DAIKIN

SiMT371502E

R-410A

Service Manual

VRV IV

High-COP Type REYQ16-32THY1(E)
Standard Type REYQ8-60TY1(E)

Heat Recovery 50 Hz

VRV IV
Heat Recovery
R-410A 50 Hz

ED Reference

For items below, please refer to Engineering Data.

No.	Item	ED No.	Page
1	Specification - Indoor Unit	EDAU371505	28-29, 44-45, 60-61, 78, 88-89, 106, 120-121, 138-139, 160-162, 180-181, 200-202, 228, 240, 254-255, 268-271, 290, 312, 326-328
		EDMT371515	28-29, 44-45, 60-61, 78, 88-89, 106, 120-121, 142-144, 170, 182, 196-197, 210-213, 230-231, 272, 294, 308-310
2	Specification - Outdoor Unit	EDAU371505	360-363, 394-407
		EDMT371515	342-345, 376-389
3	Option List	EDAU371505	594-596
		EDMT371515	576-578
4	Charging Refrigerant	EDAU371505	536-539
		EDMT371515	518-521

1. Introduction

1.1 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.

Caution Items

The caution items are classified into ⚠ **Warning** and ⚠ **Caution**. The ⚠ **Warning** items are especially important since they can lead to death or serious injury 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.

1.1.1 Warnings and Cautions Regarding Safety of Workers

⚠ Warning	
Do not store the equipment in a room with successive fire sources (e.g., naked flame, gas appliance, electric heater).	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for repair. Working on the 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 the refrigerant gas is discharged during the repair work, do not touch the discharged refrigerant gas. The 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 the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas may generate toxic gases when it contacts flames.	
Be sure to discharge the capacitor completely before conducting repair work. The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. A charged capacitor may cause an electrical shock.	

⚠ Warning	
Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug 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 at a high place (more than 2 m). Insufficient safety measures may cause a fall accident.	
In case of R-410A refrigerant models, be sure to use pipes, flare nuts and tools for the exclusive use of the R-410A refrigerant. The use of materials for R-22 refrigerant models may cause a serious accident such as a damage of refrigerant cycle as well as an equipment failure.	
Do not mix air or gas other than the specified refrigerant (R-410A / R-22) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.	

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

Caution	
Use the welder in a well-ventilated place. Using the welder in an enclosed room may cause oxygen deficiency.	

1.1.2 Warnings and Cautions Regarding Safety of Users

Warning	
Do not store the equipment in a room with successive fire sources (e.g., naked flame, gas appliance, electric heater).	
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 have scratches or deteriorated, be sure to replace them. Damaged cable and wires may cause an electrical shock, excessive heat generation or fire.	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it may cause an electrical shock, excessive heat generation or fire.	
Be sure to use an exclusive power circuit for the equipment, and follow the local technical standards related to the electrical equipment, the internal wiring regulations, and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work may cause an electrical shock or fire.	
Be sure to use the specified cable for wiring between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections may cause excessive heat generation or fire.	
When wiring between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section may cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable may cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable may damage the cable.	

Warning	
Do not mix air or gas other than the specified refrigerant (R-410A / R-22) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leaking point and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leaking point cannot be located and the repair work must be stopped, be sure to perform pump down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it may generate toxic gases when it contacts flames, such as fan 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 and 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 has dust or loose connection, it may cause an electrical shock or fire.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation may cause the equipment to fall, resulting in injury.	For unitary type only 
Be sure to install the product securely in the installation frame mounted on the window frame. If the unit is not securely mounted, it may fall and cause injury.	For unitary type only 
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 the combustible gas leaks and remains around the unit, it may cause a fire.	

⚠ Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections may cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame may cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding may cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 MΩ or higher. Defective insulation may cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Defective drainage may cause the 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.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water may enter the room and wet the furniture and floor.	For unitary type only 

1.2 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, loose 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 of Indoor/Outdoor Units

1.1 Indoor Units

***VRV* Indoor Units**

Capacity range		2.2kW	2.8kW	3.6kW	4.5kW	5.6kW	7.1kW	8.0kW	9.0kW	11.2kW	14.0kW	16.0kW	16.2kW	20.0kW	22.4kW	28.0kW	Power supply, Standard
Capacity index		20	25	31.25	40	50	62.5	71	80	100	125	140	145	180	200	250	
Ceiling Mounted Cassette (Round Flow with Sensing) Type	FXFQ	—	25S	32S	40S	50S	63S	—	80S	100S	125S	—	—	—	—	—	VM
Ceiling Mounted Cassette (Round Flow) Type	FXFQ*2	—	25LU	32LU	40LU	50LU	63LU	—	80LU	100LU	125LU	—	—	—	—	—	V1
	FXFQ*1	—	25P	32P	40P	50P	63P	—	80P	100P	125P	—	—	—	—	—	VE
Ceiling Mounted Cassette (Compact Multi Flow) Type	FXZQ	20M	25M	32M	40M	50M	—	—	—	—	—	—	—	—	—	—	
4-Way Flow Ceiling Suspended Type	FXUQ	—	—	—	—	—	—	71A	—	100A	—	—	—	—	—	—	VEB
Ceiling Mounted Cassette (Double Flow) Type	FXCQ	20M	25M	32M	40M	50M	63M	—	80M	—	125M	—	—	—	—	—	VE
Ceiling Mounted Cassette Corner Type	FXKQ	—	25MA	32MA	40MA	—	63MA	—	—	—	—	—	—	—	—	—	
Slim Ceiling Mounted Duct Type (Standard Series)	FXDQ-PBVE	20PB	25PB	32PB	—	—	—	—	—	—	—	—	—	—	—	—	VE
	FXDQ-PBVET*2	20PB	25PB	32PB	—	—	—	—	—	—	—	—	—	—	—	—	
	FXDQ-NBVE	—	—	—	40NB	50NB	63NB	—	—	—	—	—	—	—	—	—	
	FXDQ-NBVET*2	—	—	—	40NB	50NB	63NB	—	—	—	—	—	—	—	—	—	
Slim Ceiling Mounted Duct Type (Compact Series)	FXDQ-SP*1	20SP	25SP	32SP	40SP	50SP	63SP	—	—	—	—	—	—	—	—	—	V1
Ceiling Mounted Built-in Type (Aus. exclusive use)	FXSYQ*1	20M	25M	32M	40M	50M	63M	—	80M	100M	125M	—	—	—	—	—	VE
Ceiling Concealed (Duct) Type (Aus. exclusive use)	FXDYQ*1	—	—	—	—	—	—	—	80MA	100MA	125MA	—	145MA	180M	200M	250M	V1
Ceiling Mounted Duct Type	FXMQ	20P	25P	32P	40P	50P	63P	—	80P	100P	125P	140P	—	—	—	—	VE
	FXMQ	—	—	—	—	—	—	—	—	—	—	—	—	—	200MA	250MA	
Ceiling Suspended Type	FXHQ	—	—	32MA	—	—	63MA	—	—	100MA	—	—	—	—	—	—	
Wall Mounted Type	FXAQ	20P	25P	32P	40P	50P	63P	—	—	—	—	—	—	—	—	—	
Floor Standing Type	FXLQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	—	—	
Concealed Floor Standing Type	FXNQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	—	—	
Floor Standing Duct Type	FXVQ*2	—	—	—	—	—	—	—	—	—	125N	—	200N	250N	400N	500N	Y1

VE: 1 phase, 220-240/220V, 50/60Hz
V1: 1 phase, 220-240V, 50Hz
VM: 1 phase, 220-240/220-230V, 50/60Hz
Y1: 3 phase, 380-415V, 50Hz

Note: ∗1. Aus. exclusive use
∗2. except Aus. use

1.2 Outdoor Units

High-COP Type

Series	Model name									Power supply, standard
Heat Recovery	REYQ	16TH	18TH	20TH	24TH	26TH	28TH	30TH	32TH	Y1(E)

Standard Type

Series	Model name										Power supply
Heat Recovery	REYQ	8T	10T	12T	14T	16T	18T	20T	22T	24T	26T	Y1(E)
		28T	30T	32T	34T	36T	38T	40T	42T	44T	46T	
		48T	50T	52T	54T	56T	58T	60T	—	—	—	

Y1: 3 phase, 380-415V, 50Hz

E: The unit with anti corrosion treatment

Combination of Outdoor Units (High-COP Type)

Class	16	18	20	24	26	28	30	32
Model name	**REYQ16TH**	**REYQ18TH**	**REYQ20TH**	**REYQ24TH**	**REYQ26TH**	**REYQ28TH**	**REYQ30TH**	**REYQ32TH**
Outdoor unit 1	REYQ8T	REYQ8T	REYQ8T	REYQ8T	REYQ8T	REYQ8T	REYQ8T	REYQ8T
Outdoor unit 2	REYQ8T	REYQ10T	REYQ12T	REYQ8T	REYQ8T	REYQ8T	REYQ10T	REYQ12T
Outdoor unit 3	–	–	–	REYQ8T	REYQ10T	REYQ12T	REYQ12T	REYQ12T

Combination of Outdoor Units (Standard Type)

Class	8	10	12	14	16	18	20
Model name	**REYQ8T**	**REYQ10T**	**REYQ12T**	**REYQ14T**	**REYQ16T**	**REYQ18T**	**REYQ20T**

Class	22	24	26	28	30	32	34	36
Model name	**REYQ22T**	**REYQ24T**	**REYQ26T**	**REYQ28T**	**REYQ30T**	**REYQ32T**	**REYQ34T**	**REYQ36T**
Outdoor unit 1	REYQ10T	REYQ12T	REYQ12T	REYQ12T	REYQ12T	REYQ16T	REYQ16T	REYQ16T
Outdoor unit 2	REYQ12T	REYQ12T	REYQ14T	REYQ16T	REYQ18T	REYQ16T	REYQ18T	REYQ20T
Outdoor unit 3	–	–	–	–	–	–	–	–

Class	38	40	42	44	46	48	50	52
Model name	**REYQ38T**	**REYQ40T**	**REYQ42T**	**REYQ44T**	**REYQ46T**	**REYQ48T**	**REYQ50T**	**REYQ52T**
Outdoor unit 1	REYQ8T	REYQ10T	REYQ10T	REYQ12T	REYQ14T	REYQ16T	REYQ16T	REYQ16T
Outdoor unit 2	REYQ10T	REYQ12T	REYQ16T	REYQ16T	REYQ16T	REYQ16T	REYQ16T	REYQ18T
Outdoor unit 3	REYQ20T	REYQ18T	REYQ16T	REYQ16T	REYQ16T	REYQ16T	REYQ18T	REYQ18T

Class	54	56	58	60
Model name	**REYQ54T**	**REYQ56T**	**REYQ58T**	**REYQ60T**
Outdoor unit 1	REYQ18T	REYQ18T	REYQ18T	REYQ20T
Outdoor unit 2	REYQ18T	REYQ18T	REYQ20T	REYQ20T
Outdoor unit 3	REYQ18T	REYQ20T	REYQ20T	REYQ20T

1.3 Air Treatment Equipment

Outdoor-air Processing Unit

Series	Model name			Power supply
FXMQ	125MF	200MF	250MF	V1

V1: 1 phase, 220-240V, 50Hz

Heat Reclaim Ventilator (VKM series)

Series		Model name			Power supply
Heat Reclaim Ventilator with DX coil	VKM	50GA	80GA	100GA	V1
Heat Reclaim Ventilator with DX coil and humidifier		50GAM	80GAM	100GAM	

Note: For details, refer to Engineering Data ED71-440B.

V1: 1 phase, 220-240V, 50Hz

Heat Reclaim Ventilator (VAM series)

Series		Model name								Power supply
Heat Reclaim Ventilator	VAM	150GJ	250GJ	350GJ	500GJ	650GJ	800GJ	1000GJ	1500GJ	2000GJ	VE

Note: For details, refer to Engineering Data ED71-613.

VE: 1 phase, 220-240/220V, 50/60Hz

1.4 BS Units

Single BS Unit for Heat Recovery

Series		Model name			Power supply
Heat Recovery	BSQ	100A	160A	250A	V1

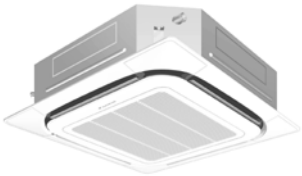
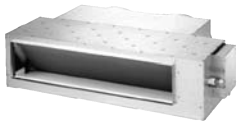
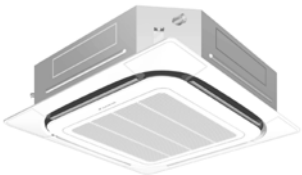
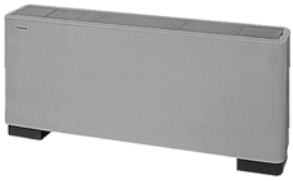
Multi BS Unit for Heat Recovery

Series		Model name						Power supply
Heat Recovery	BS	4Q14A	6Q14A	8Q14A	10Q14A	12Q14A	16Q14A	V1

V1:1 phase, 220-240V, 50Hz

2. External Appearance

2.1 Indoor Units

Ceiling mounted cassette (Round flow with sensing) type FXFQ-S 	Ceiling mounted built-in type (Aus. exclusive use) FXSYQ-M 
Ceiling mounted cassette (Round flow) type (except Aus.) FXFQ-LU 	Ceiling concealed (Duct) type (Aus. exclusive use) FXDYQ-M(A) 
Ceiling mounted cassette (Round flow) type (Aus. exclusive use) FXFQ-P 	Ceiling mounted duct type FXMQ-P 
Ceiling mounted cassette (Compact multi flow) type FXZQ-M 	Ceiling mounted duct type FXMQ-MA 
4-way flow ceiling suspended type FXUQ-A 	Ceiling suspended type FXHQ-MA 
Ceiling mounted cassette (Double flow) type FXCQ-M 	Wall mounted type FXAQ-P
Ceiling mounted cassette corner type FXKQ-MA 	Floor standing type FXLQ-MA 
Slim ceiling mounted duct type (Standard series) FXDQ-PB FXDQ-NB FXDQ-PBVET* FXDQ-NBVET* * (except Aus.) 	Concealed floor standing type FXNQ-MA 

Slim ceiling mounted duct type (Compact series) (Aus. exclusive use) FXDQ-SP 	Floor standing duct type (except Aus.) FXVQ-N 

2.2 Outdoor Units

High-COP Type

REYQ16 / 18 / 20TH	REYQ24 / 26 / 28 / 30 / 32TH
	

Standard Type

REYQ8 / 10 / 12T	REYQ14 / 16 / 18 / 20T	REYQ22 / 24T
		
REYQ26 / 28 / 30T	**REYQ32 / 34 / 36T**	**REYQ38 / 40T**
		
REYQ42 / 44T	**REYQ46 / 48 / 50 / 52 / 54 / 56 / 58 / 60T**	
		

2.3 Air Treatment Equipment

Outdoor-air processing unit	Heat reclaim ventilator (VKM series)	Heat reclaim ventilator (VAM series)
FXMQ-MF 	VKM-GA VKM-GAM  with DX coil (GA) with DX coil and humidifier (GAM)	VAM-GJ 

2.4 BS Units

Single BS unit

BSQ100AV1
BSQ160AV1
BSQ250AV1

Multi BS unit

BS4Q14AV1

Multi BS unit

BS6Q14AV1

Multi BS unit

BS8Q14AV1

Multi BS unit

BS10Q14AV1

Multi BS unit

BS12Q14AV1

Multi BS unit

BS16Q14AV1

3. Combination of Outdoor Units

High-COP Type

System capacity		Number of units	Module						Outdoor unit multi connection piping kit ★1
kW	HP		8	10	12	14	16	18	
44.8	16	2	●●						BHFP26P90
50.4	18	2	●	●					
55.9	20	2	●		●				
67.2	24	3	●●●						BHFP26P136
72.8	26	3	●●	●					
78.3	28	3	●●		●				
83.9	30	3	●	●	●				
89.4	32	3	●		●●				

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

Standard Type

System capacity		Number of units	Module							Outdoor unit multi connection piping kit ★1
kW	HP		8	10	12	14	16	18	20	
22.4	8	1	●							—
28.0	10	1		●						
33.5	12	1			●					
40.0	14	1				●				
45.0	16	1					●			
50.0	18	1						●		
56.0	20	1							●	
61.5	22	2		●	●					BHFP26P90
67.0	24	2			●●					
73.5	26	2			●	●				
78.5	28	2			●		●			
83.5	30	2			●			●		
90.0	32	2					●●			
95.0	34	2					●	●		
101	36	2					●		●	
106	38	3	●	●					●	BHFP26P136
112	40	3		●	●			●		
118	42	3		●			●●			
124	44	3			●		●●			
130	46	3				●	●●			
135	48	3					●●●			
140	50	3					●●	●		
145	52	3					●	●●		
150	54	3						●●●		
156	56	3						●●	●	
162	58	3						●	●●	
168	60	3							●●●	

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

4. Capacity Range

4.1 Combination Ratio

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

Type	Min. combination ratio	Max. combination ratio					
		Types of connected indoor units			Type of connected air treatment equipments		
					VKM	FXMQ-MF	
		FXDQ, FXSYQ, FXMQ-P, FXAQ	Including FXFQ25P, FXFQ-S at least one unit	Other indoor unit models	When VKM and indoor units are connected	When FXMQ-MF is only connected	When FXMQ-MF and indoor units are connected
Single outdoor units	50%	200%	130%	200%	130%	100%	100%*
Double outdoor units				160%			
Triple outdoor units				130%			

Notes: 1. For indoor units used for cooling only (do not connect to BS unit when using for heat recovery), total capacity index must be 50% or less than the capacity index of the outdoor units.

2. If the operational capacity of indoor units is more than 130%, low airflow operation is enforced in all the indoor units.

* 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%.

4.2 Outdoor Unit Combinations

High-COP Type

kW	HP	Capacity index	Model name	Combination	Outdoor unit multi connection piping kit *1	Total capacity index of connectable indoor units *2 *3	Maximum number of connectable indoor units *2
44.8	16	400	REYQ16TH	REYQ8T × 2	BHFP26P90	200 to 520 (640)	26 (32)
50.4	18	450	REYQ18TH	REYQ8T + REYQ10T		225 to 585 (720)	29 (36)
55.9	20	500	REYQ20TH	REYQ8T + REYQ12T		250 to 650 (800)	32 (40)
67.2	24	600	REYQ24TH	REYQ8T × 3	BHFP26P136	300 to 780 (780)	39 (39)
72.8	26	650	REYQ26TH	REYQ8T × 2 + REYQ10T		325 to 845 (845)	42 (42)
78.3	28	700	REYQ28TH	REYQ8T × 2 + REYQ12T		350 to 910 (910)	45 (45)
83.9	30	750	REYQ30TH	REYQ8T + REYQ10T + REYQ12T		375 to 975 (975)	48 (48)
89.4	32	800	REYQ32TH	REYQ8T + REYQ12T × 2		400 to 1,040 (1,040)	52 (52)

Notes: *1. For multiple connection, the outdoor unit multi connection piping kit (separately sold) is required.
*2. 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.
*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%.

Standard Type

kW	HP	Capacity index	Model name	Combination	Outdoor unit multi connection piping kit *1	Total capacity index of connectable indoor units *2 *3	Maximum number of connectable indoor units *2
22.4	8	200	REYQ8T	REYQ8T	—	100 to 260 (400)	13 (20)
28.0	10	250	REYQ10T	REYQ10T	—	125 to 325 (500)	16 (25)
33.5	12	300	REYQ12T	REYQ12T	—	150 to 390 (600)	19 (30)
40.0	14	350	REYQ14T	REYQ14T	—	175 to 455 (700)	22 (35)
45.0	16	400	REYQ16T	REYQ16T	—	200 to 520 (800)	26 (40)
50.0	18	450	REYQ18T	REYQ18T	—	225 to 585 (900)	29 (45)
56.0	20	500	REYQ20T	REYQ20T	—	250 to 650 (1000)	32 (50)
61.5	22	550	REYQ22T	REYQ10T + REYQ12T	BHFP26P90	275 to 715 (880)	35 (44)
67.0	24	600	REYQ24T	REYQ12T × 2		300 to 780 (960)	39 (48)
73.5	26	650	REYQ26T	REYQ12T + REYQ14T		325 to 845 (1,040)	42 (52)
78.5	28	700	REYQ28T	REYQ12T + REYQ16T		350 to 910 (1,120)	45 (56)
83.5	30	750	REYQ30T	REYQ12T + REYQ18T		375 to 975 (1,200)	48 (60)
90.0	32	800	REYQ32T	REYQ16T × 2		400 to 1,040 (1,280)	52 (64)
95.0	34	850	REYQ34T	REYQ16T + REYQ18T		425 to 1,105 (1,360)	55 (64)
101	36	900	REYQ36T	REYQ16T + REYQ20T		450 to 1,170 (1,440)	58 (64)
106	38	950	REYQ38T	REYQ8T + REYQ10T + REYQ20T	BHFP26P136	475 to 1,235 (1,235)	61 (61)
112	40	1,000	REYQ40T	REYQ10T + REYQ12T + REYQ18T		500 to 1,300 (1,300)	64 (64)
118	42	1,050	REYQ42T	REYQ10T + REYQ16T × 2		525 to 1,365 (1,365)	
124	44	1,100	REYQ44T	REYQ12T + REYQ16T × 2		550 to 1,430 (1,430)	
130	46	1,150	REYQ46T	REYQ14T + REYQ16T × 2		575 to 1,495 (1,495)	
135	48	1,200	REYQ48T	REYQ16T × 3		600 to 1,560 (1,560)	
140	50	1,250	REYQ50T	REYQ16T × 2 + REYQ18T		625 to 1,625 (1,625)	
145	52	1,300	REYQ52T	REYQ16T + REYQ18T × 2		650 to 1,690 (1,690)	
150	54	1,350	REYQ54T	REYQ18T × 3		675 to 1,755 (1,755)	
156	56	1,400	REYQ56T	REYQ18T × 2 + REYQ20T		700 to 1,820 (1,820)	
162	58	1,450	REYQ58T	REYQ18T + REYQ20T × 2		725 to 1,885 (1,885)	
168	60	1,500	REYQ60T	REYQ20T × 3		750 to 1,950 (1,950)	

Notes: *1. For multiple connection, the outdoor unit multi connection piping kit (separately sold) is required.
*2. 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.
*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%.

4.3 Indoor Unit Connection Capacity

High-COP Type

Type	HP	Capacity index	Model name	Types of connected indoor units						
				Min. combination ratio	FXDQ, FXSYQ, FXMQ-P, FXAQ		Including FXFQ25P, FXFQ-S at least one unit		Other indoor unit models	
					Max. combination ratio	Max. number of connectable indoor units	Max. combination ratio	Max. number of connectable indoor units	Max. combination ratio	Max. number of connectable indoor units
Double outdoor units	16	400	REYQ16TH	50%	200%	40	130%	26	160%	32
	18	450	REYQ18TH			45		29		36
	20	500	REYQ20TH			50		32		40
Triple outdoor units	24	600	REYQ24TH			60		39	130%	39
	26	650	REYQ26TH			64		42		42
	28	700	REYQ28TH					45		45
	30	750	REYQ30TH					48		48
	32	800	REYQ32TH					52		52

Notes: 1. For indoor units used for cooling only (do not connect to BS unit when using for heat recovery), total capacity index must be 50% or less than the capacity index of the outdoor units.
2. If the operational capacity of indoor units is more than 130%, low airflow operation is enforced in all the indoor units.

Standard Type

Type	HP	Capacity index	Model name	Types of connected indoor units						
				Min. combination ratio	FXDQ, FXSYQ, FXMQ-P, FXAQ		Including FXFQ25P, FXFQ-S at least one unit		Other indoor unit models	
					Max. combination ratio	Max. number of connectable indoor units	Max. combination ratio	Max. number of connectable indoor units	Max. combination ratio	Max. number of connectable indoor units
Single outdoor units	8	200	REYQ8T	50%	200%	20	130%	13	200%	20
	10	250	REYQ10T			25		16		25
	12	300	REYQ12T			30		19		30
	14	350	REYQ14T			35		22		35
	16	400	REYQ16T			40		26		40
	18	450	REYQ18T			45		29		45
	20	500	REYQ20T			50		32		50
Double outdoor units	22	550	REYQ22T			55		35	160%	44
	24	600	REYQ24T			60		39		48
	26	650	REYQ26T			64		42		52
	28	700	REYQ28T					45		56
	30	750	REYQ30T					48		60
	32	800	REYQ32T					52		64
	34	850	REYQ34T					55		64
	36	900	REYQ36T					58		64
Triple outdoor units	38	950	REYQ38T					61	130%	61
	40	1,000	REYQ40T					64		64
	42	1,050	REYQ42T							
	44	1,100	REYQ44T							
	46	1,150	REYQ46T							
	48	1,200	REYQ48T							
	50	1,250	REYQ50T							
	52	1,300	REYQ52T							
	54	1,350	REYQ54T							
	56	1,400	REYQ56T							
	58	1,450	REYQ58T							
	60	1,500	REYQ60T							

Notes: 1. For indoor units used for cooling only (do not connect to BS unit when using for heat recovery), total capacity index must be 50% or less than the capacity index of the outdoor units.
2. If the operational capacity of indoor units is more than 130%, low airflow operation is enforced in all the indoor units.

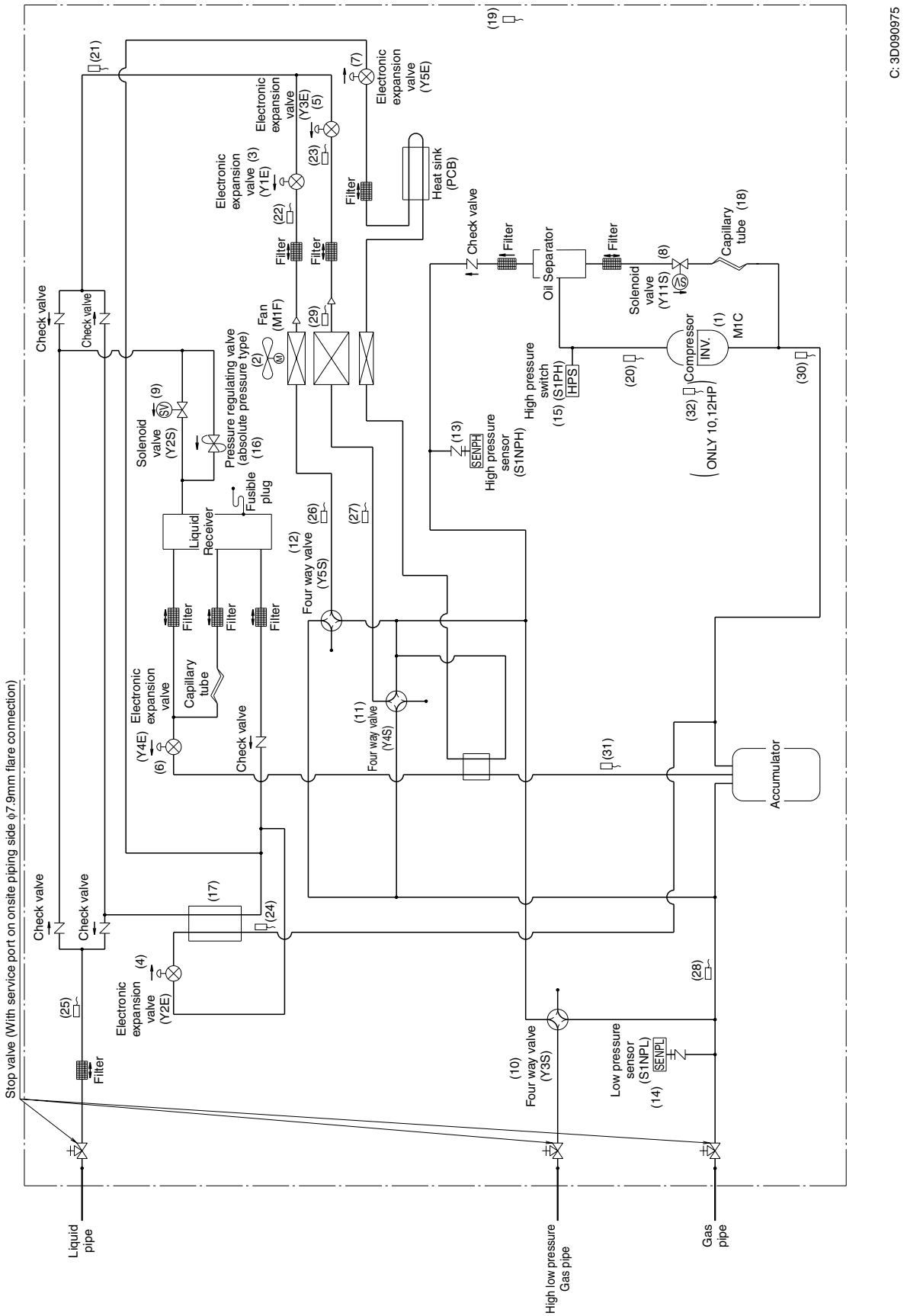
Part 2
Refrigerant Circuit

1. Refrigerant Circuit

1.1 REYQ8TY1 / 10TY1 / 12TY1

No. in refrigerant system diagram	Electric symbol	Name	Major Function
(1)	M1C	Inverter compressor (INV.)	Inverter compressor is operated on frequencies between 52 Hz and 210 Hz by using the inverter.
(2)	M1F	Inverter fan	Since the system is of air heat exchanging type, the fan is operated at 9-step rotation speed by using the inverter.
(3)	Y1E	Electronic expansion valve (Heat exchanger upper)	While in heating operation, 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 operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
(6)	Y4E	Electronic expansion valve (Receiver gas purge)	Used to collect refrigerant to the receiver.
(7)	Y5E	Electronic expansion valve (Inverter cooling)	This is used to open/close refrigerant charge port.
(8)	Y11S	Solenoid valve (M1C oil return)	Used to collect refrigerant to the compressor from the oil separator.
(9)	Y2S	Solenoid valve (Liquid pipe)	Used to collect refrigerant to the compressor from the accumulator.
(10)	Y3S	Four way valve (HP/LP gas pipe)	This is used to switch dual pressure gas pipe to high pressure or low pressure.
(11)	Y4S	Four way valve (Heat exchanger lower)	This is used to switch outdoor unit heat exchanger to evaporator or condenser.
(12)	Y5S	Four way valve (Heat exchanger upper)	
(13)	S1NPH	High pressure sensor	Used to detect high pressure.
(14)	S1NPL	Low pressure sensor	Used to detect low pressure.
(15)	S1PH	High pressure switch	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
(16)	—	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.
(17)	—	Subcooling heat exchanger	Apply subcooling to liquid refrigerant.
(18)	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the INV. compressor.
(19)	R1T	Thermistor (Outdoor air)	Used to detect outdoor temperature, correct discharge pipe temperature and others.
(20)	R21T	Thermistor (M1C discharge pipe)	Used to detect discharge pipe temperature. Used for compressor temperature protection control.
(21)	R3T	Thermistor (Inlet pipe of receiver)	Used to detect pipe temperature of receiver inlet.
(22)	R4T	Thermistor (Heat exchanger liquid upper)	This detects temperature of liquid pipe between the air heat exchanger and main electronic expansion valve. Used to make judgements on the recover or discharge refrigerants to the refrigerant regulator.
(23)	R5T	Thermistor (Heat exchanger liquid lower)	
(24)	R6T	Thermistor (Subcooling heat exchanger gas pipe)	This detects temperature of gas pipe on the evaporation side of subcooling heat exchanger. Used to exercise the constant control of superheated degree at the outlet of subcooling heat exchanger.
(25)	R7T	Thermistor (Subcooling heat exchanger liquid pipe)	This detects temperature of liquid pipe between the main electronic expansion valve and subcooling heat exchanger.
(26)	R8T	Thermistor (Heat exchanger gas upper)	This detects temperature of gas pipe for air heat exchanger. Used to exercise the constant control of superheated degree when an evaporator is used for outdoor unit heat exchanging.
(27)	R9T	Thermistor (Heat exchanger gas lower)	
(28)	R10T	Thermistor (Suction pipe)	Used to detect suction pipe temperature.
(29)	R11T	Thermistor (Heat exchanger deicer)	Used to detect liquid pipe temperature of air heat exchanger. Used to make judgements on defrosting operation.
(30)	R12T	Thermistor (Compressor suction pipe)	Used to detect suction pipe temperature of compressor.
(31)	R13T	Thermistor (Receiver gas purge)	Used to detect gas pipe temperature of receiver gas purge pipe.
(32)	R15T	Thermistor (Compressor surface)	Detects compressor surface temperature, this switch is activated at surface temperature of 120 deg. or more to stop the compressor operation (only for REYQ10, 12TY1).

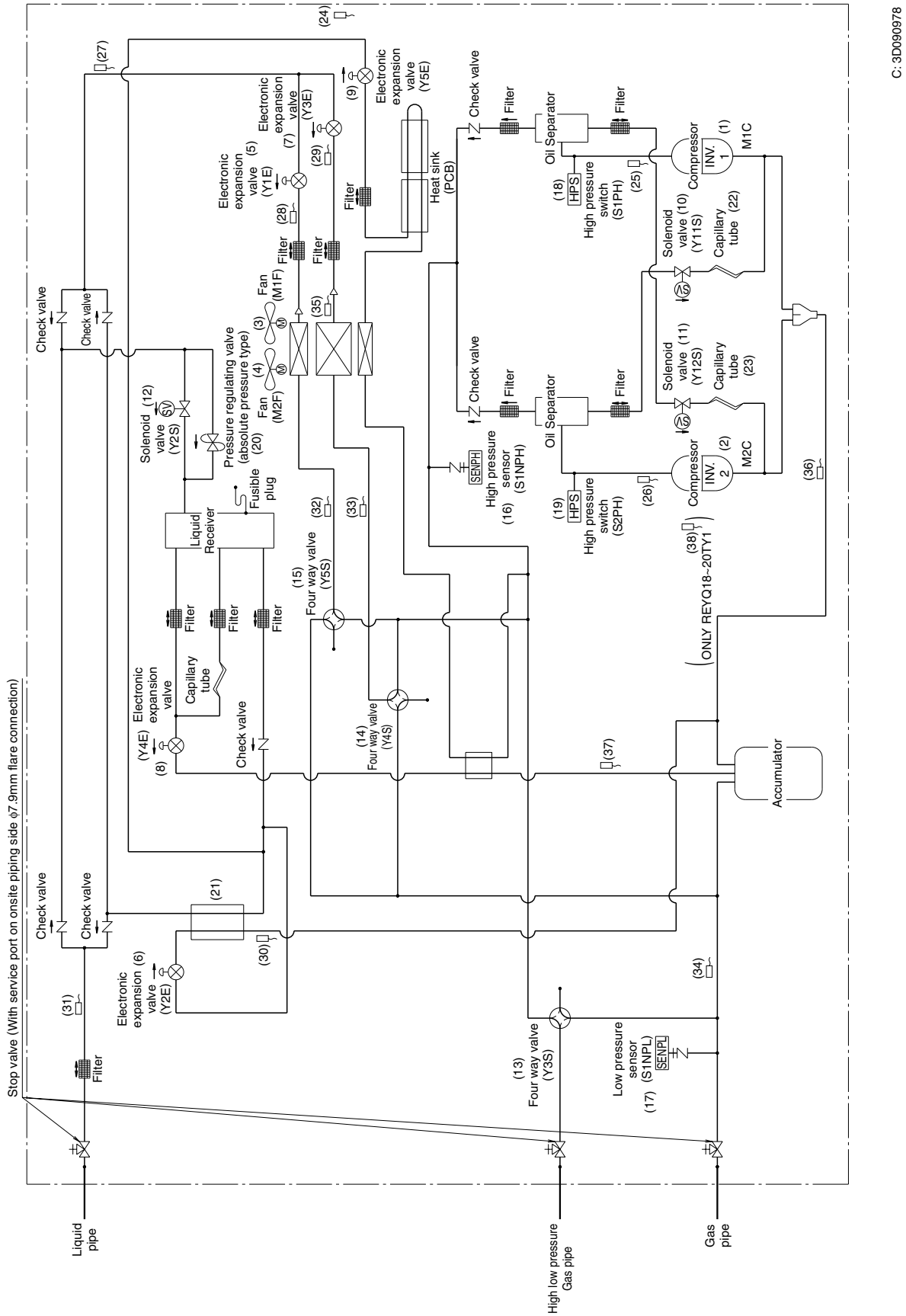
REYQ8TY1 / REYQ10TY1 / REYQ12TY1



1.2 REYQ14TY1 / 16TY1 / 18TY1 / 20TY1

No. in refrigerant system diagram	Electric symbol	Name	Major Function
(1)	M1C	Inverter compressor (INV.1)	Inverter compressor is operated on frequencies between 52 Hz and 266 Hz by using the inverter. The number of operating steps is as follows. REYQ14P - 20P : 26 step
(2)	M2C	Inverter compressor (INV.2)	
(3)	M1F	Inverter fan	Since the system is of air heat exchanging type, the fan is operated at 9-step rotation speed by using the inverter.
(4)	M2F	Inverter fan	
(5)	Y1E	Electronic expansion valve (Heat exchanger upper)	While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
(6)	Y2E	Electronic expansion valve (Subcooling heat exchanger)	PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant.
(7)	Y3E	Electronic expansion valve (Heat exchanger lower)	While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
(8)	Y4E	Electronic expansion valve (Receiver gas purge)	Used to collect refrigerant to the receiver.
(9)	Y5E	Electronic expansion valve (Inverter cooling)	This is used to open/close refrigerant charge port.
(10)	Y11S	Solenoid valve (M1C oil return)	Used to collect refrigerant to the compressor from the oil separator.
(11)	Y12S	Solenoid valve (M2C oil return)	
(12)	Y2S	Solenoid valve (Liquid pipe)	Used to collect refrigerant to the compressor from the accumulator.
(13)	Y3S	Four way valve (HP/LP gas pipe)	This is used to switch dual pressure gas pipe to high pressure or low pressure.
(14)	Y4S	Four way valve (Heat exchanger lower)	This is used to switch outdoor unit heat exchanger to evaporator or condenser.
(15)	Y5S	Four way valve (Heat exchanger upper)	
(16)	S1NPH	High pressure sensor	Used to detect high pressure.
(17)	S1NPL	Low pressure sensor	Used to detect low pressure.
(18)	S1PH	High pressure switch	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
(19)	S2PH	High pressure switch	
(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 INV. compressor.
(23)	—	Capillary tube	
(24)	R1T	Thermistor (Outdoor air)	Used to detect outdoor temperature, correct discharge pipe temperature and others.
(25)	R21T	Thermistor (M1C discharge pipe)	Used to detect discharge pipe temperature. Used for compressor temperature protection control.
(26)	R22T	Thermistor (M2C discharge pipe)	
(27)	R3T	Thermistor (Inlet pipe of receiver)	Used to detect pipe temperature of receiver inlet.
(28)	R4T	Thermistor (Heat exchanger liquid upper)	This detects temperature of liquid pipe between the air heat exchanger and main electronic expansion valve. Used to make judgements on the recover or discharge refrigerants to the refrigerant regulator.
(29)	R5T	Thermistor (Heat exchanger liquid lower)	
(30)	R6T	Thermistor (Subcooling heat exchanger gas pipe)	This detects temperature of gas pipe on the evaporation side of subcooling heat exchanger. Used to exercise the constant control of superheated degree at the outlet of subcooling heat exchanger.
(31)	R7T	Thermistor (Subcooling heat exchanger liquid pipe)	This detects temperature of liquid pipe between the main electronic expansion valve and subcooling heat exchanger.
(32)	R8T	Thermistor (Heat exchanger gas upper)	This detects temperature of gas pipe for air heat exchanger. Used to exercise the constant control of superheated degree when an evaporator is used for outdoor unit heat exchanging.
(33)	R9T	Thermistor (Heat exchanger gas lower)	
(34)	R10T	Thermistor (Suction pipe)	Used to detect suction pipe temperature.
(35)	R11T	Thermistor (Heat exchanger deicer)	Used to detect liquid pipe temperature of air heat exchanger. Used to make judgements on defrosting operation.
(36)	R12T	Thermistor (Compressor suction pipe)	Used to detect suction pipe temperature of compressor.
(37)	R13T	Thermistor (Receiver gas purge)	Used to detect gas pipe temperature of receiver gas purge pipe.
(38)	R15T	Thermistor (Compressor surface)	Detects compressor surface temperature, this switch is activated at surface temperature of 120 deg. or more to stop the compressor operation (only for REYQ18, 20TY1).

REYQ14TY1 / 16TY1 / 18TY1 / 20TY1

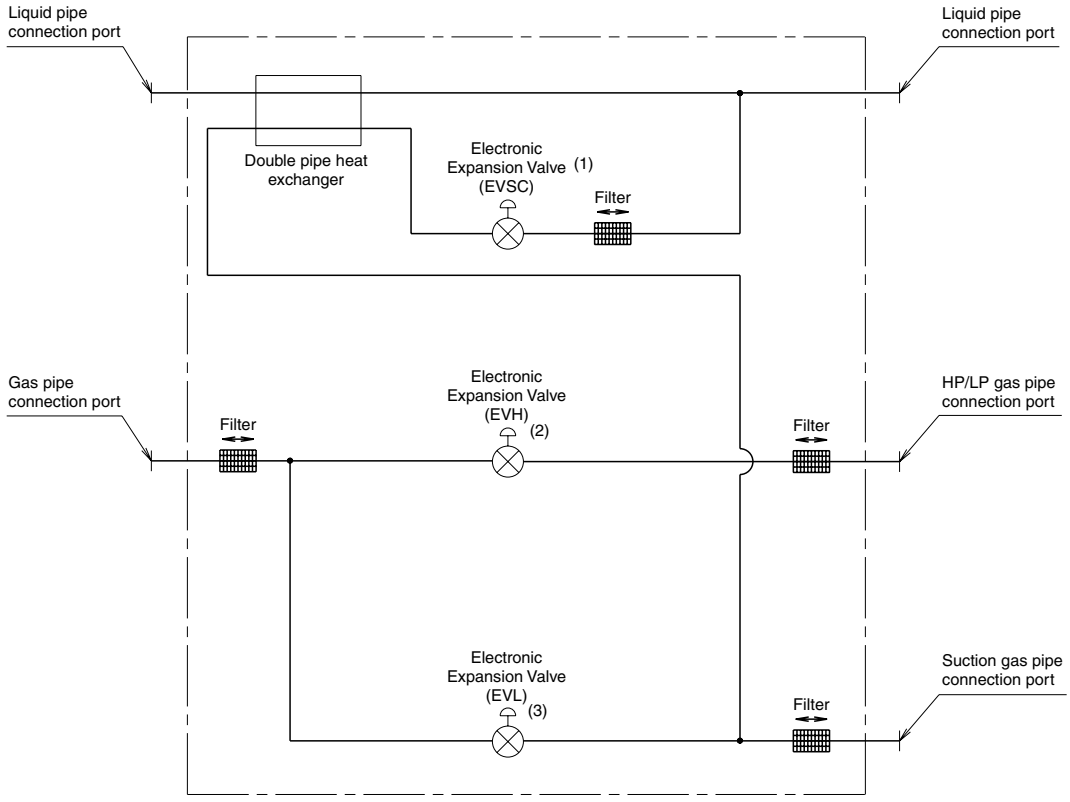


1.3 BS Unit Functional Parts

BSQ100AV1 / 160AV1 / 250AV1

No.	Name	Electric symbol	Function
(1)	Electronic expansion valve (EVSC)	Y1E	In simultaneous cooling and heating operation, it is used to subcooling liquid refrigerants when an indoor unit downstream of this BS unit is in heating operation. (Max : 480 pulse)
(2)	Electronic expansion valve (EVH)	Y2E	Opens while in heating operation or all indoor units are in cooling operation. (Max : 6,000 pulse)
(3)	Electronic expansion valve (EVL)	Y3E	Opens while in cooling operation. (Max : 6,000 pulse)

Note: Factory setting of all EV opening: 60 pulse



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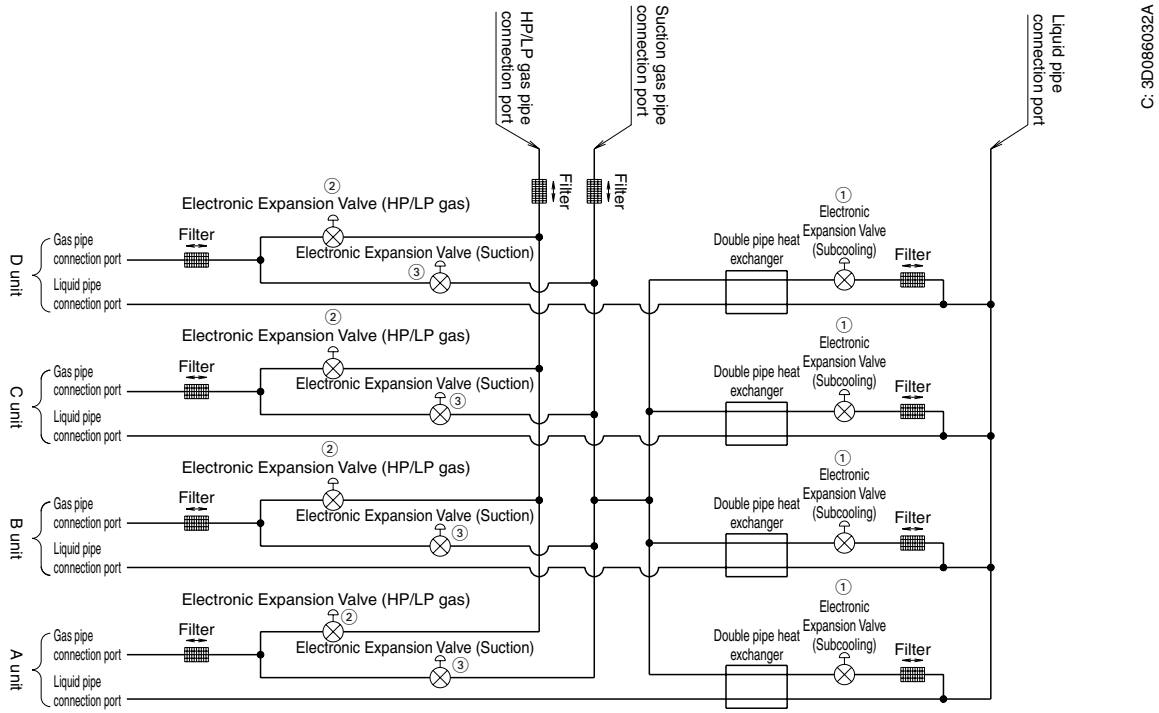
BS4Q14AV1



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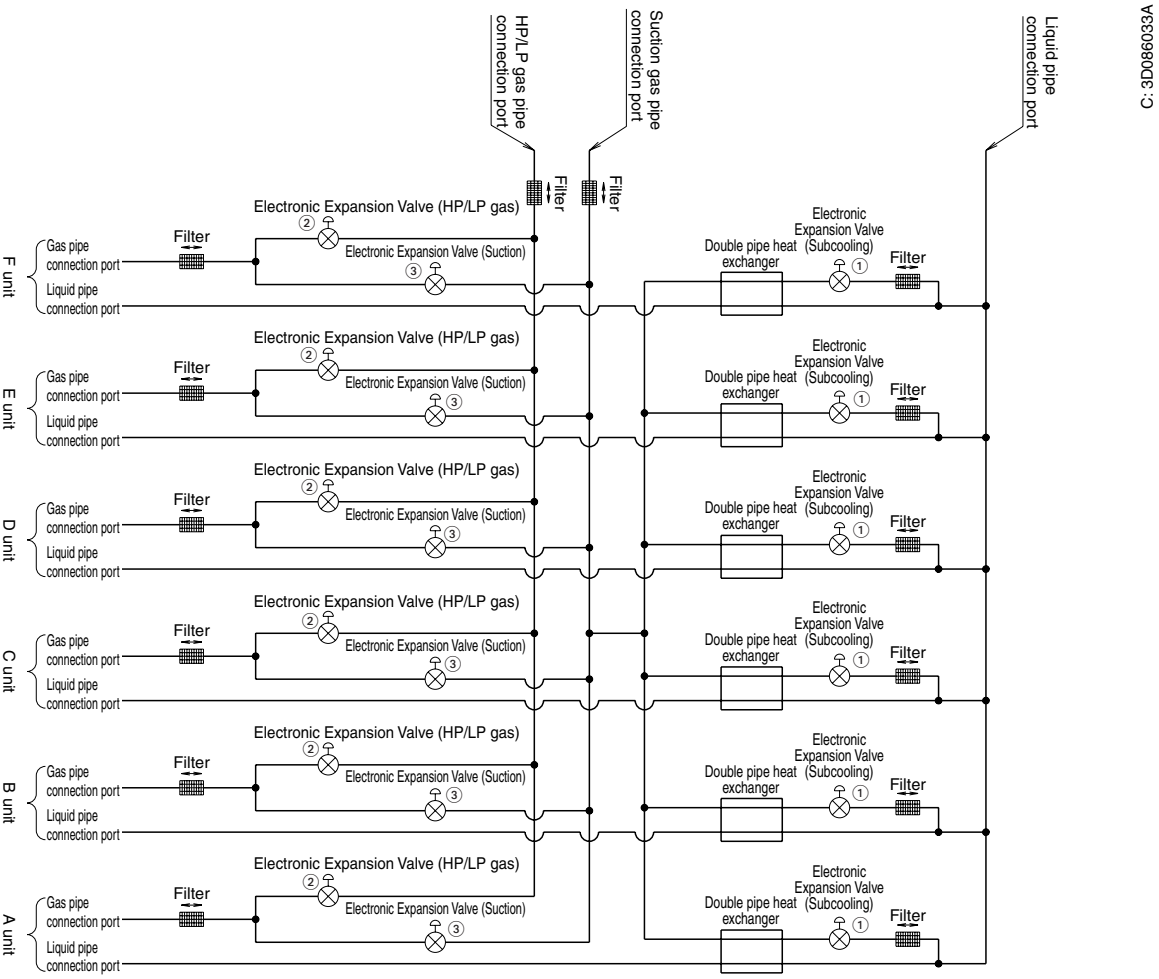

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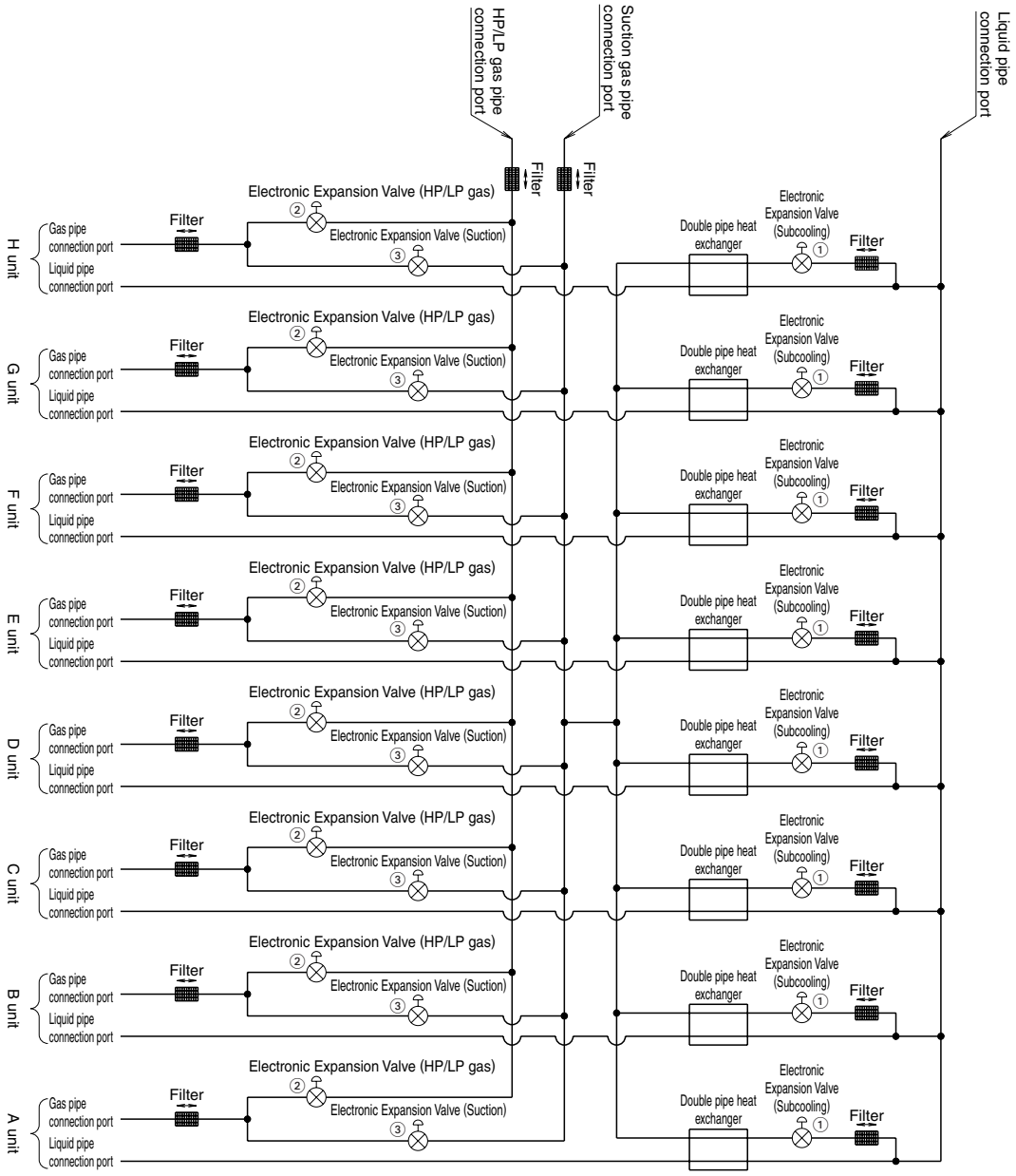
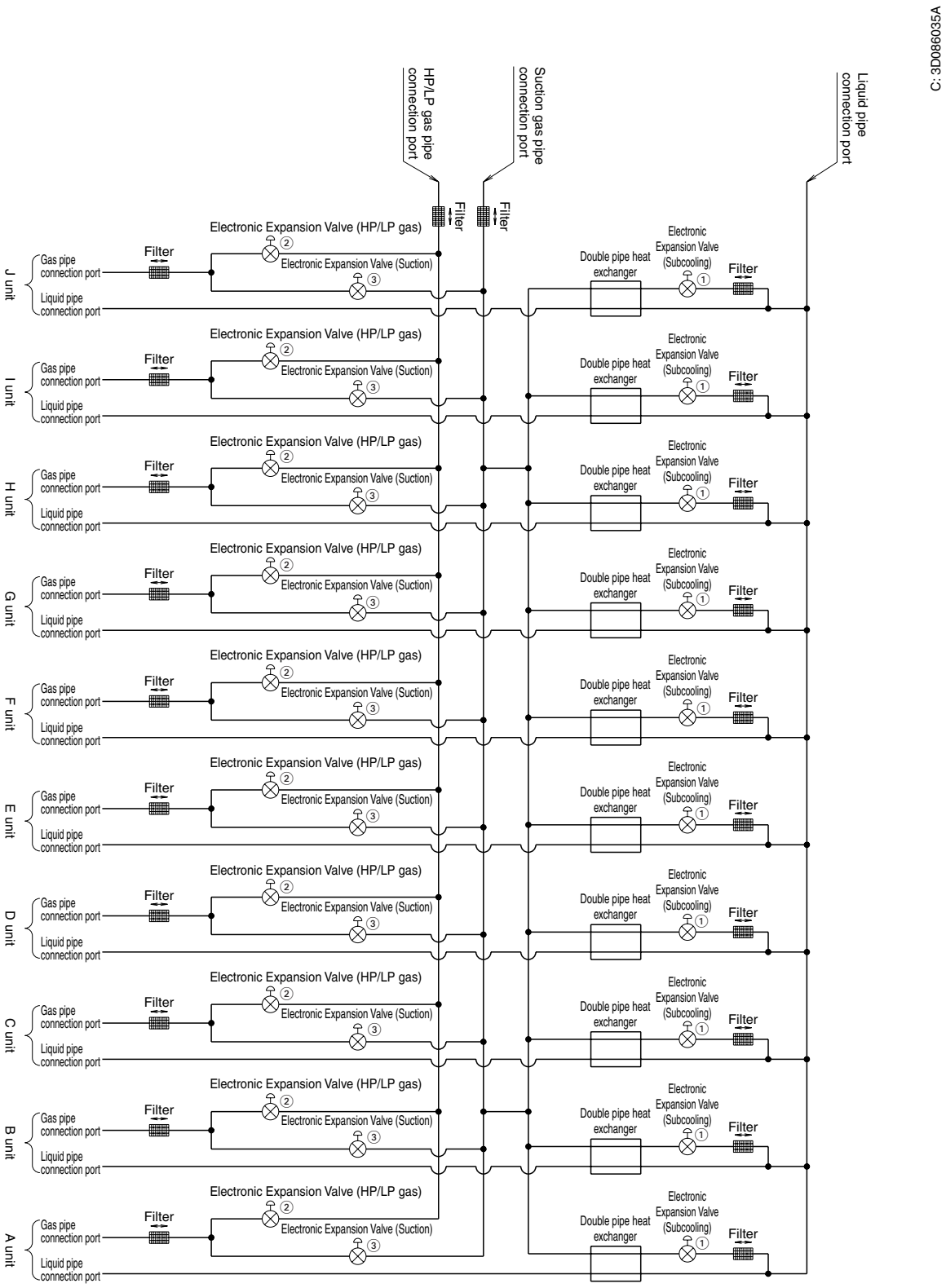


BS10Q14AV1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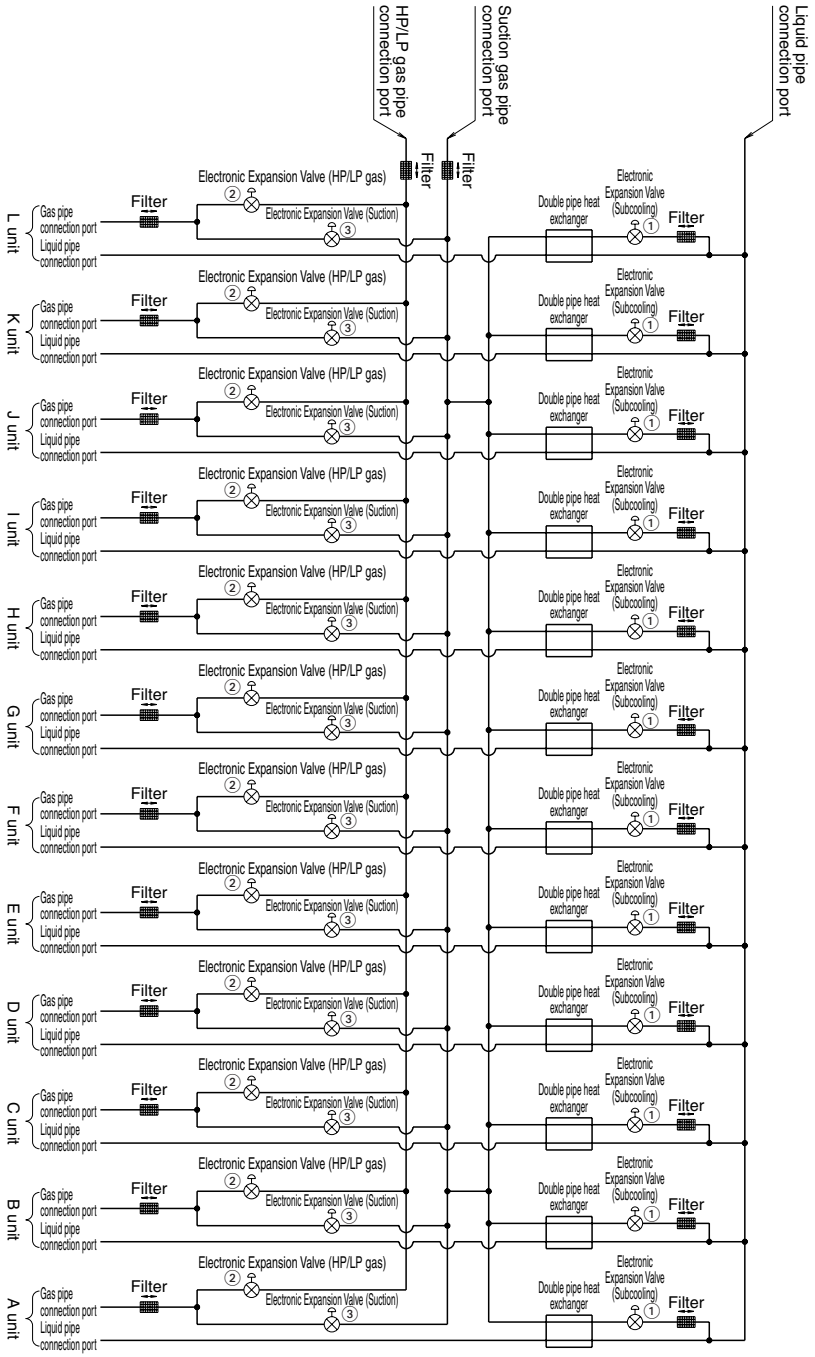
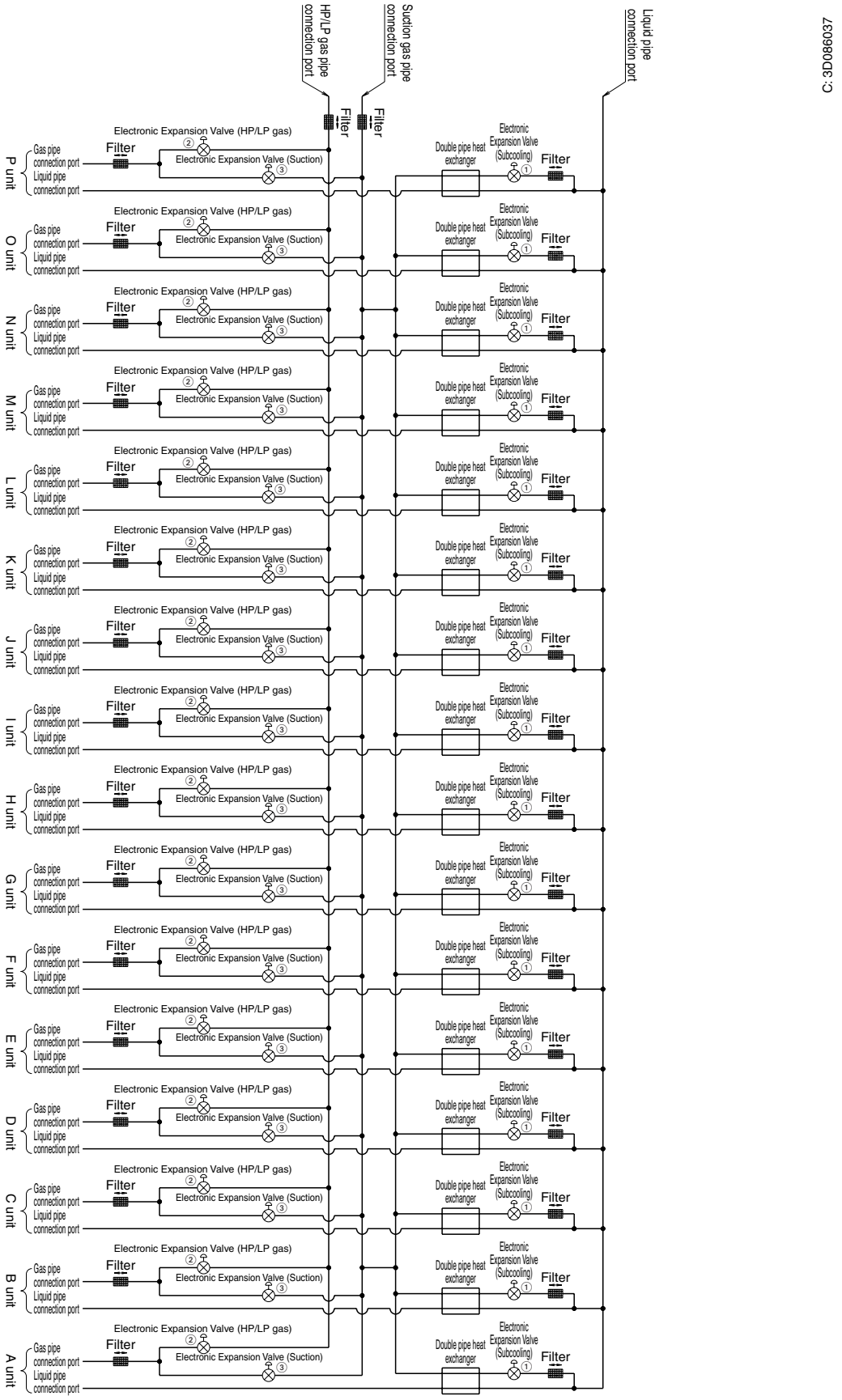
HP/LP gas pipe connection port
Suction gas pipe connection port
Liquid pipe connection port
Filter
Filter
Filter
Electronic Expansion Valve (HP/LP gas)
Electronic Expansion Valve (Suction)
Gas pipe connection port
Liquid pipe connection port
Double pipe heat exchanger
Electronic Expansion Valve (Subcooling)
J unit
I unit
H unit
G unit
F unit
E unit
D unit
C unit
B unit
A unit

BS12Q14AV1

C: 3D086036A

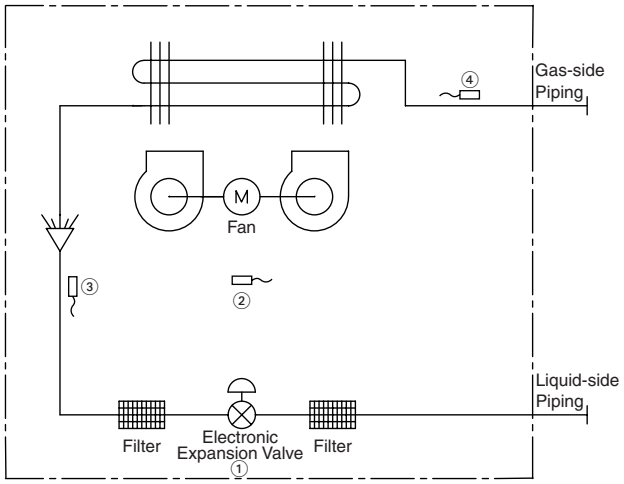


BS16Q14AV1


HP/LP gas pipe connection port
Suction gas pipe connection port
Liquid pipe connection port
C: 3D086037
Filter
Filter
Filter
P unit
O unit
N unit
M unit
L unit
K unit
J unit
I unit
H unit
G unit
F unit
E unit
D unit
C unit
B unit
A unit
Gas pipe connection port
Liquid pipe connection port
Electronic Expansion Valve (HP/LP gas)
Electronic Expansion Valve (Suction)
Double pipe heat exchanger
Electronic Expansion Valve (Subcooling)

1.4 Indoor Units

FXCQ, FXFQ, FXZQ, FXKQ, FXDQ, FXDYQ, FXMQ, FXHQ, FXAQ, FXLQ, FXNQ

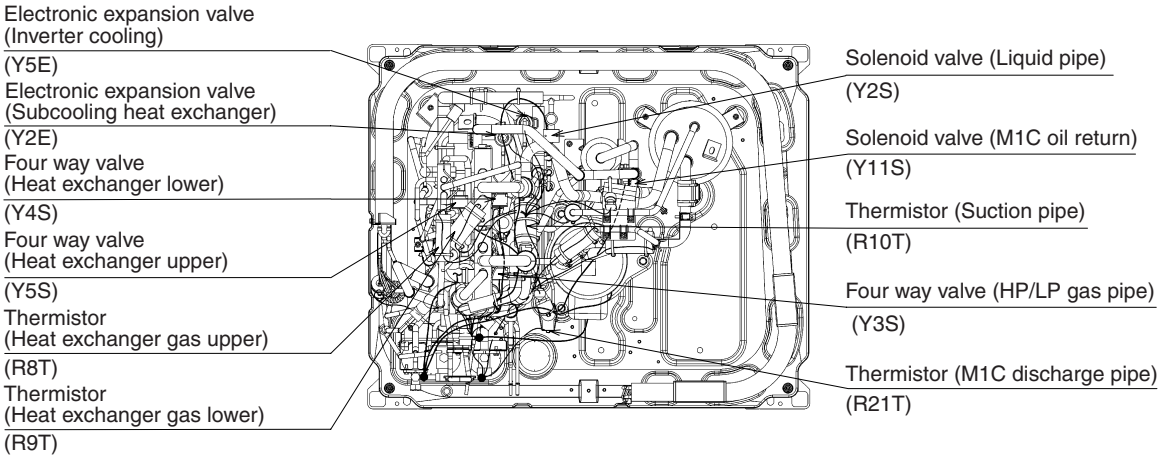


No.	Name	Electric symbol	Function
①	Electronic expansion valve	Y1E	Used to control superheated degree of gas when cooling and subcooled degree when heating.
②	Suction air thermistor	R1T	Used for thermostat control.
③	Liquid pipe thermistor	R2T	Used to control superheated degree of gas when cooling and subcooled degree when heating.
④	Gas pipe thermistor	R3T	Used for gas superheated degree control when cooling.

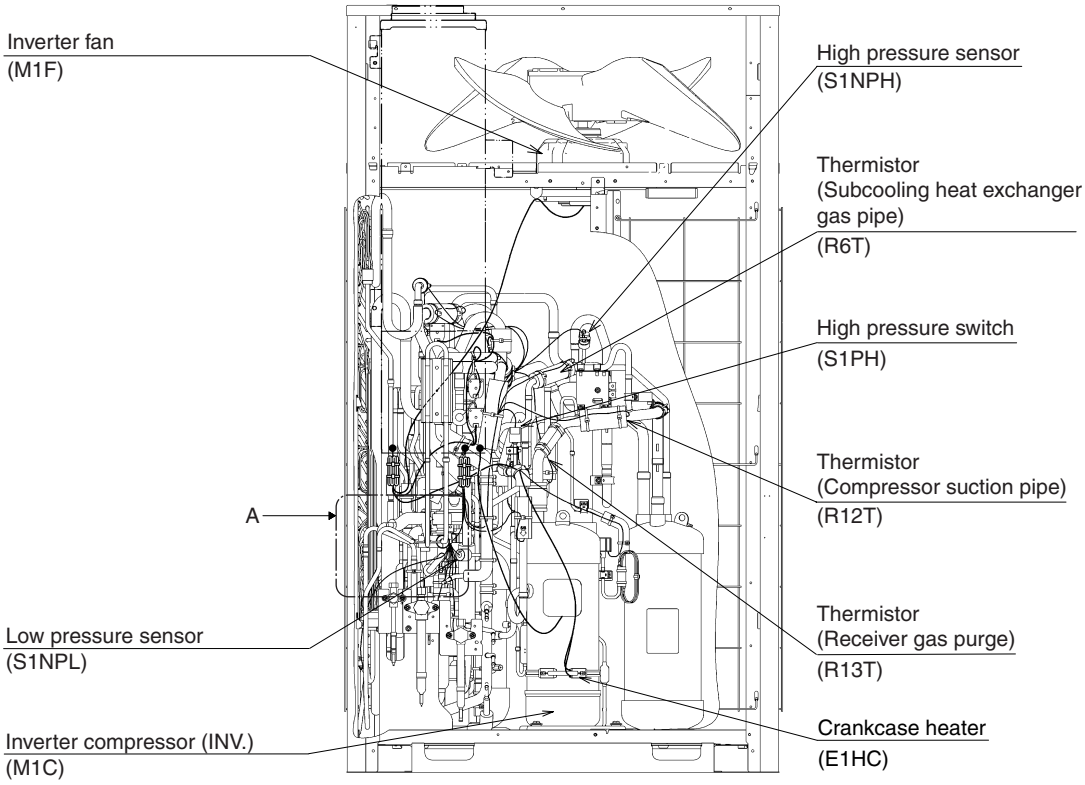
2. Functional Parts Layout

2.1 REYQ8TY1

Plane View



Front View



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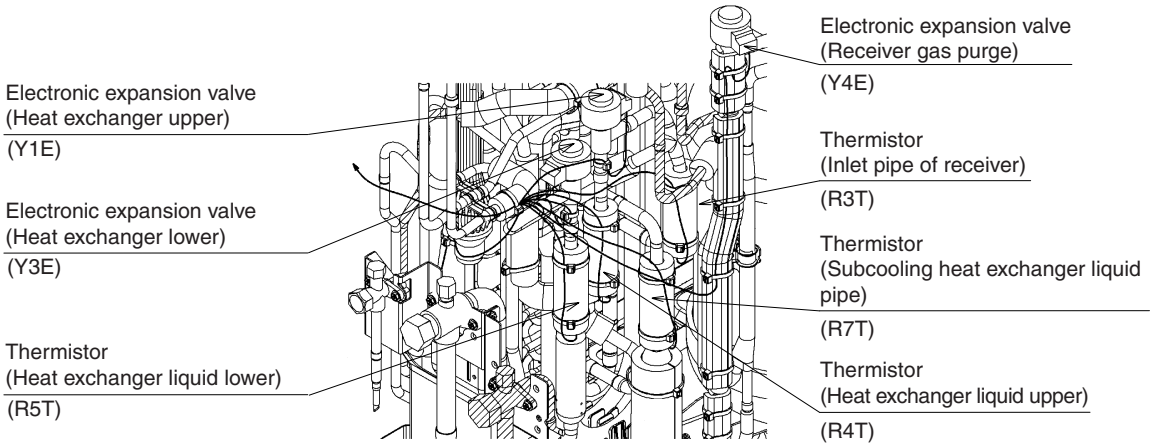
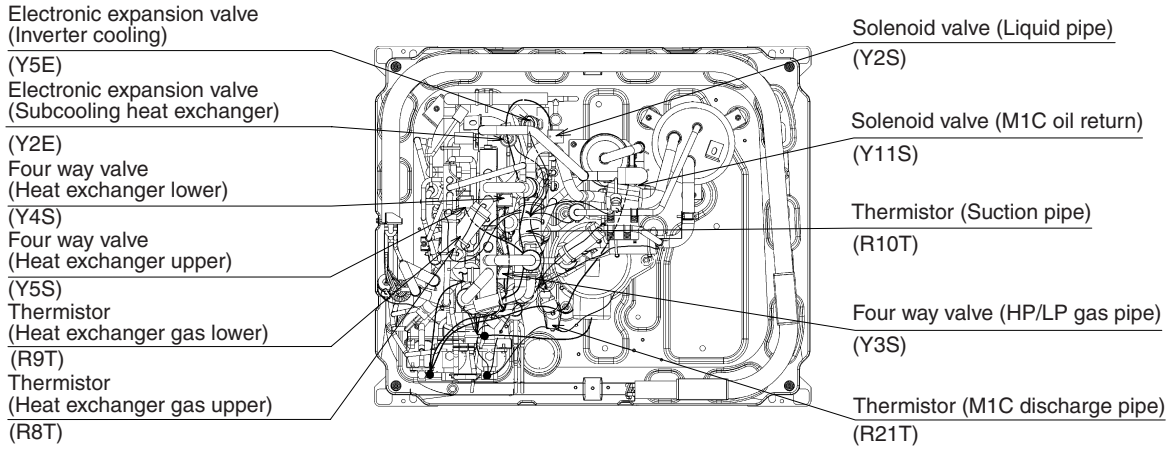
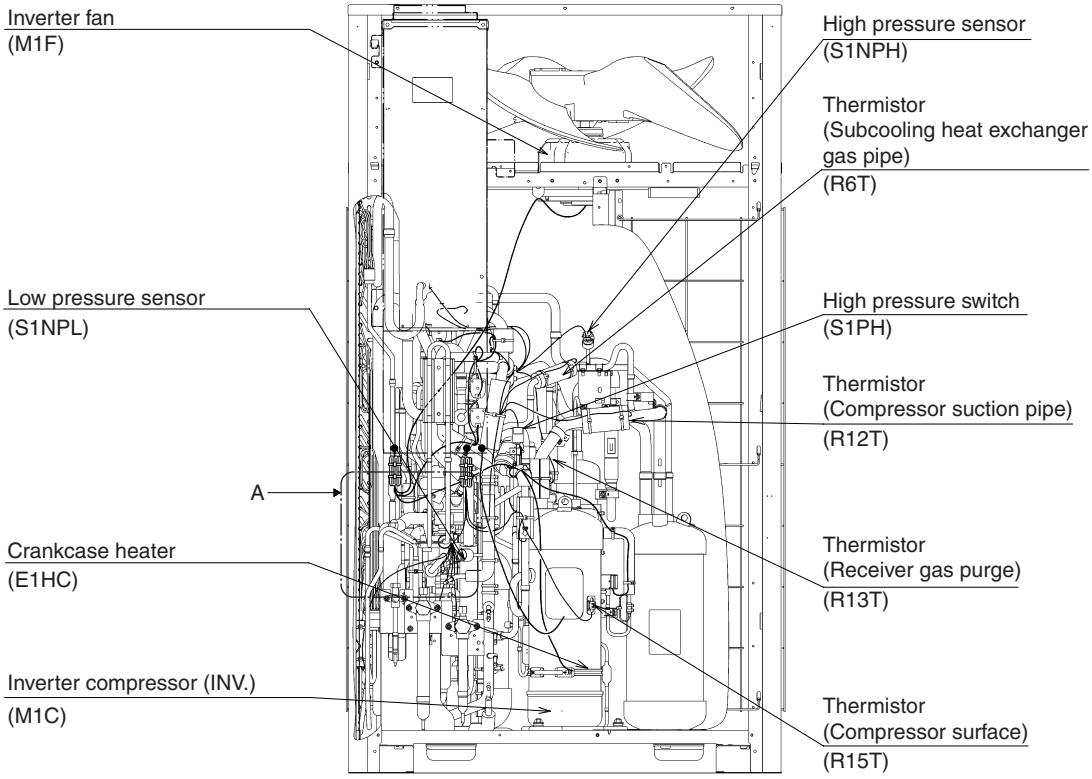


2.2 REYQ10TY1 / 12TY1

Plane View



Front View



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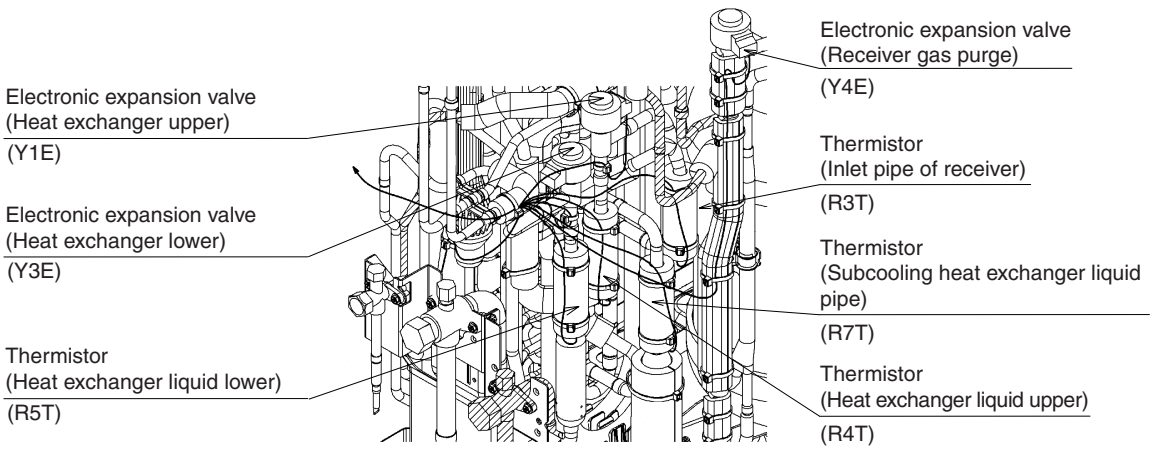
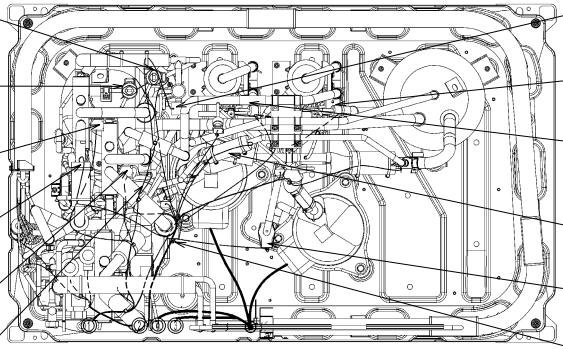
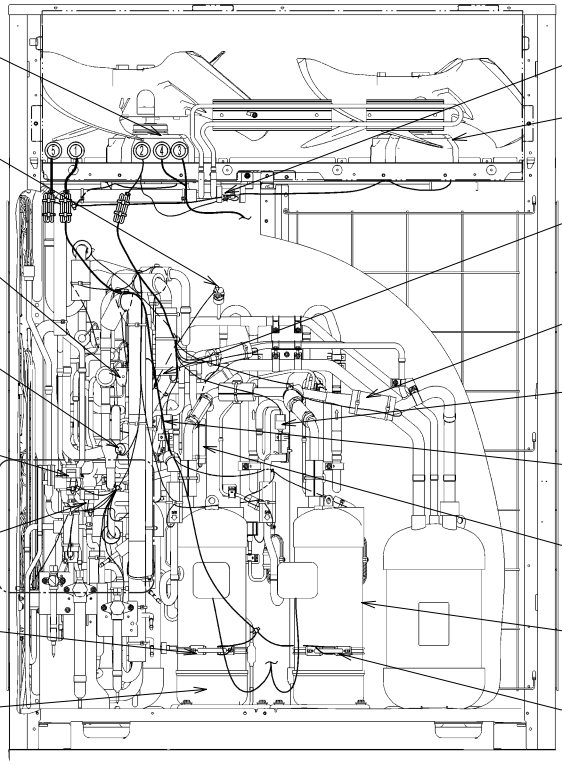


2.3 REYQ14TY1 / 16TY1

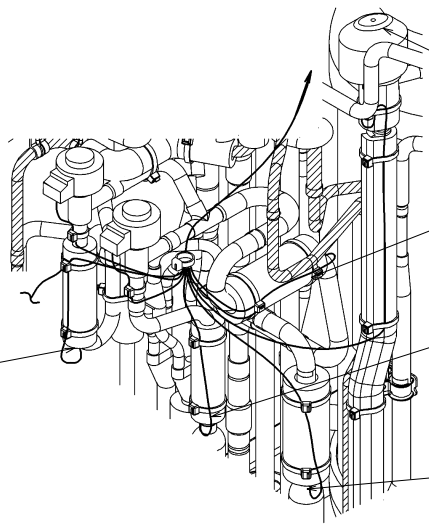
Plane View



Front View

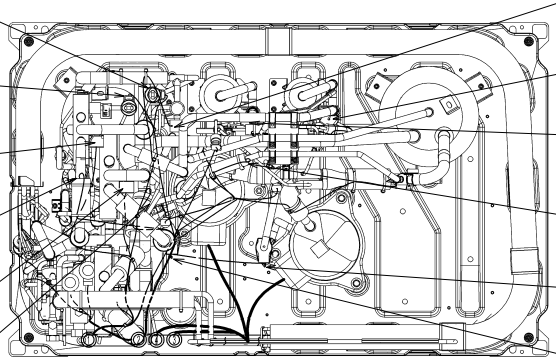


Detail of A

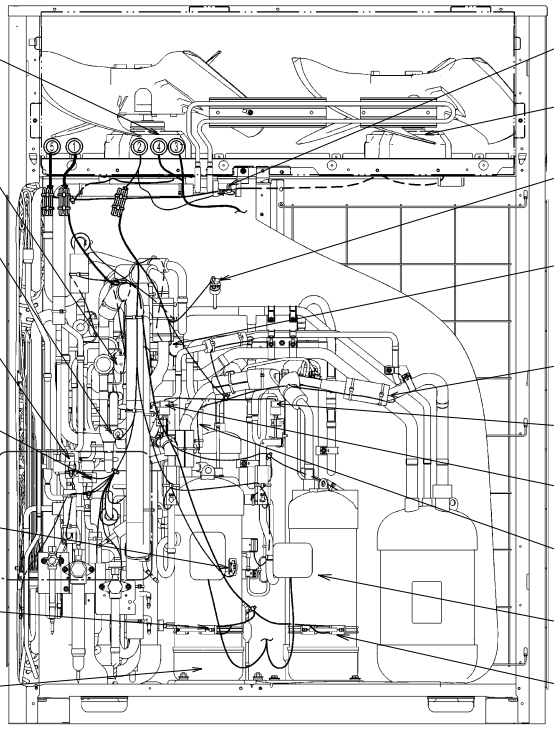


2.4 REYQ18TY1 / 20TY1

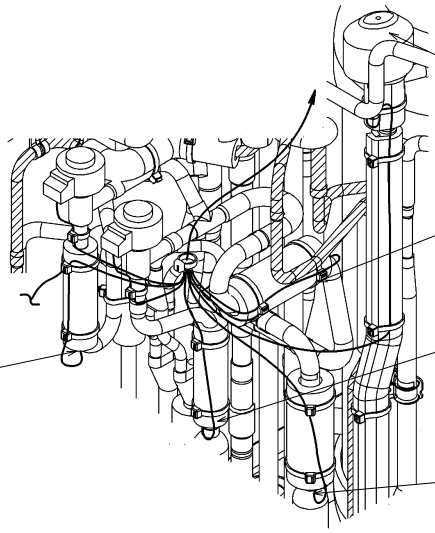
Plane View



Front View



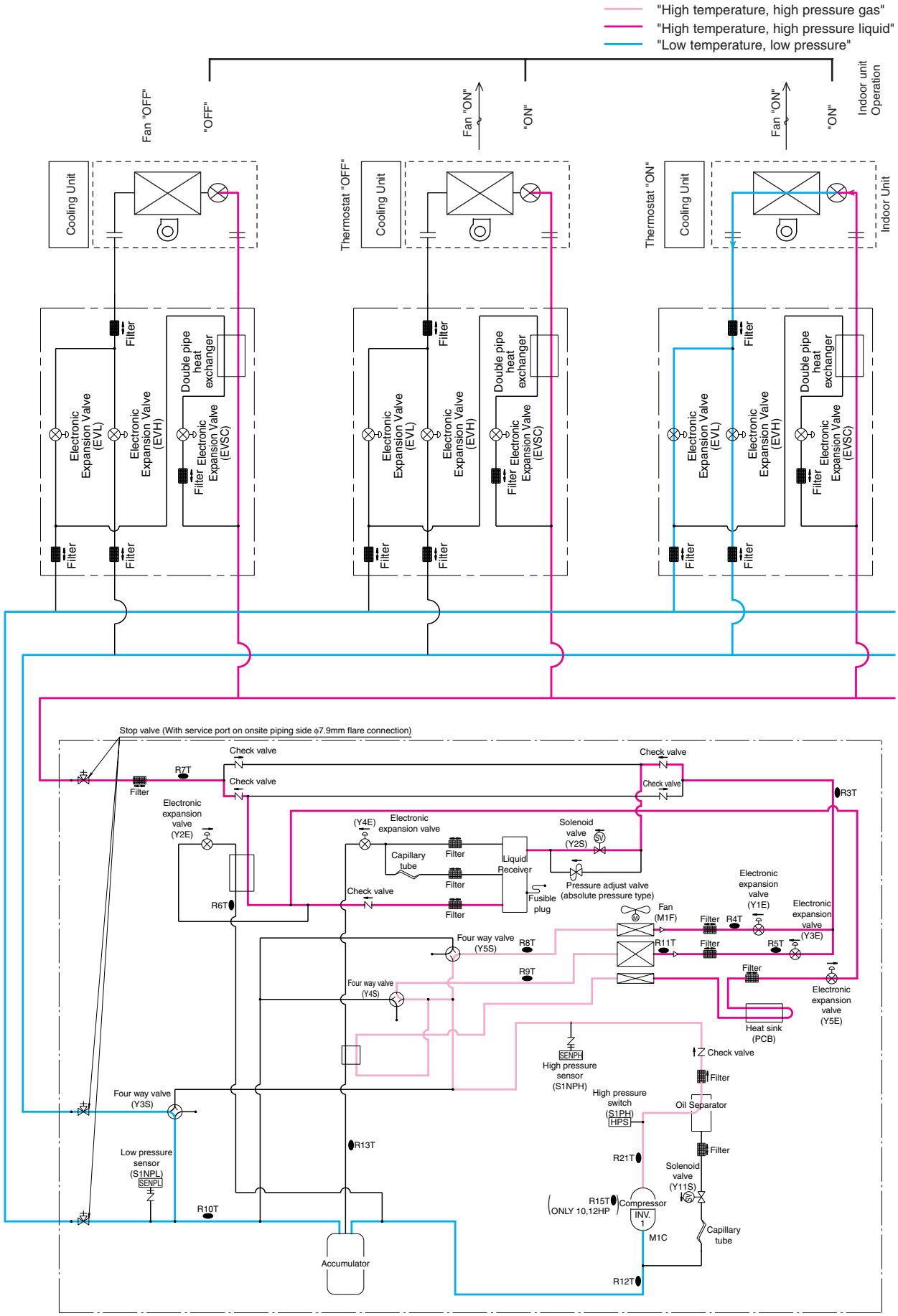
Detail of A



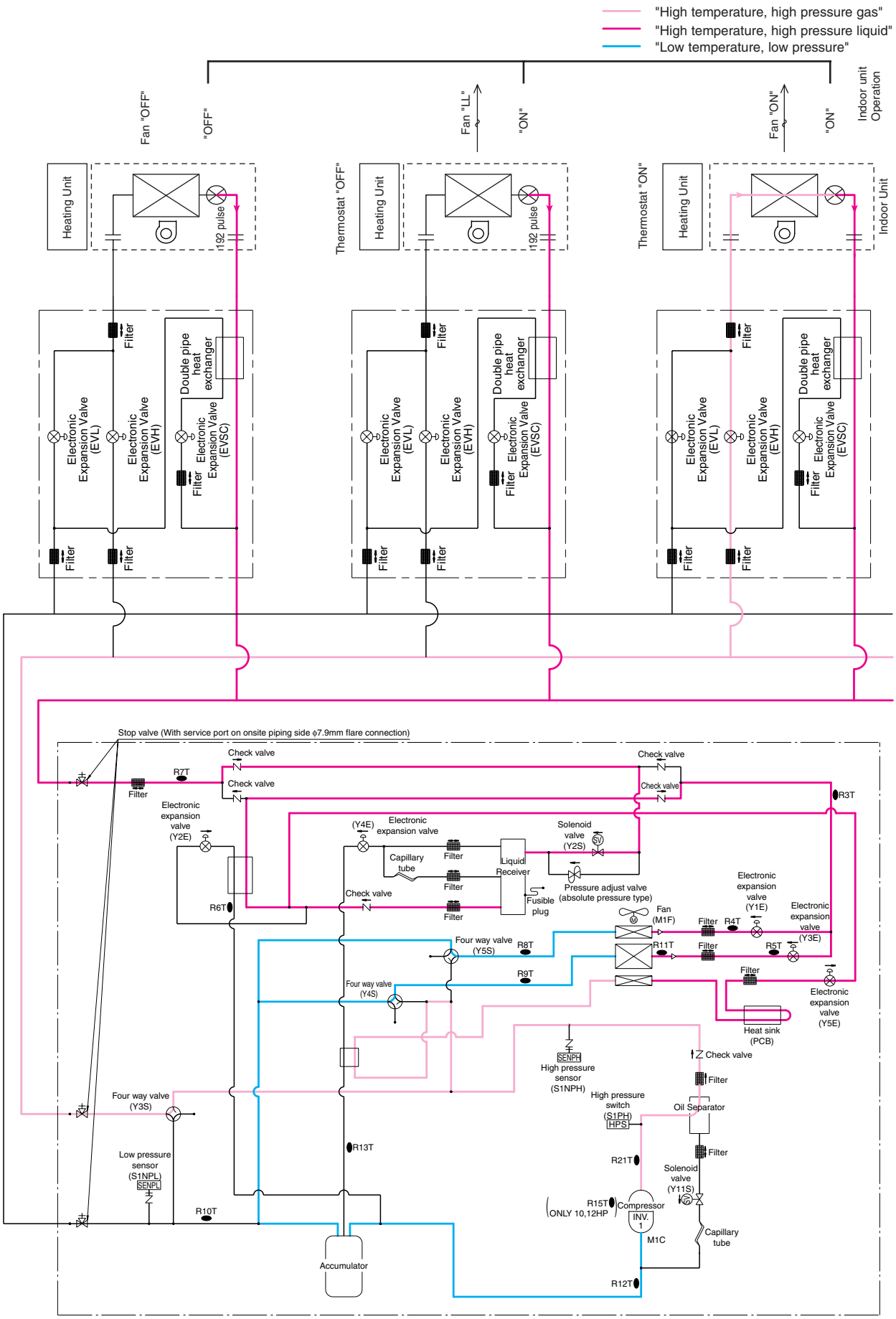
3. Refrigerant Flow for Each Operation Mode

REYQ8TY1 / 10TY1 / 12TY1

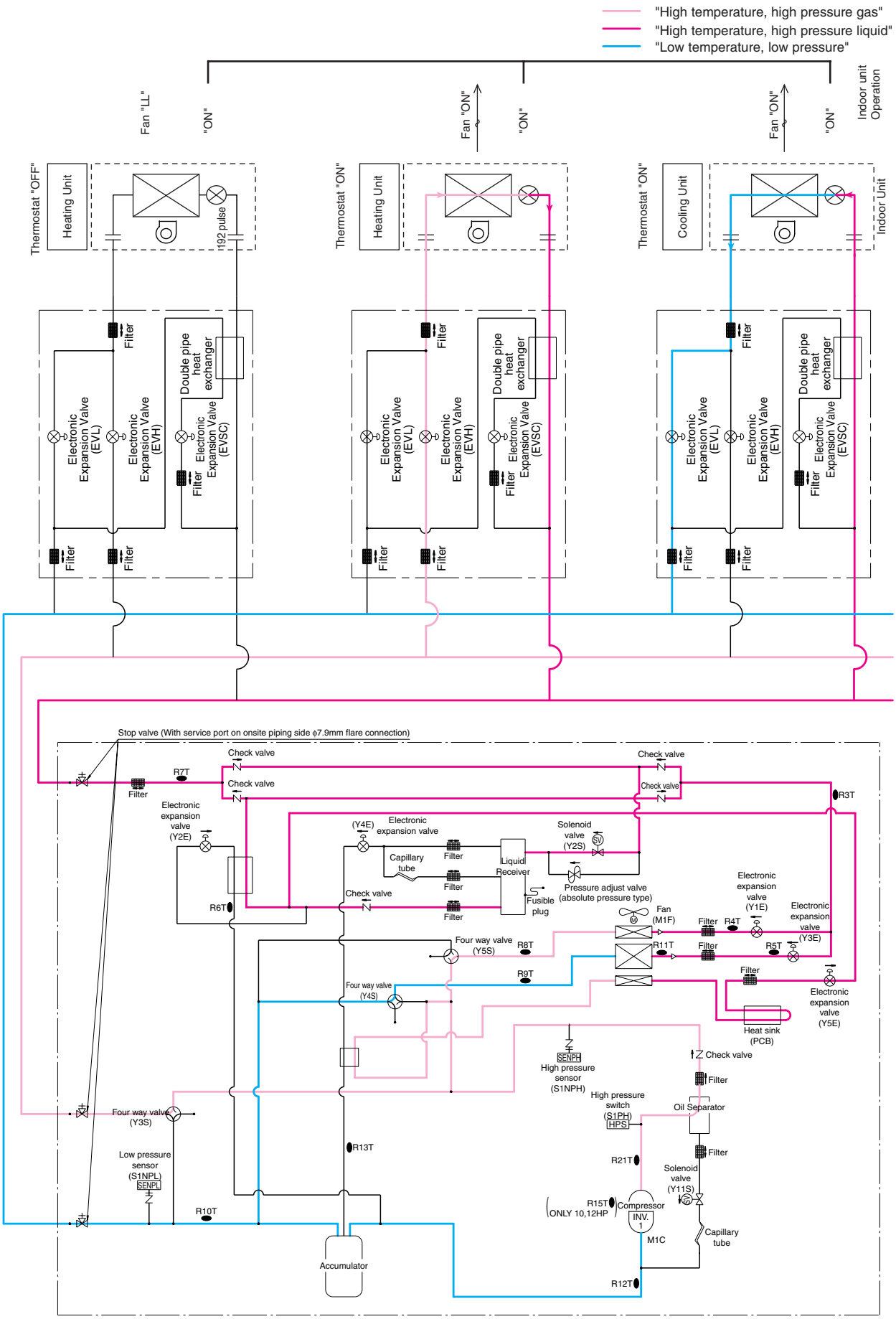
Cooling Operation



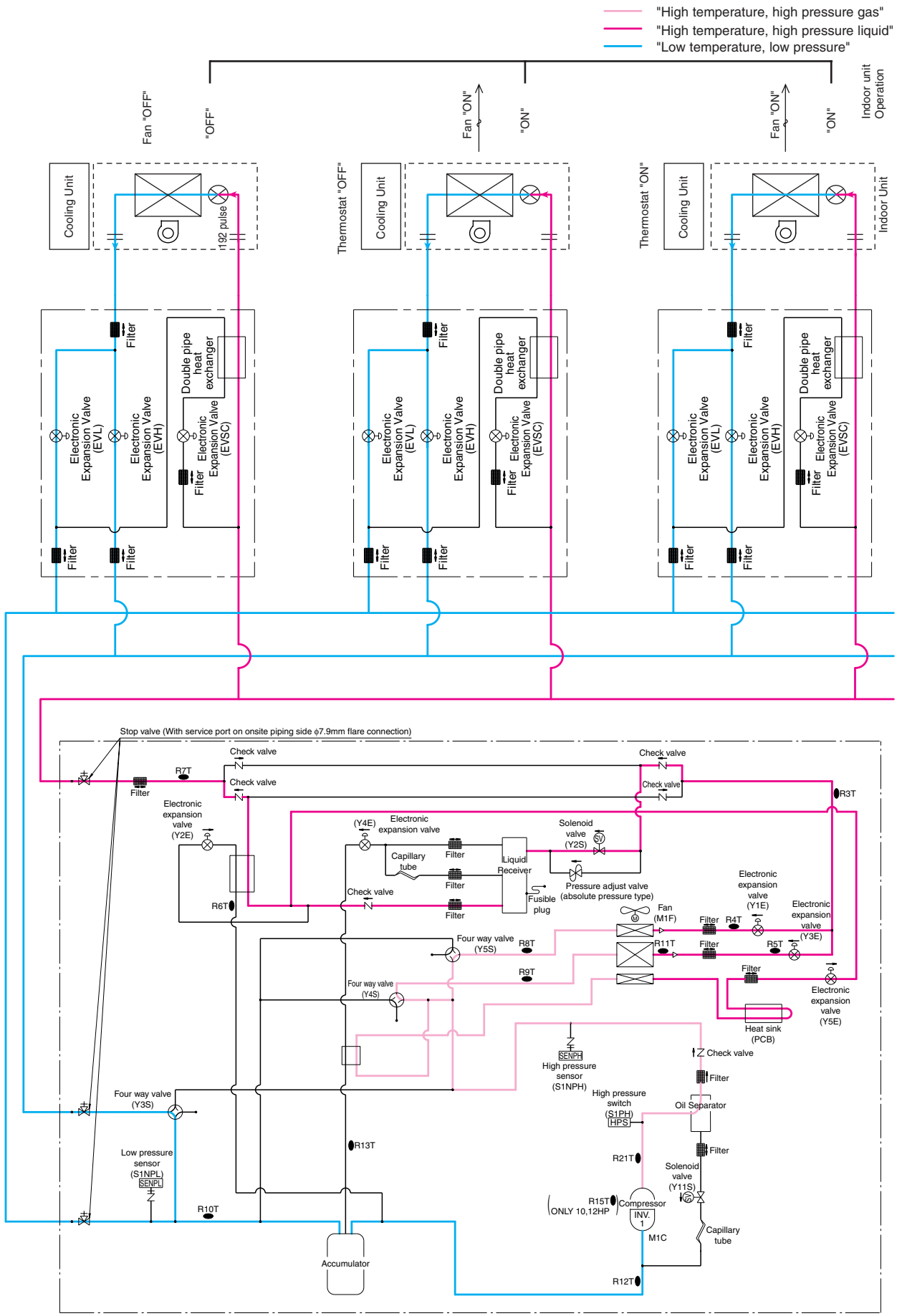
Heating Operation



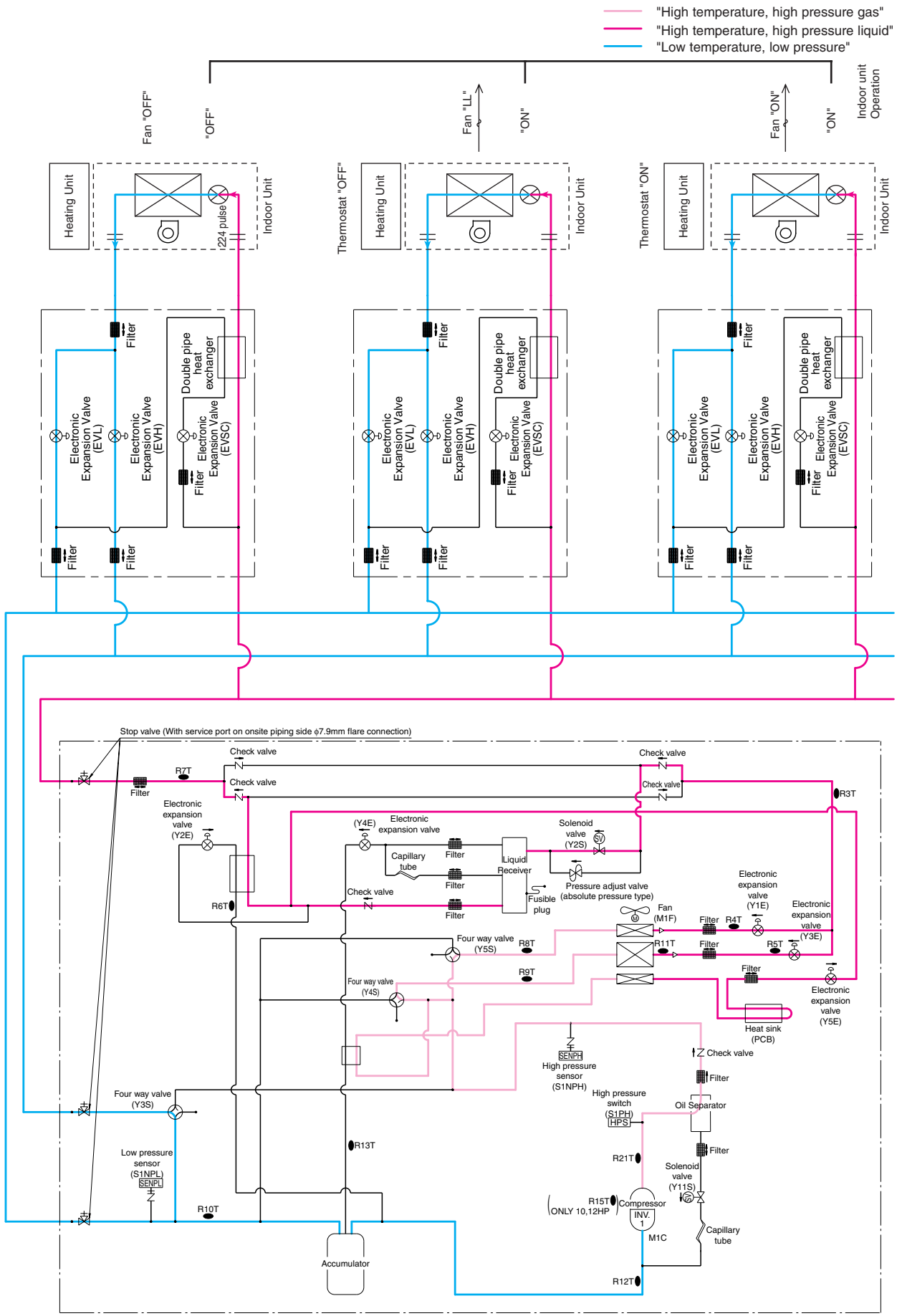
Simultaneous Cooling / Heating Operation



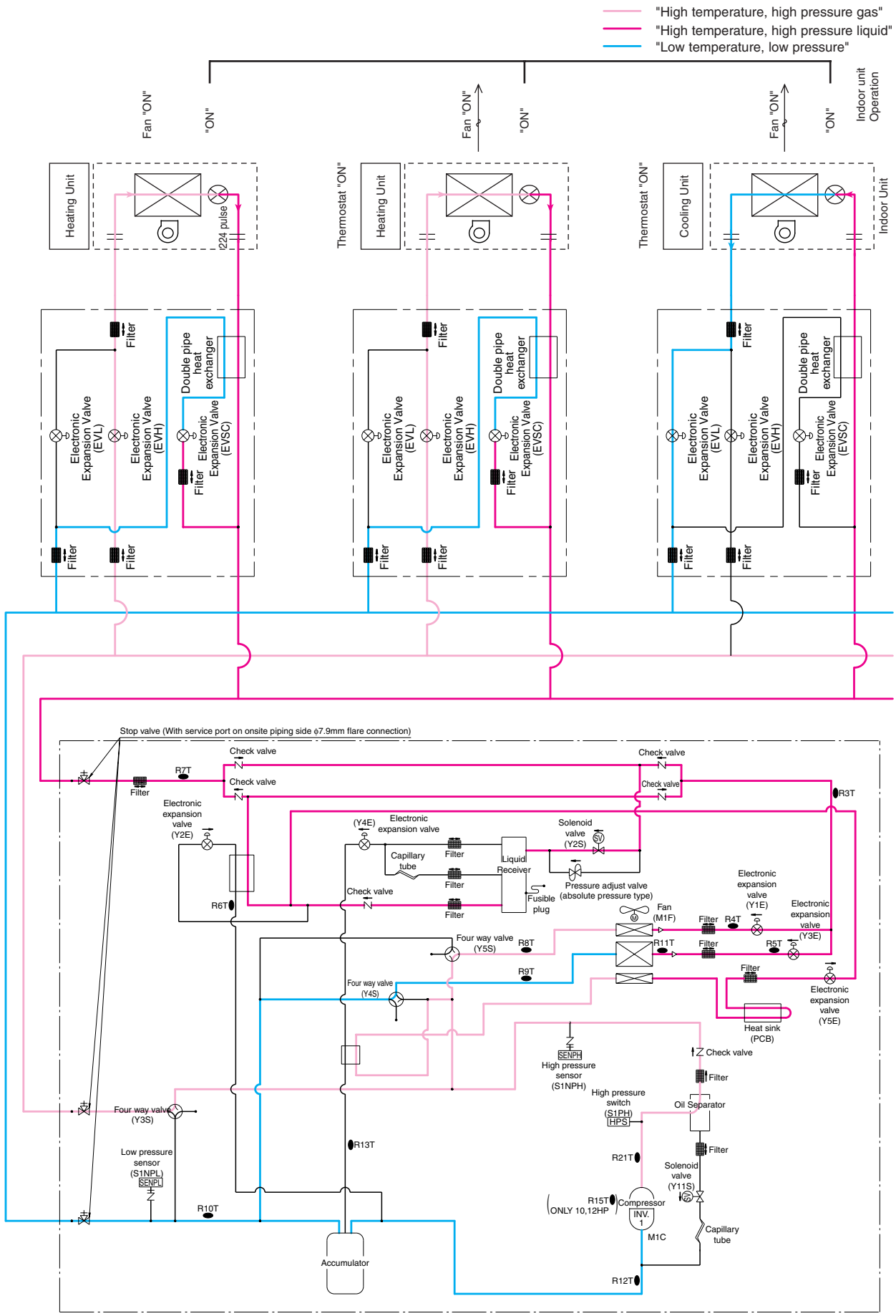
Cooling Oil Return Operation



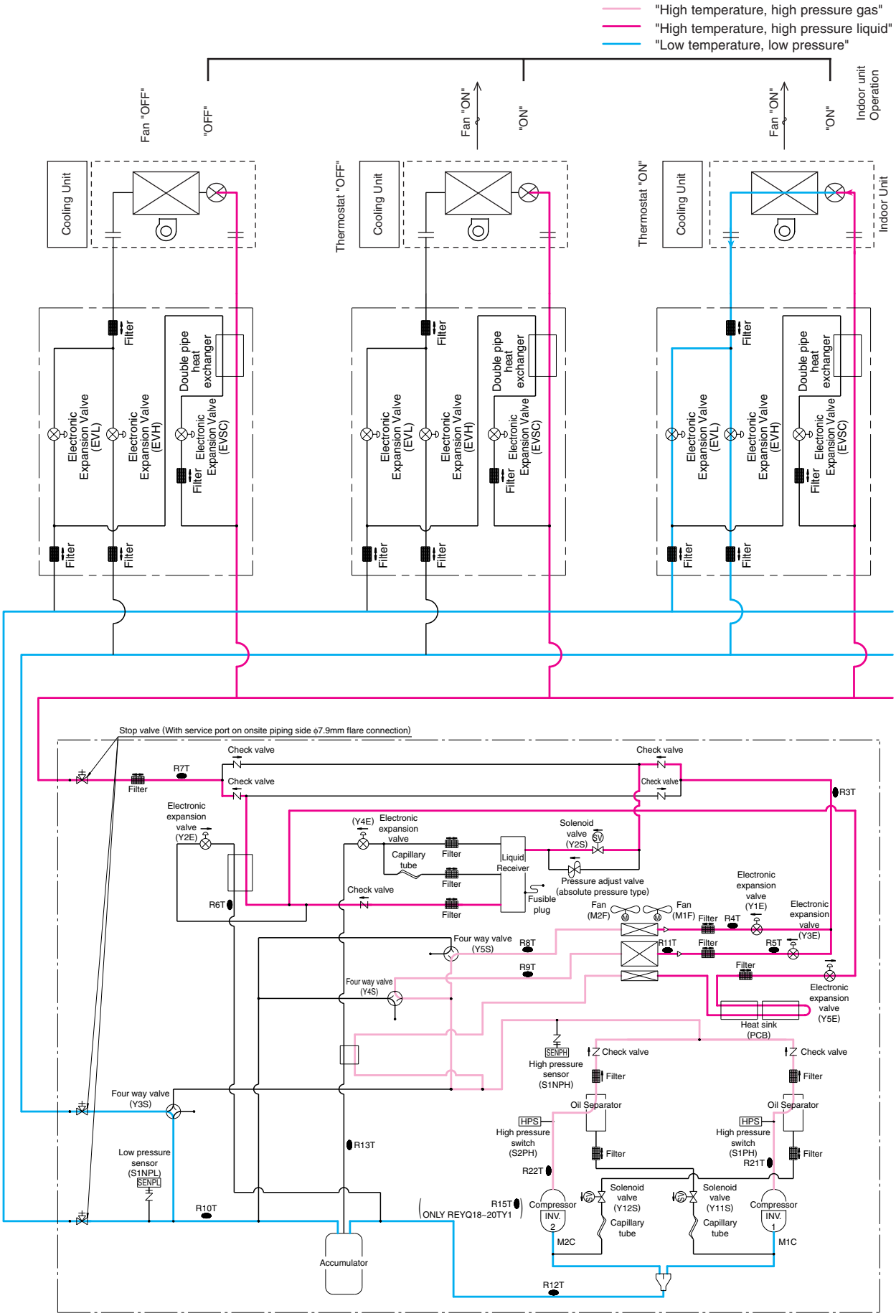
Defrosting and Heating Oil Return Operation



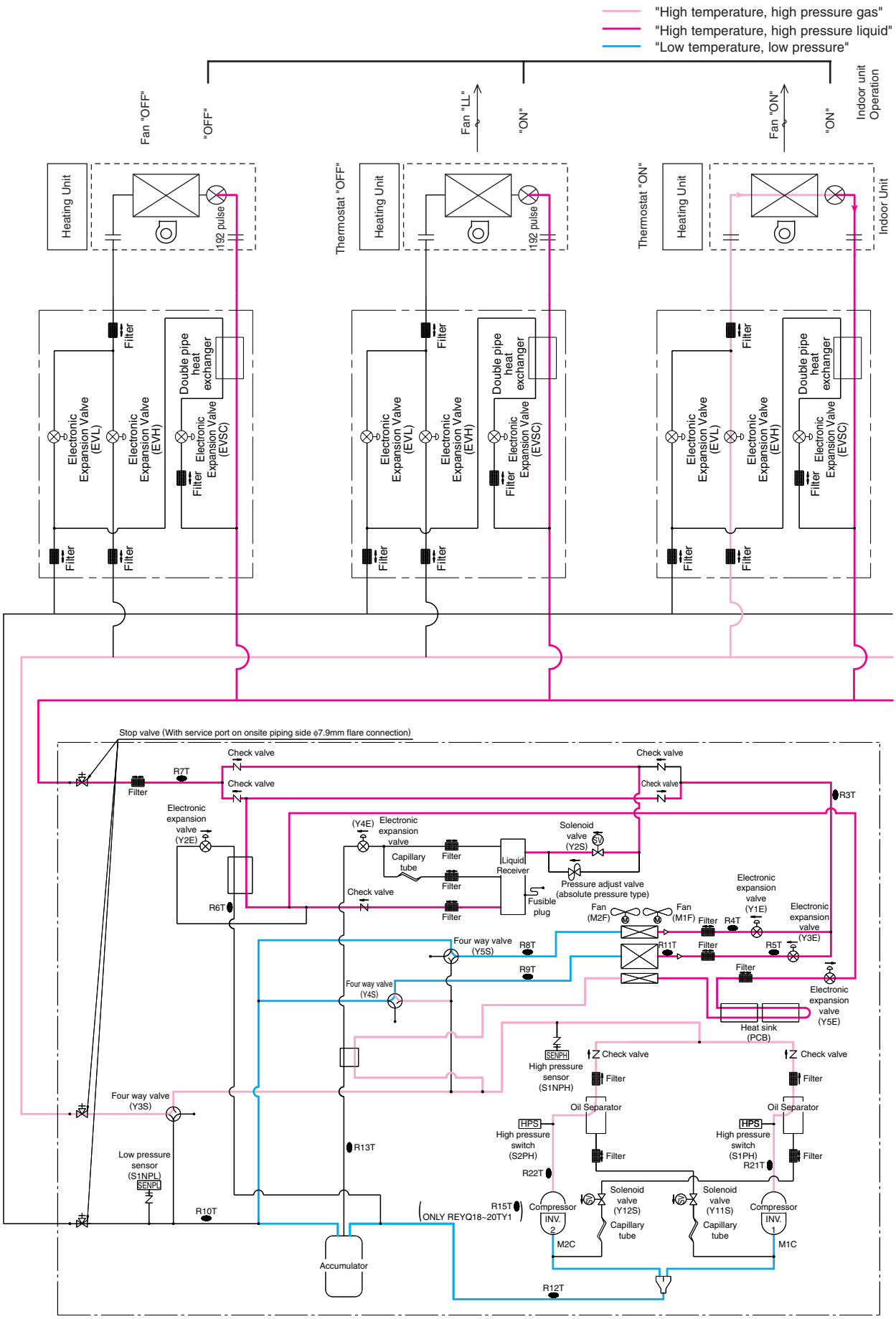
Oil Return Operation at Simultaneous Cooling / Heating Operation



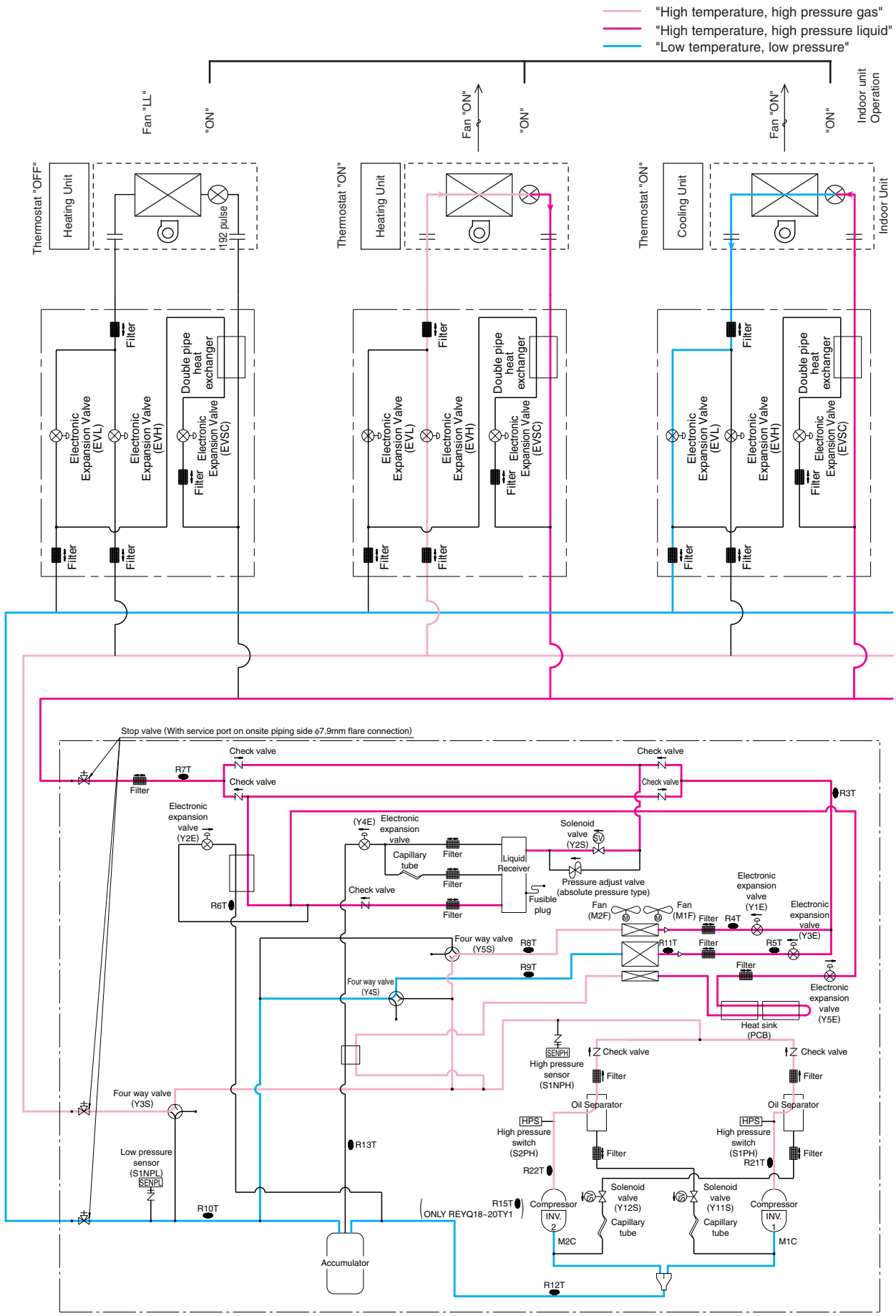
REYQ14TY1 / 16TY1 / 18TY1 / 20TY1
Cooling Operation



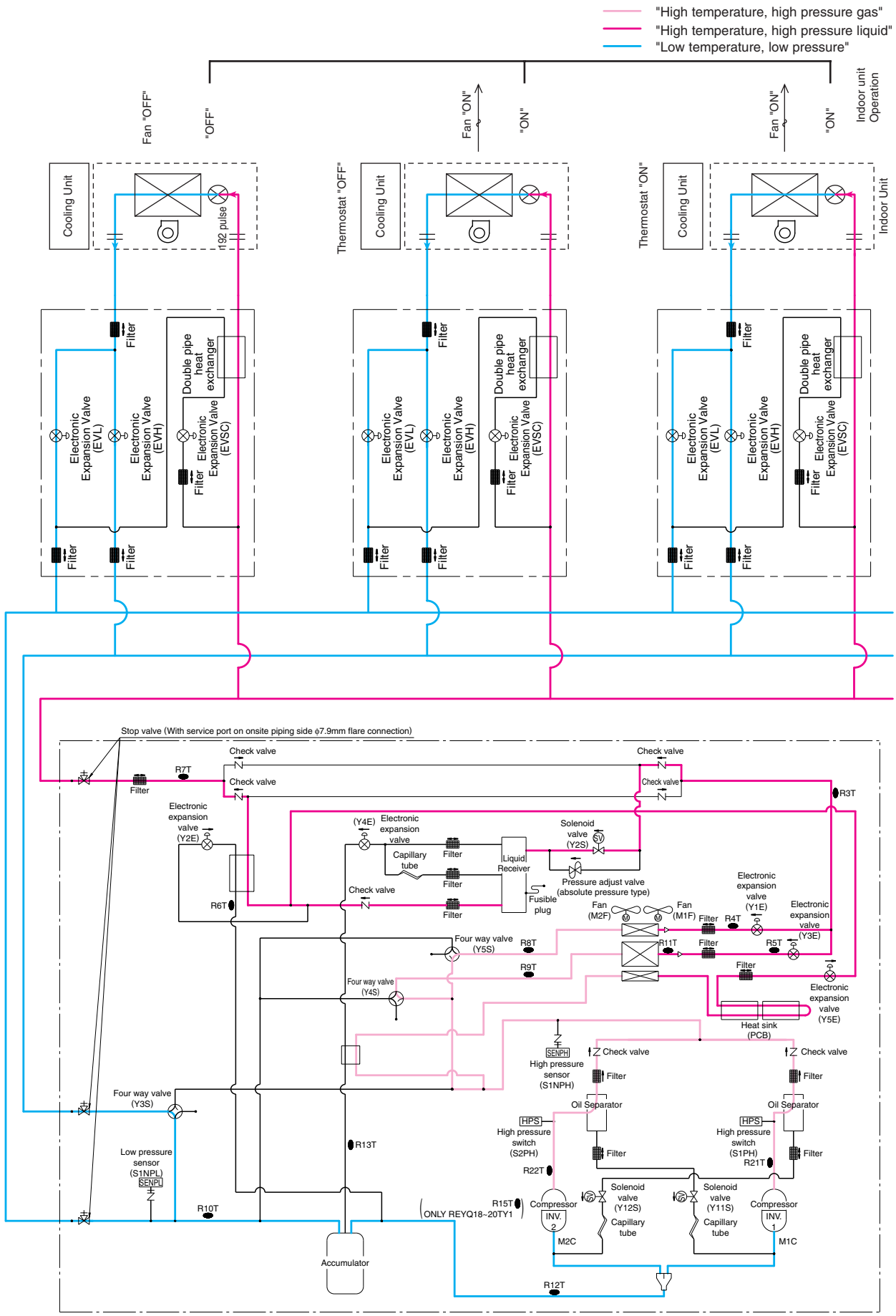
Heating Operation



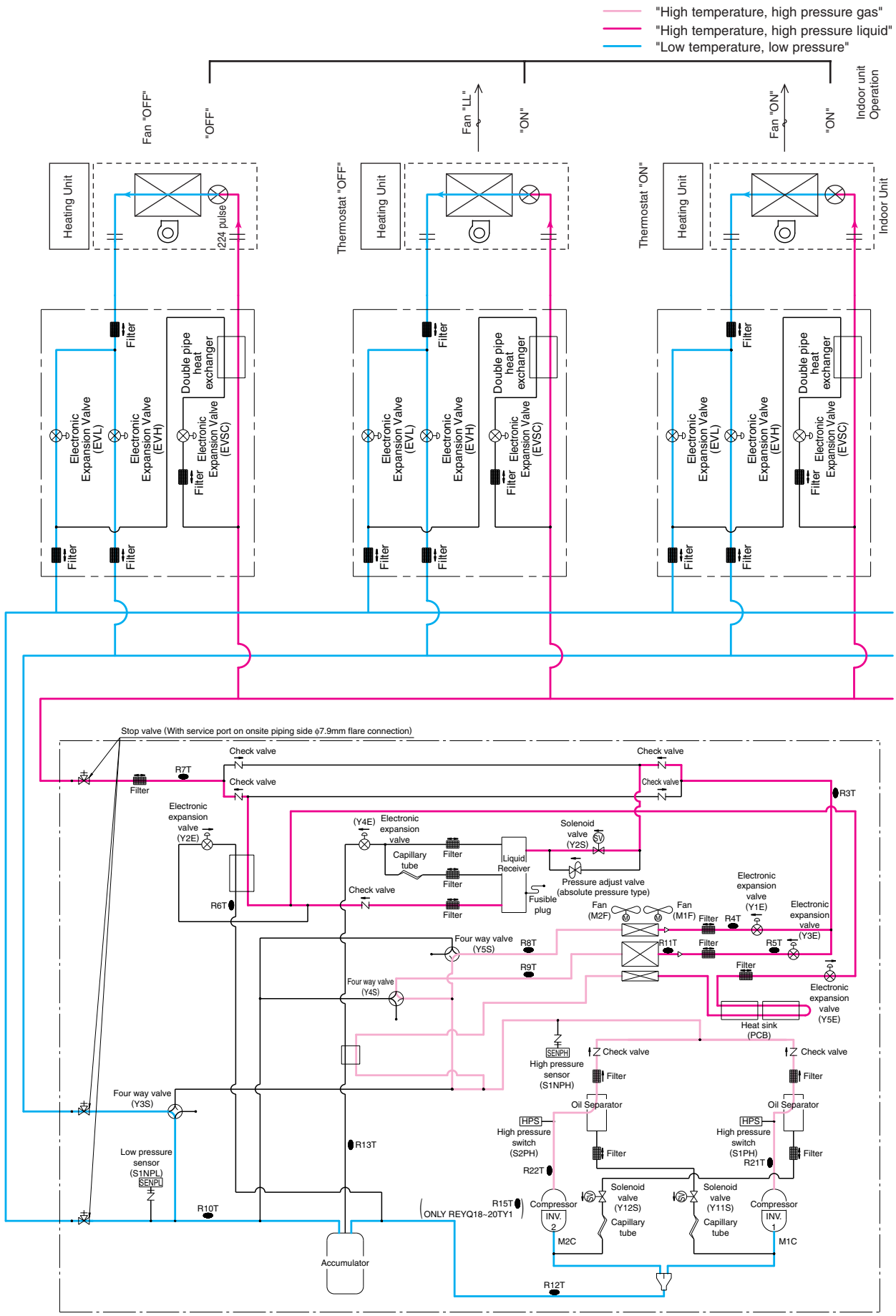
Simultaneous Cooling / Heating Operation



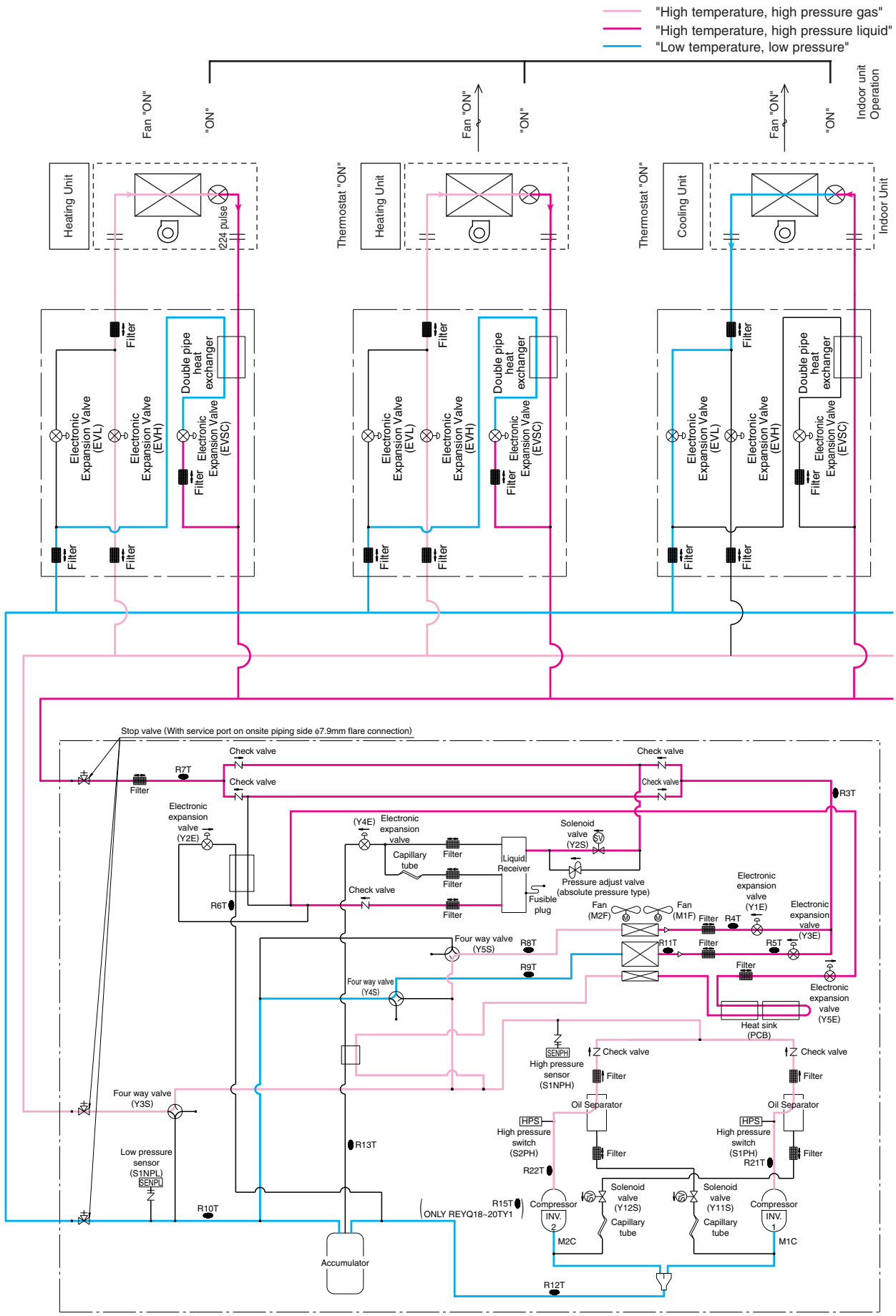
Cooling Oil Return Operation



Defrosting and Heating Oil Return Operation



Oil Return Operation at Simultaneous Cooling / Heating Operation



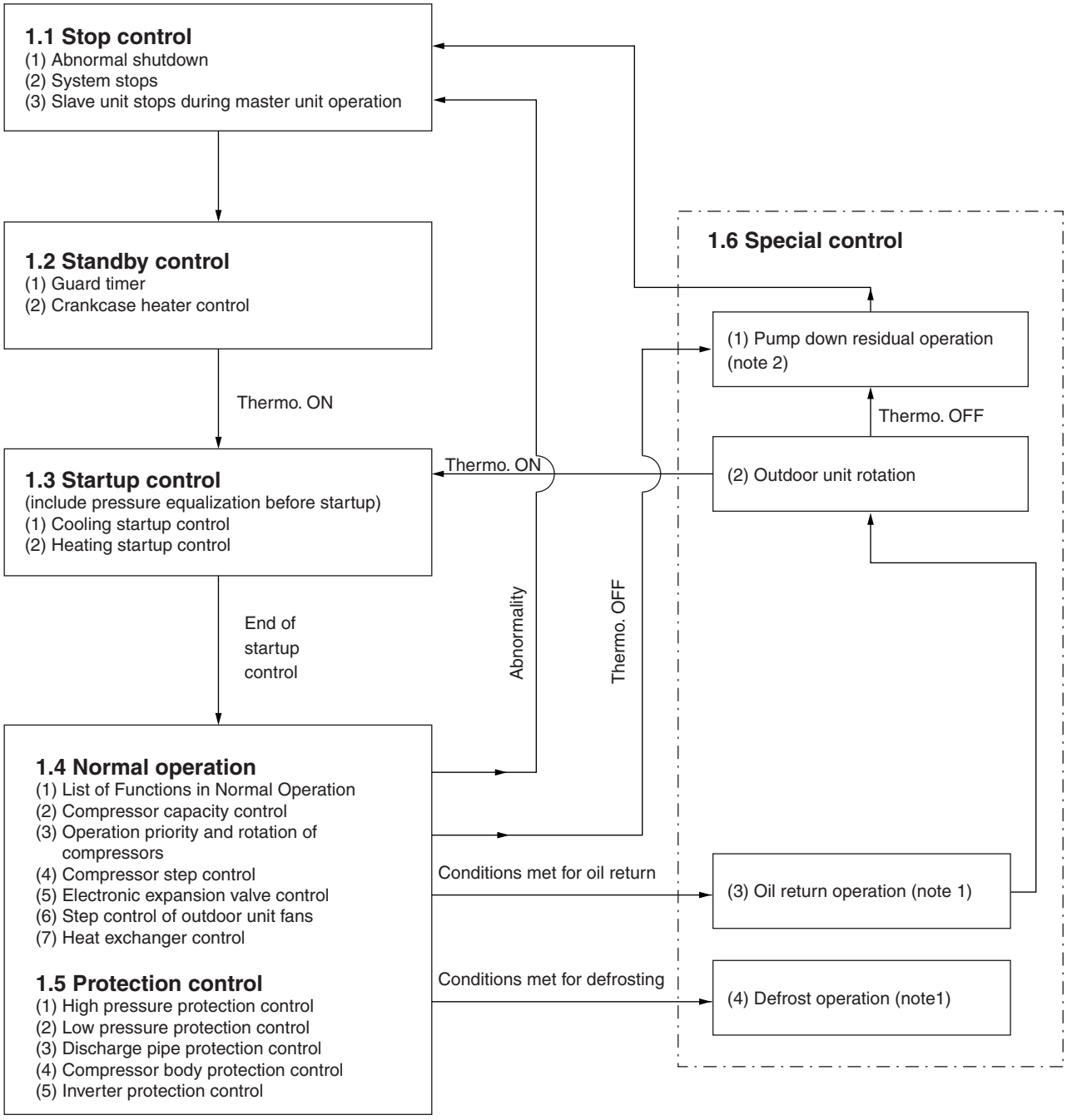
Part 3
Functions

1. General Functions

1.1 Operation Mode

Operation flow chart

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 defrosting operation, pump down residual operation is performed on completion of the oil return operation or defrosting operation.
2. Not performed during cooling mode.

1.2 Stop Control

1.2.1 Stop due to Error

In order to protect compressors, if any of the abnormal state occurs, the system will make "stop with thermostat OFF" and the error will be determined according to the number of retry times.
(Refer to "Error Codes and Description" (P.126~) of the troubleshooting for the items to determine the error.)

1.2.2 When System is in Stop Mode

The four way valves both for heat exchanger switch and piping switch retain the condition before they were stopped.

1.2.3 Slave Unit Stops during Master Unit Operation

When slave unit is stopped (because of low demand), conditions for this unit are set same as above “1.2.2. When System is in Stop Mode” till this unit is required to operate (increase of load).

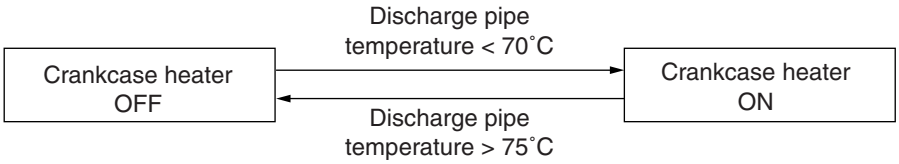
1.3 Standby Control

1.3.1 Restart Standby

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

1.3.2 Crankcase Heater Control

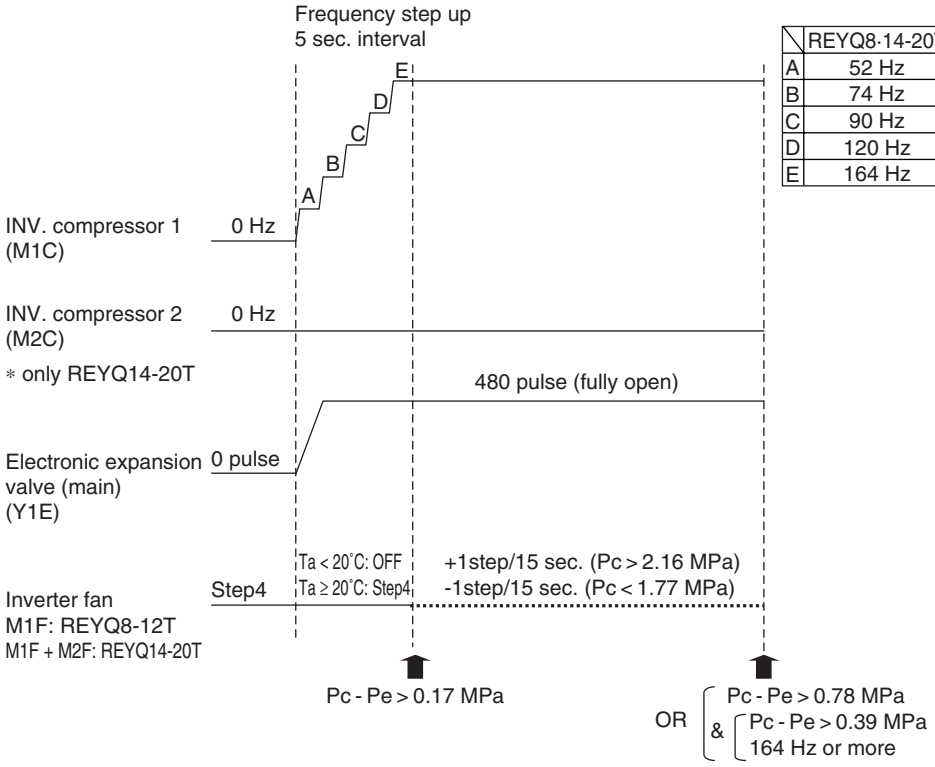
In order to prevent the refrigerant from melting in the compressor oil in the stopped mode, this mode is used to control the crankcase heater.



1.4 Startup Control

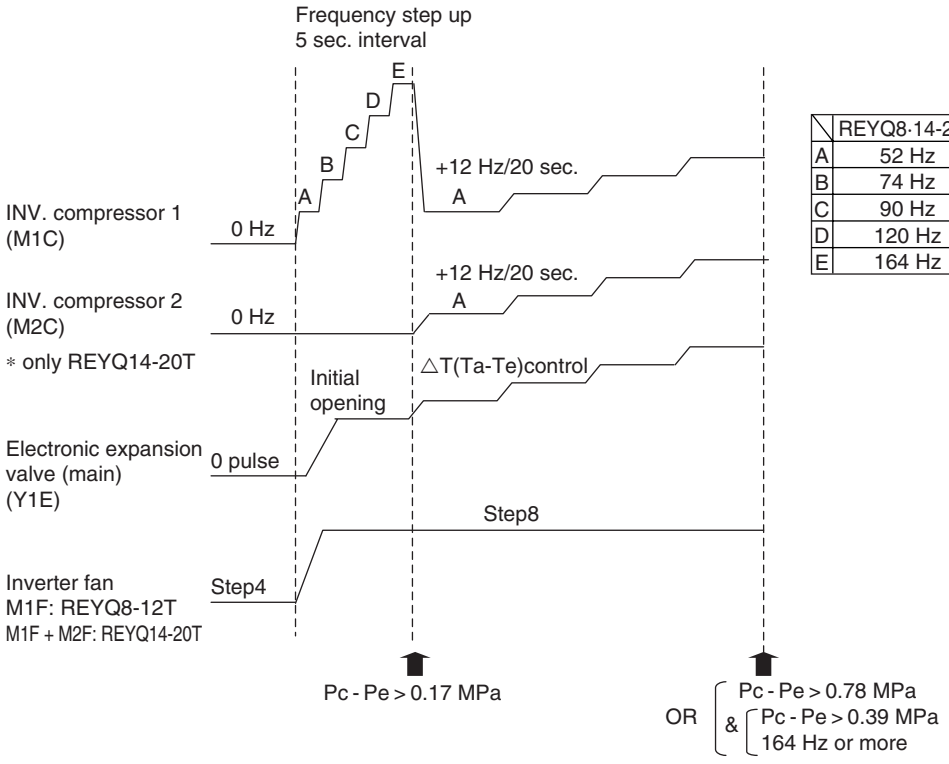
This control is used to equalize the pressure in the front and back of the compressor prior to the startup of the compressor, thus reducing startup loads. Furthermore, the inverter is turned ON to charge the capacitor. To avoid stresses to the compressor due to oil return or else after the startup, the 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.

1.4.1 Startup Control in Cooling



	REYQ8·14-20T	REYQ10·12T
A	52 Hz	60 Hz
B	74 Hz	75 Hz
C	90 Hz	90 Hz
D	120 Hz	120 Hz
E	164 Hz	180 Hz

1.4.2 Startup Control in Heating



	REYQ8·14-20T	REYQ10·12T
A	52 Hz	60 Hz
B	74 Hz	75 Hz
C	90 Hz	90 Hz
D	120 Hz	120 Hz
E	164 Hz	180 Hz

2. Basic Control

2.1 Normal Operation

2.1.1 List of Functions in Normal Operation

Part Name	Electric Symbol		Function of Functional Part		
	REYQ8-12T	REYQ14-20T	Normal Cooling	Normal Heating	Normal Simultaneous Cooling / Heating
Inverter compressor	M1C	M1C, M2C	PI control, High pressure protection, Low pressure protection, Td protection, INV. protection,	PI control, High pressure protection, Low pressure protection, Td protection, INV. protection,	PI control, High pressure protection, Low pressure protection, Td protection, INV. protection,
Inverter fan	M1F	M1F, M2F	Cooling fan control	Outdoor unit heat exchanger: Condenser / Cooling fan control Outdoor unit heat exchanger: Evaporator / Fan step 7 or 8	Outdoor unit heat exchanger: Condenser / Cooling fan control Outdoor unit heat exchanger: Evaporator / Fan step 7 or 8
Electronic expansion valve (Heat exchanger upper)	Y1E	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	Y3E	Subcooled degree control (0 pulse in low load)	Superheated degree control (0 pulse in low load)	
Electronic expansion valve (Subcooling heat exchanger)	Y2E	Y2E	Superheated degree control (discharge pipe protection)	Superheated degree control (discharge pipe protection)	Superheated degree control (discharge pipe protection)
Electronic expansion valve (Receiver gas purge)	Y4E	Y4E	0 pulse	Gas purge control	Gas purge control
Electronic expansion valve (Inverter cooling)	Y5E	Y5E	Cooling refrigerant control	Cooling refrigerant control	Cooling refrigerant control
Solenoid valve (Oil separator oil return)	Y11S	Y11S, Y12S	ON	ON	ON
Solenoid valve (Liquid pipe)	Y2S	Y2S	ON	ON	ON
Four way valve (HP/LP gas pipe)	Y3S	Y3S	ON	OFF	OFF
Four way valve (Heat exchanger lower)	Y4S	Y4S	OFF (ON in low load)	ON	OFF (in cooling) OFF (In heating)
Four way valve (Heat exchanger upper)	Y5S	Y5S	OFF	ON (OFF in low load)	OFF (in cooling) OFF (In heating)

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

2.2 Compressor Control

Carries out the compressor capacity control to maintain Te at constant during cooling operation and Tc at constant during heating operation to ensure stable unit performance.

Compressor frequency

	REYQ8T	REYQ10T	REYQ12T	REYQ14T		REYQ16T		REYQ18T		REYQ20T	
				INV1	INV2	INV1	INV2	INV1	INV2	INV1	INV2
Minimum (Hz)	52.0	60.0	60.0	52.0	52.0	52.0	52.0	52.0	60.0	52.0	60.0
Maximum (Hz)	255.6	363.9	392.1	233.6	253.6	256.0	276.0	275.0	352.5	275.0	399.0

Cooling operation

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

Te: Low pressure equivalent saturation temperature (°C)

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

Te setting (Make this setting while in Setting mode 2.) (°C)

Automatic (default)	Lower	Normal	Higher				
Varies based on outdoor temperature	3	6	7	8	9	10	11

Heating operation

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

Tc: High pressure equivalent saturation temperature (°C)

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

Tc setting (Make this setting while in Setting mode 2.) (°C)

Automatic (default)	Lower					Normal	Higher
Varies based on outdoor temperature	41	42	43	44	45	46	49

2.3 Operating Priority and Rotation of Compressors

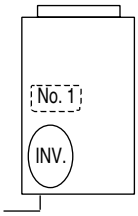
Each compressor operates in the following order of priority.
In the case of multi-outdoor-unit system, each compressor operates in any of Pattern 1 through Pattern 3 according to the rotation of outdoor units.

INV.: Inverter compressor
INV. 1: Inverter compressor 1
INV. 2: Inverter compressor 2

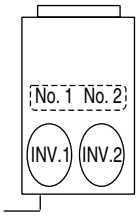
Pattern 1 Pattern 2 Pattern 3

[Single Outdoor Unit]

Standard type: REYQ8-12T

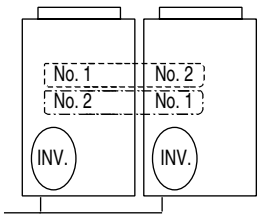


Standard type: REYQ14-20T

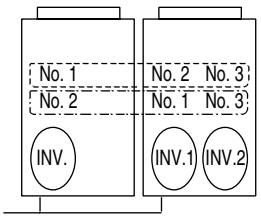


[2 Outdoor Units]

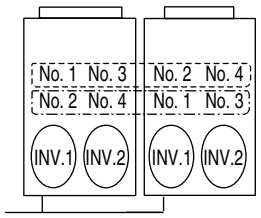
High-COP type: REYQ16-20TH
Standard type: REYQ22·24T



Standard type: REYQ26-30T

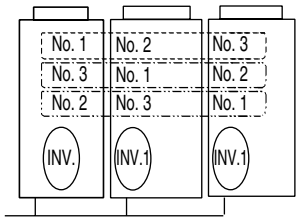


Standard type: REYQ32-36T

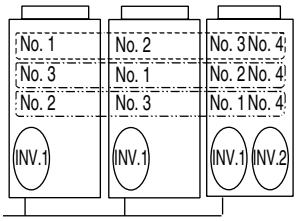


[3 Outdoor Units]

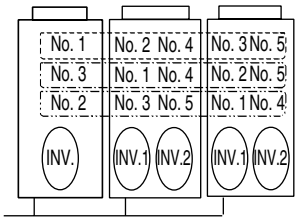
High-COP type: REYQ24-32TH



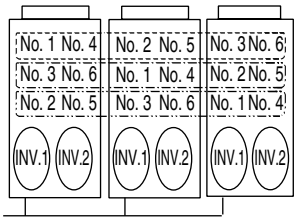
Standard type: REYQ38·40T



Standard type: REYQ42·44T



Standard type: REYQ46-60T



Note:
1. In the case of combination of 3 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.

2.4 Compressor Step Control

Compressor operations vary with the following steps according to information in "2.2 Compressor PI Control". Furthermore, the operating priority of compressors is subject to information in "■ Operating Priority and Rotation of Compressors".

Single unit installation

REYQ8TY1

Step No.	INV.	Step No.	INV.	
1	52.0 Hz	61	116.0 Hz	
2	52.8 Hz	62	117.6 Hz	
3	53.4 Hz	63	119.2 Hz	
4	54.2 Hz	64	120.8 Hz	
5	54.8 Hz	65	122.4 Hz	
6	55.6 Hz	66	124.0 Hz	
7	56.4 Hz	67	125.8 Hz	
8	57.2 Hz	68	127.4 Hz	
9	57.8 Hz	69	129.2 Hz	
10	58.6 Hz	70	130.8 Hz	
11	59.4 Hz	71	132.6 Hz	
12	60.2 Hz	72	140.0 Hz	
13	61.0 Hz	73	141.8 Hz	
14	61.8 Hz	74	143.8 Hz	
15	62.8 Hz	75	145.6 Hz	
16	63.6 Hz	76	147.6 Hz	
17	64.4 Hz	77	149.6 Hz	
18	65.2 Hz	78	151.6 Hz	
19	66.2 Hz	79	153.6 Hz	
20	67.0 Hz	80	155.8 Hz	
21	68.0 Hz	81	157.8 Hz	
22	68.8 Hz	82	160.0 Hz	
23	69.8 Hz	83	162.2 Hz	
24	70.8 Hz	84	164.4 Hz	
25	71.6 Hz	85	166.6 Hz	
26	72.6 Hz	86	168.8 Hz	
27	73.6 Hz	87	171.0 Hz	
28	74.6 Hz	88	173.4 Hz	
29	75.6 Hz	89	175.6 Hz	
30	76.6 Hz	90	178.0 Hz	
31	77.6 Hz	91	180.4 Hz	
32	78.8 Hz	92	182.8 Hz	
33	79.8 Hz	93	185.4 Hz	
34	80.8 Hz	94	190.4 Hz	
35	82.0 Hz	95	193.0 Hz	
36	83.0 Hz	96	195.6 Hz	
37	84.2 Hz	97	198.2 Hz	
38	85.4 Hz	98	200.8 Hz	
39	86.4 Hz	99	203.6 Hz	
40	87.6 Hz	100	206.2 Hz	
41	88.8 Hz	101	209.0 Hz	
42	90.0 Hz	102	211.8 Hz	
43	91.2 Hz	103	214.8 Hz	
44	92.4 Hz	104	217.6 Hz	
45	93.6 Hz	105	220.6 Hz	
46	95.0 Hz	106	223.6 Hz	
47	96.2 Hz	107	226.6 Hz	
48	97.6 Hz	108	229.6 Hz	
49	98.8 Hz	109	232.6 Hz	
50	100.2 Hz	110	235.8 Hz	
51	101.6 Hz	111	239.0 Hz	
52	102.8 Hz	112	242.2 Hz	
53	104.2 Hz	113	245.4 Hz	
54	105.6 Hz	114	248.8 Hz	
55	107.0 Hz	115	252.2 Hz	
56	108.6 Hz	116	255.6 Hz	◄REYQ8TY1 upper limit
57	110.0 Hz			
58	111.4 Hz			
59	113.0 Hz			
60	114.6 Hz			

REYQ10TY1/12TY1

Step No.	INV.	Step No.	INV.	Step No.	INV.	
1	60.0 Hz	61	127.8 Hz	121	269.7 Hz	
2	60.9 Hz	62	129.3 Hz	122	273.0 Hz	
3	61.8 Hz	63	130.8 Hz	123	276.3 Hz	
4	62.7 Hz	64	132.3 Hz	124	279.9 Hz	
5	63.6 Hz	65	134.1 Hz	125	283.5 Hz	
6	64.5 Hz	66	135.9 Hz	126	287.1 Hz	
7	65.4 Hz	67	137.7 Hz	127	290.7 Hz	
8	66.3 Hz	68	139.5 Hz	128	294.3 Hz	
9	67.2 Hz	69	141.3 Hz	129	309.3 Hz	
10	68.1 Hz	70	143.1 Hz	130	313.2 Hz	
11	69.0 Hz	71	144.9 Hz	131	321.0 Hz	
12	69.9 Hz	72	146.7 Hz	132	324.9 Hz	
13	70.8 Hz	73	148.5 Hz	133	329.1 Hz	
14	71.7 Hz	74	150.3 Hz	134	333.3 Hz	
15	72.6 Hz	75	152.1 Hz	135	337.5 Hz	
16	73.5 Hz	76	153.9 Hz	136	341.7 Hz	
17	74.4 Hz	77	155.7 Hz	137	345.9 Hz	
18	75.3 Hz	78	157.8 Hz	138	350.4 Hz	
19	76.2 Hz	79	159.9 Hz	139	354.9 Hz	
20	77.1 Hz	80	162.0 Hz	140	359.4 Hz	
21	78.0 Hz	81	164.1 Hz	141	363.9 Hz	◄REYQ10TY1 upper limit
22	78.9 Hz	82	166.2 Hz	142	368.4 Hz	
23	79.8 Hz	83	168.3 Hz	143	372.9 Hz	
24	80.7 Hz	84	170.4 Hz	144	377.7 Hz	
25	81.6 Hz	85	172.5 Hz	145	382.5 Hz	
26	82.5 Hz	86	174.6 Hz	146	387.3 Hz	
27	83.4 Hz	87	176.7 Hz	147	392.1 Hz	◄REYQ12TY1 upper limit
28	84.3 Hz	88	178.8 Hz			
29	85.5 Hz	89	180.9 Hz			
30	86.7 Hz	90	183.3 Hz			
31	87.9 Hz	91	185.7 Hz			
32	89.1 Hz	92	188.1 Hz			
33	90.3 Hz	93	190.5 Hz			
34	91.5 Hz	94	192.9 Hz			
35	92.7 Hz	95	195.3 Hz			
36	93.9 Hz	96	197.7 Hz			
37	95.1 Hz	97	200.1 Hz			
38	96.3 Hz	98	202.5 Hz			
39	97.5 Hz	99	204.9 Hz			
40	98.7 Hz	100	207.6 Hz			
41	99.9 Hz	101	210.3 Hz			
42	101.1 Hz	102	213.0 Hz			
43	102.3 Hz	103	215.7 Hz			
44	103.5 Hz	104	218.4 Hz			
45	104.7 Hz	105	221.1 Hz			
46	105.9 Hz	106	223.8 Hz			
47	107.1 Hz	107	226.5 Hz			
48	108.3 Hz	108	229.2 Hz			
49	109.8 Hz	109	232.2 Hz			
50	111.3 Hz	110	235.2 Hz			
51	112.8 Hz	111	238.2 Hz			
52	114.3 Hz	112	241.2 Hz			
53	115.8 Hz	113	244.2 Hz			
54	117.3 Hz	114	247.2 Hz			
55	118.8 Hz	115	250.2 Hz			
56	120.3 Hz	116	253.2 Hz			
57	121.8 Hz	117	256.5 Hz			
58	123.3 Hz	118	259.8 Hz			
59	124.8 Hz	119	263.1 Hz			
60	126.3 Hz	120	266.4 Hz			

Note:

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

REYQ14TY1/16TY1

Step No.	Step up		Step down	
	INV1	INV2	INV1	INV2
1	52.0Hz	0.0Hz	52.0Hz	0.0Hz
2	52.8Hz	0.0Hz	52.8Hz	0.0Hz
3	53.4Hz	0.0Hz	53.4Hz	0.0Hz
4	54.2Hz	0.0Hz	54.2Hz	0.0Hz
5	54.8Hz	0.0Hz	54.8Hz	0.0Hz
6	55.6Hz	0.0Hz	55.6Hz	0.0Hz
7	56.4Hz	0.0Hz	56.4Hz	0.0Hz
8	57.2Hz	0.0Hz	57.2Hz	0.0Hz
9	57.8Hz	0.0Hz	57.8Hz	0.0Hz
10	58.6Hz	0.0Hz	58.6Hz	0.0Hz
11	59.4Hz	0.0Hz	59.4Hz	0.0Hz
12	60.2Hz	0.0Hz	60.2Hz	0.0Hz
13	61.0Hz	0.0Hz	61.0Hz	0.0Hz
14	61.8Hz	0.0Hz	61.8Hz	0.0Hz
15	62.8Hz	0.0Hz	62.8Hz	0.0Hz
16	63.6Hz	0.0Hz	63.6Hz	0.0Hz
17	64.4Hz	0.0Hz	64.4Hz	0.0Hz
18	65.2Hz	0.0Hz	65.2Hz	0.0Hz
19	66.2Hz	0.0Hz	66.2Hz	0.0Hz
20	67.0Hz	0.0Hz	67.0Hz	0.0Hz
21	68.0Hz	0.0Hz	68.0Hz	0.0Hz
22	68.8Hz	0.0Hz	68.8Hz	0.0Hz
23	69.8Hz	0.0Hz	69.8Hz	0.0Hz
24	70.8Hz	0.0Hz	70.8Hz	0.0Hz
25	71.6Hz	0.0Hz	71.6Hz	0.0Hz
26	72.6Hz	0.0Hz	72.6Hz	0.0Hz
27	73.6Hz	0.0Hz	73.6Hz	0.0Hz
28	74.6Hz	0.0Hz	74.6Hz	0.0Hz
29	75.6Hz	0.0Hz	75.6Hz	0.0Hz
30	76.6Hz	0.0Hz	76.6Hz	0.0Hz
31	77.6Hz	0.0Hz	77.6Hz	0.0Hz
32	78.8Hz	0.0Hz	78.8Hz	0.0Hz
33	79.8Hz	0.0Hz	79.8Hz	0.0Hz
34	80.8Hz	0.0Hz	80.8Hz	0.0Hz
35	82.0Hz	0.0Hz	82.0Hz	0.0Hz
36	83.0Hz	0.0Hz	83.0Hz	0.0Hz
37	84.2Hz	0.0Hz	84.2Hz	0.0Hz
38	85.4Hz	0.0Hz	85.4Hz	0.0Hz
39	86.4Hz	0.0Hz	86.4Hz	0.0Hz
40	87.6Hz	0.0Hz	87.6Hz	0.0Hz
41	88.8Hz	0.0Hz	88.8Hz	0.0Hz
42	90.0Hz	0.0Hz	90.0Hz	0.0Hz
43	91.2Hz	0.0Hz	91.2Hz	0.0Hz
44	92.4Hz	0.0Hz	92.4Hz	0.0Hz
45	93.6Hz	0.0Hz	93.6Hz	0.0Hz
46	95.0Hz	0.0Hz	95.0Hz	0.0Hz
47	96.2Hz	0.0Hz	96.2Hz	0.0Hz
48	97.6Hz	0.0Hz	97.6Hz	0.0Hz
49	98.8Hz	0.0Hz	98.8Hz	0.0Hz
50	100.2Hz	0.0Hz	100.2Hz	0.0Hz
51	101.6Hz	0.0Hz	101.6Hz	0.0Hz
52	103.0Hz	0.0Hz	52.0Hz	52.0Hz
53	104.2Hz	0.0Hz	52.0Hz	53.0Hz
54	105.6Hz	0.0Hz	52.0Hz	54.0Hz
55	107.0Hz	0.0Hz	52.6Hz	54.6Hz
56	108.6Hz	0.0Hz	52.8Hz	56.0Hz
57	110.0Hz	0.0Hz	53.0Hz	57.0Hz
58	111.4Hz	0.0Hz	53.8Hz	57.8Hz
59	113.0Hz	0.0Hz	54.0Hz	59.4Hz
60	114.6Hz	0.0Hz	54.4Hz	60.4Hz
61	116.0Hz	0.0Hz	55.0Hz	61.0Hz
62	117.6Hz	0.0Hz	55.2Hz	62.6Hz
63	119.2Hz	0.0Hz	55.6Hz	63.6Hz

Step No.	Step up		Step down	
	INV1	INV2	INV1	INV2
64	120.8Hz	0.0Hz	56.4Hz	64.4Hz
65	122.4Hz	0.0Hz	56.6Hz	66.0Hz
66	124.0Hz	0.0Hz	57.0Hz	67.0Hz
67	125.8Hz	0.0Hz	58.0Hz	68.0Hz
68	127.4Hz	0.0Hz	58.8Hz	68.8Hz
69	129.2Hz	0.0Hz	59.6Hz	69.6Hz
70	130.8Hz	0.0Hz	60.4Hz	70.4Hz
71	61.4Hz	71.4Hz	61.4Hz	71.4Hz
72	65.0Hz	75.0Hz	65.0Hz	75.0Hz
73	66.0Hz	76.0Hz	66.0Hz	76.0Hz
74	67.0Hz	77.0Hz	67.0Hz	77.0Hz
75	67.8Hz	77.8Hz	67.8Hz	77.8Hz
76	68.8Hz	78.8Hz	68.8Hz	78.8Hz
77	69.8Hz	79.8Hz	69.8Hz	79.8Hz
78	70.8Hz	80.8Hz	70.8Hz	80.8Hz
79	71.8Hz	81.8Hz	71.8Hz	81.8Hz
80	73.0Hz	83.0Hz	73.0Hz	83.0Hz
81	74.0Hz	84.0Hz	74.0Hz	84.0Hz
82	75.0Hz	85.0Hz	75.0Hz	85.0Hz
83	76.2Hz	86.2Hz	76.2Hz	86.2Hz
84	77.2Hz	87.2Hz	77.2Hz	87.2Hz
85	78.4Hz	88.4Hz	78.4Hz	88.4Hz
86	79.4Hz	89.4Hz	79.4Hz	89.4Hz
87	80.6Hz	90.6Hz	80.6Hz	90.6Hz
88	81.8Hz	91.8Hz	81.8Hz	91.8Hz
89	82.8Hz	92.8Hz	82.8Hz	92.8Hz
90	84.0Hz	94.0Hz	84.0Hz	94.0Hz
91	85.2Hz	95.2Hz	85.2Hz	95.2Hz
92	86.4Hz	96.4Hz	86.4Hz	96.4Hz
93	87.8Hz	97.8Hz	87.8Hz	97.8Hz
94	90.2Hz	100.2Hz	90.2Hz	100.2Hz
95	91.6Hz	101.6Hz	91.6Hz	101.6Hz
96	92.8Hz	102.8Hz	92.8Hz	102.8Hz
97	94.2Hz	104.2Hz	94.2Hz	104.2Hz
98	95.4Hz	105.4Hz	95.4Hz	105.4Hz
99	96.8Hz	106.8Hz	96.8Hz	106.8Hz
100	98.2Hz	108.2Hz	98.2Hz	108.2Hz
101	99.6Hz	109.6Hz	99.6Hz	109.6Hz
102	101.0Hz	111.0Hz	101.0Hz	111.0Hz
103	102.6Hz	112.6Hz	102.6Hz	112.6Hz
104	104.0Hz	114.0Hz	104.0Hz	114.0Hz
105	105.4Hz	115.4Hz	105.4Hz	115.4Hz
106	106.8Hz	116.8Hz	106.8Hz	116.8Hz
107	108.4Hz	118.4Hz	108.4Hz	118.4Hz
108	109.8Hz	119.8Hz	109.8Hz	119.8Hz
109	111.4Hz	121.4Hz	111.4Hz	121.4Hz
110	113.0Hz	123.0Hz	113.0Hz	123.0Hz
111	114.6Hz	124.6Hz	114.6Hz	124.6Hz
112	116.2Hz	126.2Hz	116.2Hz	126.2Hz
113	118.0Hz	128.0Hz	118.0Hz	128.0Hz
114	119.6Hz	129.6Hz	119.6Hz	129.6Hz
115	121.2Hz	131.2Hz	121.2Hz	131.2Hz
116	122.8Hz	132.8Hz	122.8Hz	132.8Hz
117	130.0Hz	140.0Hz	130.0Hz	140.0Hz
118	131.8Hz	141.8Hz	131.8Hz	141.8Hz
119	133.8Hz	143.8Hz	133.8Hz	143.8Hz
120	139.6Hz	149.6Hz	139.6Hz	149.6Hz
121	141.6Hz	151.6Hz	141.6Hz	151.6Hz
122	143.6Hz	153.6Hz	143.6Hz	153.6Hz
123	145.8Hz	155.8Hz	145.8Hz	155.8Hz
124	147.8Hz	157.8Hz	147.8Hz	157.8Hz
125	150.0Hz	160.0Hz	150.0Hz	160.0Hz
126	152.2Hz	162.2Hz	152.2Hz	162.2Hz

Step No.	Step up		Step down		
	INV1	INV2	INV1	INV2	
127	154.4Hz	164.4Hz	154.4Hz	164.4Hz	
128	156.6Hz	166.6Hz	156.6Hz	166.6Hz	
129	158.8Hz	168.8Hz	158.8Hz	168.8Hz	
130	161.2Hz	171.2Hz	161.2Hz	171.2Hz	
131	163.4Hz	173.4Hz	163.4Hz	173.4Hz	
132	165.8Hz	175.8Hz	165.8Hz	175.8Hz	
133	168.2Hz	178.2Hz	168.2Hz	178.2Hz	
134	170.6Hz	180.6Hz	170.6Hz	180.6Hz	
135	173.2Hz	183.2Hz	173.2Hz	183.2Hz	
136	175.6Hz	185.6Hz	175.6Hz	185.6Hz	
137	180.6Hz	190.6Hz	180.6Hz	190.6Hz	
138	183.2Hz	193.2Hz	183.2Hz	193.2Hz	
139	192.0Hz	202.0Hz	192.0Hz	202.0Hz	
140	195.4Hz	205.4Hz	195.4Hz	205.4Hz	
141	199.0Hz	209.0Hz	199.0Hz	209.0Hz	
142	201.6Hz	213.6Hz	201.6Hz	213.6Hz	
143	205.4Hz	217.4Hz	205.4Hz	217.4Hz	
144	207.2Hz	223.2Hz	207.2Hz	223.2Hz	
145	211.0Hz	227.0Hz	211.0Hz	227.0Hz	
146	215.0Hz	231.0Hz	215.0Hz	231.0Hz	
147	218.8Hz	234.8Hz	218.8Hz	234.8Hz	
148	223.0Hz	239.0Hz	223.0Hz	239.0Hz	
149	227.0Hz	243.0Hz	227.0Hz	243.0Hz	
150	229.2Hz	249.2Hz	229.2Hz	249.2Hz	
151	233.6Hz	253.6Hz	233.6Hz	253.6Hz	◄REYQ14TY1 upper limit
152	237.8Hz	257.8Hz	237.8Hz	257.8Hz	
153	242.2Hz	262.2Hz	242.2Hz	262.2Hz	
154	246.8Hz	266.8Hz	246.8Hz	266.8Hz	
155	251.4Hz	271.4Hz	251.4Hz	271.4Hz	
156	256.0Hz	276.0Hz	256.0Hz	276.0Hz	◄REYQ16TY1 upper limit

Note:

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

REYQ18TY1 / 20TY1

Step No.	Step up		Step down	
	INV1	INV2	INV1	INV2
1	52.0Hz	0.0Hz	52.0Hz	0.0Hz
2	52.8Hz	0.0Hz	52.8Hz	0.0Hz
3	53.4Hz	0.0Hz	53.4Hz	0.0Hz
4	54.2Hz	0.0Hz	54.2Hz	0.0Hz
5	54.8Hz	0.0Hz	54.8Hz	0.0Hz
6	55.6Hz	0.0Hz	55.6Hz	0.0Hz
7	56.4Hz	0.0Hz	56.4Hz	0.0Hz
8	57.2Hz	0.0Hz	57.2Hz	0.0Hz
9	57.8Hz	0.0Hz	57.8Hz	0.0Hz
10	58.6Hz	0.0Hz	58.6Hz	0.0Hz
11	59.4Hz	0.0Hz	59.4Hz	0.0Hz
12	60.2Hz	0.0Hz	60.2Hz	0.0Hz
13	61.0Hz	0.0Hz	61.0Hz	0.0Hz
14	61.8Hz	0.0Hz	61.8Hz	0.0Hz
15	62.8Hz	0.0Hz	62.8Hz	0.0Hz
16	63.6Hz	0.0Hz	63.6Hz	0.0Hz
17	64.4Hz	0.0Hz	64.4Hz	0.0Hz
18	65.2Hz	0.0Hz	65.2Hz	0.0Hz
19	66.2Hz	0.0Hz	66.2Hz	0.0Hz
20	67.0Hz	0.0Hz	67.0Hz	0.0Hz
21	68.0Hz	0.0Hz	68.0Hz	0.0Hz
22	68.8Hz	0.0Hz	68.8Hz	0.0Hz
23	69.8Hz	0.0Hz	69.8Hz	0.0Hz
24	70.8Hz	0.0Hz	70.8Hz	0.0Hz
25	71.6Hz	0.0Hz	71.6Hz	0.0Hz
26	72.6Hz	0.0Hz	72.6Hz	0.0Hz
27	73.6Hz	0.0Hz	73.6Hz	0.0Hz
28	74.6Hz	0.0Hz	74.6Hz	0.0Hz
29	75.6Hz	0.0Hz	75.6Hz	0.0Hz
30	76.6Hz	0.0Hz	76.6Hz	0.0Hz
31	77.6Hz	0.0Hz	77.6Hz	0.0Hz
32	78.8Hz	0.0Hz	78.8Hz	0.0Hz
33	79.8Hz	0.0Hz	79.8Hz	0.0Hz
34	80.8Hz	0.0Hz	80.8Hz	0.0Hz
35	82.0Hz	0.0Hz	82.0Hz	0.0Hz
36	83.0Hz	0.0Hz	83.0Hz	0.0Hz
37	84.2Hz	0.0Hz	84.2Hz	0.0Hz
38	85.4Hz	0.0Hz	85.4Hz	0.0Hz
39	86.4Hz	0.0Hz	86.4Hz	0.0Hz
40	87.6Hz	0.0Hz	87.6Hz	0.0Hz
41	88.8Hz	0.0Hz	88.8Hz	0.0Hz
42	90.0Hz	0.0Hz	90.0Hz	0.0Hz
43	91.2Hz	0.0Hz	91.2Hz	0.0Hz
44	92.4Hz	0.0Hz	92.4Hz	0.0Hz
45	93.6Hz	0.0Hz	93.6Hz	0.0Hz
46	95.0Hz	0.0Hz	95.0Hz	0.0Hz
47	96.2Hz	0.0Hz	96.2Hz	0.0Hz
48	97.6Hz	0.0Hz	97.6Hz	0.0Hz
49	98.8Hz	0.0Hz	98.8Hz	0.0Hz
50	100.2Hz	0.0Hz	100.2Hz	0.0Hz
51	101.6Hz	0.0Hz	101.6Hz	0.0Hz
52	103.0Hz	0.0Hz	103.0Hz	0.0Hz
53	104.2Hz	0.0Hz	104.2Hz	0.0Hz
54	105.6Hz	0.0Hz	105.6Hz	0.0Hz
55	107.0Hz	0.0Hz	107.0Hz	0.0Hz
56	108.6Hz	0.0Hz	108.6Hz	0.0Hz
57	110.0Hz	0.0Hz	110.0Hz	0.0Hz
58	111.4Hz	0.0Hz	52.0Hz	60.0Hz
59	113.0Hz	0.0Hz	52.8Hz	60.3Hz
60	114.6Hz	0.0Hz	53.4Hz	61.2Hz

Step No.	Step up		Step down	
	INV1	INV2	INV1	INV2
61	116.0Hz	0.0Hz	54.2Hz	61.8Hz
62	117.6Hz	0.0Hz	55.0Hz	62.7Hz
63	119.2Hz	0.0Hz	55.8Hz	63.3Hz
64	120.8Hz	0.0Hz	56.6Hz	64.2Hz
65	122.4Hz	0.0Hz	57.4Hz	65.1Hz
66	124.0Hz	0.0Hz	58.2Hz	65.7Hz
67	125.8Hz	0.0Hz	59.0Hz	66.9Hz
68	127.4Hz	0.0Hz	59.8Hz	67.5Hz
69	129.2Hz	0.0Hz	60.6Hz	68.4Hz
70	130.8Hz	0.0Hz	61.6Hz	69.3Hz
71	132.6Hz	0.0Hz	62.4Hz	70.2Hz
72	140.0Hz	0.0Hz	66.0Hz	74.1Hz
73	141.8Hz	0.0Hz	66.8Hz	75.0Hz
74	143.8Hz	0.0Hz	67.8Hz	75.9Hz
75	68.8Hz	76.8Hz	68.8Hz	76.8Hz
76	69.8Hz	77.7Hz	69.8Hz	77.7Hz
77	70.8Hz	78.9Hz	70.8Hz	78.9Hz
78	71.8Hz	79.8Hz	71.8Hz	79.8Hz
79	72.8Hz	80.7Hz	72.8Hz	80.7Hz
80	73.8Hz	81.9Hz	73.8Hz	81.9Hz
81	74.8Hz	83.1Hz	74.8Hz	83.1Hz
82	75.8Hz	84.0Hz	75.8Hz	84.0Hz
83	77.0Hz	85.2Hz	77.0Hz	85.2Hz
84	78.0Hz	86.4Hz	78.0Hz	86.4Hz
85	79.2Hz	87.6Hz	79.2Hz	87.6Hz
86	80.2Hz	88.5Hz	80.2Hz	88.5Hz
87	81.4Hz	89.7Hz	81.4Hz	89.7Hz
88	82.6Hz	90.9Hz	82.6Hz	90.9Hz
89	83.6Hz	91.8Hz	83.6Hz	91.8Hz
90	84.8Hz	93.0Hz	84.8Hz	93.0Hz
91	86.0Hz	94.2Hz	86.0Hz	94.2Hz
92	87.2Hz	95.4Hz	87.2Hz	95.4Hz
93	88.6Hz	96.9Hz	88.6Hz	96.9Hz
94	91.0Hz	99.3Hz	91.0Hz	99.3Hz
95	92.4Hz	100.8Hz	92.4Hz	100.8Hz
96	93.6Hz	102.0Hz	93.6Hz	102.0Hz
97	95.0Hz	103.2Hz	95.0Hz	103.2Hz
98	96.2Hz	104.4Hz	96.2Hz	104.4Hz
99	97.6Hz	105.9Hz	97.6Hz	105.9Hz
100	99.0Hz	107.1Hz	99.0Hz	107.1Hz
101	100.4Hz	108.6Hz	100.4Hz	108.6Hz
102	101.8Hz	110.1Hz	101.8Hz	110.1Hz
103	103.2Hz	111.9Hz	103.2Hz	111.9Hz
104	104.6Hz	113.1Hz	104.6Hz	113.1Hz
105	106.2Hz	114.3Hz	106.2Hz	114.3Hz
106	107.6Hz	115.8Hz	107.6Hz	115.8Hz
107	109.2Hz	117.3Hz	109.2Hz	117.3Hz
108	110.8Hz	118.8Hz	110.8Hz	118.8Hz
109	112.2Hz	120.3Hz	112.2Hz	120.3Hz
110	113.8Hz	121.8Hz	113.8Hz	121.8Hz
111	115.4Hz	123.6Hz	115.4Hz	123.6Hz
112	117.2Hz	125.4Hz	117.2Hz	125.4Hz
113	118.8Hz	127.2Hz	118.8Hz	127.2Hz
114	120.4Hz	128.7Hz	120.4Hz	128.7Hz
115	122.2Hz	130.2Hz	122.2Hz	130.2Hz
116	123.8Hz	131.7Hz	123.8Hz	131.7Hz
117	125.6Hz	133.5Hz	125.6Hz	133.5Hz
118	127.4Hz	135.0Hz	127.4Hz	135.0Hz
119	129.2Hz	136.8Hz	129.2Hz	136.8Hz
120	131.0Hz	138.9Hz	131.0Hz	138.9Hz

Step No.	Step up		Step down		
	INV1	INV2	INV1	INV2	
121	132.8Hz	140.7Hz	132.8Hz	140.7Hz	
122	140.4Hz	148.8Hz	140.4Hz	148.8Hz	
123	142.4Hz	150.6Hz	142.4Hz	150.6Hz	
124	144.4Hz	152.7Hz	144.4Hz	152.7Hz	
125	146.4Hz	154.8Hz	146.4Hz	154.8Hz	
126	148.6Hz	156.9Hz	148.6Hz	156.9Hz	
127	150.6Hz	159.3Hz	150.6Hz	159.3Hz	
128	152.8Hz	161.4Hz	152.8Hz	161.4Hz	
129	155.0Hz	163.8Hz	155.0Hz	163.8Hz	
130	157.2Hz	166.2Hz	157.2Hz	166.2Hz	
131	159.4Hz	168.3Hz	159.4Hz	168.3Hz	
132	161.6Hz	170.7Hz	161.6Hz	170.7Hz	
133	163.8Hz	172.8Hz	163.8Hz	172.8Hz	
134	166.2Hz	175.5Hz	166.2Hz	175.5Hz	
135	168.6Hz	177.9Hz	168.6Hz	177.9Hz	
136	170.8Hz	180.3Hz	170.8Hz	180.3Hz	
137	173.2Hz	183.0Hz	173.2Hz	183.0Hz	
138	175.8Hz	185.4Hz	175.8Hz	185.4Hz	
139	178.2Hz	188.1Hz	178.2Hz	188.1Hz	
140	180.8Hz	190.5Hz	180.8Hz	190.5Hz	
141	183.2Hz	193.2Hz	183.2Hz	193.2Hz	
142	185.8Hz	195.9Hz	185.8Hz	195.9Hz	
143	191.2Hz	202.8Hz	191.2Hz	202.8Hz	
144	193.8Hz	207.3Hz	193.8Hz	207.3Hz	
145	196.6Hz	211.5Hz	196.6Hz	211.5Hz	
146	199.4Hz	216.0Hz	199.4Hz	216.0Hz	
147	202.2Hz	220.8Hz	202.2Hz	220.8Hz	
148	205.0Hz	225.3Hz	205.0Hz	225.3Hz	
149	207.8Hz	230.1Hz	207.8Hz	230.1Hz	
150	210.8Hz	234.9Hz	210.8Hz	234.9Hz	
151	213.8Hz	240.0Hz	213.8Hz	240.0Hz	
152	216.8Hz	245.1Hz	216.8Hz	245.1Hz	
153	219.8Hz	250.2Hz	219.8Hz	250.2Hz	
154	223.0Hz	255.6Hz	223.0Hz	255.6Hz	
155	226.0Hz	261.0Hz	226.0Hz	261.0Hz	
156	229.2Hz	266.4Hz	229.2Hz	266.4Hz	
157	232.4Hz	272.1Hz	232.4Hz	272.1Hz	
158	235.8Hz	277.8Hz	235.8Hz	277.8Hz	
159	239.0Hz	283.5Hz	239.0Hz	283.5Hz	
160	242.4Hz	289.5Hz	242.4Hz	289.5Hz	
161	245.8Hz	292.8Hz	245.8Hz	292.8Hz	
162	249.4Hz	296.4Hz	249.4Hz	296.4Hz	
163	252.8Hz	299.7Hz	252.8Hz	299.7Hz	
164	256.4Hz	303.0Hz	256.4Hz	303.0Hz	
165	260.0Hz	306.6Hz	260.0Hz	306.6Hz	
166	263.8Hz	310.2Hz	263.8Hz	310.2Hz	
167	267.4Hz	313.8Hz	267.4Hz	313.8Hz	
168	275.0Hz	321.0Hz	275.0Hz	321.0Hz	
169	275.0Hz	328.8Hz	275.0Hz	328.8Hz	
170	275.0Hz	352.5Hz	275.0Hz	352.5Hz	◄REYQ18TY1 upper limit
171	275.0Hz	360.9Hz	275.0Hz	360.9Hz	
172	275.0Hz	385.5Hz	275.0Hz	385.5Hz	
173	275.0Hz	394.5Hz	275.0Hz	394.5Hz	
174	275.0Hz	399.0Hz	275.0Hz	399.0Hz	◄REYQ20TY1 upper limit

Note:

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

2.5 Electronic Expansion Valve Control

Main electronic expansion valve control

- When the outdoor heat exchanger functions as a condenser, controls the electronic expansion valves Y1E and Y3E to keep the condenser outlet subcooled degree (SC) at a constant value to maximize the capacity of the outdoor heat exchanger.

  SC = Tc – Tf*
  SC: Condenser outlet subcooled degree (°C)
  Tf*: Condenser liquid pipe temperature (°C)
  (*: 1: upper heat exchanger, 2: lower heat exchanger)
  Tc: High pressure equivalent saturation temperature (°C)

  Controls the electronic expansion valves to optimize the condenser outlet subcooled degree. When the liquid pressure becomes extremely low or the difference between Tc and TcS becomes significant, however, the valves may be controlled using the values of the liquid pressure or Tc.

- When the outdoor heat exchanger functions as an evaporator, controls the electronic expansion valve Y1E to keep the evaporator outlet superheated degree (SH) at a constant value to maximize the capacity of the outdoor heat exchanger.

  SH = Tg* – Te
  SH: Evaporator outlet superheated degree (°C)
  Tg*: Heat exchanger gas pipe temperature (°C)
  (*: 1: upper heat exchanger, 2: lower heat exchanger)
  Te: Low pressure equivalent saturation temperature (°C)

  Controls the electronic expansion valve to optimize the evaporator outlet superheated degree. When the inverter compressor discharge pipe temperature becomes high or the difference between Te and TeS becomes significant, however, the valve may be controlled using the values of the discharge pipe temperature or Te.

Subcooling electronic expansion valve control

- Cooling/heating: To maximize the capacity of subcooling heat exchanger, controls the electronic expansion valve Y2E to keep the superheated degree (SH) of the gas pipe of the evaporator outlet side at a constant value.

  SH = Tsh – Te
  SH: Subcooling heat exchanger outlet (evaporator side) superheated degree (°C)
  Tsh: Subcooling heat exchanger outlet (evaporator side) temperature (°C)
  Te: Low pressure equivalent saturation temperature (°C)

- Cooling/heating: When the discharge pipe temperature is over 95°C, controls the electronic expansion valve Y2E to lower the discharge pipe temperature.

Receiver gas purge electronic expansion valve control

While heating, opens the electronic expansion valve Y4E to send the refrigerant from the indoor unit to the discharge pipe receiver.

Refrigerant cooling electronic expansion valve control

Controls refrigerant volume to cool the diode bridge(s) and power module(s) mounted on the inverter PCB. Controls the electronic expansion valve Y5E depending on the load not to send excessive amount of refrigerant.

2.6 Step Control of Outdoor Unit Fans

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

REYQ8TY1 (rpm)

Step No.	Standard (default)	
	Cooling	Heating· Simultaneous
0	0	0
1	281	281
2	291	291
3	301	301
4	312	312
5	323	323
6	334	334
7	346	346
8	358	358
9	368	368
10	401	401
11	415	415
12	429	429
13	444	444
14(∗1)	459	459
15	475	475
16	491	491
17	508	508
18	526	526
19	544	544
20	563	563
21	583	583
22	603	603
23	624	624
24	646	646
25	669	669
26	693	693
27	717	717
28(∗2)	743	743
29	772	772
30	796	780

REYQ10TY1 (rpm)

Step No.	Standard (default)	
	Cooling	Heating· Simultaneous
0	0	0
1	281	281
2	291	291
3	301	301
4	312	312
5	323	323
6	334	334
7	346	346
8	358	358
9	368	368
10	401	401
11	415	415
12	429	429
13	444	444
14	459	459
15(∗1)	475	475
16	491	491
17	508	508
18	526	526
19	544	544
20	563	563
21	583	583
22	603	603
23	624	624
24	646	646
25	669	669
26	693	693
27	717	717
28	743	743
29	760	760
30(∗2)	790	790
31	821	800

REYQ12TY1 (rpm)

Step No.	Standard (default)	
	Cooling	Heating· Simultaneous
0	0	0
1	281	281
2	291	291
3	301	301
4	312	312
5	323	323
6	334	334
7	346	346
8	358	358
9	368	368
10	401	401
11	415	415
12	429	429
13	444	444
14	459	459
15	475	475
16(∗1)	491	491
17	508	508
18	526	526
19	544	544
20	563	563
21	583	583
22	603	603
23	624	624
24	646	646
25	669	669
26	693	693
27	717	717
28	743	743
29	760	760
30	801	801
31	845	845
32(∗2)	890	890

REYQ14TY1 (rpm)

Step No.	Standard (default)			
	Cooling		Heating· Simultaneous	
	FAN1	FAN2	FAN1	FAN2
0	0	0	0	0
1	281	0	281	0
2	290	0	290	0
3	299	0	299	0
4	308	0	308	0
5	347	0	347	0
6	356	0	356	0
7	365	0	365	0
8	375	0	375	0
9	384	0	384	0
10	395	0	395	0
11	405	0	405	0
12	416	0	416	0
13	427	0	427	0
14	438	0	438	0
15	450	0	450	0
16	461	0	461	0
17	474	0	474	0
18	487	0	487	0
19	500	0	500	0
20	513	0	513	0
21	527	0	527	0
22	541	0	541	0
23	556	0	556	0
24	317	347	317	347
25	331	361	331	361
26	344	374	344	374
27(∗1)	359	389	359	389
28	374	404	374	404
29	389	419	389	419
30	405	435	405	435
31	422	452	422	452
32	440	470	440	470
33	458	488	458	488
34	477	507	477	507
35	497	527	497	527
36	518	548	518	548
37	540	570	540	570
38	562	592	562	592
39	586	616	586	616
40	610	640	610	640
41	636	666	636	666
42	663	693	663	693
43	690	720	690	720
44	719	749	719	749
45	749	779	749	779
46	781	811	781	811
47	814	844	814	844
48	848	878	848	878
49	883	913	883	913
50	951	921	951	921
51	963	933	963	933
52	1030	1000	1055	975
53(∗2)	1072	1042	1097	1017
54	1097	1067	1097	1067

∗1. Step X/2

∗2. Step X

REYQ16TY1 (rpm)

Step No.	Standard (default)			
	Cooling		Heating· Simultaneous	
	FAN1	FAN2	FAN1	FAN2
0	0	0	0	0
1	281	0	281	0
2	292	0	293	0
3	303	0	303	0
4	348	0	348	0
5	360	0	360	0
6	372	0	372	0
7	384	0	384	0
8	396	0	396	0
9	409	0	409	0
10	423	0	423	0
11	437	0	437	0
12	452	0	452	0
13	467	0	467	0
14	482	0	482	0
15	499	0	499	0
16	516	0	516	0
17	533	0	533	0
18	551	0	551	0
19	570	0	570	0
20	589	0	589	0
21	339	369	339	369
22	354	384	354	384
23	369	399	369	399
24	384	414	384	414
25	401	431	401	431
26(∗1)	418	448	418	448
27	435	465	435	465
28	454	484	454	484
29	473	503	473	503
30	493	523	493	523
31	514	544	514	544
32	536	566	536	566
33	559	589	559	589
34	582	612	582	612
35	607	637	607	637
36	633	663	633	663
37	660	690	660	690
38	688	718	688	718
39	717	747	717	747
40	748	778	748	778
41	780	810	780	810
42	813	843	813	843
43	848	878	848	878
44	884	914	884	914
45	952	922	952	922
46	991	961	991	961
47	1032	1002	1032	1002
48	1075	1045	1075	1045
49	1120	1090	1120	1090
50	1166	1136	1166	1136
51	1215	1185	1215	1185
52(∗2)	1340	1160	1290	1110

REYQ18TY1 (rpm)

Step No.	Standard (default)			
	Cooling		Heating· Simultaneous	
	FAN1	FAN2	FAN1	FAN2
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	358	320	358
24	332	362	332	362
25(∗1)	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	1000	970	1000	970
51(∗2)	1091	1061	1091	1061
52	1192	1162	1192	1162
53	1350	1170	1300	1120

REYQ20TY1 (rpm)

Step No.	Standard (default)			
	Cooling		Heating· Simultaneous	
	FAN1	FAN2	FAN1	FAN2
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(∗1)	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	1000	970	1000	970
51	1091	1061	1091	1061
52	1192	1162	1192	1162
53 (∗2)	1360	1180	1360	1180

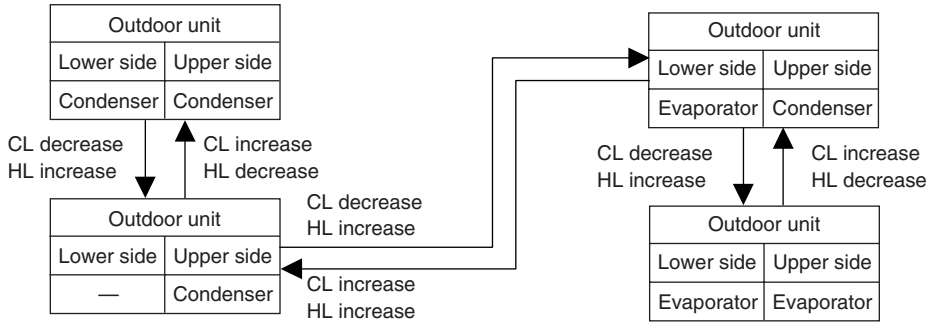
∗1. Step X/2

∗2. Step X

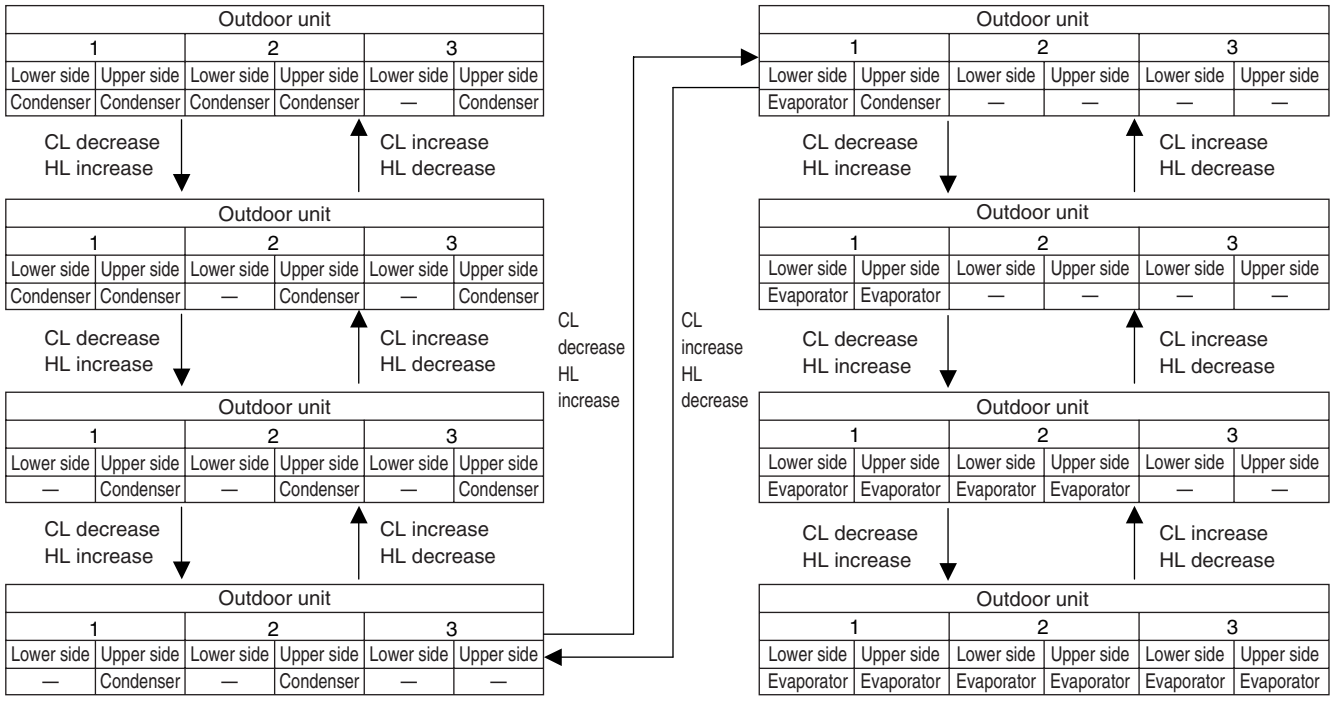
2.7 Heat Exchanger Control

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]



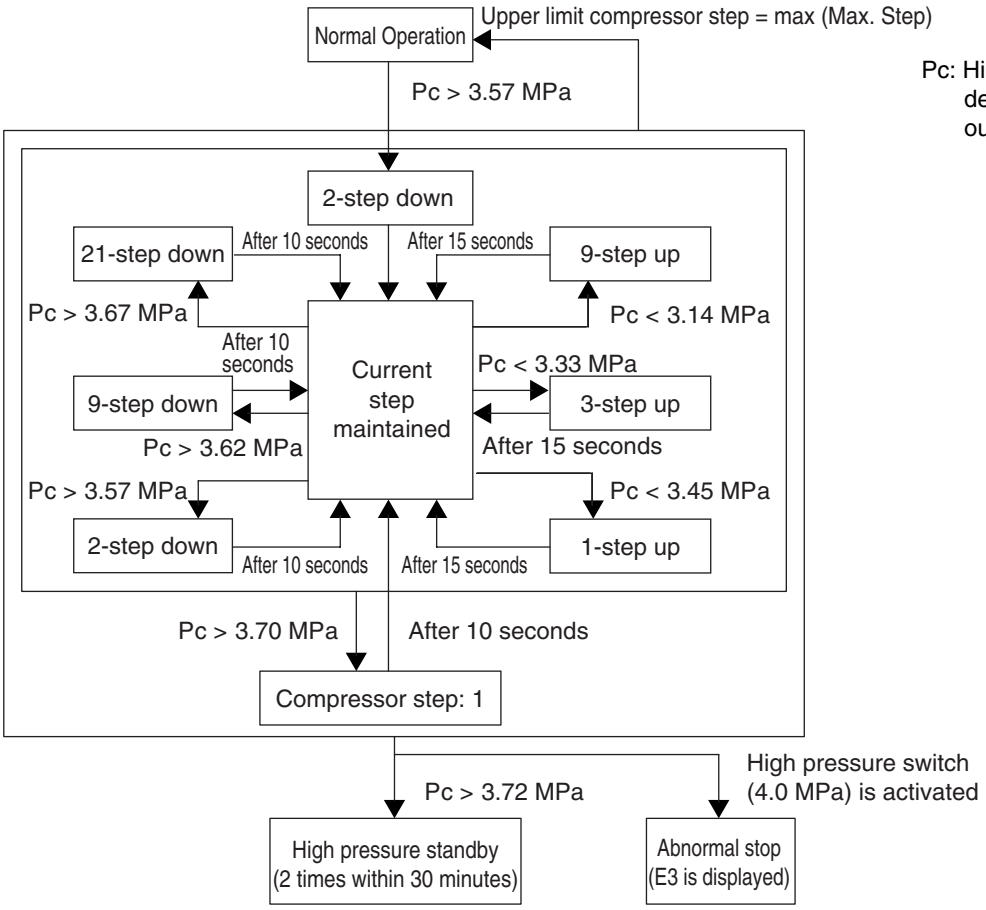
<Symbol meanings>
CL: Cooling Load
HL: Heating Load

3. Protection Control

3.1 High Pressure Protection Control

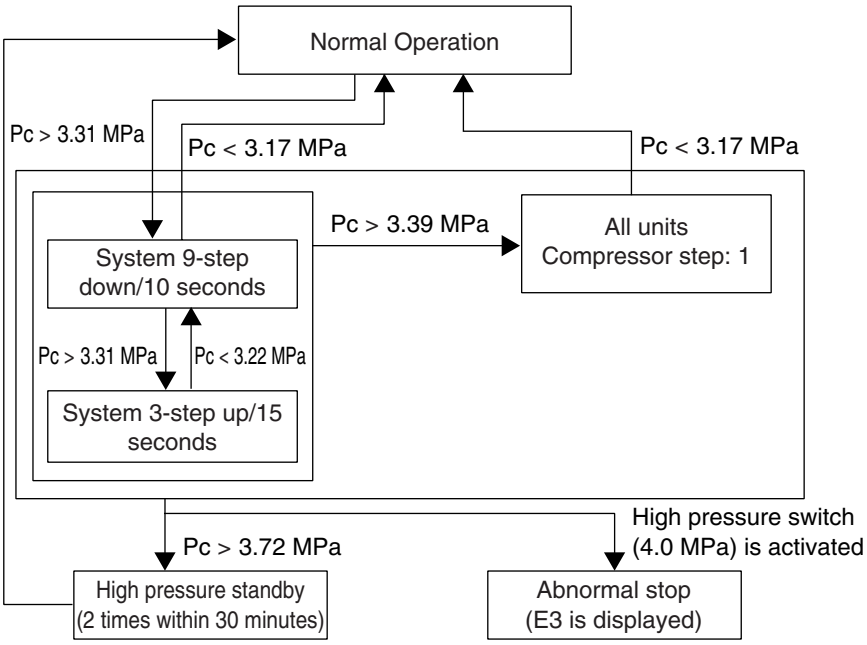
This high pressure protection control is used to prevent the activation of protection devices due to abnormal increase of high pressure and to protect compressors against the transient increase of high pressure.

[In cooling]



Pc: High pressure sensor detection value for each outdoor unit

[In heating]

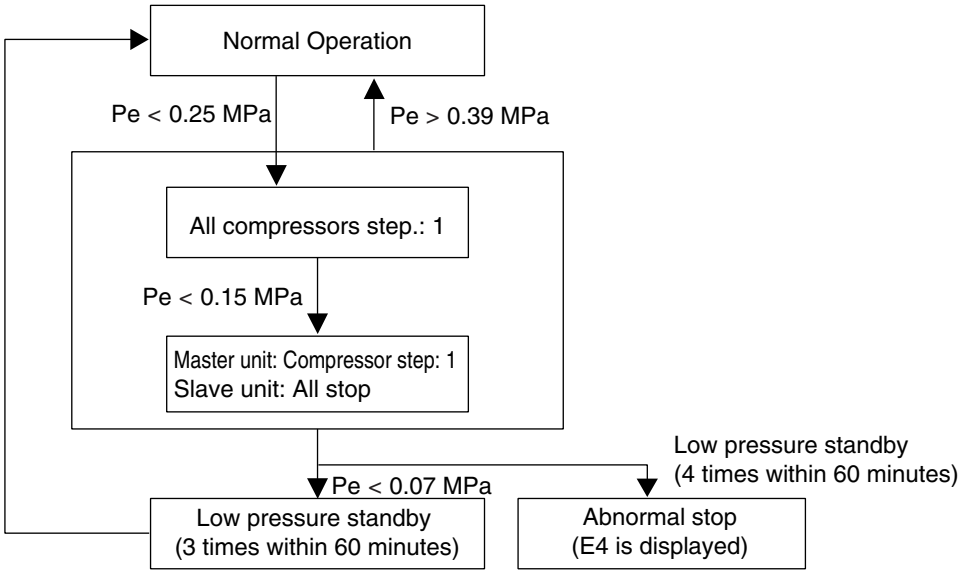


Pc: High pressure sensor detection value for master unit

3.2 Low Pressure Protection Control

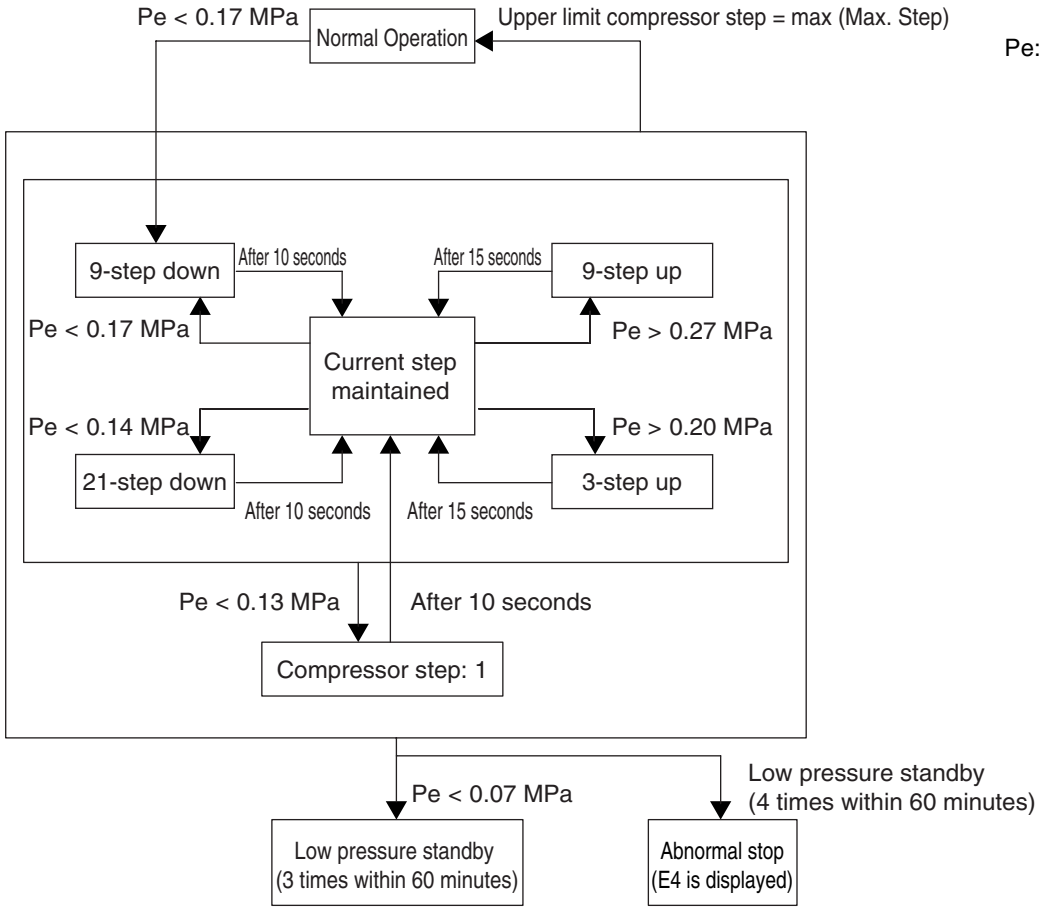
This low pressure protection control is used to protect compressors against the transient decrease of low pressure.

[In cooling]



Pe: Low pressure sensor detection value for master unit

[In heating]

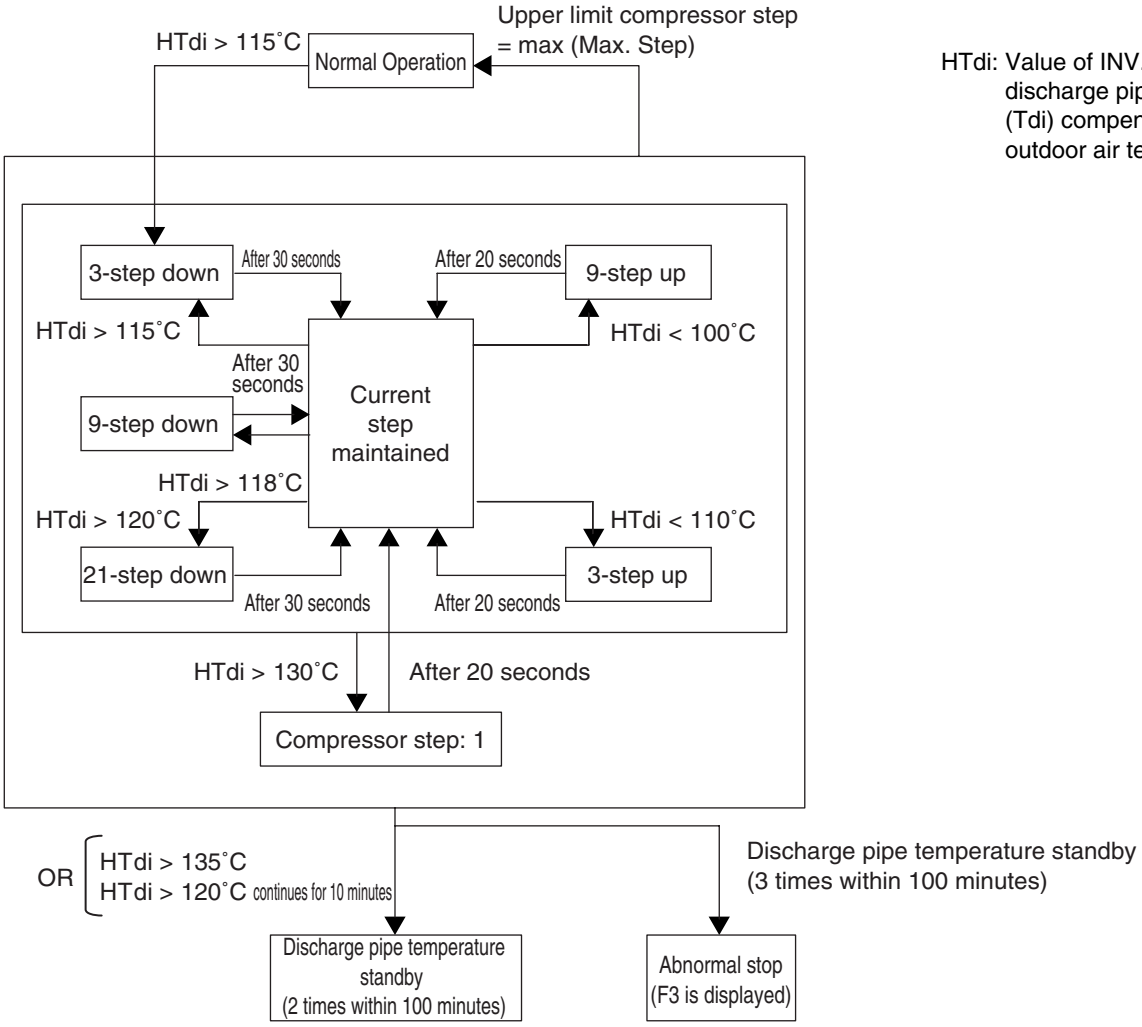


Pe: Low pressure sensor detection value for each outdoor unit

3.3 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.

[INV. compressor]



HTdi: Value of INV. compressor discharge pipe temperature (Tdi) compensated with outdoor air temperature

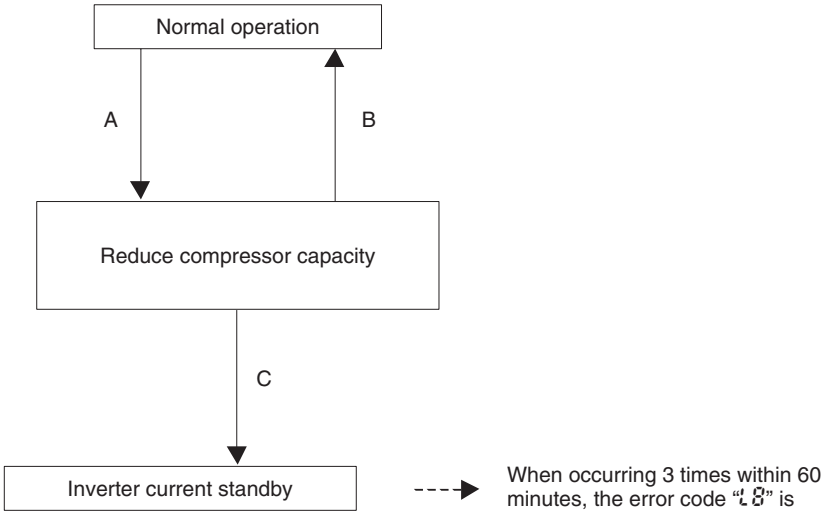
3.4 Inverter Protection Control

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 INV. compressor performs these controls in the following sequence.

[Inverter overcurrent protection control]

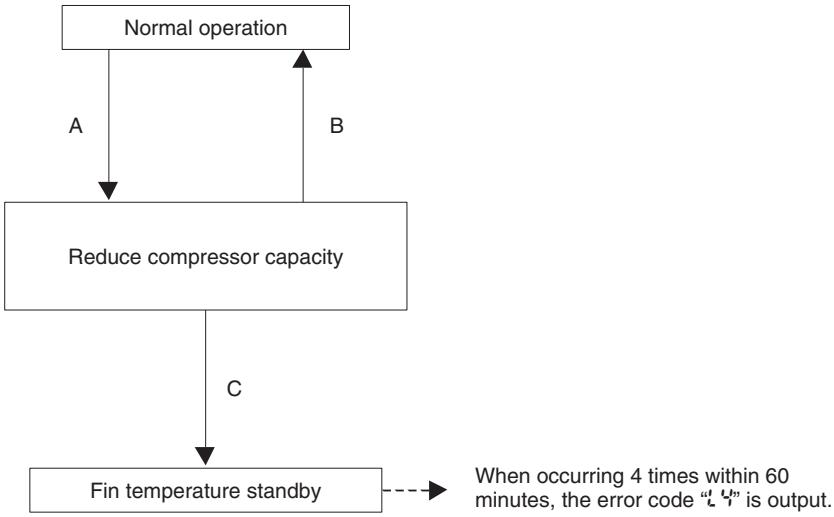
Perform the following control of integrated as well as multi units for each INV. compressor.



Model	REYQ8T	REYQ10/12T	REYQ14/16T		REYQ18/20T	
	M1C	M1C	M1C	M2C	M1C	M2C
A	> 14.7 A	> 18.5 A	> 14.7 A	> 14.7 A	> 14.7 A	> 22.0 A
B	< 14.7 A	< 18.5 A	< 14.7 A	< 14.7 A	< 14.7 A	< 22.0 A
C	> 16.1 A	> 22.5 A	> 16.1 A	> 16.1 A	> 16.1 A	> 22.5 A

[Radiation fin temperature control]

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



Model	REYQ8T	REYQ10/12T	REYQ14/16T		REYQ18/20T	
	M1C	M1C	M1C	M2C	M1C	M2C
A	> 101 °C	> 96 °C	> 99 °C	> 99 °C	> 99 °C	> 80 °C
B	< 98 °C	< 93 °C	< 96 °C	< 96 °C	< 96 °C	< 77 °C
C	> 105 °C	> 100 °C	> 105 °C	> 105 °C	> 105 °C	> 84 °C

4. Special Control

4.1 Pump Down Residual Operation

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

Part Name	Electric Symbol		Pump down residual operation	
	REYQ8-12T	REYQ14-20T	Normal Cooling	Normal Heating
Inverter compressor 1	M1C	M1C	124 Hz/118.8 Hz∗	124 Hz/118.8 Hz∗
Inverter compressor 2	—	M2C	0 Hz	0 Hz
Inverter fan	M1F	M1F, M2F	For heat exchanger mode	For heat exchanger mode
Electronic expansion valve (Heat exchanger upper)	Y1E	Y1E	Same as normal operation	Same as normal operation
Electronic expansion valve (Heat exchanger lower)	Y3E	Y3E		
Electronic expansion valve (Subcooling heat exchanger)	Y2E	Y2E	0 pulse	0 pulse
Electronic expansion valve (Receiver gas purge)	Y4E	Y4E	Open slightly	Open slightly
Electronic expansion valve (Inverter cooling)	Y5E	Y5E	Same as normal operation	Same as normal operation
Solenoid valve (Oil separator oil return)	Y11S	Y11S, Y12S	ON	ON
Solenoid valve (Liquid pipe)	Y2S	Y2S	ON	ON
Four way valve (HP/LP gas pipe)	Y3S	Y3S	Hold	Hold
Four way valve (Heat exchanger lower)	Y4S	Y4S	Hold	Hold
Four way valve (Heat exchanger upper)	Y5S	Y5S	Hold	Hold
Ending condition			OR [A lapse of 30 seconds / Pe_min < 0.49 MPa / Master unit DSH > 35°C / Pc_max > 2.94 MPa]	OR [A lapse of 30 seconds / Pe_min < 0.25 MPa / Master unit DSH > 35°C / Pc_max > 3.14 MPa / Master unit Ta–Te > 5°C]

∗REYQ10/12T

4.2 Oil Return Operation

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

4.2.1 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
	REYQ8-12T	REYQ14-20T	
Inverter compressor 1	M1C	M1C	Constant low pressure control
Inverter compressor 2	—	M2C	
Inverter fan	M1F	M1F, M2F	For heat exchanger mode
Electronic expansion valve (Heat exchanger upper)	Y1E	Y1E	Same as normal operation
Electronic expansion valve (Heat exchanger lower)	Y3E	Y3E	
Electronic expansion valve (Subcooling heat exchanger)	Y2E	Y2E	0 pulse
Electronic expansion valve (Receiver gas purge)	Y4E	Y4E	0 pulse
Electronic expansion valve (Inverter cooling)	Y5E	Y5E	Same as normal operation
Solenoid valve (Oil separator oil return)	Y11S	Y11S, Y12S	ON
Solenoid valve (Liquid pipe)	Y2S	Y2S	ON
Four way valve (HP/LP gas pipe)	Y3S	Y3S	Hold
Four way valve (Heat exchanger lower)	Y4S	Y4S	Hold
Four way valve (Heat exchanger upper)	Y5S	Y5S	Hold
Ending condition			& • A lapse of 3 minutes OR • TsA – Te < 3°C • A lapse of 6 minutes while the frequency is more than that of oil return operation.

TsA: Suction pipe temperature (R10T)

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 OFF (PI control)

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

4.2.2 Oil Return Operation in Heating Operation

[Starting conditions]

Part Name	Electric Symbol		Oil return operation
	REYQ8-12T	REYQ14-20T	
Inverter compressor 1	M1C	M1C	+1 to +6 steps from frequency to frequency when oil return is IN at a constant level
Inverter compressor 2	—	M2C	
Inverter fan	M1F	M1F, M2F	Same as normal operation
Electronic expansion valve (Heat exchanger upper)	Y1E	Y1E	Same as normal operation
Electronic expansion valve (Heat exchanger lower)	Y3E	Y3E	
Electronic expansion valve (Subcooling heat exchanger)	Y2E	Y2E	Same as normal operation
Electronic expansion valve (Receiver gas purge)	Y4E	Y4E	0 pulse
Electronic expansion valve (Inverter cooling)	Y5E	Y5E	Same as normal operation
Solenoid valve (Oil separator oil return)	Y11S	Y11S, Y12S	ON
Solenoid valve (Liquid pipe)	Y2S	Y2S	ON
Four way valve (HP/LP gas pipe)	Y3S	Y3S	Hold
Four way valve (Heat exchanger lower)	Y4S	Y4S	Hold
Four way valve (Heat exchanger upper)	Y5S	Y5S	Hold
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 thermo. OFF	224 pulse

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

4.3 Defrost Operation

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

Part Name	Electric Symbol		Defrost operation
	REYQ8-12T	REYQ14-20T	
Inverter compressor 1	M1C	M1C	REYQ8: Single 175.6 Hz, Multi 229.6 Hz REYQ10/12: 279.9 Hz REYQ14/16: 251.4 Hz + 249.2 Hz REYQ18/20: 249.4 Hz + 250.2 Hz
Inverter compressor 2	—	M2C	With high pressure OFF ←→Step X/2 ←→ Step X
Inverter fan	M1F	M1F, M2F	
Electronic expansion valve (Heat exchanger upper)	Y1E	Y1E	100%
Electronic expansion valve (Heat exchanger lower)	Y3E	Y3E	
Electronic expansion valve (Subcooling heat exchanger)	Y2E	Y2E	0 pulse
Electronic expansion valve (Receiver gas purge)	Y4E	Y4E	0 pulse
Electronic expansion valve (Inverter cooling)	Y5E	Y5E	Same as normal operation
Solenoid valve (Oil separator oil return)	Y11S	Y11S, Y12S	ON
Solenoid valve (Liquid pipe)	Y2S	Y2S	ON
Four way valve (HP/LP gas pipe)	Y3S	Y3S	Hold
Four way valve (Heat exchanger lower)	Y4S	Y4S	Hold
Four way valve (Heat exchanger upper)	Y5S	Y5S	Hold
Ending condition			OR • A lapse of 15 minutes • Tb>11°C continues for 30 seconds or more

Tb: Heat exchanger deicer temperature (R11T)

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

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

4.4 Cooling / Heating mode switching

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

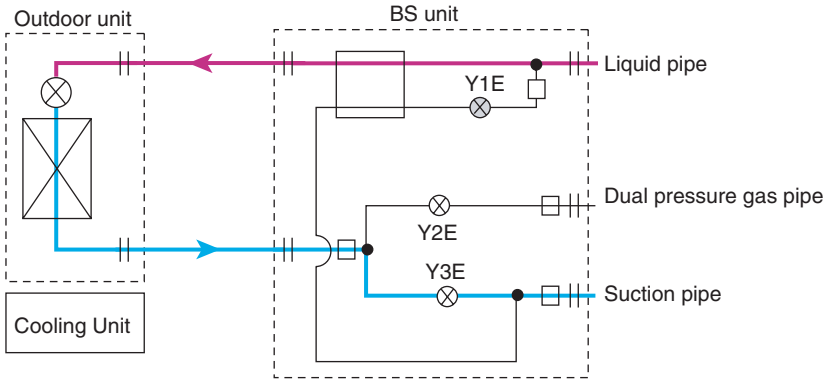
First, the electronic expansion valve of the indoor unit in cooling operation will close, and the Y2E and Y3E electronic expansion valves of the BS unit will all close once.

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

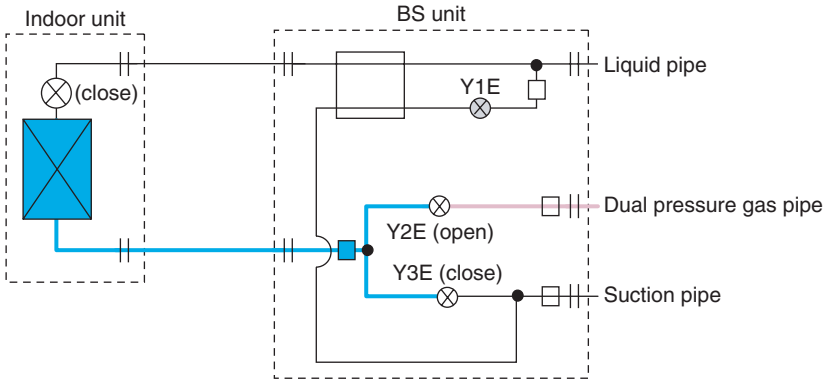
Then the electronic expansion valve will fully open, and the electronic expansion valve of the indoor unit will open to activate the heating circuit.

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

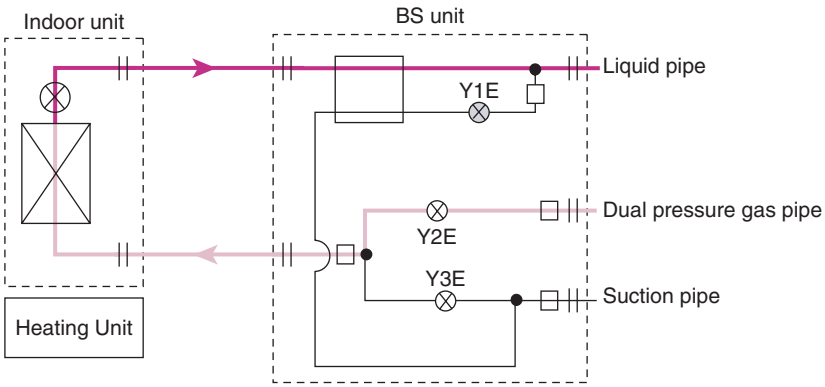
(1) In cooling operation



(2) In equalization

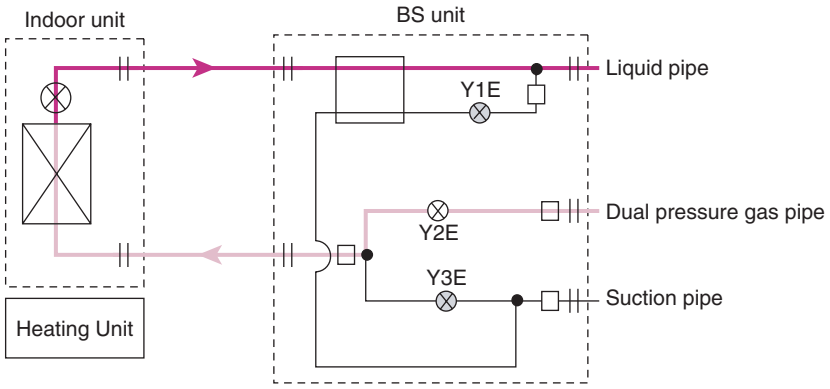


(3) To heating mode

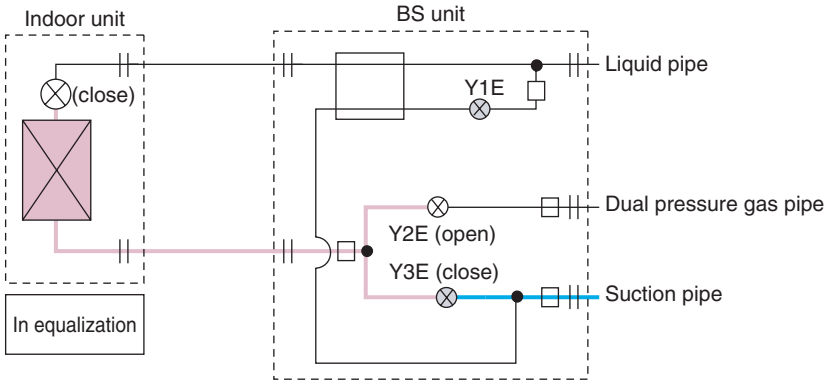


[While in cooling/heating mixed mode, single-room heating → cooling]
First, the electronic expansion valve of the indoor unit in heating operation will close, and the Y2E and Y3E electronic expansion valves of the BS unit will all close once.
Next, the Y3E electronic expansion valve will open little 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.)

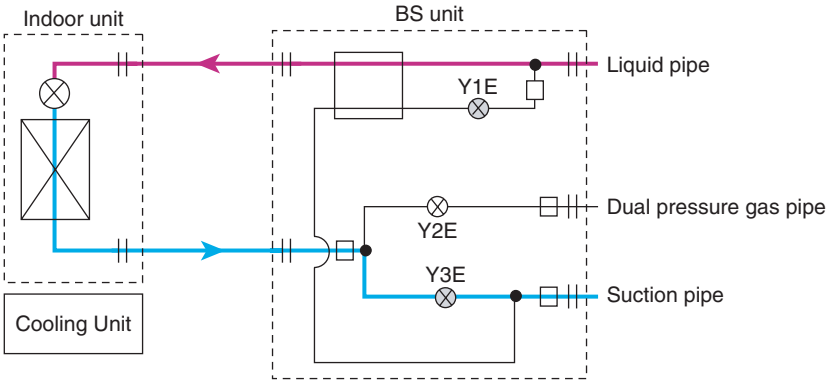
(1) In heating



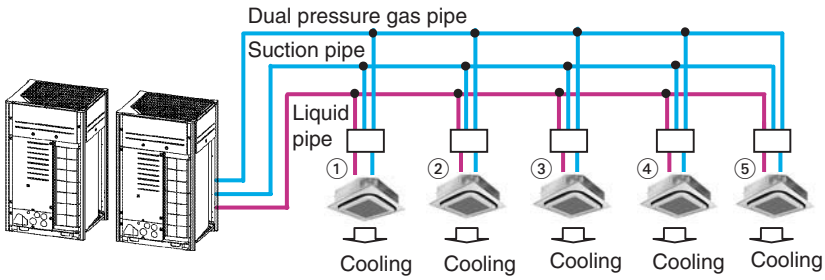
(2) In equalization



(3) To cooling



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

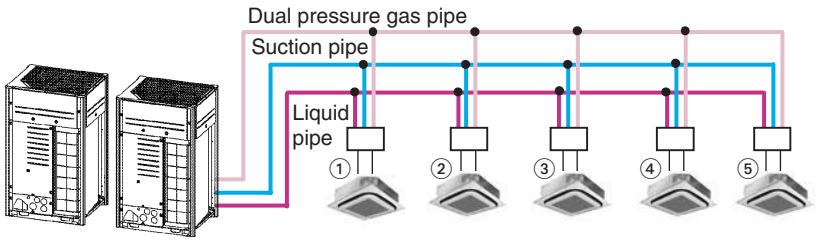


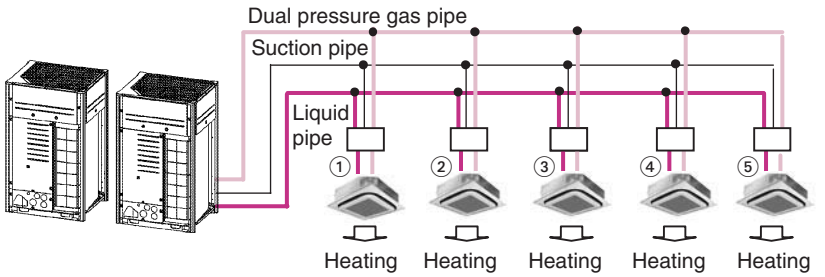
(1) All the indoor units in cooling operation
· Using the dual pressure gas pipe as a suction gas pipe.

(2) Pump-down residual operation

(3) Pre-startup control
· Switching between the electronic expansion valves of BS 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.

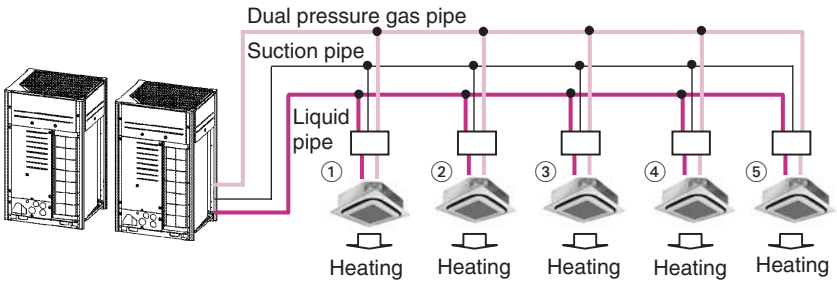




(5) Into heating operation or cooling and heating simultaneous operation

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]

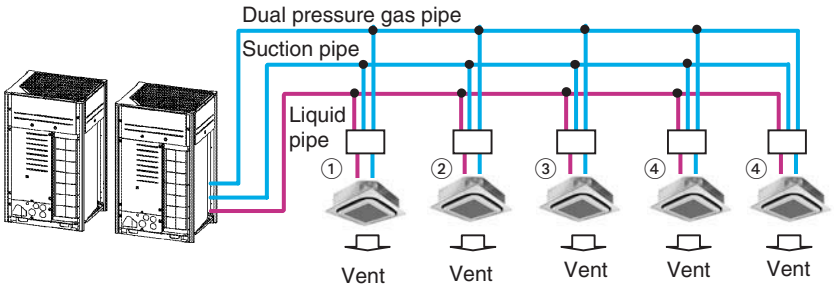


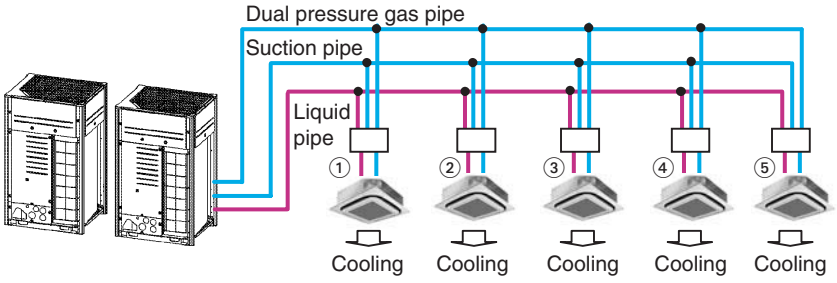
(1) In heating operation or cooling and heating simultaneous operation
· Using the dual pressure gas pipe as a suction gas pipe.

(2) Pump-down residual operation

(3) Pre-startup control
· Switching between the electronic expansion valves of BS 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

5. Other Control

5.1 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)
REYQ14-20TY1	–	Backup operation by the compressor
REYQ22-60TY1	Backup operation by the outdoor unit	Backup operation by the 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, and then only operate other outdoor units.
(On systems with 1 outdoor unit, this emergency operation is not available.)

(2) Emergency operation with outdoor unit PCB setting
[Setting method]
Make setting of the compressor, "the operation of which is to be disabled", in field setting mode (setting mode 2).
[Details of operation]
Disable the compressor with "operation disable setting" made from operating and only operate other compressors.
(On the system with 1 compressor "REYQ8-12TY1", this emergency operation is not available.)

5.2 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 is required.

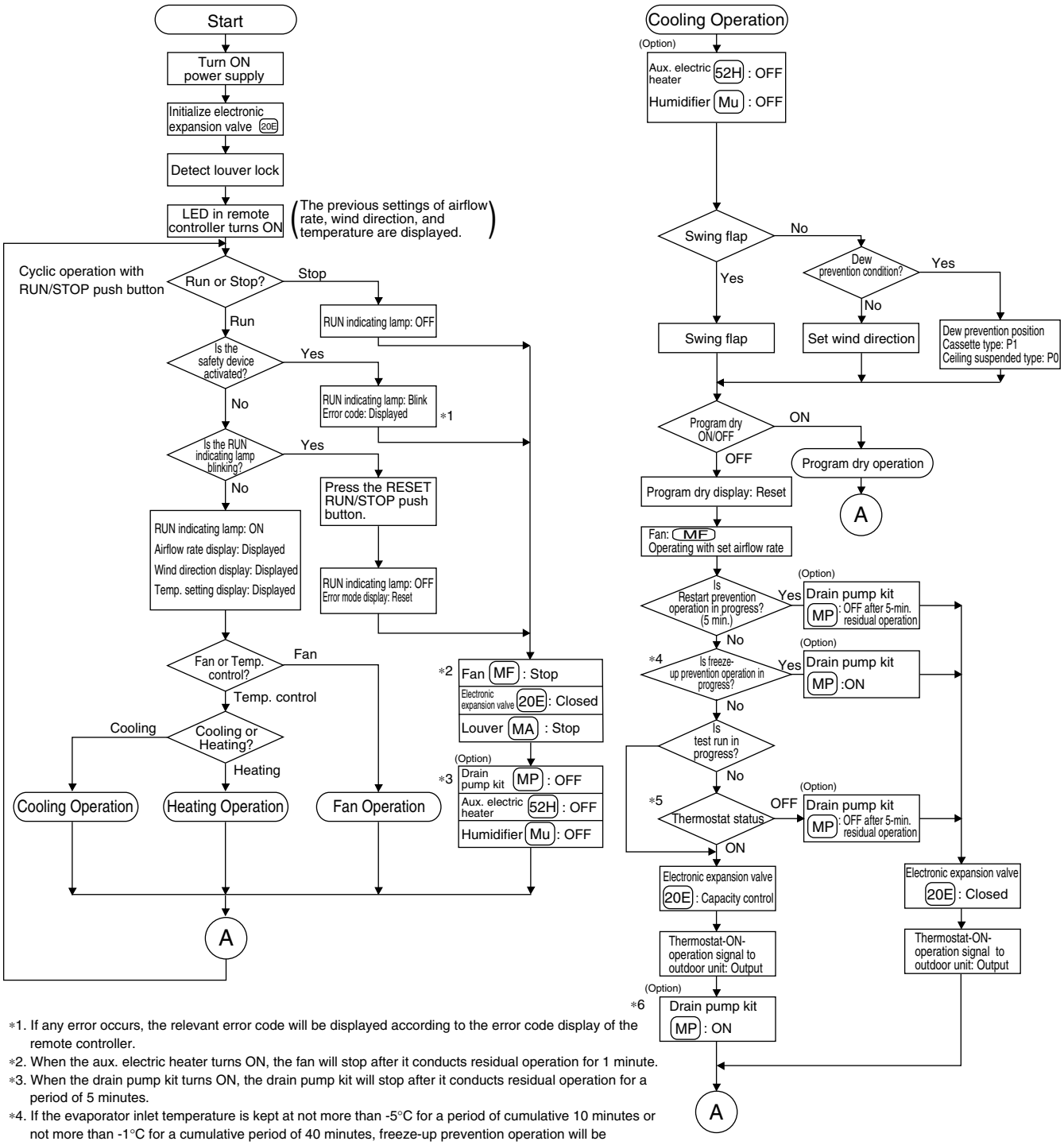
Set item	Condition	Content
Demand 1	Mode 1	The compressor operates at approx. 60% or less of rating.
	Mode 2	The compressor operates at approx. 70% or less of rating.
	Mode 3	The compressor operates at approx. 80% or less of rating.
Demand 2	—	The compressor operates at approx. 40% or less of rating.
Demand 3	—	Forced thermostat OFF.

5.3 Heating Operation Prohibition

Heating operation is prohibited 24°C or more outdoor air temperature.

6. Outline of Control (Indoor Unit)

6.1 Operation Flow Chart



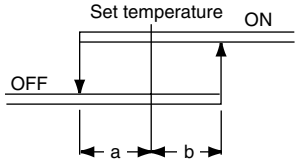
*1. If any error occurs, the relevant error code will be displayed according to the error code display of the remote controller.

*2. When the aux. electric heater turns ON, the fan will stop after it conducts residual operation for 1 minute.

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

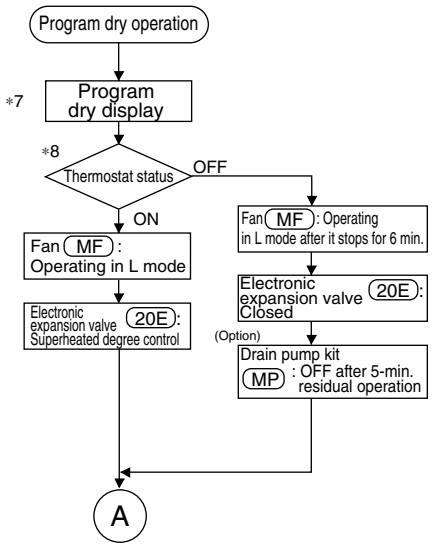
*4. If the evaporator inlet temperature is kept at not more than -5°C for a period of cumulative 10 minutes or not more than -1°C for a cumulative period of 40 minutes, freeze-up prevention operation will be conducted. If the evaporator inlet temperature is kept at not less than 7°C for a consecutive period of 10 minutes, the freeze-up prevention operation will be reset.

*5. Thermostat status



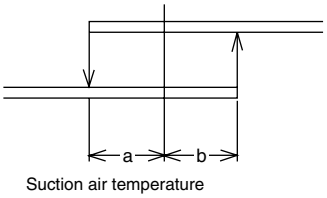
Suction air temperature
a = b = 1
(a = b = 0.5 is only available for the FXCQ, FXFQ, FXHQ, and FXKQ series.)

*6. The FXCQ, FXFQ and FXKQ series have the drain pump as standard equipment.

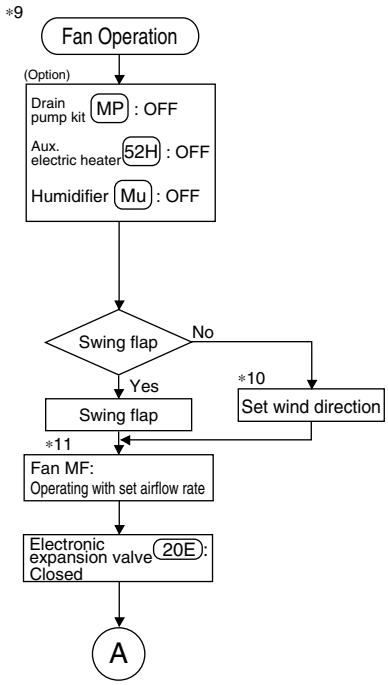


∗7. Program dry display
No set temperature and airflow rate of the remote controller are displayed.

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



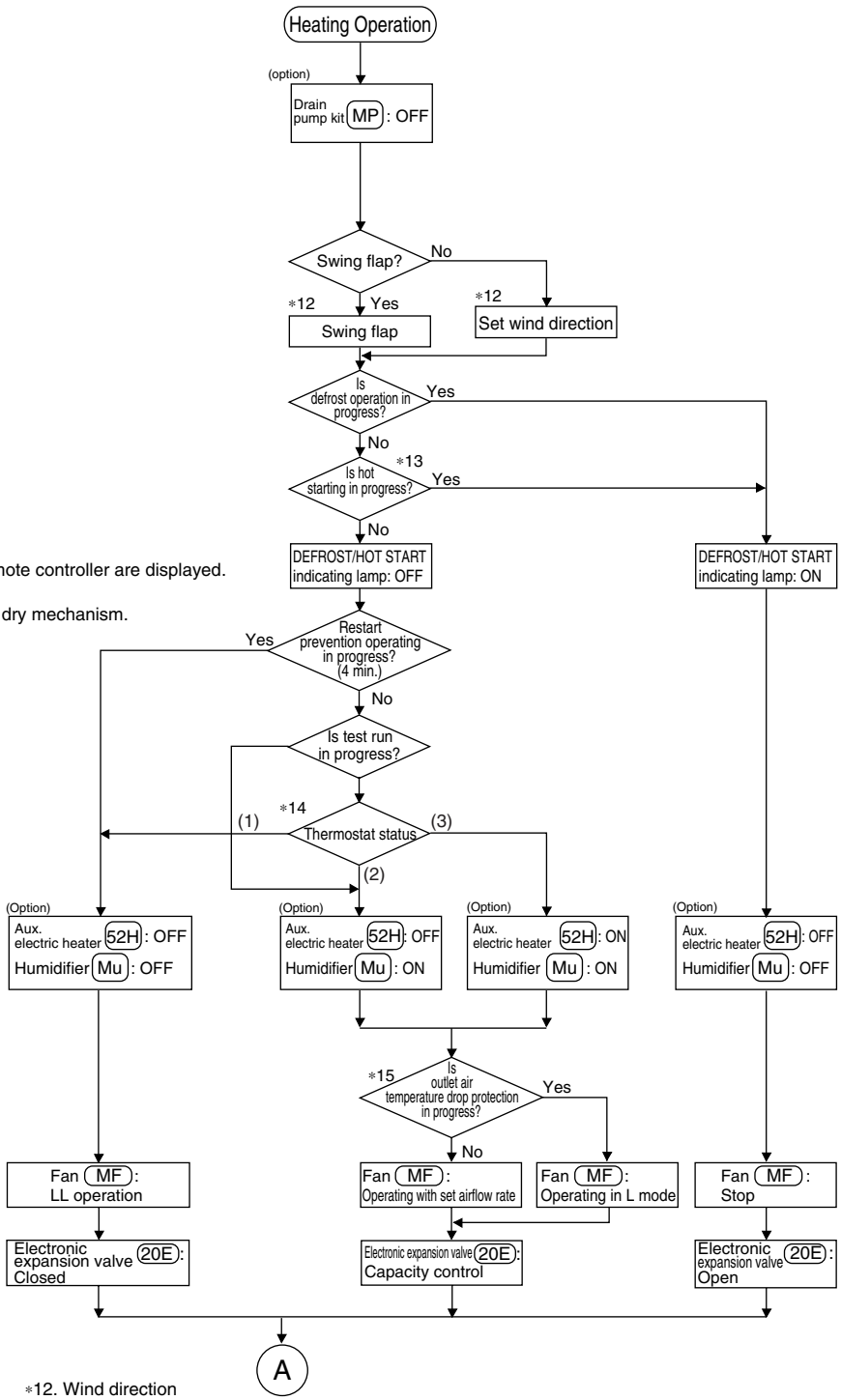
Suction air temperature



∗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.

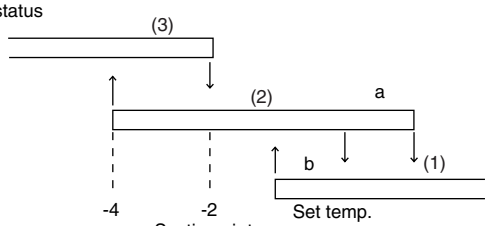
∗11. Fan
According to fan speed instruction from the remote controller, the fan is put into operation in LL mode while in heating operation.



∗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 at the time of starting operation or after the completion of defrost operation, or until 3 minutes pass or Tc is above 52°C, hot starting will be conducted.

∗14. Thermostat status

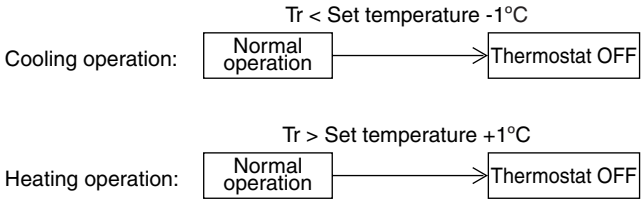


Suction air temp.

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

6.1.1 Thermostat Control while in Normal Operation

VRV multi systems are set at factory to thermostat control mode using the remote controller. While in normal thermostat differential control mode (i.e., factory setting mode), the thermostat turns OFF when the system reaches a temperature of -1°C from the set temperature while in cooling operation or of +1°C from that while in heating operation.

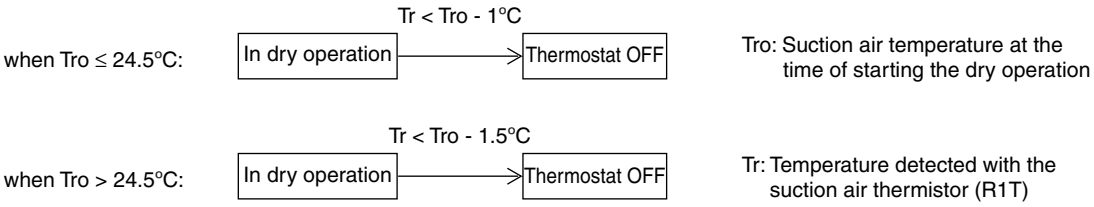


While in a single remote controller group control, the body thermostat is only used for this control.
Furthermore, while in heating operation, cassette mounted indoor units conduct the thermostat control by a value compensated by -2°C for the value detected with the body thermostat. (Through field settings, the thermostat differential setting can be changed from 1°C to 0.5°C. For details on the changing procedure, refer to information on page onward.)

6.1.2 Thermostat Control in Dry Operation

While in dry operation, the thermostat control is conducted according to a suction air temperature at the time of starting the dry operation.

Assuming that the suction air temperature at the time of starting the dry operation is Tro and the suction air temperature in operation is Tr,



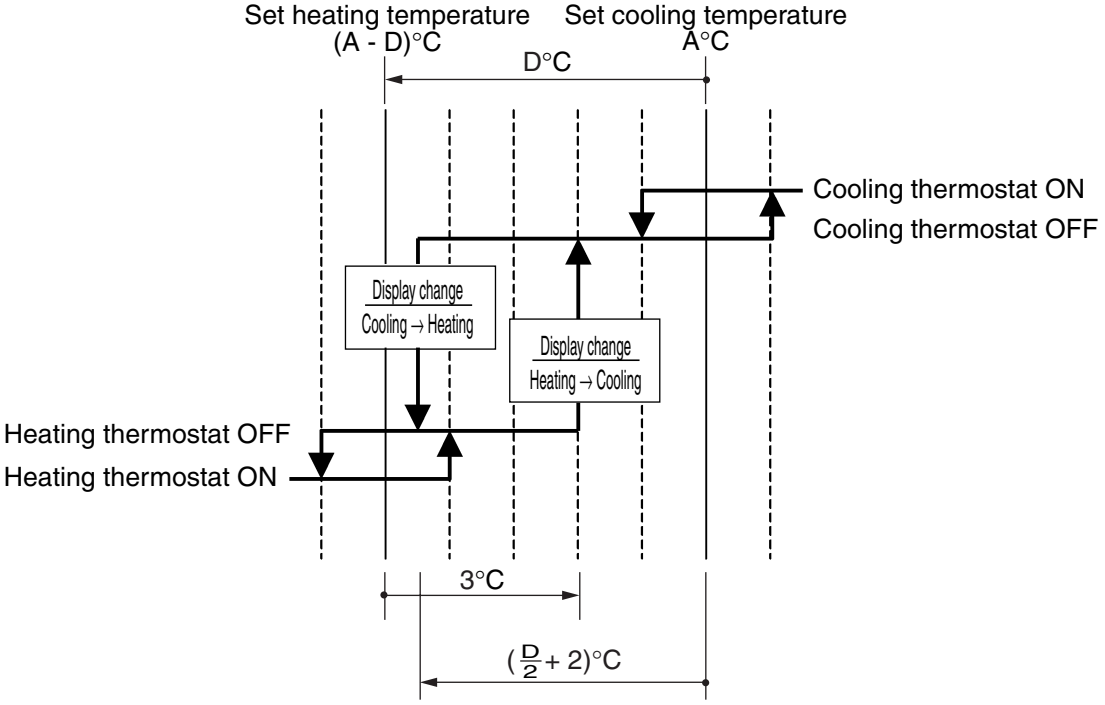
Furthermore, while in dry operation mode, fans operate at L flow rate, stops for a period of 6 minutes while the thermostat is OFF, and then return to operation at L flow rate. (This control is used to prevent a rise in indoor humidity while in thermostat OFF mode.)

6.1.3 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°C) can be made according to information in the "Field Setting from Remote Controller (P.81 and later)" section.

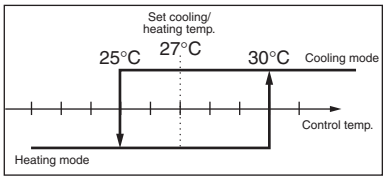
Mode No.	First code No.	Contents of setting	Second code No.							
			01	02	03	04	05	06	07	08
12	4	Differential value while in "AUTO" operation mode	0°C	1°C	2°C	3°C	4°C	5°C	6°C	7°C

: Factory setting

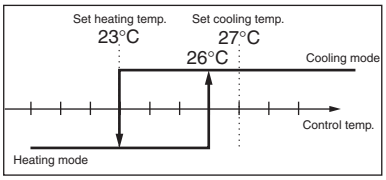


(Ex.) When automatic cooling temperature is set to 27°C:

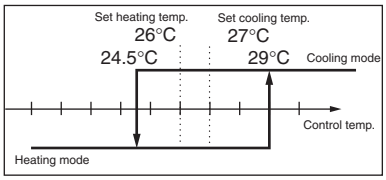
Differential value: 0°C



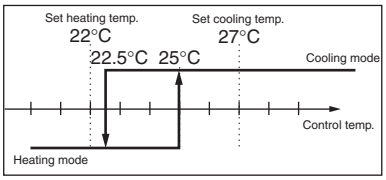
Differential value set to 4°C



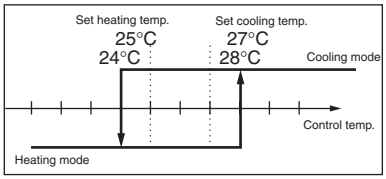
Differential value set to 1°C



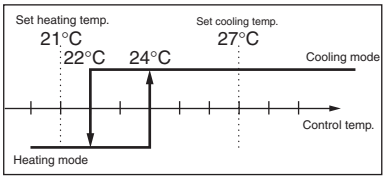
Differential value set to 5°C



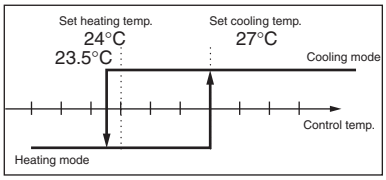
Differential value set to 2°C



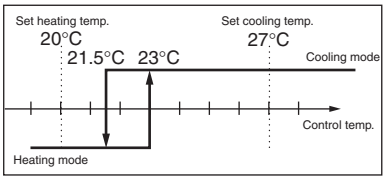
Differential value set to 6°C



Differential value set to 3°C



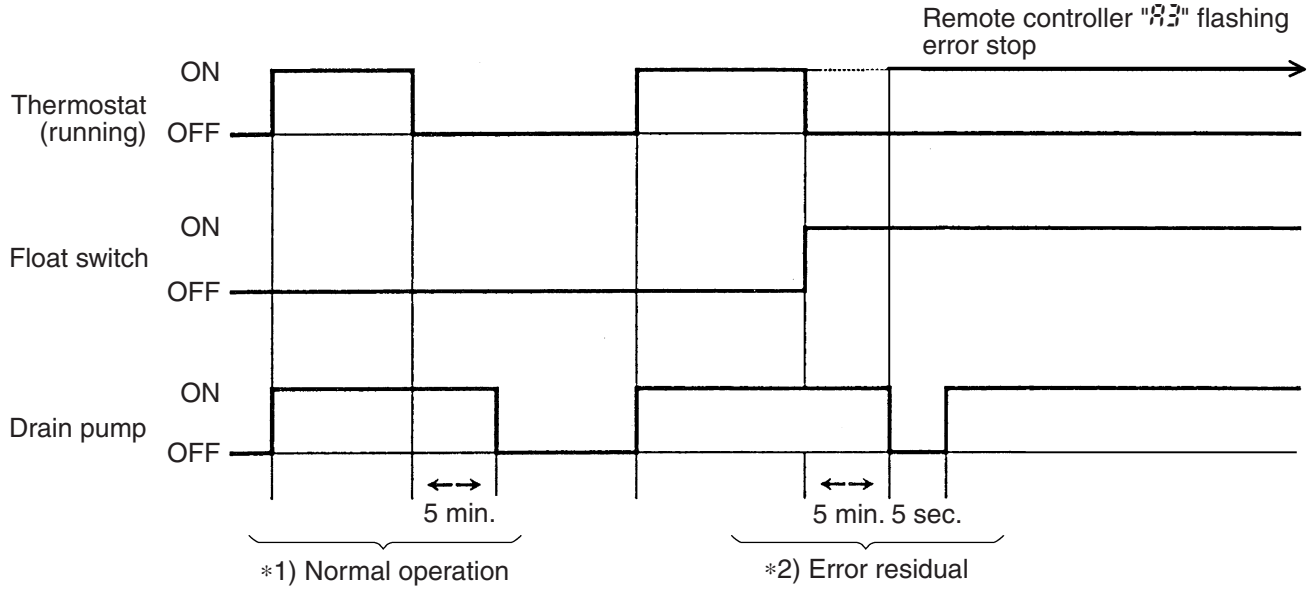
Differential value set to 7°C



6.2 Drain Pump Control

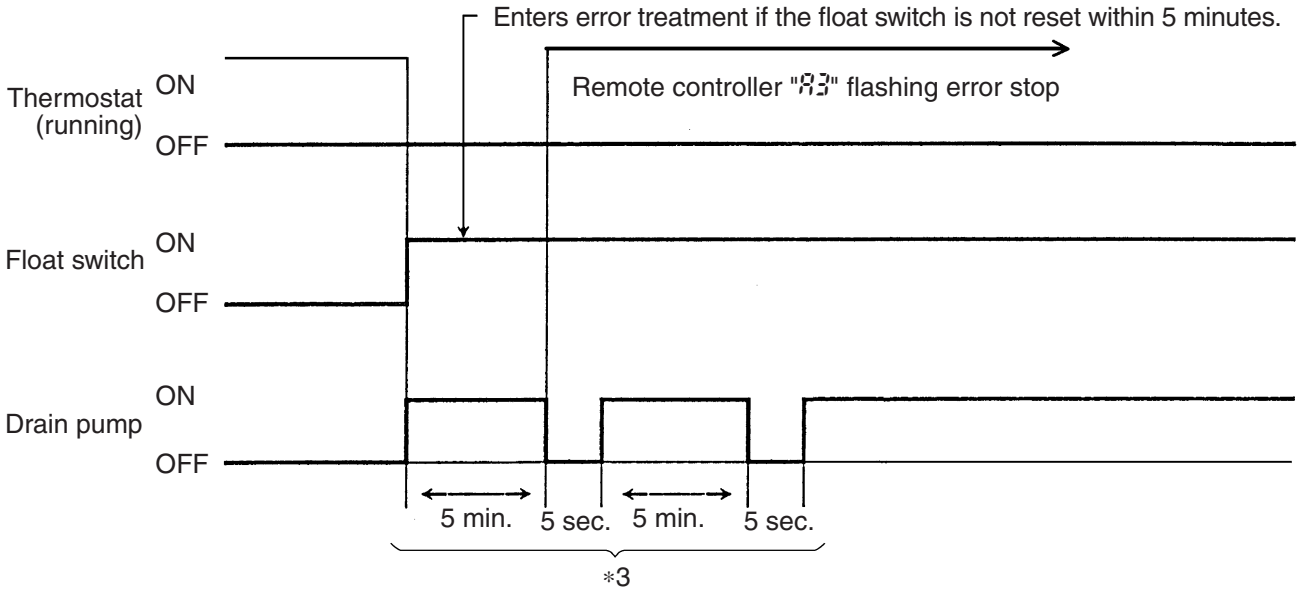
The drain pump is controlled by the ON/OFF buttons (4 button (1) - (4) given in the figure below).

6.2.1 When the Float Switch is Tripped while the Cooling Thermostat is ON:



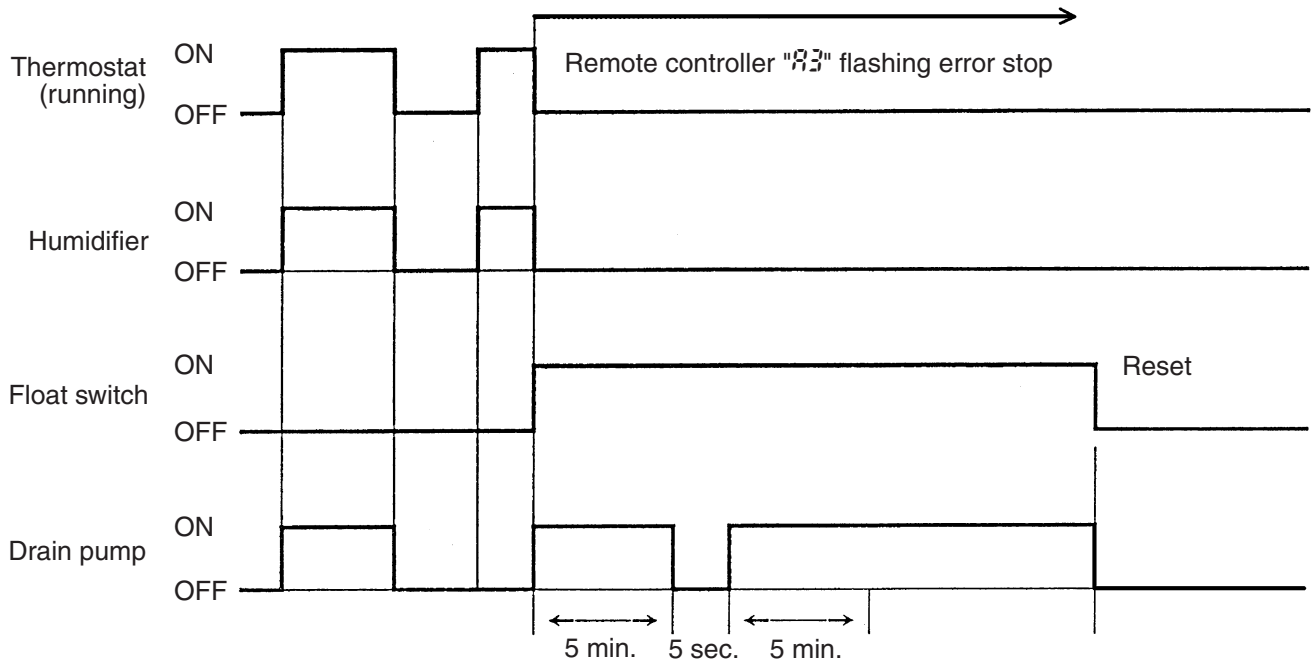
∗1. (Normal operation):
The objective of residual operation is to completely drain any moisture adhering to the fin of the indoor unit heat exchanger when the thermostat goes off during cooling operation.
∗2. (Error residual):
The remote controller will display "A3" and the air conditioner will come to an abnormal stop in 5 minutes if the float switch is turned OFF while the cooling thermo. is ON.

6.2.2 When the Float Switch is Tripped while the Cooling Thermostat is OFF:



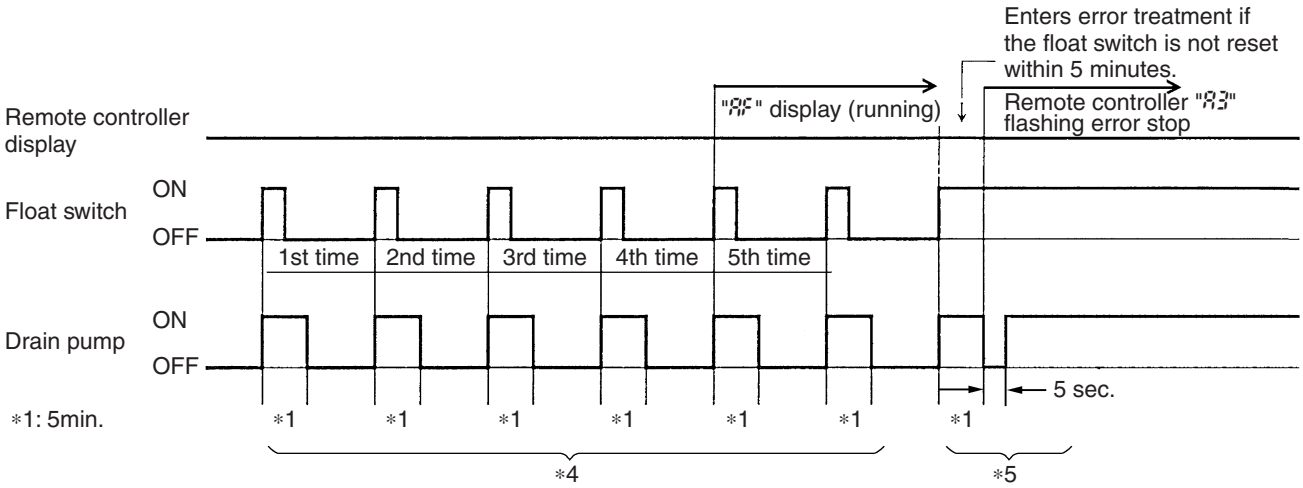
∗3. (Error residual):
The remote controller will display "A3" and the air conditioner will come to an abnormal stop if the float switch is turned OFF and not turned ON again within 5 minutes while the cooling thermo. is OFF.

6.2.3 When the Float Switch is Tripped During Heating Operation:



During heating operation, if the float switch is not reset even after the 5 minutes operation, 5 seconds stop, 5 minutes operation cycle ends, operation continues until the switch is reset.

6.2.4 When the Float Switch is Tripped and "AF" is Displayed on the Remote Controller:



∗4. (Error residual):
If the float switch is tripped 5 times in succession, a drain error is determined to have occurred. "AF" is then displayed as operation continues.
∗5. (Error residual):
The remote controller will display "A3" and the air conditioner will come to an abnormal stop if the float switch is OFF for more than 5 minutes in the case of ∗4.

6.3 Control of Electronic Expansion Valve

Electronic expansion valves in indoor units have the functions of conducting superheated degree control in cooling operation and subcooled 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 (°C)
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.
- As ΔT (Remote controller set temp. - Suction air temp.) becomes larger, SHS becomes lower.
- As ΔT (Remote controller set temp. - Suction air temp.) becomes lower, SHS becomes larger.

• Subcooled 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 subcooled 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 subcooled degree (SCS).
At that time, corrections to the subcooled degree are made according to differences (ΔT) between set temperature and suction air temperatures.

SC = Tc - Tl
SC: Condenser outlet subcooled degree (°C)
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 subcooled degree

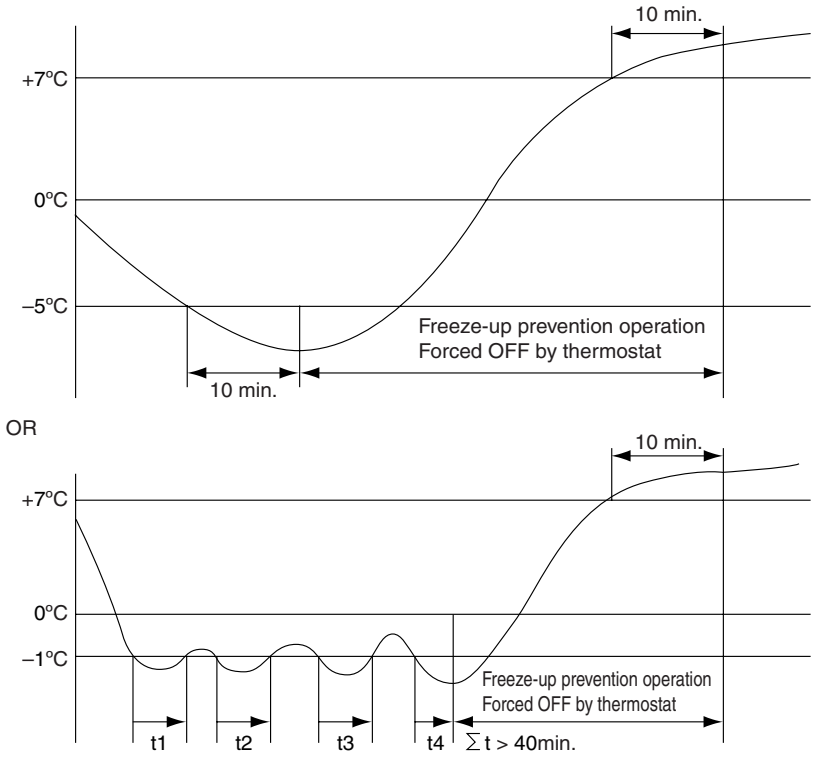
- Normally 5°C.
- As ΔT (Remote controller set temp. - Suction air temp.) becomes larger, SCS becomes lower.
- As ΔT (Remote controller set temp. - Suction air temp.) becomes lower, SCS becomes larger.

6.4 Freeze-up Prevention

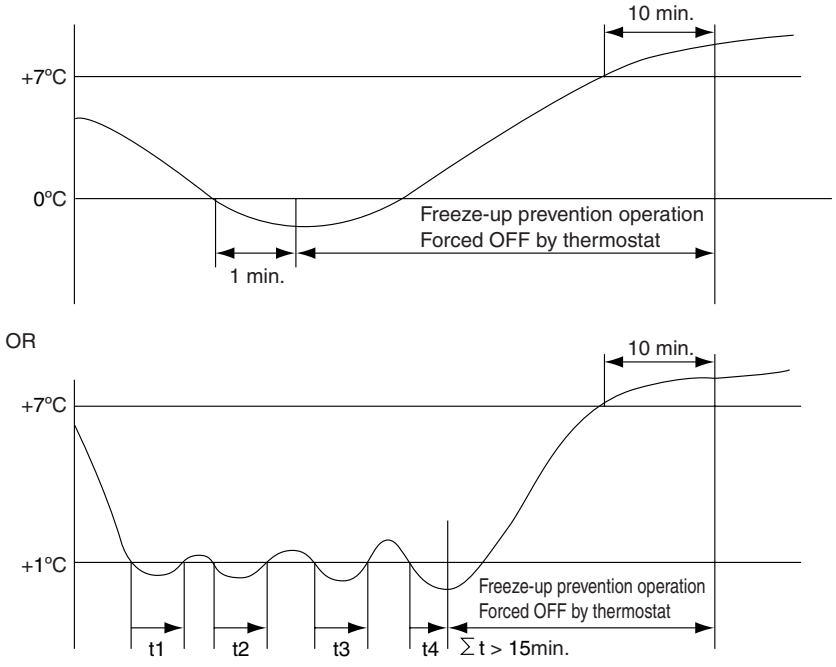
Freeze-up Prevention by Off Cycle (Indoor Unit)

When the temperature detected by liquid pipe temperature thermistor (R2T) of the indoor unit heat exchanger drops too low, the unit enters freeze-up prevention operation in accordance with the following conditions, and is also set in accordance with the conditions given below.

When freeze-up prevention is activated, the electronic expansion valve is closed, the drain pump turns ON and the fan tap is fixed to L airflow. When the following conditions for stopping are satisfied, it returns.
Conditions for starting freeze-up prevention: Temperature is -1°C or less for total of 40 minutes, or temperature is -5°C or less for total of 10 minutes.
Conditions for stopping freeze-up prevention: Temperature is +7°C or more for 10 minutes continuously



[Conditions for starting when airflow direction is two-way or three-way]
Conditions for starting: Temperature is 1°C or less for a total of 15 minutes or 0°C or less for 1 minute continuously.

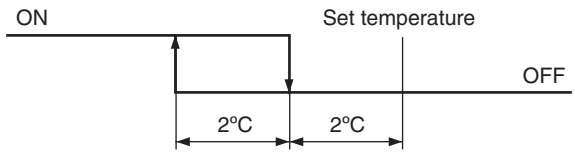


6.5 Heater Control (Optional PCB KRP1B series is required.)

The heater control is conducted in the following manner.

[Normal control]

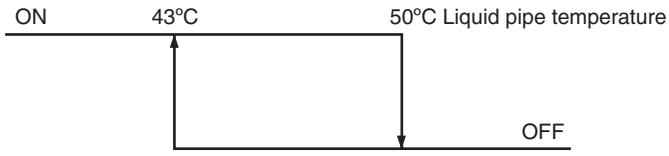
While in heating operation, the heater control (ON/OFF) is conducted as shown on the right.



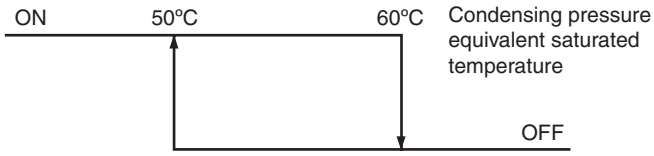
[Overload control]

When the system is overloaded in heating operation, the heater will be turned OFF in the following two 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

6.6 List of Swing Flap Operations

Swing flaps operate as shown in table below.

			Fan	Flap		
				FXFQ	FXCQ FXHQ FXKQ	FXAQ
Heating	Hot start from defrosting operation	Swing	OFF	Horizontal	Horizontal	Horizontal
		Wind direction set	OFF	Horizontal	Horizontal	Horizontal
	Defrosting operation	Swing	OFF	Horizontal	Horizontal	Horizontal
		Wind direction set	OFF	Horizontal	Horizontal	Horizontal
	Thermostat OFF	Swing	LL	Horizontal	Horizontal	Horizontal
		Wind direction set	LL	Horizontal	Horizontal	Horizontal
	Hot start from thermostat OFF mode (for prevention of cold air)	Swing	LL	Horizontal	Horizontal	Horizontal
		Wind direction set	LL	Horizontal	Horizontal	Horizontal
	Stop	Swing	OFF	Horizontal	Horizontal	Totally closed
		Wind direction set	OFF	Horizontal	Horizontal	Totally closed
Cooling	Thermostat ON in dry operation using micro computer	Swing	L*1	Swing	Swing	Swing
		Wind direction set	L*1	Set	Set	Set
	Thermostat OFF in dry operation using micro computer	Swing	OFF or L	Swing	Swing	Swing
		Wind direction set		Set	Set	Set
	Thermostat OFF in cooling	Swing	Set	Swing	Swing	Swing
		Wind direction set	Set	Set	Set	Set
	Stop	Swing	OFF	Horizontal	Horizontal	Totally closed
		Wind direction set	OFF	Set	Horizontal	Totally closed
	Micro computer control (including cooling operation)	Swing	L	Swing	Swing	Swing
		Wind direction set	L	Set	Set	Set

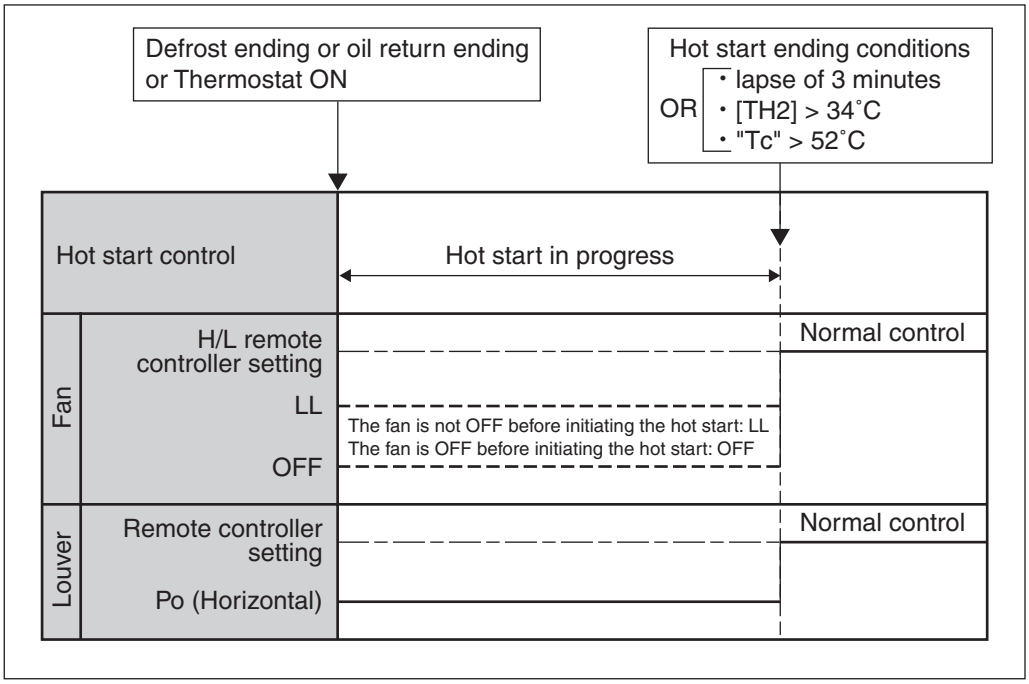
*1. L or LL only on FXFQ models

6.7 Hot Start Control (In Heating Operation Only)

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

[Detail of operation]

When either the **starting condition 1** or the **starting condition 2** is established, the operations shown below will be conducted.

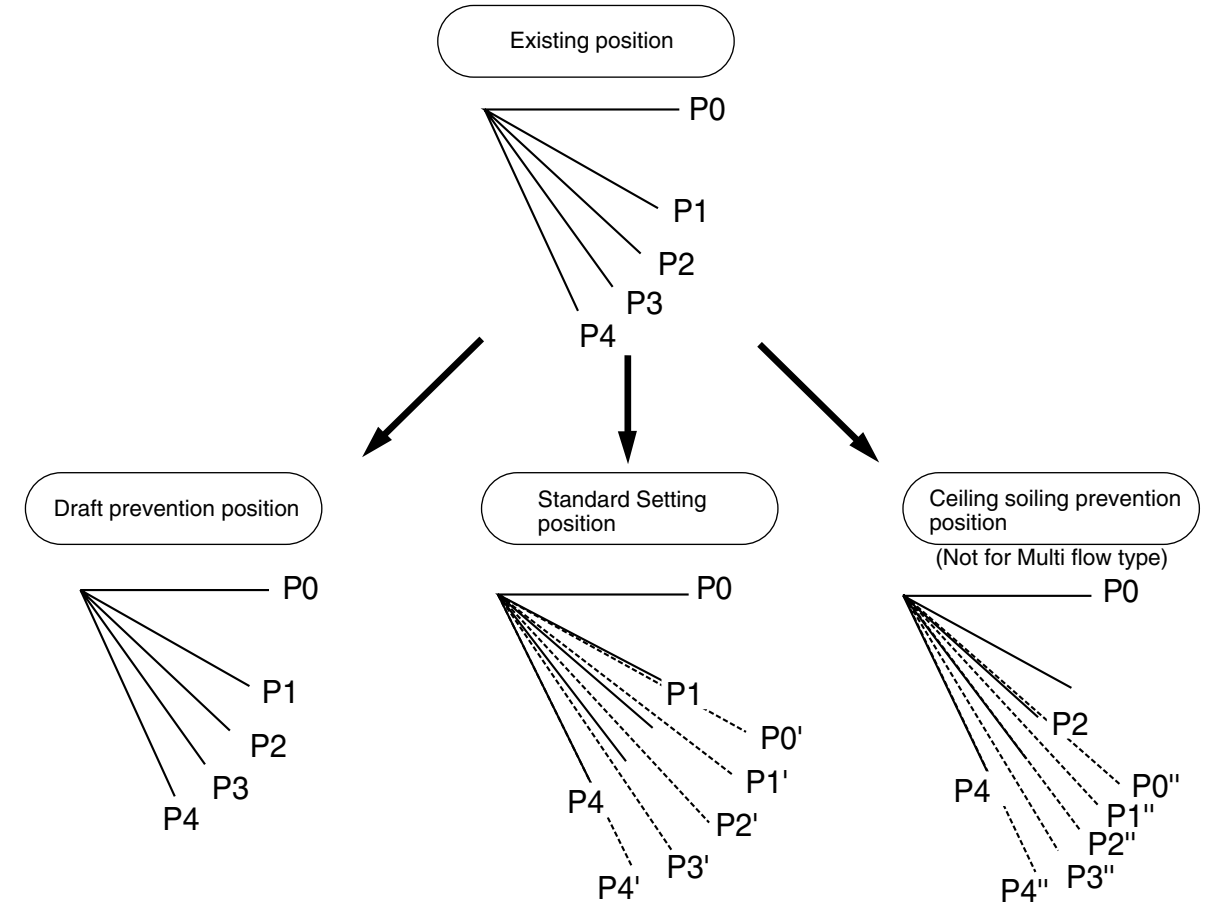


TH_2: Temperature (°C) detected with the gas thermistor

TC: High pressure equivalent saturated temperature

6.8 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 double flow, multi-flow and corner types.)



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)

The factory setting position is standard position.

Part 4
Field Setting

1. Test Operation

1.1 Test Operation Checks

1.1.1 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: (380 ~ 415)V ± 10% for 3-phase units
2	Fully open the liquid and the gas stop valve.

1.1.2 Test Operation Checks

To carry out a test operation, check the following:

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

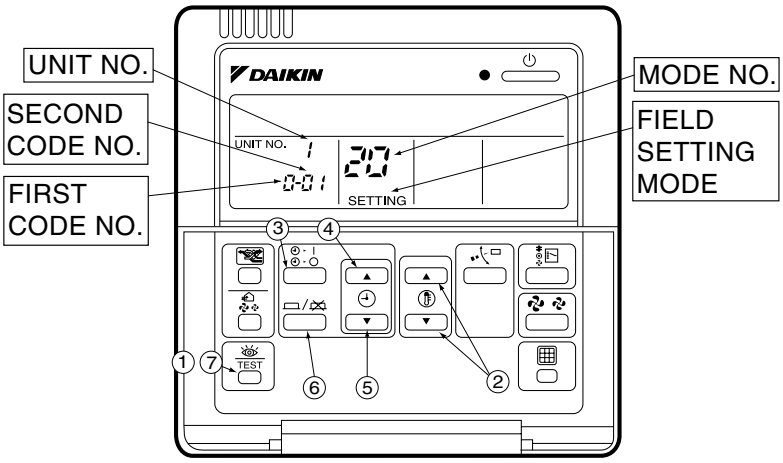
Checkpoints	Cautions or warnings
Are all units securely installed?	● Dangerous for turning over during storm ● Possible damage to pipe connections
Is the earth wire installed according to the applicable local standard?	Dangerous if electric leakage occurs
Are all air inlets and outlets of the indoor and outdoor units unobstructed?	● Poor cooling ● 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

2. Field Setting from Remote Controller

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

2.1 Wired Remote Controller

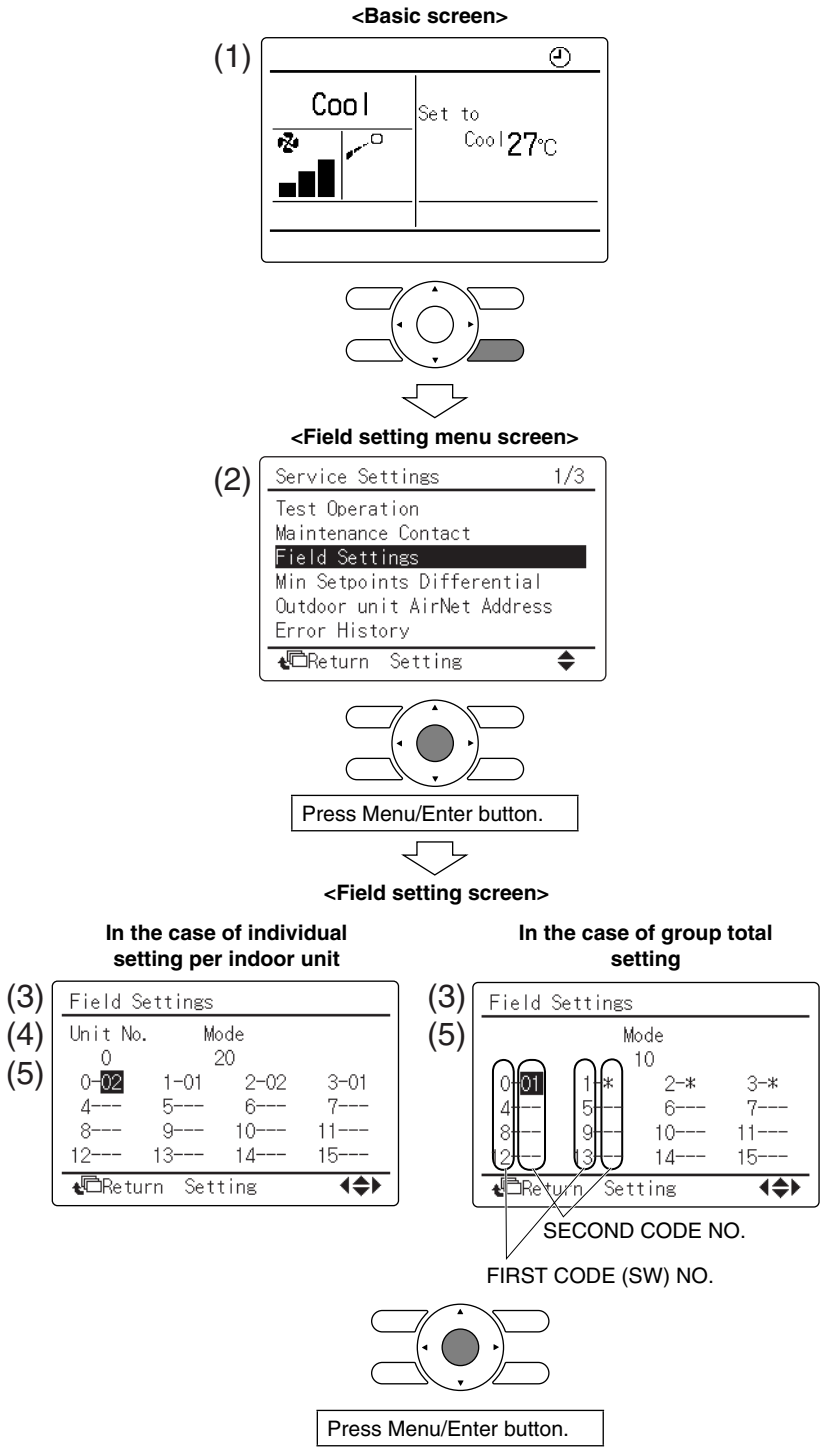
2.1.1 BRC1C62



1. When in the normal mode, press the " " button for 4 seconds or more, and the FIELD SETTING MODE is entered.
2. Select the desired MODE NO. with the " " button (②).
3. During group control, when setting by each indoor unit (mode No. 20, 22 and 23 have been selected), press the " " button (③) and select the INDOOR UNIT NO to be set. (This operation is unnecessary when setting by group.)
4. Press the " " upper button (④) and select FIRST CODE NO.
5. Press the " " lower button (⑤) and select the SECOND CODE NO.
6. Press the " " button (⑥) once and the present settings are SET.
7. Press the " " button (⑦) to return to the NORMAL MODE.

(Example)
If during group setting and the time to clean air filter is set to FILTER CONTAMINATION, HEAVY, SET MODE NO. to "10" FIRST CODE NO. to "0", and SECOND CODE NO. to "02".

2.1.2 BRC1E62



1 Press and hold Cancel button for 4 seconds or more.
Field setting menu is displayed.

2 Select Field setting in the field setting menu, and press Menu/Enter button.
Field setting list screen is displayed.

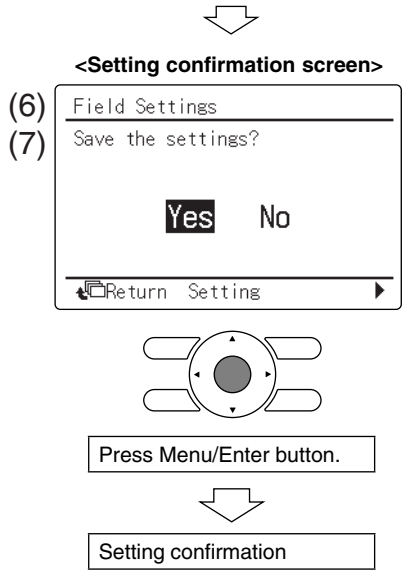
3 Highlight the mode, and select desired "Mode No." by using ▲▼ (Up/Down) button.

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

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

5 Highlight SECOND CODE NO. of the FIRST CODE NO. to be changed, and select desired "SECOND CODE NO." by using ▲▼ (Up/Down) button.
Multiple identical mode number settings are available.

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



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

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

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

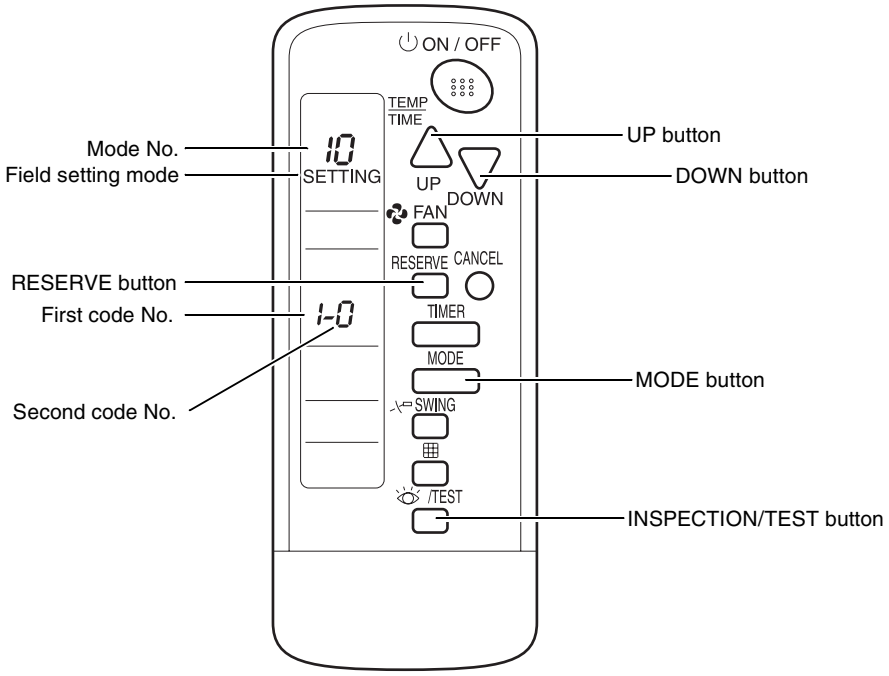
9 After all setting changes are completed, press Cancel button twice.

10 Backlight goes out, and “Connection under check Please wait for a moment” is displayed for initialization. After the initialization, the basic screen returns.

⚠CAUTION

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

2.2 Wireless Remote Controller



Setting

To set the field settings, you have to change:

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

To change the field settings, proceed as follows:

Step	Action
1	Hold down the INSPECTION/TEST button for at least 4 seconds during normal mode to enter the “Field setting mode”.
2	Press the MODE button to select the desired “Mode No.”.
3	Press the 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 set the present settings.
6	Press the INSPECTION/TEST button to return to the “Normal mode”.

2.3 Setting Contents and Code No. for Indoor Units

: Factory setting

Mode No. (∗2)	First Code No.	Description of the Setting		Second Code No. 01		Second Code No. 02		Second Code No. 03	Second Code No. 04	Details No.
10(20)	0	Filter contamination heavy/light (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.	—	—	(1)
			Long life filter		Approx. 2,500 hrs.		Approx. 1,250 hrs.			
			Standard filter		Approx. 200 hrs.		Approx. 100 hrs.			
	1	Long life filter type		Long life filter		Ultra long life filter		—	—	(2)
	2	Room temperature thermistor in remote controller		Remote controller + Body thermostat		Only body thermostat		Only remote controller thermostat	—	(3)
	3	Display time to clean air filter calculation (Set when filter sign is not to be displayed.)		Display		No display		—	—	(4)
	6	Remote controller thermostat control during group control		Remote controller thermostat control is not permitted		Remote controller thermostat control is permitted		—	—	(5)
	7	Time for absence area detection (∗5)		30 minutes		60 minutes		—	—	(6)
11(21)	3	Setting the airflow rate when heating		Standard		Slightly increased		Increased	—	(7)
	6	Setting the rate of human detection (∗5)		High sensitivity		Low sensitivity		Standard sensitivity	Infrared presence sensor disabled	(8)
	7	Airflow adjustment		OFF		Completion of airflow adjustment		Start of airflow adjustment	—	(9)
	8	Compensating the temperature around people (∗5)		Suction air temperature only		Priority given on the suction air temperature		Standard	Priority given on the floor temperature	(10)
	9	Compensating the floor temperature (∗5)		-4°C		-2°C		±0°C	+2°C	(11)
12(22)	0	Optional accessories output selection (field selection of output for adaptor for wiring)		Indoor unit turned ON by thermostat		—		Operation output	Error output	(12)
	1	External ON/OFF input (Set when ON/OFF is to be controlled from outside.)		Forced OFF		ON/OFF control		External protection device input	—	(13)
	2	Thermostat differential changeover (Set when remote sensor is to be used.)		1°C		0.5°C		—	—	(14)
	3	Airflow setting when heating thermostat is OFF		LL		Set fan speed		—	—	(15)
	4	Automatic mode differential		Refer to P.91						(16)
	5	Power failure automatic reset		Not equipped		Equipped		—	—	(17)
	6	Airflow setting when cooling thermostat is OFF		LL		Set fan speed		—	—	(18)
13(23)	0	Setting of normal airflow		N		H		S	—	(19)
	1	Selection of airflow direction (Set when a sealing material kit has been installed.)		F (4 directions)		T (3 directions)		W (2 directions)	—	(20)
	2	Swing pattern settings (In case of an infrared floor sensor is installed)		All direction synchronized swing		—		Facing swing	—	(21)
	3	Operation of downward flow flap: Yes/No		Equipped		Not equipped		—	—	(22)
	4	Setting airflow position		Draft prevention		Standard		Ceiling Soiling prevention	—	(23)
	5	Setting of static pressure selection		Standard		High static pressure		—	—	(24)
	6	External Static Pressure Settings		Refer to P.94						(25)
15(25)	1	Thermostat OFF excess humidity		Not equipped		Equipped		—	—	(26)
	2	Direct duct connection (when the indoor unit and Heat Reclaim Ventilator are connected by duct directly.) (∗4)		Not equipped		Equipped		—	—	(27)
	3	Drain pump and humidifier interlock selection		Not equipped		Equipped		—	—	(28)
	5	Selection for individual ventilation setting by remote controller		Not equipped		Equipped		—	—	(29)

1b (2b)	3	Display of Contact Center	Displayed		No displayed		—		—		(30)
	4	Display of error codes on the remote controller	—		Two-digit display		—		Four-digit display		(31)
	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.		(32)
	14	Setting "restricted / permitted" of airflow block	01	02	03	04	05	06			(33)
			Airflow block permitted	—	—	—	Airflow block restricted	—			
1c (2c)	0	Room temperature display	Room temperature is not displayed		Room temperature is displayed		—		—		(34)

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. Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
3. “88” may be displayed to indicate the remote controller is resetting when returning to the normal mode.

∗4. If the setting mode to “Equipped”, heat reclaim ventilation fan conducts the fan residual operation by linking to indoor unit.

∗5. Available for setting when option with the built-in human detection and floor temperature detection functions is mounted.

2.3.1 Detailed Explanation of Setting Modes

(1) Filter Contamination Heavy/Light

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	Setting
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

(2) Long Life Filter Type

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

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

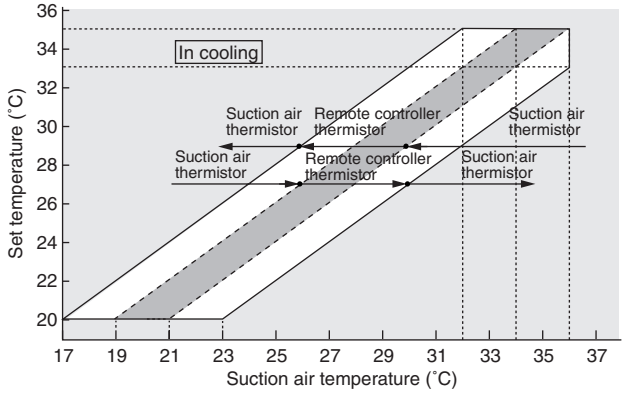
(3) (5) (10) Selecting of Thermistor

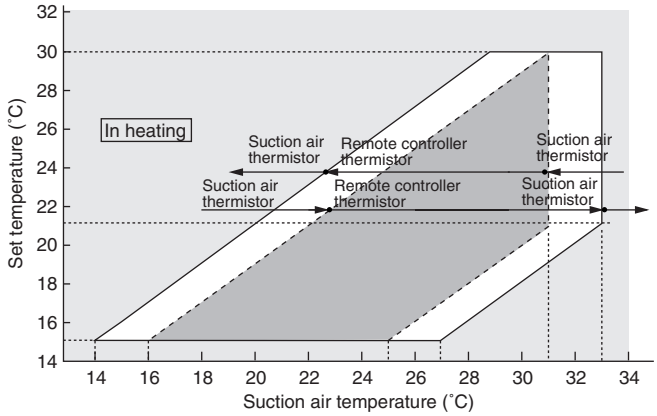
Select a thermistor to control the room temperature.

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

Mode No.	First Code No.	Second Code No.	Thermistor that Controls Room Temperature
10 (20)	2	01	Room temperature thermistor in remote controller and suction air thermistor for indoor unit
		02	Suction air thermistor for indoor unit
		03	Room temperature thermistor in remote controller

The factory setting for the Second code No. is "01" and room temperature is controlled by the suction air thermistor for indoor unit and room temperature thermistor in remote controller. 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 room temperature thermistor in remote controller.





■ When the unit is equipped with an infrared 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 floor sensor		—	—	○	○	○	—

The infrared floor sensor is not used
Only the suction air thermistor is used
Priority given on the suction air temperature (∗)
Standard setting (Factory setting)
Priority given on the floor temperature (∗)
Only the remote controller thermistor is used

∗ Refer to "(10) 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.	Note
10 (20)	6	01	Remote controller thermostat control is not permitted during group control
		02	Remote controller thermostat control is permitted during group control

(4) Display Time to Clean Air Filter Calculation

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

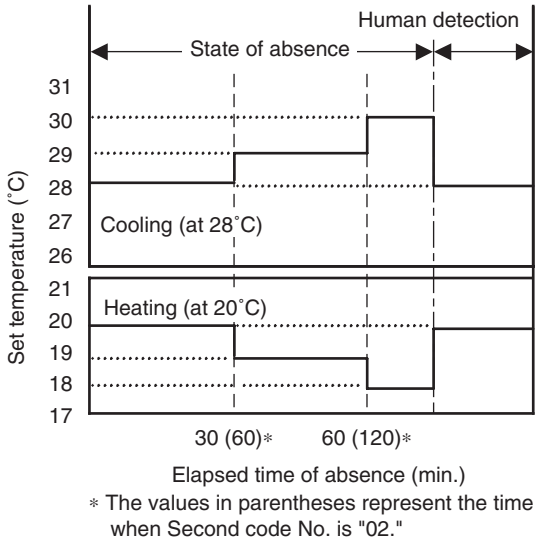
Mode No.	First Code No.	Second Code No.	"Filter Cleaning" Display
10 (20)	3	01	Display
		02	No Display

∗ "Filter Cleaning" is not displayed when an Auto-clean Panel is connected.

(6) Time for Absence Area Detection
(For units with an Infrared Presence Sensor only)

By selecting the energy-saving operation mode when absent, 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.	Description (Time for absence detection)
10 (20)	7	01	30 minutes
		02	60 minutes



- 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).

(7) 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.		
		01	02	03
11 (21)	3	Standard	Slightly increased	Increased

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

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

Set the sensitivity of the infrared presence sensor.

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

(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

(9) 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 blow-off 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.	Airflow Adjustment
11 (21)	7	01	OFF
		02	Completion of airflow adjustment
		03	Start of airflow adjustment

(10) Compensating the Temperature around People
(When the unit is equipped with an infrared floor sensor)

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

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

- To reflect the effect of the temperature around the ceiling, select the "Priority given on the suction air temperature" (the Second code No. "02").
- To reflect the effect of the temperature around the floor, select the "Priority 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	Priority given on the suction air temperature
		03	Standard
		04	Priority given on the floor temperature

(11) Compensating the Floor Temperature
(When the unit is equipped with an infrared floor sensor)

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
		02	-2°C
		03	0°C
		04	2°C

[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
		Heated little	-2°C or -4°C

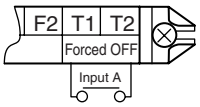
(12) Optional Accessories Output Selection

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

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

(13) 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 el. compo. box.



Mode No.	First Code No.	Second Code No.	Operation by Input of the Signal A
12 (22)	1	01	ON: Forced OFF (prohibition of using the remote controller) OFF: Permission of using the remote controller
		02	OFF → ON: Operation ON → OFF: Stop
		03	ON: Operation OFF: The system stops, then the applicable unit indicates "88". The other indoor units indicate "U3".

(14) Thermostat Differential Changeover

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

Mode No.	First Code No.	Second Code No.	Differential Value
12(22)	2	01	1°C
		02	0.5°C

(15) 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 airflow
		02	Set fan speed

(16) Automatic Mode Differential

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	1°C	2°C	3°C	4°C	5°C	6°C	7°C

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

(17) Power Failure Automatic Reset

Mode No.	First Code No.	Second Code No.	Setting
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

1. The air conditioner starts operation suddenly after power failure reset or the main power supply turned ON again. Consequently, the user might be surprised (with question for the reason why).

2. In the service work, for example, turning OFF the main power switch during the unit is in operation, and turning ON the switch again after the work is completed start the unit operation (the fan rotates).

(18) Airflow Setting 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 airflow
		02	Set fan speed

(19) Setting of Normal Airflow

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

■ **FXAQ**

Mode No.	First Code No.	Second Code No.	Setting
13(23)	0	01	Standard (N)
		02	Slight increase (H)
		03	Normal increase (S)

■ **FXFQ25-80**

Mode No.	First Code No.	Second Code No.	Setting	Ceiling Height
13 (23)	0	01	Standard (N)	≤ 2.7 m
		02	High Ceiling (1) (H)	2.7 - 3 m
		03	Higher Ceiling (2) (S)	3 - 3.5 m

■ **FXFQ100-125**

Mode No.	First Code No.	Second Code No.	Setting	Ceiling Height
13 (23)	0	01	Standard (N)	≤ 3.2 m
		02	High Ceiling (1) (H)	3.2 - 3.6 m
		03	Higher Ceiling (2) (S)	3.6 - 4.2 m

(20) Selection of Airflow Direction

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.	Setting
13 (23)	1	01	F: 4-direction airflow
		02	T: 3-direction airflow
		03	W: 2-direction airflow

(21) Swing Pattern Settings

(In case of a infrared floor sensor is installed)

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
		03	Facing swing

(22) Operation of Downward Flow Flap: Yes/No

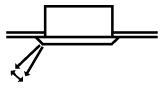
Only the model FXKQ has the function.

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

Mode No.	First Code No.	Second Code No.	Setting
13 (23)	3	01	Equipped
		02	Not equipped

(23) Setting Airflow Position

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



Mode No.	First Code No.	Second Code No.	Setting
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.

(24) Setting of the Static Pressure Selection

■ **FXDQ20-32PB, FXDQ40-63NB**

Model No.	First Code No.	Second Code No.	External Static Pressure
13 (23)	5	01	Standard (10Pa)
		02	High static pressure (30Pa)

(25) External Static Pressure Settings (for FXMQ model)

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

The “Second Code No.” is set to 07 (an external static pressure of 100 Pa) at factory setting.
∗1 The FXMQ50 · 63 · 80 · 100 · 125 · 140 cannot be set to 30 Pa.
∗2 The FXMQ20 · 25 · 32 · 40 cannot be set to 180 or 200 Pa.

(26) Thermostat OFF Excess Humidity

Setting to "Humidification Setting" turns ON the humidifier if suction air temperature is 20ºC or more and turns OFF the humidifier if suction air temperature is 18ºC or below when the heating thermostat is OFF.

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

(27) Direct Duct Connection

This is used when "fresh air intake kit equipped with fan" is connected. The indoor unit fan carries out residual operation for 1 minute after the thermostat is stopped. (For the purpose of preventing dust on the air filter from falling off.)

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

(28) Drain Pump and Humidifier Interlock Selection

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

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	3	01	Not equipped
		02	Equipped

(29) Selection for Individual Ventilation Setting by Remote Controller

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

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	5	01	Not equipped
		02	Equipped

(30) Display of Contact Center
(For BRC1E62 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 (2b)	3	01	Displayed
		02	No displayed

(31) Display of Error Codes on the Remote Controller
(For BRC1E62 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 (2b)	4	02	Two-digit display
		04	Four-digit display

(32) Key-lock Pattern Settings
(For BRC1E62 only)

Setting of key-lock pattern for the remote controller

Mode No.	First Code No.	Second Code No.	Contents
1b (2b)	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 "4" to cancel it.

(33) Setting "Restricted / Permitted" of Airflow Block
(For Sensing flow type 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.
This setting will prevent the airflow bock 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 (2b)	14	01	Airflow block permitted
		05	Airflow block restricted

(34) Room Temperature Display
(For BRC1E62 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 (2c)	0	01	Room temperature is not displayed.
		02	Room temperature is displayed.

2.3.2 Outdoor-Air Processing Unit - Field Setting (Remote Controller)

: 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	2500hr	1250hr	—	—	—	—	—	—	—	—	—	—	—	—	—
	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 ★

★: The same value continues.

2.3.3 Setting of Operation Control Mode from Remote Controller (Field Setting)

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)

2.3.4 Contents of Control Modes

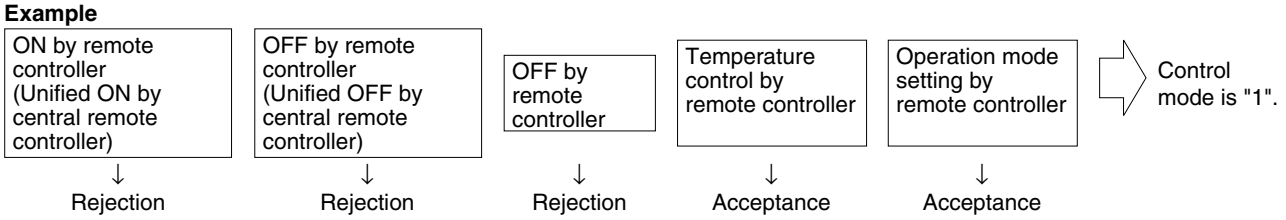
20 modes consisting of combinations of the following 5 operation modes with temperature and operation mode setting by remote controller can be set and displayed by operation modes 0 through 19.

- 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.

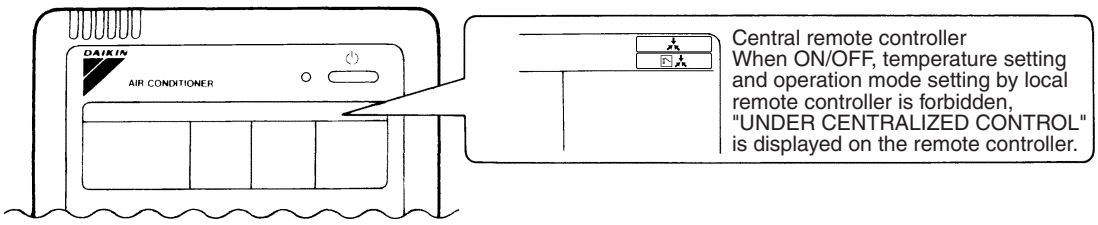
Example



: 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.

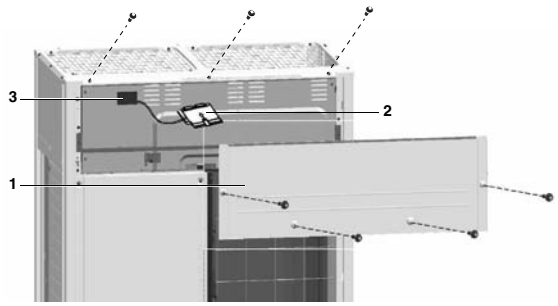


2.4 Field Setting from Outdoor Unit

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.

2.4.1 Accessing the BS Buttons on the Logic Board

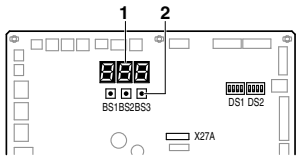
It is not required to open the complete electronic component box to access the BS buttons on the logic board and read out the 7 segment display(s).
To access you can remove the front plate (see figure). Now you can open the inspection cover of the electrical component box front plate (see figure). You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

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

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

Setting definition: [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.

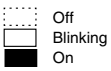
Functions of the BS button switches which are located on the outdoor unit PCB (A1P)
Turn ON the power supply of the outdoor unit and all indoor units.
When the communication between indoor units and outdoor unit(s) is established and normal, the segment indication state will be as below (default situation 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).
[A-B] = C in this case defined as: A = 1; B = 10; C = the value we want to know/monitor:
- Make sure the segment indication is as during normal operation (default situation when shipped from factory).
- Press BS1 once; result segment display:

  
  Result: mode 1 is accessed.

- Press BS2 10 times; result segment display:

  
  Result: mode 1 setting 10 is addressed.

- Press BS3 1 time; the value which is returned (depending on the actual field situation), is the amount of indoor units which are connected to the system.
  Result: 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's fan).
[A-B] = C in this case defined as: A = 2; B = 18; C = the value we want to know/change

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

  Result: mode 2 is accessed.
- Press BS2 18 times; result segment display:

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

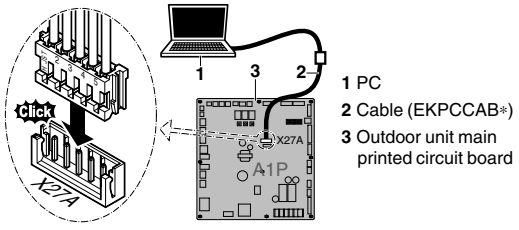
By operating the DIP switches it is possible to:

	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

2.4.3 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 low night noise operation
- 1 = unit is currently operating under low noise restrictions
- 0 = unit is currently not operating under low noise restrictions

Low night noise operation reduces the sound generated by the unit compared to nominal operating conditions.

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

The first method is to enable an automatic low night 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 low night 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 T target parameter position.
[1-6] = shows the current T target parameter position

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

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

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

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

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

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

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

[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.

[2-8] = Te target temperature during cooling operation
Default value = 0

Value [2-8]	T_e target
0	Auto (default)
2	6
3	7
4	8
5	9
6	10
7	11

Change [2-8] = 0, 2~7 in function of required operation method during cooling.

For more information and advice about the impact of these settings.

[2-9] = Tc target temperature during heating operation
Default value=0

Value [2-9]	T_c target
0	Auto (default)
1	41
3	43
6	46

Change [2-9] = 0,1,3 or 6 in function of required operation method during heating.

For more information and advice about the impact of these settings.

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

If the system needs to be runnig under low night 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 change [2-12] = 1.

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

Default value = 0.
To activate this function change [2-18] = 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 change [2 - 20] = 1

To stop the manual additional refrigerant charge operation (when the required additional refrigerant amount is charged), press BS3. If this function is 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 function change [2-21] = 1

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

[2-22] = Automatic low noise setting and level during night time

By changing this setting, you activate the automatic low night noise operation function of the unit and define the level of operation. Depending on the chosen level, the noise level will be lowered (3: Level3 < 2: Level2 < 1: Level1).
The start and stop times for this function are defined under setting [2-26] and [2-27].

Default value = 0.
To activate function change [2-22] = 1,2 or 3.

[2-25] = Low night noise operation level via the external control adaptor

If the system needs to be running under low night noise operation conditions when an external signal is sent to the unit, this setting defines the level of low noise that will be applied (3: Level3 < 2: Level2 < 1: Level1).

This setting will only be effective when the optional external control adaptor (DTA104A61/62) is installed and the setting [2-12] was activated.

Default value = 2.
To activate function change [2-25] = 1,2 or 3.

[2-26] = Low night noise operation start time

Default value = 2.

Value [2-26]	Start time automatic low night noise operation (Approximate)
1	20:00
2	22:00 (default)
3	24:00

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

[2-27] = Low night noise operation stop time

Default value = 3

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

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

[2-30] = Power consumption limitation level (step 1) via the external control adaptor (DTA104A61/62).

If the system needs to be running under power consumption limitation conditions when an external signal is sent to the unit, this setting defines the level power consumption limitation that will be applied for step 1. The level is according to the table.

Default value = 3

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

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

[2-31] = Power consumption limitation level (step 2) via the external control adaptor (DTA104A61/62).

If the system needs to be running under power consumption limitation conditions when an external signal is sent to the unit, this setting defines the level power consumption limitation that will be applied for step 2.
The level is according to the table.

Default value = 1.

Change [2-31] = 1,2 or 3 in function of required limitation.

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

[2-32] = Forced, all time, power consumption limitation operation (no external control adaptor is required to perform power consumption limitation).

If the system always needs to be running under power consumption limitation conditions, this setting activates and defines the level power consumption limitation that will be applied continuously. The level is according to the table.

Default value = 0 (OFF).

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

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

[2-35] = Height difference setting.

Value [2-35]	Description
0	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, the setting [2-35] should be changed to 0.
1 (default)	—

[2-45] = Technical cooling.
Default value = 0

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

[2-47] = T_e target temperature during heat recovery operation.
Default value = 0

Value [2-47]	T_e target
0	Auto (default)
2	6
3	7
4	8
5	9
6	10
7	11

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

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

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

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

Change [2-81]=0,1,2 or 3 in function of required limitation.

This setting is used in conjunction with setting [2-8].
For more information and advice about the impact of these settings.

[2-82] = Heating comfort setting.

Default value = 1

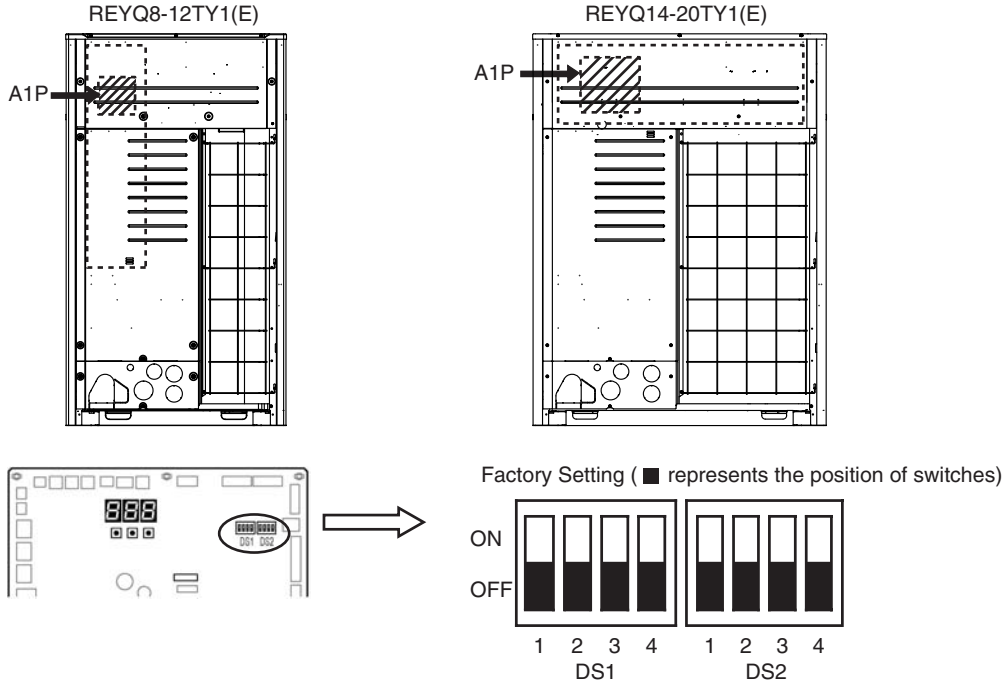
Value [2-82]	Heating comfort setting
0	Eco
1	Mild (default)
2	Quick
3	Powerful

Change [2-82] = 0,1,2 or 3 in function of required limitation.

This setting is used in conjunction with setting [2-9].
For more information and advice about the impact of these settings.

2.5.3 Capacity Setting

Position of DIP switch



Application model	Setting method (■ represents the position of switches)	
REYQ8TY1(E)		Set DS2-2 to ON.
REYQ10TY1(E)		Set DS2-1 and DS2-2 to ON.
REYQ12TY1(E)		Set DS2-3 to ON.
REYQ14TY1(E)		Set DS2-1 and DS2-3 to ON.
REYQ16TY1(E)		Set DS2-2 and DS2-3 to ON.
REYQ18TY1(E)		Set DS2-1, DS2-2, and DS2-3 to ON.
REYQ20TY1(E)		Set DS2-4 to ON.

2.5.4 Cool / Heat Mode Switching

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

Set Remote Controller Change Over Switch (SS1, SS2) as Following:

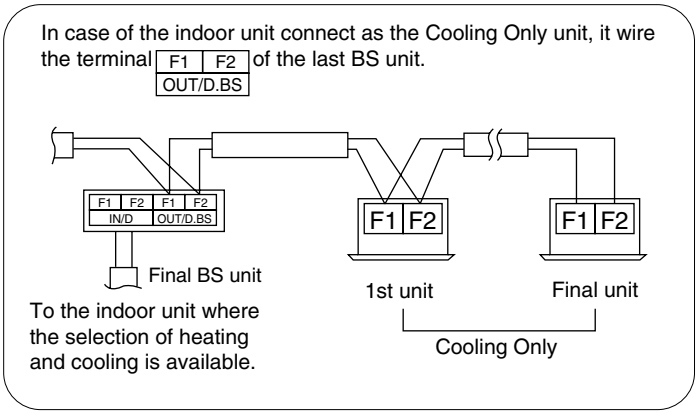
- When using COOL/HEAT selector, turn this switch to the BS side.

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 el. compo. box.

EXAMPLE OF TRANSMISSION LINE CONNECTION

- Example of connecting transmission wiring.
  Connect the transmission wirings as shown in the Fig. 1.



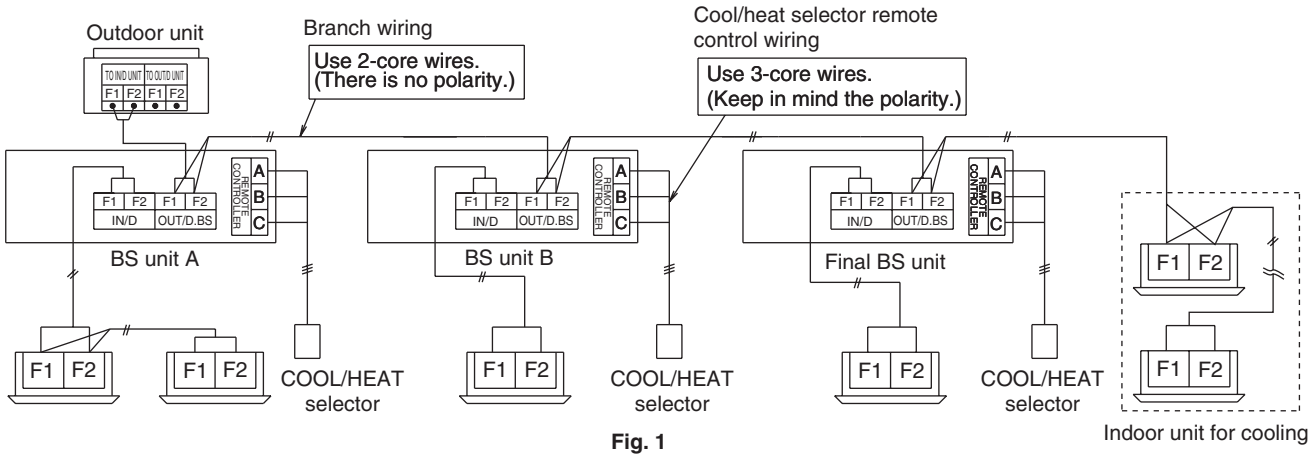


Fig. 1

2.5.5 Setting of Low Night Noise Operation and Demand Operation

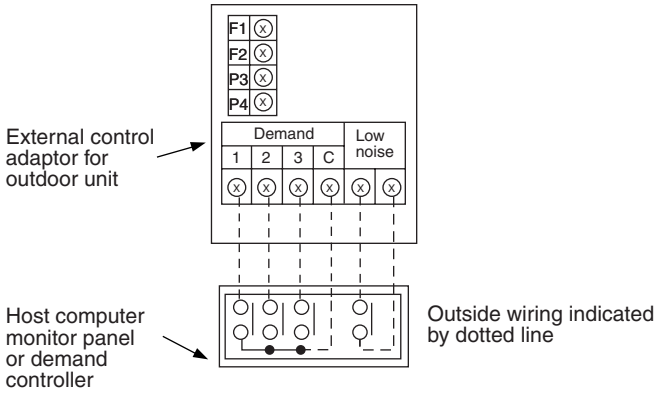
Setting of Low Night Noise Operation

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

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

A. When the low night 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 low night noise operation (Refer below figure).
   If carrying out demand or low noise input, connect the adaptor's terminals as shown below.

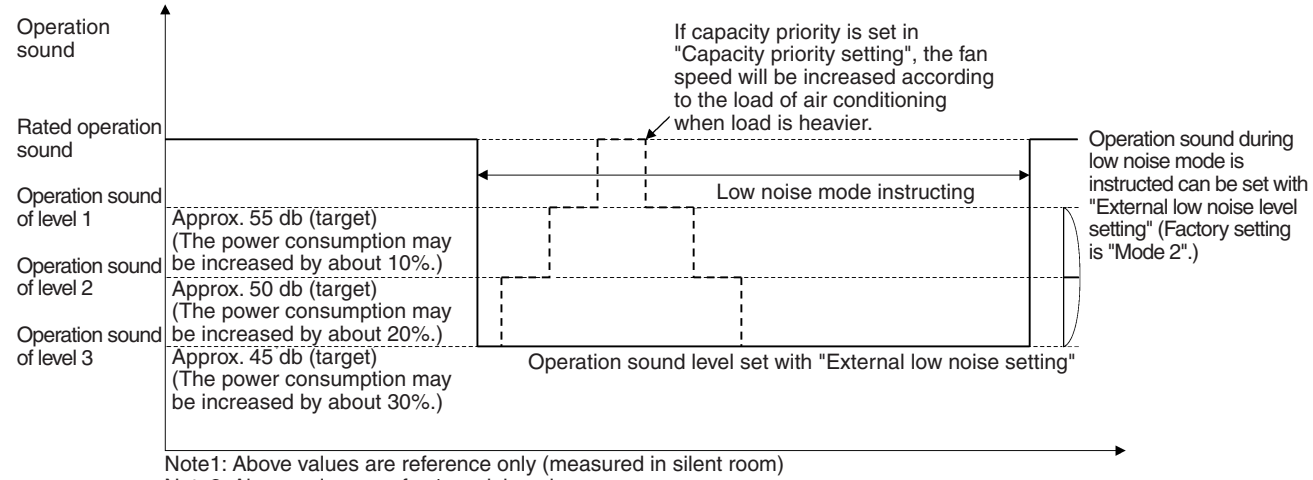


2. While in "Setting mode 2", set the setting condition for set item No. 12 (Setting of external low noise/demand operation) to "YES".
3. If necessary, while in "Setting mode 2", select the setting condition (i.e., "Mode 1", "Mode 2", or "Mode 3") for set item No. 25 (Setting of external low noise level).
4. If necessary, while in "Setting mode 2", set the setting condition for the set item No. 29 (Setting of capacity priority) to "ON".
   (If the condition is set to "ON", when the air conditioning load reaches a high level, the low night noise operation command will be ignored to put the system into normal operation mode.)

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

1. While in "Setting mode 2", select the setting condition (i.e., "Mode 1", "Mode 2", or "Mode 3") for set item No. 22 (Setting of low night noise operation level).
2. If necessary, while in "Setting mode 2", select the setting condition (i.e., "20:00", "22:00", or "24:00") for set item No. 26 (Setting of start time of low night noise operation).
   (Use the start time as a guide since it is estimated according to outdoor temperatures.)
3. If necessary, while in "Setting mode 2", select the setting condition (i.e., "06:00", "07:00", or "08:00") for set item No. 27 (Setting of end time of low night noise operation).
   (Use the end time as a guide since it is estimated according to outdoor temperatures.)
4. If necessary, while in "Setting mode 2", set the setting condition for set item No. 29 (Setting of priority) 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

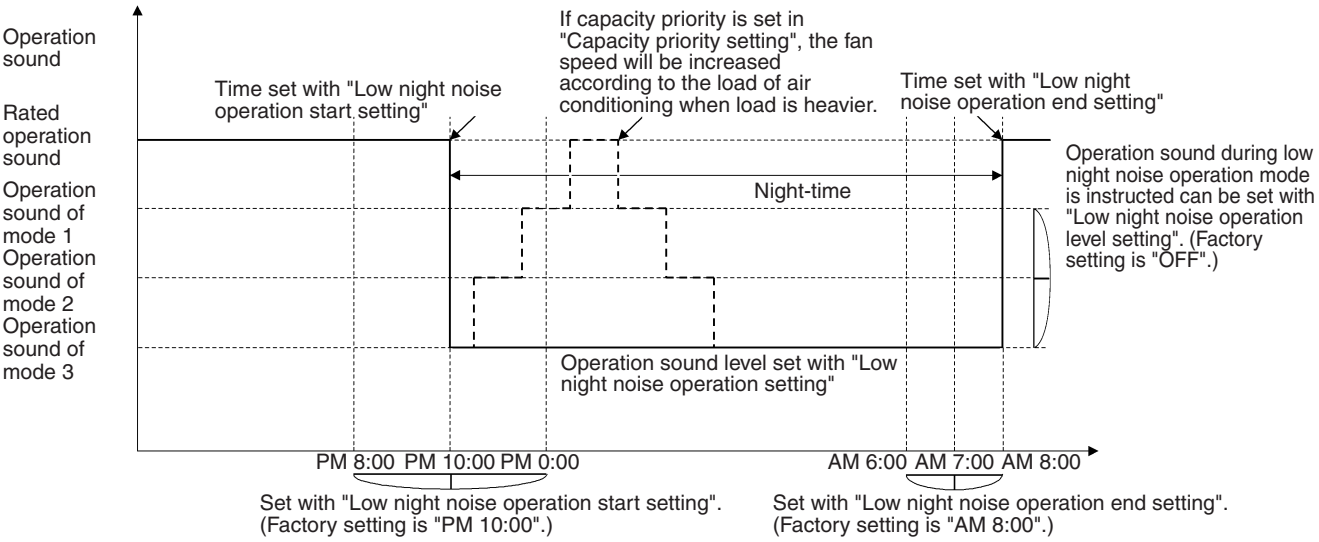
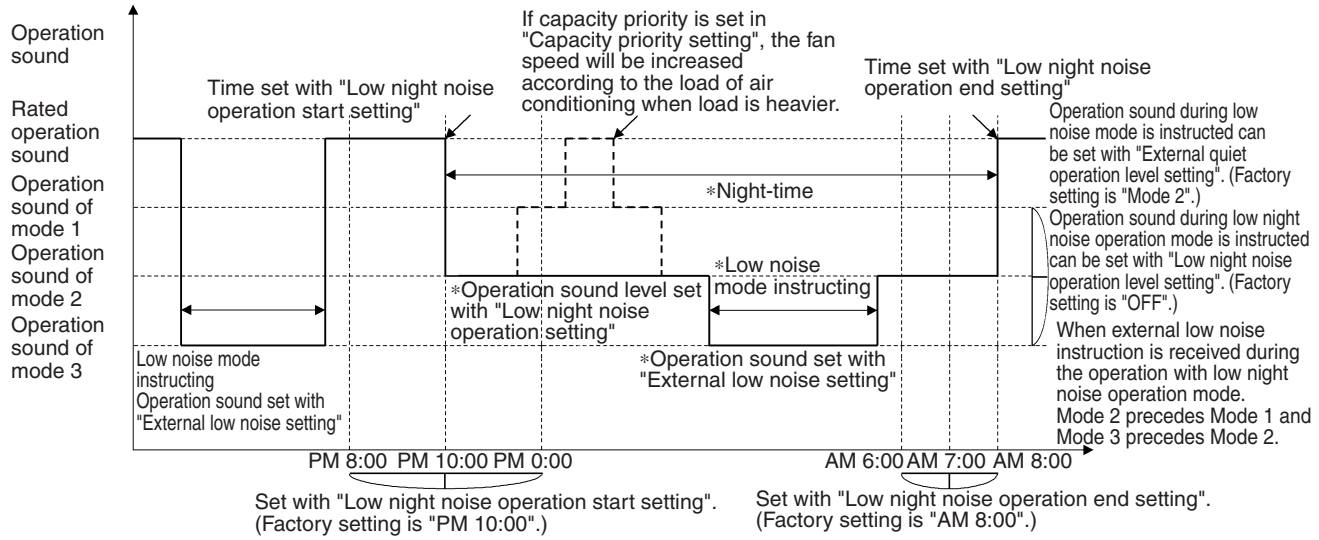


Image of operation in the case of A and B



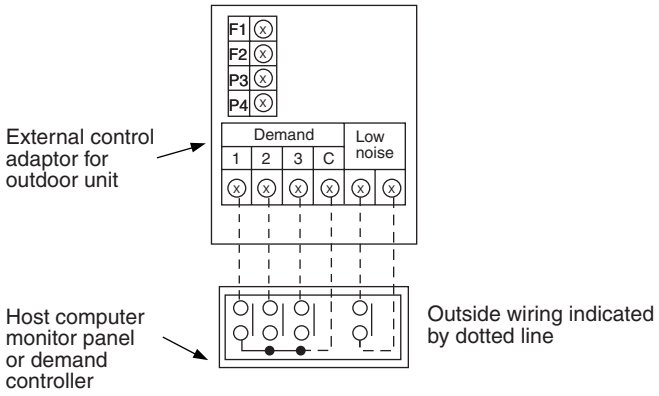
Setting of Demand Operation

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

Setting content			Setting method	
Set item	Condition	Content	External control adaptor for outdoor unit	Outdoor unit PCB
Demand 1	Mode 1	The compressor operates at approx. 60% or less of rating.	Short circuit "1" and "C" on the terminal strip.	Set item No. 32 to "Demand 1", and item No. 30 to "Level 1".
	Mode 2	The compressor operates at approx. 70% or less of rating.		Set item No. 32 to "Demand 1", and item No. 30 to "Level 2".
	Mode 3	The compressor operates at approx. 80% or less of rating.		Set item No. 32 to "Demand 1", and item No. 30 to "Level 3".
Demand 2	—	The compressor operates at approx. 40% or less of rating.	Short circuit "2" and "C".	Set item No. 32 to "Demand 2".
Demand 3	—	Forced thermostat OFF.	Short circuit "3" and "C".	—

∗: However the demand operation does not occur in the following operation modes.
① Startup control ② Oil return operation
③ Defrosting 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 above figure).
2. While in "Setting mode 2", set the setting condition for set item No. 12 (Setting of external low noise/demand operation) to "YES".
3. If necessary, while in "Setting mode 2", select the set item No. 30 (Setting of Demand 1 level) and then set the setting condition to targeted mode.

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", make setting of the set item No. 32 (Setting of alternate demand) to "ON".

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

Image of operation in the case of A

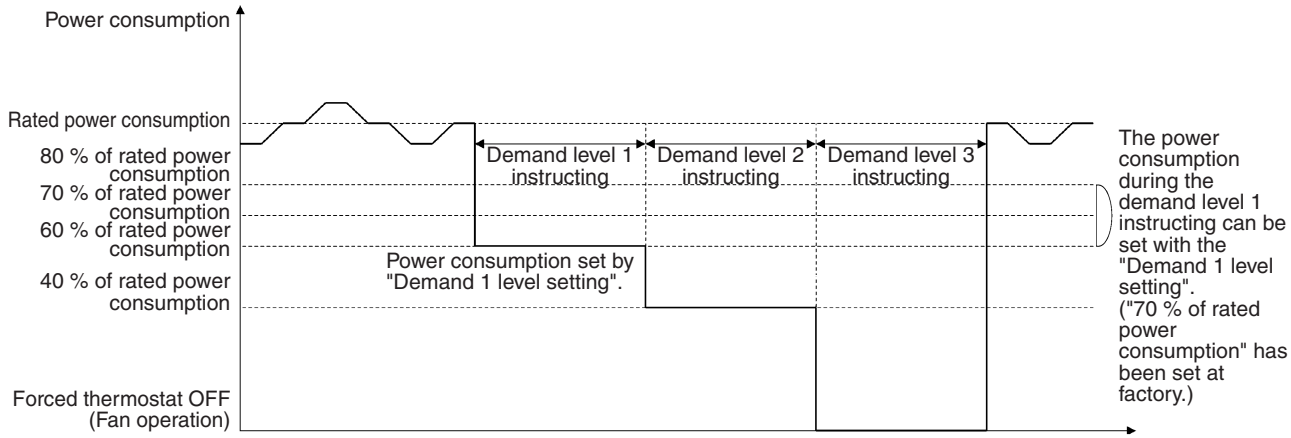


Image of operation in the case of B

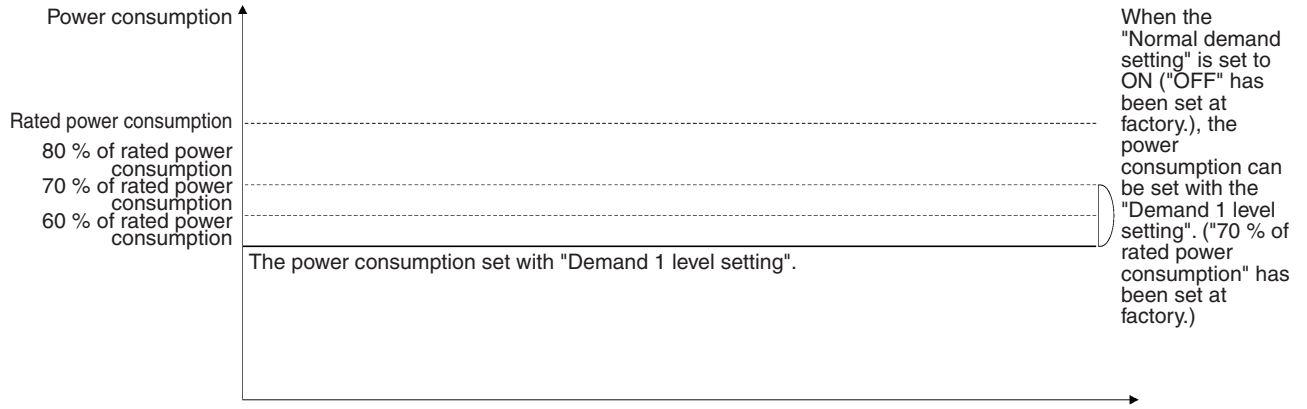
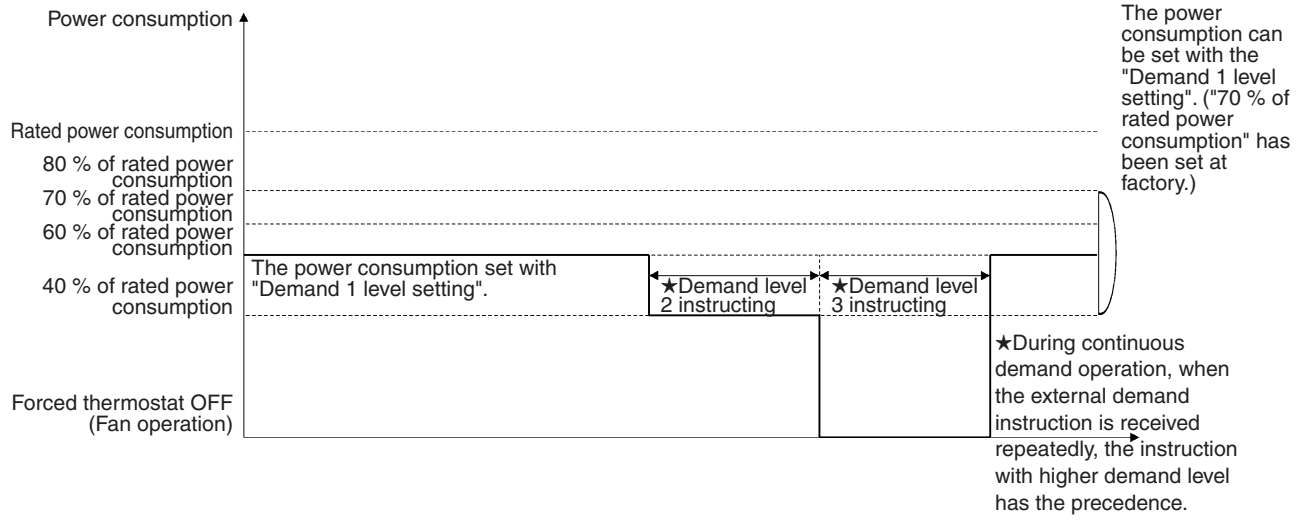


Image of operation in the case of A and B



Detailed Setting Procedure of Low Night Noise Operation and Demand Control

1. Setting mode 1 (H1P OFF)

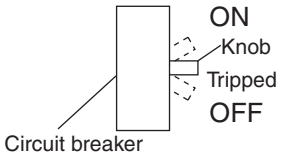
① In setting mode 2, press the BS1 (MODE) once. → Setting mode 1 is entered and H1P OFF. During the setting mode 1 is displayed, “In low night noise operation” and “In demand control” are displayed.

2. Setting mode 2 (H1P ON)

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

Part 5
Service Diagnosis

1. Symptom-based Troubleshooting

No.	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.
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 5 minutes.
		Pressing the TEMP ADJUST 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 control equipment. Blinking display indicates that the system cannot be operated using the remote controller.	Operate the system using the COOL/HEAT central remote controller.
		The system stops immediately after turning ON the power supply.	The system is in preparation mode of micro-computer operation.	Wait for a period of approximately 1 minute.
5	The system makes intermittent stops.	The remote controller displays error codes "U4" and "U5", and the system stops but restarts after a lapse of several minutes.	The system stops due to an interruption in communication between units caused by electrical noises coming from equipment other than air conditioners.	Remove causes of electrical noises. If these causes are removed, the system will automatically restart operation.
6	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 operation 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.

No.	Symptom		Supposed Cause	Countermeasure
8	The airflow rate is not reproduced according to the setting.	Even pressing the AIRFLOW RATE SET 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. (The fan LL operation is also enabled while in oil return mode in cooling 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, 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 outdoor air temperature and ambient 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 defrosting operation, the system is switched to heating operation.	Defrosted moisture turns to be vapor and comes out from the units.	Normal operation.
11	The system produces sounds.	<Indoor unit> Immediately after turning ON the power supply, indoor unit produces "ringing" sounds.	These are operating sounds of the electronic expansion valve of the indoor unit.	Normal operation. This sound becomes low after a lapse of approximately 1 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.

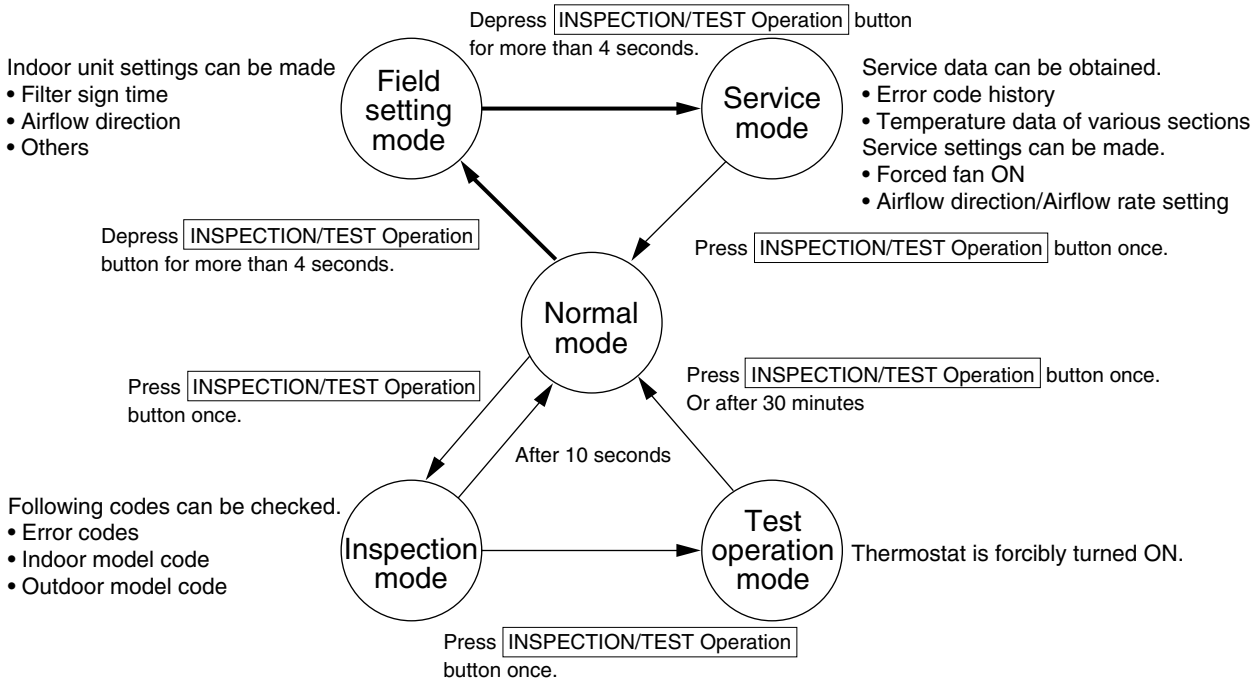
No.	Symptom		Supposed Cause	Countermeasure
13	Odors come out from the system.	In operation	Odors of room, cigarettes or else adsorbed to the inside of indoor unit are blown out.	The inside of the indoor unit should be cleaned.
14	Outdoor unit fan does not rotate.	In operation	The reason is that fan revolutions 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 1 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.

2. Troubleshooting by Remote Controller

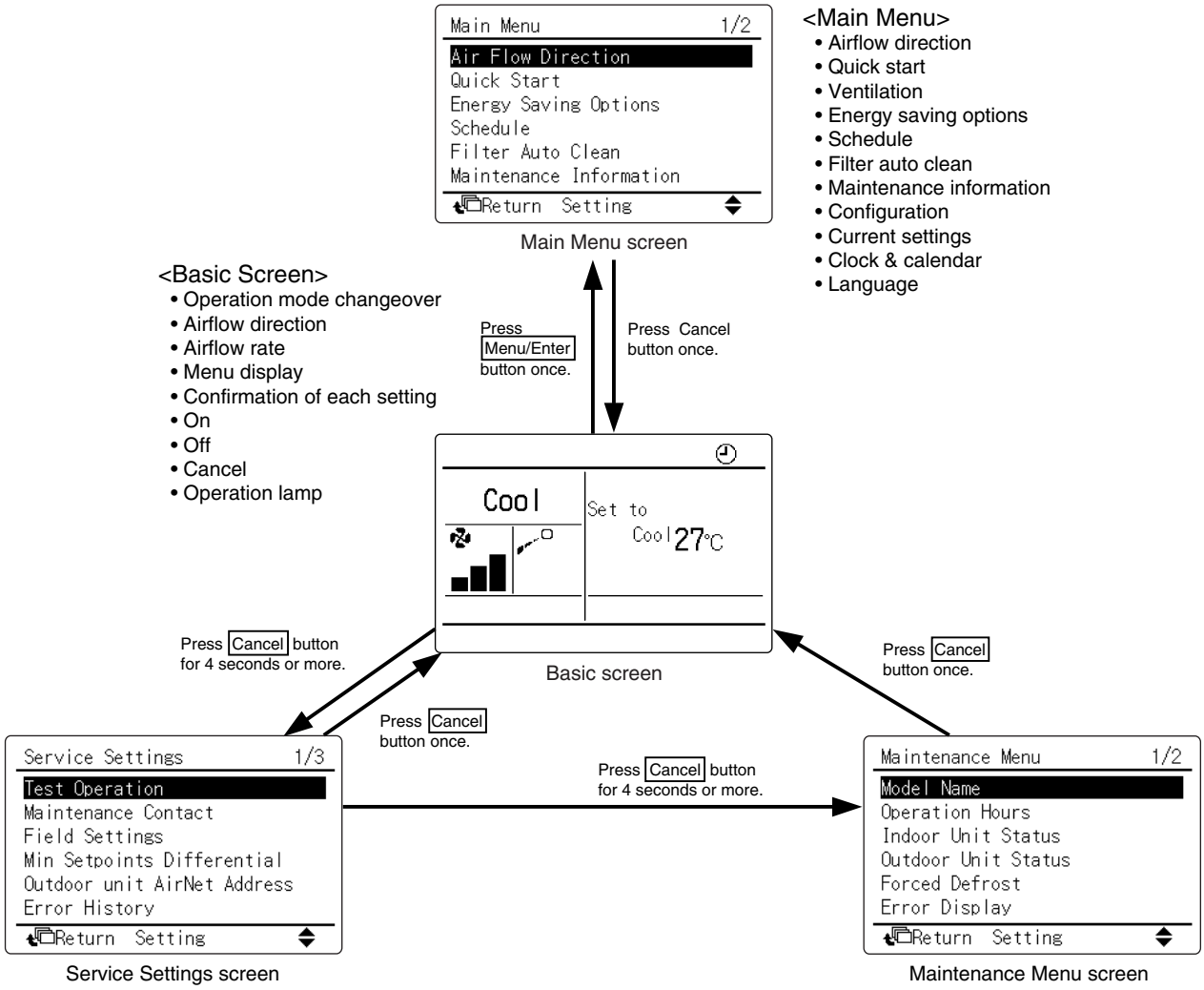
2.1 Mode Access Operation

2.1.1 BRC1C62

The following modes can be selected by using the [INSPECTION/TEST Operation] button on the remote controller.



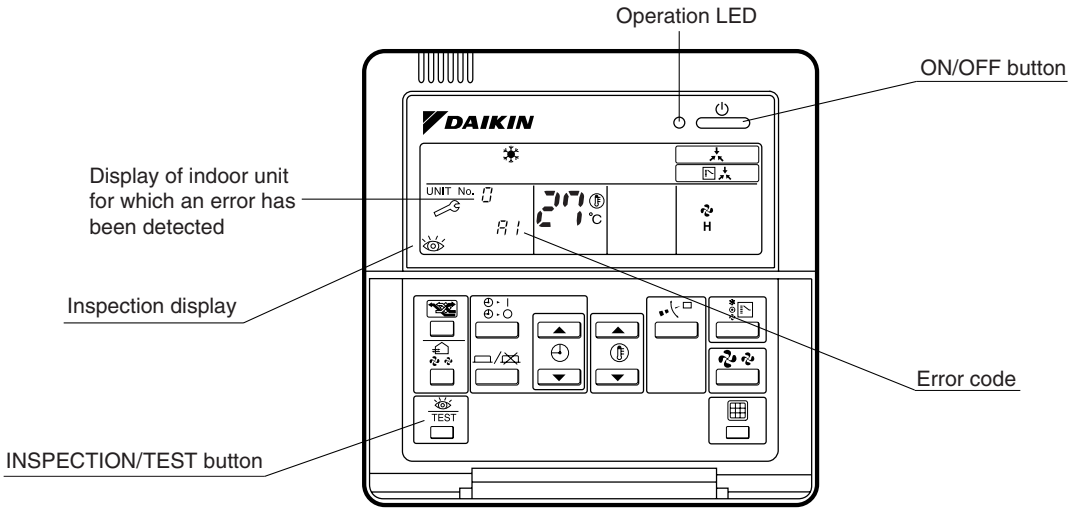
2.1.2 BRC1E62


Main Menu 1/2
Air Flow Direction
Quick Start
Energy Saving Options
Schedule
Filter Auto Clean
Maintenance Information
Return Setting
Main Menu screen
<Main Menu>
• Airflow direction
• Quick start
• Ventilation
• Energy saving options
• Schedule
• Filter auto clean
• Maintenance information
• Configuration
• Current settings
• Clock & calendar
• Language
<Basic Screen>
• Operation mode changeover
• Airflow direction
• Airflow rate
• Menu display
• Confirmation of each setting
• On
• Off
• Cancel
• Operation lamp
Press Menu/Enter button once.
Press Cancel button once.
Cool
Set to
Cool 27℃
Basic screen
Press Cancel button for 4 seconds or more.
Press Cancel button once.
Press Cancel button once.
Press Cancel button for 4 seconds or more.
Service Settings 1/3
Test Operation
Maintenance Contact
Field Settings
Min Setpoints Differential
Outdoor unit AirNet Address
Error History
Return Setting
Service Settings screen
Maintenance Menu 1/2
Model Name
Operation Hours
Indoor Unit Status
Outdoor Unit Status
Forced Defrost
Error Display
Return Setting
Maintenance Menu screen
<Service Settings Menu>
• Test operation
• Maintenance Contact
• Field settings
• Min setpoints differential
• Group address
• Indoor unit AirNet address
• Outdoor unit AirNet address
• Error history
• Indoor unit status
• Outdoor unit status
• Forced fan ON
• Switch main sub controller
• Filter indicator
<Maintenance Menu>
• Model name
• Operation hours
• Indoor unit status
• Outdoor unit status
• Forced defrost
• Error display
• Swap unit No.
• Addressed sensor value

2.2 Procedure of Self-diagnosis by Remote Controller

2.2.1 Wired Remote Controller — BRC1C62

If operation stops due to error, the remote controller's operation LED blinks, and error code is displayed. (Even if stop operation is carried out, error contents are displayed when the inspection mode is entered.) The error code enables you to tell what kind of error caused operation to stop. Refer to P.126 for error code and error contents.

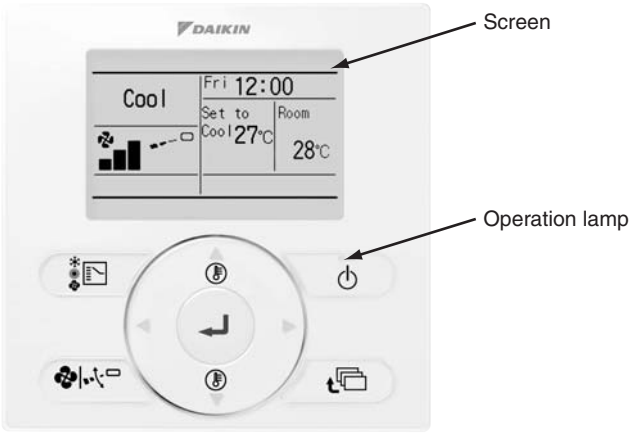


Note:

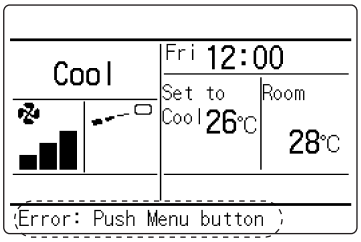
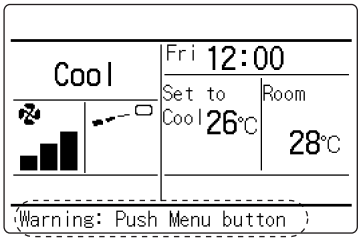
1. Pressing the INSPECTION/TEST button will blink the check indication.
2. While in service mode, holding down the ON/OFF button for a period of 5 seconds or more will clear the error history indication shown above. In this case, on the codes display, the error code will blink twice and then change to "00" (= Normal), the Unit No. will change to "0", and the operation mode will automatically switch from service mode to normal mode (displaying the set temperature).

2.2.2 Wired Remote Controller — BRC1E62

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



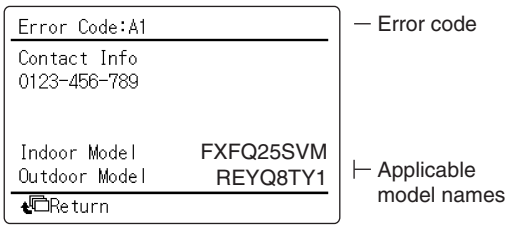
(1) Checking an error or warning

	Operation Status	Display	
Abnormal shutdown	The system stops operating.	The operation lamp (green) starts to blink. The message "Error: Push Menu button" will appear and 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 appear and blink at the bottom of the screen.	

(2) Taking corrective action

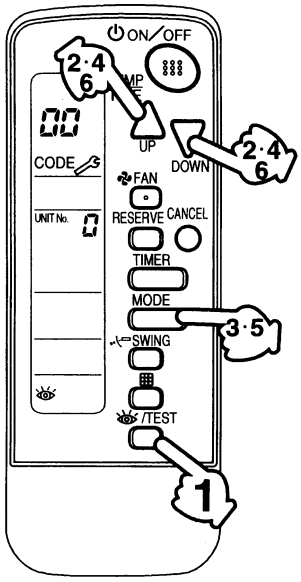
· Press the Menu/Enter button to check the error code.

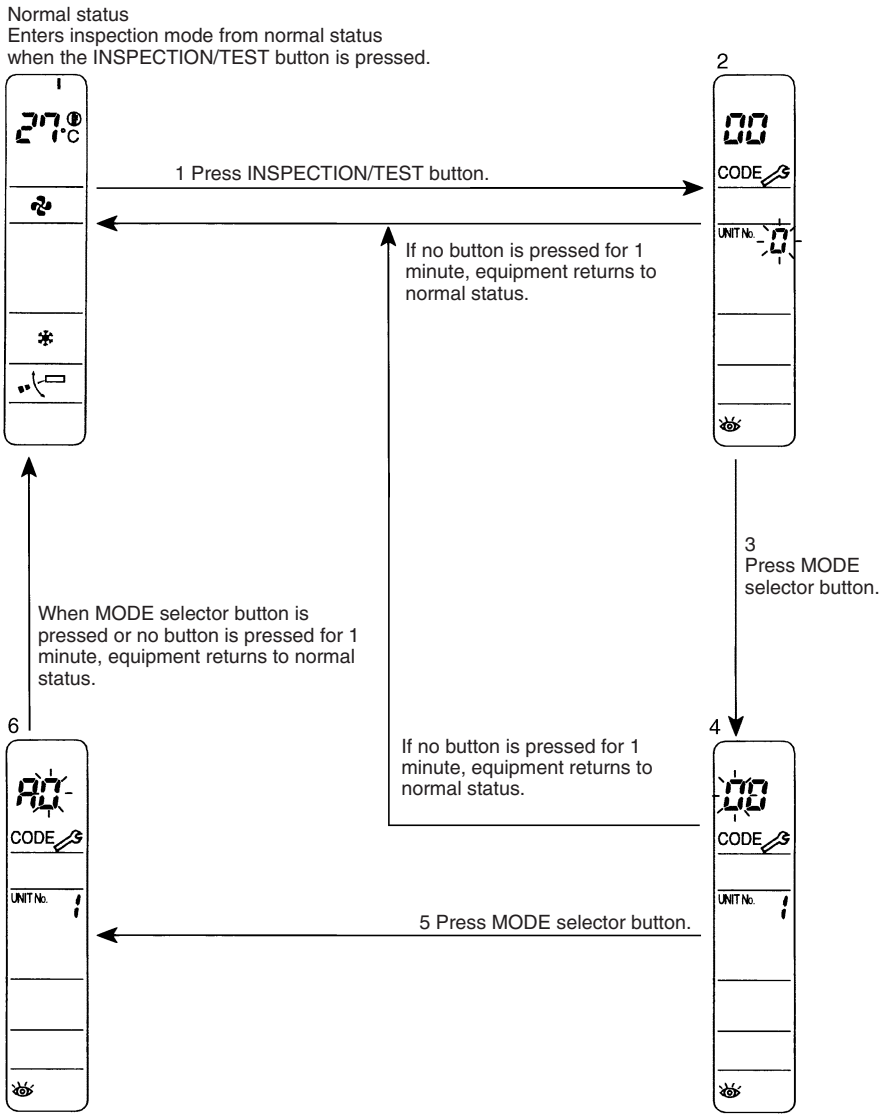
· Take the corrective action specific to the model.



2.2.3 Wireless Remote Controller

If 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 the INSPECTION/TEST button to select “inspection”. The equipment enters the inspection mode. The “Unit” indication is displayed and the Unit No. display shows blinking “0” indication.	
2	Set the Unit No. Press the UP or DOWN button and change the Unit No. display until the buzzer (∗1) is generated from the indoor unit. ∗1 Number of beeps **3 short beeps:** Conduct all of the following operations. **1 short beep:** Conduct steps 3 and 4. Continue the operation in step 4 until a buzzer remains ON. The continuous buzzer indicates that the error code is confirmed. **Continuous beep:** No abnormality.	
3	Press the MODE selector button. The left “0” (upper digit) indication of the error code blinks.	
4	Error code upper digit diagnosis Press the UP or DOWN button and change the error code upper digit until the error code matching buzzer (∗2) is generated. ■ The upper digit of the code changes as shown below when the UP and DOWN buttons are pressed. 0⇨1⇨2⇨3⇨4⇨5⇨6⇨7⇨8⇨9⇨A⇨C⇨E⇨F ⇨ **"UP" button** ⇦ **"DOWN" button** ∗2 Number of beeps **Continuous beep:** Both upper and lower digits matched. (Error code confirmed) **2 short beeps:** Upper digit matched. **1 short beep:** Lower digit matched.	
5	Press the MODE selector button. The right “0” (lower digit) indication of the error code blinks.	
6	Error code lower digit diagnosis Press the UP or DOWN button and change the error code lower digit until the continuous error code matching buzzer (∗2) is generated. ■ The lower digit of the code changes as shown below when the UP and DOWN buttons are pressed. 0⇨1⇨2⇨3⇨4⇨5⇨6⇨7⇨8⇨9⇨A⇨C⇨E⇨F ⇨**"UP" button** ⇦**"DOWN" button**	


Normal status
Enters inspection mode from normal status
when the INSPECTION/TEST button is pressed.
2
1 Press INSPECTION/TEST button.
If no button is pressed for 1 minute, equipment returns to normal status.
3
Press MODE selector button.
When MODE selector button is pressed or no button is pressed for 1 minute, equipment returns to normal status.
6
4
If no button is pressed for 1 minute, equipment returns to normal status.
CODE
UNIT No.
5 Press MODE selector button.

2.3 Error Codes and Description

○: ON ●: OFF ◑: Blink

	Error code	Operation lamp	Error contents	Page Referred
Indoor Unit	A0	◑	External Protection Device Abnormality	130
	A1	◑	PCB Abnormality	131
	A3	◑	Drain Level Control System (S1L) Abnormality	132
	A6	◑	Fan Motor (M1F) Lock, Overload Indoor Unit Fan Motor Abnormality	134 136 137
	A7	○	Swing Flap Motor (M1S) Abnormality	140
	A8	◑	Power Supply Voltage Abnormality	142
	A9	◑	Electronic Expansion Valve Coil Abnormality / Dust Clogging Electronic Expansion Valve Coil Abnormality	143 145
	AF	○	Drain Level above Limit	147
	AJ	◑	Capacity Determination Device Abnormality	148
	C1	◑	Transmission Abnormality (between Indoor Unit PCB and Fan PCB)	149
	C4	◑	Thermistor (R2T) for Liquid Pipe Abnormality	151
	C5	◑	Thermistor (R3T) for Gas Pipe Abnormality	152
	C6	◑	Combination Abnormality (between Indoor Unit PCB and Fan PCB)	153
	C9	◑	Thermistor (R1T) for Suction Air Abnormality	154
	CJ	○	Room Temperature Thermistor in Remote Controller Abnormality	155
Outdoor Unit	E1	◑	PCB Abnormality	156
	E2	◑	Earth Leakage by Leak Detection PCB Assy	157
	E3	◑	Abnormal Actuation of High Pressure Switch	159
	E4	◑	Actuation of Low Pressure Sensor	161
	E5	◑	Inverter Compressor Motor Lock	163
	E7	◑	Outdoor Unit Fan Motor Abnormality	165
	E9	◑	Electronic Expansion Valve Coil (Y1E~Y5E) Abnormality	168
	F3	◑	Abnormal Discharge Pipe Temperature	170
	F6	◑	Refrigerant Overcharged	171
	F9	◑	BS Unit Electronic Expansion Valve Abnormality	172
	H7	◑	Outdoor Unit Fan Motor Signal Abnormality	174
	H9	◑	Thermistor for Outdoor Air Abnormality	176
	J3	◑	Discharge Pipe Temperature Thermistor Abnormality	177
	J4	◑	Thermistor for Heat Exchanger Gas Abnormality	178
	J5	◑	Thermistor for Suction Pipe Temperature Abnormality	179
	J6	◑	Thermistor for Outdoor Unit Heat Exchanger Deicer Abnormality	180
	J7	◑	Liquid Pipe Thermistor (R3T, R7T) Abnormality	181
	J8	◑	Liquid Pipe Thermistor (R4T, R5T) Abnormality	182
	J9	◑	Subcooling Heat Exchanger Gas Pipe Thermistor (R6T) Abnormality	183
	JA	◑	High Pressure Sensor Abnormality	184
	JC	◑	Low Pressure Sensor Abnormality	186
	L1	◑	Inverter PCB Abnormality	188
	L4	◑	Inverter Radiation Fin Temperature Rise Abnormality	190
	L5	◑	Momentary Overcurrent of Inverter Compressor	192
	L8	◑	Momentary Overcurrent of Inverter Compressor	194
	L9	◑	Inverter Compressor Starting Failure	196

○: ON ●: OFF ◑: Blink

	Error code	Operation lamp	Error contents	Page Referred
Outdoor Unit	LC	◑	Transmission Error between Inverter and Control PCB	199
	P1	◑	Inverter Over-Ripple Protection	202
	P3	◑	Reactor Temperature Abnormality	204
	P4	◑	Inverter Radiation Fin Temperature Thermistor Rise Abnormality	205
	PJ	◑	Field Setting Abnormality after Replacing Outdoor Unit Main PCB or Combination of PCB Abnormality	206
System	U0	○	Refrigerant Shortage Alert	207
	U1	◑	Reverse Phase, Open Phase	209
	U2	◑	Power Supply Insufficient or Instantaneous Error	210
	U3	◑	Check Operation is not Executed	213
	U4	◑	Transmission Error between Indoor Units and Outdoor Units	214
	U5	◑	Transmission Error between Remote Controller and Indoor Unit	217
	U7	◑	Transmission Error (Across Outdoor Units)	218
	U8	◑	Transmission Error between Main and Sub Remote Controllers	224
	U9	◑	Transmission Error between Indoor and Outdoor Units in the Same System	225
	UA	◑	Improper Combination of Indoor and Outdoor Units, Indoor Units and Remote Controller	226
	UC	○	Address Duplication of Centralized Control	230
	UE	◑	Transmission Error between Centralized Control Equipment and Indoor Unit	231
	UF	◑	System is not Set yet	234
	UH	◑	System Abnormality, Refrigerant System Address Undefined	235

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

2.4 Error Codes - Sub Codes

If an error code like those shown below is displayed when the navigation remote controller (BRC1E62) is in use, make a detailed diagnosis or a diagnosis of the relevant unit referring to the list of detailed error codes.

2.4.1 Indoor Unit

Error code	Troubleshooting	
	Description of error	Description of diagnosis
A6 - 01	Fan motor locked	A locked fan motor current has been detected. Turn the fan by hand to check 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 does not 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 does not solve the error, replace the fan PCB.
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.
AJ - 01	Capacity setting error	There is an error in the capacity setting of the indoor unit PCB.
AJ - 02	Electronic expansion valve setting error	There is a fault in the setting of the gear type electronic expansion valve/direct acting type electronic expansion valve.
C1 - 01	Transmission error (between indoor unit PCB and the PCB for the fan)	Check for the conditions of transmission between the indoor unit PCB and the fan PCB.
C6 - 01	Defective combination of indoor unit PCB and the PCB for the fan	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.
U3 - 03	Test operation not conducted	Refer to the flow chart of **U3**.
U3 - 04	Abnormal end of test operation	
U3 - 05	Premature end of test operation during initial transmission	
U3 - 06	Premature end of test operation during normal transmission	
U3 - 07	Premature end of test operation due to transmission error	
U3 - 08	Premature end of test operation due to transmission error of all units	
U4 - 01	Transmission error between indoor unit and outdoor unit	Refer to the flow chart of **U4**.
U4 - 03	Transmission error of indoor unit system	
U7- 01	Error when external control adaptor for outdoor unit is installed	Refer to the flow chart of **U7**.
U7- 02	Alarm when external control adaptor for outdoor unit is installed	
U7- 03	Transmission error between master unit and slave 1 unit	
U7- 04	Transmission error between master unit and slave 2 unit	
U7- 05	Multi system error	
U7- 06	Error in address settings of slave 1 unit and slave 2 unit	
U7- 07	Connection of four or more outdoor units in the same system	
U7- 11	Error in indoor unit connection capacity for test operation	

Error code	Troubleshooting	
	Description of error	Description of diagnosis
UA - 17	Connection of excessive indoor units	Refer to the flow chart of **UA**.
UA - 18	Connection of wrong models of indoor units	
UA - 20	Improper combination of outdoor units	
UA - 21	Connection error	
UA - 31	Multi-unit combination error	

2.4.2 Outdoor Unit

Refer to P.126.

3. Troubleshooting by Indication on the Remote Controller

3.1 External Protection Device Abnormality

Error Code

A0

Applicable Models

All indoor models

Method of Error Detection

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

Error Decision Conditions

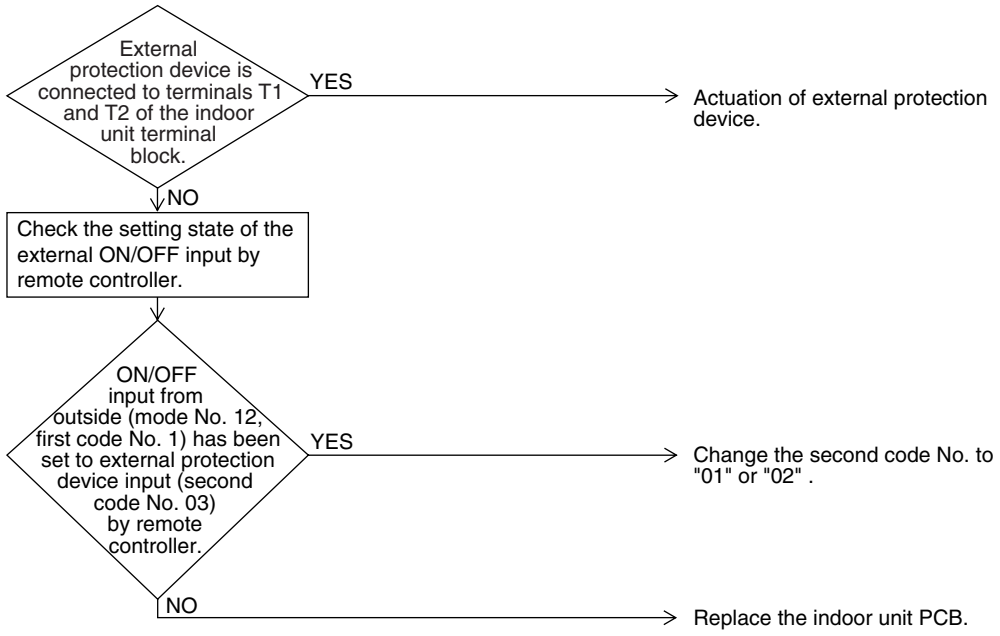
When an open circuit occurs between external input terminals with the remote controller set to "external ON/OFF terminal".

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.



3.2 PCB Abnormality

Error Code A1

Applicable Models All indoor models

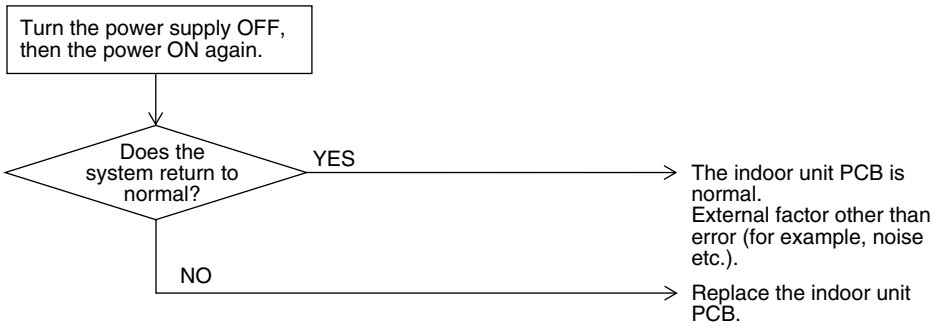
Method of Error Detection Check data from E²PROM.

Error Decision Conditions When data could not be correctly received from the E²PROM
E²PROM: 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.

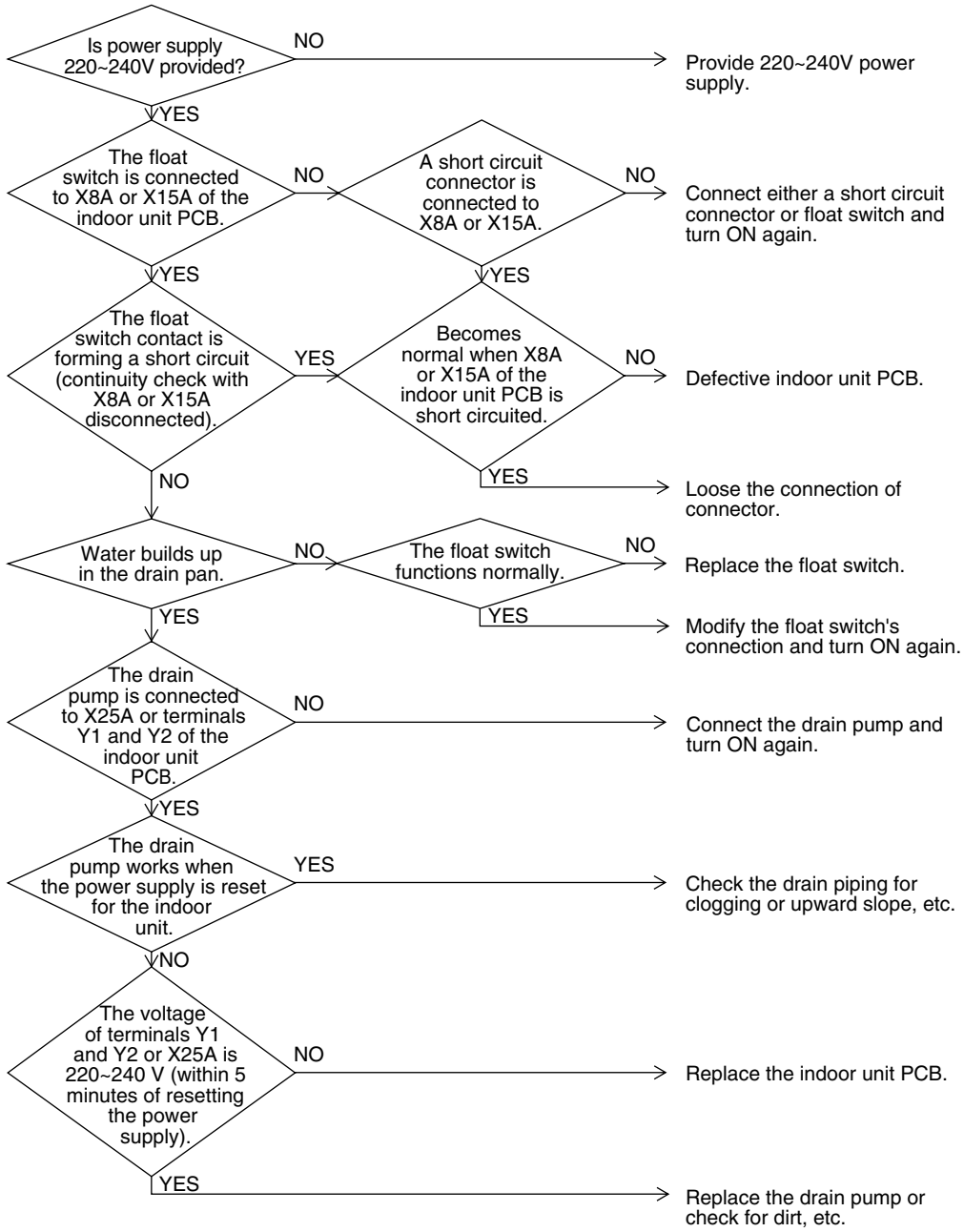


3.3 Drain Level Control System (S1L) Abnormality

Error Code	A3
Applicable Models	FXFQ, FXCQ, FXZQ, FXUQ, FXKQ, FXDQ, FXDQ-SP, FXMQ-P, FXSYQ, FXDYQ (Option), FXMQ200·250M (Option), FXHQ (Option), FXAQ (Option), FXMQ-MF (Option)
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	■ 220~240V 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.

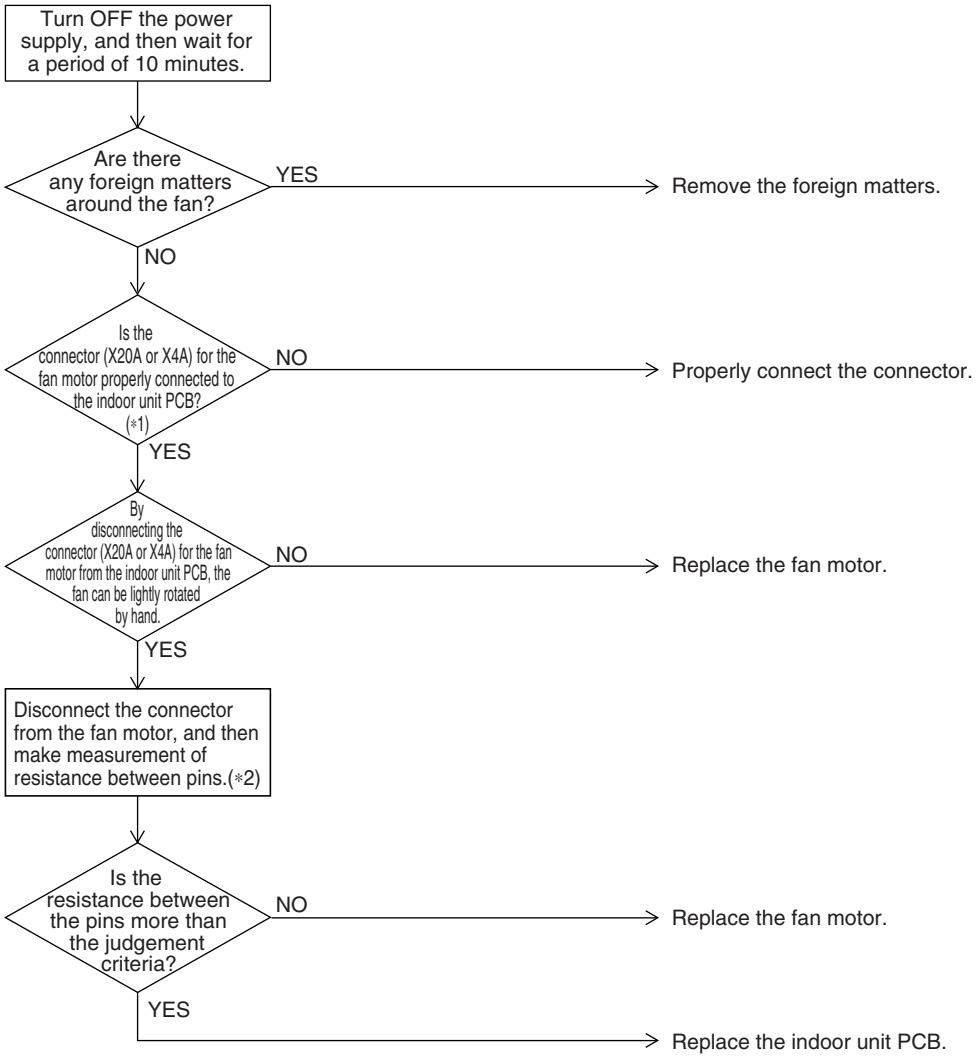


3.4 Fan Motor (M1F) Lock, Overload

Error Code	A6
Applicable Models	FXAQ, FXFQ, FXHQ
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 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 matters blocking the fan. ■ Disconnection of the connector between the high-power PCB (A1P) and the low-power PCB (A2P).

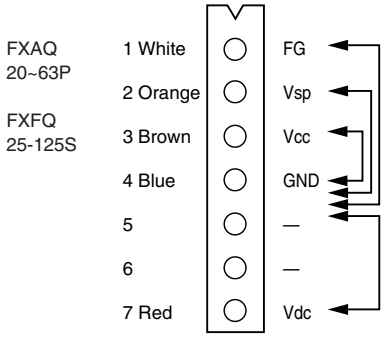
Troubleshooting

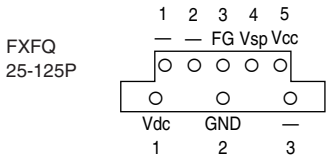
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



Note: *1. If any junction connector is provided between the connector (X20A or X4A) on the indoor unit PCB and the fan motor, also check whether or not the junction connector is properly connected.

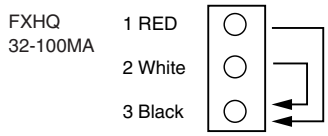
*2. All resistance measuring points and judgement criteria.





Judgement Criteria

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



Indoor Unit Fan Motor Abnormality

Error Code A6

Applicable Models FXDQ

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

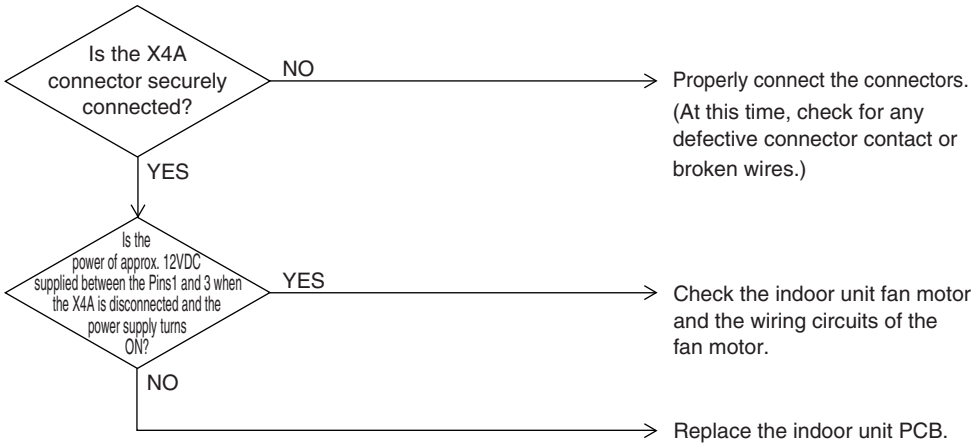
Error Decision Conditions When no revolutions can be detected even at the maximum output voltage to the fan

Supposed Causes

- Defective indoor fan motor
- Broken wires
- Defective contact

Troubleshooting

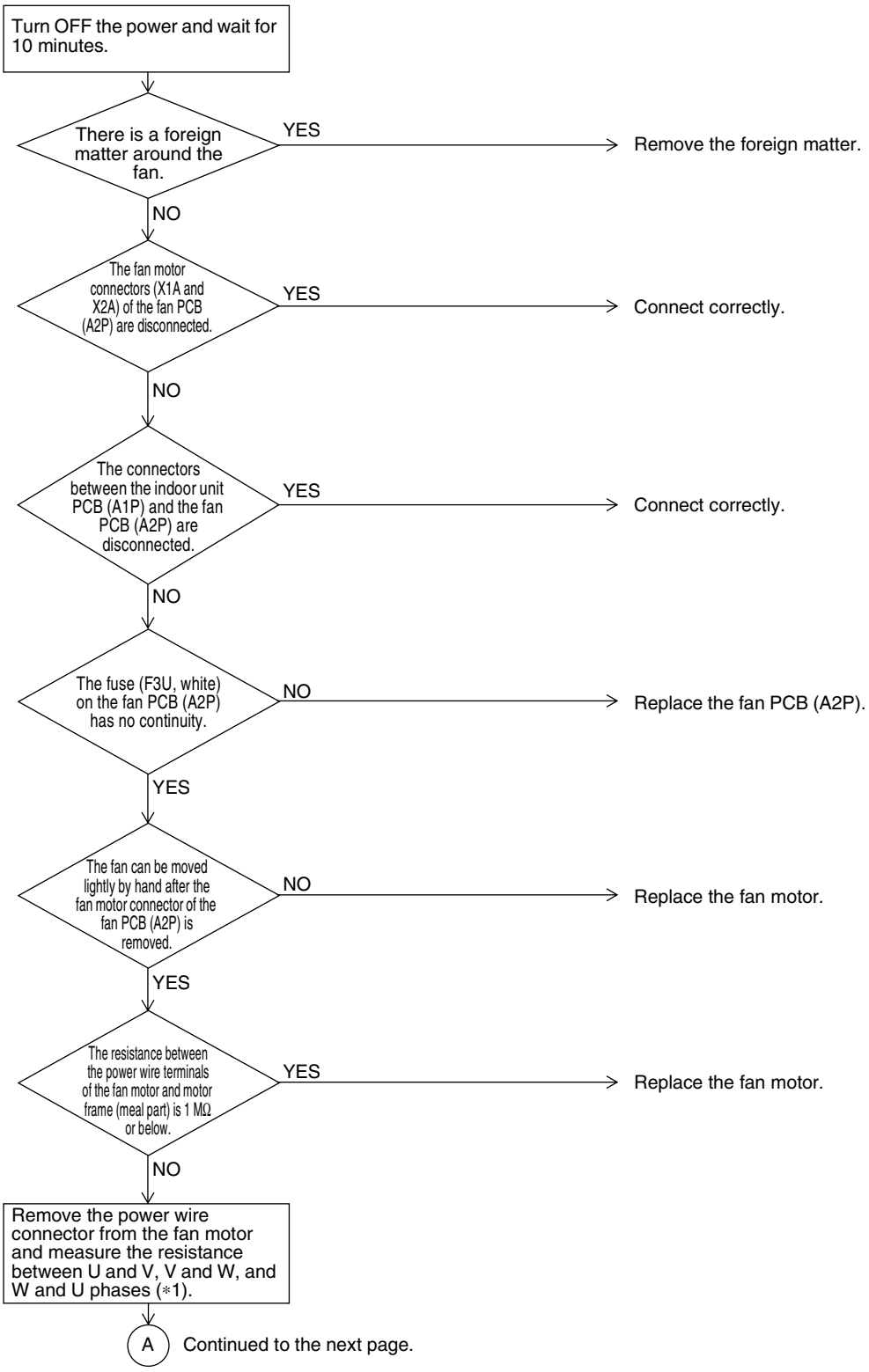
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

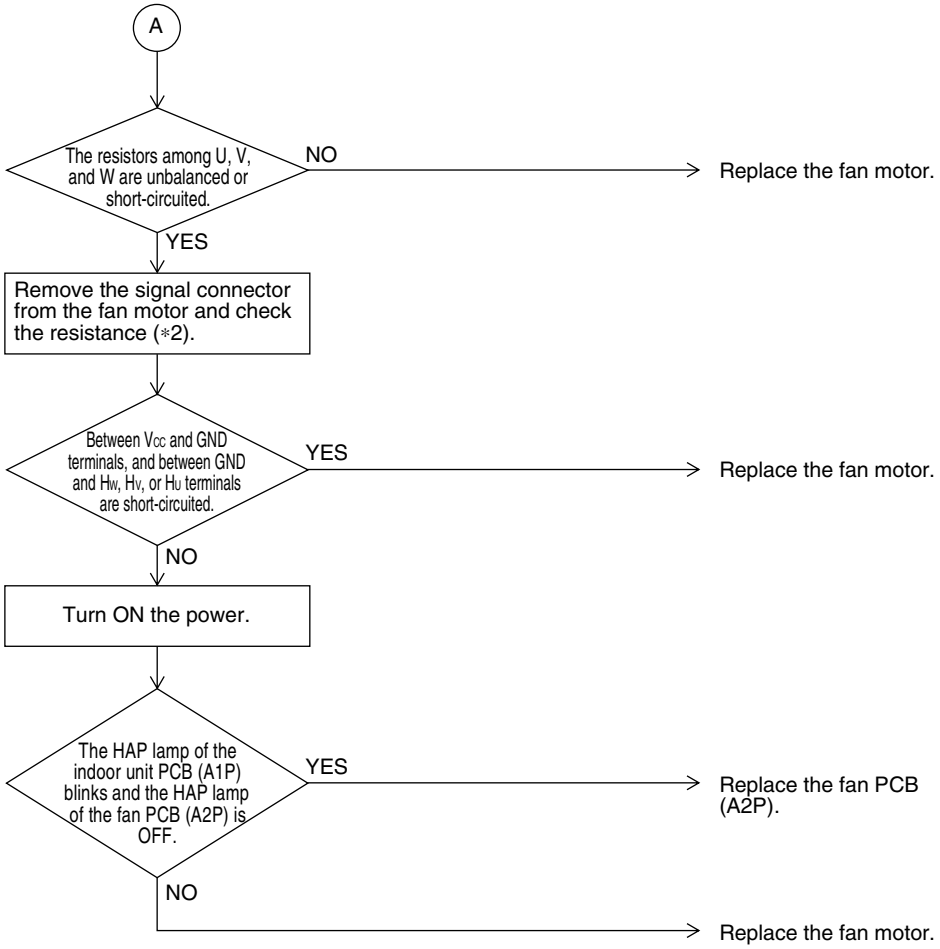


Error Code	A6
Applicable Models	FXMQ20-140P
Method of Error Detection	Detection from the current flow on the fan PCB. Detection from the RPM of the fan motor in operation. Detection from the position signal of the fan motor. Detection from the current flow on the fan PCB when the fan motor starting operation.
Error Decision Conditions	■ An overcurrent flows. ■ The RPM is less than a certain level for 6 seconds. ■ A position error in the fan rotor continues for 5 seconds or more. ■ An overcurrent flows.
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). ■ A failure in fan PCB (A2P). ■ A failure in the fan motor.

Troubleshooting

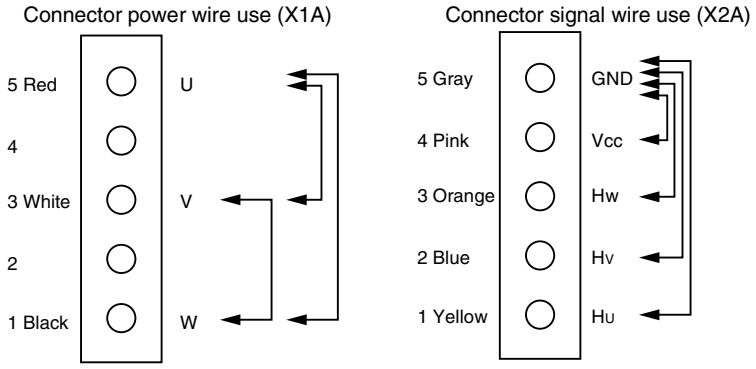
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.





*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).

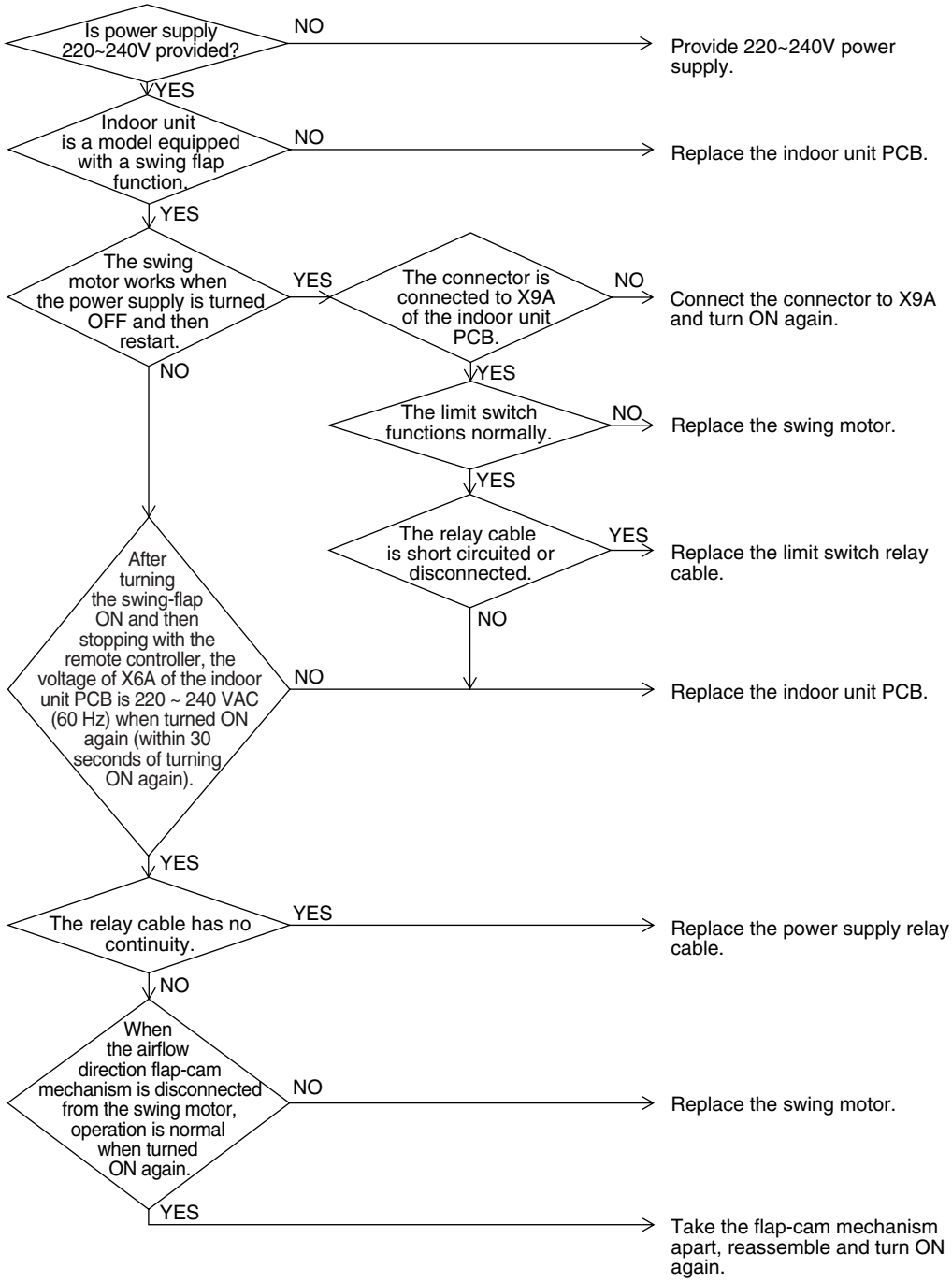


3.5 Swing Flap Motor (M1S) Abnormality

Error Code	A7
Applicable Models	FXCQ, FXHQ, FXKQ
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 PCB

Troubleshooting

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



3.6 Power Supply Voltage Abnormality

Error Code A8

Applicable Models FXMQ20-140P

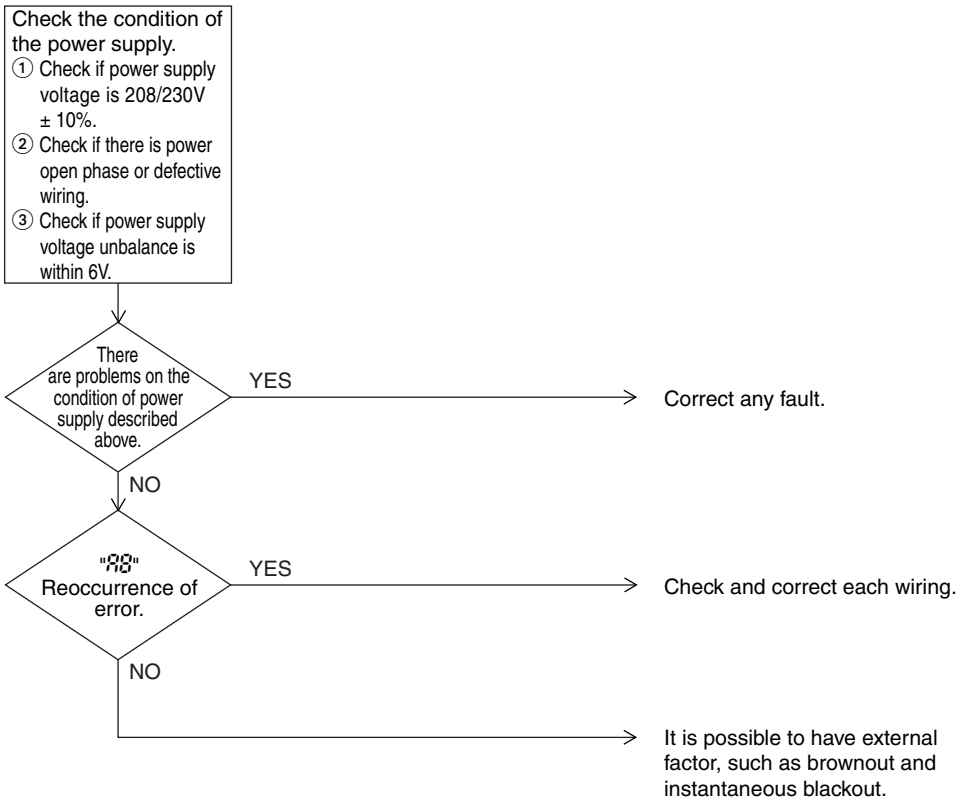
Method of Error Detection Detect error checking the input voltage of fan motor.

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

Supposed Causes
- Defective power supply voltage.
- Defective connection on signal line.
- Defective wiring.
- Instantaneous blackout, others.

Troubleshooting

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

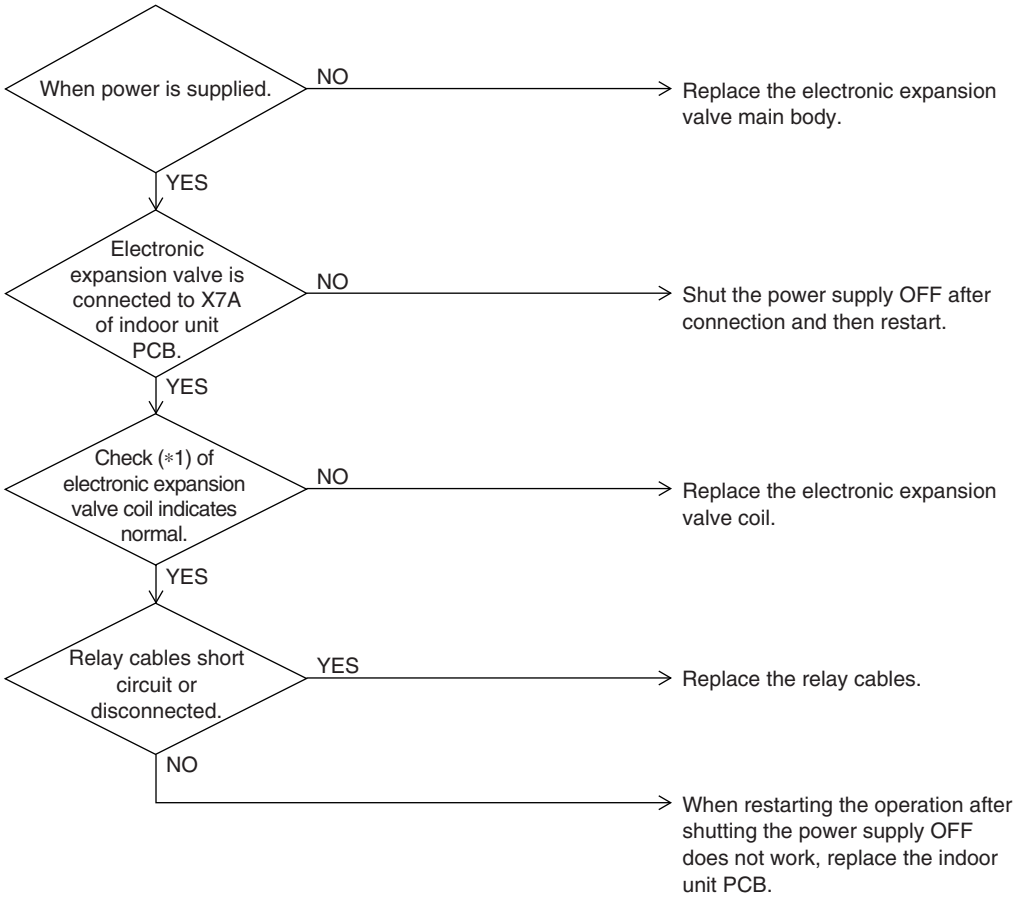


3.7 Electronic Expansion Valve Coil Abnormality / Dust Clogging

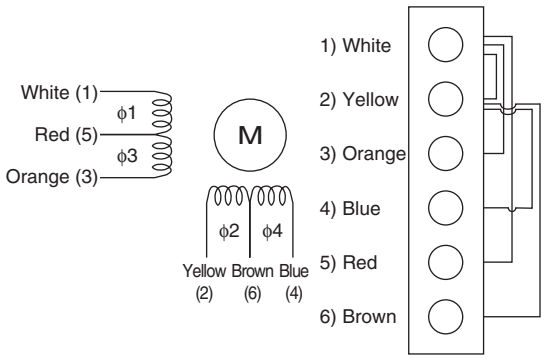
Error Code	A9
Applicable Models	FXFQ
Method of Error Detection	Check the coil condition of electronic expansion valve by using micro-computer. Check the dust clogging condition of electronic expansion valve main body by using micro-computer.
Error Decision Conditions	Pin input for electronic expansion valve coil is abnormal when initializing micro-computer. Either of the following conditions is seen/caused/ occurs while the unit stops operation. ● Temperature of suction air (R1T) – temperature of liquid pipe of heat exchanger (R2T) > 8°C. ● Temperature of liquid pipe of heat exchanger (R2T) shows fixed degrees or below.
Supposed Causes	■ Defective electronic expansion valve coil ■ Defective PCB indoor unit ■ Defective relay cables

Troubleshooting

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



Note: *1. How to check the electronic expansion valve coil
Remove the connector for electronic expansion valve (X7A) from PCB. Measure the resistance value between pins and check the continuity to judge the condition.



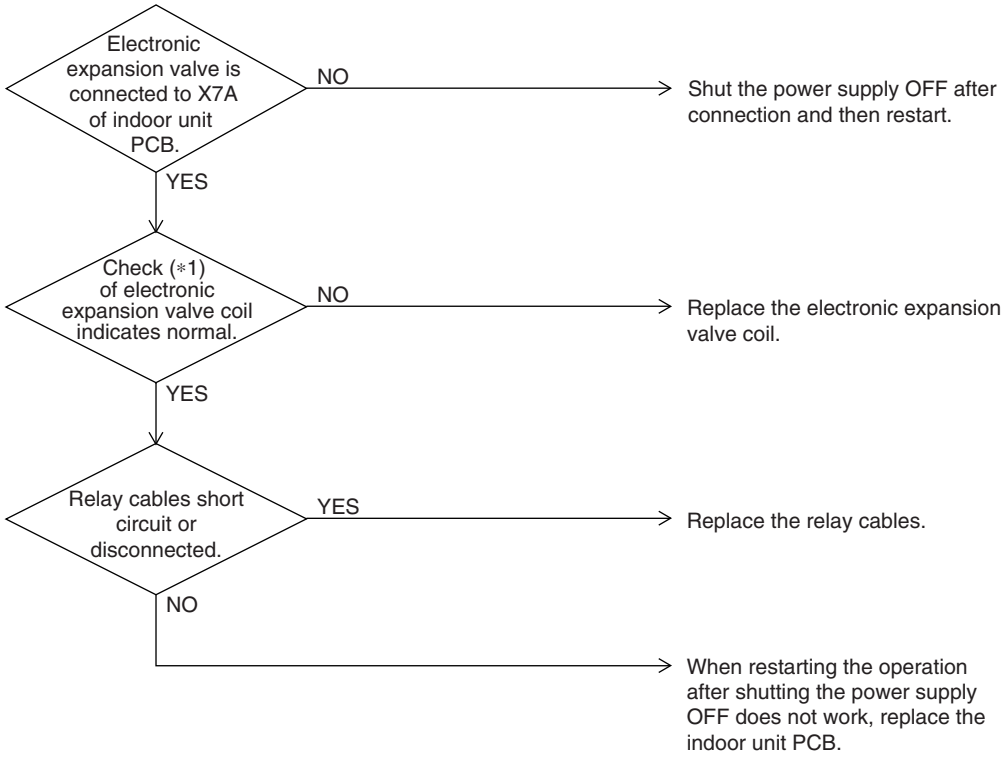
The normal products will show the following conditions:
① No continuity between (1) and (2)
② Resistance value between (1) and (3) is approx. 300 Ω
③ Resistance value between (1) and (5) is approx. 150 Ω
④ Resistance value between (2) and (4) is approx. 300 Ω
⑤ Resistance value between (2) and (6) is approx. 150 Ω

Electronic Expansion Valve Coil Abnormality

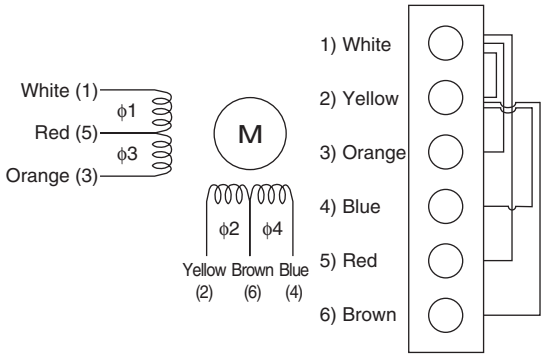
Error Code	A9
Applicable Models	Indoor units except FXFQ models
Method of Error Detection	Check the coil condition of electronic expansion valve by using micro-computer.
Error Decision Conditions	Pin input for electronic expansion valve coil is abnormal when initializing micro-computer.
Supposed Causes	■ Defective electronic expansion valve coil ■ Defective PCB indoor unit ■ Defective relay cables

Troubleshooting

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



Note: *1. How to check the electronic expansion valve drive coil
Remove the connector for electronic expansion valve (X7A) from PCB. Measure the resistance value between pins and check the continuity to judge the condition.



The normal products will show the following conditions:
① No continuity between (1) and (2)
② Resistance value between (1) and (3) is approx. 300 Ω
③ Resistance value between (1) and (5) is approx. 150 Ω
④ Resistance value between (2) and (4) is approx. 300 Ω
⑤ Resistance value between (2) and (6) is approx. 150 Ω

3.8 Drain Level Above Limit

Error Code

Applicable Models

FXFQ, FXZQ, FXCQ, FXKQ, FXUQ, FXDQ, FXDQ-SP, FXMQ, FXHQ, FXSYQ, FXDYQ, FXMQ-MF, FXAQ

Method of Error Detection

Water leakage is detected based on float switch ON/OFF operation while the compressor is in non-operation.

Error Decision Conditions

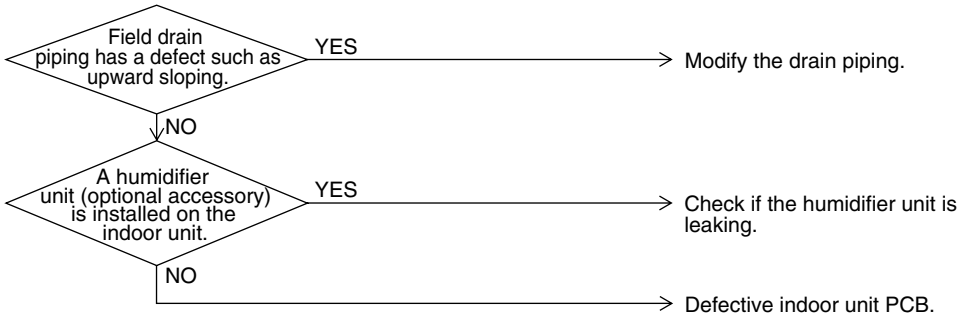
When the float switch changes from ON to OFF while the compressor is in non-operation.
* Error code is displayed but the system operates continuously.

Supposed Causes

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

Troubleshooting

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



3.9 Capacity Determination Device Abnormality

Error Code

Applicable Models

All indoor 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

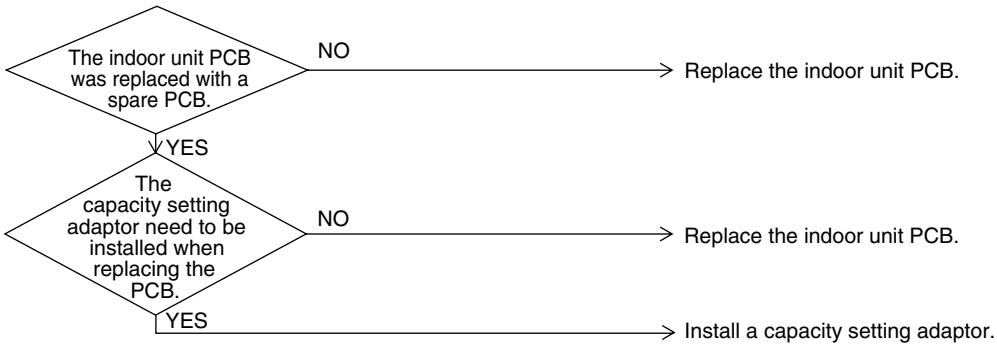
When the capacity code is not saved to the PCB, and the capacity setting adaptor is not connected.
When a capacity that does not exist for that unit is set.

Supposed Causes

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

Troubleshooting

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

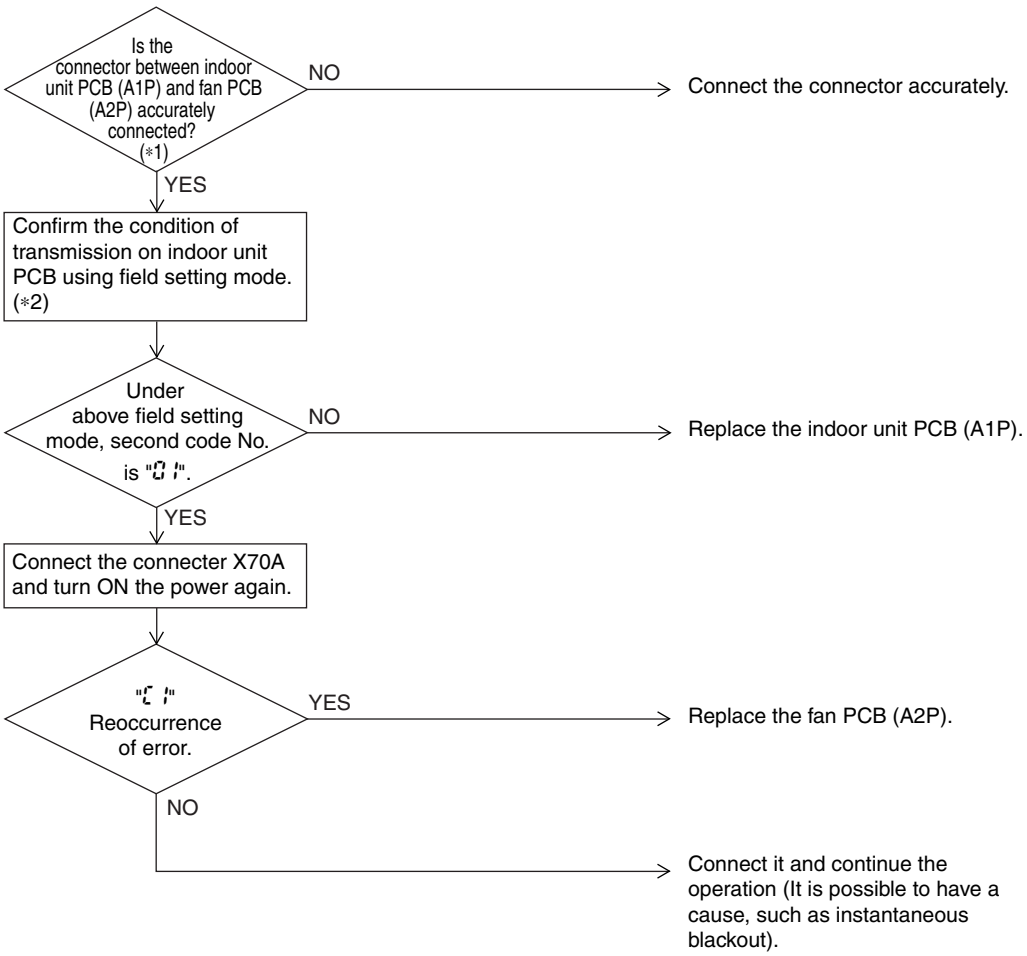


3.10 Transmission Abnormality (between Indoor Unit PCB and Fan PCB)

Error Code	E 1
Applicable Models	FXMQ20-140P
Method of Error Detection	Check the condition of transmission between indoor unit PCB (A1P) and fan PCB (A2P) using micro-computer.
Error Decision Conditions	When normal transmission is not carried out for certain duration.
Supposed Causes	■ Defective connection of the connector between indoor unit PCB (A1P) and fan PCB (A2P) ■ Defective indoor unit PCB (A1P) ■ Defective fan PCB (A2P) ■ External factor, such as instantaneous blackout

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 connecter once and check it is absolutely connected.
*2. Method to check transmission part of indoor unit PCB.
① Turn OFF the power and remove the connecter 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 PCB

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

3.11 Thermistor (R2T) for Liquid Pipe Abnormality

Error Code 54

Applicable Models All indoor models

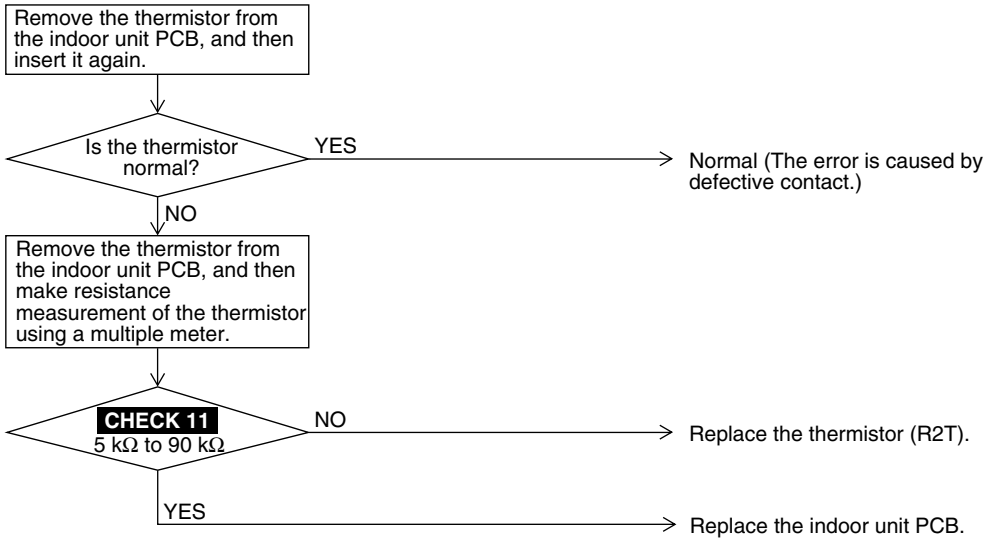
Method of Error Detection Error detection is carried out by temperature detected by liquid pipe thermistor.

Error Decision Conditions When the liquid pipe thermistor becomes disconnected or shorted while the unit is running

Supposed Causes
- Defective thermistor (R2T) for liquid pipe
- 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 11 Refer to P.243.

3.12 Thermistor (R3T) for Gas Pipe Abnormality

Error Code

C5

Applicable Models

All indoor models

Method of Error Detection

Error detection is carried out by temperature detected by gas pipe thermistor.

Error Decision Conditions

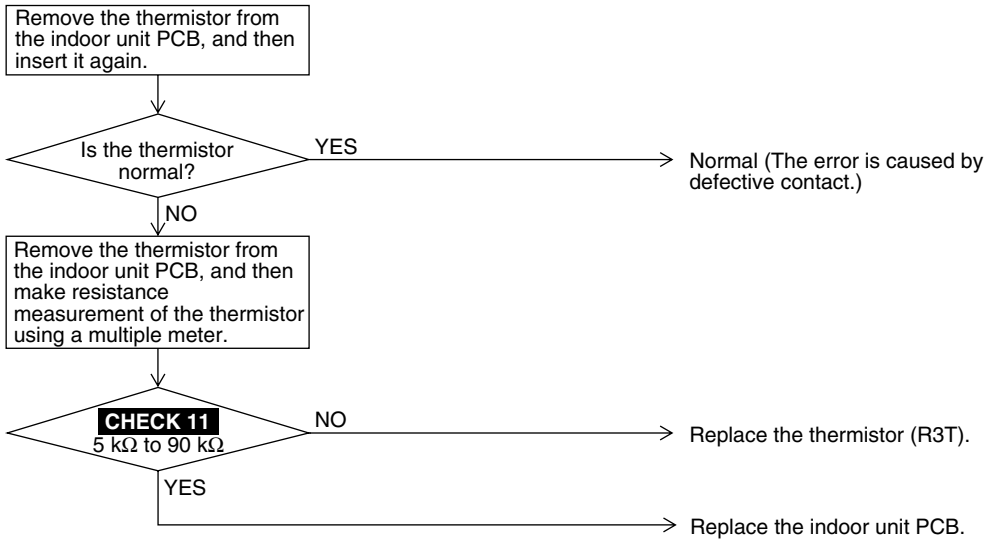
When the gas pipe thermistor becomes disconnected or shorted while the unit is running

Supposed Causes

- Defective thermistor (R3T) for gas pipe
- 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 11 Refer to P.243.

3.13 Combination Abnormality (between Indoor Unit PCB and Fan PCB)

Error Code C6

Applicable Models FXMQ20-140P

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

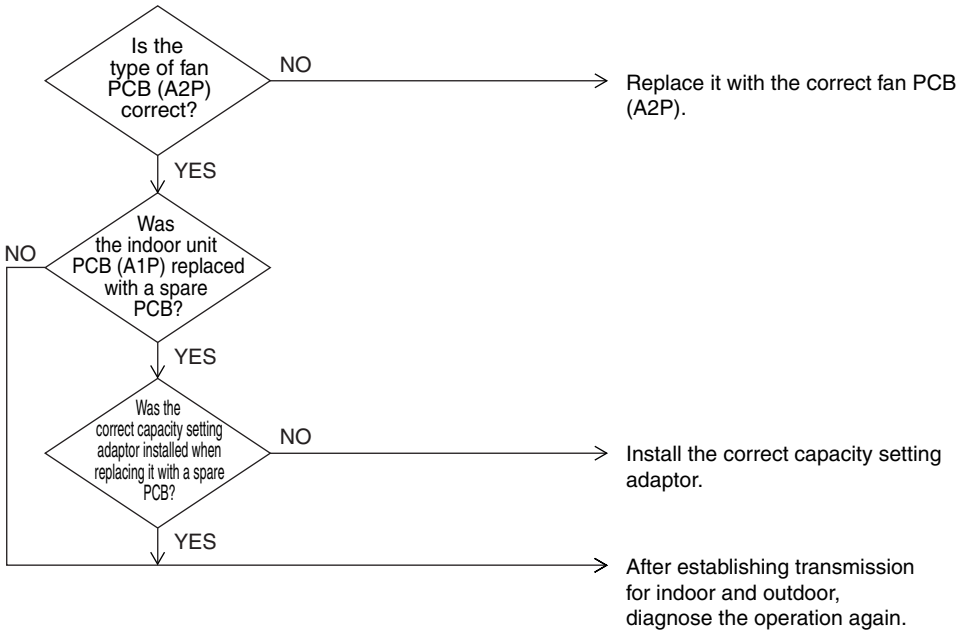
Error Decision Conditions When the communication data of fan PCB (A2P) is determined as incorrect

Supposed Causes

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

Troubleshooting

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



3.14 Thermistor (R1T) for Suction Air Abnormality

Error Code C9

Applicable Models All indoor models

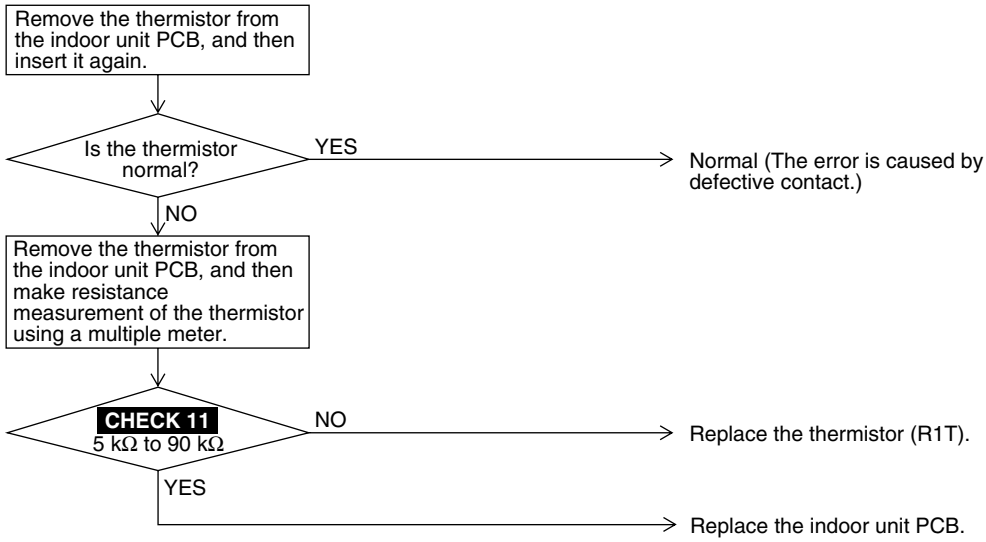
Method of Error Detection Error detection is carried out by temperature detected by suction air thermistor.

Error Decision Conditions When the suction air thermistor becomes disconnected or shorted while the unit is running

Supposed Causes
- Defective thermistor (R1T) for suction air
- 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 11 Refer to P.243.

3.15 Room Temperature Thermistor in Remote Controller Abnormality

Error Code C.J

Applicable Models All indoor models

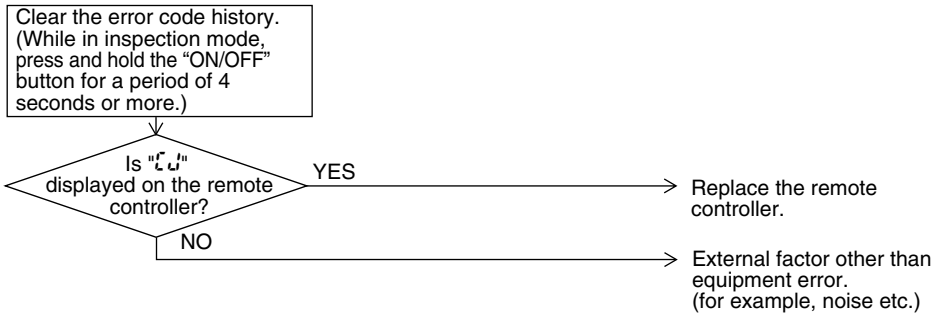
Method of Error Detection Error detection is carried out by temperature detected by room temperature thermistor in remote controller. (Note:)

Error Decision Conditions When the room temperature thermistor in remote controller becomes disconnected or shorted while the unit is running.
* Error code is displayed but the system operates continuously.

Supposed Causes
- Defective room temperature thermistor in remote controller
- 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 "history of error codes".
Press the "ON/ OFF" button for 4 seconds and more while the error code is displayed in the inspection mode.

3.16 PCB Abnormality

Error Code

E1

Applicable Models

REYQ8-20TY1

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

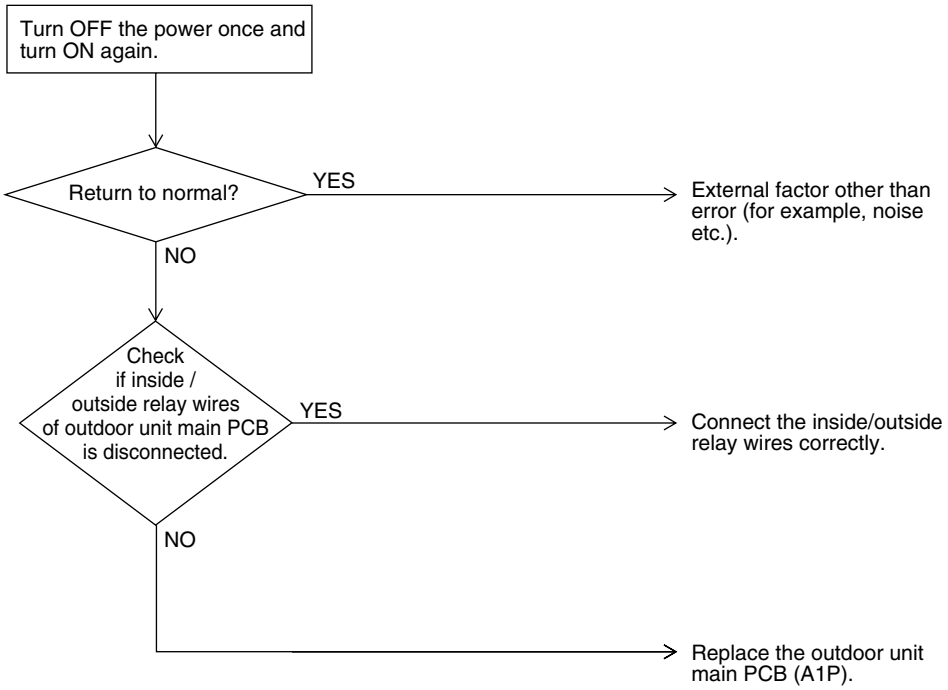
When the communication conditions in the hardware section between the indoor unit and the outdoor unit are not normal

Supposed Causes

- Defective outdoor unit main PCB (A1P)
- Defective connection of inside/ outside relay wires

Troubleshooting

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

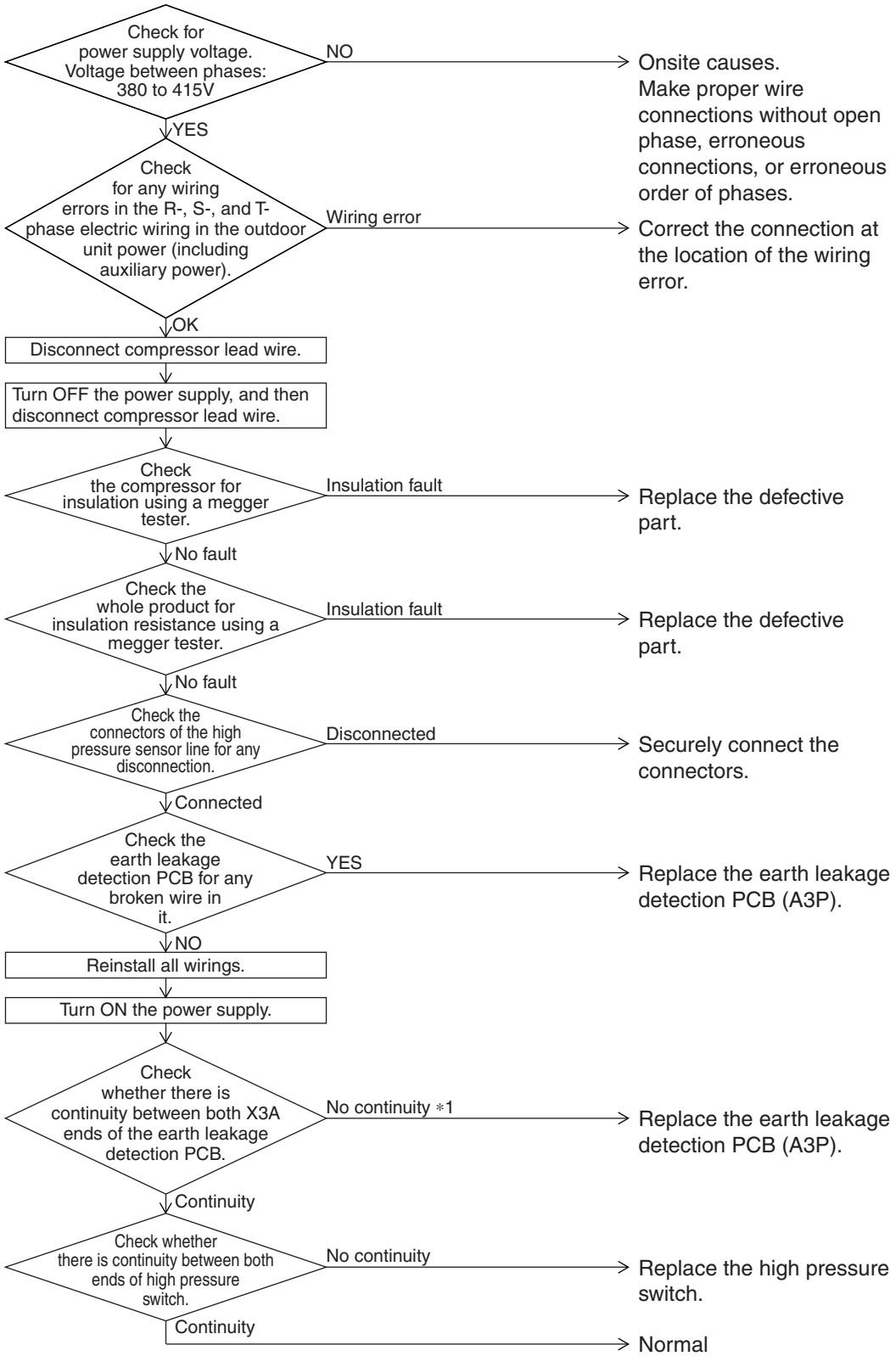


3.17 Earth Leakage by Leak Detection PCB Assy

Error Code	E2
Applicable Models	REYQ8-20TY1
Method of Error Detection	Failure is to be detected by using leak detection PCB assy. Reverse phase is to be detected at all times during operation by the reverse protector PCB assy.
Error Decision Conditions	Leakage is detected under the conditions outside of the scope of high pressure sensor operation.
Supposed Causes	■ Defective of compressor

Troubleshooting

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



It is supposed that ground leakage occurs due to temporary liquid back or accumulation of refrigerant. This phenomenon can occur when power fails while in operation or is cut off for an extended period of time.

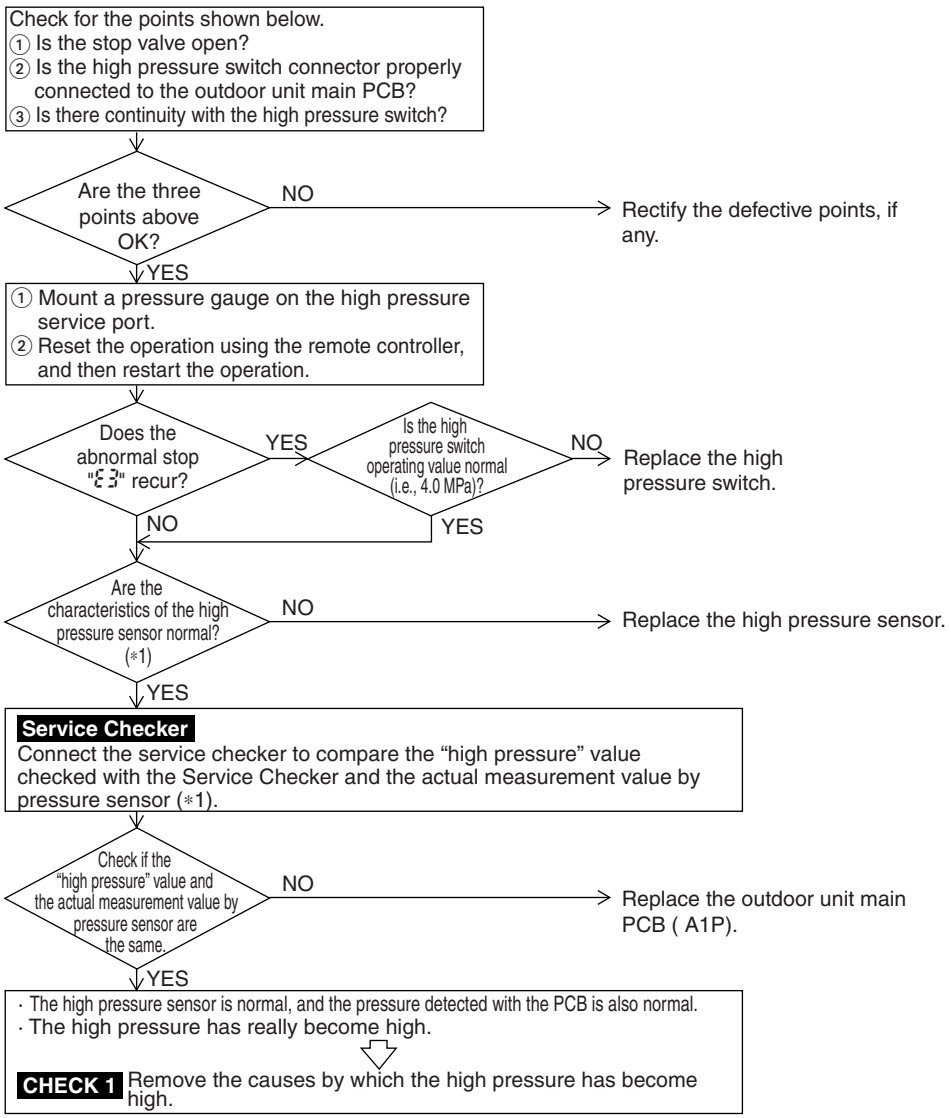
∗1. It is normal that there is no continuity between both ends of X3A when the power supply turns OFF and for a period of 9 seconds at maximum after the power supply turns ON.

3.18 Abnormal Actuation of High Pressure Switch

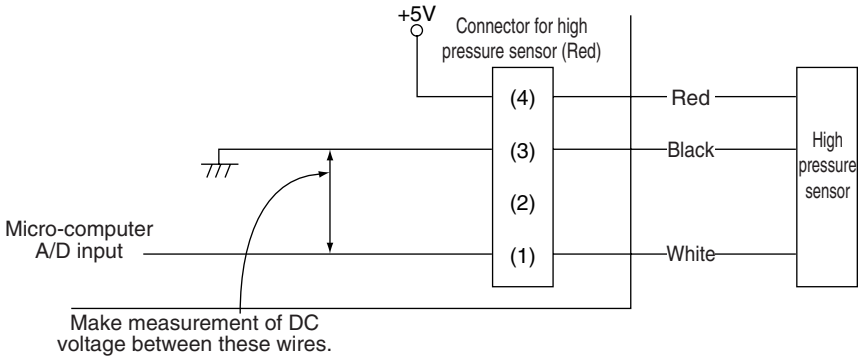
Error Code	E3
Applicable Models	REYQ8-20TY1
Method of Error Detection	Abnormality is detected when the contact of the high pressure protection switch opens.
Error Decision Conditions	Error is generated when the high pressure switch activation count reaches the number specific to the operation mode. (Reference) Operating pressure of high pressure switch Operating pressure: 4.0 MPa Reset pressure: 3.0 MPa
Supposed Causes	■ Actuation of high pressure switch ■ Defective high pressure switch ■ Defective outdoor unit main PCB (A1P) ■ Instantaneous 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 the voltage of the high pressure sensor and that read by the pressure gauge.
(As to the voltage of the high pressure sensor, make measurement of voltage at the connector, and then convert it to pressure. **CHECK 12**)
*2. Make measurement of voltage of the high pressure sensor.



CHECK 1 Refer to P.237.

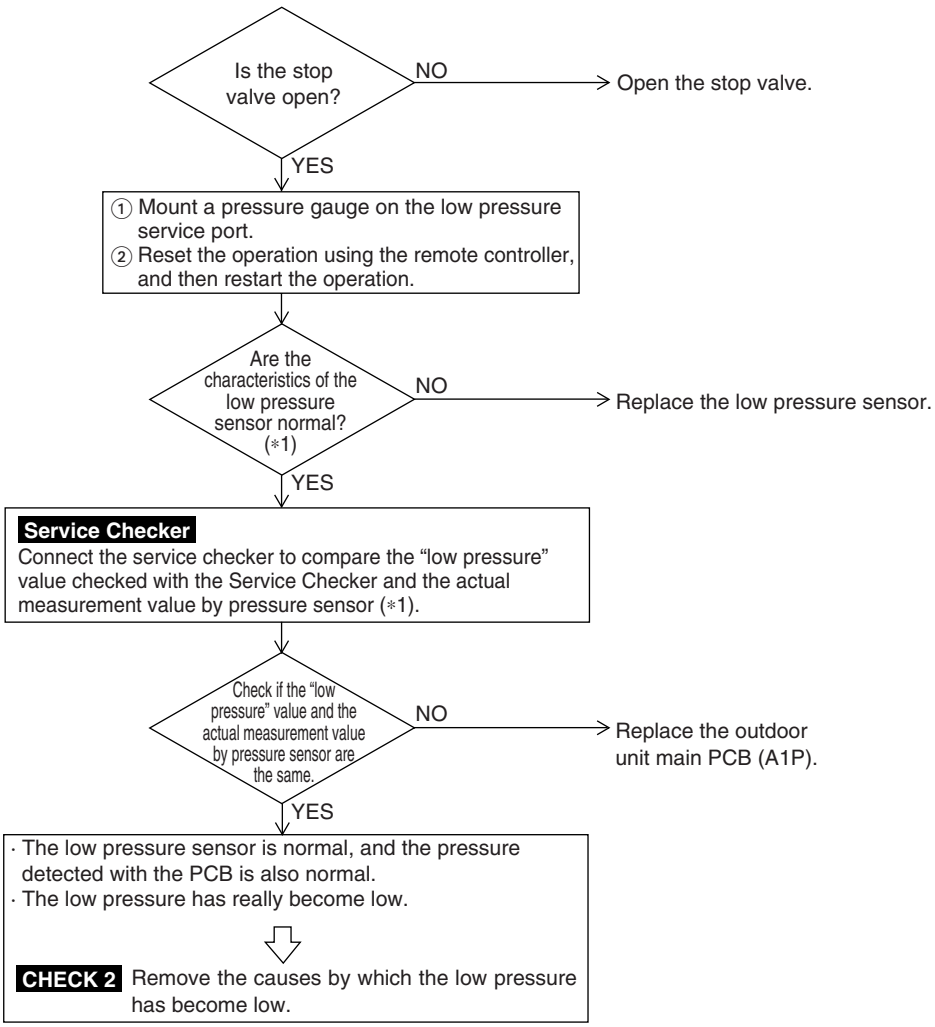
CHECK 12 Refer to P.244.

3.19 Actuation of Low Pressure Sensor

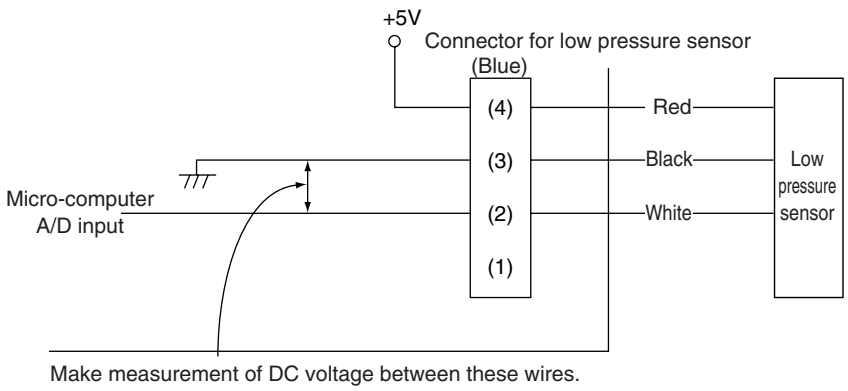
Error Code	E4
Applicable Models	REYQ8-20TY1
Method of Error Detection	Abnormality is detected by the pressure value with the low pressure sensor.
Error Decision Conditions	Error is generated when the low pressure drops while the compressor is in operation. Operating pressure: 0.07 MPa
Supposed Causes	■ Abnormal drop of low pressure (Lower than 0.07 MPa) ■ Defective low pressure sensor ■ Defective outdoor unit PCB ■ Stop valve is not opened. ■ Clogged filter

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 the voltage of the low pressure sensor and that read by the pressure gauge.
(As to the voltage of the low pressure sensor, make measurement of voltage at the connector, and then convert it to pressure. **CHECK 12**)
∗2. Make measurement of voltage of the low pressure sensor.



CHECK 2 Refer to P.238.

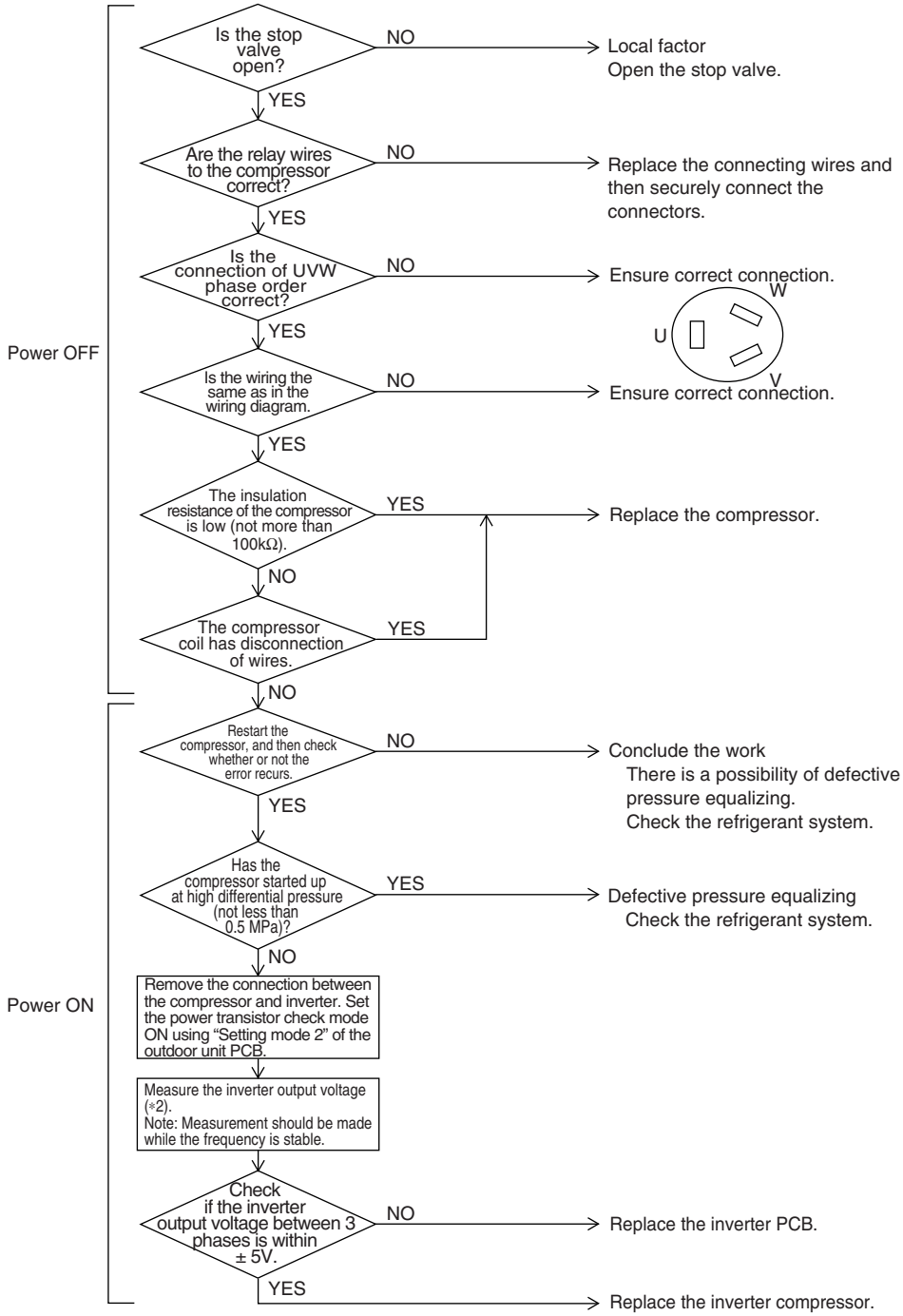
CHECK 12 Refer to P.244.

3.20 Inverter Compressor Motor Lock

Error Code	E5
Applicable Models	REYQ8-20TY1
Method of Error Detection	Inverter PCB takes the position signal from UVW line connected between the inverter and compressor, and the error is detected when any abnormality is observed in the phase-current waveform.
Error Decision Conditions	This error will be output when the inverter compressor motor does not start up even in forced startup mode.
Supposed Causes	■ Inverter compressor lock ■ High differential pressure (0.5 MPa or more) ■ Incorrect UVW wiring ■ Defective inverter PCB ■ Stop valve is not opened.

Troubleshooting

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



Note: *1. Pressure difference between high pressure and low pressure before starting.
*2. The quality of power transistors/ diode modules can be judged by executing **CHECK 4** .

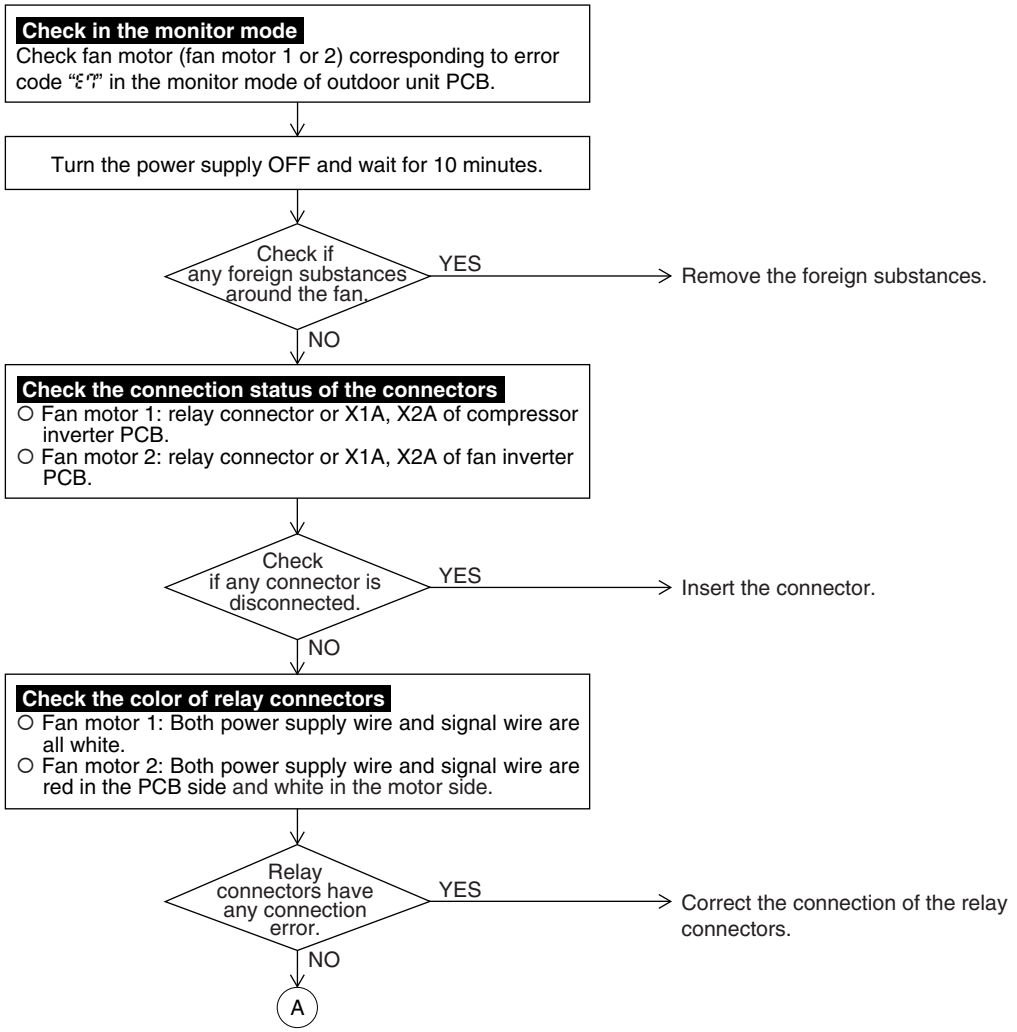
CHECK 4 Refer to P.240.

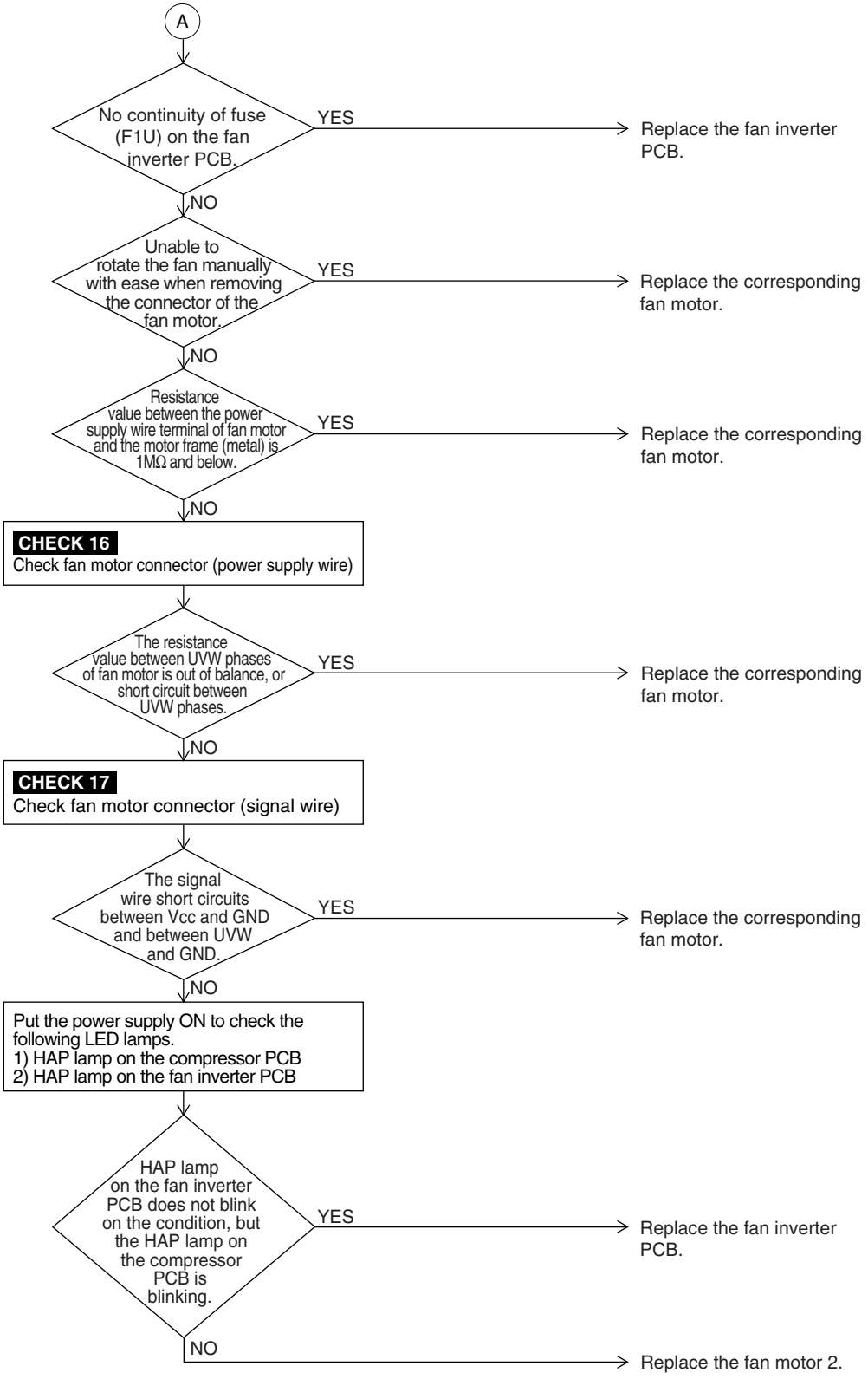
3.21 Outdoor Unit Fan Motor Abnormality

Error Code	E7
Applicable Models	REYQ8-20TY1
Method of Error Detection	Detect an error based on the current value in the inverter PCB (as for motor 2, current value in the fan PCB). Detect an error for the fan motor circuit based on the number of rotation detected by hole IC during the fan motor operation.
Error Decision Conditions	■ Overcurrent is detected for inverter PCB or fan inverter PCB (System down is caused by 4 times of detection.) ■ In the condition of fan motor rotation, the number of rotation is below the fixed number for more than 6 seconds. (System down is caused by 4 times of detection.)
Supposed Causes	■ Defective fan motor ■ Defect or connection error of the connectors/ harness between the fan motor and PCB ■ The fan can not rotate due to any foreign substances entangled. ■ Clear condition: Continue normal operation for 5 minutes

Troubleshooting

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





CHECK 16 Refer to P.246.

CHECK 17 Refer to P.246.

3.22 Electronic Expansion Valve Coil (Y1E~Y5E) Abnormality

Error Code	E9
Applicable Models	REYQ8-20TY1
Method of Error Detection	Check disconnection of connector To be detected based on continuity existence of electronic expansion valve coil
Error Decision Conditions	No current is detected in the common (COM [+]) when power supply is ON.
Supposed Causes	■ Disconnection of connectors for electronic expansion valve ■ Defective electronic expansion valve coil ■ 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.

Turn power supply OFF, and turn power supply ON again.

Return to normal?

YES → External factor other than error (for example, noise etc.).

NO

Check the electronic expansion valve corresponding to the error code "E9" in the monitor mode.

○ When Check 4 shows as follows:
◑○○●●※※ → Electronic expansion valve for main use (Y1E, Y3E for Single, Y1E for Multi)

○ When Check 4 shows as follows:
◑○○●◑※※ → Electronic expansion valve for refrigerant charge (Y4E for Single, Y2E for Multi)

○ When Check 4 shows as follows:
◑○○◑●※※ → Electronic expansion valve for subcooling (Y2E, Y5E for Single, Y3E for Multi)

○ Explanation of "※※"

● ●	Master unit
● ◑	Slave unit 1
◑ ●	Slave unit 2
◑ ◑	System

The connector of outdoor unit PCB for electronic expansion valve is connected.

NO → Ensure the correct connection.

YES

The coil resistance of electronic expansion valve is normal. (∗1)

NO → Replace the electronic expansion valve coil.

YES → Replace the outdoor unit PCB (A1P).

Note: ∗1. Make measurement of resistance between the connector pins, and then make sure the resistance falls in the range of 40 to 50Ω.

Measuring points	Judgement criteria
1 - 6	40~50Ω
2 - 6	
3 - 6	
4 - 6	

3.23 Abnormal Discharge Pipe Temperature

Error Code F3

Applicable Models REYQ8-20TY1

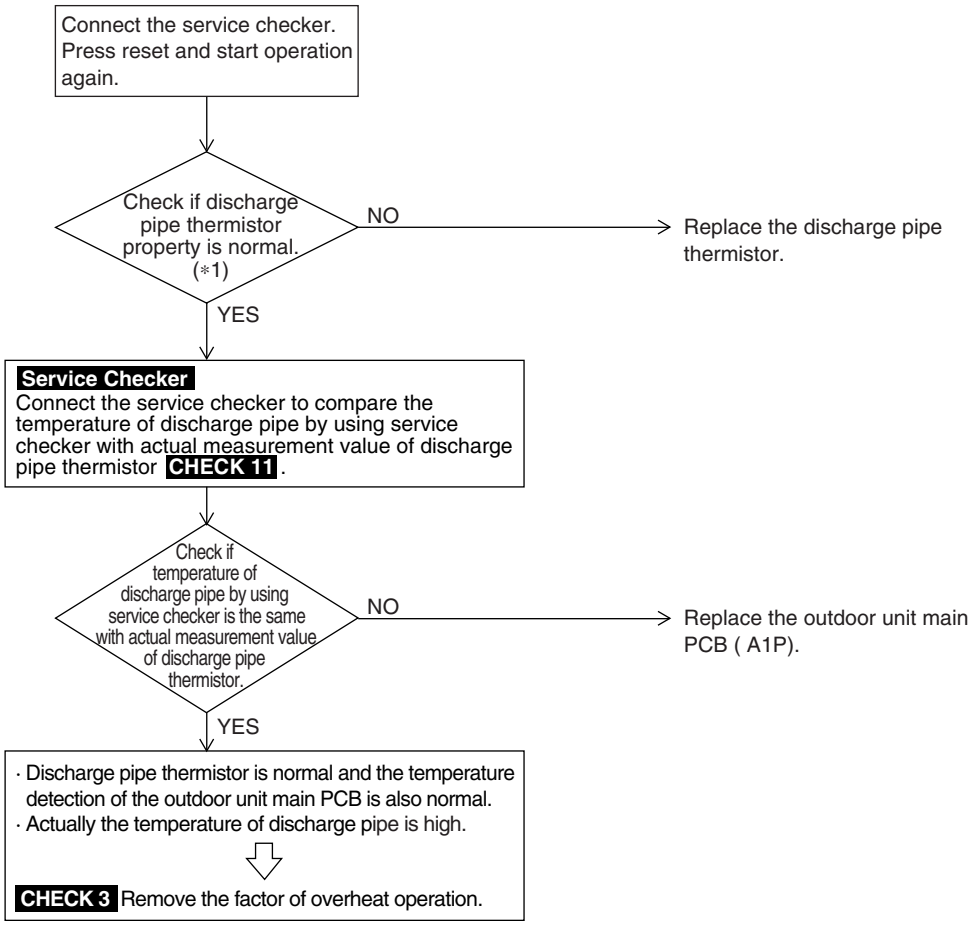
Method of Error Detection Abnormality is detected according to the temperature detected by the discharge pipe temperature thermistor.

Error Decision Conditions When the discharge pipe temperature rises to an abnormally high level (135 °C and above)
When the discharge pipe temperature rises suddenly (120 °C and above for 10 successive minutes)

Supposed Causes
- Defective discharge pipe temperature thermistor
- Defective connection of discharge pipe temperature 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. Compare the resistance value of discharge pipe thermistor and the value based on the surface thermometer.

CHECK 3 Refer to P.239.

CHECK 11 Refer to P.243.

3.24 Refrigerant Overcharged

Error Code F6

Applicable Models REYQ8-20TY1

Method of Error Detection Excessive charging of refrigerant is detected by using the outdoor air temperature, heat exchanger deicer temperature and liquid pipe temperature during check operation.

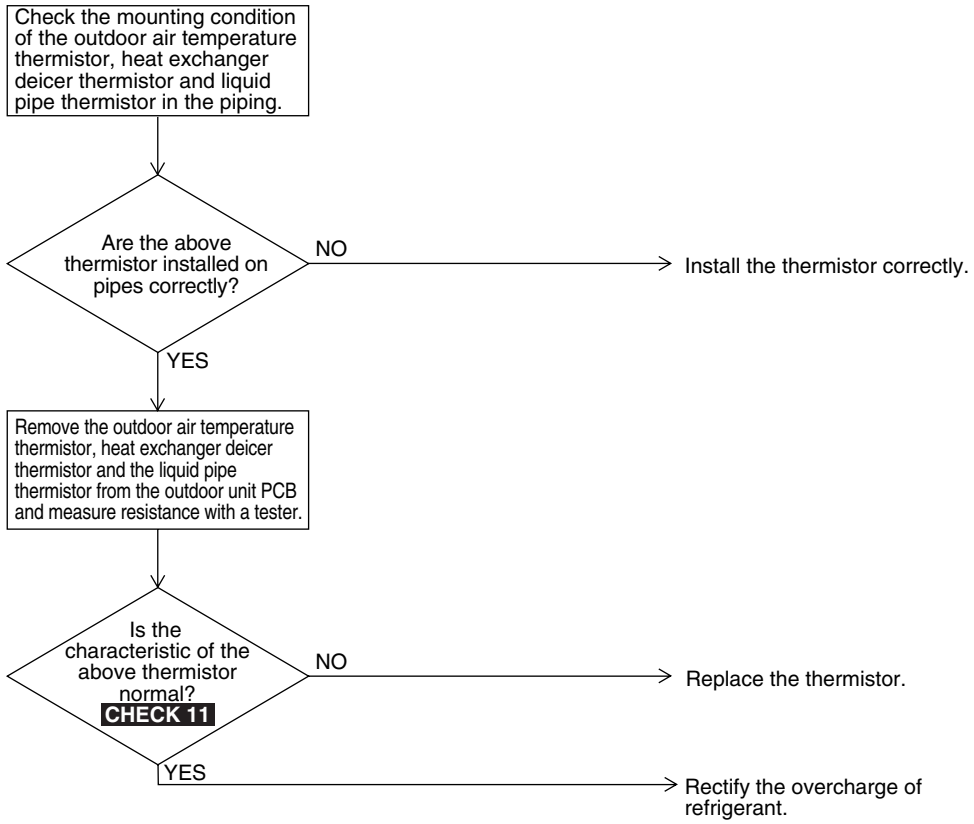
Error Decision Conditions When the amount of refrigerant, which is calculated by using the outdoor air temperature, heat exchanger deicer temperature and liquid pipe temperature during check operation, exceeds the criteria.

Supposed Causes

- Refrigerant overcharge
- Disconnection of outdoor air thermistor
- Disconnection of heat exchanger deicer thermistor
- Disconnection of liquid pipe 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 P.243.

3.25 BS Unit Electronic Expansion Valve Abnormality

Error Code F9

Applicable Models BS unit

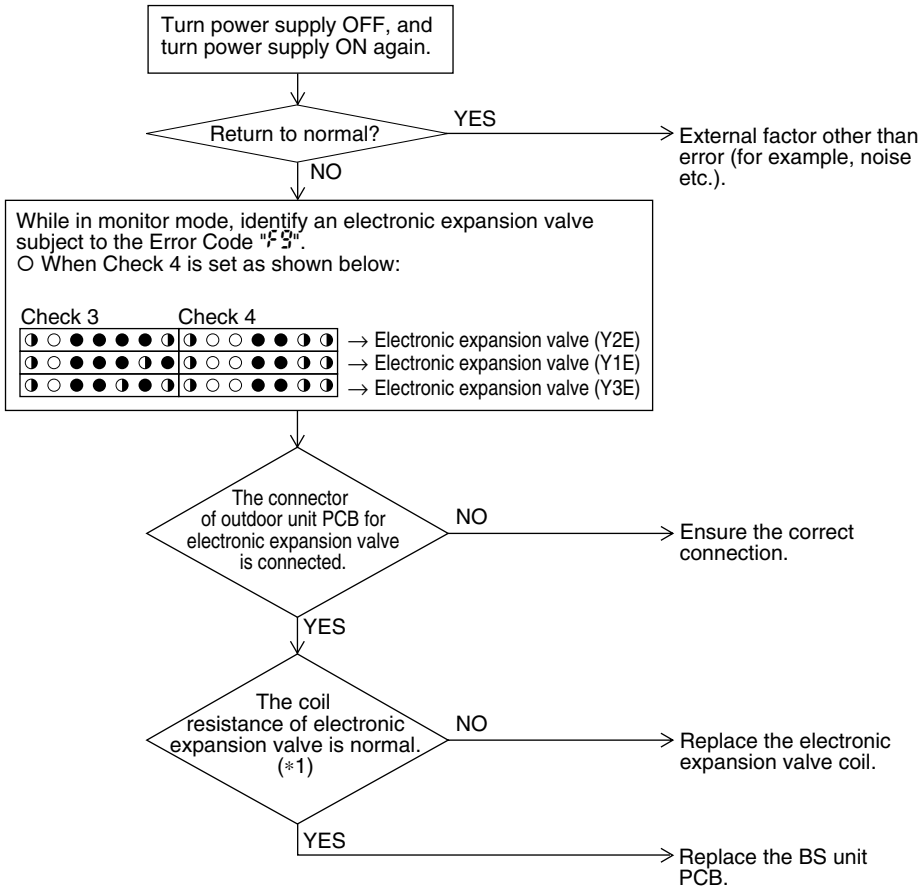
Method of Error Detection This error is detected by whether or not all coils of the electronic expansion valve have continuity.

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

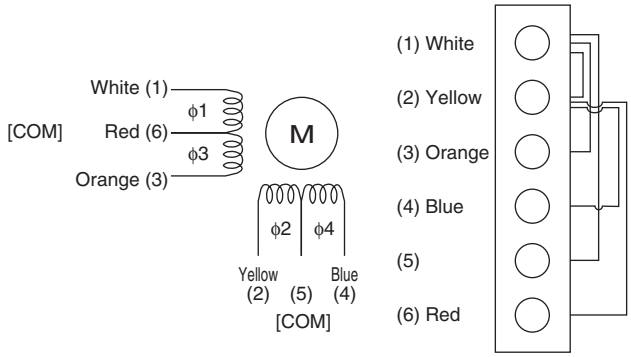
Supposed Causes
- Connector disconnected from the electronic expansion valve
- Defective electronic expansion valve coil
- Defective PCB of BS unit

Troubleshooting

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



Note: ∗1. Procedure for checking the electronic expansion valve for the drive unit coil.
Disconnect the electronic expansion valve connector (X7A) from the PCB, and then make measurement of resistance and check for continuity between the connector pins to make judgement.



The normal states are as follows:

① No continuity between Pins (1) and (2)
② Approx. 300Ω resistance between Pins (1) and (3)
③ Approx. 150Ω resistance between Pins (1) and (5)
④ Approx. 300Ω resistance between Pins (2) and (4)
⑤ Approx. 150Ω resistance between Pins (2) and (6)

3.26 Outdoor Fan Motor Signal Abnormality

Error Code H07

Applicable Models REYQ8-20TY1

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

Error Decision Conditions In case of detection of abnormal signal at starting fan motor.

Supposed Causes
- Defective fan motor signal (circuit error)
- Broken, short circuited or disconnection connector of fan motor connection cable
- Defective fan Inverter PCB

Troubleshooting

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

Check the fan motor corresponding to the error code "H07" in the monitor mode.
When check 3 shows as follows:
◑○●●●●● → Fan motor 1 (M1F)
When check 3 shows as follows:
◑○●●●●◑ → Fan motor 2 (M2F)
Identify outdoor unit based on Check 4.
◑○○●●※※
Explanation for "※※"

● ●	Master unit
● ◑	Slave unit 1
◑ ●	Slave unit 2
◑ ◑	System

Turn the power supply OFF.

Check if signal wire connector for the corresponding fan motor is normal.
- NO → Ensure correct connection.
- YES

Check the connector of the fan motor (∗1).

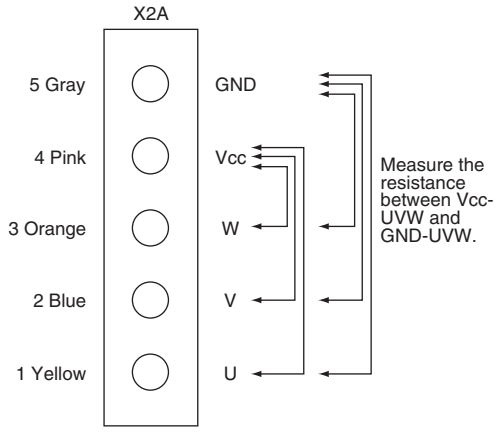
Check if the resistance of the fan motor lead wire between Vcc and UVW and between GND and UVW are balanced.
- NO → Replace the fan motor.
- YES → Replace the inverter PCB.
  - ●For fan motor 1: replace the inverter PCB
  - ●For fan motor 2: replace the fan inverter PCB

Note: ∗1. Check procedure for fan motor connector

(1) Power OFF the fan motor.

(2) Remove the connector (X2A or X4A) on the PCB to measure the following resistance value.
Judgement criteria: resistance value between each phase is within ±20%

Connector for signal wires (X2A or X4A)



3.27 Thermistor for Outdoor Air Abnormality

Error Code H9

Applicable Models REYQ8-20TY1

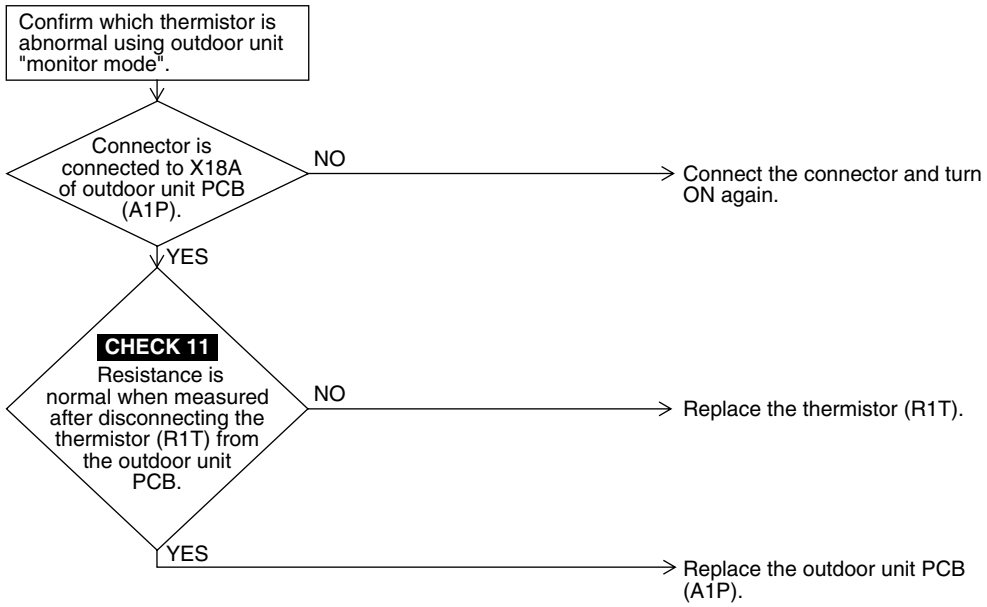
Method of Error Detection Error is detected from the temperature detected by the outdoor air thermistor*.

Error Decision Conditions When the outdoor air temperature thermistor has short circuit or open circuit.

Supposed Causes
- Defective thermistor connection
- Defective thermistor (R1T) for outdoor air
- Defective outdoor unit PCB (A1P)

Troubleshooting

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



CHECK 11 Refer to P.243.

3.28 Discharge Pipe Temperature Thermistor Abnormality

Error Code 43

Applicable Models REYQ8-20TY1

Method of Error Detection Error is detected from the temperature detected by discharge pipe temperature thermistor.

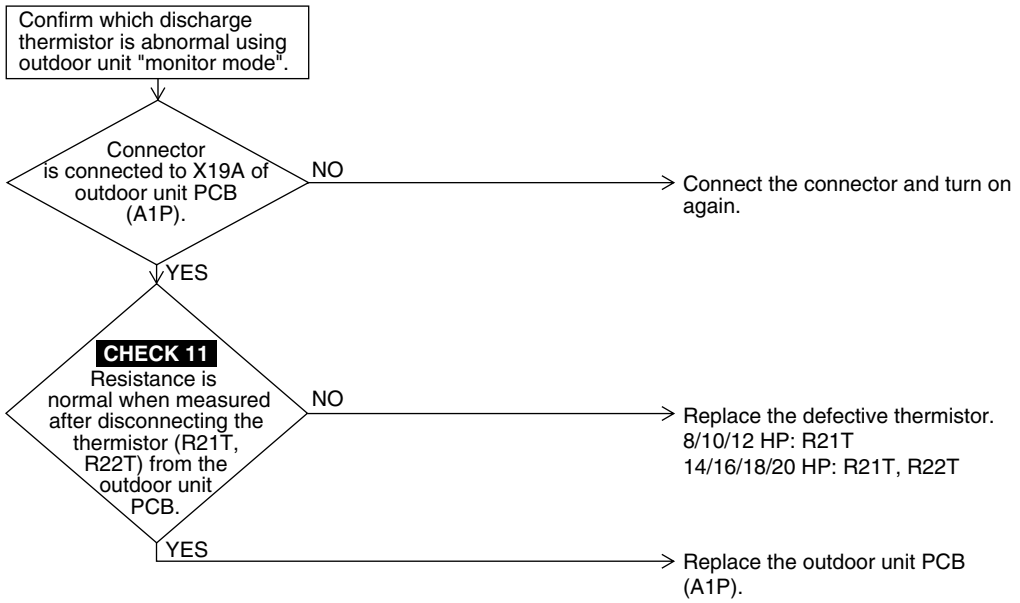
Error Decision Conditions When a short circuit or an open circuit in the discharge pipe temperature thermistor is detected.

Supposed Causes

- Defective thermistor (R21T, R22T) for outdoor unit discharge pipe
- Defective outdoor unit PCB (A1P)
- Defective thermistor connection

Troubleshooting

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



The alarm indicator is displayed when the fan is being used also.

CHECK 11 Refer to P.243.

3.29 Thermistor for Heat Exchanger Gas Abnormality

Error Code U4

Applicable Models REYQ8-20TY1

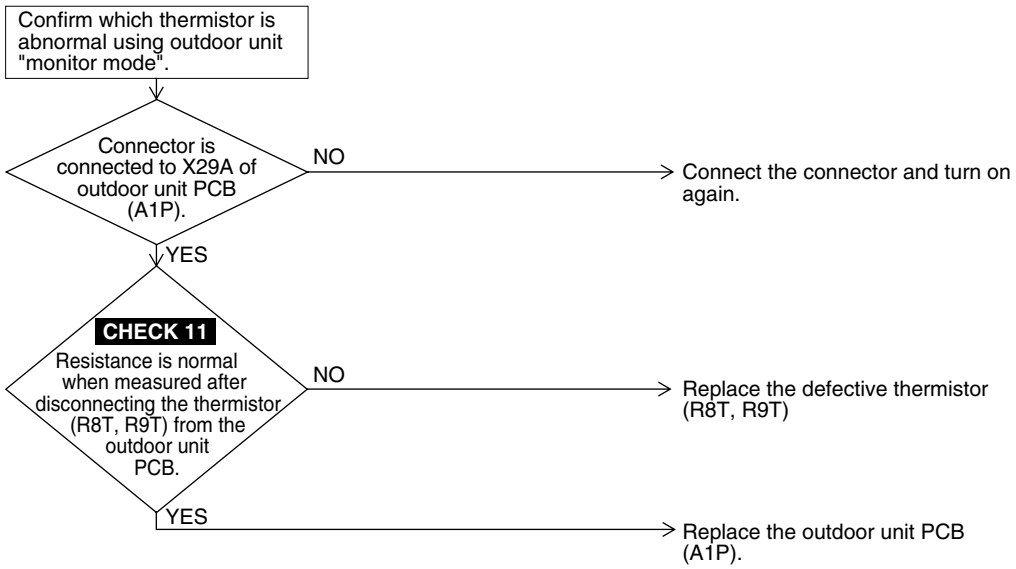
Method of Error Detection Assessment of temperature detected by heat exchanger gas thermistor.

Error Decision Conditions A short circuit or an open circuit in the heat exchanger gas thermistor is detected.

Supposed Causes
- Defective thermistor connection
- Defective thermistor for heat exchanger gas (R8T, R9T)
- Defective outdoor unit PCB

Troubleshooting

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



CHECK 11 Refer to P.243.

3.30 Thermistor for Suction Pipe Temperature Abnormality

Error Code 05

Applicable Models REYQ8-20TY1

Method of Error Detection Error is detected from the temperature detected by the suction pipe temperature thermistor.

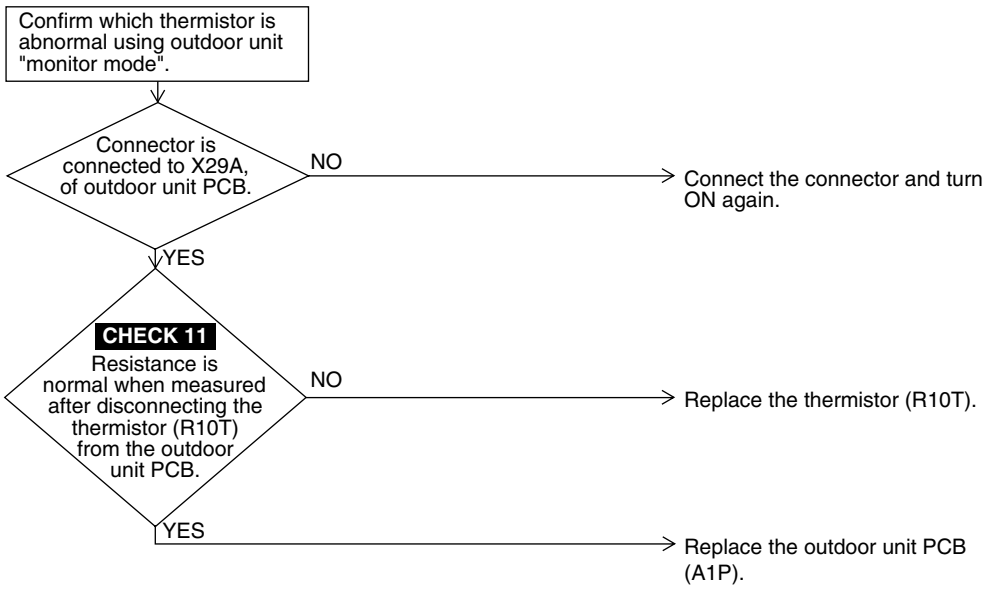
Error Decision Conditions When a short circuit or an open circuit in the suction pipe temperature thermistor is detected.

Supposed Causes

- Defective thermistor (R10T) for outdoor unit suction pipe
- Defective outdoor unit PCB
- Defective thermistor connection

Troubleshooting

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



CHECK 11 Refer to P.243.

3.31 Thermistor for Outdoor Unit Heat Exchanger Deicer Abnormality

Error Code U6

Applicable Models REYQ8-20TY1

Method of Error Detection Error is detected from the temperature detected by the outdoor unit heat exchanger deicer thermistor.

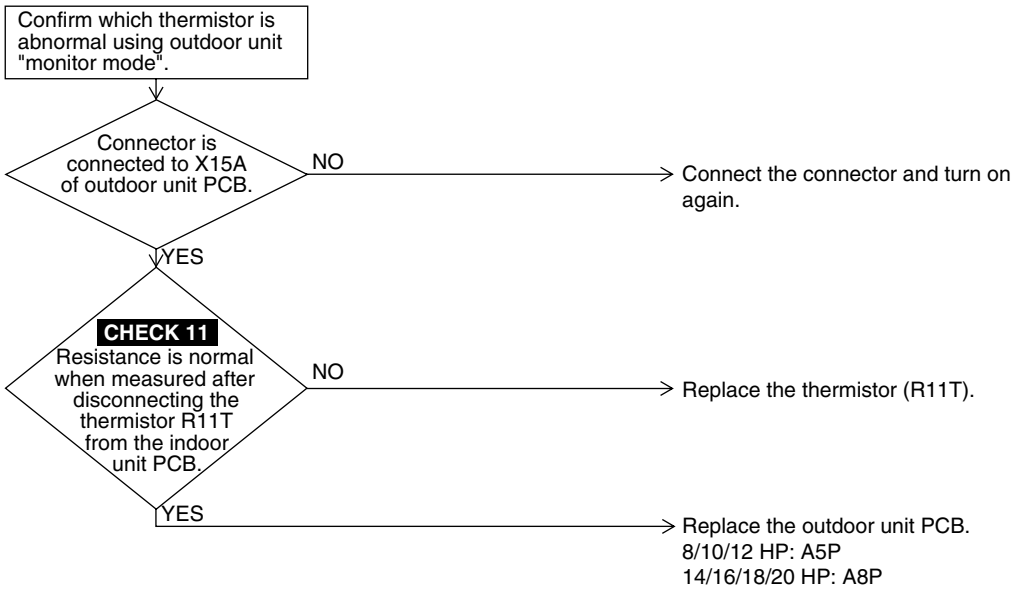
Error Decision Conditions When a short circuit or an open circuit in the heat exchanger deicer thermistor is detected.

Supposed Causes

- Defective thermistor (R11T) for outdoor unit heat exchanger deicer
- Defective outdoor unit PCB
- Defective thermistor connection

Troubleshooting

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



CHECK 11 Refer to P.243.

3.32 Liquid Pipe Thermistor (R3T, R7T) Abnormality

Error Code U7

Applicable Models REYQ8-20TY1

Method of Error Detection Error is detected from the temperature detected by the liquid pipe thermistor.

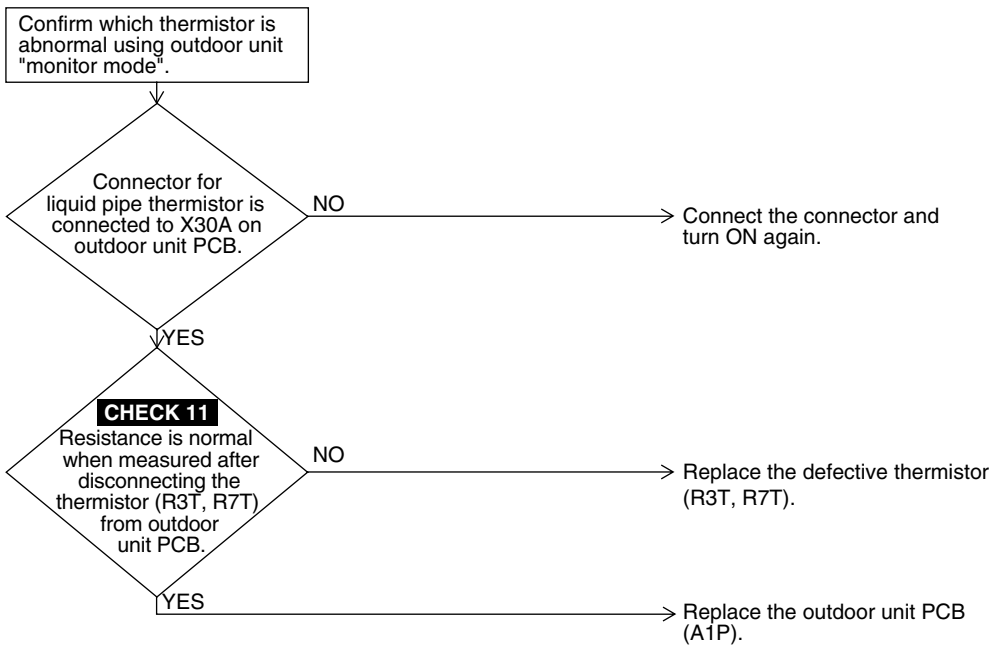
Error Decision Conditions When a short circuit or an open circuit in the liquid pipe thermistor is detected.

Supposed Causes

- Defective liquid pipe thermistor (R3T, R7T)
- Defective outdoor unit PCB
- Defective thermistor connection

Troubleshooting

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



CHECK 11 Refer to P.243.

3.33 Liquid Pipe Thermistor (R4T, R5T) Abnormality

Error Code 18

Applicable Models REYQ8-20TY1

Method of Error Detection Error is detected from the temperature detected by the liquid pipe thermistor.

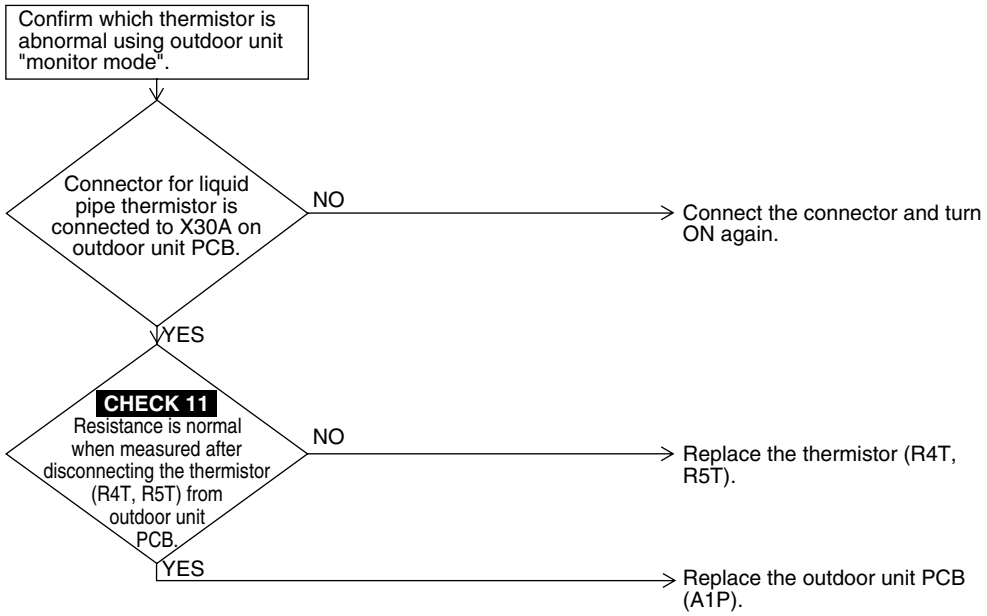
Error Decision Conditions When a short circuit or an open circuit in the liquid pipe thermistor is detected.

Supposed Causes

- Defective liquid pipe thermistor (R4T, R5T)
- Defective outdoor unit PCB
- Defective thermistor connection

Troubleshooting

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



CHECK 11 Refer to P.243.

3.34 Subcooling Heat Exchanger Gas Pipe Thermistor (R6T) Abnormality

Error Code J9

Applicable Models REYQ8-20TY1

Method of Error Detection Error is detected from the temperature detected by the subcooling heat exchanger gas pipe thermistor.

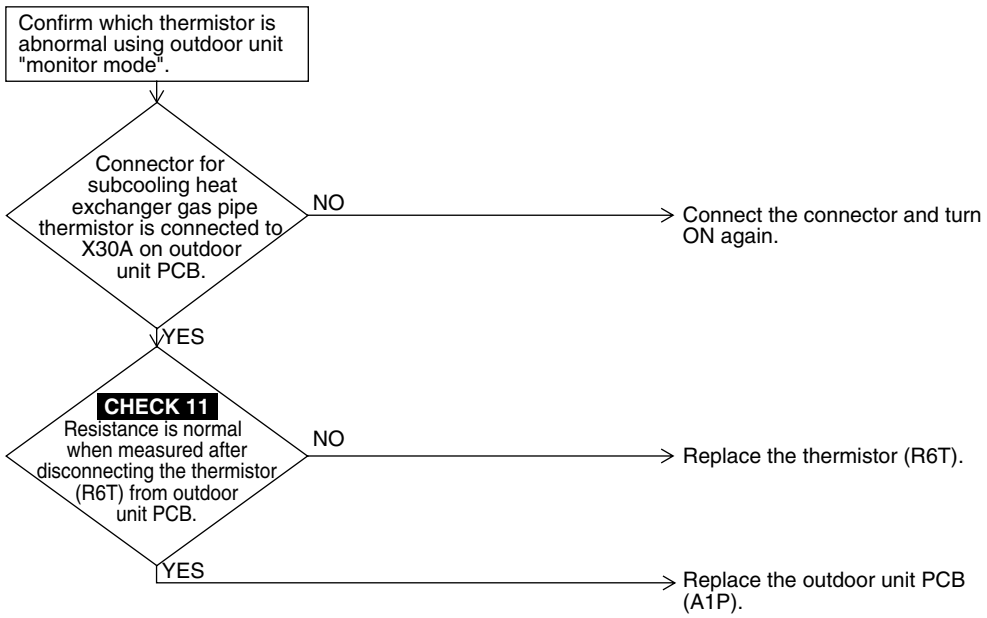
Error Decision Conditions When a short circuit or an open circuit in the subcooling heat exchanger gas pipe thermistor is detected.

Supposed Causes

- Defective subcooling heat exchanger gas pipe thermistor (R6T)
- Defective outdoor unit PCB
- Defective thermistor connection

Troubleshooting

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



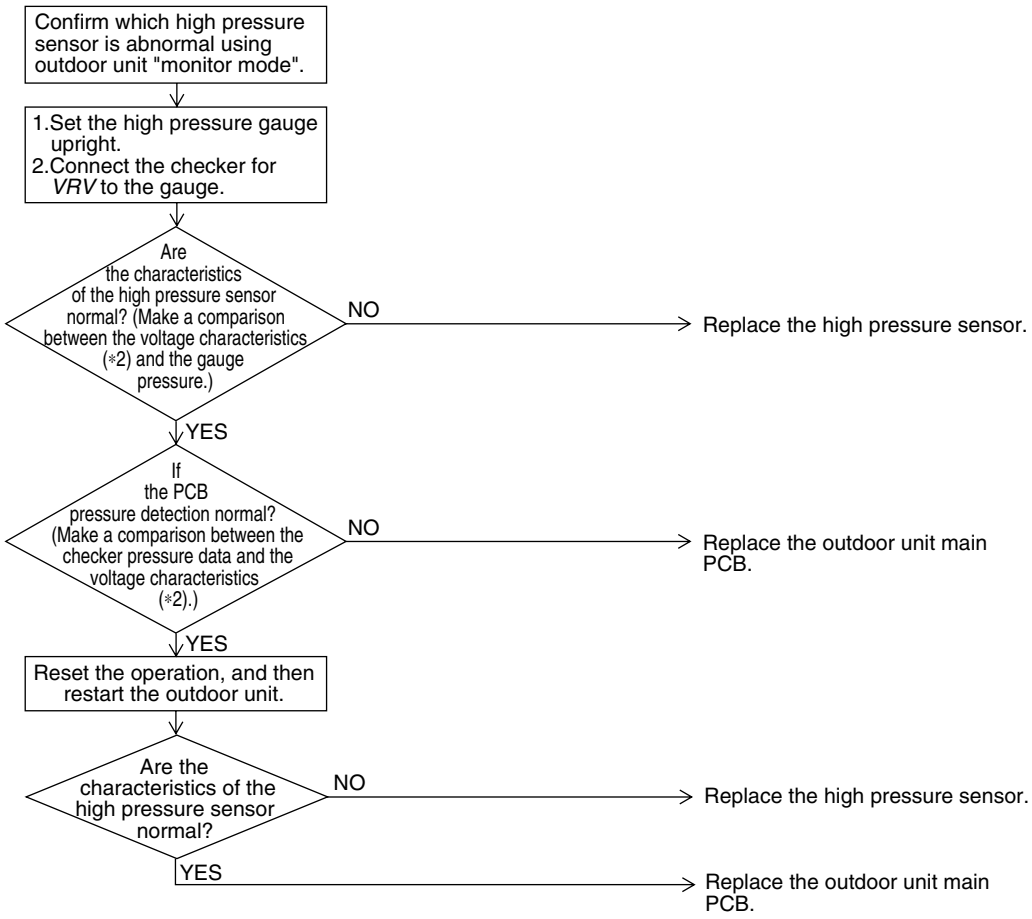
CHECK 11 Refer to P.243.

3.35 High Pressure Sensor Abnormality

Error Code	1P9
Applicable Models	REYQ8-20TY1
Method of Error Detection	Error is detected from the pressure detected by the high pressure sensor.
Error Decision Conditions	When the high pressure sensor is short circuit or open circuit. (Pressure range: 0-4.3 MPa)
Supposed Causes	■ Defective high pressure sensor system ■ Connection of low pressure sensor with wrong connection ■ Defective outdoor unit 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.

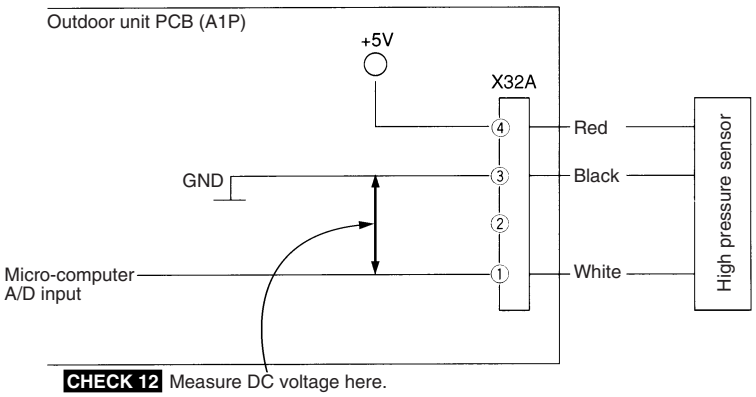


Note:

*1. Pressure sensor subject to error code

Error code	Pressure sensor subject to error code	Electric symbol
J8	High pressure sensor	S1NPH

*2. Voltage measurement point



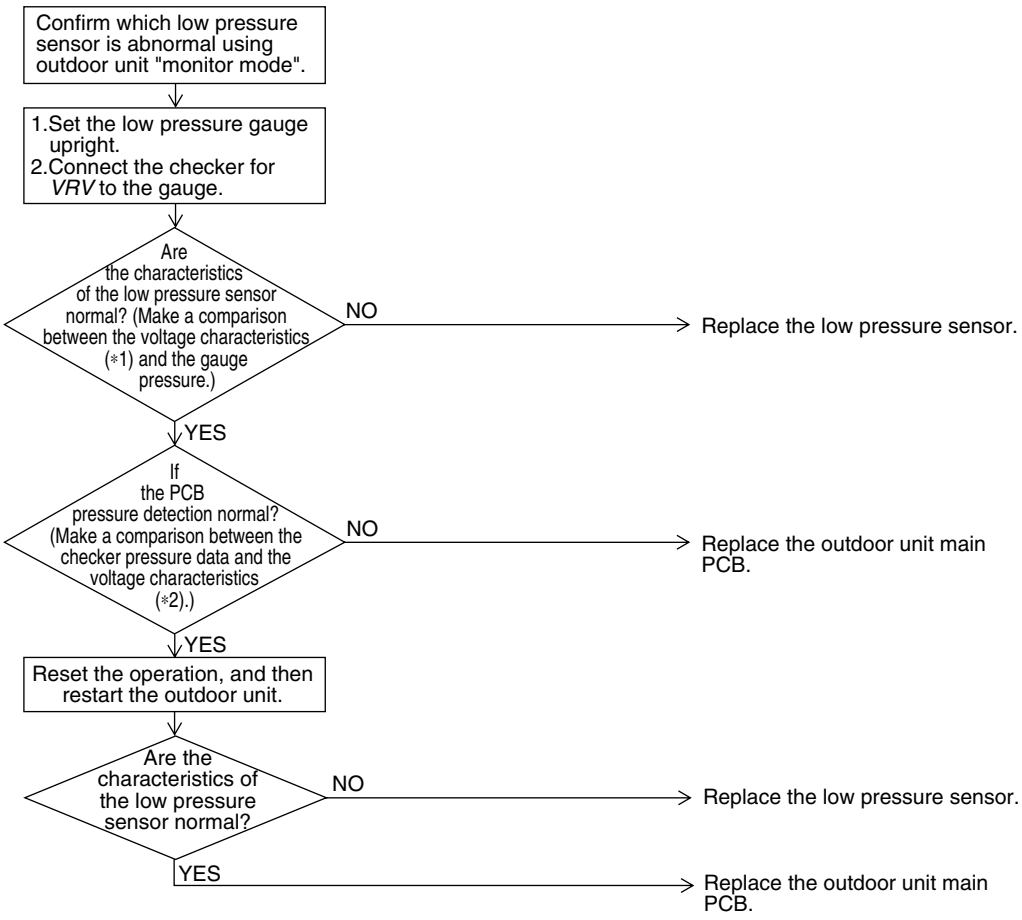
CHECK 12 Refer to P.244.

3.36 Low Pressure Sensor Abnormality

Error Code	
Applicable Models	REYQ8-20TY1
Method of Error Detection	Error is detected from the pressure detected by the low pressure sensor.
Error Decision Conditions	When the low pressure sensor is short circuit or open circuit. (Pressure range: 0-1.7 MPa)
Supposed Causes	■ Defective low pressure sensor system ■ Connection of high pressure sensor with wrong connection ■ 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.

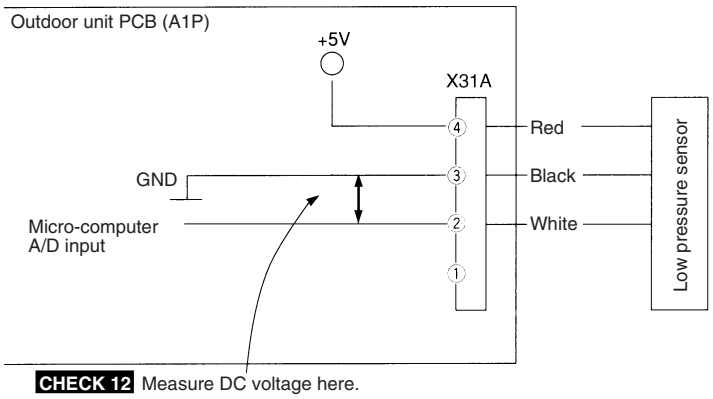


Note:

∗1. Pressure sensor subject to error code

Error code	Pressure sensor subject to error code	Electric symbol
UE	Low pressure sensor	S1NPL

∗2. Voltage measurement point



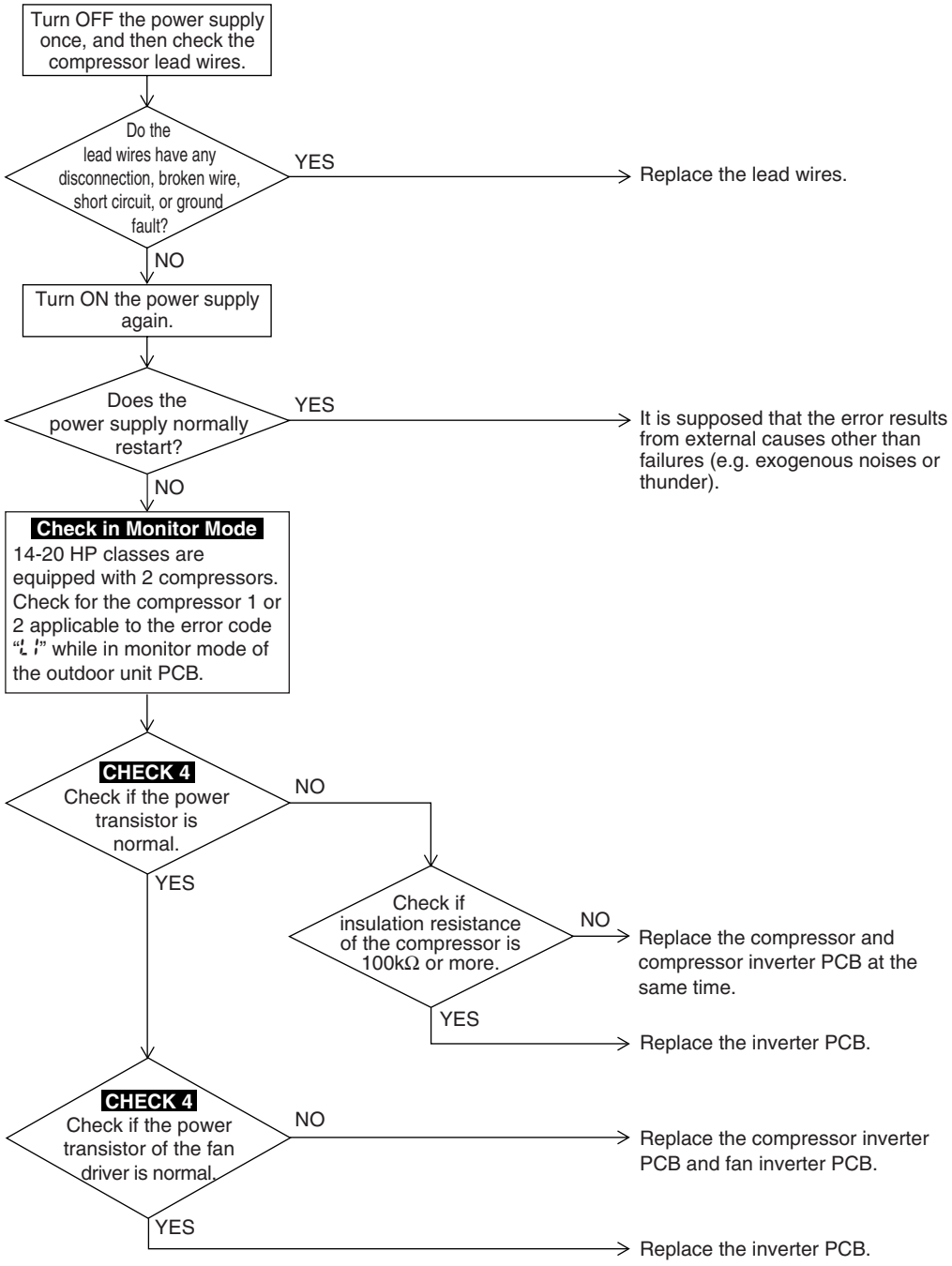
CHECK 12 Refer to P.244.

3.37 Inverter PCB Abnormality

Error Code	L 1
Applicable Models	REYQ8-20TY1
Method of Error Detection	Error is detected based on the current value during waveform output before starting compressor. Error is detected based on the value from current sensor during synchronous operation when starting the unit.
Error Decision Conditions	Overcurrent (OCP) flows during waveform output. Defective current sensor during synchronous operation. IPM failure.
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.



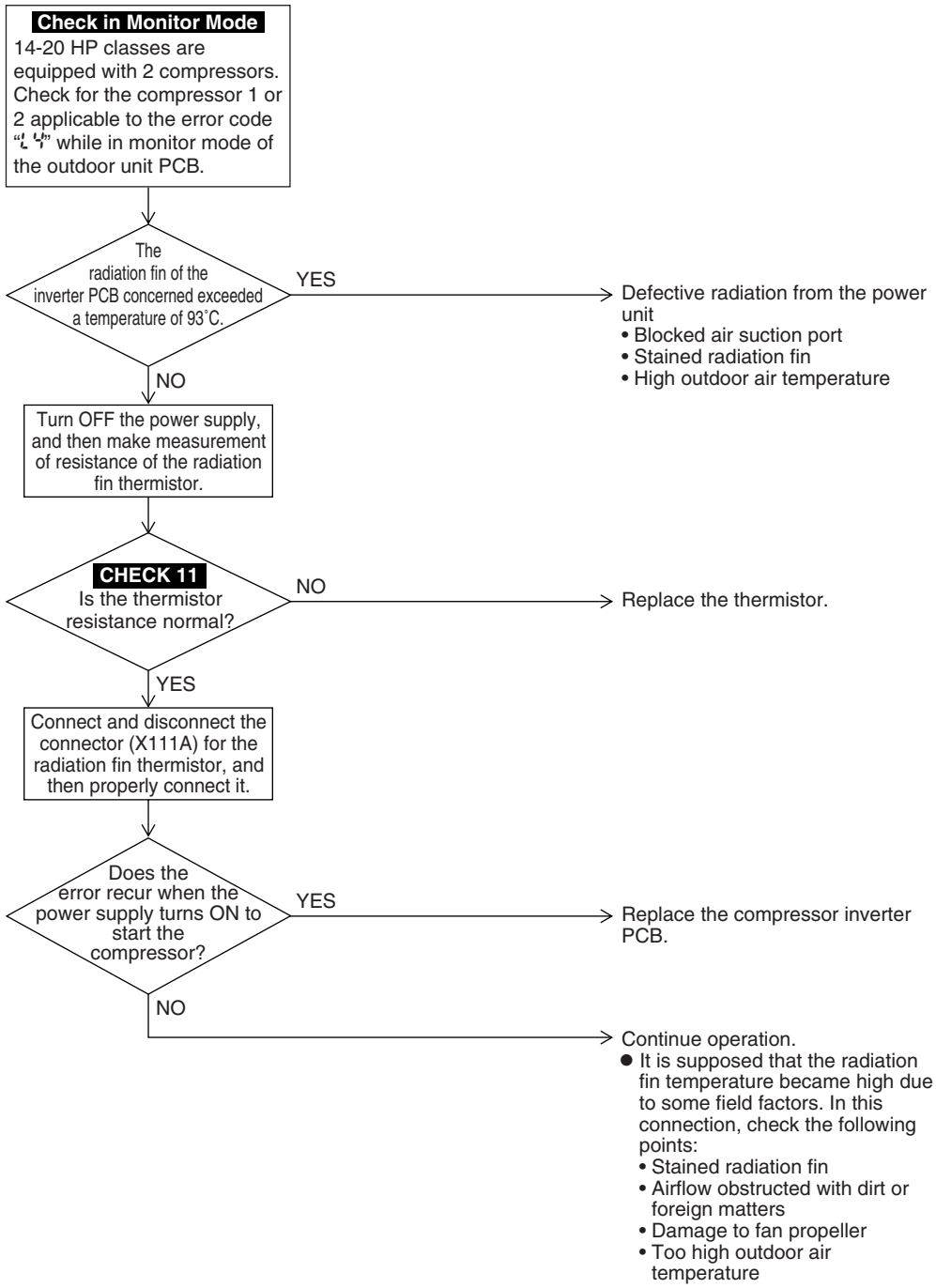
CHECK 4 Refer to P.240.

3.38 Inverter Radiation Fin Temperature Rise Abnormality

Error Code	L4
Applicable Models	REYQ8-20TY1
Method of Error Detection	Fin temperature is detected by the thermistor of the radiation fin.
Error Decision Conditions	When the temperature of the inverter radiation fin increases 93°C or more.
Supposed Causes	■ Actuation of radiation fin thermal (Actuates 93°C or more) ■ Defective inverter PCB ■ Defective radiation fin thermistor

Troubleshooting

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



CHECK 11 Refer to P.243.

3.39 Momentary Overcurrent of Inverter Compressor

Error Code L5

Applicable Models REYQ8-20TY1

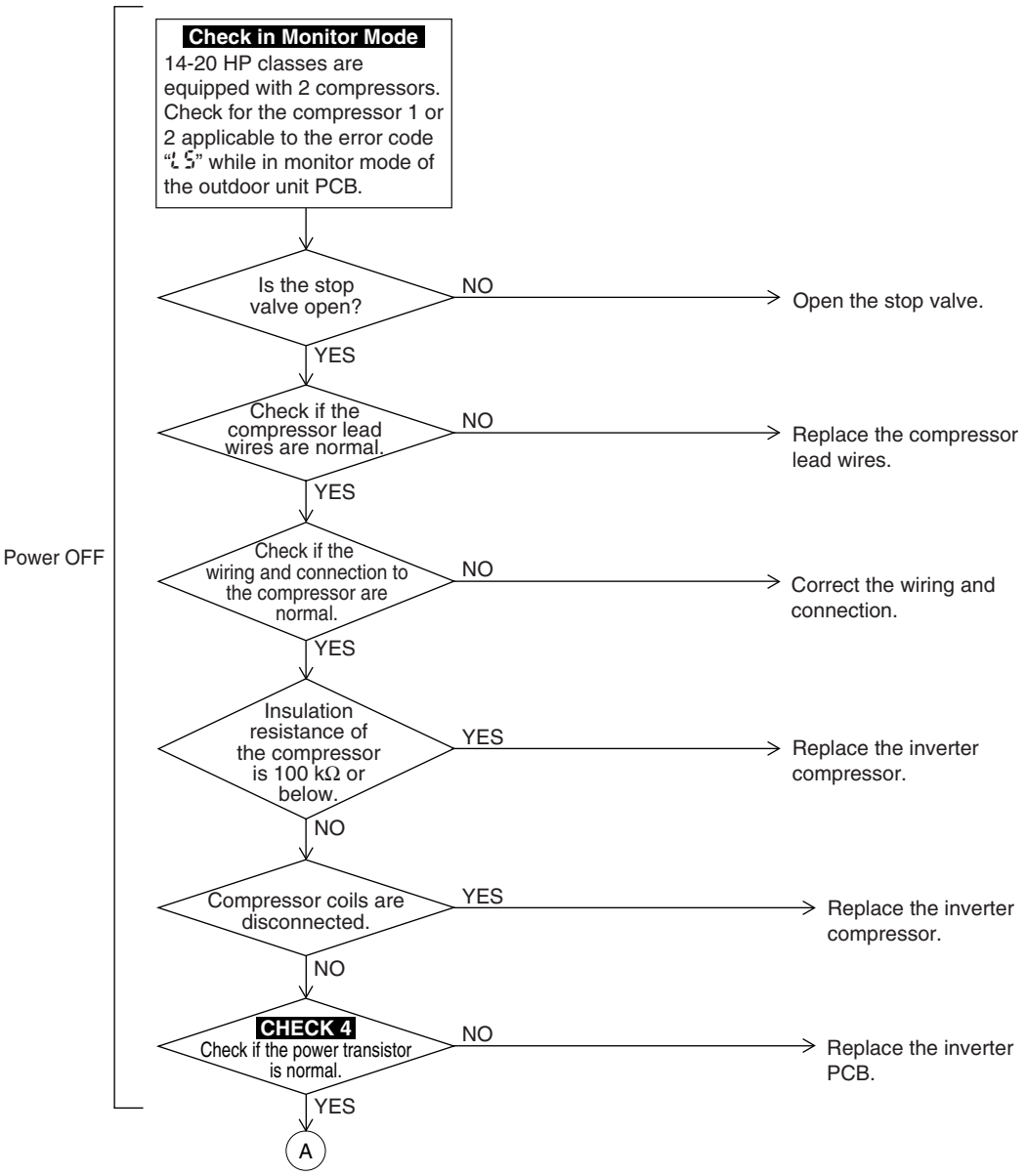
Method of Error Detection Error is detected from current flowing in the power transistor.

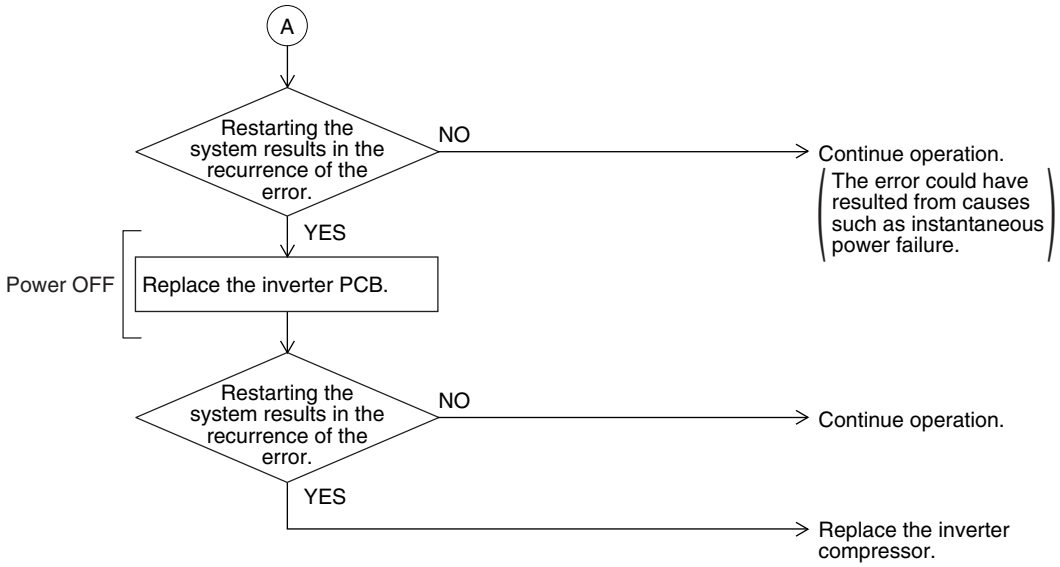
Error Decision Conditions When an excessive current flows in the power transistor.
(Instantaneous overcurrent also causes activation.)

Supposed Causes
- Defective compressor coil (disconnected, defective insulation)
- Compressor startup error (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 P.240.

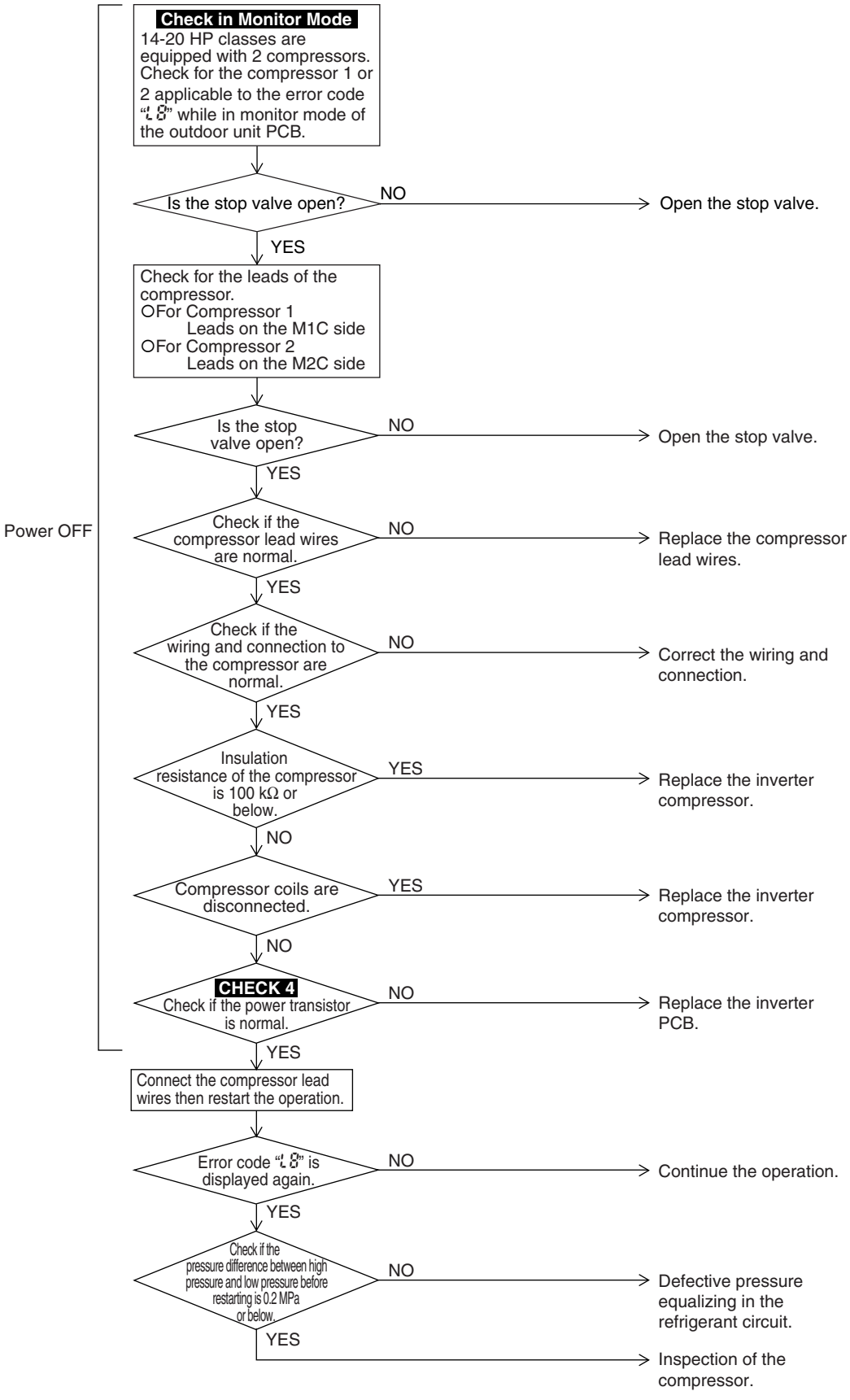
3.40 Momentary Overcurrent of Inverter Compressor

Error Code	L8
Applicable Models	REYQ8-20TY1
Method of Error Detection	Error is detected by current flowing in the power transistor.
Error Decision Conditions	When overload in the compressor is detected (1) A current of 33.5A or more continues for a period of consecutive 5 seconds (2) A current of 27.6A or more continues for a period of consecutive 260 seconds
Supposed Causes	■ Compressor overload ■ Compressor coil disconnected ■ Defective inverter PCB ■ Disconnection of compressor

Troubleshooting

Output current check

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

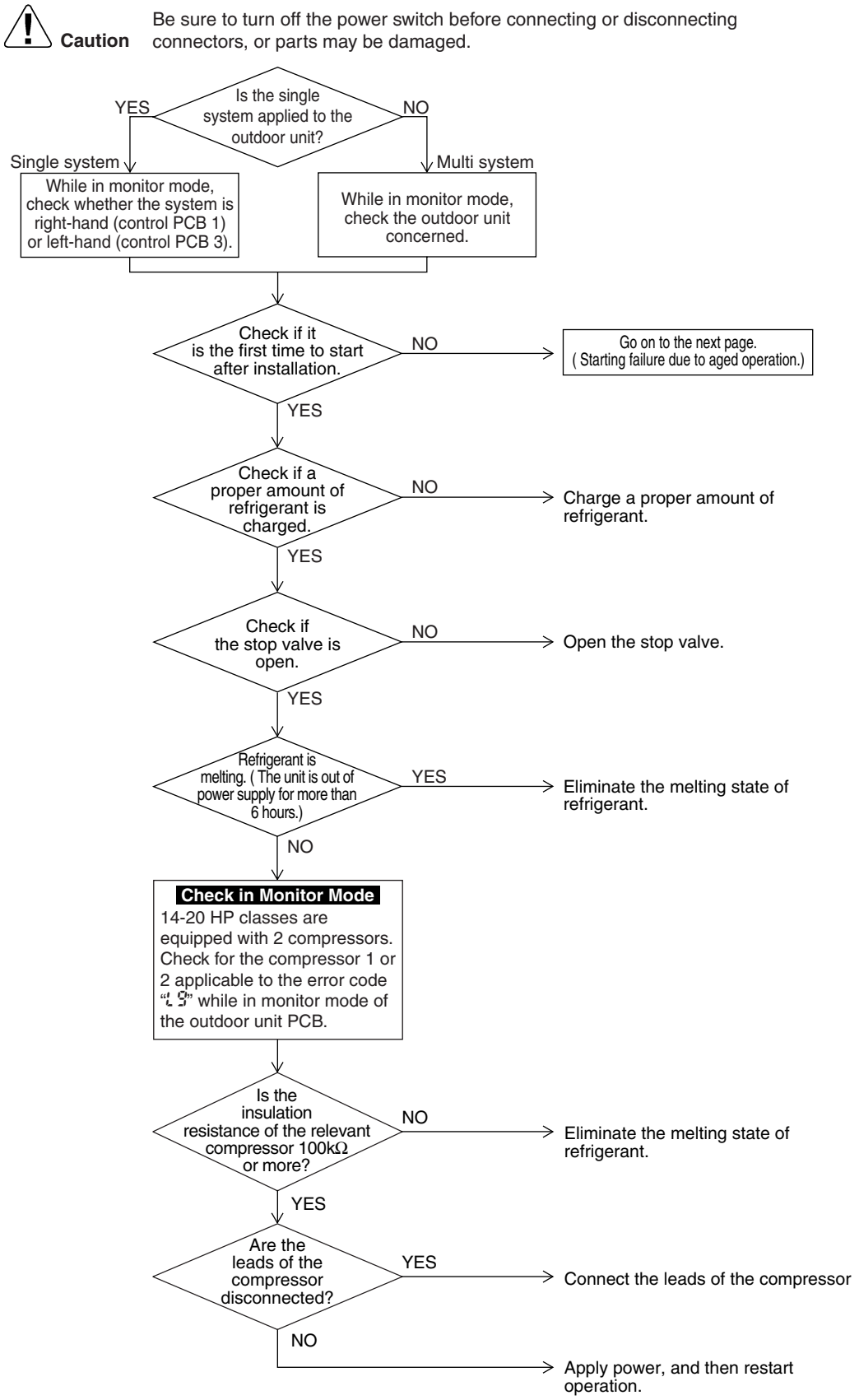


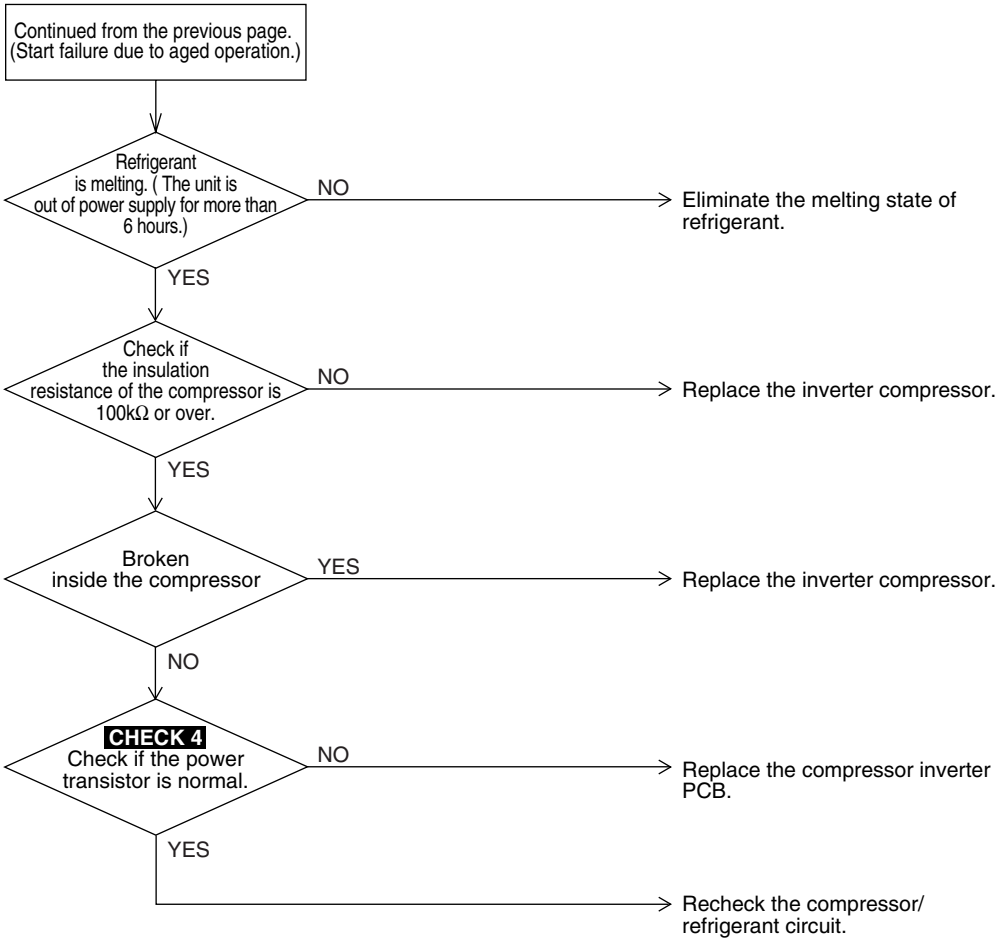
CHECK 4 Refer to P.240.

3.41 Inverter Compressor Starting Failure

Error Code	L9
Applicable Models	REYQ8-20TY1
Method of Error Detection	Detect the failure based on the signal waveform of the compressor.
Error Decision Conditions	Starting the compressor does not complete.
Supposed Causes	■ Stop valve is not opened. ■ Defective compressor ■ Defective compressor connection ■ Large pressure difference before starting the compressor ■ Defective inverter PCB

Troubleshooting





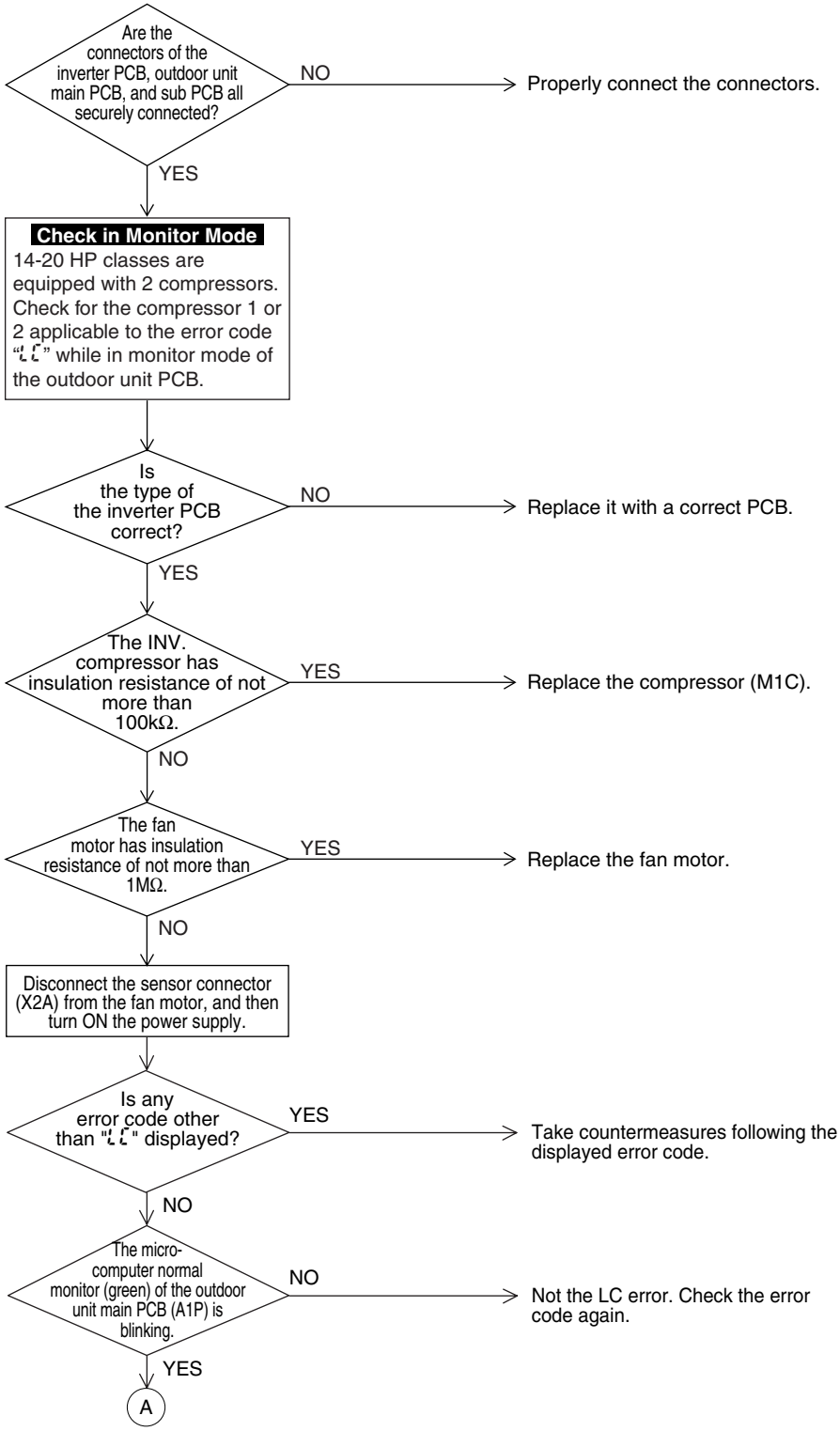
CHECK 4 Refer to P.240.

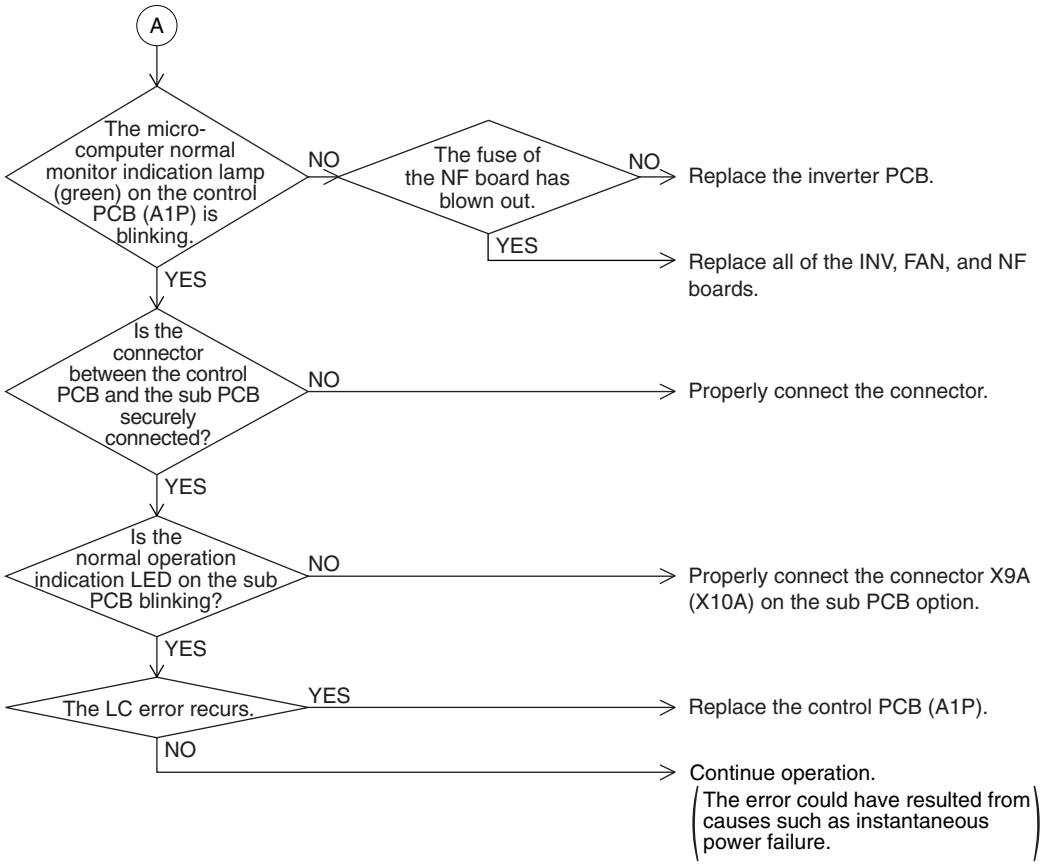
3.42 Transmission Error between Inverter and Control PCB

Error Code	LC
Applicable Models	REYQ8-20TY1
Method of Error Detection	Check the communication state between inverter PCB and control PCB by micro-computer.
Error Decision Conditions	When the correct communication is not conducted in certain period.
Supposed Causes	■ Defective connection between the inverter PCB and control PCB ■ Defective control PCB (transmission section) ■ Defective inverter PCB ■ Defective noise filter ■ Defective fan inverter ■ Incorrect type of inverter PCB ■ Defective inverter compressor ■ Defective fan motor ■ External factor (noise etc.)

Troubleshooting

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



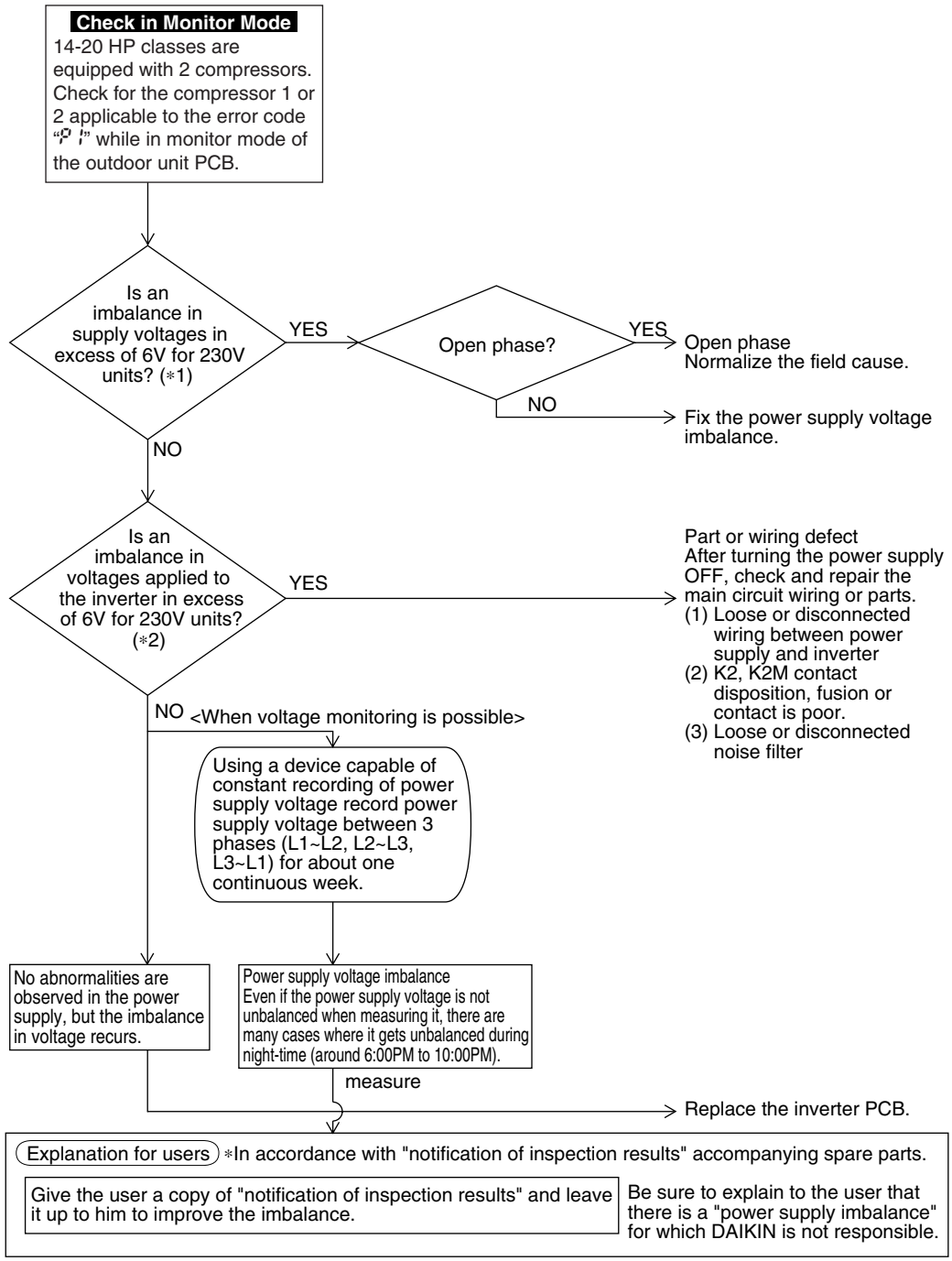

A
The micro-computer normal monitor indication lamp (green) on the control PCB (A1P) is blinking.
NO
The fuse of the NF board has blown out.
NO
Replace the inverter PCB.
YES
Replace all of the INV, FAN, and NF boards.
YES
Is the connector between the control PCB and the sub PCB securely connected?
NO
Properly connect the connector.
YES
Is the normal operation indication LED on the sub PCB blinking?
NO
Properly connect the connector X9A (X10A) on the sub PCB option.
YES
The LC error recurs.
YES
Replace the control PCB (A1P).
NO
Continue operation.
(The error could have resulted from causes such as instantaneous power failure.)

3.43 Inverter Over-Ripple Protection

Error Code	P1
Applicable Models	REYQ8-20TY1
Method of Error Detection	Imbalance in supply voltage is detected in PCB.
Error Decision Conditions	When the resistance value of thermistor becomes a value equivalent to open or short circuited status. * Error is not decided while the unit operation is continued. "P1" will be displayed by pressing the inspection button. When the amplitude of the ripple exceeding a certain value is detected for consecutive 4 minutes.
Supposed Causes	■ Open phase ■ Voltage imbalance between phases ■ Defective main circuit capacitor ■ Defective inverter PCB ■ Defective K2, K2M relay in inverter PCB ■ Improper main circuit wiring

Troubleshooting

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



Note: *1. Measure voltage at the X1M power supply terminal block.
*2. Measure voltage at terminals RED, WHITE and BLACK wire of the diode module inside the inverter while the compressor is running.

3.44 Reactor Temperature Abnormality

Error Code

P3

Applicable Models

REYQ8-20TY1

Method of Error Detection

Detect according to the value detected with the reactor surface thermistor.

Error Decision Conditions

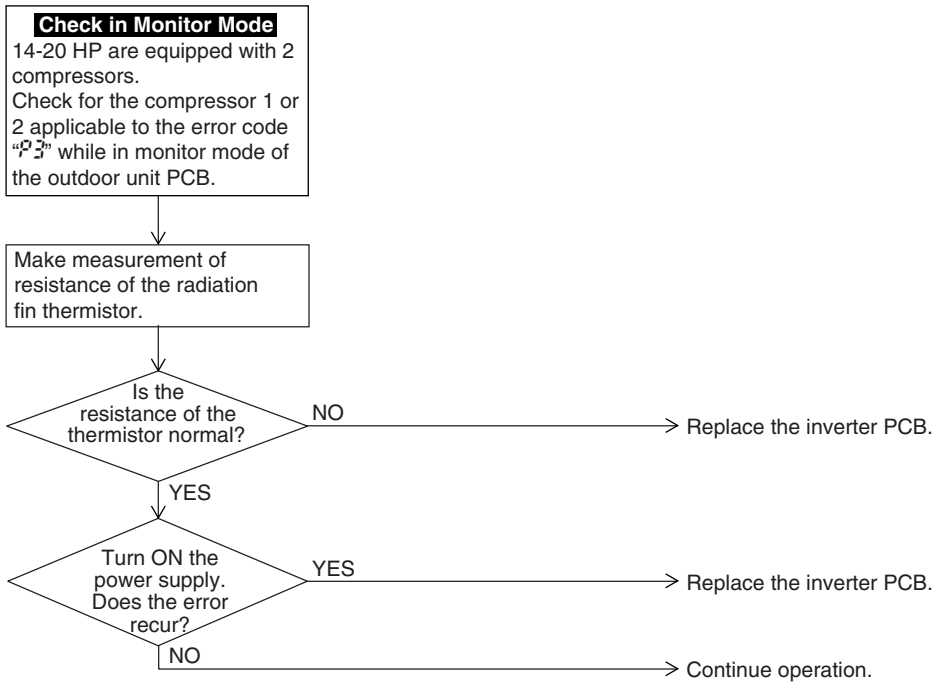
When the system is in operation and the thermistor causes wiring disconnection or short circuit in it.

Supposed Causes

- Defective connection of thermistor
- Defective reactor thermistor
- Defective inverter PCB

Troubleshooting

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



3.45 Inverter Radiation Fin Temperature Thermistor Rise Abnormality

Error Code P4

Applicable Models REYQ8-20TY1

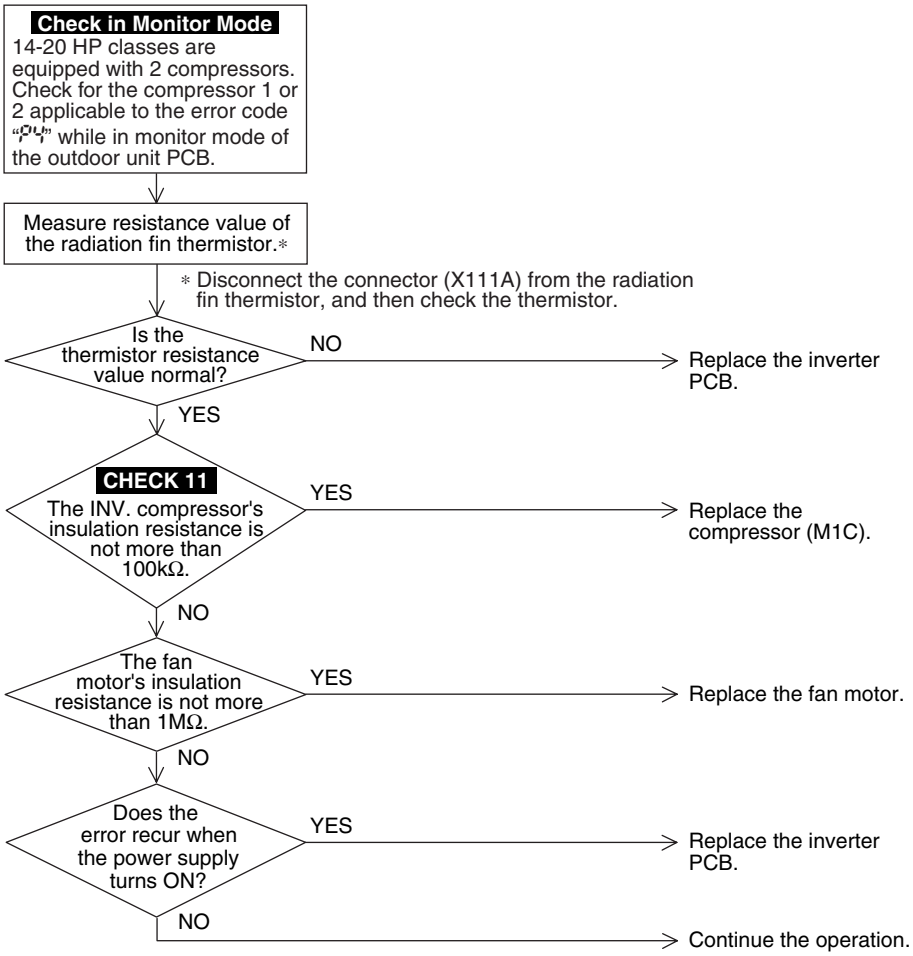
Method of Error Detection Resistance of radiation fin thermistor is detected when the compressor is not operating.

Error Decision Conditions When the resistance value of thermistor becomes a value equivalent to open circuited or short circuited status
* 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.



CHECK 11 Refer to P.243.

3.46 Field Setting Abnormality after Replacing Outdoor Unit Main PCB or Combination of PCB Abnormality

Error Code P1

Applicable Models REYQ8-20TY1

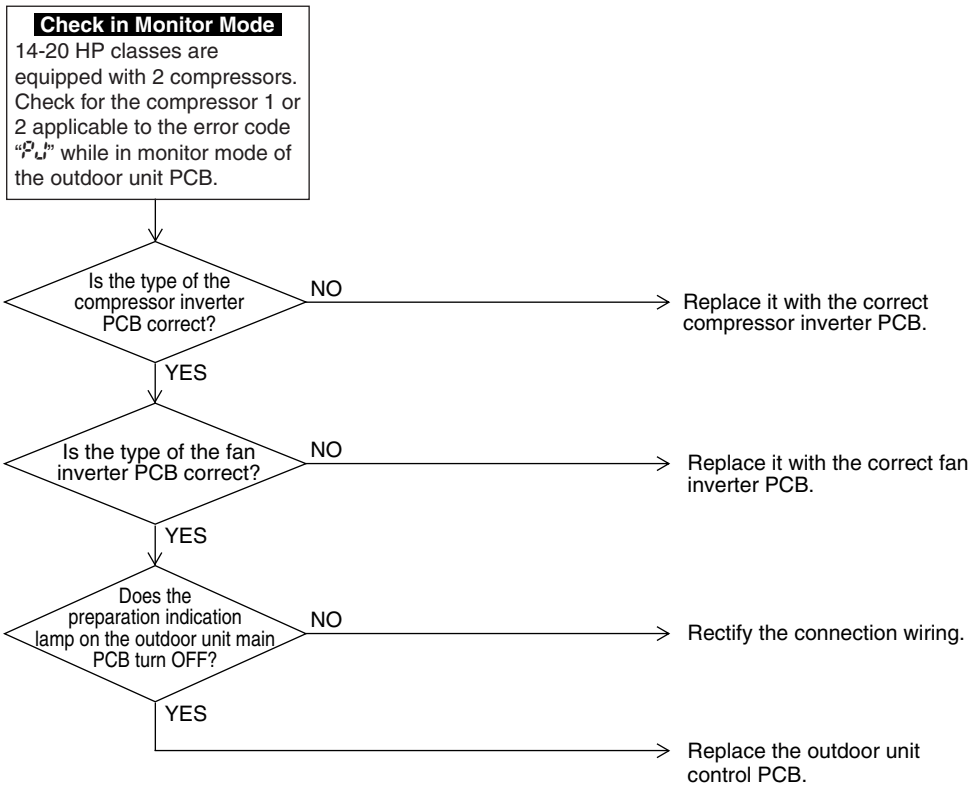
Method of Error Detection This error is detected according to communications with the inverter PCB.

Error Decision Conditions Make judgement according to communication data on whether or not the type of the inverter PCB is correct.

Supposed Causes
- Defective (or no) field setting after replacing outdoor unit main PCB
- Mismatching of type of PCB

Troubleshooting

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



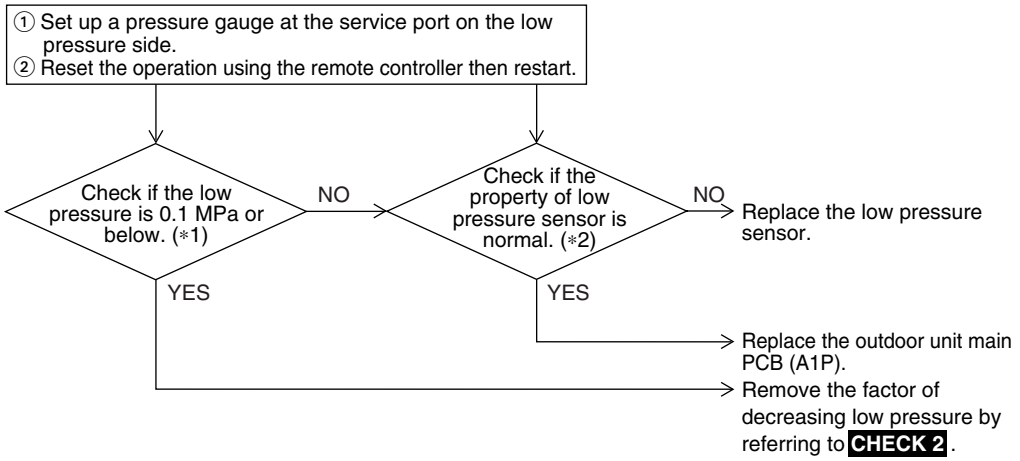
3.47 Refrigerant Shortage Alert

Error Code	U0
Applicable Models	REYQ8-20TY1
Method of Error Detection	Detect refrigerant shortage based on the temperature difference between low pressure or suction pipe and heat exchanger.
Error Decision Conditions	[In cooling mode] Low pressure becomes 0.1 MPa or below. [In heating mode] The superheated degree of suction gas becomes 20°C and over. SH = Ts1 –Te Ts1: Suction pipe temperature detected by thermistor Te: Low pressure equivalent saturation temperature ∗Error is not determined. The unit continues the operation.
Supposed Causes	■ Refrigerant shortage or refrigerant clogging (piping error) ■ Defective thermistor ■ Defective low pressure sensor ■ Defective outdoor unit PCB (A1P)

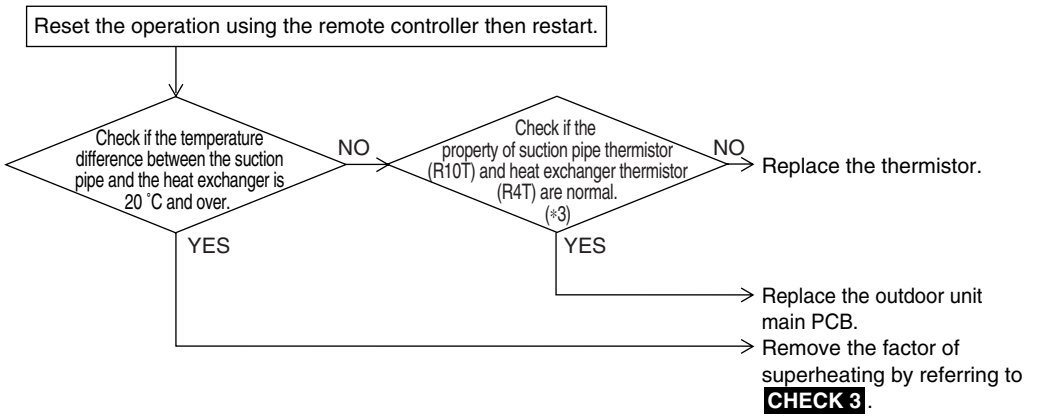
Troubleshooting

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

In cooling mode



In heating mode



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** .)
∗3. Compare the thermistor resistance value with the value on the surface thermistor.

CHECK 2 Refer to P.238.
CHECK 3 Refer to P.239.
CHECK 12 Refer to P.244.

3.48 Reverse Phase, Open Phase

Error Code U1

Applicable Models REYQ8-20TY1

Method of Error Detection The phase of each phase are detected by reverse phase detection circuit and right phase or reverse phase are judged.

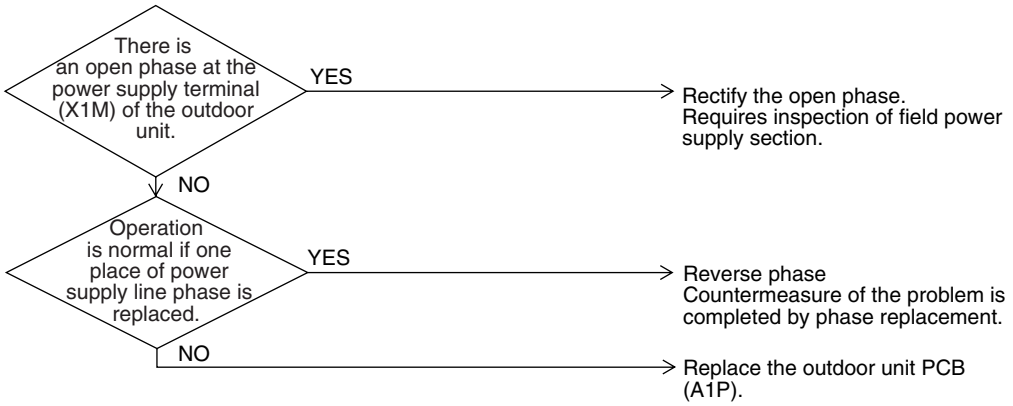
Error Decision Conditions When a power supply is reverse phase, or T phase is open phase.

Supposed Causes

- Power supply reverse phase
- Power supply open phase
- Defective outdoor unit PCB (A1P)

Troubleshooting

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

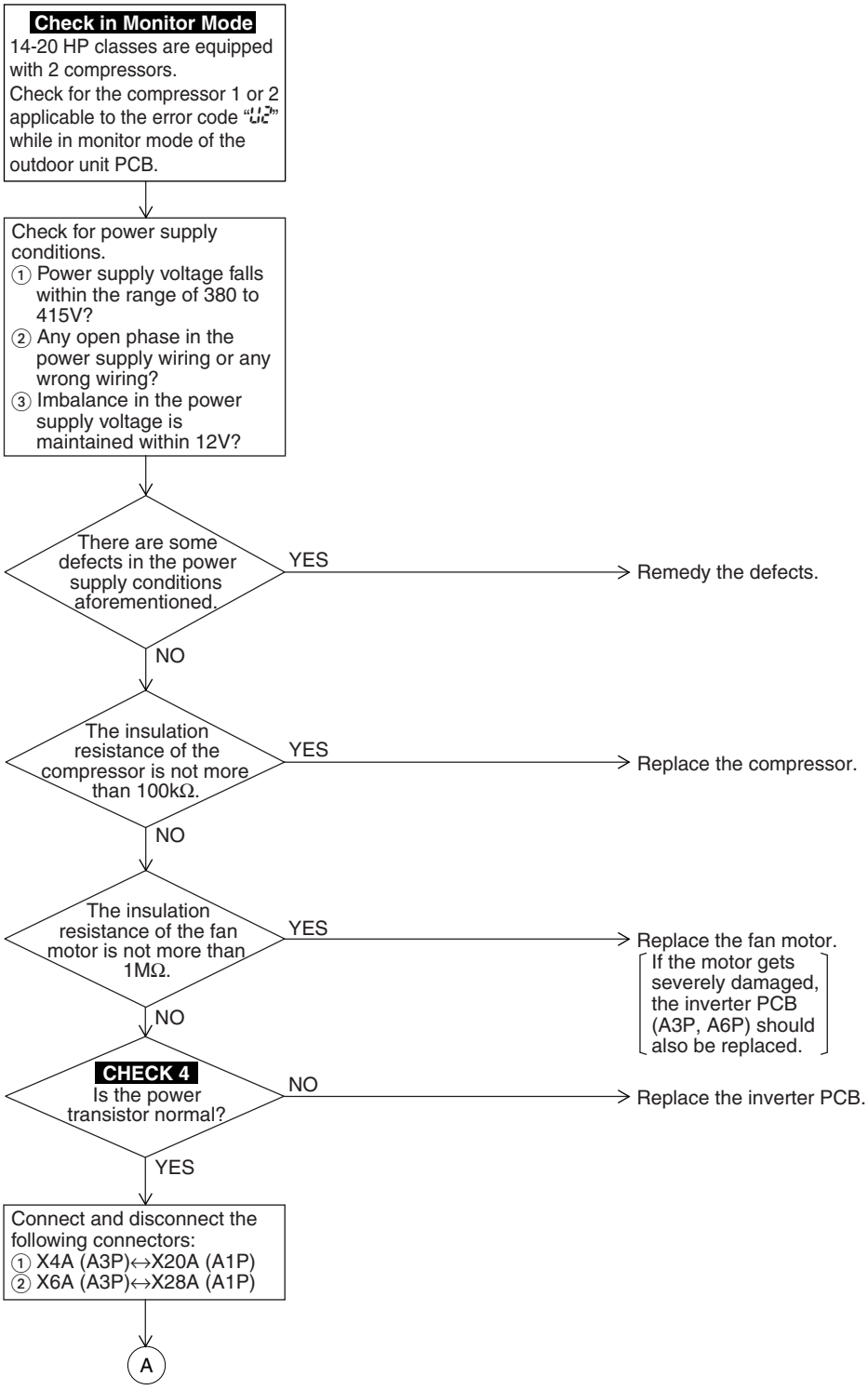


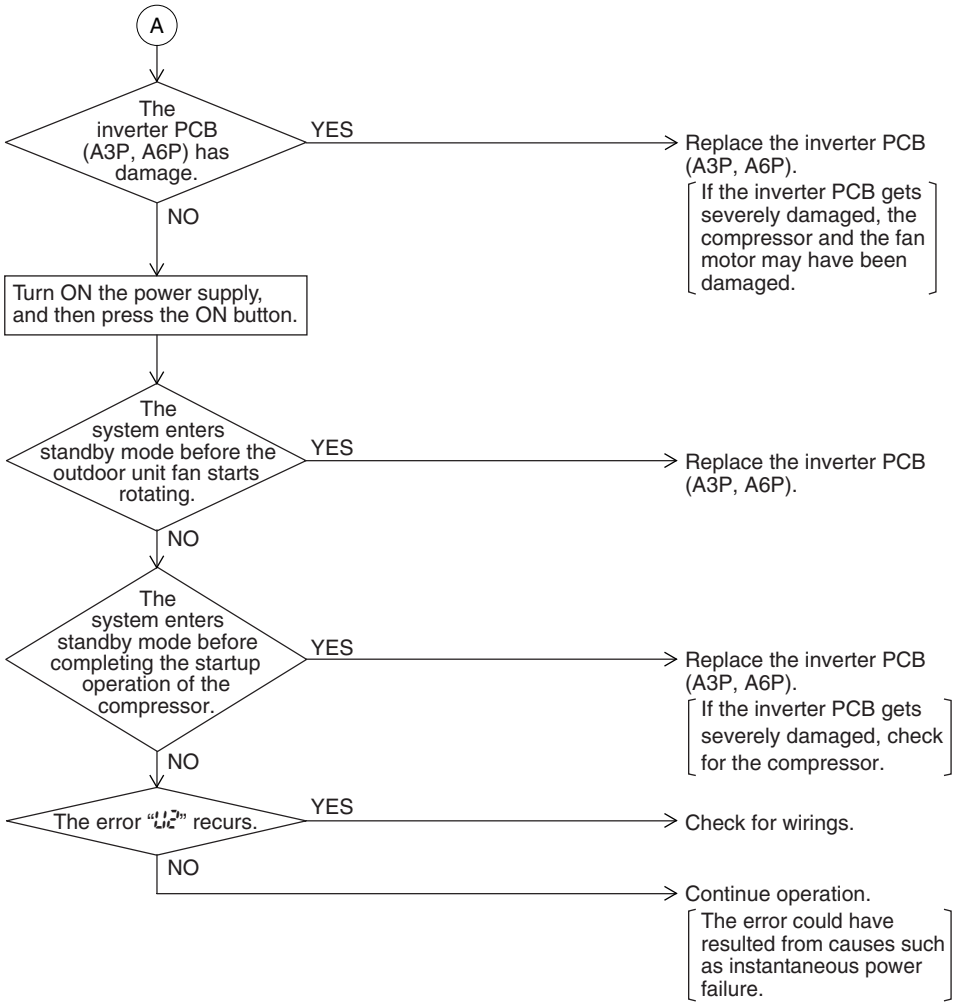
3.49 Power Supply Insufficient or Instantaneous Error

Error Code	U2
Applicable Models	REYQ8-20TY1
Method of Error Detection	Detection of voltage of main circuit capacitor built in the inverter and power supply voltage.
Error Decision Conditions	When the voltage aforementioned is not more than 190V
Supposed Causes	■ Power supply insufficient ■ Instantaneous power failure ■ Open phase ■ Defective inverter PCB ■ Defective control PCB ■ Defective main circuit wiring ■ Defective compressor ■ 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 P.240.

3.50 Check Operation is not Executed

Error Code U3

Applicable Models REYQ8-20TY1

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.

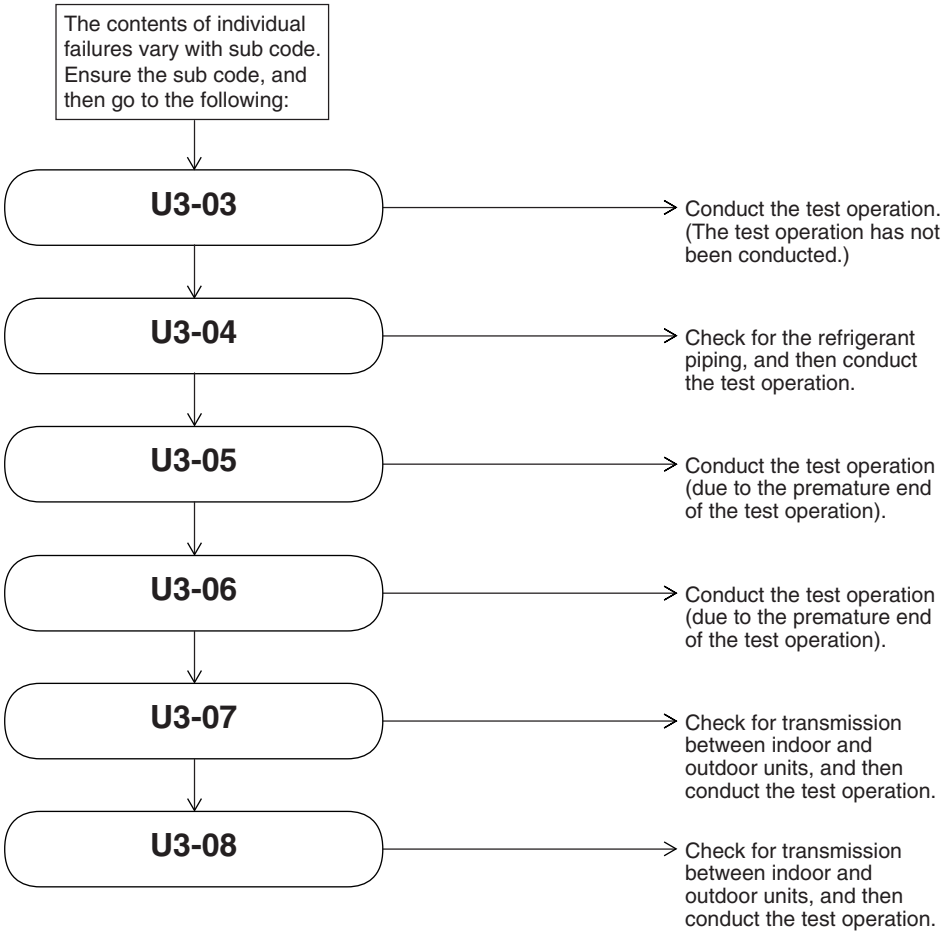
Supposed Causes

- 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:

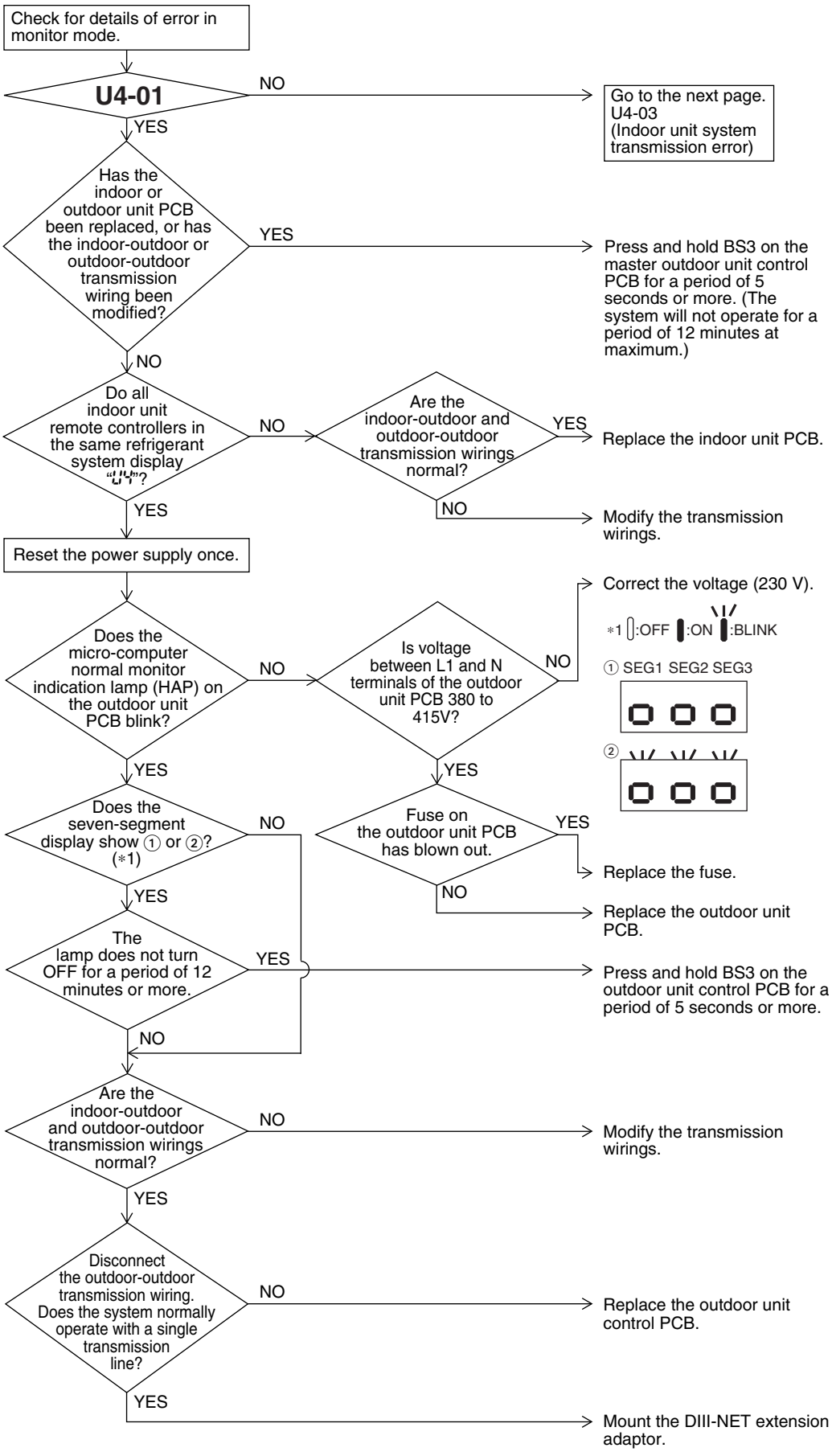


3.51 Transmission Error between Indoor Units and Outdoor Units

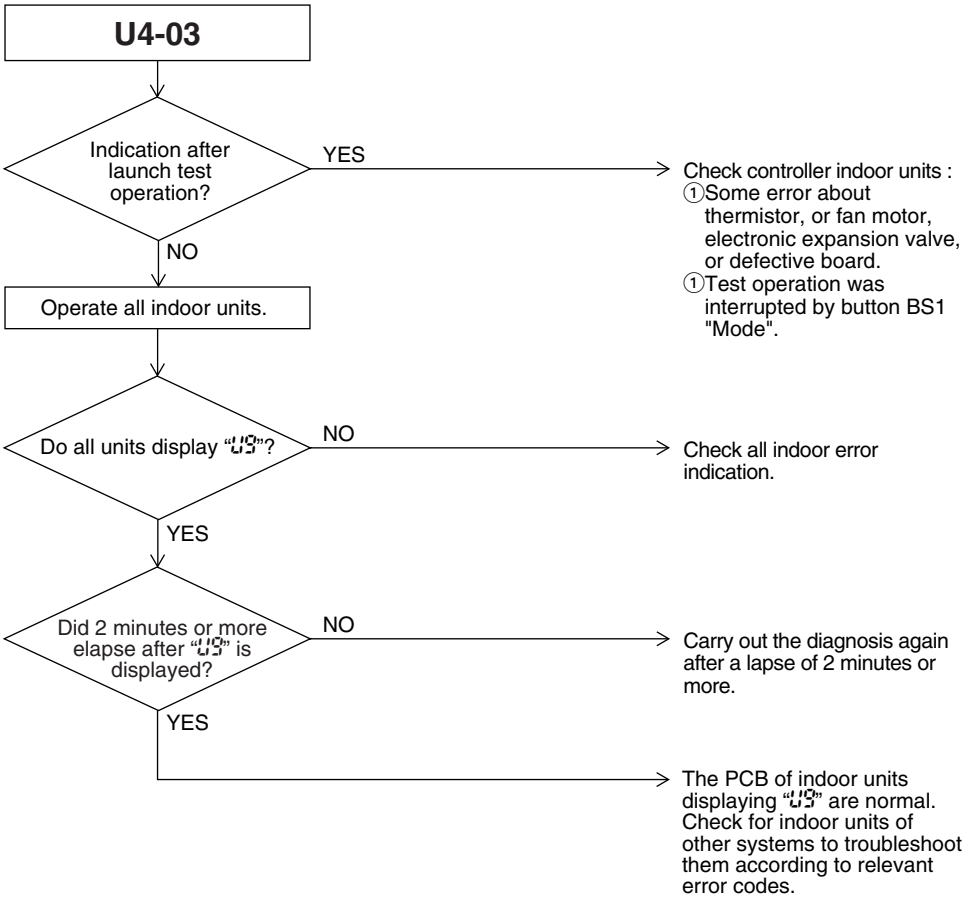
Error Code	U4
Applicable Models	All indoor models REYQ8-20TY1
Method of Error Detection	Micro-computer checks if transmission between indoor and outdoor units is normal.
Error Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ Indoor to outdoor, outdoor to outdoor transmission wiring F1, F2 disconnection, short circuit 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.



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



3.52 Transmission Error between Remote Controller and Indoor Unit

Error Code U5

Applicable Models All indoor models

Method of Error Detection In case of controlling with 2-remote controller, check the system using micro-computer is signal transmission between indoor unit and remote controller (main and sub) is normal.

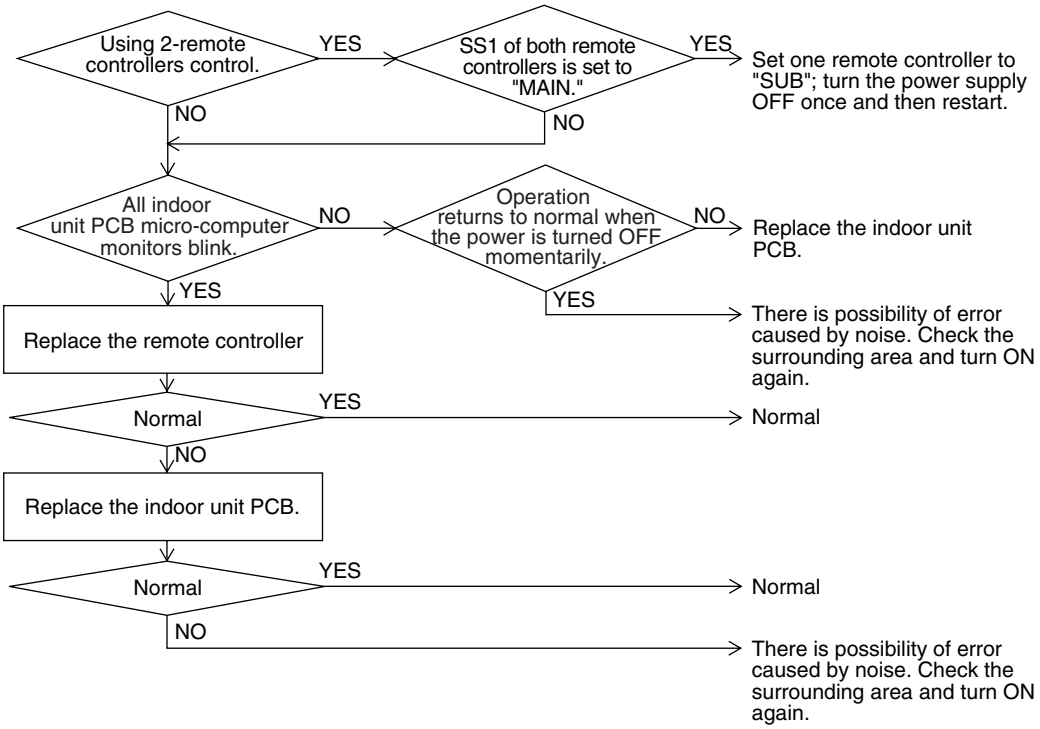
Error Decision Conditions Normal transmission does not continue for specified period.

Supposed Causes

- Defective indoor unit and remote controller transmission
- Connection of two main remote controllers (when using 2 remote controllers)
- Defective indoor unit PCB
- Defective remote controller PCB
- Defective transmission caused by noise

Troubleshooting

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

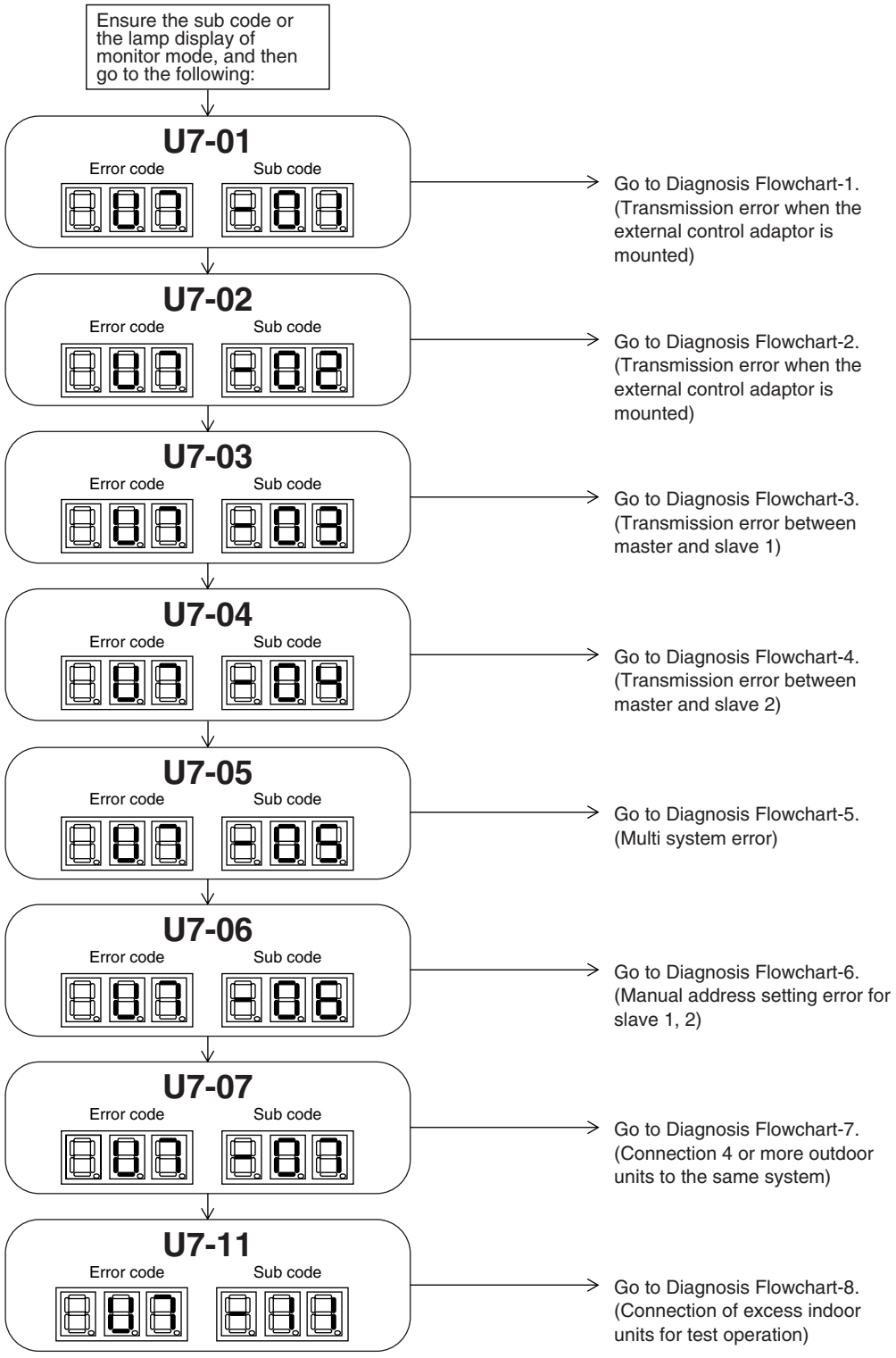


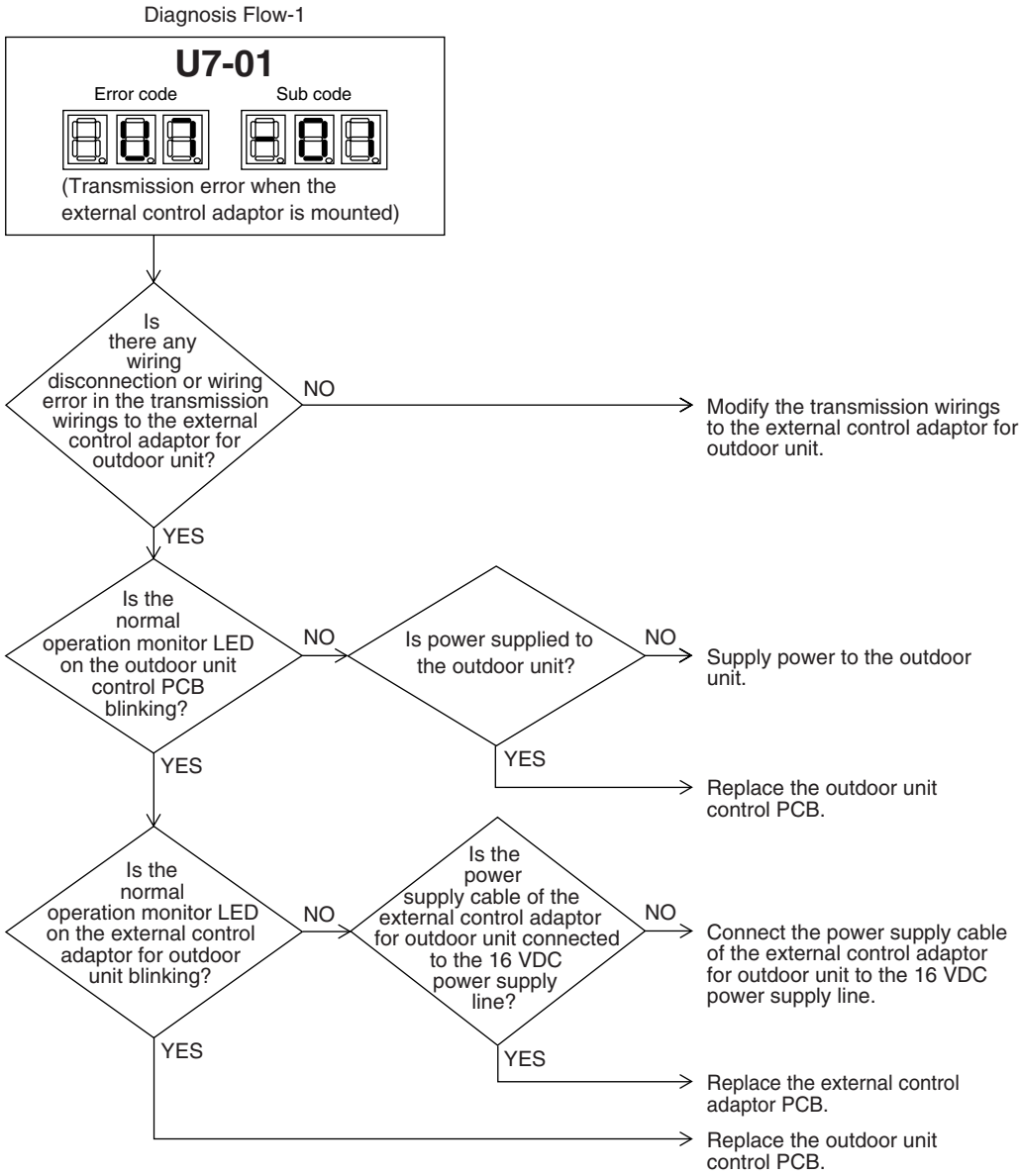
3.53 Transmission Error (Across Outdoor Units)

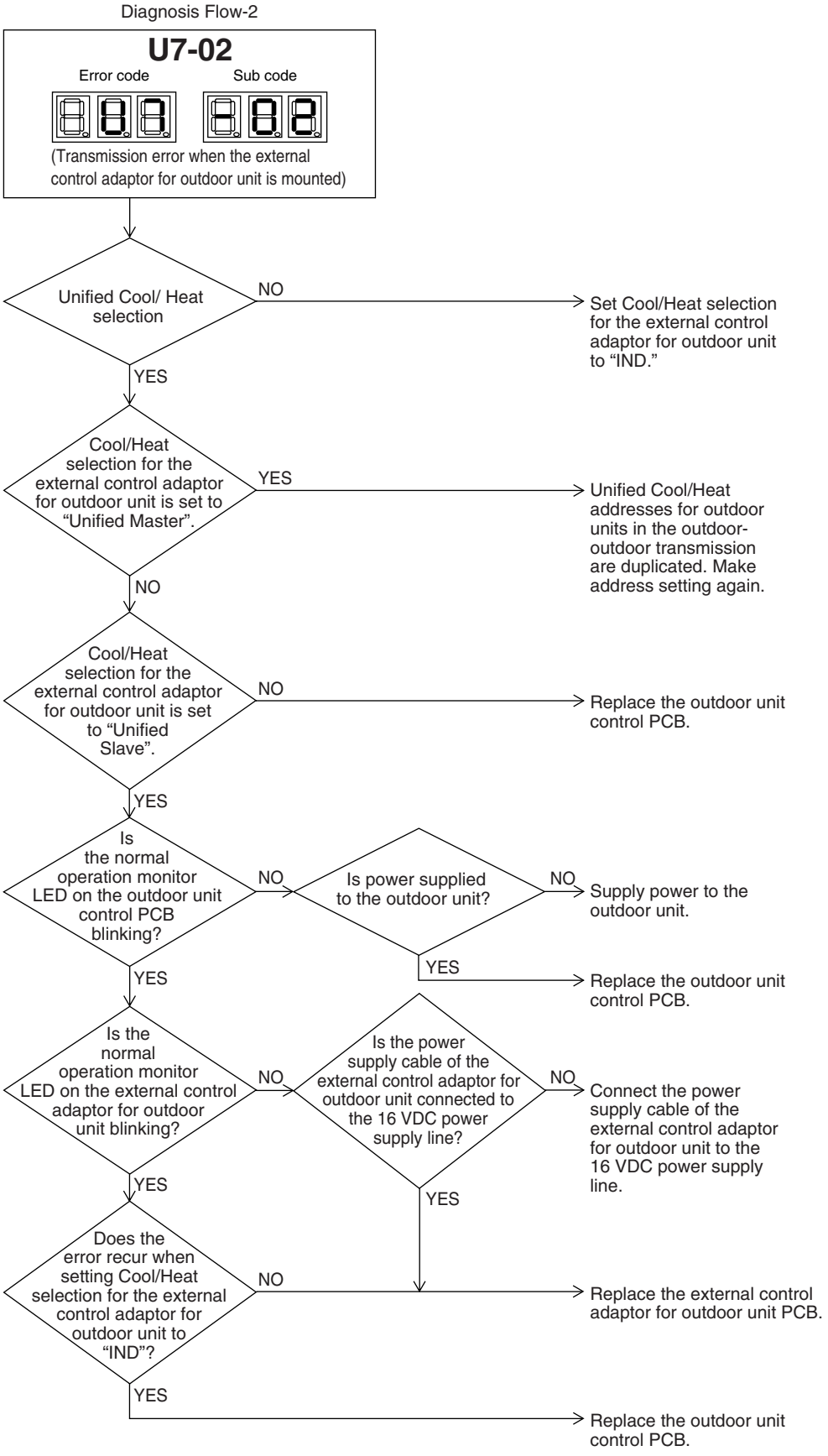
Error Code	U7
Applicable Models	REYQ8-20TY1
Method of Error Detection	Micro-computer checks if transmission between outdoor units is normal.
Error Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ Improper connection of transmission wiring between outdoor unit and external control adaptor for outdoor unit ■ Improper connection of transmission wiring between outdoor units ■ Improper cool/heat selection ■ Improper cool/heat unified address (function unit, external control adaptor for outdoor unit) ■ Defective outdoor unit PCB ■ Defective external control adaptor for outdoor unit ■ Defective fuse of outdoor unit compressor

Troubleshooting

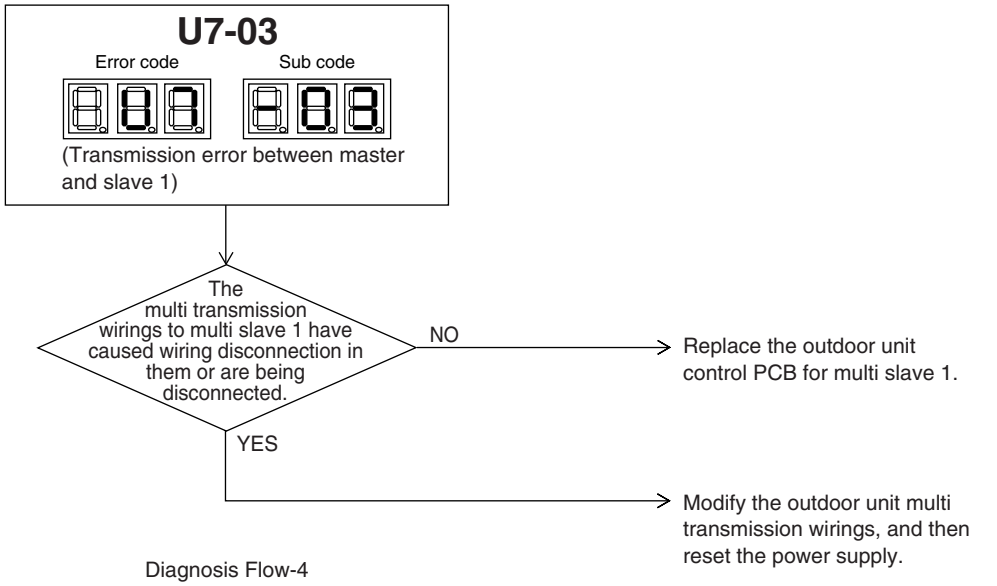
Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.



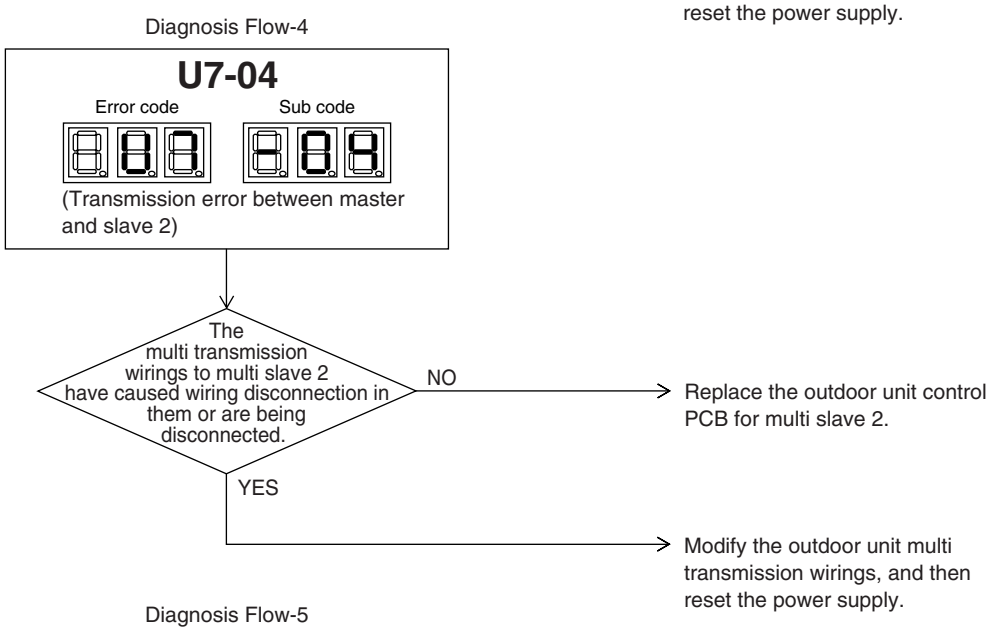

Diagnosis Flow-1
U7-01
Error code
Sub code
(Transmission error when the external control adaptor is mounted)
Is there any wiring disconnection or wiring error in the transmission wirings to the external control adaptor for outdoor unit?
NO
Modify the transmission wirings to the external control adaptor for outdoor unit.
YES
Is the normal operation monitor LED on the outdoor unit control PCB blinking?
NO
Is power supplied to the outdoor unit?
NO
Supply power to the outdoor unit.
YES
Replace the outdoor unit control PCB.
YES
Is the normal operation monitor LED on the external control adaptor for outdoor unit blinking?
NO
Is the power supply cable of the external control adaptor for outdoor unit connected to the 16 VDC power supply line?
NO
Connect the power supply cable of the external control adaptor for outdoor unit to the 16 VDC power supply line.
YES
Replace the external control adaptor PCB.
YES
Replace the outdoor unit control PCB.


Diagnosis Flow-2
U7-02
Error code
Sub code
(Transmission error when the external control adaptor for outdoor unit is mounted)
Unified Cool/ Heat selection
NO
Set Cool/Heat selection for the external control adaptor for outdoor unit to “IND.”
YES
Cool/Heat selection for the external control adaptor for outdoor unit is set to “Unified Master”.
YES
Unified Cool/Heat addresses for outdoor units in the outdoor-outdoor transmission are duplicated. Make address setting again.
NO
Cool/Heat selection for the external control adaptor for outdoor unit is set to “Unified Slave”.
NO
Replace the outdoor unit control PCB.
YES
Is the normal operation monitor LED on the outdoor unit control PCB blinking?
NO
Is power supplied to the outdoor unit?
NO
Supply power to the outdoor unit.
YES
Replace the outdoor unit control PCB.
YES
Is the normal operation monitor LED on the external control adaptor for outdoor unit blinking?
NO
Is the power supply cable of the external control adaptor for outdoor unit connected to the 16 VDC power supply line?
NO
Connect the power supply cable of the external control adaptor for outdoor unit to the 16 VDC power supply line.
YES
YES
Does the error recur when setting Cool/Heat selection for the external control adaptor for outdoor unit to “IND”?
NO
Replace the external control adaptor for outdoor unit PCB.
YES
Replace the outdoor unit control PCB.

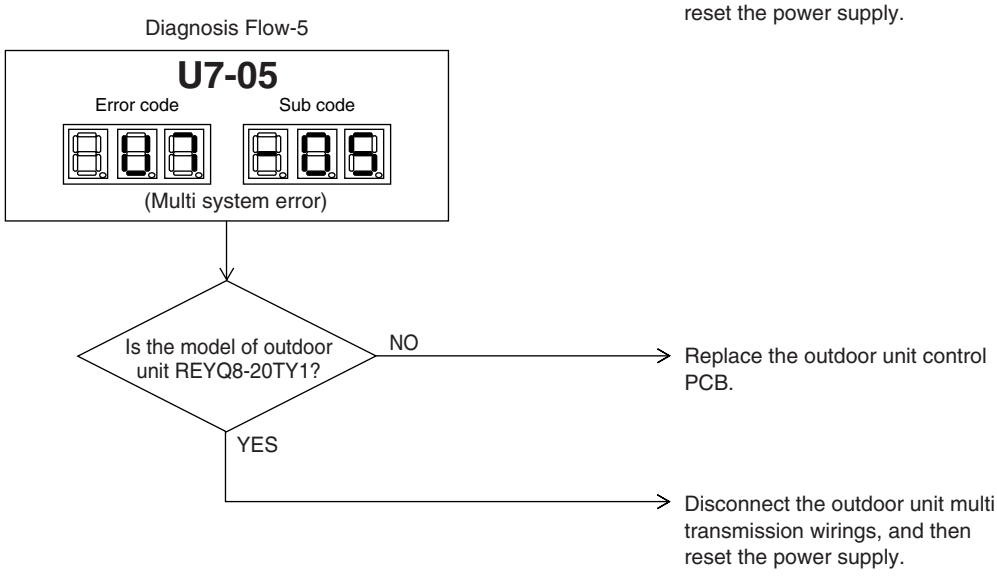
Diagnosis Flow-3



Diagnosis Flow-4



Diagnosis Flow-5



Diagnosis Flow-6

U7-06

Error code: 0 0

Sub code: 0 6

(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 control PCB.

YES → Modify the outdoor unit multi transmission wirings, and then reset the power supply.

Diagnosis Flow-7

U7-07

Error code: 0 0

Sub code: 0 0

(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 control PCB.

YES → Modify the outdoor unit multi transmission wirings, and then reset the power supply.

Diagnosis Flow-8

U7-11

Error code: 0 0

Sub code: 0 0

(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 PCB (A1P).

3.54 Transmission Error between Main and Sub Remote Controllers

Error Code U8

Applicable Models All indoor models

Method of Error Detection In case of controlling with 2-remote controller, check the system using micro-computer if signal transmission between indoor unit and remote controller (main and sub) is normal.

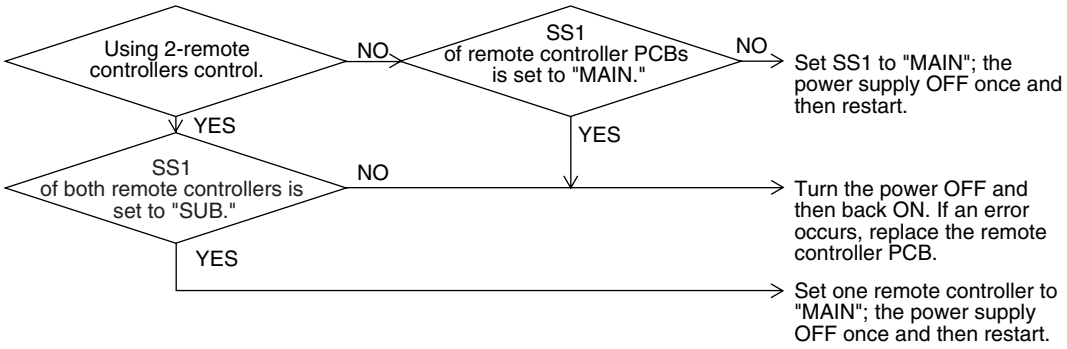
Error Decision Conditions Normal transmission does not continue for specified period.

Supposed Causes

- Defective transmission 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.



3.55 Transmission Error between Indoor and Outdoor Units in the Same System

Error Code U9

Applicable Models All indoor models
REYQ8-20TY1

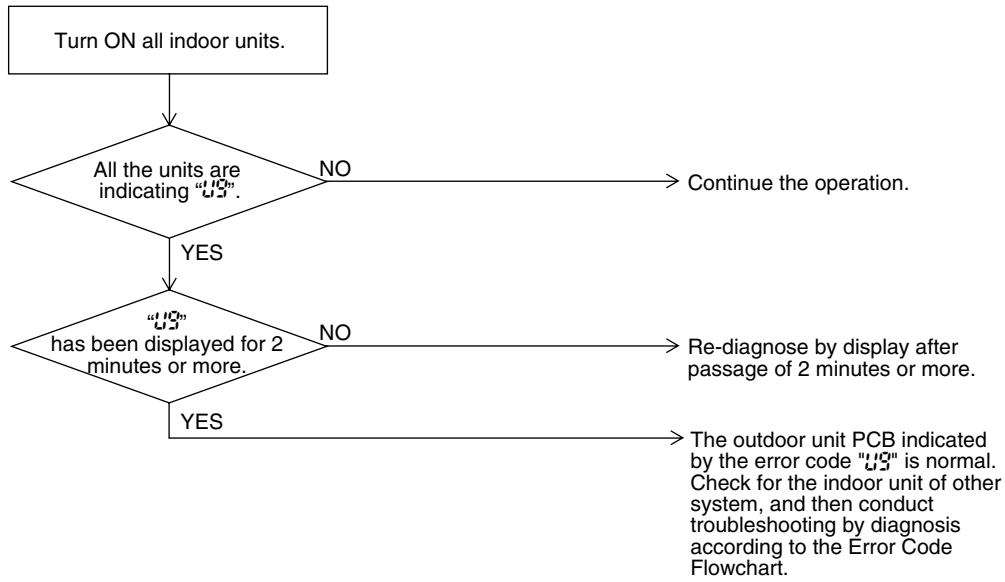
Method of Error Detection Detect the abnormal signal for the other indoor units within the circuit by outdoor unit PCB

Error Decision Conditions When the error decision is made on any other indoor unit within the system concerned

Supposed Causes
- Defective transmission within or outside of other system
- Defective electronic expansion valve in indoor unit of other system
- Defective PCB of indoor unit in other system
- Improper connection of transmission wiring between indoor and outdoor unit

Troubleshooting

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

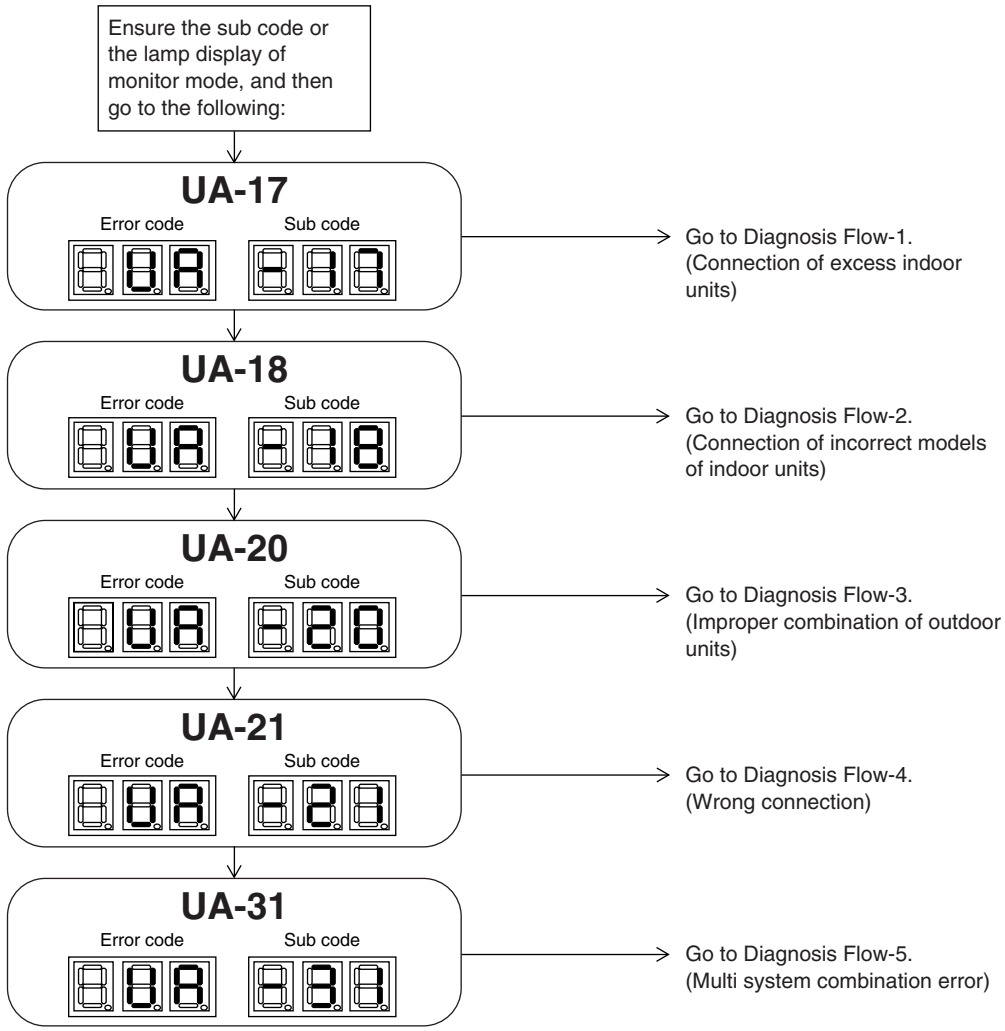


3.56 Improper Combination of Indoor and Outdoor Units, Indoor Units and Remote Controller

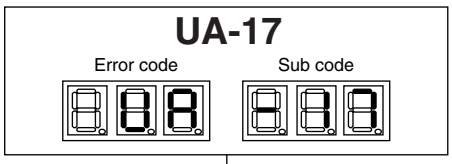
Error Code	U9
Applicable Models	All indoor models REYQ8-20TY1
Method of Error Detection	A difference occurs in data by the type of refrigerant between indoor and outdoor units. The number of indoor units is out of the allowable range. Incorrect signals are transmitted among the indoor unit, BS unit and outdoor unit.
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 (A1P) ■ Mismatching of the refrigerant type of indoor and outdoor unit. ■ Setting of outdoor unit PCB was not conducted 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 Flow-1

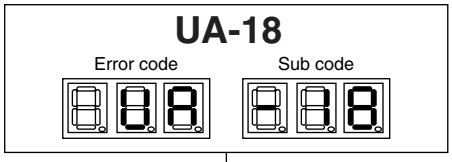


The number of indoor units connected to the same system is not more than 64.

YES → Replace the outdoor unit control PCB.

NO → Excess indoor units are connected.
Check for the connection to connect the proper number of indoor units.

Diagnosis Flow-2

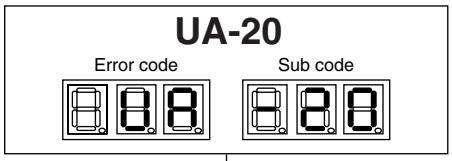


Check if the refrigerant type of the outdoor unit corresponds to that of the indoor unit.

YES → Replace the outdoor unit PCB (A1P).

NO → Match the refrigerant types of the outdoor unit and the indoor unit.

Diagnosis Flow-3



Multi connection?

NO → Replace the outdoor unit control PCB.

YES

Was the outdoor unit PCB replaced with a spare PCB?

NO → A different model of outdoor unit is connected.

NO → Replace the outdoor unit control PCB.

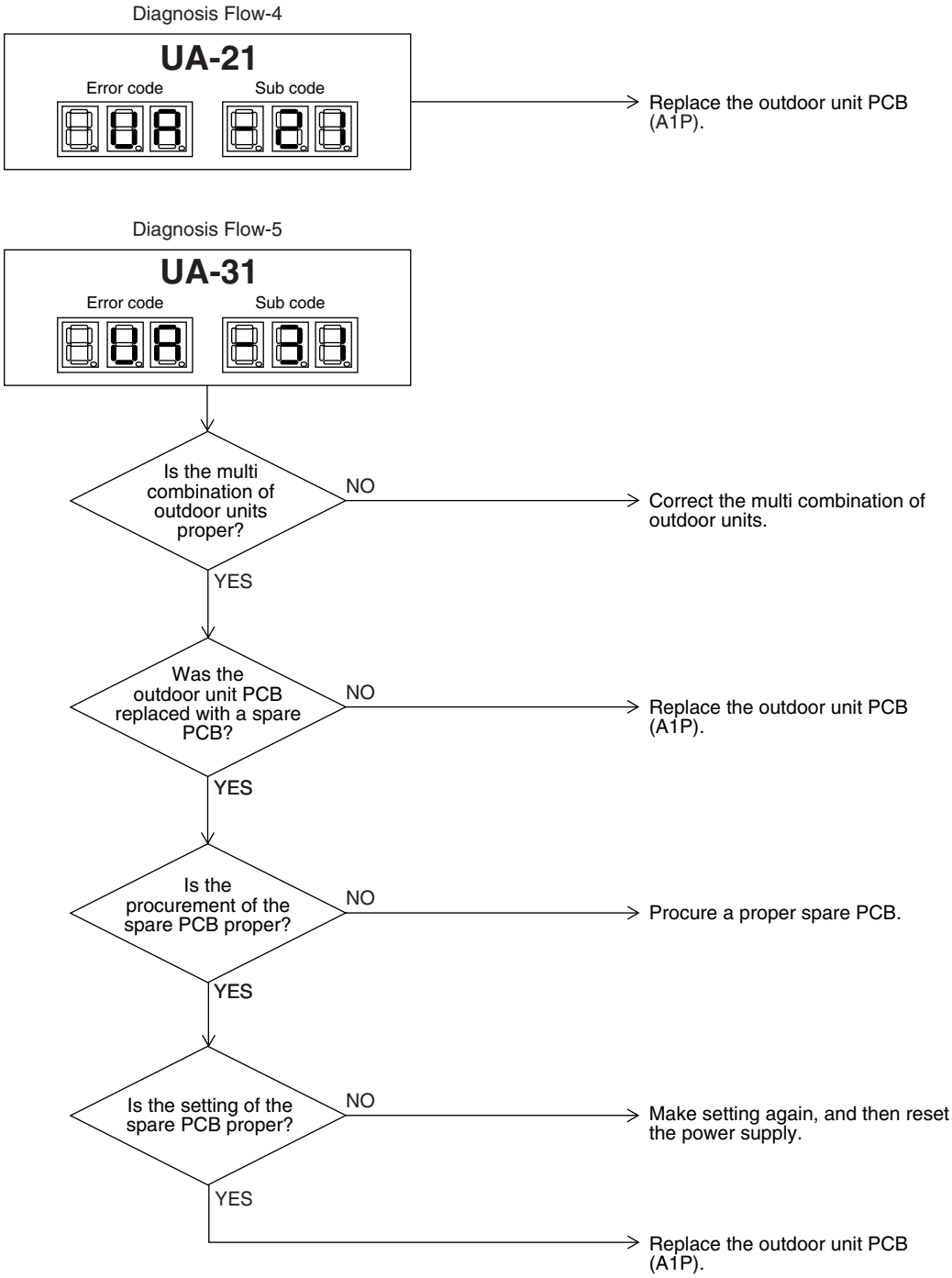
YES → Check for the model of outdoor unit.

YES

Was proper setting of spare PCB made?

NO → Make setting again, and then reset the power supply.

YES → Replace the spare PCB.


Diagnosis Flow-4
UA-21
Error code
Sub code
Replace the outdoor unit PCB (A1P).
Diagnosis Flow-5
UA-31
Error code
Sub code
Is the multi combination of outdoor units proper?
NO
Correct the multi combination of outdoor units.
YES
Was the outdoor unit PCB replaced with a spare PCB?
NO
Replace the outdoor unit PCB (A1P).
YES
Is the procurement of the spare PCB proper?
NO
Procure a proper spare PCB.
YES
Is the setting of the spare PCB proper?
NO
Make setting again, and then reset the power supply.
YES
Replace the outdoor unit PCB (A1P).

3.57 Address Duplication of Centralized Control

Error Code

UC

Applicable Models

All indoor models
Centralized controller

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

Troubleshooting

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

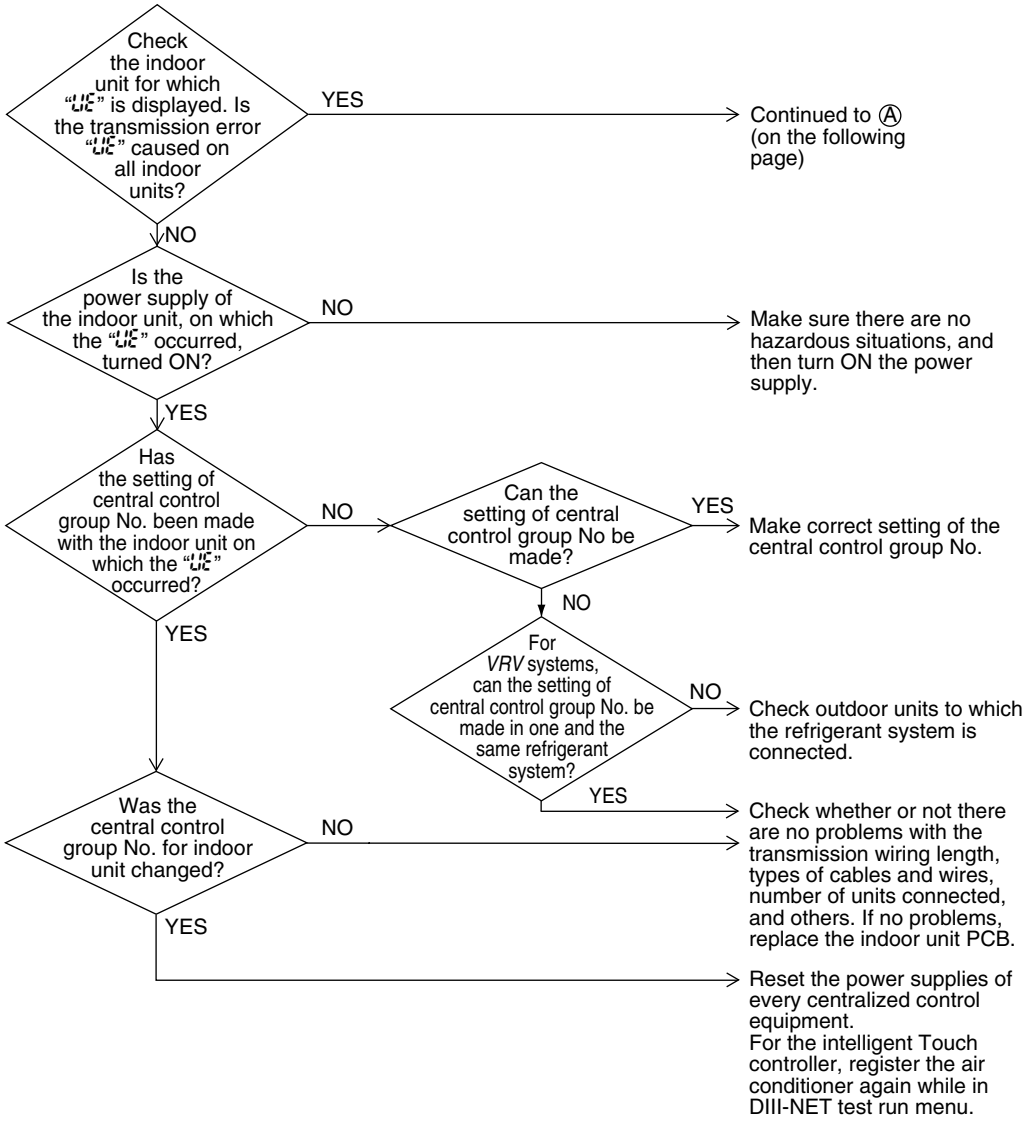
The centralized address is duplicated. → Make setting change so that the centralized address will not be duplicated.

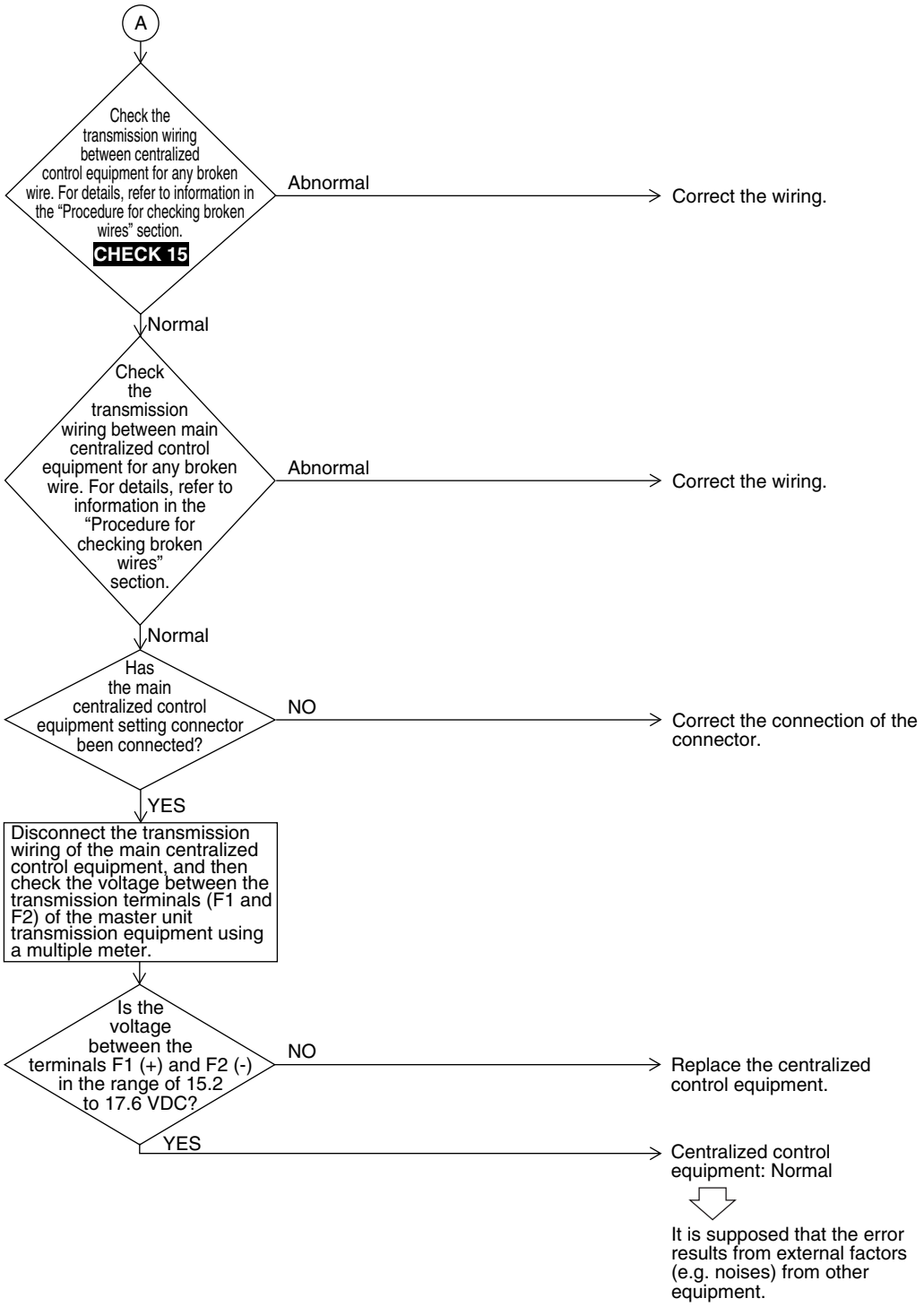
3.58 Transmission Error between Centralized Control Equipment and Indoor Unit

Error Code	LIE
Applicable Models	All indoor models Central remote controller Schedule timer
Method of Error Detection	Micro-computer 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 and indoor unit ■ Connector for setting main controller is disconnected. (or disconnection of connector for independent / combined use changeover switch.) ■ Defective PCB for 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.





CHECK 15 Refer to P.245.

3.59 System is not Set yet

Error Code UF

Applicable Models All indoor models
REYQ8-20TY1

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.

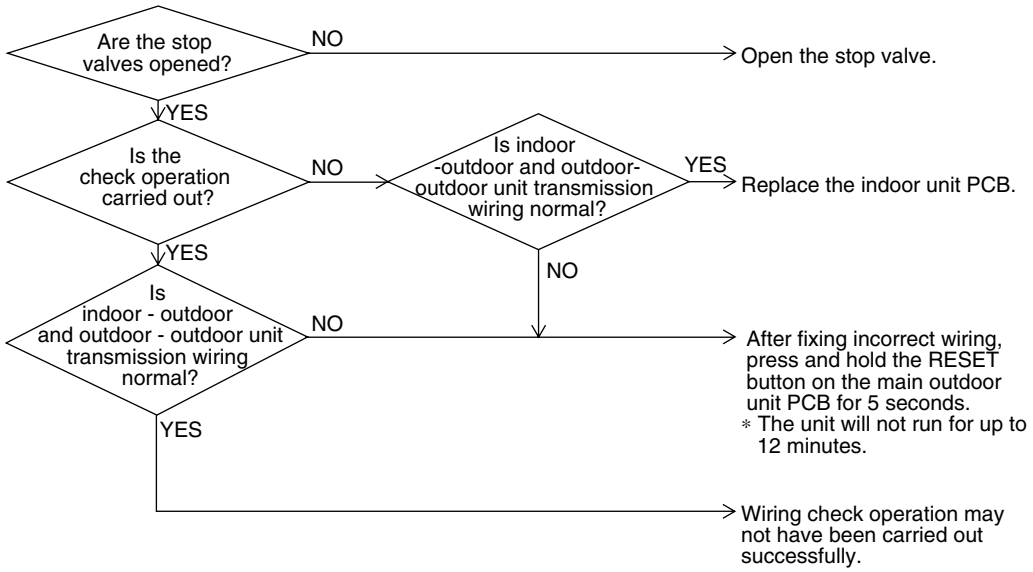
Error Decision Conditions The error is determined as soon as the abnormality aforementioned is detected through checking the system for any erroneous connection of units on the check operation.

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.



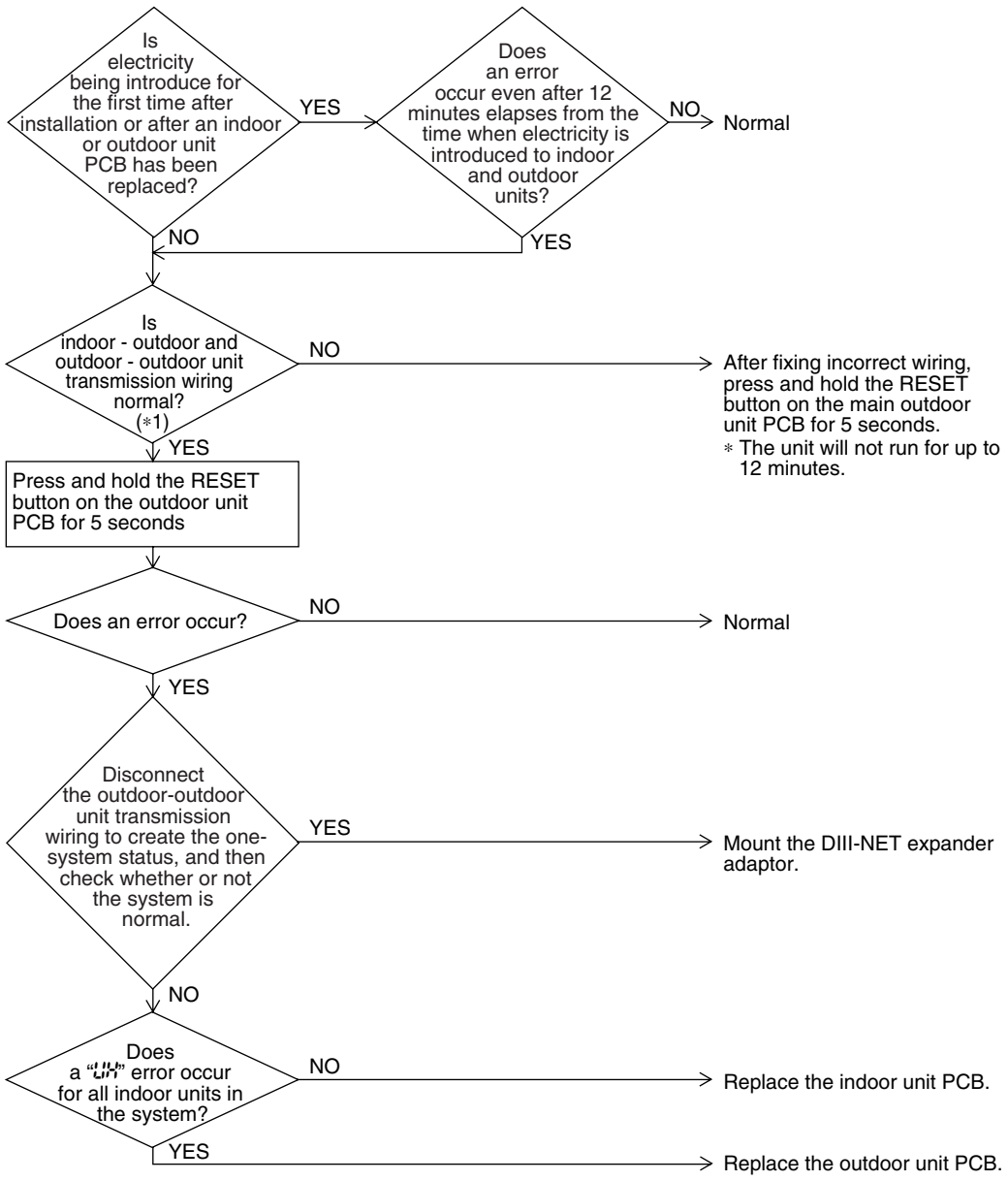
Note: Wiring check operation may not be successful if carried out after the outdoor unit has been off for more than 12 hours, or if it is not carried out after running all connected indoor units in the fan mode for at least an hour.

3.60 System Abnormality, Refrigerant System Address Undefined

Error Code	LH
Applicable Models	All indoor models REYQ8-20TY1
Method of Error Detection	Detect an indoor unit with no 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

Troubleshooting

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



Note: ∗1. Check the correct wiring "indoor-outdoor" and "outdoor-outdoor" by Installation manual.

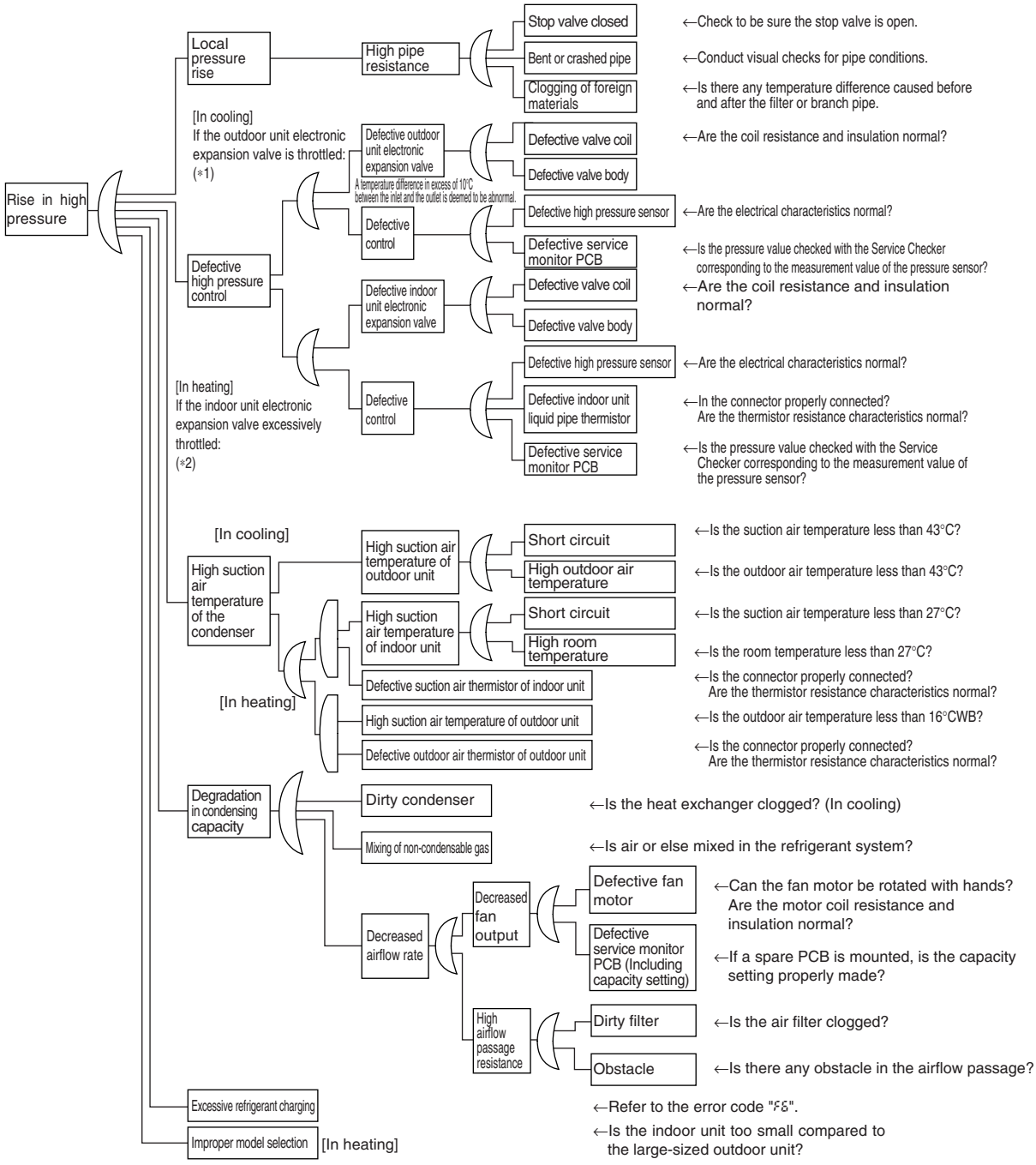
∗2. What is Auto Address?

This is the address automatically assigned to indoor units and outdoor units after initial power supply upon installation, or after executing rewiring (Keep pressing the RESET button for more than 4 seconds).

3.61 Checks

CHECK 1 **Check for Causes of Rise in High Pressure**

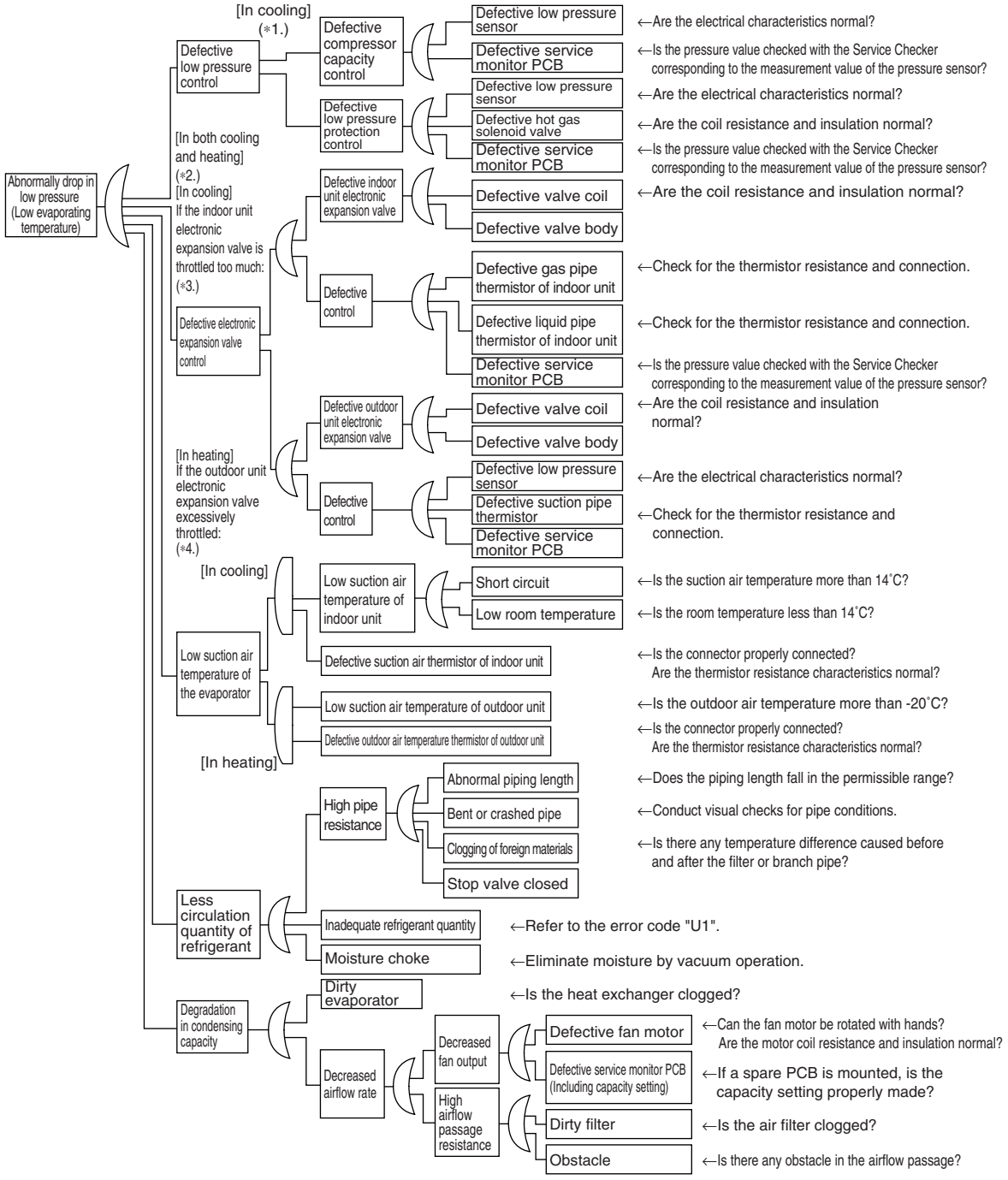
Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points.



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”.

CHECK 2 Check for Causes of Drop in Low Pressure

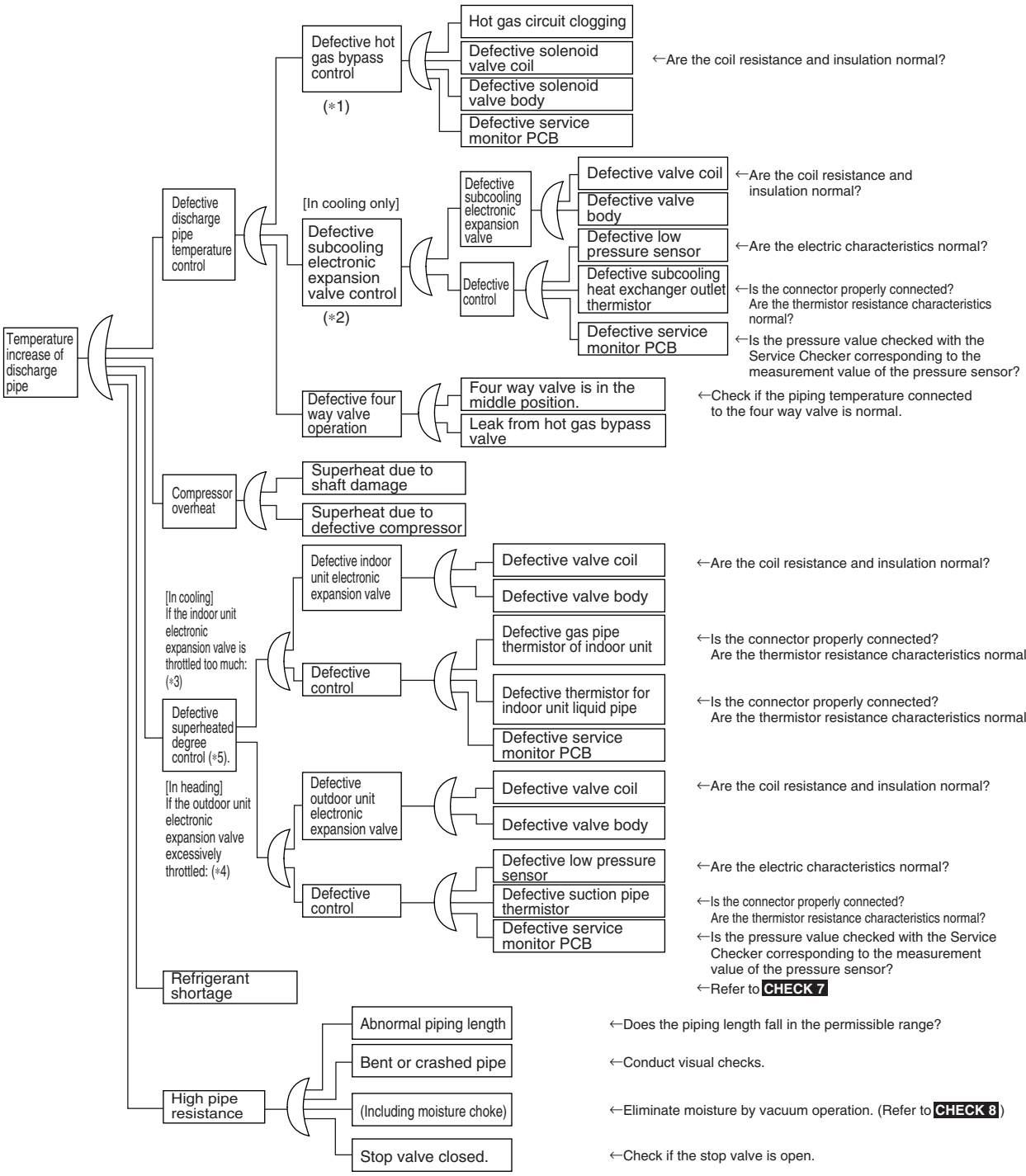
Referring to the Fault Tree Analysis (FTA) shown below, probe the defective points.



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 (EVM) is used for “superheated degree control of outdoor unit heat exchanger”.

CHECK 3 Check the Factors of Overheat Operation

Identify the defective points referring to the failure factor analysis (FTA) as follows.

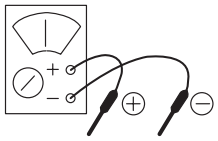


Note:
- ∗1. Refer to “Low pressure protection control” for hot gas bypass control.
- ∗2. Refer to “Subcooling electronic expansion valve control”.
- ∗3. “Superheating temperature control” in cooling is conducted by indoor unit electronic expansion valve.
- ∗4. Superheating temperature control in heating is conducted by outdoor unit electronic expansion valve (main).
- ∗5. Judgement criteria of superheat operation:
  (1) Suction gas superheated degree: 10°C and over. (2) Discharge gas superheated degree: 45°C 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.)

CHECK 4 Power Transistor Check

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]
- Multiple tester



* Prepare the analog type of multiple tester. For the digital type of multiple tester, those with diode check function are available for the checking.

[Point of Measurement and Judgement Criteria]
- Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.

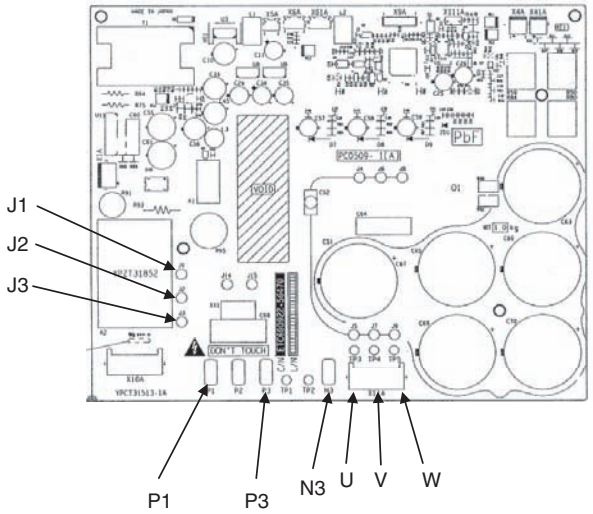
When using the analog type of multiple tester, make measurement in resistance measurement mode in the x1kΩ range.

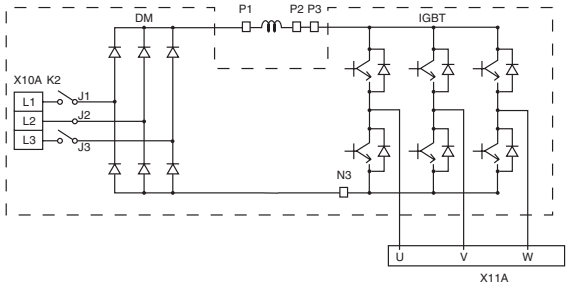
No.	Measuring point		Judgement Criteria	Remarks
	+	−		
1	P2	U	2 ~ 15kΩ	
2	P2	V		
3	P2	W		
4	U	P2	15kΩ and more (including ∞)	Due to condenser charge and so on, resistance measurement may require some time.
5	V	P2		
6	W	P2		
7	N3	U		
8	N3	V		
9	N3	W		
10	U	N3	2 ~ 15kΩ	
11	V	N3		
12	W	N3		

When using the digital type of multiple tester, make measurement in diode check mode (→|—)

No.	Measuring point		Judgement Criteria	Remarks
	+	−		
1	P2	U	1.2V and more	Due to condenser charge and so on, resistance measurement may require some time.
2	P2	V		
3	P2	W		
4	U	P2	0.3 ~ 0.7V	
5	V	P2		
6	W	P2		
7	N3	U		
8	N3	V		
9	N3	W		
10	U	N3	1.2V and more	Due to condenser charge and so on, resistance measurement may require some time.
11	V	N3		
12	W	N3		

[PCB and Circuit Diagram]



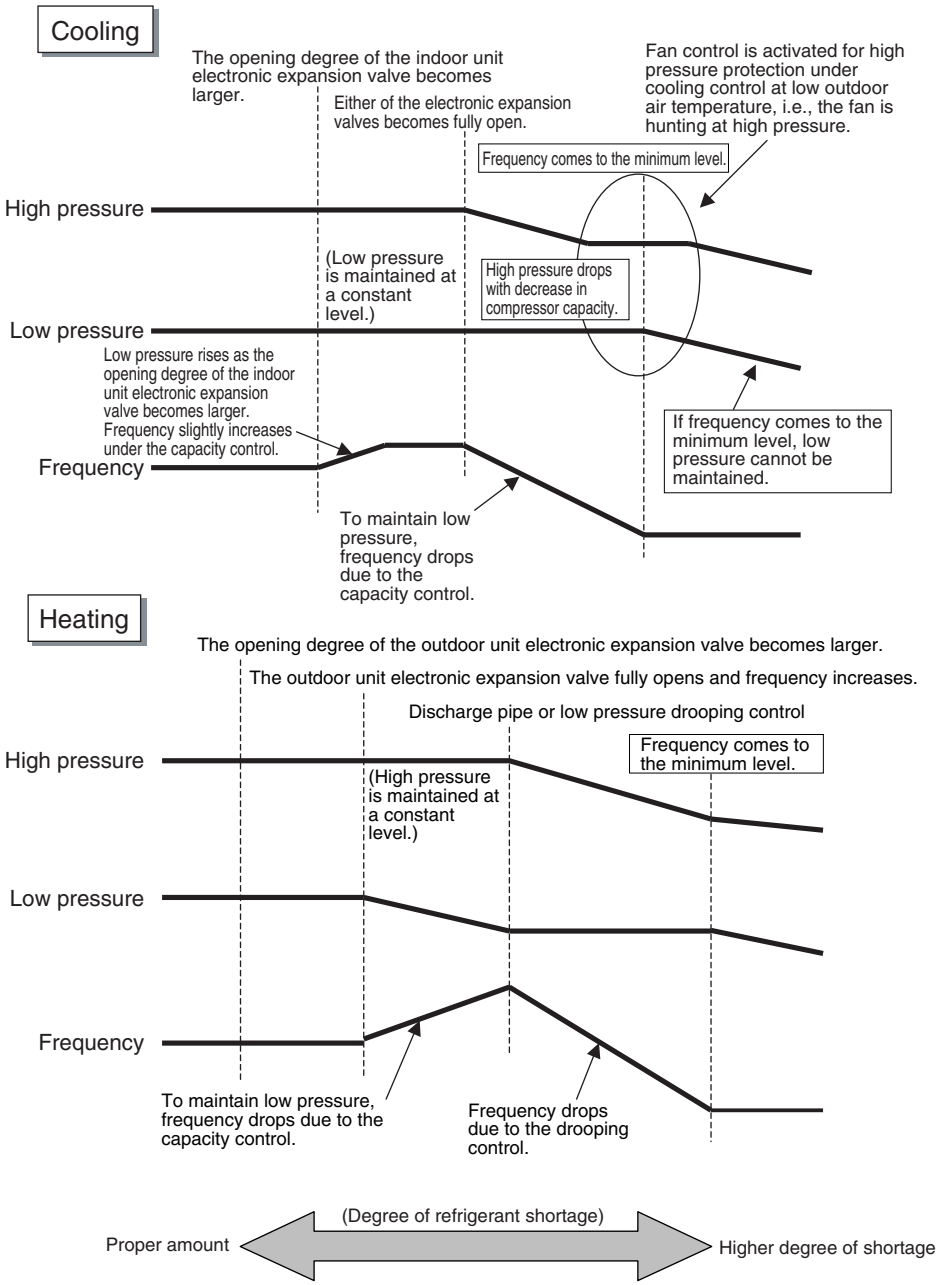


CHECK 7 **Check for Shortage of Refrigerant.**

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).



CHECK 8 Vacuuming and Dehydration Procedure

Conduct vacuuming and dehydration in the piping system following the procedure for <Normal vacuuming and dehydration> described below.
Furthermore, if moisture may get mixed in the piping system, follow the procedure for <Special vacuuming and dehydration> described below.

<Normal vacuuming and dehydration>

① Vacuuming and dehydration
- Use a vacuum pump that enables vacuuming up to -100.7 kPa (5 torr, -755 mmHg).
- Connect manifold gauges to the service ports of liquid pipe and gas pipe and run the vacuum pump for a period of two or more hours to conduct evacuation to -100.7 kPa or less.
- If the degree of vacuum does not reach -100.7 kPa or less even though evacuation is conducted for a period of two hours, moisture will have entered the system or refrigerant leakage will have been caused. In this case, conduct evacuation for a period of another one hour.
- If the degree of vacuum does not reach -100.7 kPa or less even though evacuation is conducted for a period of three hours, conduct the leak tests.

② Leaving in vacuum state
- Leave the compressor at the degree of vacuum of -100.7 kPa or less for a period of one hour or more, and then check to be sure that the vacuum gauge reading does not rise. (If the reading rises, moisture may have remained in the system or refrigerant leakage may have been caused.)

③ Additional refrigerant charge
- Purge air from the manifold gauge connection hoses, and then charge a necessary amount of refrigerant.

<Special vacuuming and dehydration> - 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.

③ Vacuuming and dehydration
- Conduct vacuuming and dehydration for a period of one hour or more. If the degree of vacuum does not reach -100.7 kPa or less even though evacuation is conducted for a period of two hours or more, repeat vacuum break - vacuuming and dehydration.

④ Leaving in vacuum state
- Leave the compressor at the degree of vacuum of -100.7 kPa or less for a period of one hour or more, and then check to be sure that the vacuum gauge reading does not rise.

⑤ Additional refrigerant charge
- Purge air from the manifold gauge connection hoses, and then charge a necessary amount of refrigerant.

* 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:

CHECK 11 Thermistor Resistance / Temperature Characteristics

Indoor unit
- For suction air R1T
- For liquid pipe R2T
- For gas pipe R3T
- For PTC (only FXFQ-P) R4T

Outdoor unit
- Refer to the table A below.

Indoor unit
- For discharge air (only FXMQ-P) R4T

Outdoor unit
- For discharge pipe R21T R22T

T°C	kΩ
-30	354.1
-25	259.7
-20	192.6
-15	144.2
-10	109.1
-5	83.25
0	64.10
5	49.70
10	38.85
15	30.61
20	24.29
25	19.41
30	15.61
35	12.64
40	10.30
45	8.439
50	6.954
55	5.761
60	4.797
65	4.014
70	3.375
75	2.851
80	2.418
85	2.060
90	1.762
95	1.513
100	1.304
105	1.128
110	0.9790
115	0.8527
120	0.7450
125	0.6530
130	0.5741

3PA61998L (AD92A057)

T°C	kΩ
-30	361.7719
-25	265.4704
-20	196.9198
-15	147.5687
-10	111.6578
-5	85.2610
0	65.6705
5	50.9947
10	39.9149
15	31.4796
20	25.0060
25	20.0000
30	16.1008
35	13.0426
40	10.6281
45	8.7097
50	7.1764
55	5.9407
60	4.9439
65	4.1352
70	3.4757
75	2.9349
80	2.4894
85	2.1205
90	1.8138
95	1.5575
100	1.3425
105	1.1614

3SA48001 (AD87A001J)

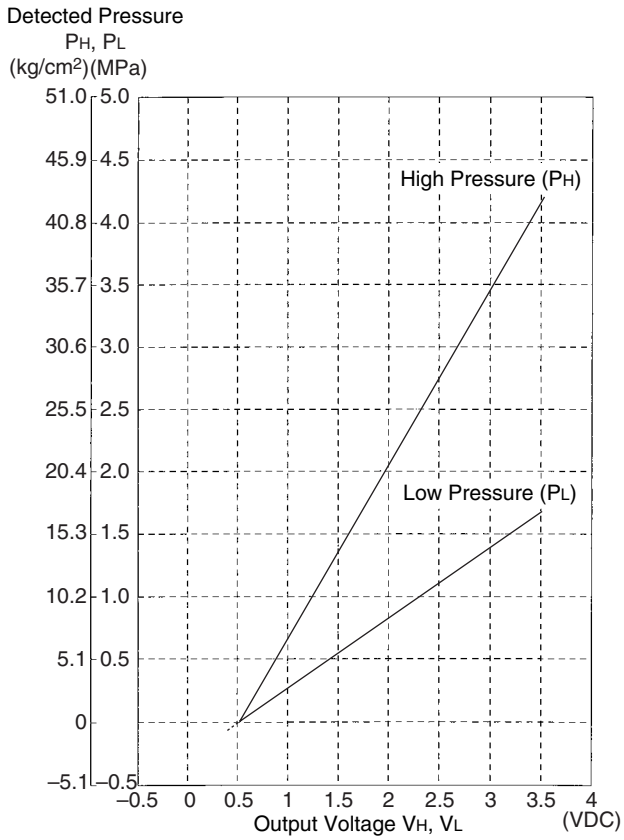
T°C	kΩ
-30	3257.371
-25	2429.222
-20	1827.883
-15	1387.099
-10	1061.098
-5	817.9329
0	635.0831
5	496.5712
10	391.0070
15	309.9511
20	247.2696
25	198.4674
30	160.2244
35	130.0697
40	106.1517
45	87.0725
50	71.7703
55	59.4735
60	49.5180
65	41.4168
70	34.7923
75	29.3499
80	24.8586
85	21.1360
90	18.0377
95	15.4487
100	13.2768
105	11.4395
110	9.8902
115	8.5788
120	7.4650
125	6.5156
130	5.7038
135	5.0073
140	4.4080
145	3.8907
150	3.4429

3SA48006 (AD87A001J)

Table A

Thermistor	REYQ8TY1	REYQ10/12TY1	REYQ14/16TY1	REYQ18/20TY1
For outdoor air	R1T	R1T	R1T	R1T
For liquid main	R3T	R3T	R3T	R3T
For heat exchanger upper	R4T	R4T	R4T	R4T
For heat exchanger lower	R5T	R5T	R5T	R5T
For subcooling heat exchanger gas	R6T	R6T	R6T	R6T
For subcooling heat exchanger liquid	R7T	R7T	R7T	R7T
For heat exchanger gas upper	R8T	R8T	R8T	R8T
For heat exchanger gas lower	R9T	R9T	R9T	R9T
For suction pipe	R10T	R10T	R10T	R10T
For heat exchanger deicer	R11T	R11T	R11T	R11T
Thermistor (Compressor suction pipe)	R12T	R12T	R12T	R12T
For receiver gas	R13T	R13T	R13T	R13T
For compressor body	—	R15T	—	R15T

CHECK 12 Pressure Sensor



$$P_H\ (MPa) = \frac{4.15}{3.0} \times V_H - \frac{4.15}{3.0} \times 0.5$$

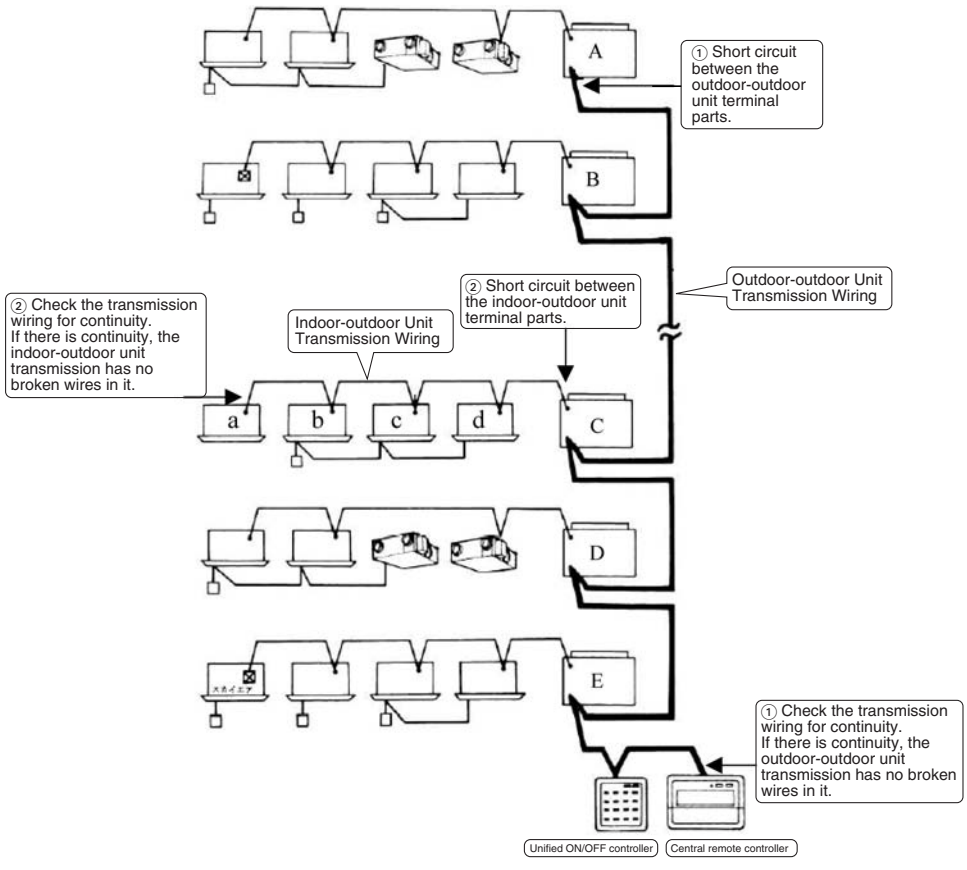
$$P_L\ (MPa) = \frac{1.7}{3.0} \times V_L - \frac{1.7}{3.0} \times 0.5$$

P_H : High pressure (MPa)
P_L : Low pressure (MPa)
V_H : Output Voltage (High Side) (VDC)
V_L : Output Voltage (Low Side) (VDC)

CHECK 15 Broken Wire Check of the Relay Wires

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 multiple meter. 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.

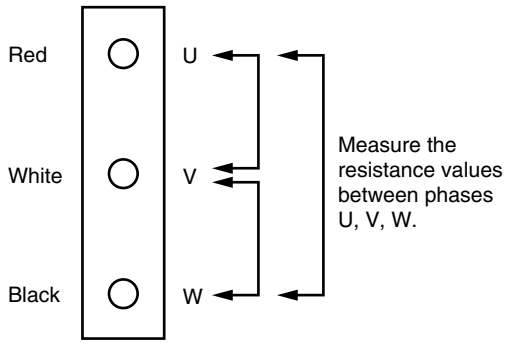
2. Procedure for checking indoor-outdoor unit transmission wiring for broken wires (for checking the indoor-outdoor unit transmission wiring of the "Outdoor Unit C" for broken wires)
   Turn OFF the power supply to all equipment, short circuit between the indoor-outdoor unit terminal F1 and F2 in the "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 multiple meter. 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.



CHECK 16

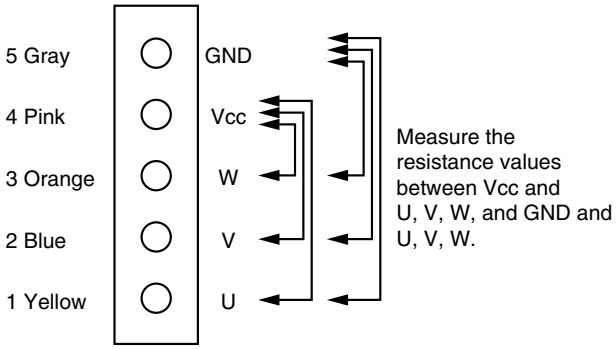
Check on Connector of Fan Motor (Power Supply Cable)

(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.



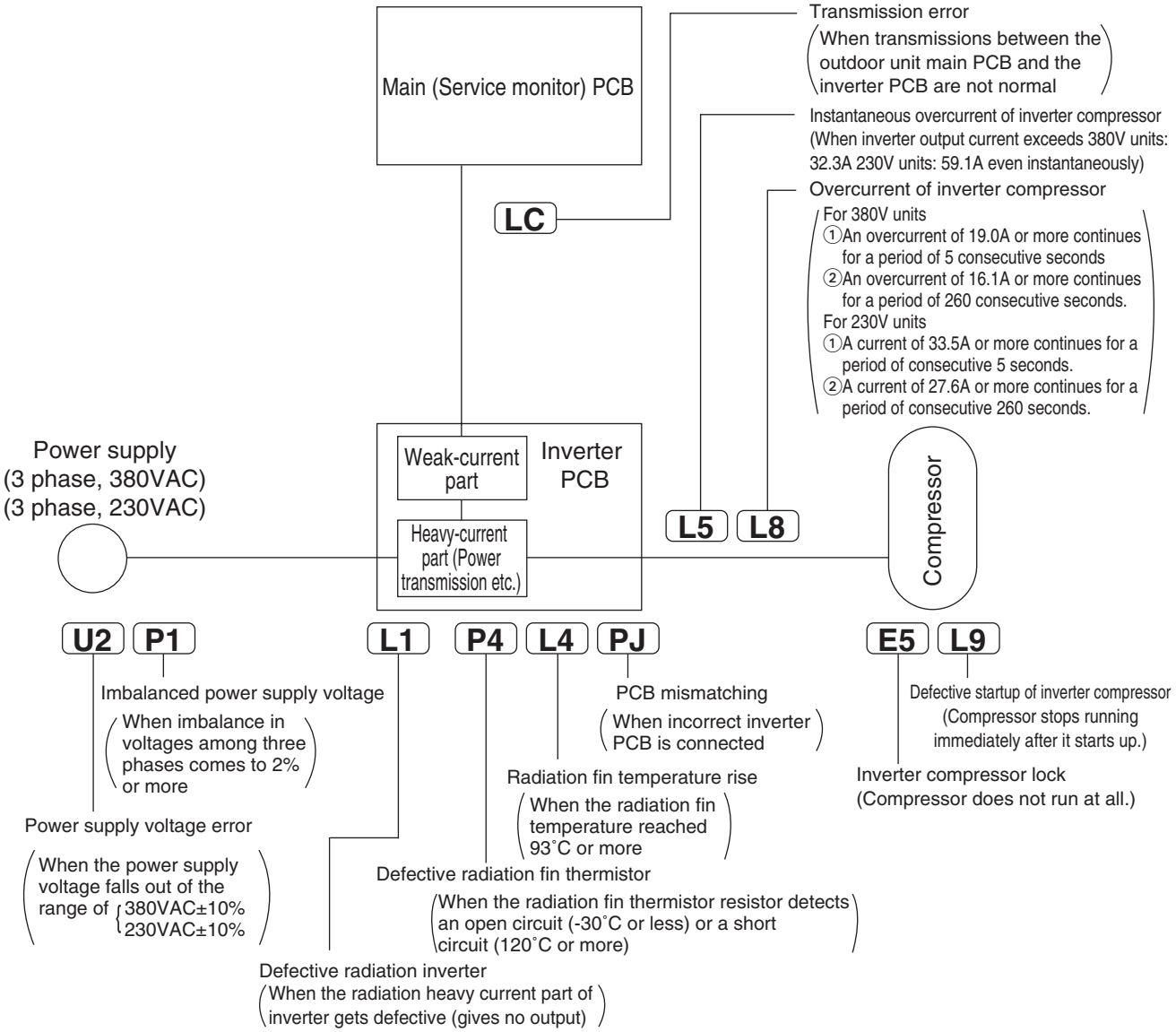
CHECK 17

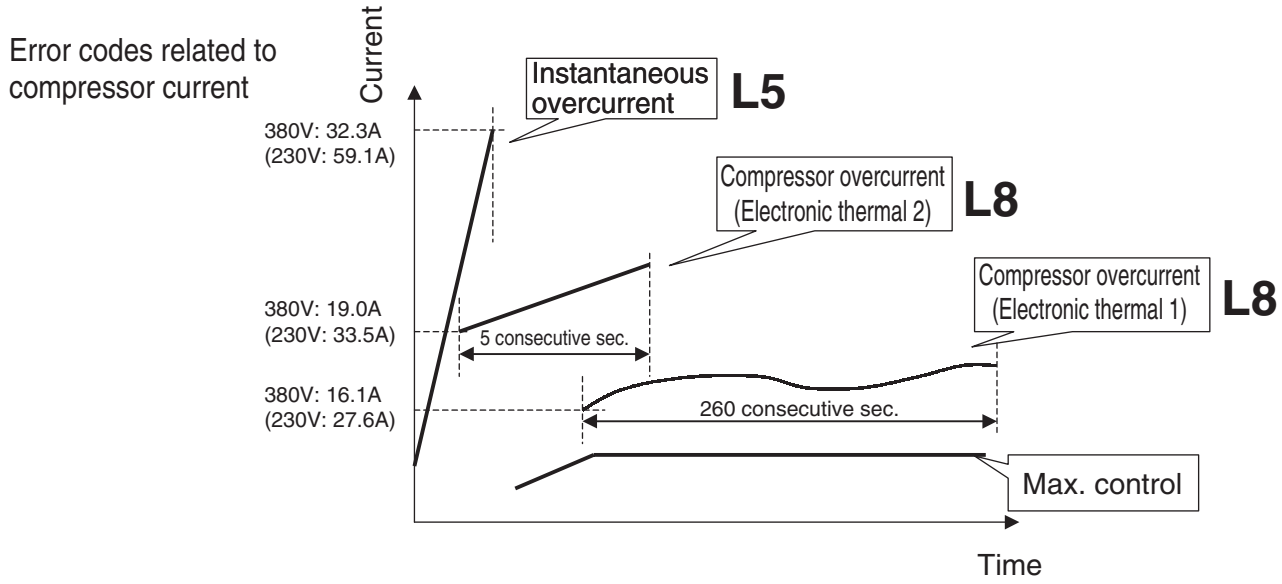
(1) Turn OFF the power supply.
(2) Measure the resistance between Vcc and each phase of U, V, W, and GND and each phase at the motor side connectors (5-core wire) to check that the values are balanced within the range of ± 20 %, while connector or relay connector is disconnected.
Furthermore, to use a multiple meter for measurement, connect the probe of negative pole to Vcc and that of positive pole to GND.



3.62 Inverter-related Error Codes

	Code	Name	Condition for determining error	Major cause
Compressor current	L5	Instantaneous overcurrent of inverter compressor	• Inverter output current exceeds 32.3A even instantaneously.	• Liquid sealing • Defective compressor • Defective inverter PCB
	L8	Overcurrent of inverter compressor (Electronic thermal)	• Compressor overload running An overcurrent of 19.0A or more continues for a period of 5 consecutive seconds or that of 16.1A or more continues for a period of 260 consecutive seconds. For 230V units: A current of 33.5A or more continues for a period of consecutive 5 seconds or that of 27.6A or more continues for a period of consecutive 260 seconds. • The inverter loses synchronization.	• Back-flow of compressor liquid • Sudden changes in loads • Disconnected compressor wiring • Defective inverter PCB
Protection device and others	L1	Defective inverter PCB	• No output is given.	• Defective heavy current part of compressor
	L9	Defective startup of inverter compressor	• The compressor motor fails to start up.	• Liquid sealing or defective compressor • Excessive oil or refrigerant • Defective inverter PCB
	E5	Inverter compressor lock	• The compressor is in the locked status (does not rotate).	• Defective compressor
	L4	Radiation fin temperature rise	• The radiation fin temperature reaches 87°C or more (while in operation).	• Defective fan • Running in overload for an extended period of time • Defective inverter PCB
	U2	Power supply voltage error	• The inverter power supply voltage is high or low.	• Power supply error • Defective inverter PCB
	P1	Imbalanced power supply	• Power supply voltages get significantly imbalanced among three phases.	• Power supply error (imbalanced voltages of 2% or more) • Defective inverter PCB • Dead inverter PCB
	LC	Transmission error (between inverter PCB and service monitor PCB)	• With the outdoor unit PCB, no communications are carried out across service monitor PCB - inverter PCB - fan PCB.	• Broken wire in communication line • Defective service monitor PCB • Defective inverter PCB • Defective fan PCB
	PJ	PCB mismatching	• Any PCB of specification different from that of the product is connected.	• PCB of different specification mounted
	P4	Defective radiation fin thermistor	• The radiation fin thermistor gets short circuited or open.	• Defective radiation fin thermistor


Main (Service monitor) PCB
Transmission error
(When transmissions between the outdoor unit main PCB and the inverter PCB are not normal
LC
Instantaneous overcurrent of inverter compressor
(When inverter output current exceeds 380V units: 32.3A 230V units: 59.1A even instantaneously)
Overcurrent of inverter compressor
For 380V units
①An overcurrent of 19.0A or more continues for a period of 5 consecutive seconds
②An overcurrent of 16.1A or more continues for a period of 260 consecutive seconds.
For 230V units
①A current of 33.5A or more continues for a period of consecutive 5 seconds.
②A current of 27.6A or more continues for a period of consecutive 260 seconds.
Power supply
(3 phase, 380VAC)
(3 phase, 230VAC)
Weak-current part
Inverter PCB
Heavy-current part (Power transmission etc.)
L5
L8
Compressor
U2
P1
L1
P4
L4
PJ
E5
L9
Imbalanced power supply voltage
(When imbalance in voltages among three phases comes to 2% or more
Power supply voltage error
(When the power supply voltage falls out of the range of 380VAC±10% 230VAC±10%
Defective radiation fin thermistor
(When the radiation fin thermistor resistor detects an open circuit (-30˚C or less) or a short circuit (120˚C or more)
Defective radiation inverter
(When the radiation heavy current part of inverter gets defective (gives no output)
PCB mismatching
(When incorrect inverter PCB is connected
Radiation fin temperature rise
(When the radiation fin temperature reached 93˚C or more
Defective startup of inverter compressor
(Compressor stops running immediately after it starts up.)
Inverter compressor lock
(Compressor does not run at all.)

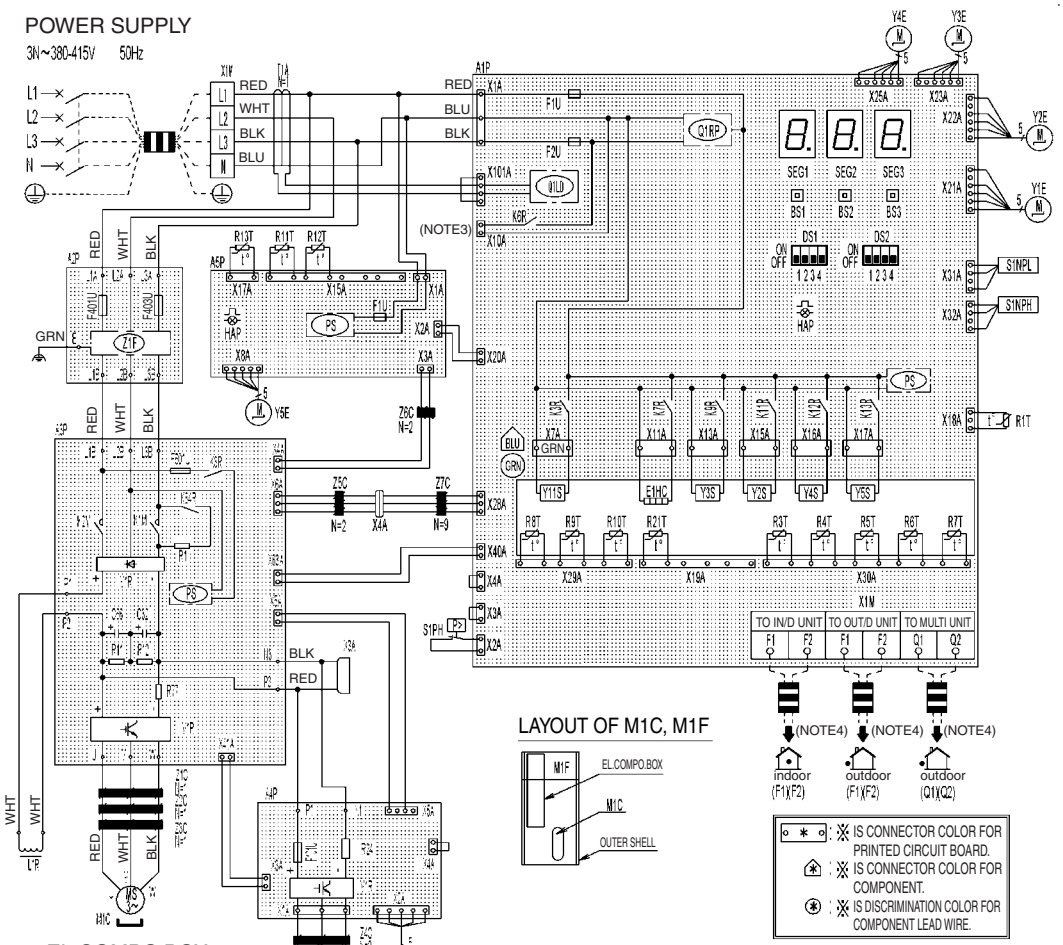

Error codes related to compressor current
Current
Instantaneous overcurrent
L5
380V: 32.3A
(230V: 59.1A)
Compressor overcurrent (Electronic thermal 2)
L8
Compressor overcurrent (Electronic thermal 1)
L8
380V: 19.0A
(230V: 33.5A)
5 consecutive sec.
380V: 16.1A
(230V: 27.6A)
260 consecutive sec.
Max. control
Time

Part 6
Appendix

1. Wiring Diagrams

1.1 Outdoor Unit

REYQ8TY1



NOTES) 1. THIS WIRING DIAGRAM APPLIES ONLY TO THE OUTDOOR UNIT.
2. : FIELD WIRING, : TERMINAL BLOCK, : CONNECTOR, : TERMINAL, : PROTECTIVE EARTH (SCREW)
3. WHEN USING THE OPTIONAL ADAPTOR,REFER TO THE INSTALLATION MANUAL OF THE OPTIONAL ADAPTOR.
4. FOR CONNECTION WIRING TO INDOOR-OUTDOOR TRANSMISSION F1·F2, OUTDOOR-OUTDOOR TRANSMISSION F1·F2, OUTDOOR-MULTI TRANSMISSION Q1·Q2, REFER TO THE INSTALLATION MANUAL.
5. HOW TO USE BS1~3 SWITCH, REFER TO "SERVICE PRECAUTION" LABEL ON EL. COMPO.BOX COVER.
6. WHEN OPERATING, DON'T SHORT-CIRCUIT THE PROTECTION DEVICE (S1PH).
7. COLORS BLK: BLACK; RED: RED; BLU: BLUE; WHT: WHITE; GRN: GREEN.

A1P	PRINTED CIRCUIT BOARD (MAIN)	K12R	MAGNETIC RELAY (Y4S) (A1P)	S1NPL	RESISTOR (CURRENT SENSOR) (LOW)
A2P	PRINTED CIRCUIT BOARD (NOISE FILTER)	K13R	MAGNETIC RELAY (Y5S) (A1P)	S1PH	PRESSURE SWITCH (HIGH)
A3P	PRINTED CIRCUIT BOARD (INV)	L1R	REACTOR	SEG1~SEG3	7-SEGMENT DISPLAY (A1P)
A4P	PRINTED CIRCUIT BOARD (FAN)	M1C	MOTOR (COMPRESSOR)	T1A	CURRENT SENSOR
A5P	PRINTED CIRCUIT BOARD (SUB)	M1F	MOTOR (FAN)	V1R	POWER MODULE (A3P) (A4P)
BS1~3	BS BUTTON (A1P) (MODE, SET, RETURN)	PS	SWITCHING POWER SUPPLY (A1P, A3P, A5P)	X1A, X2A	CONNECTOR (M1F)
		Q1LD	LEAKAGE DETECTION CIRCUIT (A1P)	X3A	CONNECTOR (CHECK THE RESIDUAL CHARGE)
C32, C66	CAPACITOR (A3P)	Q1RP	PHASE REVERSAL DETECT CIRCUIT (A1P)	X4A	CONNECTOR (X28A) (A1P), (X6A) (A3P)
DS1, DS2	DIP SWITCH (A1P)	R1T	THERMISTOR (AIR) (A1P)	X1M	TERMINAL BLOCK (POWER SUPPLY)
E1HC	CRANKCASE HEATER	R21T	THERMISTOR (M1C DISCHARGE) (A1P)	X1M	TERMINAL BLOCK (CONTROL) (A1P)
F1U, F2U	FUSE (T, 3.15A, 250V) (A1P)	R3T	THERMISTOR (LIQ. MAIN) (A1P)	Y1E	ELECTR. EXP. VALVE (HEAT EXC.UPPER)
F1U	FUSE (T, 3.15A, 250V) (A5P)	R4T	THERMISTOR (HEAT EXC. LIQ. UPPER) (A1P)	Y2E	ELECTR. EXP. VALVE (SUBCOOLING HEAT EXC.)
F101U	FUSE (A4P)	R5T	THERMISTOR (HEAT EXC. LIQ. LOWER) (A1P)	Y3E	ELECTR. EXP. VALVE (HEAT EXC.LOWER)
F401U, F403U	FUSE (A2P)	R6T	THERMISTOR (SUBCOOLING HEAT EXC. GAS) (A1P)	Y4E	ELECTR. EXP. VALVE (RECEIVER GAS)
F601U	FUSE (A3P)	R7T	THERMISTOR (SUBCOOLING HEAT EXC. LIQ) (A1P)	Y5E	ELECTR. EXP. VALVE (INVERTER COOLING)
HAP	PILOT LAMP (A1P) (A5P) (SERVICE MONITOR-GREEN)	R8T	THERMISTOR (HEAT EXC. GAS UPPER) (A1P)	Y11S	SOLENOID VALVE (M1C OIL RETURN)
		R9T	THERMISTOR (HEAT EXC. GAS LOWER) (A1P)	Y2S	SOLENOID VALVE (LIQ.PIPE)
K1M, K2M	MAGNETIC RELAY (A3P)	R10T	THERMISTOR (SUCTION) (A1P)	Y3S	SOLENOID VALVE (HP/LP GAS PIPE)
K3R	MAGNETIC RELAY (A3P)	R11T	THERMISTOR (HEAT EXC.DEICER) (A5P)	Y4S	SOLENOID VALVE (HEAT EXC.LOWER)
K84R	MAGNETIC RELAY (A3P)	R12T	THERMISTOR (SUCTION COMPRESSOR) (A5P)	Y5S	SOLENOID VALVE (HEAT EXC.UPPER)
K3R	MAGNETIC RELAY (Y11S) (A1P)	R13T	THERMISTOR (RECEIVER GAS) (A5P)	Z1C~Z7C	NOISE FILTER (FERRITE CORE)
K6R	MAGNETIC RELAY (OPTIONAL BOTTOM PLATE HEATER) (A1P)	R1	RESISTOR (CURRENT LIMITING) (A3P)	Z1F	NOISE FILTER (A2P) (WITH SURGE ABSORBER)
		R11, R12	RESISTOR (A3P)		
K7R	MAGNETIC RELAY (E1HC) (A1P)	R24	RESISTOR (CURRENT SENSOR) (A4P)		
K9R	MAGNETIC RELAY (Y3S) (A1P)	R77	RESISTOR (CURRENT SENSOR) (A3P)	CONNECTOR FOR OPTIONAL ACCESSORIES	
K11R	MAGNETIC RELAY (Y2S) (A1P)	S1NPH	RESISTOR (CURRENT SENSOR) (HIGH)	X10A	CONNECTOR (BOTTOM PLATE HEATER)

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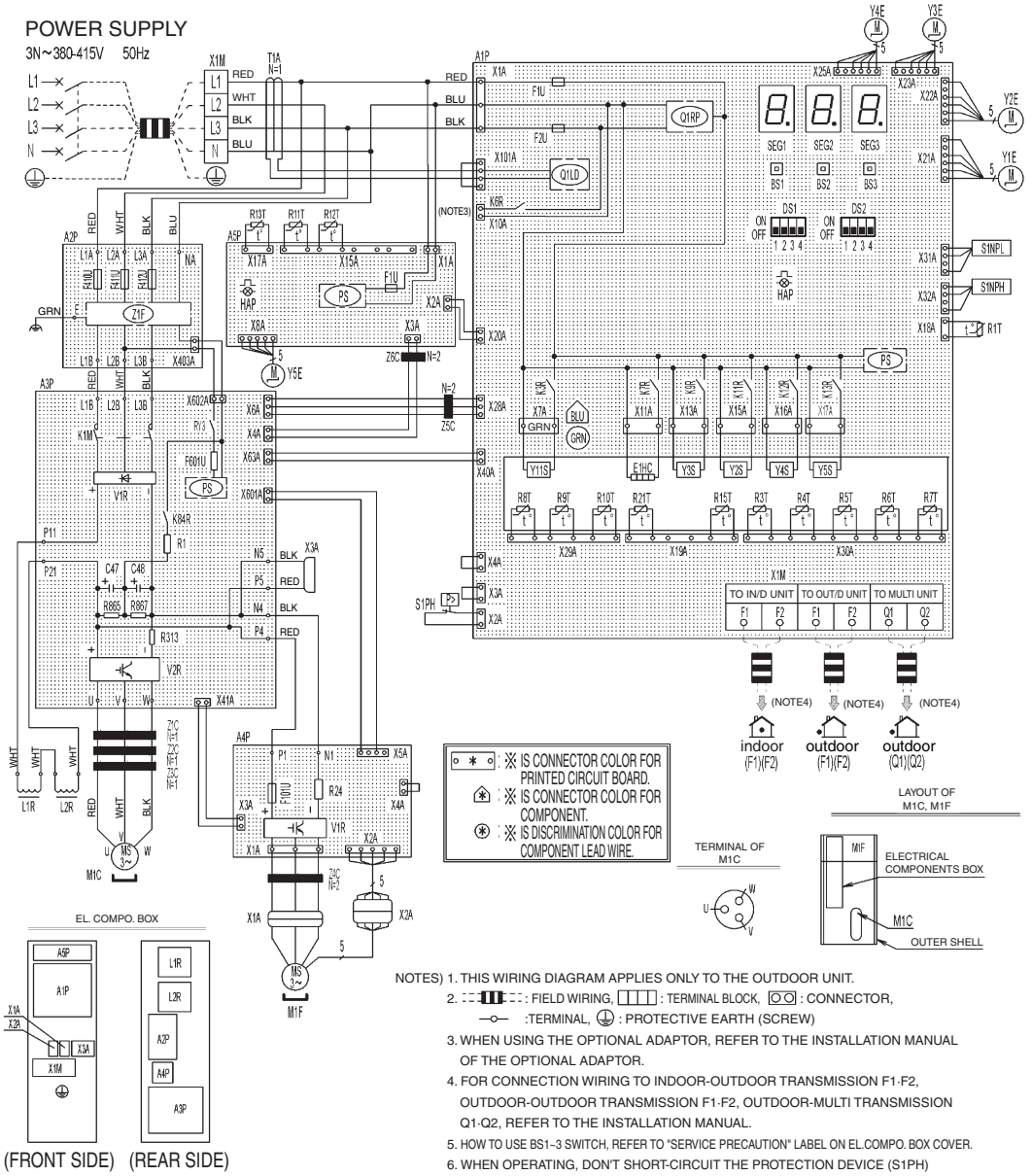

NOTES) 1. THIS WIRING DIAGRAM APPLIES ONLY TO THE OUTDOOR UNIT.
2. : FIELD WIRING, : TERMINAL BLOCK, : CONNECTOR,
:TERMINAL, : PROTECTIVE EARTH (SCREW)
3. WHEN USING THE OPTIONAL ADAPTOR, REFER TO THE INSTALLATION MANUAL OF THE OPTIONAL ADAPTOR.
4. FOR CONNECTION WIRING TO INDOOR-OUTDOOR TRANSMISSION F1·F2, OUTDOOR-OUTDOOR TRANSMISSION F1·F2, OUTDOOR-MULTI TRANSMISSION Q1·Q2, REFER TO THE INSTALLATION MANUAL.
5. HOW TO USE BS1~3 SWITCH, REFER TO "SERVICE PRECAUTION" LABEL ON EL.COMPO. BOX COVER.
6. WHEN OPERATING, DON'T SHORT-CIRCUIT THE PROTECTION DEVICE (S1PH)
7. COLORS BLK: BLACK; RED: RED; BLU: BLUE; WHT: WHITE; GRN: GREEN.

A1P	PRINTED CIRCUIT BOARD (MAIN)	K13R	MAGNETIC RELAY (Y5S) (A1P)	S1PH	PRESSURE SWITCH (HIGH)
A2P	PRINTED CIRCUIT BOARD (NOISE FILTER)	L1R, L2R	REACTOR	SEG1~SEG3	7-SEGMENT DISPLAY (A1P)
A3P	PRINTED CIRCUIT BOARD (INV)	M1C	MOTOR (COMPRESSOR)	T1A	CURRENT SENSOR
A4P	PRINTED CIRCUIT BOARD (FAN)	M1F	MOTOR (FAN)	V1R	POWER MODULE (A3P) (A4P)
A5P	PRINTED CIRCUIT BOARD (SUB)	PS	SWITCHING POWER SUPPLY (A1P) (A3P) (A5P)	V2R	POWER MODULE (A3P)
BS1~3	BS BUTTON (A1P) (MODE, SET, RETURN)	Q1LD	LEAKAGE DETECTION CIRCUIT (A1P)	X1A, X2A	CONNECTOR (M1F)
		Q1RP	PHASE REVERSAL DEFLECT CIRCUIT (A1P)	X3A	CONNECTOR (CHECK THE RESIDUAL CHARGE)
C47, C48	CAPACITOR (A3P)	R1T	THERMISTOR (AIR) (A1P)	X1M	TERMINAL BLOCK (POWER SUPPLY)
DS1, DS2	DIP SWITCH (A1P)	R21T	THERMISTOR (M1C DISCHARGE) (A1P)	X1M	TERMINAL BLOCK (CONTROL) (A1P)
E1HC	CRANKCASE HEATER	R3T	THERMISTOR (LIQ. MAIN) (A1P)	Y1E	ELECTR. EXP. VALVE (HEAT EXC. UPPER)
F1U, F2U	FUSE (T, 3.15A, 250V) (A1P)	R4T	THERMISTOR (HEAT EXC. LIQ. UPPER) (A1P)	Y2E	ELECTR. EXP. VALVE (SUBCOOLING HEAT EXC.)
F1U	FUSE (T, 3.15A, 250V) (A5P)	R5T	THERMISTOR (HEAT EXC. LIQ. LOWER) (A1P)	Y3E	ELECTR. EXP. VALVE (HEAT EXC. LOWER)
F101U	FUSE (A4P)	R6T	THERMISTOR (SUBCOOLING HEAT EXC. GAS) (A1P)	Y4E	ELECTR. EXP. VALVE (RECEIVER GAS)
F410U~F412U	FUSE (A2P)	R7T	THERMISTOR (SUBCOOLING HEAT EXC. LIQ) (A1P)	Y5E	ELECTR. EXP. VALVE (INVERTER COOLING)
F601U	FUSE (A3P)	R8T	THERMISTOR (HEAT EXC.GAS UPPER) (A1P)	Y11S	SOLENOID VALVE (M1C OIL RETURN)
HAP	PILOTLAMP (A1P) (A5P) (SERVICE MONITOR-GREEN)	R9T	THERMISTOR (HEAT EXC.GAS LOWER) (A1P)	Y2S	SOLENOID VALVE (LIQ. PIPE)
		R10T	THERMISTOR (SUCTION) (A1P)	Y3S	SOLENOID VALVE (HP/LP GAS PIPE)
K1M	MAGNETIC CONTACTOR (A3P)	R11T	THERMISTOR (HEAT EXC.DEICER) (A5P)	Y4S	SOLENOID VALVE (HEAT EXC. LOWER)
RY3	MAGNETIC RELAY (A3P)	R12T	THERMISTOR (SUCTION COMPRESSOR) (A5P)	Y5S	SOLENOID VALVE (HEAT EXC. UPPER)
K84R	MAGNETIC RELAY (A3P)	R13T	THERMISTOR (RECEIVER GAS) (A5P)	Z1C~Z6C	NOISE FILTER (FERRITE CORE)
K3R	MAGNETIC RELAY (Y11S) (A1P)	R15T	THERMISTOR (COMPRESSOR BODY) (A1P)	Z1F	NOISE FILTER (A2P) (WITH SURGE ABSORBER)
K6R	MAGNETIC RELAY (OPTIONAL BOTTOM PLATE HEATER) (A1P)	R1	RESISTOR (CURRENT LIMITING) (A3P)		
		R24	RESISTOR (CURRENT SENSOR) (A4P)		
K7R	MAGNETIC RELAY (E1HC) (A1P)	R313	RESISTOR (CURRENT SENSOR) (A3P)		
K9R	MAGNETIC RELAY (Y3S) (A1P)	R865, R867	RESISTOR (A3P)	CONNECTOR FOR OPTIONAL ACCESSORIES	
K11R	MAGNETIC RELAY (Y2S) (A1P)	S1NPH	PRESSURE SENSOR (HIGH)	X10A	CONNECTOR (BOTTOM PLATE HEATER)
K12R	MAGNETIC RELAY (Y4S) (A1P)	S1NPL	PRESSURE SENSOR (LOW)		

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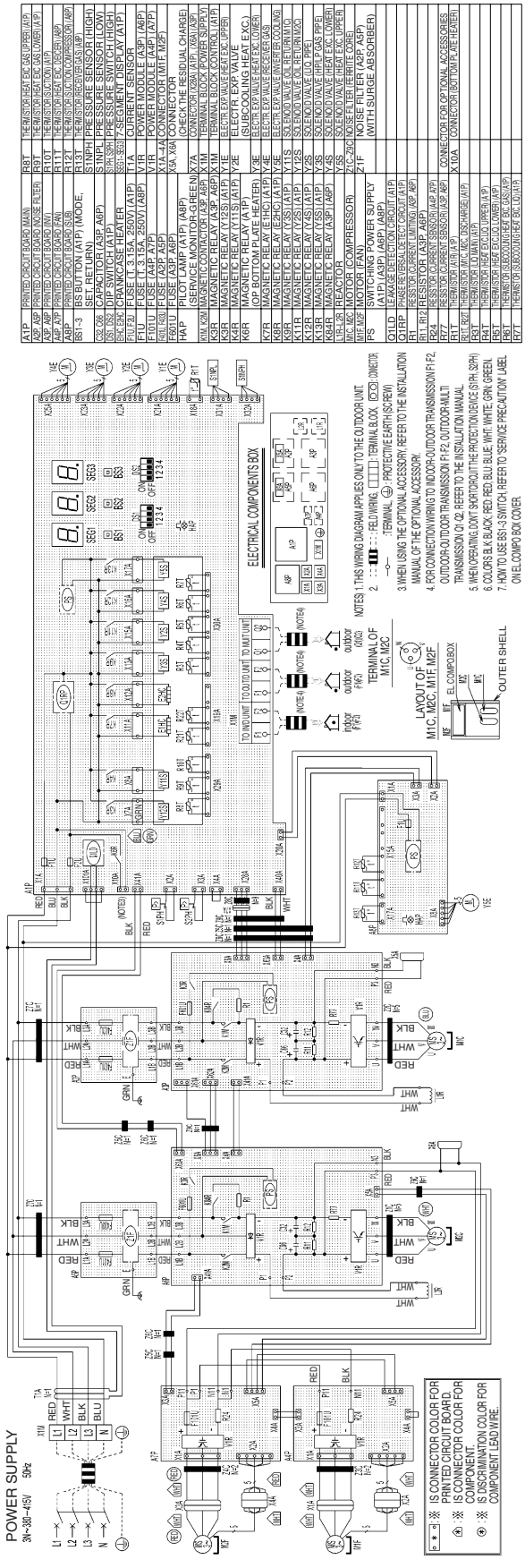

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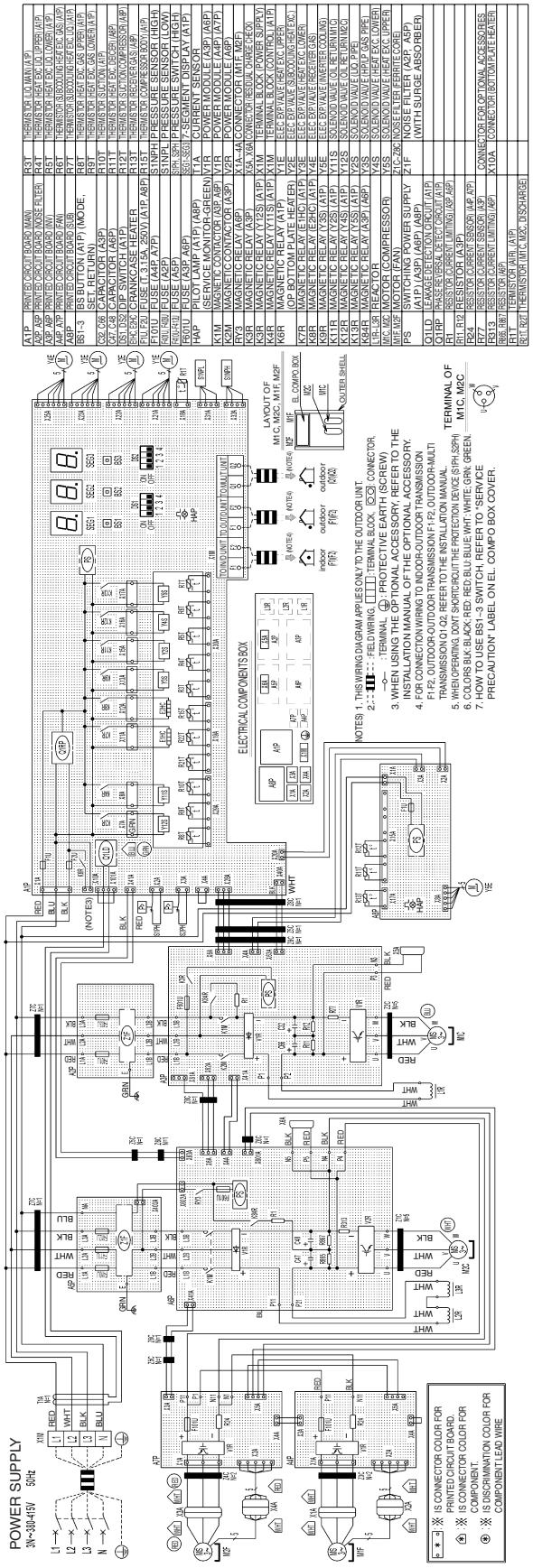

Revision History

Month / Year	Version	Revised contents
11 / 2015	SiMT371502E	First edition

Warning

- Daikin products are manufactured for export to numerous countries throughout the world. Prior to purchase, please confirm with your local authorised 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 unauthorised 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 enquiries, 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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http://www.daikin.com/products/ac/

● Specifications, designs and other content appearing in this brochure are current as of November 2015 but subject to change without notice.

SiMT371502E
11/2015 AK.K