DAIKIN

SiAF332111E

R-410A

Service Manual

VRV S

RXQ4/5ARV1
RXMQ6ARV1
RXMQ8/10/12ARY1

Cooling Only 50/60 Hz

Introduction

1. Safety Cautions

Be sure to read the following safety cautions before conducting repair work.
After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer.

	This manual is for the person in charge of maintenance and inspection.

Caution Items

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

Pictograms

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

1.1 Warnings and Cautions Regarding Safety of Workers

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

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

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

1.2 Warnings and Cautions Regarding Safety of Users

Warning	
Do not store the equipment in a room with fire sources (e.g., naked flames, gas appliances, electric heaters).	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools may cause an electrical shock, excessive heat generation or fire.	
If the power cable and lead wires are scratched or have deteriorated, be sure to replace them. Damaged cable and wires may cause an electrical shock, excessive heat generation or fire.	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it may cause an electrical shock, excessive heat generation or fire.	
Be sure to use an exclusive power circuit for the equipment, and follow the local technical standards related to the electrical equipment, the internal wiring regulations, and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work may cause an electrical shock or fire.	
Be sure to use the specified cable for wiring between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections may cause excessive heat generation or fire.	
When wiring between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section may cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cables may cause an electrical shock or fire. Placing heavy items on the power cable, or heating or pulling the power cable may damage it.	
Do not mix air or gas other than the specified refrigerant (R-32 / R-410A / R-22) in the refrigerant system. If air enters the refrigerant system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leaking point and repair it before charging the refrigerant. After charging the refrigerant, make sure that there is no leak. If the leaking point cannot be located and the repair work must be stopped, be sure to pump-down, and close the service valve, to prevent refrigerant gas from leaking into the room. Refrigerant gas itself is harmless, but it may generate toxic gases when it contacts flames, such as those from fan type and other heaters, stoves and ranges.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength or the installation work is not conducted securely, the equipment may fall and cause injury.	

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet securely. If the plug is dusty or has a loose connection, it may cause an electrical shock or fire.	
When replacing the coin battery in the remote controller, be sure to dispose of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If combustible gas leaks and remains around the unit, it may cause a fire.	
Check to see if parts and wires are mounted and connected properly, and if connections at the soldered or crimped terminals are secure. Improper installation and connections may cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. A corroded installation platform or frame may cause the unit to fall, resulting in injury.	
Check the earth / grounding, and repair it if the equipment is not properly earthed / grounded. Improper earth / grounding may cause an electrical shock.	
Be sure to measure insulation resistance after the repair, and make sure that the resistance is 1 MΩ or higher. Faulty insulation may cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage may cause water to enter the room and wet the furniture and floor.	
Do not tilt the unit when removing it. The water inside the unit may spill and wet the furniture and floor.	

2. Icons Used

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

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

3. Revision History

Month / Year	Version	Revised contents
12 / 2021	SiAF332111E	First edition

Part 1
General Information

1. Model Names

1.1 Outdoor Unit

Capacity range	HP	4	5	6	8	10	12	Power supply, Standard
	kW	11.2	14.0	16.0	22.4	28.0	33.5	
Capacity index		100	125	150	200	250	300	
Cooling Only	RXQ	4AR	5AR	—	—	—	—	V1
	RXMQ	—	—	6AR	—	—	—	
		—	—	—	8AR	10AR	12AR	Y1

V1: 1 phase, 220-240 V, 50/60 Hz
Y1: 3 phase, 380-415 V, 50/60 Hz

1.2 *VRV* Indoor Unit

Capacity range		kW	2.2	2.8	3.6	4.5	5.6	7.1	9.0	11.2	14.0	16.0	Power supply, Standard
		HP	0.8	1	1.25	1.6	2	2.5	3.2	4	5	6	
Capacity index			20	25	31.25	40	50	62.5	80	100	125	140	
Ceiling mounted cassette	Round flow cassette with sensing	FXFSQ	—	25AR	32AR	40AR	50AR	63AR	80AR	100AR	125AR	140AR	V1
Ceiling concealed duct	Middle-high static pressure duct	FXMQ	—	—	—	40PB	50PB	63PB	80PB	100PB	125PB	140PB	
			—	—	—	40AR	50AR	63AR	80AR	100AR	—	—	
Wall mounted		FXAQ	20P	25P	32P	—	—	—	—	—	—	—	VE
			—	—	—	40P	50P	63P	—	—	—	—	VER1

Power supply and standard symbols
V1: 1 phase, 230 V, 50/60 Hz (for Africa)
VE, VER1: 1 phase, 220-240/220 V, 50/60 Hz

2. External Appearance

2.1 Outdoor Unit

4, 5 HP	6, 8 HP	10, 12 HP
		
RXQ4ARV1 RXQ5ARV1	RXMQ6ARV1 RXMQ8ARY1	RXMQ10ARY1 RXMQ12ARY1

2.2 *VRV* Indoor Unit

Ceiling mounted cassette

Round flow cassette with sensing
FXFSQ-AR

Ceiling concealed duct

Middle-high static pressure duct
FXMQ-PB
FXMQ-AR

Wall mounted

Wall mounted type
FXAQ-P

3. Capacity Range

3.1 Connection Ratio

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

Type	Min. connection ratio	Max. connection ratio
Single outdoor units	50%	130%

3.2 Outdoor Unit Combinations

Model			RXQ4ARV1	RXQ5ARV1	RXMQ6ARV1	RXMQ8ARY1	RXMQ10ARY1	RXMQ12ARY1
kW			11.2	14.0	16.0	22.4	28.0	33.5
HP			4	5	6	8	10	12
Capacity index			100	125	150	200	250	300
Total capacity index of connectable indoor units	Combination (%)	50%	50	62.5	75	100	125	150
		100%	100	125	150	200	250	300
		130%	130	162.5	195	260	325	390
Maximum number of connectable indoor units			6	8	9	13	16	19

4. Specifications

Model Name			RXQ4ARV1	RXQ5ARV1
Power supply			1 phase, 220-240 V, 50/60 Hz	1 phase, 220-240 V, 50/60 Hz
★1 Cooling capacity		kW	11.2	14.0
Casing color			Ivory white	Ivory white
Dimensions: (H × W × D)		mm	990 × 940 × 320	990 × 940 × 320
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed swing type	Hermetically sealed swing type
	Motor output	kW	1.92	3.0
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output	W	200	200
	Airflow rate	m³/min	76	76
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	mm	ϕ9.5 (Flare connection)	ϕ9.5 (Flare connection)
	Gas pipe	mm	ϕ15.9 (Flare connection)	ϕ15.9 (Flare connection)
Mass		kg	72	79
Safety devices			High pressure switch, Fan driver overload protector, Inverter overload protector, Fuse, Overvoltage PCB	High pressure switch, Fan driver overload protector, Inverter overload protector, Fuse, Overvoltage PCB
Capacity control		%	24-100	16-100
Refrigerant	Refrigerant name		R-410A	R-410A
	Charge	kg	2.9	3.4
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Clamps	Installation manual, Operation manual, Clamps
Drawing No.			4D137201	4D137201

Notes:
★1. Indoor temp.: 27°CDB, 19°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5 m, level difference: 0 m.

Model Name			RXMQ6ARV1	RXMQ8ARY1
Power supply			1 phase, 220-240 V, 50/60 Hz	3 phase, 380-415 V, 50/60 Hz
★1 Cooling capacity		kW	16.0	22.4
Casing color			Ivory white (5Y7.5/1)	Ivory white (5Y7.5/1)
Dimensions: (H × W × D)		mm	870 × 1,100 × 460	870 × 1,100 × 460
Heat exchanger			Cross fin coil (3 rows and 38 stages)	Cross fin coil (3 rows and 38 stages)
Compressor	Type		Hermetically sealed swing type	Hermetically sealed swing type
	Displacement	m^3/min	8.8	13.1
	Number of revolution	r/min	4,188	5,190
	Motor output × Number of unit	kW	3.5 × 1	3.2 × 1
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output	W	234 × 1	600 × 1
	Airflow rate	m^3/min	87	123
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	mm	ϕ9.5 (Flare connection)	ϕ9.5 (Flare connection)
	Gas pipe	mm	ϕ19.1 (Brazing connection)	ϕ19.1 (Brazing connection)
Mass		kg	97	115
Safety devices			High pressure switch, Fan driver overload protector, Inverter overload protector, Fuse, Bimetal thermostat (External overload relay)	High pressure switch, Fan driver overload protector, Inverter overload protector, Fuse, Bimetal thermostat (External overload relay), Overvoltage PCB
Capacity control		%	16-100	9-100
Refrigerant	Refrigerant name		R-410A	R-410A
	Charge	kg	4.2	5.4
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Auxiliary pipe, Ferrite core, etc.	Installation manual, Operation manual, Auxiliary pipe, etc.
Drawing No.			C: 3D132642B	C: 3D132713C

Notes:
★1. Indoor temp.: 27°CDB, 19°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5 m, level difference: 0 m.

Model Name			RXMQ10ARY1	RXMQ12ARY1
Power supply			3 phase, 380-415 V, 50/60 Hz	3 phase, 380-415 V, 50/60 Hz
★1 Cooling capacity		kW	28.0	33.5
Casing color			Ivory white	Ivory white
Dimensions: (H × W × D)		mm	1,627 × 940 × 460	1,627 × 940 × 460
Heat exchanger			Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Motor output	kW	5.7	6.9
	Starting method		Soft start	Soft start
Fan	Type		Propeller fan	Propeller fan
	Motor output	W	200 × 2	200 × 2
	Airflow rate	m³/min	182	182
	Drive		Direct drive	Direct drive
Connecting pipes	Liquid pipe	mm	ϕ9.5 (Brazing connection)	ϕ12.7 (Brazing connection)
	Gas pipe	mm	ϕ22.2 (Brazing connection)	ϕ25.4 (Brazing connection)
Mass		kg	165	170
Safety devices			High pressure switch, Fan driver overload protector, Inverter overload protector, Fuse, Overvoltage PCB	High pressure switch, Fan driver overload protector, Inverter overload protector, Fuse, Overvoltage PCB
Capacity control		%	11-100	11-100
Refrigerant	Refrigerant name		R-410A	R-410A
	Charge	kg	7.0	8.0
	Control		Electronic expansion valve	Electronic expansion valve
Standard accessories			Installation manual, Operation manual, Clamps, Auxiliary piping	Installation manual, Operation manual, Clamps, Auxiliary piping
Drawing No.			3D122350C	3D122350C

Notes:
★1. Indoor temp.: 27°CDB, 19°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5 m, level difference: 0 m.

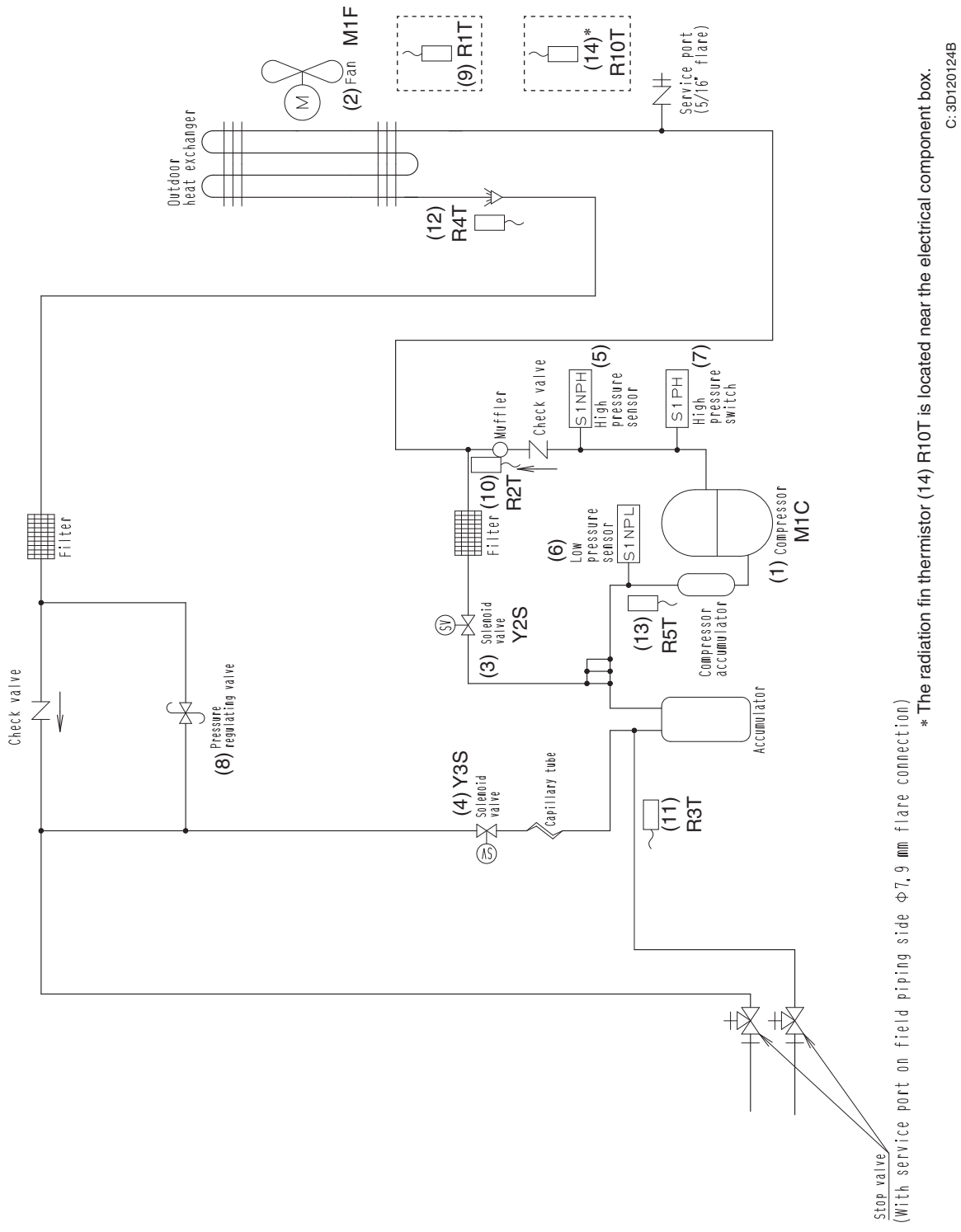
Part 2
Refrigerant Circuit

1. Refrigerant Circuit (Piping Diagrams)

1.1 Outdoor Unit

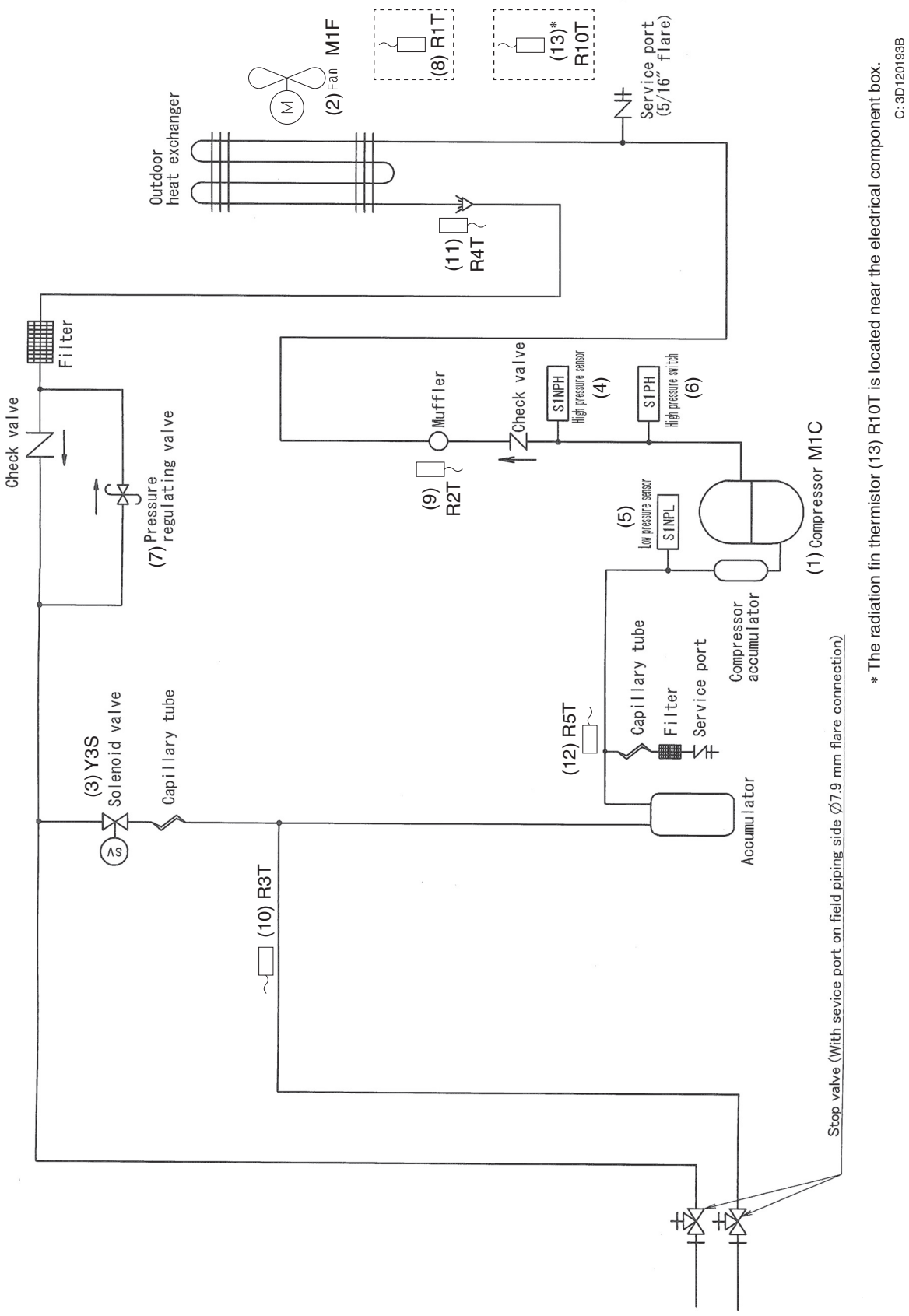
1.1.1 RXQ4ARV1

No. in piping diagram	Electric Symbol	Name	Function
(1)	M1C	Compressor motor	Compressor is operated in multi-steps according to Te.
(2)	M1F	Fan motor	The fan rotation speed is varied by using inverter.
(3)	Y2S	Solenoid valve (Hot gas bypass pipe)	Used to prevent the low pressure from transient falling.
(4)	Y3S	Solenoid valve (Unload circuit)	Used for unloading operation of compressor.
(5)	S1NPH	High pressure sensor	Used to detect high pressure.
(6)	S1NPL	Low pressure sensor	Used to detect low pressure.
(7)	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 or more to stop the compressor operation.
(8)	—	Pressure regulating valve (Receiver to discharge pipe)	This valve opens at a pressure of 4.0 MPa for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage.
(9)	R1T	Thermistor (Outdoor air: Ta)	Used to detect outdoor air temperature, correct discharge pipe temperature, and for other purposes.
(10)	R2T	Thermistor (Discharge pipe: Tdi)	Used to detect discharge pipe temperature, make the temperature protection control of compressor, and for other purposes.
(11)	R3T	Thermistor (Suction pipe 1: Ts1)	Used to detect suction pipe temperature, and for other purposes.
(12)	R4T	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger, and for other purposes.
(13)	R5T	Thermistor (Suction pipe 2: Ts2)	Used for calculation of internal temperature of compressor, and for other purposes.
(14)	R10T	Thermistor (Radiation fin)	• Used for outdoor fan speed control. • Used for radiation fin temperature control. • Used for pressure difference control.


(2) Fan M1F
(9) R1T
(14)* R10T
Service port (5/16" flare)
Outdoor heat exchanger
(12) R4T
Muffler
Check valve
(5) S1NPH High pressure sensor
(7) S1PH High pressure switch
(10) R2T
Filter
(6) Low pressure sensor S1NPL
(1) Compressor M1C
Filter
(3) Solenoid valve Y2S
(13) R5T
Compressor accumulator
Check valve
(8) Pressure regulating valve
(4) Y3S Solenoid valve
Capillary tube
Accumulator
(11) R3T
Stop valve
(With service port on field piping side Φ7.9 mm flare connection)
* The radiation fin thermistor (14) R10T is located near the electrical component box.
C:3D120124B

1.1.2 RXQ5ARV1

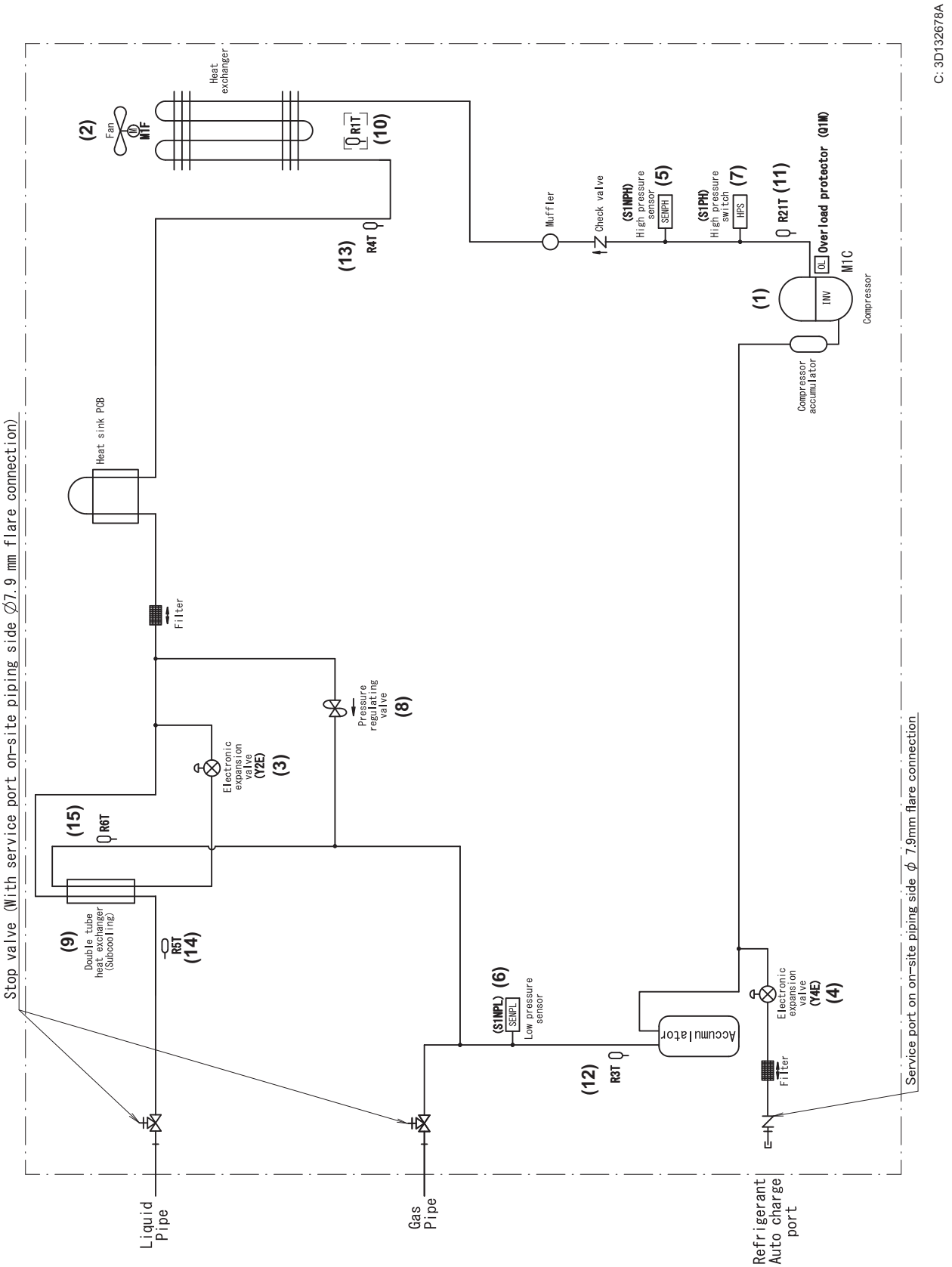
No. in piping diagram	Electric Symbol	Name	Function
(1)	M1C	Compressor motor	Compressor is operated in multi-steps according to Te.
(2)	M1F	Fan motor	The fan rotation speed is varied by using inverter.
(3)	Y3S	Solenoid valve (Unload circuit)	Used for unloading operation of compressor.
(4)	S1NPH	High pressure sensor	Used to detect high pressure.
(5)	S1NPL	Low pressure sensor	Used to detect low pressure.
(6)	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 or more to stop the compressor operation.
(7)	—	Pressure regulating valve (Receiver to discharge pipe)	This valve opens at a pressure of 4.0 MPa for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage.
(8)	R1T	Thermistor (Outdoor air: Ta)	Used to detect outdoor air temperature, correct discharge pipe temperature, and for other purposes.
(9)	R2T	Thermistor (Discharge pipe: Tdi)	Used to detect discharge pipe temperature, make the temperature protection control of compressor, and for other purposes.
(10)	R3T	Thermistor (Suction pipe 1: Ts1)	Used to detect suction pipe temperature, and for other purposes.
(11)	R4T	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger, and for other purposes.
(12)	R5T	Thermistor (Suction pipe 2: Ts2)	Used for calculation of internal temperature of compressor, and for other purposes.
(13)	R10T	Thermistor (Radiation fin)	• Used for outdoor fan speed control. • Used for radiation fin temperature control. • Used for pressure difference control.


(2) Fan M1F
(8) R1T
(13)* R10T
Service port (5/16" flare)
Outdoor heat exchanger
(11) R4T
Filter
Check valve
(7) Pressure regulating valve
Muffler
Check valve
S1NPH High pressure sensor (4)
S1PH High pressure switch (6)
(9) R2T
(5) Low pressure sensor S1NPL
(1) Compressor M1C
(3) Y3S Solenoid valve
Capillary tube
(12) R5T
Capillary tube
Filter
Service port
Compressor accumulator
Accumulator
(10) R3T
Stop valve (With sevice port on field piping side ∅7.9 mm flare connection)
* The radiation fin thermistor (13) R10T is located near the electrical component box.
C: 3D120193B

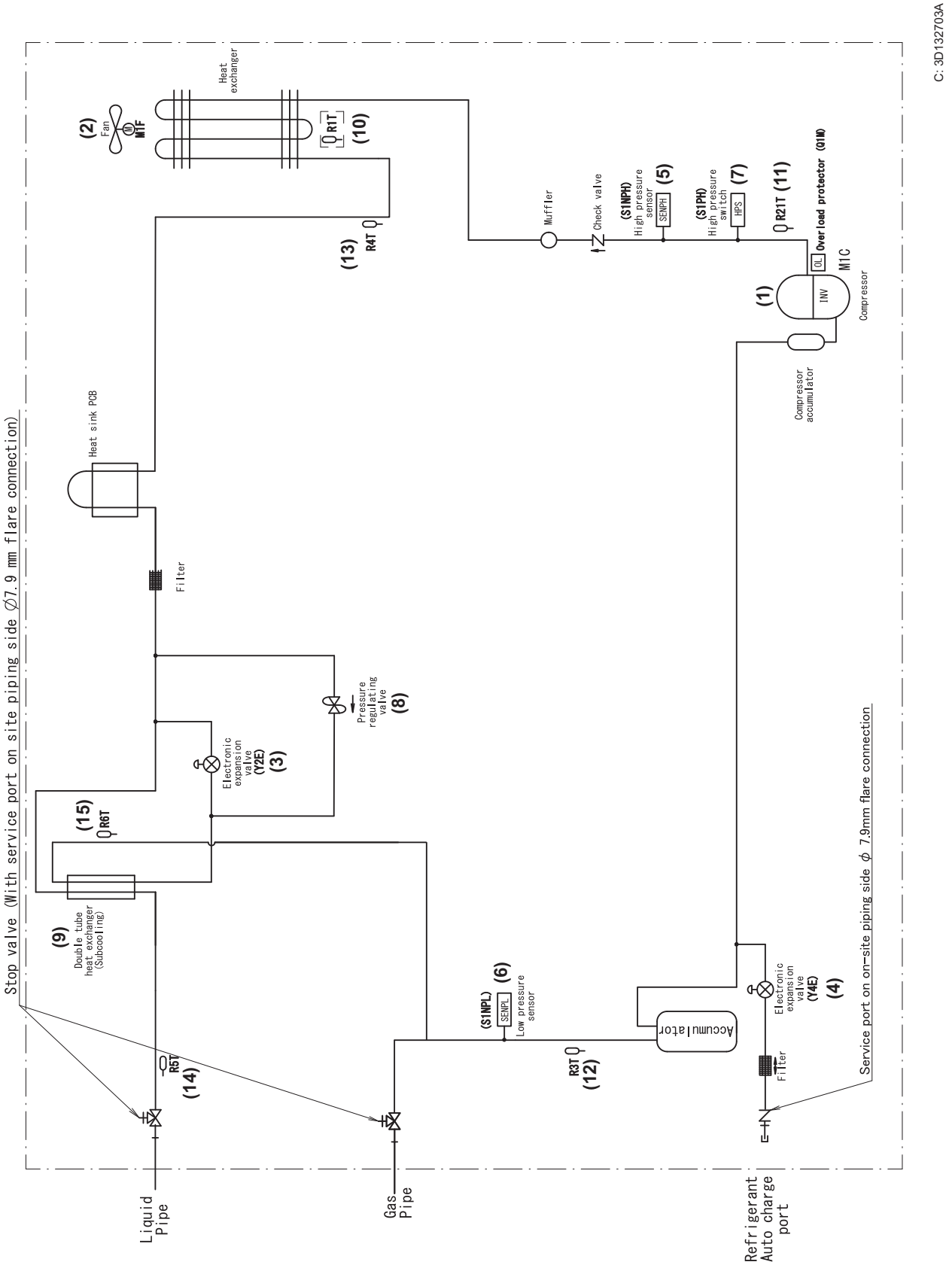
1.1.3 RXMQ6ARV1, RXMQ8ARY1

No. in piping diagram	Electric symbol	Name	Function
(1)	M1C	Compressor motor	Inverter driven compressor is operated in multi-steps according to Te.
(2)	M1F	Fan motor	The fan rotation speed is varied by using the inverter.
(3)	Y2E	Electronic expansion valve (Injection)	PI control is applied to keep the outlet superheating degree of subcooling heat exchanger constant.
(4)	Y4E	Electronic expansion valve (Refrigerant auto charge)	Used to control refrigerant charging speed during refrigerant auto charge operation and to stop refrigerant charge automatically.
(5)	S1NPH	High pressure sensor	Used to detect high pressure.
(6)	S1NPL	Low pressure sensor	Used to detect low pressure.
(7)	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 or more to stop the compressor operation.
(8)	—	Pressure regulating valve	This valve opens at a pressure of 4.0 MPa for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage.
(9)	—	Double tube heat exchanger (Subcooling heat exchanger)	Used to subcool liquid refrigerant from the electronic expansion valve.
(10)	R1T	Thermistor (Outdoor air: Ta)	Used to detect outdoor air temperature, correct discharge pipe temperature, and for other purposes.
(11)	R21T	Thermistor (Discharge pipe: Tdi1)	Used to detect discharge pipe temperature, make the temperature protection control of compressor, and for other purposes.
(12)	R3T	Thermistor (Suction pipe: Ts)	Used to detect suction pipe temperature, and for other purposes.
(13)	R4T	Thermistor (Heat exchanger liquid pipe: Tf)	This detects temperature of liquid pipe between the air heat exchanger and refrigerant jacket. Used to make judgments on the recover or discharge refrigerants to the refrigerant regulator.
(14)	R5T	Thermistor (Subcooling heat exchanger liquid pipe: Tsc)	This detects temperature of liquid pipe after subcooling heat exchanger.
(15)	R6T	Thermistor (Subcooling heat exchanger gas pipe: Tsh)	This detects temperature of gas pipe on the evaporation side of subcooling heat exchanger. Used to exercise the constant control of superheating degree at the outlet of subcooling heat exchanger.

RXMQ6ARV1

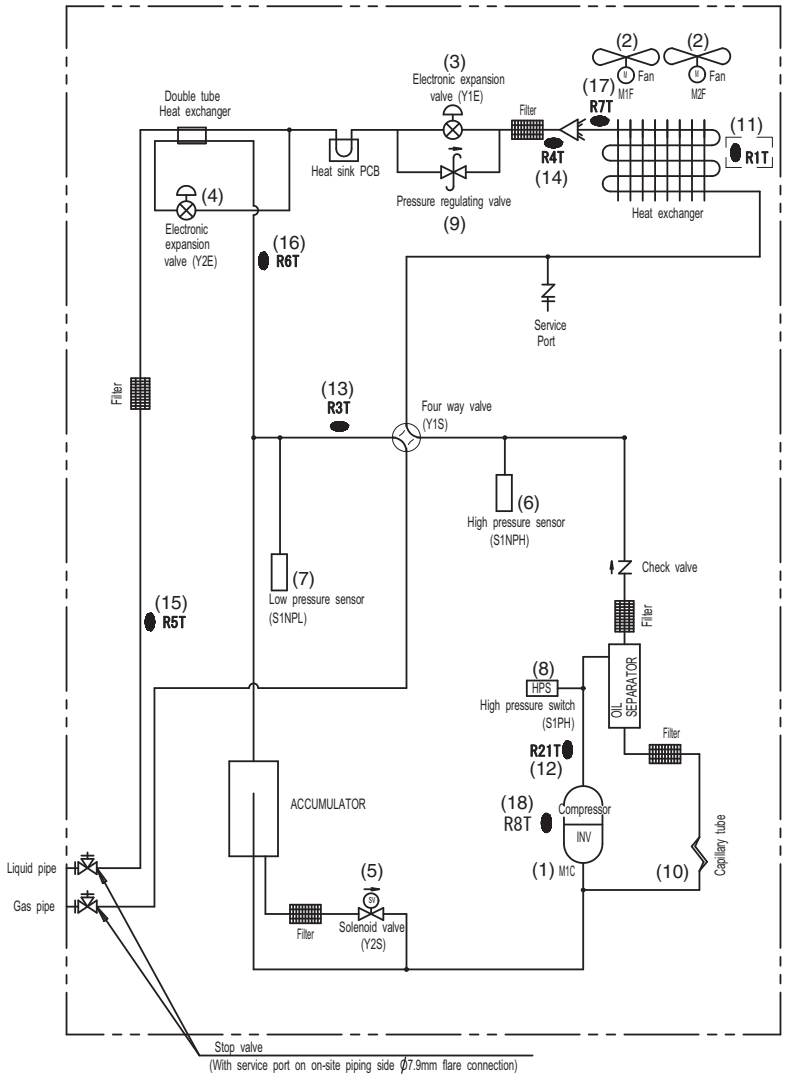

C: 3D132678A
Heat exchanger
(2)
Fan
MTF
R1T
(10)
(13)
R4T
Muffler
Check valve
(S1NPH)
High pressure sensor
SENPH
(5)
(S1PH)
High pressure switch
HPS
(7)
R21T
(11)
Overload protector (Q1M)
OL
M1C
(1)
INV
Compressor
Compressor accumulator
Heat sink POB
Filter
Pressure regulating valve
(8)
Electronic expansion valve (Y2E)
(3)
(15)
R6T
(9)
Double tube heat exchanger (Subcooling)
R5T
(14)
(S1NPL)
SENPL
Low pressure sensor
(6)
(12)
R3T
Accumulator
Electronic expansion valve (14E)
(4)
Filter
Stop valve (With service port on-site piping side ∅7.9 mm flare connection)
Service port on on-site piping side ∅ 7.9mm flare connection
Liquid Pipe
Gas Pipe
Refrigerant Auto charge port

RXMQ8ARY1


C: 3D132703A
Heat exchanger
(2) Fan M1F
R1T (10)
(13) R4T
Muffler
Check valve
(S1NPH) High pressure sensor SENPH (5)
(S1PH) High pressure switch HPS (7)
R21T (11)
OL Over load protector (Q1M)
(1) INV M1C Compressor
Compressor accumulator
Heat sink PCB
Filter
Pressure regulating valve (8)
Electronic expansion valve (Y2E) (3)
(15) R6T
(9) Double tube heat exchanger (Subcooling)
Stop valve (With service port on site piping side ∅7.9 mm flare connection)
(S1NPL) SENPL Low pressure sensor (6)
Accumulator
Electronic expansion valve (Y4E) (4)
Filter
Service port on on-site piping side ϕ 7.9mm flare connection
R5T (14)
R3T (12)
Liquid Pipe
Gas Pipe
Refrigerant Auto charge port

1.1.4 RXMQ10/12ARY1

No. in piping diagram	Electric symbol	Name	Function
(1)	M1C	Compressor motor	Compressor is operated on frequencies between 60 Hz and 387.3 Hz by using the inverter.
(2)	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.
(3)	Y1E	Electronic expansion valve (Main)	Fully open during cooling operation.
(4)	Y2E	Electronic expansion valve (Injection)	Used to cool the compressor by injecting refrigerant when the compressor discharge pipe temperature is high.
(5)	Y2S	Solenoid valve (Accumulator oil return)	Used to return oil from the accumulator to the compressor.
(6)	S1NPH	High pressure sensor	Used to detect high pressure.
(7)	S1NPL	Low pressure sensor	Used to detect low pressure.
(8)	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 or more to stop the compressor operation.
(9)	—	Pressure regulating valve (Receiver to discharge pipe)	This valve opens at a pressure of 4.0 MPa to prevent pressure increase, thus protecting functional parts from damage due to the increase of pressure in transportation or storage.
(10)	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the compressor.
(11)	R1T	Thermistor (Outdoor air)	Used to detect outdoor air temperature, correct discharge pipe temperature, and for other purposes.
(12)	R21T	Thermistor (Discharge pipe)	Used to detect discharge pipe temperature, for temperature protection control of the compressor, and for other purposes.
(13)	R3T	Thermistor (Accumulator)	Used to detect gas pipe temperature at the accumulator inlet.
(14)	R4T	Thermistor (Heat exchanger liquid pipe)	Used to detect liquid pipe temperature.
(15)	R5T	Thermistor (Subcooling heat exchanger liquid pipe)	Used to detect liquid pipe temperature of the subcooling heat exchanger.
(16)	R6T	Thermistor (Subcooling heat exchanger gas pipe)	Used to detect the gas pipe temperature on evaporation side of the heat exchanger, keep the superheating degree at the heat exchanger constant, and for other purposes.
(17)	R7T	Thermistor (Heat exchanger deicer)	Used to detect liquid pipe temperature of air heat exchanger and for other purposes.
(18)	R8T	Thermistor (Compressor body)	Detects compressor surface temperature to stop operation at the surface temperature of 120°C or more.

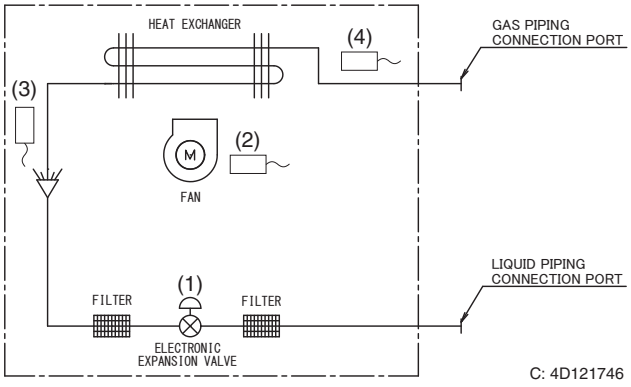

(2)
Fan M1F
(2)
Fan M2F
(3)
Electronic expansion valve (Y1E)
(17) R7T
Filter
R4T
(14)
(11) R1T
Heat exchanger
Double tube Heat exchanger
Heat sink PCB
Pressure regulating valve
(9)
(4)
Electronic expansion valve (Y2E)
(16) R6T
Service Port
Filter
(13) R3T
Four way valve (Y1S)
(6)
High pressure sensor (S1NPH)
Check valve
(7)
Low pressure sensor (S1NPL)
(15) R5T
Filter
(8)
HPS
High pressure switch (S1PH)
OIL SEPARATOR
Filter
R21T
(12)
ACCUMULATOR
(18) R8T
Compressor
INV
(1) M1C
(10)
Capillary tube
Liquid pipe
Gas pipe
(5)
Filter
Solenoid valve (Y2S)
Stop valve
(With service port on on-site piping side ϕ7.9mm flare connection)

C: 4D122046B

1.2 *VRV* Indoor Unit

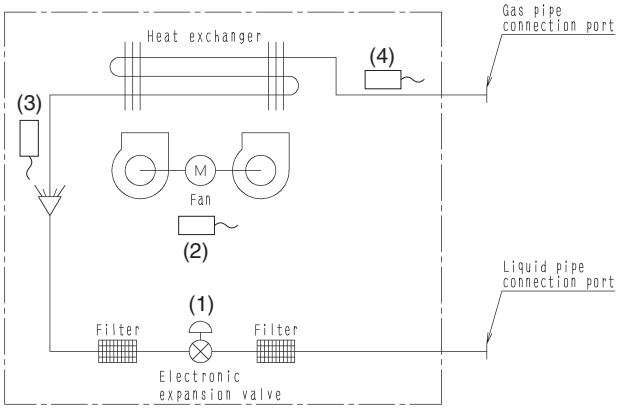
No. in piping diagram	Name	Electric symbol	Applicable model	Function
(1)	Electronic expansion valve	Y1E	All indoor units	Used for gas superheated degree control while in cooling.
(2)	Suction air thermistor	R1T	All indoor units	Used for thermostat control.
(3)	Indoor liquid pipe thermistor	R2T	All indoor units	Used for gas superheated degree control while in cooling.
(4)	Indoor gas pipe thermistor	R3T	All indoor units	Used for gas superheated degree control while in cooling.

■ **FXFSQ-AR**



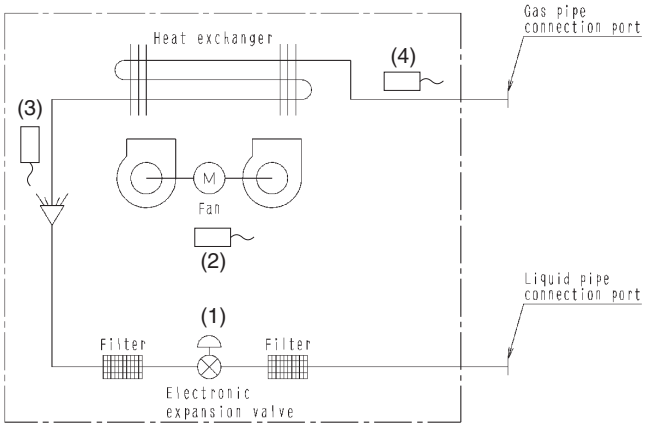
C: 4D121746

■ **FXMQ-PB**



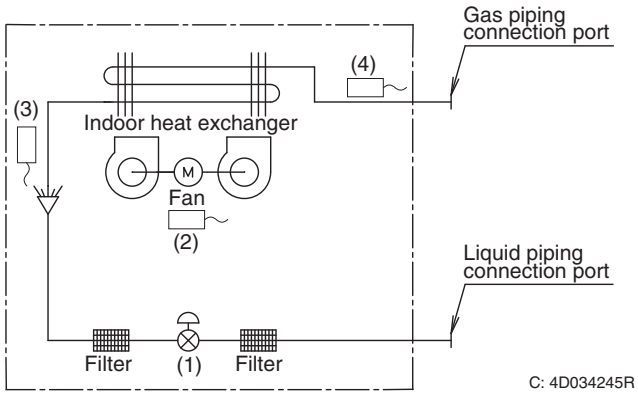
C: 4D110285

■ **FXMQ-AR**



C: 4D097585B

■ **FXAQ-P**

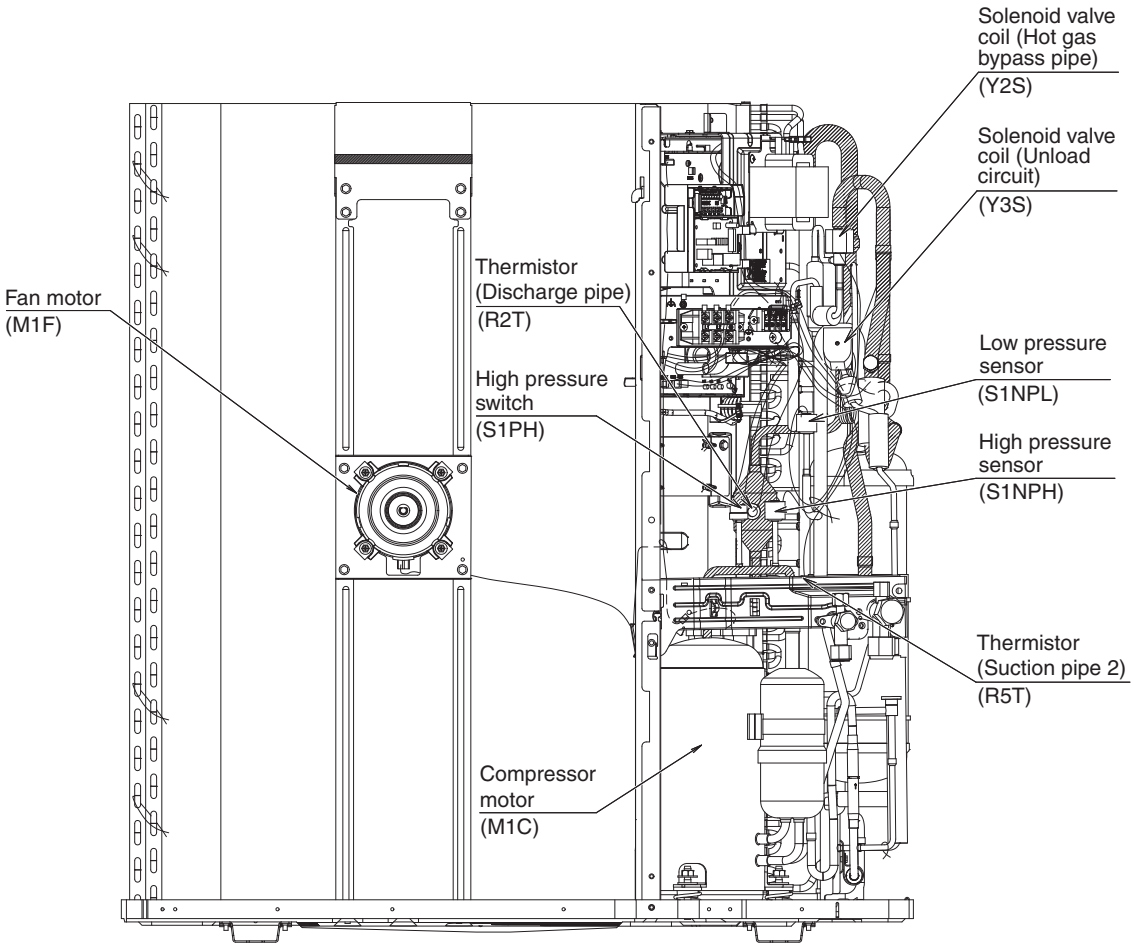


C: 4D034245R

2. Functional Parts Layout

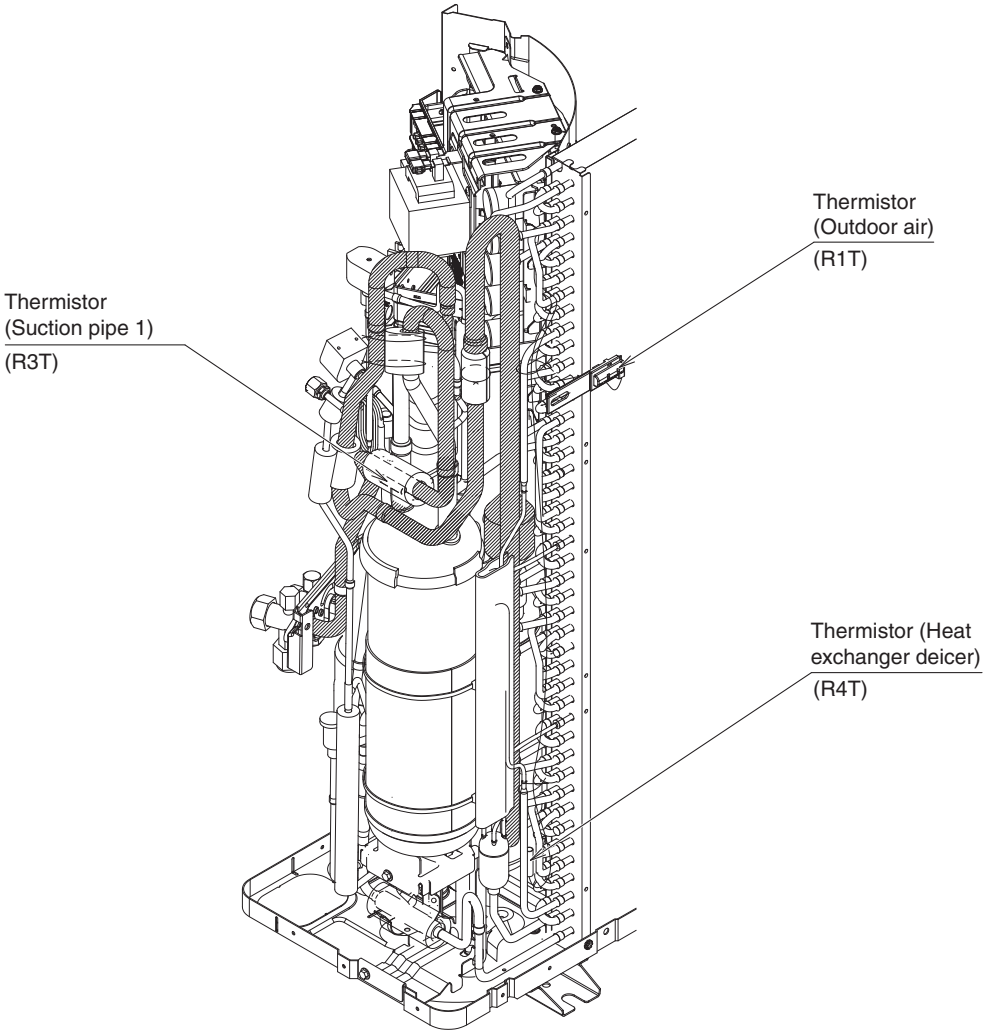
2.1 RXQ4ARV1

Front view



C: 1P544577E

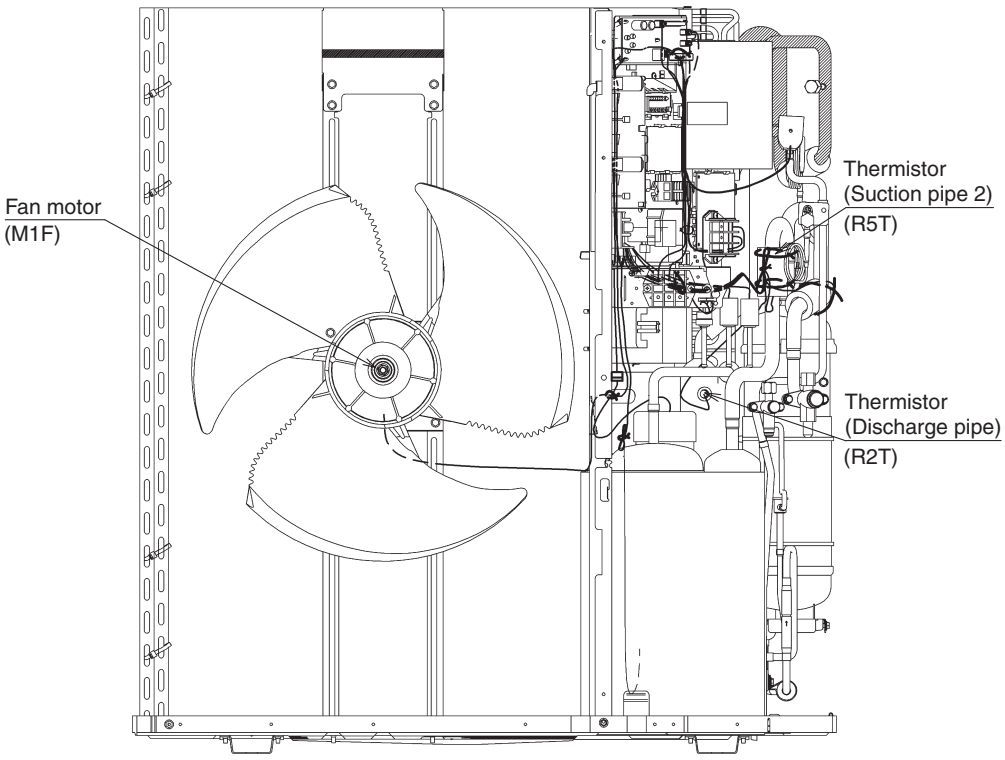
Bird’s-eye view



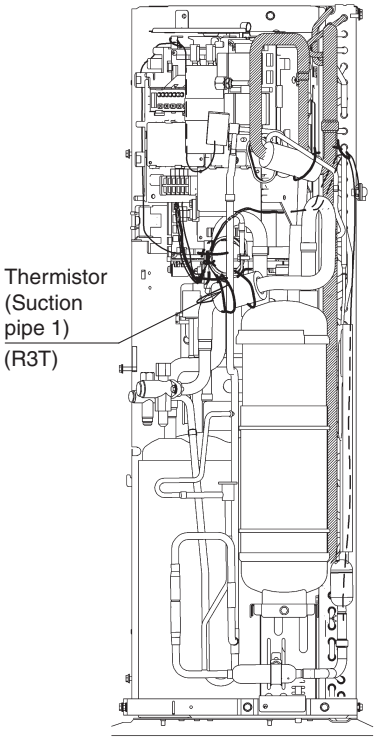
C: 1P544577E

2.2 RXQ5ARV1

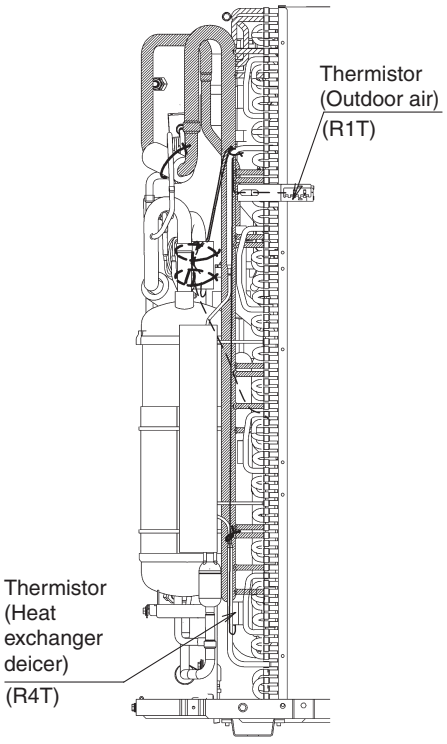
Front view



Side view

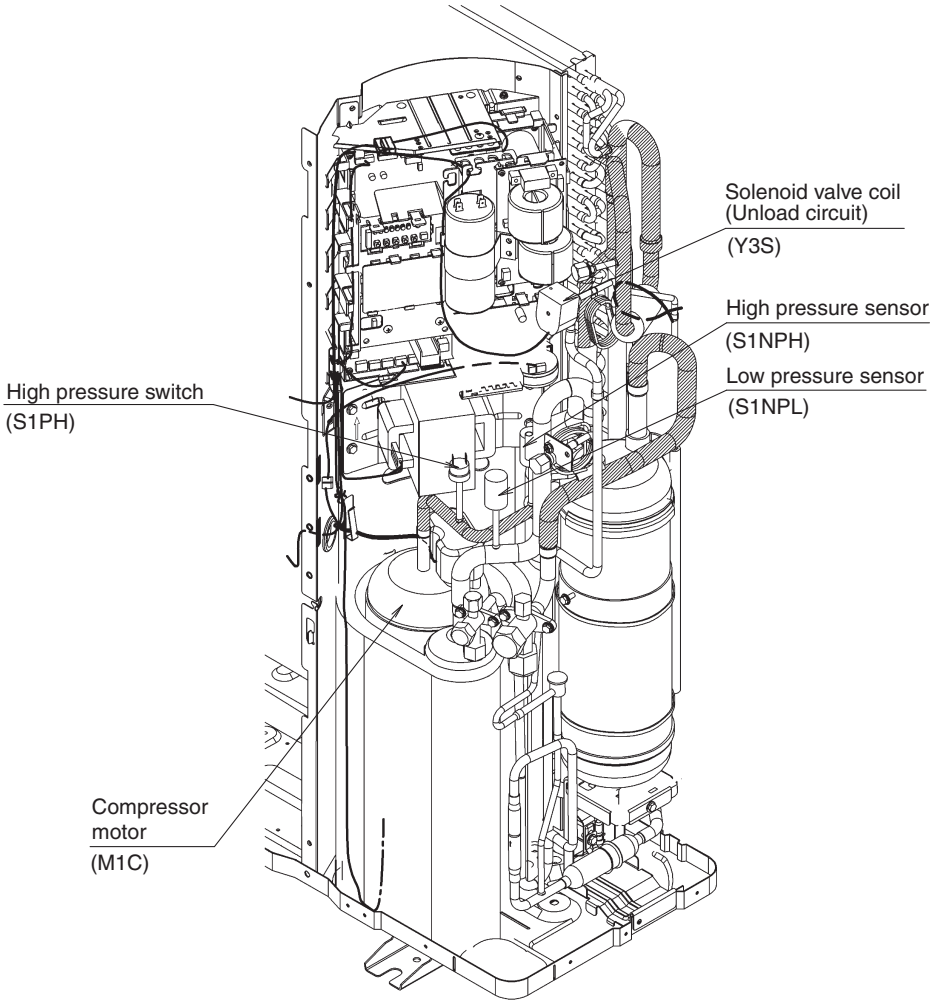


Rear view



C: 1P544363C

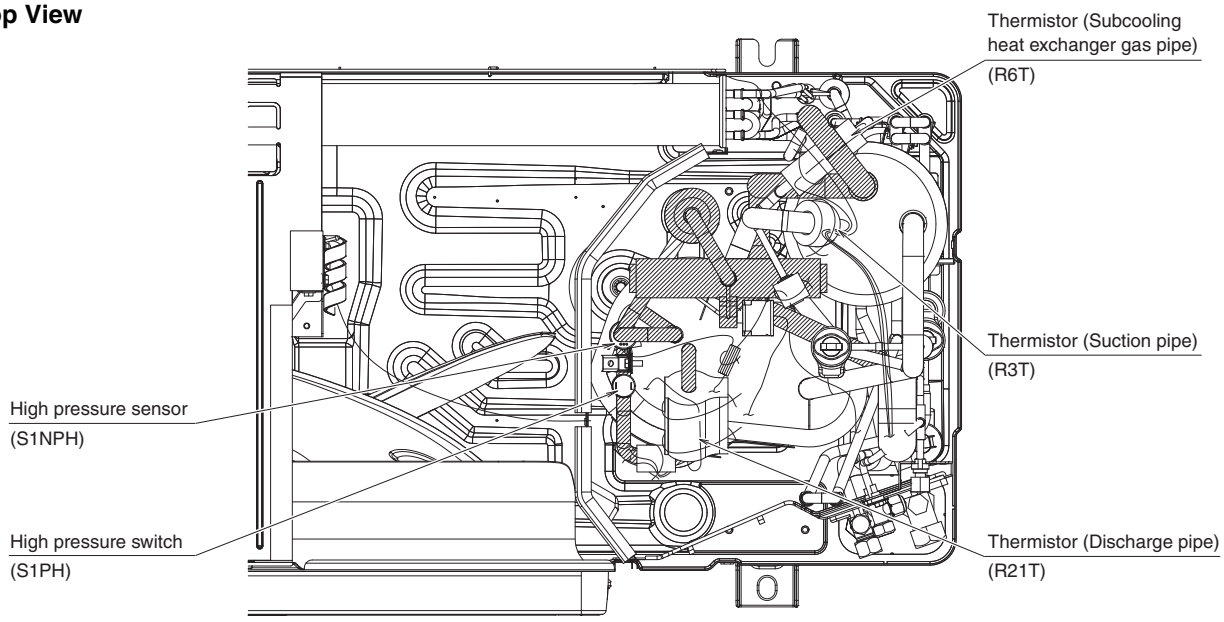
Bird's-eye view



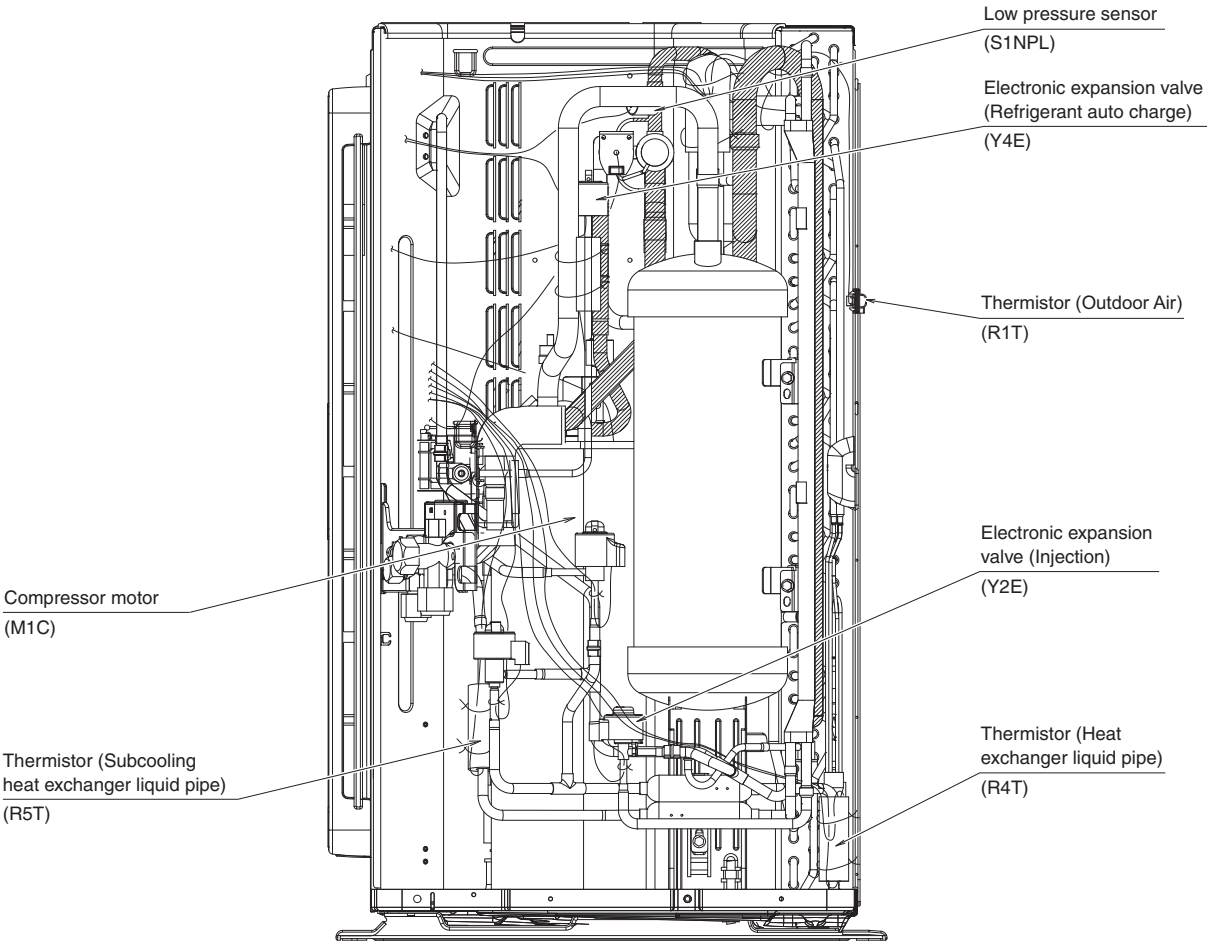
C: 1P544337E

2.3 RXMQ6ARV1

Top View



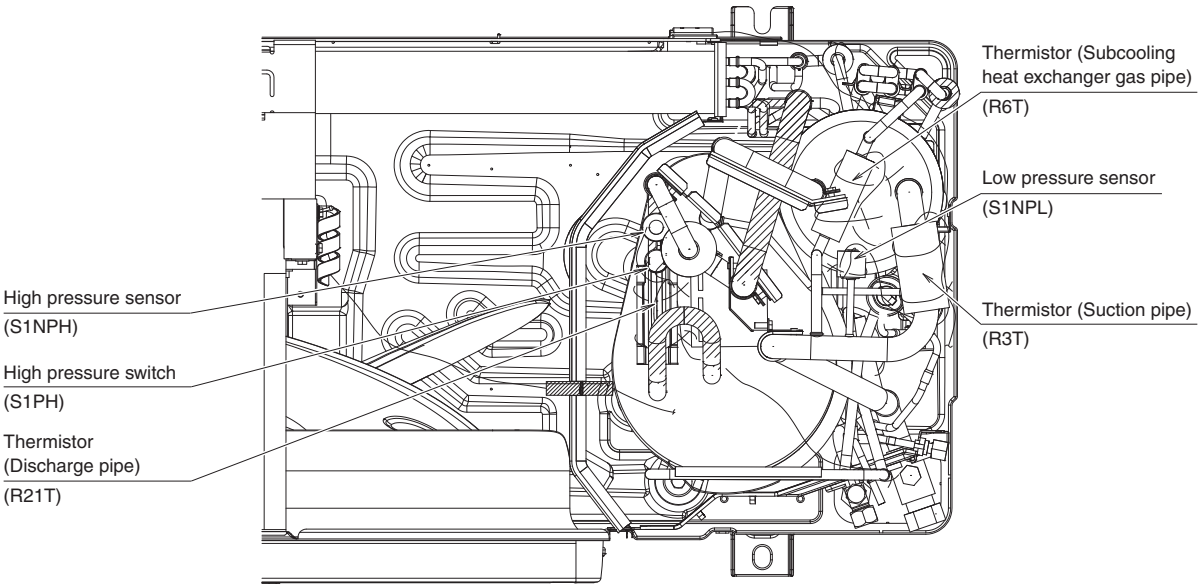
Side View



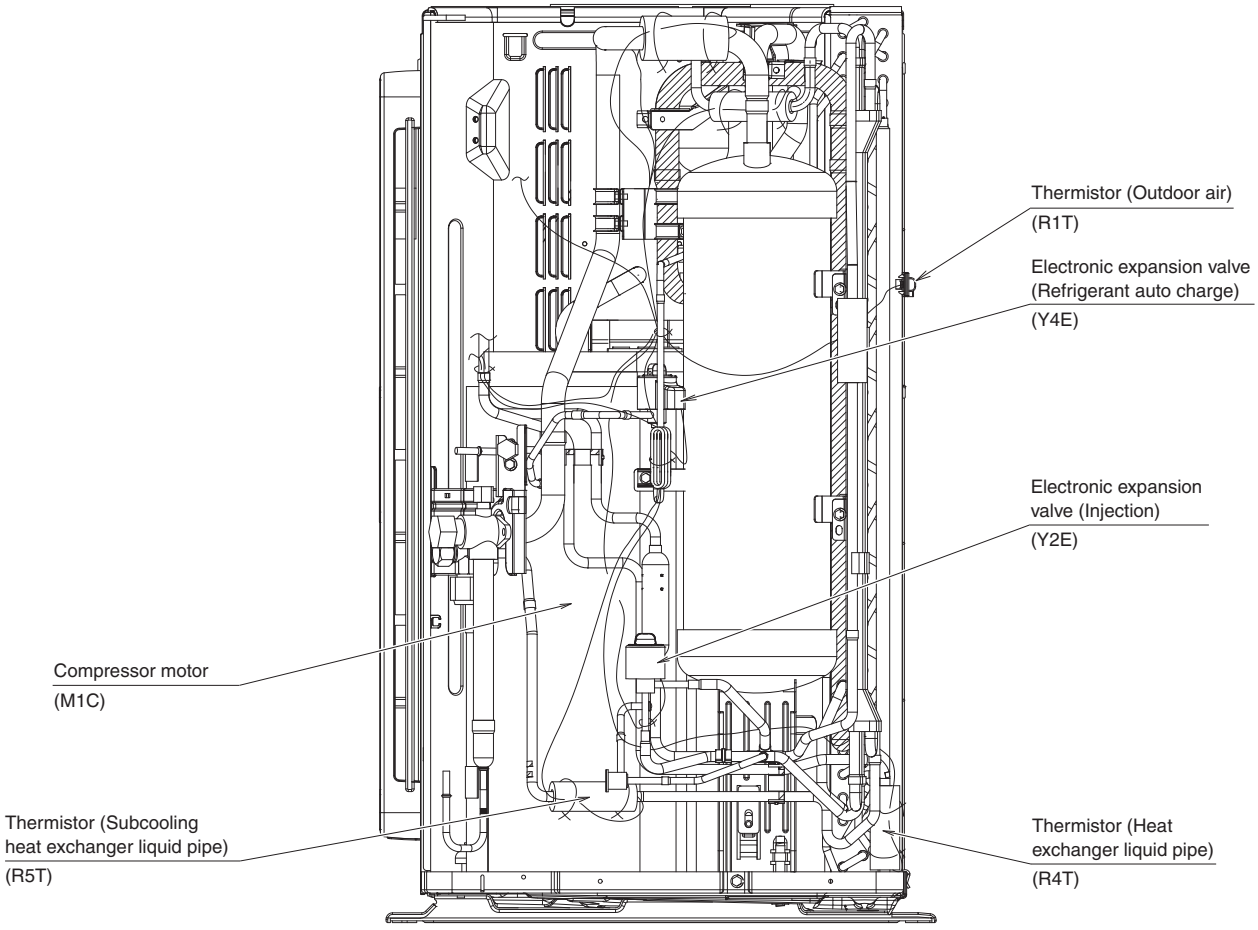
C: 1P627964E

2.4 RXMQ8ARY1

Top View



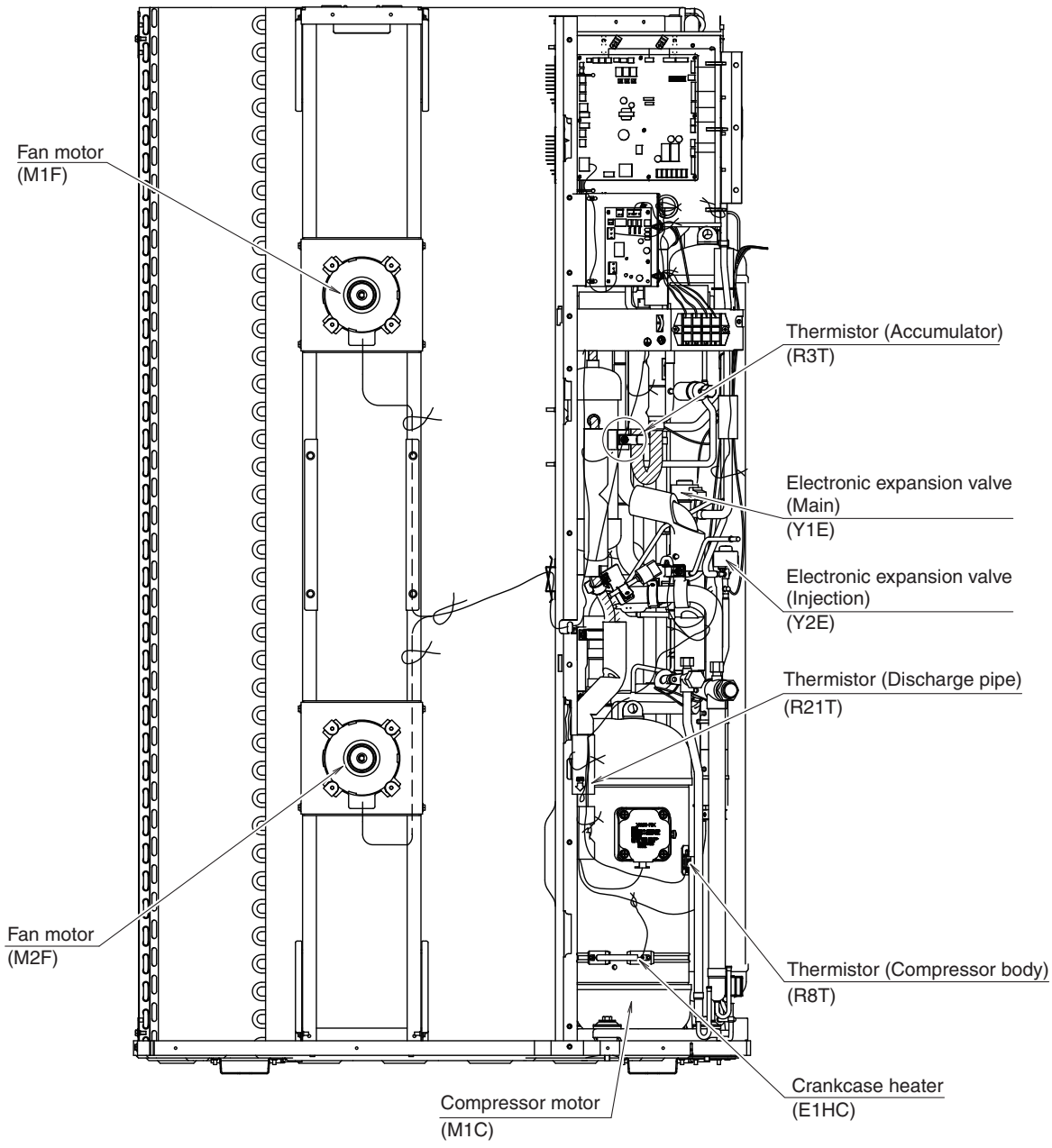
Side View



C: 1P646728C

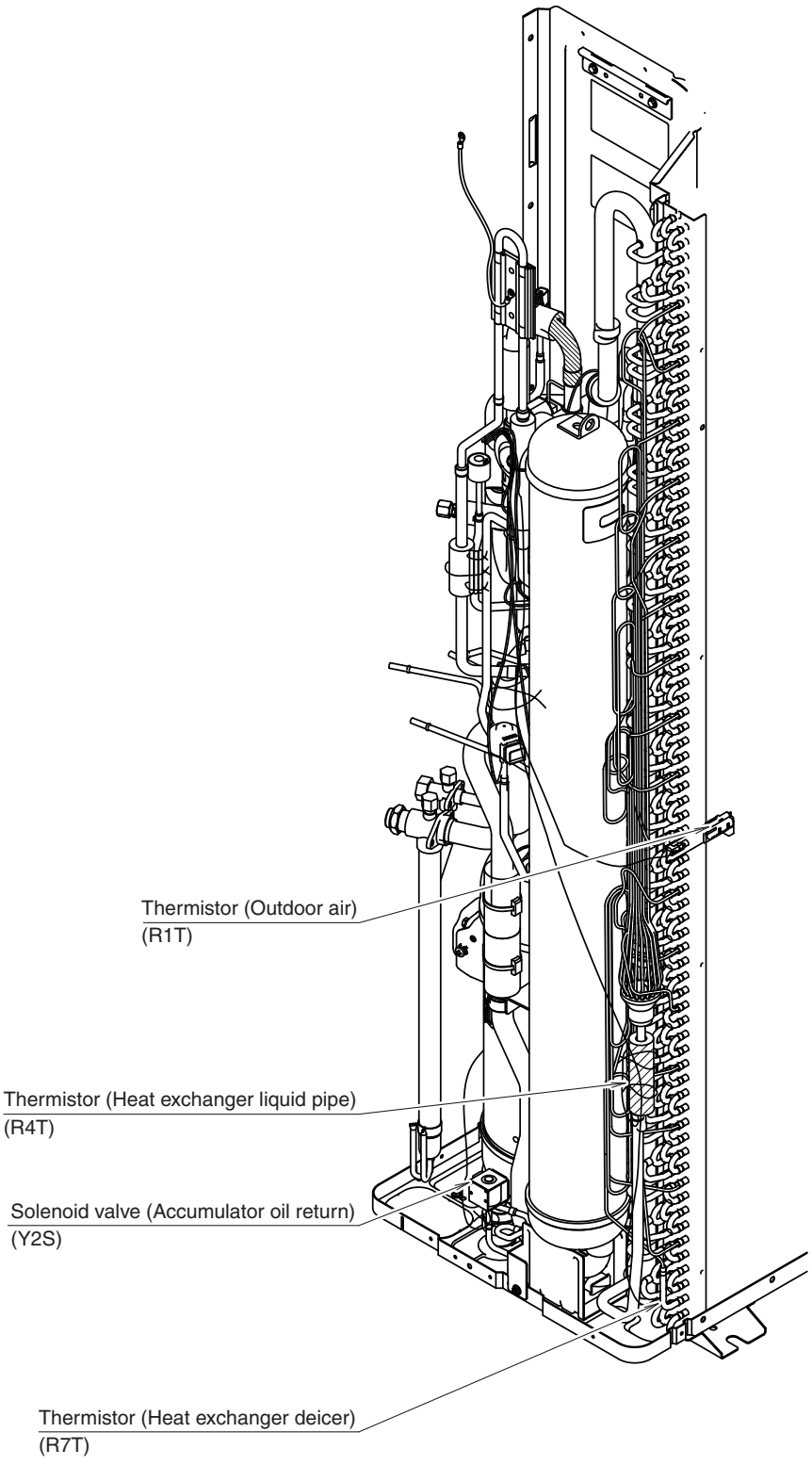
2.5 RXMQ10/12ARY1

Front view



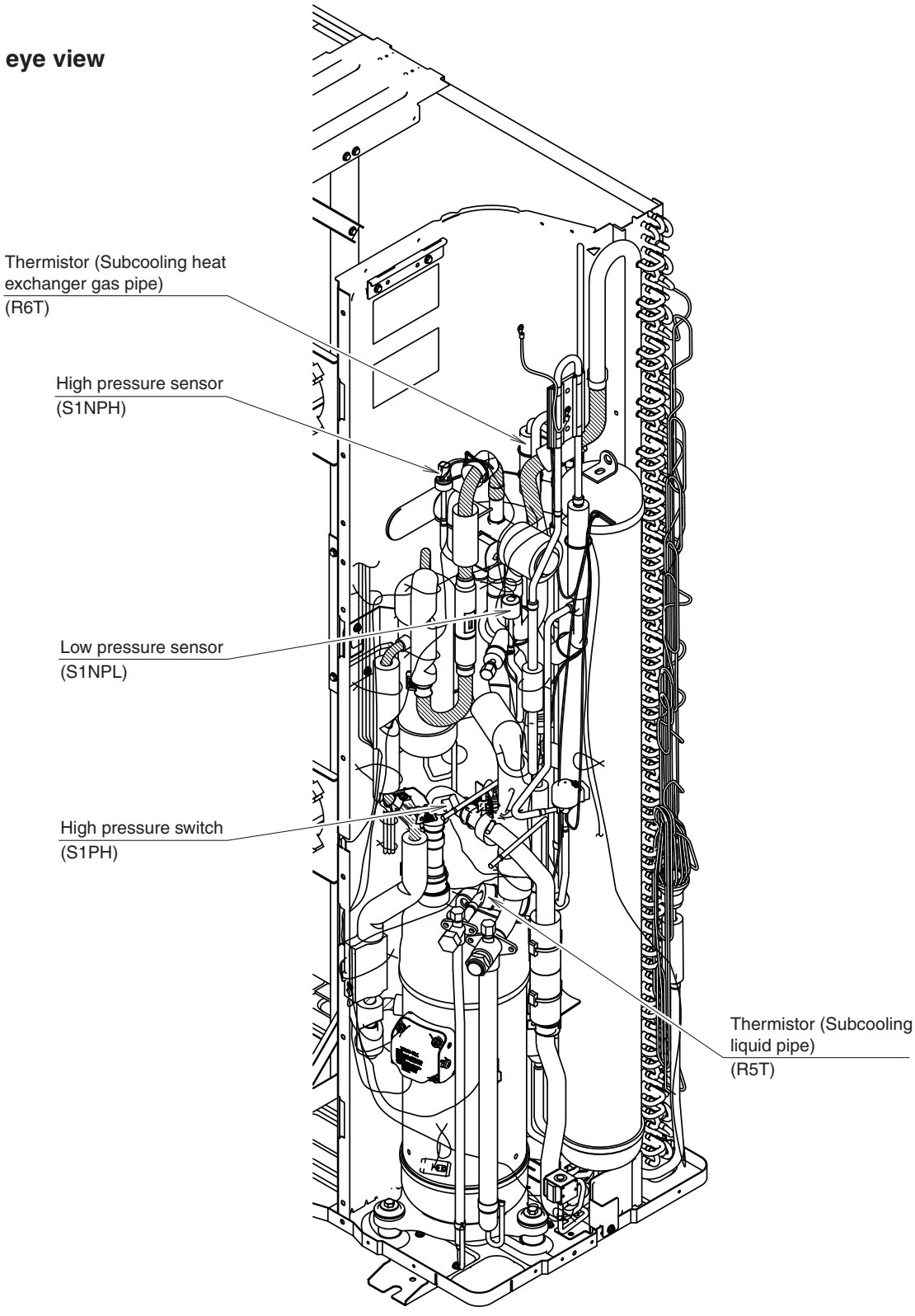
C: 1P562067C

Bird's eye view



C: 1P562067C

Bird's eye view



C: 1P562067C

Part 3
Remote Controller

1. Applicable Models

Series	Wired remote controller	Wireless remote controller	
	Navigation	Remote controller	Receiver
FXFSQ-AR (∗1)	BRC1E63	BRC4M151W16	BRC7M632F-6
FXMQ-PB			BRC4M61-6
FXMQ-AR			
FXAQ-P			BRC7N618-6

Note(s) ∗1. Some functions are not available depending on the remote controller type. Refer to page 37 for details.

Function list

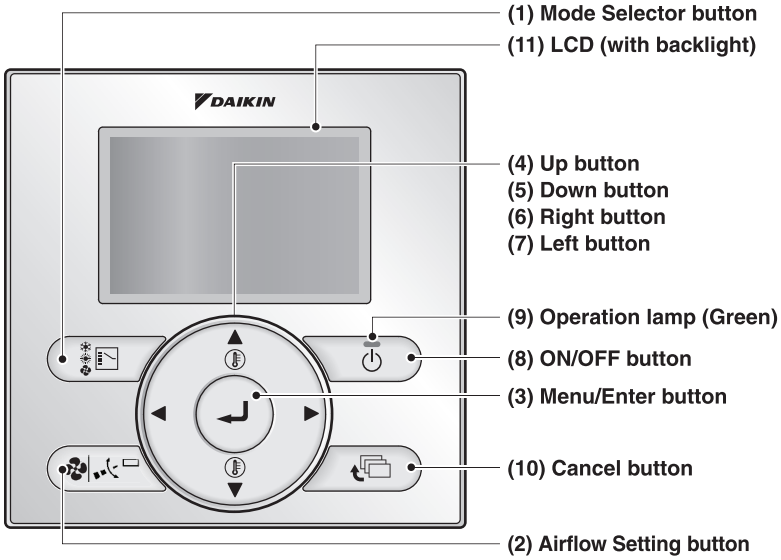
Category	Function	FXFSQ-AR	
		BRC1E63	BRC4M151
Basic performance	ON/OFF operation	●	●
	Setting temperature	●	●
	Swing pattern selection	●	●
	Switchable fan speed (Ventilation amount)	●	●
	Display switching function	●	—
	Backlight function	●	●
	Display automatic OFF	●	—
	Multilingual correspond	●	●
	Timer function (Time schedule display)	●	—
	Contrast adjustment	●	—
Energy saving function	Automatic eco airflow rate	●	●
	Eco infrared floor temperature sensor	●	—
	Sensing sensor stop control	●	—
	Sensing sensor low mode	●	—
	Setpoint range set	●	—
	Setback	●	—
	OFF timer (programmed)	●	—
	Weekly schedule timer	●	—
	ON/OFF timer	—	●
	Setting temperature automatic recovery	●	—
	VRTsmart control	●	—
	VRT control	●	—
Comfortable function	Active circulation airflow	●	—
	Forced cooling ON operation	●	—
	Independent up-and-down airflow	●	—
	Automatic direct air (when human sensing)	●	—
	Two selectable temperature sensors	●	—
	Application for high ceiling	●	—
	Service contact display	●	—
	Model name display (indoor/outdoor)	●	—
	Filter sign/reset	●	●
	Operation time accumulation time display	●	—
	Operation data display	●	—

●: Available

—: Not available

2. Names and Functions

2.1 BRC1E63



(1) Mode Selector button
Used to select the operation mode.

(2) Airflow Setting button
Used to indicate the Airflow Rate (Air Volume / Fan Speed) / Airflow Direction screen.

(3) Menu/Enter button
- Used to indicate the Main menu. (For details of Main menu, refer to the operation manual.)
- Used to enter the selected item.

(4) Up button ▲
- Used to increase the set temperature.
- Used to highlight the item above the current selection. (The highlighted items will be scrolled through when the button is pressed continuously.)
- Used to change the selected item.

(5) Down button ▼
- Used to decrease the set temperature.
- Used to highlight the item below the current selection. (The highlighted items will be scrolled through when the button is pressed continuously.)
- Used to change the selected item.

(6) Right button ▶
- Used to highlight the next items on the right-hand side.
- Display contents are changed to next screen per page.

(7) Left button ◀
- Used to highlight the next items on the left-hand side.
- Display contents are changed to previous screen per page.

(8) ON/OFF button
- Press to start the system.
- Press this button again to stop the system.

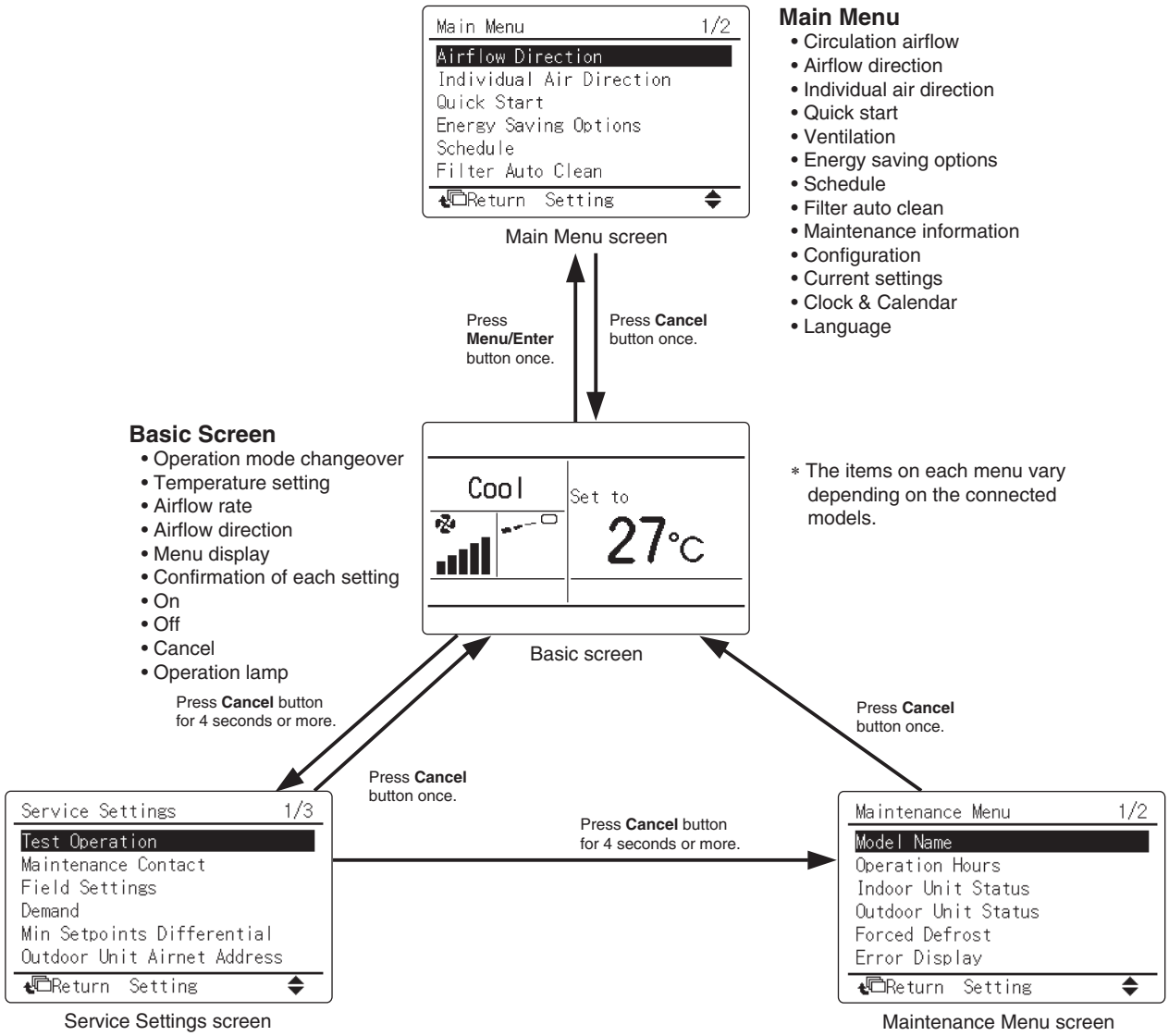
(9) Operation lamp (Green)
This lamp lights up during operation. The lamp blinks if an error occurs.

(10) Cancel button
- Used to return to the previous screen.
- Press and hold this button for 4 seconds or longer to display Service Settings menu.

(11) LCD (with backlight)
The backlight will be lit for about 30 seconds by pressing any button.

Mode Access Operation

On power-up, the message **Checking the connection. Please stand by.** will be displayed on the remote controller screen. Then that message will disappear and 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 remains lit for about 30 seconds. Be sure to press a button while the backlight is on (this does not apply to the **On/Off** button.)



Main Menu

- Circulation airflow
- Airflow direction
- Individual air direction
- Quick start
- Ventilation
- Energy saving options
- Schedule
- Filter auto clean
- Maintenance information
- Configuration
- Current settings
- Clock & Calendar
- Language

Basic Screen

- Operation mode changeover
- Temperature setting
- Airflow rate
- Airflow direction
- Menu display
- Confirmation of each setting
- On
- Off
- Cancel
- Operation lamp

* The items on each menu vary depending on the connected models.

Service Settings Menu

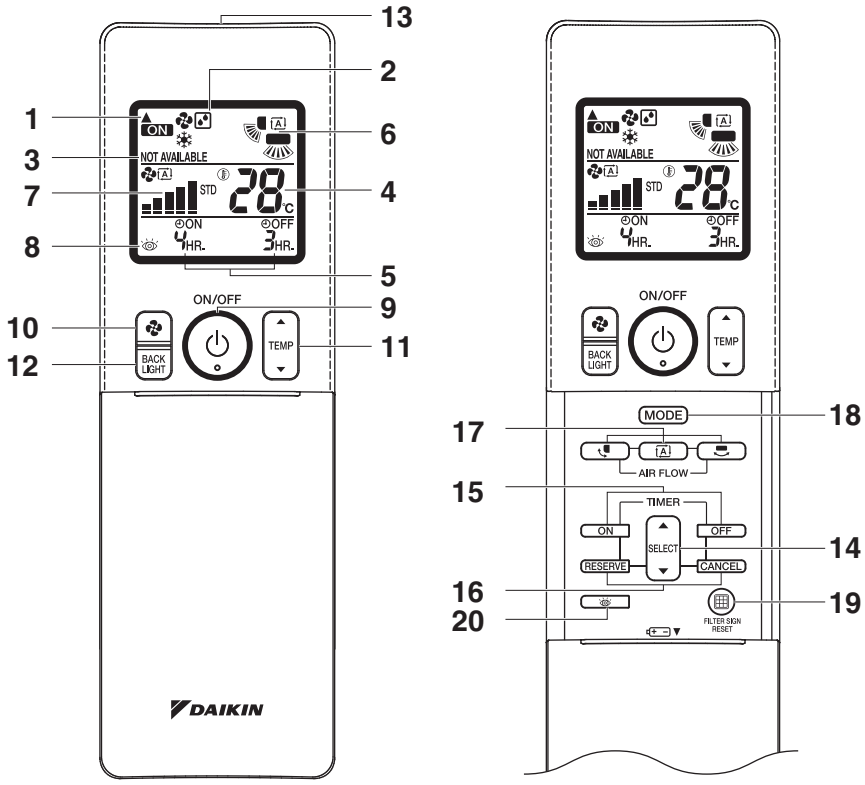
- Test Operation
- Maintenance contact
- Field settings
- Demand
- Min setpoints differential
- External input interlock
- Group address
- Indoor unit AirNet address
- Outdoor unit AirNet address
- Error history
- Indoor unit status
- Outdoor unit status
- Forced fan ON
- Switch main sub controller
- Filter indicator
- Test filter auto clean
- Brush/Filter ind
- Disable filter auto clean

Maintenance Menu

- Model name
- Operation hours
- Indoor unit status
- Outdoor unit status
- Forced defrost
- Error display
- Swap unit No.
- Addressed sensor value

2.2 BRC4M Series

2.2.1 Remote Controller



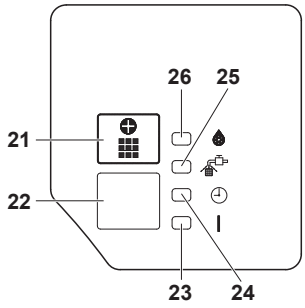
1	**DISPLAY ▲(SIGNAL TRANSMISSION)**
	This blinks when a signal is being transmitted.
2	**DISPLAY (OPERATION MODE)**
	This display shows the current OPERATION MODE. Operation modes supported depend on the model that is connected.
3	**DISPLAY NOT AVAILABLE (displayed when operation is not supported)**
	When a button for a function that is not supported on the connected model is pressed, this displays for 2 seconds.
4	**DISPLAY (SET TEMPERATURE)**
	This display shows the set temperature.
5	**DISPLAY (PROGRAMMED TIME)**
	This display shows PROGRAMMED TIME of the air conditioner start or stop.
6	**DISPLAY (AIRFLOW BLADE)**
7	**DISPLAY (FAN SPEED)**
	The display shows the set fan speed.
8	**DISPLAY (INSPECTION)**
	When the INSPECTION BUTTON is pressed, the display shows the system mode is in. Do not operate this button during normal use.
9	**ON/OFF BUTTON**
	Press the button and the air conditioner will start. Press the button again and the air conditioner will stop.

10	**FAN SPEED CONTROL BUTTON**
	Press this button to select the fan speed.
11	**TEMPERATURE SETTING BUTTON**
	Use this button for SETTING TEMPERATURE.
12	**BACKLIGHT BUTTON**
	Press this button to turn the backlight on or off.
13	**SIGNAL TRANSMITTER**
	This sends the signals to the indoor unit.
14	**PROGRAMMING TIMER BUTTON**
	Use this button for programming “START and/ or STOP” time.
15	**TIMER MODE ON/OFF BUTTON**
16	**TIMER RESERVE/CANCEL BUTTON**
17	**AIRFLOW DIRECTION ADJUST BUTTON**
18	**OPERATION MODE SELECTOR BUTTON**
	Press this button to select OPERATION MODE. (COOLING), (FAN), (PROGRAM DRY).
19	**FILTER SIGN RESET BUTTON**
	Refer to the section of MAINTENANCE in the operation manual attached to the indoor unit.
20	**INSPECTION BUTTON**
	This button is used only by qualified service persons for maintenance purposes. Do not operate this button during normal use.

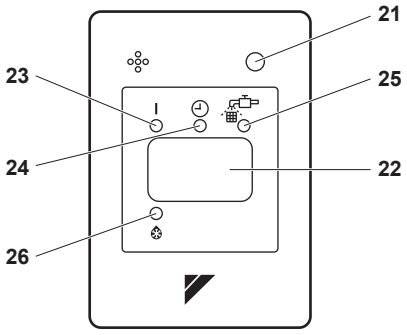
2.2.2 Signal Receiver

21	**EMERGENCY OPERATION SWITCH**
	This switch is readily used if the remote controller does not work.
22	**RECEIVER**
	This receives the signals from the remote controller.
23	**OPERATING INDICATOR LAMP (Red)**
	This lamp stays lit while the air conditioner runs. It flashes when the air conditioner is in trouble.
24	**TIMER INDICATOR LAMP (Green)**
	This lamp stays lit while the timer is set.
25	**AIR FILTER CLEANING TIME INDICATOR LAMP (Red)**
	Lights up when it is time to clean the air filter.
26	**DEFROST OPERATION LAMP (Orange)**
	Lights up when the defrost control has started.

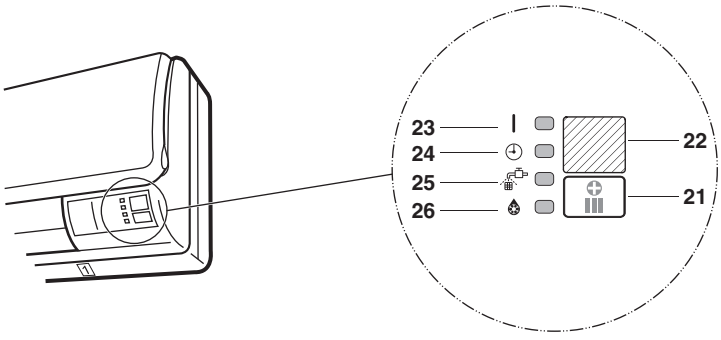
FXFSQ-AR (BRC7M632F-6)



FXMQ-PB, FXMQ-AR (BRC4M61-6)

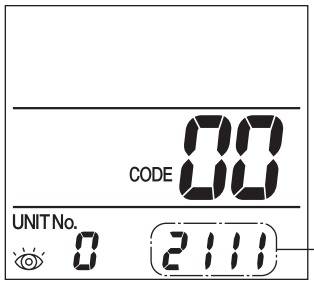


FXAQ-P (BRC7N618-6)



2.2.3 How to Check Initial Set Value

Press the **INSPECTION** button to check the initial set value.
Press the **INSPECTION** button twice to return to the normal mode.



Indoor unit model type		Initial set value
Ceiling mounted cassette (Round flow with sensing) type	FXFSQ-AR	2111
Ceiling mounted duct type	FXMQ-PB FXMQ-AR	2000
Wall mounted type	FXAQ-P	1010

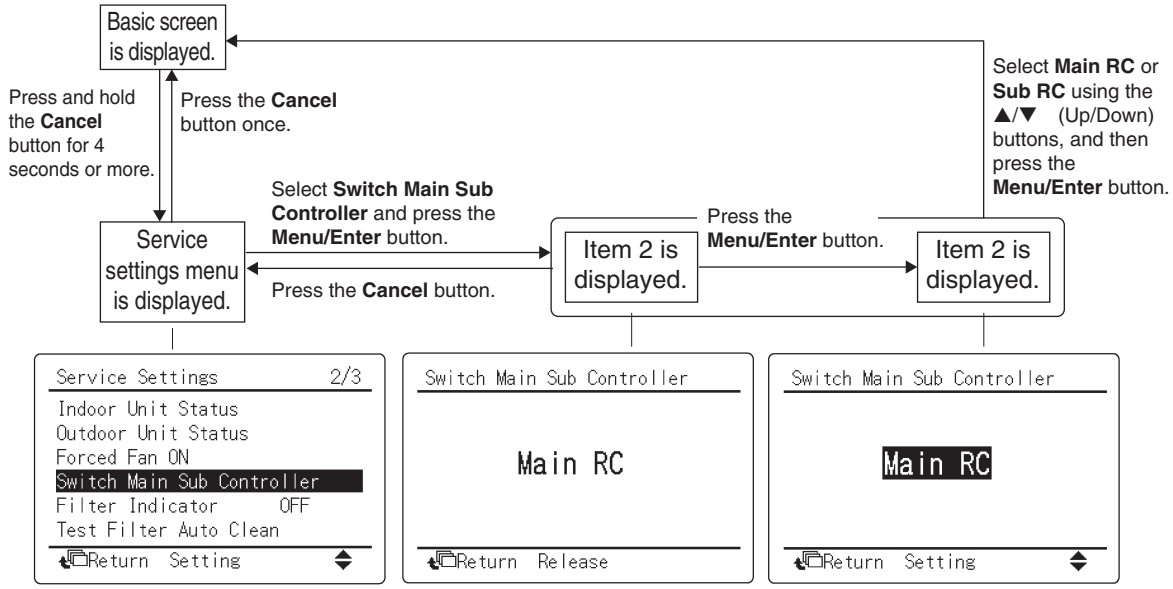
3. Main/Sub Setting

Main/Sub setting is necessary when 1 indoor unit is controlled by 2 remote controllers. The remote controllers are set at factory to Main, so you have to change one remote controller from Main to Sub. To change a remote controller from Main to Sub, proceed as follows:

3.1 Wired Remote Controller (BRC1E63)

3.1.1 Field Settings

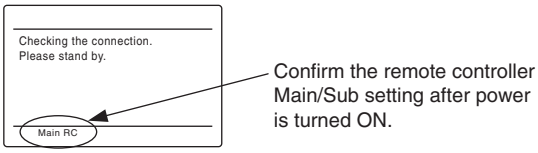
The designation of the main and sub remote controllers can be swapped. Note that this change requires turning the power OFF and then ON again.



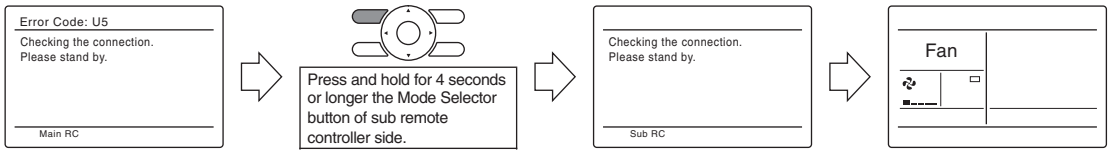
3.1.2 When an Error Occurred

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

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



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



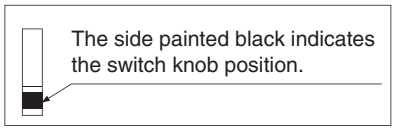
Note(s)

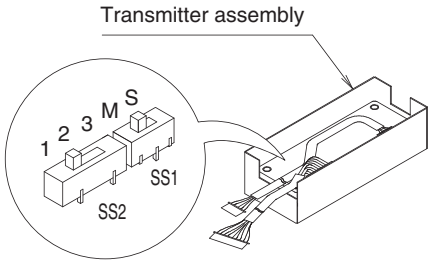
1. It is not possible to change the Main/Sub setting from Main to Sub when only one remote controller is connected.
2. When 2 remote controllers are being used, it is not possible to change the setting from Main to Sub if one of the remote controllers is already set as Main.

3.2 When Wireless Remote Controller is Used Together

When using both a wired and a wireless remote controller for 1 indoor unit, the wired controller should be set to Main. Therefore, the Main/Sub switch (SS1) of the signal receiver PCB must be set to Sub.

Main/Sub	Main	Sub
Main/Sub switch (SS1)		





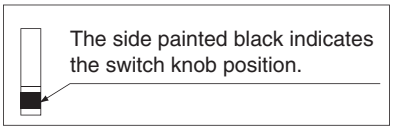
4. Address Setting for Wireless Remote Controller

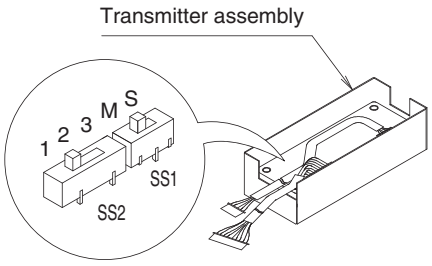
If setting multiple wireless remote controllers to operate in one room, perform address setting for the receiver and the wireless remote controller.
(This includes an individual remote controller control using the group operation.)
(For the wiring for the group operation, please refer to the installation manual attached to the indoor unit and technical guide.)

4.1 Setting for Signal Receiver PCB

The address for the receiver is set to 1 at the factory. To change the setting, set the wireless address switch (SS2) on the signal receiver PCB according to the table below.

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





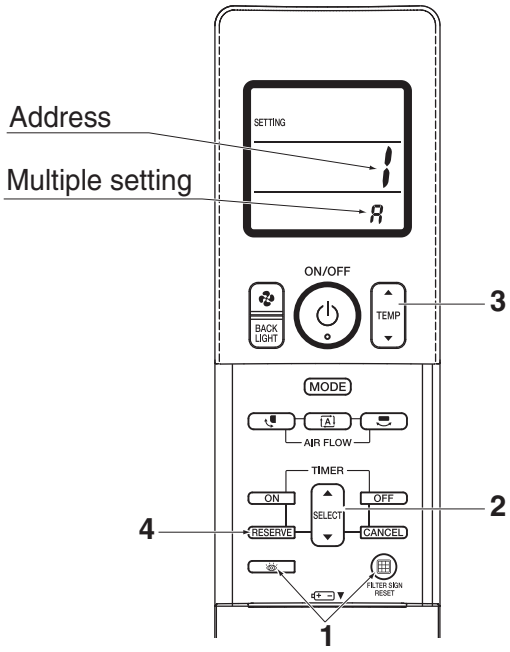
4.2 Setting for BRC4M Series

The address for the wireless remote controller is set to 1 at the factory. To change the setting, proceed as follows:

1. Press the **FILTER SIGN RESET** button and the **INSPECTION** button for at least 4 seconds to enter the Field Setting mode.
   (**SETTING** is indicated on the display.)
2. Press the **SELECT** button and select a multiple setting (A/b). Each time the button is pressed the display switches between **A** and **b**.
3. Press the **TEMP** buttons to set the address.

   1 → 2 → 3 → 4 → 5 → 6

   Address can be set from 1 to 6, but set it to 1-3 and to the same address as the receiver. (The receiver does not work with address 4-6.)
4. When the **RESERVE** button is pressed, the setting is confirmed and the usual display returns.



4.3 Multiple Settings A/b

The command such as operation mode or temperature setting by this remote controller will be rejected when the target indoor unit operation is restricted as by an external control such as centralized control.
Since the setting acceptance is hard to discriminate with such circumstances there are two setting options provided to enable discriminating by a beeping sound according to the operation: "**A**: Standard" or "**b**: Multi System". Set the setting according to the customer's intention.

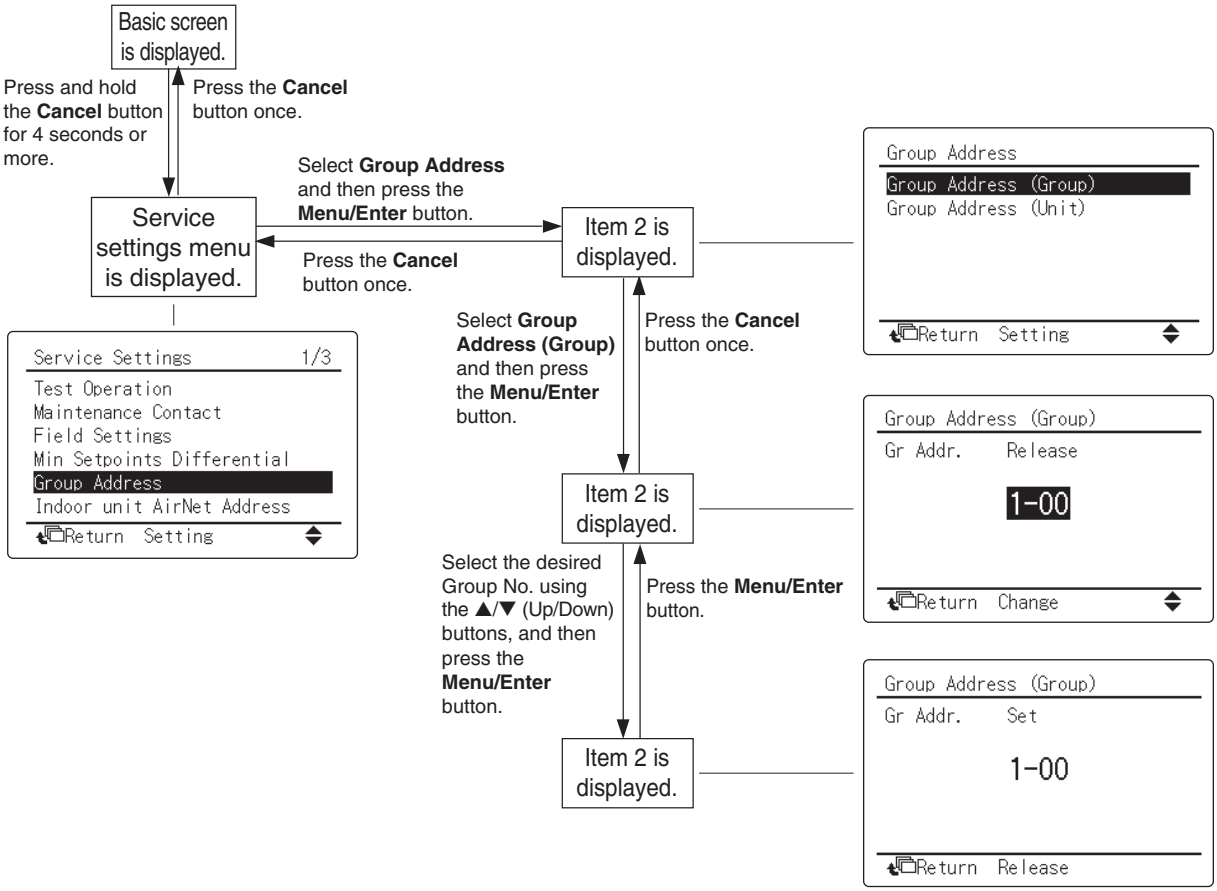
<table>
<tr><td colspan="2">Remote Controller</td><td colspan="2">Indoor Unit</td></tr>
<tr><td>Multiple setting</td><td>Display on remote controller</td><td>Behavior to the remote controller operation when the functions are restricted as by an external control.</td><td>Other than the left</td></tr>
<tr><td>A: Standard (factory set)</td><td>All items displayed.</td><td>Accepts the functions except restricted. (Sounds one long beep or three short beeps)
There may be a difference from the indoor unit status with remote controller display.</td><td rowspan="2">Accepts all items transmitted (Sounds two short beeps)
The remote controller display agrees with the indoor unit status.</td></tr>
<tr><td>b: Multi System</td><td>Display only items transmitted for a while.</td><td><When some restricted functions are included in the transmitted items>
Accepts the functions except restricted. (Sounds one long beep or three short beeps)
There may be a difference from the indoor unit status with remote controller display.

<When no restricted function is included>
Accepts all items transmitted (Sounds two short beeps)
The remote controller display agrees with the indoor unit status.</td></tr>
</table>

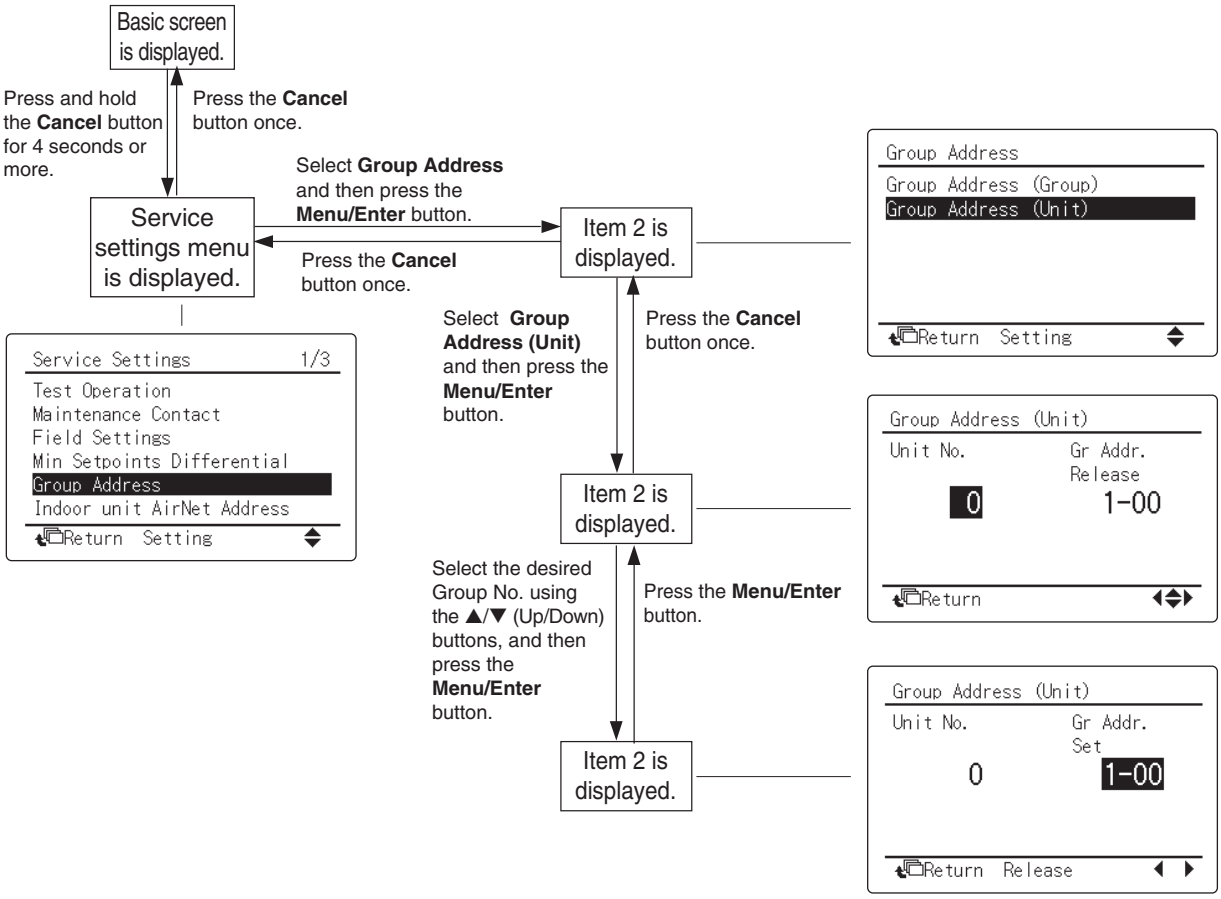
5. Centralized Control Group No. Setting

5.1 BRC1E63

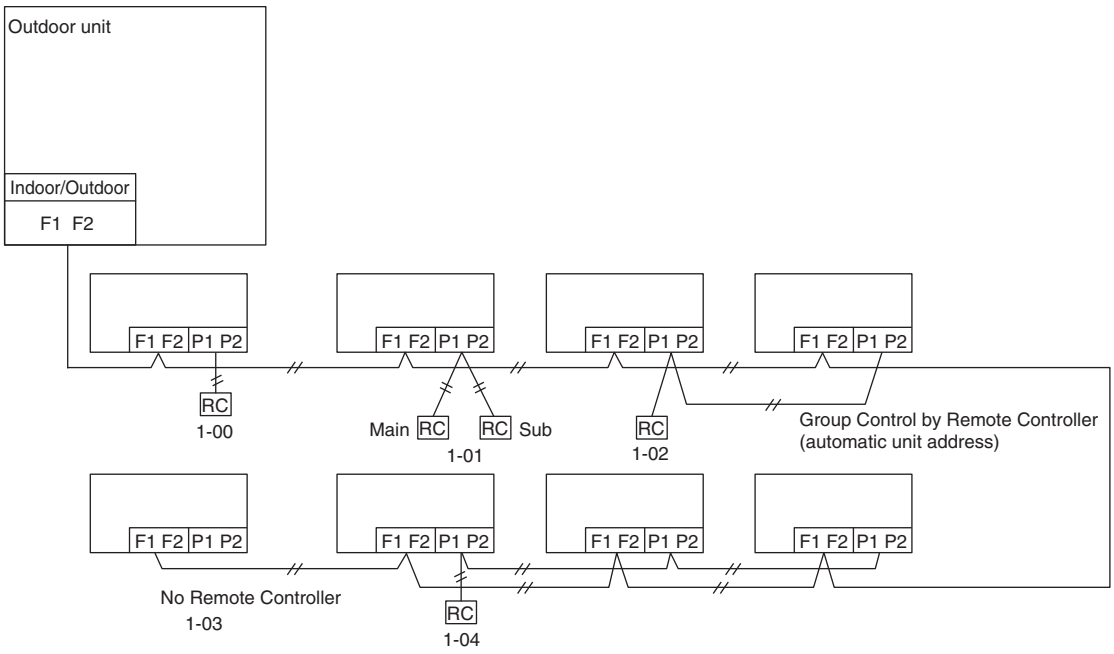
Group No. Setting (Group)



Group No. Setting (Unit)



5.2 Group No. Setting Example

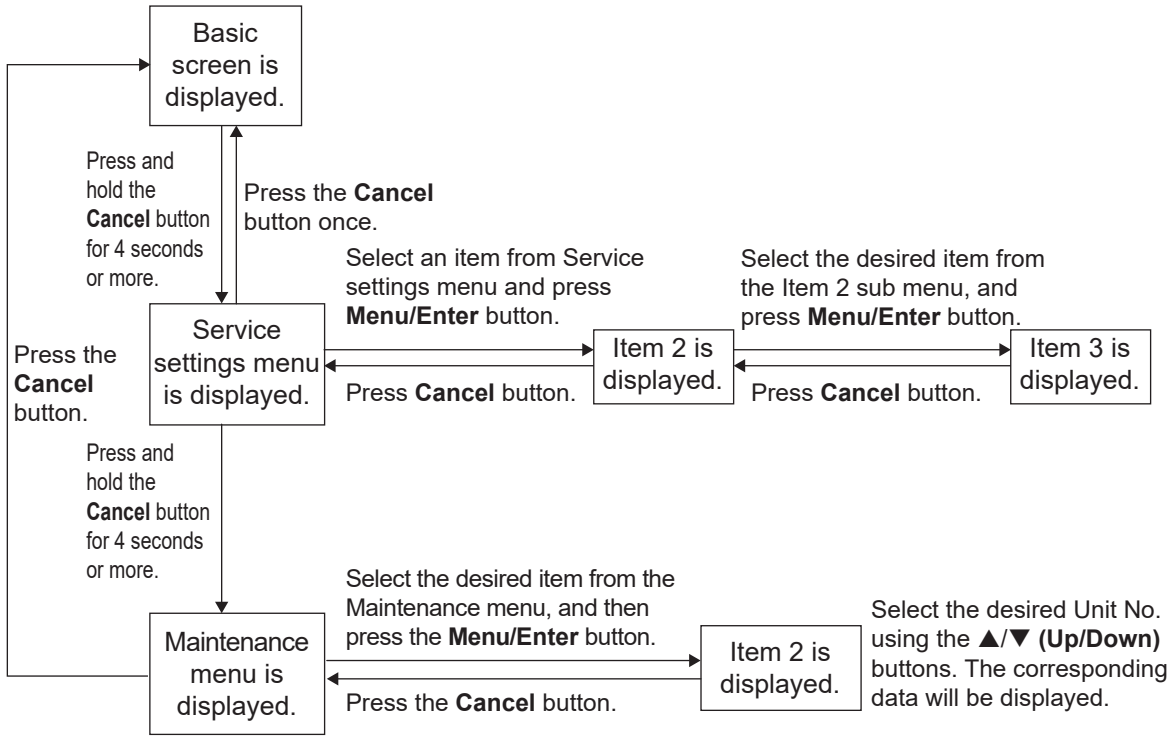


Caution When turning the power supply on, the unit may often not accept any operation after all indications were displayed once for about 1 minute on the liquid crystal display. This is not an operative fault.

6. Service Settings Menu, Maintenance Menu

6.1 BRC1E63

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



6.1.1 Service Settings Menu

Service settings menu	Item 2	Remarks
Test Operation	—	—
Maintenance Contact	None	—
	Maintenance Contact	—, 0 to 9 (in order)
Field Settings	Indoor Unit No.	—
	Mode No.	—
	First Code No.	—
	Second Code No.	—
Demand	Enable/Disable	Enable, Disable
	Settings	40%, 70%
		Start time (by the unit of 30 minutes)
		Ending time (by the unit of 30 minutes)
Min setpoints Differential	None, Single SP, 0 to 8°C	—
Group Address	Group Address (Group)	Gr Addr. Set
	Group Address (Unit)	Unit No., Gr Addr. Set
Indoor unit Airnet Address	Unit No., Address Set	—
Outdoor unit Airnet Address	Unit No., Address Set	—
Error History	RC Error History	Unit No., Error, Date, Time (Up to 10 errors received by the remote controller can be displayed.)
	Indoor Unit Error History	Unit No., Error, Date, Time (Up to 5 errors from the indoor unit error record can be displayed.)
Indoor Unit Status	Unit No.	—
	Th1	Suction air thermistor
	Th2	Heat exchanger liquid pipe thermistor
	Th3	Heat exchanger gas pipe thermistor
	Th4	Discharge air thermistor
	Th5	—
	Th6	—
Outdoor Unit Status	Unit No.	—
	Th1	Outdoor air thermistor
	Th2	Heat exchanger thermistor
	Th3	Discharge pipe thermistor
	Th4	—
	Th5	—
	Th6	—
Forced Fan ON	Unit No.	—
Switch Main Sub controller	—	—
Filter Indicator	—	—
Test Filter Auto Clean	—	—
Brush / Filter Ind	—	—
Disable Filter Auto Clean	No, Yes	—

6.1.2 Maintenance Menu

Maintenance Menu	Item 2	Remarks
Model Name	Unit No.	Select the unit number you want to check.
	Indoor unit	The model names are displayed. (A model code may be displayed instead, depending on the particular model.)
	Outdoor unit	
	R-32 mark display	—
Operation Hours	Unit No.	Select the unit number you want to check.
	Indoor unit operation hours	All of these are displayed in hours.
	Indoor fan operation hours	
	Indoor unit energized hours	
	Outdoor unit operation hours	
	Outdoor fan 1 operation hours	
	Outdoor fan 2 operation hours	
	Outdoor compressor 1 operation hours	
	Outdoor compressor 2 operation hours	
Indoor Unit Status	Unit No.	Select the unit number you want to check.
	FAN	Fan tap
	Speed	Fan speed (rpm)
	FLAP	Airflow direction
	EV	Degree that electronic expansion valve is open (pulse)
	MP	Drain pump ON/OFF
	EH	Electric heater ON/OFF
	Hu	Humidifier ON/OFF
	TBF	Anti-freezing control ON/OFF
	FLOAT	FLOAT SWITCH ON/OFF
	T1/T2	T1/T2 input from outside ON/OFF
	Th1	Suction air thermistor ∗1
	Th2	Indoor liquid pipe thermistor
	Th3	Indoor gas pipe thermistor
	Th4	Discharge air thermistor ∗2
	Th5	Infrared floor sensor ∗3
	Th6	Control temperature ∗4
Outdoor Unit Status	Unit No.	Select the Unit No. you want to check.
	FAN step	Fan tap
	COMP	Compressor power supply frequency (Hz)
	EV1	Degree that electronic expansion valve is open (pulse)
	SV1	Solenoid valve ON/OFF
	Pe	Low pressure (MPa)
	Pc	High pressure (MPa)
	Th1	—
	Th2	—
	Th3	—
	Th4	—
	Th5	—
	Th6	—
Error Display	Display error ON	Displays the error on the screen.
	Display error OFF	Displays neither errors nor warnings.
	Display warning ON	Displays a warning on the screen if an error occurs.
	Display warning OFF	No warning is displayed.
Swap Unit No.	Current Unit No.	A unit No. can be transferred to another.
	Transfer Unit No.	

Maintenance Menu	Item 2	Remarks
Addressed Sensor Value	Unit No.: 0 - 15	Select the unit number you want to check.
	Code 00: 01: 02: 03: 04: 05: 06: 07: 08: 09: 22: 23: 24: 25: 26:	 Remote controller thermistor (°C) Suction air thermistor (°C) ∗5 Heat exchanger liquid pipe thermistor (°C) Heat exchanger gas pipe thermistor (°C) Indoor unit address No. Outdoor unit address No. BS unit address No. Zone control address No. Cooling/Heating batch address No. Demand/low-noise address No. Displays human presence detection rate (%) (see ∗7) in Area 1 (see ∗6). Display value × 10%. Displays **15** for units with no sensing type mounted. Displays human presence detection rate (%) (see ∗7) in Area 2 (see ∗6). Display value × 10%. Displays **15** for units with no sensing type mounted. Displays human presence detection rate (%) (see ∗7) in Area 3 (see ∗6). Display value × 10%. Displays **15** for units with no sensing type mounted. Displays human presence detection rate (%) (see ∗7) in Area 4 (see ∗6). Display value × 10%. Displays **15** for units with no sensing type mounted. Infrared sensor (°C) (See ∗8). Displays – for units with no sensing type mounted.
	Data	The corresponding data will be displayed, based on the Unit No. and Code selected.

∗1: Displays suction air temperature after correction for all models.

∗2: Displays temperature only for applicable models.

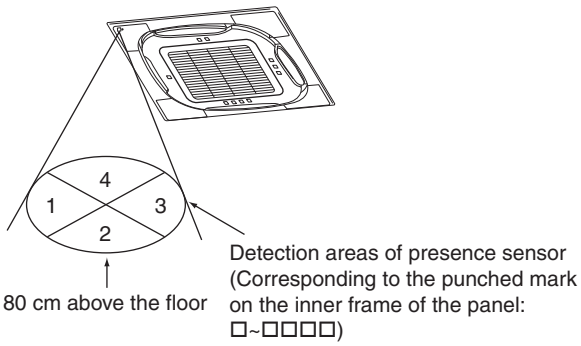
∗3: Displays floor temperature used for control (including correction) when the sensor kit is connected.

∗4: Displays control temperature (temperature near the person when the sensor kit is connected).

∗5: Displays suction air temperature after correction when the sensor kit is connected.

∗6: Areas mean four areas shown on the below.

∗7: For human presence detection rate (%), human motion is recognized by digital output ranging from 0 to 5 V. (5 V is output when no human presence is detected, and 0 V is output when human presence is detected.)



Reference

(1) 0% detection rate: Human presence is not detected at all.

(2) 25% detection rate: Human presence is detected, but the sensor does not recognize human presence.

(3) 50% detection rate: The sensor recognizes human presence (small human motion).

(4) 75% detection rate: The sensor recognized human presence (large human motion).

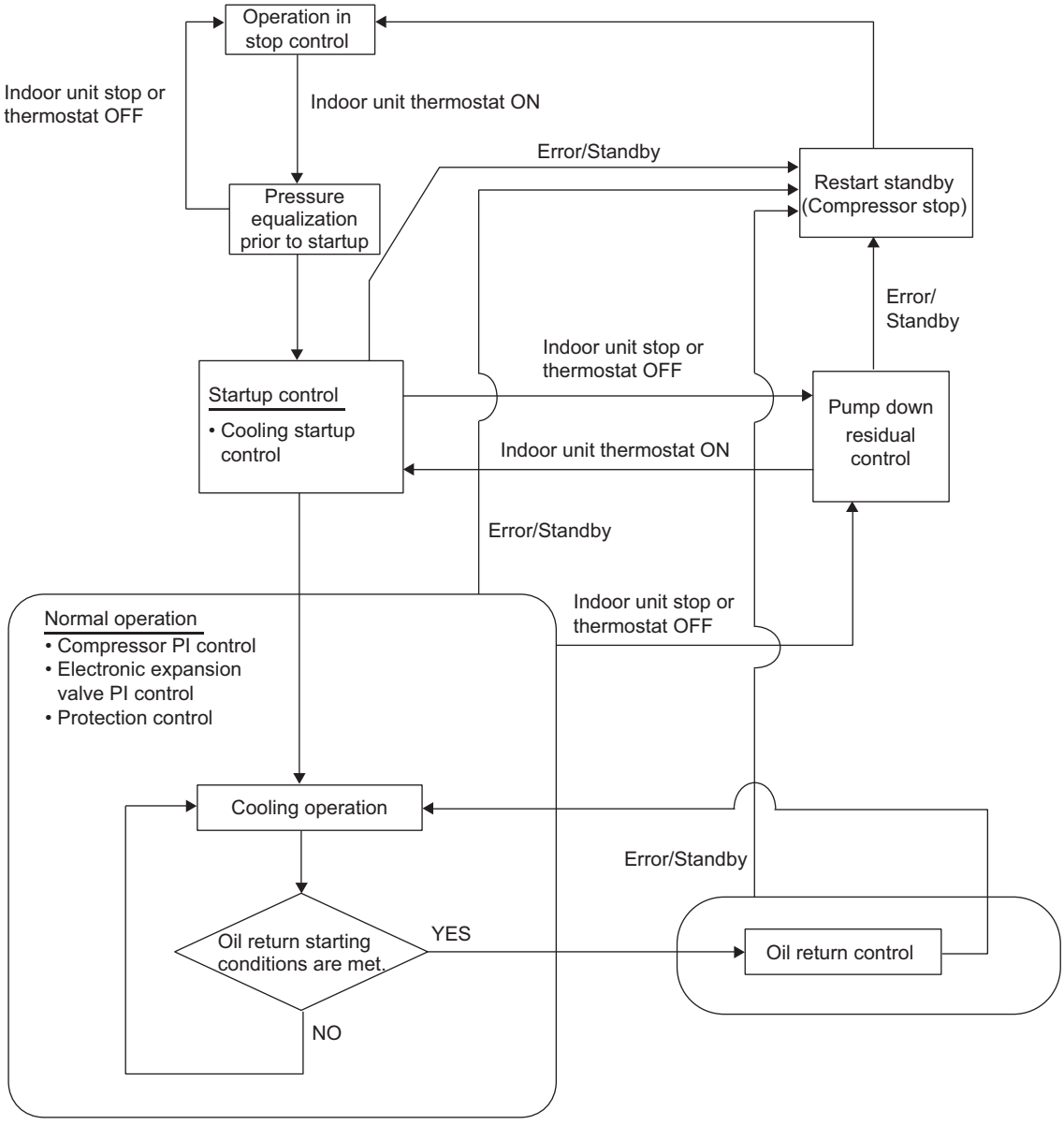
(5) 100% detection rate: The sensor constantly outputs 0 V. Continuing this condition will display an error.

∗8: Directly displays a measured value sent from the adaptor PCB.

Part 4
Functions and Control

1. Control for 4/5/10/12 HP Outdoor Unit

1.1 Operation Mode



Note(s) If the indoor unit stops or the thermostat turns OFF while in oil return control, pump down residual control is performed on completion of oil return control.

1.2 Basic Control

1.2.1 Normal Control

Cooling Operation

Outdoor unit actuator	Electric symbol			Operation	Remarks
	RXQ4ARV1	RXQ5ARV1	RXMQ 10/12ARY1		
Compressor	M1C	M1C	M1C	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	M1F	M1F	M1F M2F	Cooling fan control	—
Electronic expansion valve (Main)	—	—	Y1E	Fully open	—
Electronic expansion valve (Injection)	—	—	Y2E	PI control	—
Hot gas bypass valve	Y2S	—	—	OFF	This valve turns on with low pressure protection control.

1.2.2 Compressor PI Control

Carries out compressor capacity control to maintain Te at constant during cooling operation thus ensuring stable unit performance.

Cooling operation

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

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

Te setting (Setting mode 2) (°C)

Lower	Normal (Default)	Higher				
3	6	7	8	9	10	11

Compressor Frequency

4/5 HP

Step	Frequency (Hz)	
	RXQ4ARV1	**RXQ5ARV1**
1	—	45
2	—	52.5
3	57	57
4	61.5	61.5
5	66	66
6	72	72
7	78	78
8	85.5	85.5
9	93	93
10	100.5	100.5
11	109.5	109.5
12	118.5	118.5
13	127.5	127.5
14	136.5	136.5
15	145.5	145.5
16	154.5	154.5
17	163.5	163.5
18	174	174
19	183	183
20	192	192
21	201	202.5
22	211.5	213
23	222	225
24	232.5	237
25	243	250.5
26	—	264
27	—	279
28	—	294

∗ Depending on the operating conditions of the compressor, the compressor can be run in an operating mode different from the modes listed in the table above.

10/12 HP

Step	Frequency (Hz)	Step	Frequency (Hz)	Step	Frequency (Hz)
1	60.0	51	112.8	101	210.3
2	60.9	52	114.3	102	213.0
3	61.8	53	115.8	103	215.7
4	62.7	54	117.3	104	218.4
5	63.6	55	118.8	105	221.1
6	64.5	56	120.3	106	223.8
7	65.4	57	121.8	107	226.5
8	66.3	58	123.3	108	229.2
9	67.2	59	124.8	109	232.2
10	68.1	60	126.3	110	235.2
11	69.0	61	127.8	111	238.2
12	69.9	62	129.3	112	241.2
13	70.8	63	130.8	113	244.2
14	71.7	64	132.3	114	247.2
15	72.6	65	134.1	115	250.2
16	73.5	66	135.9	116	253.2
17	74.4	67	137.7	117	256.5
18	75.3	68	139.5	118	259.8
19	76.2	69	141.3	119	263.1
20	77.1	70	143.1	120	266.4
21	78.0	71	144.9	121	269.7
22	78.9	72	146.7	122	273.0
23	79.8	73	148.5	123	276.3
24	80.7	74	150.3	124	279.9
25	81.6	75	152.1	125	283.5
26	82.5	76	153.9	126	287.1
27	83.4	77	155.7	127	290.7
28	84.3	78	157.8	128	294.3
29	85.5	79	159.9	129	297.9
30	86.7	80	162.0	130	301.5
31	87.9	81	164.1	131	305.4
32	89.1	82	166.2	132	309.3
33	90.3	83	168.3	133	313.2
34	91.5	84	170.4	134	321.0
35	92.7	85	172.5	135	324.9
36	93.9	86	174.6	136	329.1
37	95.1	87	176.7	137	333.3
38	96.3	88	178.8	138	337.5
39	97.5	89	180.9	139	341.7
40	98.7	90	183.3	140	345.9
41	99.9	91	185.7	141	350.4
42	101.1	92	188.1	142	354.9
43	102.3	93	190.5	143	359.4
44	103.5	94	192.9	144	363.9
45	104.7	95	195.3	145	368.4
46	105.9	96	197.7	146	372.9
47	107.1	97	200.1	147	377.7
48	108.3	98	202.5	148	382.5
49	109.8	99	204.9	149	387.3
50	111.3	100	207.6	—	—

∗ Depending on the operating conditions of the compressor, the compressor can be run in an operating mode different from the modes listed in the table above.
∗ Step 149 is for 12 HP model only.
10 HP model has steps 148 and lower.

1.2.3 Electronic Expansion Valve PI Control

Injection Electronic Expansion Valve Control

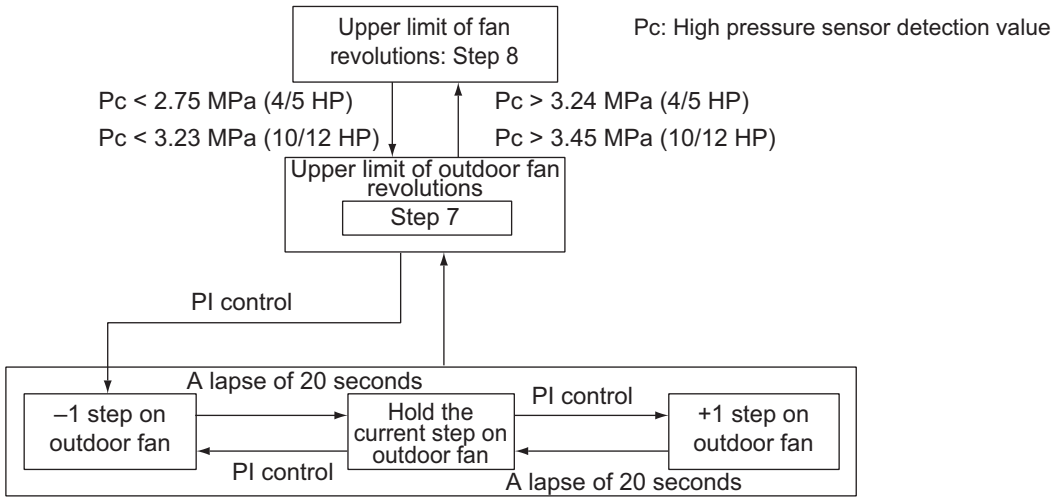
Performs PI control of the electronic expansion valve Y2E (RXMQ10/12ARY1) to keep the superheating degree (SH) of the outlet gas pipe on the evaporator side for full use of the subcooling heat exchanger.

SH = Tsh – Te

SH: Evaporator outlet superheating degree (°C)
Tsh: Subcooling heat exchanger gas pipe temperature detected with the thermistor R6T (°C)
Te: Low pressure equivalent saturation temperature (°C)

1.2.4 Cooling Operation Fan Control

In cooling operation with low outdoor air temperature, this control is used to provide an adequate amount of circulation air with liquid pressure secured by high pressure control from the outdoor fan.
Furthermore, when outdoor temperature ≥ 20°C, the compressor will run in Step 7 or higher.
When outdoor temperature ≥ 18°C, the compressor will run in Step 5 or higher.
When outdoor temperature ≥ 12°C, the compressor will run in Step 1 or higher.



Fan Steps

Step	Fan speed (rpm)		
	4/5 HP	10/12 HP	
	M1F	M1F	M2F
0	0	0	0
1	200	300	0
2	250	450	0
3	300	335	300
4	360	430	395
5	430	515	480
6	515	620	585
7	620	760/890	725/890
8	830	970	970

1.3 Special Control

1.3.1 Startup Control

This control is used to equalize the pressure in the suction and discharge sides of the compressor prior to the compressor startup, thus reducing startup loads. Furthermore, the inverter is turned ON to charge the capacitor.
In addition, to avoid stresses to the compressor due to oil return or else after the startup, the following control is made.
Pc : High pressure sensor detection value
Pe : Low pressure sensor detection value
Ta : Outdoor air temperature

Startup Control in Cooling Operation

Outdoor Unit Actuator	Electric symbol			Pressure equalization control prior to startup	Startup control	
	RXQ4ARV1	RXQ5ARV1	RXMQ 10/12ARY1		STEP 1	STEP 2
Compressor	M1C	M1C	M1C	0 Hz	Minimum frequency	Increases 2 steps every 20 seconds from minimum frequency until Pc – Pe > 0.39 MPa is achieved
Outdoor fan	M1F	M1F	M1F M2F	4/5 HP: OFF 10/12 HP: STEP 7	Ta < 20°C: OFF Ta ≥ 20°C: STEP 4	+1 step/15 seconds (when Pc > 2.16 MPa) –1 step/15 seconds (when Pc < 1.77 MPa)
Electronic expansion valve (Main)	—	Y1E	Y1E	0 pulse	Fully open	Fully open
Electronic expansion valve (Injection)	—	—	Y2E	0 pulse	0 pulse	0 pulse
Hot gas bypass valve	Y2S	—	—	OFF	OFF	OFF
Ending conditions				OR • Pc – Pe < 0.3 MPa • A lapse of 1 to 5 minutes	A lapse of 10 seconds	OR • A lapse of 130 seconds • Pc – Pe > 0.39 MPa

1.3.2 Oil Return Control

In order to prevent the compressor from running out of oil, the oil return control is conducted to recover oil that has flowed out from the compressor to the system side.

Oil Return Control in Cooling Operation

HTdi: Compressor discharge pipe temperature (Tdi) compensated with outdoor air temperature
Pe: Low pressure sensor detection value
Tc: High pressure equivalent saturation temperature
Te: Low pressure equivalent saturation temperature
Ts: Suction pipe temperature detected by thermistor

Starting Conditions

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

Oil Return Control

Outdoor unit actuator	Electric symbol			Oil return preparation control	Oil return control	Control after oil return
	RXQ4ARV1	RXQ5ARV1	RXMQ 10/12ARY1			
Compressor	M1C	M1C	M1C	Take the current step as the upper limit.	Minimum frequency (→ Low pressure protection control)	Same as oil return control.
Outdoor fan	M1F	M1F	M1F M2F	Fan control (Normal cooling)	Fan control (Normal cooling)	Fan control (Normal cooling)
Electronic expansion valve (Main)	—	—	Y1E	Fully open	Fully open	Fully open
Electronic expansion valve (Injection)	—	—	Y2E	SH control	0 pulse	0 pulse
Hot gas bypass valve	Y2S	—	—	OFF	OFF	OFF
Ending conditions				20 seconds	OR (• 3 minutes • Ts – Te < 5°C)	OR (• 3 minutes • Pe < 0.6 MPa • HTdi > 110°C)

Indoor unit actuator		Cooling oil return control
Indoor fan	Thermostat ON unit	Remote controller setting
	Non-operating unit	OFF
	Thermostat OFF unit	Remote controller setting
Electronic expansion valve	Thermostat ON unit	Normal opening
	Non-operating unit	224 pulse
	Thermostat OFF unit	Normal opening with forced thermostat ON

1.3.3 Pump Down Residual Control

When activating the compressor, if liquid refrigerant remains in the evaporator, the liquid enters the compressor and dilutes oil therein resulting in a decrease in lubricity.
Therefore, pump down residual control is performed to collect refrigerant in the evaporator when the compressor is stopped.

Pump Down Residual Control in Cooling Operation

Outdoor Unit Actuator	Electric symbol			Pump down residual control: Step 1	Pump down residual control: Step 2
	RXQ4ARV1	RXQ5ARV1	RXMQ 10/12ARY1		
Compressor	M1C	M1C	M1C	124 Hz	Minimum frequency
Outdoor fan	M1F	M1F	M1F M2F	Fan control	Fan control
Electronic expansion valve (Main)	—	—	Y1E	Fully open	Fully open
Electronic expansion valve (Injection)	—	—	Y2E	0 pulse	0 pulse
Hot gas bypass valve	Y2S	—	—	OFF	OFF
Ending conditions				2 seconds	2 seconds

1.3.4 Restart Standby

Restart is forced into standby to prevent the power from frequently turning on and off and to equalize pressure in the refrigerant system.
Ta: Outdoor air temperature

Outdoor Unit Actuator	Electric symbol			Operation
	RXQ4ARV1	RXQ5ARV1	RXMQ 10/12ARY1	
Compressor	M1C	M1C	M1C	OFF
Outdoor fan	M1F	M1F	M1F M2F	Ta > 30°C: STEP 4 Ta ≤ 30°C: OFF
Electronic expansion valve (Main)	—	—	Y1E	0 pulse
Electronic expansion valve (Injection)	—	—	Y2E	0 pulse
Hot gas bypass valve	Y2S	—	—	OFF
Ending conditions				2 minutes

1.3.5 Stop Control

Actuator operation is cleared when the system is down.

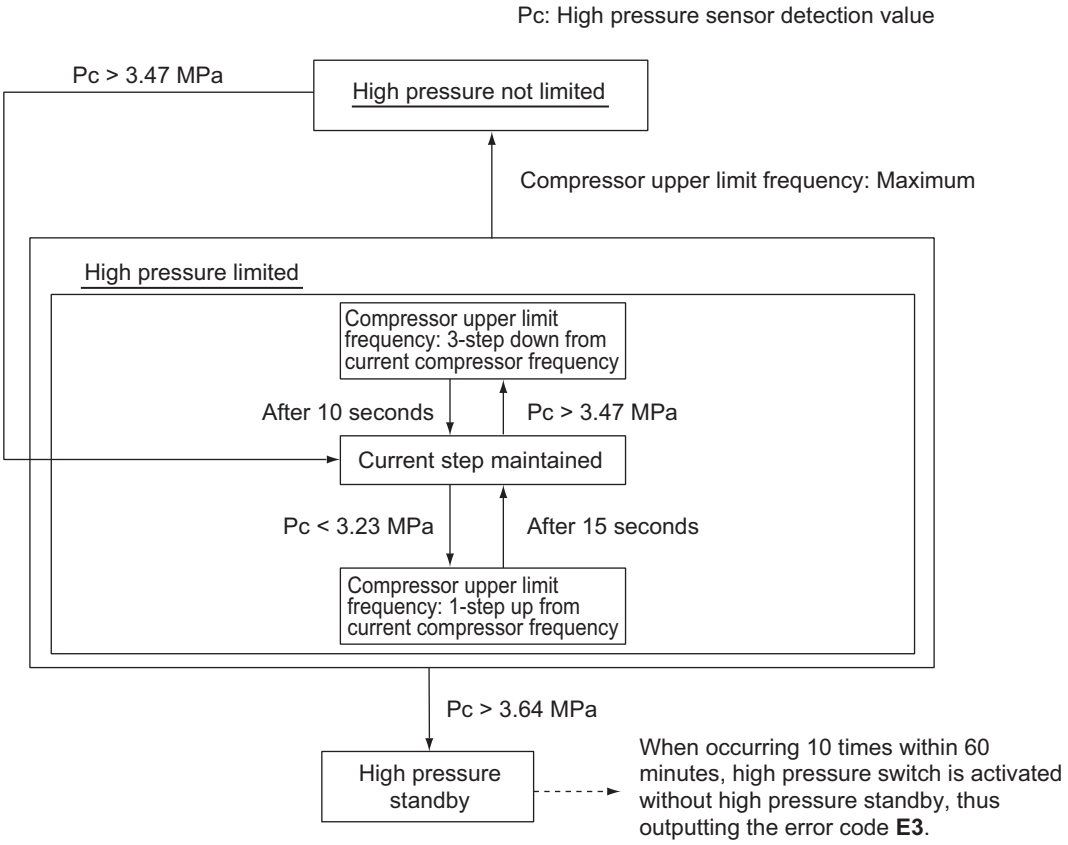
Outdoor Unit Actuator	Electric symbol			Operation
	RXQ4ARV1	RXQ5ARV1	RXMQ 10/12ARY1	
Compressor	M1C	M1C	M1C	OFF
Outdoor fan	M1F	M1F	M1F M2F	OFF
Electronic expansion valve (Main)	—	—	Y1E	0 pulse
Electronic expansion valve (Injection)	—	—	Y2E	0 pulse
Hot gas bypass valve	Y2S	—	—	OFF
Ending conditions				Indoor unit thermostat is turned ON.

1.4 Protection Control

1.4.1 High Pressure Protection Control

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

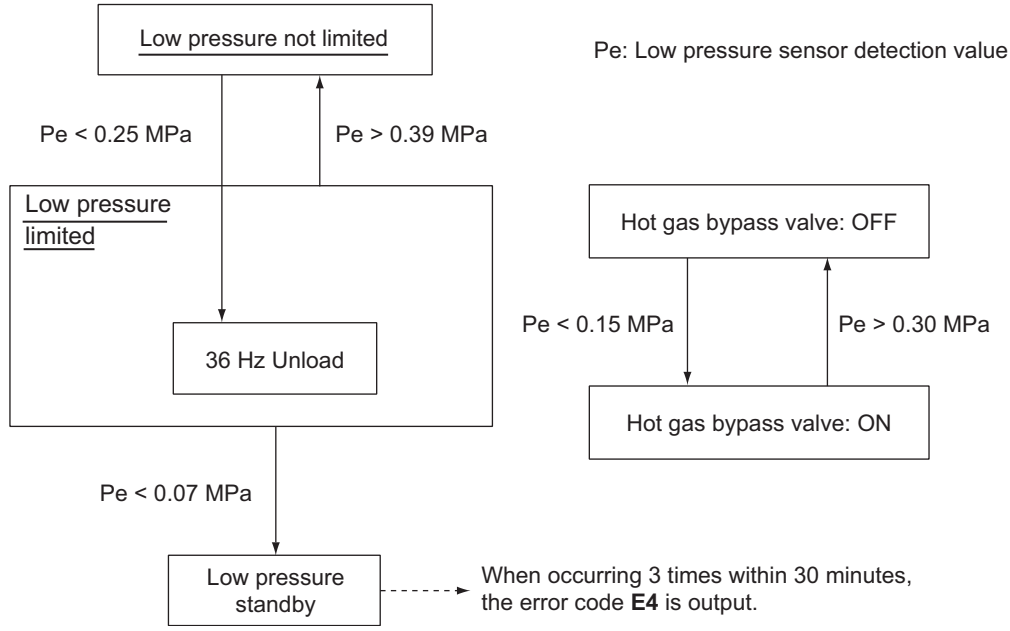
Cooling operation



1.4.2 Low Pressure Protection Control

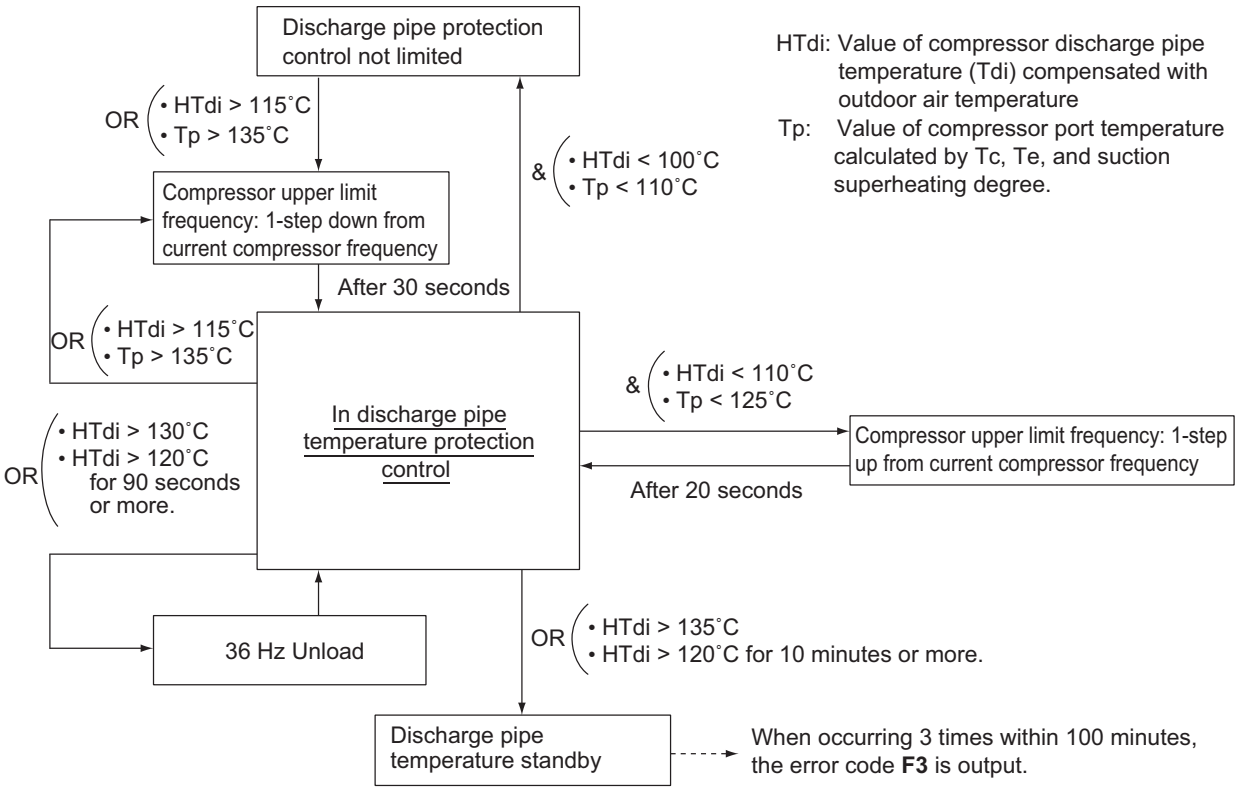
This low pressure protection control is used to protect compressors against transient decreases in low pressure.

Cooling operation



1.4.3 Discharge Pipe Protection Control

This discharge pipe protection control is used to protect the compressor from high internal temperature during abnormality or transient increase of discharge pipe temperature.

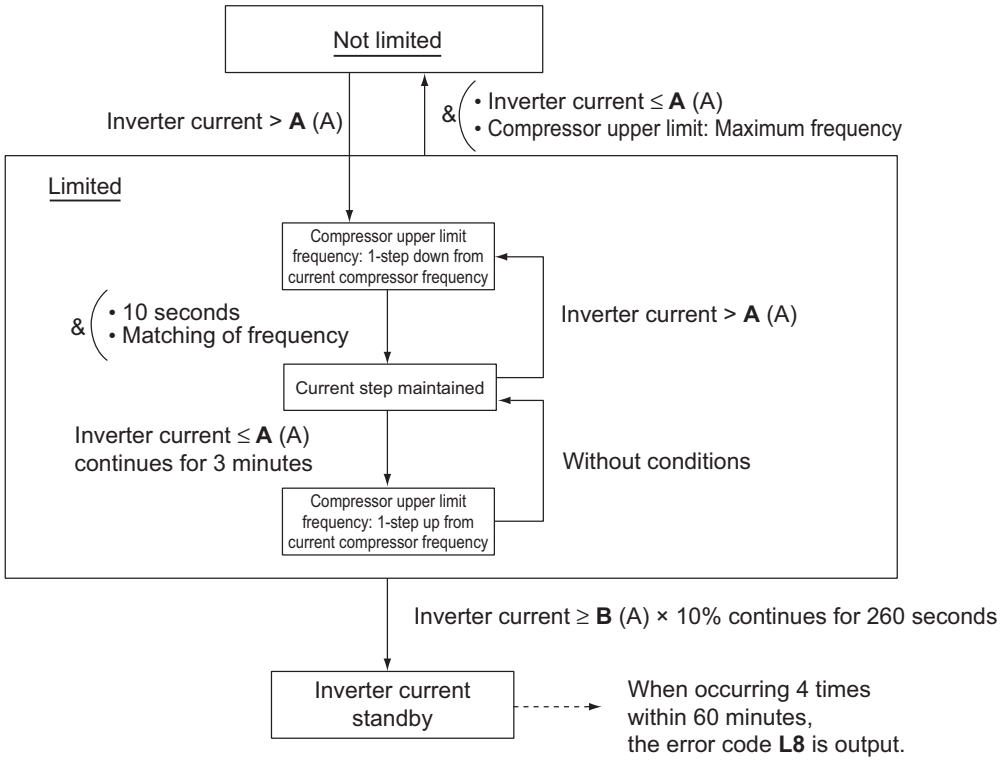


1.4.4 Inverter Protection Control

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

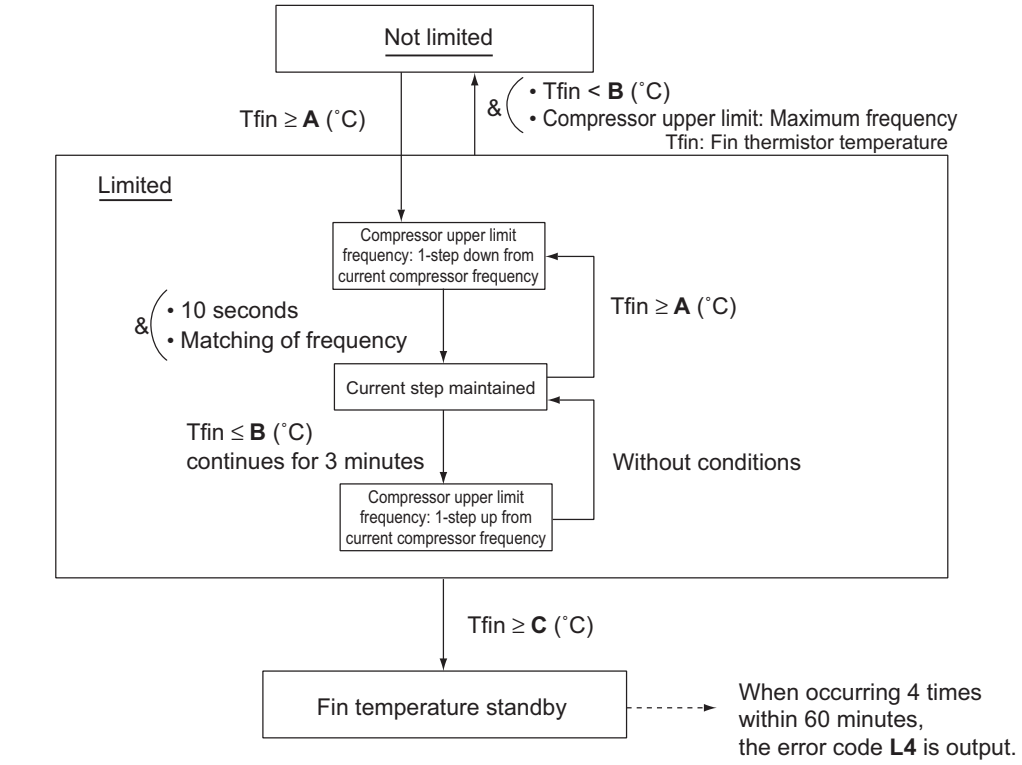
Inverter overcurrent protection control

Model	**A** (A)	**B** (A)
4HP	13.7	14.8
5HP	23.0	24.1
10/12HP	22.0	22.0

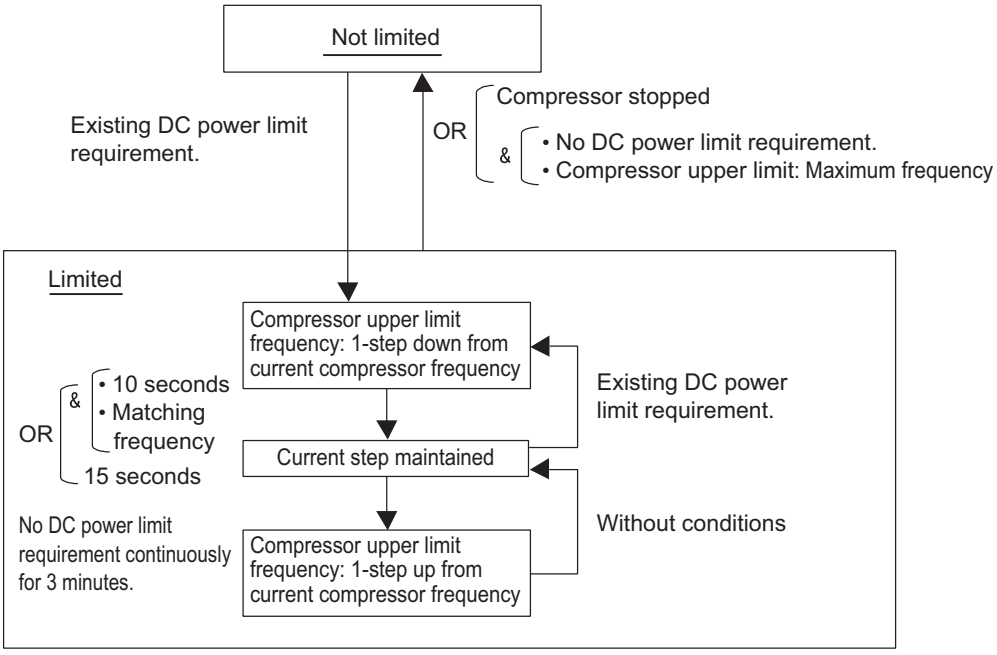


Radiation fin temperature control

Model	**A** (˚C)	**B** (˚C)	**C** (˚C)
4HP	82	79	92
5HP	78	75	85
10/12HP	79	76	84



According to the current limit of direct current



1.5 Other Control

1.5.1 Demand Control

In order to limit the power consumption, the capacity of outdoor unit is forcibly reduced by using Demand 1 Setting. To enable this operation, additional setting of Constant Demand Setting is required.

Demand 1 Setting

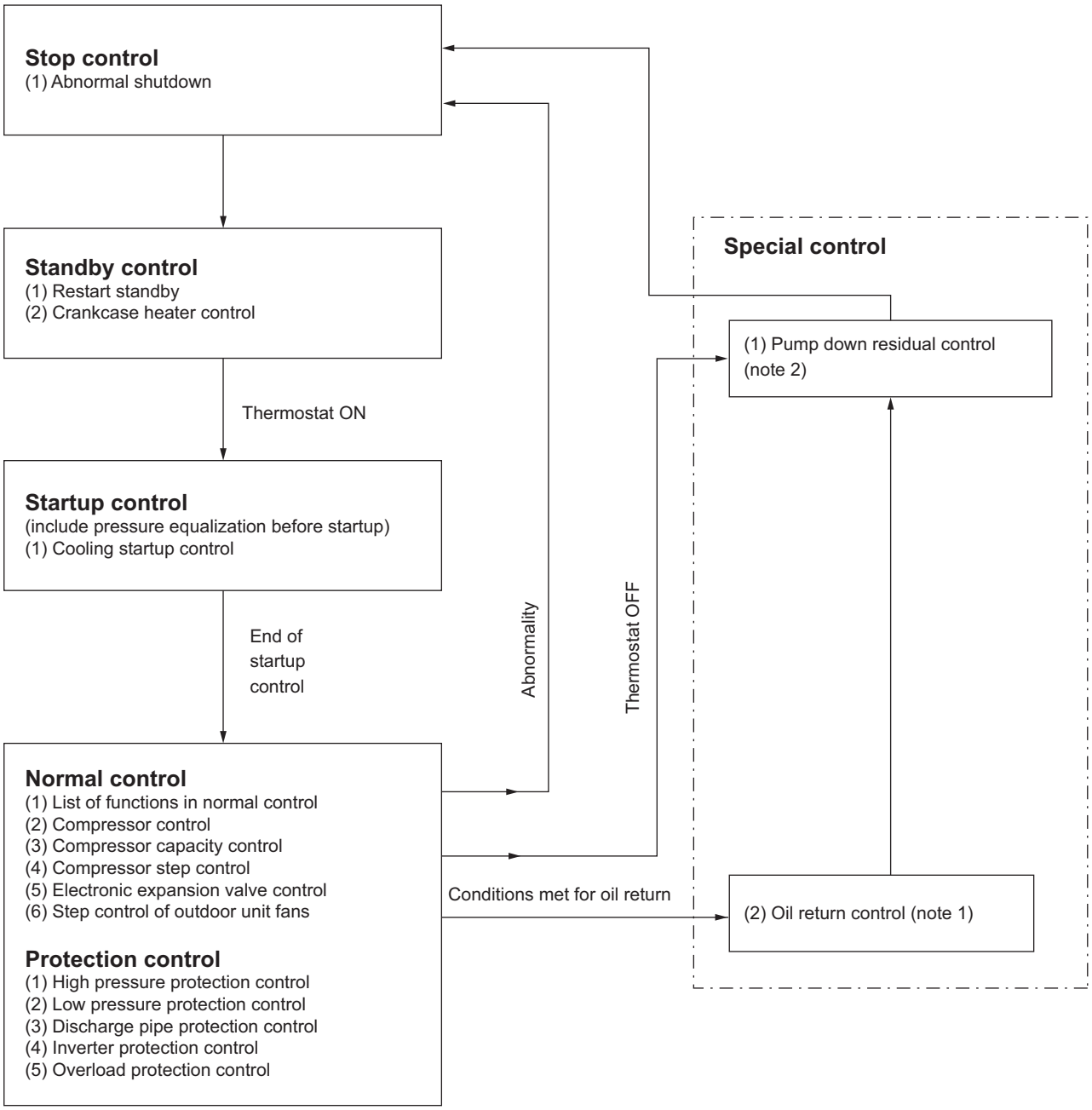
Level	Standard for upper limit of power consumption
Level 1	Approximately 60%
Level 2 (Factory setting)	Approximately 70%
Level 3	Approximately 80%

∗ Other protection control functions have precedence over the demand control.

2. Control for 6/8 HP Outdoor Unit

2.1 Operation Flowchart

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



Note(s)

1. If the indoor unit stops or the thermostat turns OFF while in oil return control, pump down residual operation is performed on completion of the oil return operation.
2. Not performed during cooling mode.

2.2 Stop Control

2.2.1 Abnormal Shutdown

In order to protect compressors, if any of the abnormal state occurs, the system will make "stop with thermostat OFF" and the error will be determined according to the number of retry times. (Refer to **Error Codes and Descriptions** on page 190 for the items to determine the error.)

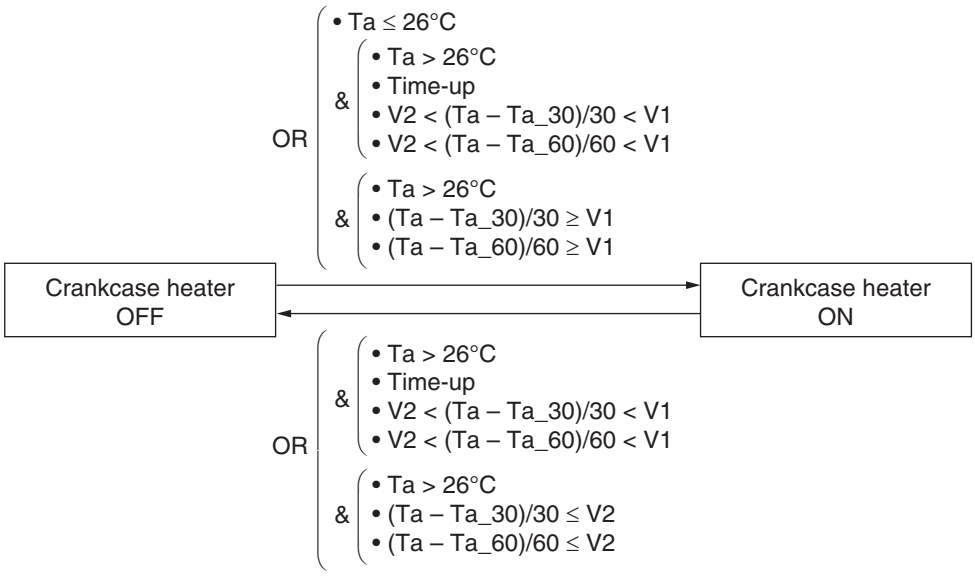
2.3 Standby Control

2.3.1 Restart Standby

Used to forcedly stop the compressor for a period of 5 minutes, in order to prevent the frequent ON/OFF of the compressor and equalize the pressure within the refrigerant system.
In addition, the outdoor fan carry out the residual operation for a while to accelerate pressure equalizing and to suppress melting of the refrigerant to the evaporator.

2.3.2 Crankcase Heater Control

In order to prevent the refrigerant from melting in the compressor oil in the stopped mode, this mode is used to control the crankcase heater.



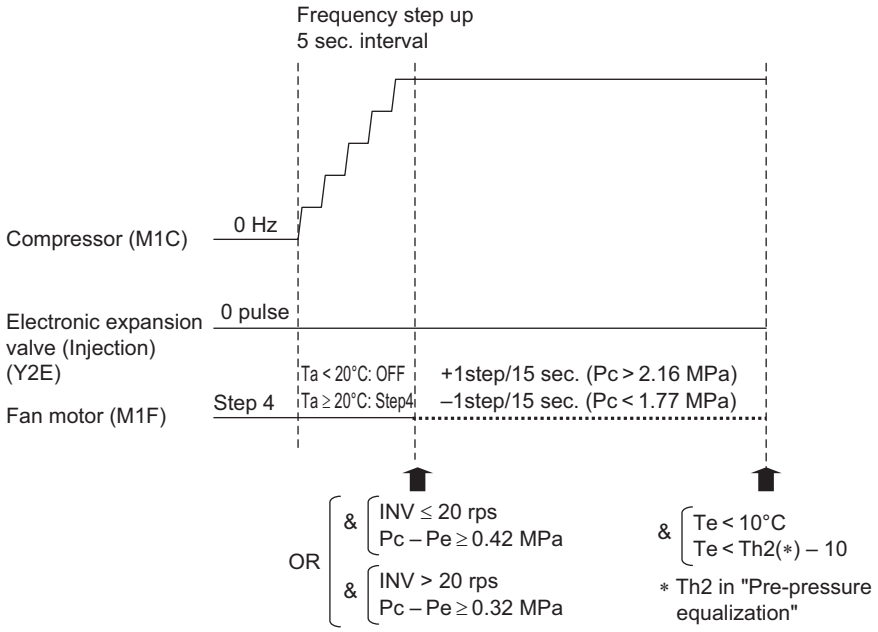
∗ Ta_30, Ta_60: Outdoor air temperature 30 minutes before and 60 minutes before, respectively.

	V1	V2
2Y350	0.05664	–0.15151
2Y420	0.03021	–0.08081

2.4 Startup Control

This control is used to equalize the pressure in the front and back of the compressor prior to the startup of the compressor, thus reducing startup loads. Furthermore, the inverter is turned ON to charge the capacitor.
To avoid stresses to the compressor due to oil return or else after the startup, the following control is made.
Pc : High pressure sensor detection value
Pe : Low pressure sensor detection value
Ta : Outdoor air temperature
Te : Low pressure equivalent saturation temperature
Td : Discharge temperature

2.4.1 Cooling Startup Control



2.5 Normal Control

2.5.1 List of Functions in Normal Control

Pc : High pressure sensor detection value
Pe : Low pressure sensor detection value
Tc : High pressure equivalent saturation temperature
Te : Low pressure equivalent saturation temperature

Cooling

Part Name	Electric Symbol	RXMQ-AR	Function
Compressor motor	M1C	●	PI control by Te target.
Fan motor	M1F	●	Fan speed 9 steps to keep minimum Tc target 41°C.
Electronic expansion valve (Injection)	Y2E	●	0-480 pulse at compressor ON
Electronic expansion valve (Refrigerant auto charge)	Y4E	●	Minimum pulse

●: equipped
—: not equipped

2.5.2 Compressor Control

In order to provide a steady capacity, the compressor capacity is controlled to achieve temperature Te during cooling operation.

During cooling operation

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

1. VRTsmart Control

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

∗ Applicable models: FXFSQ-AR, FXMQ-PB

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

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

2. VRT Control

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

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

3. Te fix Control

The target evaporation temperature is not changed.

Te value (Set in mode 2-8)

Standard (Factory setting)	High				
6	7	8	9	10	11

Te: Low pressure equivalent saturation temperature (°C)

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

2.5.3 Compressor Capacity Control

Te: Low pressure equivalent saturation temperature

Capacity steps

The compressor rotation speed is changed according to the control pressure.

- Cooling: suction pressure sensor value is converted into evaporation saturated temperature (relation between pressure and evaporating temperature based on characteristics of refrigerant R-410A). For detailed explanation refer to chapter field settings **(Details of Setting Mode (Mode 2)** on page 135 and installation manual outdoor chapter Energy saving and optimum operation).
  - Initial selection is made between Automatic, Fixed or High sensible.
  - During operation, the outdoor target evaporating temperature can be changed based on the selected sub function, taking indoor load into account.
- The initial target saturated temperature can be changed. For details refer to **Details of Setting Mode (Mode 2)** on page 135 for Cooling: Te set based on field setting 2-8.
- During operation, outdoor control will take into account the pressure drop so that at indoor units, the preset target temperature is reached (average). The estimated pressure drop is calculated based on:
  - Pressure drop characteristics found during test-operation outdoor (step 7). At several evaporating temperatures, outdoor control stores difference between outdoor evaporating temperature and average of indoor heat exchanger (indoor evaporating temperature).
  - To have judgment of gas speed in main suction pipe, control takes the capacity step of the outdoor unit into account. In function of pressure drop characteristics at the different compressor capacity steps, control concludes the category of system pipe lay out (long, medium, short).
- Target Te outdoor (cooling) = Te set – estimated pressure drop – **A**.
- Correction factor **A** depends on the absolute value of the difference between indoor air inlet temperature and a set temperature after startup period.

2.5.4 Compressor Step Control

- The actual rotation speed per second of the compressor (rps) depends on the type of compressor.
- The control can skip a number of steps to reach faster the target saturation temperature.

RXMQ6ARV1

Step No.	Frequency (Hz) Cooling	Step No.	Frequency (Hz) Cooling
1	27.0	67	117.2
2	27.6	68	119.4
3	28.1	69	121.5
4	28.8	70	123.5
5	29.7	71	125.7
6	30.6	72	127.8
7	31.5	73	130.2
8	32.3	74	132.5
9	32.8	75	135.0
10	33.5	76	137.4
11	34.2	77	139.7
12	35.1	78	142.2
13	36.0	79	144.8
14	36.9	80	147.5
15	37.7	81	150.3
16	38.2	82	153.0
17	38.6	83	155.7
18	39.1	84	158.4
19	39.6	85	161.3
20	40.4	86	164.4
21	41.3		
22	42.2		
23	43.2		
24	44.3		
25	45.6		
26	46.8		
27	47.9		
28	49.0		
29	50.1		
30	51.3		
31	52.8		
32	54.2		
33	55.8		
34	57.5		
35	58.9		
36	60.3		
37	62.0		
38	63.8		
39	65.7		
40	67.5		
41	69.3		
42	71.1		
43	72.9		
44	74.7		
45	76.5		
46	78.3		
47	80.1		
48	81.9		
49	83.7		
50	85.5		
51	87.3		
52	89.1		
53	90.9		
54	92.7		
55	94.5		
56	96.3		
57	98.1		
58	100.1		
59	102.3		
60	104.4		
61	106.4		
62	108.2		
63	109.8		
64	111.5		
65	113.3		
66	115.2		

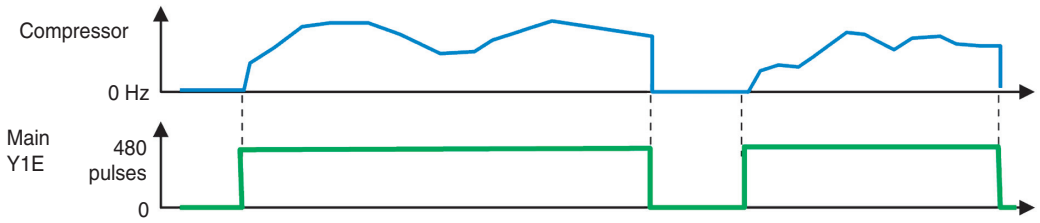
RXMQ8ARY1

Step No.	Frequency (Hz) Cooling	Step No.	Frequency (Hz) Cooling
1	22.4	67	124.6
2	23.1	68	127.3
3	23.8	69	130.0
4	24.7	70	132.4
5	25.8	71	134.7
6	26.9	72	136.7
7	28.0	73	138.7
8	29.4	74	140.9
9	30.7	75	143.4
10	32.1	76	145.9
11	33.6	77	148.6
12	35.0	78	151.2
13	36.1	79	153.7
14	37.0	80	156.4
15	38.1	81	159.1
16	39.2	82	162.0
17	40.1	83	164.9
18	40.8	84	168.0
19	41.7	85	171.0
20	42.6	86	173.9
21	43.7	87	177.0
22	44.8	88	180.1
23	46.0	89	183.5
24	46.9	90	187.1
25	47.5	91	190.4
26	48.0	92	193.8
27	48.7	93	197.2
28	49.3	94	200.8
29	50.2	95	204.6
30	51.3	96	208.4
31	52.5	97	212.0
32	53.8	98	215.8
33	55.2	99	219.6
34	56.7	100	223.2
35	58.3	101	227.0
36	59.6	102	231.0
37	61.0	103	235.2
38	62.3	104	239.7
39	63.9	105	244.2
40	65.7	106	248.5
41	67.5	107	252.5
42	69.5		
43	71.5		
44	73.3		
45	75.1		
46	77.1		
47	79.3		
48	81.8		
49	84.0		
50	86.3		
51	88.5		
52	90.8		
53	93.0		
54	95.2		
55	97.5		
56	99.7		
57	102.0		
58	104.2		
59	106.4		
60	108.7		
61	110.9		
62	113.2		
63	115.4		
64	117.6		
65	119.9		
66	122.1		

2.5.5 Electronic Expansion Valve Control

Electronic expansion valve Y1E

- Cooling: electronic expansion valve is used only at fully closed or fully open condition:
  - Compressor(s) OFF: fully closed (0 pulse).
  - Compressor ON:
    - Fully open (480 pulses)
    - Normally, the control is used to reduce the PCB temperature.



2.5.6 Step Control of Outdoor Fans

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

Step No.	Fan revolutions (rpm)	
	RXMQ6AR	RXMQ8AR
0	0	0
1	200	440
2	250	440
3	300	440
4	360	440
5	420	480
6	490	550
7Y	560	650
7X	630	830
8	700	960*

* When the system detects that outdoor air temperature (Ta) reaches 41°C or more, the control of fan revolutions will be changed to 1,060 rpm automatically.

Note(s)

- Table shown above is for external static pressure level 0. In case of high external static pressure, the unit will re-adjust fan revolutions automatically and values may differ.
- When capacity priority mode is set, values may differ.

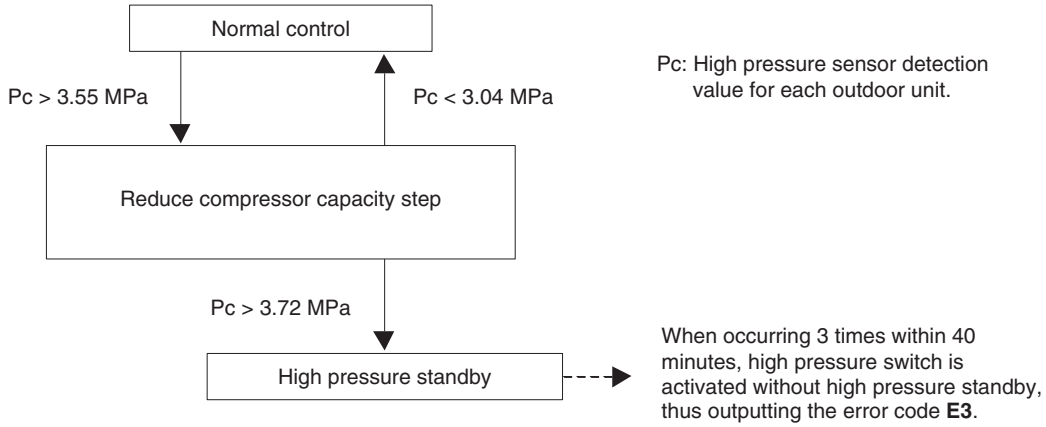
2.6 Protection Control

2.6.1 High Pressure Protection Control

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

Cooling

The following control is performed in the entire system.

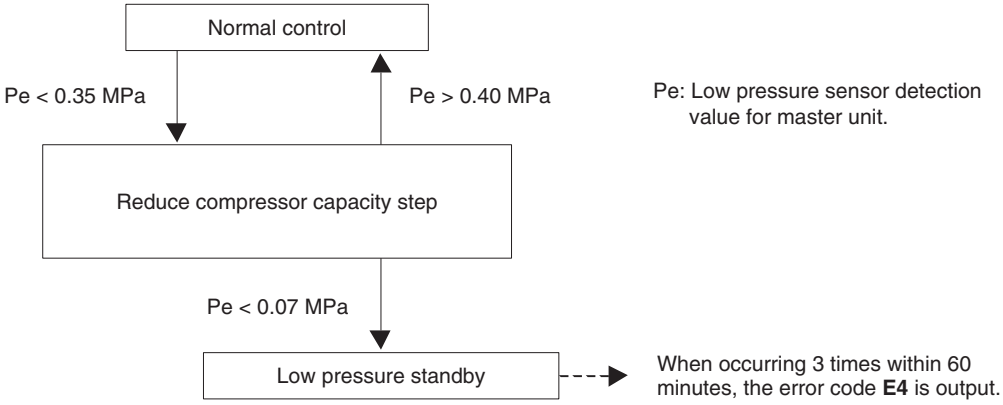


2.6.2 Low Pressure Protection Control

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

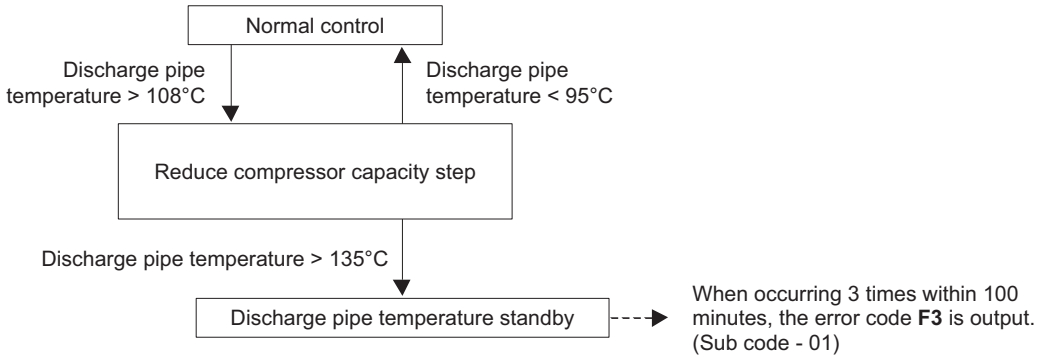
Cooling

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



2.6.3 Discharge Pipe Protection Control

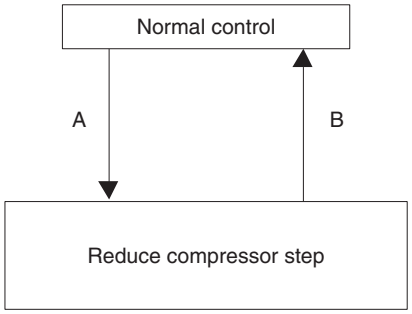
This discharge pipe protection control is used to protect the compressor internal temperature against an error or transient increase of discharge pipe temperature.



2.6.4 Inverter Protection Control

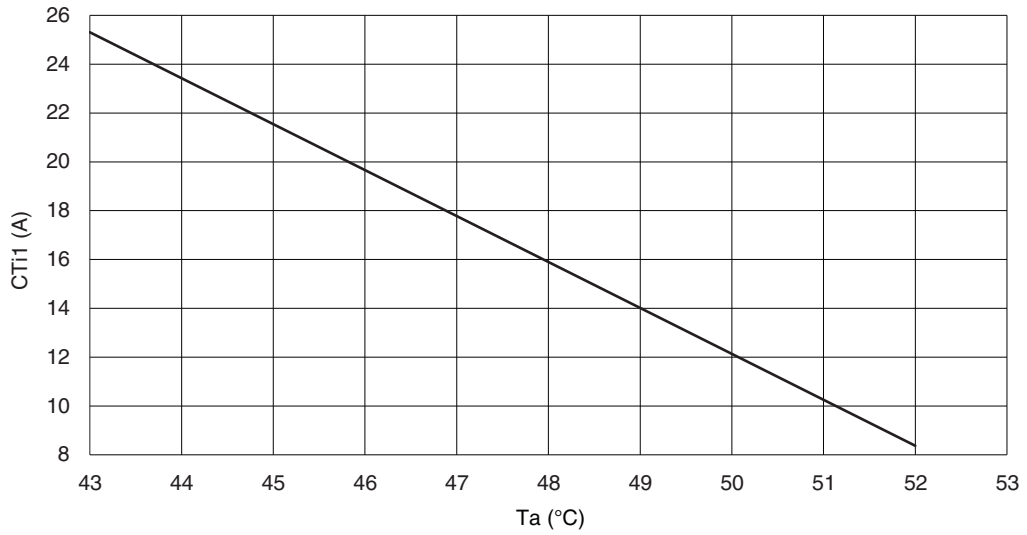
Inverter current protection control and radiation fin temperature control are performed to prevent tripping due to an abnormality, or transient inverter overcurrent, and fin temperature increase.

Inverter overcurrent protection control by primary current [CTi1]

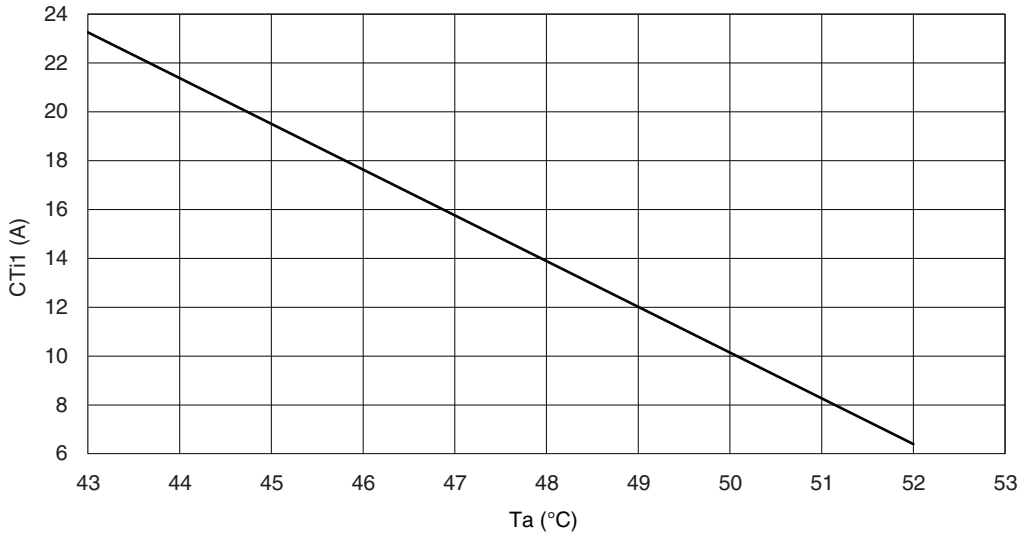


Condition	Primary current [CTi1] (A)	
	Ta < 43 °C	Ta ≥ 43 °C
A	> 27.0	> CTi1 in graph A
B	≤ 25.0	≤ CTi1 in graph B

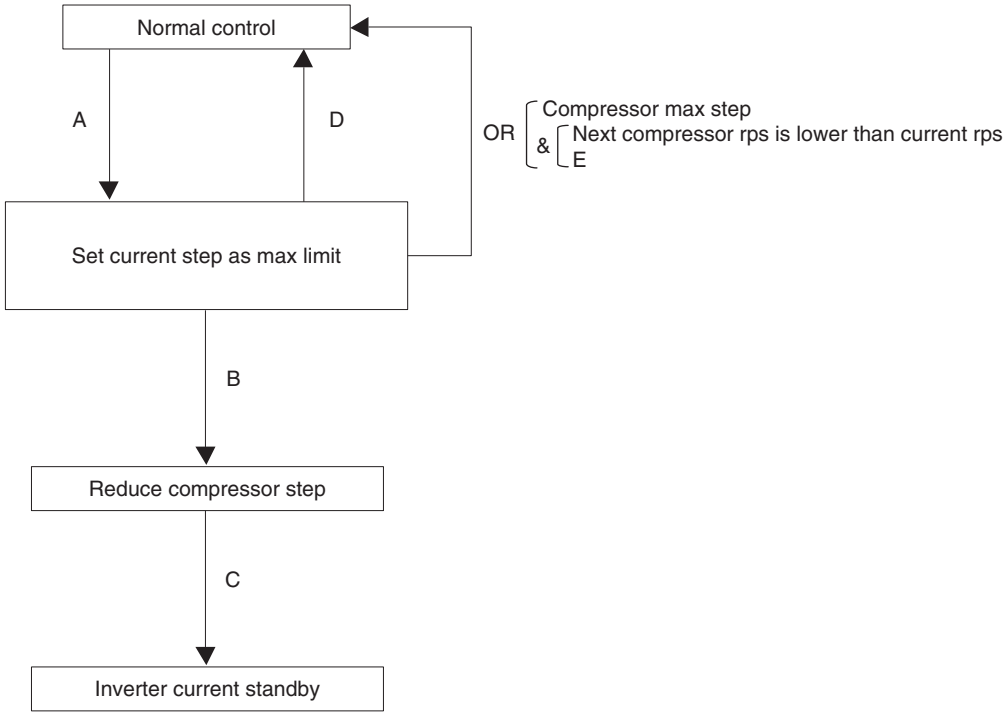
Graph A



Graph B



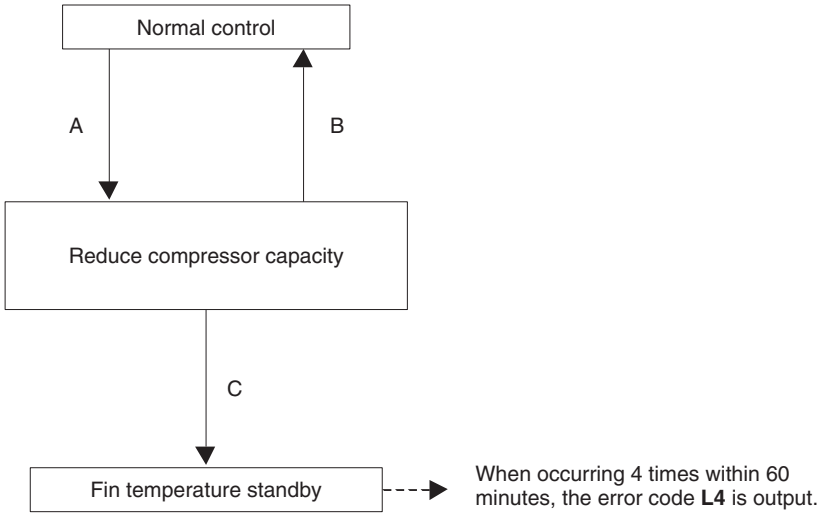
Inverter overcurrent protection control by secondary current [CTi2]



Condition	Secondary current [CTi2] (A)
A	> 17.5 (90 sec) or > 18.0
B	> 18.5 (90 sec) or > 19.0
C	> 22.1
D	≤ 14.5
E	≤ 18.5

Radiation fin temperature control

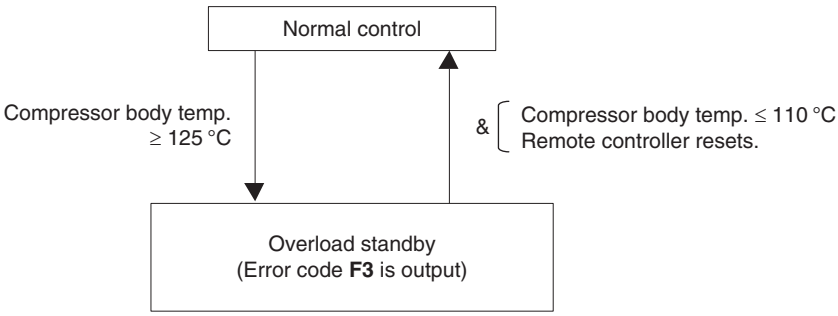
This control is performed for each compressor.



Condition	All compressors
A	more than 91 °C
B	less than 89 °C
C	more than 110 °C

2.6.5 Overload Protection Control

Prevent ignition due to abnormal heating of the compressor when it becomes damaged or abnormal operation.



2.7 Special Control

2.7.1 Pump Down Residual Control

Pc : High pressure sensor detection value
Pe : Low pressure sensor detection value
To avoid refrigerant emigration when outdoor unit stops operation (thermostat or safety), all electronic expansion valves are closed.

2.7.2 Oil Return Control

In order to prevent the compressor from running out of oil, the oil return control is conducted to recover oil that has flowed out from the compressor to the system side.
Tc : High pressure equivalent saturation temperature
Te : Low pressure equivalent saturation temperature
Ts1: Suction pipe temperature detected by thermistor R3T

Starting Conditions

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

Oil Return Control in Cooling Operation

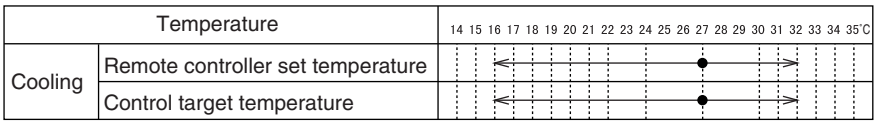
Part Name	Electric Symbol	RXMQ-AR	Function
Compressor motor	M1C	●	Capacity step PI control
Fan motor	M1F	●	TC control
Electronic expansion valve (Injection)	Y2E	●	0 pulse
Electronic expansion valve (Refrigerant auto charge)	Y4E	●	480 pulse
Ending conditions			& (· A lapse of 3 minutes. & OR (· Ts1–Te < 3°C · A lapse of 6 minutes while the frequency is more than that of oil return control.))

Indoor unit actuator		Cooling oil return control
Fan	Thermostat ON unit	Remote controller setting
	Non-operating unit	OFF
	Thermostat OFF unit	Remote controller setting
Electronic expansion valve	Thermostat ON unit	Normal control
	Non-operating unit	224 pulse
	Thermostat OFF unit	Normal control with forced thermostat ON

3. Outline of Control (Indoor Unit)

3.1 Set Temperature and Control Target Temperature

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



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

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

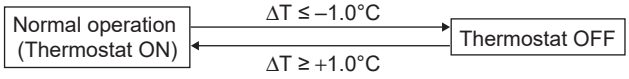
What is the temperature around people?
The temperature around people refers to the temperature of the living space, obtained from the temperature around the ceiling and the temperature underfoot. The temperature is calculated using the detected values of the suction air thermistor and the infrared floor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

3.2 Thermostat Control

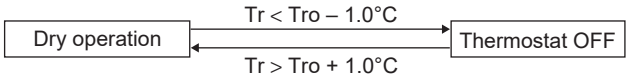
3.2.1 Without Optional Infrared Presence/Floor Sensor

The thermostat ON/OFF condition is determined by the difference between the remote controller set temperature and the actual detected room temperature (∗1).

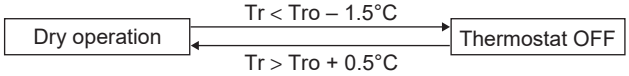
■ Normal operation
◆ Cooling operation



■ Dry operation
◆ When Tro < 24.5°C



◆ When Tro ≥ 24.5°C



ΔT = Detected room temperature – Remote controller set temperature
Tro: Detected room temperature at the start of dry operation
Tr: Determined by the room temperature detected by the thermistor

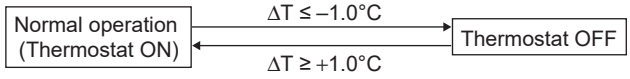
Note(s) ∗1: The thermistor used to detect room temperature is according to the field setting 10 (20)-2.

3.2.2 With Optional Infrared Presence/Floor Sensor

The thermostat ON/OFF condition is determined by the difference between the remote controller set temperature and the detected temperature around people.

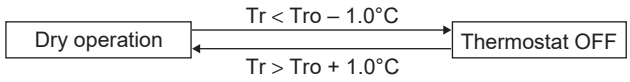
■ Normal operation

◆ Cooling operation

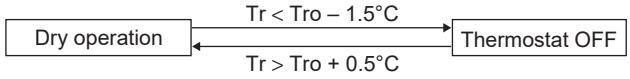


■ Dry operation

◆ When Tro ≤ 24.5°C



◆ When Tro > 24.5°C



ΔT = Detected room temperature – Remote controller set temperature
Tro: Detected room temperature at the start of dry operation
Tr: Determined by the room temperature detected by the thermistor

Control range of temperature around people

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

■ Cooling operation

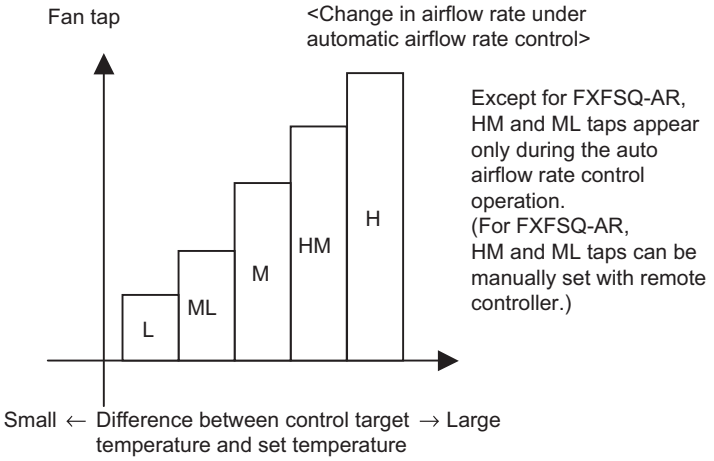
- When the floor temperature is lower than suction air thermistor detection temperature (R1T), R1T will be treated as the control target temperature for operation.
- When the temperature around people is 15°C or lower, R1T will be treated as the control temperature for operation.

3.3 Automatic Airflow Rate Control

The automatic airflow rate control (Five steps from H to L) is based on the difference between control target temperature and set temperature.

Conditions		When airflow rate is set	Automatic airflow rate
Cooling	Thermostat ON	Set	The fan tap is determined by the difference between control target temperature and set temperature.
	Thermostat OFF	Set (∗1)	The fan keeps rotating at the speed as just before the thermostat off (∗1)
Program dry	Thermostat ON	L	L
	Thermostat OFF	OFF	OFF
Fan		Set	M
Stop		OFF	OFF

∗1. LL airflow for FXFSQ-AR



3.4 Airflow Direction Control

3.4.1 Without Optional Infrared Floor Sensor

Refer to the table below for controlling the horizontal flap (or the vertical flap) for airflow direction adjustment.

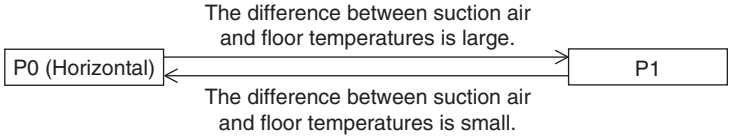
Conditions			FXAQ-P
Cooling	Direction set	Thermostat ON	Set
		Thermostat OFF	Set
	Swing set	Thermostat ON	Swing
		Thermostat OFF	Swing
Program dry	Direction set	Thermostat ON	Set
		Thermostat OFF	Set
	Swing set	Thermostat ON	Swing
		Thermostat OFF	Swing
Fan	Direction set		Set
	Swing set		Swing

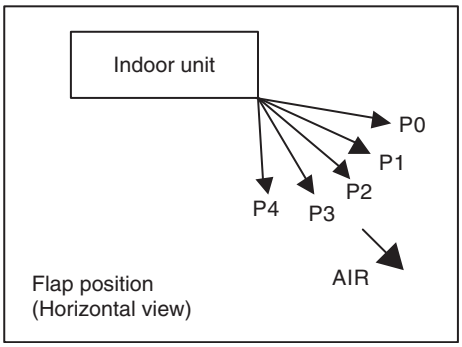
3.4.2 With Optional Infrared Floor Sensor

The model can control airflow direction automatically by the difference between suction air temperature and floor temperature.

Conditions			FXFSQ-AR	
			When airflow direction is set	Automatic airflow rate and eco full automatic control
Cooling	Direction set	Thermostat ON	Set	Automatic (P0 or P1)
		Thermostat OFF	Set	Automatic (P0 or P1)
	Swing set	Thermostat ON	Swing	—
		Thermostat OFF	Swing	—
Program dry	Direction set	Thermostat ON	Set	Automatic (P0 or P1)
		Thermostat OFF	Set	Automatic (P0 or P1)
	Swing set	Thermostat ON	Swing	—
		Thermostat OFF	Swing	—
Fan	Direction set		Set	Horizontal (P0)
	Swing set		Swing	—

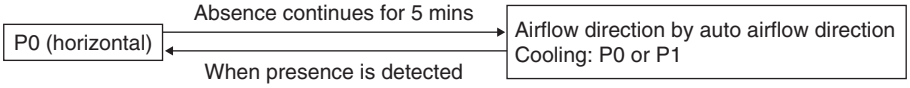
Operation in auto airflow direction control when cooling





3.5 Auto Draft Reducing Control (FXFSQ-AR only)

In the case where both this control is activated and auto airflow direction control (eco full automatic control) is set, when human presence is detected, the airflow direction is automatically set to horizontal (P0) to reduce discomfort by direct airflow.
This control works for each airflow outlet individually.
Note: This function is inoperative for the airflow outlet where an individual airflow direction is set.

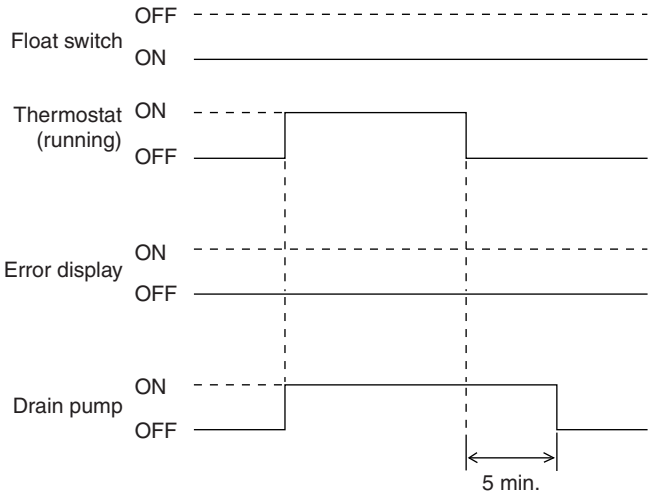


3.6 Eco Full Automatic Control (FXFSQ-AR only)

This is a generic term for the setting where both fan speed and airflow direction are set to "Auto". For detailed control contents, refer to **Automatic Airflow Rate Control** and **Airflow Direction Control**.

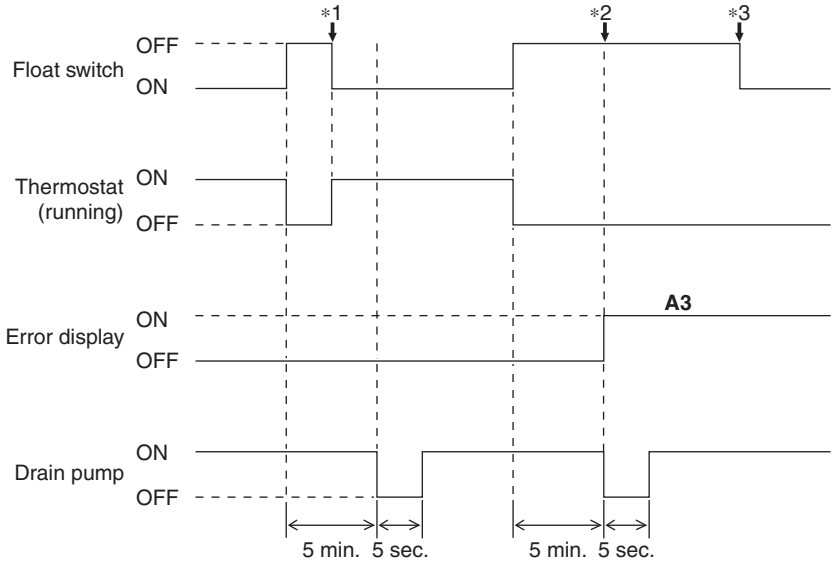
3.7 Drain Pump Control

3.7.1 Normal Operation



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

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



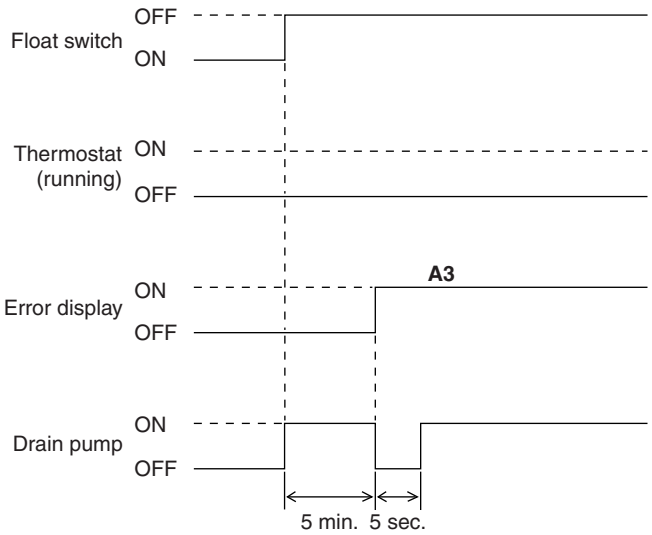
- When the float switch turns OFF, the thermostat turns OFF simultaneously.
- After the thermostat turns OFF, the drain pump continues to operate for another 5 minutes.

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

∗2: If the float switch remains OFF even after the residual operation of the drain pump has ended, the error code **A3** is displayed on the remote controller.
The drain pump turns OFF once residual operation has ended, then turns ON again after 5 seconds.

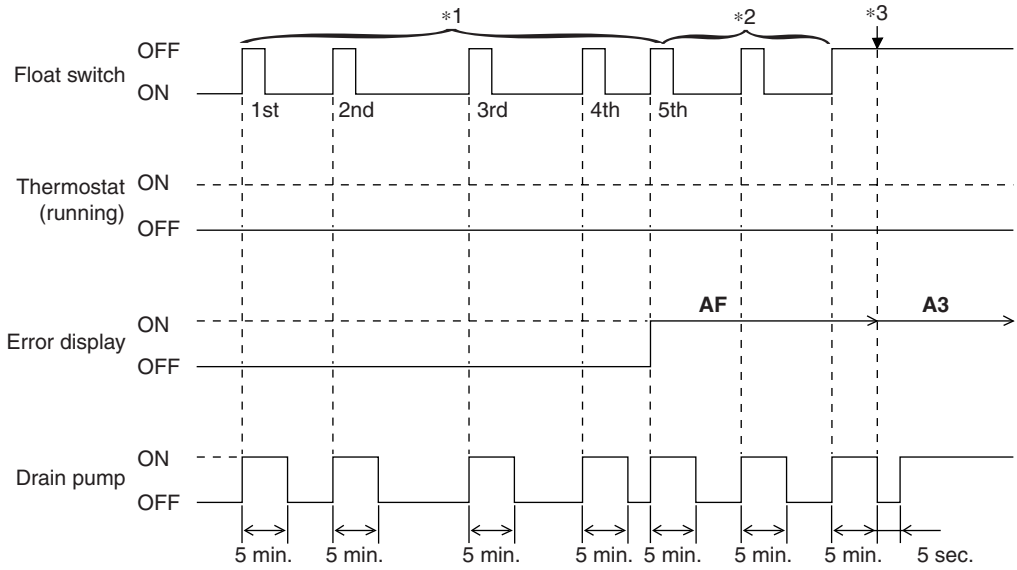
∗3: After **A3** is displayed and the unit comes to an abnormal stop, the thermostat will remain OFF even if the float switch turns ON again.

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



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

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



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

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

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

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

3.8 Freeze-Up Prevention Control

Freeze-Up Prevention by Off Cycle (Indoor Unit Individual Control)

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

When freeze-up prevention is activated, the airflow rate is fixed to L tap. When the following conditions for cancelling are satisfied, it will reset.

Conditions for starting:

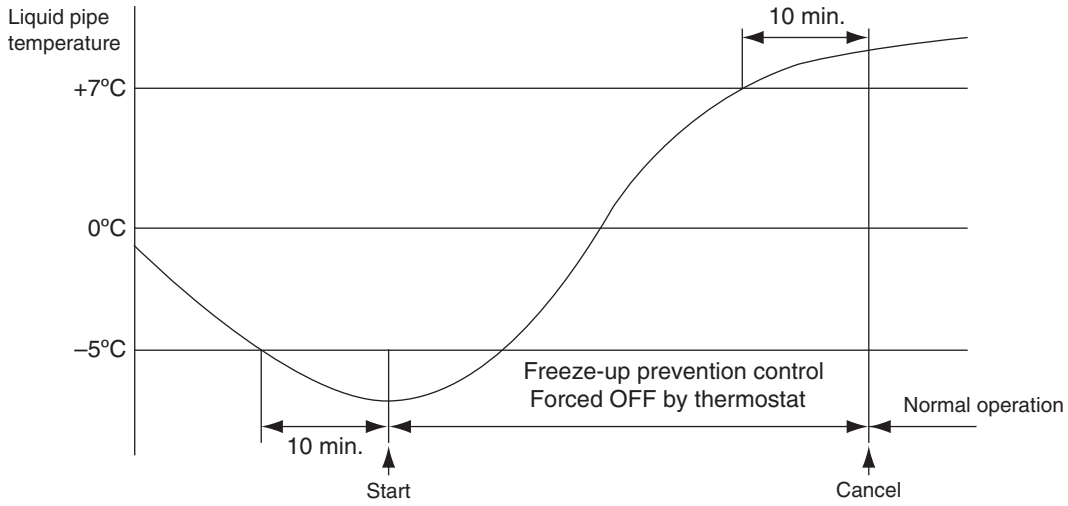
Liquid pipe temperature ≤ – 1°C (for total of 40 minutes)

or

Liquid pipe temperature ≤ – 5°C (for total of 10 minutes)

Condition for cancelling:

Liquid pipe temperature ≥ +7°C (for 10 minutes continuously)



Concept of freeze-up prevention control

System avoids freeze-up

- For comfort, system avoids unnecessary thermostat ON/OFF
- For ensuring compressor reliability, system avoids unnecessary compressor ON/OFF

When freeze-up prevention control starts, system makes sure the frost is completely removed.

- System avoids water leakage.

Note(s)

When the indoor unit is a round flow or multi flow type, if the air outlet is set as dual-directional or tri-directional, the starting conditions will be changed as follows.

Liquid pipe temperature ≤ 1°C (for total of 15 minutes)

or

Liquid pipe temperature ≤ 0°C (for 1 minute continuously)

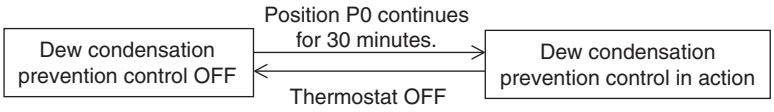
During freeze-up prevention control, the airflow rate is fixed to LL.

(The cancelling conditions are same as the standard.)

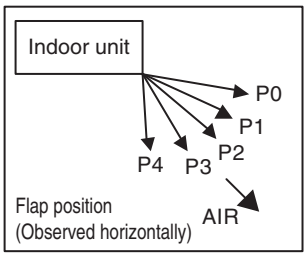
3.9 Dew Condensation Prevention Control

3.9.1 FXFSQ-AR Models

Indoor operation under a certain condition will limit the swing range of the flaps.



Refer to the table below for flap action under this control.



	Dew condensation prevention control	
Flap setting	OFF	In action
P0	P0	P1
P1	P1	P1
P2	P2	P2
P3	P3	P3
P4	P4	P4
Swing	P0 – P4	P1 – P4

3.9.2 FXAQ-P Models

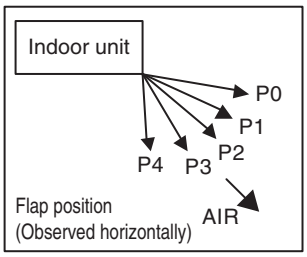
In cooling and dry operation, the following control is carried out in order to prevent dew condensation when the horizontal blade blows air downward.

Starting condition

& ● Horizontal blade is set to downward flow (Position **A**)
● Cooling operation (compressor operation) continues for **B** minutes.

Dew condensation prevention control

Dry operation with horizontal airflow (Position **C**) is carried out for 1 hour.



	FXAQ-P
Position **A**	P4
B (minutes)	20
Position **C**	P3

Note(s) When there is any change to fan operation, airflow direction and operation ON/OFF state during dew condensation prevention control, this control is canceled.

3.10 Electronic Expansion Valve Control

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

• Superheating degree control in cooling operation

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

SH = Tg – TI

where,

SH: Evaporator outlet superheating degree (°C)
Tg: Indoor unit gas pipe temperature (R3T)
TI: Indoor unit liquid pipe temperature (R2T)

SHS (Target superheating degree)
• Normally 5°C.
• As ΔT (Remote controller set temp. – Suction air temp.) becomes larger, SHS becomes lower.
• As ΔT (Remote controller set temp. – Suction air temp.) becomes lower, SHS becomes larger.

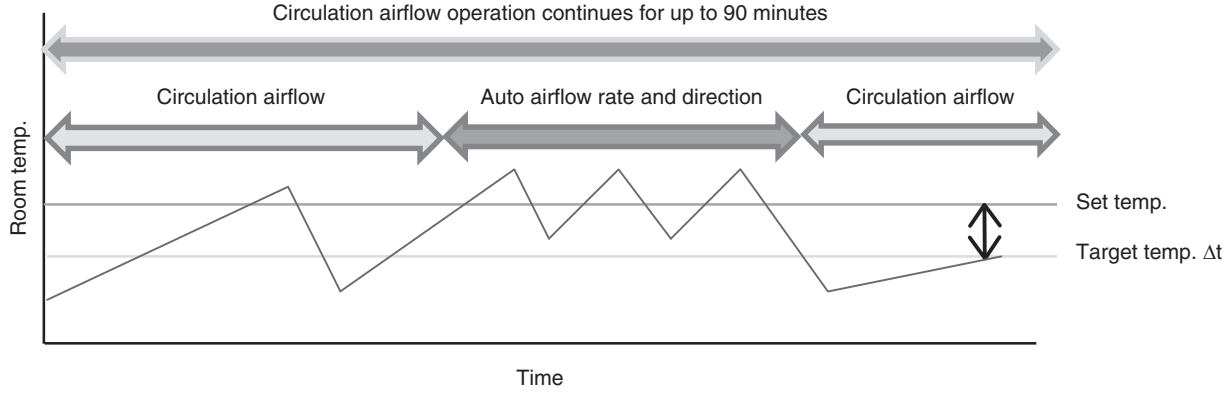
3.11 Circulation Airflow (FXFSQ-AR only)

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

3.11.1 Initiation Conditions of Circulation Operation

When operation starts (in the startup state)
Circulation airflow operation is performed.

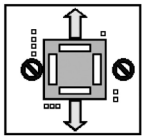
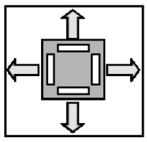
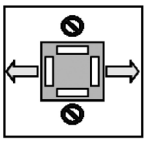
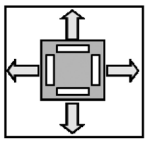
During normal operation
The unit automatically determines operation based on the room temperature condition and time to switch circulation airflow operation and the normal auto airflow rate and direction (eco full automatic control).



3.11.2 Operational Concept (Standard Panel)

Cooling

★: Factory setting

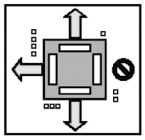
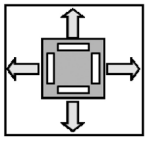
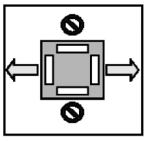
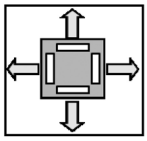
Movement pattern		(a)	(b)	(c)	(d)
					
Appearance Time (seconds) 13 (23)-14	**01: Pattern 1★**	**120★**	**600★**	**120★**	**600★**
	02: Pattern 2	120	600	0	0
	03: Pattern 3	0	0	120	600
	04: Pattern 4	120	600	120	600

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

3.11.3 Operational Concept (Designer Panel)

Cooling

★: Factory setting

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

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

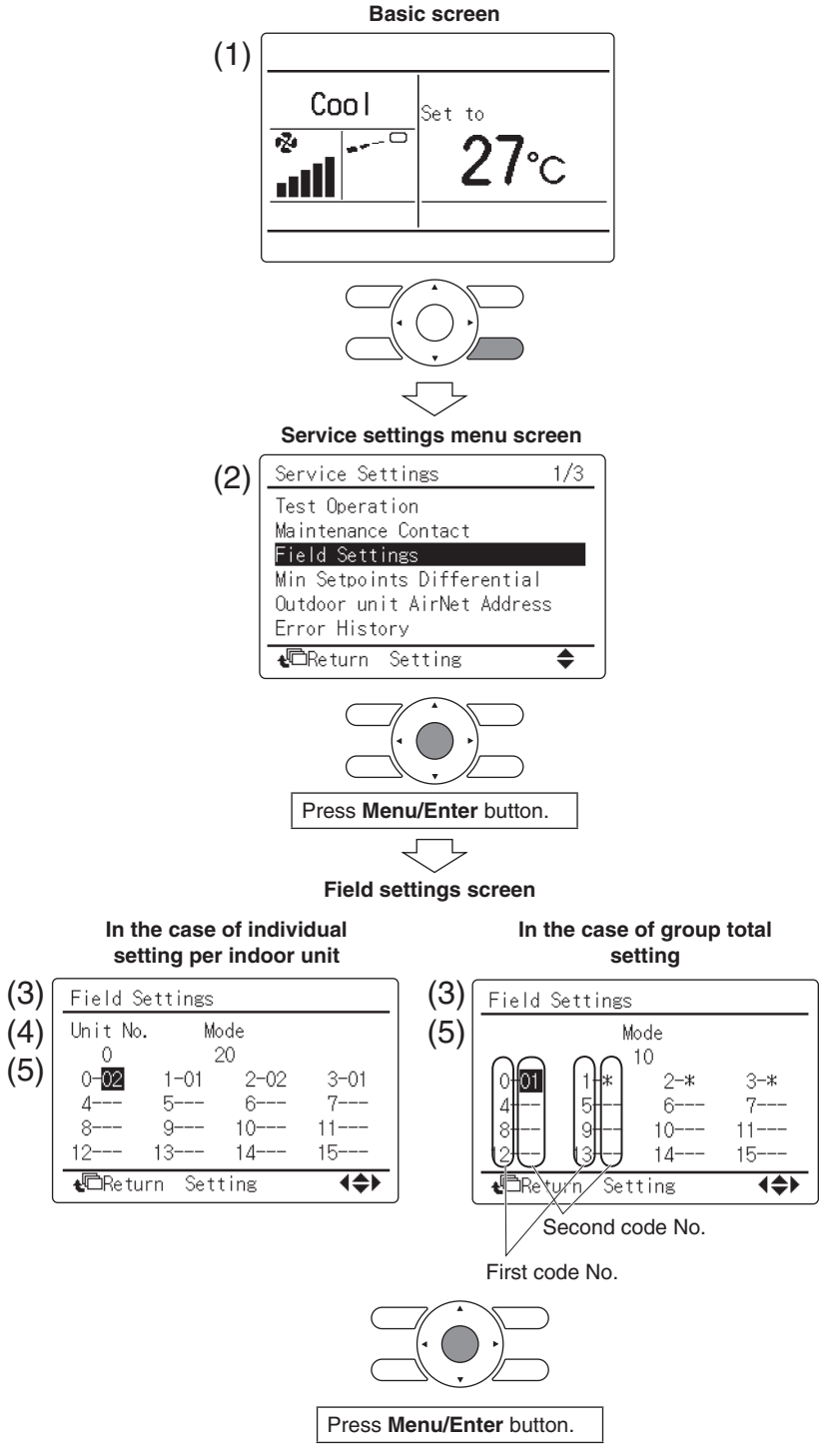
Part 5
Field Settings and Test Operation

1. Field Settings for Indoor Unit

1.1 Field Settings with Remote Controller

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

1.1.1 BRC1E63



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

2 Select **Field settings** in the service settings menu, and press **Menu/Enter** button.
Field settings screen is displayed.

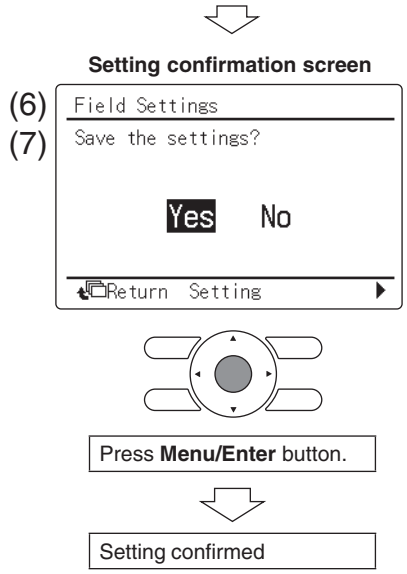
3 Highlight the mode, and select desired mode No. by using ▲▼ (Up/Down) button.

4 In the case of setting per indoor unit during group control (When Mode No. such as **20**, **21**, **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 total setting, this operation is not needed.)

[In the case of individual setting per indoor unit, current settings are displayed. And, second code No. " - " means no function.]

5 Highlight second code No. of the first code No. to be changed, and select desired second code No. by using ▲▼ (Up/Down) button. Multiple identical mode number settings are available.

[In the case of group total setting, all of second code No. which may be set are displayed as " ∗ ". " ∗ " is changed to second code No. to be set. And, second code No. " - " means no function.]



6 Press **Menu/Enter** button. Setting confirmation screen is displayed.

7 Select **Yes** and press **Menu/Enter** button. Setting details are determined and field settings screen returns.

8 In the case of multiple setting changes, repeat **(3)** to **(7)**.

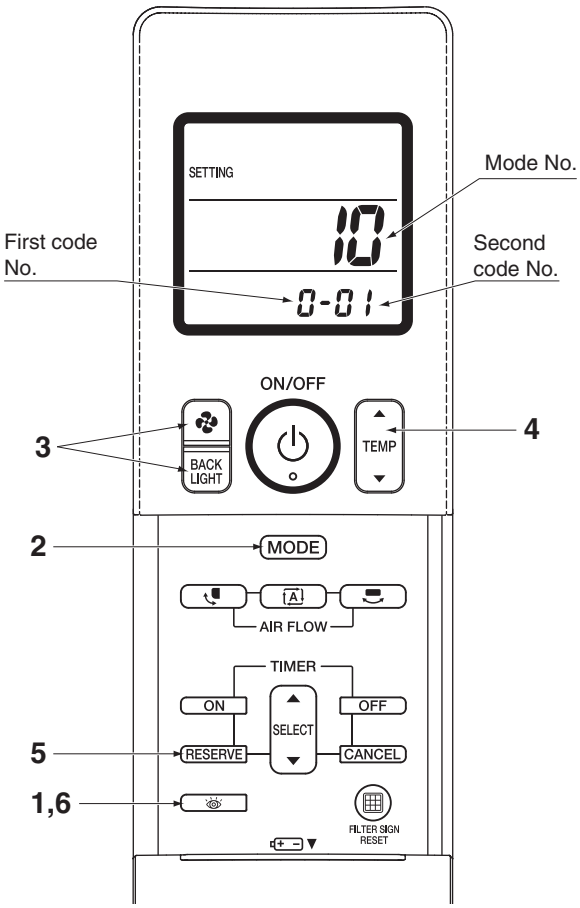
9 After all setting changes are completed, press **Cancel** button twice.

10 Backlight goes out, and **Checking the connection. Please standby.** is displayed for initialization. After the initialization, the basic screen returns.

⚠CAUTION

- When an optional accessory is installed on the indoor unit, settings of the indoor unit may be changed. See the manual of the optional accessory.
- For field setting details of the outdoor unit, see installation manual attached to the outdoor unit.

1.1.2 BRC4M Series



Setting

To set the field settings, you have to change:

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

To change the field settings, proceed as follows:

1. Hold down the **INSPECTION** button for at least 4 seconds during normal mode to enter the field setting mode.
2. Press the **MODE** button to select the desired mode No.
3. Press the **FAN** or **BACK LIGHT** button to select the first code No.
4. Press the **TEMP** button to select the second code No.
5. Press the **RESERVE** button to set the present settings.
6. Press the **INSPECTION** button to return to the normal mode.

1.2 List of Field Settings for Indoor Unit

★: Factory setting

Mode No. (*2)	First Code No.	Description		Second Code No. 01		Second Code No. 02		Second Code No. 03	Second Code No. 04	Reference Page
10 (20)	0	Filter cleaning sign interval	Ultra long life filter	**Light★**	**Approx. 10,000 hrs.★**	Heavy	Approx. 5,000 hrs.	—	—	97
			Long life filter		**Approx. 2,500 hrs.★**		Approx. 1,250 hrs.			
			Standard filter		**Approx. 200 hrs.★**		Approx. 100 hrs.			
	1	Filter type		**Long life filter★**		Ultra long life filter		—	—	97
	2	Remote controller thermistor		**Remote controller thermistor + Suction air thermistor★**		Only suction air thermistor		Only remote controller thermistor	—	97
	3	Filter cleaning sign		**Displayed★**		Not displayed		—	—	98
	5	Information for intelligent Touch Manager / intelligent Touch Controller		Refer to the page on the right for details.						98
	6	Remote controller thermistor control during group control		**Not permitted★**		Permitted		—	—	97
	7	Time for absence area detection		**30 minutes★**		60 minutes		—	—	99
	10	Dry operation time during VRTsmart control		**30 minutes★**		60 minutes		90 minutes	Continuous (not returning to cooling)	99
	11	Low airflow setting when thermostat OFF during VRTsmart control		Disabled		**Enabled★**		—	—	99
11 (21)	6	Setting the rate of human detection		High sensitivity		Low sensitivity		**Standard sensitivity★**	Infrared presence sensor disabled	100
	7	Automatic airflow adjustment		**OFF★**		Completion of airflow adjustment		Start of airflow adjustment	—	100
	8	Compensating the temperature around people		Suction air temperature only		Priority given on the suction air temperature		**Standard★**	Priority given on the floor temperature	101
12 (22)	0	Optional accessories output selection		**Indoor unit turned ON by thermostat★**		—		Operation output	Error output	101
	1	External ON/OFF input		**Forced OFF★**		ON/OFF control		External protection device input	—	101
	2	Thermostat differential changeover		**1°C★**		0.5°C		—	—	102
	5	Auto restart after power failure		OFF		**ON★**		—	—	102
	6	Airflow setting when cooling thermostat is OFF		LL tap		**Set fan speed★**		—	—	102
	11	Compensating the floor temperature when cooling		4°C		2°C		**0°C★**	–2°C	102

Mode No. (*2)	First Code No.	Description	Second Code No.				Reference Page
			01	02	03	04	
13 (23)	0	Ceiling height setting, Setting of normal airflow	Refer to the page on the right for details.				103
	1	Airflow direction setting	**4-way airflow**★	3-way airflow	2-way airflow	—	104
	2	Swing pattern settings	All direction synchronized swing	—	**Facing swing**★	—	104
	4	Airflow direction adjustment range	Refer to the page on the right for details.				104
	6	External static pressure settings	Refer to the page on the right for details.				105
	7	Setting of swing patterns when cooling thermostat is OFF	Refer to the page on the right for details.				105
	13	Setting of circulation airflow	Disabled	**Enabled**★	—	—	105
	14	Circulation airflow patterns	**Pattern 1**★	Pattern 2	Pattern 3	Pattern 4	106
	15	Switching panel type	**Standard panel**★	Designer panel	—	—	106
15 (25)	2	Direct duct connection	**Not equipped**★	Equipped	—	—	106
	3	Drain pump and humidifier interlock selection	**Not interlocked**★	Interlocked	—	—	106
	5	Individual ventilation setting	**Normal**★	Individual	—	—	107
1b	4	Display of error codes on the remote controller	—	Two-digit display	—	**Four-digit display**★	107
	14	Setting restricted/permitted of airflow block	Refer to the page on the right for details.				107
1c	0	Room temperature display	Not displayed	**Displayed**★	—	—	107

Note(s)

1. Settings are made simultaneously for the entire group, however, if you select the mode No. inside parentheses, you can also set by each individual unit. Setting changes however cannot be checked except in the individual mode for those in parentheses.
*2. The mode numbers inside parentheses cannot be used by wireless remote controllers, so they cannot be set individually. Setting changes also cannot be checked.
3. Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
4. **88** or **Checking the connection. Please stand by.** may be displayed to indicate the remote controller is resetting when returning to normal mode.

1.3 Applicable Field Settings

Mode No.	First Code No.	Setting Contents	FXFSQ-AR	FXMQ-PB	FXMQ-AR	FXAQ-P
10 (20)	0	Filter cleaning sign interval	●	●	●	●
	1	Filter type	●	●	●	●
	2	Remote controller thermistor	●	●	●	●
	3	Filter cleaning sign	●	●	●	●
	5	Information for intelligent Touch Manager / intelligent Touch Controller	●	●	●	●
	6	Remote controller thermistor control during group control	●	●	●	●
	7	Time for absence area detection	●	—	—	—
	10	Dry operation time during VRTsmart	●	●	●	●
	11	Low airflow setting when thermostat OFF during VRTsmart	●	●	●	●
11 (21)	6	Setting the rate of human detection	●	—	—	—
	7	Airflow adjustment	—	●	—	—
	8	Compensating the temperature around people	●	—	—	—
12 (22)	0	Optional accessories output selection	●	●	●	●
	1	External ON/OFF input	●	●	●	●
	2	Thermostat differential changeover	●	●	●	●
	5	Auto restart after power failure	●	●	●	●
	6	Airflow setting when cooling thermostat is OFF	●	●	●	●
	11	Compensating the floor temperature when cooling	●	—	—	—
13 (23)	0	Ceiling height setting, Setting of normal airflow	●	—	—	●
	1	Airflow direction setting	●	—	—	—
	2	Swing pattern settings	●	—	—	—
	4	Airflow direction adjustment range	●	—	—	●
	6	External static pressure settings	—	●	—	—
	7	Setting of swing patterns when cooling thermostat is OFF	●	—	—	●
	13	Setting of circulation airflow	●	—	—	—
	14	Circulation airflow patterns	●	—	—	—
	15	Switching panel type	●	—	—	—
15 (25)	2	Direct duct connection	●	—	—	●
	3	Drain pump and humidifier interlock selection	●	●	●	●
	5	Individual ventilation setting	●	●	●	●
1b	4	Display of error codes on the remote controller	●	●	●	●
	14	Setting restricted/permitted of airflow block	●	●	●	●
1c	0	Room temperature display	●	●	●	●

● : Available
— : Not available

1.4 Details of Field Settings for Indoor Unit

1.4.1 Filter Cleaning Sign Interval, Filter Type

When the setting 10 (20)-3 is set to **01** (Displayed), filter cleaning sign is displayed on the remote controller after a certain period of operation time. This setting is used to change the display interval of filter cleaning sign when the filter contamination is heavy.
The filter cleaning sign interval is determined as follows depending on the combination of Mode No. 10 (20)-0 and 10 (20)-1.
Filter cleaning sign interval

★: Factory setting

Setting	10 (20)-1	**01: Long life filter★**		02: Ultra long life filter	
	Filter contamination heavy/light 10 (20)-0	**Light 01★**	Heavy 02	Light 01	Heavy 02
Model	FXFSQ-AR	**2,500 hrs.★**	1,250 hrs.	10,000 hrs.	5,000 hrs.
	FXMQ-PB FXMQ-AR				
	FXAQ-P	**200 hrs.★**	100 hrs.	200 hrs.	100 hrs.

1.4.2 Remote Controller Thermistor

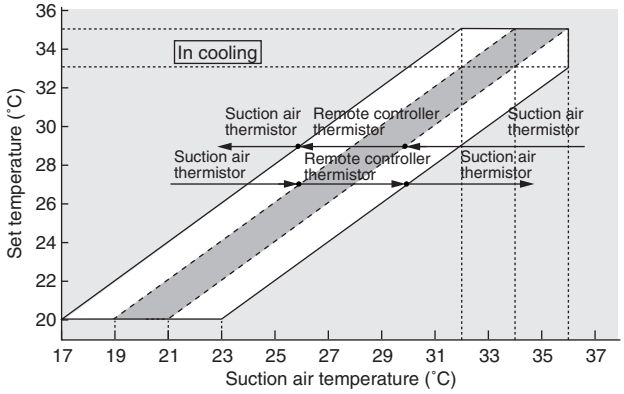
Select a thermistor to control the room temperature.

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

★: Factory setting

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

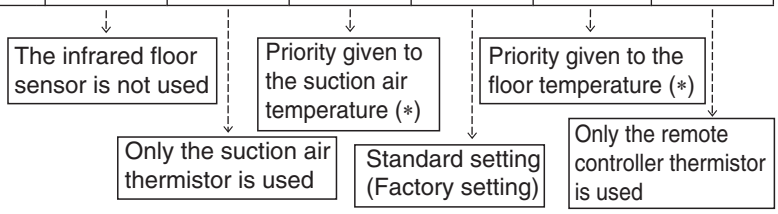
The factory setting for the Second code No. is **01** and room temperature is controlled by the suction air thermistor for indoor unit and remote controller thermistor. When the Second code No. is set to **02**, room temperature is controlled by the suction air thermistor. When the Second code No. is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



■ When the unit is equipped with an infrared presence/floor sensor:

★: Factory setting

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



∗Refer to **Compensating the temperature around people**.

Note that the control is automatically switched to the one performed only by the suction air thermistor for indoor unit when the Second code No. is **01** during the group control.

To use the remote controller thermistor during the group control, select the Second code No. **02** in First code No. **6**.

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

1.4.3 Filter Cleaning Sign

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

★: Factory setting

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

1.4.4 Information for intelligent Touch Manager / intelligent Touch Controller

★: Factory setting

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

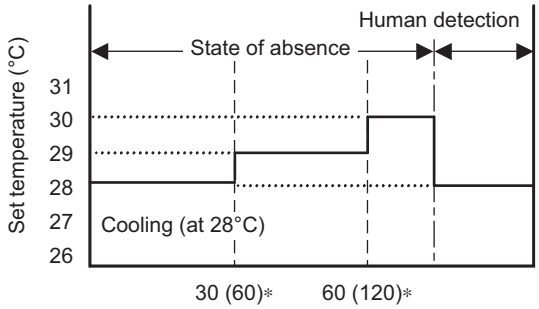
∗ When field setting 10 (20)-6-**02** is set at the same time as 10 (20)-2-**01,02,03,** field setting 10 (20)-2 has priority. When field setting 10 (20)-6-**01** is set at the same time as 10 (20)-2-**01,02,03,** field setting 10 (20)-6 has priority for group connection, and 10 (20)-2 has priority for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

1.4.5 Time for Absence Area Detection

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

★: Factory setting

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



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

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

1.4.6 Dry Operation Time during VRTsmart Control

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

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

★: Factory setting

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

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

1.4.7 Low Airflow Setting when Thermostat OFF during VRTsmart Control

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

★: Factory setting

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

1.4.8 Setting the Rate of Human Detection

Set the sensitivity of the infrared presence/floor sensor.

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

★: Factory setting

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

1.4.9 Automatic Airflow Adjustment

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

Setting procedure

1. Make sure that electric wiring and duct construction have been completed. In particular, if the closing damper is installed on the way of the duct, make sure that it is open. In addition, make sure that a field-supplied air filter is installed within the air passageway on the suction port side.
2. If there are multiple blow-off and suction ports, adjust the throttle part so that the airflow volume ratio of each suction/blow-off port conforms to the designed airflow volume ratio. In that case, operate the unit with the operation mode "fan". When you want to change the airflow rate, adjust it by pressing the airflow rate control button to select High, Middle or Low.
3. Make settings to adjust the airflow rate automatically. After setting the operation mode to "fan", enter the field setting mode while operation is stopped and then select the Mode No. "(21) (11 for batch setting)", set the First Code No. to 7 and the Second Code No. to **03**. After setting, return to the basic screen (to the normal mode in the case of a wireless remote controller) and press the ON/OFF button. Fan operation for automatic airflow adjustment will start with the operation lamp turned ON. Do not adjust the throttle part of the suction and blow-off ports during automatic adjustment. After operation for approximately one to fifteen minutes, airflow adjustment automatically stops with the operation lamp turned OFF.
4. After operation stopped, make sure that the Second Code No. is set to **02** as in the following table by indoor unit with the Mode No. of (21). If operation does not stop automatically or the Second Code No. is not set to **02**, return to the step 3. above to make settings again.

★: Factory setting

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

Note(s)

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

1.4.10 Compensating the Temperature around People

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

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

- To reflect the effect of the temperature around the ceiling, select the "Priorities given on the suction air temperature" (the Second code No. **02**).
- To reflect the effect of the temperature around the floor, select the "Priorities given on the floor temperature" (the Second code No. **04**).
- The infrared floor sensor can be disabled by selecting "Suction air temperature only" (the Second code No. **01**).

★: Factory setting

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

1.4.11 Optional Accessories Output Selection

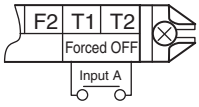
Using this setting, "operation output signal" and "abnormal output signal" can be provided. Output signal is output between terminals X1 and X2 of "adaptor for wiring", an optional accessory.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	0	**01★**	**Indoor unit thermostat ON/OFF signal is provided.★**
		02	—
		03	Output linked with ON/OFF of remote controller is provided.
		04	In case of Error Display appears on the remote controller, output is provided.

1.4.12 External ON/OFF Input

This input is used for "ON/OFF operation" and "Protection device input" from the outside. The input is performed from the T1-T2 terminal of the operation terminal block in the electrical component box.



★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	1	**01★**	**ON: Forced OFF (prohibition of using the remote controller)** **OFF: Permission of using the remote controller★**
		02	OFF → ON: Operation ON → OFF: Stop
		03	ON: Operation OFF: The system stops, then the applicable unit indicates **A0**. The other indoor units indicate **U9.**

1.4.13 Thermostat Differential Changeover

Set when remote sensor is to be used.
Differential value during thermostat ON/OFF control can be changed.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	2	**01**★	**1ºC**★
		02	0.5ºC

1.4.14 Auto Restart after Power Failure

★: Factory setting

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

When the "Auto Restart after Power Failure" setting is turned OFF, all the units will remain OFF after power failure, or after the main power supply is restored. When this setting is turned ON (factory setting), the units that were operating before the power failure will automatically restart operation after power failure, or after the main power supply is restored.
Due to the aforementioned, when the "Auto restart after power failure" setting is ON, be careful for the following situations that may occur.

Caution

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

1.4.15 Airflow Setting when Cooling Thermostat is OFF

This is used to set airflow to LL airflow when cooling thermostat is OFF.

★: Factory setting

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

1.4.16 Compensating the Floor Temperature when Cooling

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

★: Factory setting

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

Specific usages of this setting
There is no problem with the standard setting in the usual condition. Change the setting in the cases indicated in the following table.

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

1.4.17 Ceiling Height Setting, Setting of Normal Airflow

Make the following setting according to the ceiling height.

■ **FXFSQ25-80AR**

★: Factory setting

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

■ **FXFSQ100-140AR**

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents	Ceiling Height			
				All round outlet	4-way Outlets	3-way Outlets	2-way Outlets
13 (23)	0	**01★**	**Standard★**	**Lower than 3.2 m★**	**Lower than 3.4 m★**	**Lower than 3.6 m★**	**Lower than 4.2 m★**
		02	High Ceiling(1)	Lower than 3.6 m	Lower than 3.9 m	Lower than 4.0 m	Lower than 4.2 m
		03	High Ceiling(2)	Lower than 4.2 m	Lower than 4.5 m	Lower than 4.2 m	—

Note(s)

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

■ **FXFSQ-AR with Designer panel**

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents	FXFSQ25-80AR (All round outlet)	FXFSQ100-140AR (All round outlet)
13 (23)	0	**01★**	**Standard★**	**Lower than 2.4 m★**	**Lower than 3.2 m★**
		02	High Ceiling (1)	Lower than 2.7 m	Lower than 3.6 m
		03	High Ceiling (2)	Lower than 3.2 m	Lower than 4.2 m

■ **FXAQ-P**

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	0	**01★**	**Standard★**
		02	Slightly higher
		03	High

1.4.18 Airflow Direction Setting

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

★: Factory setting

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

1.4.19 Swing Pattern Settings

Set the flap operation in swing mode.

With the factory swing, flaps facing each other are synchronized to operate, and flaps placed side by side are set to swing in an opposite direction to agitate airflow to reduce temperature irregularity.

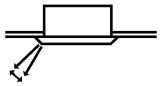
Conventional swing operation (all direction synchronized swing) can be set onsite.

★: Factory setting

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

1.4.20 Airflow Direction Adjustment Range

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



■ **FXFSQ-AR, FXAQ-P**

★: Factory setting

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

Note(s)

1. Some indoor unit models are not equipped with draft prevention (upward) function.
2. When the model FXFSQ-AR is attached with a closing member kit, set the Second Code No. to **02** or **03**.

1.4.21 External Static Pressure Settings

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

■ **FXMQ-PB**

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	6	01	30 Pa (∗2) (∗3)
		02	50 Pa
		03	60 Pa
		04	70 Pa
		05	80 Pa
		06	90 Pa
		07★	**100 Pa★**
		08	110 Pa
		09	120 Pa
		10	130 Pa
		11	140 Pa
		12	150 Pa (∗3)
		13	160 Pa (∗3)
		14	180 Pa (∗1) (∗3)
		15	200 Pa (∗1) (∗3)

∗1 FXMQ40PB cannot be set to 180 or 200 Pa.
∗2 FXMQ50-125PB cannot be set to 30 Pa.
∗3 FXMQ140PB cannot be set to 30 Pa and 150-200 Pa.

1.4.22 Setting of Swing Patterns when Cooling Thermostat is OFF

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

★: Factory setting

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

1.4.23 Setting of Circulation Airflow

This is to set whether the circulation airflow function is enabled or disabled.

★: Factory setting

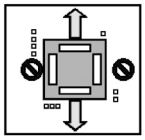
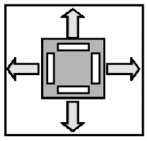
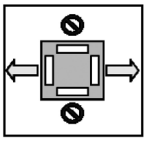
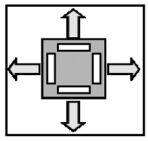
Mode No.	First Code No.	Second Code No.	Contents
13 (23)	13	01	Disabled
		02★	**Enabled★**

1.4.24 Circulation Airflow Patterns

This setting is to change the appearance pattern of the circulation airflow direction depending on the installation environment of the indoor unit.

Cooling

★: Factory setting

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

⊘ Indicates the horizontal flap is in the position of reducing airflow volume (where the flap is reversed).

1.4.25 Switching Panel Type

Change this setting depending on the type of the panel connected.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	15	**01★**	**Standard panel★**
		02	Designer panel

1.4.26 Direct Duct Connection

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

★: Factory setting

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

1.4.27 Drain Pump and Humidifier Interlock Selection

This is used to interlock the humidifier with the drain pump. When water is drained out of the unit, this setting is unnecessary.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	3	**01★**	**Not interlocked★**
		02	Interlocked

1.4.28 Individual Ventilation Setting

This is set to perform individual operation of heat reclaim ventilation using the remote controller/central unit when heat reclaim ventilation is built in.
(Switch only when heat reclaim ventilation is built in.)

★: Factory setting

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

1.4.29 Display of Error Codes on the Remote Controller

■ **BRC1E Series**

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

★: Factory setting

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

1.4.30 Setting Restricted/Permitted of Airflow Block

The airflow block function cannot be enabled when closure material kit, fresh air intake kit, separately installed natural evaporation type humidifier, or branch air duct is equipped, due to the possibility of dew condensation.
This setting restricts the airflow block function, preventing that the airflow block is inadvertently set to ON.
Ensure that “Airflow block restricted” is set when using the options listed above.

★: Factory setting

Mode No.	First Code No.	Second Code No.	Contents
1b	14	**01★**	**Airflow block permitted★**
		02	—
		03	—
		04	—
		05	Airflow block restricted

1.4.31 Room Temperature Display

■ **BRC1E Series**

A "Detailed display screen" can be selected as the display screen. This setting is used if you do not want to display "Room temperature display" on the "Detailed display screen".

★: Factory setting

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

1.5 Operation Control Mode

The operation control mode is compatible with a variety of controls and operations by limiting the functions of the operation remote controller. Furthermore, operations such as remote controller ON/OFF can be limited in accordance with the combination conditions. (Refer to information on the next page.)
Central remote controller is normally available for operations. (Except when centralized monitor is connected)

Contents of Control Modes
20 modes consisting of combinations of the following 5 operation modes with temperature and operation mode setting by remote controller can be set and displayed by operation modes 0 through 19.

- ON/OFF control impossible by remote controller

Used when you want to turn ON/OFF by central remote controller only.
(Cannot be turned ON/OFF by remote controller.)

- OFF control only possible by remote controller

Used when you want to turn ON by central remote controller only, and OFF by remote controller only.

- Centralized

Used when you want to turn ON by central remote controller only, and turn ON/OFF freely by remote controller during set time.

- Individual

Used when you want to turn ON/OFF by both central remote controller and remote controller.

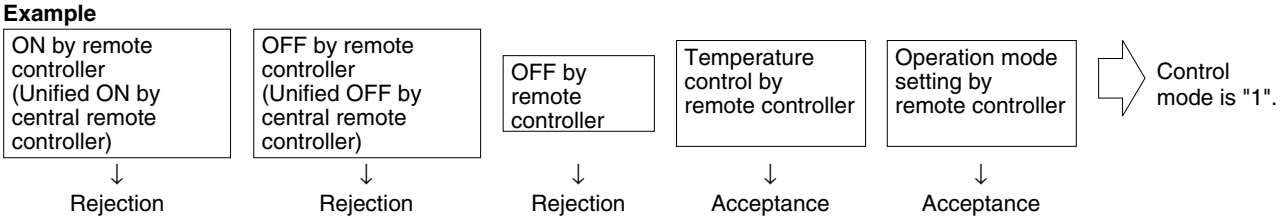
- Timer operation possible by remote controller

Used when you want to turn ON/OFF by remote controller during set time and you do not want to start operation by central remote controller when time of system start is programmed.

How to Select Operation Mode

Whether operation by remote controller will be possible or not for turning ON/OFF, controlling temperature or setting operation mode is selected and decided by the operation mode given on the right edge of the table below.

Example



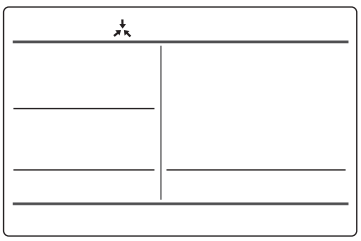
★: Factory setting

Control mode	Control by remote controller					Control mode
	Operation		OFF	Temperature control	Operation mode setting	
	Unified operation, individual operation by central remote controller, or operation controlled by timer	Unified OFF, individual stop by central remote controller, or timer stop				
ON/OFF control impossible by remote controller	Rejection (Example)	Rejection (Example)	Rejection (Example)	Rejection	Acceptance	0
					Rejection	10
				Acceptance (Example)	Acceptance (Example)	1 (Example)
					Rejection	11
OFF control only possible by remote controller			Acceptance	Rejection	Acceptance	2
					Rejection	12
				Acceptance	Acceptance	3
					Rejection	13
Centralized	Acceptance			Rejection	Acceptance	4
					Rejection	14
				Acceptance	Acceptance	5
					Rejection	15
Individual		Acceptance		Rejection	Acceptance	6
					Rejection	16
				Acceptance	Acceptance	**7** ★
					Rejection	17
Timer operation possible by remote controller	Acceptance (During timer at ON position only)	Rejection (During timer at OFF position only)		Rejection	Acceptance	8
					Rejection	18
				Acceptance	Acceptance	9
					Rejection	19

Do not select “timer operation possible by remote controller” if not using a remote controller. Operation by timer is impossible in this case.

Local remote controllers cannot set temperature or operation mode when the system is under centralized control and the mark for centralized control appears on the screen.

BRC1E63

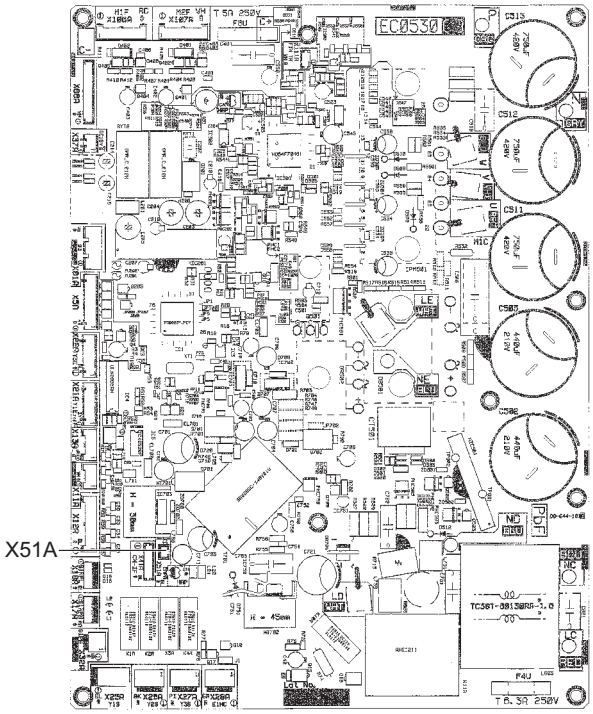


2. Field Settings for Outdoor Unit (4/5 HP Models)

2.1 Capacity Setting

Caution **Be sure to carry out capacity setting after changing the main PCB (A1P) to spare PCB.**

Attach the capacity setting adaptor corresponding to capacity to connector X51A.

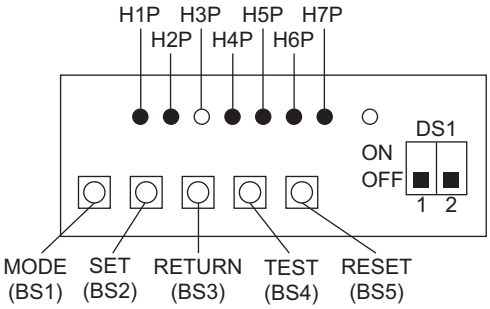


∗ Illustration is for 5 HP models as representative.

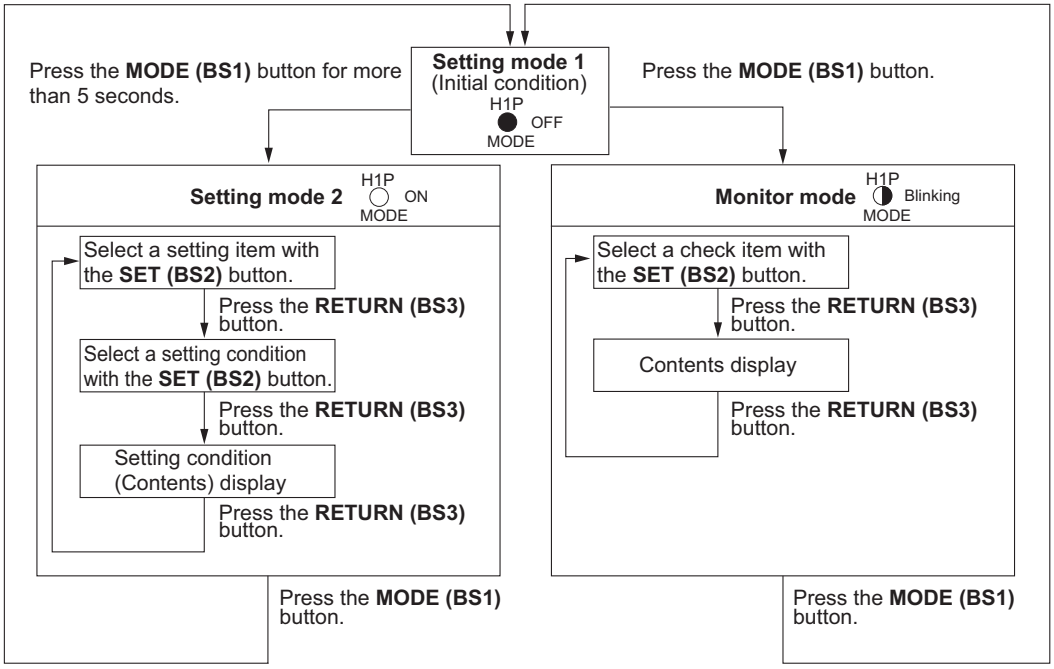
Model	Adaptor type
4 HP	J80
5 HP	J71

2.2 Setting Mode and Monitor Mode

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



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.



2.2.1 Setting Mode 1

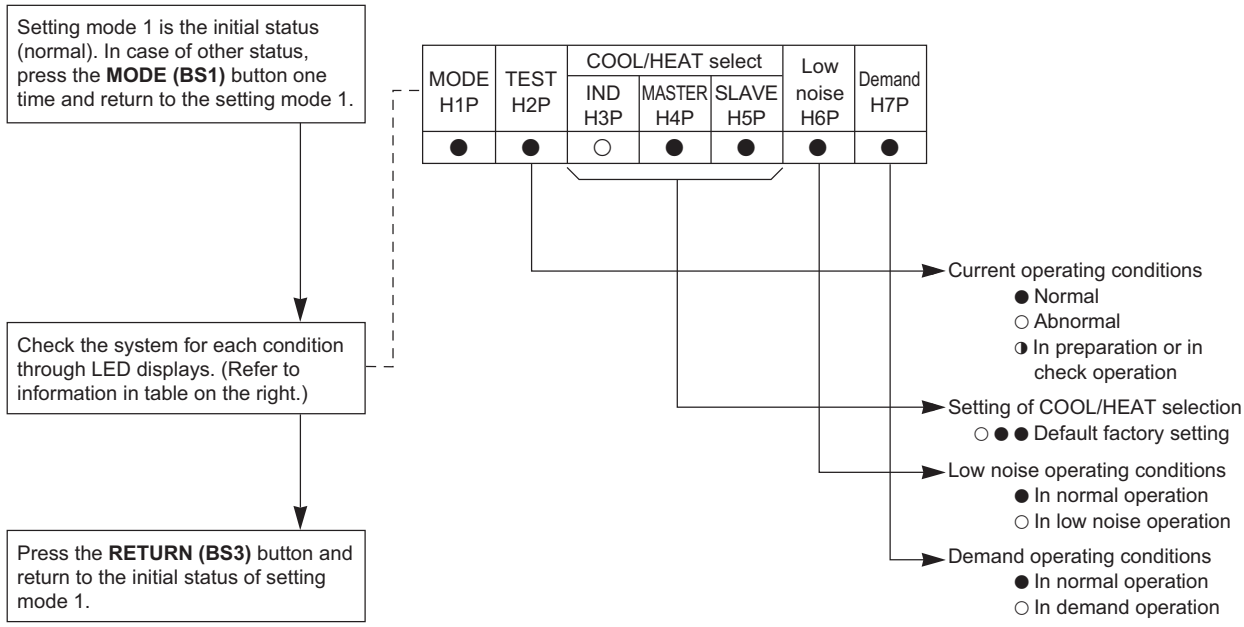
This mode is used to set and check the following items.

1. Set items
   Set COOL/HEAT selection as factory setting.

Caution The COOL/HEAT selection function is not available. Do not conduct any modifications on the default factory setting.

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
   (3) Low noise operating conditions (In normal operation / In low noise operation)
   (4) Demand operating conditions (In normal operation / In demand operation)

Procedure for checking



2.2.2 Setting Mode 2

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

Selection of setting items

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

↓

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

Selection of setting conditions

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

↓

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

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

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

No.	Setting item	Description
1	Cool / heat unified address	COOL/HEAT selection function is not available. Keep the default factory setting.
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 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
12	External low noise / demand setting	Reception of external low noise or demand signal
13	AIRNET address	Set address for AIRNET.
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 night-time 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 the **SET (BS2)** button.

No.	Setting item display								Setting condition display		
	Setting item	MODE H1P	TEST H2P	C/H selection IND H3P	C/H selection Master H4P	C/H selection Slave H5P	Low noise H6P	Demand H7P			✻ Factory setting
1	Cool / heat unified address	○	●	●	●	●	●	○	Address (6 digits)	0 1 ~ 31	○●●●●●● ✻ ○●●●●●○ ~ ○●○○○○○
2	Low noise / demand address	○	●	●	●	●	○	●	Address (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		○●●●○●● ○●●●●○● ✻ ○●●●●●○
12	External low noise / demand setting	○	●	●	○	○	●	●	External low noise/demand: NO External low noise/demand: YES		○●●●●●○ ✻ ○●●●●○●
13	AIRNET address	○	●	●	○	○	●	○	Address (6 digits)	0 1 ~ 63	○●●●●●● ✻ ○●●●●●○ ~ ○○○○○○○
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)		○●●●●●● ✻ ○●●●●●○ ○●●●●○● ○●●●●○○
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 the **SET (BS2)** button.

2.2.3 Monitor Mode

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

Selection of check item

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

Confirmation on check item

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

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

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

No.	Setting 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	Error description (the latest)	◑	●	●	○	○	○	●	Refer to error code table on Part 6.
15	Error description (1 cycle before)	◑	●	●	○	○	○	○	
16	Error description (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 ●● Unjudgement

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

Note(s)

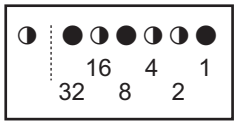
Various Settings

		H1P	H2P	H3P	H4P	H5P	H6P	H7P
Emergency operation / backup operation setting	ON	◑	●	●	○	●	●	●
	OFF	◑	●	●	●	●	●	●
Te setting	H	◑	●	●	●	●	○	●
	M	◑	●	●	●	●	◑	●
	L	◑	●	●	●	●	●	●

Press the **SET (BS2)** button and match with the LEDs No. 1 - 15, push the **RETURN (BS3)** 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:

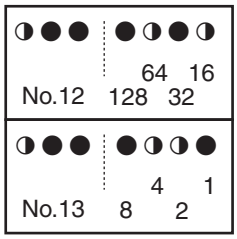
Figure 1



The No. 2 Low noise / demand 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



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.

2.3 Night-Time Low Noise Operation and Demand Operation

2.3.1 Night-Time Low Noise Operation

By connecting the external contact input to the low noise input of the outdoor unit external control adaptor (optional), you can lower operating noise by 2-3 dB.

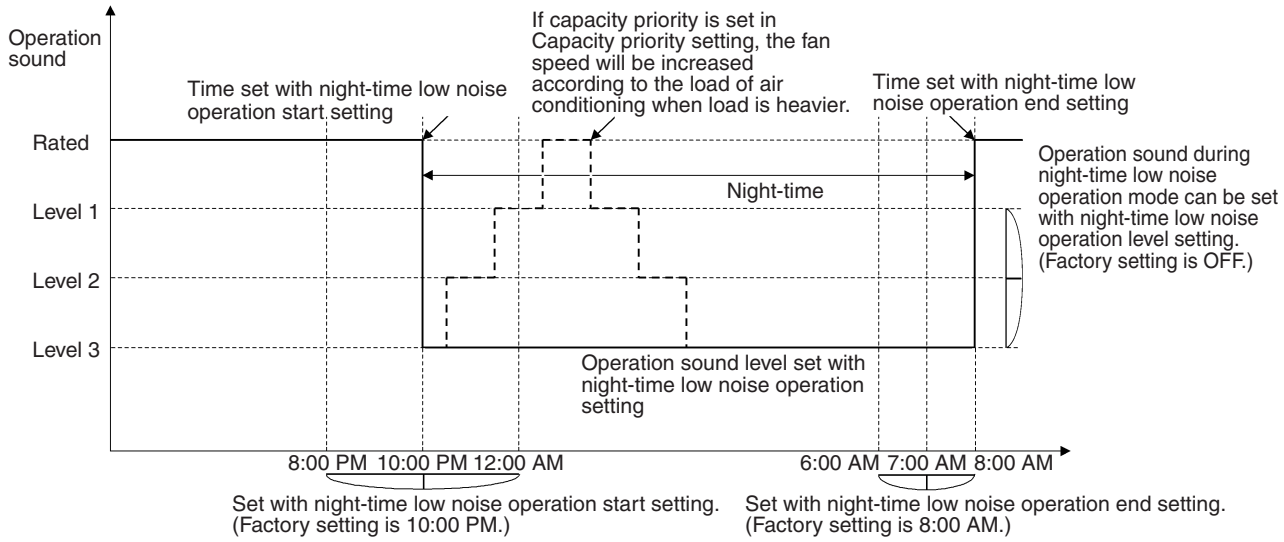
When night-time low noise operation is carried out automatically (External control adaptor for outdoor unit is not required)

1. While in setting mode 2, select a night-time low noise operation level (i.e., Level 1, Level 2, Level 3) for the item 2-22.

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

3. If necessary, while in setting mode 2, select an ending time of night-time low noise operation (i.e., 6:00 AM, 7:00 AM, or 8:00 AM) for the item 2-27. (Use the ending time as a guide since it is estimated according to outdoor air temperatures.)

4. If necessary, while in setting mode 2, set the item 2-29 (Capacity priority setting) to ON. (If the condition is set to ON, when the air conditioning load reaches a high level, the system will be put into normal operation mode even during night-time.)



2.3.2 Demand Operation

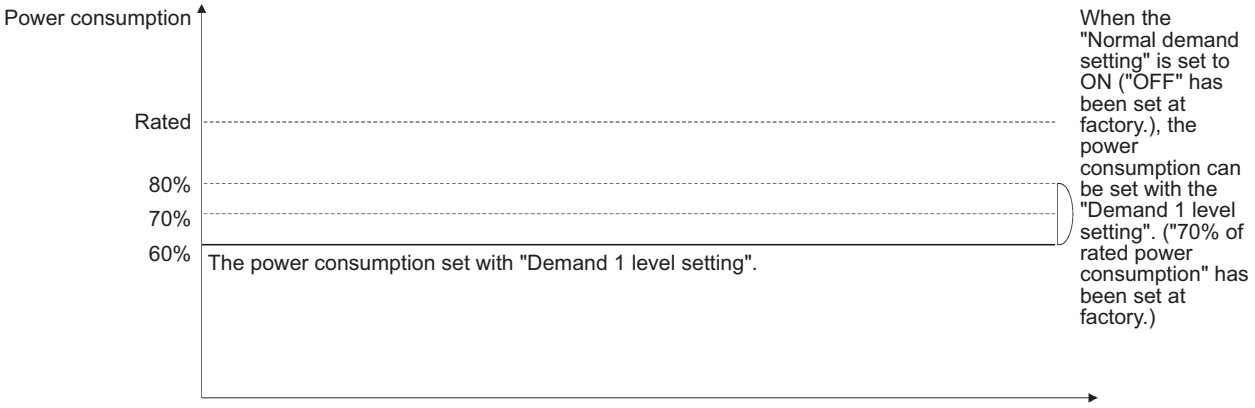
By connecting the external contact input to the demand input of the external control adaptor for outdoor unit (optional), the power consumption of unit operation can be saved suppressing the compressor operating condition.

Set item	Condition	Content
Demand 1	Level 1	The compressor operates at 60% or less of rating.
	Level 2	The compressor operates at 70% or less of rating.
	Level 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, set the item 2-32 (Constant demand setting) to ON.

2. While in setting mode 2, select a demand 1 level for the item 2-30.



2.3.3 Setting Procedure of Night-Time Low Noise Operation and Demand Control

1. **Setting mode 1 (H1P OFF)**
   In setting mode 2, push the **MODE (BS1)** 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, push and hold the **MODE (BS1)** button for more than 5 seconds. → The system enters setting mode 2 and the H1P lights up.
   (2) Push the **SET (BS2)** button several times and match the LED display with the Setting No. you want.
   (3) Push the **RETURN (BS3)** button one time, and the present setting content is displayed. → Push the **SET (BS2)** button several times and match the LED display with the setting content (as shown on next page) you want.
   (4) Push the **RETURN (BS3)** button two times. → The system returns to (1).
   (5) Push the **MODE (BS1)** 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 / 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								○	●	○	○	●	○	●	8:00 PM	○	●	●	●	●	●	◑
																10:00 PM (Factory setting)	○	●	●	●	●	◑	●
																12:00 AM	○	●	●	●	◑	●	●
27	Night-time low noise operation end setting								○	●	○	○	●	○	○	6:00 AM	○	●	●	●	●	●	◑
																7:00 AM	○	●	●	●	●	◑	●
																8:00 AM (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

2.4 Setting of Refrigerant Additional Charging Operation

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

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 2-20 (H1P: Turn ON).
5. The operation is automatically started.
   (The LED indicator H2P blinks, and **Test Operation** and **Under Centralized Control** are displayed in the remote controller.)
6. After charging the specified amount of refrigerant, press the **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.

2.5 Setting of Refrigerant Recovery Mode

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

Operation procedure

1. While the outdoor unit is not operating, set the item 2-21 (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 the **MODE (BS1)** button once and return to setting mode 2.

2.6 Setting of Vacuuming Mode

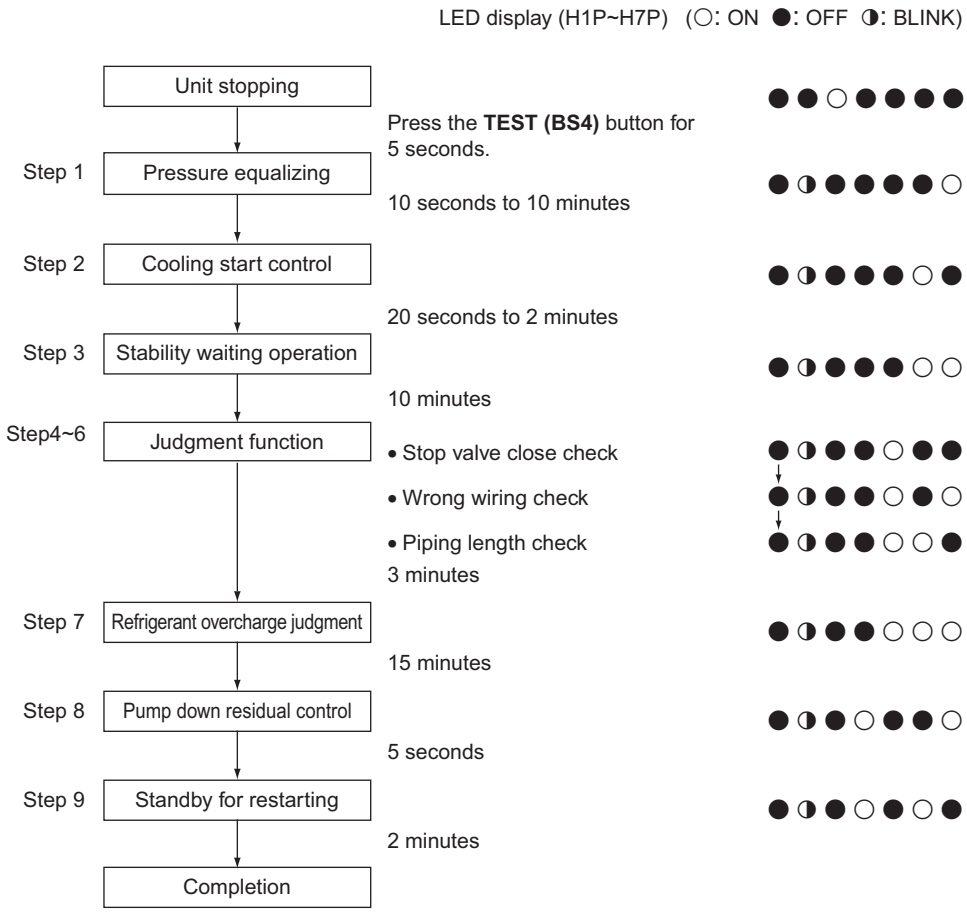
In order to perform vacuuming operation on site, fully open the electronic expansion valves of indoor and outdoor units and turn on some solenoid valves.

Operating procedure

1. While the outdoor unit is not operating, set the item 2-21 (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 the **MODE (BS1)** button once and reset setting mode 2.

2.7 Check Operation

To prevent any trouble in the period of installation onsite, 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.



3. Field Settings for Outdoor Unit (6/8 HP Models)

This section shows a list of field setting items possible to set at time of initial startup. For details of DIP switch setting, setting mode ("mode 2") and monitor mode ("mode 1"), refer to information on the following pages.

3.1 Function Setting

Following setting may be required to set to comply to specific application requirements.

Setting item	Contents and objective of setting	Overview of setting procedure
Setting of low noise operation (∗2)	A.To reduce operation noise level through reduction of the upper limit of the fan using external input (use outdoor fan step 8 for normal control). 1. Level 1: fan step 8 or less. 2. Level 2: fan step 7Y or less. 3. Level 3: fan step 6 or less.	■ Use the optional board DTA104A61 (∗1). ■ Set mode 2-12 to 1. ■ Choose level by mode 2-25. ■ If required, set the Capacity priority setting ON by setting the mode 2-29 to 1.
	B.To perform automatic night-time low noise operation. Start time: selectable from 8:00 PM to 12:00 AM (step by 2 hours). End time: selectable from 6:00 AM to 8:00 AM (step by 1 hour). (Note that the set time is estimated according to outdoor air temperature.)	■ Select required level by mode 2-22. ■ Select start time with mode 2-26. ■ Select end time with mode 2-27. ■ Select capacity priority setting if required by mode 2-29-1.
Setting of demand operation (∗2)	1. Demand 1 Level 1: 60% of rated capacity or less 2. Demand 1 Level 2: 65% of rated capacity or less 3. Demand 1 Level 3: 70% of rated capacity or less 4. Demand 1 Level 4: 75% of rated capacity or less 5. Demand 1 Level 5: 80% of rated capacity or less 6. Demand 1 Level 6: 85% of rated capacity or less 7. Demand 1 Level 7: 90% of rated capacity or less 8. Demand 1 Level 8: 95% of rated capacity or less 9. Demand 2 Level 1: 40% of rated capacity or less 10. Demand 2 Level 2: 50% of rated capacity or less 11. Demand 2 Level 3: 55% of rated capacity or less 12. Demand 3: Forced thermostat off	■ Use the optional board DTA104A61. ■ Wire external signal(s) to the optional adaptor DTA104A61.
		■ Activate input optional board DTA104A61 by setting the mode 2-12 to 1. ■ Select level of demand 1 by mode 2-30. ■ Select level of demand 2 by mode 2-31.
		■ If constant demand control is required (without adaptor DTA104A61), set level by mode 2-32.
Setting of AIRNET address	■ Make AIRNET address when it is connected to AIRNET monitoring, or to view detail in the map on Service Checker type III.	■ Set AIRNET address with mode 2-13.
Setting of high static pressure mode	■ Set high static pressure mode in order to operate the system with duct to the outdoor unit (used at concealed installation on floors or balconies).	■ Set mode 2-18 to 0 (Automatic ESP adjustment).
Evaporating temperature setting (cooling performance)	■ Setting to choose the reaction time of outdoor control on change of outdoor and cooling indoor load.	■ Set mode 2-8 to choose cooling capacity control logic between standard and high sensible. ■ Set mode 2-81 to choose Te adjustment at start up between Powerful, Quick, Mild or Eco.
Eco mode invalid setting	■ Eco mode may be deemed unavailable. 0: Valid 1: Invalid When this configuration is set, it is not possible to turn this control ON/OFF using the external control adaptor.	■ Set mode 2-23.
Eco level setting for Eco mode by external control adaptor	■ You may set the Eco level of Eco mode to Standard/Low or make it unavailable. Depending on the settings, low noise operation or demand operation may not be performed using the external control adaptor.	■ You need an external control adaptor. Using mode 2-11, define if Eco level will be set by the external control adaptor low noise level or demand level. If you short-circuit the terminal (TeS1), Eco level can be set to Standard/Low. In case of open circuit, the setting will be unavailable.

For detailed description about each setting, refer to **Details of Setting Mode (Mode 2)** on page 135.

Note(s)

∗1. External control adaptor for outdoor unit.

∗2. These functions are available when setting mode 2-11 to 0.

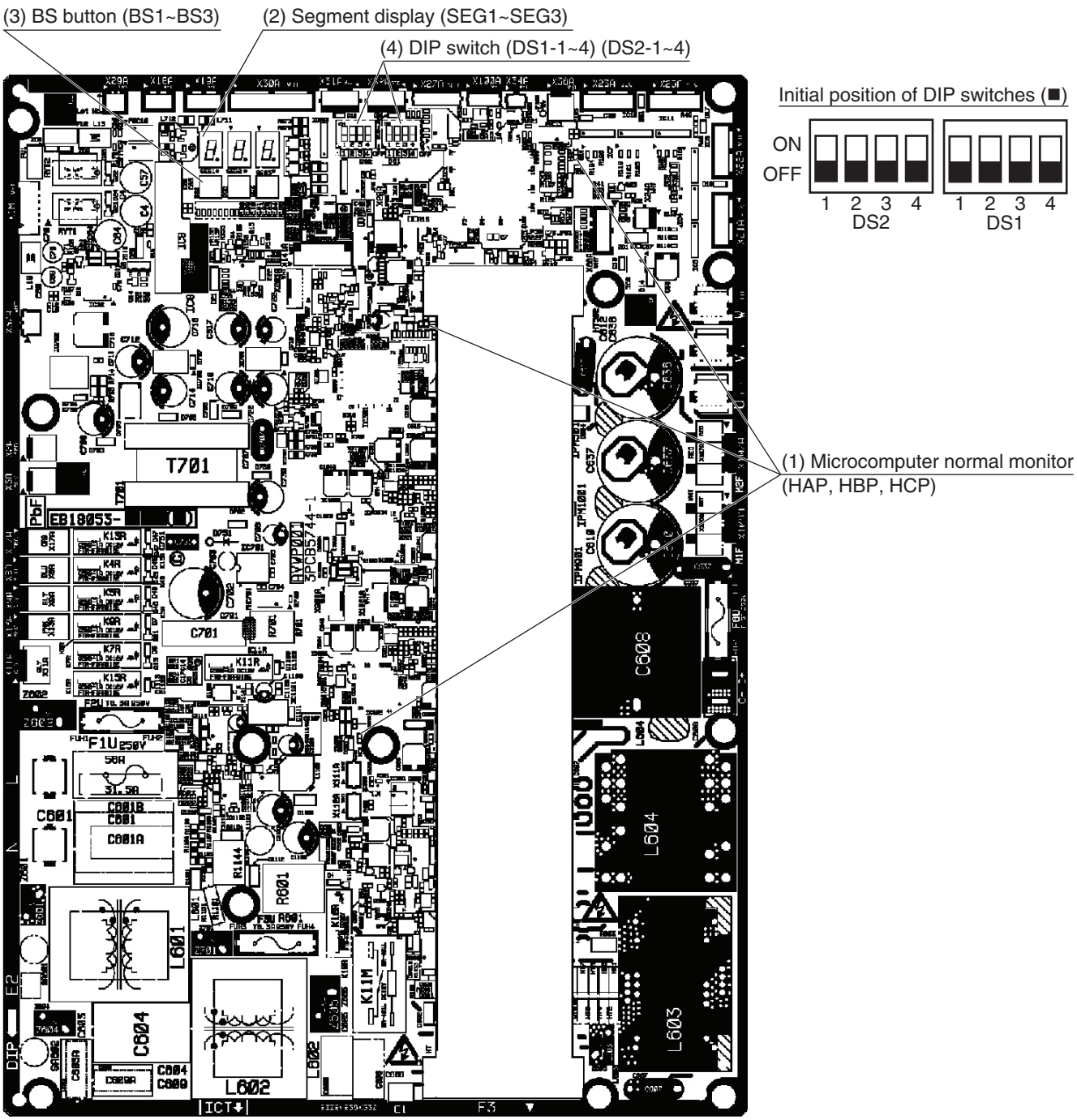
3.2 Settings by DIP Switches

3.2.1 DIP Switch Setting when Mounting a Spare PCB

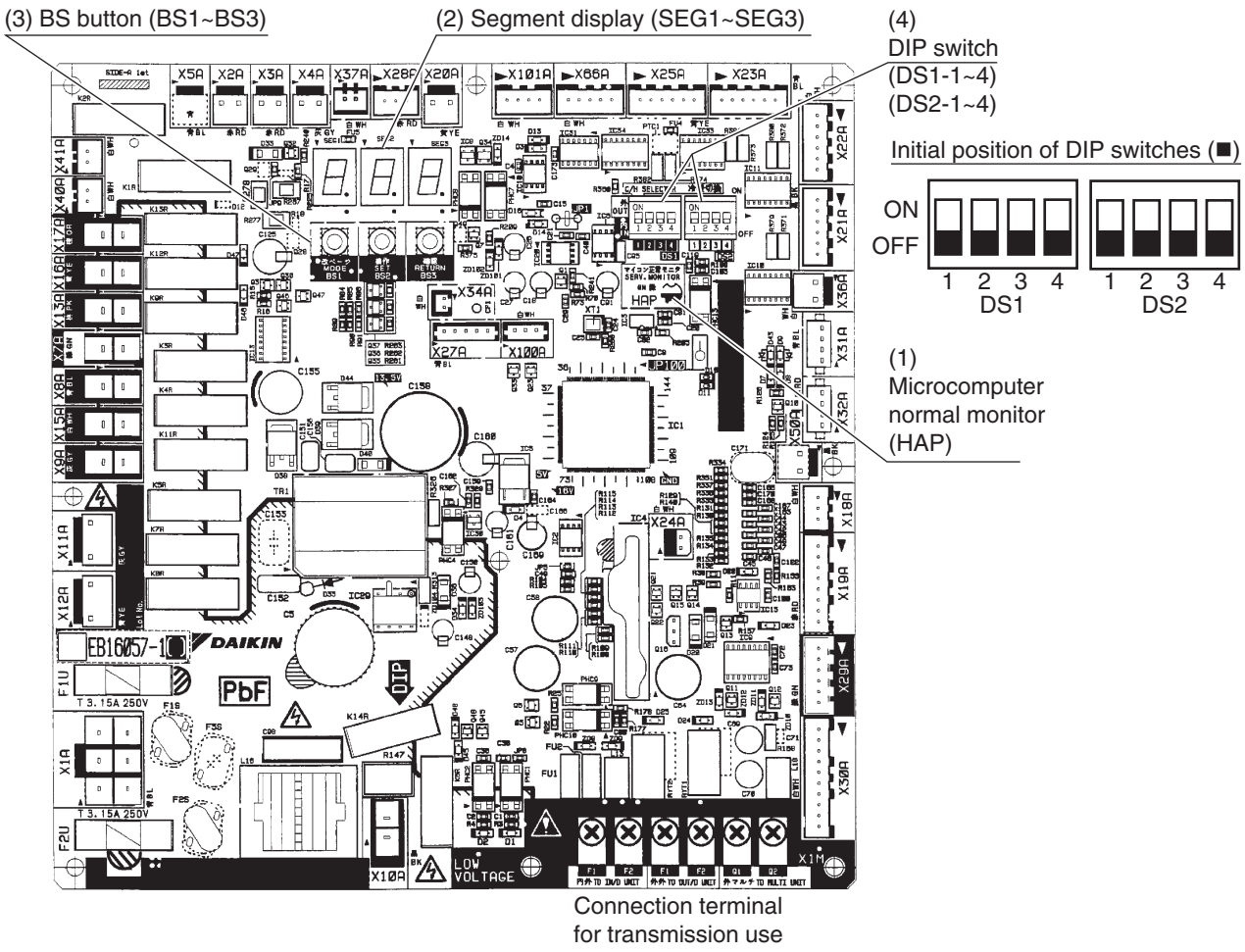
Caution:

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

RXMQ6AR



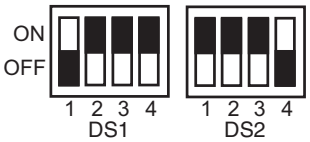
RXMQ8AR



(1) Microcomputer normal monitor
This monitor blinks while in normal control, and turns ON or OFF when an error occurs.
(2) 7 segment display
- Used to check the transmission.
- Used to display the transmission state between indoor and outdoor units.
- Used to display the contents of error.
- Used to display the contents of field setting.

(3) BS button
Used to change mode.
(4) DIP switch
Used to make field settings.

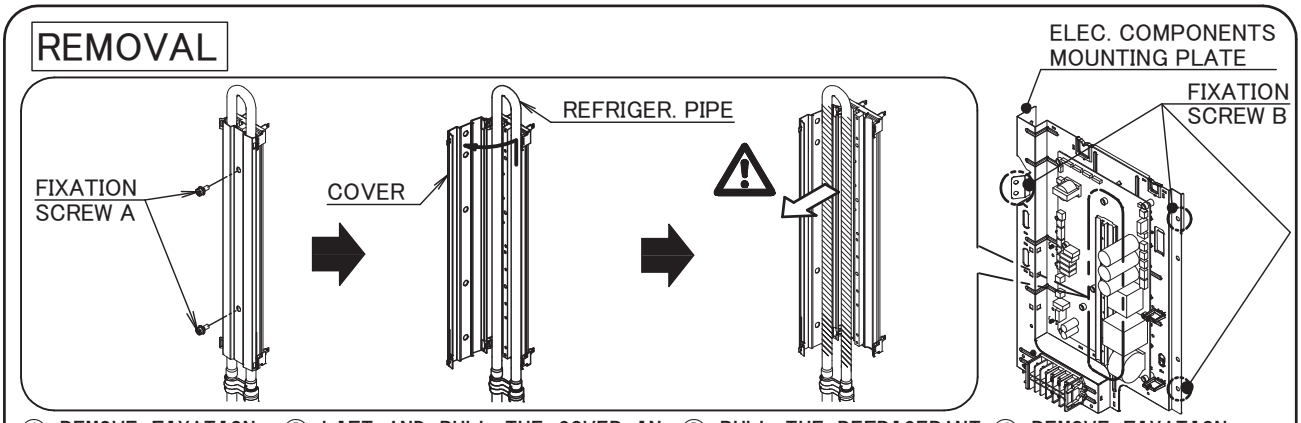
The figure below shows the required position of the DIP switches on spare PCB. Change DIP switches at time of power disconnected.

Application model	The setting method (■ represents the position of switches)	
RXMQ6ARV1		Set DS1-2, DS1-3, DS1-4, DS2-1, and DS2-3 to ON.
RXMQ8ARY1		Set DS1-2, DS1-3, DS1-4, DS2-1, DS2-2, and DS2-3 to ON

■REMOVING MAIN PCB

- REMOVE THE COVER SCREWS BEFORE REMOVING THE ELECTRICAL COMPONENT. NOT DOING SO MAY DAMAGE THE REFRIGERANT PIPE.
- REPLACE THE GREASE ON THE HEAT SINK WITH NEW GREASE. NOT DOING SO MAY CAUSE THE PCB TO FAIL DUE TO INSUFFICIENT COOLING.

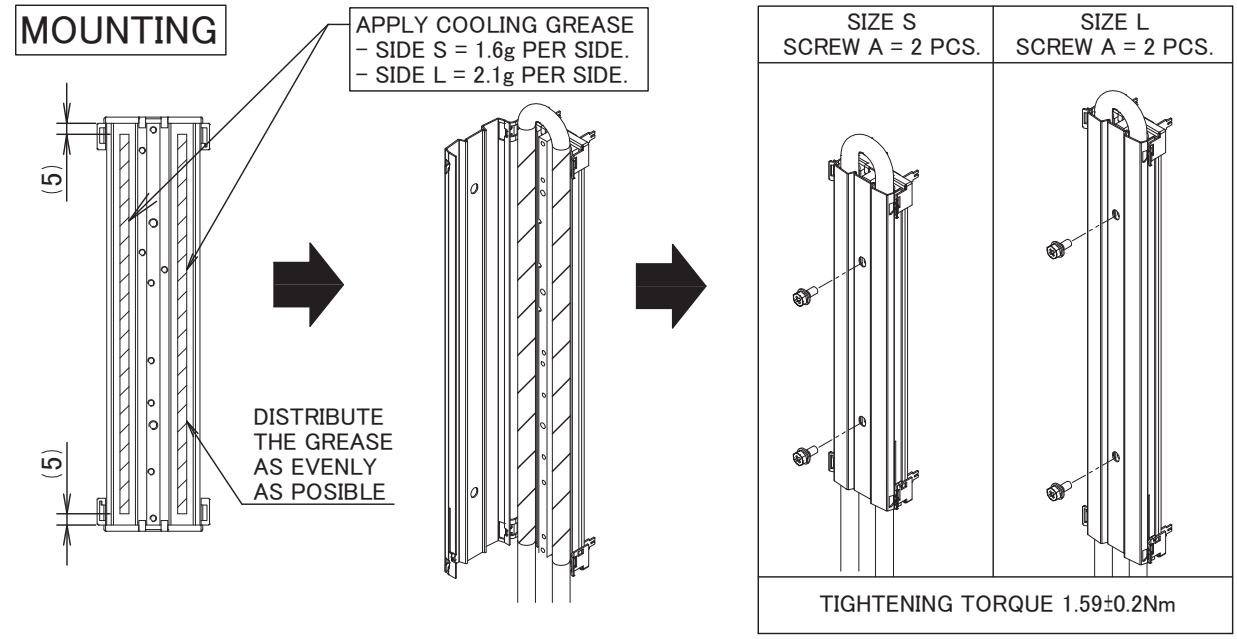
REMOVAL



① REMOVE FIXATION SCREWS A ② LIFT AND PULL THE COVER IN THE DIRECTION OF THE ARROW ③ PULL THE REFRIGERANT PIPE FORWARD ④ REMOVE FIXATION SCREWS B

<CAUTION> - DO NOT TOUCH THE HATCHED AREA.
- ALWAYS REPLACE THE GREASE AFTER REMOVING AN ELECTRICAL COMPONENT.
- NO DEFORMATION OF THE PIPE IS ALLOWED.

MOUNTING



① REMOVE THE GREASE AND APPLY NEW GREASE AS INDICATED.

② PLACE THE COVER ON THE REFRIGERANT PIPE.

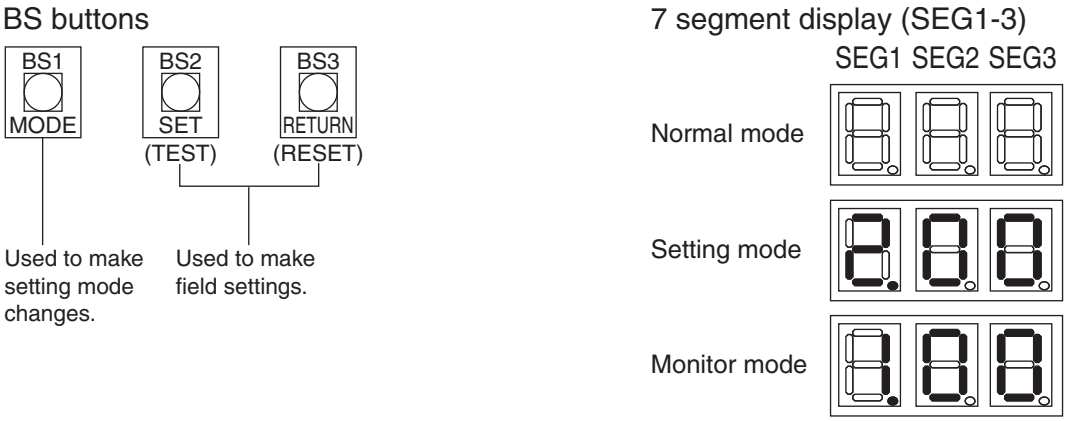
③ CLOSE AND SLIDE THE COVER DOWNWARDS TO FIX THE 2 HOOKS. TIGHTEN FIXATION SCREW A SO THAT THE COVER PRESSES TO THE PIPE.

<CAUTION> DO NOT TOUCH THE HATCHED AREA WHEN MOUNTING THE REFRIGERANT PIPE.

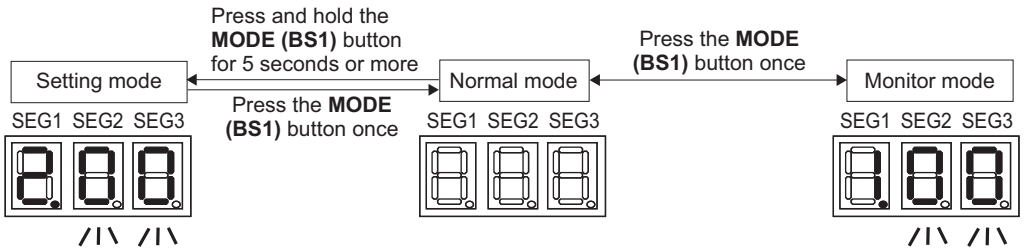
C: 3P473957

3.3 Settings by BS Buttons

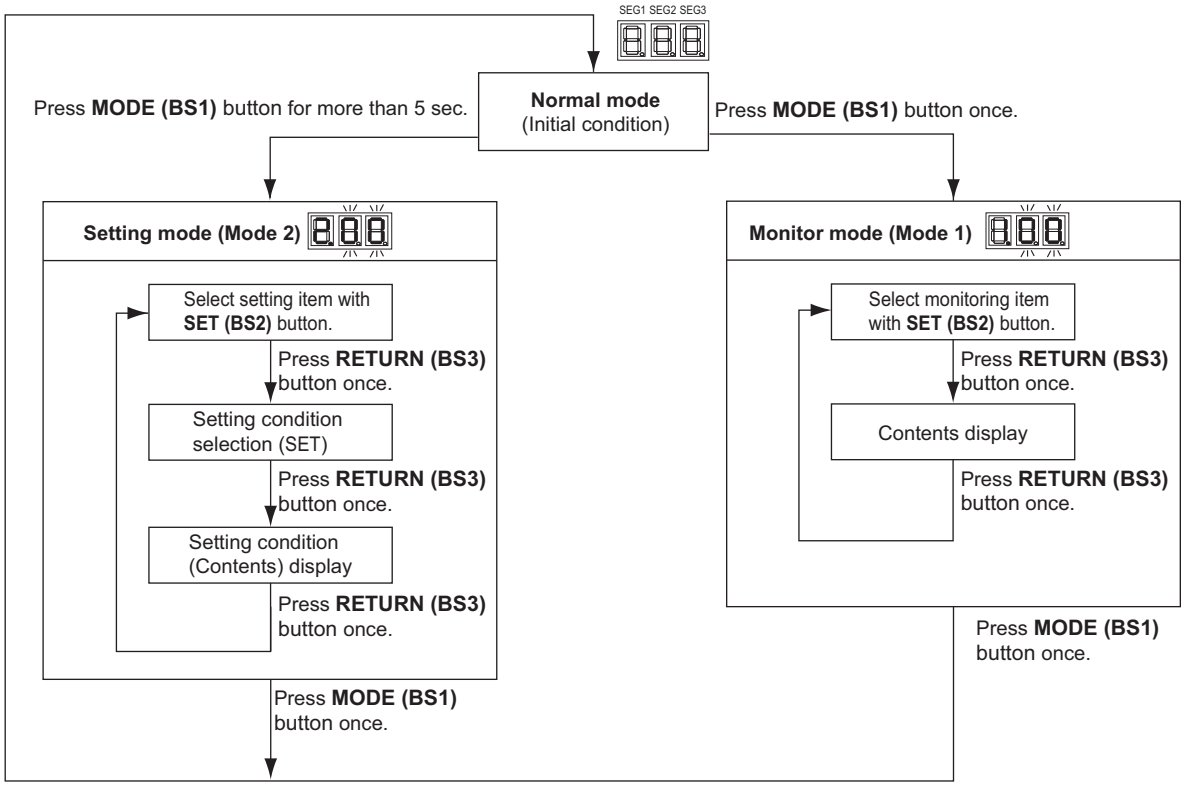
The following settings can be made using the BS buttons on the PCB.



- Normal mode:
  - Blank: If no abnormality is detected and initialization of communication was completed.
  - Flashing combination of letter and number (4 digits): Error code detected by outdoor control or trouble by communication.
- Setting mode: Used to make changes to operating status, performance settings or address setting.
- Monitor mode: Used to verify contents of settings, quantity of units, current value of some parameters during operation of outdoor unit.
- **Mode changing procedure can be selected using the MODE (BS1) button as shown below:**

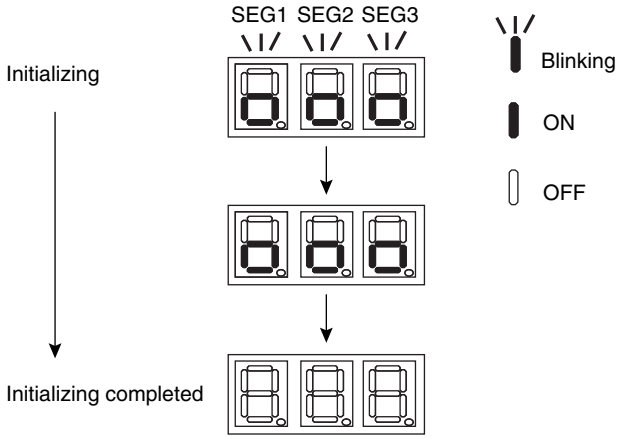


■ Selection between normal mode, monitor mode (Mode 1) and setting mode (Mode 2).

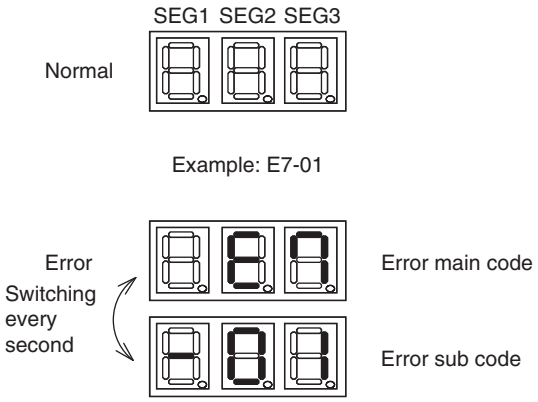


3.4 Normal Mode

1. Indoor/outdoor transmission status: Used to check for the initial status of indoor/outdoor transmission.



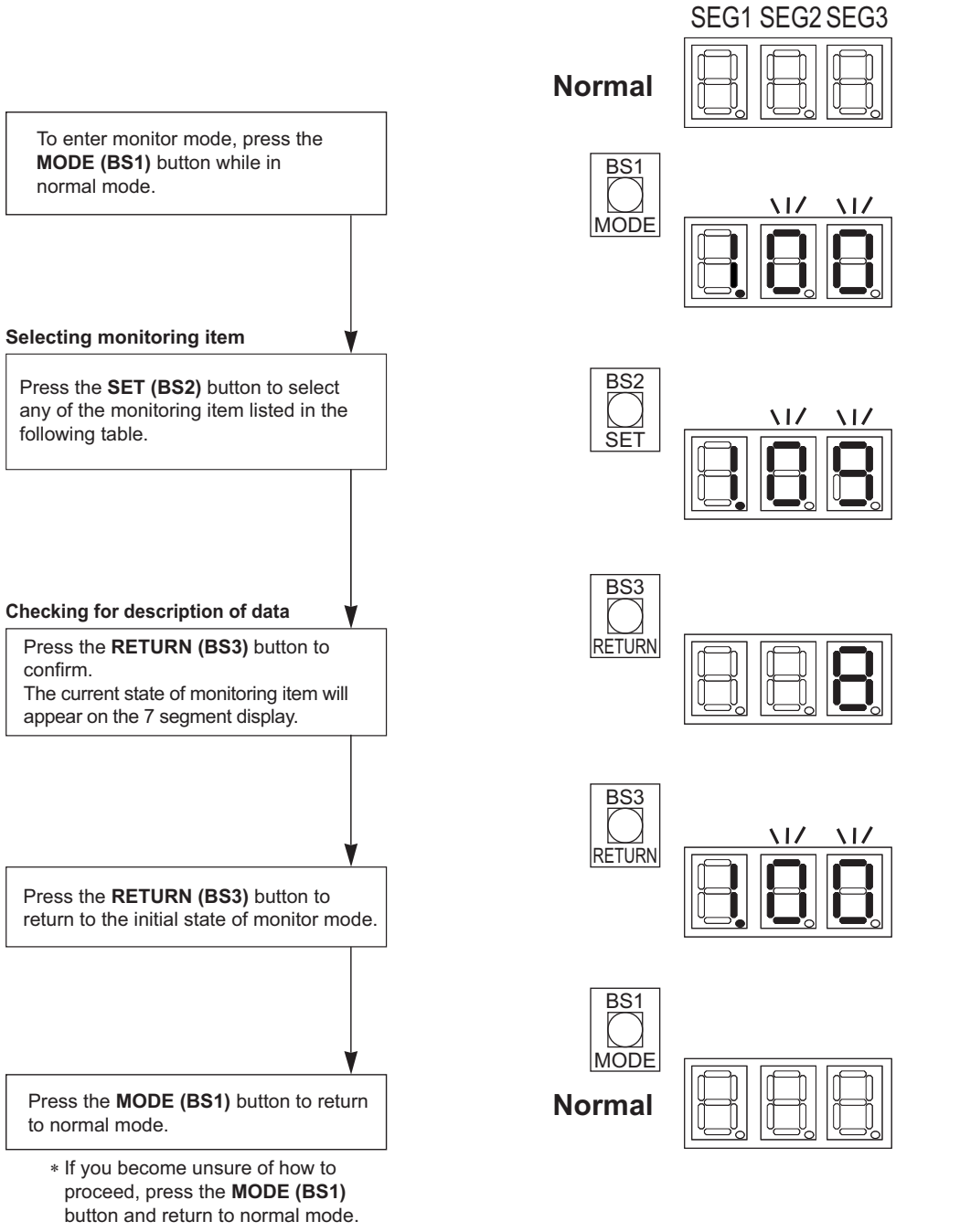
2. Descriptions: Used to display an error content.



3.5 Monitor Mode (Mode 1)

In the monitor mode, information can be retrieved about settings related to performance, addresses, number of units and actual operation data.

3.5.1 Retrieve data by using BS button on outdoor unit main PCB



Legend Segment : OFF : ON : BLINKS : hold 5 seconds

3.5.2 Overview of Monitor Mode (Mode 1)

No. ∗1	Item				Contents			
	Description	Display			Description	Display		
		SEG 1	SEG 2	SEG 3		SEG 1	SEG 2	SEG 3
1	Low noise operation state display	1.	0	1	In normal operation In low noise operation			0 1
2	Demand operation state display	1.	0	2	In normal operation In demand operation			0 1
3	Automatic backup operation setting	1.	0	3	OFF ON			0 1
5	Te setting	1.	0	5	Normal 6°C High sensible 7°C High sensible 8°C High sensible 9°C High sensible 10°C High sensible 11°C			2 3 4 5 6 7
8	Low noise/demand address	1.	0	8	Possible 0-31		3	0 1
9	AIRNET address	1.	0	9	Possible 0-63		6	0 3
10	Number of connected indoor units (refer to ∗2)	1.	1	0	Possible 0-63		6	0 3
13	Number of outdoor units (refer to ∗3)	1.	1	3	Possible 0-63		6	0 3
15	Number of units in zone	1.	1	5	Possible 0-63		6	0 3
16	Number of all indoor units of several systems if “F1F2 OUT/D is wired between systems (refer to ∗4)	1.	1	6	Possible 0-128	1	2	0 8
17	Description of error (latest)	1.	1	7	Refer to information in **Error Code via Outdoor Unit PCB** on page 185.			
18	Description of error (1 cycle before)	1.	1	8				
19	Description of error (2 cycles before)	1.	1	9				

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

∗2: Number of indoor units connected: represents the number of indoor units connected to a single outdoor system.

∗3: Number of outdoor units: represents the number of outdoor units connected to a single DIII-NET that is a communication line.

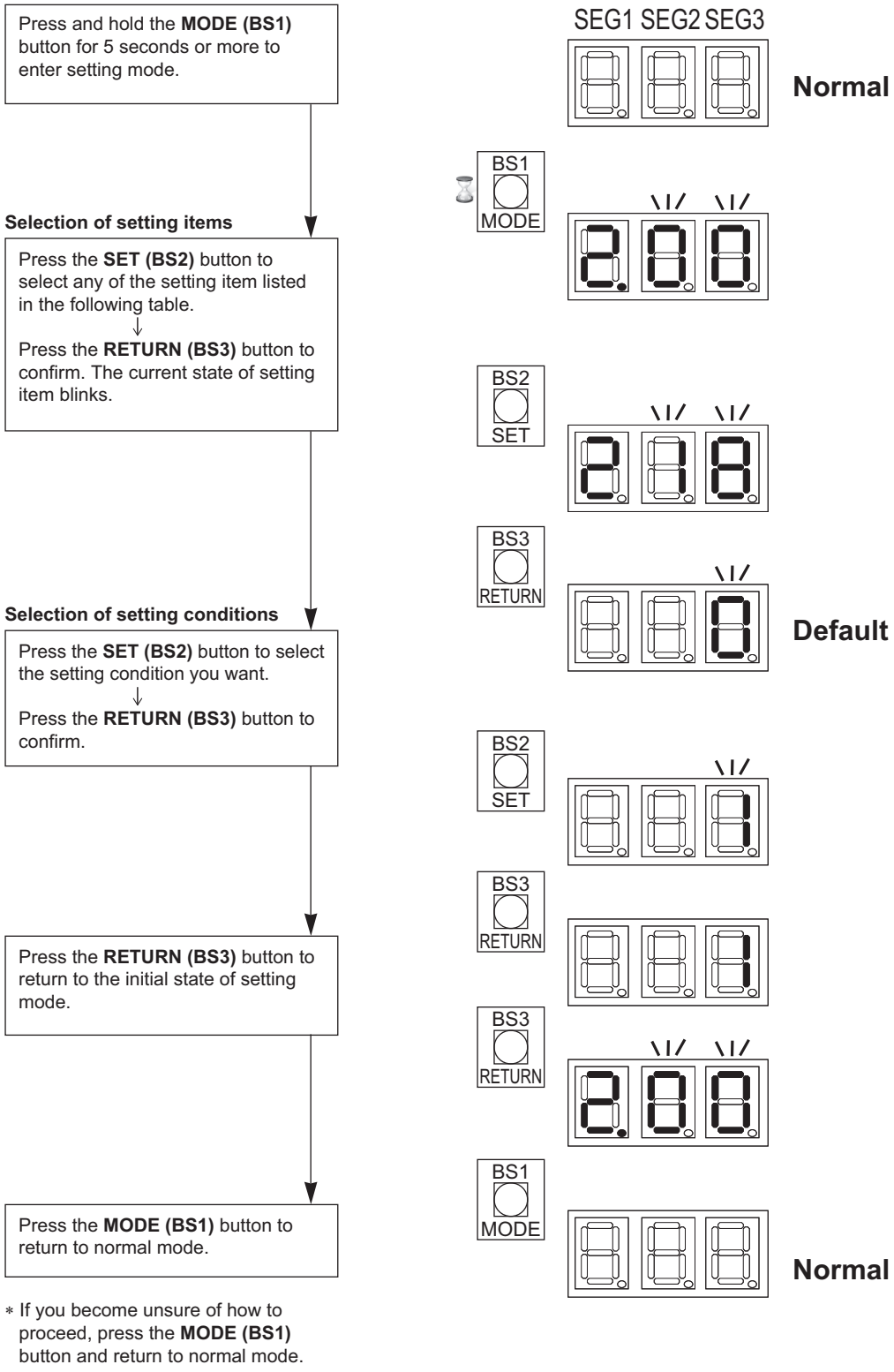
∗4: Number of terminal units: represents the number of indoor units connected to a single DIII-NET that is a communication line.

No. *1	Item				Contents			
	Description	Display			Description	Display		
		SEG 1	SEG 2	SEG 3		SEG 1	SEG 2	SEG 3
23	Description of retry (latest)	1.	2	3	Refer to information in **Error Code via Outdoor Unit PCB** on page 185.			
24	Description of retry (1 cycle before)	1.	2	4				
25	Description of retry (2 cycles before)	1.	2	5				
28	Number of outdoor units connected in a multi system	1.	2	8	Possible 0-63		6	0 3
32	Outdoor unit PCB status judgment	1.	3	2	0: judgment in process 1: normal 2: abnormal			0 1 2
33	Number of abnormal status judgment outdoor unit PCB	1.	3	3	Possible 0-15		1	0 5
38	Number of connected RA indoor (through BP unit)	1	3	8	Possible 0-63		6	0 3
40	Cooling comfort setting	1.	4	0	Possible 0-3			0 3
42	High pressure (MPa)	1.	4	2	Possible 0.1-9.99	0. 9.	1 9	0 9
43	Low pressure (MPa)	1.	4	3	Possible 0.1-9.99	0. 9.	1 9	0 9
44	Compressor total frequency (Hz)	1.	4	4	0-999	0 9	0 9	0 9
46	Discharge pipe temperature (°C) (Tdi1)	1.	4	6	–99-999	- 9	9 9	9 9
50	Outdoor air temperature (°C) (Ta)	1.	5	0	–99-999	- 9	9 9	9 9
51	Compressor suction temperature (°C) (Ts)	1.	5	1	–99-999	- 9	9 9	9 9
52	Subcooling heat exchanger gas pipe temperature (°C) (Tsh)	1.	5	2	–99-999	- 9	9 9	9 9
54	Compressor operation (hours/100)	1.	5	4	0-999	0 9	0 9	0 9

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

3.6 Setting Mode (Mode 2)

3.6.1 How to Make Settings



Legend Segment : OFF : ON : BLINKS : hold 5 seconds

3.6.2 Overview of Setting Mode (Mode 2)

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

No.	Item		Display			Contents	Display		
	Description		SEG 1	SEG 2	SEG 3	Description	SEG 1	SEG 2	SEG 3
2	Low noise/ demand address	Used to make address setting for low noise/demand address.	2.	0	2	Address: **0** ~ 31		 3	**0** 1
5	Indoor fan forced H	Used to force the fan of indoor unit to H tap.	2.	0	5	**Normal operation** Indoor fan H			**0** 1
6	Forced thermostat ON	Used to force all indoor units to operate forced thermostat ON.	2.	0	6	**Normal operation** Forced thermostat ON			**0** 1
8	Te setting	Used to make setting of targeted evaporating temperature for cooling operation.	2.	0	8	**Standard: 6°C** High sensible: 7°C High sensible: 8°C High sensible: 9°C High sensible: 10°C High sensible: 11°C			**2** 3 4 5 6 7
11	Eco setting is available from an external input. When this configuration is set, it is not possible to turn the Eco refrigerant control ON/OFF using the remote controller. Also, depending on the settings, low noise operation or demand operation may not be performed using the external control adaptor.		2.	1	1	**Unavailable** Demand input Low noise level input			**0** 1 2
12	External low noise/demand setting	Used to receive external low noise or demand signal.	2.	1	2	Input LNO/DE **OFF** ON			 **0** 1
13	AIRNET address	Used to set address of AIRNET	2.	1	3	Address: **0** ~ 63		 6	 **0** 3
18	High EST mode for outdoor fan	High external static pressure mode setting	2.	1	8	**ON (Auto adjust and re-judge)** OFF (Auto adjust without re-judge) Forced level 0 Forced level 1 Forced level 2			**0** 1 2 3 4
21	Refrigerant recovery/ vacuuming	Used to set the system to refrigerant recovery mode (without compressor run).	2.	2	1	Refrigerant recovery **OFF** ON			 **0** 1
22	Automatic night-time low noise operation	Automatic night-time low noise operation. Time for the operation is subject to the start and end time settings.	2.	2	2	**OFF** Level 1 Level 2 Level 3			**0** 1 2 3
23	Used to set Eco mode invalid. When this configuration is set, it is not possible to turn the Eco mode ON/OFF using the external control adaptor.		2.	2	3	**Valid** Invalid for cooling Invalid for heating Invalid			**0** 1 2 3
25	External night-time low noise operation level	Low noise level when the external low noise signal is input at option DTA104A61.	2.	2	5	Level 1 **Level 2** Level 3			1 **2** 3
26	Automatic night-time low noise operation start	Time to start automatic “night-time low noise” operation. (“Night-time low noise” level setting should also be made.)	2.	2	6	About 8:00 PM **About 10:00 PM** About 12:00 AM			1 **2** 3
27	Automatic night-time low noise operation stop	Time to stop automatic “night-time low noise” operation. (“Night-time low noise” level setting should also be made.)	2.	2	7	About 6:00 AM About 7:00 AM **About 8:00 AM**			1 2 **3**
28	Power transistor check	Used to troubleshoot DC compressor. Inverter waveforms are output without wire connections to the compressor. It is useful to determine whether the relevant trouble has resulted from the compressor or inverter PCB.	2.	2	8	**OFF** ON (10 Hz)			**0** 1
29	Capacity priority	Cancel the low noise level control if capacity is required while low noise operation or night-time low noise operation is in progress.	2.	2	9	**OFF** ON			**0** 1

No.	Item					Contents			
	Description		Display			Description	Display		
			SEG 1	SEG 2	SEG 3		SEG 1	SEG 2	SEG 3
29	Capacity priority	Cancel the low noise level control if capacity is required while low noise operation or night-time low noise operation is in progress.	2.	2	9	**OFF** ON			**0** 1
30	Demand 1 setting	Used to make a change to the targeted power consumption level when the demand 1 control signal is inputted.	2.	3	0	Level 1 (60%) Level 2 (65%) **Level 3 (70%)** Level 4 (75%) Level 5 (80%) Level 6 (85%) Level 7 (90%) Level 8 (95%)			1 2 **3** 4 5 6 7 8
31	Demand 2 setting	Used to use a targeted power current level when the demand 2 control signal is inputted.	2.	3	1	**Level 1 (40%)** Level 2 (50%) Level 3 (55%)			**1** 2 3
32	Constant demand setting	Used to set constant demand 1 or 2 control without inputting any external signal.	2.	3	2	**OFF** Demand 1 (Mode 2-30) Demand 2 (Mode 2-31)			**0** 1 2
34	Indoor fan upper limit	Forced fan speed to low indoor units thermostat ON if total indoor thermostat-ON > index 130.	2.	3	4	**Cooling and heating** Heating only Never			**0** 1 2
35	Tc target setting	To change Tc target cooling.	2.	3	5	Higher **Lower** Do not use			0 **1** ~7
42	Outdoor fan	Outdoor fan noise countermeasure (limit fan speed).	2.	4	2	**Standard** Mode A Mode B			**0** 1 2
76	VRTsmart control Te upper limit	Used to change upper limit of target evaporation temperature in VRTsmart control.	2.	7	6	Low 1 Low 2 Low 3 Low 4 Low 5 Low 6 **Standard** High			0 1 2 3 4 5 **6** 7
78	VRT control Te upper limit	Used to change upper limit of target evaporation temperature in VRT control.	2.	7	8	Standard **High**			4 **6**
81	Cooling comfort setting		2.	8	1	ECO **Mild** Quick Powerful			0 **1** 2 3
83	Master remote control setting when mix combination		2.	8	3	***VRV*** indoor **RA indoor**	—	—	0 **1**
90	Indoor unit without power	Possible for operate system when some indoor units are temporary without power supply.	2.	9	0	**Disabled** Enabled			**0** 1
95	Eco level setting for VRTsmart		2.	9	5	**Standard** Middle High			**0** 1 2
96	Eco level setting for Eco mode by main PCB		2.	9	6	**OFF** Low Standard			**0** 1 2

- Setting does not return to factory setting when exit mode 2. To cancel the function, change setting manually to factory setting.
- Once function is activated **t01** appears. To stop current function, press once BS3 “Return” button.

For detailed description about each setting, refer to **Details of Setting Mode (Mode 2)** on page 135.

Indication **bold** means factory setting.

3.6.3 Details of Setting Mode (Mode 2)

- Mode 2-2: **Low noise/demand address**: address for low noise/demand operation.
  - 1 or more systems (maximum 10 systems wired by “F1F2 OUT/D”) can operate use the LNO (Low Noise Operation) or/and the DE (Demand Control) by instruction of field supplied input to optional board DTA104A61/62.
  - To link the system to the corresponding DTA104A61/62, set the address same as the DIP switches position on the related optional board DTA104A61/62.
  - Ensure that also field setting 2-12-1 is set to enable input from optional board DTA104A61/62.

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

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

- Mode 2-8: **Te target** temperature for cooling operation. Change the setting in function of required operation method during cooling. (Mode 2-23 should be 1 or 3)
  - Default value: 2 (Te target: 6°C). The refrigerant temperature is fixed to average indoor evaporating temperature of 6°C, independent from the situation. It corresponds to the standard operation which is known and can be expected from/under previous ***VRV*** systems.
  - Set 3-7: **High Sensible.** The refrigerant temperature is set higher/lower in cooling compared to basic operation. The focus under high sensible mode is comfort feeling for the customer. The selection method of indoor units is important and has to be considered as the available capacity is not the same as under basic operation. Activate this setting under cooling operation.

Mode 2-8	Te target
2	**6°C (default)★**
3	7°C
4	8°C
5	9°C
6	10°C
7	11°C

- Mode 2-11: **Eco level setting for Eco mode via External control adaptor (Optional).**

Mode 2-11	Meaning	Level
0	**Inactive (default)★**	—
1	Eco mode active by demand terminal short-circuit	2-C short circuit: Low 3-C short circuit: Standard
2	Eco mode active by low noise terminal short-circuit	Standard

  - Eco mode can be activated by short circuit the terminal on External control adaptor (Optional) according to 2-11 setting. (2-23 should be “0”)
  - This unit can operate with “Te fix control” and “Eco mode”.
  - Eco mode means “VRT” & “VRTsmart” control
  - If the terminal on external control adaptor is not connected by short circuit and 2-11 is not 0, the system operates according to 2-8 setting.

- Mode 2-12: **Enable input "DTA104A61/62"**: enable the low noise function and/or power consumption limitation. If the system needs to be running under low noise operation or under power consumption limitation conditions when an external signal is sent to the unit, this setting should be changed. This setting will only be effective when the optional external control adaptor for outdoor unit (DTA104A61/62) is installed and the address set by DIP switches on DTA104A61/62 corresponds to the address set on the outdoor unit(s) – set 2-.
  - Default value: 0.
  - To enable input from DTA104A61/62, change the item 2-12 to 1.

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

- Mode 2-18: **Fan high external static pressure mode** setting
  - Fan revolutions will be adjusted automatically according to external static pressure.
  - Default value: 0. Judge external static pressure level during operation check and every cooling restart standby.
  - Set 1: Judge external static pressure level during operation check.
  - Set 2-4: Forced external static pressure level 0-2.

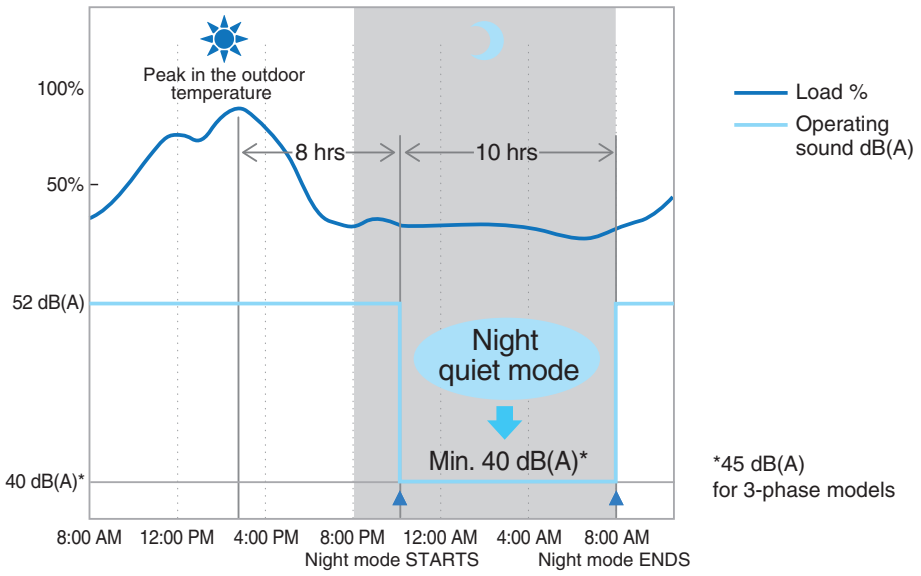
- Mode 2-21: **Refrigerant recovery / vacuuming**.
  - Default value: 0. Recovery mode not active.
  - Set 1: outdoor and indoor electronic expansion valves are opened fully (except EV3 for PCM vessel). Compressor(s) do not operate.
  - All controllers show "Test" and LED operation-ON, but indoor and outdoor fan do not operate.
  - Outdoor segment display indicates **t01**.
  - By opening indoor and outdoor electronic expansion valves there is a free pathway to reclaim remaining refrigerant out by using a refrigerant recovery unit to a refrigerant recovery bottle.
  - Prior to launch the recovery mode, ensure:
    - To vacuum all lines between service hoses – refrigerant recovery unit and recovery bottle.
    - Weight the refrigerant recovery bottle to know recovered amount when refrigerant recovery function is terminated.
  - To end the refrigerant recovery mode, press BS3 button once. The 7 segment display returns to normal (all off).

- Mode 2-22: **Selection automatic night-time low noise operation** level. The outdoor can switch automatically to a pre-set night-time low noise operation level during night-time judgment.
  - Default value: 0. Auto night-time low noise operation not active.
  - Set 1: use level 1.
  - Set 2: use level 2.
  - Set 3: use level 3.
  - Set period: refer to set the item 2-26 for start time and the item 2-27 for end time.

- Mode 2-23: **Eco mode invalid** setting
  - Eco mode becomes invalid by this setting.
  - When this configuration is set, it is not possible to turn Eco mode ON/OFF using external control adaptor or other setting.
  - Default value: 0, Eco mode is active.
  - Te fix control 2-23: 1 or 3
  - Tc fix control 2-23: 2 or 3

■ Mode 2-25: Night-time low noise operation level when using external input to optional board DTA104A61/62.
- If the system needs to be running under low noise operation conditions when an external signal is sent to the unit, this setting defines the level of low noise that will be applied.
- This setting will only be effective when the optional external control adaptor for outdoor unit DTA104A61/62 is installed and the setting is enabled (mode 2-12-1).
- When night-time low noise operation is actually performed, conditions can be checked via mode 1-1.
- The night-time low noise operation will not be performed in one of following conditions:
  - Startup of system, or
  - During oil return, or
  - 30 minutes after external input opened, or
  - Capacity priority setting is active (refer to mode 2-29-1) and limit condition is met.
- Default value: 2 (level 2)
- Night-time low noise operation level can be selected to 1, 2, or 3 (field setting 2-25-1, 2, 3).

■ Mode 2-26: **Start time automatic night-time low noise** operation. When the auto night-time low noise operation is active (refer to field setting 2-22) outdoor will start when start time is reached. The time judgment is taken from outdoor air tendency.



- Default value: 2 (10:00 PM)
- Field setting 1: 8:00 PM, 3: 12:00 AM (midnight).

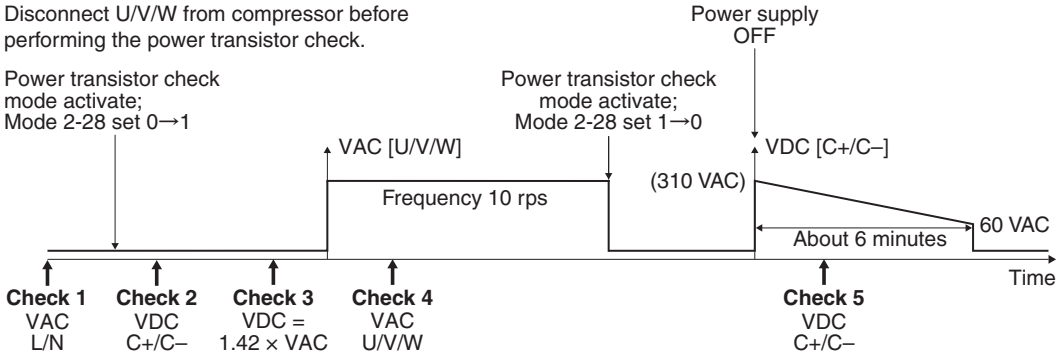
■ Mode 2-27: **Stop time automatic night-time low noise** operation. When the auto night-time low noise operation is active (refer to field setting 2-22), outdoor unit will stop the night-time low noise operation level automatically when stop time is reached.
- Default value: 3 (8:00 AM)
- Field setting 1: 6:00 AM, 2: 7:00 AM

■ Mode 2-28: **Power transistor check** mode. To evaluate the output of the power transistors. Use this function in case error code is displayed related to defective inverter PCB or compressor is locked.
- Default value: 0. Power transistor check mode is not active.
- Field setting 1: Power transistor check mode is active.
  - Function:
  - Inverter circuit gives output of 10 rps in sequence by all 6 transistors. Remove the U/V/W terminals of the compressor, and connect to the inverter checker module. If all 6 LEDs blink, the transistors switch correctly.
  - When the power transistor check mode is set back to 0 (default), after turning off the power supply, 2 LEDs will light up to indicate discharge of the DC voltage.

- Wait until the LEDs are OFF before returning fasten terminals back to the compressor terminals.

- Minimum requirements to refer to the result on the inverter checker module:
  - Line (for RXMQ6AR) or all 3 phases (for RXMQ8AR) and neutral are available, and
  - Inverter circuit is active. Check if the green LED “HBP” on the main PCB (for RXMQ6AR) or "HAP" on the inverter PCB (for RXMQ8AR) is blinking normally (approximately 1/second). If LED is OFF, need to exit the “standby mode” of the inverter:
  - Disconnect and reconnect power supply control PCB, or
  - Forced thermostat ON condition, or
  - Make shortly set 2-6-1 (forced thermostat ON indoor), or
  - 2-20-1 (manual refrigerant charge).
  - Once the LED is blinking on the PCB, change related setting immediately back to set 0 to deactivate related function.
  - Diode module generates the required 300 VDC (for RXMQ6AR) or 500 VDC (for RXMQ8AR).
- Cautions:
  - To stop the power transistor check mode, change setting to default 2-28-0.
  - Output to U/V/W will also stop when outdoor unit main PCB decides standby mode of inverter circuit.
- Below time graphs show the different steps during the power transistor check mode.
  - Switching sequence during power transistor check mode:

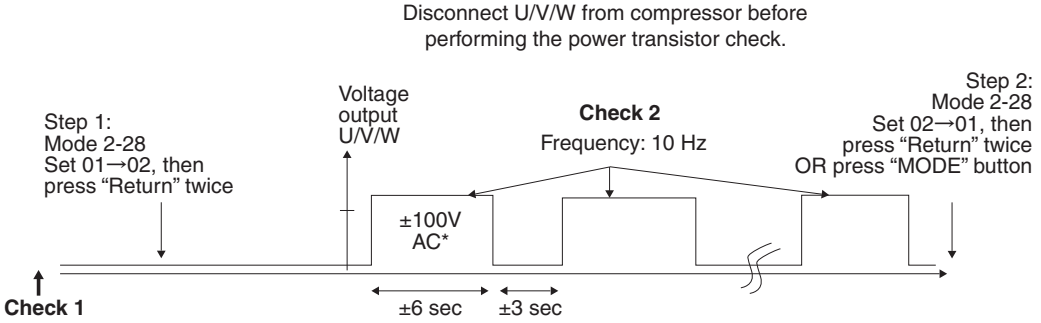
RXMQ6AR



Check 1: AC power input (L, N on X1M: power supply terminal block) around 220 V
Check 2: DC voltage on inverter circuit capacitor (C+,C–) increases to around 310 V.
Check 3: VDC = 1.42 × VAC power supply (calculation from **Check 1** and **Check 2**)
Check 4: AC U/V/W 10 rps intermediate (at fasten U/V/W) around 10 V
Check 5: DC voltage drop (discharge inverter circuit capacitor DC) check difference between “C+, C–” within 2 LED (V phase) brightness reduce till off.

*Note: Actual voltage value depends on meter characteristics.

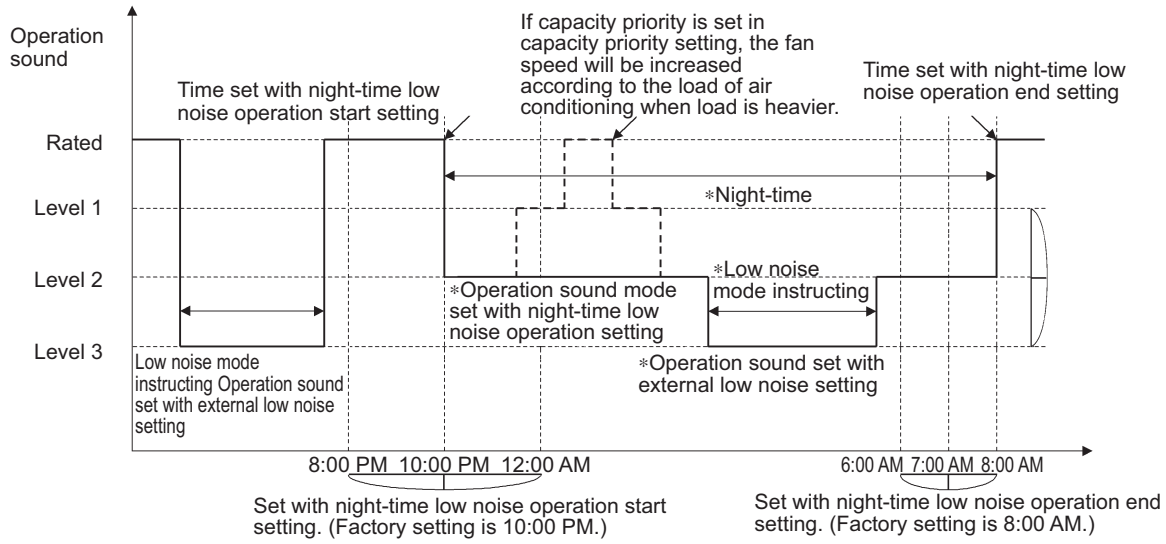
RXMQ8AR



Check 1 : AC power input 380-415 V unbalance max. 2%.
Check 2 : AC U/V/W 10 Hz intermediate: check difference within 10 V (at fasten U/V/W)

*Note: Actual voltage value depends on meter characteristics

- Mode 2-29: **Capacity priority**. When the night-time low noise operation is in use, performance of system might drop because airflow rate of outdoor unit is reduced.
  - Default value: 0. Capacity priority cannot be used.
  - Field setting 1: capacity priority can temporary cancel the night-time low noise operation. Capacity priority can be initiated when certain operation parameters approach the safety setting:
    - Raise in high pressure during cooling.
    - Raise of discharge pipe temperature.
    - Raise of inverter current.
    - Raise of fin temperature inverter PCB.
  - When operation parameters return to normal range, the capacity priority is switched OFF, enable to reduce airflow rate depending on night-time low noise operation is still required (end time for low night noise operation is not reached or external input night-time low noise operation is still closed).



- Mode 2-30: **Power consumption limitation level 1**. If the system needs to be running under power consumption limitation conditions via the external control adaptor for outdoor unit DTA104A61/62. This setting defines the level power consumption limitation that will be applied for level 1. The level is according the table.
  - Default: 3 (70%)
  - Field setting:

Mode 2-30	current limit set (%)
1	60
2	65
3★	**70 (default)★**
4	75
5	80
6	85
7	90
8	95

- Mode 2-31: **Power consumption limitation level 2**. If the system needs to be running under power consumption limitation conditions via the external control adaptor for outdoor unit DTA104A61/62. This setting defines the level power consumption limitation that will be applied for level 2. The level is according the table.
  - Default: 1 (40%)
  - Field setting:

Mode 2-31	current limit set (%)
1★	**40 (default)★**
2	50
3	55

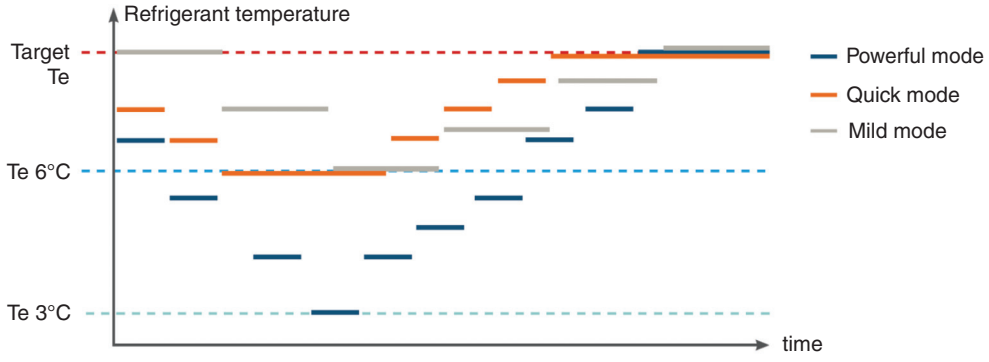
- Mode 2-32: **Forced, all time, power consumption limitation** operation (no external control adaptor is required to perform power consumption limitation).
  - If the system always needs to be running under power consumption limitation conditions, this setting activates and defines the level power consumption limitation that will be applied continuously. The level is according to the table.
  - Default value:0 (OFF).

Mode 2-32	Restriction reference
0	**Function not active (default)★**
1	Follows 2-30 setting
2	Follows 2-31 setting

- Mode 2-81: **Cooling comfort setting**. The comfort level is related to the timing and the effort (power consumption) which is put in achieving a certain room temperature by changing temporally the refrigerant temperature to different values in order to achieve requested conditions more quickly.
  - Default value: 1 (Mild). Undershoot during cooling operation is allowed compared to the requested refrigerant temperature, in order to achieve the required room temperature very fast. The undershoot is not allowed from the startup moment. The startup occurs under the condition which is defined by the operation mode. In case of cooling operation the evaporating temperature is allowed to go down to 6°C on temporary base depending on the situation. When the request from the indoor units becomes more moderate, the system will eventually go to the steady state condition which is defined by the operation method above. The startup condition is different from the powerful and quick comfort setting.
  - Field setting:
    - 0: Eco. The original refrigerant temperature target, which is defined by the Te setting (field setting 2-8) in cooling mode, is kept without any correction, unless for protection control.

- 2: Quick. Undershoot during cooling operation is allowed compared to the requested refrigerant temperature, in order to achieve the required room temperature very fast. The overshoot is allowed from the start up moment. In case of cooling operation the evaporating temperature is allowed to go down to 6°C on temporary base depending on the situation. When the request from the indoor units becomes more moderate, the system will eventually go to the steady state condition which is defined by the operation method above.
- 3: Powerful. Undershoot during cooling operation is allowed compared to the requested refrigerant temperature, in order to achieve the required room temperature very fast. The overshoot is allowed from the start up moment. In case of cooling operation the evaporating temperature is allowed to go down to 3°C on temporary base depending on the situation. This setting is used in conjunction with setting 2-8.

■ The graph below shows the different patterns of target Te according to setting 2-81 “cooling comfort setting”



■ Mode 2-83: **Allocation of cool/heat master logic**. When system contains ***VRV*** DX indoor and RA indoor (through BP units), it is required to assign the cool/heat change over logic to follow.

● Default value: 1. RA cool/heat master logic. Any RA indoor unit that is switched first, is assigned as cool/heat master as long this unit is in operation (regardless thermostat status). Only when this indoor unit is switched OFF operation (by remote controller), other indoor unit can become cool/heat master:
- Priority is given to indoor unit operating in the same mode as the previous cool/heat master switched OFF operation.
- Only no more indoor unit operate in the same mode as the previous cool/heat master, other RA indoor unit can become cool/heat master to switch to the other operation mode.
- RA indoor unit that is operating, but demanding the other operation mode set by the cool/heat master, enters the “stand-by mode”: operation LED blinks.
- ***VRV*** indoor unit change the operation mode immediately when outdoor unit receives change of operation mode from the current cool/heat master RA indoor unit.

● Field Setting 0: ***VRV*** cool/heat master logic.
- At time of first startup, or when cool/heat master was released, one of connected ***VRV*** DX indoor unit can be assigned cool/heat master. The symbol “locked cool/heat selector” blinks. In case of wireless controller kit is used, the green clock LED blinks on the receiver.
- Confirm cool/heat master to a ***VRV*** DX indoor unit: press once the cool/heat selector button

on the remote controller of the indoor unit to be set as cool/heat master.

■ Mode 2-90: **Indoor unit without power U4** error generation. In case an indoor unit needs maintenance or repair on the electric side, it is possible to keep the rest of the ***VRV*** DX indoor units operating without power supply to some indoor unit(s).

● Default value: 0. Not active.

- Field setting 1: Possible to operate system when some indoor units are temporary without power supply. The following conditions must be fulfilled:
  - Maximum equivalent piping length of the farthest indoor less than 120 m.
  - Index indoor units power simultaneously less than 30% of the nominal outdoor.
  - Total capacity is less than 30% of the nominal one of the outdoor unit.
  - Operation time is limited to 24 hours period.
  - It is recommended to shut down connected indoor units at the same floor.
  - Not possible to use service mode operation (e.g. recovery mode).
  - Backup operation has priority over this special feature.
  - Not possible to use when the indoor unit electronic expansion valve is defective.
  - Not possible to use with systems that include BP units.
  - It is necessary to wait for 10 min. before shutting down the connected indoor units after indoor units operation is stopped.

■ Mode 2-96: **Eco level setting for Eco mode by main PCB**

- Default value: 0

Mode 2-96	Eco level setting
0	**OFF (default)★**
1	Low
2	Standard

3.7 Eco Mode Setting

By connecting an external contact input in the input of mode configuration and external control adaptor (sold separately), you may control Eco mode setting, limiting compressor operation load and power consumption.

When Eco mode is set as unavailable (Outdoor unit external control adaptor is unnecessary)

Eco mode control is unavailable during cooling operation.

When the Eco level of Eco mode control is set as Standard/Low or Eco mode control is set as unavailable by external control adaptor

Setting description			Setting mode	
Item	Condition	Description	External control adaptor	Outdoor unit PCB
Eco level	Standard	Eco level set as **Standard** by low noise level	Short-circuit the low noise level terminal in the terminal TeS1	Set mode 2-11 to **Eco setting by low noise level input**
		Eco level set as **Standard** by demand control	Short-circuit the demand input terminal 3 – C in the terminal TeS1	Set mode 2-11 to **Eco setting by demand input**
	Low	Eco level set as **Low** by demand control	Short-circuit the demand input terminal 2 – C in the terminal TeS1	
Eco control unavailable		Eco control set as unavailable by low noise level	Open the low noise level terminal in the terminal TeS1	Set mode 2-11 to **Eco setting by low noise level input**
		Eco control set as unavailable by demand control	Open the demand input terminal in the terminal TeS1	Set mode 2-11 to **Eco setting by demand input**

1. Connect the external control adaptor and short-circuit the input terminal TeS1 if necessary.
2. Set mode 2-11 (External Eco Setting) to **Eco setting by low noise level input or Eco setting by demand input** according to the short-circuited terminal.

About Eco Level Setting

The upper limit of Te (target evaporation temperature) is changed based on the Eco level.

In case of VRTsmart control

VRTsmart control		Mode 2-76: Te upper limit
Eco level	Standard	22°C
	Low	9°C

The lowest temperature between the above and mode 2-76 VRTsmart control Te upper limit is set.

In case of VRT control

VRT control		Mode 2-78: Te upper limit	
		Standard	High
Eco level	Standard	17°C	21°C
	Low	16°C	20°C

The priority of each setting is as follows:

1. Mode 2-23 (Eco Control Unavailable Setting)
2. Mode 2-11 (External Eco Setting) and external control adaptor input
3. Eco mode setting

3.8 Night-Time Low Noise Operation and Demand Operation

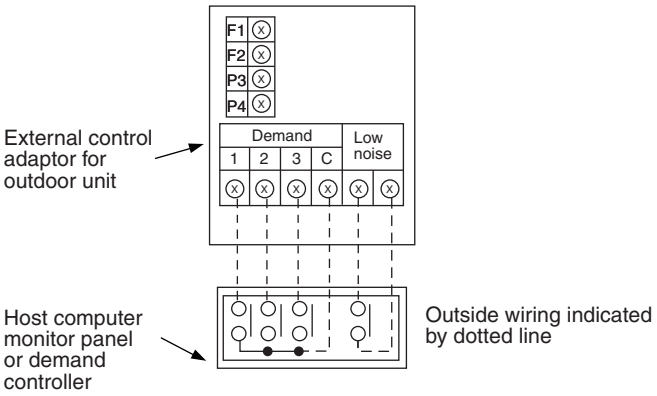
Night-time Low Noise Operation

By connecting the external contact input to the low noise input of the outdoor unit external control adaptor (optional), you can lower operating noise by 2-3 dB.

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

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

1. Connect external control adaptor for outdoor unit and short circuit terminal of night-time low noise operation (Refer below figure). If carrying out demand or low noise input, connect the adaptor's terminals as shown below. External control adaptor for outdoor unit Host computer Outside wiring indicated monitor panel by dotted line or demand controller



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

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

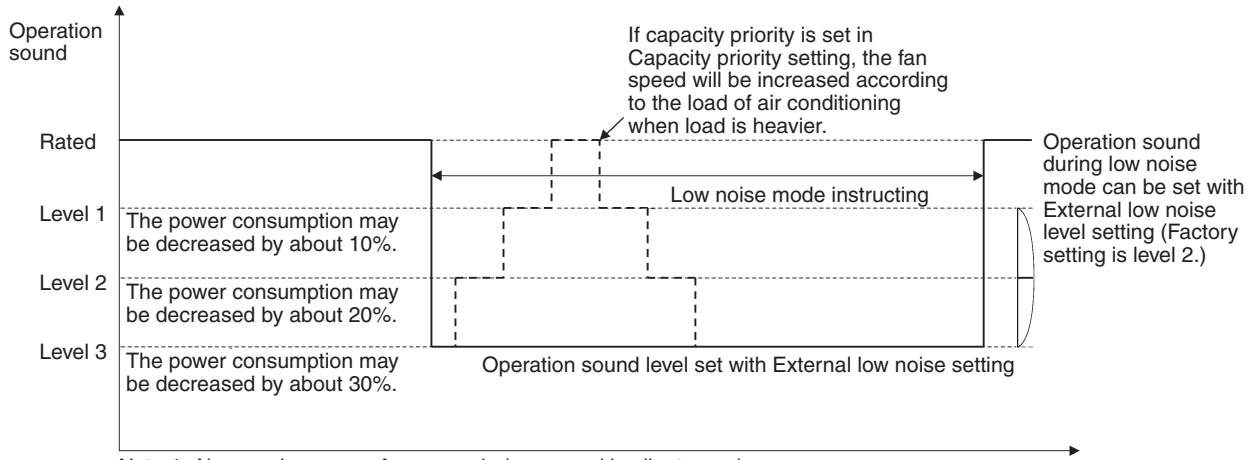
1. While in setting mode 2, select a night-time low noise operation level for the item 2-22.

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

3. If necessary, while in setting mode 2, select an ending time of night-time low noise operation (i.e., 06:00 AM, 07:00 AM, or 08:00 AM) for the item 2-27. (Use the ending time as a guide since it is estimated according to outdoor air temperatures.)

4. If necessary, while in setting mode 2, set the item 2-29 (Capacity priority setting) to ON. (If the condition is set to ON, when the air conditioning load reaches a high level, the system will be put into normal operation mode even during night-time.)

Image of operation in the case of A



Note 1: Above values are reference only (measured in silent room)
Note 2: Target sound level

	Level 1	Level 2	Level 3
6 HP	50 dB	45 dB	40 dB
8 HP	55 dB	50 dB	45 dB

Image of operation in the case of B

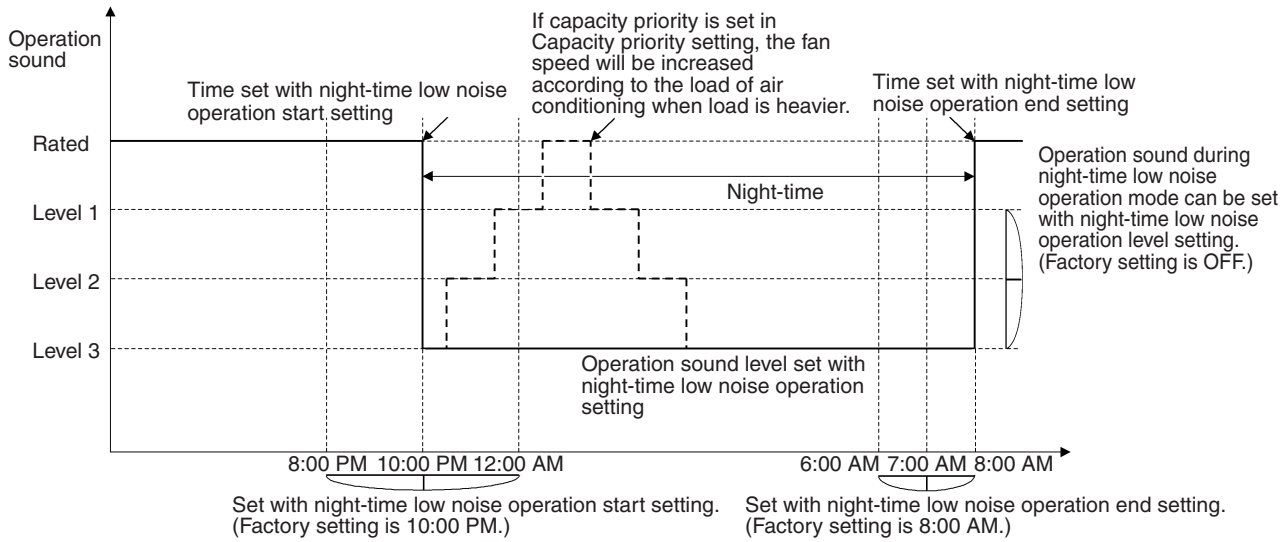
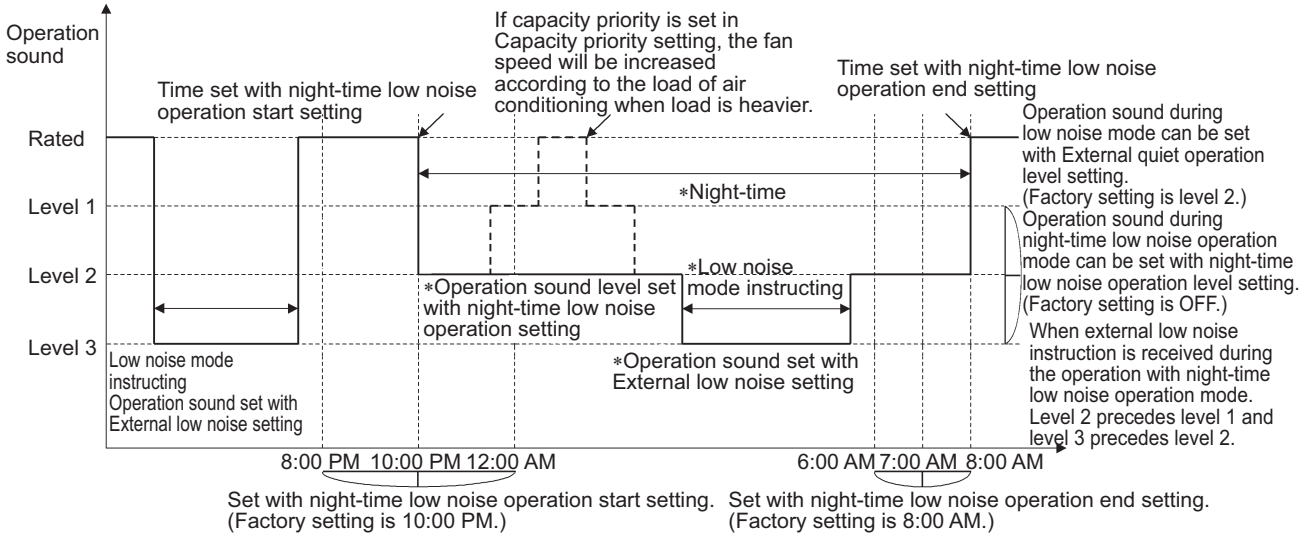


Image of operation in the case of A and B



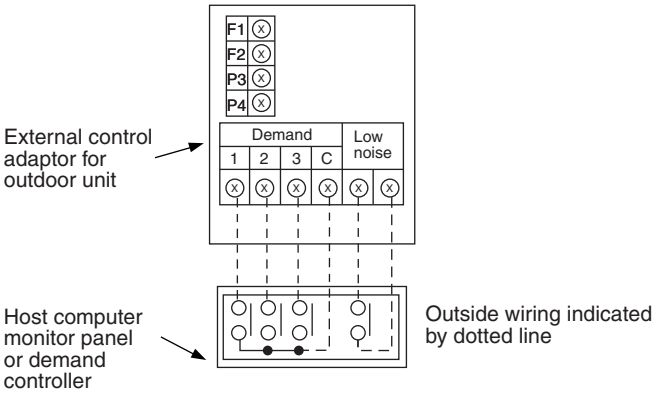
Setting of Demand Operation

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

Setting content			Setting method	
Set item	Condition	Content	External control adaptor for outdoor unit	Outdoor unit PCB
Demand 1	Level 1	The compressor operates at 60% or less of rating.	Short circuit "1" and "C" on the terminal strip (TeS1).	Set the item 2-32 to Demand 1, and the item 2-30 to Level 1.
	Level 2	The compressor operates at 65% or less of rating.		Set the item 2-32 to Demand 1, and the item 2-30 to Level 2.
	Level 3	The compressor operates at 70% or less of rating.		Set the item 2-32 to Demand 1, and the item 2-30 to Level 3.
	Level 4	The compressor operates at 75% or less of rating.		Set the item 2-32 to Demand 1, and the item 2-30 to Level 4.
	Level 5	The compressor operates at 80% or less of rating.		Set the item 2-32 to Demand 1, and the item 2-30 to Level 5.
	Level 6	The compressor operates at 85% or less of rating.		Set the item 2-32 to Demand 1, and the item 2-30 to Level 6.
	Level 7	The compressor operates at 90% or less of rating.		Set the item 2-32 to Demand 1, and the item 2-30 to Level 7.
	Level 8	The compressor operates at 95% or less of rating.		Set the item 2-32 to Demand 1, and the item 2-30 to Level 8.
Demand 2	Level 1	The compressor operates at 40% or less of rating.	Short circuit "2" and "C".	Set the item 2-32 to Demand 2, and the item 2-31 to Level 1.
	Level 2	The compressor operates at 50% or less of rating.		Set the item 2-32 to Demand 2, and the item 2-31 to Level 2.
	Level 3	The compressor operates at 55% or less of rating.		Set the item 2-32 to Demand 2, and the item 2-31 to Level 3.
Demand 3	—	Forced thermostat OFF	Short circuit "3" and "C".	—

∗: However the demand operation does not occur in the following operation modes.
(1) Startup control
(2) Oil return control
(3) Pump down residual operation

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



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

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

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

1. While in setting mode 2, set the item 2-32 (Constant demand setting) to Level 1.
While in setting mode 2, select a demand 1 level for the item 2-30.

Image of operation in the case of A

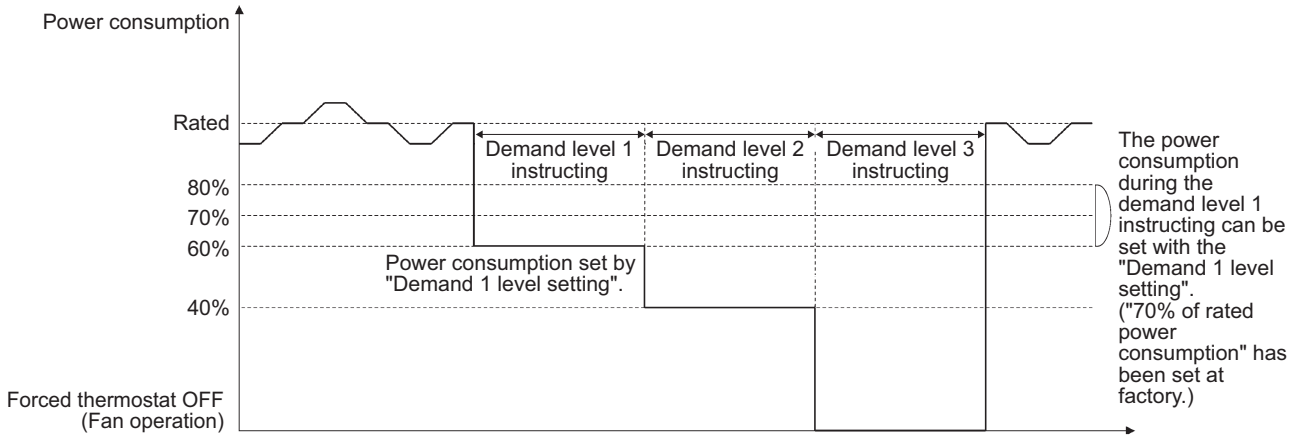


Image of operation in the case of B

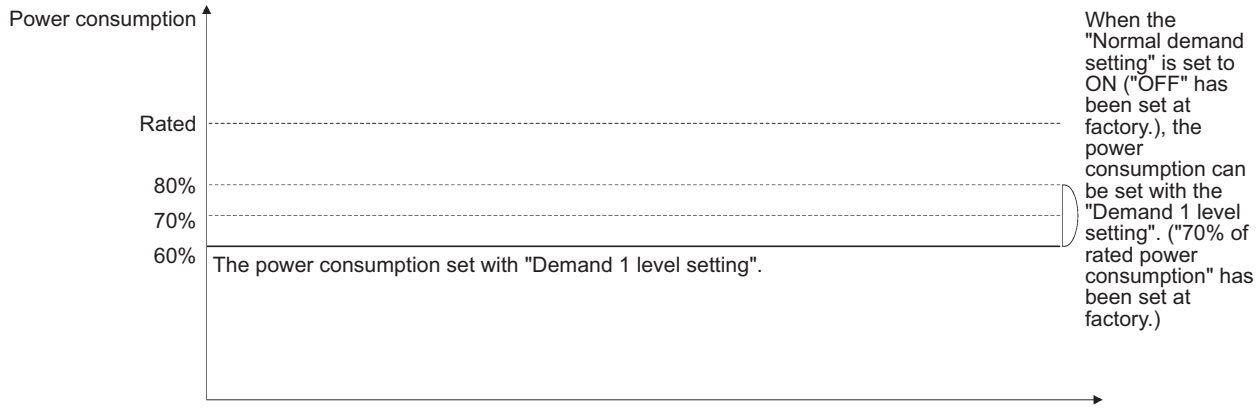
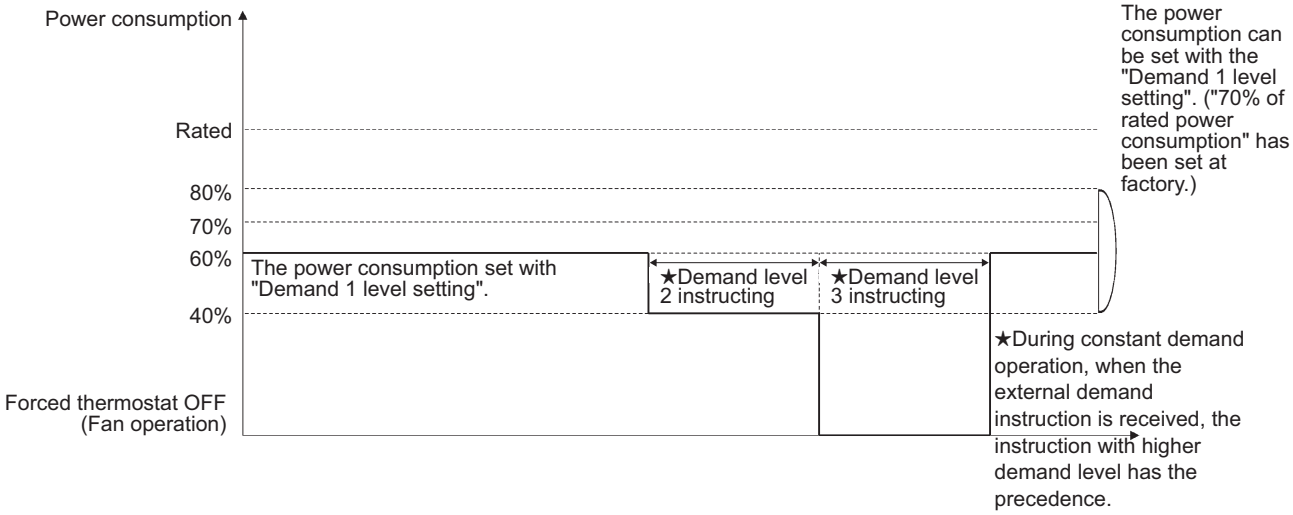


Image of operation in the case of A and B



4. Field Settings for Outdoor Unit (10/12 HP Models)

This chapter will describe how manual input is possible by operating the BS buttons or DIP switches on the logic board and reading the feedback from the 7 segment displays.
It is alternatively possible to make several commissioning field setting through a personal computer interface (for this, option EKPCCAB1 is required). The installer can prepare the configuration (off-site) on PC and afterwards upload the configuration to the system.

4.1 Capacity Setting

All the DIP switches on the outdoor unit main PCB (A1P) are OFF for factory setting and you should never change the settings.

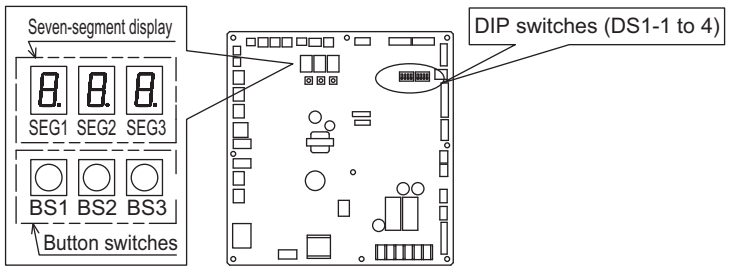
Capacity setting is required if the outdoor unit main PCB (A1P) has been replaced with a spare PCB. Set the positions of the DIP switches as below.

Model	Position (■ represents the position of switch.)	
RXMQ10ARY1		Turn ON the DIP switches: DS1-2, DS1-3, DS1-4, DS2-1, and DS2-2.
RXMQ12ARY1		Turn ON the DIP switches: DS1-2, DS1-3, DS1-4, and DS2-3.

4.2 BS Buttons and DIP Switches

1. **How to operate**

- Turn OFF the power supply before operating the DIP switches.
- When the power supply is ON, follow the instructions shown in the diagrams below; use a plastic ball-point pen or an insulated object to operate the button switches.



1. **Setting by button switches (BS1 to 3)**
   Functions of the button switches (on the outdoor unit PCB (A1P))

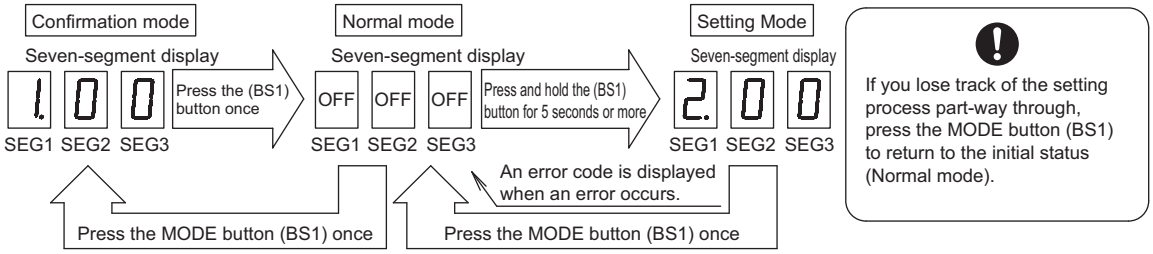
Button	Button type	Applications
BS1	MODE button	For changing the setting mode
BS2	SET button	For field setting
BS3	RETURN button	
Press and hold BS2	SET button	For test operation
Press and hold BS3	RETURN button	For resetting the address when the wiring is changed or when an additional indoor unit is installed

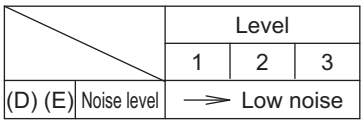
Normal mode / Setting mode / Confirmation mode

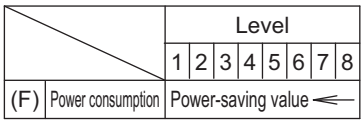
Mode change procedure (Normal mode / Setting mode / Confirmation mode) can be performed using the MODE button (BS1) as shown below:

Setting mode For changing items (A) to (G) in the table on the next page.

Confirmation mode For verifying items (J) and (H) in the table on the next page.



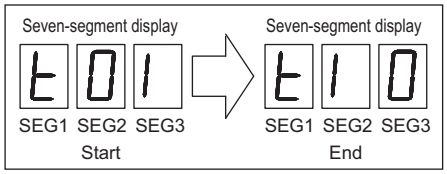
<table>
<tr><td colspan="2" rowspan="2">In Setting mode and Confirmation mode operate according to the following sequences.</td><td colspan="2" rowspan="2">Settings</td><td colspan="3">Seven-segment display</td></tr>
<tr><td>SEG1</td><td>SEG2</td><td>SEG3</td></tr>
<tr><td rowspan="25">Setting sequences</td><td rowspan="7">(1) Press the SET button (BS2) to set the seven-segment display to any of the setting items ((A) to (G)) listed in the table on the right.
(∗1) Set outdoor unit low noise operation and query through the external controller (optional accessory) for cooling/heating selector operation settings.
Refer to the optional accessories manual for details.</td><td colspan="2">(A) For selecting cooling/heating mode (∗1)</td><td>2</td><td>0</td><td>0</td></tr>
<tr><td colspan="2">(B) For charging additional refrigerant for operation</td><td>2</td><td>2</td><td>0</td></tr>
<tr><td colspan="2">(C) For setting refrigerant recycle/vacuum mode</td><td>2</td><td>2</td><td>1</td></tr>
<tr><td colspan="2">(D) For setting night-time low noise mode</td><td>2</td><td>2</td><td>2</td></tr>
<tr><td colspan="2">(E) For setting external low noise level (∗1)</td><td>2</td><td>2</td><td>5</td></tr>
<tr><td colspan="2">(F) For setting the demand level (∗1)</td><td>2</td><td>3</td><td>0</td></tr>
<tr><td colspan="2">(G) For external low noise demand (∗1)</td><td>2</td><td>1</td><td>2</td></tr>
<tr><td colspan="2">(2) Press the RETURN button (BS3). (Displays the current set value)</td><td colspan="3">Any of the displays in (3)</td></tr>
<tr><td rowspan="17">(3) Press the SET button (BS2) to set the seven-segment display to any of the setting items listed in the table on the right.
(∗2) Effects of level setting
 

(∗3) Effects of level setting
 
</td><td>For (A)</td><td>Cooling/heating mode switching of individual units in various outdoor unit systems</td><td>OFF</td><td>OFF</td><td>0</td></tr>
<tr><td rowspan="2">For (B)(C)(G)</td><td>ON</td><td>OFF</td><td>OFF</td><td>1</td></tr>
<tr><td>OFF (Default)</td><td>OFF</td><td>OFF</td><td>0</td></tr>
<tr><td rowspan="4">For (D) (∗2)</td><td>OFF (Default)</td><td>OFF</td><td>OFF</td><td>0</td></tr>
<tr><td>Level 1</td><td>OFF</td><td>OFF</td><td>1</td></tr>
<tr><td>Level 2</td><td>OFF</td><td>OFF</td><td>2</td></tr>
<tr><td>Level 3</td><td>OFF</td><td>OFF</td><td>3</td></tr>
<tr><td rowspan="3">For (E) (∗2)</td><td>Level 1</td><td>OFF</td><td>OFF</td><td>1</td></tr>
<tr><td>Level 2 (Default)</td><td>OFF</td><td>OFF</td><td>2</td></tr>
<tr><td>Level 3</td><td>OFF</td><td>OFF</td><td>3</td></tr>
<tr><td rowspan="8">For (F) (∗2)</td><td>Level 1</td><td>OFF</td><td>OFF</td><td>1</td></tr>
<tr><td>Level 2</td><td>OFF</td><td>OFF</td><td>2</td></tr>
<tr><td>Level 3 (Default)</td><td>OFF</td><td>OFF</td><td>3</td></tr>
<tr><td>Level 4</td><td>OFF</td><td>OFF</td><td>4</td></tr>
<tr><td>Level 5</td><td>OFF</td><td>OFF</td><td>5</td></tr>
<tr><td>Level 6</td><td>OFF</td><td>OFF</td><td>6</td></tr>
<tr><td>Level 7</td><td>OFF</td><td>OFF</td><td>7</td></tr>
<tr><td>Level 8</td><td>OFF</td><td>OFF</td><td>8</td></tr>
<tr><td>(4) Press the RETURN button (BS3)</td><td colspan="2">Verify the set value in (3)</td><td colspan="3">The upper display stops blinking and is turned ON.</td></tr>
<tr><td>(5) Press the RETURN button (BS3) again</td><td colspan="2">Operate according to the settings</td><td>2</td><td>0</td><td>0</td></tr>
<tr><td>(6) Press the MODE button (BS1)</td><td colspan="2">Return to normal mode</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td rowspan="3">Confirmation sequences</td><td rowspan="2">(1) Press the SET button (BS2) to set the seven-segment display to the setting items ((H)/(J)) listed in the table on the right.</td><td colspan="2">(H) For low noise operation</td><td>1</td><td>0</td><td>1</td></tr>
<tr><td colspan="2">(J) For operation demand</td><td>1</td><td>0</td><td>2</td></tr>
<tr><td>(2) Press the RETURN button (BS3). (Displays the current set value)</td><td colspan="2">During setting operation</td><td>OFF</td><td>OFF</td><td>1</td></tr>
<tr><td colspan="2">During normal operation</td><td>OFF</td><td>OFF</td><td>0</td></tr>
</table>

Confirmation operation

Be sure to open the stop valves on the gas side/liquid side before starting operation.

- Be sure to carry out confirmation operation upon initial installation. If confirmation operation is not carried out, the remote controller and the seven-segment display will display the error code **U3**, so that the unit cannot operate normally. The air conditioner will go into normal operation 5 minutes after confirmation operation.
- Confirmation operation takes place automatically in cooling mode. The seven-segment display is shown in the diagram below. TEST and are displayed on the remote controller.



- During confirmation operation, operation cannot be stopped by the remote controller. To interrupt operation, press the RETURN button (BS3), and residual operation will stop after 30 seconds.
- To balance the refrigerant, there will be about 5 minutes' waiting time before starting the compressor. In addition, operation sounds will become louder (for example the blasting sound, the sound of refrigerant passing through the system and the operation sound of the electromagnetic valve), but this is not a malfunction or abnormality.
- Individual abnormal indoor units cannot be verified. After confirmation operation, enter normal operation through the remote controller, then check the indoor units one by one.

- Connect all units (indoor and outdoor units) to the power supply before operation. Operate units when all outer panels are closed.
- If this is not done before confirmation operation, the units cannot operate normally and confirmation operation cannot take place correctly.

Main points of operation

(1) Be sure to connect units to the power supply 6 hours before operation to protect the compressor.
(After connecting to the power supply, the units can be started once the seven-segment display lights turn off (after 12 minutes, at most).)

	Seven-segment display
Completed normally	OFF
Not completed normally	Abnormal display

(2) When not in operation, set to Normal mode.
(3) Press and hold the SET button (BS2) for 5 seconds or more to begin confirmation operation.
(4) Close all outer panels. (Misjudgments may occur if the outer panels are open)
(5) Operation will stop automatically after the unit has been operating for about 30 to 40 minutes; results of confirmation operation are shown on the seven-segment display.
(Refer to the above table)

If an error occurs during operation, press the MODE button (BS1) to restart from (2).

Troubleshooting

(1) Check the error codes on the remote controller or the seven-segment display, and eliminate the errors.
(Refer to the installation manual/operation manual/service manual for error codes and troubleshooting)
(2) Press the RETURN button (BS3) after troubleshooting to clear error codes.
(3) Carry out confirmation operation again to make sure errors have been eliminated.
(If confirmation operation is not completed, the unit cannot operate normally)

Operating the BS buttons

By operating the BS buttons it is possible to:

- Perform special actions (test run, etc).
- Perform field settings (demand operation, low noise, etc).

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

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

Note(s)

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

Functions of the BS button switches which are located on the outdoor unit main PCB (A1P)

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

When turning ON the power supply: flashing as indicated. First checks on power supply are executed (1~2 minutes).

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

Ready for operation: blank display indication as indicated.

Segment display indications:

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

Note(s)

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

Accessing modes

BS1 is used to change the mode you want to access.

- **Access mode 1**

Press BS1 once. Segment indication changes to:

- **Access mode 2**

Press BS1 for at least 5 seconds. Segment indication changes to:

Note(s)

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

Mode 1

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

- Changing and access the setting in mode 1:

  Once mode 1 is selected (press BS1 once), you can select the wanted setting. It is done by pushing BS2. Accessing the selected setting's value is done by pressing BS3 once.
- To quit and return to the initial status, press BS1.

Example:

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

[A-B]: C in this case defined as: A = 1; B = 10; C = the value we want to know/monitor:

- Make sure the segment indication is as during normal operation (default situation when shipped from factory).
- Press BS1 once; result segment display:

Result: mode 1 is accessed.

- Press BS2 10 times; result segment display:

Result: mode 1 setting 10 is addressed.

- Press BS3 1 time; the value which is returned (depending on the actual field situation), is the amount of indoor units which are connected to the system.

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

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

Mode 2

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

- Changing and access the setting in mode 2:

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

Example:

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

[A-B]: C in this case defined as: A = 2; B = 18; C = the value we want to know/change

- Make sure the segment indication is as during normal operation (default situation when shipped from factory).
- Press BS1 for over 5 seconds; result segment display:

Result: mode 2 is accessed.

- Press BS2 18 times; result segment display:

Result: mode 2 setting 18 is addressed.

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

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

- To change the value of the setting, press BS2 until the required value appears on the segment indication. When achieved, define the setting value by pressing BS3 once. To start operation according to the chosen setting, confirm again by pressing BS3.
- To leave the field setting mode, press BS1 2 times, you will return to the default situation when shipped from factory.

Operating the DIP switches

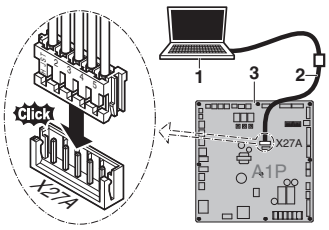
By operating the DIP switches it is possible to:

What to do with DIP switch DS1	
2-4	NOT USED DO NOT CHANGE THE FACTORY SETTING
What to do with DIP switch DS2	
1-4	NOT USED DO NOT CHANGE THE FACTORY SETTING

4.2.1 Connecting of the Optional PC Configurator Cable to the Outdoor Unit

Connecting the PC configurator to the outdoor unit has to be done on A1P. Connect the EKPCCAB∗ cable to the 5-pin blue connector X27A.

Caution Works executed on the outdoor unit are best done under dry weather conditions to avoid water ingress.



1 PC
2 Cable (EKPCCAB∗)
3 Outdoor unit main PCB

4.2.2 Mode 1

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

Below the settings in mode 1 are explained.

[1-0]: shows whether the unit you check is a master, slave 1 or slave 2 unit.
- No indication: undefined situation
- 0: outdoor unit is master unit
- 1: outdoor unit is slave 1 unit
- 2: outdoor unit is slave 2 unit

Master, slave 1 and slave 2 indications are relevant in multiple outdoor unit system configurations. The allocation of which outdoor unit is master, slave 1 or slave 2 are decided by the unit's logic.
The master unit should be used to input field settings in mode 2.

[1-1]: shows the status of low night noise operation.
- 1: unit is currently operating under low noise restrictions
- 0: unit is currently not operating under low noise restrictions

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

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

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

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

[1-2]: shows the status of power consumption limitation operation.
- 1: unit is currently operating under power consumption limitation
- 0: unit is currently not operating under power consumption limitations

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

The first method is to enable a forced power consumption limitation by field setting. The unit will always operate at the selected power consumption limitation.

The second method is to enable power consumption limitation based on an external input. For this operation an optional accessory is required.

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

[1-10]: shows the total number of connected indoor units.
It can be convenient to check if the total number of indoor units which are installed match the total number of indoor units which are recognized by the system. In case there is a mismatch, it is advised to check the communication wiring path between outdoor and indoor units (F1/F2 communication line).

[1-13]: shows the total number of connected outdoor units (in case of multiple outdoor system).
It can be convenient to check if the total number of outdoor units which are installed matches the total number of outdoor units which are recognized by the system. In case there is a mismatch, it is advised to check the communication wiring path between outdoor and outdoor units (Q1/Q2 communication line).

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

[1-18]: shows the error code which occurred 1 time before current error code.

[1-19]: shows the error code which occurred 2 time before current error code.

When the latest error codes were reset by accident on an indoor unit user interface, they can be checked again through this monitoring settings. Detailed information about error codes can be consulted in the service manual of this unit.

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

4.2.3 Mode 2

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

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

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

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

Value [2-8]	Te target
0★	**Auto (default)★**
2	6°C
3	7°C
4	8°C
5	9°C
6	10°C
7	11°C

[2-12]: Enable the low night noise function and/or power consumption limitation via external control adaptor (DTA104A61/62)

If the system needs to be running under night-time low noise operation or under power consumption limitation conditions when an external signal is sent to the unit, this setting should be changed. This setting will only be effective when the optional external control adaptor (DTA104A61/62) is installed.

Default value: 0
To activate this function: 1

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

Default value: 0
To activate this function: 1

[2-20]: Manual additional refrigerant charge
In order to add the additional refrigerant charge amount in a manual way (without automatic refrigerant charging functionality), following setting should be applied.

Default value: 0
To activate this function: 1

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

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

Default value: 0
To activate this function: 1

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

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

Default value: 0
To activate this function: 1, 2, or 3

[2-25]: Night-time low noise operation level via the external control adaptor
If the system needs to be running under night-time low noise operation conditions when an external signal is sent to the unit, this setting defines the level of night-time low noise that will be applied (3: Level 3 < 2: Level 2 < 1: Level 1).
This setting will only be effective when the optional external control adaptor (DTA104A61/62) is installed and the setting [2-12] was activated.

Default value: 2
To activate this function: 1, 2, 3, or 4

[2-26]: Night-time low noise operation start time

Value [2-26]	Start time automatic night-time low noise operation
1	8:00 PM
2★	**10:00 PM (default)★**
3	12:00 AM

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

[2-27]: Night-time low noise operation stop time

Value [2-27]	Stop time automatic night-time low noise operation
1	6:00 AM
2	7:00 AM
3★	**8:00 AM (default)★**

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

[2-30]: Power consumption limitation level (step 1) via the external control adaptor (DTA104A61/62)
If the system needs to be running under power consumption limitation conditions when an external signal is sent to the unit, this setting defines the level power consumption limitation that will be applied for step 1. The level is according to the table.

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

[2-31]: Power consumption limitation level (step 2) via the external control adaptor (DTA104A61/62)
If the system needs to be running under power consumption limitation conditions when an external signal is sent to the unit, this setting defines the level power consumption limitation that will be applied for step 2. The level is according to the table.

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

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

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

[2-35]: Height difference setting
Default value: 1
In case the outdoor unit is installed in the lowest position (indoor units are installed on a higher position than outdoor units) and the height difference between the highest indoor unit and the outdoor unit exceeds 40 m (131 ft), the setting [2-35] should be changed to 0.

[2-45]: Technical cooling

Value [2-45]	Description
0★	**No technical cooling available (default)★**
1	Technical cooling available

[2-49]: Max. level difference setting
In case the outdoor location is higher than indoor, extension is possible up till 90 m.
Refer to [2-49] for dedicated setting.

Value [2-49]	Max. level difference setting
0★	**OFF (default)★**
1	ON

[2-81]: Cooling comfort setting

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

This setting is used in conjunction with setting [2-8].

5. Test Operation (4/5/10/12 HP Models)

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

5.1 Check Work Prior to Turning Power Supply ON

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

- Is the power supply appropriate?
- Have you finished a ductwork 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 low voltage circuits.

- Are the setscrews of wiring not loose?
- Is the electrical component box covered with an insulation cover completely?

⇩

Check on refrigerant piping / insulation material

- Is pipe size proper? (The design pressure of this product is 4.0 MPa.)
- 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?

⇩

Check on amount of refrigerant charge

- Is refrigerant charged up to the specified amount?

If insufficient, charge the refrigerant from the service port of stop valve on the liquid side while the outdoor unit is not operating after turning power ON.

- Has the amount of refrigerant charge been recorded on “Record Chart of Additional Refrigerant Charge Amount”?

5.2 Turn Power ON

Turn outdoor unit power ON.

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

⇩

Turn indoor unit power ON.

⇩

Carry out field setting on outdoor PCB

5.3 Test Operation (4/5 HP Models)

To start smoothly, a crankcase heater is equipped to the 5 HP unit only & to power up the crankcase heater in advance, be sure to turn on the power supply 6 hours before operation. Crankcase heater is not provided for 4 HP unit. So, there is no need to turn on the power supply 6 hours before operation.

Warning Be sure to inform other installers or attach the front panel well before leaving with the power supply turned on for the outdoor unit.

Before powering ON

- Protect the electronic components with insulating tape in accordance with the **Service Precautions** label attached to the front panel.
- All indoor units connected with the outdoor unit will operate automatically after powering on. To ensure safety, check the indoor unit installation has been completed.

Powering On to Test Operation

- Make sure to perform a test operation first after installation (If the unit is operated with the indoor unit's remote controller without performing a test operation, the error code **U3** will be displayed on the remote controller and the unit will not operate normally).
- After turning on the power supply, do not touch any switches excluding button switches and changeover switches when setting the outdoor unit PCB (A2P).
  (For positions of the BS buttons (BS1~5) and changeover switches (DS1-1, 2) on the PCB, refer to the **Service Precautions** label)
- Check the state of the outdoor units and fault wiring with this operation.

(1) Attach the front panel of the outdoor unit.
(2) Turn on the power supply of the outdoor and indoor units.

Caution **Only for 5 HP**, to power up the crankcase heater in advance, be sure to turn on the power supply 6 hours before operation.

(3) Remove the front panel of the outdoor unit.
(4) Check LED display of the outdoor unit's PCB (A1P, A2P), to observe whether data transmission is normal.

	A1P	A2P						
LED display (Factory setting)	SERVICE MONITORING LAMP	MODE	READY / ABNORMAL	C/H CHANGEOVER			LOW NOISE	DEMAND
				IND	MASTER	SUB		
	HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P
	◑	●	●	○	●	●	●	●

LED display: ● Light OFF ○ Light ON ◑ Blinking

Caution Don't touch the switches other than BS buttons and changeover switches of the PCB (A2P) during setting. Doing so may result in electric shock.

(5) If customer wishes to perform LOW NOISE operation or DEMAND operation, perform setting with the BS buttons (BS1~5) on outdoor unit's PCB (A2P).
(6) Operate the BS buttons from the opening of the insulating cover. (See Protective range of the **Service Precautions** label for details)

Caution Power supply has been turned on for outdoor unit, be careful to avoid electric shock.

- Set the BS buttons (BS1~5) after making sure the service monitoring lamp has been ON.
- For setting method, see the **Service Precautions** label attached to the front panel of the outdoor unit. (Be sure to keep a record of the setting items to the **Service Precautions** label.)
- Don't touch the changeover switches (DS1-1) while setting them. Doing so may result in malfunction.

(7) Check whether the gas side and liquid side stop valves have been opened. Open them if they are closed.

Caution Operation with the stop valve closed may result in compressor malfunction.

(8) Press the **TEST (BS4)** button for 5 seconds or more to perform test operation. See **About test operation** on the **Service Precautions** label for details.

- Ask other installers to perform test operation or attach the front panel before having to leave the outdoor unit working alone.
- Test operation is automatically stopped after about 30 minutes (maximum 1 hour) operation. (Perform checks of fault wiring, closed stop valves & refrigerant charging and auto determination of piping length.)
- After test operation is completed, if there is no error code on the display of the remote controller, the unit can perform normal operation 3 minutes later.
- The display of the remote controller indicates symbol of test operation during this operation.

(9) Be sure to attach the front panel of the outdoor unit after test operation is completed.

About test operation

- If the system is started about 12 minutes later after the indoor and outdoor units opened, the compressor will not operate and H2P will light up.
  Before operating, always check whether the symbols indicated on the LED display are those in the table under **Powering ON to Test Operation**.
- In order to ensure uniform refrigerant distribution, it may take up to around 10 minutes for the compressor to start up after the unit starting operation. This is not an error.
- Meaning of operation check is not to check individual indoor unit. After completing operation check, operate the system normally with the remote controller.
- Test operation cannot be performed when the unit is in other modes such as refrigerant recycling mode.
- Never perform test operation with discharge pipe thermistor (R2T), suction pipe thermistor (R3T) and pressure sensor (S1NPH, S1NPL) removed. Doing so will result in compressor damaged.

For Normal Operation

Set the master unit (the indoor unit)

For wired remote controller

- After test operation is completed, symbol **MASTER CONTROLLED** blinks on all connected remote controllers.
- Set the master unit as customer's request.
  (It is recommended to set the indoor unit with highest frequency of use as the master unit.)
- Press the operation mode changeover button on the remote controller of the master unit.
- For other remote controllers excluding the above, the symbol **MASTER CONTROLLED** lights up.

For wireless remote controller

- After test operation is completed, timer lamps blink on all indoor units connected here.
- Set the master unit as per customer's request.
  (It is recommended to set the indoor unit with highest frequency of use as the master unit.)
- Press the operation mode changeover button on the remote controller of the master unit.
  Then a sound of beeps can be heard and the timer lamps on all indoor units go out.

For details, refer to the installation manual included with the indoor unit.

- After test operation is completed, operate the unit normally.
  (1) Check the indoor and outdoor units are in normal operation.
  (If a knocking sound can be heard produced by liquid compression of the compressor, stop the unit immediately.)
  (2) Operate each indoor unit one by one and check the corresponding outdoor unit is also in operation.
  (3) Check to see if cold air is coming out from the indoor unit.
  (4) Press the fan direction and strength buttons of the indoor unit to see if they operate properly.

About normal operation check

- The compressor will not restart in about 5 minutes even if the ON/OFF button of the remote controller is pressed.
- When the system operation is stopped by the remote controller, the outdoor unit may continue operating for further 1 minute at maximum.
- If any check operation was not performed through test operation at first installation, the error code **U3** will be displayed. In this case, perform check operation in accordance with **Powering ON to Test Operation** on page 162.

5.3.1 Error Codes and Corresponding Measures

Please check the remote controller connected with the indoor unit.

Error code	Description	Solution
E3	The outdoor unit stop valve is left closed	Open the gas side and liquid side stop valves.
	The refrigerant is overcharged	Recalculate the piping length and refrigerant charge, and recover the excessive refrigerant with a refrigerant recovery device, to bring the refrigerant amount to a normal level.
E4 **F3**	The outdoor unit stop valve is left closed	Open the gas side and liquid side stop valves.
	The operation mode of the remote controller is changed before performing test operation	Switch the operation mode of all indoor units to cooling.
	The refrigerant is insufficient	• Check if the refrigerant has been charged. • Recalculate the additional refrigerant charge based on the piping length and refill to the adequate amount.
F6	The refrigerant is overcharged	Recalculate the piping length and refrigerant charge, and recover the excessive refrigerant with a refrigerant recovery device, to bring the refrigerant amount to a normal level.
U3	Not performing test operation	Perform test operation.
U4	No power is supplied to the outdoor unit	Perform test operation.
UA	Not using dedicated indoor unit	Check if the indoor unit is special. If not, replace it.
UF	The outdoor unit stop valve is left closed	Open the gas side and liquid side stop valves.
	Incorrect piping and wiring connection between indoor and outdoor units	Check if the piping and wiring connection between indoor and outdoor units are correct.
	The operation mode of the remote controller is changed before performing test operation	Switch the operation mode of all indoor units to cooling.
UH	Incorrect signal wiring connection	Properly connect the wiring between units to the terminal F1·F2 (TO IN/D UNIT) on the outdoor unit's terminal board (X2M).

∗ For the case with centralized controller used, refer to the installation manual included with it under service manual.

No display on the remote controller

- Connection and communication error occurred between the indoor unit and the remote controller. Check wiring connection for the broken and loose.

Caution

To those doing piping work

To those doing electrical work

After test operation is completed, check whether the casing of the units has been attached and whether the screws have been tightened before transferring the air conditioner to your customer.

5.4 Test Operation (10/12 HP Models)

To start smoothly, a crankcase heater is equipped to the unit. To power up the crankcase heater in advance, be sure to turn on the power supply 6 hours before operation.

Warning Be sure to inform other installers or attach the front panel well before leaving with the power supply turned on for the outdoor unit. (Raise the front panel as high as possible during installation to clamp it with the top panel.)

Before powering ON

- All indoor units connected with the outdoor unit will operate automatically after powering on. To ensure safety, ensure that the indoor unit installation has been completed.

Powering ON to Test Operation

- Make sure to perform a test operation first after installation (If the unit is operated with the indoor unit remote controller but without performing a test operation, the error code **U3** will be indicated on the display of the remote controller and the unit will not operate normally).
- After turning on the power supply, do not touch any switches excluding button switches and changeover switches when setting the outdoor unit PCB (A1P).
  (For positions of the BS buttons (BS1~3) and changeover switches (DS1-1~4) on the PCB, refer to the **Service Precautions** label)
- Check the state of the outdoor units and fault wiring with this operation.

(1) Attach the front panel of the outdoor unit.
(2) Turn on the power supply of the outdoor and indoor units.

Caution To power up the crankcase heater in advance, be sure to turn on the power supply 6 hours before operation.

(3) Remove the front panel of the outdoor unit.
(4) Check LED display of the outdoor unit PCB (A1P), to observe whether data transmission is normal.

When turning on the power supply: Blinking. Check if the power is up (1-2 minutes) first.

No error: On (8-10 minutes).

Ready: Blank display.

LED display:

Check the LED display of the outdoor unit for error code. If above conditions cannot be confirmed after 12 minutes, correct relevant error in accordance with the error code. Communication wiring should be checked first.

Caution Don't touch the switches other than BS buttons and changeover switches of the PCB (A1P) during setting. Doing so may result in electric shock.

(5) If customer wishes to perform LOW NOISE operation or DEMAND operation, perform setting

with the BS buttons (BS1~3) on outdoor unit PCB (A1P).
(See the **Service Precautions** label for details)

Caution Power supply has been turned ON for outdoor unit, be careful to avoid electric shock.

- Set the BS buttons (BS1~3) after making sure the microcomputer normal monitoring lamp has been ON.
- For setting method, see the **Service Precautions** label attached to the front panel of the outdoor unit. (Be sure to keep a record of the setting items to the **Service Precautions** label.)

(6) Check whether the gas side and liquid side stop valves have been opened. Open them if they are closed.

Caution Operation with the stop valve closed may result in compressor error.

(7) Perform test operation based on the **Service Precautions** label attached to the front panel. The air conditioning system will automatically stop after about 40 minutes of operation. If there is no error code on the remote controller display, test operation is complete. The unit may perform normal operation after 5 minutes.
(8) Be sure to attach the front panel of the outdoor unit after test operation is completed.

About test operation

- In order to ensure uniform refrigerant distribution, it may take up to around 10 minutes for the compressor to start up after the unit starting operation. This is not a error.
- Be sure to perform error check for all indoor units. After completing test operation, operate the system normally with the remote controller.
- Test operation cannot be performed when the unit is in other modes such as refrigerant recycling mode.
- Never perform test operation with suction pipe thermistor (R3T), discharge pipe thermistor (R21T) and pressure sensor (S1NPH, S1NPL) removed. Failure to do so will result in compressor damage.

For normal operation

Set the master unit

For wired remote controller

- After test operation is completed, the symbol **MASTER CONTROLLED** blinks on all remote controllers connected here.
- Set the master unit as per customer's request.
  (It is recommended to set the indoor unit with highest frequency of use as the master unit.)
- Press the operation mode changeover button on the remote controller of the master unit.
- Conduct cool/heat changeover with this remote controller and the symbol **MASTER CONTROLLED** vanishes.
- For other remote controllers excluding the above, the symbol **MASTER CONTROLLED** lights up.

For wireless remote controller

- After test operation is completed, timer lamps blink on all indoor units connected here.
- Set the master unit as customer's request.
  (It is recommended to set the indoor unit with highest frequency of use as the master unit.)
- Press the operation mode changeover button on the remote controller of the master unit. Then a sound of beeps can be heard and the timer lamps on all indoor units go out.

For details, refer to the installation manual included with the indoor unit.

- After test operation is completed, operate the unit normally.

(1) Check the indoor and outdoor units are in normal operation.
(If a knocking sound produced by liquid compression of the compressor can be heard, stop the unit immediately. Operate again after powering up the crankcase heater completely.)
(2) Operate each indoor unit one by one and check the corresponding outdoor unit is also in operation.
(3) Check to see if cold (or hot) air is coming out from the indoor unit.

(4) Press the fan direction and strength buttons of the indoor unit to see if they operate properly.

About normal operation check

- The compressor will not restart in about 5 minutes even if the ON/OFF button of the remote controller is pressed.
- When system operation is stopped by the remote controller, the outdoor unit may continue operating for further 1 minute at maximum.
- If any check operation was not performed through test operation on first installation, the error code **U3** will be displayed. In this case, perform check operation in accordance with **Powering on to test operation** on page 166.

5.4.1 Error Codes and Corresponding Measures

Please check the remote controller connected to the indoor unit for verification.

Error code		Description	Solution
Primary code	Sub code		
E3	01	High pressure switch activated (S1PH)	Check the stop valve or (field) piping abnormality or the airflow on the air cooling heat exchanger.
	02	• Too much refrigerant charged • Stop valve closed	• Check the amount of refrigerant and recharge the unit. • Open the stop valve.
	13	Liquid stop valve closed.	Open the liquid stop valve.
	18	• Too much refrigerant charged • Stop valve closed	• Check the amount of refrigerant and recharge the unit. • Open the stop valve.
E4	01	Defective low pressure: • Stop valve closed • Refrigerant undercharged • Defective indoor unit	• Open the stop valve. • Check the amount of refrigerant and recharge the unit. • Check the user interface display. • Check the transmission wiring between the indoor and outdoor units.
E9	01	Defective electronic expansion valve (Subcooling) (Y2E)	Check the connection of the PCB or the actuator.
	04	Defective electronic expansion valve (Main) (Y1E)	Check the connection of the PCB or the actuator.
F3	01	Discharge pipe temperature too high (R21T): • Stop valve closed • Refrigerant undercharged	• Open the stop valve. • Check the amount of refrigerant and recharge the unit.
	20	Compressor body temperature too high (R8T): • Stop valve closed • Refrigerant undercharged	• Open the stop valve. • Check the amount of refrigerant and recharge the unit.
F6	02	• Too much refrigerant charged • Stop valve closed	• Open the stop valve. • Check the amount of refrigerant and recharge the unit.
H9	01	Defective outdoor air thermistor (R1T)	Check the connection of the PCB or the actuator.
J3	16	Defective discharge pipe thermistor (R21T): Open circuit	Check the connection of the PCB or the actuator.
	17	Defective discharge pipe thermistor (R21T): Short circuit	Check the connection of the PCB or the actuator.
	47	Defective compressor body thermistor (R8T): Open circuit	Check the connection of the PCB or the actuator.
	48	Defective compressor body thermistor (R8T): Short circuit	Check the connection of the PCB or the actuator.
J5	01	Defective accumulator thermistor (R3T)	Check the connection of the PCB or the actuator.
J6	01	Defective heat exchanger deicer thermistor (R7T)	Check the connection of the PCB or the actuator.
J7	06	Defective subcooling heat exchanger liquid pipe thermistor (R5T)	Check the connection of the PCB or the actuator.
J8	01	Defective heat exchanger liquid pipe thermistor (R4T)	Check the connection of the PCB or the actuator.
J9	01	Defective subcooling heat exchanger gas pipe thermistor (R6T)	Check the connection of the PCB or the actuator.
JA	06	Defective high pressure sensor (S1NPH): Open circuit	Check the connection of the PCB or the actuator.
	07	Defective high pressure sensor (S1NPH): Short circuit	Check the connection of the PCB or the actuator.
JC	06	Defective low pressure sensor (S1NPL): Open circuit	Check the connection of the PCB or the actuator.
	07	Defective low pressure sensor (S1NPL): Short circuit	Check the connection of the PCB or the actuator.

Error code		Description	Solution
Primary code	Sub code		
LC	14	Transmission between outdoor unit main PCB and inverter PCB	Check the connection.
	19	Transmission between outdoor unit main PCB and fan PCB 1	Check the connection.
	24	Transmission between outdoor unit main PCB and fan PCB 2	Check the connection.
P1	01 02 03	Inverter unbalanced power supply voltage	Check if the power supply meets the specifications.
U1	01	Opposite phase power supply phase error	Calibrate phase sequence.
	04	Opposite phase power supply phase error	Calibrate phase sequence.
U2	01	Inverter insufficient voltage	Check if the power supply meets the specifications.
	02	Inverter power supply phase missing	Check if the power supply meets the specifications.
U3	03	System test operation not yet executed (Test operation cannot be executed.)	Execute system test operation.
U4	01	Q1/Q2 or indoor-outdoor units wiring error	Check (Q1/Q2) wiring.
	03	Q1/Q2 or indoor-outdoor units wiring error	Check (Q1/Q2) wiring.
	04	System test operation ends abnormally.	Re-execute the test operation.
U9	01	System mismatch Mismatched indoor unit models used (R-410A, R-407C, RA, Hydrobox, etc.). Defective indoor unit	Check if there are any other defective indoor units and verify if the indoor unit combination meets requirements.
UA	03	Defective indoor unit connection or mismatched models (R-410A, R-407C, RA, Hydrobox, etc.).	Check if there are any other defective indoor units and verify if the indoor unit combination meets requirements.
	18	Defective indoor unit connection or mismatched models (R-410A, R-407C, RA, Hydrobox, etc.).	Check if there are any other defective indoor units and verify if the indoor unit combination meets requirements.
	31	Wrong combination of units (multi-unit system)	Check the compatibility of unit types.
	49	Wrong combination of units (multi-unit system)	Check the compatibility of unit types.
UF	01	Defective automatic addressing (inconsistency)	Check if the quantity of connected units is below the maximum number of units that can be connected (through monitoring mode) or if initiation is complete.
	05	Stop valve closed or defective (During system test operation)	Open the stop valve.
UH	01	Defective automatic addressing (inconsistency)	Check if the quantity of connected units is below the maximum number of units that can be connected (through monitoring mode) or if initiation is complete.

No display on the remote controller

- Error in connection/communication among indoor unit remote controllers. Check if there is any disconnection or loosening of connectors.

Caution

For the plumber

For the electrician

Before giving the air conditioner back to the customer after a test operation, please make sure that the casing is securely in place and the screws are well fastened.

6. Test Operation (6/8 HP)

6.1 Checks before Test Operation

Before carrying out a test operation, proceed as follows:

Step	Action
1	Make sure the voltage at the primary side of the safety breaker is: 220-240 V ± 10% for 1-phase units; 380-415 V ± 10% for 3-phase units.
2	Fully open the liquid and the gas stop valve.

6.2 Checkpoints

To carry out a test operation, check the following:

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

Checkpoints	Cautions or warnings
Are all units securely installed?	● Dangerous for turning over during storm ● Possible damage to pipe connections
Is the earth wire installed according to the applicable local standard?	Dangerous if electric leakage occurs
Are all air inlets and outlets of the indoor and outdoor units unobstructed?	● Poor cooling
Does the drain flow out smoothly?	Water leakage
Is piping adequately heat-insulated?	Water leakage
Have the connections been checked for gas leakage?	● Poor cooling ● Stop
Is the supply voltage conform to the specifications on the name plate?	Incorrect operation
Are the cable sizes as specified and according to local regulations?	Damage of cables
Are the remote controller signals received by the unit?	No operation

6.3 Test Operation Procedure

To start smoothly, a crankcase heater is equipped to the unit. To power up the crankcase heater in advance, be sure to turn on the power supply 6 hours before operation.

Warning Be sure to inform other installers or attach the front panel well before leaving with the power supply turned on for the outdoor unit.

Before powering ON

- Protect the electronic components with insulating tape in accordance with the **Service Precautions** label attached to the front panel.
- All indoor units connected with the outdoor unit will operate automatically after powering on. To ensure safety, check the indoor unit installation has been completed.

Powering On to Test Operation

- Make sure to perform a test operation first after installation (If the unit is operated with the indoor unit's remote controller without performing a test operation, the error code **U3** will be displayed on the remote controller and the unit will not operate normally).
- After turning on the power supply, do not touch any switches excluding button switches and changeover switches when setting the outdoor unit PCB (A1P).
  (For positions of the BS buttons (BS1~3) and changeover switches (DS1, 2) on the PCB, refer to the **Service Precautions** label)
- Check the state of the outdoor units and fault wiring with this operation.

1. Attach the front panel of the outdoor unit.
   Turn on the power supply of the outdoor and indoor units.
2. Make sure all field settings you want are set.
3. Turn ON the power to the outdoor unit and the connected indoor units.
4. Make sure the default (idle) situation is existing. Push BS2 for 5 seconds or more. The unit will start test operation.

- The test operation is automatically carried out, the outdoor unit display will indicate **t01** and the indication "Test operation" and "Under centralized control" will display on the user interface of indoor units.

Steps during the automatic system test run procedure:
t01: control before start up (pressure equalization)
t02: cooling start up control
t03: cooling stable condition
t04: communication check
t05: stop valve check
t06: pipe length check
t07: refrigerant amount check
t08: in case [2-88]=0, detailed refrigerant situation check (RXMQ6AR only)
t09: pump down operation
t10: unit stop

- If the automatic refrigerant charge function has been used, **t07** and **t08** will not be displayed during the test operation, as they have already been checked during automatic refrigerant charge operation.
- During the test operation, it is not possible to stop the unit operation from a user interface. To abort the operation, press BS3. The unit will stop after ±30 seconds.

5. Check the test operation results on the outdoor unit segment display.
– Normal completion: no indication on the segment display (idle)
– Abnormal completion: indication of error code on the segment display
Take actions for correcting the abnormality. When the test operation is fully completed, normal operation will be possible after 5 minutes.
6. Be sure to attach the front panel of the outdoor unit after test operation is completed.

About test operation

- In order to ensure uniform refrigerant distribution, it may take up to around 10 minutes for the compressor to start up after the unit starting operation. This is not an error.
- Meaning of operation check is not to check individual indoor unit. After completing operation check, operate the system normally with the remote controller.
- Test operation cannot be performed when the unit is in other modes such as refrigerant recycling mode.
- Never perform test operation with discharge pipe thermistor (R2T), suction pipe thermistor (R3T) and pressure sensor (S1NPH, S1NPL) removed. Doing so will result in compressor damaged.

For Normal Operation

Set the master unit (the indoor unit)

For wired remote controller

- After test operation is completed, symbol **MASTER CONTROLLED** blinks on all connected remote controllers.
- Set the master unit as customer's request.
  (It is recommended to set the indoor unit with highest frequency of use as the master unit.)
- Press the operation mode changeover button on the remote controller of the master unit.
- Conduct cool/heat changeover with this remote controller and the symbol **MASTER CONTROLLED** vanishes.
- For other remote controllers excluding the above, the symbol **MASTER CONTROLLED** lights up.

For wireless remote controller

- After test operation is completed, timer lamps blink on all indoor units connected.
- Set the master unit as customer's request.
  (It is recommended to set the indoor unit with highest frequency of use as the master unit.)
- Press the operation mode changeover button on the remote controller of the master unit.
  Then a sound of beeps can be heard and the timer lamps on all indoor units go out.

For details, refer to the installation manual included with the indoor unit.

- After test operation is completed, operate the unit normally.
  (1) Check the indoor and outdoor units are in normal operation.
  (If a knocking sound can be heard produced by liquid compression of the compressor, stop the unit immediately.)
  (2) Operate each indoor unit one by one and check the corresponding outdoor unit is also in operation.
  (3) Check to see if cold (or hot) air is coming out from the indoor unit.
  (4) Press the fan direction and strength buttons of the indoor unit to see if they operate properly.

About normal operation check

- The compressor will not restart in about 5 minutes even if the ON/OFF button of the remote controller is pressed.
- When the system operation is stopped by the remote controller, the outdoor unit may continue operating for further 1 minute at maximum.
- If any check operation was not performed through test operation at first installation, the error code **U3** will be displayed. In this case, perform check operation in accordance with **Powering ON to Test Operation** on page 171.

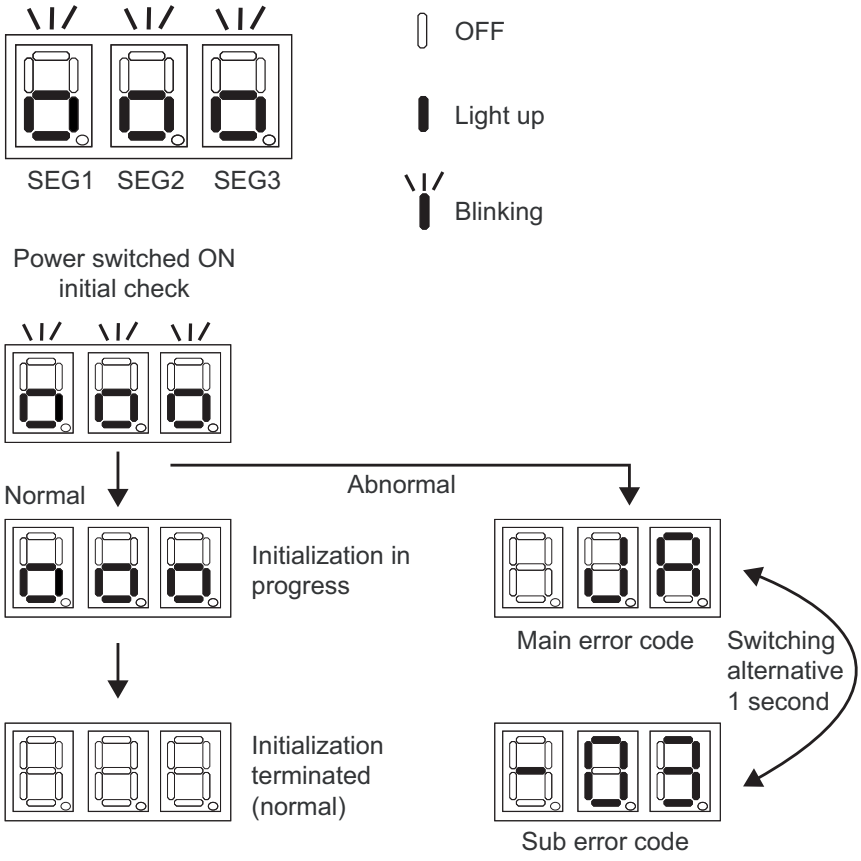
6.4 Turn Power ON

Turn outdoor unit and indoor unit power ON.

- Be sure to turn the power ON 6 hours before starting operation to protect compressors.

Check the 7 segment display of the outdoor unit PCB.

- Check to be sure the transmission is normal.
  In a normal condition, the 7-segment display is OFF. Please refer to the following figure for other states.



(*) The master unit is the outdoor unit to which the transmission wiring for the indoor units is connected.
The other outdoor units are slave units.

Make field settings with outdoor unit PCB.

- Make field settings if needed.
  (For the setting procedure, refer to information in "Field Settings for Outdoor Unit".)
  For the outdoor-multi system, make field settings with the master unit.
  (Field settings made with the slave unit will be all invalid.)

Conduct check operations.

The check operations shown below will be automatically initiated.

- Check for erroneous wirings
- Check for failure to open stop valves
- Check for excessive refrigerant refilling
- Automatic judgment of piping length

Check for normal operation.

- Before starting the normal operation after the completion of check operations, make sure indoor and outdoor units normally operate.

Part 6
Service Diagnosis

1. Servicing Items to be Confirmed

1.1 Troubleshooting

1. Initial verification and troubleshooting
   (1) Properly understand the end user's needs and issues.
   (2) Check the cause of errors according to the description provided by the end user.
   (3) Check if the remote controller displays any error codes.
   (Or use the outdoor unit monitor mode to check for errors).
   If there is no display of error codes, refer to **Symptom-Based Troubleshooting** on page 179 for diagnosis.
   If an error code is displayed, refer to troubleshooting flowchart for diagnosis.

2. Take appropriate measures.
   (1) Repair the defect or replace the parts according to the troubleshooting results.
   (2) Turn off the power supply for 10 minutes before disassembling.
   (3) The refrigerant has to be collected before refrigerant system components are replaced.

3. Verification after taking appropriate measures
   (1) Run the unit after repairing the defect to confirm normal unit operation.
   (2) Record the check results and inform the client.

1.2 Precautions for Maintenance

Pay attention to the following matters in servicing.

1. Precaution for maintenance
   Touch the paint-free metal part of the product (electrical box lid of the standard model; tap bolts of electrical box of anti-corrosion and heavy anti-corrosion models) to release static electricity before starting work.

2. Precautions for maintaining the service cover
   After maintenance, make sure to close the service cover.
   (Otherwise, leakage of water or contamination by foreign matter may cause defects)

3. Precautions for maintaining the electrical box
   (1) Turn off the power for 10 minutes before opening the cover of the electrical box.
   (2) After opening the cover, use the tester to measure the terminal voltage of the power supply terminal to make sure that the power has been cut.
   Then check if the circuit capacitor voltage is under 50 VDC.
   (3) To avoid PCB defects, touch the earth terminal of the electrical box with your hand when unplugging the connector to release static electricity.
   (4) Unplug the connector X106A (4/5/6 HP) or X1A (8/10/12 HP) of the outdoor fan motor.
   When unplugging the connectors, do not touch the live parts.
   (When the outdoor fan is rotating because of strong wind, there is a risk of electric shock due to main circuit board capacitor power storage.)
   (5) After maintenance, reconnect the connectors of the outdoor fan in their original positions.
   Otherwise, the remote controller will display error code **E7**, preventing normal operation.

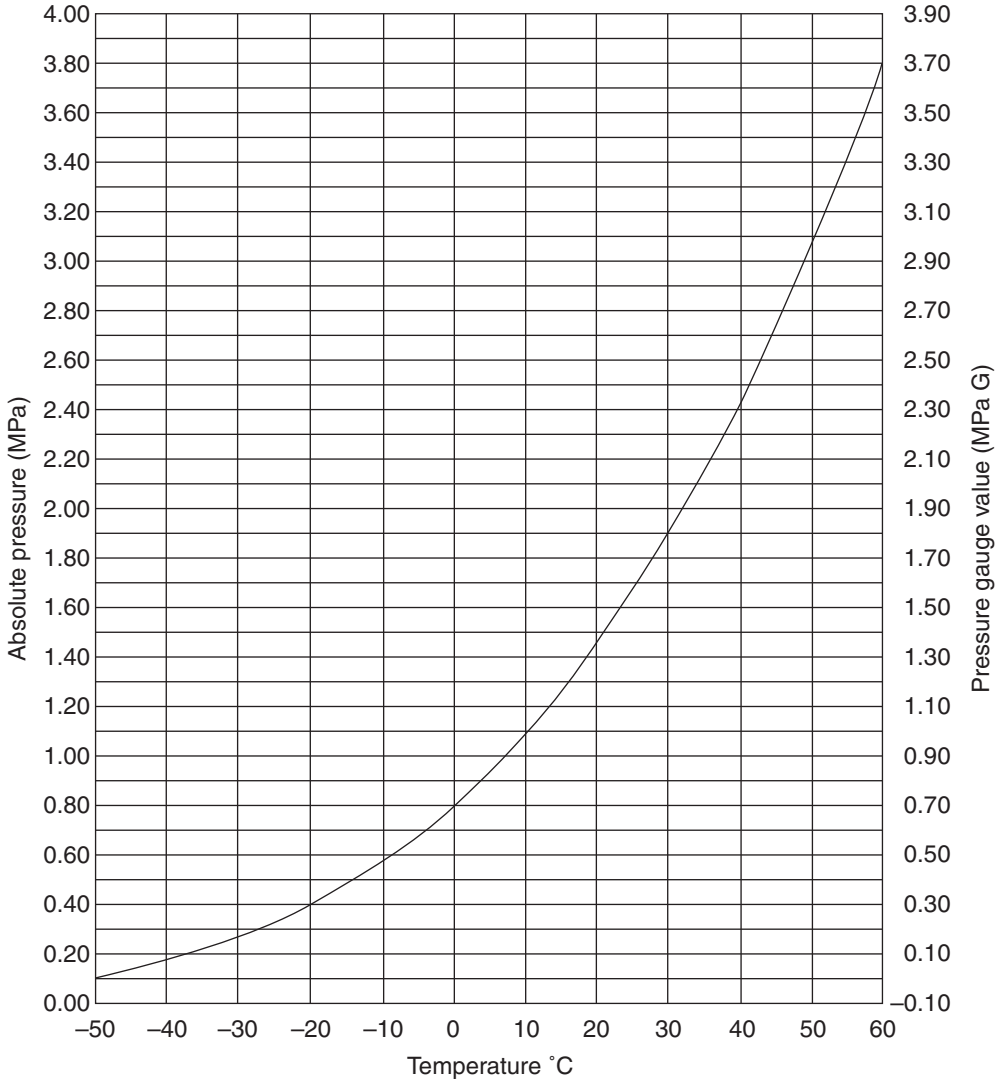
4. Precautions for piping work and refrigerant charging:
   This unit uses R-410A refrigerant. Pay attention to the following conditions.
   (1) The charging pipe and the manifold tube use R-410A products for pressure maintenance and avoiding contamination by impurities (SUNISO oil, etc.).
   (2) Be sure to purge with nitrogen when brazing.
   (3) Properly perform airtightness test and vacuum drying. (Airtight test pressure: 4.0 MPa)
   (4) Charge refrigerant in liquid state.

5. Precautions for operating in servicing mode (field setting):

When a test operation is interrupted or after exiting service mode, please wait for at least one minute before entering service mode again. In case of continuous execution, the outdoor unit

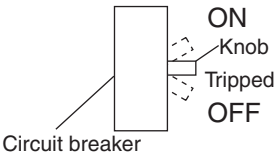
PCB may sometimes display an error code. If any error codes are displayed, press the **RETURN (BS3)** button. If performing the above operation still does not eliminate the error, reconnect the unit to the power supply.

1.3 Refrigerant Properties (R-410A)



Temperature (°C)	Absolute Pressure (MPa)	Temperature (°C)	Absolute Pressure (MPa)	Temperature (°C)	Absolute Pressure (MPa)	Temperature (°C)	Absolute Pressure (MPa)
–50	0.11	–20	0.40	10	1.09	40	2.42
–48	0.12	–18	0.43	12	1.15	42	2.54
–46	0.13	–16	0.46	14	1.22	44	2.67
–44	0.15	–14	0.50	16	1.29	46	2.80
–42	0.16	–12	0.54	18	1.37	48	2.93
–40	0.18	–10	0.57	20	1.45	50	3.07
–38	0.19	–8	0.61	22	1.53	52	3.21
–36	0.21	–6	0.66	24	1.61	54	3.36
–34	0.23	–4	0.70	26	1.70	56	3.51
–32	0.25	–2	0.75	28	1.79	58	3.64
–30	0.27	0	0.80	30	1.89	60	3.83
–28	0.29	2	0.85	32	1.99	62	4.00
–26	0.32	4	0.91	34	2.09	64	4.17
–24	0.34	6	0.96	36	2.20	—	—
–22	0.37	8	1.02	38	2.31	—	—

2. Symptom-based Troubleshooting

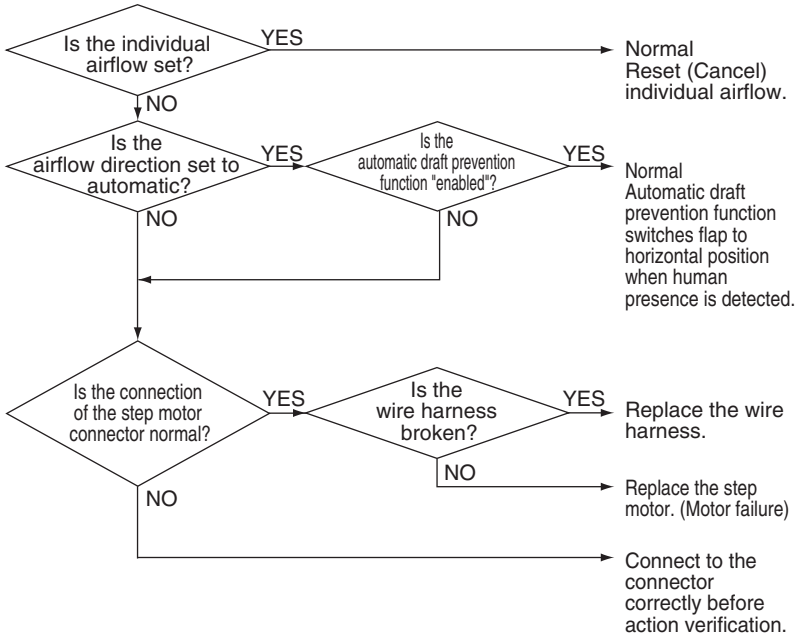
Symptom			Supposed Cause	Countermeasure
1	The system does not start operation at all.		Blowout of fuse(s)	Turn Off the power supply and then replace the fuse(s).
			Cutout of breaker(s)	• If the knob of any breaker is in its OFF position, turn ON the power supply. • If the knob of any circuit breaker is in its tripped position, do not turn ON the power supply. 
			Power failure	After the power failure is reset, restart the system.
			The connector loose or not fully plugged in	Turn off the power supply to verify the connection of the connector.
2	The system starts operation but makes an immediate stop.		Blocked air inlet or outlet of indoor or outdoor unit	Remove obstacle(s).
			Clogged air filter(s)	Clean the air filter(s).
3	The system does not cool air well.		Blocked air inlet or outlet of indoor or outdoor unit	Remove obstacle(s).
			Clogged air filter(s)	Clean the air filter(s).
			Enclosed outdoor unit(s)	Remove the enclosure.
			Improper set temperature	Set the temperature to a proper degree.
			Airflow rate set to LOW	Set it to a proper airflow rate.
			Improper direction of air diffusion	Set it to a proper direction.
			Open window(s) or door(s)	Shut it tightly.
			Cooling operation Direct sunlight received	Hang curtains or shades on windows.
			Cooling operation Too many people staying in a room	The model must be selected to match the air conditioning load.
			Cooling operation Too many heat sources (e.g. OA equipment) located in a room	
			Dry operation The reason is that the dry operation serves not to reduce the room temperature where possible.	Change the system to cooling operation.
4	The system does not operate.	The system stops and immediately restarts operation.	If the operation lamp on the remote controller turns ON, the system will be normal. These symptoms indicate that the system is controlled so as not to put unreasonable loads on the system.	Normal operation. The system will automatically start operation after a lapse of five minutes.
		Pressing the temperature setting button immediately resets the system.		
		The system stops immediately after turning ON the power supply.	The system is in preparation mode of microcomputer operation.	Wait for a period of approximately one minute.
5	The system makes intermittent stops.	The remote controller displays error codes **U4** or **U5,** and the system stops but restarts after a lapse of several minutes.	The system stops due to an interruption in communication between units caused by electrical noises coming from equipment other than air conditioners.	Remove causes of electrical noises. If these causes are removed, the system will automatically restart operation.
6	The system conducts fan operation but not cooling operation.	This symptom occurs immediately after turning ON the power supply.	The system is in preparation mode of operation.	Wait for a period of approximately 10 minutes.
		The remote controller displays the mark for centralized control; no cooling operation is performed. Switch to fan operation.	In thermal storage operation, the unit is set to fan operation in cooling operation, and the remote controller shows the mark for centralized control.	Normal operation.

Symptom			Supposed Cause	Countermeasure
7	The airflow direction is not reproduced according to the setting.	The airflow direction is not corresponding to that displayed on the remote controller. The flap does not swing.	Automatic control	Normal operation.
8	A white mist comes out from the system.	**Indoor unit** In cooling operation, the ambient humidity is high. (This indoor unit is installed in a place with much oil or dust.)	Uneven temperature distribution due to heavy stain of the inside of the indoor unit	Clean the inside of the indoor unit.
		Indoor unit Immediately after cooling operation stopping, the ambient temperature and humidity are low.	Hot gas (refrigerant) that has flowed in the indoor unit results to be vapor from the unit.	Normal operation.
9	The system produces sounds.	**Indoor unit** Immediately after turning ON the power supply, indoor unit produces ringing sounds.	These are operating sounds of the electronic expansion valve of the indoor unit.	Normal operation. This sound becomes low after a lapse of approximately one minute.
		Indoor and outdoor units Hissing sounds are continuously produced while in cooling operation.	These sounds are produced from gas (refrigerant) flowing respectively through the indoor and outdoor units.	Normal operation.
		Indoor and outdoor units Hissing sounds are produced immediately after the startup or stop of the system.	These sounds are produced when the gas (refrigerant) stops or changes flowing.	Normal operation.
		Indoor unit Faint sounds are continuously produced while in cooling operation or after stopping the operation.	These sounds are produced from the drain discharge device in operation.	Normal operation.
		Indoor unit Creaking sounds are produced after stopping the operation.	These sounds are produced from resin parts expanding and contracting with temperature changes.	Normal operation.
		Indoor unit Sounds like trickling or the like are produced from indoor units in the stopped state.	On ***VRV*** systems, these sounds are produced when other indoor units in operation. The reason is that the system runs in order to prevent oil or refrigerant from dwelling.	Normal operation.
		Outdoor unit Pitch of operating sounds changes.	The reason is that the compressor changes the operating frequency.	Normal operation.
10	Dust comes out from the system.	Dust comes out from the system when it restarts after the stop for an extended period of time.	Dust, which has deposited on the inside of indoor unit, is blown out from the system.	Normal operation.
11	Odors come out from the system.	In operation	Odors of room, cigarettes or else adsorbed to the inside of indoor unit are blown out.	The inside of the indoor unit should be cleaned.
12	Outdoor fan does not rotate.	In operation	The reason is that fan revolutions are controlled to put the operation to the optimum state.	Normal operation.
13	LCD display **88** or **Checking the connection. Please stand by.** appears on the remote controller.	Immediately after turning ON the power supply	The reason is that the system is checking to be sure the remote controller is normal.	Normal operation. This code is displayed for a period of approximately one minute at maximum.
14	The compressor or the outdoor fan does not stop.	After stopping operation	It stops in order to prevent oil or refrigerant from dwelling.	Normal operation. It stops after a lapse of approximately 5 to 10 minutes.
15	The outdoor gets hot.	While stopping operation	The reason is that the compressor is warmed up to provide smooth startup of the system.	Normal operation.
16	Hot air comes out from the system even though it stops.	Hot air is felt while the system stops.	On ***VRV*** systems, small quantity of refrigerant is fed to indoor units in the stopped state when other indoor units are in operation.	Normal operation.

2.1 With Optional Infrared Presence/Floor Sensor

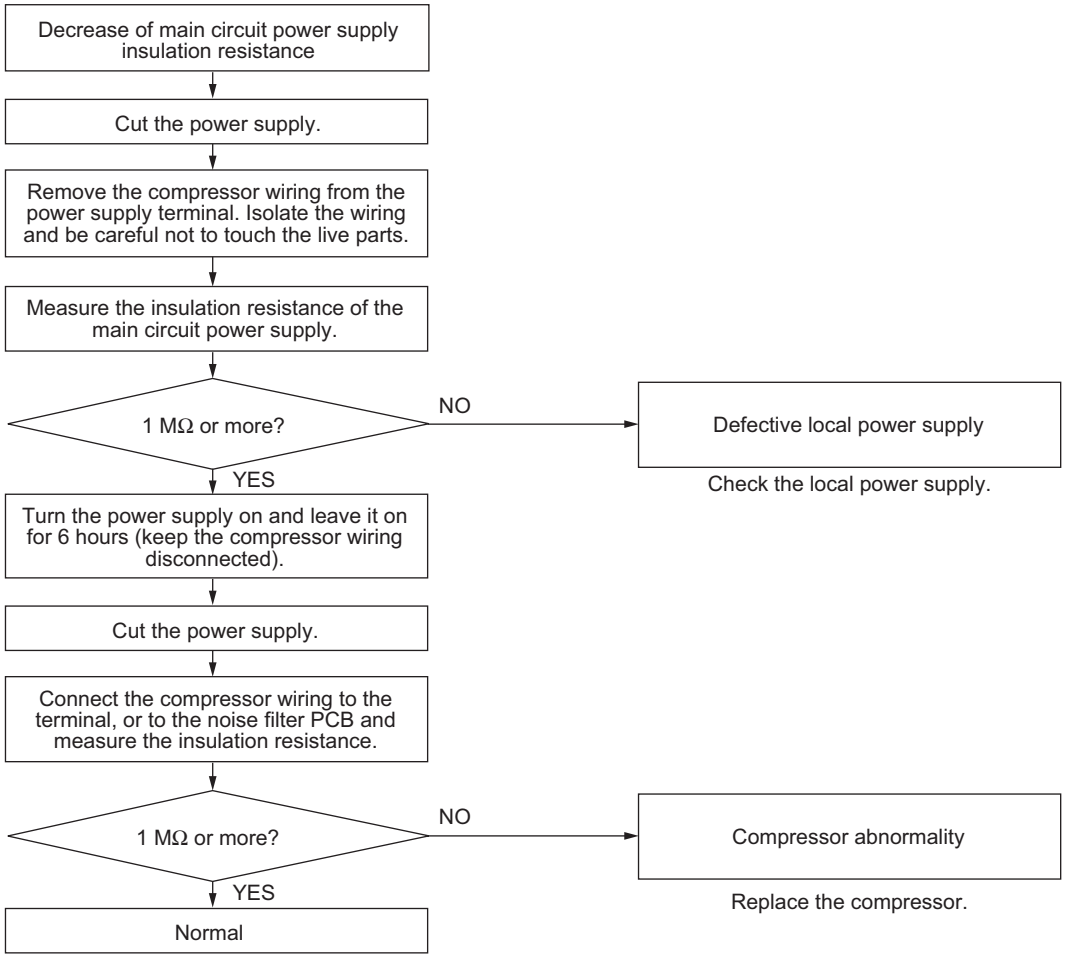
	Problem	Measure
1	Louver operation different from setting	Refer to the flowchart below.
2	Individual airflow direction setting different from the actual airflow direction	Check the "Louver operation different from setting" error diagnosis.
3	While not operating, the louver does not close completely.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

Error diagnosis of "Louver operation different from setting"



2.2 For 6/8 HP Outdoor Units

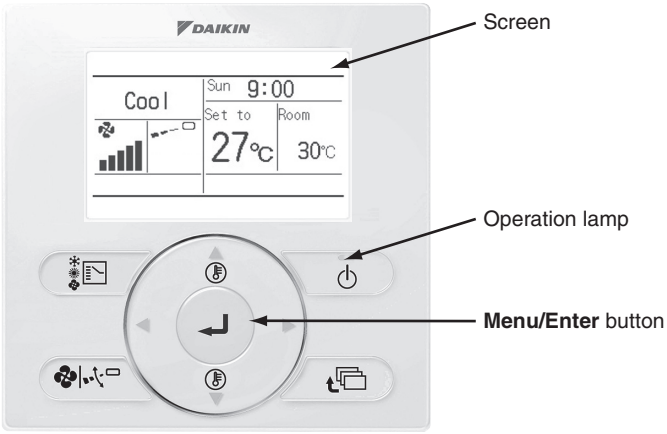
Problem	Measure
Decrease of main circuit power supply insulation resistance (Less than 1 MΩ)	Define the measure using the flowchart below.



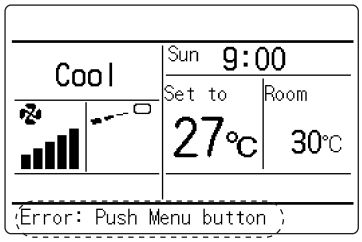
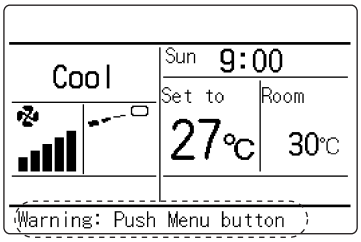
3. Error Code via Remote Controller

3.1 BRC1E63

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.



(1) Check if it is error or warning.

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

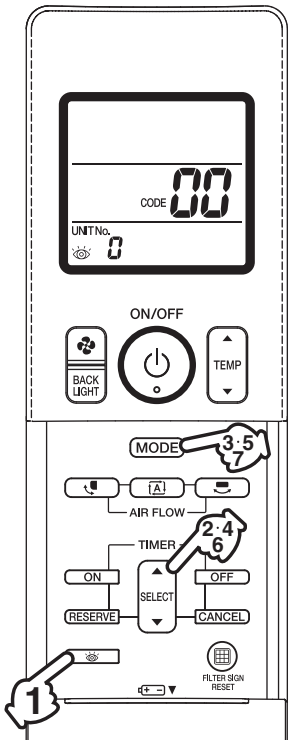
(2) Take corrective action.

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

Take the corrective action specific to the model.

3.2 BRC4M Series

When the air conditioner stops in emergency, the operating indicator lamp on the indoor unit starts blinking.
Take the following steps yourself to read the error code that appears on the display. Contact your local dealer with this code. It will help pinpoint the cause of the trouble, speeding up the repair.



1. Press the **INSPECTION** button to select the inspection mode "".
   0 appears on display and blinks.
   "UNIT No." appears.
2. Press **PROGRAMMING TIMER** button and change the unit number.
   Press to change the unit number until the indoor unit beeps and perform the following operation according to the number of beeps.
   Number of beeps
   3 short beeps.....Perform all steps from 3 to 6.
   1 short beep .....Perform 3 and 6 steps.
   1 long beep .....Normal state
3. Press **OPERATION MODE SELECTOR** button.
   0 on the left-hand of the error code blinks.
4. Press **PROGRAMMING TIMER** button and change the error code.
   Press until the indoor unit beeps twice.
5. Press **OPERATION MODE SELECTOR** button.
   0 on the right-hand of the error code blinks.
6. Press **PROGRAMMING TIMER** button and change the error code.
   Press until the indoor unit makes a long beep.
   The error code is fixed when the indoor unit makes a long beep.
7. Reset of the display
   Press the **OPERATION MODE SELECTOR** button to get the display back to the normal state.

4. Error Code via Outdoor Unit PCB

4.1 4/5 HP Models

Monitor mode

To enter the monitor mode, press the **MODE (BS1)** button when in “Setting mode 1”.

Selection of setting item

Press the **SET (BS2)** button and set the LED display to a setting item.

Confirmation of error 1

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

Confirmation of error 2

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

Detailed description on next page.

Confirmation of error 3

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

Confirmation of error 4

Press the **SET (BS2)** button once to display "master or slave 1 or slave 2" and "error location".

Press the **RETURN (BS3)** button and switches to the initial status of “Monitor mode”.

∗ Press the **MODE (BS1)** button and returns to “Setting mode 1”.

Contents of Error		Error Code
Outdoor unit main PCB abnormality		E1
Abnormal high pressure switch	High pressure switch activated	E3
Abnormal low pressure switch	Low pressure switch activated	E4
Compressor lock	Detection of inverter compressor lock	E5
Over load, overcurrent, abnormal lock of outdoor fan motor	Detection of DC fan 1 motor lock	E7
Electronic expansion valve abnormality	Main	E9
Abnormal discharge pipe temperature	Abnormal Tdi	F3
Humidity alarm		F4
Abnormal heat exchanger temperature	Refrigerant overcharge	F6
Outdoor fan motor signal abnormality		H7
Defective thermistor of outdoor air temperature	Defective Ta sensor (short)	H9
Defective discharge pipe thermistor	Defective Tdi sensor (short)	J3
Defective suction pipe thermistor	Defective Ts1 sensor (short)	J5
	Defective Ts2 sensor (short)	
Defective outdoor heat exchanger deicer thermistor	Defective Tb sensor (short)	J6
Defective sensor of high pressure	Defective Pc sensor (short)	JA
Defective sensor of low pressure	Defective Pe sensor (short)	JC
Defective Inverter PCB	Defective IPM	L1
	Abnormal current sensor offset	
	Abnormal IGBT	
	Defective current sensor	
	Abnormal SP-PAM overvoltage	
Radiation fin temperature rising	Overheating of radiation fin temperature	L4
DC output overcurrent	Inverter instantaneous overcurrent	L5
Electronic thermal	Electronic thermal switch 1	L8
	Electronic thermal switch 2	
	Out-of-step	
	Speed down after startup	
	Lightening detection	
Stall prevention (Limit time)	Stall prevention (Current increasing)	L9
	Stall prevention (Defective start up)	
	Abnormal wave form in startup	
	Out-of-step	
Transmission error (Between inverter PCB and outdoor unit main PCB)		LC

○: ON ●: OFF ◑: Blink

Error Code	Confirmation of Error 1							Confirmation of Error 2							Confirmation of Error 3							Confirmation of Error 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								◑			◑	●	●	◑	◑			●	●	●	●	◑			●	●		
F3	◑			●	◑	●	◑	◑			●	●	◑	◑	◑			●	●	●	●	◑			●	●	∗1	
F4								◑			●	◑	●	●	◑			●	●	●	●	◑			●	●		
F6								◑			●	◑	◑	●	◑			●	●	●	●	◑			●	●	◑	◑
H7	◑			●	◑	●	●	◑			●	◑	◑	◑	◑			●	●	●	●	◑			●	●		
H9								◑			◑	●	●	◑	◑			●	●	●	●	◑			●	●	∗1	
J3	◑			●	◑	◑	●	◑			●	●	◑	◑	◑			●	●	●	●	◑			●	●		
J5								◑			●	◑	●	◑	◑			●	●	●	●	◑			●	●		
																						◑			●	◑	∗1	
J6								◑			●	◑	◑	●	◑			●	●	●	●	◑			●	●		
JA								◑			◑	●	◑	●	◑			●	●	●	●	◑			●	●		
JC								◑			◑	◑	●	●	◑			●	●	●	●	◑			●	●		
L1	◑			●	◑	◑	◑	◑			●	●	●	◑	◑			●	●	●	●	◑			●	●	●	●
																						◑			●	●	●	◑
																						◑			●	●	◑	●
																						◑			●	●	◑	◑
																						◑			●	◑	●	●
L4								◑			●	◑	●	●	◑			●	●	●	●	◑			●	●		
L5								◑			●	◑	●	◑	◑			●	●	●	●	◑			●	●		
L8								◑			◑	●	●	●	◑			●	●	●	●	◑			●	●		
																						◑			●	◑		
																						◑			◑	●	∗1	
															◑			●	●	●	◑	◑			●	●		
L9								◑			◑	●	●	◑	◑			●	●	●	●	◑			●	●		
																						◑			●	◑		
																						◑			◑	●		
LC								◑			◑	◑	●	●	◑			●	●	●	●	◑			●	●		

Display of contents of error (first digit)

Display of contents of error (second digit)

Display 1 of error in detail

Display 2 of error in detail

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

Monitor mode

To enter the monitor mode, press the **MODE (BS1)** button when in “Setting mode 1”.

Selection of setting item

Press the **SET (BS2)** button and set the LED display to a setting item.

Confirmation of error 1

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

Confirmation of error 2

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

Confirmation of error 3

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

Confirmation of error 4

Press the **SET (BS2)** button once to display "master or slave 1 or slave 2" and "error location".

Press the **RETURN (BS3)** button and switches to the initial status of “Monitor mode”.

∗ Press the **MODE (BS1)** button and returns to “Setting mode 1”.

Detailed description on next page.

Error Description		Error Code
Inverter circuit capacitor high voltage	Imbalance of inverter power supply voltage	P1
Radiation fin thermistor abnormality	Defective thermistor of inverter fin	P4
Poor inverter and fan drive combination		PJ
Refrigerant shortage	Refrigerant shortage alarm	U0
Power supply insufficient or instantaneous abnormality	Insufficient Inverter voltage	U2
	Open phase in inverter (Phase T)	
	Error due to SP-PAM overvoltage	
	Error due to P-N short circuit	
Check operation not executed		U3
Transmission error between indoor units and outdoor units	I/O transmission error	U4
	Indoor unit system error	
Transmission error between indoor units and outdoor units in the same system	Indoor unit system abnormal in other system or other indoor unit system abnormal in own system	U9
Improper combination of indoor units and outdoor units, indoor units and remote controller	System transmission error	UA
	Overconnection error of indoor units	
	Error of field setting	
	Refrigerant abnormal	
	Connection error (BP unit)	
System not set yet	Conflict in wiring and piping	UF
System abnormality, refrigerant system address undefined	Wiring error (Auto-address error)	UH

○: ON ●: OFF ◑: Blink

Error Code	Confirmation of Error 1							Confirmation of Error 2							Confirmation of Error 3							Confirmation of Error 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								◑	●	○	●	◑	●	●	◑	○	●	●	●	●	●	◑	○	○	●	●		
PJ								◑	●	○	◑	◑	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●		
U0	◑	◑	●	◑	●	●	◑	◑	●	○	●	●	●	●	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
U2								◑	●	○	●	●	◑	●	◑	○	●	●	●	●	●	◑	○	○	●	●	∗1	
																							○	○	●	◑		
																						◑	○	○	●	●	◑	●
																						◑	○	○	●	●	●	◑
U3								◑	●	○	●	●	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
U4								◑	●	○	●	◑	●	●	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
																						◑	○	○	●	◑	◑	◑
U9								◑	●	○	◑	●	●	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
UA								◑	●	○	◑	●	◑	●	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
															◑	○	●	●	●	●	●	◑	○	○	●	◑	◑	◑
															◑	○	●	●	●	●	●	◑	○	○	◑	●	◑	◑
															◑	○	●	●	●	●	◑	◑	○	○	●	●	◑	◑
															◑	○	●	●	●	◑	●	◑	○	○	●	◑	◑	◑
UF								◑	●	○	◑	◑	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑
UH								◑	●	○	◑	●	◑	◑	◑	○	●	●	●	●	●	◑	○	○	●	●	◑	◑

Display of error description (first digit)

Display of error description (second digit)

Display 1 of error in detail

Display 2 of error in detail

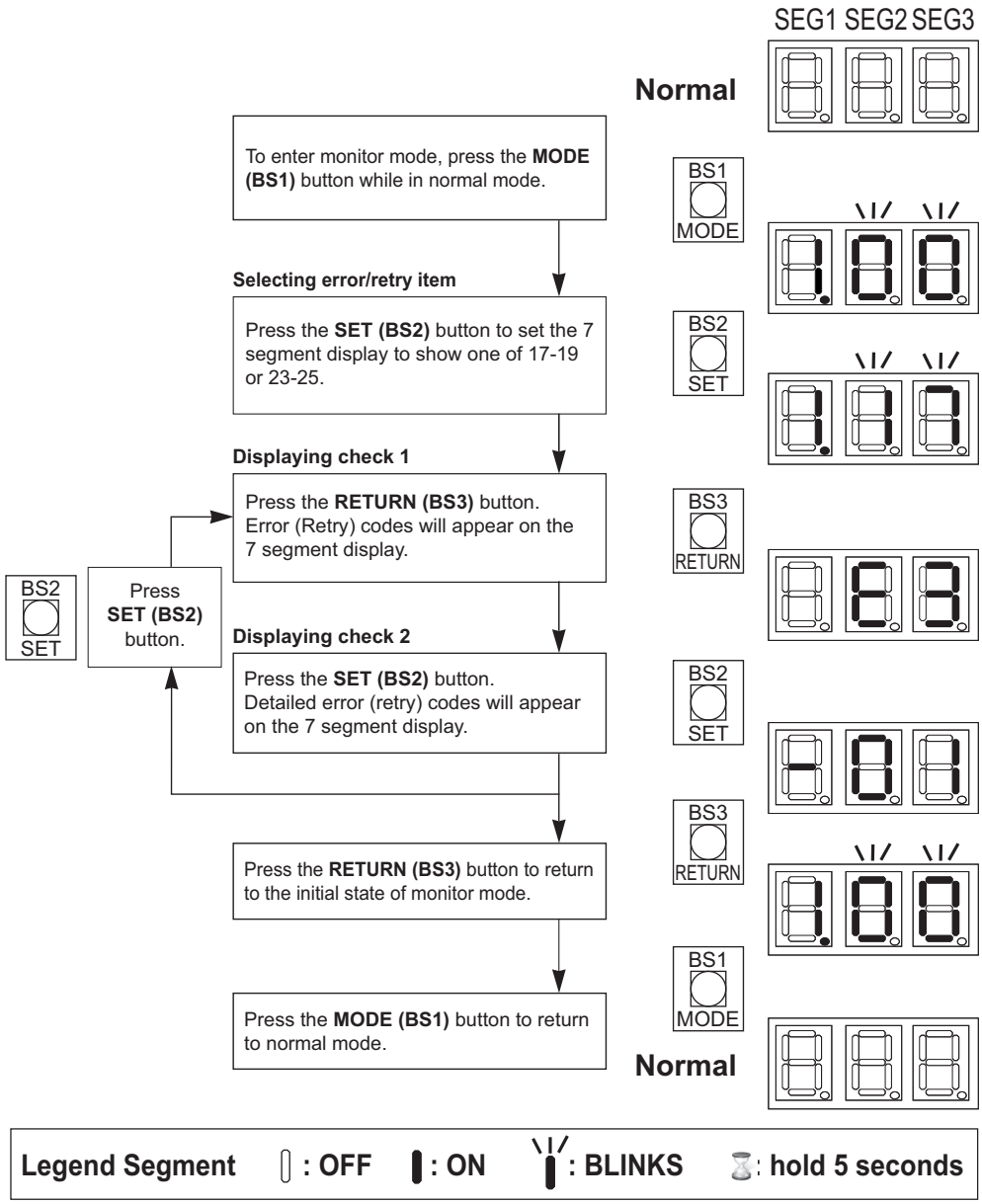
∗1	●	●	Master
	●	◑	Slave1
	◑	●	Slave2
	◑	◑	System

4.2 6-12 HP Models

Error code descriptions are accessible on monitor mode (Mode 1). Refer to page 129 for monitor mode.

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

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



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

5. Troubleshooting by Error Code

5.1 Error Codes and Descriptions

○: ON ●: OFF ◑: Blink

	Error code	Operation lamp	Description	Reference page
Indoor Unit	A0	◑	External protection device abnormality	197
	A1	◑	Indoor unit PCB abnormality	198
	A3	◑	Drain level control system abnormality	199
	A6	◑	Indoor fan motor lock, overload	201
			Indoor fan motor abnormality	203
	A8	◑	Power supply voltage abnormality	208
	A9	◑	Electronic expansion valve coil abnormality, dust clogging	211
	AF★	○	Humidifier system abnormality	212
	AH	◑	Auto grille unit error	213
	AJ	◑	Defective capacity setting	214
	C1	◑	Transmission abnormality (between indoor unit PCB and fan PCB)	215
			Transmission error	217
			Transmission error (between indoor unit PCB and auto grille control PCB)	218
	C4	◑	Indoor heat exchanger liquid pipe thermistor abnormality	220
	C5	◑	Indoor heat exchanger gas pipe thermistor abnormality	220
	C6	◑	Combination abnormality (between indoor unit PCB and fan PCB)	221
			Capacity setting abnormality	222
			Indoor unit PCB abnormality	223
	C9	◑	Suction air thermistor abnormality	220
	CE★	○	Infrared presence/floor sensor error	224
	CJ★	○	Remote controller thermistor abnormality	229

	Error code	Operation lamp	Description	Reference page
Outdoor Unit	E1	◑	Outdoor unit main PCB abnormality	230
	E2	◑	Current leakage detection	231
			Missing of leakage detection core	232
	E3	◑	Activation of high pressure switch	233
	E4	◑	Activation of low pressure sensor	235
	E5	◑	Compressor motor lock	237
	E6	◑	Compressor damage alarm	239
	E7	◑	Outdoor fan motor abnormality	241
	E9	◑	Electronic expansion valve coil abnormality	248
	F3	◑	Discharge pipe temperature abnormality	249
	F4	◑	Wet alarm	253
	F6	◑	Refrigerant overcharged	255
	H3	◑	Harness abnormality (between outdoor unit main PCB and inverter PCB)	256
	H5	◑	OL activation (compressor overload)	257
	H7	◑	Outdoor fan motor signal abnormality	259
			Outdoor fan PCB abnormality	260
	H9	◑	Outdoor air thermistor abnormality	261
	J3	◑	Discharge pipe thermistor abnormality	261
			Compressor body thermistor abnormality	261
	J5	◑	Suction pipe thermistor abnormality	261
			Accumulator thermistor abnormality	261
	J6	◑	Heat exchanger deicer thermistor abnormality	261
	J7	◑	Subcooling heat exchanger liquid pipe thermistor abnormality	261
	J8	◑	Heat exchanger liquid pipe thermistor abnormality	261
	J9	◑	Subcooling heat exchanger gas pipe thermistor abnormality	261
	JA	◑	High pressure sensor abnormality	263
	JC	◑	Low pressure sensor abnormality	264
	L1	◑	Inverter circuit abnormality	265
	L2	◑	Momentary power failure during test operation	267
	L4	◑	Radiation fin temperature rise abnormality	268
	L5	◑	Compressor instantaneous overcurrent	272
	L8	◑	Compressor overcurrent	275
	L9	◑	Compressor startup abnormality	278
	LC	◑	Transmission error between microcomputers on outdoor unit main PCB	281
			Transmission error between inverter PCB and outdoor unit main PCB	283
	P1	◑	Inverter circuit capacitor high voltage	285
			Power supply voltage imbalance	286
	P3	◑	Reactor temperature abnormality	288
	P4★	◑	Radiation fin temperature abnormality	289
	PJ	◑	Incorrect inverter and fan drive combination	291
			Field setting after replacing outdoor unit main PCB abnormality or combination of PCB abnormality	292

	Error code	Operation lamp	Description	Reference page
System	**U0★**	○	Refrigerant shortage	293
	U1	◑	Open phase	297
			Reverse phase, open phase	298
	U2	◑	Power supply insufficient or instantaneous abnormality	299
	U3	◑	Check operation not executed	307
	U4	◑	Transmission error between indoor units and outdoor units	310
	U5	◑	Transmission error between remote controller and indoor unit	314
	U8	◑	Transmission error between main and sub remote controllers	315
	U9	◑	Other indoor units and outdoor unit abnormality	316
	UA	◑	Improper combination of indoor unit and outdoor unit, indoor unit and remote controller	317
	UC★	○	Address duplication of centralized controller	320
	UE	◑	Transmission error between centralized controller and indoor unit	321
	UF	◑	System not set yet	324
	UH	◑	System abnormality, refrigerant system address undefined	326
	M1	◑	Defective PCB	327
	M8	◑	Transmission error (between centralized controllers)	328
	MA	◑	Poor centralized controller combination	329
	MC	◑	Address duplication, poor setting	330
	—	◑	Operation lamp blinking	331
	—	◑	Central control indicator lamp blinking (one blink)	333
	—	◑	Central control indicator lamp blinking (two blinks)	336

★The system operates for error codes indicated, however, be sure to check and repair.

5.2 Error Codes (Sub Codes)

If an error code like the one shown below is displayed when the navigation remote controller (BRC1E series) is in use, make a detailed diagnosis or a diagnosis of the relevant unit referring to the attached list of detailed error codes.

5.2.1 Indoor Unit

Error code	Troubleshooting	
	Description of error	Diagnosis
A6 - 01	Fan motor locked	A locked fan motor current has been detected. Turn the fan by hand to check for the connection of connectors.
A6 - 10	Fan overcurrent error	A fan motor overcurrent has been detected. Check for the connection of the connector between the fan motor and the PCB for the fan. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the PCB for the fan.
A6 - 11	Fan position detection error	An error in the detection of position of the fan motor. Check for the connection of the connector between the fan motor and the PCB for the fan. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the PCB for the fan.
A8 - 01	Power supply voltage error	Check for the input voltage of the fan motor.
A9 - 01	Electronic expansion valve error	There is an error in the electronic expansion valve coil or a connector disconnected.
A9 - 02	Refrigerant leakage detection error	Refrigerant leaks even if the electronic expansion valve is closed. Replace the electronic expansion valve.
AH - 12	Auto grille unit error (when the auto grille unit is mounted)	It is detected that the grille does not operate properly. Check whether the grille does not contact with something or the wire does not snaggle.
AJ - 01	Capacity setting error	There is an error in the capacity setting of the indoor unit PCB.
AJ - 02	Electronic expansion valve setting error	There is a fault in the setting of the gear type electronic expansion valve/direct acting type electronic expansion valve.
C1 - 01	Transmission error (between indoor unit PCB and the PCB for the fan)	Check for the conditions of transmission between the indoor unit PCB and the PCB for the fan.
C1 - 06	Transmission error (between indoor unit PCB and auto grille control PCB)	Refer to **C1-06** flowchart.
C6 - 01	Defective combination of indoor unit PCB and the PCB for the fan	A combination of indoor unit PCB and the PCB for the fan is defective. Check whether the capacity setting adaptor is correct and the type of the PCB for the fan is correct.
C6 - 05	Indoor unit PCB abnormality	Refer to **C6-05** flowchart.
CE - 01	Infrared presence sensor error	The output of the infrared presence sensor is not detected. Check if the connector is properly connected, and if the harness is not broken
CE - 02	Infrared floor sensor error	A disconnection of the temperature correction circuit (thermistor) of the infrared floor sensor has been detected. Check if the connector is properly connected.
CE - 03	Infrared floor sensor error	A short-circuit of the temperature correction circuit (thermistor) of the infrared floor sensor has been detected. Check if the pins of the connector are touching each other, and if any foreign matter on the PCB is causing a short-circuit.
CE - 04	Infrared floor sensor error	An abnormality other than the ones mentioned above has been detected. Check if the temperature nearby the sensor is too high, and if there is any foreign matter that may cause noise.
U4 - 01	Indoor-Outdoor transmission error	Refer to the **U4** flowchart.
UA - 13	Refrigerant type error	The type of refrigerant used for the indoor unit is different from that used for the outdoor unit.
UA - 15	Not applicable for self-cleaning decoration panel (when the self-cleaning decoration panel is mounted)	An outdoor unit is not applicable for the self-cleaning decoration panel is connected.

As there are various combinations of indoor and outdoor units, the sub codes of A0 - A3 are not shown in this table.

5.2.2 Outdoor Unit, System

Error code	Troubleshooting	
	Description of error	Diagnosis
E1 - 01	Outdoor unit PCB error	Refer to the **E1** flowchart and make a diagnosis based on the Error code shown to the left.
E1 - 02	Defective outdoor unit PCB	
E2 - 01	Earth leakage detection error	Refer to the **E2** flowchart and make a diagnosis based on the Error code shown to the left.
E2 - 06	Missing of earth leakage detection core	
E3 - 01	High pressure switch activated	Refer to the **E3** flowchart and make a diagnosis based on the Error code shown to the left.
E3 - 02	High pressure switch activated	
E3 - 07	High pressure switch activated (Batch)	
E3 - 13	Liquid stop valve check error	
E3 - 18	Too much refrigerant charged Stop valve closed	
E3 - 20	High pressure switch activated	
E4 - 01	Low pressure error	Refer to the **E4** flowchart and make a diagnosis based on the Error code shown to the left.
E5 - 01	Compressor M1C lock	Refer to the **E5** flowchart and make a diagnosis based on the Error code shown to the left.
E7 - 01	Fan motor M1F lock	Refer to the **E7** flowchart and make a diagnosis of the fan motor based on the Error code shown to the left.
E7 - 02	Fan motor M2F lock	
E7 - 05	Fan motor M1F instantaneous overcurrent	
E7 - 06	Fan motor M2F instantaneous overcurrent	
E7 - 09	Fan motor M1F IPM error	
E7 - 10	Fan motor M2F IPM error	
E9 - 01	Electronic expansion valve coil Y1E error	Refer to the **E9** flowchart and make a diagnosis of the relevant electronic expansion valve based on the Error code shown to the left.
E9 - 03	Electronic expansion valve coil Y2E error (6/8 HP)	
E9 - 04	Electronic expansion valve coil Y2E error (10/12 HP)	
E9 - 26	Electronic expansion valve coil Y4E error	
E9 - 48	Electronic expansion valve overcurrent	
E9 - 54	Defective circuit	
F3 - 01	Discharge pipe high temperature error	Refer to the **F3** flowchart and make a diagnosis based on the Error code shown to the left.
F3 - 20	Compressor body temperature error	
F3 - 23	Overload protector activated (Q1M)	
F4 - 01	Wet alarm for compressor M1C	Refer to the **F4** flowchart and make a diagnosis based on the Error code shown to the left.
F4 - 08	Wet error for compressor M1C	
F4 - 14	Indoor unit failure alarm	
F6 - 02	Excess refrigerant charge error	Excess refrigerant charge was detected during test run.
F6 - 03	Excess refrigerant charge warning	Excess refrigerant charge was detected during operation other than test run.
H3 - 02	Connection error between main PCB and inverter PCB	Refer to the **H3** flowchart and make a diagnosis based on the Error code shown to the left.
H5 - 01	Defective overload protector for M1C (Q1M)	Refer to the **H5** flowchart and make a diagnosis based on the Error code shown to the left.
H7 - 01	Fan motor M1F signal error	Refer to the **H7** flowchart and make a diagnosis based on the Error code shown to the left.
H7 - 02	Fan motor M2F signal error	
H7 - 21	Defective fan PCB for M1F	
H9 - 01	Defective outdoor air thermistor (R1T)	Refer to the **H9** flowchart and make a diagnosis based on the Error code shown to the left.
J3 - 01	Defective discharge pipe thermistor (R2T)	Refer to the **J3** flowchart and make a diagnosis based on the Error code shown to the left.
J3 - 16	Defective discharge pipe thermistor (R21T): Open	
J3 - 17	Defective discharge pipe thermistor (R21T): Short	
J3 - 47	Defective compressor body thermistor (R8T): Open	
J3 - 48	Defective compressor body thermistor (R8T): Short	
J3 - 56	Discharge pipe warning	
J5 - 01	Defective suction pipe thermistor (R3T/R5T: 4/5 HP, R3T: 6/8 HP) Defective accumulator thermistor (R3T: 10/12 HP)	Refer to the **J5** flowchart and make a diagnosis of the thermistor based on the Error code shown to the left.
J6 - 01	Defective heat exchanger deicer thermistor (R4T: 4/5 HP, R7T: 10/12 HP)	Refer to the **J6** flowchart and make a diagnosis of the thermistor based on the Error code shown to the left.

Error code	Troubleshooting	
	Description of error	Diagnosis
J7 - 06	Defective subcooling heat exchanger liquid pipe thermistor (R5T: 6/8/10/12 HP)	Refer to the **J7** flowchart and make a diagnosis of the thermistor based on the Error code shown to the left.
J8 - 01	Defective heat exchanger liquid pipe thermistor (R4T: 6/8/10/12 HP)	Refer to the **J8** flowchart and make a diagnosis of the thermistor based on the Error code shown to the left.
J9 - 01	Defective subcooling heat exchanger gas pipe thermistor (R6T)	Refer to the **J9** flowchart and make a diagnosis of the thermistor based on the Error code shown to the left.
J9 - 08	Error detection of subcooling heat exchanger gas pipe thermistor (R6T)	
JA - 01	Defective high pressure sensor	Refer to the **JA** flowchart and make a diagnosis of the sensor based on the Error code shown to the left.
JA - 06	Defective high pressure sensor: Open	
JA - 07	Defective high pressure sensor: Short	
JC - 01	Defective low pressure sensor	Refer to the **JC** flowchart and make a diagnosis of the sensor based on the Error code shown to the left.
JC - 06	Defective low pressure sensor: Open	
JC - 07	Defective low pressure sensor: Short	
L1 - 01	IPM error: Compressor M1C Instantaneous overcurrent	The inverter PCB may be defective or a PCB other than the specified is mounted. Refer to the **L1** flowchart and make a diagnosis based on the Error code shown to the left.
L1 - 02	Defective current sensor: Compressor M1C	
L1 - 03	Current offset: Compressor M1C	
L1 - 04	IGBT error: Compressor M1C	
L1 - 05	Jumper settings error: Compressor M1C	
L1 - 36	EEPROM abnormality: Compressor M1C	
L1 - 47	Power supply voltage abnormality: Compressor M1C	
L2 - 01	Momentary power failure	Refer to the **L2** flowchart and make a diagnosis based on the Error code shown to the left.
L2 - 04	Power ON	
L4 - 01	Radiation fin temperature rise: Inverter for M1C	Refer to the **L4** flowchart and make a diagnosis based on the Error code shown to the left.
L4 - 06	Radiation fin temperature rise: Inverter fan M1F	
L5 - 03	Current offset error	Refer to the **L5** flowchart and make a diagnosis based on the Error code shown to the left.
L8 - 03	Compressor M1C overcurrent error	Refer to the **L8** flowchart and make a diagnosis of the compressor based on the Error code shown to the left.
L9 - 01	Compressor M1C startup error	Refer to the **L9** flowchart and make a diagnosis of the compressor based on the Error code shown to the left.
L9 - 13	Compressor M1C output open phase	
LC - 01	Transmission error between inverter PCB and outdoor unit main PCB	Refer to the **LC** flowchart and make a diagnosis based on the Error code shown to the left.
LC - 14	PCB inverter error (Compressor M1C)	
LC - 19	PCB inverter error (Fan M1F)	
LC - 24	PCB inverter error (Fan M2F)	
P1 - 01	Inverter circuit capacitor high voltage	Refer to the **P1** flowchart and make a diagnosis based on the Error code shown to the left.
	Unbalanced power supply voltage	
P3 - 01	Defective reactor thermistor 1	Refer to the **P3** flowchart and make a diagnosis based on the Error code shown to the left.
P3 - 04	Defective reactor thermistor 2	
P4 - 01	Defective radiation fin thermistor	Refer to the **P4** flowchart and make a diagnosis based on the Error code shown to the left.
P4 - 02	Defective fan M1F fin sensor	
PJ - 04	Incorrect type of compressor Defective combination of inverter PCB	Refer to the **PJ** flowchart and make a diagnosis based on the Error code shown to the left.
PJ - 09	Incorrect type of fan	
U0 - 03	Gas shortage alarm	Refer to the **U0** flowchart and make a diagnosis based on the Error code shown to the left.
U0 - 05	Refrigerant shortage warning (cooling)	
U0 - 08	Refrigerant shortage	
U1 - 01	Reverse/open phase for power supply	Refer to the **U1** flowchart and make a diagnosis based on the Error code shown to the left.
U1 - 04	Reverse phase for power supply with power supply turned ON	
U1 - 16	Open phase for power supply	
U1 - 19	Hz error for power supply	

Error code	Troubleshooting	
	Description of error	Diagnosis
U2 - 01	Shortage of inverter power supply voltage	Refer to the **U2** flowchart and make a diagnosis based on the Error code shown to the left.
U2 - 02	Power phase loss	
U3 - 02	Initial installation alarm, Test operation failed due to indoor unit error	Refer to the **U3** flowchart and make a diagnosis based on the Error code shown to the left.
U3 - 03	Test operation not conducted	
U3 - 04	Abnormal end of test operation	
U3 - 05	Premature end of test operation during initial transmission error – check indoor unit error U4/U9	
U3 - 06	Premature end of test operation during normal transmission error	
U3 - 07	Premature end of test operation due to transmission error	
U3 - 08	Premature end of test operation due to transmission error of all units	
U3 - 10	System refrigerant auto charge operation not yet executed	
U4 - 01	Transmission error between indoor unit and outdoor unit	Refer to the **U4** flowchart and make a diagnosis based on the Error code shown to the left.
U4 - 03	Transmission error between indoor unit and system: check indoor unit error	
U9 - 01	Other indoor units and outdoor unit abnormality	Refer to the **U9** flowchart and make a diagnosis based on the Error code shown to the left.
UA - 00	TSS plus unit field settings error, CT address duplication warning	Refer to the **UA** flowchart and make a diagnosis based on the Error code shown to the left.
UA - 03	Connection of excessive indoor units	
UA - 17	Connection of excess indoor units	
UA - 18	Connection of incorrect models of indoor units	
UA - 21	Wrong connection	
UF - 01	Wrong wiring check error	Refer to the **UF** flowchart and make a diagnosis based on the Error code shown to the left.
UF - 05	Defective stop valve for test operation	
UH - 01	Wiring error	Refer to the **UH** flowchart.

5.3 External Protection Device Abnormality

Applicable Models

All indoor unit models

Error Code

A0

Method of Error Detection

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

Error Decision Conditions

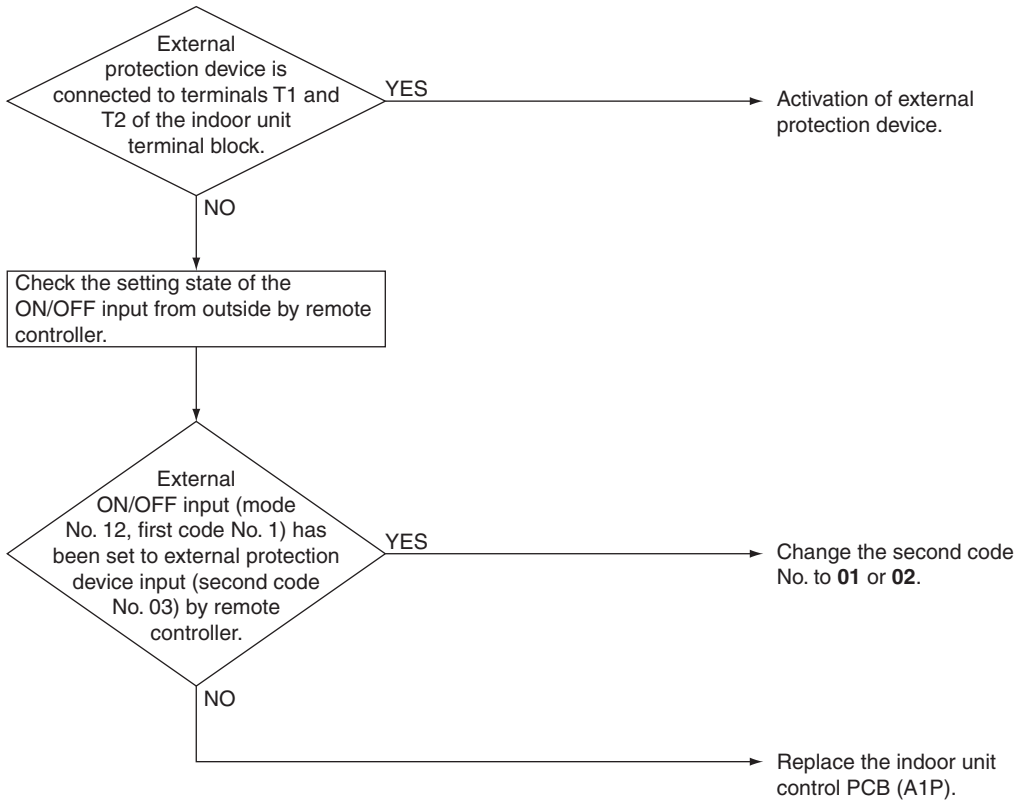
An open circuit occurs between external input terminals with the remote controller set for external ON/OFF input.

Supposed Causes

- Activation of external protection device
- Improper field setting
- Defective indoor unit PCB

Troubleshooting

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



5.4 Indoor Unit PCB Abnormality

Applicable Models

All indoor unit models

Error Code

A1

Method of Error Detection

Data from EEPROM is checked.

Error Decision Conditions

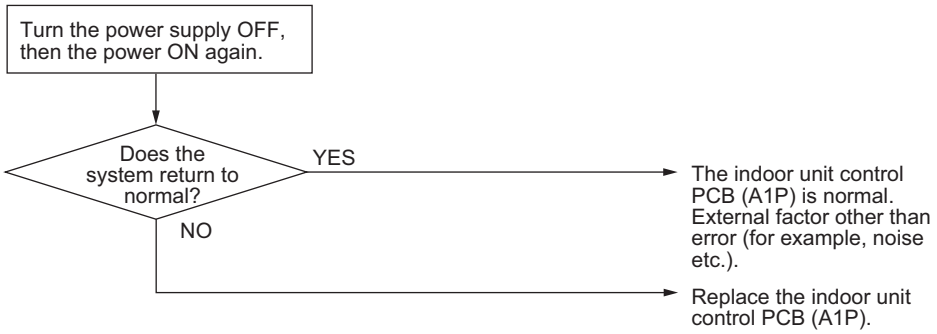
Data cannot be correctly received from the EEPROM
EEPROM: Type of nonvolatile memory. Maintains memory contents even when the power supply is turned OFF.

Supposed Causes

- Defective indoor unit control PCB
- External factor (Noise etc.)

Troubleshooting

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



5.5 Drain Level Control System Abnormality

Applicable Models

FXFSQ-AR, FXMQ-PB

Error Code

A3

Method of Error Detection

By float switch OFF detection

Error Decision Conditions

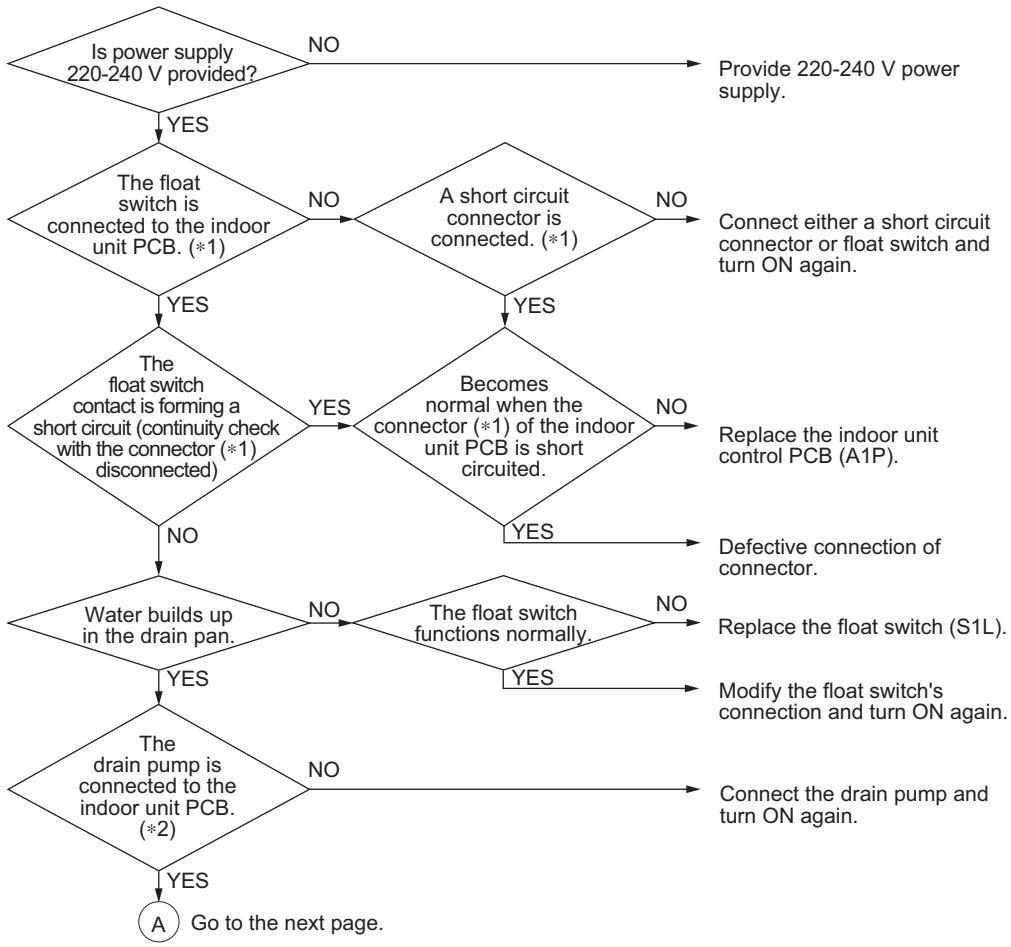
Float switch goes OFF when the conditions for water level rise are not met

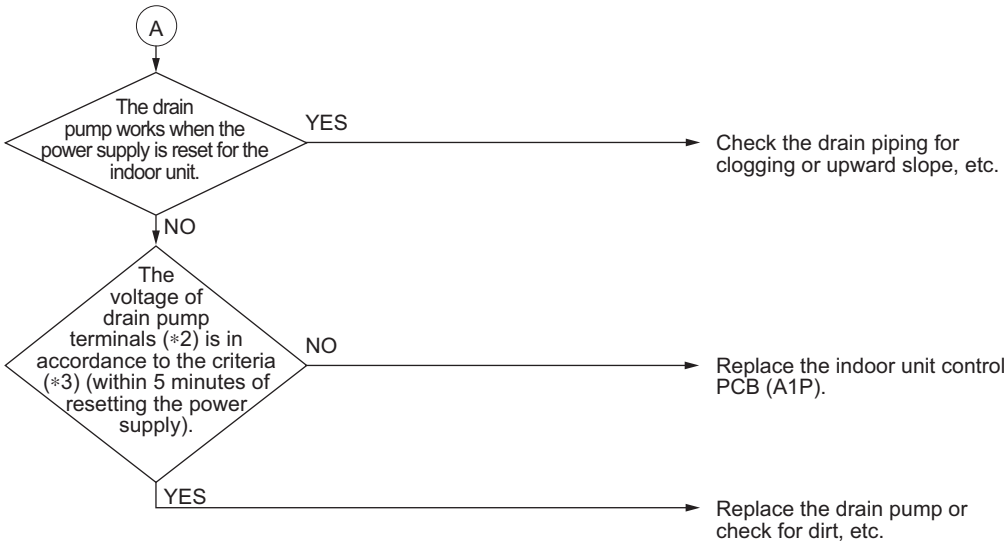
Supposed Causes

- 220-240 V power supply is not provided.
- Defective float switch or short circuit connector
- Defective drain pump
- Drain clogging, upward slope, etc.
- Defective indoor unit control PCB
- Loose connection of connector

Troubleshooting

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





Note(s)

Model	∗1: Float switch (S1L) / short circuit connector	∗2: Drain pump (M1P) connector	∗3: Drain pump (M1P) voltage	Note
FXFSQ-AR	X15A	X25A	13 VDC	–
FXMQ-PB	X15A	X25A	13 VDC	–

5.6 Indoor Fan Motor Lock, Overload

Applicable Models

FXMQ40PB, FXAQ-P

Error Code

A6

Method of Error Detection

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

Error Decision Conditions

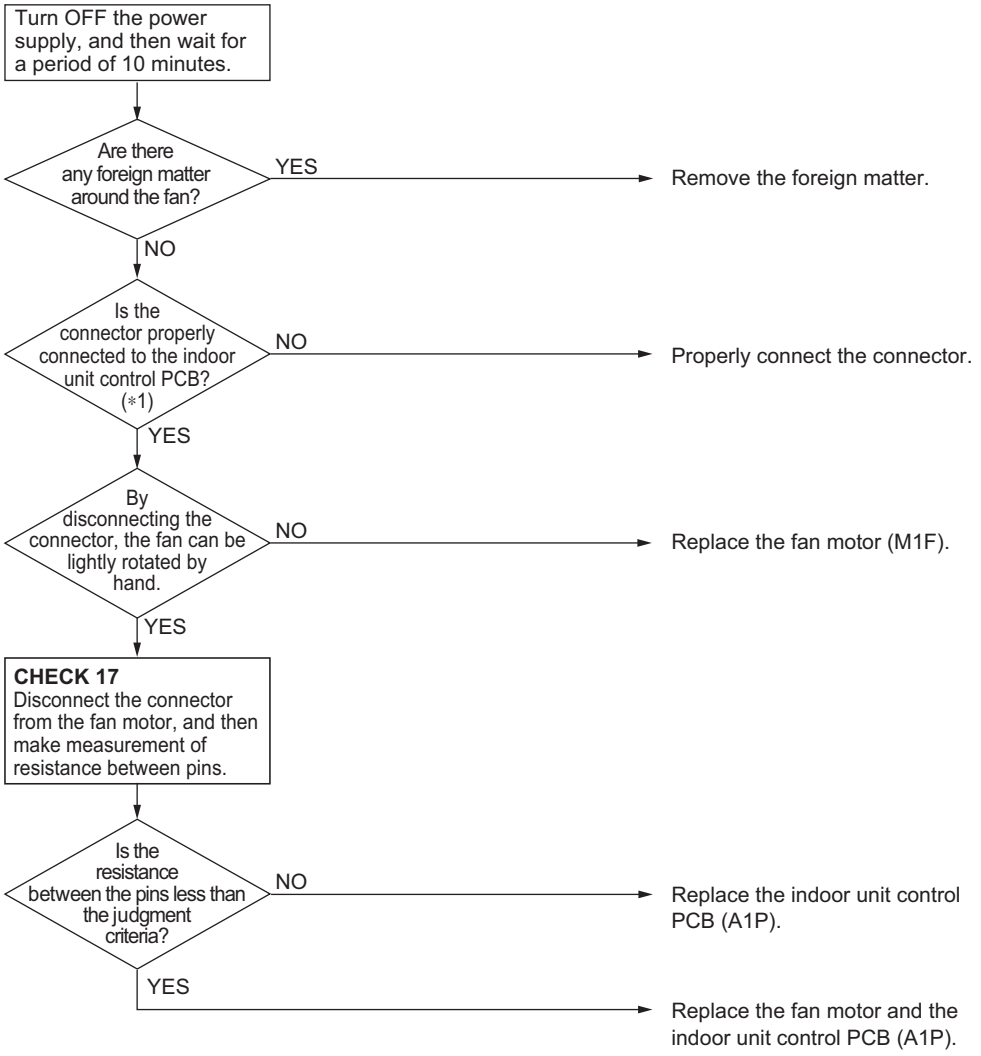
The fan revolutions do not increase.

Supposed Causes

- Broken wires in, short circuit of, or disconnection of connectors from the fan motor harness
- Defective fan motor
  (Broken wires or defective insulation)
- Abnormal signal output from the fan motor (defective circuit)
- Defective indoor unit control PCB
- Instantaneous disturbance in the power supply voltage
- Fan motor lock
  (Due to motor or external causes)
- The fan does not rotate due to foreign matter blocking the fan.
- Disconnection of the connector between the high-power PCB and the low-power PCB: FXMQ40PB

Troubleshooting

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



Note(s) *1: Check the following connectors.

Model	Connector
FXMQ40PB	X8A
FXAQ-P	X20A

Reference **CHECK 17** Refer to page 357.

5.7 Indoor Fan Motor Abnormality

5.7.1 Indoor Fan Motor Abnormality (FXMQ50-140PB)

Applicable Models

FXMQ50-140PB

Error Code

A6

Method of Error Detection

- Error from the current flow on the fan PCB
- Error from the rotation speed of the fan motor in operation
- Error from the position signal of the fan motor
- Error from the current flow on the fan PCB when the fan motor starting operation

Error Decision Conditions

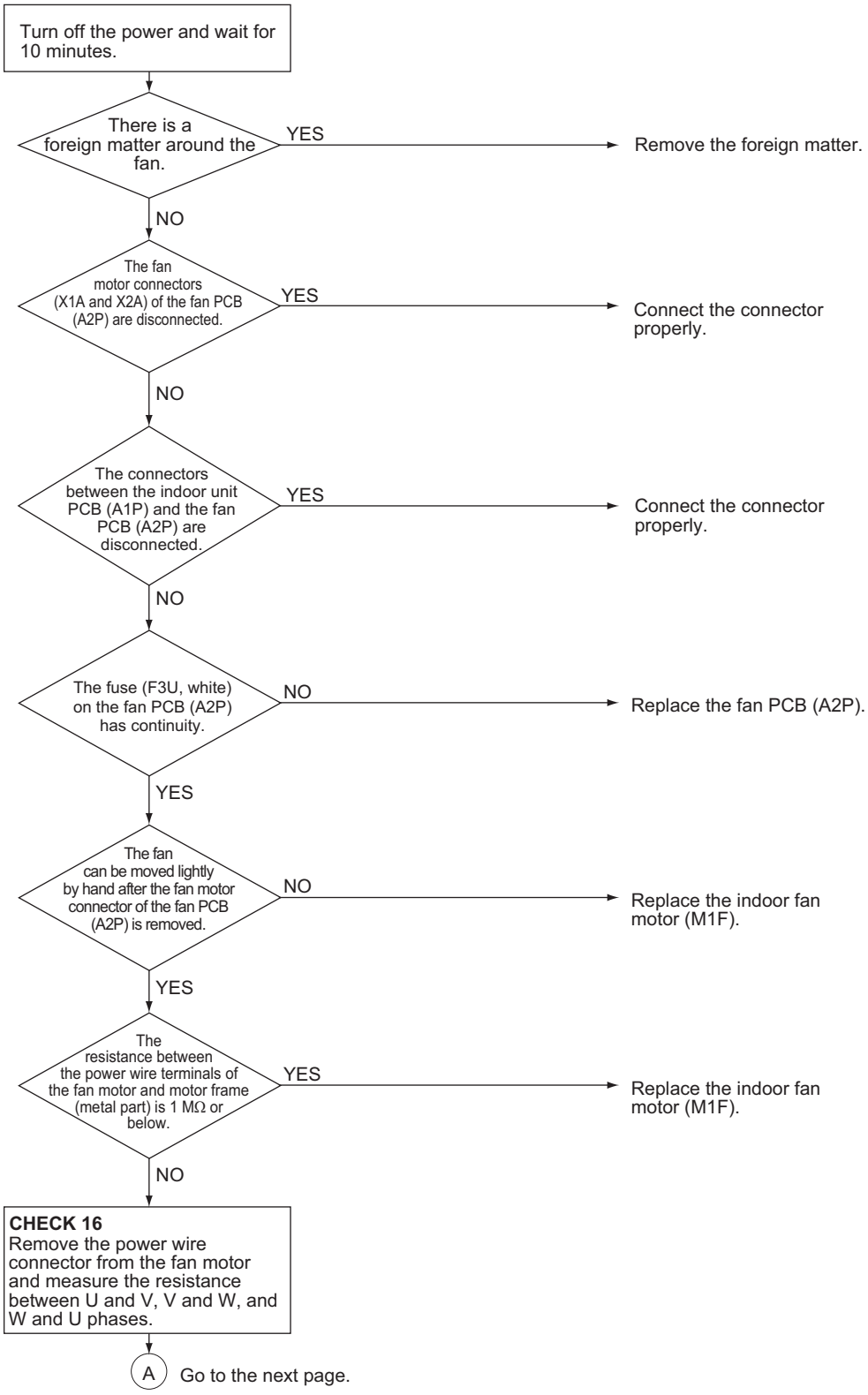
- An overcurrent flows.
- The rotation speed is less than a certain level for 6 seconds.
- A position error in the fan rotor continues for 5 seconds or more.

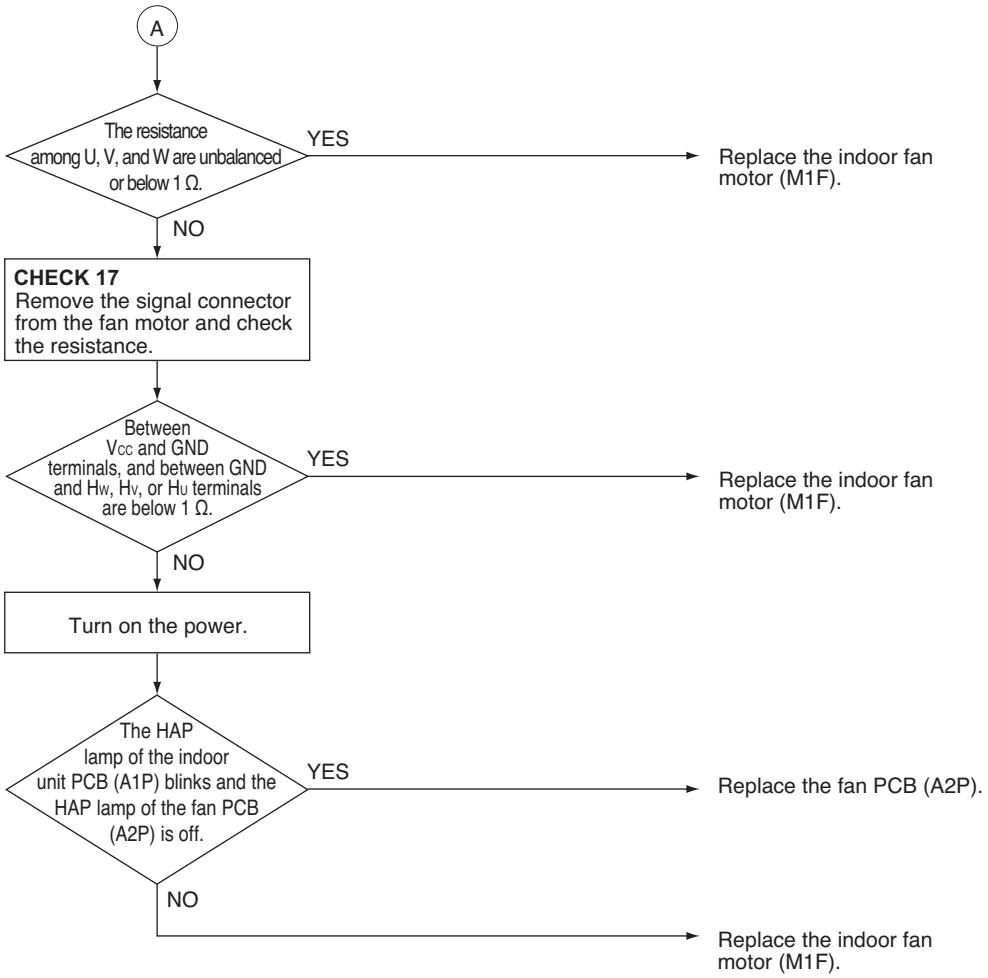
Supposed Causes

- Clogging of a foreign matter
- Disconnection of the fan motor connectors (X1A and X2A)
- Disconnection of the connectors between the indoor unit control PCB (A1P) and fan PCB (A2P)
- Defective fan PCB (A2P)
- Defective fan motor

Troubleshooting

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





Reference **CHECK 16** Refer to page 356.

Reference **CHECK 17** Refer to page 357.

5.7.2 Indoor Fan Motor Abnormality (FXFSQ-AR)

Applicable Models

FXFSQ-AR

Error Code

A6-10

Method of Error Detection

- Detection from the current flow on the fan PCB (A1P)
- Detection from the rotation speed of the fan motor in operation
- Detection from the position signal of the fan motor
- Detection from the current flow on the fan PCB when the fan motor starting operation

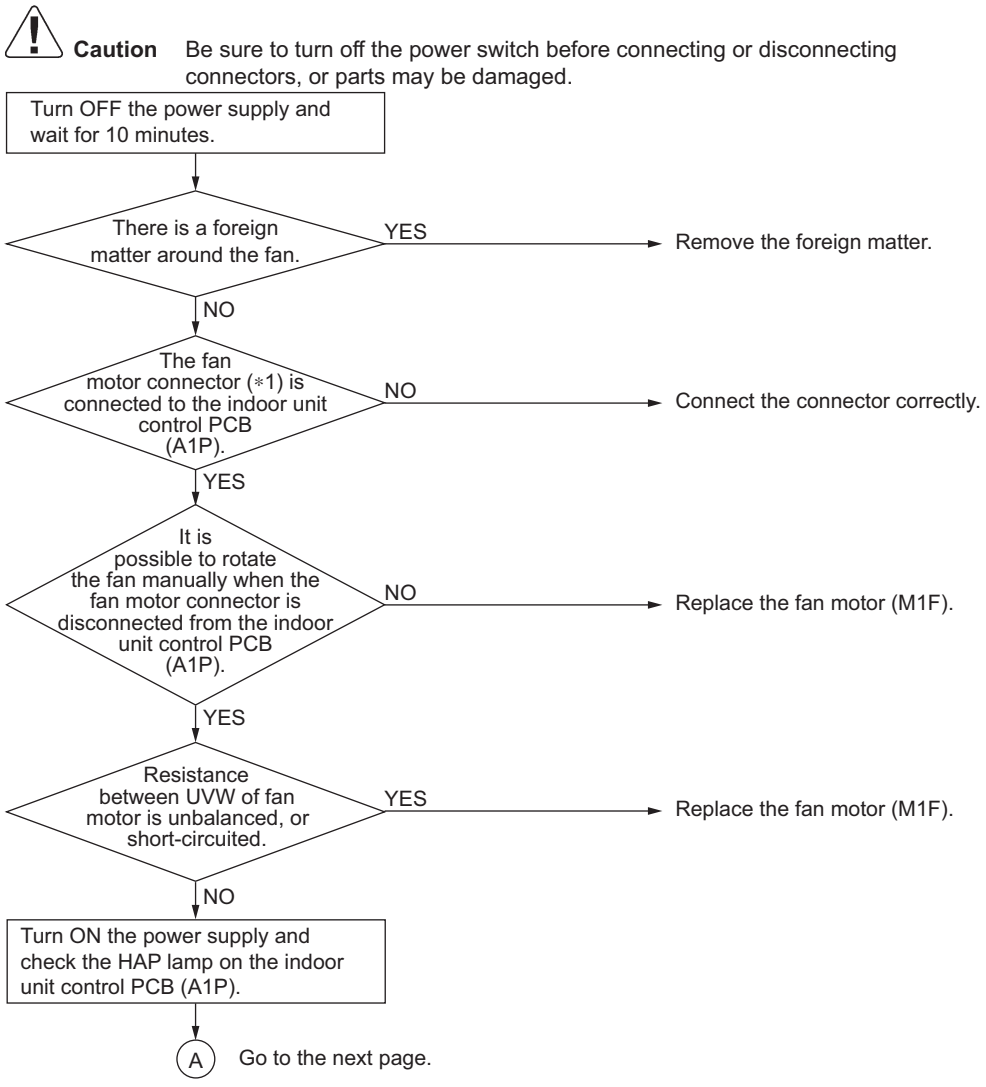
Error Decision Conditions

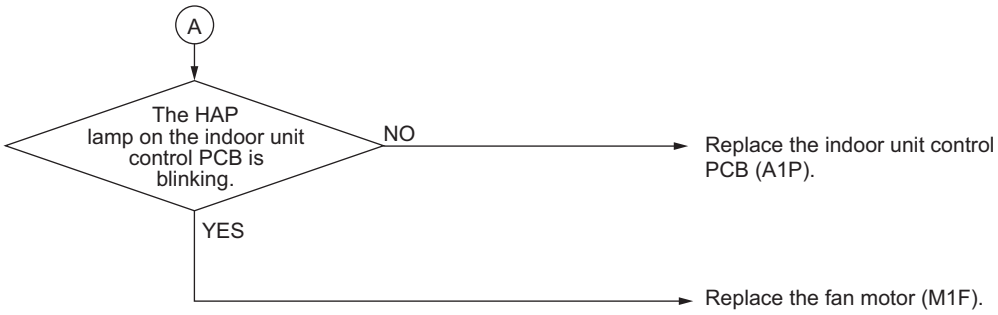
- An overcurrent flows
- The rotation speed is less than a certain level for 6 seconds.
- A position error in the fan rotor continues for 5 seconds or more.

Supposed Causes

- Clogged foreign matter
- Disconnection of fan motor connectors
- Fan motor lock
- Defective fan motor
- Defective indoor unit PCB

Troubleshooting





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

5.8 Power Supply Voltage Abnormality

5.8.1 Power Supply Voltage Abnormality (FXMQ-PB)

Applicable Models

FXMQ-PB

Error Code

A8

Method of Error Detection

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

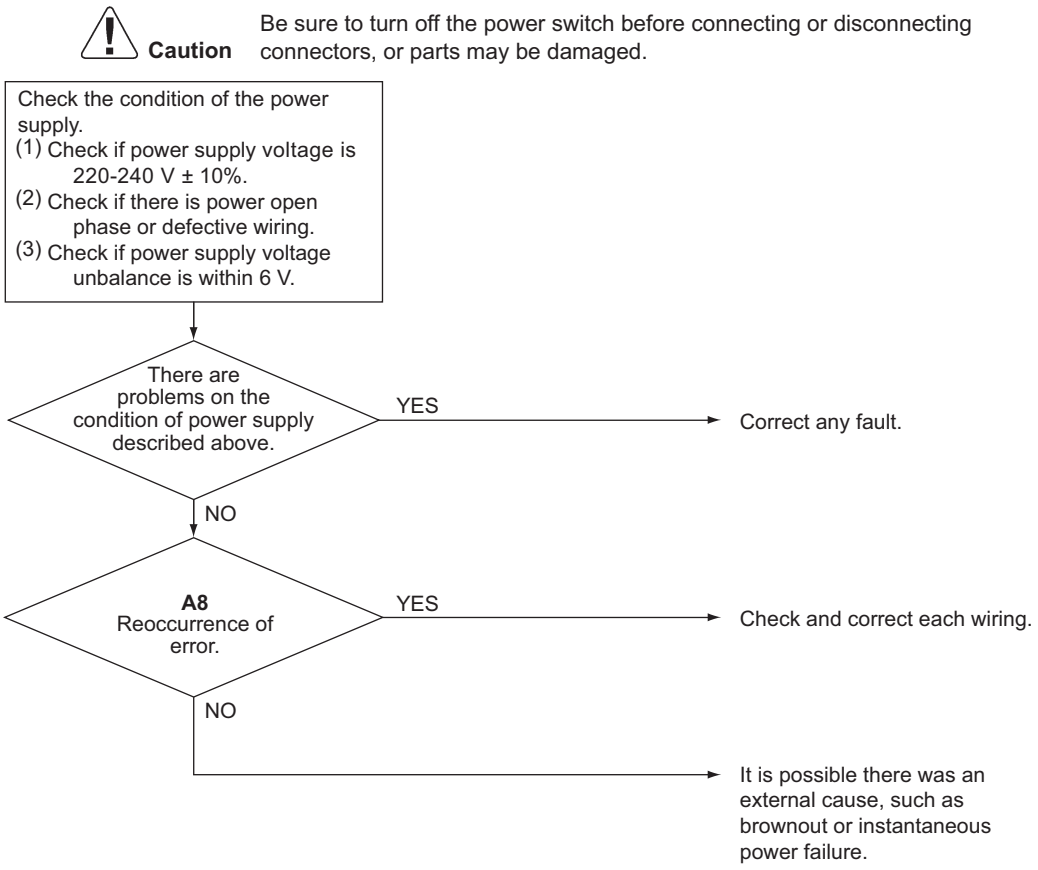
Error Decision Conditions

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

Supposed Causes

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

Troubleshooting

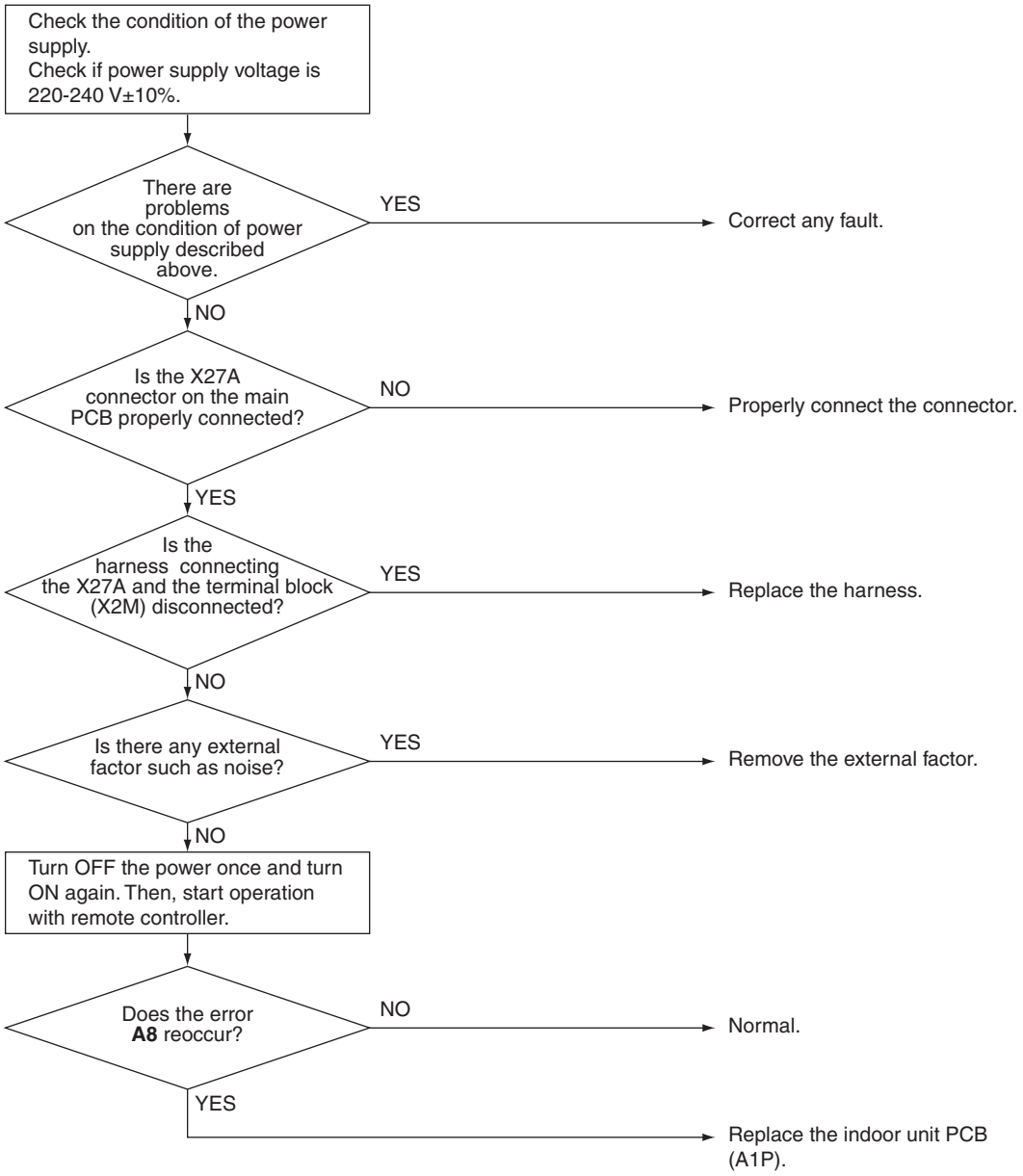


5.8.2 Power Supply Voltage Abnormality (FXFSQ-AR)

Applicable Models	FXFSQ-AR
Error Code	**A8-01**
Method of Error Detection	This error is detected by checking the voltage status with the microcomputer.
Error Decision Conditions	Overvoltage or voltage drop is detected on the fan driver.
Supposed Causes	■ Defective connection of power supply connector ■ Defective indoor unit PCB (A1P) ■ External factors (e.g. noise)

Troubleshooting

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



5.9 Electronic Expansion Valve Coil Abnormality, Dust Clogging

Applicable Models

All indoor unit models

Error Code

A9, A9-02

Method of Error Detection

Electronic expansion valve coil conditions are checked via microcomputer.
The electronic expansion valve main body is checked for dust clogging via microcomputer.

Error Decision Conditions

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

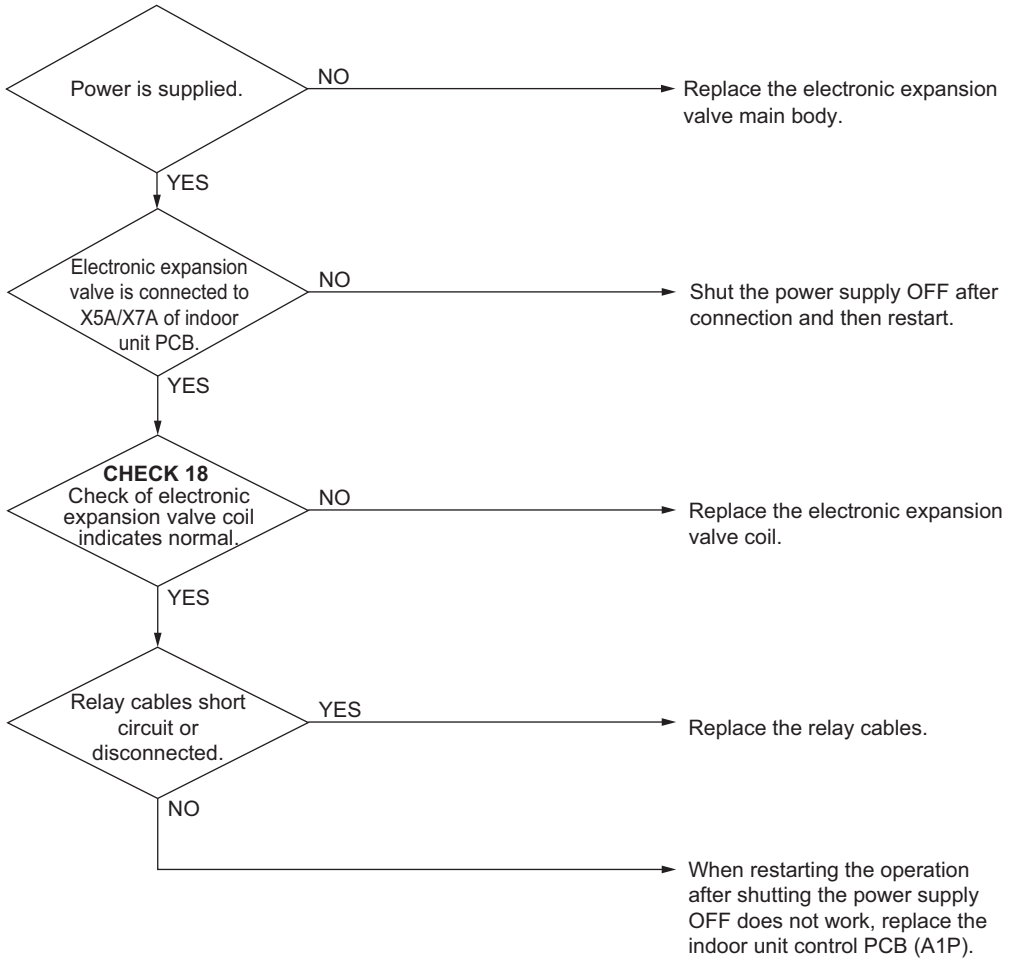
- Temperature of suction air (R1T) – temperature of liquid pipe (R2T) > 8°C.
- Temperature of liquid pipe of heat exchanger (R2T) shows fixed degrees or below.

Supposed Causes

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

Troubleshooting

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



Reference **CHECK 18** Refer to page 358.

5.10 Humidifier System Abnormality

Applicable Models

FXFSQ-AR, FXMQ-PB

Error Code

AF

Method of Error Detection

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

Error Decision Conditions

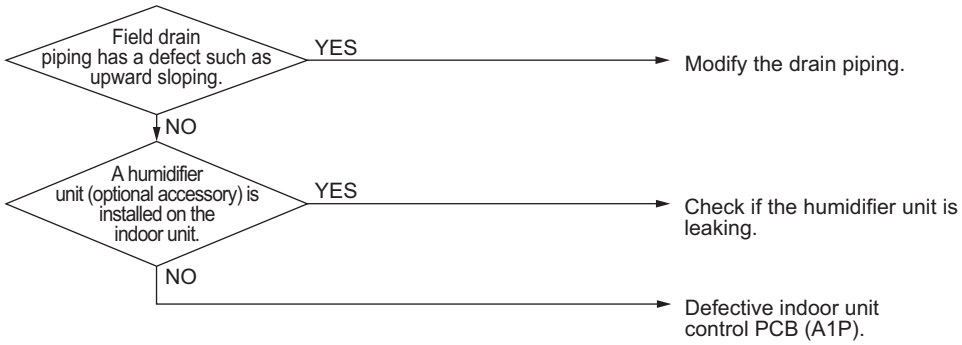
The float switch changes from ON to OFF while the compressor is not in operation.
∗ Error code is displayed but the system operates continuously.

Supposed Causes

- Humidifier unit (optional accessory) leaking
- Defective drain piping (upward slope, etc.)
- Defective indoor unit control PCB

Troubleshooting

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



5.11 Auto Grille Unit Error

Applicable Models

FXFSQ-AR (when auto grille panel BYCQ125EBSF is installed)

Error Code

AH-12

Method of Error Detection

This error is determined when an abnormal signal from the auto grille kit is detected.

Error Decision Conditions

Any of the following conditions is established while the grille is elevating.

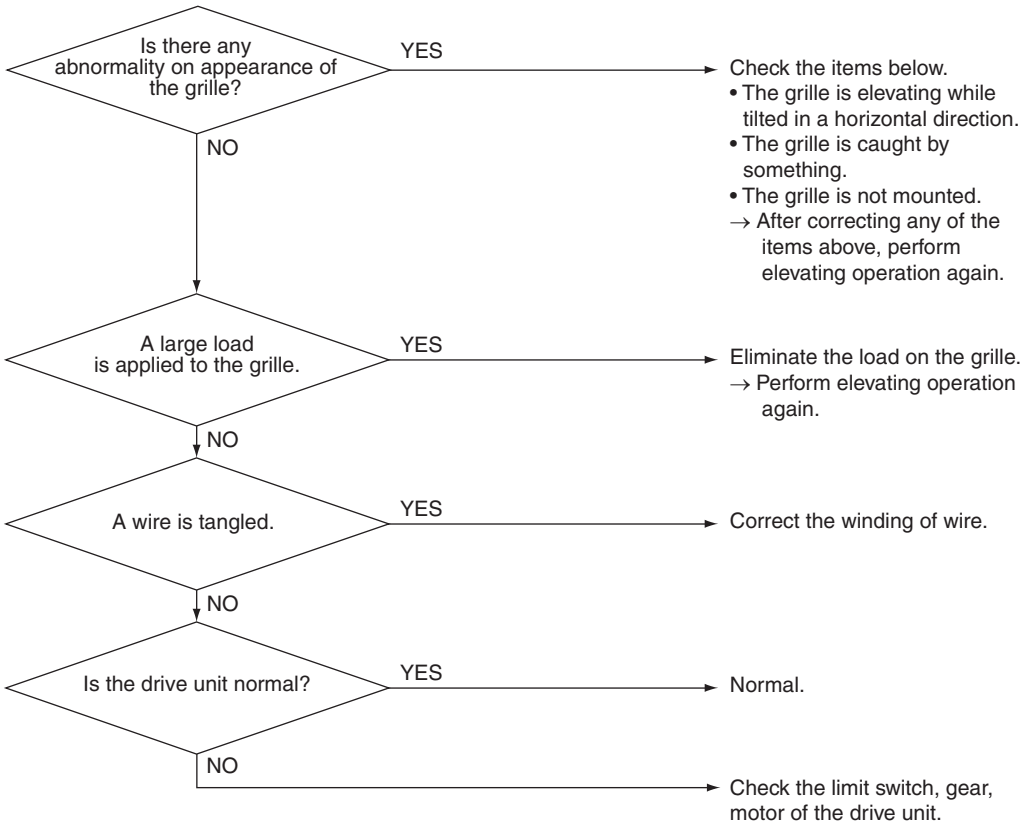
- The storage detection limit switch does not detect anything for a prescribed time while the grille is moving upward.
- The position detection limit switch does not detect anything for a prescribed time while the grille is moving upward.
- The position detection limit switch detects a position for less than one second while the grille is moving downward.

Supposed Causes

- A large load on the grille
- Tangled wire
- Defective motor
- Defective limit switch

Troubleshooting

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



5.12 Defective Capacity Setting

Applicable Models

All indoor unit models

Error Code

AJ

Method of Error Detection

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

Error Decision Conditions

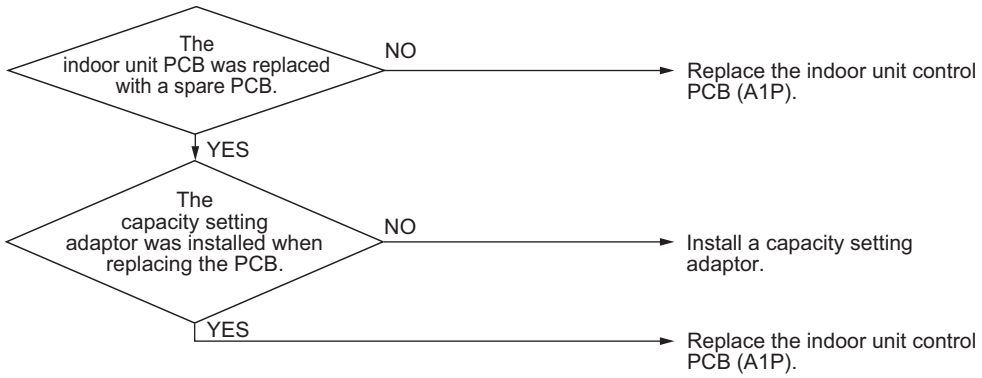
The capacity code is not saved to the PCB, and the capacity setting adaptor is not connected. A capacity that does not exist for that unit is set.

Supposed Causes

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

Troubleshooting

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

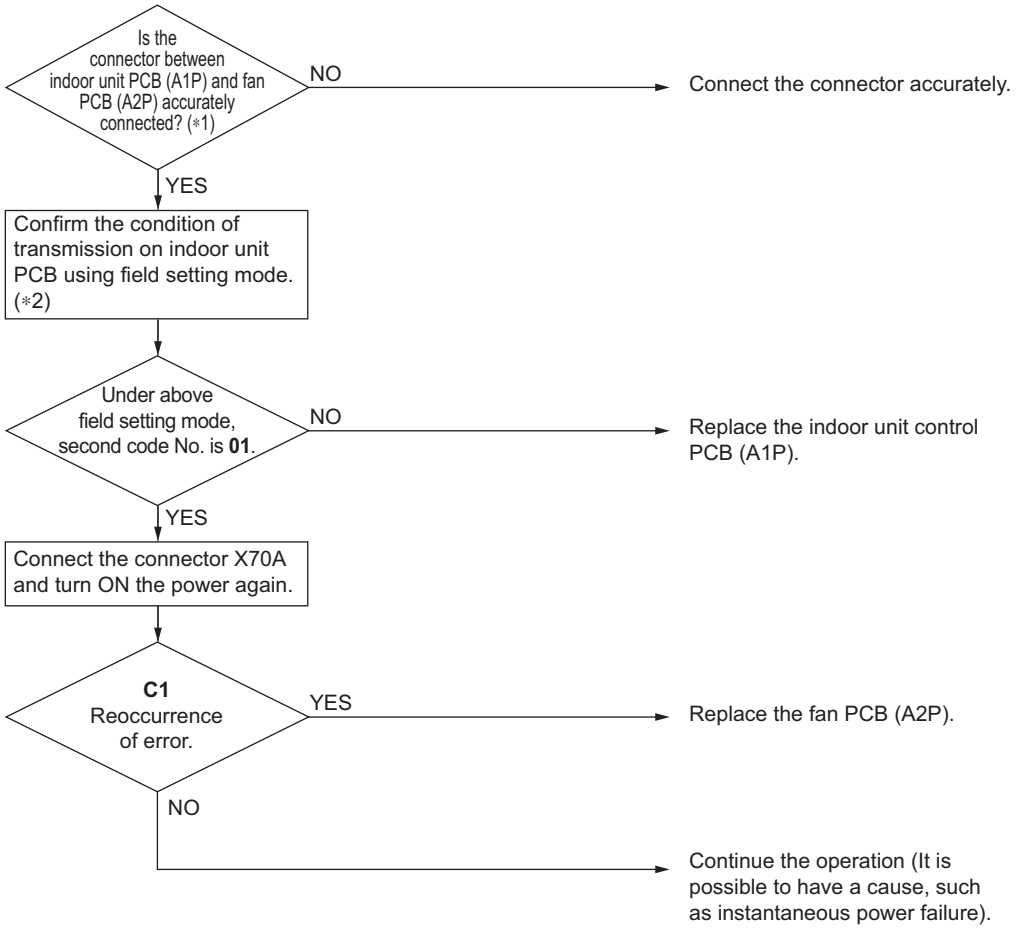


5.13 Transmission Abnormality (between Indoor Unit PCB and Fan PCB)

Applicable Models	FXMQ-PB
Error Code	**C1**
Method of Error Detection	Transmission conditions between the indoor unit control PCB (A1P) and fan PCB (A2P) are checked via microcomputer.
Error Decision Conditions	When normal transmission is not carried out for a certain duration.
Supposed Causes	■ Defective connection of the connector between indoor unit control PCB (A1P) and fan PCB (A2P) ■ Defective indoor unit control PCB (A1P) ■ Defective fan PCB (A2P) ■ External factor, such as instantaneous power failure

Troubleshooting

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



Note(s)

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

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

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

5.14 Transmission Error

Applicable Models

FXFSQ-AR

Error Code

C1-01

Method of Error Detection

Check the condition of transmission using microcomputer.

Error Decision Conditions

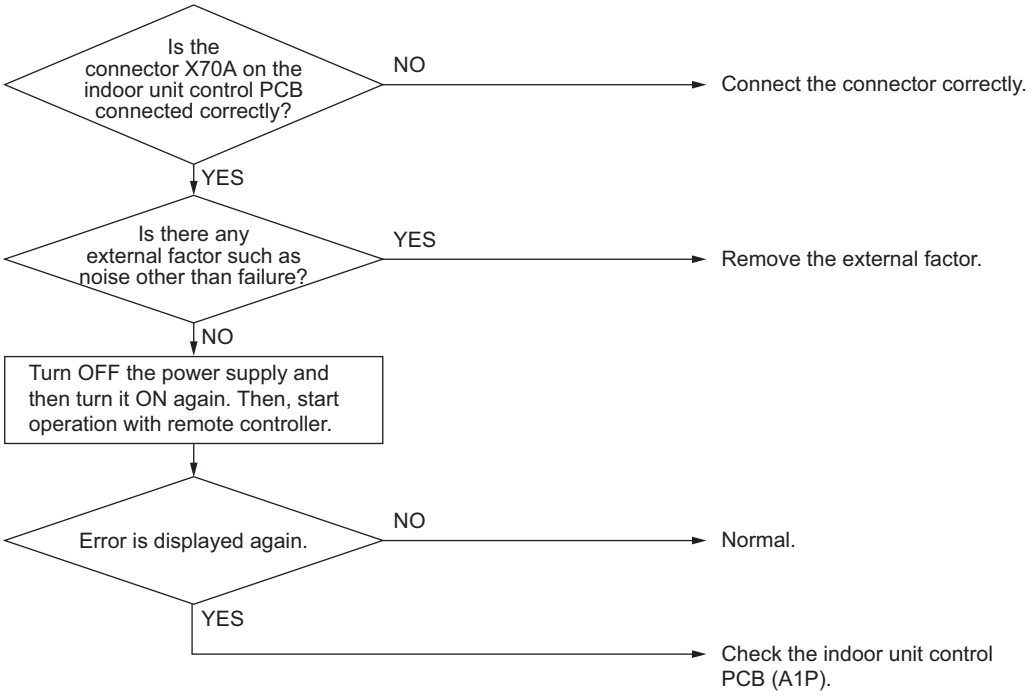
Error is decided when transmission has been lost for 15 seconds and the error code is displayed on the remote controller 60 seconds later.

Supposed Causes

- Defective connection of the transmission connector (X70A)
- Defective indoor unit control 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.



5.15 Transmission Error (between Indoor Unit PCB and Auto Grille Control PCB)

Applicable Models

FXFSQ-AR (when auto grille panel BYCQ125EBSF is installed)

Error Code

C1-06

Method of Error Detection

The status of communication between the indoor unit PCB (X70A) and the auto grille control PCB (X12A) is checked with the microcomputer.

Error Decision Conditions

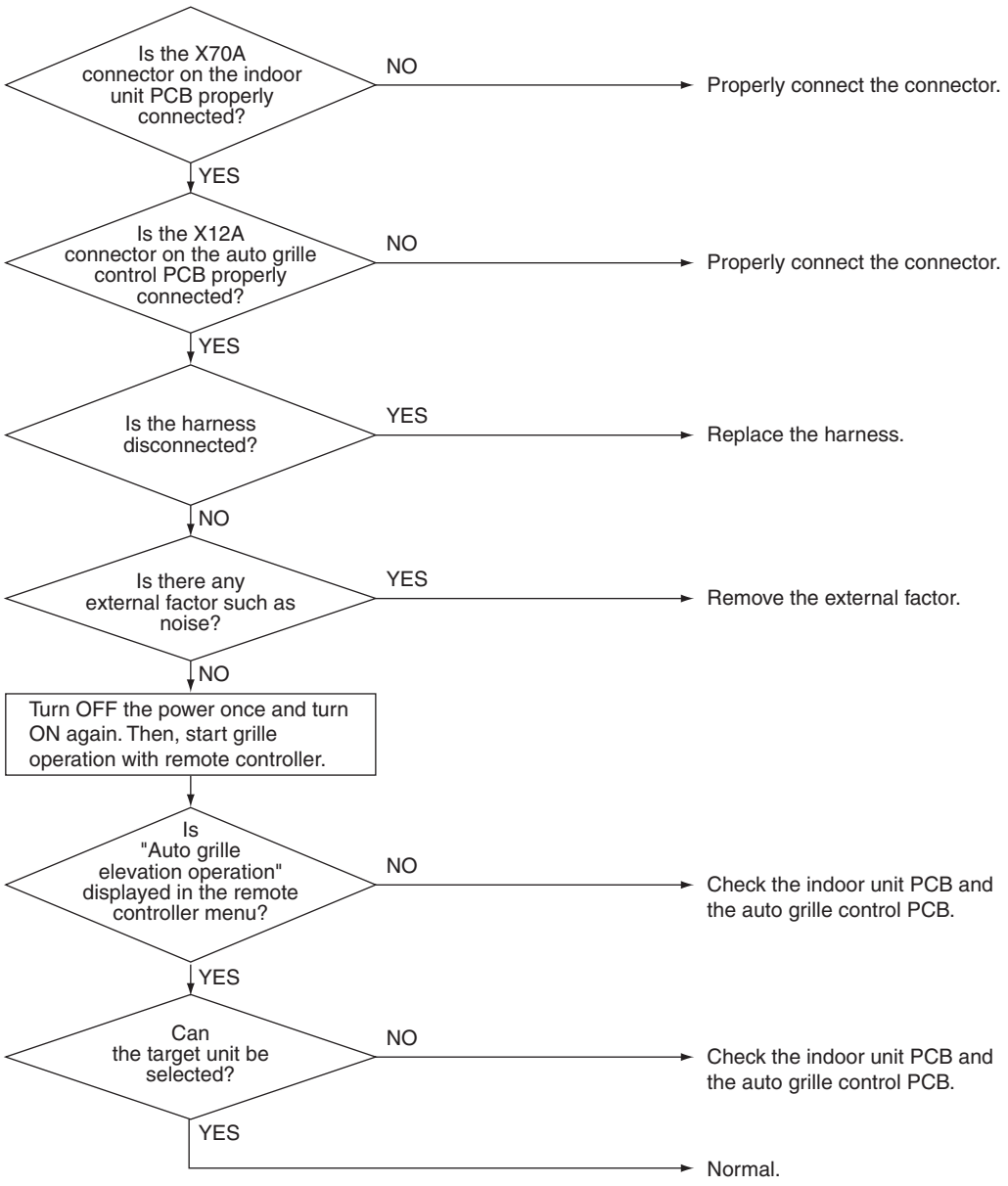
When transmission communication between the indoor unit PCB and the auto grille control PCB is not normally performed for a certain period of time or more.

Supposed Causes

- Defective connection of the transmission communication connector between the indoor unit PCB and the auto grille control PCB
- Defective indoor unit PCB
- Defective auto grille control PCB
- External factors (e.g. noise)

Troubleshooting

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



5.16 Thermistor Abnormality

Applicable Models

All indoor unit models

Error Code

C4, C5, C9

Method of Error Detection

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

Error Decision Conditions

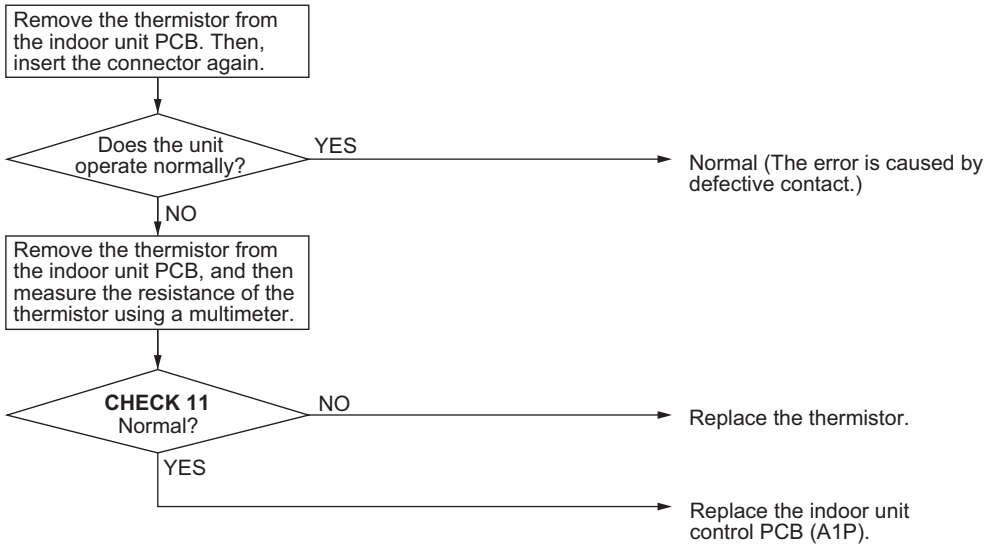
The thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

- Defective thermistor
- Defective indoor unit PCB
- Disconnection of connector

Troubleshooting

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



Note(s) Error code and thermistor

Error Code	Thermistor	Electric Symbol
C4	Indoor heat exchanger liquid pipe thermistor	R2T
C5	Indoor heat exchanger gas pipe thermistor	R3T
C9	Suction air thermistor	R1T

Reference **CHECK 11** Refer to page 350.

5.17 Combination Abnormality (between Indoor Unit PCB and Fan PCB)

Applicable Models

FXMQ-PB

Error Code

C6

Method of Error Detection

Transmission conditions with the fan PCB (A2P) are checked using the indoor unit PCB (A1P).

Error Decision Conditions

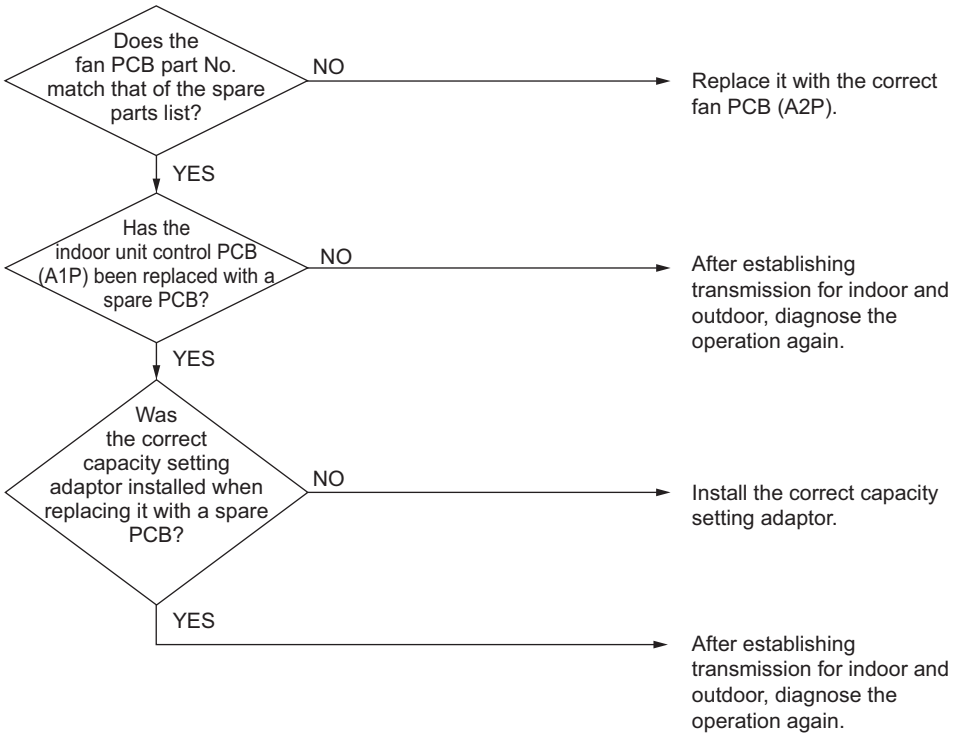
Fan PCB (A2P) communication data is determined to be incorrect.

Supposed Causes

- Defective fan PCB (A2P)
- Defective connection of capacity setting adaptor
- Field setting error

Troubleshooting

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



5.18 Capacity Setting Abnormality

Applicable Models

FXFSQ-AR

Error Code

C6-01

Method of Error Detection

This error is detected by checking communication between the PCB (A1P) and the fan microcomputer.

Error Decision Conditions

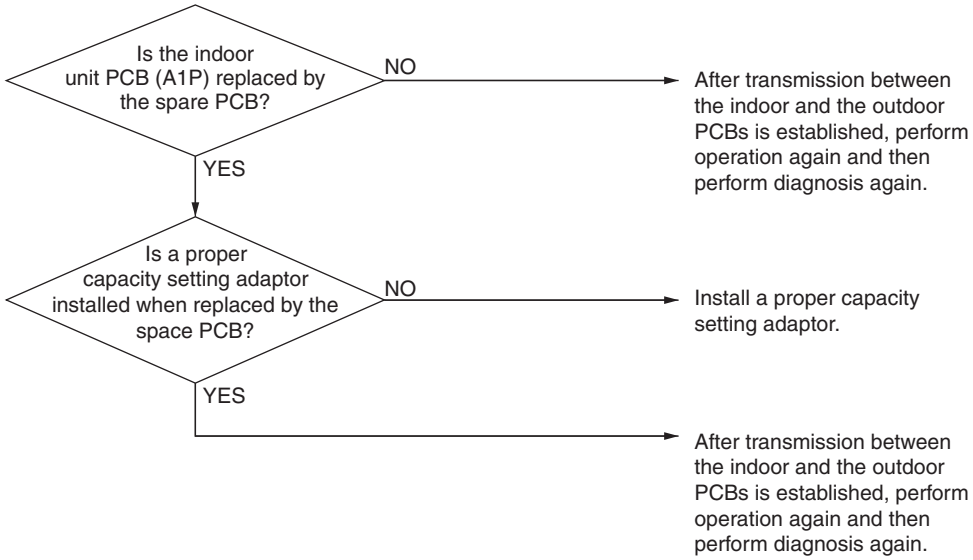
Based on the communication data, decide whether the combination of capacity setting and the type of fan driver is correct.

Supposed Causes

- Defective connection of the capacity setting adaptor
- Wrong field setting

Troubleshooting

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



5.19 Indoor Unit PCB Abnormality

Applicable Models

FXFSQ-AR

Error Code

C6-05

Method of Error Detection

This error is detected by checking the current sensor value.

Error Decision Conditions

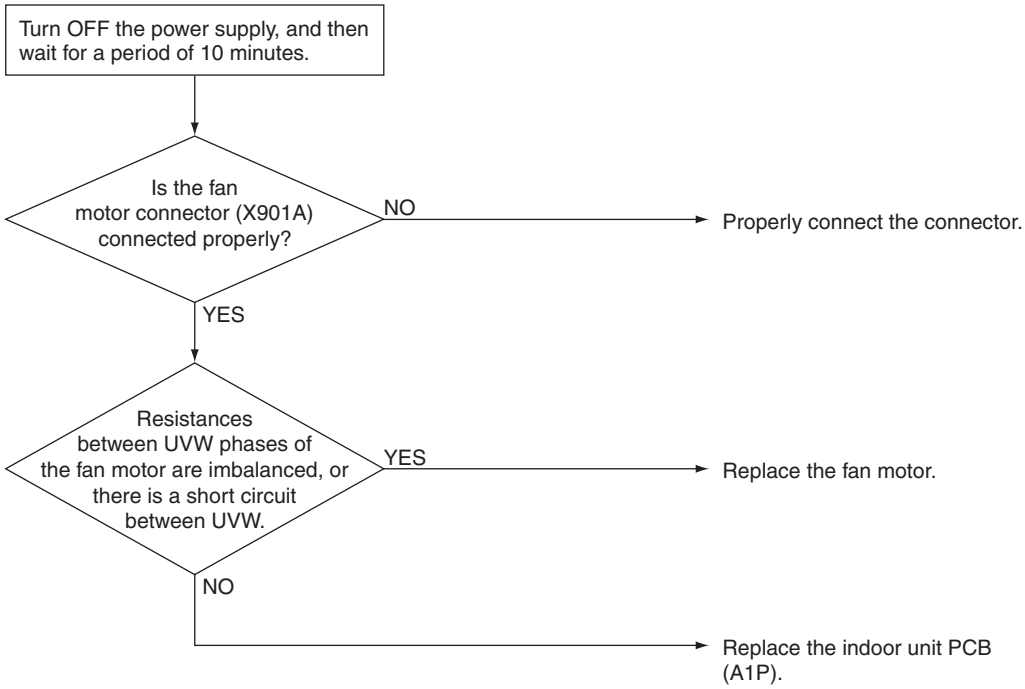
When an abnormal signal is detected at the start of operation of the fan motor.

Supposed Causes

- Disconnection of the connector of the fan motor lead wire
- Defective fan motor (Broken wires or defective insulation)
- Defective PCB (A1P)

Troubleshooting

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



5.20 Infrared Presence/Floor Sensor Error

Applicable Models

FXFSQ-AR

Error Code

CE

Method of Error Detection

The contents of a failure vary with the detailed error code. Check the code and proceed with the flowchart.

Error Decision Conditions

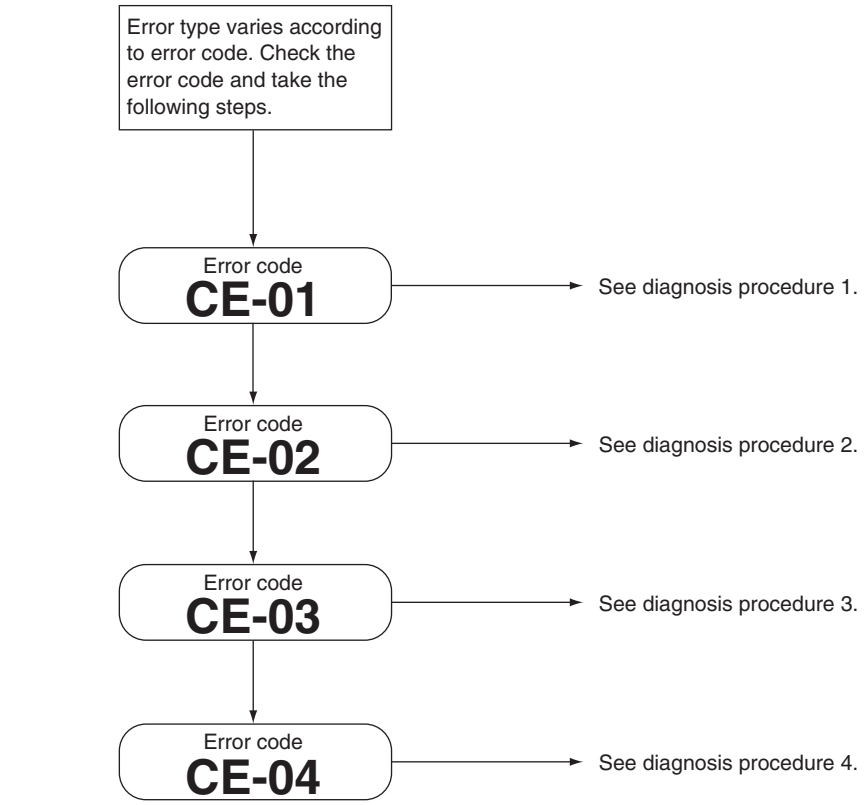
Error is detected based on sensor output signals

Supposed Causes

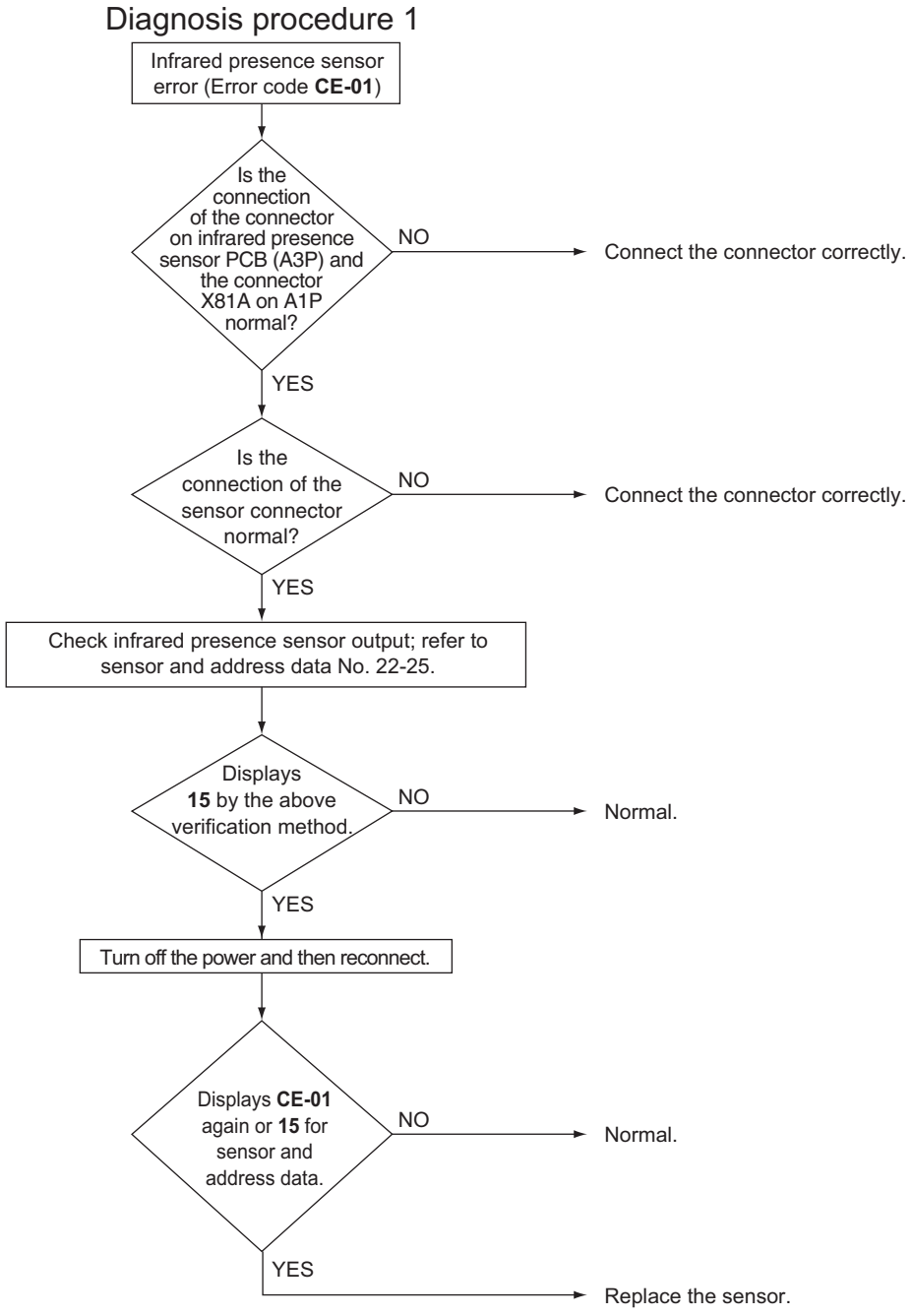
- Defective or disconnected infrared presence sensor connector: **CE-01**
- Defective infrared floor sensor (Temperature compensation circuit disconnection): **CE-02**
- Defective infrared floor sensor (Temperature compensation short circuit): **CE-03**
- Defective infrared floor sensor element: **CE-04**

Troubleshooting

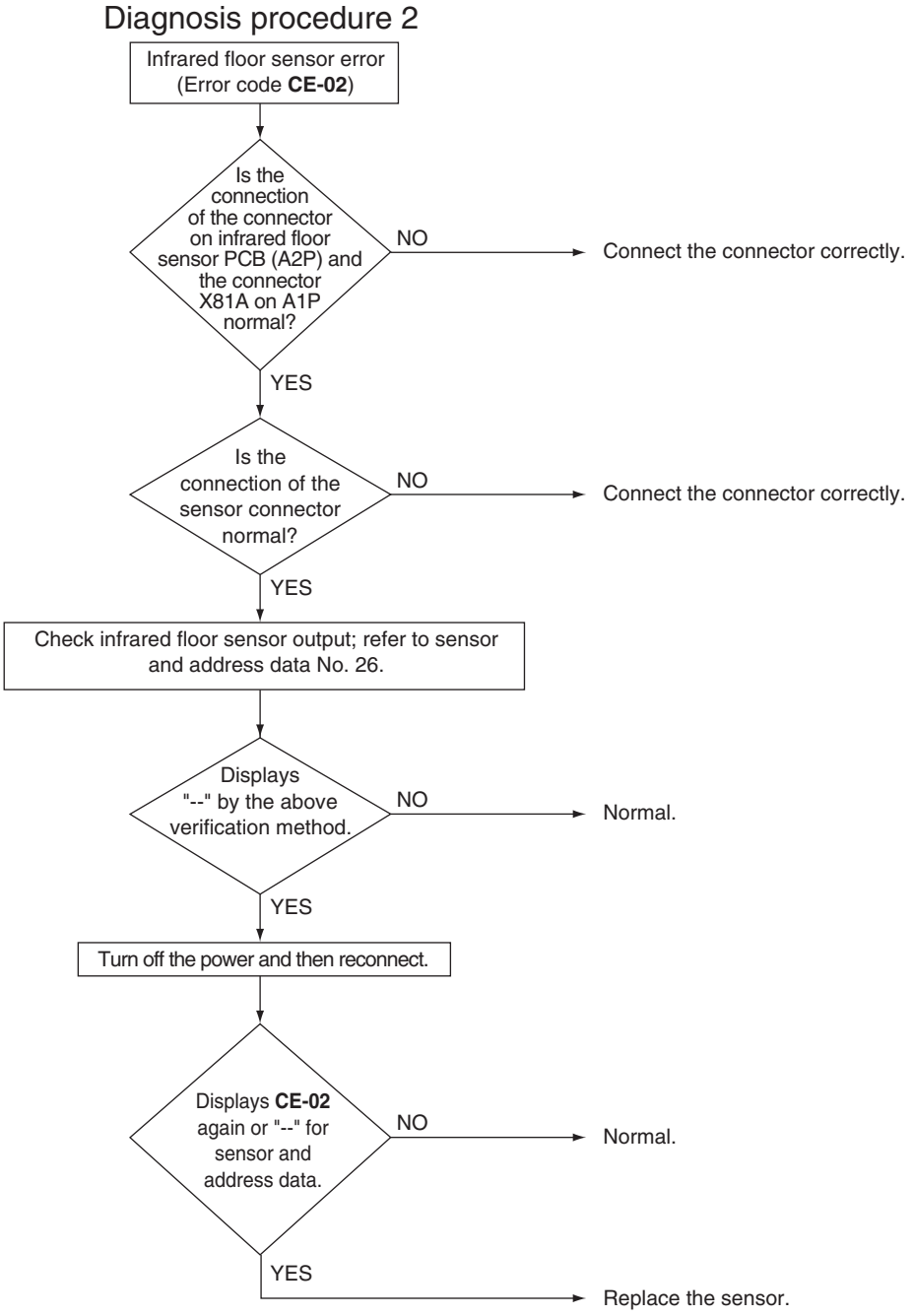
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



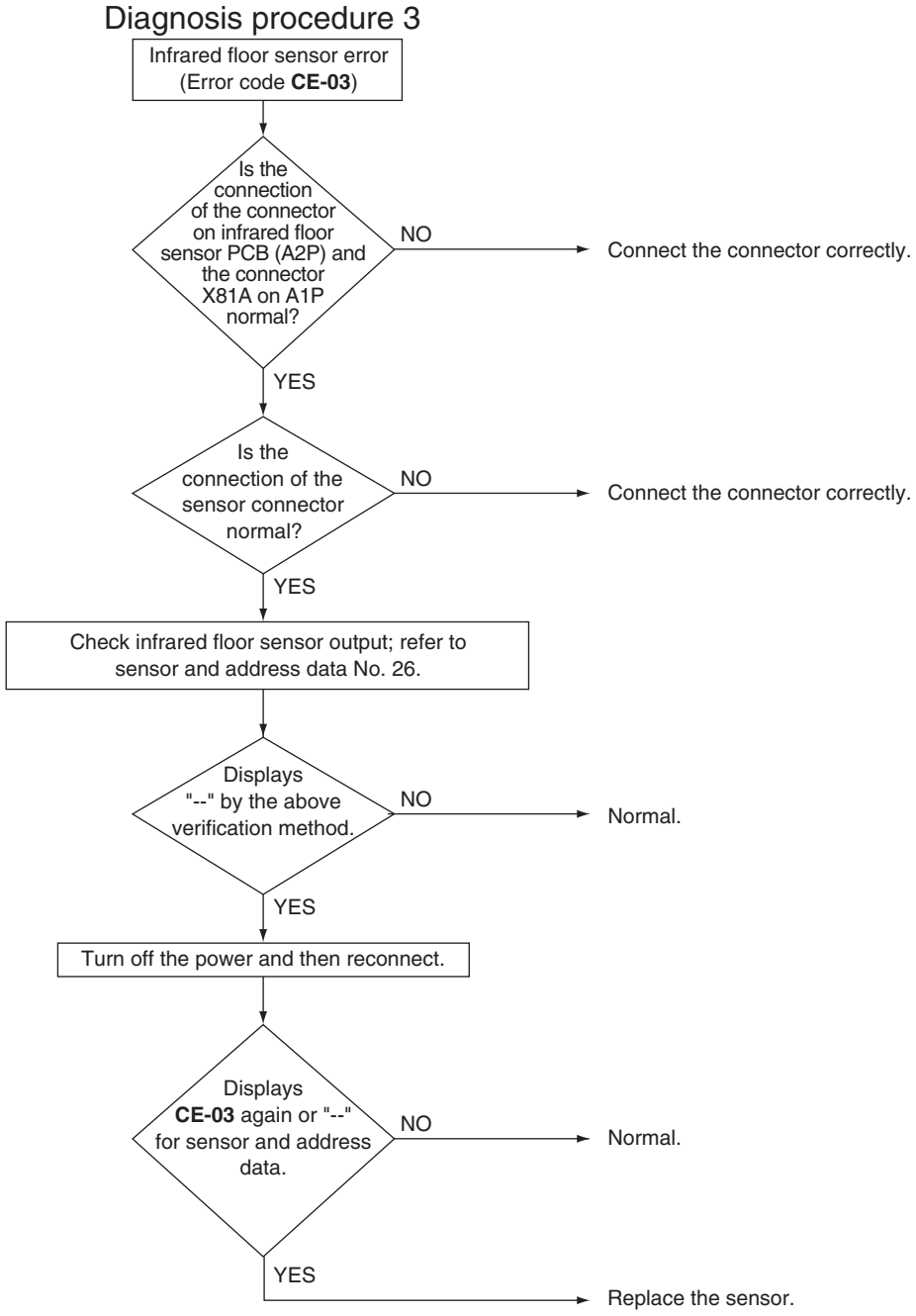
Troubleshooting



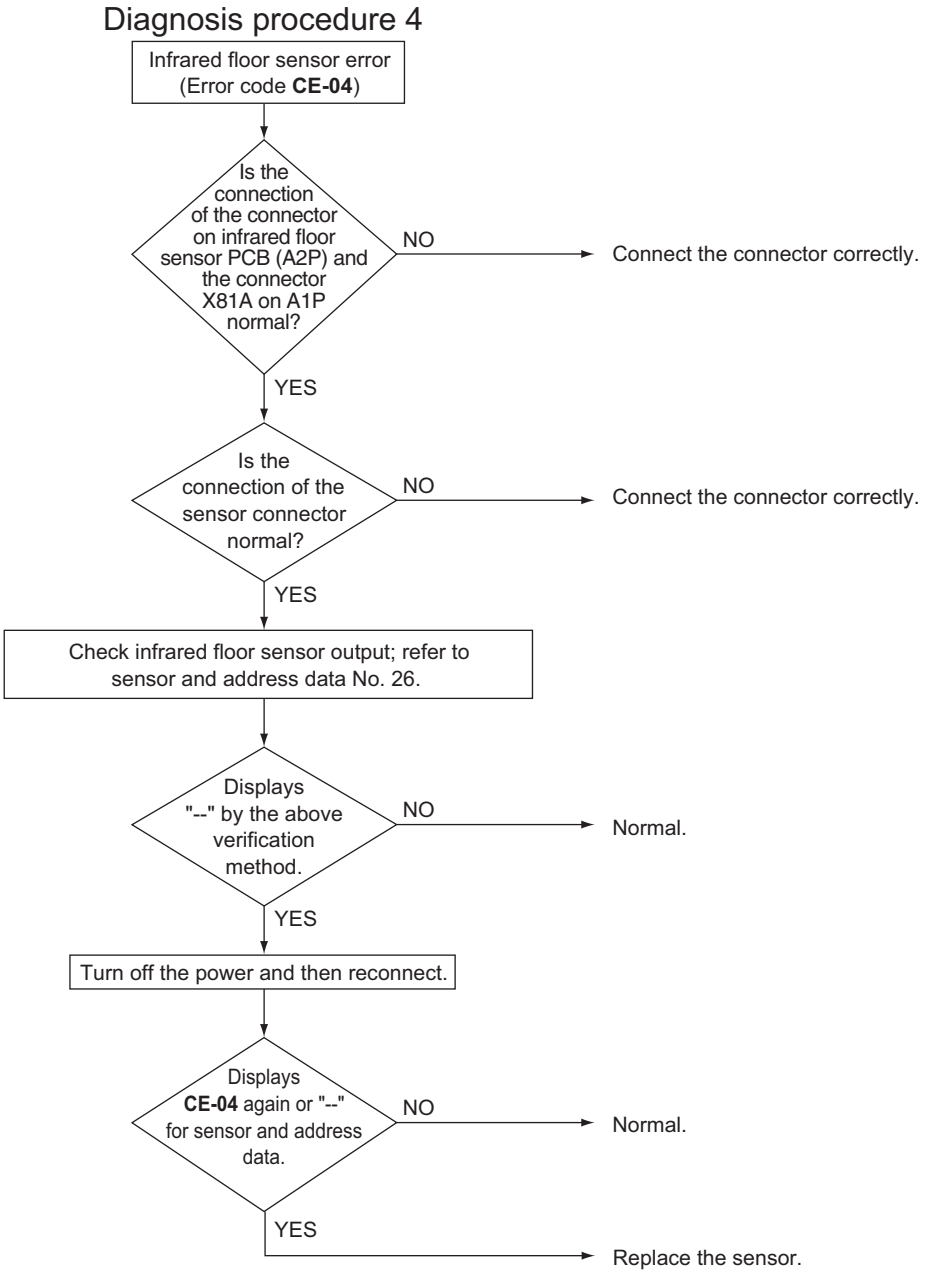
Troubleshooting



Troubleshooting



Troubleshooting



5.21 Remote Controller Thermistor Abnormality

Applicable Models

All indoor unit models

Error Code

CJ

Method of Error Detection

Error detection is carried out by the temperature detected by the remote controller thermistor.

Error Decision Conditions

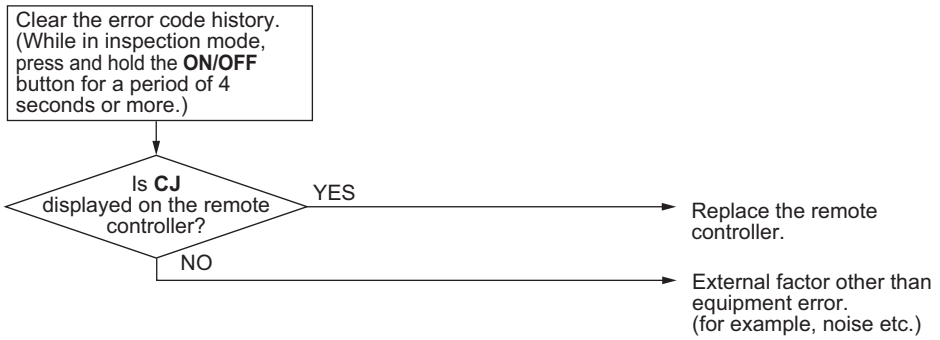
When the remote controller thermistor becomes disconnected or shorted while the unit is running.
∗ Error code is displayed but the system operates continuously.

Supposed Causes

- Defective remote controller thermistor
- Defective remote controller PCB

Troubleshooting

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



Note(s)

∗1: How to delete “history of error codes”.
Press the **ON/OFF** button for 4 seconds and more while the error code is displayed in the inspection mode.

5.22 Outdoor Unit Main PCB Abnormality

Applicable Models

All outdoor unit models

Error Code

E1

Method of Error Detection

Abnormality is detected under the communication conditions in the hardware section between the indoor unit and outdoor unit.

Error Decision Conditions

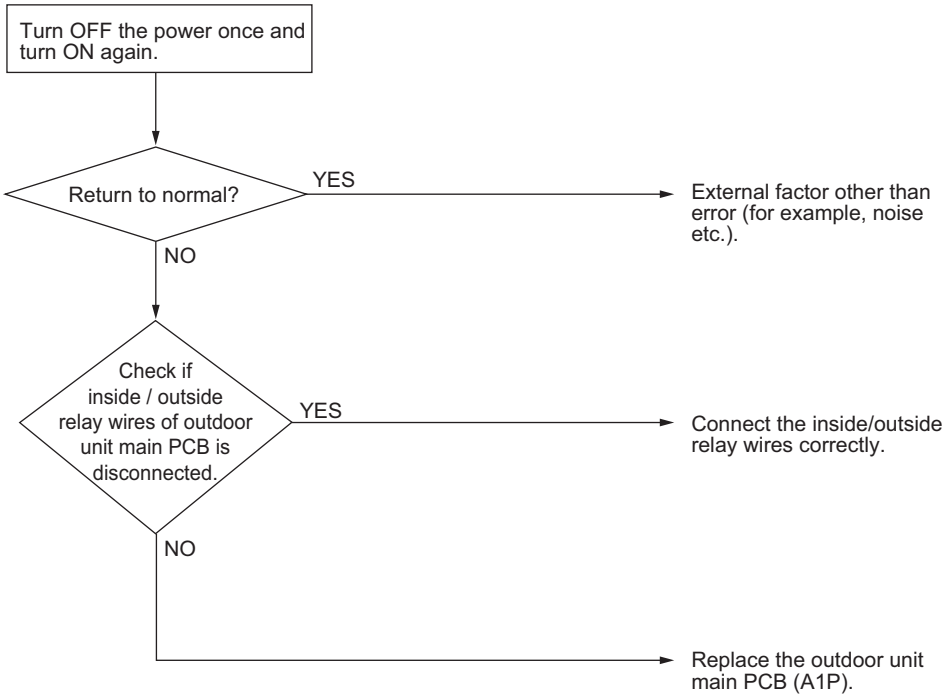
When the communication conditions in the hardware section between the indoor unit and the outdoor unit are not normal.

Supposed Causes

- Defective outdoor unit main PCB
- Disconnection of the inside/outside relay wires

Troubleshooting

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



5.23 Current Leakage Detection

Applicable Models

RXMQ8-12AR

Error Code

E2

Sub code: 01

Method of Error Detection

Current leakage is detected in the earth leakage detection circuit. Error is detected on the outdoor unit main PCB.

Error Decision Conditions

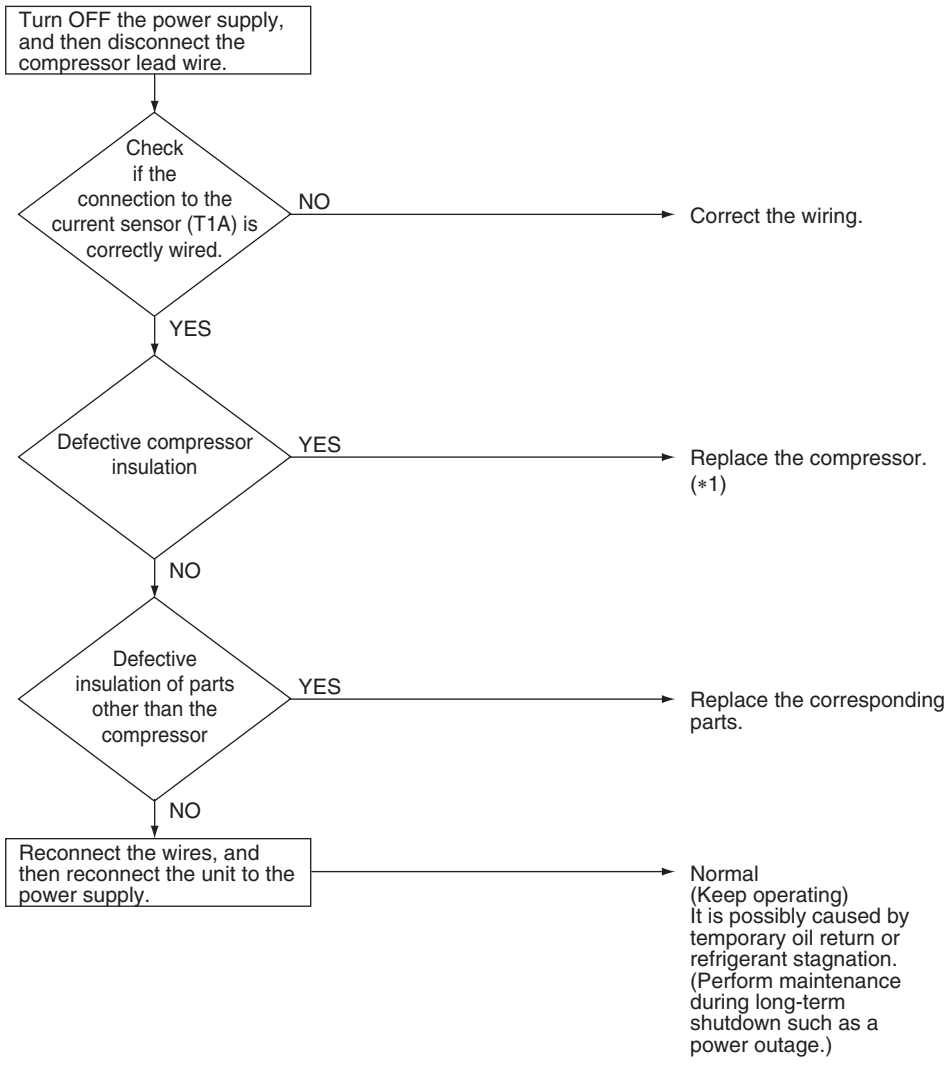
When leakage current is detected.

Supposed Causes

- Earth fault
- Defective wiring with the current sensor
- Temporary liquid back or refrigerant stagnation

Troubleshooting

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



Note(s) ∗1. M1C

5.24 Missing of Leakage Detection Core

Applicable Models

RXMQ8-12AR

Error Code

E2

Sub code: 06

Method of Error Detection

Detect error according to whether or not there is continuity across the connector (X101A).

Error Decision Conditions

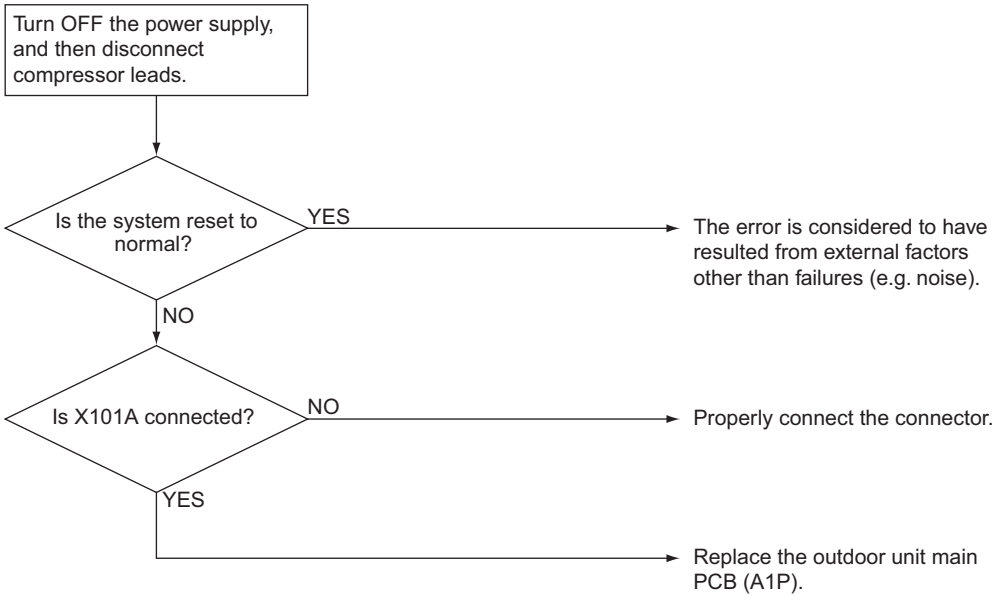
When no current flows at the time of turning ON the power supply.

Supposed Causes

- Disconnection of connector (X101A)
- Wiring disconnection
- Defective outdoor unit main PCB

Troubleshooting

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



5.25 Activation of High Pressure Switch

Applicable Models

All outdoor unit models

Error Code

E3

Method of Error Detection

Detect continuity across the high pressure switch in the protection device circuit.

Error Decision Conditions

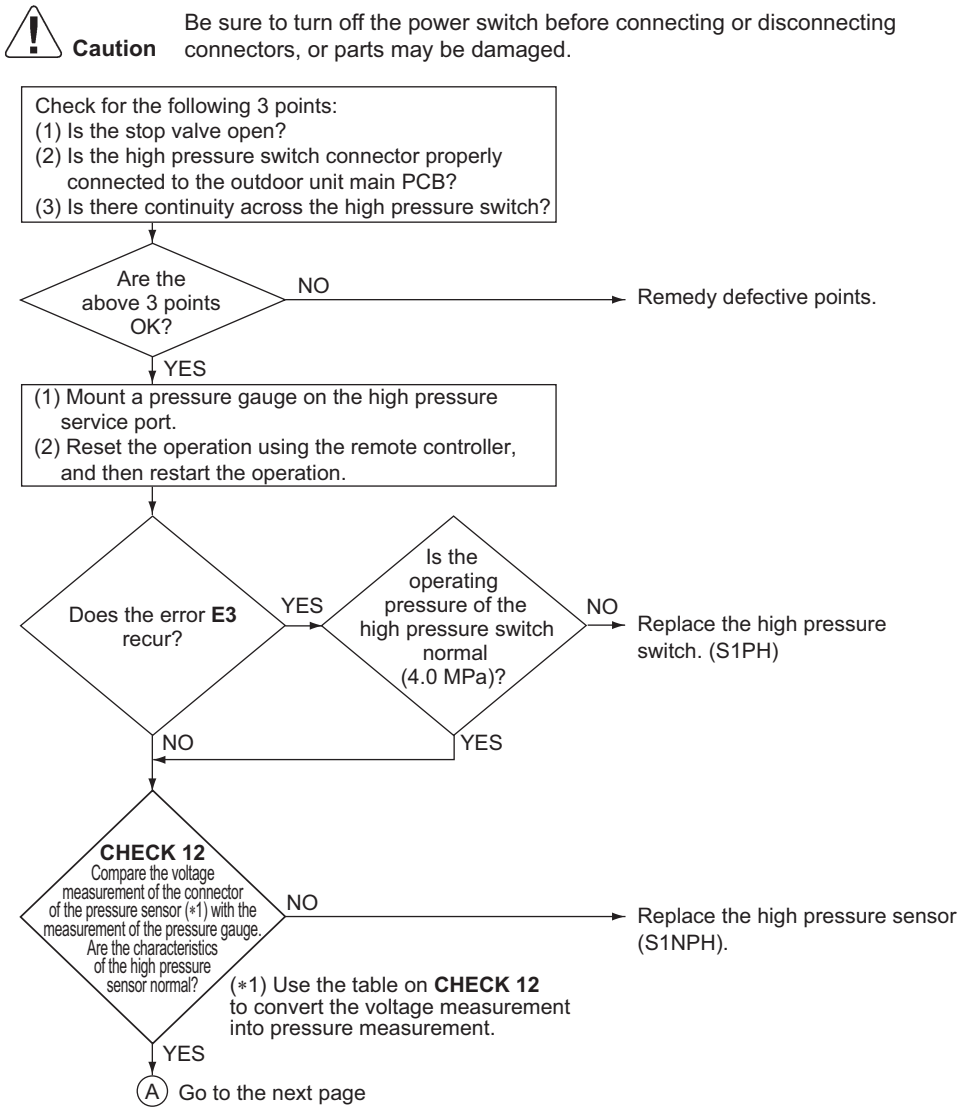
When part of the protection device circuit opens.
(Reference) Operating pressure of the high pressure switch:

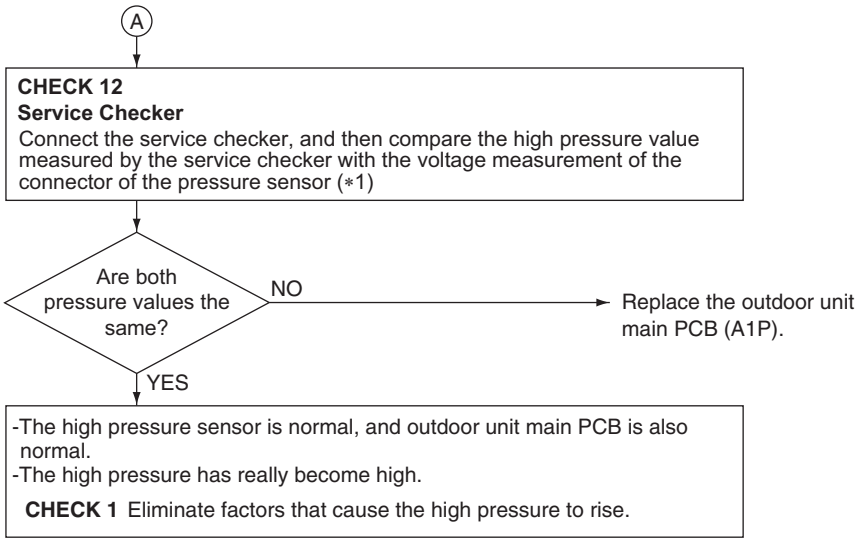
- Operating pressure: 4.0 MPa
- Resetting pressure: 3.0 MPa

Supposed Causes

- Activation of high pressure switch
- Defective high pressure switch
- Defective outdoor unit main PCB
- Momentary power failure
- Defective high pressure sensor

Troubleshooting





Reference **CHECK 1** Refer to page 337.

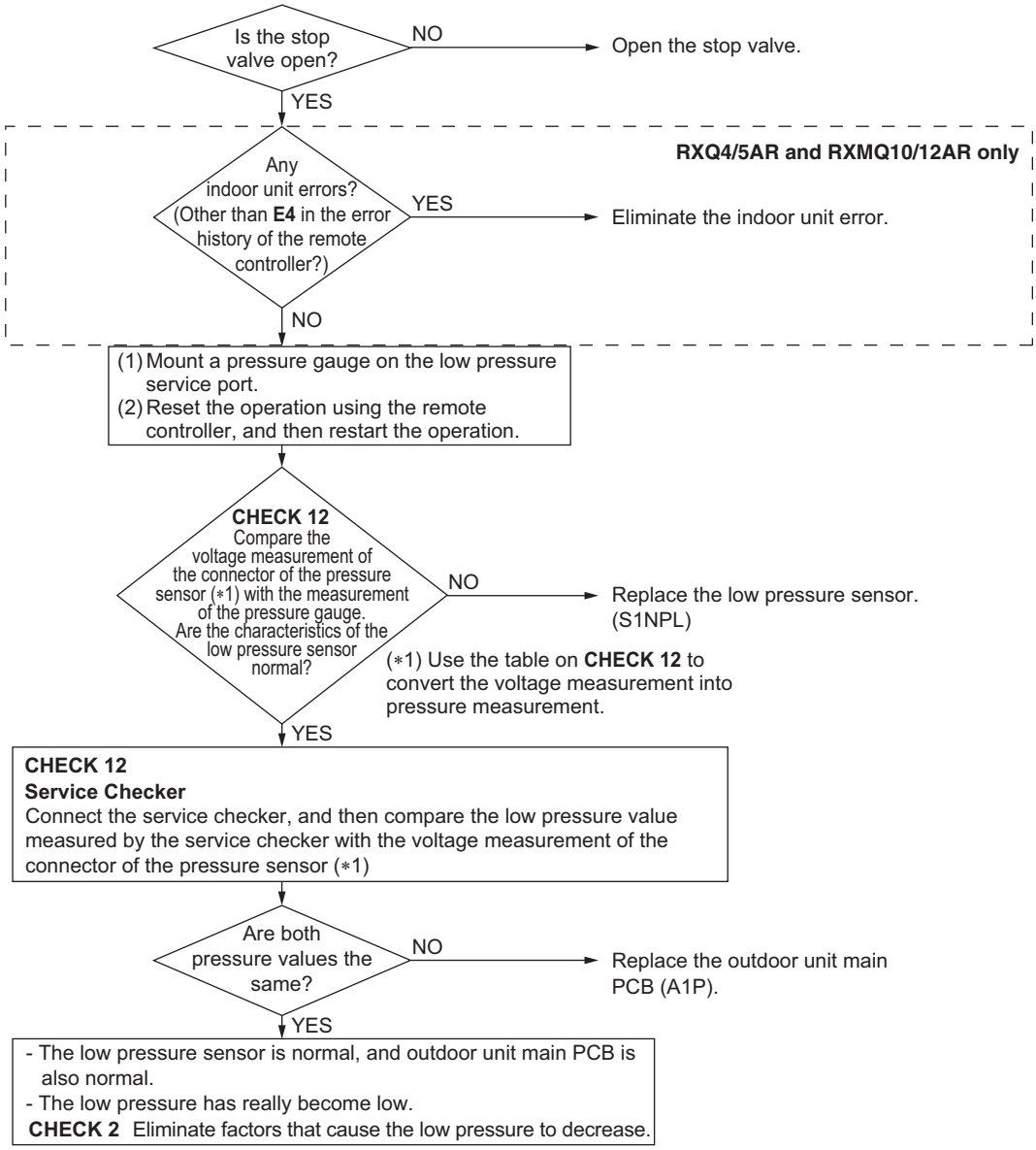
Reference **CHECK 12** Refer to page 353.

5.26 Activation of Low Pressure Sensor

Applicable Models	All outdoor unit models
Error Code	**E4**
Method of Error Detection	Make judgment of pressure detected by the low pressure sensor with the outdoor unit main PCB.
Error Decision Conditions	When low pressure caused a drop while the compressor is in operation: ■ Operating pressure: 0.07 MPa
Supposed Causes	■ Abnormally drop in low pressure ■ Defective low pressure sensor ■ Defective outdoor unit main PCB ■ The stop valve is not opened

Troubleshooting

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



Reference **CHECK 2** Refer to page 338.

Reference **CHECK 12** Refer to page 353.

5.27 Compressor Motor Lock

Applicable Models

All outdoor unit models

Error Code

E5

Method of Error Detection

Outdoor unit PCB takes the position signal from UVW line connected between the inverter and compressor, and the error is detected when any abnormality is observed in the phase-current waveform.

Error Decision Conditions

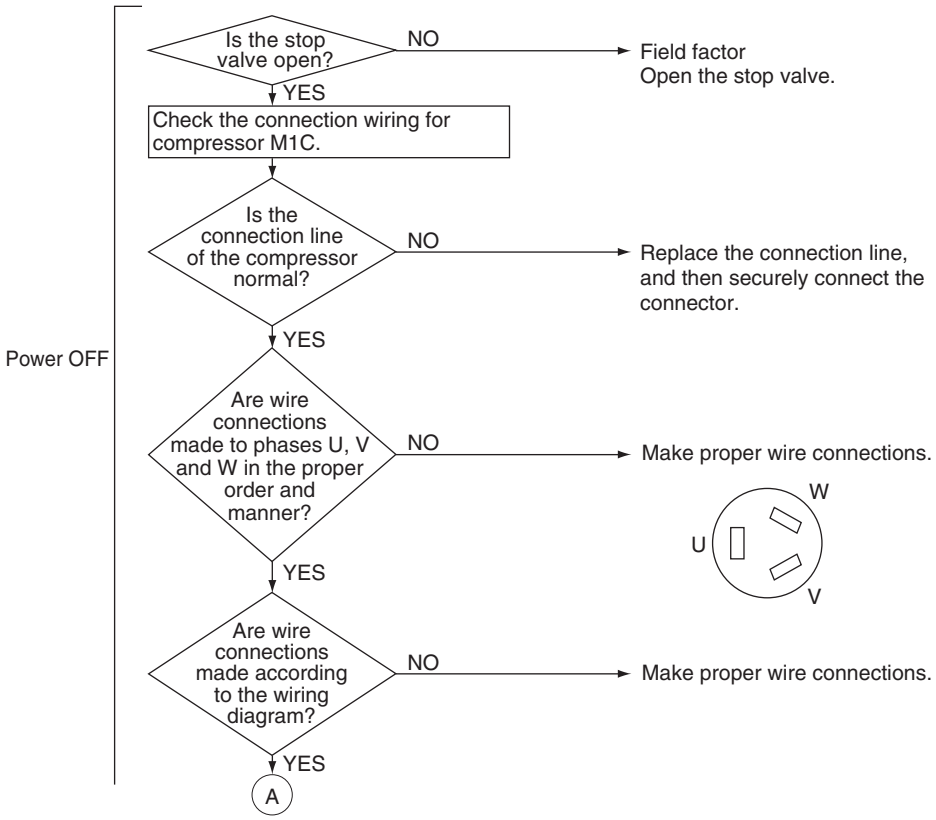
When the compressor motor does not operate even by starting it in forced startup mode.

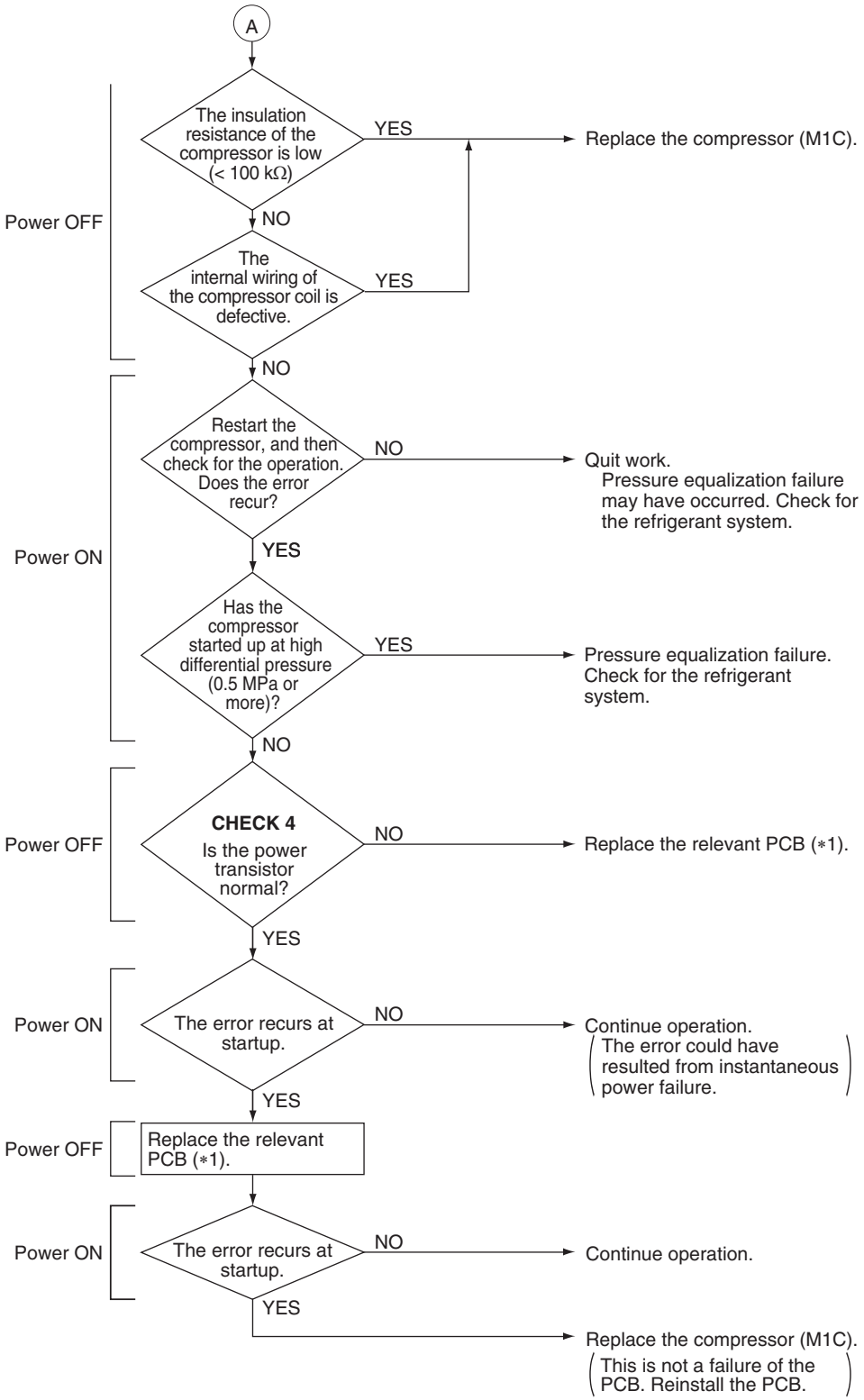
Supposed Causes

- Compressor lock
- High differential pressure (0.5 MPa or more)
- UVW connection error
- Defective inverter circuit
- The stop valve is not opened.

Troubleshooting

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





Note(s) ∗1. RXQ4/5AR, RXMQ6AR: outdoor unit main PCB (A1P)
RXMQ8-12AR: inverter PCB (A3P)

Reference **CHECK 4** Refer to page 340.

5.28 Compressor Damage Alarm

Applicable Models

RXMQ10/12AR

Error Code

E6

Method of Error Detection

Error is determined based on the detected compressor revolutions, pressure values of the high/low pressure sensors, and theoretical compressor current value. This theoretical current value is compared to the actual value detected by the power transistor.

Error Decision Conditions

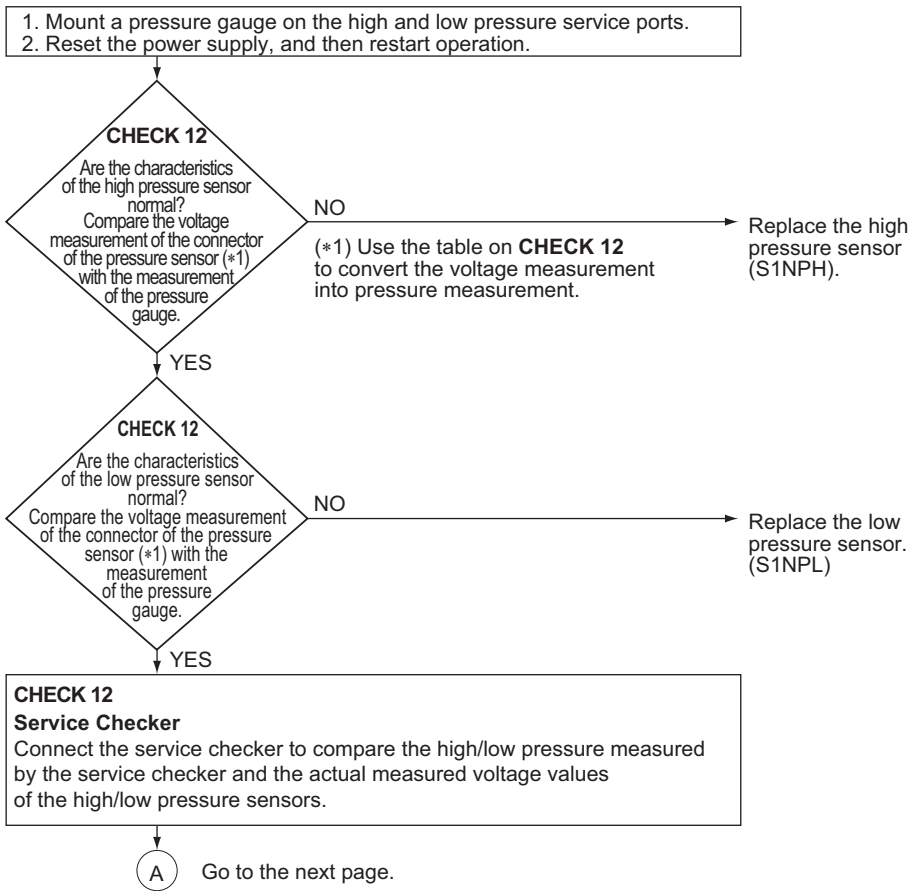
The actual current value of the compressor is abnormally high (130% the theoretical current value or higher) for a continuous period of 30 minutes.

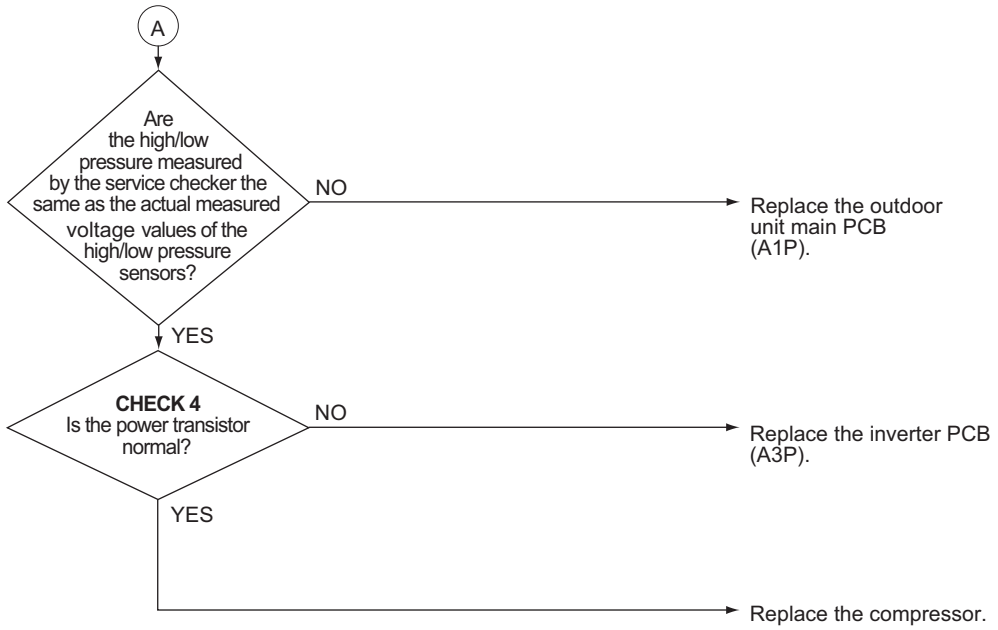
Supposed Causes

- Defective compressor
- Defective high pressure sensor
- Defective low pressure sensor
- Defective outdoor unit main PCB
- Defective inverter PCB

Troubleshooting

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





After replacing the compressor, perform troubleshooting on the compressor based on **CHECK 3** and **CHECK 5**.

Reference **CHECK 3** Refer to page 339.

Reference **CHECK 4** Refer to page 340.

Reference **CHECK 5** Refer to page 344.

Reference **CHECK 12** Refer to page 353.

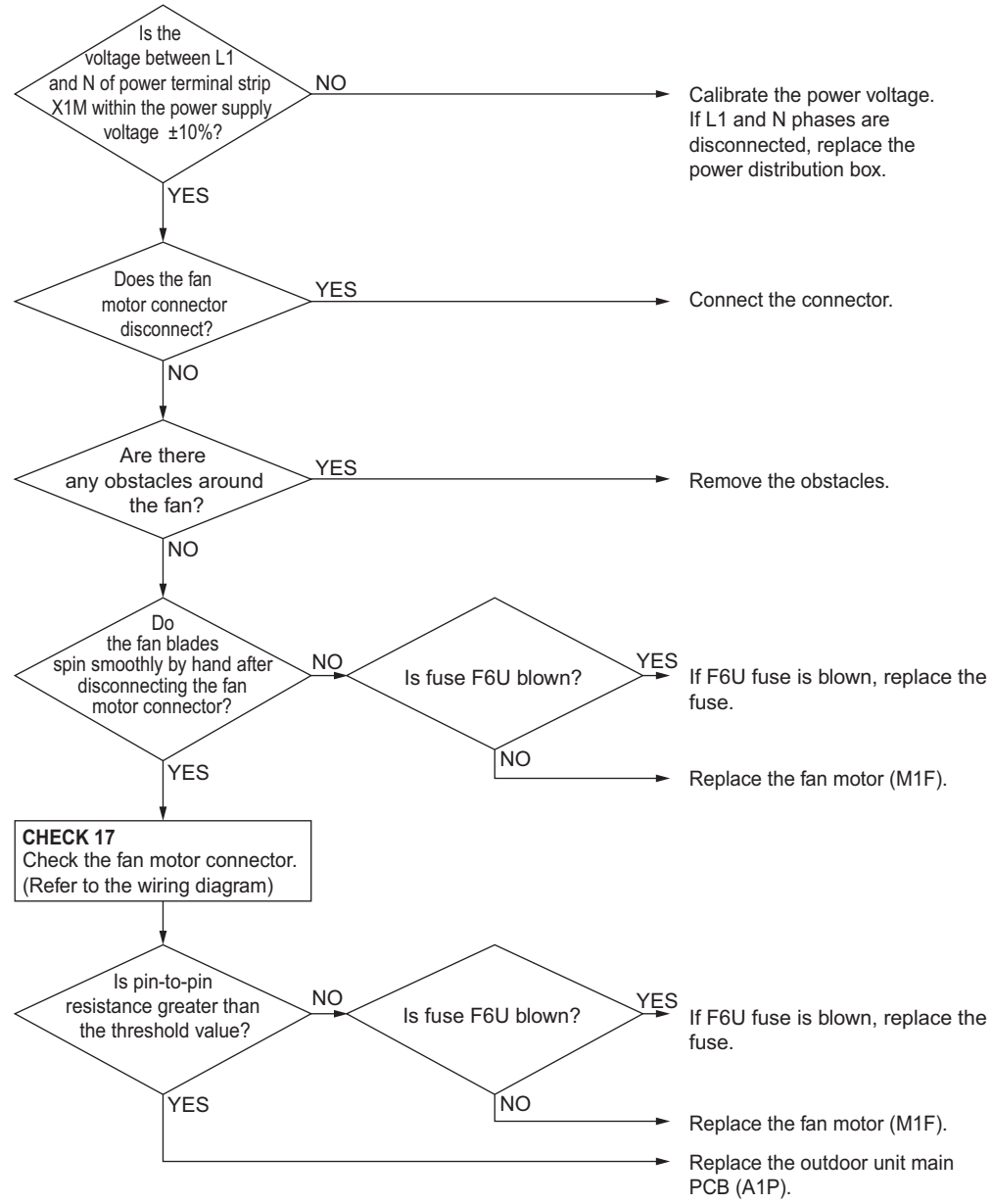
5.29 Outdoor Fan Motor Abnormality

5.29.1 Outdoor Fan Motor Abnormality (4/5 HP Models)

Applicable Models	RXQ4/5AR
Error Code	**E7**
Method of Error Detection	The fan motor circuit error is detected based on the rotation frequency detected by Hall IC during the fan motor operation.
Error Decision Conditions	In the condition of fan motor rotation, the number of rotation is below the fixed number for more than 6 seconds. (System down is caused by 4 times of detection.)
Supposed Causes	■ Defective fan motor ■ Defect or connection error of the connectors/harness between the fan motor and PCB ■ The fan cannot rotate due to obstruction of foreign matter. ■ Clear condition: Continue normal operation for 5 minutes ■ Missing phase L1 and missing phase N

Troubleshooting

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

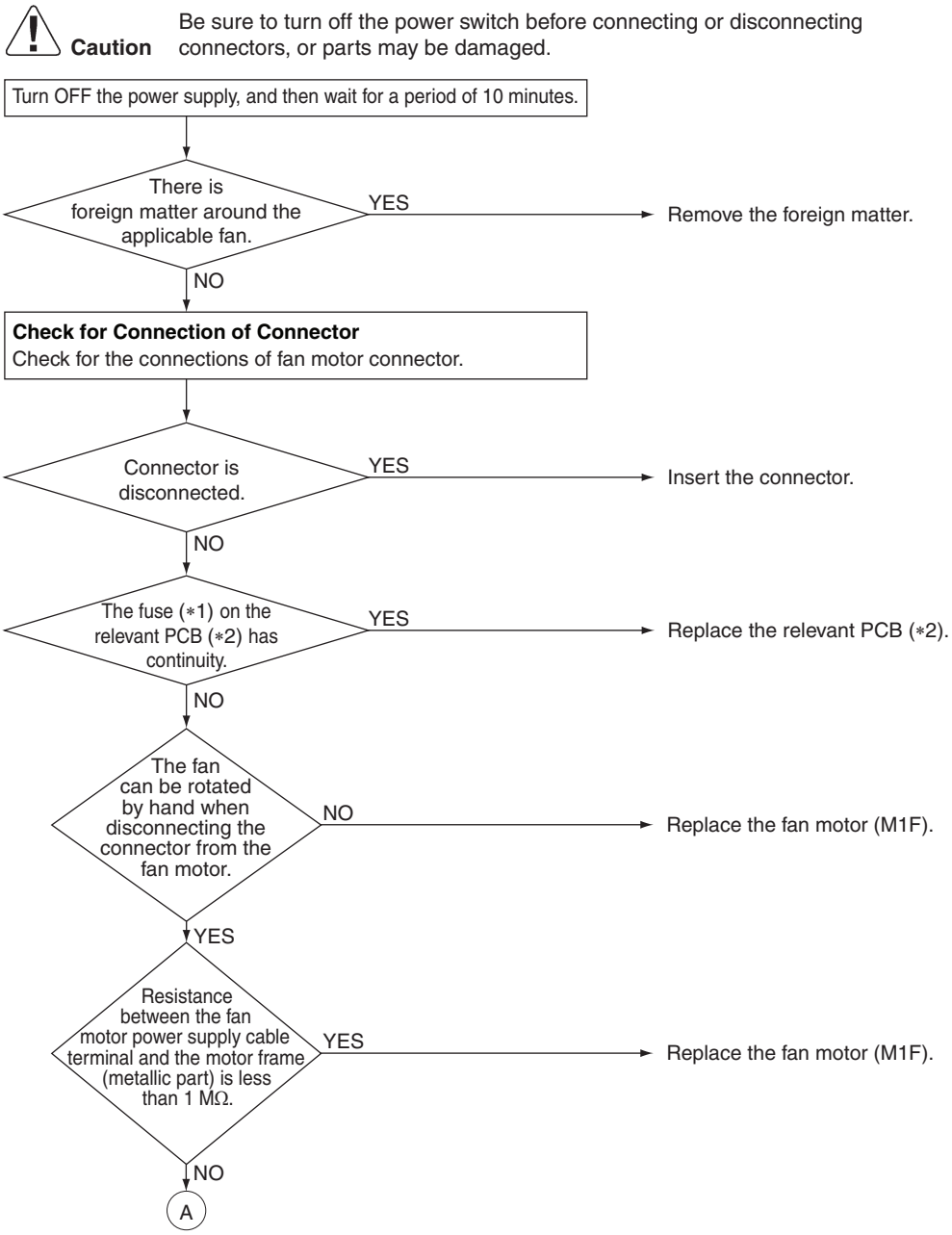


Reference **CHECK 17** Refer to page 357.

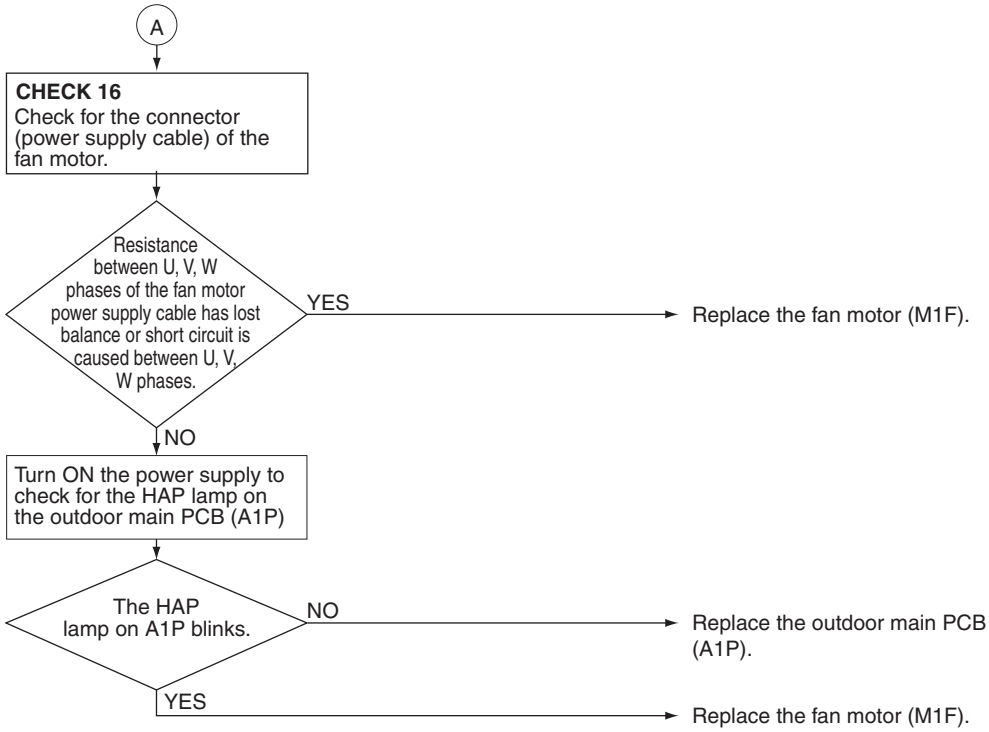
5.29.2 Outdoor Fan Motor Abnormality (6/8 HP Models)

Applicable Models	RXMQ6/8AR
Error Code	**E7**
Method of Error Detection	■ Detect according to the value of current flowing through the PCB. ■ Detect error of the fan motor system according to the fan revolutions detected by the Hall IC during the fan motor runs.
Error Decision Conditions	■ When overcurrent is detected (Detecting overcurrent 4 times will shut down the system). ■ When the fan revolutions fall below a given level for a period of 6 seconds while in fan motor rotation mode (Detecting shortage of revolutions will shut down the system).
Supposed Causes	■ Fan motor failure ■ Disconnection of harness/connector between the fan motor and the PCB ■ Fan does not rotate due to foreign matter caught in it ■ Clearing condition: fan motor performs normal operation for a period of 5 minutes

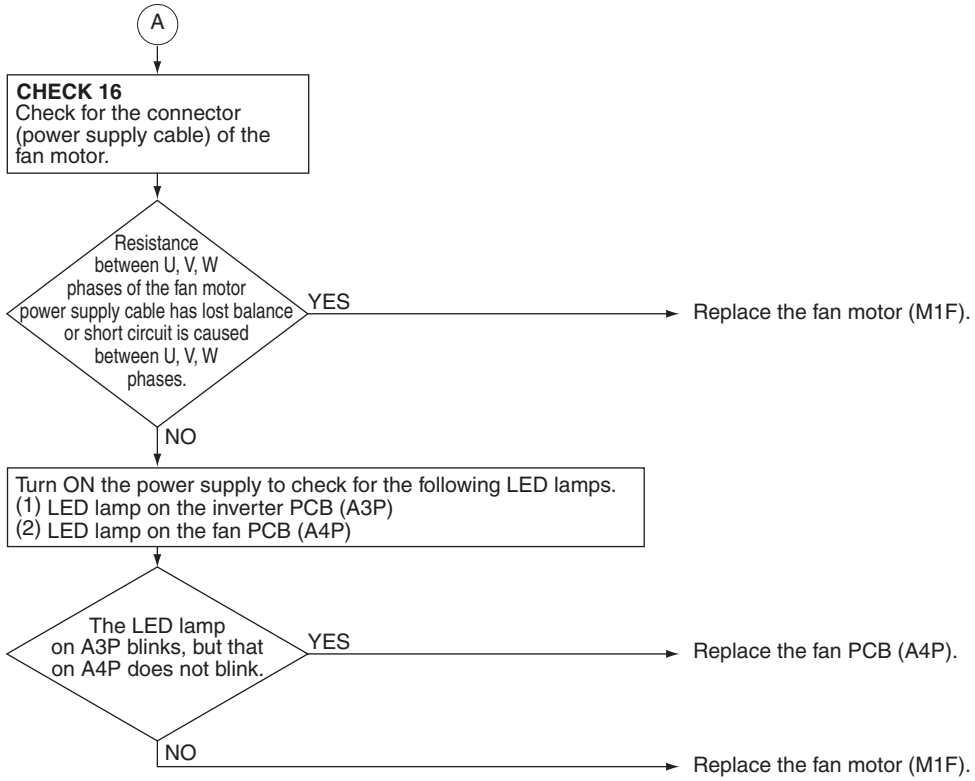
Troubleshooting



RXMQ6AR



RXMQ8AR



Note(s)

∗1. RXMQ6AR: F6U
RXMQ8AR: F101U
∗2. RXMQ6AR: outdoor unit main PCB (A1P)
RXMQ8AR: fan PCB (A4P)

Reference **CHECK 16** Refer to page 356.

5.29.3 Outdoor Fan Motor Abnormality (10/12 HP Models)

Applicable Models

RXMQ10/12AR

Error Code

E7

Method of Error Detection

- Abnormality is detected according to the value of current flowing through the inverter PCB (or fan PCB for fan motor 2).
- Abnormality is detected in the fan motor system according to the fan revolutions detected by the Hall IC while the fan motor is running.

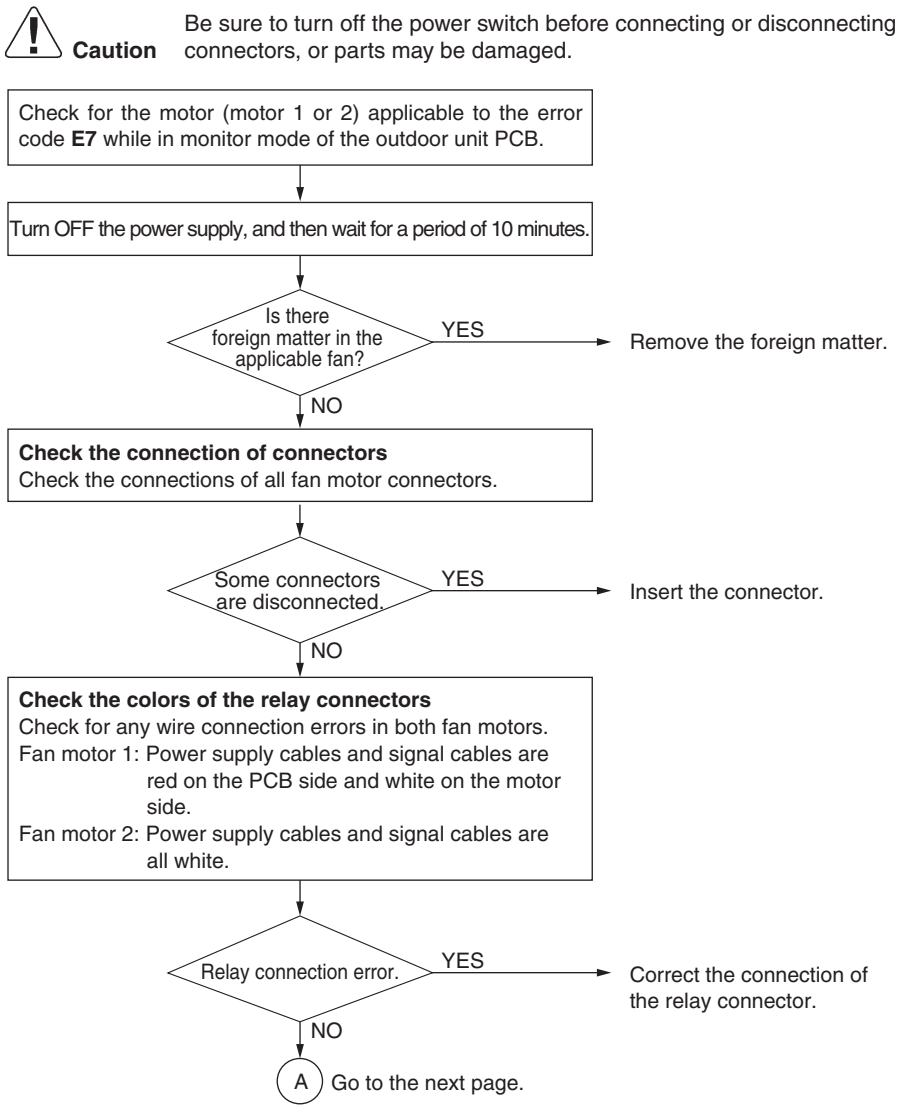
Error Decision Conditions

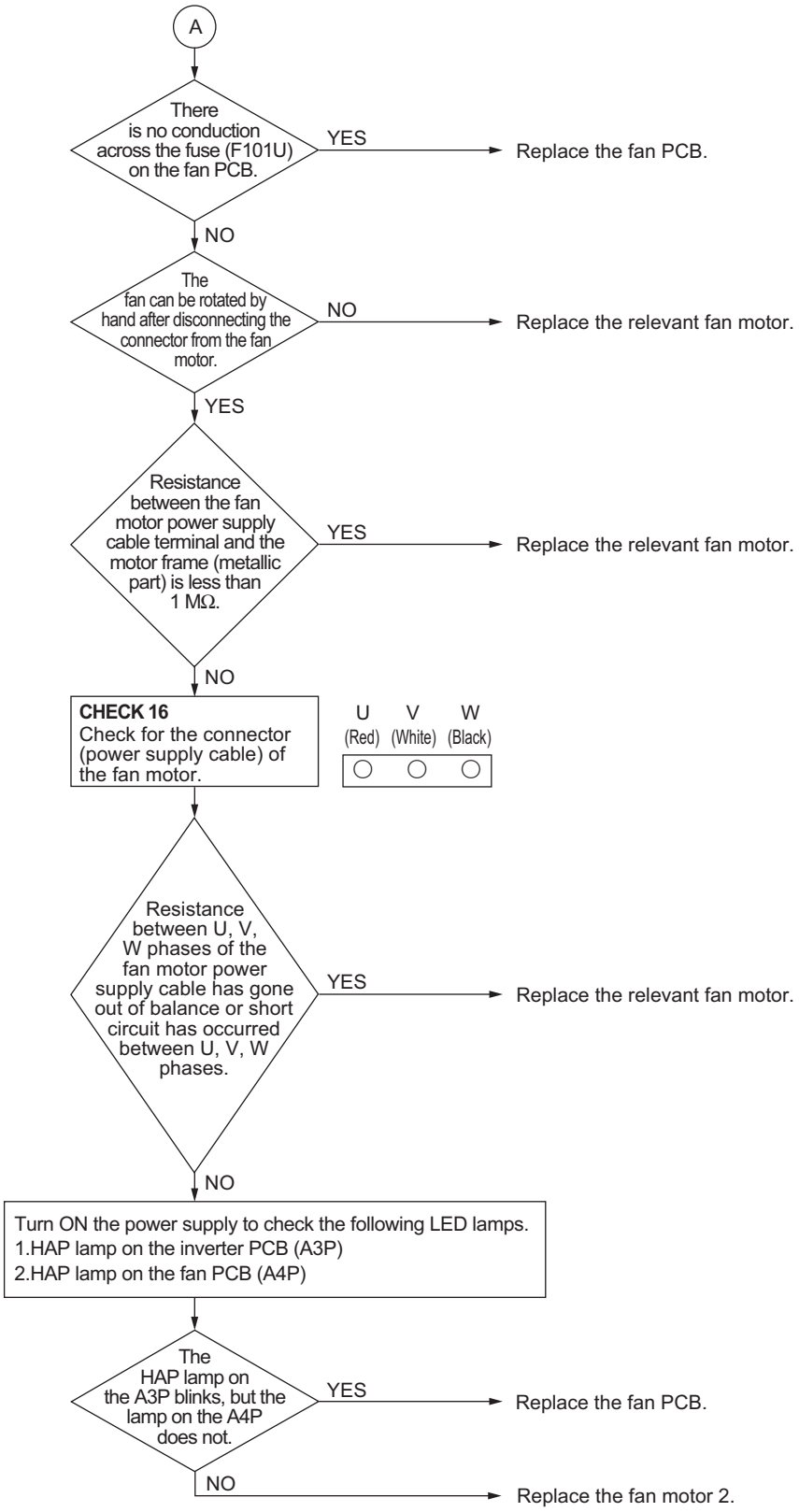
- Overcurrent is detected from the fan PCB (A4P, A5P) (system will shut down if detected 4 times).
- Fan revolutions fall below a given level for a period of 6 seconds while in fan motor rotation mode (system will shut down if detected 4 times).

Supposed Causes

- Defective fan motor
- Failure to connect or defective connection of harness/connector between the fan motor and the PCB
- Fan does not rotate due to foreign matter caught in it
- Clearing condition: Fan motor performs normal operation for a period of 5 minutes

Troubleshooting





Reference **CHECK 16** Refer to page 356.

5.30 Electronic Expansion Valve Coil Abnormality

Applicable Models

RXMQ6-12AR

Error Code

E9

Method of Error Detection

Detect according to whether or not there is continuity across the electronic expansion valve coils (Y1E, Y2E, Y4E).

Error Decision Conditions

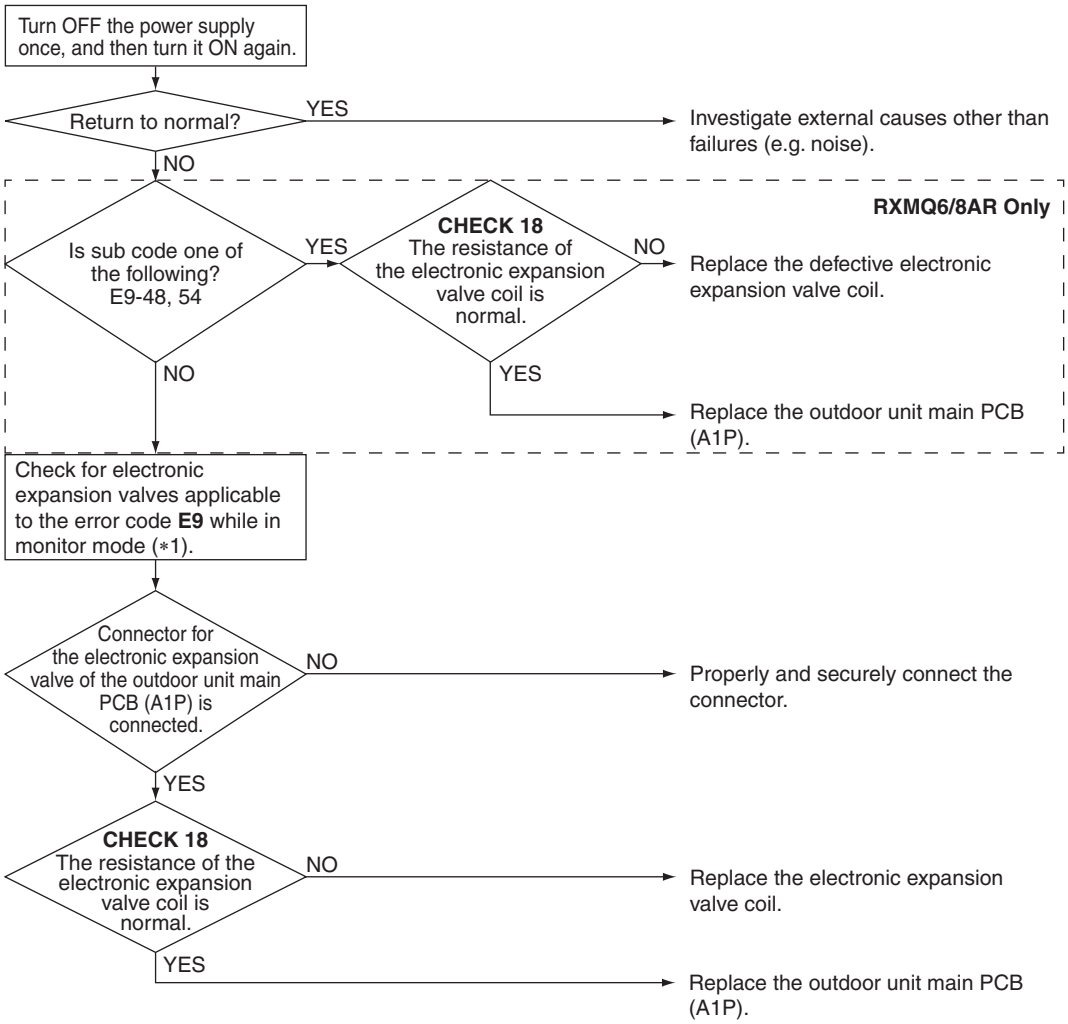
When no current flows through common (COM+) at the time of turning ON the power supply.

Supposed Causes

- Disconnection of connectors from electronic expansion valves (Y1E, Y2E, Y4E)
- Defective electronic expansion valve coil
- Defective outdoor unit main PCB

Troubleshooting

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



Note(s)

*1. RXMQ6/8AR: E9-03 (Y2E), E9-26 (Y4E)
RXMQ10/12AR: E9-01 (Y1E), E9-04 (Y2E)

Reference

CHECK 18 Refer to page 358.

5.31 Discharge Pipe Temperature Abnormality

5.31.1 Discharge Pipe Temperature Abnormality (4/5 HP Models)

Applicable Models

RXQ4/5AR

Error Code

F3

Method of Error Detection

Abnormality is detected according to the temperature detected by the discharge pipe thermistor.

Error Decision Conditions

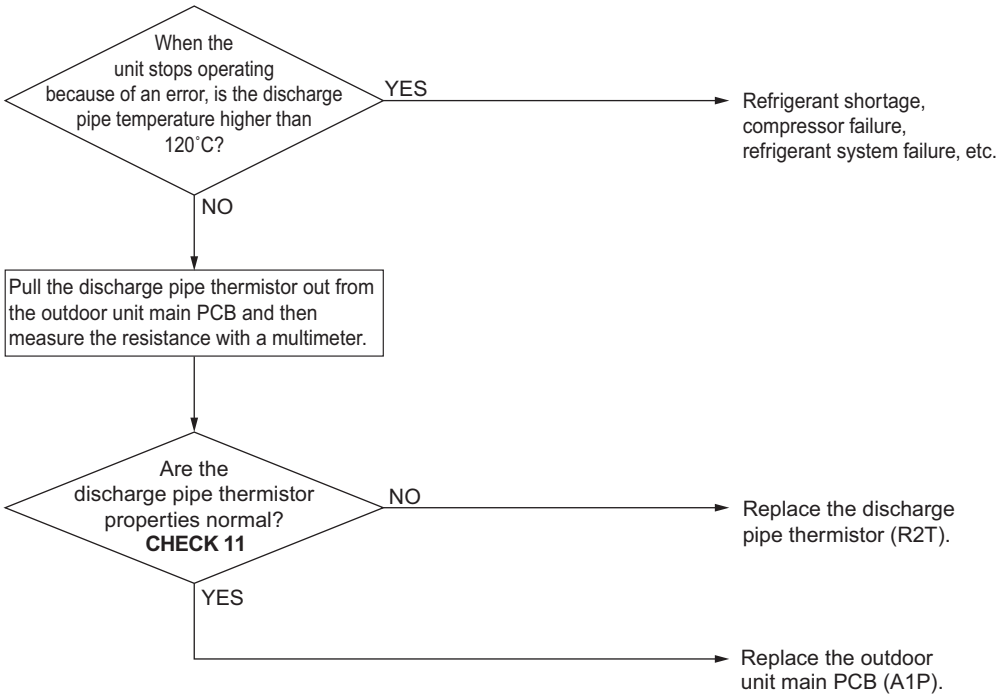
The discharge pipe temperature rises to an abnormally high level.
The discharge pipe temperature rises suddenly.

Supposed Causes

- Defective discharge pipe thermistor (R2T)
- Disconnection of discharge pipe thermistor (R2T)
- Defective outdoor unit main PCB

Troubleshooting

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



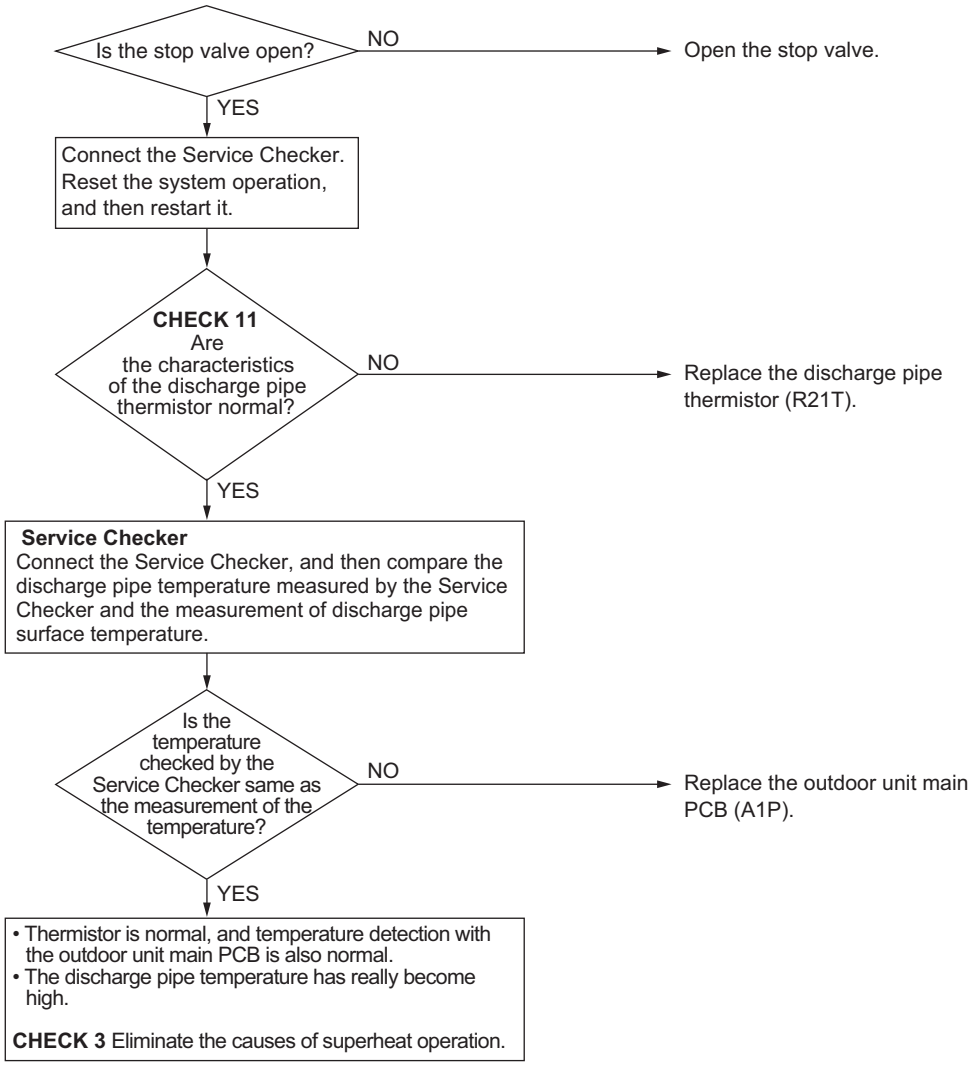
Reference **CHECK 11** Refer to page 350.

5.31.2 Discharge Pipe Temperature Abnormality (6/8 HP Models)

Applicable Models	RXMQ6/8AR
Error Code	**F3**
Method of Error Detection	Detect according to temperature detected with the discharge pipe or compressor body thermistor.
Error Decision Conditions	■ When discharge pipe temperature becomes abnormally high (i.e., 135°C or more) ■ When discharge pipe temperature sharply rises (remains at 120°C or more for a period of consecutive 10 minutes)
Supposed Causes	■ Abnormal discharge pipe temperature ■ Defective discharge pipe thermistor ■ Defective outdoor unit main PCB ■ Closed stop valve

Troubleshooting

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



Reference **CHECK 3** Refer to page 339.

Reference **CHECK 11** Refer to page 350.

5.31.3 Discharge Pipe Temperature Abnormality (10/12 HP Models)

Applicable Models

RXMQ10/12AR

Error Code

F3

Method of Error Detection

Abnormality is detected according to the temperature detected with the discharge pipe or compressor body thermistor.

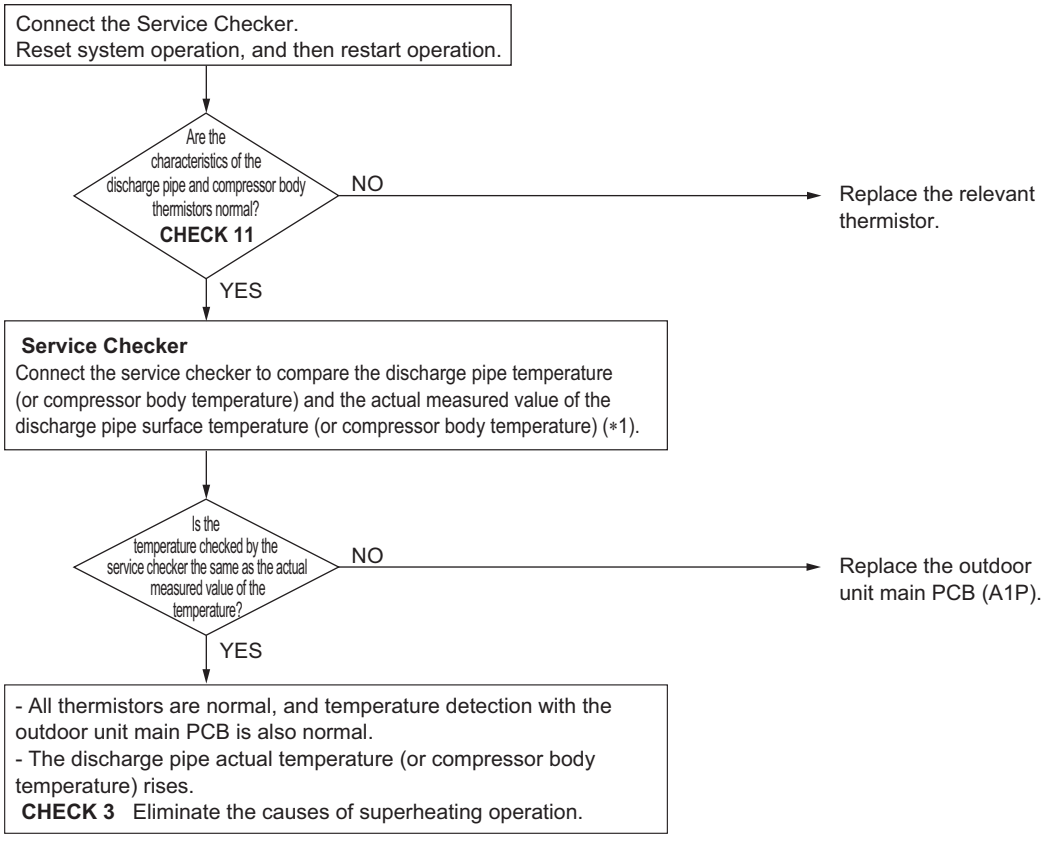
Error Decision Conditions

When discharge pipe temperature becomes abnormally high (135°C or more)
When discharge pipe temperature rises sharply (remains at 120°C or more for a continuous period of 10 minutes)
When compressor body temperature becomes abnormally high (120°C or more)
When compressor body temperature rises sharply (remains at 110°C or more for a continuous period of 10 minutes)

Supposed Causes

- Abnormal discharge pipe temperature
- Defective discharge pipe thermistor
- Abnormal compressor body temperature
- Defective compressor body thermistor
- Defective outdoor unit main PCB

Troubleshooting



∗1: Use a surface thermistor to measure the actual temperature.
Refer to **CHECK 11** for temperature and resistance properties of the thermistor.

Reference **CHECK 3** Refer to page 339.

Reference **CHECK 11** Refer to page 350.

5.32 Wet Alarm

Applicable Models

All outdoor unit models

Error Code

F4

Method of Error Detection

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

Error Decision Conditions

- When the outdoor unit is in wet state for consecutive **A** minutes, an alarm will be issued, and if the wet state continues for consecutive **B** minutes, an error is confirmed.
- When some of the indoor units are in wet state for consecutive **C** minutes, an alarm will be issued.

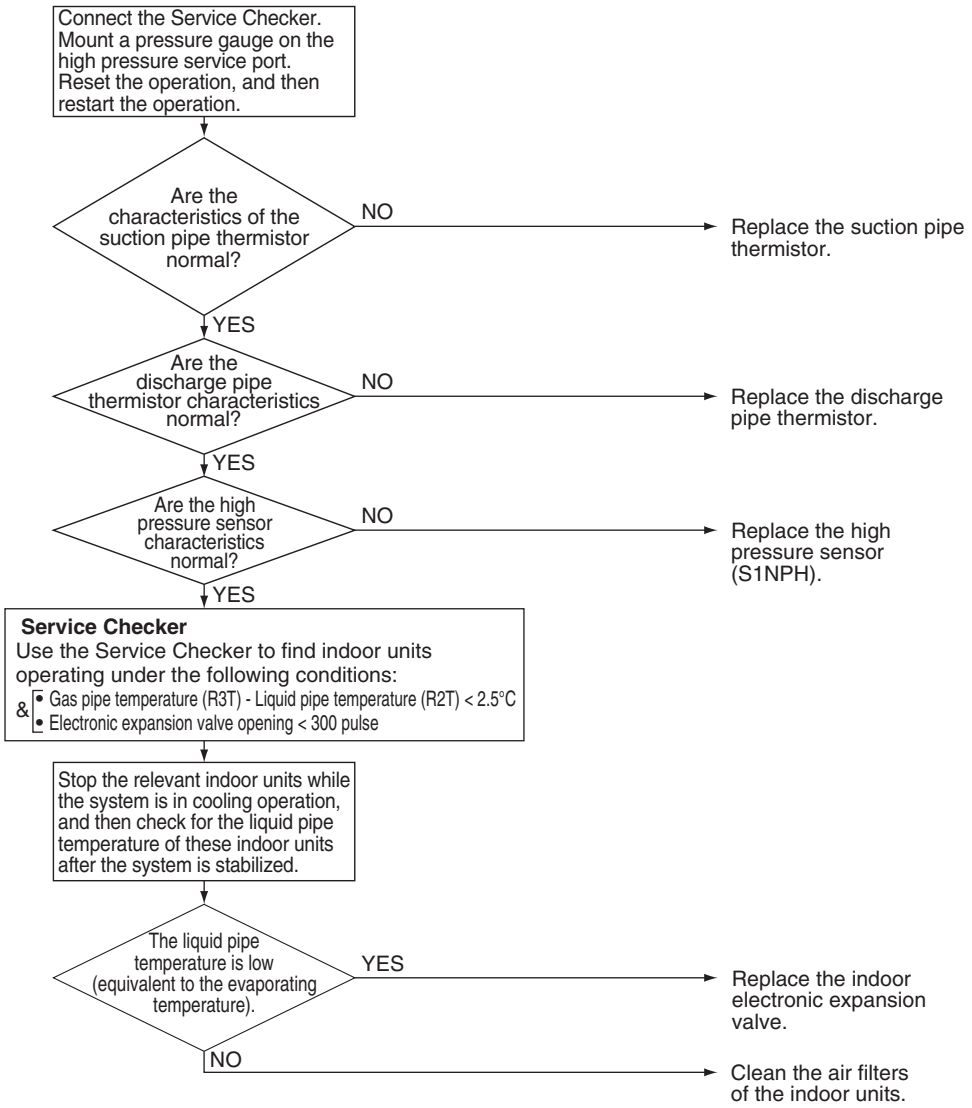
	4/5/10/12 HP	6/8 HP
A (minutes)	90	180
B (minutes)	120	240
C (minutes)	45	180

Supposed Causes

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

Troubleshooting

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



5.33 Refrigerant Overcharged

Applicable Models

All outdoor unit models

Error Code

F6

Method of Error Detection

Detect overcharged refrigerant according to the following thermistor temperatures during test operation.

- **4/5 HP models**
  Outdoor air thermistor (R1T)
  Heat exchanger deicer thermistor (R4T)
- **6/8 HP models**
  Outdoor air thermistor (R1T)
  Heat exchanger liquid pipe thermistor (R4T)
  Subcooling heat exchanger liquid pipe thermistor (R5T)
- **10/12 HP models**
  Outdoor air thermistor (R1T)
  Heat exchanger liquid pipe thermistor (R4T)
  Heat exchanger deicer thermistor (R7T)

Error Decision Conditions

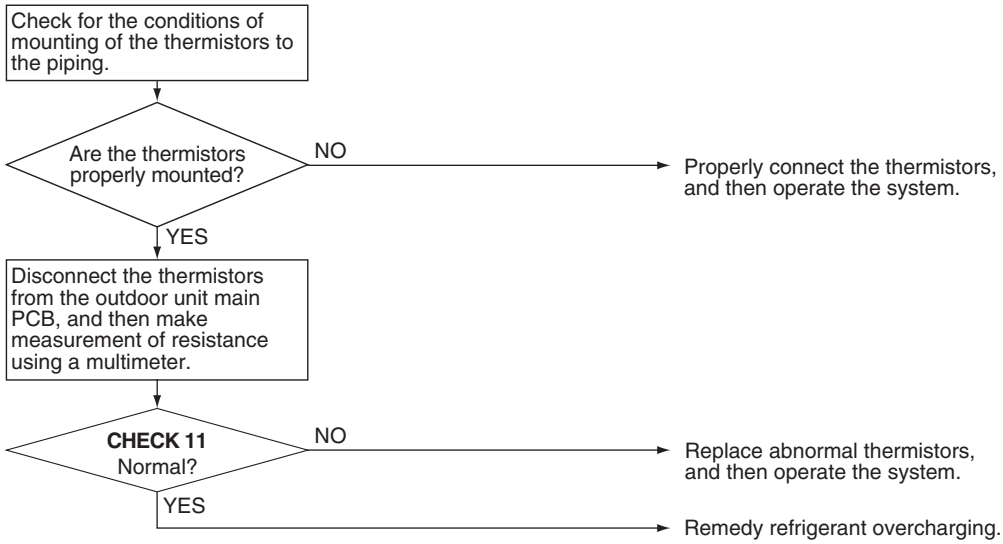
When the amount of refrigerant, which is calculated using the thermistor temperatures during test operation, exceeds the regular charge amount by 30% or more.
(However, even if refrigerant is charged slightly over the regular charge amount, **F6** may be displayed on the remote controller.)

Supposed Causes

- Refrigerant overcharged
- Disconnection of any of the above thermistors
- Abnormalities in any of the above thermistors

Troubleshooting

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



Reference **CHECK 11** Refer to page 350.

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

Applicable Models

RXMQ8-12AR

Error Code

H3

Method of Error Detection

Check for the transmission conditions of the harnesses between the PCBs (X28A (A1P) and X6A (A3P)), and relay connector, if any, using microcomputer.

Error Decision Conditions

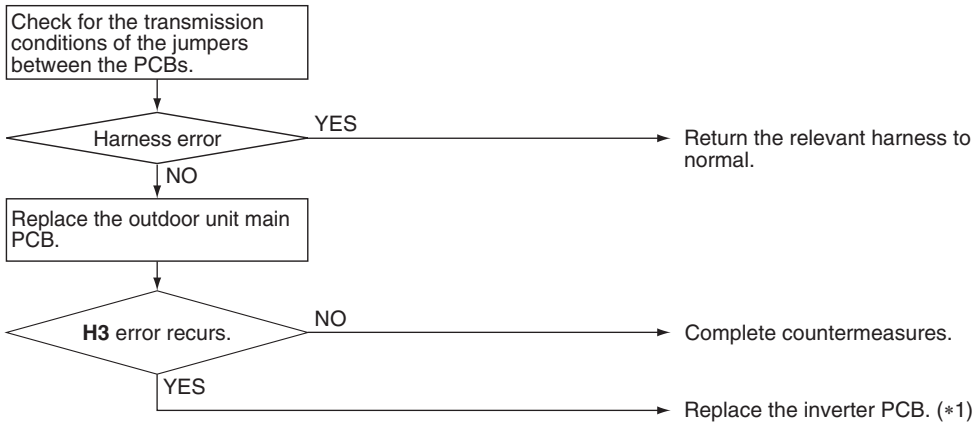
When normal transmission between PCBs is disabled during the compressor stops running.

Supposed Causes

- Defective connection of harnesses between PCBs
- Defective outdoor unit main PCB
- Defective inverter PCB

Troubleshooting

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



Note(s) *1. A3P

5.35 OL Activation (Compressor Overload)

Applicable Models

RXMQ6/8AR

Error Code

H5

Method of Error Detection

A compressor overload is detected through compressor OL.

Error Decision Conditions

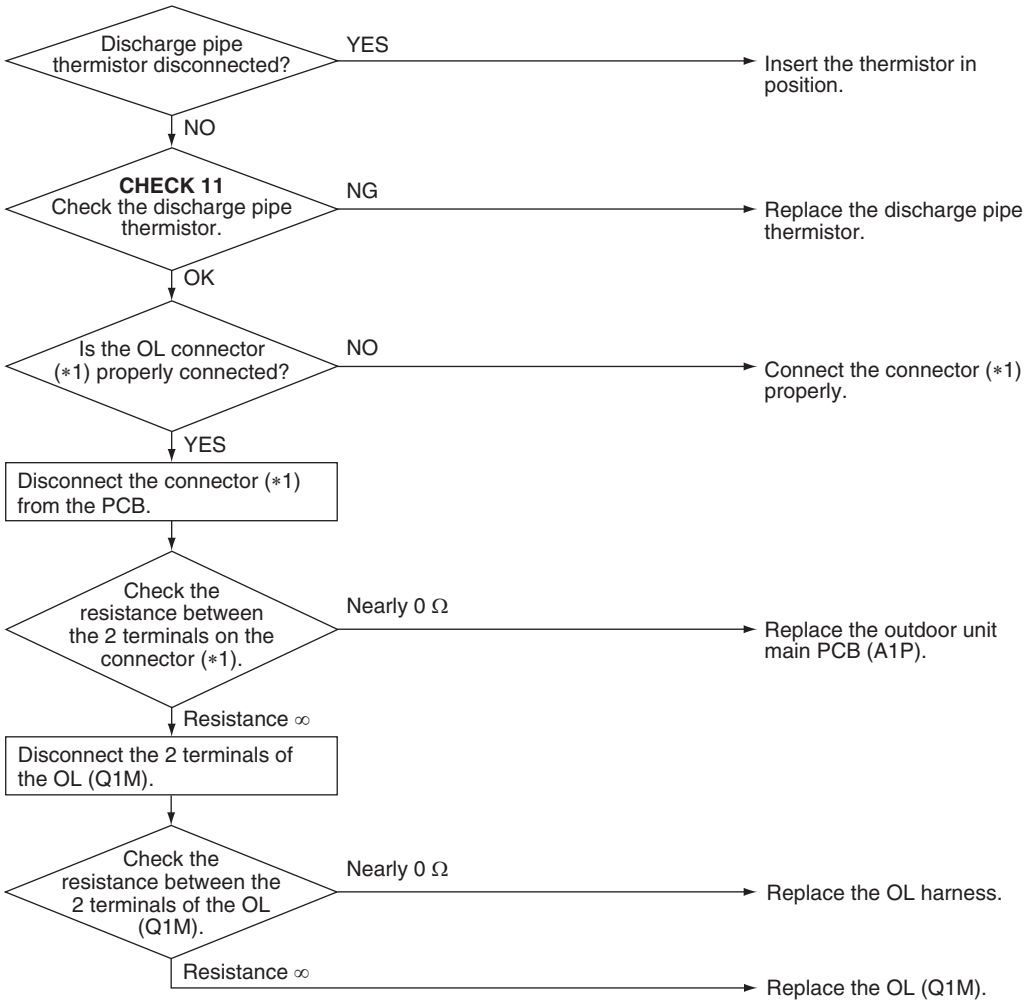
- If the error occurs, the system is shut down.
- Reset condition: Continuous run for about 60 minutes without any other error

Supposed Causes

- Disconnection of discharge pipe thermistor
- Defective discharge pipe thermistor
- Disconnection of connector X3A (RXMQ6AR)
- Disconnection of connector X5A (RXMQ8AR)
- Disconnection of 2 terminals of OL (Q1M)
- Defective OL (Q1M)
- Broken OL harness
- Defective outdoor unit PCB

Troubleshooting

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



Note(s)

OL (Q1M) activating temperature: 125°C
OL (Q1M) recovery temperature: 110°C
∗1. RXMQ6AR: X3A
RXMQ8AR: X5A

Reference **CHECK 11** Refer to page 350.

5.36 Outdoor Fan Motor Signal Abnormality

Applicable Models

RXQ4/5AR

Error Code

H7

Method of Error Detection

Detection of abnormal signal from fan motor

Error Decision Conditions

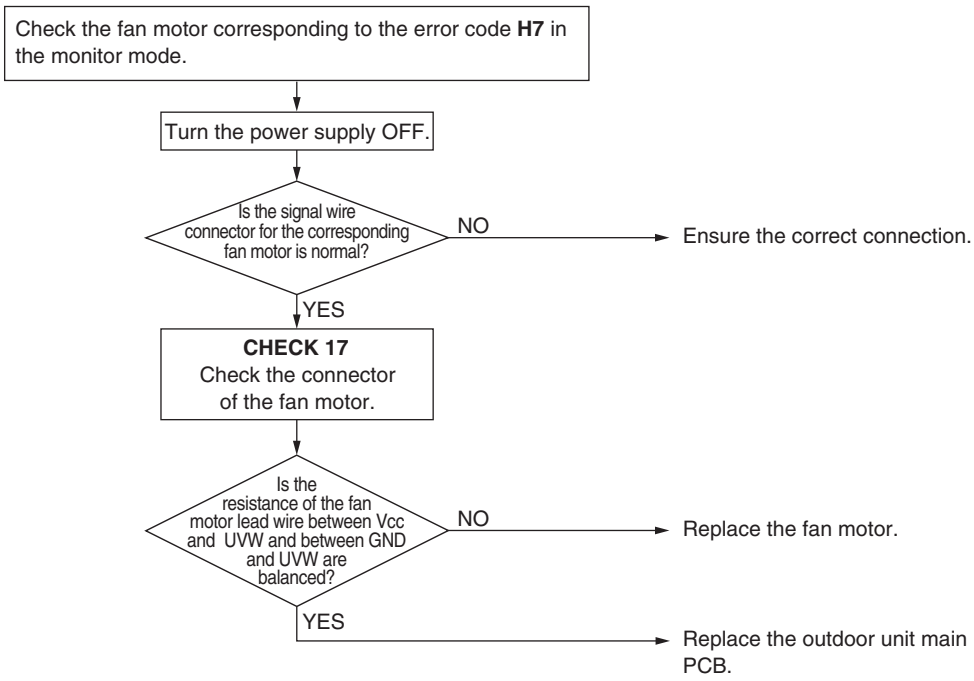
In case of detection of abnormal signal at starting fan motor

Supposed Causes

- Abnormal fan motor signal (defective circuit)
- Broken, short circuited or disconnection connector of fan motor connection cable
- Defective outdoor unit main PCB

Troubleshooting

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



Reference **CHECK 17** Refer to page 357.

5.37 Outdoor Fan PCB Abnormality

Applicable Models

RXMQ8AR

Error Code

H7-21

Method of Error Detection

Detect according to values detected with current sensor.

Error Decision Conditions

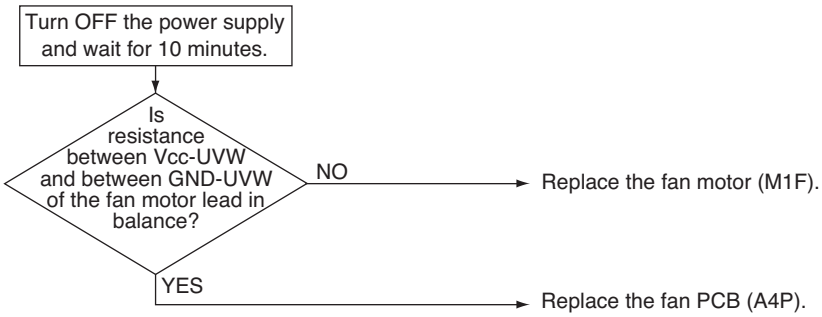
When the current sensor is abnormal.

Supposed Causes

- Disconnection/Short circuit in fan motor leads or disconnection of connector
- Defective fan PCB

Troubleshooting

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



5.38 Thermistor Abnormality

Applicable Models

All outdoor unit models

Error Code

H9, J3, J5, J6, J7, J8, J9

Method of Error Detection

Detect according to temperature detected with individual thermistors.

Error Decision Conditions

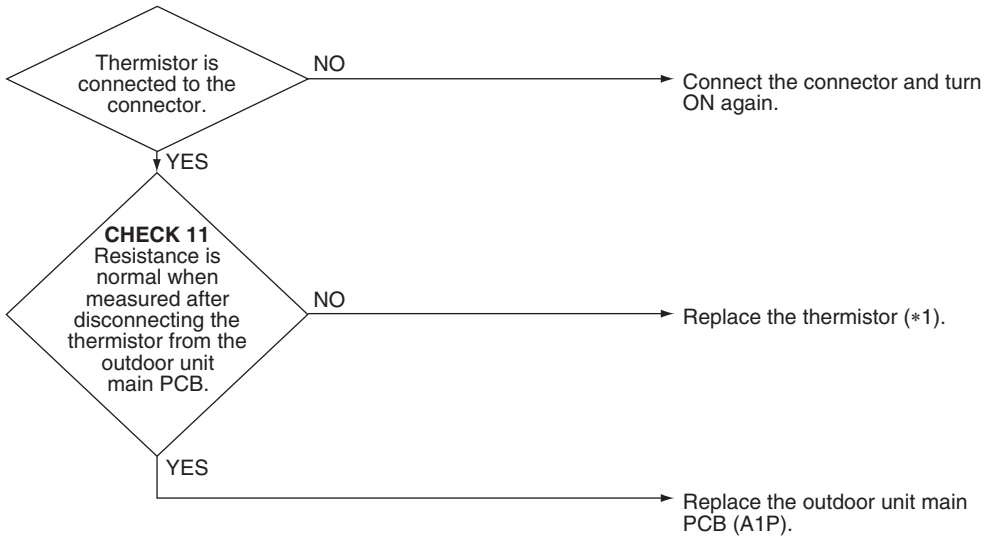
When the system is in operation and the thermistor causes wiring disconnection or short circuit in it.

Supposed Causes

- Defective connection of thermistor
- Defective thermistor
- Defective outdoor unit main PCB

Troubleshooting

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



Note(s) ∗1. Error codes and thermistors

Error Code	Applicable Thermistor	RXQ4/5AR		RXMQ6/8AR		RXMQ10/12AR	
		Electric symbol	Connector	Electric symbol	Connector	Electric symbol	Connector
H9	Outdoor air thermistor	R1T	X11A	R1T	X18A	R1T	X18A
J3	Discharge pipe thermistor	R2T	X12A (Group connector)	R21T	X19A	R21T	X29A (Group connector)
	Compressor body thermistor	—		—	—	R8T	
J5	Suction pipe thermistor	R3T R5T		R3T	X30A (Group connector)	—	—
	Accumulator thermistor	—		—		R3T	X30A (Group connector)
J6	Heat exchanger deicer thermistor	R4T		—		R7T	
J7	Subcooling heat exchanger liquid pipe thermistor	—	—	R5T		R5T	
J8	Heat exchanger liquid pipe thermistor	—	—	R4T		R4T	
J9	Subcooling heat exchanger gas pipe thermistor	—	—	R6T		R6T	

Reference **CHECK 11** Refer to page 350.

5.39 High Pressure Sensor Abnormality

Applicable Models

All outdoor unit models

Error Code

JA

Method of Error Detection

Detect according to temperature detected with the high pressure sensor.

Error Decision Conditions

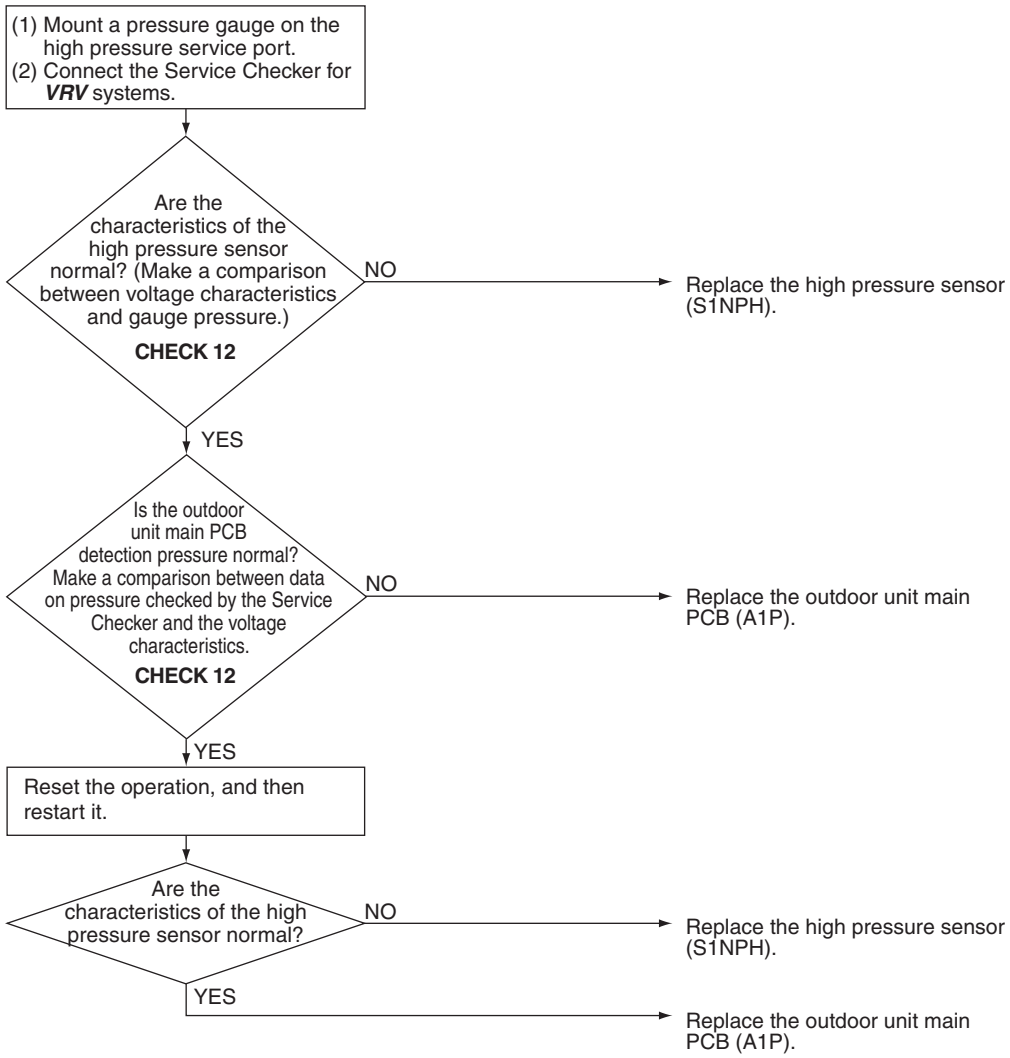
The high pressure sensor is short circuit or open circuit.
(Pressure range: 0-4.3 MPa)

Supposed Causes

- Defective high pressure sensor
- Connection of low pressure sensor in mistake for high pressure sensor
- Defective outdoor unit main PCB
- Defective connection of high pressure sensor

Troubleshooting

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



Reference **CHECK 12** Refer to page 353.

5.40 Low Pressure Sensor Abnormality

Applicable Models

All outdoor unit models

Error Code

JC

Method of Error Detection

Detect according to temperature detected with the low pressure sensor.

Error Decision Conditions

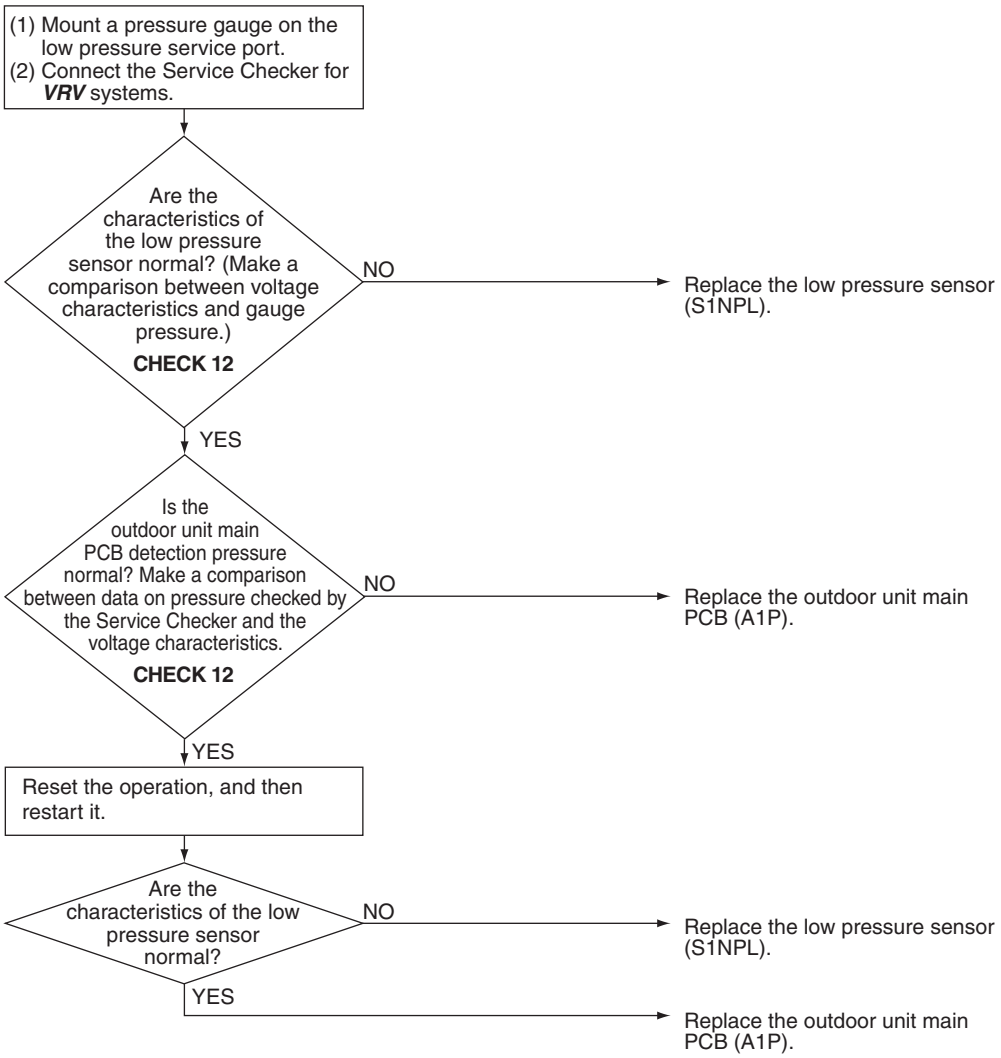
The low pressure sensor is short circuit or open circuit.
(Pressure range: 0-1.7 MPa)

Supposed Causes

- Defective low pressure sensor
- Connection of high pressure sensor in mistake for low pressure sensor
- Defective outdoor unit main PCB
- Defective connection of low pressure sensor

Troubleshooting

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



Reference **CHECK 12** Refer to page 353.

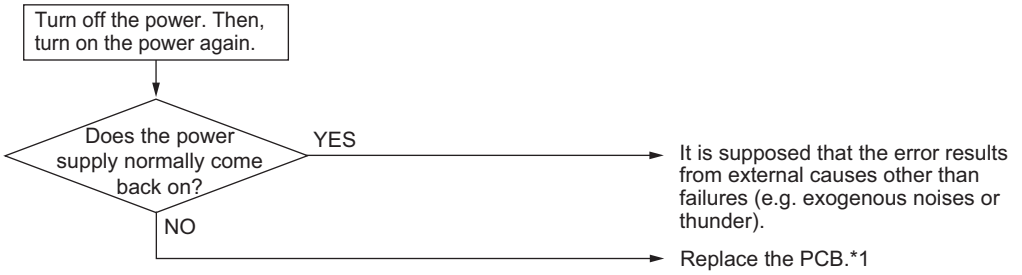
5.41 Inverter Circuit Abnormality

Applicable Models	All outdoor unit models
Error Code	**L1**
Method of Error Detection	Error is detected based on the current value during waveform output before starting compressor. Error is detected based on the value from current sensor during synchronous operation when starting the unit.
Error Decision Conditions	■ Overcurrent flows during waveform output. ■ Error of current sensor during synchronous operation. ■ IPM failure.
Supposed Causes	■ IPM failure ■ Current sensor failure ■ Drive circuit failure

Troubleshooting

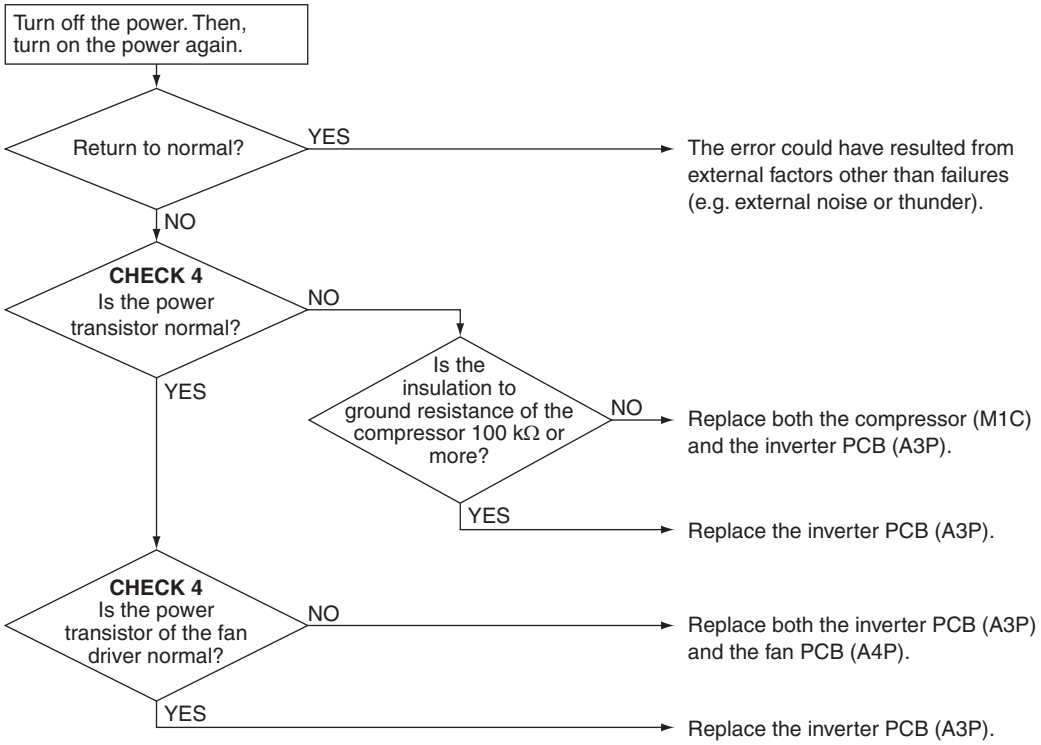
RXQ4/5AR, RXMQ6/10/12AR

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



RXMQ8AR

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



Note(s) ∗1. RXQ4/5AR, RXMQ6AR: outdoor unit main PCB (A1P)
RXMQ10/12AR: inverter PCB (A3P)

Reference **CHECK 4** Refer to page 340.

5.42 Momentary Power Failure during Test Operation

Applicable Models

RXMQ8AR

Error Code

L2

Method of Error Detection

Momentary power failure is detected by the PCB.

Error Decision Conditions

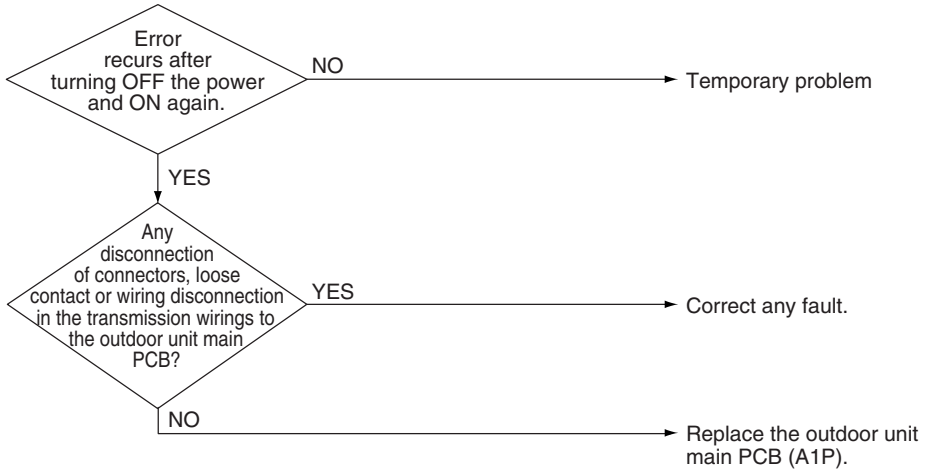
Judgment is made by AC power frequency detection circuit on the outdoor unit main PCB

Supposed Causes

- Defective wiring
- Defective outdoor unit main PCB

Troubleshooting

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



5.43 Radiation Fin Temperature Rise Abnormality

5.43.1 Radiation Fin Temperature Rise Abnormality (4/5 HP Models)

Applicable Models

RXQ4/5AR

Error Code

L4

Method of Error Detection

The radiation fin temperature is detected by the radiation fin thermistor.

Error Decision Conditions

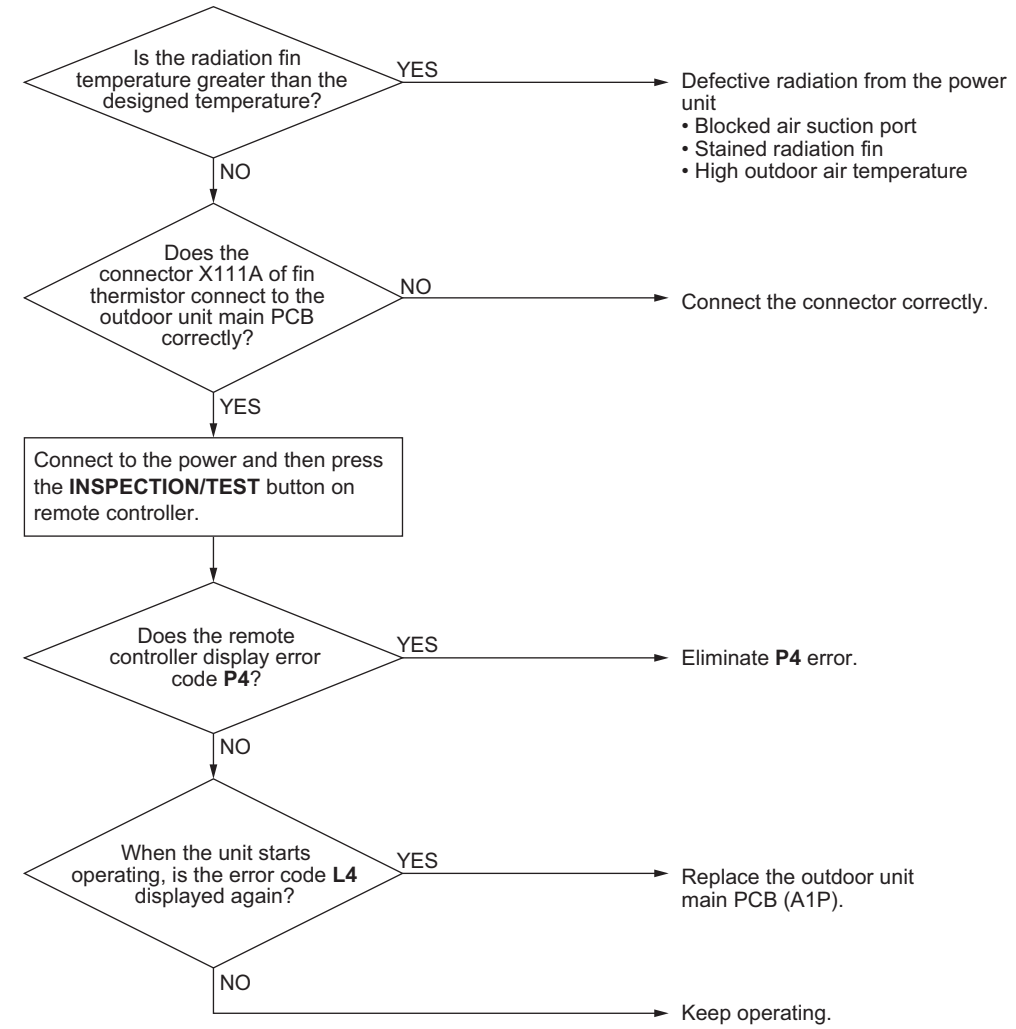
The radiation fin temperature exceeds a certain temperature.

Supposed Causes

- Activation of radiation fin thermistor
- Defective outdoor unit main PCB
- Defective radiation fin thermistor

Troubleshooting

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



5.43.2 Radiation Fin Temperature Rise Abnormality (6/8 HP Models)

Applicable Models

RXMQ6/8AR

Error Code

L4

Method of Error Detection

Detect temperature of power module of the inverter circuit.

Error Decision Conditions

Thermistor located inside the power module of the inverter circuit for compressor and fan motor. Cooling tube plate poor heat-exchange.

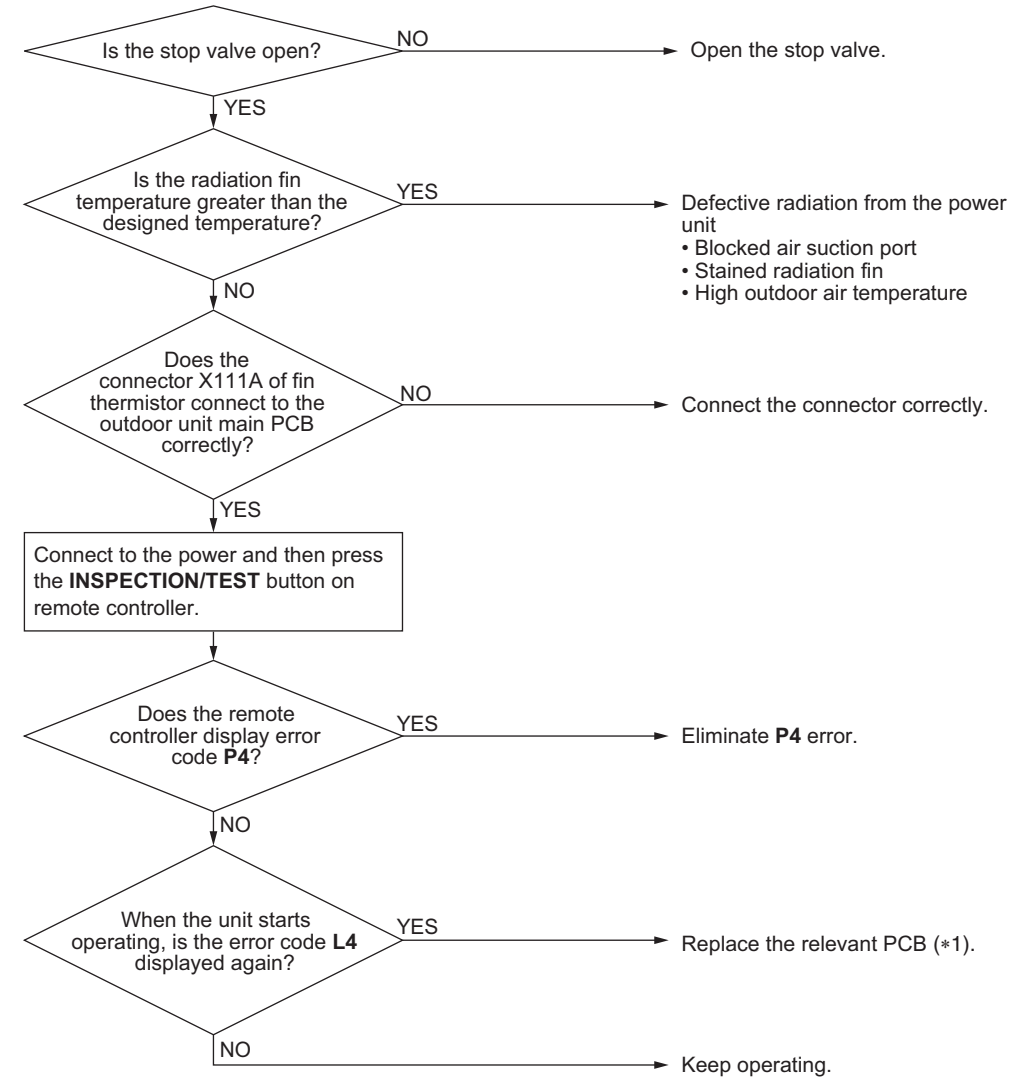
Supposed Causes

- Radiation fin temperature rise of fan circuit
- Cooling tube plate not fixed with screws
- **U0** error
- Defective inverter circuit
- High outdoor air temperature
- Closed stop valve

Troubleshooting

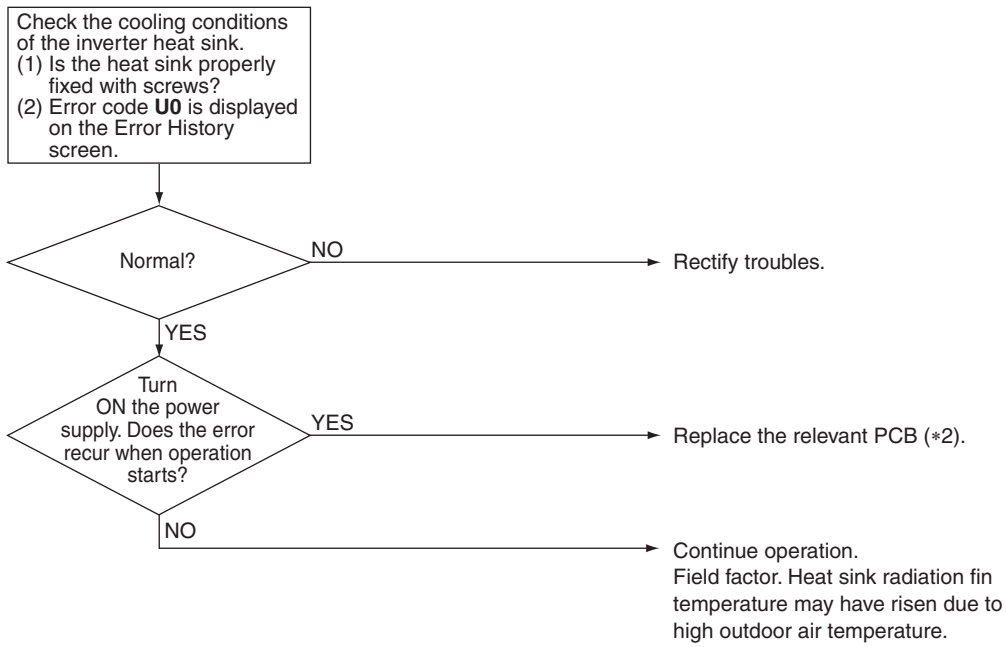
- **Subcode L4-01**

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



■ Subcode L4-06

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



Note(s)

∗1. RXMQ6AR: outdoor unit main PCB (A1P)
RXMQ8AR: inverter PCB (A3P)
∗2. RXMQ6AR: outdoor unit main PCB (A1P)
RXMQ8AR: fan PCB (A4P)

5.43.3 Radiation Fin Temperature Rise Abnormality (10/12 HP Models)

Applicable Models

RXMQ10/12AR

Error Code

L4

Method of Error Detection

Use the thermistor to test the radiation fin temperature of the inverter PCB of the compressor.

Error Decision Conditions

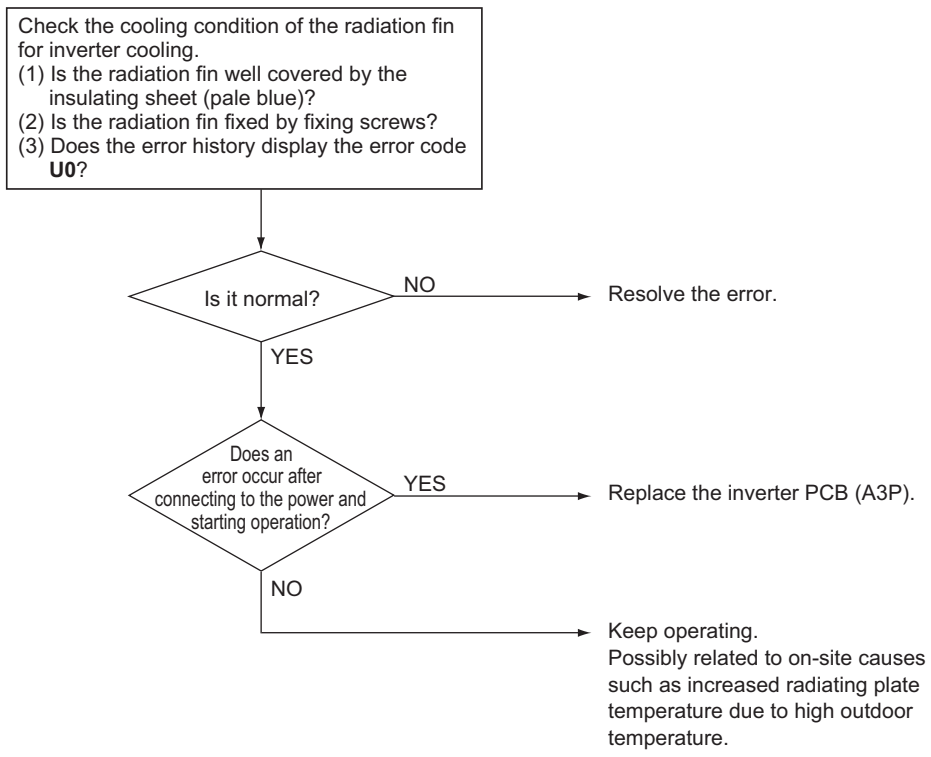
Error is determined when the PCB circuit thermistor detects a temperature higher than the designed temperature.

Supposed Causes

- Insulation sheet (pale blue) does not cover the entire radiator.
- Radiation fin is not fixed with fixing screws.
- **U0** error
- Defective inverter PCB
- Outdoor temperature too high

Troubleshooting

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



5.44 Compressor Instantaneous Overcurrent

5.44.1 Compressor Instantaneous Overcurrent (4/5/10/12 HP Models)

Applicable Models

RXQ4/5AR, RXMQ10/12AR

Error Code

L5

Method of Error Detection

Error is detected from current flowing in the power transistor.

Error Decision Conditions

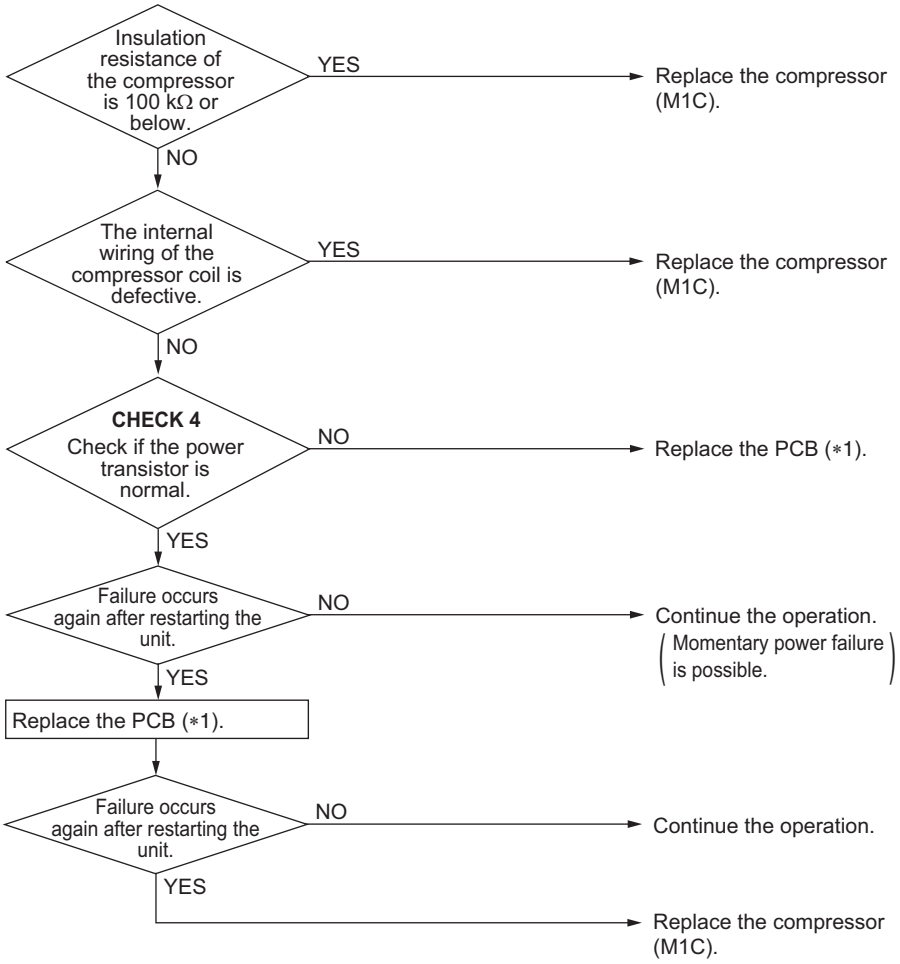
An excessive current flows in the power transistor.

Supposed Causes

- Defective compressor coil (disconnected, defective insulation)
- Defective compressor startup (mechanical lock)
- Defective outdoor unit main PCB (4/5 HP)
- Defective inverter PCB (10/12 HP)

Troubleshooting

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



Note(s)

∗1. RXQ4/5AR: outdoor unit main PCB (A1P)
RXMQ10/12AR: inverter PCB (A3P)

Reference

CHECK 4 Refer to page 340.

5.44.2 Compressor Instantaneous Overcurrent (6/8 HP Models)

Applicable Models

RXMQ6/8AR

Error Code

L5

Method of Error Detection

Detect current flowing through the power transistor.

Error Decision Conditions

The current instantaneously exceeds **A** (A) in the power transistor.

Trigger point

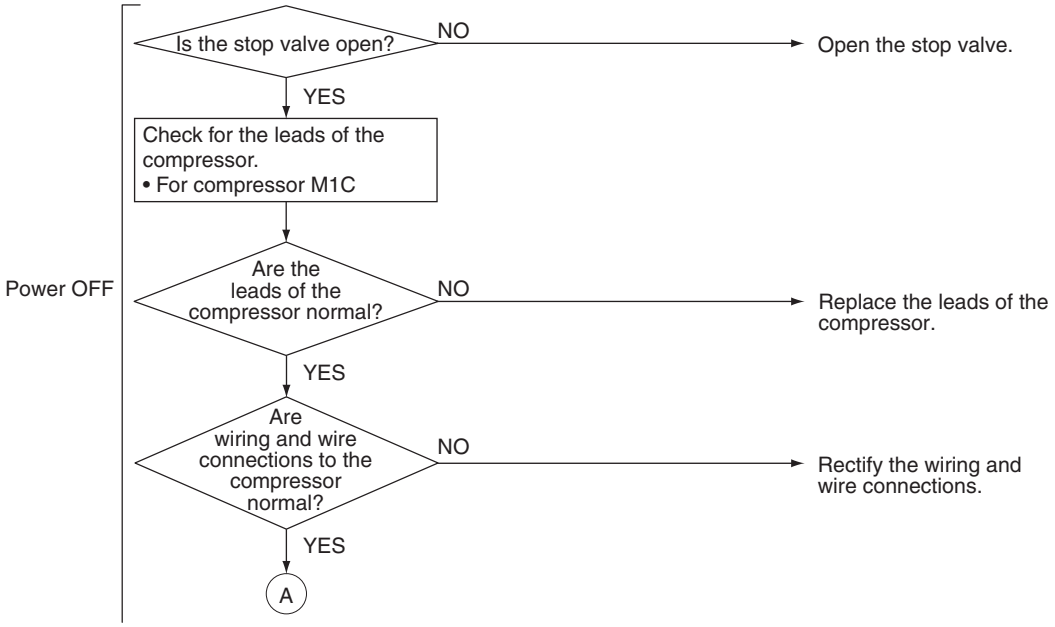
Compressor model	**A** (A)
2Y350APAX2N	48.1
2Y420AVAY1N	48.55

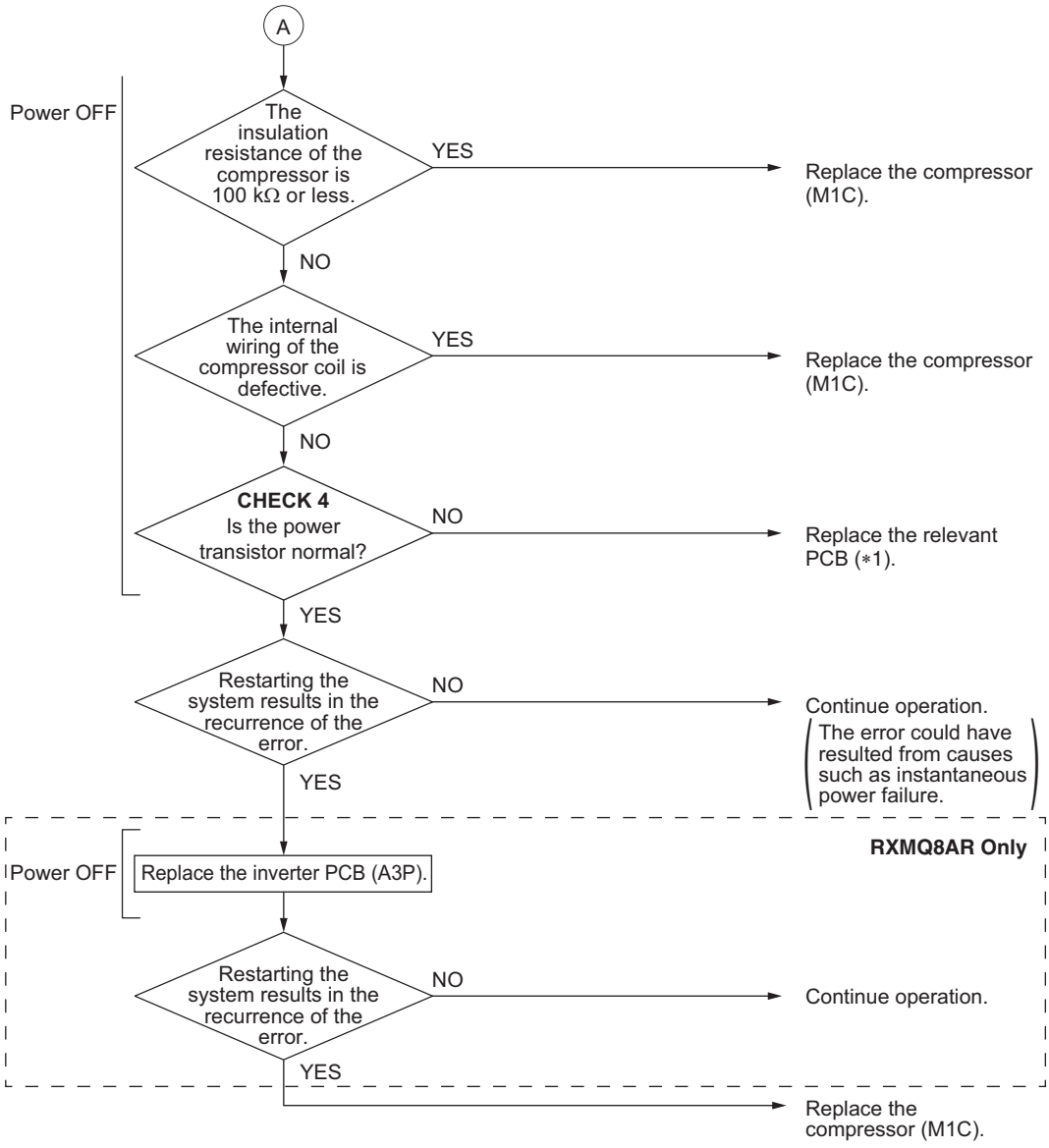
Supposed Causes

- Defective compressor coil (such as wiring disconnection or insulation failure)
- Compressor startup failure (mechanical lock)
- Defective outdoor unit main PCB (RXMQ6AR)
- Defective inverter PCB (RXMQ8AR)

Troubleshooting

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





Note(s)

∗1. RXMQ6AR: outdoor unit main PCB (A1P)
RXMQ8AR: inverter PCB (A3P)

Reference

CHECK 4 Refer to page 340.

5.45 Compressor Overcurrent

5.45.1 Compressor Overcurrent (4/5/10/12 HP Models)

Applicable Models

RXQ4/5AR, RXMQ10/12AR

Error Code

L8

Method of Error Detection

Error is detected by current flowing in the power transistor.

Error Decision Conditions

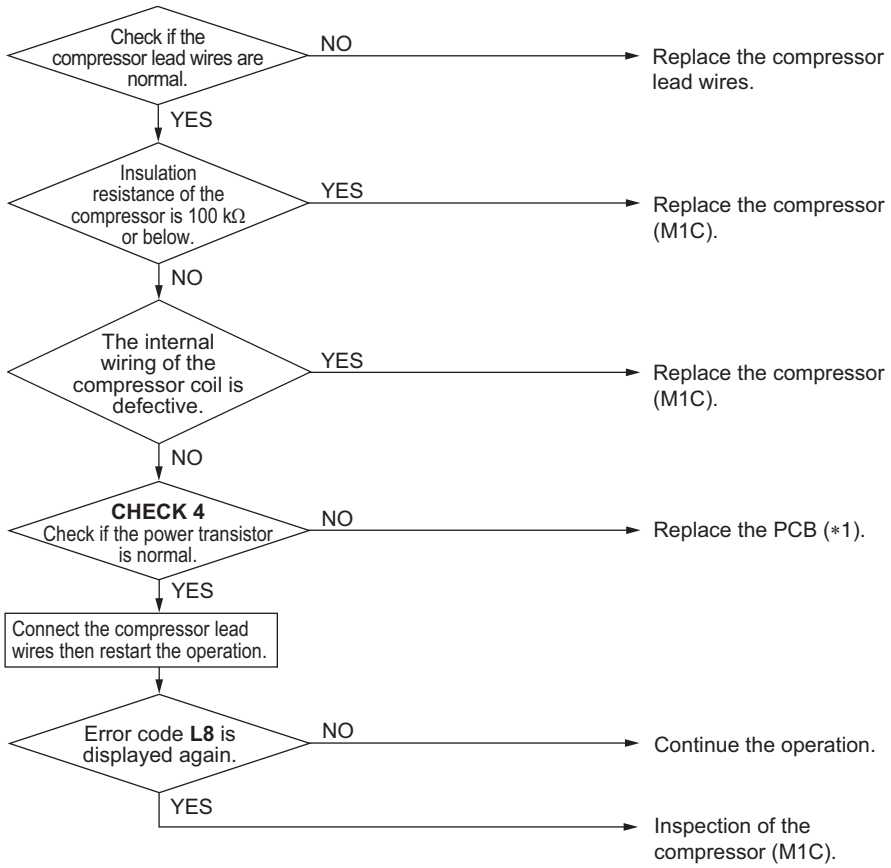
Overload in the compressor is detected.

Supposed Causes

- Compressor overload
- Broken wire inside compressor
- Defective outdoor unit main PCB (4/5 HP)
- Defective inverter PCB (10/12 HP)
- Disconnection of compressor

Troubleshooting

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



Note(s)

∗1. RXQ4/5AR: outdoor unit main PCB (A1P)
RXMQ10/12AR: inverter PCB (A3P)

Reference

CHECK 4 Refer to page 340.

5.45.2 Compressor Overcurrent (6/8 HP Models)

Applicable Models

RXMQ6/8AR

Error Code

L8

Method of Error Detection

Detect current flowing through the power transistor.

Error Decision Conditions

(1) The secondary-side inverter current exceeds **A** (A) for a period of 5 consecutive seconds.
(2) The secondary-side inverter current exceeds **B** (A) for a period of 260 consecutive seconds.
Trigger point

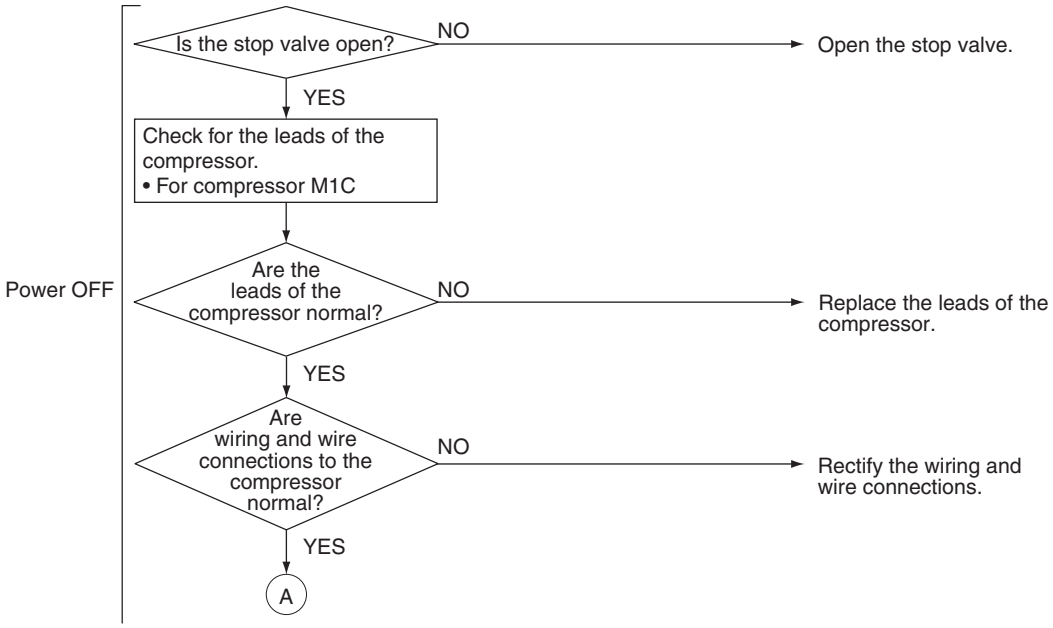
Compressor model	**A** (A)	**B** (A)
2Y350APAX2N	22.1	22.1
2Y420AVAY1N	22.5	18.6

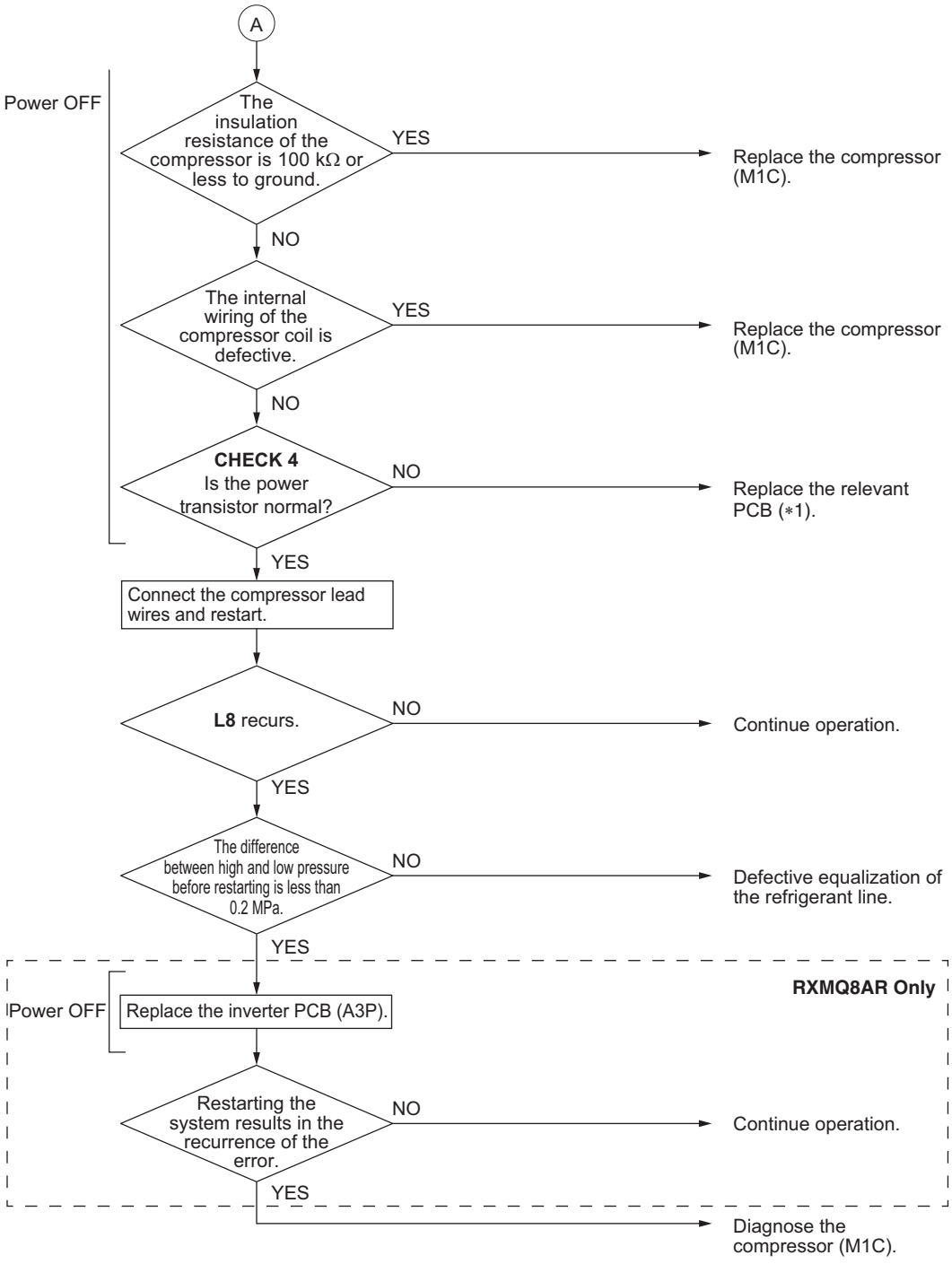
Supposed Causes

- Compressor overloaded
- Wiring disconnection in compressor coil
- Disconnection of compressor wiring
- Defective outdoor unit main PCB (RXMQ6AR)
- Defective inverter PCB (RXMQ8AR)

Troubleshooting

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





Note(s)

∗1. RXMQ6AR: outdoor unit main PCB (A1P)
RXMQ8AR: inverter PCB (A3P)

Reference

CHECK 4 Refer to page 340.

5.46 Compressor Startup Abnormality

5.46.1 Compressor Startup Abnormality (4/5 HP Models)

Applicable Models

RXQ4/5AR

Error Code

L9

Method of Error Detection

Error is detected by the power transistor current.

Error Decision Conditions

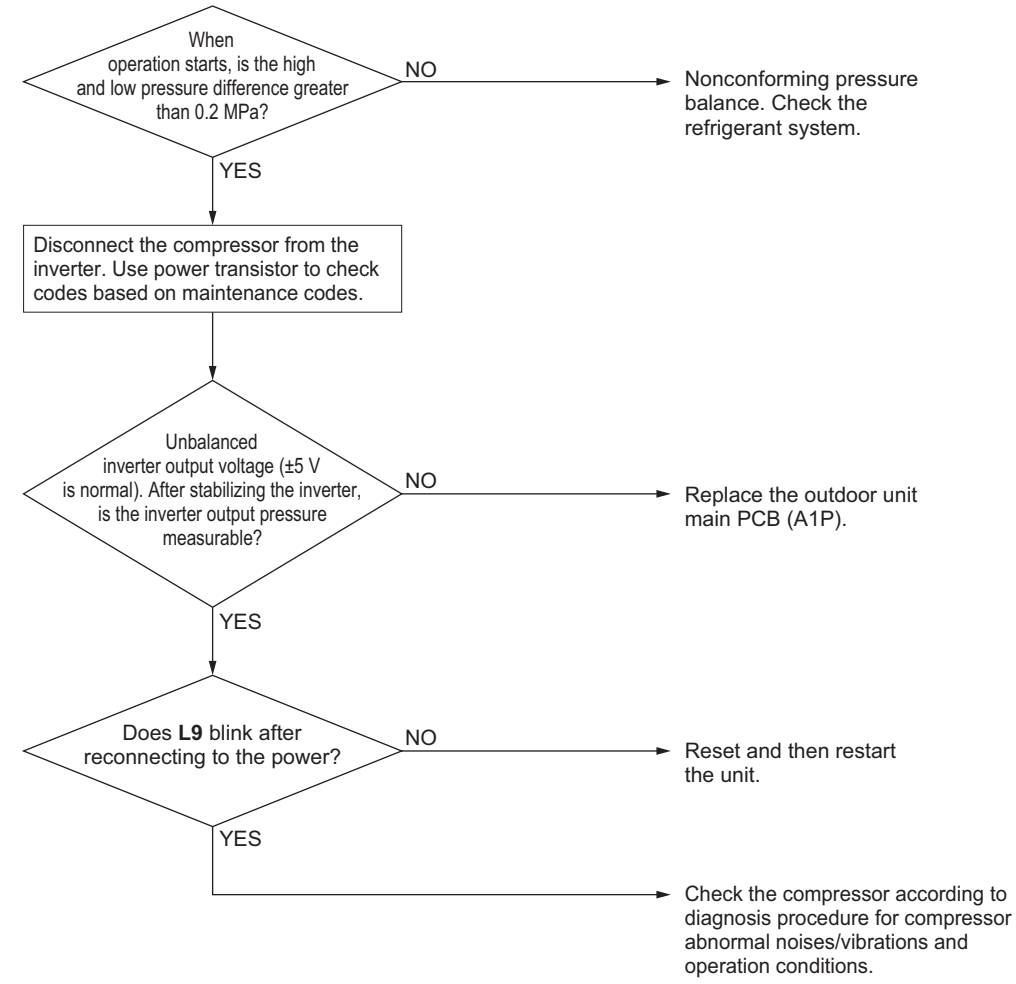
Compressor overload during activation

Supposed Causes

- Defective compressor
- Large pressure difference before starting the compressor
- Defective outdoor unit main PCB

Troubleshooting

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



5.46.2 Compressor Startup Abnormality (6-12 HP Models)

Applicable Models

RXMQ6-12AR

Error Code

L9

Method of Error Detection

Detect error according to the signal waveform of compressor.

Error Decision Conditions

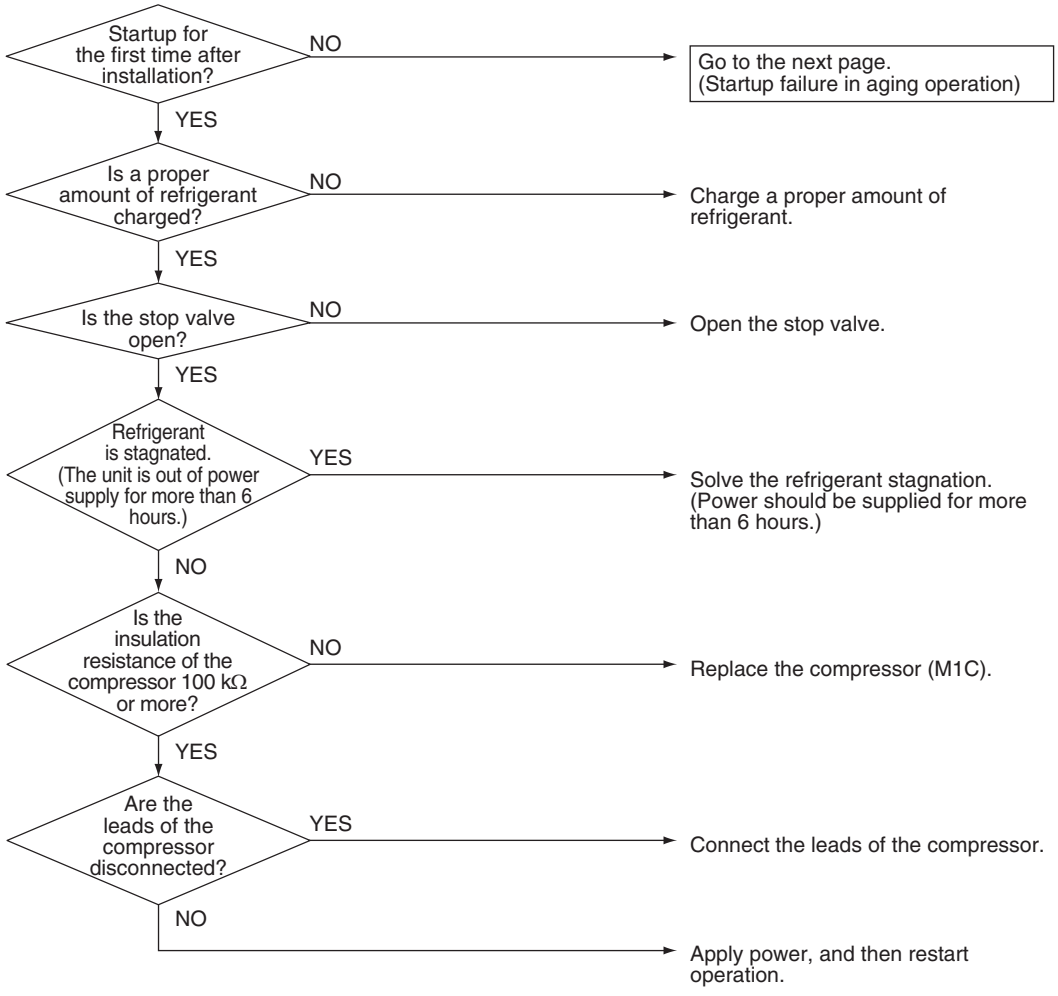
When compressor startup operation has not been completed.

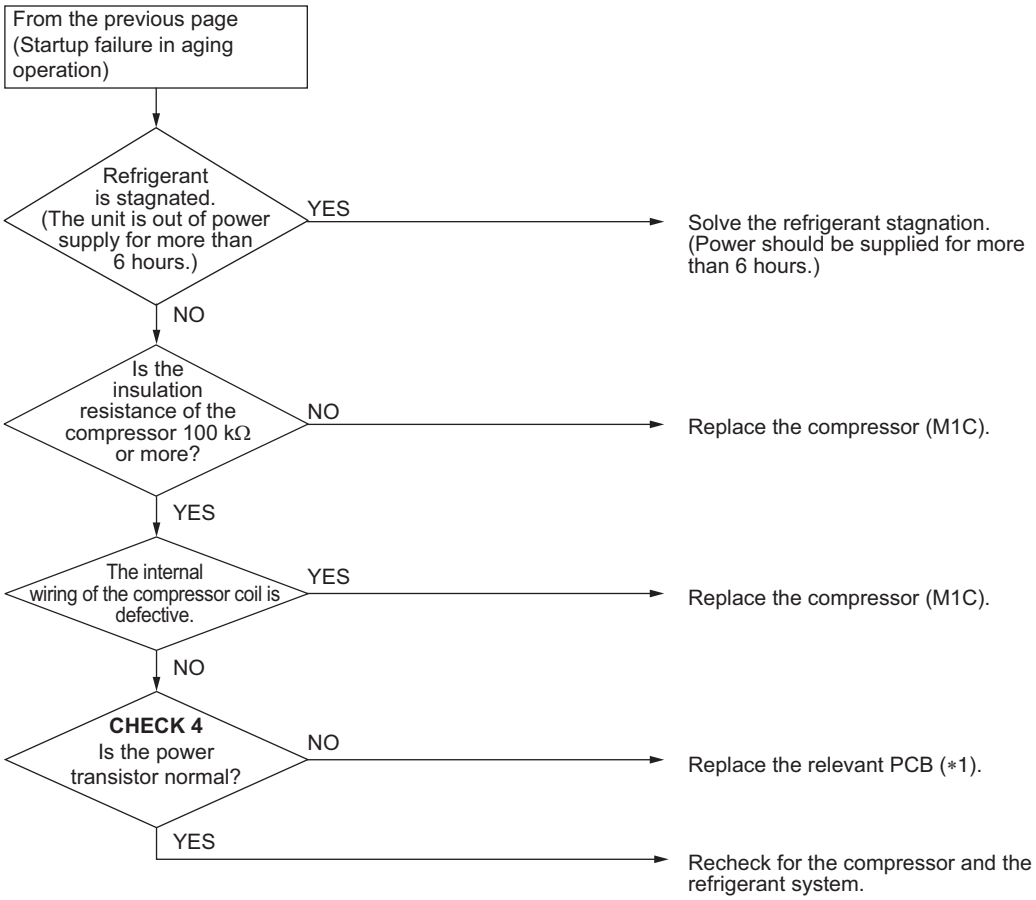
Supposed Causes

- The stop valve is not opened
- Defective compressor
- Error in wire connections to compressor
- Large differential pressure before compressor startup
- Defective outdoor unit main PCB (RXMQ6AR)
- Defective inverter PCB (RXMQ8-12AR)

Troubleshooting

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





Note(s) ∗1. RXMQ6AR: outdoor unit main PCB (A1P)
RXMQ8-12AR: inverter PCB (A3P)

Reference **CHECK 4** Refer to page 340.

5.47 Transmission Error between Microcomputers on Outdoor Unit Main PCB

Applicable Models

RXQ4/5AR, RXMQ6AR

Error Code

LC

Method of Error Detection

Check for the transmission conditions between microcomputers on the outdoor unit main PCB using a microcomputer.

Error Decision Conditions

Normal transmission is disabled for a given period of time or more.

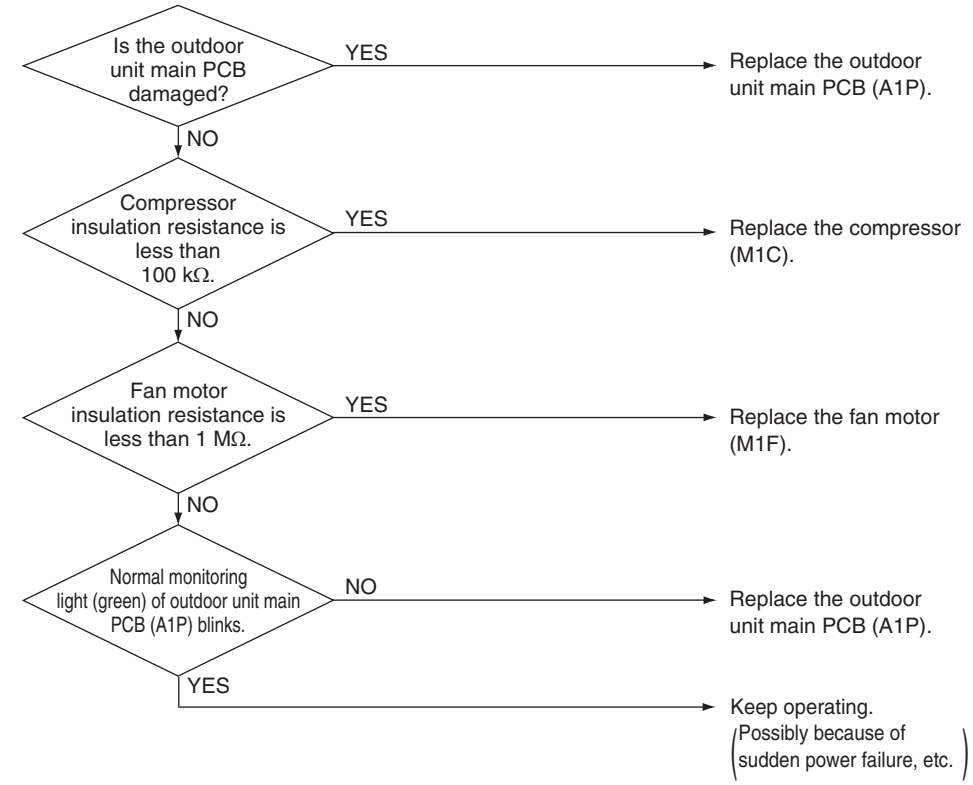
Supposed Causes

- Connection error between microcomputers on the outdoor unit main PCB
- Defective outdoor unit main PCB (transmission block)
- Defective noise filter
- External factors (e.g. noise)
- Defective compressor
- Defective fan motor

Troubleshooting

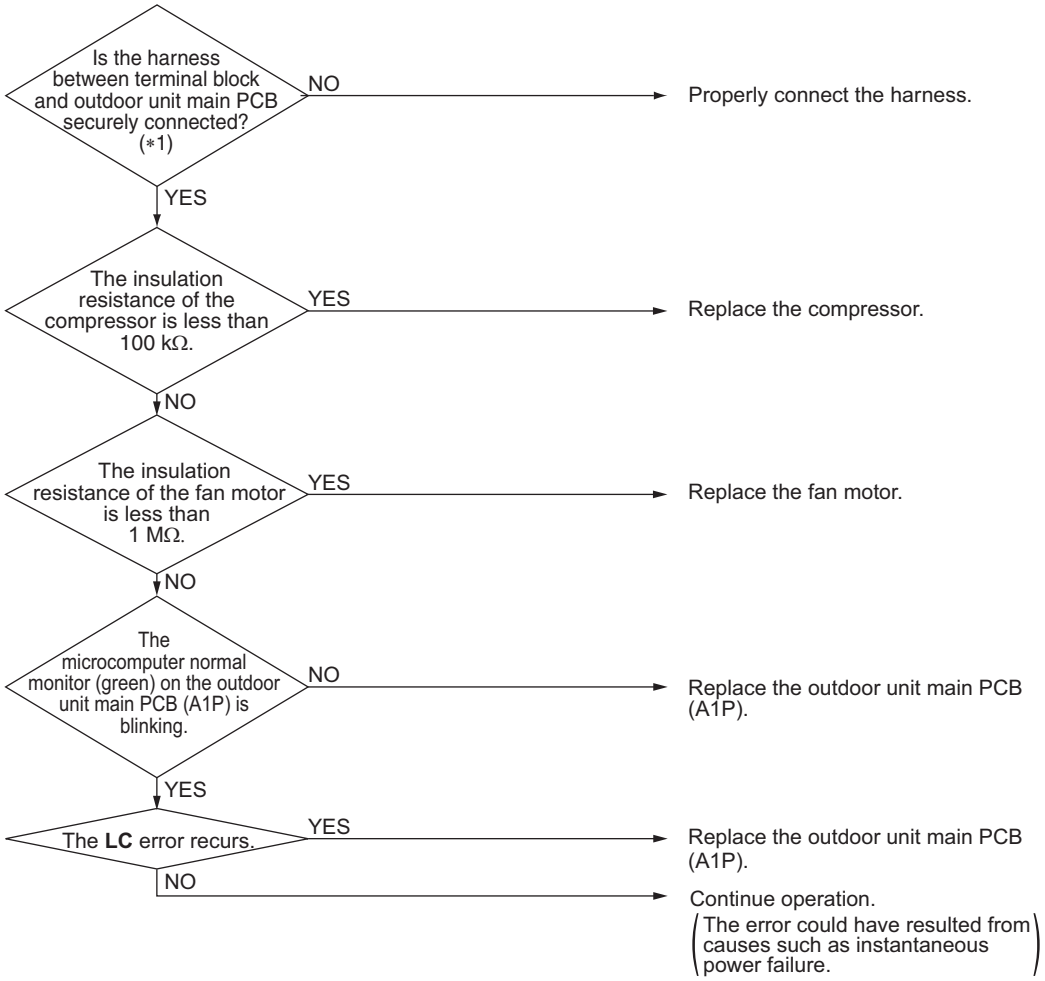
RXQ4/5AR

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



RXMQ6AR

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



Note(s)

∗1. Connect and disconnect the connector once to ensure that it is securely connected.

5.48 Transmission Error between Inverter PCB and Outdoor Unit Main PCB

Applicable Models

RXMQ8-12AR

Error Code

LC

Method of Error Detection

Check for the transmission conditions between the inverter PCB and the outdoor unit main PCB using a microcomputer.

Error Decision Conditions

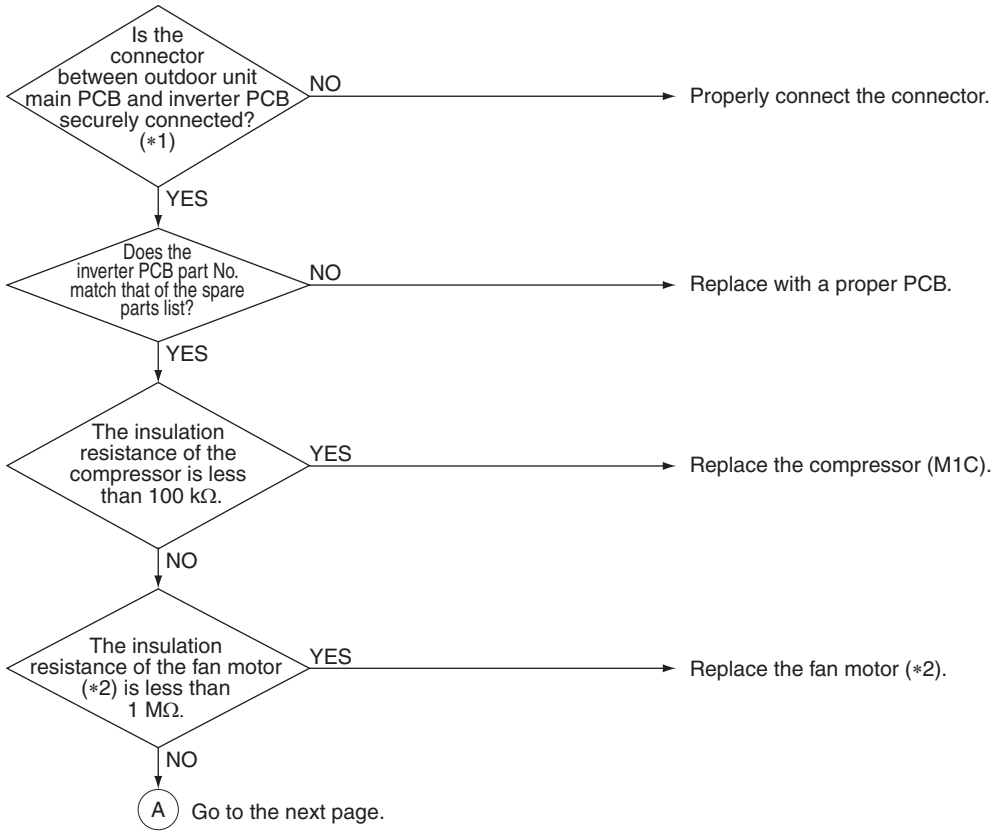
Normal transmission is disabled for a given period of time or more.

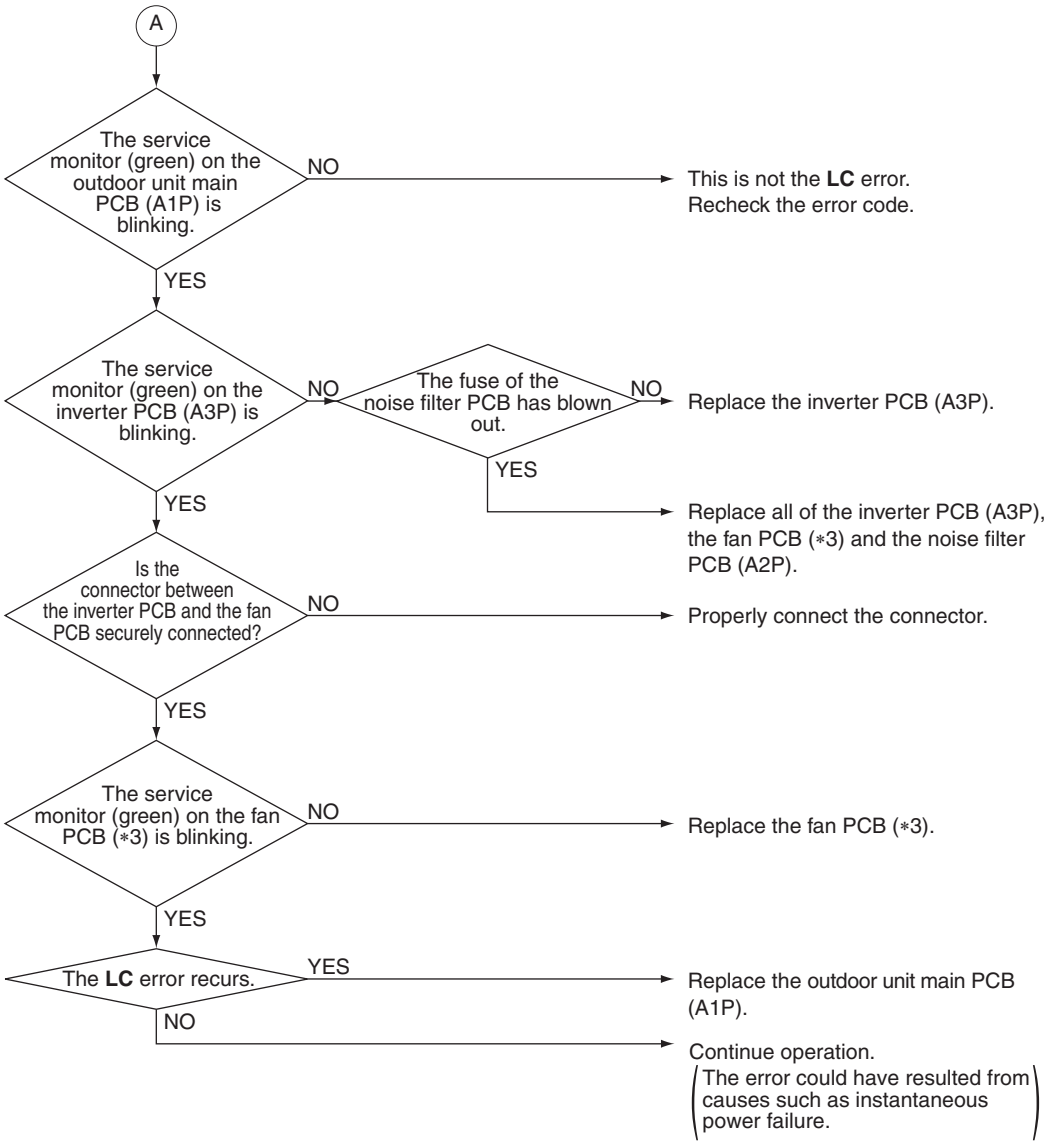
Supposed Causes

- Defective connection between the inverter PCB and the outdoor unit main PCB
- Defective outdoor unit main PCB (transmission block)
- Defective noise filter
- External factors (e.g. noise)
- Defective compressor
- Defective fan motor

Troubleshooting

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





Note(s)

∗1. Connect and disconnect the connector once to ensure that it is securely connected.
∗2. RXMQ8AR: M1F
RXMQ10/12AR: M1F, M2F
∗3. RXMQ8AR: A4P
RXMQ10/12AR: A4P, A5P

5.49 Inverter Circuit Capacitor High Voltage

Applicable Models

RXQ4/5AR, RXMQ6AR

Error Code

P1

Method of Error Detection

The voltage waveform of the main circuit capacitor of the inverter is used to check for errors.

Error Decision Conditions

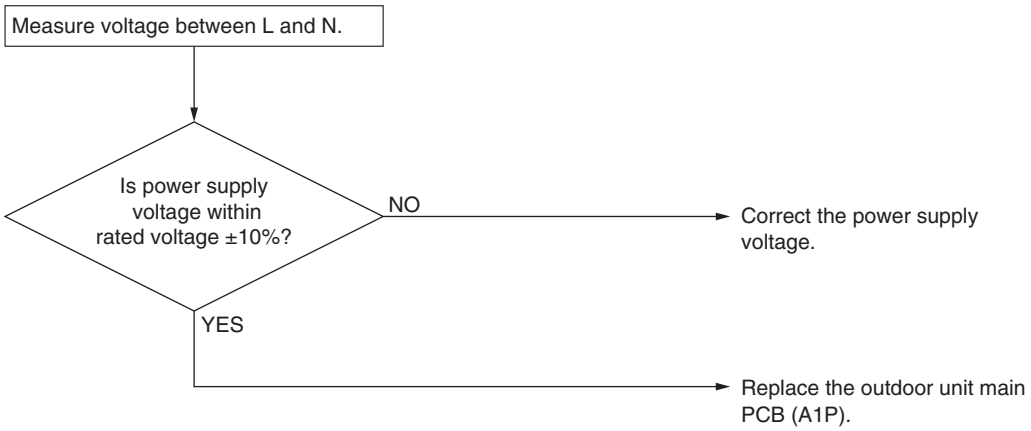
The voltage waveform fluctuates greatly.

Supposed Causes

- Defective main circuit capacitor
- Incorrect main circuit wiring
- Defective outdoor unit main PCB

Troubleshooting

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



5.50 Power Supply Voltage Imbalance

Applicable Models

RXMQ8-12AR

Error Code

P1

Method of Error Detection

Detect voltage imbalance through inverter PCB.

Error Decision Conditions

Power supply voltage imbalance exceeds certain value.
RXMQ8AR: approximately 12 V
RXMQ10/12AR: approximately 6 V

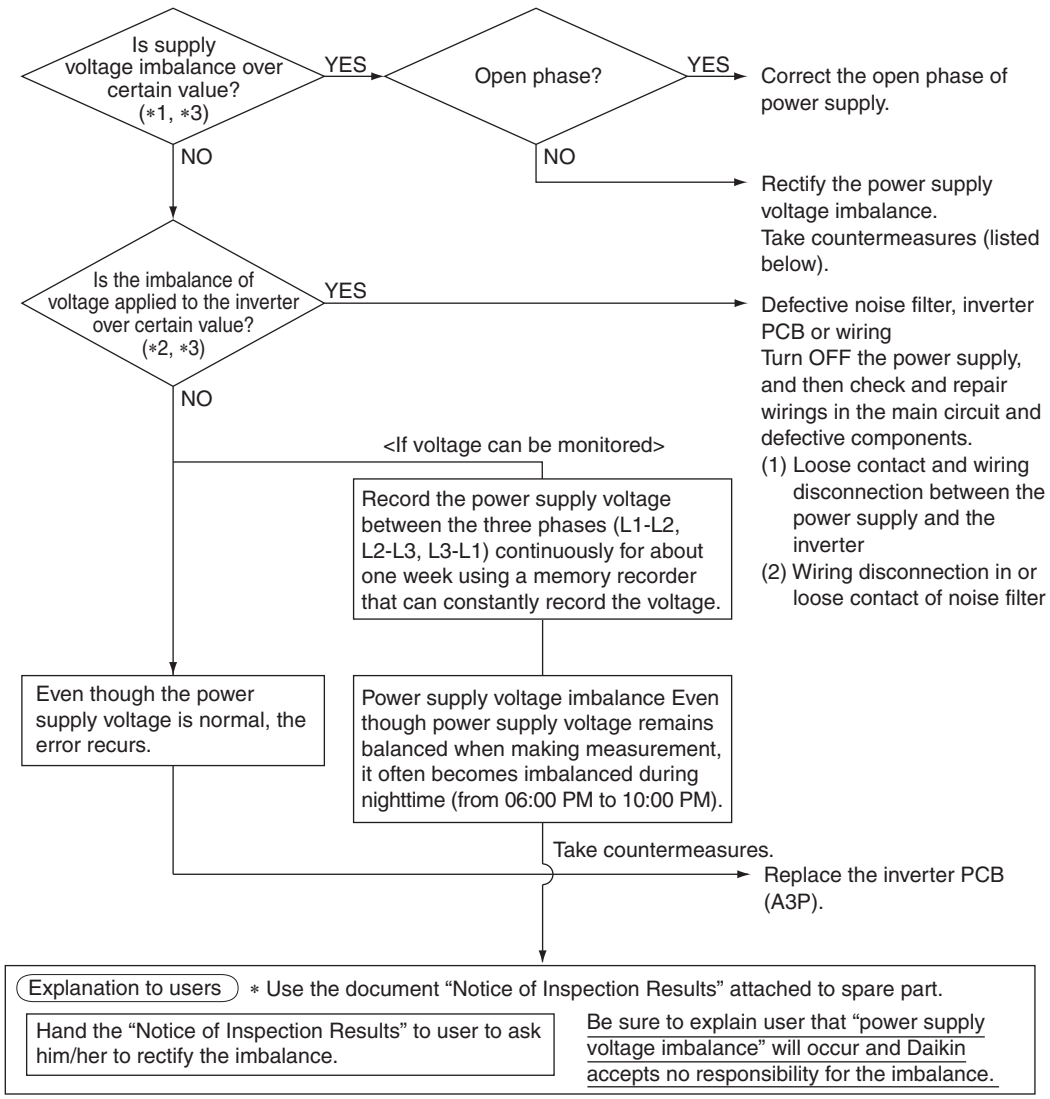
Error is not decided while the unit operation is continued.
P1 will be displayed by pressing the inspection button.

Supposed Causes

- Open phase
- Interphase voltage imbalance
- Defective capacitor in the main circuit
- Defective inverter PCB
- Defective wiring in the main circuit

Troubleshooting

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



Note(s)

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

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

∗3. RXMQ8AR: approximately 12 V
RXMQ10/12AR: approximately 6 V

5.51 Reactor Temperature Abnormality

Applicable Models

RXMQ8AR

Error Code

P3

Method of Error Detection

Detect according to the value detected with the reactor surface thermistor.

Error Decision Conditions

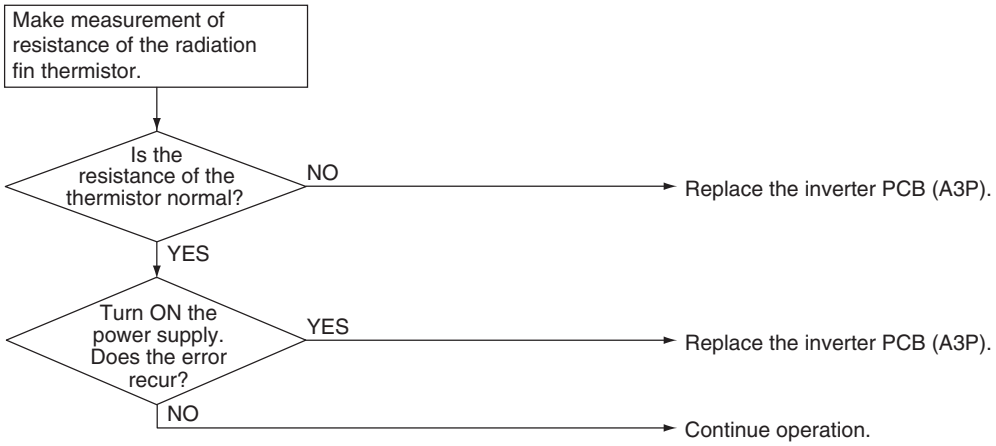
When the system is in operation and the thermistor causes wiring disconnection or short circuit in it.

Supposed Causes

- Defective connection of thermistor
- Defective reactor surface thermistor
- Defective inverter PCB

Troubleshooting

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



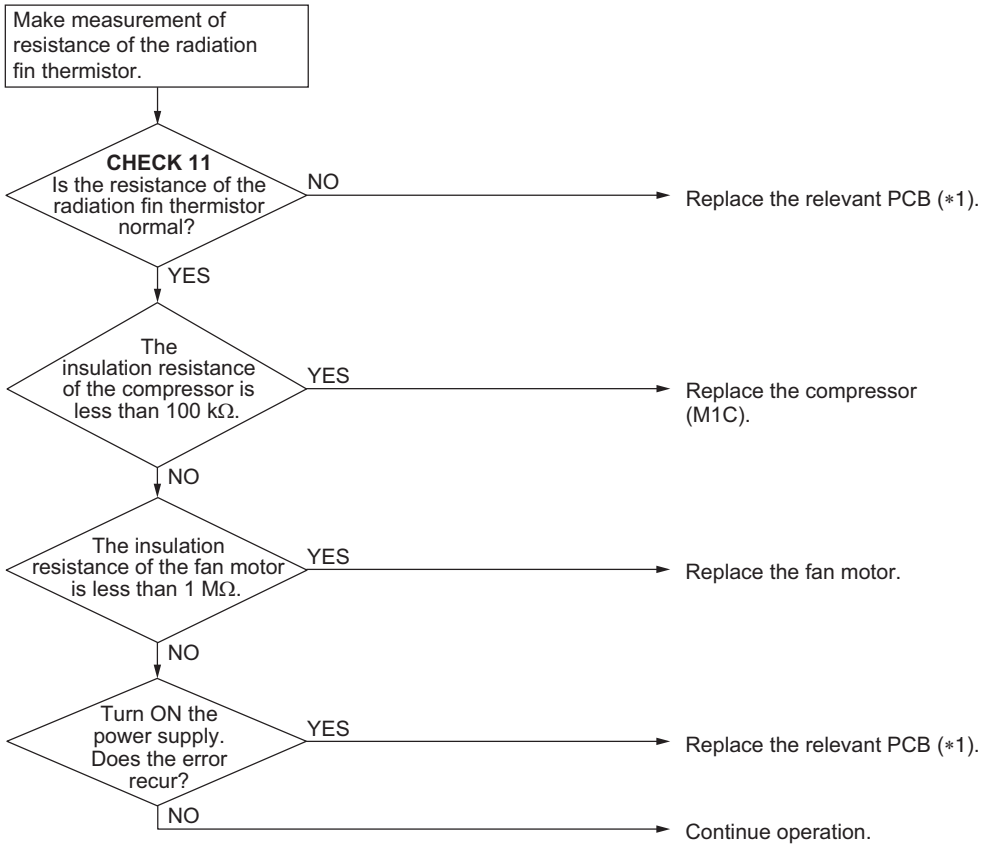
5.52 Radiation Fin Temperature Abnormality

Applicable Models	RXQ4/5AR, RXMQ6/8AR
Error Code	**P4**
Method of Error Detection	Detect the resistance of the following thermistors during the compressor stops running: (1) Radiation fin thermistor (2) Thermistor located in PCB circuit
Error Decision Conditions	When the resistance of the thermistor comes to a value equivalent to open or short circuit. Error is not decided while the unit operation is continued. **P4** will be displayed by pressing the inspection button.
Supposed Causes	■ Defective radiation fin temperature thermistor ■ Defective outdoor unit main PCB (RXQ4/5AR, RXMQ6AR) ■ Defective inverter PCB (RXMQ8AR) ■ Defective fan PCB (RXMQ8AR) ■ Defective compressor ■ Defective fan motor

Troubleshooting

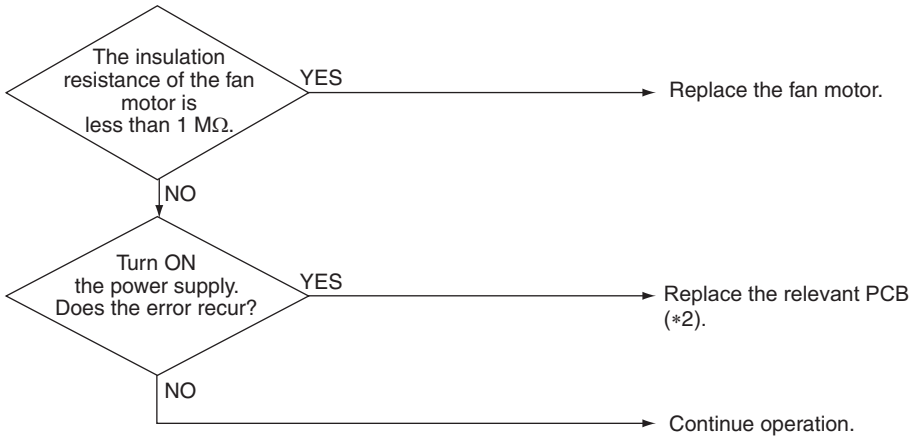
■ Subcode P4-01

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



■ Subcode P4-02

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



Note(s)

∗1. RXQ4/5AR, RXMQ6AR: outdoor unit main PCB (A1P)
RXMQ8AR: inverter PCB (A3P)

∗2. RXMQ6AR: outdoor unit main PCB (A1P)
RXMQ8AR: fan PCB (A4P)

Reference **CHECK 11** Refer to page 350.

5.53 Incorrect Inverter and Fan Drive Combination

Applicable Models

RXQ4/5AR, RXMQ10/12AR

Error Code

PJ

Method of Error Detection

Test is performed based on communication with inverter.

Error Decision Conditions

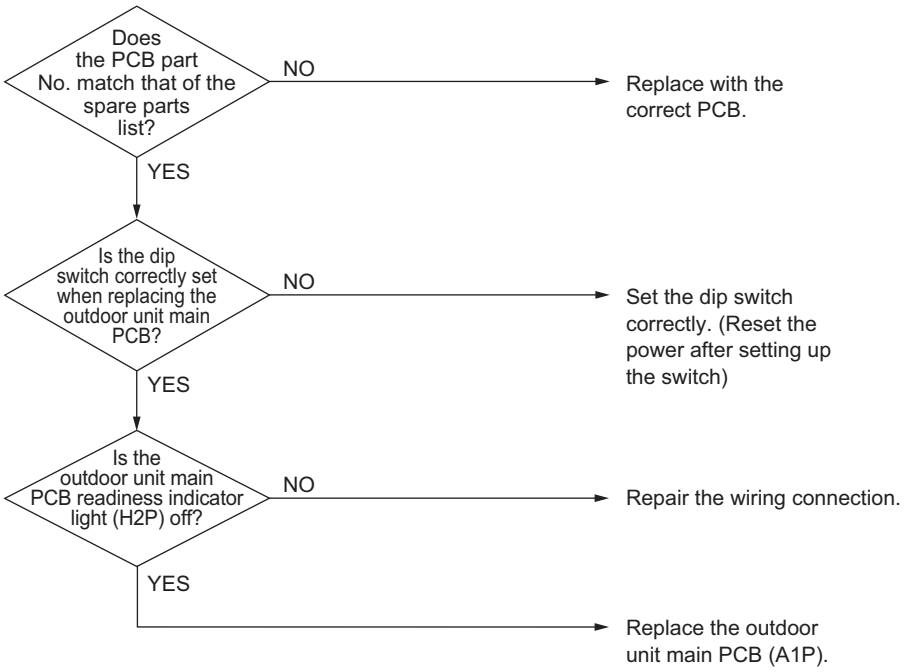
Communication data is used to determine if the types of the inverter PCB and fan PCB are correct.

Supposed Causes

- Inconsistent PCB type
- Wrong field setting

Troubleshooting

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



5.54 Field Setting after Replacing Outdoor Unit Main PCB Abnormality or Combination of PCB Abnormality

Applicable Models

RXMQ6/8AR

Error Code

PJ

Method of Error Detection

This error is detected according to communications with the outdoor unit main PCB (RXMQ6AR) or inverter PCB (RXMQ8AR).

Error Decision Conditions

Make judgment according to communication data on whether or not the type of the outdoor unit main PCB (RXMQ6AR) or inverter PCB (RXMQ8AR) is correct.

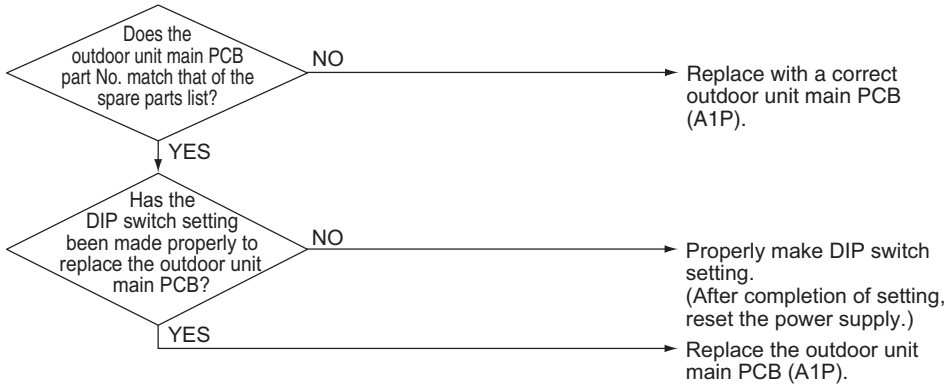
Supposed Causes

- Mismatching of type of PCB
- Improper (or no) field setting after replacing outdoor unit main PCB

Troubleshooting

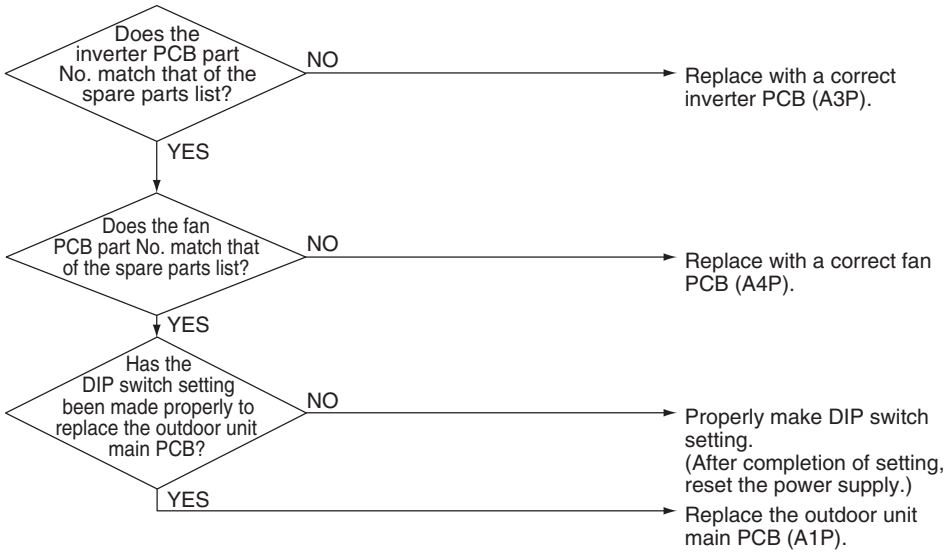
RXMQ6AR

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



RXMQ8AR

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



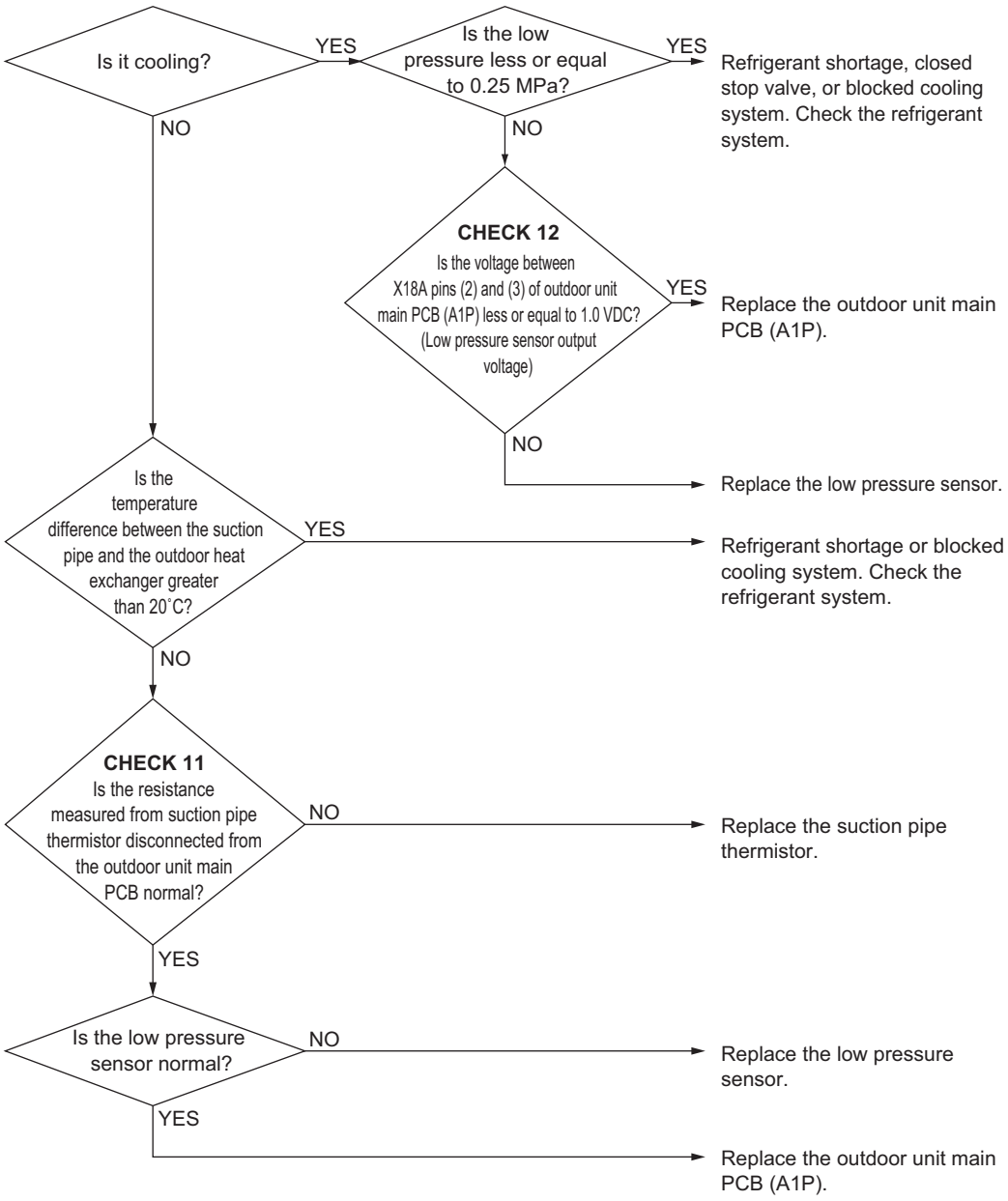
5.55 Refrigerant Shortage

5.55.1 Refrigerant Shortage (4/5 HP Models)

Applicable Models	RXQ4/5AR
Error Code	**U0**
Method of Error Detection	Refrigerant shortage check is conducted based on the discharge pipe thermistor temperature and the low-pressure saturated temperature.
Error Decision Conditions	Microcomputer is used to determine and check for system refrigerant shortage. ∗The unit can keep operating but there is an unconfirmed error.
Supposed Causes	■ Refrigerant shortage or refrigerant clogging (piping error) ■ Defective suction pipe thermistor ■ Defective pressure sensor ■ Defective outdoor unit main PCB (A1P)

Troubleshooting

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



Reference **CHECK 11** Refer to page 350.

Reference **CHECK 12** Refer to page 353.

5.55.2 Refrigerant Shortage (6/8 HP Models)

Applicable Models

RXMQ6/8AR

Error Code

U0

Sub code: 05

Method of Error Detection

Detects refrigerant shortage according to the ending conditions of cooling oil return control.

Error Decision Conditions

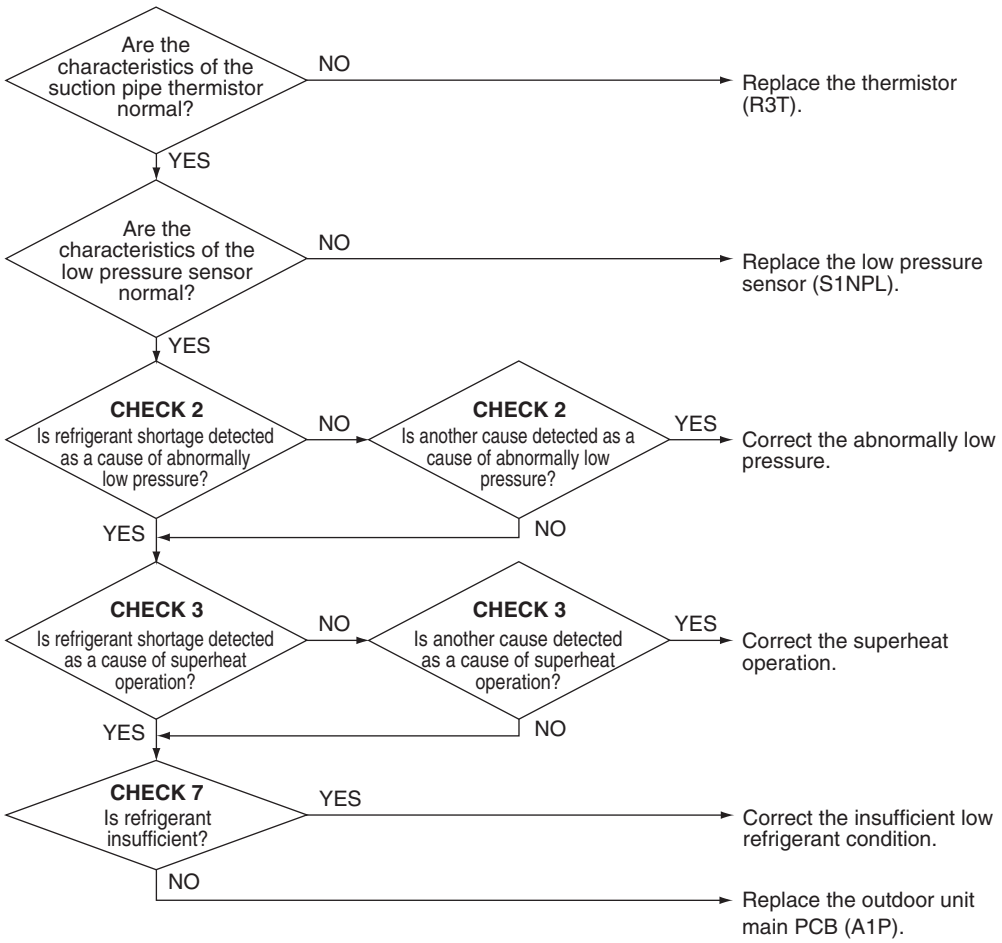
Cooling oil return control does not finish according to the ending conditions, and the time is up for 3 consecutive times.
∗ No abnormality is determined, and the operation continues.

Supposed Causes

- Refrigerant shortage and refrigerant clogging (wrong piping)
- Defective thermistor
- Defective low pressure sensor
- Defective outdoor unit main PCB

Troubleshooting

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



Reference **CHECK 2** Refer to page 338.

Reference **CHECK 3** Refer to page 339.

Reference **CHECK 7** Refer to page 346.

5.55.3 Refrigerant Shortage (10/12 HP Models)

Applicable Models

RXMQ10/12AR

Error Code

U0

Method of Error Detection

Refrigerant shortage check is conducted based on the discharge pipe thermistor temperature and the low-pressure saturated temperature.

Error Decision Conditions

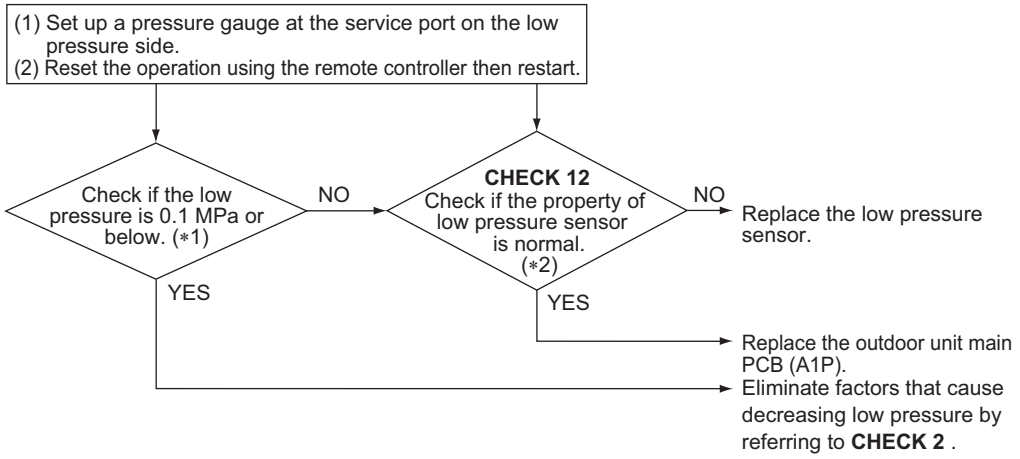
Low pressure becomes 0.1 MPa or below.

Supposed Causes

- Refrigerant shortage or refrigerant clogging (piping error)
- Defective thermistor
- Defective low pressure sensor
- Defective outdoor unit main PCB (A1P)

Troubleshooting

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



Note(s)

∗1. Check the low pressure value by using pressure gauge in operation.
∗2. Compare the actual measurement value by pressure sensor with the value by the pressure gauge.

Reference **CHECK 2** Refer to page 338.

Reference **CHECK 12** Refer to page 353.

5.56 Open Phase

Applicable Models

RXMQ8AR

Error Code

U1

Method of Error Detection

The phase of each phase is detected by phase detection circuit and open phase is judged.

Error Decision Conditions

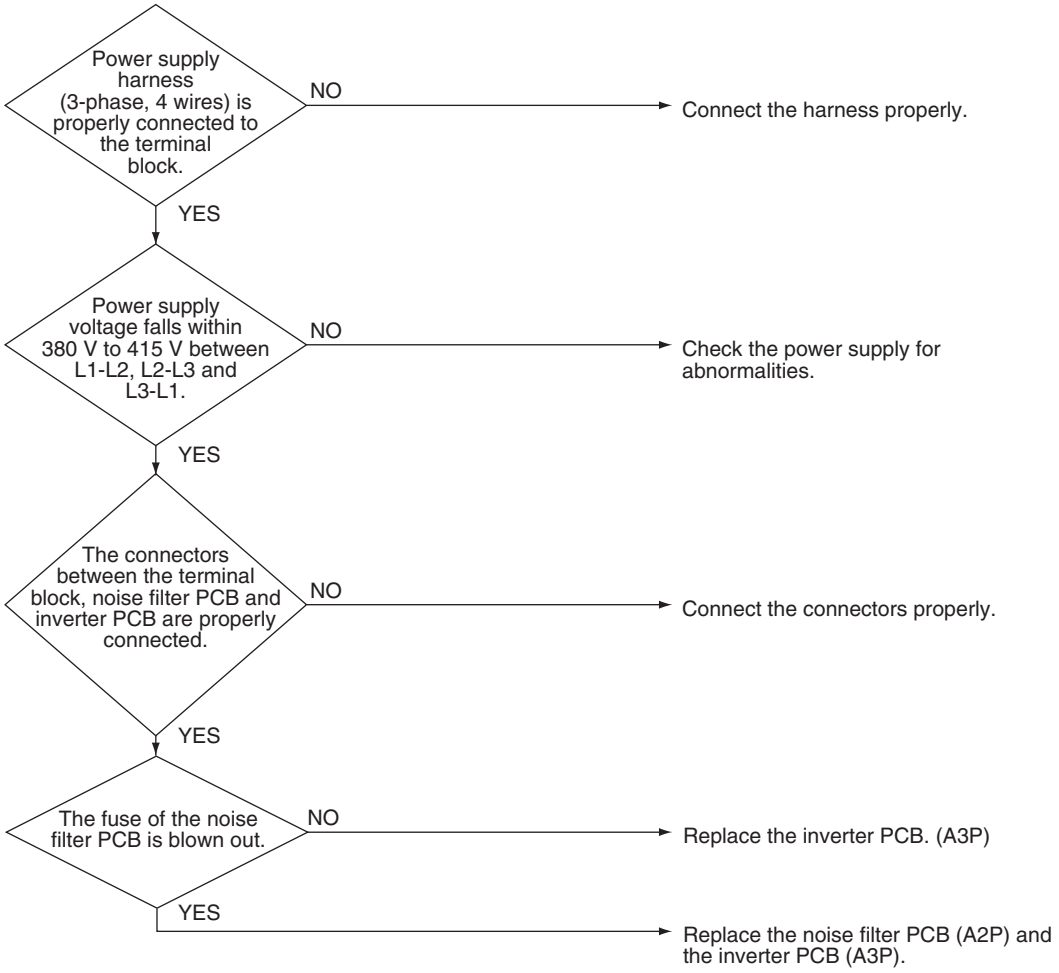
When any phase is open phase.

Supposed Causes

- Abnormal supply voltage
- Open phase
- Defective inverter PCB

Troubleshooting

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



5.57 Reverse Phase, Open Phase

Applicable Models

RXMQ10/12AR

Error Code

U1

Method of Error Detection

Each phase is detected by reverse phase detection circuit and it is determined whether the phase is reversed or not.

Error Decision Conditions

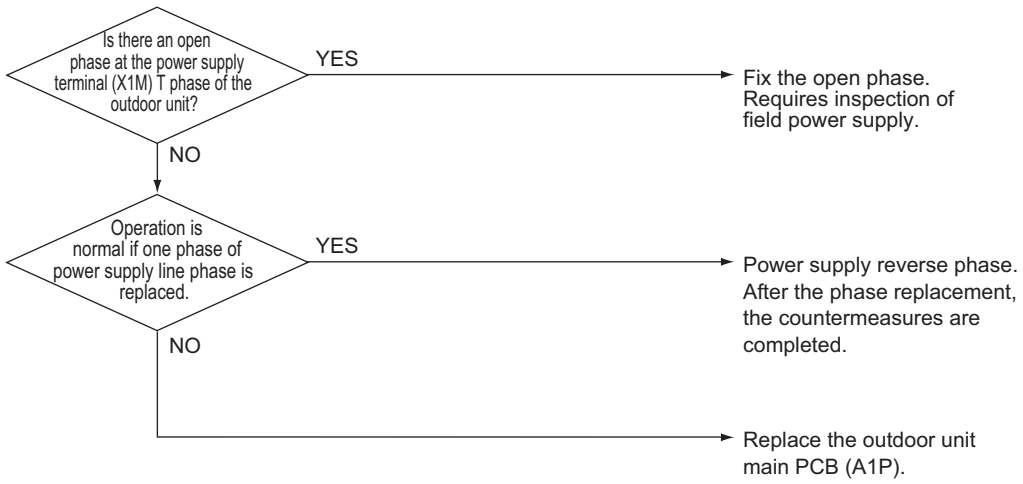
The power supply is in reverse phase, or T phase is in open phase.

Supposed Causes

- Power supply reverse phase
- Power supply T phase open phase
- Defective outdoor unit PCB

Troubleshooting

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



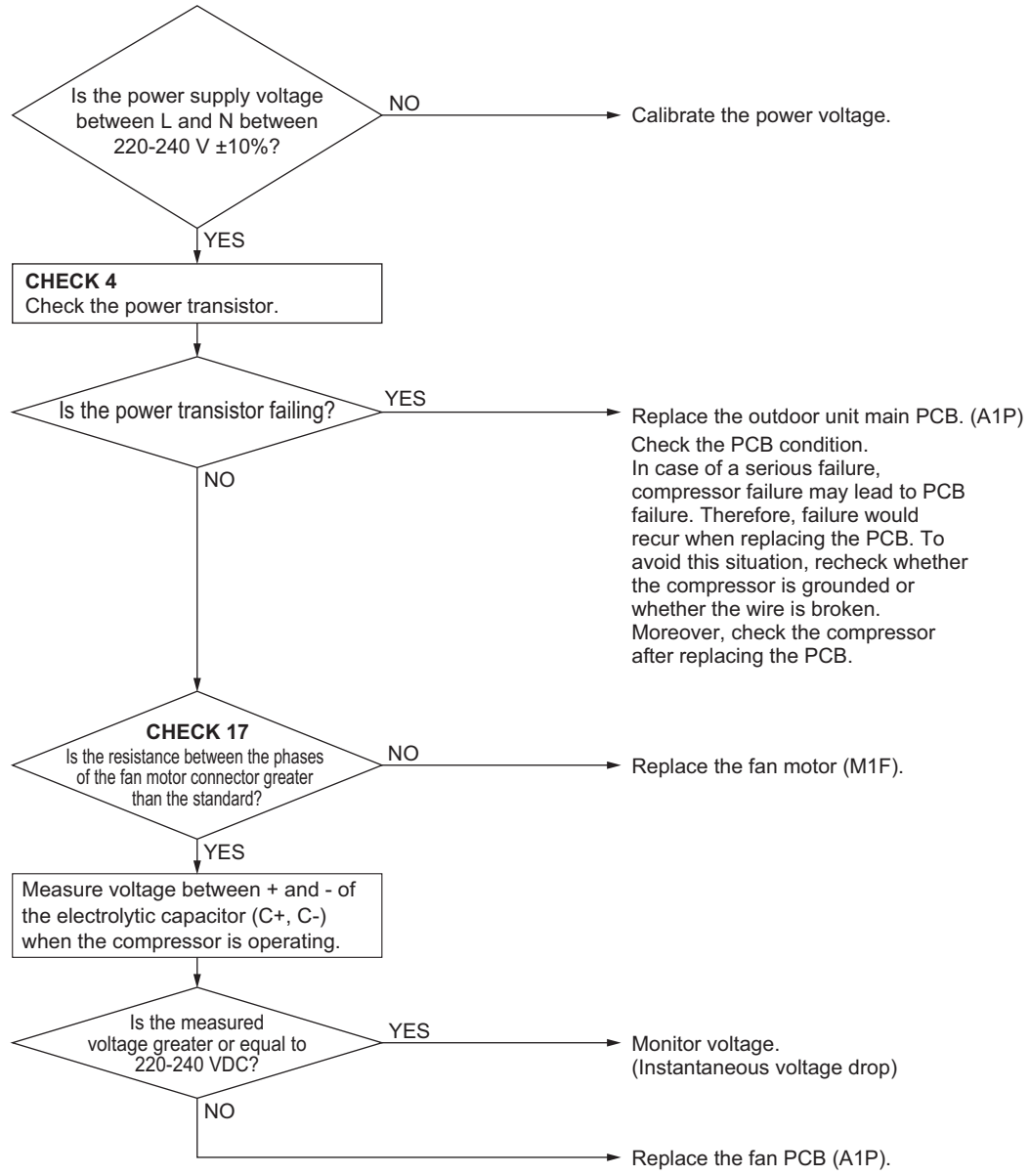
5.58 Power Supply Insufficient or Instantaneous Abnormality

5.58.1 Power Supply Insufficient or Instantaneous Abnormality (4/5 HP Models)

Applicable Models	RXQ4/5AR
Error Code	**U2**
Method of Error Detection	The main circuit capacitor voltage of the inverter and the power supply voltage is checked.
Error Decision Conditions	The main circuit capacitor of the tested inverter has abnormal voltage or the power supply voltage is abnormal.
Supposed Causes	■ Insufficient power supply ■ Instantaneous power failure ■ Defective outdoor fan motor ■ Defective outdoor unit main PCB

Troubleshooting

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



Reference **CHECK 4** Refer to page 340.

Reference **CHECK 17** Refer to page 357.

5.58.2 Power Supply Insufficient or Instantaneous Abnormality (6/8 HP Models)

Applicable Models

RXMQ6/8AR

Error Code

U2

Method of Error Detection

Detect the voltage of capacitor of the main circuit in the outdoor unit main PCB.

Error Decision Conditions

When the voltage in the DC circuit (between diode module and power module) falls below 220-240 VDC (RXMQ6AR) or 380 VDC (RXMQ8AR).

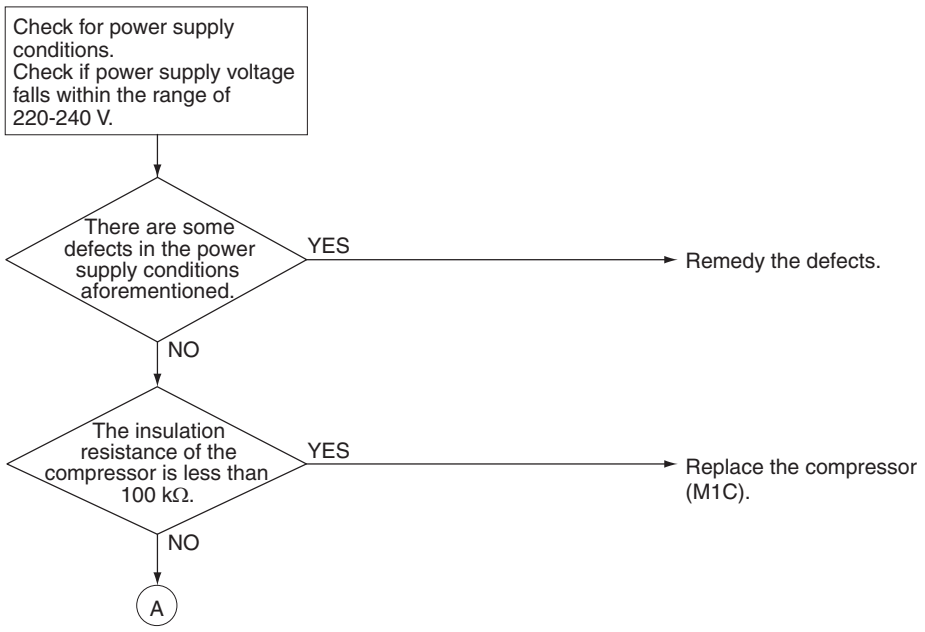
Supposed Causes

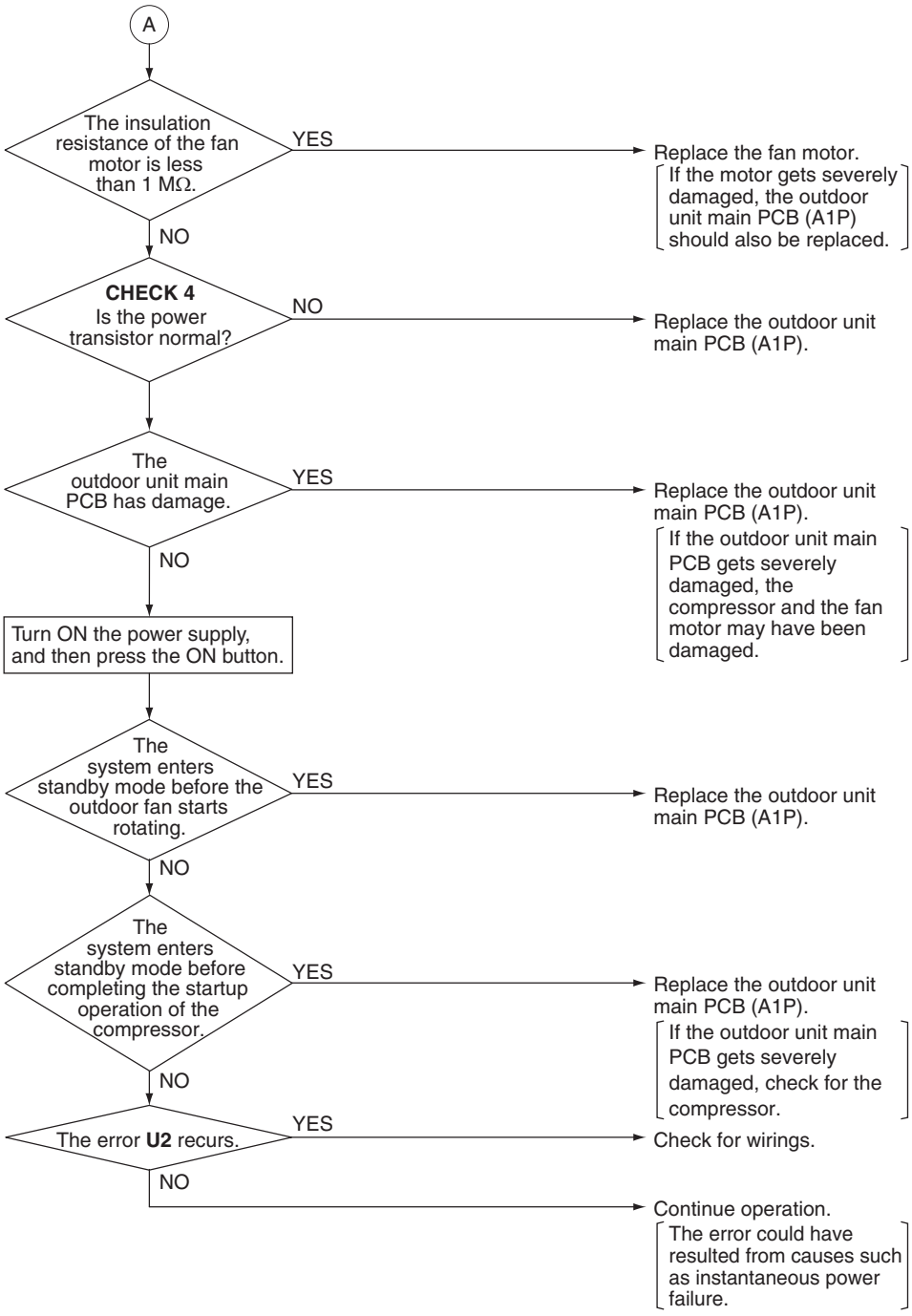
- Abnormal power supply voltage
- Instantaneous power failure
- Open phase
- Defective inverter PCB (RXMQ8AR)
- Defective outdoor unit main PCB
- Defective compressor
- Defective main circuit wiring
- Defective fan motor
- Defective connection of signal cable

Troubleshooting

RXMQ6AR

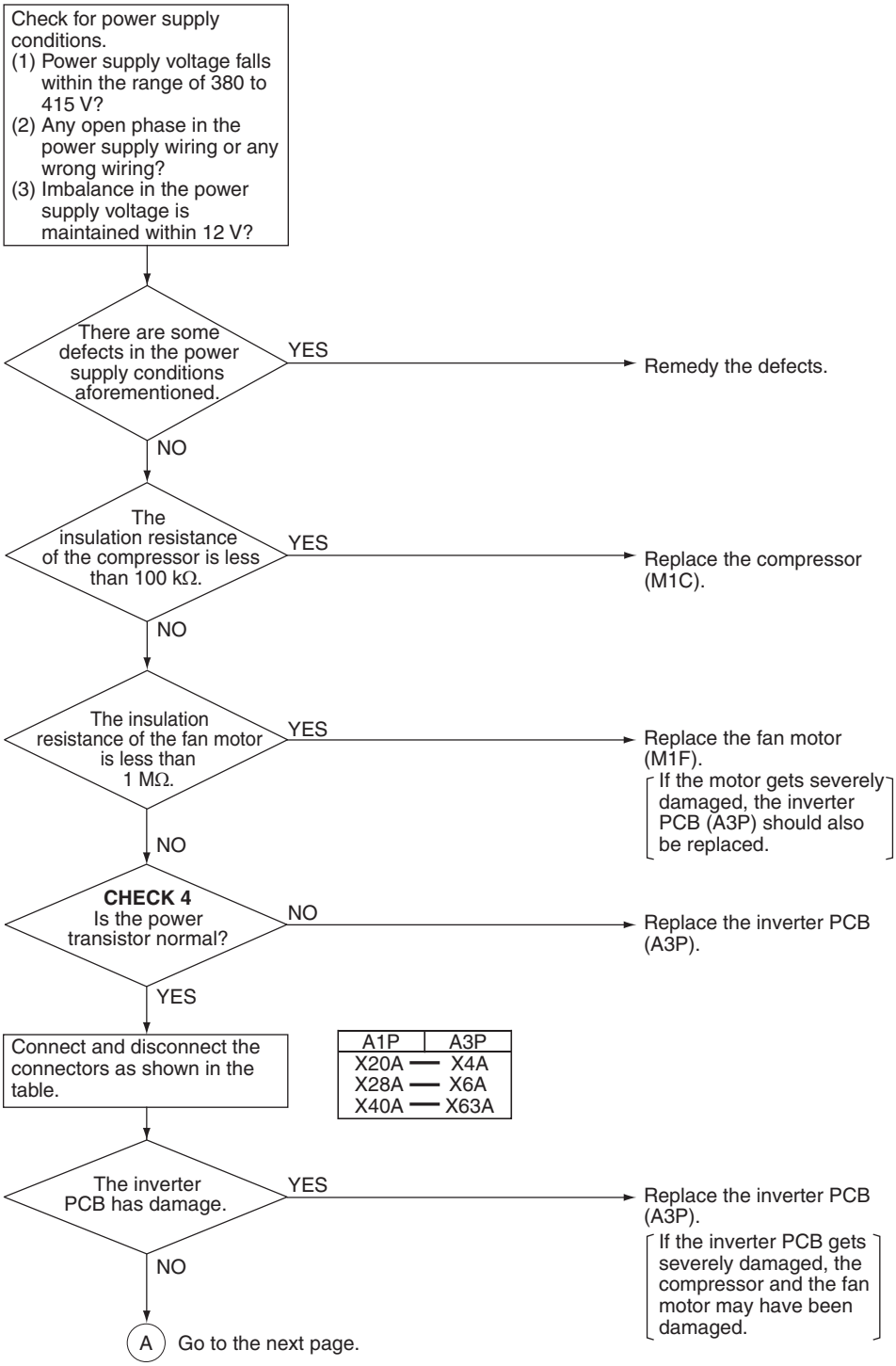
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

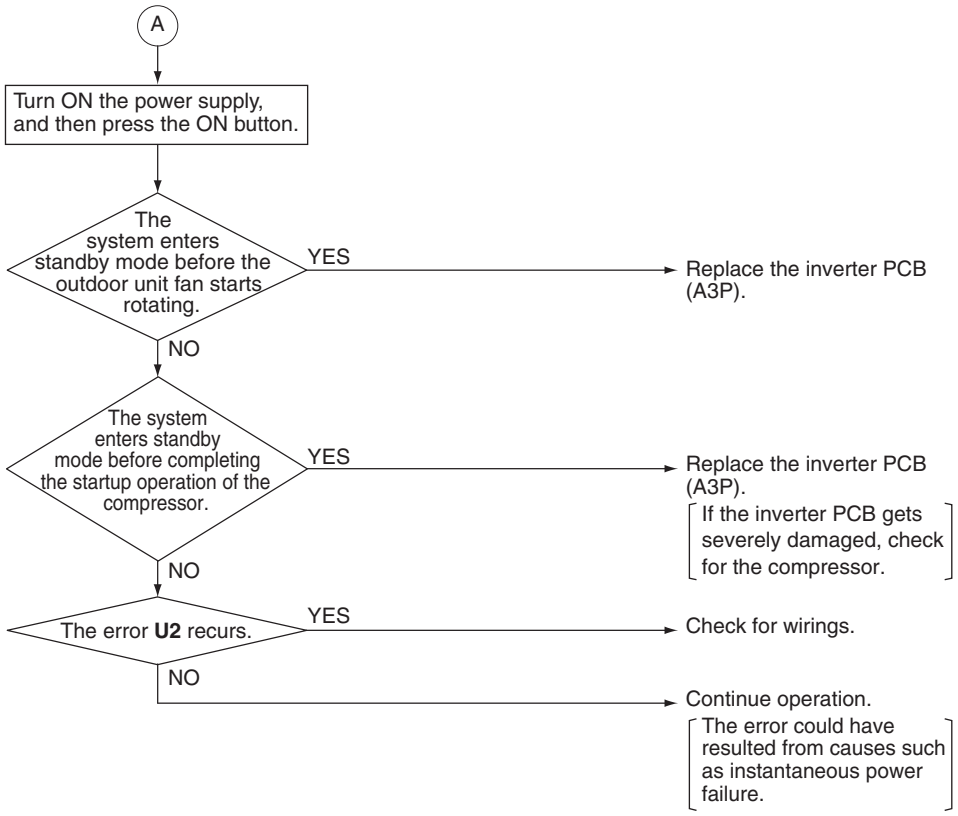



A
The insulation resistance of the fan motor is less than 1 MΩ.
YES
Replace the fan motor.
If the motor gets severely damaged, the outdoor unit main PCB (A1P) should also be replaced.
NO
CHECK 4
Is the power transistor normal?
NO
Replace the outdoor unit main PCB (A1P).
The outdoor unit main PCB has damage.
YES
Replace the outdoor unit main PCB (A1P).
If the outdoor unit main PCB gets severely damaged, the compressor and the fan motor may have been damaged.
NO
Turn ON the power supply, and then press the ON button.
The system enters standby mode before the outdoor fan starts rotating.
YES
Replace the outdoor unit main PCB (A1P).
NO
The system enters standby mode before completing the startup operation of the compressor.
YES
Replace the outdoor unit main PCB (A1P).
If the outdoor unit main PCB gets severely damaged, check for the compressor.
NO
The error U2 recurs.
YES
Check for wirings.
NO
Continue operation.
The error could have resulted from causes such as instantaneous power failure.

RXMQ8AR

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





Reference **CHECK 4** Refer to page 340.

5.58.3 Power Supply Insufficient or Instantaneous Abnormality (10/12 HP Models)

Applicable Models

RXMQ10/12AR

Error Code

U2

Method of Error Detection

Error of voltage of main circuit capacitor built in the inverter and power supply voltage.

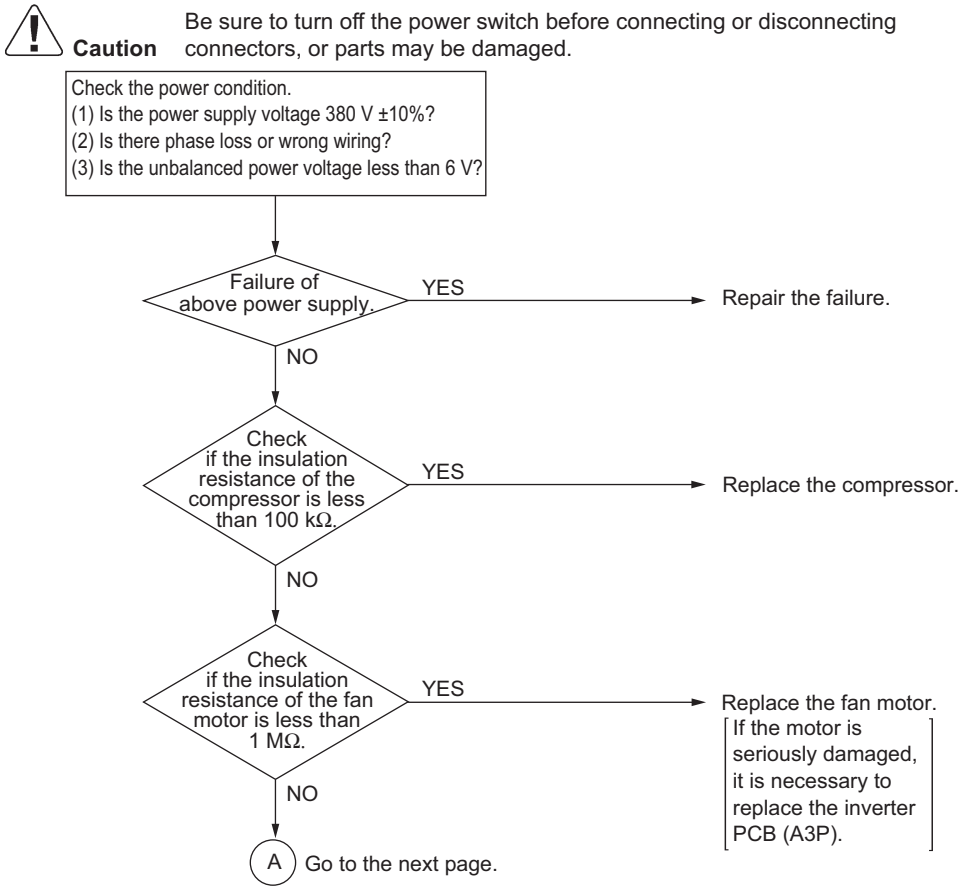
Error Decision Conditions

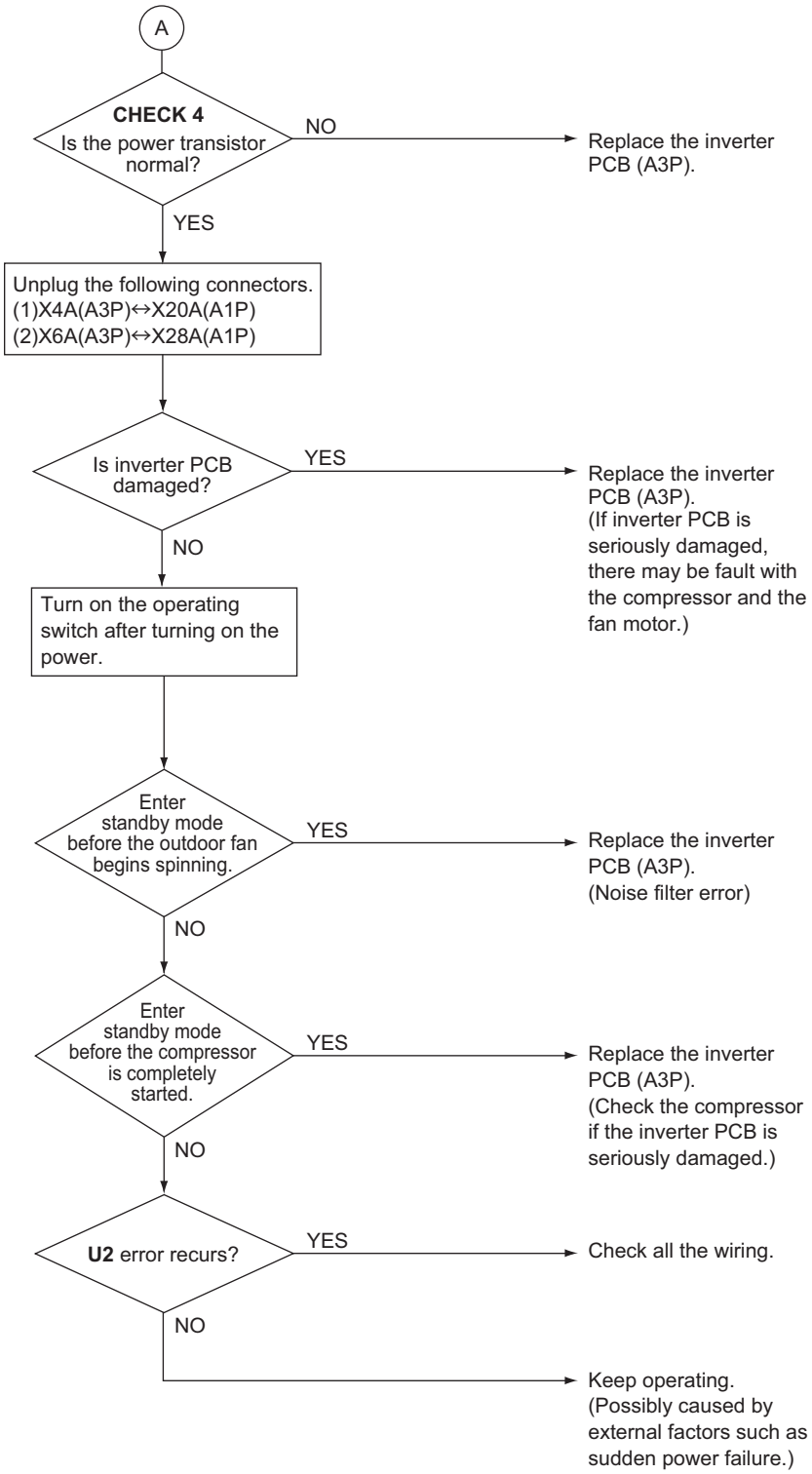
When the voltage of main circuit capacitor built in the inverter and power supply voltage is less than 320 V.

Supposed Causes

- Power supply insufficient
- Instantaneous power failure
- Open phase
- Defective inverter PCB
- Defective outdoor unit main PCB
- Defective main circuit wiring
- Defective compressor
- Defective fan motor
- Defective connection of signal cable

Troubleshooting





Reference **CHECK 4** Refer to page 340.

5.59 Check Operation Not Executed

Applicable Models

All outdoor unit models

Error Code

U3

Method of Error Detection

The check operation has not been executed.

Error Decision Conditions

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

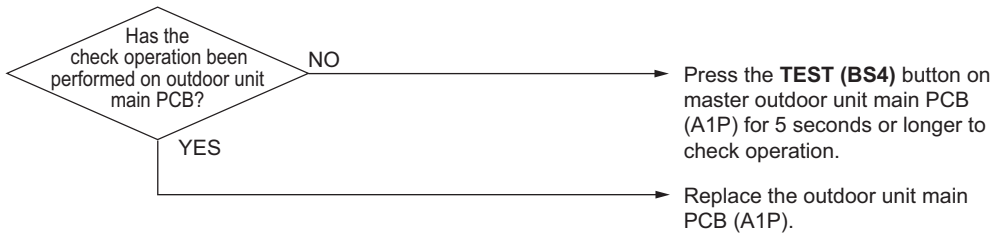
Supposed Causes

- Check operation not executed

Troubleshooting

RXQ4/5AR

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



RXMQ6/8AR

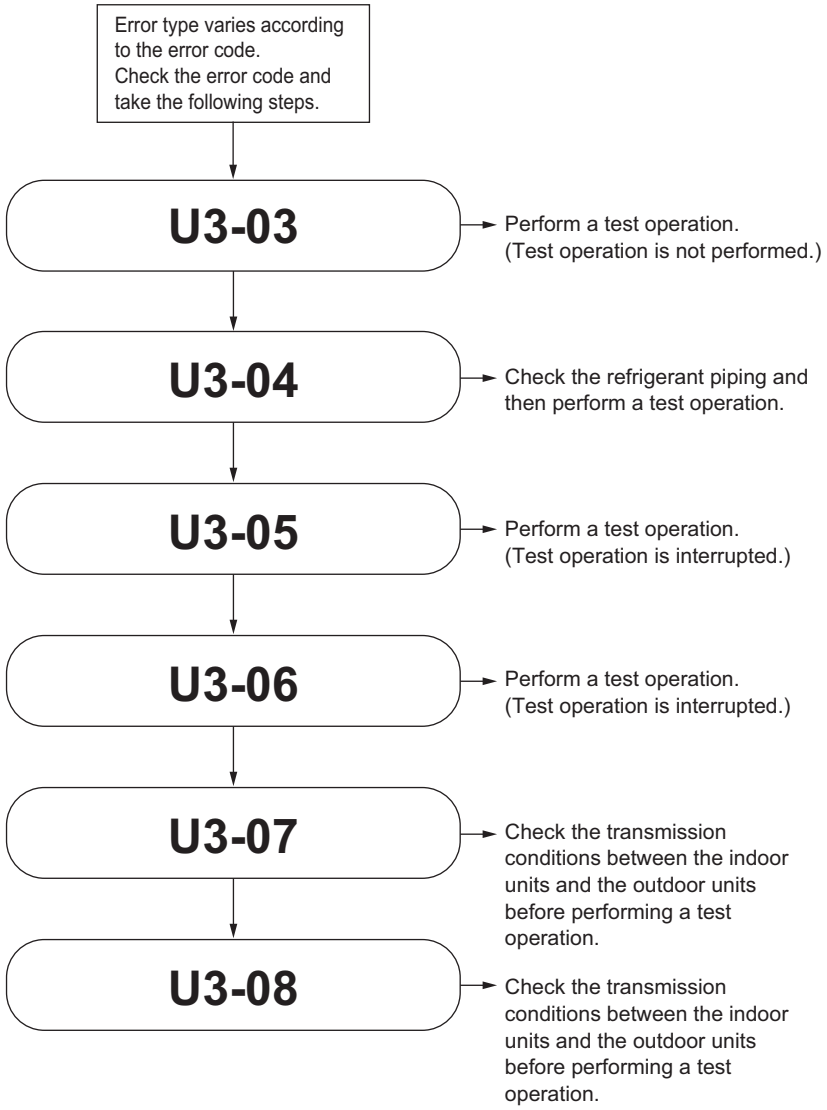
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

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

U3-02	Conduct the test operation. (Test operation failed due to indoor unit error.)
U3-03	Conduct the test operation. (The test operation has not been conducted.)
U3-04	Check for the refrigerant piping, and then conduct the test operation.
U3-05	Conduct the test operation (due to the premature end of the test operation).
U3-06	Conduct the test operation (due to the premature end of the test operation).
U3-07	Check for transmission between indoor and outdoor units, and then conduct the test operation.
U3-08	Check for transmission between indoor and outdoor units, and then conduct the test operation.
U3-10	Conduct the refrigerant auto charge operation. (The refrigerant auto charge operation has not been conducted.)

RXMQ10/12AR

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



5.60 Transmission Error between Indoor Units and Outdoor Units

Applicable Models
All indoor unit models
All outdoor unit models

Error Code
U4

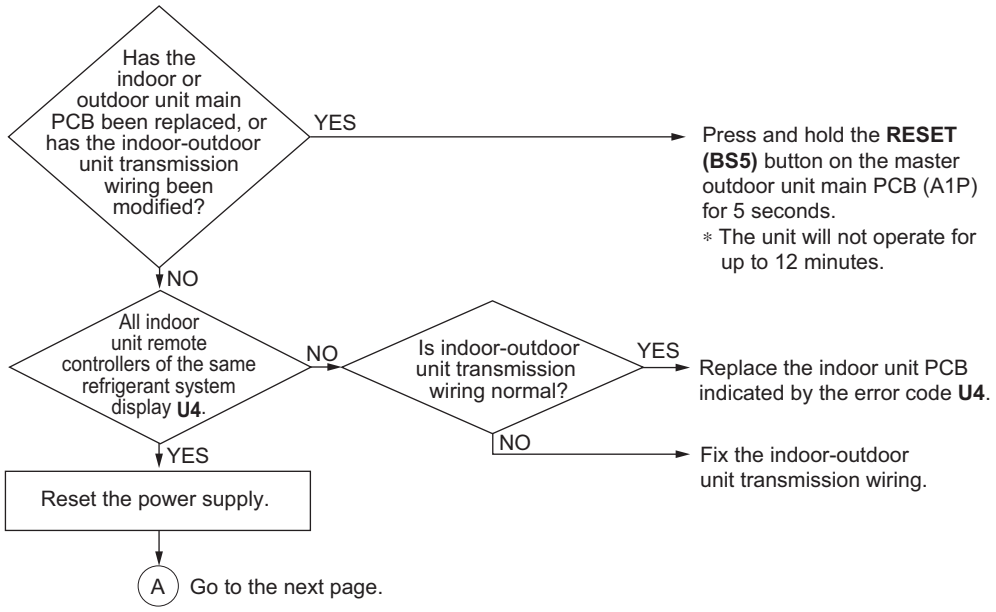
Method of Error Detection
Microcomputer checks if transmission between indoor and outdoor units is normal.

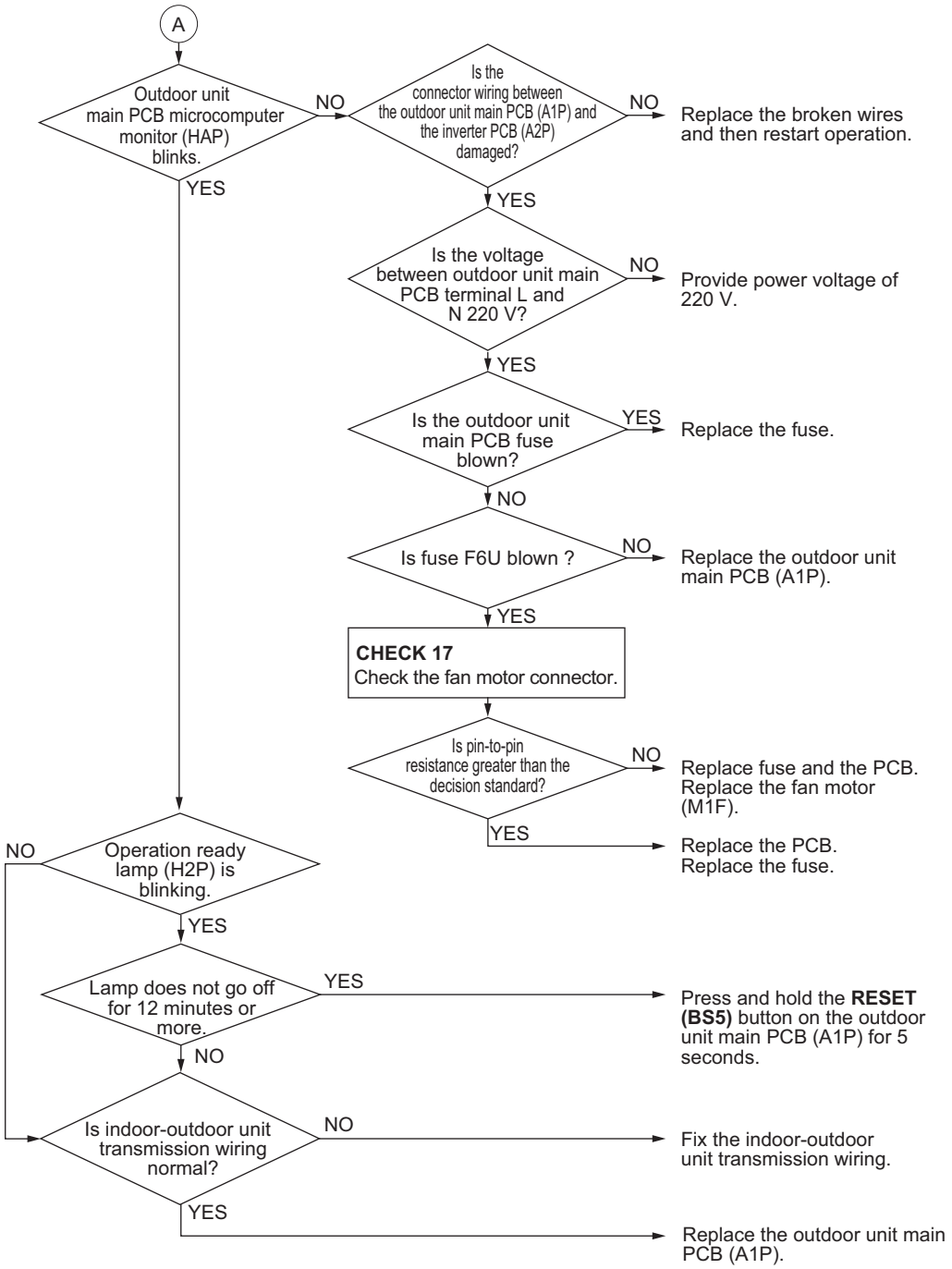
Error Decision Conditions
Transmission is not carried out normally for a certain amount of time.

Supposed Causes
- Short circuit, wrong wiring, disconnection, or poor contact in indoor-outdoor transmission wiring (F1/F2)
- Outdoor unit power supply is OFF
- System address does not match
- Defective indoor unit PCB
- Defective outdoor unit main PCB

Troubleshooting
- **RXQ4/5AR**

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

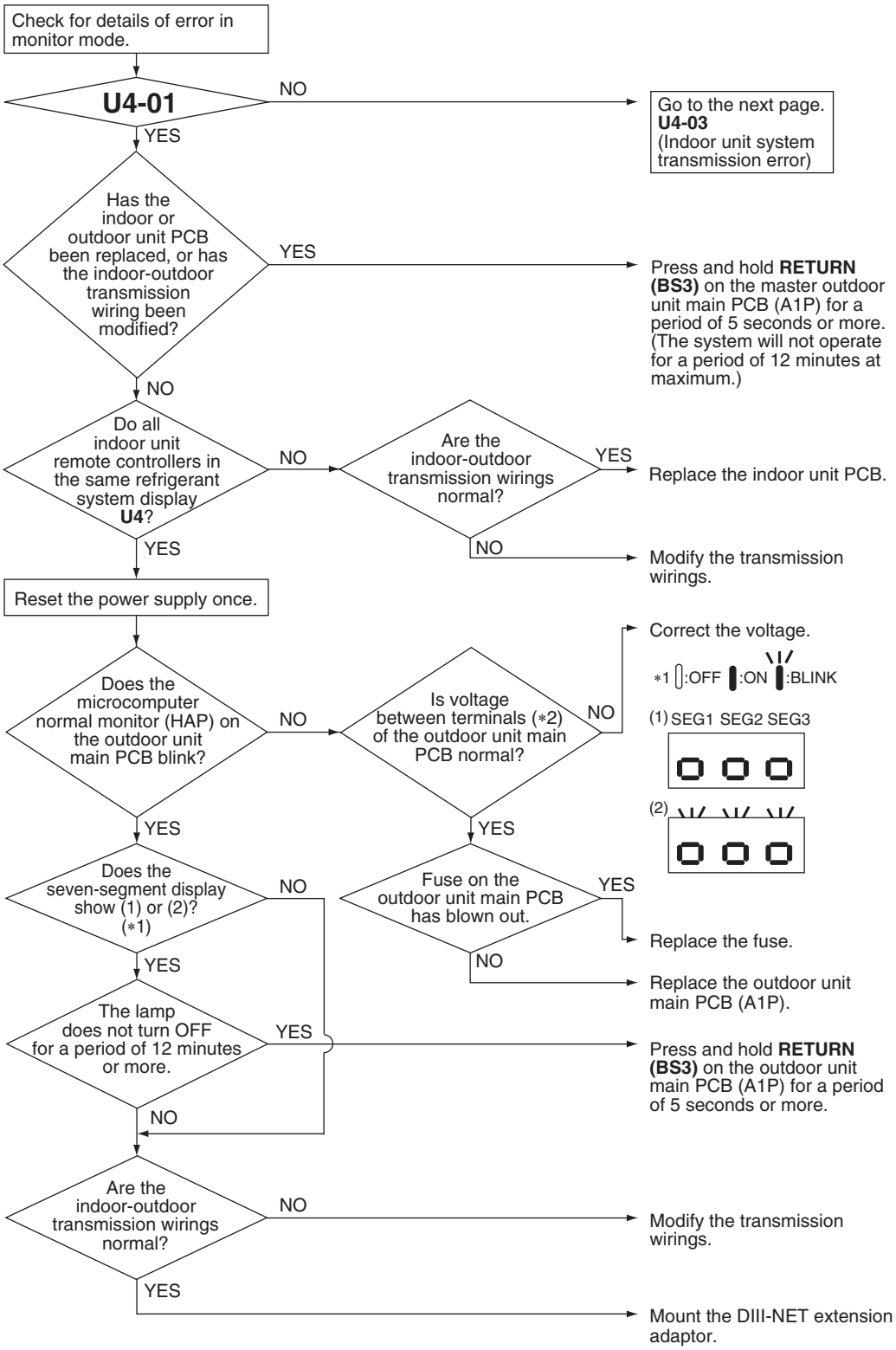




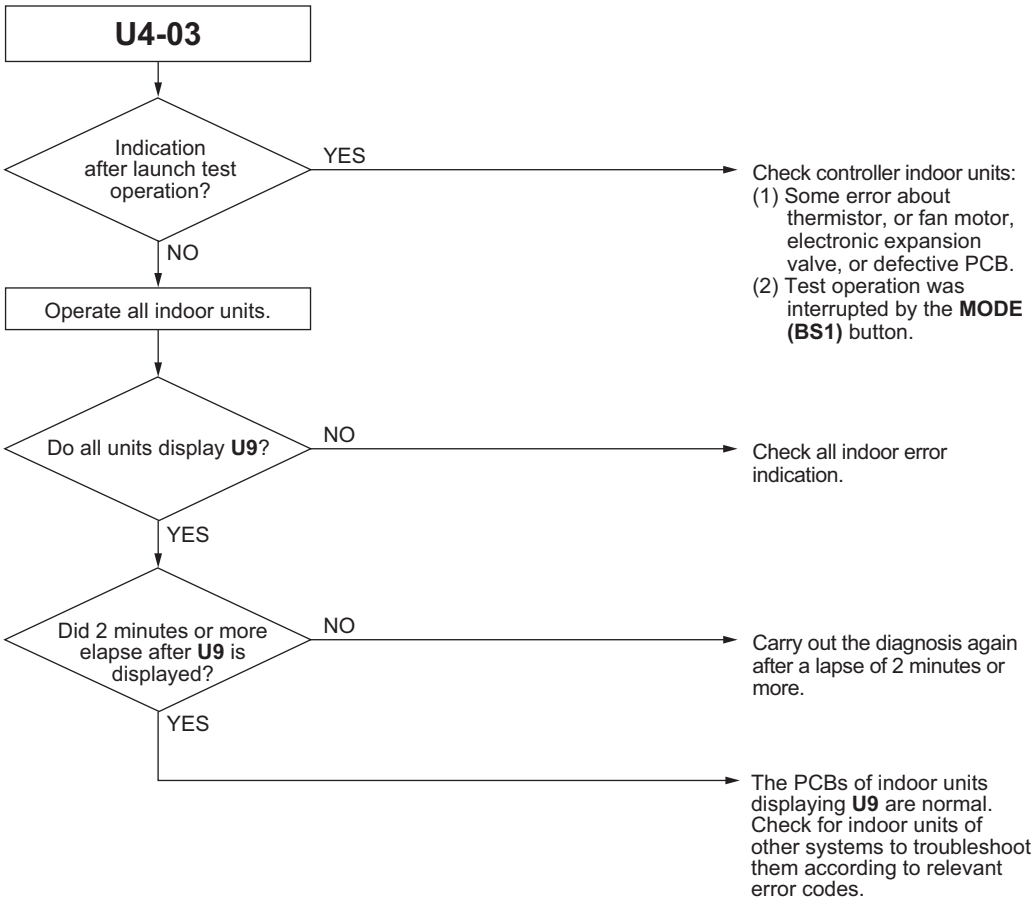
Reference **CHECK 17** Refer to page 357.

RXMQ6-12AR

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



Note(s) *2. RXMQ6AR: 220-240V between L and N
RXMQ8-12AR: 380-415V between L1 and N


U4-03
Indication after launch test operation?
YES
Check controller indoor units:
(1) Some error about thermistor, or fan motor, electronic expansion valve, or defective PCB.
(2) Test operation was interrupted by the **MODE (BS1)** button.
NO
Operate all indoor units.
Do all units display **U9**?
NO
Check all indoor error indication.
YES
Did 2 minutes or more elapse after **U9** is displayed?
NO
Carry out the diagnosis again after a lapse of 2 minutes or more.
YES
The PCBs of indoor units displaying **U9** are normal. Check for indoor units of other systems to troubleshoot them according to relevant error codes.

5.61 Transmission Error between Remote Controller and Indoor Unit

Applicable Models

All indoor unit models

Error code

U5

Method of Error Detection

Microcomputer checks if transmission between indoor unit and remote controller is normal.

Error Decision Conditions

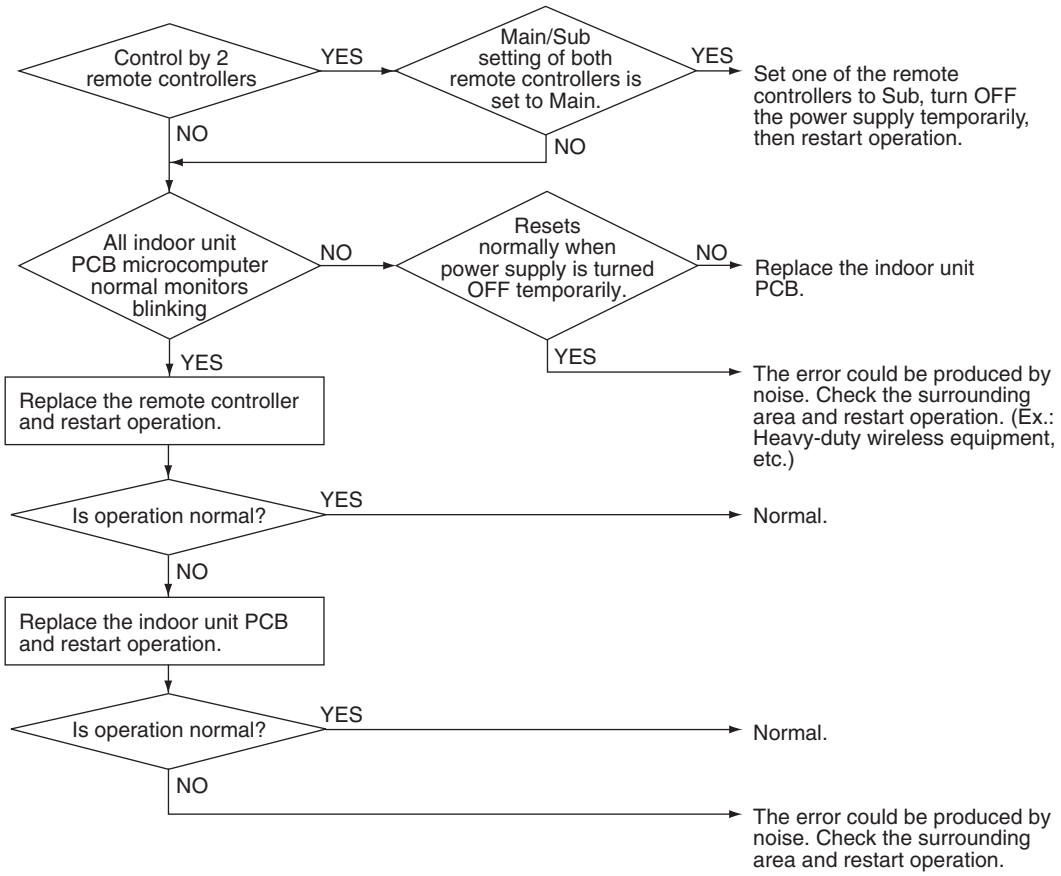
When transmission is not carried out normally for a certain amount of time.

Supposed Causes

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

Troubleshooting

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



Reference Refer to page 43 for Main/Sub setting.

5.62 Transmission Error between Main and Sub Remote Controllers

Applicable Models

All indoor unit models

Error code

U8

Method of Error Detection

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

Error Decision Conditions

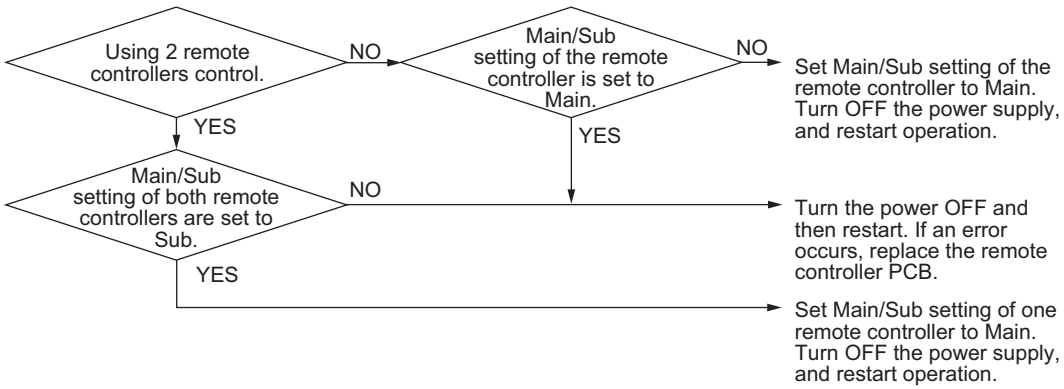
Transmission is not carried out normally for a certain amount of time.

Supposed Causes

- Transmission error between main and sub remote controller
- Connection between sub remote controllers
- Defective remote controller PCB

Troubleshooting

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



Reference Refer to page 43 for Main/Sub setting.

5.63 Other Indoor Units and Outdoor Unit Abnormality

Applicable Models
All indoor unit models
All outdoor unit models

Error Code
U9

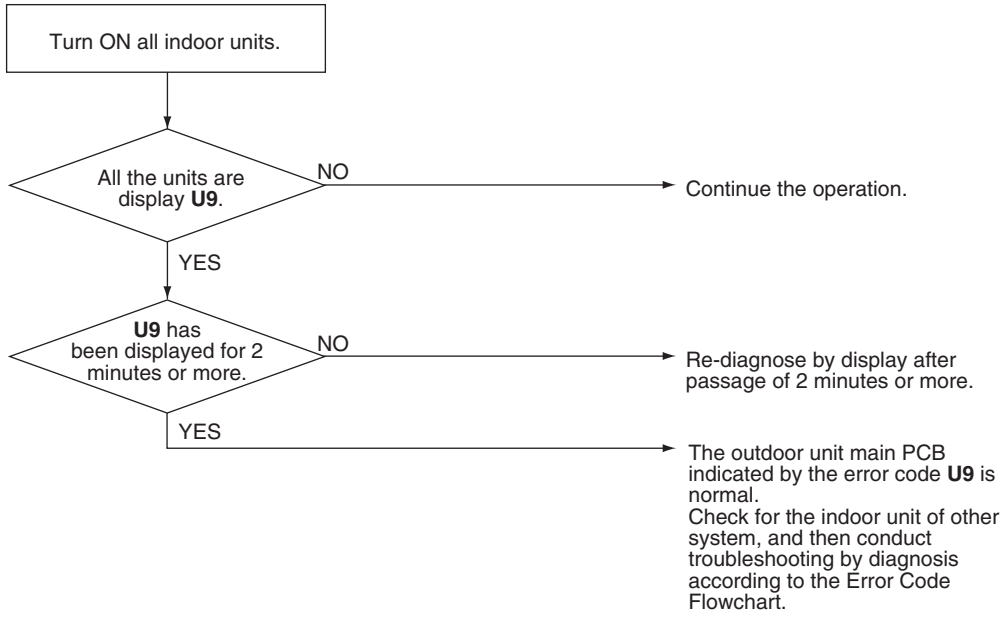
Method of Error Detection
Detect the error signal for the other indoor unit within the circuit by outdoor unit main PCB.

Error Decision Conditions
The error decision is made on any other indoor units within the system concerned.

Supposed Causes
- Transmission error between other indoor and outdoor units
- Defective electronic expansion valve of other indoor unit
- Defective indoor unit PCB of other indoor unit
- Improper connection of transmission wiring between indoor and outdoor unit

Troubleshooting

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

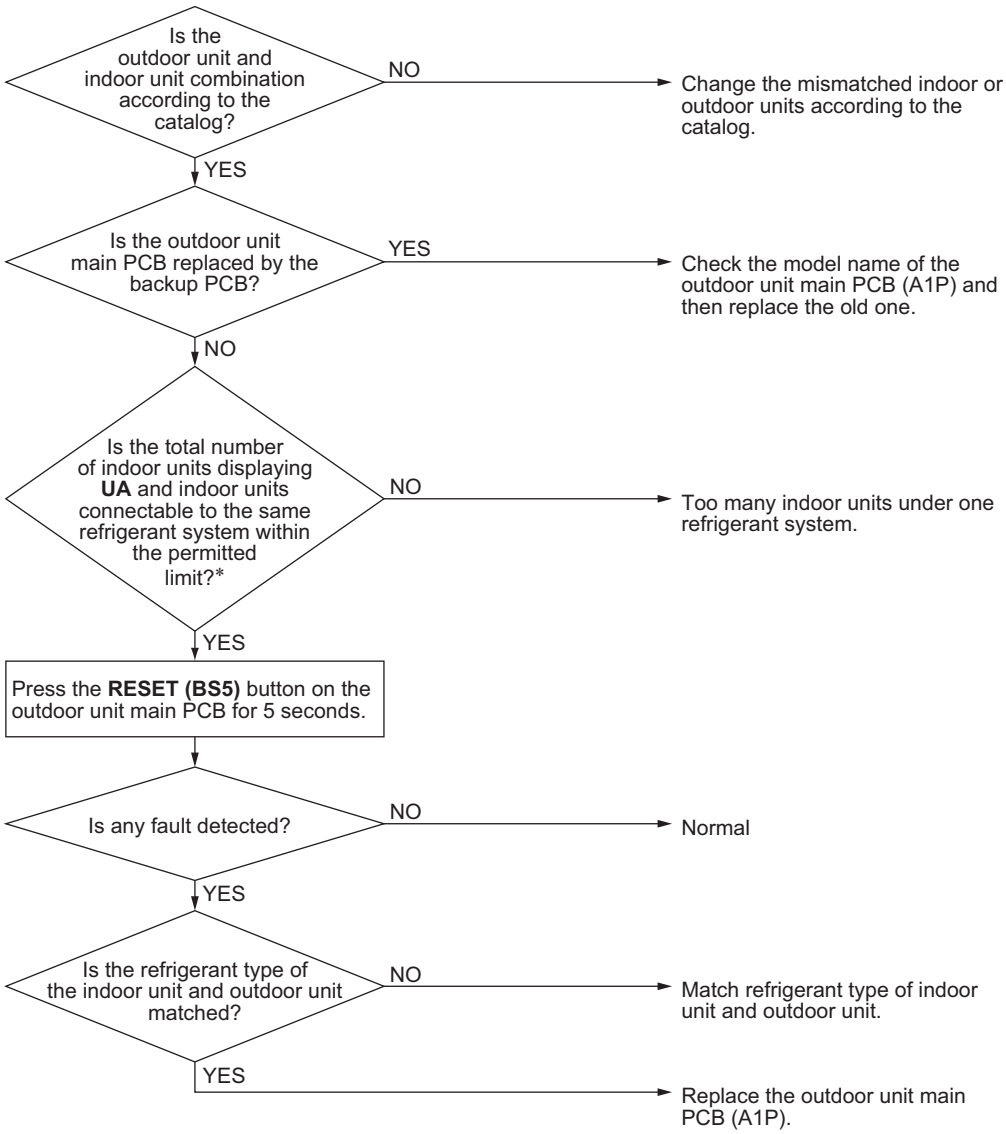


5.64 Improper Combination of Indoor Unit and Outdoor Unit, Indoor Unit and Remote Controller

Applicable Models	All indoor unit models All outdoor unit models
Error Code	**UA**
Method of Error Detection	A difference occurs in data by the type of refrigerant between indoor and outdoor units. The number of indoor units connected is out of the allowable range.
Error Decision Conditions	■ The error decision is made as soon as either of the abnormalities aforementioned is detected. ■ Mismatching of indoor and outdoor units PCB connection.
Supposed Causes	■ Excess of connected indoor units ■ Defective outdoor unit main PCB ■ Mismatch of the refrigerant type of indoor and outdoor unit. ■ Setting of outdoor unit main PCB was not carried out after replacing to spare PCB.

Troubleshooting RXQ4/5AR

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



* The number of indoor units that may be connected to an outdoor unit is determined by the model of the outdoor unit.

RXMQ6-12AR

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

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

UA-17
Error code 08 Sub code 13
→ Go to Diagnosis Flowchart-1. (Connection of excess indoor units)

UA-18
Error code 08 Sub code 18
→ Go to Diagnosis Flowchart-2. (Connection of incorrect models of indoor units)

UA-21
Error code 08 Sub code 20
→ Go to Diagnosis Flowchart-3. (Wrong connection)

Diagnosis Flowchart-1

UA-17
Error code 08 Sub code 13

The number of indoor units connected to the same system is less than 64.
- YES → Replace the outdoor unit main PCB (A1P).
- NO → Excess indoor units are connected. Check for the connection to connect the proper number of indoor units.

Diagnosis Flowchart-2

UA-18
Error code 08 Sub code 18

Check if the refrigerant type of the outdoor unit corresponds to that of the indoor unit.
- YES → Replace the outdoor unit main PCB (A1P).
- NO → Match the refrigerant types of the outdoor unit and the indoor unit.

Diagnosis Flowchart-3

UA-21
Error code 08 Sub code 20
→ Replace the outdoor unit main PCB (A1P).

5.65 Address Duplication of Centralized Controller

Applicable Models
All indoor unit models
Centralized controller

Error Code
UC

Method of Error Detection
An indoor unit detects the same address as that of its own on any other indoor unit.

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

Supposed Causes
- Address duplication of centralized controller
- Defective indoor unit PCB

Troubleshooting

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

The centralized address is duplicated. → Make setting change so that the centralized address will not be duplicated.

5.66 Transmission Error between Centralized Controller and Indoor Unit

Applicable Models

All indoor unit models
Schedule timer
Central remote controller
intelligent Touch Controller

Error Code

UE

Method of Error Detection

Microcomputer checks if transmission between indoor unit and centralized controller is normal.

Error Decision Conditions

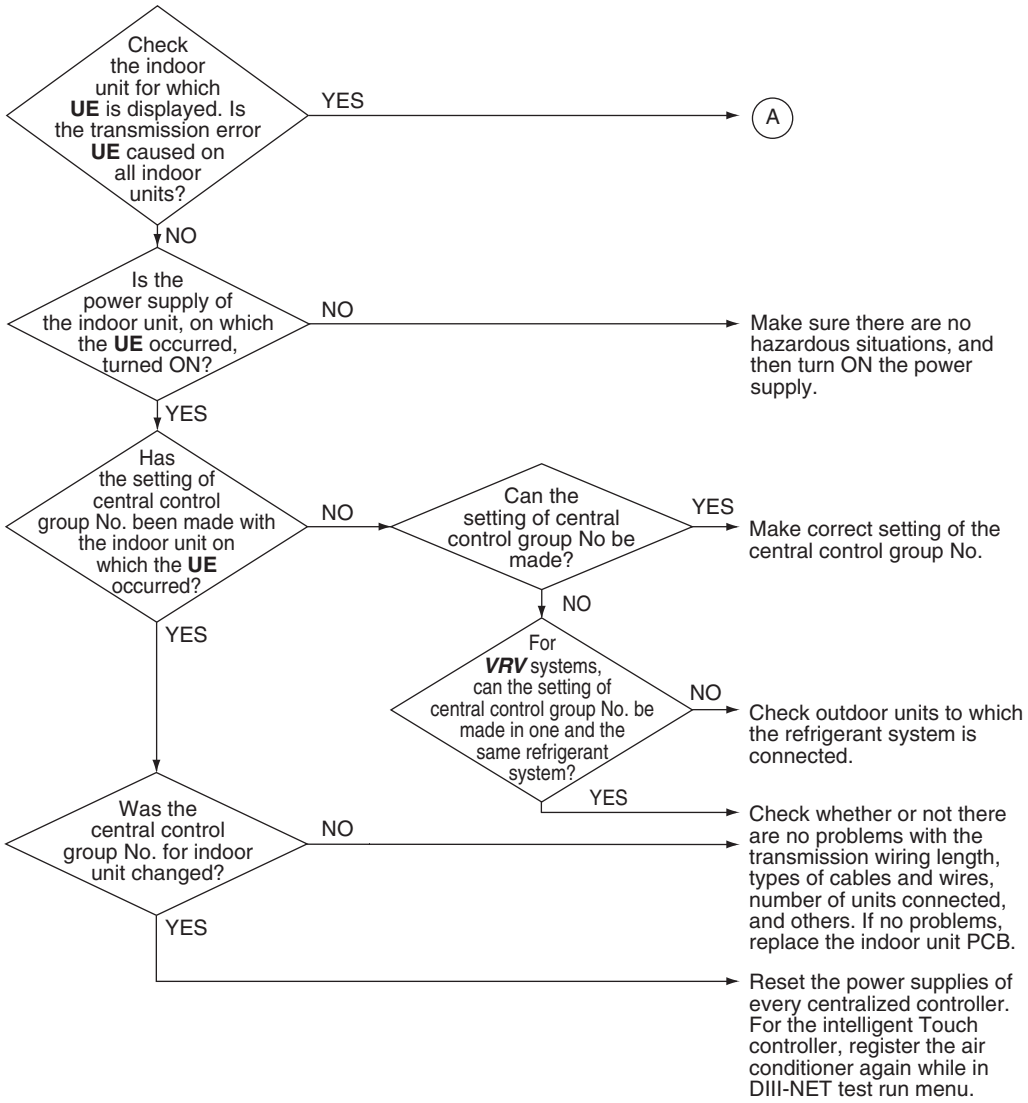
Transmission is not carried out normally for a certain amount of time

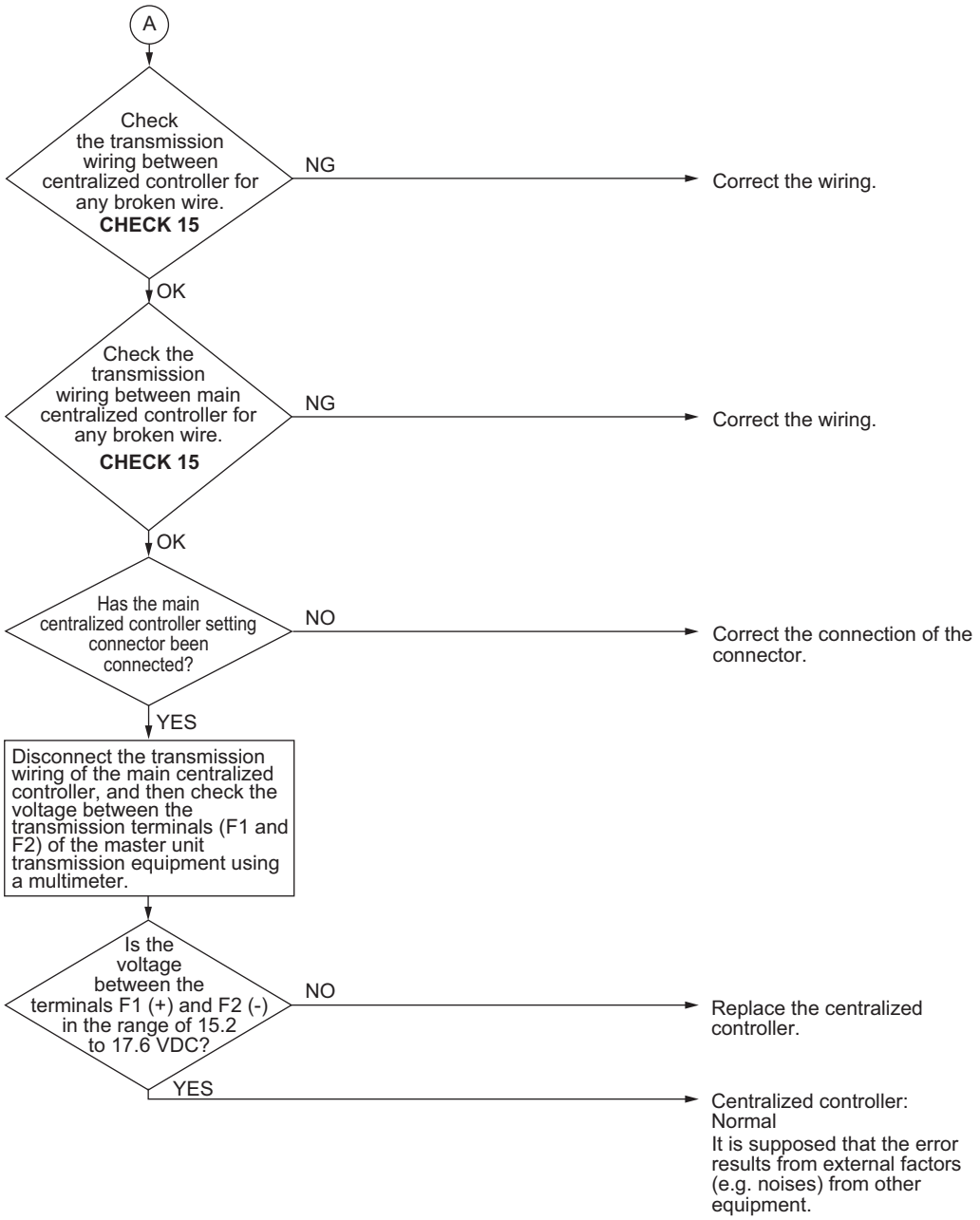
Supposed Causes

- Transmission error between optional controllers for centralized controller and indoor unit
- Connector for setting main controller is disconnected.
  (or disconnection of connector for independent / combined use changeover switch.)
- Defective PCB for central 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.





Reference **CHECK 15** Refer to page 355.

5.67 System Not Set Yet

Applicable Models
All indoor unit models
All outdoor unit models

Error Code
UF

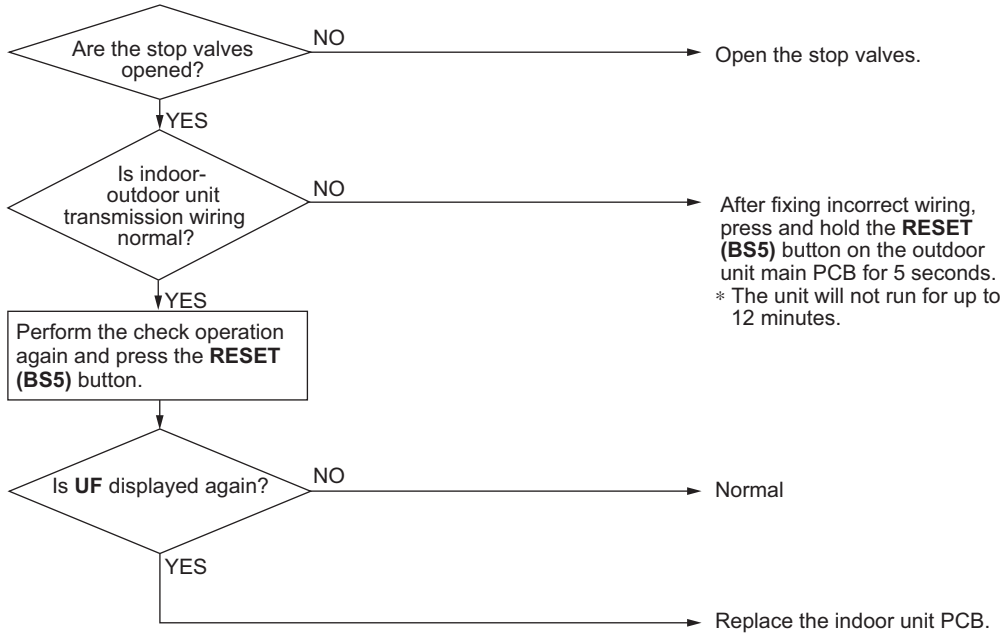
Method of Error Detection
On check operation, the number of indoor units in terms of transmission is not corresponding to that of indoor units that have made changes in temperature.

Error Decision Conditions
The error is determined as soon as the abnormality aforementioned is detected through checking the system for any erroneous connection of units on the check operation.

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

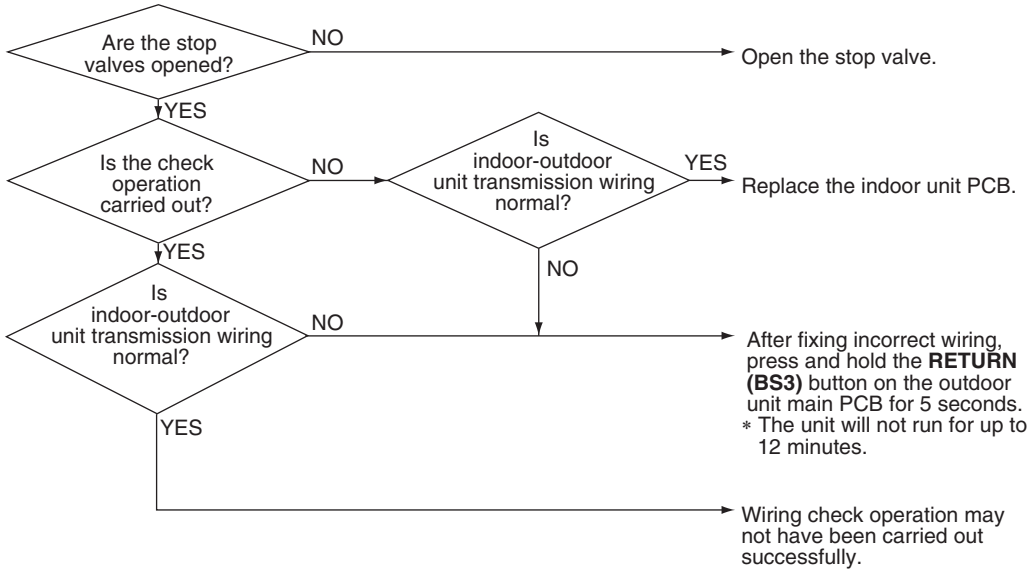
Troubleshooting
RXQ4/5AR

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



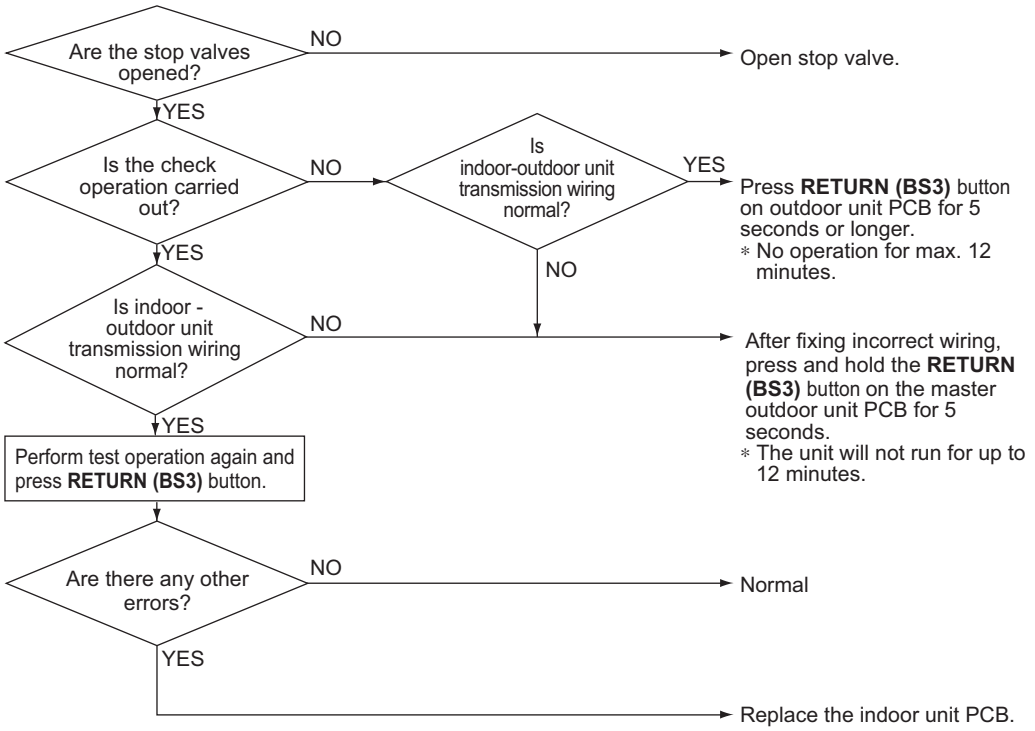
RXMQ6/8AR

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



RXMQ10/12AR

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



5.68 System Abnormality, Refrigerant System Address Undefined

Applicable Models
All indoor unit models
All outdoor unit models

Error Code
UH

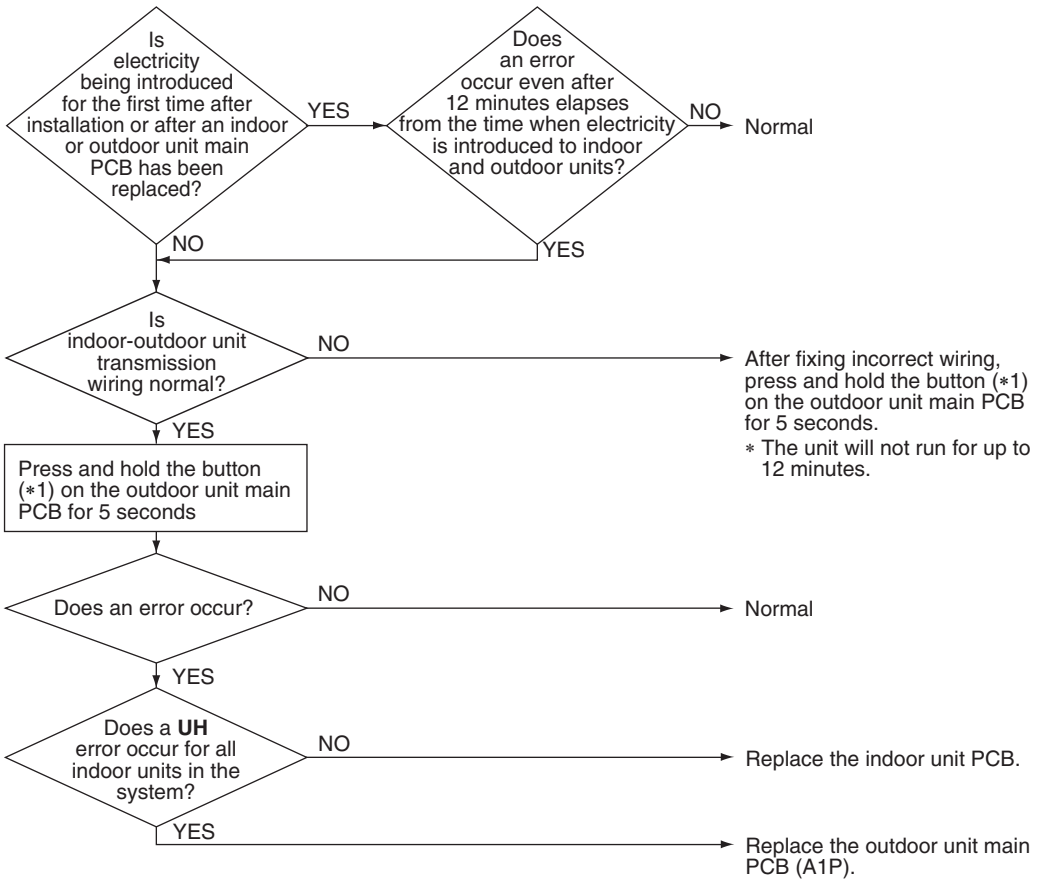
Method of Error Detection
System detects an indoor unit whose address is not defined by automatic address function.
∗ Automatic address refers to the automatic designated address of indoor unit and outdoor unit when connected to the power after installation or wiring replacement.

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

Supposed Causes
- Improper connection of transmission wiring between indoor-outdoor units
- Defective indoor unit PCB
- Defective outdoor unit main PCB

Troubleshooting

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



Note(s)
∗1. RXQ4/5AR: **RESET (BS5)**
RXMQ6-12AR: **RETURN (BS3)**

5.69 Defective PCB

Applicable Models

Centralized controller
intelligent Touch Controller
Schedule timer

Error Code

M1

Method of Error Detection

DIII-NET polarity circuit defective conditions are used to detect the error.

Error Decision Conditions

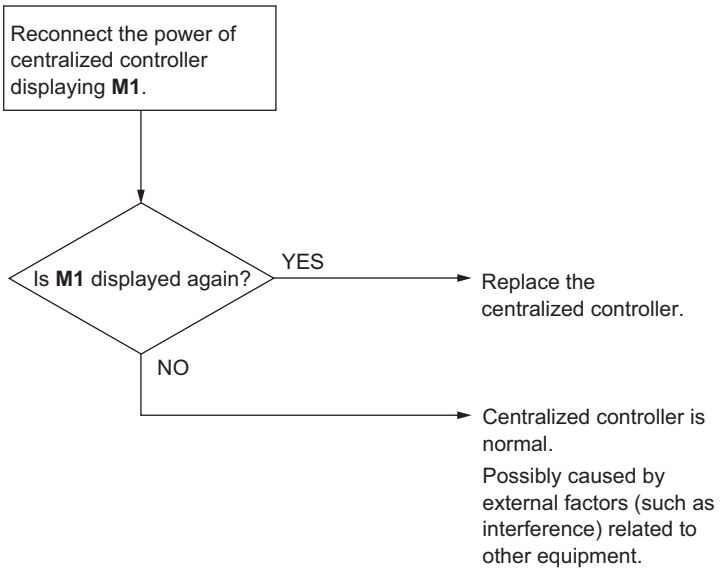
The test detects both positive polarity and negative polarity.

Supposed Causes

- Defective centralized controller PCB
- Defective intelligent touch controller PCB
- Defective schedule timer PCB

Troubleshooting

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



5.70 Transmission Error (between Centralized Controllers)

Applicable Models
Centralized controller
intelligent Touch Controller
Schedule timer

Error Code
M8

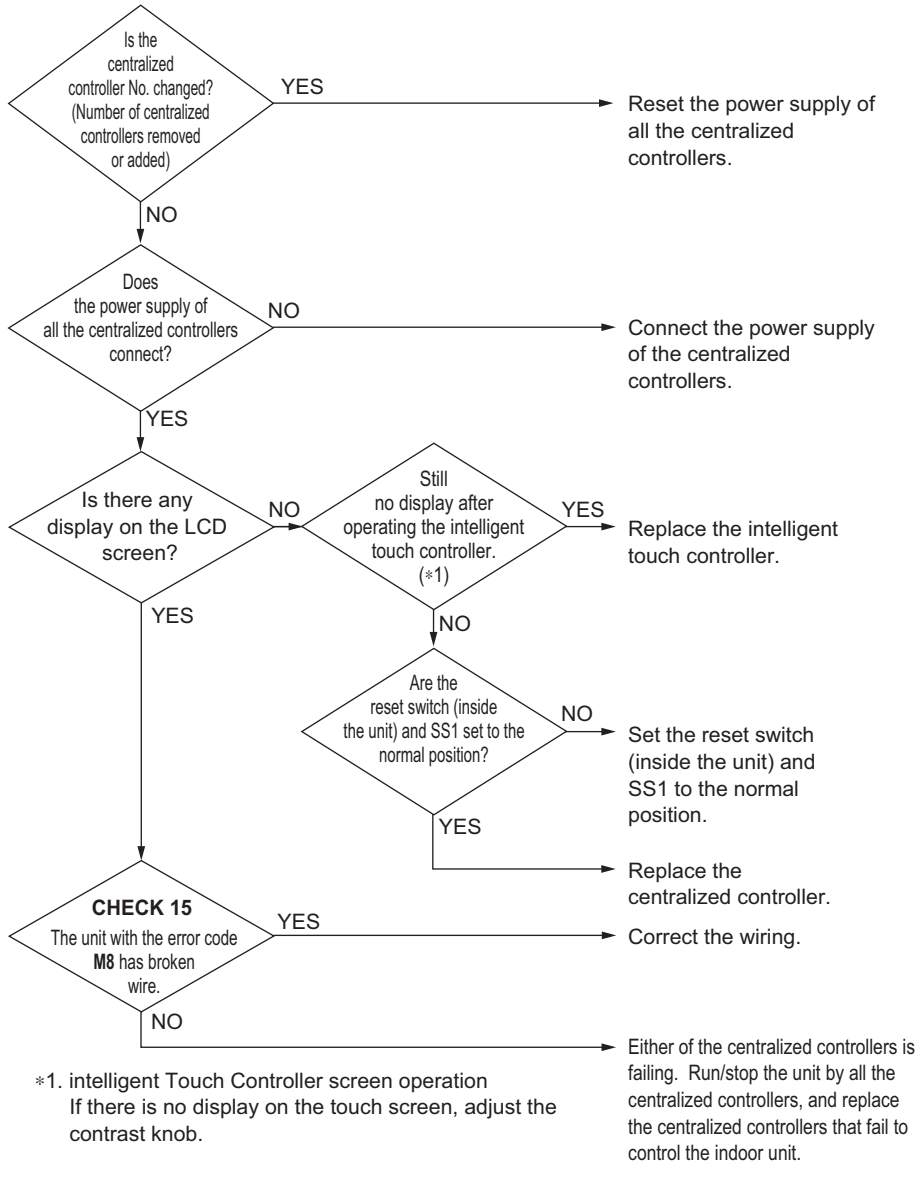
Method of Error Detection
DIII-NET communication data is used to detect the error. (Automatic reset)

Error Decision Conditions
When the sub centralized controller is activated, there is no main centralized controller.
The previously connected centralized controller is not responding.

Supposed Causes
- Transmission defect between centralized controllers
- Defective centralized controller PCB

Troubleshooting

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



*1. intelligent Touch Controller screen operation
If there is no display on the touch screen, adjust the contrast knob.

Reference **CHECK 15** Refer to page 355.

5.71 Poor Centralized Controller Combination

Applicable Models

Centralized controller
intelligent Touch Controller
Schedule timer

Error Code

MA

Method of Error Detection

DIII-NET communication data is used to detect the error.

Error Decision Conditions

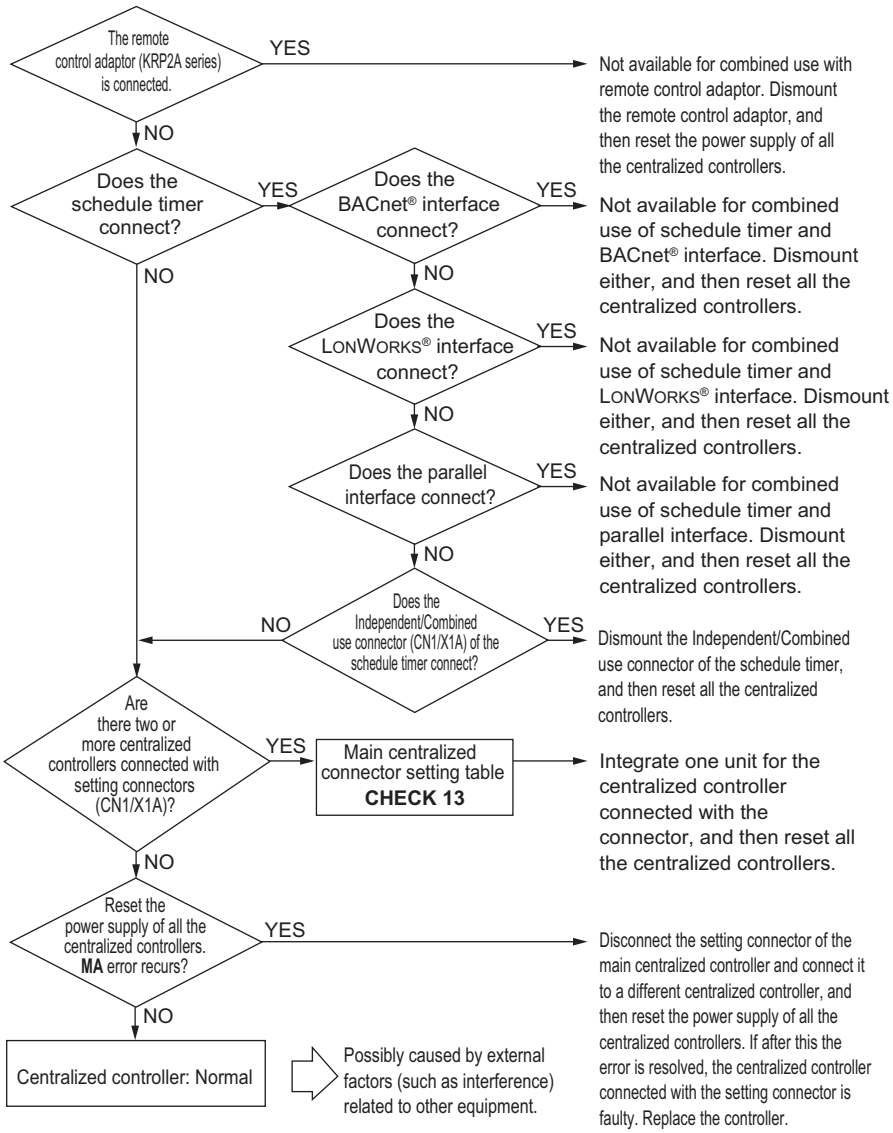
There are other centralized controllers but the schedule timer is set for individual use.
There are multiple main centralized controllers.
There is a remote control adaptor.

Supposed Causes

- Poor centralized controller combination
- Multiple main centralized controllers
- Defective centralized controller PCB

Troubleshooting

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



Reference **CHECK 13** Refer to page 354.

5.72 Address Duplication, Poor Setting

Applicable Models

Centralized controller
intelligent Touch Controller
Schedule timer

Error Code

MC

Method of Error Detection

DIII-NET communication data is used to detect the error.

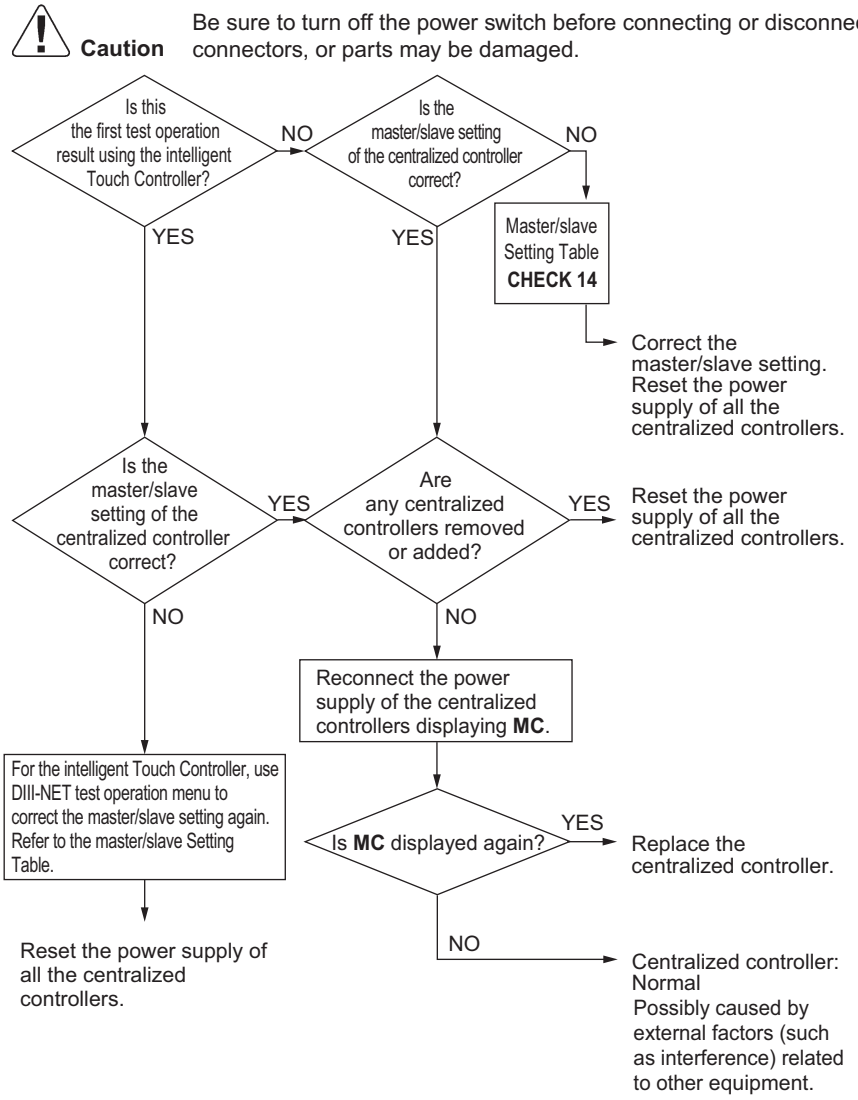
Error Decision Conditions

Multiple centralized controllers or intelligent touch controllers are connected, and the controllers are both set as main centralized controllers or sub centralized controllers.
Two schedule timers are connected.

Supposed Causes

- Centralized controller address duplication

Troubleshooting



Reference **CHECK 14** Refer to page 355.

5.73 Operation Lamp Blinking

Applicable Models
ON/OFF controller
Indoor unit

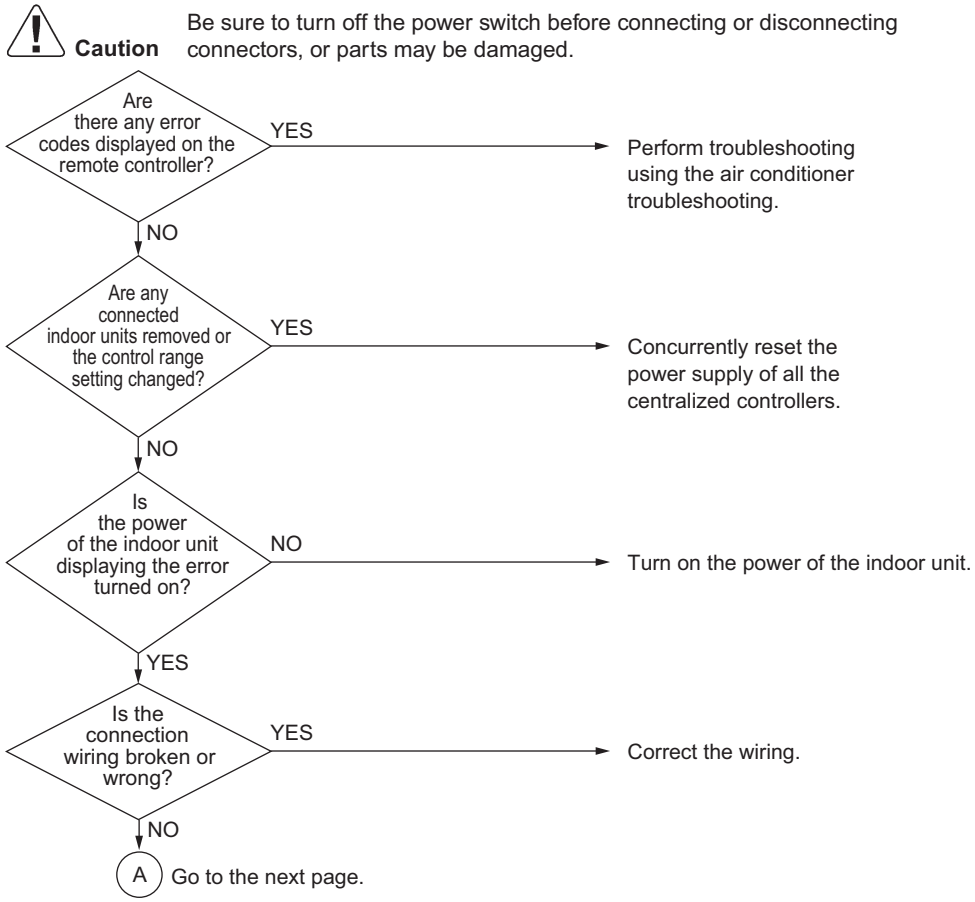
Error Code
—

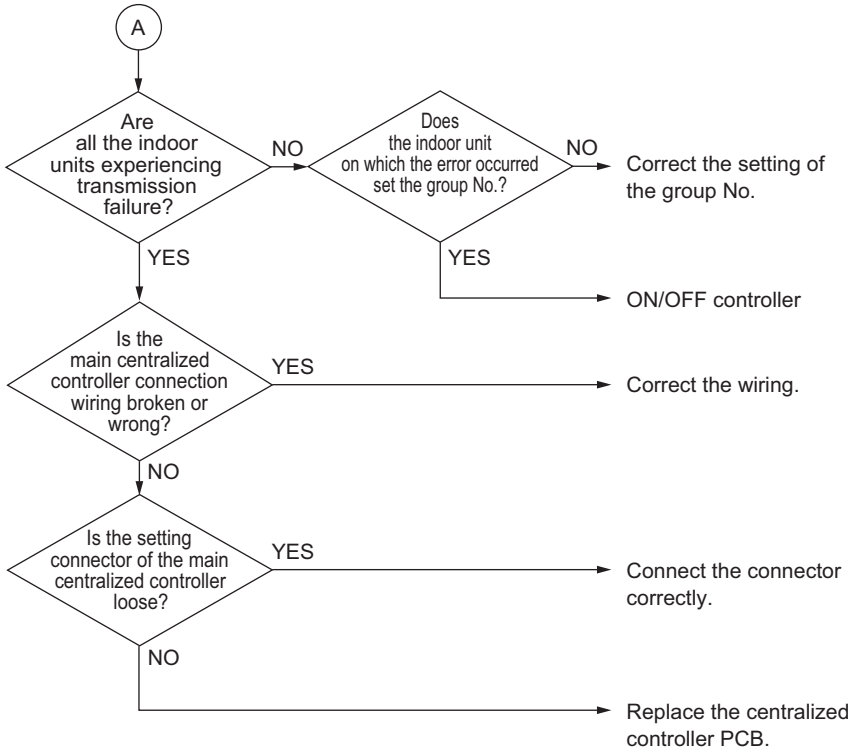
Method of Error Detection
DIII-NET communication data is used to detect the error.

Error Decision Conditions
—

Supposed Causes
- Defective transmission between the centralized controller and an indoor unit
- Loosened setting connector of the main centralized controller
- Defective ON/OFF controller PCB
- Defective indoor unit PCB
- Defective air conditioner

Troubleshooting




A
Are all the indoor units experiencing transmission failure?
NO
Does the indoor unit on which the error occurred set the group No.?
NO
Correct the setting of the group No.
YES
YES
ON/OFF controller
Is the main centralized controller connection wiring broken or wrong?
YES
Correct the wiring.
NO
Is the setting connector of the main centralized controller loose?
YES
Connect the connector correctly.
NO
Replace the centralized controller PCB.

5.74 Central Control Indicator Lamp Blinking (One blink)

Applicable Models

ON/OFF controller
Centralized controller
Schedule timer

Error Code

—

Method of Error Detection

DIII-NET communication data is used to detect the error.

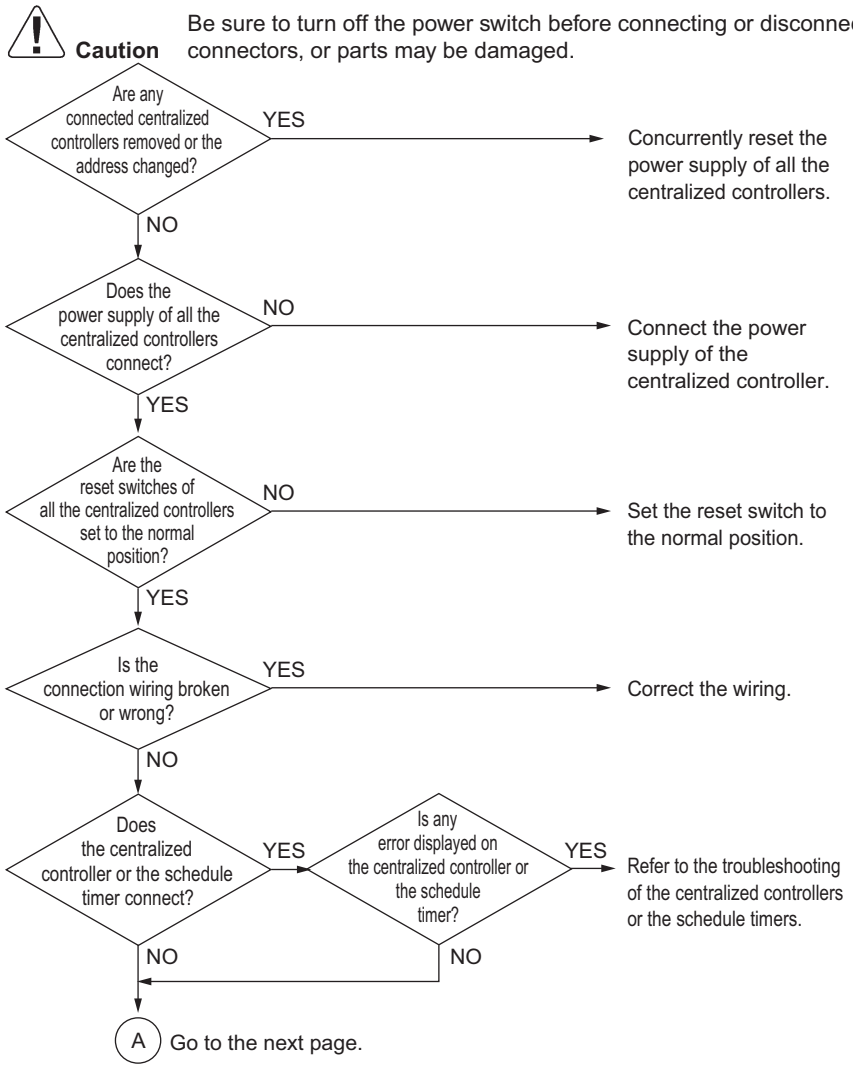
Error Decision Conditions

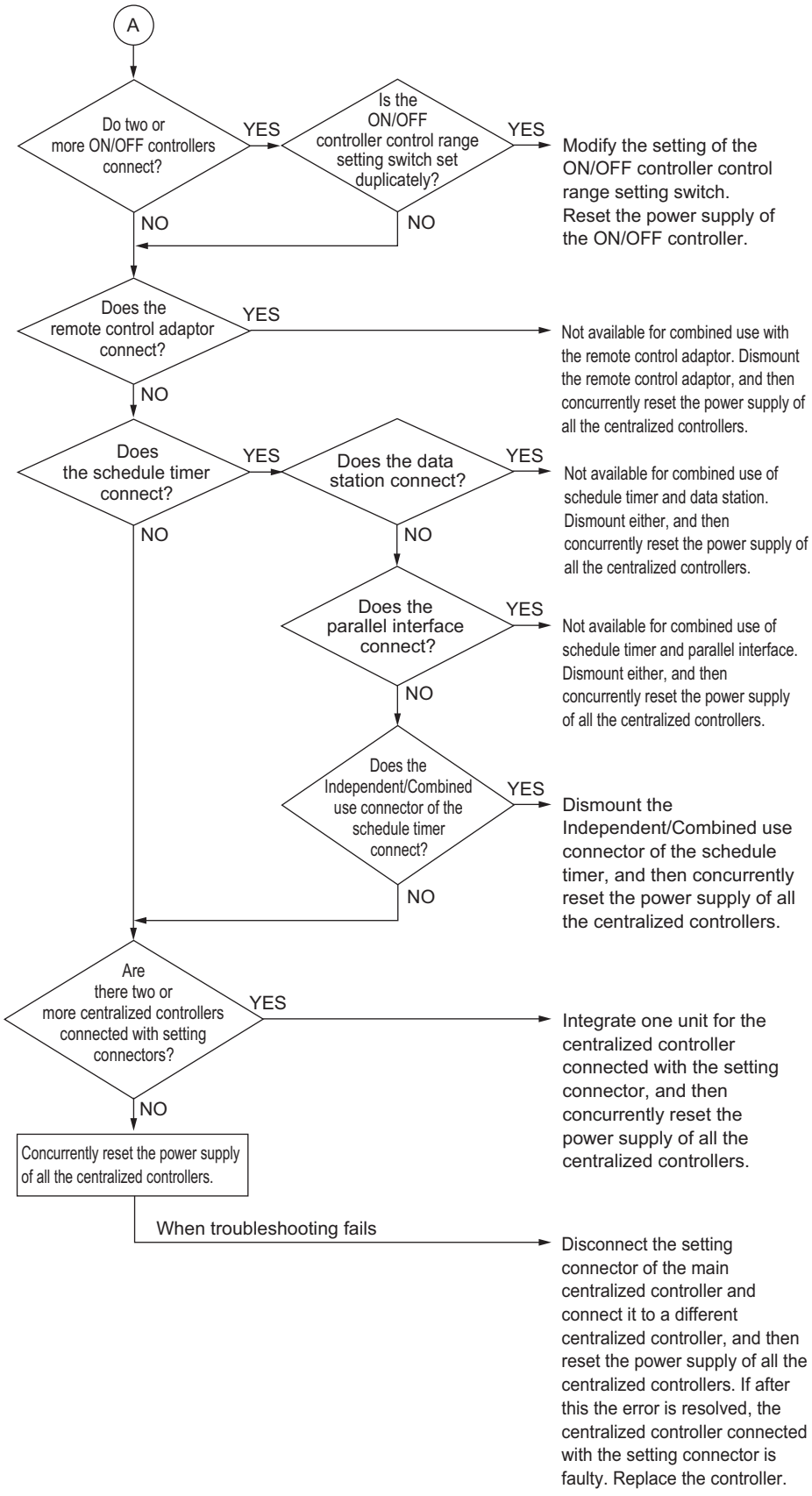
- The previously connected centralized controller is not responding.
- Control range duplication
- There are multiple main centralized controllers.
- There are other centralized controllers but the schedule timer is set for individual use.
- There is a remote control adapter.

Supposed Causes

- Centralized controller address duplication
- Poor centralized controller combination
- Multiple main centralized controllers
- Transmission defect between centralized controllers
- Defective centralized controller PCB

Troubleshooting




A
Do two or more ON/OFF controllers connect?
YES
Is the ON/OFF controller control range setting switch set duplicately?
YES
Modify the setting of the ON/OFF controller control range setting switch. Reset the power supply of the ON/OFF controller.
NO
NO
Does the remote control adaptor connect?
YES
Not available for combined use with the remote control adaptor. Dismount the remote control adaptor, and then concurrently reset the power supply of all the centralized controllers.
NO
Does the schedule timer connect?
YES
Does the data station connect?
YES
Not available for combined use of schedule timer and data station. Dismount either, and then concurrently reset the power supply of all the centralized controllers.
NO
NO
Does the parallel interface connect?
YES
Not available for combined use of schedule timer and parallel interface. Dismount either, and then concurrently reset the power supply of all the centralized controllers.
NO
Does the Independent/Combined use connector of the schedule timer connect?
YES
Dismount the Independent/Combined use connector of the schedule timer, and then concurrently reset the power supply of all the centralized controllers.
NO
Are there two or more centralized controllers connected with setting connectors?
YES
Integrate one unit for the centralized controller connected with the setting connector, and then concurrently reset the power supply of all the centralized controllers.
NO
Concurrently reset the power supply of all the centralized controllers.
When troubleshooting fails
Disconnect the setting connector of the main centralized controller and connect it to a different centralized controller, and then reset the power supply of all the centralized controllers. If after this the error is resolved, the centralized controller connected with the setting connector is faulty. Replace the controller.

5.75 Central Control Indicator Lamp Blinking (Two blinks)

Applicable Models

ON/OFF controller

Error Code

—

Method of Error Detection

DIII-NET communication data is used to detect the error.

Error Decision Conditions

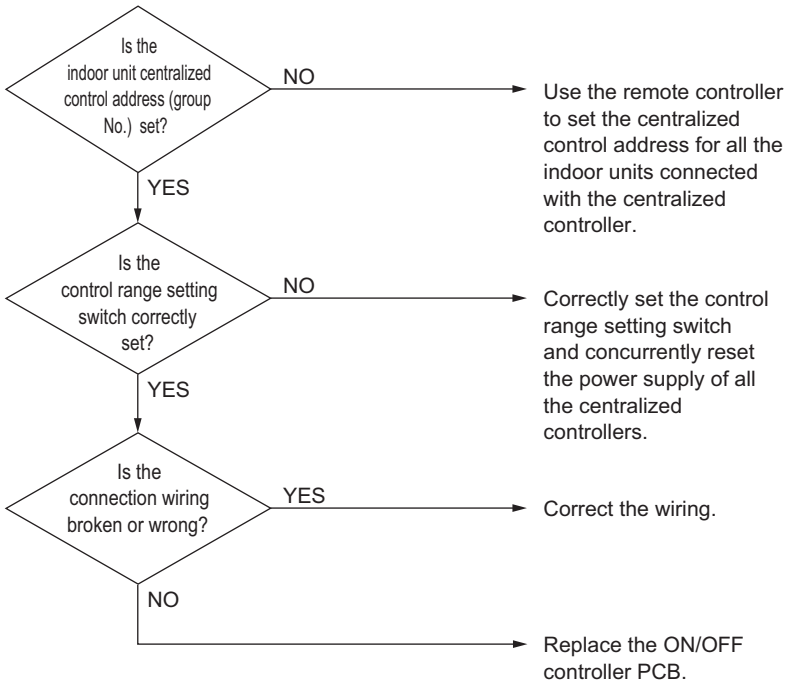
The indoor unit has no centralized control address set
No indoor unit within the control range

Supposed Causes

- The indoor unit has no centralized control address set (Group No.)
- Control range setting switch set incorrectly
- Wiring connection error

Troubleshooting

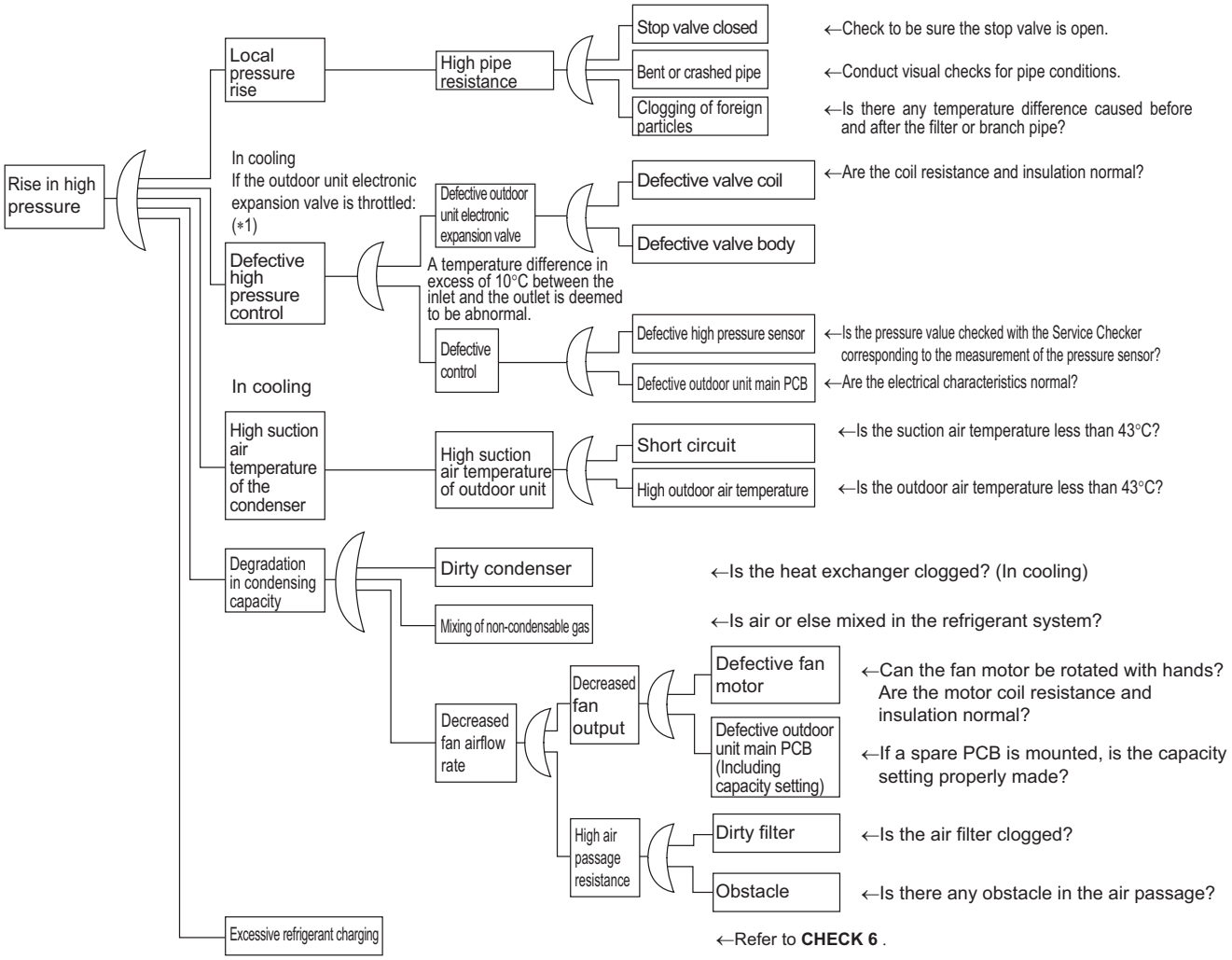
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



6. Check

6.1 High Pressure Check

CHECK 1 Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points.



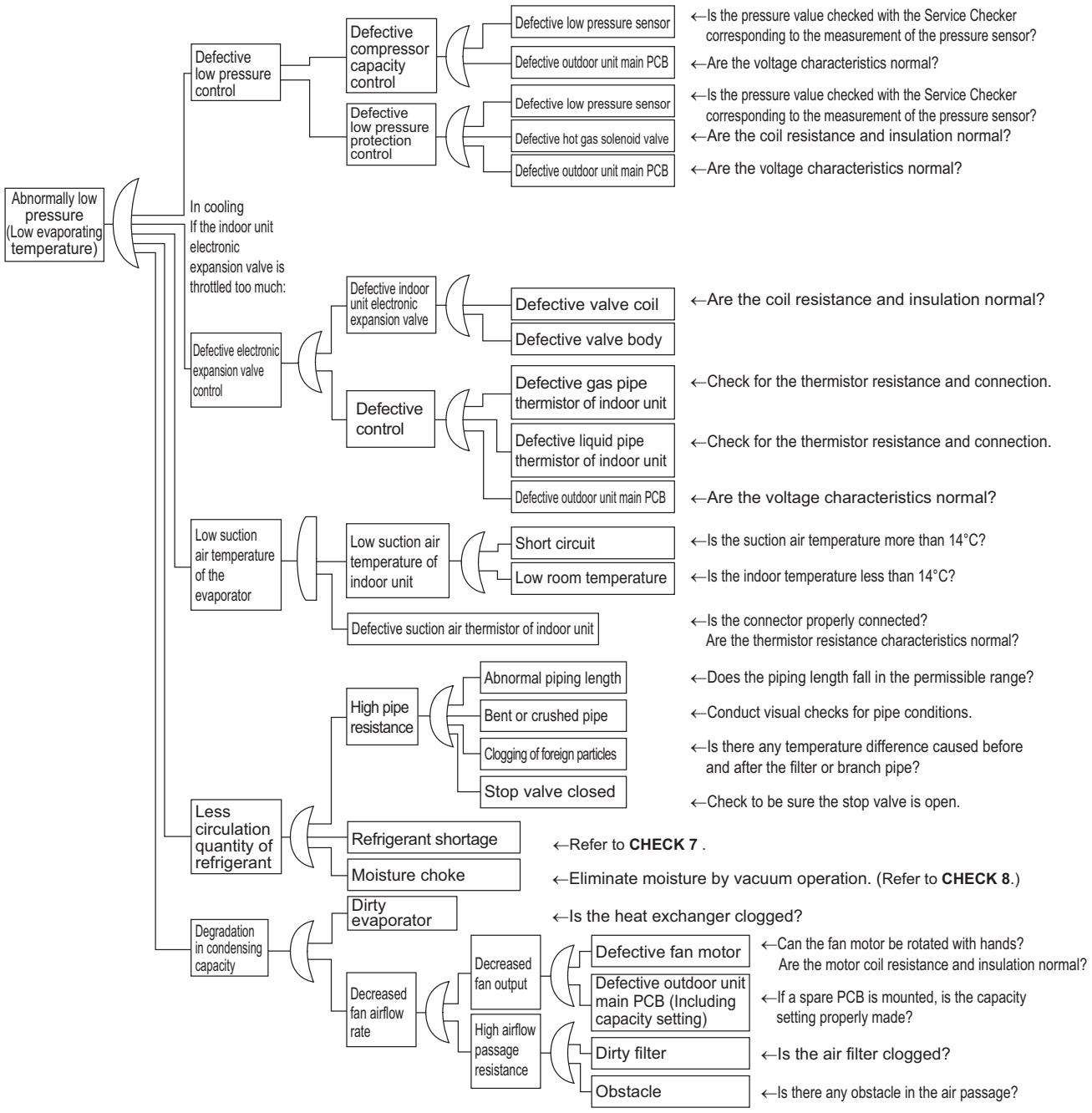
Note(s)

*1. In cooling, the normal state of the outdoor unit electronic expansion valve (main) is fully open.

Reference **CHECK 6** Refer to page 345.

6.2 Low Pressure Check

CHECK 2 Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points.

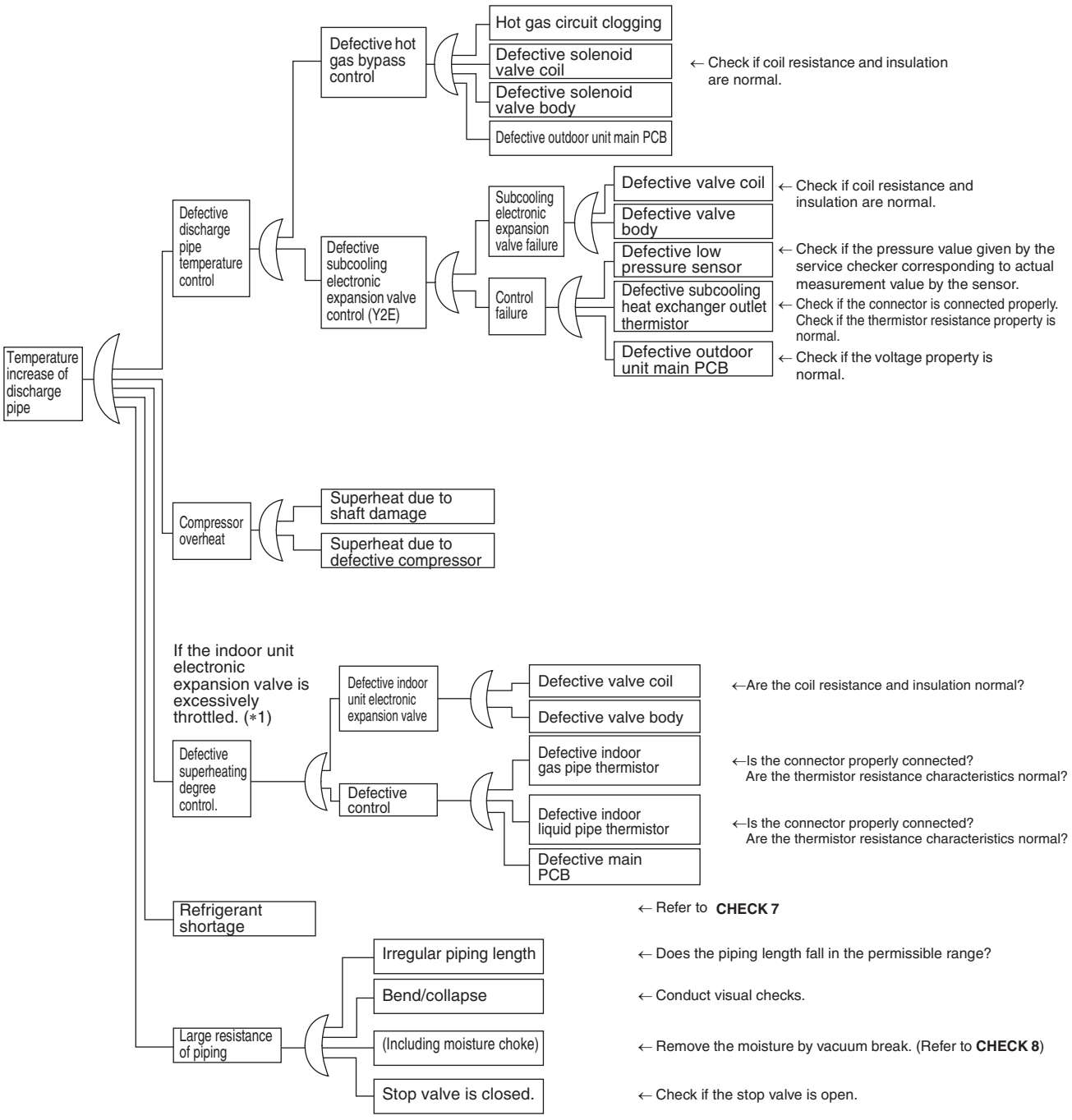


Reference **CHECK 7** Refer to page 346.

Reference **CHECK 8** Refer to page 347.

6.3 Superheat Operation Check

CHECK 3 Identify the defective points referring to the failure factor analysis (FTA) as follows.



Note(s)

∗1. “Superheating degree control” in cooling mode is conducted by indoor unit electronic expansion valve.

∗2. Judgment criteria of superheat operation:

(1) Suction gas superheating degree: 10 degrees and over.

(2) Discharge gas superheating degree: 45 degrees 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.)

Reference **CHECK 7** Refer to page 346.

Reference **CHECK 8** Refer to page 347.

6.4 Power Transistor Check

CHECK 4

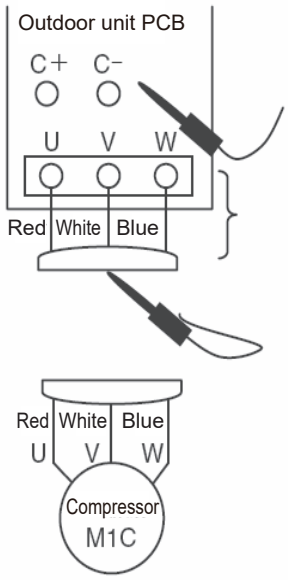
RXQ4/5AR, RXMQ10/12AR

Use a multimeter to measure the resistance to determine if the power transistor is defective or not.

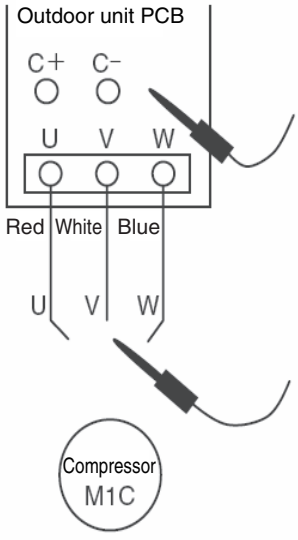
1. Do not touch live parts (high voltage parts) within 10 minutes after turning off the power supply.
2. Touch the earth terminal with your hand to release static electricity. (This is to avoid damaging the PCB.)
3. Use a multimeter to measure the C+ and C- on the PCB to make sure that the residual voltage of the power transistor is under 50 VDC.
4. After verifying the residual voltage, pull out the outdoor fan motor connector.
   If a strong wind causes the outdoor fan to rotate, the capacitor may store electricity. Therefore, make sure that the fan is still and then pull out the outdoor fan motor connector.
5. Disconnect the relay connector (X502A) between the power transistor and the compressor. Make sure there is no deformation of the Faston terminals.
6. Use a multimeter to measure the resistance listed in the table.
   Among the three phases listed in the table, if there is one phase with unbalanced resistance (with a value five times higher than the other values), then the power transistor is defective. When normal, all phases have the same resistance value.

Multimeter		Resistance	Multimeter		Resistance
Red (+)	Black (-)		Red (+)	Black (-)	
C+	U		C–	U	
C+	V		C–	V	
C+	W		C–	W	
U	C+		U	C–	
V	C+		V	C–	
W	C+		W	C–	

4/5 HP models



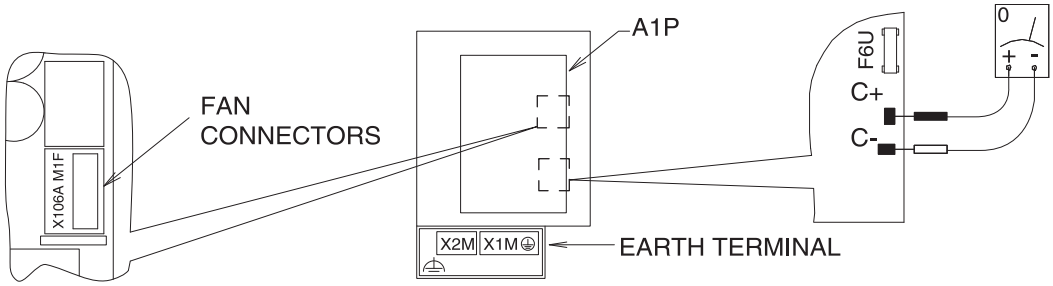
10/12 HP models



RXMQ6AR

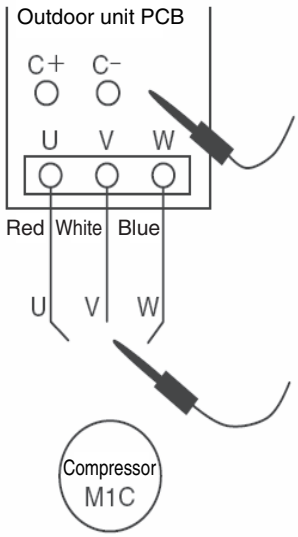
Use a multimeter to measure the resistance to determine if the power transistor is defective or not.

1. Do not touch live parts (high voltage parts) within 10 minutes after turning off the power supply.
2. Touch the earth terminal with your hand to release static electricity. (This is to avoid damaging the PCB.)
3. Use a multimeter to measure the C+ and C- on the PCB to make sure that the residual voltage of the power transistor is under 50 VDC.



4. After verifying the residual voltage, pull out the outdoor fan motor connector.
   If a strong wind causes the outdoor fan to rotate, the capacitor may store electricity. Therefore, make sure that the fan is still and then pull out the outdoor fan motor connector.
5. Disconnect the connection wire between the power transistor and the compressor.
   Remove the connection wire from the compressor.
   At this point, make sure that there is no deformation of the Faston terminal at the front end of the connection wire.
6. Use a multimeter to measure the resistance listed in the table.
   Among the three phases listed in the table, if there is one phase with unbalanced resistance (with a value five times higher than the other values), then the power transistor is defective. When normal, all phases have the same resistance value.

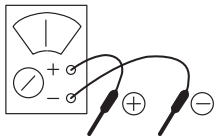
Multimeter		Resistance	Multimeter		Resistance
Red (+)	Black (–)	Ω	Red (+)	Black (–)	Ω
C+	U		C–	U	
C+	V		C–	V	
C+	W		C–	W	
U	C+		U	C–	
V	C+		V	C–	
W	C+		W	C–	



RXMQ8AR

Perform the following procedures prior to check.
(1) Power OFF.
(2) Remove all the wiring connected to the PCB where power transistors are mounted on.

Preparation
Multimeter



* Prepare the analog type of multimeter.
  For the digital type of multimeter, those with diode check function are available for the checking.

Point of Measurement and Judgment Criteria

Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.

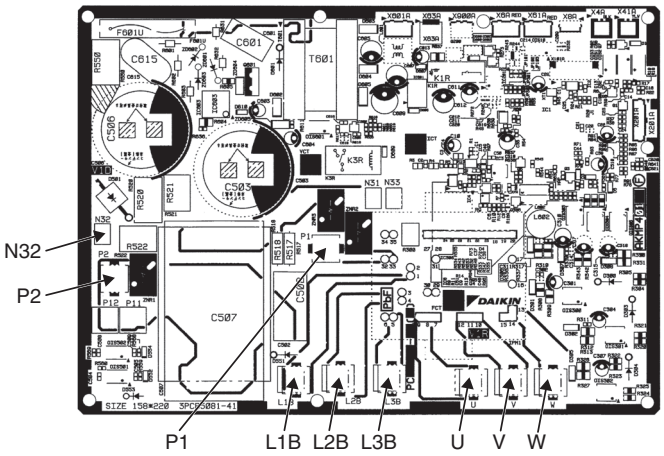
When using the analog type of multimeter,
make measurement in resistance measurement mode in the x1 kΩ range.

No.	Measuring point		Judgment Criteria	Remarks
	+	–		
1	P2	U	2 ~ 15 kΩ	—
2	P2	V		
3	P2	W		
4	U	P2	15 kΩ and more (including ∞)	Due to condenser charge and so on, resistance measurement may require some time.
5	V	P2		
6	W	P2		
7	N32	U		
8	N32	V		
9	N32	W		
10	U	N32	2 ~ 15 kΩ	—
11	V	N32		
12	W	N32		

When using the digital type of multimeter, make measurement in diode check mode.

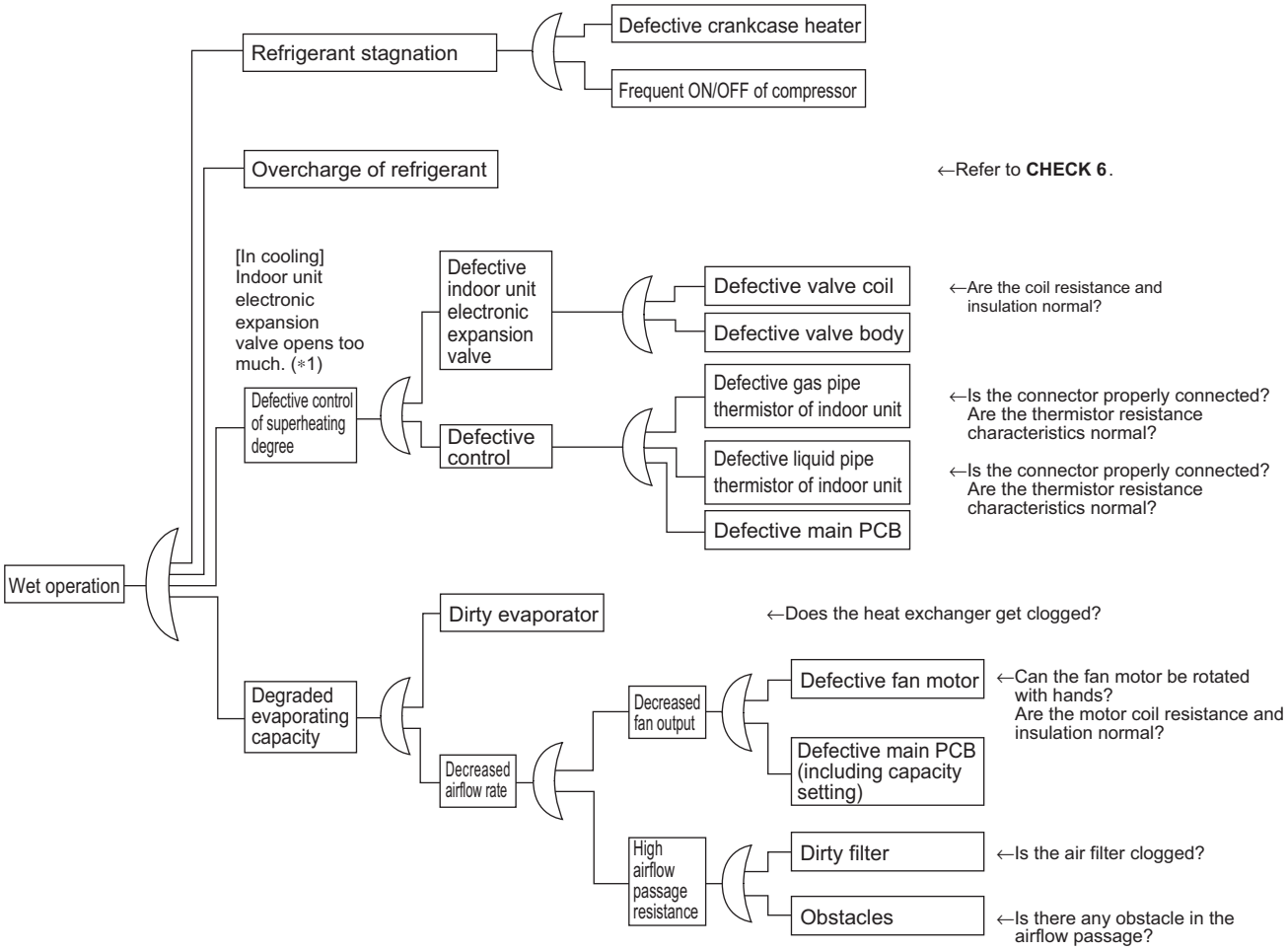
No.	Measuring point		Judgment Criteria	Remarks
	+	–		
1	P2	U	1.2 V and more	Due to condenser charge and so on, resistance measurement may require some time.
2	P2	V		
3	P2	W		
4	U	P2	0.3 ~ 0.7 V	—
5	V	P2		
6	W	P2		
7	N32	U		
8	N32	V		
9	N32	W		
10	U	N32	1.2 V and more	Due to condenser charge and so on, resistance measurement may require some time.
11	V	N32		
12	W	N32		

PCB and Circuit Diagram



6.5 Wet Operation Check

CHECK 5 Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points.



Note(s)

∗1: Superheating temperature control in cooling is conducted by indoor unit electronic expansion valve.
2: Guideline of superheating degree to judge as wet operation
(1) Suction gas superheating degree: Less than 3°C;
(2) Discharge gas superheating degree: Less than 15°C,
except immediately after compressor starts up or is running under dropping control.
(Use the above values as a guide. Depending on the other conditions, the unit may be normal despite the values within the above range.)

Reference **CHECK 6** Refer to page 345.

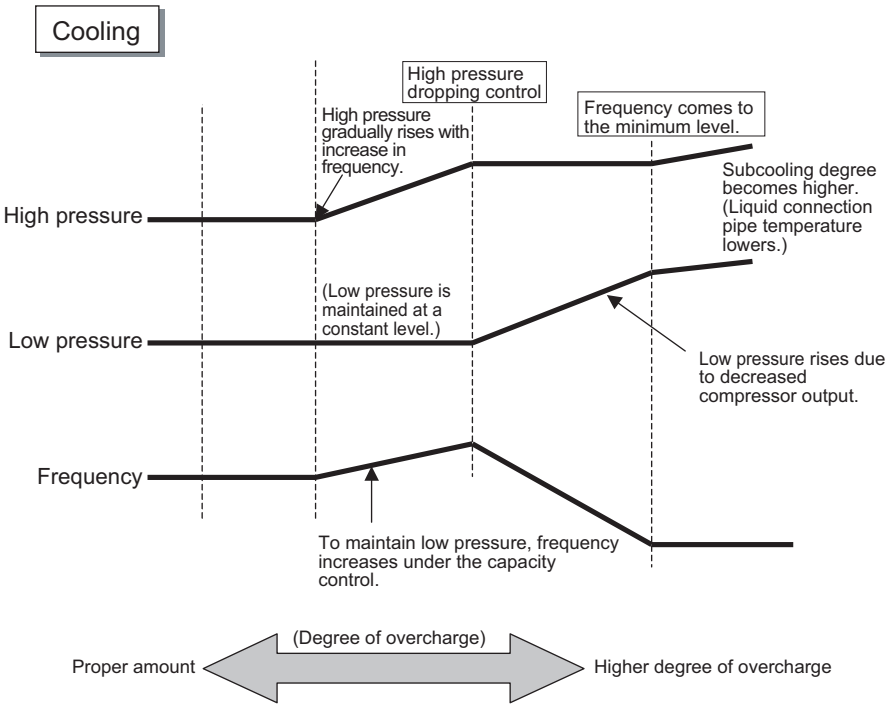
6.6 Refrigerant Overcharge Check

CHECK 6

In case of ***VRV*** systems, the only way to judge as the overcharge of refrigerant is with operating conditions due to the relationship to pressure control and electronic expansion valve control. As information for making a judgment, refer to the information below.

Diagnosis of refrigerant overcharge

1. High pressure rises. Consequently, overload control is conducted to cause insufficient cooling capacity.
2. The superheating degree of suction gas lowers (or wet operation is performed). Consequently, the compressor becomes lower in discharge pipe temperature despite of pressure loads.
3. The subcooling degree of condensate rises.



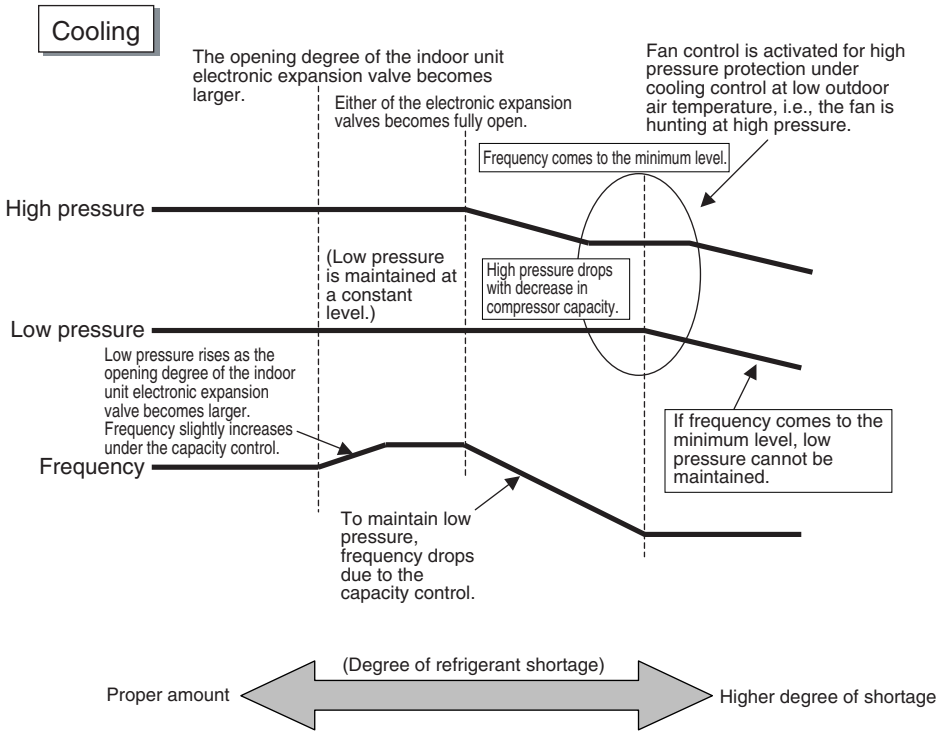
6.7 Refrigerant Shortage Check

CHECK 7

In case of ***VRV*** systems, the only way to judge as the shortage of refrigerant is with operating conditions due to the relationship to pressure control and electronic expansion valve control. As information for making a judgment, refer to the information below.

Diagnosis of refrigerant shortage

1. The superheating degree of suction gas rises. Consequently, the compressor discharge gas temperature becomes higher.
2. The superheating degree of suction gas rises. Consequently, the electronic expansion valve turns open.
3. Low pressure drops to cause the unit not to demonstrate cooling capacity.



6.8 Vacuuming and Dehydration Procedure

CHECK 8

Conduct vacuuming and dehydration in the piping system following the procedure for Normal vacuuming and dehydration described below.
Furthermore, if moisture may get mixed in the piping system, follow the procedure for Special vacuuming and dehydration described below.

Normal vacuuming and dehydration

1. Vacuuming and dehydration
   - Use a vacuum pump that enables vacuuming up to –100.7 kPaG (5 Torr, –755 mmHgG).
   - Connect manifold gauges to the service ports of liquid pipe and gas pipe and run the vacuum pump for a period of two or more hours to conduct evacuation to –100.7 kPaG or less.
   - If the degree of vacuum does not reach –100.7 kPaG or less even though evacuation is conducted for a period of two hours, moisture will have entered the system or refrigerant leakage will have been caused. In this case, conduct evacuation for a period of another one hour.
   - If the degree of vacuum does not reach –100.7 kPaG or less even though evacuation is conducted for a period of three hours, conduct the leak tests.
2. Leaving in vacuum state
   - Leave the compressor at the degree of vacuum of –100.7 kPaG or less for a period of one hour or more, and then check to be sure that the vacuum gauge reading does not rise. (If the reading rises, moisture may have remained in the system or refrigerant leakage may have been caused.)
3. Additional refrigerant charge
   - Purge air from the manifold gauge connection hoses, and then charge a necessary amount of refrigerant.

Special vacuuming and dehydration

Use this procedure if moisture may get into the piping, such as construction during the rainy season (dew condensation may occur, or rainwater may enter the piping during construction work).

1. Vacuuming and dehydration
   - Follow the same procedure as that for Normal vacuuming and dehydration described above.
2. Vacuum break
   - Pressurize with nitrogen gas up to 0.05 MPaG.
3. Vacuuming and dehydration
   - Conduct vacuuming and dehydration for a period of one hour or more. If the degree of vacuum does not reach –100.7 kPaG or less even though evacuation is conducted for a period of two hours or more, repeat vacuum break - vacuuming and dehydration.
4. Leaving in vacuum state
   - Leave the compressor at the degree of vacuum of –100.7 kPaG or less for a period of one hour or more, and then check to be sure that the vacuum gauge reading does not rise.
5. Additional refrigerant charge
   - Purge air from the manifold gauge connection hoses, and then charge a necessary amount of refrigerant.

6.9 Inverter-Related Error Codes

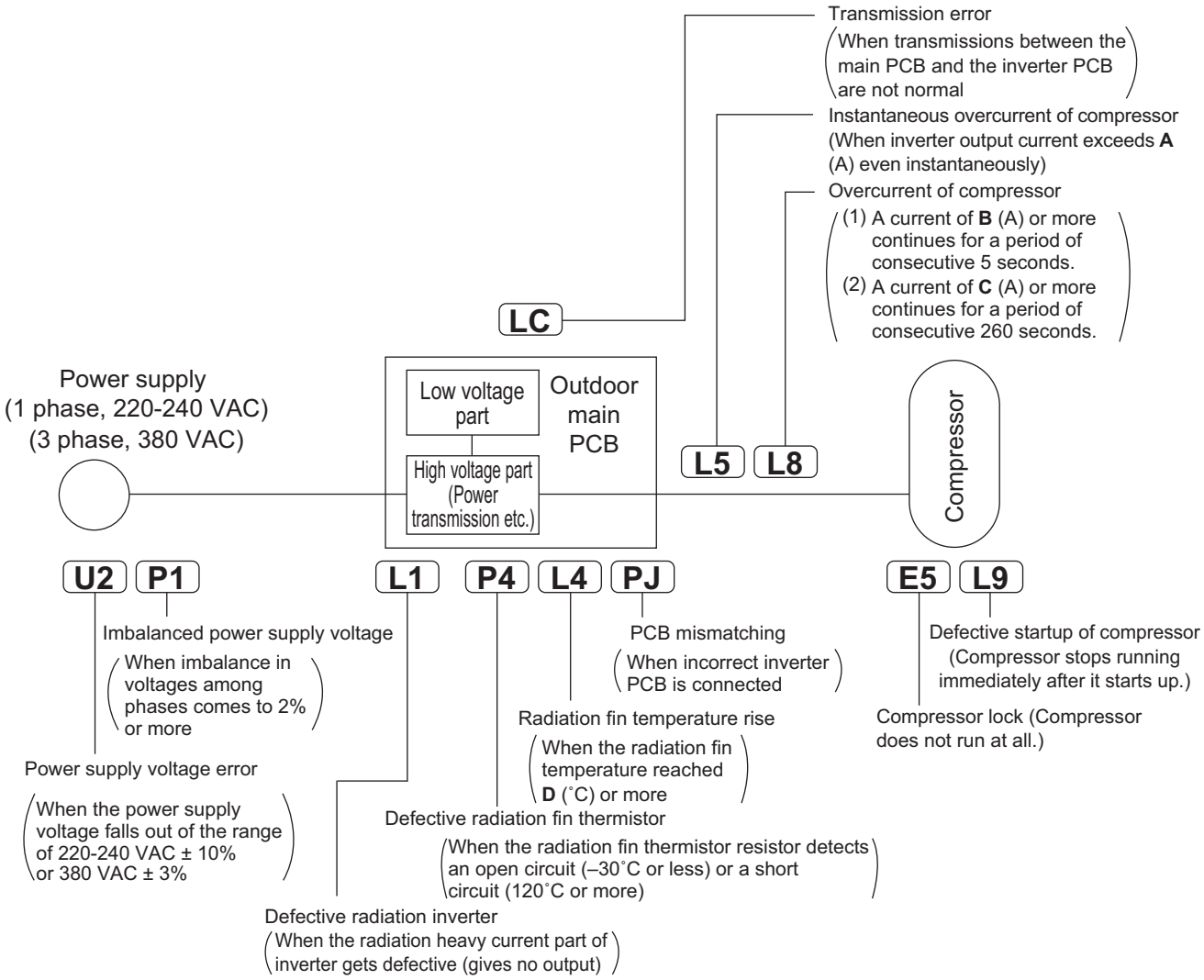
CHECK 9

	Code	Name	Condition for determining error	Major cause
Compressor current	**L5**	Instantaneous overcurrent of compressor	• Inverter output current exceeds **A** (A) even instantaneously.	• Liquid sealing • Defective compressor • Defective inverter PCB
	L8	Overcurrent of compressor (Electronic superheating protection sensor)	• Compressor overload running A current of **B** (A) or more continues for a period of consecutive 5 seconds or that of **C** (A) or more continues for a period of consecutive 260 seconds. • The inverter loses synchronization.	• Back-flow of compressor liquid • Sudden changes in loads • Disconnected compressor wiring • Defective inverter PCB
Protection device and others	**E5**	Compressor lock	• The compressor is in the locked status (does not rotate).	• Defective compressor
	L1	Defective inverter PCB	• No output is given.	• Defective heavy current part of compressor
	L4	Radiation fin temperature rise	• The radiation fin temperature reaches **D** (°C) or more (while in operation).	• Defective fan • Running in overload for an extended period of time • Defective inverter PCB
	L9	Defective startup of compressor	• The compressor motor fails to start up.	• Liquid sealing or defective compressor • Excessive oil or refrigerant • Defective inverter PCB
	LC	Transmission error (between microcomputers on the outdoor main PCB)	• No communications are carried out across outdoor main PCB - inverter PCB - fan PCB.	• Broken wire in communication line • Defective outdoor main PCB • Defective inverter PCB • Defective fan PCB
	P1	Imbalanced power supply	• Power supply voltages get significantly imbalanced among three phases.	• Power supply error (imbalanced voltages of 2% or more) • Defective inverter PCB • Dead inverter PCB
	P4	Defective radiation fin thermistor	• The radiation fin thermistor gets short circuited or open.	• Defective radiation fin thermistor
	PJ	PCB mismatching	• Any PCB of specification different from that of the product is connected.	• PCB of different specification mounted
	U2	Power supply voltage error	• The inverter power supply voltage is high or low.	• Power supply error • Defective inverter PCB

Model	**A** (A)	**B** (A)	**C** (A)	**D** (°C)
RXQ4AR	36.9	17.0	14.8	92
RXQ5AR	51.5	31.0	24.1	85
RXMQ10/12AR	59.1	33.5	27.6	87

6.10 Concept of Inverter-Related Error Codes

CHECK 10



Model	**A** (A)	**B** (A)	**C** (A)	**D** (°C)
RXQ4AR	36.9	17.0	14.8	92
RXQ5AR	51.5	31.0	24.1	85
RXMQ10/12AR	59.1	33.5	27.6	87

6.11 Thermistor Check

CHECK 11 **Thermistor type of indoor units**

Model	R1T Suction air thermistor	R2T Indoor heat exchanger (liquid) thermistor	R3T Indoor heat exchanger (gas) thermistor
FXFSQ-AR	Type C	Type A	Type A
FXMQ-PB	Type B		Type J
FXMQ-AR			
FXAQ-P			

Thermistor type of outdoor units

Thermistor	RXQ4AR		RXQ5AR		RXMQ6/8AR		RXMQ10/12AR	
	Symbol	Type	Symbol	Type	Symbol	Type	Symbol	Type
Outdoor air thermistor	R1T	E	R1T	E	R1T	E	R1T	E
Discharge pipe thermistor	R2T	G	R2T	G	R21T	H	R21T	H
Suction pipe thermistor	R3T R5T	A	R3T R5T	A	R3T	A	—	—
Accumulator thermistor	—	—	—	—	—	—	R3T	A
Heat exchanger deicer thermistor	R4T	A	R4T	A	—	—	R7T	A
Heat exchanger liquid pipe thermistor	—	—	—	—	R4T	A	R4T	A
Subcooling heat exchanger liquid pipe thermistor	—	—	—	—	R5T	A	R5T	A
Subcooling heat exchanger gas pipe thermistor	—	—	—	—	R6T	A	R6T	A
Compressor body thermistor	—	—	—	—	—	—	R8T	H
Radiation fin thermistor	R10T	K	R10T	F	—	—	—	—

Thermistor temperature (°C)	Resistance (kΩ)				
	Type A	Type B	Type C	Type E	Type F
–30	363.8	361.7719	—	357.9	354.1
–25	266.8	265.4704	—	263.5	259.7
–20	197.8	196.9198	—	196.1	192.6
–15	148.2	147.5687	—	147.4	144.2
–10	112.0	111.6578	111.8	111.8	109.1
–5	85.52	85.2610	85.42	85.53	83.25
0	65.84	65.6705	65.80	66.00	64.10
5	51.05	50.9947	51.07	51.31	49.70
10	39.91	39.9149	39.97	40.20	38.85
15	31.44	31.4796	31.51	31.74	30.61
20	24.95	25.0060	25.02	25.23	24.29
25	19.94	20.0000	20.00	20.19	19.41
30	16.04	16.1008	16.10	16.26	15.61
35	12.99	13.0426	13.04	13.17	12.64
40	10.58	10.6281	10.63	10.74	10.30
45	8.669	8.7097	8.711	8.806	8.439
50	7.143	7.1764	7.179	7.260	6.954
55	5.918	5.9407	—	6.014	5.761
60	4.928	4.9439	—	5.008	4.797
65	4.123	4.1352	—	4.191	4.014
70	3.467	3.4757	—	3.525	3.375
75	—	2.9349	—	2.978	2.851
80	—	2.4894	—	2.527	2.418
85	—	2.1205	—	2.153	2.060
90	—	1.8138	—	1.843	1.762
95	—	1.5575	—	1.583	1.513
100	—	1.3425	—	1.365	1.304
105	—	1.1614	—	1.181	1.128
110	—	—	—	—	0.9790
115	—	—	—	—	0.8527
120	—	—	—	—	0.7450
125	—	—	—	—	0.6530
130	—	—	—	—	0.5741
Drawing No.	3SA48002 3SA48004 3SA48018 3SA48019 3S480003 (AD94A045)	3SA48001 (AD87A001)	3S480014 (AD150384)	3S480024 (AD180053) 3S480025 (AD180054)	3PA61998 (AD92A057)

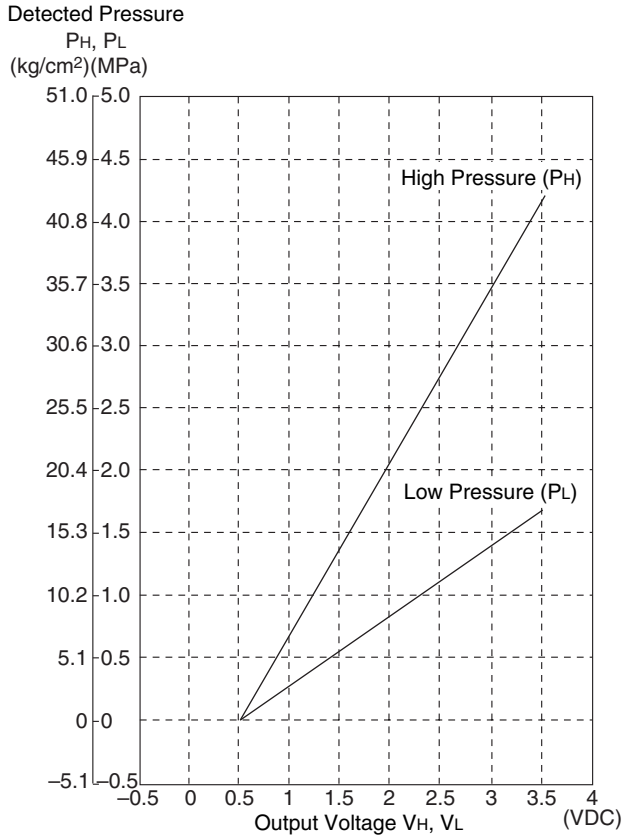
∗This data is for reference purposes only.

Thermistor temperature (°C)	Resistance (kΩ)			
	Type G	Type H	Type J	Type K
–30	4759	3407	352.1	350.6
–25	3454	2540	261.2	257.4
–20	2534	1910	195.4	191.0
–15	1877	1449	147.3	143.2
–10	1404	1108	111.8	108.4
–5	1059	853.8	85.49	82.83
0	806.5	662.7	65.80	63.80
5	618.9	517.9	51.15	49.53
10	478.8	407.4	40.08	38.75
15	373.1	322.5	31.64	30.56
20	292.9	256.9	25.16	24.26
25	231.4	205.7	20.14	19.40
30	184.1	165.7	16.23	15.62
35	147.4	134.3	13.16	12.65
40	118.7	109.4	10.73	10.31
45	96.13	89.58	8.800	8.447
50	78.29	73.73	7.255	6.962
55	64.10	60.98	6.012	5.769
60	52.76	50.67	5.010	4.805
65	43.63	42.29	4.196	4.021
70	36.26	35.45	3.532	3.381
75	30.27	29.84	2.987	2.856
80	25.38	25.21	2.538	2.422
85	21.37	21.38	2.166	2.063
90	18.06	18.21	1.857	1.764
95	15.33	15.57	1.598	1.515
100	13.06	13.36	1.380	1.305
105	11.17	11.49	1.196	1.128
110	9.585	9.92	1.041	0.9781
115	8.254	8.594	0.908	0.8506
120	7.131	7.465	0.795	0.7420
125	6.181	6.499	0.698	0.6495
130	5.374	5.675	0.615	0.5700
135	4.686	4.968	0.543	—
140	4.098	4.360	0.481	—
145	3.594	3.836	0.428	—
150	3.161	3.384	0.381	—
Drawing No.	3SA48009 (AD970175)	3SA48006 (AD190115)	3SA48005 (AD190114)	3P204139 (AD070077)

∗This data is for reference purposes only.

6.12 Pressure Sensor Check

CHECK 12 **Pressure Sensor and Voltage Characteristics**

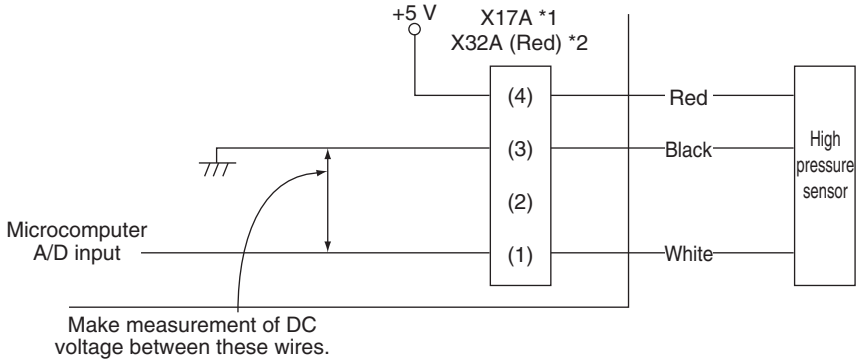


$$P_H\ (MPa) = \frac{4.15}{3.0} \times V_H - \frac{4.15}{3.0} \times 0.5$$

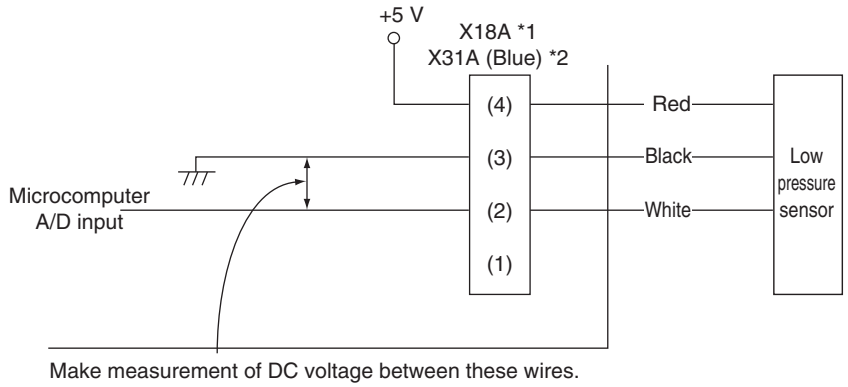
$$P_L\ (MPa) = \frac{1.7}{3.0} \times V_L - \frac{1.7}{3.0} \times 0.5$$

P_H : High pressure (MPa)
P_L : Low pressure (MPa)
V_H : Output Voltage (High Side) (VDC)
V_L : Output Voltage (Low Side) (VDC)

Voltage Measurement Point of the High Pressure Sensor



Voltage Measurement Point of the Low Pressure Sensor



*1. RXQ4/5AR
*2. RXMQ8-12AR

6.13 Master Unit Centralized Connector Setting Table

CHECK 13

The master unit centralized setting connector (CN1/X1A) is mounted at the factory.

- To independently use a single unit of the intelligent Touch Controller or a single unit of the central remote controller, do not dismount the master unit centralized setting connector (i.e., use the connector with the factory setting unchanged).
- To independently use the schedule timer, insert an independent-use setting connector. No independent-use setting connector has been mounted at the factory. Insert the connector, which is attached to the casing of the master unit, in the PCB (CN1/X1A). (Independent-use connector: Master unit centralized setting connector)
- To use two or more centralized controller in combination, make settings according to the table shown below.

<table>
<tr><th rowspan="2">Pattern</th><th colspan="4">Central controller connection pattern</th><th colspan="4">Setting of master unit centralized setting connector (∗2)</th></tr>
<tr><th>intelligent Touch Controller</th><th>Central remote controller</th><th>Unified ON/OFF controller</th><th>Schedule timer</th><th>intelligent Touch Controller</th><th>Central remote controller</th><th>Unified ON/OFF controller</th><th>Schedule timer</th></tr>
<tr><td>(1)</td><td>1 to 2 units</td><td>—</td><td>—</td><td>× (∗1)</td><td>Only a single unit: "Provided", Others: "Not provided"</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>(2)</td><td rowspan="2">1 unit</td><td rowspan="2">1 unit</td><td>—</td><td>× (∗1)</td><td rowspan="2">Provided</td><td rowspan="2">Not provided</td><td>—</td><td>—</td></tr>
<tr><td>(3)</td><td rowspan="2">1 to 8 units</td><td>× (∗1)</td><td rowspan="2">All "Not provided"</td><td>—</td></tr>
<tr><td>(4)</td><td>1 to 2 units</td><td>—</td><td>× (∗1)</td><td>Only a single unit: "Provided", Others: "Not provided"</td><td>—</td><td>—</td></tr>
<tr><td>(5)</td><td>—</td><td rowspan="3">1 to 4 units</td><td>—</td><td>—</td><td>—</td><td rowspan="3">Only a single unit: "Provided", Others: "Not provided"</td><td>—</td><td>—</td></tr>
<tr><td>(6)</td><td>—</td><td rowspan="2">1 to 16 units</td><td>1 unit</td><td>—</td><td rowspan="2">All "Not provided"</td><td>Not provided</td></tr>
<tr><td>(7)</td><td>—</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>(8)</td><td>—</td><td>—</td><td>1 unit</td><td>—</td><td>—</td><td>Not provided</td></tr>
<tr><td>(9)</td><td>—</td><td>—</td><td rowspan="2">1 to 16 units</td><td>—</td><td>—</td><td>—</td><td rowspan="2">Only a single unit: "Provided", Others: "Not provided"</td><td>—</td></tr>
<tr><td>(10)</td><td>—</td><td>—</td><td>1 unit</td><td>—</td><td>—</td><td>Not provided</td></tr>
<tr><td>(11)</td><td>—</td><td>—</td><td>—</td><td>1 unit</td><td>—</td><td>—</td><td>—</td><td>Provided</td></tr>
</table>

Note(s)

∗1 The intelligent Touch Controller and the schedule timer are not available for combined use.
∗2 The intelligent Touch Controller, central remote controller, and the unified ON/OFF controller have been set to "Provided with the master unit centralized setting connector" at the factory. The schedule timer has been set to "Not provided with the master unit centralized setting connector" at the factory, which is attached to the casing of the master unit.

6.14 Master-Slave Unit Setting Table

CHECK 14 Combination of intelligent Touch Controller and Central Remote Controller

∗ Pattern	#1		#2		#3		#4	
	1-00~4-15	Master/ Slave	5-00~8-15	Master/ Slave	1-00~4-15	Master/ Slave	5-00~8-15	Master/ Slave
(1)	CRC	Master	CRC	Master	CRC	Slave	CRC	Slave
(2)	CRC	Master	—	—	CRC	Slave	—	—
(3)	intelligent Touch Controller	Master	—	—	intelligent Touch Controller	Slave	—	—
(4)	CRC	Master	—	—	intelligent Touch Controller	Slave	—	—
(5)	intelligent Touch Controller	Master	—	—	CRC	Slave	—	—
(6)	CRC	Master	—	—	—	—	—	—
(7)	intelligent Touch Controller	Master	—	—	—	—	—	—

Note(s)

CRC (Central remote controller): DCS302CA61
intelligent Touch Controller: DCS601C51
∗ The patterns marked with ∗ have nothing to do with those described in the list of setting of master unit centralized setting connector.

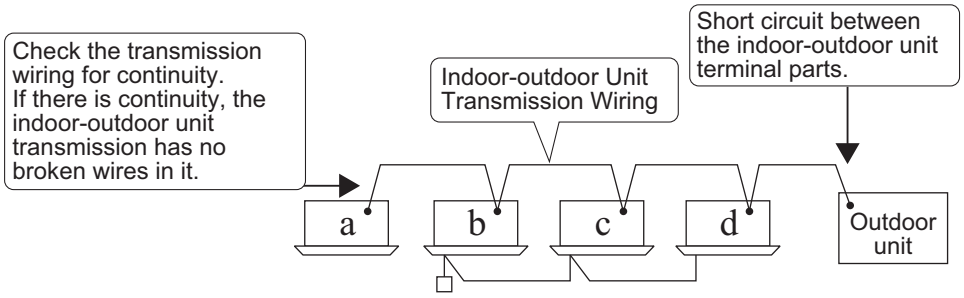
6.15 Broken Wire Check of the Relay Wires

CHECK 15 Procedure for checking indoor-outdoor unit transmission wiring for broken wires

Turn OFF the power supply to all equipment, short circuit between the indoor-outdoor unit terminal F1 and F2 in outdoor unit, and then conduct continuity checks between the transmission wiring F1 and F2 of "Indoor Unit a" farthest from outdoor unit using a multimeter. If there is continuity between the transmission wiring, the indoor-outdoor unit transmission wiring has no broken wires in it.

If there is no continuity, the transmission wiring may have broken wires. With the indoor-outdoor unit terminal of outdoor unit short circuited, identify the areas with continuity in the transmission wiring of "Indoor Unit b", transmission wiring of "Indoor Unit c", and transmission wiring of "Indoor Unit d" in the order described.

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



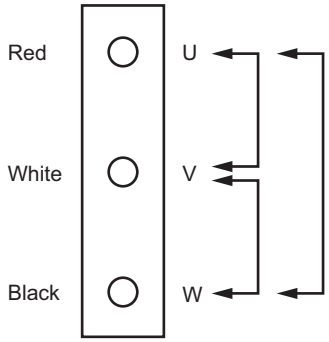
6.16 Fan Motor Connector Check (Power Supply Cable)

CHECK 16 Check the fan motor connector according to the following procedure.

Outdoor unit

RXMQ6-12AR

1. Turn OFF the power supply.
2. Measure the resistance between phases of U, V, W at the motor side connectors (3-core wire) to check that the values are balanced and there is no short circuiting, while connector or relay connector is disconnected.

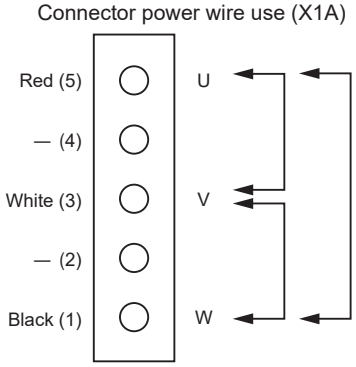


Indoor unit

FXMQ50-140PB

Measurement of power wire connector.

Remove the X1A connector from the fan PCB (A2P) and measure the resistance between the U and V, V and W, and W and U phases of the motor connector (with five conductors) and check that each phase are balanced (within a permissible dispersion range of ±20%)



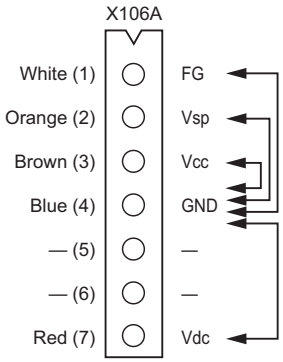
6.17 Fan Motor Connector Check (Signal Cable)

CHECK 17 Check the fan motor connector according to the following procedure.

Outdoor Unit

RXQ4/5AR

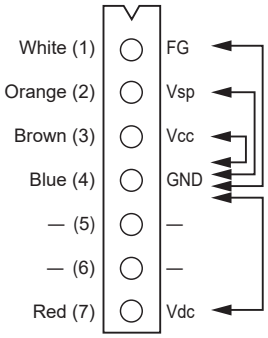
1. Turn OFF the power supply.
2. Remove the connector (X106A) on the PCB to measure the resistance value.
   Judgment criteria: resistance value between each phase is within ±20%



Indoor Unit

Resistance measuring points and judgment criteria.

FXMQ40PB, FXAQ-P

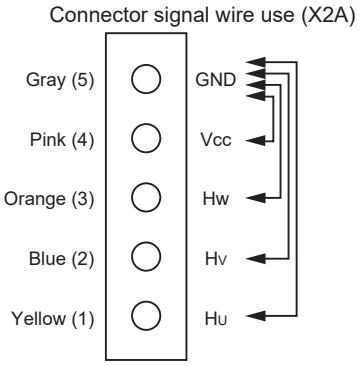


Measuring points	Judgment criteria
1-4	1 Ω or more
2-4	1 Ω or more
3-4	1 Ω or more
7-4	1 Ω or more

FXMQ50-140PB

Measurement of signal wire connector.

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



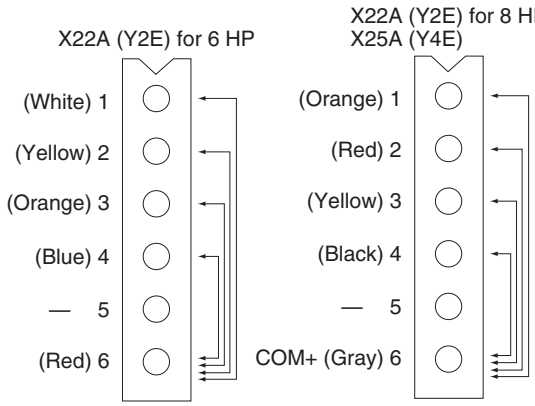
6.18 Electronic Expansion Valve Coil Check

CHECK 18

Remove the connector for electronic expansion valve from PCB. Measure the resistance value between pins and check the continuity to judge the condition.
The normal products will show the following conditions.

Outdoor unit

RXMQ6/8AR



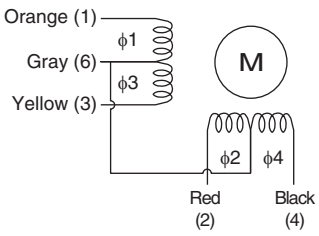
Measuring points	Judgment criteria
1-6	35-55 Ω
2-6	
3-6	
4-6	

RXMQ10/12AR

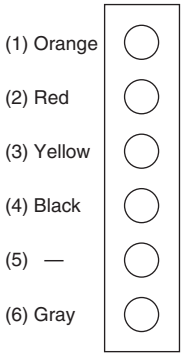
Measuring points	Judgment criteria	
	Y1E	Y2E
1-6	120-180 Ω	35-55 Ω
2-6		
3-6		
4-6		

Indoor unit

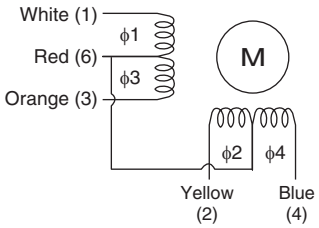
FXFSQ-AR, FXMQ-PB



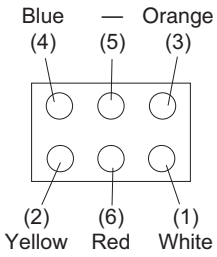
Measuring points	Judgment criteria
1-2	No continuity
1-3	92 Ω
1-6	46 Ω
2-4	92 Ω
2-6	46 Ω



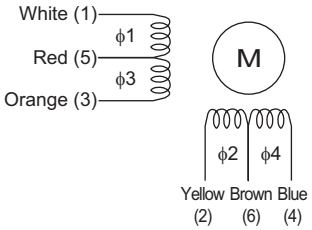
FXMQ-AR



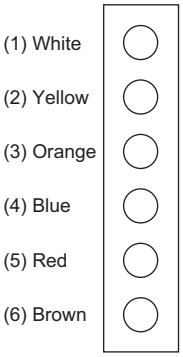
Measuring points	Judgment criteria
1-2	No continuity
1-3	300 Ω
1-6	150 Ω
2-4	300 Ω
2-6	150 Ω



FXAQ-P



Measuring points	Judgment criteria
1-2	No continuity
1-3	300 Ω
1-5	150 Ω
2-4	300 Ω
2-6	150 Ω

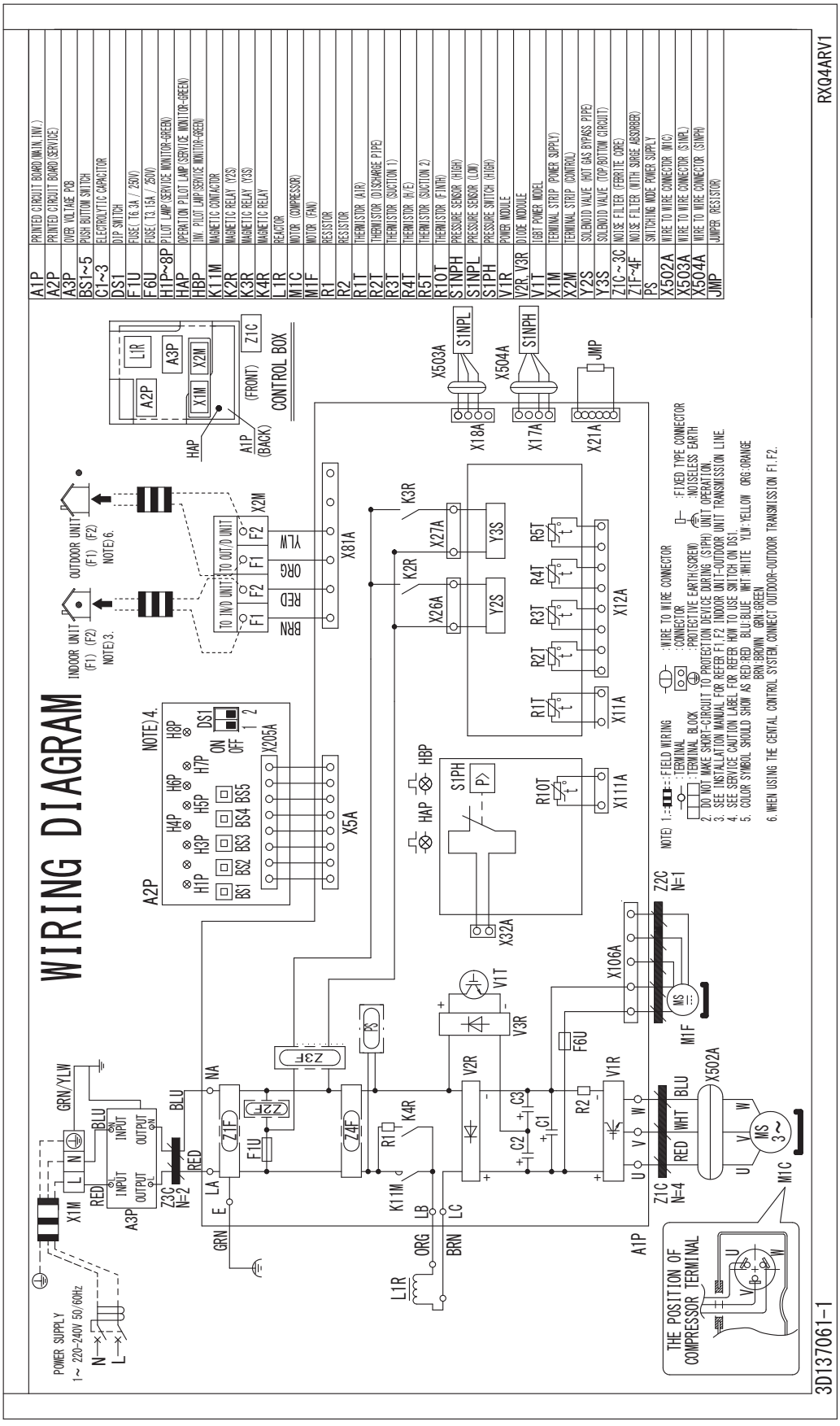


Part 7
Appendix

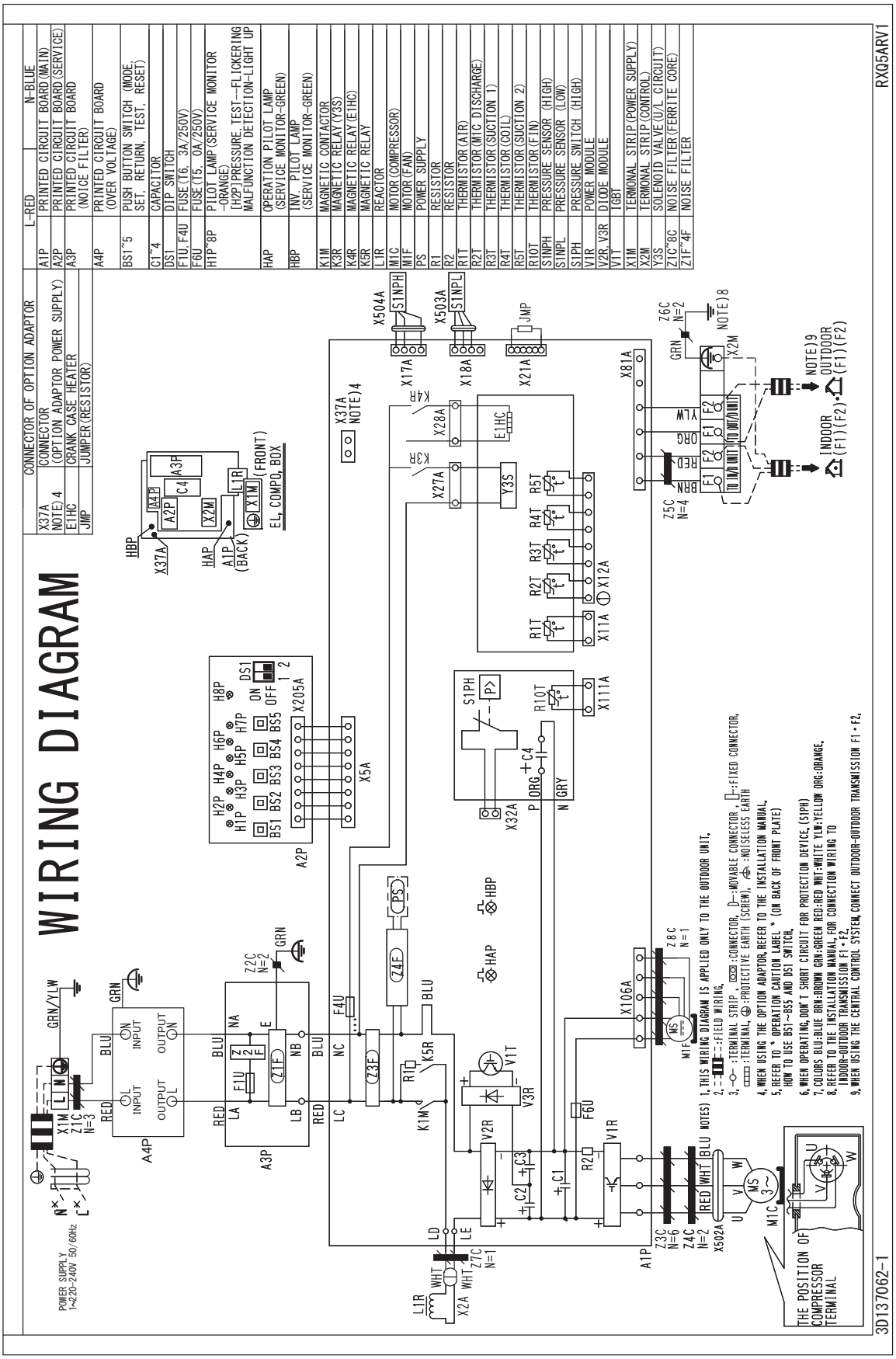
1. Wiring Diagrams

1.1 Outdoor Unit

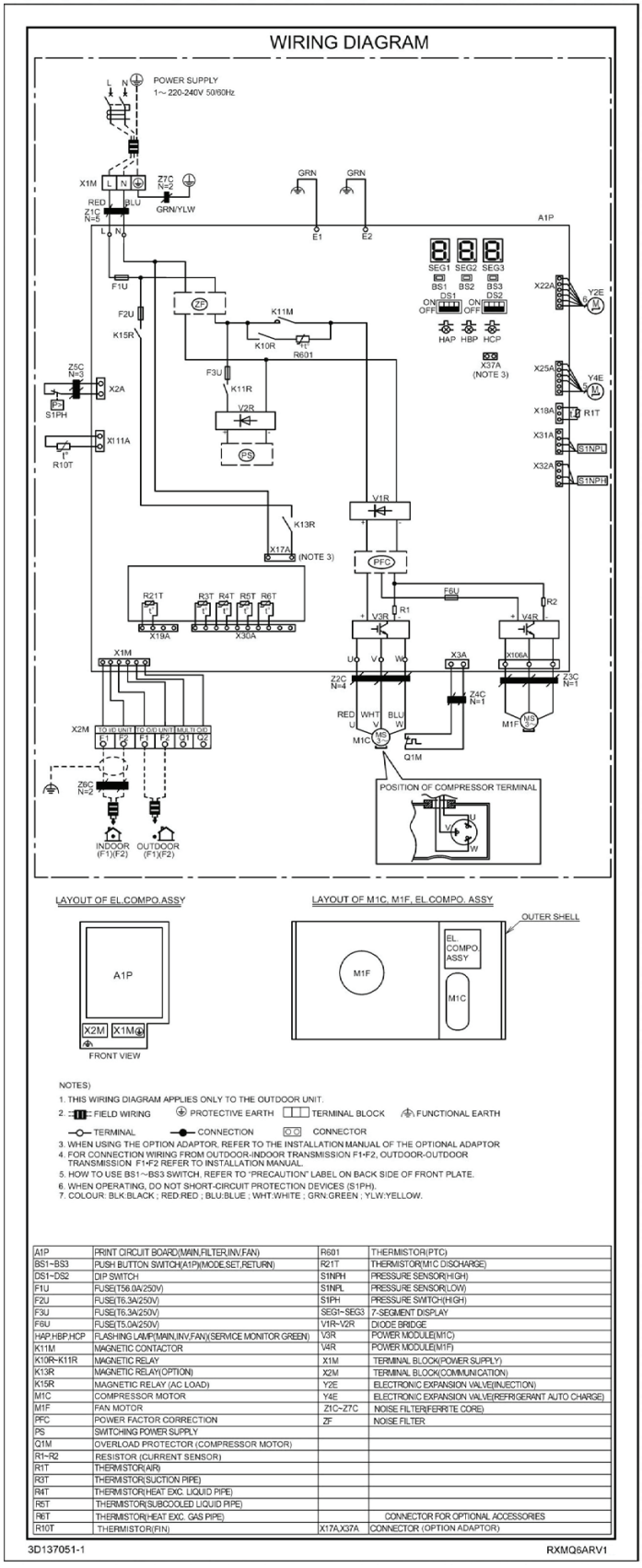
RXQ4ARV1



RXQ5ARV1

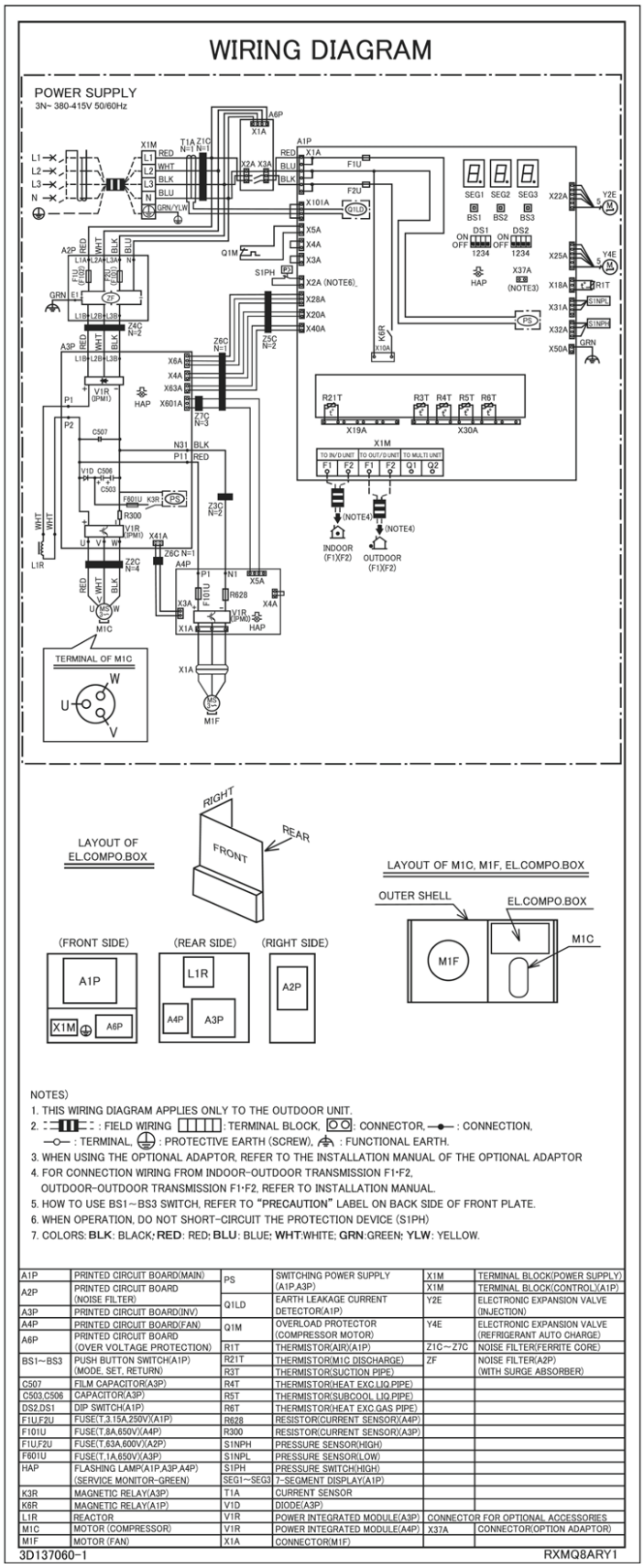

WIRING DIAGRAM
RXQ5ARV1
3D137062
3D137062-1
CONNECTOR OF OPTION ADAPTOR
X37A NOTE)4 CONNECTOR (OPTION ADAPTOR POWER SUPPLY)
E1HC CRANK CASE HEATER
JMP JUMPER(RESISTOR)
L-RED N-BLUE
A1P PRINTED CIRCUIT BOARD(MAIN)
A2P PRINTED CIRCUIT BOARD(SERVICE)
A3P PRINTED CIRCUIT BOARD (NOICE FILTER)
A4P PRINTED CIRCUIT BOARD (OVER VOLTAGE)
BS1~5 PUSH BUTTON SWITCH (MODE, SET, RETURN, TEST, RESET)
C1~4 CAPACITOR
DS1 DIP SWITCH
F1U, F4U FUSE(T6.3A/250V)
F6U FUSE(T5.0A/250V)
H1P~8P PILOT LAMP(SERVICE MONITOR -ORANGE) (H2P)PRESSURE, TEST--FLICKERING MALFUNCTION DETECTION-LIGHT UP
HAP OPERATION PILOT LAMP (SERVICE MONITOR-GREEN)
HBP INV. PILOT LAMP (SERVICE MONITOR-GREEN)
K1M MAGNETIC CONTACTOR
K3R MAGNETIC RELAY(Y3S)
K4R MAGNETIC RELAY(E1HC)
K5R MAGNETIC RELAY
L1R REACTOR
M1C MOTOR(COMPRESSOR)
M1F MOTOR(FAN)
PS POWER SUPPLY
R1 RESISTOR
R2 RESISTOR
R1T THERMISTOR(AIR)
R2T THERMISTOR(MTC DISCHARGE)
R3T THERMISTOR(SUCTION 1)
R4T THERMISTOR(COIL)
R5T THERMISTOR(SUCTION 2)
R10T THERMISTOR(FIN)
S1NPH PRESSURE SENSOR (HIGH)
S1NPL PRESSURE SENSOR (LOW)
S1PH PRESSURE SWITCH (HIGH)
V1R POWER MODULE
V2R, V3R DIODE MODULE
V1T IGBT
X1M TERMONAL STRIP(POWER SUPPLY)
X2M TERMONAL STRIP(CONTROL)
Y3S SOLENOID VALVE(U/L CIRCUIT)
Z1C~8C NOISE FILTER(FERRITE CORE)
Z1F~4F NOISE FILTER
POWER SUPPLY 1~220-240V 50/60Hz
INDOOR (F1)(F2)
OUTDOOR (F1)(F2)
THE POSITION OF COMPRESSOR TERMINAL
NOTES)
1. THIS WIRING DIAGRAM IS APPLIED ONLY TO THE OUTDOOR UNIT.
2. : FIELD WIRING.
3. : TERMINAL STRIP, : CONNECTOR, : MOVABLE CONNECTOR, : FIXED CONNECTOR, : TERMINAL, : PROTECTIVE EARTH (SCREW), : NOISELESS EARTH
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 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 INDOOR-OUTDOOR TRANSMISSION F1・F2.
9. WHEN USING THE CENTRAL CONTROL SYSTEM, CONNECT OUTDOOR-OUTDOOR TRANSMISSION F1・F2.

RXMQ6ARV1



C: 3D137051

RXMQ8ARY1



NOTES)

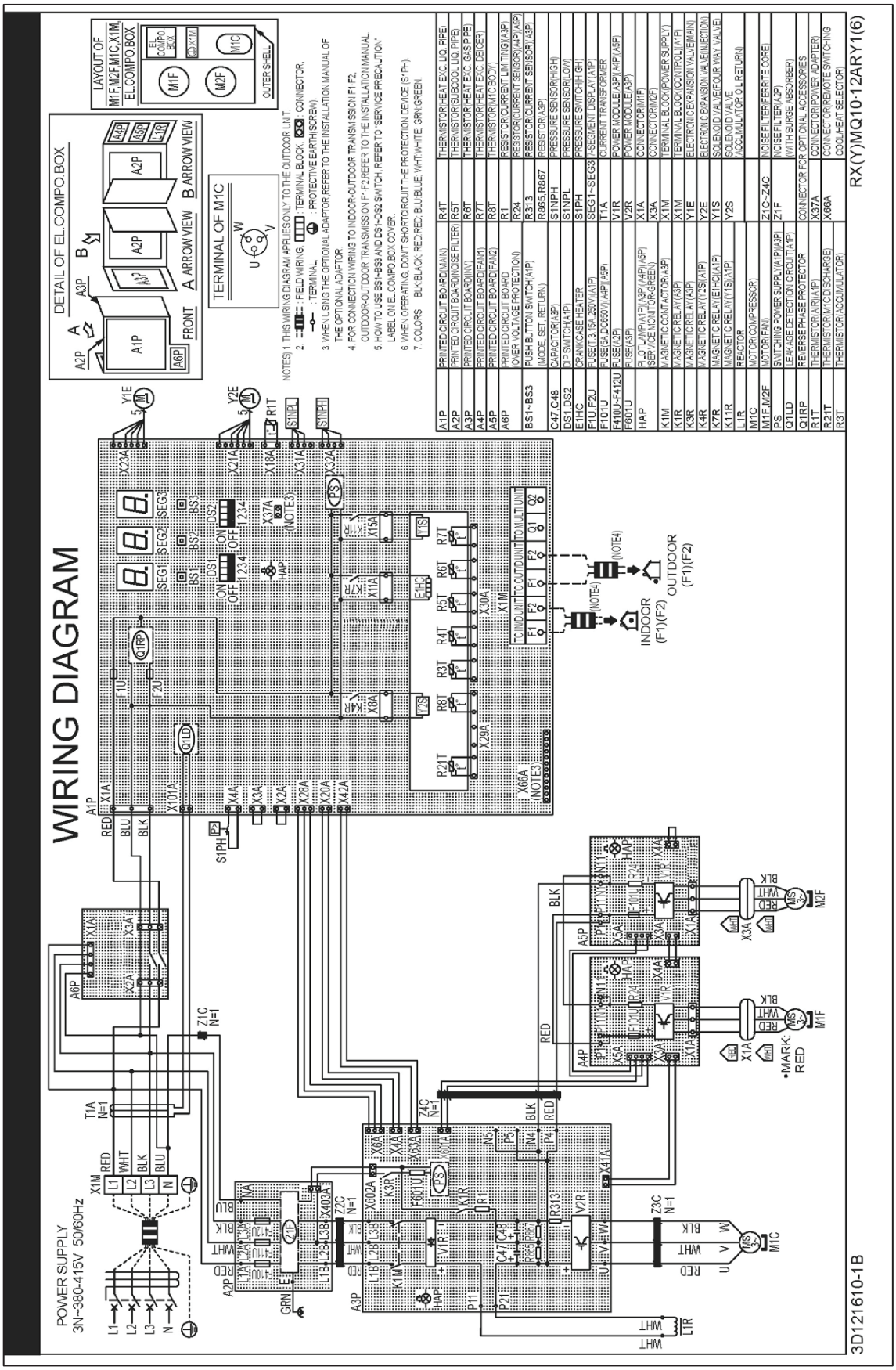
1. THIS WIRING DIAGRAM APPLIES ONLY TO THE OUTDOOR UNIT.
2. : FIELD WIRING, : TERMINAL BLOCK, : CONNECTOR, : CONNECTION, : TERMINAL, : PROTECTIVE EARTH (SCREW), : FUNCTIONAL EARTH.
3. WHEN USING THE OPTIONAL ADAPTOR, REFER TO THE INSTALLATION MANUAL OF THE OPTIONAL ADAPTOR
4. FOR CONNECTION WIRING FROM INDOOR-OUTDOOR TRANSMISSION F1·F2, OUTDOOR-OUTDOOR TRANSMISSION F1·F2, REFER TO INSTALLATION MANUAL.
5. HOW TO USE BS1~BS3 SWITCH, REFER TO "PRECAUTION" LABEL ON BACK SIDE OF FRONT PLATE.
6. WHEN OPERATION, DO NOT SHORT-CIRCUIT THE PROTECTION DEVICE (S1PH)
7. COLORS: **BLK**: BLACK; **RED**: RED; **BLU**: BLUE; **WHT**:WHITE; **GRN**:GREEN; **YLW**: YELLOW.

A1P	PRINTED CIRCUIT BOARD(MAIN)	PS	SWITCHING POWER SUPPLY (A1P,A3P)	X1M	TERMINAL BLOCK(POWER SUPPLY)
A2P	PRINTED CIRCUIT BOARD (NOISE FILTER)			X1M	TERMINAL BLOCK(CONTROL)(A1P)
A3P	PRINTED CIRCUIT BOARD(INV)	Q1LD	EARTH LEAKAGE CURRENT DETECTOR(A1P)	Y2E	ELECTRONIC EXPANSION VALVE (INJECTION)
A4P	PRINTED CIRCUIT BOARD(FAN)	Q1M	OVERLOAD PROTECTOR (COMPRESSOR MOTOR)	Y4E	ELECTRONIC EXPANSION VALVE (REFRIGERANT AUTO CHARGE)
A6P	PRINTED CIRCUIT BOARD (OVER VOLTAGE PROTECTION)	R1T	THERMISTOR(AIR)(A1P)	Z1C~Z7C	NOISE FILTER(FERRITE CORE)
BS1~BS3	PUSH BUTTON SWITCH(A1P) (MODE, SET, RETURN)	R21T	THERMISTOR(M1C DISCHARGE)	ZF	NOISE FILTER(A2P) (WITH SURGE ABSORBER)
		R3T	THERMISTOR(SUCTION PIPE)		
C507	FILM CAPACITOR(A3P)	R4T	THERMISTOR(HEAT EXC.LIQ.PIPE)		
C503,C506	CAPACITOR(A3P)	R5T	THERMISTOR(SUBCOOL LIQ.PIPE)		
DS2,DS1	DIP SWITCH(A1P)	R6T	THERMISTOR(HEAT EXC.GAS PIPE)		
F1U,F2U	FUSE(T,3.15A,250V)(A1P)	R628	RESISTOR(CURRENT SENSOR)(A4P)		
F101U	FUSE(T,8A,650V)(A4P)	R300	RESISTOR(CURRENT SENSOR)(A3P)		
F1U,F2U	FUSE(T,63A,600V)(A2P)	S1NPH	PRESSURE SENSOR(HIGH)		
F601U	FUSE(T,1A,650V)(A3P)	S1NPL	PRESSURE SENSOR(LOW)		
HAP	FLASHING LAMP(A1P,A3P,A4P) (SERVICE MONITOR-GREEN)	S1PH	PRESSURE SWITCH(HIGH)		
		SEG1~SEG3	7-SEGMENT DISPLAY(A1P)		
K3R	MAGNETIC RELAY(A3P)	T1A	CURRENT SENSOR		
K6R	MAGNETIC RELAY(A1P)	V1D	DIODE(A3P)		
L1R	REACTOR	V1R	POWER INTEGRATED MODULE(A3P)	CONNECTOR FOR OPTIONAL ACCESSORIES	
M1C	MOTOR (COMPRESSOR)	V1R	POWER INTEGRATED MODULE(A4P)	X37A	CONNECTOR(OPTION ADAPTOR)
M1F	MOTOR (FAN)	X1A	CONNECTOR(M1F)		

3D137060-1 RXMQ8ARY1

C: 3D137060

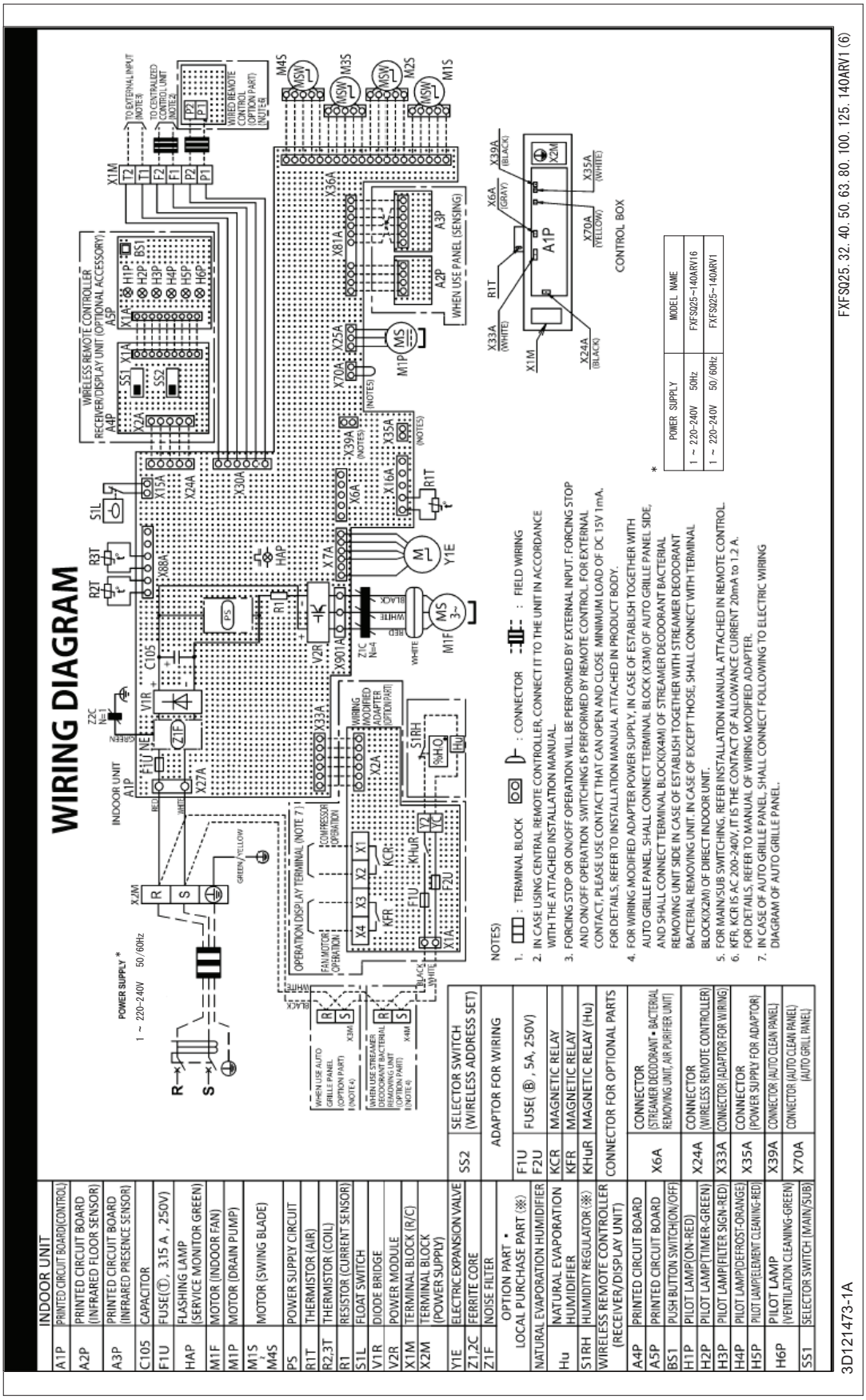
RXMQ10/12ARY1



1.2 *VRV* Indoor Unit

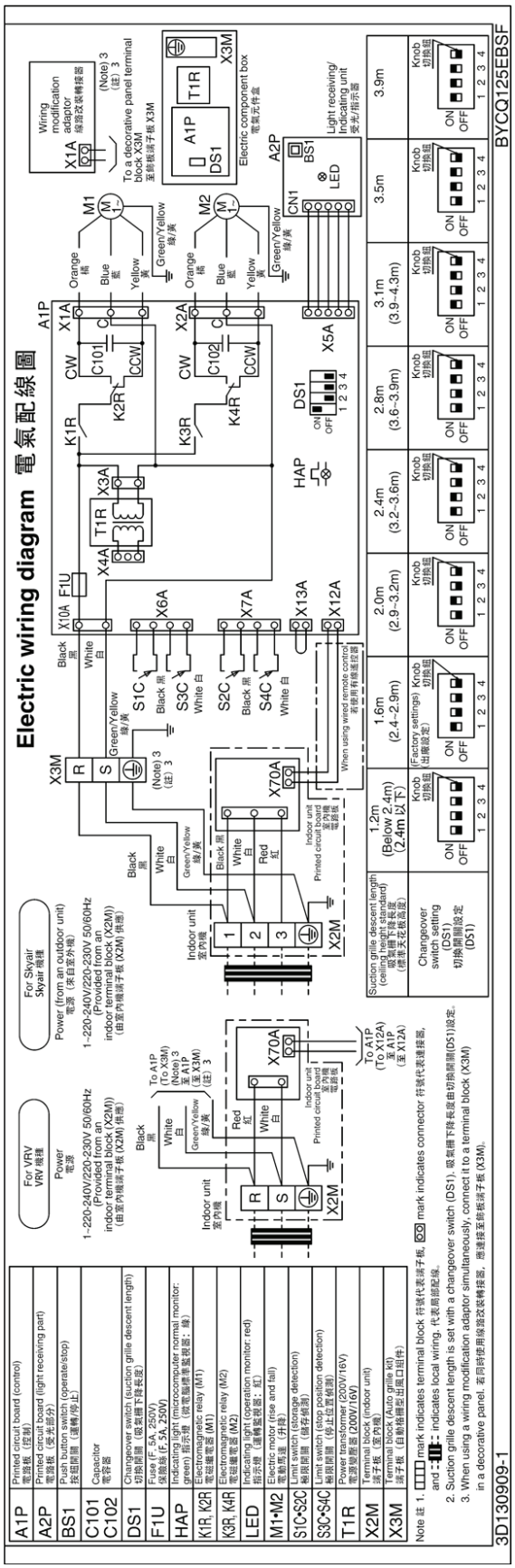
1.2.1 Round Flow Cassette with Sensing

FXFSQ25/32/40/50/63/80/100/125/140ARV1



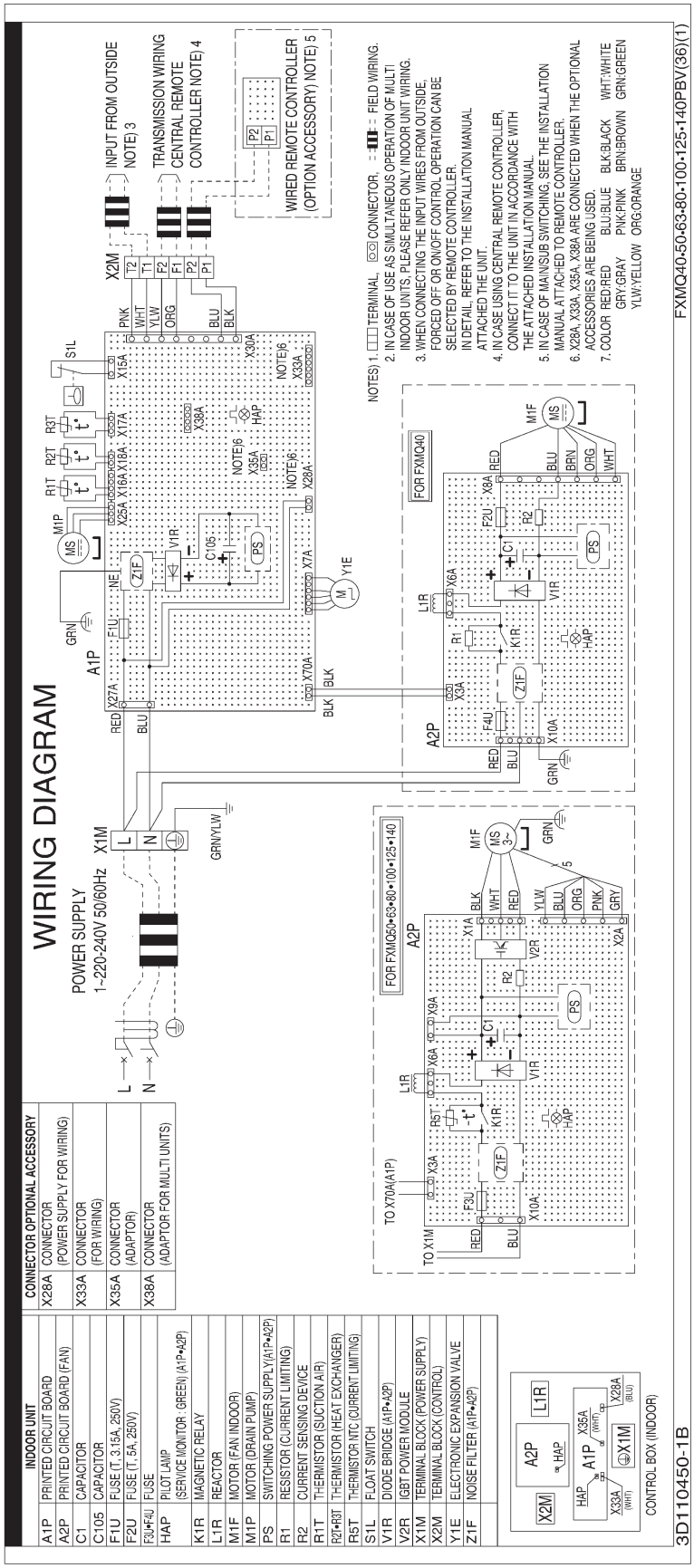
1.2.2 Auto Grille Panel

BYCQ125EBSF (Auto Grille Panel for FXFSQ-AR)

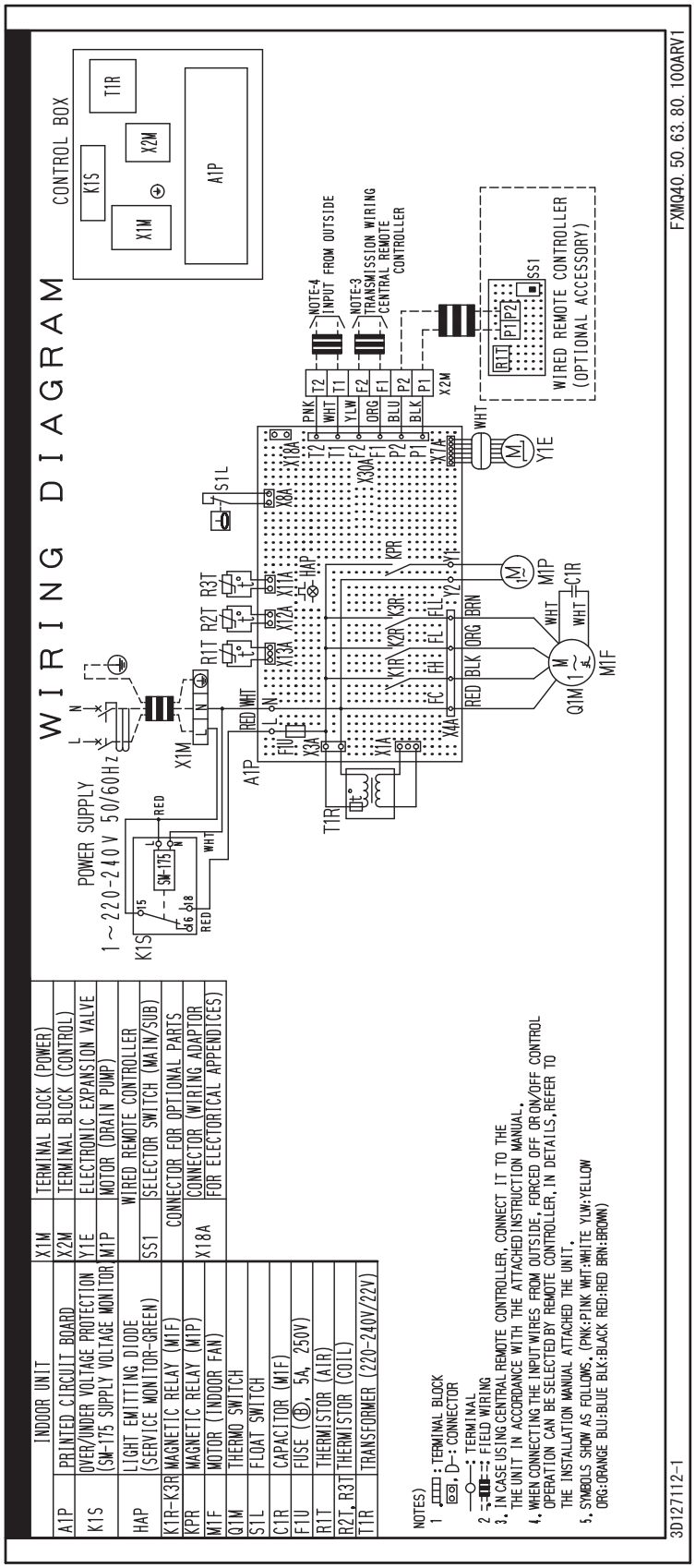


1.2.3 Middle-high Static Pressure Duct

FXMQ40/50/63/80/100/125/140PBV1



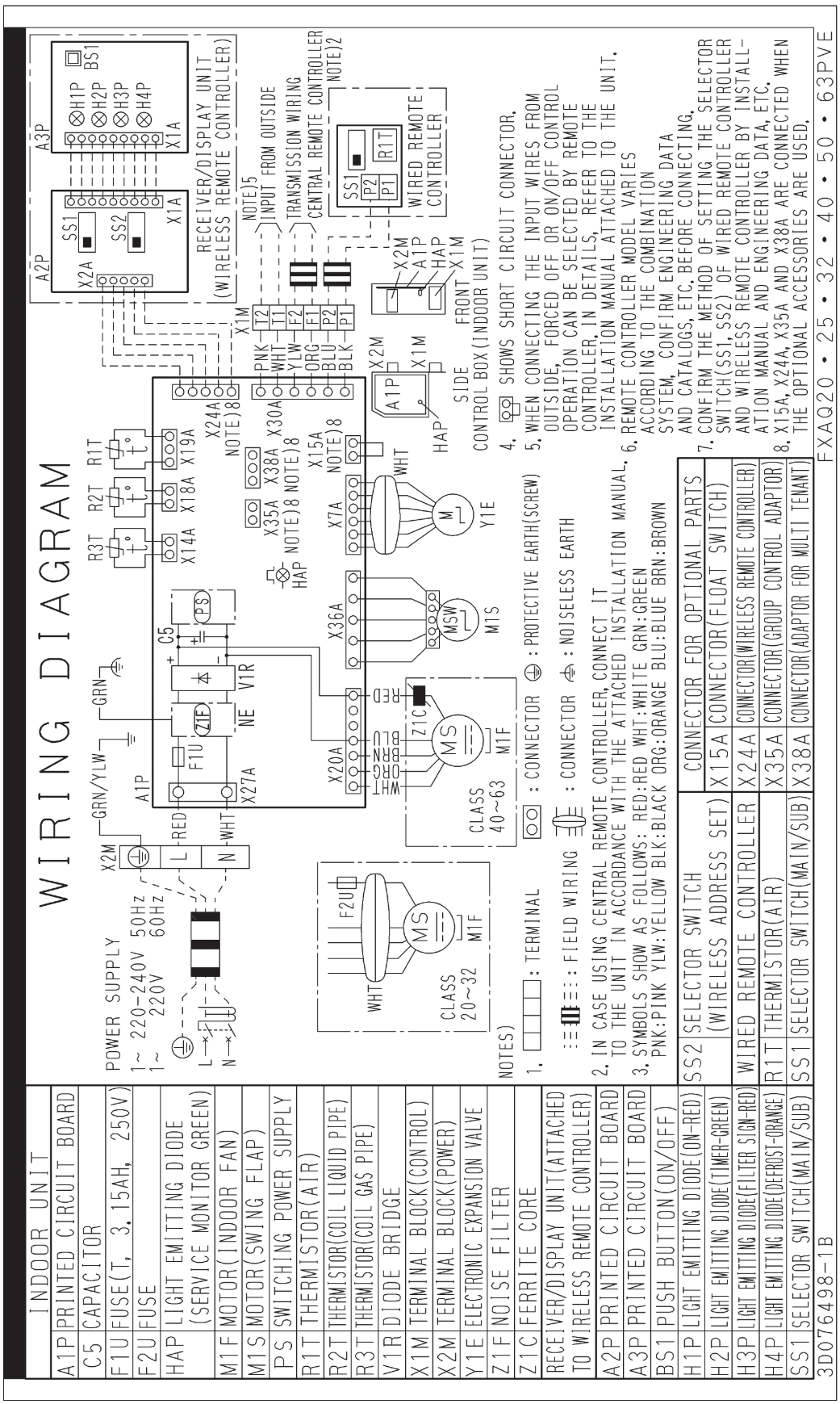
FXMQ40/50/63/80/100ARV1



3D127112

1.2.4 Wall Mounted

FXAQ20/25/32PVE, FXAQ40/50/63PVER1



C: 3D076498B

Warning

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

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

Cautions on product corrosion

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

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●Specifications, designs and other content appearing in this brochure are current as of December 2021 but subject to change without notice.

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