DAIKIN

SiUS371703EA

R-410A

Service Manual

VRV Aurora Series

RELQ72-240TATJU
RELQ72-240TAYDU
RELQ72-240TAYCU

VRV IV

REYQ72-384TAYCU

Heat Recovery 60 Hz

VRV Aurora Series RELQ-TA
VRV IV REYQ-TA
Heat Recovery
R-410A 60 Hz

ED Reference

RELQ-TATJU, RELQ-TAYDU, RELQ-TAYCU: Refer to **EDUS371705A-M** for the details of specifications, option list, etc.
REYQ-TAYCU: Refer to **EDUS371706-M** for the details of specifications, option list, etc.

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 the item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.

◯ This symbol indicates the prohibited action.
The prohibited item or action is shown in the illustration or near the symbol.

● This symbol indicates the action that must be taken, or the 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 the 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 inspecting 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.	

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

Caution	
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 a 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.	

Warning	
Be sure to use the specified cable for wiring between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections may cause excessive heat generation or fire.	
When wiring between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section may cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cables may cause an electrical shock or fire. Placing heavy items on the power cable, or heating or pulling the power cable may damage it.	
Do not mix air or gas other than the specified refrigerant (R-32, R-410A, R-22) in the refrigerant system. If air enters the refrigerating system, excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leakage and repair it before charging the refrigerant. After charging the refrigerant, make sure that there is no leakage. If the leakage 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 if the installation work is not conducted securely, the equipment may fall and cause injury.	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet securely. If the plug is dusty or has a loose connection, it may cause an electrical shock or fire.	
When replacing the coin battery in the remote controller, be sure to dispose of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If combustible gas leaks and remains around the unit, it may cause a fire.	
Check to see if parts and wires are mounted and connected properly, and if the 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. Used Icons

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

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

Part 1
General Information

1. Model Names

1.1 Indoor Unit

Capacity Range (ton)		0.5	0.6	0.8	1	1.25	1.5		2	2.5	3	3.5	4	4.5	5	6	8	Power Supply, Standard
Capacity Index		5.8	7.5	9.5	12	15	18	20	24	30	36	42	48	54	60	72	96	
Ceiling Mounted Cassette (Round Flow with Sensing) Type	FXFQ	—	07T	09T	12T	15T	18T	—	24T	30T	36T	—	48T	—	—	—	—	VJU
Ceiling Mounted Cassette (Round Flow) Type	FXFQ	—	—	09P	12P	—	18P	—	24P	30P	36P	—	48P	—	—	—	—	
4 Way Ceiling Mounted Cassette (2'×2') Type	FXZQ	05TA	07TA	09TA	12TA	15TA	18TA	—	—	—	—	—	—	—	—	—	—	
		—	07M	09M	12M	15M	18M	—	—	—	—	—	—	—	—	—	—	VJU9
4-Way Blow Ceiling-Suspended Type	FXUQ	—	—	—	—	—	—	18P	24P	30P	36P	—	—	—	—	—	—	VJU
One Way Blow Cassette Type	FXEQ	—	07P	09P	12P	15P	18P	—	24P	—	—	—	—	—	—	—	—	
Slim Ceiling Mounted Duct Type	FXDQ	—	07M	09M	12M	—	18M	—	24M	—	—	—	—	—	—	—	—	
Ceiling Mounted Duct Type (Middle and High Static Pressure)	FXMQ	—	07PB	09PB	12PB	15PB	18PB	—	24PB	30PB	36PB	—	48PB	54PB	—	—	—	
Ceiling Mounted Duct Type	FXMQ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	72M	96M	
Ceiling Suspended Type	FXHQ	—	—	—	12M	—	—	—	24M	—	36M	—	—	—	—	—	—	
Wall Mounted Type	FXAQ	—	07P	09P	12P	—	18P	—	24P	—	—	—	—	—	—	—	—	
Floor Standing Type	FXLQ	—	07M	09M	12M	—	18M	—	24M	—	—	—	—	—	—	—	—	VJU
Concealed Floor Standing Type	FXNQ	—	07M	09M	12M	—	18M	—	24M	—	—	—	—	—	—	—	—	
Air Handling Unit	FXTQ	—	—	09TA	12TA	—	18TA	—	24TA	30TA	36TA	42TA	48TA	54TA	60TA	—	—	VJUA
		—	—	09TA	12TA	—	18TA	—	24TA	30TA	36TA	42TA	48TA	54TA	60TA	—	—	VJUD

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

1.2 Outdoor Unit

Capacity Range (ton)			6	8	10	12	14	16	18	Power Supply, Standard
Capacity Index			72	96	120	144	168	192	216	
Heat Recovery	Aurora Series	RELQ-	72TA	96TA	120TA	144TA	—	192TA	—	TJU YDU YCU
	Standard Series	REYQ-	72TA	96TA	120TA	144TA	168TA	192TA	216TA	YCU

Capacity Range (ton)			20	22	24	26	28	30	32	Power Supply, Standard
Capacity Index			240	264	288	312	336	360	384	
Heat Recovery	Aurora Series	RELQ-	240TA	—	—	—	—	—	—	TJU YDU YCU
	Standard Series	REYQ-	240TA	264TA	288TA	312TA	336TA	360TA	384TA	YCU

TJ : 3 phase, 208/230 V, 60 Hz
YD : 3 phase, 460 V, 60 Hz
YC : 3 phase, 575 V, 60 Hz
U(YCU) : Standard symbol

Aurora Series RELQ-TATJU (208/230 V)

Model name	RELQ72TATJU	RELQ96TATJU	RELQ120TATJU
Outdoor unit 1	RELQ72TATJU	RELQ96TATJU	RELQ120TATJU

Model name	RELQ144TATJU	RELQ192TATJU	RELQ240TATJU
Outdoor unit 1	RELQ72TATJU	RELQ96TATJU	RELQ120TATJU
Outdoor unit 2	RELQ72TATJU	RELQ96TATJU	RELQ120TATJU

Aurora Series RELQ-TAYDU (460 V)

Model name	RELQ72TAYDU	RELQ96TAYDU	RELQ120TAYDU
Outdoor unit 1	RELQ72TAYDU	RELQ96TAYDU	RELQ120TAYDU

Model name	RELQ144TAYDU	RELQ192TAYDU	RELQ240TAYDU
Outdoor unit 1	RELQ72TAYDU	RELQ96TAYDU	RELQ120TAYDU
Outdoor unit 2	RELQ72TAYDU	RELQ96TAYDU	RELQ120TAYDU

Aurora Series RELQ-TAYCU (575 V)

Model name	RELQ72TAYCU	RELQ96TAYCU	RELQ120TAYCU
Outdoor unit 1	RELQ72TAYCU	RELQ96TAYCU	RELQ120TAYCU

Model name	RELQ144TAYCU	RELQ192TAYCU	RELQ240TAYCU
Outdoor unit 1	RELQ72TAYCU	RELQ96TAYCU	RELQ120TAYCU
Outdoor unit 2	RELQ72TAYCU	RELQ96TAYCU	RELQ120TAYCU

Standard Series REYQ-TAYCU (575 V)

Model name	REYQ72TAYCU	REYQ96TAYCU	REYQ120TAYCU	REYQ144TAYCU	REYQ168TAYCU
Outdoor unit 1	REYQ72TAYCU	REYQ96TAYCU	REYQ120TAYCU	REYQ144TAYCU	REYQ168TAYCU

Model name	REYQ192TAYCU	REYQ216TAYCU	REYQ240TAYCU	REYQ264TAYCU	REYQ288TAYCU
Outdoor unit 1	REYQ96TAYCU	REYQ96TAYCU	REYQ120TAYCU	REYQ120TAYCU	REYQ144TAYCU
Outdoor unit 2	REYQ96TAYCU	REYQ120TAYCU	REYQ120TAYCU	REYQ144TAYCU	REYQ144TAYCU

Model name	REYQ312TAYCU	REYQ336TAYCU	REYQ360TAYCU	REYQ384TAYCU
Outdoor unit 1	REYQ144TAYCU	REYQ168TAYCU	REYQ120TAYCU	REYQ120TAYCU
Outdoor unit 2	REYQ168TAYCU	REYQ168TAYCU	REYQ120TAYCU	REYQ120TAYCU
Outdoor unit 3	—	—	REYQ120TAYCU	REYQ144TAYCU

1.3 Air Treatment Equipment

Outdoor-Air Processing Unit

Series	Model Name			Power Supply, Standard
FXMQ	48MF	72MF	96MF	VJU

Energy Recovery Ventilator (VAM series)

Series	Model Name				Power Supply, Standard
VAM	300G	470G	600G	1200G	VJU

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

1.4 Branch Selector Unit

Single Branch Selector Unit

Series		Model Name			Power Supply, Standard
Heat Recovery	BSQ	36T	60T	96T	VJ

Note: No interchangeability with BSVQ36/60/96PVJU.
VJ: 1 phase, 208/230 V, 60 Hz

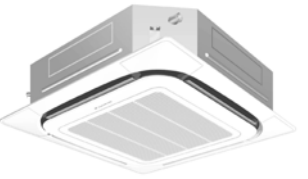
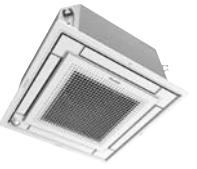
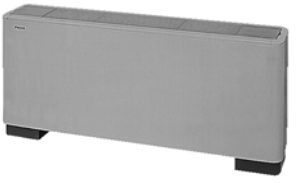
Multi Branch Selector Unit

Series		Model Name					Power Supply, Standard
Heat Recovery	BS	4Q54T	6Q54T	8Q54T	10Q54T	12Q54T	VJ

Note: No interchangeability with BSV4/6Q36PVJU.
VJ: 1 phase, 208/230 V, 60 Hz

2. External Appearance

2.1 Indoor Unit

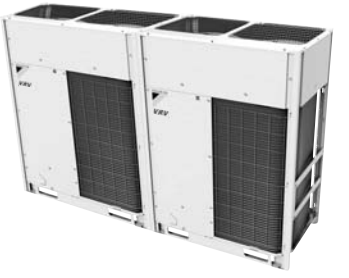
Ceiling mounted cassette (Round flow with sensing) type FXFQ-T  Shown with BYCQ125B-W1	Ceiling mounted duct type (Middle and high static pressure) FXMQ-PB 
Ceiling mounted cassette (Round flow) type FXFQ-P  Shown with BYCP125K-W1	Ceiling mounted duct type FXMQ-M 
4 way ceiling mounted cassette (2'×2') type FXZQ-TA  Shown with BYFQ60C3W1W	Ceiling suspended type FXHQ-M 
4 way ceiling mounted cassette (2'×2') type FXZQ-M  Shown with BYFQ60B8W1U	Wall mounted type FXAQ-P
4-way blow ceiling-suspended type FXUQ-P 	Floor standing type FXLQ-M 
One way blow cassette type FXEQ-P 	Concealed floor standing type FXNQ-M 
Slim ceiling mounted duct type FXDQ-M 	Air handling unit FXTQ-TA 

2.2 Outdoor Unit

Single Outdoor Unit

RELQ72/96/120TATJU RELQ72/96/120TAYDU RELQ72/96/120TAYCU REYQ72/96/120/144/168TAYCU


Double Outdoor Unit

RELQ144/192/240TATJU RELQ144/192/240TAYDU RELQ144/192/240TAYCU REYQ192/216/240/264/288/312/336TAYCU


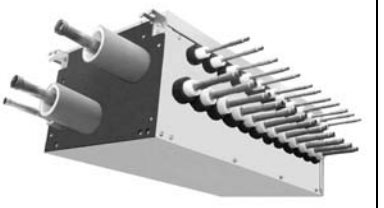
Triple Outdoor Unit

REYQ360/384TAYCU


2.3 Air Treatment Equipment

Outdoor-air processing unit FXMQ-MF 	Energy recovery ventilator (VAM series) VAM-G 

2.4 Branch Selector Unit

Single branch selector unit BSQ-T 	Multi branch selector unit BS-Q54T 

3. Combination of Outdoor Units

3.1 RELQ-TATJU, RELQ-TAYDU, RELQ-TAYCU

System capacity			Number of units	Module			Outdoor Unit Multi Connection Piping Kit ★1
Ton	HP	kW		72	96	120	
6	7.5	21.1	1	●			—
8	10	28.1	1		●		
10	12.5	35.2	1			●	
12	15	42.2	2	●●			BHFP26P100U
16	20	56.3	2		●●		
20	25	70.3	2			●●	

Note: ★1 For multiple connection, the outdoor unit multi connection piping kit (separately sold) is required.

3.2 REYQ-TAYCU

System capacity			Number of units	Module					Outdoor Unit Multi Connection Piping Kit ★1
Ton	HP	kW		72	96	120	144	168	
6	7.5	21.1	1	●					—
8	10	28.1	1		●				
10	12.5	35.2	1			●			
12	15	42.2	1				●		
14	17.5	49.2	1					●	
16	20	56.3	2		●●				BHFP26P100U
18	22.5	63.3	2		●	●			
20	25	70.3	2			●●			
22	27.5	77.4	2			●	●		
24	30	84.4	2				●●		
26	32.5	91.4	2				●	●	
28	35	98.5	2					●●	
30	37.5	105.5	3			●●●			BHFP26P151U
32	40	112.5	3			●●	●		

Note: ★1 For multiple connection, the outdoor unit multi connection piping kit (separately sold) is required.

4. Capacity Range

4.1 Combination Ratio

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

RELQ-TATJU, RELQ-TAYDU, RELQ-TAYCU

Type	Min. combination ratio	Max. combination ratio				
		Types of connected indoor units			Type of connected air treatment equipments	
		When using only FXDQ-M, FXMQ-PB, FXAQ-P	When using at least one FXZQ05TA, FXFQ07/09	When using other indoor unit models	FXMQ-MF	
					When FXMQ-MF is only connected	When FXMQ-MF and indoor units are connected
Single outdoor units	70%	200% ∗1	180% ∗1	200% ∗1	100%	100% ∗2 ∗3
Double outdoor units			160% ∗1	160% ∗1		

Notes: ∗1. If the operational capacity of indoor units is more than 130%, low airflow operation is enforced in all the indoor units. Refer to page 139 for detail.
∗2. When outdoor-air processing units (FXMQ-MF) and standard indoor units are connected, the total connection capacity of the outdoor-air processing units (FXMQ-MF) must not exceed 30% of the capacity index of the outdoor units. And the connection ratio must not exceed 100%.
∗3. It is permitted to use a maximum connection ratio of 130% in some circumstances – please contact your local Daikin representative for further details.
∗4. For indoor units used for cooling only (do not connect to Branch Selector unit when using for heat recovery), total capacity index of cooling only indoor units must be 50% or less than the total capacity index of the indoor units.

REYQ-TAYCU

Type	Min. combination ratio	Max. combination ratio				
		Types of connected indoor units			Type of connected air treatment equipments	
		When using only FXDQ-M, FXMQ-PB, FXAQ-P	When using at least one FXZQ05TA, FXFQ07/09	When using other indoor unit models	FXMQ-MF	
					When FXMQ-MF is only connected	When FXMQ-MF and indoor units are connected
Single outdoor units	50% ∗1	200% ∗2	180% ∗2	200% ∗2	100%	100% ∗3 ∗4
Double outdoor units			160% ∗2	160% ∗2		
Triple outdoor units			130% ∗2	130%		

Notes: ∗1. REYQ72TAYCU: 70%
∗2. If the operational capacity of indoor units is more than 130%, low airflow operation is enforced in all the indoor units. Refer to page 139 for detail.
∗3. When outdoor-air processing units (FXMQ-MF) and standard indoor units are connected, the total connection capacity of the outdoor-air processing units (FXMQ-MF) must not exceed 30% of the capacity index of the outdoor units. And the connection ratio must not exceed 100%.
∗4. It is permitted to use a maximum connection ratio of 130% in some circumstances – please contact your local Daikin representative for further details.
∗5. For indoor units used for cooling only (do not connect to Branch Selector unit when using for heat recovery), total capacity index of cooling only indoor units must be 50% or less than the total capacity index of the indoor units.

4.2 Outdoor Unit Combinations

RELQ-TATJU, RELQ-TAYDU, RELQ-TAYCU

Capacity Range (ton)	6	8	10	12	16	20
RELQ	72TATJU 72TAYDU 72TAYCU	96TATJU 96TAYDU 96TAYCU	120TATJU 120TAYDU 120TAYCU	144TATJU 144TAYDU 144TAYCU	192TATJU 192TAYDU 192TAYCU	240TATJU 240TAYDU 240TAYCU
Max. Number of Connectable Indoor Units	12	16	20	25	33	41
Total Capacity Index of Indoor Units to be Connected ∗1	51-93 (144)	68-124 (192)	84-156 (240)	101-187 (230)	135-249 (307)	168-312 (384)

Note: ∗1. Values inside brackets are based on connection of indoor units rated at maximum capacity, 200% for single outdoor units and 160% for double outdoor units.

REYQ-TAYCU

Capacity Range (ton)	6	8	10	12	14	16	18
REYQ	72TAYCU	96TAYCU	120TAYCU	144TAYCU	168TAYCU	192TAYCU	216TAYCU
Max. Number of Connectable Indoor Units	12	16	20	25	29	33	37
Total Capacity Index of Indoor Units to be Connected ∗1	51-93 (144)	48-124 (192)	60-156 (240)	72-187 (288)	84-218 (336)	96-249 (307)	108-280 (346)

Capacity Range (ton)	20	22	24	26	28	30	32
REYQ	240TAYCU	264TAYCU	288TAYCU	312TAYCU	336TAYCU	360TAYCU	384TAYCU
Max. Number of Connectable Indoor Units	41	45	49	54	58	62	64
Total Capacity Index of Indoor Units to be Connected ∗1	120-312 (384)	132-343 (422)	144-374 (461)	156-405 (499)	168-436 (538)	180-468 (468)	192-499 (499)

Note: ∗1. Values inside brackets are based on connection of indoor units rated at maximum capacity, 200% for single outdoor units, 160% for double outdoor units, and 130% for triple outdoor units.

4.3 Limitation of Capacity Index for Heat Recovery

Single Branch Selector unit

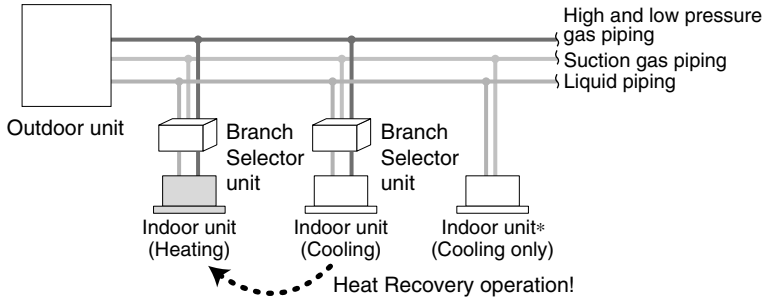
Model	BSQ36TVJ	BSQ60TVJ	BSQ96TVJ
Maximum number of connectable indoor units	4	8	8
Total capacity index of connectable indoor units	36 or less	More than 36 and 60 or less	More than 60 and 96 or less

Multi Branch Selector unit

Model	BS4Q54TVJ	BS6Q54TVJ	BS8Q54TVJ	BS10Q54TVJ	BS14Q54TVJ
Maximum number of connectable indoor units	20	30	40	41	41
Maximum number of connectable indoor units per branch	5	5	5	5	5
Number of branches	4	6	8	10	12
Maximum capacity index of connectable indoor units	144 or less	216 or less	290 or less	290 or less	290 or less
Maximum capacity index of connectable indoor units per branch (∗1)	54 or less	54 or less	54 or less	54 or less	54 or less

Note: ∗1. When the total capacity of indoor units to be connected downstream is larger than 54 (Max. 96), use a junction pipe kit (KHRP26A250T, optional parts) to join 2 connections downstream from the Branch Selector unit.

Heat Recovery



∗ For indoor units used for cooling only (do not connect to Branch Selector unit when using for Heat Recovery), total capacity index must be 70% or less than the capacity index of the outdoor units (RELQ), or 50% or less than the capacity index of the outdoor units (REYQ).

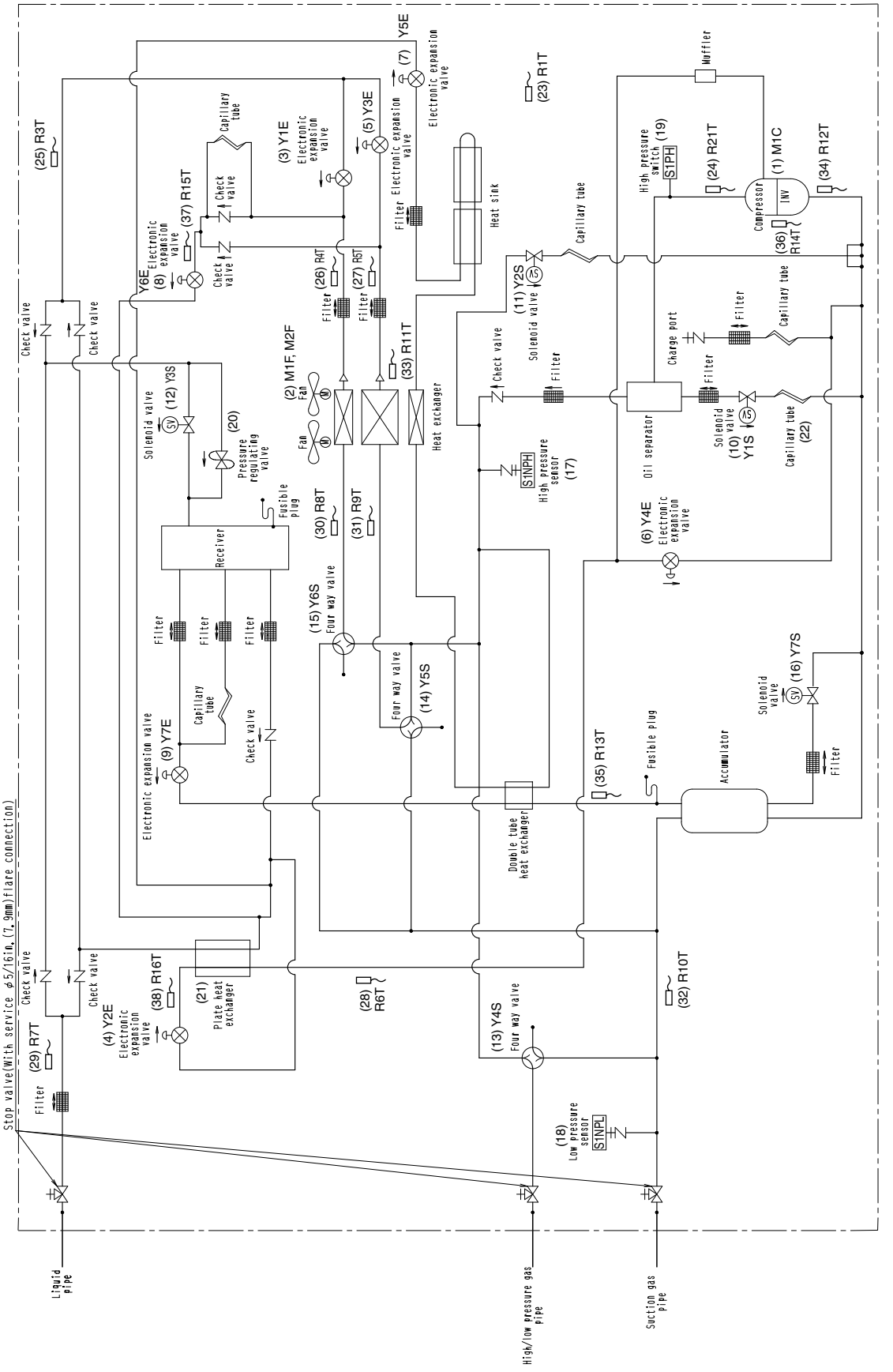
Part 2
Refrigerant Circuit

1. Refrigerant Circuit

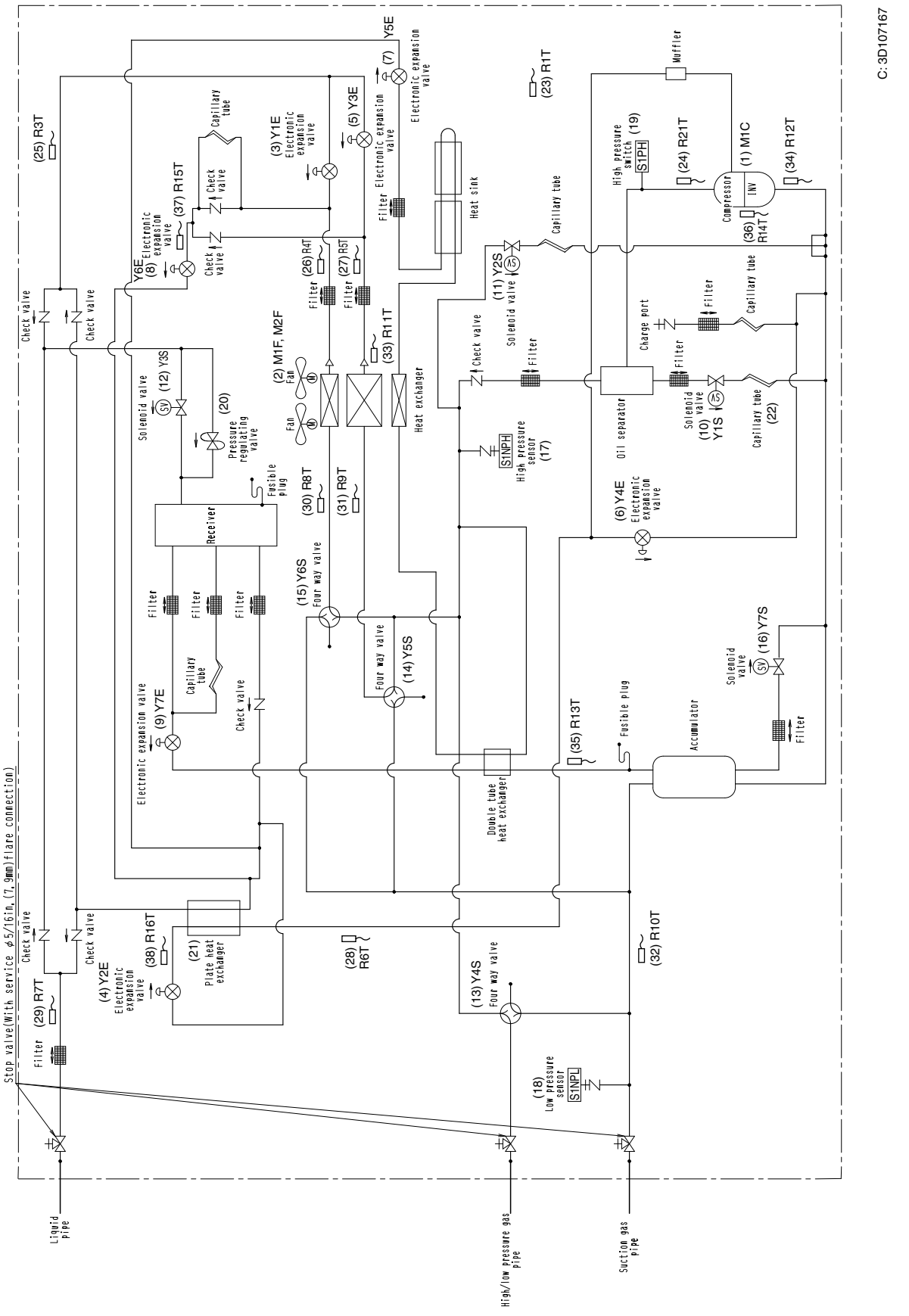
1.1 Outdoor Unit

No. in piping diagram	Electric symbol	Name	Function
(1)	M1C	Inverter compressor	Inverter compressor is operated on frequencies between 15 rps to 140 rps by using the inverter. Refer to page 59, 60.
(2)	M1F M2F	Inverter fan	Because the system is an air heat exchange type, the fan is operated at 53 steps of rotation speed by using the inverter. Refer to page 62.
(3)	Y1E	Electronic expansion valve (Heat exchanger upper)	While in heating, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
(4)	Y2E	Electronic expansion valve (Subcooling heat exchanger)	PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant.
(5)	Y3E	Electronic expansion valve (Heat exchanger lower)	While in heating, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
(6)	Y4E	Electronic expansion valve (Subcooling injection)	Used to control compressor injection.
(7)	Y5E	Electronic expansion valve (Refrigerant cooling)	Used to control the refrigerant amount to cool the diode bridge and power module of the inverter PCB.
(8)	Y6E	Electronic expansion valve (Leak detection)	Used to detect refrigerant leakage.
(9)	Y7E	Electronic expansion valve (Receiver gas purge)	Used to collect the refrigerant to receiver.
(10)	Y1S	Solenoid valve (Oil separator oil return)	Used to return oil from the oil separator to the compressor.
(11)	Y2S	Solenoid valve (Hot gas bypass)	Used to flow discharge gas to the compressor inlet.
(12)	Y3S	Solenoid valve (Liquid shutoff)	Used to shut off liquid refrigerant flow to the receiver.
(13)	Y4S	Four way valve (HP/LP gas pipe)	Used to switch dual pressure gas pipe to high pressure or low pressure.
(14)	Y5S	Four way valve (Heat exchanger lower)	Used to switch outdoor unit heat exchanger to evaporator or condenser.
(15)	Y6S	Four way valve (Heat exchanger upper)	
(16)	Y7S	Solenoid valve (Accumulator oil return)	Used to return oil from the accumulator to the compressor.
(17)	S1NPH	High pressure sensor	Used to detect the high pressure.
(18)	S1NPL	Low pressure sensor	Used to detect the low pressure.
(19)	S1PH	High pressure switch (For inverter compressor)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
(20)	—	Pressure regulating valve (Liquid pipe)	This is used when pressure increases, to prevent any damage on components caused by pressure increase in transport or storage.
(21)	—	Subcooling heat exchanger	Apply subcooling to liquid refrigerant.
(22)	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the inverter compressor.
(23)	R1T	Thermistor (Outdoor air)	Used to detect outdoor air temperature, correct discharge pipe temperature and others.
(24)	R21T	Thermistor (M1C discharge)	Used to detect discharge pipe temperature.
(25)	R3T	Thermistor (Receiver inlet)	Used to detect liquid pipe temperature of receiver inlet.
(26)	R4T	Thermistor (Heat exchanger liquid upper)	This detects temperature of liquid pipe for air heat exchanger.
(27)	R5T	Thermistor (Heat exchanger liquid lower)	
(28)	R6T	Thermistor (Subcooling gas)	This detects temperature of gas pipe for subcooling heat exchanger.
(29)	R7T	Thermistor (Subcooling liquid)	This detects temperature of liquid pipe for subcooling heat exchanger.
(30)	R8T	Thermistor (Heat exchanger gas upper)	This detects temperature of gas pipe for air heat exchanger.
(31)	R9T	Thermistor (Heat exchanger gas lower)	
(32)	R10T	Thermistor (Suction)	Used to detect suction pipe temperature.
(33)	R11T	Thermistor (Deicer)	Used to detect liquid pipe temperature of air heat exchanger. Used to make judgements on defrost operation.
(34)	R12T	Thermistor (Compressor suction)	Used to detect suction pipe temperature of compressor.
(35)	R13T	Thermistor (Receiver gas purge)	Used to detect gas pipe temperature of receiver gas purge piping.
(36)	R14T	Thermistor (M1C body)	Detects compressor surface temperature, this switch is activated at surface temperature of 120°C (248°F) or more to stop the compressor.
(37)	R15T	Thermistor (Leak detection)	The thermistor detects refrigerant leakage.
(38)	R16T	Thermistor (Subcooling injection)	Used to control subcooling injection.

RELQ72TATJU, RELQ72TAYDU, RELQ72TAYCU, REYQ72-120TAYCU



RELQ96/120TATJU, RELQ96/120TAYDU, RELQ96/120TAYCU, REYQ144/168TAYCU

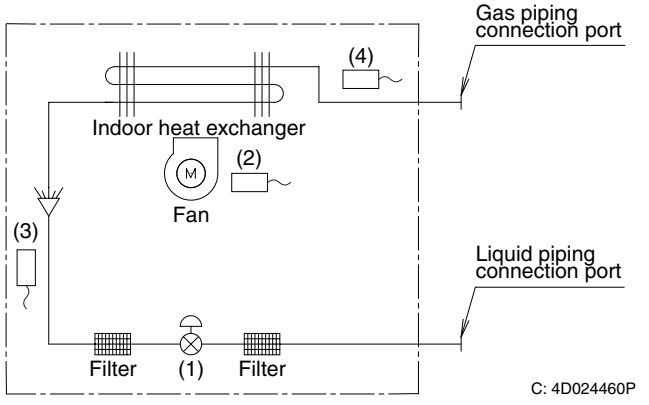


1.2 Indoor Unit

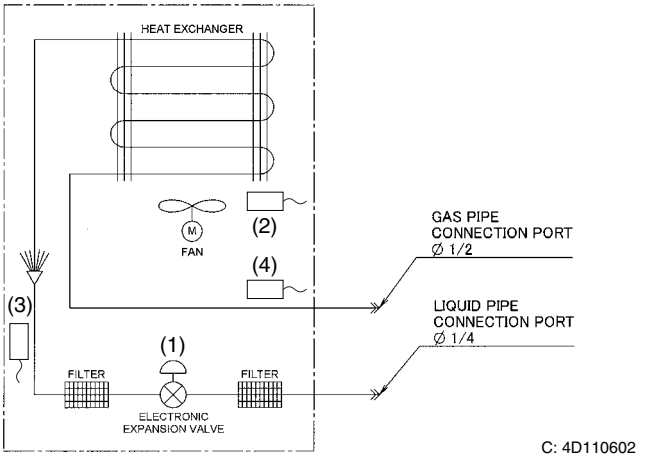
No. in piping diagram	Name	Symbol			Function
		Except FXMQ-PB, FXTQ-TA	FXMQ-PB	FXTQ-TA	
(1)	Electronic expansion valve	Y1E	Y1E	Y1E	Used for gas superheated degree control while in cooling or subcooled degree control while in heating.
(2)	Suction air thermistor	R1T	R1T	R1T (∗1)	Used for thermostat control.
(3)	Liquid pipe thermistor	R2T	R2T	R2T	Used for gas superheated degree control while in cooling or subcooled degree control while in heating.
(4)	Gas pipe thermistor	R3T	R3T	R3T	Used for gas superheated degree control while in cooling.
(5)	Discharge air thermistor	—	R4T	—	Used for discharge air temperature control.

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

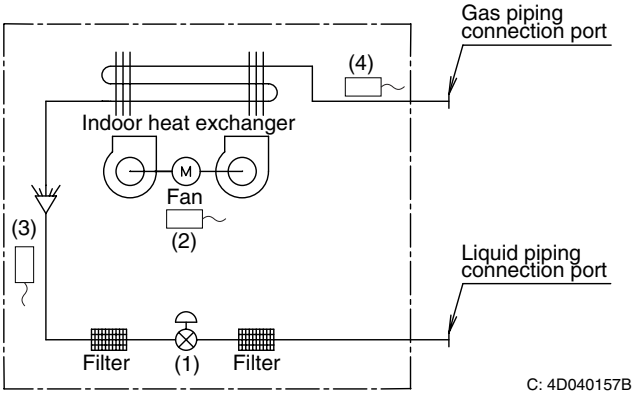
■ **FXFQ-T, FXFQ-P, FXHQ-M**



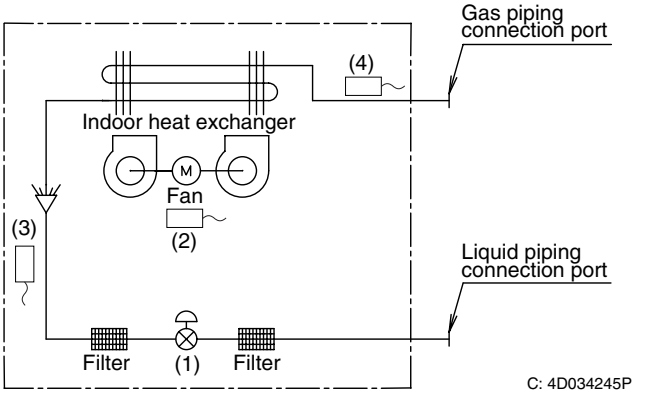
■ **FXZQ-TA**



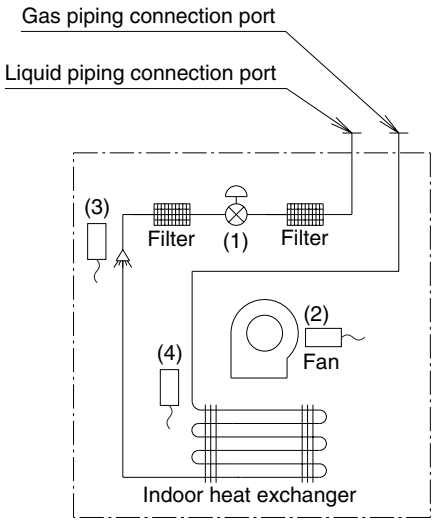
■ **FXZQ-M**



■ **FXUQ-P, FXEQ-P, FXMQ-M, FXAQ-P, FXLQ-M, FXNQ-M**

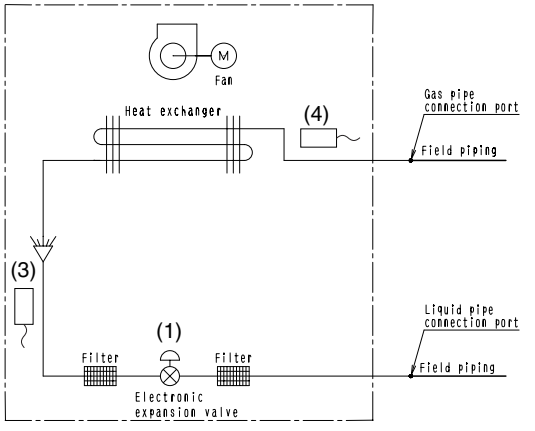


■ FXDQ-M



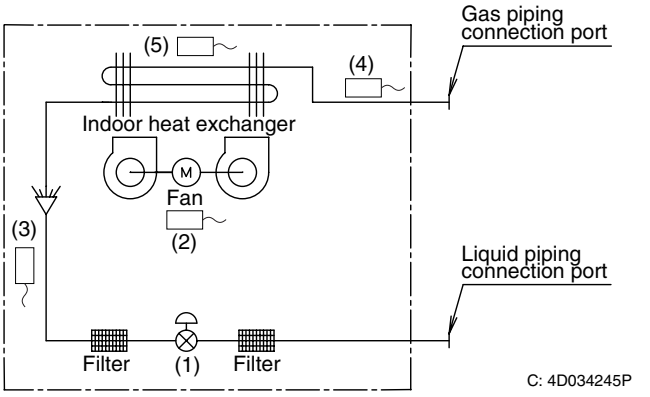
C: 4D043864N

■ FXTQ-TA



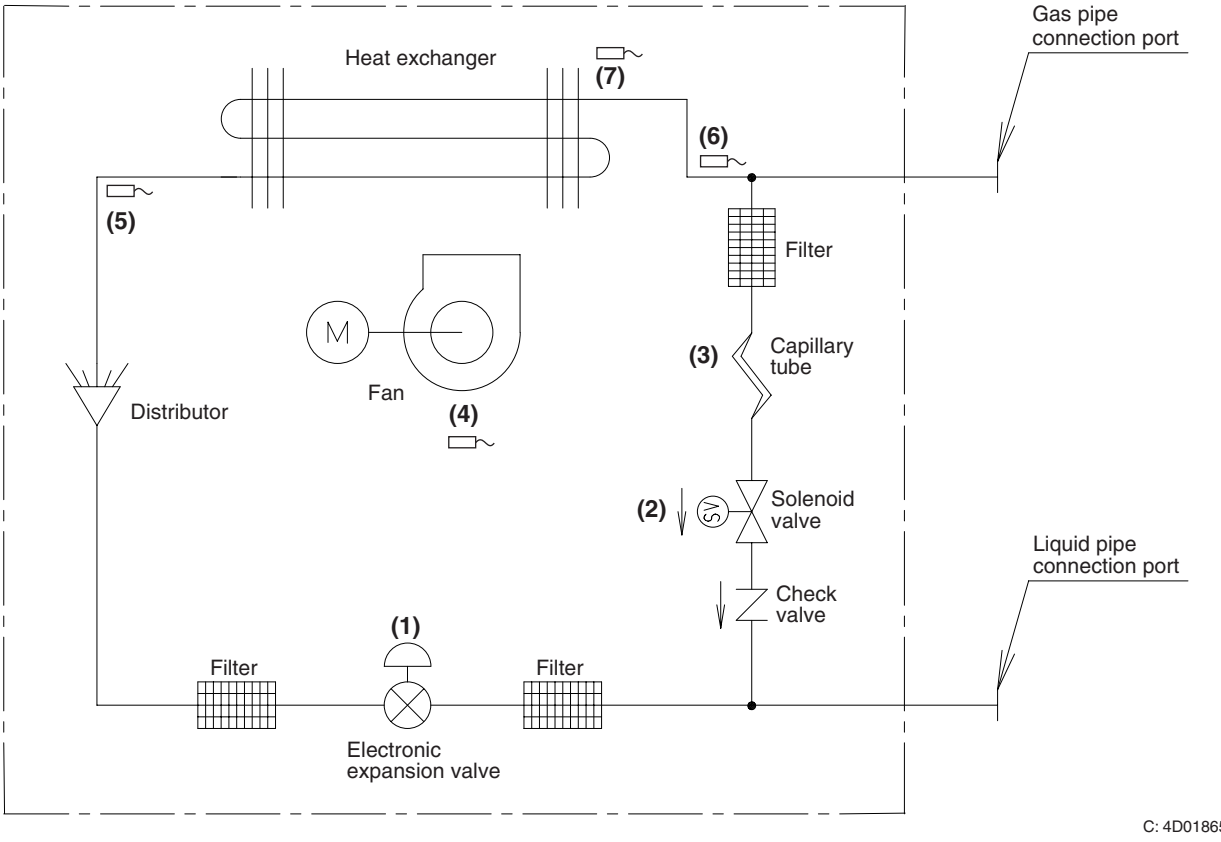
C: 4D068194

■ FXMQ-PB



C: 4D034245P

1.3 Outdoor-Air Processing Unit



No. in piping diagram	Electric symbol	Name	Function
(1)	Y1E	Electronic expansion valve	Used to control the flow rate of refrigerant, and make the SH control (∗1) while in cooling.
(2)	Y1S	Solenoid valve	Used to bypass hot gas while in heating with thermostat OFF. Closed while in cooling.
(3)	—	Capillary tube	Used to reduce pressure from high to low in bypassing hot gas.
(4)	R1T	Suction air thermistor	Used to turn ON or OFF the thermostat.
(5)	R2T	Liquid pipe thermistor	Used to control the opening degree of electronic expansion valve under the SC control (∗2).
(6)	R3T	Gas pipe thermistor	Used to control the opening degree of electronic expansion valve under the SH control.
(7)	R4T	Discharge air thermistor	Used to control the electronic expansion valve opening and thermostat ON/OFF so as to keep the discharge air temperature at the set temperature.

Note: ∗1. SH control: Superheated control of heat exchanger outlet
∗2. SC control: Subcooling control of heat exchanger outlet

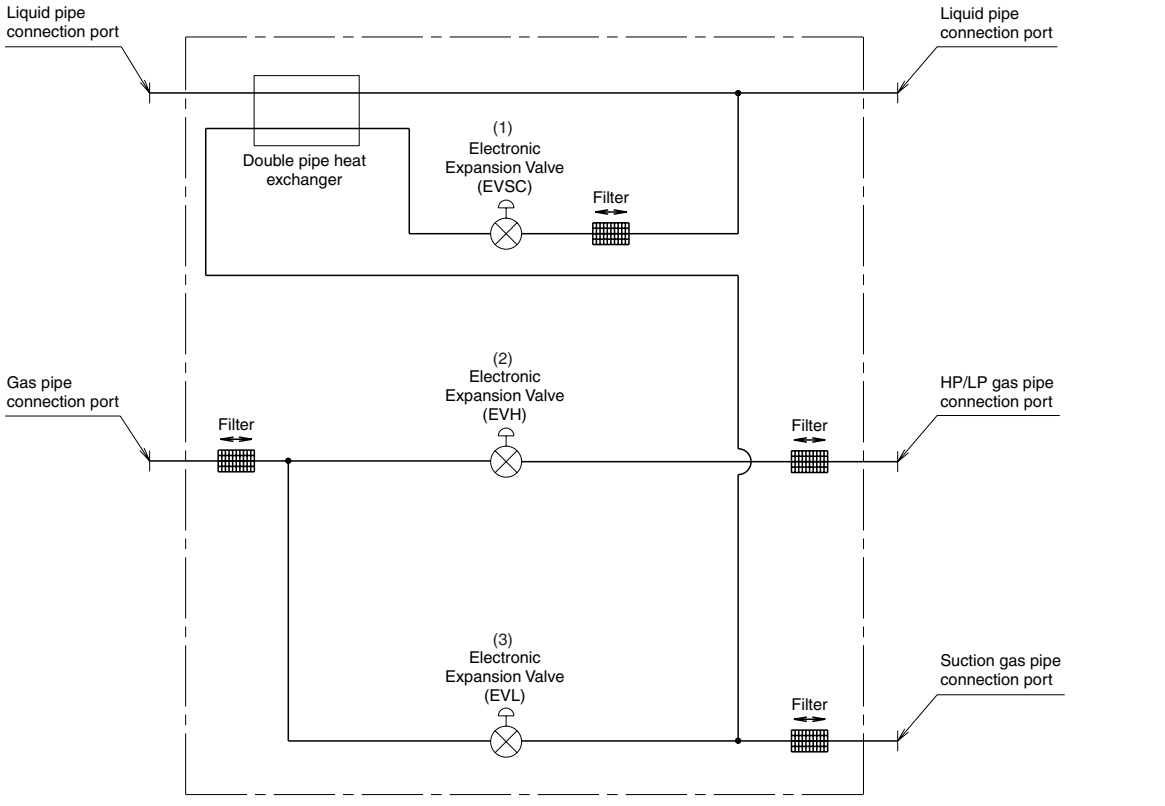
1.4 Branch Selector Unit

No.	Name	Electric Symbol	Function
(1)	Electronic expansion valve (EVSC)	Y1E	In simultaneous cooling and heating, it is used to subcooling liquid refrigerants when an indoor unit downstream of this Branch Selector unit is in heating. (Max : 480 pulse)
(2)	Electronic expansion valve (EVH)	Y2E	Opens while in heating or all indoor units are in cooling. (Max : 760 pulse)
(3)	Electronic expansion valve (EVL)	Y3E	Opens while in cooling. (Max : 760 pulse)

Note: Factory setting of all electronic expansion valve opening: 60 pulse

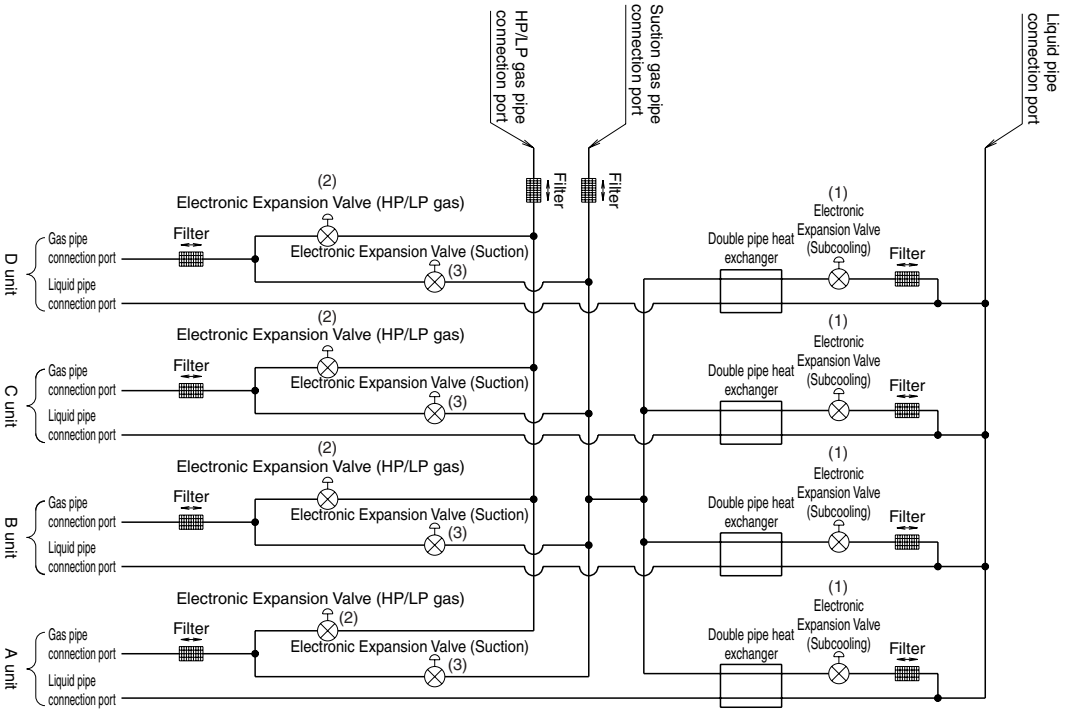
1.4.1 Single Branch Selector Unit

BSQ36/60/96TVJ



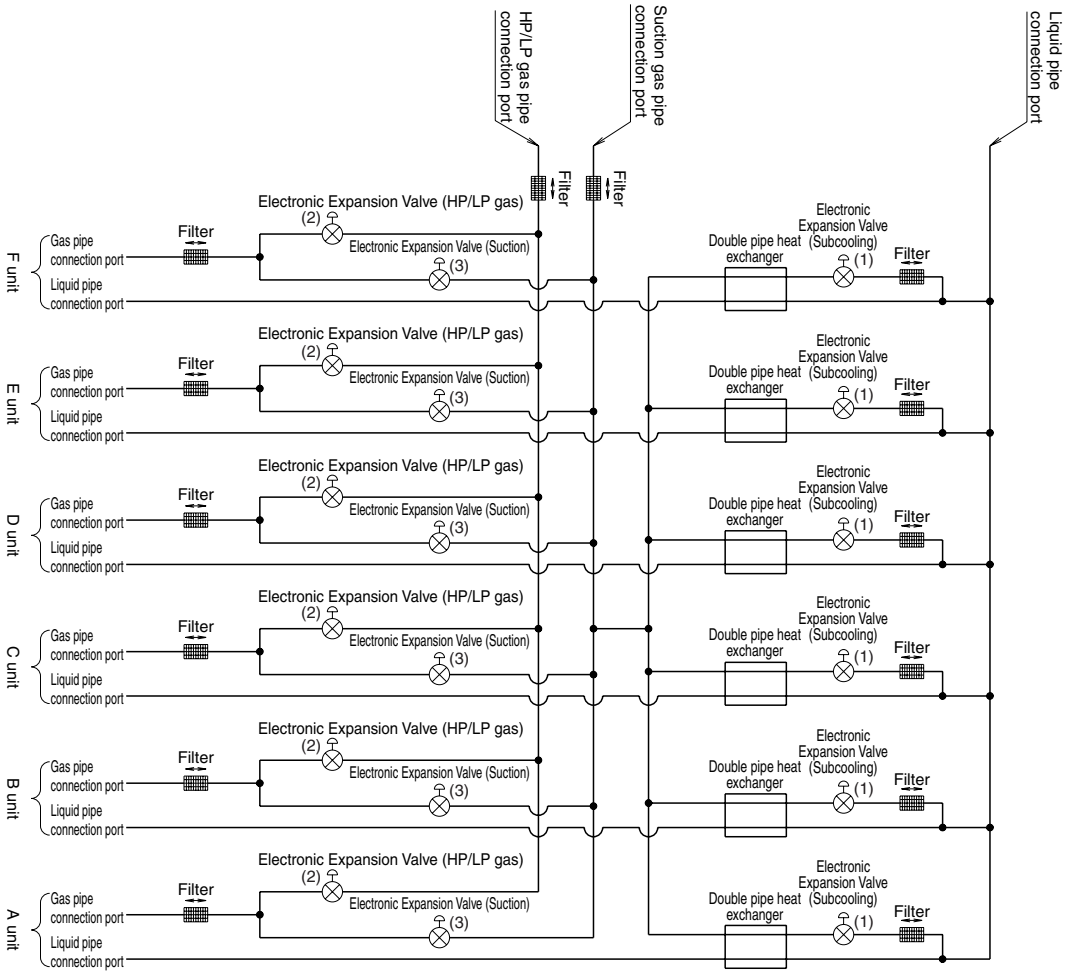
1.4.2 Multi Branch Selector Unit

BS4Q54TVJ



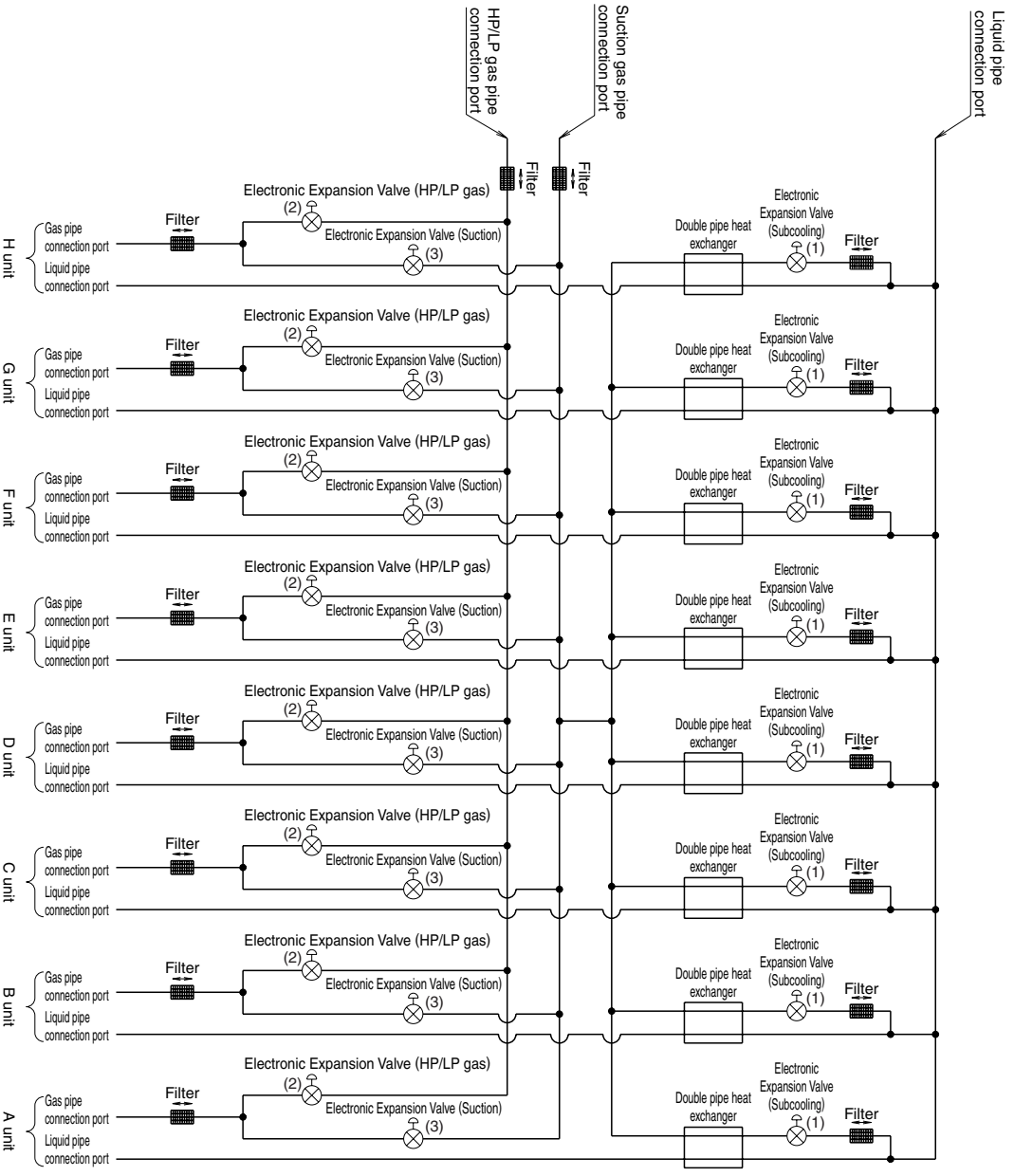
3D086032A

BS6Q54TVJ



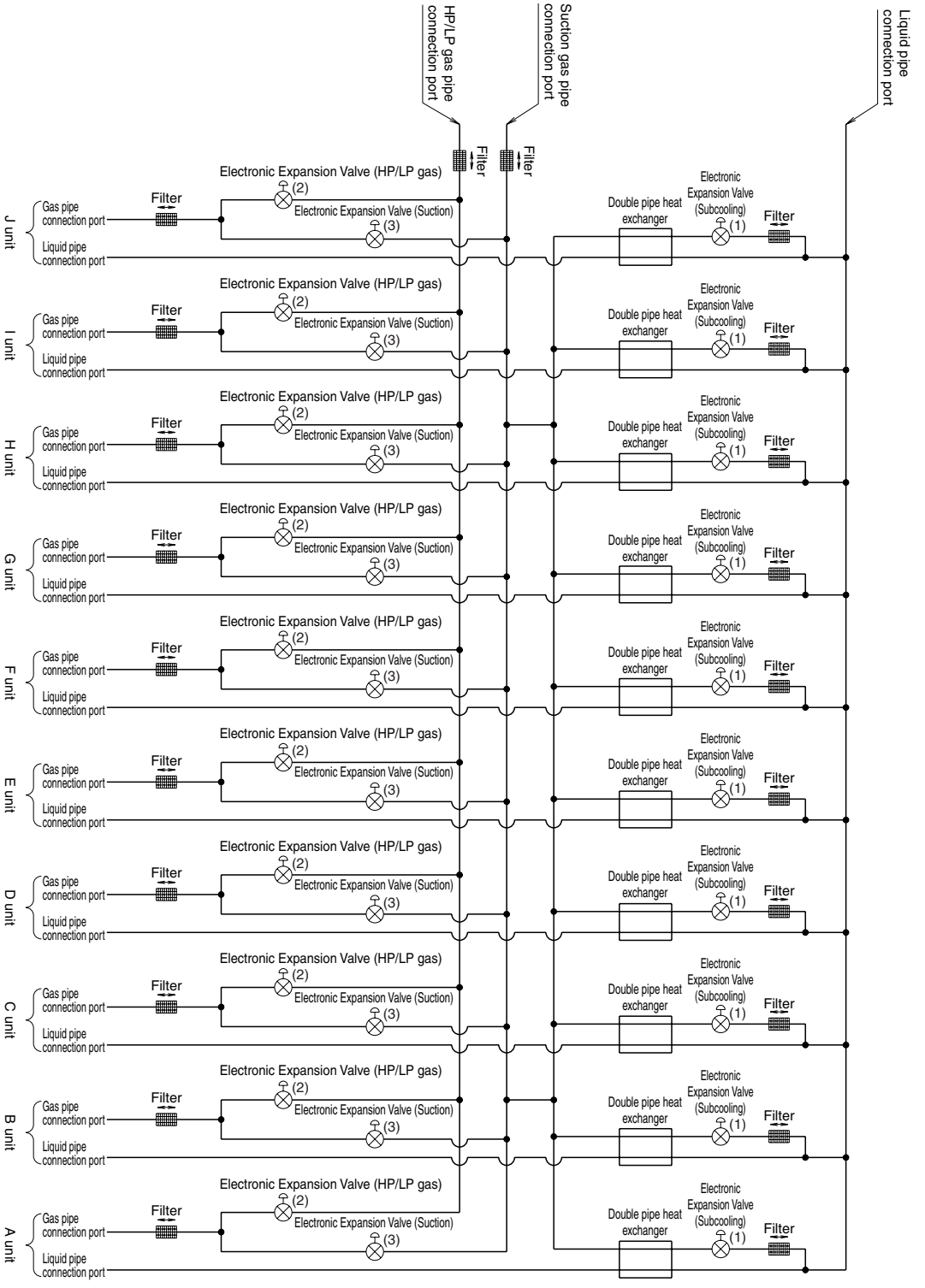
3D086033A

BS8Q54TVJ



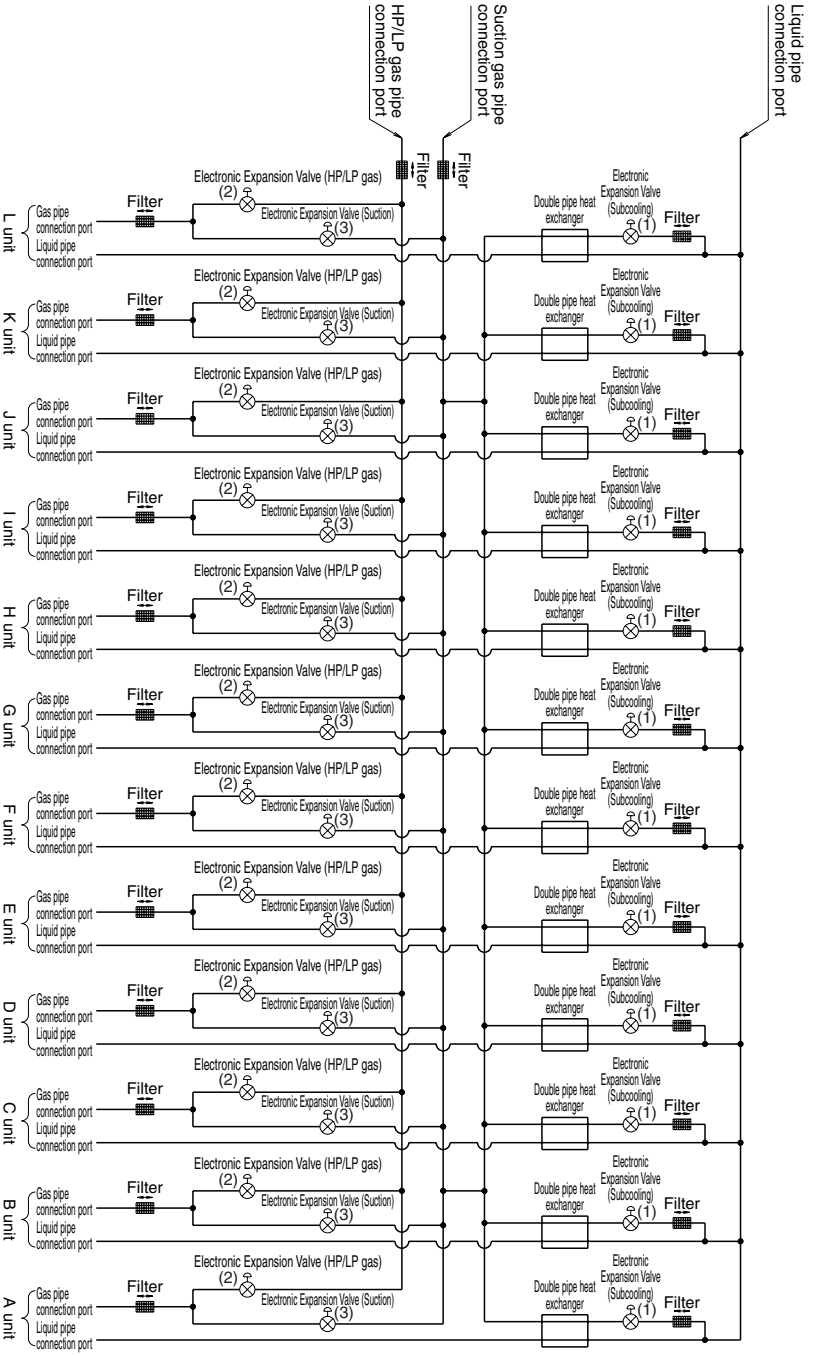
3D086034A

BS10Q54TVJ



3D086035A

BS12Q54TVJ

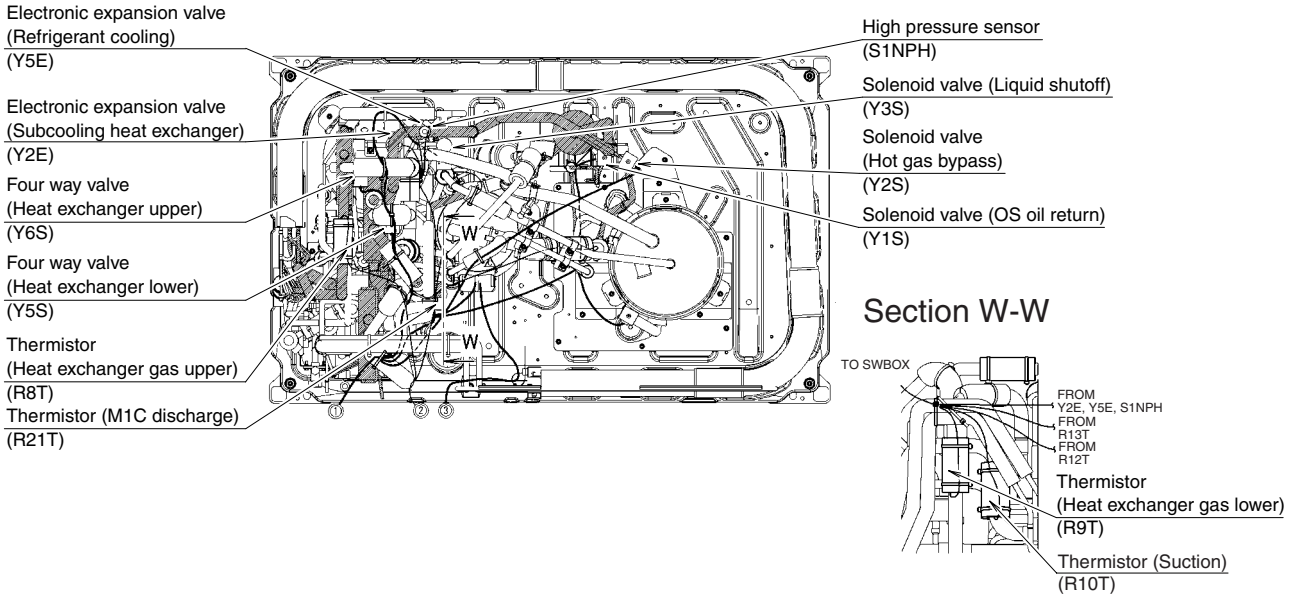


3D086036A

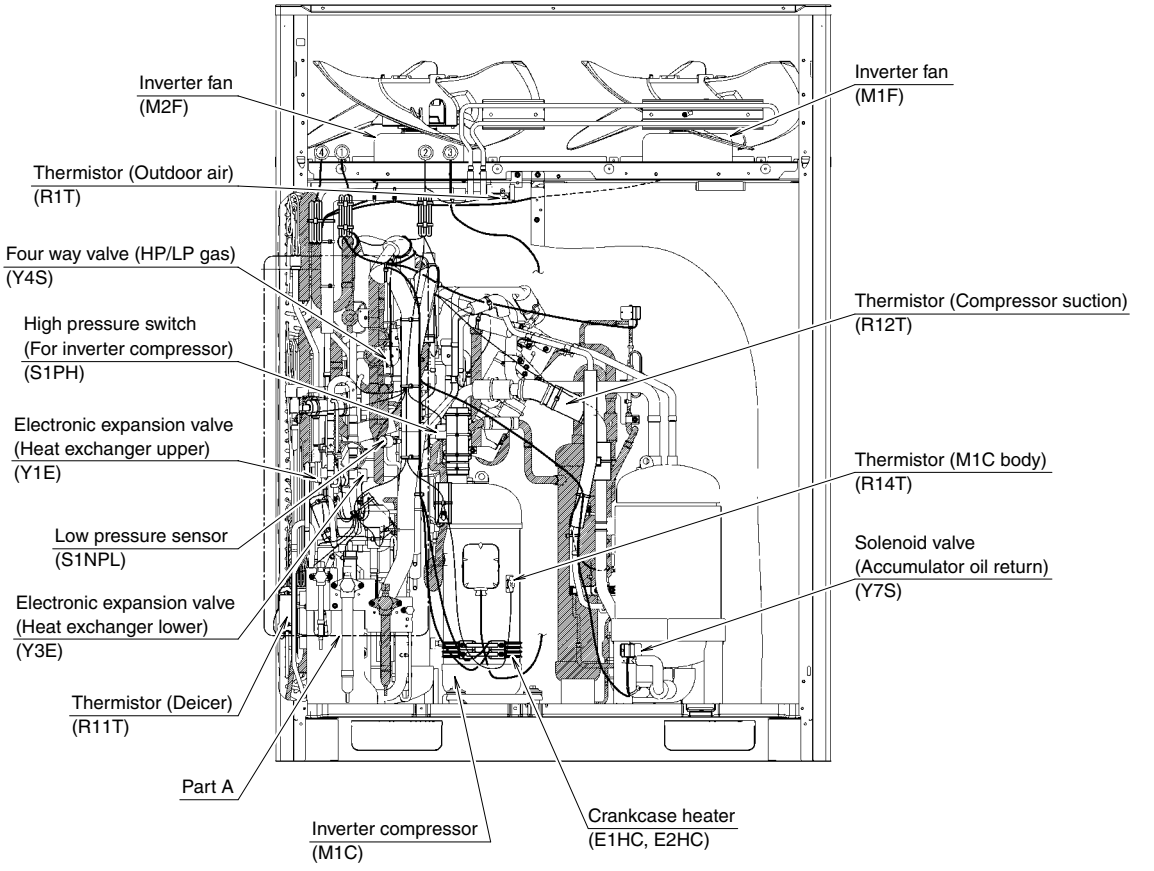
2. Functional Parts Layout

2.1 RELQ72TATJU, RELQ72TAYDU, RELQ72TAYCU, REYQ72-120TAYCU

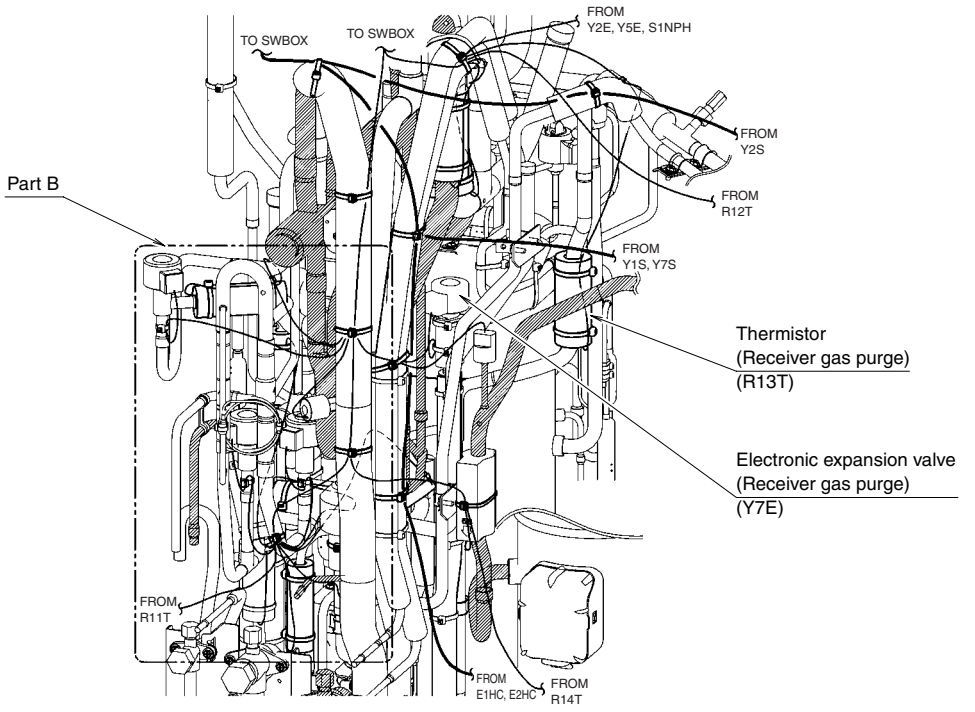
Plane View



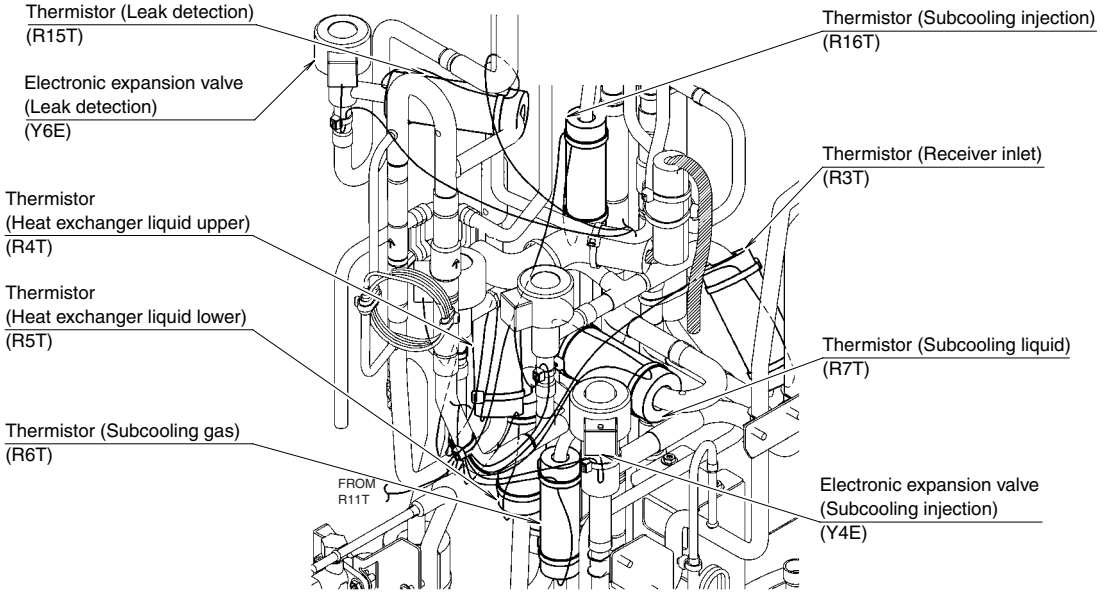
Front View



C: 1P487492A
C: 1P487496A
C: 1P438108D



Part A detail

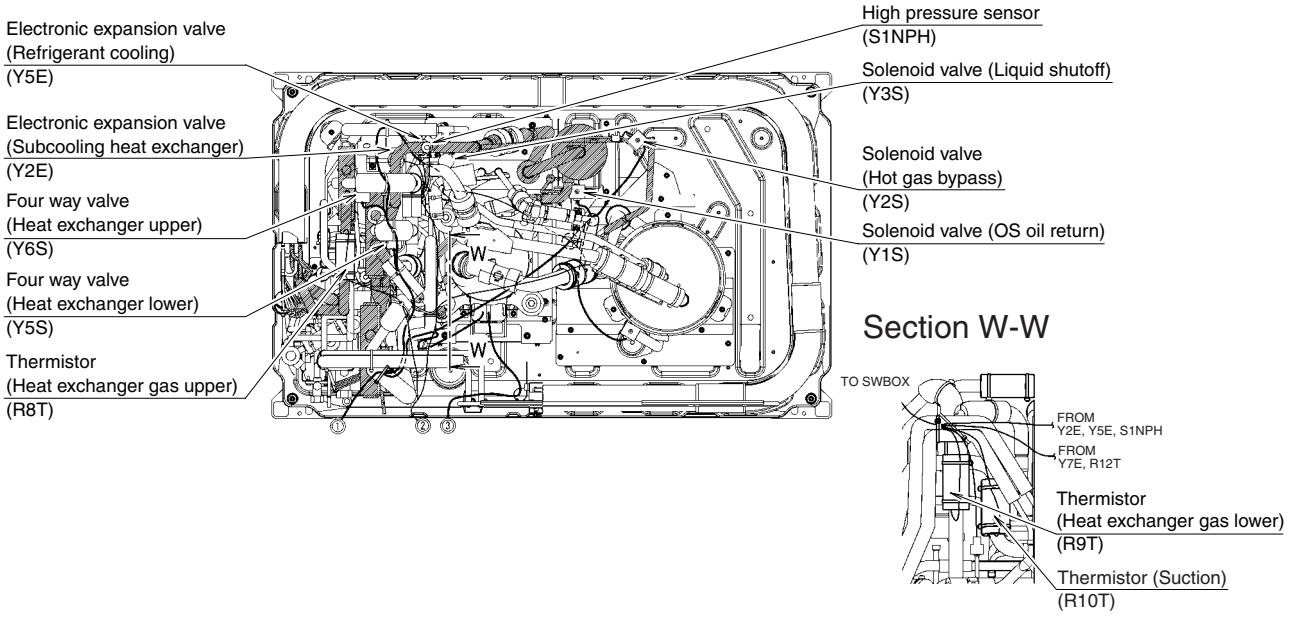


Part B detail

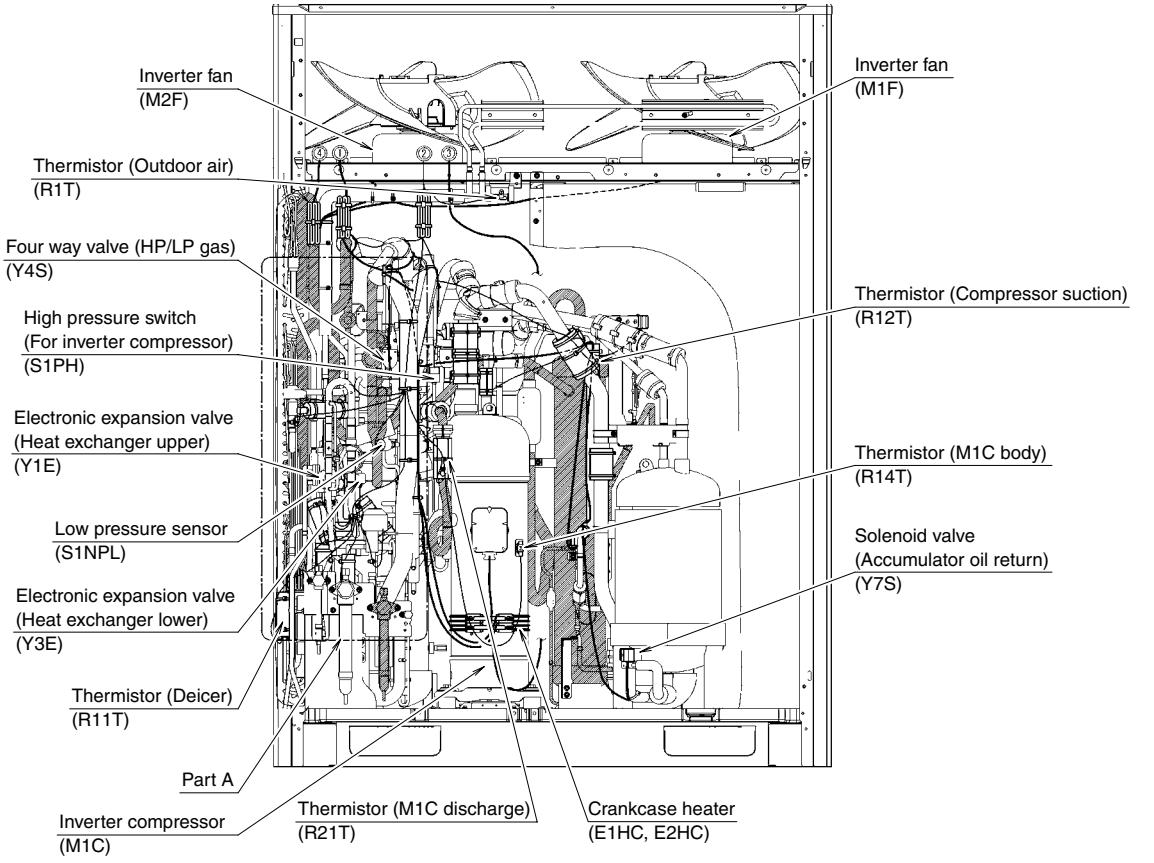
C: 1P487492A
C: 1P487496A
C: 1P438108D

2.2 RELQ96/120TATJU, RELQ96/120TAYDU, RELQ96/120TAYCU, REYQ144/168TAYCU

Plane View



Front View



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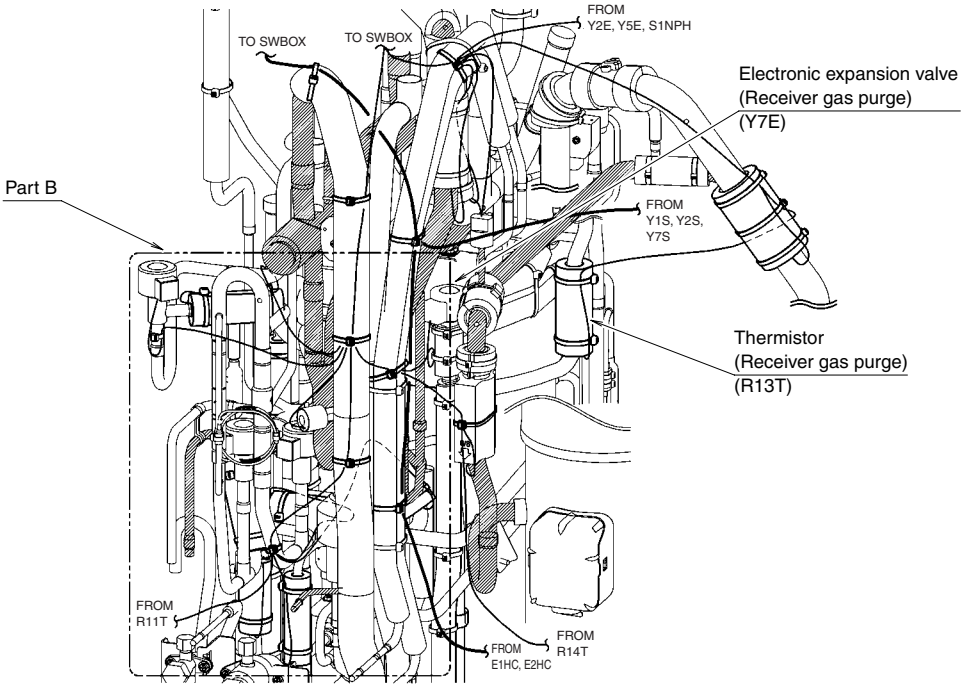
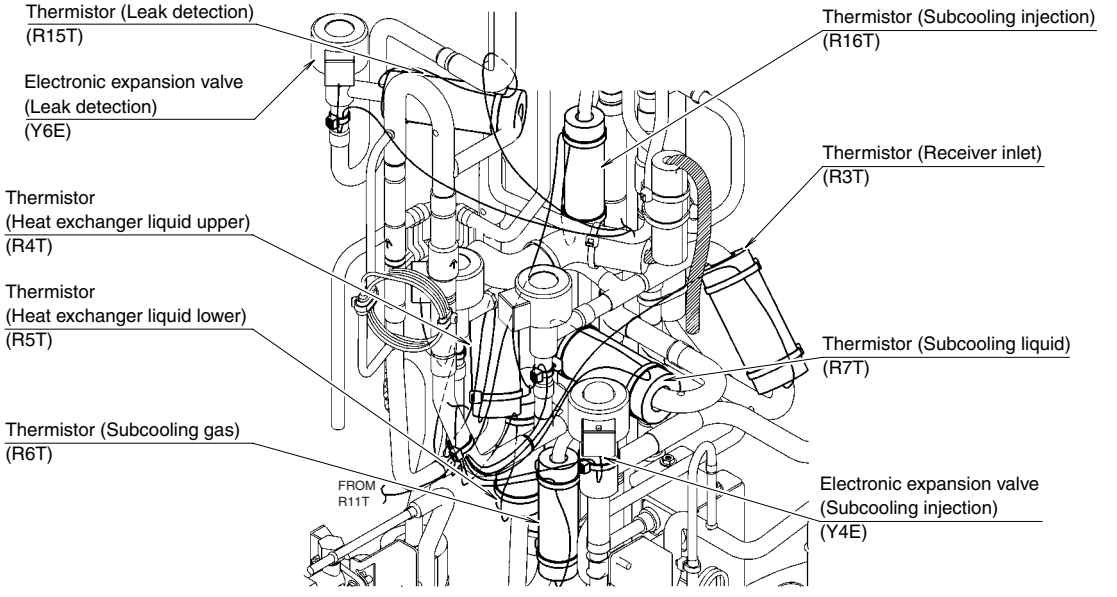
C: 1P487498A
C: 1P438109D



Part A detail



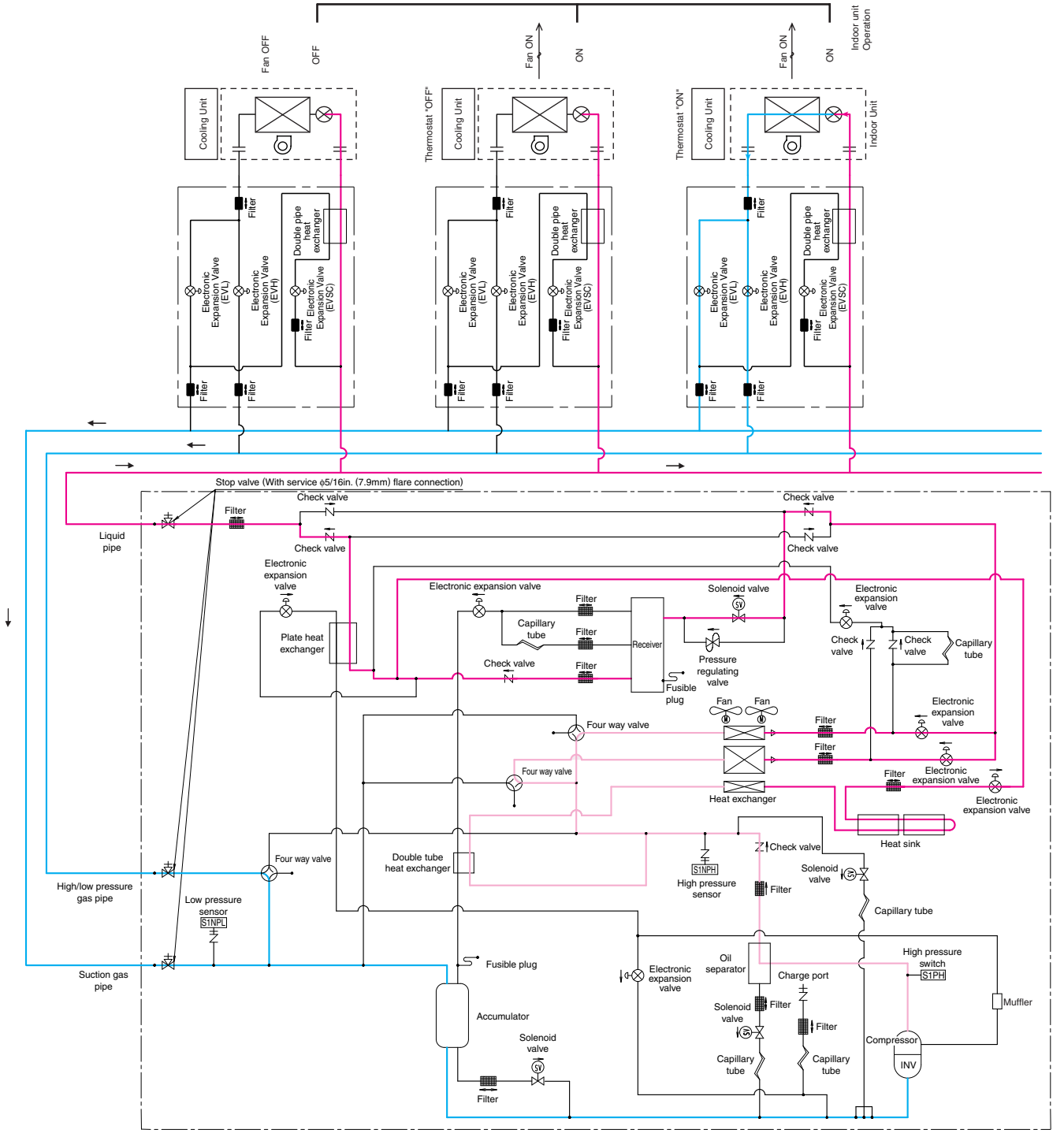
Part B detail

C: 1P487494A
C: 1P487498A
C: 1P438109D

3. Refrigerant Flow for Each Operation Mode

3.1 Cooling Operation

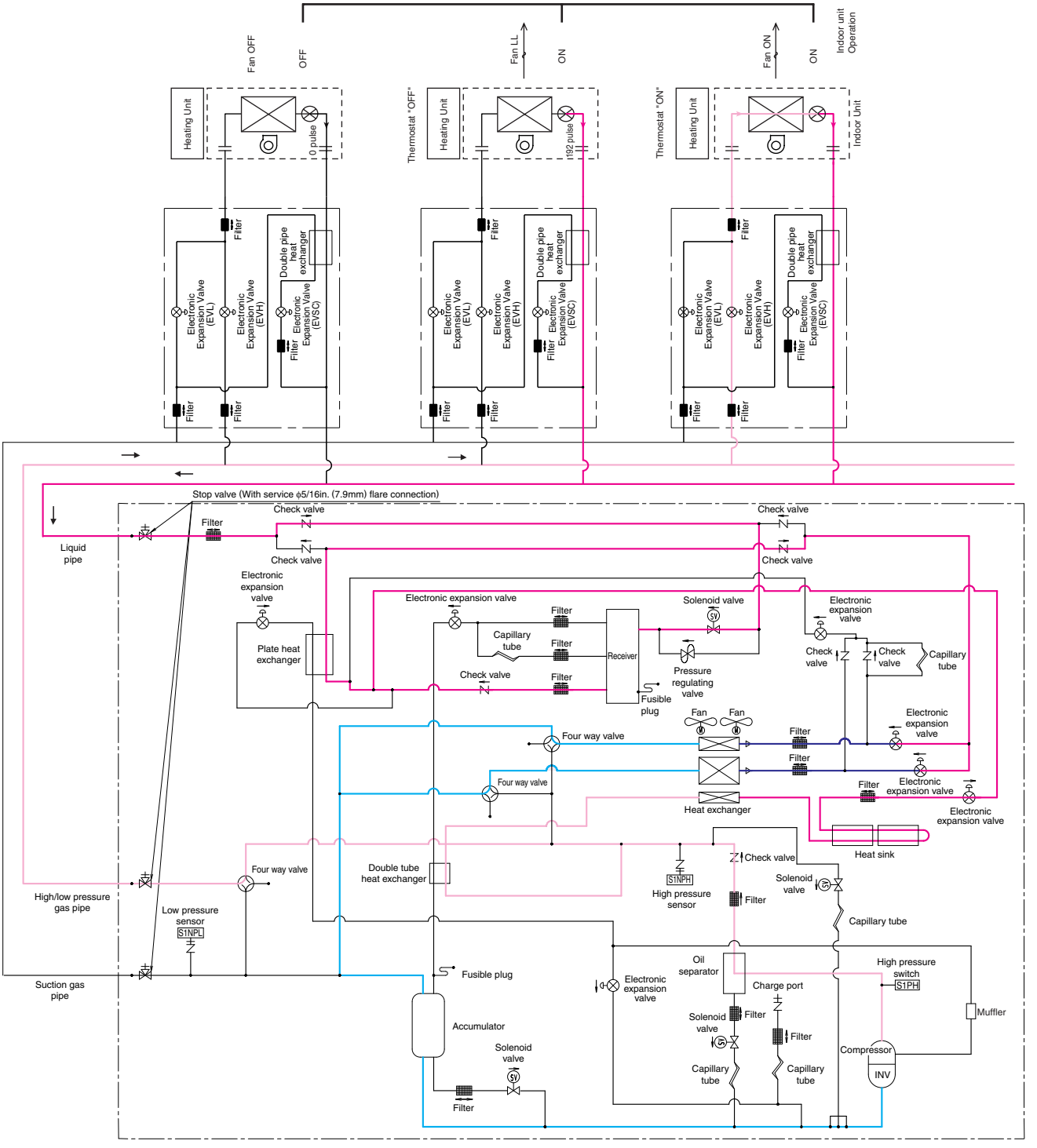
High temperature, high pressure gas
High temperature, high pressure liquid
Low temperature, low pressure gas
Low temperature, low pressure liquid



C: 3D107166
C: 3D107167

3.2 Heating Operation

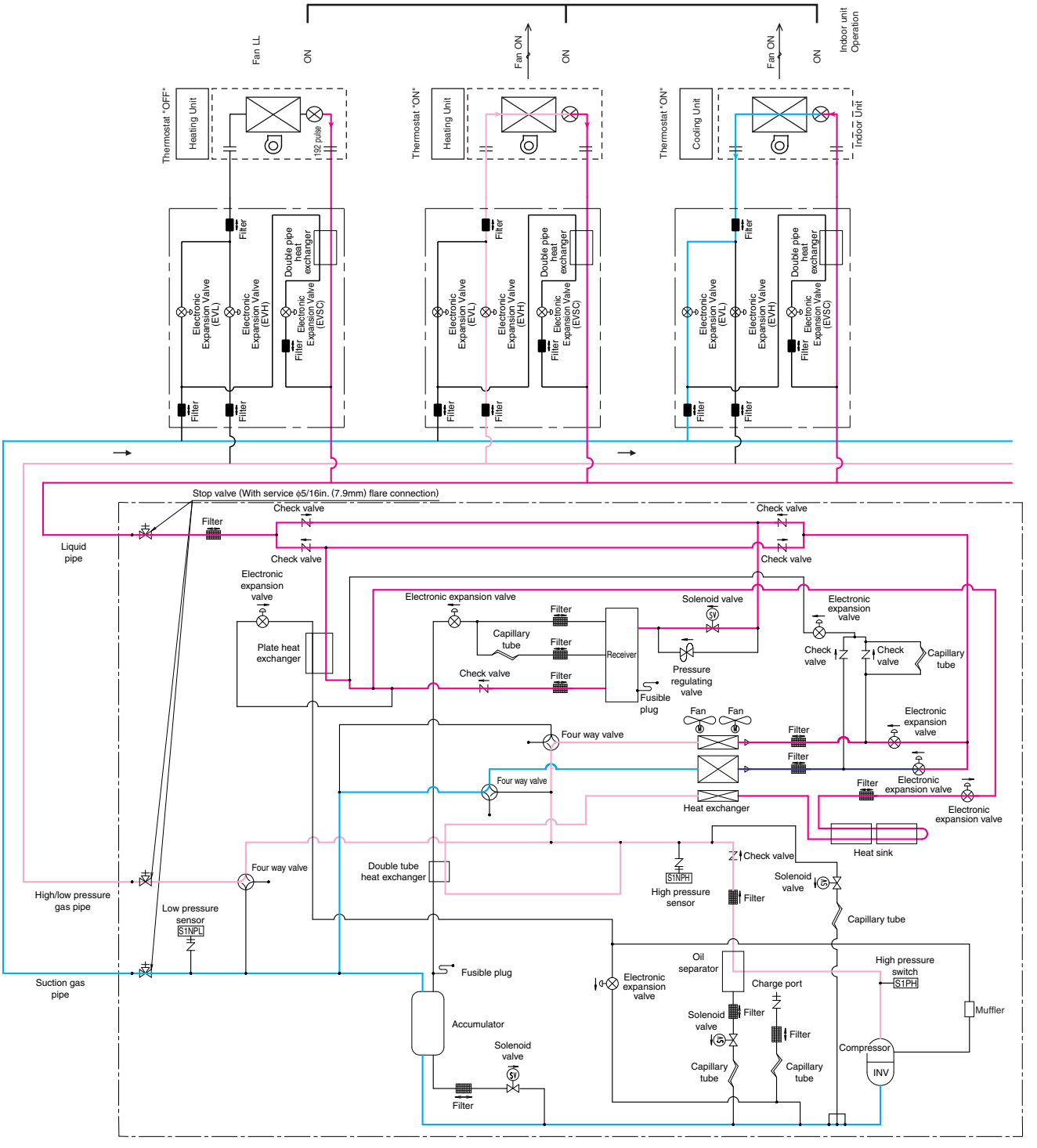
High temperature, high pressure gas
High temperature, high pressure liquid
Low temperature, low pressure gas
Low temperature, low pressure liquid



C: 3D107166
C: 3D107167

3.3 Simultaneous Cooling and Heating Operation

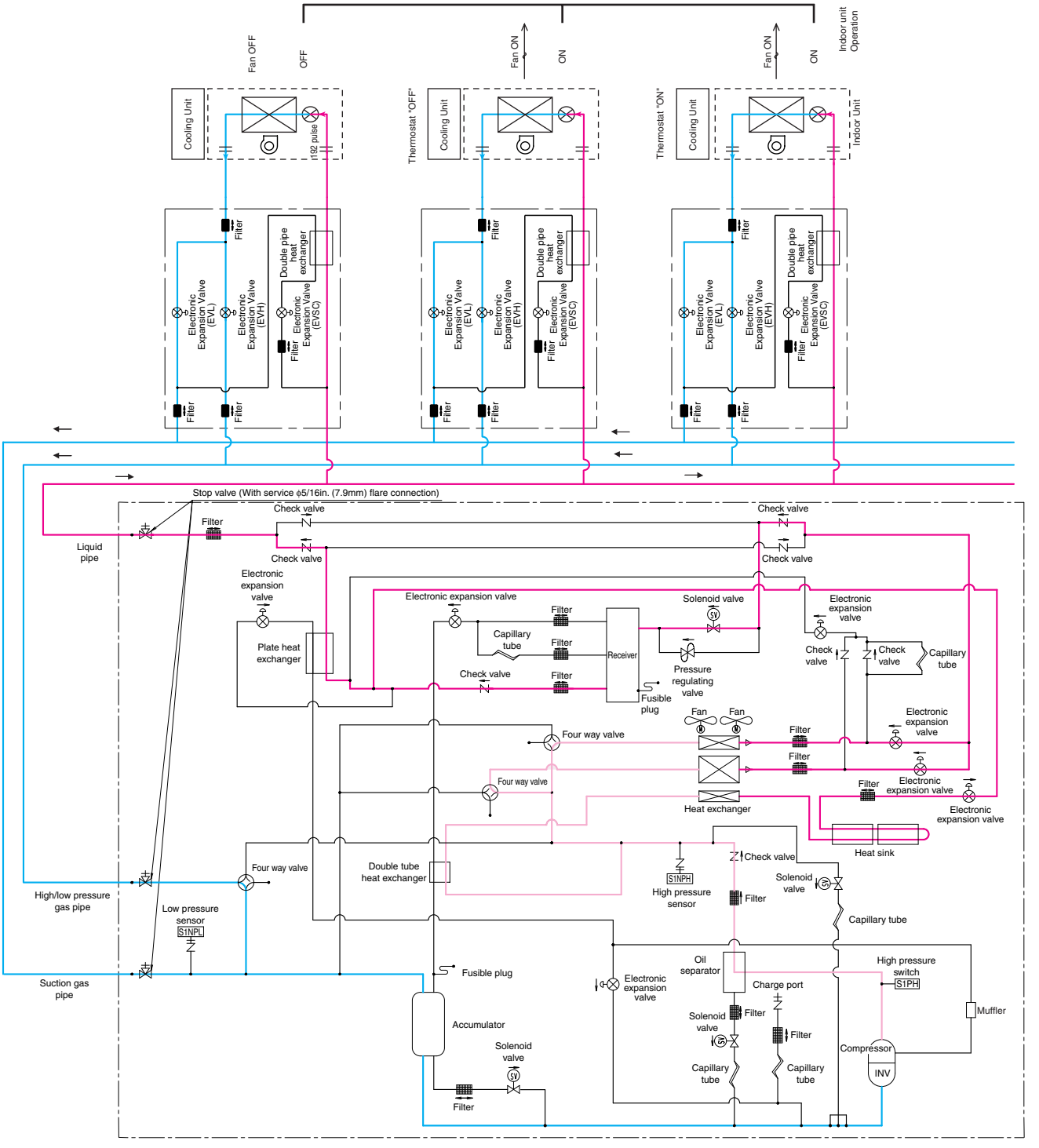
High temperature, high pressure gas
High temperature, high pressure liquid
Low temperature, low pressure gas
Low temperature, low pressure liquid



C: 3D107166
C: 3D107167

3.4 Cooling Oil Return Operation

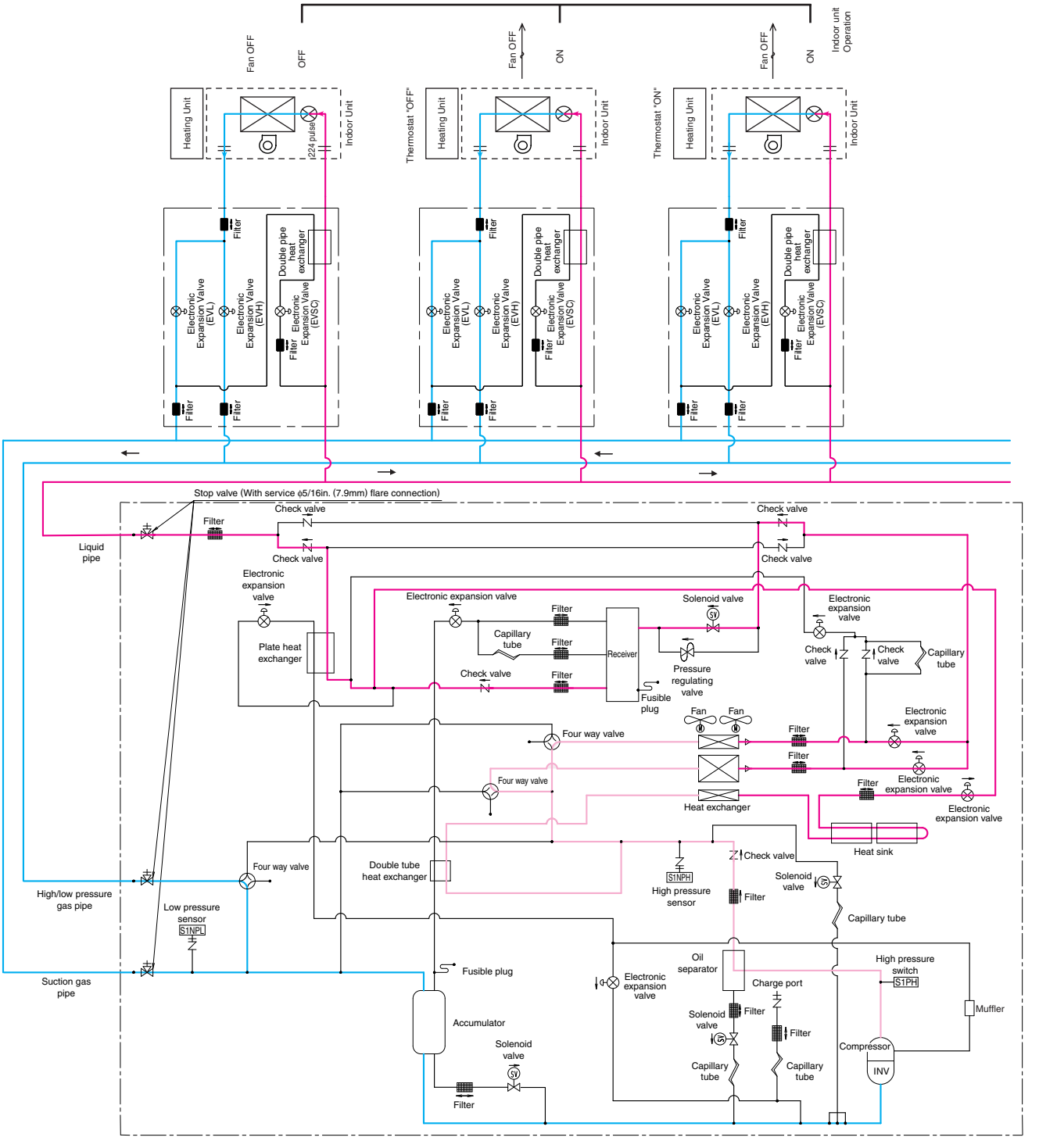
High temperature, high pressure gas
High temperature, high pressure liquid
Low temperature, low pressure gas
Low temperature, low pressure liquid



C: 3D107166
C: 3D107167

3.5 Defrost Heating Oil Return Operation

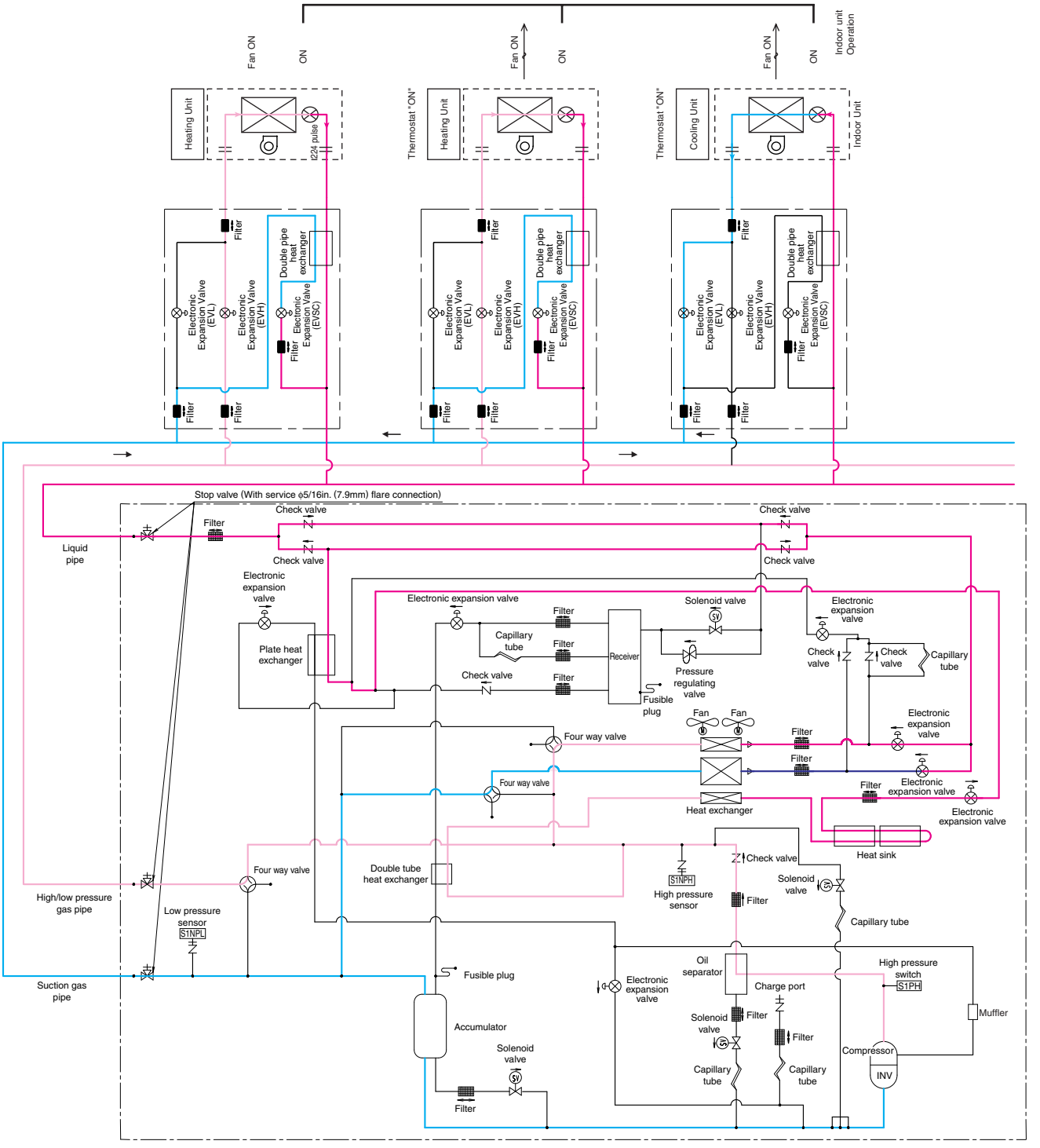
High temperature, high pressure gas
High temperature, high pressure liquid
Low temperature, low pressure gas
Low temperature, low pressure liquid



C: 3D107166
C: 3D107167

3.6 Oil Return Operation at Simultaneous Cooling and Heating Operation

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



C: 3D107166
C: 3D107167

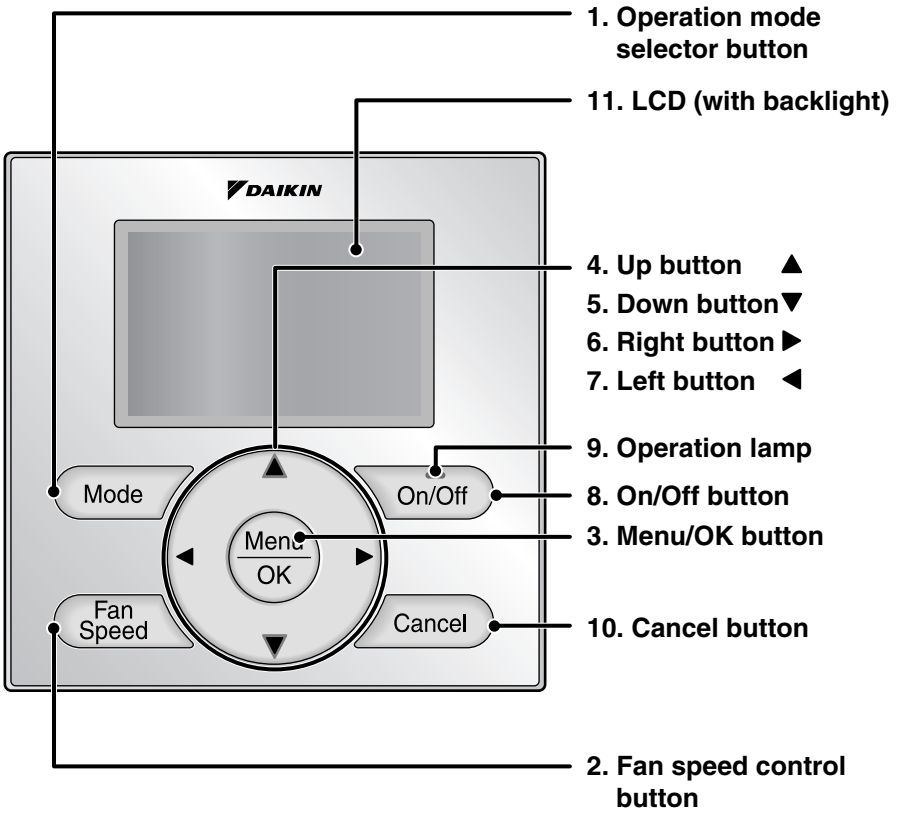
Part 3
Remote Controller

1. Applicable Models

Series	Wired remote controller	Wireless remote controller
	Navigation	
FXFQ-T	BRC1E73	–
FXFQ-P		
FXZQ-TA		BRC082A42W (for BYFQ60C3W1W)
		BRC082A42S (for BYFQ60C3W1S)
		BRC082A41W (for BYFQ60B3W1)
FXZQ-M		BRC7E830
FXUQ-P		–
FXEQ-P		
FXDQ-M		BRC4C82
FXMQ-PB		
FXMQ-M		
FXHQ-M		BRC7E83
FXAQ-P		BRC7E818
FXLQ-M		–
FXNQ-M		
FXTQ-TA		BRC4C82

2. Names and Functions

2.1 BRC1E73



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

Note:

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

1. Operation mode selector button

- Press this button to select the operation mode of your preference.
  ∗ Available modes vary with the indoor unit model.

2. Fan speed control button

- Press this button to select the fan speed of your preference.
  ∗ Available fan speeds vary with the indoor unit model.

3. Menu/OK button

- Used to enter the main menu.
- Used to enter the selected item.

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

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

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

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

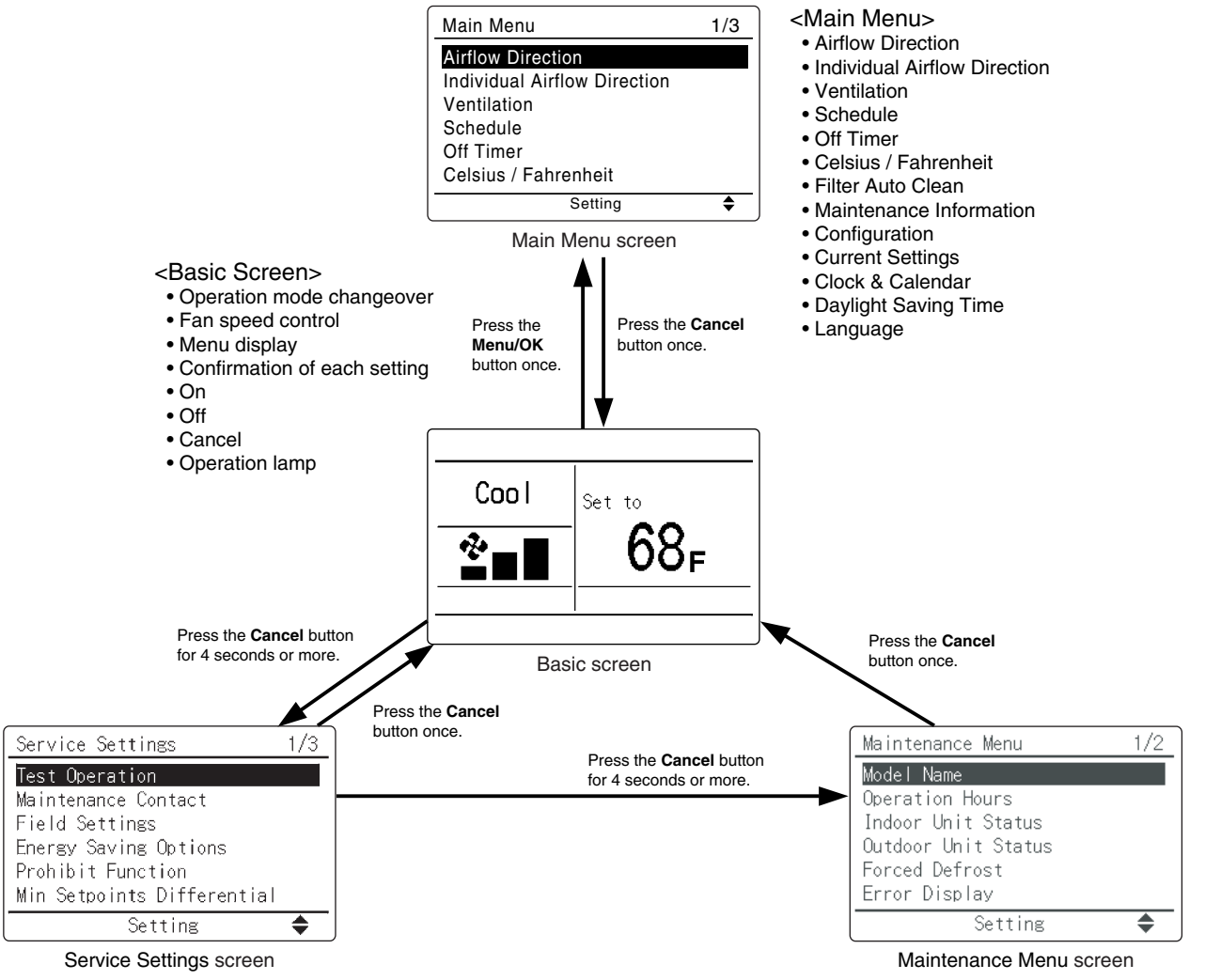
8. On/Off button
- Press this button and system will start.
- Press this button again to stop the system.

9. Operation lamp
- This lamp illuminates solid green during normal operation.
- This lamp blinks if an error occurs.

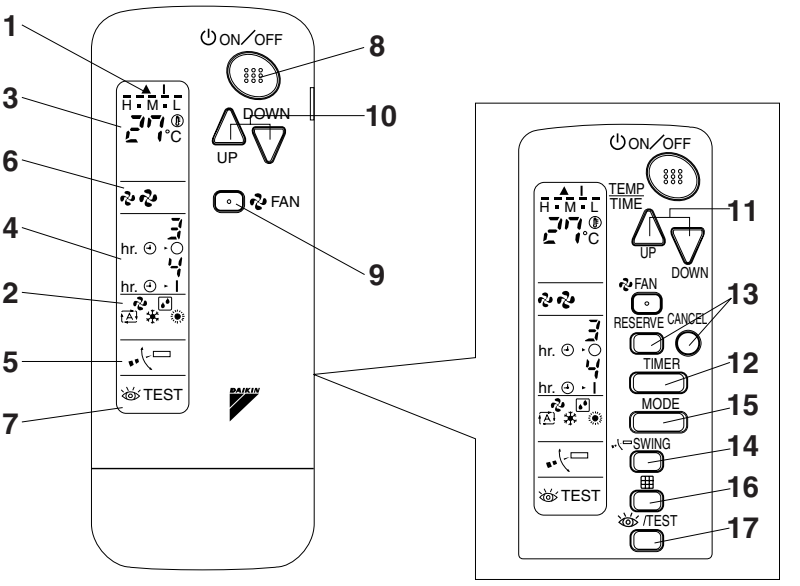
10. Cancel button
- Used to return to the previous screen.

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

Service Check Function



2.2 Wireless Remote Controller



1	**DISPLAY ▲ (SIGNAL TRANSMISSION)**
	This lights up when a signal is being transmitted.
2	**DISPLAY (OPERATION MODE)**
	This display shows the current OPERATION MODE. For straight cooling type, (Auto) and (Heating) are not installed.
3	**DISPLAY (SET TEMPERATURE)**
	This display shows the set temperature.
4	**DISPLAY (PROGRAMMED TIME)**
	This display shows programmed time of the system start or stop.
5	**DISPLAY (AIR FLOW FLAP)**
6	**DISPLAY (FAN SPEED)**
	The display shows the set fan speed.
7	**DISPLAY** TEST **(INSPECTION/ TEST)**
	When the **INSPECTION/TEST** button is pressed, the display shows the system mode is in.
8	**ON/OFF BUTTON**
	Press the button and the system will start. Press the button again and the system will stop.

9	**FAN SPEED CONTROL BUTTON**
	Press this button to select the fan speed, HIGH or LOW, of your choice.
10	**TEMPERATURE SETTING BUTTON**
	Use this button for setting temperature (Operates with the front cover of the remote controller closed.)
11	**PROGRAMMING TIMER BUTTON**
	Use this button for programming start and/or stop time. (Operates with the front cover of the remote controller opened.)
12	**TIMER MODE START/STOP BUTTON**
13	**TIMER RESERVE/CANCEL BUTTON**
14	**AIR FLOW DIRECTION ADJUST BUTTON**
15	**OPERATION MODE SELECTOR BUTTON**
	Press this button to select operation mode.
16	**FILTER SIGN RESET BUTTON**
17	**INSPECTION/TEST BUTTON**
	This button is used only by qualified service persons for maintenance purposes.

3. MAIN/SUB Setting

3.1 BRC1E73

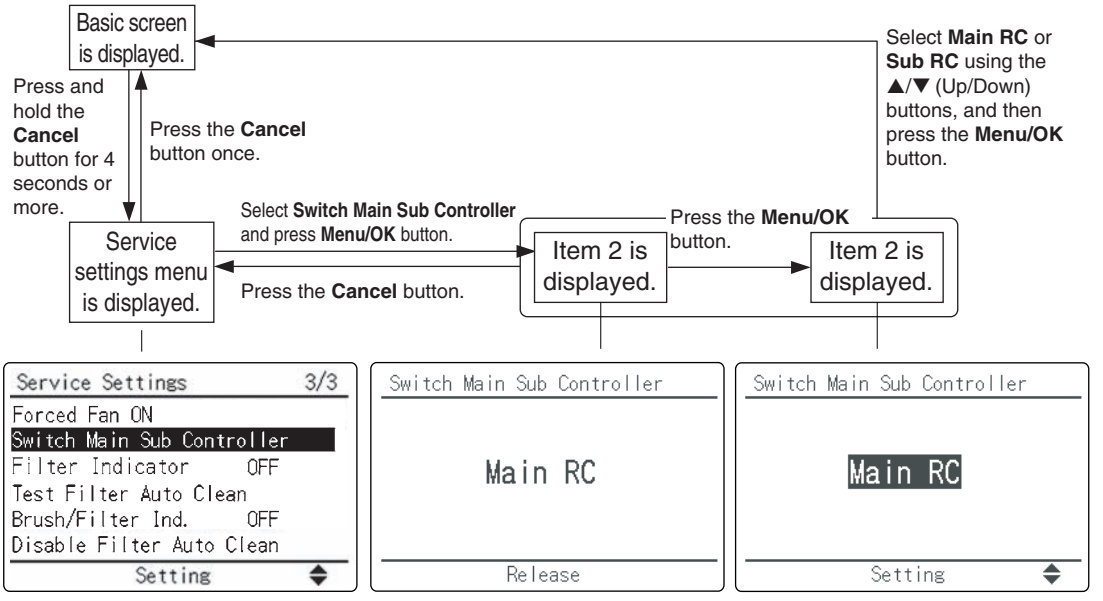
Situation

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

Setting

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

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.



Service settings menu	Item 2
Switch Main Sub Controller	Main RC Sub RC

3.2 Wireless Remote Controller

Introduction

To set the wireless remote controller, you have to set the address for:

- The receiver of the wireless remote controller
- The wireless remote controller.

Setting the Address for the Receiver

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

Set the wireless address switch (SS2) on the PCB according to the table below.

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

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

MAIN/SUB	MAIN	SUB
MAIN/SUB switch (SS1)		

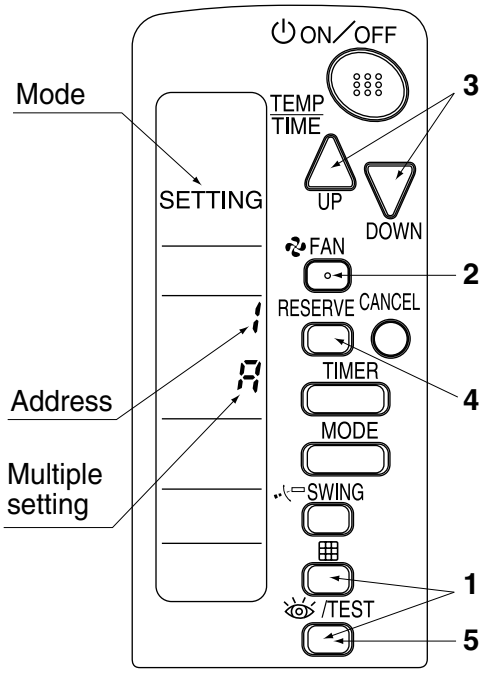
Setting the Address for the Wireless Remote Controller

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

1. Hold down the ▦ button and the /TEST button for at least 4 seconds to get the Field setting mode. (Indicated in the display area in the figure at right.)
2. Press the FAN button and select a multiple setting (A/b). Each time the button is pressed the display switches between **A** and **b**.
3. Press the ▲ (UP) button or ▼ (DOWN) button 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 same address as the receiver. (The receiver does not work with address 4 ~ 6.)
4. Press the RESERVE button to enter the setting.
5. Hold down the /TEST button for at least 1 second to quit the Field setting mode and return to the normal display.

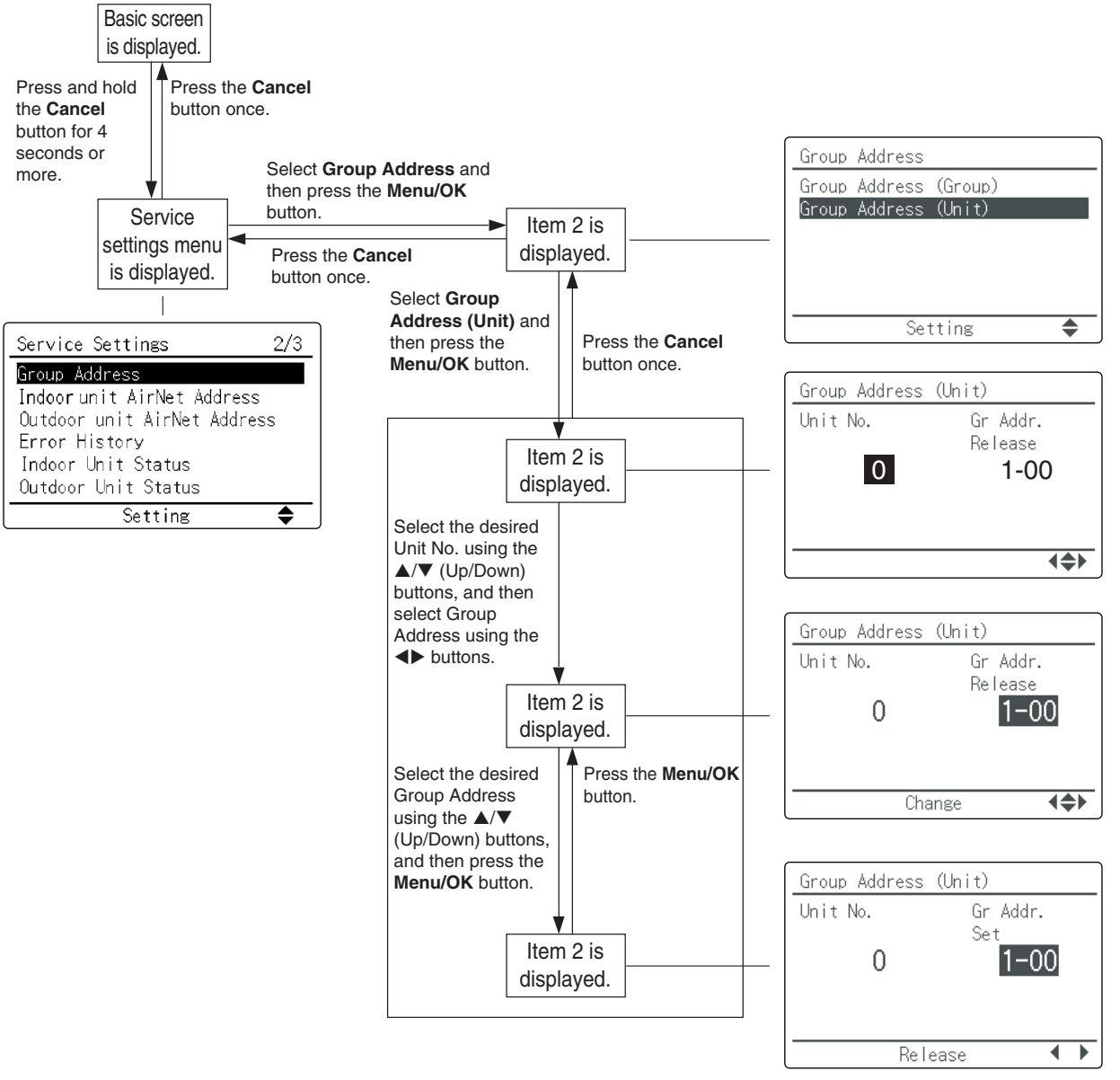


4. Centralized Control Group No. Setting

4.1 BRC1E73

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

When initializing Group Address



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

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

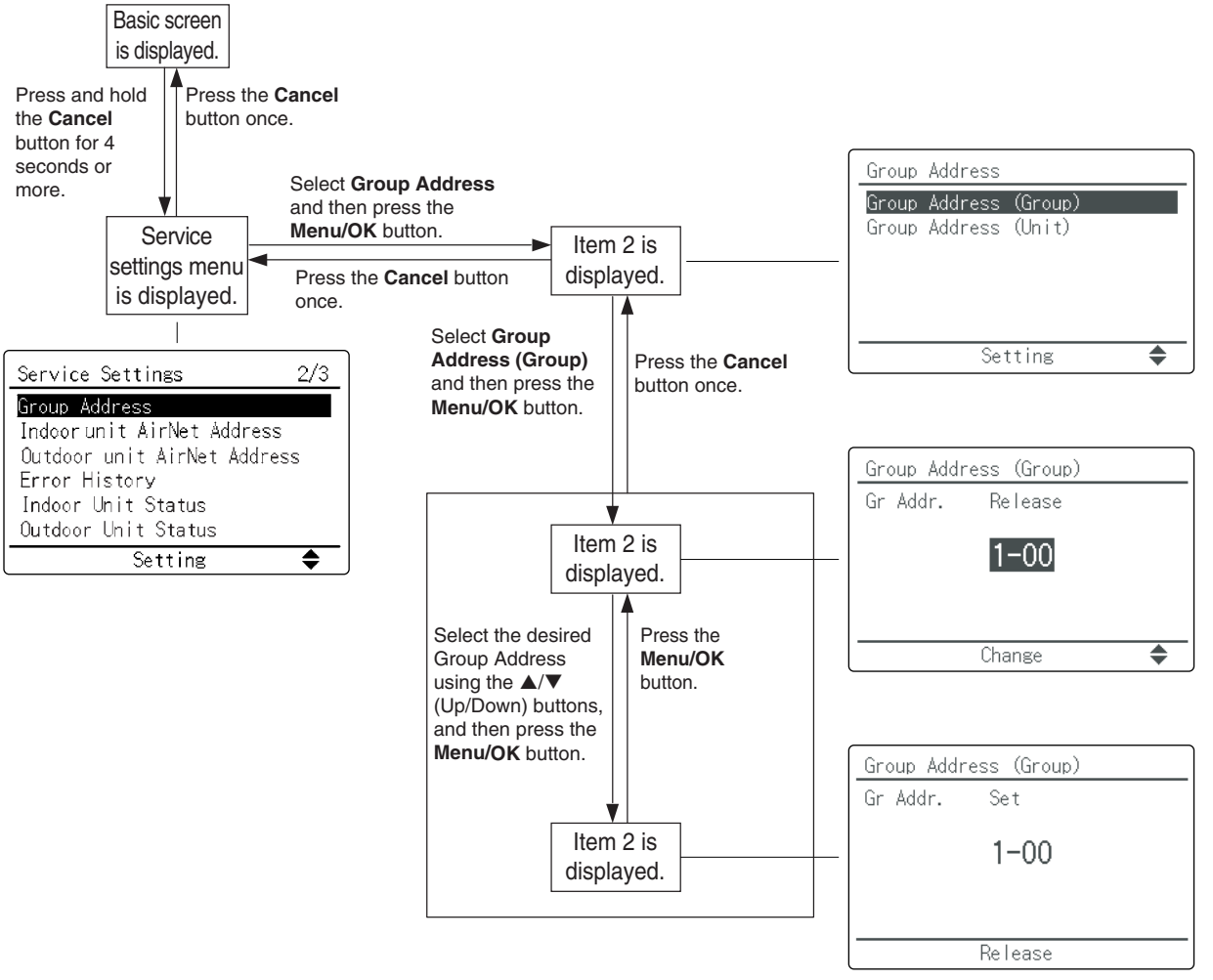
Note:

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

NOTICE

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

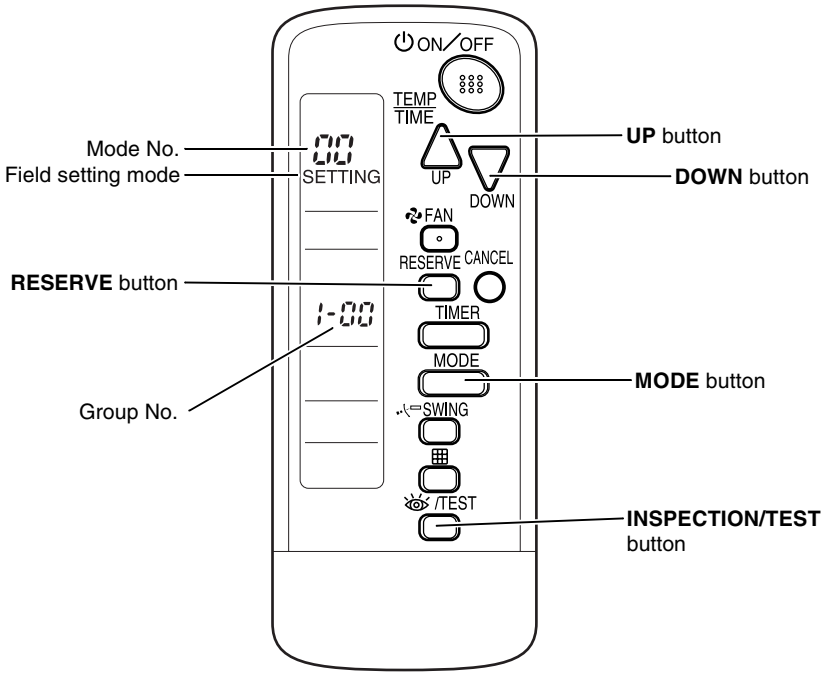
Group Address (Group)



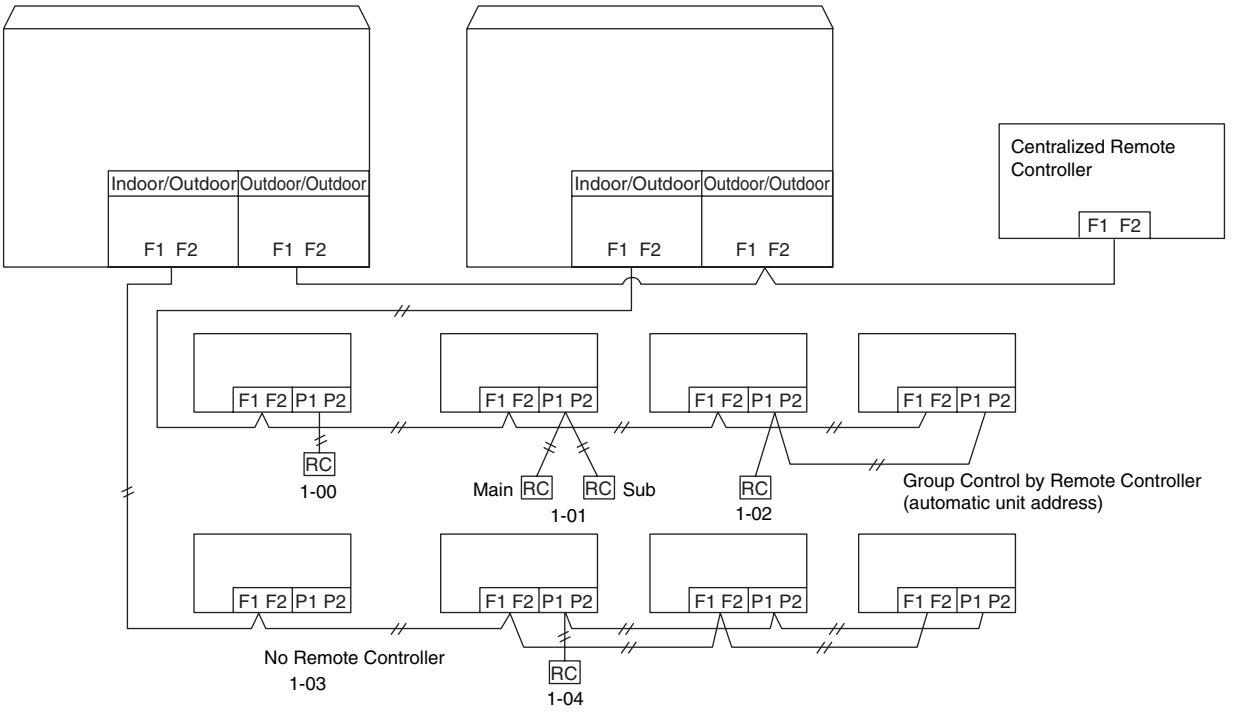
4.2 Wireless Remote Controller

Group No. setting by wireless remote controller for centralized control

1. When in the normal mode, press **INSPECTION/TEST** button for 4 seconds or more to enter field setting mode.
2. Set mode No. 00 with **MODE** button.
3. Set the group No. for each group with **UP** button or **DOWN** button.
4. Enter the selected group numbers by pressing **RESERVE** button.
5. Press **INSPECTION/TEST** button and return to the normal mode.



4.3 Group No. Setting Example



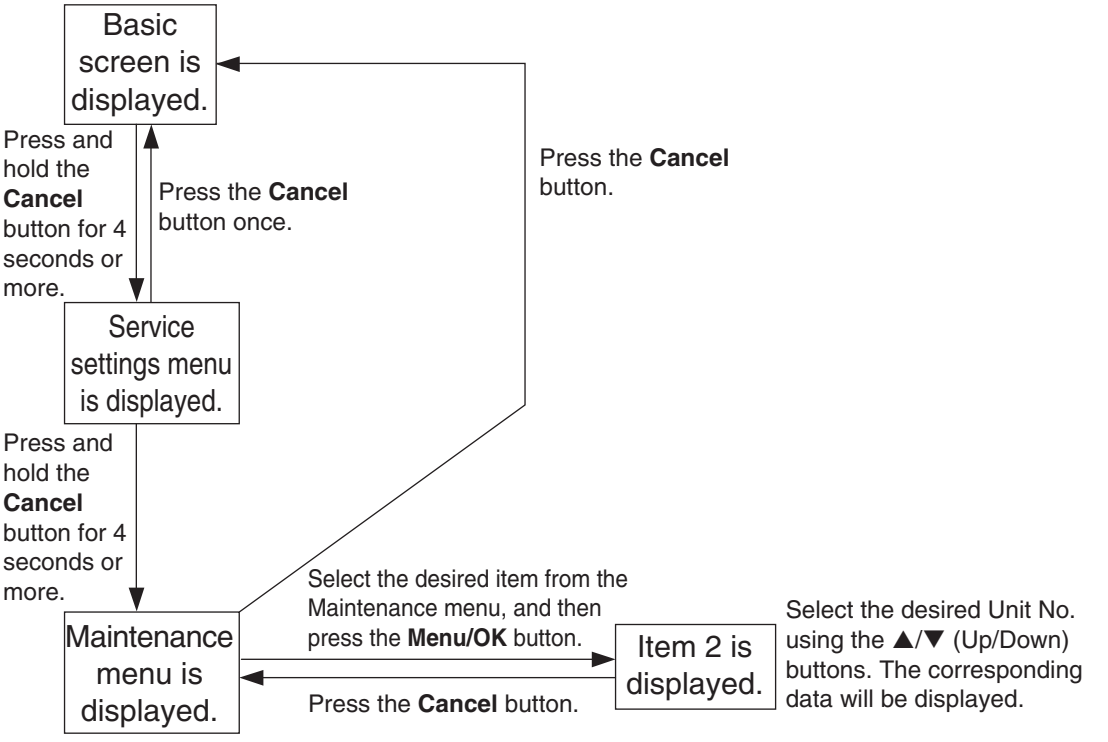
Caution

When turning the power supply on, the unit may often not accept any operation while 88 is displaying after all indications were displayed once for about 1 minute on the liquid crystal display. This is not an operative fault.

5. Service Mode

5.1 BRC1E73

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



Maintenance Menu	Item 2	Remarks
Model Name	Unit No.	Select the unit number you want to check.
	Indoor unit	The model names are displayed. (A model code may be displayed instead, depending on the particular model.)
	Outdoor unit	
Operation Hours	Unit No.	Select the unit number you want to check.
	Indoor unit operation hours	All of these are displayed in hours.
	Indoor fan operation hours	
	Indoor unit energized hours	
	Outdoor unit operation hours	
	Outdoor fan 1 operation hours	
	Outdoor fan 2 operation hours	
	Outdoor compressor 1 operation hours	
	Outdoor compressor 2 operation hours	
Indoor Unit Status	Unit No.	Select the unit number you want to check.
	FAN	Fan tap (∗1)
	Speed	Fan speed (rpm) (∗2)
	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 (∗3)
	TBF	Anti-freezing control ON/OFF

Maintenance Menu	Item 2	Remarks
Indoor Unit Status	FLOAT	Float switch OPEN/CLOSE
	T1/T2	T1/T2 input from outside OPEN/CLOSE
	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.	Select the unit number you want to check.
	FAN step	Fan tap
	COMP	Compressor power supply frequency (Hz)
	EV1	Degree that electronic expansion valve is open (pulse)
	SV1	Solenoid valve ON/OFF
	Th1	—
	Th2	—
	Th3	—
	Th4	—
	Th5	—
	Th6	—
Forced Defrost	Forced defrost ON	Enables the forced defrost operation.
	Forced defrost OFF	Disables the forced defrost operation.
Error Display	Display Error ON	Displays the error on the screen.
	Display Error OFF	Displays neither errors nor warnings.
	Display Warning ON	Displays a warning on the screen if an error occurs.
	Display Warning OFF	No warning is displayed.
Swap Unit No.	Current Unit No.	A unit number can be transferred to another.
	Transfer Unit No.	
Addressed Sensor Value	Unit No.: 0 - 15	Select the unit number you want to check.
	Code 00 : 01 : 02 : 03 : 04 : 05 : 06 : 07 : 08 : 09 : 10 and over:	 Remote controller thermistor (°F) Suction air thermistor (°F) Heat exchanger liquid pipe thermistor (°F) Heat exchanger gas pipe thermistor (°F) Indoor unit address No. Outdoor unit address No. Branch selector unit address No. Zone control address No. Cooling/Heating batch address No. Demand/low-noise address No. Differs depending on the connected indoor/outdoor unit.
	Data	The corresponding data will be displayed, based on the unit number and code selected.

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

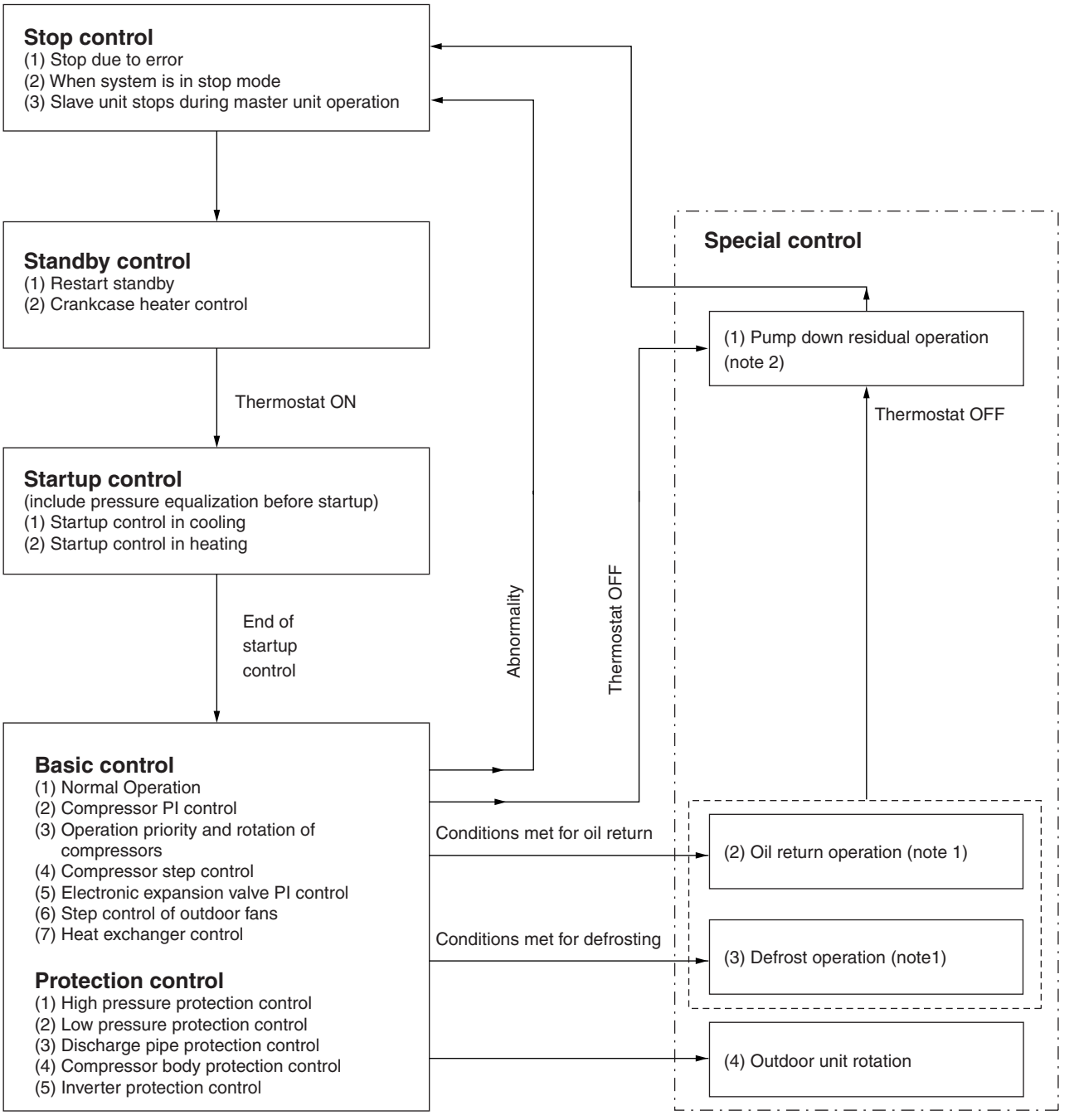
∗2. (For FXTQ-TA models)
0 rpm is displayed even if the fan is rotating.

∗3. (For FXTQ-TA models)
The ON/OFF status of the humidifier connected to HUMIDIFIER on the X1M terminal of the indoor unit PCB is not displayed. The ON/OFF status of the humidifier connected to the wiring adaptor is displayed.

Part 4
Functions and Control

1. Operation Flowchart (Outdoor Unit)

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



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

2. Stop Control

2.1 Stop due to Error

In order to protect compressors, if any of the abnormal state occurs, the system will stop with thermostat OFF and the error will be determined when the retry times reaches certain number.
(Refer to "Error Codes and Descriptions" (page 161~) of the troubleshooting for the items to determine the error.)

2.2 When System is in Stop Mode

The four way valves both for heat exchanger switch and piping switch retain the condition (ON) when heating operation is stopped.

2.3 Slave Unit Stops during Master Unit Operation

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

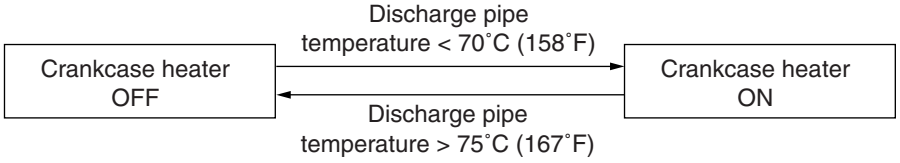
3. Standby Control

3.1 Restart Standby

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

3.2 Crankcase Heater Control

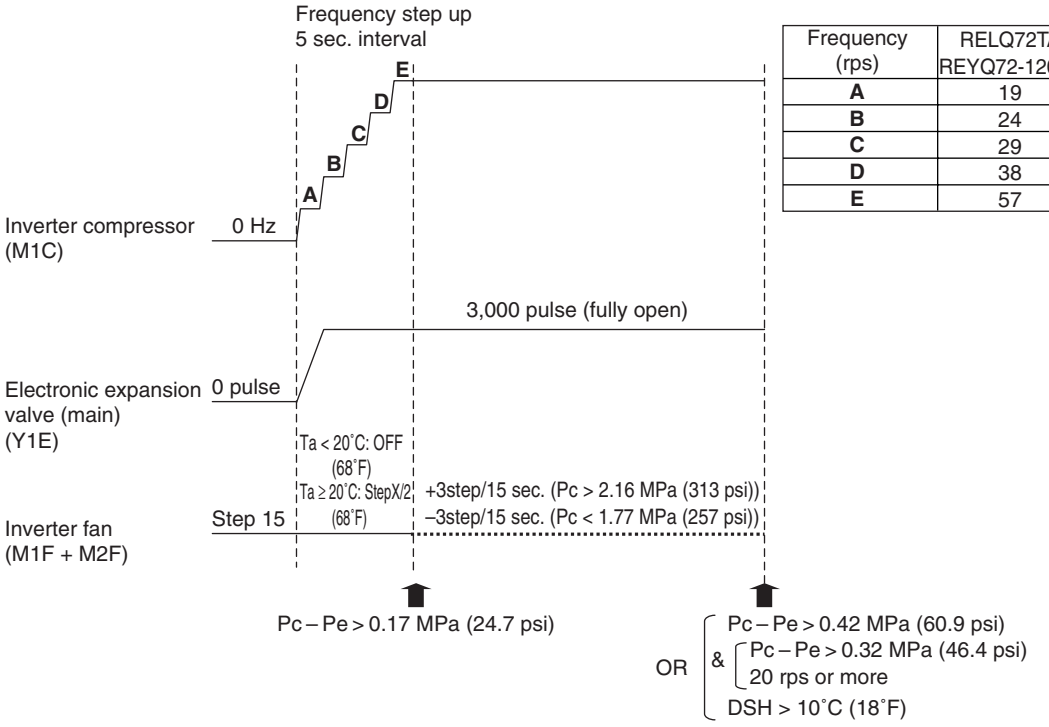
In order to prevent the refrigerant from melting in the compressor oil in the stopped mode, this mode is used to control the crankcase heater.



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 and the position of the four way valve is also determined. Start both the master and the slave units simultaneously to position the four way valve.

4.1 Startup Control in Cooling

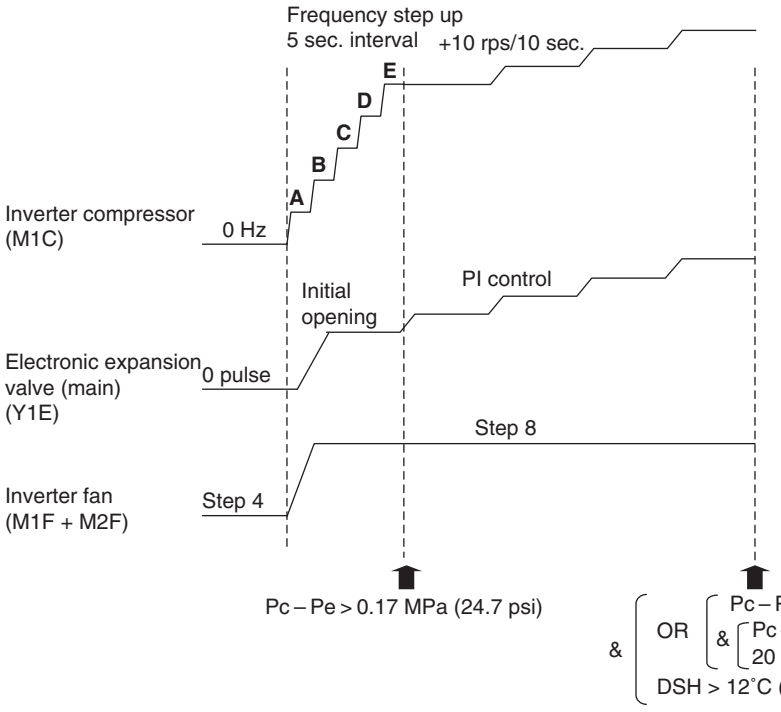


Frequency (rps)	RELQ72TA REYQ72-120TA	RELQ96/120TA REYQ144/168TA
A	19	16.4
B	24	16.4
C	29	18
D	38	24
E	57	36

DSH: Discharge pipe superheated degree
Pc : High pressure sensor detection value
Pe : Low pressure sensor detection value
Ta : Outdoor air temperature

Refer to page 62 for Step X.

4.2 Startup Control in Heating



Frequency (rps)	RELQ72TA REYQ72-120TA	RELQ96/120TA REYQ144/168TA
A	19	16.4
B	24	16.4
C	29	18
D	38	24
E	57	36

Pc – Pe > 0.17 MPa (24.7 psi)

& [OR [Pc – Pe > 0.42 MPa (60.9 psi) ; & [Pc – Pe > 0.32 MPa (46.4 psi) ; 20 rps or more]] ; DSH > 12˚C (21.6˚F)]

DSH: Discharge pipe superheated degree
Pc : High pressure sensor detection value
Pe : Low pressure sensor detection value

5. Basic Control

5.1 Normal Operation

Part Name	Electric Symbol	Function of Functional Part		
		Normal Cooling	Normal Heating	Normal Simultaneous Cooling and Heating
Inverter compressor	M1C	PI control, High pressure protection, Low pressure protection, Td protection, Inverter protection,	PI control, High pressure protection, Low pressure protection, Td protection, Inverter protection,	PI control, High pressure protection, Low pressure protection, Td protection, Inverter protection,
Inverter fan	M1F, M2F	Cooling fan control	Outdoor heat exchanger: Condenser / Cooling fan control Outdoor heat exchanger: Evaporator / Fan step 7 or 8	Outdoor heat exchanger: Condenser / Cooling fan control Outdoor heat exchanger: Evaporator / Fan step 7 or 8
Electronic expansion valve (Heat exchanger upper)	Y1E	Subcooled degree control	Superheated degree control (Subcooled degree control in low load)	Subcooled degree control (when HE is evaporator) Superheated degree control (when HE is condenser)
Electronic expansion valve (Heat exchanger lower)	Y3E	Subcooled degree control (0 pulse in low load)	Superheated degree control (0 pulse in low load)	
Electronic expansion valve (Subcooling heat exchanger)	Y2E	Superheated degree control (discharge pipe protection)	Superheated degree control (discharge pipe protection)	Superheated degree control (discharge pipe protection)
Electric expansion valve (Subcooling injection)	Y4E	Compressor injection control	Compressor injection control	Compressor injection control
Electronic expansion valve (Refrigerant cooling)	Y5E	Cooling refrigerant control	Cooling refrigerant control	Cooling refrigerant control
Electronic expansion valve (Receiver gas purge)	Y7E	0 pulse	Gas purge control	Gas purge control
Solenoid valve (Oil separator oil return)	Y1S	ON	ON	ON
Solenoid valve (Hot gas bypass)	Y2S	OFF	OFF	OFF
Solenoid valve (Liquid shutoff)	Y3S	ON	ON	ON
Four way valve (HP/LP gas pipe)	Y4S	ON	OFF	OFF
Four way valve (Heat exchanger lower)	Y5S	OFF (ON in low load)	ON	OFF (In cooling) ON (In heating)
Four way valve (Heat exchanger upper)	Y6S	OFF	ON (OFF in low load)	OFF (In cooling) ON (In heating)
Solenoid valve (Accumulator oil return)	Y7S	ON	ON	ON

Branch selector unit actuator			Normal cooling	Normal Simultaneous Cooling and Heating		Normal heating
				Cooling	Heating	
Electronic expansion valve (EVSC)	Y1E	Thermostat ON	0 pulse	0 pulse	Subcooled degree control	0 pulse
		Stopping	0 pulse	0 pulse	0 pulse	0 pulse
		Thermostat OFF	0 pulse	0 pulse	0 pulse	0 pulse
Electronic expansion valve (EVH)	Y2E	Thermostat ON	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
		Stopping	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
Electronic expansion valve (EVL)	Y3E	Thermostat ON	6,000 pulse	6,000 pulse	0 pulse	0 pulse
		Stopping	6,000 pulse	6,000 pulse	0 pulse	0 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	0 pulse	0 pulse

5.2 Compressor PI Control

Carries out the compressor capacity PI control to maintain Te at constant during cooling operation and Tc at constant during heating operation to ensure stable unit performance.
On multi-outdoor-unit systems, this control is made according to values of the first-priority unit, which is detected with the pressure sensor.

Cooling operation

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

Te set value (Make this setting while in Setting mode 2.)

Ta(C): Outdoor air temperature in Celsius (°C)
Ta(F): Outdoor air temperature in Fahrenheit (°F)
Te: Low pressure equivalent saturation temperature
TeS: Target temperature of Te (Varies depending on Te setting, operating frequency, etc.)

Te setting

L	M	H					A (∗1) (factory setting)
3°C (37.4°F)	6°C (42.8°F)	7°C (44.6°F)	8°C (46.4°F)	9°C (48.2°F)	10°C (50°F)	11°C (51.8°F)	28.75 – Ta(C) × 0.65 (°C) (104.55 – Ta(F) × 0.65 (°F))

∗1. Min.: 6°C (42.8°F), max.: 17°C (62.6°F)

Heating operation

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

Tc set value (Make this setting while in Setting mode 2.)

Ta(C): Outdoor air temperature in Celsius (°C)
Ta(F): Outdoor air temperature in Fahrenheit (°F)
Tc: High pressure equivalent saturation temperature
TcS: Target temperature of Tc (Varies depending on Tc setting, operating frequency, etc.)

Tc setting

L					M	H	A (∗1) (factory setting)
41°C (105.8°F)	42°C (107.6°F)	43°C (109.4°F)	44°C (111.2°F)	45°C (113.0°F)	46°C (114.8°F)	48°C (118.4°F)	48 – Ta(C) (°C) (150.4 – Ta(F) (°F))

∗1. Min.: 38°C (100.4°F), max.: 46°C (114.8°F)

5.3 Operating Priority and Rotation of Compressors

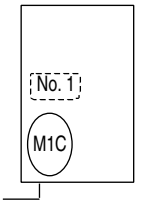
Each compressor operates in the following order of priority.
In the case of multi-outdoor-unit system, each compressor operates in any of Pattern 1 through Pattern 3 according to the rotation of outdoor units.

M1C: Inverter compressor

Pattern 1 Pattern 2 Pattern 3

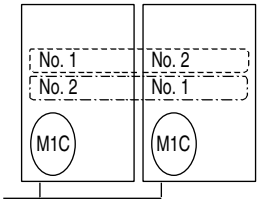
Single Outdoor Unit

Aurora series: RELQ72-120TA
Standard series: REYQ72-168TA



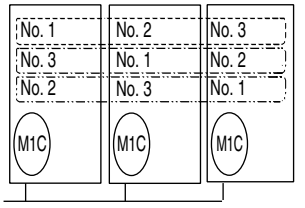
Double Outdoor Units

Aurora series: RELQ144-240TA
Standard series: REYQ192-336TA



Triple Outdoor Units

Standard series: REYQ360/384TA



Note:
1. In the case of combination of triple outdoor units, the above diagram shows master unit, slave unit 1, and slave unit 2 from left to right.
2. Compressors may operate in any pattern other than those mentioned above according to the operating status.

5.4 Compressor Step Control

Compressor operations vary with the following steps according to information in Compressor PI Control on page 57. Furthermore, the operating priority of compressors is subject to information in Operating Priority and Rotation of Compressors on page 57.

Single unit installation

RELQ72TA
REYQ72-120TA

Step No.	rps	Step No.	rps	Step No.	rps	
1	15.0	61	36.7	121	84.5	
2	15.2	62	37.2	122	85.7	
3	15.4	63	37.7	123	86.9	
4	15.6	64	38.3	124	88.1	
5	15.9	65	38.8	125	89.4	
6	16.2	66	39.3	126	90.6	
7	16.5	67	39.9	127	91.9	
8	16.8	68	40.5	128	93.2	
9	17.1	69	41.0	129	94.5	
10	17.4	70	41.6	130	95.8	
11	17.7	71	42.2	131	97.2	
12	18.0	72	42.8	132	98.5	
13	18.3	73	43.4	133	99.9	
14	18.6	74	44.0	134	101.3	◄REYQ72TA upper limit
15	19.0	75	44.6	135	102.7	
16	19.4	76	45.2	136	104.2	
17	19.8	77	45.8	137	105.6	
18	20.1	78	46.5	138	107.1	
19	20.5	79	47.1	139	108.4	
20	20.7	80	47.8	140	110.1	
21	21.0	81	48.5	141	111.7	
22	21.3	82	49.1	142	113.2	
23	21.6	83	49.8	143	114.8	
24	21.9	84	50.5	144	116.4	
25	22.2	85	51.1	145	118.0	
26	22.5	86	52.0	146	119.7	◄REYQ96TA upper limit
27	22.9	87	52.7	147	121.4	
28	23.2	88	53.4	148	123.1	
29	23.5	89	54.2	149	124.8	
30	23.8	90	54.9	150	126.5	
31	24.2	91	55.7	151	128.3	
32	24.5	92	56.5	152	130.1	
33	24.9	93	57.3	153	132.0	
34	25.2	94	58.1	154	133.8	
35	25.5	95	58.9	155	135.7	
36	25.9	96	59.7	156	137.6	
37	26.3	97	60.5	157	139.5	
38	26.6	98	61.4	158	140.0	◄RELQ72TA, REYQ120TA upper limit
39	27.0	99	62.3			
40	27.4	100	63.4			
41	27.8	101	64.0			
42	28.1	102	64.9			
43	28.5	103	65.6			
44	29.0	104	66.6			
45	29.4	105	67.7			
46	29.8	106	68.6			
47	30.2	107	69.6			
48	30.6	108	70.6			
49	31.0	109	71.6			
50	31.5	110	72.6			
51	31.9	111	73.6			
52	32.4	112	74.6			
53	32.8	113	75.7			
54	33.3	114	76.7			
55	33.8	115	77.8			
56	34.2	116	78.9			
57	34.7	117	80.0			
58	35.2	118	81.1			
59	35.7	119	82.2			
60	36.2	120	83.4			

Note:

1. Depending on the operating conditions of compressors, the compressors may run in patterns other than those aforementioned.

RELQ96/120TA
REYQ144/168TA

Step No.	rps	Step No.	rps	Step No.	rps	Step No.	rps	
1	16.4	61	24.2	121	55.7	181	128.2	◄RELQ96TA upper limit
2	16.5	62	24.5	122	56.4	182	130.0	
3	16.6	63	24.9	123	57.2	183	131.8	
4	16.7	64	25.2	124	58.0	184	133.7	
5	16.8	65	25.6	125	58.9	185	135.6	◄REYQ168TA upper limit
6	16.9	66	25.9	126	59.7	186	137.5	
7	17.0	67	26.3	127	60.5	187	139.4	
8	17.1	68	26.6	128	61.4	188	140.0	◄RELQ120TA upper limit
9	17.2	69	27.0	129	62.2			
10	17.3	70	27.4	130	63.1			
11	17.4	71	27.8	131	64.0			
12	17.5	72	28.2	132	64.9			
13	17.6	73	28.6	133	65.8			
14	17.7	74	29.0	134	66.7			
15	17.8	75	29.4	135	67.6			
16	17.9	76	29.8	136	68.6			
17	18.0	77	30.2	137	69.5			
18	18.1	78	30.6	138	70.5			
19	18.2	79	31.0	139	71.5			
20	18.3	80	31.5	140	72.8			
21	18.4	81	31.9	141	73.5			
22	18.5	82	32.4	142	74.5			
23	18.6	83	32.8	143	75.6			
24	18.7	84	33.3	144	76.6			
25	18.8	85	33.7	145	77.7			
26	18.9	86	34.2	146	78.8			
27	19.0	87	34.7	147	79.9			
28	19.1	88	35.2	148	81.0			
29	19.2	89	35.7	149	82.2			
30	19.3	90	36.2	150	83.3			
31	19.4	91	36.7	151	84.5			
32	19.5	92	37.0	152	85.7			
33	19.6	93	37.7	153	86.9			
34	19.7	94	38.2	154	88.1			
35	19.8	95	38.8	155	89.3			
36	19.9	96	39.3	156	90.6			
37	20.0	97	39.9	157	91.8			
38	20.1	98	40.4	158	93.1			
39	20.2	99	41.0	159	94.4			
40	20.3	100	41.6	160	95.7			
41	20.4	101	42.2	161	97.1			
42	20.5	102	42.8	162	98.4			
43	20.6	103	43.4	163	99.8			
44	20.7	104	44.0	164	101.2			
45	20.8	105	44.6	165	102.6			
46	20.9	106	45.2	166	104.1			
47	21.0	107	45.8	167	105.5			
48	21.1	108	46.5	168	107.0			
49	21.2	109	47.1	169	108.5			
50	21.3	110	47.8	170	110.0			
51	21.4	111	48.5	171	111.6			
52	21.5	112	49.1	172	113.1			
53	21.6	113	49.8	173	114.7			
54	21.9	114	50.5	174	116.3			
55	22.2	115	51.2	175	117.9			
56	22.6	116	51.9	176	119.6	◄REYQ144TA upper limit		
57	22.9	117	52.7	177	121.3			
58	23.2	118	53.4	178	123.0			
59	23.5	119	54.1	179	124.7			
60	23.8	120	54.9	180	126.4			

Note:

1. Depending on the operating conditions of compressors, the compressors may run in patterns other than those aforementioned.

5.5 Electronic Expansion Valve PI Control

Main electronic expansion valve EVM control

When the outdoor unit heat exchanging is performed via the condenser (Y5S or Y6S is set to OFF), this function is used to exert PI control on the electronic expansion valve (Y1E or Y3E) so that the condenser outlet subcooled degree (SC) will become constant.

SC = Tc – Tf

SC: Condenser outlet subcooled degree
Tc: High pressure equivalent saturated temperature
Tf: Liquid pipe temperature detected by heat exchanger liquid pipe thermistor R4T, R5T

When the outdoor unit heat exchanging is performed via the evaporator (Y5S or Y6S is set to ON), this function is used to exert PI control on the electronic expansion valve (Y1E or Y3E) so that the evaporator outlet superheated degree (SH) will become constant.

SH = Tg – Te

SH: Evaporator outlet superheated degree
Tg: Suction pipe temperature detected by heat exchanger gas pipe thermistor R8T, R9T
Te: Low pressure equivalent saturated temperature

Subcooling electronic expansion valve EVT control

In order to make the maximum use of the subcooling heat exchanger, this function is used to exert PI control on the electronic expansion valve (Y2E, Y5E or Y3E) so that the evaporator-side gas pipe superheated degree (SH) will become constant.

SH = Tsh – Tm

SH: Evaporator outlet superheated degree
Tsh: Suction pipe temperature detected by the subcooling heat exchanger outlet thermistor R5T
Tm: Low or middle pressure equivalent saturated temperature

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.

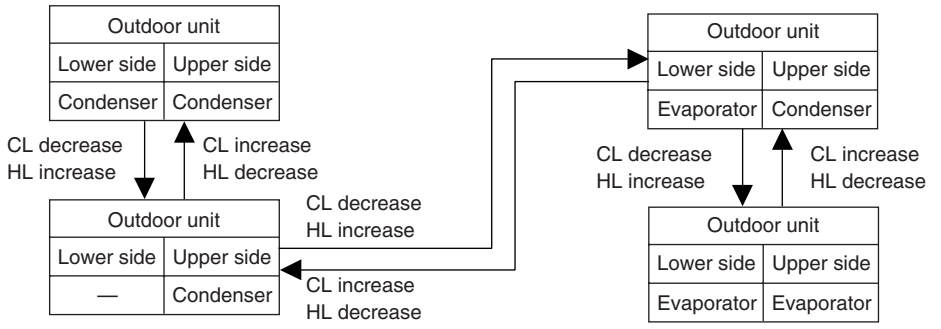
Step No.	Standard (default)				
	Cooling		Heating		
	M1F	M2F	M1F	M2F	
0	0	0	0	0	
1	281	0	281	0	
2	290	0	290	0	
3	300	0	300	0	
4	310	0	310	0	
5	329	0	329	0	
6	343	0	343	0	
7	357	0	357	0	
8	371	0	371	0	
9	386	0	386	0	
10	402	0	402	0	
11	419	0	419	0	
12	436	0	436	0	
13	453	0	453	0	
14	472	0	472	0	
15	491	0	491	0	
16	511	0	511	0	
17	532	0	532	0	
18	554	0	554	0	
19	576	0	576	0	
20	287	317	287	317	
21	300	330	300	330	
22	314	344	314	344	
23	320	350	320	350	
24	332	362	332	362	
25	345	375	345	375	
26	358	388	358	388	
27	372	402	372	402	
28	386	416	386	416	
29	401	431	401	431	
30	417	447	417	447	
31	434	464	434	464	
32	451	481	451	481	
33	470	500	470	500	
34	489	519	489	519	
35	509	539	509	539	
36	531	561	531	561	
37	553	583	553	583	
38	577	607	577	607	
39	601	631	601	631	
40	627	657	627	657	
41	655	685	655	685	
42	683	713	683	713	
43	713	743	713	743	
44	745	775	745	775	
45	778	808	778	808	
46	813	843	813	843	
47	849	879	849	879	
48	888	918	888	918	
49	958	928	958	928	
50	1040	930	1040	930	
51	1131	1021	1131	1021	◄RELQ72/96TA, REYQ72TA cooling upper limit
52	1232	1132	1232	1132	◄RELQ120TA, REYQ96/120TA cooling upper limit
53	1360	1180	1360	1180	◄REYQ144/168TA cooling, All models heating upper limit

Step X	Cooling	Heating/ Simultaneous
RELQ72TA	49	51
RELQ96TA	51	51
RELQ120TA	52	52
REYQ72TA	49	51
REYQ96TA	51	52
REYQ120TA	52	52
REYQ144TA	53	53
REYQ168TA	53	53

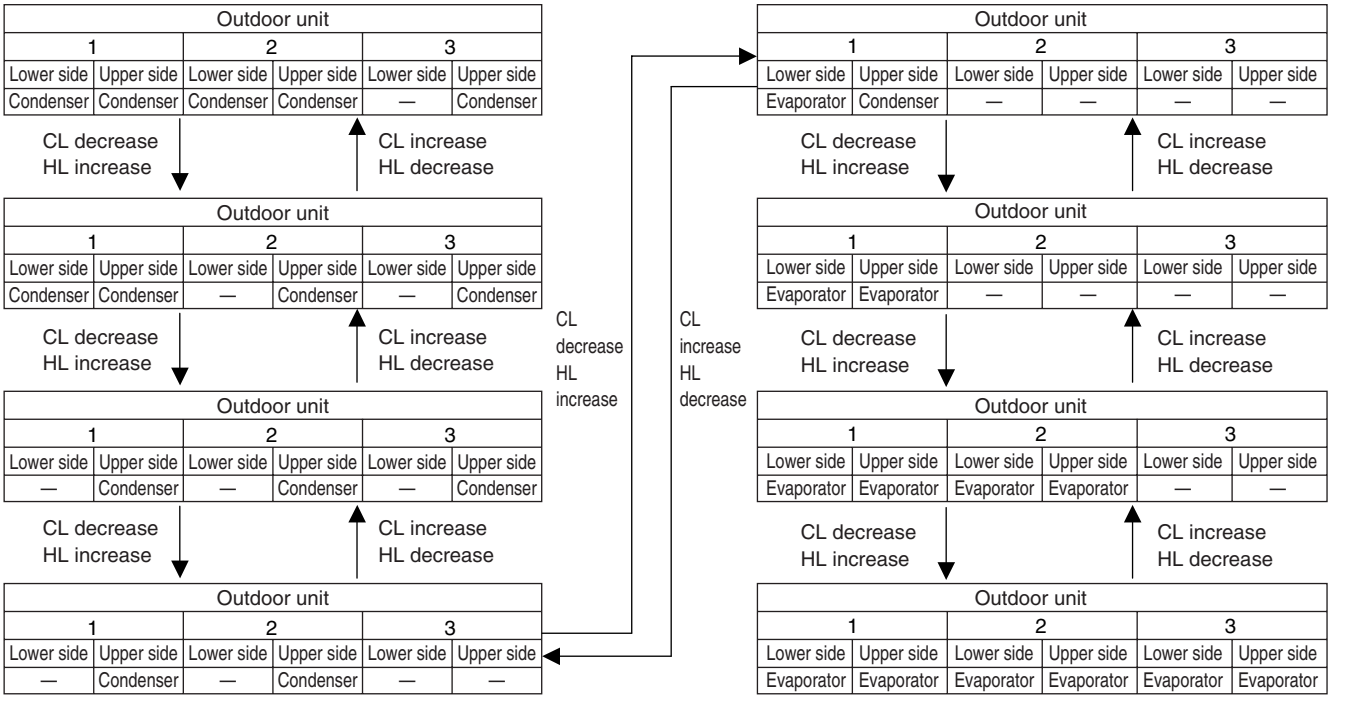
5.7 Heat Exchanger Control

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

Single system



Multi outdoor unit system



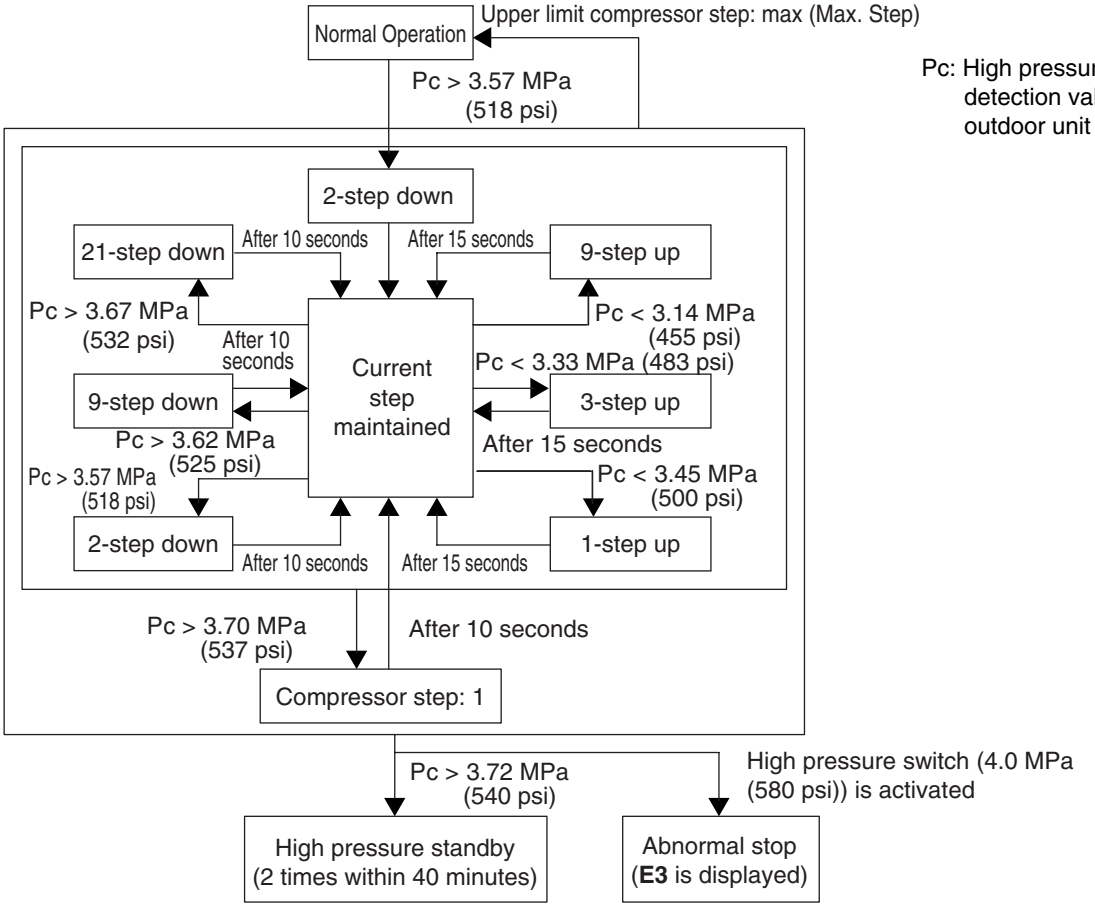
<Symbol meanings>
CL: Cooling Load
HL: Heating Load

6. Protection Control

6.1 High Pressure Protection Control

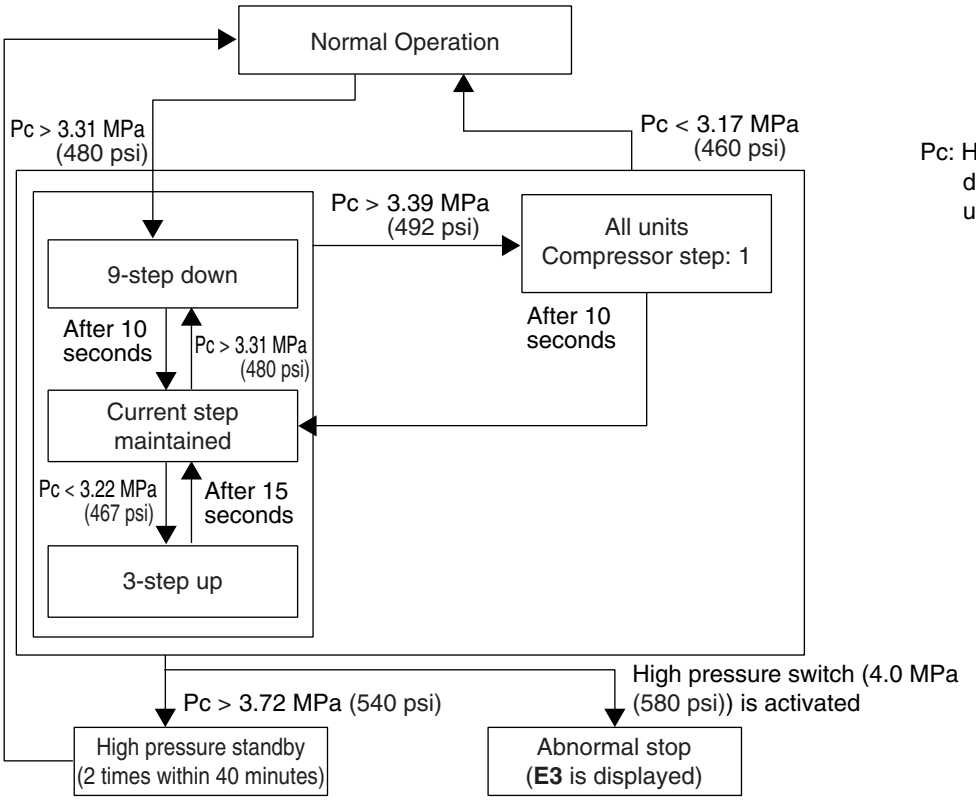
This high pressure protection control is used to prevent the activation of protection devices due to abnormal increase of high pressure and to protect compressors against the transient increase of high pressure.

Cooling



Pc: High pressure sensor detection value for each outdoor unit

Heating

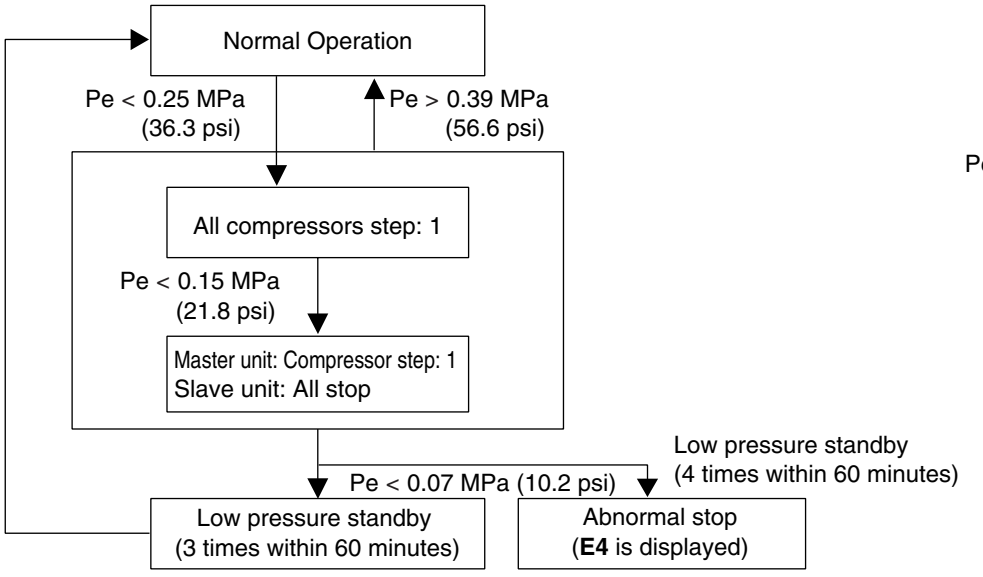


Pc: High pressure sensor detection value for master unit

6.2 Low Pressure Protection Control

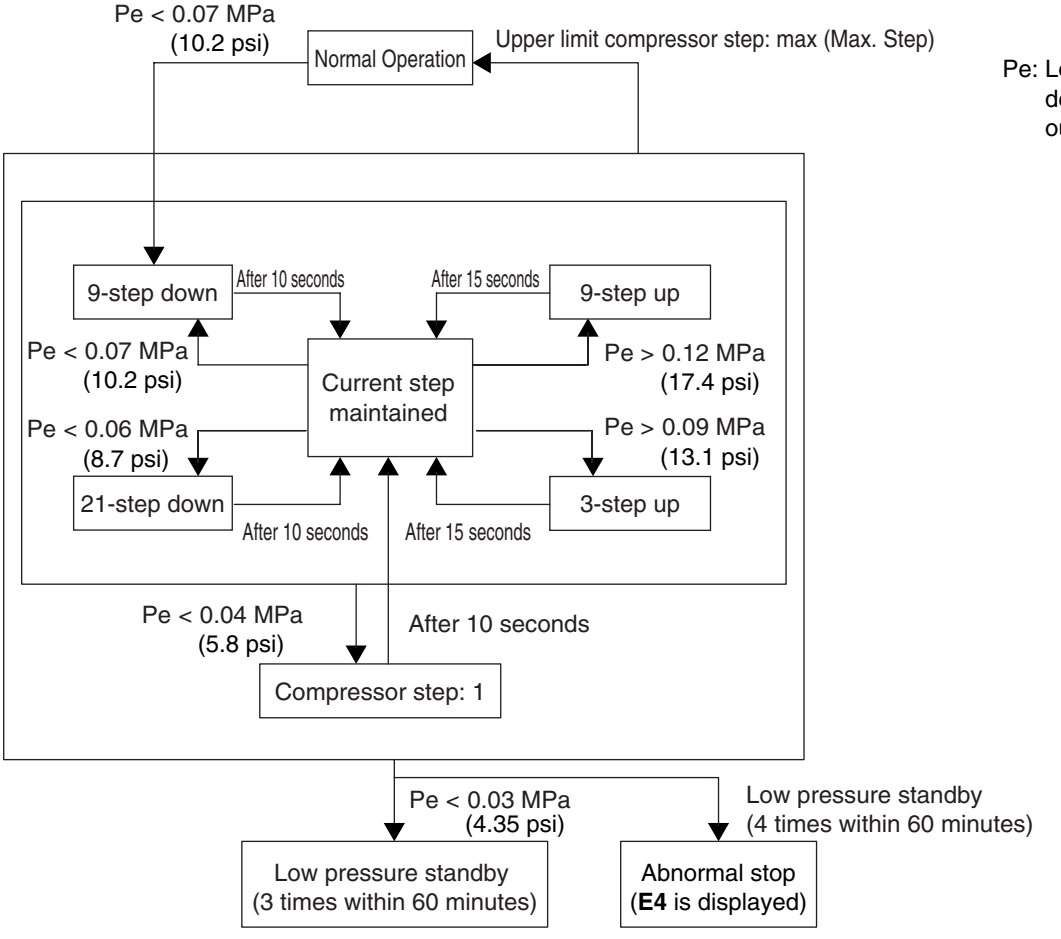
This low pressure protection control is used to protect compressors against the transient decrease of low pressure.

Cooling



Pe: Low pressure sensor detection value for master unit

Heating

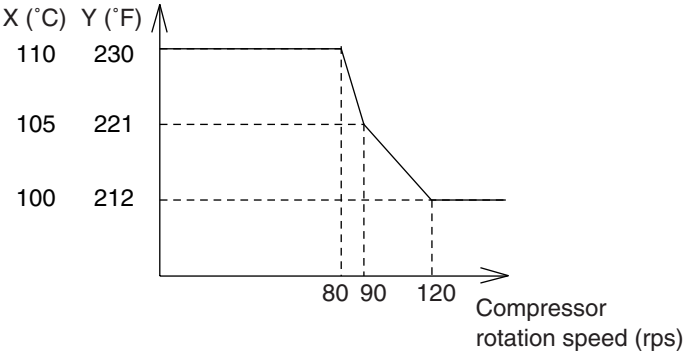


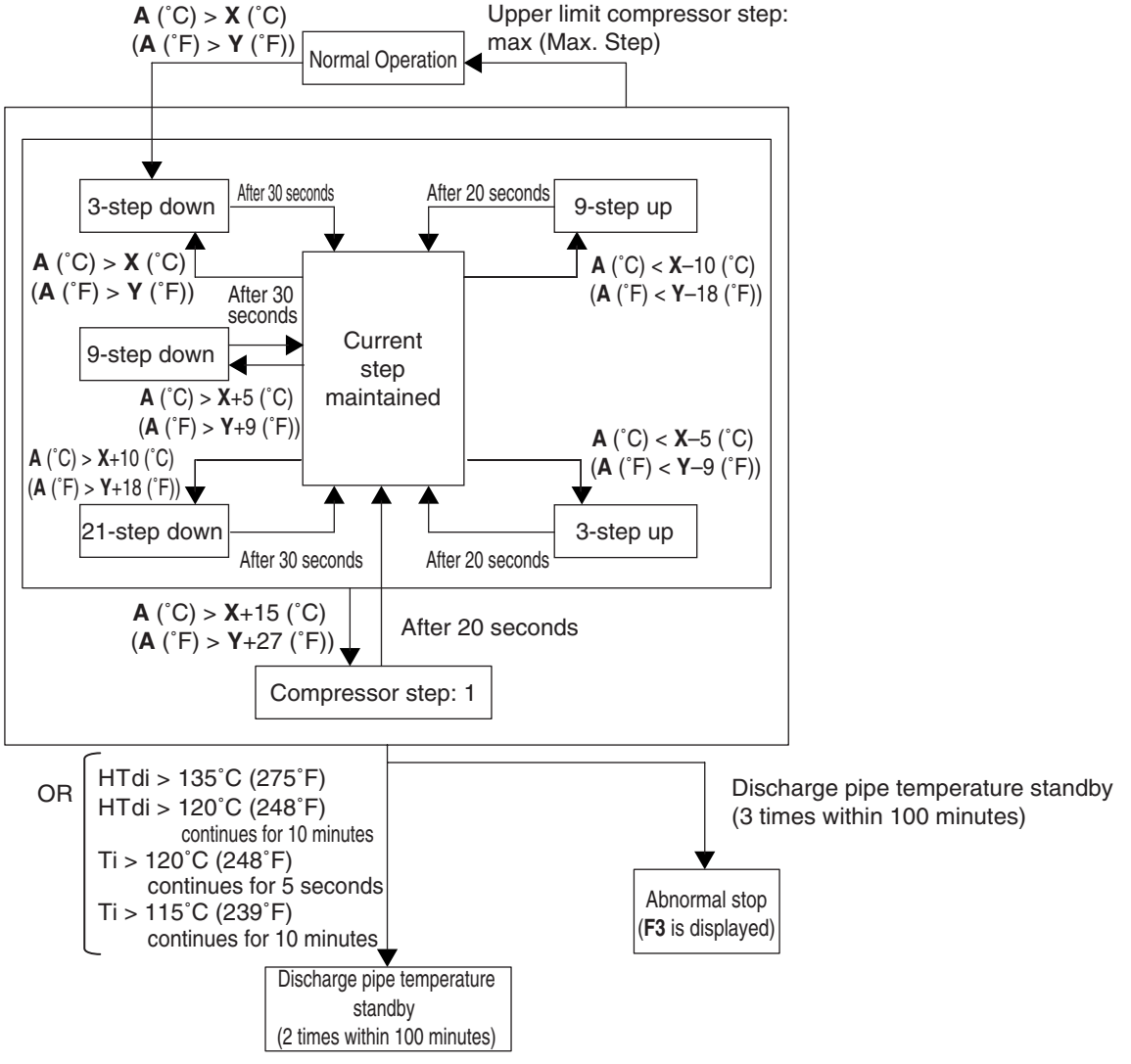
Pe: Low pressure sensor detection value for each outdoor unit

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.

HTdi : Value of inverter compressor discharge pipe temperature (Tdi) compensated with outdoor air temperature
Ti : Compressor body temperature
A : Maximum of HTdi and Ti
X(˚C)(Y(˚F)): **RELQ72TA, REYQ72-120TA**
→115˚C (239˚F) (constant)
RELQ96/120TA, REYQ144/168TA
→Temperature determined by compressor rotation speed





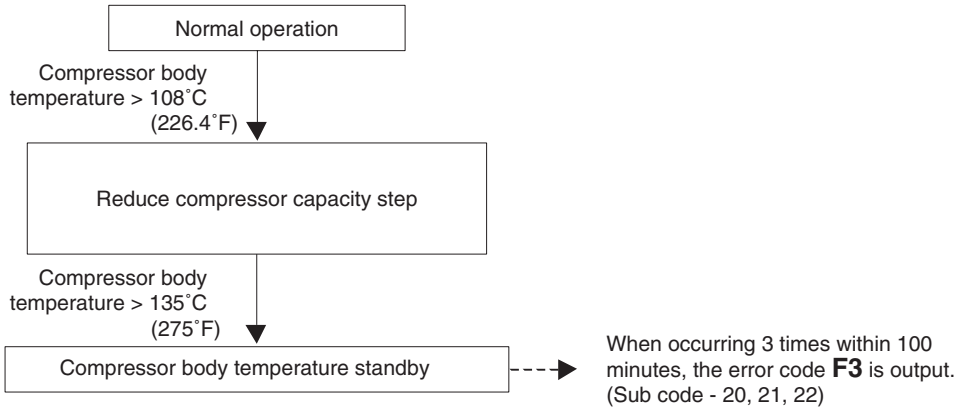
6.4 Compressor Body Protection Control

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

Contents

The following control is performed for each compressor of single unit as well as multi units.

Inverter compressor

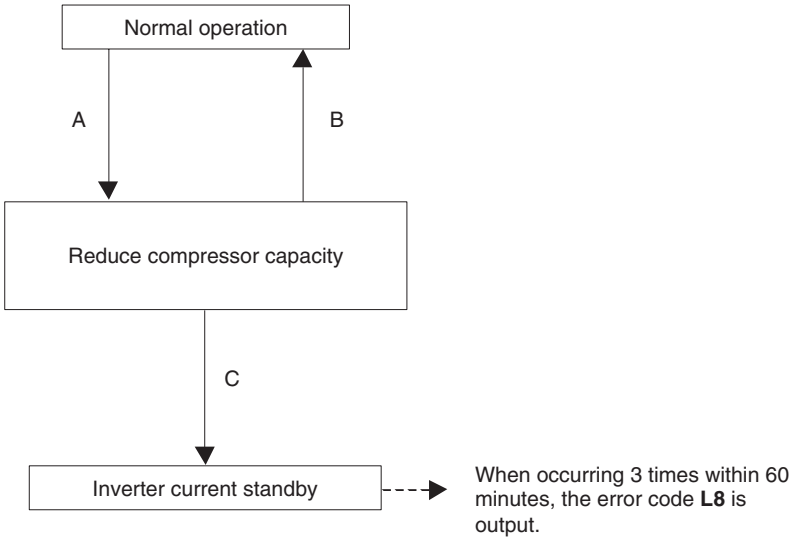


6.5 Inverter Protection Control

Inverter current protection control and radiation fin temperature control are performed to prevent tripping due to an error, or transient inverter overcurrent, and fin temperature increase.
In the case of multi-outdoor-unit system, each inverter compressor performs these controls in the following sequence.

Inverter overcurrent protection control

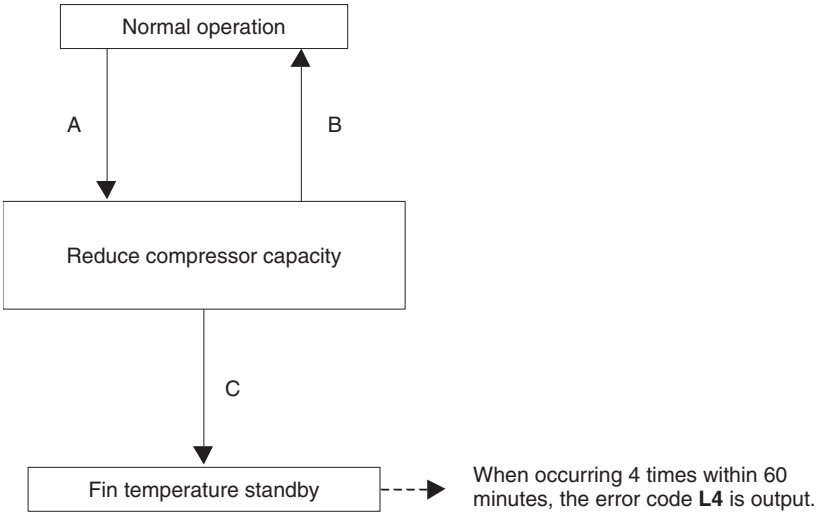
Perform the following control of integrated as well as multi units for each inverter compressor.



Condition	RELQ72TATJU	RELQ72TAYDU	RELQ72TAYCU REYQ72/96/120TAYCU	RELQ96/120TATJU	RELQ96/120TAYDU	RELQ96/120TAYCU REYQ144/168TAYCU
A	more than 47.0 A	more than 22.0 A	more than 16.8 A	more than 67.5 A	more than 34.0 A	more than 25.5 A
B	less than 45.6 A	less than 21.3 A	less than 16.3 A	less than 65.5 A	less than 33.0 A	less than 24.7 A
C	more than 50.0 A	more than 25.0 A	more than 17.3 A	more than 72.0 A	more than 38.0 A	more than 26.0 A

Radiation fin temperature control

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



Condition	RELQ72TATJU	RELQ72TAYDU	RELQ72TAYCU REYQ72/96/120TAYCU
A	more than 95°C (203°F)	more than 96°C (204.8°F)	more than 90°C (194°F)
B	less than 92°C (197.6°F)	less than 93°C (199.4°F)	less than 87°C (188.6°F)
C	more than 100°C (212°F)	more than 100°C (212°F)	more than 95°C (203°F)

Condition	RELQ96/120TATJU	RELQ96/120TAYDU	RELQ96/120TAYCU REYQ144/168TAYCU
A	more than 70°C (158°F)	more than 70°C (158°F)	more than 90°C (194°F)
B	less than 67°C (152.6°F)	less than 67°C (152.6°F)	less than 87°C (188.6°F)
C	more than 75°C (167°F)	more than 75°C (167°F)	more than 95°C (203°F)

7. Special Control

7.1 Pump Down Residual Operation

Pc : High pressure sensor detection value
Pe : Low pressure sensor detection value
Ta : Outdoor air temperature
Te : Low pressure equivalent saturation temperature
DSH : Discharge pipe superheated degree
If the liquid refrigerant stays in the evaporator at the startup of a compressor, this liquid refrigerant enters the compressor, thus resulting in diluted oil in the compressor and then degraded lubrication performance.
Consequently, in order to recover the refrigerant in the evaporator while the compressor stops, the pump down residual operation is conducted.

Part Name	Electric Symbol	Function of Functional Part	
		Normal Cooling	Normal Heating
Inverter compressor	M1C	24 rps/37 rps∗	24 rps/37 rps∗
Inverter fan	M1F, M2F	For heat exchanger mode	For heat exchanger mode
Electronic expansion valve (Heat exchanger upper)	Y1E	Same as normal operation	Same as normal operation
Electronic expansion valve (Heat exchanger lower)	Y3E		
Electronic expansion valve (Subcooling heat exchanger)	Y2E	0 pulse	0 pulse
Electric expansion valve (Subcooling injection)	Y4E	760 pulse	760 pulse
Electronic expansion valve (Refrigerant cooling)	Y5E	Same as normal operation	Same as normal operation
Electronic expansion valve (Receiver gas purge)	Y7E	Open slightly	Open slightly
Solenoid valve (Oil separator oil return)	Y1S	ON	ON
Solenoid valve (Hot gas bypass)	Y2S	OFF	OFF
Solenoid valve (Liquid shutoff)	Y3S	ON	ON
Four way valve (HP/LP gas pipe)	Y4S	Hold	Hold
Four way valve (Heat exchanger lower)	Y5S	Hold	Hold
Four way valve (Heat exchanger upper)	Y6S	Hold	Hold
Solenoid valve (Accumulator oil return)	Y7S	ON	ON
Ending condition		OR [A lapse of 5 minutes Master unit HTdi > 118°C (244.4°F) Pc_max > 2.94 MPa (426 psi)]	OR [& [A lapse of 3 minutes Pe_min < 0.19 MPa (27.6 psi) Ta_min – Te_max > 8°C (14°F)] HTdi_max > 118°C (244.4°F)]

∗REYQ72TA

7.2 Oil Return Operation

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

Tc : High pressure equivalent saturation temperature
Te : Low pressure equivalent saturation temperature
TsA: Suction pipe temperature detected by thermistor R3T

7.2.1 Oil Return Operation in Cooling Operation

Starting conditions

Referring to the set conditions for the following items, start the oil return operation in cooling

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

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

Part Name	Electric Symbol	Oil return operation
Inverter compressor	M1C	Constant low pressure control
Inverter fan	M1F, M2F	For heat exchanger mode
Electronic expansion valve (Heat exchanger upper)	Y1E	Same as normal operation
Electronic expansion valve (Heat exchanger lower)	Y3E	
Electronic expansion valve (Subcooling heat exchanger)	Y2E	0 pulse
Electric expansion valve (Subcooling injection)	Y4E	760 pulse
Electronic expansion valve (Refrigerant cooling)	Y5E	Same as normal operation
Electronic expansion valve (Receiver gas purge)	Y7E	0 pulse
Solenoid valve (Oil separator oil return)	Y1S	ON
Solenoid valve (Hot gas bypass)	Y2S	Same as normal operation
Solenoid valve (Liquid shutoff)	Y3S	ON
Four way valve (HP/LP gas pipe)	Y4S	Hold
Four way valve (Heat exchanger lower)	Y5S	Hold
Four way valve (Heat exchanger upper)	Y6S	Hold
Solenoid valve (Accumulator oil return)	Y7S	Same as normal operation
Ending condition		& (• A lapse of 3 minutes; OR (• TsA – Te < 3°C (5.4°F); • A lapse of 12 minutes while the frequency is more than that of oil return operation.))

Indoor unit actuator		Oil return operation
Fan	Thermostat ON unit	Remote controller setting
	Stopping unit	OFF
	Thermostat OFF unit	Remote controller setting
Electronic expansion valve	Thermostat ON unit	Normal control
	Stopping unit	224 pulse
	Thermostat OFF unit	Forced thermostat ON (PI control)

Branch selector unit actuator			Normal cooling
Electronic expansion valve (EVSC)	Y1E	Thermostat ON	0 pulse
		Stopping	0 pulse
		Thermostat OFF	0 pulse
Electronic expansion valve (EVH)	Y2E	Thermostat ON	6,000 pulse
		Stopping	6,000 pulse
		Thermostat OFF	6,000 pulse
Electronic expansion valve (EVL)	Y3E	Thermostat ON	6,000 pulse
		Stopping	6,000 pulse
		Thermostat OFF	6,000 pulse

7.2.2 Oil Return Operation in Heating Operation

Starting conditions

Part Name	Electric Symbol	Oil return operation
Inverter compressor	M1C	+1 to +6 steps from frequency to frequency when oil return is IN at a constant level
Inverter fan	M1F, M2F	Same as normal operation
Electronic expansion valve (Heat exchanger upper)	Y1E	Same as normal operation
Electronic expansion valve (Heat exchanger lower)	Y3E	
Electronic expansion valve (Subcooling heat exchanger)	Y2E	Same as normal operation
Electric expansion valve (Subcooling injection)	Y4E	Same as normal operation
Electronic expansion valve (Refrigerant cooling)	Y5E	Same as normal operation
Electronic expansion valve (Receiver gas purge)	Y7E	0 pulse
Solenoid valve (Oil separator oil return)	Y1S	ON
Solenoid valve (Hot gas bypass)	Y2S	OFF
Solenoid valve (Liquid pipe)	Y3S	ON
Four way valve (HP/LP gas pipe)	Y4S	Hold
Four way valve (Heat exchanger lower)	Y5S	Hold
Four way valve (Heat exchanger upper)	Y6S	Hold
Solenoid valve (Accumulator oil return)	Y7S	Same as normal operation
Ending condition		A lapse of 8 minutes while the frequency is more than that of oil return operation.

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

Branch selector unit actuator			Normal Simultaneous Cooling / Heating		Normal heating
			Cooling	Heating	
Electronic expansion valve (EVSC)	Y1E	Thermostat ON	0 pulse	Subcooled degree control	0 pulse
		Stopping	0 pulse	0 pulse	0 pulse
		Thermostat OFF	0 pulse	0 pulse	0 pulse
Electronic expansion valve (EVH)	Y2E	Thermostat ON	0 pulse	6,000 pulse	6,000 pulse
		Stopping	0 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	0 pulse	6,000 pulse	6,000 pulse
Electronic expansion valve (EVL)	Y3E	Thermostat ON	6,000 pulse	0 pulse	0 pulse
		Stopping	6,000 pulse	0 pulse	0 pulse
		Thermostat OFF	6,000 pulse	0 pulse	0 pulse

7.3 Defrost Operation

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

Tb: Heat exchanger deicer temperature

Part Name	Electric Symbol	Defrost operation
Inverter compressor	M1C	RELQ72TA, REYQ72-120TA: 134 rps RELQ96/120TA, REYQ144/168TA: 119 rps
Inverter fan	M1F, M2F	With high pressure OFF ←→Step X/2 ←→ Step X
Electronic expansion valve (Heat exchanger upper)	Y1E	100%
Electronic expansion valve (Heat exchanger lower)	Y3E	
Electronic expansion valve (Subcooling heat exchanger)	Y2E	0 pulse
Electric expansion valve (Subcooling injection)	Y4E	760 pulse
Electronic expansion valve (Refrigerant cooling)	Y5E	Same as normal operation
Electronic expansion valve (Receiver gas purge)	Y7E	0 pulse
Solenoid valve (Oil separator oil return)	Y1S	ON
Solenoid valve (Hot gas bypass)	Y2S	OFF
Solenoid valve (Liquid pipe)	Y3S	ON
Four way valve (HP/LP gas pipe)	Y4S	Hold
Four way valve (Heat exchanger lower)	Y5S	Hold
Four way valve (Heat exchanger upper)	Y6S	Hold
Solenoid valve (Accumulator oil return)	Y7S	ON
Ending condition		OR • A lapse of 15 minutes • Tb>11°C (51.8°F) continues for 30 seconds or more

Indoor unit actuator		Defrost operation
Fan	Thermostat ON unit	OFF
	Stopping unit	OFF
	Thermostat OFF unit	OFF
Electronic expansion valve	Thermostat ON unit	Defrost EV opening degree
	Stopping unit	Defrost EV opening degree
	Thermostat OFF unit	Defrost EV opening degree

Branch selector unit actuator			Normal cooling	Normal Simultaneous Cooling / Heating		Normal heating
				Cooling	Heating	
Electronic expansion valve (EVSC)	Y1E	Thermostat ON	0 pulse	0 pulse	Subcooled degree control	0 pulse
		Stopping	0 pulse	0 pulse	0 pulse	0 pulse
		Thermostat OFF	0 pulse	0 pulse	0 pulse	0 pulse
Electronic expansion valve (EVH)	Y2E	Thermostat ON	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
		Stopping	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
		Thermostat OFF	6,000 pulse	0 pulse	6,000 pulse	6,000 pulse
Electronic expansion valve (EVL)	Y3E	Thermostat ON	6,000 pulse	6,000 pulse	0 pulse	0 pulse
		Stopping	6,000 pulse	6,000 pulse	0 pulse	0 pulse
		Thermostat OFF	6,000 pulse	6,000 pulse	0 pulse	0 pulse

7.4 Outdoor Unit Rotation

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

Details of outdoor unit rotation

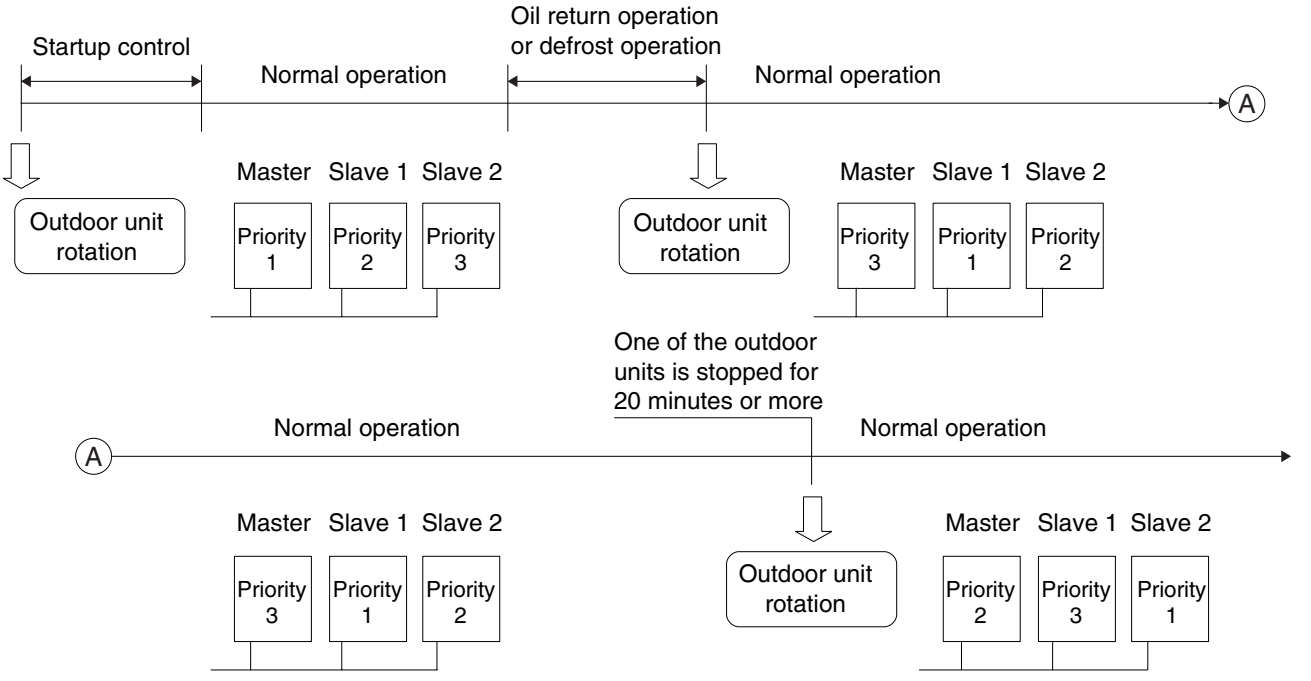
In the case of multi outdoor unit system, each outdoor unit is given an operating priority for the control.

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

Timing of outdoor unit rotation

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

Example) The following diagram shows outdoor unit rotation in combination of 3 outdoor units.



Note: ∗ "Master unit", "slave unit 1" and "slave unit 2" in this section are the names for installation. They are determined in installation work, and not changed thereafter. (These names are different from "master unit" and "slave unit" for control.)
The outdoor unit connected the control wires (F1 and F2) for the indoor unit should be designated as master unit.
Consequently, The LED display on the outdoor unit main PCB for "master unit", "slave unit 1" and "slave unit 2" do not change.

7.5 Cooling/Heating Mode Switching

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

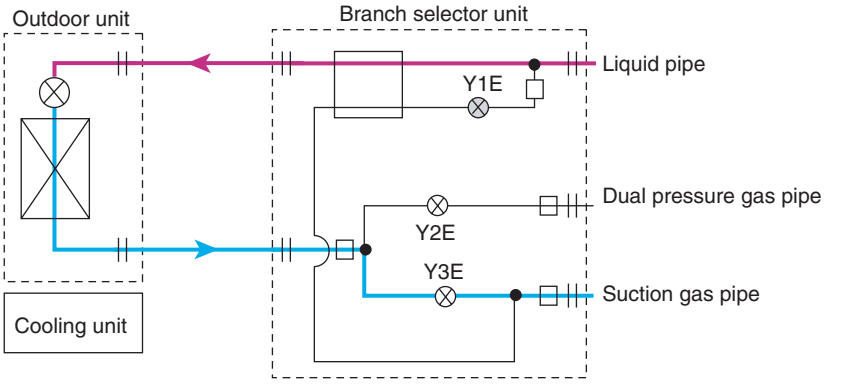
First, the electronic expansion valve of the indoor unit in cooling operation will close, and the Y2E and Y3E electronic expansion valves of the branch selector unit will all close once.

Next, the Y2E electronic expansion valve will open little by little to perform pressure equalization.

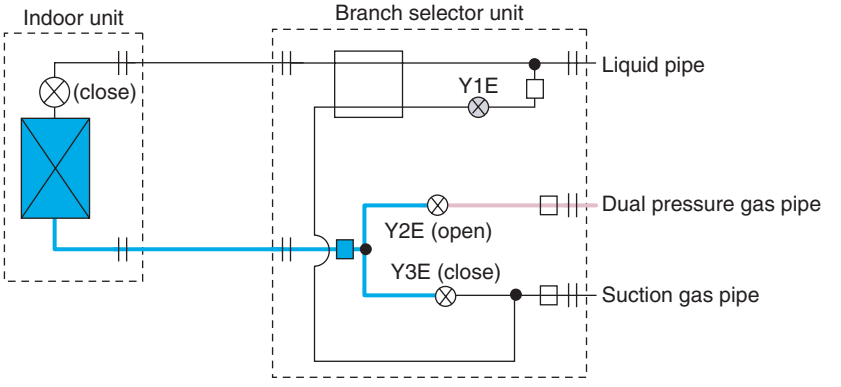
Then the electronic expansion valve will fully open, and the electronic expansion valve of the indoor unit will open to activate the heating circuit.

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

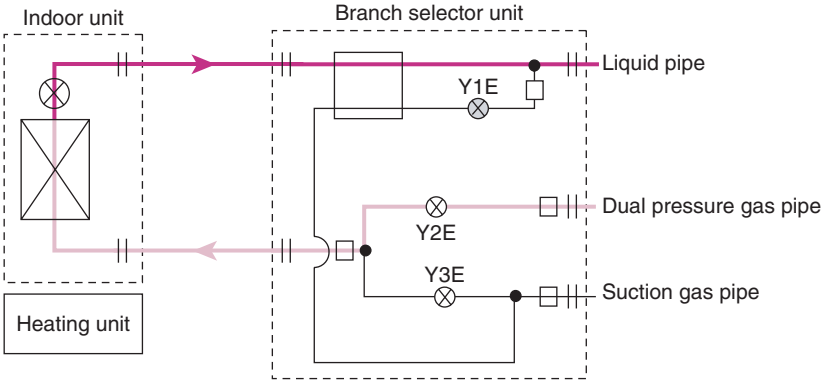
(1) In cooling operation



(2) In equalization

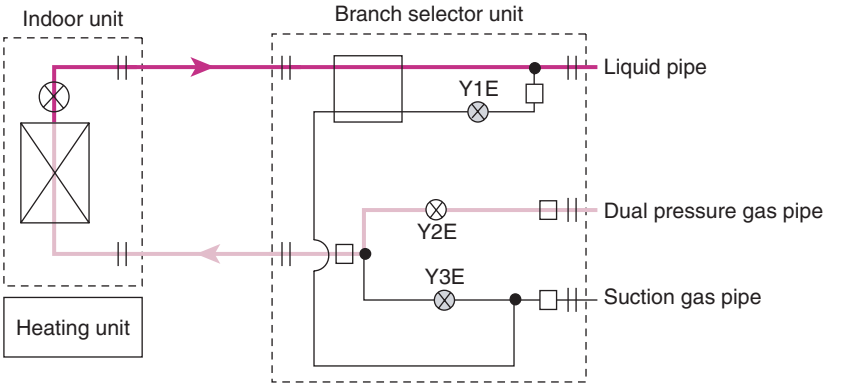


(3) To heating mode

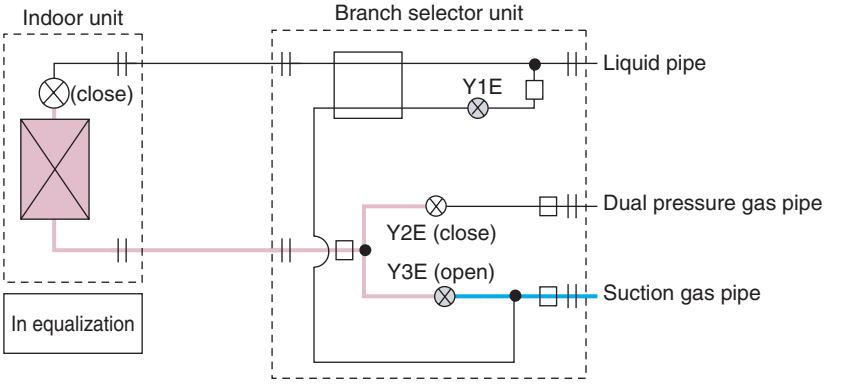


[While in cooling/heating mixed mode, single-room heating → cooling]
First, the electronic expansion valve of the indoor unit in heating operation will close, and the Y2E and Y3E electronic expansion valves of the branch selector unit will all close once.
Next, the Y3E electronic expansion valve will open little by little to perform pressure equalization.
Then the electronic expansion valve will fully open, and the electronic expansion valve of the indoor unit will open to activate the heating circuit.
The required switching time is approximately 6 minutes. (Field settings, however, can shorten the time from 6 minutes to 4 minutes.)

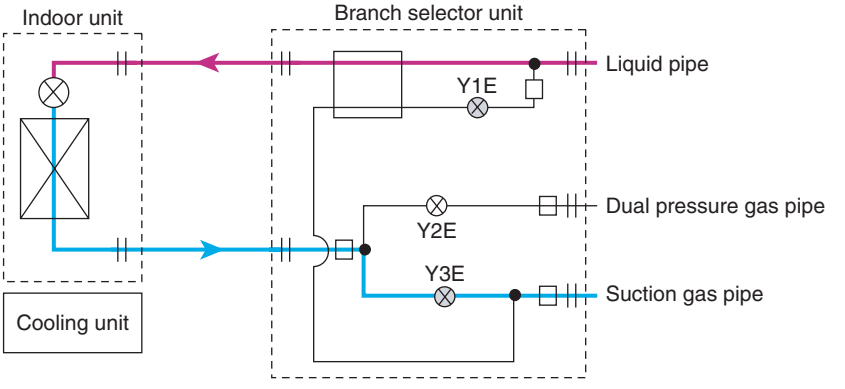
(1) In heating



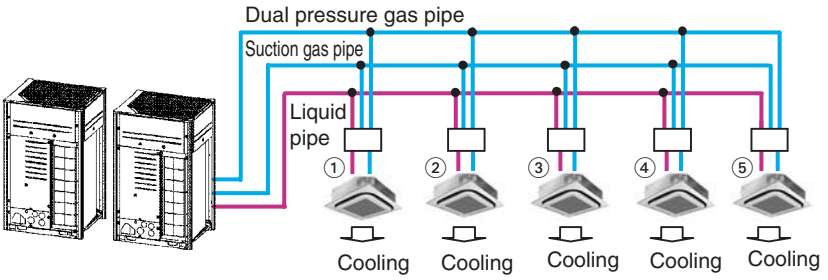
(2) In equalization



(3) To cooling

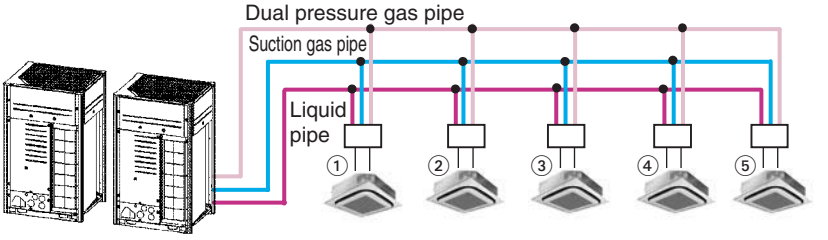


[While in all-room cooling operation → All-room cooling/heating simultaneous operation]



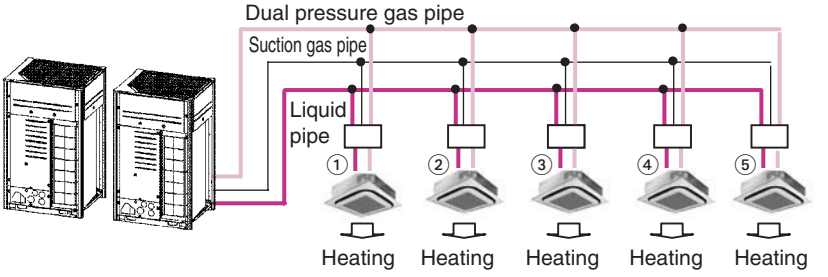
(1) All the indoor units in cooling operation
· Using the dual pressure gas pipe as a suction gas pipe.

(2) Pump-down residual operation



(3) Pre-startup control
· Switching between the electronic expansion valves of branch selector unit.
· Required switching time: 30 seconds (switching control time)
(While switching: The compressor stops operating.)

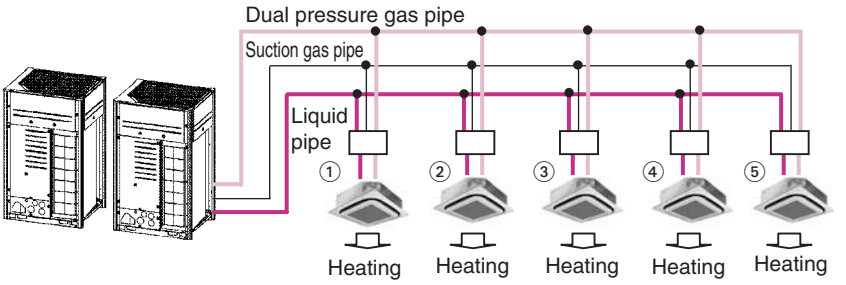
(4) Startup control
· Switching the dual pressure gas pipe from low pressure to high pressure.



(5) Into heating operation or cooling and heating simultaneous operation

Each indoor unit
· In warm air supply operation under cool air prevention control (for 3 to 5 minutes).

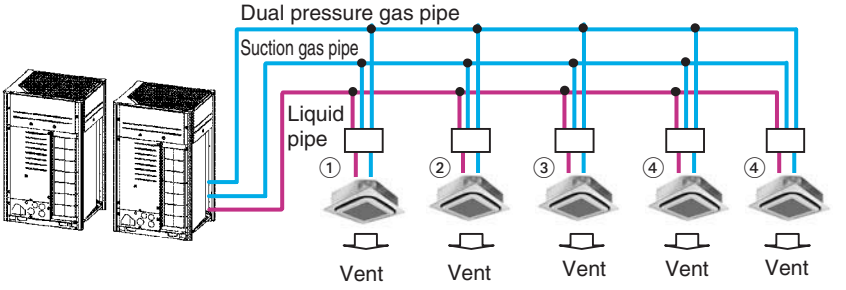
[While in all-room heating operation or cooling/heating simultaneous operation → All-room cooling]



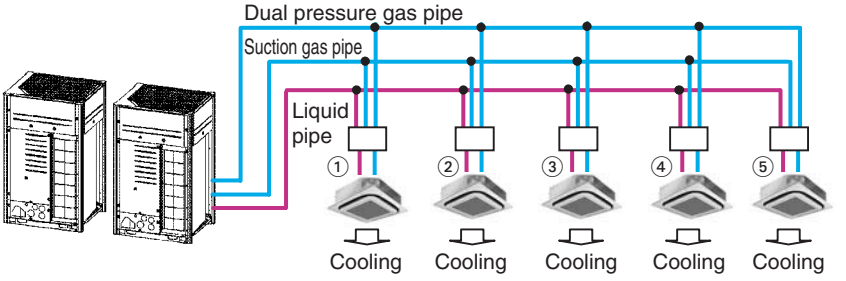
(1) In heating operation or cooling and heating simultaneous operation
· Using the dual pressure gas pipe as a suction gas pipe.

(2) Pump-down residual operation

(3) Pre-startup control
· Switching between the electronic expansion valves of branch selector unit.
· Required switching time: 2 to 4 minutes (switching control time)
(While switching: The compressor stops operating.)



(4) Startup control
· Switching the dual pressure gas pipe from low pressure to high pressure.



(5) Into all-unit cooling operation
· In cool air supply operation

8. Other Control

8.1 Backup Operation

If any of the compressors goes wrong, disable the relevant compressor or the relevant outdoor unit from operating, and then conduct emergency operation only with operational compressors or outdoor units.
"Emergency operation with remote controller reset" and "Emergency operation with outdoor unit PCB setting" are available.

Operating method / Applicable model	(1) Emergency operation with remote controller reset (Auto backup operation)	(2) Emergency operation with outdoor unit PCB setting (Manual backup operation)
RELQ144-240TATJU RELQ144-240TAYDU RELQ144-240TAYCU REYQ192-384TAYCU	Backup operation by outdoor unit	Backup operation by outdoor unit

(1) Emergency operation with remote controller reset
[Operating method]
Reset the remote controller. (Press the ON/OFF button for 4 seconds or more.)
[Details of operation]
Disable the defective outdoor unit from operating temporarily, and then only operate other outdoor units.
(On the system with 1 outdoor unit, this emergency operation is not available.)

(2) Emergency operation with outdoor unit PCB setting
[Setting method]
Make setting of the unit, "the operation of which is to be disabled", in field setting mode (setting mode 2).
[Details of operation]
Disable the defective outdoor unit from operating, and then only operate other outdoor units.
(On the system with 1 outdoor unit, this emergency operation is not available.)

8.2 Demand Operation

In order to save the power consumption, the capacity of outdoor unit is saved with control forcibly by using “Demand 1 Setting” or “Demand 2 Setting”.
To operate the unit with this mode, additional setting of “Continuous Demand Setting” or external input by external control adaptor for outdoor unit is required.

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

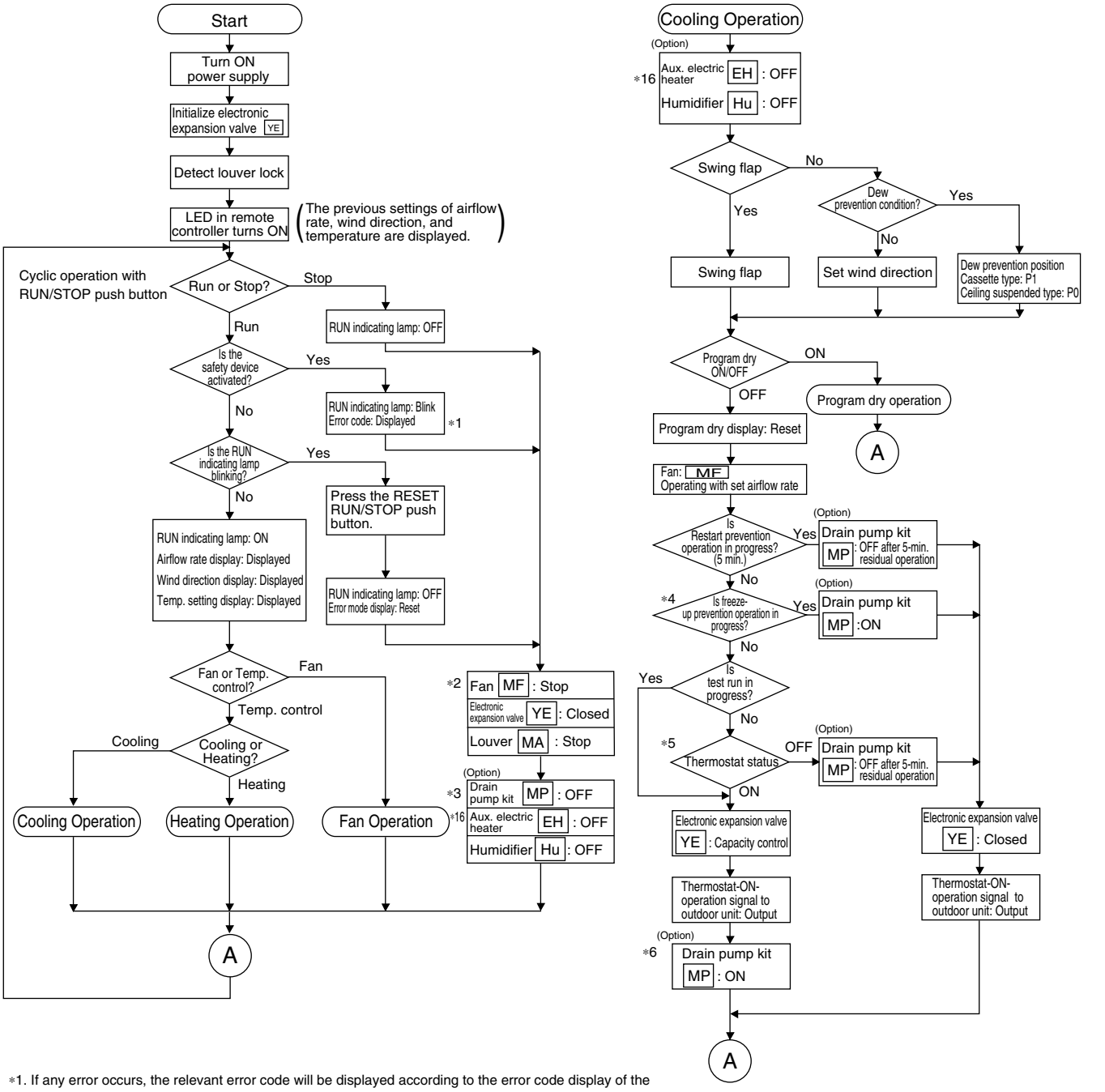
Refer to page 138 for the power consumption limitation details.

8.3 Heating Operation Prohibition

Heating operation is prohibited when the outdoor air temperature is above 24°C (75.2°F).

9. Outline of Control (Indoor Unit)

9.1 Operation Flowchart



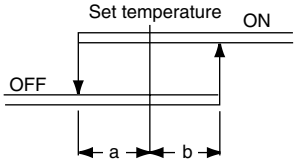
*1. If any error occurs, the relevant error code will be displayed according to the error code display of the remote controller.

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

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

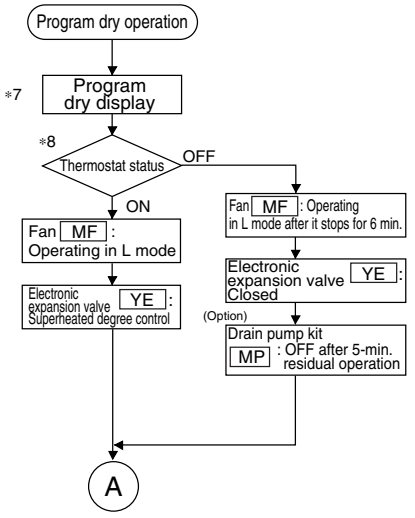
*4. If the evaporator inlet temperature is kept at not more than –5°C (23˚F) for a period of cumulative 10 min. or not more than –1°C (30.2˚F) for a cumulative period of 40 min., freeze-up prevention operation will be conducted. If the evaporator inlet temperature is kept at not less than 7°C (44.6˚F) for a consecutive period of 10 min., the freeze-up prevention operation will be reset.

*5. Thermostat status



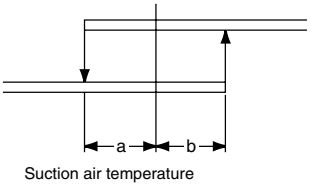
a = b = 1˚C (1.8˚F) or 0.5˚C (0.9˚F)
The values a and b depend on the field setting 12(22)-2.

*6. The FXFQ series have the drain pump as standard equipment.

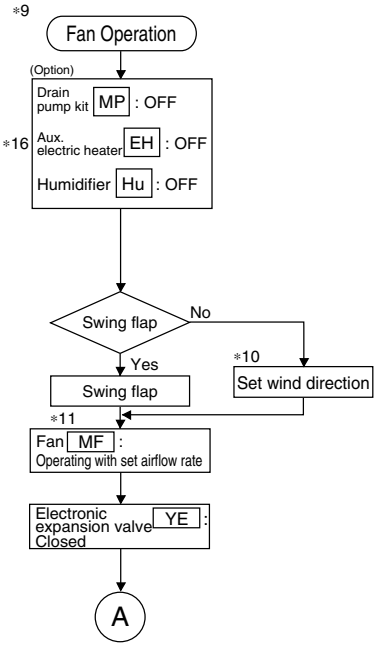


∗7. Program dry display
No set temperature and airflow rate of the remote controller are displayed.

∗8. Thermostat status
Set temperature when operating the program dry mechanism.



Suction air temperature

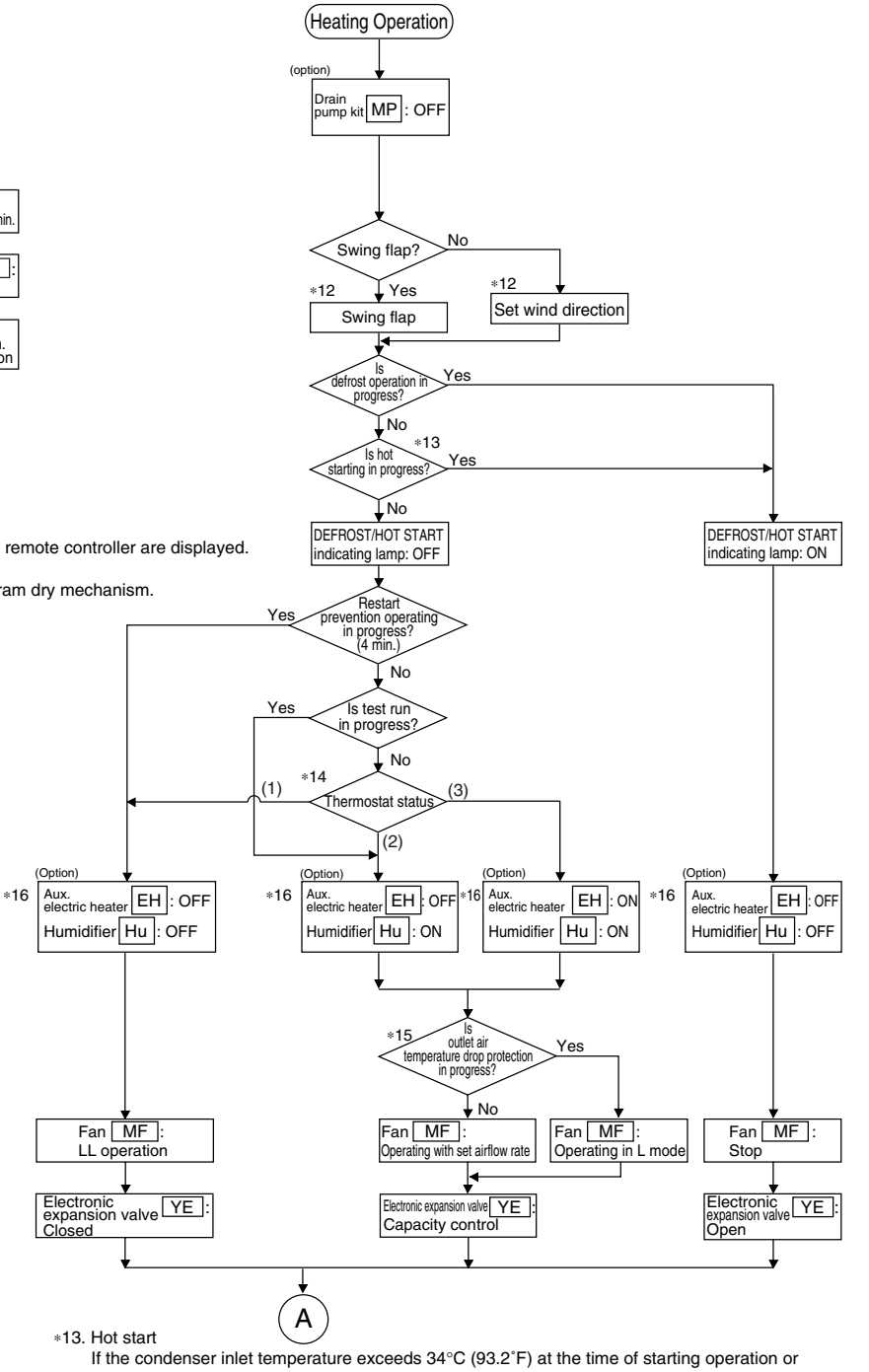


∗9. Fan operation
By setting the remote controller to Fan, the fan will operate with thermostat OFF in set temperature control operation mode.

∗10. Set wind direction
According to wind direction instruction from the remote controller, the wind direction is set to 100% horizontal while in heating operation.

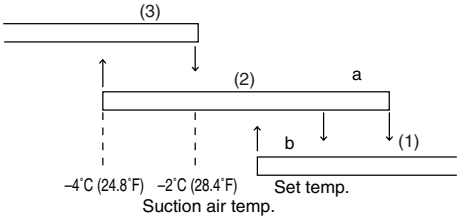
∗11. Fan
According to fan speed instruction from the remote controller, the fan is put into operation in LL mode while in heating operation.

∗12. Wind direction
When the heating thermostat turns OFF, the wind direction will be set to 100% horizontal.



∗13. Hot start
If the condenser inlet temperature exceeds 34°C (93.2˚F) at the time of starting operation or after the completion of defrost operation, or until 3 minutes pass or Tc is above 52°C (125.6˚F), hot starting will be conducted.

∗14. Thermostat status



Suction air temp.

∗15. Outlet air temperature drop protection
When the set temperature is below 24°C (75.2°F) or the electronic expansion valve opening is small, the protection will be activated.

∗16. The control of auxiliary electric heater connected to FXTQ-TA models differ from this flowchart. For details, refer to "Heater Control (FXTQ-TA Models)" on page 99.

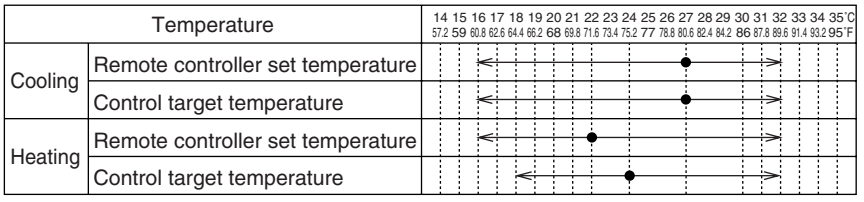
9.2 Set Temperature and Control Temperature

9.2.1 Without Optional Infrared Presence/Floor Sensor

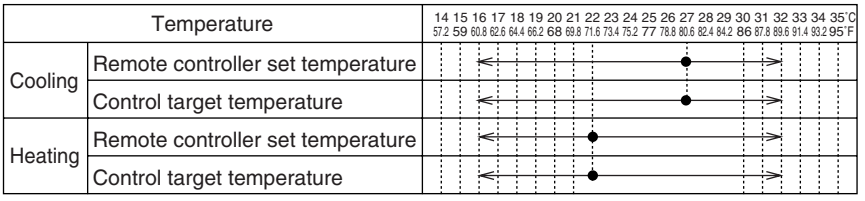
The relationship between remote controller set temperature and control target temperature is described below.

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

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



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



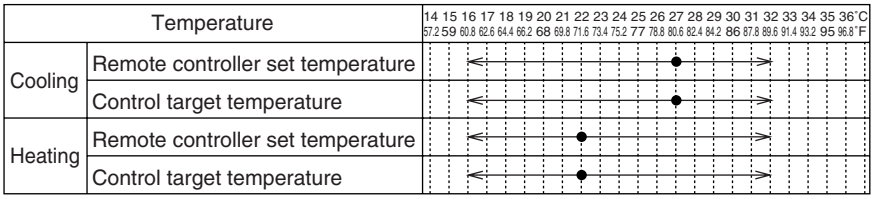
Examples are given to illustrate a control target temperature that satisfies the remote controller set temperature.

9.2.2 With Optional Infrared Presence/Floor Sensor

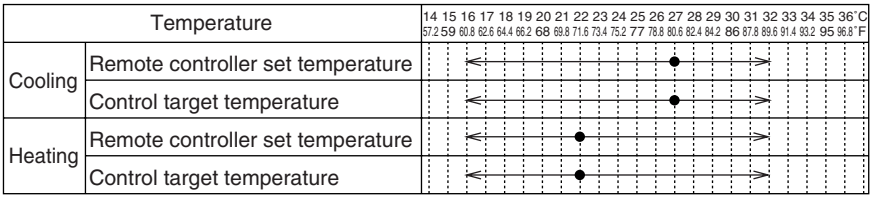
The relationship between remote controller set temperature and control target temperature is described below.

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

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



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



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

Regarding control target temperature

When using the infrared presence/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 presence/floor sensor.
It is difficult to use only suction air temperature control for underfoot air conditioning.

9.3 Remote Controller Thermistor

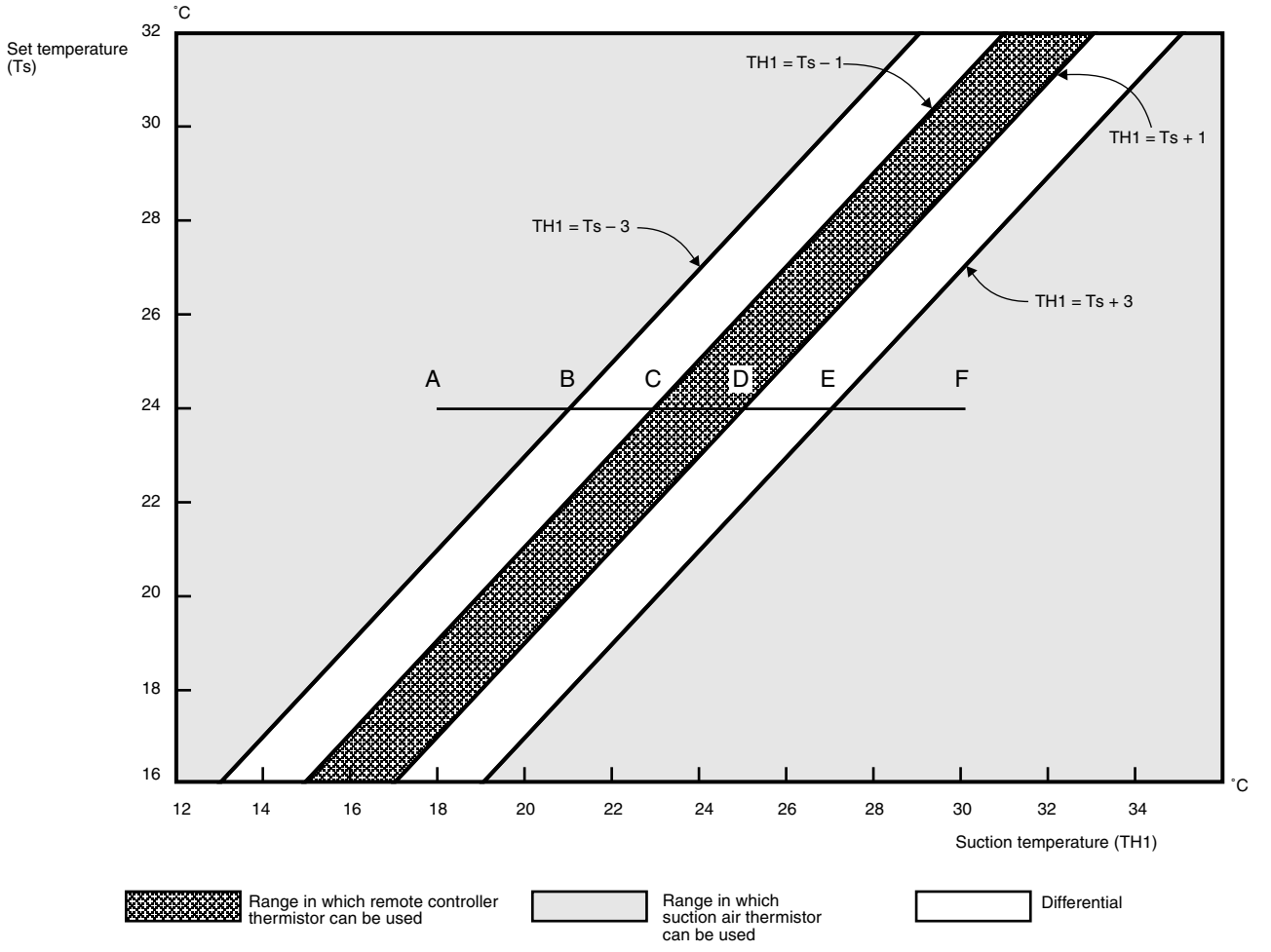
Temperature is controlled by both the remote controller thermistor and suction air thermistor for the indoor unit. (This is however limited to when the field setting for the remote controller thermistor is set to Use.)

Note: When outdoor air is introduced to the air-conditioner with mixed into indoor air, the room temperature may fail to be set temperature, since TS and TH1 do not enter the area of “use range of remote control thermistor.” In such a case, put the remote sensor (optional accessory) in your room, and use it with setting “do not use remote control thermostat.”

∗ FXTQ-TA models do not have this control because they do not have suction air thermistor. The thermistor is selectable manually when remote sensor (optional accessory) is installed.

Cooling

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



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

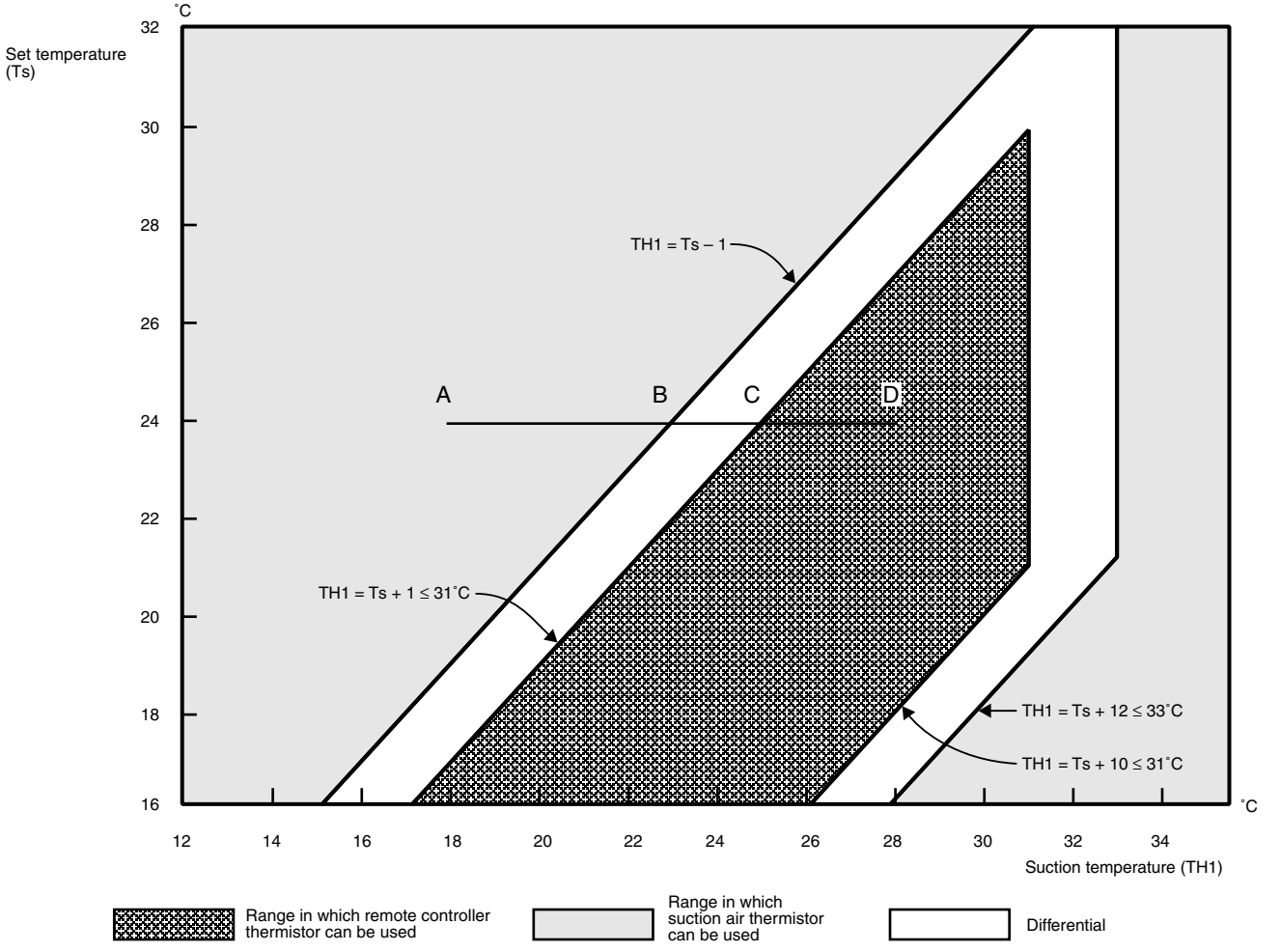
(This example also assumes there are several other air conditioners, and the suction temperature changes even when the thermostat is off.)
Suction air thermistor is used for temperatures from 18°C (64°F) to 23°C (73°F) (A → C).
Remote controller thermistor is used for temperatures from 23°C (73°F) to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

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

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

Heating

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



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

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

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

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

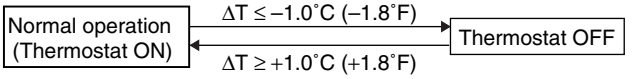
9.4 Thermostat Control

9.4.1 Without Optional Infrared Presence/Floor Sensor

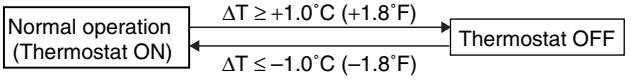
Whether the thermostat is turned on or off is determined by the difference between the remote controller set temperature and the actual detected room temperature (∗1).

Normal operation

· Cooling operation

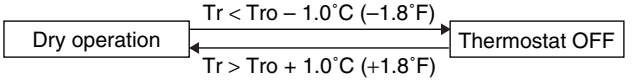


· Heating operation

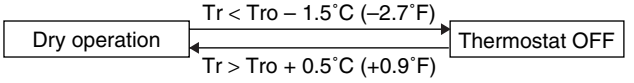


Dry operation

· When Tro < 24.5°C (76.1°F)

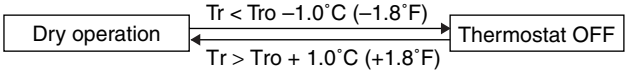


· When Tro ≥ 24.5°C (76.1°F)



FXTQ-TA only

If the field setting 14(24)-5 is set to **02**, Tro will be the same as the cooling set temperature at the time of starting dry operation.



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

∗2: Description of symbols

ΔT : Room temperature – Remote controller set temperature

Tro : Room temperature at the start of dry operation

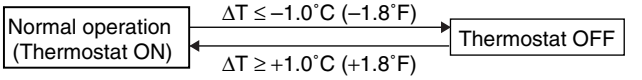
Tr : Room temperature

9.4.2 With Optional Infrared Presence/Floor Sensor

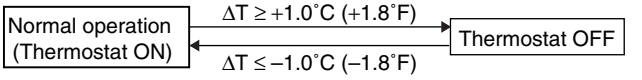
Whether the thermostat is turned on or off is determined by the difference between the remote controller set temperature and the detected temperature around people.

Normal operation

· Cooling operation

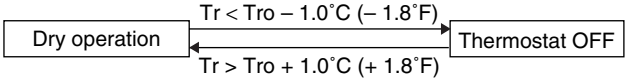


· Heating operation

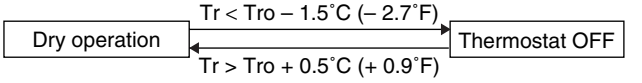


Dry operation

· When Tro ≤ 24.5°C (76.1°F)



· When Tro > 24.5°C (76.1°F)



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

Control range of temperature around people

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

- Heating operation
  - · When the floor temperature is higher than suction air temperature (R1T), R1T will be treated as the control target temperature in operation.
  - · When the temperature around people is 33°C (91.4°F) or higher, R1T will be treated as the control temperature for operation.
- Cooling operation
  - · When the floor temperature is lower than suction air temperature (R1T), R1T will be treated as the control target temperature for operation.
  - · When the temperature around people is 15°C (59°F) or lower, R1T will be treated as the control temperature for operation.

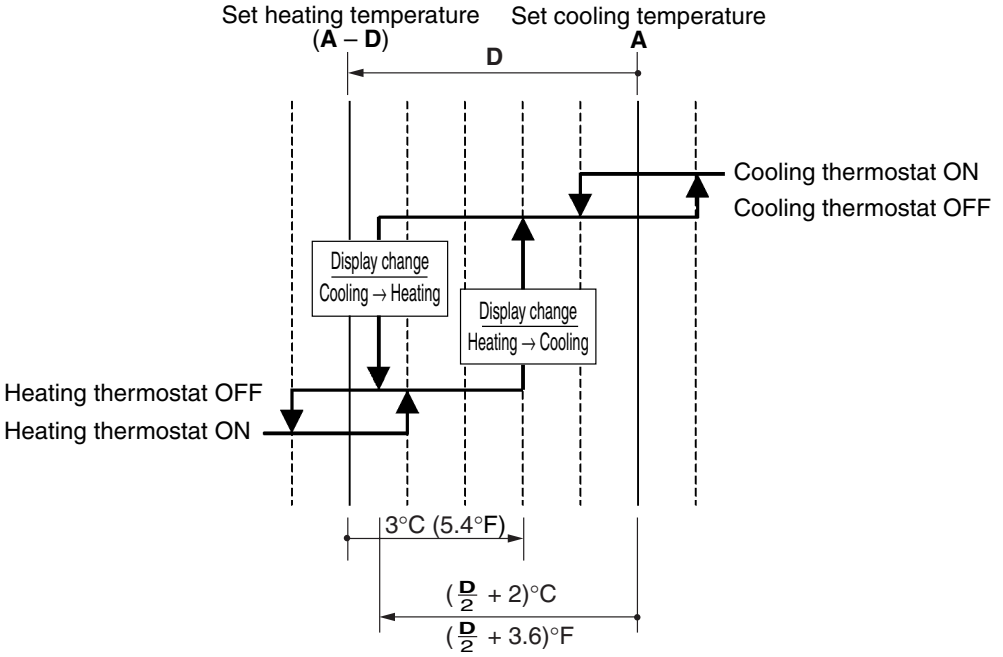
9.4.3 Thermostat Control with Operation Mode Set to "AUTO"

When the operation mode is set to AUTO on the remote controller, the system will conduct the temperature control shown below.

Furthermore, setting changes of the differential value (**D**) can be made referring to page 106 and later (Field Settings from Remote Controller).

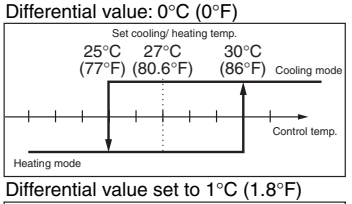
Mode No.	First code No.	Contents of setting	Second code No.							
			01	02	03	04	05	06	07	08
12 (22)	4	Differential value while in "AUTO" operation mode	0°C 0°F	1°C 1.8°F	2°C 3.6°F	3°C 5.4°F	4°C 7.2°F	5°C 9.0°F	6°C 10.8°F	7°C 12.6°F

: Factory setting

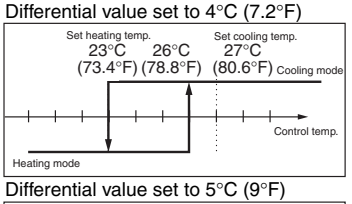


(Ex.) When automatic cooling temperature is set to 27°C (80.6°F):

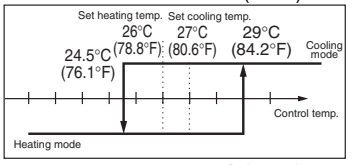
Differential value: 0°C (0°F)



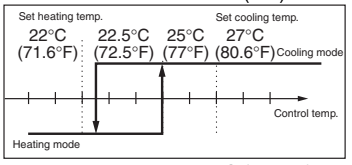
Differential value set to 4°C (7.2°F)



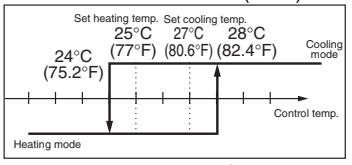
Differential value set to 1°C (1.8°F)



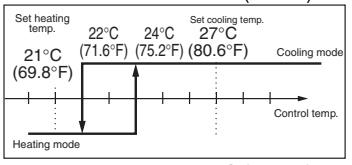
Differential value set to 5°C (9°F)



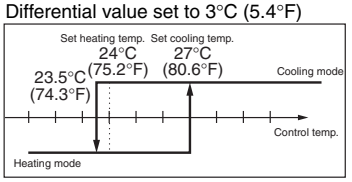
Differential value set to 2°C (3.6°F)



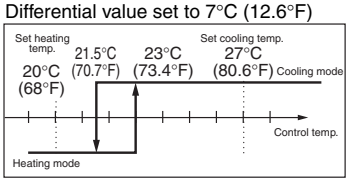
Differential value set to 6°C (10.8°F)



Differential value set to 3°C (5.4°F)

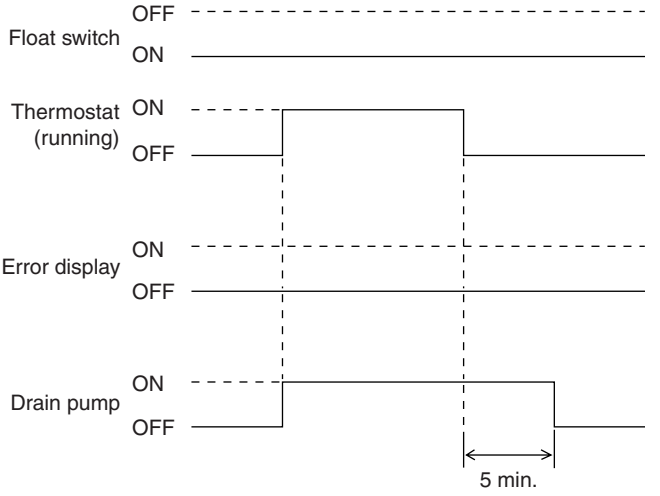


Differential value set to 7°C (12.6°F)



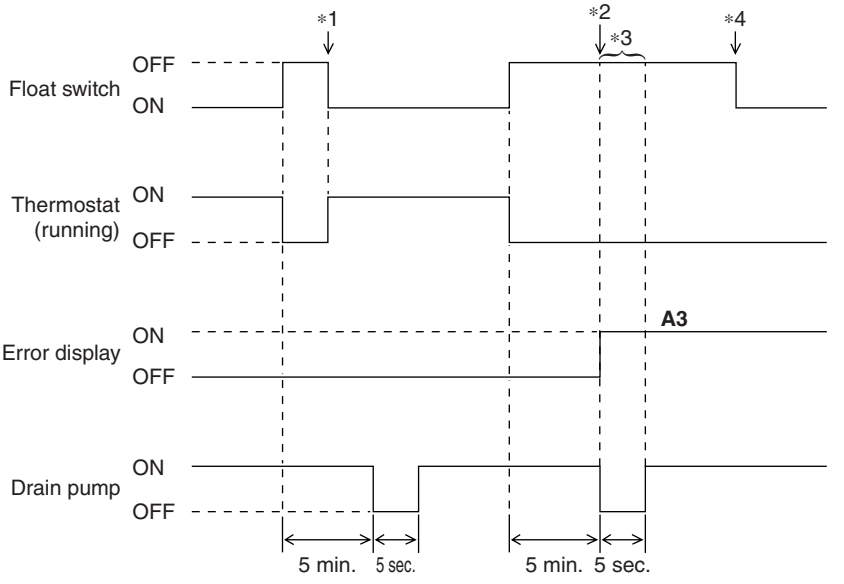
9.5 Drain Pump Control

9.5.1 Normal Operation



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

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



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

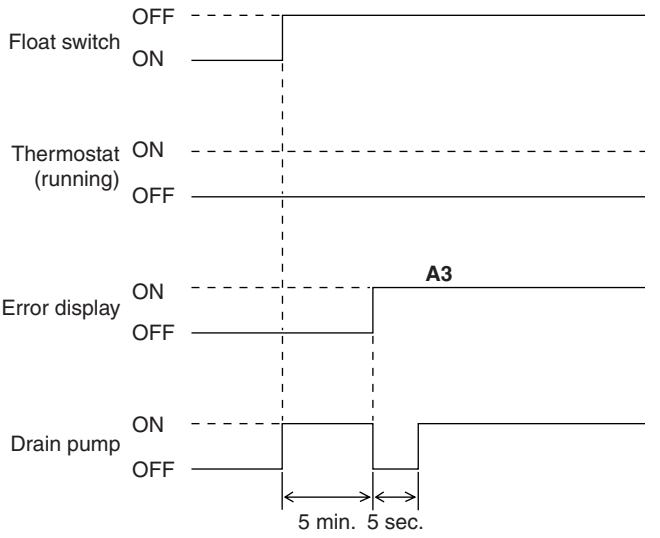
∗1. If the float switch turns ON again during the residual operation of the drain pump, cooling operation also turns on again (thermostat ON).

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

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

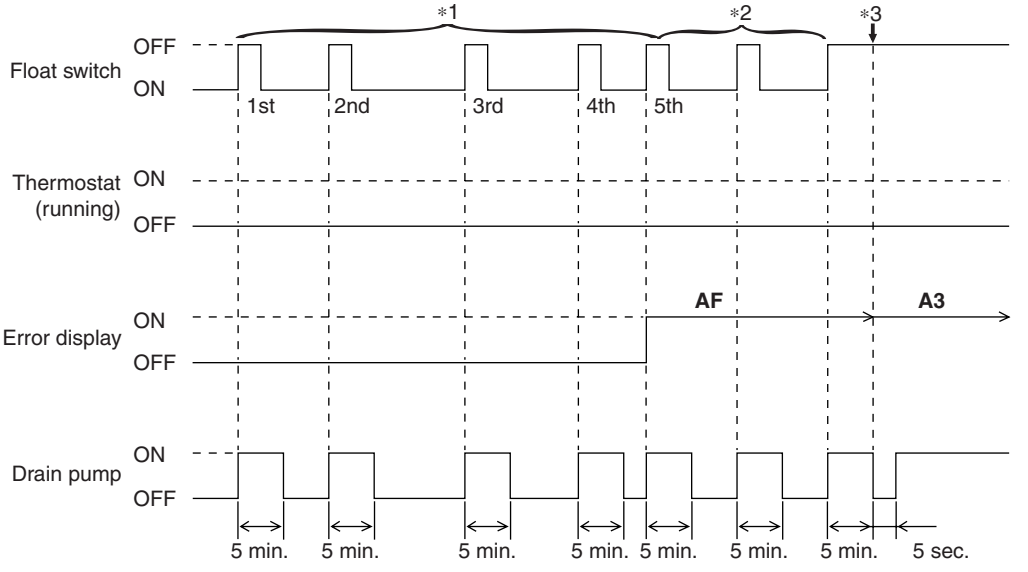
∗4. After **A3** is displayed and the unit comes to an abnormal stop, the thermostat will remain OFF even if the float switch turns ON again.

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



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

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



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

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

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

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

9.6 Control of Electronic Expansion Valve

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

• Superheated degree control in cooling operation

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

SH = Tg – Tl
SH: Evaporator outlet superheated degree
Tg: Indoor unit gas pipe temperature (R3T)
Tl: Indoor unit liquid pipe temperature (R2T)

SHS (Target SH value)
SHS: Target superheated degree

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

• Subcooling degree control in heating operation

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

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

SCS (Target SC value)
SCS: Target subcooling degree

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

9.7 Freeze-up Prevention

Freeze-up Prevention by Off Cycle (Indoor Unit)

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

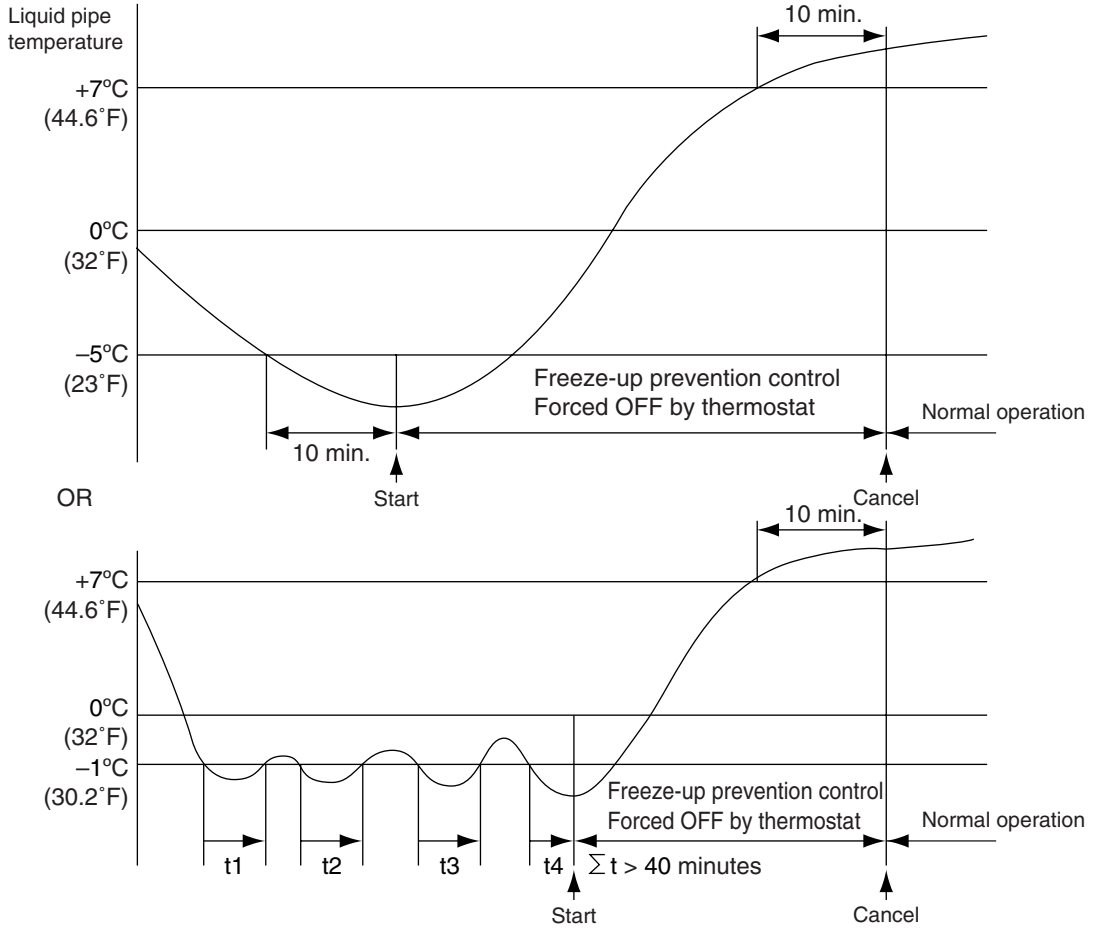
When freeze-up prevention is activated, the electronic expansion valve is closed, the drain pump turns on and the airflow rate is fixed to L tap. When the following conditions for cancelling are satisfied, it will reset.

Conditions for starting:

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

Condition for cancelling:

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



The idea of freeze-up prevention control

Difficult to carry out freeze-up prevention operation

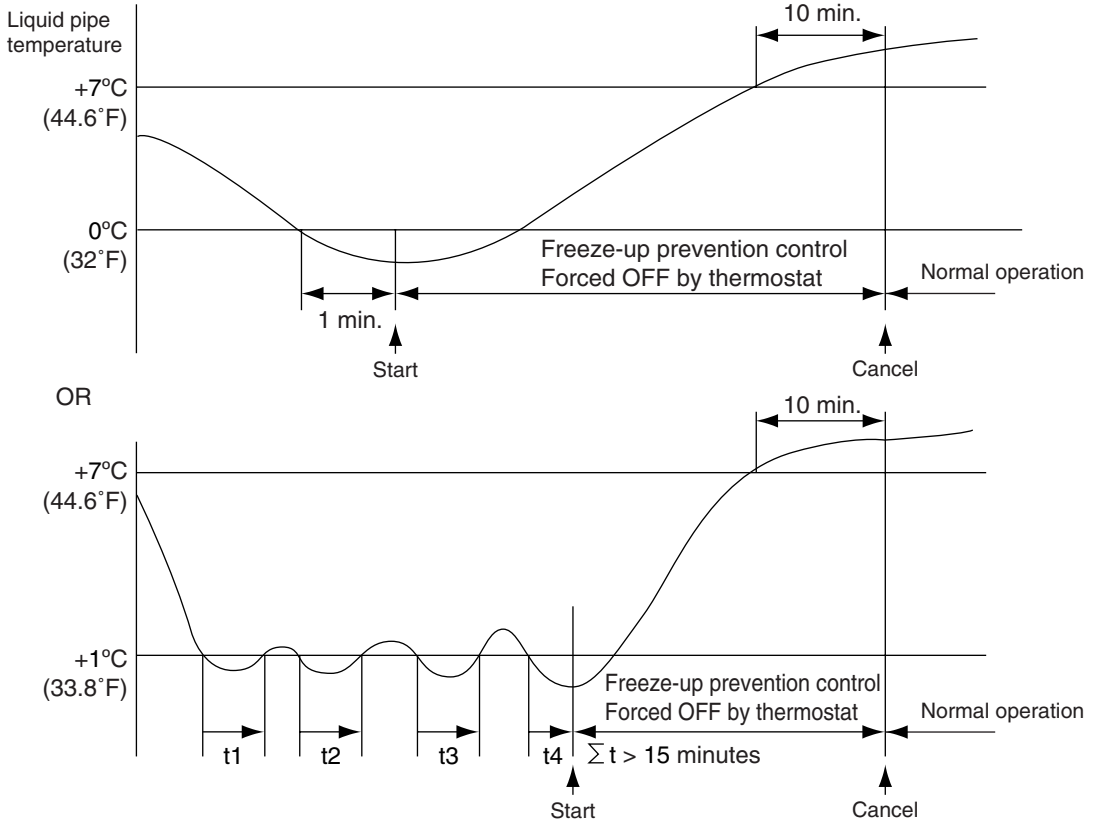
· For comfort, suppression of frequent thermostat ON/OFF is necessary.

· Suppressing the switching frequency of the compressor is required to ensure reliability.

After freeze-up prevention operation is carried out, the compressor can be defrosted properly.

· Water leakage prevention must be effective.

Note: When the indoor unit is FXFQ, FXZQ or FXUQ, if the air outlet is set as dual-directional or tri-directional, the starting conditions will be changed as follows.
Liquid pipe temperature ≤ 1°C (33.8°F) (for total of 15 minutes)
or
Liquid pipe temperature ≤ 0°C (32°F) (for 1 minute continuously)
During freeze-up prevention operation, the airflow rate is fixed to LL.
(The cancelling conditions are same as the standard.)



9.8 List of Swing Flap Operations

Swing flaps operate as shown in table below.

			Fan	Flap			
				FXFQ	FXEQ	FXHQ	FXAQ
Heating	Hot start from defrost operation	Swing	OFF	Horizontal	Horizontal	Horizontal	Horizontal
		Airflow direction set	OFF	Horizontal	Horizontal	Horizontal	Horizontal
	Defrost operation	Swing	OFF	Horizontal	Horizontal	Horizontal	Horizontal
		Airflow direction set	OFF	Horizontal	Horizontal	Horizontal	Horizontal
	Thermostat OFF	Swing	LL	Horizontal	Horizontal	Horizontal	Horizontal
		Airflow direction set	LL	Horizontal	Horizontal	Horizontal	Horizontal
	Hot start from thermostat OFF mode (for prevention of cold air)	Swing	LL	Horizontal	Horizontal	Horizontal	Horizontal
		Airflow direction set	LL	Horizontal	Horizontal	Horizontal	Horizontal
	Stop	Swing	OFF	Horizontal	Horizontal	Horizontal	Totally closed
		Airflow direction set	OFF	Horizontal	Horizontal	Horizontal	Totally closed
Cooling	Thermostat ON in program dry	Swing	L (∗1)	Swing	Swing	Swing	Swing
		Airflow direction set	L (∗1)	Set	Set	Set	Set
	Thermostat OFF in program dry	Swing	OFF or L	Swing	Swing	Swing	Swing
		Airflow direction set		Horizontal or Set	Set	Set	Set
	Thermostat OFF in cooling	Swing	Set	Swing	Swing	Swing	Swing
		Airflow direction set	Set	Set	Set	Set	Set
	Stop	Swing	OFF	Horizontal	Horizontal	Horizontal	Totally closed
		Airflow direction set	OFF	Horizontal	Horizontal	Horizontal	Totally closed
	Microcomputer control (including cooling operation)	Swing	L	Swing	Swing	Swing	Swing
		Airflow direction set	L	Set	Set	Set	Set

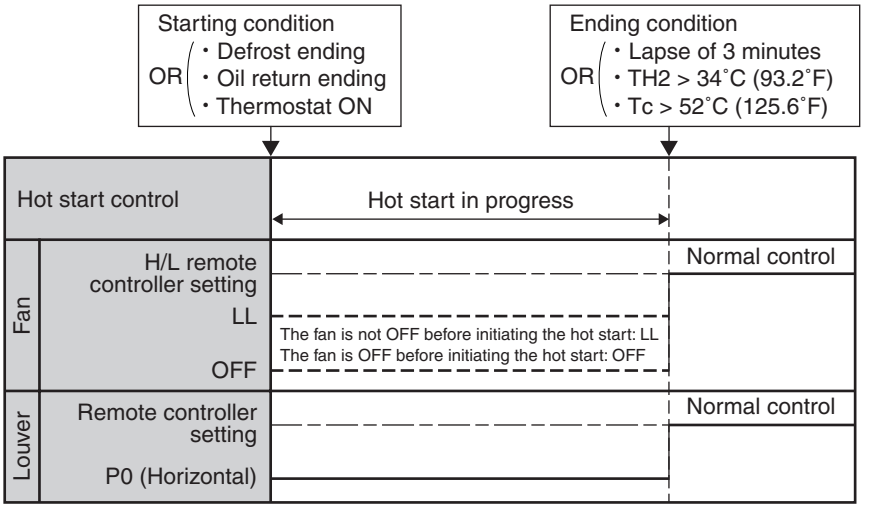
Note: ∗1. L or LL only on FXFQ models

9.9 Hot Start Control (In Heating Only)

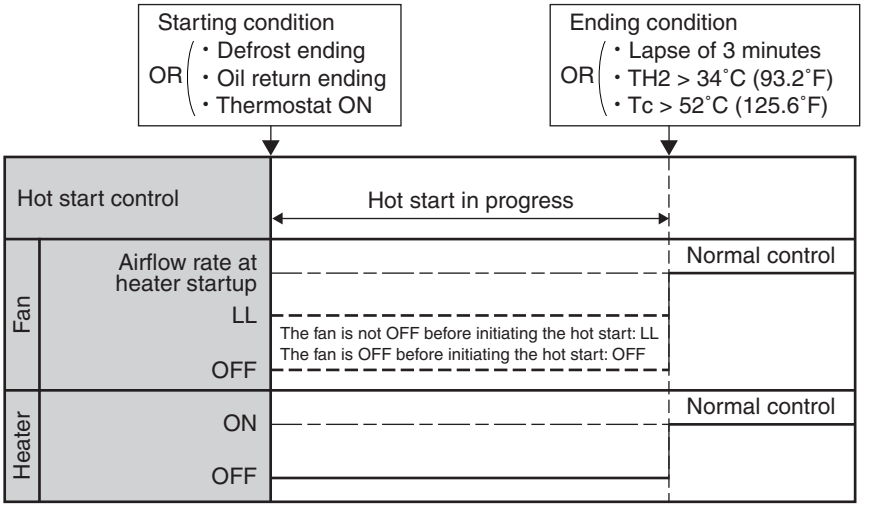
At startup with thermostat ON or after the completion of defrosting in heating operation, the indoor fan is controlled to prevent cold air from blasting out and ensure startup capacity.

TH2: Temperature detected with the gas thermistor

Tc : High pressure equivalent saturated temperature

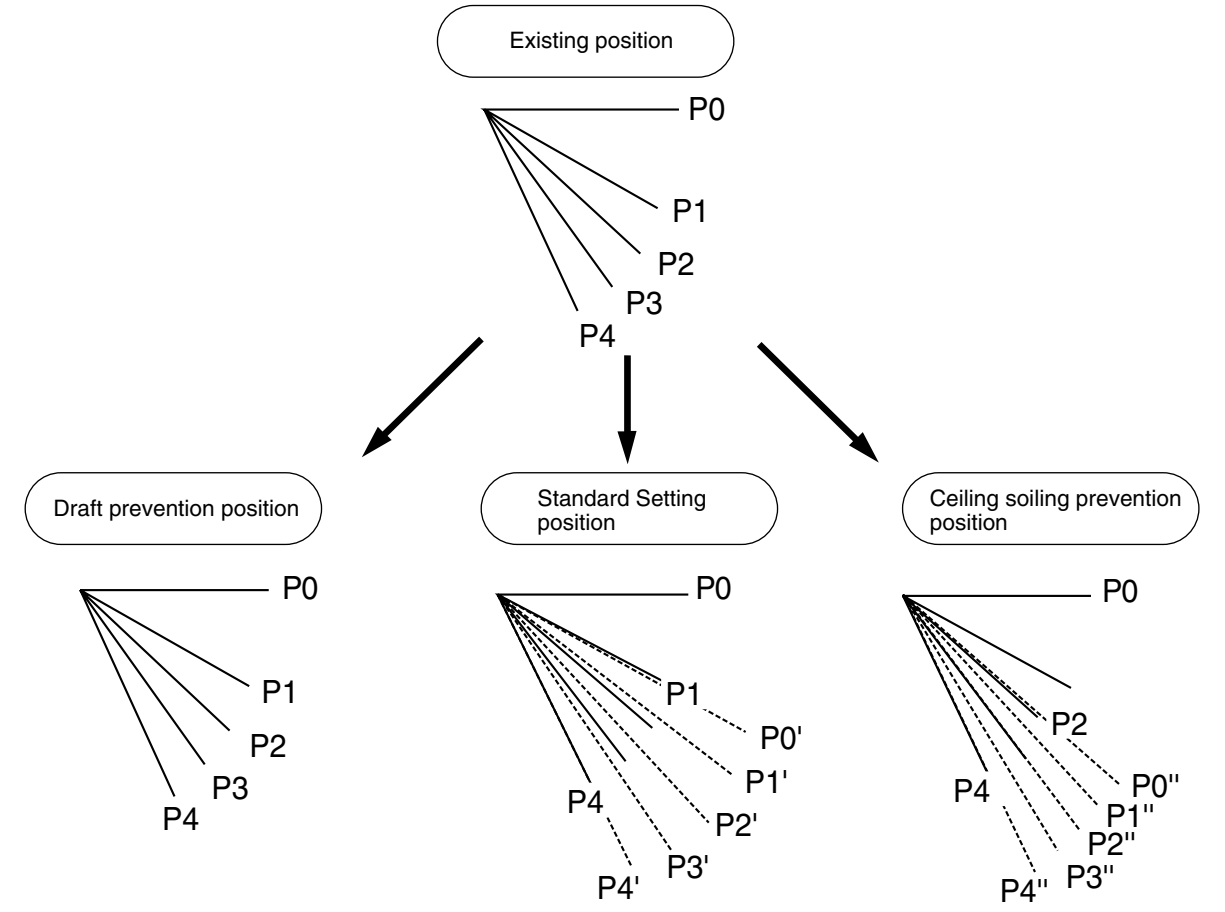


■ **When the heater of FXTQ is to be used**



9.10 Louver Control for Preventing Ceiling Dirt

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



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

Factory setting
FXFQ models: draft prevention position
FXZQ, FXEQ models: standard position

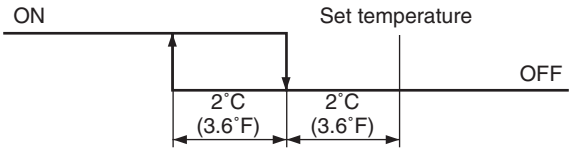
9.11 Heater Control (Except FXTQ-TA Models)

Note: Optional PCB KRP1B ... is required.

The heater control is conducted in the following manner.

Normal control

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

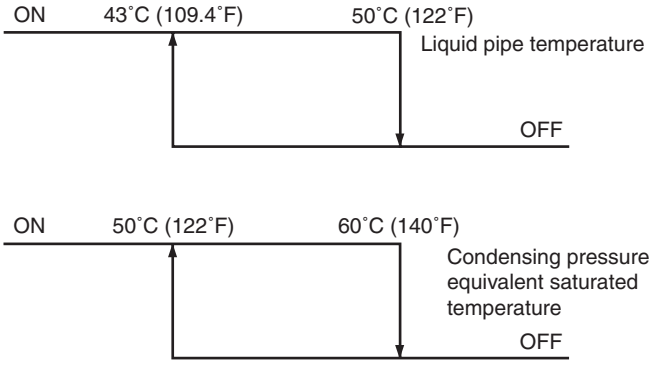


Overload control

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

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

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



Fan residual operation

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

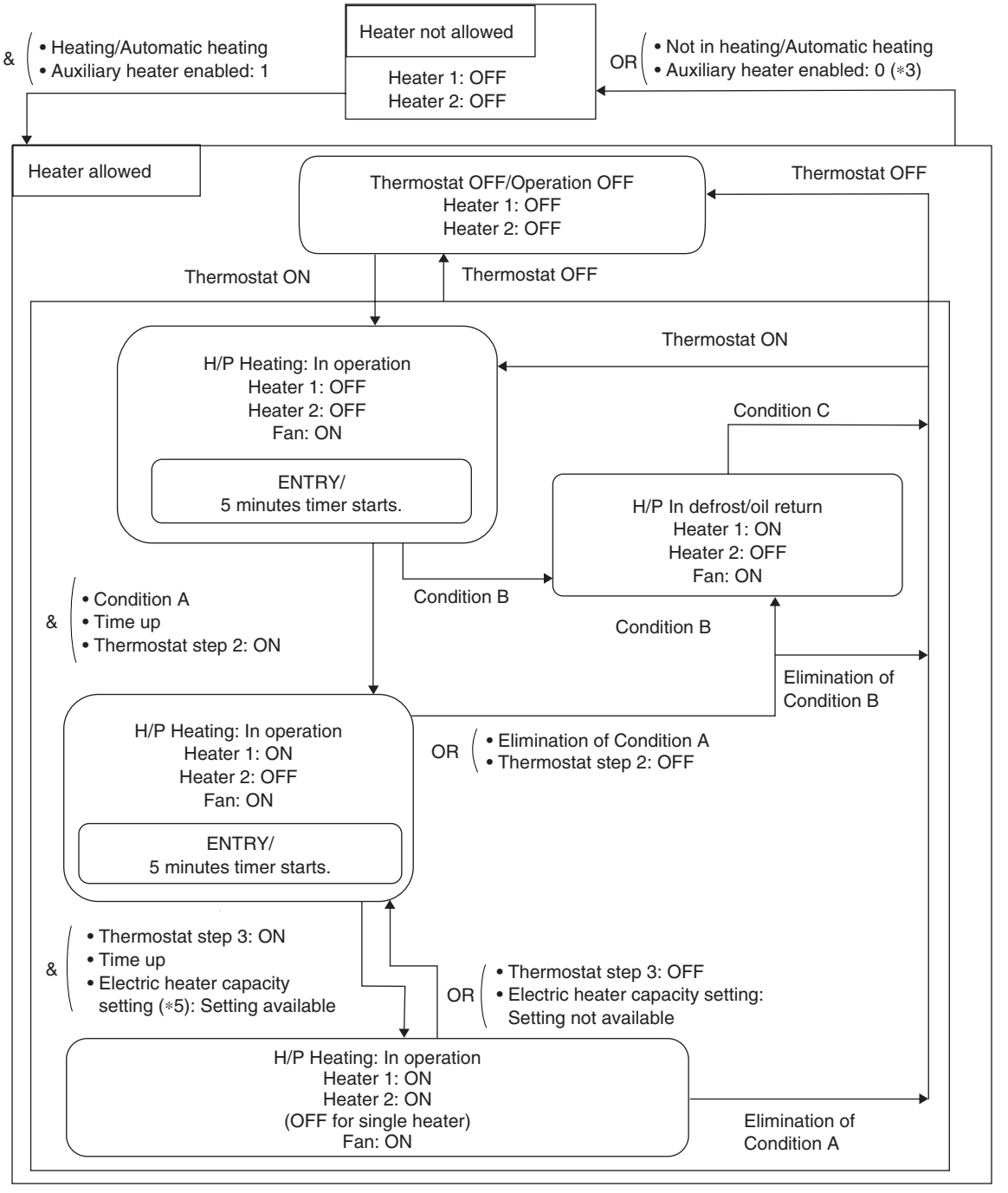
Residual operation time: 100 seconds on ceiling suspended type or 60 seconds on other types

9.12 Heater Control (FXTQ-TA Models)

Note: Optional heater kit HKS... is required.
For FXTQ models, heater ON/OFF output from wiring adaptor interlocks with the operation of heater kit HKS….(When the heater 1 turns ON/OFF, heater output of wiring adaptor turns ON/OFF.) Fan residual operation also interlocks with the fan residual operation of heater kit HKS…. The residual time will be 90 seconds. (Refer to Fan Control (Heater Residual) (FXTQ-TA Models) on page 103.)

9.12.1 Auxiliary Electric Heater Control

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



Condition A

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

)

Condition B

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

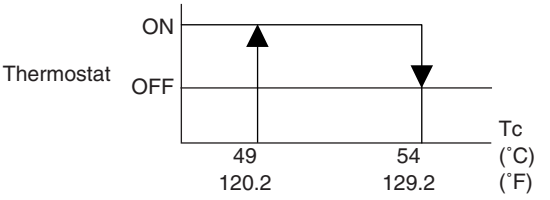
)

Condition C

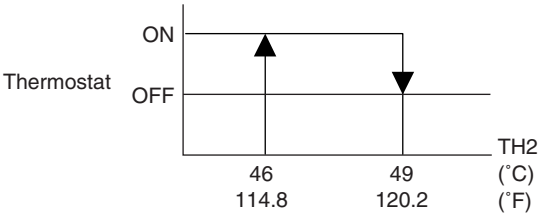
OR (
- Not during defrost/oil return
- Fan motor system error
- Heater ON permission (Defrost/oil return): 0 (∗4)

)

Note: ∗1: High pressure condition



∗2: Liquid pipe temperature condition



∗3. Auxiliary heater enabled

1: & (• Electric heater setting (Field setting 11(21)-3.): 2, 4, 6, 8, 10, 12 (∗6) • Electric heater capacity setting ≠ 01)

0: Other than the above

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

1: Electric heater setting (Field setting 11(21)-3.): 8, 10, 12 (∗6)

0: Electric heater setting (Field setting 11(21)-3.): 2, 4, 6 (∗6)

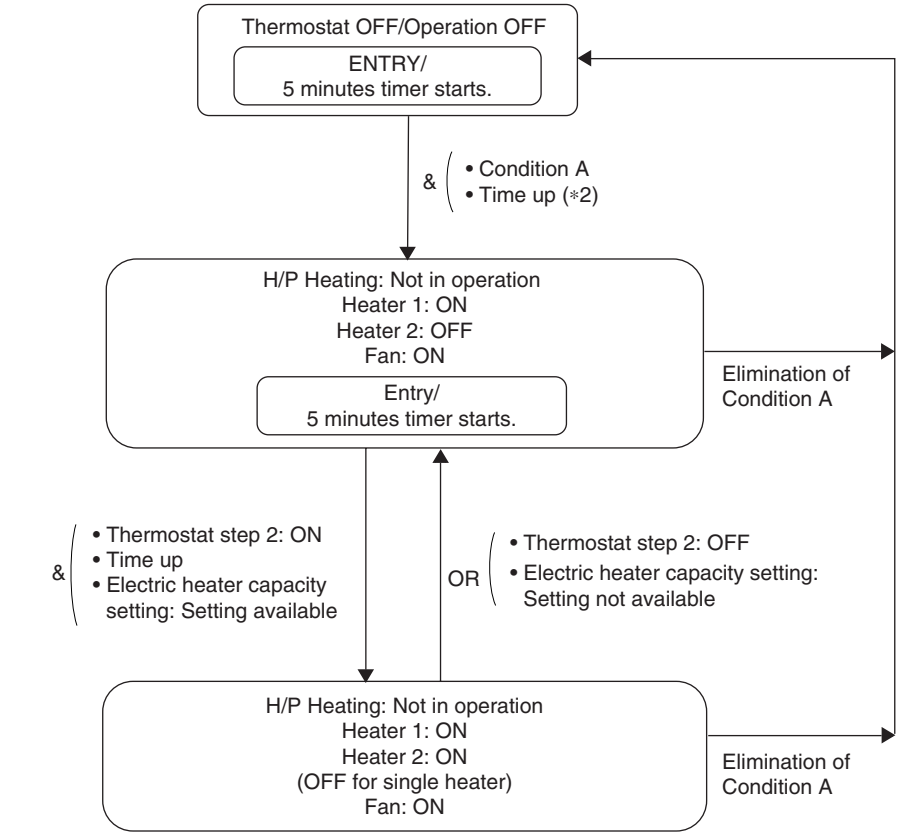
∗5. Field setting 11(21)-5. Refer to page 117.

∗6. Refer to page 117.

9.12.2 Heat Pump Lockout Control

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

When the hot-water heating signal is received from the outdoor unit PCB, heating operation is performed only with the electric heater as manual backup operation. The ON/OFF conditions for the electric heater are shown below.



Condition A

&
- Heating or automatic heating mode
- Thermostat step 1: ON
- No fan motor system error
- Hot-water heater: 1 (ON)
- Heater backup prohibiting conditions (∗1) not met (Elimination of Condition B)

Condition B: Heater backup prohibiting conditions (∗1)

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

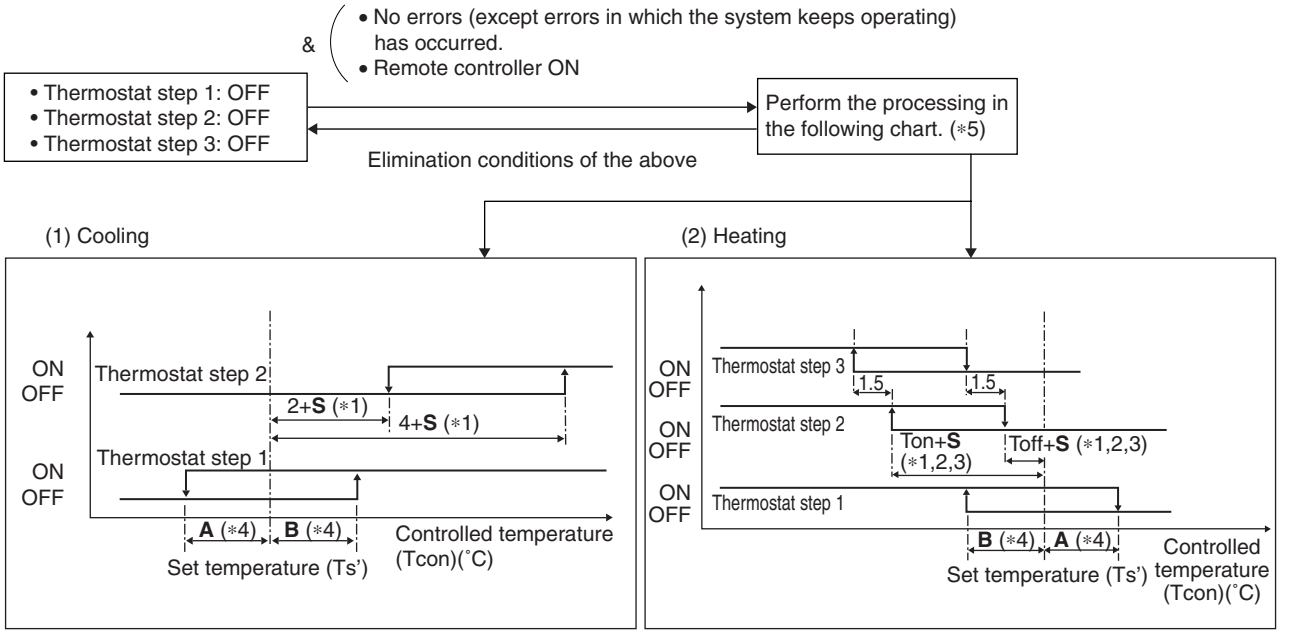
Note:
∗1. The heater backup prohibiting conditions are prioritized. Even when the heater ON conditions are met, the heater is turned OFF when the prohibiting conditions are met.
∗2. When the remote controller is ON, Time-up will be set to the initial value.

9.13 3 Step Thermostat Processing (FXTQ-TA Models)

Outline

The thermostat ON/OFF for the indoor unit is controlled in accordance with [Thermostat Step 1].
The heater ON/OFF operation during heating is controlled as follows.
Thermostat step 2, 3: Auxiliary electric heater control
Thermostat step 1, 2: Heat pump lockout control
For more details of the heater, refer to Heater Control (FXTQ-TA Models) on page 99.

Detail



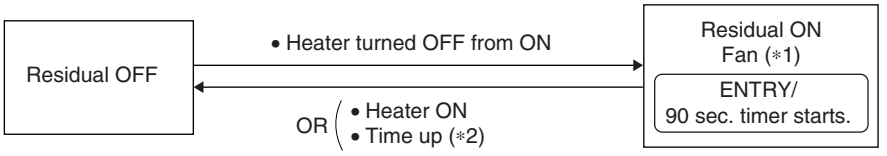
Note:
∗1. **S** value varies automatically based on the room temperature trend.
∗2. Ton + **S** > –**B** (°C), Toff + **S** < **A** (°C)
∗3. For parameters, refer to page 116.
∗4. **A** and **B** values vary automatically based on the field setting 12(22)-2.
∗5. If, directly after a change in conditions, it is such that the thermostat could be either ON or OFF (controlled temperature is within ranges **A** and **B**), the thermostat will be switched to ON.

9.14 Fan Control (Heater Residual) (FXTQ-TA Models)

Outline

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

Detail

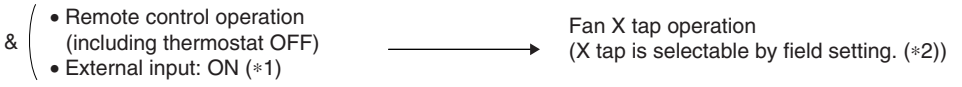


∗1. When the heater is ON, the airflow rate of the fan will be whichever is the largest between the CFM dictated by the heater's own capacity, or the fan tap CFM determined by other controls.
∗2. Fan residual operation will continue, even if the indoor unit is turned off with the remote controller operation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

9.15 Interlocked with External Equipment (FXTQ-TA Models)

9.15.1 Air Purifier (UV lamp)

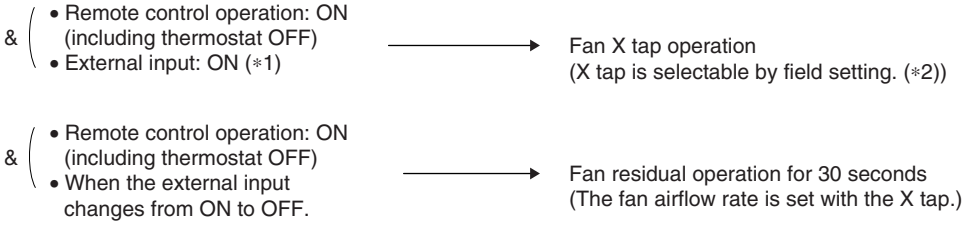
When an air purifier is connected onsite, the fan is operated with the airflow rate set of the remote controller or with the H tap.



∗1. External input ON is an input signal to the X1M-AIR CLEANER terminal on the PCB.
∗2. Field setting 14(24)-4. Refer to page 123.

9.15.2 Humidifier

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



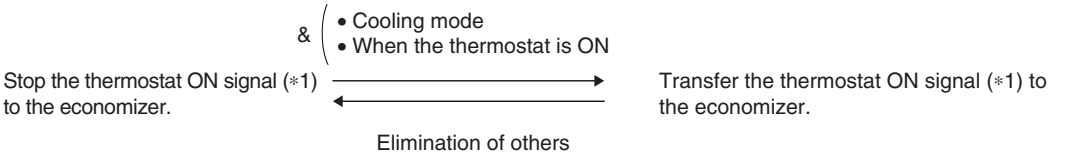
∗1. External input ON is an input signal to the X1M-HUMIDIFIER terminal on the PCB.
∗2. Field setting 14(24)-4. Refer to page 123.

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

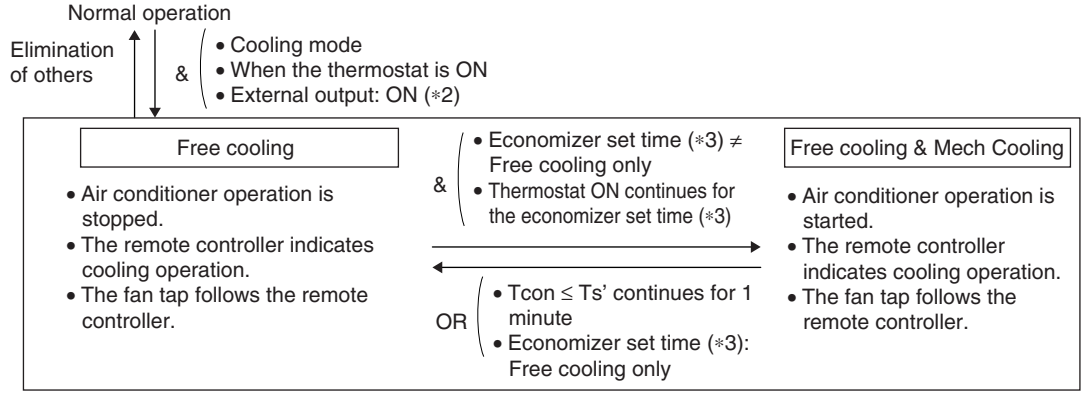
9.15.3 Economizer

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

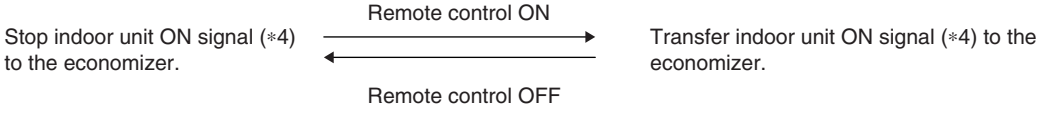
■ **Thermostat ON signal**



■ **Operation**



■ **Indoor unit ON signal**



∗1. Thermostat ON signal: A signal to turn ON the indoor unit thermostat and allow the economizer to open the damper.
It turns ON the relay on the X2M-ECONOMIZER2 on the PCB.
∗2. External input ON is an input signal to the X1M-ECONOMIZER1 terminal on the PCB.
∗3. Refer to Optional Kit Setting (UV lamp + Humidifier + Economizer) (for FXTQ-TA model) on page 123.
∗4. Remote control ON signal: Contact output which shows the operating status of the indoor unit.
This signal turns on the relay X2M-CONTROL ON/OFF on the PCB.

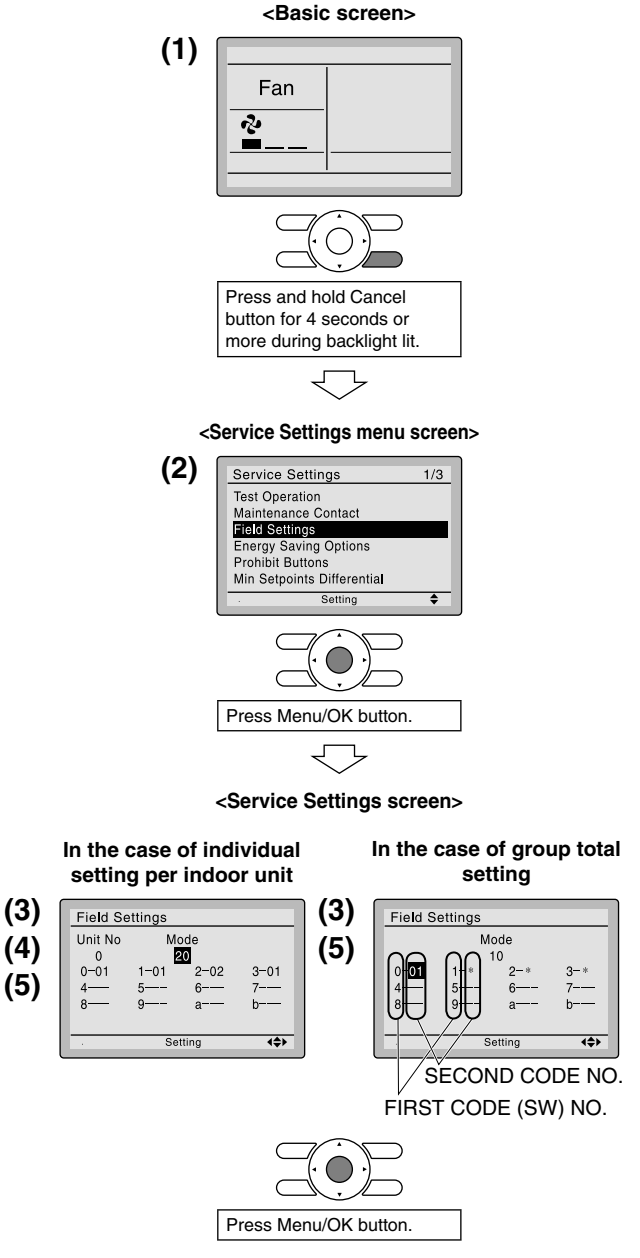
Part 5
Field Settings

1. Field Settings from Remote Controller

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

1.1 Wired Remote Controller

1.1.1 BRC1E73



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

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

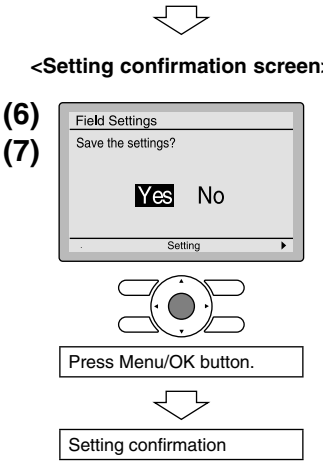
3. Highlight the mode, and select desired "Mode No." by using ▲▼ (Up/Down) button.

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



6. Press Menu/OK button. Setting confirmation screen is displayed.

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

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

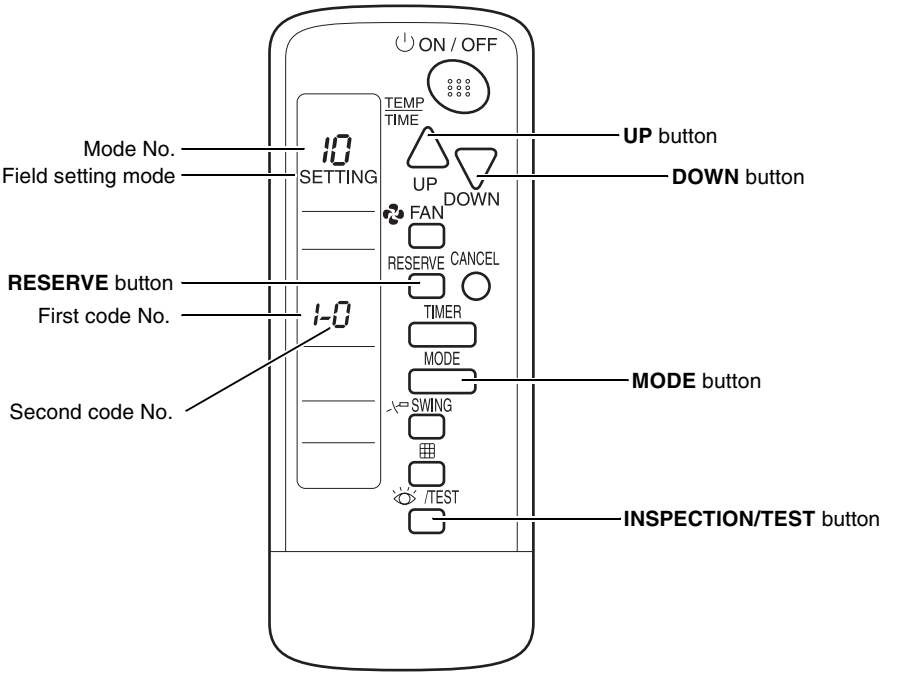
9. After all setting changes are completed, press Cancel button twice.

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

NOTE

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

1.2 Wireless Remote Controller



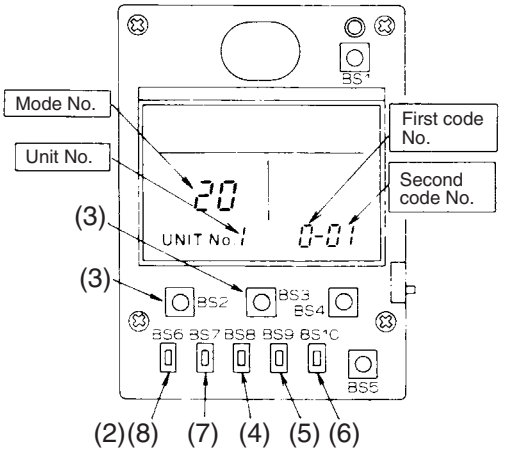
To set the field settings, you have to change:

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

To change the field settings, proceed as follows:

1. Press the **INSPECTION/TEST** button for 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 **UP** button to select the first code No.
4. Press the **DOWN** button to select the second code No.
5. Press the **RESERVE** button to confirm the setting.
6. Press the **INSPECTION/TEST** button to return to the normal mode.

1.3 Simplified Remote Controller



1. Remove the upper part of remote controller.
2. When in the normal mode, press the **BS6** button (2) (field setting) to enter the field setting mode.
3. Select the desired MODE No. with the **BS2** button (3) (temperature setting ▲) and the **BS3** button (3) (temperature setting ▼).
4. During group control, when setting by each indoor unit (mode No. 20, 22, and 23 have been selected), press the **BS8** (4) button (unit No.) and select the indoor unit No. to be set. (This operation is unnecessary when setting by group.)
5. Press the **BS9** button (5) (set A) and select first code No.
6. Press the **BS10** button (6) (set B) and select second code No.
7. Press the **BS7** button (7) (set/cancel) once and the present settings are confirmed.
8. Press the **BS6** button (8) (field setting) to return to the normal mode.

1.4 List of Field Settings for Indoor Unit

: Factory setting

Mode No. (∗2)	First Code No.	Setting Contents		Second Code No.					
				01		02		03	04
10(20)	0	Filter sign setting (Setting for display time to clean air filter) (Sets display time to clean air filter to half when there is heavy filter contamination.)	Ultra long life filter	Light	Approx. 10,000 hrs.	Heavy	Approx. 5,000 hrs.	—	—
			Long life filter		Approx. 2,500 hrs.		Approx. 1,250 hrs.		
			Standard filter		Approx. 200 hrs.		Approx. 100 hrs.		
	1	Ultra long life filter sign setting		Long life filter		Ultra long life filter		—	—
	1 (∗7)	Filter cleaning sign time (Light/Heavy)		2,500/1,250		10,000/5,000		—	—
	2	Selection of thermistor		Remote controller + Suction air thermistor		Only suction air thermistor		Only remote controller thermistor	—
	2 (∗6)	Remote sensor and remote controller thermistor		—		Only remote sensor		Only remote controller thermistor	—
	3	Filter cleaning sign		Displayed		Not displayed		—	—
	6	Remote controller thermostat control during the group control		Remote controller thermostat control is not permitted		Remote controller thermostat control is permitted		—	—
	7 (∗9)	Time for absence area detection		30 minutes		60 minutes		—	—
11(21)	1	Auxiliary electric heater ON temperature: Ton		Refer to page 116 for details.					
	2	Auxiliary electric heater OFF temperature: Toff							
	3	Setting the airflow rate when heating		Standard		Slightly increased		Increased	—
	3 (∗6)	Electric heater setting		Refer to page 117 for details.					
	5 (∗6)	Electric heater capacity setting		Refer to page 117 for details.					
	6 (∗9)	Setting the rate of human detection		High sensitivity		Low sensitivity		Standard sensitivity	Infrared presence/floor sensor disabled
	7	Airflow adjustment		OFF		Completion of airflow adjustment		Start of airflow adjustment	—
	8 (∗9)	Compensating the temperature around people		Suction air temperature only		Priorities given on the suction air temperature		Standard	Priorities given on the floor temperature
	9 (∗9)	Compensating the floor temperature		–4°C (–7.2°F)		–2°C (–3.6°F)		0°C (0°F)	+2°C (+3.6°F)
12(22)	0	Optional output switching (field selection of output for adaptor for wiring)		Refer to page 119 for details.					
	1	External ON/OFF input (Set when ON/OFF is to be controlled from outside.)		Refer to page 119 for details.					
	2	Thermostat switching (Set when remote sensor is to be used)		1°C (1.8°F)		0.5°C (0.9°F)		—	—
	3	Airflow setting when heating thermostat is OFF		LL tap		Set fan speed		OFF (∗8)	—
	4	Setting of operation mode to AUTO (automatic temperature differential setting for *VRV* system Heat Recovery series cool/heat)		Refer to page 120 for details.					
	5	Auto restart after power failure reset		Not equipped		Equipped		—	—
	6	Airflow setting when cooling thermostat is OFF		LL tap		Set fan speed		OFF (∗8)	—

Mode No. (∗2)	First Code No.	Setting Contents	Second Code No.			
			01	02	03	04
13(23)	0	Setting of airflow rate	Standard	High ceiling 1	High ceiling 2	—
	1	Airflow direction setting (Set when a blocking pad kit has been installed.)	F (4 directions)	T (3 directions)	W (2 directions)	—
	2	Swing pattern settings	All direction synchronized swing	—	Facing swing	—
	3	Operation of downward flow flap	Equipped	Not equipped	—	—
	4	Setting of airflow direction adjustment range	Draft prevention	Standard	Ceiling soiling prevention	—
	5	Setting of static pressure selection	Standard	High static pressure	—	—
	6	External static pressure settings	Refer to page 122 for details.			
14 (24)	4 (*6)	Optional kit setting (UV lamp + humidifier + economizer)	Refer to page 123 for details.			
	5 (*6)	Residential dry	Set temperature: room temperature	Set temperature: same as cooling set temperature	—	—
15(25)	0	Drain pump operation settings	—	ON	OFF	—
	1	Humidification when heating thermostat is OFF	Not equipped	Equipped	—	—
	2	Setting of direct duct connection (when the indoor unit and energy recovery ventilator unit are connected by duct directly.) (∗5)	Without direct duct connection	With direct duct connection	—	—
	3	Interlocked operation between humidifier and drain pump	Not interlocked	Interlocked	—	—
	5	Individual setting of ventilation	Not individual	Individual	—	—
1b	3	Display of contact center	Displayed	Not displayed	—	—
	4	Display of error codes on the remote controller	—	Two-digit display	—	Four-digit display
	12	Key-lock pattern settings	No operation allowed (Cancel procedure is displayed.)	No operation allowed (Cancel procedure is not displayed.)	No menu operation is allowed (Cancel procedure is displayed.)	No menu operation is allowed any time.
	14	Setting "restricted / permitted" of airflow block	Refer to page 125 for details.			
1c	0	Room temperature display	Not displayed	Displayed	—	—

Note :

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

∗2. The mode numbers inside parentheses cannot be used by wireless remote controllers, so they cannot be set individually. Setting changes also cannot be checked.

3. Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
4. **88** or **Checking the connection. Please stand by.** may be displayed to indicate the remote controller is resetting when returning to the normal mode.

∗5. If the setting mode to “Equipped”, energy recovery ventilator fan conducts the fan residual operation by linking to indoor unit.

∗6. Only for FXTQ-TA models

∗7. Only for FXTQ-TA, FXDQ-M models

∗8. If the airflow setting when thermostat is OFF is set to OFF (12(22)-3-03, 12(22)-6-03), the air in the indoor unit will be stagnant and suction air thermistor may not detect room temperature correctly, resulting in problems that thermostat will not be ON easily.
Use optional remote sensor in such conditions, or set the field setting 10(20)-2 to **03** (only remote controller thermistor).

∗9. Only for FXFQ-T and FXUQ-P sensing models

Applicable Range of Field Setting

Setting Modes	Ceiling mounted cassette type			4-way blow ceiling suspended cassette type	One way blow cassette type	Slim ceiling mounted duct type	Ceiling mounted duct type	Ceiling suspended type	Wall mounted type	Floor standing type	Concealed floor standing type	Air handling unit
	Round flow	4 way flow	4 way flow									
	FXFQ	FXZQ-M	FXZQ-TA	FXUQ	FXEQ	FXDQ	FXMQ	FXHQ	FXAQ	FXLQ	FXNQ	FXTQ
Filter sign	●	●	●	●	●	●	●	●	●	●	●	●
Ultra long life filter sign	●	●	●	—	—	—	—	—	—	—	—	—
Remote controller	●	●	●	●	●	●	●	●	●	●	●	●
Set fan speed when thermostat OFF	●	●	●	●	●	●	●	●	●	●	●	●
Airflow adjustment ceiling height	●	—	●	●	●	—	—	●	—	—	—	—
Airflow direction	●	●	●	●	●	—	—	—	—	—	—	—
Airflow direction adjustment (Down flow operation)	—	—	—	—	●	—	—	—	—	—	—	—
Airflow direction adjustment range	●	●	●	—	●	—	—	—	—	—	—	—
Field setting fan speed selection	●	—	●	—	—	● (∗1)	● (∗1)	—	—	—	—	—
Auxiliary electric heater ON/OFF temperature	● (FXFQ-T only)	—	●	●	—	—	●	—	—	●	●	●

● : Available

— : Not available

∗1. Static pressure selection

1.5 Details of Field Settings for Indoor Unit

Filter Sign Setting

If switching the filter sign ON time, set as given in the table below.

Mode No.	First Code No.	Second Code No.	Standard Filter	Long Life Filter	Ultra Long Life Filter	Contents
10 (20)	0	01	200 hrs.	2,500 hrs.	10,000 hrs.	Contamination Light
		02	100 hrs.	1,250 hrs.	5,000 hrs.	Contamination Heavy

Ultra Long Life Filter Sign Setting

When a Ultra long life filter is installed, the filter sign timer setting must be changed.

Mode No.	First Code No.	Second Code No.	Contents
10 (20)	1	01	Long Life Filter
		02	Ultra Long Life Filter

Filter Cleaning Sign Time

The filter cleaning sign display time can be changed.

■ **FXTQ-TA**

Mode No.	First Code No.	Second Code No.	Contents (Light/Heavy)
10 (20)	1	01	2,500/1,250 hours
		02	10,000/5,000 hours

Selection of Thermistor

Select a thermistor to control room temperature.

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

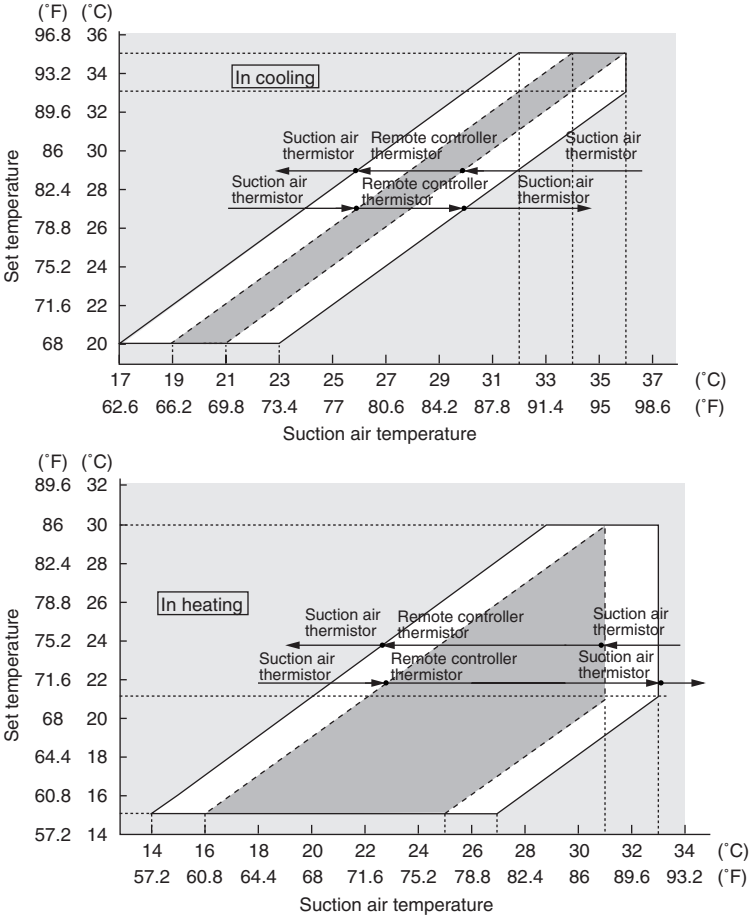
Mode No.	First Code No.	Second Code No.	Contents
10 (20)	2	01	Remote controller thermistor and suction air thermistor for indoor unit
		02	Suction air thermistor for indoor unit
		03	Remote controller thermistor

The factory setting for the Second Code No. is **01** and room temperature is controlled by the suction air thermistor 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.

■ **FXTQ-TA**

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

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



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

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 presence/floor sensor		—	—	✓	✓	✓	—
		↓		↓		↓	
		The infrared presence/floor sensor is not used		Priority given to the suction air temperature (∗)		Priority given to the floor temperature (∗)	
			↓		↓		↓
			Only the suction air thermistor is used		Standard setting (Factory setting)		Only the remote controller thermistor is used

∗ 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 group control.

To use the remote controller thermistor during 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 thermostat control is not permitted during group control.
		02	Remote controller thermostat control is permitted during group control.

Filter Cleaning Sign

Whether or not to display "Filter Cleaning" after operation of certain duration can be selected.

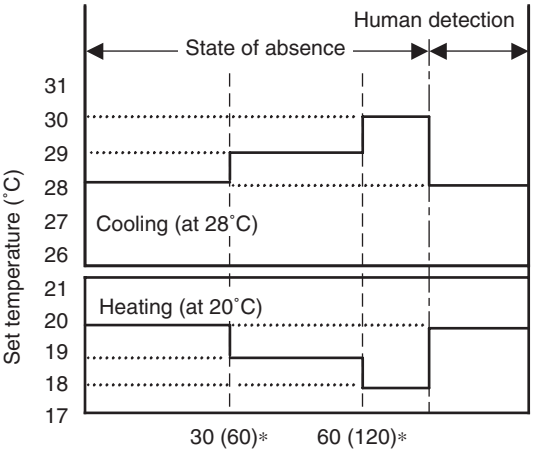
Mode No.	First Code No.	Second Code No.	Contents
10 (20)	3	01	Displayed
		02	Not displayed

∗ Filter cleaning sign is not displayed when an Auto-clean Panel is connected.

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

By selecting the energy-saving operation mode in the absence, the target temperature is shifted to the energy-saving end by 1°C (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:

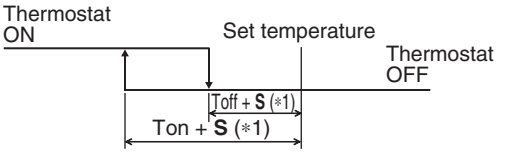
Mode No.	First Code No.	Second Code No.	Contents
10 (20)	7	01	30 minutes
		02	60 minutes



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

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

Auxiliary Electric Heater ON/OFF Temperature



Note: *1. **S** value varies automatically based on the room temperature trend.

■ **FXFQ-T, FXMQ-PB**

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

■ **FXUQ-P, FXEQ-P, FXLQ-M, FXNQ-M, FXTQ-TA**

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

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

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

● : Available
— : Not available

Setting the Airflow Rate when Heating

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

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

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

Electric Heater Setting (for FXTQ-TA model)

Mode No.	First Code No.	Second Code No.	Contents	
			Heater operation	Electric heater run for defrost/oil return operation
11 (21)	3	01	Electric heater with heat pump not allowed	Not allowed
		02	Electric heater with heat pump allowed	Not allowed
		07	Electric heater with heat pump not allowed	Allowed
		08	Electric heater with heat pump allowed	Allowed

Electric Heater Capacity Setting (for FXTQ-TA model)

Model	Mode No.	First Code No.	Second Code No.									
			01	02	03	04	05	06	07	08	09	10
			Heater (kW)									
			No heater kit	3	5	6	8	10	15	19	20	25
FXTQ09TAVJUA	11 (21)	5	●	●	●	—	—	—	—	—	—	—
FXTQ09TAVJUD			●	●	●	—	—	—	—	—	—	—
FXTQ12TAVJUA			●	●	●	●	—	—	—	—	—	—
FXTQ12TAVJUD			●	●	●	●	—	—	—	—	—	—
FXTQ18TAVJUA			●	●	●	●	●	●	—	—	—	—
FXTQ18TAVJUD			●	●	●	●	●	●	—	—	—	—
FXTQ24TAVJUA			●	●	●	●	●	●	—	—	—	—
FXTQ24TAVJUD			●	●	●	●	●	●	—	—	—	—
FXTQ30TAVJUA			●	●	●	●	●	●	—	—	—	—
FXTQ30TAVJUD			●	●	●	●	●	●	—	—	—	—
FXTQ36TAVJUA			●	●	●	●	●	●	—	—	—	—
FXTQ36TAVJUD			●	●	●	●	●	●	—	—	—	—
FXTQ42TAVJUA			●	—	●	●	●	●	●	●	—	—
FXTQ42TAVJUD			●	—	●	●	●	●	●	●	—	—
FXTQ48TAVJUA			●	—	●	●	●	●	●	●	—	—
FXTQ48TAVJUD			●	—	●	●	●	●	●	●	—	—
FXTQ54TAVJUA			●	—	●	●	●	●	●	—	●	●
FXTQ54TAVJUD			●	—	●	●	●	●	●	—	●	●
FXTQ60TAVJUA			●	—	●	●	●	●	●	—	●	●
FXTQ60TAVJUD			●	—	●	●	●	●	●	—	●	●

● : Available

— : Not available

Setting the Rate of Human Detection
(For units with the infrared presence/floor sensor only)

Set the sensitivity of the infrared presence sensor.

- The infrared presence sensor can be disabled by selecting the Second code No. **04**.

(Note) When the infrared presence sensor is disabled, the remote controller menu does not display some functions such as the automatic draft reduction, energy-saving operation in absence and halt in absence.

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

Airflow Adjustment (AUTO)

External Static Pressure Settings

Make settings in either method (a) or method (b) as explained below.

(a) Use the airflow auto adjustment function to make settings.
Airflow auto adjustment: The volume of discharge air is automatically adjusted to the rated quantity.

(b) Select External Static Pressure with Remote Controller Check that 01 (OFF) is set for the “SECOND CODE No.” in “MODE No. 21” for airflow adjustment on an indoor unit basis in Table 4. The “SECOND CODE No.” is set to 01 (OFF) at factory setting. Change the “SECOND CODE No.” as shown in table according to the external static pressure of the duct to be connected.

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

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

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

The temperature around human 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 human 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**).

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

Compensating the Floor Temperature (For units with the infrared presence/floor sensor only)

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

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

Actual procedure to use the setting

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

Environment	Operation Mode	Problem	Setting Value
· The unit is installed close to a wall or a window. · High thermal capacity of the floor whose material is concrete, etc. · There are many heat sources like a PC. · There is a non-negligible heat source such as floor heating.	Heating	Heated too much	+2°C (+3.6°F)
		Heated little	–2°C or –4°C (–3.6°F or –7.2°F)

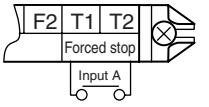
Optional Output Switching

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.

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 "Start/Stop" of remote controller is provided.
		04	In case of "Error Display" appears on the remote controller, output is provided.
		05	—
		06	—
		07	Only for FXMQ-PB Economizer (field supply) ON/OFF signal is provided.

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.



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

Thermostat Switching

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

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

Airflow Setting when Heating Thermostat is OFF

This setting is used to set airflow when heating thermostat is OFF.

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

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

Setting of Operation Mode to AUTO

This setting makes it possible to change differential values for mode selection while in automatic operation mode.

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

The automatic operation mode setting is made by the use of the "Operation Mode Selector" button.

Auto Restart after Power Failure Reset

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	5	01	Not equipped
		02	Equipped

For the air conditioners with no setting for the function, the units will be left in the stop condition when the power supply is reset automatically after power failure reset or the main power supply is turned ON again after once turned OFF. However, for the air conditioners with the setting (same as factory setting), the units may start automatically after power failure reset or the main power supply turned ON again (return to the same operation condition as that of before power failure).

For the above reasons, when the unit is set enabling to utilize “Auto restart function after power failure reset”, utmost care should be paid for the occurrence of the following situation.

⚠ Caution The air conditioner starts operation suddenly after power failure reset or when the main power supply is turned on again. Consequently, the user might be surprised and wonder why this has happened. In service work, for example, turning off the main power switch while the unit is in operation, and turning on the switch again after the work is completed start unit operation (the fan rotates).

Airflow when Cooling Thermostat is OFF

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

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

Setting of Airflow Rate

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

■ **FXHQ, FXAQ**

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	0	01	Standard
		02	Slight increase
		03	Normal increase

■ **FXFQ07-24T, FXFQ09-30P, FXUQ18/24P**

Mode No.	First Code No.	Second Code No.	Contents	Ceiling height		
				4-way Outlets	3-way Outlets	2-way Outlets
13 (23)	0	01	Standard	Lower than 2.7 m (8-3/4 ft)	Lower than 3.0 m (10 ft)	Lower than 3.5 m (11-1/2 ft)
		02	High Ceiling 1	Lower than 3.0 m (10 ft)	Lower than 3.3 m (10-3/4 ft)	Lower than 3.8 m (12-1/2 ft)
		03	Higher Ceiling 2	Lower than 3.5 m (11-1/2 ft)	Lower than 3.5 m (11-1/2 ft)	—

■ **FXFQ30-48T, FXFQ36/48P, FXUQ30/36P**

Mode No.	First Code No.	Second Code No.	Contents	Ceiling height		
				4-way Outlets	3-way Outlets	2-way Outlets
13 (23)	0	01	Standard	Lower than 3.2 m (10-1/2 ft)	Lower than 3.6 m (12 ft)	Lower than 4.2 m (13-3/4 ft)
		02	High Ceiling 1	Lower than 3.6 m (12 ft)	Lower than 4.0 m (13-1/8 ft)	Lower than 4.2 m (13-3/4 ft)
		03	Higher Ceiling 2	Lower than 4.2 m (13-3/4 ft)	Lower than 4.2 m (13-3/4 ft)	—

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**.

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	1	01	F: 4-direction airflow
		02	T: 3-direction airflow
		03	W: 2-direction airflow

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

Set the flap operation in swing mode.

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

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

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

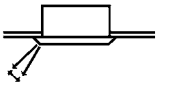
Operation of Downward Flow Flap (for FXEQ model)

When only the front-flow is used, sets yes/no of the swing flap operation of down-flow

Model No.	First Code No.	Second Code No.	Contents
13 (23)	3	01	Equipped
		02	Not equipped

Setting of Airflow Direction Adjustment Range

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



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

∗Some indoor unit models are not equipped with draft prevention (upward) function.

Setting of the Static Pressure Selection (for FXDQ model)

Model No.	First Code No.	Second Code No.	Contents
13 (23)	5	01	Standard (FXDQ07-12: 10 Pa (0.04 inWG), FXDQ18/24: 30 Pa (0.12 inWG))
		02	High static pressure (FXDQ07-12: 15 Pa (0.06 inWG), FXDQ18/24: 45 Pa (0.18 inWG))

External Static Pressure Settings (for FXMQ-PB model)

Mode No.	First Code No.	Second Code No.	Contents
13 (23)	6	01	30 Pa (0.12 inWG) (∗1) (∗3)
		02	50 Pa (0.20 inWG)
		03	60 Pa (0.24 inWG)
		04	70 Pa (0.28 inWG)
		05	80 Pa (0.32 inWG)
		06	90 Pa (0.36 inWG)
		07	100 Pa (0.40 inWG)
		08	110 Pa (0.44 inWG) (∗2)
		09	120 Pa (0.48 inWG) (∗2)
		10	130 Pa (0.52 inWG) (∗2)
		11	140 Pa (0.56 inWG) (∗2)
		12	150 Pa (0.60 inWG) (∗2) (∗3)
		13	160 Pa (0.64 inWG) (∗2) (∗3)
		14	180 Pa (0.72 inWG) (∗2) (∗3)
		15	200 Pa (0.80 inWG) (∗2) (∗3)

The Second Code No. is set to **07** (an external static pressure of 100 Pa (0.40 inWG)) at factory setting.

∗1. FXMQ15/18/24/30/36/48PB cannot be set to 30 Pa (0.12 inWG).

∗2. FXMQ07/09/12PB cannot be set to 110-200 Pa (0.44-0.80 inWG).

∗3. FXMQ54PB cannot be set to 30 Pa (0.12 inWG) or 150-200 Pa (0.60-0.80 inWG).

Optional Kit Setting (UV lamp + Humidifier + Economizer) (for FXTQ-TA model)

Mode No.	First Code No.	Second Code No.	Contents	
			UV lamp + humidifier fan speed	Economizer setting for Mech standby duration (minutes)
14 (24)	4	01	Refer to controller	10
		02	High	10
		03	Refer to controller	20
		04	High	20
		05	Refer to controller	30
		06	High	30
		07	Refer to controller	40
		08	High	40
		09	Refer to controller	50
		10	High	50
		11	Refer to controller	60
		12	High	60
		13	Refer to controller	Free cooling only
		14	High	Free cooling only

Residential Dry (for FXTQ-TA model)

Mode No.	First Code No.	Second Code No.	Contents
14 (24)	5	01	Set temperature: room temperature
		02	Set temperature: same as cooling set temperature

Drain Pump Operation Settings (for FXMQ-PB model)

The drain pump operation can be disabled for natural drainage by changing the following field setting.

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	0	01	—
		02	ON
		03	OFF

Humidification when Heating Thermostat is OFF

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

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

Setting of Direct Duct Connection

This is used when "fresh air intake kit equipped with fan" is connected. The indoor fan carries out residual operation for one minute after the thermostat is stopped. (For the purpose of preventing dust on the air filter from falling off.)

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	2	01	Without direct duct connection
		02	With direct duct connection

Interlocked Operation between Humidifier and Drain Pump

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

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

Individual Setting of Ventilation

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

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	5	01	Not individual
		02	Individual

Display of Contact Center (For BRC1E73 only)

You can turn OFF the display of "DAIKIN Contact Center" as "Contact for Service Display."

Mode No.	First Code No.	Second Code No.	Contents
1b	3	01	Displayed
		02	Not displayed

Display of Error Codes on the Remote Controller (For BRC1E73 only)

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

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

Key-lock Pattern Settings (For BRC1E73 only)

Setting of key-lock pattern for the remote controller

Mode No.	First Code No.	Second Code No.	Contents
1b	12	01	No operation allowed (Cancel procedure is displayed.)
		02	No operation allowed (Cancel procedure is not displayed.)
		03	No menu operation is allowed.
		04	No menu operation is allowed any time.

∗ When the Second code No. is set to **04**, no menu operation is allowed without key-lock by pressing and holding the menu button. Set the Second code No. to other than **04** to cancel it.

Setting "Restricted / Permitted" of Airflow Block (For units with the infrared presence/floor sensor only)

Due to possibility of dew condensation, the airflow block function cannot be enabled when closure material kit, fresh air intake kit, natural / separately installed evaporation humidifier, or branch air duct is equipped.
This setting will prevent the airflow block is advertently set to ON.
Ensure that this setting is "Disable airflow block" when using together with options listed above.

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

Room Temperature Display (For BRC1E73 only)

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."

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

1.6 List of Field Settings for Outdoor-Air Processing Unit

: Factory setting

Mode No.	First Code No.	Setting Contents		Second Code No.														
				01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
10 (20)	0	Filter contamination		2500 hr	1250 hr	—	—	—	—	—	—	—	—	—	—	—	—	—
	3	Display time to clean air filter calculation		Display	No display	—	—	—	—	—	—	—	—	—	—	—	—	—
12 (22)	1	External ON/OFF input		Forced OFF	ON/OFF control	—	—	—	—	—	—	—	—	—	—	—	—	—
	5	Power failure automatic reset		Not equipped	Equipped	—	—	—	—	—	—	—	—	—	—	—	—	—
14 (24)	3	Discharge pipe temperature (cooling)	°C	13	14	15	16	17	18	19	20	21	22	23	24	25 ★	25 ★	25 ★
			°F	55.4	57.2	59	60.8	62.6	64.4	66.2	68	69.8	71.6	73.4	75.2	77 ★	77 ★	77 ★
	4	Discharge pipe temperature (heating)	°C	18	19	20	21	22	23	24	25	26	27	28	29	30 ★	30 ★	30 ★
			°F	64.4	66.2	68	69.8	71.6	73.4	75.2	77	78.8	80.6	82.4	84.2	86 ★	86 ★	86 ★

★: The same value continues.

1.7 Setting of 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 in the next page.)
Central remote controller is normally available for operations. (Except when centralized monitor is connected)

Contents of Control Modes

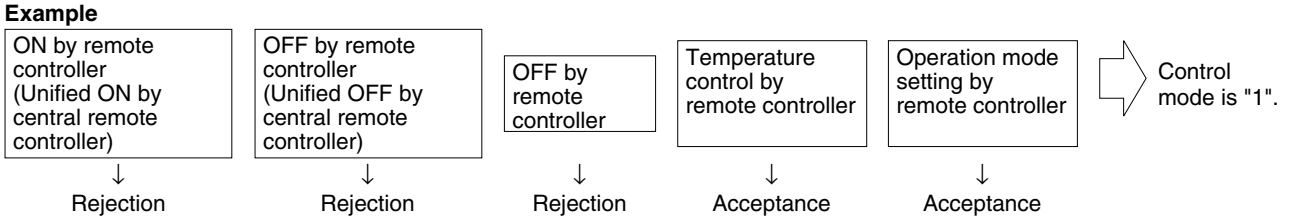
20 modes consisting of combinations of the following 5 operation modes with temperature and operation mode setting by remote controller can be set and displayed by operation modes 0 through 19.

- 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



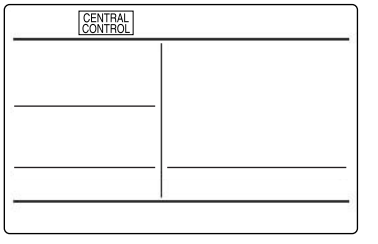
: Factory setting

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 **CENTRAL CONTROL** is displayed on the screen.

BRC1E73



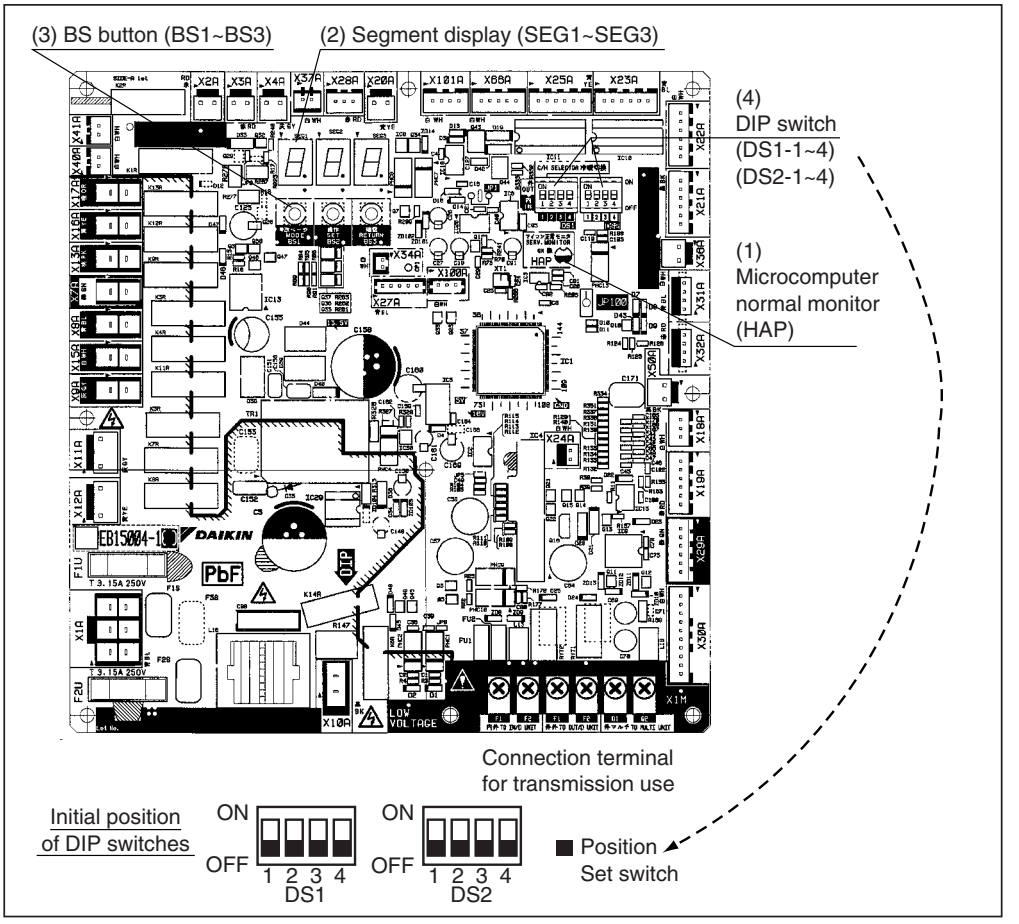
2. Field Setting from Outdoor Unit

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

2.1 DIP Switch Setting Mounting a Spare PCB

Caution:

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



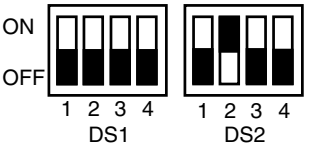
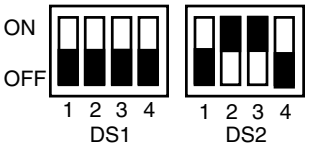
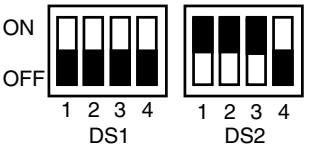
(1) Microcomputer normal monitor
This monitor blinks while in normal operation, and turns ON or OFF when an error occurs.

(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.

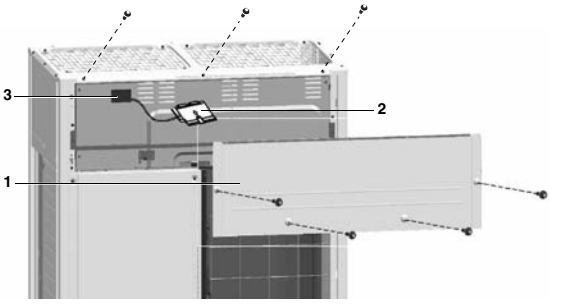
(4) DIP switch
Used to make field settings.

The figure below shows the required position of the DIP switches on spare PCB for RELQ-TA and REYQ-TA. Change DIP switches at time of power disconnected.

Application model	The setting method (■represents the position of switches)	
RELQ72TA REYQ72TA		Set DS2-2 to ON.
RELQ96TA REYQ96TA		Set DS2-1 and DS2-2 to ON.
RELQ120TA REYQ120TA		Set DS2-3 to ON.
REYQ144TA		Set DS2-2 and DS2-3 to ON.
REYQ168TA		Set DS2-1, DS2-2 and DS2-3 to ON.

2.2 Accessing the BS Buttons on the Logic Board

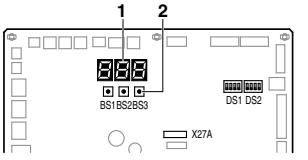
It is not required to open the complete electronic component box to access the BS buttons on the logic board and read out the 7 segment display(s).
To access you can remove the front plate (see figure). Now you can open the inspection cover of the electrical component box front plate (see figure). You can see the three BS buttons and the three 7 segment displays and DIP switches.



1 Front plate
2 Inspection cover
3 Main PCB with 3sevensegmentdisplay and 3 BS buttons

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

Location of the segment displays, buttons and DIP switches:



BS1 MODE for changing the set mode
BS2 SET for field setting
BS3 RETURN for field setting
DS1, DS2 DIP switches

1 7segment displays (3x)
2 BS buttons

2.3 Operating the BS Buttons and DIP Switches on the Logic Board

Operating the BS buttons

By operating the BS buttons it is possible to:

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

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

Setting definition: [A-B] → C

A: mode
B: setting
C: setting value

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

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

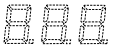
Functions of the BS button switches which are located on the outdoor unit PCB (A1P)

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).

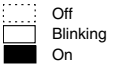
When turning ON the power supply: flashing as indicated. First checks on power supply are executed (1 ~ 2 minutes).

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.

INFORMATION During special operation (e.g., test run, 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:

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 mode1 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).

Mode: 1
Setting: 10

- 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: mode1 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 fan).

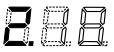
Mode: 2

Setting: 18

- 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: mode2 setting 18 is addressed and selected, return value is the current setting situation.
- To change the value of the setting, press BS2 till 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 monitoring function, press BS1 2 times, you will return to the default situation when shipped from factory.

Operating the DIP switches

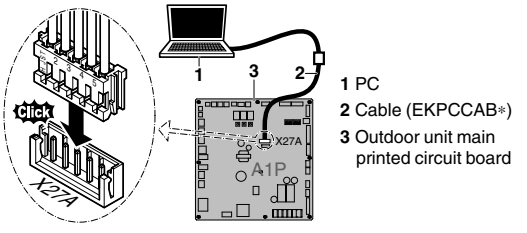
By operating the DIP switches it is possible to:

	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

2.4 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 printed circuit board

2.5 Monitoring Function and Field Settings

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

Making settings is done via the master outdoor unit.

2.5.1 Mode 1

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

Below the settings in mode 1 are explained.

[1-0]: shows whether the unit you 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 night-time low 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.
[1-6]: shows the current Tc 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.

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

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

2.5.2 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 indicated in below explanations.

[2-0]: Cool/Heat selection setting
Cool/Heat selection setting is used in case the optional Cool/Heat selector (KRC19-26A) is used. Depending on the outdoor unit setup (single outdoor unit setup or multi outdoor unit setup), the correct setting should be chosen. More details on how to use the Cool/Heat selector option can be found in the manual of the Cool/Heat selector.
Default value: 0.
- 0: Each individual outdoor unit can select Cool/Heat operation (by Cool/Heat selector if installed).
- 1: Master unit decides Cool/Heat operation when outdoor units are connected in multiple system combination
- 2: Sub unit for Cool/Heat operation when outdoor units are connected in multiple system combination

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

Value [2-8]	Te target
0 (default)	Auto
2	6°C (42.8°F)
3	7°C (44.6°F)
4	8°C (46.4°F)
5	9°C (48.2°F)
6	10°C (50°F)
7	11°C (51.8°F)

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

Value [2-9]	Tc target
0 (default)	Auto
1	41°C (105.8°F)
3	43°C (109.4°F)
6	46°C (114.8°F)

[2-12]: Enable the night-time low 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

[2-16]: Heat pump lockout 1
Heat pump is always locked out when this setting is ON. If the indoor fan control needs to be changed or the auto-backup function is required, refer to the setting [2-37].

Value [2-16]	Heat pump lockout 1
0 (default)	OFF
1	ON

[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 change the level: 1 or 3

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

Value [2-26]	Start time automatic night-time low noise operation (approximately)
1	8:00 PM
2 (default)	10:00 PM
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]	Start time automatic night-time low noise operation (approximately)
1	6:00 AM
2	7:00 AM
3 (default)	8:00 AM

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 (approximately)
1	60%
2	65%
3 (default)	70%
4	75%
5	80%
6	85%
7	90%
8	95%

[2-31]: Power consumption limitation level (step 2) via the external control adaptor (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 (approximately)
1 (default)	40%
2	50%
3	55%

[2-32]: Forced, all time, power consumption limitation operation (no external control adaptor is required to perform power consumption limitation)
If the system always needs to 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 (default)	Function not active
1	Follows [2-30] setting
2	Follows [2-31] setting

[2-34]: Indoor fan tap setting

Indoor fan speed limitation related to connection capacity and outdoor air temperature for energy saving.

Value [2-34]	Indoor fan tap setting
0 (default)	Fan speed is limited to L tap when indoor units capacity ≥ 130%.
1	In heating mode, fan speed is limited to L tap when indoor units capacity ≥ 130%.
2	Fan speed follows a setting of the remote controller (not limited by indoor units connection capacity).
3	Fan speed is limited to L tap when outdoor air temperature goes down to below 29.5°C (85.1°F) and indoor condition A (∗). It returns to remote controller setting when outdoor air temperature goes up to over 32.5°C (90.5 °F) or indoor condition B (∗).
4	Fan speed is limited to L tap when outdoor air temperature goes down to below 23.5°C (74.3°F) and indoor condition A (∗). It returns to remote controller setting when outdoor air temperature goes up to over 26.5°C (79.7°F) or indoor condition B (∗).
5	Fan speed is limited to L tap when outdoor air temperature goes down to below 19.3°C (66.7°F) and indoor condition A (∗). It returns to remote controller setting when outdoor air temperature goes up to over 22.3°C (72.1°F) or indoor condition B (∗).
6	Fan speed is limited to L tap when outdoor air temperature goes down to below 29.5°C (85.1°F). It returns to remote controller setting when outdoor air temperature goes up to over 32.5°C (90.5°F).
7	Fan speed is limited to L tap when outdoor air temperature goes down to below 23.5°C (74.3°F). It returns to remote controller setting when outdoor air temperature goes up to over 26.5°C (79.7°F).
8	Fan speed is limited to L tap when outdoor air temperature goes down to below 19.3°C (66.7°F). It returns to remote controller setting when outdoor air temperature goes up to over 22.3°C (72.1°F).

∗ Indoor condition A: –1.5°C (–2.7°F) < Indoor air temperature – set temperature < 3°C (5.4°F)

∗ Indoor condition B: –1.5°C (–2.7°F) ≥ Indoor air temperature – set temperature, or ≥ 3°C (5.4°F)

[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.

[2-37]: Heat pump lockout 2
Heat pump is locked out when this setting and an external input to ABC terminal are made.

Value [2-37]	**Heat pump lockout 2**
0 (default)	OFF
1	Mode 1
2	Mode 2
3	Mode 3
4	Mode 4
5	Mode 5
6	Mode 6

Mode	Description	Actions					
		Field setting	Shorted between	Heating Thermo-on		Heating Thermo-off	
				Heater	Fan	Heater	Fan
Mode 1	Lockout is controlled by an external input to ABC terminal	2-37: Mode 1	A-C	ON	ON (H/L)	OFF	LL (∗2)
			B-C				OFF
Mode 2 (∗1)		2-37: Mode 2	A-C		LL		LL (∗2)
			B-C		OFF		OFF
Mode 3	Lockout is controlled by the outdoor temperature and setpoint which is configured by the setting [2-78] and [2-79]	2-37: Mode 3	Same as 2-37: Mode 1, A-C shorted				
Mode 4		2-37: Mode 4	Same as 2-37: Mode 1, B-C shorted				
Mode 5		2-37: Mode 5	Same as 2-37: Mode 2, A-C shorted				
Mode 6		2-37: Mode 6	Same as 2-37: Mode 2, B-C shorted				

∗1. For a heater which does not need airflow
∗2. Depends on the indoor unit field setting 12(22)-3.

Automatic lockout

When this setting is made, the auto-backup function will automatically be activated. This will allow the auxiliary or secondary heat source to be automatically energized in the event of a system failure related to outdoor units.

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

Error code (Auto backup possible)	Error contents
A3	Drain level control system abnormality
E3	Actuation of high pressure switch
E4	Actuation of low pressure sensor
E5	Inverter compressor motor lock
E6	Compressor damage alarm
E7	Outdoor fan motor abnormality
E9	Electronic expansion valve coil abnormality
F3	Discharge pipe temperature abnormality
F4	Wet alarm
F9	BS unit electronic expansion valve abnormality
H3	Harness abnormality (between outdoor unit main PCB and inverter PCB)
H7	Outdoor fan PCB abnormality
H9	Outdoor air thermistor (R1T) abnormality
J3	Discharge pipe thermistor (R21T) abnormality, Compressor body thermistor (R14T) abnormality
J5	Compressor suction thermistor (R12T) abnormality, Suction pipe thermistor (R10T) abnormality
J6	Heat exchanger deicer thermistor (R11T) abnormality Heat exchanger gas pipe thermistor (R8T, R9T) abnormality
J7	Receiver inlet thermistor (R3T) abnormality Subcooling heat exchanger liquid pipe thermistor (R7T) abnormality Subcooling injection thermistor (R16T) abnormality
J8	Heat exchanger liquid pipe thermistor (R4T, R5T) abnormality Leak detection thermistor (R15T) abnormality
J9	Subcooling heat exchanger gas pipe thermistor (R6T) abnormality Receiver gas purge thermistor (R13T) abnormality
JA	High pressure sensor abnormality
JC	Low pressure sensor abnormality
L1	Inverter PCB abnormality
L2	Momentary power failure during test operation
L3	Reactor temperature rise abnormality
L4	Inverter radiation fin temperature rise abnormality
L5	Inverter compressor instantaneous overcurrent
L8	Inverter compressor overcurrent
L9	Inverter compressor startup abnormality
LC	Transmission error between inverter PCB and outdoor unit main PCB

[2-45]: Low ambient cooling

This setting should be set in order to perform cooling operation at an outdoor temperature of –5°C or below.

This setting is not available with multi BS units.

[2-45]	Description
0 (default)	Not available
1	Available

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

Value [2-47]	Te target
0 (default)	Auto
2	6°C (42.8°F)
3	7°C (44.6°F)
4	8°C (46.4°F)
5	9°C (48.2°F)
6	10°C (50°F)
7	11°C (51.8°F)

[2-49]: Height difference setting
Default value: 0.
In case the outdoor unit is installed in the highest position (indoor units are installed on a lower position than outdoor units) and the height difference between the lowest indoor unit and the outdoor unit exceeds 50 m(164 ft), the setting [2-49] has to be changed to 1.

[2-60]: Gas furnace setting
Default value: 0.
When a gas furnace is connected, the setting [2-60] has to be changed to 1.

[2-78]: Heat pump lockout temperature
Heat pump is locked out when the outdoor ambient temperature is smaller than the heat pump lockout temperature.
This is only effective when the heat pump lockout 2 setting [2-37] is Mode 3 to 6.

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

[2-79]: Heat pump lockout release differential
Heat pump is resumed when the outdoor ambient temperature is recovered by differential above the heat pump lockout temperature.

Value [2-79]	Heat pump lockout release differential
0	2.8°C (5°F)
1 (default)	5.6°C (10°F)
2	8.3°C (15°F)

[2-81]: Cooling comfort setting

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

This setting is used in conjunction with setting [2-8] and [2-47].

[2-82]: Heating comfort setting

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

This setting is used in conjunction with setting [2-9].

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

Value [2-97]	Auxiliary heater maximum allowable temperature
0	–17.7°C (0°F)
1	–15°C (5°F)
2	–12.2°C (10°F)
3	–9.4°C (15°F)
4	–6.6°C (20°F)
5	–3.8°C (25°F)
6	–1.1°C (30°F)
7 (default)	1.6°C (35°F)
8	4.4°C (40°F)
9	7.2°C (45°F)
10	10°C (50°F)
11	12.7°C (55°F)
12	15.5°C (60°F)
13	18.3°C (65°F)
14	Auxiliary heater always not allowed
15	Auxiliary heater always allowed

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

Value [2-98]	Auxiliary heater maximum allowable temperature release differential
0	2.8°C (5°F)
1 (default)	5.6°C (10°F)
2	8.3°C (15°F)

2.6 Cool / Heat Mode Changeover

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

Set remote controller changeover switch (SS1, SS2) as following:

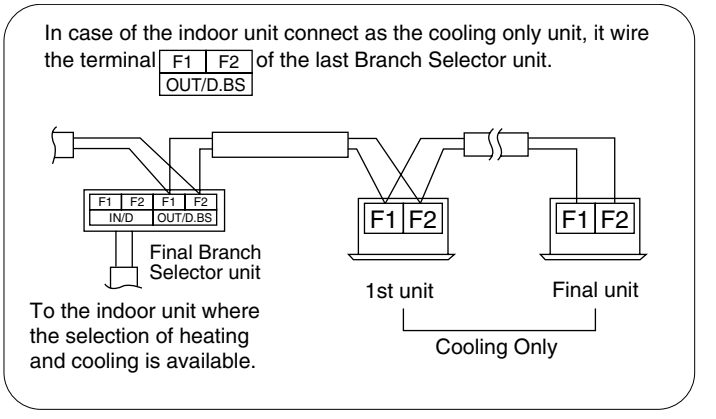
- When using COOL/HEAT selector, turn this switch to the BS side.

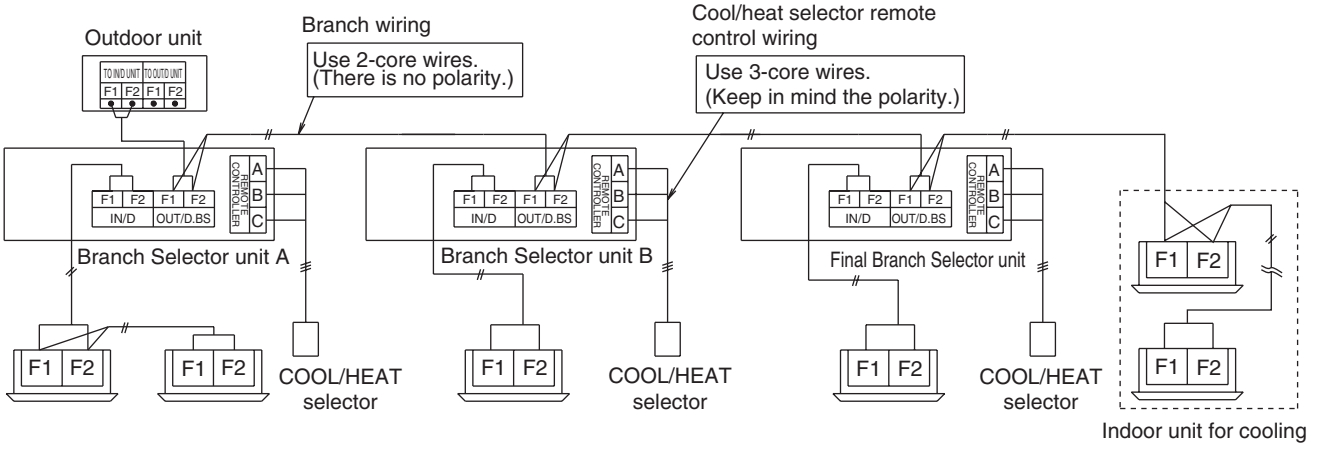
NOTE: This setting must be completed before turning power supply ON.

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

EXAMPLE OF TRANSMISSION LINE CONNECTION

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





2.7 Setting of Night-time Low Noise Operation and Demand Operation

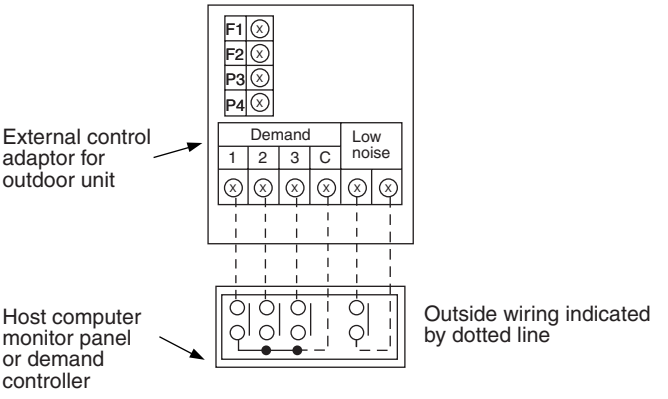
Setting of Night-time Low Noise Operation

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

Setting	Content
Level 1	Set the outdoor fan to Step 6 or lower.
Level 2	Set the outdoor fan to Step 5 or lower.
Level 3	Set the outdoor fan to Step 4 or lower.

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

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

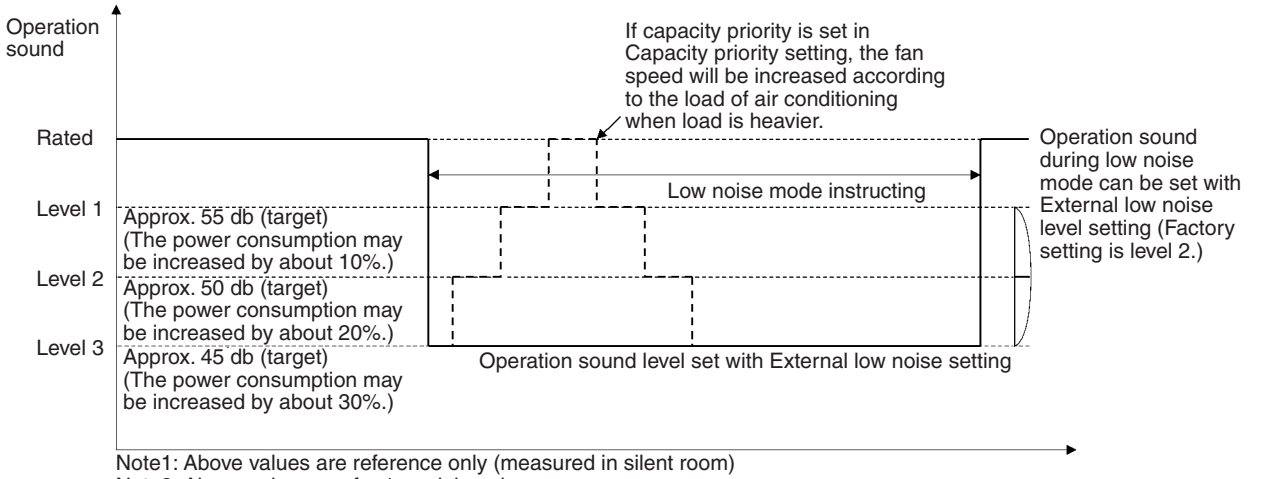


2. While in setting mode 2, set the item 2-12 (External low noise or demand setting) to ON.
3. If necessary, while in setting mode 2, select an external low noise level for the item 2-25.
4. If necessary, while in setting mode 2, set the item 2-29 (Capacity priority setting) to ON.
   (If the condition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

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

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

Image of operation in the case of A



Note1: Above values are reference only (measured in silent room)
Note2: Above values are for 1 module only.

Image of operation in the case of B

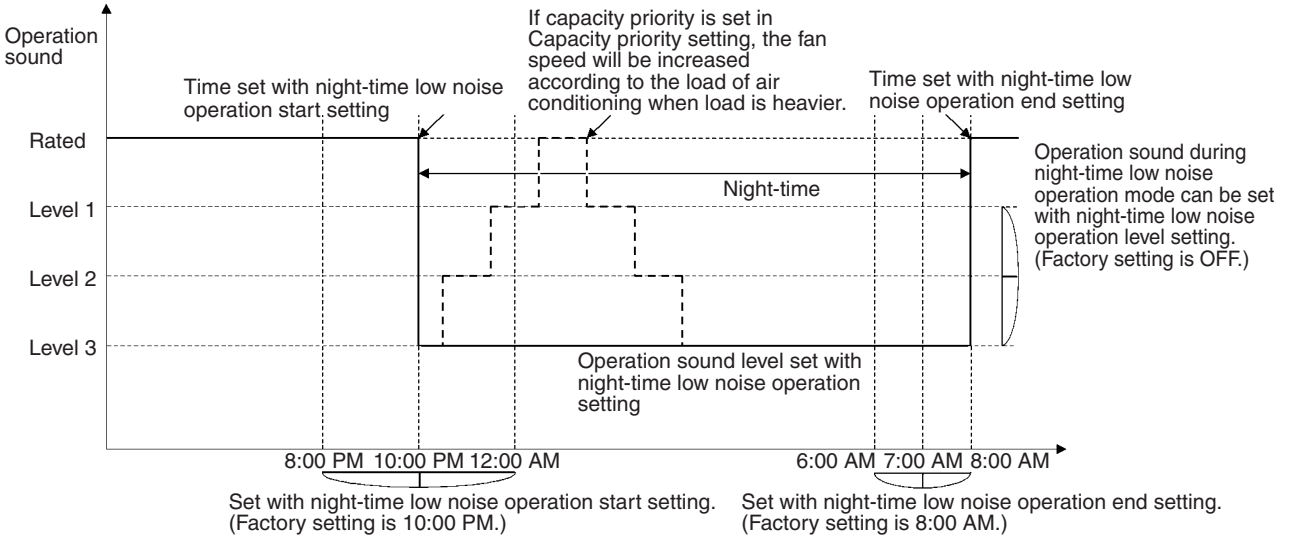
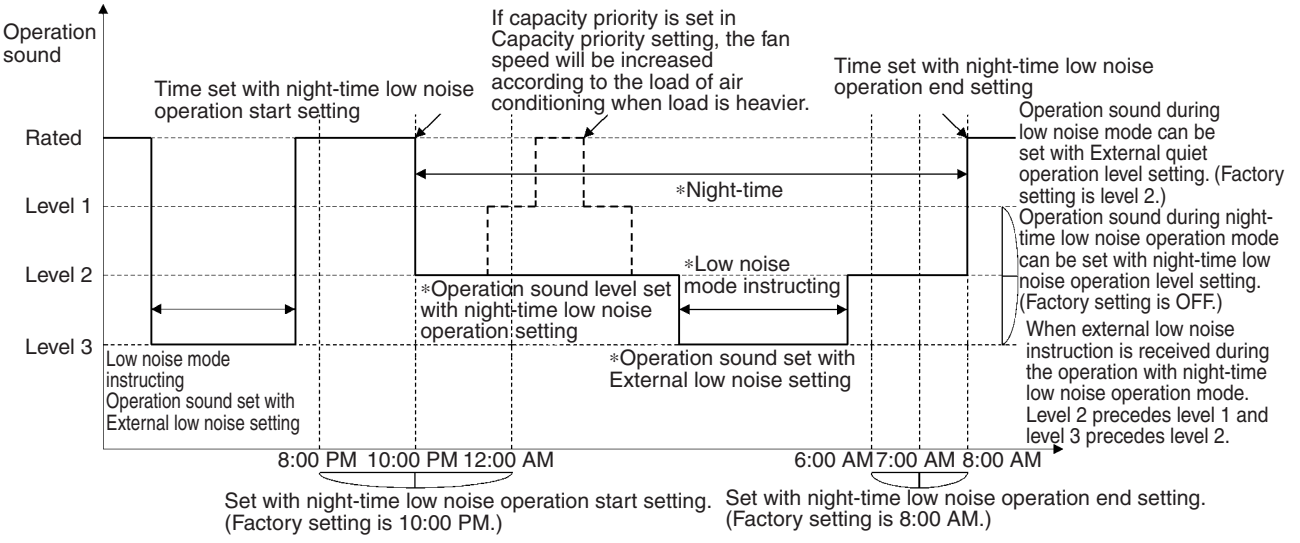


Image of operation in the case of A and B



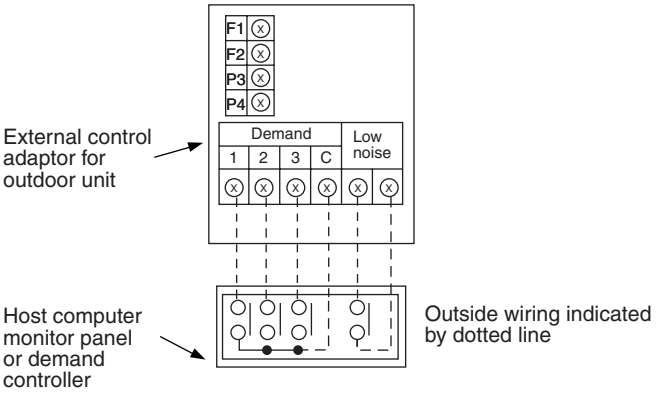
Setting of Demand Operation

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

Description of setting		Setting procedure	
Setting item	Description	External control adaptor for outdoor unit	Outdoor unit PCB
Demand 1	Operate with power of 70% or less of the rating.	Short circuit between "1" and "C" of the terminal block (TeS1).	Set the item 2-32 to Demand 1.
Demand 2	Operate with power of 40% or less of the rating.	Short circuit between "2" and "C".	Set the item 2-32 to Demand 2.
Demand 3	Operate with forced thermostat OFF	Short circuit between "3" and "C".	–

∗: However the demand operation does not occur in the following operation modes.
(1) Startup control (2) Oil return operation
(3) Defrost operation (4) Pump down residual operation

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



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

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

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

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

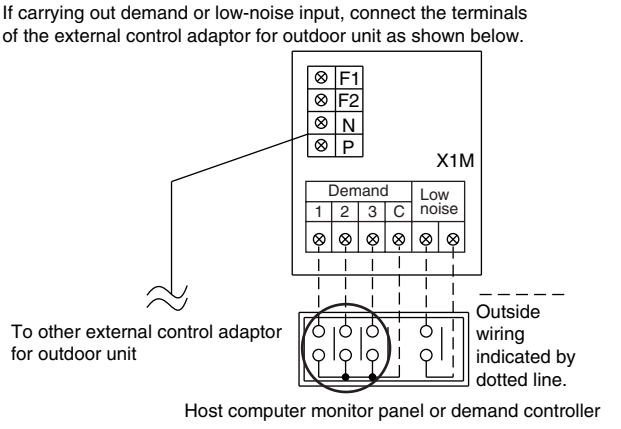


Image of operation in the case of A

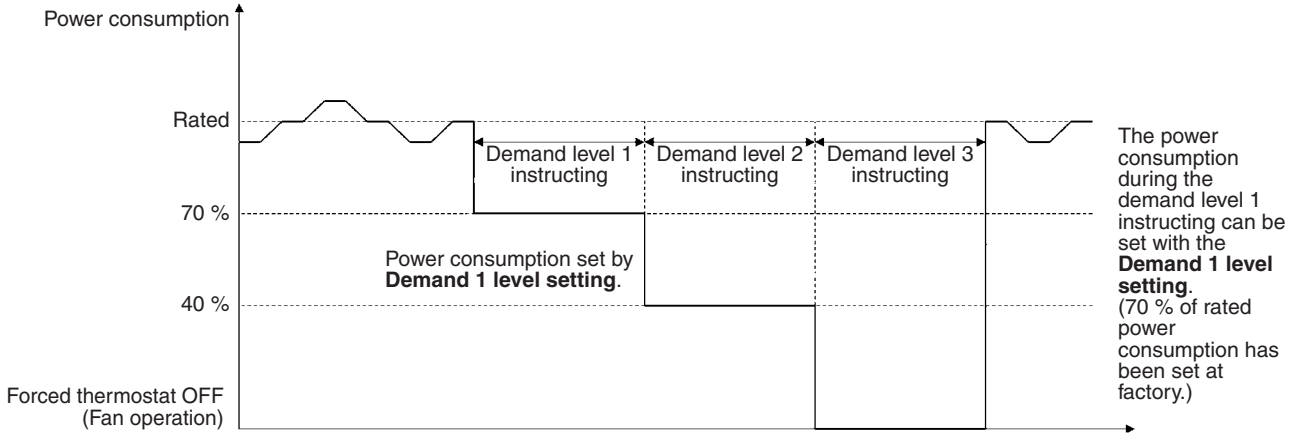


Image of operation in the case of B

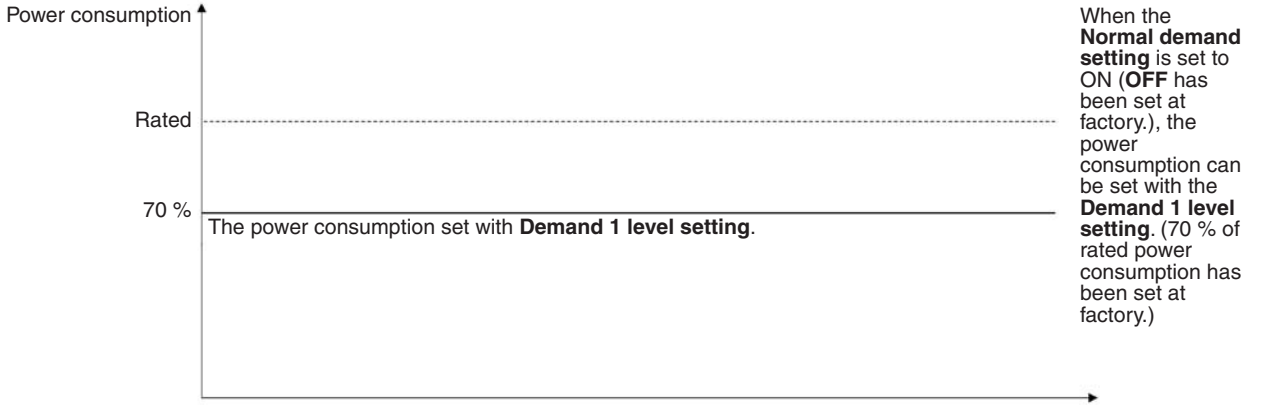
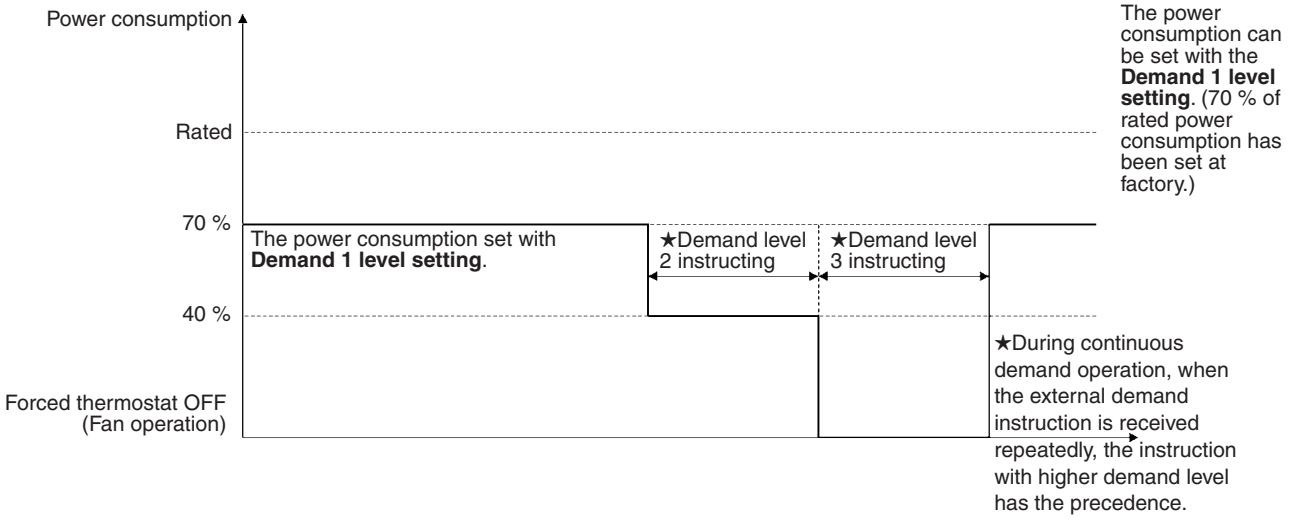


Image of operation in the case of A and B



Detailed Setting Procedure of Night-time Low Noise Operation and Demand Control

1. Setting mode 1 (H1P OFF)

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

2. Setting mode 2 (H1P ON)

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

3. Test Operation

3.1 Checks before Test Operation

Before carrying out a test operation, proceed as follows:

Step	Action
1	Make sure the voltage at the primary side of the safety breaker is: 187 - 253 V (-TATJU) or 416 - 508 V (-TAYDU) or 518 - 632 V (-TAYCU)
2	Fully open the liquid and the gas stop valve.

3.2 Checkpoints

To carry out a test operation, check the following:

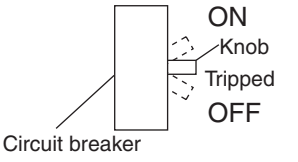
- Check that the temperature setting of the remote controller is at the lowest level in cooling mode or use test mode.
- Go through the following checklist:

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

Part 6
Service Diagnosis

1. Symptom-based Troubleshooting

1.1 Indoor Unit Overall

	Symptom		Supposed Cause	Countermeasure
1	The system does not start operation at all.		Blowout of fuse(s)	Turn Off the power supply and then replace the fuse(s).
			Cutout of breaker(s)	• If the knob of any breaker is in its OFF position, turn ON the power supply. • If the knob of any circuit breaker is in its tripped position, do not turn ON the power supply. 
			Power failure	After the power failure is reset, restart the system.
			The connector loose or not fully plugged in	Turn off the power supply to verify the connection of the connector.
2	The system starts operation but makes an immediate stop.		Blocked air inlet or outlet of indoor or outdoor unit	Remove obstacle(s).
			Clogged air filter(s)	Clean the air filter(s).
3	The system does not cool or heat air well.		Blocked air inlet or outlet of indoor or outdoor unit	Remove obstacle(s).
			Clogged air filter(s)	Clean the air filter(s).
			Enclosed outdoor unit(s)	Remove the enclosure.
			Improper set temperature	Set the temperature to a proper degree.
			Airflow rate set to LOW	Set it to a proper airflow rate.
			Improper direction of air diffusion	Set it to a proper direction.
			Open window(s) or door(s)	Shut it tightly.
		[In cooling]	Direct sunlight received	Hang curtains or shades on windows.
		[In cooling]	Too many persons staying in a room	The model must be selected to match the air conditioning load.
		[In cooling]	Too many heat sources (e.g. OA equipment) located in a room	
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 remote controller displays **UNDER CENTRALIZED CONTROL**, which blinks for a period of several seconds when the **OPERATION** button is depressed.	The system is controlled with centralized controller. Blinking display indicates that the system cannot be operated using the remote controller.	Operate the system using the COOL/HEAT centralized remote controller.
		The system stops immediately after turning ON the power supply.	The system is in preparation mode of microcomputer operation.	Wait for a period of approximately one minute.
5	The system makes intermittent stops.	The remote controller displays error codes **U4** or **U5**, and the system stops but restarts after a lapse of several minutes.	The system stops due to an interruption in communication between units caused by electrical noises coming from equipment other than air conditioners.	Remove causes of electrical noises. If these causes are removed, the system will automatically restart operation.

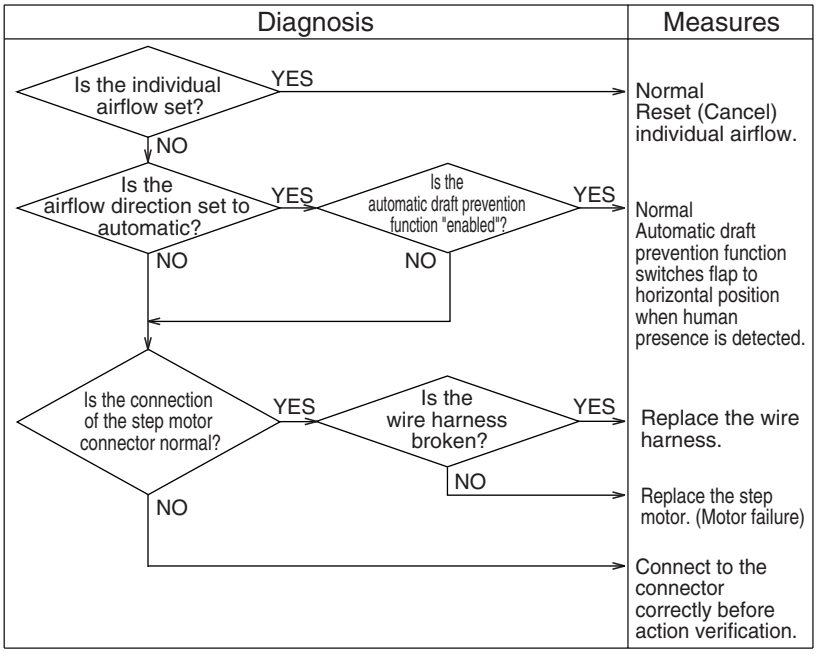
	Symptom		Supposed Cause	Countermeasure
6	COOL/HEAT selection is disabled.	The remote controller displays **UNDER CENTRALIZED CONTROL.**	This remote controller has no option to select cooling operation.	Use a remote controller with option to select cooling operation.
		The remote controller displays **UNDER CENTRALIZED CONTROL**, and the COOL/HEAT selection remote controller is provided.	COOL/HEAT selection is made using the COOL/HEAT selection remote controller.	Use the COOL/HEAT selection remote controller to select cool or heat.
7	The system conducts fan operation but not cooling or heating operation.	This symptom occurs immediately after turning ON the power supply.	The system is in preparation mode of operation.	Wait for a period of approximately 10 minutes.
		The remote controller displays **UNDER CENTRALIZED CONTROL**; no cooling or heating operation is performed. Switch to fan operation.	In thermal storage operation, the unit is set to fan operation in cooling or heating operation, and the remote controller shows **CENTRALIZED CONTROL**.	Normal operation.
8	The airflow rate is not reproduced according to the setting.	Even pressing the airflow rate setting button makes no changes in the airflow rate.	In heating operation, when the room temperature reaches the set degree, the outdoor unit will stop while the indoor unit is brought to fan LL operation so that no one gets cold air. Furthermore, if fan operation mode is selected when other indoor unit is in heating operation, the system will be brought to fan LL operation.	Normal operation.
9	The airflow direction is not reproduced according to the setting.	The airflow direction is not corresponding to that displayed on the remote controller. The flap does not swing.	Automatic control	Normal operation.
10	A white mist comes out from the system.	**Indoor unit** In cooling operation, the ambient humidity is high. (This indoor unit is installed in a place with much oil or dust.)	Uneven temperature distribution due to heavy stain of the inside of the indoor unit	Clean the inside of the indoor unit.
		Indoor unit Immediately after cooling operation stopping, the ambient temperature and humidity are low.	Hot gas (refrigerant) flown in the indoor unit results to be vapor from the unit.	Normal operation.
		Indoor and outdoor units After the completion of defrost operation, the system is switched to heating operation.	Defrosted moisture turns to be vapor and comes out from the units.	Normal operation.

	Symptom		Supposed Cause	Countermeasure
11	The system produces sounds.	**Indoor unit** Immediately after turning ON the power supply, indoor unit produces ringing sounds.	These are operating sounds of the electronic expansion valve of the indoor unit.	Normal operation. This sound becomes low after a lapse of approximately one minute.
		Indoor and outdoor units Hissing sounds are continuously produced while in cooling or defrosting operation.	These sounds are produced from gas (refrigerant) flowing respectively through the indoor and outdoor units.	Normal operation.
		Indoor and outdoor units Hissing sounds are produced immediately after the startup or stop of the system, or the startup or stop of defrosting operation.	These sounds are produced when the gas (refrigerant) stops or changes flowing.	Normal operation.
		Indoor unit Faint sounds are continuously produced while in cooling operation or after stopping the operation.	These sounds are produced from the drain discharge device in operation.	Normal operation.
		Indoor unit Creaking sounds are produced while in heating operation or after stopping the operation.	These sounds are produced from resin parts expanding and contracting with temperature changes.	Normal operation.
		Indoor unit Sounds like trickling or the like are produced from indoor units in the stopped state.	On *VRV* systems, these sounds are produced when other indoor units in operation. The reason is that the system runs in order to prevent oil or refrigerant from dwelling.	Normal operation.
		Outdoor unit Pitch of operating sounds changes.	The reason is that the compressor changes the operating frequency.	Normal operation.
12	Dust comes out from the system.	Dust comes out from the system when it restarts after the stop for an extended period of time.	Dust, which has deposited on the inside of indoor unit, is blown out from the system.	Normal operation.
13	Odors come out from the system.	In operation	Odors of room, cigarettes or else adsorbed to the inside of indoor unit are blown out.	The inside of the indoor unit should be cleaned.
14	Outdoor unit fan does not rotate.	In operation	The reason is that fan revolutions are controlled to put the operation to the optimum state.	Normal operation.
15	LCD display **88** appears on the remote controller.	Immediately after turning ON the power supply	The reason is that the system is checking to be sure the remote controller is normal.	Normal operation. This code is displayed for a period of approximately one minute at maximum.
16	The outdoor unit compressor or the outdoor unit 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.
17	The outdoor gets hot.	While stopping operation	The reason is that the compressor is warmed up to provide smooth startup of the system.	Normal operation.
18	Hot air comes out from the system even though it stops.	Hot air is felt while the system stops.	On *VRV* systems, small quantity of refrigerant is fed to indoor units in the stopped state when other indoor units are in operation.	Normal operation.
19	The system does not cool air well.	The system is in dry operation.	The reason is that the dry operation serves not to reduce the room temperature where possible.	Change the system to cooling operation.

1.2 With Optional Infrared Presence/Floor Sensor

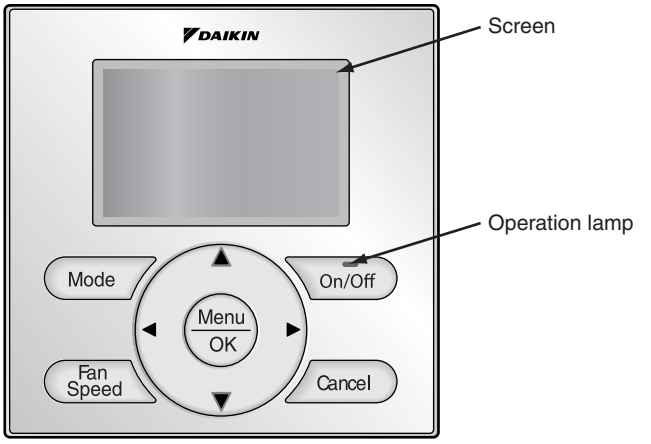
	Condition	Measure
1	"Louver operation different from setting" or "No downward airflow in heating operation"	Refer to the following table.
2	Individual airflow direction setting different from the actual airflow direction	· Check the "Louver operation different from setting" error diagnosis.
3	When in stop mode, 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. 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.	Please check "Infrared presence/floor sensor error (CE)" in troubleshooting.
5	The menu does not display the eco-friendly display function.	No defect. Set the clock.
6	During cooling and dry operation, the louver automatically switches from horizontal (P0) to one-level downward (P1).	No defect. When relative ambient humidity is higher, automatic louver control will be activated.
7	During heating operation, the use of an airflow block will not cause other louvers to turn downward (P4).	No defect. In heating operation, if an airflow block is set, then the air outlet control outside the airflow block will be within the range P0-P3.
8	When using airflow block, the airflow block will be routinely lifted (become horizontal) during heating operation.	No defect. Set louver to horizontal (P0) during thermostat OFF.
9	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
10	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
11	Large difference between floor temperature and actual temperature	Check for the following conditions. · Sensor detection zone affected by solar radiation · High or low temperature objects in the sensor detection zone · Large difference between floor temperature and temperature of the living space · Sensors installed near walls may be affected by wall temperature.

Error diagnosis of "Louver operation different from setting"

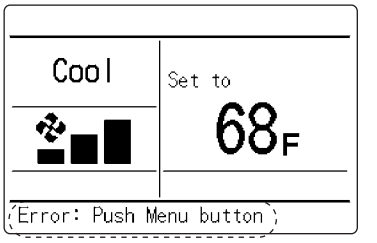
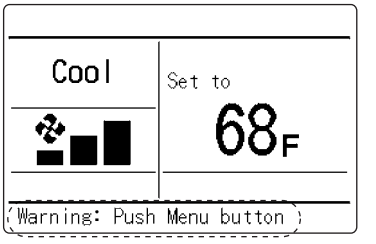


1.3 Wired Remote Controller

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



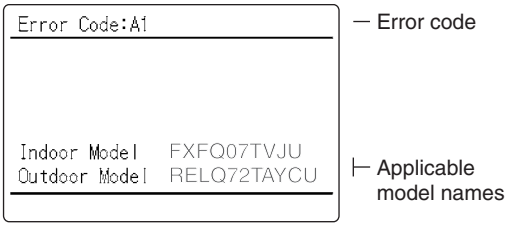
(1) Check if it is an error or warning.

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

(2) Taking corrective action.

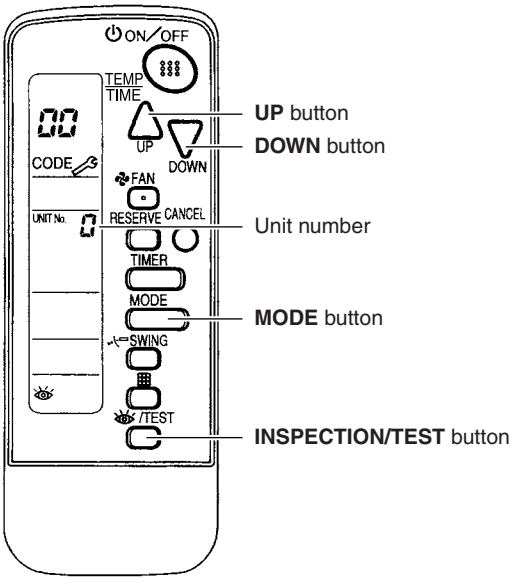
Press the **Menu/OK** button to check the error code.

Take the corrective action specific to the model.



1.4 Wireless Remote Controller

If the unit stops due to an error, the operation indicating LED on the signal receiving part of indoor unit blinks. The error code can be determined by following the procedure described below. (The error code is displayed when an operation error has occurred. In normal condition, the error code of the last problem is displayed.)



1. Press **INSPECTION/TEST** button to enter inspection mode. Then the figure 0 blinks on the unit number display.
2. Press **UP** button or **DOWN** button and change the unit number until the receiver of the remote controller starts to beep.
   3 short beeps : Follow all steps below.
   1 short beep : Follow steps 3 and 4. Continue the operation in step 4 until you hear a continuous beep. This continuous beep indicates that the error code is confirmed.
   Continuous beep : There is no abnormality.
3. Press **MODE** button. The left 0 (upper digit) indication of the error code blinks.
4. Press **UP** button or **DOWN** button to change the error code upper digit until the receiver of the indoor unit starts to beep.

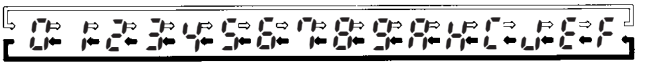
■ The upper digit of the code changes as shown below.

⇨ **"UP" button** ⬅ **"DOWN" button**

Continuous beep : Both upper and lower digits match. (Error code is confirmed.)
2 short beeps : The upper digit matches but the lower digit does not.
1 short beep : The upper digit does not match.

5. Press **MODE** button. The right 0 (lower digit) indication of the error code blinks.
6. Press **UP** button or **DOWN** button and change the error code lower digit until the receiver of the indoor unit generates a continuous beep.

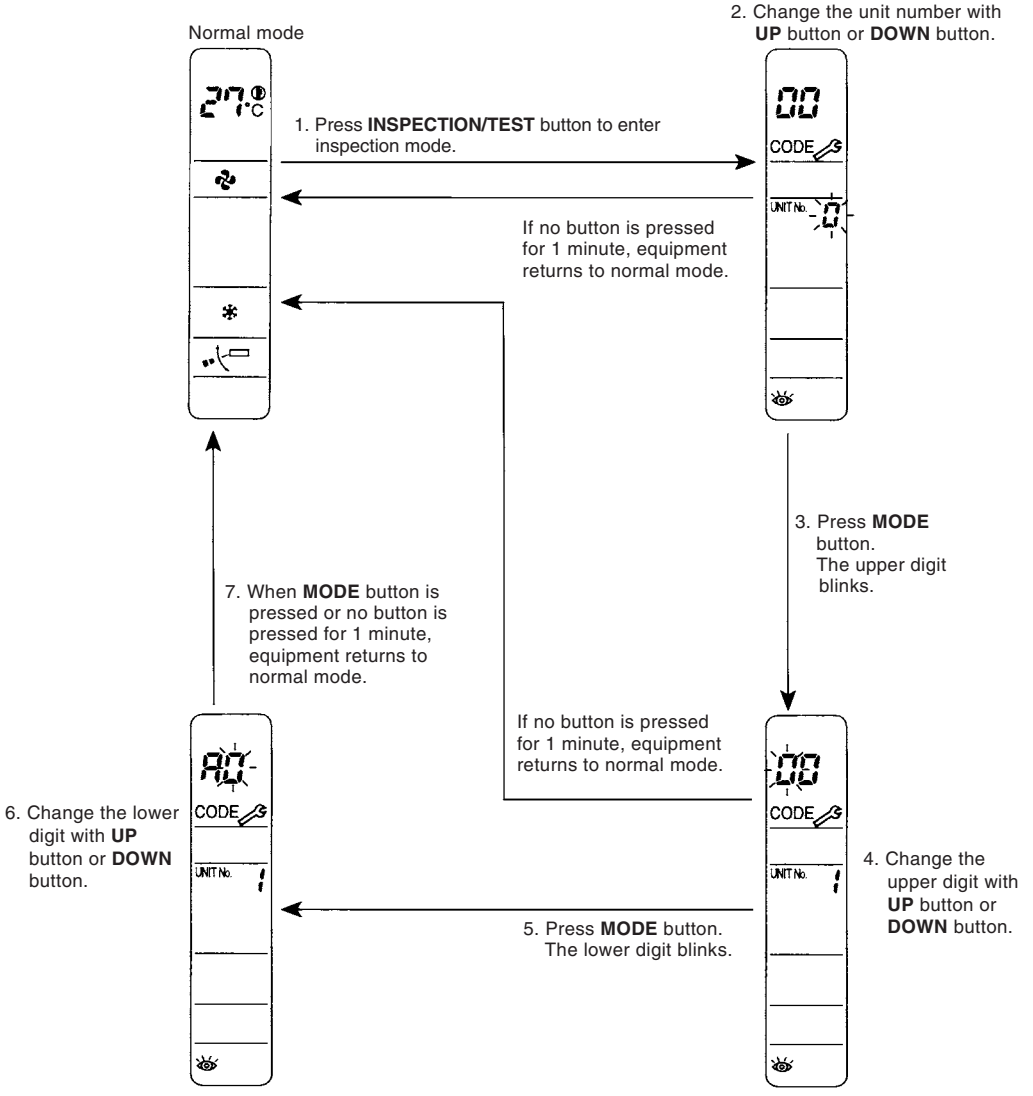
■ The lower digit of the code changes as shown below.



⇨ "UP" button ⇦ "DOWN" button

Continuous beep : Both upper and lower digits match. (Error code is confirmed.)
2 short beeps : The upper digit matches but the lower digit does not.
1 short beep : The upper digit does not match.

7. Press **MODE** button to return to the normal mode. If you do not press any button for 1 minute, the remote controller automatically returns to the normal mode.



1.5 Error Codes and Descriptions

○: ON ●: OFF ◑: Blink

	Error code	Operation lamp	Error contents	Reference page
Indoor Unit	A0	◑	External protection device abnormality	176
	A1	◑	Indoor unit PCB abnormality	178
	A3	◑	Drain level control system abnormality	179
	A6	◑	Indoor fan motor lock, overload	181
			Indoor fan motor abnormality	184
			Overload/overcurrent/lock of indoor fan motor	188
			Blower motor not running	189
			Indoor fan motor status abnormality	190
			Low indoor airflow	191
	A7 (∗1)	○	Swing flap motor abnormality	192
	A8	◑	Power supply voltage abnormality	194
			Blower motor stops for over/under voltage	195
	A9	◑	Electronic expansion valve coil abnormality, dust clogging	196
	AF (∗1)	○	Drain level above limit	197
	AJ	◑	Capacity determination device abnormality	198
	C1	◑	Transmission abnormality between indoor unit PCB and fan PCB	199
			Blower motor communication error	201
	C4	◑	Heat exchanger liquid pipe thermistor abnormality	202
	C5	◑	Heat exchanger gas pipe thermistor abnormality	202
	C6	◑	Combination error between indoor unit PCB and fan PCB	203
			Blower motor HP mismatch	204
			Indoor blower does not have required parameters to function	205
	C9 (∗2)	◑	Suction air thermistor abnormality	202
			Remote sensor abnormality	206
	CA	◑	Discharge air thermistor abnormality	202
	CC	○	Humidity sensor system abnormality	207
	CE (∗1)	○	Infrared presence/floor sensor error	208
	CJ (∗2)	○	Remote controller thermistor abnormality	213
Outdoor Unit	E1	◑	Outdoor unit PCB abnormality	214
	E2	◑	Detection of ground leakage by leak detection circuit	215
			Missing of ground leakage detection core	216
	E3	◑	Actuation of high pressure switch	217
	E4	◑	Actuation of low pressure sensor	219
	E5	◑	Inverter compressor motor lock	220
	E6	◑	Compressor damage alarm	222
	E7	◑	Outdoor fan motor abnormality	224
	E9	◑	Electronic expansion valve coil abnormality	228
	F3	◑	Discharge pipe temperature abnormality	229
	F4	◑	Wet alarm	231
	F6	◑	Refrigerant overcharged	232
BS Unit	F9	◑	BS unit electronic expansion valve abnormality	233
Outdoor Unit	H3	◑	Harness abnormality (between outdoor unit main PCB and inverter PCB)	234
	H7	◑	Outdoor fan motor signal abnormality	235
			Outdoor fan PCB abnormality	236
	H9	◑	Outdoor air thermistor (R1T) abnormality	237
	J3	◑	Discharge pipe thermistor (R21T) abnormality Compressor body thermistor (R14T) abnormality	237
	J5	◑	Compressor suction thermistor (R12T) abnormality Suction pipe thermistor (R10T) abnormality	237
	J6	◑	Heat exchanger deicer thermistor (R11T) abnormality Heat exchanger gas pipe thermistor (R8T, R9T) abnormality	237
	J7	◑	Receiver inlet thermistor (R3T) abnormality Subcooling heat exchanger liquid pipe thermistor (R7T) abnormality Subcooling injection thermistor (R16T) abnormality	237
	J8	◑	Heat exchanger liquid pipe thermistor (R4T, R5T) abnormality Leak detection thermistor (R15T) abnormality	237

○: ON ●: OFF ◑: Blink

	Error code	Operation lamp	Error contents	Reference page
Outdoor Unit	J9	◑	Subcooling heat exchanger gas pipe thermistor (R6T) abnormality Receiver gas purge thermistor (R13T) abnormality	237
	JA	◑	High pressure sensor abnormality	239
	JC	◑	Low pressure sensor abnormality	240
	L1	◑	Inverter PCB abnormality	241
	L2	◑	Momentary power failure during test operation	243
	L3	◑	Reactor temperature rise abnormality	244
	L4	◑	Inverter radiation fin temperature rise abnormality	245
	L5	◑	Inverter compressor instantaneous overcurrent	248
	L8	◑	Inverter compressor overcurrent	250
	L9	◑	Inverter compressor startup abnormality	252
	LC	◑	Transmission error between inverter PCB and outdoor unit main PCB	254
	P1	◑	Power supply voltage imbalance	256
	P3	◑	Reactor surface thermistor abnormality	258
	P4 (∗1)	◑	Inverter radiation fin temperature abnormality	259
	PJ	◑	Field setting after replacing outdoor unit main PCB abnormality or combination of PCB abnormality	261
System	U0 (∗1)	○	Refrigerant shortage	262
	U1	◑	Reverse phase, open phase	263
	U2	◑	Power supply insufficient or instantaneous abnormality	265
	U3	◑	Check operation not executed	267
	U4	◑	Transmission error between indoor units and outdoor units	268
	U5	◑	Transmission error between remote controller and indoor unit	271
	U7	◑	Transmission error between outdoor units	272
	U8	◑	Transmission error between main and sub remote controllers	278
	U9	◑	Transmission error between indoor and outdoor units in the same system	279
	UA	◑	Improper combination of indoor and outdoor units, indoor units and remote controller	280
			Incorrect electric heater capacity setting	284
	UC (∗1)	○	Address duplication of centralized control equipment	285
	UE	◑	Transmission error between centralized control equipment and indoor unit	286
	UF	◑	System not set yet	288
	UH	◑	System abnormality, refrigerant system address undefined	289

Note: ∗1. The system can keep operating, however, be sure to check and repair.
∗2. The system may or may not continue operation depending on the conditions.

1.6 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.

1.6.1 Indoor Unit

Error code	Troubleshooting	
	Description of error	Description of diagnosis
A0 - 01	External protection device abnormality	Refer to page 177.
A6 - 01	Fan motor locked	A locked fan motor current has been detected. Turn the fan by hand to check for the connection of connectors.
A6 - 10	Fan overcurrent error	A fan motor overcurrent has been detected. Check for the connection of the connector between the fan motor and the fan PCB. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the fan PCB.
A6 - 11	Fan position detection error	An error in the detection of position of the fan motor. Check for the connection of the connector between the fan motor and the fan PCB. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the fan PCB.
A6 - 20	Indoor fan motor status abnormality	Refer to page 190.
A6 - 21	Low indoor airflow	Refer to page 191.
A8 - 01	Power supply voltage error	Check for the input voltage of the fan motor.
A9 - 01	Electronic expansion valve error	There is an error in the electronic expansion valve coil or a connector disconnected.
A9 - 02	Refrigerant leakage detection error	Refrigerant leaks even if the electronic expansion valve is closed. Replace the electronic expansion valve.
AH - 03	Transmission error (between the self-cleaning decoration panel and the indoor unit) (when the self-cleaning decoration panel is mounted)	Check for the connection of the harness connector between the panel PCB and the indoor unit PCB.
AH - 04	Dust detection sensor error (when the self-cleaning decoration panel is mounted)	Check for the connections of the connector X12A on the panel PCB and the connectors X18A and X19A on the sensor PCB.
AH - 05	Dust collection sign error (when the self-cleaning decoration panel is mounted)	Check for clogging with dust at the dust collection port as well as in the brush unit, S-shaped pipe, and dust box. Furthermore, check for any stains of the light receiving and emitting parts of the infrared unit.
AH - 06	Air filter rotation error (when the self-cleaning decoration panel is mounted)	Check for anything getting in the way of rotating the filter (e.g. the filter comes off or the drive gear is clogged with foreign matter).
AH - 07	Damper rotation error (when the self-cleaning decoration panel is mounted)	The damper does not rotate normally. Check for any foreign matter around the damper and for the operation of the gear and limit switch.
AH - 08	Filter self-cleaning operation error (when the self-cleaning decoration panel is mounted)	The unit has not yet completed the filter self-cleaning operation even after the lapse of specified period of time. Check for any external noise, etc.
AH - 09	Filter self-cleaning operation start disabled error (when the self-cleaning decoration panel is mounted)	The unit has been put into a state in which the filter self-cleaning operation is disabled. Check the unit for the operating conditions.
AJ - 01	Capacity setting error	There is an error in the capacity setting of the indoor unit PCB.
AJ - 02	Electronic expansion valve setting error	There is a fault in the setting of the gear type electronic expansion valve/direct acting type electronic expansion valve.
C1 - 01	Transmission abnormality between indoor unit PCB and fan PCB	Check for the conditions of transmission between the indoor unit PCB and the fan PCB.
C1 - 07	Blower motor communication error	Refer to page 201.
C6 - 01	Defective combination of indoor unit PCB and the fan PCB	A combination of indoor unit PCB and the fan PCB is defective. Check whether the capacity setting adaptor is correct and the type of the fan PCB is correct.
	Blower motor HP mismatch	
C6 - 02	Indoor blower does not have required parameters to function	Refer to page 205.
U4 - 01	Indoor-outdoor transmission error	Refer to the **U4** flow chart.
UA - 13	Refrigerant type error	The type of refrigerant used for the indoor unit is different from that used for the outdoor unit.
UA - 15	Not applicable for self-cleaning decoration panel [when the self-cleaning decoration panel is mounted]	An outdoor unit is not applicable for the self-cleaning decoration panel is connected.
UA - 17	Incorrect electric heater capacity setting	Refer to page 284.

1.6.2 Outdoor Unit

Error code	Troubleshooting	
	Description of error	Description of diagnosis
E1 - 01	Outdoor unit PCB error	Refer to the **E1** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
E1 - 02	Defective outdoor unit PCB	
E2 - 01	Ground leakage detection error (Master)	Refer to the **E2** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
E2 - 02	Ground leakage detection error (Slave 1)	
E2 - 03	Ground leakage detection error (Slave 2)	
E2 - 06	Missing of ground leakage detection core (Master)	
E2 - 07	Missing of ground leakage detection core (Slave 1)	
E2 - 08	Missing of ground leakage detection core (Slave 2)	
E3 - 01 E3 - 02	Actuation of high pressure switch S1PH (Master)	Refer to the **E3** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
E3 - 03 E3 - 04	Actuation of high pressure switch S1PH (Slave 1)	
E3 - 05 E3 - 06	Actuation of high pressure switch S1PH (Slave 2)	
E3 - 07	High pressure standby E3 latch error (System integrated)	
E3 - 13	Liquid stop valve check error (Master)	
E3 - 14	Liquid stop valve check error (Slave 1)	
E3 - 15	Liquid stop valve check error (Slave 2)	
E3 - 18	Overall retry of high pressure switch	
E4 - 01	Low pressure sensor error (Master)	Refer to the **E4** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
E4 - 02	Low pressure sensor error (Slave 1)	
E4 - 03	Low pressure sensor error (Slave 2)	
E5 - 01	Inverter compressor M1C lock (Master)	Refer to the **E5** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
E5 - 02	Inverter compressor M1C lock (Slave 1)	
E5 - 03	Inverter compressor M1C lock (Slave 2)	
E6 - 11	Compressor damage error: Inverter compressor M1C (Master)	Refer to the **E6** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
E6 - 13	Compressor damage error: Inverter compressor M1C (Slave 1)	
E6 - 15	Compressor damage error: Inverter compressor M1C (Slave 2)	
E6 - 17	Compressor damage warning: Inverter compressor M1C (Master)	
E6 - 19	Compressor damage warning: Inverter compressor M1C (Slave 1)	
E6 - 21	Compressor damage warning: Inverter compressor M1C (Slave 2)	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
E7 - 01	Fan motor M1F lock (Master)	Make a diagnosis of the fan motor of the relevant unit based on the following. Fan motor lock: 01, 02, 13, 14, 25, 26 Momentary overcurrent: 05, 06, 17, 18, 29, 30 IPM error: 09, 10, 21, 22, 33, 34
E7 - 02	Fan motor M2F lock (Master)	
E7 - 05	Fan motor M1F momentary overcurrent (Master)	
E7 - 06	Fan motor M2F momentary overcurrent (Master)	
E7 - 09	Fan motor M1F IPM error (Master)	
E7 - 10	Fan motor M2F IPM error (Master)	
E7 - 13	Fan motor M1F lock (Slave 1)	
E7 - 14	Fan motor M2F lock (Slave 1)	
E7 - 17	Fan motor M1F momentary overcurrent (Slave 1)	
E7 - 18	Fan motor M2F momentary overcurrent (Slave 1)	
E7 - 21	Fan motor M1F IPM error (Slave 1)	
E7 - 22	Fan motor M2F IPM error (Slave 1)	
E7 - 25	Fan motor M1F lock (Slave 2)	
E7 - 26	Fan motor M2F lock (Slave 2)	
E7 - 29	Fan motor M1F momentary overcurrent (Slave 2)	
E7 - 30	Fan motor M2F momentary overcurrent (Slave 2)	
E7 - 33	Fan motor M1F IPM error (Slave 2)	
E7 - 34	Fan motor M2F IPM error (Slave 2)	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
E9 - 01	Electronic expansion valve coil (Y1E) error (Master)	Refer to the **E9** flowchart of each manual and make a diagnosis of the relevant electronic expansion valve of the relevant unit based on the Error code shown to the left.
E9 - 03	Electronic expansion valve coil (Y2E) error (Master)	
E9 - 04	Electronic expansion valve coil (Y3E) error (Master)	
E9 - 05	Electronic expansion valve coil (Y1E) error (Slave 1)	
E9 - 06	Electronic expansion valve coil (Y2E) error (Slave 1)	
E9 - 07	Electronic expansion valve coil (Y3E) error (Slave 1)	
E9 - 08	Electronic expansion valve coil (Y1E) error (Slave 2)	
E9 - 09	Electronic expansion valve coil (Y2E) error (Slave 2)	
E9 - 10	Electronic expansion valve coil (Y3E) error (Slave 2)	
E9 - 20	Defective electronic expansion valve coil (Y1E) (Master)	
E9 - 21	Defective electronic expansion valve coil (Y1E) (Slave 1)	
E9 - 22	Defective electronic expansion valve coil (Y1E) (Slave 2)	
E9 - 23	Defective electronic expansion valve coil (Y2E) (Master)	
E9 - 24	Defective electronic expansion valve coil (Y2E) (Slave 1)	
E9 - 25	Defective electronic expansion valve coil (Y2E) (Slave 2)	
E9 - 26	Electronic expansion valve coil (Y4E) error (Master)	
E9 - 27	Electronic expansion valve coil (Y4E) error (Slave 1)	
E9 - 28	Electronic expansion valve coil (Y4E) error (Slave 2)	
E9 - 29	Electronic expansion valve coil (Y5E) error (Master)	
E9 - 31	Electronic expansion valve coil (Y6E) error (Master)	
E9 - 32	Electronic expansion valve coil (Y7E) error (Master)	
E9 - 34	Electronic expansion valve coil (Y5E) error (Slave 1)	
E9 - 36	Electronic expansion valve coil (Y6E) error (Slave 1)	
E9 - 37	Electronic expansion valve coil (Y7E) error (Slave 1)	
E9 - 39	Electronic expansion valve coil (Y5E) error (Slave 2)	
E9 - 41	Electronic expansion valve coil (Y6E) error (Slave 2)	
E9 - 42	Electronic expansion valve coil (Y7E) error (Slave 2)	
E9 - 44	Defective electronic expansion valve coil (Y3E) (Master)	
E9 - 45	Defective electronic expansion valve coil (Y3E) (Slave 1)	
E9 - 46	Defective electronic expansion valve coil (Y3E) (Slave 2)	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
F3 - 01	Discharge pipe high temperature error (Master)	Refer to the **F3** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
F3 - 03	Discharge pipe high temperature error (Slave 1)	
F3 - 05	Discharge pipe high temperature error (Slave 2)	
F3 - 20	Compressor overheat error (Master)	
F3 - 21	Compressor overheat error (Slave 1)	
F3 - 22	Compressor overheat error (Slave 2)	
F4 - 01	Wet alarm	Refer to the **F4** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
F4 - 02	Wet alarm for inverter compressor M1C (Master)	
F4 - 04	Wet alarm for inverter compressor M1C (Slave 1)	
F4 - 06	Wet alarm for inverter compressor M1C (Slave 2)	
F4 - 08	Wet error for inverter compressor M1C (Master)	
F4 - 10	Wet error for inverter compressor M1C (Slave 1)	
F4 - 12	Wet error for inverter compressor M1C (Slave 2)	
F4 - 14	Indoor unit failure alarm	
F6 - 02	Refrigerant overcharged	Refrigerant overcharge was detected during test operation.
F9 - 01	Electronic expansion valve error (high/low pressure gas pipe)	Refer to the **F9** flowchart of each manual and make a diagnosis of the relevant electronic expansion valve of the relevant unit based on the Error code shown to the left.
F9 - 02	Electronic expansion valve error (suction pipe)	
F9 - 05	Electronic expansion valve error (subcooling)	
H3 - 02	Harness abnormality (Main & inverter PCB) - Master unit	Refer to the **H3** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
H3 - 04	Harness abnormality (Main & inverter PCB) - Slave unit 1	
H3 - 06	Harness abnormality (Main & inverter PCB) - Slave unit 2	
H7 - 01	Motor position signal abnormality (Master): M1F	Refer to the **H7** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
H7 - 02	Motor position signal abnormality (Master): M2F	
H7 - 05	Motor position signal abnormality (Slave 1): M1F	
H7 - 06	Motor position signal abnormality (Slave 1): M2F	
H7 - 21	Defective fan PCB (Master): M1F	
H7 - 22	Defective fan PCB (Master): M2F	
H7 - 23	Defective fan PCB (Slave 1): M1F	
H7 - 24	Defective fan PCB (Slave 1): M2F	
H7 - 25	Defective fan PCB (Slave 2): M1F	
H7 - 26	Defective fan PCB (Slave 2): M2F	
H9 - 01	Defective outdoor air thermistor (Master)	Refer to the **H9** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
H9 - 02	Defective outdoor air thermistor (Slave 1)	
H9 - 03	Defective outdoor air thermistor (Slave 2)	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
J3 - 16	Defective discharge pipe thermistor (R21T): Open (Master)	Refer to the **J3** flowchart of each manual and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.
J3 - 17	Defective discharge pipe thermistor (R21T): Short (Master)	
J3 - 22	Defective discharge pipe thermistor (R21T): Open (Slave 1)	
J3 - 23	Defective discharge pipe thermistor (R21T): Short (Slave 1)	
J3 - 28	Defective discharge pipe thermistor (R21T): Open (Slave 2)	
J3 - 29	Defective discharge pipe thermistor (R21T): Short (Slave 2)	
J3 - 47	Defective compressor body thermistor (R14T): Open (Master)	
J3 - 48	Defective compressor body thermistor (R14T): Short (Master)	
J3 - 49	Defective compressor body thermistor (R14T): Open (Slave 1)	
J3 - 50	Defective compressor body thermistor (R14T): Short (Slave 1)	
J3 - 51	Defective compressor body thermistor (R14T): Open (Slave 2)	
J3 - 52	Defective compressor body thermistor (R14T): Short (Slave 2)	
J3 - 56	Discharge pipe warning (Master)	
J3 - 57	Discharge pipe warning (Slave 1)	
J3 - 58	Discharge pipe warning (Slave 2)	
J5 - 01	Defective compressor suction thermistor (R12T) (Master)	Refer to the **J5** flowchart of each manual and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.
J5 - 03	Defective compressor suction thermistor (R12T) (Slave 1)	
J5 - 05	Defective compressor suction thermistor (R12T) (Slave 2)	
J5 - 18	Error detection of suction pipe thermistor (R10T) (Master)	
J5 - 19	Error detection of suction pipe thermistor (R10T) (Slave 1)	
J5 - 20	Error detection of suction pipe thermistor (R10T) (Slave 2)	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
J6 - 01	Defective heat exchanger deicer thermistor (R11T) (Master)	Refer to the **J6** flowchart of each manual and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.
J6 - 02	Defective heat exchanger deicer thermistor (R11T) (Slave 1)	
J6 - 03	Defective heat exchanger deicer thermistor (R11T) (Slave 2)	
J6 - 08	Defective heat exchanger gas upper thermistor (R8T) (Master)	
J6 - 09	Defective heat exchanger gas upper thermistor (R8T) (Slave 1)	
J6 - 10	Defective heat exchanger gas upper thermistor (R8T) (Slave 2)	
J6 - 11	Defective heat exchanger gas lower thermistor (R9T) (Master)	
J6 - 12	Defective heat exchanger gas lower thermistor (R9T) (Slave 1)	
J6 - 13	Defective heat exchanger gas lower thermistor (R9T) (Slave 2)	
J6 - 14	Error detection of heat exchanger gas upper thermistor (R8T) (Master)	
J6 - 15	Error detection of heat exchanger gas upper thermistor (R8T) (Slave 1)	
J6 - 16	Error detection of heat exchanger gas upper thermistor (R8T) (Slave 2)	
J6 - 17	Error detection of heat exchanger gas lower thermistor (R9T) (Master)	
J6 - 18	Error detection of heat exchanger gas lower thermistor (R9T) (Slave 1)	
J6 - 19	Error detection of heat exchanger gas lower thermistor (R9T) (Slave 2)	
J7 - 01	Defective receiver inlet thermistor (R3T) (Master)	Refer to the **J7** flowchart of each manual and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.
J7 - 02	Defective receiver inlet thermistor (R3T) (Slave 1)	
J7 - 03	Defective receiver inlet thermistor (R3T) (Slave 2)	
J7 - 06	Defective subcooling heat exchanger liquid pipe thermistor (R7T) (Master)	
J7 - 07	Defective subcooling heat exchanger liquid pipe thermistor (R7T) (Slave 1)	
J7 - 08	Defective subcooling heat exchanger liquid pipe thermistor (R7T) (Slave 2)	
J7 - 17	Standby for preventing fusible plug removal	
J7 - 18	Defective subcooling injection thermistor (R16T) (Master)	
J7 - 19	Defective subcooling injection thermistor (R16T) (Slave 1)	
J7 - 20	Defective subcooling injection thermistor (R16T) (Slave 2)	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
J8 - 01	Defective heat exchanger liquid upper thermistor (R4T) (Master)	Refer to the **J8** flowchart of each manual and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.
J8 - 02	Defective heat exchanger liquid upper thermistor (R4T) (Slave 1)	
J8 - 03	Defective heat exchanger liquid upper thermistor (R4T) (Slave 2)	
J8 - 08	Defective heat exchanger liquid lower thermistor (R5T) (Master)	
J8 - 09	Defective heat exchanger liquid lower thermistor (R5T) (Slave 1)	
J8 - 10	Defective heat exchanger liquid lower thermistor (R5T) (Slave 2)	
J8 - 11	Defective leak detection thermistor (R15T) (Master)	
J8 - 12	Defective leak detection thermistor (R15T) (Slave 1)	
J8 - 13	Defective leak detection thermistor (R15T) (Slave 2)	
J9 - 01	Defective subcooling heat exchanger gas pipe thermistor (R6T) (Master)	Refer to the **J9** flowchart of each manual and make a diagnosis of the relevant thermistor of the relevant unit based on the Error code shown to the left.
J9 - 02	Defective subcooling heat exchanger gas pipe thermistor (R6T) (Slave 1)	
J9 - 03	Defective subcooling heat exchanger gas pipe thermistor (R6T) (Slave 2)	
J9 - 08	Error detection of subcooling heat exchanger gas pipe thermistor (R6T) (Master)	
J9 - 09	Error detection of subcooling heat exchanger gas pipe thermistor (R6T) (Slave 1)	
J9 - 10	Error detection of subcooling heat exchanger gas pipe thermistor (R6T) (Slave 2)	
J9 - 11	Receiver gas purge thermistor (R13T) (Master)	
J9 - 12	Receiver gas purge thermistor (R13T) (Slave 1)	
J9 - 13	Receiver gas purge thermistor (R13T) (Slave 2)	
JA - 06	Defective high pressure sensor (S1NPH): Open (Master)	Refer to the **JA** flowchart of each manual and make a diagnosis of the relevant sensor based on the Error code shown to the left.
JA - 07	Defective high pressure sensor (S1NPH): Short (Master)	
JA - 08	Defective high pressure sensor (S1NPH): Open (Slave 1)	
JA - 09	Defective high pressure sensor (S1NPH): Short (Slave 1)	
JA - 10	Defective high pressure sensor (S1NPH): Open (Slave 2)	
JA - 11	Defective high pressure sensor (S1NPH): Short (Slave 2)	
JC - 06	Defective low pressure sensor (S1NPL): Open (Master)	Refer to the **JC** flowchart of each manual and make a diagnosis of the relevant sensor based on the Error code shown to the left.
JC - 07	Defective low pressure sensor (S1NPL): Short (Master)	
JC - 08	Defective low pressure sensor (S1NPL): Open (Slave 1)	
JC - 09	Defective low pressure sensor (S1NPL): Short (Slave 1)	
JC - 10	Defective low pressure sensor (S1NPL): Open (Slave 2)	
JC - 11	Defective low pressure sensor (S1NPL): Short (Slave 2)	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
L1 - 01	IPM error: Inverter compressor M1C (Master)	Refer to the **L1** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
L1 - 02	Defective current sensor 1: Inverter compressor M1C (Master)	
L1 - 03	Defective current sensor 2: Inverter compressor M1C (Master)	
L1 - 04	IGBT error: Inverter compressor M1C (Master)	
L1 - 05	Jumper settings error (Master)	
L1 - 07	IPM error: Inverter compressor M1C (Slave 1)	
L1 - 08	Defective current sensor 1: Inverter compressor M1C (Slave 1)	
L1 - 09	Defective current sensor 2: Inverter compressor M1C (Slave 1)	
L1 - 10	IGBT error: Inverter compressor M1C (Slave 1)	
L1 - 11	IPM error: Inverter compressor M1C (Slave 2)	
L1 - 12	Defective current sensor 1: Inverter compressor M1C (Slave 2)	
L1 - 13	Defective current sensor 2: Inverter compressor M1C (Slave 2)	
L1 - 14	IGBT error: Inverter compressor M1C (Slave 2)	
L1 - 15	Jumper settings error (Slave 1)	
L1 - 16	Jumper settings error (Slave 2)	
L1 - 21	DIP switch settings error (Master)	
L1 - 26	DIP switch settings error (Slave 1)	
L1 - 28	Defective fan PCB EEPROM: Fan M1F (Master)	
L1 - 29	Defective fan PCB EEPROM: Fan M2F (Master)	
L1 - 32	Defective fan PCB EEPROM: Fan M1F (Slave 1)	
L1 - 33	Defective fan PCB EEPROM: Fan M2F (Slave 1)	
L1 - 34	Defective fan PCB EEPROM: Fan M1F (Slave 2)	
L1 - 35	Defective fan PCB EEPROM: Fan M2F (Slave 2)	
L1 - 36	Defective inverter PCB EEPROM: Inverter compressor M1C (Master)	
L1 - 38	Defective inverter PCB EEPROM: Inverter compressor M1C (Slave 1)	
L1 - 40	Defective inverter PCB EEPROM: Inverter compressor M1C (Slave 2)	
L1 - 46	DIP switch settings error (Slave 2)	
L1 - 47	15 V power supply error: Inverter compressor M1C (Master)	
L1 - 49	15 V power supply error: Inverter compressor M1C (Slave 1)	
L1 - 51	15 V power supply error: Inverter compressor M1C (Slave 2)	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
L2 - 01	Momentary power failure during test operation (Master)	Refer to the **L2** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
L2 - 02	Momentary power failure during test operation (Slave 1)	
L2 - 03	Momentary power failure during test operation (Slave 2)	
L2 - 04	Switch ON the power supply (Master)	
L2 - 05	Switch ON the power supply (Slave 1)	
L2 - 06	Switch ON the power supply (Slave 2)	
L3 - 01	Reactor temperature rise: Inverter PCB (Master)	Refer to the **L3** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
L3 - 03	Reactor temperature rise: Inverter PCB (Slave 1)	
L3 - 05	Reactor temperature rise: Inverter PCB (Slave 2)	
L4 - 01	Radiation fin temperature rise: Inverter PCB (Master)	Refer to the **L4** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
L4 - 02	Radiation fin temperature rise: Inverter PCB (Slave 1)	
L4 - 03	Radiation fin temperature rise: Inverter PCB (Slave 2)	
L4 - 06	Radiation fin temperature rise: Fan M1F (Master)	
L4 - 07	Radiation fin temperature rise: Fan M2F (Master)	
L4 - 12	Inverter radiation fin temperature rise abnormality (Master)	
L4 - 13	Inverter radiation fin temperature rise abnormality (Slave 1)	
L4 - 14	Inverter radiation fin temperature rise abnormality (Slave 2)	
L4 - 18	Radiation fin temperature rise: Fan M1F (Slave 1)	
L4 - 19	Radiation fin temperature rise: Fan M2F (Slave 1)	
L4 - 20	Radiation fin temperature rise: Fan M1F (Slave 2)	
L4 - 21	Radiation fin temperature rise: Fan M2F (Slave 2)	
L5 - 03	Inverter compressor M1C momentary overcurrent (Master)	Refer to the **L5** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
L5 - 05	Inverter compressor M1C momentary overcurrent (Slave 1)	
L5 - 07	Inverter compressor M1C momentary overcurrent (Slave 2)	
L8 - 03	Inverter compressor M1C overcurrent (Master)	Refer to the **L8** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
L8 - 06	Inverter compressor M1C overcurrent (Slave 1)	
L8 - 07	Inverter compressor M1C overcurrent (Slave 2)	
L9 - 01	Inverter compressor M1C startup error (Master)	Refer to the **L9** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
L9 - 05	Inverter compressor M1C startup error (Slave 1)	
L9 - 06	Inverter compressor M1C startup error (Slave 2)	
L9 - 13	Inverter output open phase (Master)	
L9 - 14	Inverter output open phase (Slave 1)	
L9 - 15	Inverter output open phase (Slave 2)	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
LC - 14	Transmission error (Between outdoor units, inverter PCB) (Master)	Refer to the **LC** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
LC - 15	Transmission error (Between outdoor units, inverter PCB) (Slave 1)	
LC - 16	Transmission error (Between outdoor units, inverter PCB) (Slave 2)	
LC - 19	Transmission error (Between outdoor units, fan PCB) (Master): M1F	
LC - 20	Transmission error (Between outdoor units, fan PCB) (Slave 1): M1F	
LC - 21	Transmission error (Between outdoor units, fan PCB) (Slave 2): M1F	
LC - 24	Transmission error (Between outdoor units, fan PCB) (Master): M2F	
LC - 25	Transmission error (Between outdoor units, fan PCB) (Slave 1): M2F	
LC - 26	Transmission error (Between outdoor units, fan PCB) (Slave 2): M2F	
LC - 33	Transmission error (Between outdoor units, sub PCB) (Master)	
LC - 34	Transmission error (Between outdoor units, sub PCB) (Slave 1)	
LC - 35	Transmission error (Between outdoor units, sub PCB) (Slave 2)	
P1 - 01	Inverter 1 power supply unbalanced voltage (Master)	Refer to the **P1** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
P1 - 02	Inverter 1 power supply unbalanced voltage (Slave 1)	
P1 - 03	Inverter 1 power supply unbalanced voltage (Slave 2)	
P3 - 01	Defective reactor surface thermistor 1 (Master: Inverter PCB 1)	Refer to the **P3** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
P3 - 02	Defective reactor surface thermistor 1 (Slave 1: Inverter PCB 1)	
P3 - 03	Defective reactor surface thermistor 1 (Slave 2: Inverter PCB 1)	
P3 - 04	Defective reactor surface thermistor 2 (Master: Inverter PCB 1)	
P3 - 05	Defective reactor surface thermistor 2 (Slave 1: Inverter PCB 1)	
P3 - 06	Defective reactor surface thermistor 2 (Slave 2: Inverter PCB 1)	
P4 - 02	Defective fan M1F fin sensor (Master)	Refer to the **P4** flowchart of each manual and make a diagnosis of the relevant sensor based on the Error code shown to the left.
P4 - 03	Defective fan M2F fin sensor (Master)	
P4 - 09	Defective inverter diode bridge fin sensor (Master)	
P4 - 10	Defective inverter diode bridge fin sensor (Slave 1)	
P4 - 11	Defective inverter diode bridge fin sensor (Slave 2)	
P4 - 15	Defective fan M1F fin sensor (Slave 1)	
P4 - 16	Defective fan M2F fin sensor (Slave 1)	
P4 - 17	Defective fan M1F fin sensor (Slave 2)	
P4 - 18	Defective fan M2F fin sensor (Slave 2)	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
PJ - 04	Incorrect type of inverter PCB (Master)	Refer to the **PJ** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
PJ - 05	Incorrect type of inverter PCB (Slave 1)	
PJ - 06	Incorrect type of inverter PCB (Slave 2)	
PJ - 09	Incorrect type of fan PCB (Master): M1F	
PJ - 10	Incorrect type of fan PCB (Master): M2F	
PJ - 15	Incorrect type of fan PCB (Slave 1): M1F	
PJ - 16	Incorrect type of fan PCB (Slave 2): M1F	
PJ - 17	Incorrect type of fan PCB (Slave 1): M2F	
PJ - 18	Incorrect type of fan PCB (Slave 2): M2F	
U0 - 05	Refrigerant shortage warning (cooling)	Refer to the **U0** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
U0 - 06	Refrigerant shortage warning (heating)	
U1 - 01	Reverse phase/open phase of power supply (Master)	Refer to the **U1** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
U1 - 04	Reverse phase/open phase of power supply (when power ON) (Master)	
U1 - 05	Reverse phase/open phase of power supply (Slave 1)	
U1 - 06	Reverse phase/open phase of power supply (when power ON) (Slave 1)	
U1 - 07	Reverse phase/open phase of power supply (Slave 2)	
U1 - 08	Reverse phase/open phase of power supply (when power ON) (Slave 2)	
U2 - 01	Shortage of inverter 1 power supply voltage (Master)	Make a diagnosis of the relevant unit based on the following. Shortage of power supply voltage If the other units detect shortage of power supply voltage, power supply voltage during operation may be unstable. Check the power supply condition. If a particular unit detects the error, operation of 52C may be defective. Follow the **U2** flowchart. Open phase of power supply The wiring between power supply and inverter PCB may be disconnected. Check that power supply is connected to terminal block, terminal block is connected to PCB without broken wire or disconnection, and reactor wiring is secured. If no abnormality is found, follow the **U2** flowchart. Defective capacitor in main circuit P-N on the inverter PCB (electrolytic capacitor, power module) may be damaged and short circuited. Operation of current limiting relay may be defective or the wiring between the reactor and PCB may be disconnected. Measure the resistance between P-N on the inverter PCB and check for short circuit. If no abnormality is found, follow the **U2** flowchart.
U2 - 02	Open phase of inverter 1 power supply (Master)	
U2 - 03	Defective capacitor in inverter 1 main circuit (Master)	
U2 - 08	Shortage of inverter 1 power supply voltage (Slave 1)	
U2 - 09	Open phase of inverter 1 power supply (Slave 1)	
U2 - 10	Defective capacitor in inverter 1 main circuit (Slave 1)	
U2 - 11	Shortage of inverter 1 power supply voltage (Slave 2)	
U2 - 12	Open phase of inverter 1 power supply (Slave 2)	
U2 - 13	Defective capacitor in inverter 1 main circuit (Slave 2)	
U2 - 36	Fan motor 1 undervoltage (Master)	
U2 - 37	Fan motor 1 undervoltage (Slave 1)	
U2 - 38	Fan motor 1 undervoltage (Slave 2)	
U3 - 02	Initial installation warning	Refer to the **U3** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
U3 - 03	Test operation not conducted	
U3 - 04	Abnormal end of test operation	
U3 - 05	Premature end of test operation during initial transmission error	
U3 - 06	Premature end of test operation during normal transmission error	
U3 - 07	Premature end of test operation due to transmission error of either unit	
U3 - 08	Premature end of test operation due to transmission error of all units	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
U4 - 01	Transmission error between indoor and outdoor units	Refer to the **U4** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
U4 - 03	Transmission error between indoor unit and system	
U7 - 01	Error when external control adaptor for outdoor unit is installed	Refer to the **U7** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
U7 - 02	Warning when external control adaptor for outdoor unit is installed	
U7 - 03	Transmission error between master and slave 1 units	
U7 - 04	Transmission error between master and slave 2 units	
U7 - 05	Multi system error	
U7 - 06	Error in address settings of slave 1 and 2	
U7 - 07	Connection of four or more outdoor units in the same system	
U7 - 11	Error in indoor unit connection capacity for test operation	
U7 - 24	Defective BS unit external control adaptor	
U9 - 01	Other indoor units abnormality	Refer to the **U9** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
UA - 17	Incorrect electric heater capacity setting (FXTQ-TA)	Refer to page 284.
UA - 18	Connection of excessive indoor units	Refer to the **UA** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
UA - 20	Connection of wrong models of indoor units	
UA - 21	Improper combination of outdoor units	
UA - 23	Connection error	
UA - 25	Connection of excessive BS units	
UA - 26	Defective connection between outdoor unit and BS unit	
UA - 27	Defective connection between BS units	
UA - 28	Error of the number of connected BS and outdoor units	
UA - 31	Wrong BS unit model connected	
UA - 53	Multi-unit combination error	
	BS unit DIP switch settings error (Centralized type)	
UF - 01	Wrong wiring check error	Refer to the **UF** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.
UF - 05	Defective stop valve for test operation	
UH - 01	Wiring error	Refer to the **UH** flowchart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.

2. Troubleshooting by Error Code

2.1 External Protection Device Abnormality

2.1.1 External Protection Device Abnormality (All Indoor Unit Models)

Error Code

A0

Applicable Models

All indoor unit models

Method of Error Detection

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

Error Decision Conditions

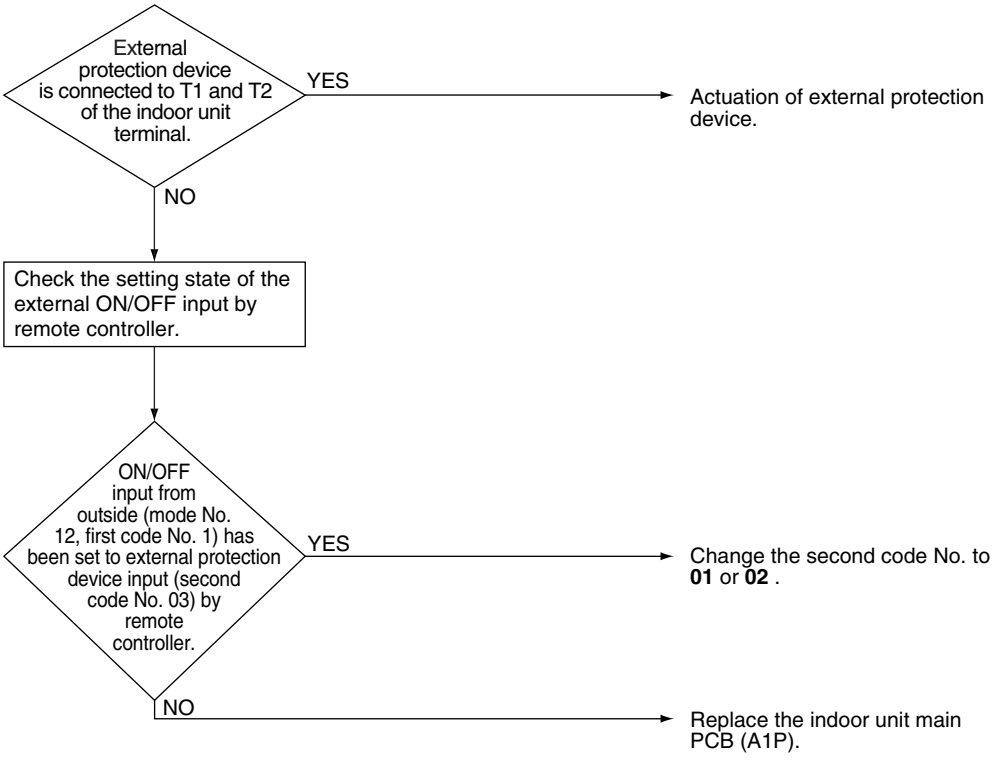
When an open circuit occurs between external input terminals with the remote controller set to "external ON/OFF terminal".

Supposed Causes

- Actuation 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.



2.1.2 External Protection Device Abnormality (FXTQ-TA Only)

Error Code **A0-01**

Applicable Models FXTQ-TA

Method of Error Detection Detect open or short circuit between external input terminals in indoor unit.

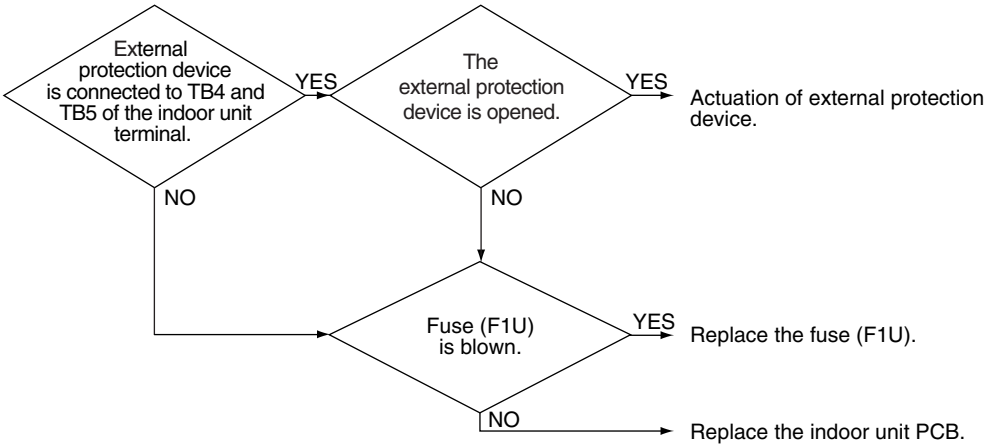
Error Decision Conditions When an open circuit occurs between external input terminals.

Supposed Causes

- Actuation of external protection device
- Defective indoor unit PCB
- Indoor unit fuse blown

Troubleshooting

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



2.2 Indoor Unit PCB Abnormality

Error Code **A1**

Applicable Models All indoor unit models

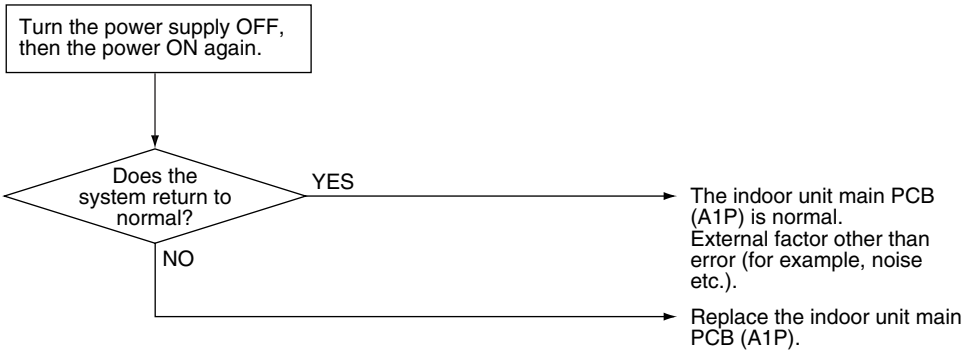
Method of Error Detection Check data from EEPROM.

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

Supposed Causes
- Defective indoor unit 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.



2.3 Drain Level Control System Abnormality

Error Code **A3**

Applicable Models FXFQ, FXZQ, FXUQ, FXEQ, FXDQ, FXMQ-PB

Method of Error Detection By float switch OFF detection

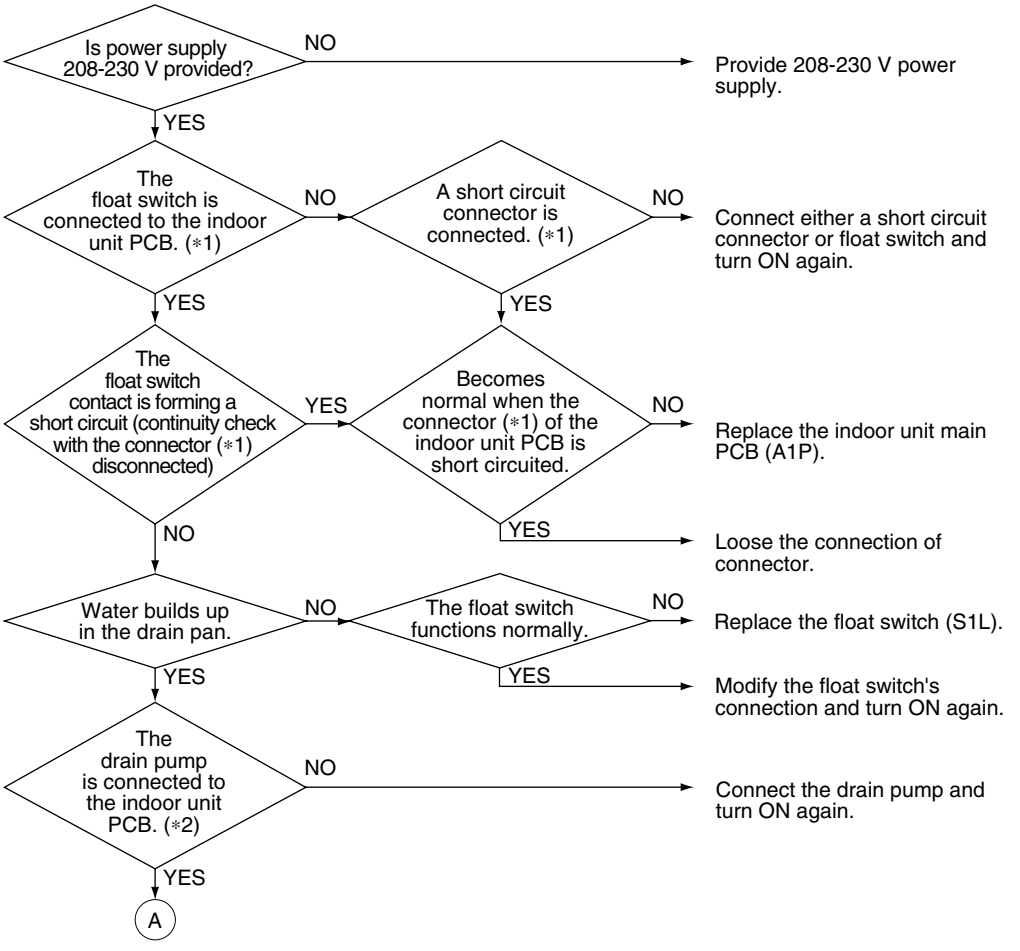
Error Decision Conditions When rise of water level is not a condition and the float switch goes OFF.

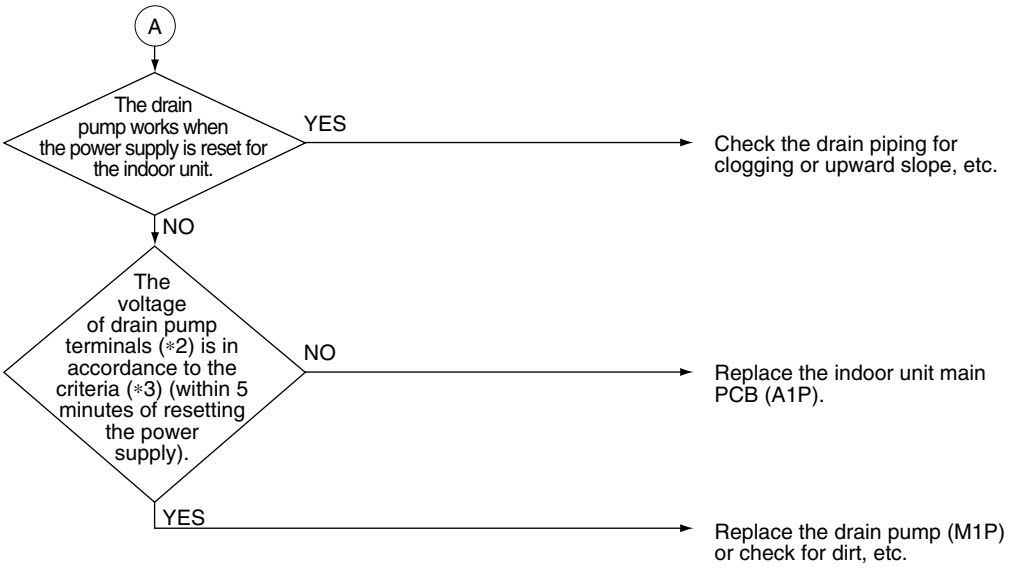
Supposed Causes

- 208~230 V power supply is not provided
- Defective float switch or short circuit connector
- Defective drain pump
- Drain clogging, upward slope, etc.
- Defective indoor unit 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:

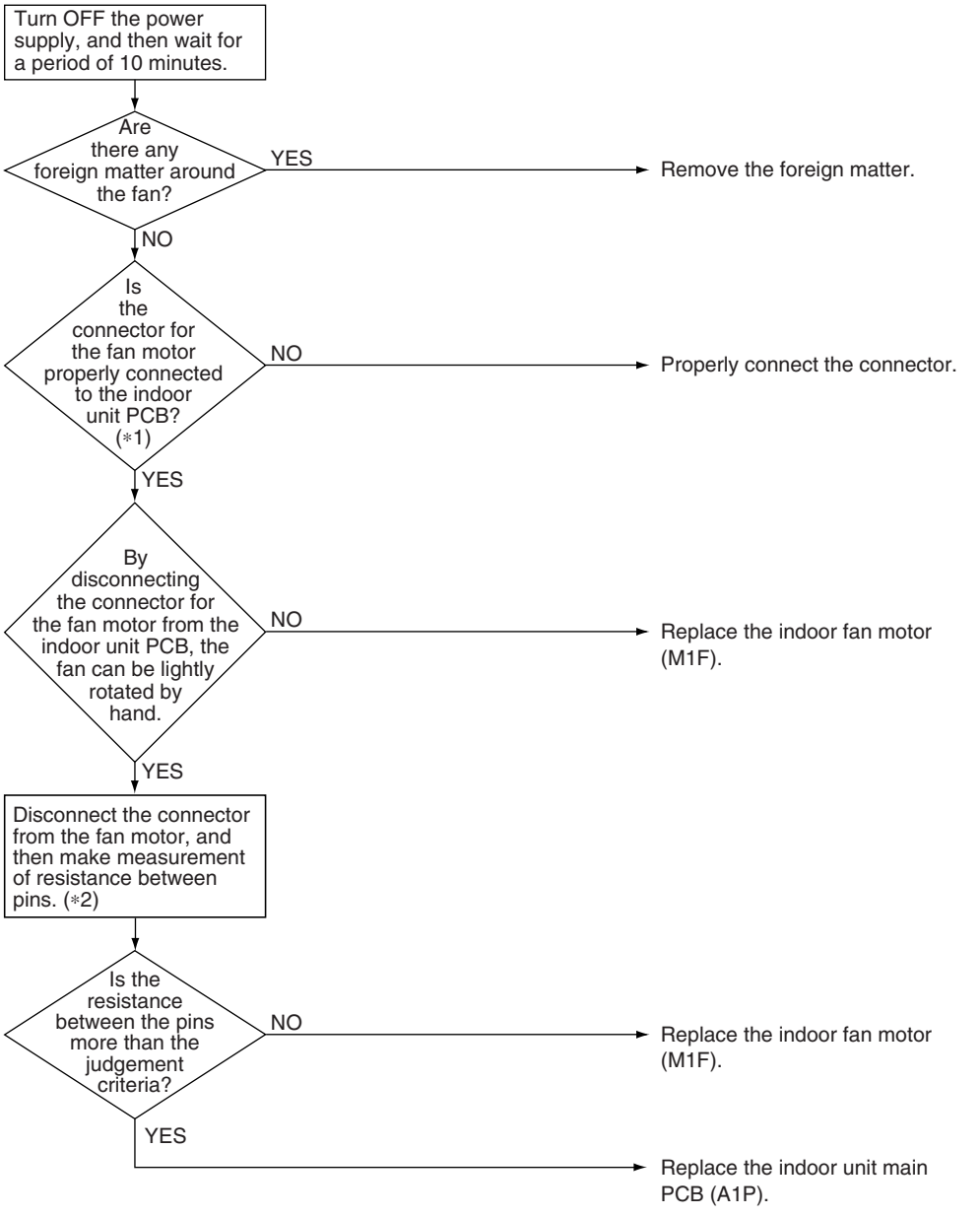
Model	∗1: Float switch (S1L) / short circuit connector	∗2: Drain pump (M1P) connector	∗3: Drain pump (M1P) voltage
FXFQ-T	X15A	X10A	13 VDC
FXFQ-P	X15A	X25A	220-240 VAC
FXZQ-TA	X15A	X102A	13 VDC
FXZQ-M	X8A	X25A	220-240 VAC
FXUQ-P	X15A	X25A	13 VDC
FXEQ-P	X15A	X25A	13 VDC
FXDQ-M	X8A	X25A	220-240 VAC
FXMQ-PB	X15A	X25A	220-240 VAC

2.4 Indoor Fan Motor Lock, Overload

Error Code	**A6**
Applicable Models	FXFQ, FXZQ-TA, FXUQ, FXEQ, FXMQ07-12PB, FXAQ
Method of Error Detection	Abnormal fan revolutions are detected by a signal output from the fan motor.
Error Decision Conditions	When the fan revolutions do not increase
Supposed Causes	■ Broken wires in, short circuit of, or disconnection of connectors from the fan motor harness ■ Defective fan motor (Broken wires or defective insulation) ■ Abnormal signal output from the fan motor (defective circuit) ■ Defective indoor unit main 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 (A1P) and the low-power PCB (A2P) (FXMQ07-12PB only)

Troubleshooting

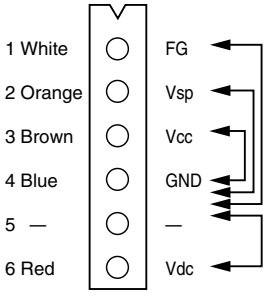
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

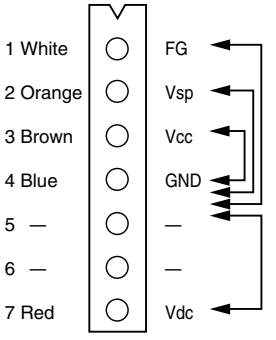


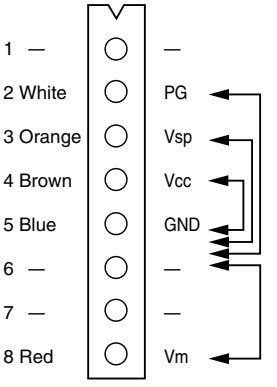
Note: ∗1: Check the following connectors.

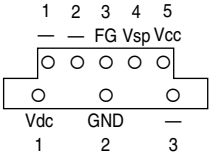
Model	Connector
FXFQ-T	X20A, Relay connector
FXFQ09-30P	X20A, Relay connector
FXFQ36/48P	X20A
FXZQ-TA	X20A, Relay connector
FXUQ-A	X20A, Relay connector
FXEQ-P	X20A
FXMQ07-12PB	X8A
FXAQ-P	X20A

∗2. Resistance measuring points and judgment criteria.









Judgment criteria

Measuring point	Criteria
FG-GND	1 MΩ or more
Vsp-GND	100 kΩ or more
Vcc-GND	100 Ω or more
Vdc-GND	100 kΩ or more

2.5 Indoor Fan Motor Abnormality

2.5.1 Indoor Fan Motor Abnormality (FXDQ, FXHQ Models)

Error Code

A6

Applicable Models

FXDQ, FXHQ

Method of Error Detection

This error is detected if there is no revolutions detection signal output from the fan motor.

Error Decision Conditions

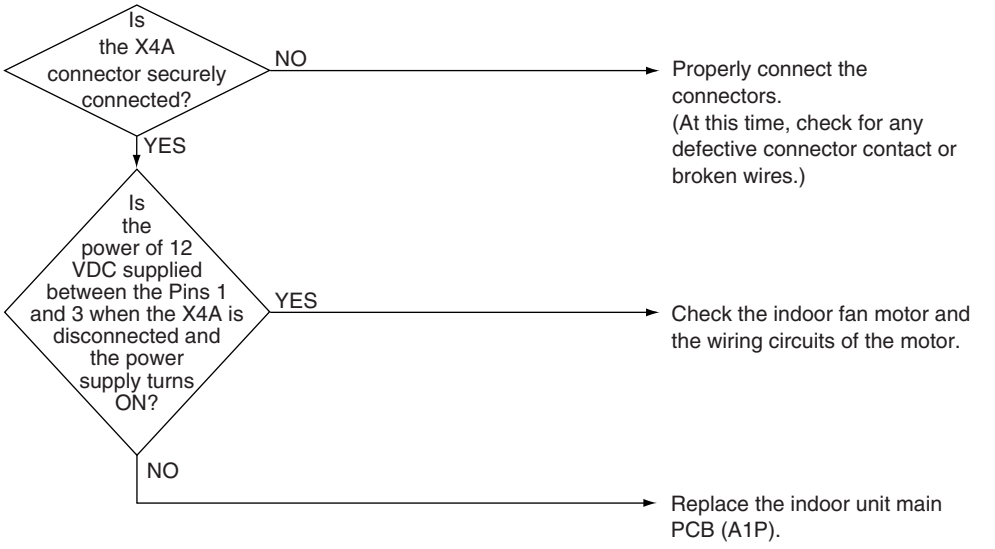
When no revolutions can be detected even at the maximum output voltage to the fan

Supposed Causes

- Defective indoor fan motor
- Broken wires
- Defective contact

Troubleshooting

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

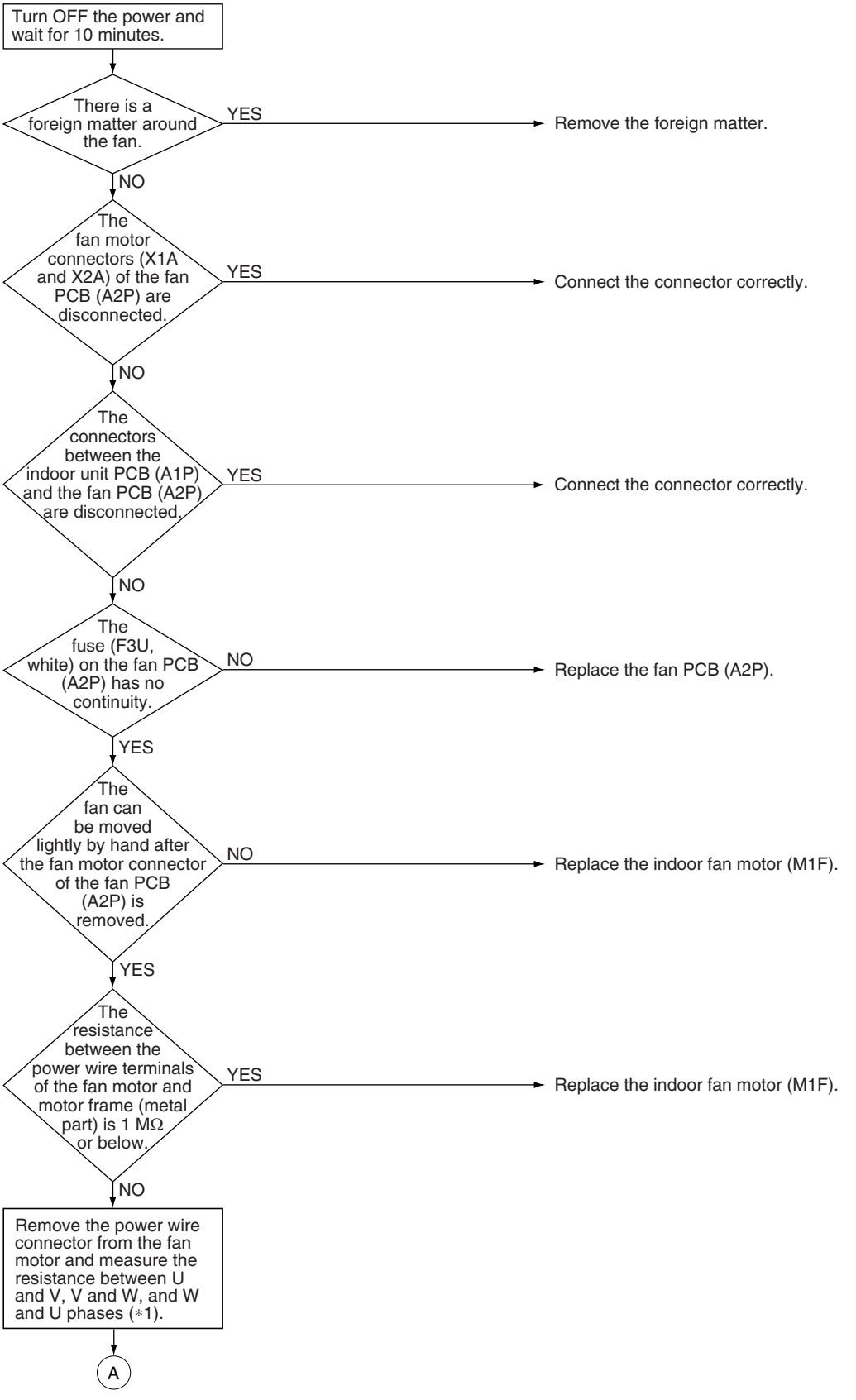


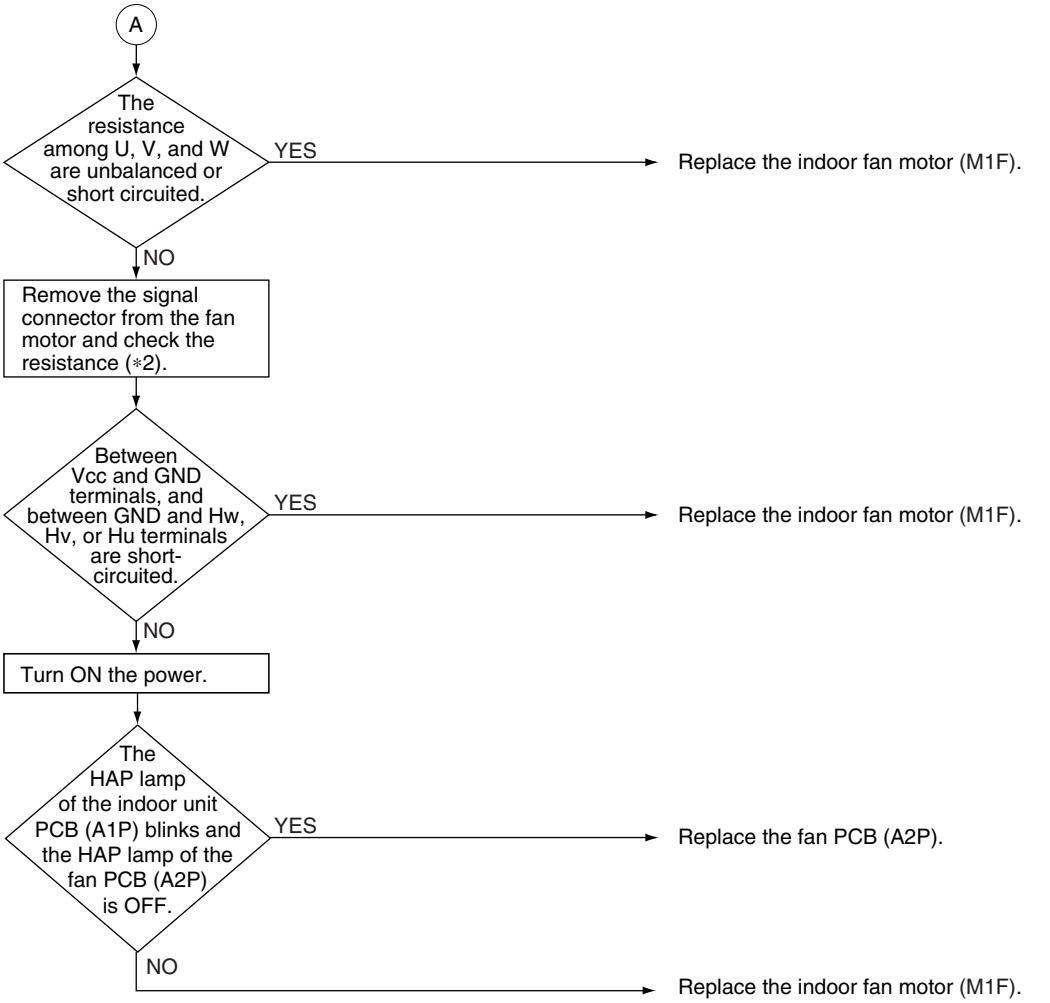
2.5.2 Indoor Fan Motor Abnormality (FXMQ15-54PB Models)

Error Code	**A6**
Applicable Models	FXMQ15-54PB
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	■ The clogging of a foreign matter ■ The disconnection of the fan motor connectors (X1A and X2A) ■ The disconnection of the connectors between the indoor unit PCB (A1P) and fan PCB (A2P) ■ Defective fan PCB (A2P) ■ Defective fan motor

Troubleshooting

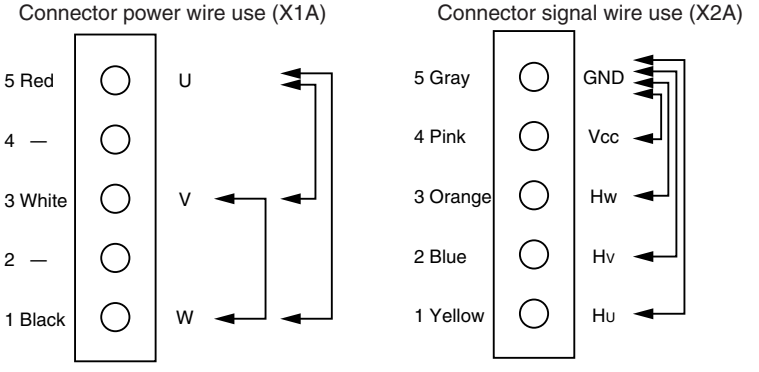
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.





Note: ∗1. 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%).

∗2. 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).



2.6 Overload/Overcurrent/Lock of Indoor Fan Motor

Error Code **A6**

Applicable Models FXMQ-M

Method of Error Detection This error is detected by detecting that the individual power supply for the fan turns OFF.

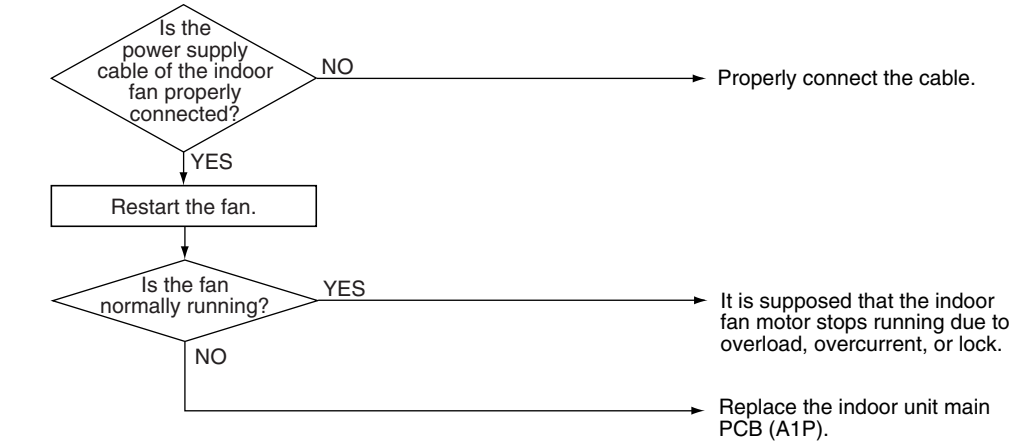
Error Decision Conditions When it is not detected that the individual power supply for the indoor fan turns ON while in operation.

Supposed Causes

- Defective power supply for the indoor fan motor
- Clogged drain piping
- Actuation of the indoor unit safety device
- Defective contact in the fan wiring circuit

Troubleshooting

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



2.7 Blower Motor Not Running

Error Code

A6

Applicable Models

FXTQ-TA

Outline

Error is issued if the indoor unit determines that the indoor fan motor cannot rotate, regardless of the rotation command from indoor unit.

Error Decision Conditions

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

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

Error Reset Conditions

Reset by remote controller

Supposed Causes

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

Corrective Actions

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

2.8 Indoor Fan Motor Status Abnormality

Error Code

A6-20

Applicable Models

FXTQ-TA

Outline

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

Error Decision Conditions

If the information shows Power Limit or Temp Limit status, it will be deemed a MOTOR LIMIT abnormal operation. (The system can keep operating.)
If the information shows Motor Lost Control or Current Trip status, it will be deemed a MOTOR TRIP abnormal operation. (The system stops operating.)

Error Reset Conditions

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

Supposed Causes

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

Corrective Actions

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

2.9 Low Indoor Airflow

Error Code

A6-21

Applicable Models

FXTQ-TA

Outline

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

Error Decision Conditions

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

Error Reset Conditions

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

Supposed Causes

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

Corrective Actions

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

2.10 Swing Flap Motor Abnormality

Error Code **A7**

Applicable Models FXFQ, FXZQ, FXUQ, FXEQ, FXHQ, FXAQ

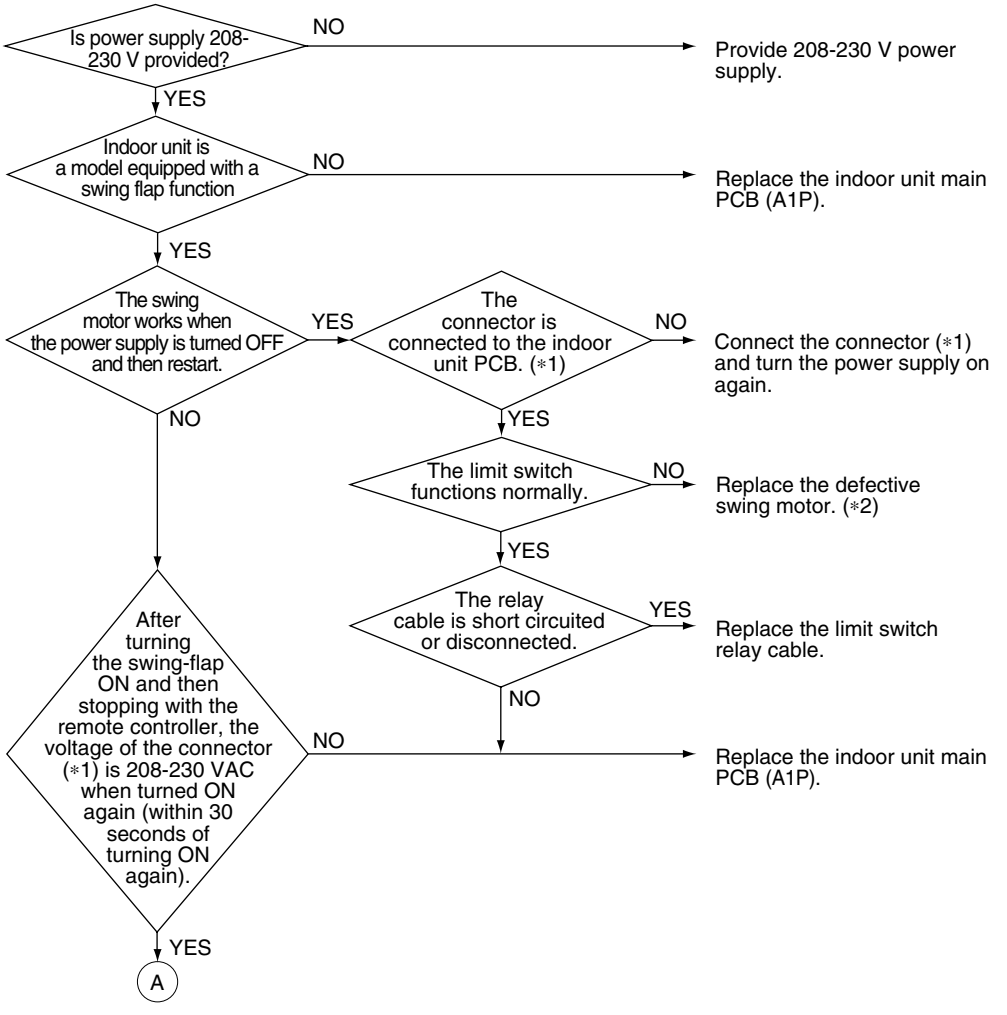
Method of Error Detection Utilizes ON/OFF of the limit switch when the motor turns.

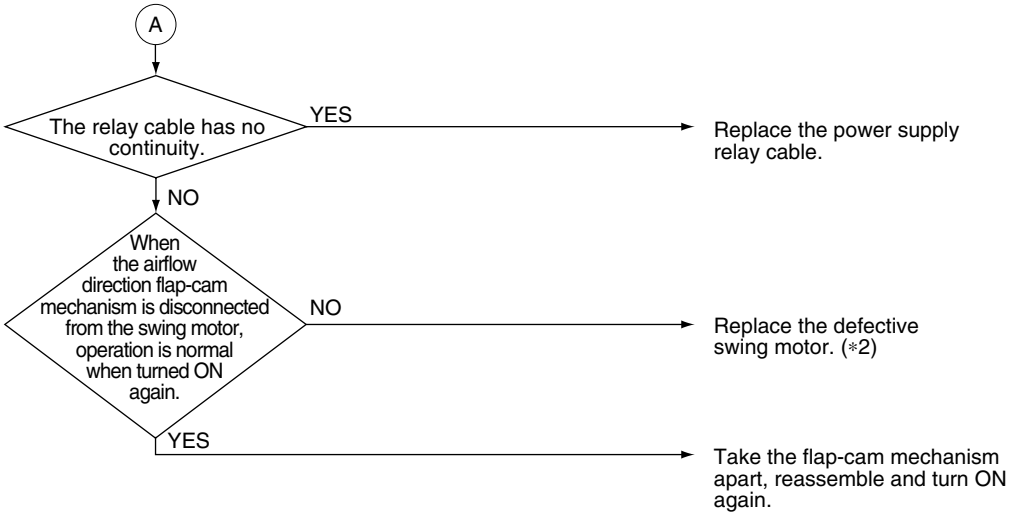
Error Decision Conditions When ON/OFF of the micro-switch for positioning cannot be reversed even though the swing flap motor is energized for a specified amount of time (about 30 seconds).
∗ Error code is displayed but the system operates continuously.

Supposed Causes
- Defective swing motor
- Defective connection cable (power supply and limit switch)
- Defective airflow direction adjusting flap-cam
- Defective indoor unit main PCB

Troubleshooting

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





Model	∗1: Swing motor connector	∗2: Swing motor
FXFQ-T	X9A	M1S, M2S, M3S, M4S
FXFQ-P	X36A	M1S
FXZQ-TA	X105A	M1S (with decoration panel BYFQ60B)
		M1S, M2S, M3S, M4S (with decoration panel BYFQ60C)
FXZQ-M	X28A	M1S
FXUQ-P	X36A	M1S, M2S, M3S, M4S
FXEQ-P	X36A	M1S, M2S, M3S, M4S
FXHQ-M	X6A	M1S
FXAQ-P	X36A	M1S

2.11 Power Supply Voltage Abnormality

Error Code **A8**

Applicable Models FXMQ-PB

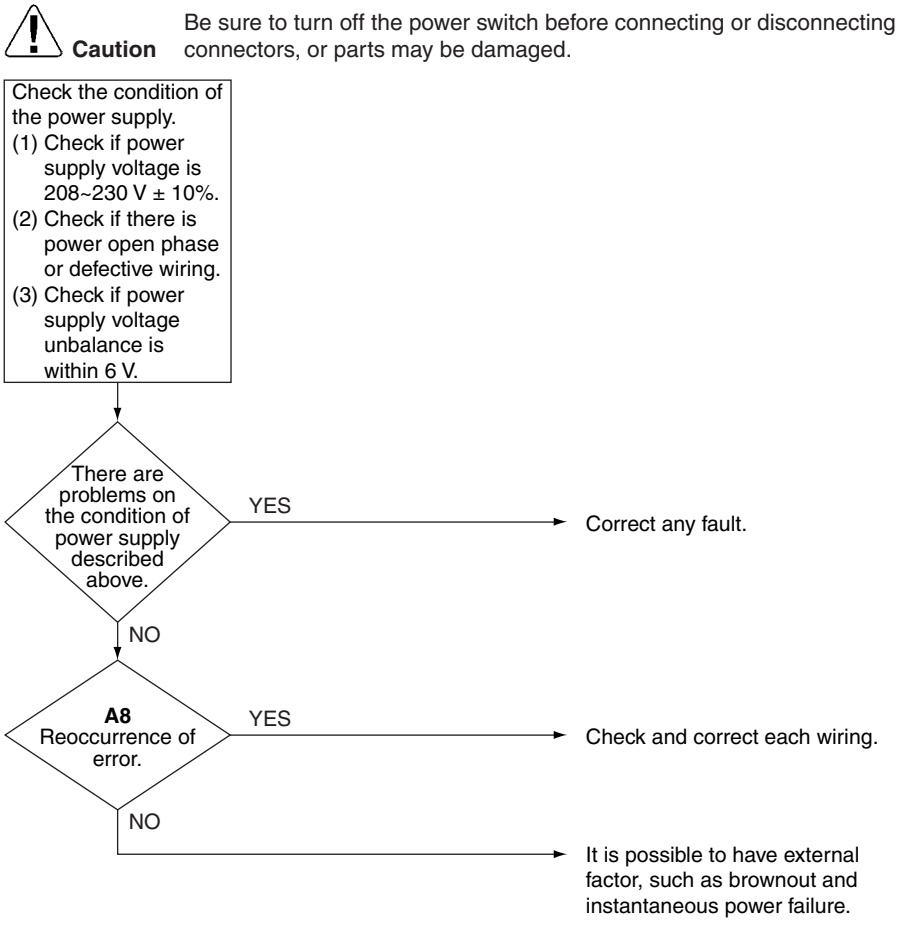
Method of Error Detection Error is detected by checking the input voltage of fan motor.

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



2.12 Blower Motor Stops for Over/Under Voltage

Error Code

A8

Applicable Models

FXTQ-TA

Outline

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

Error Decision Conditions

If the information shows Over/Under Voltage status, it will be deemed a MOTOR VOLTS abnormal operation.

Error Reset Conditions

If the information is normal, the error will be cleared.

Supposed Causes

- High AC line voltage to indoor blower motor
- Low AC line voltage to indoor blower motor
- Incorrect wiring

Corrective Actions

- Verify line voltage to indoor blower motor is within the range specified on the ID blower rating plate.
- Check power to indoor blower motor.
- Check wiring.
- Replace motor.

2.13 Electronic Expansion Valve Coil Abnormality, Dust Clogging

Error Code **A9**

Applicable Models All indoor unit models

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

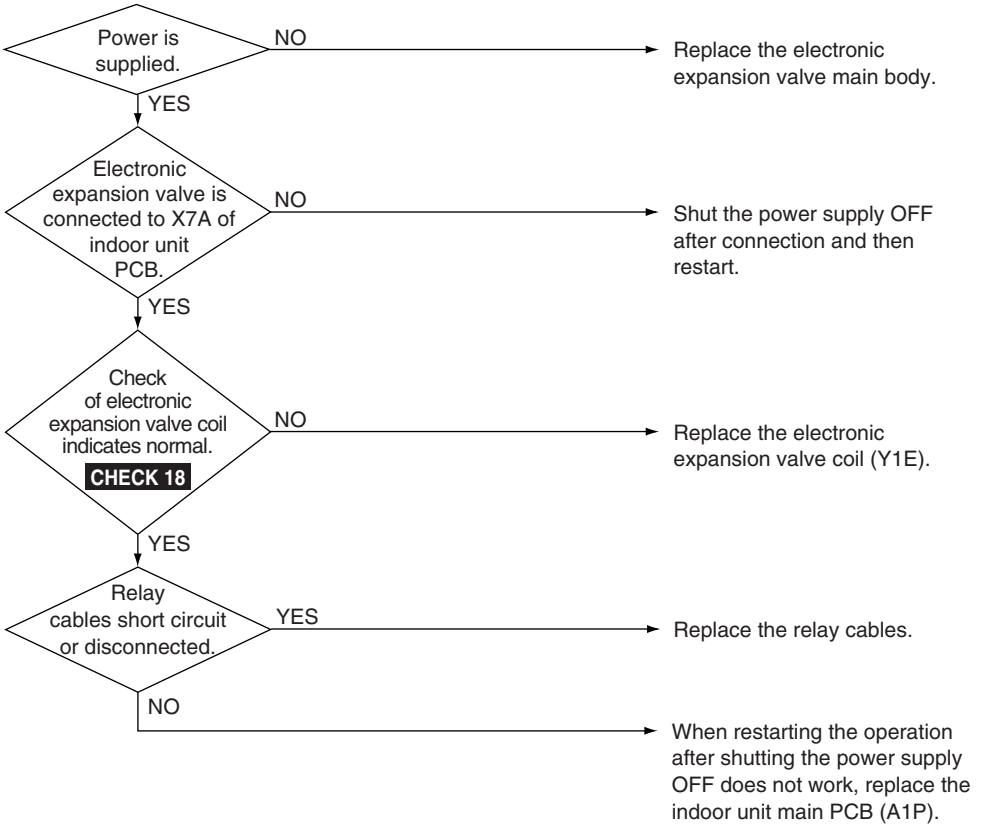
Error Decision Conditions
Pin input for electronic expansion valve coil is abnormal when initializing microcomputer.
Either of the following conditions is seen/caused/ occurs while the unit stops operation.
- R1T – R2T > 8°C (14.4°F)
- R2T shows fixed degrees or below.

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

Supposed Causes
- Defective electronic expansion valve coil
- Defective indoor unit main PCB
- Defective relay cables

Troubleshooting

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



CHECK 18 Refer to page 308.

2.14 Drain Level above Limit

Error Code

AF

Applicable Models

FXFQ, FXZQ, FXEQ, FXDQ, FXMQ

Method of Error Detection

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

Error Decision Conditions

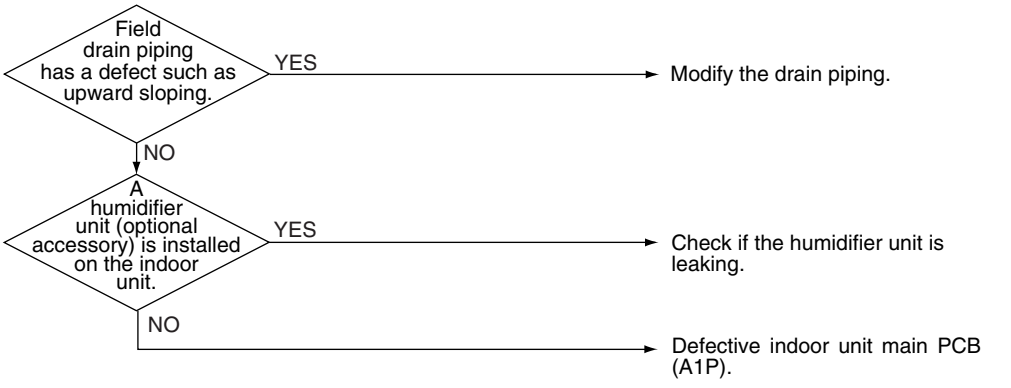
When the float switch changes from ON to OFF while the compressor is not in operation.
∗ Error code is displayed but the system operates continuously.

Supposed Causes

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

Troubleshooting

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



2.15 Capacity Determination Device Abnormality

Error Code

AJ

Applicable Models

All indoor unit models

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

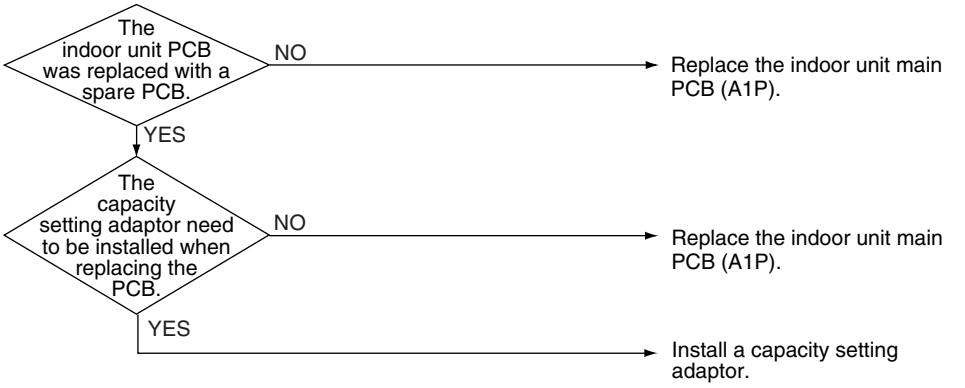
When the capacity code is not saved to the PCB, and the capacity setting adaptor is not connected.
When a capacity that does not exist for that unit is set.

Supposed Causes

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

Troubleshooting

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



2.16 Transmission Abnormality between Indoor Unit PCB and Fan PCB

Error Code

C1

Applicable Models

FXMQ-PB

Method of Error Detection

Transmission conditions between the indoor unit main PCB (A1P) and fan PCB (A2P) are checked via microcomputer.

Error Decision Conditions

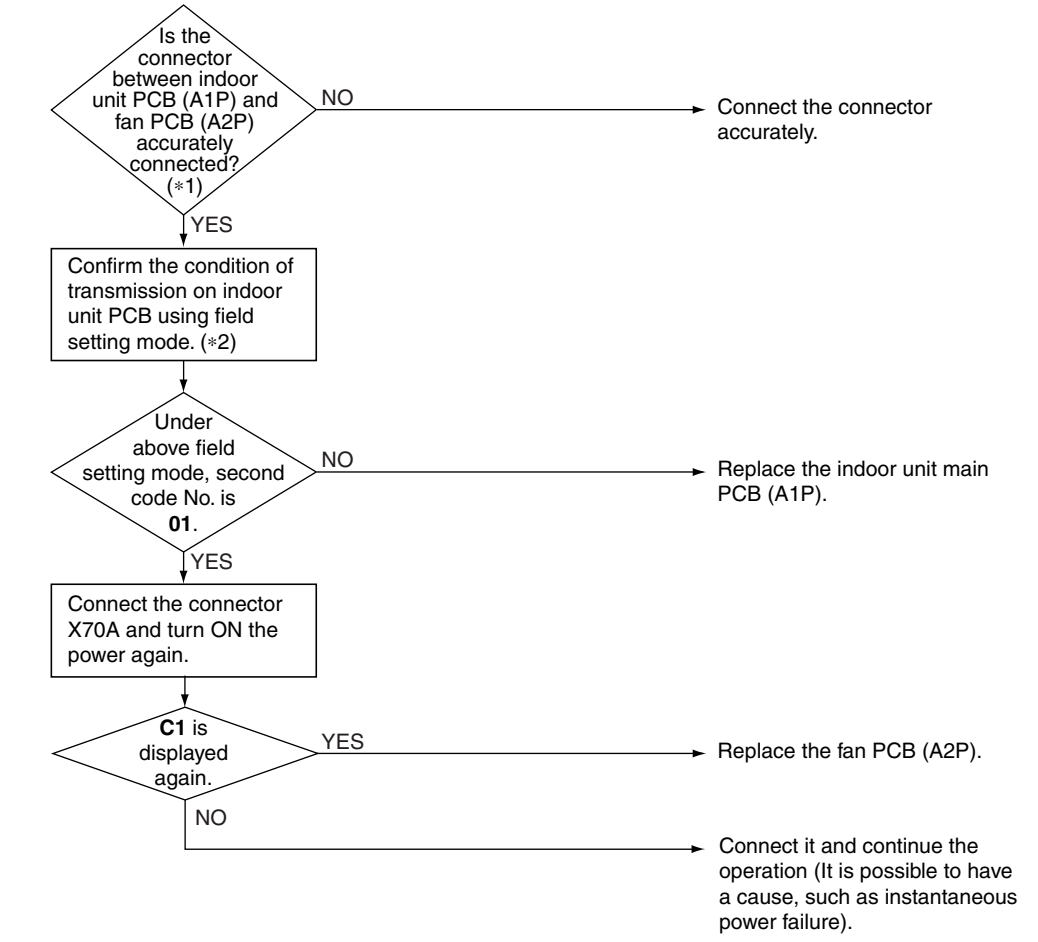
When normal transmission is not conducted for certain duration.

Supposed Causes

- Connection defective the connector between indoor unit main PCB (A1P) and fan PCB (A2P)
- Defective indoor unit main 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: ∗1. Pull out and insert the connector once and check it is absolutely connected.

∗2. Method to check transmission part of indoor unit main PCB.

(1) Turn OFF the power and remove the connector X70A of indoor unit 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 main PCB

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

2.17 Blower Motor Communication Error

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

2.18 Thermistor Abnormality

Error Code

C4, C5, C9, CA

Applicable Models

C4, C5: All indoor units
C9: except FXTQ-TA models
CA: FXMQ-PB models only

Method of Error Detection

The error is detected by temperature detected by thermistor.

Error Decision Conditions

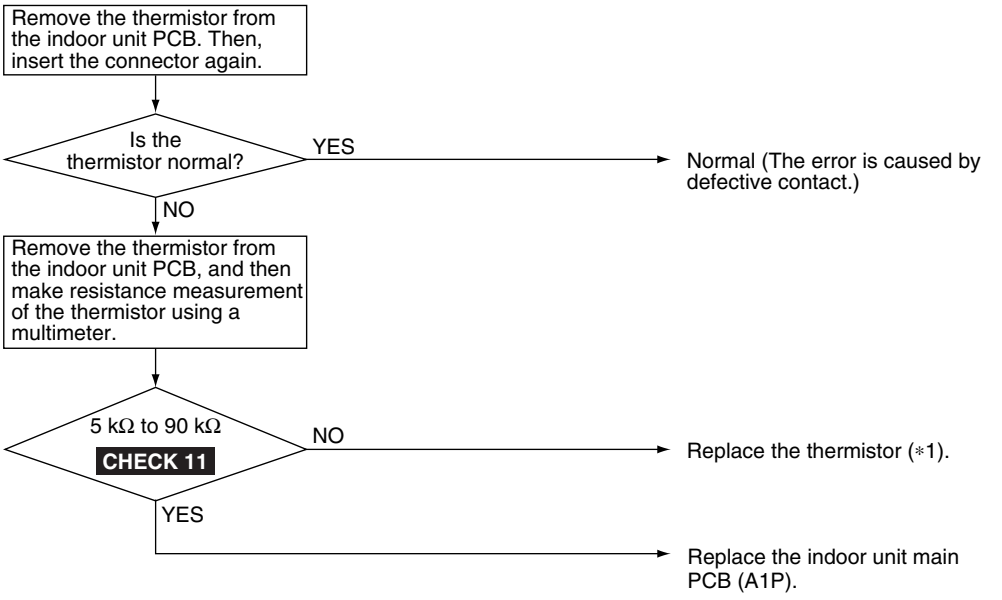
The thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

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

Troubleshooting

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



Note: ∗1. Error code and thermistor

Error Code	Thermistor	Except FXMQ-PB and FXTQ-TA	FXMQ-PB	FXTQ-TA
C4	Indoor heat exchanger liquid pipe thermistor	R2T	R2T	R2T
C5	Indoor heat exchanger gas pipe thermistor	R3T	R3T	R3T
C9	Suction air thermistor	R1T	R1T	∗2
CA	Discharge air thermistor	—	R4T	—

∗2. Refer to page 206 for **C9** for FXTQ-TA models

CHECK 11 Refer to page 302.

2.19 Combination Error between Indoor Unit PCB and Fan PCB

Error Code C6

Applicable Models FXMQ-PB

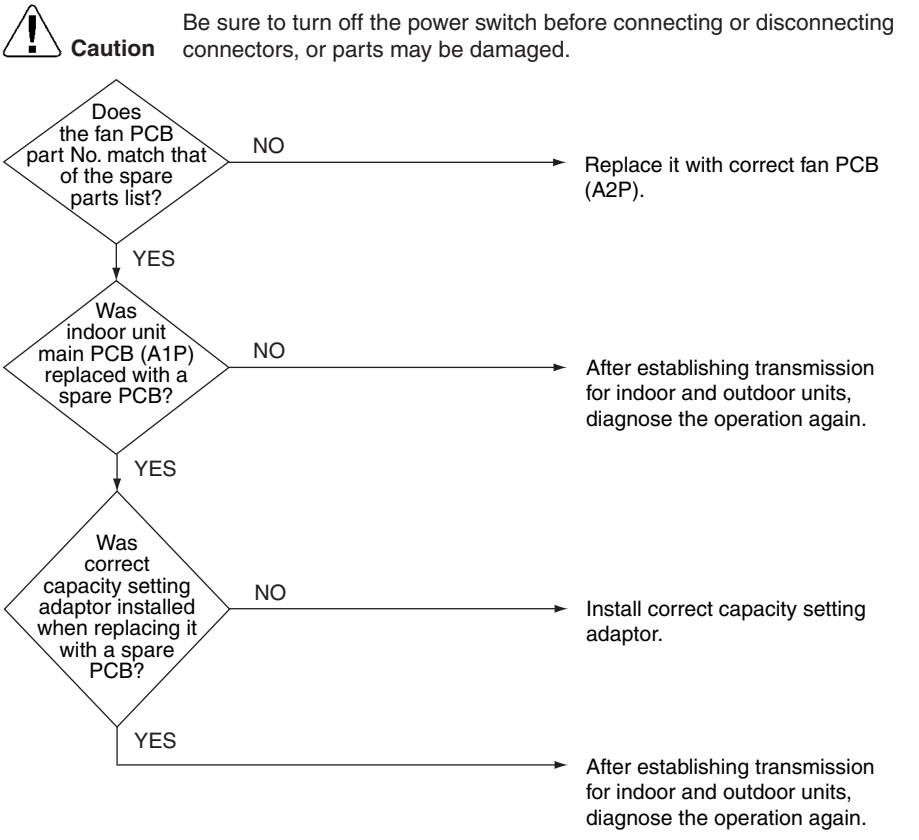
Method of Error Detection Check the condition of transmission with fan PCB (A2P) using indoor unit main PCB (A1P).

Error Decision Conditions When the communication data of fan PCB (A2P) is determined as incorrect.

Supposed Causes

- Defective fan PCB (A2P)
- Defective connection of capacity setting adaptor
- Field setting error

Troubleshooting



2.20 Blower Motor HP Mismatch

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

2.21 Indoor Blower Does Not Have Required Parameters to Function

Error Code

C6-02

Applicable Models

FXTQ-TA

Outline

Indoor units perform required settings for control on the fan motor, but if the minimum required settings are not made then information indicating as such will be included among the periodic control status information.
Error is issued when the information shows abnormality.

Error Decision Conditions

If the parameter information shows abnormality, it will be deemed abnormal operation.
At that point, parameter settings when initializing the fan motor will be implemented from the beginning.

Error Reset Conditions

If the parameter information is normal, the error will be cleared.

Supposed Causes

- Locked motor rotor condition

Corrective Actions

- Check for locked rotor condition.
- Replace the indoor unit PCB or motor.

2.22 Remote Sensor Abnormality

Error Code C9

Applicable Models FXTQ-TA

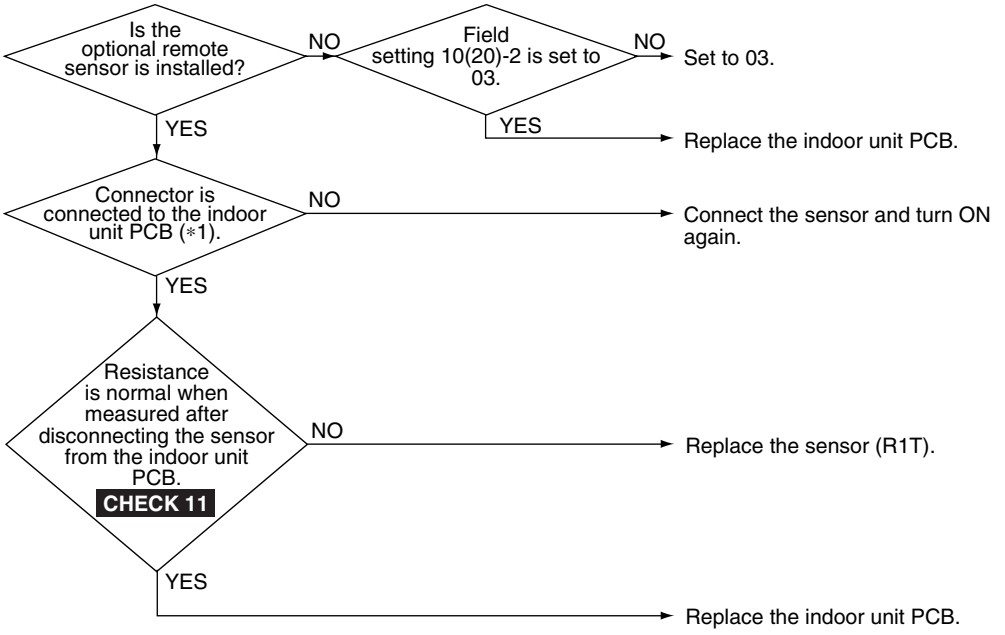
Method of Error Detection The error is detected by remote sensor temperature.

Error Decision Conditions The remote sensor becomes disconnected or shorted while the unit is running.

Supposed Causes
- Defective indoor unit thermistor (R1T) for room temperature
- Defective indoor unit PCB

Troubleshooting

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



Note: *1. Connector and indoor unit PCB

Connector for remote sensor	PCB
X4A	A1P

CHECK 11 Refer to page 302.

2.23 Humidity Sensor System Abnormality

Error Code **CC**

Applicable Models FXFQ

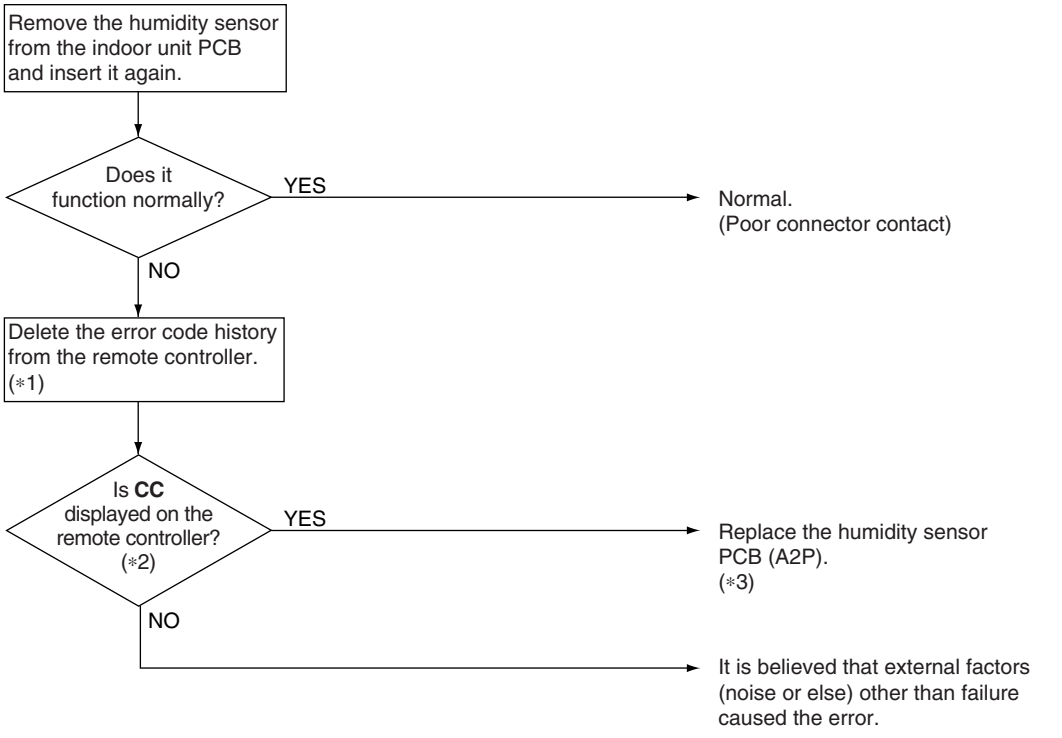
Method of Error Detection Even if an error occurs, operation still continues.
Error is detected according to the moisture (output voltage) detected by the moisture sensor.

Error Decision Conditions When the moisture sensor is disconnected or short circuited

Supposed Causes
- Defective sensor
- Disconnection

Troubleshooting

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



Note:
∗1. To delete the history, the **ON/OFF** button of the remote controller must be pressed and held for 5 seconds in the check mode.
∗2. To display the code, the **INSPECTION/TEST** button of the remote controller must be pressed and held in the normal mode.
∗3. If **CC** is displayed even after replacing the humidity sensor PCB (A2P) and taking the steps ∗1 and 2, replace the indoor unit main PCB (A1P).

2.24 Infrared Presence/Floor Sensor Error

Error Code

CE

Applicable Models

FXFQ-T, FXUQ-P

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

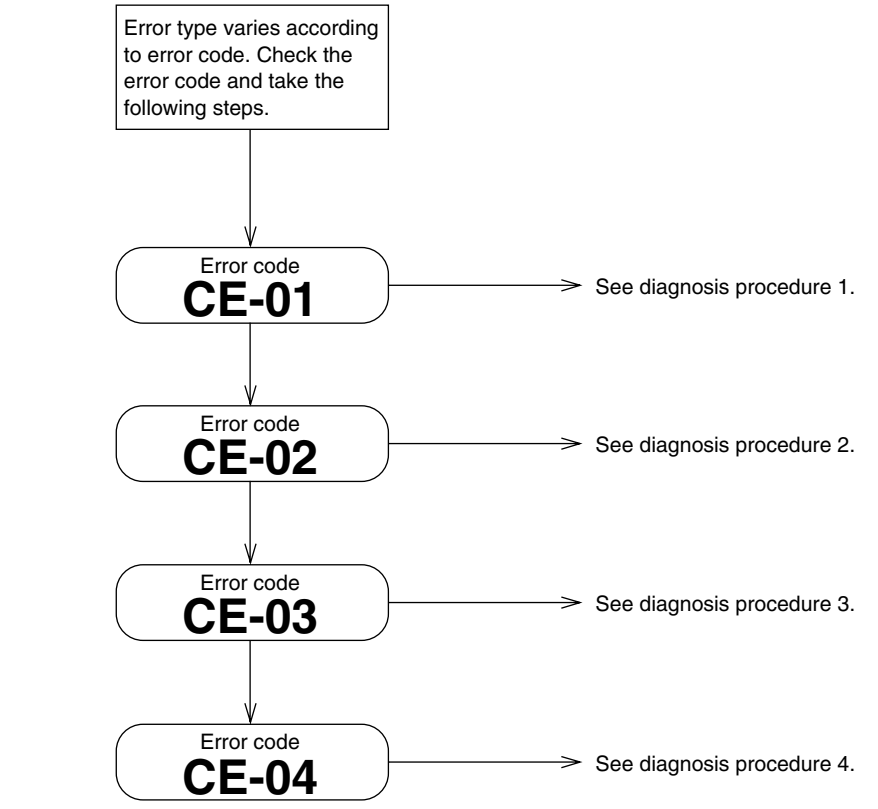
Error is detected based on sensor output signals

Supposed Causes

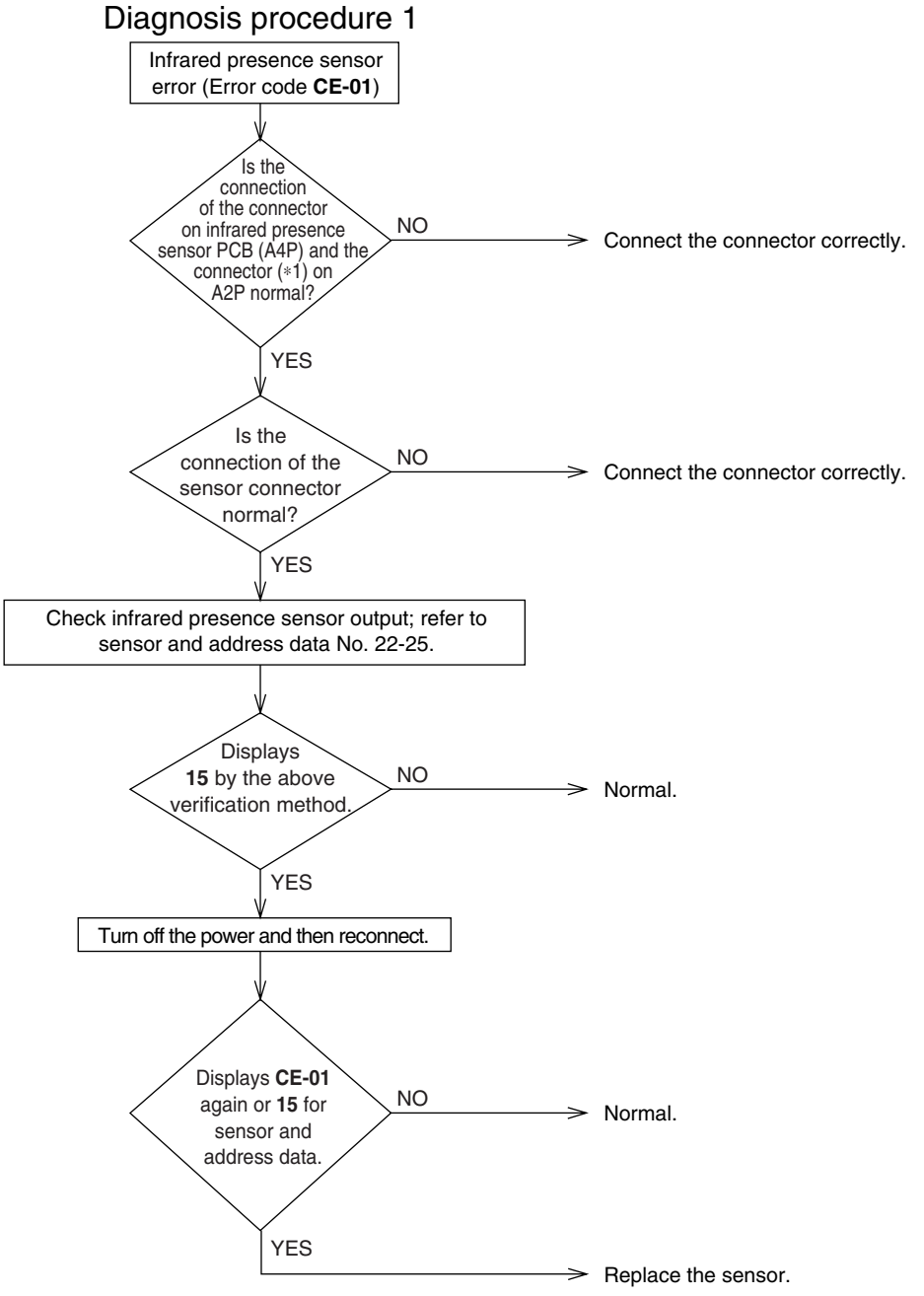
- Defective or disconnected infrared presence sensor connector: **CE-01**
- Defective infrared floor sensor (Temperature compensation circuit disconnection): **CE-02**
- Defective infrared floor sensor (Temperature compensation short circuit): **CE-03**
- Defective infrared floor sensor element: **CE-04**

Troubleshooting

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



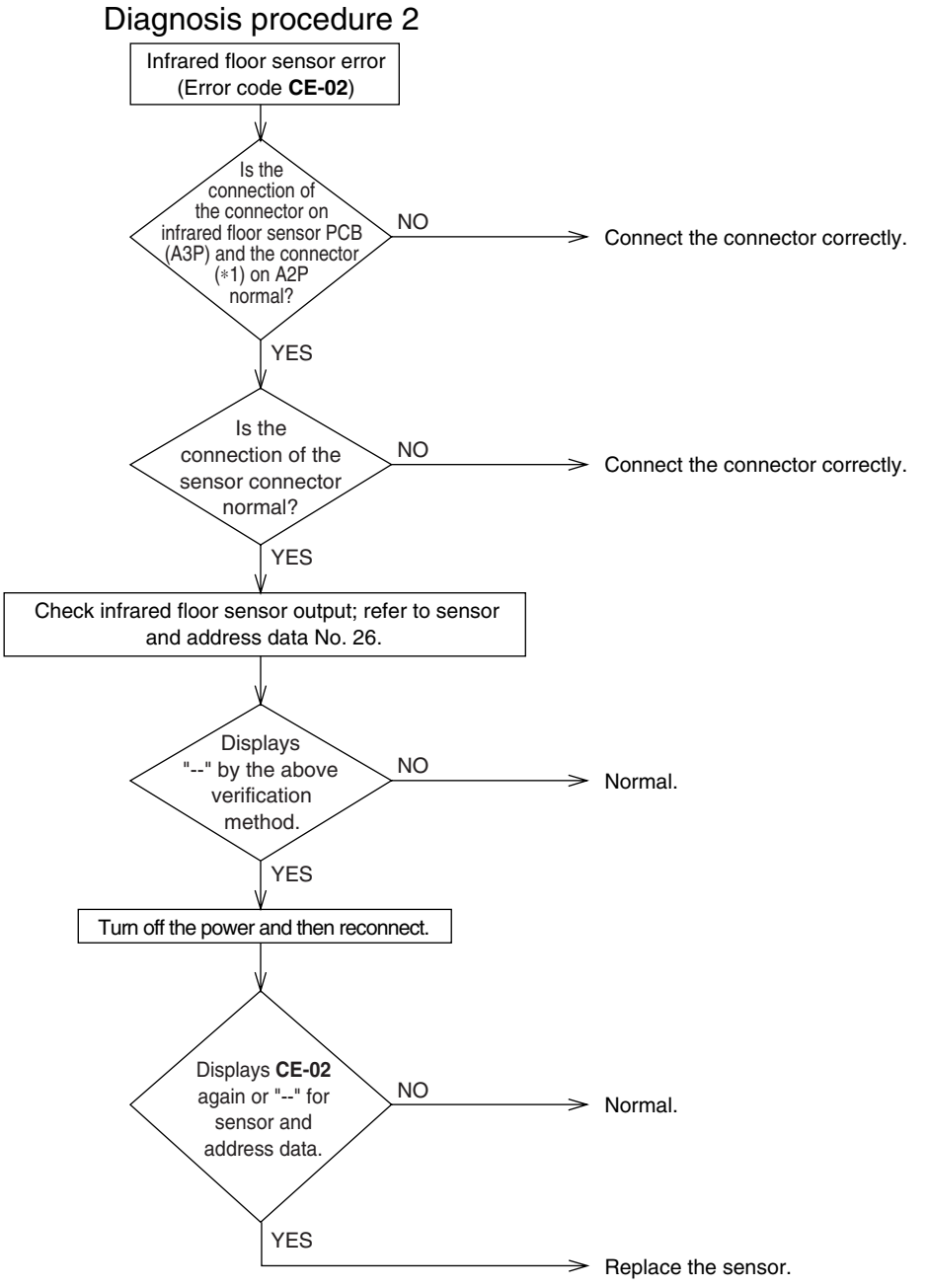
Troubleshooting



Note: ∗1. Connector

Model	Connector for infrared presence sensor PCB
FXFQ-T	X2A
FXUQ-P	X81A

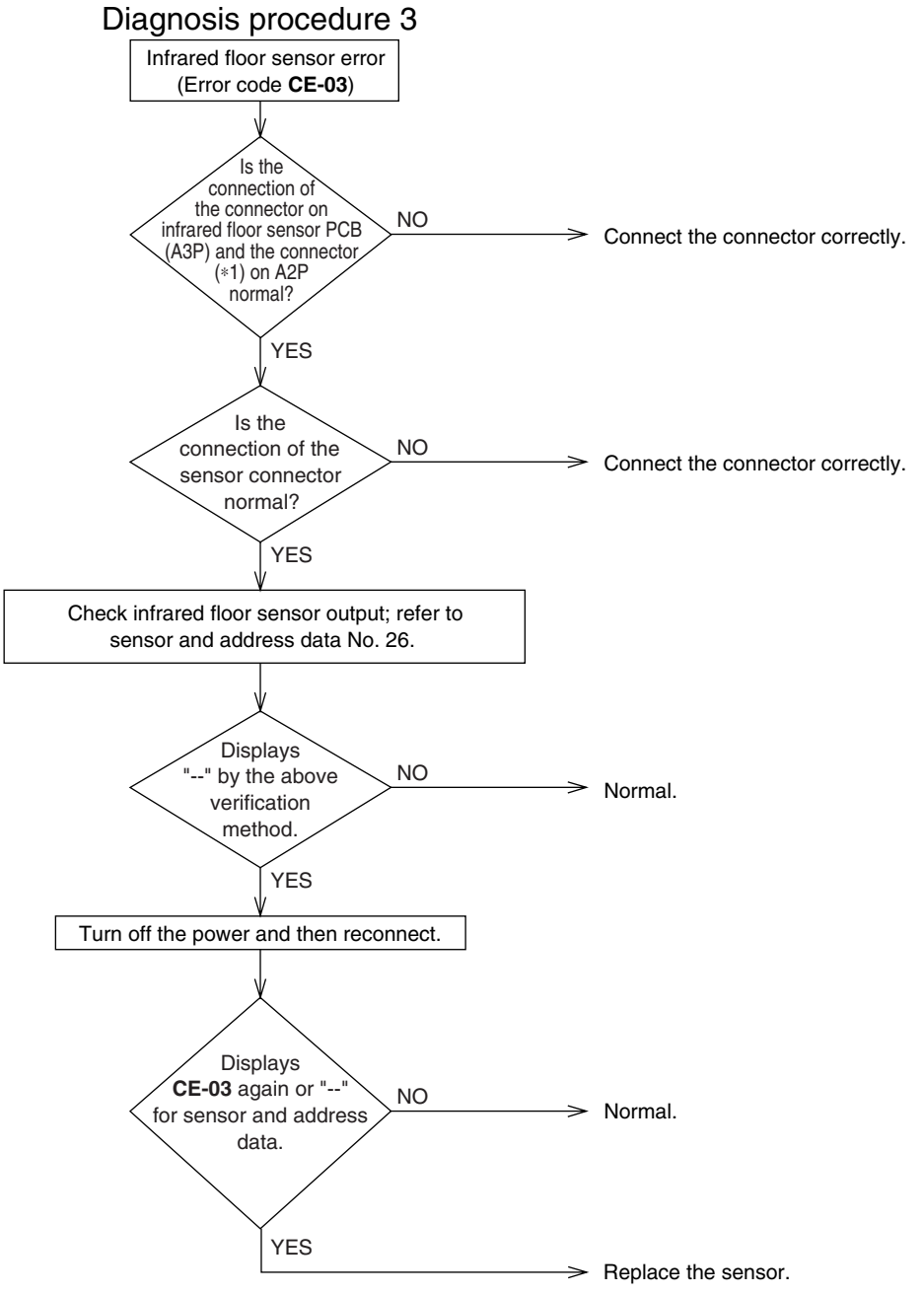
Troubleshooting



Note: ∗1. Connector

Model	Connector for infrared floor sensor PCB
FXFQ-T	X2A
FXUQ-P	X81A

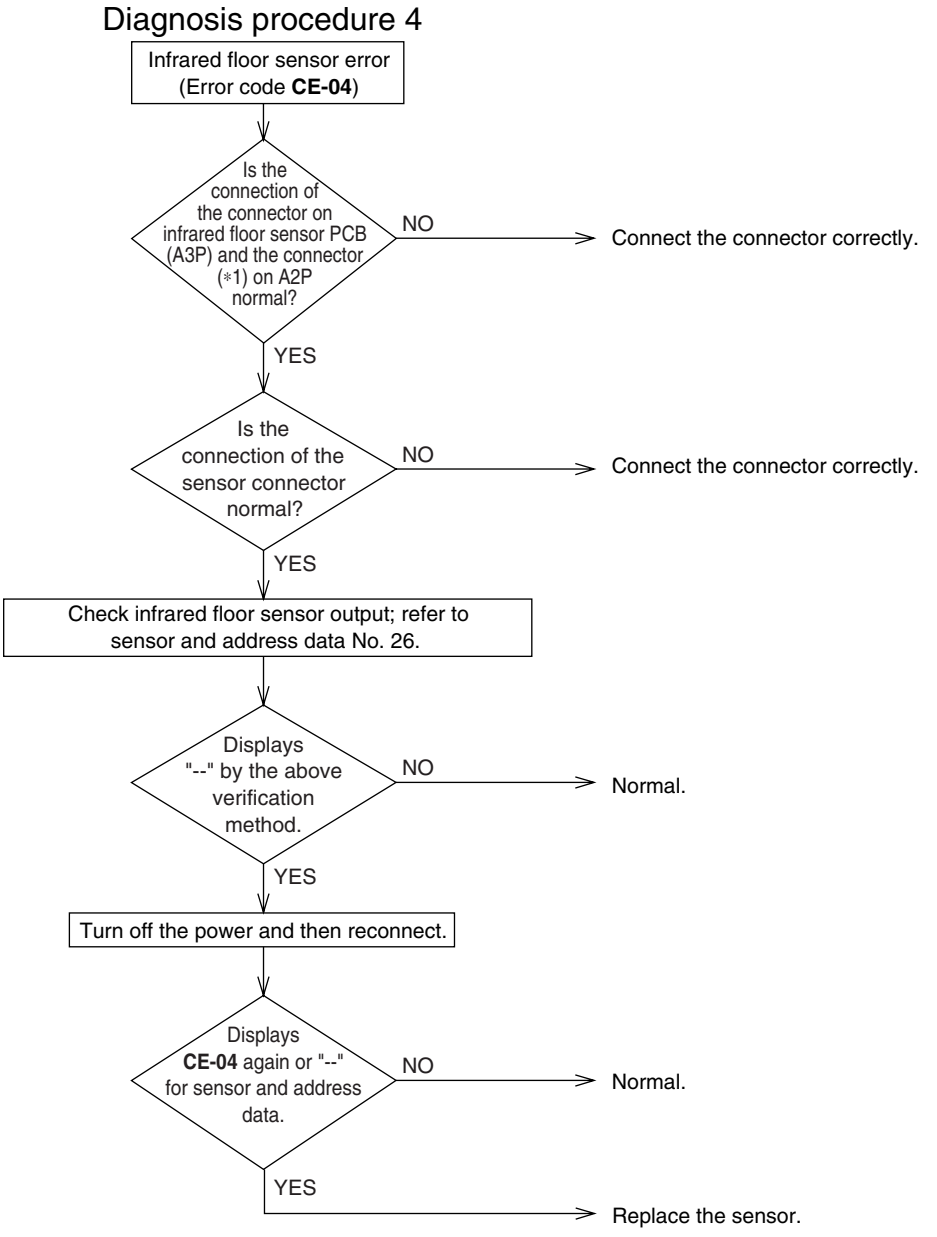
Troubleshooting



Note: ∗1. Connector

Model	Connector for infrared floor sensor PCB
FXFQ-T	X2A
FXUQ-P	X81A

Troubleshooting



Note: ∗1. Connector

Model	Connector for infrared floor sensor PCB
FXFQ-T	X2A
FXUQ-P	X81A

2.25 Remote Controller Thermistor Abnormality

Error Code **CJ**

Applicable Models All indoor unit models

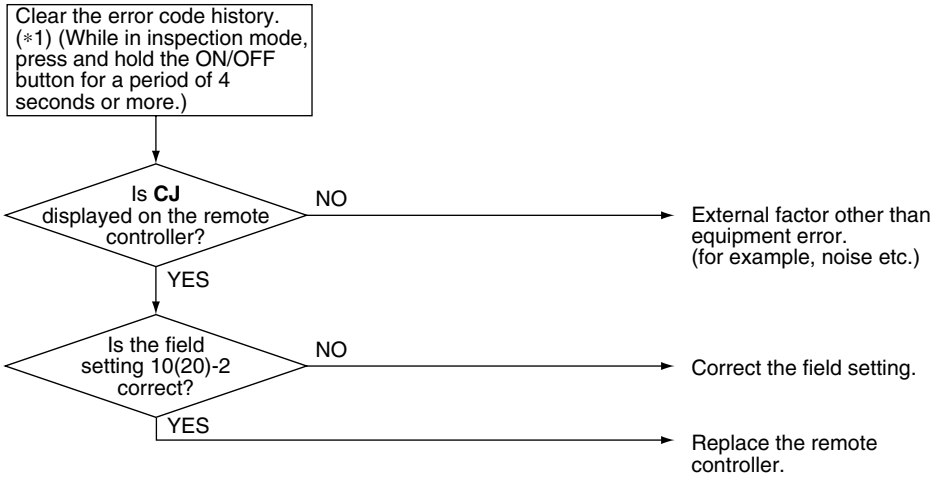
Method of Error Detection Error detection is carried out by temperature detected by the remote controller thermistor.

Error Decision Conditions The remote controller thermistor becomes disconnected or shorted while the unit is running.

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: ∗1. How to delete the history of error codes.
Press the ON/OFF button for 4 seconds or more while the error code is displayed in the inspection mode.

2.26 Outdoor Unit PCB Abnormality

Error Code **E1**

Applicable Models All outdoor unit models

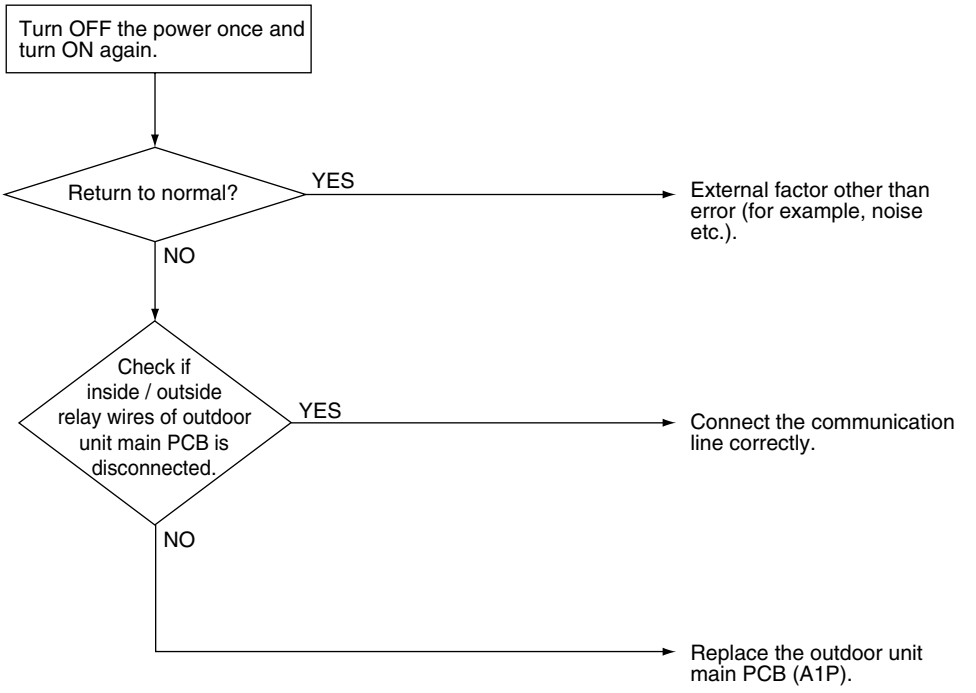
Method of Error Detection Abnormality is detected under the communication conditions in the hardware section between the indoor unit and outdoor unit.

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 (A1P)
- Defective connection communication line between indoor and outdoor units

Troubleshooting

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



2.27 Detection of Ground Leakage by Leak Detection Circuit

Error Code

E2
Sub code: 01-03

Applicable Models

All outdoor unit models

Method of Error Detection

Detect leakage current in the ground leakage detection circuit and detect error on the outdoor unit main PCB.

Error Decision Conditions

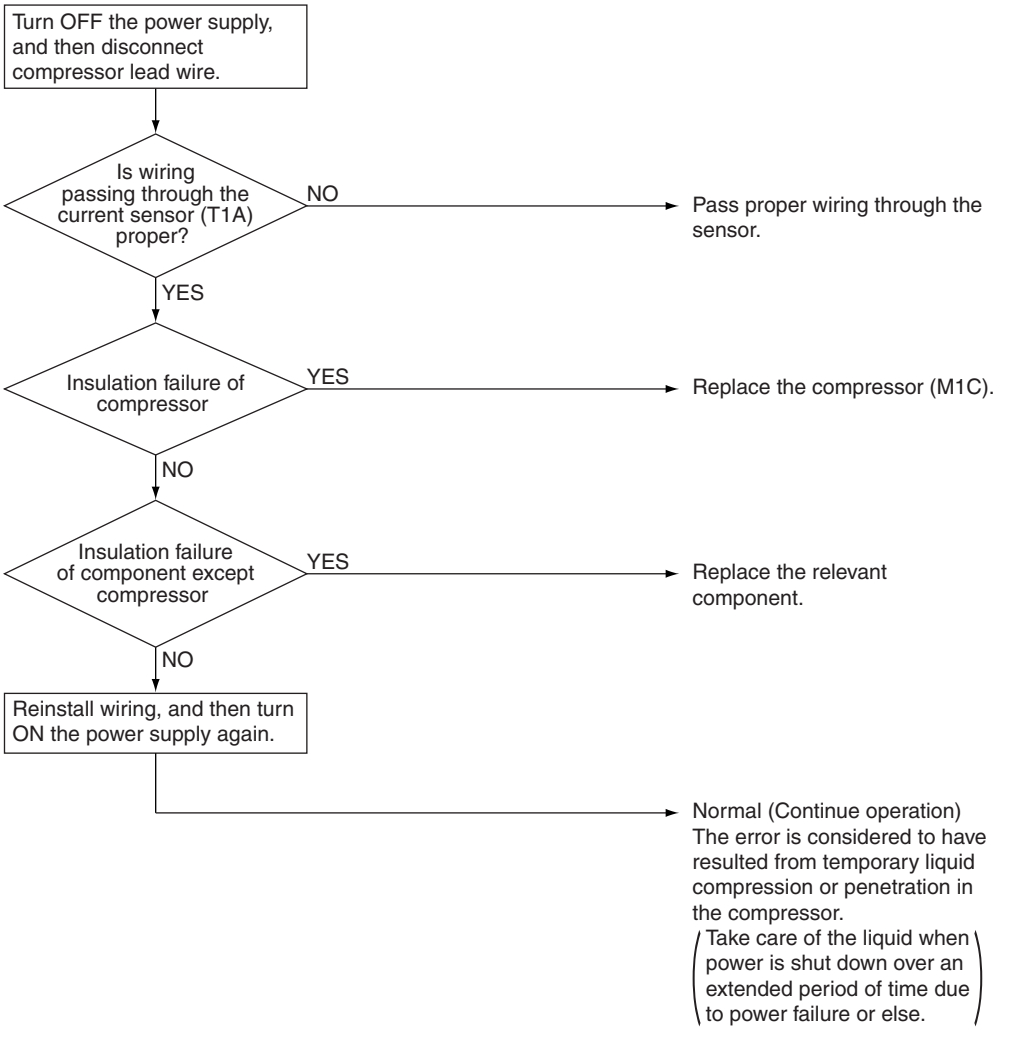
The leakage current is detected.

Supposed Causes

- Ground fault
- Improper wiring passing through the current sensor
- Temporary liquid compression or melting in compressor

Troubleshooting

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



2.28 Missing of Ground Leakage Detection Core

Error Code

E2
Sub code: 06-08

Applicable Models

All outdoor unit models

Method of Error Detection

Error is detected according to whether or not there is continuity across the connector X101A for leakage detection circuit (Q1LD).

Error Decision Conditions

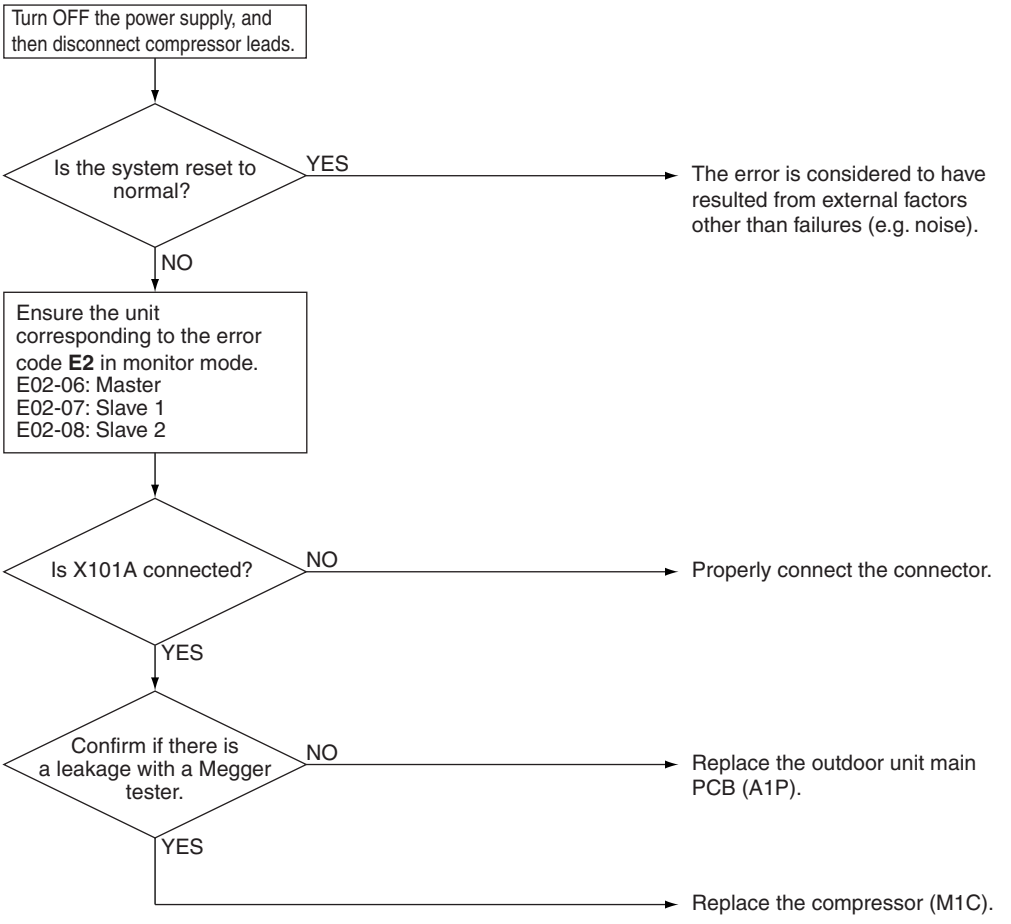
No current flows at the time of turning ON the power supply.

Supposed Causes

- 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.



2.29 Actuation of High Pressure Switch

Error Code **E3**

Applicable Models All outdoor unit models

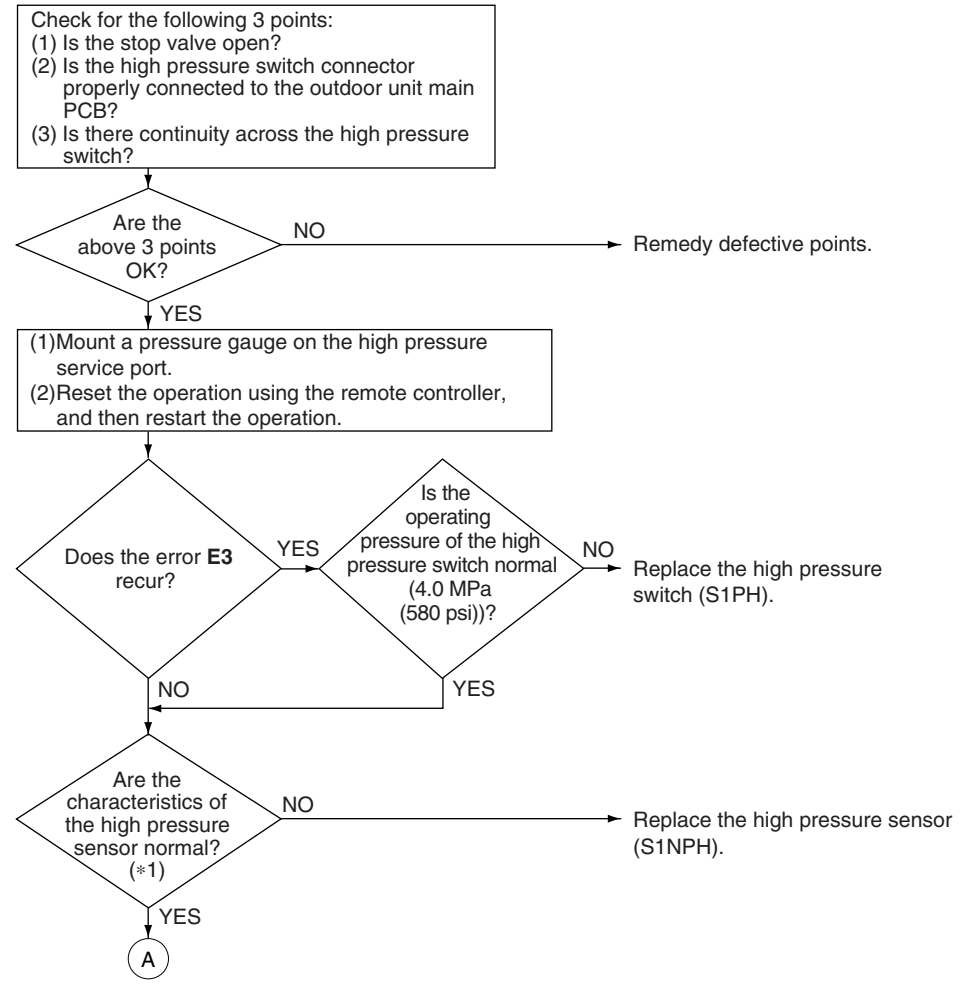
Method of Error Detection Detect continuity across the high pressure switch in the protection device circuit.

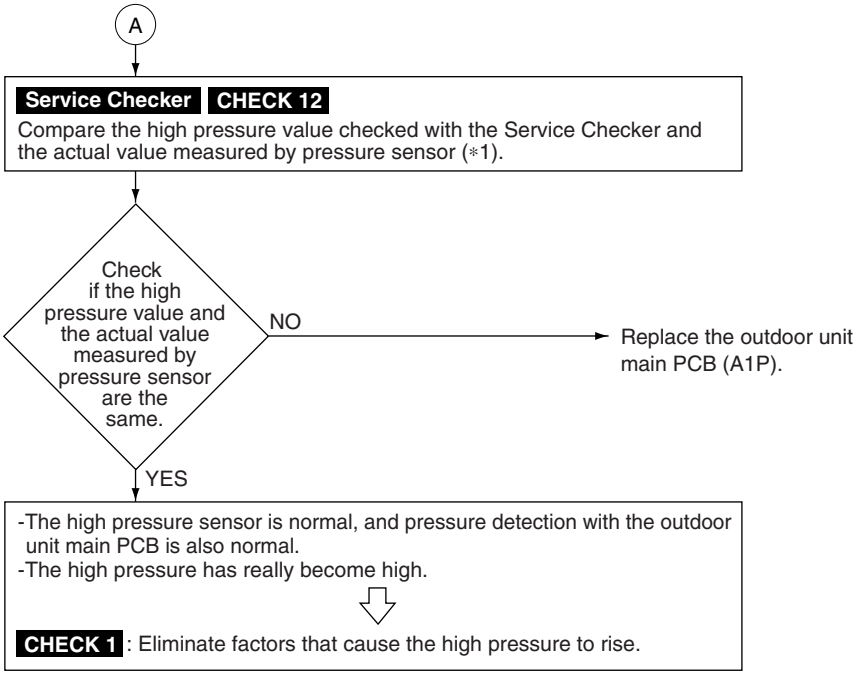
Error Decision Conditions
When part of the protection device circuit opens.
(Reference) Operating pressure of the high pressure switch:
- Operating pressure: 4.0 MPa (580 psi)
- Resetting pressure: 3.0 MPa (435 psi)

Supposed Causes
- Activation of high pressure switch
- Defective high pressure switch
- Defective outdoor unit main PCB (A1P)
- Momentary power failure
- Defective high pressure sensor

Troubleshooting

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





Note: *1. Make a comparison between voltage measured by the pressure sensor and that read by the pressure gauge.
(The pressure sensor makes measurement of voltage at its connector block to convert it to pressure. **CHECK 12**)

CHECK 1 Refer to page 291.

CHECK 12 Refer to page 305.

2.30 Actuation of Low Pressure Sensor

Error Code **E4**

Applicable Models All outdoor unit models

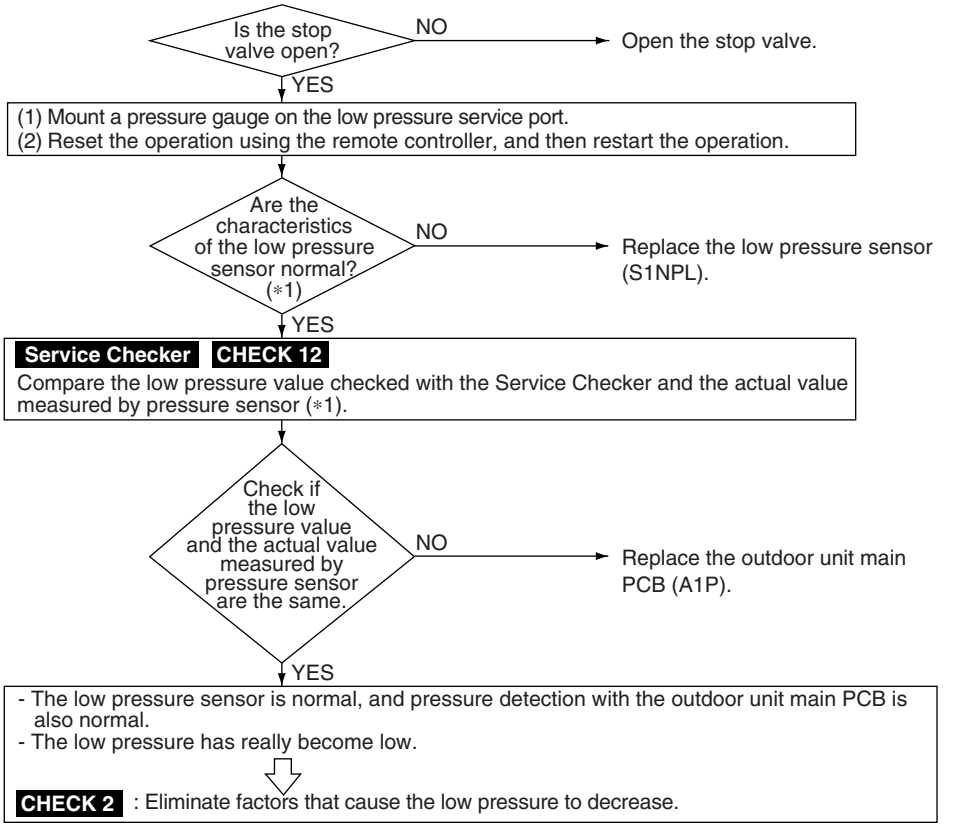
Method of Error Detection Make judgement of pressure detected by the low pressure sensor with the outdoor unit main PCB.

Error Decision Conditions When low pressure caused a drop while the compressor is in operation:
- Operating pressure: 0.07 MPa (10.2 psi)

Supposed Causes
- Abnormally drop in low pressure
- Defective low pressure sensor
- Defective outdoor unit 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.



Note: ∗1. Make a comparison between voltage measured by the pressure sensor and that read by the pressure gauge.
(The pressure sensor makes measurement of voltage at its connector block to convert it to pressure. **CHECK 12**)

CHECK 2 Refer to page 292.

CHECK 12 Refer to page 305.

2.31 Inverter Compressor Motor Lock

Error Code **E5**

Applicable Models All outdoor unit models

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.

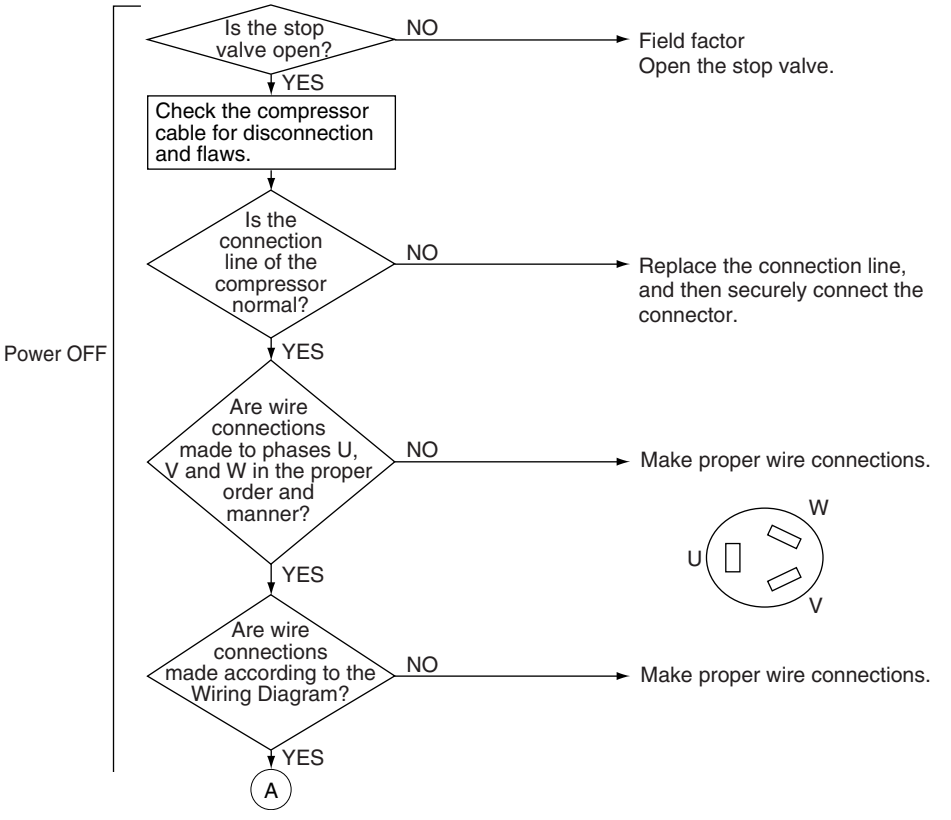
Error Decision Conditions This error will be output when the inverter compressor motor does not start up even in forced startup mode.

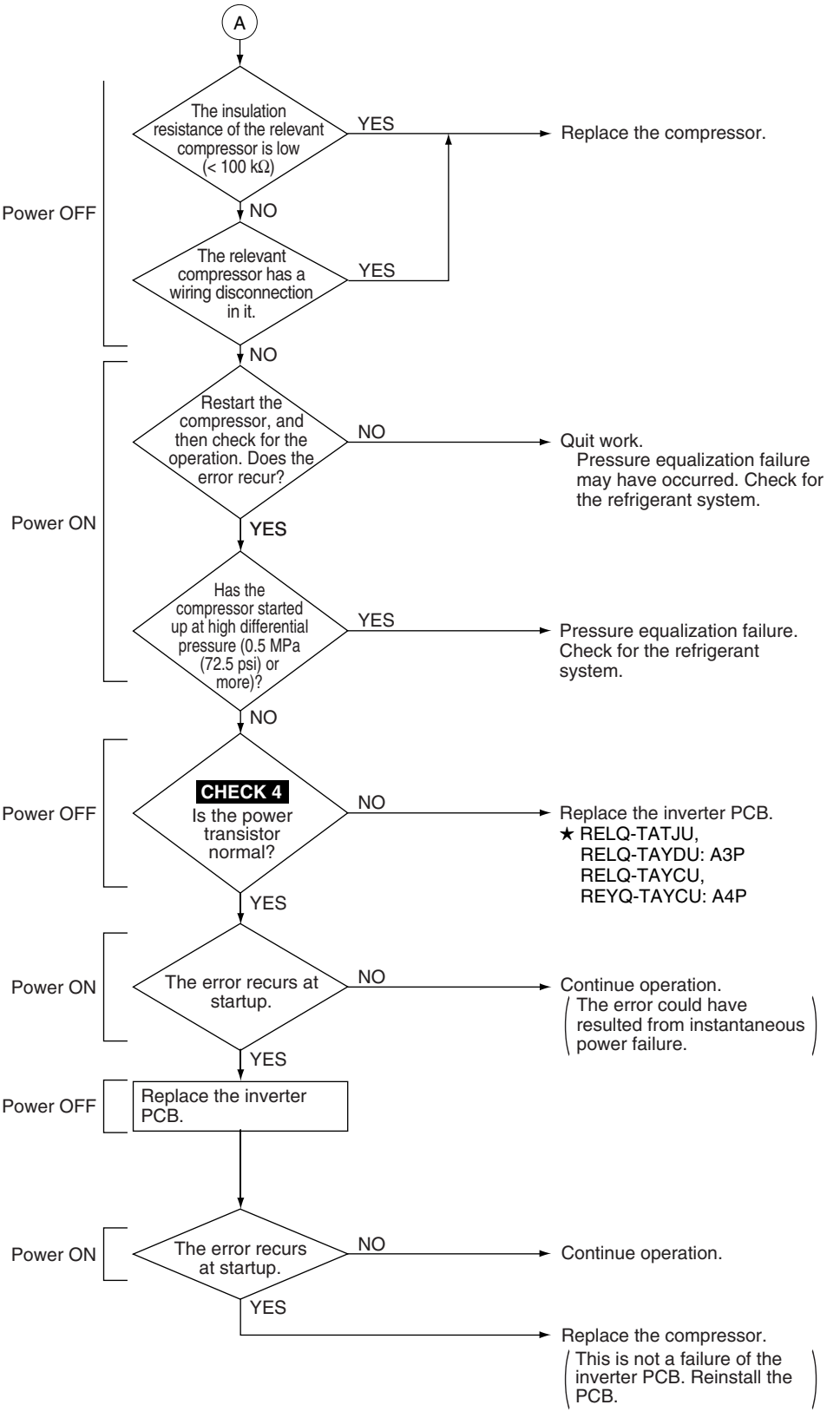
Supposed Causes

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

Troubleshooting

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





CHECK 4 Refer to page 294.

2.32 Compressor Damage Alarm

Error Code **E6**

Applicable Models All outdoor unit models

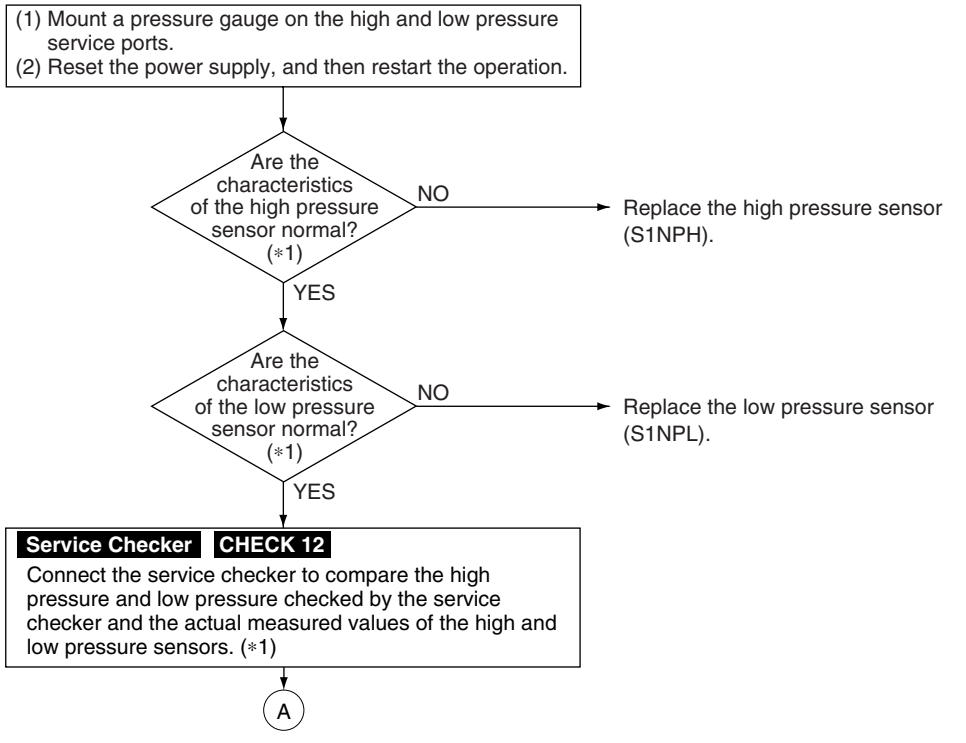
Method of Error Detection Determine the symptom to be error by detecting the revolutions of the compressor and pressure values detected by the high and low pressure sensors, and further making a comparison between a theoretical current value of the compressor calculated from parameters detected and an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

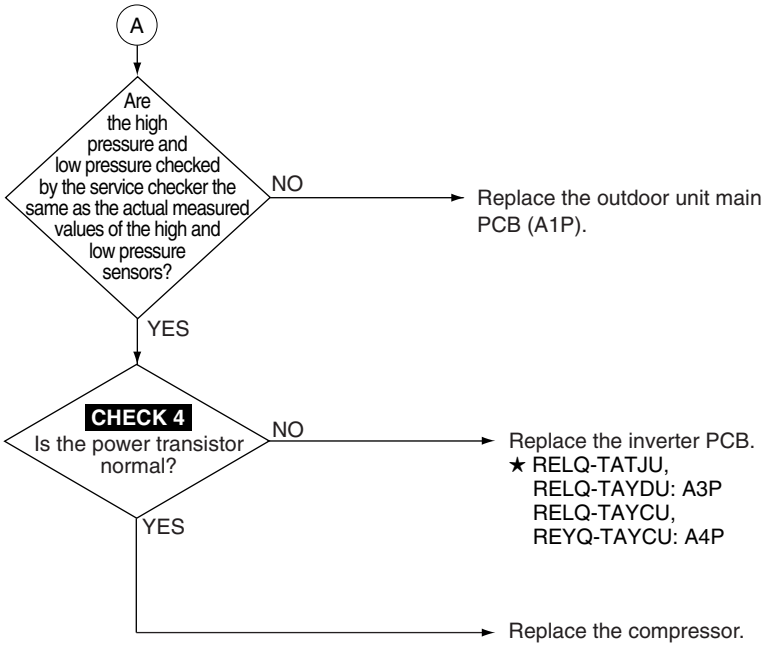
Error Decision Conditions When a state in which the actual current value of the compressor is abnormally high (by 130% or more) compared to the theoretical current value continues for a period of 30 minutes.
∗ In case of a system with multi outdoor units, the system will return an alarm if there is any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

Supposed Causes
- Defective compressor
- Defective high pressure sensor
- Defective low pressure sensor
- Defective outdoor unit main PCB
- Defective inverter PCB

Troubleshooting

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





Note: ∗1. Make a comparison between voltage measured by the pressure sensor and that read by the pressure gauge.
(The pressure sensor makes measurement of voltage at its connector block to convert it to pressure. **CHECK 12**)

CHECK 4 Refer to page 294.

CHECK 12 Refer to page 305.

2.33 Outdoor Fan Motor Abnormality

2.33.1 Outdoor Fan Motor Abnormality (208/230 V Models, 460 V Models)

Error Code **E7**

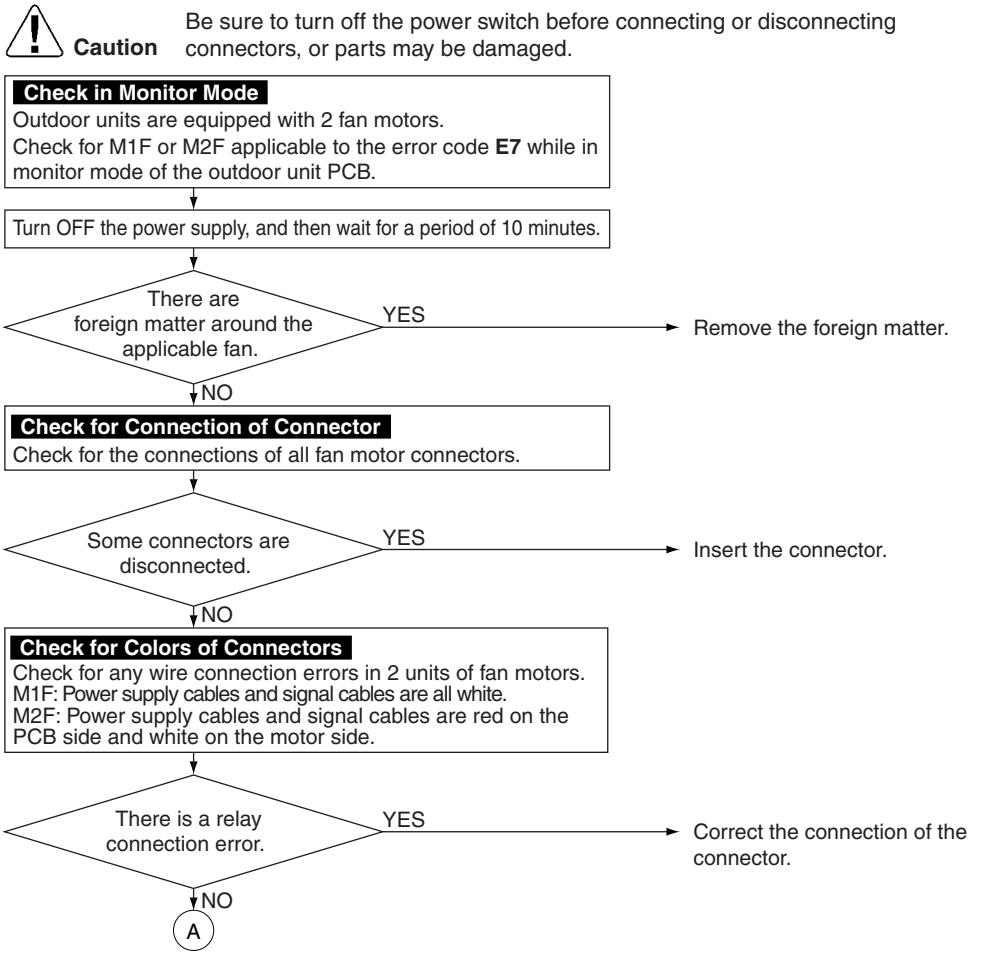
Applicable Models RELQ72-120TATJU, RELQ72-120TAYDU

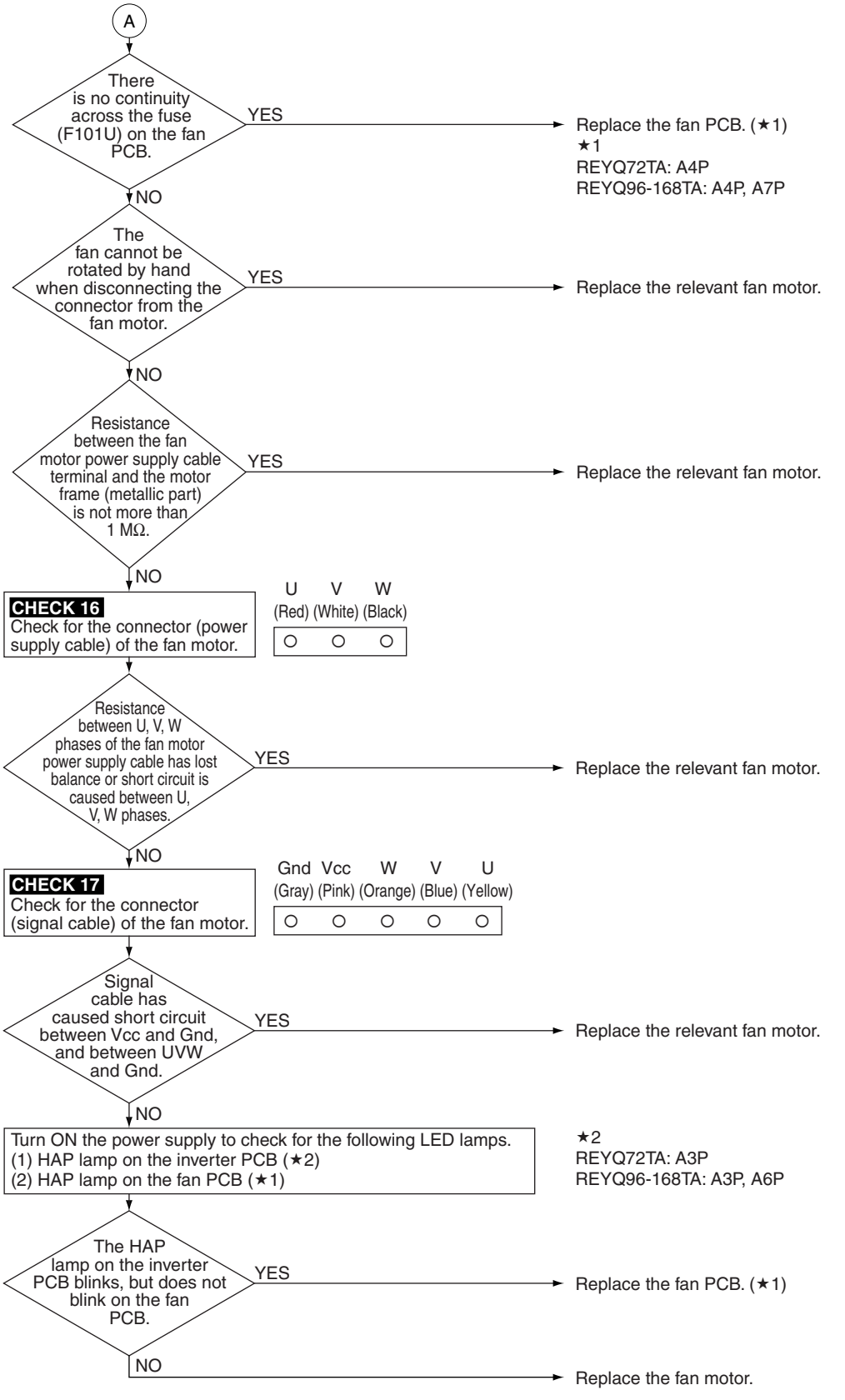
Method of Error Detection
- Detects according to the value of current flowing through the inverter PCB (or fan PCB in case of M2F).
- Detects error of the fan motor system according to the fan revolutions detected by the Hall IC during the fan motor runs.

Error Decision Conditions
- Overcurrent is detected from the inverter PCB or the fan PCB (Detecting overcurrent 4 times will shut down the system).
- 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
- Neglect to connect or defective connection of harness/connector between the fan motor and the PCB
- Fan does not rotate due to foreign matter caught in it.
- Clearing condition: fan motor performs normal operation for a period of 5 minutes

Troubleshooting





CHECK 16 Refer to page 307.

CHECK 17 Refer to page 307.

2.33.2 Outdoor Fan Motor Abnormality (575 V Models)

Error Code

E7

Applicable Models

RELQ72-120TAYCU, REYQ72-168TAYCU

Method of Error Detection

Detects according to the value of current flowing through the fan PCB.

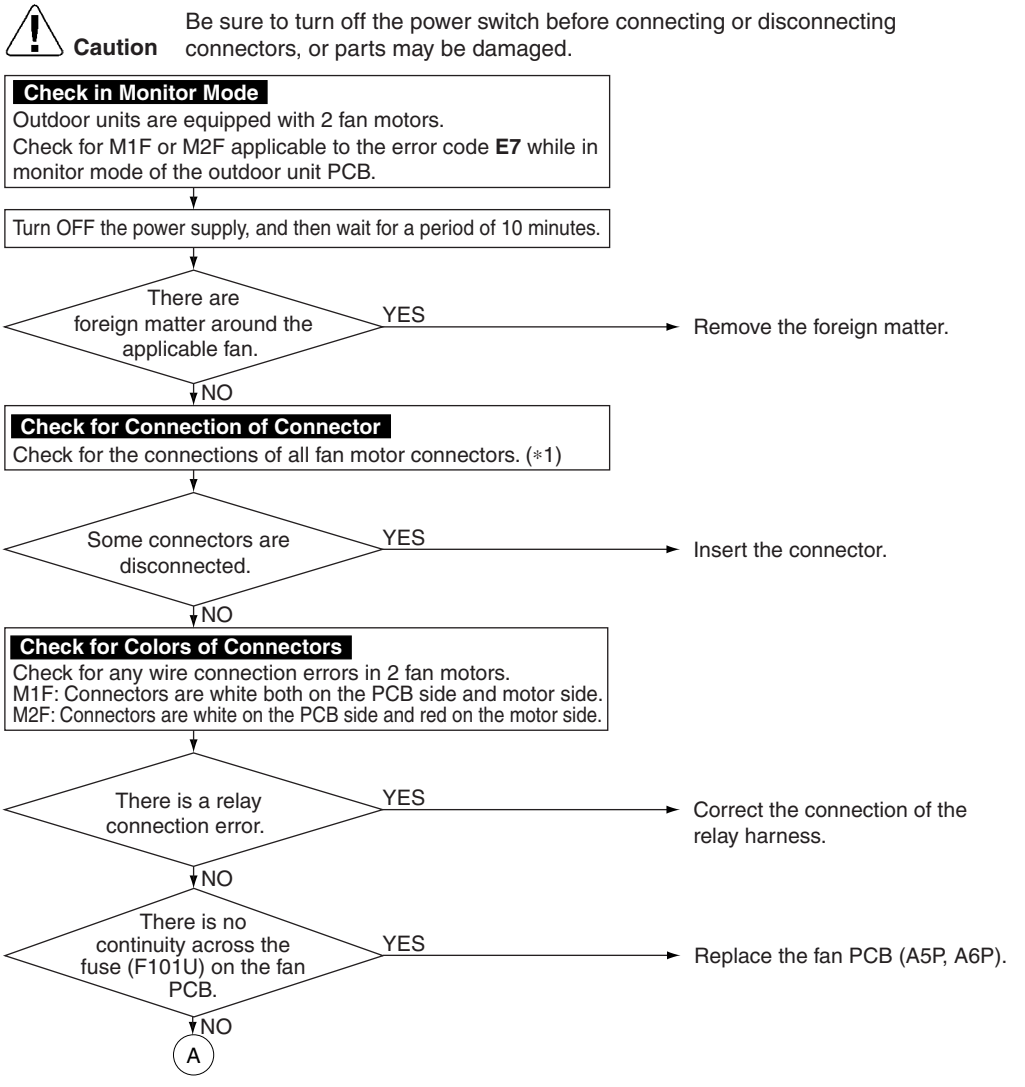
Error Decision Conditions

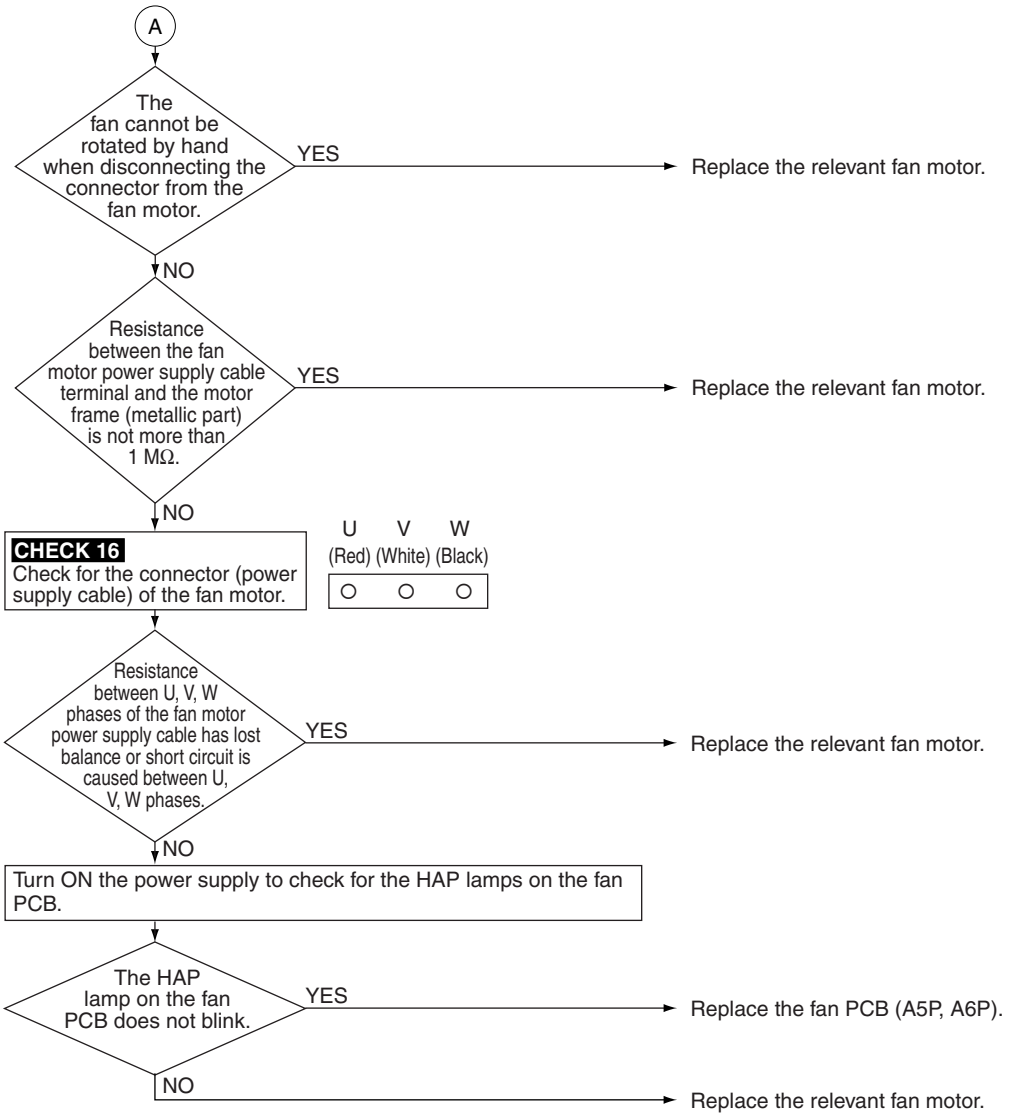
- Overcurrent is detected from the fan PCB (Detecting overcurrent 4 times will shut down the system).
- Current does not increase at fan motor startup or while the fan motor is in operation (Detecting 4 times will shut down the system).

Supposed Causes

- Fan motor failure
- Neglect to connect or defective connection of harness/connector between the fan motor and the PCB
- Fan does not rotate due to foreign matter caught in it.
- Clearing condition: fan motor performs normal operation for a period of 5 minutes

Troubleshooting





Note: ∗1. Fan motor connectors

Fan motor	PCB	Connector
M1F	A6P	X1A
M2F	A5P	X1A

CHECK 16 Refer to page 307.

2.34 Electronic Expansion Valve Coil Abnormality

Error Code **E9**

Applicable Models All outdoor unit models

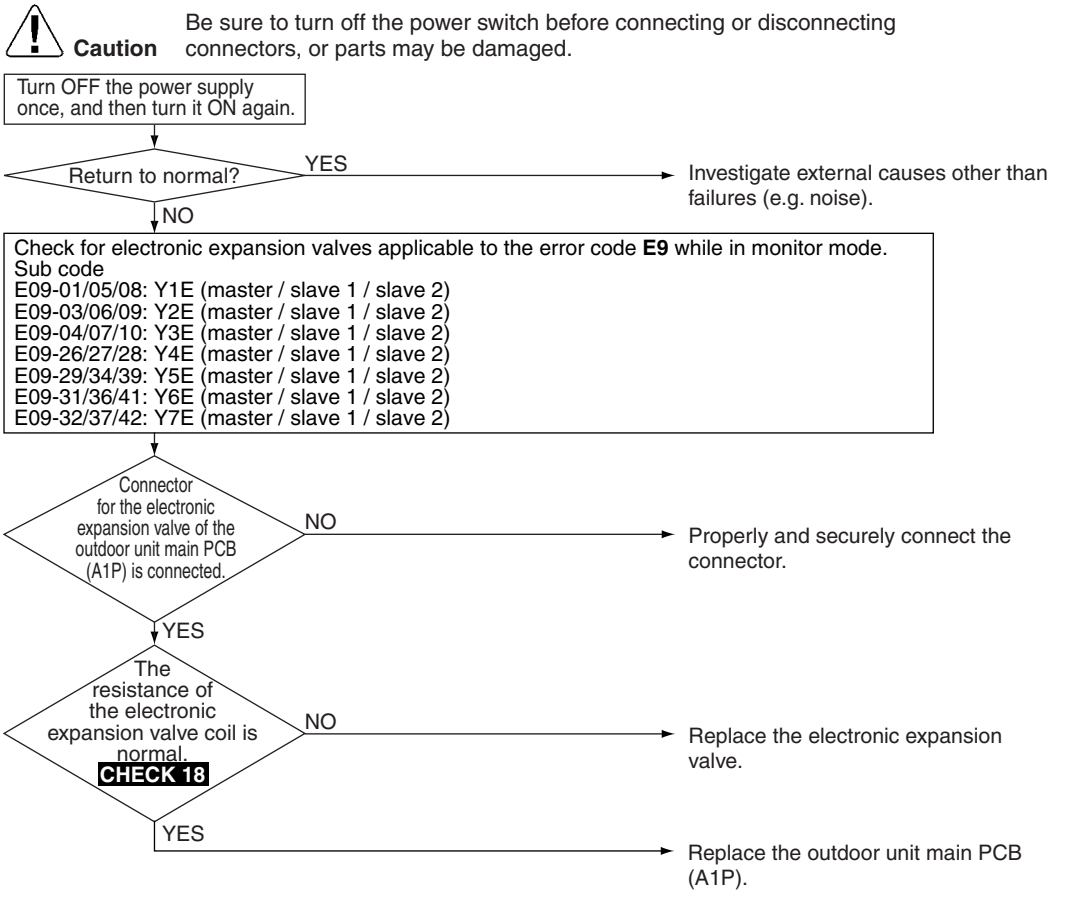
Method of Error Detection Detect according to whether or not there is continuity across the electronic expansion valve coils (Y1E-Y7E).

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-Y7E)
- Defective electronic expansion valve coil
- Defective outdoor unit main PCB

Troubleshooting



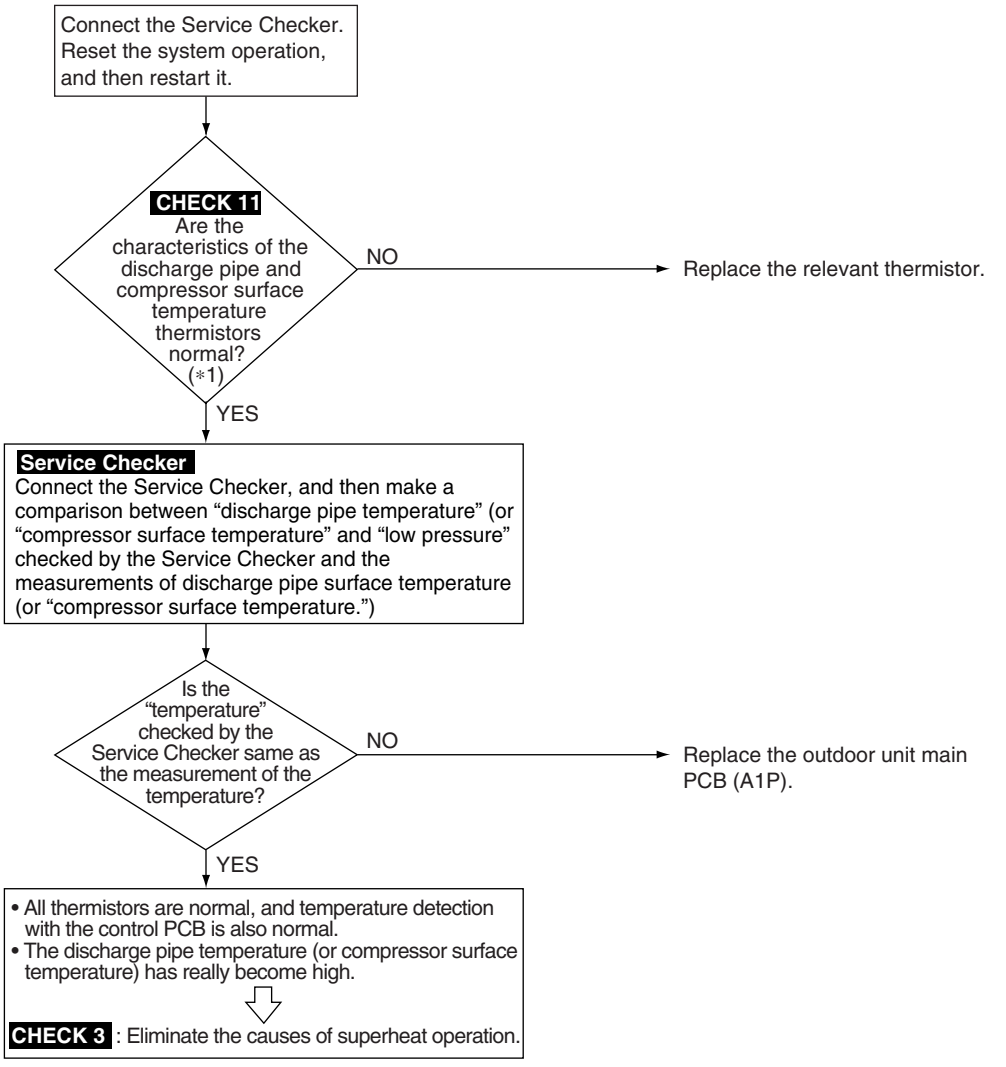
CHECK 18 Refer to page 308.

2.35 Discharge Pipe Temperature Abnormality

Error Code	**F3**
Applicable Models	All outdoor unit models
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 (275°F) or more) ■ When discharge pipe temperature sharply rises (remains at 120°C (248°F) or more for a period of consecutive 10 minutes) ■ When compressor surface temperature becomes abnormally high (i.e., 120°C (248°F) or more) ■ When compressor surface temperature sharply rises (remains at 115°C (239°F) or more for a period of consecutive 10 minutes)
Supposed Causes	■ Abnormal discharge pipe temperature ■ Defective discharge pipe thermistor ■ Abnormal compressor surface temperature ■ Defective compressor body thermistor ■ Defective outdoor unit main PCB

Troubleshooting

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



Note: *1. Thermistors

Applicable Thermistor	Electric symbol	Connector
Discharge pipe thermistor for M1C	R21T	X19A (Group connector)
Compressor body thermistor	R14T	

CHECK 3 Refer to page 293.

CHECK 11 Refer to page 302.

2.36 Wet Alarm

Error Code F4

Applicable Models All outdoor unit models

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

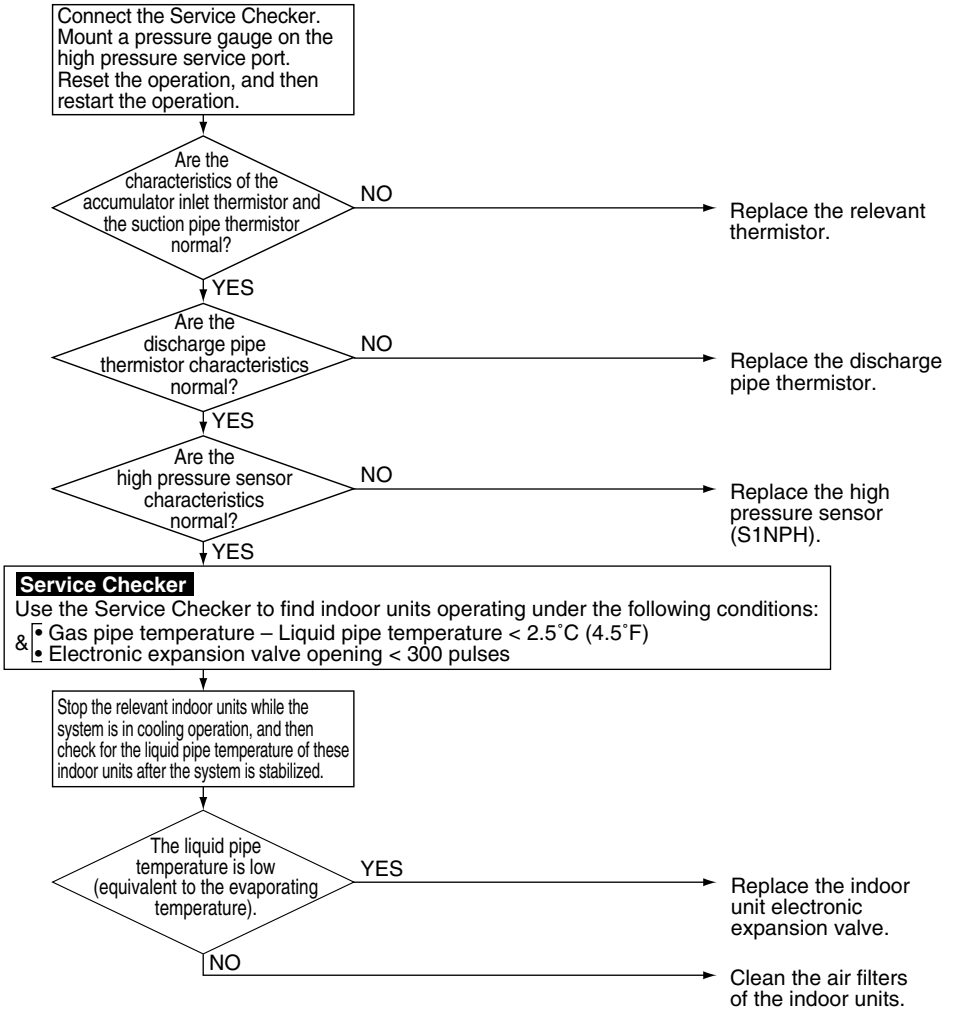
When the following wet state continues for a period of 90 minutes, an alert is issued.
An error is defined for 120 minutes.
- Wet state in outdoor units

When the following wet state continues for a period of 45 minutes, an alert is issued.
- Wet state in some of indoor units

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.



2.37 Refrigerant Overcharged

Error Code **F6**

Applicable Models All outdoor unit models

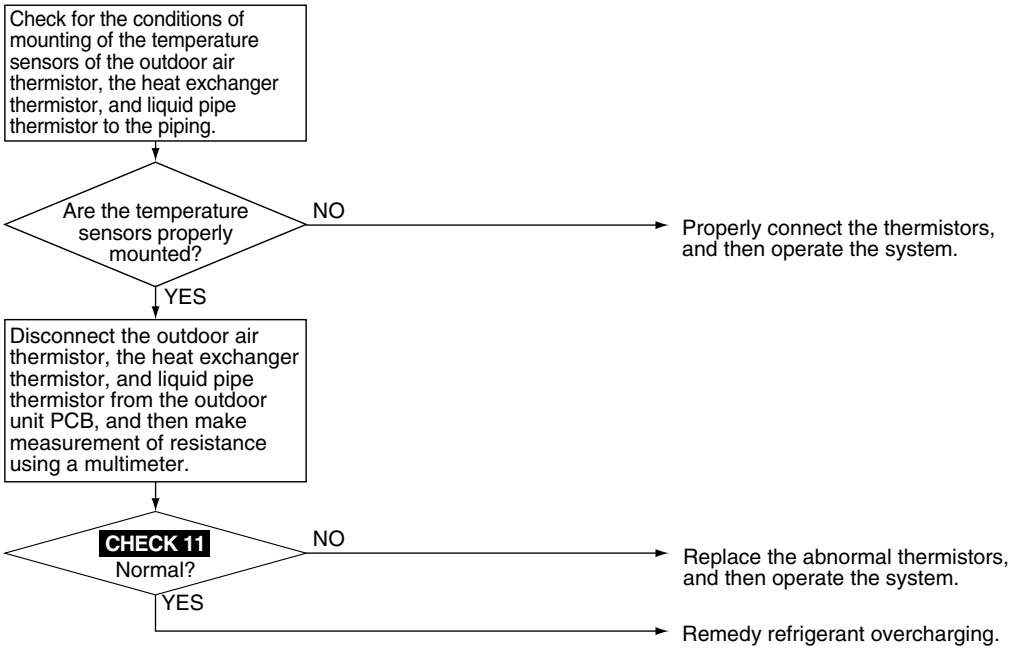
Method of Error Detection Detect overcharged refrigerant according to outdoor air temperature, heat exchanger deicer temperature, and liquid pipe temperature during check operation.

Error Decision Conditions When the amount of refrigerant, which is calculated using outdoor air temperature, heat exchanger deicer temperature, and liquid pipe temperature during check operation, exceeds the regular charge amount by 30% or more
(If refrigerant is charged slightly over the regular charge amount, **F6** may be displayed on the remote controller.)

Supposed Causes
- Refrigerant overcharged
- Disconnection of outdoor air thermistor
- Disconnection of heat exchanger deicer thermistor
- Disconnection of liquid pipe temperature thermistor

Troubleshooting

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



CHECK 11 Refer to page 302.

2.38 BS Unit Electronic Expansion Valve Abnormality

Error Code **F9**

Applicable Models BS unit

Method of Error Detection The error is detected by whether or not all coils of the electronic expansion valve have continuity.

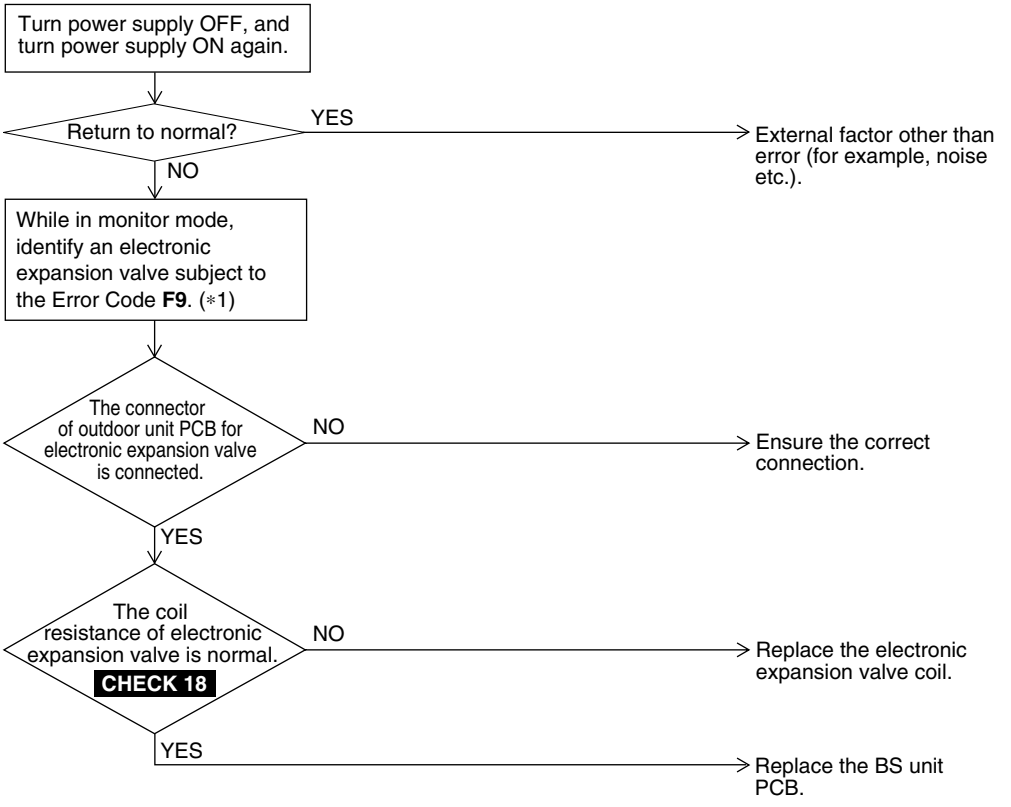
Error Decision Conditions The power supply turns ON, but there is no currents pass through the common (COM[+]).

Supposed Causes

- Disconnection of the electronic expansion valve connector
- Defective electronic expansion valve coil
- Defective PCB of BS unit

Troubleshooting

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



Note: *1: Use the sub code to identify the electronic expansion valve subject to error code **F9**.

Electronic expansion valve	Sub code
Electronic expansion valve (high/low pressure gas pipe)	01
Electronic expansion valve (suction pipe)	02
Electronic expansion valve (subcooling)	05

CHECK 18 Refer to page 308.

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

Error Code **H3**

Applicable Models All outdoor unit models

Method of Error Detection Check for the transmission conditions of the harnesses between the PCBs using microcomputer.

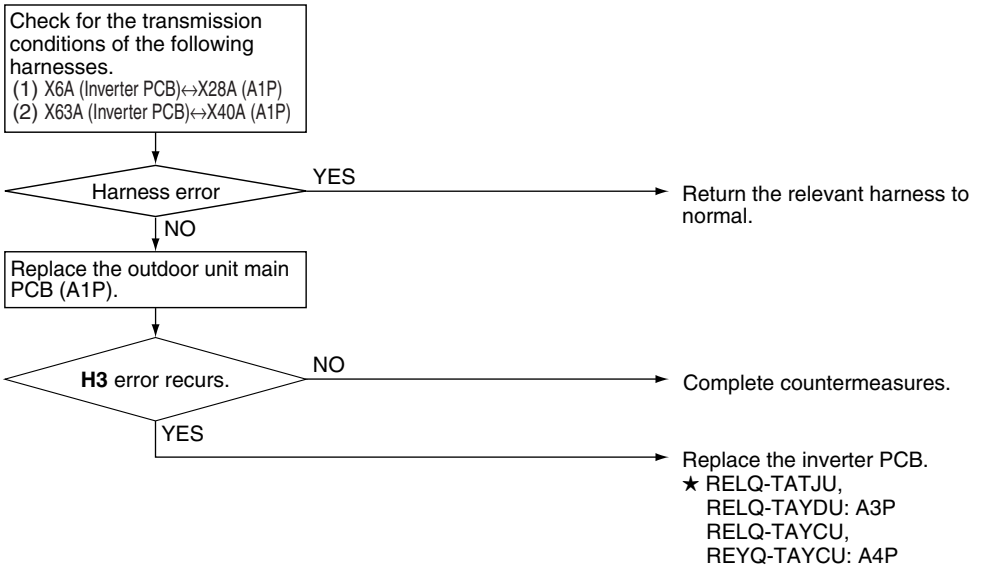
Error Decision Conditions Normal transmission between the PCBs is disabled while the compressor stops running.

Supposed Causes

- Defective connection of jumpers between PCB
- Defective outdoor unit main PCB (A1P)
- Defective inverter PCB

Troubleshooting

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



2.40 Outdoor Fan Motor Signal Abnormality

Error Code **H7**

Applicable Models RELQ72-120TATJU, RELQ72-120TAYDU

Method of Error Detection Detect of abnormal signal from fan motor.

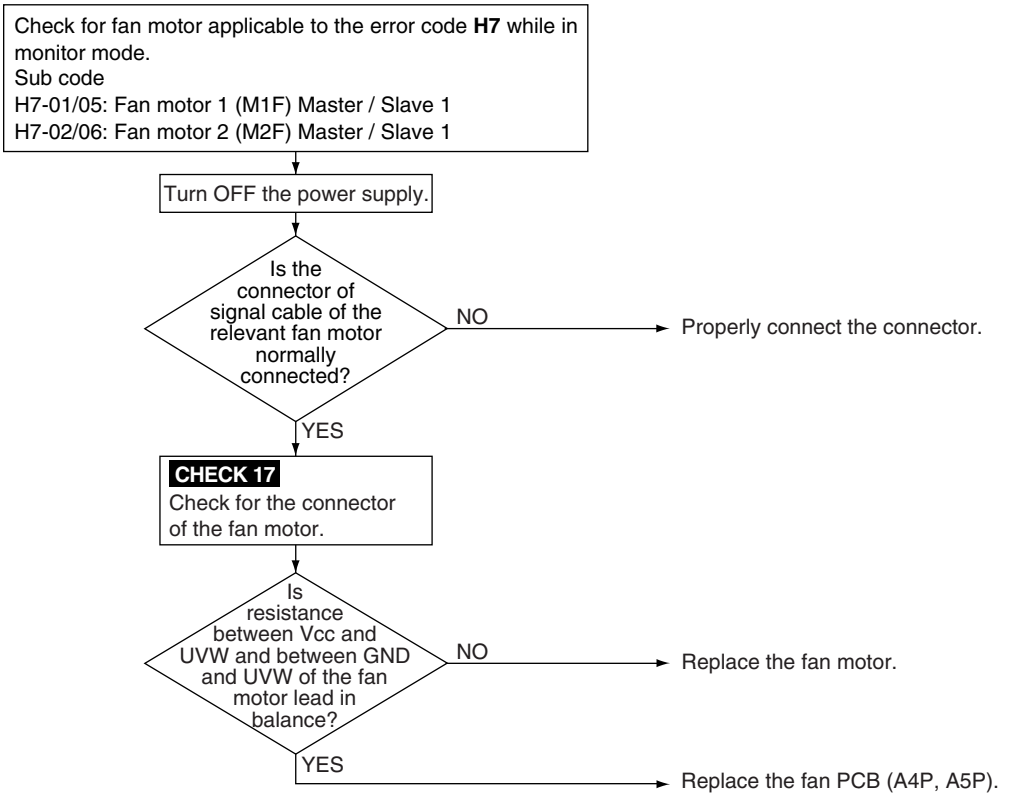
Error Decision Conditions An abnormal signal is detected at startup of the fan motor operation.

Supposed Causes

- Abnormal signal from fan motor (Circuit failure)
- Disconnection/Short circuit in fan motor leads or disconnection of connector
- Defective inverter PCB (A3P)

Troubleshooting

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



CHECK 17 Refer to page 307.

2.41 Outdoor Fan PCB Abnormality

Error Code **H7**

Applicable Models RELQ72-120TAYCU, REYQ72-168TAYCU

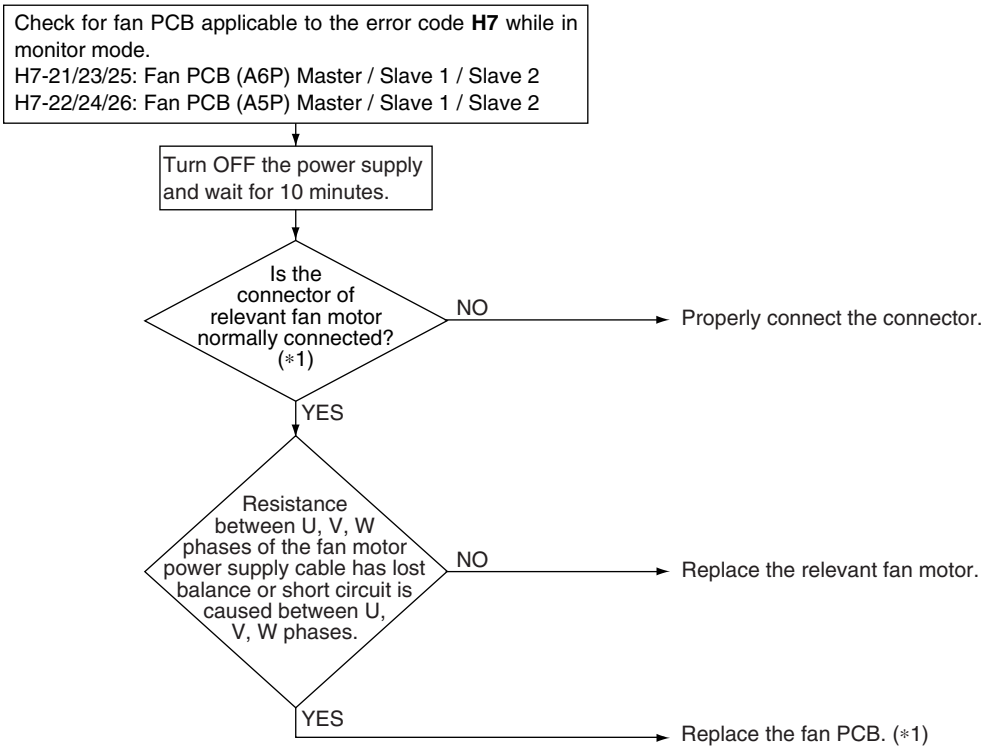
Method of Error Detection Detect with current sensor value.

Error Decision Conditions When the current sensor shows abnormality.

Supposed Causes Defective fan PCB (A5P, A6P)

Troubleshooting

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



Note: *1: Fan PCB and connectors

Fan motor	Fan PCB	Connector
M1F	A6P	X1A
M2F	A5P	X1A

2.42 Thermistor Abnormality

Error Code **H9, J3, J5, J6, J7, J8, J9**

Applicable Models All outdoor unit models

Method of Error Detection Detect according to temperature detected with individual thermistors.

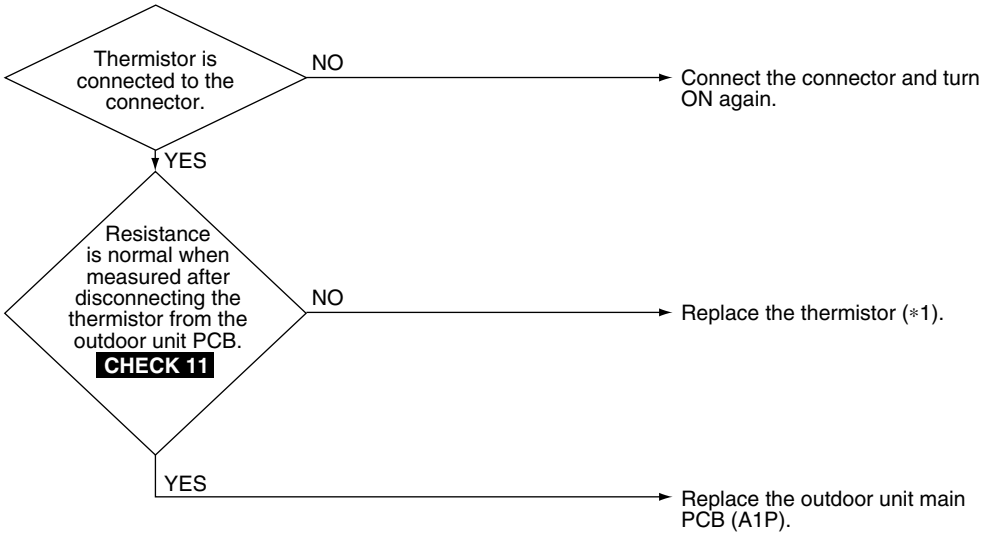
Error Decision Conditions The system is in operation and the thermistor causes wiring disconnection or short circuit in it.

Supposed Causes

- Defective connection of thermistor
- Defective thermistor
- Defective outdoor unit PCB

Troubleshooting

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



Note: ∗1. Error codes and thermistors

Error Code	Applicable Thermistor	Electric symbol	Connector
H9	Outdoor air thermistor	R1T	X18A
J3	Discharge pipe (M1C) thermistor	R21T	X19A (Group connector)
	Compressor body thermistor	R14T	
J5	Compressor suction thermistor	R12T	X15A (Group connector)
	Suction pipe thermistor	R10T	X29A (Group connector)
J6	Heat exchanger deicer thermistor	R11T	X15A (Group connector)
	Heat exchanger gas pipe thermistor	R8T R9T	X29A (Group connector)
J7	Receiver inlet thermistor	R3T	X30A (Group connector)
	Subcooling heat exchanger liquid pipe thermistor	R7T	
	Subcooling injection thermistor	R16T	X15A (Group connector)
J8	Heat exchanger liquid pipe thermistor	R4T R5T	X30A (Group connector)
	Leak detection thermistor	R15T	X15A (Group connector)
J9	Subcooling heat exchanger gas pipe thermistor	R6T	X30A (Group connector)
	Receiver gas purge thermistor	R13T	X17A

CHECK 11 Refer to page 302.

2.43 High Pressure Sensor Abnormality

Error Code JA

Applicable Models All outdoor unit models

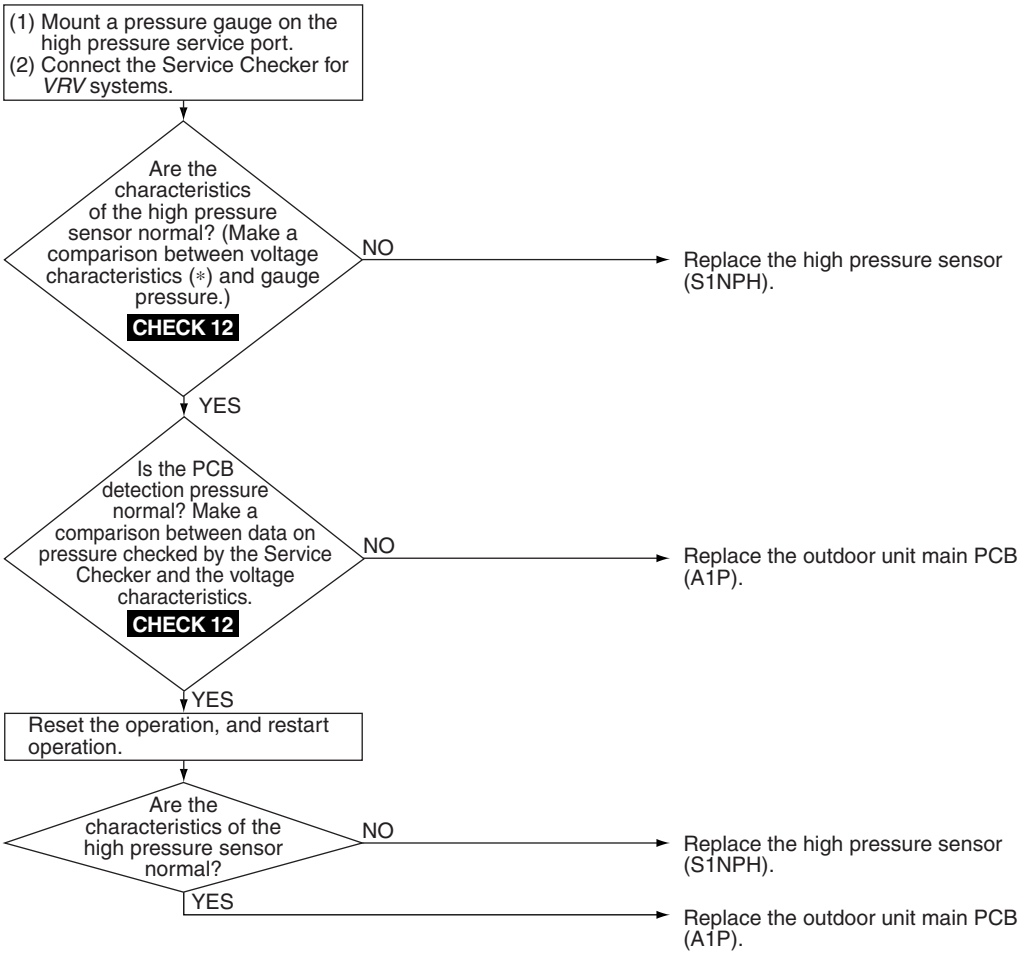
Method of Error Detection Detect according to temperature detected with the high pressure sensor.

Error Decision Conditions The high pressure sensor is short circuit or open circuit.
(Pressure range: 0-4.3 MPa (0-624 psi))

Supposed Causes
- Defective high pressure sensor
- Connection of low pressure sensor in mistake for high pressure sensor
- Defective outdoor unit main PCB
- Defective connection of high pressure sensor

Troubleshooting

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



CHECK 12 Refer to page 305.

2.44 Low Pressure Sensor Abnormality

Error Code **JC**

Applicable Models All outdoor unit models

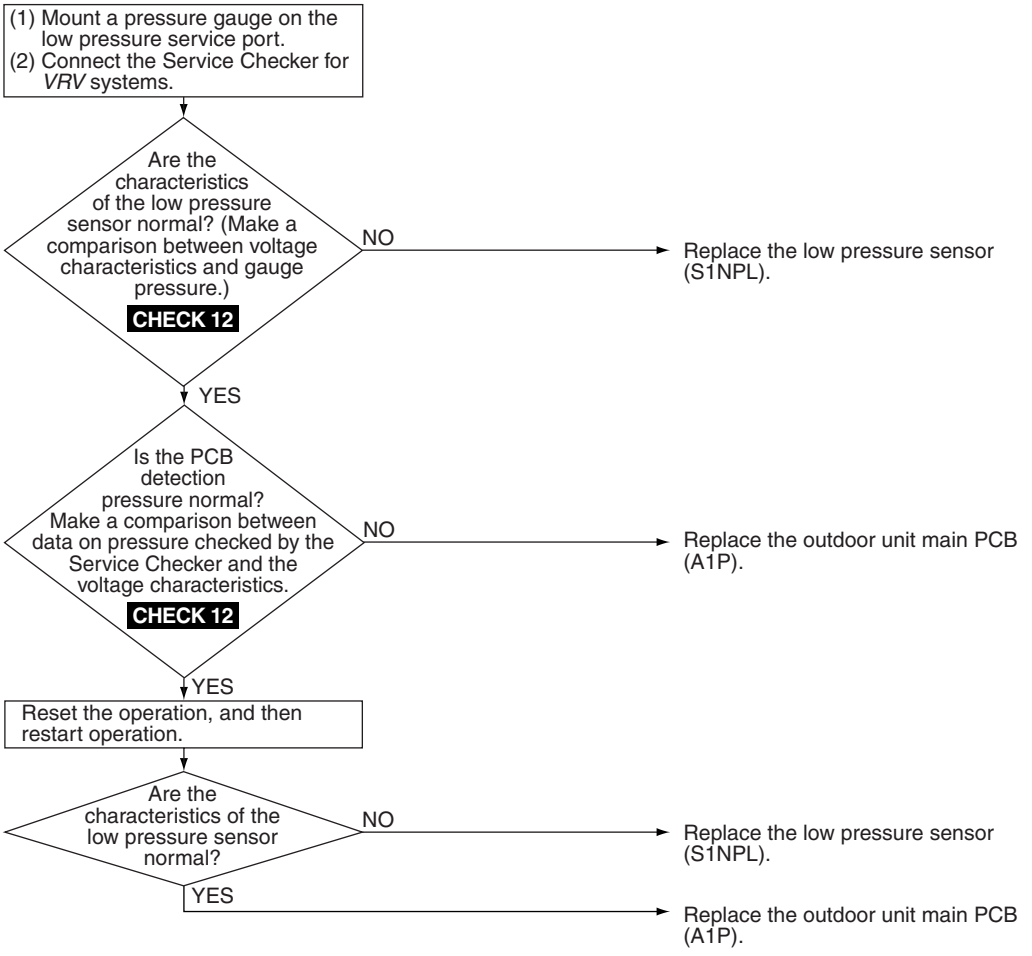
Method of Error Detection Detect according to temperature detected with the low pressure sensor.

Error Decision Conditions The low pressure sensor is short circuit or open circuit.
(Pressure range: 0-1.7 MPa (0-247 psi))

Supposed Causes
- Defective low pressure sensor
- Connection of high pressure sensor in mistake for low pressure sensor
- Defective outdoor unit 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.



CHECK 12 Refer to page 305.

2.45 Inverter PCB Abnormality

Error Code

L1

Applicable Models

All outdoor unit models

Method of Error Detection

- Detect according to current value detected during the output of waveform before compressor startup
- Detect according to current value detected with the current sensor during synchronous operation for startup

Error Decision Conditions

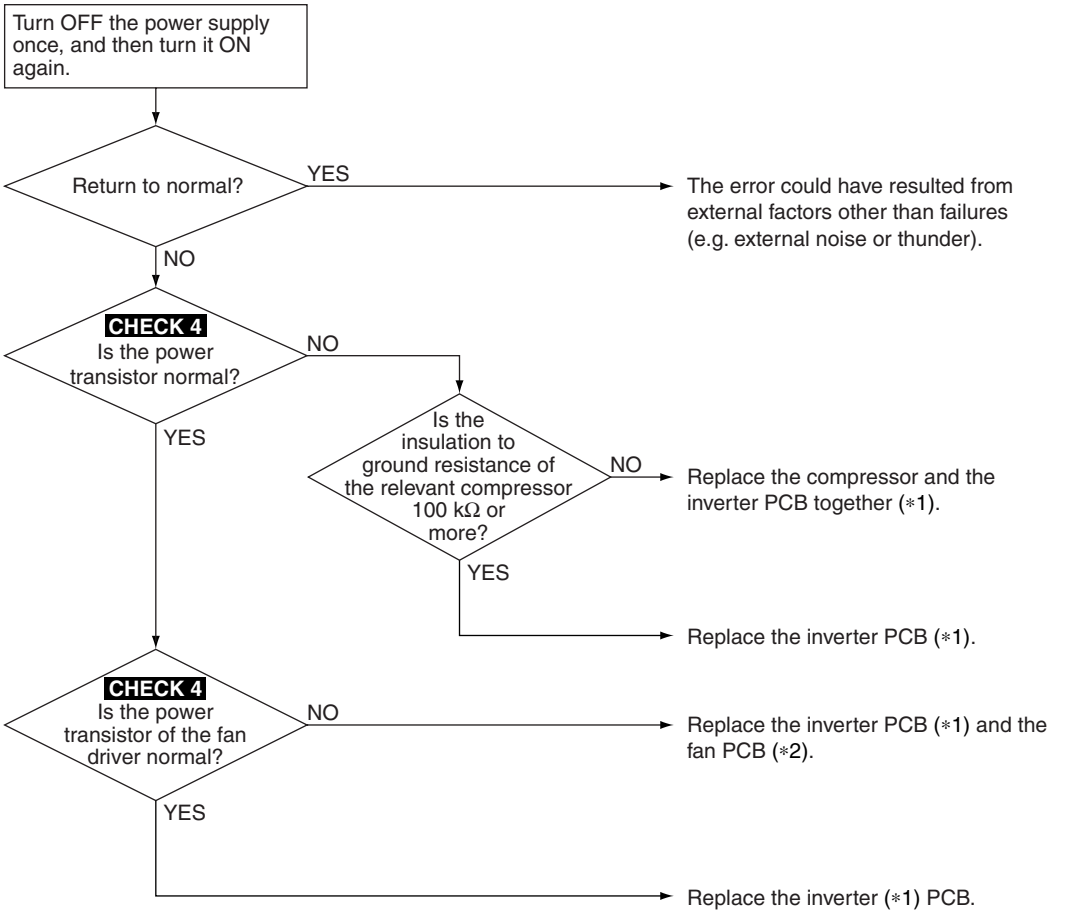
- When overcurrent (OCP) flows during the output of waveform
- When the current sensor error during synchronous operation
- When IPM error occurs

Supposed Causes

- Inverter PCB
  - IPM failure
  - Current sensor failure
  - Drive circuit failure

Troubleshooting

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



Model	Inverter PCB (∗1)	Fan PCB (∗2)
RELQ-TATJU	A3P	M1F: A4P M2F: A5P
RELQ-TAYDU	A3P	M1F: A4P M2F: A5P
RELQ-TAYCU	A4P	M1F: A6P M2F: A5P
REYQ-TAYCU	A4P	M1F: A6P M2F: A5P

CHECK 4 Refer to page 294.

2.46 Momentary Power Failure during Test Operation

Error Code

L2

Applicable Models

All outdoor unit models

Method of Error Detection

Momentary power failure is detected by the PCB.

Error Decision Conditions

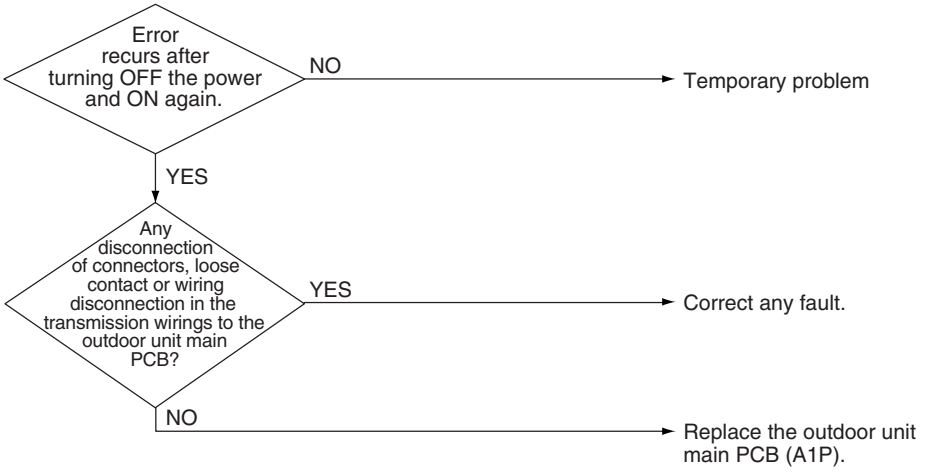
Judgement is made by AC power frequency detection circuit on the outdoor unit main PCB

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.



2.47 Reactor Temperature Rise Abnormality

Error Code **L3**

Applicable Models RELQ72TATJU

Method of Error Detection Detect according to the value detected with the reactor surface thermistor.

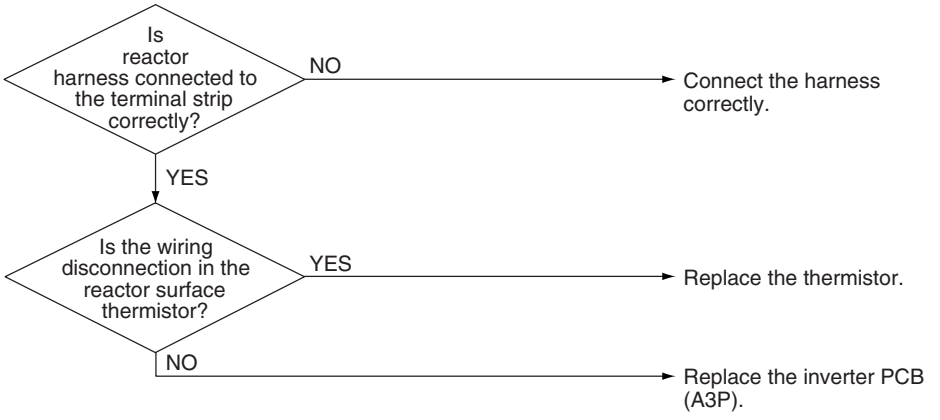
Error Decision Conditions When the temperature detected with the reactor surface thermistor is more than the specified temperature.

Supposed Causes

- Defective connection of harness
- 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.



2.48 Inverter Radiation Fin Temperature Rise Abnormality

2.48.1 Inverter Radiation Fin Temperature Rise Abnormality (Inverter PCB)

Error Code

L4

Sub code: 01-03

Applicable Models

All outdoor unit models

Method of Error Detection

Detect temperature of power module of the inverter PCB.

Error Decision Conditions

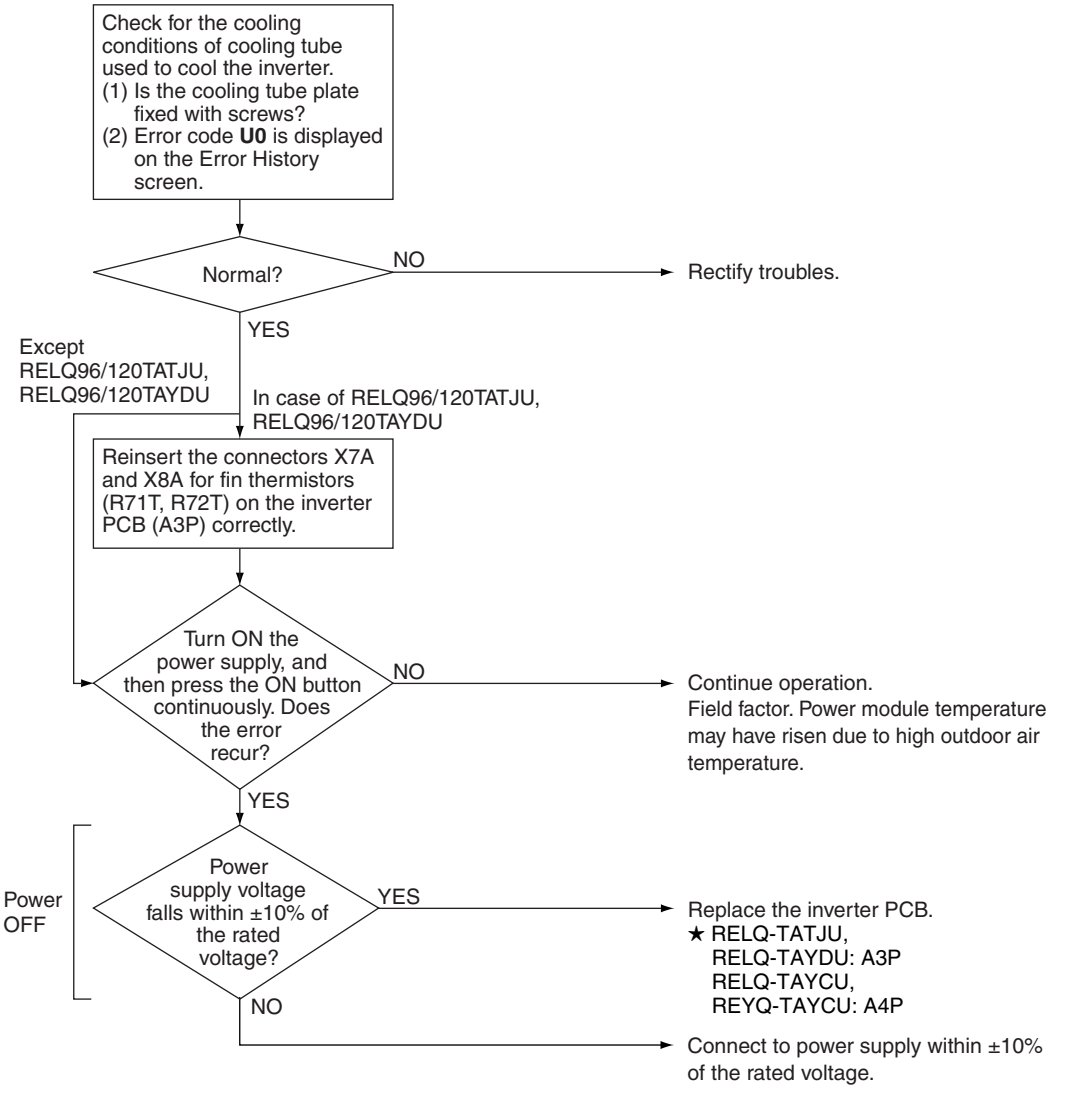
Thermistor located inside the power module of the inverter PCB for compressor and fan motor. Cooling tube plate poor heat-exchange.

Supposed Causes

- Cooling tube plate not fixed with screws
- **U0** error
- Defective inverter PCB
- High outdoor air temperature
- Incorrect power supply voltage
- Defective connection of connectors

Troubleshooting

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



2.48.2 Inverter Radiation Fin Temperature Rise Abnormality (Fan PCB)

Error Code

L4

Sub code: 06, 07, 18-21

Applicable Models

RELQ72-120TAYCU, REYQ72-168TAYCU

Method of Error Detection

Fan PCB radiation fin temperature is detected by the thermistor located inside the fan PCB circuit.

Error Decision Conditions

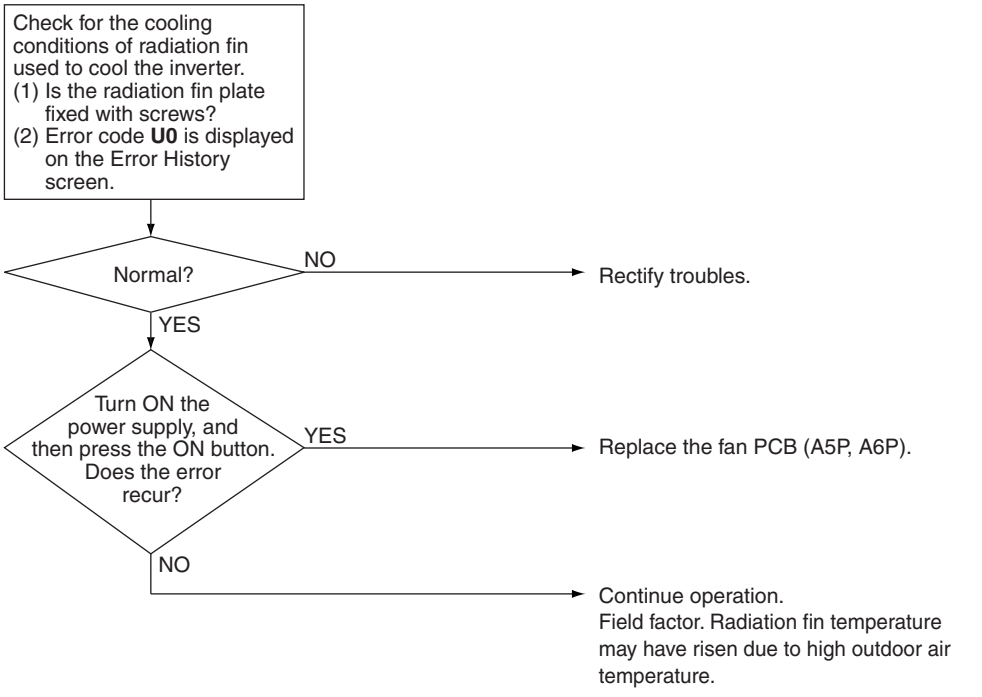
Detected temperature exceeds a certain level.

Supposed Causes

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

Troubleshooting

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



2.49 Inverter Compressor Instantaneous Overcurrent

Error Code **L5**

Applicable Models All outdoor unit models

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

Error Decision Conditions When instantaneously overcurrent flows through the power transistor.

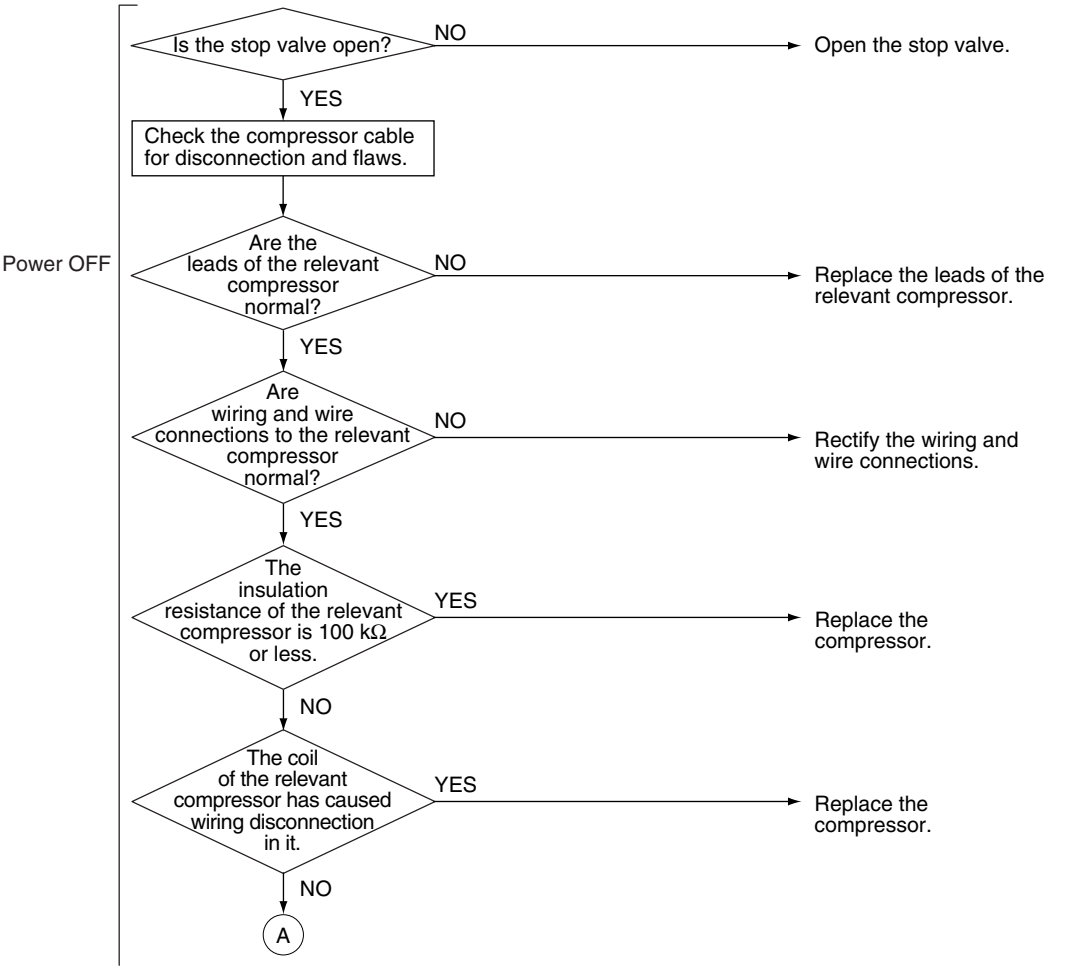
Supposed Causes

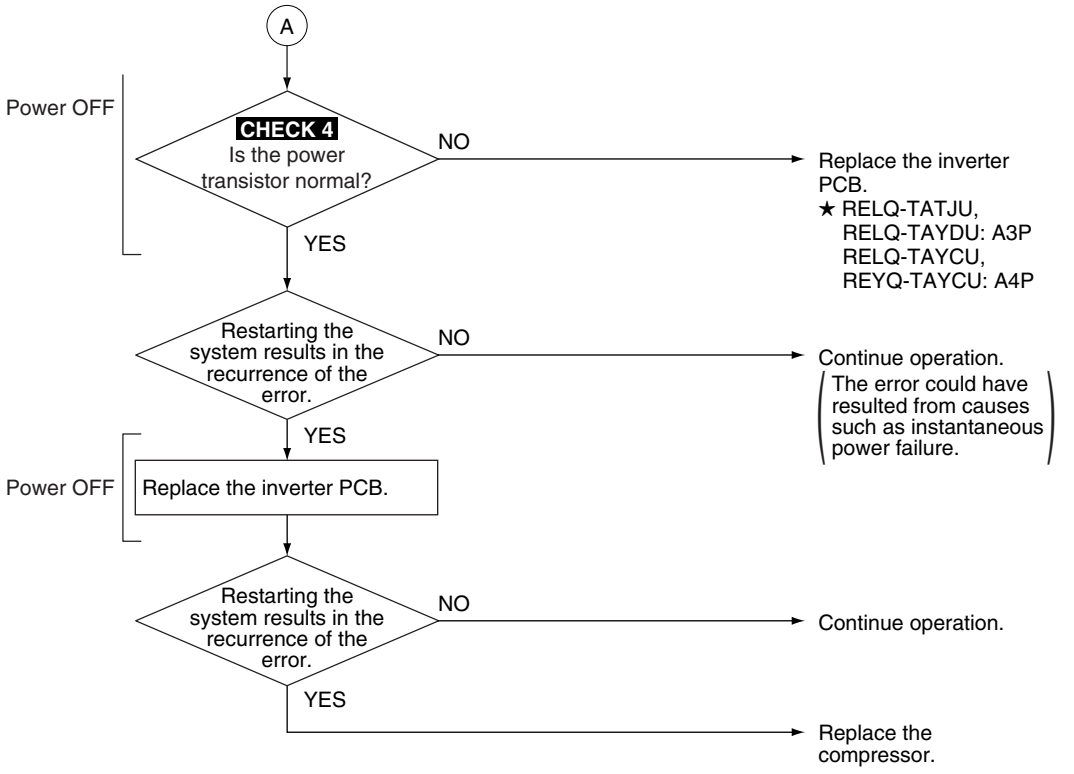
- Defective compressor coil (such as wiring disconnection or insulation failure)
- Compressor startup failure (mechanical lock)
- Defective inverter PCB

Troubleshooting

Compressor inspection

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





CHECK 4 Refer to page 294.

2.50 Inverter Compressor Overcurrent

Error Code **L8**

Applicable Models All outdoor unit models

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

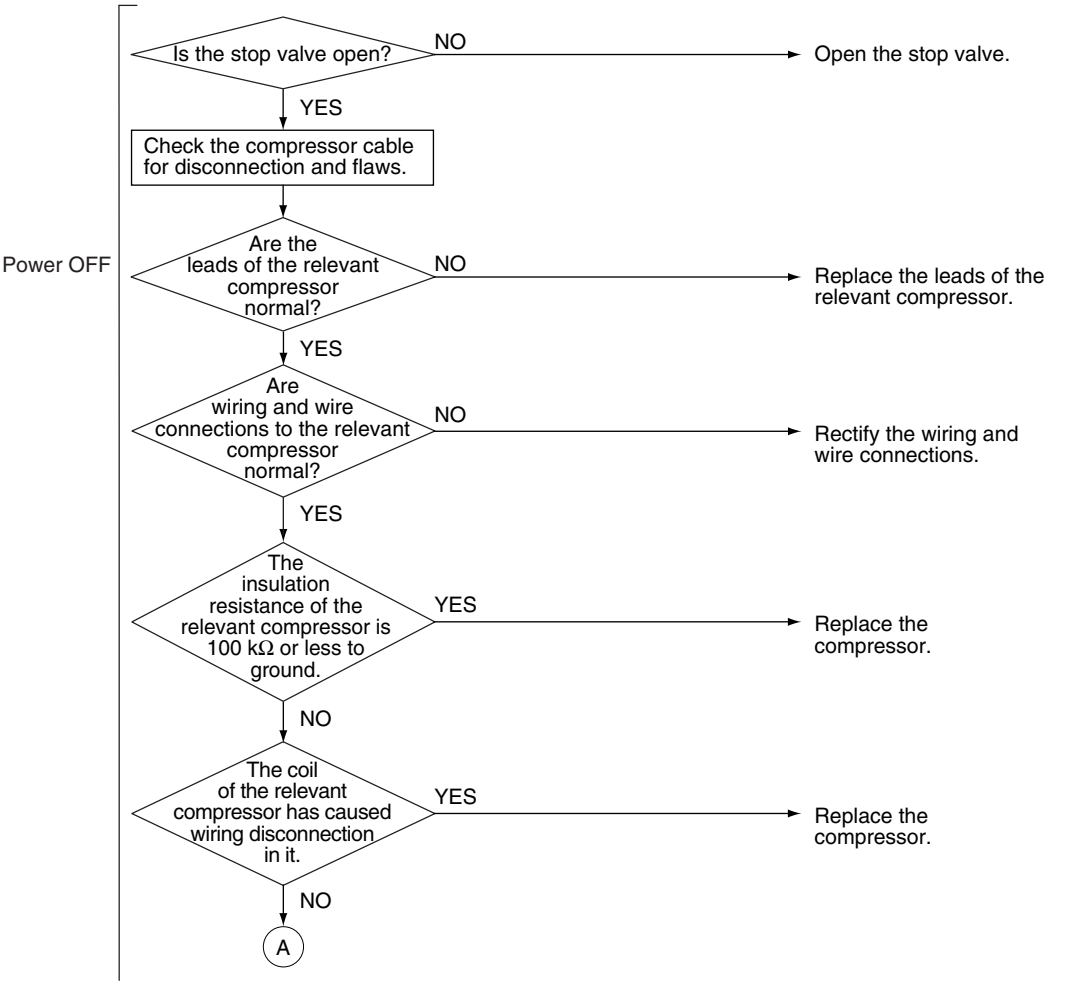
Error Decision Conditions When the secondary-side inverter current exceeds.

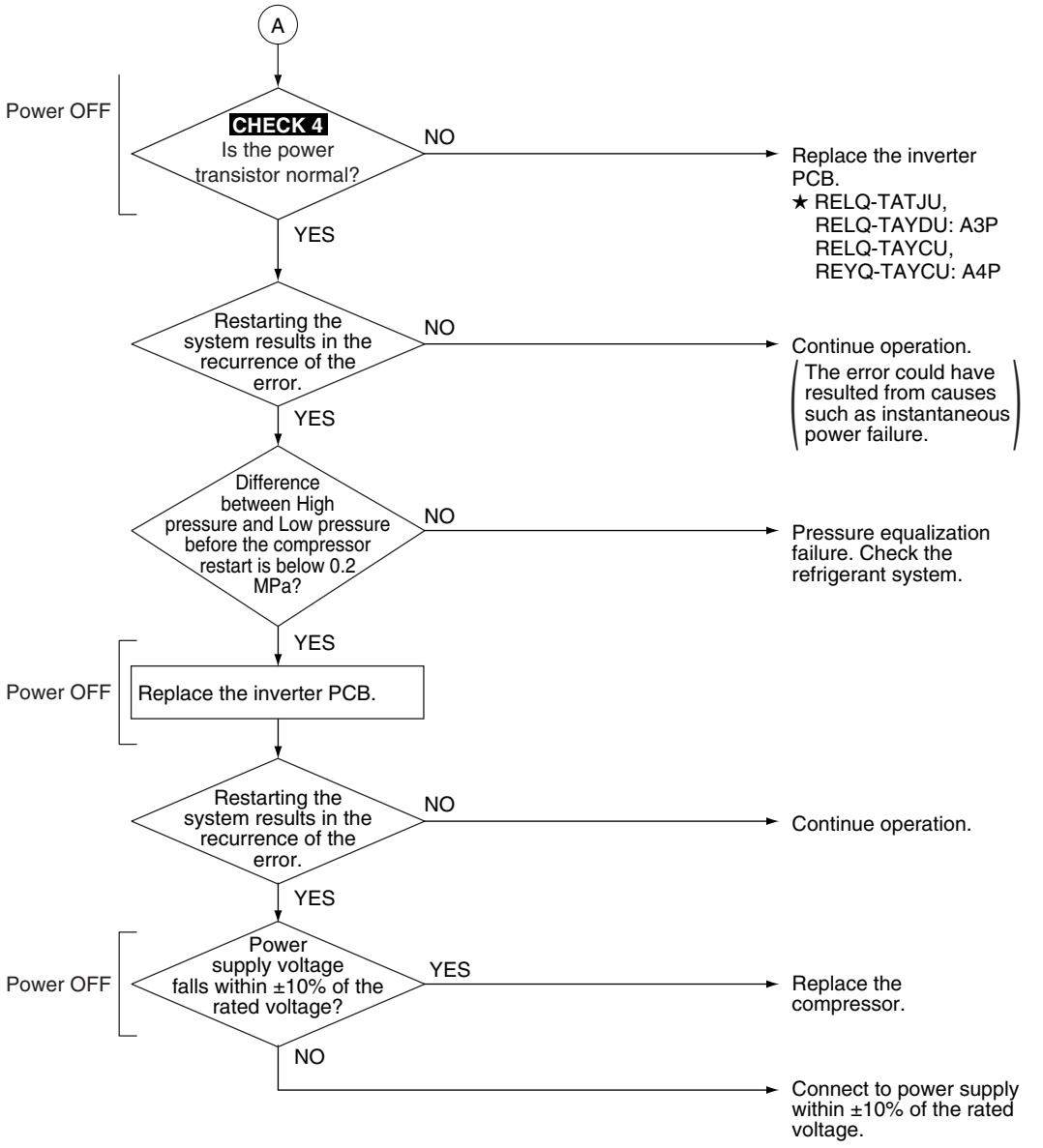
Supposed Causes

- Compressor overloaded
- Wiring disconnection in compressor coil
- Disconnection of compressor wiring
- Defective inverter PCB
- Incorrect power supply voltage

Troubleshooting

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





CHECK 4 Refer to page 294.

2.51 Inverter Compressor Startup Abnormality

Error Code **L9**

Applicable Models All outdoor unit models

Method of Error Detection Detect error according to the signal waveform of compressor.

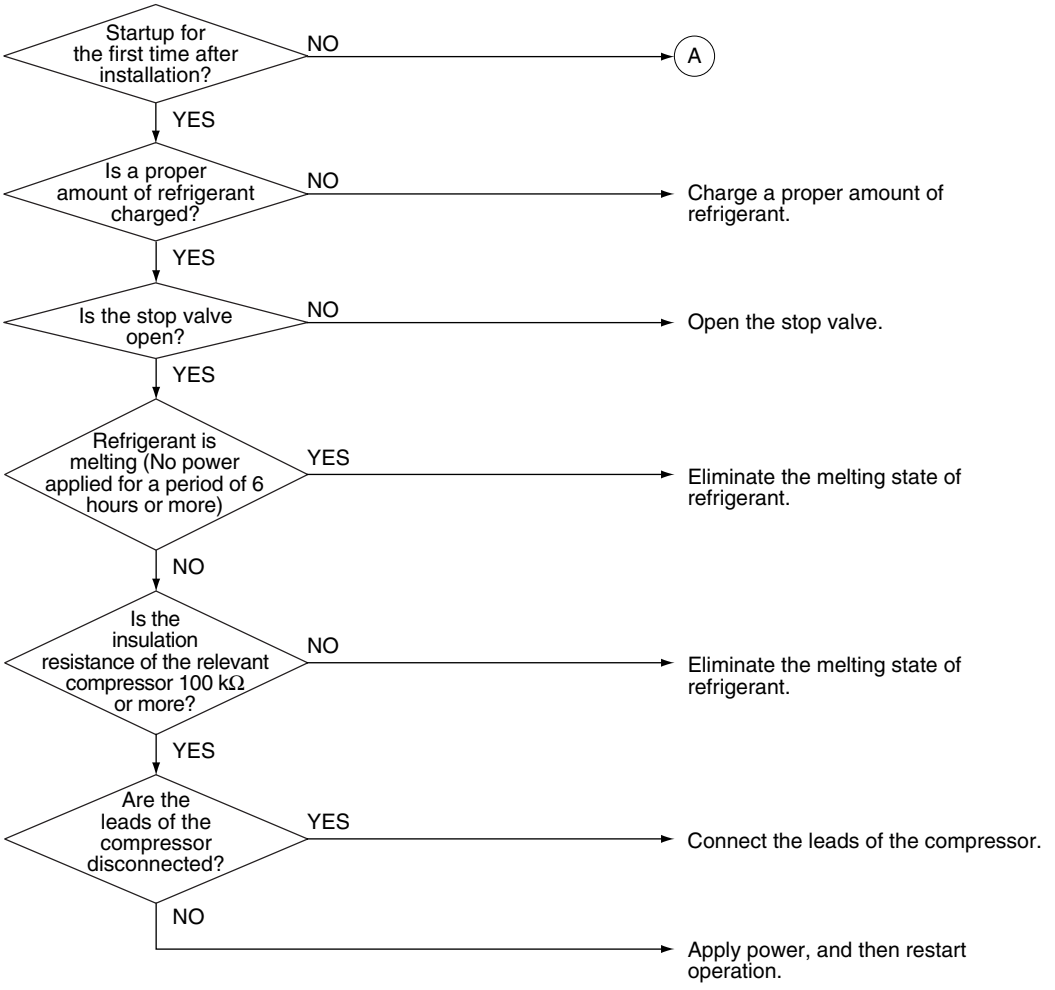
Error Decision Conditions When compressor startup operation has not been completed.

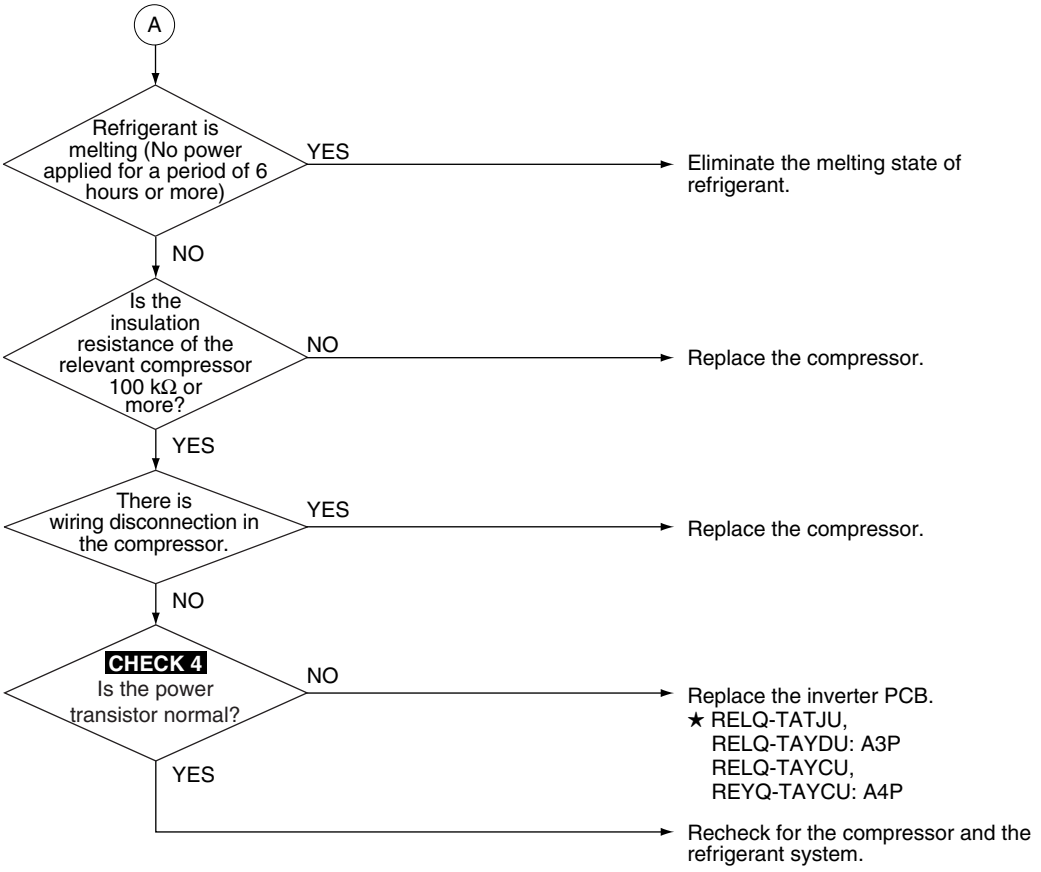
Supposed Causes

- The stop valve is not opened
- Defective compressor
- Error in wire connections to compressor
- Large differential pressure before compressor startup
- Defective inverter PCB

Troubleshooting

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





CHECK 4 Refer to page 294.

2.52 Transmission Error between Inverter PCB and Outdoor Unit Main PCB

Error Code

LC

Applicable Models

All outdoor unit models

Method of Error Detection

Check for the transmission conditions between the inverter PCB and the outdoor unit main PCB using a microcomputer.

Error Decision Conditions

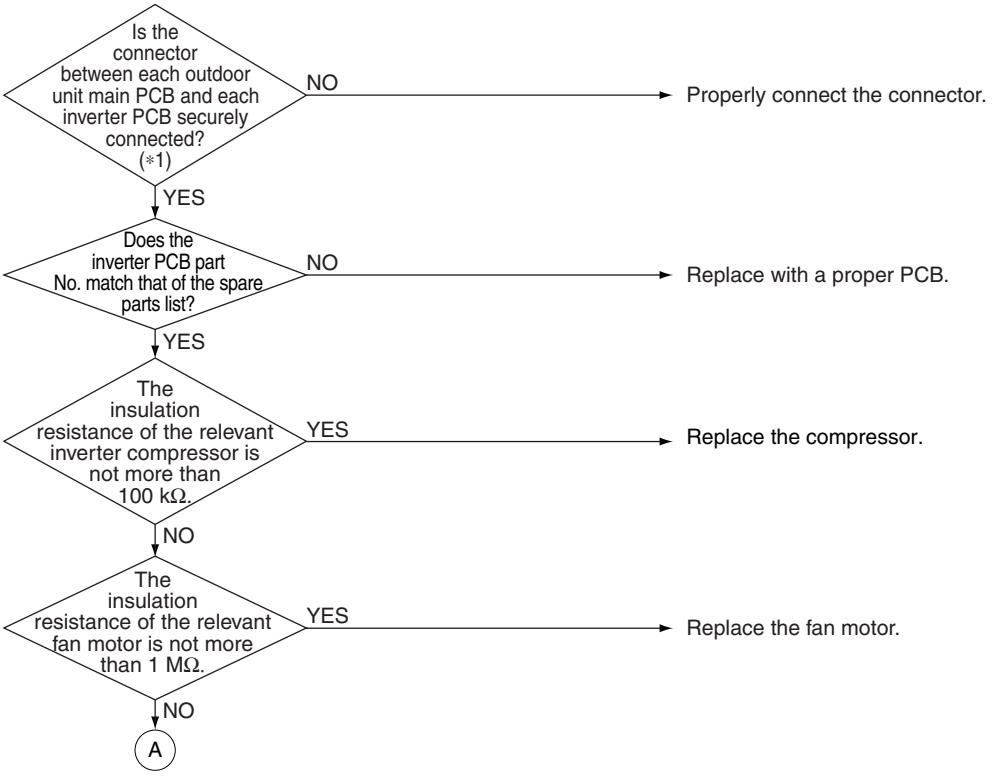
When normal transmission is disabled for a given period of time or more.

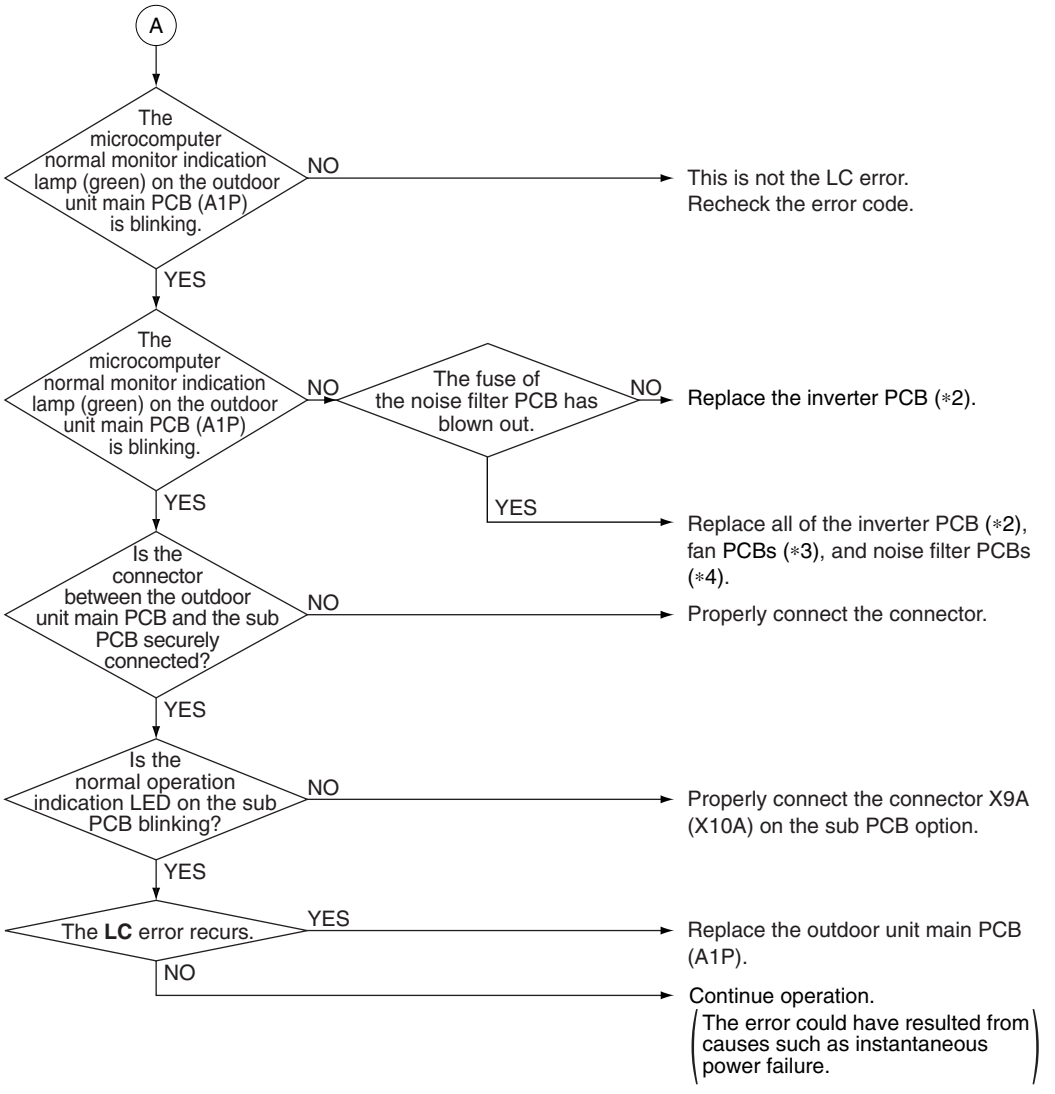
Supposed Causes

- Defective connection between the inverter PCB and the outdoor unit main PCB
- Defective outdoor unit main PCB (transmission block)
- Defective noise filter, inverter compressor or fan motor
- External factors (e.g. noise)
- Failure of inverter PCB or fan PCB

Troubleshooting

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





Note: ∗1. Connect and disconnect the connector once to ensure that it is securely connected.

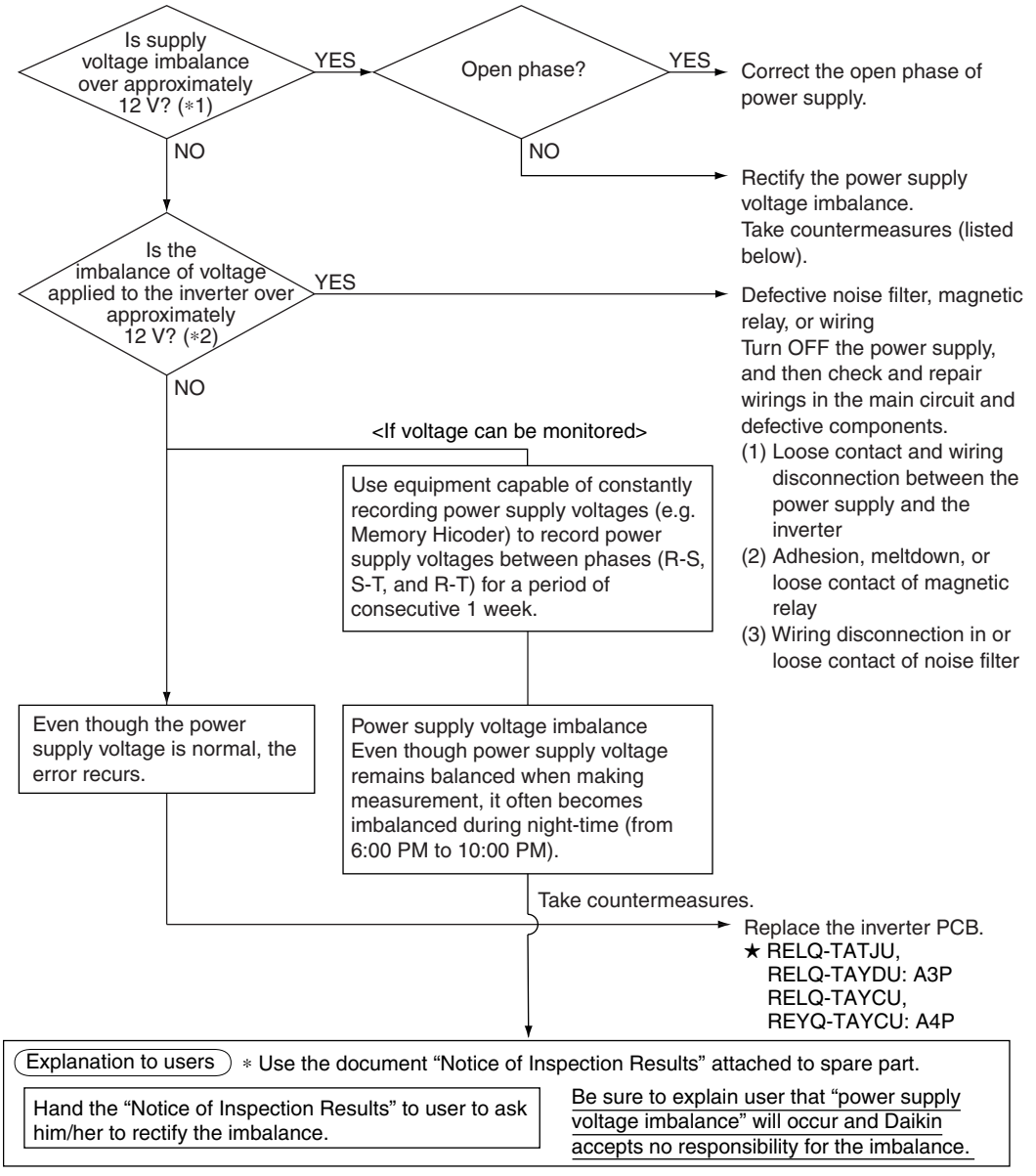
Model	Inverter PCB (∗2)	Fan PCB (∗3)	Noise filter PCB (∗4)
RELQ-TATJU	A3P	M1F: A4P M2F: A5P	A2P
RELQ-TAYDU	A3P	M1F: A4P M2F: A5P	A2P
RELQ-TAYCU	A4P	M1F: A6P M2F: A5P	A2P, A3P
REYQ-TAYCU	A4P	M1F: A6P M2F: A5P	A2P, A3P

2.53 Power Supply Voltage Imbalance

Error Code	**P1**
Applicable Models	All outdoor unit models
Method of Error Detection	Detect voltage imbalance through PCB.
Error Decision Conditions	When power supply voltage imbalance exceeds approximately 12 V. Error is not decided while the unit operation is continued. **P1** will be displayed by pressing the inspection button.
Supposed Causes	■ Open phase ■ Interphase voltage imbalance ■ Defective capacitor in the main circuit ■ Defective inverter PCB ■ Defective magnetic relay ■ 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:
∗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.

2.54 Reactor Surface Thermistor Abnormality

Error Code

P3

Applicable Models

RELQ72TATJU

Method of Error Detection

Detect according to the value detected with the reactor surface thermistor.

Error Decision Conditions

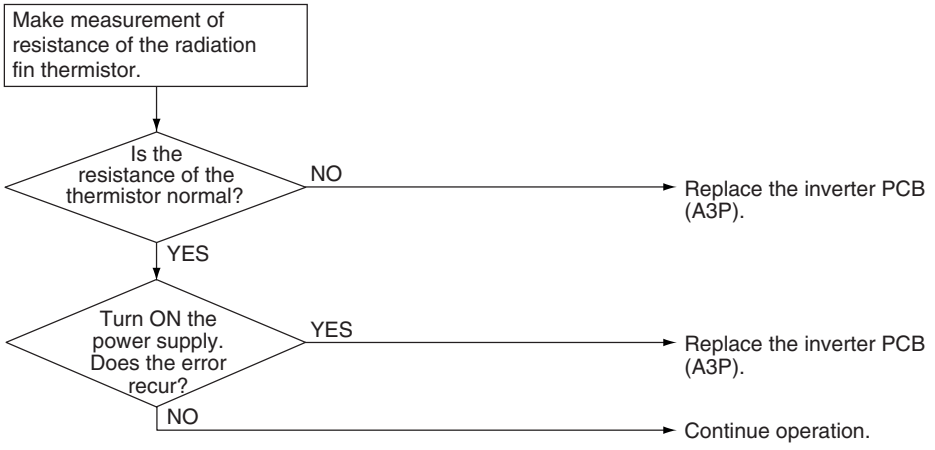
When the system is in operation and the thermistor causes wiring disconnection or short circuit in it.

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.



2.55 Inverter Radiation Fin Temperature Abnormality

2.55.1 Inverter Radiation Fin Temperature Abnormality (Inverter PCB)

Error Code

P4

Sub code: 09-11

Applicable Models

All outdoor unit models

Method of Error Detection

Detect the resistance of the following thermistors while the compressor stops running:

- Radiation fin thermistor.
- Thermistor located in PCB circuit.
- Heat sink thermistor.

Error Decision Conditions

When the resistance of the thermistor comes to a value equivalent to open or short circuit.

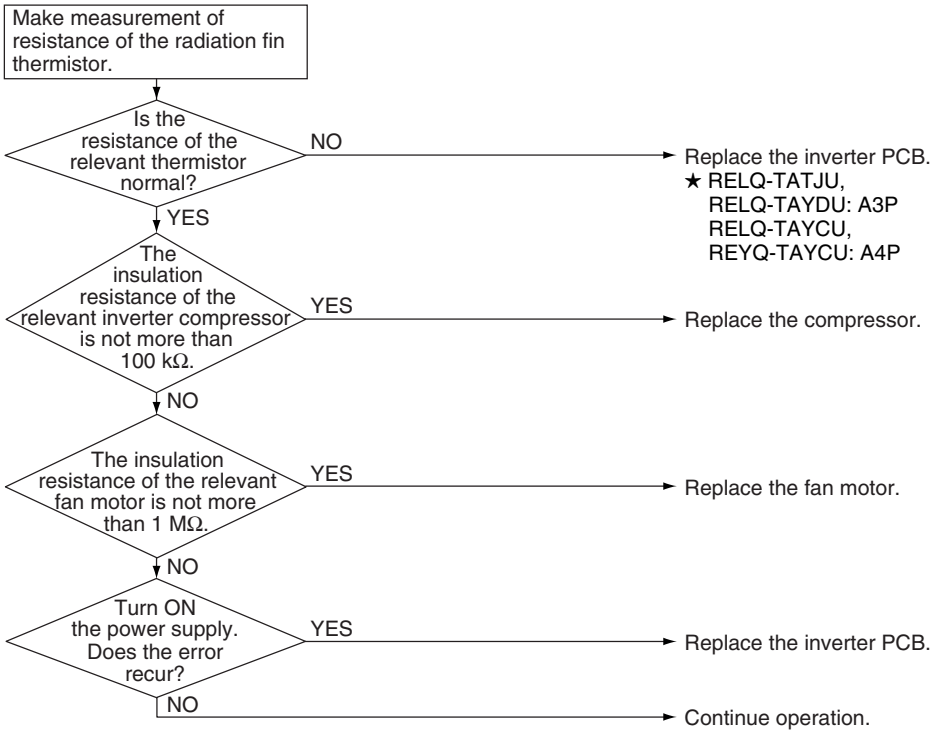
Error is not decided while the unit operation is continued.
P4 will be displayed by pressing the inspection button.

Supposed Causes

- Defective radiation fin temperature thermistor
- Defective inverter PCB
- Defective inverter compressor
- Defective fan motor

Troubleshooting

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



2.55.2 Inverter Radiation Fin Temperature Abnormality (Fan PCB)

Error Code

P4

Sub code: 02, 03, 15-18

Applicable Models

All outdoor unit models

Method of Error Detection

Detects the resistance of the thermistor located inside the fan PCB circuit while the fan motor is not in operation:

Error Decision Conditions

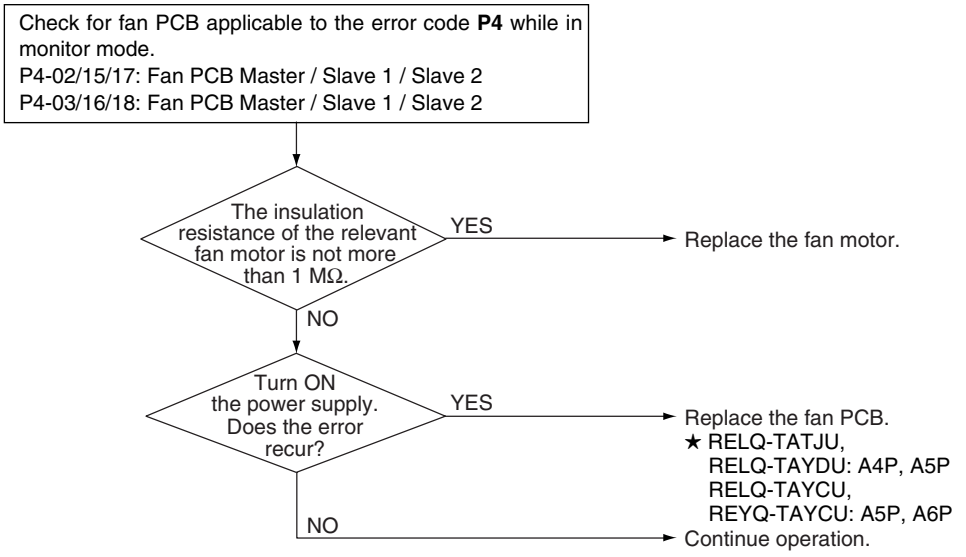
The resistance of the thermistor comes to a value equivalent to open or short circuit.

Supposed Causes

- Defective fan PCB
- Defective fan motor

Troubleshooting

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



2.56 Field Setting after Replacing Outdoor Unit Main PCB Abnormality or Combination of PCB Abnormality

Error Code

PJ

Applicable Models

All outdoor unit models

Method of Error Detection

This error is detected according to communications with the inverter PCB.

Error Decision Conditions

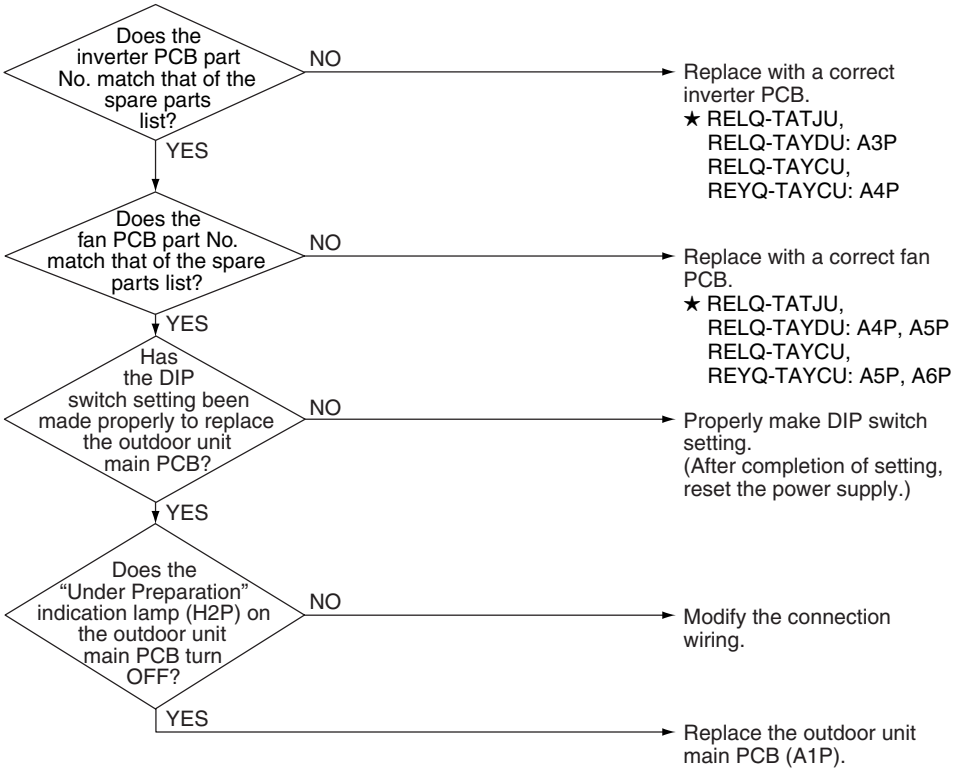
Make judgement according to communication data on whether or not the type of the inverter PCB is correct.

Supposed Causes

- Mismatching of type of PCB
- Improper (or no) field setting after replacing outdoor unit main PCB

Troubleshooting

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



2.57 Refrigerant Shortage

Error Code **U0**

Applicable Models All outdoor unit models

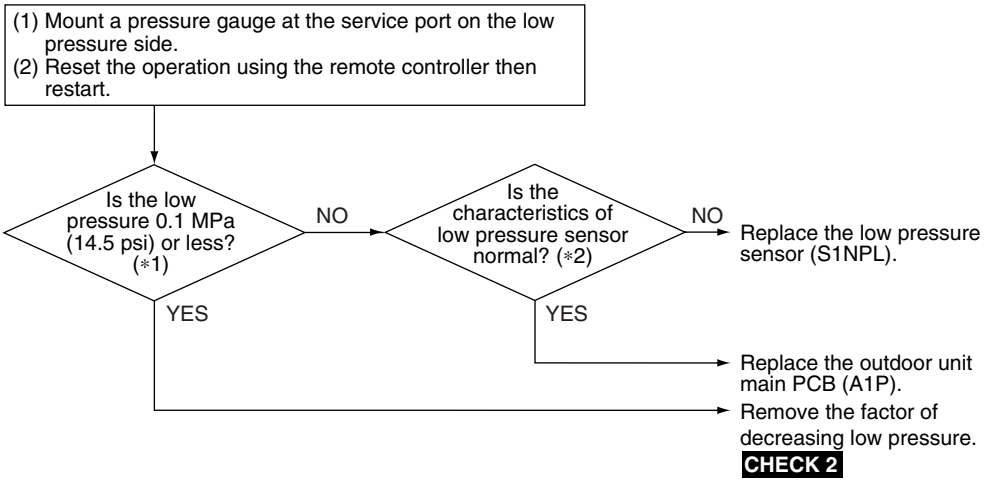
Method of Error Detection Detect refrigerant shortage according to a low pressure level or a difference in heat exchanging temperature from the suction pipe.

Error Decision Conditions Low pressure becomes 0.1 MPa (14.5 psi) or less.
∗ Error is not determined. The unit continues the operation.

Supposed Causes
- 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.



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

CHECK 2 Refer to page 292.

CHECK 12 Refer to page 305.

2.58 Reverse Phase, Open Phase

2.58.1 Reverse Phase, Open Phase (Except RELQ72TAYDU)

Error Code **U1**

Applicable Models RELQ72-120TATJU, RELQ96/120TAYDU, RELQ72-120TAYCU, REYQ72-168TAYCU

Method of Error Detection The phase of each phase are detected by reverse phase detection circuit and right phase or reverse phase are judged.

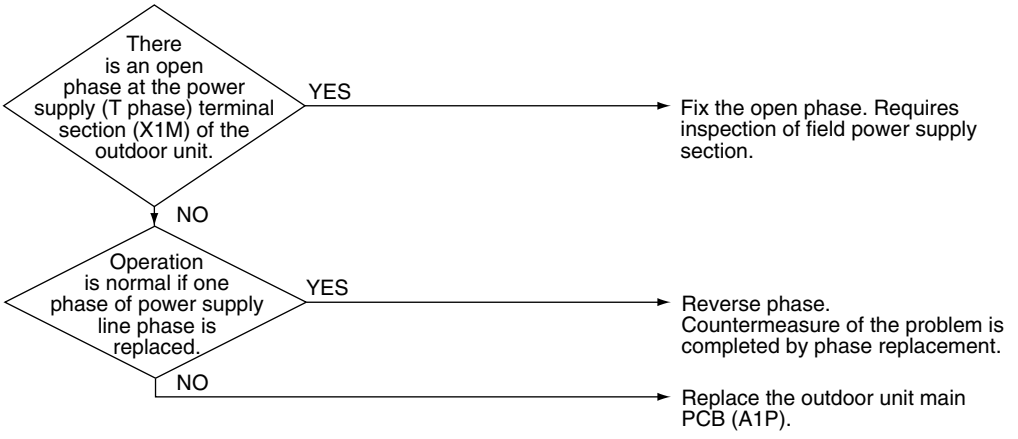
Error Decision Conditions When a power supply is reverse phase, or T phase is open phase.

Supposed Causes

- Power supply reverse phase
- T phase open phase
- 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.



2.58.2 Reverse Phase, Open Phase (RELQ72TAYDU)

Error Code **U1**

Applicable Models RELQ72TAYDU

Method of Error Detection The phase of each phase are detected by reverse phase detection circuit and right phase or reverse phase are judged.

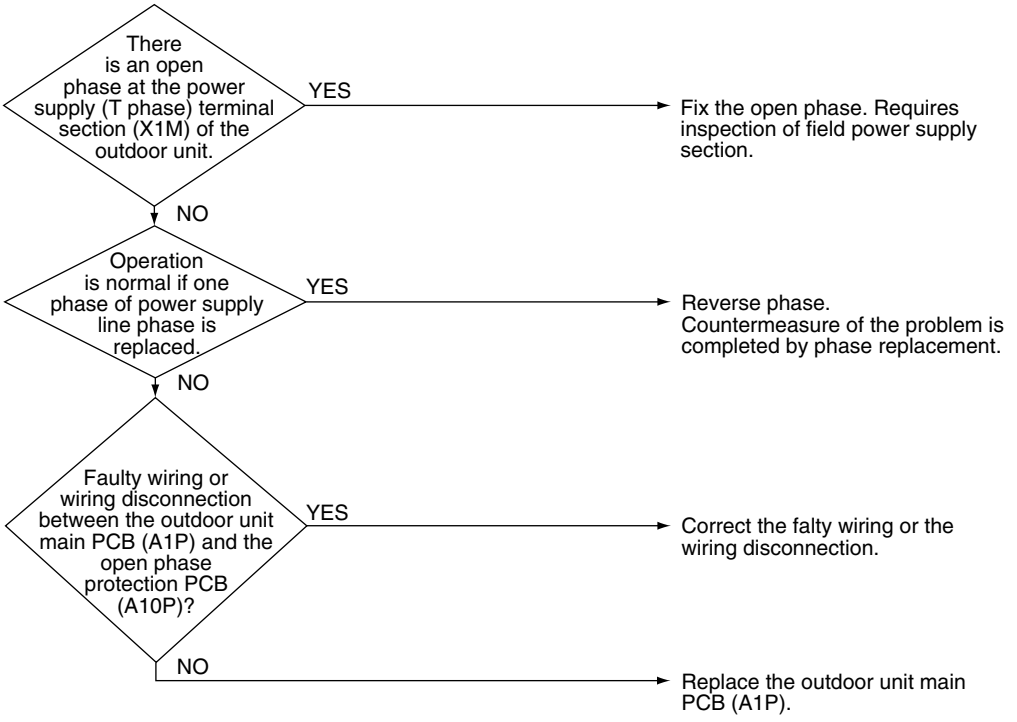
Error Decision Conditions When a power supply is reverse phase, or T phase is open phase.

Supposed Causes

- Power supply reverse phase
- T phase open phase
- 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.



2.59 Power Supply Insufficient or Instantaneous Abnormality

Error Code **U2**

Applicable Models All outdoor unit models

Method of Error Detection Detect the voltage of capacitor of the main circuit in the inverter PCB.

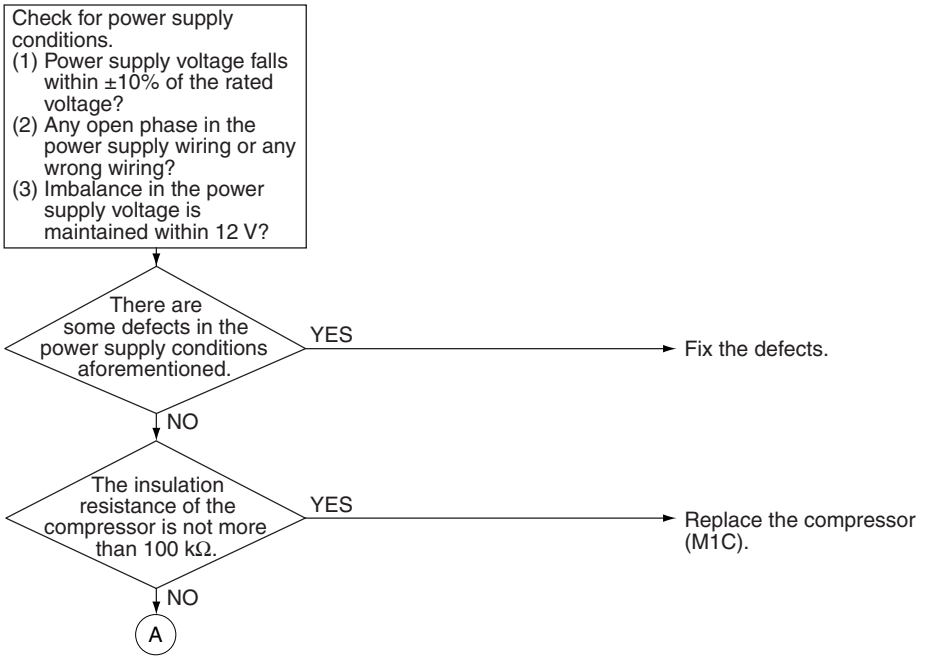
Error Decision Conditions When the voltage in the DC circuit (between diode module and power module) falls below 190 VDC (for 208/230 V models), 380 VDC (for 460 V models) or 560 VDC (for 575 V models).

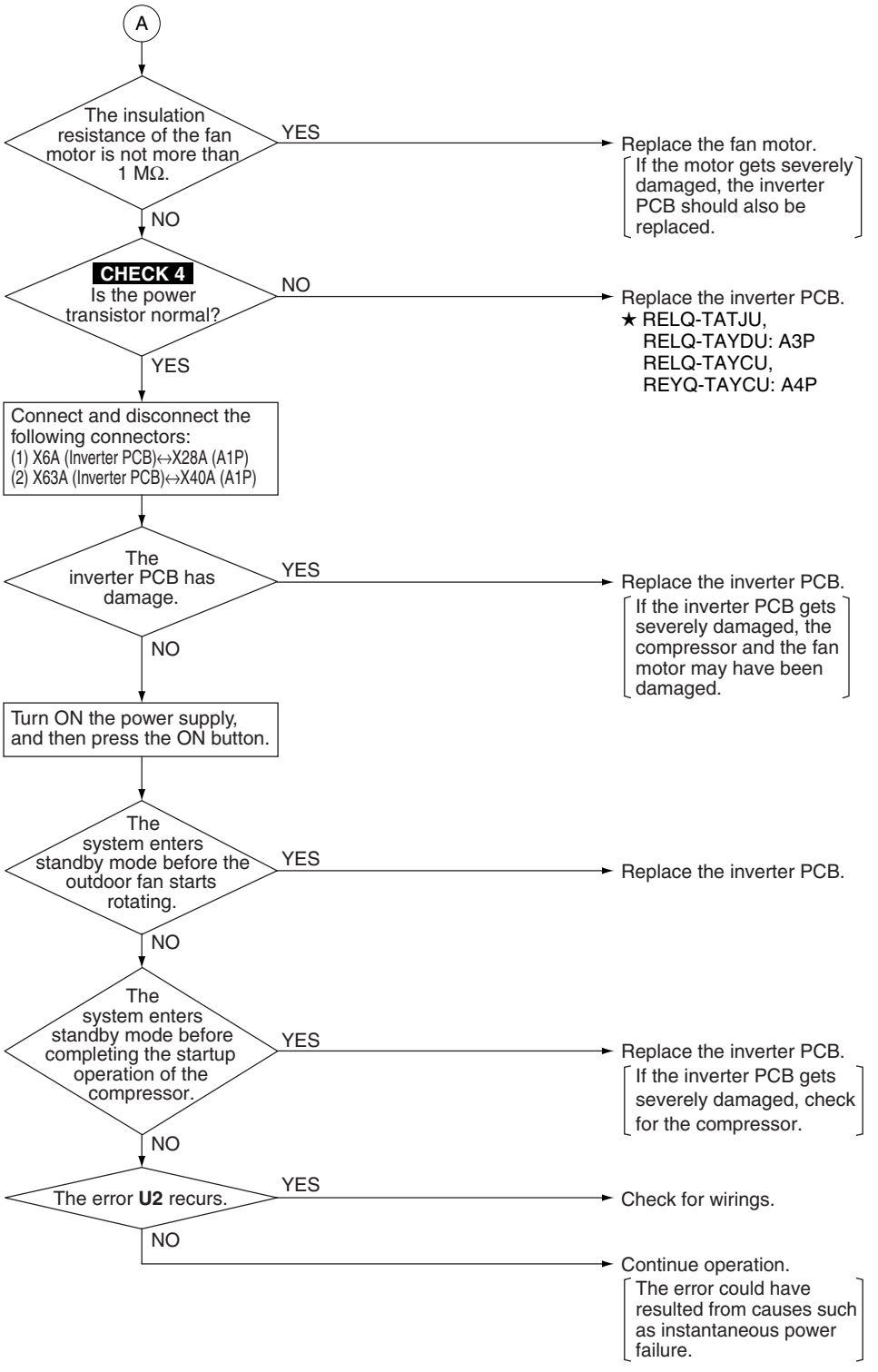
Supposed Causes

- Abnormal power supply voltage
- Instantaneous power failure
- Open phase
- Defective inverter PCB
- Defective outdoor unit main PCB
- Defective compressor
- Defective main circuit wiring
- Defective fan motor
- Defective connection of signal cable

Troubleshooting

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





CHECK 4 Refer to page 294.

2.60 Check Operation not Executed

Error Code U3

Applicable Models All outdoor unit models

Method of Error Detection Check operation is executed or not executed

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

Supposed Causes Check operation is not executed.

Troubleshooting

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

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

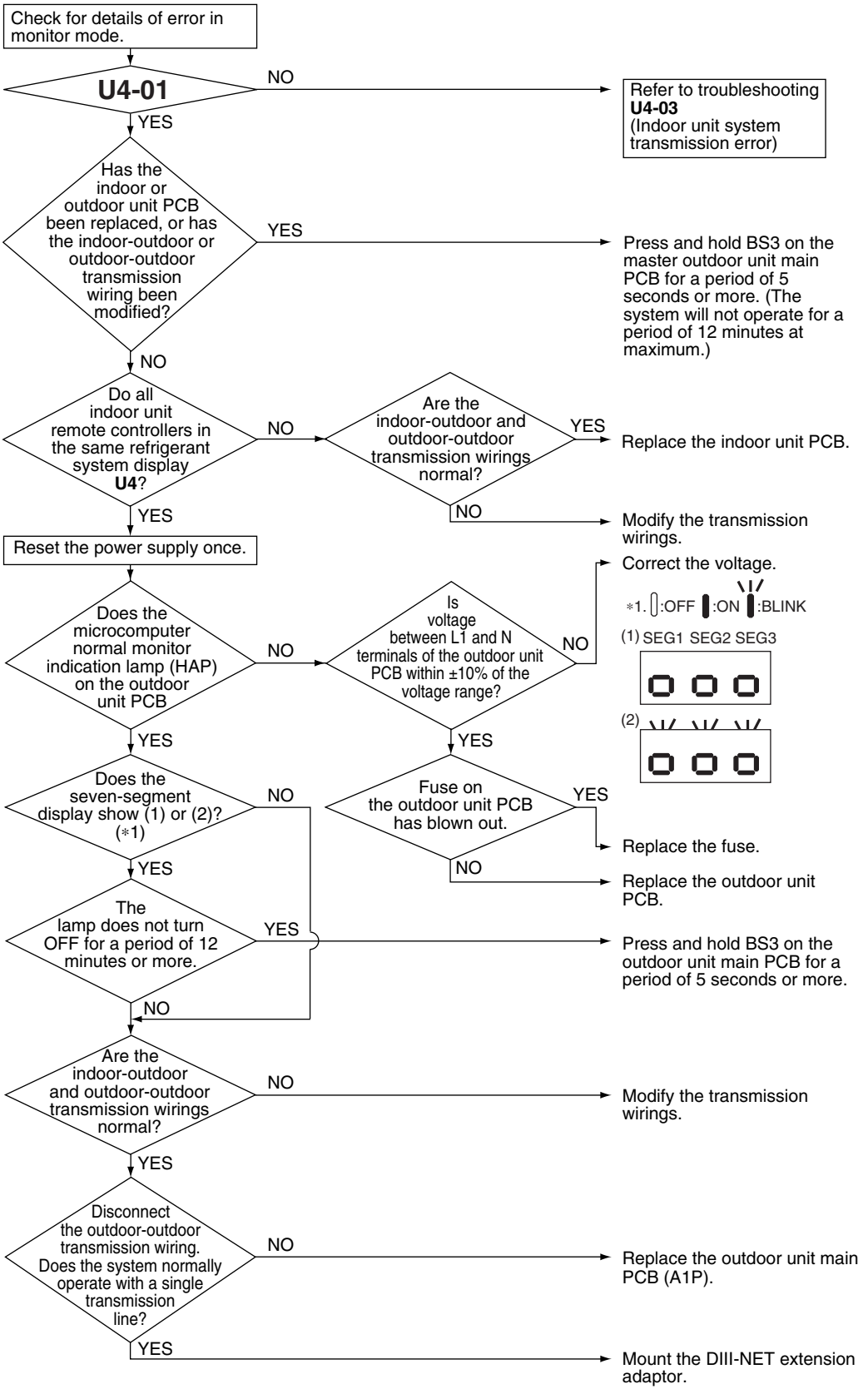
- **U3-03** → Conduct the test operation. (The test operation has not been conducted.)
- **U3-04** → Check for the refrigerant piping, and then conduct the test operation.
- **U3-05** → Conduct the test operation (due to the premature end of the test operation).
- **U3-06** → Conduct the test operation (due to the premature end of the test operation).
- **U3-07** → Check for transmission between indoor and outdoor units, and then conduct the test operation.
- **U3-08** → Check for transmission between indoor and outdoor units, and then conduct the test operation.

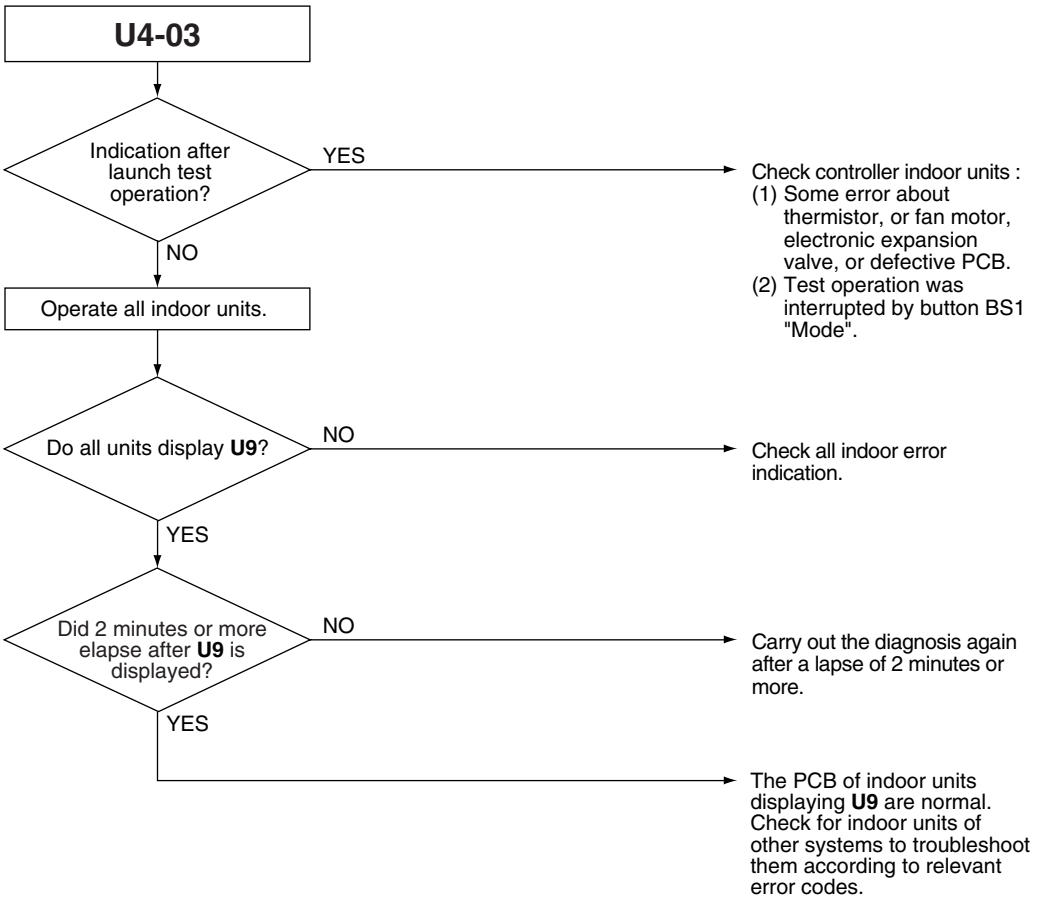
2.61 Transmission Error between Indoor Units and Outdoor Units

Error Code	**U4**
Applicable Models	All indoor unit models All outdoor unit models
Method of Error Detection	Microcomputer checks if transmission between indoor and outdoor units is normal.
Error Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ Short circuit in indoor-outdoor or outdoor-outdoor transmission wiring (F1/F2), or wrong wiring ■ Outdoor unit power supply is OFF ■ System address does not match ■ Defective indoor unit PCB ■ Defective outdoor unit PCB

Troubleshooting

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




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 button BS1 "Mode".
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 PCB of indoor units displaying U9 are normal. Check for indoor units of other systems to troubleshoot them according to relevant error codes.

2.62 Transmission Error between Remote Controller and Indoor Unit

Error Code **U5**

Applicable Models All indoor unit models

Method of Error Detection Microcomputer checks if transmission between indoor unit and remote controller is normal.

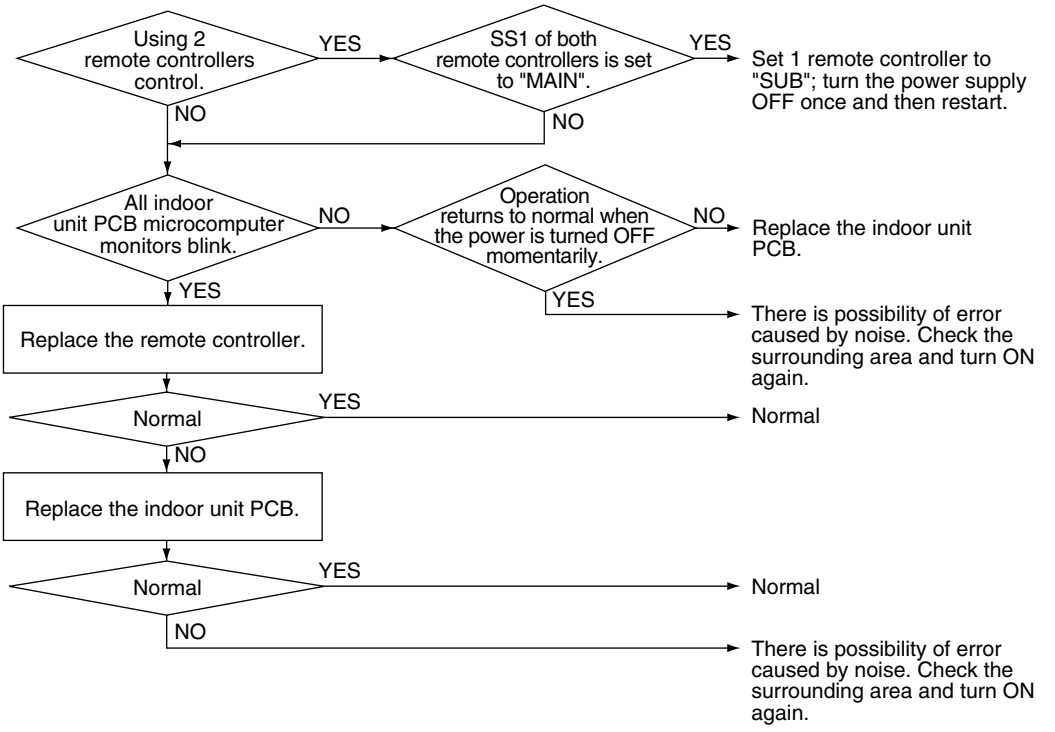
Error Decision Conditions Transmission is not carried out normally for a certain amount of time

Supposed Causes

- Transmission error between indoor unit and remote controller
- Connection of 2 main remote controllers (when using 2 remote controllers)
- Defective indoor unit 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.



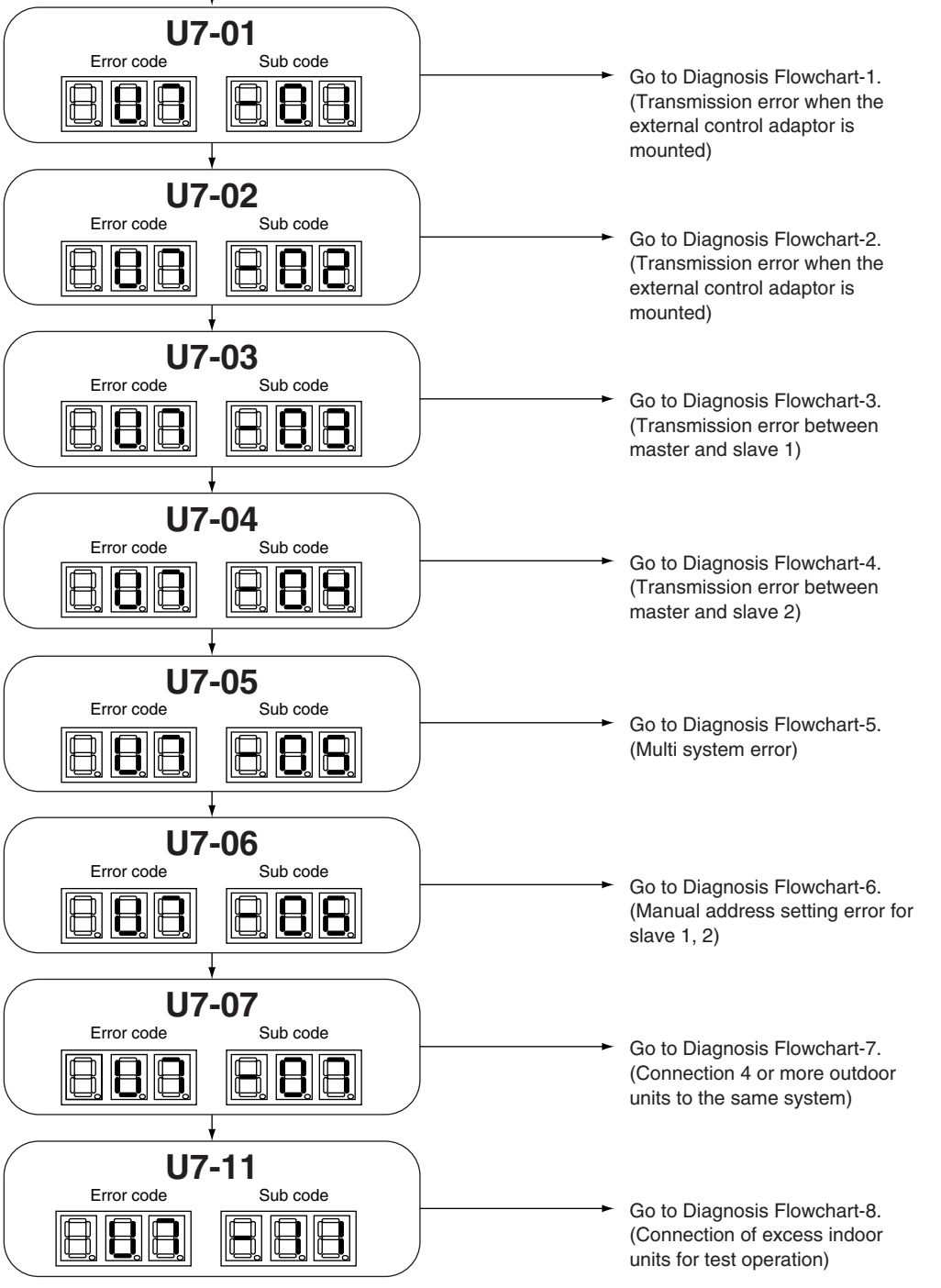
2.63 Transmission Error between Outdoor Units

Error Code	**U7**
Applicable Models	All outdoor unit models
Method of Error Detection	Microcomputer checks if transmission between outdoor units is normal.
Error Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ Connection error of transmission wirings between outdoor unit and external control adaptor for outdoor unit ■ Connection error of transmission wirings between outdoor units ■ Cool/Heat selection setting error ■ Cool/Heat unified address setting error (functional unit, external control adaptor for outdoor unit) ■ Defective outdoor unit PCB ■ Defective external control adaptor for outdoor unit

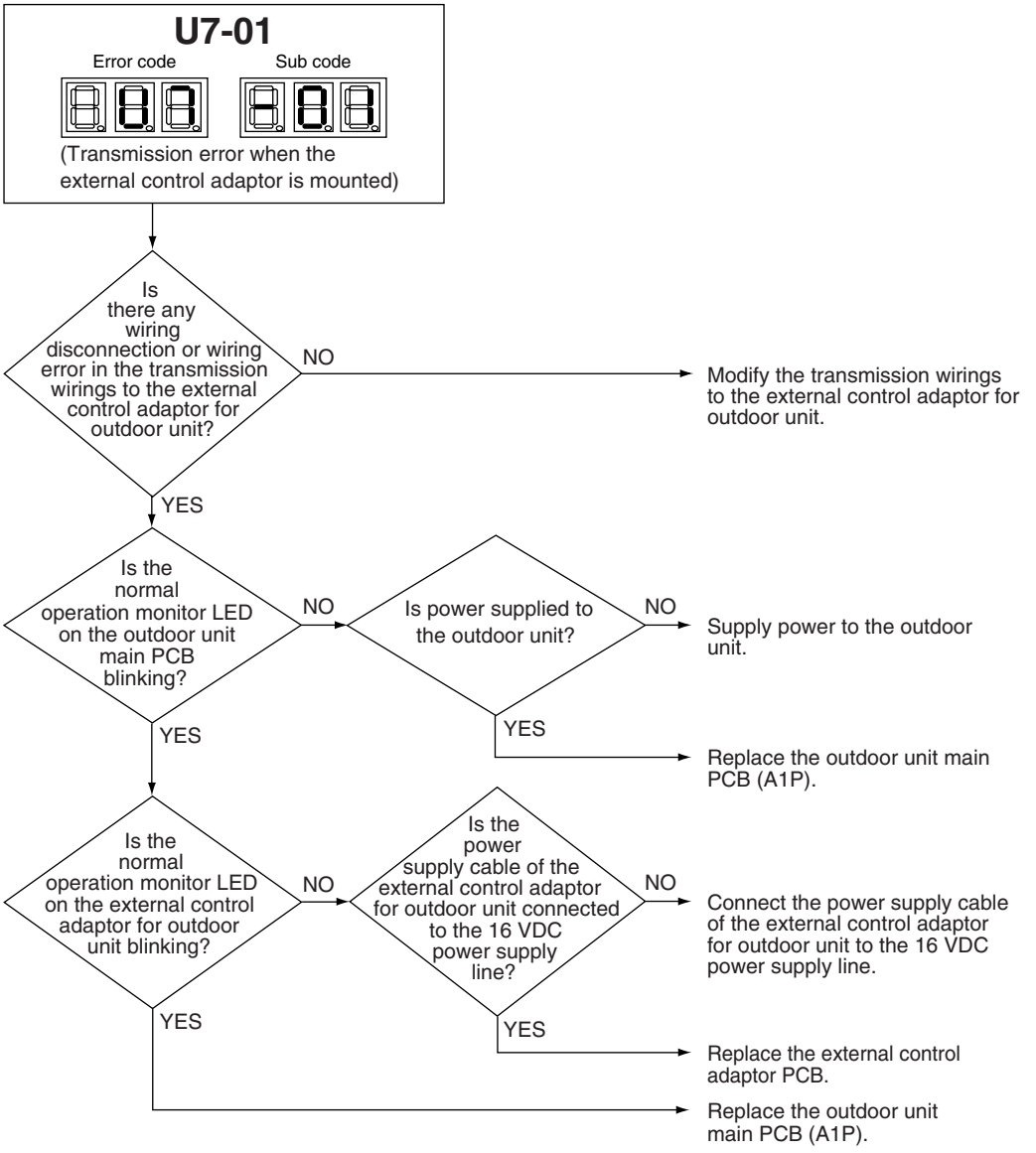
Troubleshooting

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

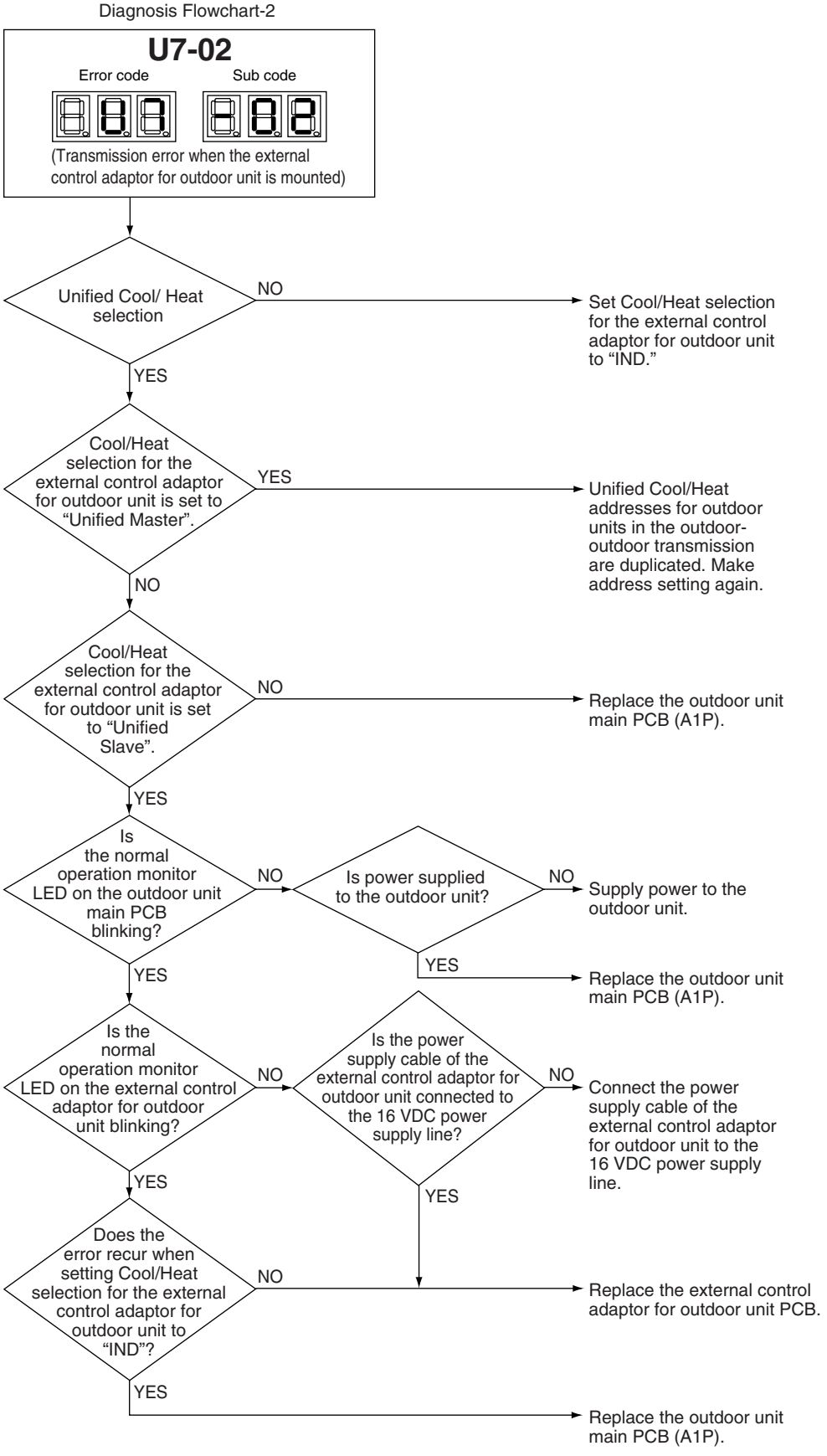
Ensure the sub code or the lamp display of monitor mode, and then go to the following:



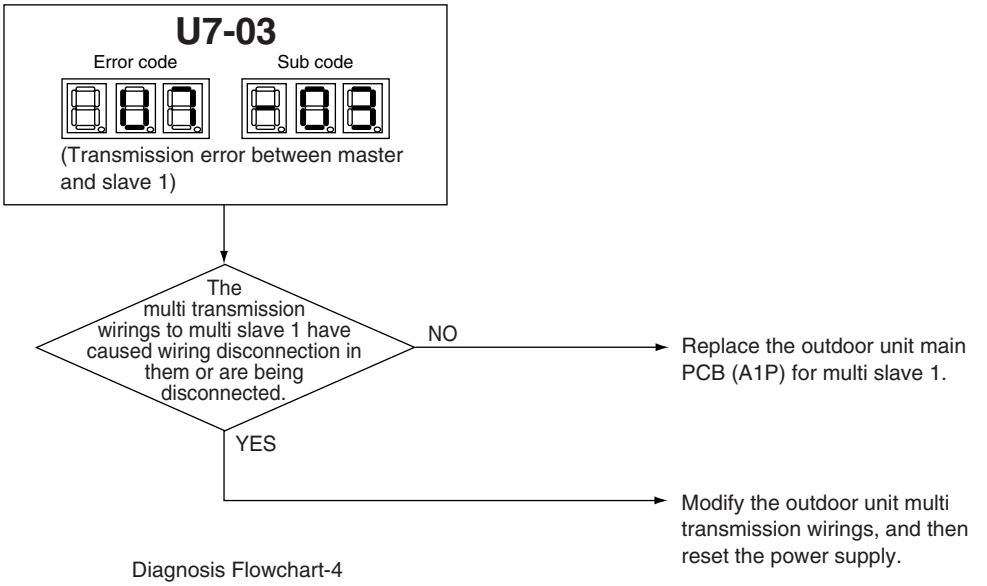
Diagnosis Flowchart-1



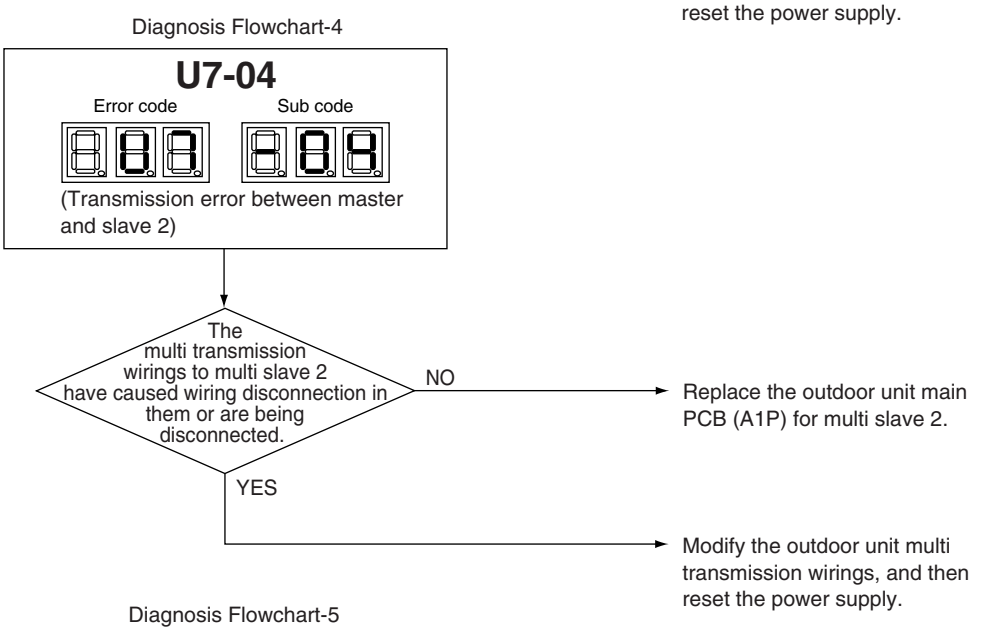
Diagnosis Flowchart-2



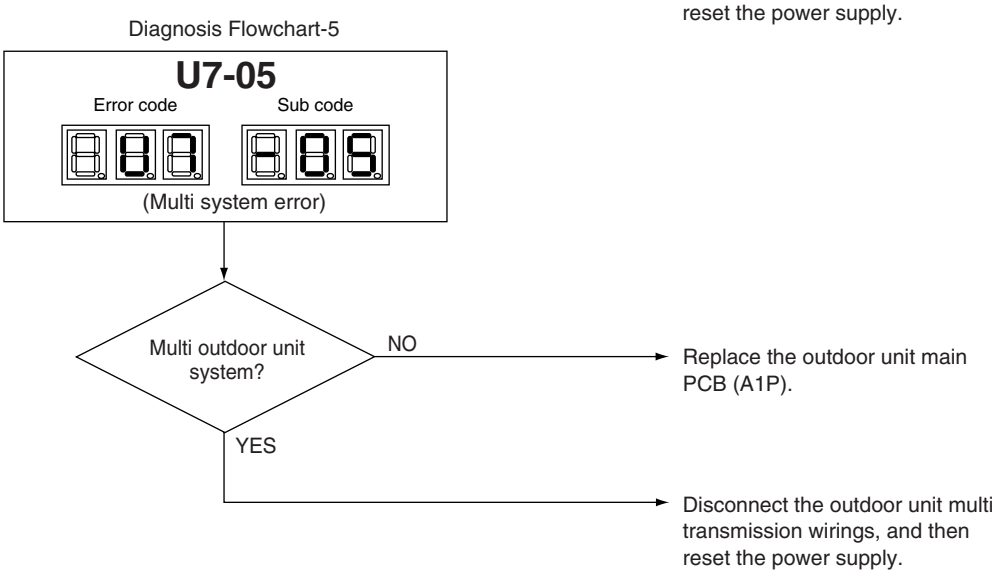
Diagnosis Flowchart-3



Diagnosis Flowchart-4



Diagnosis Flowchart-5



Diagnosis Flowchart-6

U7-06

Error code | Sub code

(Manual address setting error for slave 1, 2)

- One of outdoor unit multi transmission wirings has caused wiring disconnection in it or been disconnected.
  - NO → Replace the outdoor unit main PCB (A1P).
  - YES → Modify the outdoor unit multi transmission wirings, and then reset the power supply.

Diagnosis Flowchart-7

U7-07

Error code | Sub code

(Connection 4 or more outdoor units to the same system)

- 4 or more outdoor units are connected using the outdoor unit multi transmission wirings.
  - NO → Replace the outdoor unit main PCB (A1P).
  - YES → Modify the outdoor unit multi transmission wirings, and then reset the power supply.

Diagnosis Flowchart-8

U7-11

Error code | Sub code

(Connection of excess indoor units for test operation)

- There is an error in the connection of indoor-outdoor, indoor-indoor, and outdoor multi transmission wirings.
  - YES → Rectify the error in the connection of transmission wirings, and then reset the power supply.
  - NO ↓
- The capacity to connect indoor units falls within the specified range.
  - NO → Check the capacity to connect indoor units.
  - YES → Replace the outdoor unit main PCB (A1P).

2.64 Transmission Error between Main and Sub Remote Controllers

Error Code

U8

Applicable Models

All indoor unit models

Method of Error Detection

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

Error Decision Conditions

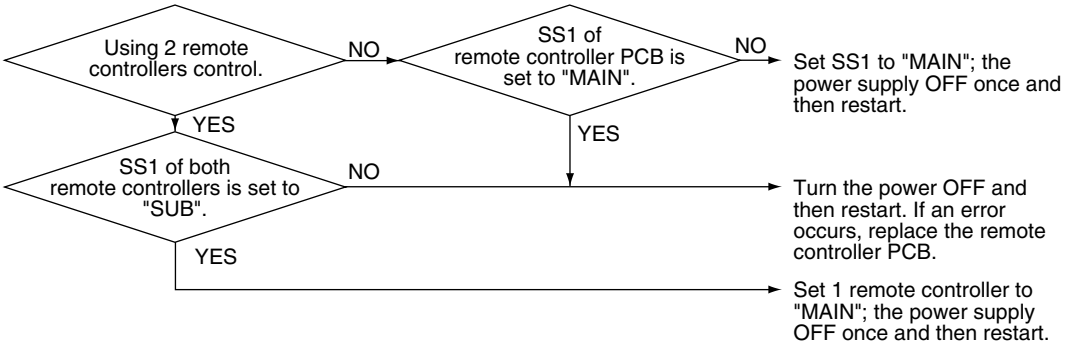
When transmission is not carried out normally for a certain amount of time.

Supposed Causes

- Transmission error between main and sub remote controller
- Connection between sub remote controllers
- Defective remote controller PCB

Troubleshooting

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



2.65 Transmission Error between Indoor and Outdoor Units in the Same System

Error Code **U9**

Applicable Models
All indoor unit models
All outdoor unit models

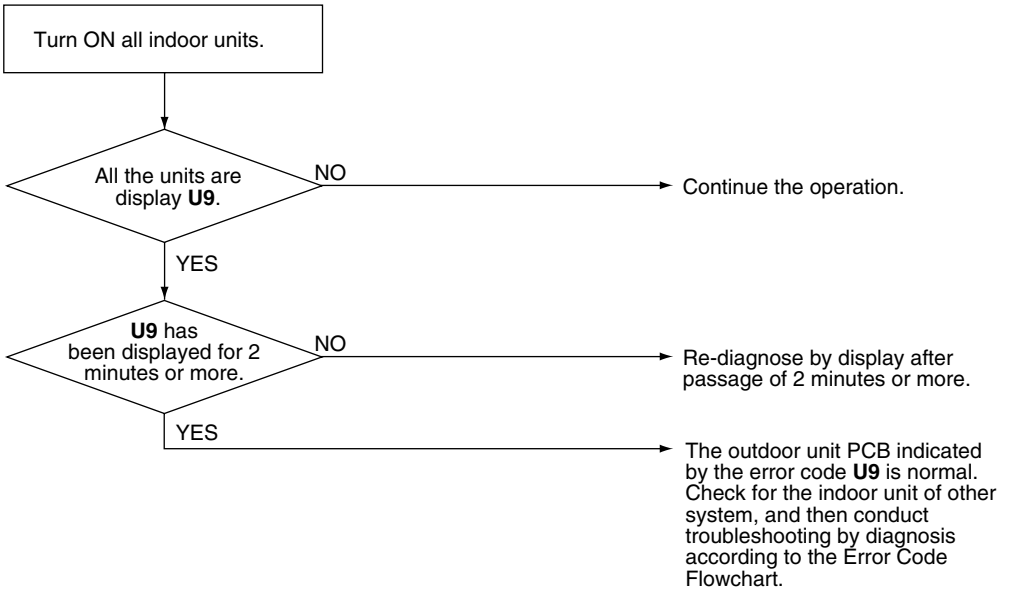
Method of Error Detection
Detect the error signal for the other indoor unit within the circuit by outdoor unit PCB.

Error Decision Conditions
When the error decision is made on any other indoor unit within the system concerned

Supposed Causes
- Transmission error between other indoor 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.



2.66 Improper Combination of Indoor and Outdoor Units, Indoor Units and Remote Controller

Error Code **UA**

Applicable Models
All indoor unit models
All outdoor unit models

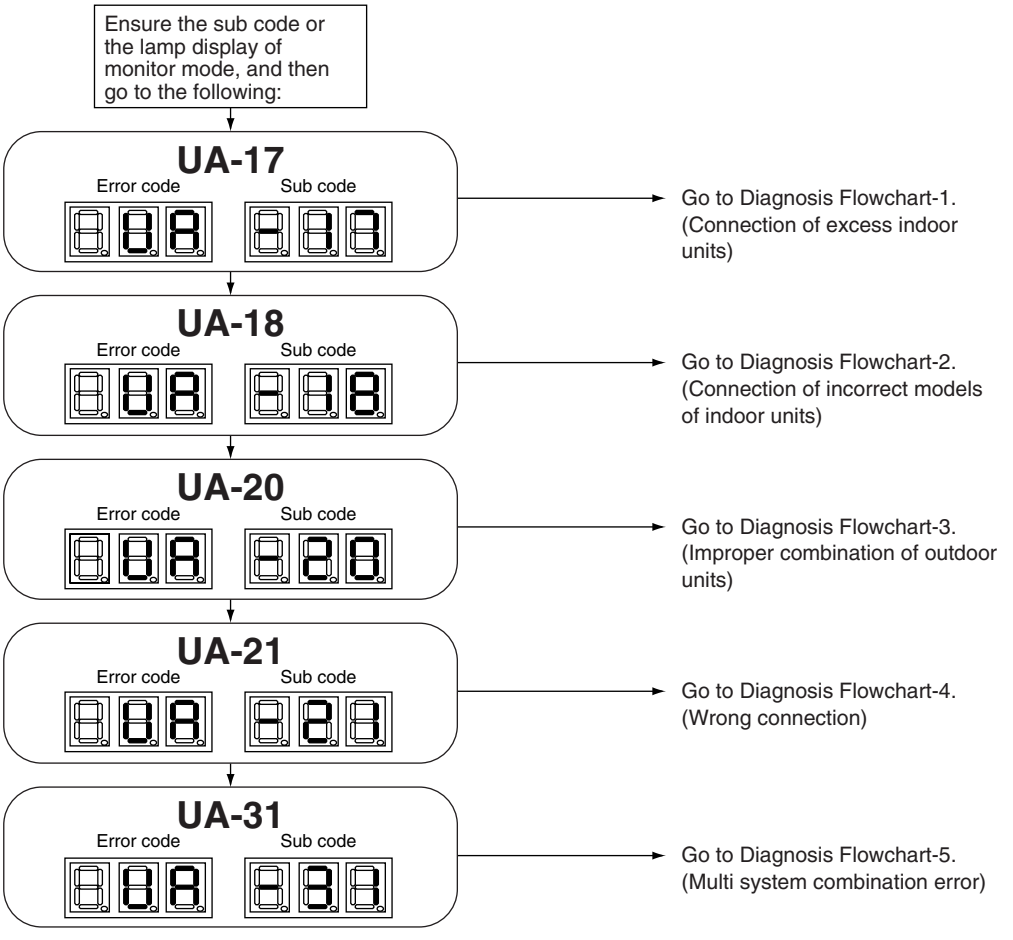
Method of Error Detection
A difference occurs in data by the type of refrigerant between indoor and outdoor units.
The number of indoor units connected is out of the allowable range.

Error Decision Conditions
The error decision is made as soon as either of the abnormalities aforementioned is detected.

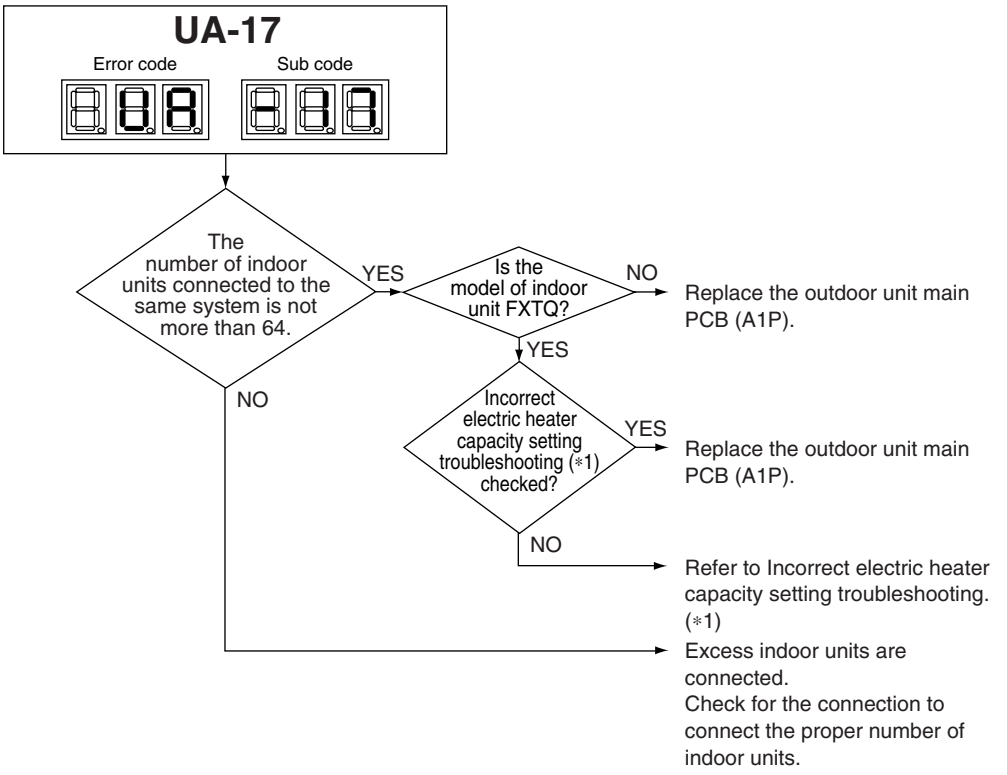
Supposed Causes
- Excess of connected indoor units
- Defective outdoor unit PCB
- Mismatch of the refrigerant type of indoor and outdoor unit.
- Setting of outdoor unit PCB was not carried out after replacing to spare PCB.

Troubleshooting

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

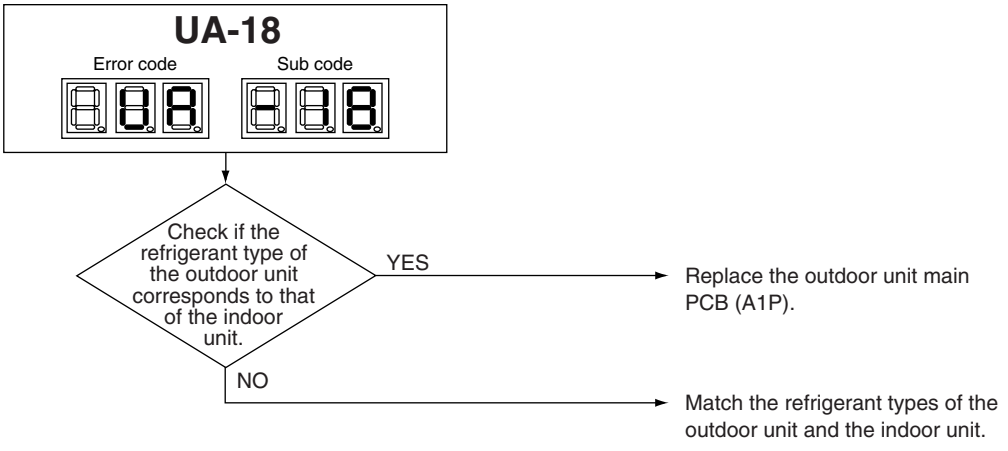


Diagnosis Flowchart-1

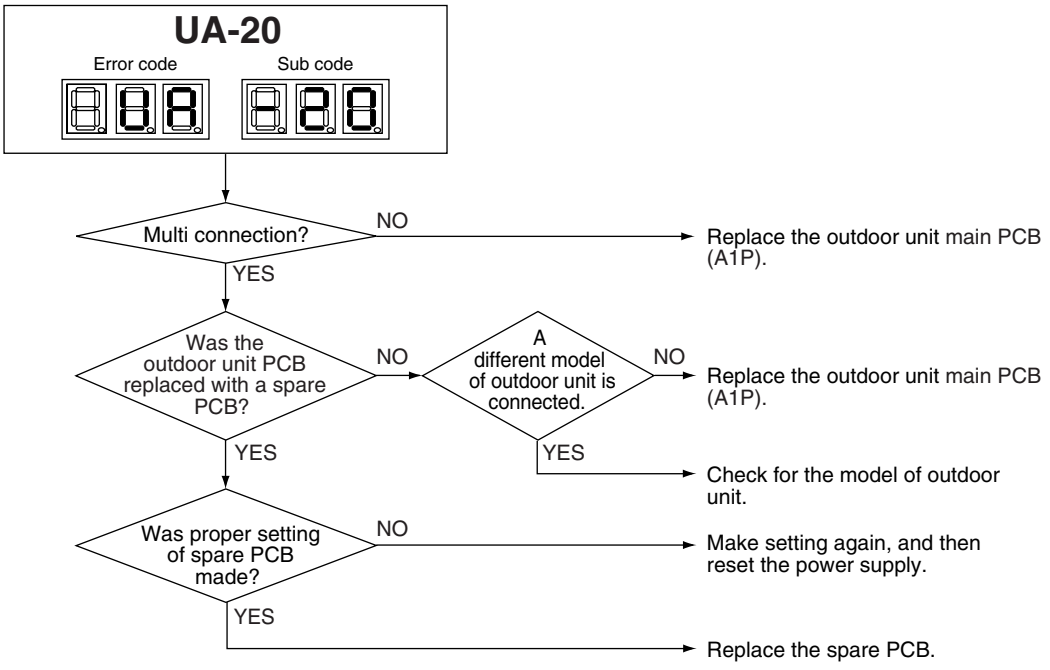


Note: ∗1. Refer to page 284.

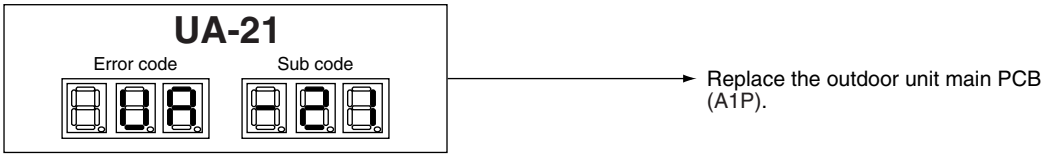
Diagnosis Flowchart-2



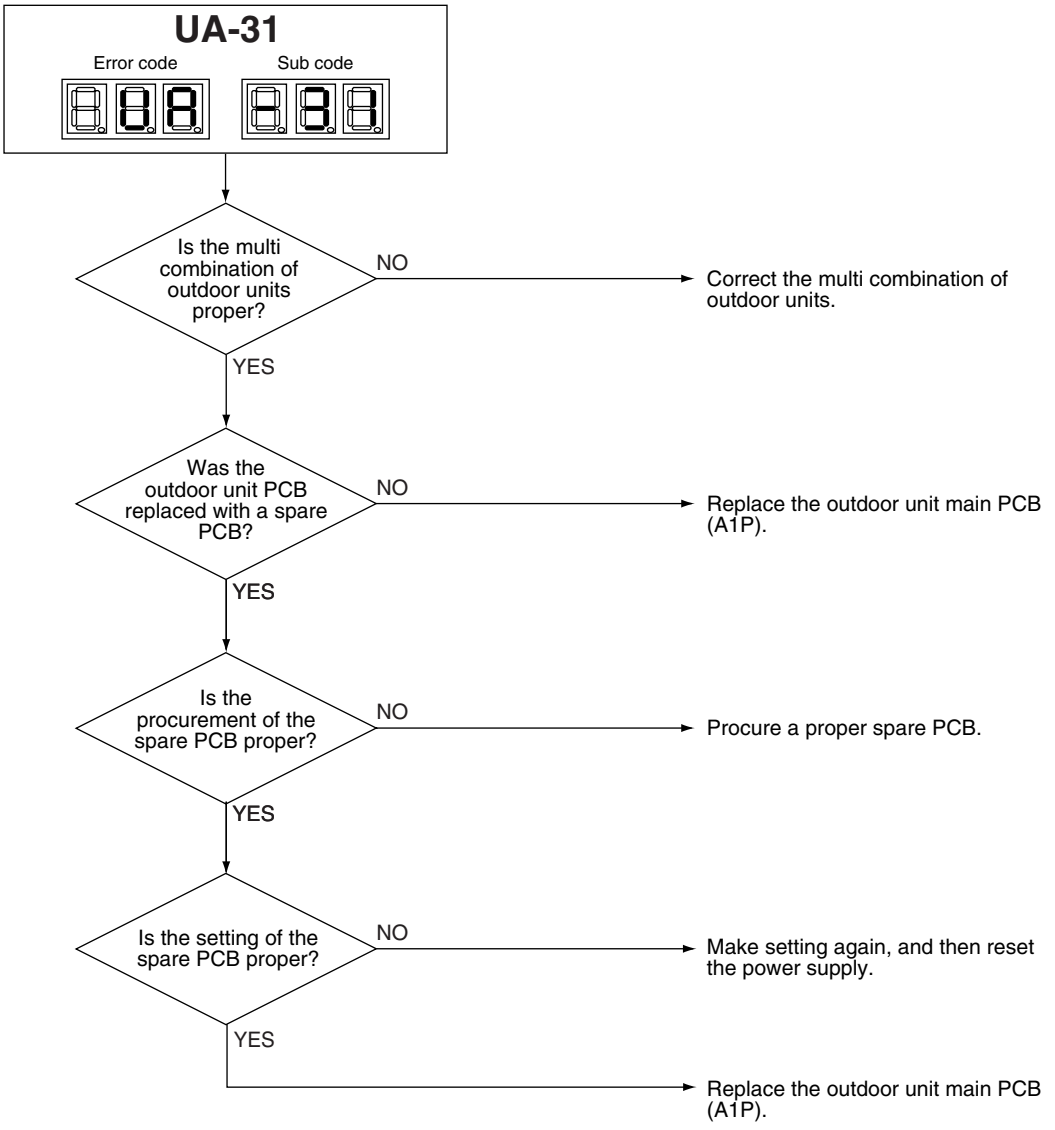
Diagnosis Flowchart-3



Diagnosis Flowchart-4



Diagnosis Flowchart-5



2.67 Incorrect Electric Heater Capacity Setting

Error Code **UA-17**

Applicable Models FXTQ-TA

Outline After attaching optional electric heater, if the electric heater capacity setting (11(21)-5) is made mistakenly for heaters not featured in the lineup, heating via unintended levels of airflow will be prevented.
However, the electric heater will be operable for convenience.

Error Decision Conditions Checks when the capacity setting (11(21)-5) of the electric heater has been set to a non-applicable value.

Operation After Error Codes Decided

- The error code **UA-17** is displayed on the remote controller.
- Indoor units can operate continuously.
- Incorrect setting is kept.
- Even if the ON condition for electric heater 2 is established, only electric heater 1 will be set to ON.
  (Electric heater 1 set to ON, electric heater 2 set to OFF)
  (In order to deliver in terms of user-friendliness and safety, the electric heater can operate at the lowest possible power levels.)
- The airflow of the fan during operation of the electric heater will be set to the largest value within the CFM dictated by the capacity of each of the electric heaters (electric heater 1, electric heater 2 both set to ON).
- All other operations are the same as during normal operation.

2.68 Address Duplication of Centralized Control Equipment

Error Code

UC

Applicable Models

All indoor unit models
Centralized control equipment

Method of Error Detection

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

Error Decision Conditions

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

Supposed Causes

- Address duplication of centralized control equipment
- 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.

2.69 Transmission Error between Centralized Control Equipment and Indoor Unit

Error Code

UE

Applicable Models

All indoor unit models Schedule timer
Central remote controller

Method of Error Detection

Microcomputer checks if transmission between indoor unit and centralized control equipment is normal.

Error Decision Conditions

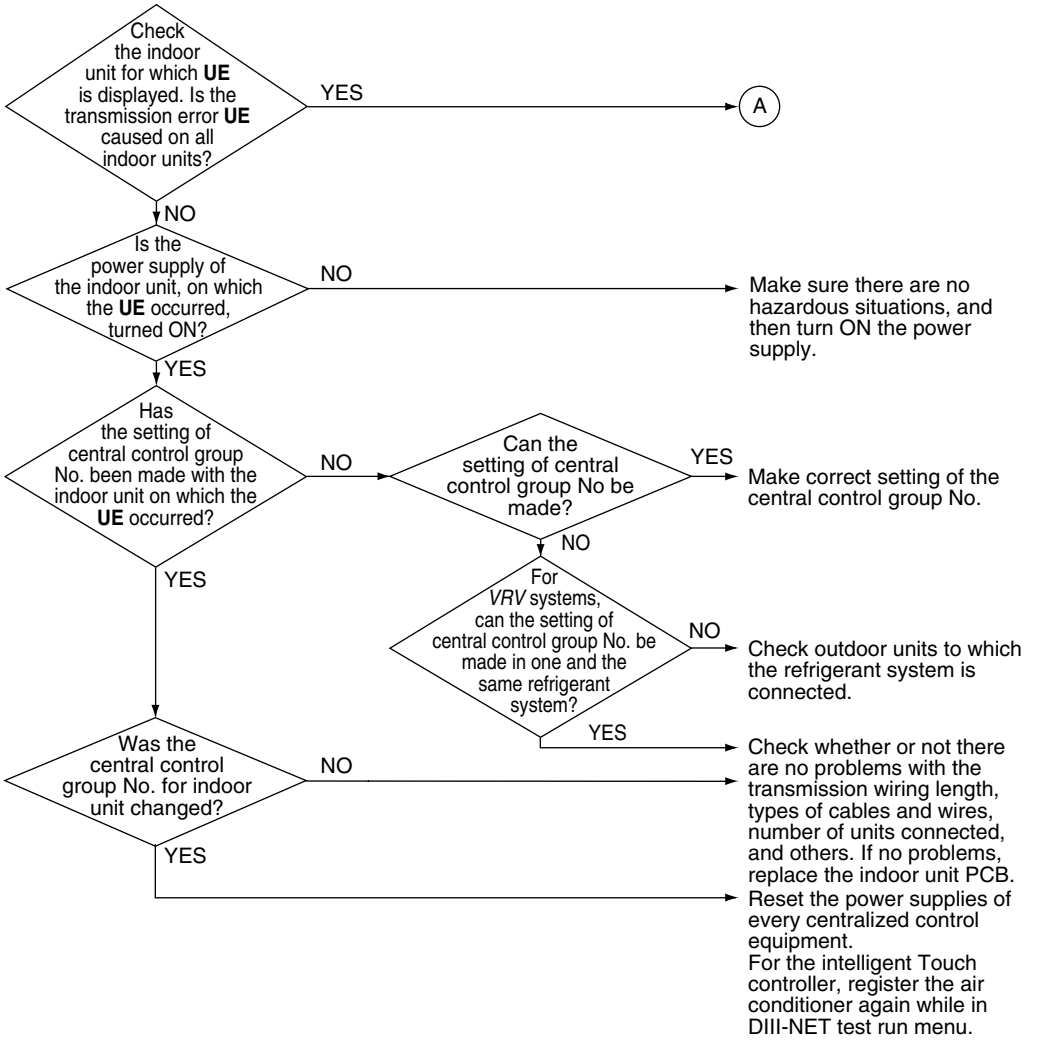
When transmission is not carried out normally for a certain amount of time

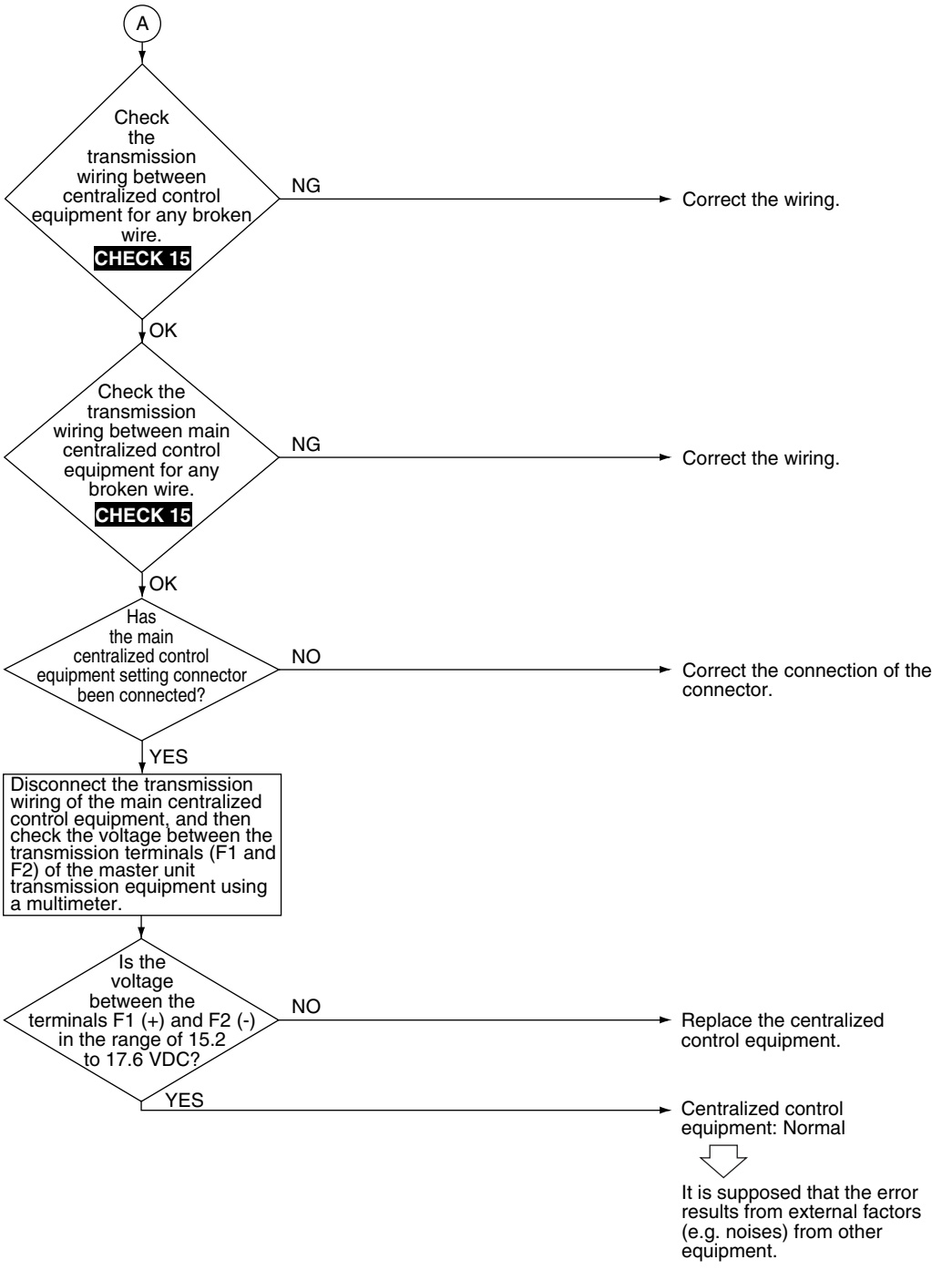
Supposed Causes

- Transmission error between optional controllers for centralized control equipment 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.





CHECK 15 Refer to page 306.

2.70 System not Set yet

Error Code **UF**

Applicable Models
All indoor unit models
All outdoor unit models

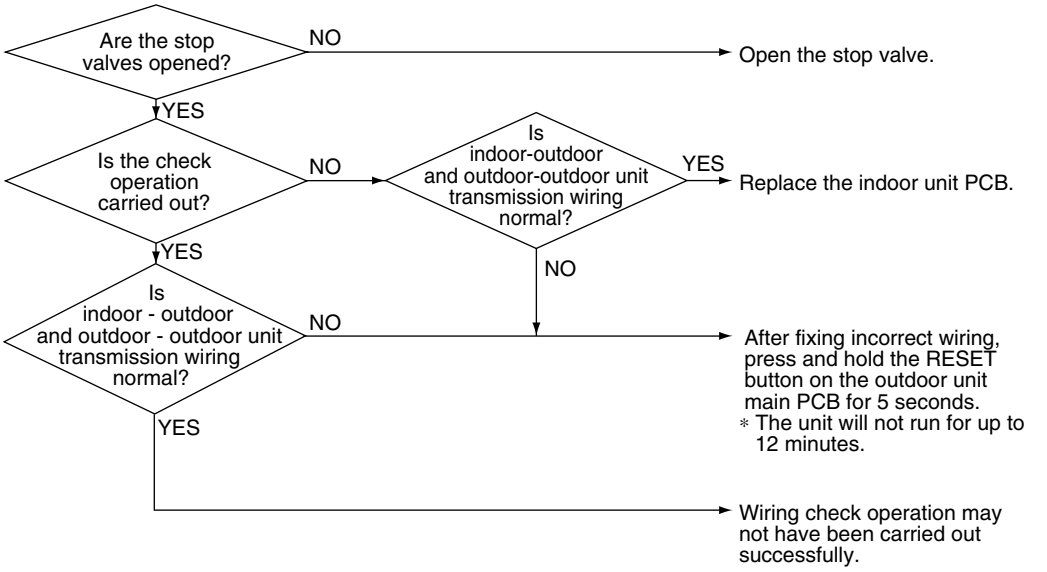
Method of Error Detection
On check operation, the number of indoor units in terms of transmission is not corresponding to that of indoor units that have made changes in temperature.

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 and outdoor-outdoor units
- Failure to execute check operation
- Defective indoor unit PCB
- Stop valve is not opened

Troubleshooting

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

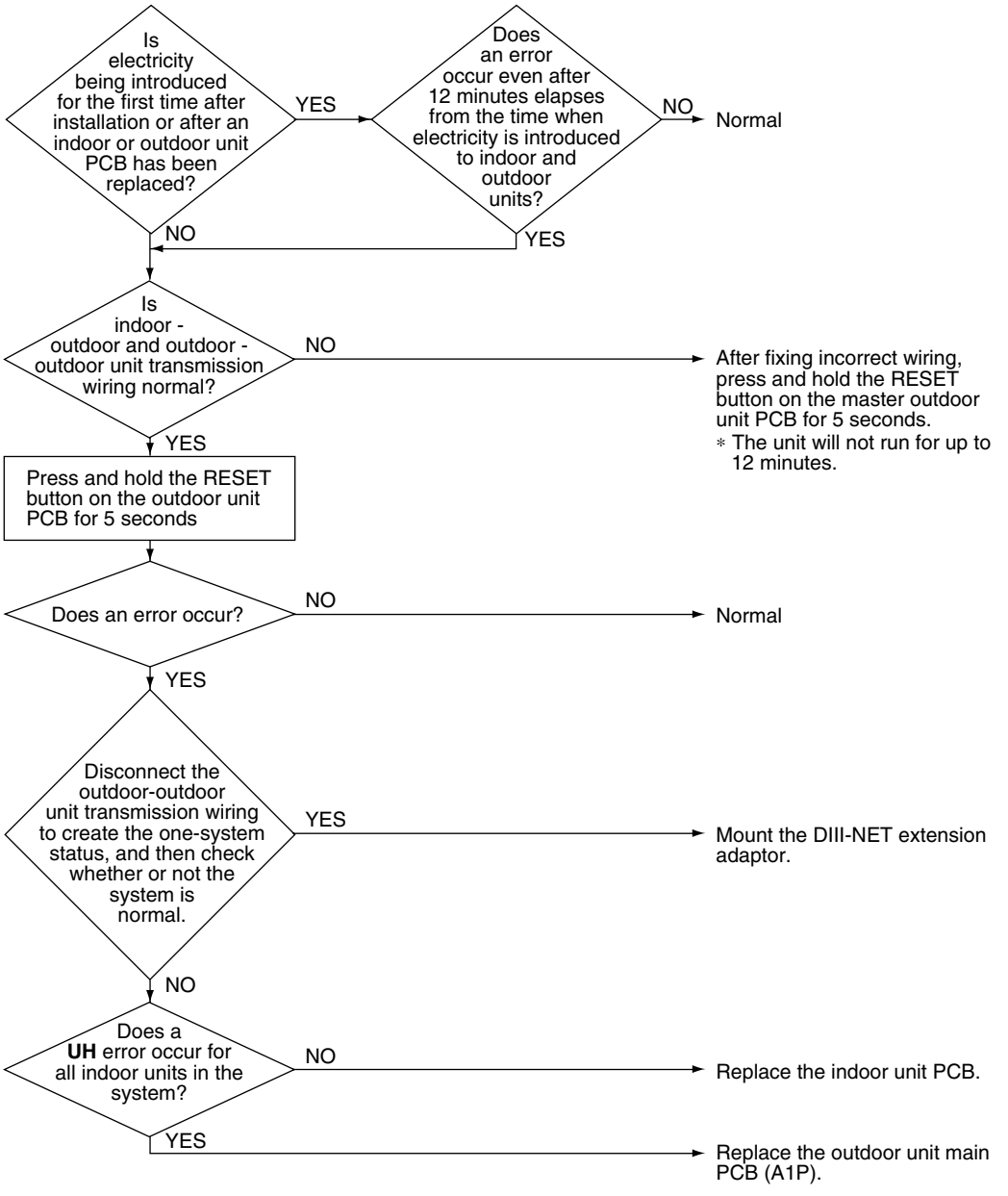


2.71 System Abnormality, Refrigerant System Address Undefined

Error Code	**UH**
Applicable Models	All indoor unit models All outdoor unit models
Method of Error Detection	Detect an indoor unit with no auto address setting.
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 and outdoor-outdoor units ■ Defective indoor unit PCB ■ 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.

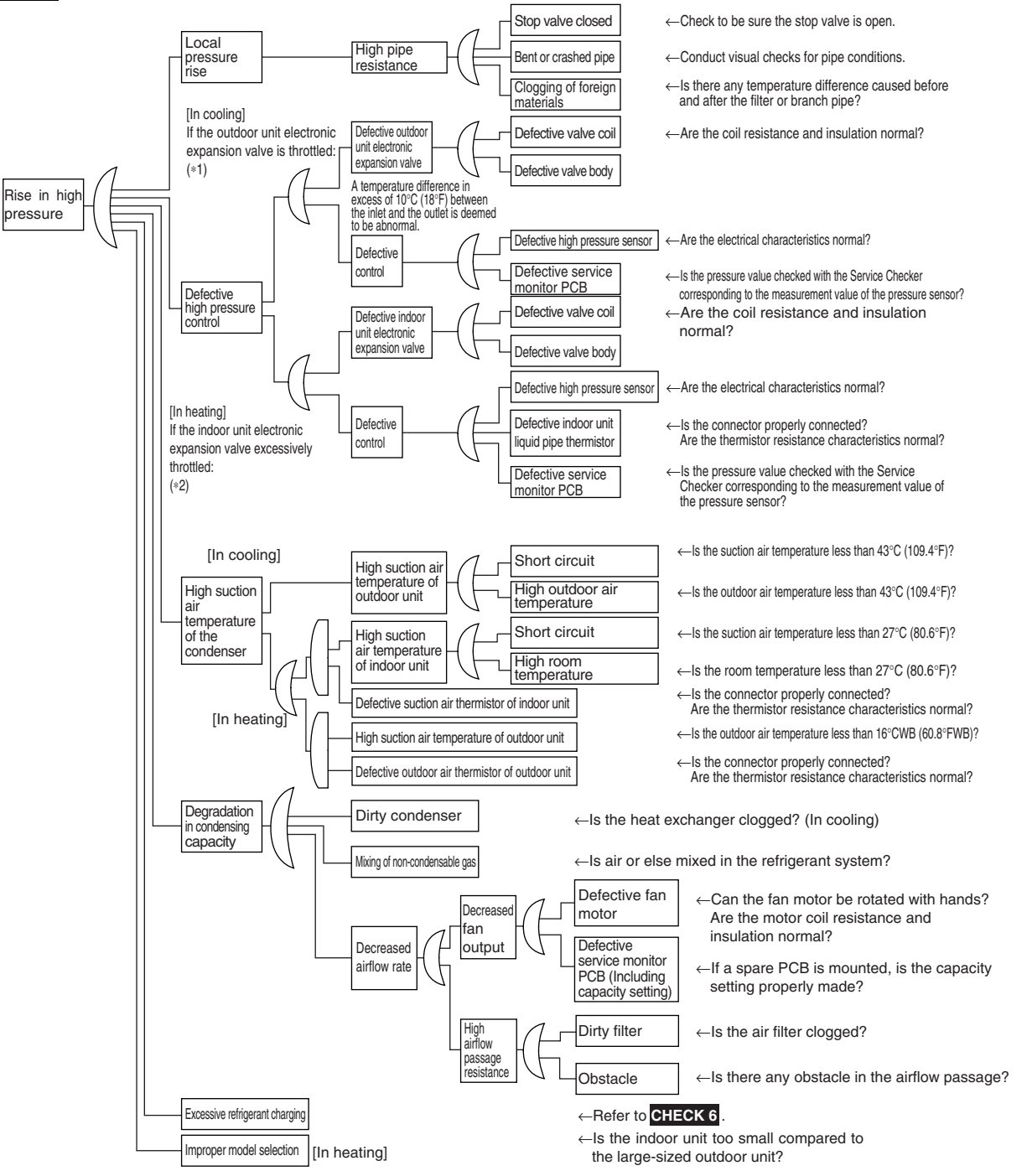


3. Check

3.1 High Pressure Check

CHECK 1

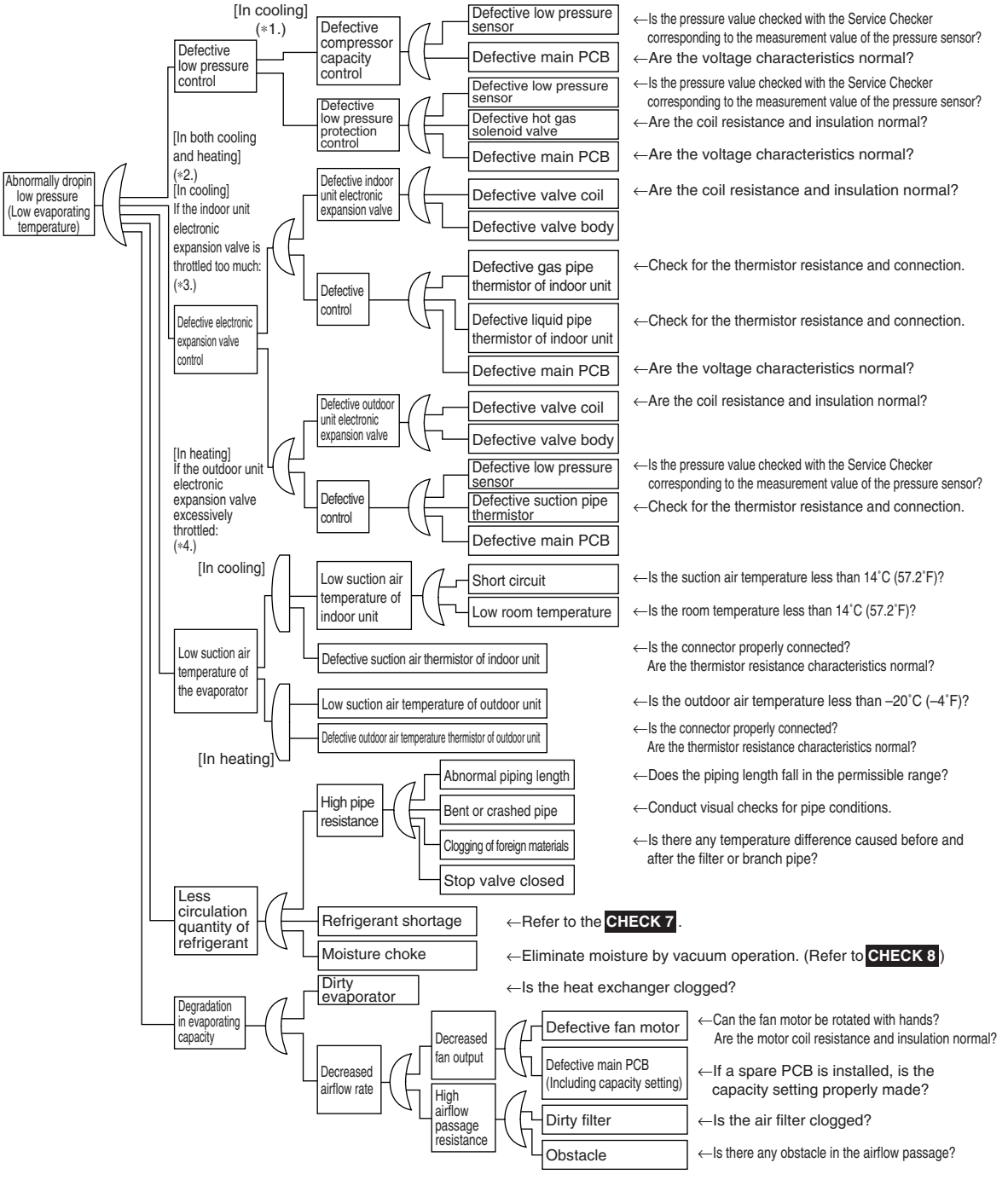
Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points.



Note: *1. In cooling, it is normal if the outdoor unit electronic expansion valve (main) is fully open.
*2. In heating, the indoor unit electronic expansion valve is used for “subcooled degree control”.

3.2 Low Pressure Check

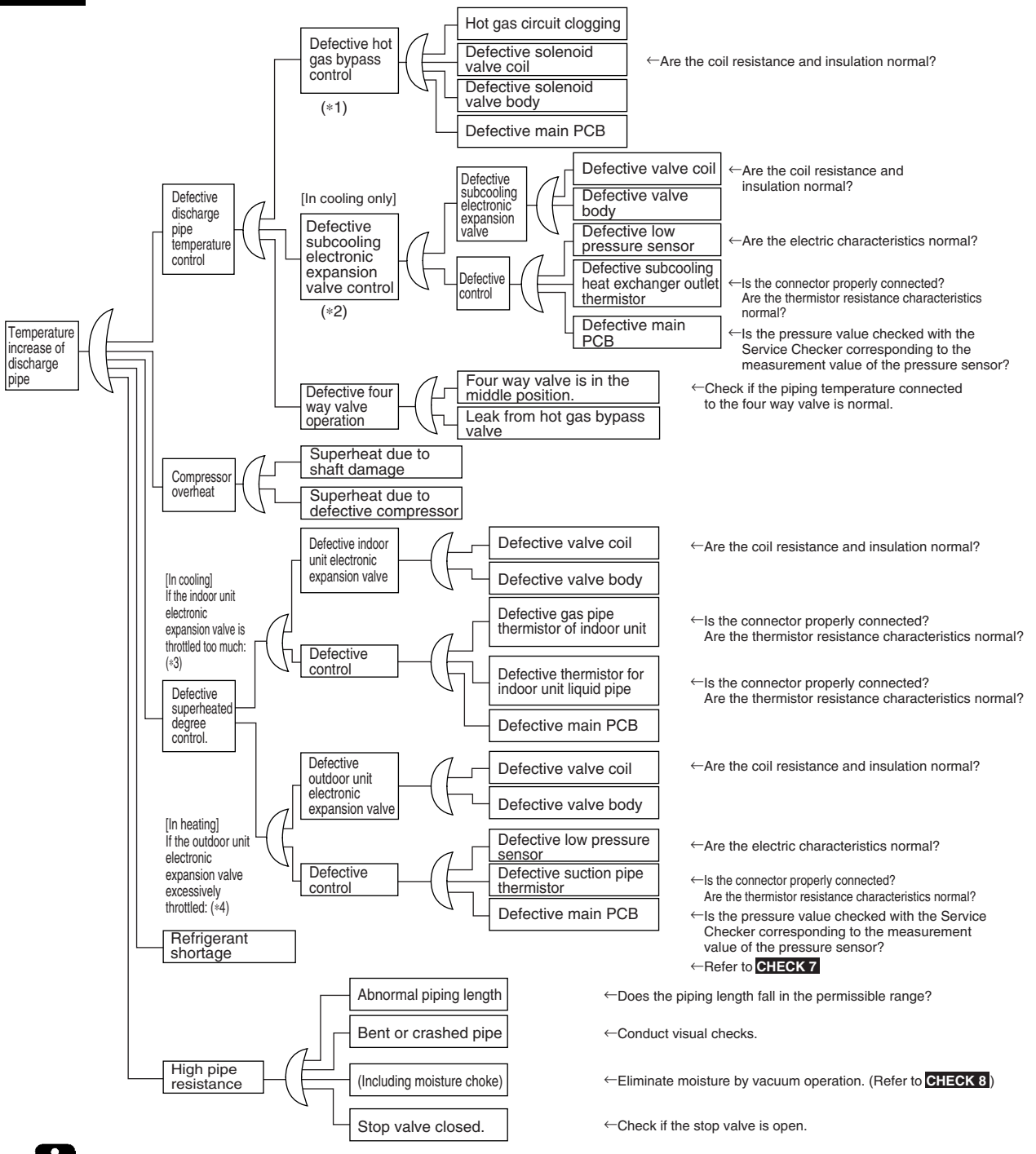
CHECK 2 Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points.



Note:
- ∗1: For details of compressor capacity control while in cooling, refer to Compressor PI control.
- ∗2: The low pressure protection control includes low pressure protection control and hot gas bypass control.
- ∗3: In cooling, the indoor unit electronic expansion valve is used for superheated degree control.
- ∗4: In heating, the outdoor unit electronic expansion valve is used for superheated degree control of outdoor unit heat exchanger.

3.3 Superheat Operation Check

CHECK 3 Identify the defective points referring to the failure factor analysis (FTA) as follows.



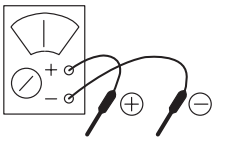
Note:
- ∗1. Refer to “Low pressure protection control” for hot gas bypass control.
- ∗2. Refer to “Subcooling electronic expansion valve control”.
- ∗3. “Superheating temperature control” in cooling is conducted by indoor unit electronic expansion valve.
- ∗4. Superheating temperature control in heating is conducted by outdoor unit electronic expansion valve (main).
- ∗5. Judgement criteria of superheat operation:
  (1) Suction gas superheated degree: 10°C (18°F) and over. (2) Discharge gas superheated degree: 45°C (81°F) and over, except immediately after compressor starts up or is running under drooping 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.)

3.4 Power Transistor Check

CHECK 4

Perform the following procedures prior to check.
(1) Power OFF.
(2) Remove all the wiring connected to the PCB where power transistors are mounted on.

Preparation
Multimeter



* Prepare the analog type of multimeter. For the digital type of multimeter, those with diode check function are available for the checking.

RELQ72TATJU

Point of Measurement and Judgement Criteria

Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.

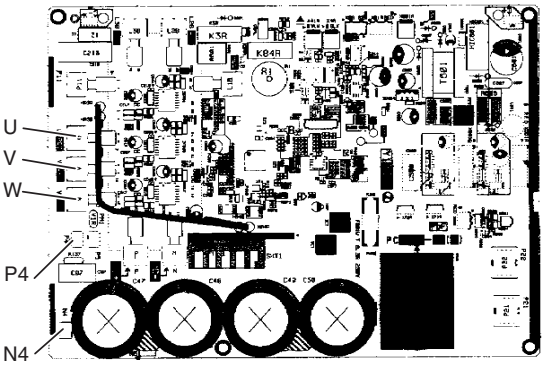
When using the analog type of multimeter, make measurement in resistance measurement mode in the x1 kΩ range.

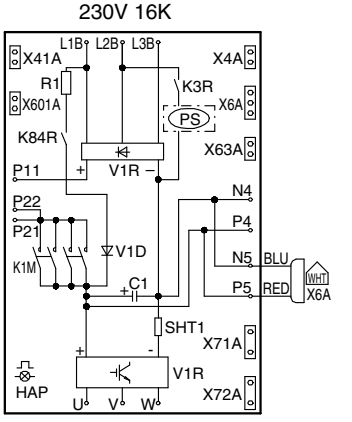
No.	Measuring point		Judgement criteria	Remarks
	+	−		
1	P4	U	2 ~ 30 kΩ	
2	P4	V		
3	P4	W		
4	U	P4	15 kΩ or more (including ∞)	Due to condenser charge and so on, resistance measurement may require some time.
5	V	P4		
6	W	P4		
7	N4	U		
8	N4	V		
9	N4	W		
10	U	N4	2 ~ 30 kΩ	
11	V	N4		
12	W	N4		

When using the digital type of multimeter, make measurement in diode check mode (→|—)

No.	Measuring point		Judgement criteria	Remarks
	+	−		
1	P4	U	1.2 V or more	Due to condenser charge and so on, resistance measurement may require some time.
2	P4	V		
3	P4	W		
4	U	P4	0.3 ~ 0.7 V	
5	V	P4		
6	W	P4		
7	N4	U		
8	N4	V		
9	N4	W		
10	U	N4	1.2 V or more	Due to condenser charge and so on, resistance measurement may require some time.
11	V	N4		
12	W	N4		

PCB and Circuit Diagram





RELQ96-120TATJU

Point of Measurement and Judgement Criteria

Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.

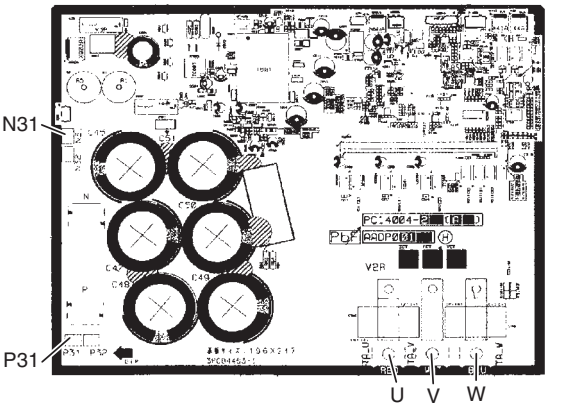
When using the analog type of multimeter, make measurement in resistance measurement mode in the x1 kΩ range.

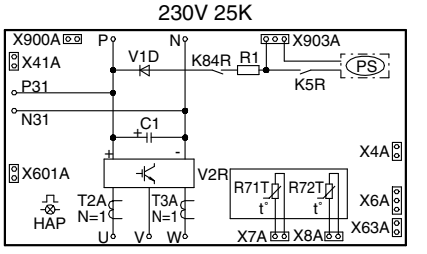
No.	Measuring point		Judgement criteria	Remarks
	+	–		
1	P31	U	2 ~ 30 kΩ	
2	P31	V		
3	P31	W		
4	U	P31	15 kΩ or more (including ∞)	Due to condenser charge and so on, resistance measurement may require some time.
5	V	P31		
6	W	P31		
7	N31	U		
8	N31	V		
9	N31	W		
10	U	N31	2 ~ 30 kΩ	
11	V	N31		
12	W	N31		

When using the digital type of multimeter, make measurement in diode check mode ( )

No.	Measuring point		Judgement criteria	Remarks
	+	–		
1	P31	U	1.2 V or more	Due to condenser charge and so on, resistance measurement may require some time.
2	P31	V		
3	P31	W		
4	U	P31	0.3 ~ 0.7 V	
5	V	P31		
6	W	P31		
7	N31	U		
8	N31	V		
9	N31	W		
10	U	N31	1.2 V or more	Due to condenser charge and so on, resistance measurement may require some time.
11	V	N31		
12	W	N31		

PCB and Circuit Diagram





RELQ72TAYDU

Point of Measurement and Judgement Criteria

Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.

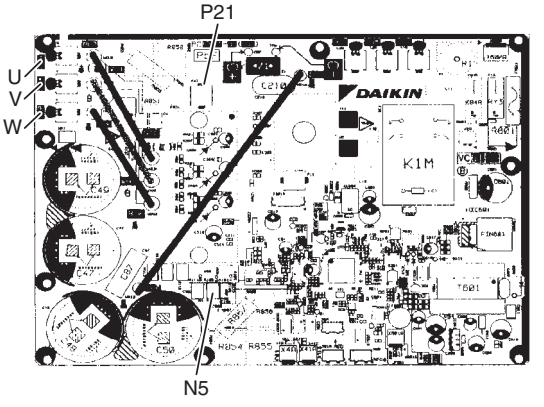
When using the analog type of multimeter, make measurement in resistance measurement mode in the x1 kΩ range.

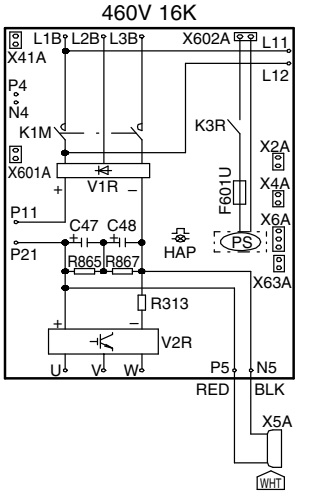
No.	Measuring point		Judgement criteria	Remarks
	+	–		
1	P21	U	2 ~ 30 kΩ	
2	P21	V		
3	P21	W		
4	U	P21	15 kΩ or more (including ∞)	Due to condenser charge and so on, resistance measurement may require some time.
5	V	P21		
6	W	P21		
7	N5	U		
8	N5	V		
9	N5	W		
10	U	N5	2 ~ 30 kΩ	
11	V	N5		
12	W	N5		

When using the digital type of multimeter, make measurement in diode check mode (→|–)

No.	Measuring point		Judgement criteria	Remarks
	+	–		
1	P21	U	1.2 V or more	Due to condenser charge and so on, resistance measurement may require some time.
2	P21	V		
3	P21	W		
4	U	P21	0.3 ~ 0.7 V	
5	V	P21		
6	W	P21		
7	N5	U		
8	N5	V		
9	N5	W		
10	U	N5	1.2 V or more	Due to condenser charge and so on, resistance measurement may require some time.
11	V	N5		
12	W	N5		

PCB and Circuit Diagram





RELQ96-120TAYDU

Point of Measurement and Judgement Criteria

Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.

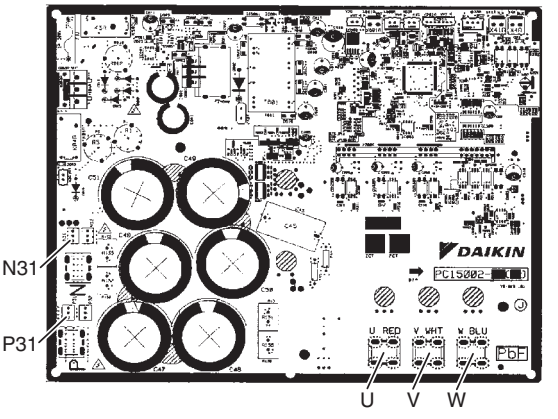
When using the analog type of multimeter, make measurement in resistance measurement mode in the x1 kΩ range.

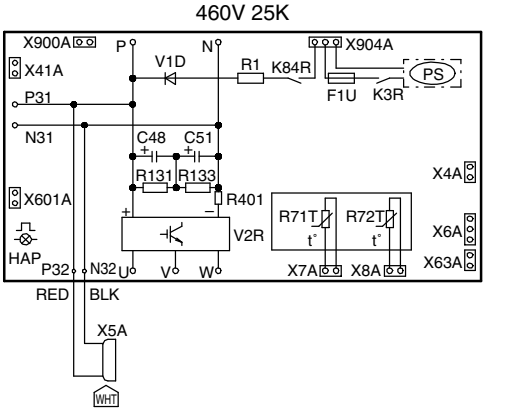
No.	Measuring point		Judgement criteria	Remarks
	+	–		
1	P31	U	2 ~ 30 kΩ	
2	P31	V		
3	P31	W		
4	U	P31	15 kΩ or more (including ∞)	Due to condenser charge and so on, resistance measurement may require some time.
5	V	P31		
6	W	P31		
7	N31	U		
8	N31	V		
9	N31	W		
10	U	N31	2 ~ 30 kΩ	
11	V	N31		
12	W	N31		

When using the digital type of multimeter, make measurement in diode check mode (→|–)

No.	Measuring point		Judgement criteria	Remarks
	+	–		
1	P31	U	1.2 V or more	Due to condenser charge and so on, resistance measurement may require some time.
2	P31	V		
3	P31	W		
4	U	P31	0.3 ~ 0.7 V	
5	V	P31		
6	W	P31		
7	N31	U		
8	N31	V		
9	N31	W		
10	U	N31	1.2 V or more	Due to condenser charge and so on, resistance measurement may require some time.
11	V	N31		
12	W	N31		

PCB and Circuit Diagram





RELQ72-120TAYCU, REYQ72-168TAYCU

Point of Measurement and Judgement Criteria

Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.

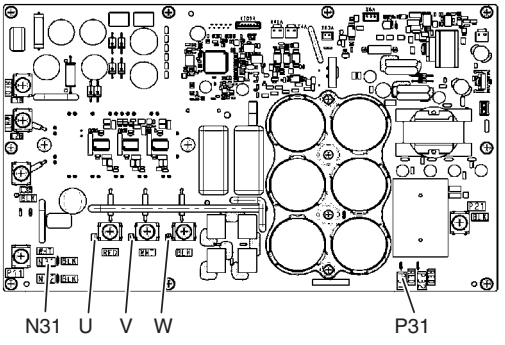
When using the analog type of multimeter, make measurement in resistance measurement mode in the x1 kΩ range.

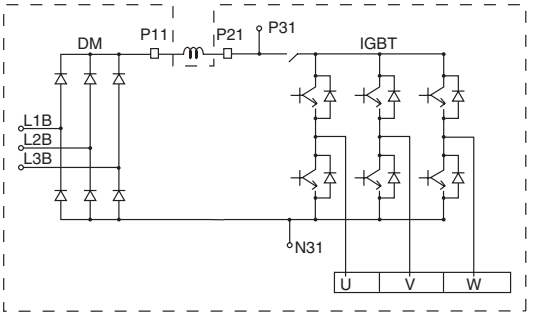
No.	Measuring point		Judgement criteria	Remarks
	+	–		
1	P31	U	2 ~ 30 kΩ	
2	P31	V		
3	P31	W		
4	U	P31	15 kΩ or more (including ∞)	Due to condenser charge and so on, resistance measurement may require some time.
5	V	P31		
6	W	P31		
7	N31	U		
8	N31	V		
9	N31	W		
10	U	N31	2 ~ 30 kΩ	
11	V	N31		
12	W	N31		

When using the digital type of multimeter, make measurement in diode check mode ( )

No.	Measuring point		Judgement criteria	Remarks
	+	–		
1	P31	U	1.2 V or more	Due to condenser charge and so on, resistance measurement may require some time.
2	P31	V		
3	P31	W		
4	U	P31	0.3 ~ 0.7 V	
5	V	P31		
6	W	P31		
7	N31	U		
8	N31	V		
9	N31	W		
10	U	N31	1.2 V or more	Due to condenser charge and so on, resistance measurement may require some time.
11	V	N31		
12	W	N31		

PCB and Circuit Diagram





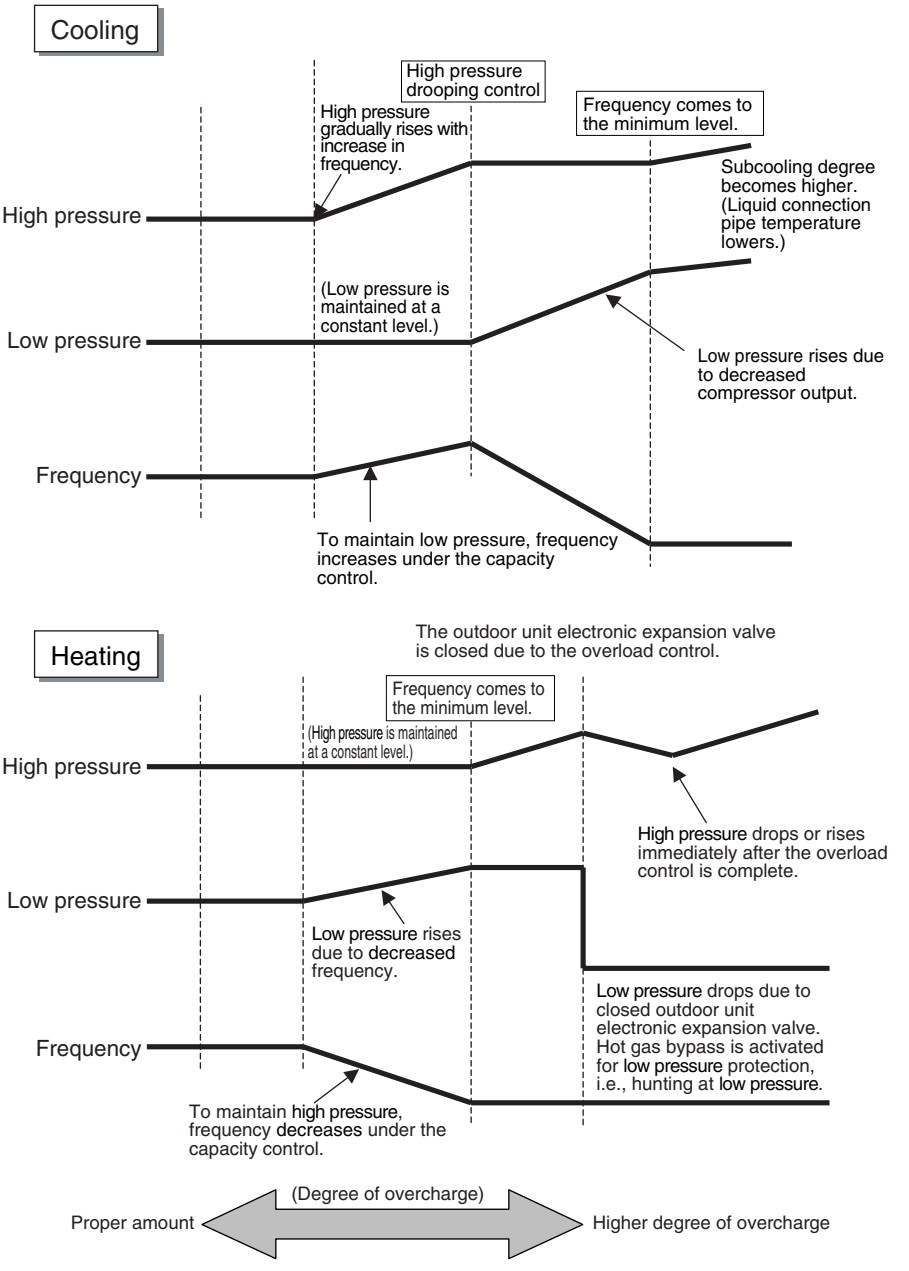
3.5 Refrigerant Overcharge Check

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 judgement, refer to the information below.

Diagnosis of overcharge of refrigerant

1. High pressure rises. Consequently, overload control is conducted to cause insufficient cooling capacity.
2. The superheated degree of suction gas lowers (or the wet operation is performed). Consequently, the compressor becomes lower in discharge pipe temperature despite of pressure loads.
3. The subcooled degree of condensate rises. Consequently, in heating, the temperature of discharge air through the subcooled section becomes lower.



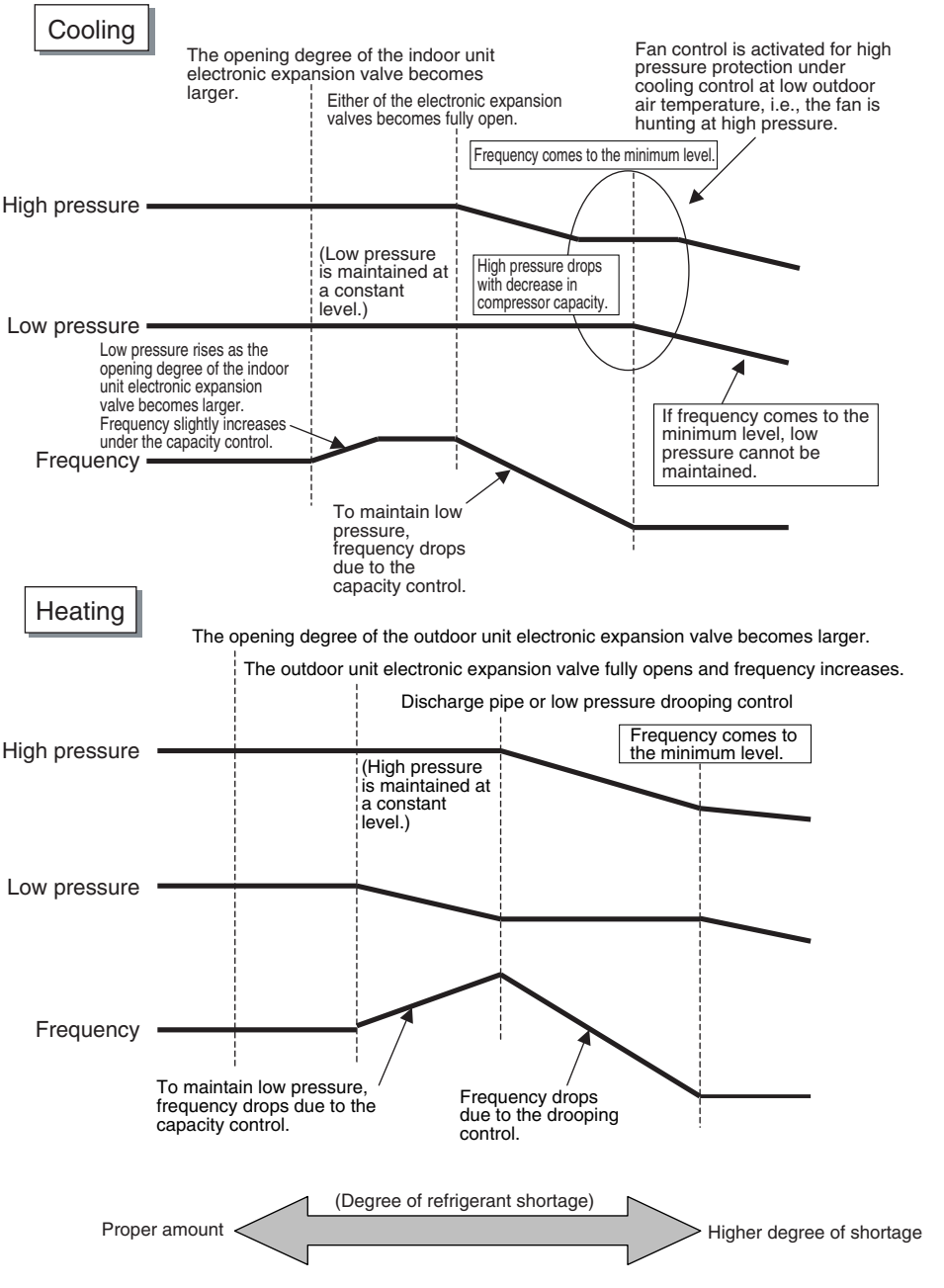
3.6 Refrigerant Shortage Check

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 judgement, refer to the information below.

Diagnosis of shortage of refrigerant

1. The superheated degree of suction gas rises. Consequently, the compressor discharge gas temperature becomes higher.
2. The superheated 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 (heating capacity).



3.7 Vacuuming and Dehydration Procedure

CHECK 8

Conduct vacuuming and dehydration in the piping system following the procedure for <Normal vacuuming and dehydration> described below.
Furthermore, if moisture may get mixed in the piping system, follow the procedure for <Special vacuuming and dehydration> described below.

<Normal vacuuming and dehydration>

(1) Vacuuming and dehydration
- Use a vacuum pump that enables vacuuming down to –100.7 kPa (–14.6 psi).
- Connect manifold gauges to the service ports of liquid pipe and gas pipe and run the vacuum pump for a period of 2 or more hours to conduct evacuation to –100.7 kPa (–14.6 psi) or less.
- If the degree of vacuum does not reach –100.7 kPa (–14.6 psi) or less even though evacuation is conducted for a period of 2 hours, moisture will have entered the system or refrigerant leakage will have been caused. In this case, conduct evacuation for a period of another 1 hour.
- If the degree of vacuum does not reach –100.7 kPa (–14.6 psi) or less even though evacuation is conducted for a period of 3 hours, conduct the leak tests.

(2) Leaving in vacuum state
- Leave the compressor at the degree of vacuum of –100.7 kPa (–14.6 psi) or less for a period of 1 hour or more, and then check to be sure that the vacuum gauge reading does not rise. (If the reading rises, moisture may have remained in the system or refrigerant leakage may have been caused.)

(3) Additional refrigerant charge
- Purge air from the manifold gauge connection hoses, and then charge a necessary amount of refrigerant.

<Special vacuuming and dehydration> - In case of moisture may get mixed in the piping*

(1) Vacuuming and dehydration
- Follow the same procedure as that for 1) Normal vacuuming and dehydration described above.

(2) Vacuum break
- Pressurize with nitrogen gas up to 0.05 MPa (7.3 psi).

(3) Vacuuming and dehydration
- Conduct vacuuming and dehydration for a period of 1 hour or more. If the degree of vacuum does not reach –100.7 kPa (–14.6 psi) or less even though evacuation is conducted for a period of 2 hours or more, repeat vacuum break - vacuuming and dehydration.

(4) Leaving in vacuum state
- Leave the compressor at the degree of vacuum of –100.7 kPa (–14.6 psi) or less for a period of 1 hour or more, and then check to be sure that the vacuum gauge reading does not rise.

(5) Additional refrigerant charge
- Purge air from the manifold gauge connection hoses, and then charge a necessary amount of refrigerant.

* In case of construction during rainy reason, if dew condensation occurs in the piping due to extended construction period, or rainwater or else may enter the piping during construction work:

3.8 Thermistor Check

CHECK 11

Thermistor type of indoor units

Model	Suction air thermistor	Indoor heat exchanger (liquid) thermistor	Indoor heat exchanger (gas) thermistor	Discharge air thermistor
	R1T	R2T	R3T	R4T
FXFQ-T	Type C	Type A	Type J	–
FXFQ-P	Type D			–
FXZQ-TA	Type B		Type A	–
FXZQ-M			Type J	–
FXUQ-P	Type C		Type A	–
FXEQ-P	Type B		Type J	–
FXDQ-M				–
FXMQ-PB				Type J
FXMQ-M				–
FXHQ-M				–
FXAQ-P				–
FXLQ-M				–
FXNQ-M				–
FXTQ-TA	–		Type A	–
FXMQ-MF	Type B		Type J	Type J

Thermistor type of outdoor units

Thermistor		Thermistor type
R1T	Outdoor air	Type E
R21T	Discharge pipe	Type H
R3T	Receiver inlet	Type L
R4T	Heat exchanger liquid pipe (upper)	
R5T	Heat exchanger liquid pipe (lower)	
R6T	Subcooling heat exchanger gas pipe	
R7T	Subcooling heat exchanger liquid pipe	
R8T	Heat exchanger gas pipe (upper)	Type A
R9T	Heat exchanger gas pipe (lower)	
R10T	Suction air	Type L
R11T	Heat exchanger deicer	
R12T	Compressor suction	
R13T	Receiver gas purge	
R14T	Compressor body	Type H
R15T	Leak detection	Type L
R16T	Subcooling injection	

Thermistor temperature		Resistance (kΩ)			
(°C)	(°F)	Type A	Type B	Type C	Type D
–30	–22	363.8	361.7719	–	336.7
–25	–13	266.8	265.4704	–	253.1
–20	–4	197.8	196.9198	–	191.2
–15	5	148.2	147.5687	–	144.1
–10	14	112.0	111.6578	111.8	109.6
–5	23	85.52	85.2610	85.42	84.05
0	32	65.84	65.6705	65.80	64.99
5	41	51.05	50.9947	51.07	50.64
10	50	39.91	39.9149	39.97	39.74
15	59	31.44	31.4796	31.51	31.41
20	68	24.95	25.0060	25.02	24.98
25	77	19.94	20.0000	20.00	20.00
30	86	16.04	16.1008	16.10	16.12
35	95	12.99	13.0426	13.04	13.07
40	104	10.58	10.6281	10.63	10.67
45	113	8.669	8.7097	8.711	8.757
50	122	7.143	7.1764	7.179	7.227
55	131	5.918	5.9407	–	5.997
60	140	4.928	4.9439	–	5.001
65	149	4.123	4.1352	–	4.191
70	158	3.467	3.4757	–	3.528
75	167	–	2.9349	–	2.984
80	176	–	2.4894	–	2.534
85	185	–	2.1205	–	2.161
90	194	–	1.8138	–	1.850
95	203	–	1.5575	–	1.590
100	212	–	1.3425	–	1.371
105	221	–	1.1614	–	1.188
Drawing No.		3SA48002 3SA48004 3SA48018 3SA48019 (AD94A045) 3SA48013 (AD100026)	3SA48001 (AD87A001)	3SA48016 (AD100008)	4P159172 (AD010555)

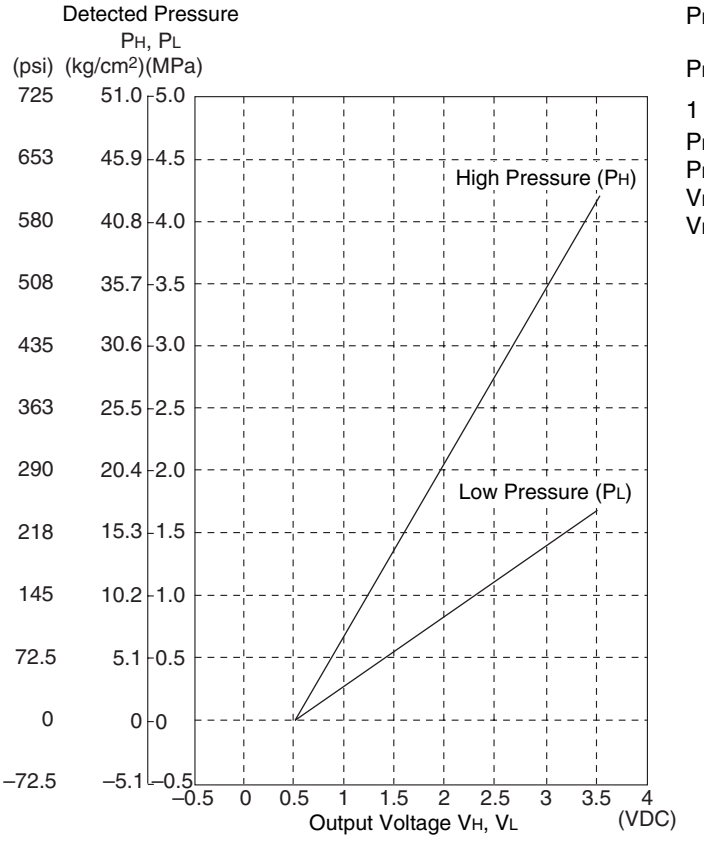
∗The data is for reference purpose only.

Thermistor temperature		Resistance (kΩ)			
(°C)	(°F)	Type E	Type H	Type J	Type L
–30	–22	362.4862	3257.371	359.8518	363.8
–25	–13	265.9943	2429.222	265.0699	266.8
–20	–4	197.3083	1827.883	197.1476	197.8
–15	5	147.8597	1387.099	147.7348	148.2
–10	14	111.8780	1061.098	111.7984	112.0
–5	23	85.4291	817.9329	85.3927	85.52
0	32	65.8000	635.0831	65.8000	65.84
5	41	51.0954	496.5712	51.1273	51.05
10	50	39.9938	391.0070	40.0423	39.91
15	59	31.5417	309.9511	31.5974	31.44
20	68	25.0554	247.2696	25.1125	24.95
25	77	20.0395	198.4674	20.0949	19.94
30	86	16.1326	160.2244	16.1860	16.04
35	95	13.0683	130.0697	13.1222	12.99
40	104	10.6490	106.1517	10.7042	10.58
45	113	8.7269	87.0725	8.7834	8.669
50	122	7.1905	71.7703	7.2479	7.143
55	131	5.9524	59.4735	6.0131	5.918
60	140	4.9536	49.5180	5.0144	4.928
65	149	4.1434	41.4168	4.2021	4.123
70	158	3.4825	34.7923	3.5381	3.467
75	167	2.9407	29.3499	2.9925	2.928
80	176	2.4943	24.8586	2.5420	2.484
85	185	2.1247	21.1360	2.1671	2.116
90	194	1.8173	18.0377	1.8554	1.810
95	203	1.5605	15.4487	1.5949	—
100	212	1.3451	13.2768	1.3764	—
105	221	1.1636	11.4395	1.1923	—
110	230	–	9.8902	1.0365	—
115	239	–	8.5788	0.9042	—
120	248	–	7.4650	0.7914	—
125	257	–	6.5156	0.6950	—
130	266	–	5.7038	0.6121	—
135	275	–	5.0073	0.5408	—
140	284	–	4.4080	0.4791	—
145	293	–	3.8907	0.4257	—
150	302	–	3.4429	0.3792	—
Drawing No.		3SA48003 (AD87A001)	3SA48006 (AD87A001)	3SA48005 (AD87A001)	3S480020 3S480021 (AD160282) (AD160283)

∗The data is for reference purpose only.

3.9 Pressure Sensor Check

CHECK 12



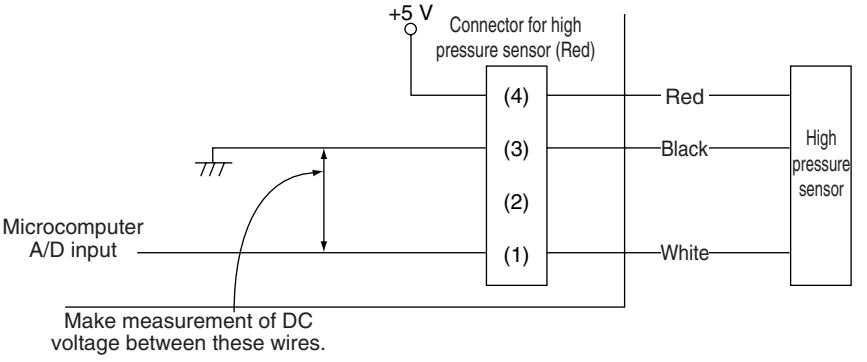
$$P_H\ (MPa) = \frac{4.15}{3.0} \times V_H - \frac{4.15}{3.0} \times 0.5$$

$$P_L\ (MPa) = \frac{1.7}{3.0} \times V_L - \frac{1.7}{3.0} \times 0.5$$

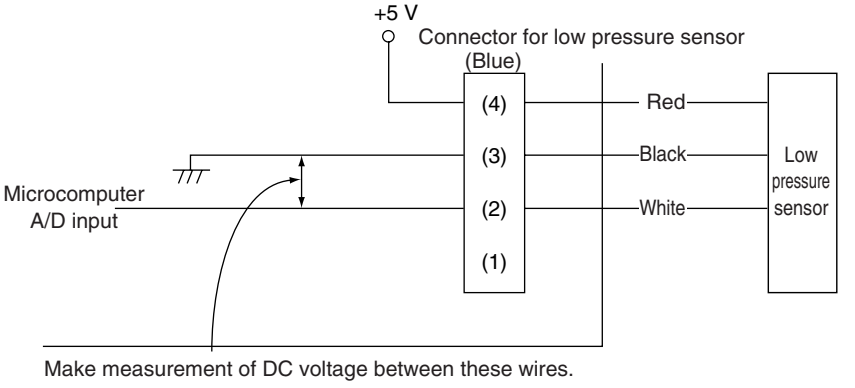
1 MPa = 145 psi

P_H : High pressure (MPa)
P_L : Low pressure (MPa)
V_H : Output Voltage (High Side) (VDC)
V_L : Output Voltage (Low Side) (VDC)

Voltage Measurement Point of the High Pressure Sensor



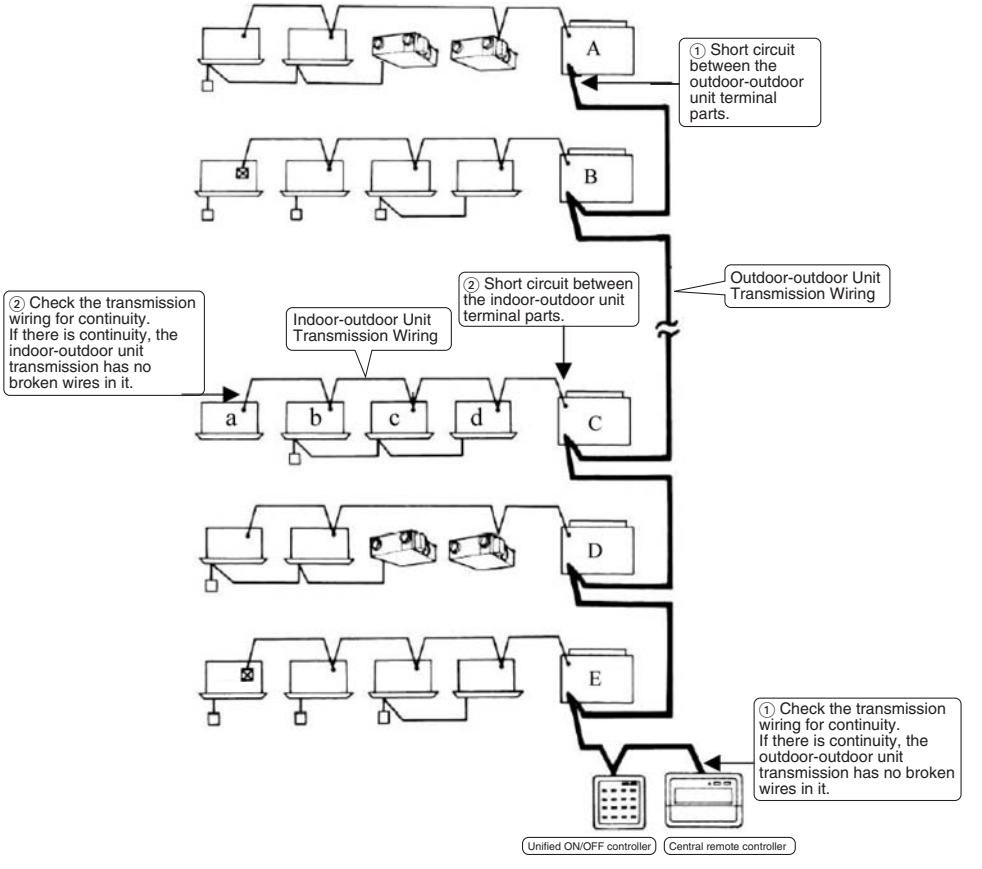
Voltage Measurement Point of the Low Pressure Sensor



3.10 Broken Wire Check of the Relay Wires

CHECK 15

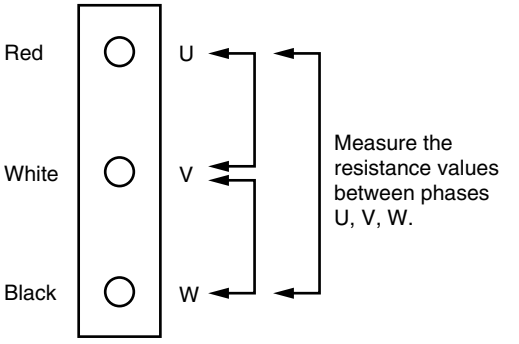
1. Procedure for checking outdoor-outdoor unit transmission wiring for broken wires
   On the system shown below, turn OFF the power supply to all equipment, short circuit between the outdoor-outdoor unit terminal F1 and F2 in the "Outdoor Unit A" that is farthest from the central remote controller, and then conduct continuity checks between the transmission wiring terminal blocks F1 and F2 of the central remote controller using a multimeter. If there is continuity between the said terminal blocks, the outdoor-outdoor unit transmission wiring has no broken wires in it.
   If there is no continuity, the transmission wiring may have broken wires. With the outdoor-outdoor unit terminal of the "Outdoor Unit A" short circuited, conduct continuity checks between the transmission wiring terminal blocks F1 and F2 of the unified ON/OFF controller. If there is no continuity as well, conduct continuity checks between the outdoor-outdoor unit terminal of the "Outdoor Unit E", between the outdoor-outdoor unit terminal of the "Outdoor Unit D", between the outdoor-outdoor unit terminal of the "Outdoor Unit C", … in the order described, thus identifying the place with continuity.
   If the place with continuity can be identified, there may be broken wires in places before the said place with continuity.
2. Procedure for checking indoor-outdoor unit transmission wiring for broken wires (for checking the indoor-outdoor unit transmission wiring of the "Outdoor Unit C" for broken wires)
   Turn OFF the power supply to all equipment, short circuit between the indoor-outdoor unit terminal F1 and F2 in the "Outdoor Unit C", and then conduct continuity checks between the transmission wirings F1 and F2 of the "Indoor Unit a" that is farthest from the "Outdoor Unit C" using a multimeter. If there is continuity between the said transmission wirings, the indoor-outdoor unit transmission wiring has no broken wires in it.
   If there is no continuity, the transmission wiring may have broken wires. With the indoor-outdoor unit terminal of the "Outdoor Unit C" short circuited, identify the place with continuity in the transmission wiring of the "Indoor Unit b", transmission wiring of the "Indoor Unit c", and transmission wiring of the "Indoor Unit d" in the order described.
   If the place with continuity can be identified, there may be broken wires in places before the said place with continuity.



3.11 Fan Motor Connector Check (Power Supply Cable)

CHECK 16

(1) Turn OFF the power supply.
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.



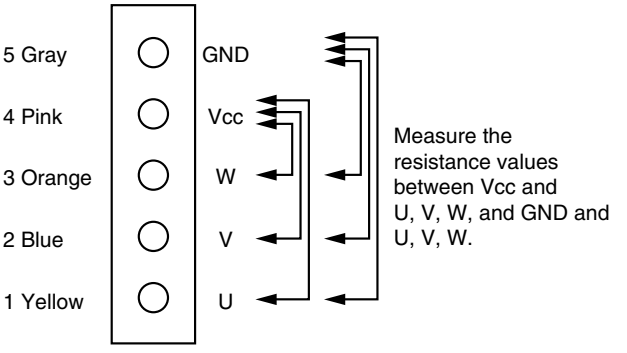
3.12 Fan Motor Connector Check (Signal Cable)

CHECK 17

RELQ72-120TATJU, RELQ72-120TAYDU only

(1) Turn OFF the power supply.

(2) Measure the resistance between Vcc and each phase of U, V, W, and GND and each phase at the motor side connectors (5-core wire) to check that the values are balanced within the range of ± 20 %, while connector or relay connector is disconnected.
Furthermore, to use a multimeter for measurement, connect the probe of negative pole to Vcc and that of positive pole to GND.



3.13 Electronic Expansion Valve Coil Check

CHECK 18

Measure the connector pin-to-pin resistance and make sure that the resistance value is within the range listed in the table below.
Determine the type according to the connector wire color and measure the resistance.

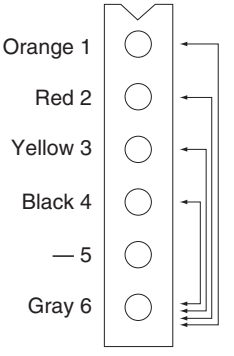
Outdoor unit (Y1E, Y3E, Y4E)

Measuring points	Judgement criteria	
	Y1E, Y3E	Y4E
1 - 6	120-180 Ω	35-55 Ω
2 - 6		
3 - 6		
4 - 6		

Outdoor unit (Y6E, Y7E)

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

Outdoor unit (Y2E, Y5E)
FXFQ-T, FXFQ-P, FXZQ-TA, FXUQ-P, FXEQ-P

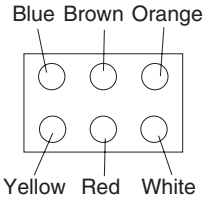


Measuring points	Judgement criteria
1 - 6	35-55 Ω
2 - 6	
3 - 6	
4 - 6	

FXZQ-M, FXMQ-PB, FXAQ-P

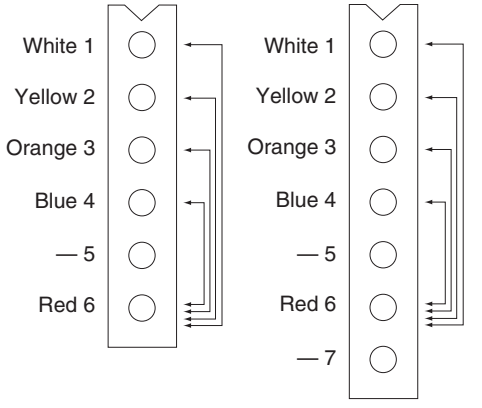
Measuring points	Judgement criteria
White-Orange	300 Ω
White-Red	150 Ω
Yellow-Blue	300 Ω
Yellow-Brown	150 Ω

FXDQ-M, FXMQ-M, FXHQ-M, FXLQ-M, FXNQ-M, FXMQ-MF

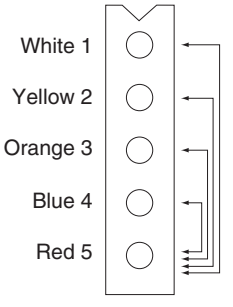


Measuring points	Judgement criteria
White-Orange	300 Ω
White-Red	150 Ω
Yellow-Blue	300 Ω
Yellow-Brown	150 Ω

BS unit



Measuring points	Judgement criteria	
	Suction HP/LP gas	Subcooling
1 - 6	120-180 Ω	35-55 Ω
2 - 6		
3 - 6		
4 - 6		



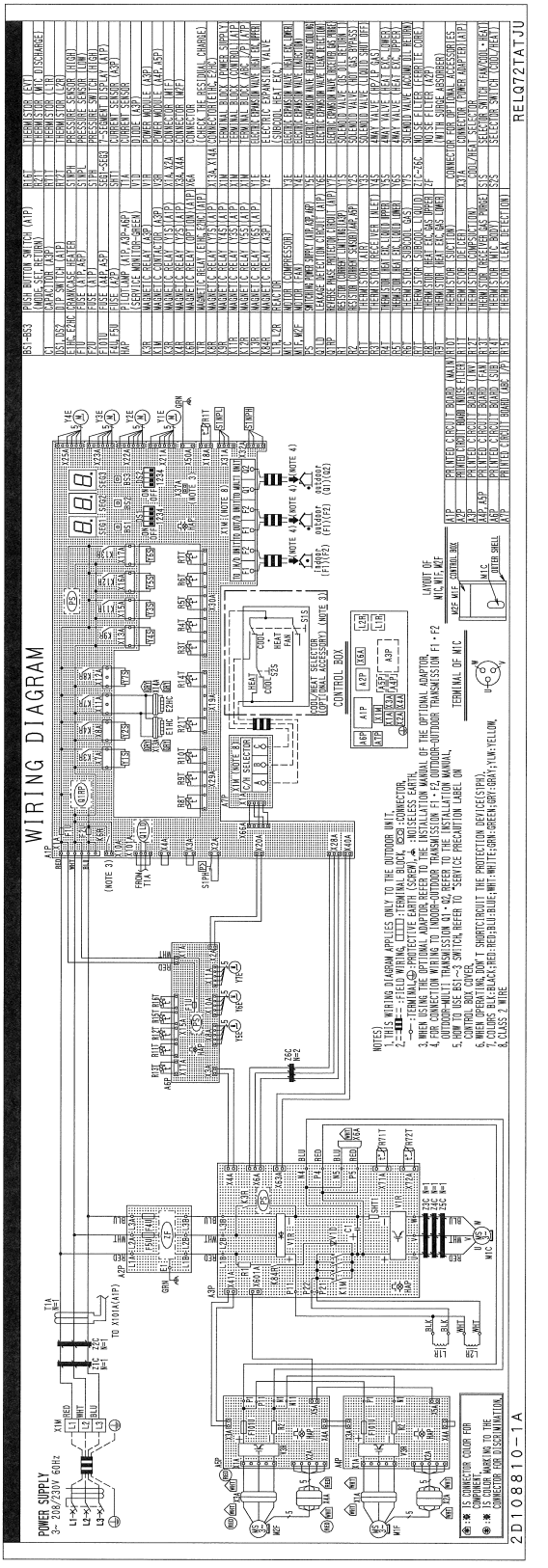
Measuring points	Judgement criteria
1 - 5	35-55 Ω
2 - 5	
3 - 5	
4 - 5	

Part 7
Appendix

1. Wiring Diagrams

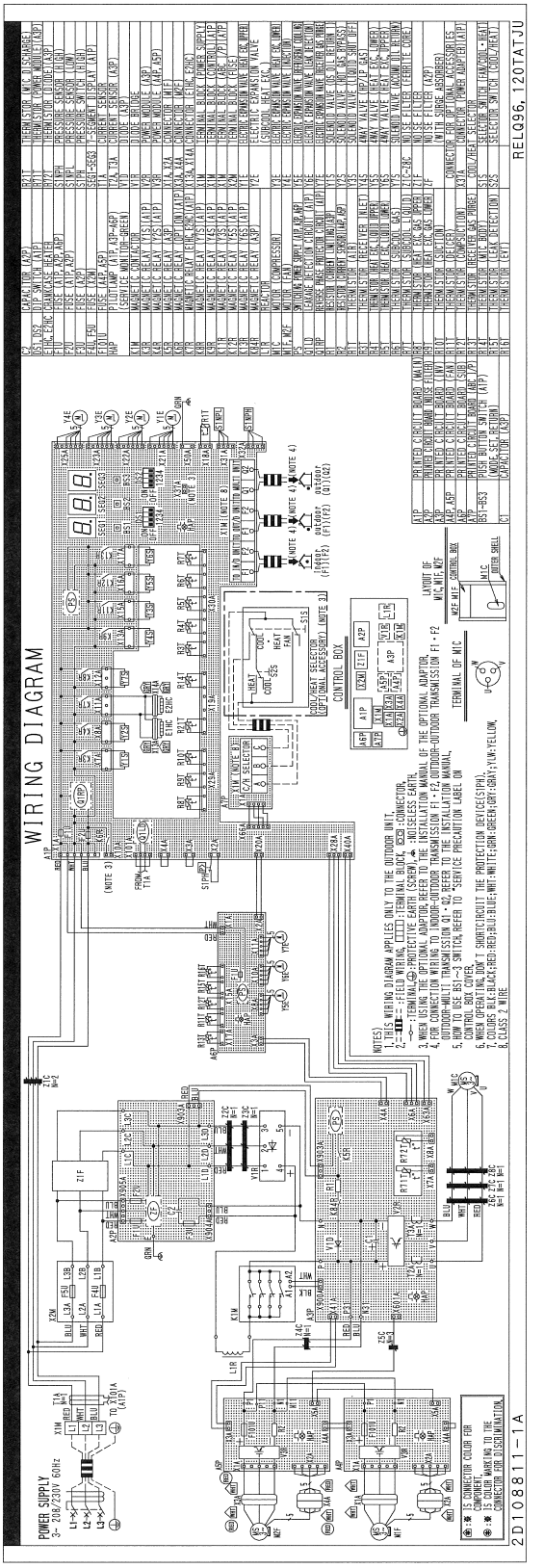
1.1 Outdoor Unit

RELQ72TATJU

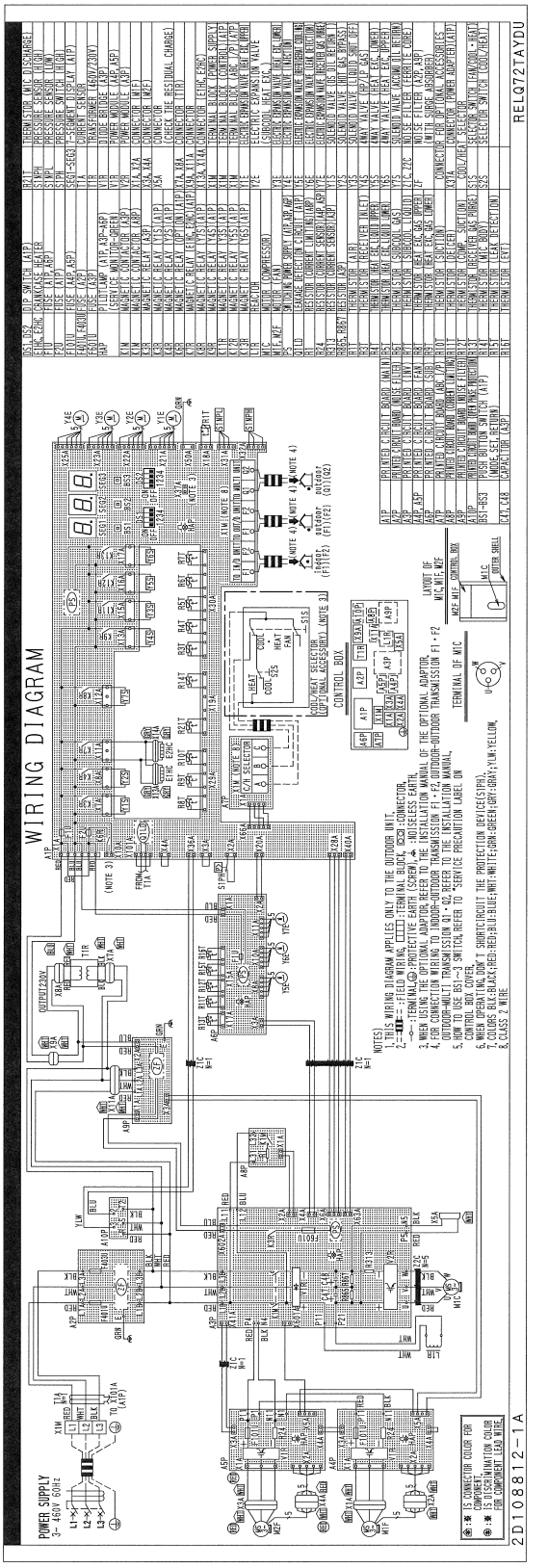


2D108810A

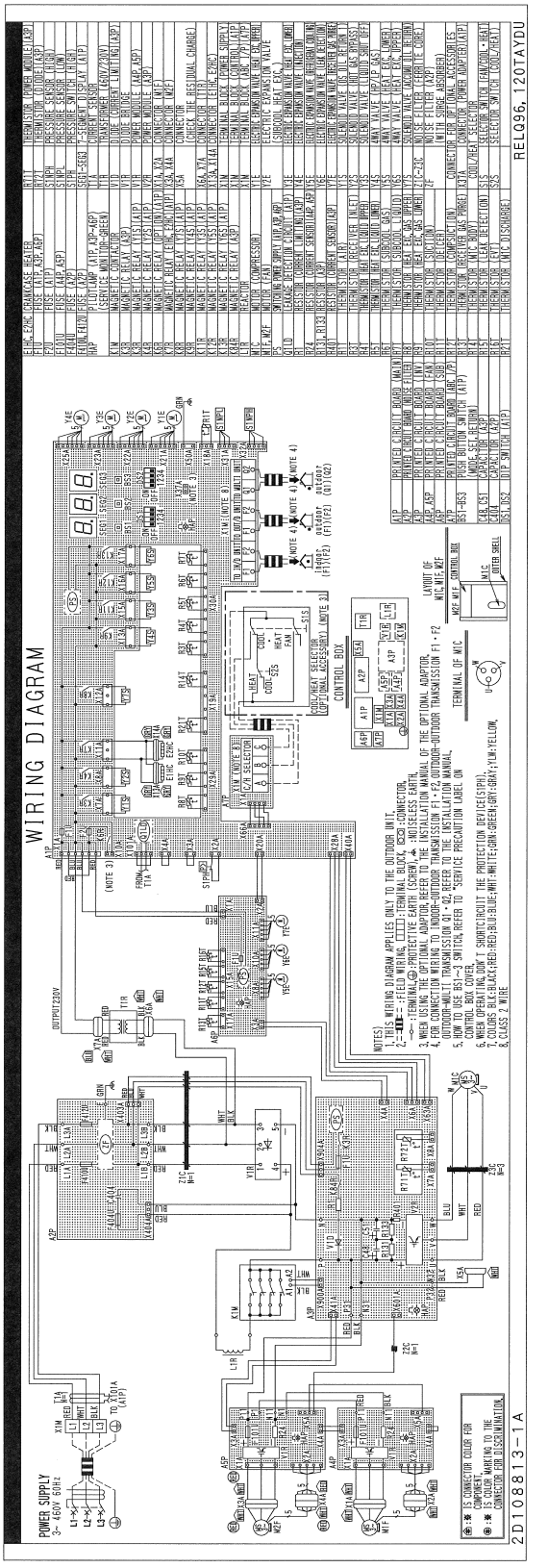
RELQ96/120TATJU



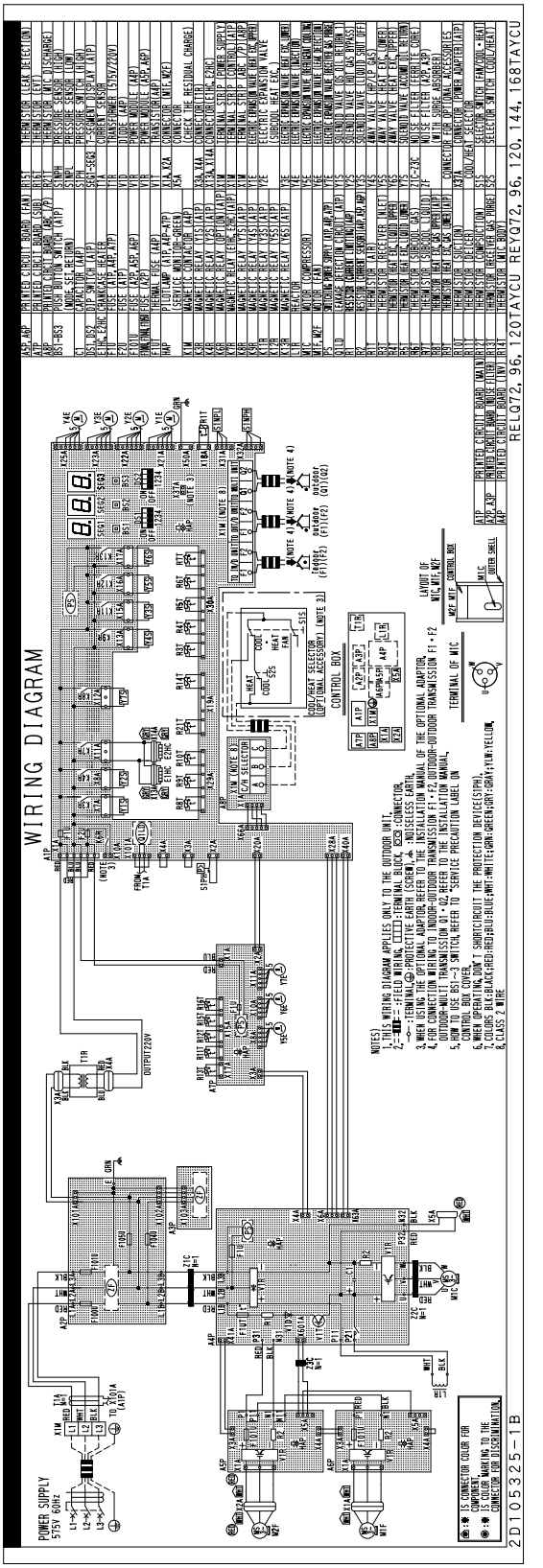
RELQ72TAYDU



RELQ96/120TAYDU



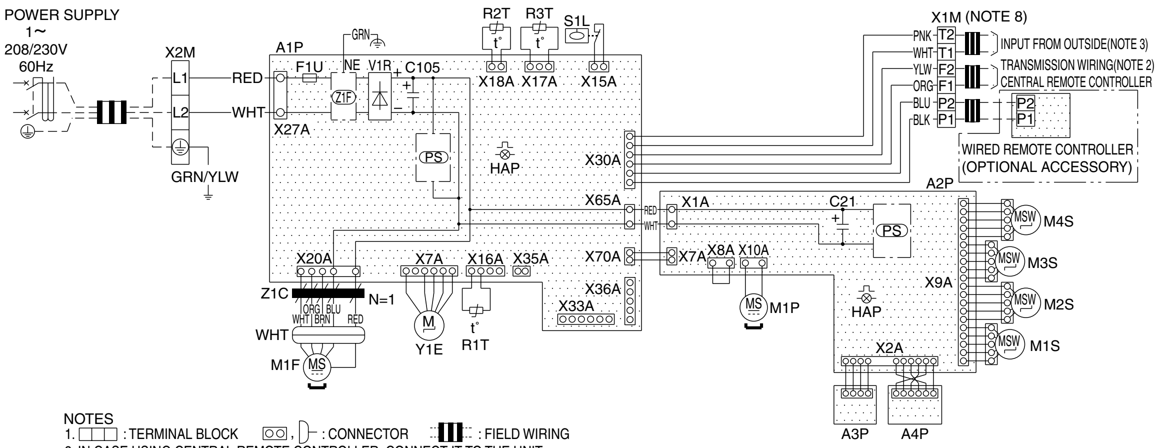
RELQ72/96/120TAYCU, REYQ72/96/120/144/168TAYCU



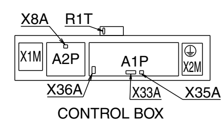
1.2 Indoor Unit

FXFQ07/09/12/15/18/24/30/36/48TVJU

INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
A2P	PRINTED CIRCUIT BOARD
A3P	PRINTED CIRCUIT BOARD (INFRARED FLOOR SENSOR)
A4P	PRINTED CIRCUIT BOARD (INFRARED PRESENCE SENSOR)
C21	CAPACITOR
C105	CAPACITOR
F1U	FUSE(T, 3.15A, 250V)
HAP	FLASHING LAMP(A1P, A2P) (SERVICE MONITOR GREEN)
M1F	MOTOR(INDOOR FAN)
M1P	MOTOR(DRAIN PUMP)
M1S ~ M4S	MOTOR(SWING BLADE)
R1T	THERMISTOR(AIR)
R2T-R3T	THERMISTOR(COIL)
S1L	FLOAT SWITCH
V1R	DIODE BRIDGE
X1M	TERMINAL BLOCK
X2M	TERMINAL BLOCK
Y1E	ELECTRONIC EXPANSION VALVE
Z1C	FERRITE CORE
Z1F	NOISE FILTER
PS	POWER SUPPLY CIRCUIT(A1P, A2P)
CONNECTOR FOR OPTIONAL PARTS	
X8A	CONNECTOR(SELF CLEAN PANEL)
X33A	CONNECTOR (ADAPTOR FOR WIRING)
X35A	CONNECTOR (POWER SUPPLY FOR ADAPTOR)
X36A	CONNECTOR(SELF CLEAN PANEL)



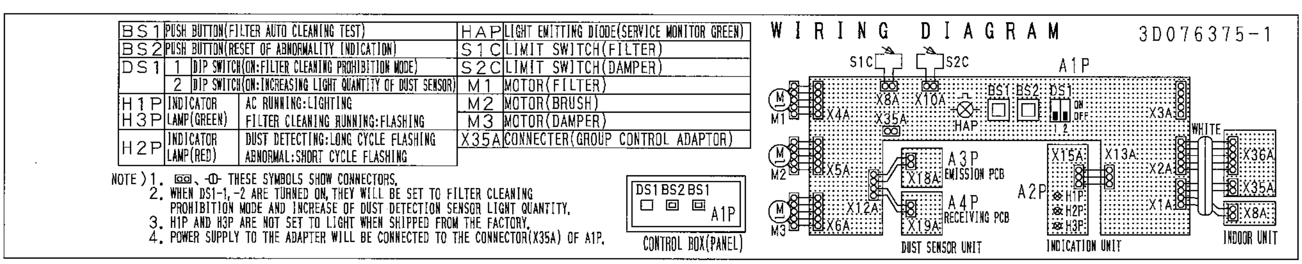
NOTES
1. ▭▭▭ : TERMINAL BLOCK ⊚⊚, ⊢ : CONNECTOR ▮▮▮ : FIELD WIRING
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. WHEN CONNECTING THE INPUT WIRING FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY THE REMOTE CONTROLLER. SEE INSTALLATION MANUAL FOR MORE DETAILS.
4. IN CASE OF MAIN/SUB OVER CHANGE, SEE THE INSTALLATION MANUAL ATTACHED TO REMOTE CONTROLLER.
5. CONNECT POWER SUPPLY OF ADAPTOR FOR WIRING TO TERMINAL BLOCK (X2M) OF INDOOR UNIT DIRECTORY.
6. X8A, X33A, X35A, X36A ARE CONNECTED WHEN THE OPTIONAL ACCESSORIES ARE BEING USED. IN CASE OF USING A SELF CLEAN PANEL, SEE THE WIRING DIAGRAM OF IT.
7. SYMBOLS SHOW AS FOLLOWS: RED: RED BLK: BLACK WHT: WHITE YLW: YELLOW GRN: GREEN ORG: ORANGE BRN: BROWN PNK: PINK BLU: BLUE
8. CLASS 2 WIRE



CONTROL BOX

3D086460A

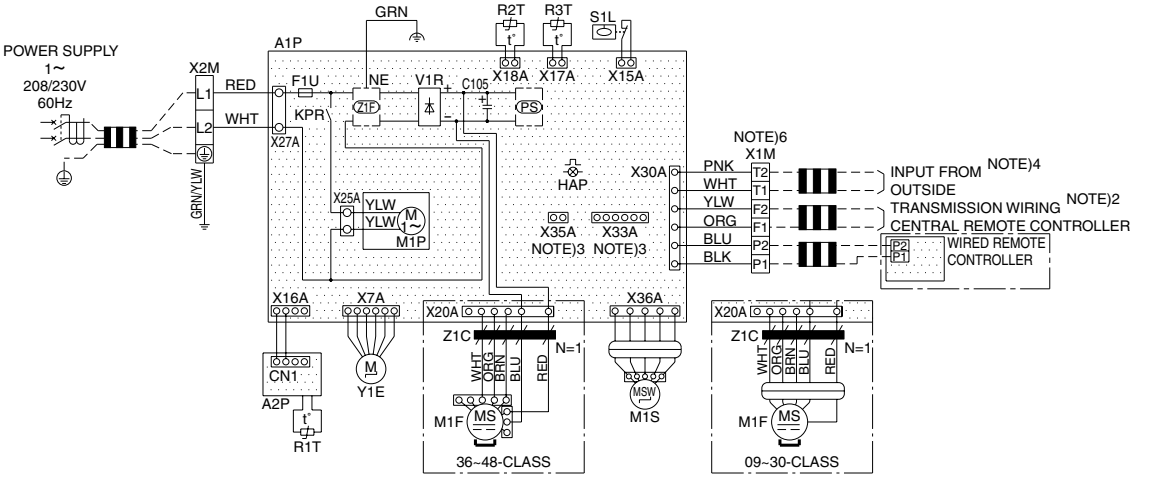
BYCQ125BGW1 (Self-Cleaning Decoration Panel for FXFQ-TVJU)

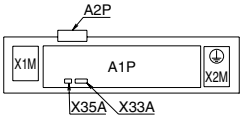


3D076375A

FXFQ09/12/18/24/30/36/48PVJU

INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
A2P	PRINTED CIRCUIT BOARD
C105	CAPACITOR
F1U	FUSE (Ⓑ, 5A, 250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)
KPR	MAGNETIC RELAY (M1P)
M1F	MOTOR (INDOOR FAN)
M1P	MOTOR (DRAIN PUMP)
M1S	MOTOR (SWING FLAP)
R1T	THERMISTOR (AIR)
R2T	THERMISTOR (COIL LIQUID)
R3T	THERMISTOR (COIL GAS)
S1L	FLOAT SWITCH
V1R	DIODE BRIDGE
X1M	TERMINAL STRIP
X2M	TERMINAL STRIP
Y1E	ELECTRONIC EXPANSION VALVE
Z1C	FERRITE CORE
Z1F	NOISE FILTER
PS	POWER SUPPLY CIRCUIT
CONNECTOR FOR OPTIONAL ACCESSORIES	
X33A	CONNECTOR (ADAPTOR FOR WIRING)
X35A	CONNECTOR (GROUP CONTROL ADAPTOR)



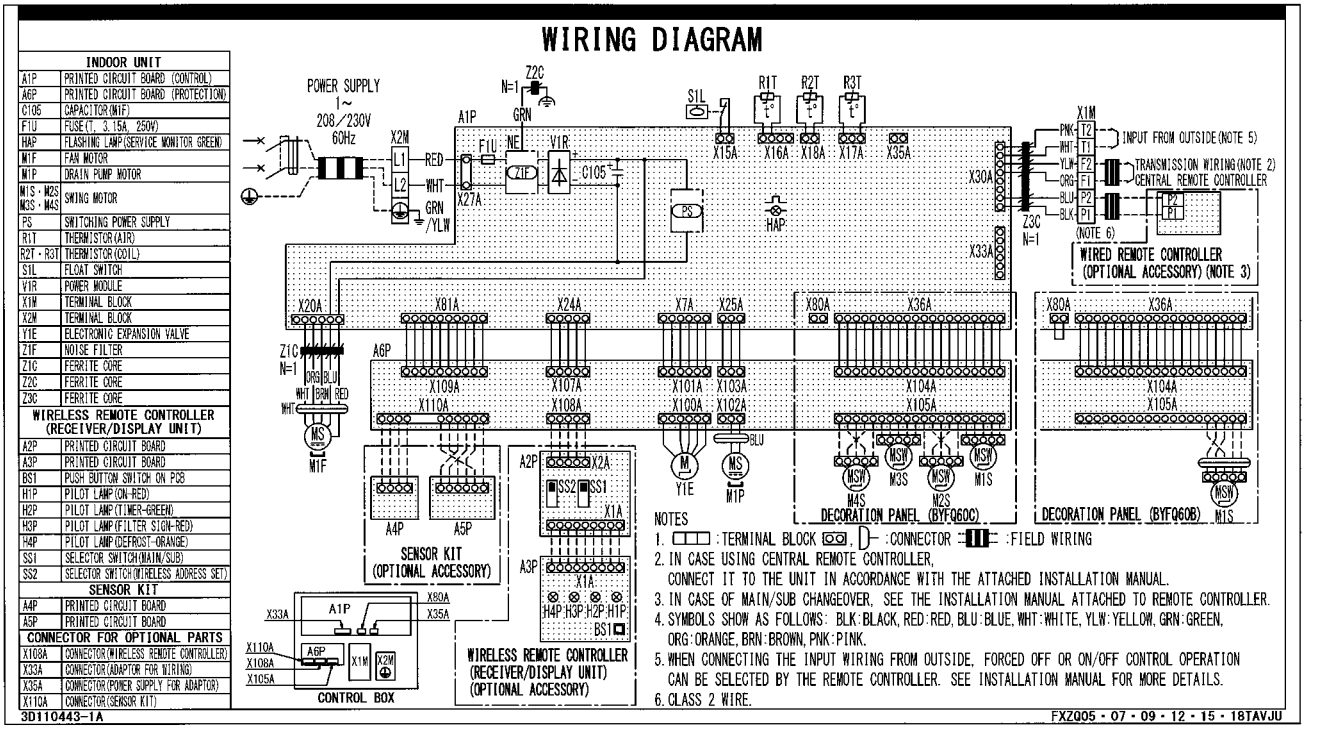


NOTES)

1. ▭▭ : TERMINAL, ⊡ • ⊐ : CONNECTOR, ⋮⋮ : FIELD WIRING, ⏚ : PROTECTIVE GROUND (SCREW), ⏚ : NOISELESS GROUND
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. X33A AND X35A ARE CONNECTED WHEN THE OPTIONAL ACCESSORIES ARE USED.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY THE REMOTE CONTROLLER. SEE INSTALLATION MANUAL FOR MORE DETAILS.
5. SYMBOLS SHOW AS FOLLOWS:
   RED: RED BLK: BLACK WHT: WHITE YLW: YELLOW GRN: GREEN
   ORG: ORANGE BRN: BROWN PNK: PINK GRY: GRAY BLU: BLUE
6. CLASS 2 WIRE

3D070301G

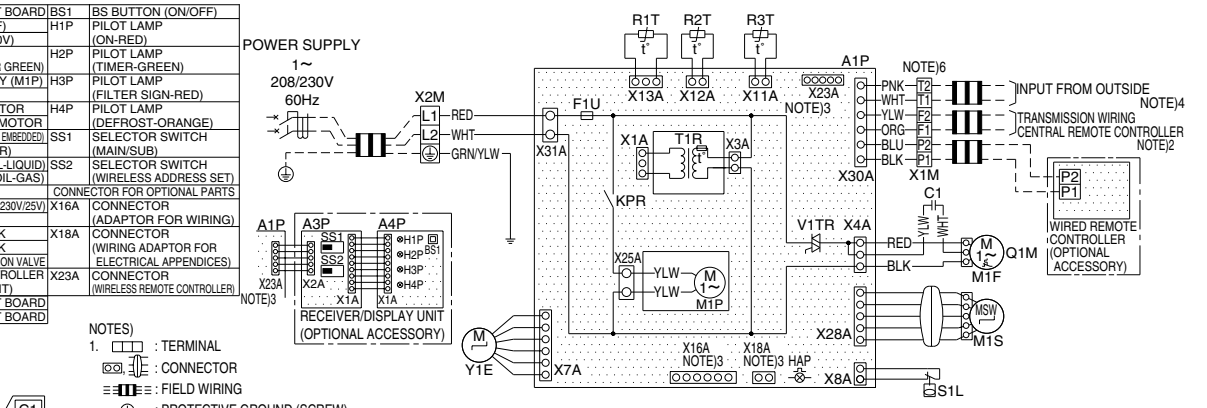
FXZQ05/07/09/12/15/18TAVJU



3D110443A

FXZQ07/09/12/15/18MVJU9

A1P	PRINTED CIRCUIT BOARD	BS1	BS BUTTON (ON/OFF)
C1	CAPACITOR (M1F)	H1P	PILOT LAMP (ON-RED)
F1U	FUSE (Ⓑ, 5A, 250V)		
HAP	PILOT LAMP (SERVICE MONITOR GREEN)	H2P	PILOT LAMP (TIMER-GREEN)
KPR	MAGNETIC RELAY (M1P)	H3P	PILOT LAMP (FILTER SIGN-RED)
M1F	FAN MOTOR		
M1P	DRAIN PUMP MOTOR	H4P	PILOT LAMP (DEFROST-ORANGE)
M1S	SWING LOUVER MOTOR		
Q1M	THERMAL PROTECTOR (M1F EMBEDDED)	SS1	SELECTOR SWITCH (MAIN/SUB)
R1T	THERMISTOR (AIR)		
R2T	THERMISTOR (COIL-LIQUID)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
R3T	THERMISTOR (COIL-GAS)		
S1L	FLOAT SWITCH	CONNECTOR FOR OPTIONAL PARTS	
T1R	TRANSFORMER (208-230V/25V)	X16A	CONNECTOR (ADAPTOR FOR WIRING)
V1TR	TRIAC		
X1M	TERMINAL BLOCK	X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)
X2M	TERMINAL BLOCK		
Y1E	ELECTRONIC EXPANSION VALVE		
WIRELESS REMOTE CONTROLLER (RECEIVER/DISPLAY UNIT)		X23A	CONNECTOR (WIRELESS REMOTE CONTROLLER)
A3P	PRINTED CIRCUIT BOARD		
A4P	PRINTED CIRCUIT BOARD		

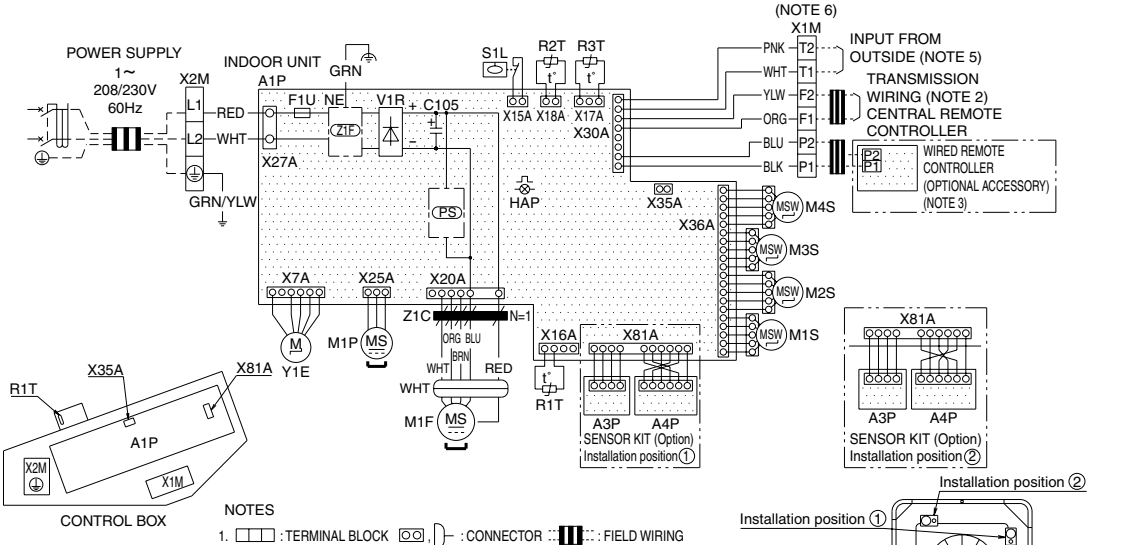


NOTES)
1. : TERMINAL
: CONNECTOR
: FIELD WIRING
: PROTECTIVE GROUND (SCREW)
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. X16A, X18A AND X23A ARE CONNECTED WHEN THE OPTIONAL ACCESSORIES ARE USED.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED TO THE UNIT.
5. SYMBOLS SHOW AS FOLLOWS: RED: RED BLK: BLACK WHT: WHITE YLW: YELLOW PNK: PINK ORG: ORANGE GRN: GREEN BLU: BLUE
6. CLASS 2 WIRE

3D080350C

FXUQ18/24/30/36PVJU

INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
C105	CAPACITOR (M1F)
F1U	FUSE
HAP	FLASHING LAMP (SERVICE MONITOR GREEN)
M1F	MOTOR (INDOOR FAN)
M1P	MOTOR (DRAIN PUMP)
M1S•M2S M3S•M4S	MOTOR (SWING BLADE)
R1T	THERMISTOR (AIR)
R2T•R3T	THERMISTOR (COIL)
S1L	FLOAT SWITCH
V1R	DIODE BRIDGE
X1M	TERMINAL BLOCK
X2M	TERMINAL BLOCK
Y1E	ELECTRONIC EXPANSION VALVE
Z1F	NOISE FILTER
Z1C	FERRITE CORE
PS	POWER SUPPLY CIRCUIT
SENSOR KIT	
A3P	PRINTED CIRCUIT BOARD
A4P	PRINTED CIRCUIT BOARD
CONNECTOR FOR OPTIONAL PARTS	
X35A	CONNECTOR (POWER SUPPLY FOR ADAPTOR)
X81A	CONNECTOR (SENSOR KIT)

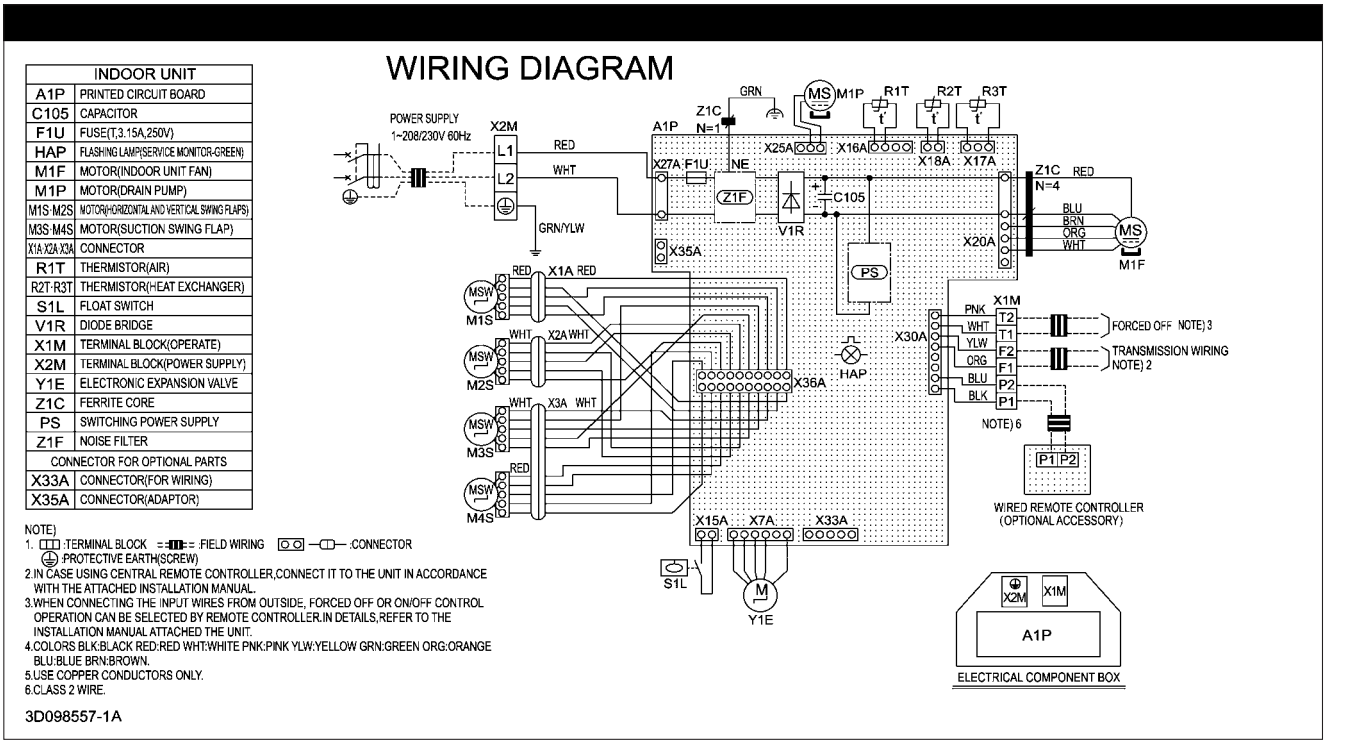


NOTES
1. : TERMINAL BLOCK , : CONNECTOR : FIELD WIRING
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. IN CASE OF MAIN/SUB CHANGEOVER, SEE THE INSTALLATION MANUAL ATTACHED TO REMOTE CONTROLLER.
4. SYMBOLS SHOW AS FOLLOWS: BLK: BLACK RED: RED BLU: BLUE WHT: WHITE YLW: YELLOW GRN: GREEN ORG: ORANGE BRN: BROWN PNK: PINK.
5. WHEN CONNECTING THE INPUT WIRING FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY THE REMOTE CONTROLLER. SEE INSTALLATION MANUAL FOR MORE DETAILS.
6. CLASS 2 WIRE

3D090218

FXEQ07/09/12/15/18/24PVJU

INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
C105	CAPACITOR
F1U	FUSE(T,3.15A,250V)
HAP	FLASHING LAMP(SERVICE MONITOR-GREEN)
M1F	MOTOR(INDOOR UNIT FAN)
M1P	MOTOR(DRAIN PUMP)
M1S·M2S	MOTOR(HORIZONTAL AND VERTICAL SWING FLAPS)
M3S·M4S	MOTOR(SUCTION SWING FLAP)
X1A·X2A·X3A	CONNECTOR
R1T	THERMISTOR(AIR)
R2T·R3T	THERMISTOR(HEAT EXCHANGER)
S1L	FLOAT SWITCH
V1R	DIODE BRIDGE
X1M	TERMINAL BLOCK(OPERATE)
X2M	TERMINAL BLOCK(POWER SUPPLY)
Y1E	ELECTRONIC EXPANSION VALVE
Z1C	FERRITE CORE
PS	SWITCHING POWER SUPPLY
Z1F	NOISE FILTER
CONNECTOR FOR OPTIONAL PARTS	
X33A	CONNECTOR(FOR WIRING)
X35A	CONNECTOR(ADAPTOR)



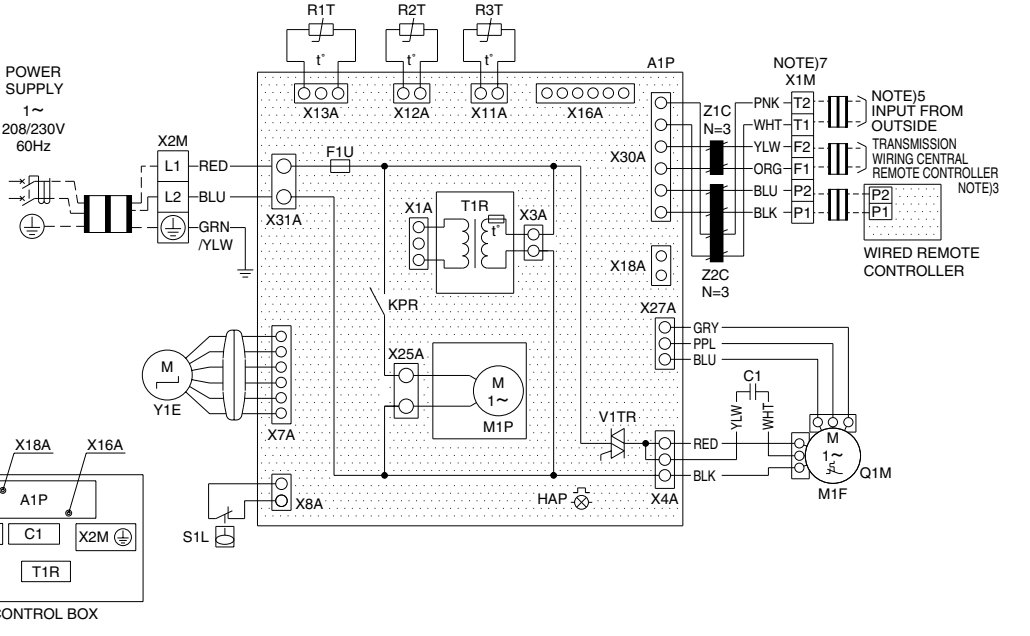
NOTE)
1. :TERMINAL BLOCK :FIELD WIRING :CONNECTOR
   :PROTECTIVE EARTH(SCREW)
2. IN CASE USING CENTRAL REMOTE CONTROLLER,CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER.IN DETAILS,REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
4. COLORS BLK:BLACK RED:RED WHT:WHITE PNK:PINK YLW:YELLOW GRN:GREEN ORG:ORANGE BLU:BLUE BRN:BROWN.
5. USE COPPER CONDUCTORS ONLY.
6. CLASS 2 WIRE.

3D098557-1A

3D098557A

FXDQ07/09/12/18/24MVJU

A1P	PRINTED CIRCUIT BOARD
C1	CAPACITOR (M1F)
F1U	FUSE (F5A/250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)
KPR	MAGNETIC RELAY (M1P)
M1F	MOTOR (INDOOR FAN)
M1P	MOTOR (DRAIN PUMP)
Q1M	THERMAL PROTECTOR (M1F EMBEDDED)
R1T	THERMISTOR (AIR)
R2T	THERMISTOR (COIL-1)
R3T	THERMISTOR (COIL-2)
S1L	FLOAT SWITCH
T1R	TRANSFORMER (208-230V/25V)
V1TR	PHASE CONTROL CIRCUIT
X1M	TERMINAL BLOCK
X2M	TERMINAL BLOCK
Y1E	ELECTRONIC EXPANSION VALVE
Z1C·Z2C	NOISE FILTER (FERRITE CORE)
CONNECTOR FOR OPTIONAL PARTS	
X16A	CONNECTOR (ADAPTOR FOR WIRING)
X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)

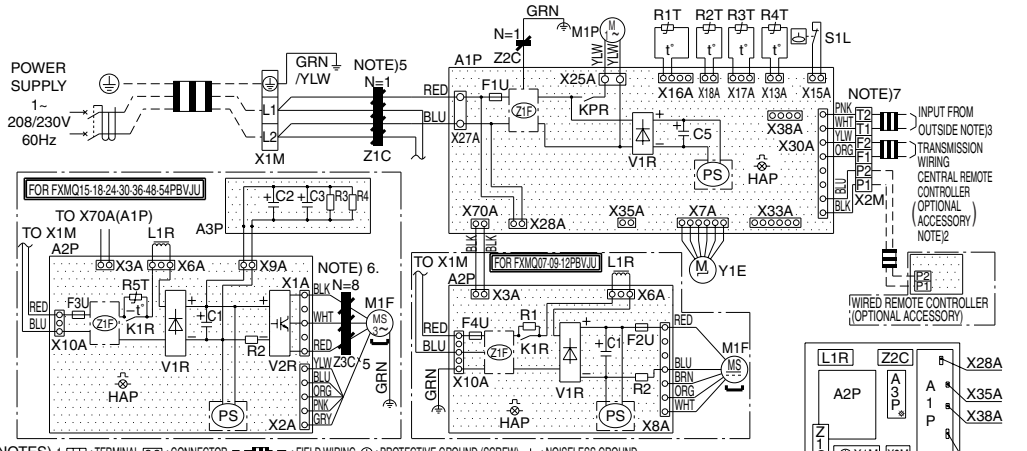


NOTES)
1. : TERMINAL
   : CONNECTOR
2. : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING DATA AND CATALOGS, ETC. BEFORE CONNECTING.
5. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED TO THE UNIT.
6. SYMBOLS SHOW AS FOLLOWS: RED: RED BLK: BLACK WHT: WHITE YLW: YELLOW PPL: PURPLE GRY: GRAY BLU: BLUE PNK: PINK ORG: ORANGE GRN: GREEN
7. CLASS 2 WIRE

3D050501B

FXMQ07/09/12/15/18/24/30/36/48/54PBVJU

	INDOOR UNIT	R3T	THERMISTOR (GAS)
A1P	PRINTED CIRCUIT BOARD	R4T	THERMISTOR (DISCHARGE AIR)
A2P	PRINTED CIRCUIT BOARD (FAN)	R5T	THERMISTOR NTC (CURRENT LIMITING)
A3P	PRINTED CIRCUIT BOARD (CAPACITOR)	S1L	FLOAT SWITCH
		V1R	DIODE BRIDGE (A1P, A2P)
C1, C2 C3, C5	CAPACITOR	V2R	POWER MODULE
F1U	FUSE (T, 3.15A, 250V)	X1M	TERMINAL BLOCK (POWER SUPPLY)
F2U	FUSE (T, 5A, 250V)		
F3U	FUSE (T, 6.3A, 250V)	X2M	TERMINAL BLOCK (CONTROL)
F4U	FUSE (T, 6.3A, 250V)		
HAP	FLASHING LAMP (A1P, A2P) (SERVICE MONITOR GREEN)	Y1E	ELECTRONIC EXPANSION VALVE
KPR	MAGNETIC RELAY	Z1C, Z2C, Z3C	FERRITE CORE
K1R	MAGNETIC RELAY		
L1R	REACTOR	Z1F	NOISE FILTER (A1P, A2P)
M1F	MOTOR (INDOOR FAN)	CONNECTOR FOR OPTIONAL ACCESSORIES	
M1P	MOTOR (DRAIN PUMP)		
PS	POWER SUPPLY CIRCUIT (A1P, A2P)	X28A	CONNECTOR (POWER SUPPLY FOR WIRING)
R1	RESISTOR (CURRENT LIMITING)	X33A	CONNECTOR (ADAPTOR FOR WIRING)
R2	CURRENT SENSING DEVICE	X35A	CONNECTOR (POWER SUPPLY FOR ADAPTOR)
R3, R4	RESISTOR (ELECTRIC DISCHARGE)	X38A	CONNECTOR (ADAPTOR FOR MULTI TENANT)
R1T	THERMISTOR (SUCTION AIR)		
R2T	THERMISTOR (LIQUID)		

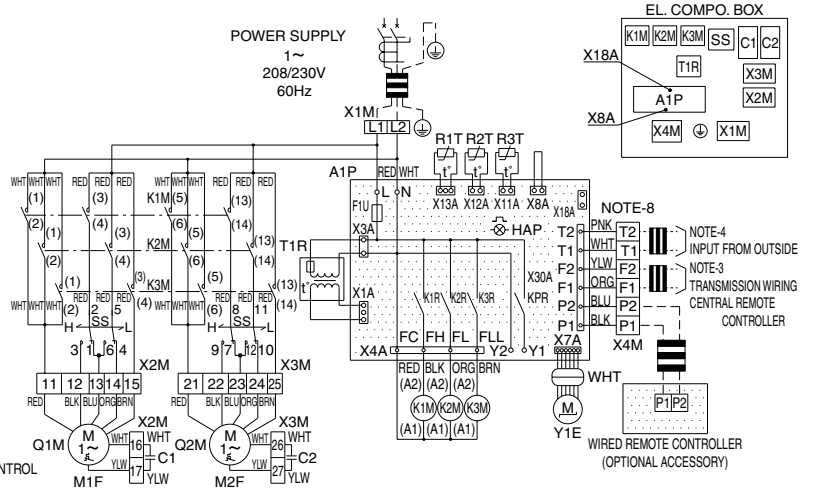


NOTES)
1. : TERMINAL, : CONNECTOR, : FIELD WIRING, : PROTECTIVE GROUND (SCREW), : NOISELESS GROUND
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
4. COLORS BLK: BLACK RED:RED BLU:BLUE WHT:WHITE PNK:PINK YLW:YELLOW BRN:BROWN GRY:GRAY GRN:GREEN ORG:ORANGE.
5. FOR FXMQ15·18·24·30·36·48·54·PBVJU ARE N=2
6. ONLY FOR FXMQ54PBVJU
7. CLASS 2 WIRE

3D093209A

FXMQ72/96MVJU

	INDOOR UNIT	R1T	THERMISTOR (AIR)
A1P	PRINTED CIRCUIT BOARD	R2T•R3T	THERMISTOR (COIL)
C1•C2	CAPACITOR (M1F•2F)	SS	SELECTOR SWITCH (STATIC PRESSURE)
F1U	FUSE (Ⓑ, 5A, 250V)	T1R	TRANSFORMER (208V/230V 25VA)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	X1M	TERMINAL BLOCK (POWER)
K1M	MAGNETIC CONTACTOR (M1F•2F)	X2M-X3M	TERMINAL BLOCK
K2M	MAGNETIC CONTACTOR (M1F•2F)	X4M	TERMINAL BLOCK (CONTROL)
K3M	MAGNETIC CONTACTOR (M1F•2F)	Y1E	ELECTRONIC EXPANSION VALVE
K1R-K3R	MAGNETIC RELAY (M1F•2F)	CONNECTOR FOR OPTIONAL PARTS	
KPR	MAGNETIC RELAY (M1P)	X8A	CONNECTOR (FLOAT SWITCH)
M1F•M2F	MOTOR (INDOOR FAN)	X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)
Q1M•Q2M	THERMO. SWITCH (M1F•2F EMBEDDED)		



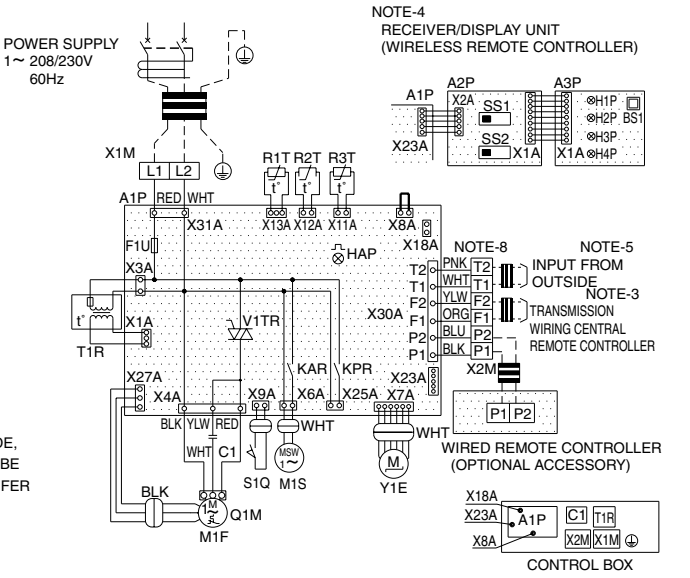
NOTES)
1. : TERMINAL BLOCK
, : CONNECTOR
: SHORT CIRCUIT CONNECTOR
: TERMINAL
2. : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
5. SYMBOLS SHOW AS FOLLOWS. (PNK: PINK WHT: WHITE YLW: YELLOW ORG: ORANGE BLU: BLUE BLK: BLACK RED: RED BRN: BROWN)
6. USE COPPER CONDUCTORS ONLY.
7. IN CASE HIGH E.S.P. OPERATION, CHANGE THE SWITCH (SS) FOR "H".
8. CLASS 2 WIRE.

3D065414D

FXHQ12/24/36MVJU

INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
C1	CAPACITOR (M1F)
F1U	FUSE (Ⓑ5A, 250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
KAR	MAGNETIC RELAY (M1S)
KPR	MAGNETIC RELAY
M1F	MOTOR (INDOOR FAN)
M1S	MOTOR (SWING FLAP)
Q1M	THERMO. SWITCH (M1F EMBEDDED)
R1T	THERMISTOR (AIR)
R2T	THERMISTOR (COIL LIQUID)
R3T	THERMISTOR (COIL GAS)
S1Q	LIMIT SWITCH (SWING FLAP)
T1R	TRANSFORMER (208-230V/25V)
V1TR	TRIAC
X1M	TERMINAL BLOCK (POWER)
X2M	TERMINAL BLOCK (CONTROL)
Y1E	ELECTRONIC EXPANSION VALVE
RECEIVER/DISPLAY UNIT (ATTACHED TO WIRELESS REMOTE CONTROLLER)	
A2P	PRINTED CIRCUIT BOARD
A3P	PRINTED CIRCUIT BOARD
BS1	BS BUTTON (ON/OFF)
H1P	LIGHT EMITTING DIODE (ON-RED)
H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
SS1	SELECTOR SWITCH (MAIN/SUB)
SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
CONNECTOR FOR OPTIONAL PARTS	
X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)
X23A	CONNECTOR (WIRELESS REMOTE CONTROLLER)

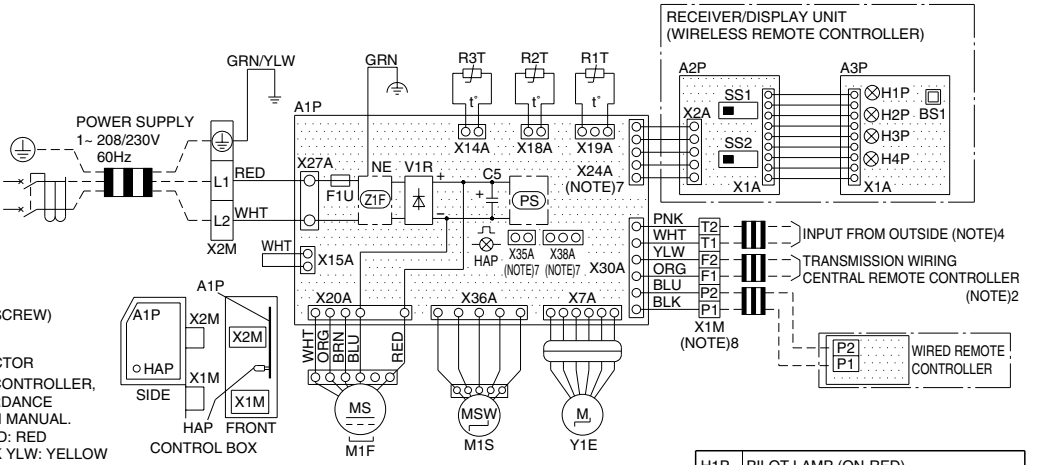
NOTES)
1. ▭▭ : TERMINAL BLOCK ⊙⊙, ⫴ : CONNECTOR
   ⊐ : SHORT CIRCUIT CONNECTOR
2. ⫴ : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. X23A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
5. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
6. SYMBOLS SHOW AS FOLLOWS.
   (BLU: BLUE BLK: BLACK ORG: ORANGE PNK: PINK
   RED: RED WHT: WHITE YLW: YELLOW)
7. USE COPPER CONDUCTORS ONLY.
8. CLASS 2 WIRE



3D048116B

FXAQ07/09/12/18/24PVJU

(NOTES)
1. ▭▭▭ : TERMINAL
   ⫴ : FIELD WIRING
   ⊙⊙ : CONNECTOR
   ⊐ : CONNECTOR
   ⏚ : PROTECTIVE GROUND (SCREW)
   ⏚ : NOISELESS GROUND
   ⊙⊙ : SHORT CIRCUIT CONNECTOR
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. SYMBOLS SHOWS AS FOLLOWS: RED: RED WHT: WHITE GRN: GREEN PNK: PINK YLW: YELLOW BLK: BLACK ORG: ORANGE BRN: BROWN BLU: BLUE
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED TO THE UNIT.
5. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING DATA AND CATALOGS, ETC. BEFORE CONNECTING.
6. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH (SS1, SS2) OF WIRELESS REMOTE CONTROLLER BY INSTALLATION MANUAL AND ENGINEERING DATA, ETC.
7. X15A, X24A, X35A AND X38A ARE CONNECTED WHEN THE OPTIONAL ACCESSORIES ARE BEING USED.
8. CLASS 2 WIRE



INDOOR UNIT					
A1P	PRINTED CIRCUIT BOARD	V1R	DIODE BRIDGE	H1P	PILOT LAMP (ON-RED)
C5	CAPACITOR	X1M	TERMINAL BLOCK (CONTROL)	H2P	PILOT LAMP (TIMER-GREEN)
F1U	FUSE (T3.15AH 250V)	X2M	TERMINAL BLOCK (POWER)	H3P	PILOT LAMP (FILTER SIGN-RED)
HAP	FLASHING LAMP (SERVICE MONITOR GREEN)	Y1E	ELECTRONIC EXPANSION VALVE	H4P	PILOT LAMP (DEFROST-ORANGE)
		Z1F	NOISE FILTER	SS1	SELECTOR SWITCH (MAIN/SUB)
		PS	SWITCHING POWER SUPPLY	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
M1F	MOTOR (INDOOR FAN)	RECEIVER/DISPLAY UNIT (ATTACHED TO WIRELESS REMOTE CONTROLLER)		CONNECTOR FOR OPTIONAL PARTS	
M1S	MOTOR (SWING FLAP)			X15A	CONNECTOR (FLOAT SWITCH)
R1T	THERMISTOR (AIR)	A2P	PRINTED CIRCUIT BOARD	X24A	CONNECTOR (WIRELESS REMOTE CONTROLLER)
R2T	THERMISTOR (COIL LIQUID PIPE)	A3P	PRINTED CIRCUIT BOARD	X35A	CONNECTOR (GROUP CONTROL ADAPTOR)
R3T	THERMISTOR (COIL GAS PIPE)	BS1	BS BUTTON (ON/OFF)	X38A	CONNECTOR (ADAPTOR FOR MULTI TENANT)

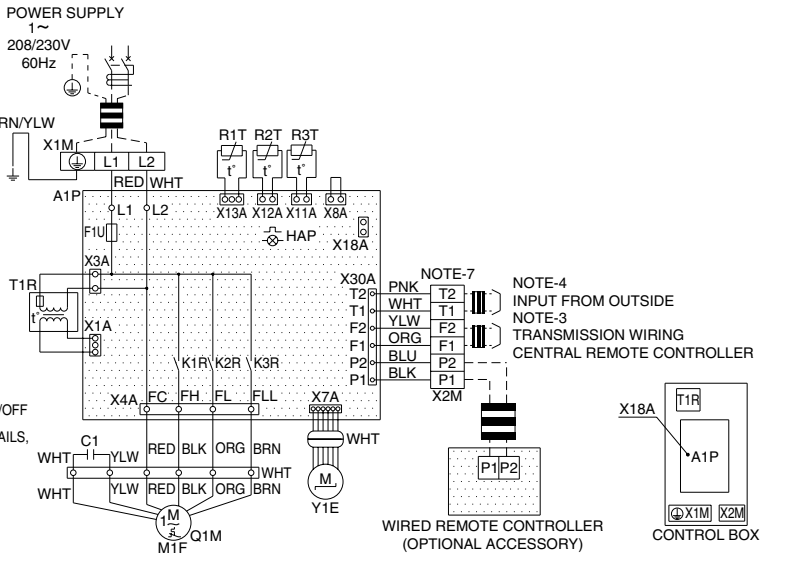
3D075354B

FXLQ07/09/12/18/24MVJU, FXNQ07/09/12/18/24MVJU

INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
C1	CAPACITOR (M1F)
F1U	FUSE (Ⓑ, 5A, 250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
K1R-K3R	MAGNETIC RELAY (M1F)
M1F	MOTOR (INDOOR FAN)
Q1M	THERMO. SWITCH (M1F EMBEDDED)
R1T	THERMISTOR (AIR)
R2T-R3T	THERMISTOR (COIL)
T1R	TRANSFORMER (208-230V/25V)
X1M	TERMINAL BLOCK (POWER)
X2M	TERMINAL BLOCK (CONTROL)
Y1E	ELECTRONIC EXPANSION VALVE
CONNECTOR FOR OPTIONAL PARTS	
X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)

NOTES)

1. □□□ : TERMINAL BLOCK, ⊙⊙ , ⊃— : CONNECTOR, —○ TERMINAL
2. : FIELD WIRING, ⊙⊙ SHORT CIRCUIT CONNECTOR
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED TO THE UNIT.
5. SYMBOLS SHOW AS FOLLOWS. (PNK: PINK WHT: WHITE YLW: YELLOW ORG: ORANGE BLU: BLUE BLK: BLACK RED: RED BRN: BROWN GRN: GREEN)
6. USE COPPER CONDUCTORS ONLY.
7. CLASS 2 WIRE.



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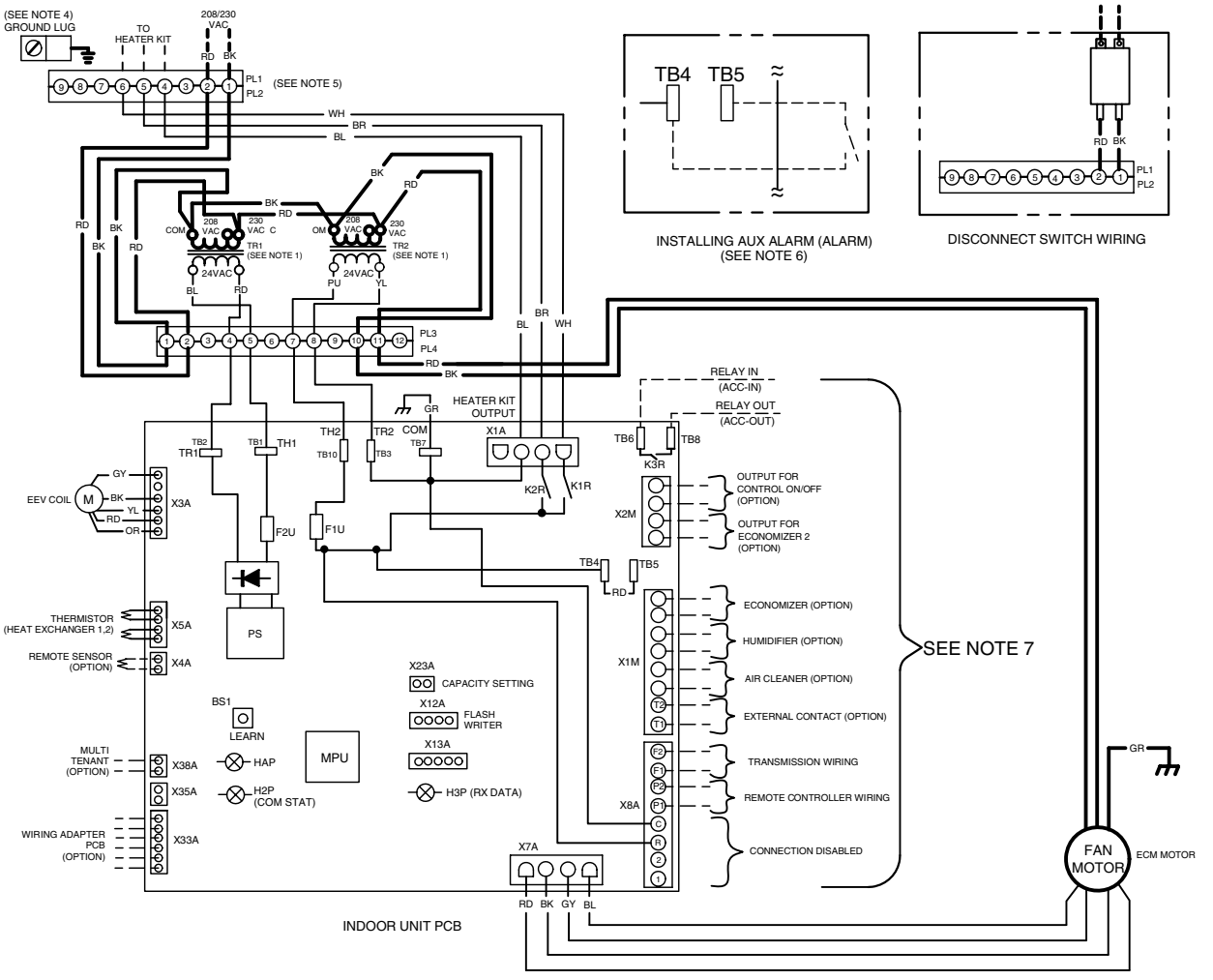
FXTQ09/12/18/24/30/36/42/48/54/60TAVJUA(D)



NOTES:
1. PLACE RED WIRES ON 208 V TERMINAL OF 2-TRANSFORMER (TR1/TR2) FOR 208 VAC OPERATION.
2. MANUFACTURER'S SPECIFIED REPLACEMENT PARTS MUST BE USED WHEN SERVICING.
3. IF ANY OF THE ORIGINAL WIRES AS SUPPLIED WITH THIS UNIT MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105˚C. USE COPPER CONDUCTORS ONLY.
4. UNIT MUST BE PERMANENTLY GROUNDED AND CONFIRM TO N.E.C AND LOCAL CODES.
5. DISCARD CONNECTOR PL1 WHEN INSTALLING OPTIONAL HEAT KIT.
6. REMOVE SHORT RED CIRCUITING WIRE AND PUT AUX ALARM SWITCH WHEN INSTALLING AUX ALARM SWITCH.
7. USE N.E.C CLASS 2 WIRE.

INTEGRATED CONTROL:
- LOW VOLTAGE
- LOW VOLTAGE FIELD
- HIGH VOLTAGE
- HIGH VOLTAGE FIELD
- JUNCTION
- TERMINAL
- PLUG CONNECTION
- EQUIPMENT GND
- FIELD GROUND

COLOR CODES:
- BL - BLUE
- RD - RED
- YL - YELLOW
- OR - ORANGE
- BK - BLACK
- GY - GREY
- BR - BROWN
- GR - GREEN
- WH - WHITE
- PU - PURPLE

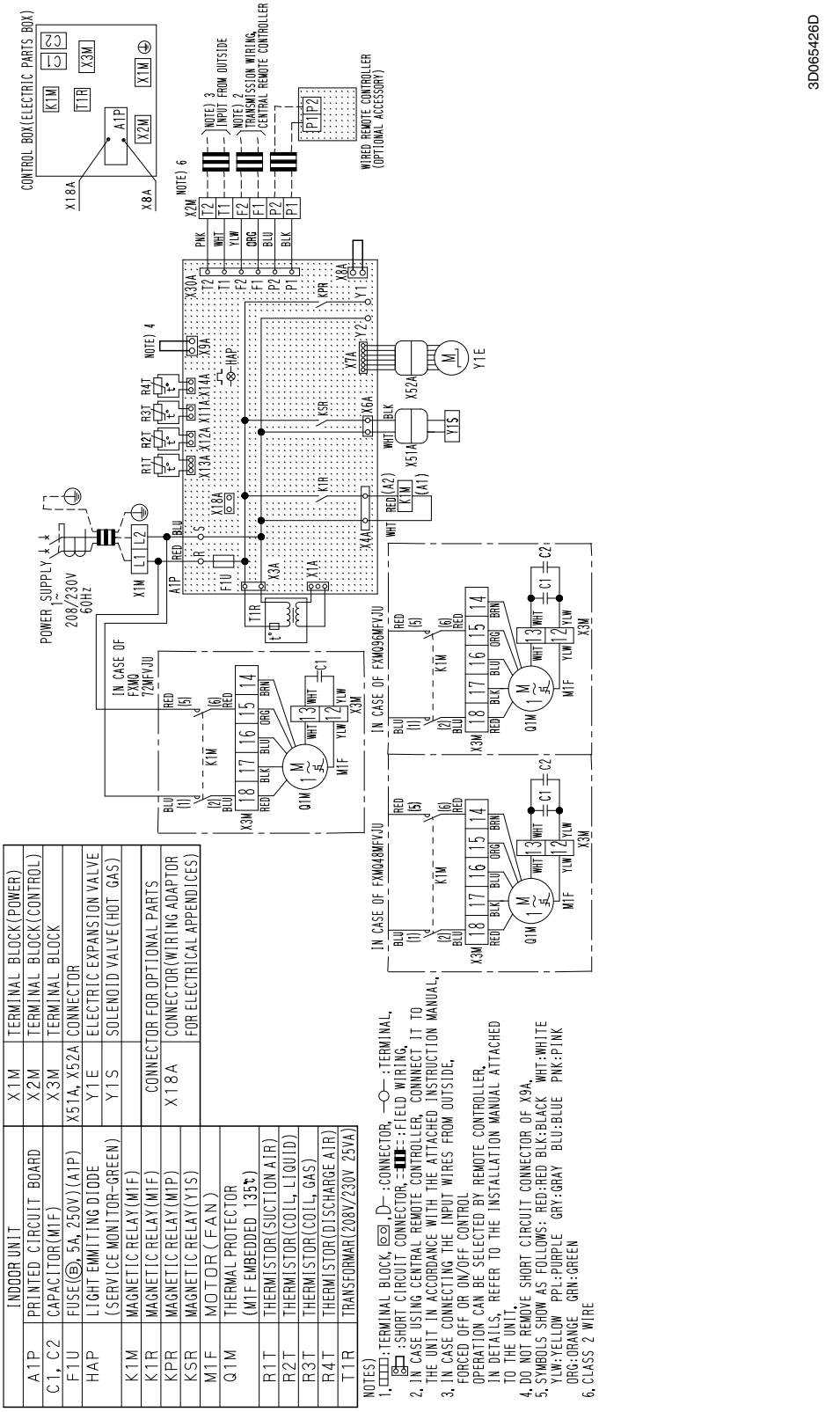
COMPONENT CODES:
- PL1, PL2 — POWER/HEATER KIT/ DISCONNECT SWITCH CONNECTOR
- TR1, TR2 — TRANSFORMER
- F1U, F2U — FUSE LINK
- PL3, PL4 — TRANSFORMER CONNECTOR

0140A00500A

1.3 Air Treatment Equipment

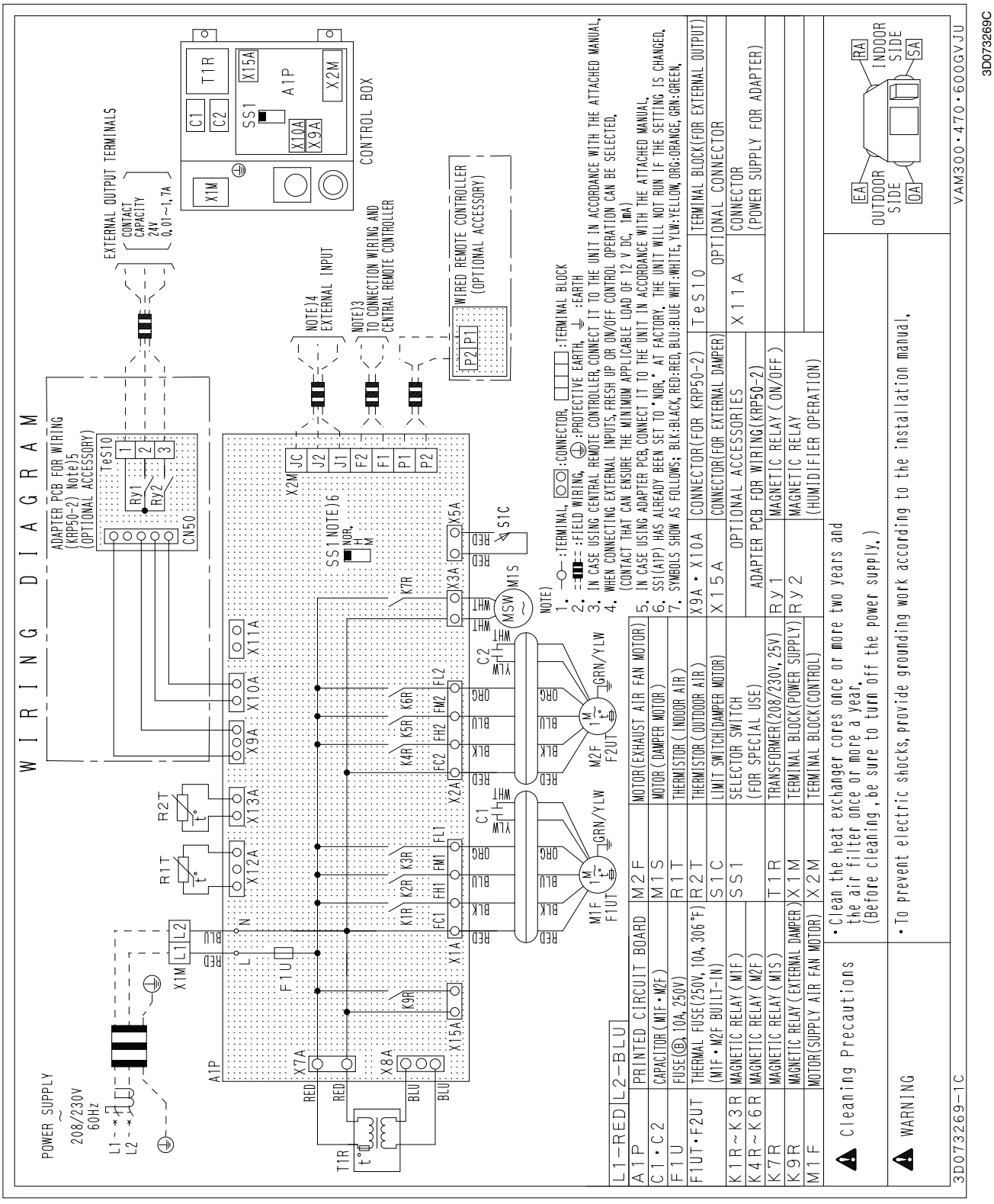
1.3.1 Outdoor-Air Processing Unit

FXMQ48/72/96MFVJU

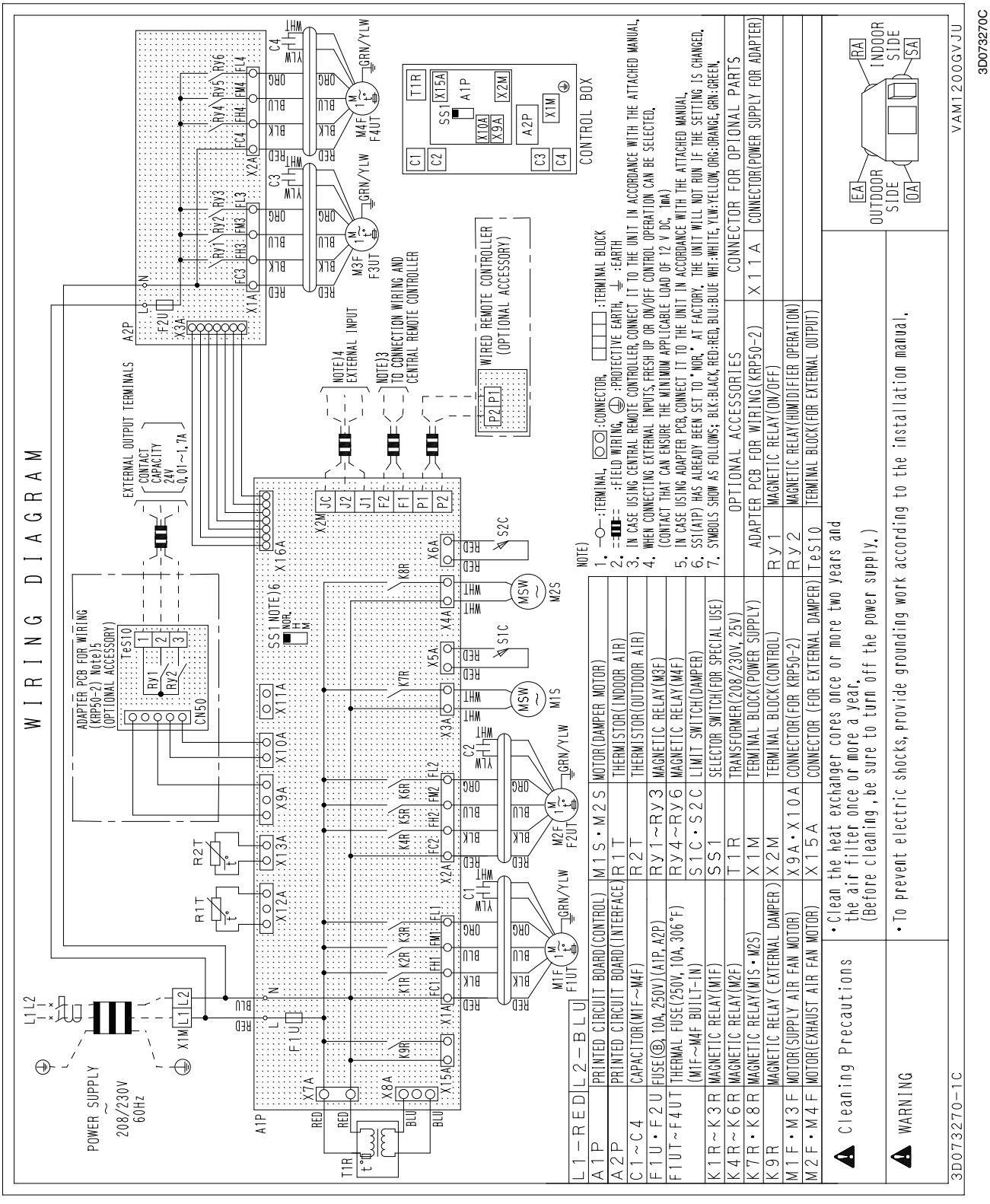


1.3.2 Energy Recovery Ventilator (VAM Series)

VAM300/470/600GVJU



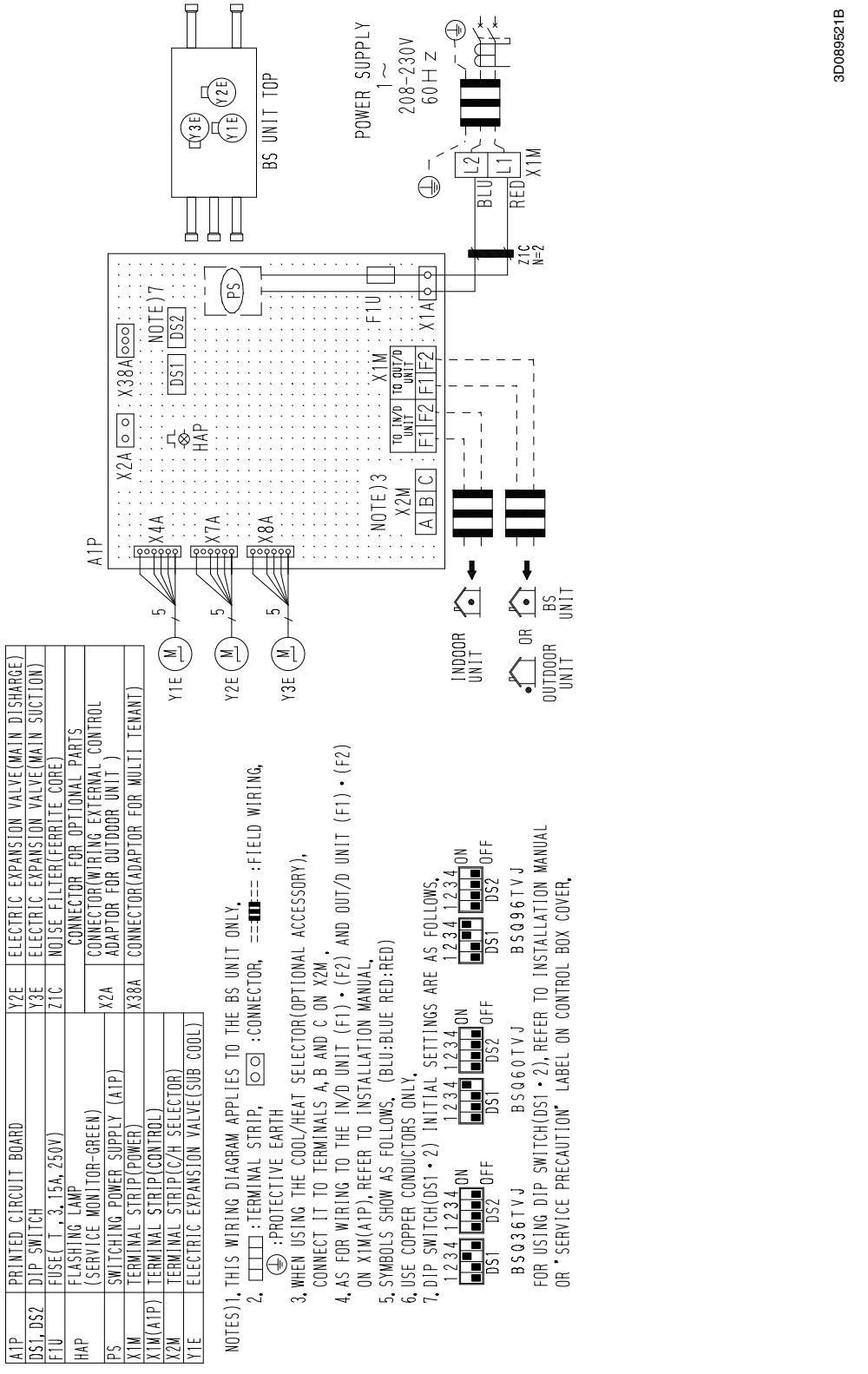
VAM1200GVJU



1.4 Branch Selector Unit

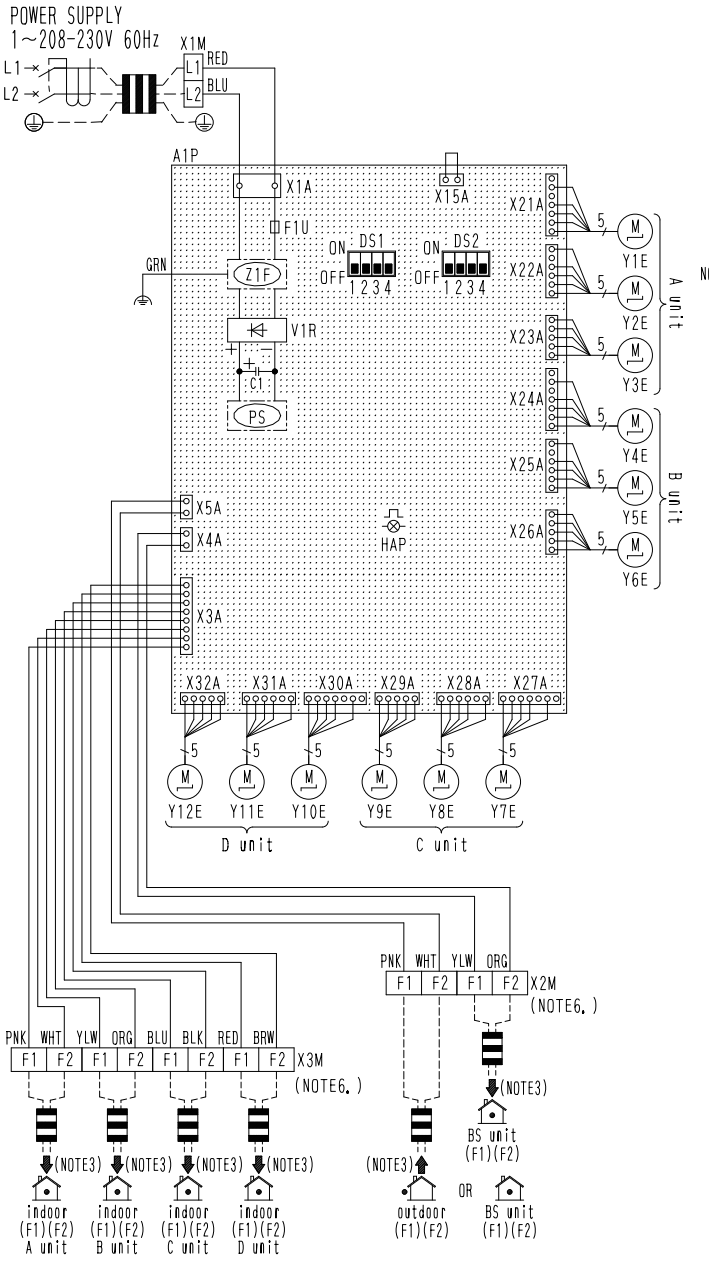
1.4.1 Single Branch Selector Unit

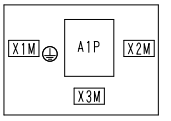
BSQ36/60/96TVJ



1.4.2 Multi Branch Selector Unit

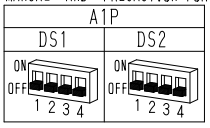
BS4Q54TVJ





LAYOUT OF CONTROL BOX

NOTE) 1. THIS WIRING DIAGRAM IS FOR BS UNIT ONLY.
2. THE MARKS IN THIS DIAGRAM INDICATE;
:TERMINAL BLOCK, :CONNECTOR,
:FIELD WIRING, :PROTECTIVE EARTH,
:NOISELESS EARTH
3. FOR WIRING FOR THE TERMINAL BLOCK X2M・X3M (OPERATION), REFER TO THE INSTALLATION MANUAL ATTACHED TO THE PRODUCT.
4. THE FACTORY SETTING OF DIP SWITCH (DS1・DS2) ARE AS FOLLOWS. FOR THE SETTING METHOD OF DIP SWITCH (DS1・DS2), REFER TO "THE INSTALLATION MANUAL" AND "PRECAUTION FOR SERVICE" ATTACHED ON THE CONTROL BOX COVER.



5. COLORS RED:RED;BLU:BLUE;GRN:GREEN;PNK:PINK;WHT:WHITE;YLW:YELLOW; ORG:ORANGE;BLK:BLACK;BRW:BROWN.
6. CLASS 2 WIRE.

A1P	PRINTED CIRCUIT BOARD(CONTROL)	
C1	CAPACITOR	
DS1, DS2	DIP SWITCH	
F1U	FUSE(T, 3.15A, 250V)	
HAP	FLASHING LAMP(SERVICE MONITOR-GREEN)	
PS	SWITCHING POWER SUPPLY	
V1R	DIODE BRIDGE	
X1M	TERMINAL STRIP(POWER)	
X2M, X3M	TERMINAL STRIP(TRANSMISSION)	
Z1F	NOISE FILTER	
Y1E	ELECTRIC EXPANSION VALVE(SUCTION)	A unit
Y2E	ELECTRIC EXPANSION VALVE(HP/LP GAS)	
Y3E	ELECTRIC EXPANSION VALVE(SUB COOL)	
Y4E	ELECTRIC EXPANSION VALVE(SUCTION)	B unit
Y5E	ELECTRIC EXPANSION VALVE(HP/LP GAS)	
Y6E	ELECTRIC EXPANSION VALVE(SUB COOL)	
Y7E	ELECTRIC EXPANSION VALVE(SUCTION)	C unit
Y8E	ELECTRIC EXPANSION VALVE(HP/LP GAS)	
Y9E	ELECTRIC EXPANSION VALVE(SUB COOL)	
Y10E	ELECTRIC EXPANSION VALVE(SUCTION)	D unit
Y11E	ELECTRIC EXPANSION VALVE(HP/LP GAS)	
Y12E	ELECTRIC EXPANSION VALVE(SUB COOL)	

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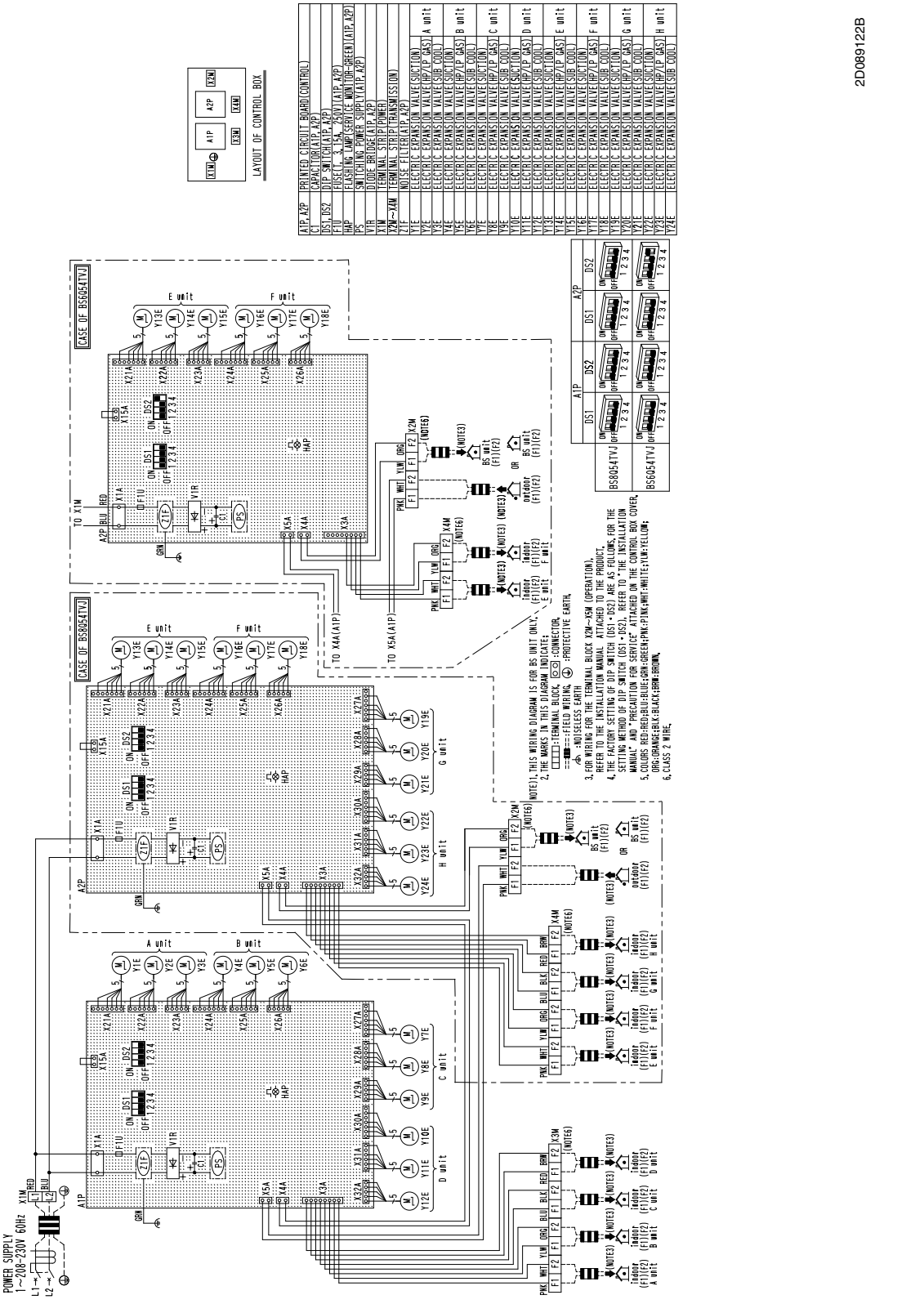
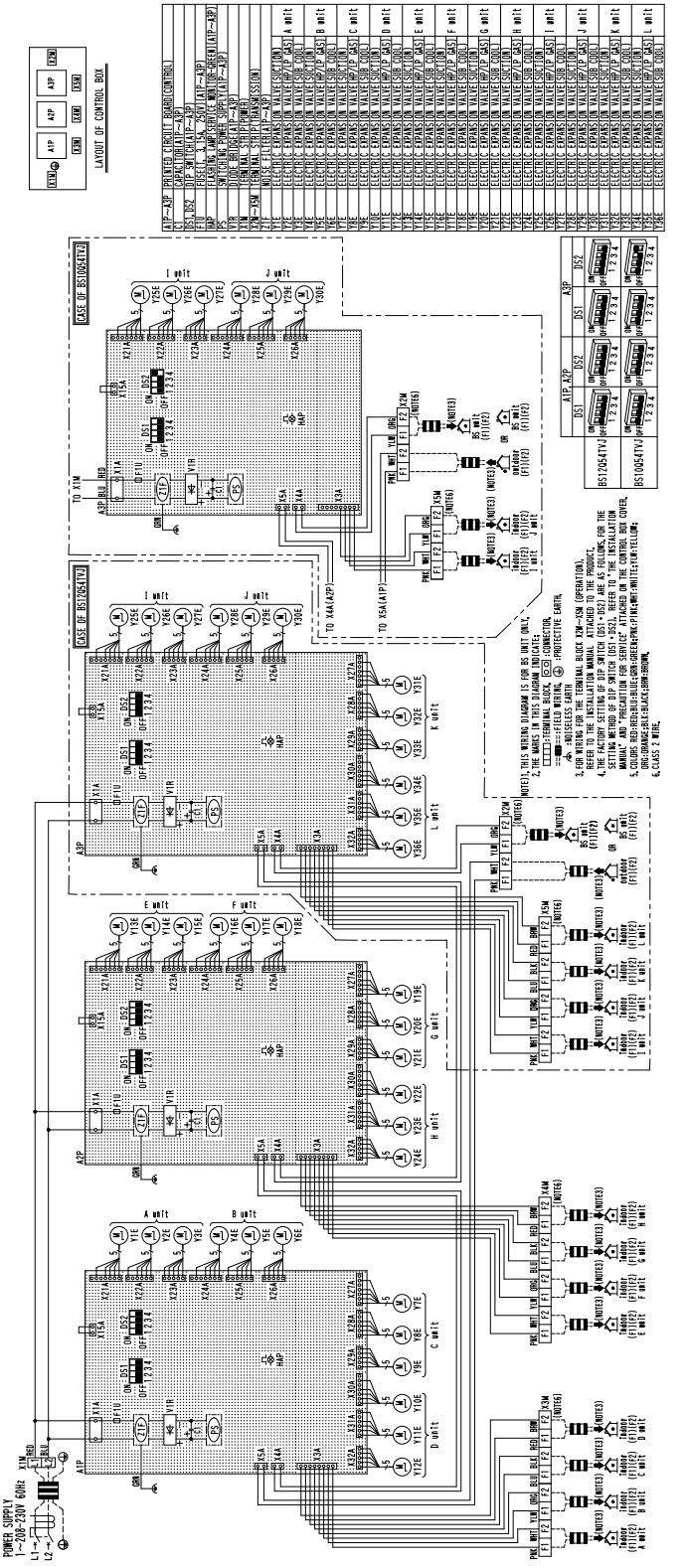
BS6/8Q54TVJ


2D089122B
A1P, A2P PRINTED CIRCUIT BOARD(CONTROL)
C1 CAPACITOR(A1P, A2P)
DS1, DS2 DIP SWITCH(A1P, A2P)
F1U FUSE(T, 3.15A, 250V)(A1P, A2P)
HAP FLASHING LAMP(SERVICE MONITOR-GREEN)(A1P, A2P)
PS SWITCHING POWER SUPPLY(A1P, A2P)
V1R DIODE BRIDGE(A1P, A2P)
X1M TERMINAL STRIP(POWER)
X2M~X4M TERMINAL STRIP(TRANSMISSION)
Z1F NOISE FILTER(A1P, A2P)
Y1E ELECTRIC EXPANSION VALVE(SUCTION) A unit
Y2E ELECTRIC EXPANSION VALVE(HP/LP GAS)
Y3E ELECTRIC EXPANSION VALVE(SUB COOL)
Y4E ELECTRIC EXPANSION VALVE(SUCTION) B unit
Y5E ELECTRIC EXPANSION VALVE(HP/LP GAS)
Y6E ELECTRIC EXPANSION VALVE(SUB COOL)
Y7E ELECTRIC EXPANSION VALVE(SUCTION) C unit
Y8E ELECTRIC EXPANSION VALVE(HP/LP GAS)
Y9E ELECTRIC EXPANSION VALVE(SUB COOL)
Y10E ELECTRIC EXPANSION VALVE(SUCTION) D unit
Y11E ELECTRIC EXPANSION VALVE(HP/LP GAS)
Y12E ELECTRIC EXPANSION VALVE(SUB COOL)
Y13E ELECTRIC EXPANSION VALVE(SUCTION) E unit
Y14E ELECTRIC EXPANSION VALVE(HP/LP GAS)
Y15E ELECTRIC EXPANSION VALVE(SUB COOL)
Y16E ELECTRIC EXPANSION VALVE(SUCTION) F unit
Y17E ELECTRIC EXPANSION VALVE(HP/LP GAS)
Y18E ELECTRIC EXPANSION VALVE(SUB COOL)
Y19E ELECTRIC EXPANSION VALVE(SUCTION) G unit
Y20E ELECTRIC EXPANSION VALVE(HP/LP GAS)
Y21E ELECTRIC EXPANSION VALVE(SUB COOL)
Y22E ELECTRIC EXPANSION VALVE(SUCTION) H unit
Y23E ELECTRIC EXPANSION VALVE(HP/LP GAS)
Y24E ELECTRIC EXPANSION VALVE(SUB COOL)
LAYOUT OF CONTROL BOX
A1P
A2P
X1M
X2M
X3M
X4M
A2P
DS1
DS2
BS8Q54TVJ
BS6Q54TVJ
CASE OF BS8Q54TVJ
CASE OF BS6Q54TVJ
A unit
B unit
C unit
D unit
E unit
F unit
G unit
H unit
POWER SUPPLY
1~/208-230V 60Hz
L1
L2
TO X1M
TO X5A(A1P)
TO X4A(A1P)
BS unit (F1)(F2)
outdoor (F1)(F2)
indoor (F1)(F2)
(NOTE3)
(NOTE6)
NOTE1. THIS WIRING DIAGRAM IS FOR 8S UNIT ONLY.
2. THE MARKS IN THIS DIAGRAM INDICATE:
: TERMINAL BLOCK, : CONNECTOR,
: FIELD WIRING, : PROTECTIVE EARTH,
: NOISELESS EARTH
3. FOR WIRING FOR THE TERMINAL BLOCK X2M~X5M (OPERATION),
REFER TO THE INSTALLATION MANUAL ATTACHED TO THE PRODUCT.
4. THE FACTORY SETTING OF DIP SWITCH (DS1・DS2) ARE AS FOLLOWS. FOR THE
SETTING METHOD OF DIP SWITCH (DS1・DS2), REFER TO "THE INSTALLATION
MANUAL" AND "PRECAUTION FOR SERVICE" ATTACHED ON THE CONTROL BOX COVER.
5. COLORS RED:RED;BLU:BLUE;GRN:GREEN;PNK:PINK;WHT:WHITE;YLW:YELLOW;
ORG:ORANGE;BLK:BLACK;BRN:BROWN.
6. CLASS 2 WIRE.

BS10/12Q54TVJ



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Revision History

Month / Year	Version	Revised contents
06 / 2017	SiUS371703E	First edition
11 / 2017	SiUS371703EA	Model addition: FXZQ05-18TAVJU, RELQ72-240TATJU, RELQ72-240TAYDU

Warning

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

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

Cautions on product corrosion

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

Dealer

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●Specifications, designs and other content appearing in this brochure are current as of November 2017 but subject to change without notice.

SiUS371703EA
11/2017 AK. K