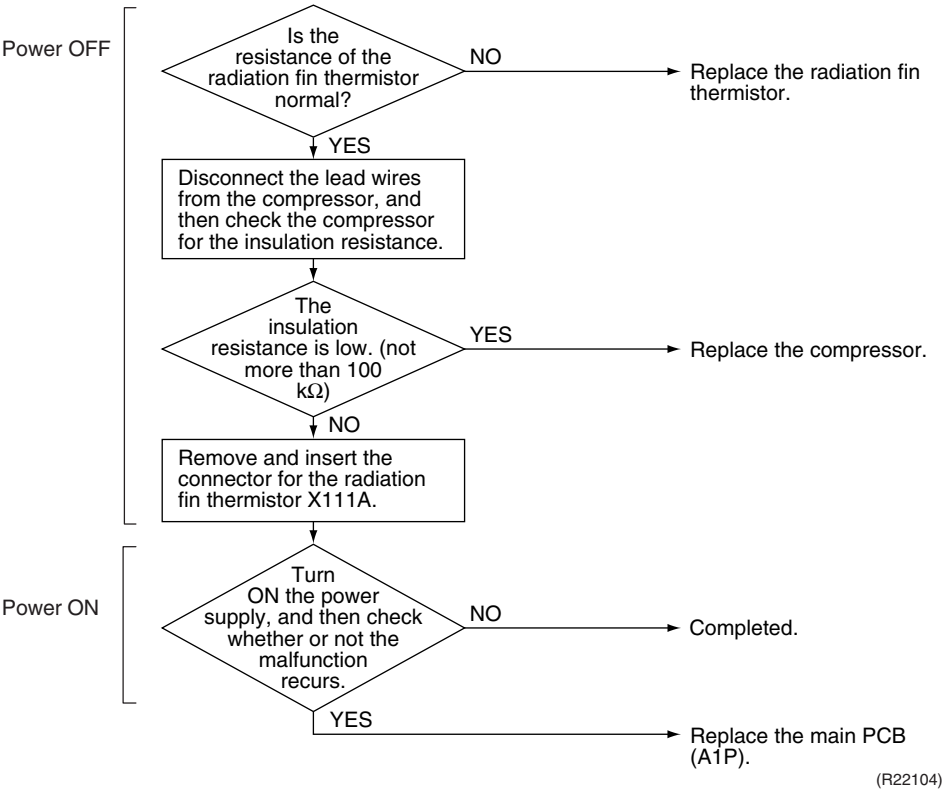
★ Malfunction is not decided while the unit operation is continued.
P4 is displayed by pressing the inspection button.

Supposed Causes

- Defective radiation fin thermistor (FINTH)
- Defective main PCB (A1P)

Troubleshooting

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



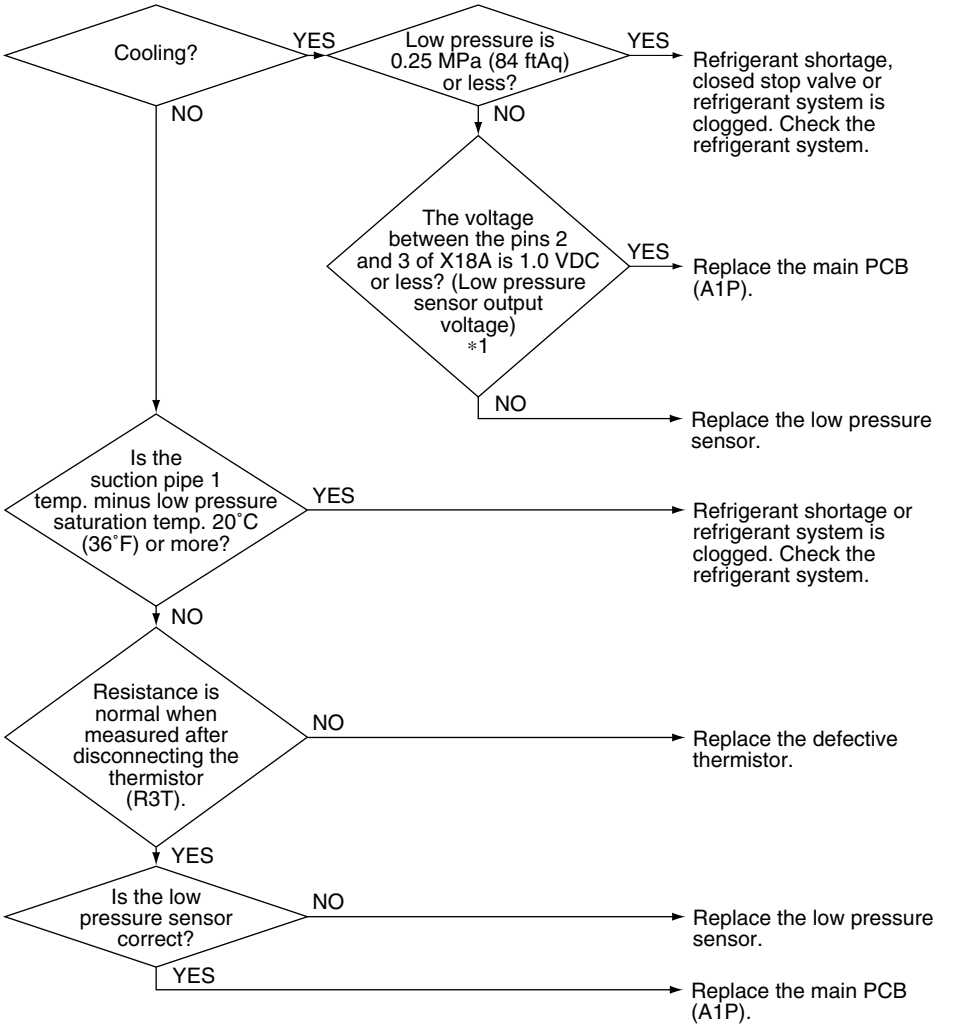
Refer to Thermistor Resistance/Temperature Characteristics table 2 on page 268.

7.24 Low Pressure Drop due to Refrigerant Shortage or Electronic Expansion Valve Abnormality

Error Code	**U0**
Method of Error Detection	Refrigerant shortage is detected by discharge pipe thermistor and low pressure saturation temperature.
Error Decision Conditions	Microcomputer judge and detect if the system is short of refrigerant. ★The error is not decided while the operation continues.
Supposed Causes	■ Refrigerant shortage or refrigerant system clogging (incorrect piping) ■ Defective low pressure sensor ■ Defective main PCB (A1P) ■ Defective thermistor (R3T)

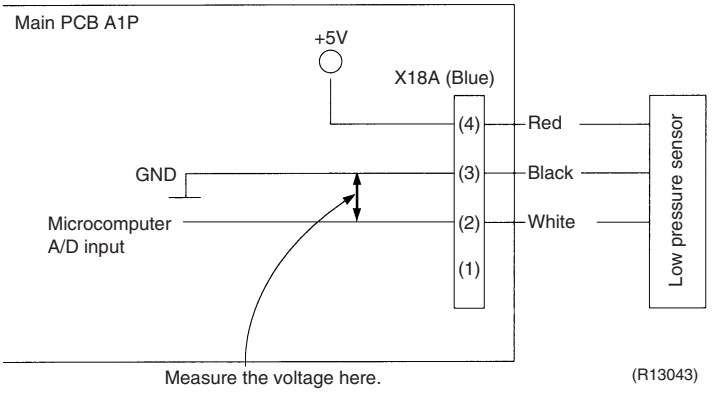
Troubleshooting

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



(R23972)

∗1: Voltage measurement point



(R13043)

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

For pressure/voltage characteristics graph, refer to Pressure Sensor on page 269.

7.25 Power Supply Insufficient or Instantaneous Failure

Error Code **U2**

Method of Error Detection Detection of voltage of main circuit capacitor built in the inverter and power supply voltage.

Error Decision Conditions When the abnormal voltage of main circuit capacitor built in the inverter and abnormal power supply voltage are detected

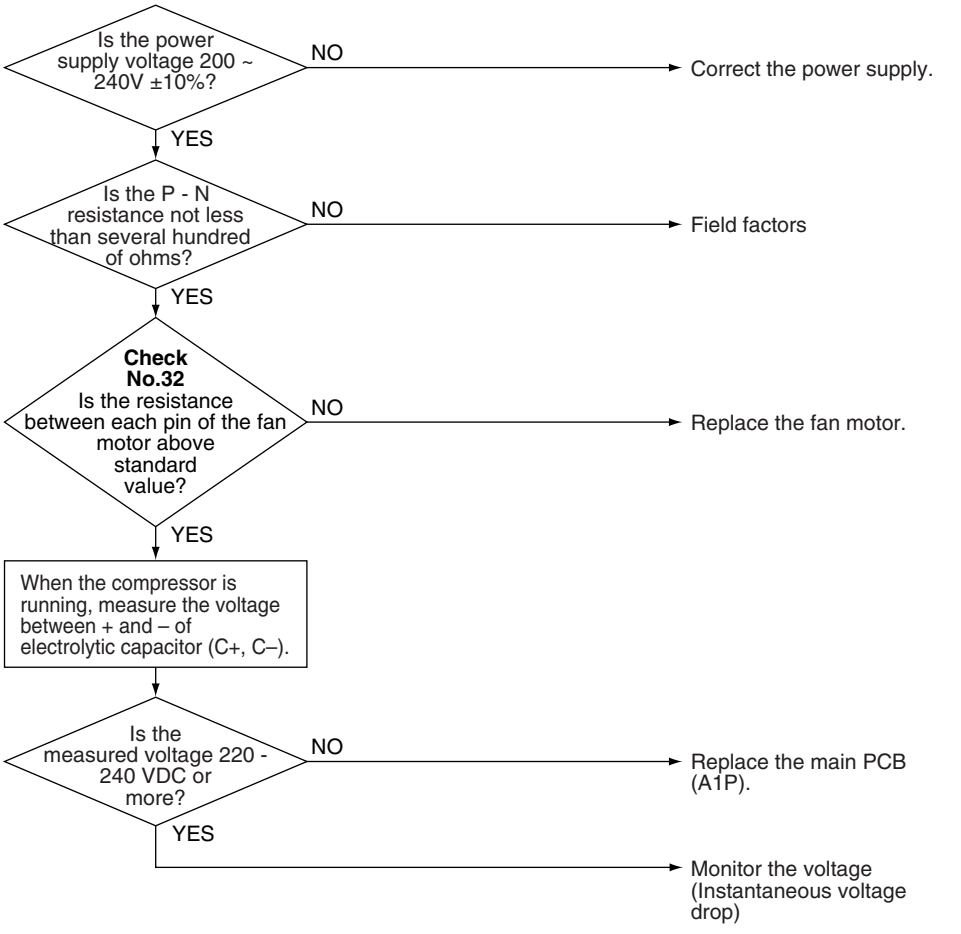
Supposed Causes

- Power supply insufficient
- Instantaneous power failure
- Defective outdoor fan motor
- Defective main PCB (A1P)

Troubleshooting

Check No.32
Refer to P.265

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



(R22105)

7.26 Check Operation is not Conducted

Error Code **U3**

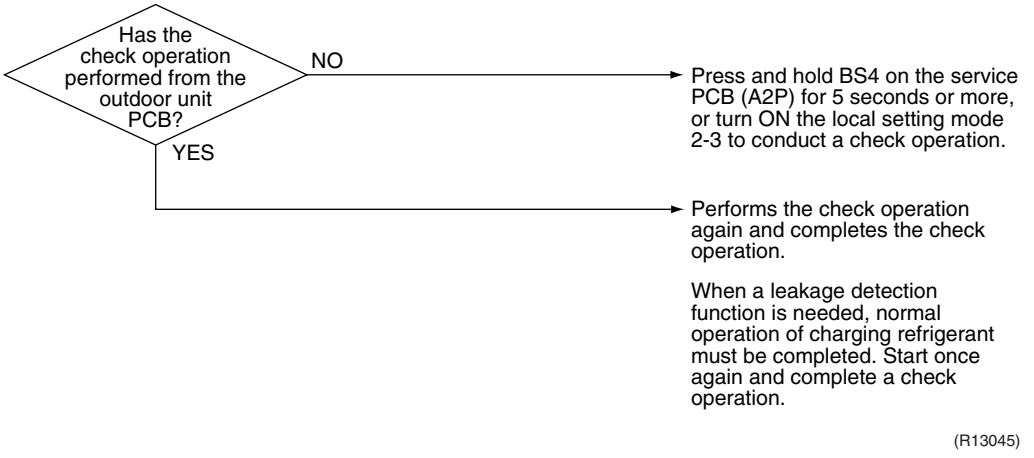
Method of Error Detection Check operation is executed or not

Error Decision Conditions When the unit starts operation without check operation

Supposed Causes Check operation is not executed.

Troubleshooting

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



(R13045)

7.27 Signal Transmission Error between Indoor Unit and Outdoor Unit in the Same System

Error Code **U9**

Method of Error Detection

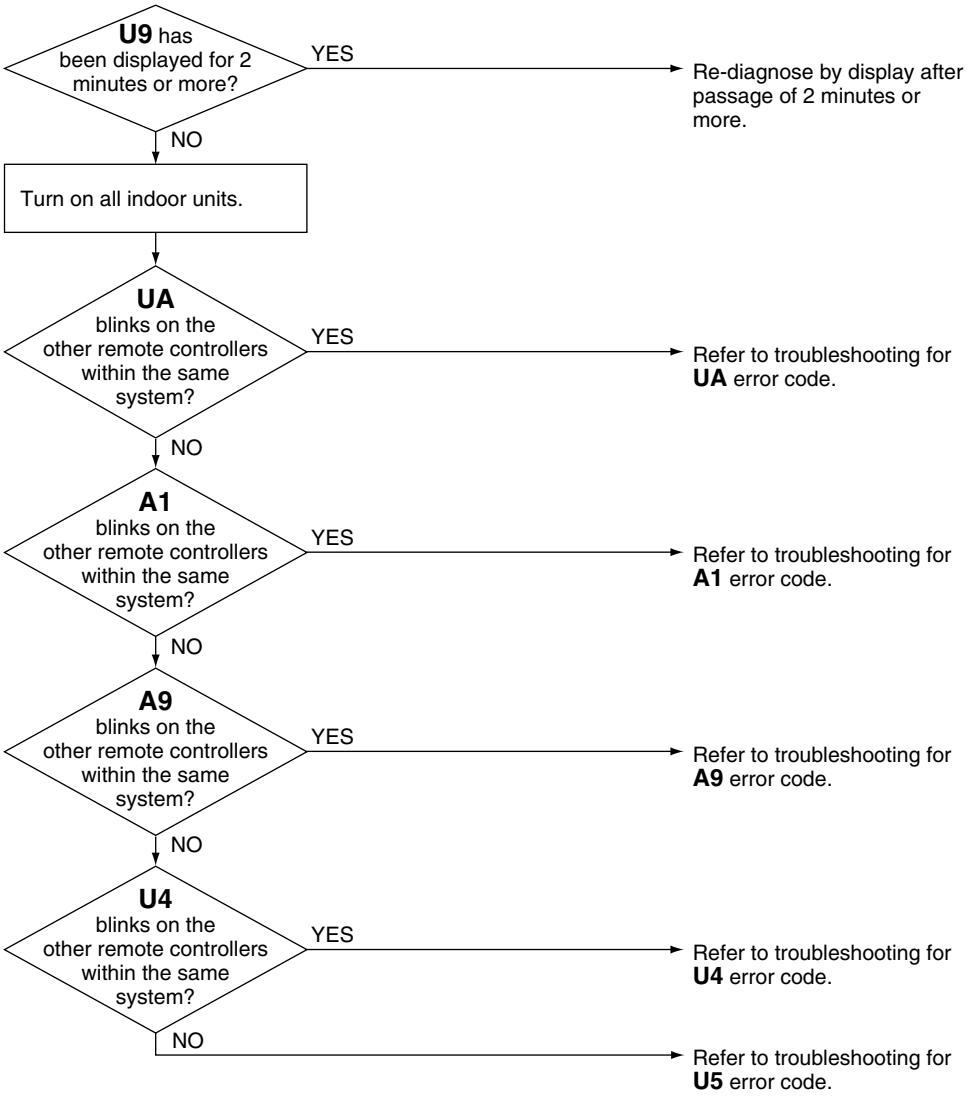
Error Decision Conditions

Supposed Causes

- Signal transmission error within system
- Defective electronic expansion valve in indoor unit of other system
- Defective indoor unit PCB in other system
- Improper connection of transmission wiring between indoor and outdoor unit

Troubleshooting

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



(R19192)

7.28 Excessive Number of Indoor Units

Error Code

UA

Method of Error Detection

- A difference occurs in data by the type of refrigerant between indoor and outdoor units.
- The number of indoor units is out of the allowable range.
- Incorrect signals are transmitted among the indoor unit, BP unit, and outdoor unit.

Error Decision Conditions

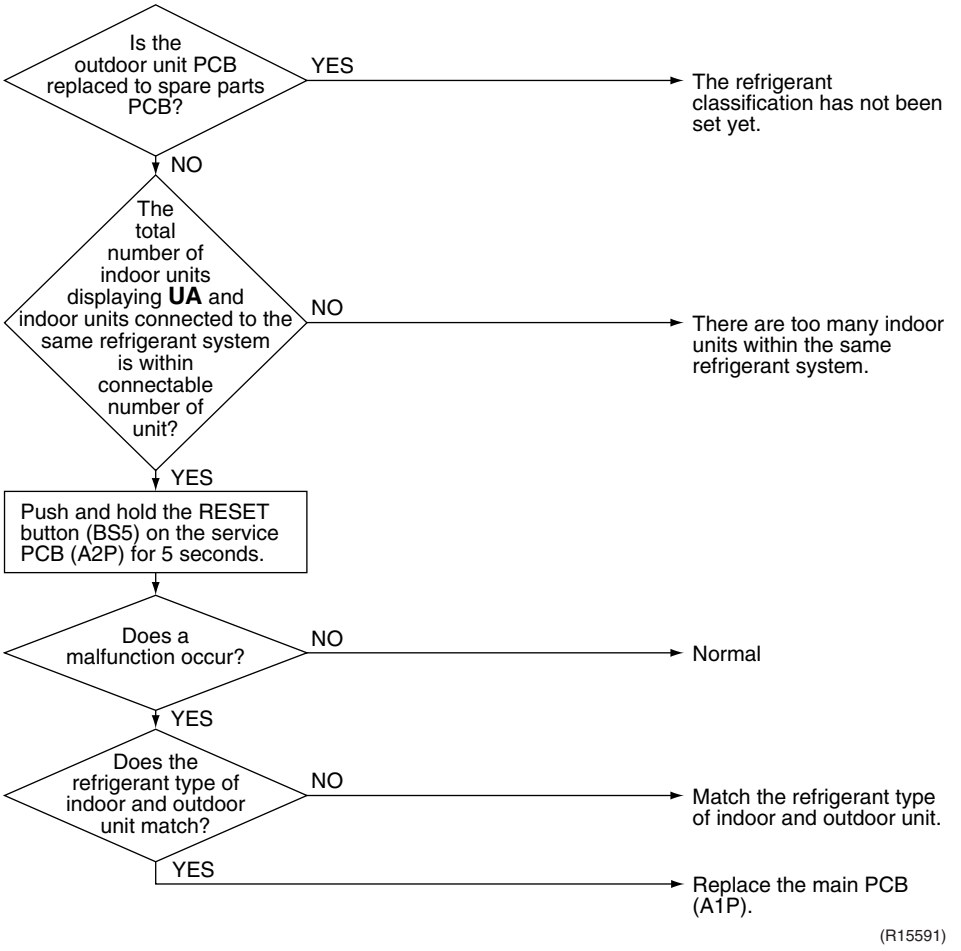
The malfunction decision is made as soon as either of the abnormalities is detected.

Supposed Causes

- Excess of connected indoor units
- Defective main PCB (A1P)
- Mismatching of the refrigerant type of indoor and outdoor unit.
- Setting of outdoor unit PCB was not conducted after replacing to spare parts PCB.

Troubleshooting

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



7.29 Address Duplication of Central Remote 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

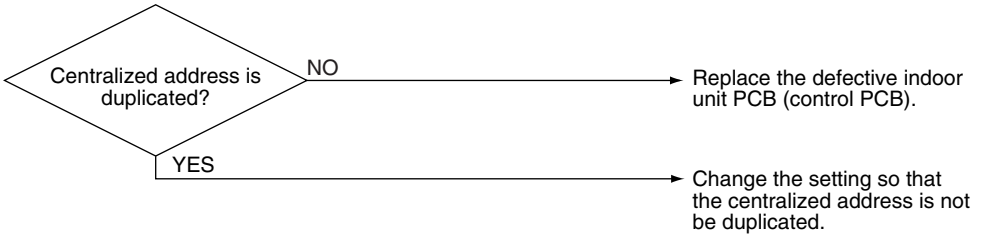
The malfunction decision is made as soon as the abnormality is detected.

Supposed Causes

- Address duplication of centralized remote controller
- Defective indoor unit PCB

Troubleshooting

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



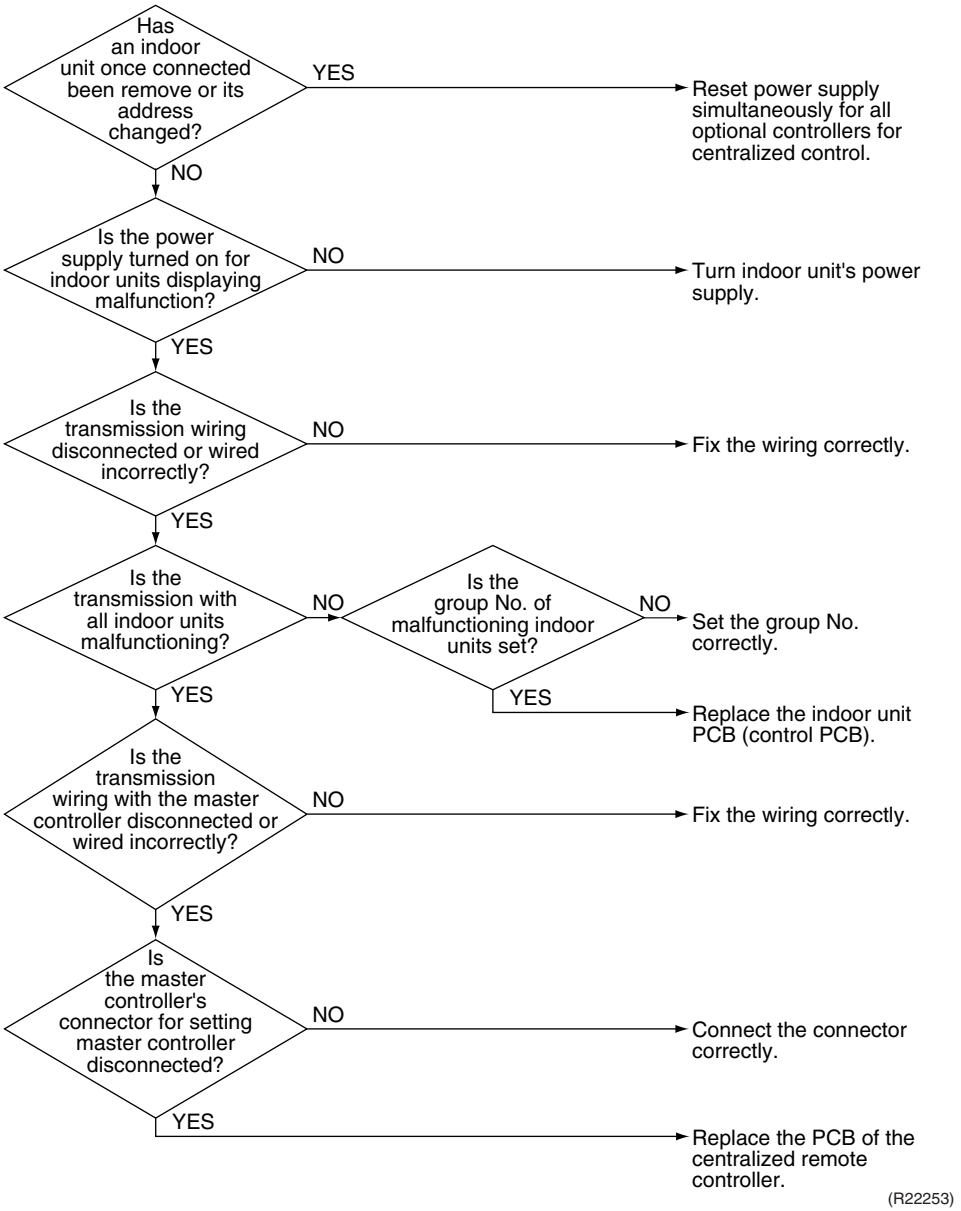
(R22106)

7.30 Transmission Error between Centralized Remote Controller and Indoor Unit

Error Code	**UE**
Method of Error Detection	Microcomputer checks if transmission between indoor unit and centralized remote controller is normal.
Error Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ Transmission error between optional controllers for centralized control and indoor unit ■ Connector for setting master controller is disconnected. ■ Defective PCB of centralized remote controller ■ Defective indoor unit PCB

Troubleshooting

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



7.31 System is not Set yet

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

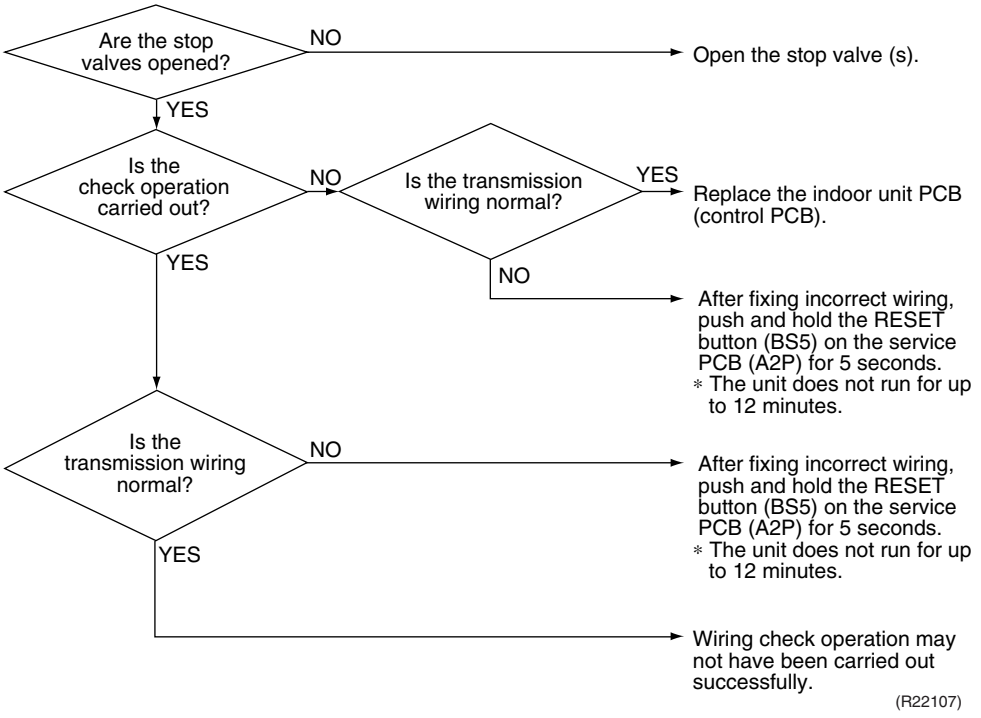
The malfunction is determined as soon as the abnormality aforementioned is detected through checking the system for any erroneous connection of units on the check operation.

Supposed Causes

- Improper connection of transmission wiring between indoor unit - outdoor unit
- Failure to execute check operation
- Defective indoor unit PCB
- Stop valve is left closed

Troubleshooting

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



Note: Wiring check operation may not be successful if carried out after the outdoor unit has been off for more than 12 hours, or if it is not carried out after running all connected indoor units in the fan mode for at least an hour.

7.32 System Abnormality, Refrigerant System Address Undefined

Error Code

UH

Method of Error Detection

The system detects an indoor unit to which auto address has not been assigned.

Error Decision Conditions

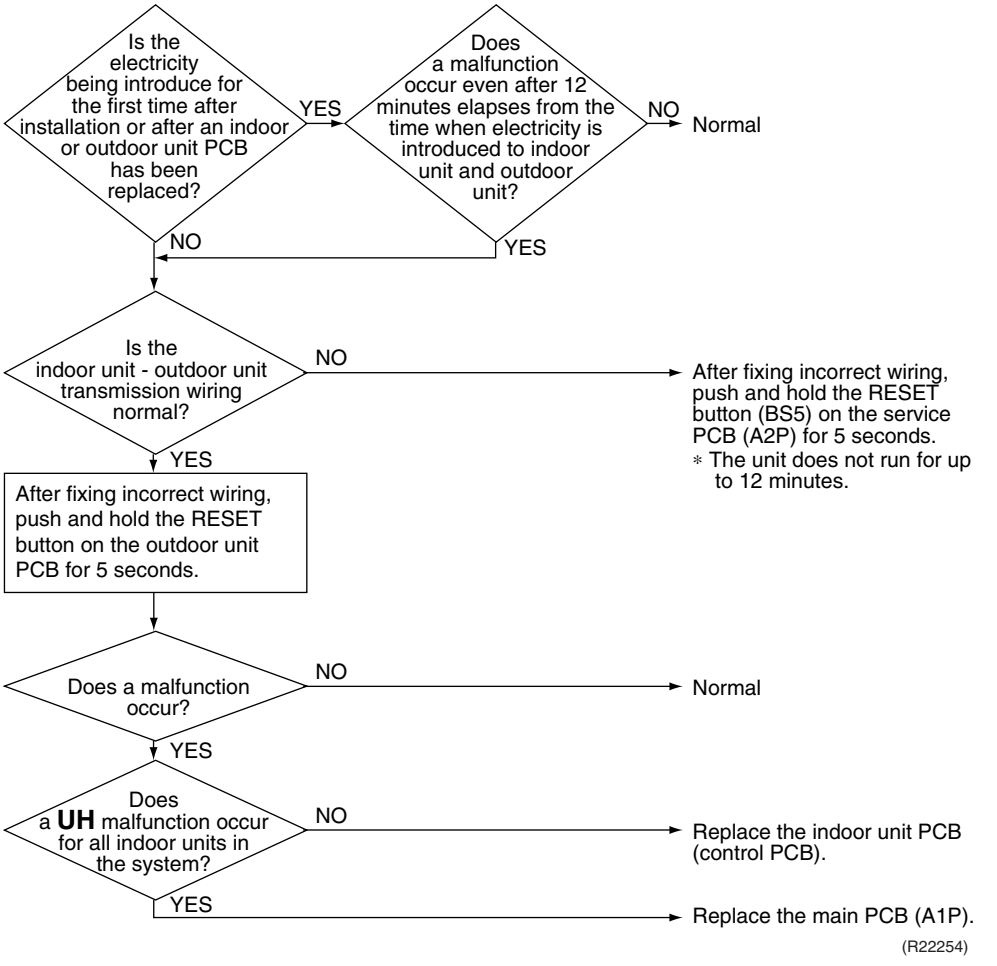
The malfunction decision is made as soon as the abnormality is detected.

Supposed Causes

- Improper connection of transmission wiring between indoor and outdoor unit
- Defective indoor unit PCB
- Defective main PCB (A1P)

Troubleshooting

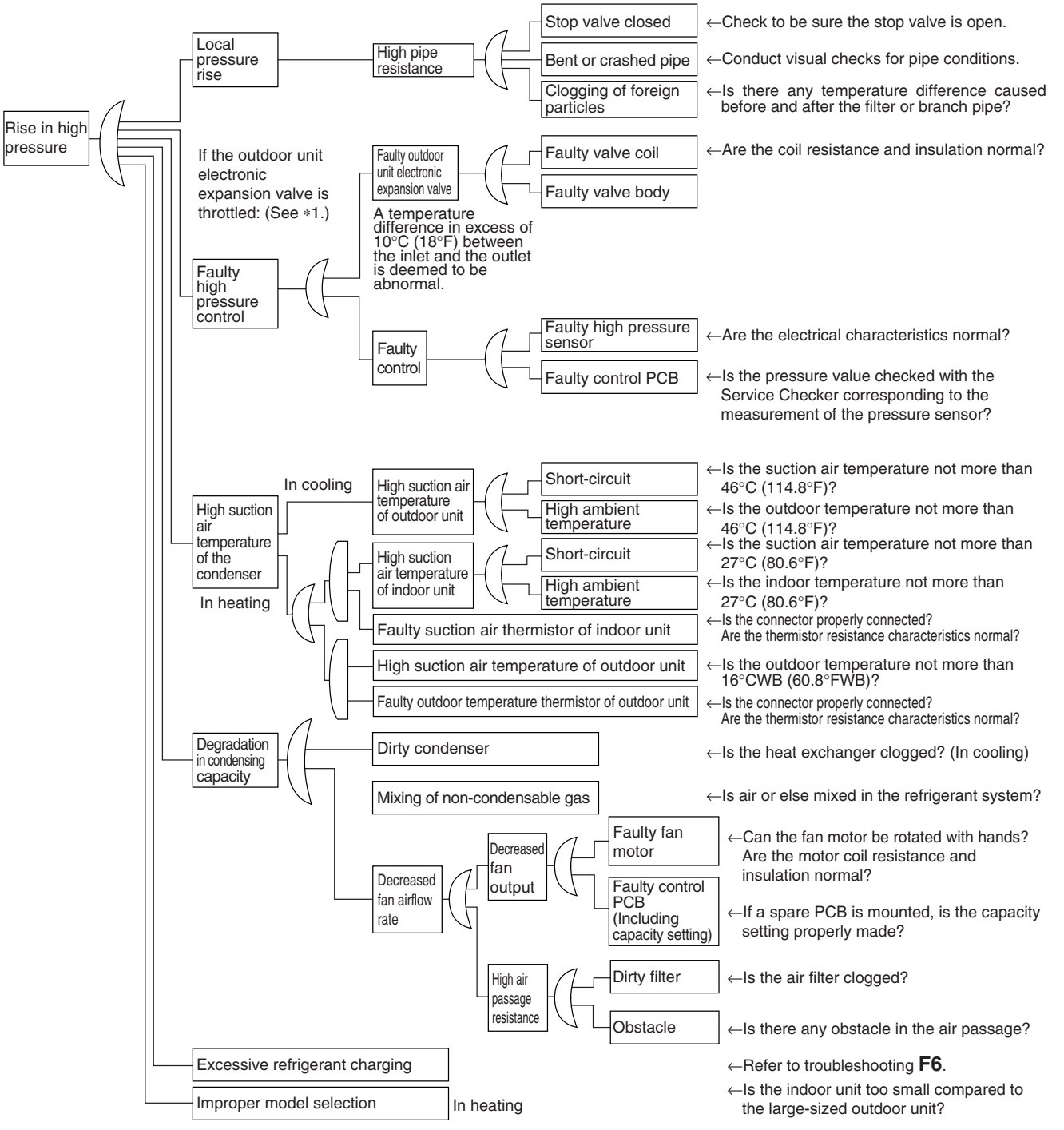
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



7.33 Check for Outdoor Unit

7.33.1 Check for Causes of Rise in High Pressure

Check No.30 Referring to the Fault Tree Analysis (FTA) shown below, probe the faulty points.

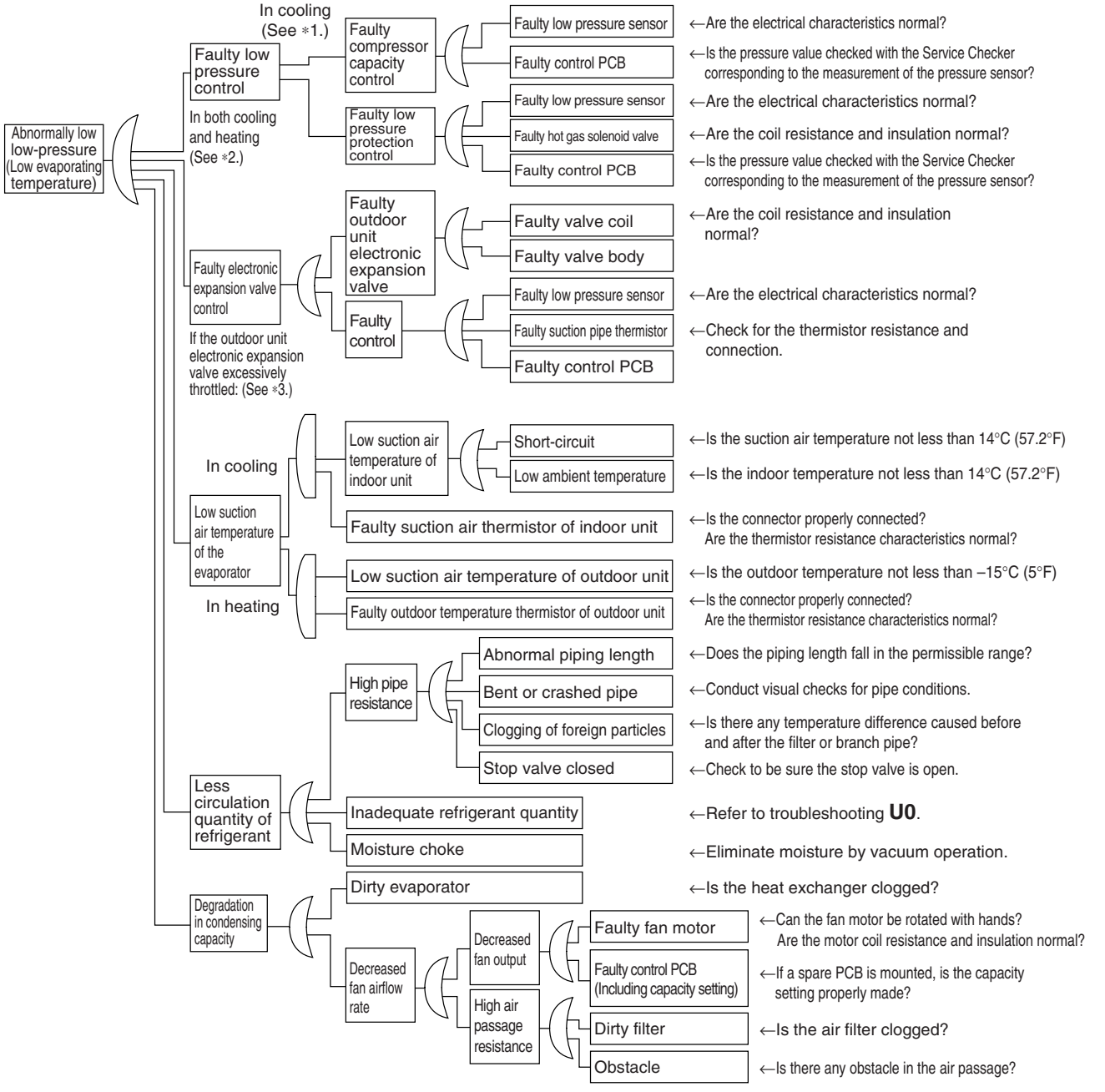


∗1: In cooling, it is normal if the outdoor unit electronic expansion valve (Y1E) is fully open.

(R19097)

7.33.2 Check for Causes of Drop in Low Pressure

Check No.31 Referring to the Fault Tree Analysis (FTA) shown below, probe the faulty points.



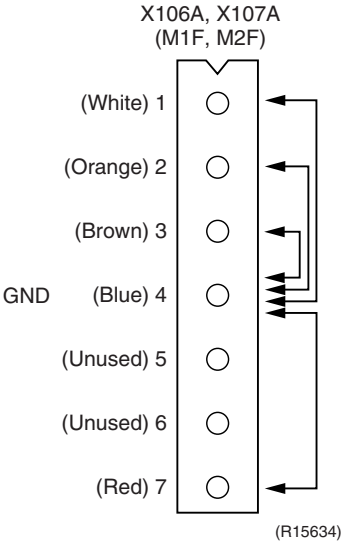
∗1: For details of the compressor capacity control while in cooling, refer to Compressor PI Control.
∗2: The Low Pressure Protection Control includes low pressure protection control and hot gas bypass control.
∗3: In heating, the outdoor unit electronic expansion valve (Y1E) is used for superheated degree control of outdoor unit heat exchanger. (For details, refer to Electronic Expansion Valve PI Control.)

(R19098)

7.33.3 Outdoor Fan Motor Connector Check

Check No. 32

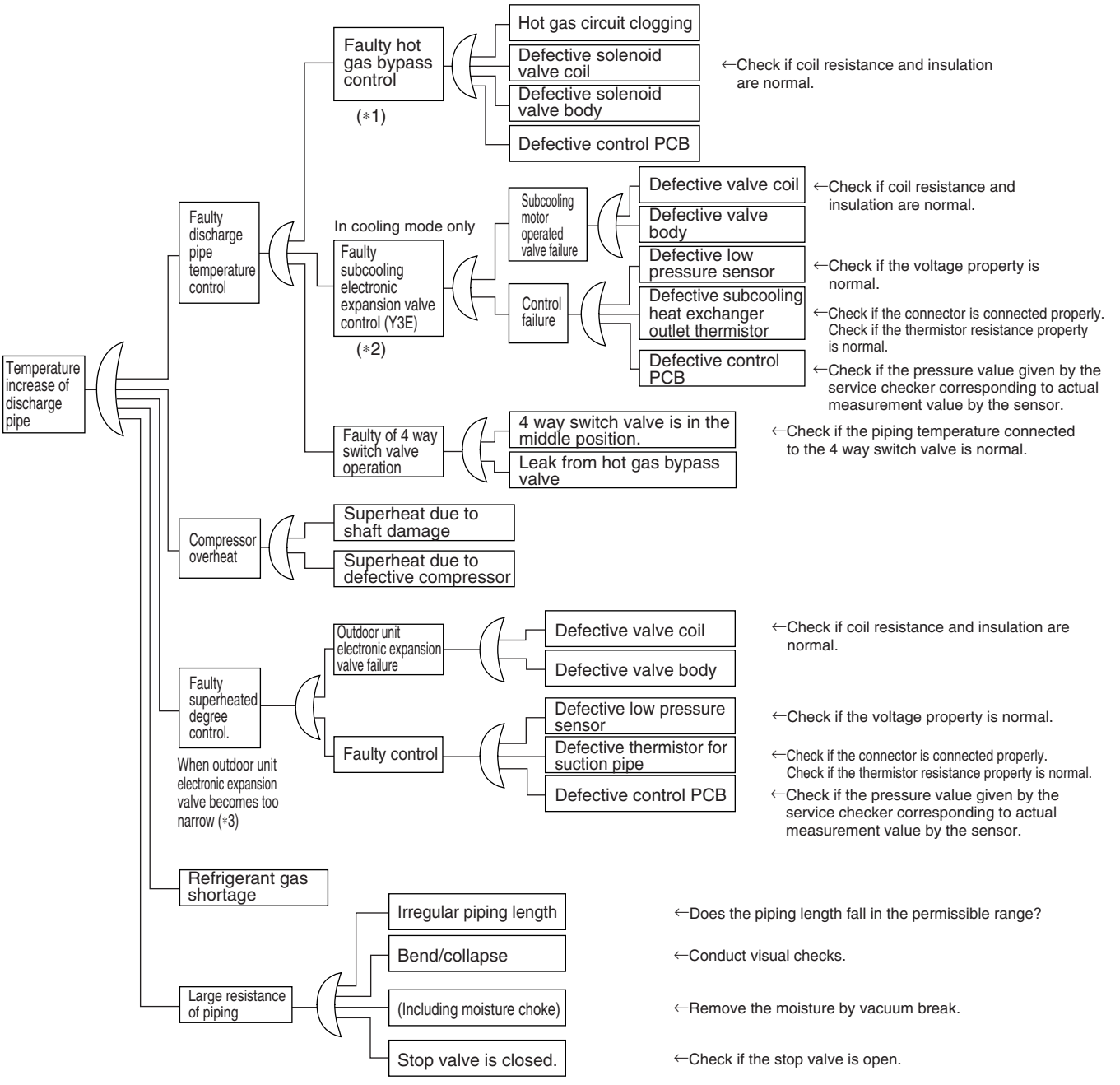
(1) Turn the power supply off.
(2) With the fan motor connector disconnected, measure the resistance between each pin, then make sure that the resistance is more than the value mentioned in the following table.



Measurement point	Judgment
1 - 4	1 MΩ or more
2 - 4	100 kΩ or more
3 - 4	100 Ω or more
4 - 7	100 kΩ or more

7.33.4 Check for the Factors of Overheat Operation

Check No. 33 Identify the defective points referring to the failure factor analysis (FTA) as follows.



∗1: Refer to Low Pressure Protection Control for hot gas bypass control.
∗2: Refer to Electronic Expansion Valve PI Control for subcooling electronic expansion valve control.
∗3: Superheating temperature control in heating operation is conducted by outdoor unit electronic expansion valve. (Refer to Electronic Expansion Valve PI Control).

∗ Judgment criteria of superheat operation:
(1) Suction gas superheated degree: 10˚C (18˚F) and over.
(2) Discharge gas superheated degree: 45˚C (81˚F) and over, except for immediately after starting and dropping control, etc..
(Use the above stated values as a guide. Depending on the other conditions, the unit may be normal despite the values within the above scope.)

(R23973)

8. Thermistor Resistance/Temperature Characteristics

Table 1

Applicable thermistor	**Indoor unit** R2T: Indoor heat exchanger 1 (liquid pipe) R3T: Indoor heat exchanger 2 **Outdoor unit** R3T: Suction pipe 1 R4T: Outdoor heat exchanger R5T: Suction pipe 2 R6T: Subcooling heat exchanger gas pipe R7T: Liquid pipe	**Indoor unit** R1T: Room temperature	**Outdoor unit** R1T: Outdoor temperature	**BP unit** DGA - DGC: Gas pipe DLA - DLC: Liquid pipe
Thermistor temperature °C (°F)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)
–30 (–22)	363.8	361.7719	362.4862	363.3
–25 (–13)	266.8	265.4704	265.9943	266.6
–20 (–4)	197.8	196.9198	197.3083	197.8
–15 (5)	148.2	147.5687	147.8597	148.2
–10 (14)	112.0	111.6578	111.8780	112.1
–5 (23)	85.52	85.2610	85.4291	85.60
0 (32)	65.84	65.6705	65.8000	65.93
5 (41)	51.05	50.9947	51.0954	51.14
10 (50)	39.91	39.9149	39.9938	39.99
15 (59)	31.44	31.4796	31.5417	31.52
20 (68)	24.95	25.0060	25.0554	25.02
25 (77)	19.94	20.0000	20.0395	20.00
30 (86)	16.04	16.1008	16.1326	16.10
35 (95)	12.99	13.0426	13.0683	13.04
40 (104)	10.58	10.6281	10.6490	10.62
45 (113)	8.669	8.7097	8.7269	8.707
50 (122)	7.143	7.1764	7.1905	7.176
55 (131)	5.918	5.9407	5.9524	5.947
60 (140)	4.928	4.9439	4.9536	4.953
65 (149)	4.123	4.1352	4.1434	4.146
70 (158)	3.467	3.4757	3.4825	3.487
75 (167)	–	2.9349	2.9407	2.946
80 (176)	–	2.4894	2.4943	2.499
85 (185)	–	2.1205	2.1247	2.130
90 (194)	–	1.8138	1.8173	1.822
95 (203)	–	1.5575	1.5605	1.565
100 (212)	1.339	1.3425	1.3451	1.349
105 (221)	–	1.1614	1.1636	1.167
Drawing No.	3SA48002, 3SA48004 (AD94A045)	3SA48001 (AD87A001)	3PA50504 (AD87A001)	3P150006 (ED97B002, ED01B012)

Table 2

Applicable thermistor	**Outdoor unit** FINTH: Radiation fin	**Outdoor unit** R2T: Discharge pipe
Thermistor temperature °C (°F)	Resistance (kΩ)	Resistance (kΩ)
–30 (–22)	354.1	4759
–25 (–13)	259.7	3454
–20 (–4)	192.6	2534
–15 (5)	144.2	1877
–10 (14)	109.1	1404
–5 (23)	83.25	1059
0 (32)	64.10	806.5
5 (41)	49.70	618.9
10 (50)	38.85	478.8
15 (59)	30.61	373.1
20 (68)	24.29	292.9
25 (77)	19.41	231.4
30 (86)	15.61	184.1
35 (95)	12.64	147.4
40 (104)	10.30	118.7
45 (113)	8.439	96.13
50 (122)	6.954	78.29
55 (131)	5.761	64.10
60 (140)	4.797	52.76
65 (149)	4.014	43.63
70 (158)	3.375	36.26
75 (167)	2.851	30.27
80 (176)	2.418	25.38
85 (185)	2.060	21.37
90 (194)	1.762	18.06
95 (203)	1.513	15.33
100 (212)	1.304	13.06
105 (221)	1.128	11.17
110 (230)	0.9790	9.585
115 (239)	0.8527	8.254
120 (248)	0.7450	7.131
125 (257)	0.6530	6.181
130 (266)	0.5741	5.374
135 (275)	–	4.686
140 (284)	–	4.098
145 (293)	–	3.594
150 (302)	–	3.161
Drawing No.	3PA61998 (AD92A057)	3SA48009 (AD970175)

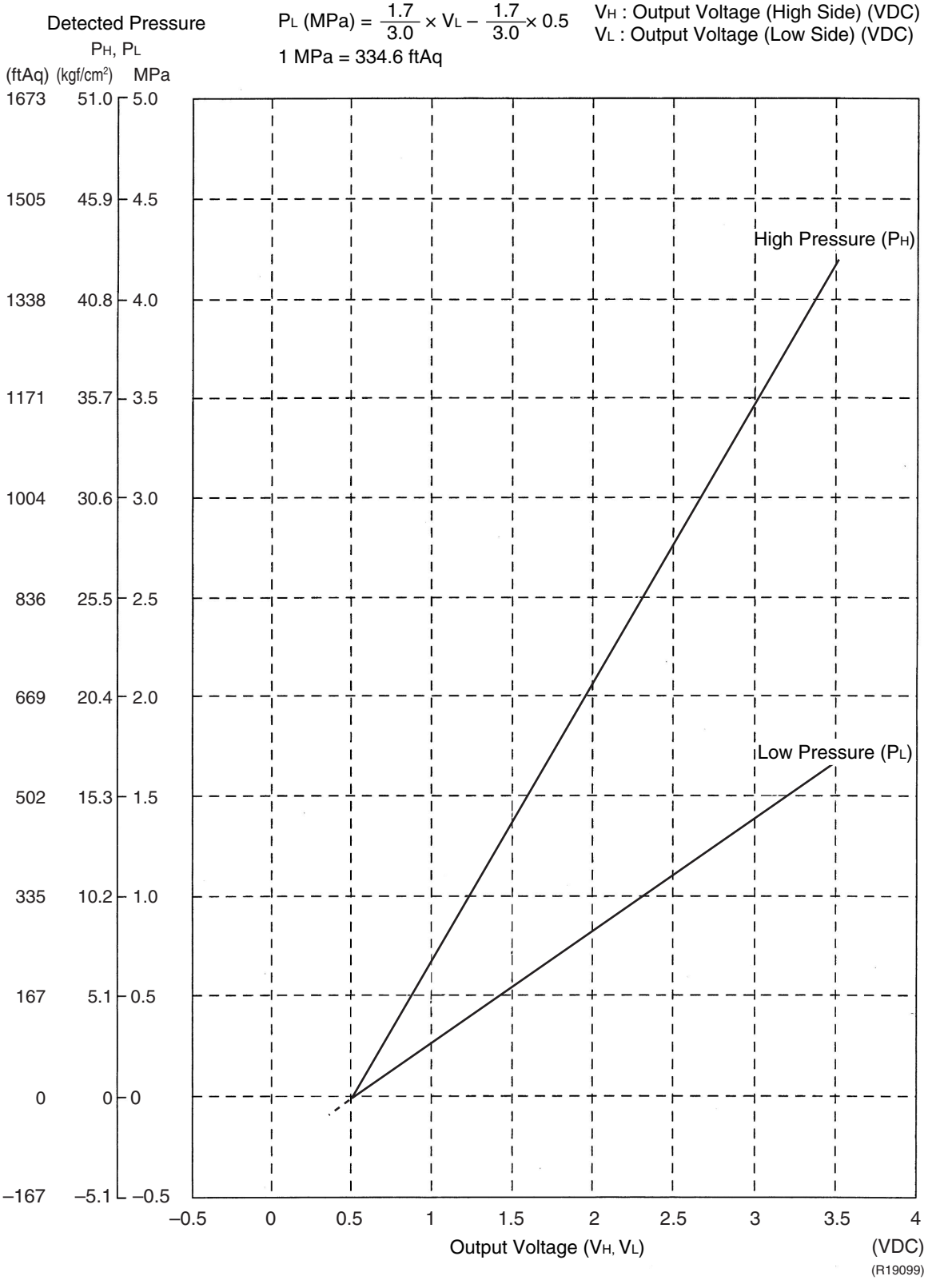
9. Pressure Sensor

$P_H\ (MPa) = \frac{4.15}{3.0} \times V_H - \frac{4.15}{3.0} \times 0.5$

$P_L\ (MPa) = \frac{1.7}{3.0} \times V_L - \frac{1.7}{3.0} \times 0.5$

1 MPa = 334.6 ftAq

P_H : High pressure
P_L : Low pressure
V_H : Output Voltage (High Side) (VDC)
V_L : Output Voltage (Low Side) (VDC)



10.Method of Replacing Inverter's Power Transistors Modules

Check the power semiconductors mounted on the main PCB (A1P) with a multimeter.

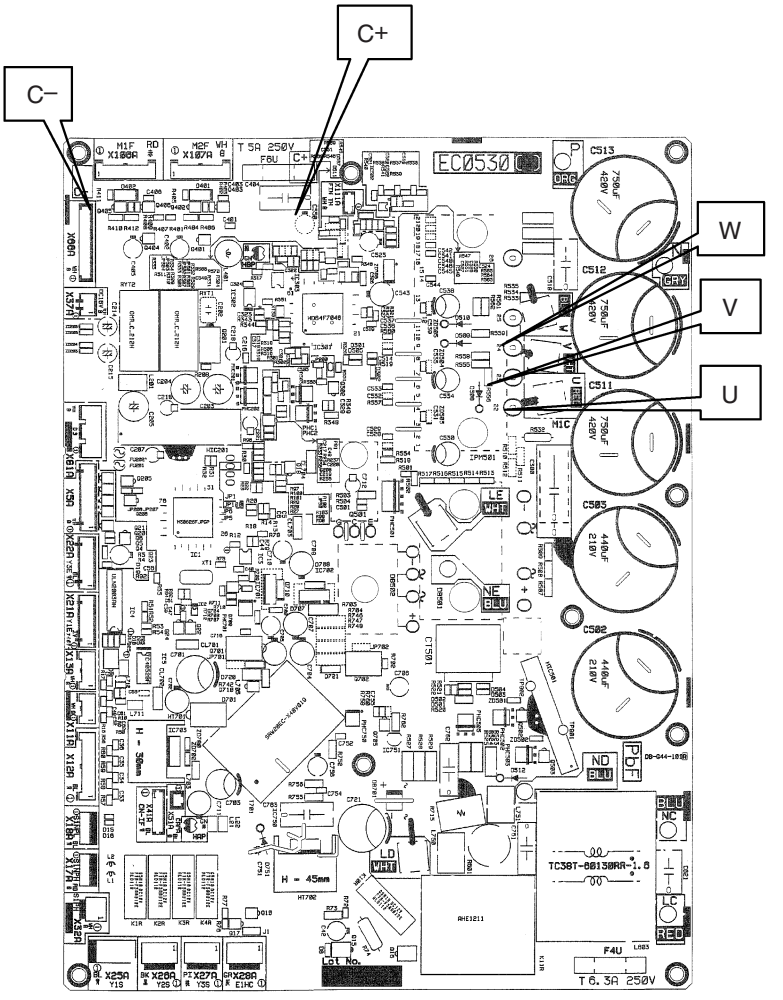
Items to be prepared

- Multimeter : Prepare the digital type of multimeter with diode check function.

Preparation

- Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.
- To make measurement, disconnect all connectors and terminals.

Main PCB (A1P)



(R13060)

Power module checking

When using the digital type of multimeter, make measurement in diode check mode.

Multimeter terminal		Criterion	Remark
+	–		
C+	U	Not less than 0.3 V (including ∞)*	It may take time to determine the voltage due to capacitor charge or else.
	V		
	W		
U	C–	Not less than 0.3 V (including ∞)*	
V			
W			
U	C+	0.3 ~ 0.7 V (including ∞)*	
V			
W			
C–	U	0.3 ~ 0.7 V (including ∞)*	
	V		
	W		

*There needs to be none of each value variation.

The following abnormalities are also doubted besides the PCB abnormality.

- Defective compressor (ground fault, ground leakage)
- Defective fan motor (ground leakage)

Part 9
Appendix

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   1.3 Indoor Unit 275
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   2.2 Branch Provider (BP) Unit 279
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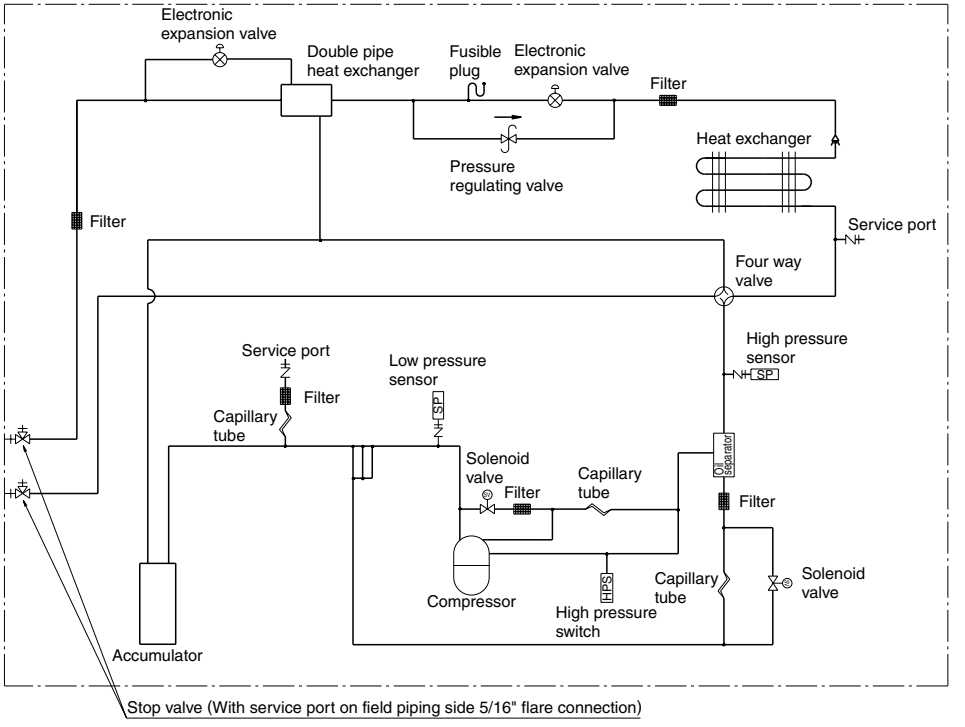
1. Piping Diagrams

1.1 Outdoor Unit

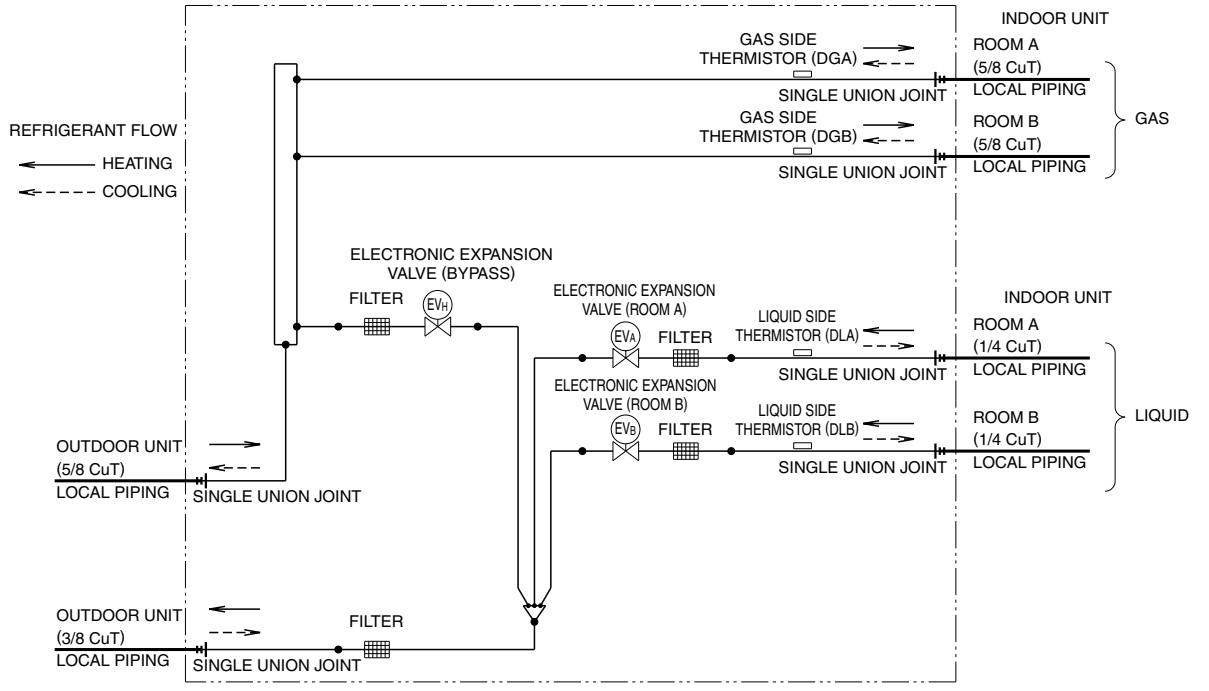
RMXS48LVJU



3D080741

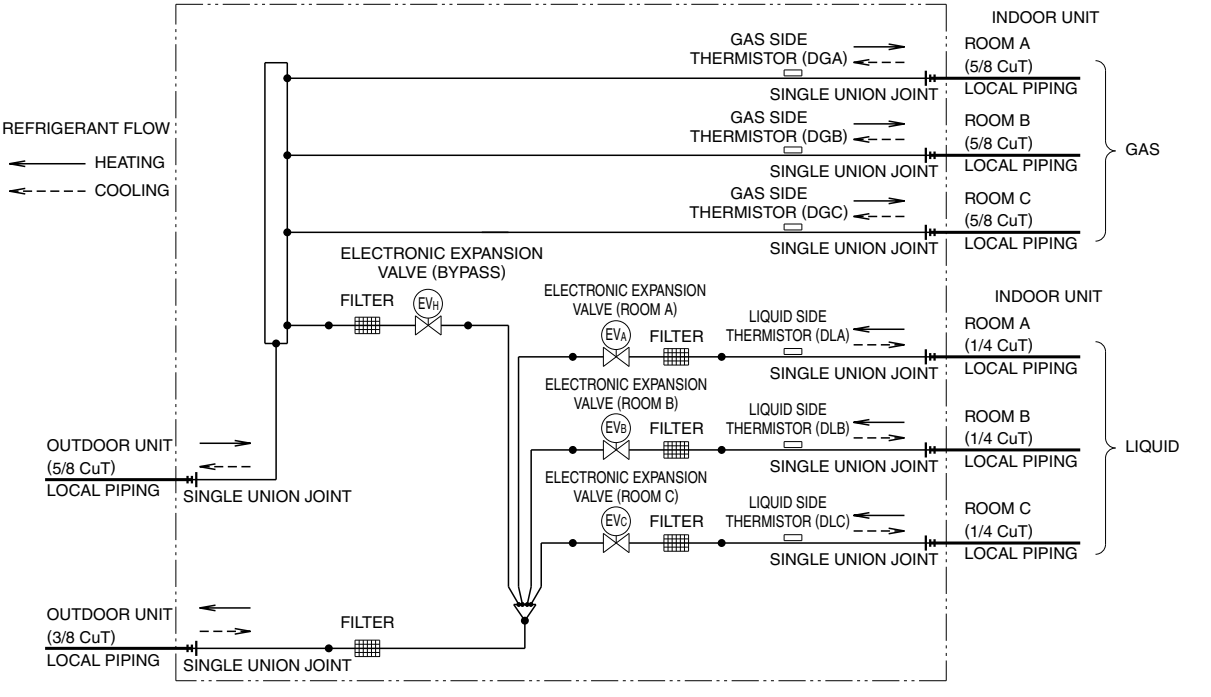
1.2 Branch Provider (BP) Unit

BPMKS048A2U



3D080438

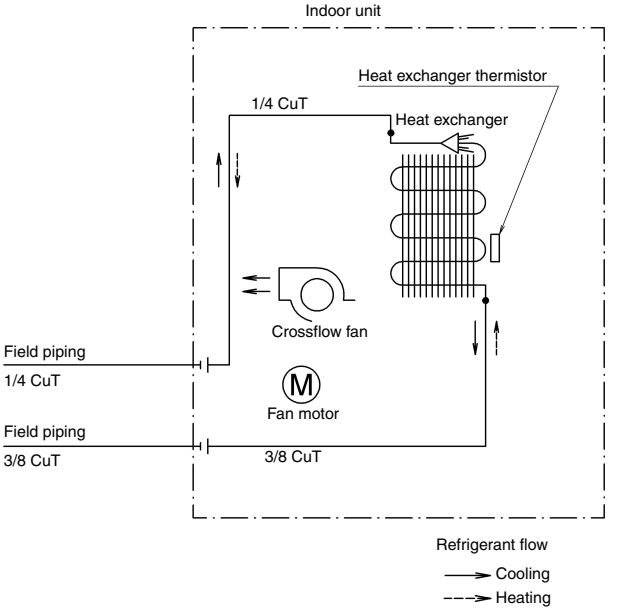
BPMKS049A3U



3D080437

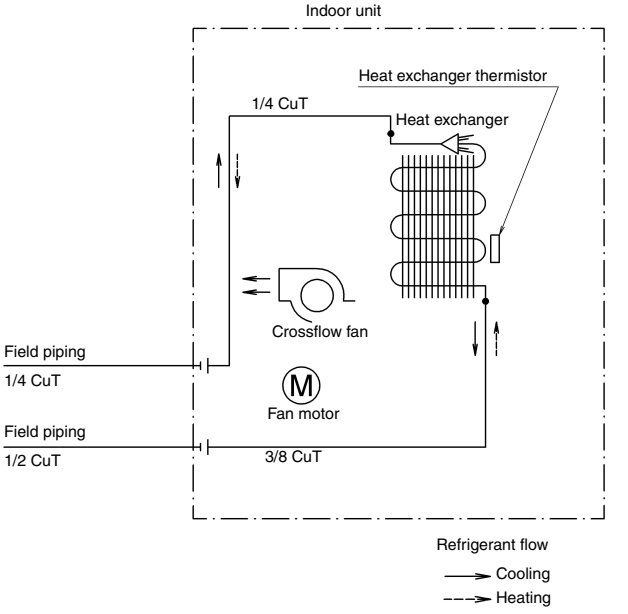
1.3 Indoor Unit

CTXG09/12QVJUW(S)



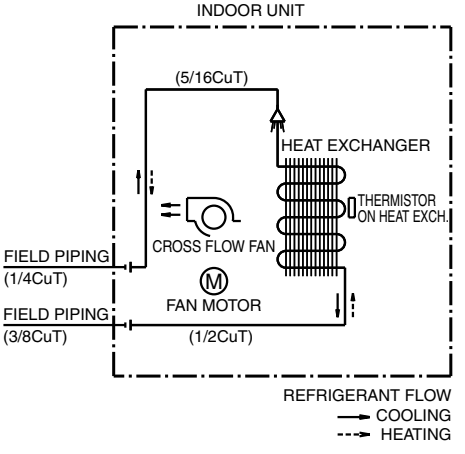
4D101008

CTXG18QVJUW(S)



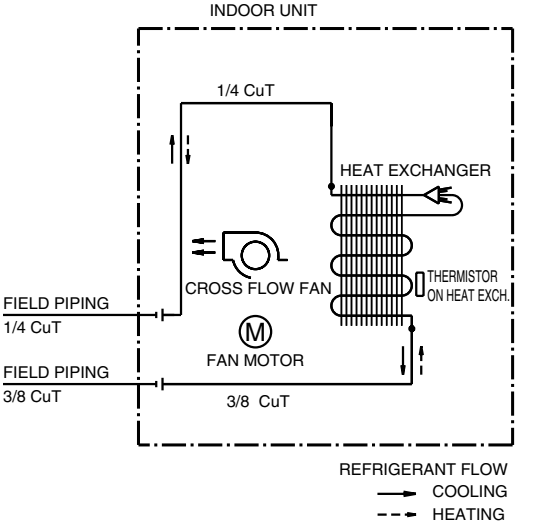
4D101010

CTXS07JVJU, CTXS09/12HVJU



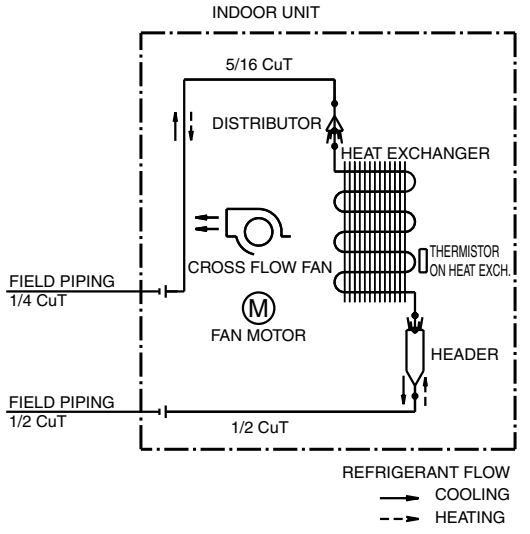
4D048251C

CTXS07LVJU, FTXS09/12LVJU



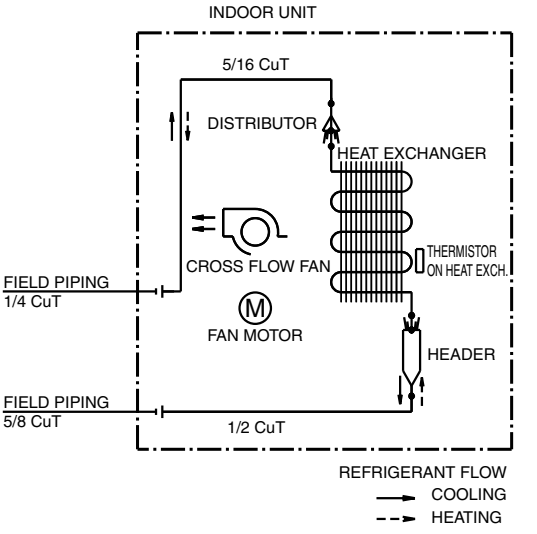
4D074606

FTXS15/18LVJU



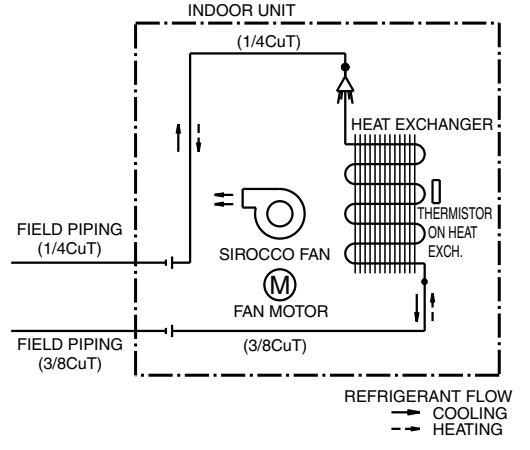
4D074609

FTXS24LVJU



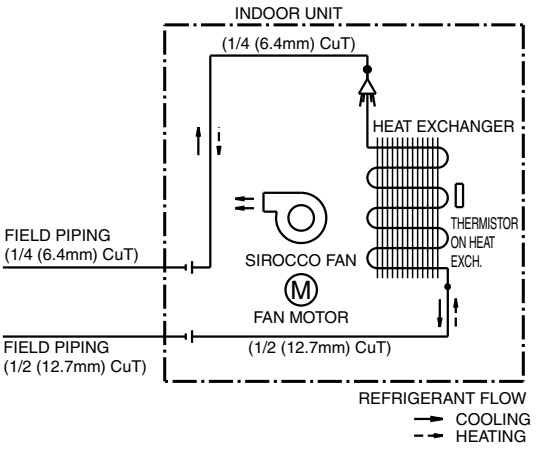
4D074608

FDXS09/12LVJU



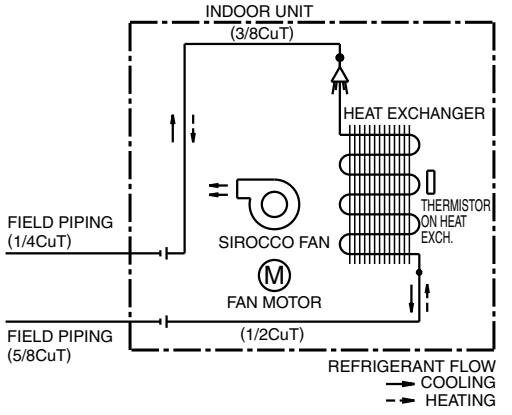
4D074621

CDXS15/18LVJU



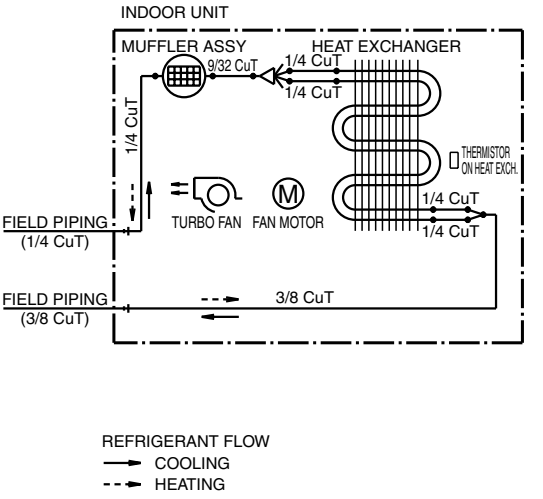
4D075271

CDXS24LVJU



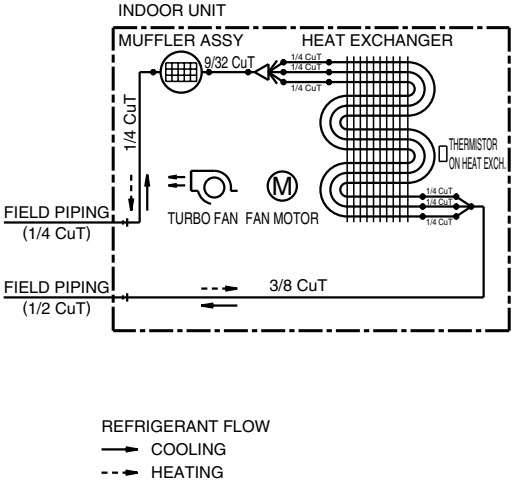
4D080593

FVXS09/12NVJU



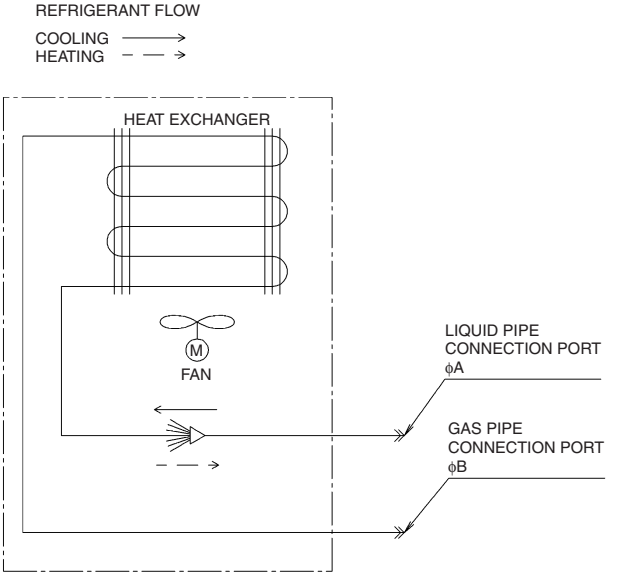
4D091794

FVXS15/18NVJU



4D091795A

FFQ09/12/15/18Q2VJU



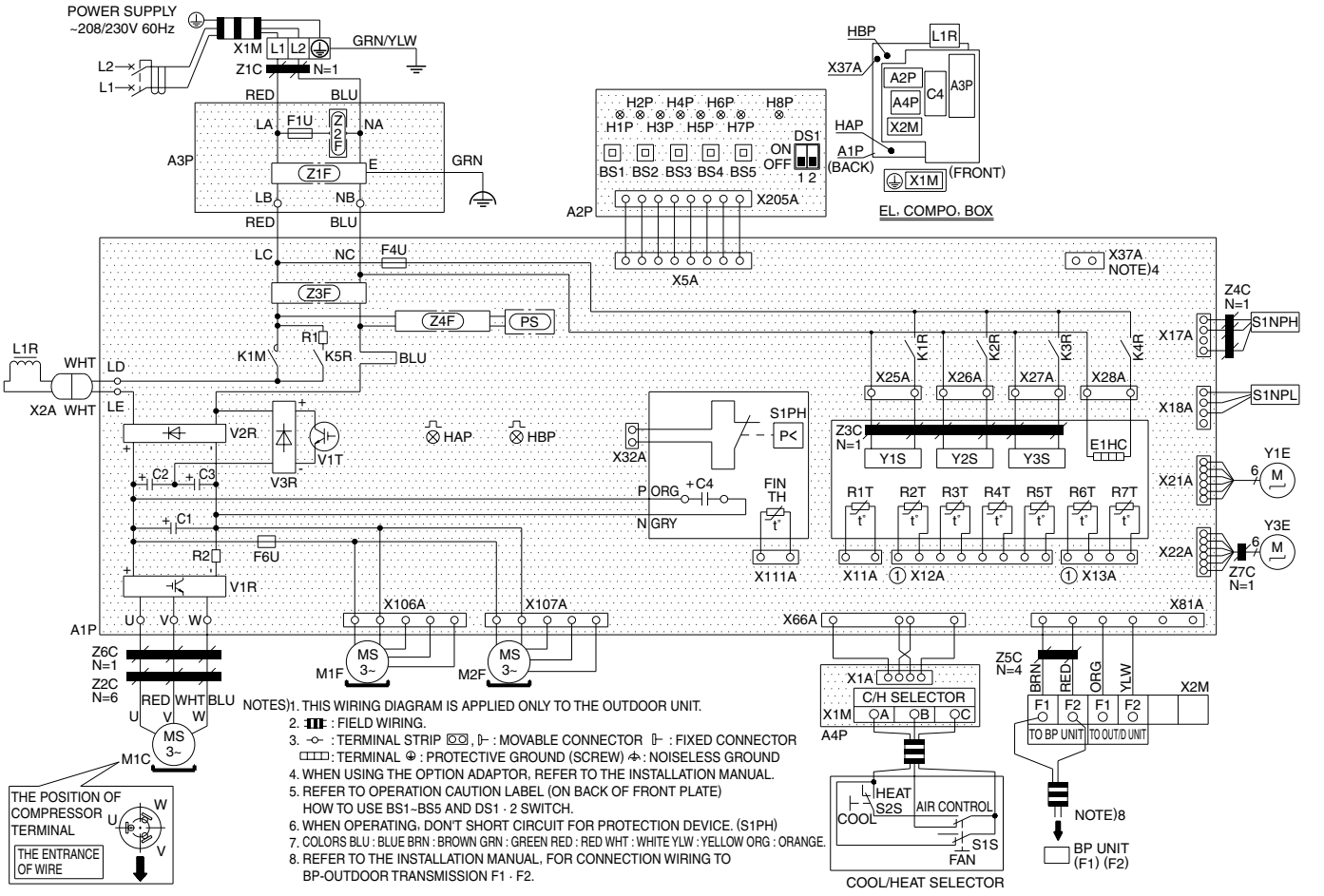
MODEL	A	B
FFQ09Q2VJU	1/4 (6.4)	3/8 (9.5)
FFQ12Q2VJU		
FFQ15Q2VJU		1/2 (12.7)
FFQ18Q2VJU		

4D106033

2. Wiring Diagrams

2.1 Outdoor Unit

RMXS48LVJU



NOTES)
1. THIS WIRING DIAGRAM IS APPLIED ONLY TO THE OUTDOOR UNIT.
2. : FIELD WIRING.
3. : TERMINAL STRIP , : MOVABLE CONNECTOR : FIXED CONNECTOR
: TERMINAL : PROTECTIVE GROUND (SCREW) : NOISELESS GROUND
4. WHEN USING THE OPTION ADAPTOR, REFER TO THE INSTALLATION MANUAL.
5. REFER TO OPERATION CAUTION LABEL (ON BACK OF FRONT PLATE)
HOW TO USE BS1~BS5 AND DS1 · 2 SWITCH.
6. WHEN OPERATING, DON'T SHORT CIRCUIT FOR PROTECTION DEVICE. (S1PH)
7. COLORS BLU : BLUE BRN : BROWN GRN : GREEN RED : RED WHT : WHITE YLW : YELLOW ORG : ORANGE.
8. REFER TO THE INSTALLATION MANUAL, FOR CONNECTION WIRING TO
BP-OUTDOOR TRANSMISSION F1 · F2.

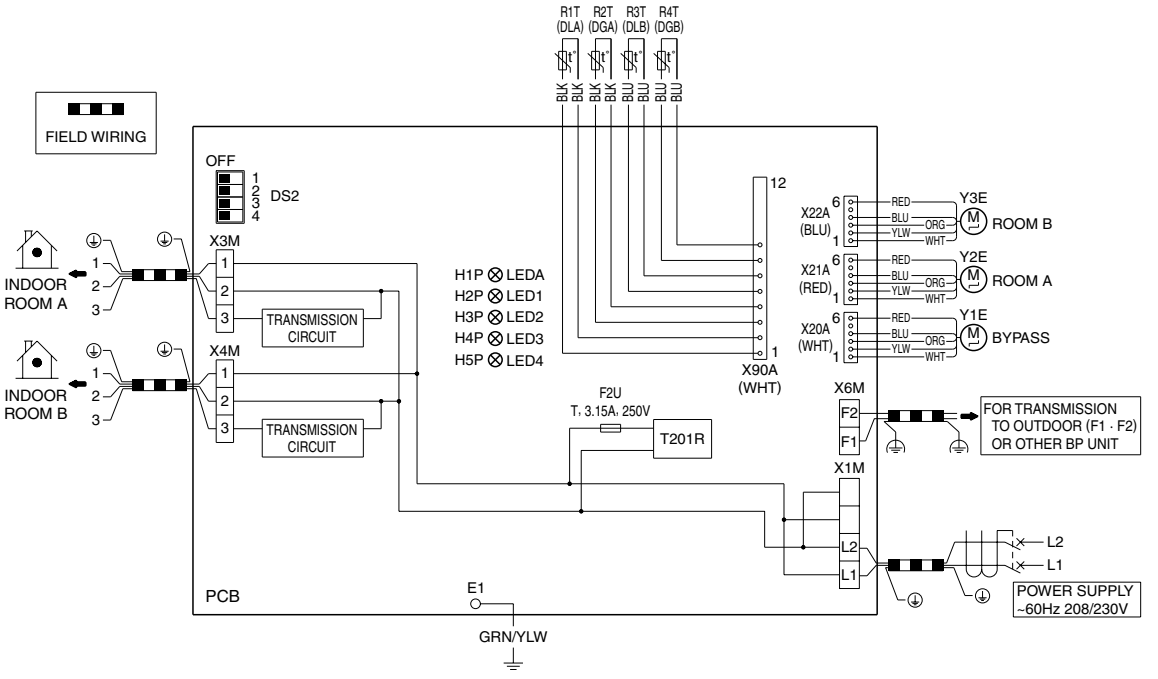
L1-RED	L2-BLU	K2R	MAGNETIC RELAY (Y2S)	S1PH	PRESSURE SWITCH (HIGH)
A1P	PRINTED CIRCUIT BOARD (MAIN)	K3R	MAGNETIC RELAY (Y3S)	V1R	POWER MODULE
A2P	PRINTED CIRCUIT BOARD (SERVICE)	K4R	MAGNETIC RELAY (E1HC)	V2R, V3R	DIODE MODULE
A3P	PRINTED CIRCUIT BOARD (NOISE FILTER)	K5R	MAGNETIC RELAY	V1T	IGBT
A4P	PRINTED CIRCUIT BOARD (C/H SELECTOR)	L1R	REACTOR	X1M	TERMINAL STRIP (POWER SUPPLY)
BS1~5	PUSH BUTTON SWITCH (MODE, SET, RETURN, TEST, RESET)	M1C	MOTOR (COMPRESSOR)	X2M	TERMINAL STRIP (CONTROL)
		M1F	MOTOR (FAN) (UPPER)	X1M	TERMINAL STRIP (C/H SELECTOR) (A4P)
C1~4	CAPACITOR	M2F	MOTOR (FAN) (LOWER)	Y1E	ELECTRONIC EXPANSION VALVE (MAIN)
DS1	DIP SWITCH	PS	POWER SUPPLY	Y3E	ELECTRONIC EXPANSION VALVE (SUB COOL)
E1HC	CRANKCASE HEATER	R1	RESISTOR	Y1S	SOLENOID VALVE (4 WAY VALVE)
F1U, F4U	FUSE (T 6.3A/250V)	R2	RESISTOR	Y2S	SOLENOID VALVE (HOT GAS)
F6U	FUSE (T 5.0A/250V)	R1T	THERMISTOR (AIR)	Y3S	SOLENOID VALVE (U/L CIRCUIT)
H1P~8P	PILOT LAMP (SERVICE MONITOR-ORANGE)	R2T	THERMISTOR (M1C DISCHARGE)	Z1C~7C	NOISE FILTER (FERRITE CORE)
	H2P: PREPARE, TEST----------FLICKERING	R3T	THERMISTOR (SUCTION1)	Z1F~4F	NOISE FILTER
	MALFUNCTION DETECTION--LIGHT UP	R4T	THERMISTOR (COIL)	C/H SELECTOR	
HAP	OPERATION PILOT LAMP (SERVICE MONITOR-GREEN) (A1P)	R5T	THERMISTOR (SUCTION2)	S1S	SELECTOR SWITCH (FAN/COOL · HEAT)
		R6T	THERMISTOR (SUBCOOL)	S2S	SELECTOR SWITCH (COOL/HEAT)
HBP	INV. PILOT LAMP (SERVICE MONITOR-GREEN) (A1P)	R7T	THERMISTOR (LIQUID)	CONNECTOR OF OPTION ADAPTOR	
		FINTH	THERMISTOR (FIN)	X37A	CONNECTOR
K1M	MAGNETIC CONTACTOR	S1NPH	PRESSURE SENSOR (HIGH)	NOTE)4	(OPTION ADAPTOR POWER SUPPLY)
K1R	MAGNETIC RELAY (Y1S)	S1NPL	PRESSURE SENSOR (LOW)		

C: 3D080424

Note: A1P: Main PCB
A2P: Service PCB
A3P: Noise filter PCB
A4P: Cool/heat selector PCB
Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.

2.2 Branch Provider (BP) Unit

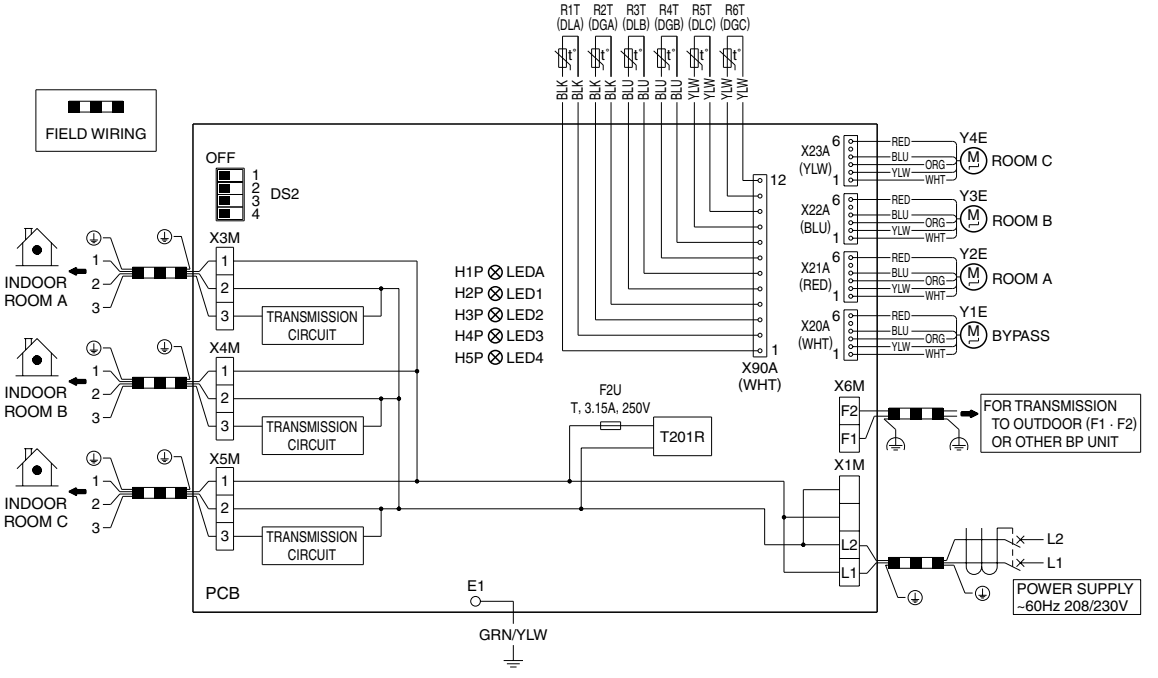
BPMKS048A2U



X20A~X22A, X90A	: CONNECTOR	H1P~H5P	: PILOT LAMP	T201R	: TRANSFORMER
PCB	: PRINTED CIRCUIT BOARD	R1T~R4T	: THERMISTOR	X1M, X3M, X4M, X6M	: TERMINAL STRIP
F2U	: FUSE	DS2	: DIP SWITCH	Y1E~Y3E	: MOTOR OPERATED VALVE COIL

3D079641

BPMKS049A3U

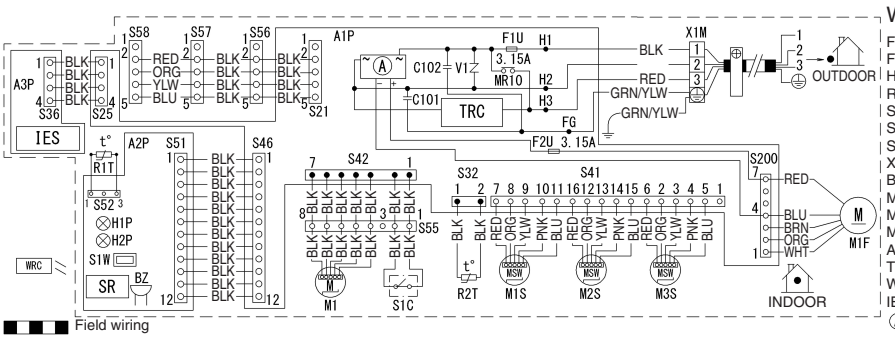


X20A~X23A, X90A	: CONNECTOR	H1P~H5P	: PILOT LAMP	T201R	: TRANSFORMER
PCB	: PRINTED CIRCUIT BOARD	R1T~R6T	: THERMISTOR	X1M, X3M~X6M	: TERMINAL STRIP
F2U	: FUSE	DS2	: DIP SWITCH	Y1E~Y4E	: MOTOR OPERATED VALVE COIL

3D079640

2.3 Indoor Unit

CTXG09/12/18QVJUW(S)



Wiring diagram

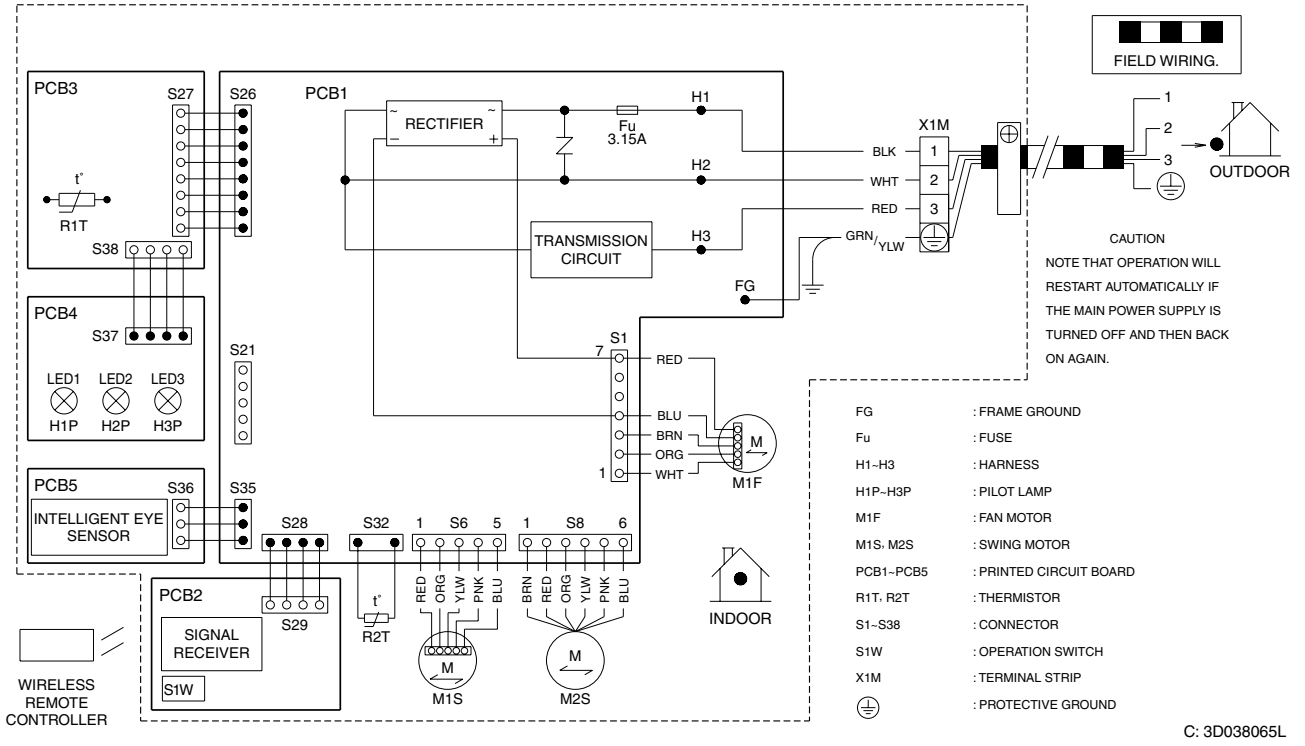
FG	: Frame ground	SR	: Signal receiver
F1U, F2U	: Fuse	Ⓖ	: Ground
H1P, H2P	: Pilot lamp	H1-H3	: Harness
R1T, R2T	: Thermistor	MR10	: Magnetic relay
S25-S200	: Connector	V1	: Varistor
S1W	: Operation switch	C101, C102	: Capacitor
S1C	: Limit switch		
X1M	: Terminal strip		
BZ	: Buzzer		
M1F	: Fan motor		
M1S-M3S	: Swing motor		
M1	: Stepper motor		
A1P-A3P	: Printed circuit board		
TRC	: Transmission circuit		
WRC	: Wireless remote control		
IES	: Intelligent Eye sensor		
Ⓐ	: Rectifier		

NOTE When the main power is turned off and then back on again, operation will resume automatically.

3D103375

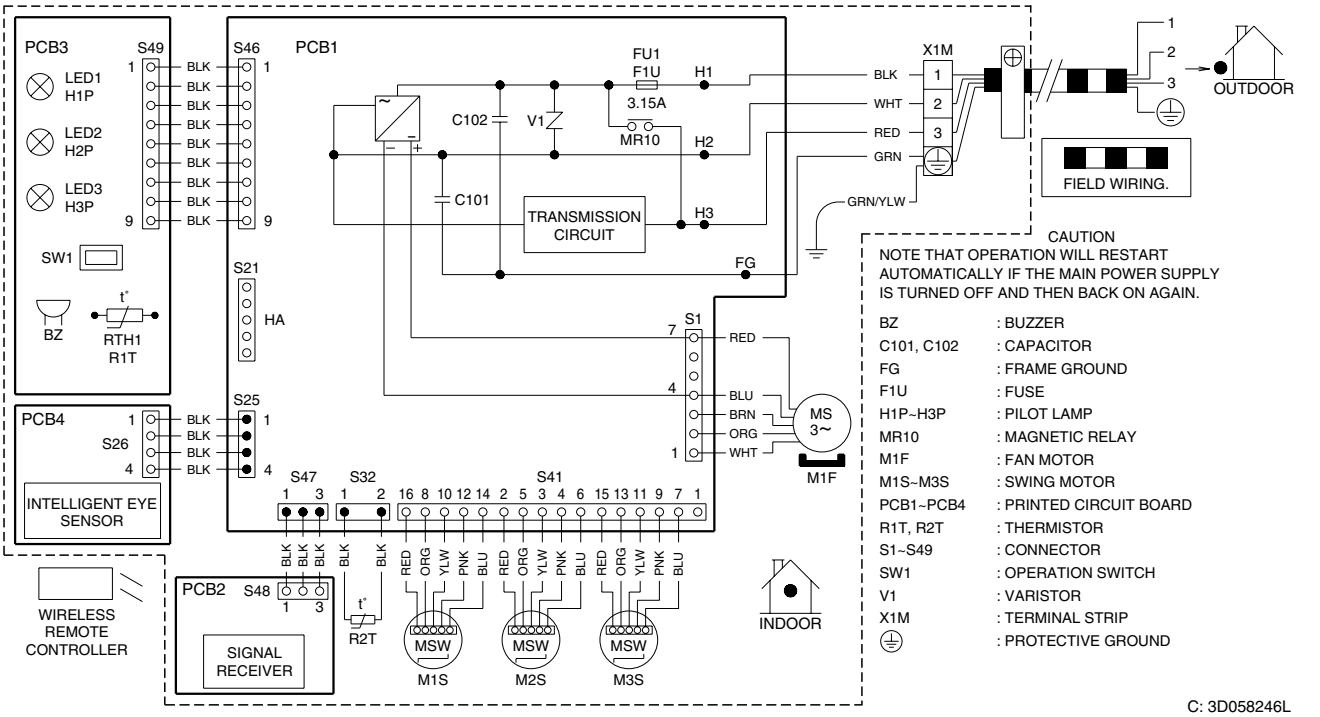
Note: A1P: Control PCB
A2P: Display/signal receiver PCB
A3P: INTELLIGENT EYE sensor PCB
Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.

CTXS07JVJU, CTXS09/12HVJU



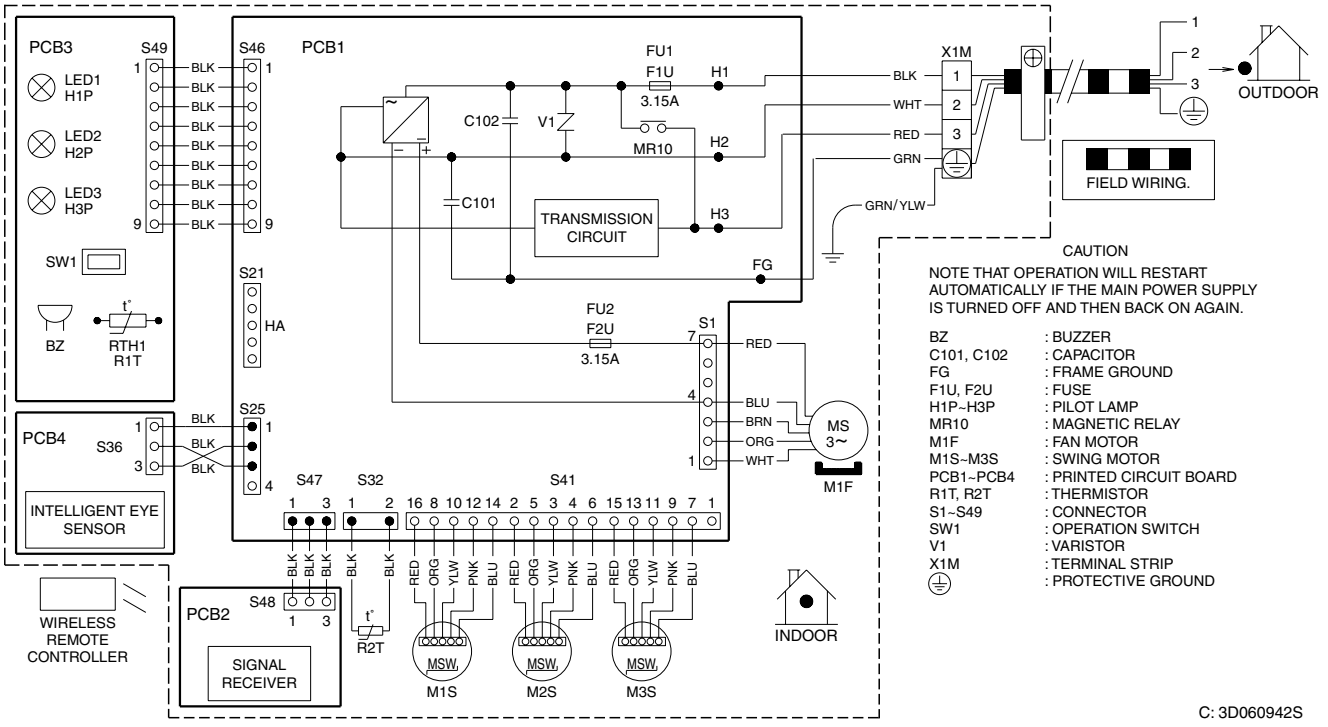
Note: PCB1: Control PCB
PCB2: Signal receiver PCB
PCB3: Buzzer PCB
PCB4: Display PCB
PCB5: INTELLIGENT EYE sensor PCB
Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.

CTXS07LVJU, FTXS09/12LVJU



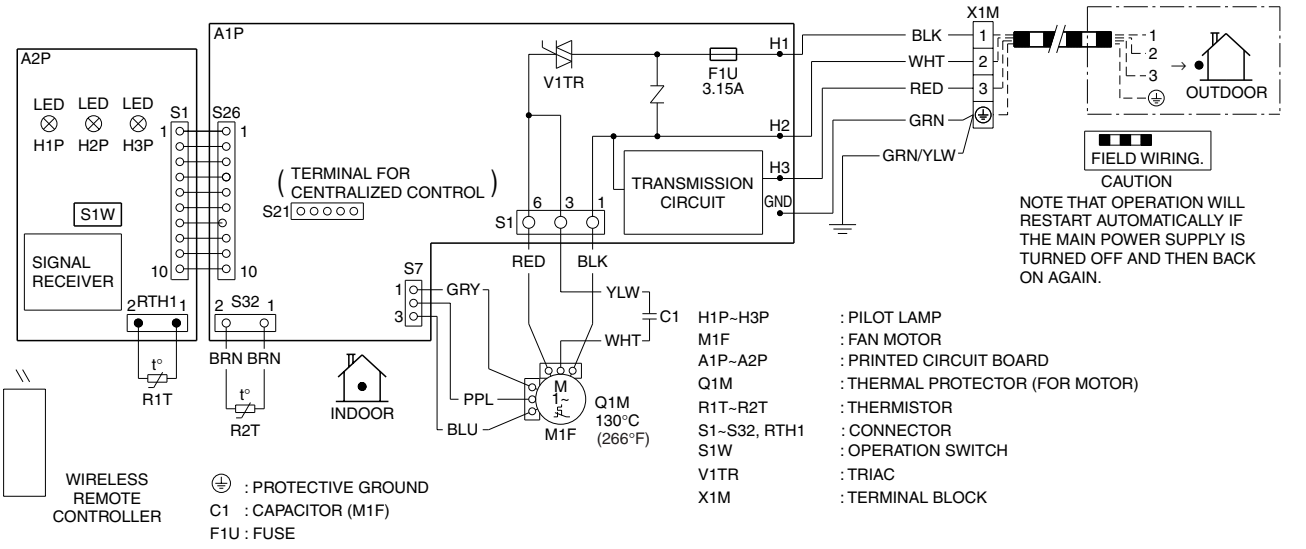
Note: PCB1: Control PCB
PCB2: Signal receiver PCB
PCB3: Display/signal receiver PCB
PCB4: INTELLIGENT EYE sensor PCB
Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.

FTXS15/18/24LVJU



Note: PCB1: Control PCB
PCB2: Signal receiver PCB
PCB3: Display PCB
PCB4: INTELLIGENT EYE sensor PCB
Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.

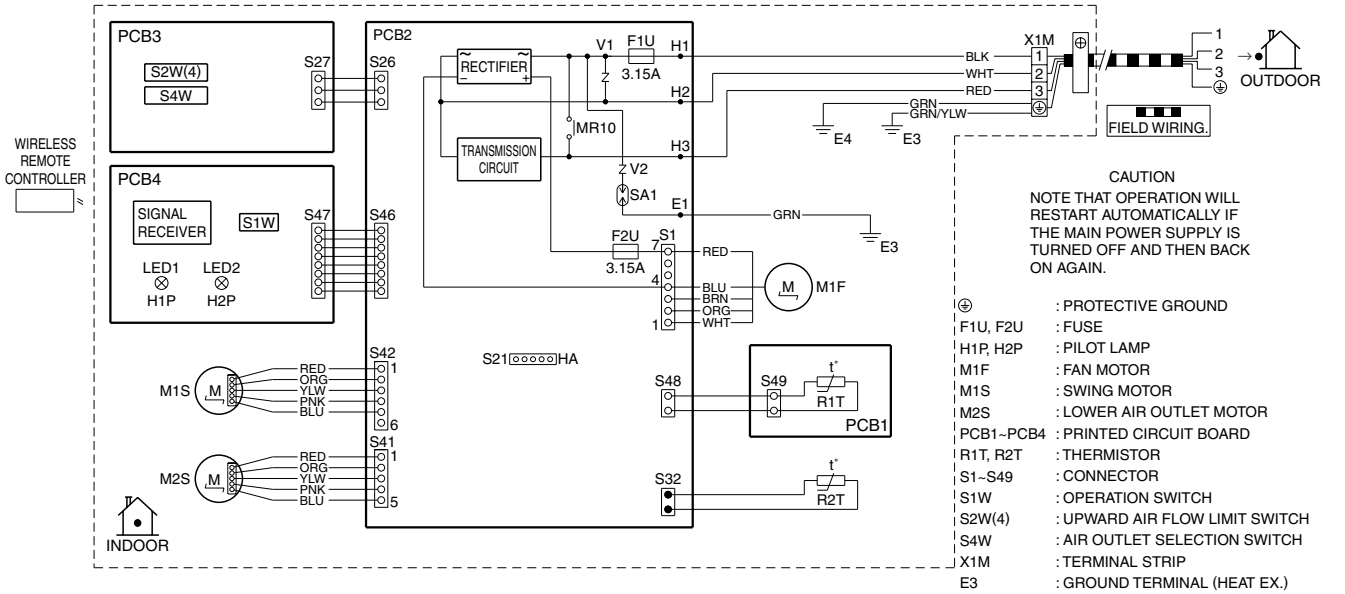
FDXS09/12LVJU, CDXS15/18/24LVJU



C: 3D073998B

Note: A1P: Control PCB
A2P: Display/signal receiver PCB
Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.

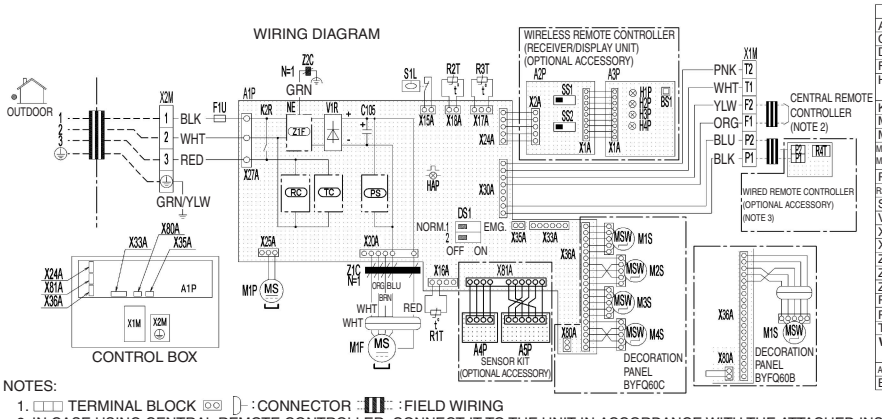
FVXS09/12/15/18NVJU



C: 3D090604A

Note: PCB1: Sensor PCB
PCB2: Control PCB
PCB3: Service PCB
PCB4: Display/signal receiver PCB
Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.

FFQ09/12/15/18Q2VJU



INDOOR UNIT		H1P	PILOT LAMP (ON-RED)
A1P	PRINTED CIRCUIT BOARD	H2P	PILOT LAMP (TIMER-GREEN)
C105	CAPACITOR (M1F)		
DS1	DIP SWITCH ON PCB	H3P	PILOT LAMP (FILTER SIGN-RED)
F1U	FUSE (F, 5A, 250V)		
HAP	FLASHING LAMP (SERVICE MONITOR GREEN)	H4P	PILOT LAMP (DEFROST-ORANGE)
K2R	MAGNETIC RELAY	SS1	SELECTOR SWITCH (MAIN/SUB)
M1F	FAN MOTOR		
M1P	DRAIN PUMP MOTOR	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
M1S•M2S M3S•M4S	SWING MOTOR		
			SENSOR KIT
R1T	THERMISTOR (AIR)	A4P	PRINTED CIRCUIT BOARD
R2T•R3T	THERMISTOR (COIL)	A5P	PRINTED CIRCUIT BOARD
S1L	FLOAT SWITCH		**WIRED REMOTE CONTROLLER**
V1R	DIODE BRIDGE	R4T	THERMISTOR (AIR)
X1M	TERMINAL BLOCK		**CONNECTOR FOR OPTIONAL PARTS**
X2M	TERMINAL BLOCK	X24A	CONNECTOR (WIRING REMOTE CONTROLLER)
Z1F	NOISE FILTER		
Z1C	FERRITE CORE	X33A	CONNECTOR (ADAPTOR FOR WIRING)
Z2C	FERRITE CORE		
PS	SWITCHING POWER SUPPLY	X35A	CONNECTOR (POWER SUPPLY FOR ADAPTOR)
RC	RECEIVER		
TC	TRANSMITTER	X81A	CONNECTOR (SENSOR KIT)
WIRELESS REMOTE CONTROLLER (RECEIVER/DISPLAY UNIT)			
A2P•A3P	PRINTED CIRCUIT BOARD		
BS1	PUSH BUTTON SWITCH ON PCB		

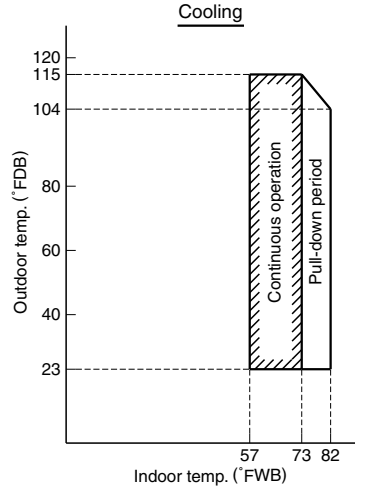
NOTES:
1. TERMINAL BLOCK CONNECTOR FIELD WIRING
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. IN CASE OF MAIN/SUB CHANGEOVER, SEE THE INSTALLATION MANUAL ATTACHED TO WIRELESS REMOTE CONTROLLER.
4. SYMBOLS SHOW AS FOLLOWS: BLK: BLACK RED: RED BLU: BLUE WHT: WHITE YLW: YELLOW GRN: GREEN ORG: ORANGE BRN: BROWN PNK: PINK.

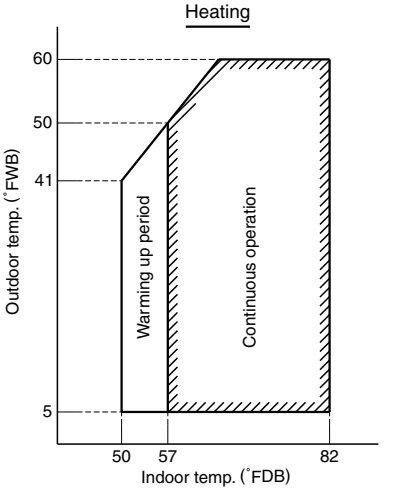
3D106024

Note: A1P: Control PCB
A2P: Transmitter board for wireless remote controller
A3P: Receiver for wireless remote controller
Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.

3. Operation Limit

RMXS48LVJU





Notes :
The graphs are based on the following conditions.
- Equivalent piping length
  - From outdoor unit to BP unit 16.4ft
  - From BP unit to each indoor units 9.8ft
- Level difference 0ft
- Air flow rate High

3D080742

Revision History

Month / Year	Version	Revised contents
09 / 2016	SiUS181631E	First edition
03 / 2017	SiUS181631EA	Model addition: FFQ18Q2VJU

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.

Dealer

●Specifications, designs and other content appearing in this brochure are current as of March 2017 but subject to change without notice.

SiUS181631EA
Printed in U.S.A. 03/2017 B AK