



Si37 - 701

R-410A

DRAFT

Service Manual

VRV[®] III

REYQ8-48PY1

R-410A Heat Recovery 50Hz



VRV[®] III R-410A Heat Recovery 50Hz

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1. Introduction








1.1 Safety Cautions

Cautions and Warnings


- Be sure to read the following safety cautions before conducting repair work.
- 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.
- About the pictograms
 -  This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.
 -  This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.
 -  This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.
- 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




1.1.1 Caution in Repair



 Warning	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair. Working on the equipment that is connected to a power supply can 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 discharges during the repair work, do not touch the discharging refrigerant gas. The refrigerant gas can cause frostbite.	
When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first. If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.	
If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.	
The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work. A charged capacitor can cause an electrical shock.	
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 can cause an electrical shock or fire.	

 Caution	
Do not repair the electrical components with wet hands. Working on the equipment with wet hands can cause an electrical shock.	
Do not clean the air conditioner by splashing water. Washing the unit with water can 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 cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	





1.1.2 Cautions Regarding Products after Repair



 Warning	
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 can cause an electrical shock, excessive heat generation or fire.	
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 can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only
Be sure to use an exclusive power circuit for the equipment, and follow the 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 can cause an electrical shock or fire.	

 Warning	
Be sure to use the specified cable to connect 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 can cause excessive heat generation or fire.	
When connecting the cable 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 can cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.	
Do not mix air or gas other than the specified refrigerant (R-410A) 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 leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leak 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 can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
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 a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	For integral units only

1.1.3 Inspection after Repair





 Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can 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 can cause an electrical shock, excessive heat generation or 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 can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 Mohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.1.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.1.5 Using Icons List

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

1.2 PREFACE

Thank you for your continued patronage of Daikin products.

This is the new service manual for Daikin's Year 2007 VRVIII series Heat Recovery System. Daikin offers a wide range of models to respond to building and office air conditioning needs. We are confident that customers will be able to find the models that best suit their needs.

This service manual contains information regarding the servicing of VRVIII series R-410A Heat Recovery System.

Aug., 2007

After Sales Service Division

Part 1

General Information

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1. Model Names of Indoor/Outdoor Units

Indoor Units

Type		Model Name													Power Supply
Ceiling Mounted Cassette Type (Double Flow)	FXCQ	20M	25M	32M	40M	50M	63M	80M	—	125M	—	—	—	—	VE
Ceiling Mounted Cassette Type (Multi Flow)	FXFQ	—	25M	32M	40M	50M	63M	80M	100M	125M	—	—	—	—	
600x600 Ceiling Mounted Cassette Type	FXZQ	20M8	25M8	32M8	40M8	50M8	—	—	—	—	—	—	—	—	V1B
Ceiling Mounted Cassette Corner Type	FXKQ	—	25MA	32MA	40MA	—	63MA	—	—	—	—	—	—	—	VE
Slim Ceiling Mounted Duct Type	FXDQ-PVE	20P	25P	32P	—	—	—	—	—	—	—	—	—	—	
	FXDQ-PVET	20P	25P	32P	—	—	—	—	—	—	—	—	—	—	
	FXDQ-NAVE	20NA	25NA	32NA	40NA	50NA	63NA	—	—	—	—	—	—	—	
	FXDQ-NVET	20N	25N	32N	40N	50N	63N	—	—	—	—	—	—	—	
Ceiling Concealed (Duct) Type (Aus. exclusive use)	FXDYQ	—	—	—	—	—	—	80M	100M	125M	145M	180M	200M	250M	V1
Ceiling Mounted Built-In Type	FXSQ	20M	25M	32M	40M	50M	63M	80M	100M	125M	—	—	—	—	VE
Ceiling Mounted Duct Type	FXMQ	—	—	—	40MA	50MA	63MA	80MA	100MA	125MA	—	—	200MA	250MA	
Ceiling Suspended Type	FXHQ	—	—	32MA	—	—	63MA	—	100MA	—	—	—	—	—	
Wall Mounted Type	FXAQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	
Floor Standing Type	FXLQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	
Concealed Floor Standing Type	FXNQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	

Note: FXDQ has following 2 Series, as show below.

FXDQ-P, N(A)VET: without Drain Pump (For General, Asia: except for EU, China and Australia)

FXDQ-P, N(A)VE: with Drain Pump

MA, NA: RoHS Directive models; Specifications, Dimensions and other functions are not changed compared with M, N type.

FXZQ: only for EU Australia

FXDYQ: only for Australia

BS Units

Type	Model Name				Power Supply
Heat Recovery Series	BSVQ	100P	160P	250P	V1

Outdoor Units

Normal Series

Series	Model Name										Power Supply
Heat Recovery	REYQ	8P	10P	12P	14P	16P	18P	20P	22P	24P	Y1(E)
		26P	28P	30P	32P	34P	36P	38P	40P	42P	
		44P	46P	48P							

E: The unit with anti corrosion treatment

YE: 1φ, 220 ~ 240V, 50Hz / 220V, 60Hz

V1 : 1φ, 220 ~ 240V, 50Hz








Y1 : 3φ, 380 ~ 415V, 50Hz

2. External Appearance

2.1 Indoor Units

Ceiling Mounted Cassette Type (Double Flow) FXCQ20M FXCQ25M FXCQ32M FXCQ40M FXCQ50M FXCQ63M FXCQ80M FXCQ125M 	Ceiling Mounted Duct Type FXMQ40MA FXMQ50MA FXMQ63MA FXMQ80MA FXMQ100MA FXMQ125MA FXMQ200MA FXMQ250MA  FXMQ40~125M  FXMQ200 · 250M
Ceiling Mounted Cassette Type (Multi Flow) FXFQ25M FXFQ32M FXFQ40M FXFQ50M FXFQ63M FXFQ80M FXFQ100M FXFQ125M 	Ceiling Suspended Type FXHQ32MA FXHQ63MA FXHQ100MA 
600×600 Ceiling Mounted Cassette Type (Multi Flow) FXZQ20M8 FXZQ25M8 FXZQ32M8 FXZQ40M8 FXZQ50M8 	Wall Mounted Type FXAQ20MA FXAQ25MA FXAQ32MA FXAQ40MA FXAQ50MA FXAQ63MA 
Ceiling Mounted Cassette Corner Type FXKQ25MA FXKQ32MA FXKQ40MA FXKQ63MA 	Floor Standing Type FXLQ20MA FXLQ25MA FXLQ32MA FXLQ40MA FXLQ50MA FXLQ63MA 
Slim Ceiling Mounted Duct Type FXDQ20P FXDQ20N(A) FXDQ25P FXDQ25N(A) FXDQ32P FXDQ32N(A) FXDQ40N(A) FXDQ50N(A) FXDQ63N(A) with Drain Pump (VE) without Drain Pump (VET) 	Concealed Floor Standing Type FXNQ20MA FXNQ25MA FXNQ32MA FXNQ40MA FXNQ50MA FXNQ63MA 
Ceiling Concealed (Duct) Type (Aus. exclusive use) FXDYQ80M FXDYQ100M FXDYQ125M FXDYQ145M FXDYQ180M FXDYQ200M FXDYQ250M 	BS Units BSVQ100P BSVQ160P BSVQ250P 
Ceiling Mounted Built-In Type FXSQ20M FXSQ25M FXSQ32M FXSQ40M FXSQ50M FXSQ63M FXSQ80M FXSQ100M FXSQ125M 	

2.2 Outdoor Units

REYQ8P, 10P, 12P, 14P, 16P		REYQ18P, 20P, 22P, 24P			
					
8, 10, 12, 14, 16 HP 22.4 ~ 40.0, 45.0 kW		18, 20, 22, 24 HP 50.4 ~ 67.0 kW			
REYQ26P, 28P		REYQ30P, 32P		REYQ34P, 36P, 38P, 40P	
					
26, 28 HP 73.0, 78.5 kW		30, 32 HP 85.0, 90.0 kW		34, 36, 38, 40 HP 95.4 ~ 112 kW	
REYQ42P, 44P			REYQ46P, 48P		
					
42, 44 HP 118 ~ 124 kW			46, 48 HP 130, 135 kW		

3. Combination of Outdoor Units

Single Use

System Capacity	Number of units	Single Unit					Outdoor Unit Multi Connection Piping Kit (Option)
		8	10	12	14	16	
8HP	1	●					—
10HP	1		●				
12HP	1			●			
14HP	1				●		
16HP	1					●	

Multiple Use

System Capacity	Number of units	Multi Unit Module					Outdoor Unit Multi Connection Piping Kit (Option)
		8	10	12	14	16	
18HP	2	●	●				Heat Recovery: BHFP26P90
20HP	2	●		●			
22HP	2		●	●			
24HP	2			●●			
26HP	2		●			●	
28HP	2			●		●	
30HP	2				●	●	
32HP	2					●●	
34HP	3	●	●			●	Heat Recovery: BHFP26P136
36HP	3	●		●		●	
38HP	3		●	●		●	
40HP	3			●●		●	
42HP	3		●			●●	
44HP	3			●		●●	
46HP	3				●	●●	
48HP	3					●●●	



Note: For multiple connection of 18HP system or more, an optional Daikin Outdoor Unit Multi Connection Piping Kit is required.

4. Model Selection

VRV III Heat Recovery Series

Connectable indoor units number and capacity

HP	8HP	10HP	12HP	14HP	16HP	18HP	20HP
System name	REYQ8P	REYQ10P	REYQ12P	REYQ14P	REYQ16P	REYQ18P	REYQ20P
Outdoor unit 1	REYQ8P	REYQ10P	REYQ12P	REYQ14P	REYQ16P	REMQ8P	REMQ8P
Outdoor unit 2	—	—	—	—	—	REMQ10P	REMQ12P
Outdoor unit 3	—	—	—	—	—	—	—
Total number of connectable indoor units	13	16	19	22	26	29	32
Total capacity of connectable indoor units (kW)	10.0~26.0	12.5~32.5	15.0~39.0	17.5~45.5	20.0~52.0	22.5~58.5	25.0~65.0

HP	22HP	24HP	26HP	28HP	30HP	32HP	34HP
System name	REYQ22P	REYQ24P	REYQ26P	REYQ28P	REYQ30P	REYQ32P	REYQ34P
Outdoor unit 1	REMQ10P	REMQ12P	REMQ10P	REMQ12P	REMQ14P	REMQ16P	REMQ8P
Outdoor unit 2	REMQ12P	REMQ12P	REMQ16P	REMQ16P	REMQ16P	REMQ16P	REMQ10P
Outdoor unit 3	—	—	—	—	—	—	REMQ16P
Total number of connectable indoor units	35	39	42	45	48	52	55
Total capacity of connectable indoor units (kW)	27.5~71.5	30.0~78.0	32.5~84.5	35.0~91.0	37.5~97.5	40.0~104.0	42.5~110.5

HP	36HP	38HP	40HP	42HP	44HP	46HP	48HP
System name	REYQ36P	REYQ38P	REYQ40P	REYQ42P	REYQ44P	REYQ46P	REYQ48P
Outdoor unit 1	REMQ8P	REMQ10P	REMQ12P	REMQ10P	REMQ12P	REMQ14P	REMQ16P
Outdoor unit 2	REMQ12P	REMQ12P	REMQ12P	REMQ16P	REMQ16P	REMQ16P	REMQ16P
Outdoor unit 3	REMQ16P	REMQ16P	REMQ16P	REMQ16P	REMQ16P	REMQ16P	REMQ16P
Total number of connectable indoor units	58	61	64				
Total capacity of connectable indoor units (kW)	45.0~117.0	47.5~123.5	50.0~130.0	52.5~136.5	55.0~143.0	57.5~149.5	60.0~156.0

Connectable Indoor Unit

Type		Model Name													Power Supply
Ceiling Mounted Cassette Type (Double Flow)	FXCQ	20M	25M	32M	40M	50M	63M	80M	—	125M	—	—	—	—	VE
Ceiling Mounted Cassette Type (Multi Flow)	FXFQ	—	25M	32M	40M	50M	63M	80M	100M	125M	—	—	—	—	
600×600 Ceiling Mounted Cassette Type (Multi Flow)	FXZQ	20M8	25M8	32M8	40M8	50M8	—	—	—	—	—	—	—	—	V1B
Ceiling Mounted Cassette Corner Type	FXKQ	—	25MA	32MA	40MA	—	63MA	—	—	—	—	—	—	—	VE
Slim Ceiling Mounted Duct Type	FXDQ-PVE	20P	25P	32P	—	—	—	—	—	—	—	—	—	—	
	FXDQ-PVET	20P	25P	32P	—	—	—	—	—	—	—	—	—	—	
	FXDQ-NAVE	20NA	25NA	32NA	40NA	50NA	63NA	—	—	—	—	—	—	—	
	FXDQ-NVET	20N	25N	32N	40N	50N	63N	—	—	—	—	—	—	—	
Ceiling Concealed (Duct) Type (Aus. exclusive use)	FXDYQ	—	—	—	—	—	—	80M	100M	125M	145M	180M	200M	250M	V1
Ceiling Mounted Built-In Type	FXSQ	20M	25M	32M	40M	50M	63M	80M	100M	125M	—	—	—	—	VE
Ceiling Mounted Duct Type	FXMQ	—	—	—	40MA	50MA	63MA	80MA	100MA	125MA	—	—	200MA	250MA	
Ceiling Suspended Type	FXHQ	—	—	32MA	—	—	63MA	—	100MA	—	—	—	—	—	
Wall Mounted Type	FXAQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	
Floor Standing Type	FXLQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	
Concealed Floor Standing Type	FXNQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	

Note: FXDQ has following 2 Series, as shown below.

FXDQ-P, N(A)VET: without Drain Pump (For General, Asia: except for EU, China and Australia)

FXDQ-P, N(A)VE : with Drain Pump

FXZQ : only for EU, Australia

FXDYQ : only for Australia

Indoor unit capacity

New refrigerant model code	P20 type	P25 type	P32 type	P40 type	P50 type	P63 type	P80 type	P100 type	P125 type	P200 type	P250 type
Selecting model capacity	2.2 kW	2.8 kW	3.5 kW	4.5 kW	5.6 kW	7.0 kW	9.0 kW	11.2 kW	14.0 kW	22.4 kW	28.0 kW
Equivalent output	0.8HP	1HP	1.25HP	1.6HP	2.0HP	2.5HP	3.2HP	4HP	5HP	8HP	10HP

Use the above tables to determine the capacities of indoor units to be connected. Make sure the total capacity of indoor units connected to each outdoor unit is within the specified value (kW).

- The total capacity of connected indoor units must be within a range of 50 to 130% of the rated capacity of the outdoor unit.
- In some models, it is not possible to connect the maximum number of connectable indoor units. Select models so the total capacity of connected indoor units conforms to the specification.

Differences from Conventional Models

Item	Differences		
	Object	New model (P Model)	Conventional model (M Model)
Compressor	Connection of equalizer oil pipe	● NONE (No particular changes in terms of service)	● YES
Workability	Equalizer oil pipe for multi-outdoor-unit system	● NONE	● YES
	Procedure for calculating refrigerant refilling quantity	● Refilling quantity due to piping length + Adjustment quantity according to models of outdoor units	● Refilling quantity due to piping length - Adjustment quantity according to models of outdoor units
Optional accessories	Branch pipe for outdoor unit connection	● Y branch Type: BHFP26P90/136	● T branch Type: BHFP26M90+BHFP22M90P BHFP26M135+BHFP22M135P

Part 2

Specifications

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1. Specifications

1.1 Outdoor Units

Heat Recovery 50Hz <REYQ-P>

Model Name			REYQ8PY1(E)	REYQ10PY1(E)
★1 Cooling Capacity (19.5°CWB)	kcal / h		19,400	24,300
	Btu / h		76,800	96,200
	kW		22.5	28.2
★2 Cooling Capacity (19.0°CWB)	kW		22.4	28.0
★3 Heating Capacity	kcal / h		21,500	27,100
	Btu / h		85,300	107,000
	kW		25.0	31.5
Casing Color	Y1 Type		Ivory White 5Y7.5/1	Ivory White 5Y7.5/1
	Y1E Type		Light Camel 2.5Y6.5/1.5	Light Camel 2.5Y6.5/1.5
Dimensions: (H×W×D)	mm		1680×1300×765	1680×1300×765
Heat Exchanger			Cross Fin Coil	Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type	Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	7.88+10.53	13.34+10.53
	Number of Revolutions	r.p.m	3720, 2900	6300, 2900
	Motor Output×Number of Units	kW	1.0+4.5	2.2+4.5
	Starting Method		Soft Start	Soft Start
Fan	Type		Propellor Fan	Propellor Fan
	Motor Output	kW	0.35×2	0.35×2
	Air Flow Rate	l/s	3,166	3,166
		m³/min	190	190
Connecting Pipes	Drive		Direct Drive	Direct Drive
	Liquid Pipe		φ9.5 C1220T (Brazing Connection)	φ9.5 C1220T (Brazing Connection)
	Suction Gas Pipe		φ19.1 C1220T (Brazing Connection)	φ22.2 C1220T (Brazing Connection)
	High and Low Pressure Gas Pipe		φ15.9 C1220T (Brazing Connection)	φ19.1 C1220T (Brazing Connection)
Pressure Equalizer Tube			—	—
Mass (Weight)	kg		311	331
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector	High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector
Defrost Method			Deicer	Deicer
Capacity Control	%		20~100	14~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	10.3	10.6
	Control		Electronic Expansion Valve	Electronic Expansion Valve
Refrigerator Oil			Refer to the nameplate of compressor	Refer to the nameplate of compressor
Standard Accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps	Installation Manual, Operation Manual, Connection Pipes, Clamps
Drawing No.			4D057563	4D057564

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

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

The Reference Number
 C~: Partly corrected drawings.
 J~: Original drawing is Japanese
 V~: Printing Convenience

Model Name			REYQ12PY1(E)	REYQ14PY1(E)
★1 Cooling Capacity (19.5°CWB)	kcal / h		29,000	35,500
	Btu / h		115,000	141,000
	kW		33.7	41.3
★2 Cooling Capacity (19.0°CWB)	kW		33.5	40.0
★3 Heating Capacity	kcal / h		32,300	38,700
	Btu / h		128,000	154,000
	kW		37.5	45.0
Casing Color	Y1 Type		Ivory White 5Y7.5/1	Ivory White 5Y7.5/1
	Y1E Type		Light Camel 2.5Y6.5/1.5	Light Camel 2.5Y6.5/1.5
Dimensions: (H×W×D)	mm		1680×1300×765	1680×1300×765
Heat Exchanger			Cross Fin Coil	Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type	Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	13.34+10.53	16.90+16.90
	Number of Revolutions	r.p.m	6300, 2900	7980, 7980
	Motor Output×Number of Units	kW	3.3+4.5	3.8+3.8
	Starting Method		Soft Start	Soft Start
Fan	Type		Propellor Fan	Propellor Fan
	Motor Output	kW	0.35×2	0.75×2
	Air Flow Rate	l/s	3,500	3,916
		m³/min	210	235
Connecting Pipes	Drive		Direct Drive	Direct Drive
	Liquid Pipe		φ12.7 C1220T (Brazing Connection)	φ12.7 C1220T (Brazing Connection)
	Suction Gas Pipe		φ28.6 C1220T (Brazing Connection)	φ28.6 C1220T (Brazing Connection)
	High and Low Pressure Gas Pipe		φ19.1 C1220T (Brazing Connection)	φ22.2 C1220T (Brazing Connection)
	Pressure Equalizer Tube		—	—
Mass (Weight)	kg		331	339
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector	High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector
Defrost Method			Deicer	Deicer
Capacity Control	%		14~100	10~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	10.8	11.1
	Control		Electronic Expansion Valve	Electronic Expansion Valve
Refrigerator Oil			Refer to the nameplate of compressor	Refer to the nameplate of compressor
Standard Accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps	Installation Manual, Operation Manual, Connection Pipes, Clamps
Drawing No.			4D057565	4D057566

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

$\text{kcal/h} = \text{kW} \times 860$
 $\text{Btu/h} = \text{kW} \times 3412$
 $\text{cfm} = \text{m}^3/\text{min} \times 35.3$

Model Name			REYQ16PY1(E)
★1 Cooling Capacity (19.5°CWB)	kcal / h		40,000
	Btu / h		159,000
	kW		46.5
★2 Cooling Capacity (19.0°CWB)	kW		45.0
★3 Heating Capacity	kcal / h		43,000
	Btu / h		171,000
	kW		50.0
Casing Color	Y1 Type		Ivory White 5Y7.5/1
	Y1E Type		Light Camel 2.5Y6.5/1.5
Dimensions: (H×W×D)	mm		1680×1300×765
Heat Exchanger			Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	16.90+16.90
	Number of Revolutions	r.p.m	7980, 7980
	Motor Output×Number of Units	kW	4.4+4.4
	Starting Method		Soft Start
Fan	Type		Propellor Fan
	Motor Output	kW	0.75×2
	Air Flow Rate	l/s	4,000
		m³/min	240
Connecting Pipes	Drive		Direct Drive
	Liquid Pipe		φ12.7 C1220T (Brazing Connection)
	Suction Gas Pipe		φ28.6 C1220T (Brazing Connection)
	High and Low Pressure Gas Pipe		φ22.2 C1220T (Brazing Connection)
Pressure Equalizer Tube			—
Mass (Weight)	kg		339
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector
Defrost Method			Deicer
Capacity Control	%		10~100
Refrigerant	Refrigerant Name		R-410A
	Charge	kg	11.1
	Control		Electronic Expansion Valve
Refrigerator Oil			Refer to the nameplate of compressor
Standard Accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps
Drawing No.			4D057567

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

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

Model Name (Combination Unit)			REYQ18PY1(E)	REYQ20PY1(E)
Model Name (Independent Unit)			REM8PY1(E)+REM10PY1(E)	REM8PY1(E)+REM12PY1(E)
★1 Cooling Capacity (19.5°CWB)	kcal / h		43,600	48,300
	Btu / h		173,000	192,000
	kW		50.7	56.2
★2 Cooling Capacity (19.0°CWB)	kW		50.4	55.9
★3 Heating Capacity	kcal / h		48,600	53,800
	Btu / h		193,000	213,000
	kW		56.5	62.5
Casing Color	Y1 Type		Ivory White 5Y7.5/1	Ivory White 5Y7.5/1
	Y1E Type		Light Camel 2.5Y6.5/1.5	Light Camel 2.5Y6.5/1.5
Dimensions: (H×W×D)	mm		1680×930×765+1680×930×765	1680×930×765+1680×930×765
Heat Exchanger			Cross fin coil	Cross fin coil
Comp.	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Piston Displacement	m³/h	(13.34+10.53)+16.90	(13.34+10.53)+16.90
	Number of Revolutions	r.p.m	(6300, 2900), 7980	(6300, 2900), 7980
	Motor Output×Number of Units	kW	(2.2+4.5)×1+4.7×1	(3.5+4.5)×1+4.7×1
	Starting Method		Soft start	Soft start
Fan	Type		Propellor fan	Propellor fan
	Motor Output	kW	(0.75×1)+(0.75×1)	(0.75×1)+(0.75×1)
	Air Flow Rate	l/s	3,000+3,083	3,000+3,333
		m³/min	180+185	180+200
Connecting Pipes	Drive		Direct drive	Direct drive
	Liquid Pipe		φ15.9 C1220T (Brazing connection)	φ15.9 C1220T (Brazing connection)
	Suction Gas Pipe		φ28.6 C1220T (Brazing connection)	φ28.6 C1220T (Brazing connection)
	High and Low Pressure Gas Pipe		φ22.2 C1220T (Brazing connection)	φ28.6 C1220T (Brazing connection)
Mass (Weight)	Pressure Equalizer Tube		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
	kg		204+254	204+254
Safety Devices			High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector	High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector
Defrost Method			Deicer	Deicer
Capacity Control	%		9~100	7~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	8.2+9.0	8.2+9.1
	Control		Electronic expansion valve	Electronic expansion valve
Refrigerator Oil			Refer to the nameplate of compressor	Refer to the nameplate of compressor
Standard Accessories			Installation manual, Operation manual, Connection pipes, Cramps	Installation manual, Operation manual, Connection pipes, Cramps
Drawing No.			4D057568	4D057569

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

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

Model Name (Combination Unit)			REYQ22PY1(E)	REYQ24PY1(E)
Model Name (Independent Unit)			REMQ10PY1(E)+REMQ12PY1(E)	REMQ12PY1(E)+REMQ12PY1(E)
★1 Cooling Capacity (19.5°CWB)		kcal / h	53,200	58,000
		Btu / h	211,000	230,000
		kW	61.9	67.4
★2 Cooling Capacity (19.0°CWB)		kW	61.5	67.0
★3 Heating Capacity		kcal / h	59,300	64,500
		Btu / h	235,000	256,000
		kW	69.0	75.0
Casing Color	Y1 Type		Ivory White 5Y7.5/1	Ivory White 5Y7.5/1
	Y1E Type		Light Camel 2.5Y6.5/1.5	Light Camel 2.5Y6.5/1.5
Dimensions: (H×W×D)		mm	1680×930×765+1680×930×765	1680×930×765+1680×930×765
Heat Exchanger			Cross fin coil	Cross fin coil
Comp.	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Piston Displacement	m³/h	(13.34+10.53)×2	(13.34+10.53)×2
	Number of Revolutions	r.p.m	(6300, 2900)×2	(6300, 2900)×2
	Motor Output×Number of Units	kW	(3.5+4.5)×1+(2.2+4.5)×1	(3.5+4.5)×2
	Starting Method		Soft start	Soft start
Fan	Type		Propellor fan	Propellor fan
	Motor Output	kW	(0.75×1)+(0.75×1)	0.75×2
	Air Flow Rate	l/s	3,083+3,333	3,333+3,333
		m³/min	185+200	200+200
	Drive		Direct drive	Direct drive
Connecting Pipes	Liquid Pipe		φ15.9 C1220T (Brazing connection)	φ15.9 C1220T (Brazing connection)
	Suction Gas Pipe		φ28.6 C1220T (Brazing connection)	φ34.9 C1220T (Brazing connection)
	High and Low Pressure Gas Pipe		φ28.6 C1220T (Brazing connection)	φ28.6 C1220T (Brazing connection)
	Pressure Equalizer Tube		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
Mass (Weight)		kg	254+254	254+254
Safety Devices			High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector	High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector
Defrost Method			Deicer	Deicer
Capacity Control		%	7~100	6~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	9.0+9.1	9.1+9.1
	Control		Electronic expansion valve	Electronic expansion valve
Refrigerator Oil			Refer to the nameplate of compressor	Refer to the nameplate of compressor
Standard Accessories			Installation manual, Operation manual, Connection pipes, Cramps	Installation manual, Operation manual, Connection pipes, Cramps
Drawing No.			4D057570	4D057571

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

$\text{kcal/h} = \text{kW} \times 860$
 $\text{Btu/h} = \text{kW} \times 3412$
 $\text{cfm} = \text{m}^3/\text{min} \times 35.3$

Model Name (Combination Unit)			REYQ26PY1(E)	REYQ28PY1(E)
Model Name (Independent Unit)			REMQR10PY1(E)+REMQR16PY1(E)	REMQR12PY1(E)+REMQR16PY1(E)
★1 Cooling Capacity (19.5°CWB)	kcal / h		63,100	67,900
	Btu / h		250,000	270,000
	kW		73.4	79.0
★2 Cooling Capacity (19.0°CWB)	kW		73.0	78.5
★3 Heating Capacity	kcal / h		70,100	75,300
	Btu / h		278,000	299,000
	kW		81.5	87.5
Casing Color	Y1 Type		Ivory White 5Y7.5/1	Ivory White 5Y7.5/1
	Y1E Type		Light Camel 2.5Y6.5/1.5	Light Camel 2.5Y6.5/1.5
Dimensions: (H×W×D)	mm		1680×930×765+1680×1240×765	1680×930×765+1680×1240×765
Heat Exchanger			Cross fin coil	Cross fin coil
Comp.	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Piston Displacement	m³/h	(13.34+10.53+10.53)+(13.34+10.53)	(13.34+10.53+10.53)+(13.34+10.53)
	Number of Revolutions	r.p.m	(6300, 2900, 2900)+(6300, 2900)	(6300, 2900, 2900)+(6300, 2900)
	Motor Output×Number of Units	kW	(3.2+4.5+4.5)×1+(2.2+4.5)×1	(3.2+4.5+4.5)×1+(3.5+4.5)×1
	Starting Method		Soft start	Soft start
Fan	Type		Propellor fan	Propellor fan
	Motor Output	kW	(0.75×1)+(0.35×2)	(0.75×1)+(0.35×2)
	Air Flow Rate	l/s	3,083+3,833	3,333+3,833
		m³/min	185+230	200+230
Connecting Pipes	Drive		Direct drive	Direct drive
	Liquid Pipe		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
	Suction Gas Pipe		φ34.9 C1220T (Brazing connection)	φ34.9 C1220T (Brazing connection)
	High and Low Pressure Gas Pipe		φ28.6 C1220T (Brazing connection)	φ28.6 C1220T (Brazing connection)
Mass (Weight)	Pressure Equalizer Tube		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
	kg		254+334	254+334
Safety Devices			High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector	High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector
Defrost Method			Deicer	Deicer
Capacity Control	%		6~100	6~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	9.0+11.7	9.1+11.7
	Control		Electronic expansion valve	Electronic expansion valve
Refrigerator Oil			Refer to the nameplate of compressor	Refer to the nameplate of compressor
Standard Accessories			Installation manual, Operation manual, Connection pipes, Cramps	Installation manual, Operation manual, Connection pipes, Cramps
Drawing No.			4D057572	4D057808

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

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

Model Name (Combination Unit)			REYQ30PY1(E)	REYQ32PY1(E)
Model Name (Independent Unit)			REM014PY1(E)+REM016PY1(E)	REM016PY1(E)+REM016PY1(E)
★1 Cooling Capacity (19.5°CWB)	kcal / h		73,500	77,800
	Btu / h		292,000	309,000
	kW		85.5	90.5
★2 Cooling Capacity (19.0°CWB)	kW		85.0	90.0
★3 Heating Capacity	kcal / h		81,700	86,000
	Btu / h		324,000	341,000
	kW		95.0	100
Casing Color	Y1 Type		Ivory White 5Y7.5/1	Ivory White 5Y7.5/1
	Y1E Type		Light Camel 2.5Y6.5/1.5	Light Camel 2.5Y6.5/1.5
Dimensions: (H×W×D)	mm		1680×1240×765+1680×1240×765	1680×1240×765+1680×1240×765
Heat Exchanger			Cross fin coil	Cross fin coil
Comp.	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Piston Displacement	m³/h	(13.34+10.53+10.53)×2	(13.34+10.53+10.53)×2
	Number of Revolutions	r.p.m	(6300, 2900, 2900)×2	(6300, 2900, 2900)×2
	Motor Output×Number of Units	kW	(3.2+4.5+4.5)×1+(1.9+4.5+4.5)×1	(3.2+4.5+4.5)×2
	Starting Method		Soft start	Soft start
Fan	Type		Propellor fan	Propellor fan
	Motor Output	kW	(0.35×2)+(0.35×2)	(0.35×2)×2
	Air Flow Rate	l/s	3,833+3,833	3,833+3,833
		m³/min	230+230	230+230
Connecting Pipes	Drive		Direct drive	Direct drive
	Liquid Pipe		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
	Suction Gas Pipe		φ34.9 C1220T (Brazing connection)	φ34.9 C1220T (Brazing connection)
	High and Low Pressure Gas Pipe		φ28.6 C1220T (Brazing connection)	φ28.6 C1220T (Brazing connection)
Mass (Weight)	Pressure Equalizer Tube		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
		kg	334+334	334+334
Safety Devices			High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector	High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector
Defrost Method			Deicer	Deicer
Capacity Control	%		5~100	5~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	11.7+11.7	11.7+11.7
	Control		Electronic expansion valve	Electronic expansion valve
Refrigerator Oil			Refer to the nameplate of compressor	Refer to the nameplate of compressor
Standard Accessories			Installation manual, Operation manual, Connection pipes, Cramps	Installation manual, Operation manual, Connection pipes, Cramps
Drawing No.			4D057809	4D057810

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

$\text{kcal/h}=\text{kW}\times 860$
 $\text{Btu/h}=\text{kW}\times 3412$
 $\text{cfm}=\text{m}^3/\text{min}\times 35.3$

Model Name (Combination Unit)			REYQ34PY1(E)		REYQ36PY1(E)	
Model Name (Independent Unit)			REM8PY1(E)+REM10PY1(E)+REM16PY1(E)		REM8PY1(E)+REM12PY1(E)+REM16PY1(E)	
★1 Cooling Capacity (19.5°CWB)		kcal / h	82,600		87,700	
		Btu / h	328,000		348,000	
		kW	96.0		102	
★2 Cooling Capacity (19.0°CWB)		kW	95.4		101	
★3 Heating Capacity		kcal / h	92,000		97,200	
		Btu / h	365,000		386,000	
		kW	107		113	
Casing Color	Y1 Type		Ivory White 5Y7.5/1		Ivory White 5Y7.5/1	
	Y1E Type		Light Camel 2.5Y6.5/1.5		Light Camel 2.5Y6.5/1.5	
Dimensions: (H×W×D)		mm	1680×930×765+1680×930×765+1680×1240×765		1680×930×765+1680×930×765+1680×1240×765	
Heat Exchanger			Cross fin coil		Cross fin coil	
Comp.	Type		Hermetically sealed scroll type		Hermetically sealed scroll type	
	Piston Displacement	m³/h	(13.34+10.53+10.53)+(13.34+10.53)+16.90		(13.34+10.53+10.53)+(13.34+10.53)+16.90	
	Number of Revolutions	r.p.m	(6300, 2900, 2900)+(6300, 2900)+7980		(6300, 2900, 2900)+(6300, 2900)+7980	
	Motor Output×Number of Units	kW	(3.2+4.5+4.5)×1+(2.2+4.5)×1+4.7×1		(3.2+4.5+4.5)×1+(3.5+4.5)×1+4.7×1	
	Starting Method		Soft start		Soft start	
Fan	Type		Propellor fan		Propellor fan	
	Motor Output	kW	(0.75×1)+(0.75×1)+(0.35×2)		(0.75×1)+(0.75×1)+(0.35×2)	
	Air Flow Rate	l/s	3,000+3,083+3,833		3,000+3,333+3,833	
		m³/min	180+185+230		180+200+230	
	Drive		Direct drive		Direct drive	
Connecting Pipes	Liquid Pipe		φ19.1 C1220T (Brazing connection)		φ19.1 C1220T (Brazing connection)	
	Suction Gas Pipe		φ34.9 C1220T (Brazing connection)		φ41.3 C1220T (Brazing connection)	
	High and Low Pressure Gas Pipe		φ28.6 C1220T (Brazing connection)		φ28.6 C1220T (Brazing connection)	
	Pressure Equalizer Tube		φ19.1 C1220T (Brazing connection)		φ19.1 C1220T (Brazing connection)	
Mass (Weight)		kg	204+254+334		204+254+334	
Safety Devices			High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector		High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector	
Defrost Method			Deicer		Deicer	
Capacity Control		%	5~100		5~100	
Refrigerant	Refrigerant Name		R-410A		R-410A	
	Charge	kg	8.2+9.0+11.7		8.2+9.1+11.7	
	Control		Electronic expansion valve		Electronic expansion valve	
Refrigerator Oil			Refer to the nameplate of compressor		Refer to the nameplate of compressor	
Standard Accessories			Installation manual, Operation manual, Connection pipes, Cramps		Installation manual, Operation manual, Connection pipes, Cramps	
Drawing No.			4D057811		4D057812	

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

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

Model Name (Combination Unit)			REYQ38PY1(E)	REYQ40PY1(E)
Model Name (Independent Unit)			REMQ10PY1(E)+REMQ12PY1(E)+REMQ16PY1(E)	REMQ12PY1(E)+REMQ12PY1(E)+REMQ16PY1(E)
★1 Cooling Capacity (19.5°CWB)	kcal / h		92,900	97,200
	Btu / h		368,000	386,000
	kW		108	113
★2 Cooling Capacity (19.0°CWB)	kW		107	112
★3 Heating Capacity	kcal / h		102,000	108,000
	Btu / h		406,000	427,000
	kW		119	125
Casing Color	Y1 Type		Ivory White 5Y7.5/1	Ivory White 5Y7.5/1
	Y1E Type		Light Camel 2.5Y6.5/1.5	Light Camel 2.5Y6.5/1.5
Dimensions: (H×W×D)		mm	1680×930×765+1680×930×765+1680×1240×765	1680×930×765+1680×930×765+1680×1240×765
Heat Exchanger			Cross fin coil	Cross fin coil
Comp.	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Piston Displacement	m³/h	(13.34+10.53+10.53)+(13.34+10.53)×2	(13.34+10.53+10.53)+(13.34+10.53)×2
	Number of Revolutions	r.p.m	(6300, 2900, 2900)+(6300, 2900)×2	(6300, 2900, 2900)+(6300, 2900)×2
	Motor Output×Number of Units	kW	(3.2+4.5+4.5)×1+(3.5+4.5)×1+(2.2+4.5)×1	(3.2+4.5+4.5)×1+(3.5+4.5)×2
	Starting Method		Soft start	Soft start
Fan	Type		Propellor fan	Propellor fan
	Motor Output	kW	(0.75×1)+(0.75×1)+(0.35×2)	(0.75×2)+(0.35×2)
	Air Flow Rate	l/s	3,083+3,333+3,833	3,333+3,333+3,833
		m³/min	185+200+230	200+200+230
	Drive		Direct drive	Direct drive
Connecting Pipes	Liquid Pipe		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
	Suction Gas Pipe		φ41.3 C1220T (Brazing connection)	φ41.3 C1220T (Brazing connection)
	High and Low Pressure Gas Pipe		φ34.9 C1220T (Brazing connection)	φ34.9 C1220T (Brazing connection)
	Pressure Equalizer Tube		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
Mass (Weight)		kg	254+254+334	254+254+334
Safety Devices			High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector	High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector
Defrost Method			Deicer	Deicer
Capacity Control		%	5~100	4~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	9.0+9.1+11.7	9.1+9.1+11.7
	Control		Electronic expansion valve	Electronic expansion valve
Refrigerator Oil			Refer to the nameplate of compressor	Refer to the nameplate of compressor
Standard Accessories			Installation manual, Operation manual, Connection pipes, Cramps	Installation manual, Operation manual, Connection pipes, Cramps
Drawing No.			4D057813	4D057814

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

$\text{kcal/h} = \text{kW} \times 860$
 $\text{Btu/h} = \text{kW} \times 3412$
 $\text{cfm} = \text{m}^3/\text{min} \times 35.3$

Model Name (Combination Unit)			REYQ42PY1(E)	REYQ44PY1(E)
Model Name (Independent Unit)			REMQ10PY1(E)+REMQ16PY1(E)+REMQ16PY1(E)	REMQ12PY1(E)+REMQ16PY1(E)+REMQ16PY1(E)
★1 Cooling Capacity (19.5°CWB)	kcal / h		102,000	108,000
	Btu / h		406,000	427,000
	kW		119	125
★2 Cooling Capacity (19.0°CWB)	kW		118	124
★3 Heating Capacity	kcal / h		114,000	119,000
	Btu / h		450,000	471,000
	kW		132	138
Casing Color	Y1 Type		Ivory White 5Y7.5/1	Ivory White 5Y7.5/1
	Y1E Type		Light Camel 2.5Y6.5/1.5	Light Camel 2.5Y6.5/1.5
Dimensions: (H×W×D)	mm		1680×930×765+1680×1240×765+1680×1240×765	1680×930×765+1680×1240×765+1680×1240×765
Heat Exchanger			Cross fin coil	Cross fin coil
Comp.	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Piston Displacement	m³/h	(13.34+10.53+10.53)×2+(13.34+10.53)	(13.34+10.53+10.53)×2+(13.34+10.53)
	Number of Revolutions	r.p.m	(6300, 2900, 2900)×2+(6300, 2900)	(6300, 2900, 2900)×2+(6300, 2900)
	Motor Output×Number of Units	kW	(3.2+4.5+4.5)×1+(2.2+4.5)×1	(3.2+4.5+4.5)×2+(3.5+4.5)×1
	Starting Method		Soft start	Soft start
Fan	Type		Propellor fan	Propellor fan
	Motor Output	kW	(0.75×1)+(0.35×2)×2	(0.75×1)+(0.35×2)×2
	Air Flow Rate	l/s	3,083+3,833+3,833	3,333+3,833+3,833
		m³/min	185+230+230	200+230+230
Connecting Pipes	Drive		Direct drive	Direct drive
	Liquid Pipe		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
	Suction Gas Pipe		φ41.3 C1220T (Brazing connection)	φ41.3 C1220T (Brazing connection)
	High and Low Pressure Gas Pipe		φ34.9 C1220T (Brazing connection)	φ34.9 C1220T (Brazing connection)
Mass (Weight)	Pressure Equalizer Tube		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
	kg		254+334+334	254+334+334
Safety Devices			High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector	High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector
Defrost Method			Deicer	Deicer
Capacity Control	%		4~100	4~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	9.0+11.7+11.7	9.1+11.7+11.7
	Control		Electronic expansion valve	Electronic expansion valve
Refrigerator Oil			Refer to the nameplate of compressor	Refer to the nameplate of compressor
Standard Accessories			Installation manual, Operation manual, Connection pipes, Cramps	Installation manual, Operation manual, Connection pipes, Cramps
Drawing No.			4D057815	4D057816

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

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

Model Name (Combination Unit)			REYQ46PY1(E)	REYQ48PY1(E)
Model Name (Independent Unit)			REMQ14PY1(E)+REMQ16PY1(E)+REMQ16PY1(E)	REMQ16PY1(E)+REMQ16PY1(E)+REMQ16PY1(E)
★1 Cooling Capacity (19.5°CWB)	kcal / h		113,000	117,000
	Btu / h		447,000	464,000
	kW		131	136
★2 Cooling Capacity (19.0°CWB)	kW		130	135
★3 Heating Capacity	kcal / h		124,000	129,000
	Btu / h		495,000	512,000
	kW		145	150
Casing Color	Y1 Type		Ivory White 5Y7.5/1	Ivory White 5Y7.5/1
	Y1E Type		Light Camel 2.5Y6.5/1.5	Light Camel 2.5Y6.5/1.5
Dimensions: (H×W×D)		mm	1680×1240×765+1680×1240×765+1680×1240×765	1680×1240×765+1680×1240×765+1680×1240×765
Heat Exchanger			Cross fin coil	Cross fin coil
Comp.	Type		Hermetically sealed scroll type	Hermetically sealed scroll type
	Piston Displacement	m³/h	(13.34+10.53+10.53)×3	(13.34+10.53+10.53)×3
	Number of Revolutions	r.p.m	(6300, 2900, 2900)×3	(6300, 2900, 2900)×3
	Motor Output×Number of Units	kW	(3.2+4.5+4.5)×2+(1.9+4.5+4.5)×1	(3.2+4.5+4.5)×3
	Starting Method		Soft start	Soft start
Fan	Type		Propellor fan	Propellor fan
	Motor Output	kW	(0.35×2)+(0.35×2)×2	(0.35×2)×3
	Air Flow Rate	l/s	3,833+3,833+3,833	3,833+3,833+3,833
		m³/min	230+230+230	230+230+230
	Drive		Direct drive	Direct drive
Connecting Pipes	Liquid Pipe		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
	Suction Gas Pipe		φ41.3 C1220T (Brazing connection)	φ41.3 C1220T (Brazing connection)
	High and Low Pressure Gas Pipe		φ34.9 C1220T (Brazing connection)	φ34.9 C1220T (Brazing connection)
	Pressure Equalizer Tube		φ19.1 C1220T (Brazing connection)	φ19.1 C1220T (Brazing connection)
Mass (Weight)		kg	334+334+334	334+334+334
Safety Devices			High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector	High pressure switch, fan driver overload protector, overcurrent relay, inverter overload protector
Defrost Method			Deicer	Deicer
Capacity Control		%	4~100	4~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	11.7+11.7+11.7	11.7+11.7+11.7
	Control		Electronic expansion valve	Electronic expansion valve
Refrigerator Oil			Refer to the nameplate of compressor	Refer to the nameplate of compressor
Standard Accessories			Installation manual, Operation manual, Connection pipes, Cramps	Installation manual, Operation manual, Connection pipes, Cramps
Drawing No.			4D057817	4D057818

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.
- 4 The units with anti-corrosion treatment will be available as standard. Please specify the suffix "E" as REYQ8PY1E.

Conversion Formulae

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

1.2 Indoor Units

Ceiling Mounted Cassette Type (Double Flow)

Model			FXCQ20MVE	FXCQ25MVE	FXCQ32MVE	FXCQ40MVE	
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200	4,000	
		Btu/h	7,800	9,900	12,600	16,000	
		kW	2.3	2.9	3.7	4.7	
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6	4.5	
★3 Heating Capacity		kcal/h	2,200	2,800	3,400	4,300	
		Btu/h	8,500	10,900	13,600	17,100	
		kW	2.5	3.2	4.0	5.0	
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	
Dimensions: (H×W×D)		mm	305×775×600	305×775×600	305×775×600	305×990×600	
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.5	2×10×1.5	2×10×1.5	2×10×1.5	
	Face Area	m²	2×0.100	2×0.100	2×0.100	2×0.145	
Fan	Model		D17K2AA1	D17K2AB1	D17K2AB1	2D17K1AA1	
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan	
	Motor Output × Number of Units	W	10×1	15×1	15×1	20×1	
		l/s	116/83	150/108	150/108	200/150	
	Air Flow Rate (H/L)	m³/min	7/5	9/6.5	9/6.5	12/9	
		cfm	247/177	318/230	318/230	424/318	
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive	
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	
Sound Absorbing Thermal Insulation Material			Glass Wool/Urethane Foam	Glass Wool/Urethane Foam	Glass Wool/Urethane Foam	Glass Wool/Urethane Foam	
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	
Mass (Weight)		kg	26	26	26	31	
★5 Sound Level (H/L)		dB	220V	32/27	34/28	34/28	34/29
			240V	34/29	36/30	36/30	37/32
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	
Connectable outdoor unit			R-410A P Series	R-410A P Series	R-410A P Series	R-410A P Series	
Decoration Panels (Option)	Model		BYBC32G-W1	BYBC32G-W1	BYBC32G-W1	BYBC50G-W1	
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	
	Dimensions: (H×W×D)	mm	53×1,030×680	53×1,030×680	53×1,030×680	53×1,245×680	
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	
	Weight	kg	8	8	8	8.5	
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	
Drawing No.			C: 3D039413				

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

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

Ceiling Mounted Cassette Type (Double Flow)

Model			FXCQ50MVE		FXCQ63MVE		FXCQ80MVE		FXCQ125MVE				
★1 Cooling Capacity (19.5°CWB)			kcal/h		5,000		6,300		8,000		12,500		
			Btu/h		19,800		24,900		31,700		49,500		
			kW		5.8		7.3		9.3		14.5		
★2 Cooling Capacity (19.0°CWB)			kW		5.6		7.1		9.0		14.0		
★3 Heating Capacity			kcal/h		5,400		6,900		8,600		13,800		
			Btu/h		21,500		27,300		34,100		54,600		
			kW		6.3		8.0		10.0		16.0		
Casing					Galvanized Steel Plate		Galvanized Steel Plate		Galvanized Steel Plate		Galvanized Steel Plate		
Dimensions: (H×W×D)			mm		305×990×600		305×1,175×600		305×1,665×600		305×1,665×600		
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch		mm		2×10×1.5		2×10×1.5		2×10×1.5		2×10×1.5		
	Face Area		m²		2×0.145		2×0.184		2×0.287		2×0.287		
Fan	Model				2D17K1AA1		2D17K2AA1VE		3D17K2AA1		3D17K2AB1		
	Type				Sirocco Fan		Sirocco Fan		Sirocco Fan		Sirocco Fan		
	Motor Output × Number of Units		W		20×1		30×1		50×1		85×1		
	Air Flow Rate (H/L)		l/s		200/150		275/216		433/350		550/416		
			m³/min		12/9		16.5/13		26/21		33/25		
			cfm		424/318		582/459		918/741		1,165/883		
Drive					Direct Drive		Direct Drive		Direct Drive		Direct Drive		
Temperature Control					Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating		
Sound Absorbing Thermal Insulation Material					Glass Wool/Urethane Foam		Glass Wool/Urethane Foam		Glass Wool/Urethane Foam		Glass Wool/Urethane Foam		
Piping Connections	Liquid Pipes		mm		φ6.4 (Flare Connection)		φ9.5 (Flare Connection)		φ9.5 (Flare Connection)		φ9.5 (Flare Connection)		
	Gas Pipes		mm		φ12.7 (Flare Connection)		φ15.9 (Flare Connection)		φ15.9 (Flare Connection)		φ15.9 (Flare Connection)		
	Drain Pipe		mm		VP25 (External Dia. 32 Internal Dia. 25)		VP25 (External Dia. 32 Internal Dia. 25)		VP25 (External Dia. 32 Internal Dia. 25)		VP25 (External Dia. 32 Internal Dia. 25)		
Mass (Weight)			kg		32		35		47		48		
★5 Sound Level (H/L)			dBA	220V		34/29		37/32		39/34		44/38	
				240V		37/32		39/34		41/36		46/40	
Safety Devices					Fuse, Thermal Protector for Fan Motor		Fuse, Thermal Protector for Fan Motor		Fuse, Thermal Protector for Fan Motor		Fuse, Thermal Protector for Fan Motor		
Refrigerant Control					Electronic Expansion Valve		Electronic Expansion Valve		Electronic Expansion Valve		Electronic Expansion Valve		
Connectable outdoor unit					R-410A P Series		R-410A P Series		R-410A P Series		R-410A P Series		
Decoration Panels (Option)	Model				BYBC50G-W1		BYBC63G-W1		BYBC125G-W1		BYBC125G-W1		
	Panel Color				White (10Y9/0.5)		White (10Y9/0.5)		White (10Y9/0.5)		White (10Y9/0.5)		
	Dimensions: (H×W×D)		mm		53×1,245×680		53×1,430×680		53×1,920×680		53×1,920×680		
	Air Filter				Resin Net (with Mold Resistant)		Resin Net (with Mold Resistant)		Resin Net (with Mold Resistant)		Resin Net (with Mold Resistant)		
	Weight		kg		8.5		9.5		12		12		
Standard Accessories					Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.		Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.		Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.		Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.		
Drawing No.					C: 3D039413								

Notes:

- ★1 Indoor temp.: 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp.: 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp.: 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

$$\begin{aligned} \text{kcal/h} &= \text{kW} \times 860 \\ \text{Btu/h} &= \text{kW} \times 3412 \\ \text{cfm} &= \text{m}^3/\text{min} \times 35.3 \end{aligned}$$

Ceiling Mounted Cassette Type (Multi-flow)

Model			FXFQ25MVE	FXFQ32MVE	FXFQ40MVE	FXFQ50MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,500	3,200	4,000	5,000
		Btu/h	9,900	12,600	16,000	19,800
		kW	2.9	3.7	4.7	5.8
★2 Cooling Capacity (19.0°CWB)		kW	2.8	3.6	4.5	5.6
★3 Heating Capacity		kcal/h	2,800	3,400	4,300	5,400
		Btu/h	10,900	13,600	17,100	21,500
		kW	3.2	4.0	5.0	6.3
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	246×840×840	246×840×840	246×840×840	246×840×840
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×8×1.2	2×8×1.2	2×8×1.2	2×8×1.2
	Face Area	m²	0.363	0.363	0.363	0.363
Fan	Model		QTS46D14M	QTS46D14M	QTS46D14M	QTS46D14M
	Type		Turbo Fan	Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output × Number of Units	W	30×1	30×1	30×1	30×1
	Air Flow Rate (H/L)	l/s	216/166	216/166	250/183	266/183
		m³/min	13/10	13/10	15/11	16/11
		cfm	459/353	459/353	530/388	565/388
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Polyurethane Form	Polyurethane Form	Polyurethane Form	Polyurethane Form
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Mass (Weight)		kg	24	24	24	24
★5 Sound Level (H/L) (220V-240V)		dBA	30/27	30/27	31/27	32/27
Safety Devices			Fuse	Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A P Series	R-410A P Series	R-410A P Series	R-410A P Series
Decoration Panels (Option)	Model		BYCP125D-W1	BYCP125D-W1	BYCP125D-W1	BYCP125D-W1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	45×950×950	45×950×950	45×950×950	45×950×950
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	5.5	5.5	5.5	5.5
Standard Accessories			Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.
Drawing No.			C: 3D038812			

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

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

Ceiling Mounted Cassette Type (Multi-flow)

Model			FXFQ63MVE	FXFQ80MVE	FXFQ100MVE	FXFQ125MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	6,300	8,000	10,000	12,500
		Btu/h	24,900	31,700	39,600	49,500
		kW	7.3	9.3	11.6	14.5
★2 Cooling Capacity (19.0°CWB)		kW	7.1	9.0	11.2	14.0
★3 Heating Capacity		kcal/h	6,900	8,600	10,800	13,800
		Btu/h	27,300	34,100	42,700	54,600
		kW	8.0	10.0	12.5	16.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	246×840×840	246×840×840	288×840×840	288×840×840
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.2	2×10×1.2	2×12×1.2	2×12×1.2
	Face Area	m²	0.454	0.454	0.544	0.544
Fan	Model		QTS46D14M	QTS46D14M	QTS46C17M	QTS46C17M
	Type		Turbo Fan	Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output × Number of Units	W	30×1	30×1	120×1	120×1
	Air Flow Rate (H/L)	l/s	308/233	333/250	433/350	500/400
		m³/min	18.5/14	20/15	26/21	30/24
		cfm	653/494	706/530	918/741	1,059/847
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Polyurethane Form	Polyurethane Form	Polyurethane Form	Polyurethane Form
Piping Connections	Liquid Pipes	mm	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Mass (Weight)		kg	25	25	29	29
★5 Sound Level (H/L) (220V-240V)		dBA	33/28	36/31	39/33	42/36
Safety Devices			Fuse	Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A P Series	R-410A P Series	R-410A P Series	R-410A P Series
Decoration Panels (Option)	Model		BYCP125D-W1	BYCP125D-W1	BYCP125D-W1	BYCP125D-W1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	45×950×950	45×950×950	45×950×950	45×950×950
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	5.5	5.5	5.5	5.5
Standard Accessories			Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.
Drawing No.			C: 3D038812			

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

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

600×600 Ceiling Mounted Cassette Type (Multi Flow)

Model			FXZQ20M8V1B	FXZQ25M8V1B	FXZQ32M8V1B
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,150
		Btu/h	7,900	9,900	12,500
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	260×575×575	260×575×575	260×575×575
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.5	2×10×1.5	2×10×1.5
	Face Area	m²	0.269	0.269	0.269
Fan	Model		QTS32C15M	QTS32C15M	QTS32C15M
	Type		Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output × Number of Units	W	55×1	55×1	55×1
	Air Flow Rate (H/L)	l/s	150/116	150/116	158/125
		m³/min	9/7	9/7	9.5/7.5
		cfm	318/247	318/247	335/265
Drive		Direct Drive	Direct Drive	Direct Drive	
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene/ Foamed Polyethylene	Foamed Polystyrene/ Foamed Polyethylene	Foamed Polystyrene/ Foamed Polyethylene
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Mass (Weight)		kg	18	18	18
★5 Sound Level (H/L)		dBA 220V	30/25	30/25	32/36
		240V	32/26	32/26	34/28
Sound Power		dBA 220V	47	47	49
Safety Devices			Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outside unit			R-410A M(A) Series	R-410A M(A) Series	R-410A M(A) Series
Decoration Panels (Option)	Model		BYFQ60BW1	BYFQ60BW1	BYFQ60BW1
	Panel Color		White (Ral 9010)	White (Ral 9010)	White (Ral 9010)
	Dimensions: (H×W×D)	mm	55×700×700	55×700×700	55×700×700
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	2.7	2.7	2.7
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting.
Drawing No.			C: 3D038929A		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outside temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outside temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outside temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

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

600×600 Ceiling Mounted Cassette Type (Multi Flow)

Model			FXZQ40M8V1B		FXZQ50M8V1B		
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000		5,000		
		Btu/h	15,900		19,900		
		kW	4.7		5.8		
★2 Cooling Capacity (19.0°CWB)		kW	4.5		5.6		
★3 Heating Capacity		kcal/h	4,300		5,400		
		Btu/h	17,000		21,500		
		kW	5.0		6.3		
Casing			Galvanized Steel Plate		Galvanized Steel Plate		
Dimensions: (HxWxD)		mm	260x575x575		260x575x575		
Coil (Cross Fin Coil)	RowsxStagesxFin Pitch	mm	2x10x1.5		2x10x1.5		
	Face Area	m²	0.269		0.269		
Fan	Model		QTS32C15M		QTS32C15M		
	Type		Turbo Fan		Turbo Fan		
	Motor Output x Number of Units	W	55x1		55x1		
	Air Flow Rate (H/L)	l/s	183/133		233/166		
		m³/min	11/8		14/10		
		cfm	388/282		494/353		
	Drive		Direct Drive		Direct Drive		
Temperature Control			Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating		
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene/Foamed Polyethylene		Foamed Polystyrene/Foamed Polyethylene		
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)		φ6.4 (Flare Connection)		
	Gas Pipes	mm	φ12.7 (Flare Connection)		φ12.7 (Flare Connection)		
	Drain Pipe	mm	VP20 （ External Dia. 26 Internal Dia. 20 ）		VP20 （ External Dia. 26 Internal Dia. 20 ）		
Mass (Weight)		kg	18		18		
★5 Sound Level (H/L)		dBA	220V	36/28		41/33	
			240V	36/28		41/33	
Sound Power		dBA	220V	53		58	
Safety Devices			Fuse		Fuse		
Refrigerant Control			Electronic Expansion Valve		Electronic Expansion Valve		
Connectable outside unit			R-410A M(A) Series		R-410A M(A) Series		
Decoration Panels (Option)	Model		BYFQ60BW1		BYFQ60BW1		
	Panel Color		White (Ral 9010)		White (Ral 9010)		
	Dimensions: (HxWxD)	mm	55x700x700		55x700x700		
	Air Filter		Resin Net (with Mold Resistant)		Resin Net (with Mold Resistant)		
	Weight		kg	2.7		2.7	
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting.		Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting.		
Drawing No.			C: 3D038929A				

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outside temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outside temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outside temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

$$\begin{aligned} \text{kcal/h} &= \text{kW} \times 860 \\ \text{Btu/h} &= \text{kW} \times 3412 \\ \text{cfm} &= \text{m}^3/\text{min} \times 35.3 \end{aligned}$$

Ceiling Mounted Cassette Corner Type

Model			FXKQ25MAVE		FXKQ32MAVE		FXKQ40MAVE		FXKQ63MAVE					
★1 Cooling Capacity (19.5°CWB)			kcal/h		2,500		3,200		4,000		6,300			
			Btu/h		9,900		12,600		16,000		24,900			
			kW		2.9		3.7		4.7		7.3			
★2 Cooling Capacity (19.0°CWB)			kW		2.8		3.6		4.5		7.1			
★3 Heating Capacity			kcal/h		2,800		3,400		4,300		6,900			
			Btu/h		10,900		13,600		17,100		27,300			
			kW		3.2		4.0		5.0		8.0			
Casing					Galvanized Steel Plate		Galvanized Steel Plate		Galvanized Steel Plate		Galvanized Steel Plate			
Dimensions: (H×W×D)			mm		215×1,110×710		215×1,110×710		215×1,110×710		215×1,310×710			
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch		mm		2×11×1.75		2×11×1.75		2×11×1.75		3×11×1.75			
	Face Area		m²		0.180		0.180		0.180		0.226			
Fan	Model				3D12H1AN1V1		3D12H1AN1V1		3D12H1AP1V1		4D12H1AJ1V1			
	Type				Sirocco Fan		Sirocco Fan		Sirocco Fan		Sirocco Fan			
	Motor Output × Number of Units		W		15×1		15×1		20×1		45×1			
	Air Flow Rate (H/L)		l/s		183/150		183/150		216/166		300/250			
			m³/min		11/9		11/9		13/10		18/15			
			cfm		388/318		388/318		459/353		635/530			
	Drive				Direct Drive		Direct Drive		Direct Drive		Direct Drive			
Temperature Control					Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating			
Sound Absorbing Thermal Insulation Material					Polyethylene Foam		Polyethylene Foam		Polyethylene Foam		Polyethylene Foam			
Piping Connections	Liquid Pipes		mm		φ6.4 (Flare Connection)		φ6.4 (Flare Connection)		φ6.4 (Flare Connection)		φ9.5 (Flare Connection)			
	Gas Pipes		mm		φ12.7 (Flare Connection)		φ12.7 (Flare Connection)		φ12.7 (Flare Connection)		φ15.9 (Flare Connection)			
	Drain Pipe		mm		VP25 （ External Dia. 32 Internal Dia. 25 ）		VP25 （ External Dia. 32 Internal Dia. 25 ）		VP25 （ External Dia. 32 Internal Dia. 25 ）		VP25 （ External Dia. 32 Internal Dia. 25 ）			
Mass (Weight)			kg		31		31		31		34			
★5 Sound Level (H/L)			dBA		220V		38/33		38/33		40/34		42/37	
					240V		40/35		40/35		42/36		44/39	
Safety Devices					Fuse, Thermal Fuse for Fan Motor		Fuse, Thermal Fuse for Fan Motor		Fuse, Thermal Fuse for Fan Motor		Fuse, Thermal Fuse for Fan Motor			
Refrigerant Control					Electronic Expansion Valve		Electronic Expansion Valve		Electronic Expansion Valve		Electronic Expansion Valve			
Connectable Outdoor Units					R-410A P Series		R-410A P Series		R-410A P Series		R-410A P Series			
Decoration Panels (Option)	Model				BYK45FJW1		BYK45FJW1		BYK45FJW1		BYK71FJW1			
	Panel Color				White (10Y9/0.5)		White (10Y9/0.5)		White (10Y9/0.5)		White (10Y9/0.5)			
	Dimensions: (H×W×D)		mm		70×1,240×800		70×1,240×800		70×1,240×800		70×1,440×800			
	Air Filter				Resin Net (with Mold Resistant)		Resin Net (with Mold Resistant)		Resin Net (with Mold Resistant)		Resin Net (with Mold Resistant)			
	Weight		kg		8.5		8.5		8.5		9.5			
Standard Accessories					Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad.		Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad.		Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad.		Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad.			
Drawing No.					C: 3D038813A									

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured at a point 1m in front of the unit and 1m downward. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

$\text{kcal/h} = \text{kW} \times 860$
 $\text{Btu/h} = \text{kW} \times 3412$
 $\text{cfm} = \text{m}^3/\text{min} \times 35.3$

Slim Ceiling Mounted Duct Type (with Drain Pump)

Model			FXDQ20NAVE	FXDQ25NAVE	FXDQ32NAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	200×900×620	200×900×620	200×900×620
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×12×1.5	2×12×1.5	2×12×1.5
	Face Area	m²	0.176	0.176	0.176
Fan	Model		—	—	—
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62×1	62×1	62×1
	Air Flow Rate (H/L)	l/s	158/125	158/125	175/141
		m³/min	9.5/7.5	9.5/7.5	10.5/8.5
		cfm	335/265	335/265	371/300
	External Static Pressure	Pa	44-15 ★5	44-15 ★5	44-15 ★5
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene
Air Filter			Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Mass (Weight)		kg	26	26	26
★6 Sound Level (H/L)		dBA	33/29	33/29	33/29
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Standard Accessories			Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter
Drawing No.			C: 3D051253		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 External static pressure is changeable to set by the remote controller this pressure means "High static pressure - Standard static pressure".
- ★6 The operation sound levels are the conversion values in anechoic chamber. In practice, the sound tend to be larger than the specified values due to ambient noise or reflections.
When the place of suction is changed to the bottom suction, the sound level will increase by approx. 5dBA.

Conversion Formulae

$$\begin{aligned} \text{kcal/h} &= \text{kW} \times 860 \\ \text{Btu/h} &= \text{kW} \times 3412 \\ \text{cfm} &= \text{m}^3/\text{min} \times 35.3 \end{aligned}$$

Slim Ceiling Mounted Duct Type (with Drain Pump)

Model			FXDQ40NAVE	FXDQ50NAVE	FXDQ63NAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	200×900×620	200×900×620	200×1100×620
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×12×1.5	3×12×1.5	3×12×1.5
	Face Area	m²	0.176	0.176	0.227
Fan	Model		—	—	—
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62×1	130×1	130×1
	Air Flow Rate (H/L)	l/s	175/141	208/166	275/216
		m³/min	10.5/8.5	12.5/10.0	16.5/13.0
		cfm	371/300	441/353	583/459
	External Static Pressure	Pa	44-15 ★5	44-15 ★5	44-15 ★5
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene
Air Filter			Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Mass (Weight)		kg	27	28	31
★6 Sound Level (H/L)		dBA	34/30	35/31	36/32
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Standard Accessories			Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter
Drawing No.			C: 3D051253		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 External static pressure is changeable to set by the remote controller this pressure means "High static pressure - Standard static pressure".
- ★6 The operation sound levels are the conversion values in anechoic chamber. In practice, the sound tend to be larger than the specified values due to ambient noise or reflections.
When the place of suction is changed to the bottom suction, the sound level will increase by approx. 5dBA.

Conversion Formulae

$\text{kcal/h} = \text{kW} \times 860$
 $\text{Btu/h} = \text{kW} \times 3412$
 $\text{cfm} = \text{m}^3/\text{min} \times 35.3$

Slim Ceiling Mounted Duct Type (without Drain Pump)

Model			FXDQ20NVET	FXDQ25NVET	FXDQ32NVET
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	200×900×620	200×900×620	200×900×620
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×12×1.5	2×12×1.5	2×12×1.5
	Face Area	m²	0.176	0.176	0.176
Fan	Model		—	—	—
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62×1	62×1	62×1
	Air Flow Rate (H/L)	m³/min	9.5/7.5	9.5/7.5	10.5/8.5
	External Static Pressure	Pa	44-15 ★5	44-15 ★5	44-15 ★5
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene
Air Filter			Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Mass (Weight)		kg	26	26	26
★6 Sound Level (H/L)		dBA	33/29	33/29	33/29
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter
Drawing No.			3D049693		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 External static pressure is changeable to set by the remote controller this pressure means "High static pressure - Standard static pressure".
- ★6 The operation sound levels are the conversion values in anechoic chamber. In practice, the sound tend to be larger than the specified values due to ambient noise or reflections.
When the place of suction is changed to the bottom suction, the sound level will increase by approx. 5dBA.

Conversion Formulae

$$\begin{aligned} \text{kcal/h} &= \text{kW} \times 860 \\ \text{Btu/h} &= \text{kW} \times 3412 \\ \text{cfm} &= \text{m}^3/\text{min} \times 35.3 \end{aligned}$$

Slim Ceiling Mounted Duct Type (without Drain Pump)

Model			FXDQ40NVET	FXDQ50NVET	FXDQ63NVET
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (HxWxD)		mm	200x900x620	200x900x620	200x1100x620
Coil (Cross Fin Coil)	RowsxStagesxFin Pitch	mm	3x12x1.5	3x12x1.5	3x12x1.5
	Face Area	m²	0.176	0.176	0.227
Fan	Model		—	—	—
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62x1	130x1	130x1
	Air Flow Rate (H/L)	m³/min	10.5/8.5	12.5/10.0	16.5/13.0
	External Static Pressure	Pa	44-15 ★5	44-15 ★5	44-15 ★5
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene
Air Filter			Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Mass (Weight)		kg	27	28	31
★6 Sound Level (H/L)		dBA	34/30	35/31	36/32
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter
Drawing No.			3D049693		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 External static pressure is changeable to set by the remote controller this pressure means "High static pressure - Standard static pressure".
- ★6 The operation sound levels are the conversion values in anechoic chamber. In practice, the sound tend to be larger than the specified values due to ambient noise or reflections.
When the place of suction is changed to the bottom suction, the sound level will increase by approx. 5dBA.

Conversion Formulae

$$\begin{aligned} \text{kcal/h} &= \text{kW} \times 860 \\ \text{Btu/h} &= \text{kW} \times 3412 \\ \text{cfm} &= \text{m}^3/\text{min} \times 35.3 \end{aligned}$$

Slim Ceiling Mounted Duct Type (PVE: with Drain Pump PVET: without Drain Pump)

Model			FXDQ20PVE FXDQ20PVET	FXDQ25PVE FXDQ25PVET	FXDQ32PVE FXDQ32PVET
★1 Cooling Capacity (19.5°CWB)	kcal/h		2,000	2,500	3,200
	Btu/h		7,800	9,900	12,600
	kW		2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)	kW		2.2	2.8	3.6
★3 Heating Capacity	kcal/h		2,200	2,800	3,400
	Btu/h		8,500	10,900	13,600
	kW		2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)			mm	200×900×620	200×900×620
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×12×1.5	2×12×1.5	2×12×1.5
	Face Area	m ²	0.176	0.176	0.176
Fan	Model		—	—	—
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62×1	62×1	62×1
	Air Flow Rate (H/L)	l/s	133/106	133/106	133/106
		m ³ /min	9.5/7.5	9.5/7.5	10.5/8.5
		cfm	282/226	282/226	282/226
	External Static Pressure	Pa	44-15 ★5	44-15 ★5	44-15 ★5
Drive			Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene
Air Filter			Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Mass (Weight)		kg	26	26	26
★6 Sound Level (H/L)		dBA	33/29	33/29	33/29
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Standard Accessories			Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter
Drawing No.			C: 3D052136		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 External static pressure is changeable to set by the remote controller this pressure means "High static pressure - Standard static pressure".
- ★6 The operation sound levels are the conversion values in anechoic chamber. In practice, the sound tend to be larger than the specified values due to ambient noise or reflections.
When the place of suction is changed to the bottom suction, the sound level will increase by approx. 5dBA.

Conversion Formulae

$\text{kcal/h} = \text{kW} \times 860$
 $\text{Btu/h} = \text{kW} \times 3412$
 $\text{cfm} = \text{m}^3/\text{min} \times 35.3$

Ceiling Concealed (Duct) Type (Australia exclusive use)

Model			FXDYQ80MV1	FXDYQ100MV1	FXDYQ125MV1	FXDYQ145MV1
★1 Cooling Capacity (19.5°CWB)	kcal/h		8,000	10,000	12,500	14,500
	Btu/h		31,700	39,600	49,500	57,700
	kW		9.3	11.6	14.5	16.9
★2 Cooling Capacity (19.0°CWB)	kW		9.0	11.2	14.0	16.2
★3 Heating Capacity	kcal/h		8,600	10,800	13,800	15,900
	Btu/h		34,100	42,700	54,600	63,100
	kW		10.0	12.5	16.0	18.5
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	360×1,168×869	360×1,478×899	360×1,478×899	360×1,478×899
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×18×1.5	2×18×1.5	3×18×1.5	3×18×1.5
	Face Area	m ²	0.284	0.435	0.435	0.435
Fan	Type		Twin Sirocco Fan	Twin Sirocco Fan	Twin Sirocco Fan	Twin Sirocco Fan
	Motor Output	W	290	490	490	655
	Air Flow Rate	l/s	590	815	925	1070
		cfm	1250	1726	1959	2266
	External Static Pressure	Pa	130 ★5	130 ★5	100 ★5	130 ★5
Drive			Direct Drive	Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene
★6 Air Filter			—	—	—	—
Piping Connections	Liquid Pipes	mm	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Mass (Weight)		kg	52	61	65	66
★7 Sound Level (240V)		dBA	45	46	48	51
Safety Devices			Fuse for PCB, Fuse for Fan Motor, Thermal Protector for Fan Motor	Fuse for PCB, Fuse for Fan Motor, Thermal Protector for Fan Motor	Fuse for PCB, Fuse for Fan Motor, Thermal Protector for Fan Motor	Fuse for PCB, Fuse for Fan Motor, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Hose, Clamps	Operation Manual, Installation Manual, Drain Hose, Hose, Clamps	Operation Manual, Installation Manual, Drain Hose, Hose, Clamps	Operation Manual, Installation Manual, Drain Hose, Hose, Clamps
Drawing No.			4PDA0355			

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 External static pressure is changeable to set by the remote controller this pressure means "High static pressure - Standard static pressure".
- ★6 Air filter is not a standard accessory. A suitable field supplied filter must be installed in the return air duct.
- ★7 The operation sound levels are the conversion values in anechoic chamber. In practice, the sound tend to be larger than the specified values due to ambient noise or reflections.
When the place of suction is changed to the bottom suction, the sound level will increase by approx. 5dBA.

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

Model			FXDYQ180MV1	FXDYQ200MV1	FXDYQ250MV1
★1 Cooling Capacity (19.5°CWB)		kcal/h	17,700	19,800	24,800
		Btu/h	70,300	78,500	98,300
		kW	20.6	23.0	28.8
★2 Cooling Capacity (19.0°CWB)		kW	20.0	22.4	28.0
★3 Heating Capacity		kcal/h	19,300	21,500	27,000
		Btu/h	76,400	85,300	107,500
		kW	22.4	25.0	31.5
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)			500×1,210×910	500×1,210×910	500×1,410×910
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×22×2.0	3×22×2.0	3×22×2.0
	Face Area	m ²	0.443	0.443	0.54
Fan	Type		Twin Sirocco Fan	Twin Sirocco Fan	Twin Sirocco Fan
	Motor Output	W	700	750	1,100
	Air Flow Rate	l/s	1,180	1,200	1,400
		cfm	2500	2542	2965
	External Static Pressure	Pa	150 ★5	180 ★5	200 ★5
Drive			Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene
★6 Air Filter			—	—	—
Piping Connections	Liquid Pipes	mm	φ9.5 (Brazing Connection)	φ9.5 (Brazing Connection)	φ9.5 (Brazing Connection)
	Gas Pipes	mm	φ19.1 (Brazing Connection)	φ19.1 (Brazing Connection)	φ22.2 (Brazing Connection)
	Drain Pipe	mm	BSP 3/4 inch internal thread	BSP 3/4 inch internal thread	BSP 3/4 inch internal thread
Mass (Weight)			77	79	98
★7 Sound Level (240V)			51	51	51
Safety Devices			Fuse for PCB, Fuse for Fan Motor, Thermal Protector for Fan Motor	Fuse for PCB, Fuse for Fan Motor, Thermal Protector for Fan Motor	Fuse for PCB, Fuse for Fan Motor, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Hose, Clamps	Operation Manual, Installation Manual, Drain Hose, Hose, Clamps	Operation Manual, Installation Manual, Drain Hose, Hose, Clamps
Drawing No.			—		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 External static pressure is changeable to set by the remote controller this pressure means "High static pressure - Standard static pressure".
- ★6 Air filter is not a standard accessory. A suitable field supplied filter must be installed in the return air duct.
- ★7 The operation sound levels are the conversion values in anechoic chamber. In practice, the sound tend to be larger than the specified values due to ambient noise or reflections.
When the place of suction is changed to the bottom suction, the sound level will increase by approx. 5dBA.

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

Ceiling Mounted Built-in Type

Model			FXSQ20MVE	FXSQ25MVE	FXSQ32MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	300×550×800	300×550×800	300×550×800
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.75	3×14×1.75	3×14×1.75
	Face Area	m²	0.088	0.088	0.088
Fan	Model		D18H3A	D18H3A	D18H3A
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	50×1	50×1	50×1
	Air Flow Rate (H/L)	l/s	150/108	150/108	158/116
		m³/min	9/6.5	9/6.5	9.5/7
		cfm	318/230	318/230	335/247
	★4 External static pressure	Pa	88-39-20	88-39-20	64-39-15
Drive		Direct Drive	Direct Drive	Direct Drive	
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Mass (Weight)		kg	30	30	30
★6 Sound Level (H/L)		dB	220V	37/32	38/32
			240V	39/34	40/34
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A P Series	R-410A P Series	R-410A P Series
Decoration Panel (Option)	Model		BYBS32DJW1	BYBS32DJW1	BYBS32DJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	55×650×500	55×650×500	55×650×500
	Weight	kg	3	3	3
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			C: 3D039431		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- ★4 External static pressure is changeable to change over the connectors inside electrical box, this pressure means "High static pressure-Standard -Low static pressure".
- 5 Capacities are net, including a deduction for cooling (an additional for heating) for indoor fan motor heat.
- ★6 Anechoic chamber conversion value, measured at a point 1.5m downward from the unit center. These values are normally somewhat higher during actual operation as a result of ambient conditions.

Conversion Formulae

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

Ceiling Mounted Built-in Type

Model			FXSQ40MVE	FXSQ50MVE	FXSQ63MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	300×700×800	300×700×800	300×1,000×800
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.75	3×14×1.75	3×14×1.75
	Face Area	m²	0.132	0.132	0.221
Fan	Model		D18H2A	D18H2A	2D18H2A
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	65×1	85×1	125×1
	Air Flow Rate (H/L)	l/s	191/150	250/183	350/258
		m³/min	11.5/9	15/11	21/15.5
		cfm	406/318	530/388	741/547
	★4 External static pressure	Pa	88-49-20	88-59-29	88-49-20
Drive		Direct Drive	Direct Drive	Direct Drive	
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Mass (Weight)		kg	30	31	41
★6 Sound Level (H/L)		dBA	220V	41/36	42/35
			240V	43/38	44/37
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A P Series	R-410A P Series	R-410A P Series
Decoration Panel (Option)	Model		BYBS45DJW1	BYBS45DJW1	BYBS71DJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	55×800×500	55×800×500	55×1,100×500
	Weight	kg	3.5	3.5	4.5
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			C: 3D039431		

Notes:

- ★1 Indoor temp.: 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp.: 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp.: 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- ★4 External static pressure is changeable to change over the connectors inside electrical box, this pressure means "High static pressure-Standard -Low static pressure".
- 5 Capacities are net, including a deduction for cooling (an additional for heating) for indoor fan motor heat.
- ★6 Anechoic chamber conversion value, measured at a point 1.5m downward from the unit center. These values are normally somewhat higher during actual operation as a result of ambient conditions.

Conversion Formulae

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

Ceiling Mounted Built-in Type

Model			FXSQ80MVE	FXSQ100MVE	FXSQ125MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	8,000	10,000	12,500
		Btu/h	31,700	39,600	49,500
		kW	9.3	11.6	14.5
★2 Cooling Capacity (19.0°CWB)		kW	9.0	11.2	14.0
★3 Heating Capacity		kcal/h	8,600	10,800	13,800
		Btu/h	34,100	42,700	54,600
		kW	10.0	12.5	16.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	300×1,400×800	300×1,400×800	300×1,400×800
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.75	3×14×1.75	3×14×1.75
	Face Area	m²	0.338	0.338	0.338
Fan	Model		3D18H2A	3D18H2A	3D18H2A
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	225×1	225×1	225×1
	Air Flow Rate (H/L)	l/s	450/358	466/366	633/466
		m³/min	27/21.5	28/22	38/28
		cfm	953/759	988/777	1,341/988
	★4 External static pressure	Pa	113-82	107-75	78-39
Drive		Direct Drive	Direct Drive	Direct Drive	
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Mass (Weight)		kg	51	51	52
★6 Sound Level (H/L)		dB	220V	43/37	46/41
			240V	45/39	48/43
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A P Series	R-410A P Series	R-410A P Series
Decoration Panel (Option)	Model		BYBS125DJW1	BYBS125DJW1	BYBS125DJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	55×1,500×500	55×1,500×500	55×1,500×500
	Weight	kg	6.5	6.5	6.5
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			C: 3D039431		

Notes:

- ★1 Indoor temp.: 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp.: 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp.: 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- ★4 External static pressure is changeable to change over the connectors inside electrical box, this pressure means "High static pressure-Standard".
- 5 Capacities are net, including a deduction for cooling (an additional for heating) for indoor fan motor heat.
- ★6 Anechoic chamber conversion value, measured at a point 1.5m downward from the unit center. These values are normally somewhat higher during actual operation as a result of ambient conditions.

Conversion Formulae

$\text{kcal/h} = \text{kW} \times 860$
 $\text{Btu/h} = \text{kW} \times 3412$
 $\text{cfm} = \text{m}^3/\text{min} \times 35.3$

Ceiling Mounted Duct Type

Model			FXMQ40MAVE	FXMQ50MAVE	FXMQ63MAVE	FXMQ80MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300	8,000
		Btu/h	16,000	19,800	24,900	31,700
		kW	4.7	5.8	7.3	9.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1	9.0
★3 Heating Capacity		kcal/h	4,300	5,400	6,900	8,600
		Btu/h	17,100	21,500	27,300	34,100
		kW	5.0	6.3	8.0	10.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	390×720×690	390×720×690	390×720×690	390×720×690
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×16×2.0	3×16×2.0	3×16×2.0	3×16×2.0
	Face Area	m²	0.181	0.181	0.181	0.181
Fan	Model		D11/2D3AB1VE	D11/2D3AB1VE	D11/2D3AB1VE	D11/2D3AA1VE
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	100×1	100×1	100×1	160×1
	Air Flow Rate (H/L)	l/s	233/191	233/191	233/191	325/266
		m³/min	14/11.5	14/11.5	14/11.5	19.5/16
		cfm	494/406	494/406	494/406	688/565
	External Static Pressure 50Hz	Pa	157-118 ★4	157-118 ★4	157-118 ★4	157-108 ★4
Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive	
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			★5	★5	★5	★5
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Mass (Weight)		kg	44	44	44	45
★7 Sound Level (H/L)		dB	220V	39/35	39/35	42/38
			240V	41/37	41/37	41/37
Safety Devices			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A P Series	R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.
Drawing No.			C: 3D038814A			

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- ★4 External static pressure is changeable to change over the connectors inside electrical box, this pressure means "High static pressure-Standard".
- ★5 Air filter is not standard accessory, but please mount it in the duct system of the suction side. Select its colorimetric method (gravity method) 50% or more.
- 6 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★7 Anechoic chamber conversion value, measured at a point 1.5m downward from the unit center. These values are normally somewhat higher during actual operation as a result of ambient conditions.

Conversion Formulae

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

Ceiling Mounted Duct Type

Model			FXMQ100MAVE		FXMQ125MAVE		FXMQ200MAVE		FXMQ250MAVE			
★1 Cooling Capacity (19.5°CWB)			kcal/h	10,000		12,500		19,800		24,800		
			Btu/h	39,600		49,500		78,500		98,300		
			kW	11.6		14.5		23.0		28.8		
★2 Cooling Capacity (19.0°CWB)			kW	11.2		14.0		22.4		28.0		
★3 Heating Capacity			kcal/h	10,800		13,800		21,500		27,100		
			Btu/h	42,700		54,600		85,300		107,000		
			kW	12.5		16.0		25.0		31.5		
Casing			Galvanized Steel Plate		Galvanized Steel Plate		Galvanized Steel Plate		Galvanized Steel Plate			
Dimensions: (H×W×D)			mm	390×1,110×690		390×1,110×690		470×1,380×1,100		470×1,380×1,100		
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch		mm	3×16×2.0		3×16×2.0		3×26×2.0		3×26×2.0		
	Face Area		m²	0.319		0.319		0.68		0.68		
Fan	Model		2D11/2D3AG1VE		2D11/2D3AF1VE		D13/4G2DA1×2		D13/4G2DA1×2			
	Type		Sirocco Fan		Sirocco Fan		Sirocco Fan		Sirocco Fan			
	Motor Output × Number of Units		W	270×1		430×1		380×2		380×2		
	Air Flow Rate (H/L)	l/s	483/383		600/483		966/833		1,200/1,033			
		m³/min	29/23		36/29		58/50		72/62			
		cfm	1,024/812		1,271/1,024		2,047/1,765		2,542/2,189			
	External Static Pressure 50Hz		Pa	157-98 ★4		191-152 ★4		221-132 ★4		270-147 ★4		
Drive			Direct Drive		Direct Drive		Direct Drive		Direct Drive			
Temperature Control			Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating			
Sound Absorbing Thermal Insulation Material			Glass Fiber		Glass Fiber		Glass Fiber		Glass Fiber			
Air Filter			★5		★5		★5		★5			
Piping Connections	Liquid Pipes		mm	φ9.5 (Flare Connection)		φ9.5 (Flare Connection)		φ9.5 (Flare Connection)		φ9.5 (Flare Connection)		
	Gas Pipes		mm	φ15.9 (Flare Connection)		φ15.9 (Flare Connection)		φ19.1 (Brazing Connection)		φ22.2 (Brazing Connection)		
	Drain Pipe		mm	VP25 (External Dia. 32 Internal Dia. 25)		VP25 (External Dia. 32 Internal Dia. 25)		PS1B		PS1B		
Mass (Weight)			kg	63		65		137		137		
★7 Sound Level (H/L)			dBA	220V	43/39		45/42		48/45		48/45	
				240V	45/41		47/44		49/46		49/46	
Safety Devices				Fuse, Thermal Fuse for Fan Motor		Fuse, Thermal Fuse for Fan Motor		Fuse, Thermal Protector for Fan Motor		Fuse, Thermal Protector for Fan Motor		
Refrigerant Control				Electronic Expansion Valve		Electronic Expansion Valve		Electronic Expansion Valve		Electronic Expansion Valve		
Connectable outdoor unit				R-410A P Series		R-410A P Series		R-410A P Series		R-410A P Series		
Standard Accessories				Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.		Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.		Operation Manual, Installation Manual, Sealing Pads, Connection Pipes, Screws, Clamps.		Operation Manual, Installation Manual, Sealing Pads, Connection Pipes, Screws, Clamps.		
Drawing No.				C: 3D038814A								

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- ★4 External static pressure is changeable to change over the connectors inside electrical box, this pressure means "High static pressure-Standard".
- ★5 Air filter is not standard accessory, but please mount it in the duct system of the suction side. Select its colorimetric method (gravity method) 50% or more.
- ★6 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★7 Anechoic chamber conversion value, measured at a point 1.5m downward from the unit center. These values are normally somewhat higher during actual operation as a result of ambient conditions.

Conversion Formulae

$$\begin{aligned} \text{kcal/h} &= \text{kW} \times 860 \\ \text{Btu/h} &= \text{kW} \times 3412 \\ \text{cfm} &= \text{m}^3/\text{min} \times 35.3 \end{aligned}$$

Ceiling Suspended Type

Model			FXHQ32MAVE	FXHQ63MAVE	FXHQ100MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	3,200	6,300	10,000
		Btu/h	12,600	24,900	39,600
		kW	3.7	7.3	11.6
★2 Cooling Capacity (19.0°CWB)		kW	3.6	7.1	11.2
★3 Heating Capacity		kcal/h	3,400	6,900	10,800
		Btu/h	13,600	27,300	42,700
		kW	4.0	8.0	12.5
Casing Color			White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
Dimensions: (H×W×D)		mm	195×960×680	195×1,160×680	195×1,400×680
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×12×1.75	3×12×1.75	3×12×1.75
	Face Area	m²	0.182	0.233	0.293
Fan	Model		3D12K1AA1	4D12K1AA1	3D12K2AA1
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62×1	62×1	130×1
	Air Flow Rate (H/L)	l/s	200/166	291/233	416/325
		m³/min	12/10	17.5/14	25/19.5
		cfm	424/353	618/494	883/688
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Wool	Glass Wool	Glass Wool
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Mass (Weight)		kg	24	28	33
★5 Sound Level (H/L) (220-240V)		dBA	36/31	39/34	45/37
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers.
Drawing No.			C: 3D038815A		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

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

Wall Mounted Type

Model			FXAQ20MAVE	FXAQ25MAVE	FXAQ32MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing Color			White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)
Dimensions: (H×W×D)		mm	290×795×230	290×795×230	290×795×230
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×14×1.4	2×14×1.4	2×14×1.4
	Face Area	m²	0.161	0.161	0.161
Fan	Model		QCL9661M	QCL9661M	QCL9661M
	Type		Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	Motor Output × Number of Units	W	40×1	40×1	40×1
	Air Flow Rate (H/L)	l/s	125/75	133/83	150/91
		m³/min	7.5/4.5	8/5	9/5.5
		cfm	265/159	282/177	318/194
Drive		Direct Drive	Direct Drive	Direct Drive	
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene
Air Filter			Resin Net (Washable)	Resin Net (Washable)	Resin Net (Washable)
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)
	Drain Pipe	mm	VP13 (External Dia. 18 Internal Dia. 13)	VP13 (External Dia. 18 Internal Dia. 13)	VP13 (External Dia. 18 Internal Dia. 13)
Mass (Weight)		kg	11	11	11
★5 Sound Level (H/L) (220-240V)		dBA	35/29	36/29	37/29
Safety Devices			Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.
Drawing No.			C: 3D039370B		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

$\text{kcal/h} = \text{kW} \times 860$
 $\text{Btu/h} = \text{kW} \times 3412$
 $\text{cfm} = \text{m}^3/\text{min} \times 35.3$

Wall Mounted Type

Model			FXAQ40MAVE	FXAQ50MAVE	FXAQ63MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)
Dimensions: (H×W×D)		mm	290×1,050×230	290×1,050×230	290×1,050×230
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×14×1.4	2×14×1.4	2×14×1.4
	Face Area	m²	0.213	0.213	0.213
Fan	Model		QCL9686M	QCL9686M	QCL9686M
	Type		Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	Motor Output × Number of Units	W	43×1	43×1	43×1
	Air Flow Rate (H/L)	l/s	200/150	250/200	316/233
		m³/min	12/9	15/12	19/14
		cfm	424/318	530/424	671/494
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene
Air Filter			Resin Net (Washable)	Resin Net (Washable)	Resin Net (Washable)
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	VP13 (External Dia. 18 Internal Dia. 13)	VP13 (External Dia. 18 Internal Dia. 13)	VP13 (External Dia. 18 Internal Dia. 13)
Mass (Weight)		kg	14	14	14
★5 Sound Level (H/L) (220-240V)		dBA	39/34	42/36	46/39
Safety Devices			Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.
Drawing No.			C: 3D039370B		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

$\text{kcal/h} = \text{kW} \times 860$
 $\text{Btu/h} = \text{kW} \times 3412$
 $\text{cfm} = \text{m}^3/\text{min} \times 35.3$

Floor Standing Type

Model			FXLQ20MAVE		FXLQ25MAVE		FXLQ32MAVE		
★1 Cooling Capacity (19.5°CWB)			kcal/h	2,000	2,500		3,200		
			Btu/h	7,800	9,900		12,600		
			kW	2.3	2.9		3.7		
★2 Cooling Capacity (19.0°CWB)			kW	2.2	2.8		3.6		
★3 Heating Capacity			kcal/h	2,200	2,800		3,400		
			Btu/h	8,500	10,900		13,600		
			kW	2.5	3.2		4.0		
Casing Color			Ivory White (5Y7.5/1)		Ivory White (5Y7.5/1)		Ivory White (5Y7.5/1)		
Dimensions: (H×W×D)			mm	600×1,000×222	600×1,000×222		600×1,140×222		
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.5		3×14×1.5		3×14×1.5		
	Face Area	m²	0.159		0.159		0.200		
Fan	Model		D14B20		D14B20		2D14B13		
	Type		Sirocco Fan		Sirocco Fan		Sirocco Fan		
	Motor Output × Number of Units	W	15×1		15×1		25×1		
	Air Flow Rate (H/L)	l/s	116/100		116/100		133/100		
		m³/min	7/6		7/6		8/6		
		cfm	247/212		247/212		282/212		
	Drive		Direct Drive		Direct Drive		Direct Drive		
Temperature Control			Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating		Microprocessor Thermostat for Cooling and Heating		
Sound Absorbing Thermal Insulation Material			Glass Fiber/ Urethane Foam		Glass Fiber/ Urethane Foam		Glass Fiber/ Urethane Foam		
Air Filter			Resin Net (with Mold Resistant)		Resin Net (with Mold Resistant)		Resin Net (with Mold Resistant)		
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)		φ6.4 (Flare Connection)		φ6.4 (Flare Connection)		
	Gas Pipes	mm	φ12.7 (Flare Connection)		φ12.7 (Flare Connection)		φ12.7 (Flare Connection)		
	Drain Pipe	mm	φ21 O.D (Vinyl Chloride)		φ21 O.D (Vinyl Chloride)		φ21 O.D (Vinyl Chloride)		
Mass (Weight)		kg	25		25		30		
★5 Sound Level (H/L)		dB	220V	35/32		35/32		35/32	
			240V	37/34		37/34		37/34	
Safety Devices			Fuse, Thermal Protector for Fan Motor		Fuse, Thermal Protector for Fan Motor		Fuse, Thermal Protector for Fan Motor		
Refrigerant Control			Electronic Expansion Valve		Electronic Expansion Valve		Electronic Expansion Valve		
Connectable Outdoor Unit			R-410A P Series		R-410A P Series		R-410A P Series		
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.		Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.		Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.		
Drawing No.			C: 3D038816A						

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured at a point 1.5 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

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

Floor Standing Type

Model			FXLQ40MAVE	FXLQ50MAVE	FXLQ63MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		mm	600×1,140×222	600×1,420×222	600×1,420×222
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.5	3×14×1.5	3×14×1.5
	Face Area	m²	0.200	0.282	0.282
Fan	Model		2D14B13	2D14B20	2D14B20
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	25×1	35×1	35×1
	Air Flow Rate (H/L)	l/s	183/141	233/183	266/200
		m³/min	11/8.5	14/11	16/12
		cfm	388/300	494/388	565/424
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	φ21 O.D (Vinyl Chloride)	φ21 O.D (Vinyl Chloride)	φ21 O.D (Vinyl Chloride)
Mass (Weight)		kg	30	36	36
★5 Sound Level (H/L)		dBA	220V	38/33	40/35
			240V	40/35	41/36
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			C: 3D038816A		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured at a point 1.5 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

$\text{kcal/h} = \text{kW} \times 860$
 $\text{Btu/h} = \text{kW} \times 3412$
 $\text{cfm} = \text{m}^3/\text{min} \times 35.3$

Concealed Floor Standing Type

Model			FXNQ20MAVE	FXNQ25MAVE	FXNQ32MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	610×930×220	610×930×220	610×1,070×220
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.5	3×14×1.5	3×14×1.5
	Face Area	m²	0.159	0.159	0.200
Fan	Model		D14B20	D14B20	2D14B13
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	15×1	15×1	25×1
	Air Flow Rate (H/L)	l/s	116/100	116/100	133/100
		m³/min	7/6	7/6	8/6
		cfm	247/212	247/212	282/212
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)
	Drain Pipe	mm	φ21 O.D (Vinyl Chloride)	φ21 O.D (Vinyl Chloride)	φ21 O.D (Vinyl Chloride)
Mass (Weight)		kg	19	19	23
★5 Sound Level (H/L)		dBA	220V	35/32	35/32
			240V	37/34	37/34
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			C: 3D038817A		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured at a point 1.5 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

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

Concealed Floor Standing Type

Model			FXNQ40MAVE	FXNQ50MAVE	FXNQ63MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	610×1,070×220	610×1,350×220	610×1,350×220
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.5	3×14×1.5	3×14×1.5
	Face Area	m²	0.200	0.282	0.282
Fan	Model		2D14B13	2D14B20	2D14B20
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	25×1	35×1	35×1
	Air Flow Rate (H/L)	l/s	183/141	233/183	266/200
		m³/min	11/8.5	14/11	16/12
		cfm	388/300	494/388	565/424
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber / Urethane Foam	Glass Fiber / Urethane Foam	Glass Fiber / Urethane Foam
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	φ6.4 (Flare Connection)	φ6.4 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ12.7 (Flare Connection)	φ12.7 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	φ21 O.D (Vinyl Chloride)	φ21 O.D (Vinyl Chloride)	φ21 O.D (Vinyl Chloride)
Mass (Weight)		kg	23	27	27
★5 Sound Level (H/L)		dBA	220V	38/33	40/35
			240V	40/35	41/36
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			C: 3D038817A		

Notes:

- ★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
- ★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)
- 4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★5 Anechoic chamber conversion value, measured at a point 1.5 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae

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

1.3 BS Units

Model			BSVQ100PV1	BSVQ160PV1	BSVQ250PV1
Power Supply			1 Phase 50Hz 200-240V	1 Phase 50Hz 200-240V	1 Phase 50Hz 200-240V
Total Capacity Index of Indoor Unit			100 or less	More than 100 but 160 or less	More than 160 but 250 less
No. of Connectable Indoor Units			Max. 5	Max. 8	Max. 5
Casing			Galvanized steel plate	Galvanized steel plate	Galvanized steel plate
Dimensions: (H×W×D)		mm	207×388×326	207×388×326	207×388×326
Sound Absorbing Thermal Insulation Material			Foamed polyurethane, Felt	Foamed polyurethane, Felt	Foamed polyurethane, Felt
Piping Connection	Indoor Unit	Liquid Pipes	9.5mm C1220T (brazing connection) ★1	9.5mm C1220T (brazing connection)	9.5mm C1220T (brazing connection)
		Gas Pipes	15.9mm C1220T (brazing connection) ★1	15.9mm C1220T (brazing connection)	22.2mm C1220T (brazing connection) ★2
	Outdoor Unit	Liquid Pipes	9.5mm C1220T (brazing connection) ★1	9.5mm C1220T (brazing connection)	9.5mm C1220T (brazing connection)
		Suction Gas Pipes	15.9mm C1220T (brazing connection) ★1	15.9mm C1220T (brazing connection)	22.2mm C1220T (brazing connection) ★2
		Discharge Gas Pipes	12.7mm C1220T (brazing connection) ★1	12.7mm C1220T (brazing connection)	19.1mm C1220T (brazing connection) ★3
Weight		kg	14	14	15
Standard Accessories			Installation manual, Attached pipe Insulation pipe cover, Clamps	Installation manual, Attached pipe Insulation pipe cover, Clamps	Installation manual, Attached pipe Insulation pipe cover, Clamps
Drawing No.			C: 4D057926	C: 4D057927	C: 4D057928

- Note:**
- ★1 If the total capacity of all indoor units connected to the system is less than 7.1 kW, connect the attached pipe to the field pipe. (Braise the connection between the attached pipe and field pipe.)
 - ★2 Use the field flanged pipe. Also, with a 200 class indoor unit, connect the attached reducer to the field pipe. (Braise the connection between the attached pipe and field pipe.)
 - ★3 Use the attached pipe.

Connection Range for BS Unit

Components	Outdoor unit model name	Total capacity of connectable indoor units	Number of connectable indoor units
Indoor unit total capacity	REYQ8P	100 to 260 (400)	13 (20)
	REYQ10P	125 to 325 (500)	16 (25)
	REYQ12P	150 to 390 (600)	19 (30)
	REYQ14P	175 to 455 (700)	22 (35)
	REYQ16P	200 to 520 (800)	26 (40)
	REYQ18P	225 to 585 (720)	29 (36)
	REYQ20P	250 to 650 (800)	32 (40)
	REYQ22P	275 to 715 (880)	35 (44)
	REYQ24P	300 to 780 (960)	39 (48)
	REYQ26P	325 to 845 (1,040)	42 (52)
	REYQ28P	350 to 910 (1,120)	45 (56)
	REYQ30P	375 to 975 (1,200)	48 (60)
	REYQ32P	400 to 1,040 (1,280)	52 (64)
	REYQ34P	425 to 1,105 (1,105)	55 (55)
	REYQ36P	450 to 1,170 (1,170)	58 (58)
	REYQ38P	475 to 1,235 (1,235)	61 (61)
	REYQ40P	500 to 1,300 (1,300)	64 (64)
	REYQ42P	525 to 1,365 (1,365)	
	REYQ44P	550 to 1,430 (1,430)	
	REYQ46P	575 to 1,495 (1,495)	
	REYQ48P	600 to 1,560 (1,560)	

- Note:**
- ★ Values inside brackets are based on connection of indoor units rated at maximum capacity, 200% from single outdoor units, 160% from double outdoor units, 130% from triple outdoor units.

Part 3

Refrigerant Circuit

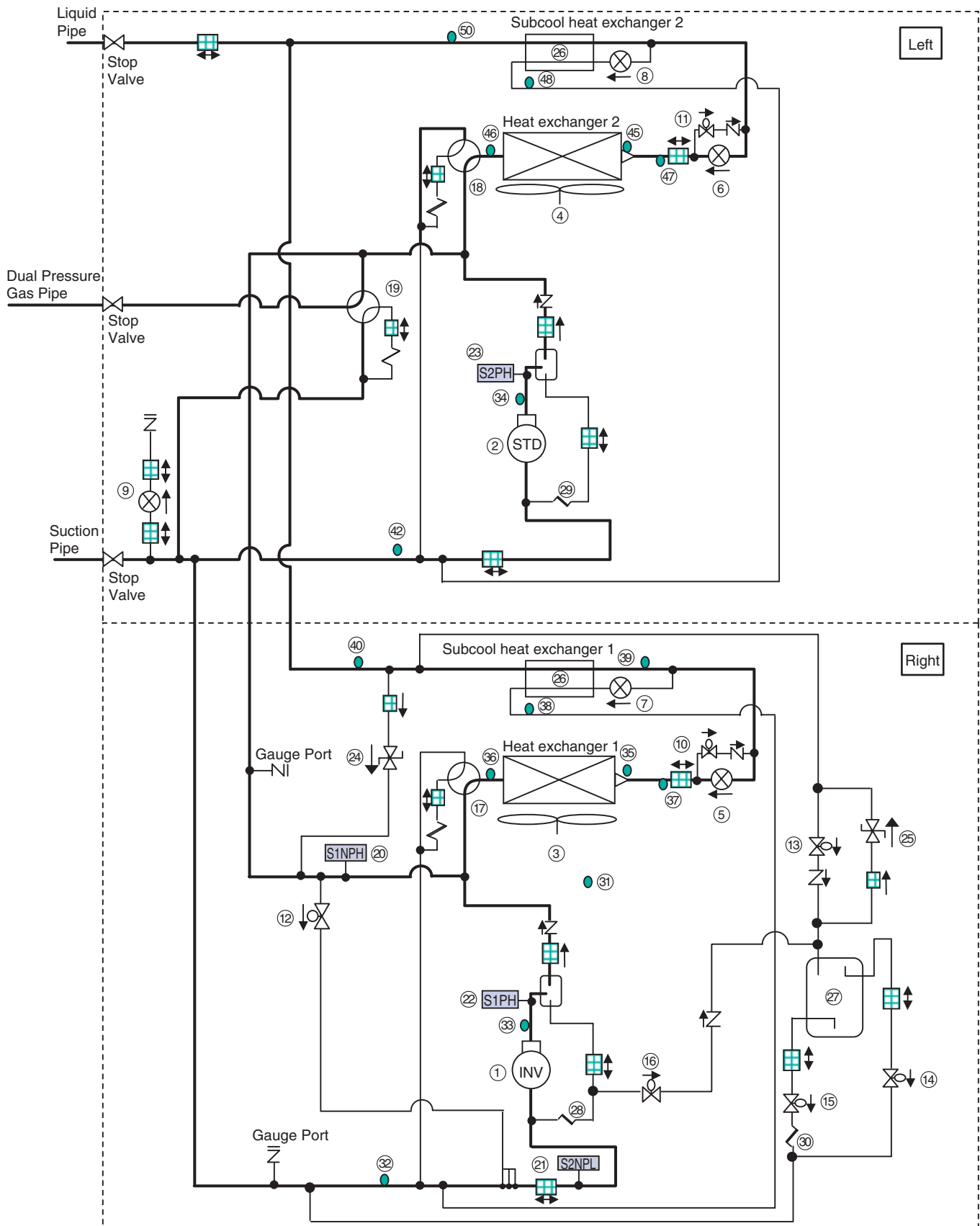
1. Refrigerant Circuit	50
1.1 REYQ8P, 10P, 12P	50
1.2 REYQ14P, 16P	52
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1. Refrigerant Circuit

1.1 REYQ8P, 10P, 12P

No. in refrigerant system diagram	Symbol	Name	Major Function
1	M1C	Inverter compressor (INV)	Inverter compressor is operated on frequencies between 52Hz and 210Hz by using the inverter, while Standard compressor is operated with commercial power supply only. The number of operating steps is as follows when Inverter compressor is operated in combination with Standard compressor. REYQ8, 10, 12P : 37 steps
2	M2C	Standard compressor 1 (STD1)	
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	Since the system is of air heat exchanging type, the fan is operated at 9-step rotation speed by using the inverter.
5(6)	Y1E (Y3E)	Electronic expansion valve (Main1 (Main2))	While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
7(8)	Y2E (Y5E)	Electronic expansion valve (Subcool1 (Subcool2))	PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant.
9	Y4E	Electronic expansion valve (Refrigerant charge EVJ)	This is used to open/close refrigerant charge port.
10(11)	Y5S (Y10S)	Solenoid valve (Main bypass1 (Main bypass2))	This opens in cooling operation.
12	Y4S	Solenoid valve (Hot gas: SVP)	Used to prevent the low pressure from transient falling.
13	Y3S	Solenoid valve (Refrigerant regulator liquid pipe SVL)	This is used to collect refrigerant to the refrigerant regulator.
14	Y1S	Solenoid valve (Refrigerant regulator gas purging pipe SVG)	This is used to collect refrigerant to the refrigerant regulator.
15	Y7S	Solenoid valve (Refrigerant regulator discharge pipe SVO)	This is used to discharge refrigerant from the refrigerant regulator.
16	Y6S	Solenoid valve (Discharge pipe of refrigerant regulator)	Bypass the high pressure gas to the refrigerant regulator.
17(18)	Y2S (Y9S)	4 way valve (Heat exchanger switch 20SA)	This is used to switch outdoor heat exchanger to evaporator or condenser.
19	Y8S	4 way valve (Dual pressure gas pipe switch 20SB)	This is used to switch dual pressure gas pipe to high pressure or low pressure.
20	S1NPH	High pressure sensor	Used to detect high pressure.
21	S2NPL	Low pressure sensor	Used to detect low pressure.
22	S1PH	HP pressure switch (For INV)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
23	S2PH	HP pressure switch (For STD)	
24	—	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.
25	—	Pressure regulating valve (Refrigerant regulator)	This is used when pressure increases, to prevent any damage on components caused by pressure increase in transport or storage.
26	—	Subcooling heat exchanger	Apply subcooling to liquid refrigerant.
27	—	Refrigerant regulator	Surplus refrigerant is held according to the operation conditions.
28	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the INV compressor.
29	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the STD1 compressor.
30	—	Capillary tube	This is used to discharge refrigerant from the refrigerant regulator.
31	R1T	Thermistor (Outdoor air: Ta)	Used to detect outdoor temperature, correct discharge pipe temperature, and others.
32(42)	R8T (R10T)	Thermistor (Suction pipe: TsA)	Used to detect suction pipe temperature.
33	R31T	Thermistor (INV discharge pipe: Tdi)	Used to detect discharge pipe temperature. Used for compressor temperature protection control.
34	R32T	Thermistor (STD1 discharge pipe: Tds1)	
35(45)	R4T (R12T)	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger. Used to make judgments on defrosting operation.
36(46)	R2T (R11T)	Thermistor (Heat exchanger gas pipe Tg)	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.
37(47)	R7T (R15T)	Thermistor (Heat exchanger liquid pipe Tf)	This detects temperature of liquid pipe between the air heat exchanger and main electronic expansion valve. Used to make judgments on the recover or discharge refrigerants to the refrigerant regulator.
38(48)	R5T (R13T)	Thermistor (Subcooling heat exchanger gas pipe: Tsh)	Used to detect gas pipe temperature on the evaporation side of subcooling heat exchanger. Used to exercise the constant control of superheated degree at the outlet of supercooled heat exchanger.
39	R6T	Thermistor (Subcooling heat exchanger liquid pipe Tl)	This detects temperature of liquid pipe between the main expansion valve and subcooling heat exchanger.
40(50)	R9T (R14T)	Thermistor (Liquid pipe Tsc)	This detects temperature of liquid pipe between the liquid stop valve and subcooling heat exchanger.

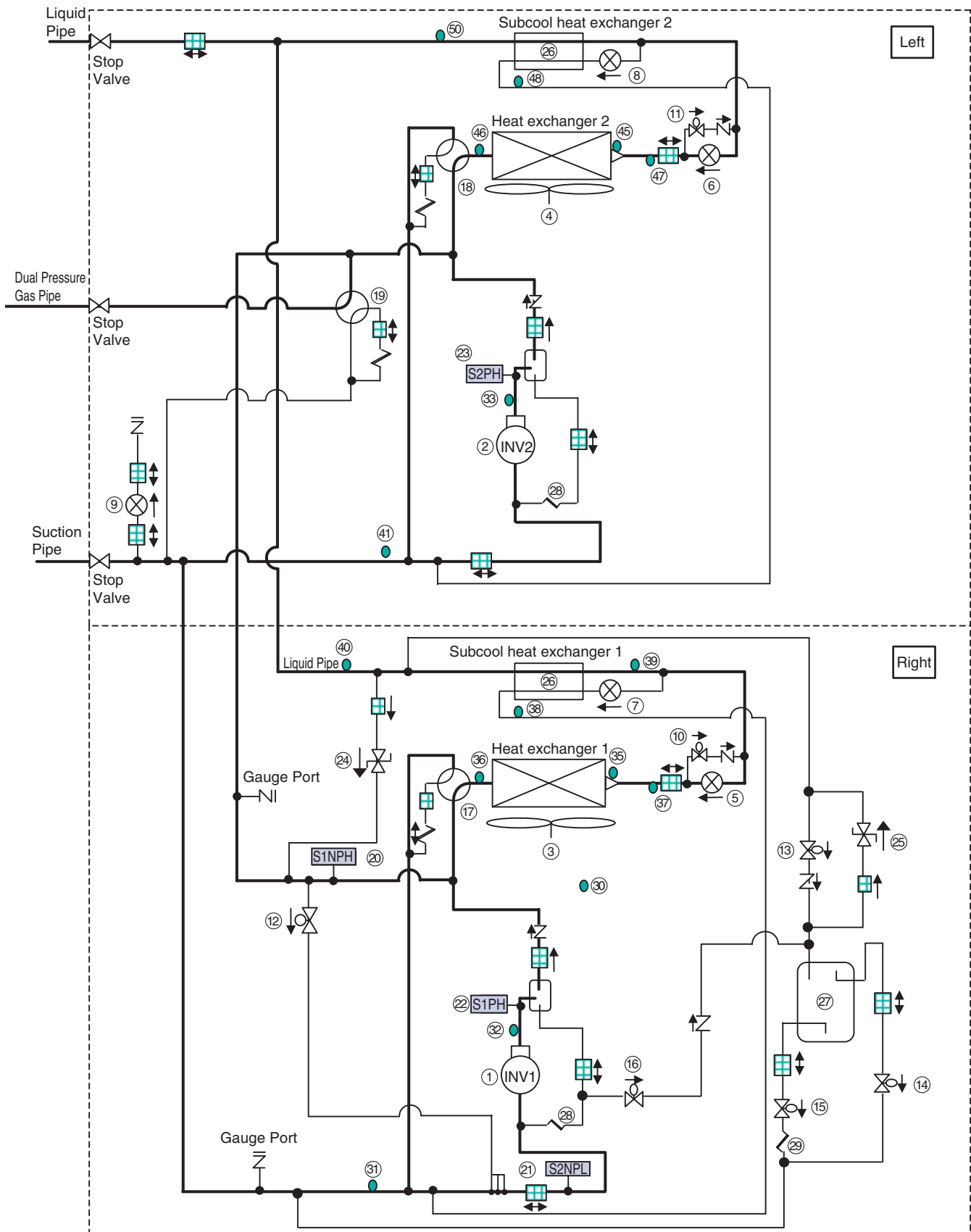
REYQ8P, 10P, 12P
(8HP, 10HP, 12HP Single Type)
(INV Unit + STD Unit)



1.2 REYQ14P, 16P

No. in refrigerant system diagram	Symbol	Name	Major Function
1	M1C	Inverter compressor (INV1)	Inverter compressor is operated on frequencies between 52Hz and 266Hz by using the inverter. The number of operating steps is as follows. REYQ14P or 16P : 26 step
2	M2C	Standard compressor 1 (INV2)	
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	Since the system is of air heat exchanging type, the fan is operated at 9-step rotation speed by using the inverter.
5(6)	Y1E (Y3E)	Electronic expansion valve (Main1 (Main2))	While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
7(8)	Y2E (Y5E)	Electronic expansion valve (Subcool1 (Subcool2))	PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant.
9	Y4E	Electronic expansion valve (Refrigerant charge EVJ)	This is used to open/close refrigerant charge port.
10(11)	Y5S (Y10S)	Solenoid valve (Main bypass1 (Main bypass2))	This opens in cooling operation.
12	Y4S	Solenoid valve (Hot gas: SVP)	Used to prevent the low pressure from transient falling.
13	Y3S	Solenoid valve (Refrigerant regulator liquid pipe SVL)	This is used to collect refrigerant to the refrigerant regulator.
14	Y1S	Solenoid valve (Refrigerant regulator gas purging pipe SVG)	This is used to collect refrigerant to the refrigerant regulator.
15	Y7S	Solenoid valve (Refrigerant regulator discharge pipe SVO)	This is used to discharge refrigerant from the refrigerant regulator.
16	Y6S	Solenoid valve (Discharge pipe of refrigerant regulator)	Bypass the high pressure gas to the refrigerant regulator.
17(18)	Y2S (Y9S)	4 way valve (Heat exchanger switch 20SA)	This is used to switch outdoor heat exchanger to evaporator or condenser.
19	Y8S	4 way valve (Dual pressure gas pipe switch 20SB)	This is used to switch dual pressure gas pipe to high pressure or low pressure.
20	S1NPH	High pressure sensor	Used to detect high pressure.
21	S2NPL	Low pressure sensor	Used to detect low pressure.
22(23)	S1PH (S2PH)	HP pressure switch (For INV compressor)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
24	—	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.
25	—	Pressure regulating valve (Refrigerant regulator)	This is used when pressure increases, to prevent any damage on components caused by pressure increase in transport or storage.
26	—	Subcooling heat exchanger	Apply subcooling to liquid refrigerant.
27	—	Refrigerant regulator	Surplus refrigerant is held according to the operation conditions.
28	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the INV compressor.
29	—	Capillary tube	This is used to discharge refrigerant from the refrigerant regulator.
30	R1T	Thermistor (Outdoor air: Ta)	Used to detect outdoor temperature, correct discharge pipe temperature, and others.
31(41)	R8T (R10T)	Thermistor (Suction pipe: TsA)	Used to detect suction pipe temperature.
32	R31T	Thermistor (INV1 discharge pipe: Tdi)	Used to detect discharge pipe temperature. Used for compressor temperature protection control.
33	R32T	Thermistor (INV2 discharge pipe: Tds1)	
35(45)	R4T (R12T)	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger. Used to make judgments on defrosting operation.
36(46)	R2T (R11T)	Thermistor (Heat exchanger gas pipe Tg)	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.
37(47)	R7T (R15T)	Thermistor (Heat exchanger liquid pipe Tf)	This detects temperature of liquid pipe between the air heat exchanger and main electronic expansion valve. Used to make judgments on the recover or discharge refrigerants to the refrigerant regulator.
38(48)	R5T (R13T)	Thermistor (Subcooling heat exchanger gas pipe: Tsh)	This detects temperature of gas pipe on the evaporator side for the subcooling heat exchanger. Used to exercise the constant control of superheated degree at the outlet of supercooled heat exchanger.
39	R6T	Thermistor (Subcooling heat exchanger liquid pipe TI)	This detects temperature of liquid pipe between the main expansion valve and subcooling heat exchanger.
40(50)	R9T (R14T)	Thermistor (Liquid pipe Tsc)	This detects temperature of liquid pipe between the liquid stop valve and subcooling heat exchanger.

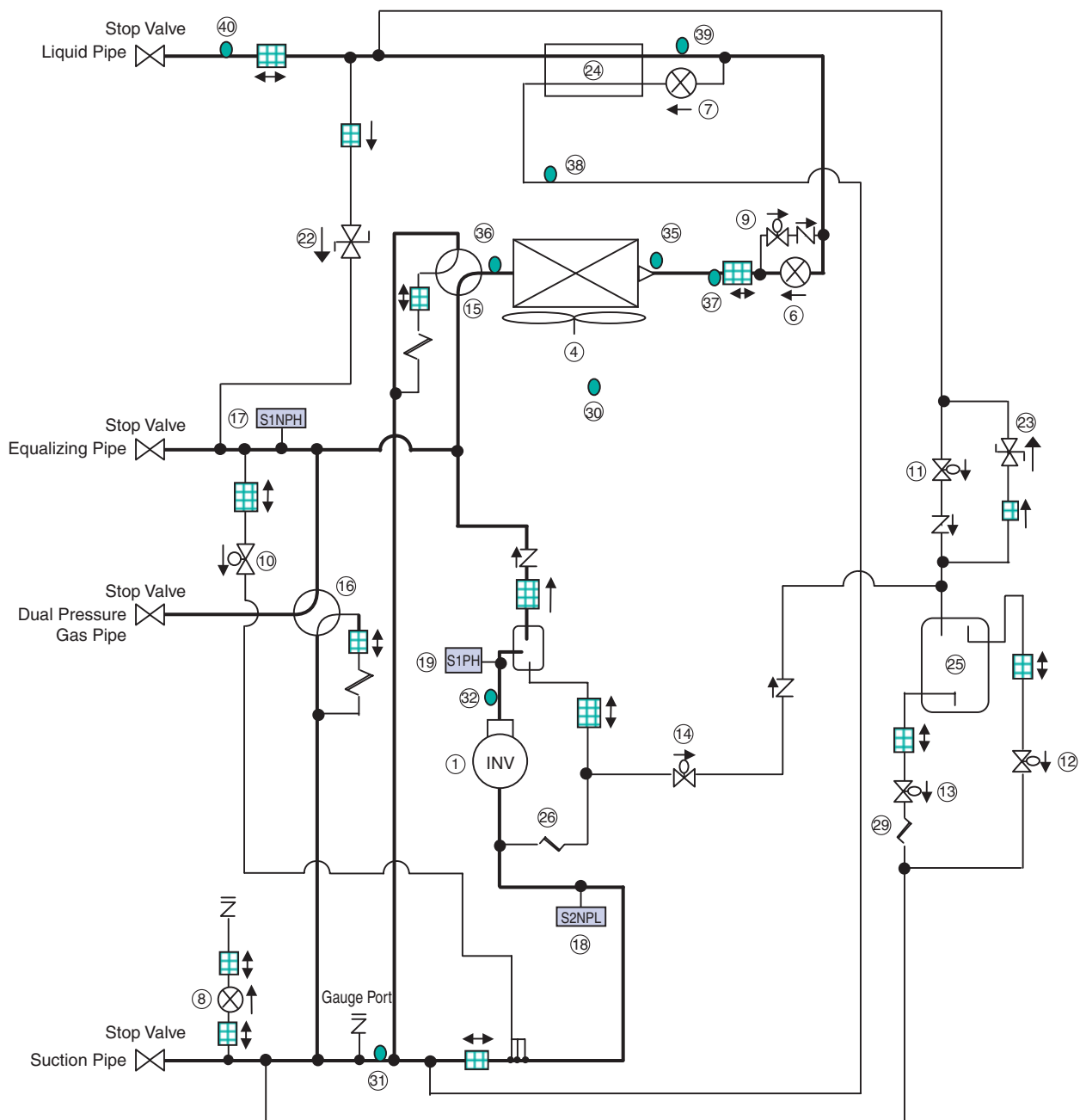
REYQ14P, 16P
(14HP, 16HP Single Type)
(INV Unit x 2)



1.3 REMQ8PY1 (Multi 8HP)

No. in refrigerant system diagram	Symbol	Name	Major Function
1	M1C	Inverter compressor (INV)	Inverter compressor is operated on frequencies between 52Hz and 210Hz by using the inverter. Compressor operation steps : Refer to page 104~107.
4	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.
6	Y1E	Electronic expansion valve (Main: EVM)	While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
7	Y3E	Electronic expansion valve (Subcool: EVT)	PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant.
8	Y2E	Electronic expansion valve (Refrigerant charge EVJ)	This is used to open/close refrigerant charge port.
9	Y6S	Solenoid valve (Main bypass SVE)	This opens in cooling operation.
10	Y5S	Solenoid valve (Hot gas: SVP)	Used to prevent the low pressure from transient falling.
11	Y4S	Solenoid valve (Refrigerant regulator liquid pipe SVL)	This is used to collect refrigerant to the refrigerant regulator.
12	Y1S	Solenoid valve (Refrigerant regulator gas purging pipe SVG)	This is used to collect refrigerant to the refrigerant regulator.
13	Y7S	Solenoid valve (Refrigerant regulator discharge pipe SVO)	This is used to discharge refrigerant from the refrigerant regulator.
14	Y8S	Solenoid valve (Discharge pipe of refrigerant regulator)	Bypass the high pressure gas to the refrigerant regulator.
15	Y3S	4 way valve (Heat exchanger switch 20SA)	This is used to switch outdoor heat exchanger to evaporator or condenser.
16	Y2S	4 way valve (Dual pressure gas pipe switch 20SB)	This is used to switch dual pressure gas pipe to high pressure or low pressure.
17	S1NPH	High pressure sensor	Used to detect high pressure.
18	S2NPL	Low pressure sensor	Used to detect low pressure.
19	S1PH	HP pressure switch (For INV compressor)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
22	—	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.
23	—	Pressure regulating valve (Refrigerant regulator)	This is used when pressure increases, to prevent any damage on components caused by pressure increase in transport or storage.
24	—	Subcooling heat exchanger	Apply subcooling to liquid refrigerant.
25	—	Refrigerant regulator	Surplus refrigerant is held according to the operation conditions.
26	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the INV compressor.
29	—	Capillary tube	This is used to discharge refrigerant from the refrigerant regulator.
30	R1T	Thermistor (Outdoor air: Ta)	Used to detect outdoor temperature.
31	R8T	Thermistor (Suction pipe: TsA)	Used to detect suction pipe temperature.
32	R31T	Thermistor (INV discharge pipe: Tdi)	Used to detect discharge pipe temperature.
35	R4T	Thermistor (Heat exchanger deicer Tb)	This detects temperature of some of the liquid pipes for air heat exchanger.
36	R2T	Thermistor (Heat exchanger gas pipe Tg)	This detects temperature of gas pipe for air heat exchanger.
37	R7T	Thermistor (Heat exchanger liquid pipe Tf)	This detects temperature of liquid pipe between the air heat exchanger and main electronic expansion valve.
38	R5T	Thermistor (Subcooling heat exchanger gas pipe Tsh)	This detects temperature of gas pipe on the evaporator side for the subcooling heat exchanger.
39	R6T	Thermistor (Subcooling heat exchanger liquid pipe Tl)	This detects temperature of liquid pipe between the main expansion valve and subcooling heat exchanger.
40	R9T	Thermistor (Liquid pipe Tsc)	This detects temperature of liquid pipe between the liquid stop valve and subcooling heat exchanger.

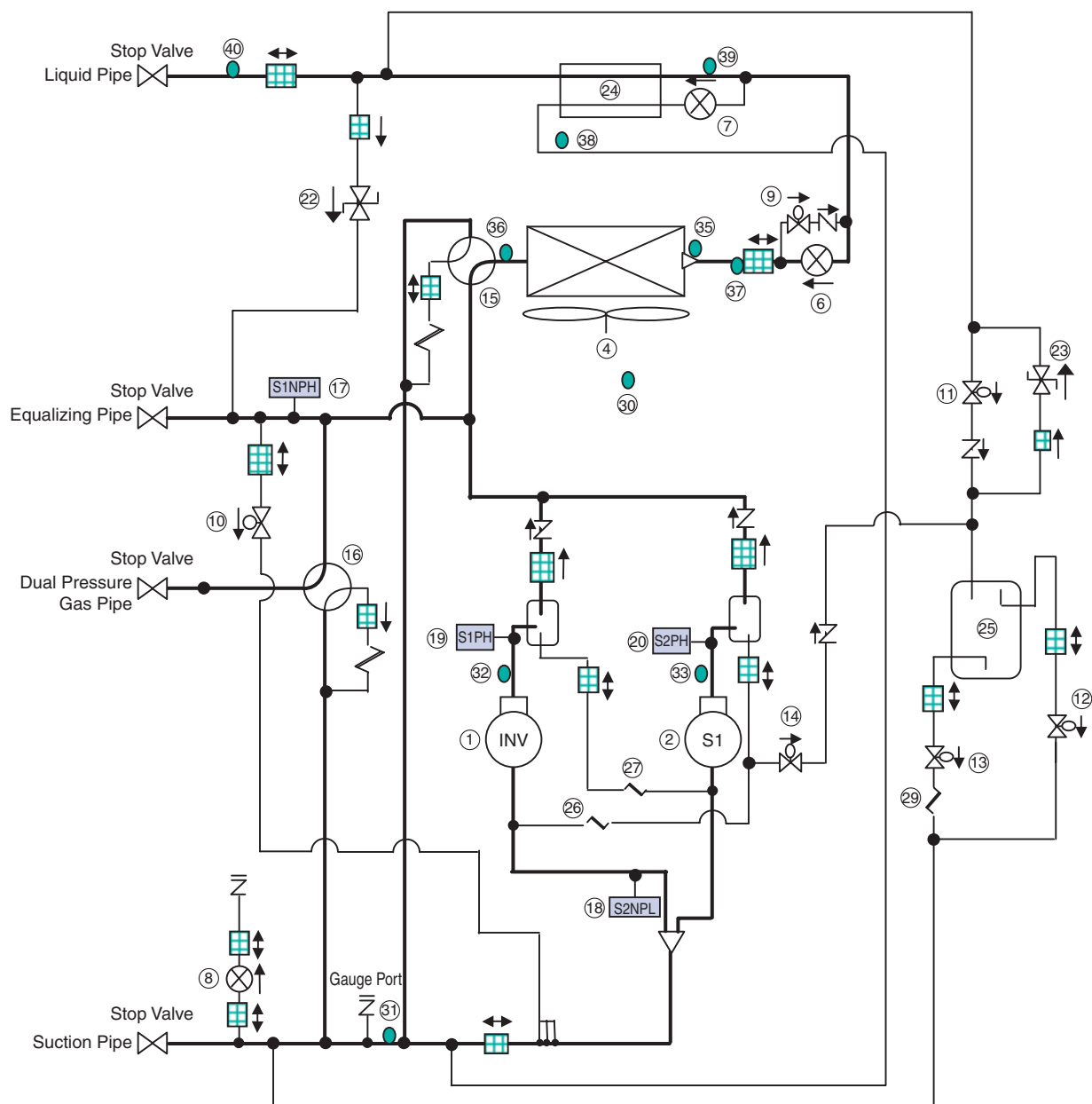
REMQ8PY1



1.4 REMQ10PY1, 12PY1 (Multi 10, 12HP)

No. in refrigerant system diagram	Symbol	Name	Major Function
1	M1C	Inverter compressor (INV)	Inverter compressor is operated on frequencies between 52Hz and 210Hz by using the inverter, while Standard compressor is operated with commercial power supply only. The number of operating steps is as follows when Inverter compressor is operated in combination with Standard compressor. Compressor operation steps : Refer to page 104~107.
2	M2C	Standard compressor 1 (STD1)	
4	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.
6	Y1E	Electronic expansion valve (Main: EVM)	While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
7	Y3E	Electronic expansion valve (Subcool: EVT)	PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant.
8	Y2E	Electronic expansion valve (Refrigerant charge EVJ)	This is used to open/close refrigerant charge port.
9	Y6S	Solenoid valve (Main bypass SVE)	This opens in cooling operation.
10	Y5S	Solenoid valve (Hot gas: SVP)	Used to prevent the low pressure from transient falling.
11	Y4S	Solenoid valve (Refrigerant regulator liquid pipe SVL)	This is used to collect refrigerant to the refrigerant regulator.
12	Y1S	Solenoid valve (Refrigerant regulator gas purging pipe SVG)	This is used to collect refrigerant to the refrigerant regulator.
13	Y7S	Solenoid valve (Refrigerant regulator discharge pipe SVO)	This is used to discharge refrigerant from the refrigerant regulator.
14	Y8S	Solenoid valve (Discharge pipe of refrigerant regulator)	Bypass the high pressure gas to the refrigerant regulator.
15	Y3S	4 way valve (Heat exchanger switch 20SA)	This is used to switch outdoor heat exchanger to evaporator or condenser.
16	Y2S	4 way valve (Dual pressure gas pipe switch 20SB)	This is used to switch dual pressure gas pipe to high pressure or low pressure.
17	S1NPH	High pressure sensor	Used to detect high pressure.
18	S2NPL	Low pressure sensor	Used to detect low pressure.
19	S1PH	HP pressure switch (For INV compressor)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
20	S2PH	HP pressure switch (For STD compressor 1)	
22	—	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.
23	—	Pressure regulating valve (Refrigerant regulator)	This is used when pressure increases, to prevent any damage on components caused by pressure increase in transport or storage.
24	—	Subcooling heat exchanger	Apply subcooling to liquid refrigerant.
25	—	Refrigerant regulator	Surplus refrigerant is held according to the operation conditions.
26	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the INV compressor.
27	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the STD1 compressor.
29	—	Capillary tube	This is used to discharge refrigerant from the refrigerant regulator.
30	R1T	Thermistor (Outdoor air: Ta)	Used to detect outdoor temperature, correct discharge pipe temperature, and others.
31	R8T	Thermistor (Suction pipe: TsA)	Used to detect suction pipe temperature.
32	R31T	Thermistor (INV discharge pipe: Tdi)	Used to detect discharge pipe temperature.
33	R32T	Thermistor (STD1 discharge pipe: Tds1)	
35	R4T	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger.
36	R2T	Thermistor (Heat exchanger gas pipe Tg)	This detects temperature of gas pipe for air heat exchanger.
37	R7T	Thermistor (Heat exchanger liquid pipe Tf)	This detects temperature of liquid pipe between the air heat exchanger and main electronic expansion valve.
38	R5T	Thermistor (Subcooling heat exchanger gas pipe: Tsh)	Used to detect gas pipe temperature on the evaporation side of subcooling heat exchanger.
39	R6T	Thermistor (Subcooling heat exchanger liquid pipe Tl)	This detects temperature of liquid pipe between the main expansion valve and subcooling heat exchanger.
40	R9T	Thermistor (Liquid pipe Tsc)	This detects temperature of liquid pipe between the liquid stop valve and subcooling heat exchanger.

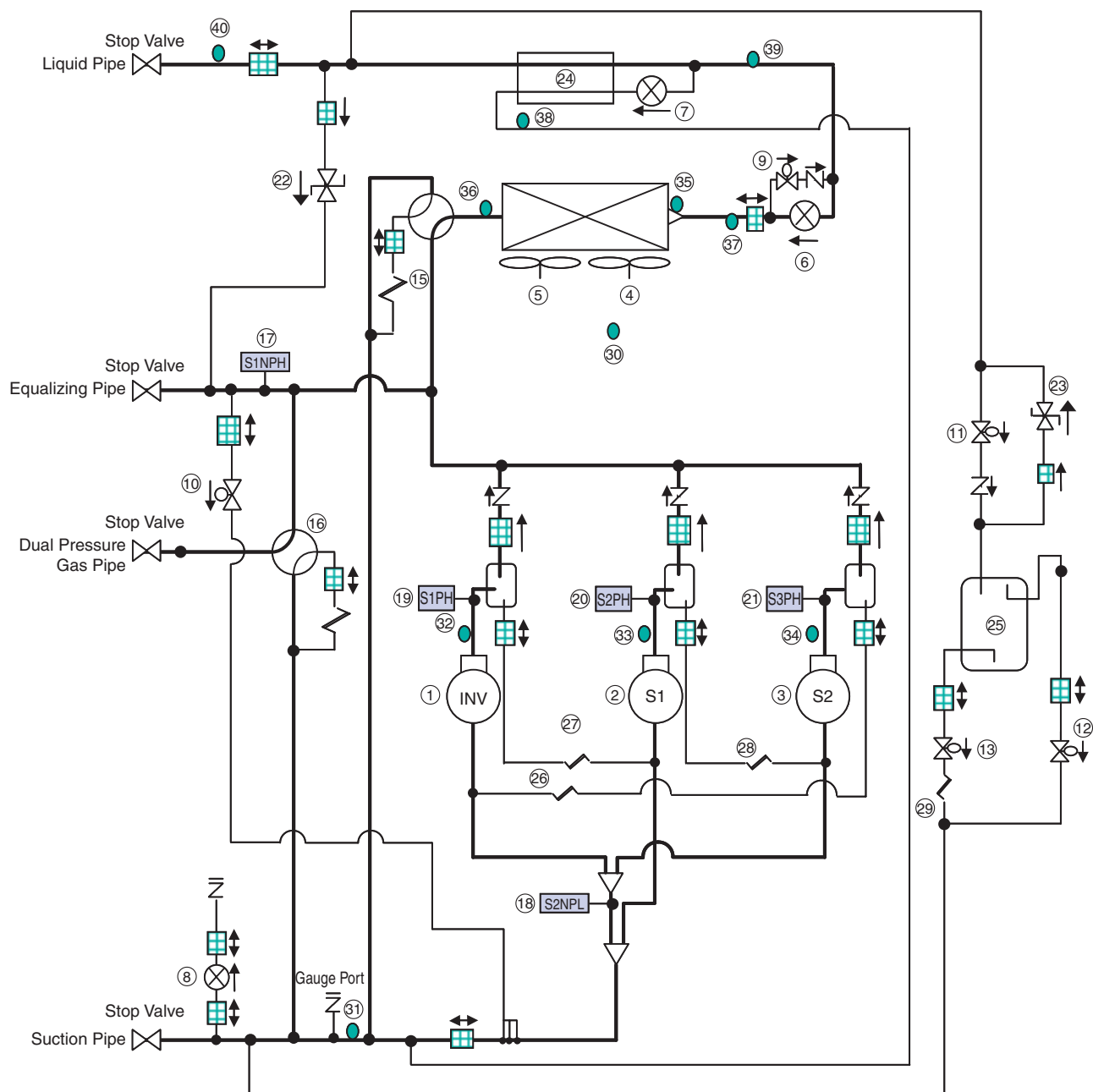
REMQ10PY1, 12PY1



1.5 REMQ14PY1, 16PY1 (Multi 14, 16HP)

No. in refrigerant system diagram	Symbol	Name	Major Function
1	M1C	Inverter compressor (INV)	Inverter compressor is operated on frequencies between 52Hz and 210Hz by using the inverter, while Standard compressor is operated with commercial power supply only. The number of operating steps is as follows when Inverter compressor is operated in combination with Standard compressor. Compressor operation steps : Refer to page 104~107.
2	M2C	Standard compressor 1 (STD1)	
3	M3C	Standard compressor 2 (STD2)	
4	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.
5	M2F	Inverter fan	Since the system is of air heat exchanging type, the fan is operated at 9-step rotation speed by using the inverter.
6	Y1E	Electronic expansion valve (Main: EVM)	While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
7	Y3E	Electronic expansion valve (Subcool: EVT)	PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant.
8	Y2E	Electronic expansion valve (Refrigerant charge EVJ)	This is used to open/close refrigerant charge port.
9	Y6S	Solenoid valve (Main bypass SVE)	This opens in cooling operation.
10	Y5S	Solenoid valve (Hot gas: SVP)	Used to prevent the low pressure from transient falling.
11	Y4S	Solenoid valve (Refrigerant regulator liquid pipe SVL)	This is used to collect refrigerant to the refrigerant regulator.
12	Y1S	Solenoid valve (Refrigerant regulator gas purging pipe SVG)	This is used to collect refrigerant to the refrigerant regulator.
13	Y7S	Solenoid valve (Refrigerant regulator discharge pipe SVO)	This is used to discharge refrigerant from the refrigerant regulator.
14	Y8S	Solenoid valve (Discharge pipe of refrigerant regulator)	Bypass the high pressure gas to the refrigerant regulator.
15	Y3S	4 way valve (Heat exchanger switch 20SA)	This is used to switch outdoor heat exchanger to evaporator or condenser.
16	Y2S	4 way valve (Dual pressure gas pipe switch 20SB)	This is used to switch dual pressure gas pipe to high pressure or low pressure.
17	S1NPH	High pressure sensor	Used to detect high pressure.
18	S2NPL	Low pressure sensor	Used to detect low pressure.
19	S1PH	HP pressure switch (For INV compressor)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
20	S2PH	HP pressure switch (For STD compressor 1)	
21	S3PH	HP pressure switch (For STD compressor 2)	
22	—	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.
23	—	Pressure regulating valve (Refrigerant regulator)	This is used when pressure increases, to prevent any damage on components caused by pressure increase in transport or storage.
24	—	Subcooling heat exchanger	Apply subcooling to liquid refrigerant.
25	—	Refrigerant regulator	Surplus refrigerant is held according to the operation conditions.
26	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the INV compressor.
27	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the STD1 compressor.
28	—	Capillary tube	Used to return the refrigerating oil separated through the oil separator to the STD2 compressor.
29	—	Capillary tube	This is used to discharge refrigerant from the refrigerant regulator.
30	R1T	Thermistor (Outdoor air: Ta)	Used to detect outdoor temperature, correct discharge pipe temperature, and others.
31	R8T	Thermistor (Suction pipe: TsA)	Used to detect suction pipe temperature.
32	R31T	Thermistor (INV discharge pipe: Tdi)	Used to detect discharge pipe temperature.
33	R32T	Thermistor (STD1 discharge pipe: Tds1)	
34	R33T	Thermistor (STD2 discharge pipe: Tds2)	
35	R4T	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger.
36	R2T	Thermistor (Heat exchanger gas pipe Tg)	This detects temperature of gas pipe for air heat exchanger.
37	R7T	Thermistor (Heat exchanger liquid pipe Tf)	This detects temperature of liquid pipe between the air heat exchanger and main electronic expansion valve.
38	R5T	Thermistor (Subcooling heat exchanger gas pipe: Tsh)	This detects temperature of gas pipe on the evaporator side for the subcooling heat exchanger.
39	R6T	Thermistor (Subcooling heat exchanger liquid pipe Tl)	This detects temperature of liquid pipe between the main expansion valve and subcooling heat exchanger.
40	R9T	Thermistor (Liquid pipe Tsc)	This detects temperature of liquid pipe between the liquid stop valve and subcooling heat exchanger.

REMQ14PY1, 16PY1

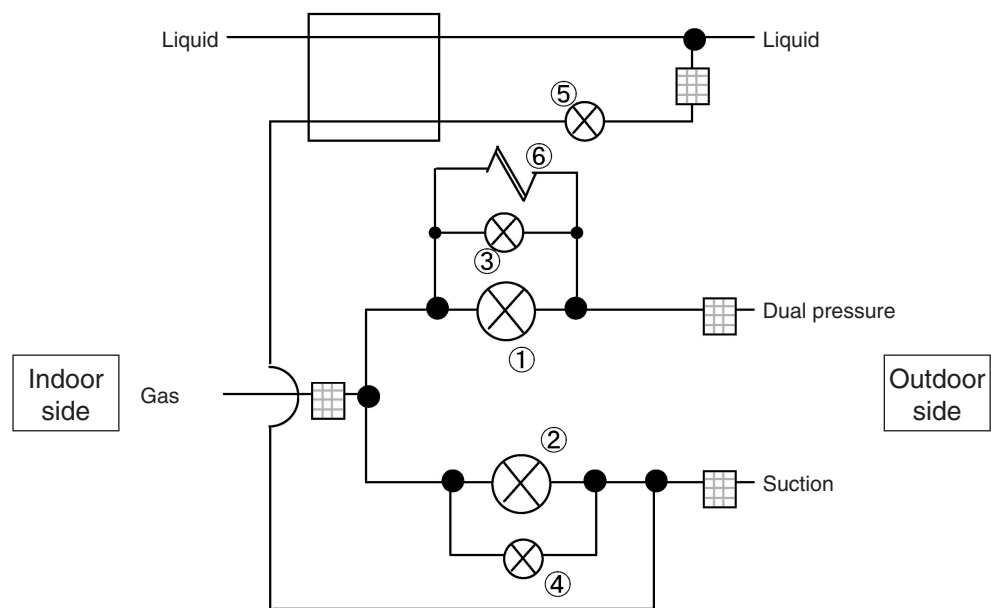


1.6 BS Unit Functional Parts

BSVQ100,160,250PV1

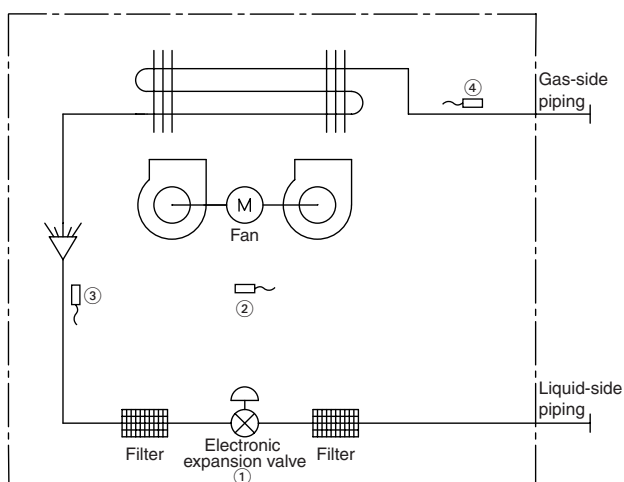
No.	Name	Symbol	Function
1	Electronic expansion valve (EVH)	Y4E	Opens while in heating operation or all indoor units are in cooling operation. (Max : 760pls)
2	Electronic expansion valve (EVL)	Y5E	Opens while in cooling operation. (Max : 760pls)
3	Electronic expansion valve (EVHS)	Y2E	Opens while in heating operation or all indoor units are in cooling operation. (Max : 480pls)
4	Electronic expansion valve (EVLS)	Y3E	Opens while in cooling operation. (Max : 480pls)
5	Electronic expansion valve (EVSC)	Y1E	Used to subcool liquid refrigerant of heating indoor unit while in cool/heat simultaneous operation. (Max : 480pls)
6	Capillary tube		Used to bypass high pressure gas to low pressure side.

Note : Factory set of all EV opening : 60pls



1.7 Indoor Units

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

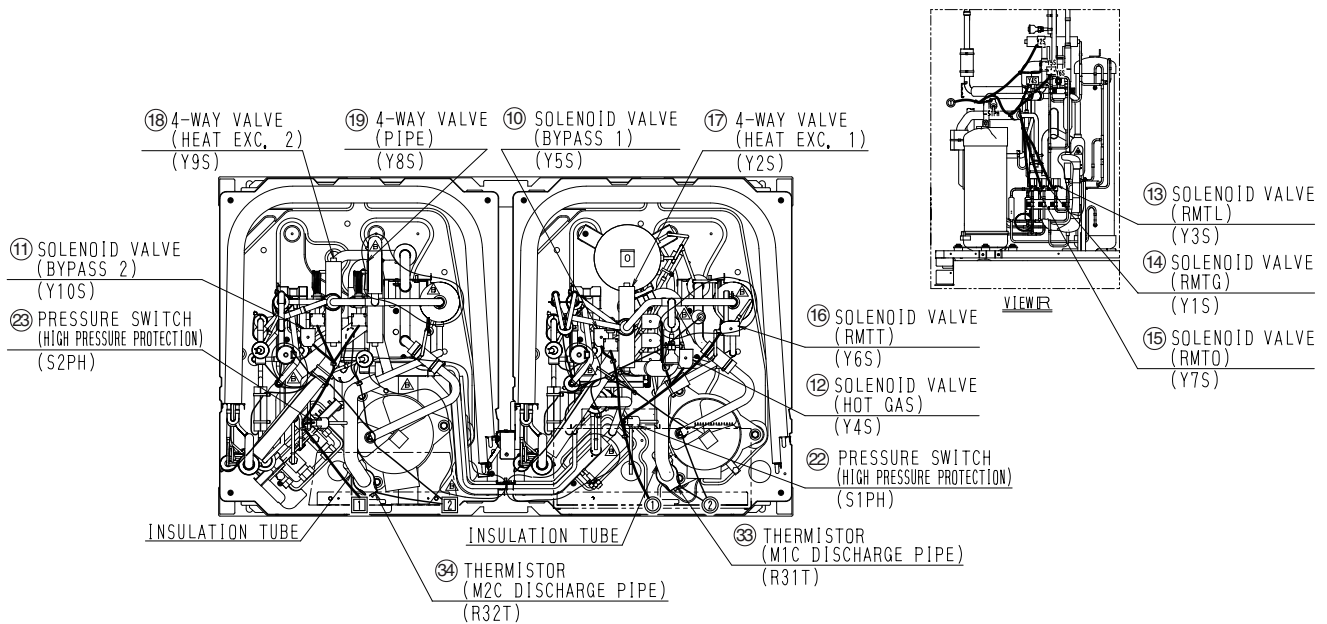


No.	Name	Symbol	Function
①	Electronic expansion valve	Y1E	Used to control superheated degree of gas when cooling and subcooled degree when heating.
②	Suction air thermistor	R1T	Used for thermostat control.
③	Liquid pipe thermistor	R2T	Used to control superheated degree of gas when cooling and subcooled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

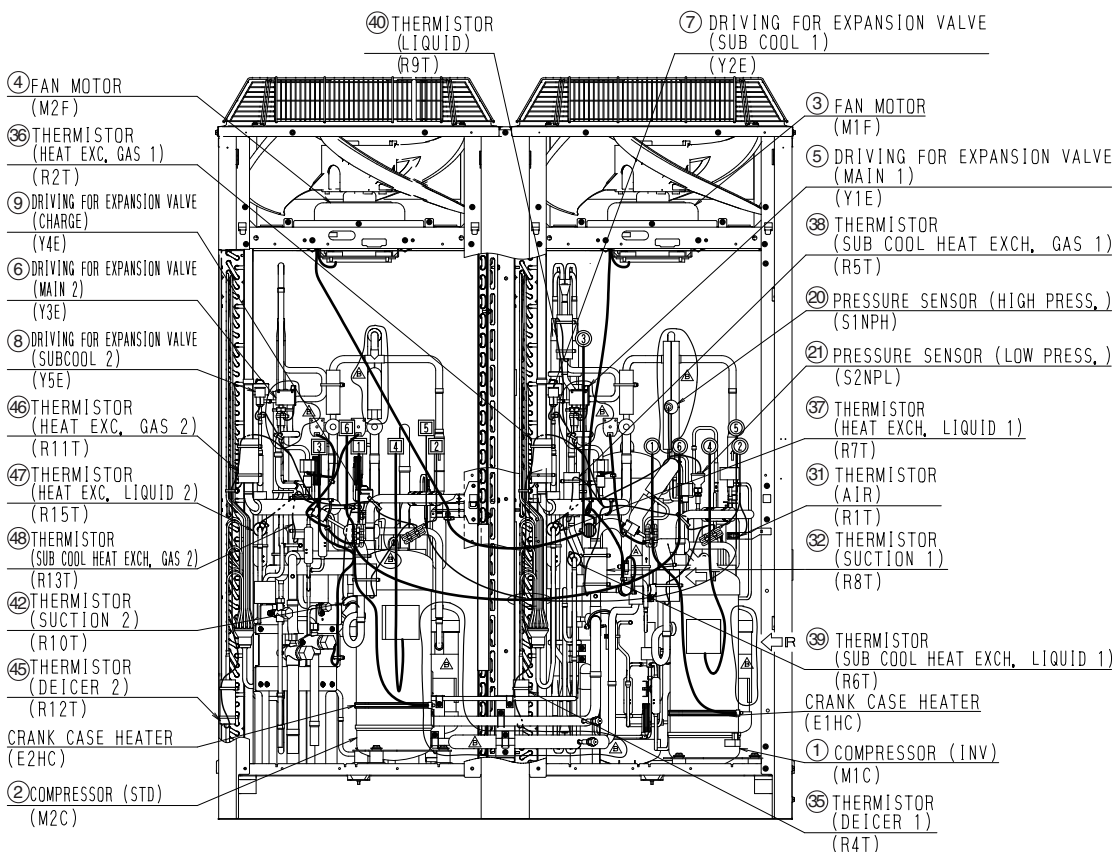
2. Functional Parts Layout

2.1 REYQ8P, 10P, 12P

Plan

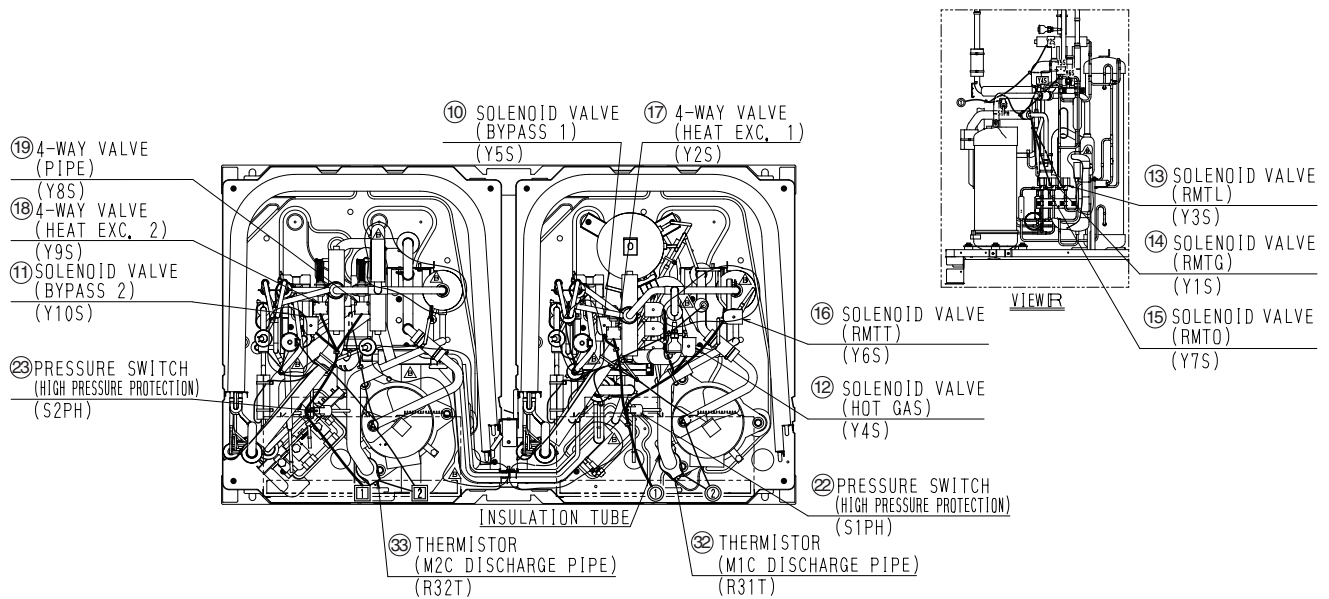


Front View

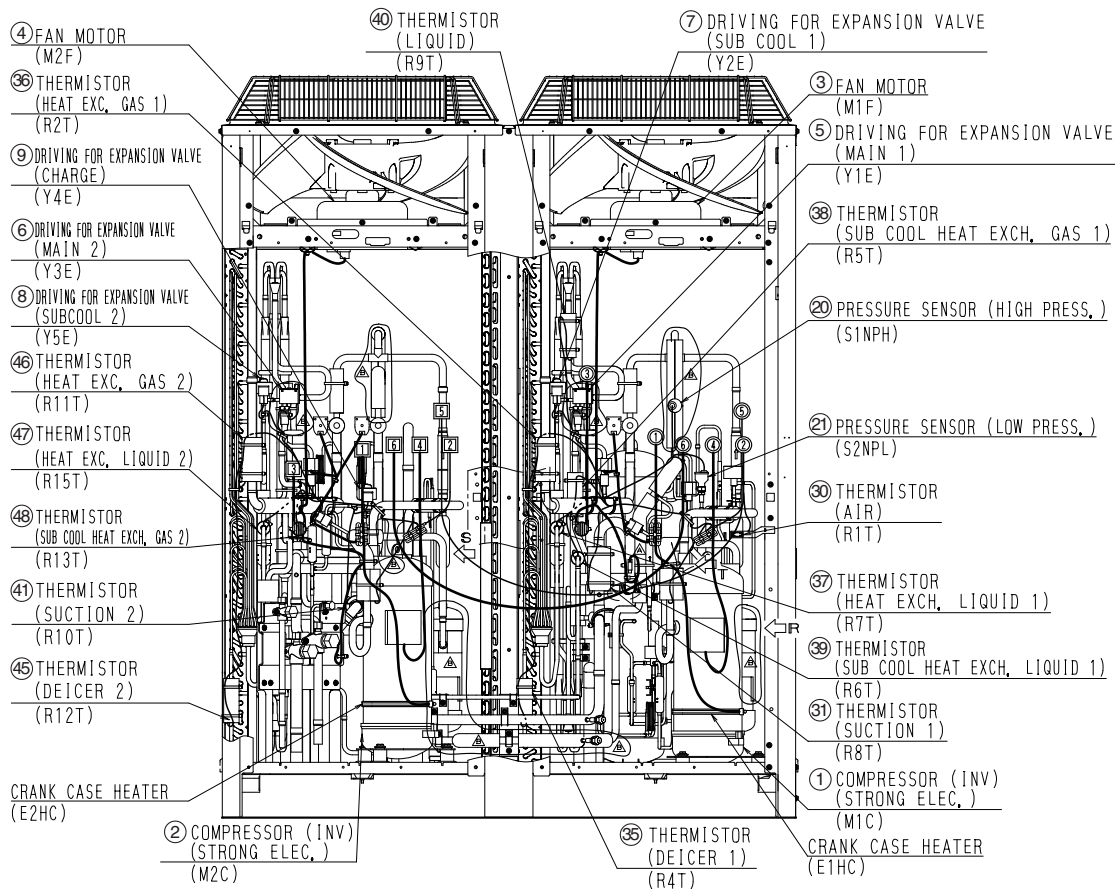


2.2 REYQ14P, 16P

Plan

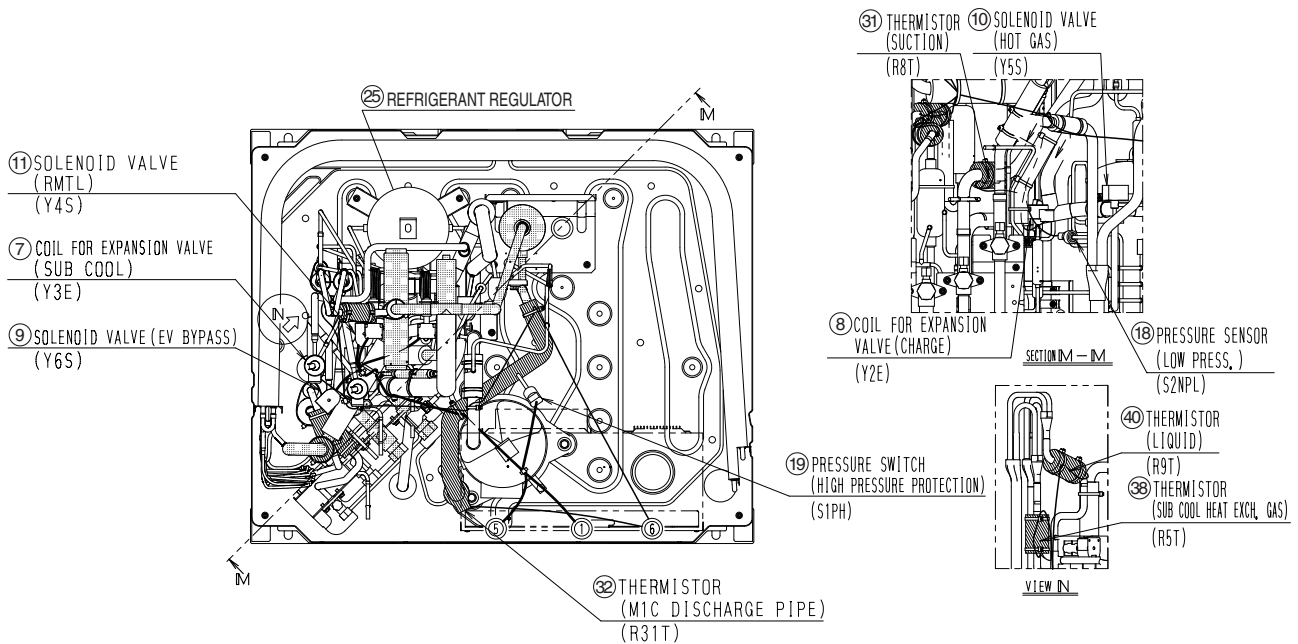


Front View

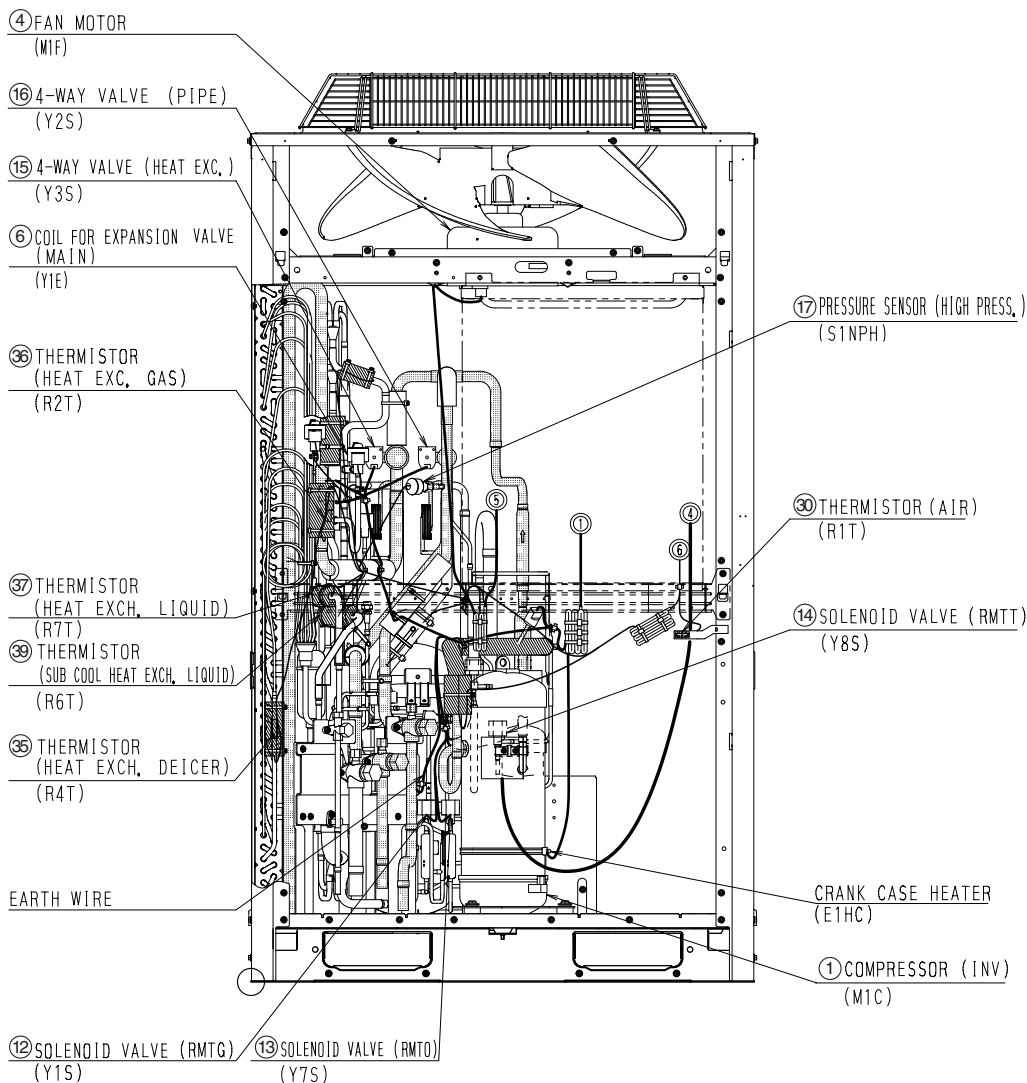


2.3 REMQ8P

Plan



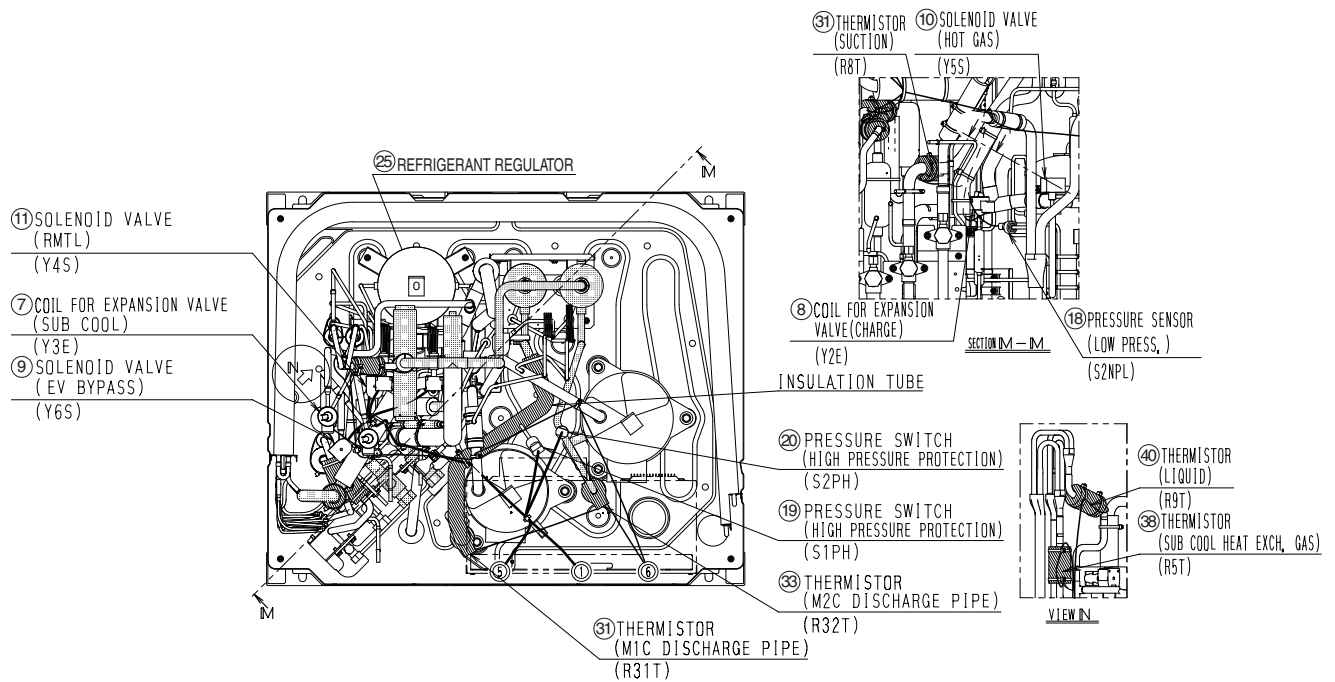
Front View



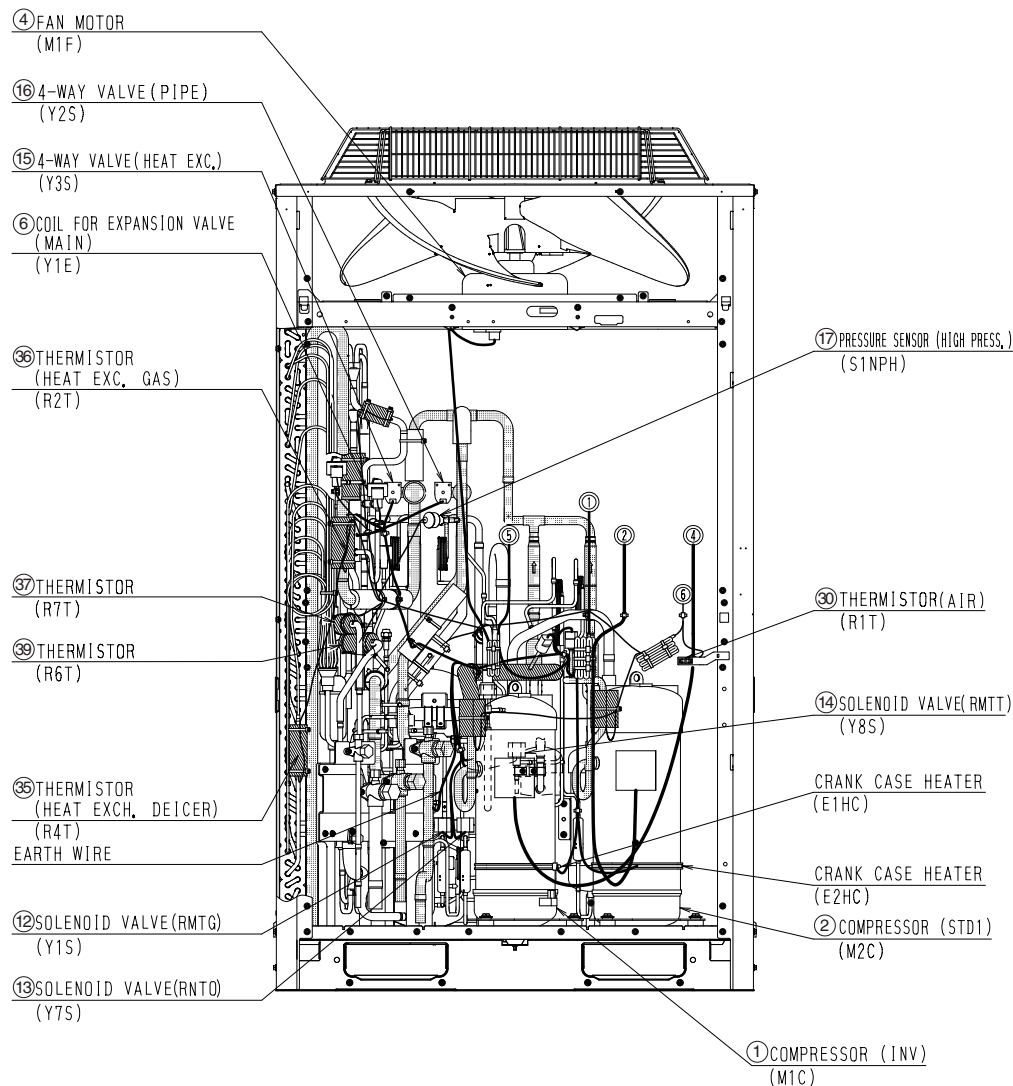
Note: For reference numbers, refer to P54.

2.4 REMQ10P, 12P

Plan



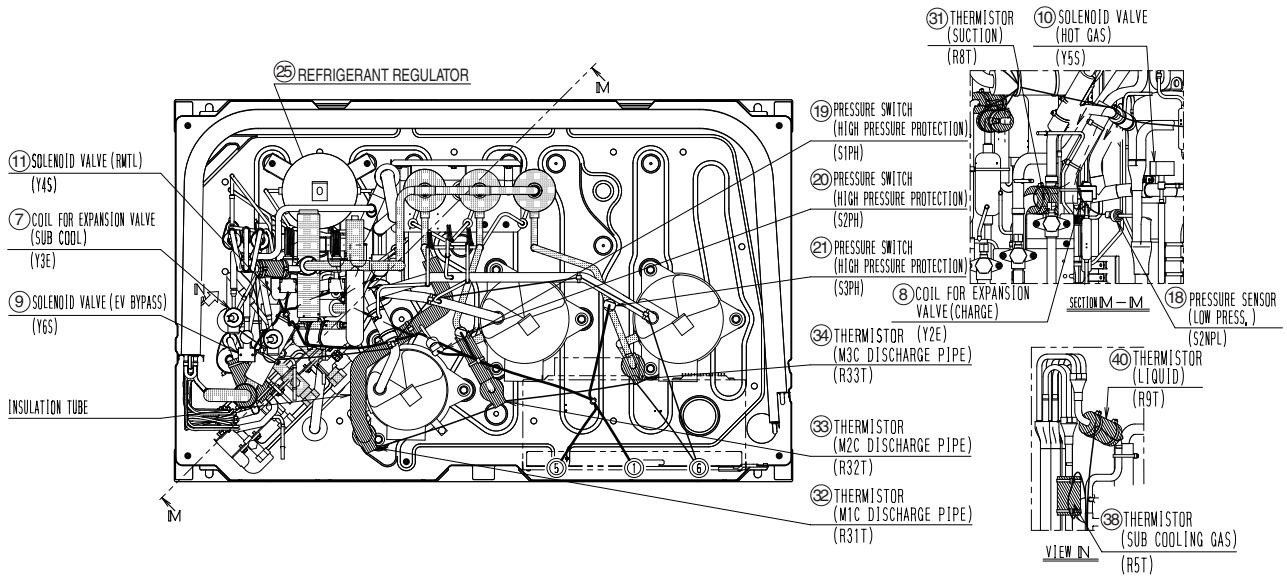
Front View



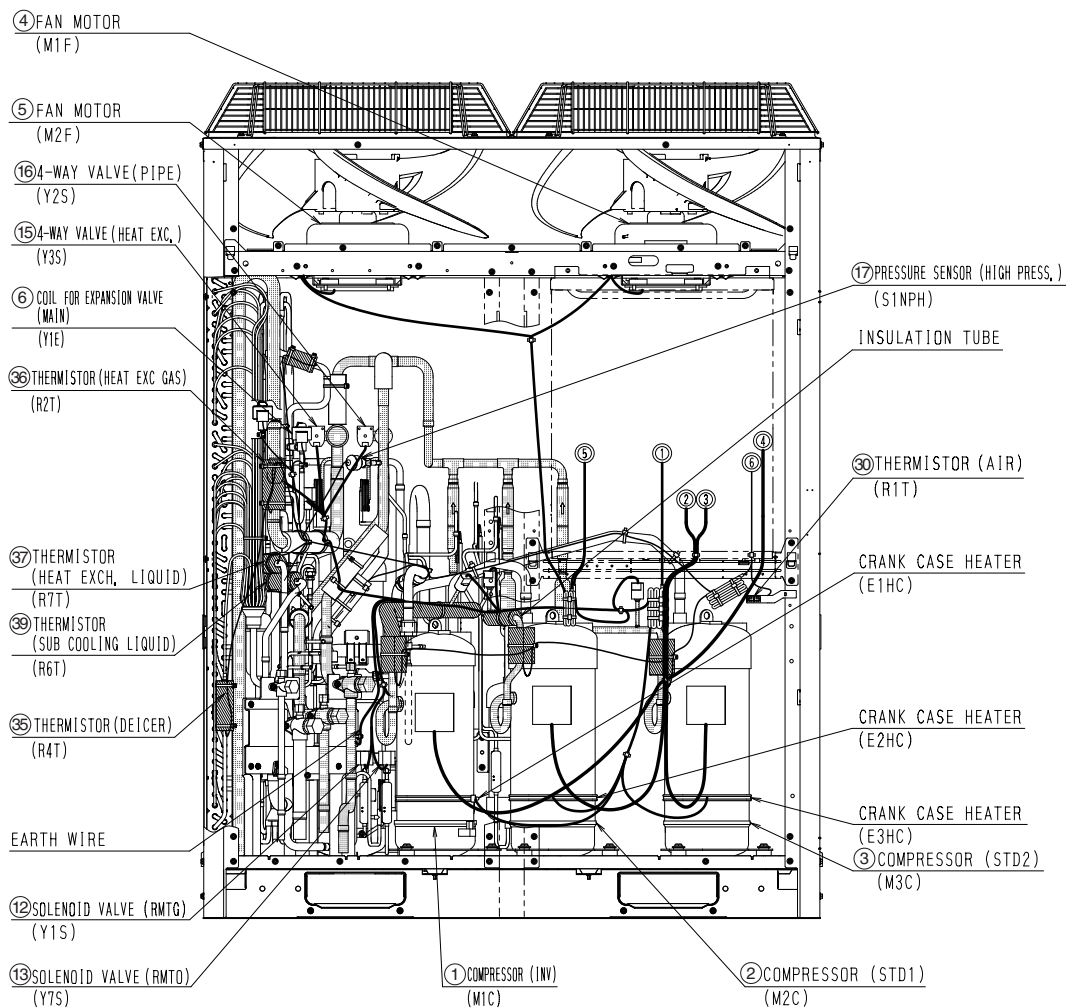
Note: For reference number, refer to P56.

2.5 REMQ14P, 16P

Plan



Front View

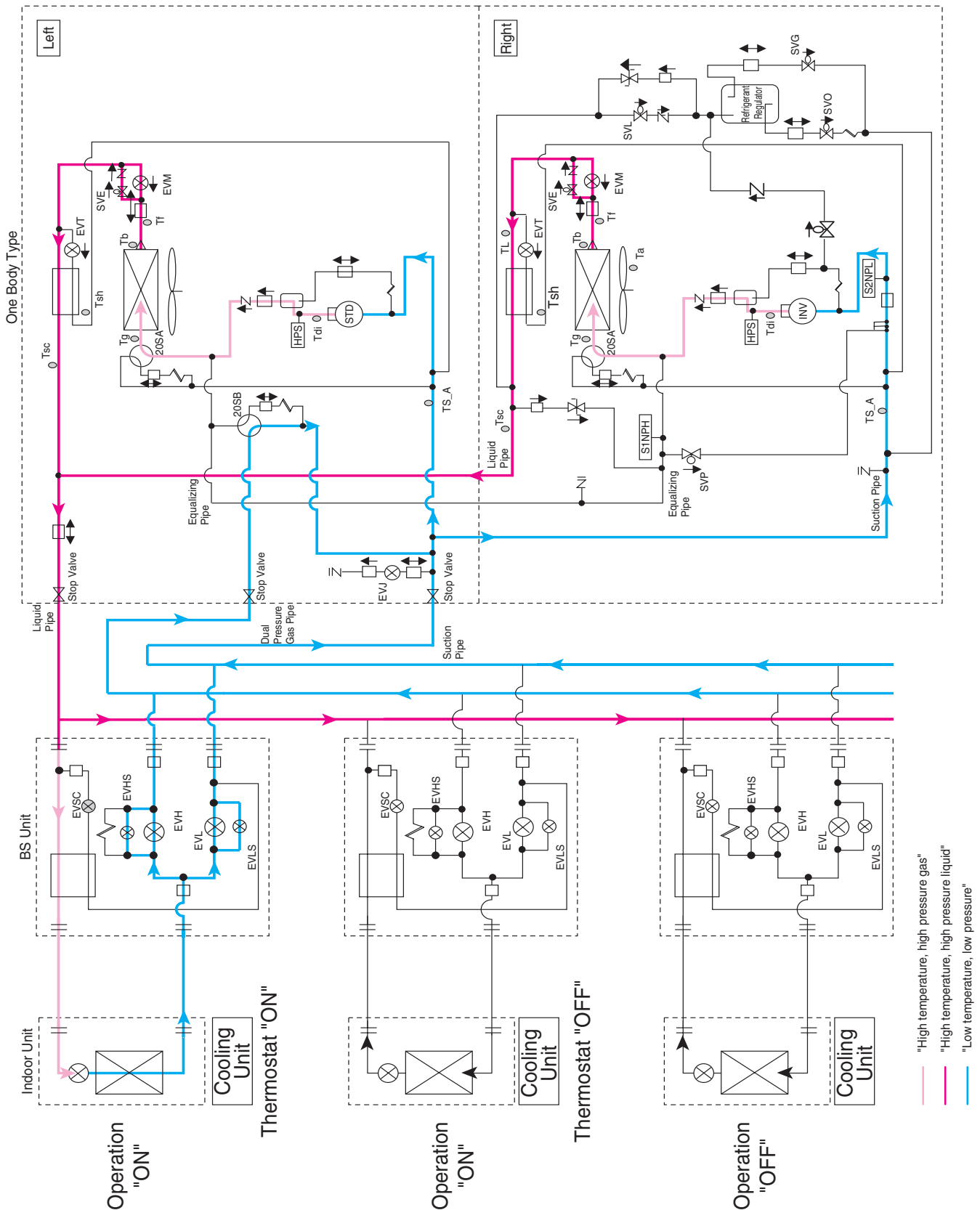


Note: For reference number, refer to P58.

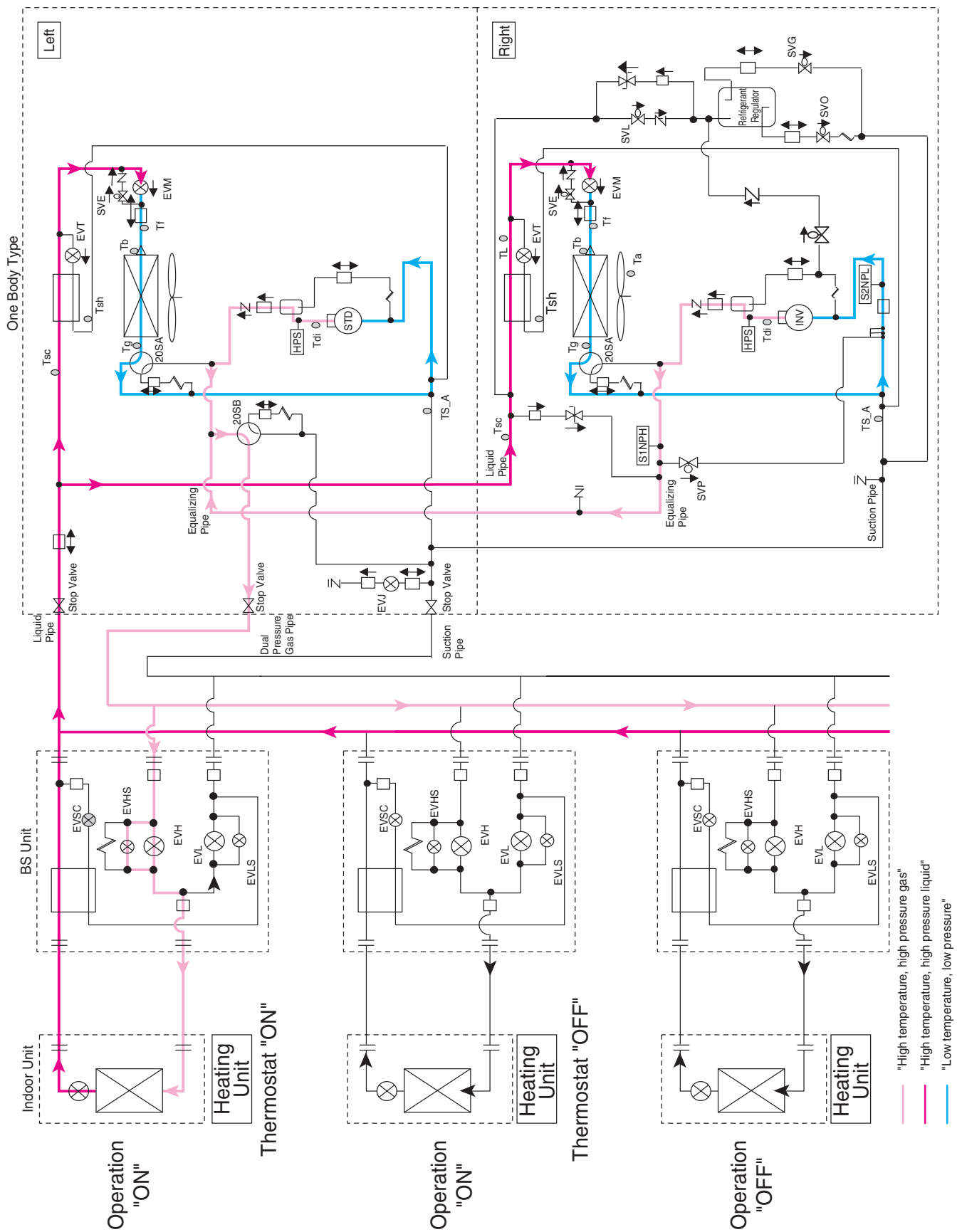
3. Refrigerant Flow for Each Operation Mode

REYQ8P, 10P, 12P

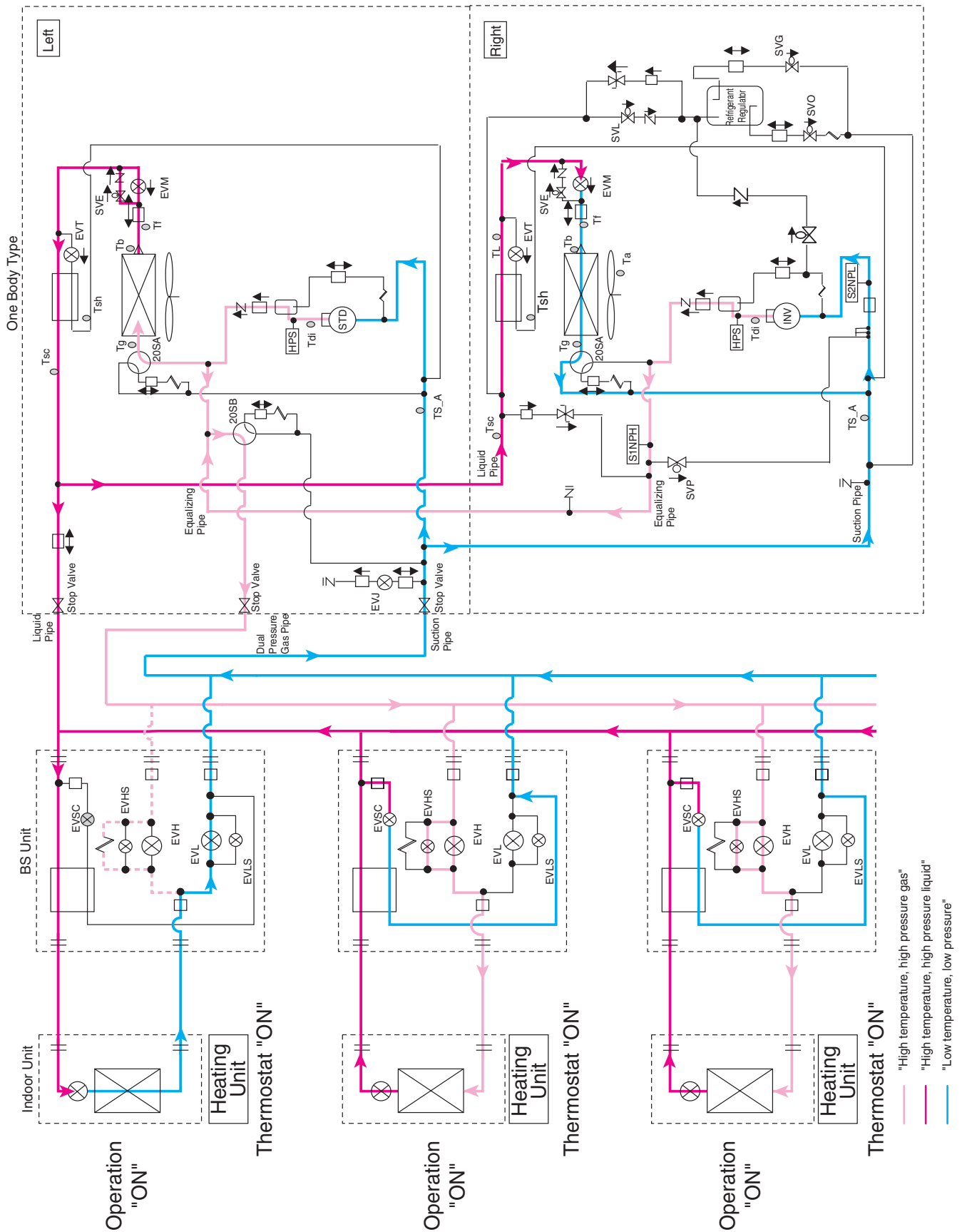
Cooling Operation



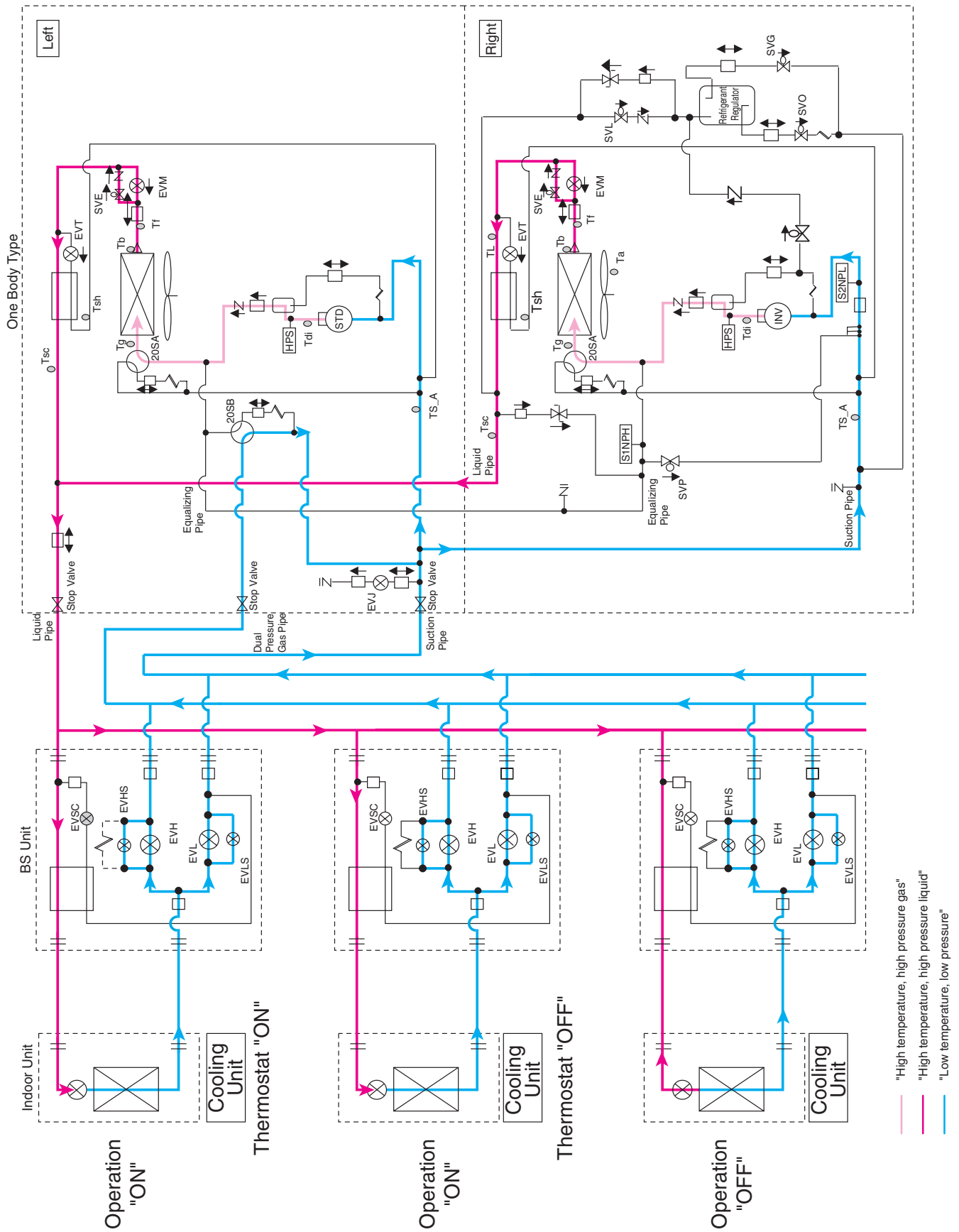
Heating Operation



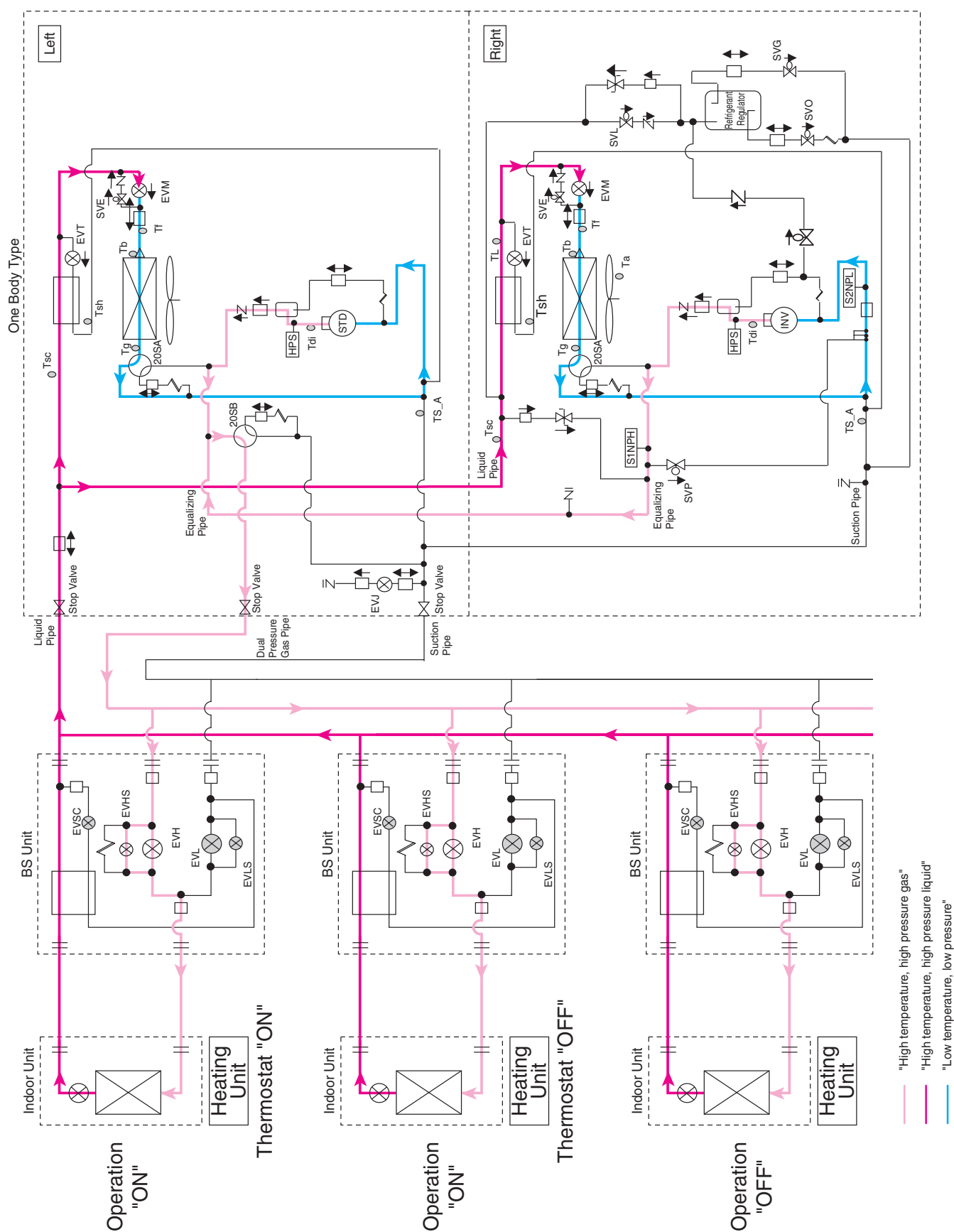
Simultaneous Cooling / Heating Operation



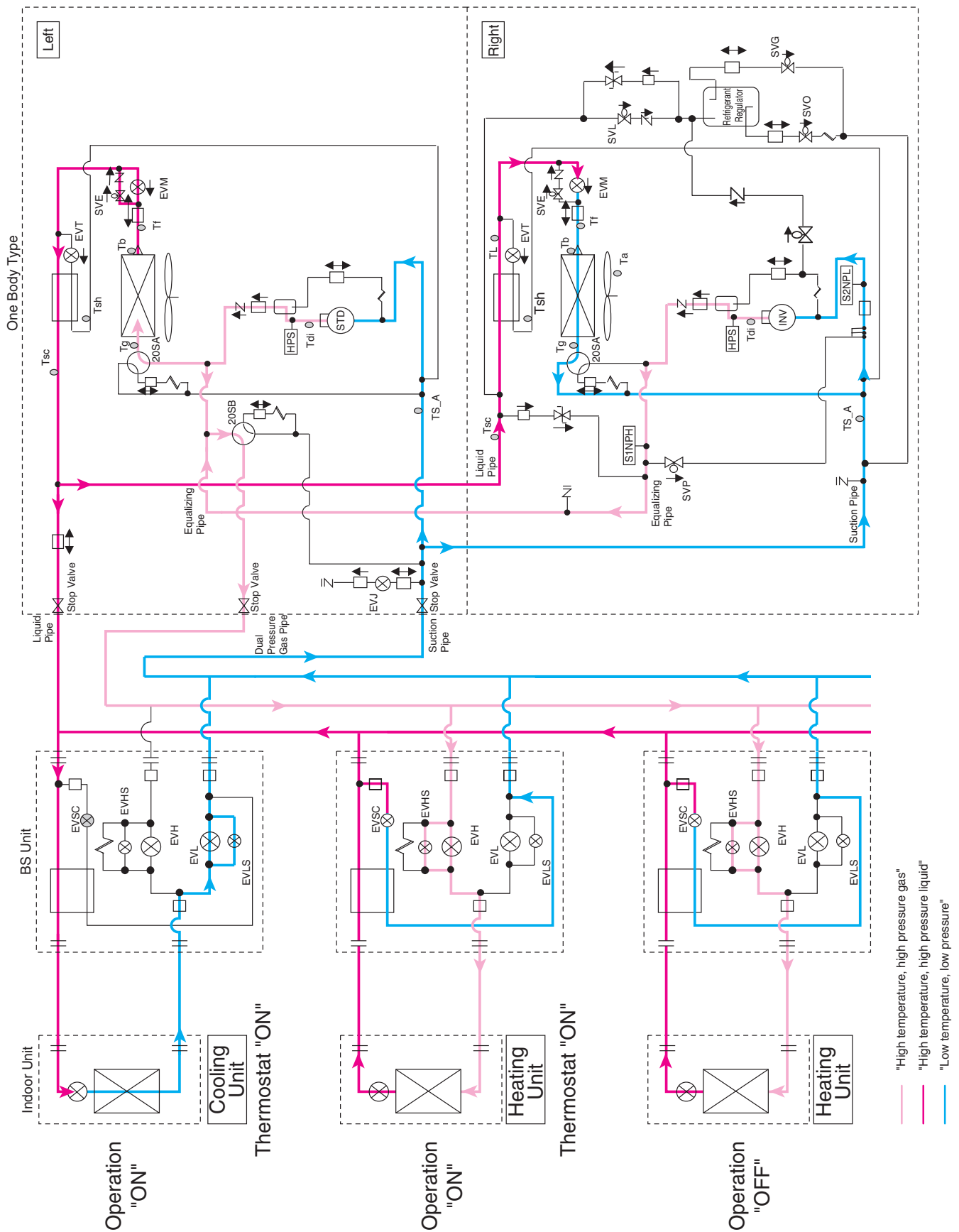
Cooling Oil Return Operation



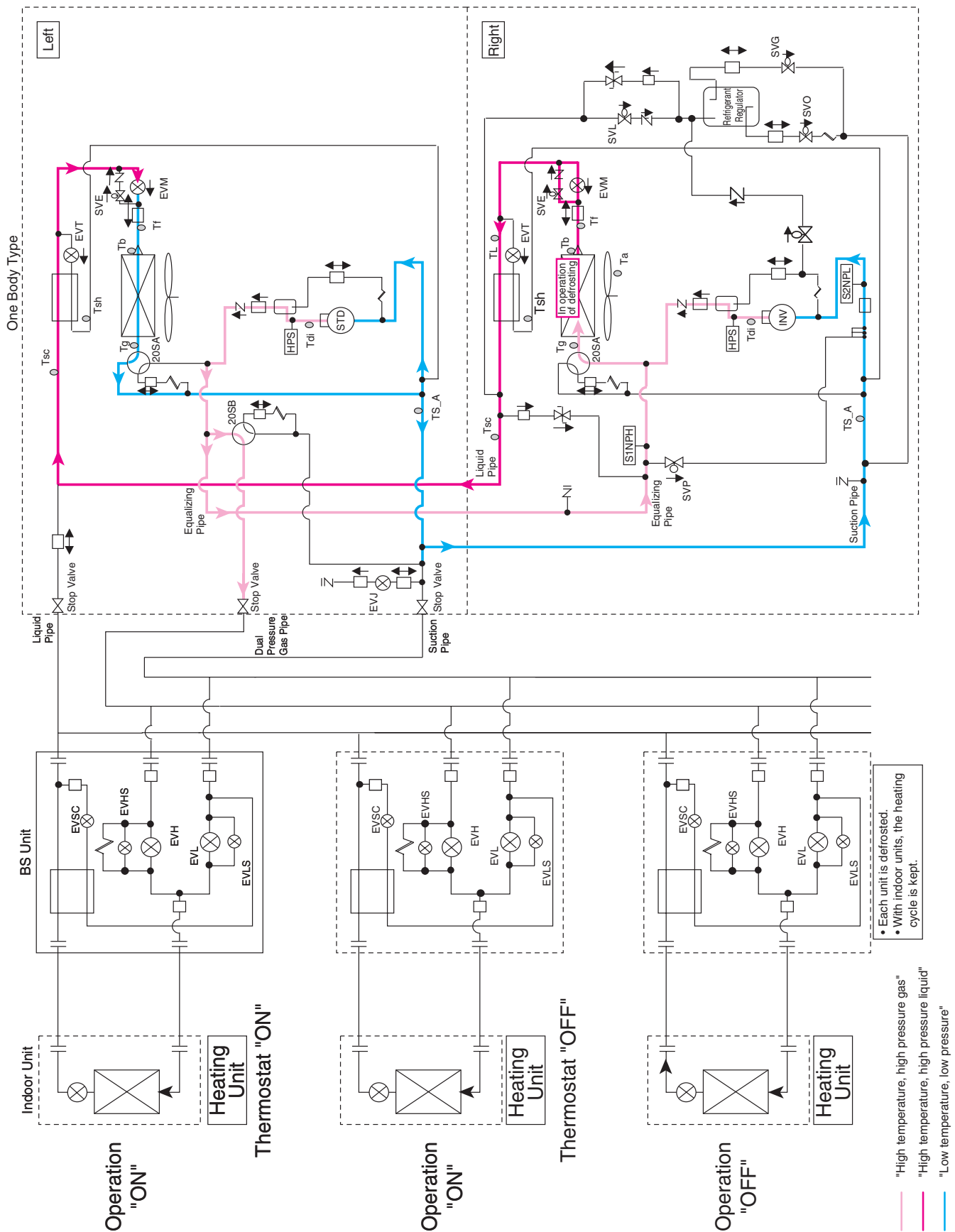
Heating Oil Return Operation



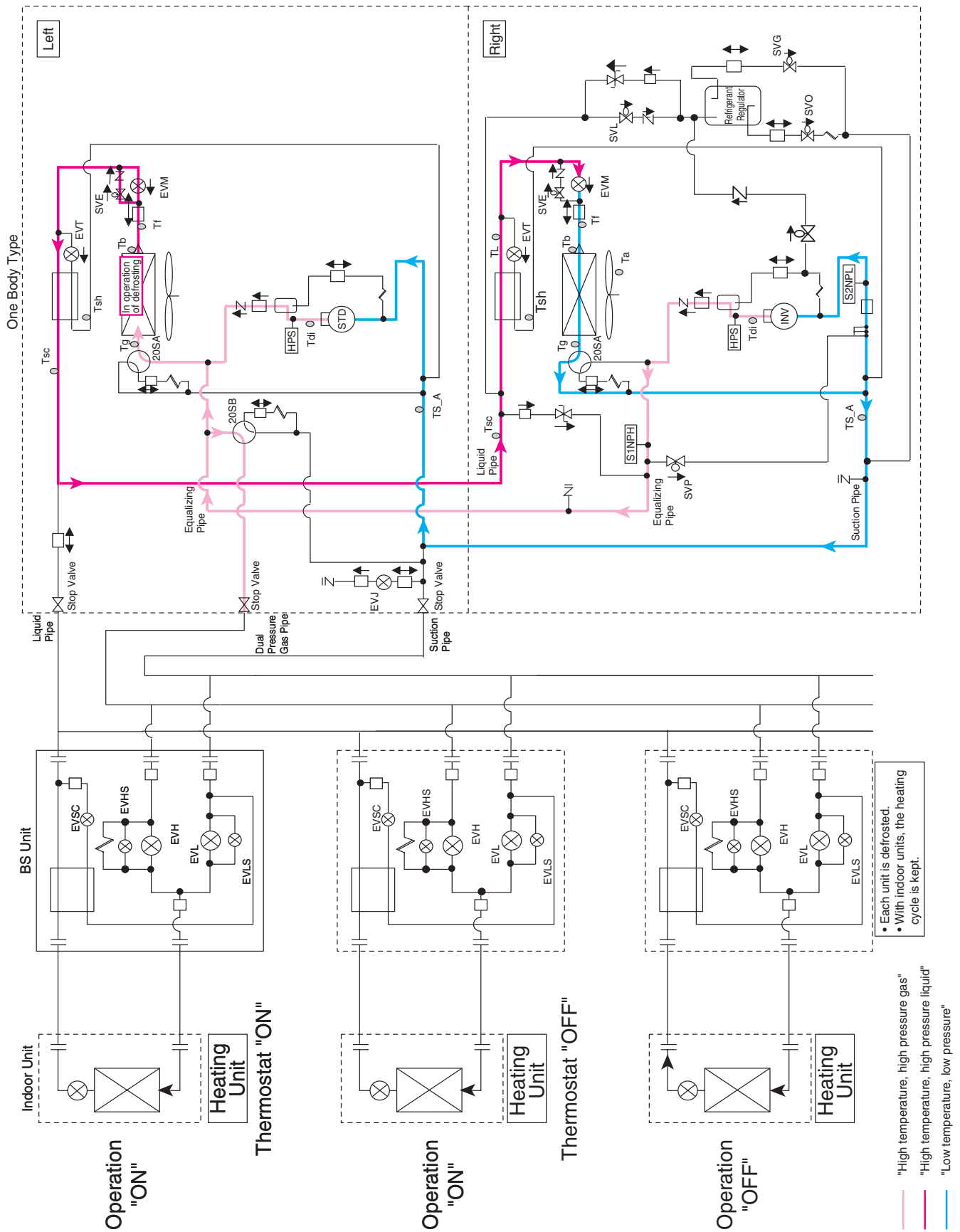
Oil Return Operation at Simultaneous Cooling / Heating Operation



Partial Defrosting 1 (Defrosting in the Right Unit)

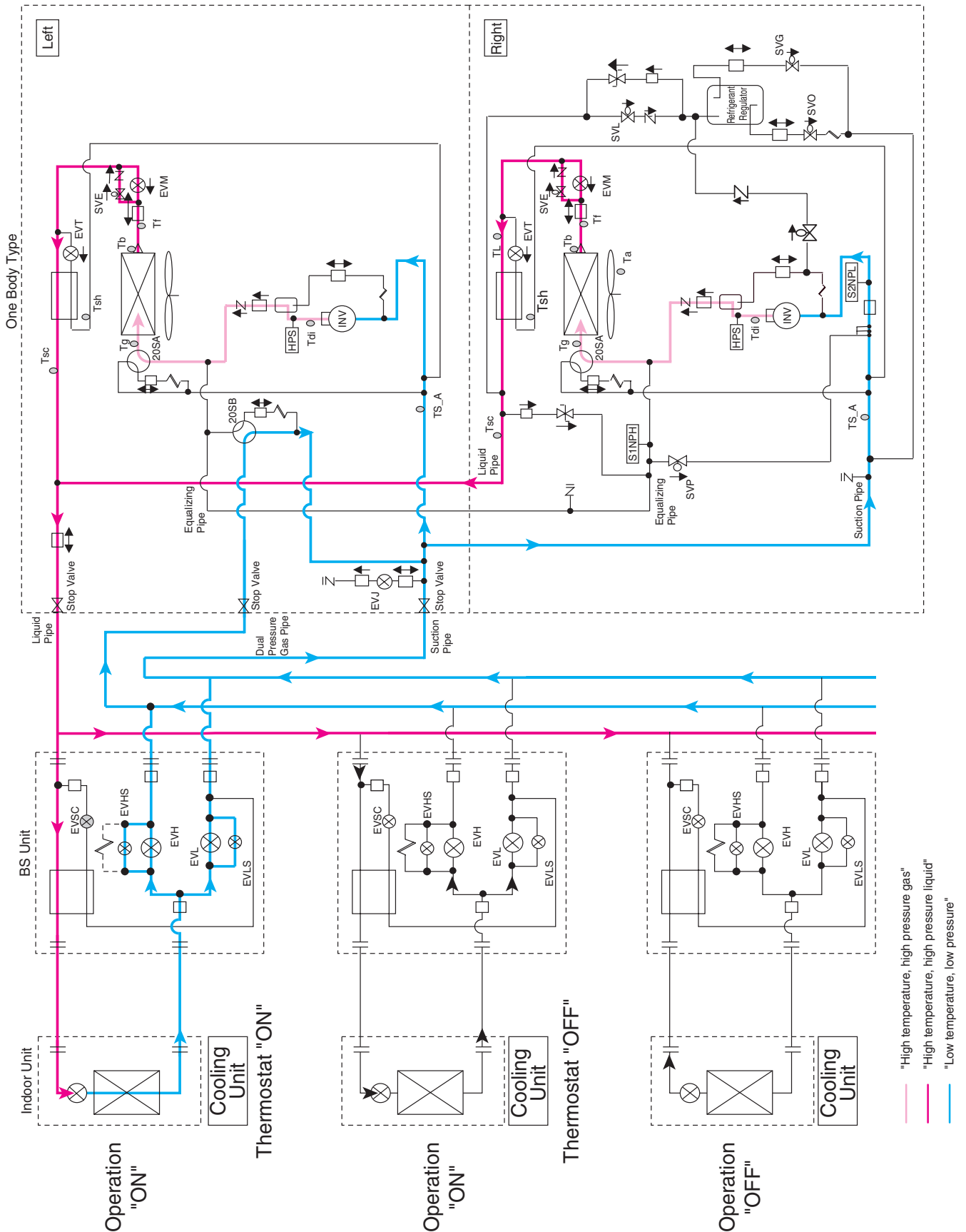


Partial Defrosting 2 (Defrosting in the Left Unit)

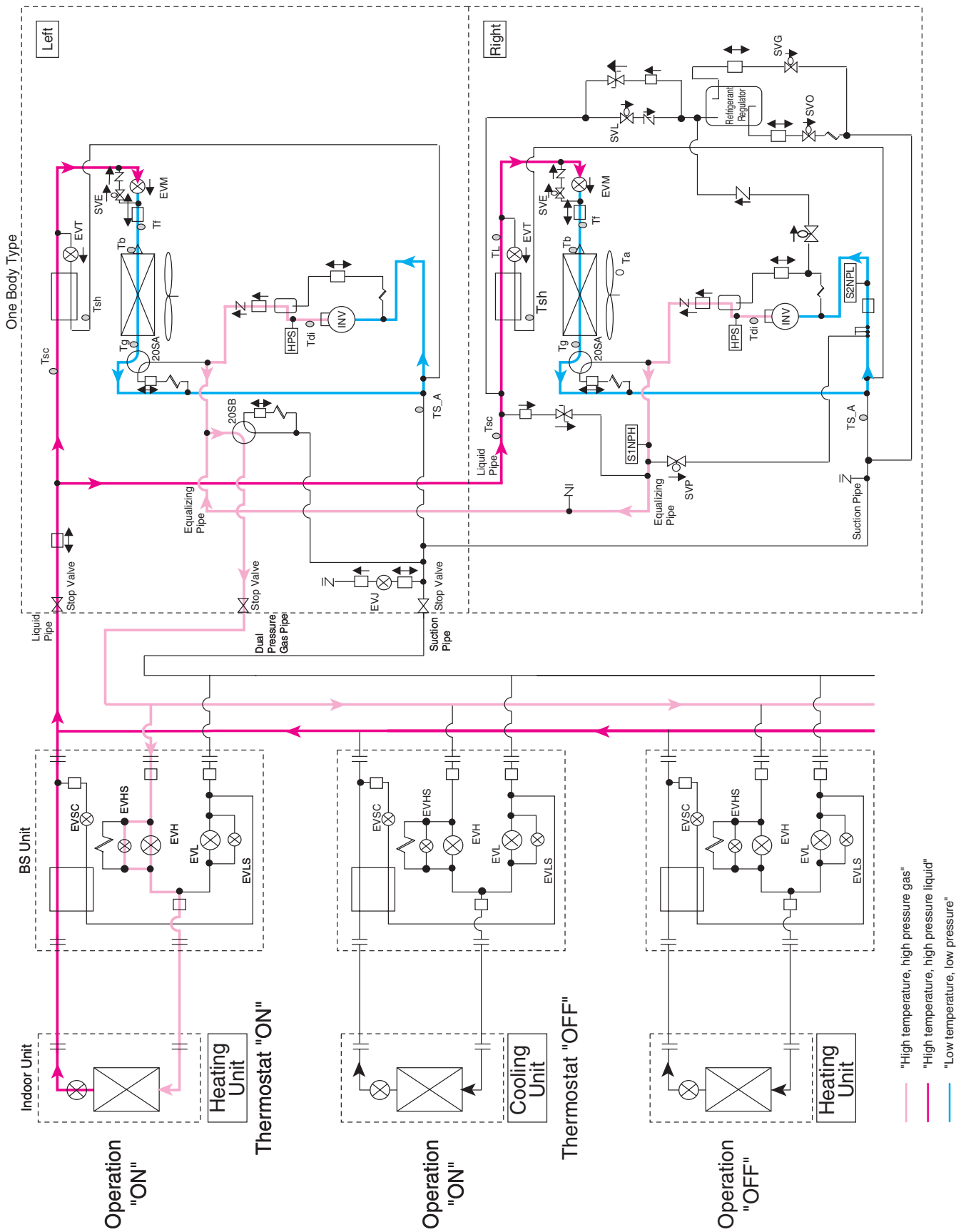


REYQ14P, 16P

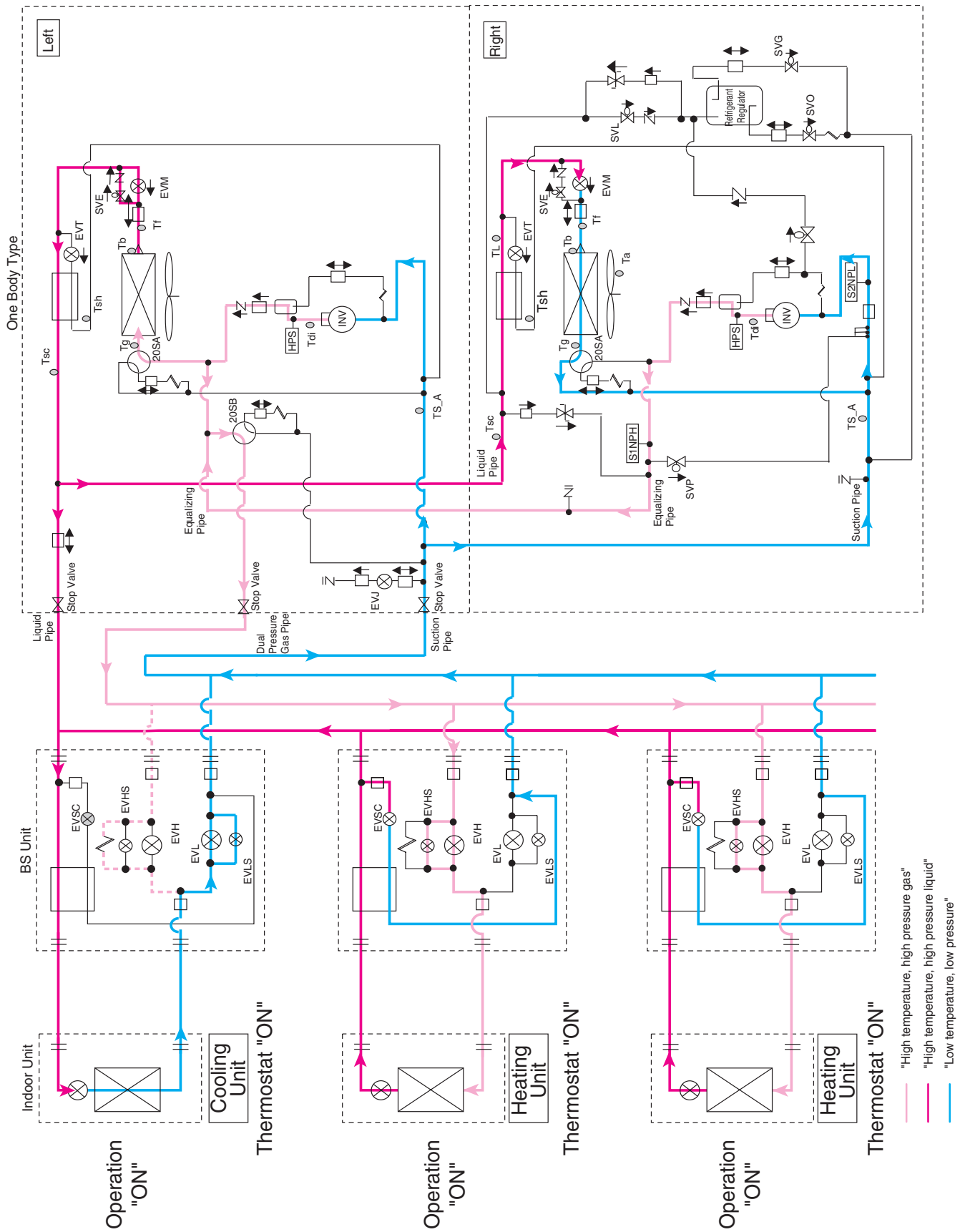
Cooling Operation



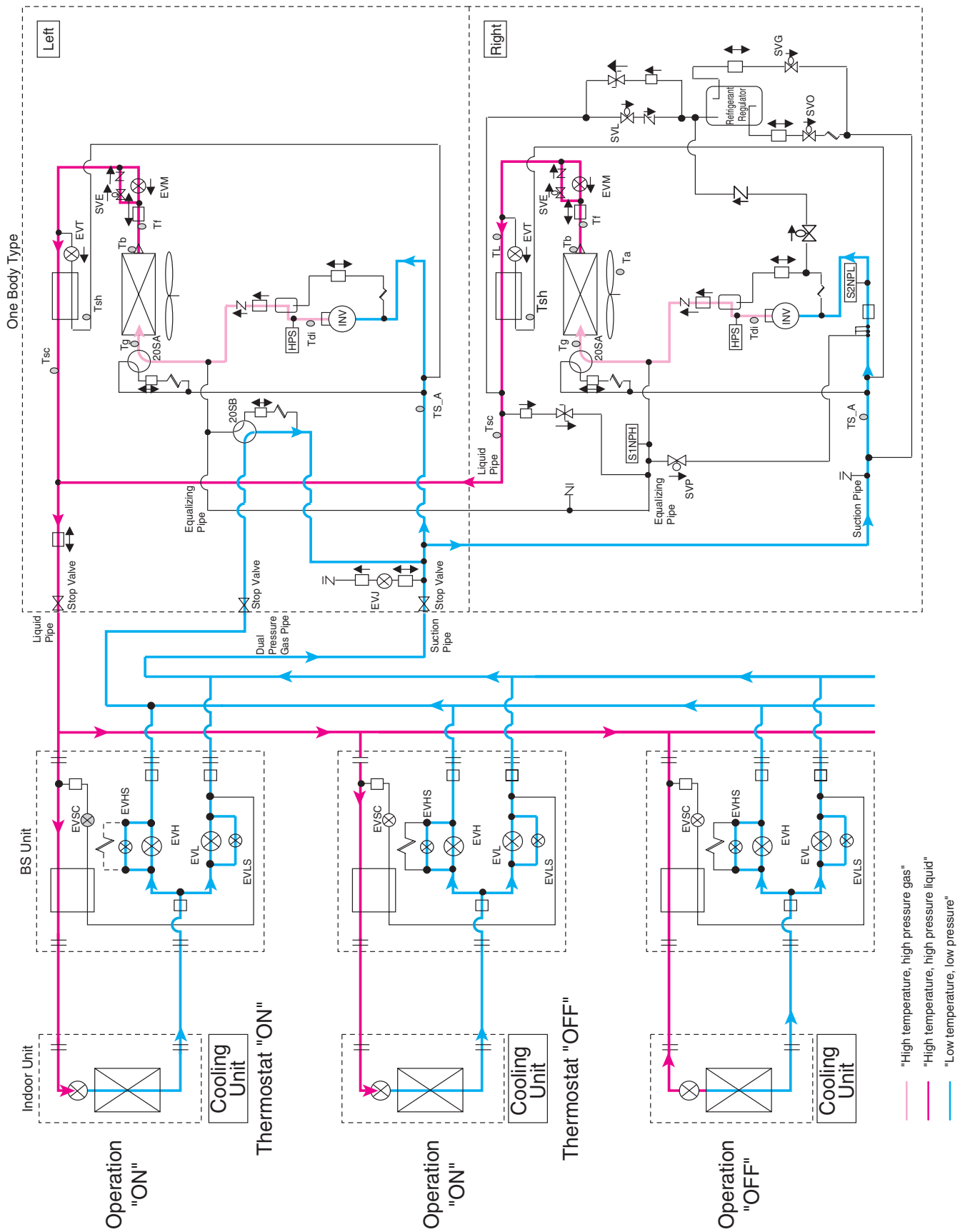
Heating Operation



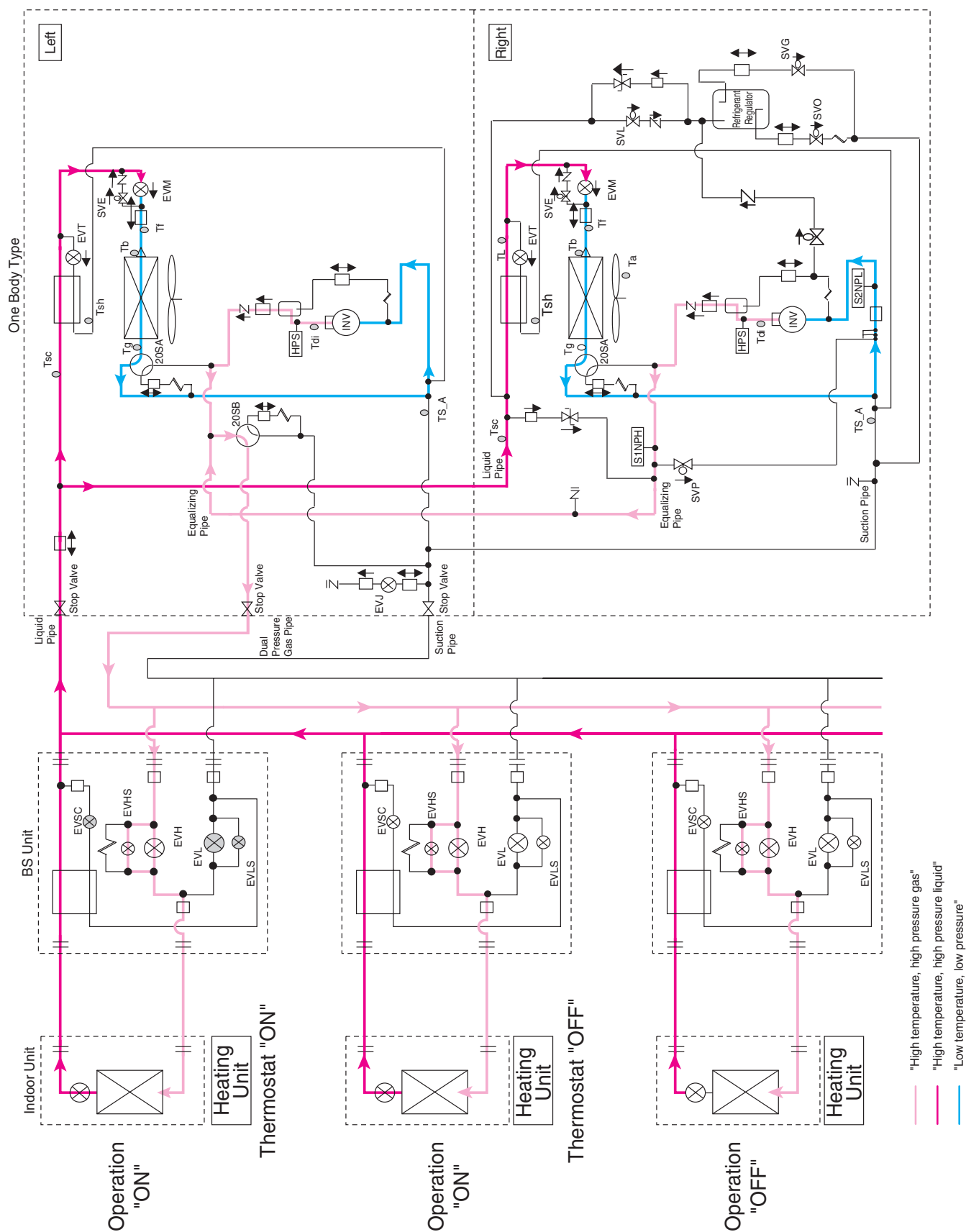
Simultaneous Cooling / Heating Operation



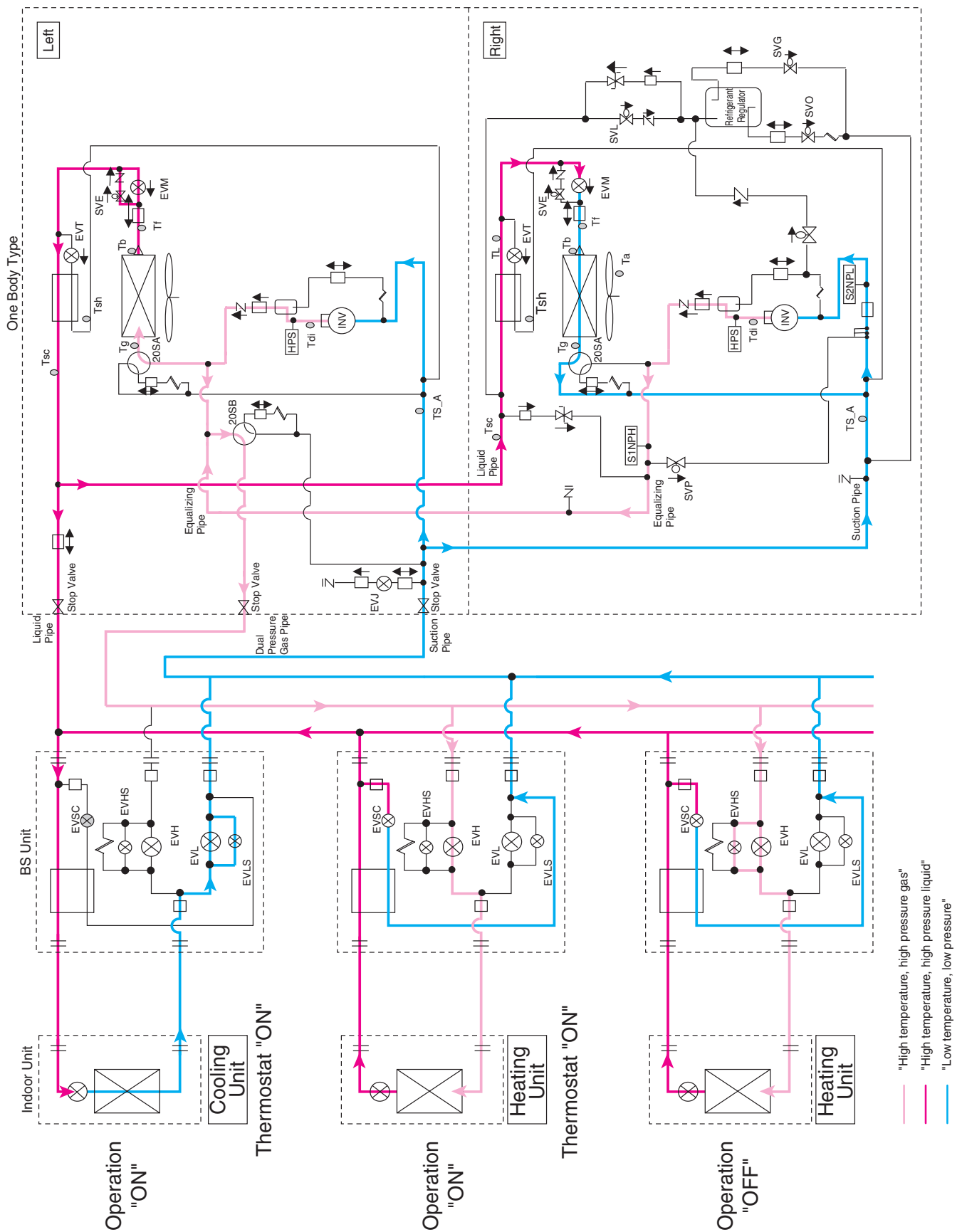
Cooling Oil Return Operation



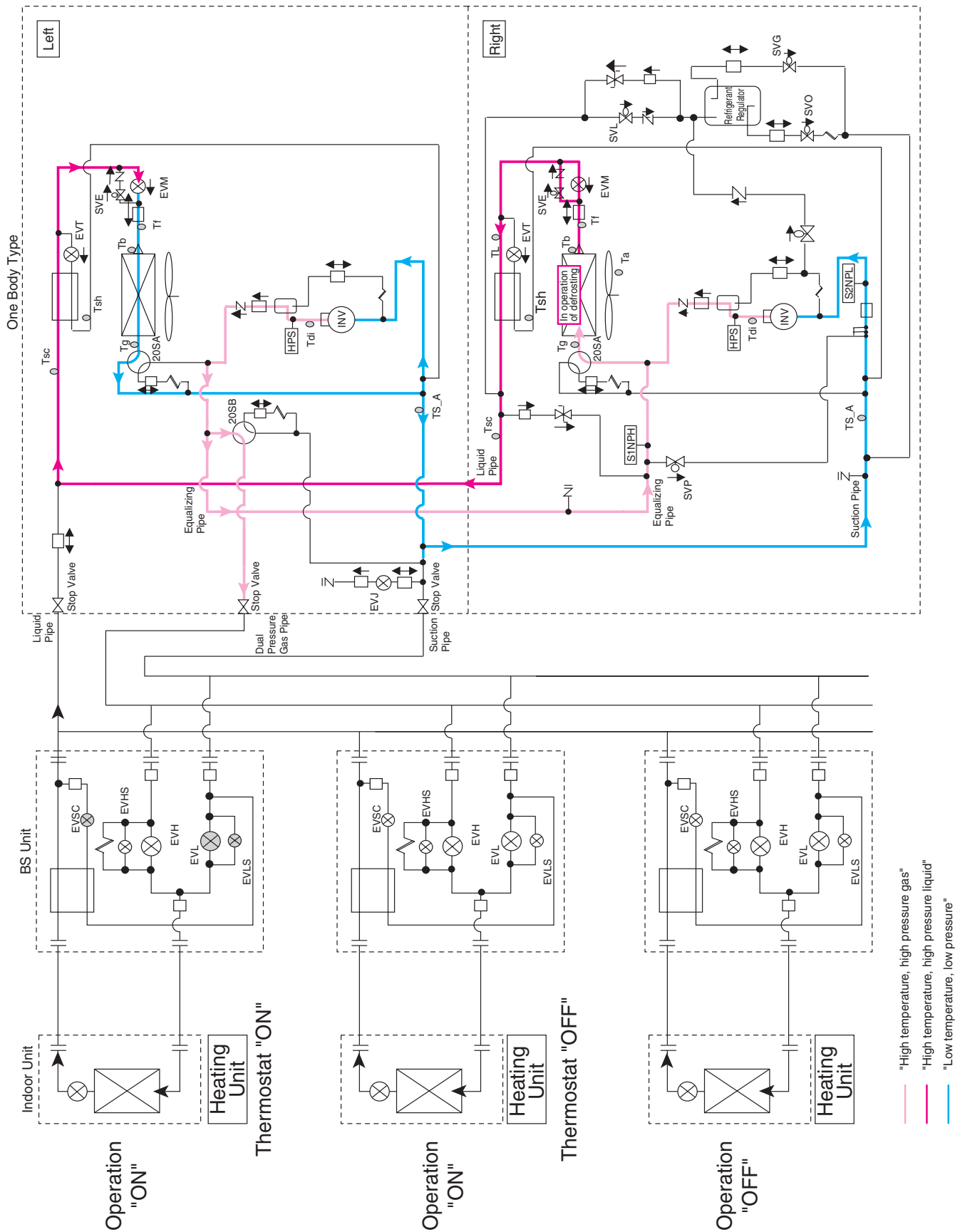
Heating Oil Return Operation



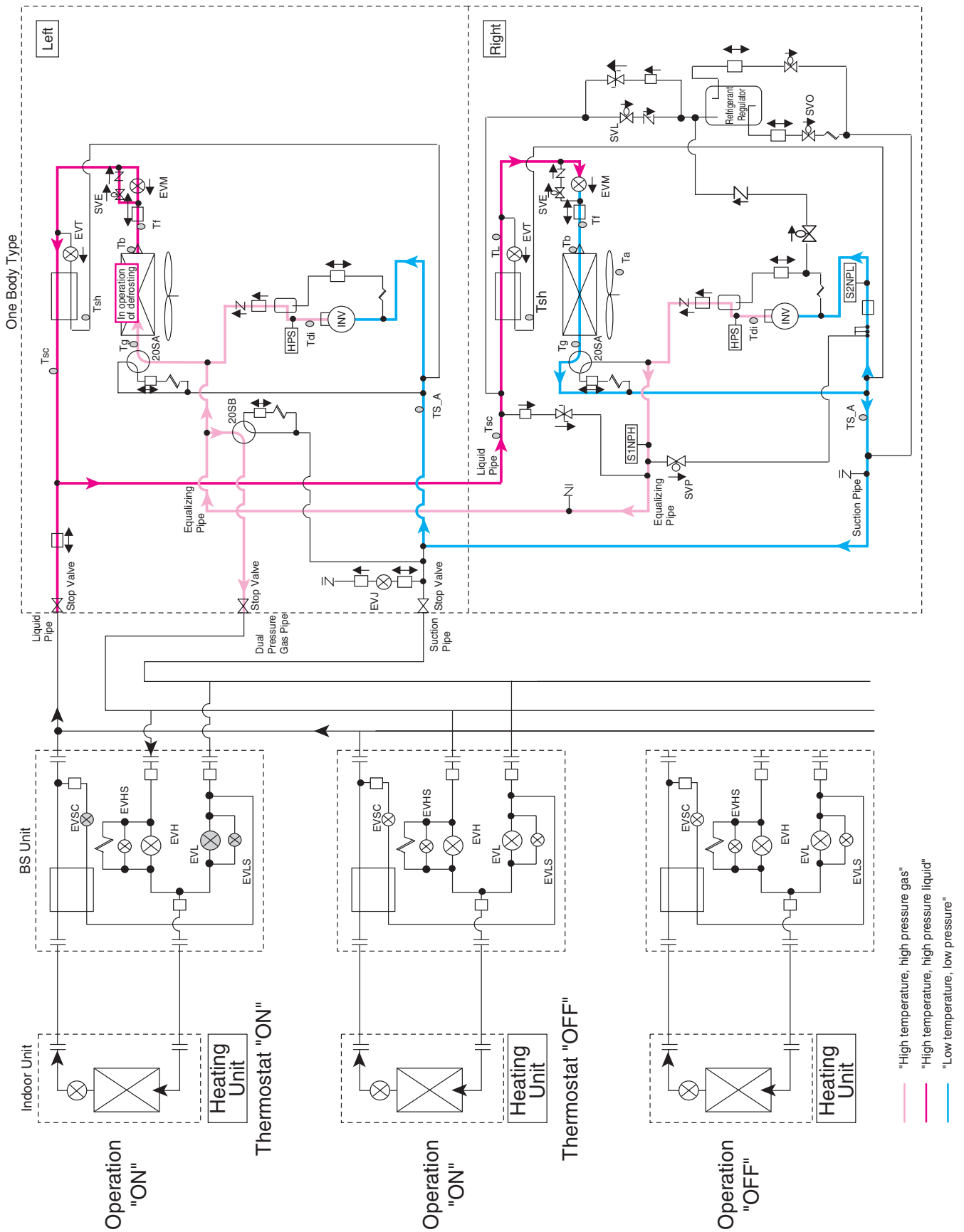
Oil Return Operation at Simultaneous Cooling / Heating Operation



Partial Defrosting 1 (Defrosting in the Right Unit)

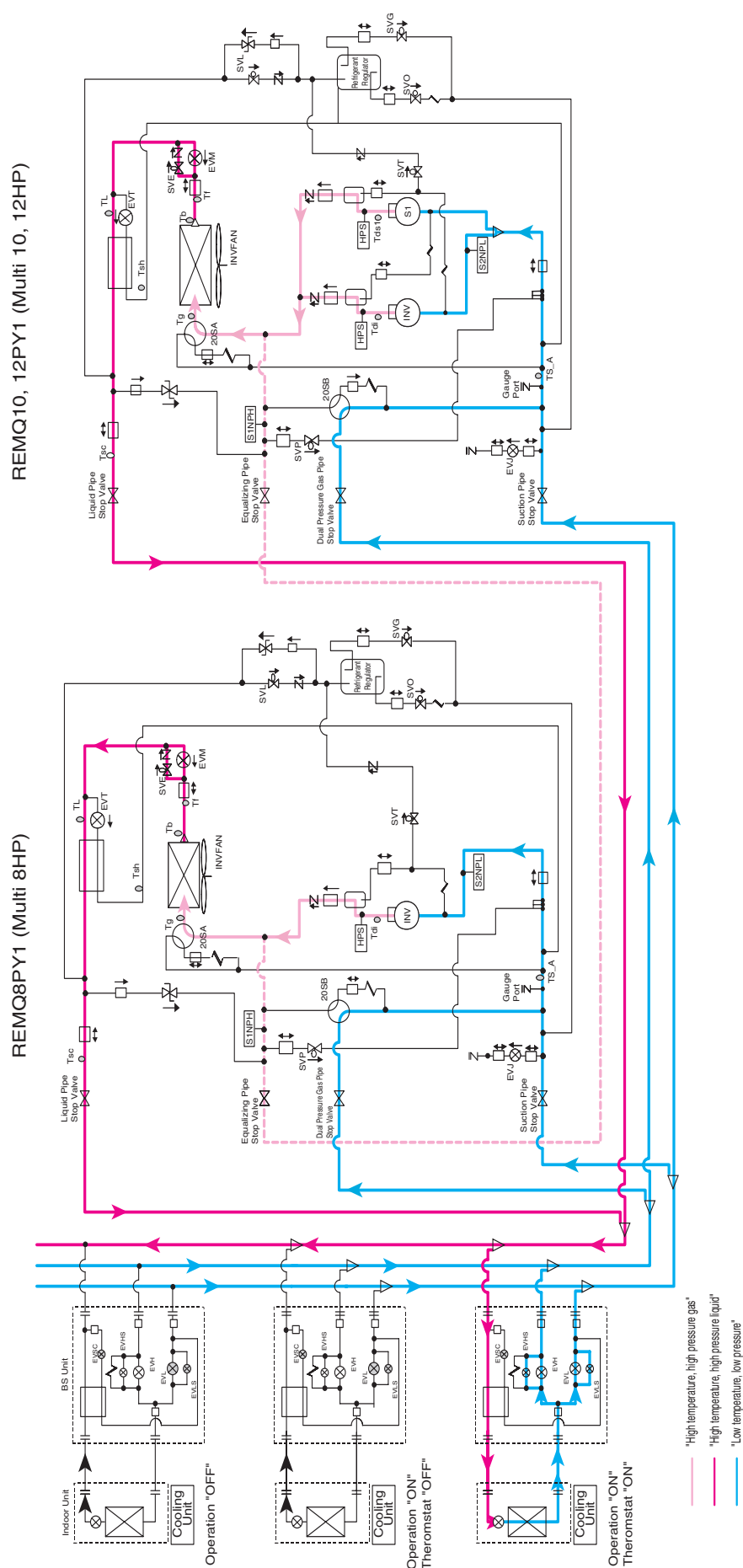


Partial Defrosting 2 (Defrosting in the Left Unit)

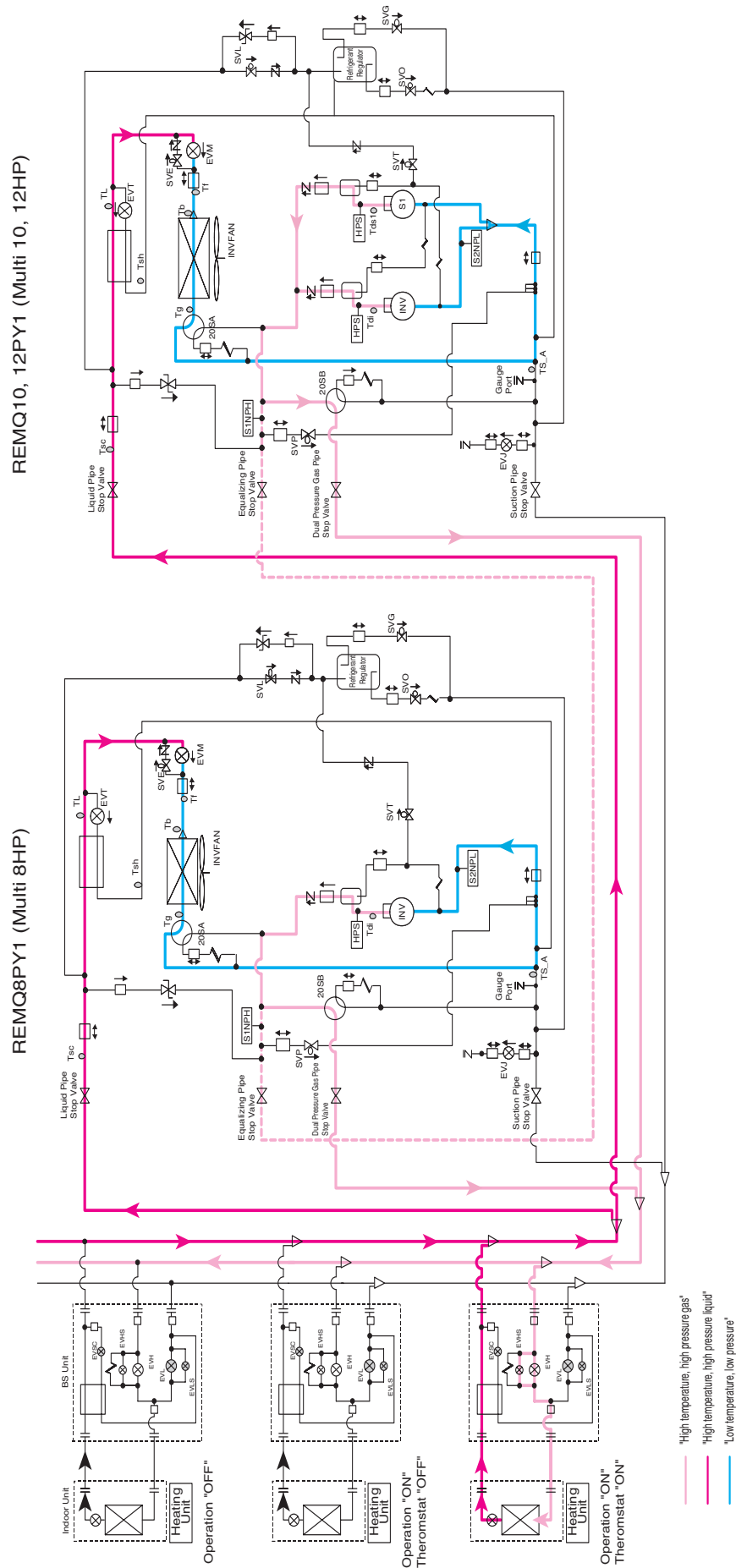


REYQ18P, 20P

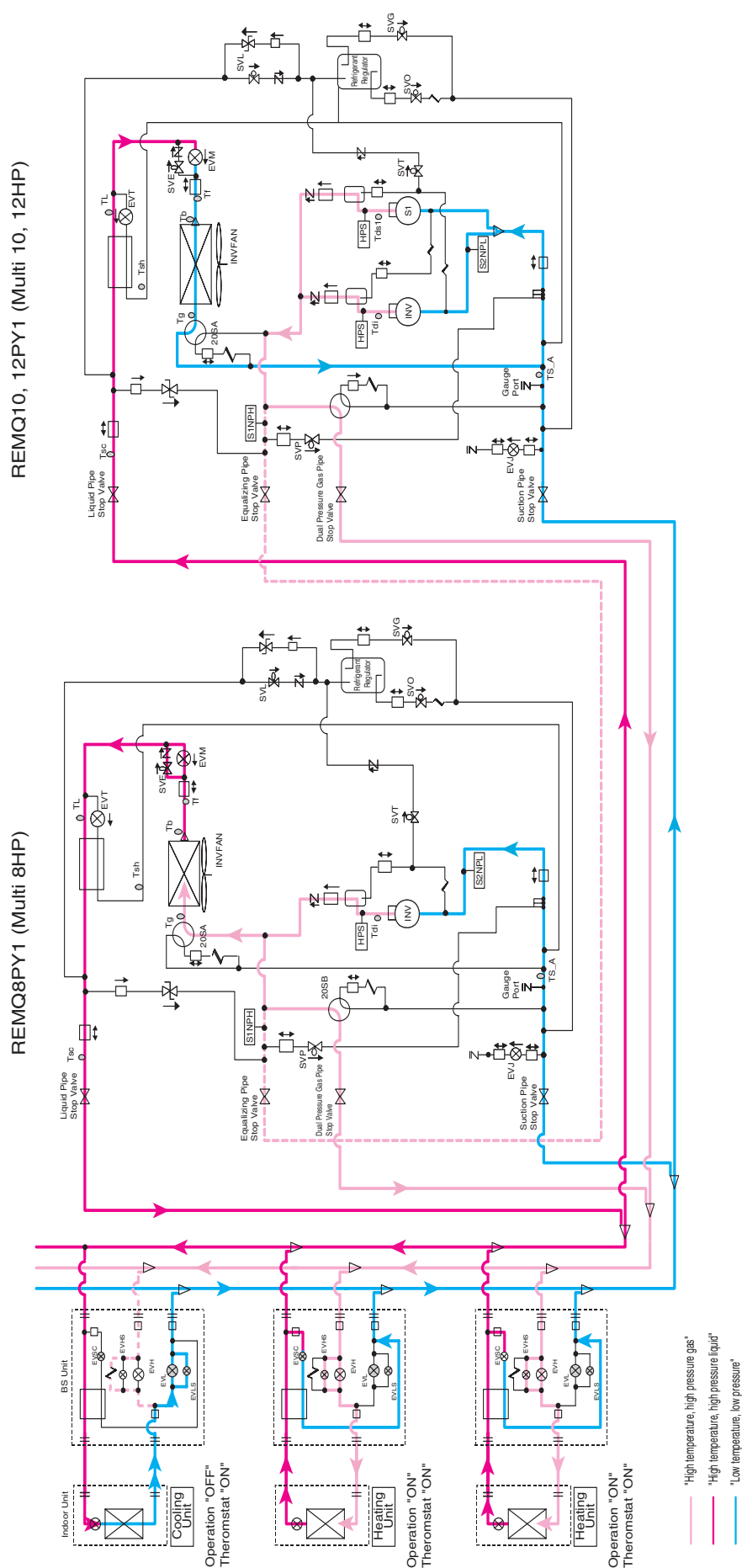
Cooling Operation



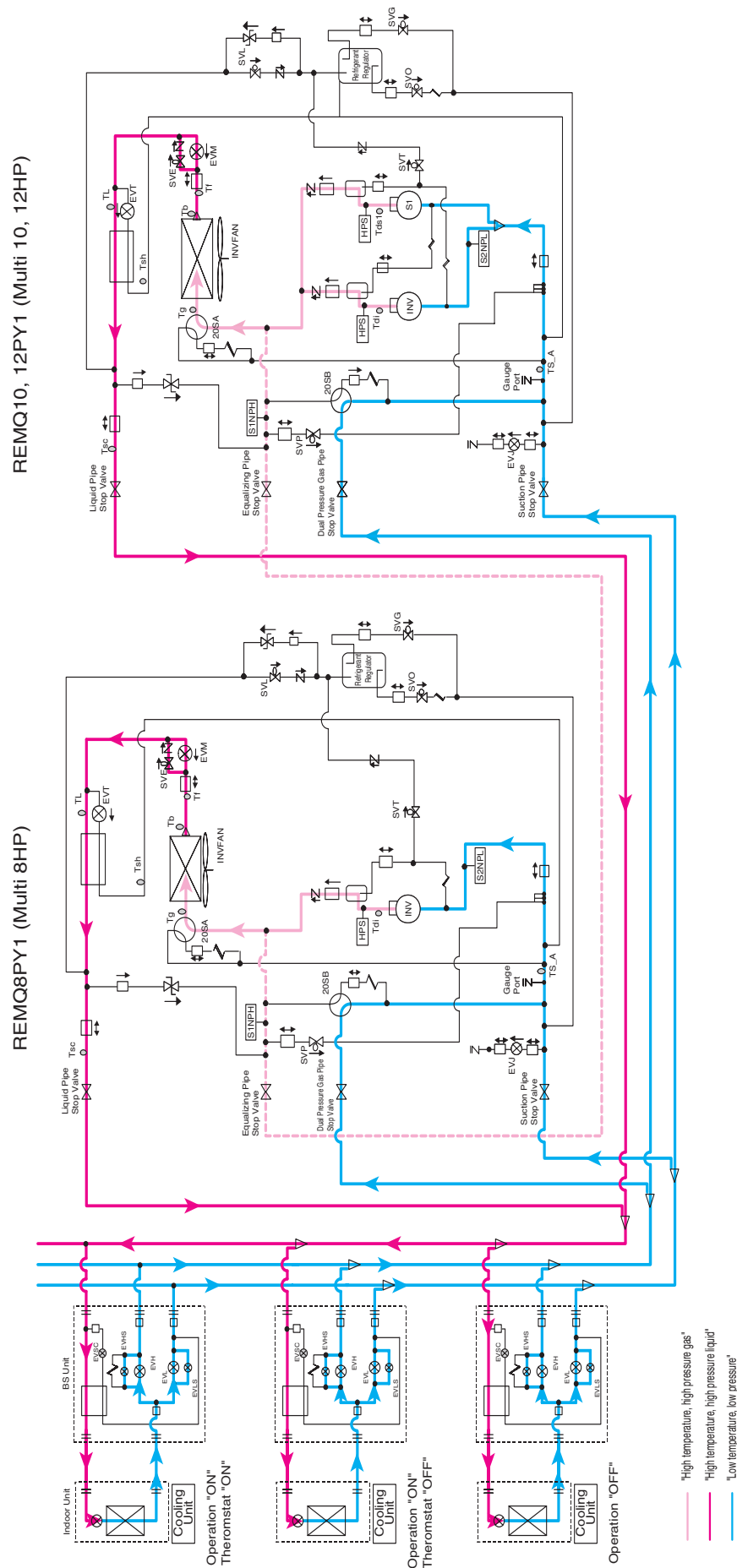
Heating Operation



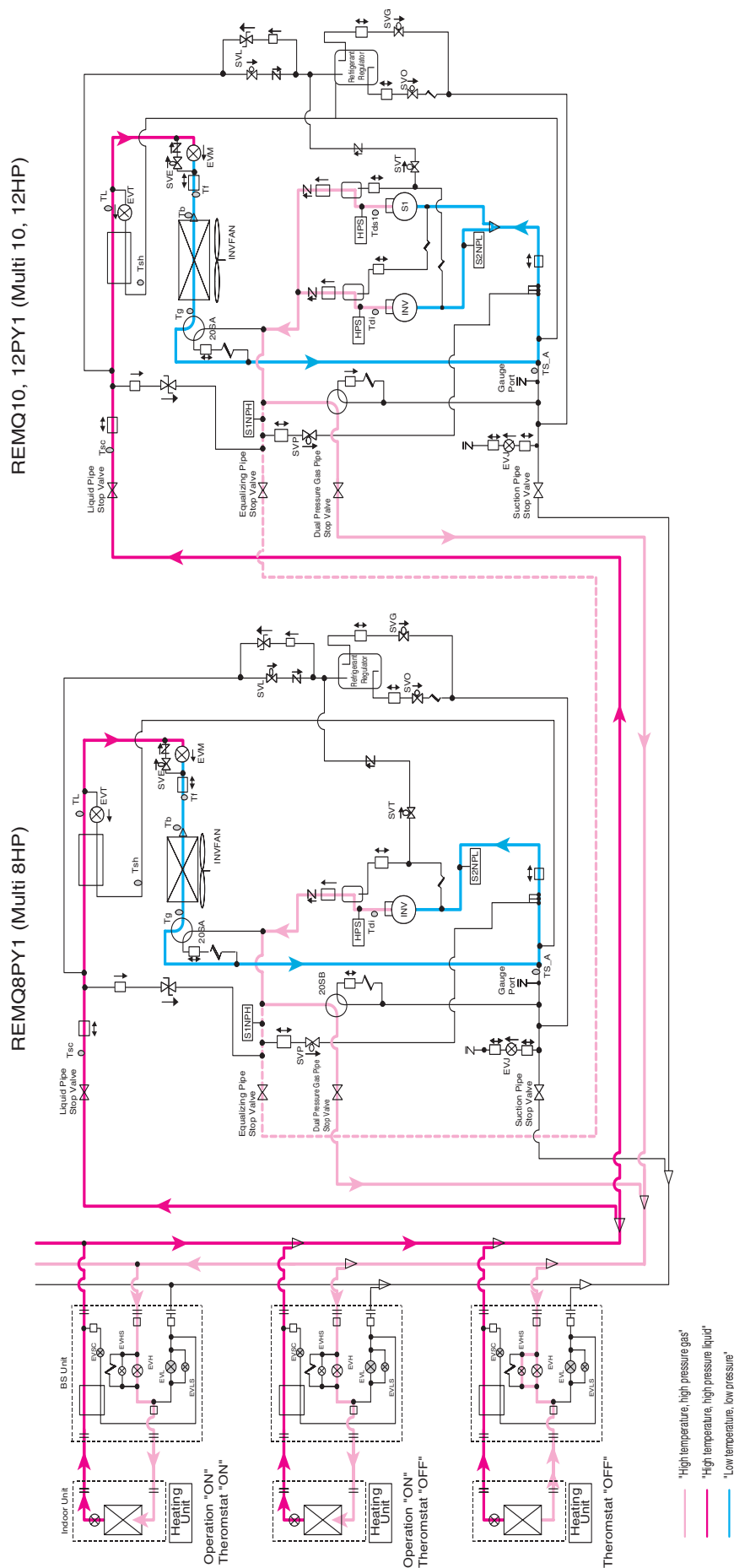
Simultaneous Cooling / Heating Operation



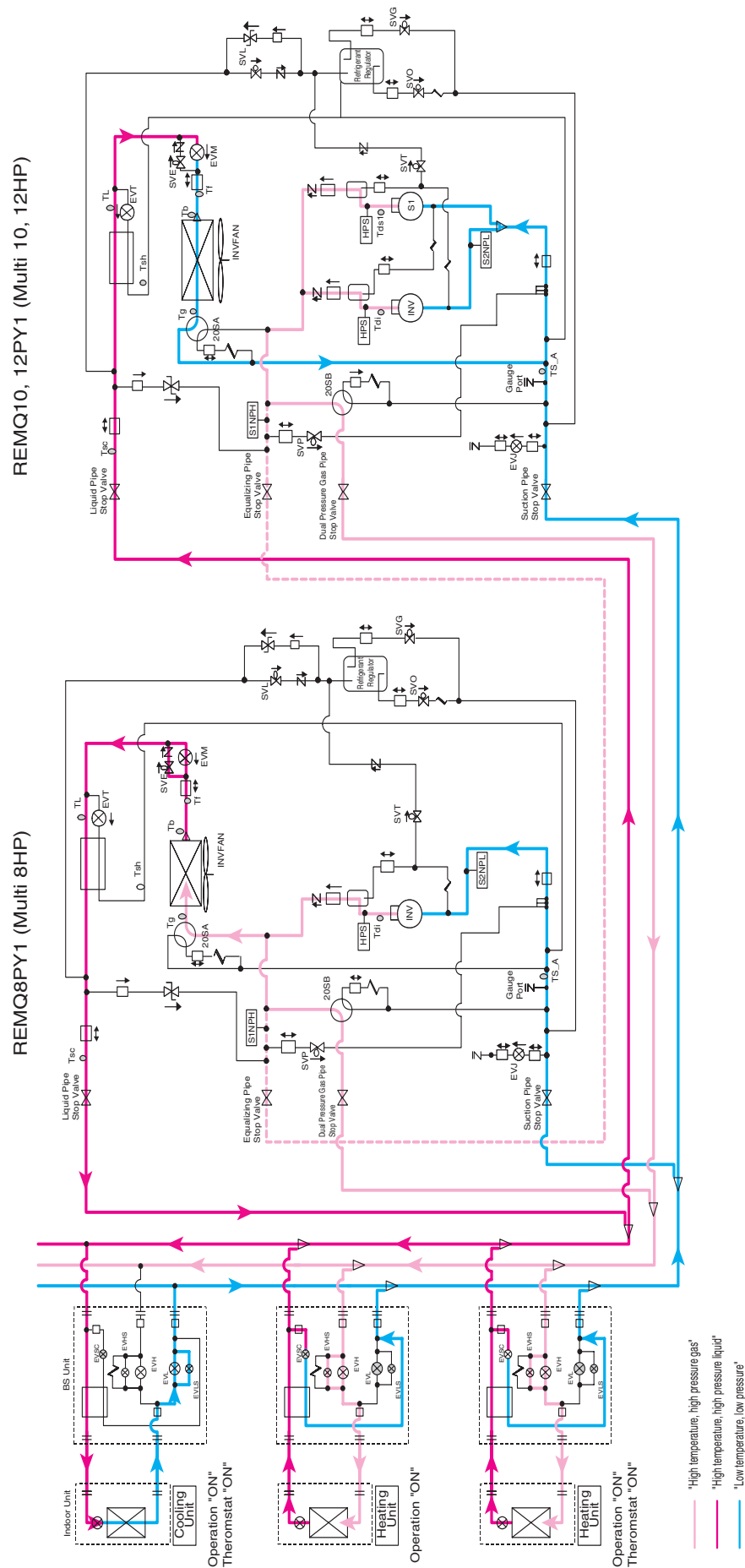
Cooling Oil Return Operation



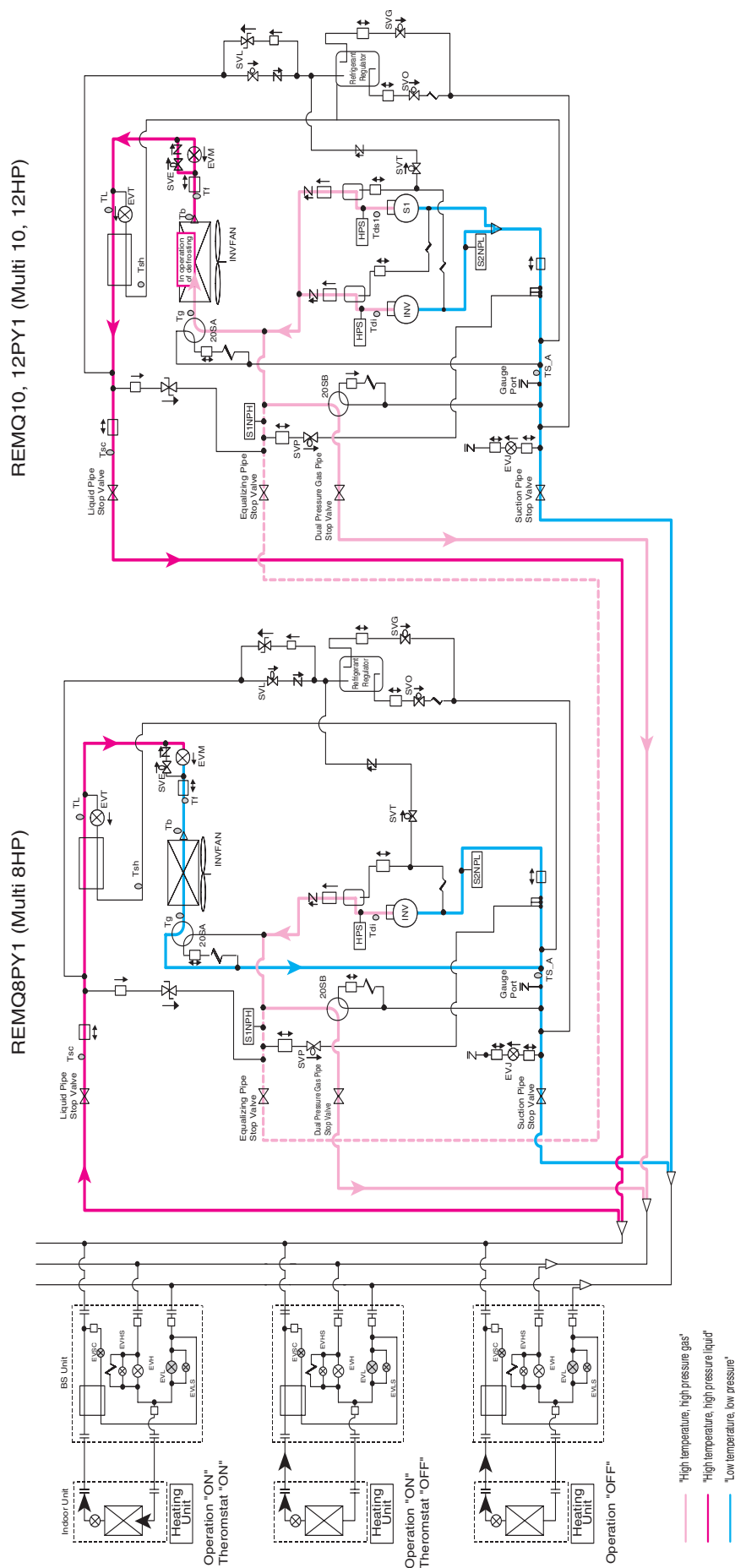
Heating Oil Return Operation



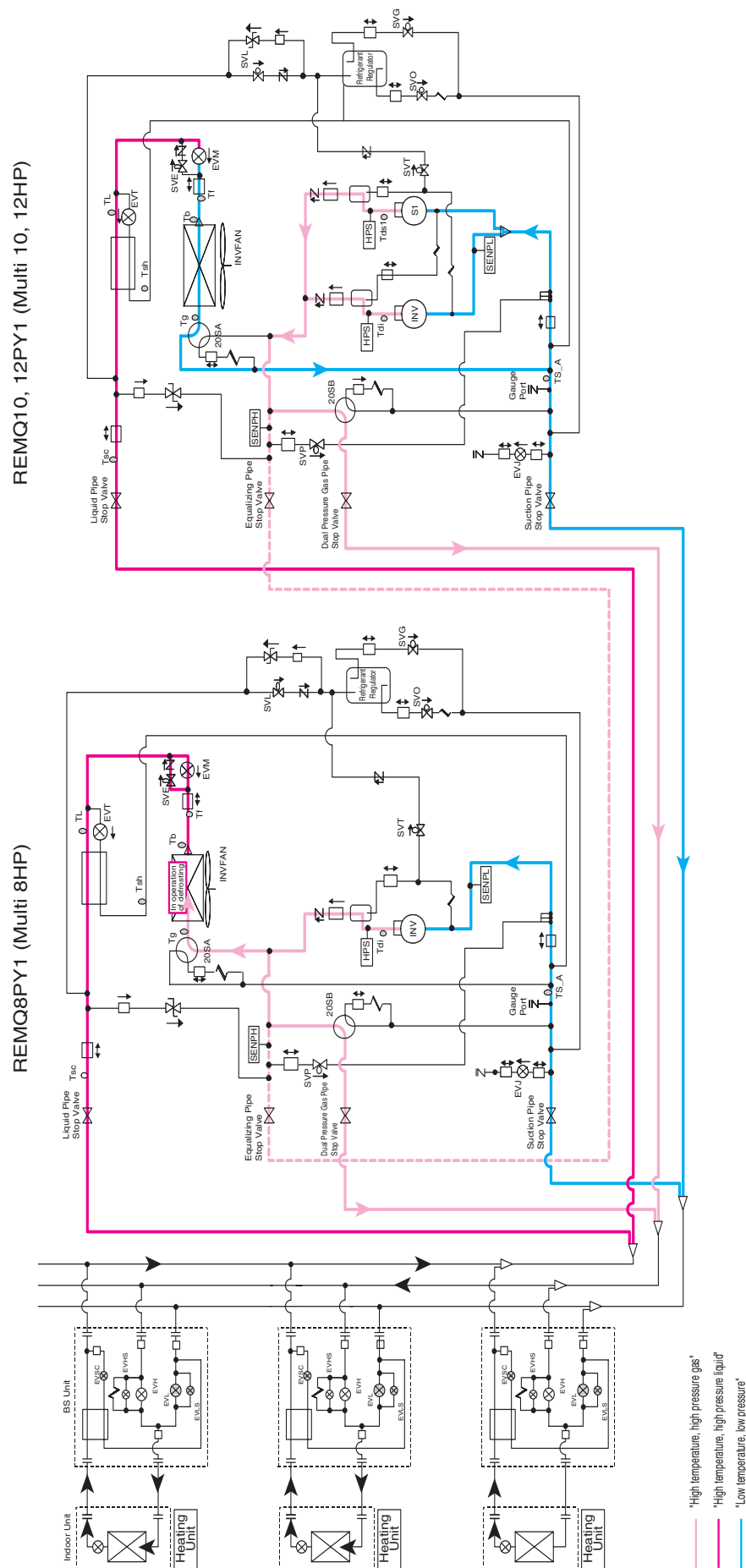
Oil Return Operation at Simultaneous Cooling / Heating Operation



Partial Defrosting 1 (Defrosting in the Right Unit)



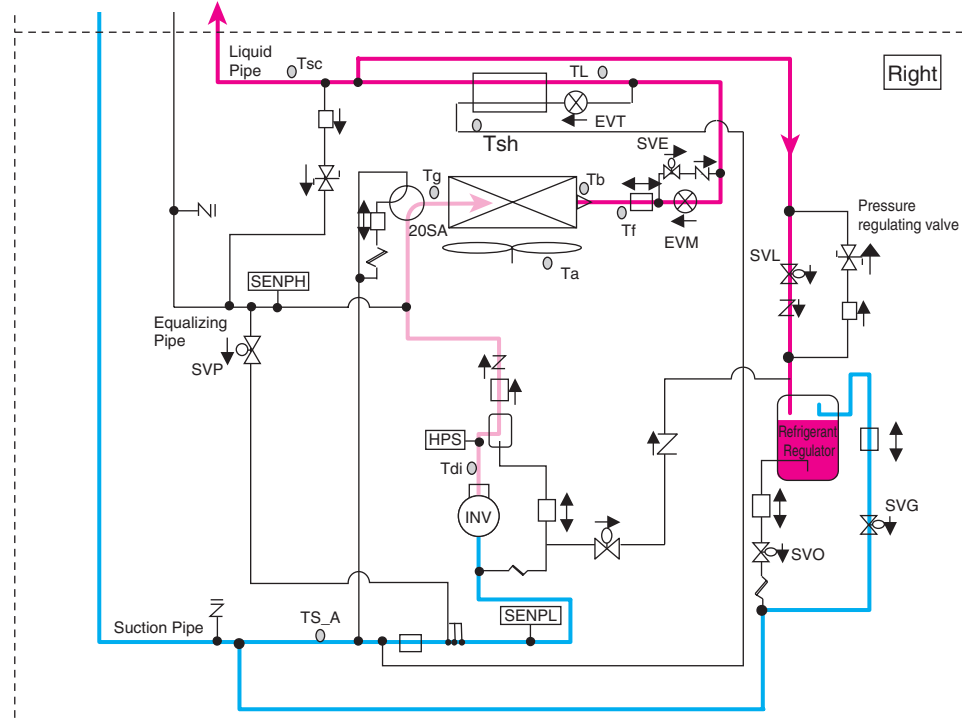
Partial Defrosting 2 (Defrosting in the Left Unit)



Operation of refrigerant regulator

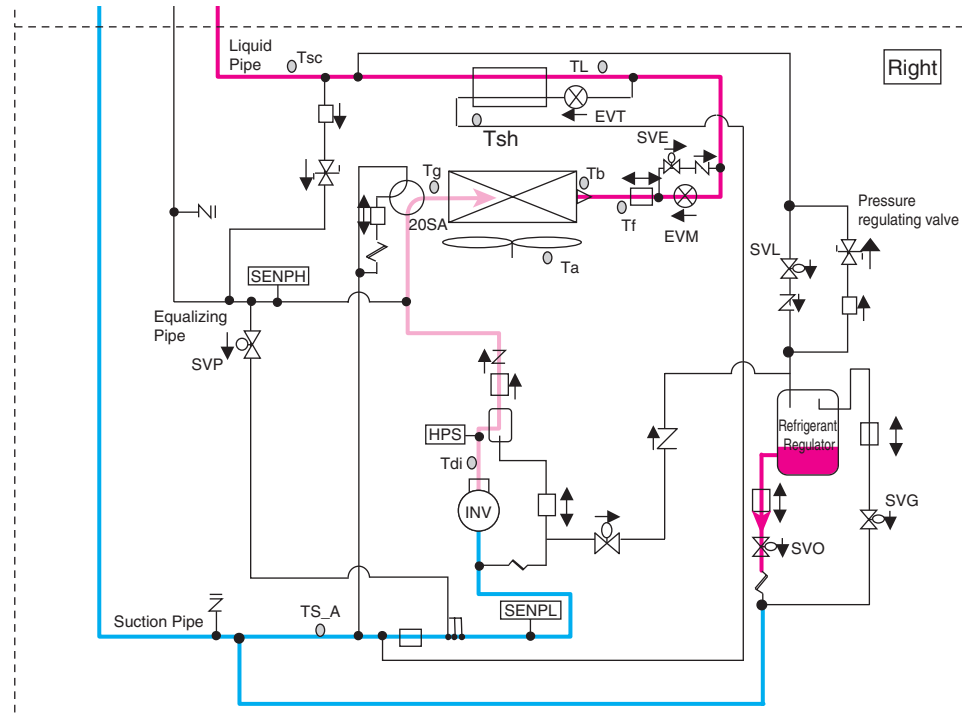
1. Recovery of refrigerant

Surplus refrigerant is recovered to refrigerant regulator by opening of SVL and SVG when the indoor unit load is small.



2. Discharge of refrigerant

Discharge refrigerant from refrigerant regulator by opening of SVC when the load of the outdoor unit is large.



3. Pressure regulating valve (Refrigerant regulator)

The circuit will be closed when SVL, SVO, SVG are all closed. In this case, the increased pressure in the refrigerant regulator will be transferred to the liquid refrigerant pipe side, to regulate the pressure.

Pressure equalizing when switching operation cooling/ heating

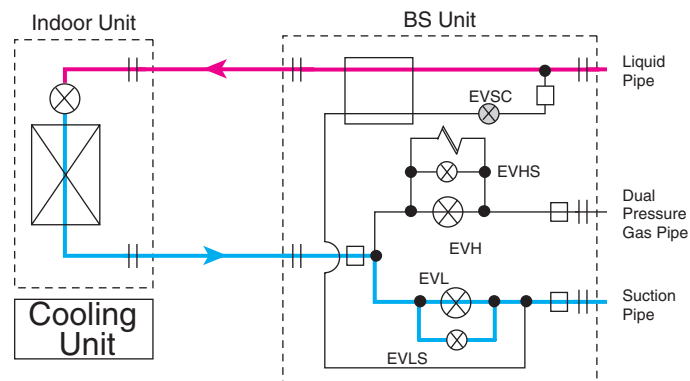
1. When switching operation from to cooling to heating

First, the electric expansion valves for EVHS, EVH, EVL and EVLS of the indoor unit will be closed.

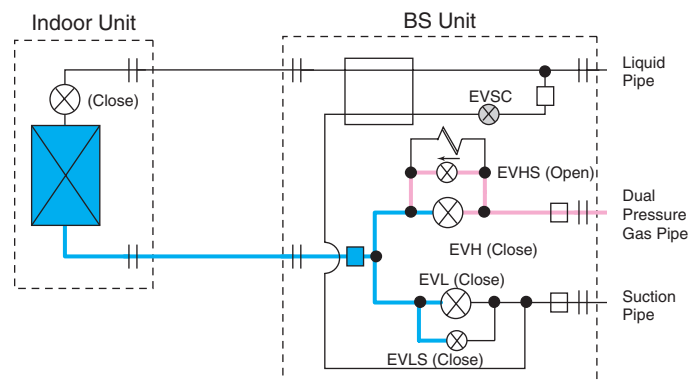
Next, open the EVHS, and it makes to balance the system pressure.

Finally, EVH and EVHS are opened and the electric expansion valve of the indoor unit is opened to start the operation as a heating circuit.

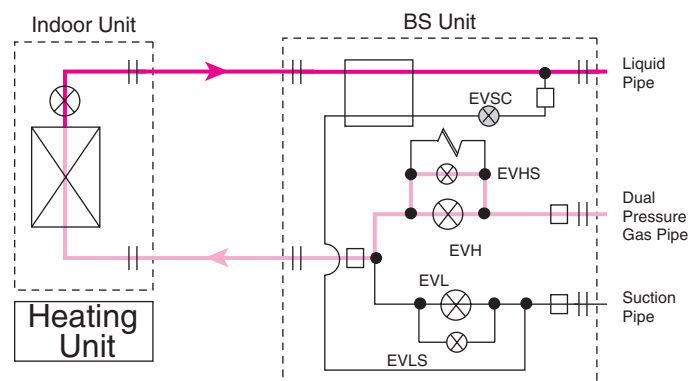
In cooling operation



In equalization



To heating operation



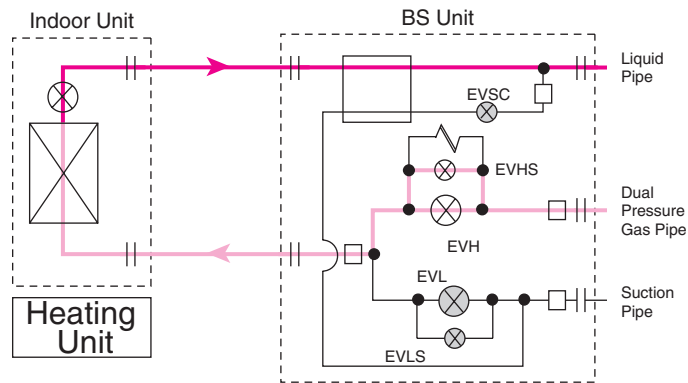
2. When switching operation from heating to cooling

First, the electric expansion valve and the solenoid valve for EVHS, EVH, EVL and EVLS of the indoor unit will be closed.

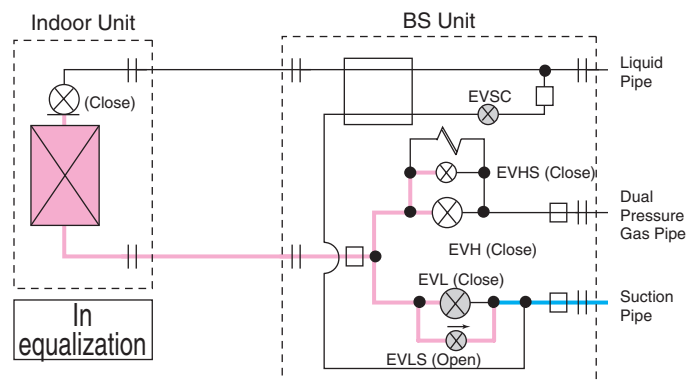
Next, open the EVLS, and it makes to balance the system pressure.

Finally, EVL and EVLS are opened and the electric expansion valve of the indoor unit is opened to start the operation as a cooling circuit.

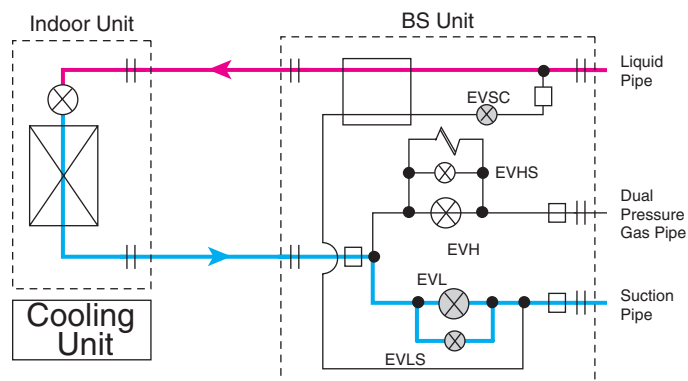
In heating operation



In equalization



To cooling operation



Part 4

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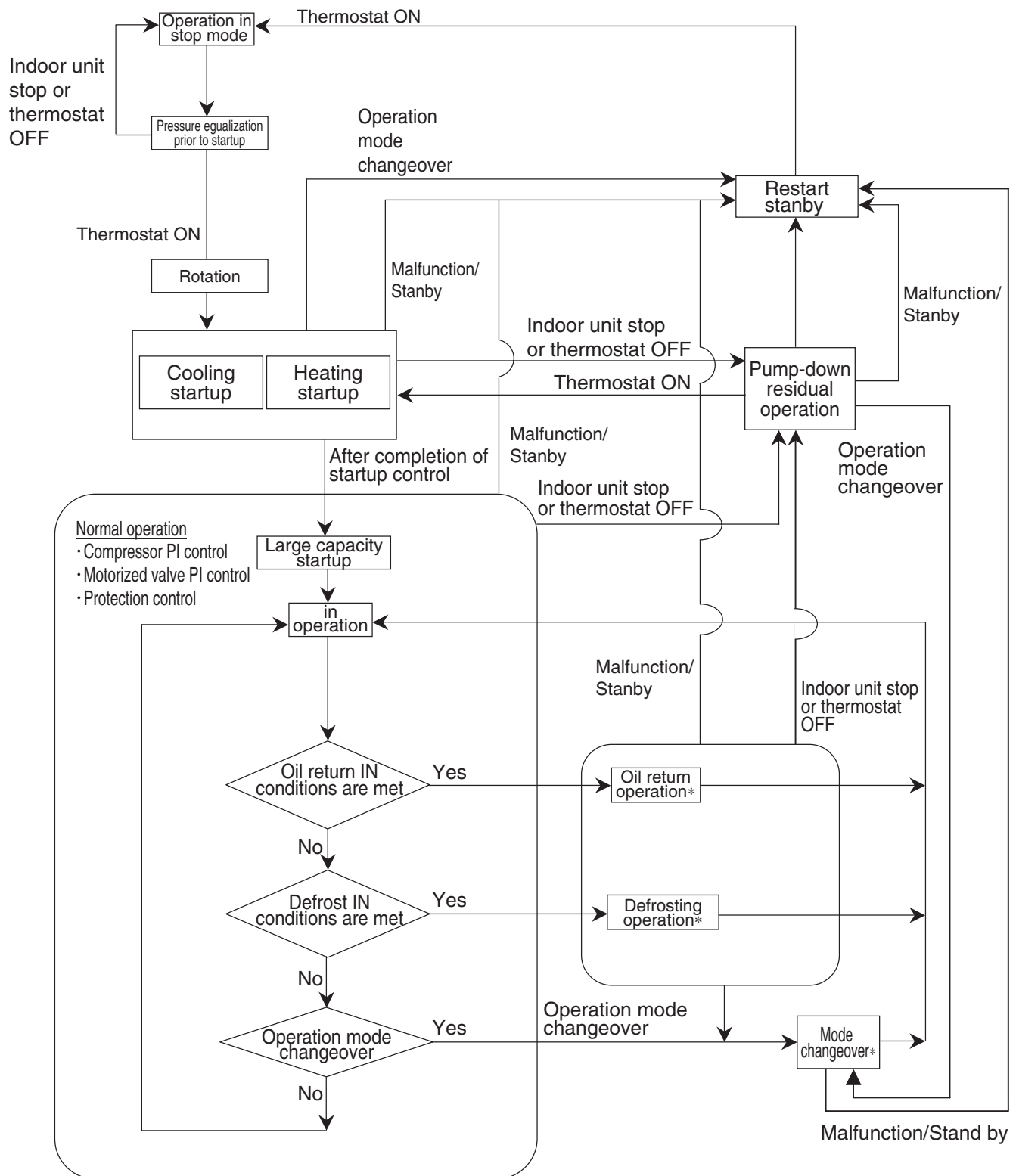
1. Function General

1.1 Symbol

Symbol	Electric symbol		Description or function
	REYQ8~16P	REMQ8~16P	
20SA	Y2S (Heat exchanger1)	Y3S	Four way valve (Heat exchanger switch)
	Y9S (Heat exchanger2)		
20SB	Y8S	Y2S	Four way valve (High/low pressure gas pipe switch)
DSH	—	—	Discharge pipe superheated degree
DSHi	—	—	Discharge pipe superheat of inverter compressor
DSHs	—	—	Discharge pipe superheat of standard compressor
EV	—	—	Opening of electronic expansion valve
EVM	Y1E (Main1)	Y1E	Electronic expansion valve for main heat exchanger
	Y3E (Main2)		
EVT	Y2E (Subcooling1)	Y3E	Electronic expansion valve for sub-cooling heat exchanger
	Y5E (Subcooling2)		
EVJ	Y4E	Y2E	Electronic expansion valve at the refrigerant charge port
HTDi	—	—	Value of INV compressor discharge pipe temperature compensated with outdoor air temperature
HTDs	—	—	Value of STD compressor discharge pipe temperature compensated with outdoor air temperature
Pc	S1NPH	S1NPH	Value detected by high pressure sensor
Pe	S2NPL	S2NPL	Value detected by low pressure sensor
SH	—	—	Evaporator outlet superheat
SHS	—	—	Target evaporator outlet superheat
SVE	Y5S (Bypass1)	Y6S	Main bypass solenoid valve
	Y10S (Bypass2)		
SVP	Y4S	Y5S	Solenoid valve for hot gas
SVL	Y3S	Y4S	Refrigerant regulator liquid pipe solenoid valve
SVG	Y1S	Y1S	Refrigerant regulator gas pipe solenoid valve
SVO	Y7S	Y7S	Refrigerant regulator exhaust pipe solenoid valve
SVT	Y6S	Y8S	Refrigerant regulator discharge pipe solenoid valve

Symbol	Electric symbol		Description or function
	REYQ8~16P	REMQ8~16P	
Ta	R1T (A1P)	R1T (A1P)	Outdoor air temperature
TsA	R8T (Suction pipe1)	R8T	Suction pipe temperature
	R10T (Suction pipe2)		
Tb	R4T (Deicer1)	R4T	Heat exchanger outlet temperature at cooling
	R12T (Deicer2)		
Tg	R2T (Gas pipe1)	R2T	Heat exchanger gas pipe temperature
	R11T (Gas pipe2)		
Tf	R7T (Liquid pipe1)	R7T	Temperature of liquid pipe between heat exchanger and main electronic expansion valve
	R15T (Liquid pipe2)		
Tsh	R5T (Gas pipe1)	R5T	Temperature detected with the subcooling heat exchanger outlet thermistor
	R13T (Gas pipe2)		
Tl	R6T (Liquid pipe1)	R6T	Liquid pipe temperature detected with the liquid pipe thermistor
	R14T (Liquid pipe2)		
Tsc	R9T, R14T	R9T	Temperature of liquid pipe between liquid shutoff valve and supercooled heat exchanger
Tc	—	—	High pressure equivalent saturation temperature
TcS	—	—	Target temperature of Tc
Te	—	—	Low pressure equivalent saturation temperature
TeS	—	—	Target temperature of Te
Tfin	R1T (A4P) (A5P)	R1T (A3P)	Inverter fin temperature
Tp	—	—	Calculated value of compressor port temperature
Tdi	R31T (R32T)	R31T	Discharge pipe temperature of inverter compressor
Tds	R32T	R32T, R33T	Discharge pipe temperature of standard compressor

1.2 Operation Mode



* "Oil return", "Defrost" and "Mode changeover" move on to the next process after the completion of above function in progress even if the thermostat is OFF during the operation.

2. Basic Control

2.1 Normal Operation

2.1.1 List of Functions in Normal Operation

Part Name	Symbol	(Electric Symbol)	Function of Functional Part		
			Normal Cooling	Normal Heating	Normal Simultaneous Cooling / Heating
Compressor 1	—	M1C	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,
Compressor 2		M2C			
Compressor 3		M3C			
Outdoor unit fan 1	—	M1F	Cooling fan control	Outdoor unit heat exchanger: Condenser / Cooling fan control Outdoor unit heat exchanger: Evaporator / Fan step	Outdoor unit heat exchanger: Condenser / Cooling fan control Outdoor unit heat exchanger: Evaporator / Fan step
Outdoor unit fan 2		M2F			
Electronic expansion valve (Main)	EVM	Y1E	1375 pls	Outdoor unit heat exchanger: Condenser / Liquid pressure control Outdoor unit heat exchanger: Evaporator / PI control	Outdoor unit heat exchanger: Condenser / Liquid pressure control Outdoor unit heat exchanger: Evaporator / PI control
		Y3E			
Electronic expansion valve (Supercooling)	EVT	Y2E Y5E	PI control	PI control	PI control
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	80 pls	80 pls	80 pls
Four way valve (Heat exchanger switch)	20SA	Y2S	OFF	Outdoor unit heat exchanger: Condenser / OFF Outdoor unit heat exchanger: Evaporator / ON	Outdoor unit heat exchanger: Condenser / OFF Outdoor unit heat exchanger: Evaporator / ON
		Y9S			
Four way valve (High/low pressure gas pipe switch)	20SB	Y8S	ON	OFF	OFF
Solenoid valve (Main bypass)	SVE	Y5S	ON	OFF	OFF
		Y10S			
Solenoid valve (Hot gas)	SVP	Y4S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	ON for refrigerant recovery	ON for refrigerant recovery	ON for refrigerant recovery
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	ON for refrigerant recovery	ON for refrigerant recovery	ON for refrigerant recovery
Solenoid valve (Refrigerant regulator exhaust pipe)	SVO	Y7S	ON for refrigerant discharge	ON for refrigerant discharge	ON for refrigerant discharge
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	ON for oil level control	ON for oil level control	ON for oil level control

Indoor unit actuator		Normal cooling	Normal heating
Fan	Thermostat ON unit	Remote controller setting	Remote controller setting
	Stopping unit	OFF	OFF
	Thermostat OFF unit	Remote controller setting	LL
Electronic expansion valve	Thermostat ON unit	Normal opening *1	Normal opening *2
	Stopping unit	0 pls	192 pls
	Thermostat OFF unit	0 pls	192 pls

*1. PI control : Evaporator outlet superheated degree (SH) constant.

*2. PI control : Condenser outlet subcooled degree (SC) constant.

*1 and 2 : Refer "6.7 Electronic Expansion Valve Control" on page 143.

BS unit actuator	Electric symbol	Normal cooling	Normal heating / Normal simultaneous Cooling / Heating operation
Electronic expansion valve (EVH)	Y4E	760 pls (fully opened)	760 pls (fully opened)
Electronic expansion valve (EVL)	Y5E	760 pls (fully opened)	0 pls
Electronic expansion valve (EVHS)	Y2E	480 pls (fully opened)	480 pls (fully opened)
Electronic expansion valve (EVLS)	Y3E	480 pls (fully opened)	0 pls
Electronic expansion valve (EVSC)	Y1E	0 pls	0 pls (simultaneous Cooling / Heating operation : PI control)

2.2 Compressor PI Control

Compressor PI Control

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

[Cooling operation]

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

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

Te setting

L	M (Normal) (factory setting)	H				
3	6	7	8	9	10	11

Te : Low pressure equivalent saturation temperature (°C)

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

*On multi-outdoor-unit systems, this control is made according to values of the first-priority unit, which is detected with the pressure sensor.

[Heating operation]

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

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

Tc setting

L	M (Normal) (factory setting)	H
43	46	48

Tc : High pressure equivalent saturation temperature (°C)

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

*On multi-outdoor-unit systems, this control is made according to values of the first-priority unit, which is detected with the pressure sensor.

Rotation of outdoor units

In order to make operating time equal for each compressor of multi connection outdoor units, outdoor units are used in rotation.

However this is not applicable to single units.

[Rotation of outdoor units]

[System with two outdoor units]

	Outdoor Unit 1	Outdoor Unit 2
Previous time	Priority 1	Priority 2
This time	Priority 2	Priority 1
Next time	Priority 1	Priority 2

[System with three outdoor units]

	Outdoor Unit 1	Outdoor Unit 2	Outdoor Unit 3
Previous time	Priority 1	Priority 2	Priority 3
This time	Priority 3	Priority 1	Priority 2
Next time	Priority 2	Priority 3	Priority 1
One time after the next	Priority 1	Priority 2	Priority 3

[Timing of outdoor rotation]

In start of startup control

■ Operating Priority and Rotation of Compressors (For multi standard connection system)

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.

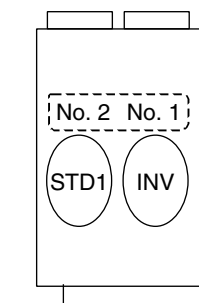
INV: Inverter compressor

STD1: Standard compressor 1

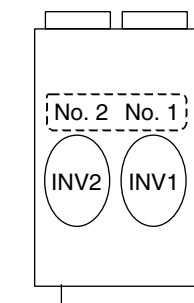
STD2: Standard compressor 2

Pattern 1 Pattern 2 Pattern 3

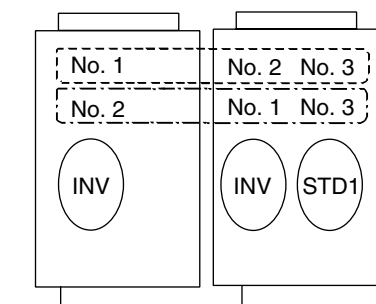
REYQ8P, 10P, 12P



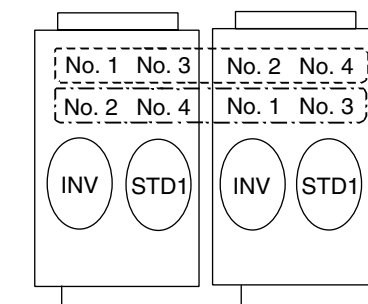
REYQ14P, 16P



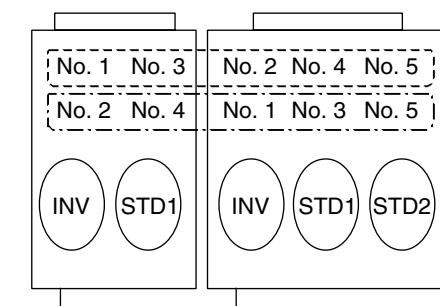
REYQ18P, 20P



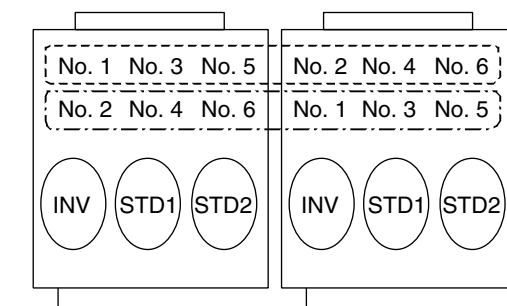
REYQ22P, 24P



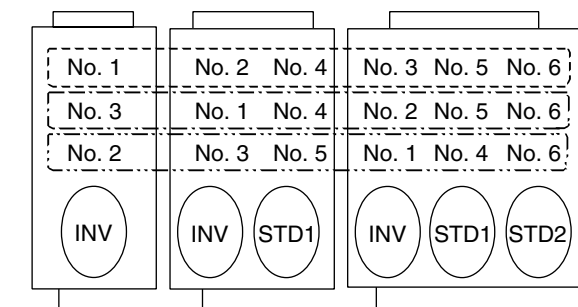
REYQ26P, 28P



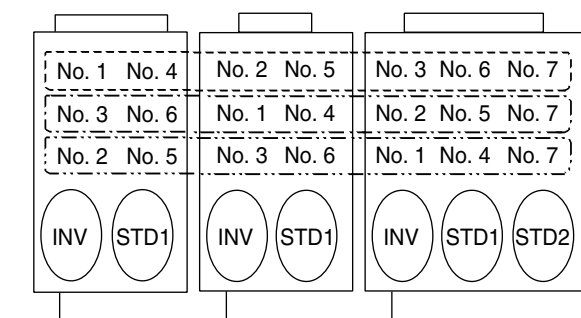
REYQ30P, 32P



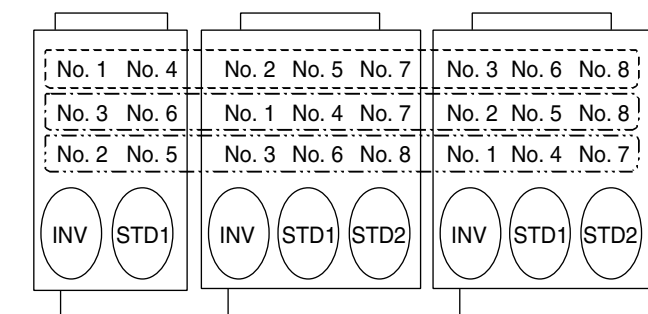
REYQ34P, 36P



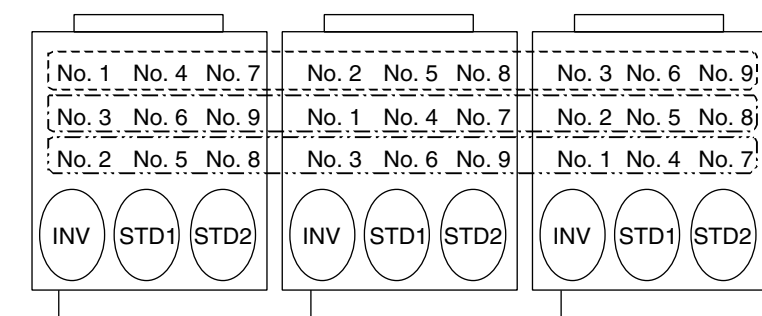
REYQ38P, 40P



REYQ42P, 44P



REYQ46P, 48P



*

- 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.
- Compressors may operate in any pattern other than those mentioned above according to the operating status.

- Compressor Step Control (Multi outdoor unit connection is available on the standard connection system)
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

REYQ8PY1, 10PY1, 12PY1

STEP No.	INV	STD1
1	52Hz	
2	56Hz	
3	62Hz	
4	68Hz	
5	74Hz	
6	80Hz	
7	88Hz	
8	96Hz	
9	104Hz	
10	110Hz	
11	116Hz	
12	124Hz	
13	132Hz	
14	144Hz	
15	158Hz	
16	166Hz	
17	176Hz	
18	188Hz	
19	202Hz	
20	210Hz	
21	52Hz	ON
22	62Hz	ON
23	68Hz	ON
24	74Hz	ON
25	80Hz	ON
26	88Hz	ON
27	96Hz	ON
28	104Hz	ON
29	116Hz	ON
30	124Hz	ON
31	132Hz	ON
32	144Hz	ON
33	158Hz	ON
34	176Hz	ON
35	188Hz	ON
36	202Hz	ON
37	210Hz	ON

← Initial step

← REYQ8PY1 upper limit

REYQ14PY1, 16PY1

STEP No.	INV1	INV2
1	52Hz	52Hz
2	56Hz	56Hz
3	62Hz	62Hz
4	66Hz	66Hz
5	70Hz	70Hz
6	74Hz	74Hz
7	80Hz	80Hz
8	88Hz	88Hz
9	92Hz	92Hz
10	96Hz	96Hz
11	104Hz	104Hz
12	110Hz	110Hz
13	116Hz	116Hz
14	124Hz	124Hz
15	132Hz	132Hz
16	144Hz	144Hz
17	158Hz	158Hz
18	166Hz	166Hz
19	176Hz	176Hz
20	188Hz	188Hz
21	202Hz	202Hz
22	210Hz	210Hz
23	218Hz	218Hz
24	232Hz	232Hz
25	248Hz	248Hz
26	266Hz	266Hz

← Initial step

Notes:

1. INV : Inverter compressor
STD1 : Standard compressor 1
STD2 : Standard compressor 2
2. Depending on the operating conditions of compressors, the compressors may run in patterns other than those aforementioned.

Two-unit multi system

REYQ18PY1, 20PY1 (8+10/12HP)

(To increase Step No.)

STEP No.	unit 1 INV	unit 2 INV	STD
1	52Hz	52Hz	←Initial step
2	56Hz	56Hz	
3	62Hz	62Hz	
4	66Hz	66Hz	
5	70Hz	70Hz	
6	74Hz	74Hz	
7	80Hz	80Hz	
8	88Hz	88Hz	
9	92Hz	92Hz	
10	96Hz	96Hz	
11	104Hz	104Hz	
12	110Hz	110Hz	
13	116Hz	116Hz	
14	124Hz	124Hz	
15	132Hz	132Hz	
16	144Hz	144Hz	
17	158Hz	158Hz	
18	166Hz	166Hz	
19	176Hz	176Hz	
20	80Hz	80Hz	ON
21	88Hz	88Hz	ON
22	96Hz	96Hz	ON
23	104Hz	104Hz	ON
24	116Hz	116Hz	ON
25	124Hz	124Hz	ON
26	132Hz	132Hz	ON
27	144Hz	144Hz	ON
28	158Hz	158Hz	ON
29	176Hz	176Hz	ON
30	188Hz	188Hz	ON
31	202Hz	202Hz	ON
32	210Hz	210Hz	ON

(To decrease Step No.)

STEP No.	unit 1 INV	unit 2 INV	STD
1	52Hz		
2	56Hz		
3	62Hz		
4	68Hz		
5	74Hz		
6	80Hz		
7	88Hz		
8	96Hz		
9	104Hz		
10	52Hz	52Hz	
11	56Hz	56Hz	
12	62Hz	62Hz	
13	66Hz	66Hz	
14	70Hz	70Hz	
15	74Hz	74Hz	
16	80Hz	80Hz	
17	88Hz	88Hz	
18	92Hz	92Hz	
19	96Hz	96Hz	
20	104Hz	104Hz	
21	110Hz	110Hz	
22	116Hz	116Hz	
23	124Hz	124Hz	
24	132Hz	132Hz	
25	52Hz	52Hz	ON
26	62Hz	62Hz	ON
27	68Hz	68Hz	ON
28	74Hz	74Hz	ON
29	80Hz	80Hz	ON
30	88Hz	88Hz	ON
31	96Hz	96Hz	ON
32	104Hz	104Hz	ON
33	116Hz	116Hz	ON
34	124Hz	124Hz	ON
35	132Hz	132Hz	ON
36	144Hz	144Hz	ON
37	158Hz	158Hz	ON
38	176Hz	176Hz	ON
39	188Hz	188Hz	ON
40	202Hz	202Hz	ON
41	210Hz	210Hz	ON

represents the range in which “Hz” is not stepped up.

REYQ22PY1, 24PY1 (10/12+12HP)

(To increase Step No.)

STEP No.	unit 1 INV	unit 2 INV	STD
1	52Hz	52Hz	←Initial step
2	56Hz	56Hz	
3	62Hz	62Hz	
4	66Hz	66Hz	
5	70Hz	70Hz	
6	74Hz	74Hz	
7	80Hz	80Hz	
8	88Hz	88Hz	
9	92Hz	92Hz	
10	96Hz	96Hz	
11	104Hz	104Hz	
12	110Hz	110Hz	
13	116Hz	116Hz	
14	124Hz	124Hz	
15	132Hz	132Hz	
16	144Hz	144Hz	
17	158Hz	158Hz	
18	166Hz	166Hz	
19	176Hz	176Hz	
20	80Hz	80Hz	ON1
21	88Hz	88Hz	ON1
22	96Hz	96Hz	ON1
23	104Hz	104Hz	ON1
24	116Hz	116Hz	ON1
25	124Hz	124Hz	ON1
26	132Hz	132Hz	ON1
27	88Hz	88Hz	ON2
28	96Hz	96Hz	ON2
29	104Hz	104Hz	ON2
30	124Hz	124Hz	ON2
31	144Hz	144Hz	ON2
32	158Hz	158Hz	ON2
33	166Hz	176Hz	ON2
34	176Hz	158Hz	ON2
35	188Hz	188Hz	ON2
36	202Hz	202Hz	ON2
37	210Hz	210Hz	ON2
38	202Hz	202Hz	ON2
39	210Hz	210Hz	ON2

(To decrease Step No.)

STEP No.	unit 1 INV	unit 2 INV	STD
1	52Hz		
2	56Hz		
3	62Hz		
4	68Hz		
5	74Hz		
6	80Hz		
7	88Hz		
8	96Hz		
9	104Hz		
10	52Hz	52Hz	
11	56Hz	56Hz	
12	62Hz	62Hz	
13	66Hz	66Hz	
14	70Hz	70Hz	
15	74Hz	74Hz	
16	80Hz	80Hz	
17	88Hz	88Hz	
18	92Hz	92Hz	
19	96Hz	96Hz	
20	104Hz	104Hz	
21	110Hz	110Hz	
22	116Hz	116Hz	
23	124Hz	124Hz	
24	132Hz	132Hz	
25	52Hz	52Hz	ON1
26	62Hz	62Hz	ON1
27	68Hz	68Hz	ON1
28	74Hz	74Hz	ON1
29	80Hz	80Hz	ON1
30	88Hz	88Hz	ON1
31	96Hz	96Hz	ON1
32	104Hz	104Hz	ON1
33	52Hz	52Hz	ON2
34	62Hz	62Hz	ON2
35	74Hz	74Hz	ON2
36	88Hz	88Hz	ON2
37	96Hz	96Hz	ON2
38	104Hz	104Hz	ON2
39	124Hz	124Hz	ON2
40	144Hz	144Hz	ON2
41	158Hz	158Hz	ON2
42	166Hz	166Hz	ON2
43	176Hz	176Hz	ON2
44	188Hz	188Hz	ON2
45	202Hz	202Hz	ON2
46	210Hz	210Hz	ON2
47	202Hz	202Hz	ON2
48	210Hz	210Hz	ON2

Notes:

1. INV : Inverter compressor

STD : Standard compressor

Figures after ON represent the number of STD compressors in operation.

2. “Master unit”, and “slave unit” in this section are the names for control, and they will be transferred according to the priority of rotation system.

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

Three-unit multi system

REYQ26PY1, 28PY1 (10/12+16HP)

(To increase Step No.)

STEP No.	unit 1 INV	unit 2 INV	STD
1	52Hz	52Hz	←Initial step
2	56Hz	56Hz	
3	62Hz	62Hz	
4	66Hz	66Hz	
5	70Hz	70Hz	
6	74Hz	74Hz	
7	80Hz	80Hz	
8	88Hz	88Hz	
9	92Hz	92Hz	
10	96Hz	96Hz	
11	104Hz	104Hz	
12	110Hz	110Hz	
13	116Hz	116Hz	
14	124Hz	124Hz	
15	132Hz	132Hz	
16	144Hz	144Hz	
17	158Hz	158Hz	
18	166Hz	166Hz	
19	176Hz	176Hz	
20	80Hz	80Hz	ON1
21	88Hz	88Hz	ON1
22	96Hz	96Hz	ON1
23	104Hz	104Hz	ON1
24	116Hz	116Hz	ON1
25	124Hz	124Hz	ON1
26	132Hz	132Hz	ON1
27	88Hz	88Hz	ON2
28	96Hz	96Hz	ON2
29	104Hz	104Hz	ON2
30	124Hz	124Hz	ON2
31	144Hz	144Hz	ON2
32	92Hz	92Hz	ON3
33	104Hz	104Hz	ON3
34	116Hz	116Hz	ON3
35	124Hz	124Hz	ON3
36	144Hz	144Hz	ON3
37	158Hz	158Hz	ON3
38	166Hz	166Hz	ON3
39	176Hz	176Hz	ON3
40	188Hz	188Hz	ON3
41	202Hz	202Hz	ON3
42	210Hz	210Hz	ON3

(To decrease Step No.)

STEP No.	unit 1 INV	unit 2 INV	STD
1	52Hz		
2	56Hz		
3	62Hz		
4	68Hz		
5	74Hz		
6	80Hz		
7	88Hz		
8	96Hz		
9	104Hz		
10	52Hz	52Hz	
11	56Hz	56Hz	
12	62Hz	62Hz	
13	66Hz	66Hz	
14	70Hz	70Hz	
15	74Hz	74Hz	
16	80Hz	80Hz	
17	88Hz	88Hz	
18	92Hz	92Hz	
19	96Hz	96Hz	
20	104Hz	104Hz	
21	110Hz	110Hz	
22	116Hz	116Hz	
23	124Hz	124Hz	
24	132Hz	132Hz	
25	52Hz	52Hz	ON1
26	62Hz	62Hz	ON1
27	68Hz	68Hz	ON1
28	74Hz	74Hz	ON1
29	80Hz	80Hz	ON1
30	88Hz	88Hz	ON1
31	96Hz	96Hz	ON1
32	104Hz	104Hz	ON1
33	52Hz	52Hz	ON2
34	62Hz	62Hz	ON2
35	74Hz	74Hz	ON2
36	88Hz	88Hz	ON2
37	96Hz	96Hz	ON2
38	52Hz	52Hz	ON3
39	62Hz	62Hz	ON3
40	74Hz	74Hz	ON3
41	92Hz	92Hz	ON3
42	104Hz	104Hz	ON3
43	116Hz	116Hz	ON3
44	124Hz	124Hz	ON3
45	144Hz	144Hz	ON3
46	158Hz	158Hz	ON3
47	166Hz	166Hz	ON3
48	176Hz	176Hz	ON3
49	188Hz	188Hz	ON3
50	202Hz	202Hz	ON3
51	210Hz	210Hz	ON3

represents the range in which “Hz” is not stepped up.

REYQ 32PY1 (16+16HP)

(To increase Step No.)

STEP No.	unit 1 INV	unit 2 INV	STD
1	52Hz	52Hz	←Initial step
2	56Hz	56Hz	
3	62Hz	62Hz	
4	66Hz	66Hz	
5	70Hz	70Hz	
6	74Hz	74Hz	
7	80Hz	80Hz	
8	88Hz	88Hz	
9	92Hz	92Hz	
10	96Hz	96Hz	
11	104Hz	104Hz	
12	110Hz	110Hz	
13	116Hz	116Hz	
14	124Hz	124Hz	
15	132Hz	132Hz	
16	144Hz	144Hz	
17	158Hz	158Hz	
18	166Hz	166Hz	
19	176Hz	176Hz	
20	80Hz	80Hz	ON1
21	88Hz	88Hz	ON1
22	96Hz	96Hz	ON1
23	104Hz	104Hz	ON1
24	116Hz	116Hz	ON1
25	124Hz	124Hz	ON1
26	132Hz	132Hz	ON1
27	88Hz	88Hz	ON2
28	96Hz	96Hz	ON2
29	104Hz	104Hz	ON2
30	124Hz	124Hz	ON2
31	144Hz	144Hz	ON2
32	92Hz	92Hz	ON3
33	104Hz	104Hz	ON3
34	116Hz	116Hz	ON3
35	124Hz	124Hz	ON3
36	144Hz	144Hz	ON3
37	96Hz	96Hz	ON4
38	104Hz	104Hz	ON4
39	116Hz	116Hz	ON4
40	124Hz	124Hz	ON4
41	144Hz	144Hz	ON4
42	158Hz	158Hz	ON4
43	166Hz	166Hz	ON4
44	176Hz	176Hz	ON4
45	188Hz	188Hz	ON4
46	202Hz	202Hz	ON4
47	210Hz	210Hz	ON4

(To decrease Step No.)

STEP No.	unit 1 INV	unit 2 INV	STD
1	52Hz		
2	56Hz		
3	62Hz		
4	68Hz		
5	74Hz		
6	80Hz		
7	88Hz		
8	96Hz		
9	104Hz		
10	52Hz	52Hz	
11	56Hz	56Hz	
12	62Hz	62Hz	
13	66Hz	66Hz	
14	70Hz	70Hz	
15	74Hz	74Hz	
16	80Hz	80Hz	
17	88Hz	88Hz	
18	92Hz	92Hz	
19	96Hz	96Hz	
20	104Hz	104Hz	
21	110Hz	110Hz	
22	116Hz	116Hz	
23	124Hz	124Hz	
24	132Hz	132Hz	
25	52Hz	52Hz	ON1
26	62Hz	62Hz	ON1
27	68Hz	68Hz	ON1
28	74Hz	74Hz	ON1
29	80Hz	80Hz	ON1
30	88Hz	88Hz	ON1
31	96Hz	96Hz	ON1
32	104Hz	104Hz	ON1
33	52Hz	52Hz	ON2
34	62Hz	62Hz	ON2
35	74Hz	74Hz	ON2
36	88Hz	88Hz	ON2
37	96Hz	96Hz	ON2
38	52Hz	52Hz	ON3
39	62Hz	62Hz	ON3
40	74Hz	74Hz	ON3
41	96Hz	96Hz	ON3
42	104Hz	104Hz	ON3
43	52Hz	52Hz	ON4
44	62Hz	62Hz	ON4
45	74Hz	74Hz	ON4
46	96Hz	96Hz	ON4
47	104Hz	104Hz	ON4
48	116Hz	116Hz	ON4
49	124Hz	124Hz	ON4
50	144Hz	144Hz	ON4
51	158Hz	158Hz	ON4
52	166Hz	166Hz	ON4
53	176Hz	176Hz	ON4
54	188Hz	188Hz	ON4
55	202Hz	202Hz	ON4
56	210Hz	210Hz	ON4

Notes:

1. INV : Inverter compressor

STD : Standard compressor

Figures after ON represent the number of STD compressors in operation.

2. “Master unit”, and “slave unit” in this section are the names for control, and they will be transferred according to the priority of rotation system.

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

represents the range in which “Hz” is not stepped up.

REYQ34PY1, 36PY1 (8+10/12+16HP)

REYQ38PY1, 40PY1 (10/12+12+16HP)

(To increase Step No.)				
STEP No.	unit 1 INV	unit 2 INV	unit 3 INV	STD
1	52Hz	52Hz	52Hz	←Initial step
2	56Hz	56Hz	56Hz	
3	62Hz	62Hz	62Hz	
4	66Hz	66Hz	66Hz	
5	68Hz	68Hz	68Hz	
6	70Hz	70Hz	70Hz	
7	74Hz	74Hz	74Hz	
8	80Hz	80Hz	80Hz	
9	88Hz	88Hz	88Hz	
10	96Hz	96Hz	96Hz	
11	104Hz	104Hz	104Hz	
12	110Hz	110Hz	110Hz	
13	116Hz	116Hz	116Hz	
14	124Hz	124Hz	124Hz	
15	80Hz	80Hz	80Hz	ON1
16	88Hz	88Hz	88Hz	ON1
17	96Hz	96Hz	96Hz	ON1
18	104Hz	104Hz	104Hz	ON1
19	116Hz	116Hz	116Hz	ON1
20	124Hz	124Hz	124Hz	ON1
21	132Hz	132Hz	132Hz	ON1
22	88Hz	88Hz	88Hz	ON2
23	96Hz	96Hz	96Hz	ON2
24	104Hz	104Hz	104Hz	ON2
25	124Hz	124Hz	124Hz	ON2
26	144Hz	144Hz	144Hz	ON2
27	92Hz	92Hz	92Hz	ON3
28	104Hz	104Hz	104Hz	ON3
29	116Hz	116Hz	116Hz	ON3
30	124Hz	124Hz	124Hz	ON3
31	144Hz	144Hz	144Hz	ON3
32	158Hz	158Hz	158Hz	ON3
33	166Hz	166Hz	166Hz	ON3
34	176Hz	176Hz	176Hz	ON3
35	188Hz	188Hz	188Hz	ON3
36	202Hz	202Hz	202Hz	ON3
37	210Hz	210Hz	210Hz	ON3

(To decrease Step No.)				
STEP No.	unit 1 INV	unit 2 INV	unit 3 INV	STD
1	52Hz			
2	56Hz			
3	62Hz			
4	68Hz			
5	74Hz			
6	80Hz			
7	88Hz			
8	96Hz			
9	104Hz			
10	52Hz	52Hz		
11	56Hz	56Hz		
12	62Hz	62Hz		
13	66Hz	66Hz		
14	70Hz	70Hz		
15	74Hz	74Hz		
16	52Hz	52Hz	52Hz	
17	56Hz	56Hz	56Hz	
18	62Hz	62Hz	62Hz	
19	66Hz	66Hz	66Hz	
20	68Hz	68Hz	68Hz	
21	70Hz	70Hz	70Hz	
22	74Hz	74Hz	74Hz	
23	80Hz	80Hz	80Hz	
24	88Hz	88Hz	88Hz	
25	96Hz	96Hz	96Hz	
26	52Hz	52Hz	52Hz	ON1
27	62Hz	62Hz	62Hz	ON1
28	68Hz	68Hz	68Hz	ON1
29	74Hz	74Hz	74Hz	ON1
30	80Hz	80Hz	80Hz	ON1
31	88Hz	88Hz	88Hz	ON1
32	96Hz	96Hz	96Hz	ON1
33	104Hz	104Hz	104Hz	ON1
34	52Hz	52Hz	52Hz	ON2
35	62Hz	62Hz	62Hz	ON2
36	74Hz	74Hz	74Hz	ON2
37	88Hz	88Hz	88Hz	ON2
38	96Hz	96Hz	96Hz	ON2
39	52Hz	52Hz	52Hz	ON3
40	62Hz	62Hz	62Hz	ON3
41	74Hz	74Hz	74Hz	ON3
42	92Hz	92Hz	92Hz	ON3
43	104Hz	104Hz	104Hz	ON3
44	116Hz	116Hz	116Hz	ON3
45	124Hz	124Hz	124Hz	ON3
46	144Hz	144Hz	144Hz	ON3
47	158Hz	158Hz	158Hz	ON3
48	166Hz	166Hz	166Hz	ON3
49	176Hz	176Hz	176Hz	ON3
50	188Hz	188Hz	188Hz	ON3
51	202Hz	202Hz	202Hz	ON3
52	210Hz	210Hz	210Hz	ON3

(To increase Step No.)				
STEP No.	unit 1 INV	unit 2 INV	unit 3 INV	STD
1	52Hz	52Hz	52Hz	←Initial step
2	56Hz	56Hz	56Hz	
3	62Hz	62Hz	62Hz	
4	66Hz	66Hz	66Hz	
5	68Hz	68Hz	68Hz	
6	70Hz	70Hz	70Hz	
7	74Hz	74Hz	74Hz	
8	80Hz	80Hz	80Hz	
9	88Hz	88Hz	88Hz	
10	96Hz	96Hz	96Hz	
11	104Hz	104Hz	104Hz	
12	110Hz	110Hz	110Hz	
13	116Hz	116Hz	116Hz	
14	124Hz	124Hz	124Hz	
15	80Hz	80Hz	80Hz	ON1
16	88Hz	88Hz	88Hz	ON1
17	96Hz	96Hz	96Hz	ON1
18	104Hz	104Hz	104Hz	ON1
19	116Hz	116Hz	116Hz	ON1
20	124Hz	124Hz	124Hz	ON1
21	132Hz	132Hz	132Hz	ON1
22	88Hz	88Hz	88Hz	ON2
23	96Hz	96Hz	96Hz	ON2
24	104Hz	104Hz	104Hz	ON2
25	124Hz	124Hz	124Hz	ON2
26	144Hz	144Hz	144Hz	ON2
27	92Hz	92Hz	92Hz	ON3
28	104Hz	104Hz	104Hz	ON3
29	116Hz	116Hz	116Hz	ON3
30	124Hz	124Hz	124Hz	ON3
31	144Hz	144Hz	144Hz	ON3
32	96Hz	96Hz	96Hz	ON4
33	104Hz	104Hz	104Hz	ON4
34	116Hz	116Hz	116Hz	ON4
35	124Hz	124Hz	124Hz	ON4
36	144Hz	144Hz	144Hz	ON4
37	158Hz	158Hz	158Hz	ON4
38	166Hz	166Hz	166Hz	ON4
39	176Hz	176Hz	176Hz	ON4
40	188Hz	188Hz	188Hz	ON4
41	202Hz	202Hz	202Hz	ON4
42	210Hz	210Hz	210Hz	ON4

(To decrease Step No.)				
STEP No.	unit 1 INV	unit 2 INV	unit 3 INV	STD
1	52Hz			
2	56Hz			
3	62Hz			
4	68Hz			
5	74Hz			
6	80Hz			
7	88Hz			
8	96Hz			
9	104Hz			
10	52Hz	52Hz		
11	56Hz	56Hz		
12	62Hz	62Hz		
13	66Hz	66Hz		
14	70Hz	70Hz		
15	74Hz	74Hz		
16	52Hz	52Hz	52Hz	
17	56Hz	56Hz	56Hz	
18	62Hz	62Hz	62Hz	
19	66Hz	66Hz	66Hz	
20	68Hz	68Hz	68Hz	
21	70Hz	70Hz	70Hz	
22	74Hz	74Hz	74Hz	
23	80Hz	80Hz	80Hz	
24	88Hz	88Hz	88Hz	
25	96Hz	96Hz	96Hz	
26	52Hz	52Hz	52Hz	ON1
27	62Hz	62Hz	62Hz	ON1
28	68Hz	68Hz	68Hz	ON1
29	74Hz	74Hz	74Hz	ON1
30	80Hz	80Hz	80Hz	ON1
31	88Hz	88Hz	88Hz	ON1
32	96Hz	96Hz	96Hz	ON1
33	104Hz	104Hz	104Hz	ON1
34	52Hz	52Hz	52Hz	ON2
35	62Hz	62Hz	62Hz	ON2
36	74Hz	74Hz	74Hz	ON2
37	88Hz	88Hz	88Hz	ON2
38	96Hz	96Hz	96Hz	ON2
39	52Hz	52Hz	52Hz	ON3
40	62Hz	62Hz	62Hz	ON3
41	74Hz	74Hz	74Hz	ON3
42	92Hz	92Hz	92Hz	ON3
43	104Hz	104Hz	104Hz	ON3
44	52Hz	52Hz	52Hz	ON4
45	62Hz	62Hz	62Hz	ON4
46	74Hz	74Hz	74Hz	ON4
47	96Hz	96Hz	96Hz	ON4
48	104Hz	104Hz	104Hz	ON4
49	116Hz	116Hz	116Hz	ON4
50	124Hz	124Hz	124Hz	ON4
51	144Hz	144Hz	144Hz	ON4
52	158Hz	158Hz	158Hz	ON4
53	166Hz	166Hz	166Hz	ON4
54	176Hz	176Hz	176Hz	ON4
55	188Hz	188Hz	188Hz	ON4
56	202Hz	202Hz	202Hz	ON4
57	210Hz	210Hz	210Hz	ON4

Notes:

1. INV : Inverter compressor

STD : Standard compressor

Figures after ON represent the number of STD compressors in operation.

- “Master unit”, and “slave unit” in this section are the names for control, and they will be transferred according to the priority of rotation system.
- Depending on the operating conditions of compressors, the compressors may run in patterns other than those aforementioned.

represents the range in which “Hz” is not stepped up.

REYQ42PY1, 44PY1 (10/12+16+16HP)

REYQ46PY1, 48PY1 (14/16+16+16HP)

(To increase Step No.)				
STEP No.	unit 1 INV	unit 2 INV	unit 3 INV	STD
1	52Hz	52Hz	52Hz	←Initial step
2	56Hz	56Hz	56Hz	
3	62Hz	62Hz	62Hz	
4	66Hz	66Hz	66Hz	
5	68Hz	68Hz	68Hz	
6	70Hz	70Hz	70Hz	
7	74Hz	74Hz	74Hz	
8	80Hz	80Hz	80Hz	
9	88Hz	88Hz	88Hz	
10	96Hz	96Hz	96Hz	
11	104Hz	104Hz	104Hz	
12	110Hz	110Hz	110Hz	
13	116Hz	116Hz	116Hz	
14	124Hz	124Hz	124Hz	
15	80Hz	80Hz	80Hz	ON1
16	88Hz	88Hz	88Hz	ON1
17	96Hz	96Hz	96Hz	ON1
18	104Hz	104Hz	104Hz	ON1
19	116Hz	116Hz	116Hz	ON1
20	124Hz	124Hz	124Hz	ON1
21	132Hz	132Hz	132Hz	ON1
22	88Hz	88Hz	88Hz	ON2
23	96Hz	96Hz	96Hz	ON2
24	104Hz	104Hz	104Hz	ON2
25	124Hz	124Hz	124Hz	ON2
26	144Hz	144Hz	144Hz	ON2
27	92Hz	92Hz	92Hz	ON3
28	104Hz	104Hz	104Hz	ON3
29	116Hz	116Hz	116Hz	ON3
30	124Hz	124Hz	124Hz	ON3
31	144Hz	144Hz	144Hz	ON3
32	96Hz	96Hz	96Hz	ON4
33	104Hz	104Hz	104Hz	ON4
34	116Hz	116Hz	116Hz	ON4
35	124Hz	124Hz	124Hz	ON4
36	144Hz	144Hz	144Hz	ON4
37	96Hz	96Hz	96Hz	ON5
38	104Hz	104Hz	104Hz	ON5
39	116Hz	116Hz	116Hz	ON5
40	124Hz	124Hz	124Hz	ON5
41	144Hz	144Hz	144Hz	ON5
42	158Hz	158Hz	158Hz	ON5
43	166Hz	166Hz	166Hz	ON5
44	176Hz	176Hz	176Hz	ON5
45	188Hz	188Hz	188Hz	ON5
46	202Hz	202Hz	202Hz	ON5
47	210Hz	210Hz	210Hz	ON5

(To decrease Step No.)				
STEP No.	unit 1 INV	unit 2 INV	unit 3 INV	STD
1	52Hz			
2	56Hz			
3	62Hz			
4	68Hz			
5	74Hz			
6	80Hz			
7	88Hz			
8	96Hz			
9	104Hz			
10	52Hz	52Hz		
11	56Hz	56Hz		
12	62Hz	62Hz		
13	66Hz	66Hz		
14	70Hz	70Hz		
15	74Hz	74Hz		
16	52Hz	52Hz	52Hz	
17	56Hz	56Hz	56Hz	
18	62Hz	62Hz	62Hz	
19	66Hz	66Hz	66Hz	
20	68Hz	68Hz	68Hz	
21	70Hz	70Hz	70Hz	
22	74Hz	74Hz	74Hz	
23	80Hz	80Hz	80Hz	
24	88Hz	88Hz	88Hz	
25	96Hz	96Hz	96Hz	
26	52Hz	52Hz	52Hz	ON1
27	62Hz	62Hz	62Hz	ON1
28	68Hz	68Hz	68Hz	ON1
29	74Hz	74Hz	74Hz	ON1
30	80Hz	80Hz	80Hz	ON1
31	88Hz	88Hz	88Hz	ON1
32	96Hz	96Hz	96Hz	ON1
33	104Hz	104Hz	104Hz	ON1
34	52Hz	52Hz	52Hz	ON2
35	62Hz	62Hz	62Hz	ON2
36	74Hz	74Hz	74Hz	ON2
37	88Hz	88Hz	88Hz	ON2
38	96Hz	96Hz	96Hz	ON2
39	52Hz	52Hz	52Hz	ON3
40	62Hz	62Hz	62Hz	ON3
41	74Hz	74Hz	74Hz	ON3
42	92Hz	92Hz	92Hz	ON3
43	104Hz	104Hz	104Hz	ON3
44	52Hz	52Hz	52Hz	ON4
45	62Hz	62Hz	62Hz	ON4
46	74Hz	74Hz	74Hz	ON4
47	96Hz	96Hz	96Hz	ON4
48	52Hz	52Hz	52Hz	ON5
49	68Hz	68Hz	68Hz	ON5
50	80Hz	80Hz	80Hz	ON5
51	96Hz	96Hz	96Hz	ON5
52	104Hz	104Hz	104Hz	ON5
53	116Hz	116Hz	116Hz	ON5
54	124Hz	124Hz	124Hz	ON5
55	144Hz	144Hz	144Hz	ON5
56	158Hz	158Hz	158Hz	ON5
57	166Hz	166Hz	166Hz	ON5
58	176Hz	176Hz	176Hz	ON5
59	188Hz	188Hz	188Hz	ON5
60	202Hz	202Hz	202Hz	ON5
61	210Hz	210Hz	210Hz	ON5

(To increase Step No.)				
STEP No.	unit 1 INV	unit 2 INV	unit 3 INV	STD
1	52Hz	52Hz	52Hz	←Initial step
2	56Hz	56Hz	56Hz	
3	62Hz	62Hz	62Hz	
4	66Hz	66Hz	66Hz	
5	68Hz	68Hz	68Hz	
6	70Hz	70Hz	70Hz	
7	74Hz	74Hz	74Hz	
8	80Hz	80Hz	80Hz	
9	88Hz	88Hz	88Hz	
10	96Hz	96Hz	96Hz	
11	104Hz	104Hz	104Hz	
12	110Hz	110Hz	110Hz	
13	116Hz	116Hz	116Hz	
14	124Hz	124Hz	124Hz	
15	80Hz	80Hz	80Hz	ON1
16	88Hz	88Hz	88Hz	ON1
17	96Hz	96Hz	96Hz	ON1
18	104Hz	104Hz	104Hz	ON1
19	116Hz	116Hz	116Hz	ON1
20	124Hz	124Hz	124Hz	ON1
21	132Hz	132Hz	132Hz	ON1
22	88Hz	88Hz	88Hz	ON2
23	96Hz	96Hz	96Hz	ON2
24	104Hz	104Hz	104Hz	ON2
25	124Hz	124Hz	124Hz	ON2
26	144Hz	144Hz	144Hz	ON2
27	92Hz	92Hz	92Hz	ON3
28	104Hz	104Hz	104Hz	ON3
29	116Hz	116Hz	116Hz	ON3
30	124Hz	124Hz	124Hz	ON3
31	144Hz	144Hz	144Hz	ON3
32	96Hz	96Hz	96Hz	ON4
33	104Hz	104Hz	104Hz	ON4
34	116Hz	116Hz	116Hz	ON4
35	124Hz	124Hz	124Hz	ON4
36	144Hz	144Hz	144Hz	ON4
37	96Hz	96Hz	96Hz	ON5
38	104Hz	104Hz	104Hz	ON5
39	116Hz	116Hz	116Hz	ON5
40	124Hz	124Hz	124Hz	ON5
41	144Hz	144Hz	144Hz	ON5
42	96Hz	96Hz	96Hz	ON6
43	104Hz	104Hz	104Hz	ON6
44	116Hz	116Hz	116Hz	ON6
45	124Hz	124Hz	124Hz	ON6
46	144Hz	144Hz	144Hz	ON6
47	158Hz	158Hz	158Hz	ON6
48	166Hz	166Hz	166Hz	ON6
49	176Hz	176Hz	176Hz	ON6
50	188Hz	188Hz	188Hz	ON6
51	202Hz	202Hz	202Hz	ON6
52	210Hz	210Hz	210Hz	ON6

(To decrease Step No.)				
STEP No.	unit 1 INV	unit 2 INV	unit 3 INV	STD
1	52Hz			
2	56Hz			
3	62Hz			
4	68Hz			
5	74Hz			
6	80Hz			
7	88Hz			
8	96Hz			
9	104Hz			
10	52Hz	52Hz		
11	56Hz	56Hz		
12	62Hz	62Hz		
13	66Hz	66Hz		
14	70Hz	70Hz		
15	74Hz	74Hz		
16	52Hz	52Hz	52Hz	
17	56Hz	56Hz	56Hz	
18	62Hz	62Hz	62Hz	
19	66Hz	66Hz	66Hz	
20	68Hz	68Hz	68Hz	
21	70Hz	70Hz	70Hz	
22	74Hz	74Hz	74Hz	
23	80Hz	80Hz	80Hz	
24	88Hz	88Hz	88Hz	
25	96Hz	96Hz	96Hz	
26	52Hz	52Hz	52Hz	ON1
27	62Hz	62Hz	62Hz	ON1
28	68Hz	68Hz	68Hz	ON1
29	74Hz	74Hz	74Hz	ON1
30	80Hz	80Hz	80Hz	ON1
31	88Hz	88Hz	88Hz	ON1
32	96Hz	96Hz	96Hz	ON1
33	104Hz	104Hz	104Hz	ON1
34	52Hz	52Hz	52Hz	ON2
35	62Hz	62Hz	62Hz	ON2
36	74Hz	74Hz	74Hz	ON2
37	88Hz	88Hz	88Hz	ON2
38	96Hz	96Hz	96Hz	ON2
39	52Hz	52Hz	52Hz	ON3
40	62Hz	62Hz	62Hz	ON3
41	74Hz	74Hz	74Hz	ON3
42	92Hz	92Hz	92Hz	ON3
43	104Hz	104Hz	104Hz	ON3
44	52Hz	52Hz	52Hz	ON4
45	62Hz	62Hz	62Hz	ON4
46	74Hz	74Hz	74Hz	ON4
47	96Hz	96Hz	96Hz	ON4
48	104Hz	104Hz	104Hz	ON4
49	52Hz	52Hz	52Hz	ON5
50	68Hz	68Hz	68Hz	ON5
51	80Hz	80Hz	80Hz	ON5
52	96Hz	96Hz	96Hz	ON5
53	104Hz	104Hz	104Hz	ON5
54	52Hz	52Hz	52Hz	ON6
55	68Hz	68Hz	68Hz	ON6
56	80Hz	80Hz	80Hz	ON6
57	96Hz	96Hz	96Hz	ON6
58	104Hz	104Hz	104Hz	ON6
59	116Hz	116Hz	116Hz	ON6
60	124Hz	124Hz	124Hz	ON6
61	144Hz	144Hz	144Hz	ON6
62	158Hz	158Hz	158Hz	ON6
63	166Hz	166Hz	166Hz	ON6
64	176Hz	176Hz	176Hz	ON6
65	188Hz	188Hz	188Hz	ON6
66	202Hz	202Hz	202Hz	ON6
67	210Hz	210Hz	210Hz	ON6

Notes:

1. INV : Inverter compressor

STD : Standard compressor

Figures after ON represent the number of STD compressors in operation.

- “Master unit”, and “slave unit” in this section are the names for control, and they will be transferred according to the priority of rotation system.
- Depending on the operating conditions of compressors, the compressors may run in patterns other than those aforementioned.

2.3 Electronic Expansion Valve PI Control

Main electronic expansion valve EVM control

When the outdoor unit heat exchanging is performed via the evaporator (20SA is set to ON), this function is used to exert PI control on the electronic expansion valve (Y1E) so that the evaporator outlet superheated degree (SH) will become constant.

$$SH = T_g - T_e$$

SH: Evaporator outlet superheated degree (°C)

T_g : Suction pipe temperature (°C) detected by the heat exchanger gas pipe thermistor R2T.

T_e : Low pressure equivalent saturated temperature (°C)

Subcooling electronic expansion valve EVT control

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

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

SH: Evaporator outlet superheated degree (°C)

T_{sh}: Suction pipe temperature (°C) detected by the subcool heat exchanger outlet thermistor R5T

T_e: Low pressure equivalent saturated temperature (°C)

Refrigerant charge electronic expansion valve EVJ control

While in automatic refrigerant charge mode, this function is used to exert PI control on the opening degree of the electronic expansion valve (Y2E) in response to outdoor temperature and close the valve after the completion of refrigerant charge.

For normal operation, fully open this electronic expansion valve.

2.4 Step Control of Outdoor Unit Fans

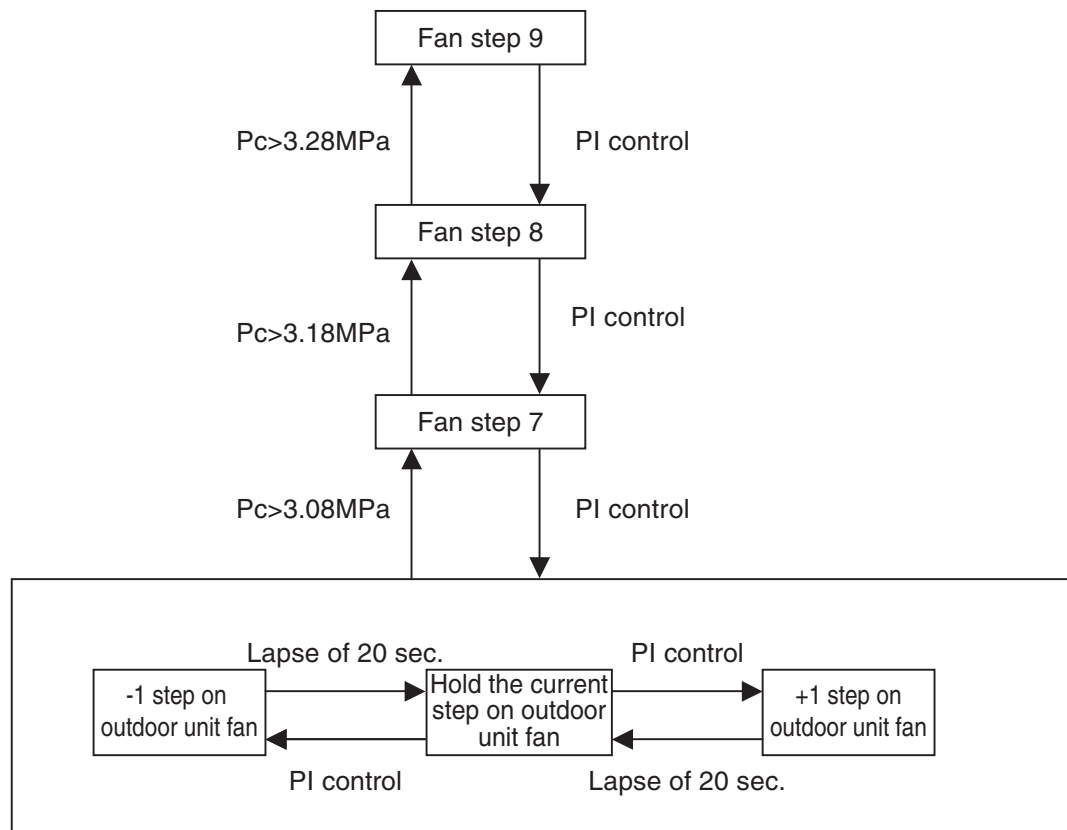
Used to control the revolutions of outdoor unit fans in the steps listed in table below, according to condition changes.

STEP No.	Fan revolutions (rpm)									
	Single type					Multiple type				
	8HP	10HP	12HP	14HP	16HP	M8	M10	M12	M14	M16
0	0	0	0	0	0	0	0	0	0/0	0/0
1	285/255	285/255	285/255	285/255	285/255	350	350	350	230/0	230/0
2	315/285	315/285	315/285	360/315	360/315	370	370	370	380/0	380/0
3	360/330	360/330	360/330	395/365	395/365	400	400	400	290/260	290/260
4	430/400	430/400	430/400	480/440	480/440	450	450	450	375/345	375/345
5	590/560	590/560	590/560	560/530	560/530	540	560	560	570/540	570/540
6	690/660	690/660	690/660	760/730	760/730	610	680	680	720/690	720/690
7	820/790	820/790	820/790	960/930	960/930	680	710	710	910/880	910/880
8	920/890	920/890	951/931	1125/1095	1155/1125	710	750	775	1091/1061	1091/1061
9	920/890	920/890	1020/990	1125/1095	1200/1170	796	821	870	1136/1106	1136/1106
	Fan1/Fan2	Fan1/Fan2	Fan1/Fan2	Fan1/Fan2	Fan1/Fan2				Fan1/Fan2	Fan1/Fan2

* Figures listed above are all those controlled while in standard mode, which vary when the system is set to high static pressure or capacity precedence mode.

2.5 Outdoor Unit Fan Control in Cooling Operation

While in cooling operation, if the outdoor temperature is low, this mode provides high-pressure control using the outdoor unit fan to retain appropriate liquid pressure, thus ensuring refrigerant circulation rate to be supplied to indoor units.



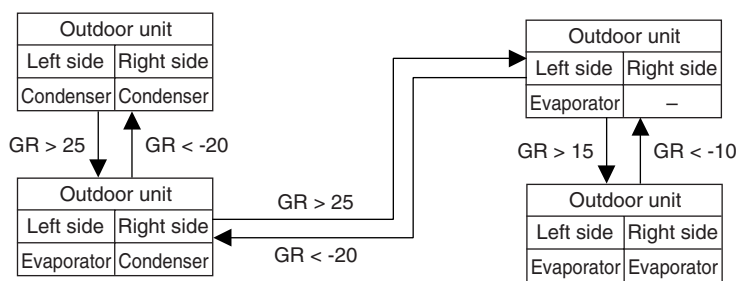
2.6 Heat Exchanger Control

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

Mode	Unit 1	Unit 2	Unit 3	
A1	Condenser	Condenser	Condenser	• "GR" is a numeric value representing the current balance state that is calculated from the target condensing temperature, target evaporating temperature, current condensing temperature, and current evaporating temperature.
A2	Condenser	Condenser	Evaporator	
A3	Condenser	Evaporator	Not in use	
A4	Condenser	Evaporator	Evaporator	
B1	Not in use	Evaporator	Not in use	
B2	Evaporator	Evaporator	Not in use	
B3	Evaporator	Evaporator	Evaporator	

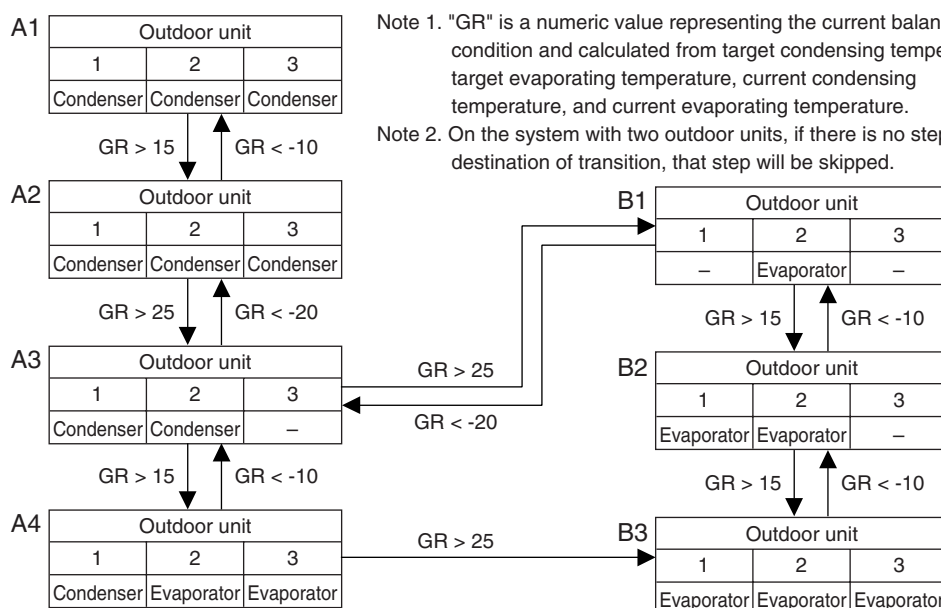
Note: The mode for a single type and a multi type with two units connected is Unit 1 Mode and Unit 2 Mode. Unit 1 Mode, Unit 2 Mode and Unit 3 Mode are available only for three unit connected multi type.

[Independent system]



Note 1. "GR" is a numeric value representing the current balanced condition and calculated from target condensing temperature, target evaporating temperature, current condensing temperature, and current evaporating temperature.

[Multi outdoor unit system]



Note 1. "GR" is a numeric value representing the current balanced condition and calculated from target condensing temperature, target evaporating temperature, current condensing temperature, and current evaporating temperature.

Note 2. On the system with two outdoor units, if there is no step for the destination of transition, that step will be skipped.

3. Special Control

3.1 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. In addition, 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. To position the four way valve, the master and slave units simultaneously start up.

3.1.1 Startup Control in Cooling Operation

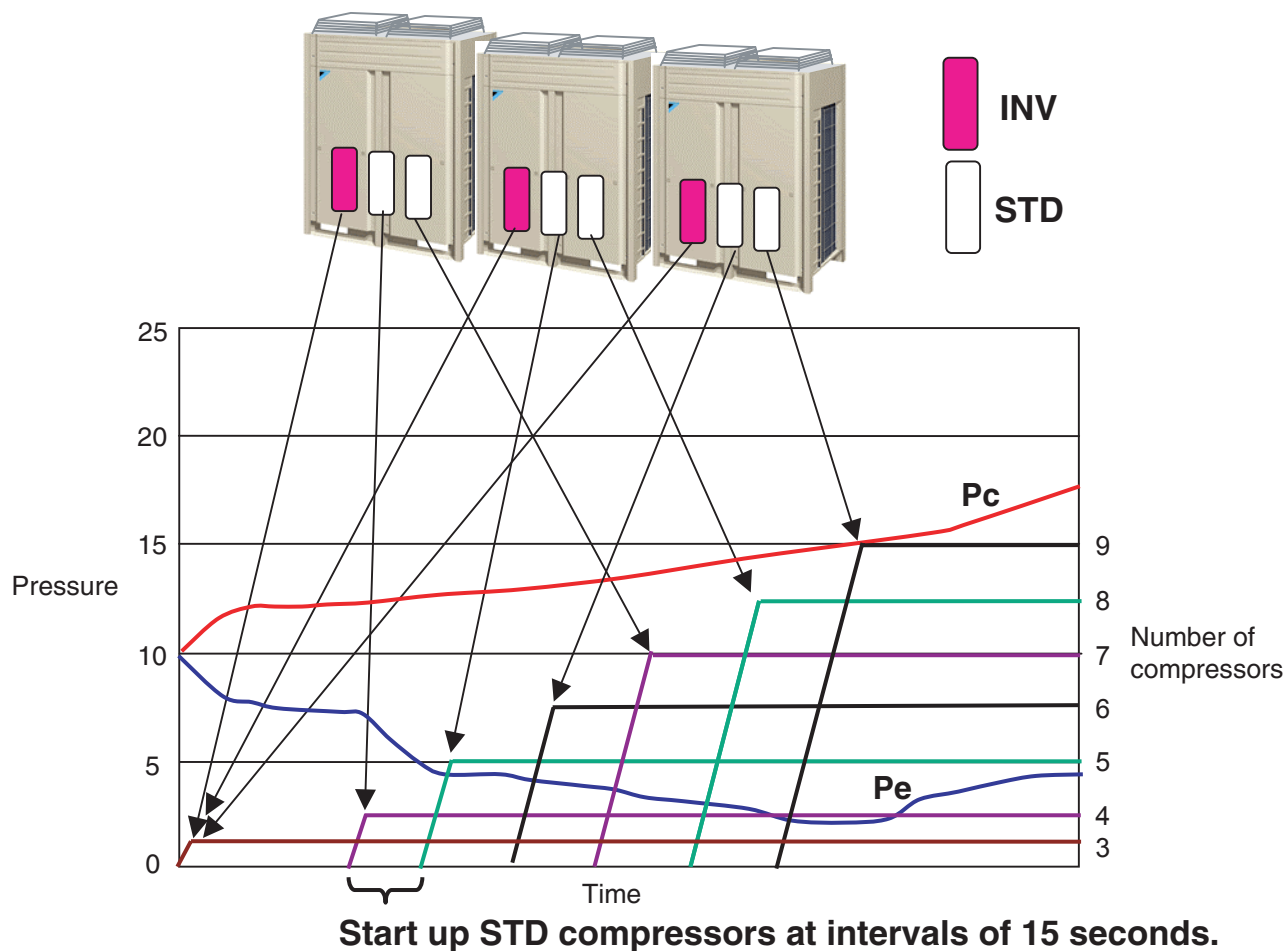
Actuator	Symbol	Elect. symbol	Control before startup	Startup control	
				STEP1	STEP2
Compressor 1	—	M1C	0 Hz	52 Hz+OFF+OFF	52Hz+OFF+OFF+2STEP / 20 sec. (Until it reaches Pc-Pe>0.39 MPa)
Compressor 2		M2C			
Compressor 3		M3C			
Outdoor unit fan 1	—	M1F	STEP4	Ta<20°C: OFF Ta≥20°C: STEP4	+1step/15 sec. (When Pc_max>2.16 MPa) -1step/15 sec. (When Pc_max<1.77 MPa)
Outdoor unit fan 2		M2F			
Electronic expansion valve (Main)	EVM	Y1E Y3E	0 pls	1375 pls	1375 pls
Electronic expansion valve (Supercooling)	EVT	Y2E Y5E	0 pls	0 pls	0 pls
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	80 pls	80 pls	80 pls
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	OFF	OFF	OFF
Four way valve (High/low pressure gas pipe switch)	20SB	Y8S	ON	ON	ON
Solenoid valve (Main bypass)	SVE	Y5S Y10S	OFF	ON	ON
Solenoid valve (Hot gas)	SVP	Y4S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator exhaust pipe)	SVO	Y7S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	OFF	OFF	OFF
Ending conditions			A lapse of 60 sec.	A lapse of 15 sec.	OR <ul style="list-style-type: none"> • A lapse of 90 sec. • Pc - Pe>0.39 MPa

3.1.2 Startup Control in Heating Operation

Actuator	Symbol	Elect. symbol	Control before startup	Startup control	
				STEP1	STEP2
Compressor 1	—	M1C	0 Hz	52 Hz+OFF+OFF	52Hz+OFF+OFF+2STEP / 20 sec. (Until it reaches Pc-Pe>0.39 MPa)
Compressor 2		M2C			
Compressor 3		M3C			
Outdoor unit fan 1	—	M1F	STEP4	20SA=ON: STEP7 20SA=OFF +1step/15 sec. (When Pc_max>2.16 MPa) -1step/15 sec. (When Pc_max<1.77 MPa)	20SA=ON: STEP7 20SA=OFF +1step/15 sec. (When Pc_max>2.16 MPa) -1step/15 sec. (When Pc_max<1.77 MPa)
Outdoor unit fan 2		M2F			
Electronic expansion valve (Main)	EVM	Y1E Y3E	0 pls	20SA=ON: SH Control 20SA=OFF: 1375 pls	20SA=ON: SH Control 20SA=OFF: 1375 pls
Electronic expansion valve (Supercooling)	EVT	Y2E Y5E	0 pls	0 pls	0 pls
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	80 pls	80 pls	80 pls
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	When outdoor heat exchanger is evaporator : ON When outdoor heat exchanger is condenser : OFF	When outdoor heat exchanger is evaporator: ON When outdoor heat exchanger is condenser: OFF	When outdoor heat exchanger is evaporator: ON When outdoor heat exchanger is condenser: OFF
Four way valve (High/low pressure gas pipe switch)	20SB	Y8S	OFF	OFF	OFF
Solenoid valve (Main bypass)	SVE	Y5S Y10S	OFF	OFF	OFF
Solenoid valve (Hot gas)	SVP	Y4S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator exhaust pipe)	SVO	Y7S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	OFF	OFF	OFF
Ending conditions			A lapse of 60 sec.	A lapse of 15 sec.	OR <ul style="list-style-type: none"> • A lapse of 90 sec. • Pc - Pe>0.39 MPa

3.2 Large Capacity Start Up Control (Heating)

For startup, oil return operation, or setup after defrosting, start up multiple compressors at a high speed according to the conditions of indoor units with thermostat ON, thus maximizing the equipment capacity.



[Starting conditions]

- OR
- The system starts heating operation with thermostat ON at a high load.
 - The system is in oil return operation.

[Control]

1. Start multiple INV compressors in the system at one time.
2. Start multiple STD compressors in the system at intervals of 15 seconds.

3.3 Oil Return Operation

This function is used to recover refrigerant oil that flows out from the compressor to the system side by conducting oil return operation in order to prevent the compressor from running out of refrigerant oil.

3.3.1 Cooling Oil Return Operation

[Start conditions]

Referring to the following conditions, start cooling oil return operation.

- OR
- Integral oil rise rate is reached to specified level.
 - When cumulative compressor operating time exceeds 8 hours (2 hours when the power supply turns ON for the first time)

Furthermore, the integral oil rise rate is calculated by Tc, Te, and compressor loads.

The higher the compressor operating step No., the cumulative refrigerant oil consumption increases.

Outdoor unit actuator	Symbol	Elect. symbol	Oil return operation	Operation after oil return
Compressor 1	—	M1C	52Hz+ON+ON (Subsequently, constant low pressure control) Maintain the number of compressors that were used before oil return operation)	52Hz+ON+ON (Subsequently, constant low pressure control) Maintain the number of compressors that were used before oil return operation)
Compressor 2		M2C		
Compressor 3		M3C		
Outdoor unit fan 1	—	M1F	Cooling fan control	Cooling fan control
Outdoor unit fan 2		M2F		
Four way valve (for heat exchanger selection)	20SA	Y2S Y9S	OFF	OFF
Four way valve (for high- and low-pressure gas pipe selection)	20SB	Y8S	ON	ON
Electronic expansion valve (main)	EVM	Y1E Y3E	1375pls	1375pls
Electronic expansion valve (subcooling)	EVT	Y2E Y5E	SH control	SH control
Electronic expansion valve (refilling refrigerant)	EVJ	Y4E	80pls	80pls
Solenoid valve (main bypass)	SVE	Y5S Y10S	ON	ON
Solenoid valve (hot gas)	SVP	Y4S	OFF	OFF
Solenoid valve (liquid pipe of refrigerant regulator)	SVL	Y3S	0pls	0pls
Solenoid valve (gas discharge pipe of refrigerant regulator)	SVG	Y1S	0pls	0pls
Solenoid valve (drain pipe of refrigerant regulator)	SVO	Y7S	0pls	0pls
Solenoid valve (discharge pipe of refrigerant regulator)	SVT	Y6S	0pls	0pls
End conditions			or <ul style="list-style-type: none"> • After a lapse of 5 min. • TsA - Te<5°C 	or <ul style="list-style-type: none"> • After a lapse of 3 min. • Pe_min<5°C • Pc_max>3.63MPa • HTdmax>100°C

*1: In case of multi outdoor unit system:

Master unit: It conducts the operation listed in the table above.

Slave units: Operating units conduct the operation listed in the table above.

Non-operating units conduct the operation listed in the table above after the "Oil returning" process.
(Non-operating units stop while in "Preparation" mode.)

Cooling indoor unit actuator		Oil return operation
Fan	Thermo ON unit	Remote controller setting
	Unit not in operation	OFF
	Thermo OFF unit	Remote controller setting
Motorized valve	Thermo ON unit	Normal opening degree
	Unit not in operation	192pls
	Thermo OFF unit	Normal opening degree for forced thermostat ON

Cooling BS unit actuator	Elect. symbol	Oil return operation
Electronic expansion vale (EVH)	Y4E	600pls
Electronic expansion vale (EVL)	Y5E	760pls
Electronic expansion vale (EVHS)	Y2E	480pls
Electronic expansion vale (EVLS)	Y3E	480pls
Electronic expansion vale (EVSC)	Y1E	0pls

3.3.2 Heating Oil Return Operation

[Start conditions]

Referring to the following conditions, start heating oil return operation.

- OR
- Integral oil rise rate is reached to specified level.
 - When cumulative compressor operating time exceeds 8 hours (2 hours when the power supply turns ON for the first time)

Furthermore, the integral oil rise rate is calculated by Tc, Te, and compressor loads.

The higher the compressor operating step No., the cumulative refrigerant oil consumption increases.

Actuator	Symbol	Elect. symbol	Oil return operation
Compressor 1	—	M1C	Maintain load that was applied before oil return operation.
Compressor 2		M2C	When current circulation rate < circulation rate required for oil return operation, turn ON the STD compressor every 10 seconds (up to 3 units at maximum).
Compressor 3		M3C	
Outdoor unit fan 1	—	M1F	When outdoor unit heat exchanger is condenser, the fan will run under cooling fan control.
Outdoor unit fan 2		M2F	When outdoor unit heat exchanger is evaporator, the fan will run at the fan step 7 or 8.
Electronic expansion valve (main)	EVM	Y1E Y3E	20SA=ON : PI control 20SA=OFF : 418pls
Electronic expansion valve (subcooling)	EVT	Y2E Y5E	PI control
Electronic expansion valve (refilling refrigerant)	EVJ	Y4E	80pls
Four way valve (for heat changer selection)	20SA	Y2S Y9S	When outdoor unit heat exchanger is condenser, the valve will turn OFF. When outdoor unit heat exchanger is evaporator, the valve will turn ON.
Four way valve (for high- and low-pressure gas pipe selection)	20SB	Y8S	OFF
Solenoid valve (main bypass)	SVE	Y5S Y10S	OFF
Solenoid valve (hot gas)	SVP	Y4S	0pls
Solenoid valve (liquid pipe of refrigerant regulator)	SVL	Y3S	0pls
Solenoid valve (gas discharge pipe of refrigerant regulator)	SVG	Y1S	0pls
Solenoid valve (drain pipe of refrigerant regulator)	SVO	Y7S	0pls
Solenoid valve (discharge pipe of refrigerant regulator)	SVT	Y6S	0pls
End conditions			or <ul style="list-style-type: none"> • Pe_min<0.22MPa • After a lapse of 9 min.

*1: In case of multi outdoor unit system:

Master unit: It conducts the operation listed in the table above.

Slave units: Operating units conduct the operation listed in the table above.

Non-operating units conduct the operation listed in the table above after the "Oil returning" process.
(Non-operating units stop while in "Preparation" mode.)

Cooling indoor unit actuator		Oil return operation
Fan	Thermo ON unit	Remote controller setting
	Unit not in operation	OFF
	Thermo OFF unit	Remote controller setting
Motorized valve	Thermo ON unit	Normal opening degree
	Unit not in operation	192pls
	Thermo OFF unit	Normal opening degree for forced thermostat ON

Heating indoor unit actuator		Oil return operation
Fan	Thermo ON unit	Remote controller setting
	Unit not in operation	OFF
	Thermo OFF unit	LL
Motorized valve	Thermo ON unit	Normal opening degree
	Unit not in operation	224 pls
	Thermo OFF unit	Normal opening degree for forced thermostat ON

Cooling BS unit actuator	Elect. symbol	Oil return operation
Electronic expansion vale (EVH)	Y4E	0pls
Electronic expansion vale (EVL)	Y5E	760pls
Electronic expansion vale (EVHS)	Y2E	0pls (60pls when Pc_max>2.85MPa)
Electronic expansion vale (EVLS)	Y3E	480pls
Electronic expansion vale (EVSC)	Y1E	PI control

Heating BS unit actuator	Elect. symbol	Oil return operation
Electronic expansion vale (EVH)	Y4E	760pls
Electronic expansion vale (EVL)	Y5E	0pls
Electronic expansion vale (EVHS)	Y2E	60pls
Electronic expansion vale (EVLS)	Y3E	0pls (60pls when Pc_max>2.85MPa)
Electronic expansion vale (EVSC)	Y1E	0pls (PI control at simultaneous cooling / heating operation)

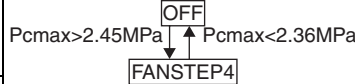
3.4 Defrost Operation

[Start conditions]

Referring to the following conditions, start defrost operation.

- &
 - When there is a decrease in the coefficient of heat transfer of outdoor unit heat exchanger
 - When there is a drop in the temperature of outdoor unit heat exchanger outlet (Tb)
 - When the low pressure stays low for a certain amount of time (2 hours minimum)

Furthermore, the thermal conductivity of outdoor unit heat exchanger is calculated by Tc, Te, and compressor loads.

Defrosting outdoor unit actuator	Symbol	Elect. symbol	Defrost operation	Operation after defrost
Compressor 1	—	M1C	REYQ8•10•12P: 232Hz+ON	REYQ8•10•12P: upper limit 124Hz(STD Holds) REYQ14•16P: 232Hz+232Hz REMQ8P: 210Hz REMQ10•12P: 210Hz+ON REMQ14•16P: 210Hz+ON+ON
Compressor 2		M2C	REYQ14•16P: 232Hz+232Hz	
Compressor 3		M3C	REMQ8P: 210Hz REMQ10•12P: 210Hz+ON REMQ14•16P: 202Hz+ON+ON	
Outdoor unit fan 1	—	M1F	Pcmax>2.45MPa 	Pcmax>2.45MPa 
Outdoor unit fan 2		M2F	Pcmax>3.04MPa 	Pcmax>3.04MPa 
Four way valve (for heat changer selection)	20SA	Y2S Y9S	OFF	OFF
Four way valve (for high- and low-pressure gas pipe selection)	20SB	Y8S	Holds	Holds
Electronic expansion valve (main)	EVM	Y1E Y3E	1375pls	0pls
Electronic expansion valve (subcooling)	EVT	Y2E Y5E	SH control	0pls
Electronic expansion valve (refilling refrigerant)	EVJ	Y4E	80pls	80pls
Solenoid valve (main bypass)	SVE	Y5S Y10S	ON	OFF
Solenoid valve (hot gas)	SVP	Y4S	OFF	OFF
Solenoid valve (liquid pipe of refrigerant regulator)	SVL	Y3S	0pls	0pls
Solenoid valve (gas discharge pipe of refrigerant regulator)	SVG	Y1S	0pls	0pls
Solenoid valve (drain pipe of refrigerant regulator)	SVO	Y7S	0pls	0pls
Solenoid valve (discharge pipe of refrigerant regulator)	SVT	Y6S	0pls	0pls
End conditions			REYP8 to 16P (by unit) or <ul style="list-style-type: none">• 6 min. and 30 sec.• Tb > 11°C continues for a period of 90 consecutive sec.• Pc_max > 3.04MP REMQ8 to 12P (by unit) or <ul style="list-style-type: none">• 5 min. and 30 sec.• Tb > 11°C for a period of 10 consecutive sec.• Pc_max > 3.04MPa REMQ14 and 16P (by unit) or <ul style="list-style-type: none">• 5 min. and 30 sec.• Tb > 11°C for a period of 30 consecutive sec.• Pc_max > 3.04MPa	or <ul style="list-style-type: none">• 30 sec.• Pc_max>3.04MPa

Evaporating outdoor unit actuator	Symbol	Elect. symbol	Defrost operation	Operation after defrost
Compressor 1	—	M1C	REYQ8•10•12P: 232Hz+ON REYQ14•16P: 232Hz+232Hz REMQ8P: 210Hz REMQ10•12P: 210Hz+ON REMQ14•16P: 210Hz+ON+ON	Upper limit 124Hz (STD Holds) REYP400•480A: 232Hz+232Hz REMP224A: 210Hz REMP280•335A: 210Hz+ON REMP400•450A: 210Hz+ON+ON
Compressor 2		M2C		
Compressor 3		M3C		
Outdoor unit fan 1	—	M1F	Fan control	Fan control
Outdoor unit fan 2		M2F		
Four way valve (for heat changer selection)	20SA	Y2S Y9S	ON	ON
Four way valve (for high- and low-pressure gas pipe selection)	20SB	Y8S	Holds	Holds
Electronic expansion valve (main)	EVM	Y1E Y3E	PI control	PI control
Electronic expansion valve (subcooling)	EVT	Y2E Y5E	SH control	0pls
Electronic expansion valve (refilling refrigerant)	EVJ	Y4E	80pls	80pls
Solenoid valve (main bypass)	SVE	Y5S Y10S	OFF	OFF
Solenoid valve (hot gas)	SVP	Y4S	OFF	OFF
Solenoid valve (liquid pipe of refrigerant regulator)	SVL	Y3S	0pls	0pls
Solenoid valve (gas discharge pipe of refrigerant regulator)	SVG	Y1S	0pls	0pls
Solenoid valve (drain pipe of refrigerant regulator)	SVO	Y7S	0pls	0pls
Solenoid valve (discharge pipe of refrigerant regulator)	SVT	Y6S	0pls	0pls

Cooling indoor unit actuator		Defrost operation
Fan	Thermo ON unit	Remote controller setting
	Unit not in operation	OFF
	Thermo OFF unit	Remote controller setting
Motorized valve	Thermo ON unit	Normal opening degree
	Unit not in operation	0pls
	Thermo OFF unit	0pls

Heating indoor unit actuator		Defrost operation	
		REYQ	REMQ
Fan	Thermo ON unit	OFF	LL
	Unit not in operation	OFF	LL
	Thermo OFF unit	OFF	LL
Motorized valve	Thermo ON unit	0pls	224pls
	Unit not in operation	0pls	0pls
	Thermo OFF unit	0pls	224pls

Cooling BS unit actuator	Elect. symbol	Defrost operation
Electronic expansion vale (EVH)	Y4E	0pls
Electronic expansion vale (EVL)	Y5E	760pls
Electronic expansion vale (EVHS)	Y2E	0pls
Electronic expansion vale (EVLS)	Y3E	480pls
Electronic expansion vale (EVSC)	Y1E	0pls

Heating BS unit actuator	Elect. symbol	Defrost operation
Electronic expansion vale (EVH)	Y4E	760pls
Electronic expansion vale (EVL)	Y5E	0pls
Electronic expansion vale (EVHS)	Y2E	60pls
Electronic expansion vale (EVLS)	Y3E	0pls (REYQ8~16P) 60pls (REMQ8~16P)
Electronic expansion vale (EVSC)	Y1E	0pls (PI control for cool/heat concurrent operation)

3.5 Pump-down Residual Operation

3.5.1 Pump-down Residual Operation in Cooling 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.

Actuator	Symbol	Elect. symbol	Master unit operation	Slave unit operation
Compressor 1	—	M1C	124 Hz+OFF+OFF	OFF
Compressor 2		M2C		
Compressor 3		M3C		
Outdoor unit fan 1	—	M1F	Fan control	Fan control
Outdoor unit fan 2		M2F		
Electronic expansion valve (Main)	EVM	Y1E Y3E	1375 pls	1375 pls
Electronic expansion valve (Supercooling)	EVT	Y2E Y5E	0 pls	0 pls
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	80 pls	80 pls
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	OFF	OFF
Four way valve (High/low pressure gas pipe switch)	20SB	Y8S	ON	ON
Solenoid valve (Main bypass)	SVE	Y5S Y10S	ON	ON
Solenoid valve (Hot gas)	SVP	Y4S	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	OFF	OFF
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	OFF	OFF
Solenoid valve (Refrigerant regulator exhaust pipe)	SVO	Y7S	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	OFF	OFF
Ending conditions			or <ul style="list-style-type: none"> • 5 min. • Pe_min<0.49 MPa * • Pc_max<2.94 MPa * • Master unit Tdi>110°C • Master unit Tp>125°C 	

* Pe_min and Pc_max indicate the minimum and maximum values in the system, respectively.

3.5.2 Pump-down Residual Operation in Heating Operation and Simultaneous Cooling / Heating Operation

Actuator	Symbol	Elect. symbol	Master unit operation	Slave unit operation
Compressor 1	—	M1C	124 Hz+OFF+OFF	OFF
Compressor 2		M2C		
Compressor 3		M3C		
Outdoor unit fan 1	—	M1F	Fan control	Fan control
Outdoor unit fan 2		M2F		
Electronic expansion valve (Main)	EVM	Y1E Y3E	When 20SA=ON: 0 pls When 20SA=OFF: 1375 pls	When 20SA=ON: 0 pls When 20SA=OFF: 1375 pls
Electronic expansion valve (Supercooling)	EVT	Y2E Y5E	0 pls	0 pls
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	80 pls	80 pls
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	When outdoor heat exchanger is evaporator: ON When outdoor heat exchanger is condenser: OFF	When outdoor heat exchanger is evaporator: ON When outdoor heat exchanger is condenser: OFF
Four way valve (High/low pressure gas pipe switch)	20SB	Y8S	OFF	OFF
Solenoid valve (Main bypass)	SVE	Y5S Y10S	OFF	OFF
Solenoid valve (Hot gas)	SVP	Y4S	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	OFF	OFF
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	OFF	OFF
Solenoid valve (Refrigerant regulator exhaust pipe)	SVO	Y7S	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	OFF	OFF
Ending conditions			or <ul style="list-style-type: none"> • 3 min. • Pe_min<0.25 MPa * • Pc_max<3.13 MPa * • Master unit Tdi>110°C • Master unit Tp>140°C 	

* Pe_min and Pc_max indicate the minimum and maximum values in the system, respectively.

3.6 Standby

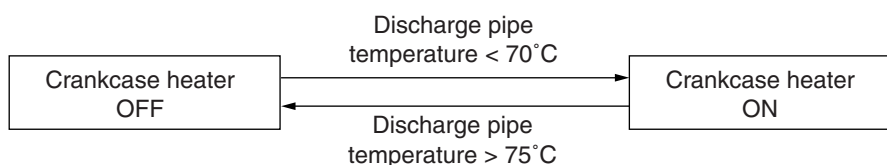
3.6.1 Restart Standby

Used to forcibly stop the compressor for a period of 2 minutes, in order to prevent the frequent ON/OFF of the compressor and equalize the pressure within the refrigerant system.

Actuator	Symbol	Elect. symbol	Operation			
			REYQ8~16P	REMQ8P	REMQ10•12P	REMQ14•16P
Compressor1	—	M1C	OFF	OFF	OFF	OFF
Compressor2	—	M2C	OFF	—	OFF	OFF
Compressor3	—	M3C	—	—	—	OFF
Outdoor unit fan1	—	MF1	Ta>30°C: STEP4 Ta≤30°C: OFF	Ta>30°C: STEP4 Ta≤30°C: OFF	Ta>30°C: STEP4 Ta≤30°C: OFF	Ta>30°C: STEP4 Ta≤30°C: OFF
Outdoor unit fan2	—	MF2	Ta>30°C: STEP4 Ta≤30°C: OFF	—	—	Ta>30°C: STEP4 Ta≤30°C: OFF
Electronic expansion valve (Main)	EVM	Y1E Y3E	0 pls			
Electronic expansion valve (Supercooling)	EVT	Y2E Y5E	0 pls			
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	80 pls			
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Holds			
Four way valve (High/low pressure gas pipe switch)	20SB	Y8S	Holds			
Solenoid valve (Main bypass)	SVE	Y5S Y10S	OFF			
Solenoid valve (Hot gas)	SVP	Y4S	OFF			
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	OFF			
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	OFF			
Solenoid valve (Refrigerant regulator exhaust pipe)	SVO	Y7S	OFF			
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	OFF			
Ending conditions	—		2 min.			

3.6.2 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.



3.7 Stopping Operation

3.7.1 When System is in Stop Mode (Normal operation stop)

This mode is used to define actuator operations when the system stops.

Actuator	Symbol	Elect. symbol	Operation			
			REYQ8~16P	REMQ8P	REMQ10•12P	REMQ14•16P
Compressor1	—	M1C	OFF	OFF	OFF	OFF
Compressor2	—	M2C	OFF	—	OFF	OFF
Compressor3	—	M3C	—	—	—	OFF
Outdoor unit fan1	—	M1F	OFF	OFF	OFF	OFF
Outdoor unit fan2	—	M2F	OFF	—	—	OFF
Electronic expansion valve (Main)	EVM	Y1E Y3E	0 pls			
Electronic expansion valve (Supercooling)	EVT	Y2E Y5E	0 pls			
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	80 pls			
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Holds			
Four way valve (High/low pressure gas pipe switch)	20SB	Y8S	Holds			
Solenoid valve (Main bypass)	SVE	Y5S Y10S	OFF			
Solenoid valve (Hot gas)	SVP	Y4S	OFF			
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	OFF			
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	OFF			
Solenoid valve (Refrigerant regulator exhaust pipe)	SVO	Y7S	OFF			
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	OFF			
Ending conditions	—		Indoor unit thermostat is turned ON.			

3.7.2 Stop due to Malfunction

In order to protect compressors, if any of the following items has an abnormal value, the system will make "stop with thermostat OFF" and the malfunction will be determined according to the number of retry times.

Item	Judgment Criteria	Malfunction Code
1. Abnormal low pressure level	0.07MPa	E4
2. Abnormal high pressure level	4.0MPa	E3
3. Abnormal discharge pipe temperature level	135°C	F3
4. Abnormal power supply voltage	Reverse-phase power supply	U1
5. Abnormal inverter current level	16.1A: 260 sec.	L8
6. Abnormal radiator fin temperature level	93°C	L4

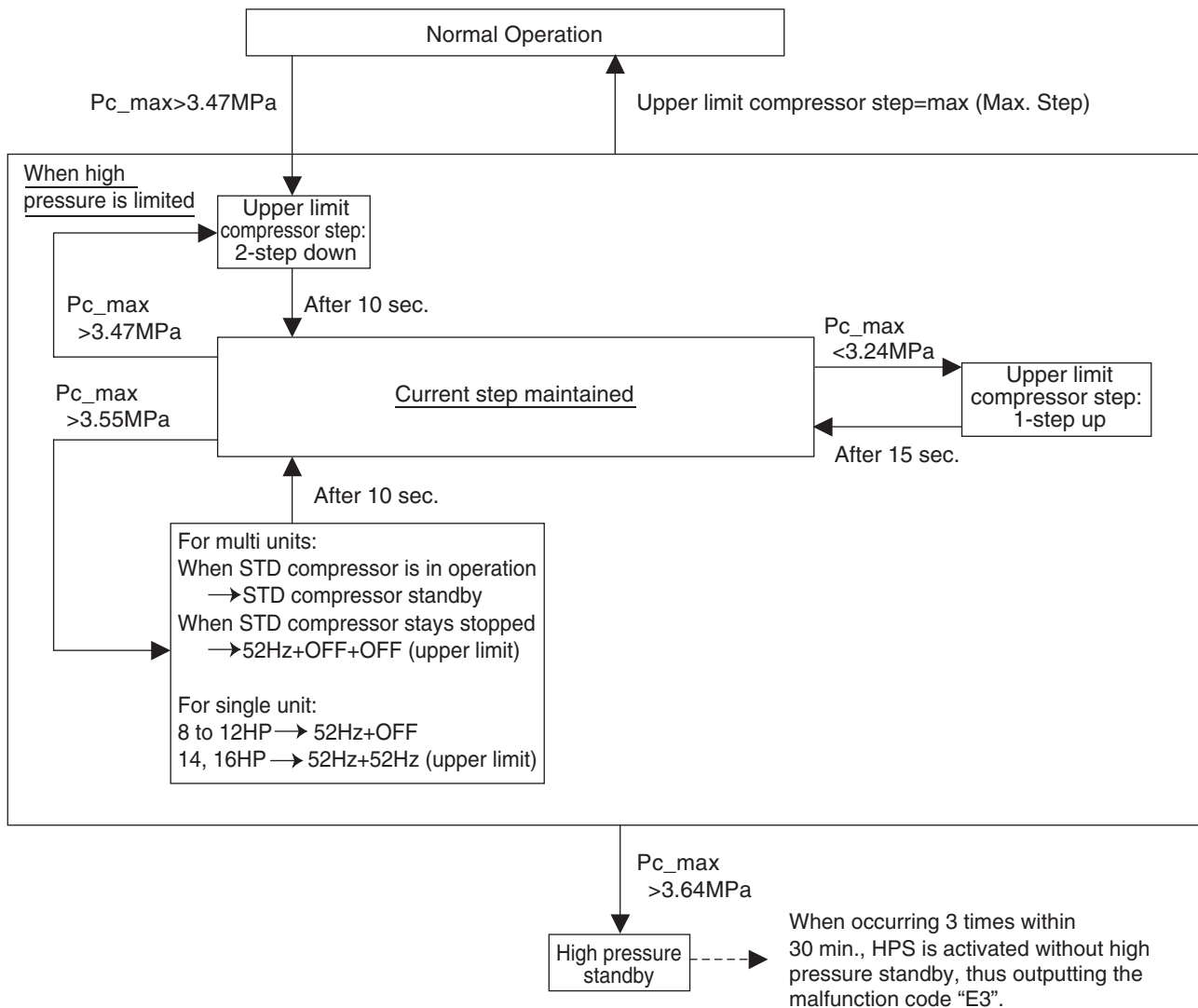
4. Protection Control

4.1 High Pressure Protection Control

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

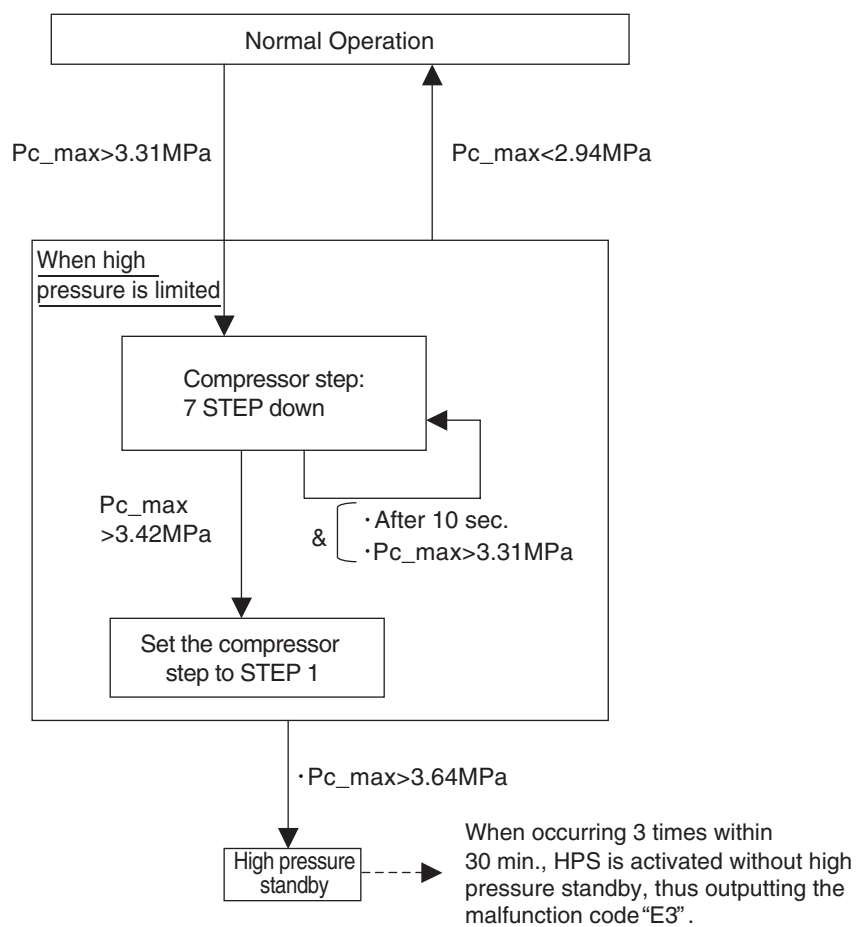
[In cooling operation]

- ★ The following control is performed in the entire system.
Pc_max indicates the maximum value within the system.



[Heating Operation and Simultaneous Cooling / Heating Operation]

- ★ The following control is performed in the entire system.
 Pc_max indicates the maximum value within the system.

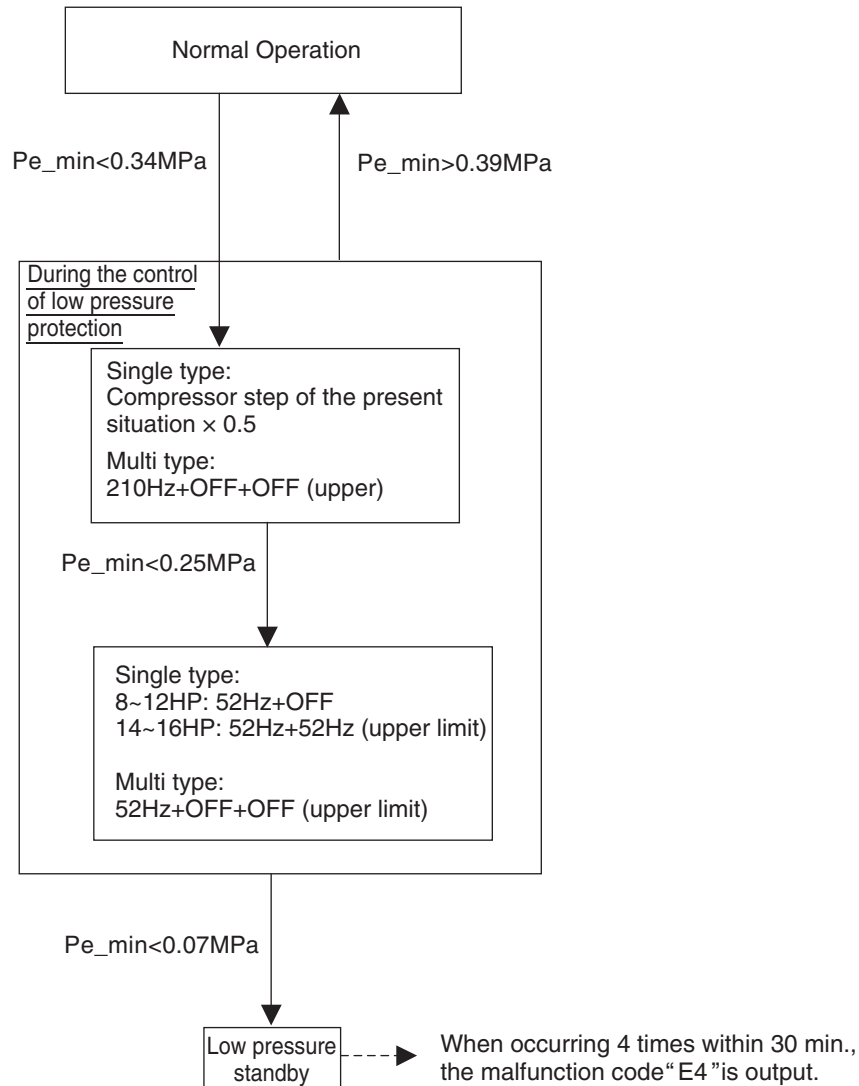


4.2 Low Pressure Protection Control

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

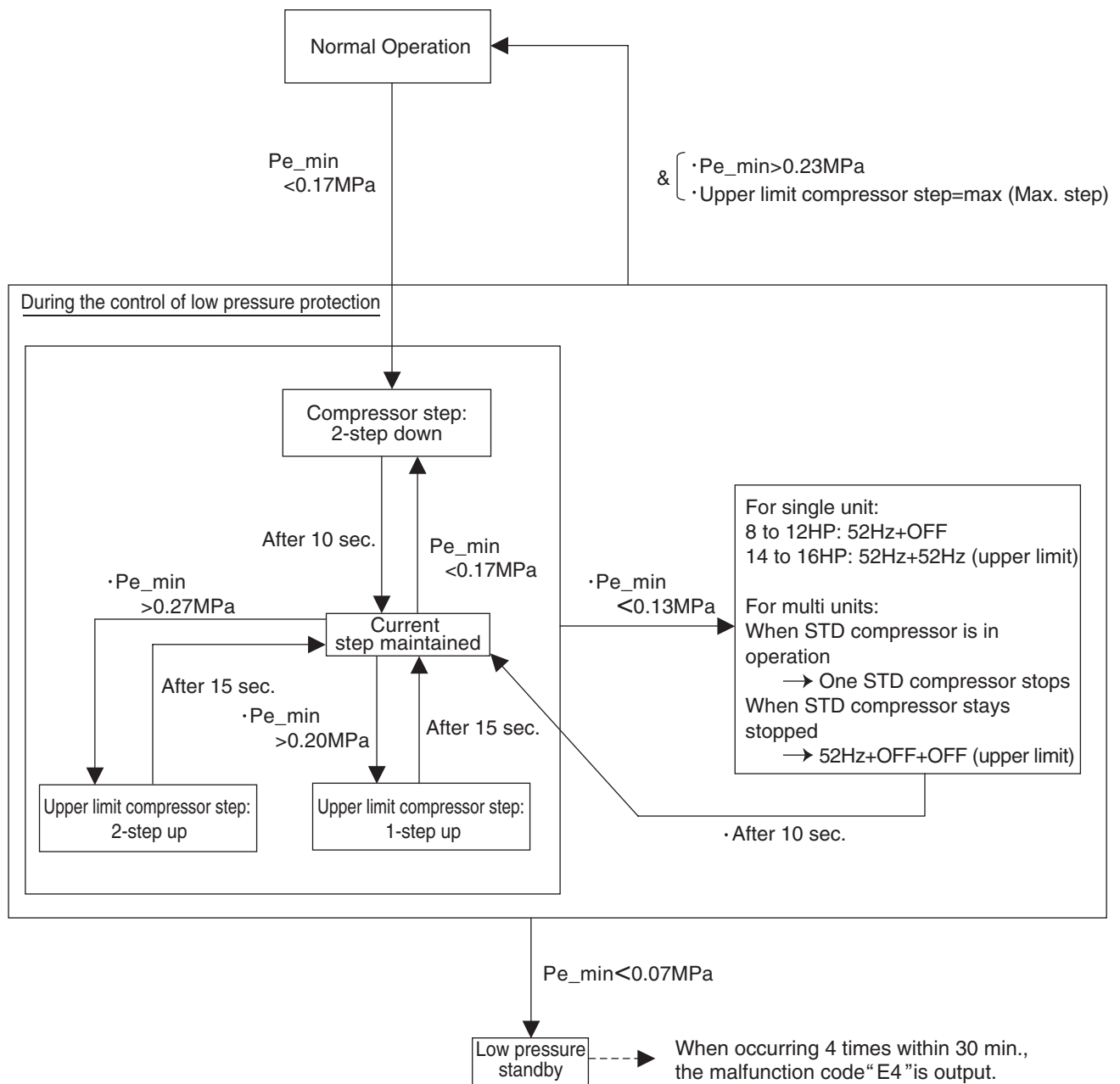
[In cooling operation]

- ★ Because of common low pressure, the following control is performed in the system.
Pe_min indicates the minimum value within the system.



[In heating operation and Simultaneous Cooling / Heating Operation]

- ★ The following control is performed in the system.
 Pe_min indicates the minimum value within the system.



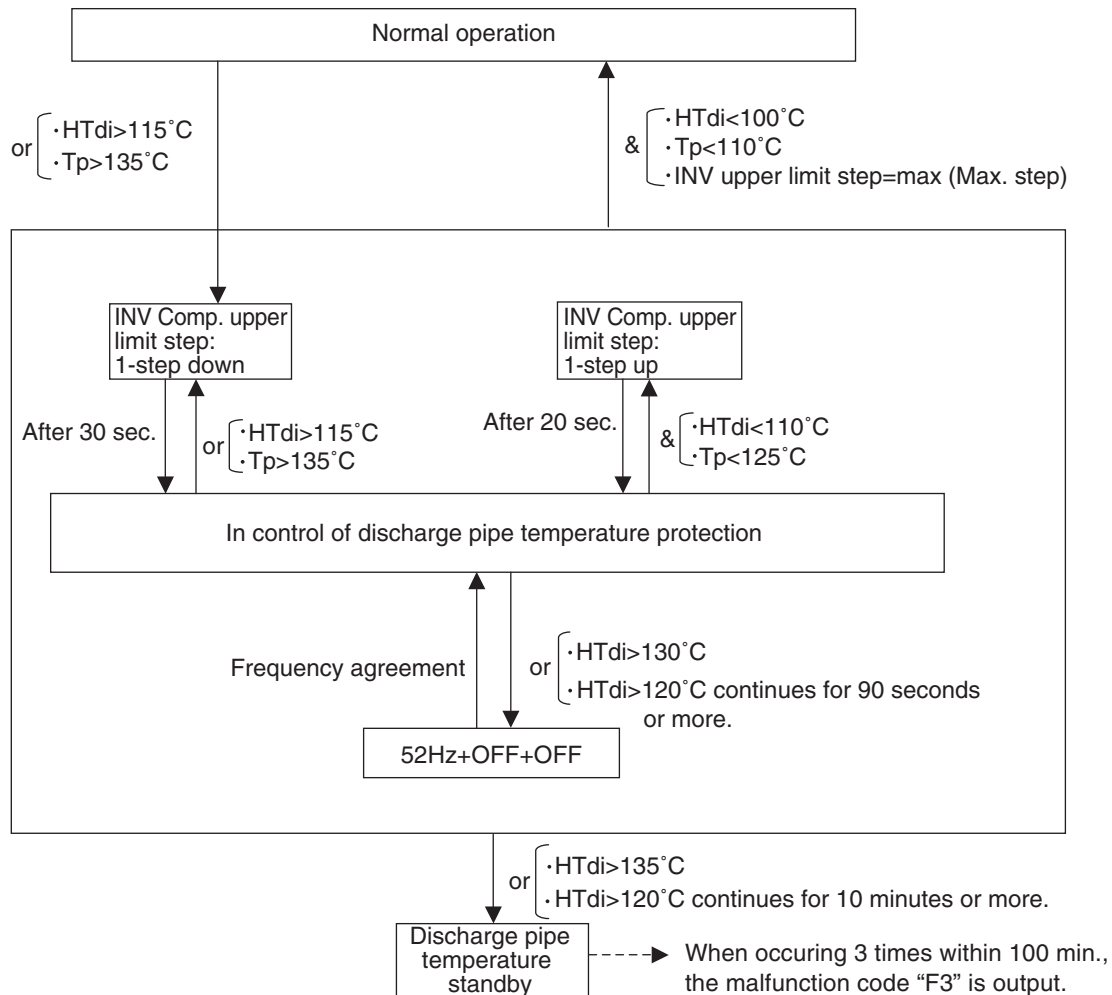
4.3 Discharge Pipe Protection Control

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

[Contents]

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

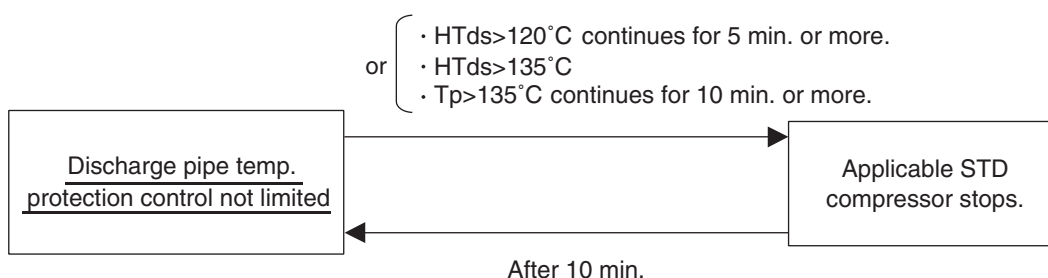
[INV compressor]



[STD compressor]

HTds : Value of STD compressor discharge pipe temperature (Tds) compensated with outdoor air temperature

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



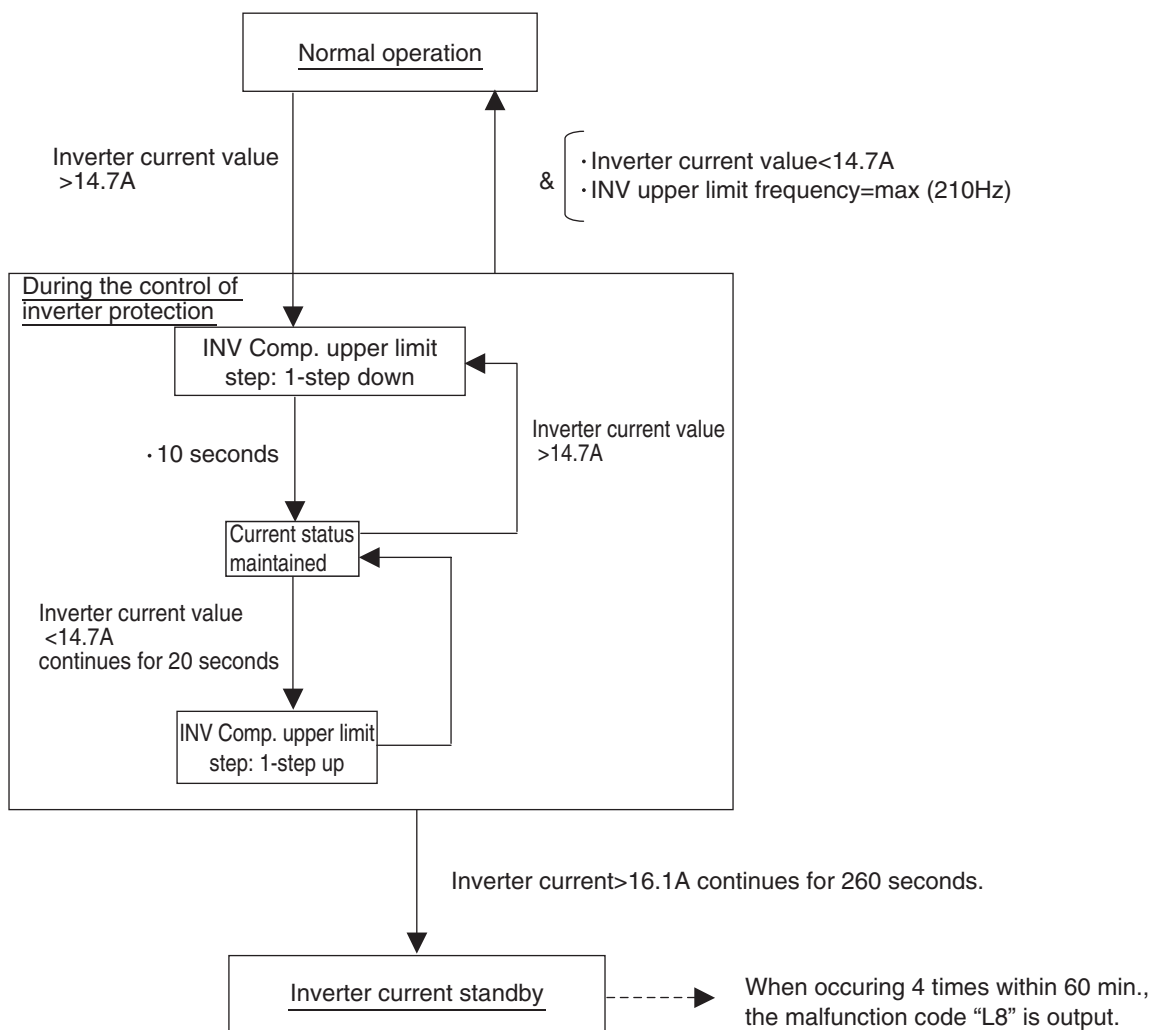
4.4 Inverter Protection Control

Inverter current protection control and inverter fin temperature control are performed to prevent tripping due to a malfunction, 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.

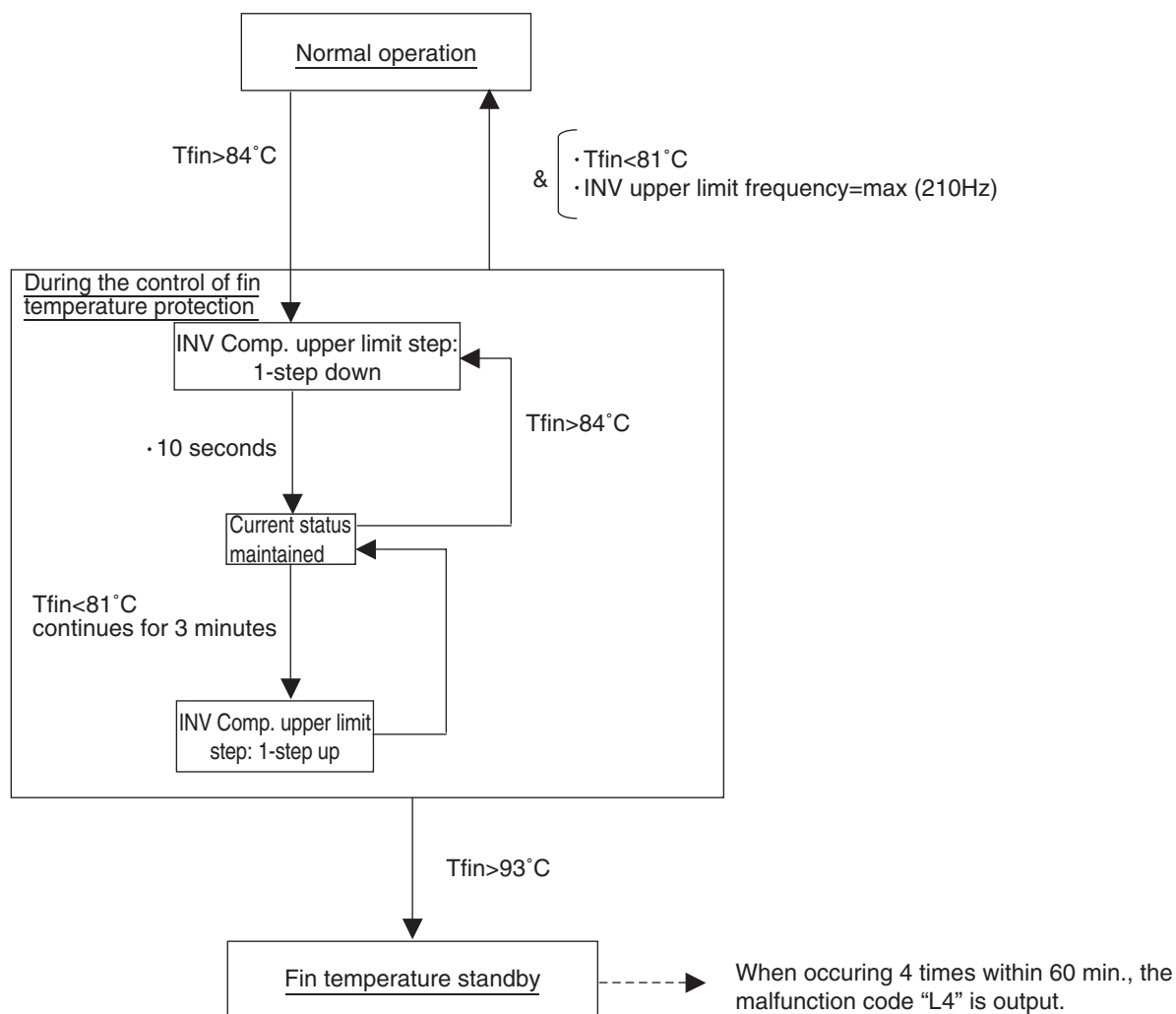
[Inverter overcurrent protection control]

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



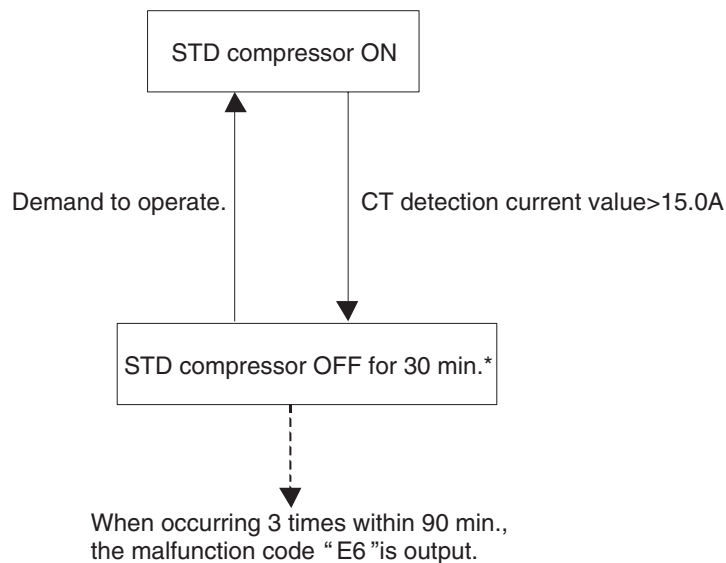
[Inverter fin temperature control]

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



4.5 STD Compressor Overload Protection

This control is used to prevent abnormal heating due to overcurrent to the compressor resulting from failures of STD compressor such as locking.



*If the power supply is reset while in operation prohibition mode, the prohibition timer will continue counting when the power supply is turned ON.

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 PC board setting" are available

Applicable model \ Operating method	(1) Emergency operation with remote controller reset (Auto backup operation)	(2) Emergency operation with outdoor unit PC board setting (Manual backup operation)
REYQ8 ~ 16PY1	—	Backup operation by the compressor
REYQ18 ~ 48PY1	Backup operation by the indoor unit	Backup operation by the outdoor unit

(1) Emergency operation with remote controller reset

[Operating method]

Reset the remote controller. (Press the **RUN/STOP** 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 PC board setting

[Setting method]

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

(For detail of the setting method, refer to page 207.)

[Details of operation]

Disable the compressor with "operation disable setting" made from operating and only operate other compressors.

(On the system with 1 compressor "REYQ8PY1", 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 adapter is required.

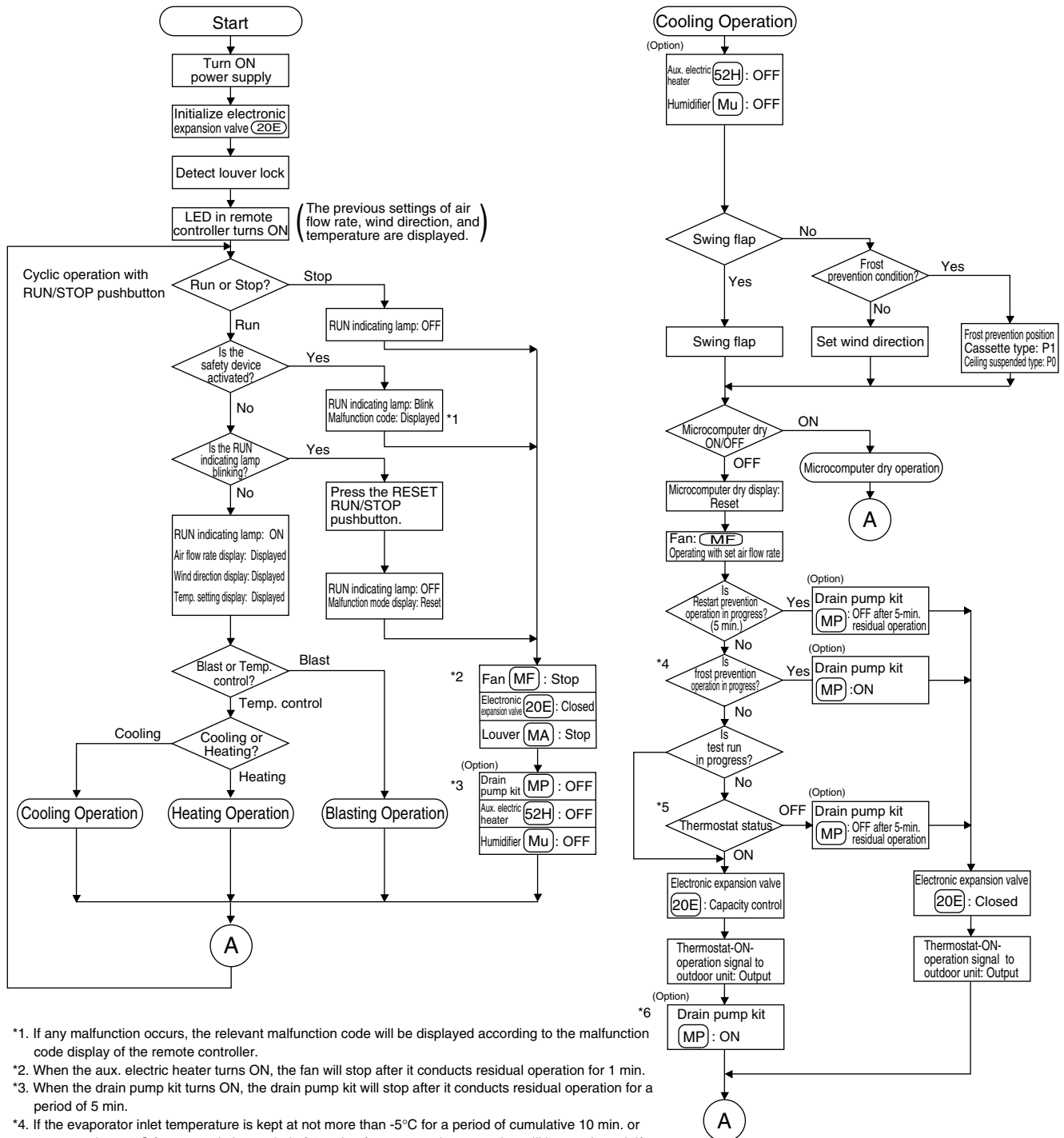
Set item	Condition	Content
Demand 1	Mode 1	The compressor operates at approx. 60% or less of rating.
	Mode 2	The compressor operates at approx. 70% or less of rating.
	Mode 3	The compressor operates at approx. 80% or less of rating.
Demand 2	—	The compressor operates at approx. 40% or less of rating.

5.3 Heating Operation Prohibition

Heating operation is prohibited above 24°C ambient temperature.

6. Outline of Control (Indoor Unit)

6.1 Operation Flow Chart



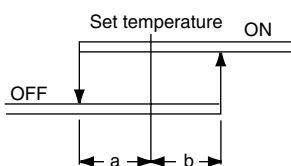
*1. If any malfunction occurs, the relevant malfunction code will be displayed according to the malfunction code display of the remote controller.

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

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

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

*5. Thermostat status

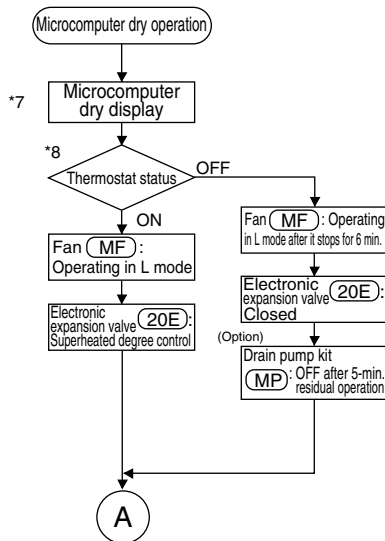


Suction air temperature

a=b=1

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

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

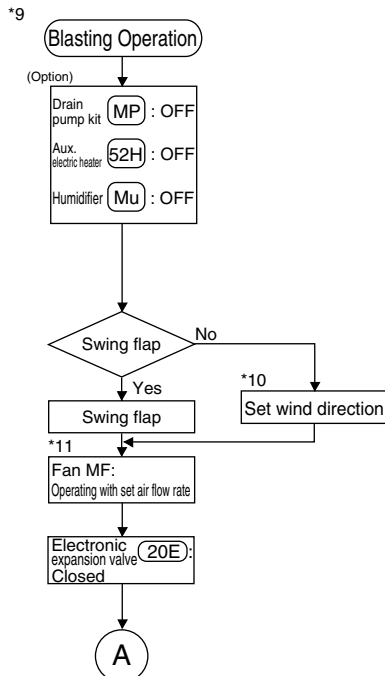
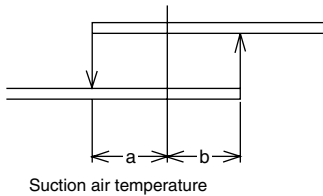


*7. Microcomputer dry display

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

*8. Thermostat status

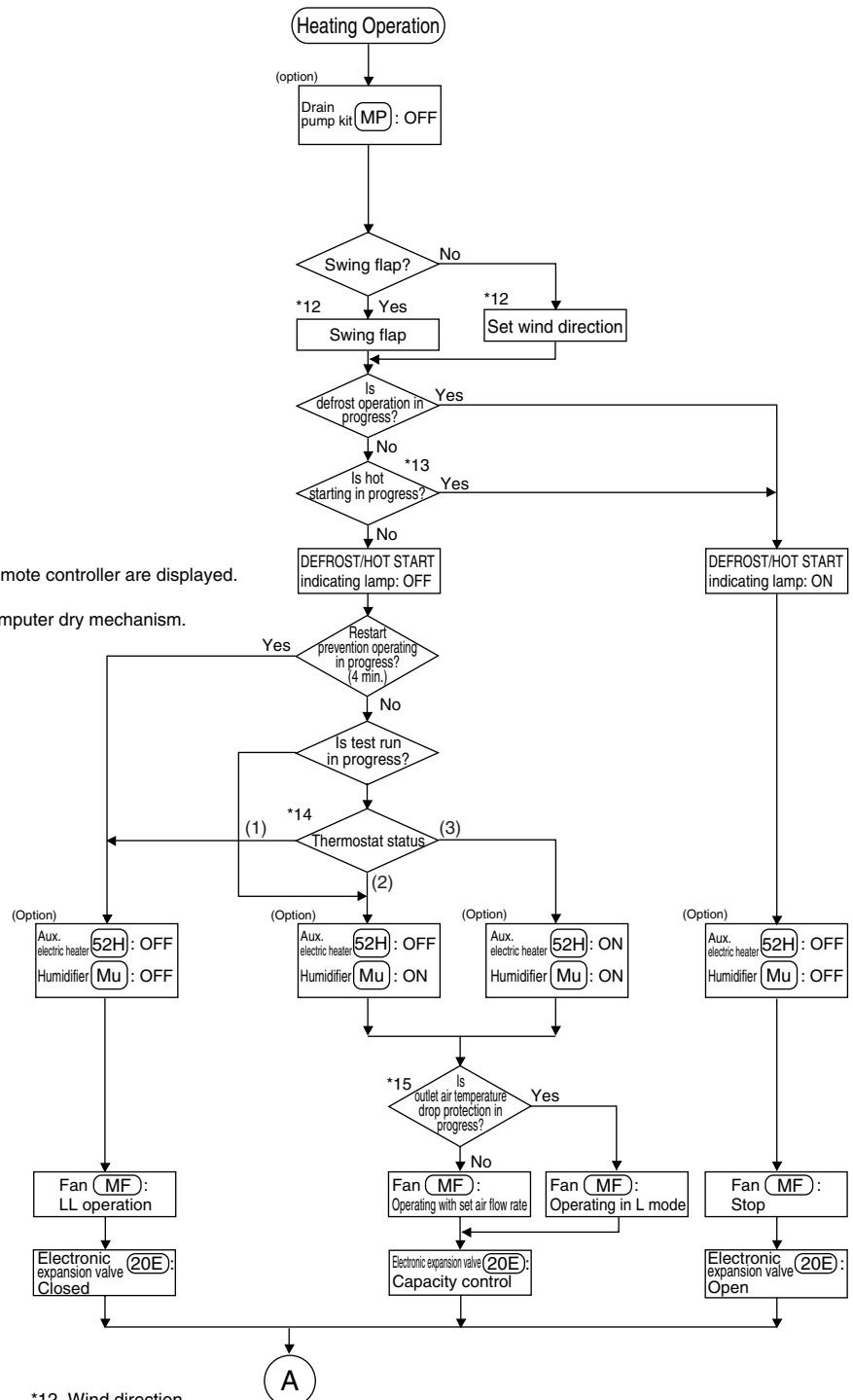
Set temperature when operating the microcomputer dry mechanism.



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

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

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



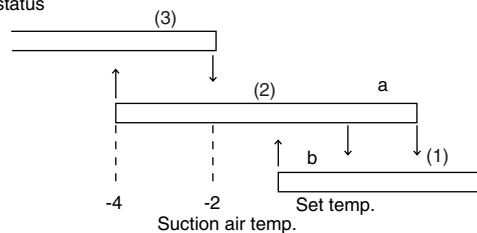
*12. Wind direction

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



*15. Suction 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.

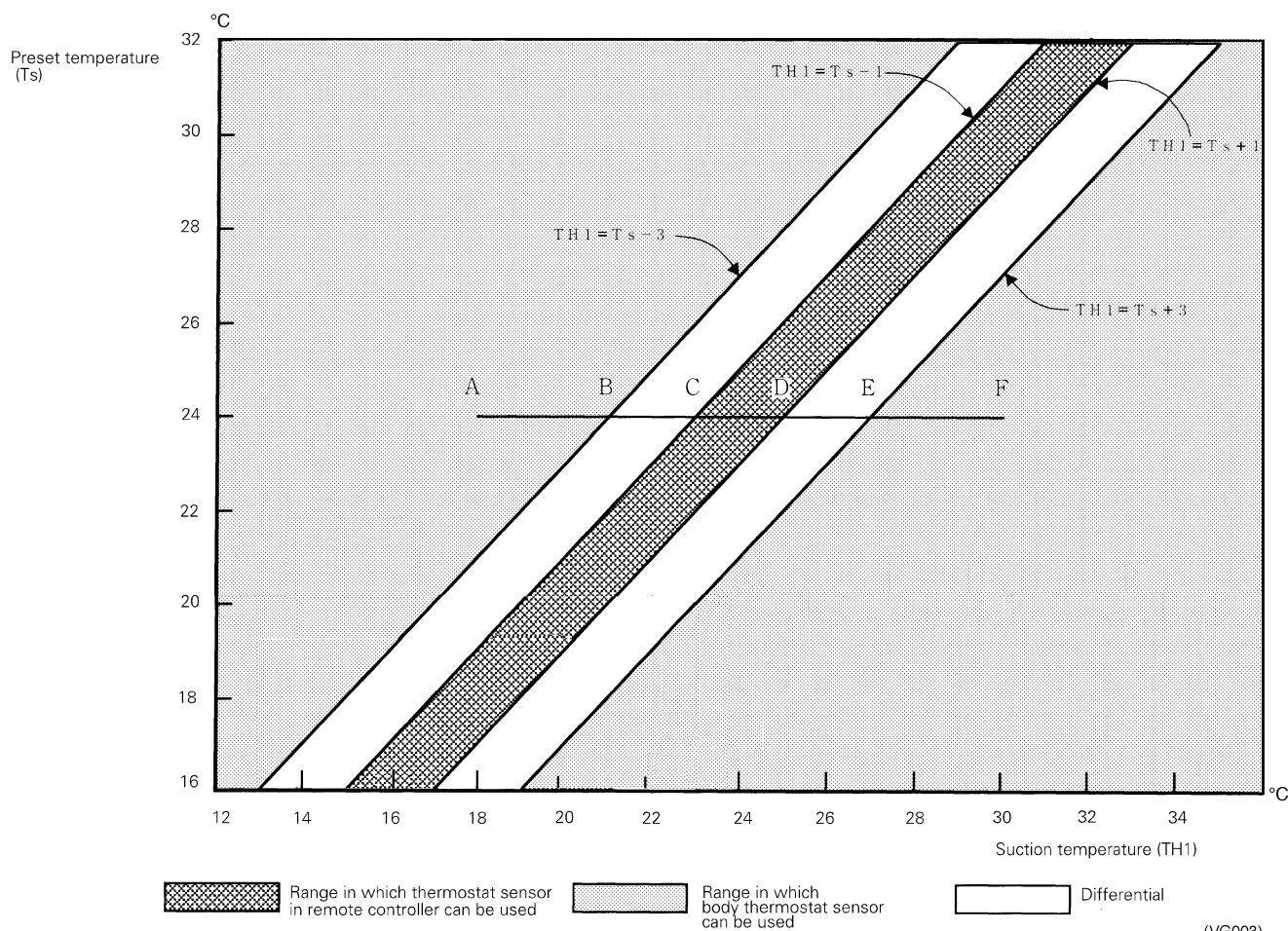
6.2 Thermostat Control

6.2.1 Thermostat Sensor in Remote Controller

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

Cooling

If there is a significant difference in the preset temperature and the suction temperature, fine adjustment control is carried out using a body thermostat sensor, or using the sensor in the remote controller near the position of the user when the suction temperature is near the preset temperature.



■ Ex: When cooling

Assuming the preset temperature in the figure above is 24°C, and the suction temperature has changed from 18°C to 30°C (A → F):

(This example also assumes there are several other air conditioners, the VRV system is off, and that temperature changes even when the thermostat sensor is off.)

Body thermostat sensor is used for temperatures from 18°C to 23°C (A → C).

Remote controller thermostat sensor is used for temperatures from 23°C to 27°C (C → E).

Body thermostat sensor is used for temperatures from 27°C to 30°C (E → F).

And, assuming suction temperature has changed from 30°C to 18°C (F → A):

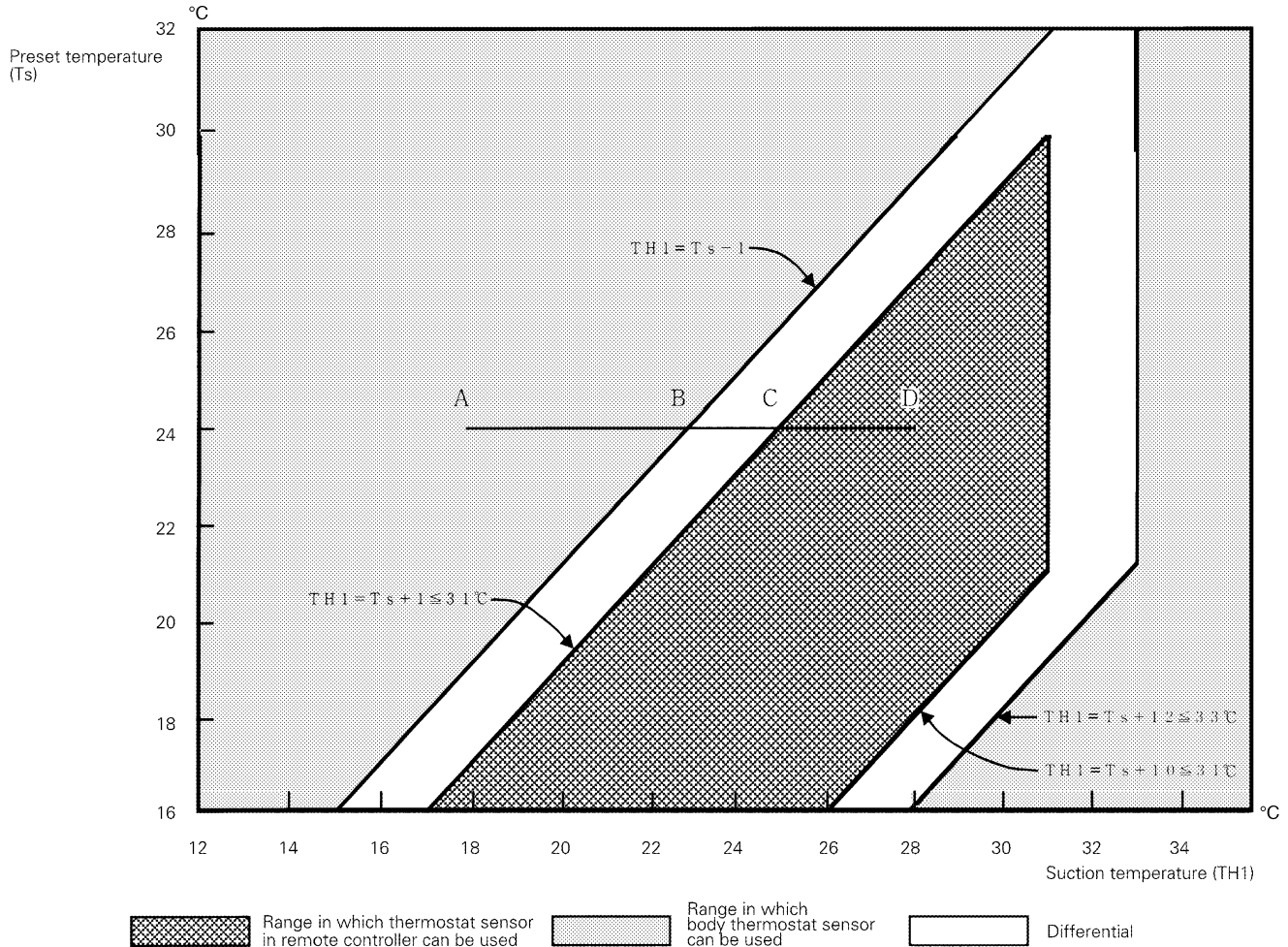
Body thermostat sensor is used for temperatures from 30°C to 25°C (F → D).

Remote controller thermostat sensor is used for temperatures from 25°C to 21°C (D → B).

Body thermostat sensor is used for temperatures from 21°C to 18°C (B → A).

Heating

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



(V2769)

■ **Ex: When heating Assuming the preset temperature in the figure above is 24°C, and the suction temperature has changed from 18°C to 28°C (A → D):**

(This example also assumes there are several other air conditioners, the VRV system is off, and that temperature changes even when the thermostat sensor is off.)

Body thermostat sensor is used for temperatures from 18°C to 25°C (A → C).

Remote controller thermostat sensor is used for temperatures from 25°C to 28°C (C → D).

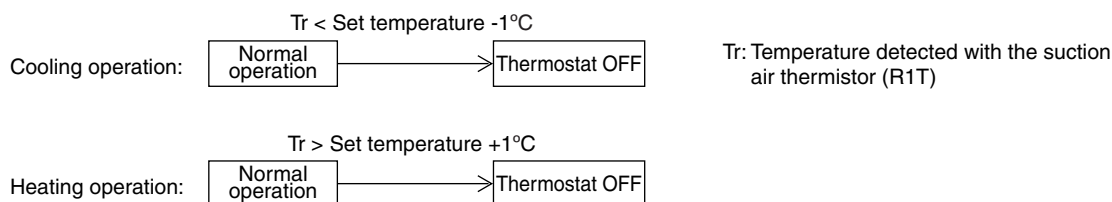
And, assuming suction temperature has changed from 28°C to 18°C (D → A):

Remote controller thermostat sensor is used for temperatures from 28°C to 23°C (D → B).

Body thermostat sensor is used for temperatures from 23°C to 18°C (B → A).

6.2.2 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 set mode), the thermostat turns OFF when the system reaches a temperature of -1°C from the set temperature while in cooling operation or of $+1^{\circ}\text{C}$ from that while in heating operation.



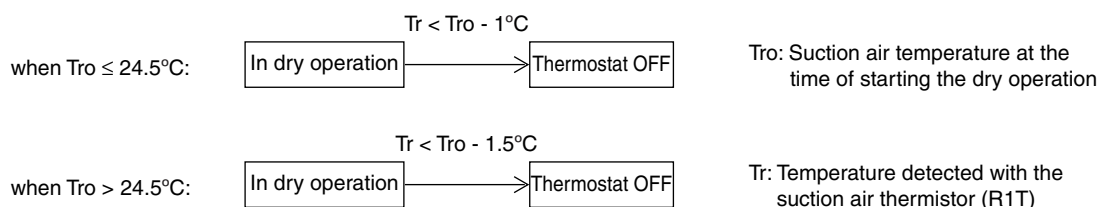
While in a single remote controller group control, the body thermostat is only used for this control.

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.)

6.2.3 Thermostat Control in Dry Operation

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

Assuming that the suction air temperature at the time of starting the dry operation is T_{ro} and the suction air temperature in operation is T_r ,

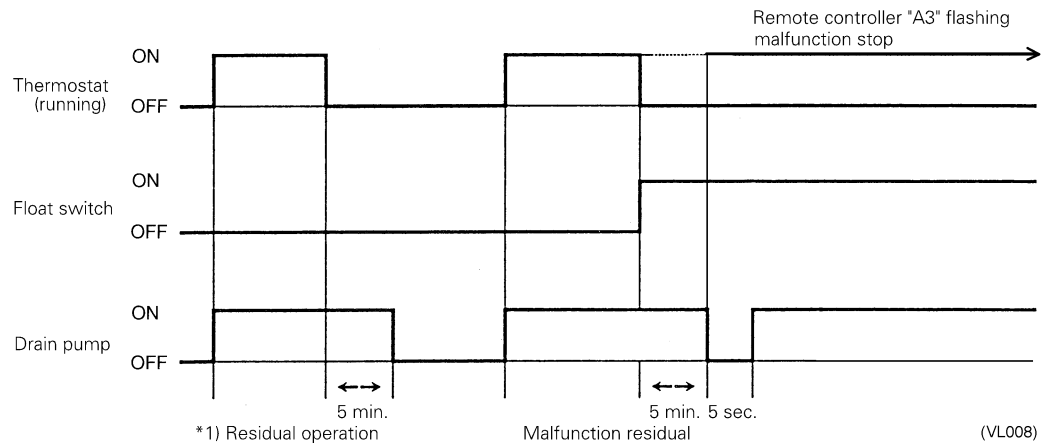


Furthermore, while in dry operation mode, fans operate at L flow rate, stops for a period of six minutes while the thermostat is OFF, and then return to operation at L flow rate. (This control is used to prevent a rise in indoor temperature while in thermostat OFF mode.)

6.3 Drain Pump Control

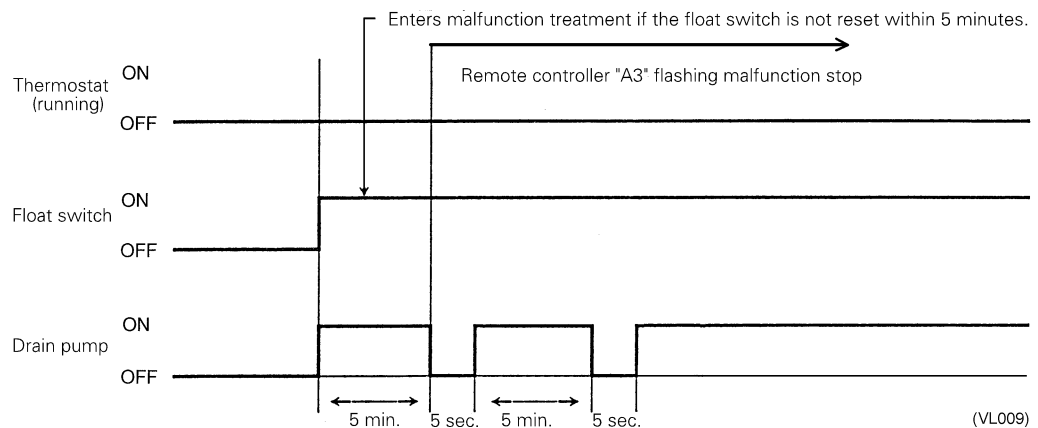
- The drain pump is controlled by the ON/OFF buttons (4 button (1) - (4) given in the figure below).

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

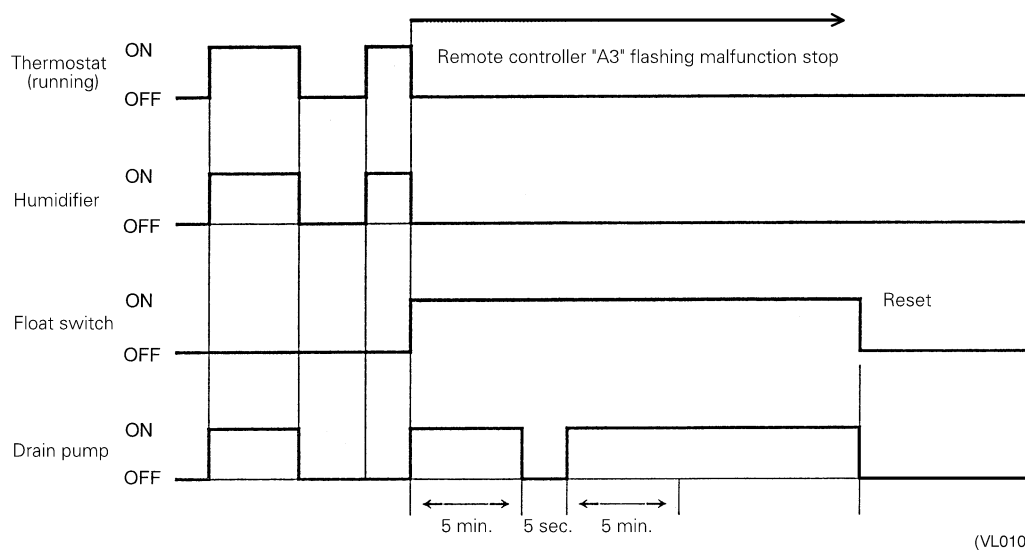


- * 1. The objective of residual operation is to completely drain any moisture adhering to the fin of the indoor unit heat exchanger when the thermostat goes off during cooling operation.

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

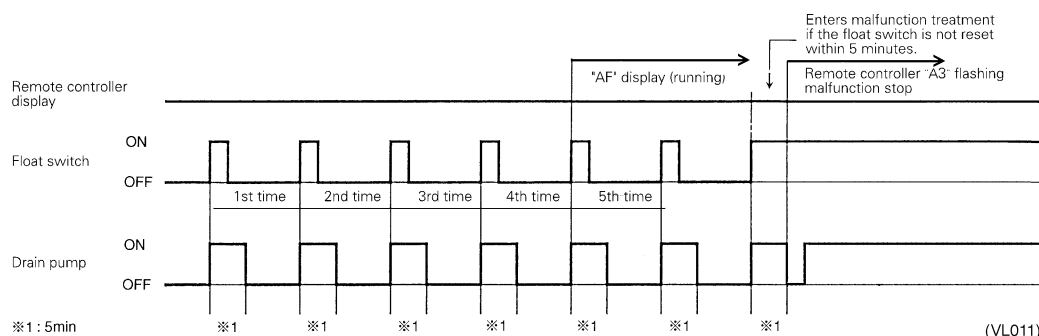


6.3.3 When the Float Switch is Tripped During Heating Operation:



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.

6.3.4 When the Float Switch is Tripped and “AF” is Displayed on the Remote Controller:



Note: If the float switch is tripped five times in succession, a drain malfunction is determined to have occurred. "AF" is then displayed as operation continues.

6.4 Freeze Prevention

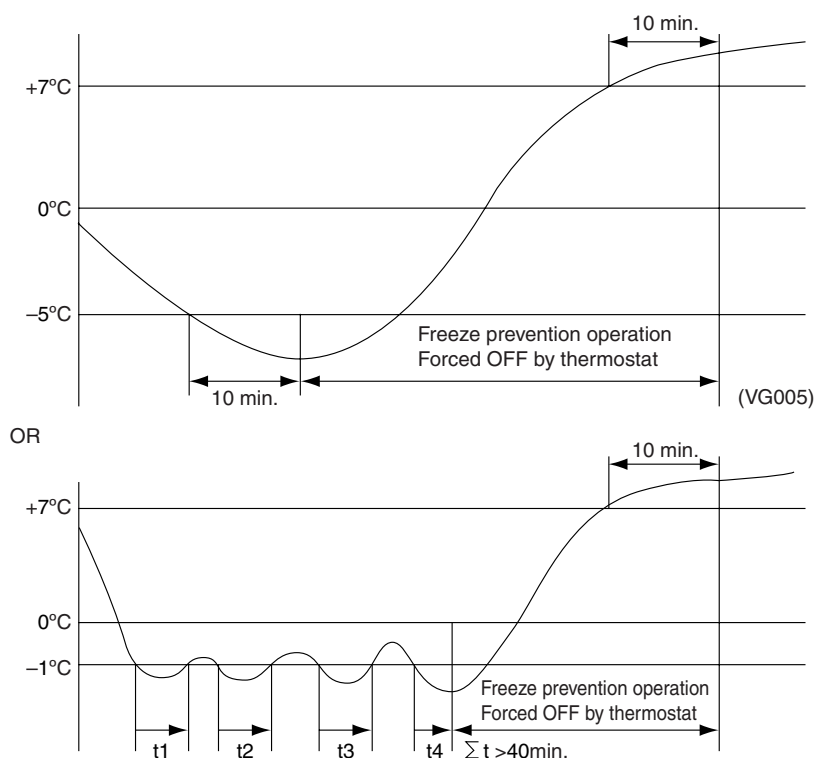
Freeze Prevention by Off Cycle (Indoor Unit)

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

When freeze prevention is activated, the electronic expansion valve is closed, the drain pump turns ON and the fan tap is fixed to L air flow. When the following conditions for stopping are satisfied, it returns.

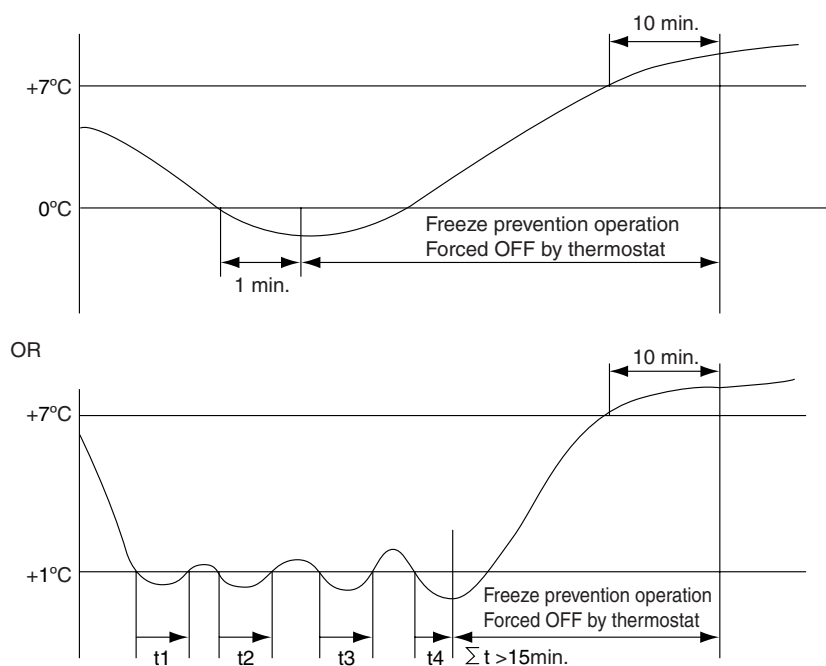
Conditions for starting freeze prevention: Temperature is -1°C or less for total of 40 min., or temperature is -5°C or less for total of 10 min.

Conditions for stopping freeze prevention: Temperature is $+7^{\circ}\text{C}$ or more for 10 min. continuously



[Conditions for starting when air flow 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.

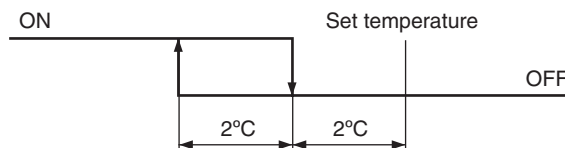


6.5 Heater Control (Optional PC Board KRP1B...is required.)

The heater control is conducted in the following manner.

[Normal control]

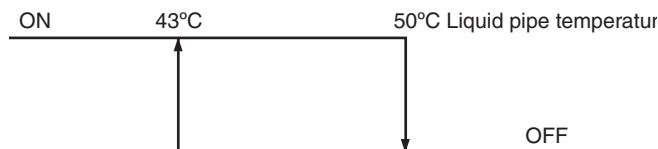
While in heating operation, the heater control (ON/OFF) is conducted as shown on the right.



[Overload control]

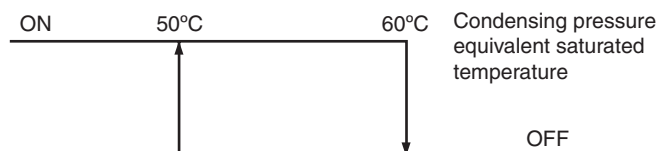
When the system is overloaded in heating operation, the heater will be turned OFF in the following two manners.

(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 (SINPH) 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 Electronic Expansion Valve Control

- EVM control of main motorized valve

When an evaporator is used for outdoor unit heat exchanging (20SA = ON), this function is used to exercise the PI control on the motorized valve (Y1E) so as to keep the evaporator outlet superheated degree (SH) constant.

$$SH = T_g - T_e$$

SH: Evaporator outlet superheated degree (°C)

Tg: Suction pipe temperature detected by the heat exchanger gas pipe thermistor R2T (°C)

Te: Low pressure equivalent saturated temperature (°C)

- EVT control of supercooled motorized valve

In order to make full use of the supercooled heat exchanger, this function is used to exercise the PI control on the motorized valve (Y3E) so as to keep the evaporator-side gas pipe superheated degree (SH) constant.

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

SH: Evaporator outlet superheated degree (°C)

Tsh: Suction pipe temperature detected by the supercooled heat exchanger outlet thermistor R5T (°C)

Te: Low pressure equivalent saturated temperature (°C)

- EVJ control of refrigerant charge motorized valve

To automatically charge or refill refrigerant, this function is used to exercise the PI control on the opening degree of the motorized valve (Y2E) in response to outdoor temperatures and close the motorized valve after the completion of charging or refilling.

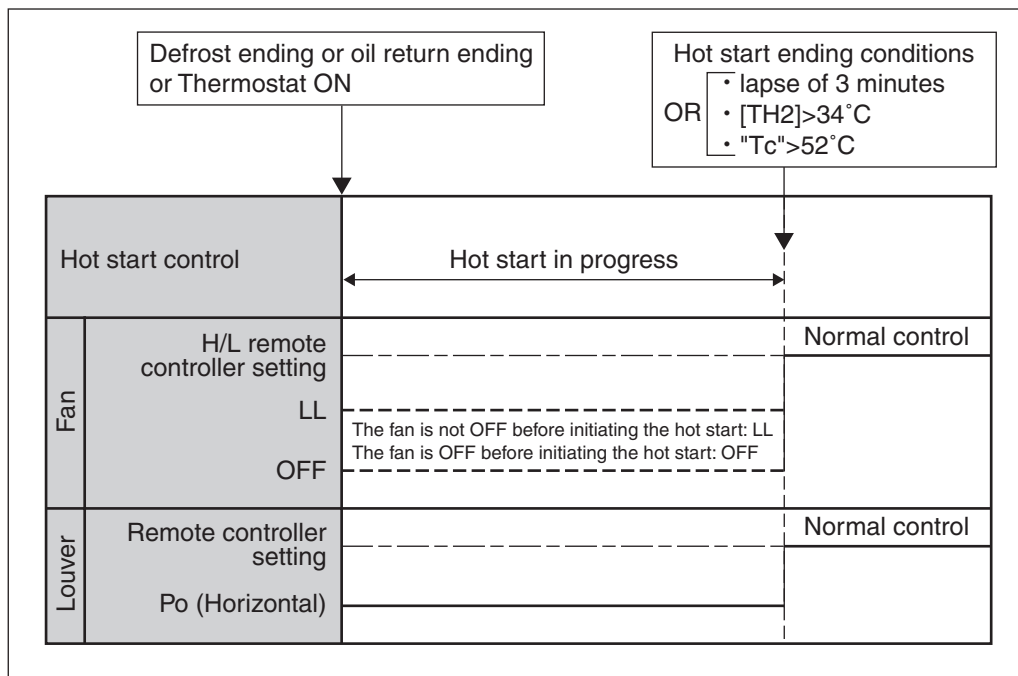
Set the opening degree to 80 pls for normal operation.

6.8 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 **start condition 1** or the **start condition 2** is established, the operations shown below will be conducted.

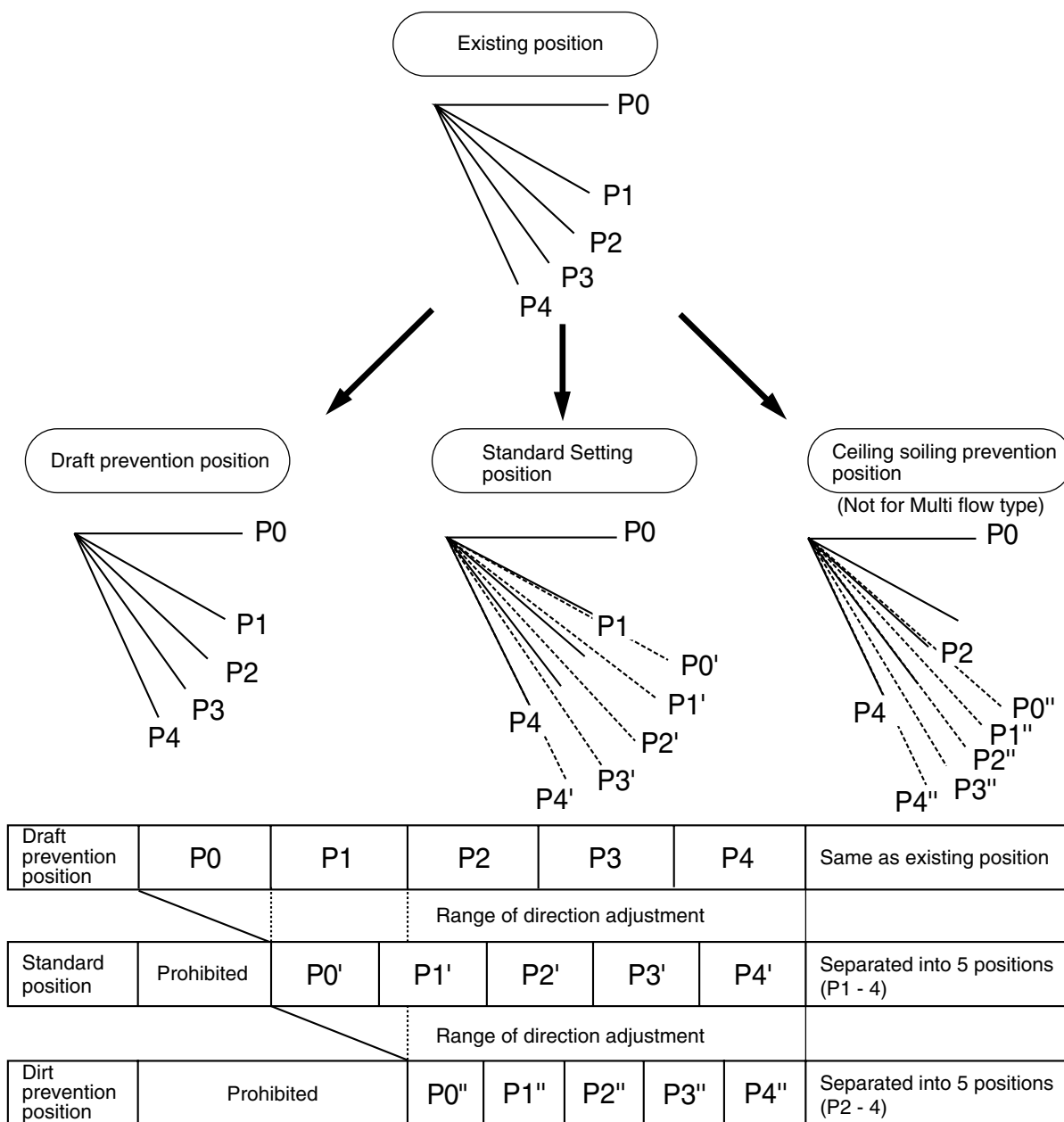


TH₂: Temperature (°C) detected with the gas thermistor

TC : High pressure equivalent saturated temperature

6.9 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.)



The factory set position is standard position.

(VL012)

Part 5

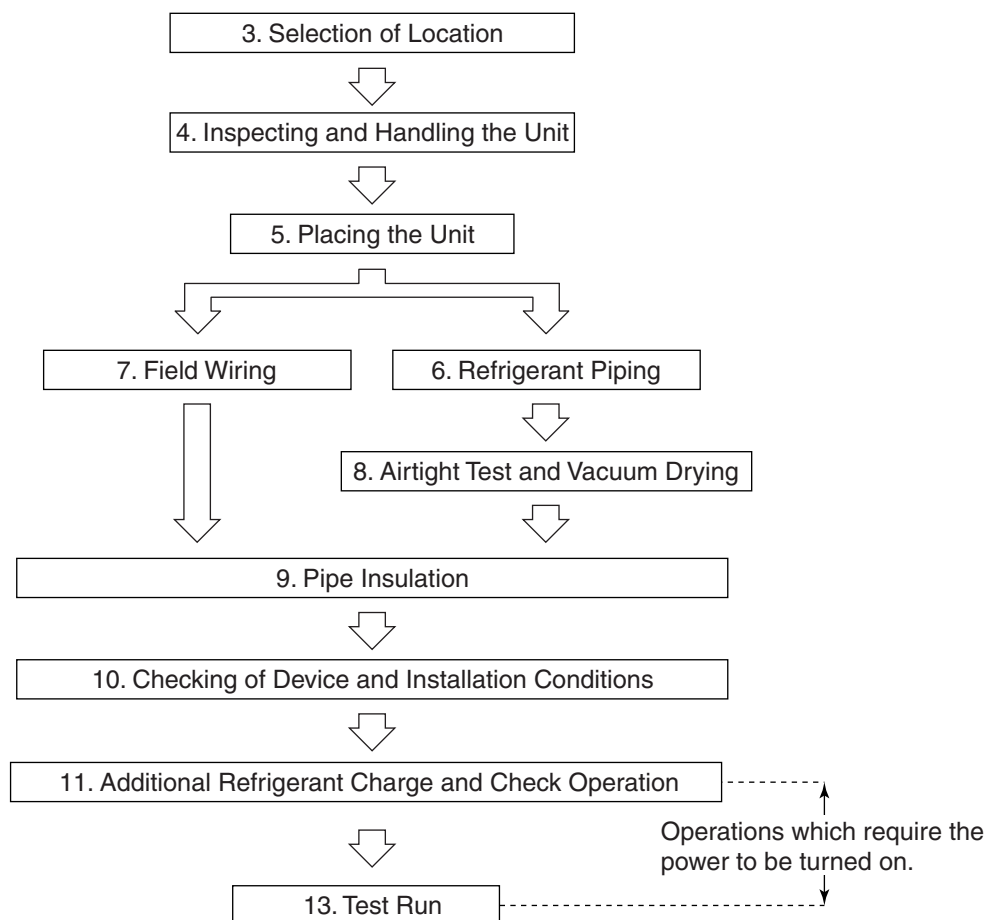
Test Operation

1. Test Operation	148
1.1 Installation Process	148
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1. Test Operation

1.1 Installation Process

Below Figure shows the installation process. Install in the order of the steps shown.



1.2 Procedure and Outline

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

1.2.1 Check Work Prior to Turn Power Supply On

Check the below items.

- Power wiring
- Control transmission wiring between units
- Earth wire

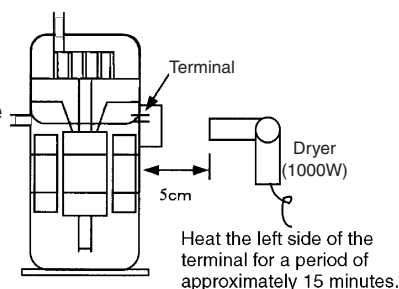


- Is the wiring performed as specified?
- Is the designated wire used?
- Is the wiring screw of wiring not loose?
- Is the grounding work completed?
- Is the insulation of the main power supply circuit deteriorated?
Use a 500V megger tester to measure the insulation. (*1)
• Do not use a megger tester for other circuits than 200V (or 240V) circuit.

*1: Measure to be taken against decreased insulation resistance in the compressor

If the compressor is left to stand for an extended period of time after the refrigerant charge with the stop valve open and the power supply OFF, the refrigerant may be mixed in the compressor, thus decreasing the insulation resistance.

Heat the compressor as shown on the right and then recheck the insulation.



Check on refrigerant piping / insulation materials



Check airtight test and vacuum drying.



Check on amount of refrigerant charge



- Is the pipe size proper?
- Is the pipe insulation material installed securely?
Liquid and gas pipes need to be insulated. (Otherwise causes water leak.)
- Have the airtight test and the vacuum drying been conducted according to the procedure in the Installation Manual?

- Is a proper quantity of refrigerant charged?
The following method is available for additional charging of refrigerant.
(1) Calculate additional refrigerant quantity.

- Calculate a necessary additional refrigerant charging amount according to the procedure for calculation shown below.

* Procedure for calculating additional refrigerant charging amount (Unit: 0.1 kg)

$$R = \left(\frac{\text{Total length of } \phi 22.2\text{-mm liquid pipe}}{\quad} \times 0.37 \right) + \left(\frac{\text{Total length of } \phi 19.1\text{-mm liquid pipe}}{\quad} \times 0.26 \right) + \left(\frac{\text{Total length of } \phi 15.9\text{-mm liquid pipe}}{\quad} \times 0.18 \right) + \left(\frac{\text{Total length of } \phi 12.7\text{-mm liquid pipe}}{\quad} \times 0.12 \right) + \left(\frac{\text{Total length of } \phi 9.5\text{-mm liquid pipe}}{\quad} \times 0.059 \right) + \left(\frac{\text{Total length of } \phi 6.4\text{-mm liquid pipe}}{\quad} \times 0.022 \right) \times 1.02$$

Correction amount with indoor unit

System name	Correction amount
Model REYQ8-16PY1	3.6 kg
Model REYQ18-20PY1	1.0kg
Model REYQ22-24PY1	1.5kg
Model REYQ26PY1	2.0kg
Model REYQ28-30PY1	2.5kg
Model REYQ32-40PY1	3.0kg
Model REYQ42PY1	3.5kg
Model REYQ44-46PY1	4.0kg
Model REYQ48PY1	4.5kg

Correction amount with a total capacity of indoor units

Ratio of total capacity of the connected indoor units to the rated capacity of the outdoor unit (A)	Correction amount	
	Model REYQ18 - 32PY1	Model REYQ34 - 48PY1
100%<A≤120%	0.5kg	
120%<A≤130%	0.5kg	1.0kg

- If there is a refrigerant shortage, charge a liquid refrigerant through the stop valve service port with the stop valves of liquid and those of gas closes after the completion of vacuum drying.
- If the refrigerant charging is still insufficient, "turn ON the power supply" following the information on the next page.

○ Has the additional refrigerant charging amount been recorded on the "Precautions for servicing" label?

○ Check to be sure the stop valves are under the following conditions.

Check the stop valves for conditions.

Liquid-pipe stop valve	Equalizing pipe stop valve	Dual pressure gas pipe stop valve	Suction pipe stop valve
Open	Open	Open	Open

1.2.2 Turn Power On

Turn outdoor unit and indoor unit power on.



Check the LED display of the outdoor unit PC board.



Make field settings with outdoor unit PC board.



Conduct check operations.



Check for normal operation.

- Be sure to turn the power on 6 hours before starting operation to protect compressors. (to power on clankcase heater)

- Check to be sure the transmission is normal.
The transmission is normal if the LEDs display conditions as shown in table below.

LED display ○ ON ● OFF ● Blinking

LED display (Default status before delivery)	Micro-computer operation monitor	MODE	TEST	COOL / HEAT select			Low noise	Demand	Multi
				IND	MASTER	SLAVE			
				H3P	H4P	H5P	H6P	H7P	H8P
One outdoor unit installed		●	●	○	●	●	●	●	●
When multiple outdoor unit installed (*)	Master	●	●	○	●	●	●	●	○
	Slave 1	●	●	●	●	●	●	●	●
	Slave 2	●	●	●	●	●	●	●	●

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

- Make field settings if needed.
(For the setting procedure, refer to information in "3.2. Field Setting from Outdoor Unit" on page 183 onward.)
For the outdoor-multi system, make field settings with the master unit.
(Field settings made with the slave unit will be all invalid.)

The check operations shown below will be automatically initiated.

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

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

1.2.3 Air Tight Test and Vacuum Drying

Note:

- Always use nitrogen gas for the airtightness test.
- Absolutely do not open the shutoff valve until the main power circuit insulation measurement has been completed. (measuring after the shutoff valve is opened will cause the insulation value to drop.)

<Needed tools>

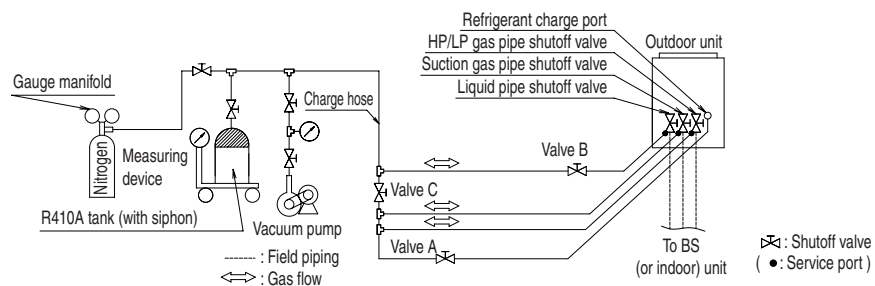
Gauge manifold Charge hose valve	<ul style="list-style-type: none"> • To prevent entry of any impurities and insure sufficient pressure resistance, always use the special tools dedicated for R-410A. • Use charge hose that have pushing stick for connecting to service port of shutoff valves or refrigerant charge port.
Vacuum pump	<ul style="list-style-type: none"> • The vacuum pump for vacuum drying should be able to lower the pressure to -100.7kPa (5 Torr -755mm Hg). • Take care the pump oil never flow backward into the refrigerant pipe during the pump stops.

<The system for air tight test and vacuum drying>

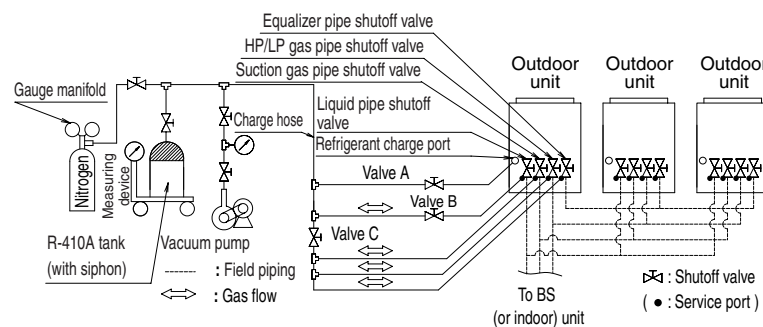
- Referring to next figure, connect an nitrogen tank, refrigerant tank, and a vacuum pump to the outdoor unit.

The refrigerant tank and the charge hose connection to refrigerant charge port or the valve A in next figure are needed in “1.2.5 Additional Refrigerant Charge and Check Operation”.

REYQ8~16PY1



REYQ18~48PY1



Note:

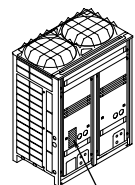
- The airtightness test and vacuum drying should be done using the service ports of equalizer pipe, HP/LP gas pipe, suction gas pipe and liquid pipe shutoff valve.

See the [R-410A] Label attached to the front plate of the outdoor unit for details on the location of the service port (see figure at right)

- See [Shutoff valve operation procedure] in “1.2.5.1 Before Working” for details on handling the shutoff valve.

- The refrigerant charge port is connected to unit pipe.

When shipped, the unit contains the refrigerant, so use caution when attaching the charge hose.



[R-410A] Label

<Air tight test>

Pressurize the liquid pipe, suction gas pipe, HP/LP gas pipe and equalizer pipe from the service ports of each shutoff valve to 4.0MPa (40bar) (do not pressurize more than 4.0MPa (40bar)). If the pressure does not drop within 24 hours, the system passes the test.

If there is a pressure drop, check for leaks, make repairs and perform the airtight test again.

<Vacuum drying>

Evacuate the system from the liquid and gas pipes by using a vacuum pump for more than 2 hours and bring the system to -100.7kPa or less. After keeping the system under that condition for more than 1 hour, check if the vacuum gauge rises or not. If it rises, the system may either contain moisture inside or have leaks.

Note:

- **If moisture might enter the piping, follow below.**

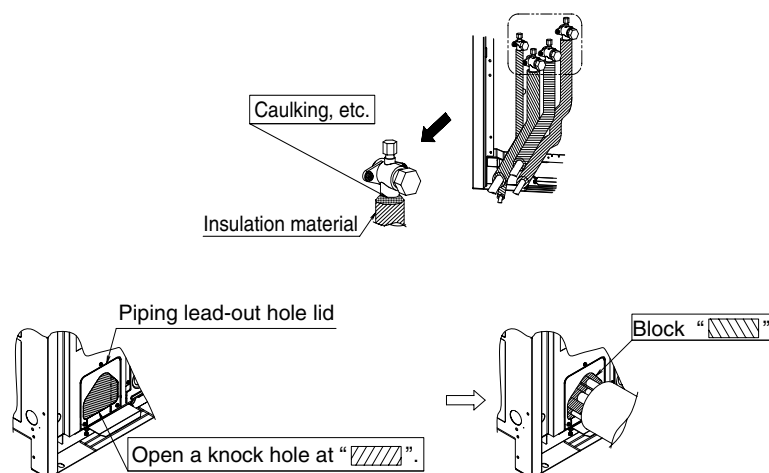
(I.e., if doing work during the rainy season, if the actual work takes long enough that condensation may form on the inside of the pipes, if rain might enter the pipes during work, etc.)

1. After performing the vacuum drying for two hours, pressurize to 0.05 MPa (i.e., vacuum breakdown) with nitrogen gas, then depressurize down to -100.7 kPa for an hour using the vacuum pump (vacuum drying).
2. If the pressure does not reach -100.7 kPa even after depressurizing for at least two hours, repeat the vacuum breakdown - vacuum drying process.

After vacuum drying, maintain the vacuum for an hour and make sure the pressure does not rise by monitoring with a vacuum gauge.

1.2.4 Pipe Insulation

- Insulation of pipes should be done after performing “**1.2.3. Air Tight Test and Vacuum Drying**”.
- Always insulate the liquid piping, the HP/LP gas piping, the gas piping, the equalizer pipe (between the outdoor units for the outdoor multi system) and these pipe connections. Failing to insulate the pipes may cause leaking or burns. Especially, be sure to insulate the HP/LP gas piping as withstanding as the suction pipe because the suction gas follows in the HP/LP gas piping when the system is whole cooling mode. And be sure to use the insulation which can withstand such temperatures of 120°C or more for the HP/LP gas piping, the equalizer pipe and the gas piping because the HP/LP gas follows in these pipings.
- Reinforce the insulation on the refrigerant piping according to the installation environment. Condensation might form on the surface of the insulation. Refer to the below.
 - Ambient temperature : 30°C, humidity : 75% to 80% RH : min. thickness : 15mm.
 - If the ambient temperature exceeds 30°C and the humidity 80% RH, then the min. thickness is 20mm.
 See the Engineering data book for detail.
- If there is a possibility that condensation on the shutoff valve might drip down into the indoor unit through gaps in the insulation and piping because the outdoor unit is located higher than the indoor unit, etc., this must be prevented by caulking the connections, etc. **(Refer to next figure)**
- The piping lead-out hole lid should be attached after opening a knock hole. **(Refer to next figure)**
- If small animals and the like might enter the unit through the piping lead-out hole, close the hole with blocking material (procured on site) after completion of “**1.2.5 Additional Refrigerant Charge and Check Operation**”. **(Refer to next figure)**

**Note:**

- After knocking out the holes, we recommend you remove burrs in the knock holes (**See above figure**) and paint the edges and areas around the edges using the repair paint.

1.2.5 Additional Refrigerant Charge and Check Operation

The outdoor unit is charged with refrigerant when shipped from the factory, but depending on the size and length of the piping when installed, it may require additional charging.

For charging the additional refrigerant, follow the procedure in this chapter.

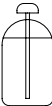

And then carry out the check operation.

Note: Total amount of refrigerant should be 100kg or less

1.2.5.1 Before Working

[About the refrigerant cylinder]

Check whether the cylinder has a siphon pipe before charging and place the cylinder so that the refrigerant is charged in liquid form. (See the figure below.)

With siphon pipe	
	Stand the cylinder upright and charge. (The siphon pipe goes all the way inside, so the cylinder does not need be put upside-down charge in liquid form.)
Other tanks	
	Stand the cylinder upside-down and charge.

Note:

- Always use the proper refrigerant (R-410A). If charged with the refrigerant containing an improper material, it may cause an explosion or accident.
- R-410A is a mixed refrigerant, so charging it as a gas will cause the refrigerant composition to change, which may prevent normal operation.

[Shutoff Valve Operation Procedure]

When operating the shutoff valve, follow the procedure instructed below.

Note:

- Do not open the shutoff valve until “1.2.1 Check work prior to turn power supply on” in page 149 are completed. If the shutoff valve is left open without turning on the power, it may cause refrigerant to buildup in the compressor, leading insulation degradation.
- Be sure to use the correct tools.
- The shutoff valve is not a back-seat type. If forced it to open, it might break the valve body.
- When using a service port, use the charge hose.
- After tightening the cap, make sure no refrigerant gas is leaking.

[Tightening torque]

The sizes of the shutoff valves on each model and the tightening torque for each size are listed in the table below.

<Size of Shutoff Valve>

REYQ8~16PY1

	8HP type	10HP type	12HP type	14HP type	16HP type
Liquid pipe shutoff valve	$\phi 9.5$ The 12HP type corresponds to the 12.7-diameter onsite piping using the accessory pipe.			$\phi 12.7$	
Suction gas shutoff valve	$\phi 25.4$ The 8HP type corresponds to the 19.1-diameter onsite piping using the accessory pipe. The 10HP type corresponds to the 22.2-diameter onsite piping using the accessory pipe. The 12-16 HP type corresponds to the 28.6-diameter onsite piping using the accessory pipe.				
HP/LP gas shutoff valve	$\phi 19.1$ The 8HP type corresponds to the 15.9-diameter onsite piping using the accessory pipe. The 14-16 HP type corresponds to the 22.2-diameter onsite piping using the accessory pipe.				

REYQ18~48PY1

	8HP type	10HP type	12HP type	14HP type	16HP type
Liquid pipe shutoff valve	$\phi 9.5$ The 12HP type corresponds to the 12.7-diameter onsite piping using the accessory pipe.			$\phi 12.7$	
Suction gas shutoff valve	$\phi 25.4$ The 8 · 10HP type corresponds to the 22.2-diameter onsite piping using the accessory pipe. The 12-16 HP type corresponds to the 28.6-diameter onsite piping using the accessory pipe.				
HP/LP gas shutoff valve	$\phi 19.1$ The 14 · 16 HP type corresponds to the 22.2-diameter onsite piping using the accessory pipe.				
Equalizer pipe shutoff valve	$\phi 19.1$				

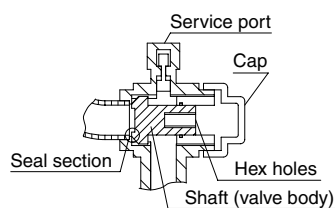


fig 34

[To open]

1. Remove the cap and turn the shaft counterclockwise with the hexagon wrench (JISB4648).
2. Turn it until the shaft stops.
3. Make sure to tighten the cap securely.
(For the tightening torque, refer to the item <Tightening Torque>.)

[To close]

1. Remove the cap and turn the shaft clockwise with the hexagon wrench (JISB4648).
2. Securely tighten the valve until the shaft contacts the main body seal.
3. Make sure to tighten the cap securely.
(For the tightening torque, refer to the item <Tightening Torque>.)

<Tightening torque>

Shutoff valve size	Tightening torque N·m (Turn clockwise to close)			
	Shaft (valve body)		Cap (valve lid)	Service port
φ 9.5	5.4 - 6.6	Hexagonal wrench 4 mm	13.5 - 16.5	11.5 - 13.9
φ 12.7	8.1 - 9.9		18.0 - 22.0	
φ 19.1	27.0 - 33.0	Hexagonal wrench 8 mm	22.5 - 27.5	
φ 25.4				

[How to Check How Many Units are Connected]

It is possible to find out how many indoor or outdoor unit in the system are turned on by operating the push button on the PC-board (A1P) of outdoor unit (In case of multi system master unit).

Follow the procedure below to check how many indoor or outdoor units are turned on.

(LED display: ● ...OFF ☀ ...ON ⚡ ...Blinking * ...Uncertain)		LED display						
		H 1 P	H 2 P	H 3 P	H 4 P	H 5 P	H 6 P	H 7 P
1. Press the MODE button (BS1) once at Setting Mode 1 (H1P: off) and set the MONITOR MODE (H1P: Blinking).		⚡	●	●	●	●	●	●
2.	Press the SET button (BS2) the number of times until the LED display matches that at right.	⚡	●	●	☀	●	●	●
		⚡	●	●	●	☀	●	☀
3. Press the RETURN button (BS3) and read the number of units from the display of H2P through H7P. [Reading Method] The display of H2P through H7P should be read as a binary number, with ⚡ standing for "1" and ● standing for "0".		⚡	*	*	*	*	*	*
<div>Ex: For the LED display at right, this would be "0 1 0 1 1 0", which would mean 22 units are connected.</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>32 × 0 + 16 × 1 + 8 × 0 + 4 × 1 + 2 × 1 + 1 × 0 = 22 units</div></div> <div>Note: "000000" indicates 64 units.</div>		⚡	●	⚡	●	⚡	⚡	●
4. Press the MODE button (BS1) once. This returns to Setting Mode 1 (H1P: OFF, default).		●	●	☀	●	●	●	●

Note:

Press the "MODE button" (BS1) if you get confused while operating.
This returns to **Setting Mode 1** (H1P: OFF, default).

1.2.5.2 Procedure of Adding Refrigerant Charging and Check Operation

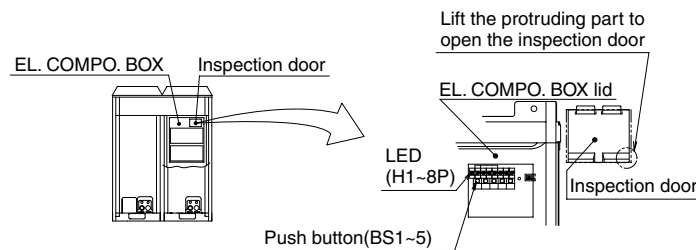


Warning



Electric Shock Warning

- Make sure to close the EL. COMPO. BOX lid before turning on the power when performing the refrigerant charging operation.
- Perform the setting on the PC-board (A1P) of the outdoor unit and check the LED display after the power is on via the inspection door which is in the EL. COMPO. BOX lid.



- Use an insulated rod to operate the push buttons via the EL. COMPO. BOX's inspection door. There is a risk of electric shock if you touch any live parts, since this operation must be performed with the power on.



Caution

- Make sure to use the protect tool (protective gloves and goggles) when charging the refrigerant.
- Due to a danger of liquid hammer, the refrigerant must not be charged over the allowable maximum amount when charging the refrigerant.
- Do not perform the refrigerant charging operation under working for the BS and indoor unit.
- When opening the front panel, make sure to take caution to the fan rotation during the working.
After the outdoor unit stops operating, the fan may keep rotation for a while.

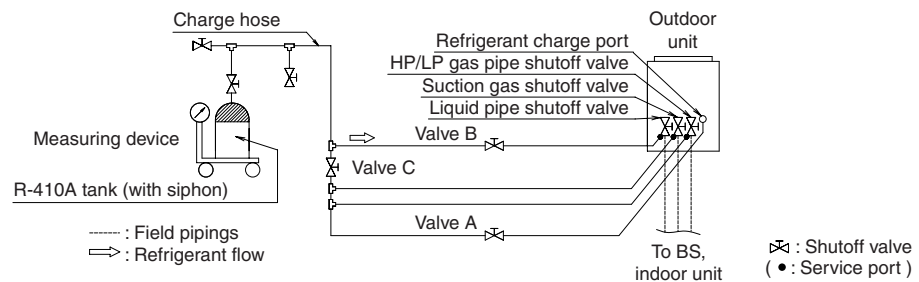
Note:

- If operation is performed within 12 minutes after the BS, indoor and outdoor units are turned on, H2P will be lit on and the compressor will not operate.
Check the LED display indicate as shown [Display of normal system] in chapter 1.2.5.2.1.
- In order to ensure uniform refrigerant distribution, it may take up to around 10 minutes for the compressor to start up after the unit starting operating. This is not a malfunction.
- The refrigerant charge port is connected to the piping inside the unit.
When the unit is shipped from the factory, the unit's internal piping is already charged with refrigerant, so be careful when connecting the charge hose.
- After adding the refrigerant, make sure to close the lid of the refrigerant charging port.
The tightening torque for the lid is 11.5 to 13.9 Nm.
- See [Shutoff valve operation procedure] in chapter 1.2.5.1 for details on how to handle shutoff valves.
- When done or when pausing the refrigerant charging operation, close the valve of the refrigerant tank immediately.
The refrigerant charge port of this product have electric expansion valve.
The valve will be closed at end of refrigerant charging. However the valve will be opened on operation after refrigerant charging (check operation, normal operation, etc.).
If the tank is left with the valve open, the amount of refrigerant which is properly charged may be off the point.
- Make sure to perform the check operation after installation. Otherwise, the malfunction code "U3" will be displayed and normal operation cannot be performed.
And the failure of "Check of miswiring" may also cause abnormal operation. Performance may drop due to the failure of "Judgment of piping length".
- Check operation must be performed for each refrigerant piping system.
Checking is impossible if plural systems are being done at once.
- The individual problems of indoor units can not be checked.
About these problems check by test run after the check operation is completed. (See chapter 1.2.6)
- The check operation cannot be performed in recovery or other service modes.

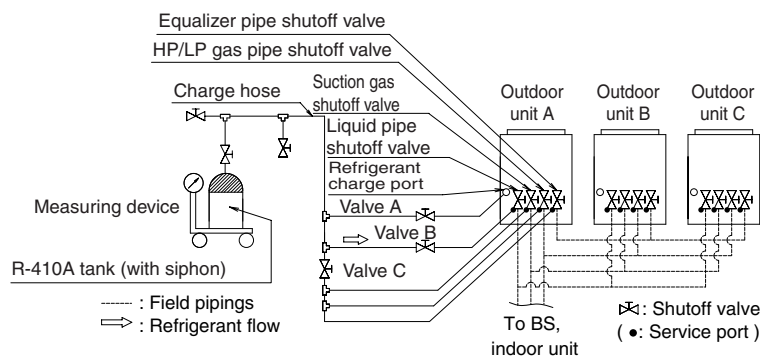
1.2.5.2.1 Procedure of Adding Refrigerant charging

1. Make sure the following works are complete in accordance with the installation manual.
 - Piping work
 - Wiring work
 - Air tight test
 - Vacuum drying
 - Installation work for BS, indoor unit
2. Calculate the “additional charging amount” using “How to calculate the additional refrigerant to be charged” in “**6 Example of Connection**”.
3. Open the valve B (**See next figure**. The valve A,C and the liquid pipe, suction gas pipe, HP/LP gas pipe, equalizer pipe shutoff valves must be left closed), and charge the refrigerant of the “additional charging amount” from the liquid side shutout valve service port.

REYQ8~16PY1



REYQ18~48PY1



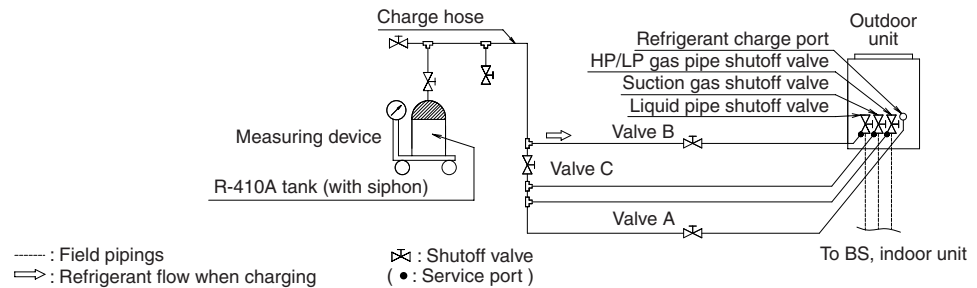
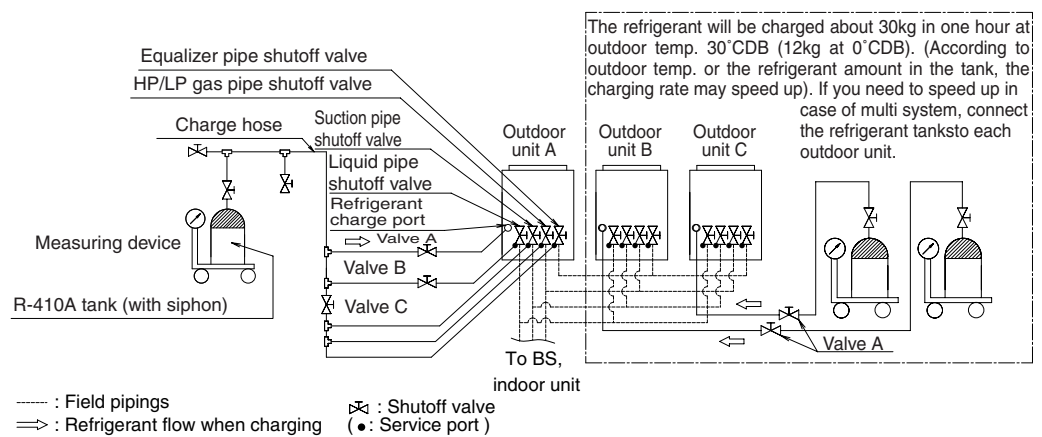
4. If the “additional charging amount” was charged fully, close the valve B and go to step 7.
If the “additional charging amount” was not charged fully, close the valve B and go to step 5.
5. Perform the refrigerant charging operation following [Refrigerant charging operation procedure] as shown below, and charge the remaining refrigerant of the “additional charging amount”. For performing the refrigerant charging operation the push button on the PC-board (A1P) of outdoor unit (In case of multi system, master unit) are use. (See the figure on the previous page) In addition, the refrigerant are charged from the refrigerant charge port via the valve A.
(See the next figure)

For operating the push button and opening and closing the valve, follow the work procedure.

Note:

The refrigerant will be charged about 30kg in one hour at outdoor temp. 30°C DB (12kg at 0°CDB).

If you need to speedup in case of multi system, connect the refrigerant tanks to each outdoor unit as shown in the next figure.

REYQ8~16PY1**REYQ18~48PY1**

[Refrigerant Charging Operation Procedure]

- (1) Open the liquid pipe, suction gas pipe, HP/LP gas pipe and equalizer pipe shutoff valves
(The valve A~C must be closed. The valve A~C means the valves in the figure of REYQ8~16PY1 on page 159.)
- (2) • Close the EL. COMPO. BOX lid and all front panel except on the side of the EL. COMPO. BOX (*1) and turn the power to the outdoor unit and all connected indoor units. (*2)
 - After H2P stop blinking (about 12 minutes after turning on the power), check LED displays as shown in Table : Display of normal system and the system is normal state.
If H2P is blinking, check the malfunction code in the remote controller, and correct the malfunction in accordance with [Remote controller display malfunction code] in chapter 1.2.5.2.2.
- (*1) Lead the refrigerant charge hose etc from the pipe intake. All front panels must be closed at the procedure (3).
- (*2) • If you perform the refrigerant charging operation within the refrigerant system that have the power off unit, the operation cannot finish properly.
For confirming the number of the outdoor and indoor units with the power on, see [How to check how many units are connected] in chapter 1.2.5.1. In case of a multi system, turn on the power to all outdoor units in the refrigerant system.
 - To energize the crankcase heater, make sure to turn on for 6 hours before starting operation.

Table : Display of normal system

LED display (Default status of shipped)		SERV. MONITOR	MODE	TEST/ HWL	C/H SELECTOR			L.N.O.P	DEMA-ND	MULTI
					IND	MASTER	SLAVE			
		HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
Single system		●	●	●	●	●	●	●	●	●
Multi system (*)	Master unit	●	●	●	●	●	●	●	●	●
	Sub unit 1	●	●	●	●	●	●	●	●	●
	Sub unit 2	●	●	●	●	●	●	●	●	●

LED display: ● ...OFF, ○ ...ON, ● ...Blinking

(*) How to distinguish the master unit, sub unit 1, and sub unit 2 in the multi system.

Method 1 : By the H8P (MULTI) LED display

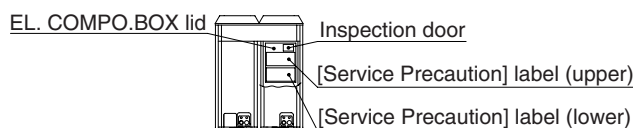
○ (ON) : Master unit	● (Blinking) : Sub unit 1	● (OFF) : Sub unit 2
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Method 2 : By the transmission wiring to indoor unit

Transmission wiring is connected : Master unit
Transmission wiring is not connected : Sub unit 1 or Sub unit 2

- (3) Charge the remained refrigerant by additional refrigerant charging operation of service mode.

About the method of additional refrigerant charging operation, refer to the [Service Precaution] label (lower) attached on the EL. COMPO. BOX lid of the outdoor unit.



- (4) Close the valve A if the “additional charging amount” of refrigerant was charged, and push the RETURN button (BS3) once.

6. After completing the additional refrigerant charging, record the charging amount on the accessory "REQUEST FOR THE INDICATION" label (Installation records) and adhere it to the back side of the front panel. Also, record the factory charged refrigerant amount, additional refrigerant amount in the field and total refrigerant amount of the system to "ADDITIONAL REF. CHARGE" label and adhere in the proximity of the refrigerant charge port. About "ADDITIONAL REF. CHARGE" label.

1.2.5.2.2 Procedure of check operation

- Check operation perform the following work. Do the check operation following below. Otherwise, malfunction code "U3" will be displayed in the remote controller and normal operation can not be carried out.
 - Check of shutoff valve opening
 - Check of miswiring
 - Judgment of piping length
 - Check of refrigerant overcharge

Note:

- Check operation can not be carried out at outdoor temp. less than -5°C. Perform the check operation at day or time that outdoor temp. is -5°C or more.

[Check Operation Procedure]

1. Close the EL. COMPO. BOX lid and all front panels except as the side of the EL. COMPO. BOX and turn on the power to the outdoor unit and all connected BS, indoor units. (Be sure to turn the power on at least 6 hours before operation in order to have power running to the crank case heater.)
2. Make the onsite settings as needed using the push button (BS1-BS5) on the outdoor unit PC-board (A1P) with the power on. (See "1.2.6 Onsite Settings")
3. Perform the check operation following the Check Operation Method of the [Service Precautions] label (lower) on the EL. COMPO. BOX lid. The system operation for about 40~60 minutes and automatically stops the check operation.
If the malfunction code is not displayed in the remote controller after the system stop, check operation is completed. Normal operation will be possible after 5 minutes. If the malfunction code is displayed in the remote controller, correct the malfunction following [Remote controller displays malfunction code] and perform the check operation again.

Note:

For interrupting the check operation, push RETURN button (BS3).

Check operation method

[Note] Make sure to open the equalizer (only for Multi system), suction pipe, dual pressure gas pipe and liquid pipe shutoff valves completely.

- In the check operation, the following works will be automatically performed.

Check of miswiring / Check of shutoff valve opening / Check of refrigerant overcharge / Judgment of piping length

- Make sure to carry out the check operation after the first installation. Otherwise, the malfunction code "U3" will be displayed in the remote controller and normal operation cannot be carried out. When the check operation is finished normally, normal operation can be carried out after 5 minutes.
- For Multi system, check the setting and result on the master unit. (See Caution for Multi connecting system)
- The abnormality of each indoor unit can not be checked. After the check operation is finished, check the indoor units individually by normal operation using the remote controller.

[Operation procedure]

- ① To protect the compressor, make sure to turn on the power supply for 6 hours before starting operation.
(After turning on the power supply, the unit can not start the operation until the H2P LED goes off. (maximum 12 minutes))

- ② Set to the **SETTING MODE 1** (H1P : light OFF)
- ③ Push the TEST button (BS4) for 5 seconds or more. Then the unit will start the check operation.
 - The check operation is automatically carried out in a cooling mode. H2P will flash up and "Test operation" and "Under centralized control" will be displayed in the remote controller.
 - It may take 10 minutes to bring the state of refrigerant uniform before the compressor starts.
 - During the check operation, the refrigerant running sound or the magnetic sound of a solenoid valve may become loud during operation. And the LED display may change, but these are not malfunctions.
 - During the check operation, it is impossible to stop the unit from the remote controller. When discontinue the operation, push the RETURN button (BS3). The system will stop after behind operation for 30 seconds.
- ④ Close the front panel. (Otherwise, it may cause a misjudgment.)
- ⑤ When the checks are completed, the system will stop automatically. After the system stopes the operation, check the operation results by the outdoor unit LED display. (See the table shown right.)

STATE	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Normal	●	●	☀	●	●	●	●
Abnormal	●	☀	☀	●	●	●	●

[Measure for abnormal finish]

- ① Confirm the malfunction code by the remote controller, and correct the abnormality. (For how to correct the abnormality, see the installation manual.)
- ② After correcting the abnormality, push the RETURN button (BS3) and reset the malfunction code.
- ③ Carry out the check operation again and confirm that the abnormality is properly corrected.

[Remote controller displays malfunction code]**REYQ8~16PY1**

Malfunction code	Installation error	Remedial action
E3, E4 F3, F6 UF	The shutoff valve of the outdoor unit is left closed.	Open the shutoff valve.
U1	The phases of the power to the outdoor unit is reversed.	Exchange two of the three phases (L1, L2, L3) to make a proper connection.
U1 U4 LC	No power is supplied to an outdoor, BS or indoor unit (including phase interruption).	Make sure the power source wire is properly connected to the outdoor, BS or indoor unit and revise if necessary.
UF	There is conflict on the connection of transmission wiring in the system.	Check if the refrigerant piping line and the transmission wiring are consistent with each other.
E3 F6 UF	Refrigerant overcharge.	Recalculate the additional amount refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.
E4 F3	Insufficient refrigerant.	<ul style="list-style-type: none"> Check if the additional refrigerant charge has been finished correctly. Recalculate the additional amount refrigerant from the piping length and add the adequate amount.
U7, U4 UF, UH	Field wiring is connected to "TO MULTI UNIT (Q1,Q2)" terminal on the outdoor unit PC-board (A1P) when the system is one outdoor system.	Remove the line from the "TO MULTI UNIT (Q1, Q2)" terminal.
UA	The internal transmission wiring to "TO MULTI UNIT (Q1,Q2)" for the single outdoor unit system are disconnected.	Connect the internal transmission wiring to "TO MULTI UNIT (Q1,Q2)". (See the wiring diagram.)

REYQ18~48PY1

Malfunction code	Installation error	Remedial action
E3, E4, F3, F6 UF	The shutoff valve of the outdoor unit is left closed.	Open the shutoff valve.
U1	The phases of the power to the outdoor unit is reversed.	Exchange two of the three phases (L1, L2, L3) to make a proper connection.
U1, U4, LC	No power is supplied to an outdoor, BS or indoor unit (including phase interruption).	Make sure the power source wire is properly connected to the outdoor, BS or indoor unit and revise if necessary.
UF	There is conflict on the connection of transmission wiring in the system.	Check if the refrigerant piping line and the transmission wiring are consistent with each other.
E3, F6, UF	Refrigerant overcharge.	Recalculate the additional amount refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.
E4, F3	Insufficient refrigerant.	<ul style="list-style-type: none"> Check if the additional refrigerant charge has been finished correctly. Recalculate the additional amount refrigerant from the piping length and add the adequate amount.
U7, U4, UF, UH	Field wiring is connected to "TO MULTI UNIT (Q1,Q2)" terminal on the outdoor unit PC-board (A1P) when the system is one outdoor system.	Remove the line from the "TO MULTI UNIT (Q1, Q2)" terminal.

Note:

If any malfunction codes other than the above are displayed, check the service manual for how to respond.

1.2.6 Onsite Settings

NOTE:

In the case of a multi system, all onsite settings should be made on the master unit. Settings made on sub units are invalid.

The outdoor unit to which the indoor unit transmission wire are connected is the master unit, and all other units are sub units.

Use the push button switches (BS1 through BS5) on the outdoor unit PC-board (A1P) to make the necessary onsite settings.

See the "Service Precautions" label (upper) on the EL. CONPO. BOX lid for details on the positions and operating method of the push button switches and on the onsite setting.

Make sure to record the setting on the accessory "REQUEST FOR THE INDICATION" label.

**Warning****Electric Shock Warning**

Use an insulated rod to operate the push buttons via the inspection door of EL. COMPO. BOX lid.

There is a risk of electric shock if you touch any live parts, since this operation must be performed with the power on.

1.2.7 Test Run

1.2.7.1 Before Test Run

- Make sure the following works are completed in accordance with the installation manual.
 - Piping work
 - Wiring work
 - Air tight test
 - Vacuum drying
 - Additional refrigerant charge
 - Check operation
- Check that all work for the BS unit and indoor unit are finished and there are no danger to operate.

1.2.7.2 Test Run

After check operation is completed, operate the unit normally and check the following.

- (1) Make sure the indoor and outdoor units are operating normally.
- (2) Operate each indoor unit one by one and make sure the corresponding outdoor unit is also operating.
- (3) Check to see if cold (or hot) air is coming out from the indoor unit.
- (4) Push the fan direction and strength buttons on the remote controller to see if they operate properly.

NOTE:

- Heating is not possible if the outdoor temperature is 24°C or higher. Refer to the Operation manual.
- If a knocking sound can be heard in the liquid compression of the compressor, stop the unit immediately and then energize the crank case heater for a sufficient length of time before restarting the operation.
- Once stopping, the compressor will not restart in about 5 minutes even if the On/Off button of the remote controller is pushed.
- When the system operation is stopped by the remote controller, the outdoor units may continue operating for further 5 minutes at maximum.
- The outdoor unit fan may rotate at low speeds if the Night-time low noise setting or the External low noise level setting is made, but this is not a malfunction.
- If the check operation was not performed at first installation, the malfunction code "U3" will be displayed in the remote controller. Perform the check operation following "**1.2.5.2.2 Procedure of check operation**".

1.2.7.3 Checks after Test Run

Perform the following checks after the test run is complete.

- Record the contents of field setting.
 - Record them on the accessory “REQUEST FOR THE INDICATION” label.
And attach the label on the back side of the front panel.
- Record the installation date.
 - Record the installation date on the accessory “REQUEST FOR THE INDICATION” label in accordance with the IEC60335-2-40.
And attach the label on the back side of the front panel.

NOTE:

After the test run, when handing the unit over to the customer, make sure the EL.COMPO.BOX lid, the inspection door, and the unit casing are all attached.

1.3 Operation when Power is Turned On

1.3.1 When Turning On Power First Time

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

Status

Outdoor unit

Test lamp H2P Blinks

Can also be set during operation described above.

Indoor unit

If ON button is pushed during operation described above, the "UH" malfunction indicator blinks.
(Returns to normal when automatic setting is complete.)

1.3.2 When Turning On Power the Second Time and Subsequent

Tap the RESET button on the outdoor unit PC board. Operation becomes possible for about 2 minutes. If you do not push the RESET button, the unit cannot be run for up to 10 minutes to automatically set master power.

Status

Outdoor unit

Test lamp H2P Blinks

Can also be set during operation described above.

Indoor unit

If ON button is pushed during operation described above, the operation lamp lights but the compressor does not operate. (Returns to normal when automatic setting is complete.)

1.3.3 When an Indoor Unit or Outdoor Unit has been Added, or Indoor or Outdoor Unit PC Board has been Changed

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

Status

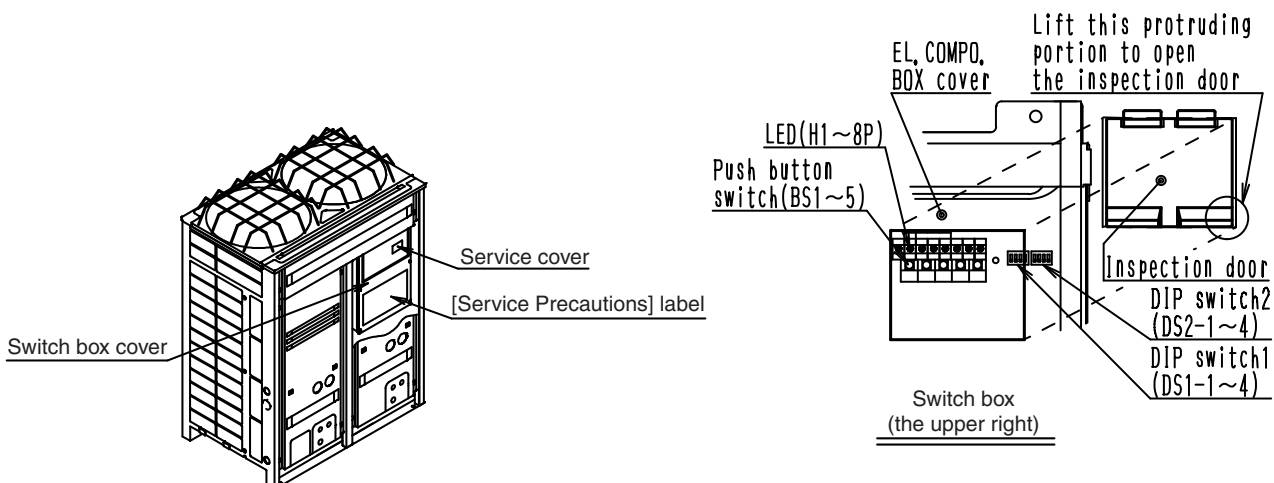
Outdoor unit

Test lamp H2P ON

Can also be set during operation described above.

Indoor unit

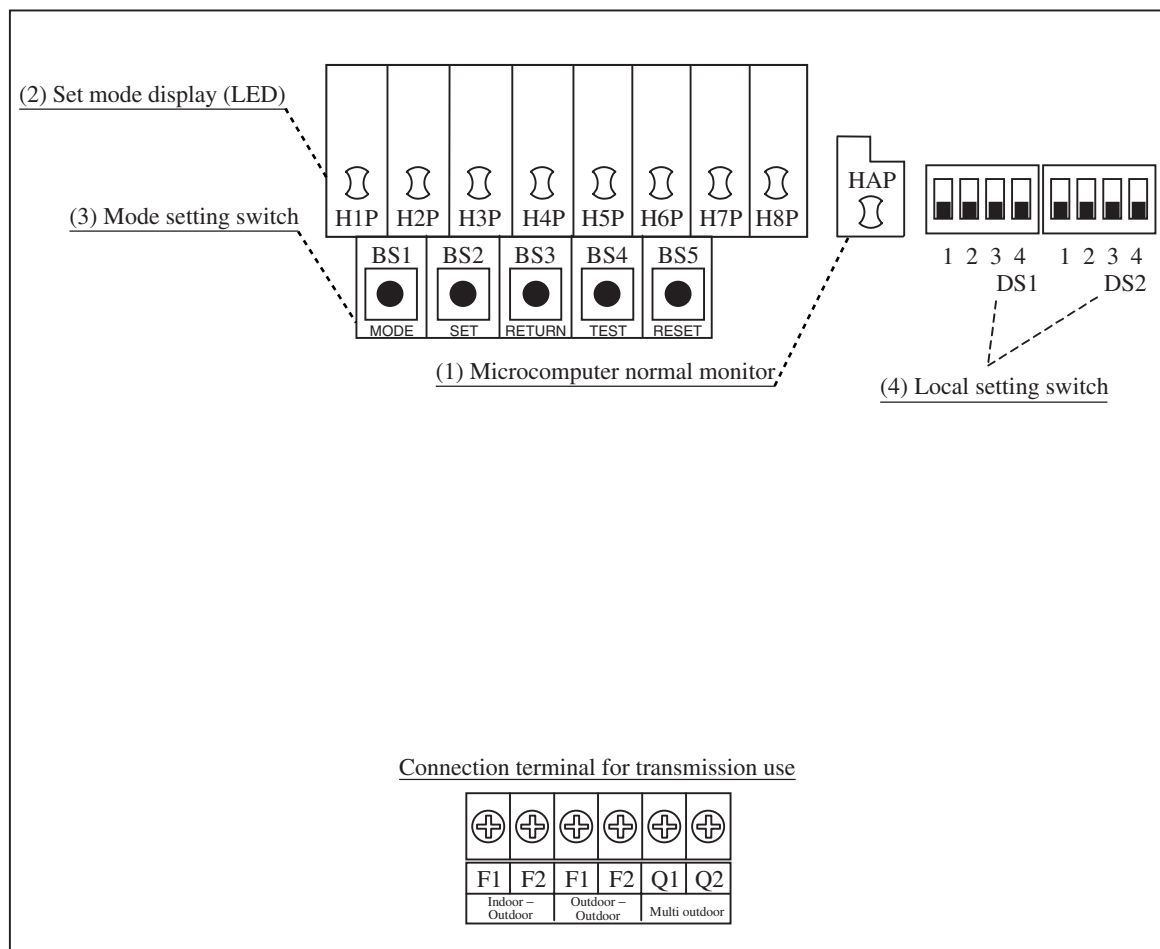
If ON button is pushed during operation described above, the "UH" or "U4" malfunction indicator blinks. (Returns to normal when automatic setting is complete.)



Caution When the 400 volt power supply is applied to "N" phase by mistake, replace Inverter PC board (A2P) and control transformer (T1R, T2R) in switch box together.

2. Outdoor Unit PC Board Layout

Outdoor unit PC board



(V3054)

- (1) Microcomputer normal monitor
This monitor blinks while in normal operation, and turns on or off when a malfunction occurs.
- (2) Set mode display (LED)
LEDs display mode according to the setting.
- (3) Mode setting switch
Used to change mode.
- (4) Local setting switch
Used to make field settings.

3. Field Setting

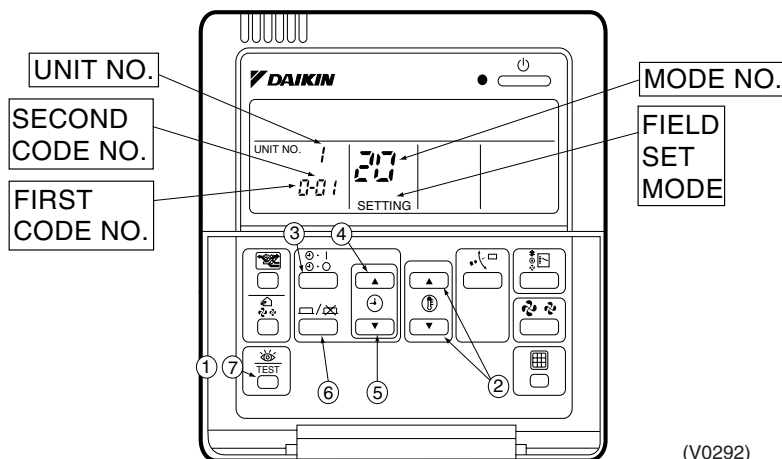
3.1 Field Setting from Remote Controller

Individual function of indoor unit can be changed from the remote controller. At the time of installation or after service inspection / repair, make the local setting in accordance with the following description.








Wrong setting may cause malfunction.

(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.)

3.1.1 Wired Remote Controller <BRC1C61, 62>



(V0292)

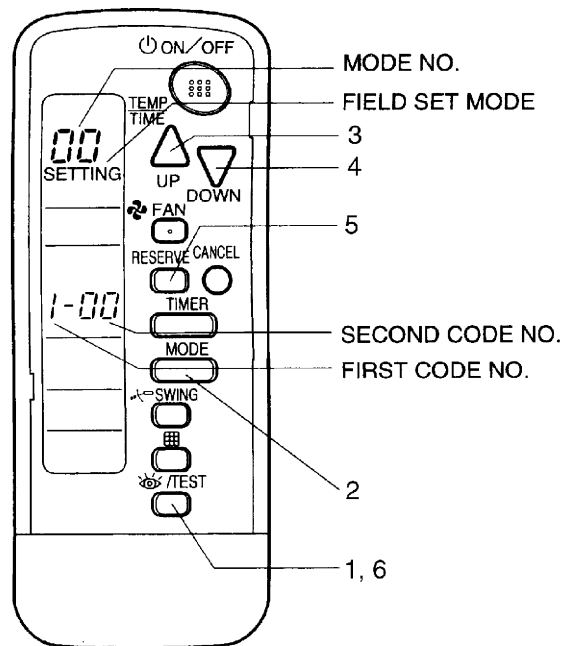
1. When in the normal mode, press the “” button for a minimum of four seconds, and the FIELD SET MODE is entered.
2. Select the desired MODE NO. with the “” button (②).
3. During group control, when setting by each indoor unit (mode No. 20, 22 and 23 have been selected), push the “” button (③) and select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

3.1.2 Wireless Remote Controller - Indoor Unit

BRC7C type
BRC7E type
BRC4C type



(V2770)

1. When in the normal mode, push the "TEST" button for 4 seconds or more, and operation then enters the "field set mode."
2. Select the desired "mode No." with the "MODE" button.
3. Pushing the "UP" button, select the first code No.
4. Pushing the "DOWN" button, select the second code No.
5. Push the timer "RESERVE" button and check the settings.
6. Push the "TEST" button to return to the normal mode.

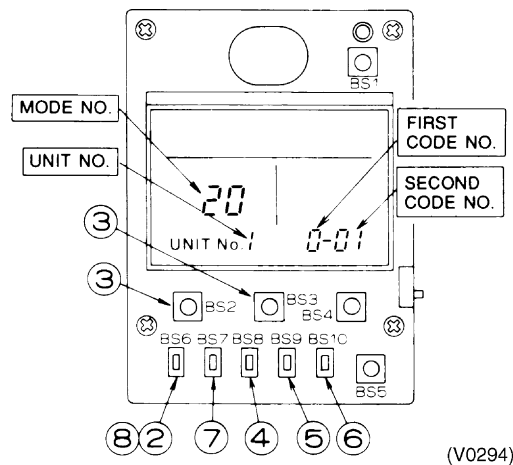
(Example)

When setting the filter sign time to "Filter Dirtiness-High" in all group unit setting, set the Mode No. to "10", Mode setting No. to "0" and setting position No. to "02".

3.1.3 Simplified Remote Controller

BRC2A51

BRC2C51



1. Remove the upper part of remote controller.
2. When in the normal mode, press the [BS6] BUTTON (②) (field set), and the FIELD SET MODE is entered.
3. Select the desired MODE No. with the [BS2] BUTTON (③) (temperature setting ▲) and the [BS3] BUTTON (③) (temperature setting ▼).
4. During group control, when setting by each indoor unit (mode No. 20, 22, and 23 have been selected), push the [BS8] (④) BUTTON (unit No.) and select the INDOOR UNIT NO. to be set. (This operation is unnecessary when setting by group.)
5. Push the [BS9] BUTTON (⑤) (set A) and select FIRST CODE NO.
6. Push the [BS10] BUTTON (⑥) (set B) and select SECOND CODE NO.
7. Push the [BS7] BUTTON (⑦) (set/cancel) once and the present settings are SET.
8. Push the [BS6] BUTTON (⑧) (field set) to return to the NORMAL MODE.
9. (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".

3.1.4 Setting Contents and Code No. – VRV Indoor unit

VRV system indoor unit settings	Mode No. Note 2	Setting Switch No.	Setting Contents		Second Code No. (Note 3)								Details No
					01		02		03		04		
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.)	Super 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		Super long life filter		—		—		(2)
	2		Thermostat sensor 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)
	12(22)	0		Optional accessories output selection (field selection of output for adaptor for wiring)	Indoor unit turned ON by thermostat				Operation output		Malfunction output		(5)
		1		ON/OFF input from outside (Set when ON/OFF is to be controlled from outside.)	Forced OFF		ON/OFF control		External protection device input		—		(6)
		2		Thermostat differential changeover (Set when remote sensor is to be used.)	1°C		0.5°C		—		—		(7)
		3		Air flow setting when heating thermostat is OFF	LL		Set fan speed		—		—		(8)
4			Automatic mode differential (automatic temperature differential setting for VRV system heat recovery series cool/heat)	01:0	02:1	03:2	04:3	05:4	06:5	07:6	08:7	—	
5			Power failure automatic reset	Not equipped		Equipped		—		—		(9)	
6			Air flow setting when Cooling thermostat is OFF	LL		Set fan speed		—		—		(10)	
13(23)	0		Setting of normal air flow	N		H		S		—		(11)	
	1		Selection of air flow direction (Set when a blocking pad kit has been installed.)	F (4 directions)		T (3 directions)		W (2 directions)		—		(12)	
	3		Operation of downward flow flap: Yes/No	Equipped		Not equipped		—		—		(13)	
	4		Field set air flow position setting	Draft prevention		Standard		Ceiling Soiling prevention		—		(14)	
	5		Setting of static pressure selection	Standard		High static pressure		—		—		(15)	
15(25)	1		Thermostat OFF excess humidity	Not equipped		Equipped		—		—		(16)	
	2		Direct duct connection (when the indoor unit and heat reclaim ventilation unit are connected by duct directly.) *Note 6	Not equipped		Equipped		—		—		(17)	
	3		Drain pump humidifier interlock selection	Not equipped		Equipped		—		—		(18)	
	5		Field set selection for individual ventilation setting by remote controller	Not equipped		Equipped		—		—		(19)	



- Notes :**
- Settings are made simultaneously for the entire group, however, if you select the mode No. inside parentheses, you can also set by each individual unit. Setting changes however cannot be checked except in the individual mode for those in parentheses.
 - The mode numbers inside parentheses cannot be used by wireless remote controllers, so they cannot be set individually. Setting changes also cannot be checked.
 - Marked are factory set.
 - Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
 - "88" may be displayed to indicate the remote controller is resetting when returning to the normal mode.
 - If the setting mode to "Equipped", heat reclaim ventilation fan conducts the fan residual operation by linking to indoor unit.

3.1.5 Applicable Range of Field Setting

	Ceiling mounted cassette type				Slim Ceiling mounted duct type	Ceiling Concealed (Duct) Type (Aus. exclusive use)	Ceiling mounted built-in type	Ceiling mounted duct type	Ceiling suspended type	Wall mounted type	Floor standing type	Concealed Floor standing type
	Multi flow		Double flow	Corner type								
	FXFQ	FXZQ			FXCQ	FXKQ	FXDQ	FDYQ	FXSQ	FXMQ	FXHQ	FXAQ
Filter sign	○	○	○	○	○	○	○	○	○	○	○	○
Ultra long life filter sign	○	○	○	—	—	—	—	—	—	—	—	—
Remote controller thermostat sensor	○	○	○	○	○	○	○	○	○	○	○	○
Set fan speed when thermostat OFF	○	○	○	○	○	○	○	○	○	○	○	○
Air flow adjustment Ceiling height	○	—	—	—	—	—	—	—	○	—	—	—
Air flow direction	○	○	—	—	—	—	—	—	—	—	—	—
Air flow direction adjustment (Down flow operation)	—	—	—	○	—	—	—	—	—	—	—	—
Air flow direction adjustment range	○	○	○	○	—	—	—	—	—	—	—	—
Field set fan speed selection	○	—	—	—	○*1	—	—	—	○	—	—	—
Discharge air temp. (Cooling)	—	—	—	—	—	—	—	—	—	—	—	—
Discharge air temp. (Heating)	—	—	—	—	—	—	—	—	—	—	—	—

*1 Static pressure selection

3.1.6 Detailed Explanation of Setting Modes

(1) Filter Sign Setting

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

Set Time

Setting	Filter Specs.	Standard	Long Life	Ultra Long Life Filter
Contamination Light		200 hrs.	2,500 hrs.	10,000 hrs.
Contamination Heavy		100 hrs.	1,250 hrs.	5,000 hrs.

(2) Ultra-Long-Life Filter Sign Setting

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

Setting Table

Mode No.	Setting Switch No.	Setting Position No.	Setting
10 (20)	1	01	Long-Life Filter
		02	Ultra-Long-Life Filter (1)
		03	—

(3) Selection of Thermistor

Select the thermistor to control room temperature.

Mode No.	First Code No.	Second Code No.	Thermistor that controls room temperature
10 (20)	2	01	Indoor air thermistor for remote controller and suction air thermistor for indoor unit
		02	Suction air thermistor for indoor unit
		03	Thermistor for remote controller

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

When the Second Code No. is set to "02", room temperature is controlled by the suction air thermistor.

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

(4) "Filter Cleaning" Displayed or Not Displayed

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

(5) Optional Output Switching

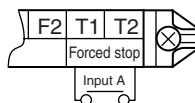
Using this setting, "operation output signal" and "abnormal output signal" can be provided.

Output signal is output between terminals K1 and K2 of "customized wiring adapter," 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 "Start/Stop" of remote controller is provided.
		04	In case of "Malfunction Display" appears on the remote controller, output is provided.

(6) 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-T1 terminal of the operation terminal block (X1A) in the electric component box.

**Setting Table**

Mode No.	Setting Switch No.	Setting Position No.	Operation by input of the signal A
12 (22)	1	01	ON: Forced stop (prohibition of using the remote controller) OFF: Permission of using the remote controller
		02	OFF → ON: Permission of operation ON → OFF: Stop
		03	ON: Operation OFF: The system stops, then the applicable unit indicates "A0". The other indoor units indicate "U9".

(7) Thermostat Switching

Differential value during thermostat ON/OFF control can be changed. (For details, refer to "6.4 Thermostat Control while in Normal Operation" on page 137.)

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

(8) Air Flow Setting When Heating Thermostat is OFF

This setting is used to set air flow when heating thermostat is OFF.

- * When thermostat OFF air flow volume up mode is used, careful consideration is required before deciding installation location. During heating operation, this setting takes precedence over "(7) Fan Stop When Thermostat is OFF."

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	3	01	LL air flow
		02	Preset air flow

(9) Auto Restart after Power Failure Reset

For the air conditioners with no setting for the function (same as factory setting), 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, 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).

(10) Air Flow When Cooling Thermostat is OFF

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

Mode No.	First Code No.	Second Code No.	Contents
12 (22)	6	01	LL air flow
		02	Preset air flow

(11) Setting of Normal Air Flow

Make the following setting according to the ceiling height. The setting position No. is set to "01" at the factory.

■ In the Case of FXAQ, FXHQ

Mode No.	Setting Switch No.	Setting Position No.	Setting
13(23)	0	01	Wall-mounted type: Standard
		02	Wall-mounted type: Slight increase
		03	Wall-mounted type: Normal increase

■ In the Case of FXFQ25~80

Mode No.	First code No.	Second code No.	Setting	Ceiling height		
				4-way Outlets	3-way Outlets	2-way Outlets
13 (23)	0	01	Standard (N)	Lower than 2.7 m	Lower than 3.0 m	Lower than 3.5 m
		02	High Ceiling (H)	Lower than 3.0 m	Lower than 3.3 m	Lower than 3.8 m
		03	Higher Ceiling (S)	Lower than 3.5 m	Lower than 3.5 m	—

■ In the Case of FXFQ100~125

Mode No.	First code No.	Second code No.	Setting	Ceiling height		
				4-way Outlets	3-way Outlets	2-way Outlets
13 (23)	0	01	Standard (N)	Lower than 3.2 m	Lower than 3.6 m	Lower than 4.2 m
		02	High Ceiling (H)	Lower than 3.6 m	Lower than 4.0 m	Lower than 4.2 m
		03	Higher Ceiling (S)	Lower than 4.2 m	Lower than 4.2 m	—

(12) Air Flow Direction Setting

Set the air flow direction of indoor units as given in the table below. (Set when optional air outlet blocking pad has been installed.) The second code No. is factory set to "01."

Setting Table

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

(13) Operation of downward flow flap: Yes/No

Only the model FXKQ has the function.

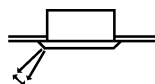
When only the front-flow is used, sets yes/no of the swing flap operation of down-flow.

Setting Table

Mode No.	First Code No.	Second Code No.	Setting
13 (23)	3	01	Down-flow operation: Yes
		02	Down-flow operation: No

(14) Setting of Air Flow Direction Adjustment Range

Make the following air flow direction setting according to the respective purpose.



(S2537)

Setting Table

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.

(15) Setting of the static pressure selection (for FXDQ model)

Model No.	First Code No.	Second Code No.	External static pressure
13 (23)	5	01	Standard (15Pa)
		02	High static pressure (44Pa)

(16) Humidification When Heating Thermostat is OFF

Setting to "Humidification Setting" turns ON the humidifier if suction temperature is 20°C or above and turns OFF the humidifier if suction temperature is 18°C or below when the heating thermostat is OFF.

Mode No.	First Code No.	Second Code No.	Setting
15 (25)	1	01	—
		02	Setting of humidifier

(17) Setting of Direct Duct Connection

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

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

(18) Interlocked Operation between Humidifier and Drain Pump

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

Mode No.	First Code No.	Second Code No.	Contents
15 (25)	3	01	Individual operation of humidifier
		02	Interlocked operation between humidifier and drain pump

(19) Individual Setting of Ventilation

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	—
		02	Individual operation of ventilation

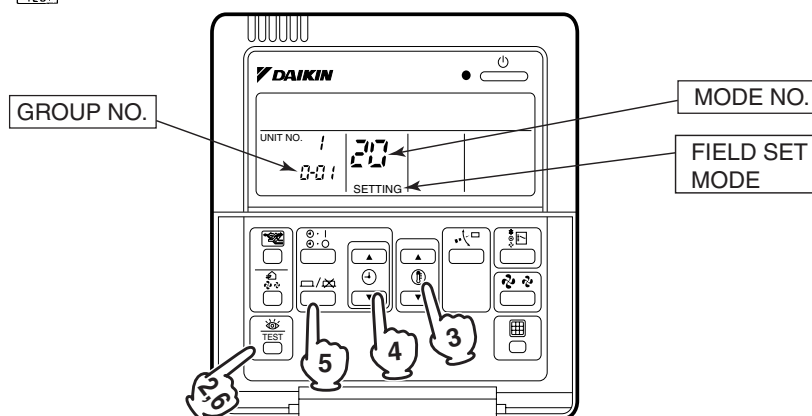
3.1.7 Centralized Control Group No. Setting

BRC1C Type

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

Make Group No. settings for central remote control using the operating remote controller.

1. While in normal mode, press and hold the “ ” switch for a period of four seconds or more to set the system to “Field Setting Mode”.
2. Select the MODE No. “00” with the “ ” button.
3. Use the “ ” button to select the group No. for each group.
(Group numbers increase in the order of 1-00, 1-01, ... 1-15, 2-00, ... 4-15.)
4. Press “ ” to set the selected group No.
5. Press “ ” to return to the NORMAL MODE.









Note:

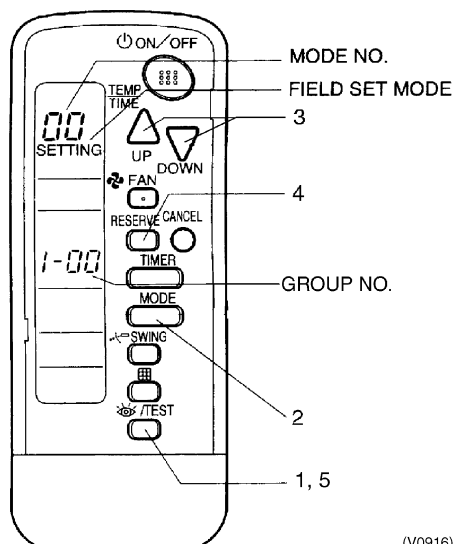
- For wireless remote controller, see the following.
- For setting group No. of HRV and wiring adaptor for other air conditioners, etc., refer to the instruction manual attached.

NOTICE

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

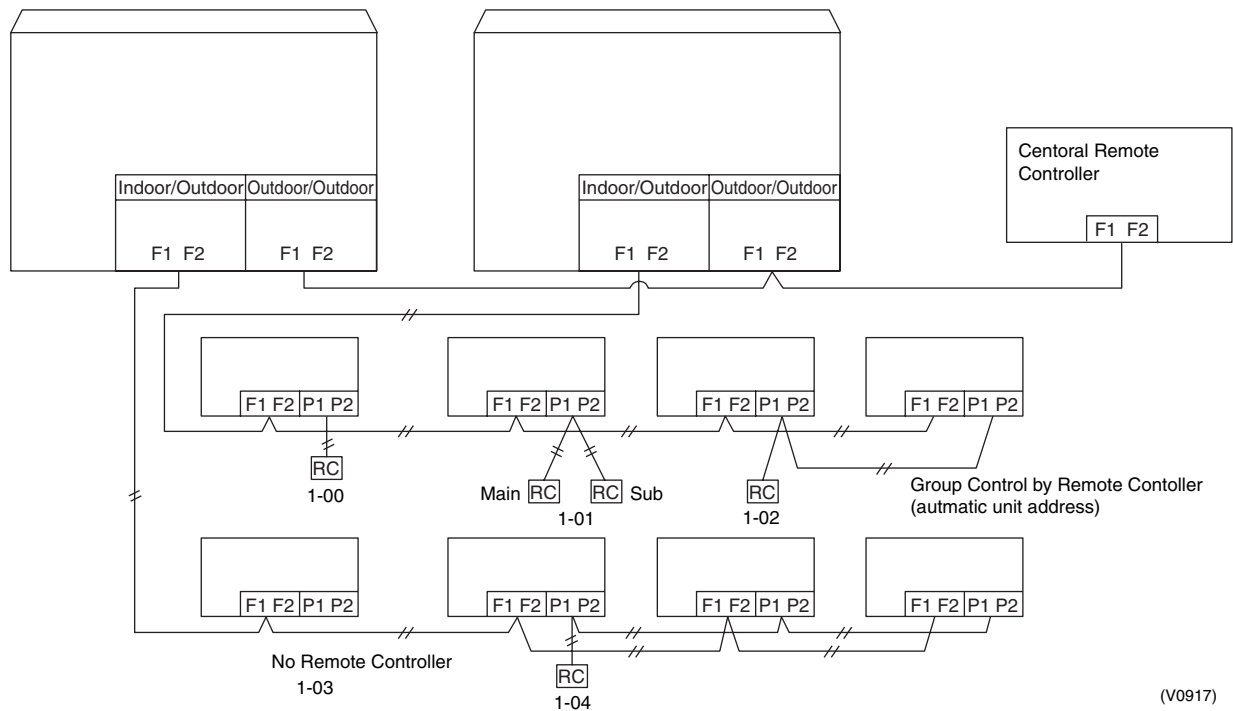
BRC7C Type BRC7E Type BRC4C Type

- Group No. setting by wireless remote controller for centralized control
1. When in the normal mode, push “ ” button for 4 seconds or more, and operation then enters the “field set mode.”
 2. Set mode No. “00” with “ ” button.
 3. Set the group No. for each group with “ ” “ ” button (advance/backward).
 4. Enter the selected group numbers by pushing “ ” button.
 5. Push “ ” button and return to the normal mode.



(V0916)

Group No. Setting Example



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

3.1.8 Setting of Operation Control Mode from Remote Controller (Local 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)

3.1.9 Contents of Control Modes

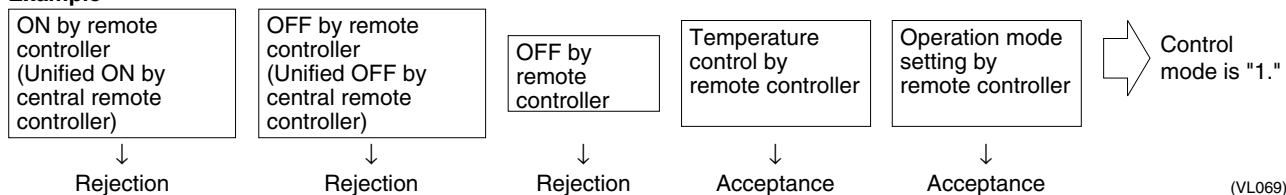
Twenty modes consisting of combinations of the following five operation modes with temperature and operation mode setting by remote controller can be set and displayed by operation modes 0 through 19.

- ◆ 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.

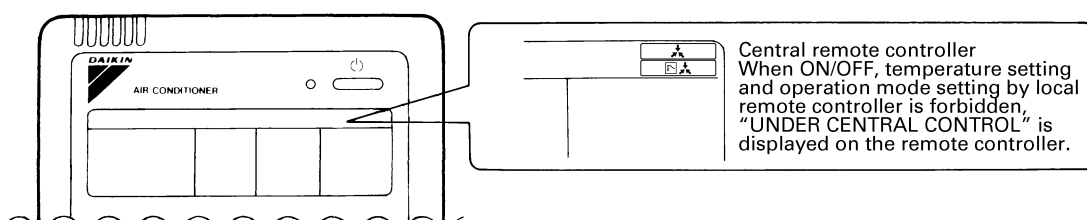
Example



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		Acceptance	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	Acceptance			Rejection	Acceptance	6		
						Rejection	16		
					Acceptance	Acceptance	7 *1		
						Rejection	17		
Timer operation possible by remote controller	Acceptance (During timer at ON position only)				Acceptance	Acceptance	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.

*1. Factory setting



3.2 Field Setting from Outdoor Unit

3.2.1 Field Setting from Outdoor Unit

■ List of Field Setting Items

This following section indicates the list of field setting items. For the lists of dip switch contents, Setting mode 1, and Setting mode 2, refer to information in tables shown on the following page onward.

For setting items of (*1), refer to detailed information provided on page 170 onward.

Setting item			Content and objective of setting	Overview of setting procedure	Reference page
Function setting	2	Setting of low noise operation (*1)	A. Use external input to step down the upper limit of the fan (factory set to Step 8), providing low noise level. (1) Mode 1: Step 5 or lower (2) Mode 2: Step 4 or lower (3) Mode 3: Step 3 or lower	■ Use the "External control adaptor for outdoor unit". Set to "External control adaptor for outdoor unit" with No. 12 of "Setting mode 2" and select the mode with No. 25. If necessary, set the "Capacity priority setting" to ON with No. 29.	199
			B. The low noise operation aforementioned is enabled in nighttime automatic low noise operation mode. Start time: Possible to select in the range of 20:00 to 24:00 hours. End time: Possible to select in the range of 06:00 to 08:00 hours. (Use the said time as a guide since the start time and the end time are estimated according to outdoor temperatures.)	■ Make this setting while in "Setting mode 2". Select a mode with No. 22 of "Setting mode 2". Select the start time with No. 26 and the end time with No. 27. If necessary, set the "Capacity priority setting" to ON with No. 29.	199
	3	Setting of demand operation (*1)	■ Used to place limits on the compressor operating frequency to control the upper limit of power consumption. (1) Mode 1 of Demand 1: 60% or less of rating (2) Mode 2 of Demand 1: 70% or less of rating (3) Mode 3 of Demand 1: 80% or less of rating (4) Demand 2: 40% or less of rating	■ For setting with the use of "external control adapter": Set the system to "External control adaptor for outdoor unit" with No. 12 of "Setting mode 2" and select the mode with No. 30.	201
				■ For setting only in "Setting mode 2": Set the system to Normal demand mode with No. 32 of "Setting mode 2" and select the mode with No. 30.	201
	4	Setting of AirNet address	■ Used to make address setting with AirNet connected.	■ Set the AirNet to an intended address using binary numbers with No. 13 of "Setting mode 2".	194
	6	Setting of high static pressure	■ Make this setting to operate a system with diffuser duct while in high static pressure mode. (Use this setting mode when shields are installed on upper floors or balconies.) * In order to mount the diffuser duct, remove the cover from the outdoor unit fan.	■ Set No. 18 of "Setting mode 2" to ON.	194
	7	Prevention of minute heating operation by heating thermostat OFF unit or non-heating-operation unit	■ Make this setting to prevent a rise in room temperature due to minute heating capacity generated by heating thermostat OFF unit or non-heating-operation unit while in heating operation.	■ Set the Setting item No. 41 of "Setting mode 2" to heating thermostat OFF unit or non-heating-operation unit. (Overseas unit: Default set to "ON")	195
	8	Setting of BS Cool-Heat selection control time	■ Make this setting to shorten the BS Cool-Heat selection control time.	■ Set the Setting item No. 42 of "Setting mode 2" to "ON".	195

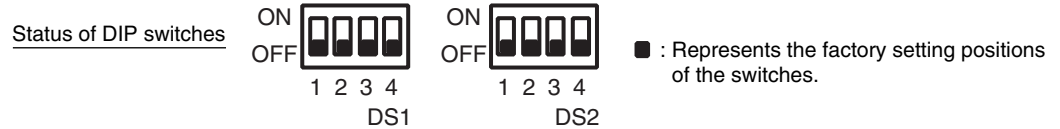
Setting item		Content and objective of setting	Overview of setting procedure	Reference page
Service setting	1	Indoor unit fan forced H operation ■ Used to operate the indoor unit in the stopped state in forced H operation mode.	■ Set No. 5 of "Setting mode 2" to indoor unit forced fan H.	194
	2	Indoor unit forced operation ■ Used to operate the indoor unit in forced operation mode.	■ Set No. 6 of "Setting mode 2" to indoor unit forced operation mode.	194
	3	Change of targeted evaporating temperature (in cooling) ■ In cooling operation, used to change the targeted evaporating temperature for compressor capacity control.	■ Select high side or low side with No. 8 of "Setting mode 2".	194
	4	Change of targeted condensing temperature (in heating) ■ In heating operation, used to change the targeted condensing temperature for compressor capacity control.	■ Select high side or low side with No. 9 of "Setting mode 2".	194
	5	Setting of defrost selection ■ Used to change a temperature at which the defrost operation is initiated, thus making the initiation easy or hard.	■ Select fast side or slow side with No. 10 of "Setting mode 2".	194
	6	Setting of sequential startup ■ Used to start units not in sequence but simultaneously.	■ Set No. 11 of "Setting mode 2" to NONE.	194
	7	Emergency operation (*1) ■ If the compressor has a failure, used to prohibit the operation of outdoor unit(s) concerned and to conduct emergency operation of the system only with operable or outdoor unit(s).	■ Make this setting while in "Setting mode 2". For system with multiple outdoor units: Set with No. 38, 39, or 40.	207, 208
	8	Additional refrigerant charging (*1) ■ If a necessary amount of refrigerant cannot be charged due to the stop of outdoor unit, operate the outdoor unit and then refill refrigerant.	■ Set No. 20 of "Setting mode 2" to ON and then charge refrigerant.	194
	9	Refrigerant recovery mode (*1) ■ Used to recover refrigerant on site. With operations of indoor and outdoor units prohibited, open the outdoor/indoor expansion valve fully while indoor/outdoor operation is prohibited and turn ON some of the solenoid valves.	■ Set No. 21 of "Setting mode 2" to ON.	194
	10	Vacuumping mode (*1) ■ Used to conduct vacuuming on site. Open the outdoor/indoor expansion valve fully while indoor/outdoor operation is prohibited and turn ON some of the solenoid valves. Use a vacuum pump to conduct vacuuming.	■ Set No. 21 of "Setting mode 2" to ON.	194
	11	ENECUT test operation ■ Used to forcedly turn ON the ENECUT. (Be noted this mode is not functional with the indoor unit remote controller turned ON.)	■ Set No. 24 of "Setting mode 2" to ON.	195
	12	Power transistor check mode ■ Used for the troubleshooting of DC compressors. Inverter waveform output makes it possible to judge whether a malfunction results from the compressor or the PC board.	■ Set No. 28 of "Setting mode 2" to ON.	195
	13	Setting of model with spare PC board ■ In order to replace the PC board by a spare one, be sure to make model setting.	■ For this setting, set the DS2-2, -3, and-4 switches on the PC board to the model concerned.	185

For setting items of (*1), refer to detailed information provided on page 192 onward.

3.2.2 Setting by Dip Switches

(1) Factory setting of initial PC board.

Do not make any changes in all factory settings of the DIP switches on the control PC board.



Setting at replacement by spare PC board



Caution

DIP switch Setting after changing the main PC board(A1P) to spare parts PC board

After the replacement by the spare PC board, be sure to make settings shown below.

When you change the main PC board(A1P) to spare parts PC board, please carry out the following setting.

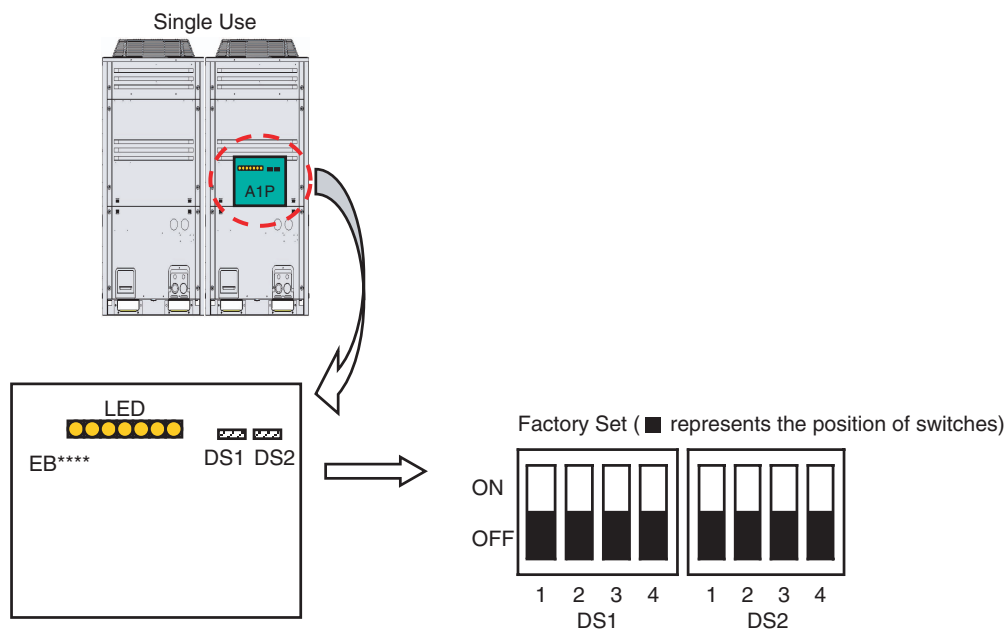


DIP Switch Detail

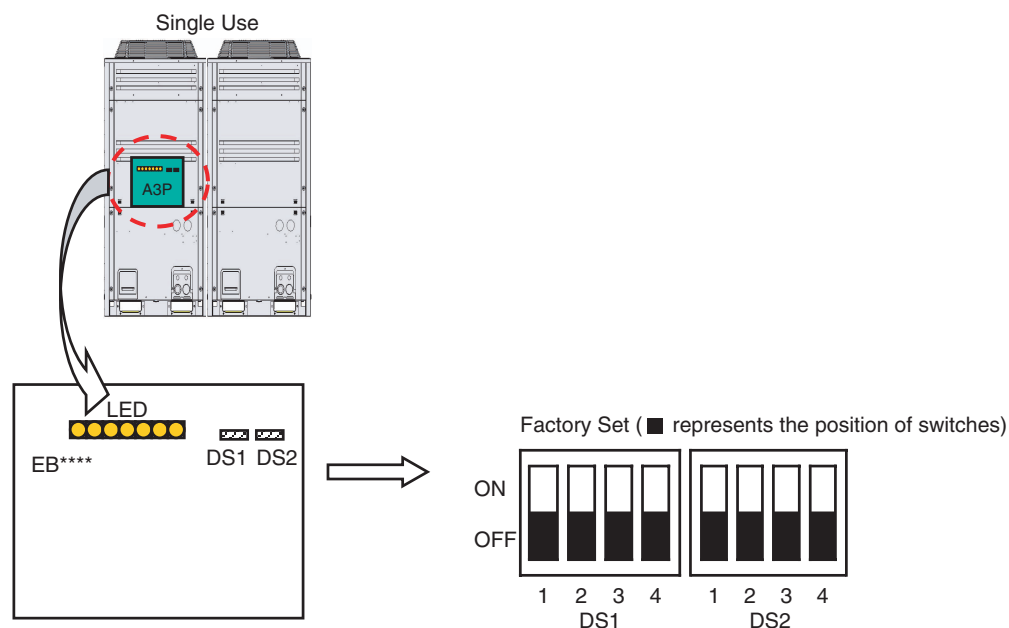
DS No.	Item	Contents					
DS1-2	Power supply specification	ON	200V class (220V)				
		OFF (Factory setting of spare PC board)	400V class (380V)				
DS1-3 Except Multiple use	Cooling only/Heat-pump setting	ON	Cooling only setting				
		OFF (Factory setting of spare PC board)	Heat pump setting				
DS1-4	Unit allocation setting	ON	Make the following settings according to allocation of unit. (All models are set to OFF at factory.)				
DS2-1			OFF (Factory setting of spare PC board)	Multiple use Single use (Main)	Single use (sab)	Domestic Japan	Overseas General
		DS1-4		DS1-3	OFF	OFF	ON
		DS2-1		DS1-4	OFF	ON	OFF
DS2-2	Model setting	Make the following settings according to models of outdoor units. (All models are set to OFF at factory.)					
DS2-3		Multiple use Single use (Main)-A1P					
			REY(M)Q8P	REY(M)Q10P	REY(M)Q12P	REY(M)Q14P	REY(M)Q16P
		DS2-2	ON	OFF	ON	OFF	ON
		DS2-3	ON	OFF	OFF	ON	ON
		DS2-4	OFF	ON	ON	ON	ON
DS2-4		Single use (sab)-A3P					
			REYQ8P	REYQ10P	REYQ12P	REYQ14P	REYQ16P
		DS2-1	OFF	OFF	OFF	ON	ON
		DS2-2	ON	ON	ON	OFF	OFF
		DS2-3	OFF	OFF	OFF	OFF	ON
DS2-4		OFF	OFF	OFF	ON	OFF	

- * For detail of the setting procedure, refer to information on the following pages.
- While the PC board assembly is replaced, the "U3" malfunction (Test run not carried out yet) code is displayed. In this case, carry out the test run again.
- If the "PJ", "UA", or "U7" malfunction code is displayed, recheck for DIP switch settings.
- After the completion of rechecking for the settings, turn ON the power supply again.

“Detail of DS1-1~4, DS2-1~4 setting” (for Overseas general)


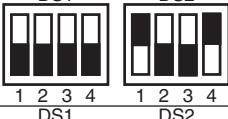










Allocation	Application model	Setting method (■ represents the position of switches)	
General overseas	HEAT RECOVERY(8HP) REYQ8PY1	DS1: ON (1, 2, 3, 4), OFF (1, 2, 3, 4) DS2: ON (1, 2, 3, 4), OFF (1, 2, 3, 4)	Set DS2-1 and DS2-3 to ON.
	HEAT RECOVERY(10HP) REYQ10PY1	DS1: ON (1, 2, 3, 4), OFF (1, 2, 3, 4) DS2: ON (1, 2, 3, 4), OFF (1, 2, 3, 4)	Set DS2-1 to ON.
	HEAT RECOVERY(12HP) REYQ12PY1	DS1: ON (1, 2, 3, 4), OFF (1, 2, 3, 4) DS2: ON (1, 2, 3, 4), OFF (1, 2, 3, 4)	Set DS2-1 and DS2-2 to ON.
	HEAT RECOVERY(14HP) REYQ14PY1	DS1: ON (1, 2, 3, 4), OFF (1, 2, 3, 4) DS2: ON (1, 2, 3, 4), OFF (1, 2, 3, 4)	Set DS1-3, DS2-1 and DS2-2 to ON.
	HEAT RECOVERY(16HP) REYQ16PY1	DS1: ON (1, 2, 3, 4), OFF (1, 2, 3, 4) DS2: ON (1, 2, 3, 4), OFF (1, 2, 3, 4)	Set DS1-3, DS2-1 and DS2-3 to ON.
For Europe	HEAT RECOVERY(8HP) REYQ8PY1B	DS1: ON (1, 2, 3, 4), OFF (1, 2, 3, 4) DS2: ON (1, 2, 3, 4), OFF (1, 2, 3, 4)	Set DS1-4 and DS2-3 to ON.
	HEAT RECOVERY(10HP) REYQ10PY1B	DS1: ON (1, 2, 3, 4), OFF (1, 2, 3, 4) DS2: ON (1, 2, 3, 4), OFF (1, 2, 3, 4)	Set DS1-4 to ON.
	HEAT RECOVERY(12HP) REYQ12PY1B	DS1: ON (1, 2, 3, 4), OFF (1, 2, 3, 4) DS2: ON (1, 2, 3, 4), OFF (1, 2, 3, 4)	Set DS1-4 and DS2-2 to ON.
	HEAT RECOVERY(14HP) REYQ14PY1B	DS1: ON (1, 2, 3, 4), OFF (1, 2, 3, 4) DS2: ON (1, 2, 3, 4), OFF (1, 2, 3, 4)	Set DS1-3, DS1-4 and DS2-2 to ON.
	HEAT RECOVERY(16HP) REYQ16PY1B	DS1: ON (1, 2, 3, 4), OFF (1, 2, 3, 4) DS2: ON (1, 2, 3, 4), OFF (1, 2, 3, 4)	Set DS1-3, DS1-4 and DS2-3 to ON.



Allocation	Application model	Setting method (■ represents the position of switches)		
General overseas	HEAT RECOVERY(8HP) REYQ8PY1	ON OFF DS1 1 2 3 4	ON OFF DS2 1 2 3 4	Set DS1-4 and DS2-2 to ON.
	HEAT RECOVERY(10HP) REYQ10PY1	ON OFF DS1 1 2 3 4	ON OFF DS2 1 2 3 4	Set DS1-4 and DS2-2 to ON.
	HEAT RECOVERY(12HP) REYQ12PY1	ON OFF DS1 1 2 3 4	ON OFF DS2 1 2 3 4	Set DS1-4 and DS2-2 to ON.
	HEAT RECOVERY(14HP) REYQ14PY1	ON OFF DS1 1 2 3 4	ON OFF DS2 1 2 3 4	Set DS1-4, DS2-1 and DS2-4 to ON.
	HEAT RECOVERY(16HP) REYQ16PY1	ON OFF DS1 1 2 3 4	ON OFF DS2 1 2 3 4	Set DS1-4, DS2-1 and DS2-3 to ON.
For Europe	HEAT RECOVERY(8HP) REYQ8PY1B	ON OFF DS1 1 2 3 4	ON OFF DS2 1 2 3 4	Set DS1-3 and DS2-2 to ON.
	HEAT RECOVERY(10HP) REYQ10PY1B	ON OFF DS1 1 2 3 4	ON OFF DS2 1 2 3 4	Set DS1-3 and DS2-2 to ON.
	HEAT RECOVERY(12HP) REYQ12PY1B	ON OFF DS1 1 2 3 4	ON OFF DS2 1 2 3 4	Set DS1-3 and DS2-2 to ON.
	HEAT RECOVERY(14HP) REYQ14PY1B	ON OFF DS1 1 2 3 4	ON OFF DS2 1 2 3 4	Set DS1-3, DS2-1 and DS2-4 to ON.
	HEAT RECOVERY(16HP) REYQ16PY1B	ON OFF DS1 1 2 3 4	ON OFF DS2 1 2 3 4	Set DS1-3, DS2-1 and DS2-3 to ON.

Multiple Type

Allocation	Application model	Setting method (■ represents the position of switches)	
General overseas	HEAT RECOVERY(8HP) REMQ8PY1	ON  OFF	Set DS2-1, DS2-2 and DS2-3 to ON.
	HEAT RECOVERY(10HP) REMQ10PY1	ON  OFF	Set DS2-1 and DS2-4 to ON.
	HEAT RECOVERY(12HP) REMQ12PY1	ON  OFF	Set DS2-1, DS2-2 and DS2-4 to ON.
	HEAT RECOVERY(14HP) REMQ14PY1	ON  OFF	Set DS2-1, DS2-3 and DS2-4 to ON.
	HEAT RECOVERY(16HP) REMQ16PY1	ON  OFF	Set DS2-1, DS2-2, DS2-3 and DS2-4 to ON.
For Europe	HEAT RECOVERY(8HP) REMQ8PY1B	ON  OFF	Set DS1-4, DS2-2 and DS2-3 to ON.
	HEAT RECOVERY(10HP) REMQ10PY1B	ON  OFF	Set DS1-4 and DS2-4 to ON.
	HEAT RECOVERY(12HP) REMQ12PY1B	ON  OFF	Set DS1-4, DS2-2 and DS2-4 to ON.
	HEAT RECOVERY(14HP) REMQ14PY1B	ON  OFF	Set DS1-4, DS2-3 and DS2-4 to ON.
	HEAT RECOVERY(16HP) REMQ16PY1B	ON  OFF	Set DS1-4, DS2-2, DS2-3 and DS2-4 to ON.

3.2.3 Setting by Push Button Switches

The following settings are made by push button switches on PC board.

In case of multi-outdoor unit system, various items should be set with the master unit.
(Setting with the slave unit is disabled.)

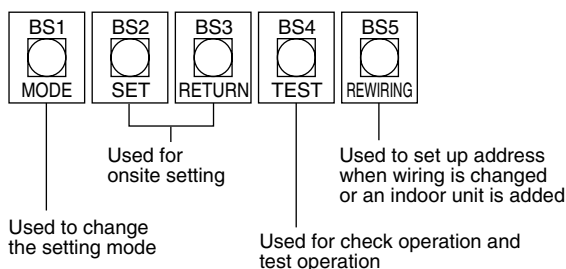
The master unit and slave unit can be discriminated with the LED display as shown below.

LED display

		MODE H1P	TEST H2P	COOL/HEAT select			Low noise H6P	Demand H7P	Multi; H8P
				IND H3P	MASTER H4P	SLAVE H5P			
Single-outdoor-unit system		●	●	○	●	●	●	●	●
Outdoor- multi system	Master	●	●	○	●	●	●	●	○
	Slave 1	●	●	●	●	●	●	●	◐
	Slave 2	●	●	●	●	●	●	●	●

(Factory setting)

Pushbutton switches



There are the following three setting modes.

① **Setting mode 1 (H1P off)**

Initial status (when normal) : Used to select the cool/heat setting. Also indicates during “abnormal”, “low noise control” and “demand control”.

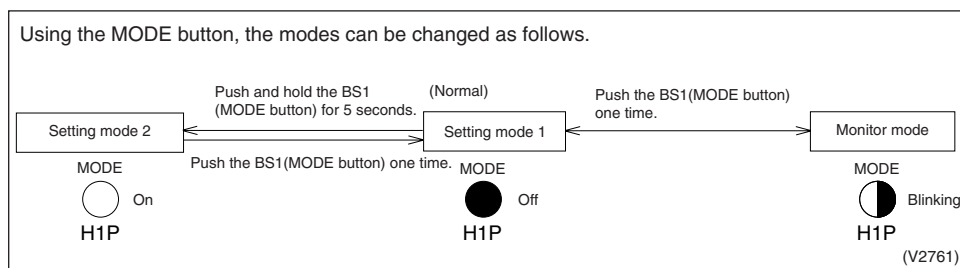
② **Setting mode 2 (H1P on)**

Used to modify the operating status and to set program addresses, etc. Usually used in servicing the system.

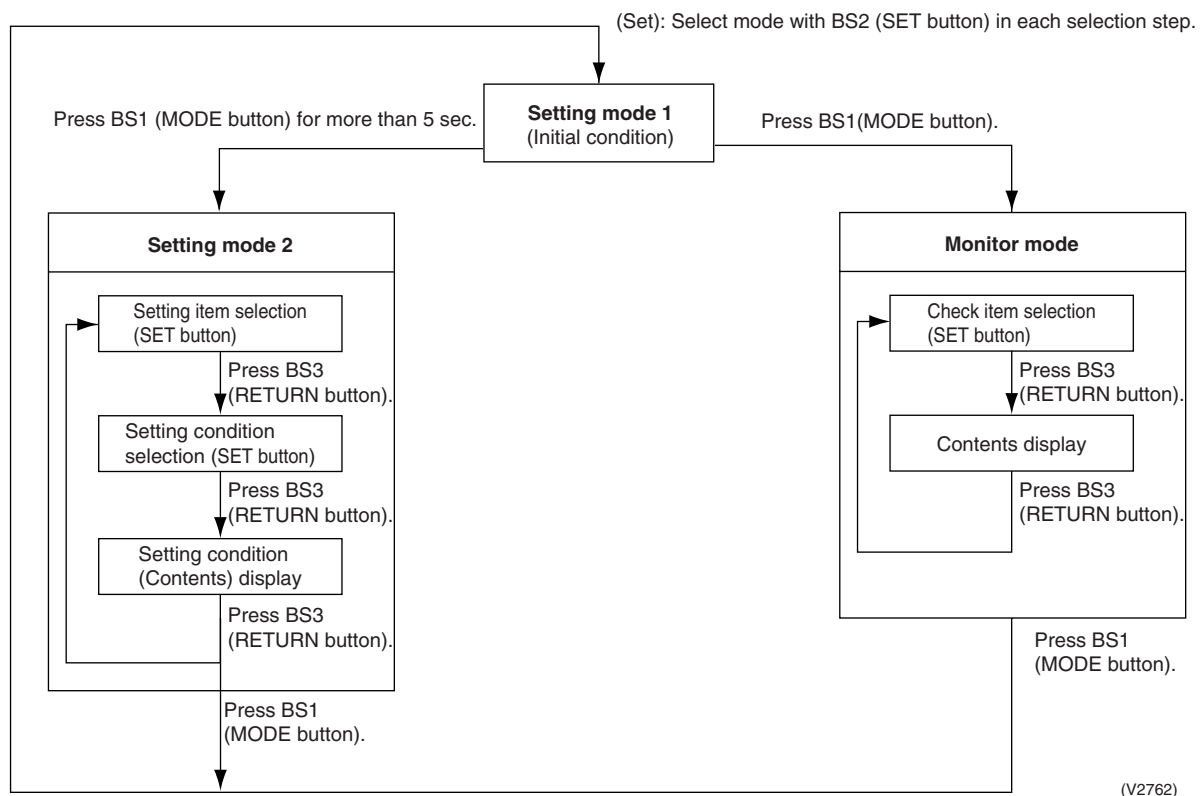
③ **Monitor mode (H1P blinks)**

Used to check the program made in Setting mode 2.

■ **Mode changing procedure 1**



■ Mode changing procedure 2



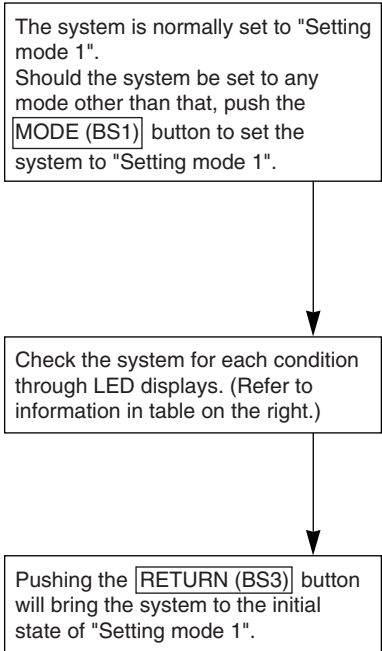
a. “Setting mode 1”

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

Check items The following items can be checked.

- (1) Current operating conditions (Normal / Abnormal / In check operation)
- (2) Low noise operating conditions (In normal operation / In low noise operation)
- (3) Demand operating conditions (In normal operation / In demand operation)

Procedure for checking check items



(V2763)

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

- Current operating conditions
 - Normal ○ Abnormal
 - In preparation or in check operation
- Low noise operating conditions
 - In normal operation
 - In low noise operation
- Demand operating conditions
 - In normal operation
 - In demand operation

b. "Setting mode 2"

Push and hold the **MODE (BS1)** button for 5 seconds and set to "Setting mode 2".

<Selection of setting items>

Push the **SET (BS2)** button and set the LED display to a setting item shown in the table on the right.

↓
Push the **RETURN (BS3)** button and decide the item. (The present setting condition is blinked.)

<Selection of setting conditions>

Push the **SET (BS2)** button and set to the setting condition you want.

↓
Push the **RETURN (BS3)** button and decide the condition.

Push the **RETURN (BS3)** button and set to the initial status of "Setting mode 2".

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

(V2764)

No.	Setting item	Description
0	Digital pressure gauge kit display	Used to make setting of contents to display on the digital pressure gauges (e.g. pressure sensors and temperature sensors)
1	Cool/heat unified address	Sets address for cool/heat unified operation.
2	Low noise/demand address	Address for low noise/demand operation
3	Test operation settings	Used to conduct test operation without making changes to the PCB and replacing the refrigerant, after the completion of maintenance.
5	Indoor unit forced fan H	Allows forced operation of indoor unit fan while unit is stopped. (H tap)
6	Indoor unit forced operation	Allows forced operation of indoor unit.
8	Te setting	Target evaporation temperature for cooling
9	Tc setting	Target condensation temperature for heating
10	Defrost changeover setting	Changes the temperature condition for defrost and sets to quick defrost or slow defrost.
11	Sequential operation setting	Sets sequential operation (Factory set to ON)
12	External low noise setting / Demand setting	Reception of external low noise or demand signal
13	AIRNET address	Set address for AIRNET.
18	High static pressure setting	Make this setting in the case of operating in high static pressure mode with diffuser duct mounted. (In order to mount the diffuser duct, remove the cover from the outdoor unit fan.)
20	Additional refrigerant charge operation setting	Carries out additional refrigerant charge operation.
21	Refrigerant recovery/vacuuming mode setting	Sets to refrigerant recovery or vacuuming mode.
22	Night-time low noise setting	Sets automatic nighttime low noise operation in a simple way. The operating time is based on "Starting set" and "Ending set".
24	ENECUT test operation	Used to forcibly turn ON the ENECUT. (Be noted that the ENECUT is only functional with outdoor unit in the stopped state - Japanese domestic model only.)
25	Setting of external low noise level	Sets low noise level when the low noise signal is input from outside.
26	Night-time low noise operation start setting	Sets starting time of nighttime low noise operation. (Night-time low noise setting is also required.)
27	Night-time low noise operation end setting	Sets ending time of nighttime low noise operation. (Night-time low noise setting is also required.)
28	Power transistor check mode *Check after disconnection of compressor wires	Used for trouble diagnosis of DC compressor. Since the waveform of inverter is output without wiring to the compressor, it is convenient to probe whether the trouble comes from the compressor or PC board.
29	Capacity precedence setting	If the capacity control is required, the low noise control is automatically released by this setting during carrying out low noise operation and nighttime low noise operation.
30	Demand setting 1	Changes target value of power consumption when demand control 1 is input.
32	Normal demand setting	Normally enables demand control 1 without external input. (Effective to prevent a problem that circuit breaker of small capacity is shut down due to large load.)

No.	Setting item	Description
38	Emergency operation (Setting for the unit 1 operation prohibition in multi-outdoor-unit system)	Used to temporarily prohibit the applicable outdoor unit from operating should there be any faulty part in multi-outdoor-unit system. Since the comfortable environment is extremely impaired, prompt replacement of the part is required.
39	Emergency operation (Setting for the unit 2 operation prohibition in multi-outdoor-unit system)	
40	Emergency operation (Setting for the unit 3 operation prohibition in multi-outdoor-unit system)	
41	Prevention of minute heating operation by heating thermostat OFF unit or non-heating-operation unit	<p>Make this setting to shorten the BS Cool-Heat selection control time. However, make the setting, pay careful attention to the following:</p> <ul style="list-style-type: none"> • If the refrigerant piping between each BS unit connected to outdoor unit and indoor unit is not more than 10 m in length, this setting will be enabled. • If the refrigerant piping between BS unit and indoor unit is long in length, refrigerant passing sounds may become louder at the time of BS Cool-Heat selection. • This setting shortens the Cool-Heat selection time of all BS units provided in the same refrigerant system.
42	Setting of BS Cool-Heat selection control time	<p>Make this setting to prevent a rise in room temperature due to minute heating capacity generated by heating thermostat OFF unit or non-heating-operation unit while in heating operation.</p> <ul style="list-style-type: none"> • Used to prevent minute heating operation by setting the BS unit to COOL while in heating thermostat OFF or non-heating-operation mode. • With the BS unit set to default, enabling the minute heating prevention setting of outdoor unit will enable the minute heating prevention setting of all BS units connected to the outdoor unit. (BS unit default setting) • To make this setting by BS unit, make a change to the minute heating prevention setting of the BS unit. (In this case, enable the outdoor unit setting.)
51	Set-up of master and slave units for multi outdoor units	<p>Set up master and slave units for multi-connection outdoor units. After setting up, press the BS5 (REWIRING) button for 5 seconds or more.</p>

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

No.	Setting item display							Setting condition display
	Setting item	MODE H1P	TEST H2P	C/H selection			Low noise H6P	
				IND H3P	Master H4P	Slave H5P		
								* Factory set
0	Digital pressure gauge kit display	○	●	●	●	●	●	Address 0 ○ ● ● ● ● ● ● ●
								Binary number 1 ○ ● ● ● ● ● ● ○
								(4 digits) ~
								15 ○ ● ● ● ○ ○ ○ ○
1	Cool / Heat Unified address	○	●	●	●	●	○	Address 0 ○ ● ● ● ● ● ● *
								Binary number 1 ○ ● ● ● ● ● ● ○
								(6 digits) ~
								31 ○ ● ○ ○ ○ ○ ○ ○
2	Low noise/demand address	○	●	●	●	●	○	Address 0 ○ ● ● ● ● ● ● *
								Binary number 1 ○ ● ● ● ● ● ● ○
								(6 digits) ~
								31 ○ ● ○ ○ ○ ○ ○ ○
3	Test operation	○	●	●	●	●	○	Test operation: ON ○ ● ● ● ● ● ● ○
								Test operation: OFF ○ ● ● ● ● ● ● *
5	Indoor forced fan H	○	●	●	●	○	●	Normal operation ○ ● ● ● ● ● ● ○ *
								Indoor forced fan H ○ ● ● ● ● ● ● ●
6	Indoor forced operation	○	●	●	●	○	○	Normal operation ○ ● ● ● ● ● ● ○ *
								Indoor forced operation ○ ● ● ● ● ● ● ●
8	Te setting	○	●	●	○	●	●	High ○ ● ● ● ● ○ ● ●
								Normal (factory setting) ○ ● ● ● ● ● ○ ● *
								Low ○ ● ● ● ● ● ● ○
9	Tc setting	○	●	●	○	●	○	High ○ ● ● ● ● ○ ● ●
								Normal (factory setting) ○ ● ● ● ● ● ○ ● *
								Low ○ ● ● ● ● ● ● ○
10	Defrost changeover setting	○	●	●	○	●	○	Quick defrost ○ ● ● ● ● ○ ● ●
								Normal (factory setting) ○ ● ● ● ● ● ○ ● *
								Slow defrost ○ ● ● ● ● ● ● ○
11	Sequential operation setting	○	●	●	○	●	○	OFF ○ ● ● ● ● ● ● ○
								ON ○ ● ● ● ● ● ● *
12	External low noise/demand setting	○	●	●	○	○	●	External low noise/demand: NO ○ ● ● ● ● ● ● ○ *
								External low noise/demand: YES ○ ● ● ● ● ● ● ●
13	Ainet address	○	●	●	○	○	●	Address 0 ○ ● ● ● ● ● ● *
								Binary number 1 ○ ● ● ● ● ● ● ○
								(6 digits) ~
								63 ○ ○ ○ ○ ○ ○ ○ ○
18	High static pressure setting	○	●	○	●	●	○	High static pressure setting: OFF ○ ● ● ● ● ● ● ○ *
								High static pressure setting: ON ○ ● ● ● ● ● ● ●
20	Additional refrigerant charging operation setting	○	●	○	●	○	●	Refrigerant charging: OFF ○ ● ● ● ● ● ● ○ *
								Refrigerant charging: ON ○ ● ● ● ● ● ● ●
21	Refrigerant recovery/vacuumping mode setting	○	●	○	●	○	○	Refrigerant recovery / vacuumping: OFF ○ ● ● ● ● ● ● ○ *
								Refrigerant recovery / vacuumping: ON ○ ● ● ● ● ● ● ●
22	Night-time low noise setting	○	●	○	●	○	○	OFF ○ ● ● ● ● ● ● *
								Level 1 (outdoor fan with 6 step or lower) ○ ● ● ● ● ● ● ○
								Level 2 (outdoor fan with 5 step or lower) ○ ● ● ● ● ● ○ ●
								Level 3 (outdoor fan with 4 step or lower) ○ ● ● ● ● ● ○ ○

No.	Setting item display								Setting condition display * Factory set
	Setting item	MODE H1P	TEST H2P	C/H selection			Low noise H6P	Demand H7P	
				IND H3P	Master H4P	Slave H5P			
24	ENECUT test operation (Domestic Japan only)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	ENECUT output OFF <input type="radio"/> ● ● ● ● ● ● ● ● ENECUT output forced ON <input type="radio"/> ● ● ● ● ● ● ● ●
25	Low noise setting	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Level 1 (outdoor fan with 6 step or lower) <input type="radio"/> ● ● ● ● ● ● ● ● Level 2 (outdoor fan with 5 step or lower) <input type="radio"/> ● ● ● ● ● ● ● ● Level 3 (outdoor fan with 4 step or lower) <input type="radio"/> ● ● ● ● ● ● ● ●
26	Night-time low noise operation start setting	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	About 20:00 <input type="radio"/> ● ● ● ● ● ● ● ● About 22:00 (factory setting) <input type="radio"/> ● ● ● ● ● ● ● ● About 24:00 <input type="radio"/> ● ● ● ● ● ● ● ●
27	Night-time low noise operation end setting	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	About 6:00 <input type="radio"/> ● ● ● ● ● ● ● ● About 7:00 <input type="radio"/> ● ● ● ● ● ● ● ● About 8:00 (factory setting) <input type="radio"/> ● ● ● ● ● ● ● ●
28	Power transistor check mode	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	OFF <input type="radio"/> ● ● ● ● ● ● ● ● ON <input type="radio"/> ● ● ● ● ● ● ● ●
29	Capacity precedence setting	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	OFF <input type="radio"/> ● ● ● ● ● ● ● ● ON <input type="radio"/> ● ● ● ● ● ● ● ●
30	Demand setting 1	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	60 % demand <input type="radio"/> ● ● ● ● ● ● ● ● 70 % demand <input type="radio"/> ● ● ● ● ● ● ● ● 80 % demand <input type="radio"/> ● ● ● ● ● ● ● ●
32	Normal demand setting	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	OFF <input type="radio"/> ● ● ● ● ● ● ● ● ON <input type="radio"/> ● ● ● ● ● ● ● ●
38	Emergency operation (Master unit with multi-outdoor-unit system is inhibited to operate.)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	OFF <input type="radio"/> ● ● ● ● ● ● ● ● Master unit operation: Inhibited <input type="radio"/> ● ● ● ● ● ● ● ●
39	Emergency operation (Slave unit 1 with multi-outdoor-unit system is inhibited to operate.)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	OFF <input type="radio"/> ● ● ● ● ● ● ● ● Slave unit 1 operation: Inhibited <input type="radio"/> ● ● ● ● ● ● ● ●
40	Emergency operation (Slave unit 2 with multi-outdoor-unit system is inhibited to operate.)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	OFF <input type="radio"/> ● ● ● ● ● ● ● ● Slave unit 2 operation: Inhibited <input type="radio"/> ● ● ● ● ● ● ● ●
41	Prevention of minute heating operation by heating thermostat OFF unit or non-heating-operation unit	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	OFF <input type="radio"/> ● ● ● ● ● ● ● ● Non-heating-operation unit <input type="radio"/> ● ● ● ● ● ● ● ● Heating thermostat OFF unit <input type="radio"/> ● ● ● ● ● ● ● ● Non-heating-operation + Thermostat OFF unit <input type="radio"/> ● ● ● ● ● ● ● ●
42	Setting of BS Cool-Heat selection control time	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	6 min. <input type="radio"/> ● ● ● ● ● ● ● ● 4 min. <input type="radio"/> ● ● ● ● ● ● ● ● 8 min. <input type="radio"/> ● ● ● ● ● ● ● ● 11 min. <input type="radio"/> ● ● ● ● ● ● ● ●
51	Master-slave set-up for multi outdoor units	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Automatic judgment <input type="radio"/> ● ● ● ● ● ● ● ● Master <input type="radio"/> ● ● ● ● ● ● ● ● Slave 1 <input type="radio"/> ● ● ● ● ● ● ● ●

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

c. Monitor mode

To enter the monitor mode, push the **MODE (BS1)** button when in "Setting mode 1".

<Selection of setting item>

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

<Confirmation on setting contents>

Push the **RETURN (BS3)** button to display different data of set items.

Push the **RETURN (BS3)** button and switches to the initial status of "Monitor mode".

* Push the **MODE (BS1)** button and returns to "Setting mode 1".

No.	Setting item	LED display							Data display
		H1P	H2P	H3P	H4P	H5P	H6P	H7P	
0	Various settings	●	●	●	●	●	●	●	Lower 4 digits
1	C/H unified address	●	●	●	●	●	●	○	Lower 6 digits
2	Low noise/demand address	●	●	●	●	●	○	●	
3	Not used	●	●	●	●	●	○	○	
4	Airnet address	●	●	●	●	○	●	●	
5	Number of connected indoor units *1	●	●	●	●	○	●	○	
6	Number of connected BS units	●	●	●	●	○	○	●	
7	Number of connected zone units (Fixed to "0")	●	●	●	●	○	○	○	Lower 4 digits: upper
8	Number of outdoor units *2	●	●	●	○	●	●	●	
9	Number of connected BS units *3	●	●	●	○	●	●	○	
10	Number of connected BS units *3	●	●	●	○	●	○	●	Lower 4 digits: lower
11	Number of zone units	●	●	●	○	●	○	○	Lower 6 digits
12	Number of indoor units *3	●	●	●	○	○	●	●	Lower 4 digits: upper
13	Number of indoor units *3	●	●	●	○	○	●	○	Lower 4 digits: lower
14	Contents of malfunction (the latest)	●	●	●	○	○	○	●	Malfunction code table
15	Contents of malfunction (1 cycle before)	●	●	●	○	○	○	○	Refer page 226.
16	Contents of malfunction (2 cycle before)	●	●	○	●	●	●	●	
20	Contents of retry (the latest)	●	●	○	●	○	●	●	
21	Contents of retry (1 cycle before)	●	●	○	●	○	●	○	
22	Contents of retry (2 cycle before)	●	●	○	●	○	○	●	Lower 6 digits
25	Number of multi connection outdoor units	●	●	○	○	●	●	○	

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

(V2765)

*1: Number of indoor units connected

Used to make setting of the number of indoor units connected to an out door unit.

*2: Number of outdoor units connected

Used to make setting of the number of outdoor units connected to DIII-NET that is one of the communication lines.

*3: Number of outdoor units connected

Used to make setting of the number of outdoor units connected to DIII-NET that is one of the communication lines.

*4: Number of indoor units

Used to make setting of the number of indoor units connected to DIII-NET that is one of the communication lines.
(Only available for VRV indoor units)

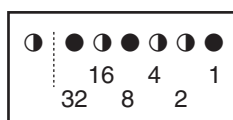
*5: Number of terminal units

Used to make setting of the number of indoor units connected to DIII-NET that is one of the communication lines.
(Only available for VRV indoor units)

Setting item 0 Display contents of “Number of units for various settings”

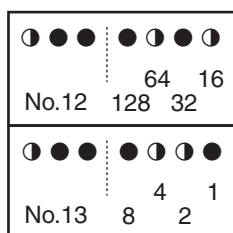
EMG operation / backup operation setting	ON	●	●	●	○	●	●	●
	OFF	●	●	●	●	●	●	●
Defrost select setting	Short	●	●	●	○	●	●	●
	Medium	●	●	●	●	○	●	●
	Long	●	●	●	●	●	●	●
Te setting	H	●	●	●	●	○	●	●
	M	●	●	●	●	●	○	●
	L	●	●	●	●	●	●	●
Tc setting	H	●	●	●	●	●	○	●
	M	●	●	●	●	●	●	○
	L	●	●	●	●	●	●	●

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



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

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



The number of terminal blocks for No. 12 and 13 is expressed as an 8-digit binary number, which is the combination of four upper, and four lower digits for No. 12 and 13 respectively. (0 - 128)

In ② the address for No. 12 is 0101, the address for No. 13 is 0110, and the combination of the two is 01010110 (binary number), which translates to $64 + 16 + 4 + 2 = 86$ (base 10 number). In other words, the number of terminal block is 86.

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

3.2.4 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 electric parts box.

EXAMPLE OF TRANSMISSION LINE CONNECTION

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

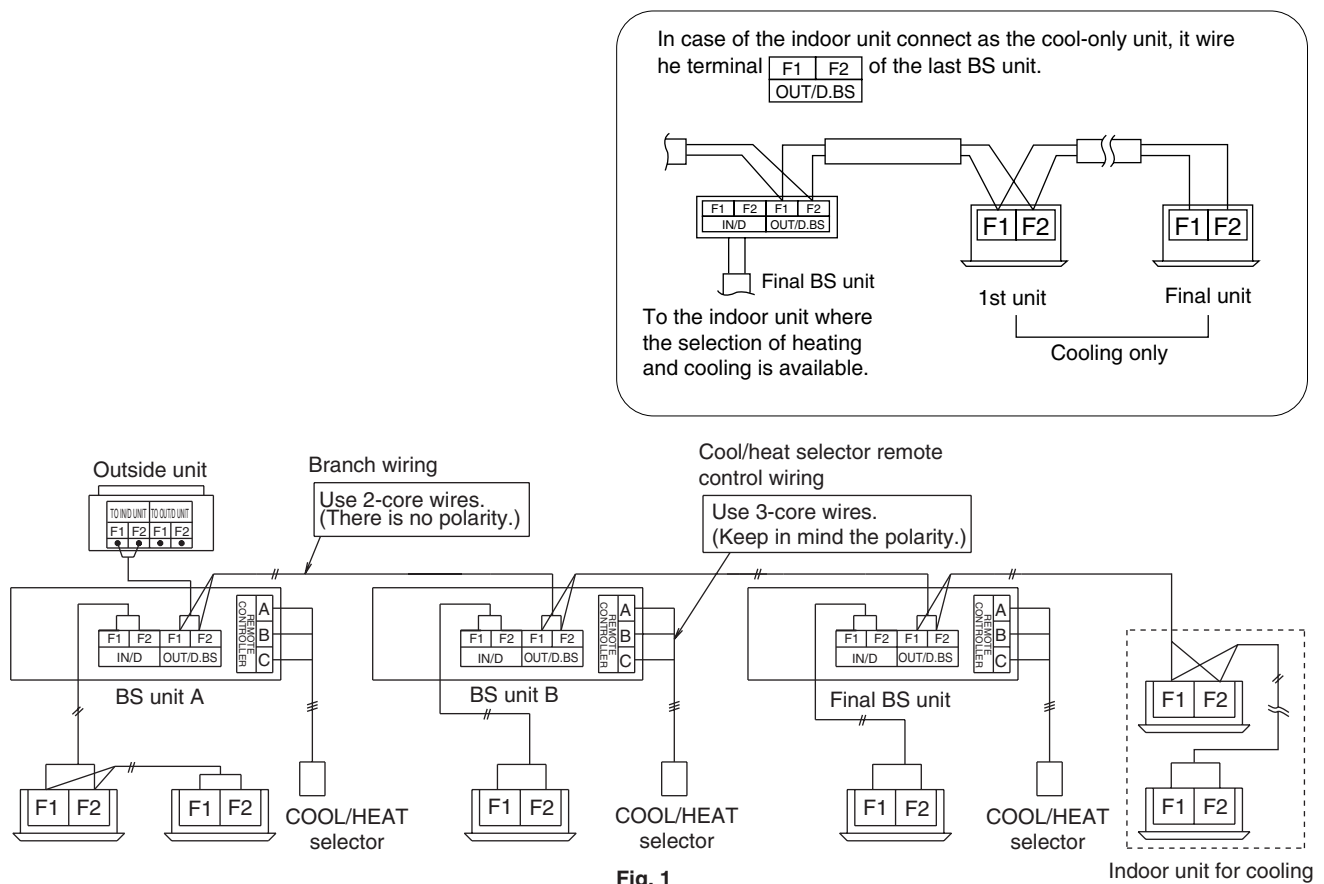


Fig. 1

3.2.5 Setting of Low Noise Operation and Demand Operation

Setting of Low Noise Operation

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

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

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

1. Connect the external adapter of the outdoor unit, and then connect the external input wiring to the low-noise operation input terminal on the terminal block (X1M). (Refer to the figure 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., "Level 1", "Level 2", or "Level 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 precedence) to "ON".
(If the condition is set to "ON", when the air-conditioning load reaches a high level, the low noise operation command will be ignored to put the system into normal operation mode.)

B. When the low 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., "Level 1", "Level 2", or "Level 3") for set item No. 22 (Setting of nighttime low noise level).
2. If necessary, while in "Setting mode 2", select the setting condition (i.e., "20:00", "22:00", or "24:00") for set item No. 26 (Setting of start time of nighttime low noise operation).
(Use the start time as a guide since it is estimated according to outdoor temperatures.)
3. If necessary, while in "Setting mode 2", select the setting condition (i.e., "06:00", "07:00", or "08:00") for set item No. 27 (Setting of end time of nighttime low noise operation).
(Use the end time as a guide since it is estimated according to outdoor temperatures.)
4. If necessary, while in "Setting mode 2", set the setting condition for set item No. 29 (Setting of capacity precedence) to "ON".
(If the condition is set to "ON", when the air-conditioning load reaches a high level, the system will be put into normal operation mode even during nighttime.)

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

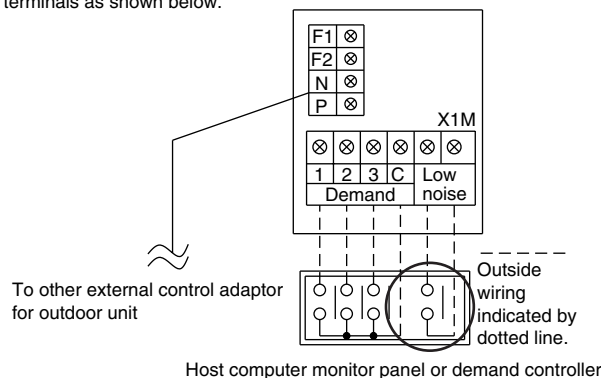


Image of operation in the case of A

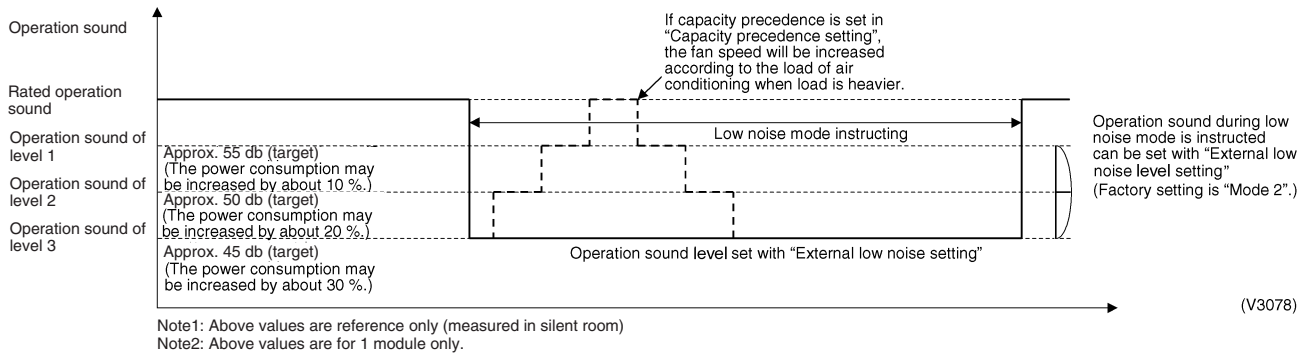


Image of operation in the case of B

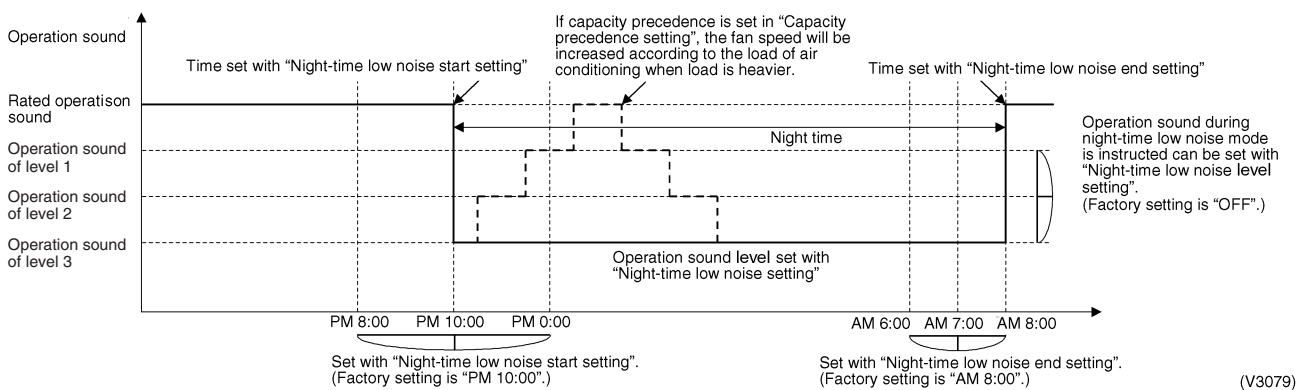
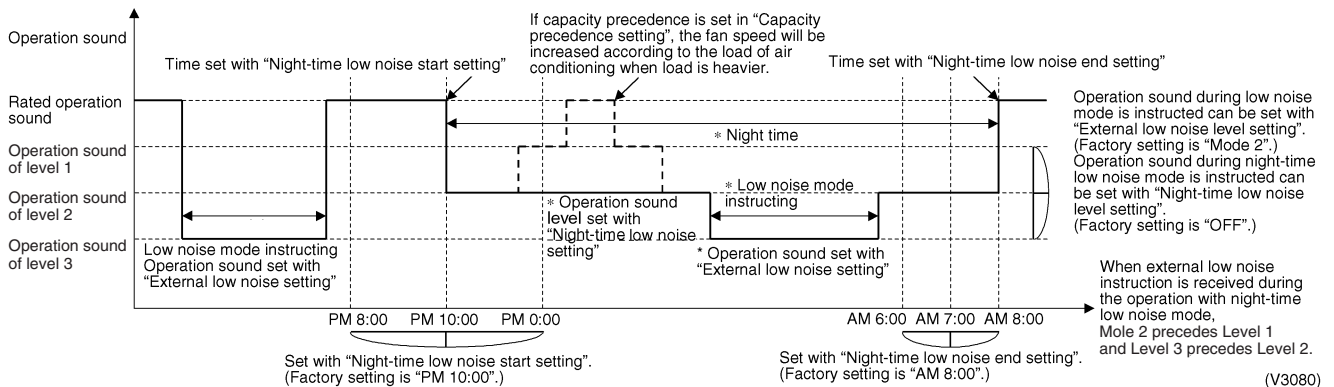


Image of operation in the case of A and B



Setting of Demand Operation

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

Description of setting			Setting procedure	
Setting item	Condition	Description	External control adapter	Outdoor unit PC board
Demand 1	Level 1	Operate with power of approx. 60% or less of the rating.	Short-circuit between "1" and "C" of the terminal block (TeS1).	Set the setting item No. 32 to "Demand 1" and the setting item No. 30 to "Level 1".
	Level 2	Operate with power of approx. 70% or less of the rating.		Set the setting item No. 32 to "Demand 1" and the setting item No. 30 to "Level 2".
	Level 3	Operate with power of approx. 80% or less of the rating.		Set the setting item No. 32 to "Demand1" and the setting item No. 30 to "Level 3".
Demand 2	—	Operate with power of approx. 40% or less of the rating.	Short-circuit between "2" and "C".	Set the setting item No. 32 to "Demand 2".
Demand 3	—	Operate with forced thermostat OFF	Short-circuit between "3" and "C".	—

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

1. Connect the external adapter of the outdoor unit, and then connect the external input wiring to the low-noise operation input terminal on the terminal block (X1M). (Refer to the figure 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 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 adapter for outdoor unit is not required.)

1. While in "Setting mode 2", make setting of the set item No. 32 (Setting of constant demand) to "ON".
2. While in "Setting mode 2", select the set item No. 30 (Setting of Demand 1 level) and then set the setting condition to targeted mode.

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

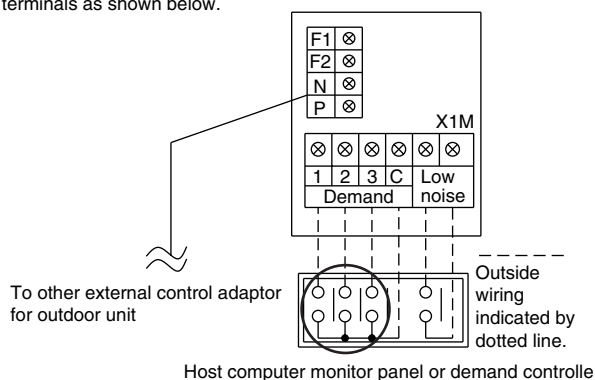


Image of operation in the case of A

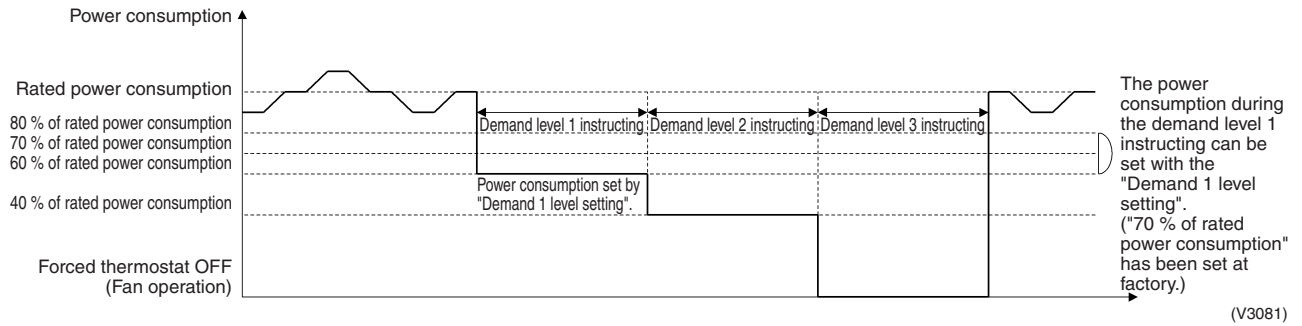


Image of operation in the case of B

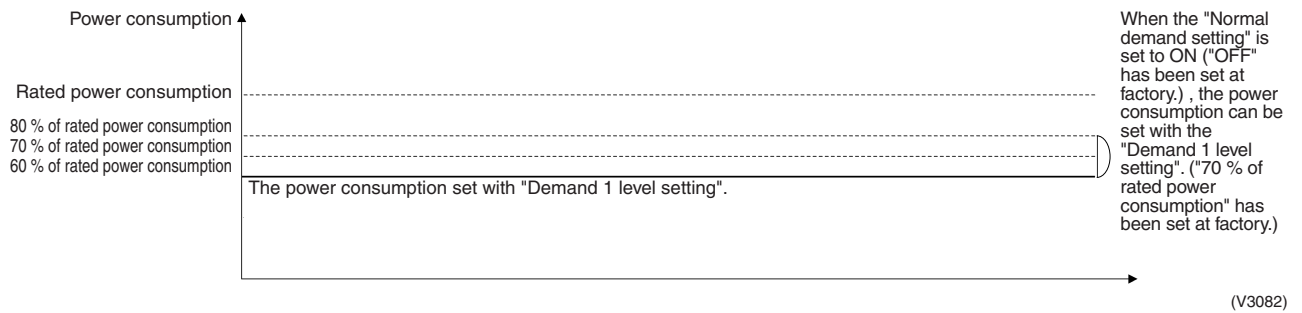
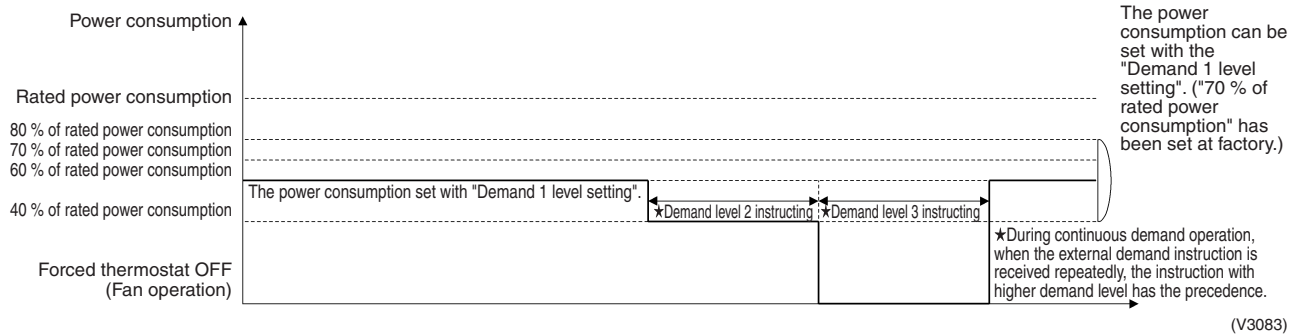


Image of operation in the case of A and B



Detailed Setting Procedure of Low Noise Operation and Demand Control

1. Setting mode 1 (H1P off)

- ① In setting mode 2, push the BS1 (MODE button) one time. → Setting mode 2 is entered and H1P lights.
During the setting mode 1 is displayed, “In low noise operation” and “In demand control” are displayed.

2. Setting mode 2 (H1P on)

- ① In setting 1, push and hold the BS1 (MODE button) for more than 5 seconds. → Setting mode 2 is entered and H1P lights.
② Push the BS2 (SET button) several times and match the LED display with the Setting No. you want.
③ Push the BS3 (RETURN button) one time, and the present setting content is displayed.
→ Push the BS2 (SET button) several times and match the LED display with the setting content (as shown below) you want.
④ Push the BS3 (RETURN button) two times. → Returns to ①.
⑤ Push the BS1 (MODE button) one time. → Returns to the setting mode 1 and turns H1P off.

○: ON ●: OFF ◐: Blink

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

Setting mode indication section

Setting No. indication section

Set contents indication section

3.2.6 Setting of Refrigerant Recovery Mode

When carrying out the refrigerant collection on site, fully open the respective expansion valve of indoor and outdoor units.

All indoor and outdoor unit's operation are prohibited.

[Operation procedure]

- ① In **setting mode 2** with units in stop mode, set "Refrigerant Recovery / Vacuuming mode" to ON. The respective expansion valve of indoor and outdoor units are fully opened. (H2P turns to display "TEST OPERATION" (blinks), "TEST OPERATION" and "UNDER CENTRALIZED CONTROL" are displayed on the remote controller, and the all indoor / outdoor unit operation is prohibited.
After setting, do not cancel "Setting Mode 2" until completion of refrigerant recovery operation.
- ② Collect the refrigerant using a refrigerant recovery unit. (See the instruction attached to the refrigerant recovery unit for more detail.)
- ③ Press Mode button "BS1" once and reset "Setting Mode 2".

3.2.7 Setting of Vacuuming Mode

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

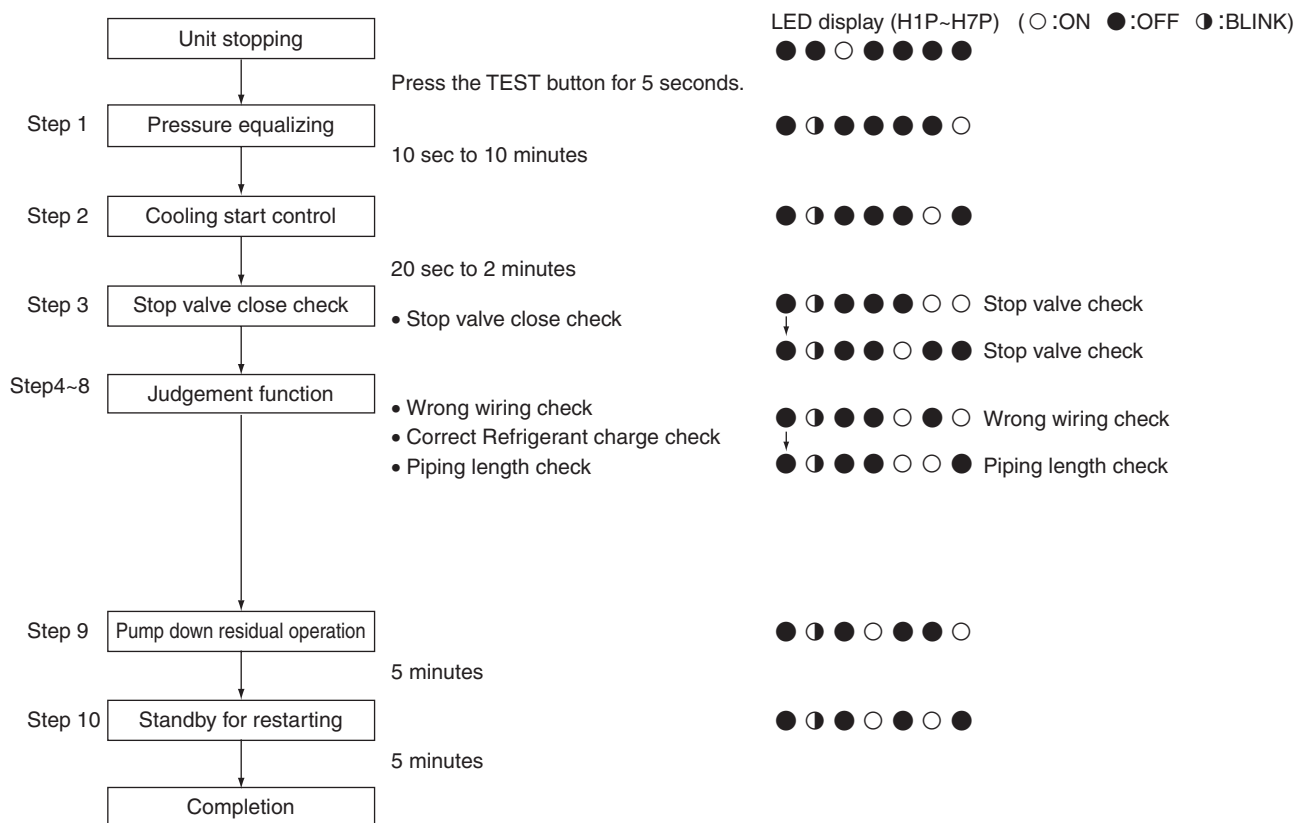
[Operating procedure]

- ① With **Setting Mode 2** while the unit stops, set "Refrigerant recovery / Vacuuming mode" to ON. The expansion valves of indoor and outdoor units fully open and some of solenoid valves open.
(H2P blinks to indicate the test operation, and the remote controller displays "Test Operation" and "Under centralized control", thus prohibiting operation.)
After setting, do not cancel "Setting Mode 2" until completion of Vacuuming operation.
- ② Use the vacuum pump to perform vacuuming operation.
- ③ Press Mode button "BS1" once and reset "Setting Mode 2".

3.2.8 Check Operation Detail

CHECK OPERATION FUNCTION

(Press the MODE button BS1 once and set to SETTING MODE 1 (H1P: OFF))



3.2.9 Emergency 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.

There are two ways of conducting the Emergency operation : ① with remote controller reset and ② by setting outdoor unit PC board.

Operating method Applicable model	① Emergency operation with remote controller reset (Auto backup operation)	② Emergency operation with outdoor unit PC board setting (Manual backup operation)
REYQ8 to 16PY1	—	Backup operation by the compressor
REYQ18 to 48PY1	Backup operation by the indoor unit	Backup operation by the outdoor unit

① Emergency operation with remote controller reset

On the multi outdoor unit system, if any of the outdoor unit line causes a malfunction (in this case, the system will stop and the relevant malfunction code will be displayed on the indoor remote controller), disable only the relevant outdoor unit from operating for a 8 hours using the indoor remote controller, and then conduct emergency operation with operational outdoor units.

[Emergency operation method]

- Reset the remote controller (i.e., press the **RUN/STOP** button on the remote controller for 4 seconds or more) when the outdoor unit stops because of malfunction state.

[Details of operation]

- Automatically disable the defective outdoor unit from operating, and then operate other outdoor units.
- The following section shows malfunction codes on which this emergency operation is possible.

E3, E4, E5, E7 (*1)
F3
H7 (*1), H9
J2, J3, J5, J6, J7, J9, JA, JC
L3, L4, L5, L8, L9, LC
U2, UJ

*1: When malfunction codes E7 and H7 are shown, the possibility of emergency operation is decided as follows.

While in heating or cooling-heating concurrent operation

- One out of three connected outdoor units malfunctions. → Emergency operation is possible.
- Two out of three connected outdoor units malfunction. → Emergency operation is not possible.
- One out of two connected outdoor units malfunctions. → Emergency operation is not possible.

② Emergency operation by setting outdoor unit PC board

In malfunction stop state of the outdoor unit due to defective compressor, by setting the relevant compressor or relevant outdoor unit to "Disabling operation setting", the emergency operation is conducted with operational compressors or outdoor units.

<REYQ8 to 16PY1>

○ Disabling the compressor 1 (on the right side) from operating:
Set No. 38 of setting mode 2 to "Disable-compressor-1 operation".

(Step)	LED display (○ : ON, ● : OFF, ◐ : Blink)
	H1P-----H7P
(1) Press and hold the PAGE button (BS1) for 5 sec. or more.	○ ● ● ● ● ● ●
(2) Press the OPERATE button (BS2) 38 times.	○ ○ ● ● ○ ○ ●
(3) Press the CHECK button (BS3) once.	○ ● ● ● ● ● ◐ (Factory setting)
(4) Press the OPERATE button (BS2) once.	○ ● ● ● ● ● ●
(5) Press the CHECK button (BS3) twice.	○ ● ● ● ● ● ●
(6) Press the PAGE button (BS1) once.	● ● ○ ● ● ● ●

○ Disabling the compressor 2 (on the left side) from operating:
Set No. 39 of setting mode 2 to "Disable-compressor-2 operation".

		LED display (○: ON, ●: OFF, ◐: Blink)
(Step)		H1P-----H7P
(1) Press the PAGE button (BS1) for 5 seconds or more.		○ ● ● ● ● ● ●
(2) Press the OPERATE button (BS2) 39 times.		○ ○ ● ● ○ ○ ○
(3) Press the CHECK button (BS3) once.		○ ● ● ● ● ● ◐ (Factory setting)
(4) Press the OPERATE button (BS2) once.		○ ● ● ● ● ● ●
(5) Press the CHECK button (BS3) twice.		○ ● ● ● ● ● ●
(6) Press the PAGE button (BS1) once.		● ● ○ ● ● ● ●

<REYQ18 to 48PY1>

Make disable-operation setting by each outdoor unit.

Make the following setting on the outdoor unit 1. (If this setting is made on an outdoor unit other than the outdoor unit 2, the setting will become invalid.)

*It is possible to tell the outdoor units 1, 2, and 3 according to the LED displays shown below.

		LED display (○: ON, ●: OFF, ◐: Blink)
		H1P-----H7P H8P
Outdoor unit 1:		● ● ○ ● ● ● ● ○
Outdoor unit 2:		● ● ● ● ● ● ● ◐
Outdoor unit 3:		● ● ● ● ● ● ● ● (Factory setting)

○ Disabling the outdoor unit 1 to operate:
Set No. 38 of setting mode 2 to "Disable outdoor unit 1 operation".

		LED display (○: ON, ●: OFF, ◐: Blink)
(Step)		H1P-----H7P
(1) Press and hold the PAGE button (BS1) for 5 sec. or more.		○ ● ● ● ● ● ●
(2) Press the OPERATE button (BS2) 38 times.		○ ○ ● ● ○ ○ ●
(3) Press the CHECK button (BS3) once.		○ ● ● ● ● ● ◐ (Factory setting)
(4) Press the OPERATE button (BS2) once.		○ ● ● ● ● ● ●
(5) Press the CHECK button (BS3) twice.		○ ● ● ● ● ● ●
(6) Press the PAGE button (BS1) once.		● ● ○ ● ● ● ●

○ Disabling the outdoor unit 2 from operating:
Set No. 39 of setting mode 2 to "Disable-outdoor-unit-2 operation".

		LED display (○: ON, ●: OFF, ◐: Blink)
(Step)		H1P-----H7P
(1) Press the PAGE button (BS1) for 5 seconds or more.		○ ● ● ● ● ● ●
(2) Press the OPERATE button (BS2) 39 times.		○ ○ ● ● ○ ○ ○
(3) Press the CHECK button (BS3) once.		○ ● ● ● ● ● ◐ (Factory setting)
(4) Press the OPERATE button (BS2) once.		○ ● ● ● ● ● ●
(5) Press the CHECK button (BS3) twice.		○ ● ● ● ● ● ●
(6) Press the PAGE button (BS1) once.		● ● ○ ● ● ● ●

○ Disabling the outdoor unit 3 from operating:
Set No. 40 of setting mode 2 to "Disable-outdoor-unit-1 operation".

		LED display (○: ON, ●: OFF, ◐: Blink)
(Step)		H1P-----H7P
(1) Press the PAGE button (BS1) for 5 seconds or more.		○ ● ● ● ● ● ●
(2) Press the OPERATE button (BS2) 40 times.		○ ○ ● ○ ● ● ●
(3) Press the CHECK button (BS3) once.		○ ● ● ● ● ● ◐ (Factory setting)
(4) Press the OPERATE button (BS2) once.		○ ● ● ● ● ● ●
(5) Press the CHECK button (BS3) twice.		○ ● ● ● ● ● ●
(6) Press the PAGE button (BS1) once.		● ● ○ ● ● ● ●

Part 6

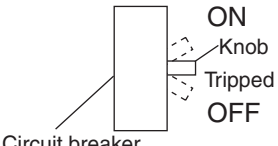
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1. Symptom-based Troubleshooting

	Symptom	Supposed Cause	Countermeasure
1	The system does not start operation at all.	Blowout of fuse(s)	Turn Off the power supply and then replace the fuse(s).
		Cutout of breaker(s)	<ul style="list-style-type: none"> If the knob of any breaker is in its OFF position, turn ON the power supply. If the knob of any circuit breaker is in its tripped position, do not turn ON the power supply. 
		Power failure	After the power failure is reset, restart the system.
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	
4	The system does not operate.	The system stops and immediately restarts operation.	Normal operation. The system will automatically start operation after a lapse of five minutes.
		Pressing the 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.	Operate the system using the COOL/HEAT centralized remote controller.
		The system stops immediately after turning ON the power supply.	Wait for a period of approximately one minute.
5	The system makes intermittent stops.	The remote controller displays malfunction 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.
6	COOL-HEAT selection is disabled.	The remote controller displays "UNDER CENTRALIZED CONTROL".	Remove causes of electrical noises. If these causes are removed, the system will automatically restart operation.
		The remote controller displays "UNDER CENTRALIZED CONTROL", and the COOL-HEAT selection remote controller is provided.	This remote controller has no option to select cooling operation.
		COOL-HEAT selection is made using the COOL-HEAT selection remote controller.	Use a remote controller with option to select cooling operation.
			Use the COOL-HEAT selection remote controller to select cool or heat.

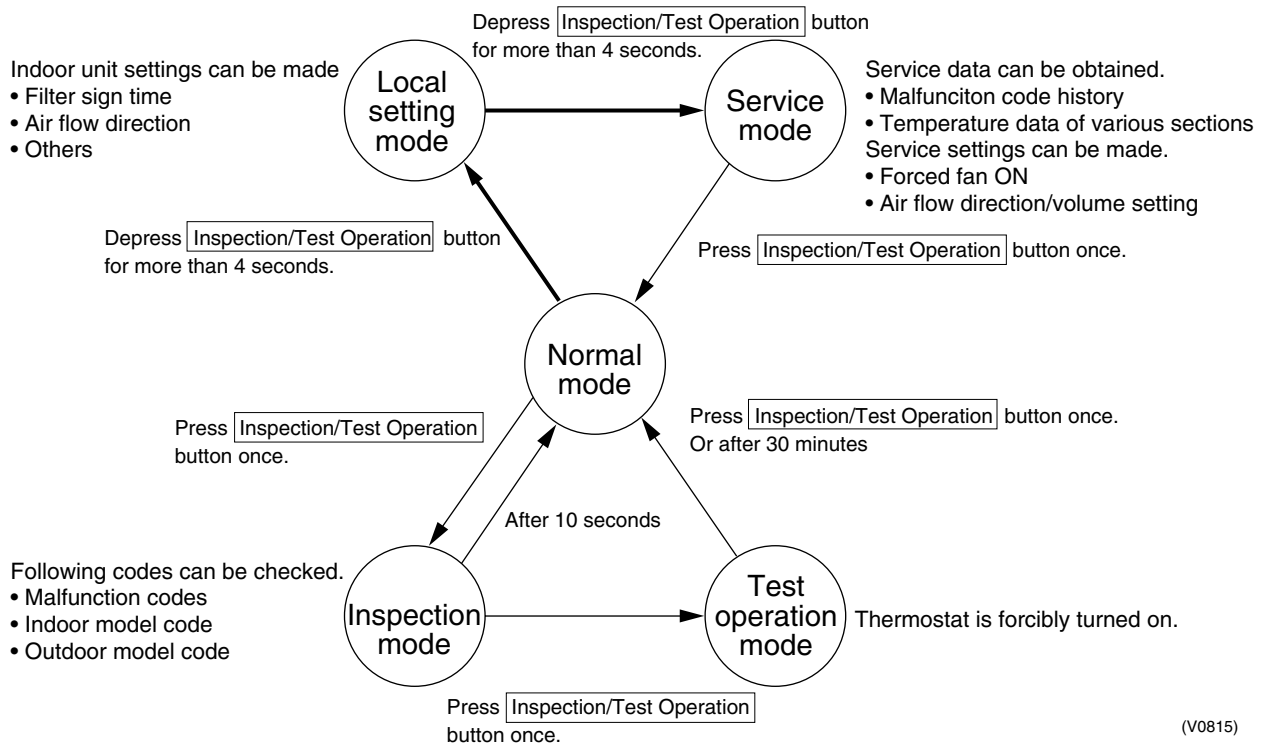
	Symptom		Supposed Cause	Countermeasure
7	The system conducts fan operation but not cooling or heating operation.	This symptom occurs immediately after turning ON the power supply.	The system is in preparation mode of operation.	Wait for a period of approximately 10 minutes.
8	The airflow rate is not 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 operation, the ambient humidity is high. (This indoor unit is installed in a place with much oil or dust.)	Uneven temperature distribution due to heavy stain of the inside of the indoor unit	Clean the inside of the indoor unit.
		<Indoor unit> Immediately after cooling operation stopping, the ambient temperature and humidity are low.	Hot gas (refrigerant) flown in the indoor unit results to be vapor from the unit.	Normal operation.
		<Indoor and outdoor units> After the completion of 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 one minute.
		<Indoor and outdoor units> "Hissing" sounds are continuously produced while in cooling or defrosting operation.	These sounds are produced from gas (refrigerant) flowing respectively through the indoor and outdoor units.	Normal operation.
		<Indoor and outdoor units> "Hissing" sounds are produced immediately after the startup or stop of the system, or the startup or stop of defrosting operation.	These sounds are produced when the gas (refrigerant) stops or changes flowing.	Normal operation.
		<Indoor unit> Faint sounds are continuously produced while in cooling operation or after stopping the operation.	These sounds are produced from the drain discharge device in operation.	Normal operation.
		<Indoor unit> "Creaking" sounds are produced while in heating operation or after stopping the operation.	These sounds are produced from resin parts expanding and contracting with temperature changes.	Normal operation.
		<Indoor unit> Sounds like "trickling" or the like are produced from indoor units in the stopped state.	On VRV systems, these sounds are produced when other indoor units in operation. The reason is that the system runs in order to prevent oil or refrigerant from dwelling.	Normal operation.
		<Outdoor unit> Pitch of operating sounds changes.	The reason is that the compressor changes the operating frequency.	Normal operation.

	Symptom		Supposed Cause	Countermeasure
12	Dust comes out from the system.	Dust comes out from the system when it restarts after the stop for an extended period of time.	Dust, which has deposited on the inside of indoor unit, is blown out from the system.	Normal operation.
13	Odors come out from the system.	In operation	Odors of room, cigarettes or else adsorbed to the inside of indoor unit are blown out.	The inside of the indoor unit should be cleaned.
14	Outdoor unit fan does not rotate.	In operation	The reason is that fan revolutions are controlled to put the operation to the optimum state.	Normal operation.
15	LCD display "88" appears on the remote controller.	Immediately after turning ON the power supply	The reason is that the system is checking to be sure the remote controller is normal.	Normal operation. This code is displayed for a period of approximately one minute at maximum.
16	The outdoor unit compressor or the outdoor unit fan does not stop.	After stopping operation	It stops in order to prevent oil or refrigerant from dwelling.	Normal operation. It stops after a lapse of approximately 5 to 10 minutes.
17	The outdoor gets hot.	While stopping operation	The reason is that the compressor is warmed up to provide smooth startup of the system.	Normal operation.
18	Hot air comes out from the system even though it stops.	Hot air is felt while the system stops.	On VRV systems, small quantity of refrigerant is fed to indoor units in the stopped state when other indoor units are in operation.	Normal operation.
19	The system does not cool air well.	The system is in dry operation.	The reason is that the dry operation serves not to reduce the room temperature where possible.	Change the system to cooling operation.

2. Troubleshooting by Remote Controller

2.1 The INSPECTION / TEST Button

The following modes can be selected by using the [Inspection/Test Operation] button on the remote control.

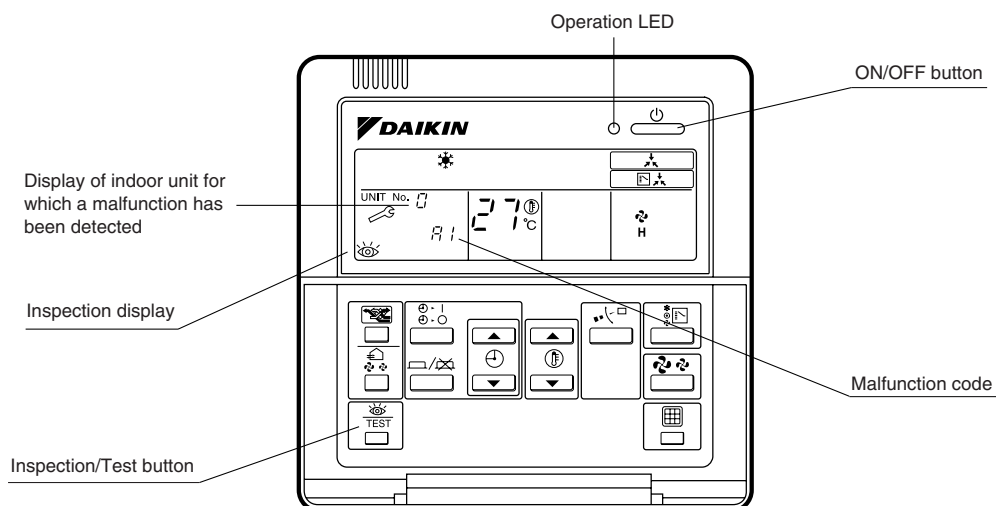


(V0815)

2.2 Self-diagnosis by Wired Remote Controller

Explanation

If operation stops due to malfunction, the remote controller's operation LED blinks, and malfunction code is displayed. (Even if stop operation is carried out, malfunction contents are displayed when the inspection mode is entered.) The malfunction code enables you to tell what kind of malfunction caused operation to stop. See page 224 for malfunction code and malfunction contents.



Note:

1. Pressing the INSPECTION/TEST button will blink the check indication.
2. While in check mode, pressing and holding the ON/OFF button for a period of five seconds or more will clear the failure history indication shown above. In this case, on the codes display, the malfunction 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 check mode to normal mode (displaying the set temperature).

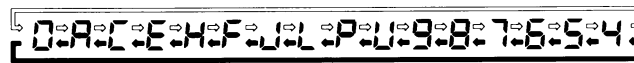
2.3 Self-diagnosis by Wireless Remote Controller

In the Case of BRC7C Type BRC7E Type BRC4C Type

If equipment stops due to a malfunction, the operation indicating LED on the light reception section flashes.

The malfunction code can be determined by following the procedure described below. (The malfunction code is displayed when an operation error has occurred. In normal condition, the malfunction 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 lights and the Unit No. display shows flashing "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 malfunction code is confirmed.
Continuous beep : No abnormality.
 3. Press the MODE selector button.
The left "0" (upper digit) indication of the malfunction code flashes.
 4. Malfunction code upper digit diagnosis
Press the UP or DOWN button and change the malfunction code upper digit until the malfunction code matching buzzer (*2) is generated.
- The upper digit of the code changes as shown below when the UP and DOWN buttons are pressed.



⇒ "Advance" button ⇐ "Backward" button (SE006)

*2 Number of beeps

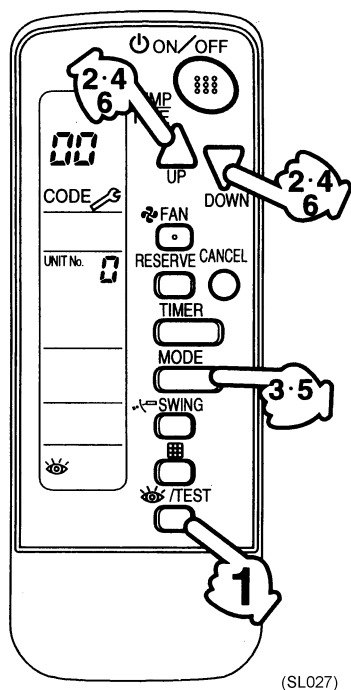
Continuous beep : Both upper and lower digits matched. (Malfunction code confirmed)

2 short beeps : Upper digit matched.

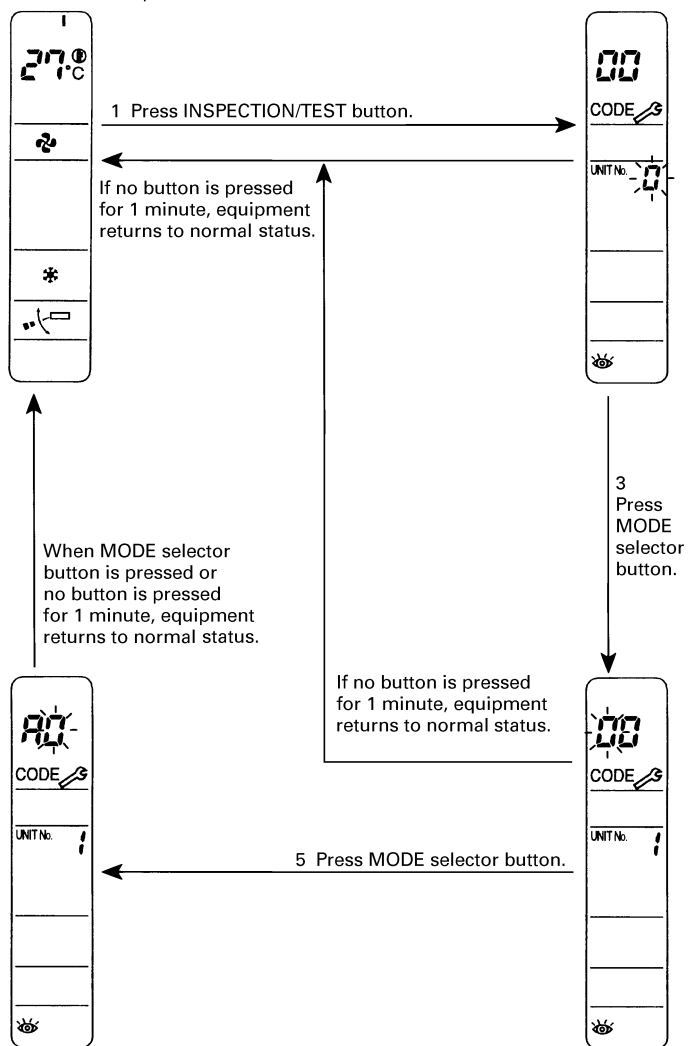
1 short beep : Lower digit matched.

5. Press the MODE selector button.
The right "0" (lower digit) indication of the malfunction code flashes.
6. Malfunction code lower digit diagnosis
Press the UP or DOWN button and change the malfunction code lower digit until the continuous malfunction code matching buzzer (*2) is generated.

- The lower digit of the code changes as shown below when the UP and DOWN buttons are pressed.



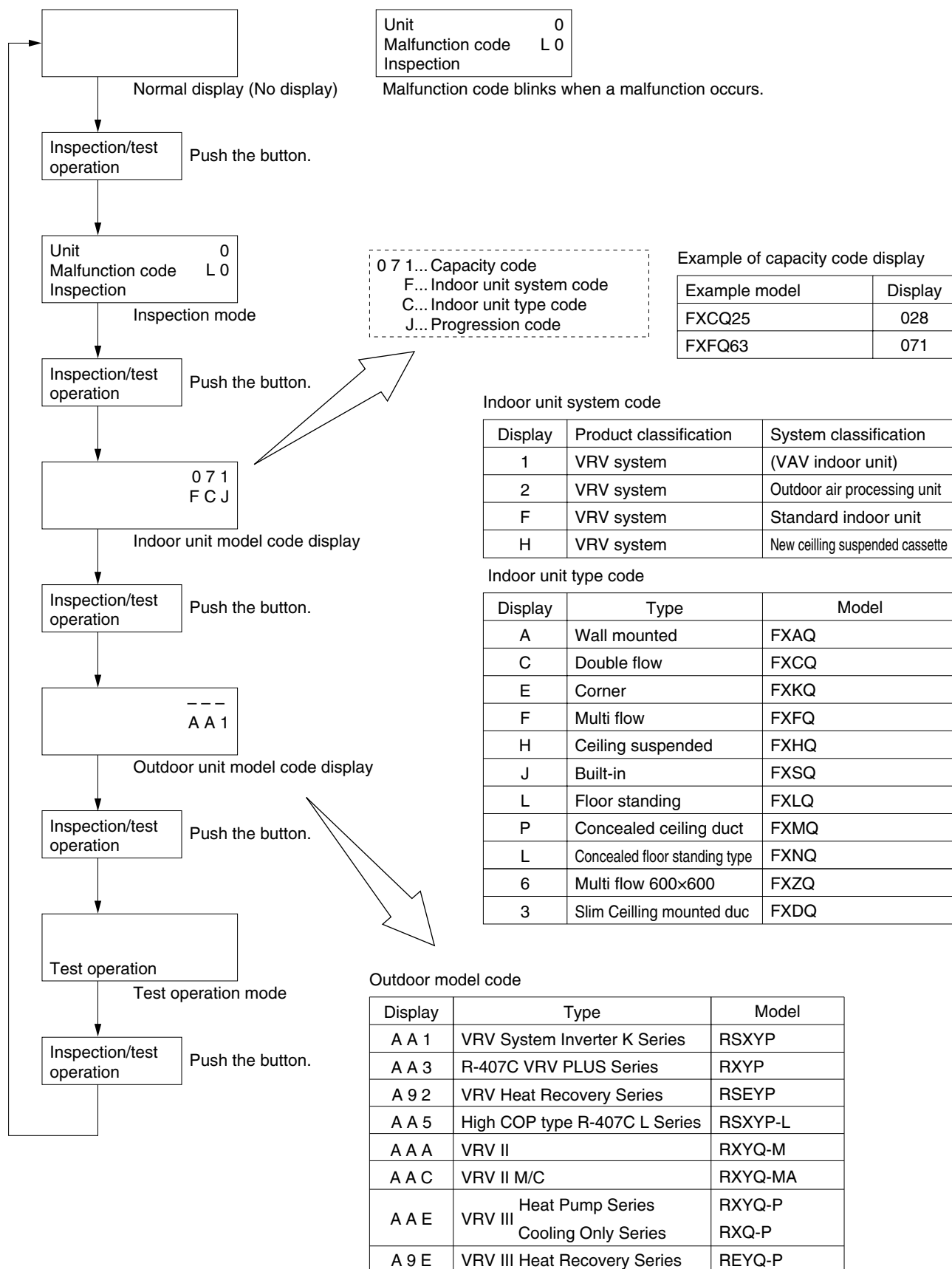
Normal status
 Enters inspection mode from
 normal status when the INSPECTION/
 TEST button is pressed.



(SF008)

2.4 Inspection Mode

Operating the **INSPECTION/TEST** button on the remote controller will make it possible to check the malfunction codes, indoor unit model codes, and outdoor unit model codes while in inspection mode.

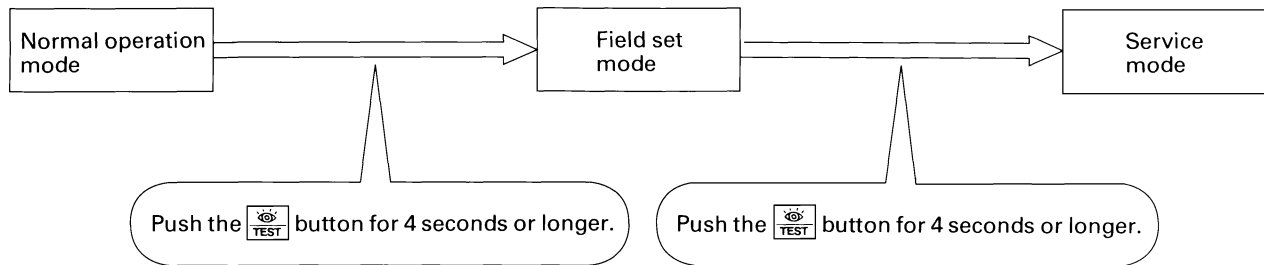










(V2775)

2.5 Remote Controller Service Mode

Operating the **CHECK/TEST** button on the remote controller will make it possible to obtain "service data" and change "service setting" while in service mode.

How to Enter the Service Mode



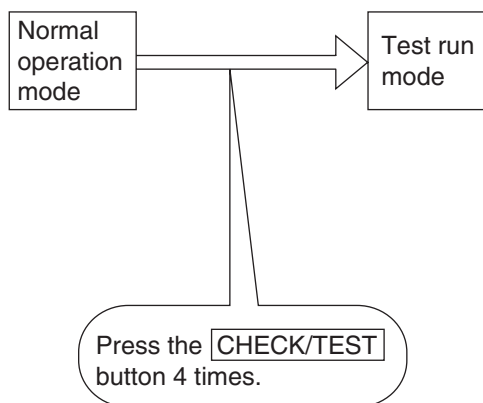
Mode No	Function	Contents and operation method	Remote controller display example
40	Malfunction hysteresis display	<p>Display malfunction hysteresis.</p> <p>The history No. can be changed with the  button.</p>	<p>Unit 1 Malfunction code 40</p> <p>2-U4 Malfunction code History No: 1 - 9 1: Latest</p> <p>(VE007)</p>
41	Display of sensor and address data	<p>Display various types of data.</p> <p>Select the data to be displayed with the  button. Sensor data 0: Thermostat sensor in remote controller. 1: Suction 2: Liquid pipe 3: Gas pipe</p> <p>Address data 4: Indoor unit address 5: Outdoor unit address 6: BS unit address 7: Zone control address 8: Cool/heat group address 9: Demand / low noise address</p>	<p>Sensor data display</p> <p>Unit No. Sensor type 1 1 2 7 41 Temperature °C</p> <p>Address display</p> <p>Unit No. Address type 1 8 1 41 Address</p> <p>(VE008)</p>
43	Forced fan ON	<p>Manually turn the fan ON by each unit. (When you want to search for the unit No.)</p> <p>By selecting the unit No. with the  button, you can turn the fan of each indoor unit on (forced ON) individually.</p>	<p>Unit 1 43</p> <p>(VE009)</p>
44	Individual setting	<p>Set the fan speed and air flow direction by each unit</p> <p>Select the unit No. with the time mode button.  Set the fan speed with the  button.</p> <p>Set the air flow direction with the  button.</p>	<p>Unit 1 Code 44</p> <p>1 3 Fan speed 1: Low 3: High Air flow direction P0 - P4</p> <p>(VE010)</p>
45	Unit No. transfer	<p>Transfer unit No.</p> <p>Select the unit No. with the  button. Set the unit No. after transfer with the  button.</p>	<p>Present unit No.</p> <p>Unit 1 Code 45 0 2 Unit No. after transfer</p> <p>(VE011)</p>
46	This function is not used by VRV III R-410A Heat Recovery 50Hz.		
47			

2.6 Test Run Mode

Operating the **INSPECTION/TEST** button on the remote controller will make it possible to put the system into test run mode.

(1) Test run mode setting

The test run mode setting can be made by conducting the following operation.



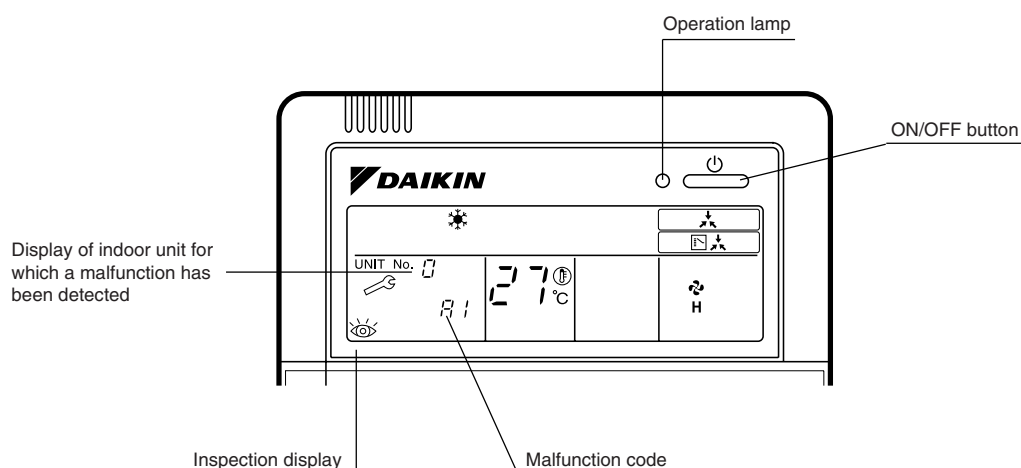
Press the **RUN/STOP** button after the completion of test run mode setting, and a test run starts.

(The remote controller will display "TEST RUN" on it.)

2.7 Remote Controller Self-Diagnosis Function

The remote controller switches are equipped with a self diagnosis function so that more appropriate maintenance can be carried out. If a malfunction occurs during operation, the operation lamp, malfunction code and display of malfunctioning unit No. let you know the contents and location of the malfunction.

When there is a stop due to malfunction, the contents of the malfunction given below can be diagnosed by a combination of operation lamp, INSPECTION display of the liquid crystal display and display of malfunction code. It also lets you know the unit No. during group control.



(VL050)

○: ON ●: OFF ◐: Blink

	Malfunction code	Operation lamp	Inspection display	Unit No.	Malfunction contents	Page Referred
Indoor Unit	A0	◐	◐	◐	Error of external protection device	230
	A1	◐	◐	◐	PC board defect, E ² PROM defect	231
	A3	◐	◐	◐	Malfunction of drain level control system (S1L)	232
	A6	◐	◐	◐	Fan motor (M1F) lock, overload	234
	A7	○	●	◐	Malfunction of swing flap motor (M1S)	235
	A9	◐	◐	◐	Malfunction of moving part of electronic expansion valve / Dust clogging	237 239
	AF	○	●	◐	Drain level about limit	241
	AH	○	●	◐	Malfunction of air filter maintenance	—
	AJ	◐	◐	◐	Malfunction of capacity setting	242
	C4	◐	◐	◐	Malfunction of thermistor (R2T) for heat exchange (loose connection, disconnection, short circuit, failure)	243
	C5	◐	◐	◐	Malfunction of thermistor (R3T) for gas pipes (loose connection, disconnection, short circuit, failure)	244
	C9	◐	◐	◐	Malfunction of thermistor (R1T) for air inlet (loose connection, disconnection, short circuit, failure)	245
	CJ	○	○	○	Malfunction of thermostat sensor in remote controller	246
Outdoor Unit	E1	◐	◐	◐	PC board defect	247
	E3	◐	◐	◐	Actuation of high pressure switch	248
	E4	◐	◐	◐	Actuation of low pressure sensor	250
	E5	◐	◐	◐	Compressor motor lock	252
	E6	◐	◐	◐	Standard compressor lock or over current	254
	E7	◐	◐	◐	Malfunction of outdoor unit fan motor	255
	E9	◐	◐	◐	Malfunction of moving part of electronic expansion valve (Y1E, Y2E, Y3E)	258
	F3	◐	◐	◐	Abnormal discharge pipe temperature	260
	F6	◐	◐	◐	Refrigerant overcharged	262
	F9	◐	◐	◐	Malfunction of BS unit electronic expansion valve	
	H7	◐	◐	◐	Abnormal outdoor fan motor signal	265
	H9	◐	◐	◐	Malfunction of thermistor (R1T) for outdoor air (loose connection, disconnection, short circuit, failure)	267
	J2	◐	◐	◐	Current sensor malfunction	268
	J3	◐	◐	◐	Malfunction of discharge pipe thermistor (R31, 32T, 33T) (loose connection, disconnection, short circuit, failure)	269
	J4	◐	◐	◐	Malfunction of temperature sensor for heat exchanger gas (R2T)	265
	J5	◐	◐	◐	Malfunction of thermistor (R8T) for suction pipe (loose connection, disconnection, short circuit, failure)	271
	J6	◐	◐	◐	Malfunction of thermistor (R4T) for heat exchanger (loose connection, disconnection, short circuit, failure)	272
	J7	◐	◐	◐	Malfunction of receiver outlet liquid pipe thermistor (R6T), (9T)	273
	J8	◐	◐	◐	Malfunction of liquid pipe thermistor 2 (R7T)	274
	J9	◐	◐	◐	Malfunction of subcooling heat exchanger gas pipe thermistor (R5T)	275
	JA	◐	◐	◐	Malfunction of high pressure sensor	276
	JC	◐	◐	◐	Malfunction of low pressure sensor	278
	L1	◐	◐	◐	Malfunction of inverter PC board	280
	L4	◐	◐	◐	Malfunction of inverter radiating fin temperature rise	281
	L5	◐	◐	◐	DC output overcurrent of inverter compressor	283
	L8	◐	◐	◐	Inverter current abnormal	285
	L9	◐	◐	◐	Inverter start up error	287

○: ON ●: OFF ◐: Blink

	Malfunction code	Operation lamp	Inspection display	Unit No.	Malfunction contents	Page Referred
Outdoor Unit	LA	◐	◐	◐	Malfunction of power unit	—
	LC	◐	◐	◐	Malfunction of transmission between inverter and control PC board	290
	P1	◐	◐	◐	Inverter over-ripple protection	293
	P4	◐	◐	◐	Malfunction of inverter radiating fin temperature rise sensor	294
	PJ	◐	◐	◐	Faulty field setting after replacing main PC board or faulty combination of PC board	296
System	U0	○	●	◐	Gas shortage alert	297
	U1	◐	◐	◐	Reverse phase / open phase	299
	U2	◐	◐	◐	Power supply insufficient or instantaneous failure	300
	U3	◐	◐	◐	Check operation is not completed.	303
	U4	◐	◐	◐	Malfunction of transmission between indoor and outdoor units	304
	U5	◐	◐	◐	Malfunction of transmission between remote controller and indoor unit	307
	U5	●	○	●	Failure of remote controller PC board or setting during control by remote controller	307
	U7	◐	◐	◐	Malfunction of transmission between outdoor units	308
	U8	◐	◐	●	Malfunction of transmission between main and sub remote controllers (malfunction of sub remote controller)	314
	U9	◐	◐	◐	Malfunction of transmission between indoor unit and outdoor unit in the same system	315
	UA	◐	◐	◐	Improper combination of indoor and outdoor units, indoor units and remote controller	316
	UC	○	○	○	Address duplication of central remote controller	319
	UE	◐	◐	◐	Malfunction of transmission between central remote controller and indoor unit	320
	UF	◐	◐	◐	Refrigerant system not set, incompatible wiring / piping	323
	UH	◐	◐	◐	Malfunction of system, refrigerant system address undefined	324
Central Remote Controller and Schedule Timer	M1	○ or ●	◐	◐	Central remote controller PC board defect Schedule timer PC board defect	326
	M8	○ or ●	◐	◐	Malfunction of transmission between optional controllers for centralized control	327
	MA	○ or ●	◐	◐	Improper combination of optional controllers for centralized control	328
	MC	○ or ●	◐	◐	Address duplication, improper setting	330
Heat Reclaim Ventilation	64	○	●	◐	Indoor unit's air thermistor error	—
	65	○	●	◐	Outside air thermistor error	—
	6A	○	●	◐	Damper system alarm	—
	6A	◐	◐	◐	Damper system + thermistor error	—
	6F	○	●	◐	Malfunction of simple remote controller	—
	6H	○	●	◐	Malfunction of door switch or connector	—
	94	◐	◐	◐	Internal transmission error	—

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

Malfunction code indication by outdoor unit PC board

<Monitor mode>

To enter the monitor mode, push the **MODE (BS1)** button when in "Setting mode 1".

* Refer Page 196 for Monitor mode.

<Selection of setting item>

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

* Refer Page 196 for Monitor mode.

<Confirmation of malfunction 1>

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

<Confirmation of malfunction 2>

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

<Confirmation of malfunction 3>

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

<Confirmation of malfunction 4>

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

Push the **RETURN (BS3)** button and switches to the initial status of "Monitor mode".

* Push the **MODE (BS1)** button and returns to "Setting mode 1".

Detail description on next page.

Malfunctions		Malfunction code
Description of malfunction	Description of malfunction (PGF)	Remote controller
PC board malfunction	PC board malfunction	E1
	Faulty PC board	
Abnormal discharge pressure	HPS activated	E3
Abnormal suction pressure	Pe malfunction	E4
Compressor lock	INV compressor lock detected	E5
OC activation	STD1 compressor lock detected	E6
	STD2 compressor lock detected	
Overload, overcurrent and abnormal lock of outdoor unit fan motor	Instantaneous overcurrent of 1DC fan motor	E7
	1DC fan motor lock detected	
	Instantaneous overcurrent of 2DC fan motor	
	2DC fan motor lock detected	
Electronic expansion valve malfunction	EV4M (main)	E9
	EV3J (refrigerant charging)	
	EV2T (subcool heat exchanger)	
Positioning signal malfunction of outdoor unit fan motor	1DC fan motor positioning signal malfunction	H7
	2DC fan motor positioning signal malfunction	
Abnormal outdoor temperature	Ta sensor malfunction (short-circuited or open)	H9
Abnormal discharge pipe temperature	Td malfunction	F3
Abnormal heat exchanger temperature	Refrigerant overcharged	F6
BS unit electronic expansion valve malfunction	BS EVH disconnected (Y4E)	F9
	BS EVL disconnected (Y5E)	
	BS EVHS disconnected (Y2E)	
	BS EVLS disconnected (Y3E)	
	BS EVSC disconnected (Y4C)	
Current sensor malfunction	CT1 sensor malfunction (STD compressor 1)	J2
	CT2 sensor malfunction (STD compressor 2)	
	CT sensor malfunction (system)	
Discharge pipe temperature sensor malfunction	Tdi sensor malfunction (R31T)	J3
	Tds1 sensor malfunction (short-circuited) (R32T)	
	Tds2 sensor malfunction (short-circuited) (R33T)	
Heat exchanger gas temperature sensor malfunction	Tg sensor malfunction (R2T, R11T)	J4
Suction pipe temperature sensor malfunction	TsA sensor malfunction (short-circuited) (R8T, R10T)	J5
Heat exchanger temperature sensor malfunction	Tb sensor malfunction (R4T, R12T)	J6
Liquid pipe temperature sensor malfunction	Tsc sensor malfunction (R6T, R14T)	J7
	TL sensor malfunction (R9T)	
Heat exchanger liquid pipe temperature sensor malfunction	Tf sensor malfunction (R7T, R15T)	J8
Subcool heat exchanger temperature sensor malfunction	Tsh sensor malfunction (R5T, R13T)	J9
Discharge pressure sensor malfunction	Pc sensor malfunction (S1NPH)	JA
Suction pressure sensor malfunction	Pe sensor malfunction (S1NPL)	JC

○ : ON
● : Blink
● : OFF

○: ON ●: OFF ◐: Blink

Malfunction code	Confirmation of malfunction 1 (Check 1)							Confirmation of malfunction 2 (Check 2)							Confirmation of malfunction 3 (Check 3)							Confirmation of malfunction 4 (Check 4)						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
E1	●			●	●	○	○	○			●	●	●	○	○			●	●	●	●	○			●	●	○	○
E3								○			●	●	○	○	○			●	●	●	●	○			●	●	○	○
E4								○			●	○	●	●	○			●	●	●	●	○			●	●		
E5								○			●	○	●	○	○			●	●	●	●	○			●	●		
E6								○			●	○	○	●				●	●	●	●	○			●	●		
E7								○			●	○	○	○				●	●	●	●	○			●	●		
E9															○			●	●	●	●	○			●	●		
															○			●	●	●	●	○			●	●		
															○			●	●	●	○	○			●	●		
															○			●	●	●	○	○			●	●		
H7	○			●	○	●	●	○			●	○	○	○	○			●	●	●	●	○			●	●		
H9								○			○	●	●	○				●	●	●	○	○			●	●		
F3	○			●	○	●	○	○			●	●	○	○	○			●	●	●	●	○			●	●		
F6								○			●	○	○	●	○			●	●	●	●	○			●	●	○	○
J2	○			●	○	○	●	○			●	●	○	●	○			●	●	●	●	○			●	●		
J3								○			●	●	○	○				●	●	●	●	○			●	●		
J4															○			●	●	●	○	○			●	●		
															○			●	●	○	○			●	●			
															○			●	●	○	○			●	●			
															○			●	●	○	○			●	●			
J5								○			●	○	●	○			●	●	●	○	○			●	●			
J6								○			●	○	○	●			●	●	●	○	○			●	●			
J7								○			●	○	○	○			●	●	●	○	○			●	●			
J8															○			○	●	●	○	○			●	●		
															○			○	●	○	○			○	○			
J9								○			○	●	●	○			●	●	●	○	○			●	●			
JA								○			○	●	○	●			●	●	●	○	○			●	●			
JC								○			○	○	●	●			●	●	●	○	○			●	●			
L1	○			●	○	○	○	○			●	●	●	○	○			●	●	●	●	○			●	●		
(L2)															○							○			○	○		
															○							○	○					
															○							○	○					
L4								○			●	○	●	●			●	●	●	●	○			●	●			
L5								○			●	○	●	○			●	●	●	○	○			●	○			
L8								○			○	●	●	●			○	●	●	●	○			○	●			
L9															○			○	●	●	○			○	○			
															○			○	●	○	○			○	○			
															○			○	●	●	○			○	○			
LC								○			○	○	●	●			○	○	○	○			○	○				

Display of contents of
malfunction (first digit)

Display of contents of
malfunction (second digit)

Display 1 of
malfunction in detail

Display 2 of
malfunction in detail

*1

●●

●○

○●

○○

Master
Slave1
Slave2
System

<Monitor mode>

To enter the monitor mode, push the **MODE (BS1)** button when in "Setting mode 1".

* Refer Page 196 for Monitor mode.

<Selection of setting item>

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

* Refer Page 196 for Monitor mode.

<Confirmation of malfunction 1>

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

<Confirmation of malfunction 2>

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

<Confirmation of malfunction 3>

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

<Confirmation of malfunction 4>

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

Push the **RETURN (BS3)** button and switches to the initial status of "Monitor mode".

* Push the **MODE (BS1)** button and returns to "Setting mode 1".

Detail description on next page.

Malfunctions		Malfunction code
Description of malfunction	Description of malfunction (PGF)	Remote controller
INV PC board malfunction	Faulty IPM Current sensor failure confirmation 1 Current sensor failure confirmation 2 IGBT malfunction	L1
Rise in INV radiation fin temperature	Overheat of INV radiation fin temperature	L4
DC output overcurrent	Instantaneous overcurrent of INV IGBT malfunction	L5
Electronic thermal	Electronic thermal 1 Electronic thermal 2 Loss of synchronization Speed degradation after startup Thunder detected	L8
Stall prevention (time limit)	Stall prevention (increased current) Stall prevention (startup failure) Abnormal starting waveform Loss of synchronization	L9
INV transmission malfunction	INV transmission data malfunction INV transmission malfunction	LC
Open phase and unbalanced power supply	Unbalanced INV power supply voltage	P1
INV radiation fin temperature sensor malfunction	INV fin thermistor malfunction	P4
Faulty combination of INV and fan driver	Faulty combination of INV	PJ
Out of gas	Out-of-gas alarm	U0
Reversed phase	Reversed phase malfunction Reversed phase malfunction (ON)	U1
Abnormal power supply voltage	Insufficient INV voltage INV open phase (single phase) Abnormal charge of capacitor of INV main circuit	U2
Test run not carried out yet	Test run not carried out yet	U3
Faulty transmission between indoor and outdoor units	IN-OUT transmission malfunction System malfunction	U4
Faulty transmission between outdoor units	Malfunction caused when mounting the external control adapter Alarm given when mounting the external control adapter Malfunction caused between the master and the slave 1 Malfunction caused between the master and the slave 2 Multi REYP models connected Faulty address setting of slaves 1 and 2 4 or more outdoor units connected in the same system Erroneous address of slaves 1 and 2	U7
Faulty transmission with other systems	Other system or other unit in the same system Excess indoor units connected	U9
Faulty field setting	Erroneous refrigerant used for indoor unit Faulty combination of outdoor units Faulty independent installation Faulty connection of former BS unit Faulty connection between outdoor and BS unit Faulty connection between BS units Wrong number of indoor units connected to BS unit	UA
Faulty system line	Wrong wiring (auto address error)	UH
Faulty transmission with accessory equipment	Multi level converter malfunction Multi level converter alarm	UJ
Unmatched wiring/piping, no system settings	Multi level converter data malfunction Multi level converter transmission malfunction	UF

○ : ON
● : Blink
● : OFF

○: ON ●: OFF ◐: Blink

Malfunction code	Confirmation of malfunction 1 (Check 1)							Confirmation of malfunction 2 (Check 2)							Confirmation of malfunction 3 (Check 3)							Confirmation of malfunction 4 (Check 4)						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
P1	◐			◐	●	●	●	◐			●	●	●	◐	◐			●	●	●	●	◐			●	●	*1	
P3								◐			●	●	◐	◐	◐			●	●	●	●	◐			●	●		
P4								◐			●	◐	●	●	◐			●	●	●	●	◐			●	●		
PJ								◐			◐	◐	●	◐	◐			●	●	●	●	◐			●	●		
U0	◐			◐	●	●	◐	◐			●	●	●	●	◐			●	●	●	●	◐			●	●	◐	◐
U1								◐			●	●	●	◐	◐			●	●	●	●	◐			●	●	◐	◐
U2								◐			●	●	◐	●	◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	◐	◐	◐
U3								◐			●	●	◐	◐	◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	◐	◐	◐
U4								◐			●	◐	●	●	◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	◐	◐	◐
U7								◐			●	◐	◐	◐	◐			●	●	●	●	◐			●	◐	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
U9								◐			◐	●	●	◐	◐			●	●	●	●	◐			●	●	◐	◐
UA								◐			◐	●	◐	●	◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
UA															◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	●	◐	◐
UH								◐			◐	●	◐	◐	◐			●	●	●	●	◐			●	●	◐	◐
UJ								◐			◐	◐	●	◐	◐			●	●	●	●	◐			●	●	*1	
UJ															◐			●	●	●	●	◐			●	◐		
UF								◐			◐	◐	◐	◐	◐			●	●	●	●	◐			●	●	◐	◐

Display of contents of
malfunction (first digit)Display of contents of
malfunction (second digit)Display 1 of
malfunction in detailDisplay 2 of
malfunction in detail

*1	●	●	Master
	●	◐	Slave1
	◐	●	Slave2
	◐	◐	System

3. Troubleshooting by Indication on the Remote Controller

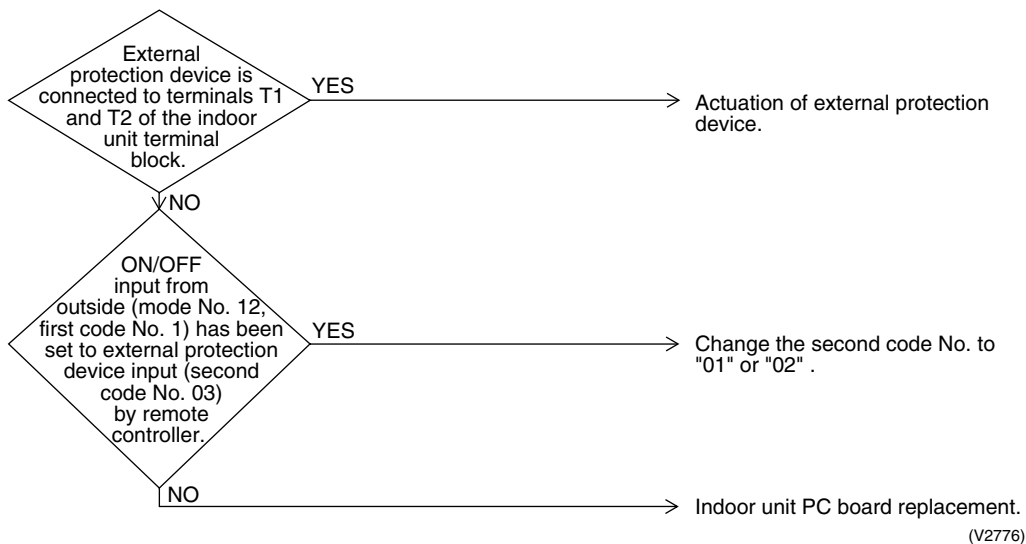
3.1 “RD” Indoor Unit: Error of External Protection Device

Remote Controller Display	RD
Applicable Models	All indoor unit models
Method of Malfunction Detection	Detect open or short circuit between external input terminals in indoor unit.
Malfunction Decision Conditions	When an open circuit occurs between external input terminals with the remote controller set to "external ON/OFF terminal".
Supposed Causes	<ul style="list-style-type: none"> ■ Actuation of external protection device ■ Improper field set ■ Defect of indoor unit PC board
Troubleshooting	



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



3.2 “A1” Indoor Unit: PC Board Defect

Remote
Controller
Display

A1

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

Check data from E²PROM.

Malfunction
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

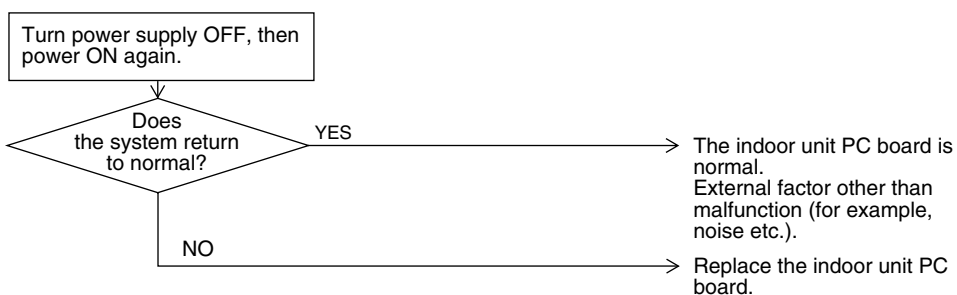
- Defect of indoor unit PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2777)

3.3 “R3” Indoor Unit: Malfunction of Drain Level Control System (S1L)

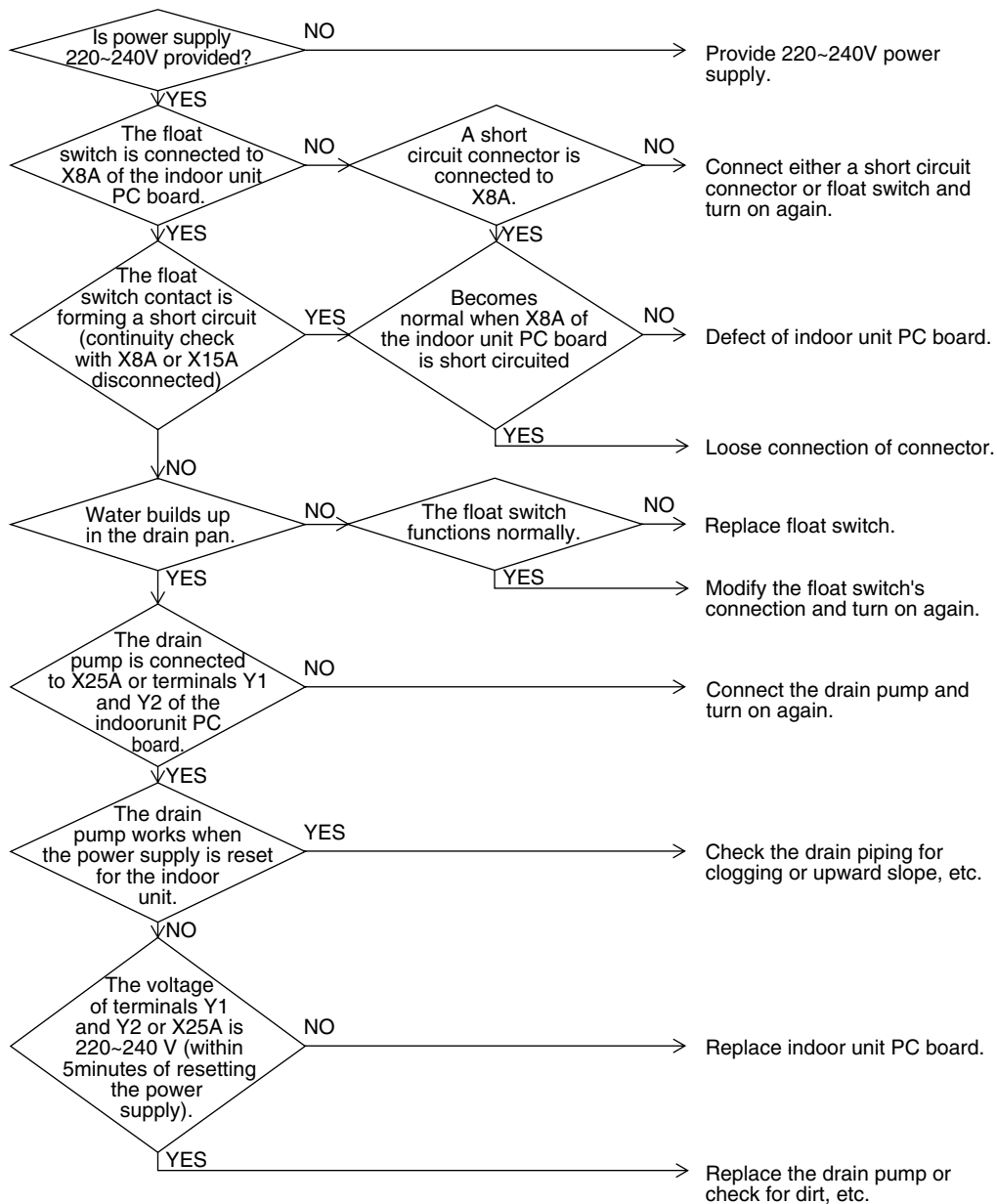
Remote Controller Display	R3
Applicable Models	FXCQ, FXFQ, FXSQ, FXKQ, FXDQ, FXMQ, FXHQ (Option), FXMQ200,250M (Option), FXAQ (Option), FXMQ-MF (Option)
Method of Malfunction Detection	By float switch OFF detection
Malfunction Decision Conditions	When rise of water level is not a condition and the float switch goes OFF.
Supposed Causes	<ul style="list-style-type: none"> ■ 220~240V power supply is not provided ■ Defect of float switch or short circuit connector ■ Defect of drain pump ■ Drain clogging, upward slope, etc. ■ Defect of indoor unit PC board ■ Loose connection of connector

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2778)

3.4 “A6” Indoor Unit: Fan Motor (M1F) Lock, Overload

Remote
Controller
Display

A6

Applicable
Models

All indoor units

Method of
Malfunction
Detection

Detection by failure of signal for detecting number of turns to come from the fan motor

Malfunction
Decision
Conditions

When number of turns can't be detected even when output voltage to the fan is maximum

Supposed
Causes

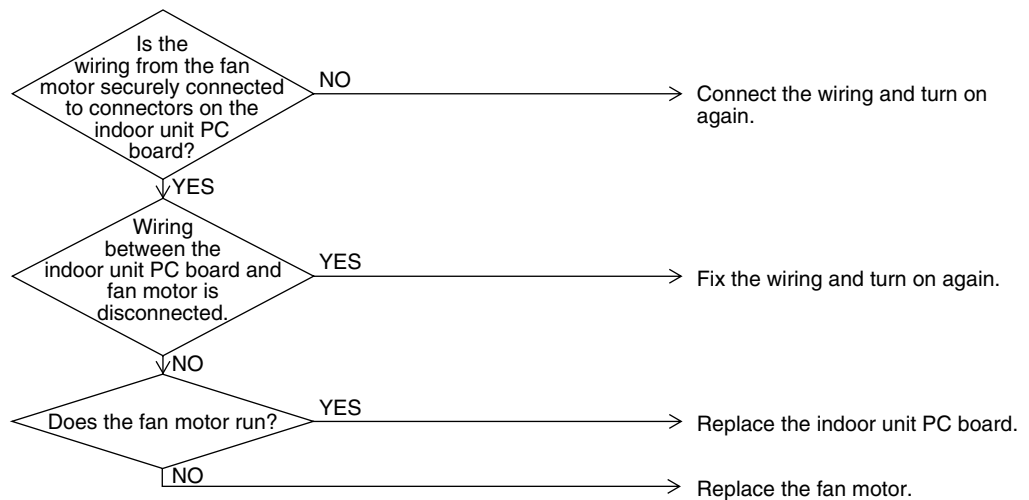
- Fan motor lock
- Disconnected or faulty wiring between fan motor and PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2779)

3.5 “A7” Indoor Unit: Malfunction of Swing Flap Motor (M1S)

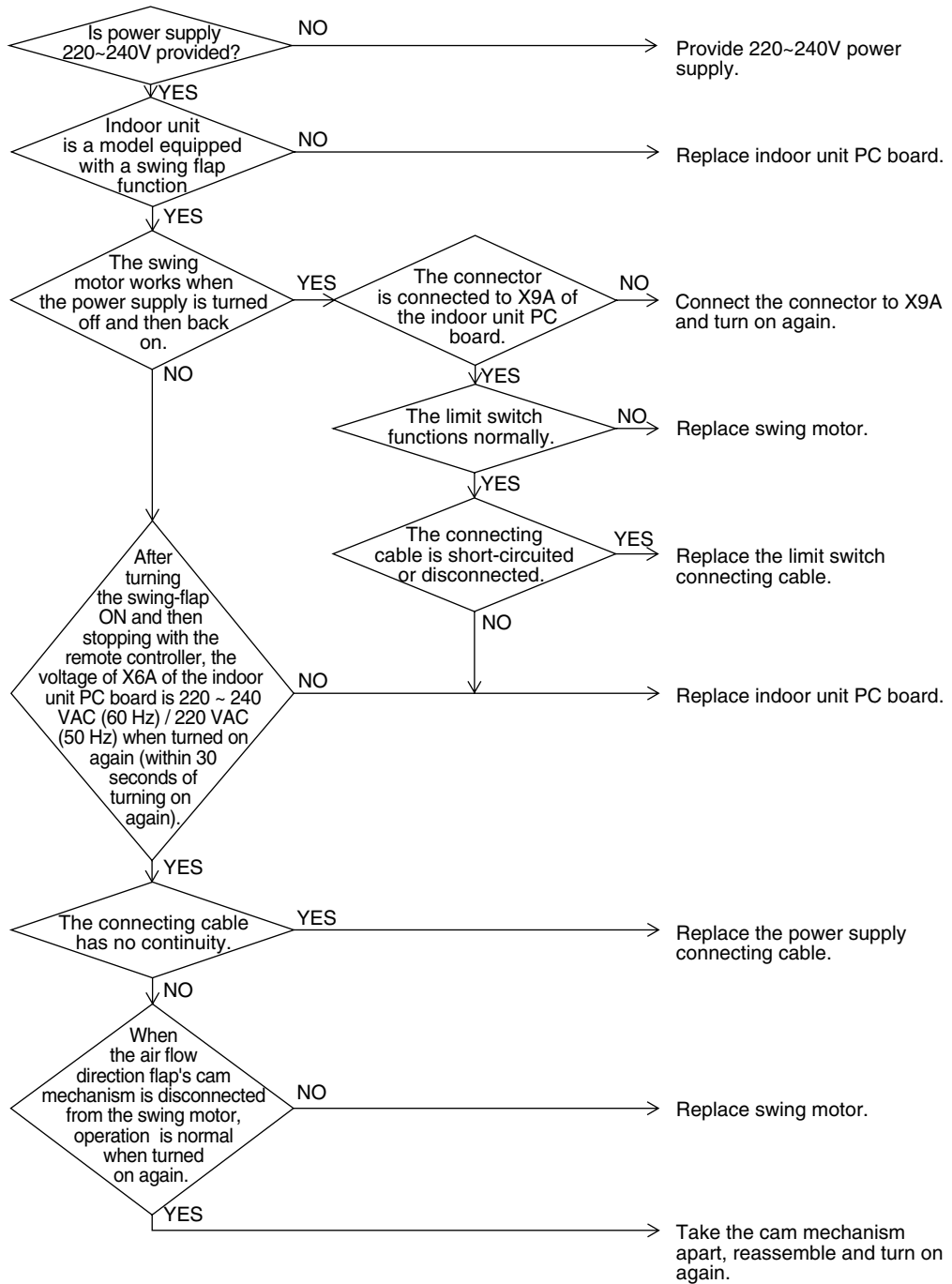
Remote Controller Display	A7
Applicable Models	FXCQ, FXHQ, FXKQ
Method of Malfunction Detection	Utilizes ON/OFF of the limit switch when the motor turns.
Malfunction Decision Conditions	<p>When ON/OFF of the microswitch for positioning cannot be reversed even though the swing flap motor is energized for a specified amount of time (about 30 seconds).</p> <p>★ Error code is displayed but the system operates continuously.</p>
Supposed Causes	<ul style="list-style-type: none">■ Defect of swing motor■ Defect of connection cable (power supply and limit switch)■ Defect of air flow direction adjusting flap-cam■ Defect of indoor unit PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2780)

3.6 “R9” Electronic Expansion Valve Malfunction / Dust Clogging

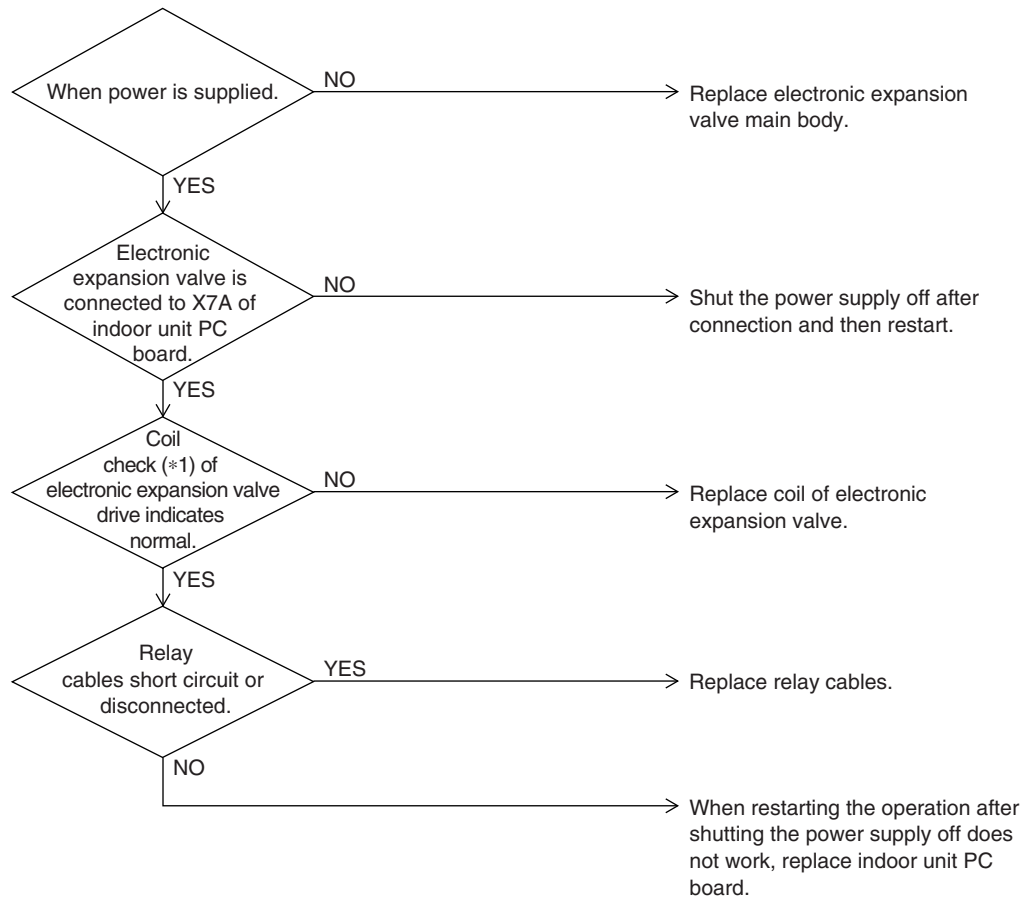
Remote Controller Display	R9
Applicable Models	FXFQ25~125M
Method of Malfunction Detection	<p>Check coil condition of electronic expansion valve by using microcomputer.</p> <p>Check dust clogging condition of electronic expansion valve main body by using microcomputer.</p>
Malfunction Decision Conditions	<p>Pin input for electronic expansion valve coil is abnormal when initializing microcomputer.</p> <p>Either of the following conditions is seen/caused/ occurs while the unit stops operation.</p> <ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ■ Defective drive of electronic expansion valve ■ Defective PC board of indoor unit ■ Defective relay cables

Troubleshooting



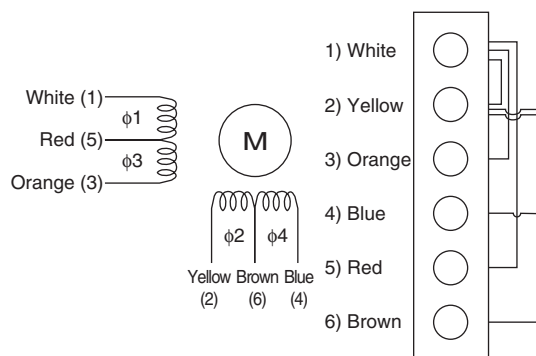
Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: How to check the coil of electronic expansion valve drive

Remove the connector for electronic expansion valve (X7A) from PC board. 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

“R9” Indoor Unit: Malfunction of Electronic Expansion Valve Coil

**Remote
Controller
Display**

R9

**Applicable
Models**

Indoor units except FXFQ models

**Method of
Malfunction
Detection**

Check coil condition of electronic expansion valve by using microcomputer.

**Malfunction
Decision
Conditions**

Pin input for electronic expansion valve coil is abnormal when initializing microcomputer.

**Supposed
Causes**

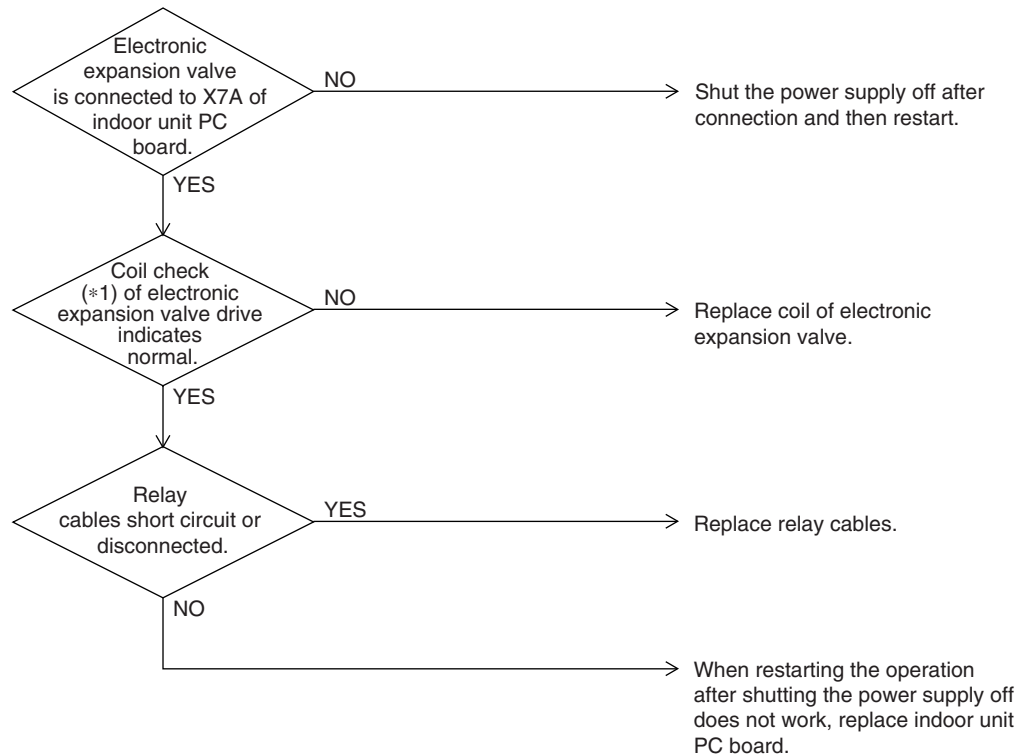
- Defective drive of electronic expansion valve
- Defective PC board of indoor unit
- Defective relay cables

Troubleshooting



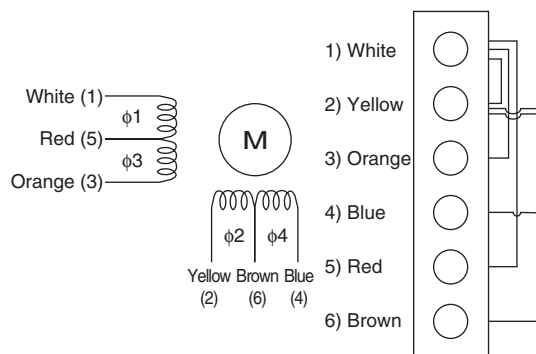
Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: How to check the coil of electronic expansion valve drive

Remove the connector for electronic expansion valve (X7A) from PC board. 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

3.7 “AF” Indoor Unit: Drain Level above Limit

Remote
Controller
Display

AF

Applicable
Models

FXCQ, FXFQ, FXSQ, FXKQ, FXMQ, FXDQ, FXMQ-MF

Method of
Malfunction
Detection

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

Malfunction
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

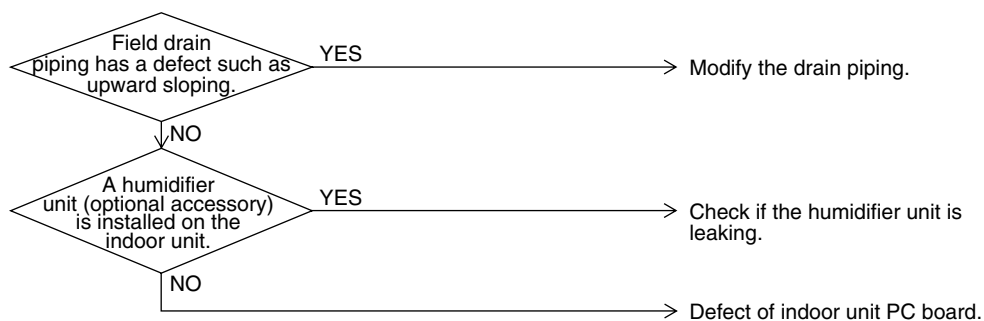
- Humidifier unit (optional accessory) leaking
- Defect of drain pipe (upward slope, etc.)
- Defect of indoor unit PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2782)

3.8 “RJ” Indoor Unit: Malfunction of Capacity Determination Device

Remote controller display

RJ

Applicable Models

All indoor unit models

Method of Malfunction Detection

Capacity is determined according to resistance of the capacity setting adaptor and the memory inside the IC memory on the indoor unit PC board, and whether the value is normal or abnormal is determined.

Malfunction Decision Conditions

When the capacity code is not contained in the PC board's memory, and the capacity setting adaptor is not connected.

Supposed Causes

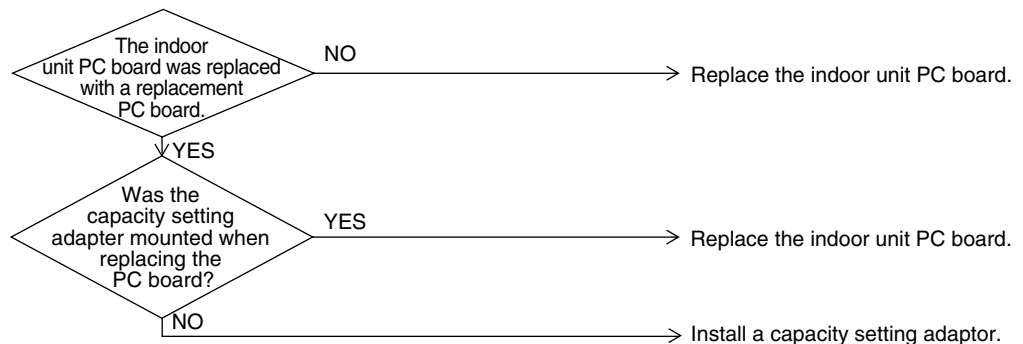
- The capacity setting adaptor was not installed.
- Defect of indoor unit PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2783)

3.9 “**C4**” Indoor Unit: Malfunction of Thermistor (R2T) for Heat Exchanger

Remote
Controller
Display

C4

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

Malfunction detection is carried out by temperature detected by heat exchanger thermistor.

Malfunction
Decision
Conditions

When the heat exchanger thermistor becomes disconnected or shorted while the unit is running.

Supposed
Causes

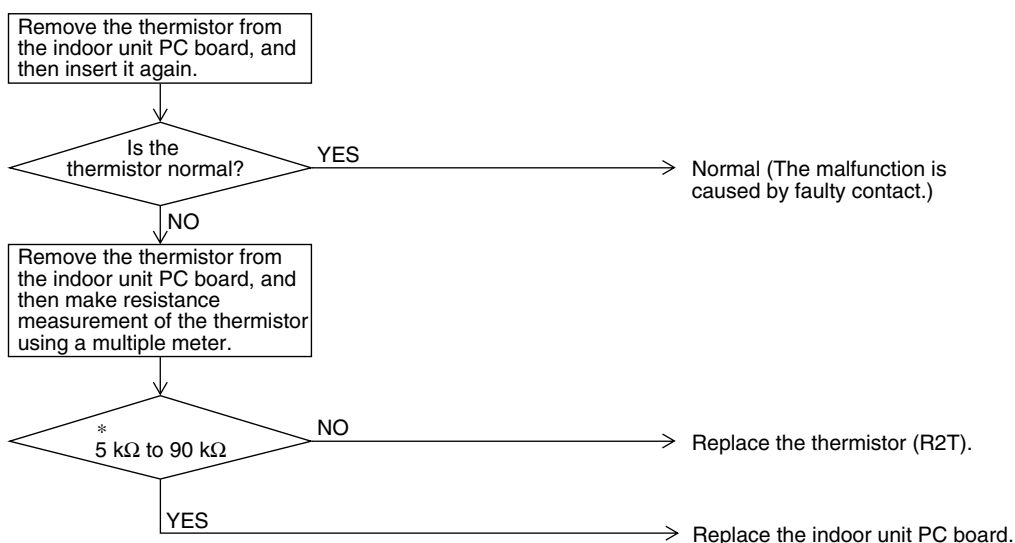
- Defect of thermistor (R2T) for liquid pipe
- Defect of indoor unit PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.10 “E5” Indoor Unit: Malfunction of Thermistor (R3T) for Gas Pipes

Remote
Controller
Display

E5

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

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

Supposed
Causes

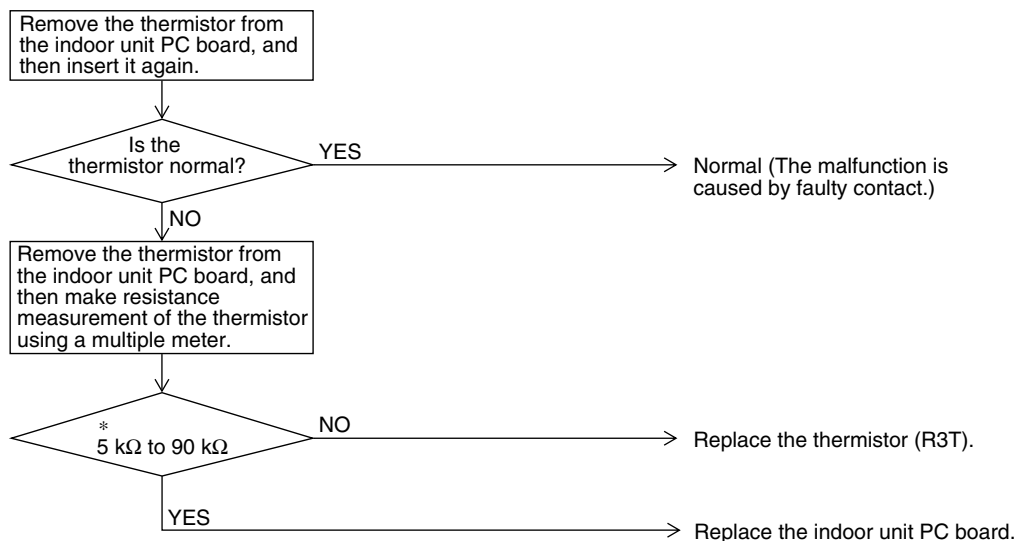
- Defect of indoor unit thermistor (R3T) for gas pipe
- Defect of indoor unit PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.11 “C9” Indoor Unit: Malfunction of Thermistor (R1T) for Suction Air

Remote
Controller
Display

C9

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

Malfunction detection is carried out by temperature detected by suction air temperature thermistor.

Malfunction
Decision
Conditions

When the suction air temperature thermistor becomes disconnected or shorted while the unit is running.

Supposed
Causes

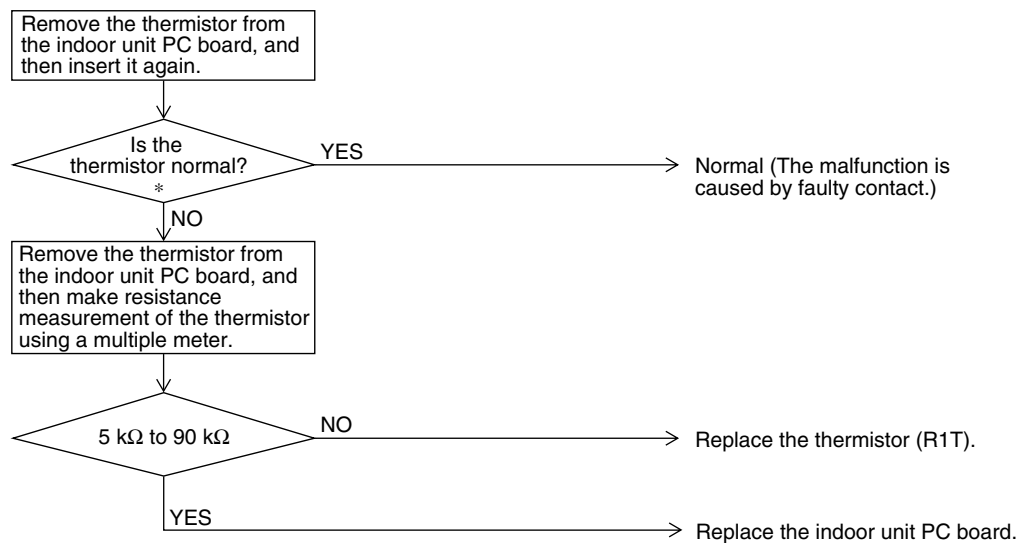
- Defect of indoor unit thermistor (R1T) for air inlet
- Defect of indoor unit PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.12 “CJ” Indoor Unit: Malfunction of Thermostat Sensor in Remote Controller

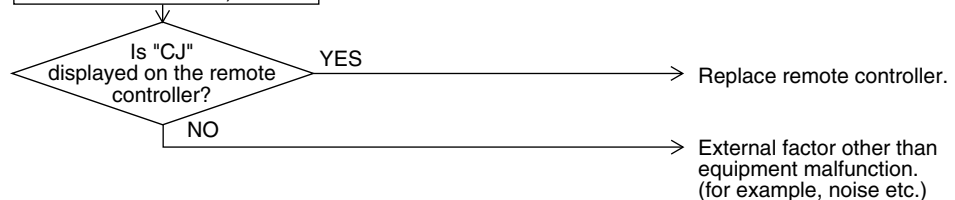
Remote Controller Display	CJ
Applicable Models	All indoor unit models
Method of Malfunction Detection	Malfunction detection is carried out by temperature detected by remote controller air temperature thermistor. (Note:)
Malfunction Decision Conditions	When the remote controller air temperature thermistor becomes disconnected or shorted while the unit is running.
Supposed Causes	<ul style="list-style-type: none"> ■ Defect of remote controller thermistor ■ Defect of remote controller PC board
Troubleshooting	



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Clear the malfunction code history. (While in inspection mode, press and hold the “ON/OFF” button for a period of five seconds or more.)



(V2787)



Note:

*1: How to delete “the record of malfunction codes”.

Press the “Operate/ Stop” button for 4 seconds and more while the malfunction code is displayed in the inspection mode.



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.13 “E1” Outdoor Unit: PC Board Defect

Remote
Controller
Display

E1

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

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

Supposed
Causes

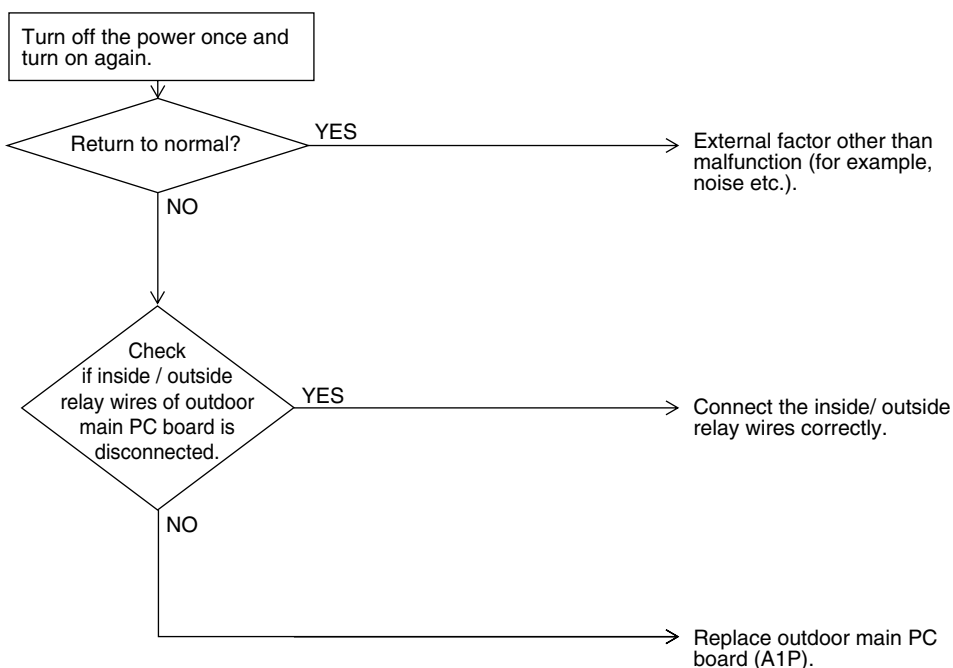
- Defect of outdoor unit PC board (A1P)
- Defective connection of inside/ outside relay wires

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3064)

3.14 “E3” Outdoor Unit: Actuation of High Pressure Switch

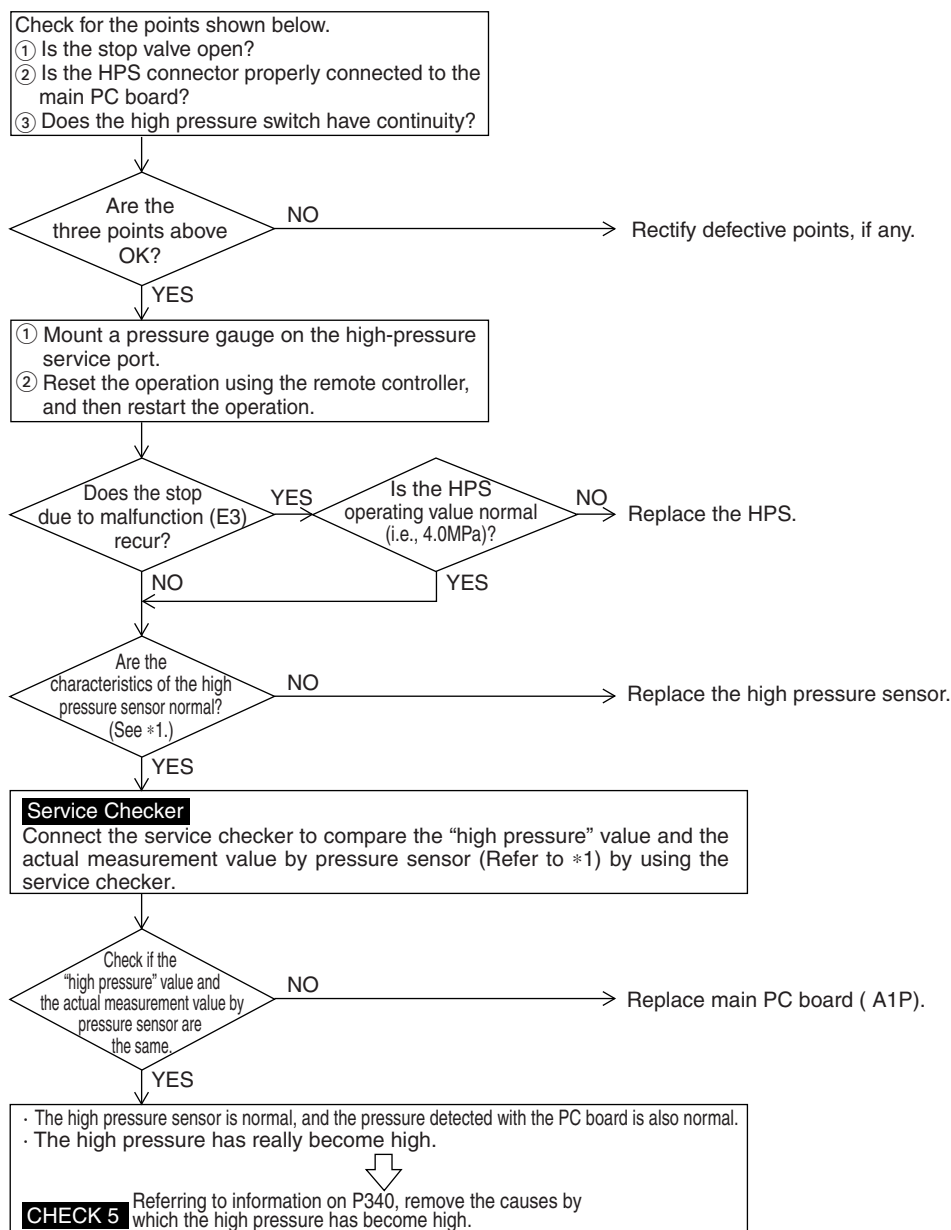
Remote Controller Display	E3
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Abnormality is detected when the contact of the high pressure protection switch opens.
Malfunction Decision Conditions	<p>Error is generated when the HPS activation count reaches the number specific to the operation mode.</p> <p>(Reference) Operating pressure of high pressure switch Operating pressure: 4.0MPa Reset pressure: 2.85MPa</p>
Supposed Causes	<ul style="list-style-type: none"> ■ Actuation of outdoor unit high pressure switch ■ Defect of High pressure switch ■ Defect of outdoor unit main PC board (A1P) ■ Instantaneous power failure ■ Faulty high pressure sensor

Troubleshooting

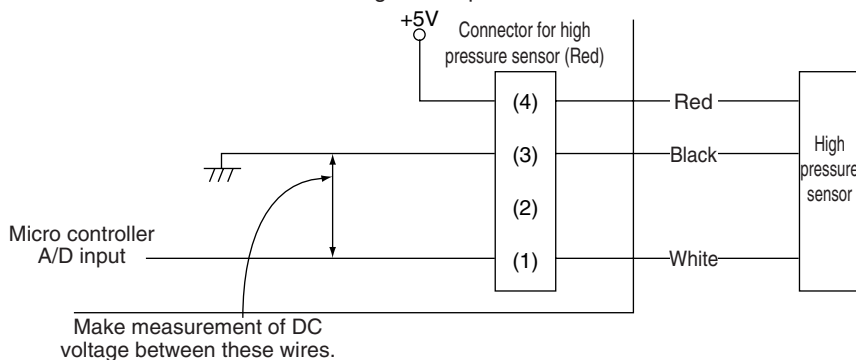


Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



- *1: Make a comparison between the voltage of the pressure sensor and that read by the pressure gauge.
(As to the voltage of the pressure sensor, make measurement of voltage at the connector, and then convert it to pressure according to information on P407.)
- *2: Make measurement of voltage of the pressure sensor.



3.15 “E4” Outdoor Unit: Actuation of Low Pressure Sensor

Remote
Controller
Display

E4

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Abnormality is detected by the pressure value with the low pressure sensor.

Malfunction
Decision
Conditions

Error is generated when the low pressure is dropped under compressor operation.
Operating pressure:0.07MPa

Supposed
Causes

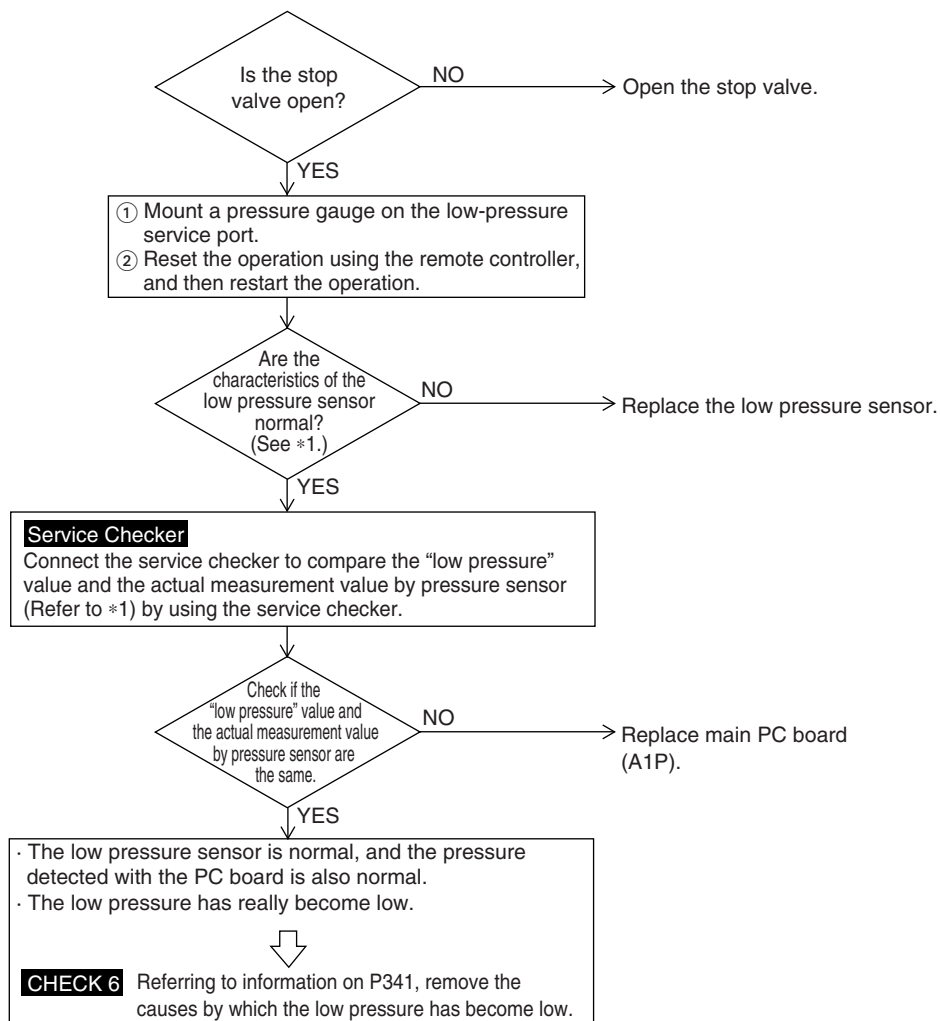
- Abnormal drop of low pressure (Lower than 0.07MPa)
- Defect of low pressure sensor
- Defect of outdoor unit PC board
- Stop valve is not opened.

Troubleshooting



Caution

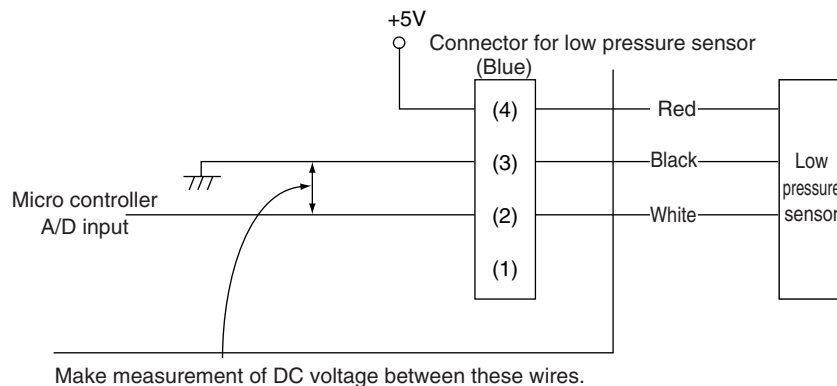
Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: Make a comparison between the voltage of the pressure sensor and that read by the pressure gauge.

(As to the voltage of the pressure sensor, make measurement of voltage at the connector, and then convert it to pressure according to information on P407.)

*2: Make measurement of voltage of the pressure sensor.



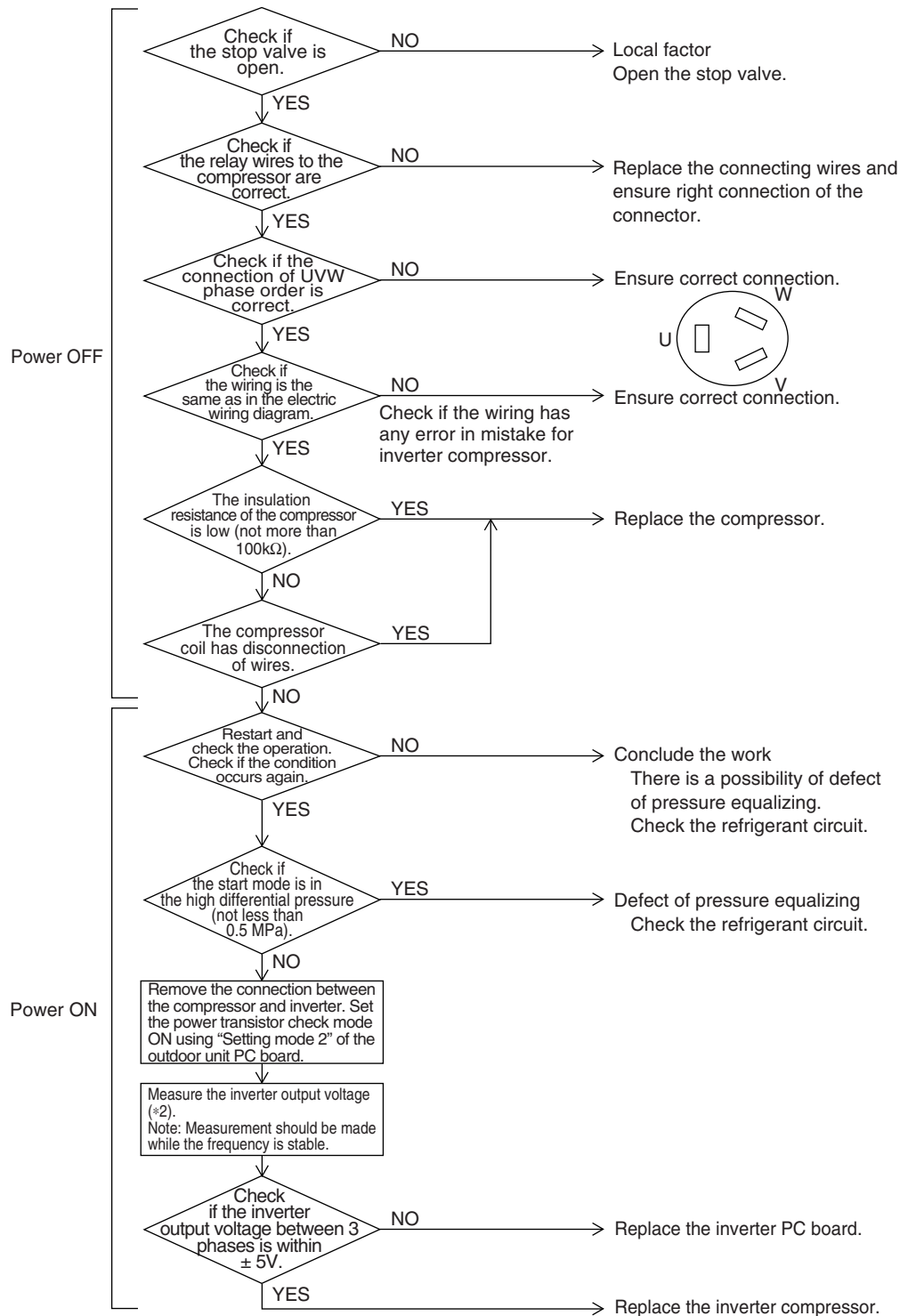
3.16 “E5” Outdoor Unit: Inverter Compressor Motor Lock

Remote Controller Display	E5
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Inverter PC board takes the position signal from UVW line connected between the inverter and compressor, and the malfunction is detected when any abnormality is observed in the phase-current waveform.
Malfunction Decision Conditions	This malfunction will be output when the inverter compressor motor does not start up even in forced startup mode.
Supposed Causes	<ul style="list-style-type: none">■ Inverter compressor lock■ High differential pressure (0.5MPa or more)■ Incorrect UVW wiring■ Faulty inverter PC board■ Stop valve is left in closed.

Troubleshooting

**Caution**

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*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** (P339).

3.17 “E6” Outdoor Unit: STD Compressor Motor Overcurrent/Lock

Remote
Controller
Display

E6

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Detects the overcurrent with current sensor (CT).

Malfunction
Decision
Conditions

Malfunction is decided when the detected current value exceeds the below mentioned value for 2 seconds.

■ 400 V unit : 15.0 A

Supposed
Causes

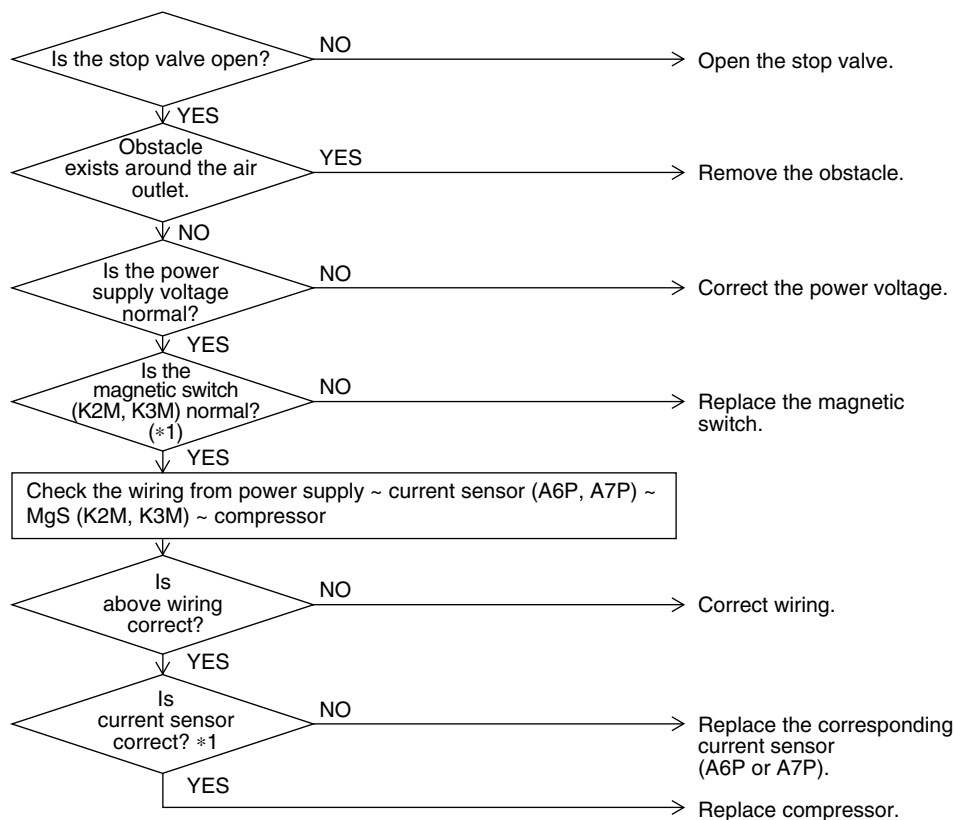
- Closed stop valve
- Obstacles at the air outlet
- Improper power voltage
- Faulty magnetic switch
- Faulty compressor
- Faulty current sensor (A6P, A7P)

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



Note:

*1 One of the possible factors may be chattering due to rough MgS contact.

*2 Abnormal case

■ The current sensor value is 0 during STD compressor operation.

■ The current sensor value is more than 15.0A during STD compressor stop.

(V3051)

3.18 “E7” Outdoor Unit: Malfunction of Outdoor Unit Fan Motor

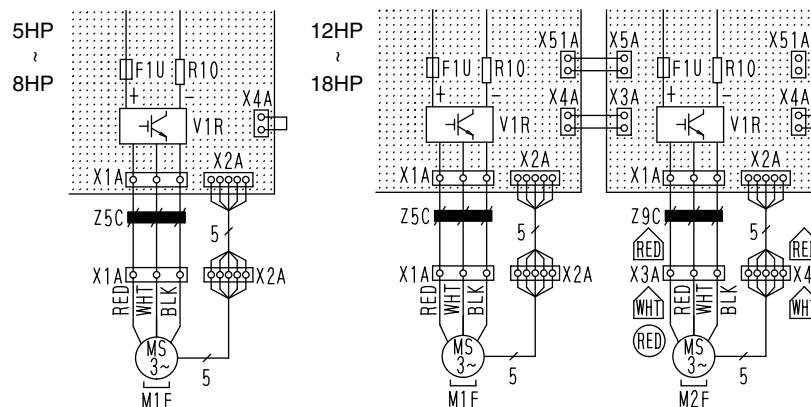
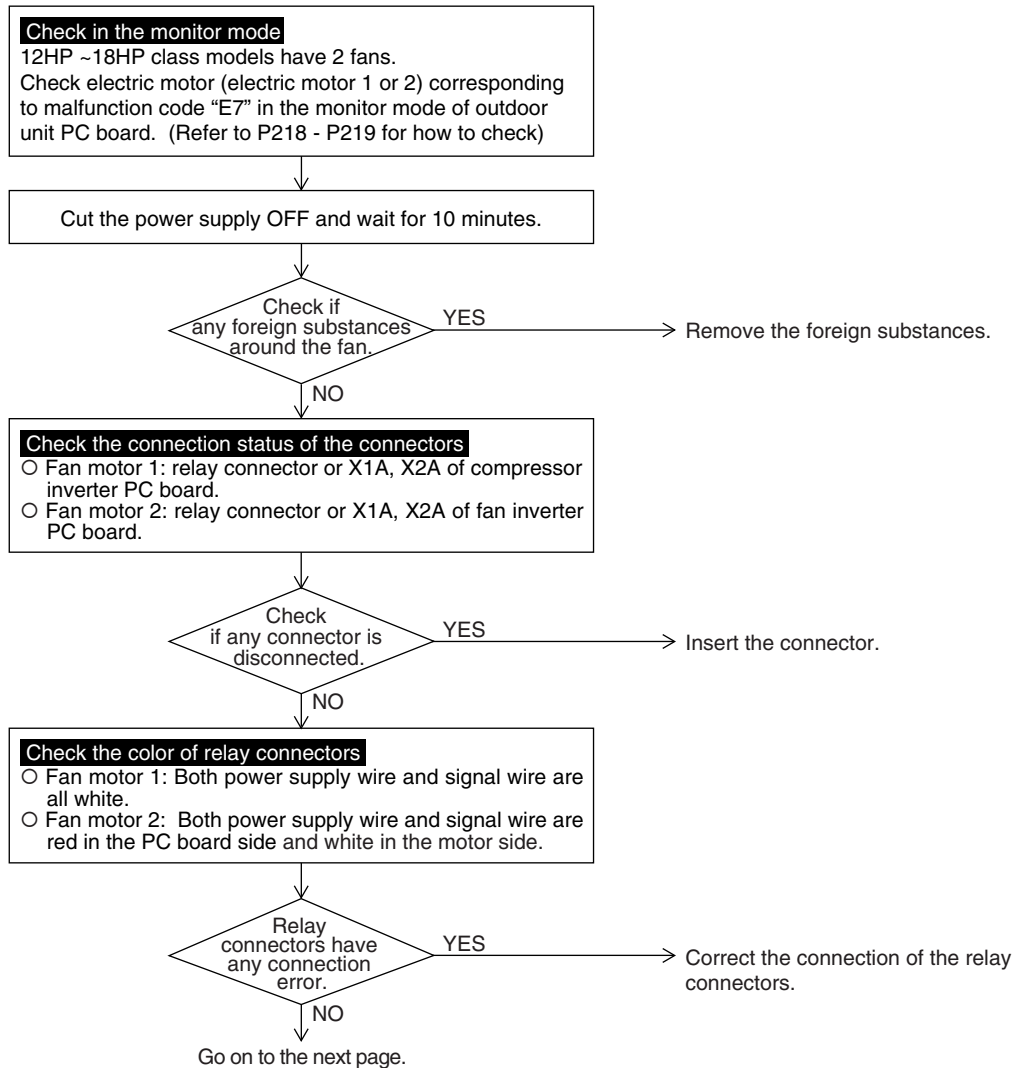
Remote Controller Display	E7
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	<p>Detect a malfunction based on the current value in the INVERTER PC board (as for motor 2, current value in the fan PC board).</p> <p>Detect a malfunction for the fan motor circuit based on the number of rotation detected by hole IC during the fan motor operation.</p>
Malfunction Decision Conditions	<ul style="list-style-type: none"> ■ Overcurrent is detected for INVERTER PC board (A2P) or fan INVERTER PC board (A5P) (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	<ul style="list-style-type: none"> ■ Failure of fan motor ■ Defect or connect ion error of the connectors/ harness between the fan motor and PC board ■ The fan can not rotate due to any foreign substances entangled. ■ Clear condition: Continue normal operation for 5 minutes

Troubleshooting

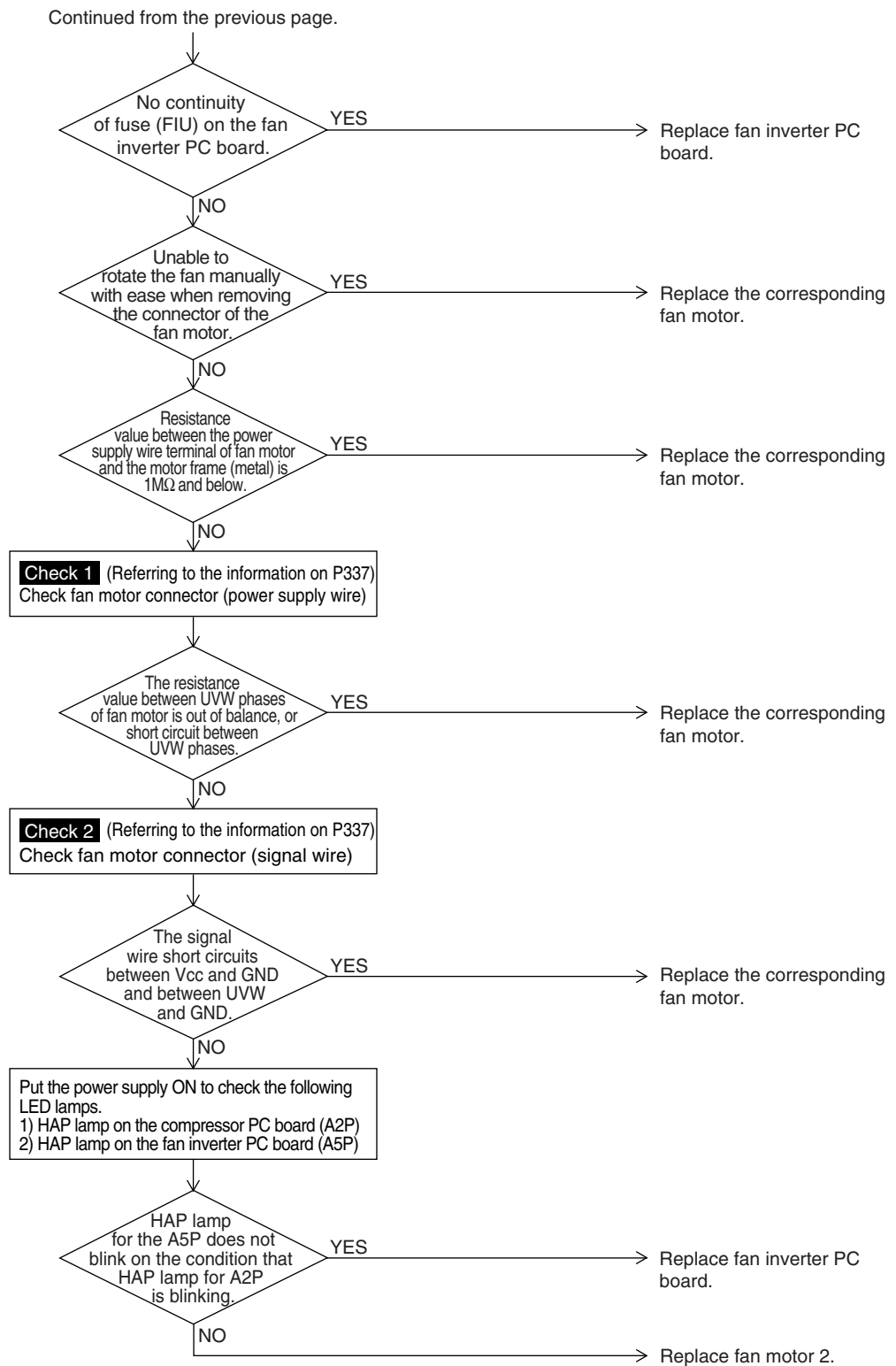


Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



Troubleshooting



3.19 “E9” Outdoor Unit: Malfunction of Moving Part of Electronic Expansion Valve (Y1E~Y5E)

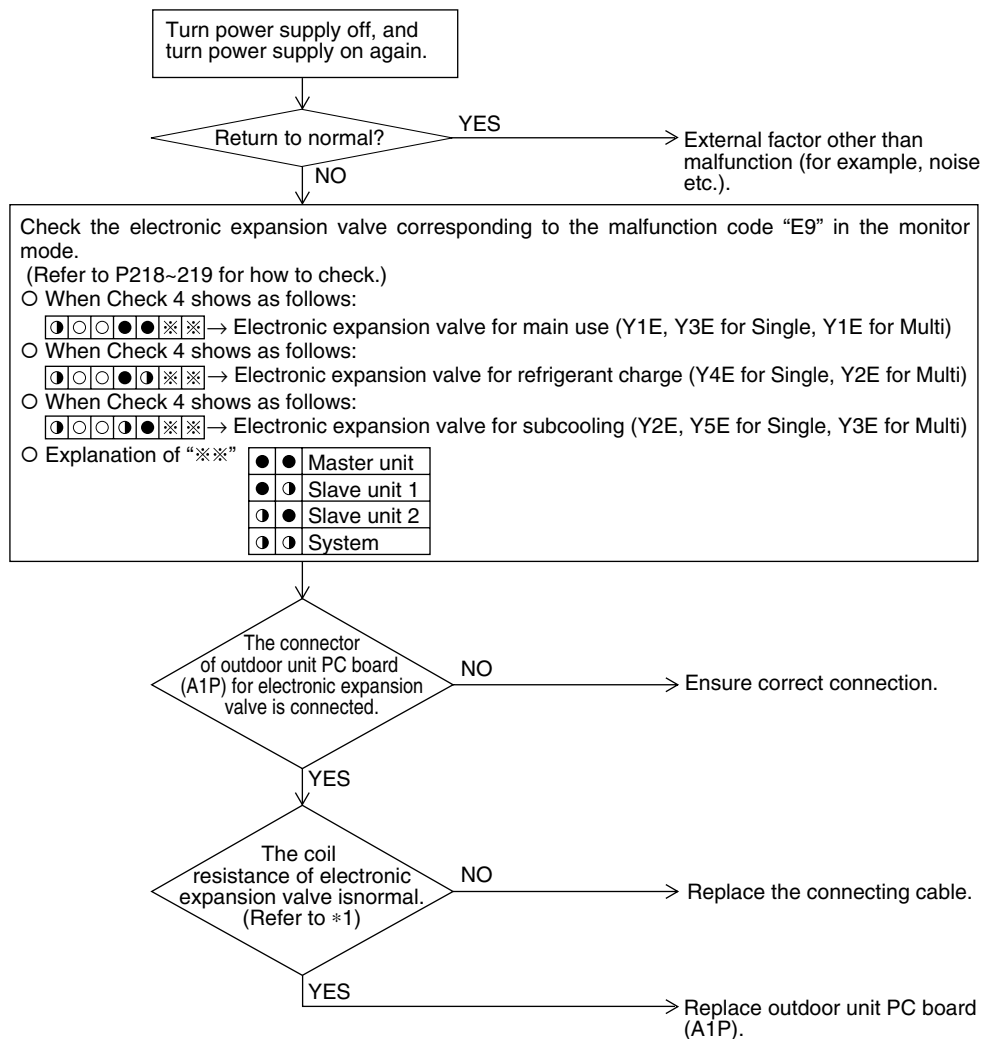
Remote Controller Display	E9
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Check disconnection of connector To be detected based on continuity existence of coil of electronic expansion valve
Malfunction Decision Conditions	No current is detected in the common (COM [+]) when power supply is ON.
Supposed Causes	<ul style="list-style-type: none"> ■ Disconnection of connectors for electronic expansion valve (Y1E) ■ Defect of moving part of electronic expansion valve ■ Defect of outdoor unit main PC board (A1P)

Troubleshooting



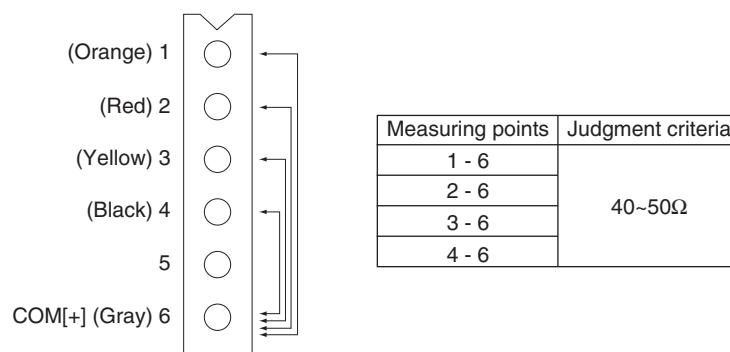
Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3067)

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



(V3067)

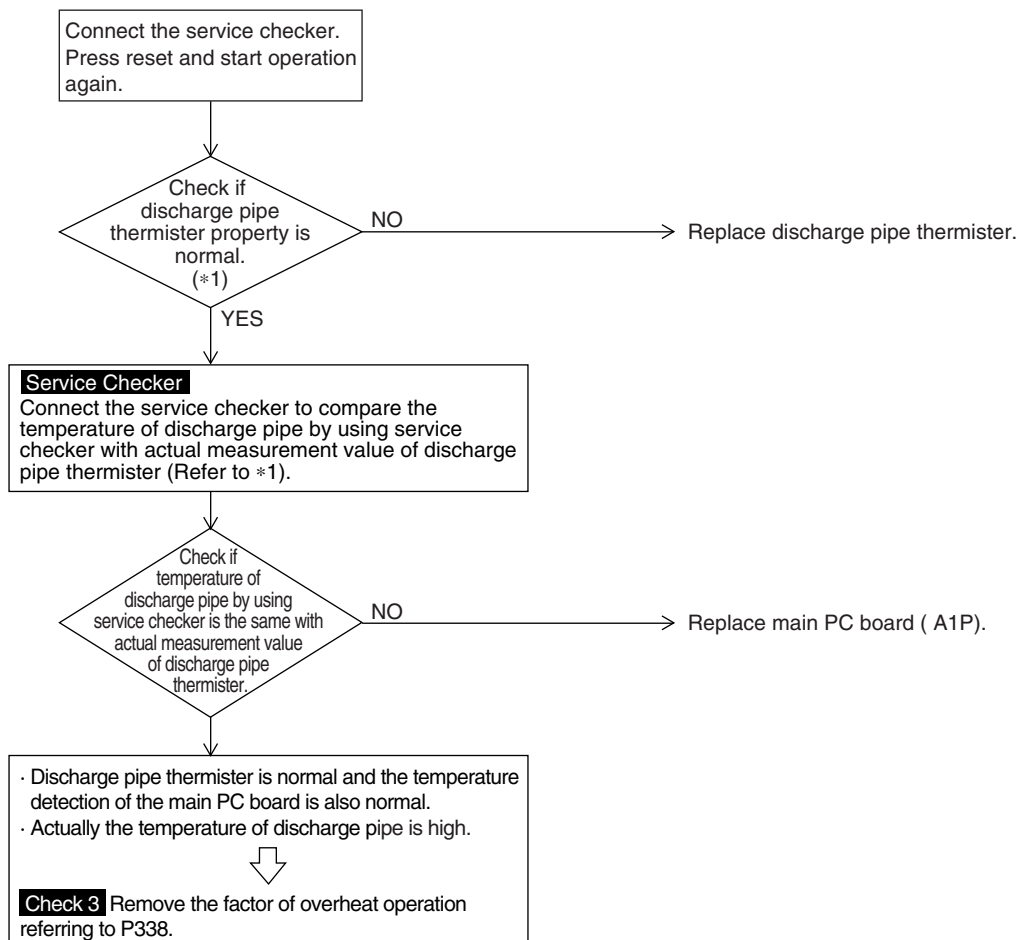
3.20 “F3” Outdoor Unit: Abnormal Discharge Pipe Temperature

Remote Controller Display	F3
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Abnormality is detected according to the temperature detected by the discharge pipe temperature sensor.
Malfunction 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	<ul style="list-style-type: none"> ■ Faulty discharge pipe temperature sensor ■ Faulty connection of discharge pipe temperature sensor ■ Faulty outdoor unit PC board

Troubleshooting


Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: Compare the resistance value of discharge pipe thermister and the value based on the surface thermometer.
(Refer to P395 for the temperature of thermister and the resistance property)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.21 “F6” Outdoor Unit: Refrigerant Overcharged

Remote
Controller
Display

F6

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Excessive charging of refrigerant is detected by using the outside air temperature, heat exchanging deicer temperature and liquid pipe temperature during a check run.

Malfunction
Decision
Conditions

When the amount of refrigerant, which is calculated by using the outside air temperature, heat exchanging deicer temperature and liquid pipe temperature during a check run, exceeds the standard.

Supposed
Causes

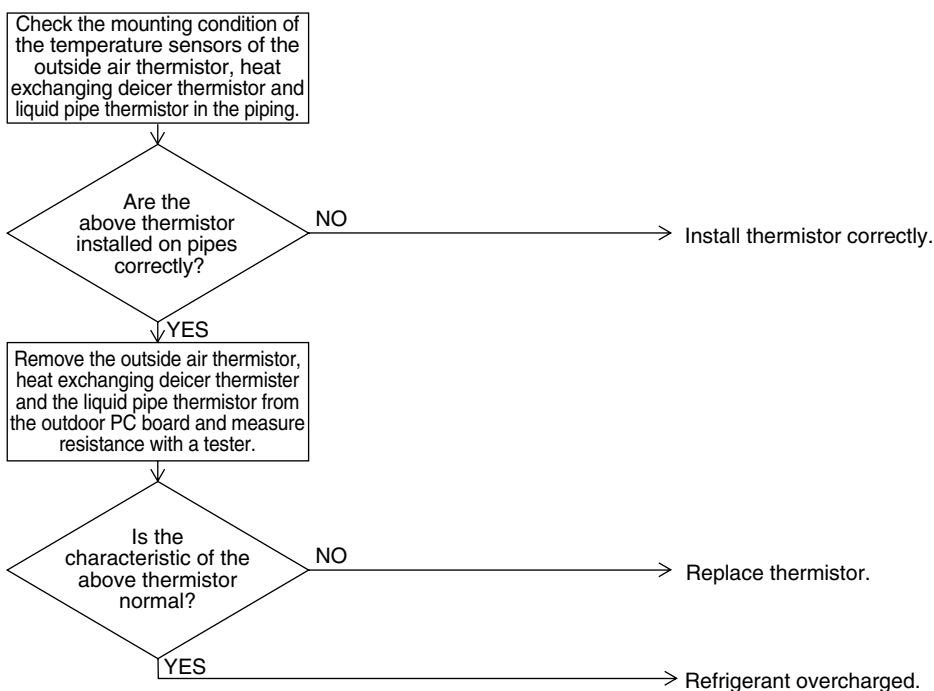
- Refrigerant overcharge
- Misalignment of the outside air thermistor
- Misalignment of the heat exchanging deicer thermistor
- Misalignment of the liquid pipe thermistor

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2797)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.22 “F9” Malfunction of BS Unit Electronic Expansion Valve

3.23 “H7” Outdoor Unit: Abnormal Outdoor Fan Motor Signal

Remote
Controller
Display

H7

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Detection of abnormal signal from fan motor.

Malfunction
Decision
Conditions

In case of detection of abnormal signal at starting fan motor.

Supposed
Causes

- Abnormal fan motor signal (circuit malfunction)
- Broken, short or disconnection connector of fan motor connection cable
- Fan Inverter PC board malfunction (A2P)

Troubleshooting

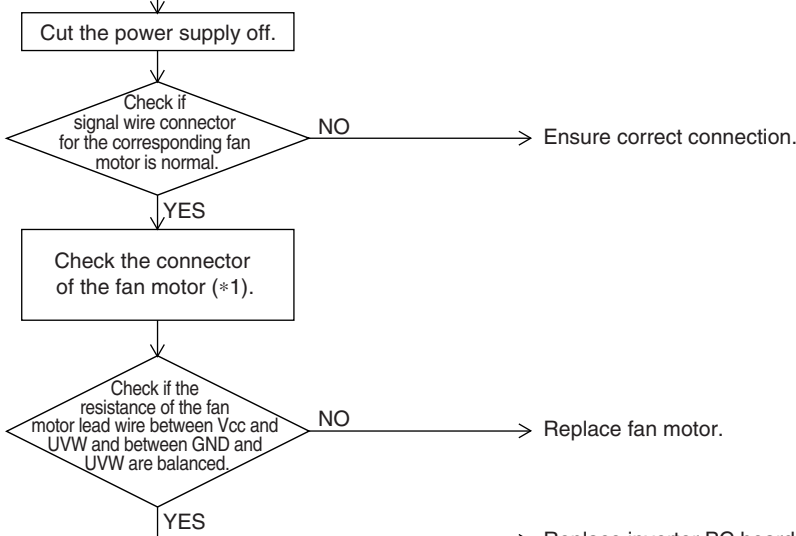


Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Check the fan motor corresponding to the malfunction code "H7" in the monitor mode.
 (Refer to P226~227 for how to check)
 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



*1. Check procedure for fan motor connector

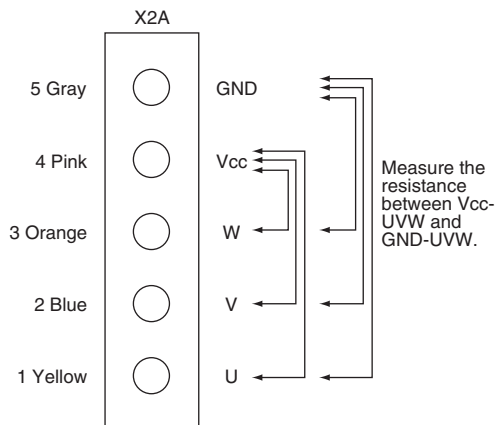
(1) Power OFF the fan motor.

(2) Remove the connector (X2A or X4A) on the PC board to measure the following resistance value.

Judgment criteria: resistance value between each phase is within $\pm 20\%$

Connector for signal wires (X2A or X4A)

- For fan motor 1: replace inverter PC board (A2P)
- For fan motor 2: replace fan inverter PC board (A5P)



(V2799)

3.24 “H9” Outdoor Unit: Malfunction of Thermistor (R1T) for Outdoor Air

Remote
Controller
Display

H9

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Malfunction is detected from the temperature detected by the outdoor air thermistor.

Malfunction
Decision
Conditions

When the outside air temperature thermistor has short circuit or open circuit.

Supposed
Causes

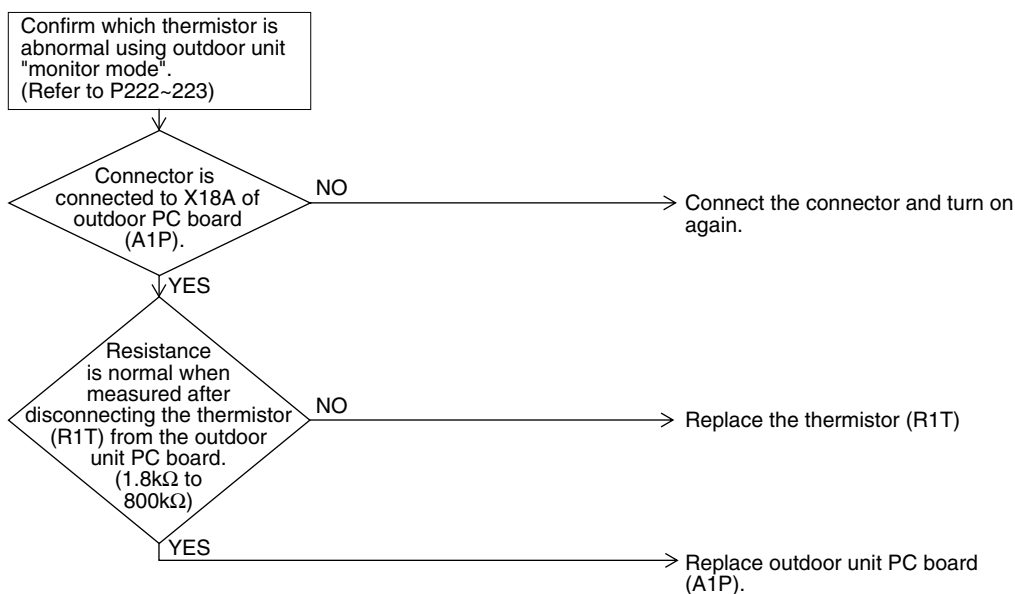
- Defective thermistor connection
- Defect of thermistor (R1T) for outdoor air
- Defect of outdoor unit PC board (A1P)

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.25 “J2” Outdoor Unit: Current Sensor Malfunction

Remote Controller Display	J2
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Malfunction is detected according to the current value detected by current sensor.
Malfunction Decision Conditions	When the current value detected by current sensor becomes 5A or lower, or 40A or more during standard compressor operation.
Supposed Causes	<ul style="list-style-type: none"> ■ Faulty current sensor (A6P, A8P) ■ Faulty outdoor unit PC board ■ Defective compressor

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Check the current sensor corresponding to the malfunction code "J2" in the monitor mode.

(Refer to P226~227 for how to check)

○ Check 4 shows as follows:

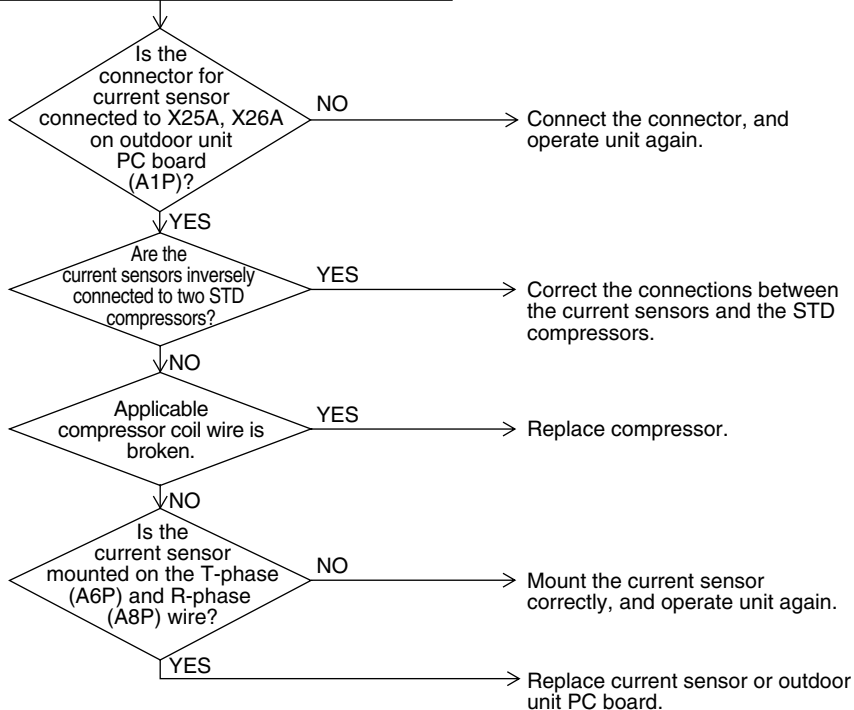
 → Current sensor for constant rate compressor 1

○ Check 4 shows as follows:

 → Current sensor for constant rate compressor 2

○ Explanation for “※※”

●	●	Master unit
●	○	Slave unit 1
○	●	Slave unit 2
○	○	System



(V3071)

3.26 “J3” Outdoor Unit: Malfunction of Discharge Pipe Thermistor (R31, 32T, 33T)

Remote
Controller
Display

J3

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Malfunction is detected from the temperature detected by discharge pipe temperature thermistor.

Malfunction
Decision
Conditions

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

Supposed
Causes

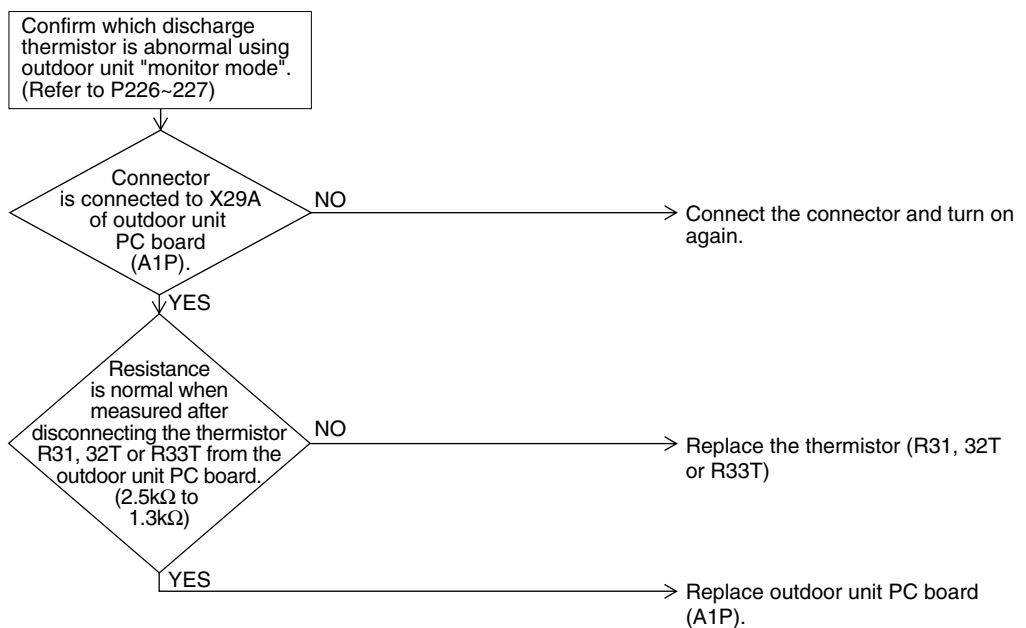
- Defect of thermistor (R31T, R32T, R33T) for outdoor unit discharge pipe
- Defect of outdoor unit PC board (A1P)
- Defect of thermistor connection

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3072)

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



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.27 “J4” Outdoor Unit: Malfunction of Temperature Sensor for Heat Exchanger Gas (R2T or R11T)

Remote
Controller
Display

J4

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Detect malfunction based on the temperature detected by each thermistor.

Malfunction
Decision
Conditions

In operation, when a thermistor is disconnected or short circuits.

Supposed
Causes

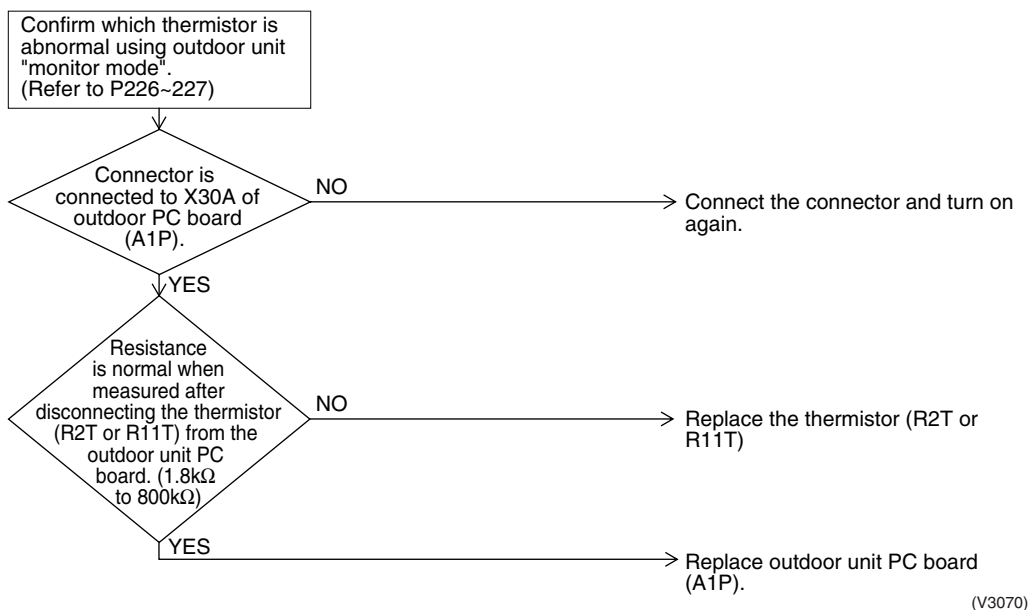
- Defective connection of thermistor
- Defective thermistor
- Defective outdoor unit PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.28 “J5” Outdoor Unit: Malfunction of Thermistor (R8T or R10T) for Suction Pipe

Remote
Controller
Display

J5

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Malfunction is detected from the temperature detected by the suction pipe temperature thermistor.

Malfunction
Decision
Conditions

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

Supposed
Causes

- Defect of thermistor (R8T or R10T) for outdoor unit suction pipe
- Defect of outdoor unit PC board (A1P)
- Defect of thermistor connection

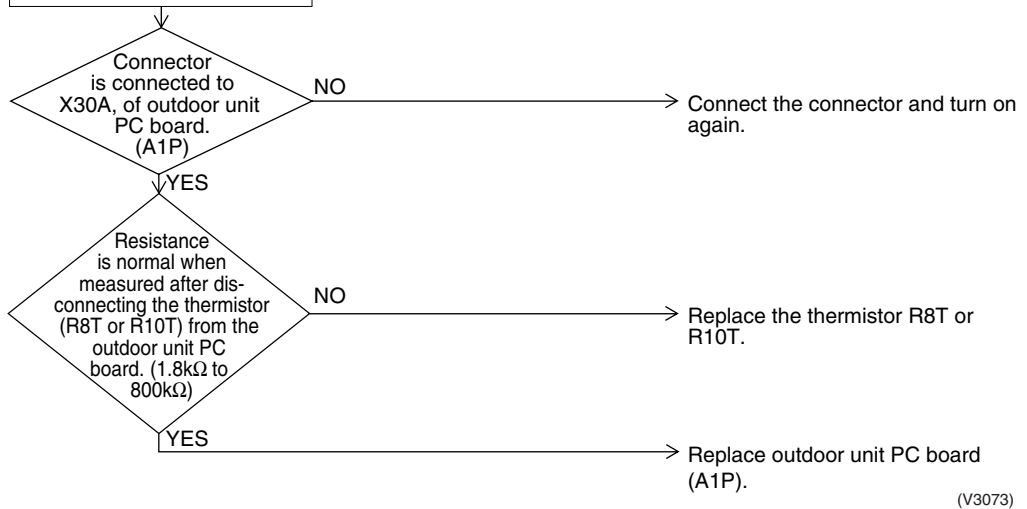
Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Confirm which discharge thermistor is abnormal using outdoor unit "monitor mode". (Refer to P226~227)



(V3073)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.29 “J6” Outdoor Unit: Malfunction of Thermistor (R4T or R12T) for Outdoor Unit Heat Exchanger

Remote
Controller
Display

J6

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Malfunction is detected from the temperature detected by the heat exchanger thermistor.

Malfunction
Decision
Conditions

When a short circuit or an open circuit in the heat exchange thermistor is detected.

Supposed
Causes

- Defect of thermistor (R4T or R12T) for outdoor unit coil
- Defect of outdoor unit PC board (A1P)
- Defect of thermistor connection

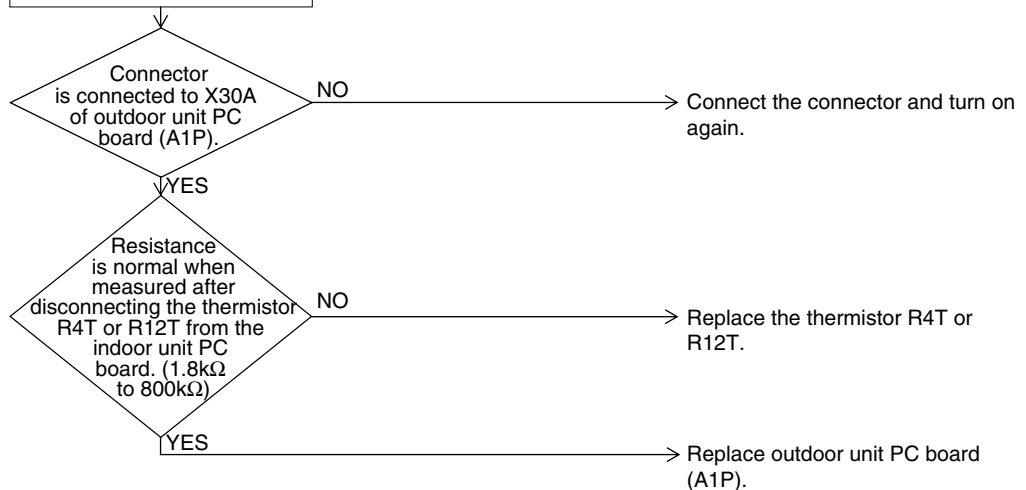
Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Confirm which thermistor is abnormal using outdoor unit "monitor mode".
(Refer to P226~227)



(V3074)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.30 “J7” Outdoor Unit: Malfunction of Liquid Pipe Thermistor 1 (R6T), (R9T) or (R14T)

Remote
Controller
Display

J7

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Malfunction is detected according to the temperature detected by liquid pipe thermistor.

Malfunction
Decision
Conditions

When the liquid pipe thermistor is short circuited or open.

Supposed
Causes

- Faulty liquid pipe thermistor 1 (R6T), (R9T) or (R14T)
- Faulty outdoor unit PC board
- Defect of thermistor connection

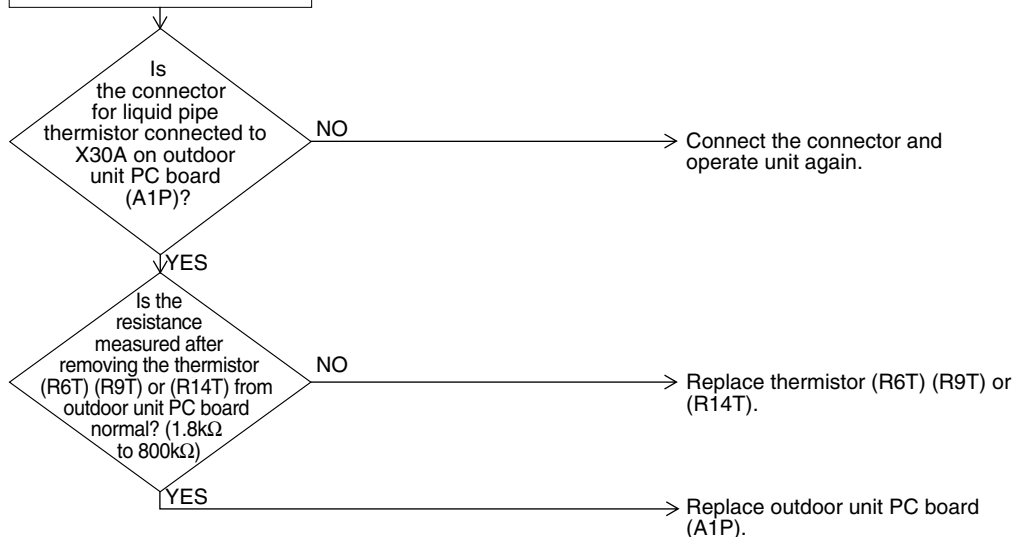
Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Confirm which thermistor is abnormal using outdoor unit "monitor mode".
(Refer to P226~227)



(V3075)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.31 “J8” Outdoor Unit: Malfunction of Liquid Pipe Thermistor 2 (R7T or R15T)

Remote
Controller
Display

J8

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Malfunction is detected according to the temperature detected by liquid pipe thermistor.

Malfunction
Decision
Conditions

When the liquid pipe thermistor is short circuited or open.

Supposed
Causes

- Faulty liquid pipe thermistor 2 (R7T or R15T)
- Faulty outdoor unit PC board
- Defect of thermistor connection

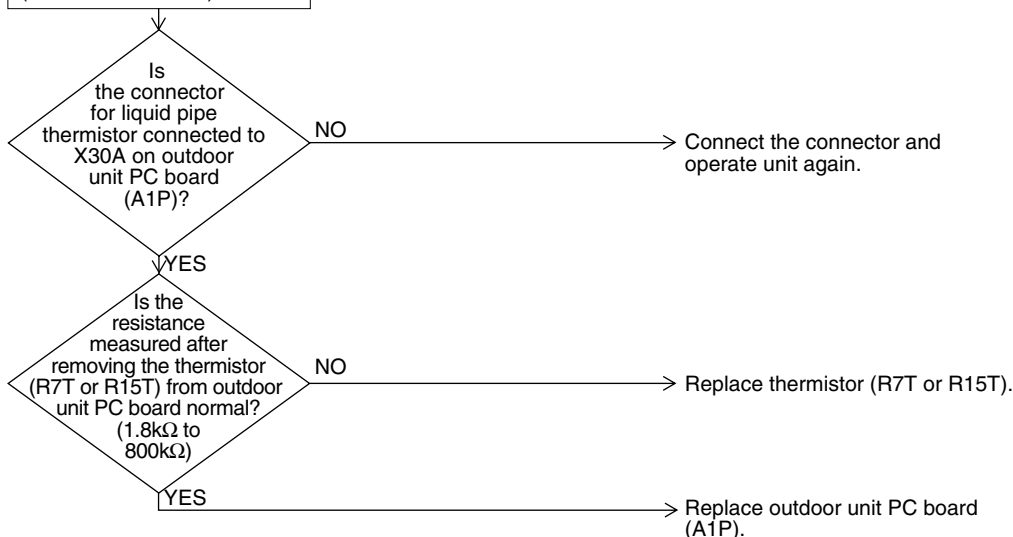
Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Confirm which thermistor is abnormal using outdoor unit "monitor mode".
(Refer to P226~227)



(V3075)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.32 “J9” Outdoor Unit: Malfunction of Subcooling Heat Exchanger Gas Pipe Thermistor (R5T or R13T)

Remote
Controller
Display

J9

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Malfunction is detected according to the temperature detected by subcooling heat exchanger gas pipe thermistor.

Malfunction
Decision
Conditions

When the subcooling heat exchanger gas pipe thermistor is short circuited or open.

Supposed
Causes

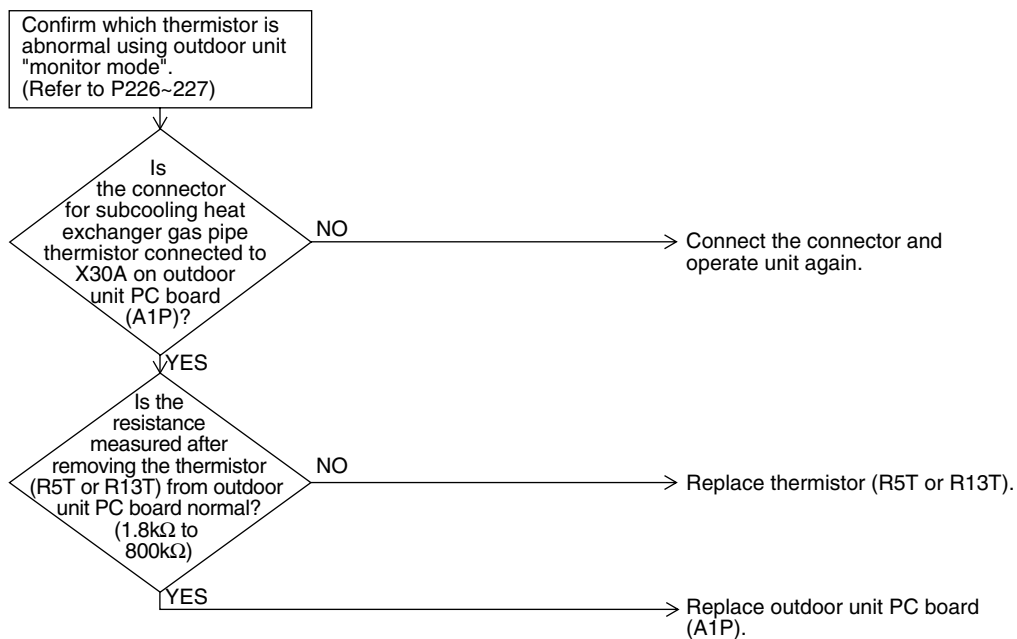
- Faulty subcooling heat exchanger gas pipe thermistor (R5T or R13T)
- Faulty outdoor unit PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3075)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P405.

3.33 “JA” Outdoor Unit: Malfunction of High Pressure Sensor

Remote
Controller
Display

JA

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Malfunction is detected from the pressure detected by the high pressure sensor.

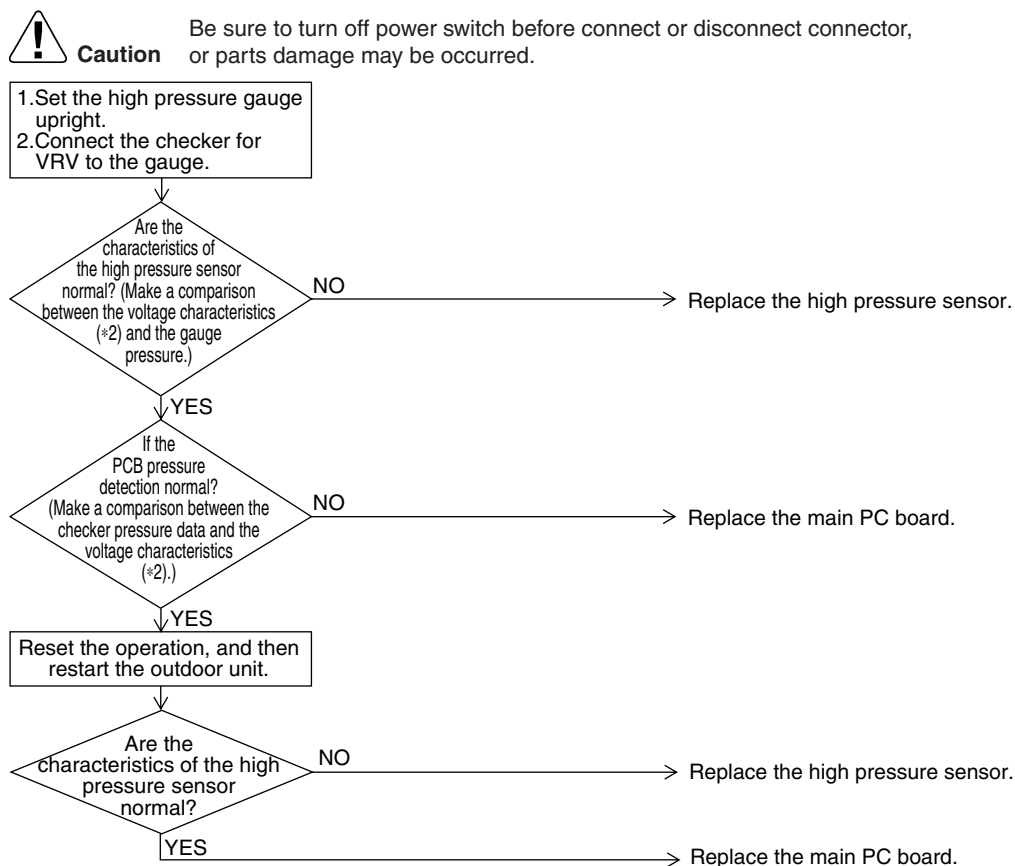
Malfunction
Decision
Conditions

When the high pressure sensor is short circuit or open circuit.
(Not less than 4.22MPa, or 0.01MPa and below)

Supposed
Causes

- Defect of high pressure sensor system
- Connection of low pressure sensor with wrong connection.
- Defect of outdoor unit PC board.
- Defective connection of high pressure sensor

Troubleshooting

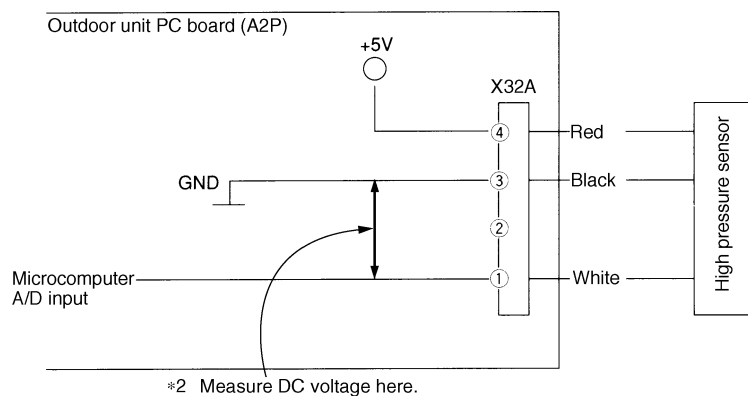


*1: Pressure sensor subject to malfunction code

Malfunction code	Pressure sensor subject to malfunction code	Electric symbol
JA	High pressure sensor	S1NPH

(V2806)

*2: Voltage measurement point



(V2807)



*2: Refer to "Pressure Sensor, Pressure / Voltage Characteristics" table on P407.

3.34 “JC” Outdoor Unit: Malfunction of Low Pressure Sensor

Remote
Controller
Display



Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Malfunction is detected from pressure detected by low pressure sensor.

Malfunction
Decision
Conditions

When the low pressure sensor is short circuit or open circuit.
(Not less than 1.77MPa, or -0.01MPa and below)

Supposed
Causes

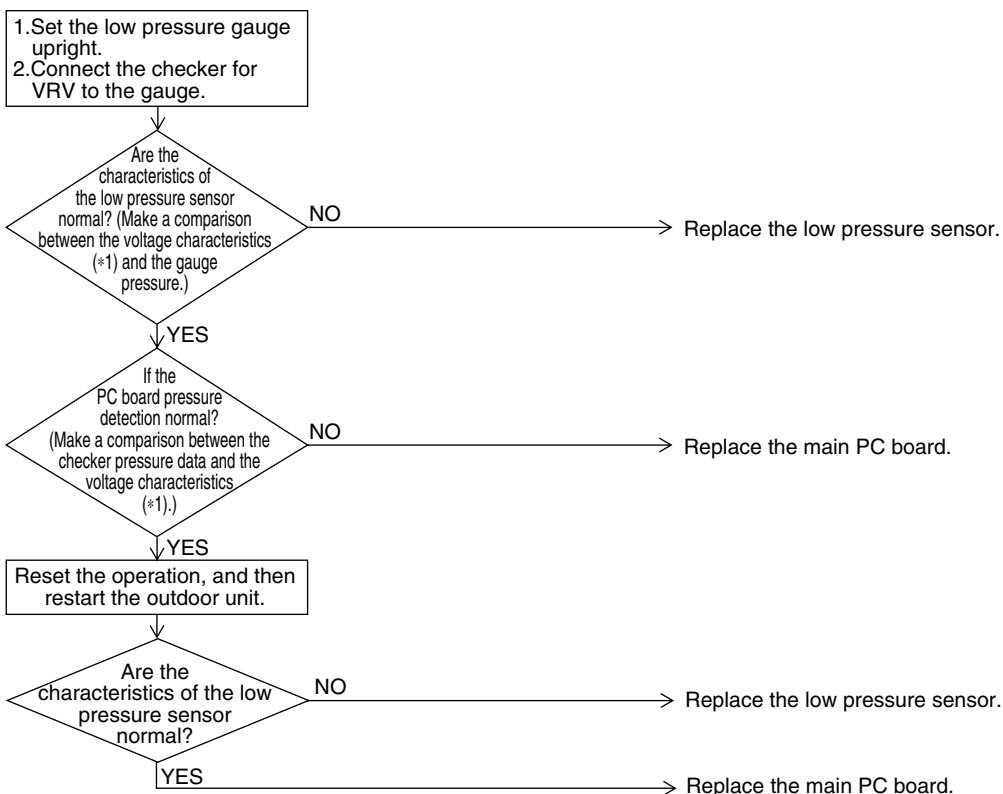
- Defect of low pressure sensor system
- Connection of high pressure sensor with wrong connection.
- Defect of outdoor unit PC board.
- Defective connection of low pressure sensor

Troubleshooting



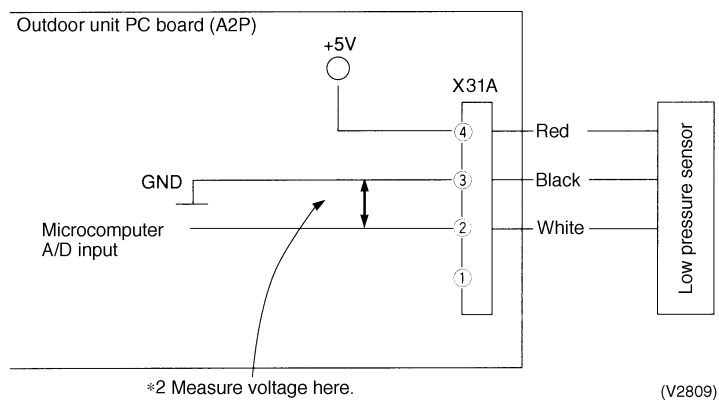
Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2808)

*1: Voltage measurement point



*2: Refer to "Pressure Sensor, Pressure / Voltage Characteristics" table on P407.

3.35 “L1” Outdoor Unit: Defective Inverter PC Board

Remote
Controller
Display

L1

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Malfunction is detected based on the current value during waveform output before starting compressor.
Malfunction is detected based on the value from current sensor during synchronous operation when starting the unit.

Malfunction
Decision
Conditions

Overcurrent (OCP) flows during waveform output.
Malfunction of current sensor during synchronous operation.
IPM failure.

Supposed
Causes

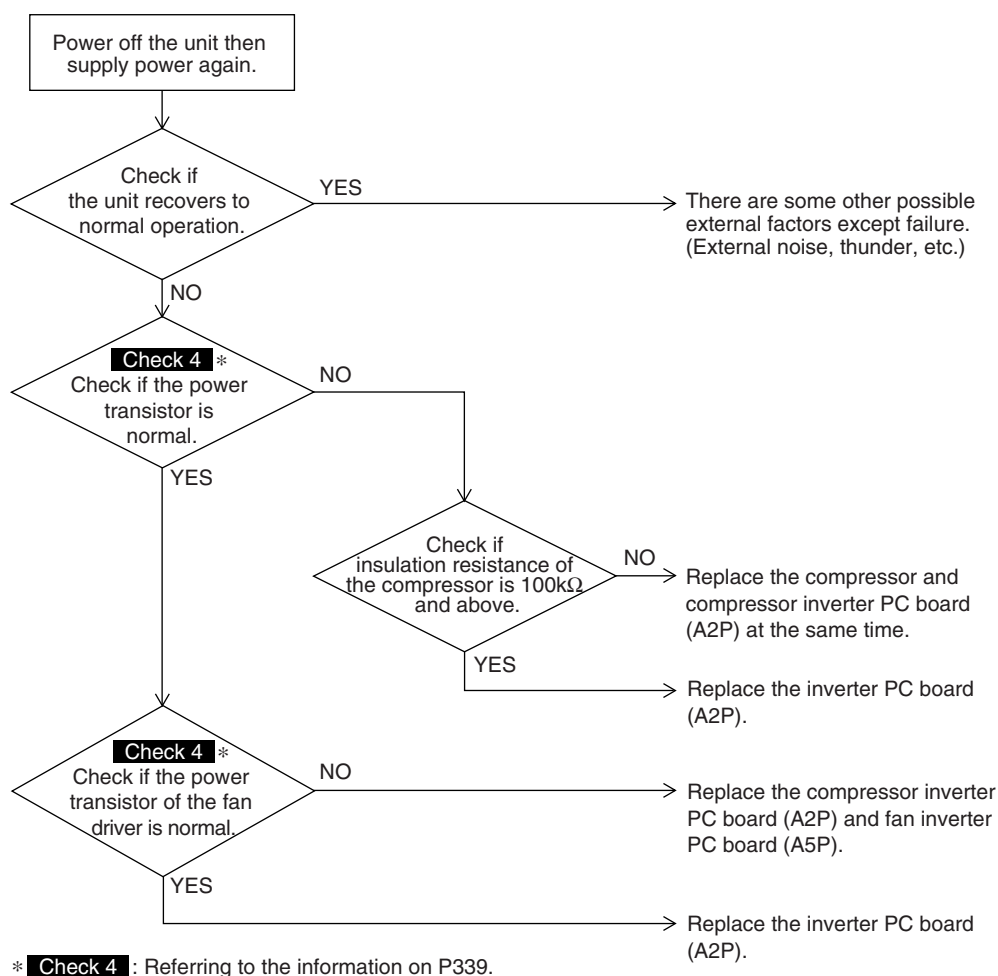
- Inverter PC board (A2P)
 - IPM failure
 - Current sensor failure
 - Drive circuit failure

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



3.36 “L4” Outdoor Unit: Malfunction of Inverter Radiating Fin Temperature Rise

Remote
Controller
Display

L4

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Fin temperature is detected by the thermistor of the radiation fin.

Malfunction
Decision
Conditions

When the temperature of the inverter radiation fin increases above 93°C.

Supposed
Causes

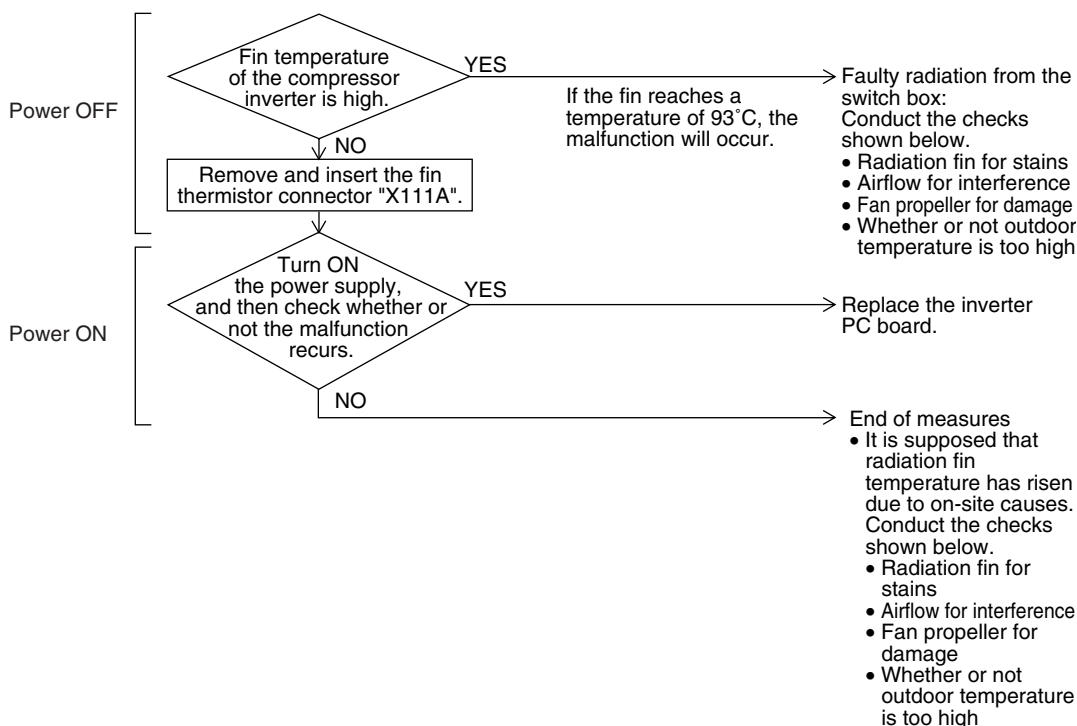
- Actuation of fin thermal (Actuates above 93°C)
- Defect of inverter PC board
- Defect of fin thermistor

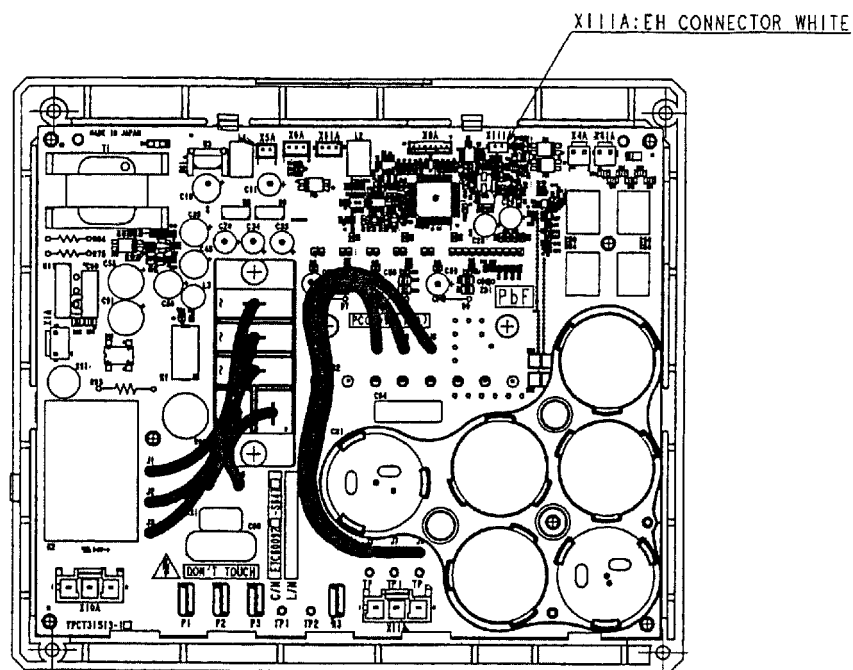
Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.





Inverter PC board for compressor



* Refer to "Thermistor Resistance / Temperature Characteristics" table on P405.

3.37 “L5” Outdoor Unit: Momentary Overcurrent of Inverter Compressor

Remote Controller Display	L5
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Malfunction is detected from current flowing in the power transistor.
Malfunction Decision Conditions	When an excessive current flows in the power transistor. (Instantaneous overcurrent also causes activation.)
Supposed Causes	<ul style="list-style-type: none"> ■ Defect of compressor coil (disconnected, defective insulation) ■ Compressor start-up malfunction (mechanical lock) ■ Defect of inverter PC board

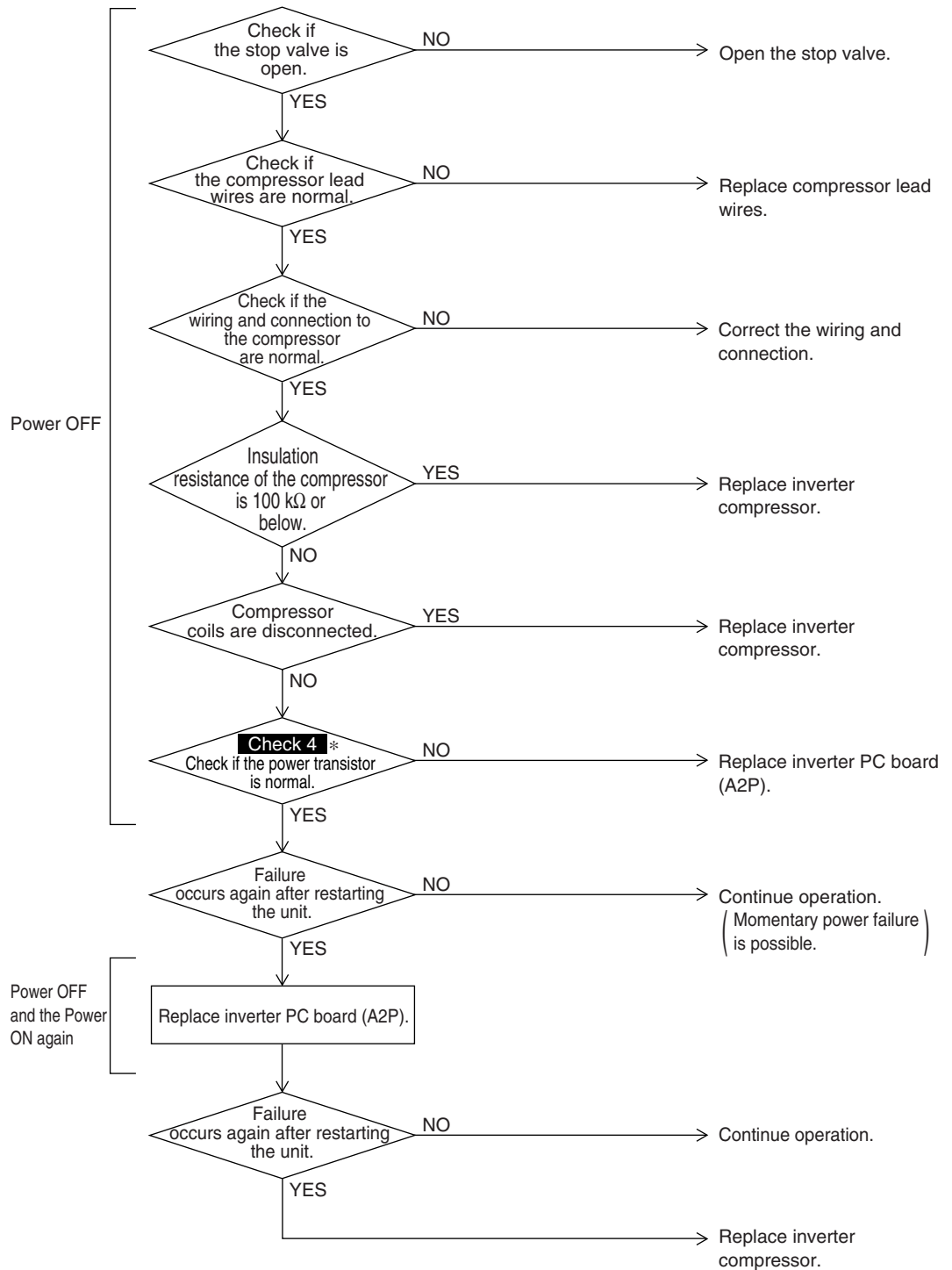
Troubleshooting

Compressor inspection



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



* **Check 4** : Referring to the information on P339.

3.38 “L8” Outdoor Unit: Momentary Overcurrent of Inverter Compressor

Remote Controller Display	L8
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Malfunction is detected by current flowing in the power transistor.
Malfunction Decision Conditions	When overload in the compressor is detected. (Inverter secondary current 16.1A) (1) 33.5A and over continues for 5 seconds. (2) 27.6A and over continues for 260 seconds.
Supposed Causes	<ul style="list-style-type: none"> ■ Compressor overload ■ Compressor coil disconnected ■ Defect of inverter PC board ■ Faulty compressor

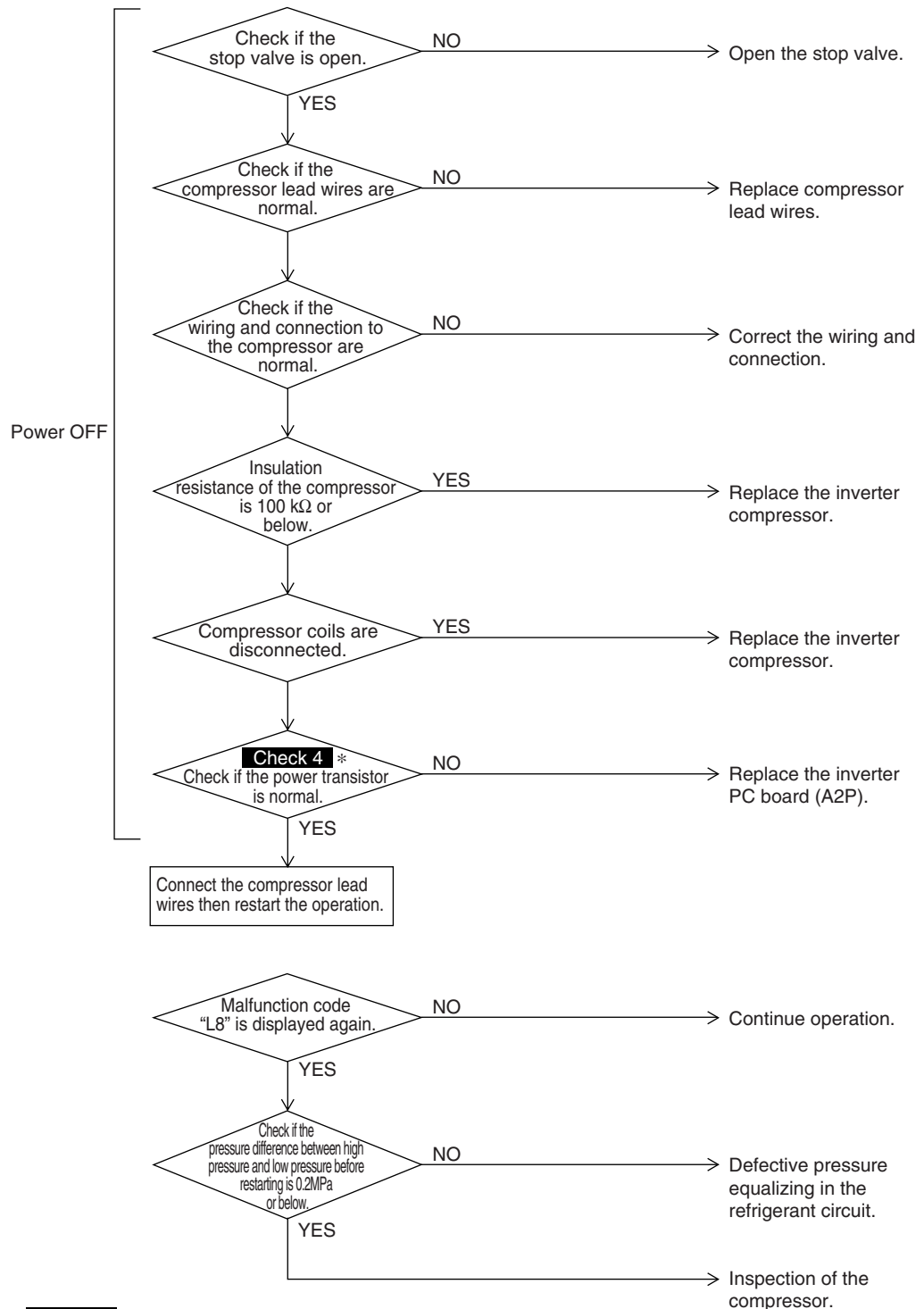
Troubleshooting

Output current check



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



3.39 “L9” Outdoor Unit: Inverter Compressor Starting Failure

Remote
Controller
Display

L9

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Detect the failure based on the signal waveform of the compressor.

Malfunction
Decision
Conditions

Starting the compressor does not complete.

Supposed
Causes

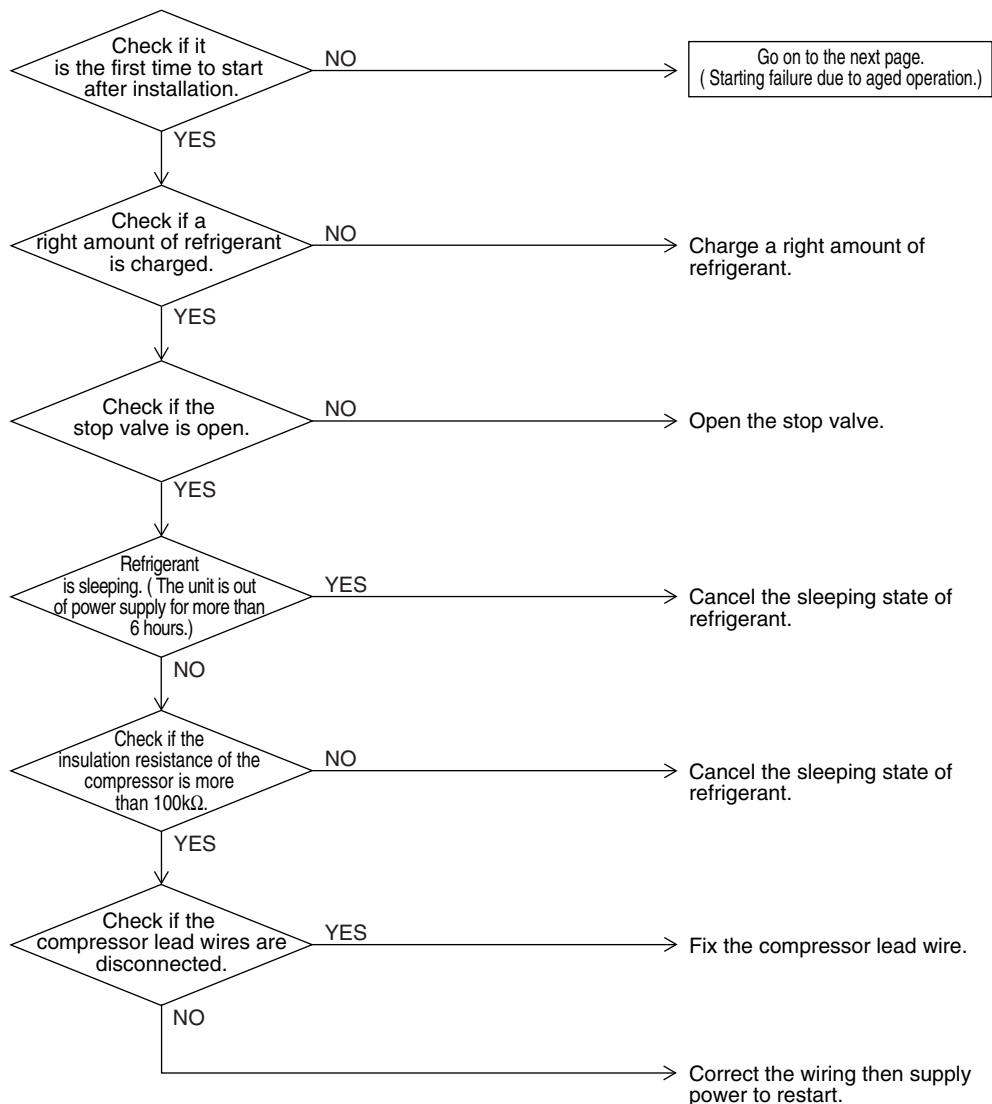
- Failure to open the stop valve
- Defective compressor
- Wiring connection error to the compressor
- Large pressure difference before starting the compressor
- Defective inverter PC board

Troubleshooting

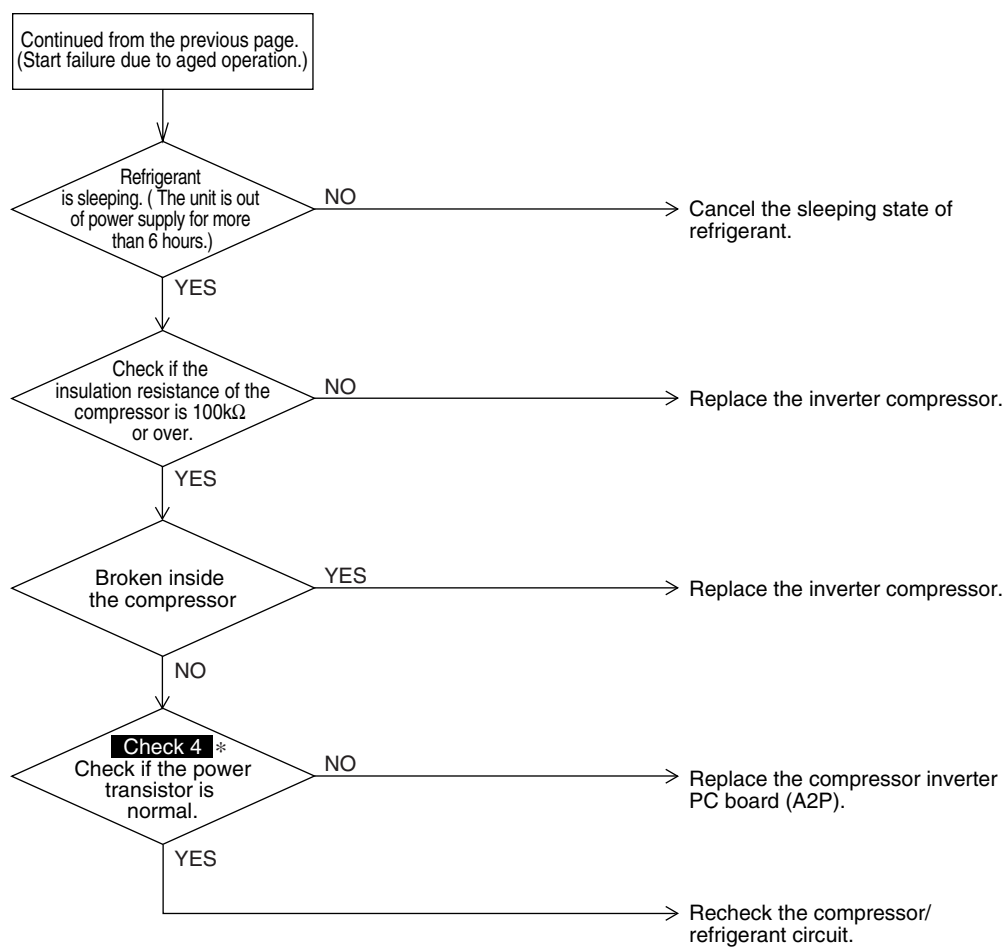


Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



Troubleshooting



* **Check 4** : Referring to the information on P339.

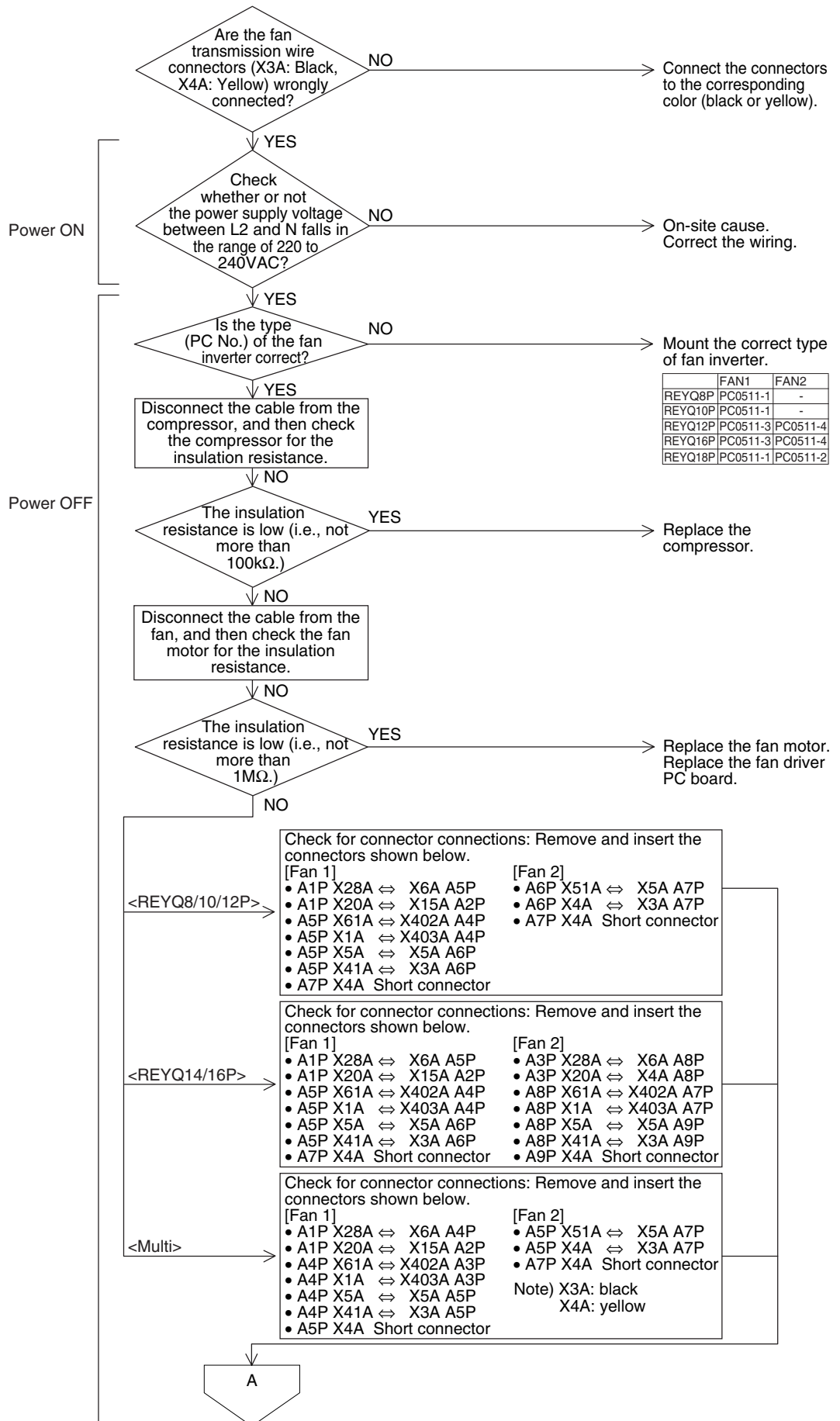
3.40 “**LC**” Outdoor Unit: **Malfunction of Transmission between Inverter and Control PC Board**

Remote Controller Display	LC
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Check the communication state between inverter PC board and control PC board by micro-computer.
Malfunction Decision Conditions	When the correct communication is not conducted in certain period.
Supposed Causes	<ul style="list-style-type: none"> ■ Malfunction of connection between the inverter PC board and outdoor control PC board ■ Defect of outdoor control PC board (transmission section) ■ Defect of inverter PC board ■ Defect of noise filter ■ Faulty fan inverter ■ Incorrect type of fan inverter ■ Faulty compressor ■ Faulty fan motor

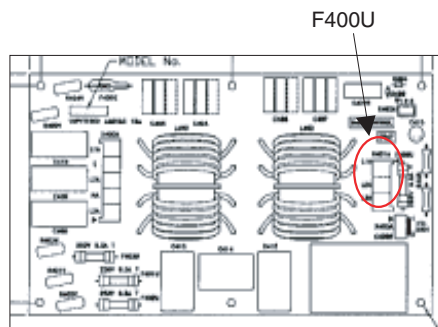
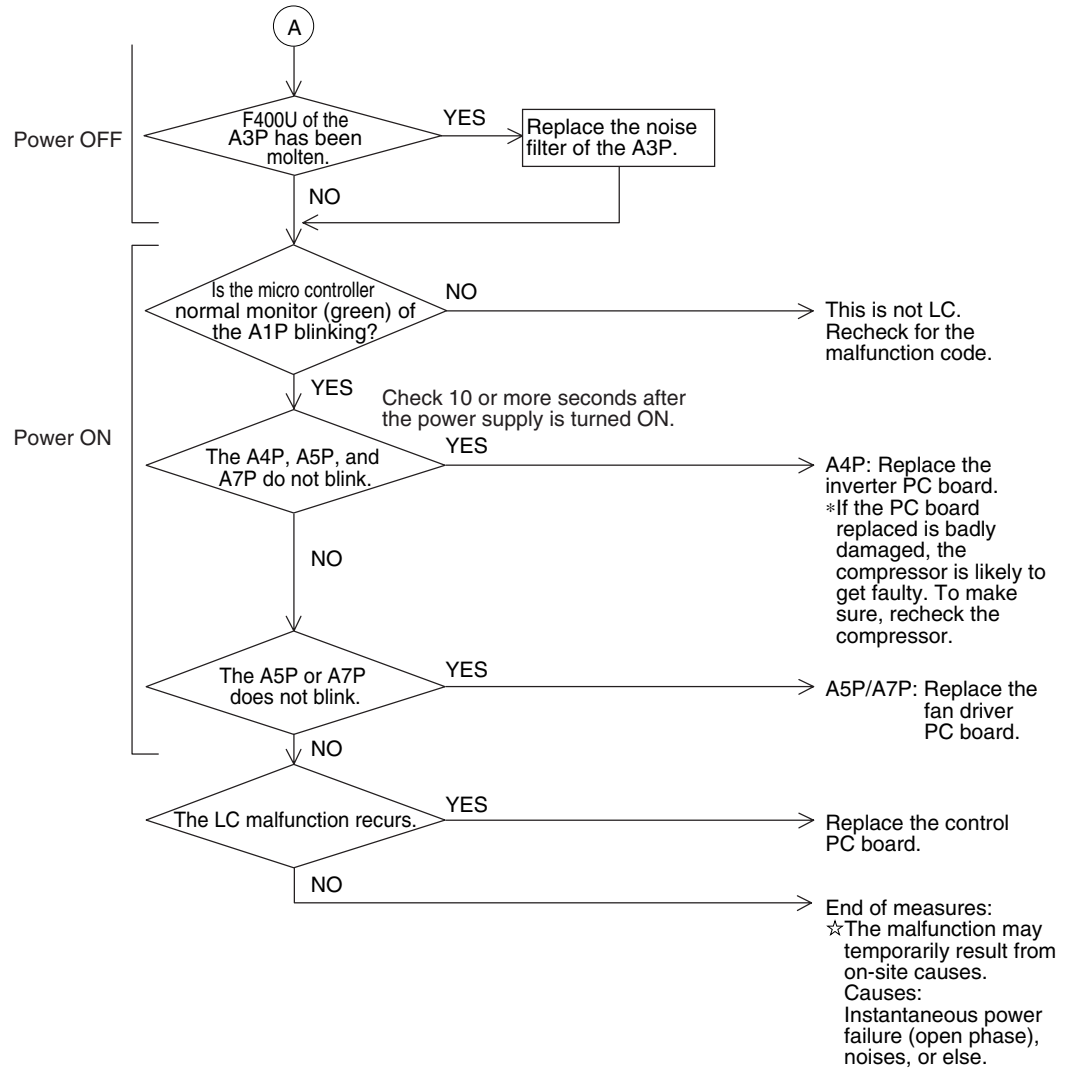
Troubleshooting

**Caution**

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



Troubleshooting



3.41 "P1" Outdoor Unit: Inverter Over-Ripple Protection

Remote
Controller
Display

P1

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Imbalance in supply voltage is detected in PC board.

Imbalance in the power supply voltage causes increased ripple of voltage of the main circuit capacitor in the inverter. Consequently, the increased ripple is detected.

Malfunction
Decision
Conditions

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

★ Malfunction is not decided while the unit operation is continued.

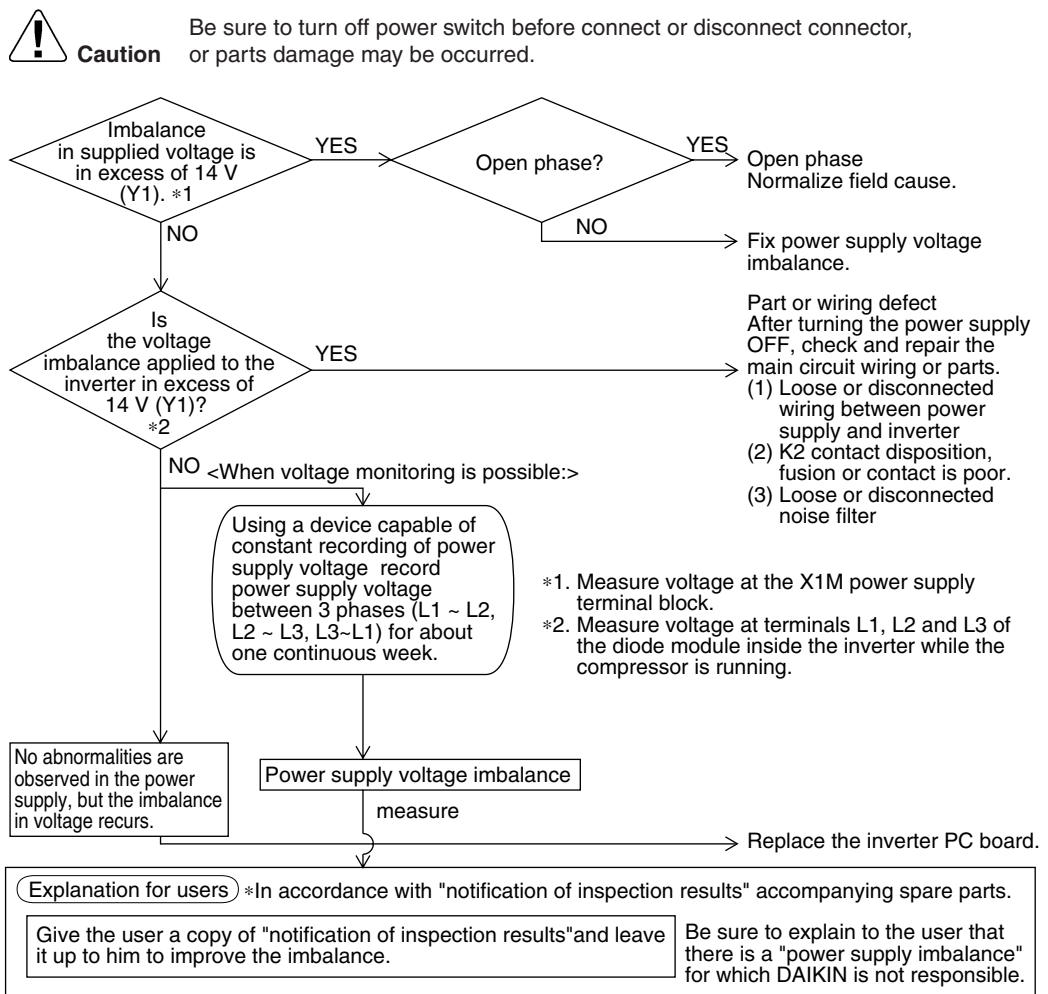
"P1" will be displayed by pressing the inspection button.

When the amplitude of the ripple exceeding a certain value is detected for consecutive 4 minutes.

Supposed
Causes

- Open phase
- Voltage imbalance between phases
- Defect of main circuit capacitor
- Defect of inverter PC board
- Defect of K2 relay in inverter PC board
- Improper main circuit wiring

Troubleshooting



(V2816)

3.42 “P4” Outdoor Unit: Malfunction of Inverter Radiating Fin Temperature Rise Sensor

Remote
Controller
Display

P4

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

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

- ★ Malfunction is not decided while the unit operation is continued.
- “P4” will be displayed by pressing the inspection button.

Supposed
Causes

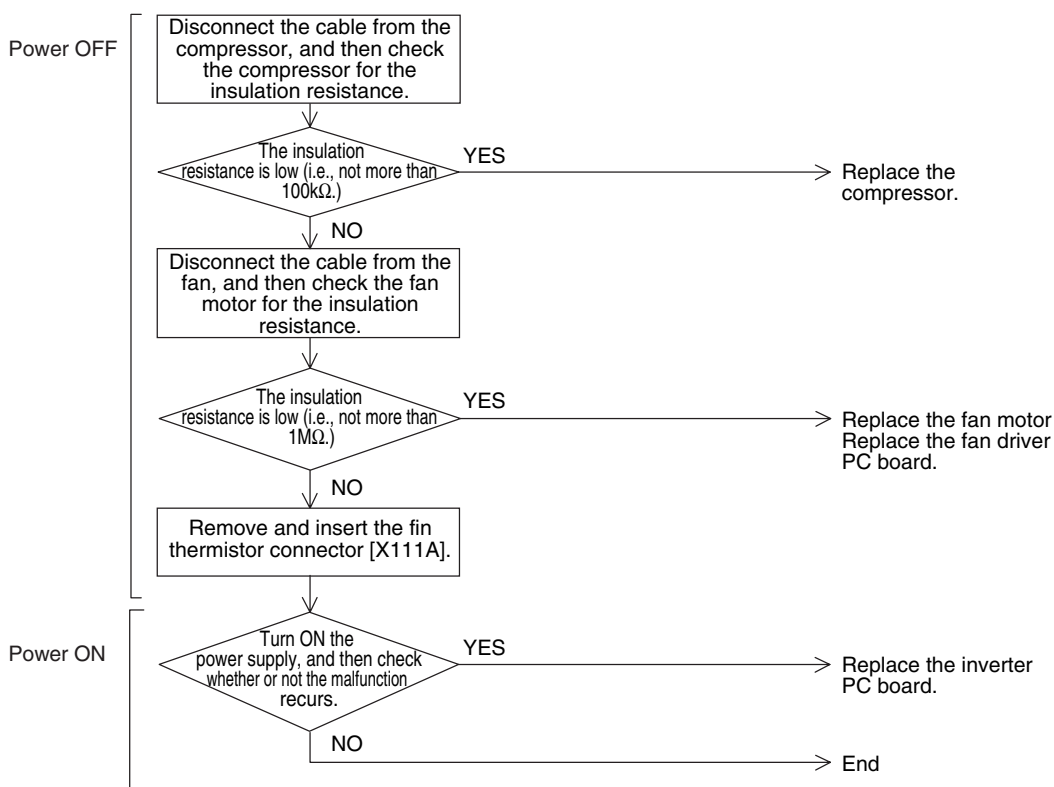
- Defect of radiator fin temperature sensor
- Defect of inverter PC board

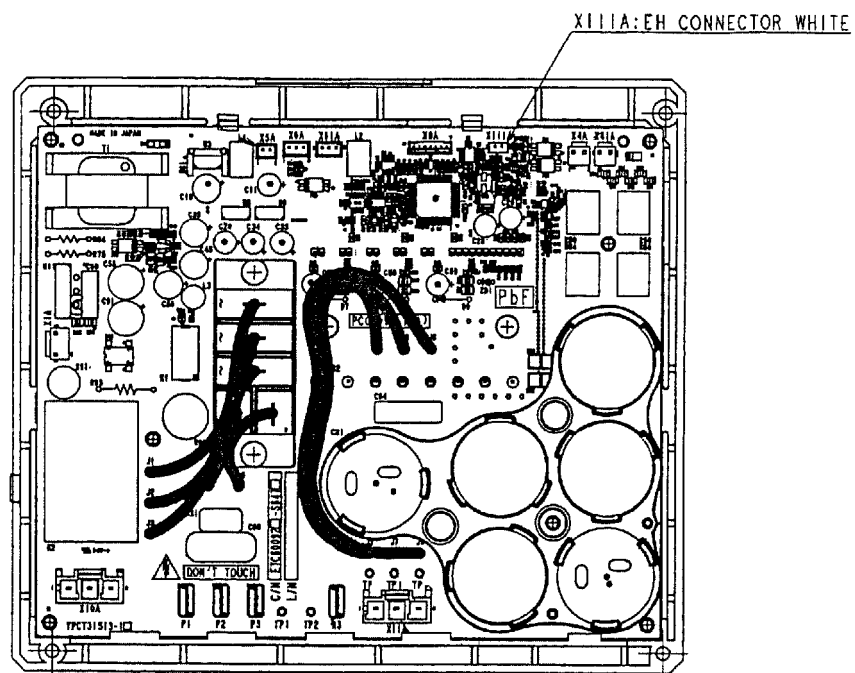
Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.





Inverter PC board for compressor



* Refer to "Thermistor Resistance / Temperature Characteristics" table on P405.

3.43 “PJ” Outdoor Unit: Faulty Field Setting after Replacing Main PC Board or Faulty Combination of PC Board

Remote
Controller
Display

PJ

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

The faulty (or no) field setting after replacing main PC board or faulty PC board combination is detected through communications with the inverter.

Malfunction
Decision
Conditions

Whether or not the field setting or the type of the PC board is correct through the communication date is judged.

Supposed
Causes

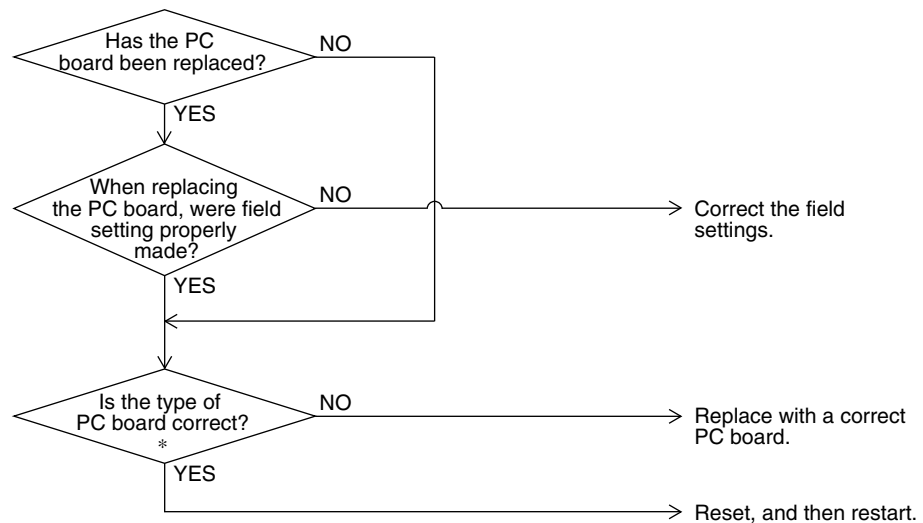
- Faulty (or no) field setting after replacing main PC board
- Mismatching of type of PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*Note) Type of PC board mismatching includes;
Main PC board
Inverter PC board (for compressor)
Fan driver PC board

3.44 “U0” Outdoor Unit: Gas Shortage Alert

Remote Controller Display	U0
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Detect gas shortage based on the temperature difference between low pressure or suction pipe and heat exchanger.
Malfunction Decision Conditions	<p>[In cooling mode] Low pressure becomes 0.1MPa or below.</p> <p>[In heating mode] The degree of superheat of suction gas becomes 20 degrees and over. $SH = Ts1 - Te$ Ts1 : Suction pipe temperature detected by thermistor Te : Saturated temperature corresponding to low pressure ★Malfunction is not determined. The unit continues operation.</p>
Supposed Causes	<ul style="list-style-type: none"> ■ Gas shortage or refrigerant clogging (piping error) ■ Defective thermistor (R4T, R7T, R12T, R15T) ■ Defective low pressure sensor ■ Defective outdoor unit PC board (A1P)

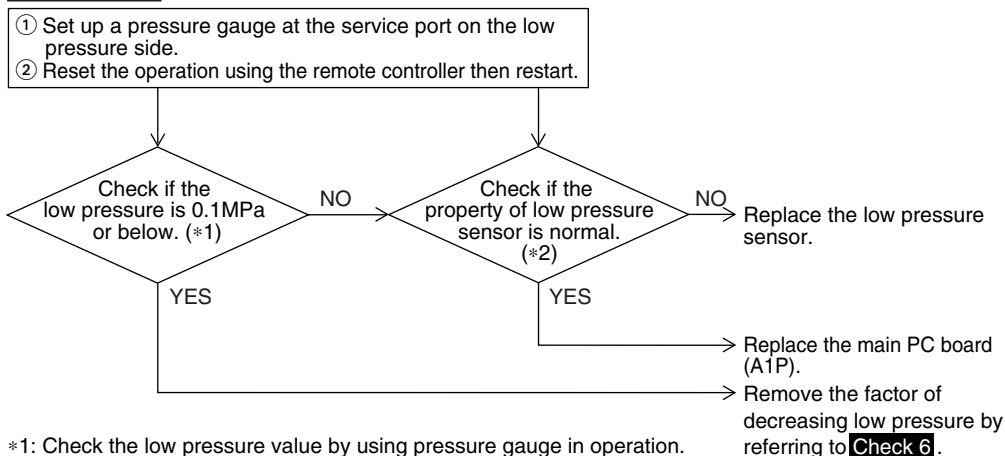
Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

In cooling mode



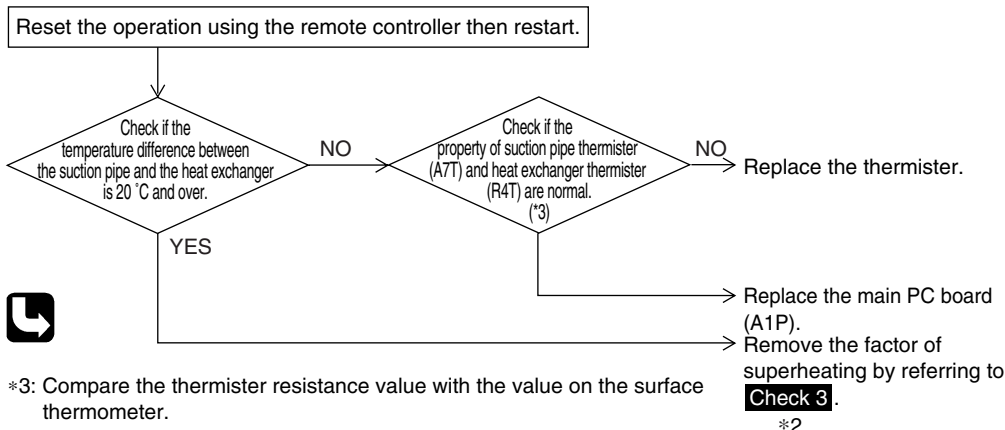
*1: Check the low pressure value by using pressure gauge in operation.

*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 referring to P407.)

*1

In heating mode



*3: Compare the thermister resistance value with the value on the surface thermometer.

*1 **Check 6** : Referring to the information on P341.

*2 **Check 3** : Referring to the information on P338.

*2

3.45 “U1” Reverse Phase, Open Phase

Remote
Controller
Display

U1

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

When a significant phase difference is made between phases.

Supposed
Causes

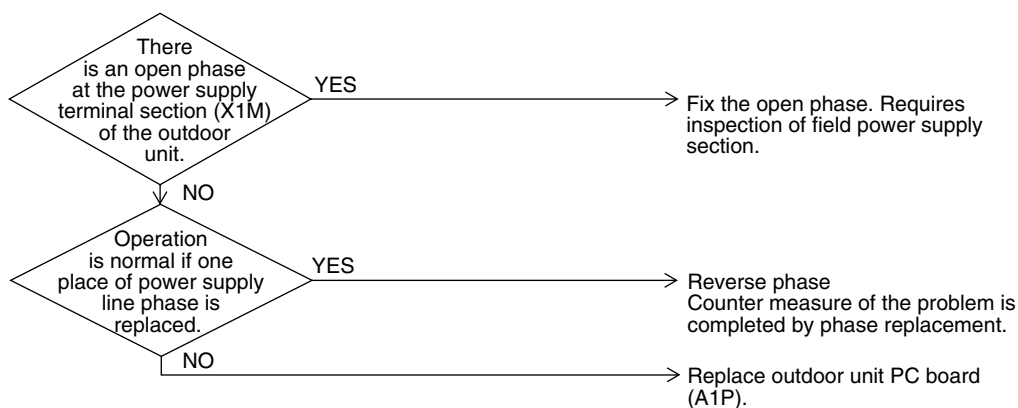
- Power supply reverse phase
- Power supply open phase
- Defect of outdoor PC board (A1P)

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2820)

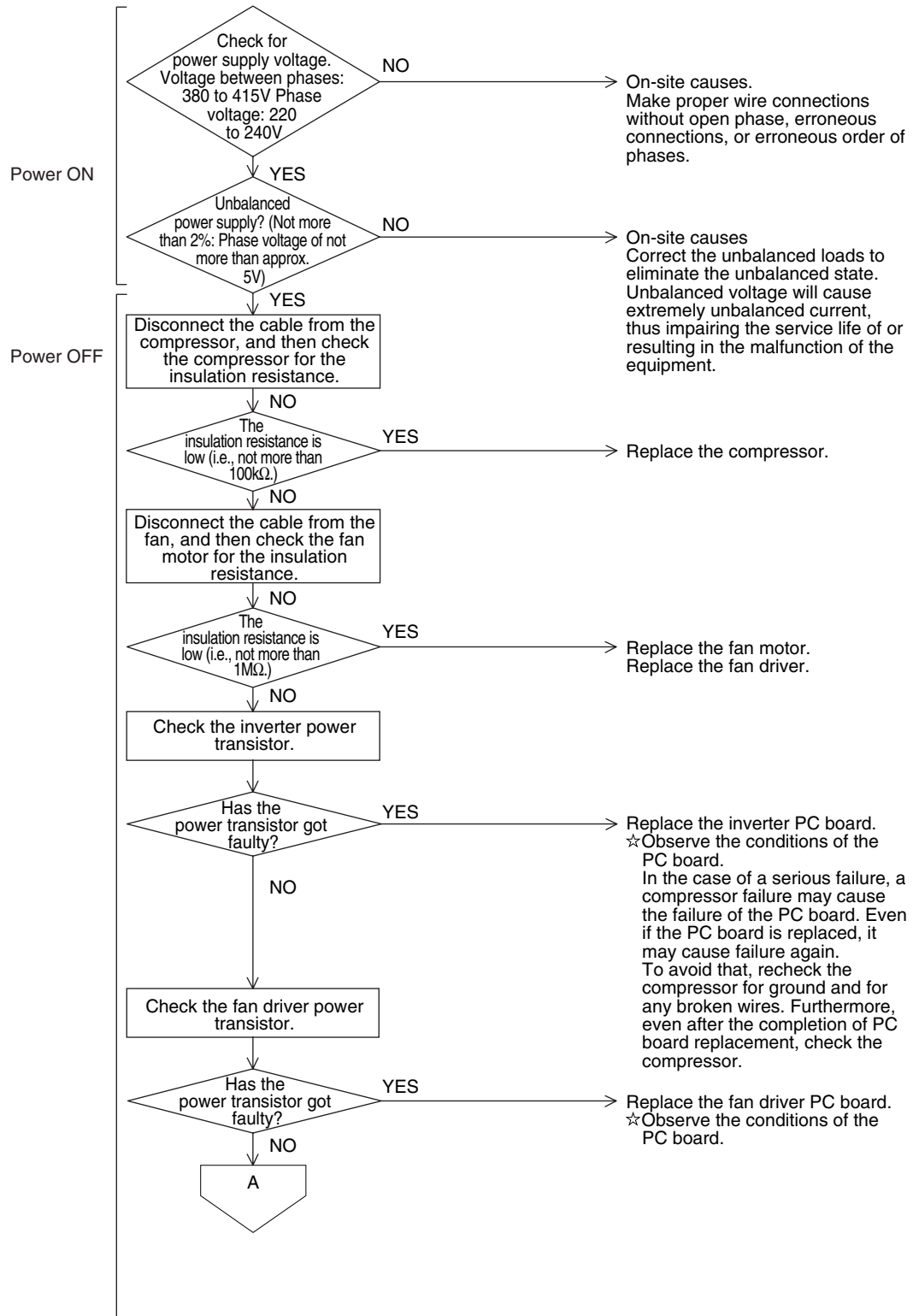
3.46 “U2” Outdoor Unit: Power Supply Insufficient or Instantaneous Failure

Remote Controller Display	U2
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Detection of voltage of main circuit capacitor built in the inverter and power supply voltage.
Malfunction Decision Conditions	When the voltage aforementioned is not less than 780V or not more than 320V, or when the current-limiting voltage does not reach 200V or more or exceeds 740V.
Supposed Causes	<ul style="list-style-type: none"> ■ Power supply insufficient ■ Instantaneous power failure ■ Open phase ■ Defect of inverter PC board ■ Defect of outdoor control PC board ■ Main circuit wiring defect ■ Faulty compressor ■ Faulty fan motor ■ Faulty connection of signal cable

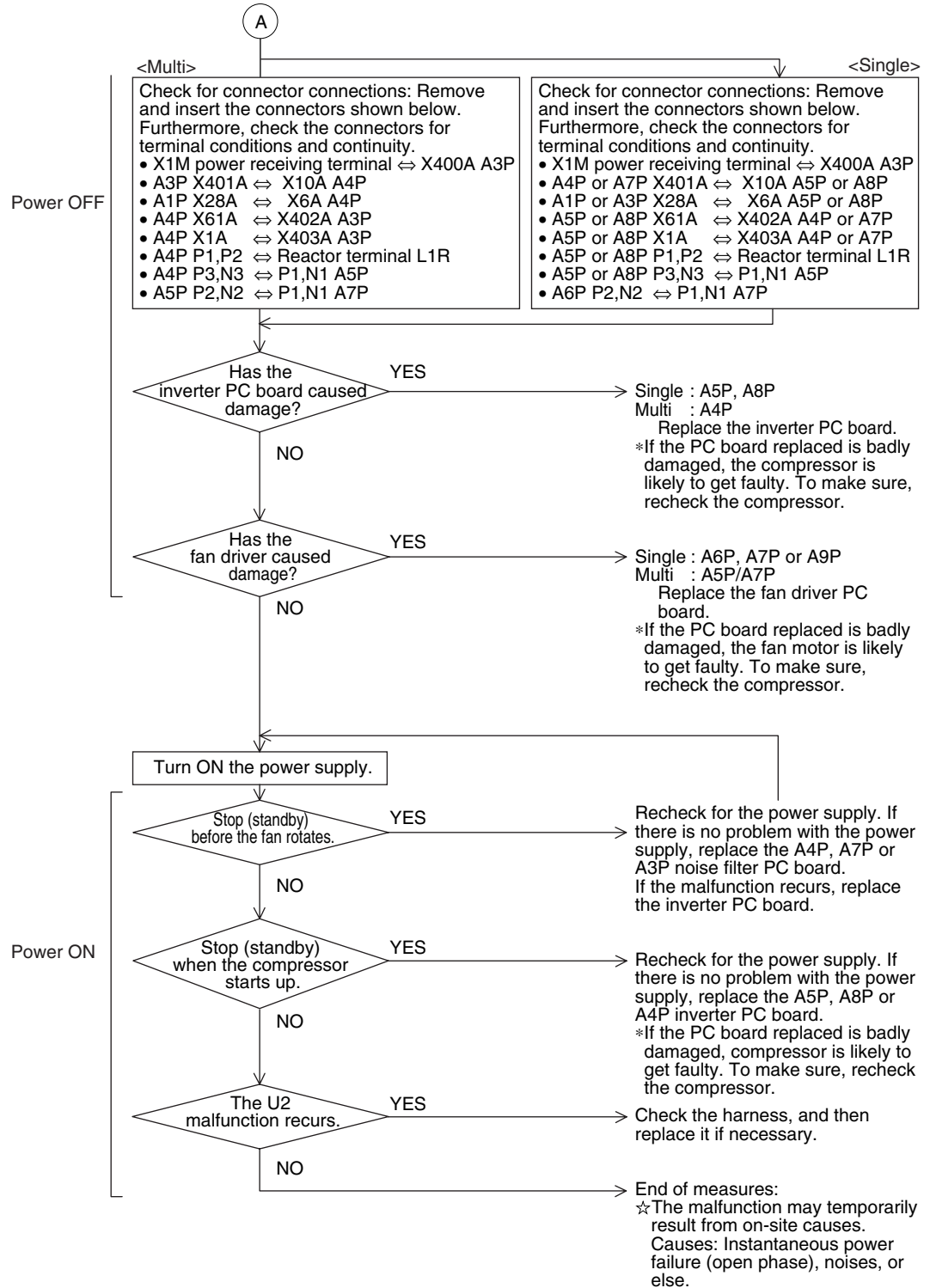
Troubleshooting

**Caution**

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



Troubleshooting



3.47 “U3” Outdoor Unit: Check Operation not Executed

Remote
Controller
Display

U3

Applicable
Models

REYQ8P~48P

Method of
Malfunction
Detection

Check operation is executed or not

Malfunction
Decision
Conditions

Malfunction is decided when the unit starts operation without check operation.

Supposed
Causes

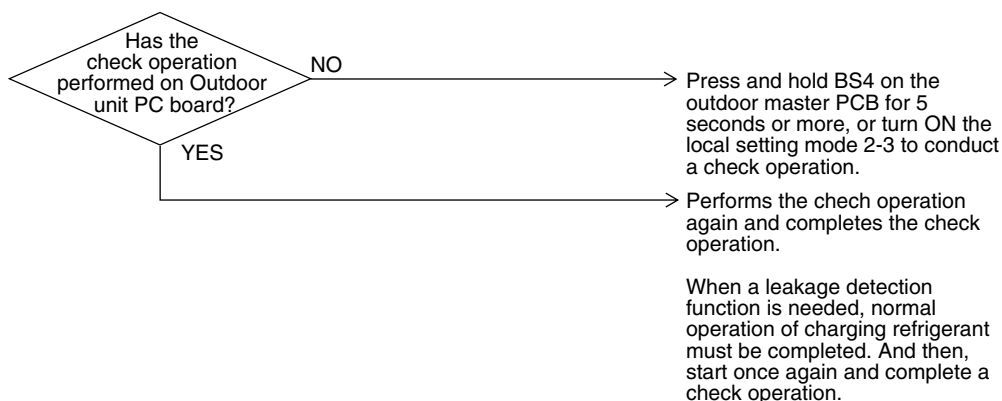
- Check operation is not executed.

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3052)

3.48 “U4” Malfunction of Transmission between Indoor Units

Remote Controller Display	U4
Applicable Models	All model of indoor unit REYQ8P~48P
Method of Malfunction Detection	Check if the transmission between indoor unit and outdoor unit is correctly executed using microcomputer.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	<ul style="list-style-type: none">■ Indoor to outdoor, outdoor to outdoor transmission wiring F1, F2 disconnection, short circuit or wrong wiring■ Outdoor unit power supply is OFF■ System address doesn't match■ Defect of indoor unit PC board■ Defect of outdoor unit PC board

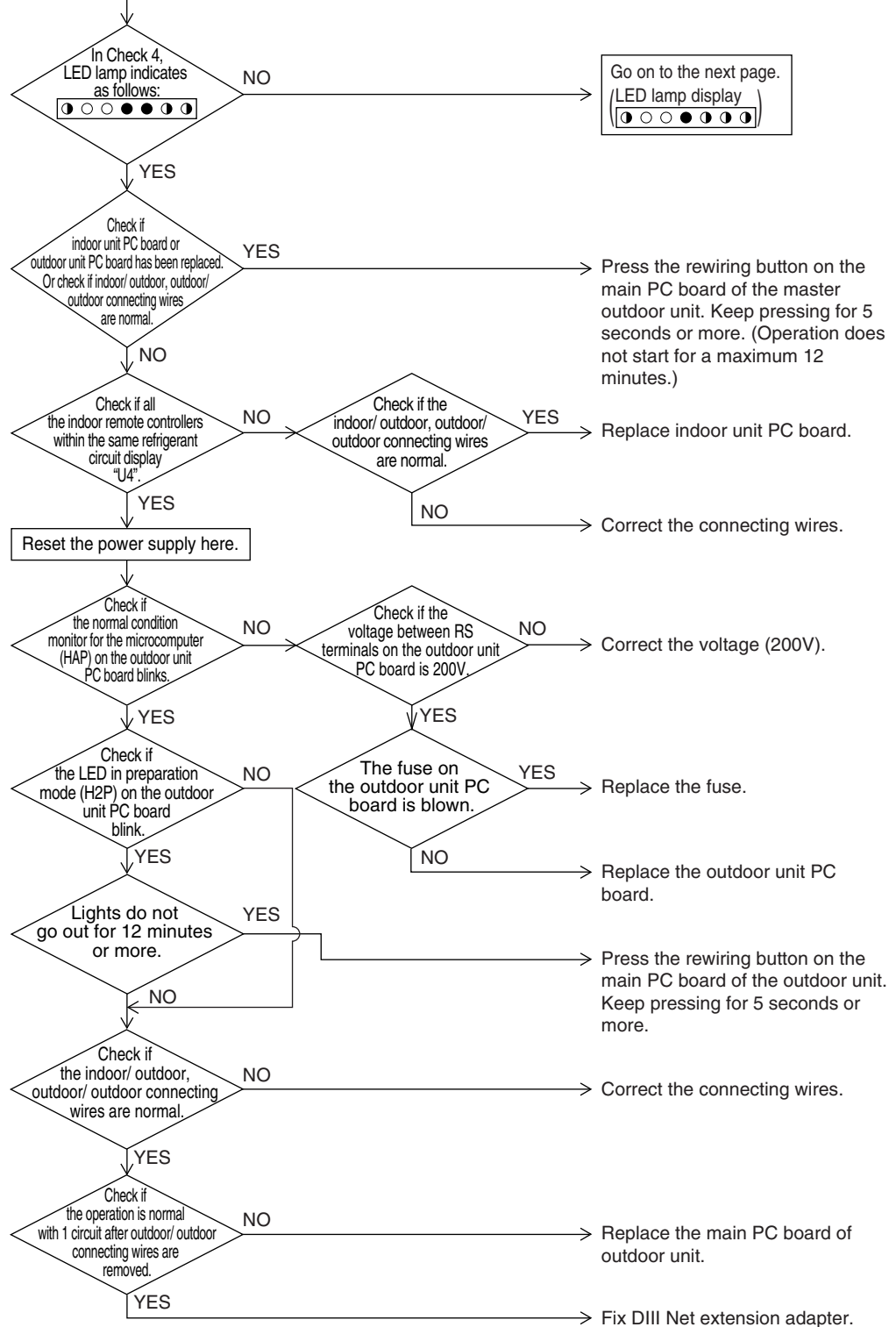
Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Check the detailed malfunction status in the monitor mode.
(Refer to P226~227 for how to check.)



Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Continued from the previous page
In Check 4, LED
lamp indicates as follows:

Start operation of all the indoor units.

Check if all the units indicate "U9".

NO

→ Continue operation.

YES

Check if more than 2 minutes passed since "U9" was indicated.

NO

→ Make a diagnosis again based on the indication in 2 minutes and over.

YES

→ The indoor units PC board indicating "U9" are normal. Check the indoor units in the other circuits to diagnose failure according to the corresponding malfunction codes.

3.49 “U5” Indoor Unit: Malfunction of Transmission between Remote Controller and Indoor Unit

Remote
Controller
Display

U5

Applicable
Models

All models of indoor units

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

Normal transmission does not continue for specified period.

Supposed
Causes

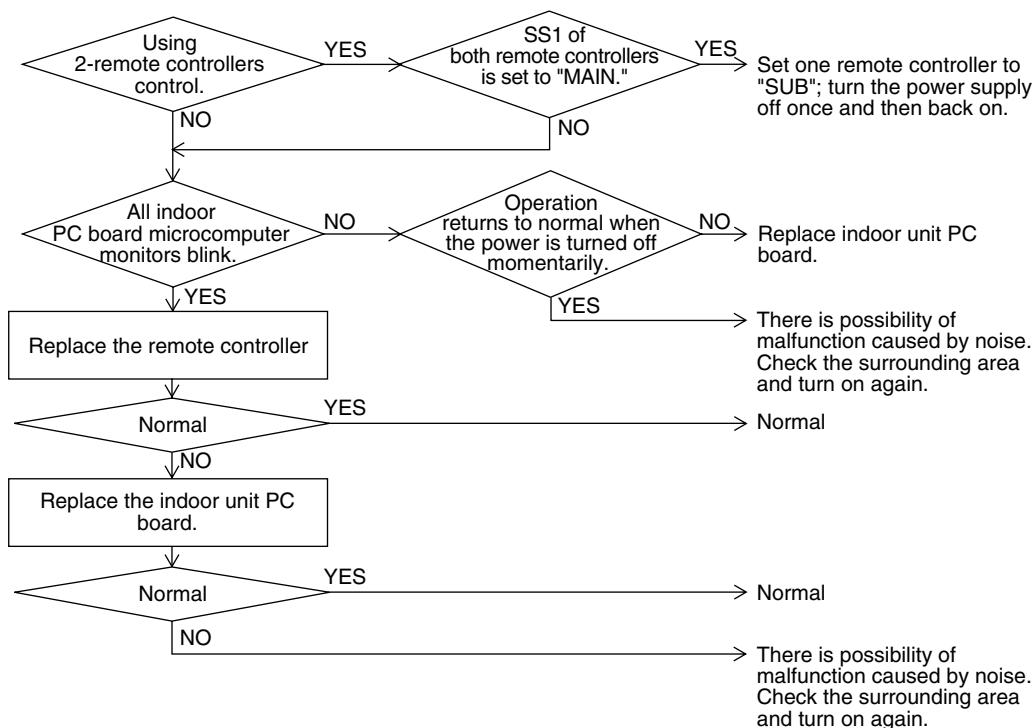
- Malfunction of indoor unit remote controller transmission
- Connection of two main remote controllers (when using 2 remote controllers)
- Defect of indoor unit PC board
- Defect of remote controller PC board
- Malfunction of transmission caused by noise

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2823)

3.50 “U7” Outdoor Unit: Transmission Failure (Across Outdoor Units)

Remote Controller Display	U7
Applicable Models	All models of outdoor units
Method of Malfunction Detection	Microcomputer checks if transmission between outdoor units.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	<ul style="list-style-type: none"> ■ Connection error in connecting wires between outdoor unit and outdoor unit outside control adapter ■ Connection error in connecting wires across outdoor units ■ Setting error in switching cooling/ heating ■ Integrated address setting error for cooling/ heating (function unit, outdoor unit outside control adapter) ■ Defective outdoor unit PC board (A1P or A3P) ■ Defective outdoor unit outside control adapter

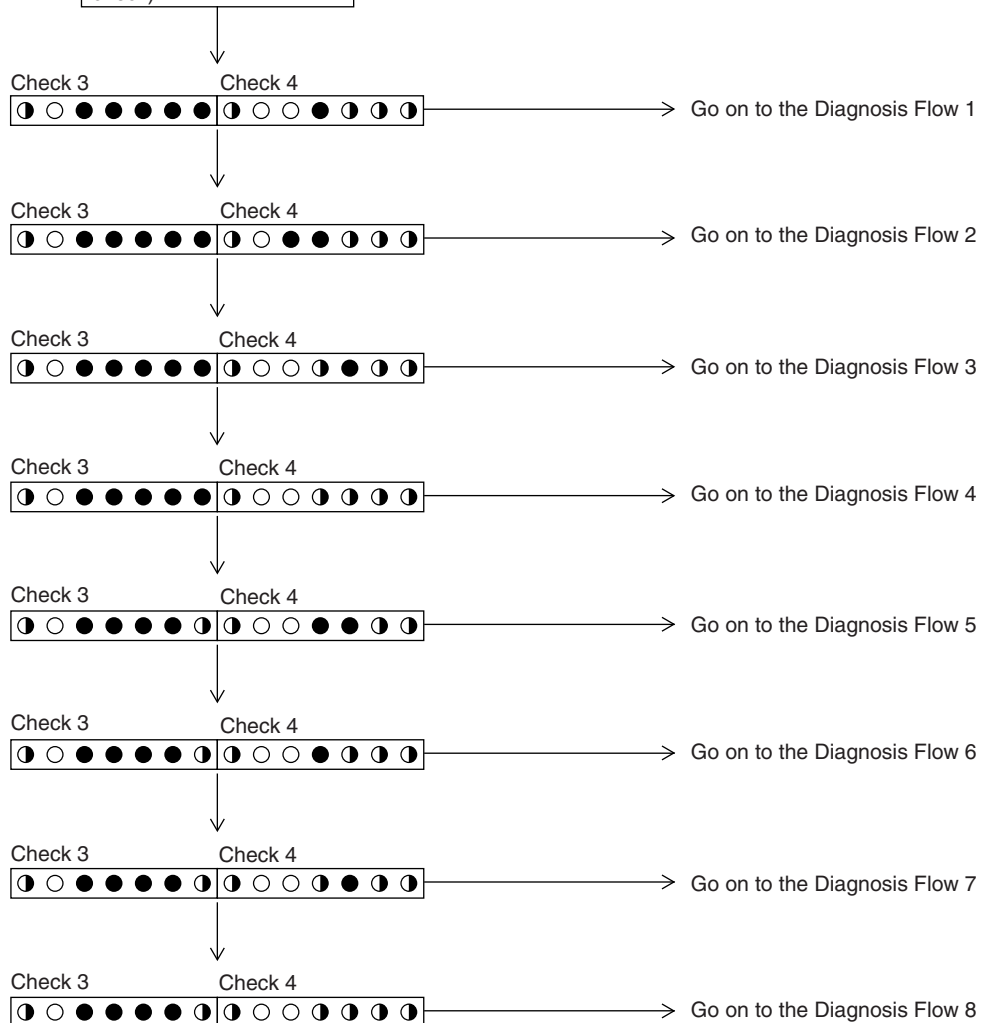
Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Check the LED lamps for "Check 3" corresponding to the malfunction code "U7" and for Check 4 in the monitor mode. (Refer to P226~227 for how to check)

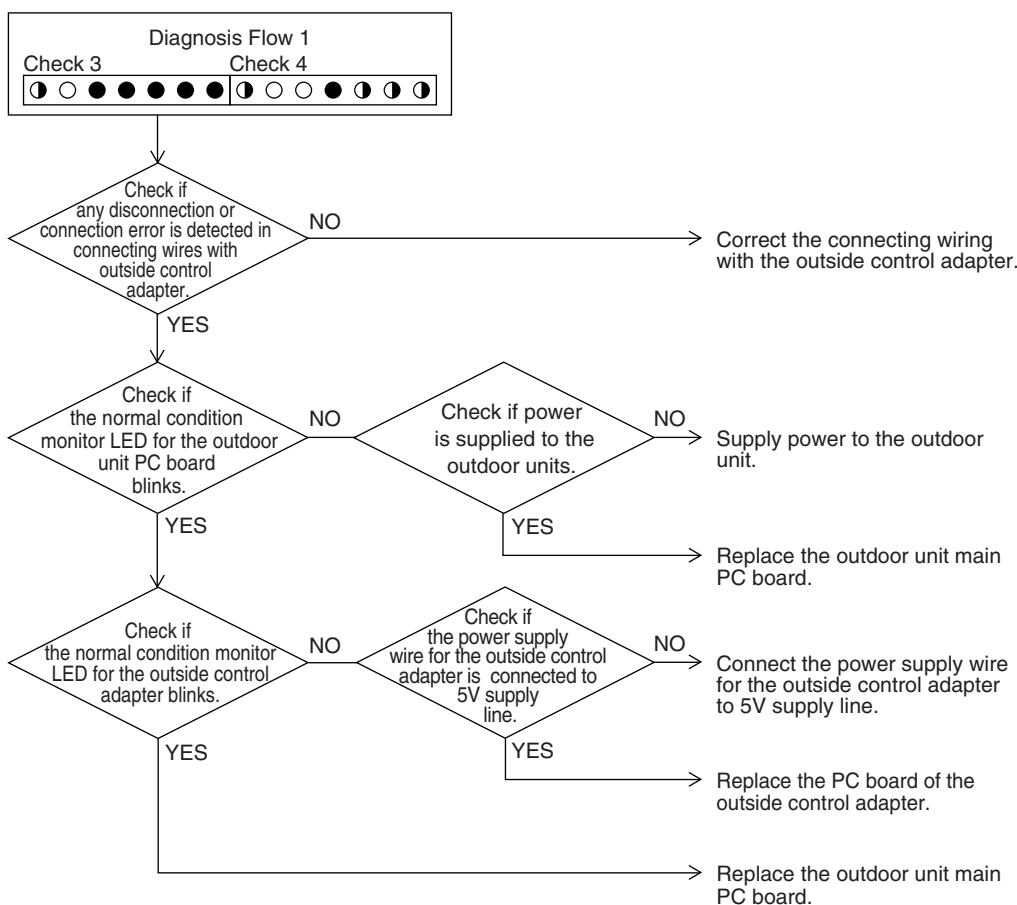


Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

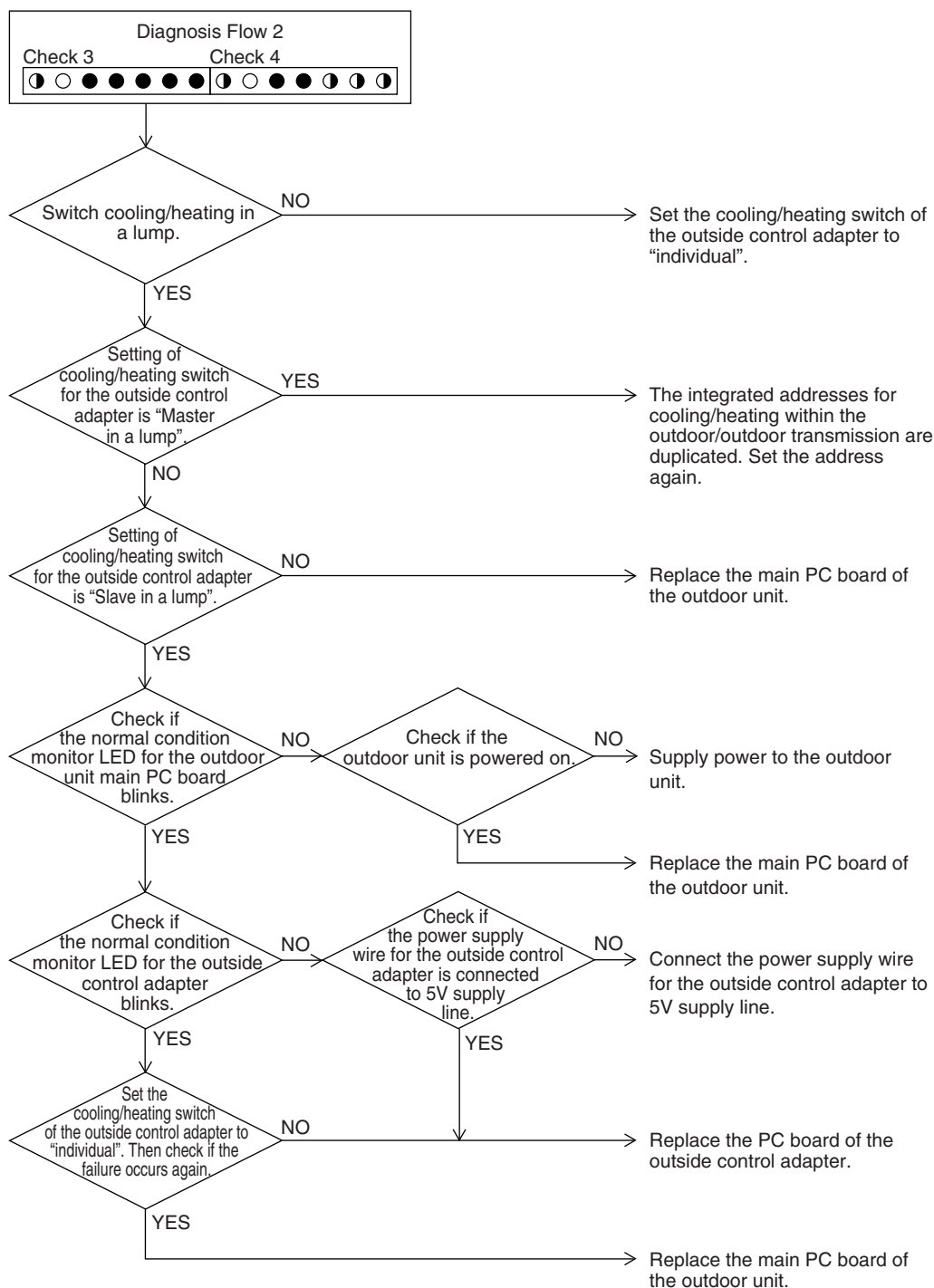


Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

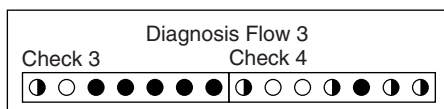


Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



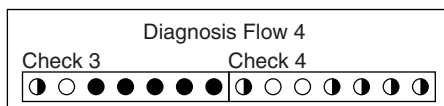
Check the connection status of connecting wires of Multi Slave 1 with outdoor multi. Check if the wiring is not disconnected or is about to be disconnected.

NO

→ Replace the outdoor unit main PC board of the Multi Slave 1.

YES

→ Correct the connecting wires of the outdoor multi and then reset the power supply.



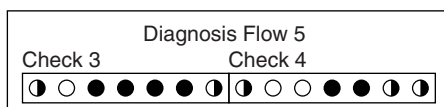
Check the connection status of connecting wires of Multi Slave 2 with outdoor multi. Check if the wiring is not disconnected or is about to be disconnected.

NO

→ Replace the outdoor unit main PC board of the Multi Slave 2.

YES

→ Correct the connecting wires of the outdoor multi and then reset the power supply.



Check if the outdoor unit is REYQ8~16PY1.

NO

→ Replace the main PC board of the outdoor unit.

YES

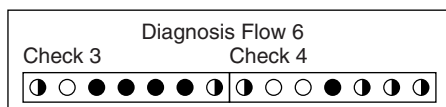
→ Remove the connecting wires of the outdoor multi and then reset the power supply.

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



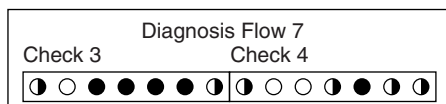
Check the connection status of one of the connecting wires of Outdoor Multi. Check if the wiring is broken or disconnected.

NO

→ Replace the main PC board of the outdoor unit.

YES

→ Correct the connecting wires of the outdoor multi and then reset the power supply.



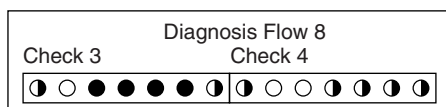
In the connection status of the outdoor multi, check if more than 4 outdoor units are connected.

NO

→ Replace the main PC board of the outdoor unit.

YES

→ Correct the connecting wires of the outdoor multi and then reset the power supply.



Check the connection status of the connecting wires of outdoor multi. Check if the wiring has any connection error or broken, or is about to be disconnected.

NO

→ Replace the main PC board of the outdoor unit.

YES

→ Correct the connecting wires of the outdoor multi and then reset the power supply.

3.51 “U8” Indoor Unit: Malfunction of Transmission between Main and Sub Remote Controllers

Remote
Controller
Display

U8

Applicable
Models

All models of indoor units

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

Normal transmission does not continue for specified period.

Supposed
Causes

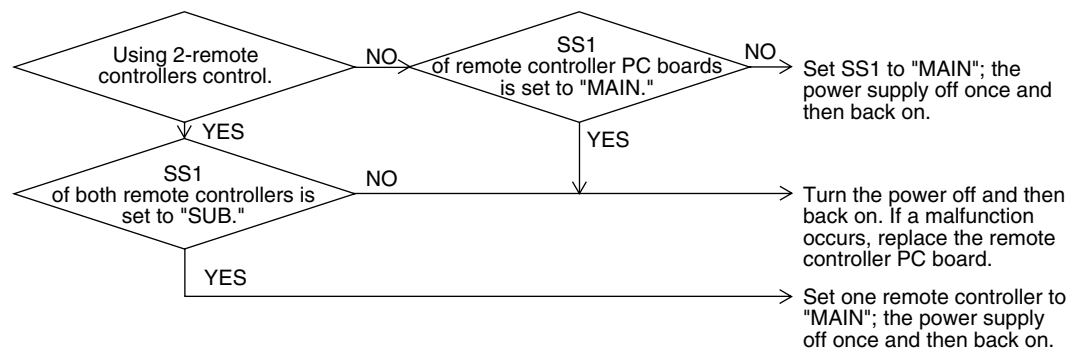
- Malfunction of transmission between main and sub remote controller
- Connection between sub remote controllers
- Defect of remote controller PC board

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2825)

3.52 “U9” Indoor Unit: Malfunction of Transmission between Indoor and Outdoor Units in the Same System

Remote
Controller
Display

U9

Applicable
Models

All models of indoor units
REYQ8P~48P

Method of
Malfunction
Detection

Detect malfunction signal for the other indoor units within the circuit by outdoor unit PC board.

Malfunction
Decision
Conditions

When the malfunction decision is made on any other indoor unit within the system concerned.

Supposed
Causes

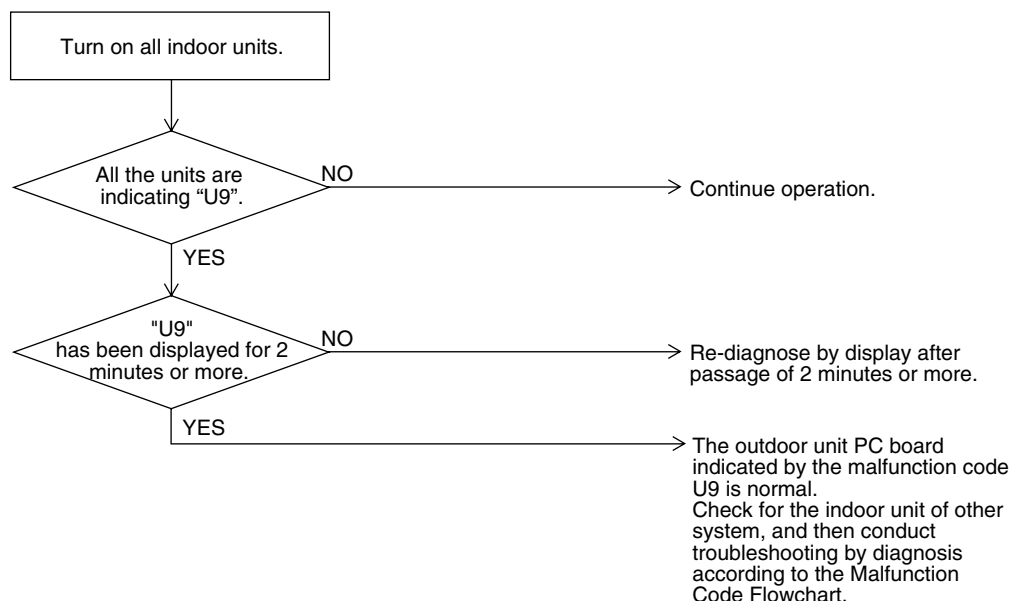
- Malfunction of transmission within or outside of other system
- Malfunction of electronic expansion valve in indoor unit of other system
- Defect of PC board of indoor unit in other system
- Improper connection of transmission wiring between indoor and outdoor unit

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



3.53 “UR” Improper Combination of Indoor and Outdoor Units, Indoor Units and Remote Controller

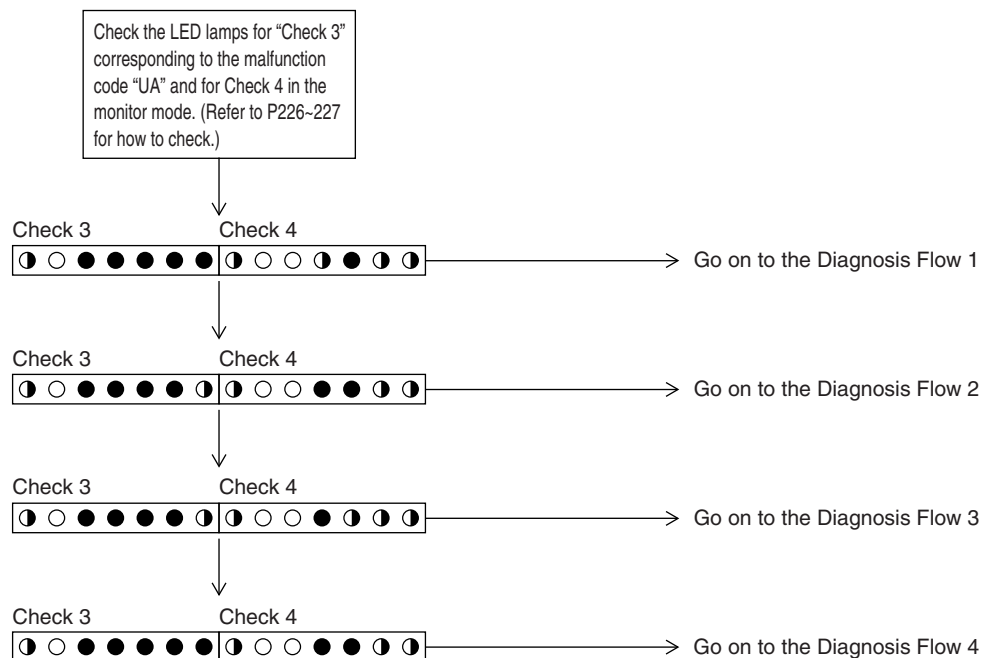
Remote Controller Display	UR
Applicable Models	All models of indoor unit REYQ8P~48P
Method of Malfunction Detection	A difference occurs in data by the type of refrigerant between indoor and outdoor units. The number of indoor units is out of the allowable range.
Malfunction Decision Conditions	The malfunction decision is made as soon as either of the abnormalities aforementioned is detected.
Supposed Causes	<ul style="list-style-type: none"> ■ Excess of connected indoor units ■ Defect of outdoor unit PC board (A1P) ■ Mismatching of the refrigerant type of indoor and outdoor unit. ■ Setting of outdoor PC board was not conducted after replacing to spare parts PC board.

Troubleshooting




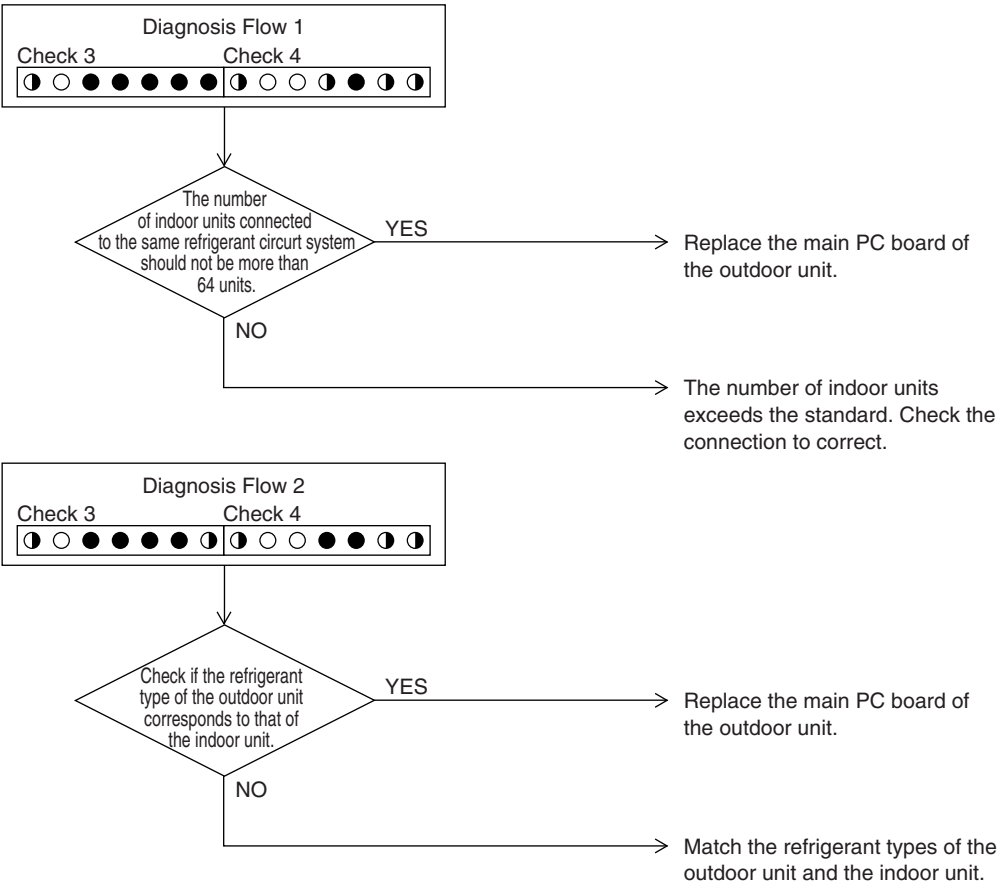
Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



Troubleshooting

 **Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

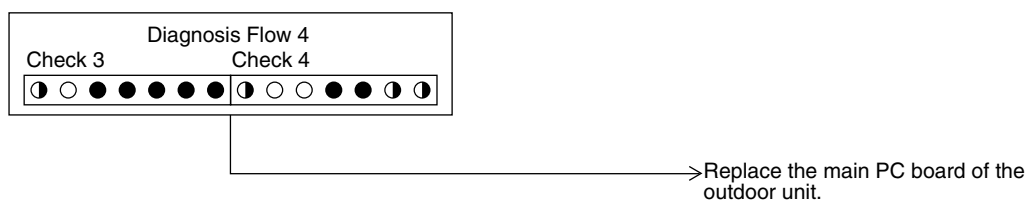
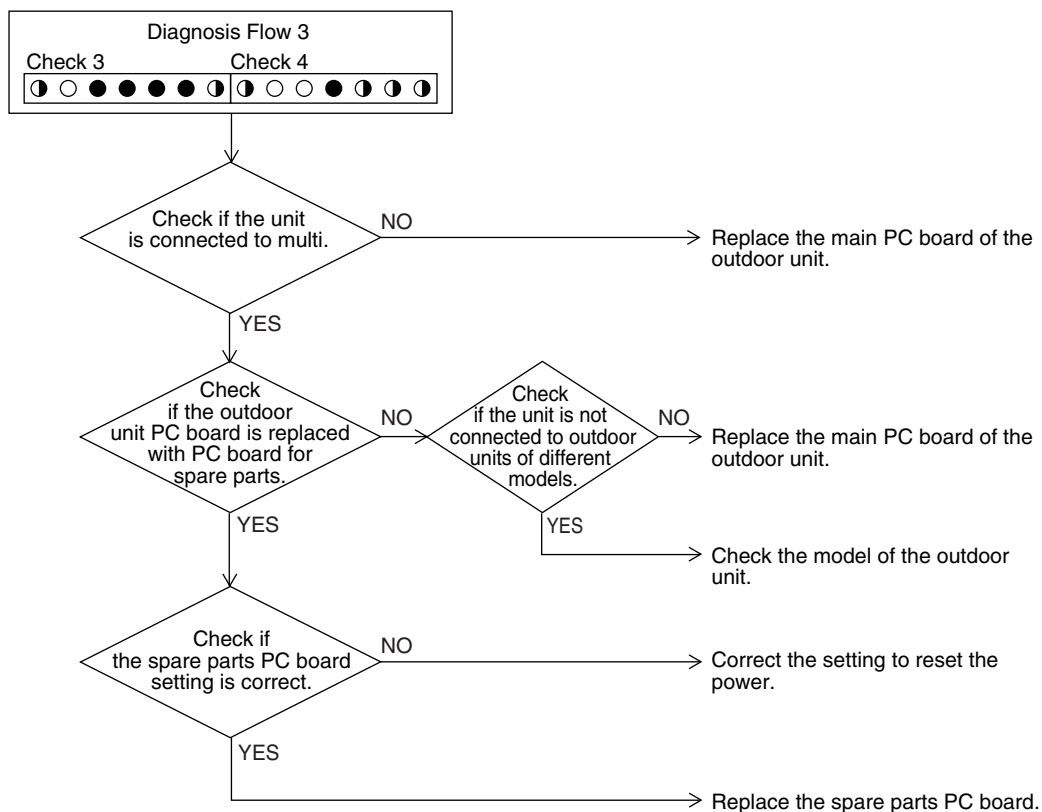


Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



3.54 “UC” Address Duplication of Centralized Controller

Remote Controller Display

UC

Applicable Models

All models of indoor unit
Centralized controller

Method of Malfunction Detection

The principal indoor unit detects the same address as that of its own on any other indoor unit.

Malfunction Decision Conditions

The malfunction decision is made as soon as the abnormality aforementioned is detected.

Supposed Causes

- Address duplication of centralized controller

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector,
or parts damage may be occurred.

The centralized address is
duplicated.

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

3.55 “UE” Malfunction of Transmission between Centralized Controller and Indoor Unit

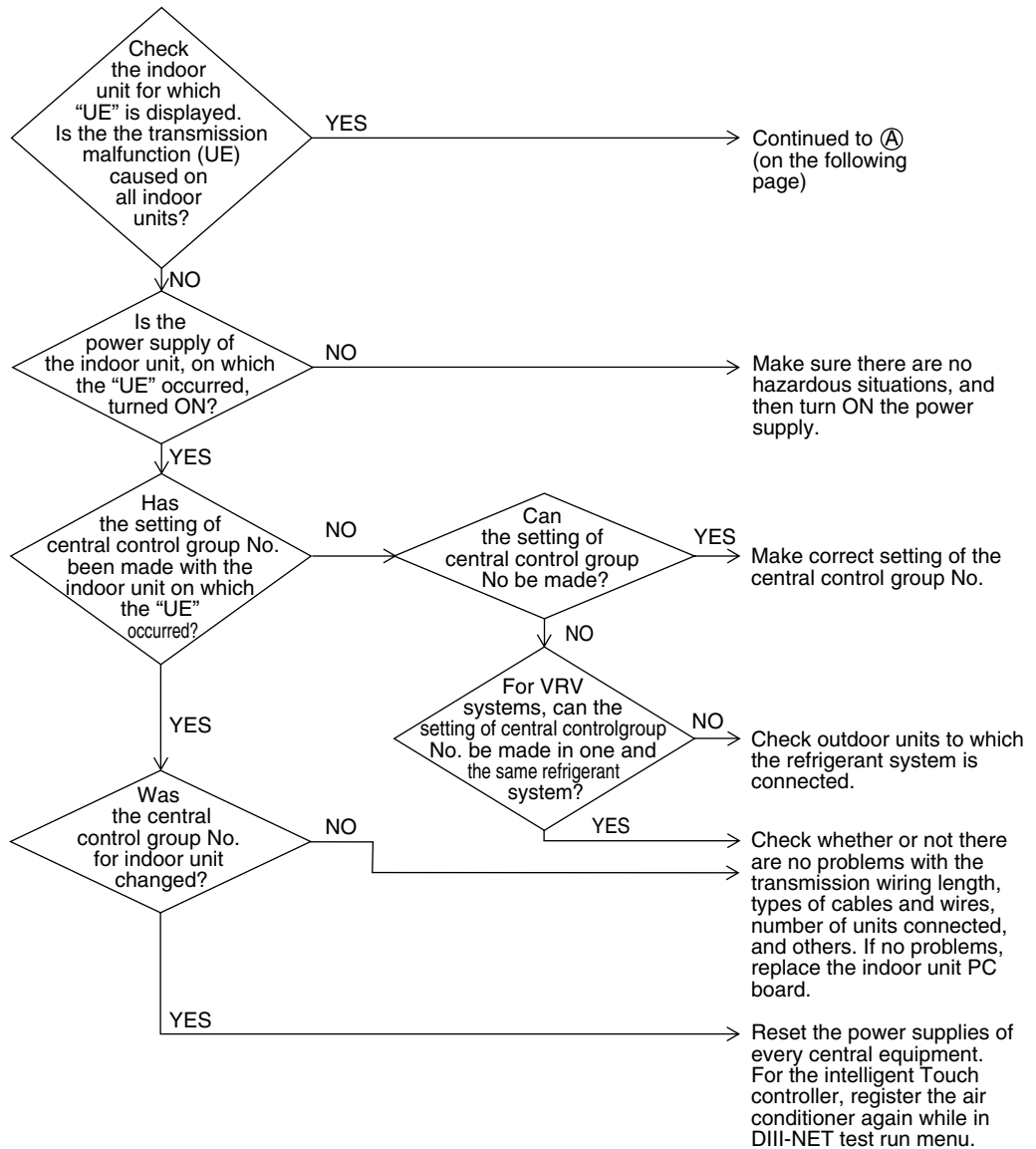
Remote Controller Display	UE
Applicable Models	All models of indoor units Intelligent Touch Controller Centralized controller Schedule timer
Method of Malfunction Detection	Microcomputer checks if transmission between indoor unit and centralized controller is normal.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	<ul style="list-style-type: none"> ■ Malfunction of transmission between optional controllers for centralized control and indoor unit ■ Connector for setting master controller is disconnected. (or disconnection of connector for independent / combined use changeover switch.) ■ Failure of PC board for central remote controller ■ Defect of indoor unit PC board

Troubleshooting



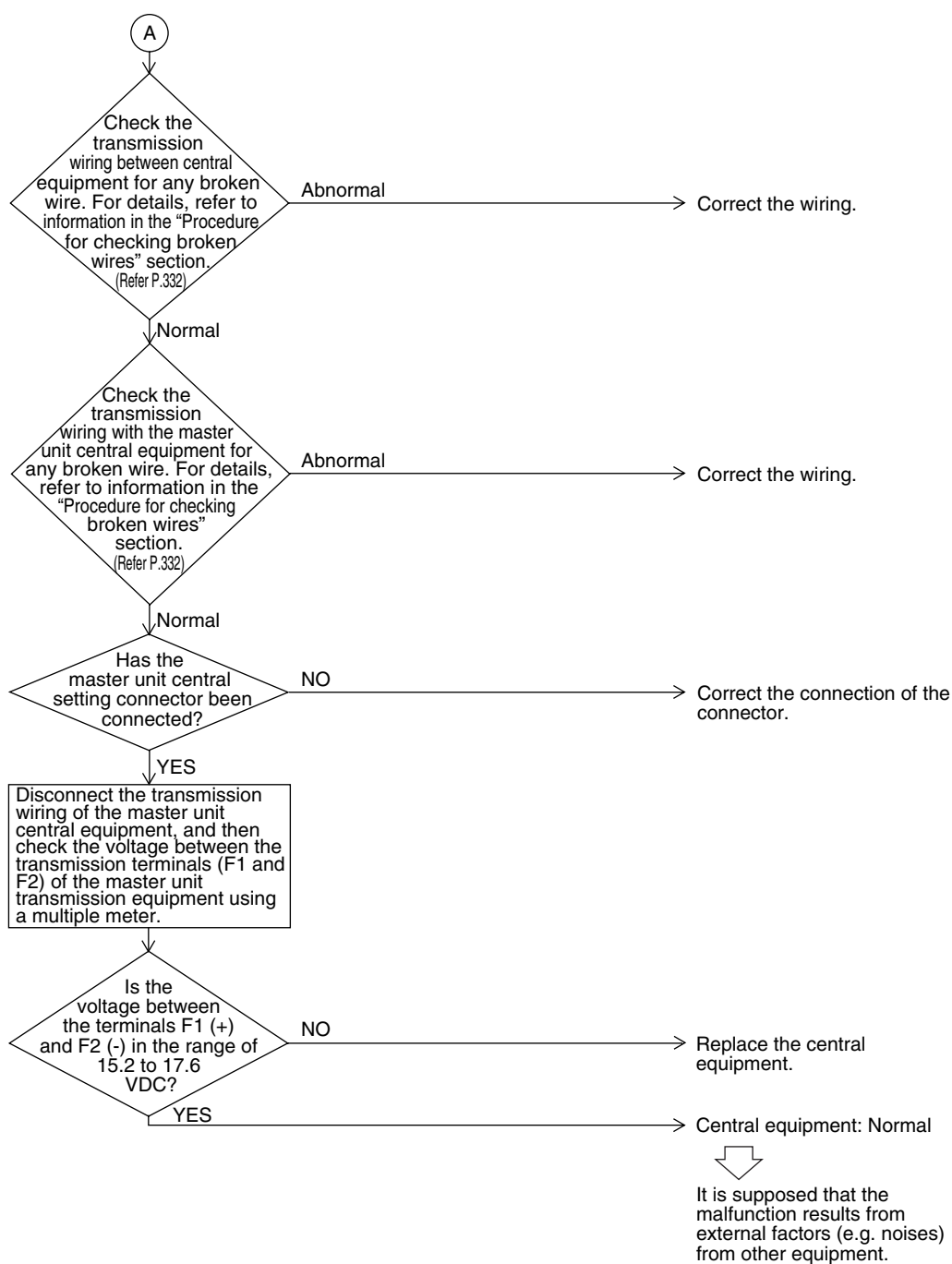
Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2822)

Troubleshooting



3.56 “UF” System is not Set yet

Remote
Controller
Display

UF

Applicable
Models

All models of indoor units
REYQ8P~48P

Method of
Malfunction
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.

Malfunction
Decision
Conditions

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

Supposed
Causes

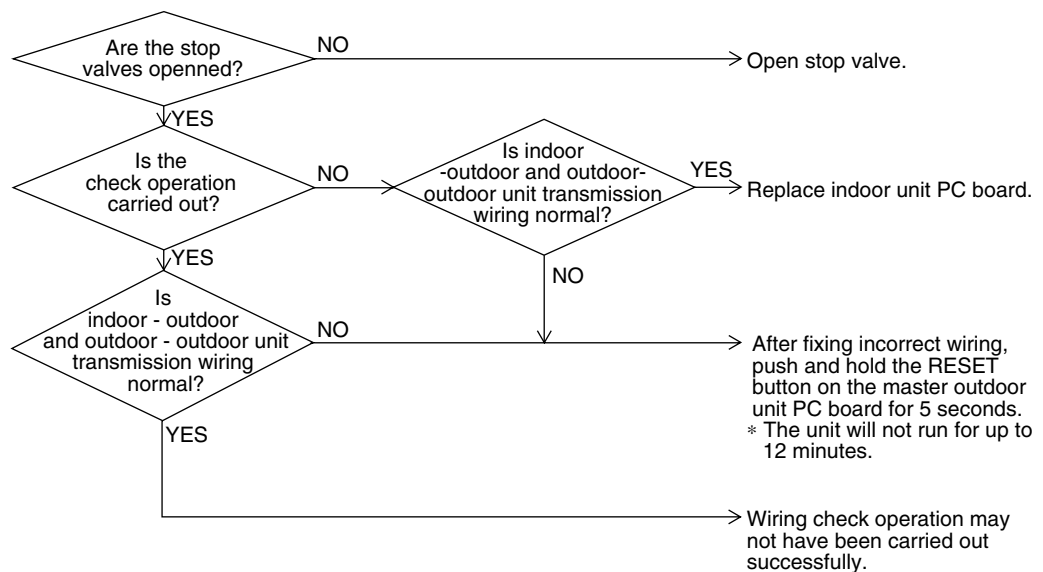
- Improper connection of transmission wiring between indoor-outdoor units and outdoor-outdoor units
- Failure to execute check operation
- Defect of indoor unit PC board
- Stop valve is left in closed

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2830)



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.

3.57 “UH” Malfunction of System, Refrigerant System Address Undefined

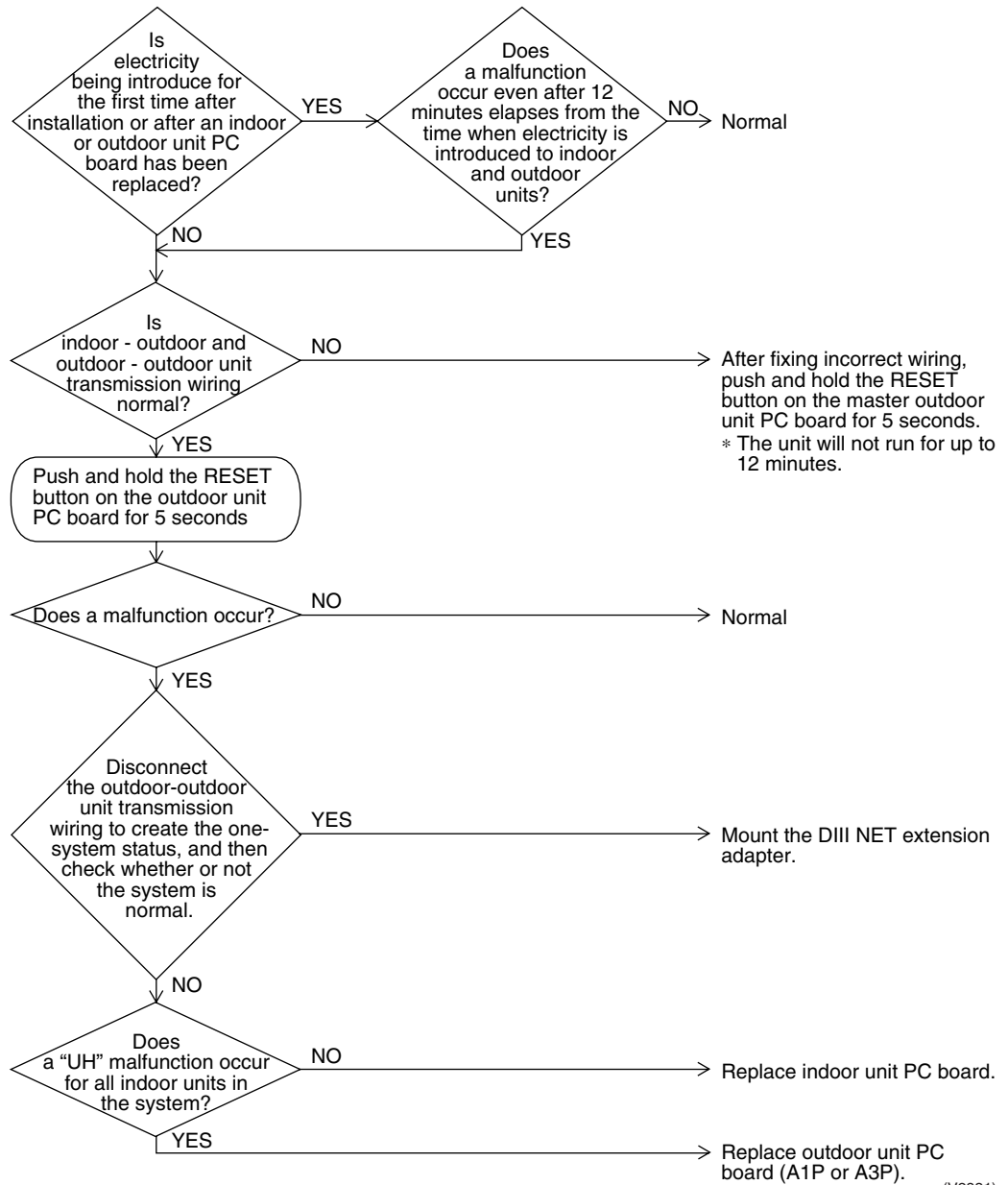
Remote Controller Display	UH
Applicable Models	All models of indoor units REYQ8P~48P
Method of Malfunction Detection	Detect an indoor unit with no address setting.
Malfunction Decision Conditions	The malfunction decision is made as soon as the abnormality aforementioned is detected.
Supposed Causes	<ul style="list-style-type: none"> ■ Improper connection of transmission wiring between indoor-outdoor units and outdoor-outdoor units ■ Defect of indoor unit PC board ■ Defect of outdoor unit main PC board (A1P or A3P)

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2831)

*1: Check the correct wiring "indoor-outdoor" and "outdoor-outdoor" by Installation Instruction.

*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 **[rewiring]** button for more than 4 seconds).

4. Troubleshooting (OP: Central Remote Controller)

4.1 “M1” PC Board Defect

Remote
Controller
Display



Applicable
Models

Central remote controller
Schedule timer

Intelligent Touch Controller

Method of
Malfunction
Detection

Detect an abnormality in the DIII-NET polarity circuit.

Malfunction
Decision
Conditions

When + polarity and - polarity are detected at the same time.

Supposed
Causes

- Defect of central remote controller PC board
- Defect of Intelligent Touch Controller PC board
- Defect of Schedule timer PC board

Troubleshooting

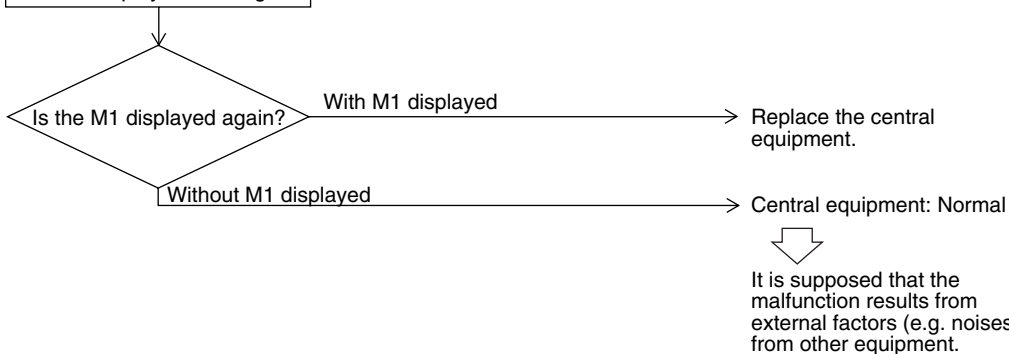
Replace the central remote controller.



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Turn ON the power supply of the central equipment with M1 displayed once again.



4.2 “M8” Malfunction of Transmission between Optional Controllers for Centralized Control

Remote
Controller
Display

M8

Applicable
Models

Central remote controller Intelligent Touch Controller
Schedule timer

Method of
Malfunction
Detection

Detect the malfunction according to DIII-NET transmission data. (The system will be automatically reset.)

Malfunction
Decision
Conditions

When no master controller is present at the time of the startup of slave controller.
When the centralized controller, which was connected once, shows no response.

Supposed
Causes

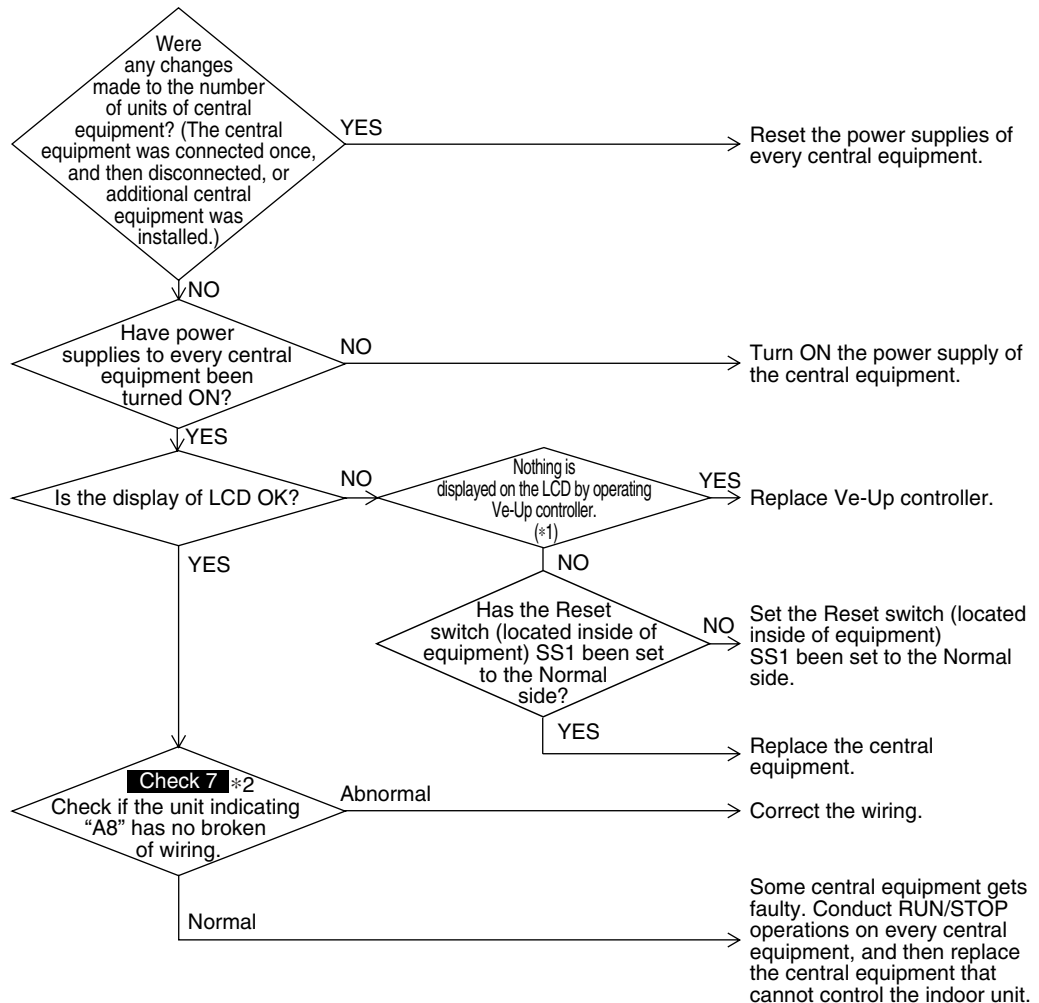
- Malfunction of transmission between optional controllers for centralized control
- Defect of PC board of optional controllers for centralized control

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: Display screen control using Ve-Up controller:

When the screen displays nothing by touching the screen, adjust the contrast volume.

*2 **Check 7** : Referring to the information on P342.

4.3 “MR” Improper Combination of Optional Controllers for Centralized Control

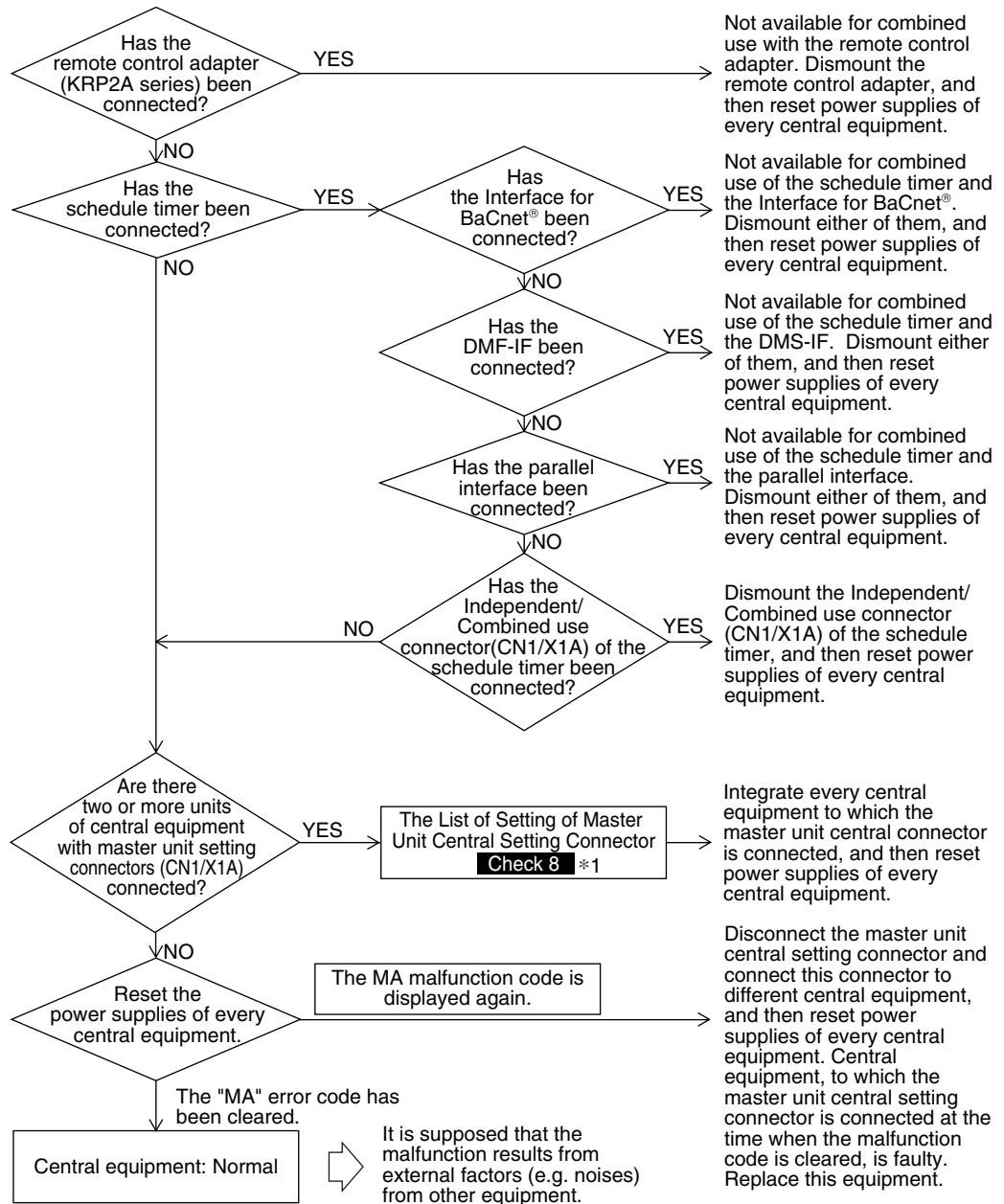
Remote Controller Display	MR	
Applicable Models	Central remote controller Schedule timer	Intelligent touch controller
Method of Malfunction Detection	Detect the malfunction according to DIII-NET transmission data.	
Malfunction Decision Conditions	<p>When the schedule timer is set to individual use mode, other central component is present.</p> <p>When multiple master controller are present.</p> <p>When the remote control adapter is present.</p>	
Supposed Causes	<ul style="list-style-type: none"> ■ Improper combination of optional controllers for centralized control ■ More than one master controller is connected ■ Defect of PC board of optional controller for centralized control 	

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1 **Check 8** : Referring to the information on P343.

4.4 “MC” Address Duplication, Improper Setting

Remote
Controller
Display



Applicable
Models

Central remote controller Intelligent Touch Controller
Schedule timer

Method of
Malfunction
Detection

Detect the malfunction according to DIII-NET transmission data.

Malfunction
Decision
Conditions

- Two or more units of central remote controllers and Intelligent Touch Controllers are connected, and all of them are set to master unit central setting or slave unit central setting.
- Two units of schedule timers are connected.

Supposed
Causes

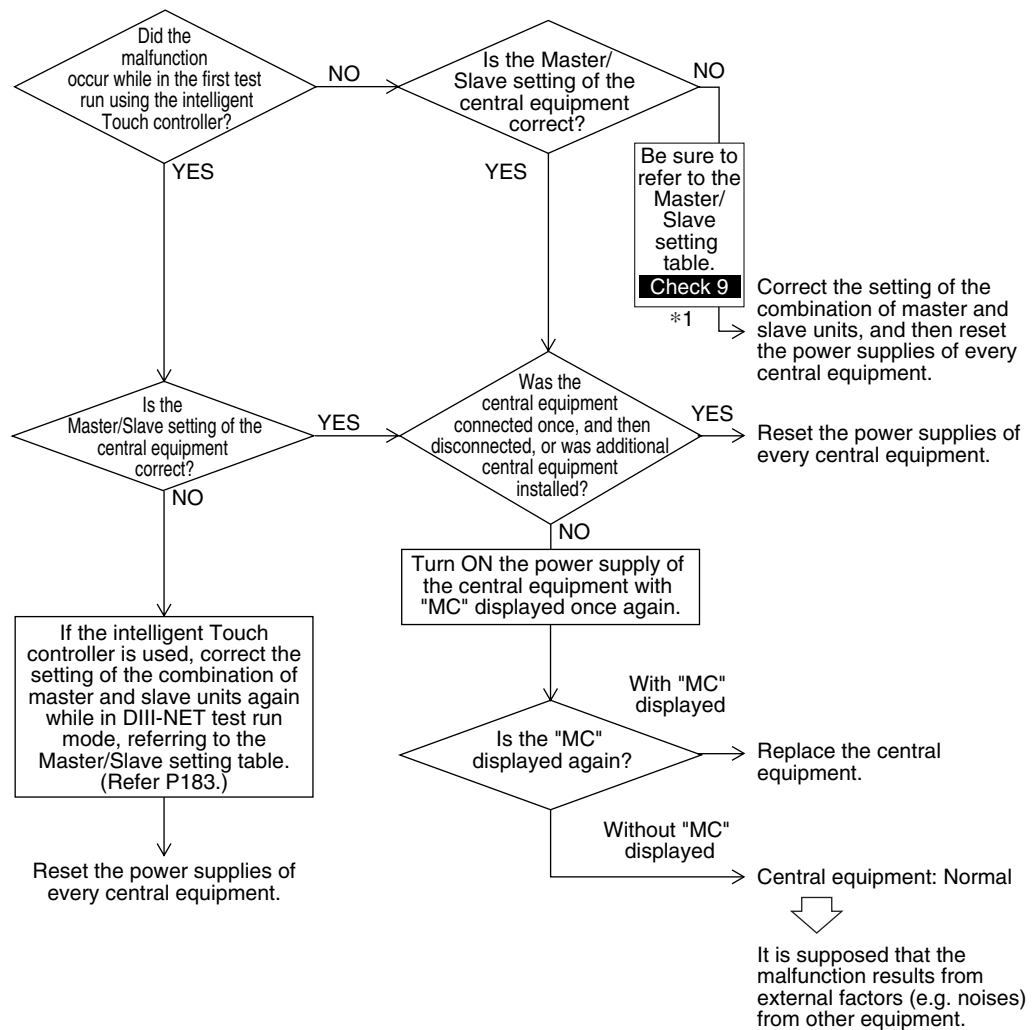
- Address duplication of centralized controller

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1 **Check 9** : Referring to the information on P344.

5. Troubleshooting (OP: Unified ON/OFF Controller)

5.1 Operation Lamp Blinks

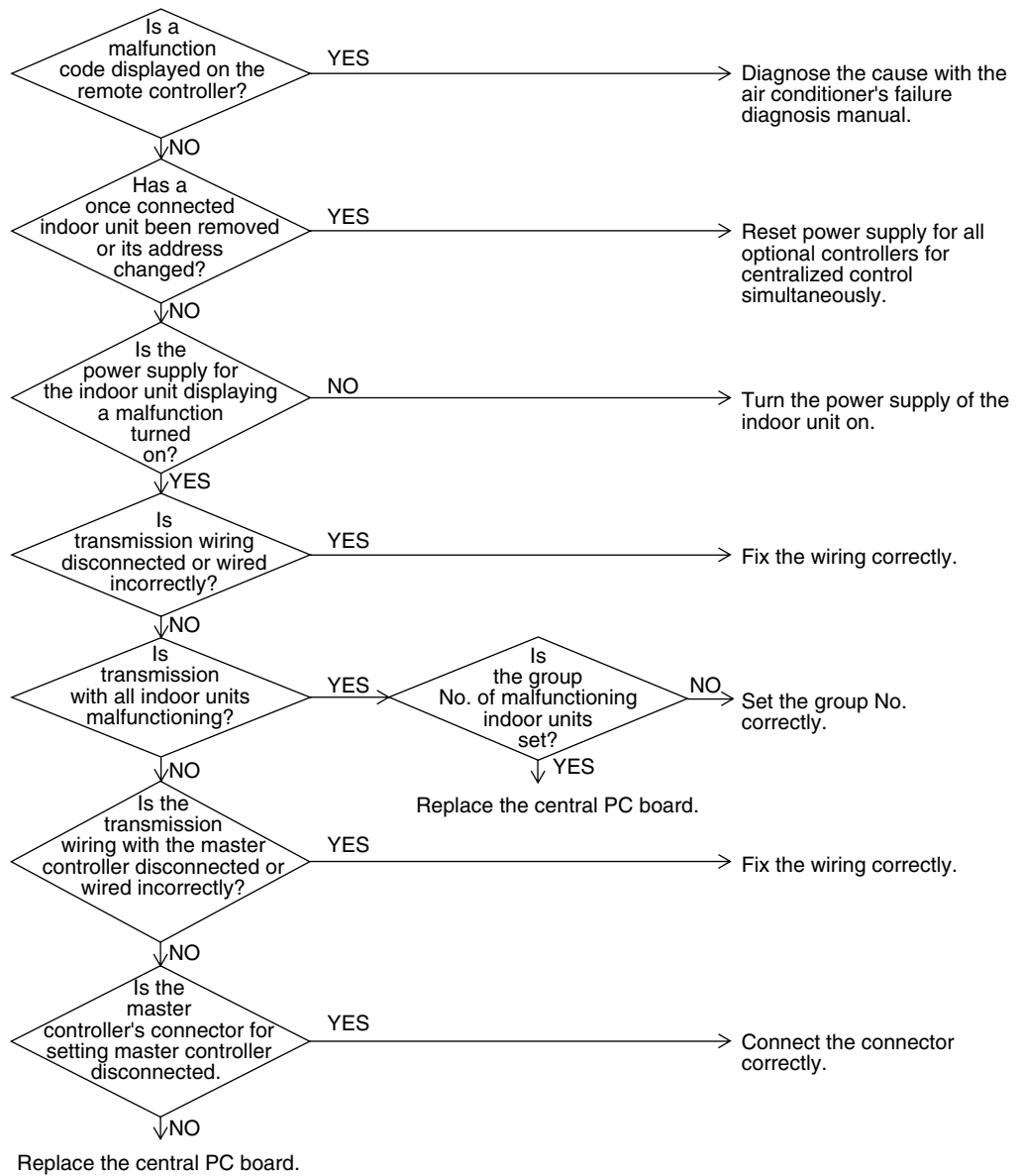
Remote Controller Display	Operation lamp blinks
Applicable Models	All model of indoor units Unified ON/OFF controller
Method of Malfunction Detection	Detect the malfunction according to DIII-NET transmission data.
Malfunction Decision Conditions	
Supposed Causes	<ul style="list-style-type: none">■ Malfunction of transmission between optional central controller and indoor unit■ Connector for setting master controller is disconnected■ Defect of unified ON/OFF controller PC board■ Defect of indoor unit PC board■ Malfunction of air conditioner

Troubleshooting




Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2841)

5.2 Display “Under Centralized Control” Blinks (Repeats Single Blink)

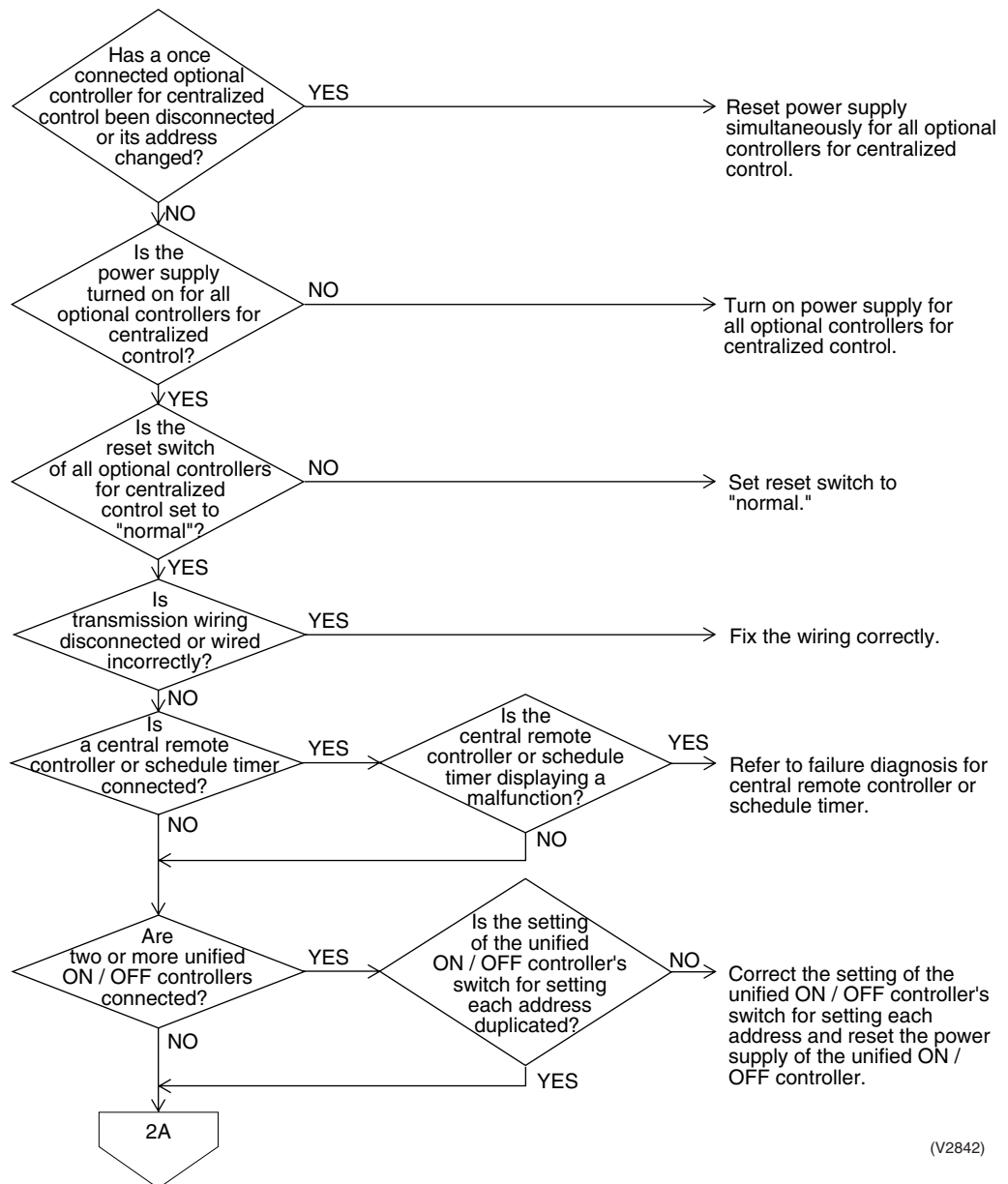
Remote Controller Display	 “under centralized control” (Repeats single blink)
Applicable Models	Unified ON/OFF controller Central remote controller, Schedule timer
Method of Malfunction Detection	Detect the malfunction according to DIII-NET transmission data.
Malfunction Decision Conditions	When the centralized controller, which was connected once, shows no response. The control ranges are overlapped. When multiple master central controller are present. When the schedule timer is set to individual use mode, other central controller is present. When the wiring adaptor for electrical appendices is present.
Supposed Causes	<ul style="list-style-type: none"> ■ Address duplication of optional controllers for centralized control ■ Improper combination of optional controllers for centralized control ■ Connection of more than one master controller ■ Malfunction of transmission between optional controllers for centralized control ■ Defect of PC board of optional controllers for centralized control

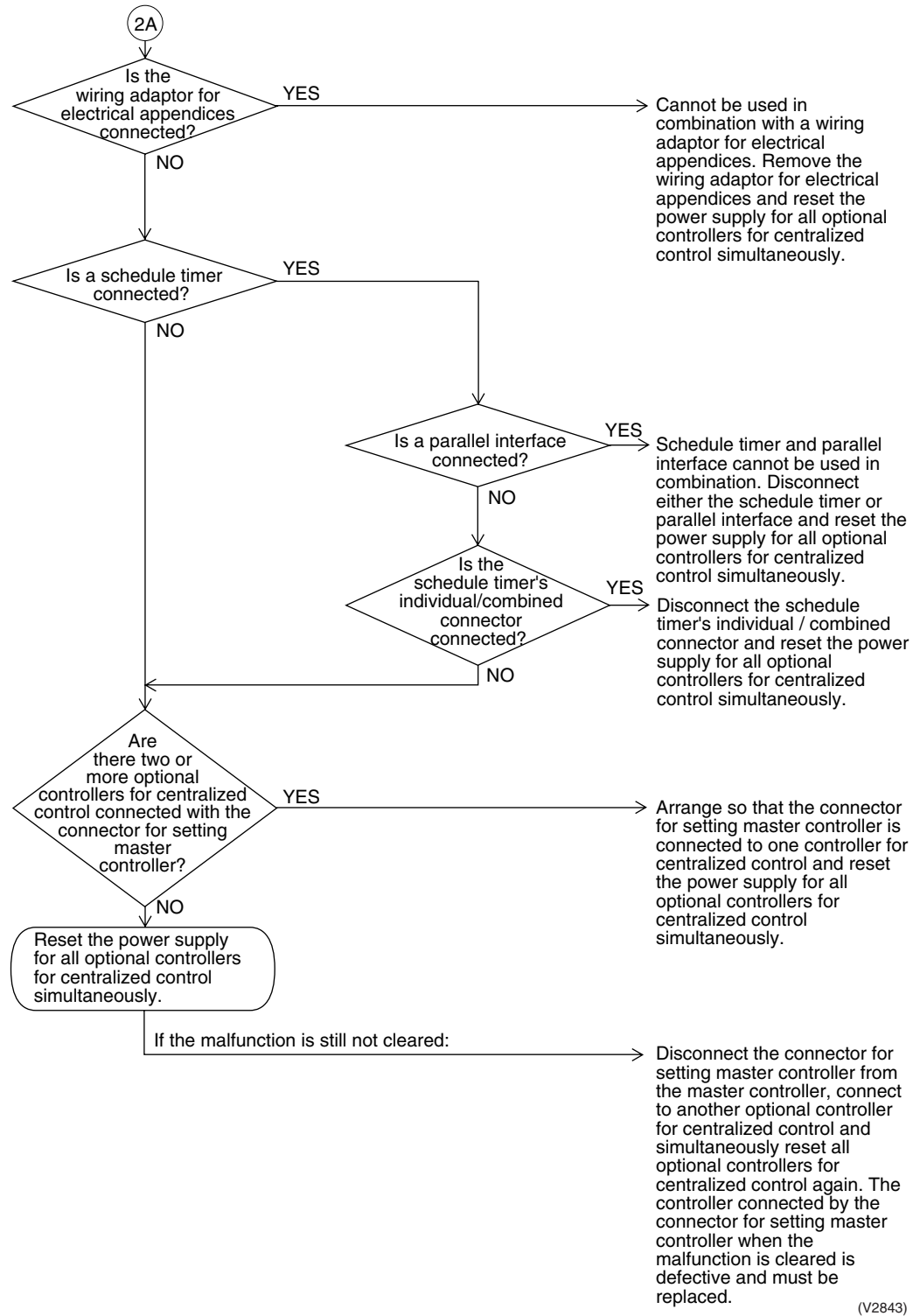
Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.





5.3 Display “Under Centralized Control” Blinks (Repeats Double Blink)

Remote Controller Display

 “under centralized control” (Repeats double blink)

Applicable Models

Unified ON/OFF controller

Method of Malfunction Detection

Detect the malfunction according to DIII-NET transmission data.

Malfunction Decision Conditions

When no central control addresses are set to indoor units.
When no indoor units are connected within the control range.

Supposed Causes

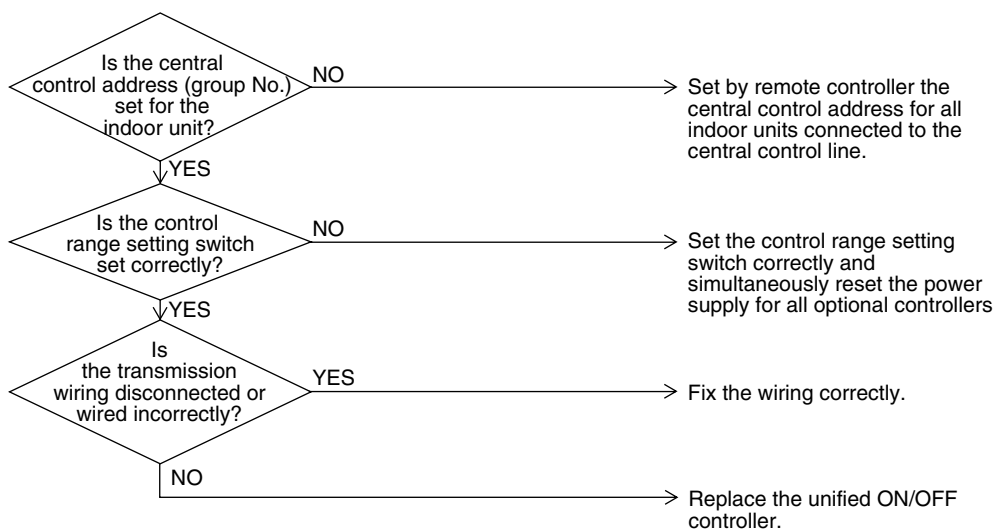
- Central control address (group No.) is not set for indoor unit.
- Improper control range setting switch
- Improper wiring of transmission wiring

Troubleshooting



Caution

Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

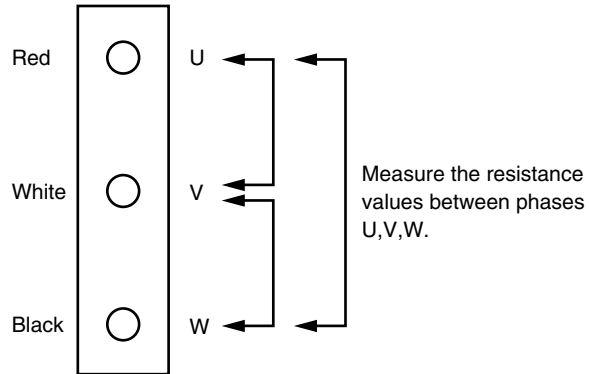


(V2844)

[CHECK 1]**Check on connector of fan motor (Power supply cable)**

(1) Turn off the power supply.

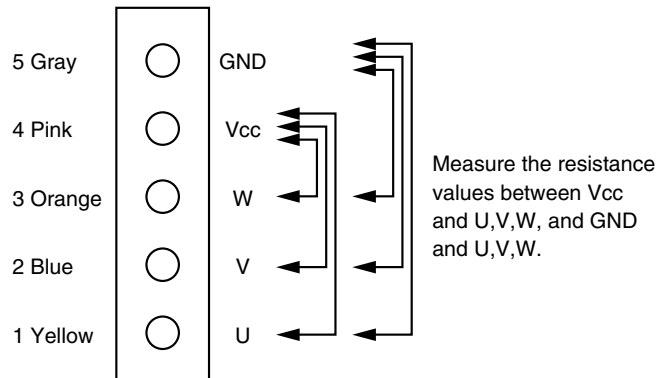
Measure the resistance between phases of U,V,W at the motor side connectors (three-core wire) to check that the values are balanced and there is no short circuiting, while connector or relay connector is disconnected.

**[CHECK 2]**

(1) Turn off the power supply.

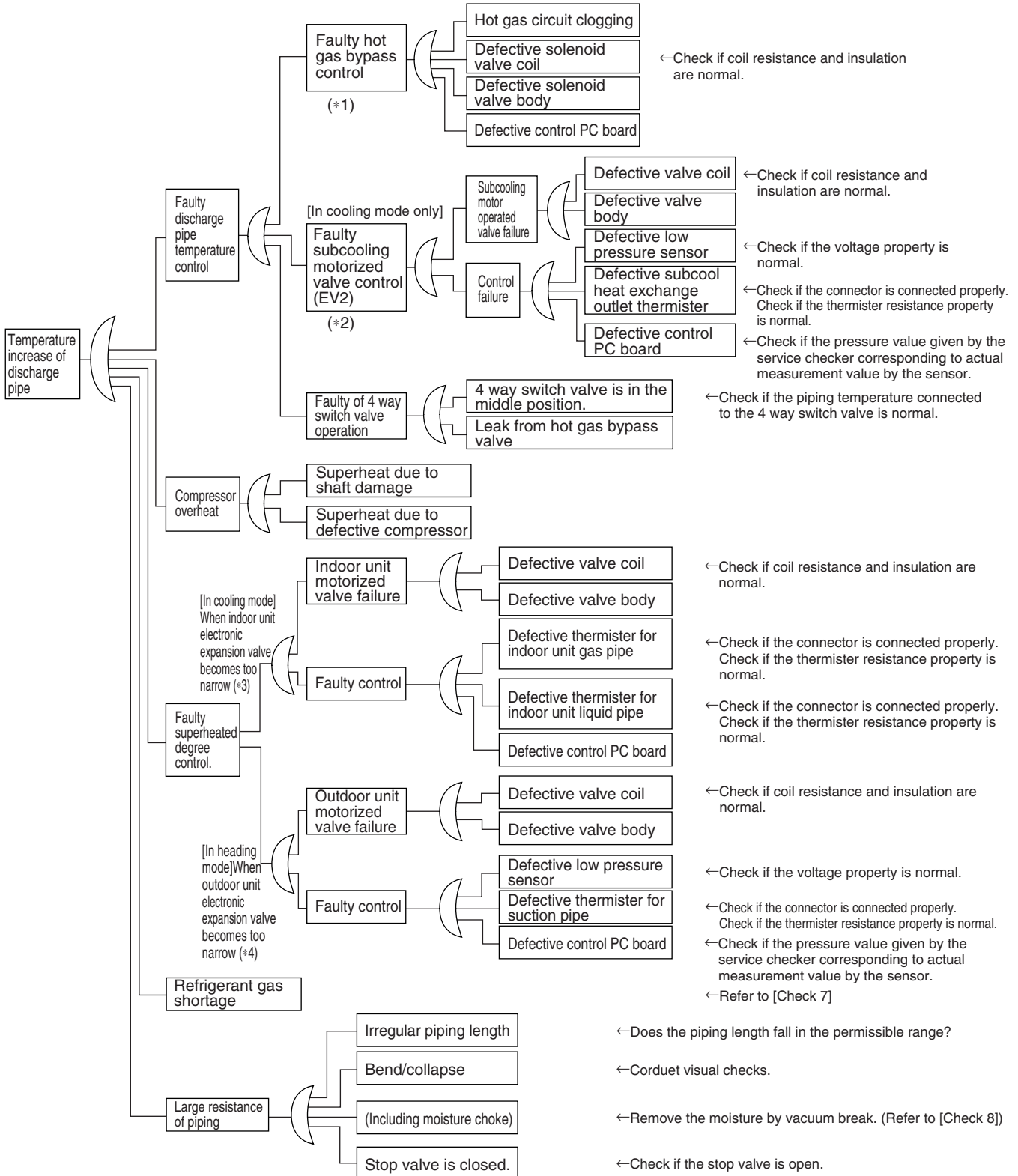
(2) Measure the resistance between Vcc and each phase of U,V,W, and GND and each phase at the motor side connectors (five-core wire) to check that the values are balanced within the range of $\pm 20\%$, while connector or relay connector is disconnected.

Furthermore, to use a multiple meter for measurement, connect the probe of negative pole to Vcc and that of positive pole to GND.



[CHECK 3] Check the Factors of Overheat Operation

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



*1: Refer to "Low pressure protective control" (P126) for hot gas bypass control.

*2: Refer to P108 for subcooling electronic expansion valve control.

*3: "Superheating temperature control" in cooling mode is conducted by indoor unit electronic expansion valve. (Refer to P143)

*4: Superheating temperature control in heating mode is conducted by outdoor unit electronic expansion valve (EVM). (Refer to P108).

*5: Judgment criteria of superheat operation:

① Suction gas superheating temperature: 10 degrees and over. ② Discharge gas superheating temperature: 45 degrees and over, except for immediately after starting and drooping control, etc..

(Use the above stated values as a guide. Depending on the other conditions, the unit may be normal despite the values within the above scope.)

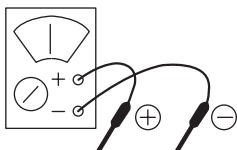
[CHECK 4] Power Transistor Check

Perform the following procedures prior to check.

- (1) Power Off.
- (2) Remove all the wiring connected to the PC board where power transistors are mounted on.

[Preparation]

- Tester



* Preparing a tester in the analog system is recommended.
A tester in the digital system with diode check function will be usable.

[Point of Measurement and Judgment Criteria]

- Measure the resistance value using a tester at each point of measurement below, 10 minutes later after power OFF.

To use analog tester:

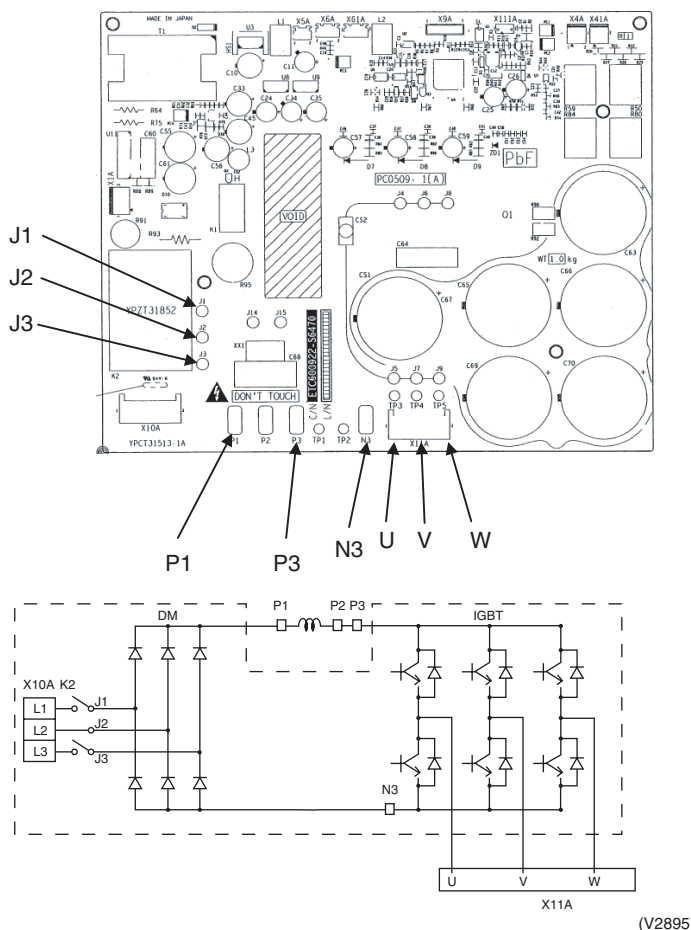
Measurement in the resistance value mode in the range of multiplying 1kΩ.

No.	Point of Measurement		Judgment Criteria	Remarks
	+	-		
1	P2	U	2 ~ 15kΩ	
2	P2	V		
3	P2	W		
4	U	P2	15kΩ and above (including ∞)	Due to condenser charge and so on, resistance measurement may require some time.
5	V	P2		
6	W	P2		
7	N3	U	2 ~ 15kΩ	
8	N3	V		
9	N3	W		
10	U	N3	2 ~ 15kΩ	
11	V	N3		
12	W	N3		

To use digital tester:

Measurement is executed in the diode check mode. (→|←)

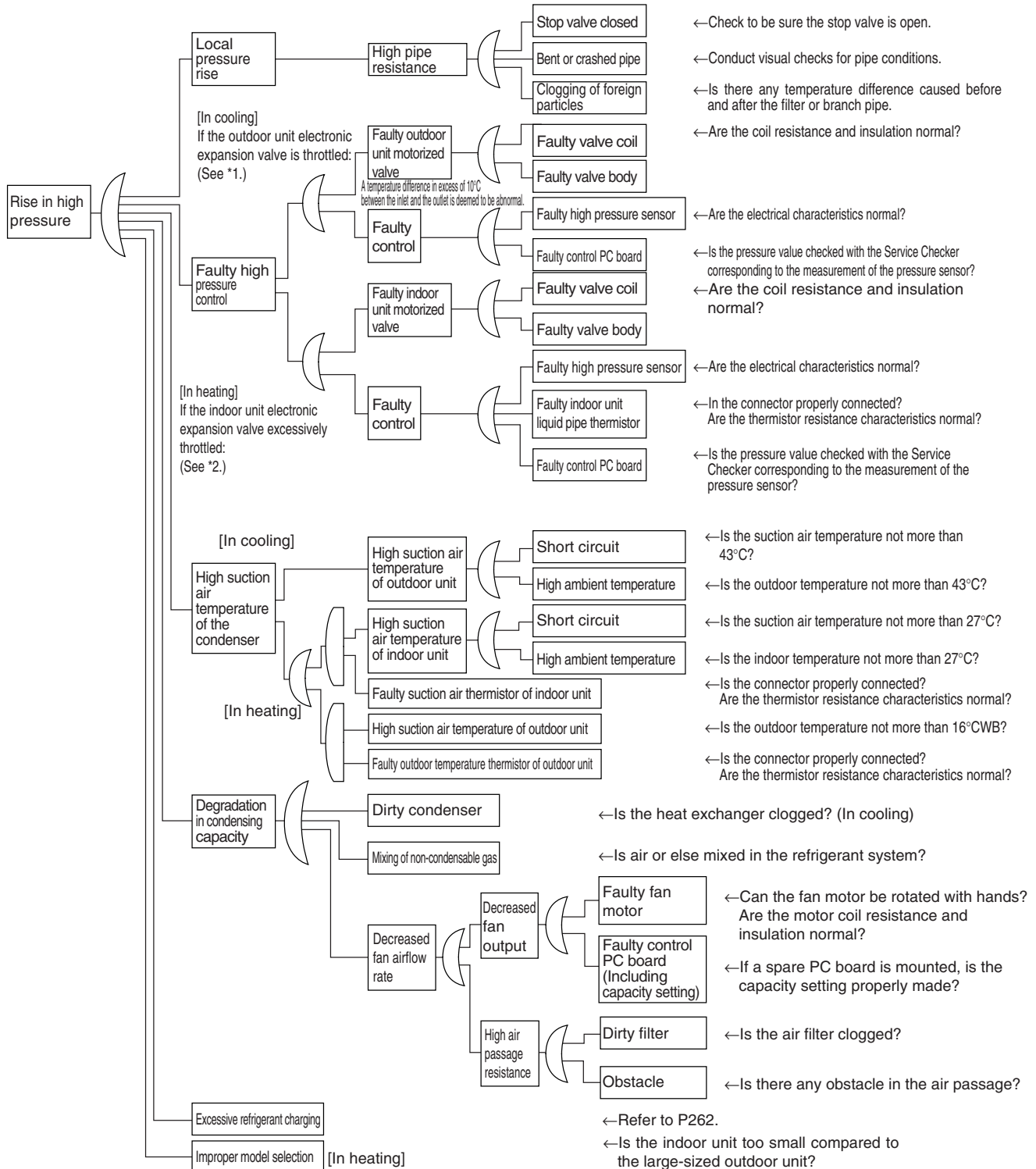
No.	Point of Measurement		Judgment Criteria	Remarks
	+	-		
1	P2	U	1.2V and over	Due to condenser charge and so on, resistance measurement may require some time.
2	P2	V		
3	P2	W		
4	U	P2	0.3 ~ 0.7V	
5	V	P2		
6	W	P2		
7	N3	U	1.2V and over	Due to condenser charge and so on, resistance measurement may require some time.
8	N3	V		
9	N3	W		
10	U	N3	1.2V and over	
11	V	N3		
12	W	N3		

[PC board and Circuit Diagram]

(V2895)

[CHECK 5] Check for causes of rise in high pressure

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



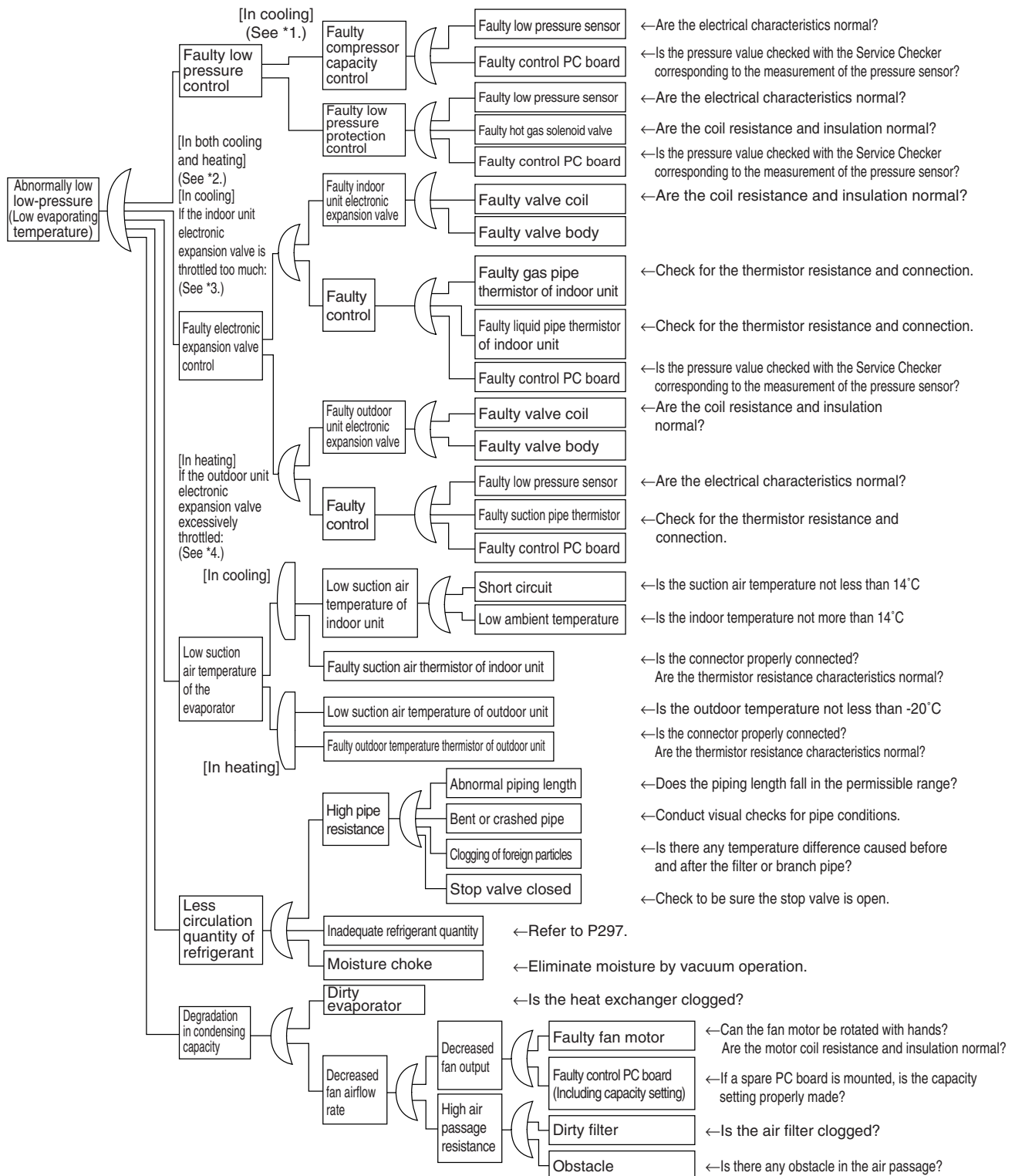
*1: In cooling, it is normal if the outdoor unit electronic expansion valve (EVM) is fully open.

*2: In heating, the indoor unit electronic expansion valve is used for "subcooled degree control".
(For details, refer to "Electronic Expansion Valve Control" on P143.)

SDK04009

[CHECK 6] Check for causes of drop in low pressure

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



*1: For details of the compressor capacity control while in cooling, refer to "Compressor PI Control" on P100.

*2: The "low pressure protection control" includes low pressure protection control and hot gas bypass control. For details, refer to P126.

*3: In cooling, the indoor unit electronic expansion valve is used for "superheated degree control". (For details, refer to P143.)

*4: In heating, the outdoor unit electronic expansion valve (EVM) is used for "superheated degree control of outdoor unit heat exchanger". (For details, refer to P108.)

SDK04009

[CHECK 7] Broken Wire Check of the Connecting 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 parts 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.

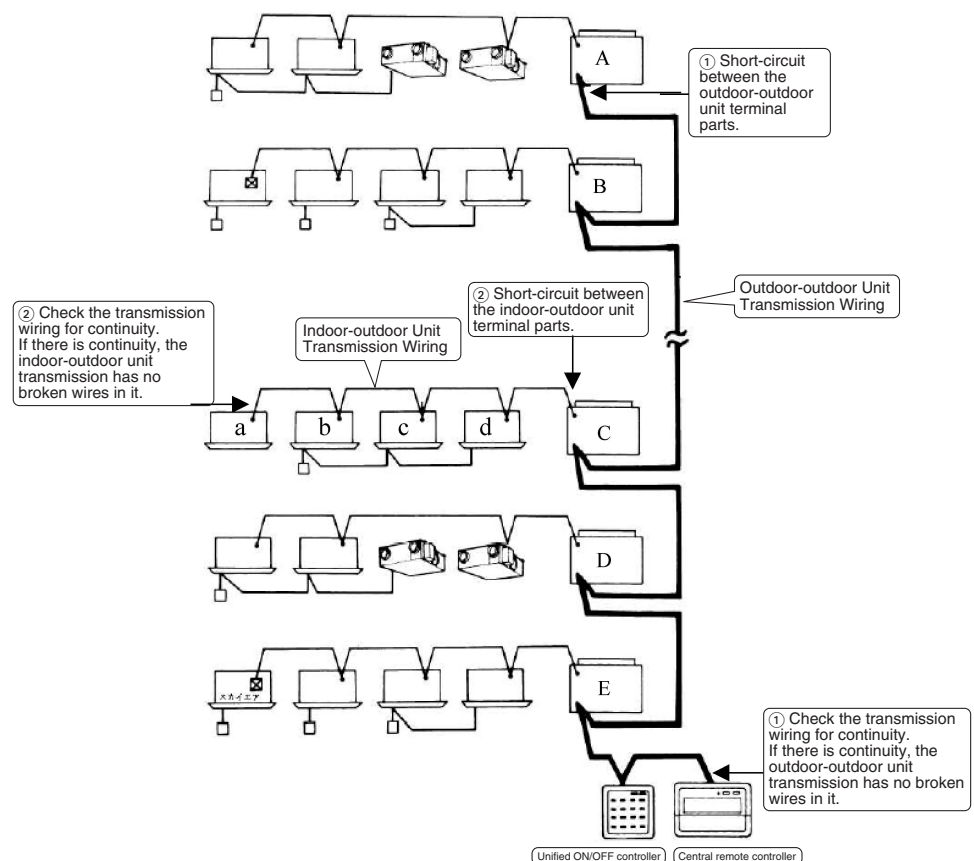
If there is no continuity, the transmission wiring may have broken wires. With the outdoor-outdoor unit terminal parts of the "Outdoor Unit A" short-circuited, conduct continuity checks between the transmission wiring terminal blocks F1 and F2 of the unified ON/OFF controller. If there is no continuity as well, conduct continuity checks between the outdoor-outdoor unit terminal parts of the "Outdoor Unit E", between the outdoor-outdoor unit terminal parts of the "Outdoor Unit D", between the outdoor-outdoor unit terminal parts 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 parts 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 parts 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 8] Master Unit Central Connector Setting Table

The master unit central setting connector (CN1/X1A) is mounted at the factory.

- To independently use a single unit of the intelligent Touch controller or a single unit of the central remote controller, do not dismount the master unit central setting connector (i.e., use the connector with the factory setting unchanged).
- To independently use the schedule timer, insert an independent-use setting connector. No independent-use setting connector has been mounted at the factory. Insert the connector, which is attached to the casing of the main unit, in the PC board (CN1/X1A). (Independent-use connector=Master unit central setting connector)
- To use two or more central equipment in combination, make settings according to the table shown below.

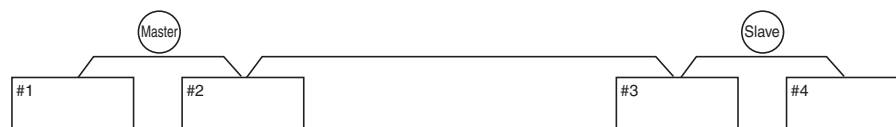
Pattern	Central equipment connection pattern				Setting of master unit central setting connector(*2)			
	Intelligent Touch controller	Central remote controller	Unified ON/OFF controller	Schedule timer	Intelligent Touch controller	Central remote controller	Unified ON/OFF controller	Schedule timer
①	1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

(*1) The intelligent Touch controller and the schedule timer are not available for combined use.

(*2) The intelligent Touch controller, central remote controller, and the unified ON/OFF controller have been set to "Provided with the master unit central setting connector" at the factory. The schedule timer has been set to "Not provided with the master unit central setting connector" at the factory, which is attached to the casing of the main unit.

[CHECK 9] Master-Slave Unit Setting Table

Combination of Intelligent Touch Controller and Central Remote Controller



*	#1		#2		#3		#4	
Pattern	1-00~4-15	Master/Slave	5-00~8-15	Master/Slave	1-00~4-15	Master/Slave	5-00~8-15	Master/Slave
①	CRC	Master	CRC	Master	CRC	Slave	CRC	Slave
②	CRC	Master	—	—	CRC	Slave	—	—
③	Intelligent Touch controller	Master	—	—	Intelligent Touch controller	Slave	—	—
④	CRC	Master	—	—	Intelligent Touch controller	Slave	—	—
⑤	Intelligent Touch controller	Master	—	—	CRC	Slave	—	—
⑥	CRC	Master	—	—	—	—	—	—
⑦	Intelligent Touch controller	Master	—	—	—	—	—	—

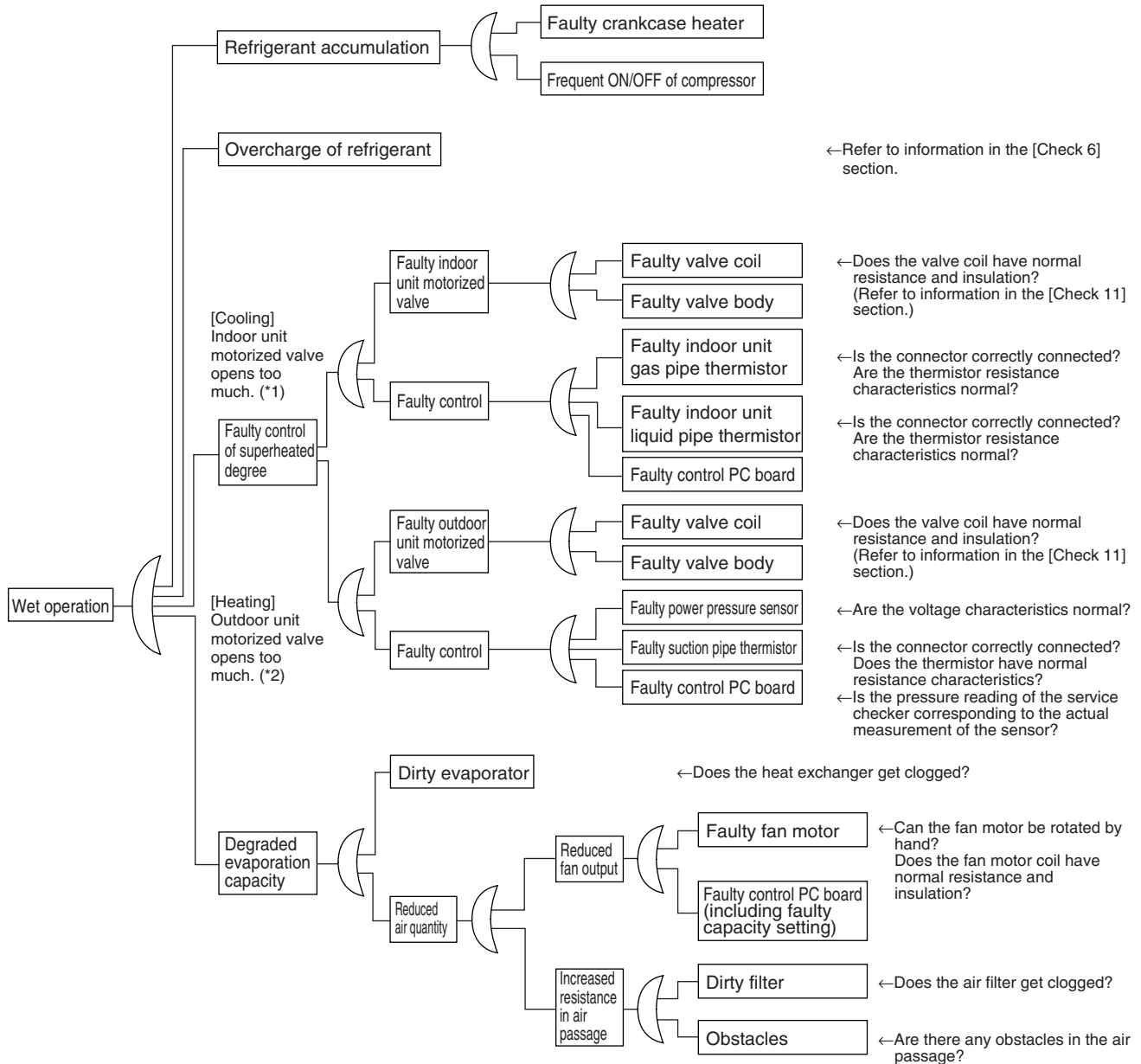
CRC: Central remote controller <DCS302CA61>

Intelligent Touch controller: <DCS601C51>

The patterns marked with "" have nothing to do with those described in the list of Setting of master unit central setting connector.

[Check 10] Check for causes of wet operation.

Referring to the Fault Tree Analysis (FTA) shown below, identify faulty points.



*1: "Superheated degree control" in cooling operation is exercised with the indoor unit motorized valve. (Refer to information on P143.)

*2: "Superheated degree control" in heating operation is exercised with the outdoor unit motorized valve (EV1). (Refer to information on P108.)

*3: Guideline of superheated degree to judge as wet operation

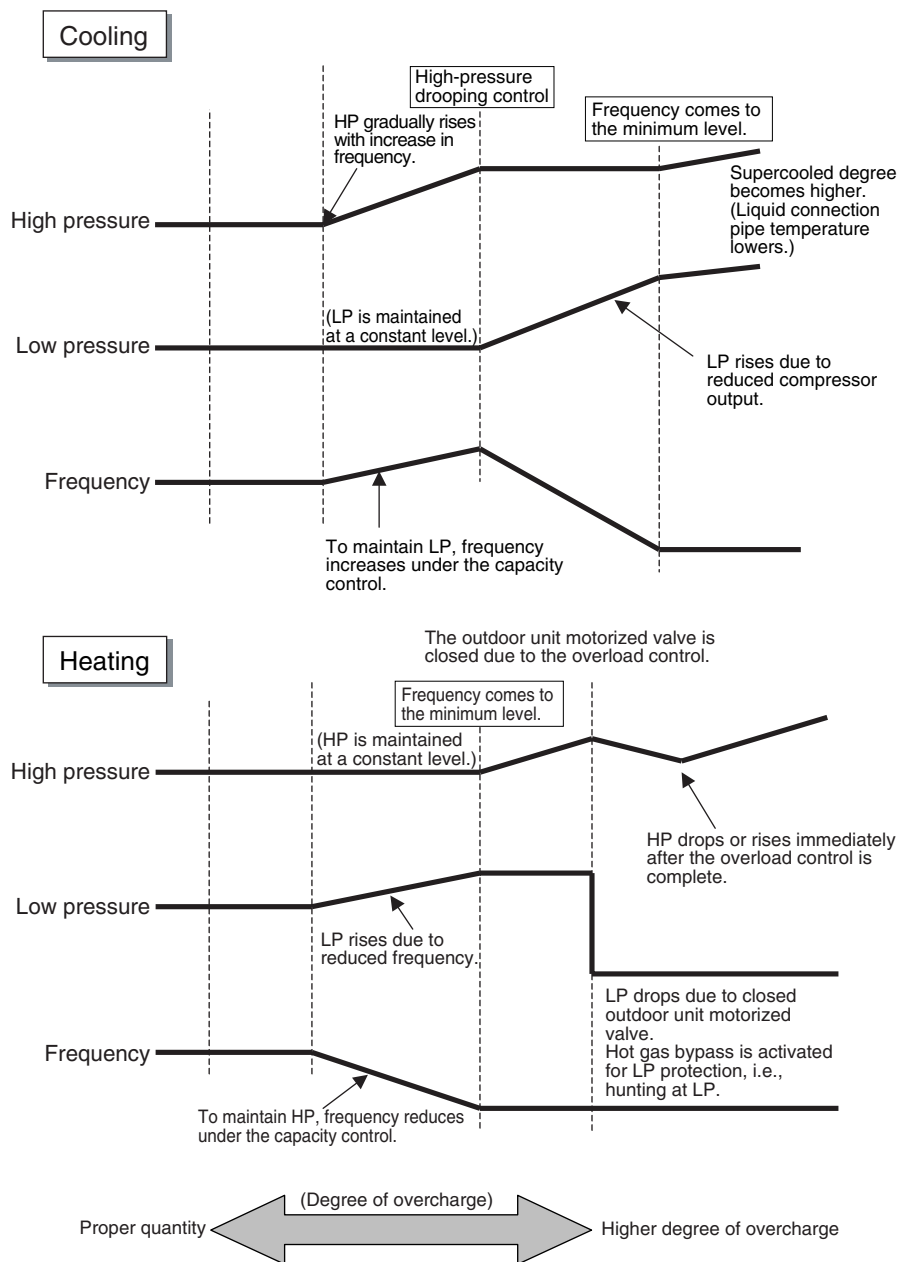
① Suction gas superheated degree: Not more than 3°C; ② Discharge gas superheated degree: Not more than 15°C, except immediately after compressor starts up or is running under drooping control. (Use the values shown above as a guideline. Even if the superheated degree falls in the range, the compressor may be normal depending on other conditions.)

[Check 11] Check for overcharge of refrigerant.

In case of VRV Systems, the only way to judge as the overcharge of refrigerant is with operating conditions due to the relationship to pressure control and electronic expansion valve control. As information for making a judgment, refer to information provided below.

Diagnosis of overcharge of refrigerant

1. High pressure rises. Consequently, overload control is exercised to cause scant cooling capacity.
2. The superheated degree of suction gas lowers (or the wet operation is performed). Consequently, the compressor becomes lower in discharge pipe temperature despite of pressure loads.
3. The supercooled degree of condensate rises. Consequently, in heating operation, the temperature of outlet air passing through the supercooled section becomes lower.

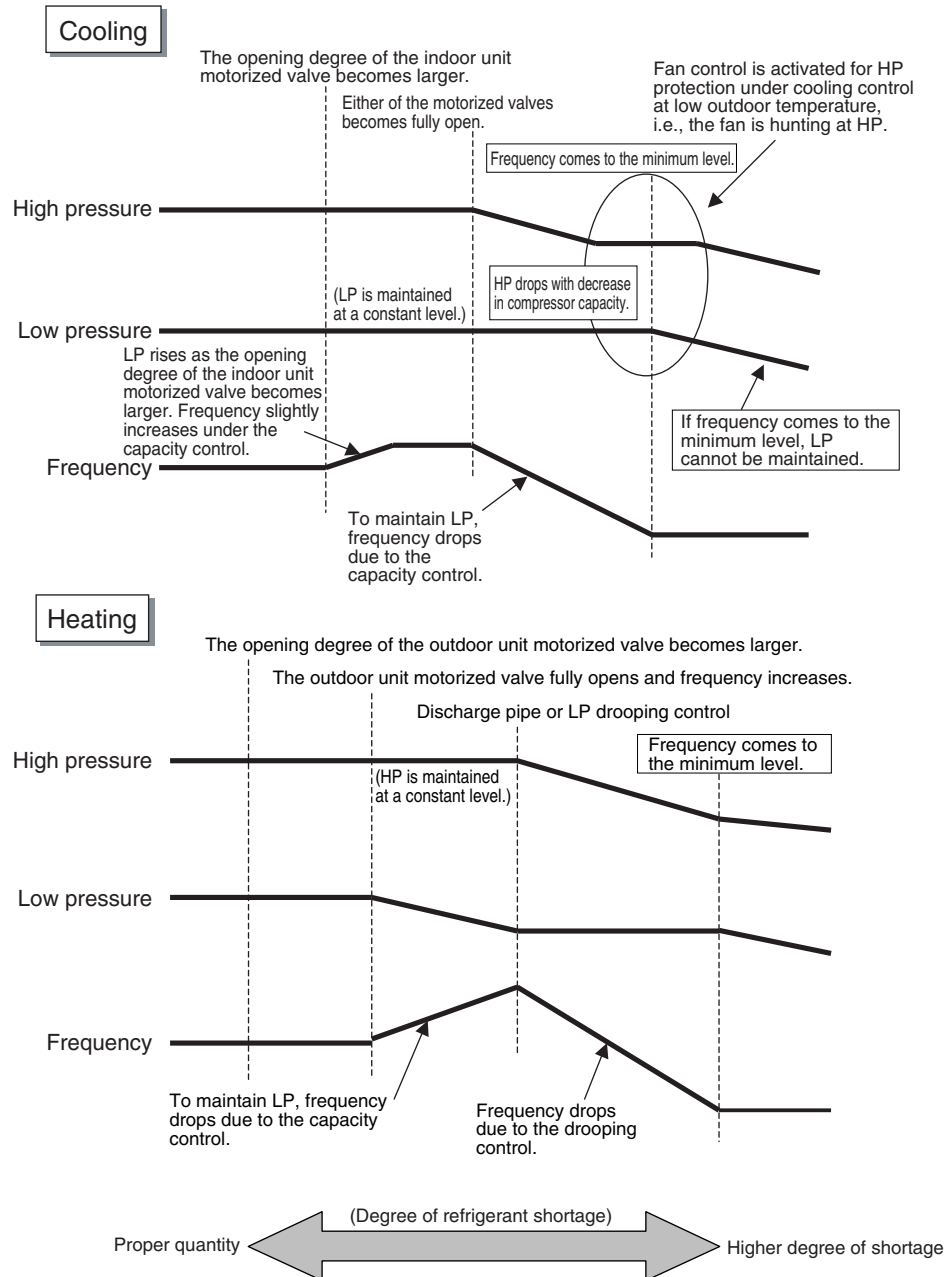


[Check 12] Check for shortage of refrigerant.

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 judgment, refer to information provided 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 13] 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 100.7kPa (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 -100.7kPa or less.
- If the degree of vacuum does not reach -100.7kPa 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 -100.7kPa or less even though evacuation is conducted for a period of three hours, conduct leak tests.

② Leaving in vacuum state

- Leave the compressor at the degree of vacuum of -100.7kPa 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 Refrigerant charge

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

<Special vacuuming and dehydration> - In case 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 0.05MPa.

③ Vacuuming and dehydration

- Conduct vacuuming and dehydration for a period of one hour or more. If the degree of vacuum does not reach -100.7kPa 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 -100.7kPa 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 Refrigerant charge

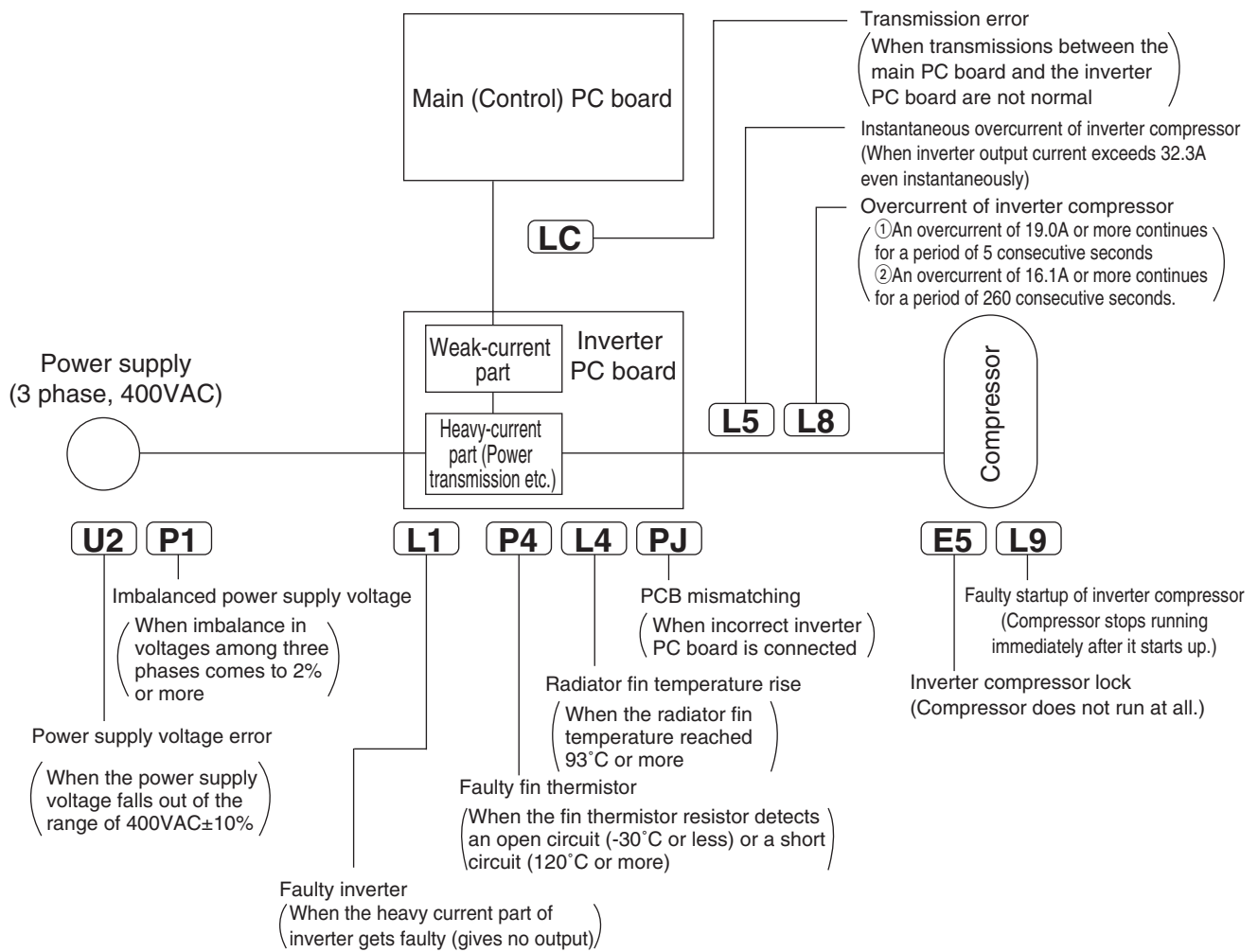
- Purge air from the manifold gauge connection hoses, and then charge a necessary quantity of refrigerant.

- * In case of construction during rainy season, if dew condensation occurs in the piping due to extended construction period, or rainwater or else may enter the piping during construction work:

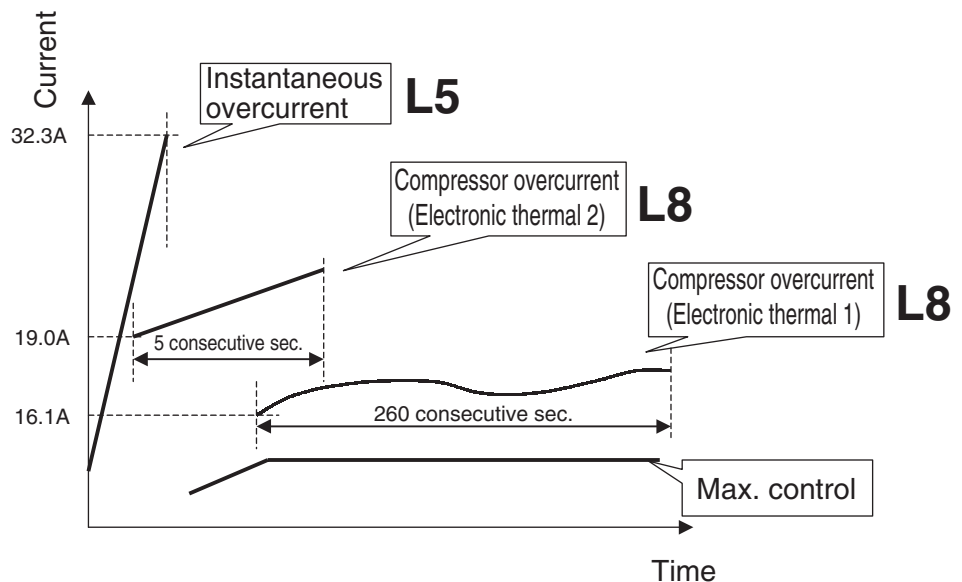
[Check 14] List of inverter-related malfunction codes

	Code	Name	Condition for determining malfunction	Major cause
Compressor current	L5	Instantaneous overcurrent of inverter compressor	<ul style="list-style-type: none"> Inverter output current exceeds 32.3A even instantaneously. 	<ul style="list-style-type: none"> Liquid sealing Faulty compressor Faulty inverter PC board
	L8	Overcurrent of inverter compressor (Electronic thermal)	<ul style="list-style-type: none"> 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. The inverter loses synchronization. 	<ul style="list-style-type: none"> Backflow of compressor liquid Sudden changes in loads Disconnected compressor wiring Faulty inverter PC board
Protection device and others	L1	Faulty inverter PC board	<ul style="list-style-type: none"> No output is given. 	<ul style="list-style-type: none"> Faulty heavy current part of compressor
	L9	Faulty startup of inverter compressor	<ul style="list-style-type: none"> The compressor motor fails to start up. 	<ul style="list-style-type: none"> Liquid sealing or faulty compressor Excessive oil or refrigerant Faulty inverter PC board
	E5	Inverter compressor lock	<ul style="list-style-type: none"> The compressor is in the locked status (does not rotate). 	<ul style="list-style-type: none"> Faulty compressor
	L4	Radiator fin temperature rise	<ul style="list-style-type: none"> The radiator fin temperature reaches 93°C or more (while in operation). 	<ul style="list-style-type: none"> Malfunction of fan Running in overload for an extended period of time Faulty inverter PC board
	U2	Power supply voltage error	<ul style="list-style-type: none"> The inverter power supply voltage is high or low. 	<ul style="list-style-type: none"> Power supply error Faulty inverter PC board
	P1	Imbalanced power supply	<ul style="list-style-type: none"> Power supply voltages get significantly imbalanced among three phases. 	<ul style="list-style-type: none"> Power supply error (imbalanced voltages of 2% or more) Faulty inverter PC board Dead inverter PC board
	LC	Transmission error (between inverter PC board and control PC board)	<ul style="list-style-type: none"> With the outdoor unit PC board, no communications are carried out across control PC board - inverter PC board - fan PC board. 	<ul style="list-style-type: none"> Broken wire in communication line Faulty control PC board Faulty inverter PC board Faulty fan PC board
	PJ	PC board mismatching	<ul style="list-style-type: none"> Any PC board of specification different from that of the product is connected. 	<ul style="list-style-type: none"> PC board of different specification mounted
	P4	Faulty fin thermistor	<ul style="list-style-type: none"> The fin thermistor gets short-circuited or open. 	<ul style="list-style-type: none"> Faulty fin thermistor

[Check 15] Concept of inverter-related malfunction codes



Malfunction codes related to compressor current



Part 7

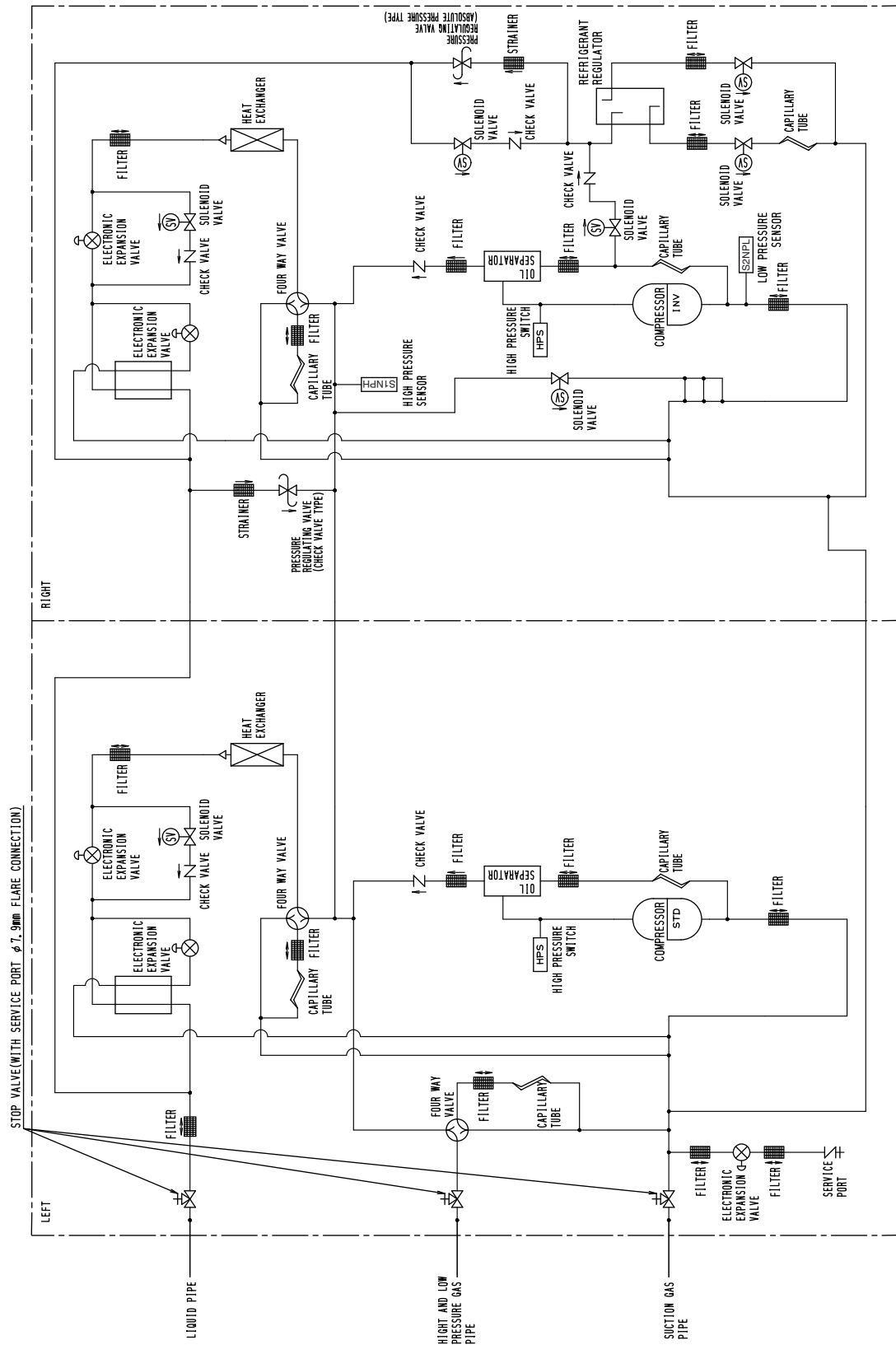
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1. Piping Diagrams

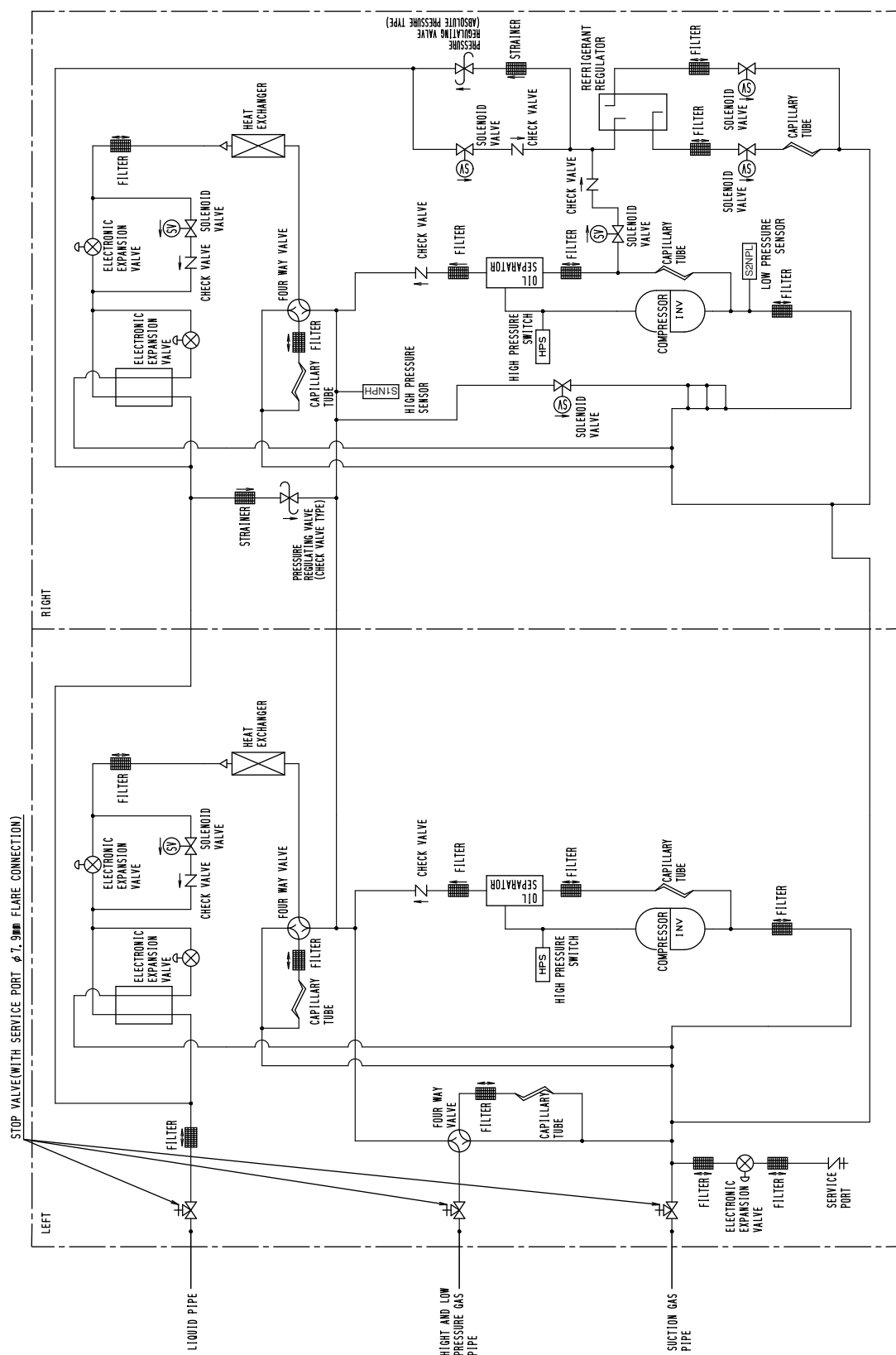
1.1 Outdoor Unit

REYQ8P / 10P / 12PY1



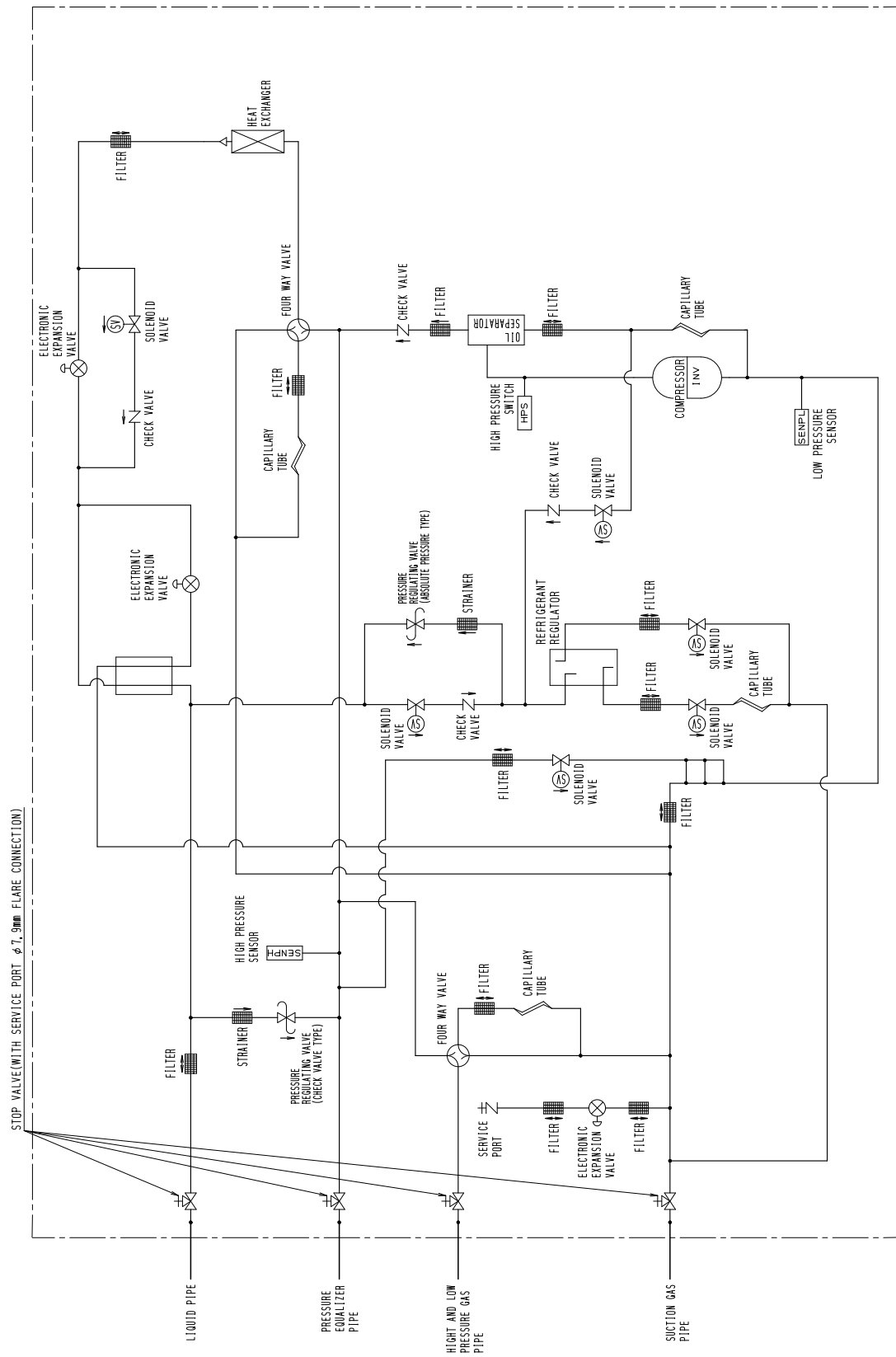
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REYQ14P / 16PY1



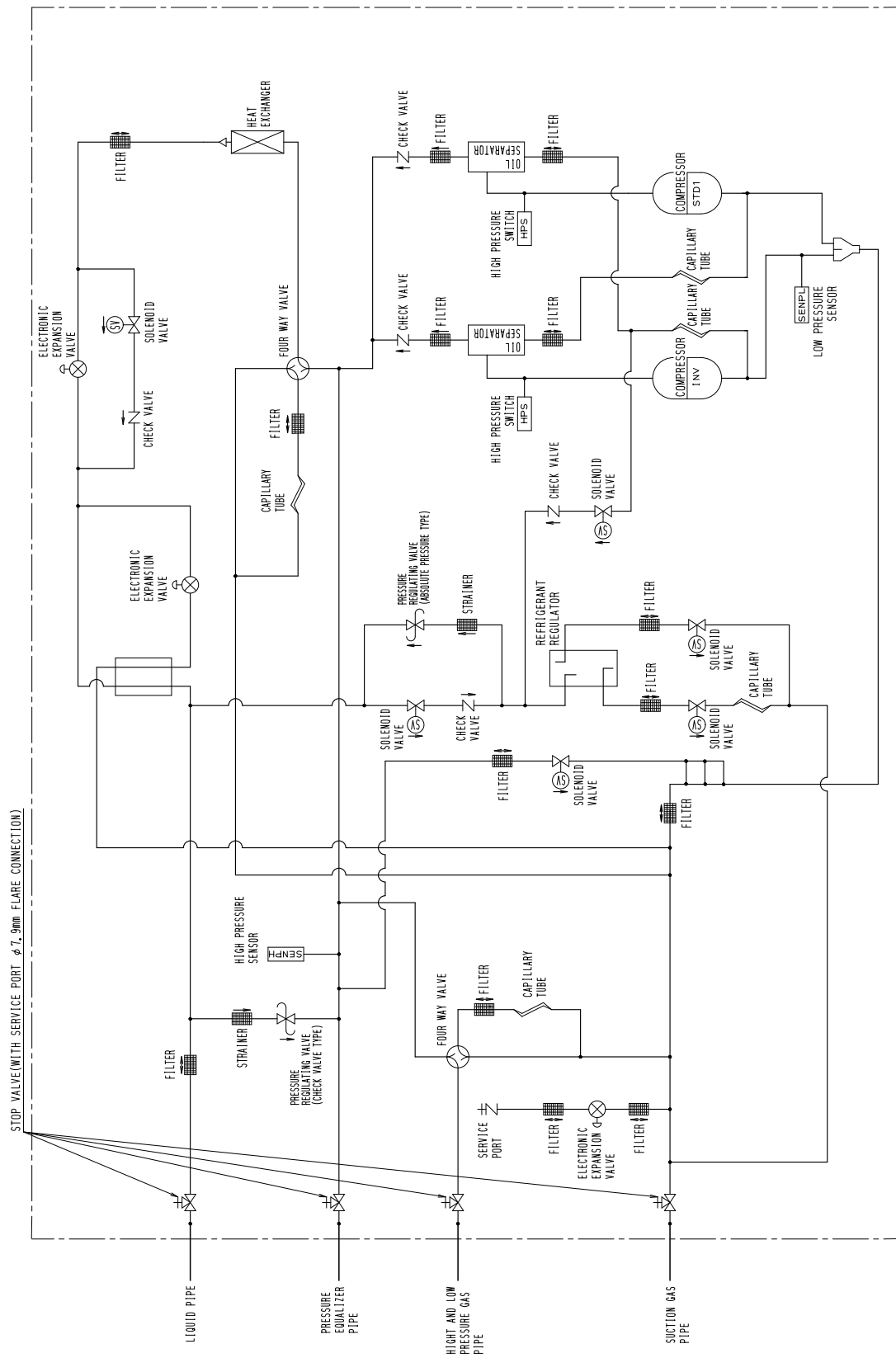
3D058153A

REM8PY1



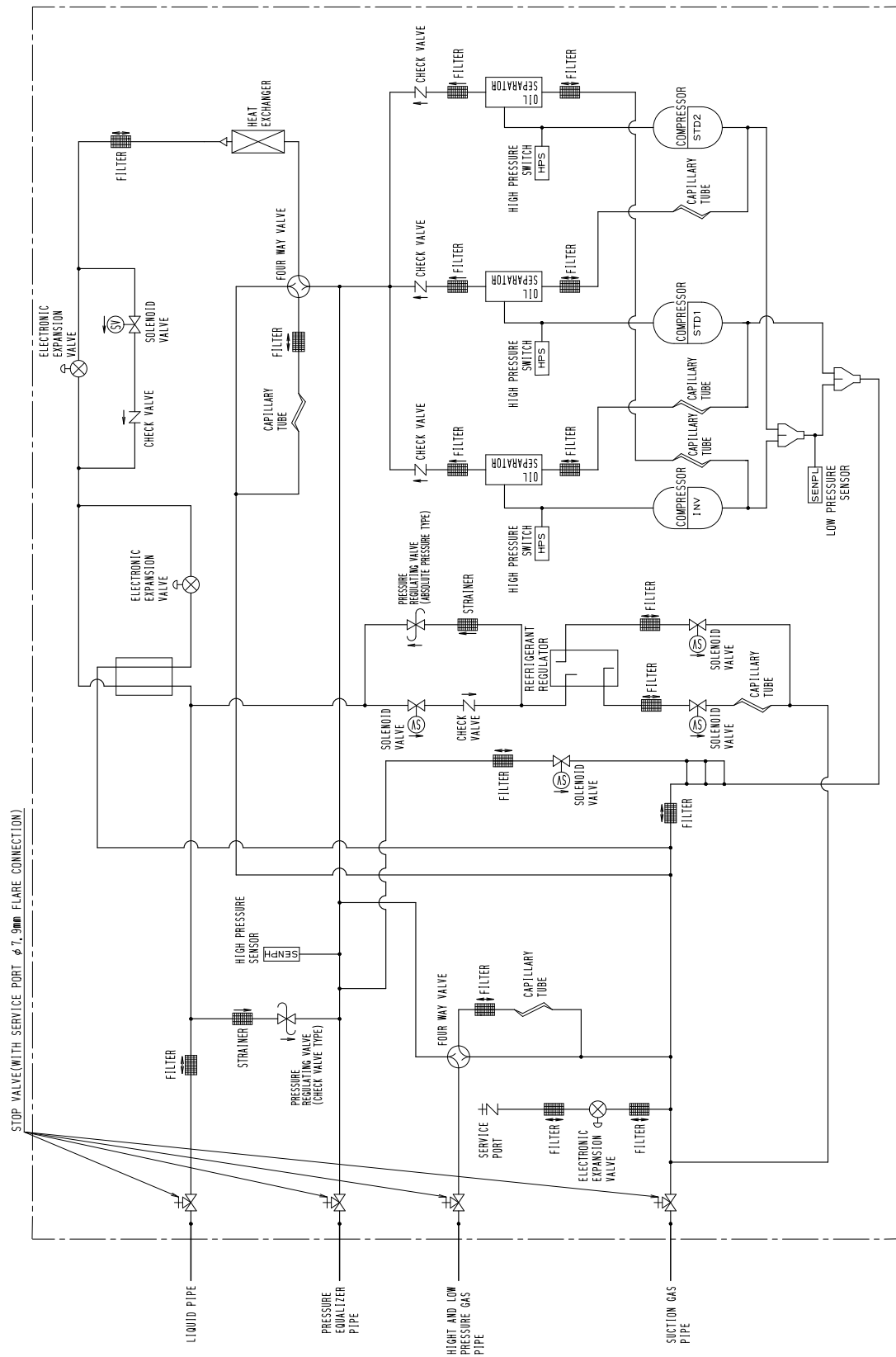
3D057743

REMQ10PY1, 12PY1



3D057742

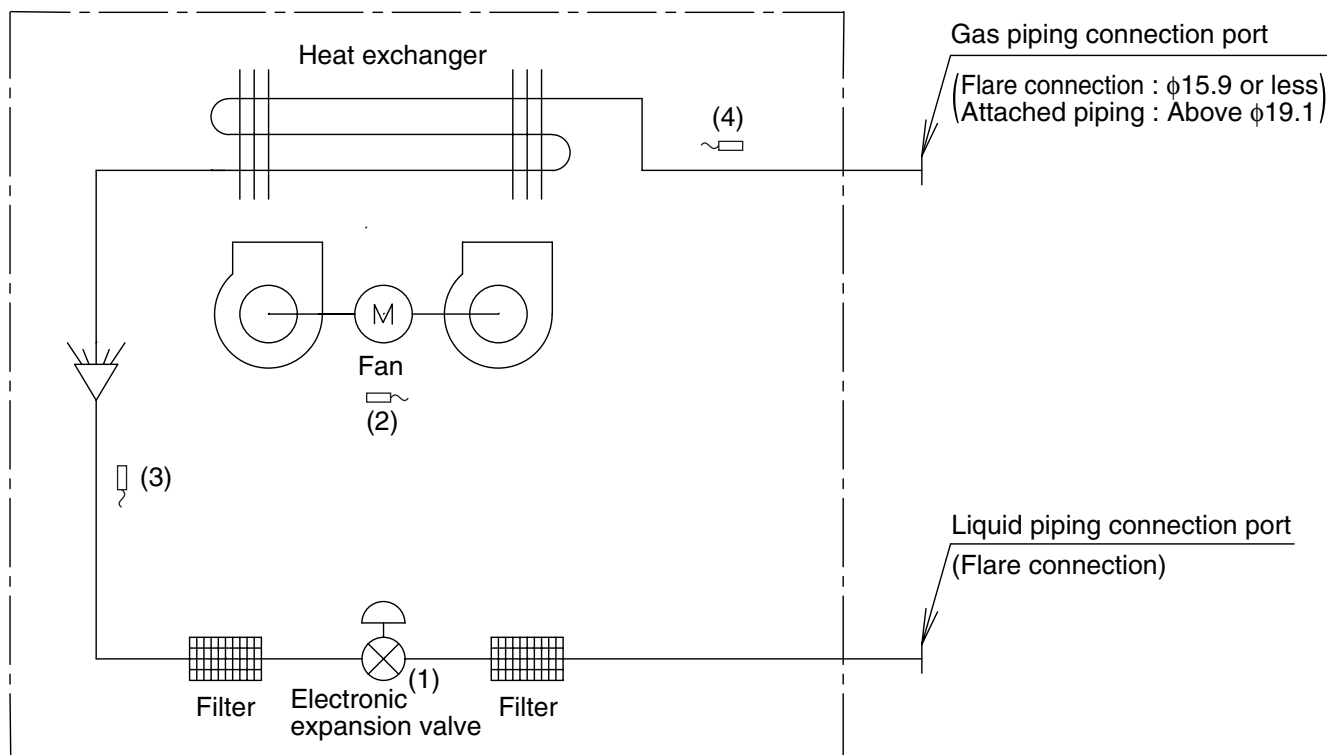
REMQU14PY1, 16PY1



3D057741

1.2 Indoor Unit

FXCQ, FXFQ, FXKQ, FXSQ, FXMQ, FXHQ, FXAQ, FXLQ, FXNQ



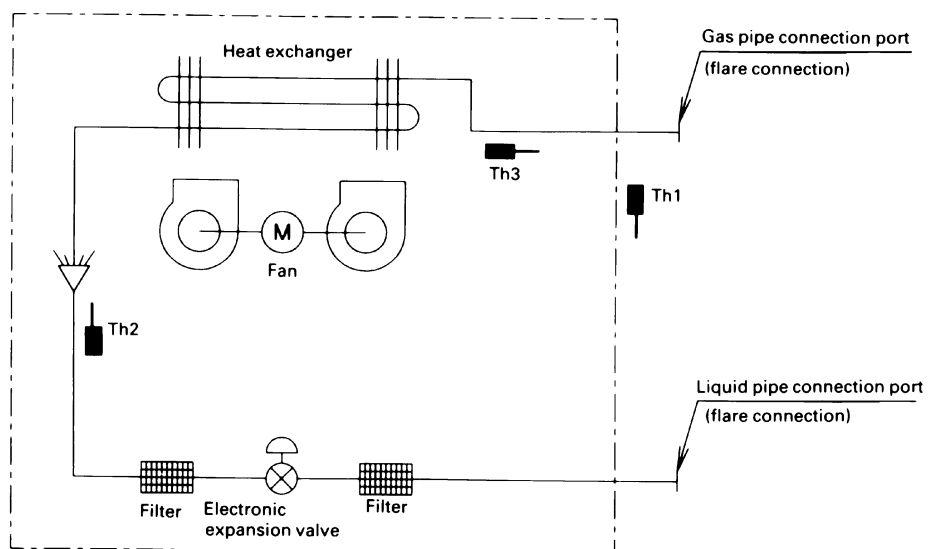
DU220-602J

Code	Name	Code	Main function
(1)	Electronic expansion valve	Y1E	Used for gas superheated degree control while in cooling operation or subcooled degree control while in heating operation.
(2)	Suction air temperature thermistor	R1T	Used for thermostat control.
(3)	Liquid pipe	R2T	Used for gas superheated degree control while in cooling operation or subcooled degree control while in heating operation.
(4)	Gas pipe	R3T	Used for gas superheated degree control while in cooling operation.

(mm)

Capacity	GAS	Liquid
20 / 25 / 32 / 40 / 50M(A)	$\phi 12.7$	$\phi 6.4$
63 / 80 / 100 / 125M(A)	$\phi 15.9$	$\phi 9.5$
200M(A)	$\phi 19.1$	$\phi 9.5$
250M(A)	$\phi 22.2$	$\phi 9.5$

FXZQ



Th1: Thermister for suction air temp.

Th2: Thermister for liquid line temp.

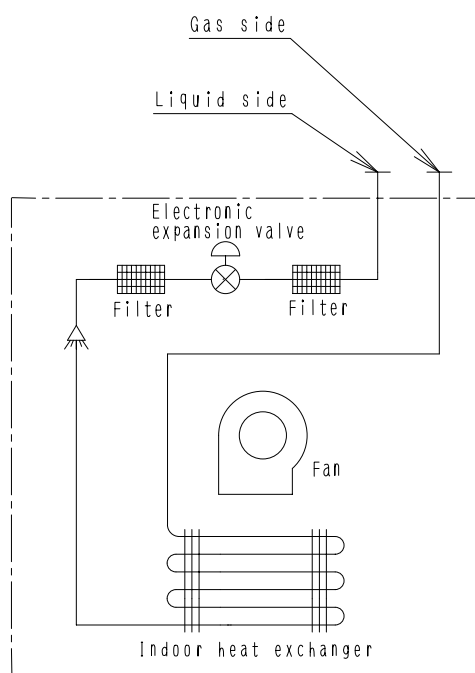
Th3: Thermister for gas line temp.

4D040157

■ Refrigerant pipe connection port diameters

Model	(mm)	
	Gas	Liquid
FXZQ20M / 25M / 32M / 40M / 50M	φ12.7	φ6.4

FXDQ



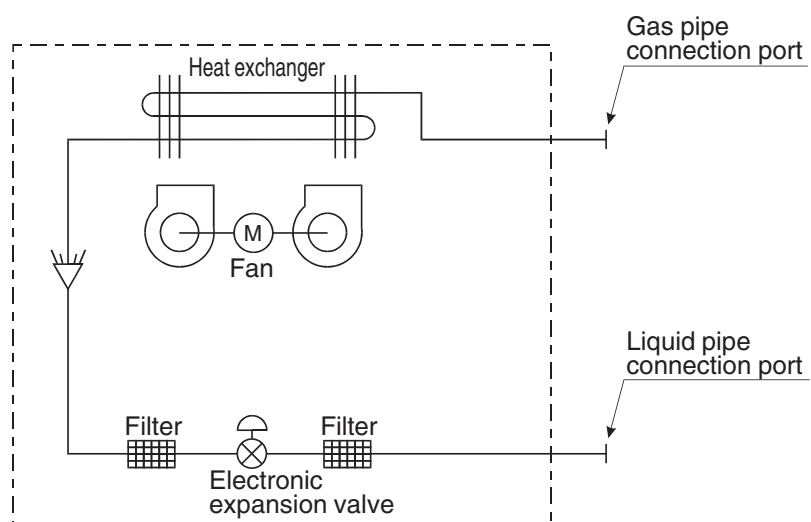
4D043864H

■ Refrigerant pipe connection port diameters

(mm)

Model	Gas	Liquid
FXDQ20N(A), P / 25N(A), P / 32N(A), P / 40N(A) / 50N(A)VE(T)	φ12.7	φ6.4
FXDQ63N(A)VE(T)	φ15.9	φ9.5

FXDYQ



4PDA0350

■ Refrigerant pipe connection port diameters

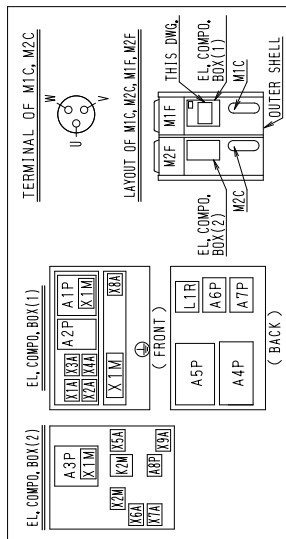
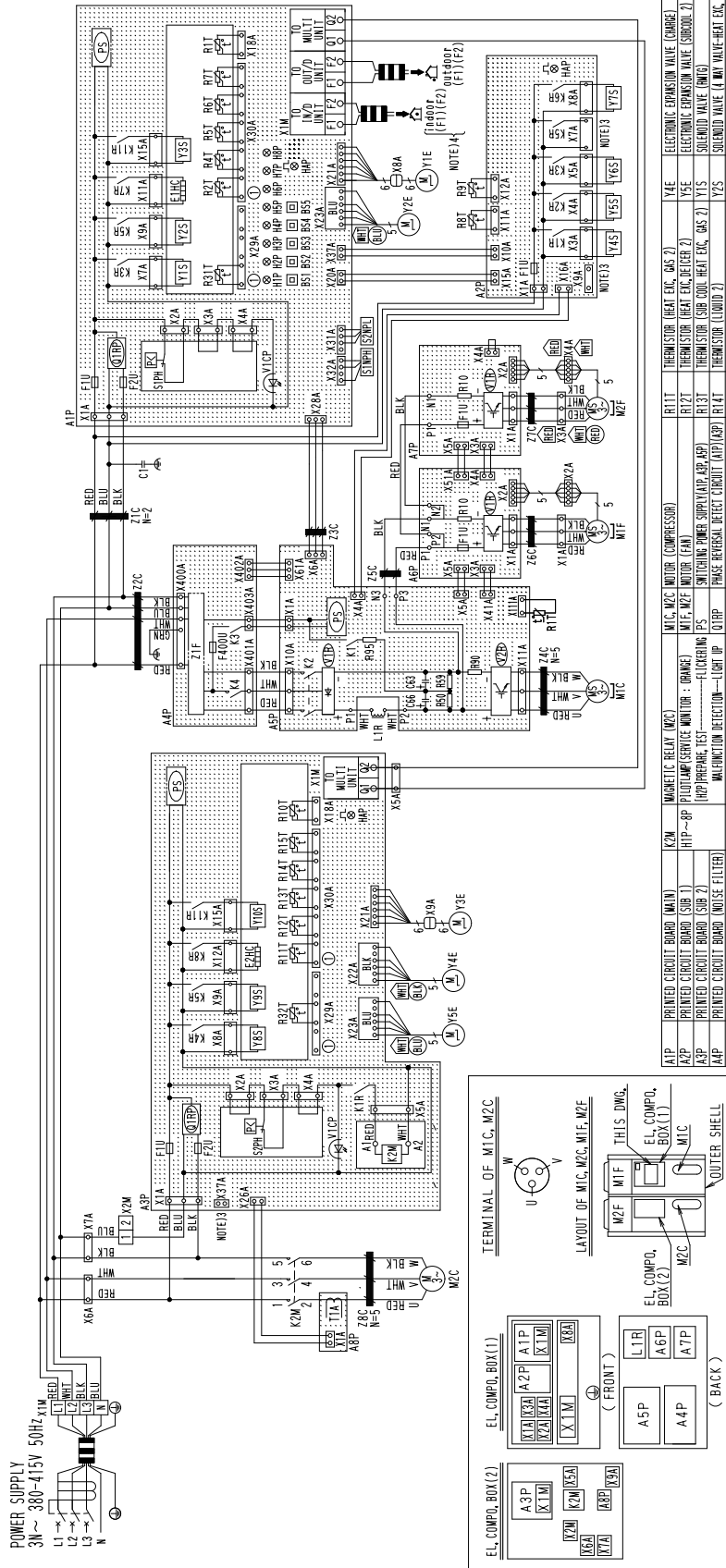
Model	(mm)	
	Gas	Liquid
FXDYQ80M / 100M / 125M / 145MV1	φ 15.9	φ 9.5
FXDYQ180M / 200M	φ 19.1	φ 9.5
FXDYQ250M	φ 22.2	φ 9.5

1.3 BS Unit

2. Wiring Diagrams for Reference

2.1 Outdoor Unit

REYQ8 / 10 / 12PY1

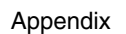


NOTES

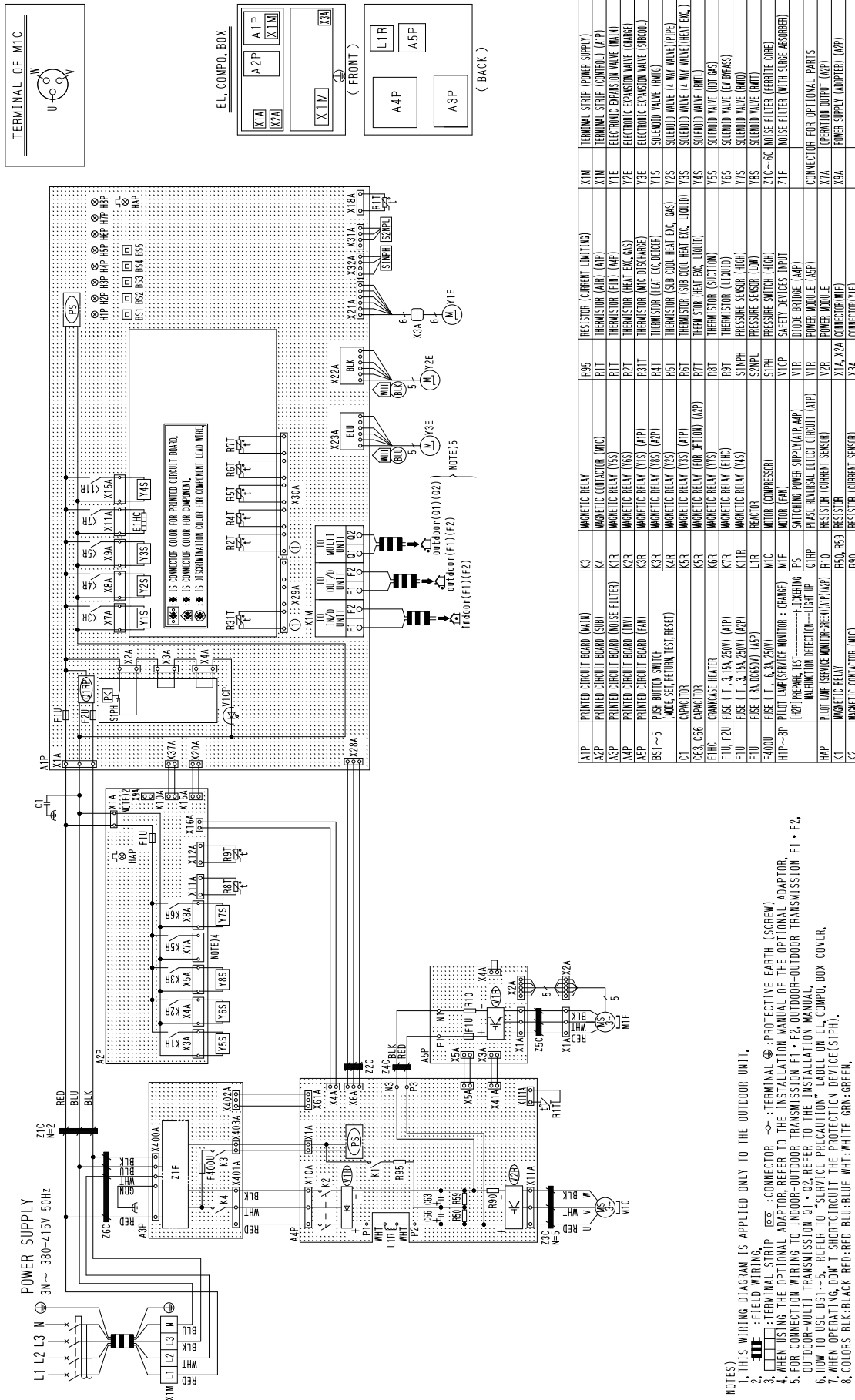
1. THIS WIRING DIAGRAM IS APPLIED ONLY TO THE OUTDOOR UNIT.
2. **FIELD WIRING** (FIELD WIRING) IS APPLIED ONLY TO THE OUTDOOR UNIT.
3. WHEN USING THE OPTIONAL ADAPTOR, REFER TO THE INSTALLATION MANUAL OF THE OPTIONAL ADAPTOR.
4. FOR CONNECTION WIRING TO 1/0 UNIT F1 * F2 * OR ON 1/0 UNIT F1 * F2, REFER TO THE INSTALLATION MANUAL, WHEN OPERATING, DON'T SHORTCIRCUIT THE PROTECTION DEVICE (S1, 2PH).
5. **CONNECTION WIRING** (CONNECTION WIRING) IS APPLIED ONLY TO THE OUTDOOR UNIT.
6. **CONNECTION WIRING** (CONNECTION WIRING) IS APPLIED ONLY TO THE OUTDOOR UNIT.
7. **CONNECTION WIRING** (CONNECTION WIRING) IS APPLIED ONLY TO THE OUTDOOR UNIT.
8. **CONNECTION WIRING** (CONNECTION WIRING) IS APPLIED ONLY TO THE OUTDOOR UNIT.

3D05675D

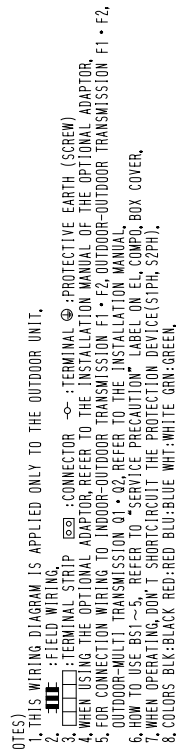
3D056774C



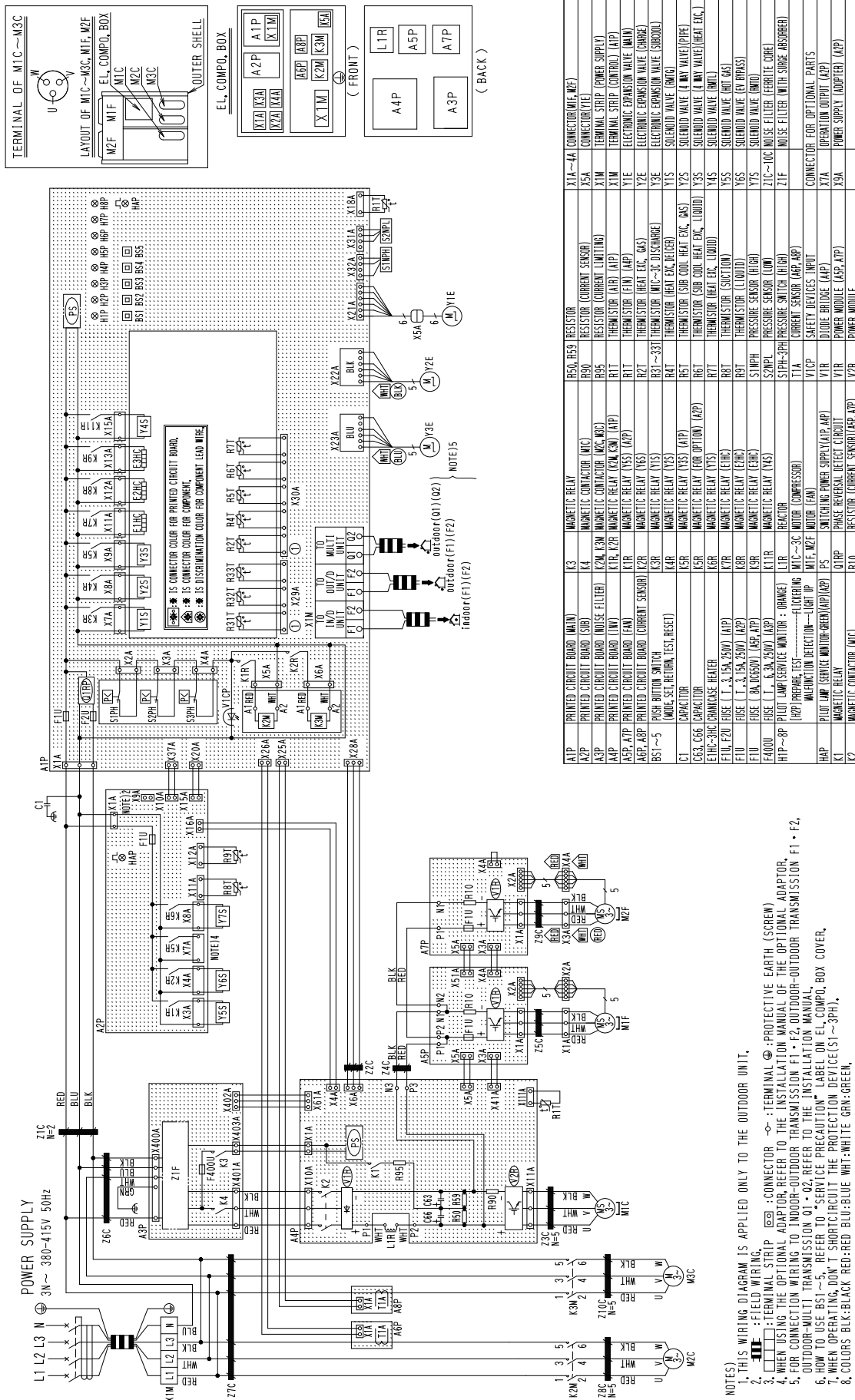
REM8PY1



364



REMQ14P / 16PY1



3D055309E

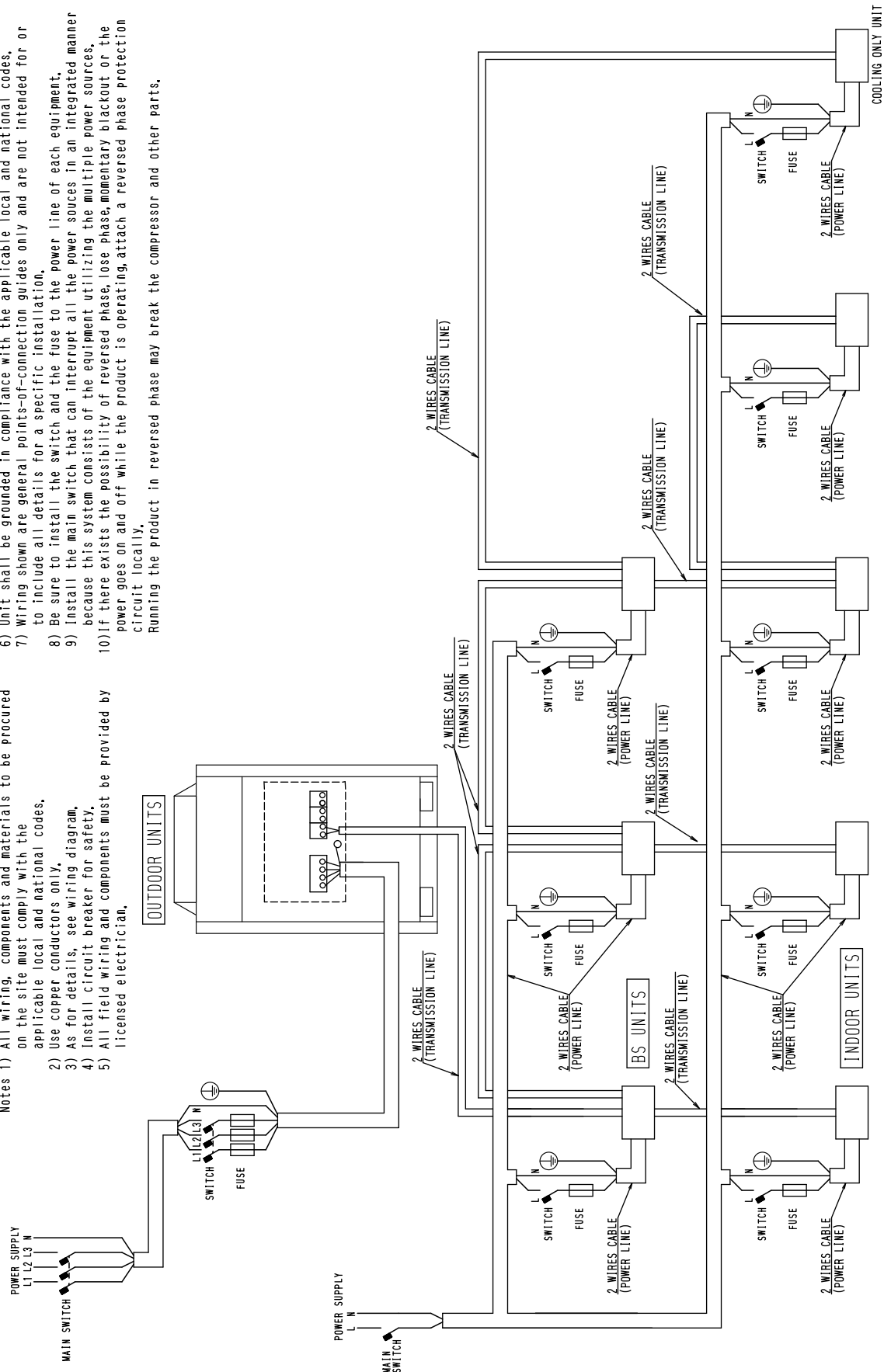
2.2 Field Wiring

REYQ8P / 10P / 12P / 14P / 16PY1

- Notes 1) All wiring, components and materials to be procured on the site must comply with the applicable local and national codes, 2) Use copper conductors only, 3) As for details, see wiring diagram, 4) Install circuit breaker for safety, 5) All field wiring and components must be provided by licensed electrician,

- 6) Unit shall be grounded in compliance with the applicable local and national codes, 7) Wiring shown are general points-of-connection guides only and are not intended for or to include all details for a specific installation, 8) Be sure to install the switch and the fuse to the power line of each equipment, 9) Install the main switch that can interrupt all the power sources in an integrated manner because this system consists of the equipment utilizing the multiple power sources, 10) If there exists the possibility of reversed phase, lose phase, momentary blackout or the power goes on and off while the product is operating, attach a reversed phase protection circuit locally.

Running the product in reversed phase may break the compressor and other parts.

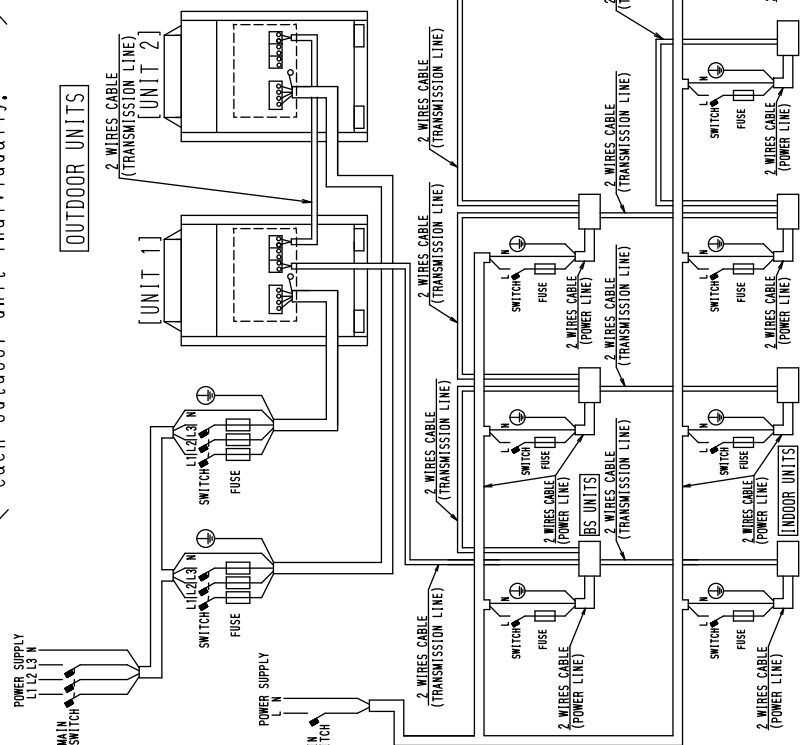


3D057764

REYQ18P / 20P / 22P / 24P / 26P / 28P / 30P / 32PY1

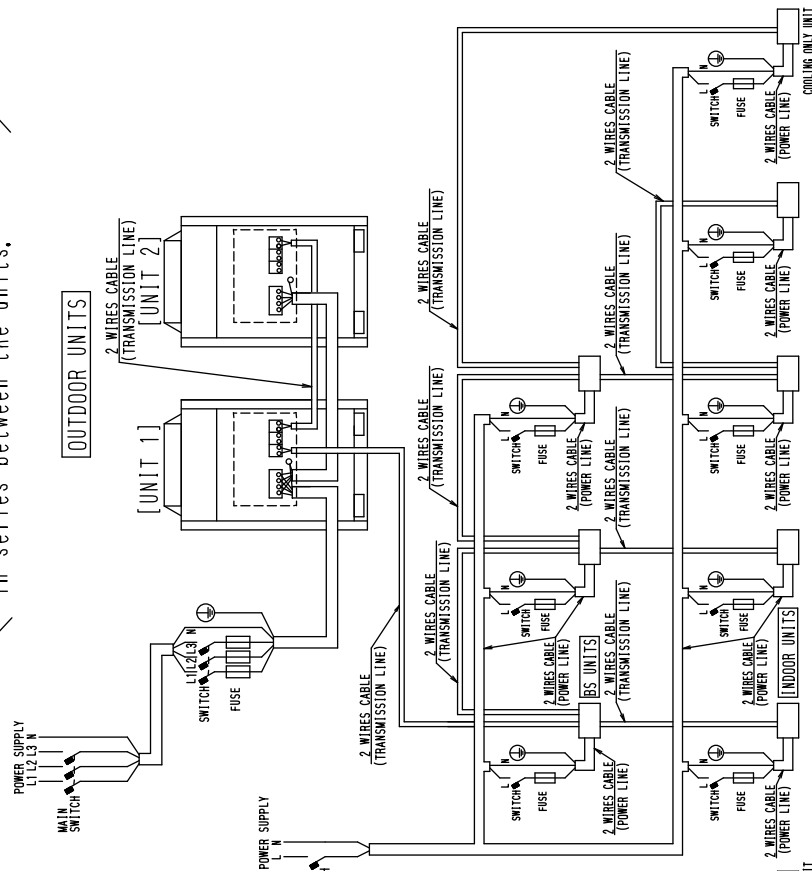
- Notes 1) All wiring, components and materials to be procured on the site must comply with the applicable local and national codes, use copper conductors only.
- 2) Use copper conductors only.
- 3) As for details, see wiring diagram.
- 4) Install circuit breaker for safety.
- 5) All field wiring and components must be provided by licensed electrician.

When the power source is supplied to each outdoor unit individually.



- 6) Unit shall be grounded in compliance with the applicable local and national codes.
- 7) Wiring shown are general points-of-connection guides only and are not intended for or to include all details for a specific installation.
- 8) Be sure to install the switch and the fuse to the power line of each equipment.
- 9) Install the main switch that can interrupt all the power sources in an integrated manner because this system consists of the equipment utilizing the multiple power sources.
- 10) The capacity of UNIT1 must be larger than UNIT2.
- When the power source is connected in series between the units.
- 11) If there exists the possibility of reversed phase, lose phase, momentary blackout or the power goes on and off while the product is operating, attach a reversed phase protection circuit locally.
- Running the product in reversed phase may break the compressor and other parts.

When the power source is connected in series between the units.



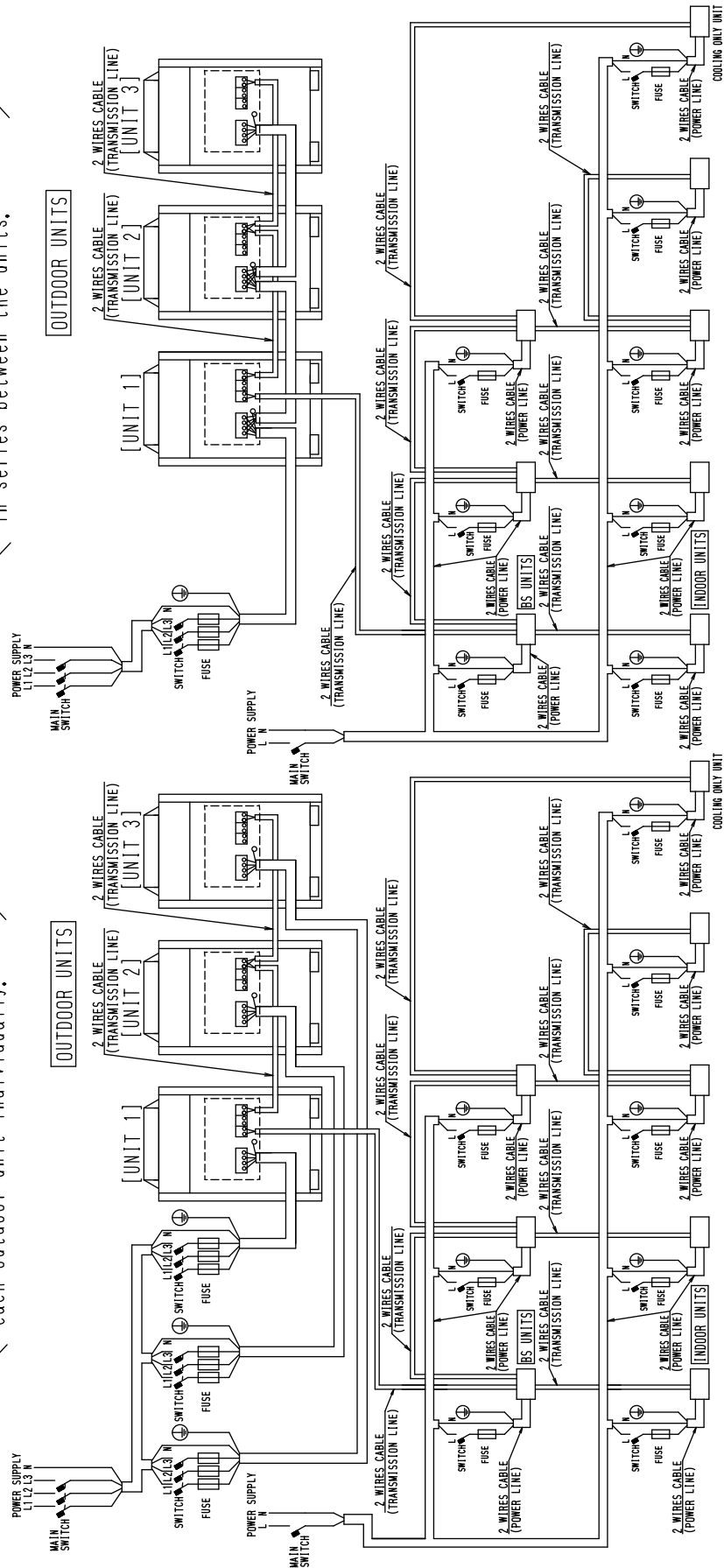
REYQ34P / 36P / 38P / 40P / 42P / 44P / 46P / 48PY1

- Notes 1) All wiring, components and materials to be procured on the site must comply with the applicable local and national codes.
- 2) Use copper conductors only.
- 3) As for details, see wiring diagram.
- 4) Install circuit breaker for safety.
- 5) All field wiring and components must be provided by licensed electrician.

- 6) Unit shall be grounded in compliance with the applicable local and national codes.
- 7) Wiring shown are general points-of-connection guides only and are not intended for or to include all details for a specific installation.
- 8) Be sure to install the switch and the fuse to the power line of each equipment.
- 9) Install the main switch that can interrupt all the power sources in an integrated manner because this system consists of the equipment utilizing the multiple power sources.
- 10) The capacity of UNIT1 must be larger than UNIT2.
- 11) If there exists the possibility of reversed phase, lose phase, momentary blackout or the power goes on and off while the product is operating, attach a reversed phase protection circuit locally.
- Running the product in reversed phase may break the compressor and other parts.

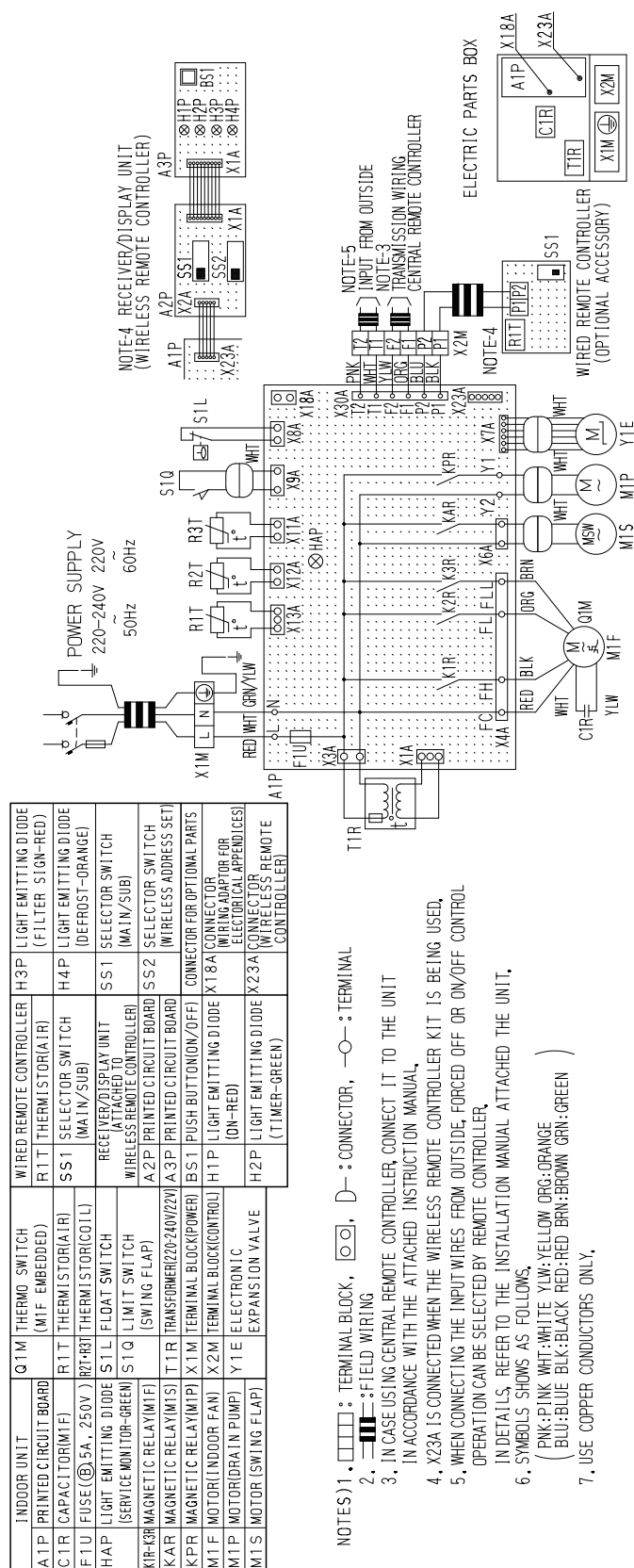
When the power source is supplied to each outdoor unit individually.

When the power source is connected in series between the units.



2.3 Indoor Unit

FXCQ20M / 25M / 32M / 63MVE

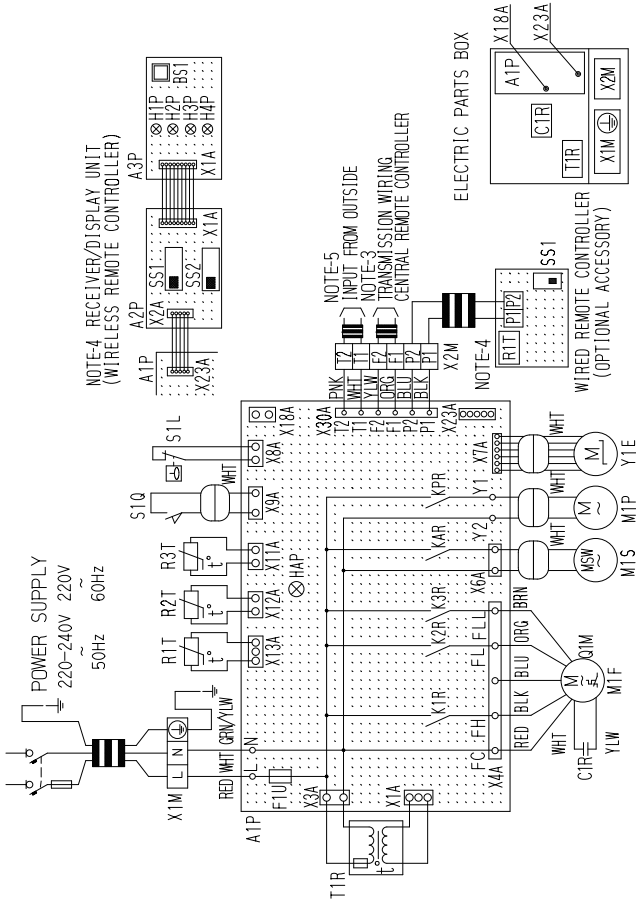


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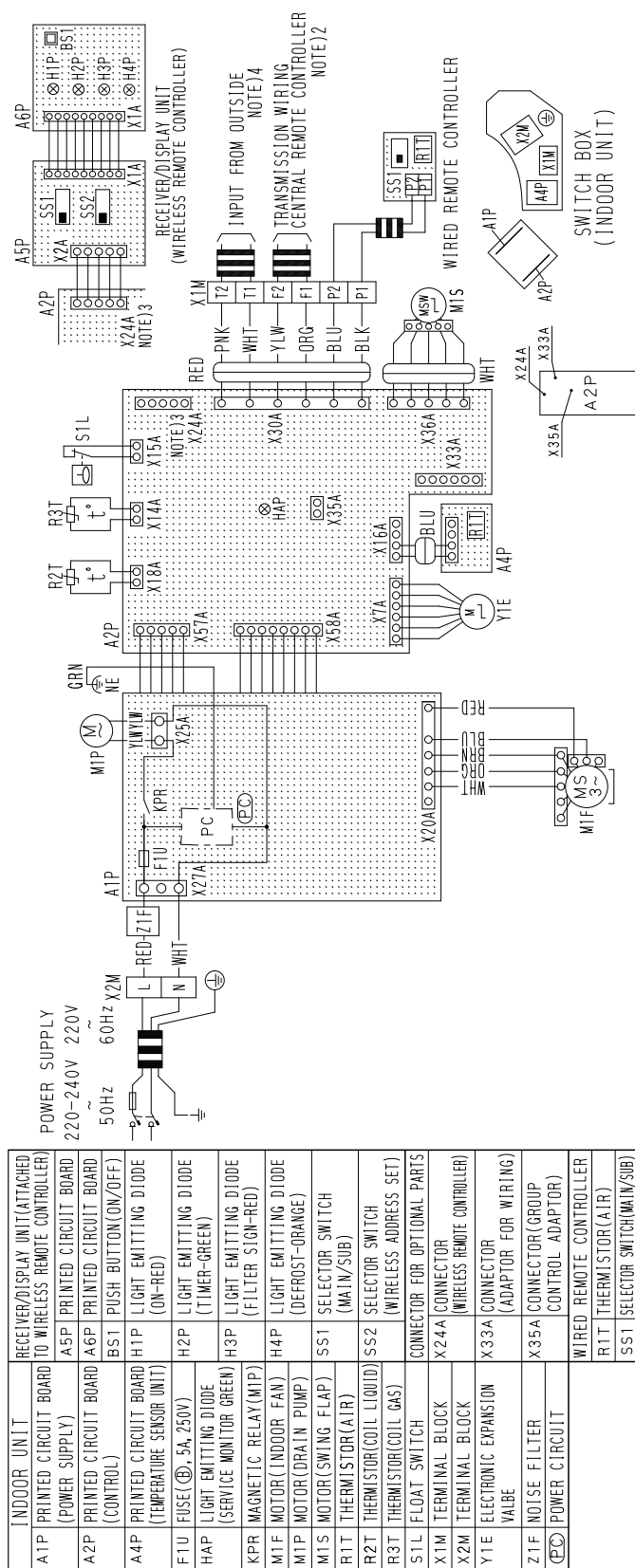
FXCQ40M / 50M / 80M/ 125MVE

INDOOR UNIT		OUTDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD	S1L	FLOAT SWITCH
C1P	CAPACITOR(M1F)	S1Q	LIMIT SWITCH (ON-RED)
F1U	FUSE (⑤.5A, 250V)	H2P	TERMINAL BLOCK(POWER)
H1P	LIGHT EMITTING DIODE	H3P	TERMINAL BLOCK(CONTROL)
H1P	LIGHT EMITTING DIODE (TIMER-GREEN)	H4P	TERMINAL BLOCK(ORANGE)
H1P	LIGHT EMITTING DIODE (TIMER-GREEN)	H4P	TERMINAL BLOCK(ORANGE)
K1R-K3R	MAGNETIC RELAY(M1F)	SS1	SELECTOR SWITCH (MAIN/SUB)
K1R	MAGNETIC RELAY(M1S)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
K1P	MOTOR(INDOOR FAN)	SS1	SELECTOR SWITCH (MAIN/SUB)
M1P	MOTOR(DRAIN PUMP)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
M1S	MOTOR (SWING FLAP)	SS1	SELECTOR SWITCH (MAIN/SUB)
Q1M	THERMO SWITCH (M1F EMBEDDED)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
R1T	THERMISTOR(AIR)	SS1	SELECTOR SWITCH (MAIN/SUB)
R2T-R3T	THERMISTOR(COIL)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)

- NOTES) 1. : TERMINAL BLOCK, : FIELD WIRING
2. : IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTION MANUAL.
3. : IN CASE USING WIRELESS REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTION MANUAL.
4. X23A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
5. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER.
6. SYMBOLS SHOWS AS FOLLOWS.
7. USE COPPER CONDUCTORS ONLY.



FXFQ25M / 32M / 40M / 50M / 63M / 80M / 100M / 125MVE



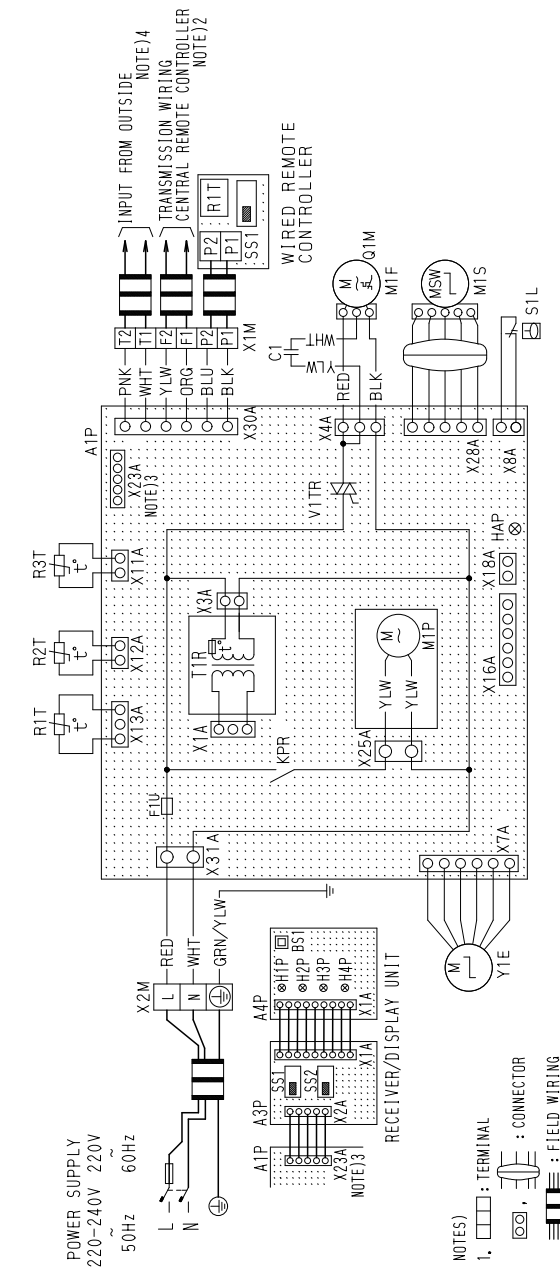
5. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING DATA AND CATALOGS, ETC, BEFORE CONNECTING.
6. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH (SS1, SS2) OF WIRED REMOTE CONTROLLER AND WIRELESS REMOTE CONTROLLER BY INSTALLATION MANUAL AND ENGINEERING DATA, ETC.

7. SYMBOLS SHOWS AS FOLLOWS:

RED: RED BLK: BLACK WHT: WHITE YLW: YELLOW GRN: GREEN
ORG: ORANGE BRN: BROWN PNK: PINK GRV: GRAY BLU: BLUE

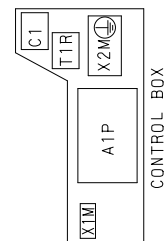
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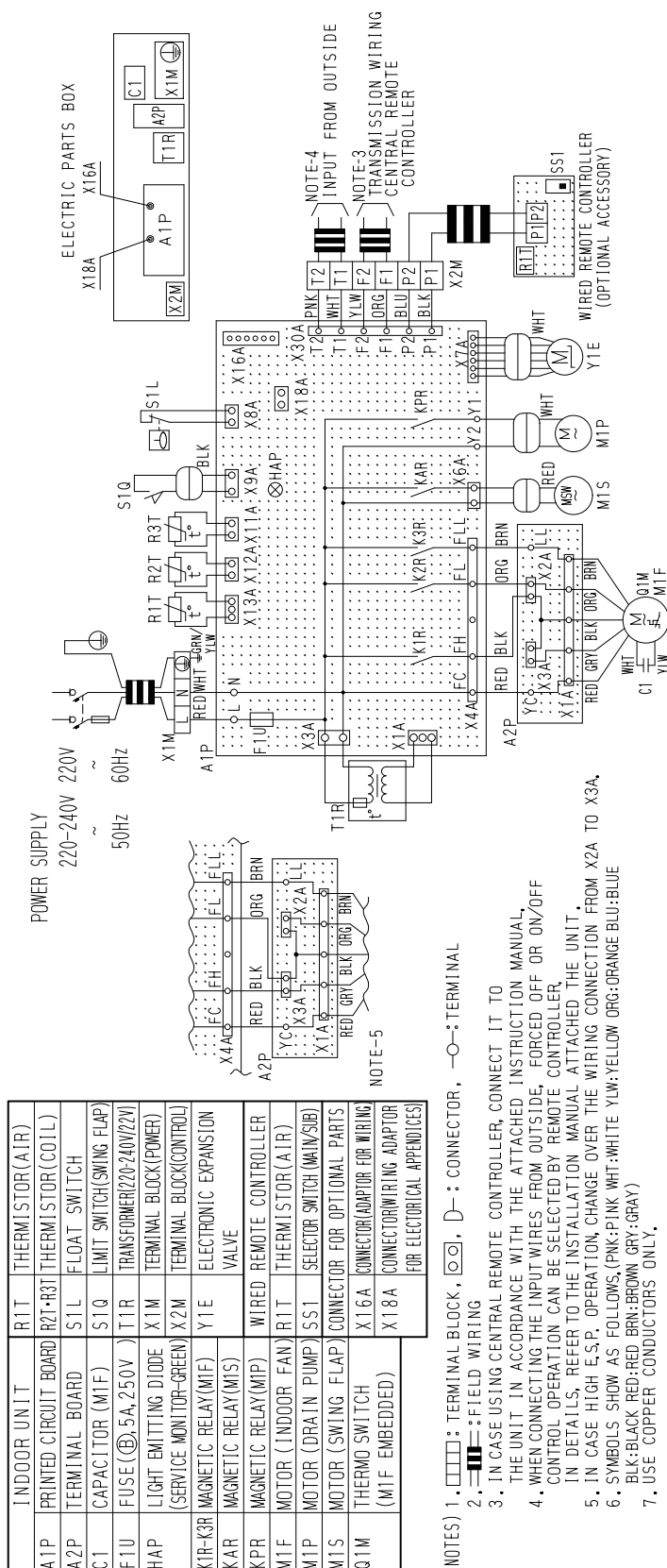
FXZQ20M / 25M / 32M / 40M / 50M8V1B



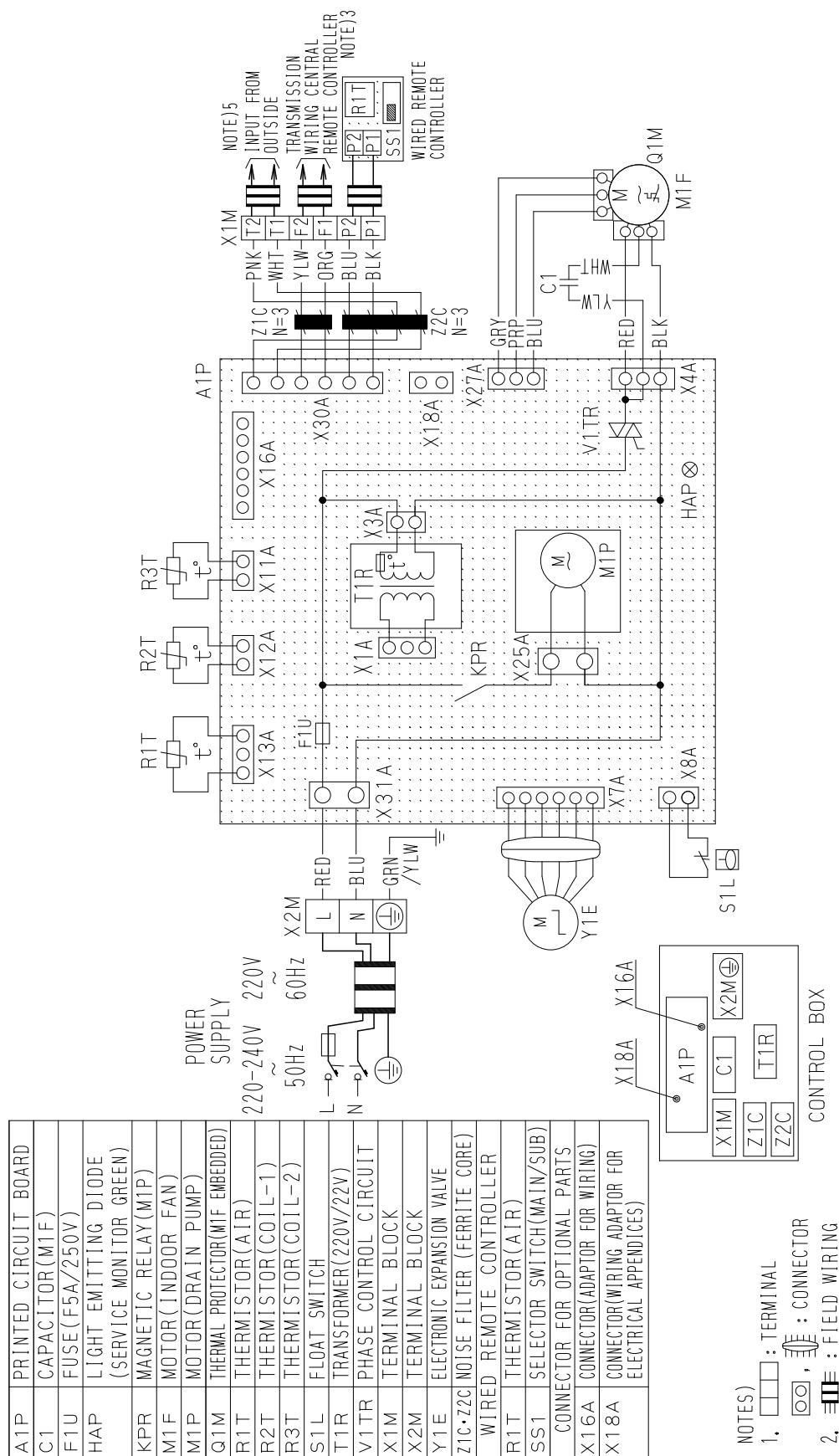
3D038359

A1P	PRINTED CIRCUIT BOARD	BS1	PUSH BUTTON(ON/OFF)
C1	CAPACITOR(MIF)	H1P	LIGHT EMITTING DIODE (ON-RED)
F1U	FUSE(5A, 250V)	H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)	H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
KPR	MAGNETIC RELAY(MIP)	H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
M1P	MOTOR(INDOOR FAN)	SS1	SELECTOR SWITCH (MAIN/SUB)
M1S	MOTOR(DRAIN PUMP)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
O1M	MOTOR(SWING FLAP)	CON	CONNECTOR FOR OPTIONAL PARTS
R1T	THERMAL PROTECTOR(MIF WIREDED)	X16A	CONNECTOR (ADAPTOR FOR WIRING)
R2T	THERMISTOR(AIR)	X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)
R3T	THERMISTOR(COIL-LIQUID)		
S1L	FLUAT SWITCH		
T1R	TRANSFORMER(220-240V/22V)		
V1TR	TRIAC		
X1M	TERMINAL BLOCK		
X2M	TERMINAL BLOCK		
Y1E	ELECTRONIC EXPANSION VALVE		
	WIRED REMOTE CONTROLLER		
R1T	THERMISTOR(AIR)		
SS1	SELECTOR SWITCH(MAIN/SUB)		
	WIRELESS REMOTE CONTROLLER (RECEIVER/DISPLAY UNIT)		
A3P	PRINTED CIRCUIT BOARD		
A4P	PRINTED CIRCUIT BOARD		











FXKQ25MA / 32MA / 40MA / 63MAVE

3D039564C

FXDQ20P / 25P / 32P**FXDQ20NA / 25NA / 32NA / 40NA / 50NA / 63NAVE (with Drain Pump)**

NOTES)

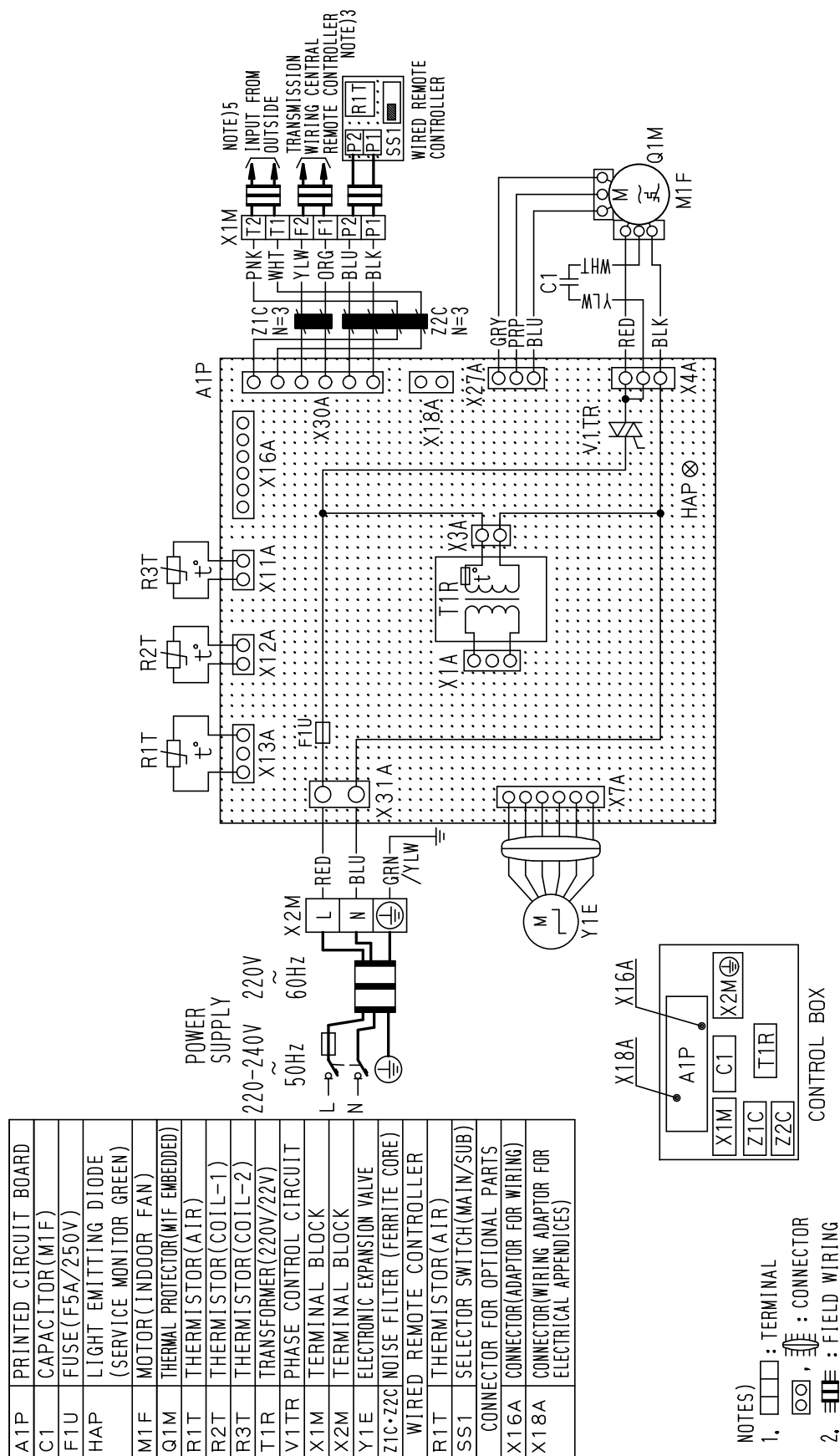
1.  : TERMINAL
2.  : CONNECTOR
3.  : FIELD WIRING
4.  : IN CASE USING CENTRAL
5.  : REMOTE CONTROLLER MOD
6.  : WHEN CONNECTING THE
7.  : IN DETAILS, REFER TO
8.  : SYMBOLS SHOW AS FOLLO

E YLW:YELLOW PRP:PURPLE GRV:GRAY BLU:BLUE PNK:PINK ORG:ORANGE GRN:GREEN

3D045500C

FXDQ20P / 25P / 32P

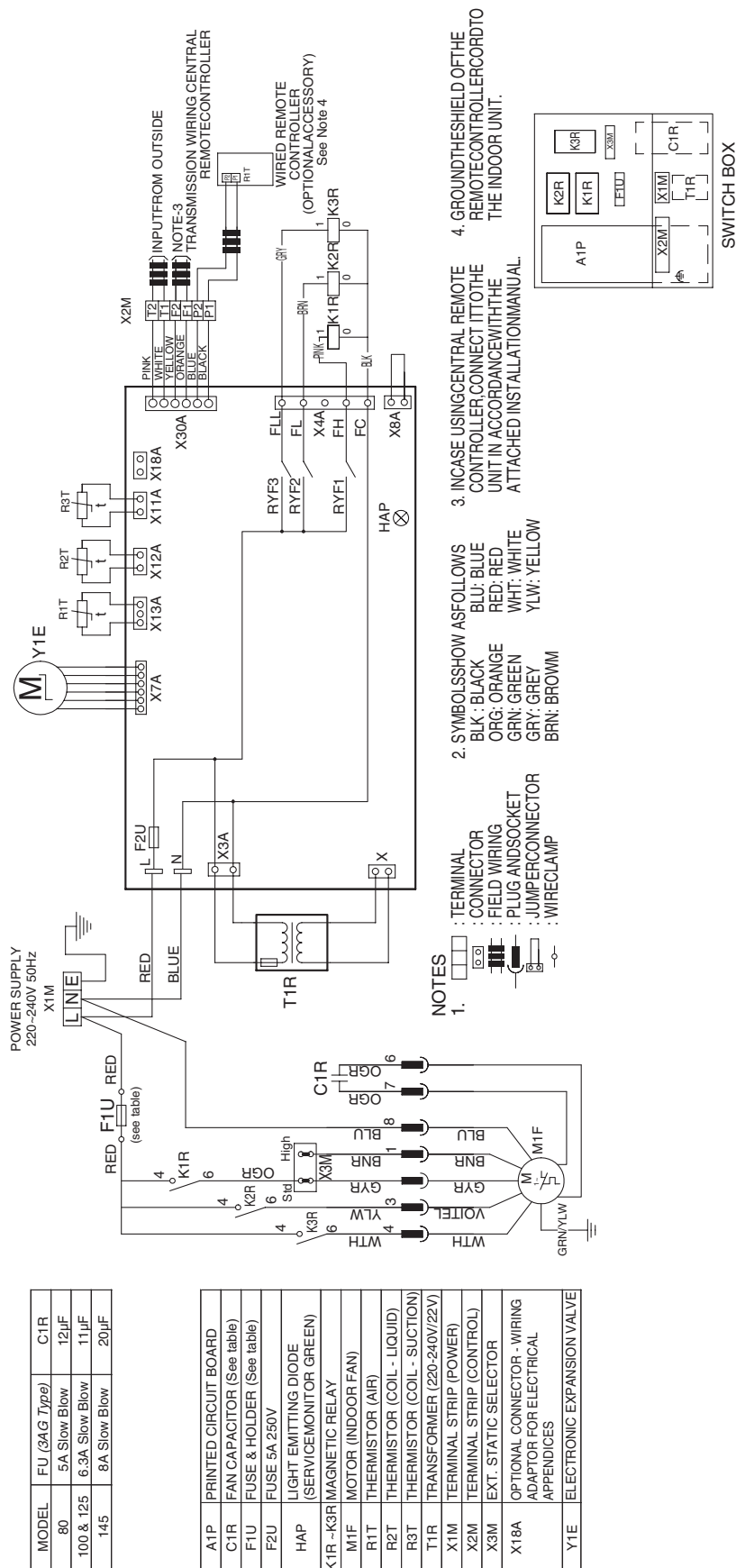
FXDQ20N / 25N / 32N / 40N / 50N / 63NVET (without Drain Pump)



3D049604A

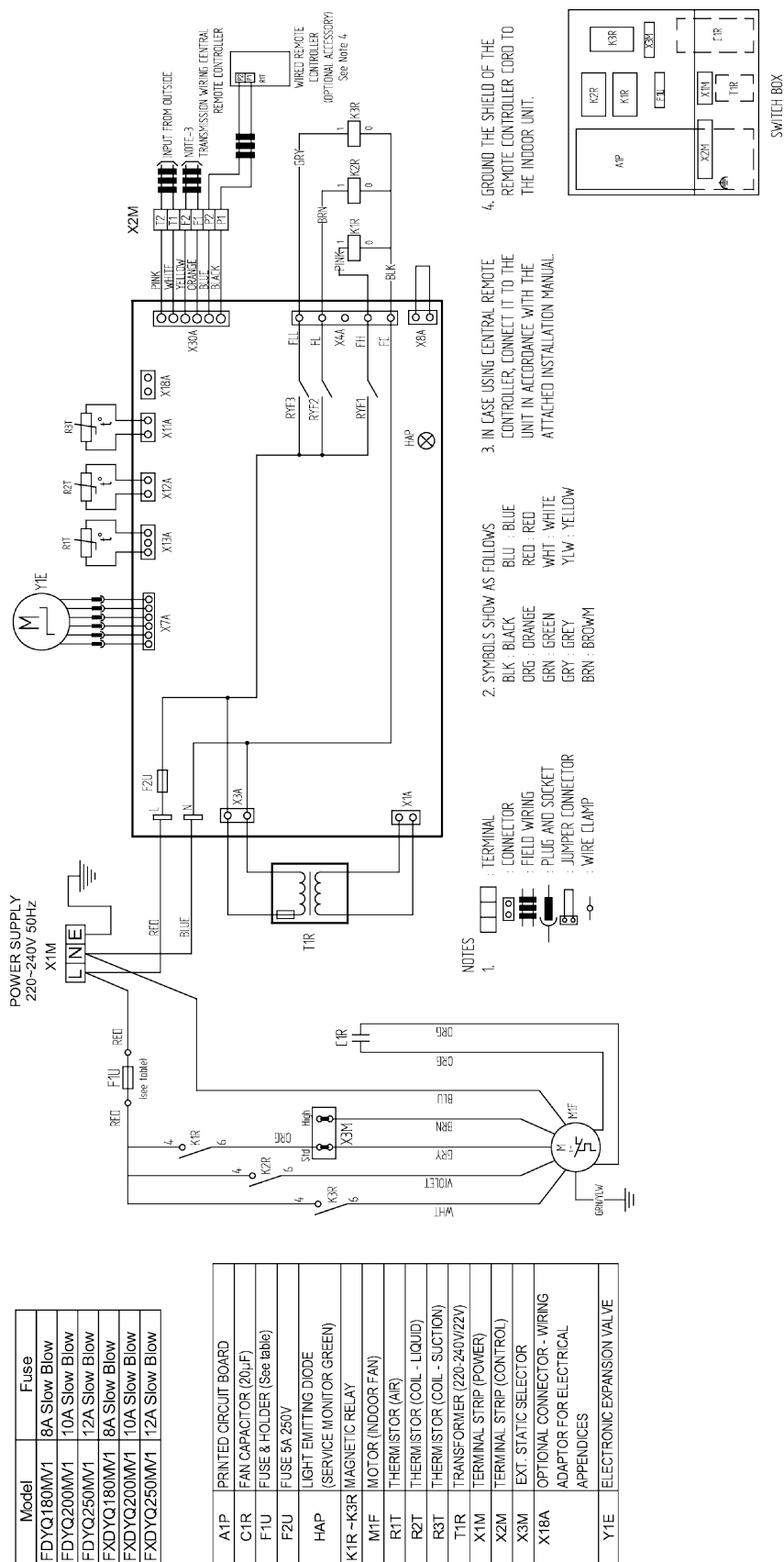
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING MATERIALS AND CATALOGS, ETC. BEFORE CONNECTING.
5. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER.
IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
6. SYMBOLS SHOW AS FOLLOWS: RED:RED BLK:BLACK WHT:WHITE YLW:YELLOW PRP:PURPLE GRY:GRAY BLU:BLUE PNK:PINK ORG:ORANGE GRN:GREEN

FXDYQ80M / 100M / 125M / 145MV1

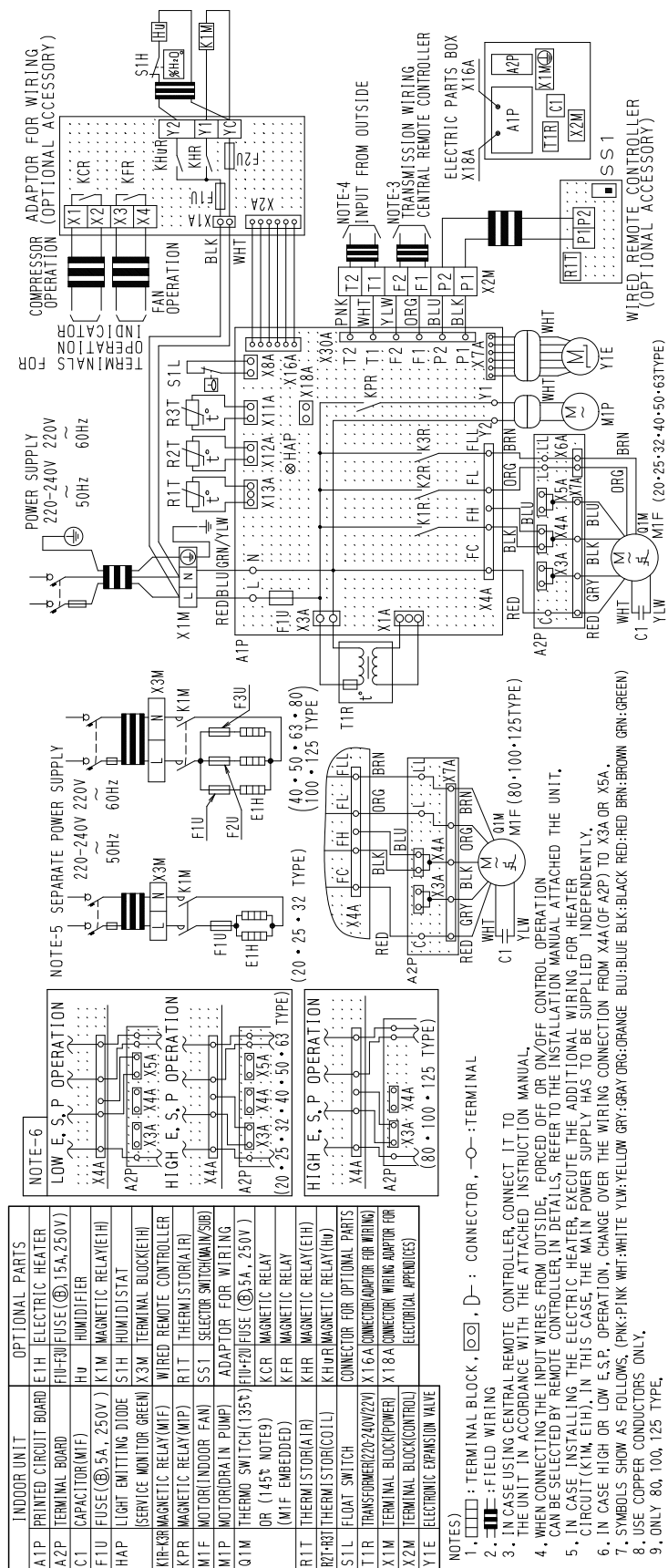


3PDA0313

FXDYQ180M / 200M / 250MV1



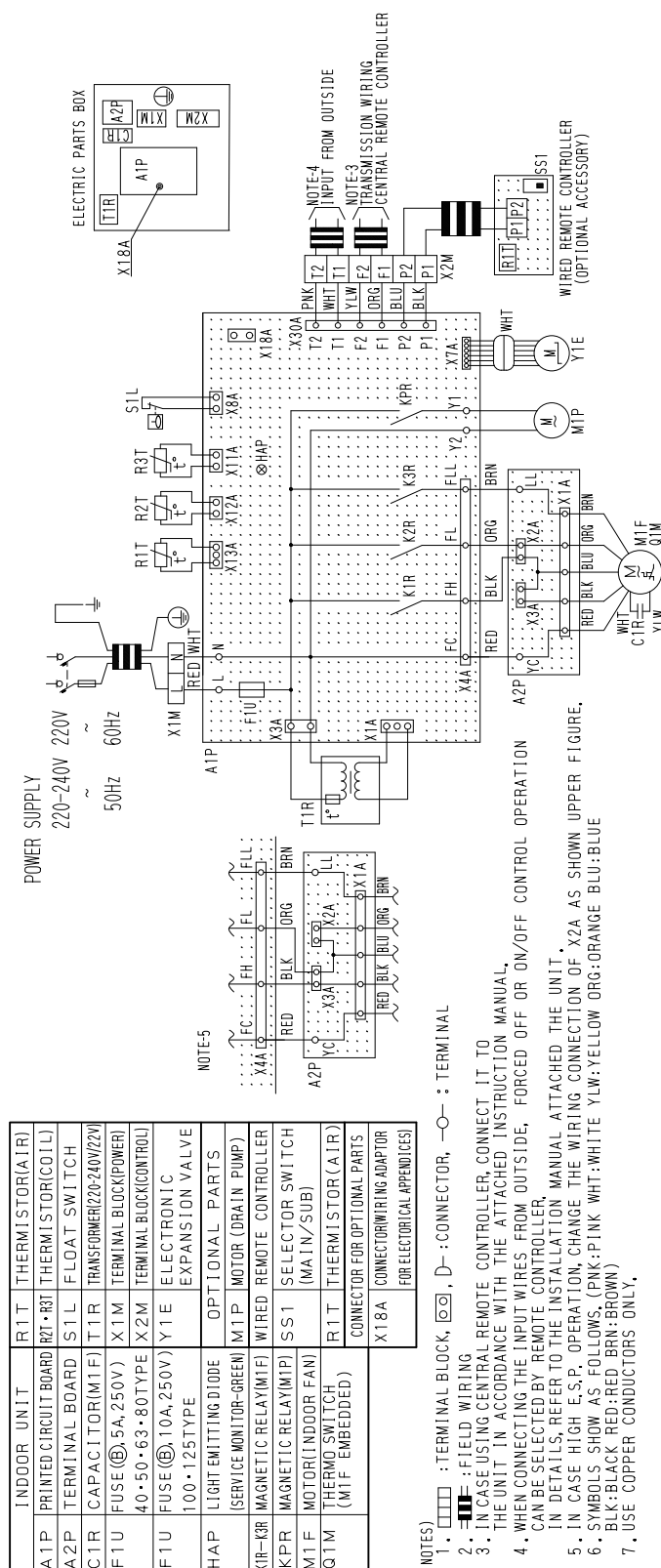
FXSQ20M / 25M / 32M / 40M / 50M / 63M / 80M / 100M / 125MVE







3D039561B

FXMQ40MA / 50MA / 63MA / 80MA / 100MA / 125MAVE

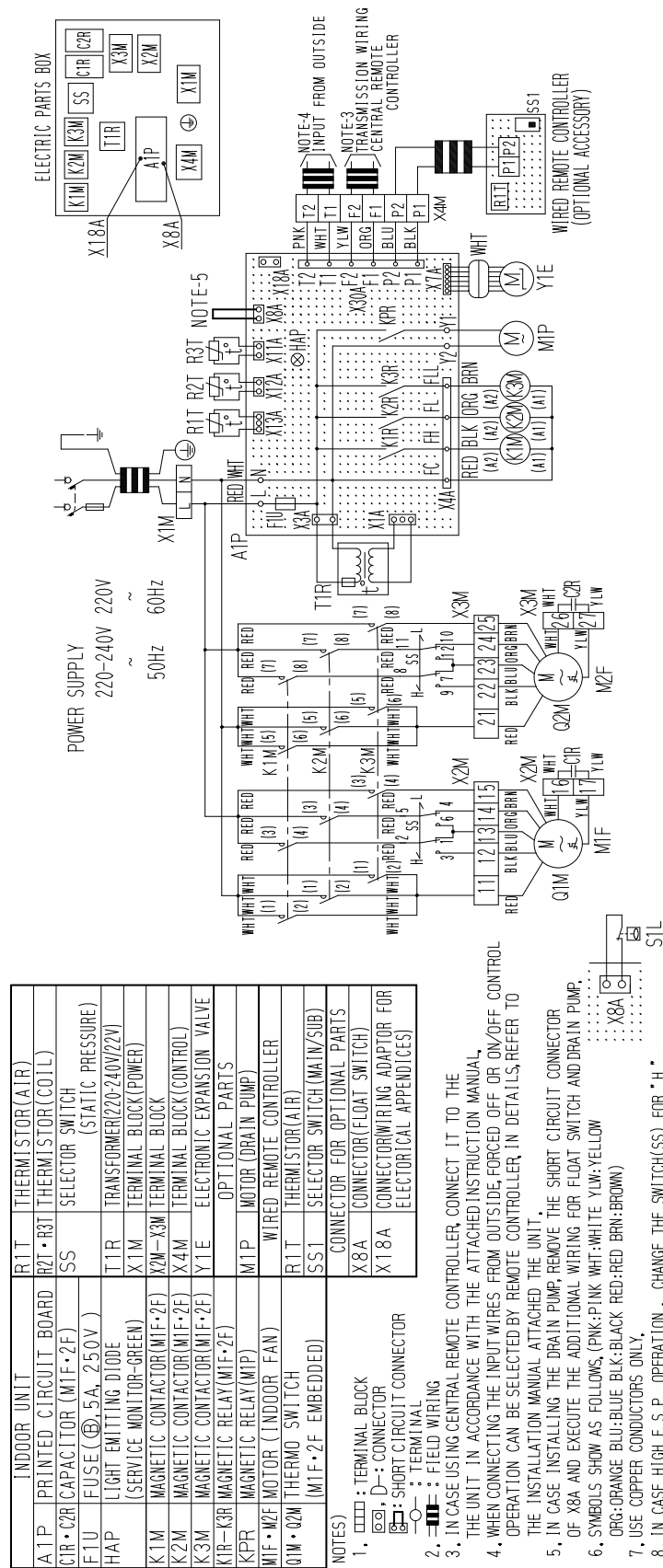
3D039620B



NOTES)

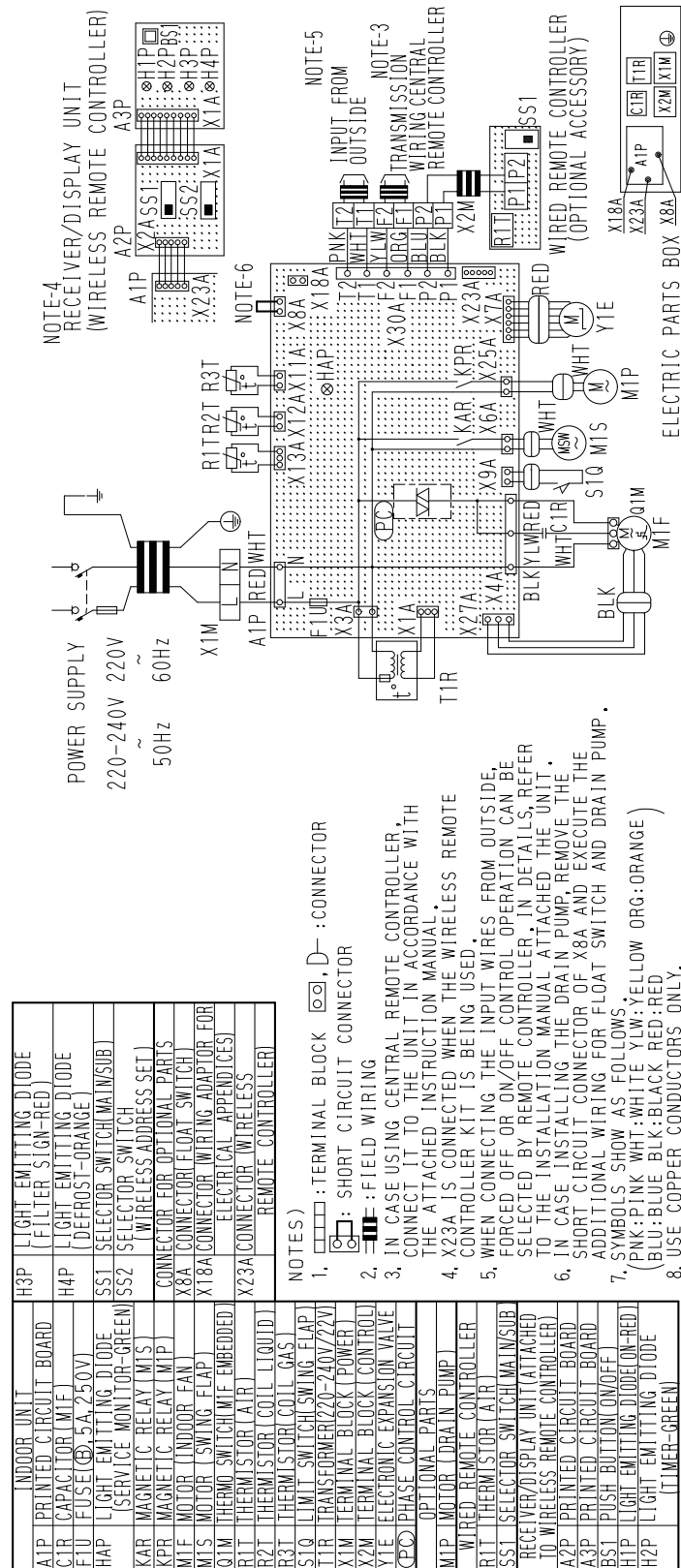
1.  : TERMINAL BLOCK,  : CONNECTOR,  : TERMINAL
2.  : FIELD WIRING
3. IN CASE USING REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTION MANUAL.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF CAN BE SELECTED BY REMOTE CONTROLLER.
IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED TO THE UNIT.
5. IN CASE HIGH E.S.P. OPERATION, CHANGE THE WIRING CONNECTION TO THE FOLLOWING.
6. SYMBOLS SHOW AS FOLLOWS, (PNK: PINK WHT: WHITE YLW: YELLOW BLK: BLACK RED: RED BRN: BROWN)
USE COPPER CONDUCTORS ONLY.

FXMQ200MA / 250MAVE

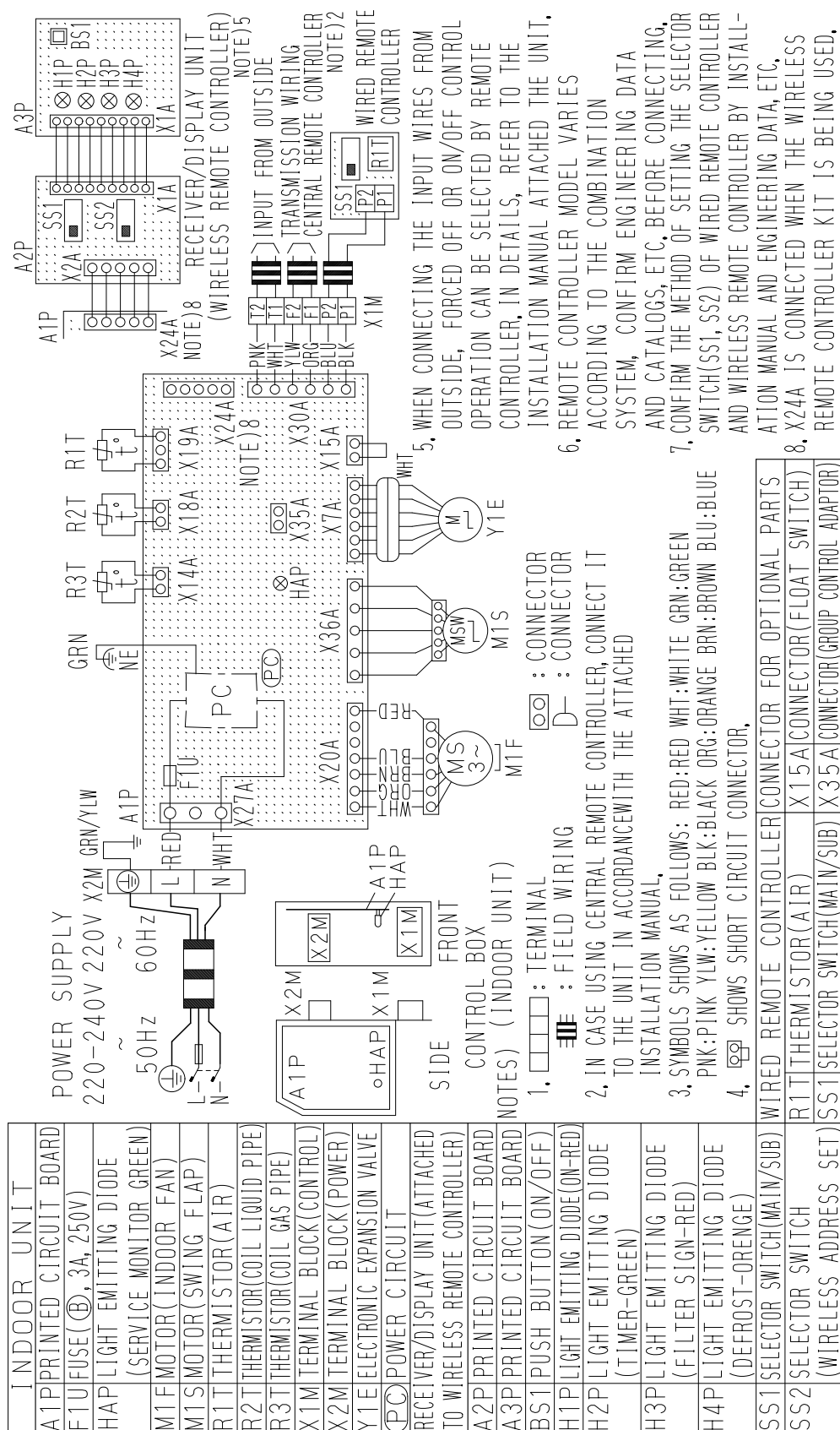


3D039621B

FXHQ32MA / 63MA / 100MAVE

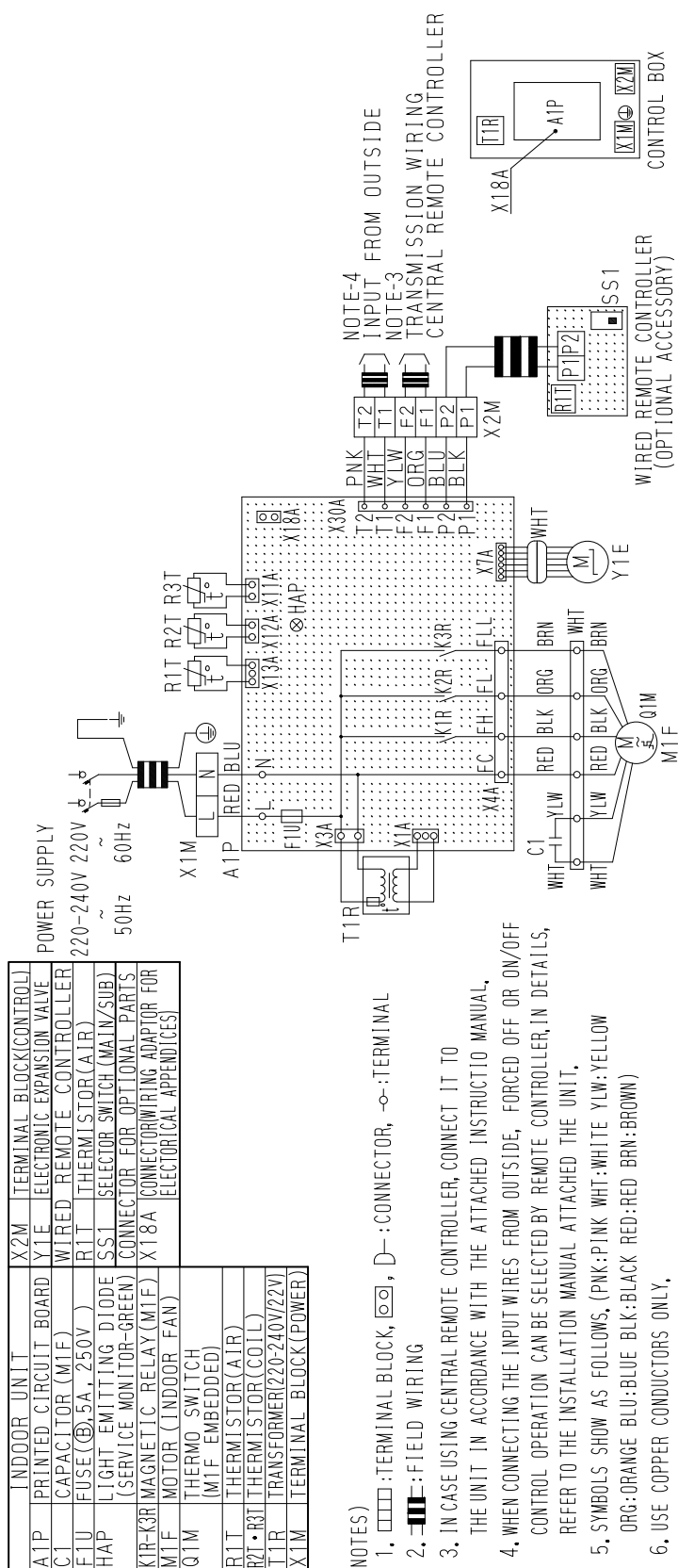


3D039801D

FXAQ20MA / 25MA / 32MAVE / 40MA / 50MA / 63MAVE

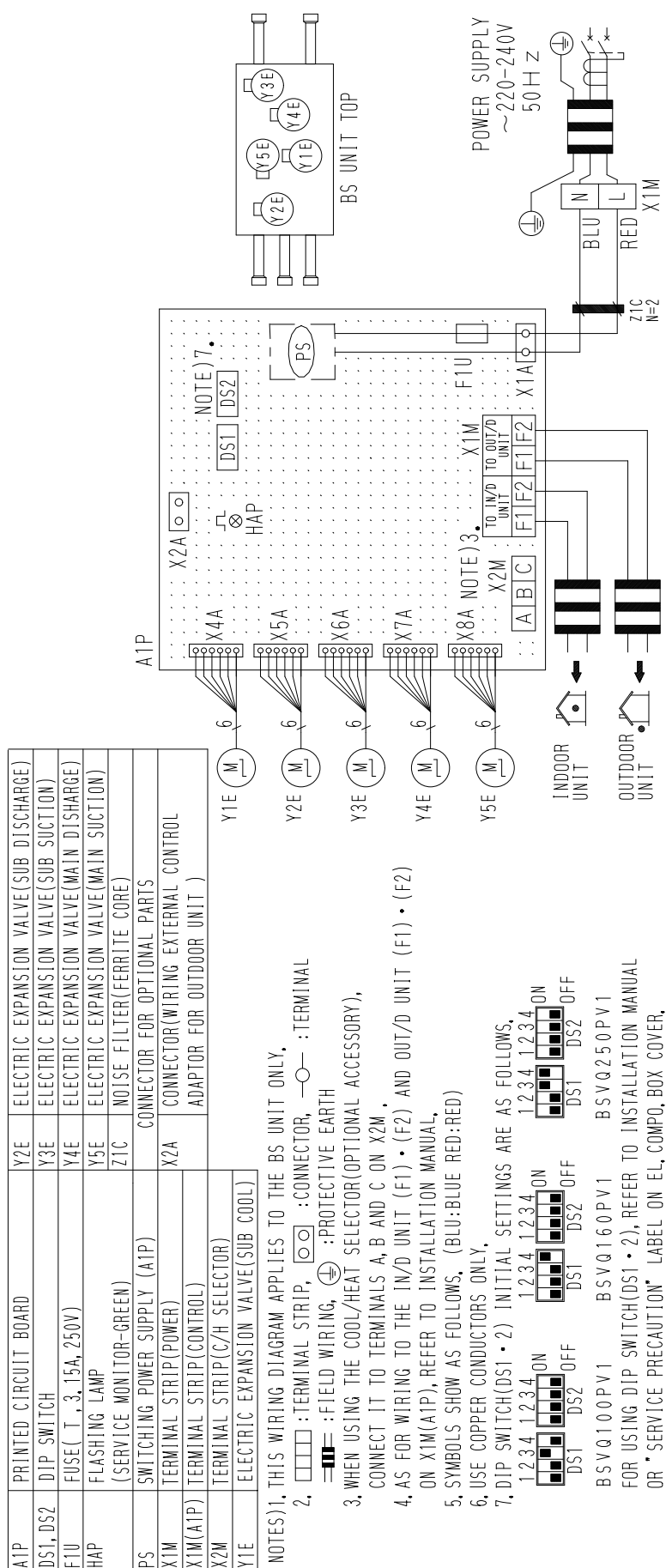
3D034206D

FXLQ20MA / 25MA / 32MA / 40MA / 50MA / 63MAVE
FXNQ20MA / 25MA / 32MA / 40MA / 50MA / 63MAVE



3D039826D

2.4 BS Unit



3D055928C

3. List of Electrical and Functional Parts

3.1 Outdoor Unit

3.1.1 REYQ8PY1~12PY1

Item	Name		Symbol	Model		
				REYQ8PY1	REYQ10PY1	REYQ12PY1
Compressor	Inverter	Type	M1C	JT1GCVDKYR@SA		
		OC protection device		14.7A		
	STD 1	Type	M2C	JT170G-KYE@T		
		OC protection device		15.0A		
	STD 2	Type	M3C	—		
		OC protection device				
Fan motor		OC protection device	M1F	3.0A		3.0A (for General overseas : 1.14A)
Electronic expansion valve (Main)			Y1E	Fully closed: 0pls Fully open: 1375pls		
Electronic expansion valve (Subcool)			Y2E	Fully closed: 0pls Fully open: 480pls		
Electronic expansion valve (Refrigerant charge)			EV	0~480pls		
Pressure protection	High pressure switch	For M1C	S1PH	OFF: 4.0 ⁺⁰ _{-0.12} MPa ON: 3.0±0.15MPa		
		For M2C	S2PH	OFF: 4.0 ⁺⁰ _{-0.12} MPa ON: 3.0±0.15MPa		
		For M3C	S3PH	—		
	Low pressure sensor		SENPL	OFF: 0.07MPa		
Temperature protection	Discharge gas temperature protection (Discharge pipe thermistor)		R3T	OFF: 135°C		
	Inverter fin temperature protection (Radiator fin thermistor)		R1T	OFF: 93°C		
Others	Fuse	For main PC board	F1U	250V AC 10A Class B Time-lag 3.15A AC 250V		
			F2U	250V AC 10A Class B Time-lag 3.15A AC 250V		
		For Noise filter PC board	F1U	250V AC 5A Class B		

3.1.2 REYQ14PY1~16PY1

Item	Name		Symbol	Model	
				REYQ14PY1	REYQ16PY1
Compressor	Inverter	Type	M1C	JT1GCVDKYR@SA	
		OC protection device		14.7A	
	STD 1	Type	M2C	JT170G-KYE@T	
		OC protection device		15.0A	
	STD 2	Type	M3C	JT170G-KYE@T	
		OC protection device		15.0A	
Fan motor		OC protection device	M1F, M2F	1.2A	
Electronic expansion valve (Main)			Y1E	Fully closed: 0pls Fully open: 1375pls	
Electronic expansion valve (Subcool)			Y2E	Fully closed: 0pls Fully open: 480pls	
Electronic expansion valve (Refrigerant charge)			EV	0~480pls	
Pressure protection	High pressure switch	For M1C	S1PH	OFF: 4.0 ⁺⁰ _{-0.12} MPa ON: 3.0±0.15MPa	
		For M2C	S2PH	OFF: 4.0 ⁺⁰ _{-0.12} MPa ON: 3.0±0.15MPa	
		For M3C	S3PH	OFF: 4.0 ⁺⁰ _{-0.12} MPa ON: 3.0±0.15MPa	
	Low pressure sensor		SENPL	OFF: 0.07MPa	
Temperature protection	Discharge gas temperature protection (Discharge pipe thermistor)		R3T	OFF: 135°C	
	Inverter fin temperature protection (Radiator fin thermistor)		R1T	OFF: 93°C	
Others	Fuse	For main PC board	F1U	250V AC 10A Class B Time-lag 3.15A AC 250V	
			F2U	250V AC 10A Class B Time-lag 3.15A AC 250V	
		For Noise filter PC board	F1U	250V AC 5A Class B	

3.1.3 REMQ8PY1

Item	Name		Symbol	Model	
				REMQ8PY1	
Compressor	Inverter	Type	M1C	JT1GCVDKYR@SA	
		OC protection device		14.7A	
	STD 1	Type	M2C	—	
		OC protection device		—	
	STD 2	Type	M3C	—	
		OC protection device		—	
Fan motor		OC protection device	M1F	3.0A	
Electronic expansion valve (Main)			Y1E	Fully closed : 0pls	Fully open : 480pls
Electronic expansion valve (Refrigerant charge)			Y2E	Fully closed : 0pls	Fully open : 480pls
Electronic expansion valve (Subcool)			Y3E	Fully closed : 0pls	Fully open : 480pls
Pressure protection	High pressure switch	For M1C	S1PH	OFF : 4.0 ⁺⁰ _{-0.12} MPa	ON : 3.0±0.15MPa
		For M2C	S2PH	—	
		For M3C	S3PH	—	
	Low pressure sensor		SENPL	OFF : 0.07MPa	
	Temperature protection	Discharge gas temperature protection (Discharge pipe thermistor)		R3T	OFF : 135°C
Inverter fin temperature protection (Radiator fin thermistor)		R1T	OFF : 93°C		
Others	Fuse	For main PC board	F1U	Time-lag 3.15A AC 250V / 250V AC 10A Class B	
			F2U	Time-lag 3.15A AC 250V / 250V AC 10A Class B	
		For Noise filter PC board	F1U	250V AC 5A Class B	

3.1.4 REMQ10PY1~12PY1

Item	Name		Symbol	Model	
				REMQ10PY1	REMQ12PY1
Compressor	Inverter	Type	M1C	JT1GCVDKYR@SA	
		OC protection device		14.7A	
	STD 1	Type	M2C	JT170G-KYE@T	
		OC protection device		15.0A	
	STD 2	Type	M3C	—	
		OC protection device		—	
Fan motor		OC protection device	M1F	3.0A	
Electronic expansion valve (Main)			Y1E	Fully closed : 0pls	Fully open : 480pls
Electronic expansion valve (Refrigerant charge)			Y2E	Fully closed : 0pls	Fully open : 480pls
Electronic expansion valve (Subcool)			Y3E	Fully closed : 0pls	Fully open : 480pls
Pressure protection	High pressure switch	For M1C	S1PH	OFF : 4.0 ⁺⁰ _{-0.12} MPa	ON : 3.0±0.15MPa
		For M2C	S2PH	OFF : 4.0 ⁺⁰ _{-0.12} MPa	ON : 3.0±0.15MPa
		For M3C	S3PH	—	
	Low pressure sensor		SENPL	OFF : 0.07MPa	
Temperature protection	Discharge gas temperature protection (Discharge pipe thermistor)		R3T	OFF : 135°C	
	Inverter fin temperature protection (Radiator fin thermistor)		R1T	OFF : 93°C	
Others	Fuse	For main PC board	F1U	Time-lag 3.15A AC 250V / 250V AC 10A Class B	
			F2U	Time-lag 3.15A AC 250V / 250V AC 10A Class B	
		For Noise filter PC board	F1U	250V AC 5A Class B	

3.1.5 REMQ14PY1~16PY1

Item	Name		Symbol	Model	
				REMQ14PY1	REMQ16PY1
Compressor	Inverter	Type	M1C	JT1GCVDKYR@SA	
		OC protection device		14.7A	
	STD 1	Type	M2C	JT170G-KYE@T	
		OC protection device		15.0A	
	STD 2	Type	M3C	JT170G-KYE@T	
		OC protection device		15.0A	
Fan motor		OC protection device	M1F, M2F	1.2A	
Electronic expansion valve (Main)			Y1E	Fully closed : 0pls	Fully open : 480pls
Electronic expansion valve (Refrigerant charge)			Y2E	Fully closed : 0pls	Fully open : 480pls
Electronic expansion valve (Subcool)			Y3E	Fully closed : 0pls	Fully open : 480pls
Pressure protection	High pressure switch	For M1C	S1PH	OFF : 4.0 ⁺⁰ _{-0.12} MPa	ON : 3.0±0.15MPa
		For M2C	S2PH	OFF : 4.0 ⁺⁰ _{-0.12} MPa	ON : 3.0±0.15MPa
		For M3C	S3PH	OFF : 4.0 ⁺⁰ _{-0.12} MPa	ON : 3.0±0.15MPa
	Low pressure sensor		SENPL	OFF : 0.07MPa	
Temperature protection	Discharge gas temperature protection (Discharge pipe thermistor)		R3T	OFF : 135°C	
	Inverter fin temperature protection (Radiator fin thermistor)		R1T	OFF : 93°C	
Others	Fuse	For main PC board	F1U	Time-lag 3.15A AC 250V / 250V AC 10A Class B	
			F2U	Time-lag 3.15A AC 250V / 250V AC 10A Class B	
		For Noise filter PC board	F1U	250V AC 5A Class B	

3.2 Indoor Side

3.2.1 Indoor Unit

Parts Name		Symbol	Model								Remark
			FXFQ25 MVE	FXFQ32 MVE	FXFQ40 MVE	FXFQ50 MVE	FXFQ63 MVE	FXFQ80 MVE	FXFQ100 MVE	FXFQ125 MVE	
Remote Controller	Wired Remote Controller		BRC1C62								Option
	Wireless Remote Controller		BRC7E61W								
Motors	Fan Motor	M1F	DC380V 30W 8P						DC 380V 120W 8P		
	Drain Pump	M1P	AC220-240V (50Hz) AC220V (60Hz) PLD-12230DM Thermal Fuse 145°C								
	Swing Motor	M1S	MP35HCA[3P007482-1] Stepping Motor DC16V								
Thermistors	Thermistor (Suction Air)	R1T	In PC board A4P or wired remote controller								
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-5 φ8 L1000 20kΩ (25°C)								
	Thermistor (Heat Exchanger)	R2T	ST8602A-5 φ6 L1000 20kΩ (25°C)								
Others	Float Switch	S1L	FS-0211B								
	Fuse	F1U	250V 5A φ5.2								
	Thermal Fuse	TFu	—								
	Transformer	T1R	—								

Parts Name		Symbol	Model								Remark
			FXCQ 20MVE	FXCQ 25MVE	FXCQ 32MVE	FXCQ 40MVE	FXCQ 50MVE	FXCQ 63MVE	FXCQ 80MVE	FXCQ 125MVE	
Remote Controller	Wired Remote Controller		BRC1C62								Option
	Wireless Remote Controller		BRC7C62								
Motors	Fan Motor	M1F	AC 220~240V 50Hz								
			1φ10W	1φ15W		1φ20W		1φ30W	1φ50W	1φ85W	
			Thermal Fuse 152°C				—		Thermal protector 135°C : OFF 87°C : ON		
	Drain Pump	M1P	AC220-240V (50Hz) AC220V (60Hz) PLD-12230DM Thermal Fuse 145°C								
	Swing Motor	M1S	MT8-L[3PA07509-1] AC200~240V								
Thermistors	Thermistor (Suction Air)	R1T	ST8601-6 φ4 L1250 20kΩ (25°C)								
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-6 φ8 L1250 20kΩ (25°C)								
	Thermistor (Heat Exchanger)	R2T	ST8602A-5 φ6 L1000 20kΩ (25°C)								
Others	Float Switch	S1L	FS-0211B								
	Fuse	F1U	250V 5A φ5.2								
	Transformer	T1R	TR22H21R8								

Parts Name		Symbol	Model					Remark
			FXZQ 20MVE	FXZQ 25MVE	FXZQ 32MVE	FXZQ 40MVE	FXZQ 50MVE	
Remote Controller	Wired Remote Controller		BRC1C61					Option
	Wireless Remote Controller		BRC7E530W					
Motors	Fan Motor	M1F	AC 220~240V 50Hz					
			1φ55W 4P					
			Thermal Fuse 135°C					
	Capacitor, fan motor	C1	4.0μ F 400VAC					
	Drain Pump	M1P	AC220-240V (50Hz) PLD-12230DM Thermal Fuse 145°C					
	Swing Motor	M1S	MP35HCA [3P080801-1] AC200~240V					
Thermistors	Thermistor (Suction Air)	R1T	ST8601A-1 φ4 L250 20kΩ (25°C)					
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-3 φ8 L630 20kΩ (25°C)					
	Thermistor (Heat Exchanger)	R2T	ST8602A-3 φ6 L630 20kΩ (25°C)					
Others	Float Switch	S1L	FS-0211					
	Fuse	F1U	250V 5A φ5.2					
	Transformer	T1R	TR22H21R8					

Parts Name		Symbol	Model				Remark
			FXKQ 25MAVE	FXKQ 32MAVE	FXKQ 40MAVE	FXKQ 63MAVE	
Remote Controller	Wired Remote Controller		BRC1C62				Option
	Wireless Remote Controller		BRC4C61				
Motors	Fan Motor	M1F	AC 220~240V 50Hz				
			1φ15W 4P		1φ20W 4P	1φ45W 4P	
			Thermal Fuse 146°C		Thermal protector 120°C : OFF 105°C : ON		
	Drain Pump	M1P	AC 220-240V (50Hz) PLD-12200DM Thermal Fuse 145°C				
	Swing Motor	M1S	MP35HCA [3P080801-1] AC200~240V				
Thermistors	Thermistor (Suction Air)	R1T	ST8601-13 φ4 L630 20kΩ (25°C)				
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-7 φ8 L1600 20kΩ (25°C)				
	Thermistor (Heat Exchanger)	R2T	ST8602A-7 φ6 L1600 20kΩ (25°C)				
Others	Float Switch	S1L	FS-0211B				
	Fuse	F1U	250V 5A φ5.2				
	Transformer	T1R	TR22H21R8				

Parts Name		Symbol	Model						Remark
			FXDQ 20N(A)VE(T), PVE(T)	FXDQ 25N(A)VE(T), PVE(T)	FXDQ 32N(A)VE(T), PVE(T)	FXDQ 40N(A)VE(T)	FXDQ 50N(A)VE(T)	FXDQ 63N(A)VE(T)	
Remote Controller	Wired Remote Controller		BRC1C62						Option
	Wireless Remote Controller		BRC4C62						
Motors	Fan Motor	M1F	AC 220~240V 50Hz						
			1φ62W				1φ130W		
			Thermal protector 130°C: OFF, 83°C: ON						
	Drain Pump	M1P	AC220-240V (50Hz) PLD-12230DM Thermal Fuse 145°C						*
Thermistors	Thermistor (Suction Air)	R1T	ST8601-1 φ4 L=250 20kΩ (25°C)						
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-4 φ8 L=800 20kΩ (25°C)						
	Thermistor (Heat Exchanger)	R2T	ST8602A-4 φ6 L=800 20kΩ (25°C)						
Others	Float Switch	S1L	FS-0211E						*
	Fuse	F1U	250V 5A φ5.2						
	Transformer	T1R	TR22H21R8						

*only for FXDQ20~63N(A)VE, FXDQ20~32PVE (with Drain Pump Type)

Parts Name		Symbol	Model									Remark
			FXSQ 20MVE	FXSQ 25MVE	FXSQ 32MVE	FXSQ 40MVE	FXSQ 50MVE	FXSQ 63MVE	FXSQ 80MVE	FXSQ 100MVE	FXSQ 125MVE	
Remote Controller	Wired Remote Controller		BRC1C62									Option
	Wireless Remote Controller		BRC4C62									
Motors	Fan Motor	M1F	AC 220~240V 50Hz									
			1φ50W			1φ65W	1φ85W	1φ125 W	1φ225W			
			Thermal Fuse 152°C						Thermal protector 135°C : OFF 87°C : ON			
	Drain Pump	M1P	AC220-240V (50Hz) PLD-12230DM Thermal Fuse 145°C									
Thermistors	Thermistor (Suction Air)	R1T	ST8601-4 φ4 L800 20kΩ (25°C)									
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-7 φ8 L1600 20kΩ (25°C)									
	Thermistor (Heat Exchanger)	R2T	ST8602A-6 φ6 L1250 20kΩ (25°C)									
Others	Float Switch	S1L	FS-0211B									
	Fuse	F1U	250V 5A φ5.2									
	Transformer	T1R	TR22H21R8									

Parts Name		Symbol	Model								Remark
			FXMQ 40MAVE	FXMQ 50MAVE	FXMQ 63MAVE	FXMQ 80MAVE	FXMQ 100MAVE	FXMQ 125MAVE	FXMQ 200MAVE	FXMQ 250MAVE	
Remote Controller	Wired Remote Controller		BRC1C62								Option
	Wireless Remote Controller		BRC4C62								
Motors	Fan Motor	M1F	AC 220~240V 50Hz								
			1φ100W		1φ160W	1φ270W	1φ430W	1φ380W×2			
			Thermal protector 135°C : OFF 87°C : ON								
	Capacitor for Fan Motor	C1R	5μ F-400V		7μ F 400V	10μ F 400V	8μ F 400V	10μ F 400V	12μ F 400V		
Thermistors	Thermistor (Suction Air)	R1T	ST8601A-5 φ4 L1000 20kΩ (25°C)					ST8601A-13 φ4 L630			
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605A-4 φ8 L800 20kΩ (25°C)					ST8605A-5 φ8 L1000			
	Thermistor (Heat Exchanger)	R2T	ST8602A-4 φ6 L800 20kΩ (25°C)					ST8602A-6 φ6 L1250			
Others	Float switch	S1L	FS-0211								
	Fuse	F1U	250V 5A φ5.2		250V 10A φ5.2			250V 10A			
	Transformer	T1R	TR22H21R8								

Parts Name		Symbol	Model			Remark
			FXHQ 32MAVE	FXHQ 63MAVE	FXHQ 100MAVE	
Remote Controller	Wired Remote Controller		BRC1C62			Option
	Wireless Controller		BRC7E63W			
Motors	Fan Motor	M1F	AC 220~240V/220V 50Hz/60Hz			
			1φ63W		1φ130W	
			Thermal protector 130°C : OFF 80°C : ON			
	Capacitor for Fan Motor	C1R	3.0μF-400V		9.0μF-400V	
	Swing Motor	M1S	MT8-L[3P058751-1] AC200~240V			
Thermistors	Thermistor (Suction Air)	R1T	ST8601A-1 φ4 L250 20kΩ (25°C)			
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-6 φ8 L = 1250 20kΩ (25°C)		ST8605-6 φ8 L = 1250 20kΩ (25°C)	
	Thermistor (Heat Exchanger)	R2T	ST8602A-6 φ6 L = 1250 20kΩ (25°C)		ST8602A-6 φ6 L = 1250 20kΩ (25°C)	
Others	Fuse	F1U	250V 5A φ5.2			
	Transformer	T1R	TR22H21R8			

Parts Name		Symbol	Model						Remarks
			FXAQ 20MAVE	FXAQ 25MAVE	FXAQ 32MAVE	FXAQ 40MAVE	FXAQ 50MAVE	FXAQ 63MAVE	
Remote Controller	Wired Remote Controller		BRC1C62						Option
	Wireless Remote Controller		BRC7E618						
Motors	Fan Motor	M1F	AC 220~240V 50Hz						
			1φ40W			1φ43W			
			Thermal protector 130°C : OFF 80°C : ON						
	Swing Motor	M1S	MP24 [3SB40333-1] AC200~240V			MSFBC20C21 [3SB40550-1] AC200~240V			
Thermistors	Thermistor (Suction Air)	R1T	ST8601-2 φ4 L400 20kΩ (25°C)						
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-2 φ8 L400 20kΩ (25°C)						
	Thermistor (for Heat Exchanger)	R2T	ST8602-2 φ6 L400 20kΩ (25°C)						
Others	Float Switch	S1L	OPTION						
	Fuse	F1U	250V 5A φ5.2						

Parts Name		Symbol	Model						Remark
			FXLQ 20MAVE	FXLQ 25MAVE	FXLQ 32MAVE	FXLQ 40MAVE	FXLQ 50MAVE	FXLQ 63MAVE	
Remote Controller	Wired Remote Controller		BRC1C62						Option
	Wireless Remote Controller		BRC4C62						
Motors	Fan Motor	M1F	AC 220~240V 50Hz						
			1φ15W		1φ25W		1φ35W		
			Thermal protector 135°C : OFF 120°C : ON						
	Capacitor for Fan Motor	C1R	1.0μF-400V		0.5μF-400V	1.0μF-400V	1.5μF-400V	2.0μF-400V	
Thermistors	Thermistor (Suction Air)	R1T	ST8601-6 φ4 L1250 20kΩ (25°C)						
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-9 φ8 L2500 20kΩ (25°C)						
	Thermistor (for Heat Exchanger)	R2T	ST8602A-9 φ6 L2500 20kΩ (25°C)						
Others	Fuse	F1U	AC250V 5A						
	Transformer	T1R	TR22H21R8						

Parts Name		Symbol	Model						Remark
			FXNQ 20MAVE	FXNQ 25MAVE	FXNQ 32MAVE	FXNQ 40MAVE	FXNQ 50MAVE	FXNQ 63MAVE	
Remote Controller	Wired Remote Controller		BRC1C62						Option
	Wireless Remote Controller		BRC4C62						
Motors	Fan Motor	M1F	AC 220~240V 50Hz						
			1φ15W		1φ25W		1φ35W		
			Thermal protector 135°C : OFF 120°C : ON						
	Capacitor for Fan Motor	C1R	1.0μF-400V		0.5μF-400V	1.0μF-400V	1.5μF-400V	2.0μF-400V	
Thermistors	Thermistor (Suction Air)	R1T	ST8601-6 φ4 L1250 20kΩ (25°C)						
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-9 φ8 L2500 20kΩ (25°C)						
	Thermistor (for Heat Exchanger)	R2T	ST8602A-9 φ6 L2500 20kΩ (25°C)						
Others	Fuse	F1U	AC250V 5A						
	Transformer	T1R	TR22H21R8						

4. Option List

4.1 Option List of Controllers

Operation Control System Optional Accessories

No.	Item			Type	FXCQ-M	FXFQ-M	FXZQ-M8	FXKQ-MA	FXDQ-P FXDQ-NA	FXSQ-M	FXDYQ-M	FXMQ-MA	FXHQ-MA	FXAQ-MA	FXLQ-MA FXNQ-MA
	1	Remote controller	Wireless	H/R	BRC7C62	BRC7E61W	BRC7E530W7	BRC4C61	BRC4C62	BRC4C62	BRC4C62	BRC4C62	BRC7E63W	BRC7E618	BRC4C62
Wired			BRC1C62												
2	Wired remote controller with weekly schedule timer				BRC1D61										
3	Simplified remote controller (Exposed type)				—					BRC2C51			—		BRC2C51
4	Remote controller for hotel use (Concealed type)				—					BRC3A61			—		BRC3A61
5	Adaptor for wiring				★KRP1B61	★KRP1B59	★KRP1B57	KRP1B61	★KRP1B56	KRP1B61			KRP1C3	—	KRP1B61
6-1	Wiring adaptor for electrical appendices (1)				★KRP2A61	★KRP2A62	★KRP2A62	KRP2A61	★KRP2A53	KRP2A61			★KRP2A62	★KRP2A61	KRP2A61
6-2	Wiring adaptor for electrical appendices (2)				★KRP4A51	★KRP4A53	★KRP4A53	KRP4A51	★KRP4A54	KRP4A51			★KRP4A52	★KRP4A51	KRP4A51
7	Remote sensor				KRCS01-1	—		KRCS01-1	KRCS01-1						
8	Installation box for adaptor PC board ☆				Note 2.3 KRP1B96	Note 2.3 KRP1D98	Note 4.6 KRP1B101	—	Note 4.6 KRP1B101	Note 5 KRP4A91	—		Note 3 KRP1C93	Note 2.3 KRP4A93	—
9	External control adaptor for outdoor unit (Must be installed on indoor units)				★DTA104A61	★DTA104A62		DTA104A61	★DTA104A53	DTA104A61			★DTA104A62	★DTA104A61	DTA104A61

Note:

1. Installation box ☆ is necessary for each adaptor marked ★.
2. Up to 2 adaptors can be fixed for each installation box.
3. Only one installation box can be installed for each indoor unit.
4. Up to 2 installation boxes can be installed for each indoor unit.
5. Installation box ☆ is necessary for second adaptor.
6. Installation box ☆ is necessary for each adaptor.

Various PC Boards

No.	Part name	Model No.	Function
1	Adaptor for wiring	KRP1B56 KRP1B57 KRP1B59 KRP1B61 KRP1C3	■ PC board when equipped with auxiliary electric heater in the indoor unit.
2	DIII-NET Expander Adaptor	DTA109A51	■ Up to 1,024 units can be centrally controlled in 64 different groups. ■ Wiring restrictions (max. length: 1,000 m, total wiring length: 2,000 m, max. number of branches: 16) apply to each adaptor.

System Configuration

No.	Part name	Model No.	Function
1	Central remote controller	DCS302CA61	•Up to 64 groups of indoor units(128 units) can be connected, and ON/OFF, temperature setting and monitoring can be accomplished individually or simultaneously. Connectable up to 2 controllers in one system.
1-1	Electrical box with earth terminal (3 blocks)	KJB311A	
2	Unified ON/OFF controller	DCS301BA61	
2-1	Electrical box with earth terminal (2 blocks)	KJB212A	•Up to 16 groups of indoor units(128 units) can be turned, ON/OFF individually or simultaneously, and operation and malfunction can be displayed. Can be used in combination with up to 8 controllers.
2-2	Noise filter (for electromagnetic interface use only)	KEK26-1	
3	Schedule timer	DST301BA61	•Programmed time weekly schedule can be controlled by unified control for up to 64 groups of indoor units (128 units). Can turn units ON/OFF twice per day.
4	Interface adaptor for SkyAir-series	For SkyAir, FD(Y)M-FA, FDY-KA FDYB-KA, FVY(P)J-A	•Adaptors required to connect products other than those of the VRV System to the high-speed DIII-NET communication system adopted for the VRV System. * To use any of the above optional controllers, an appropriate adaptor must be installed on the product unit to be controlled.
5	Central control adaptor kit	For UAT(Y)-K(A),FD-K	
6	Wiring adaptor for other air-conditioner	★DTA103A51	
7	DIII-NET Expander Adaptor	DTA109A51	•Up to 1024 units can be centrally controlled in 64 different groups. •Wiring restrictions (max. length : 1,000m, total wiring length : 2,000m, max. number of branches : 16) apply to each adaptor.
7-1	Mounting plate	KRP4A92	•Fixing plate for DTA109A51

Note:

1. Installation box for ★ adaptor must be procured on site.

Building Management System

No.	Part name				Model No.	Function	
1	intelligent Touch Controller	Basic	Hardware	intelligent Touch Controller		DCS601C51	•Air-Conditioning management system that can be controlled by a compact all-in-one unit.
1-1		Option	Hardware	DIII-NET plus adaptor		DCS601A52	•Additional 64 groups (10 outdoor units) is possible.
1-2			Software	P. P. D.		DCS002C51	•P. P. D.: Power Proportional Distribution function
1-3			Web			DCS004A51	•Monitors and controls the air conditioning system using the Internet and a Web browser application on a PC.
1-4	Electrical box with earth terminal (4 blocks)				KJB411A	•Wall embedded switch box.	
2	intelligent Manager III	Basic	Hardware	Number of units to be connected	128 units	DAM602B52	•Air conditioner management system that can be controlled by personal computers.
					256 units	DAM602B51	
					512 units	DAM602B51x2	
					768 units	DAM602B51x3	
					1024 units	DAM602B51x4	
2-1	Option	Software	P.P.D.	DAM002A51	•Power Proportional Distribution function		
2-2			Web	DAM004A51	•Monitors and controls the air conditioning system using the Internet and a Web browser application on a PC.		
2-3			Eco	DAM003A51	•ECO (Energy saving functions.)		
2-4	Optional DIII Ai unit				DAM101A51	•External temperature sensor for intelligent Manager III.	
2-5	Di unit				DEC101A51	•8 pairs based on a pair of On/Off input and abnormality input.	
2-6	Dio unit				DEC102A51	•4 pairs based on a pair of On/Off input and abnormality input.	
3	Communication line	*1 Interface for use in BACnet®			DMS502B51	•Interface unit to allow communications between VRV and BMS. Operation and monitoring of air-conditioning systems through BACnet® communication.	
3-1		Optional DIII board			DAM411B51	•Expansion kit, installed on DMS502B51, to provide 2 more DIII-NET communication ports. Not usable independently.	
3-2		Optional Di board			DAM412B51	•Expansion kit, installed on DMS502B51, to provide 16 more wattmeter pulse input points. Not usable independently.	
4		*2 Interface for use in LONWORKS®			DMS504B51	•Interface unit to allow communications between VRV and BMS. Operation and monitoring of air-conditioning systems through LONWORKS® communication.	
5	Contact/analog signal	Parallel interface Basic unit			DPF201A51	•Enables ON/OFF command, operation and display of malfunction; can be used in combination with up to 4 units.	
6		Temperature measurement units			DPF201A52	•Enables temperature measurement output for 4 groups; 0-5VDC.	
7		Temperature setting units			DPF201A53	•Enables temperature setting input for 16 groups; 0-5VDC.	
8		Unification adaptor for computerized control			★ DCS302A52	•Interface between the central monitoring board and central control units.	

Notes:

- *1. BACnet® is a registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).
- *2. LONWORKS®, is a registered trade mark of Echelon Corporation.
- *3. Installation box for * adaptor must be procured on site.

4.2 Option Lists (Outdoor Unit)

REYQ8 ~ 16PY1(E)

Series			VRV III H/R			
Optional accessories			REYQ8PY1	REYQ8PY1E	REYQ10PY1 REYQ12PY1 REYQ14PY1 REYQ16PY1	REYQ10PY1E REYQ12PY1E REYQ14PY1E REYQ16PY1E
Distributive Piping	Refnet header	Model	KHRP25M33H (Max. 8 branch)		KHRP25M33H, KHRP25M72H (Max. 8 branch) (Max. 8 branch)	
	Refnet joint	Model	KHRP25A22T, KHRP25A33T		KHRP25A22T, KHRP25A33T (KHRP25A72T+KHRP25M72TP)	
Central drain pan kit		Model	KWC25C450	★KWC25C450E	KWC25C450	★KWC25C450E
Digital pressure gauge kit		Model	BHGP26A1	BHGP26A1E	BHGP26A1	BHGP26A1E

C : 3D057610A

REYQ18 ~ 32PY1(E)

			Series	VRV III H/R			
			Models	REYQ18PY1	REYQ18PY1E	REYQ20PY1 REYQ22PY1 REYQ24PY1	REYQ20PY1E REYQ22PY1E REYQ24PY1E
Optional accessories							
Distributive Piping	Refnet header	Model	KHRP25M33H, KHRP25M72H (Max. 8 branch) (Max. 8 branch)			KHRP25M33H, KHRP25M72H, KHRP25M73H (Max. 8 branch) (Max. 8 branch) (Max. 8 branch)	
	Refnet joint	Model	KHRP25A22T, KHRP25A33T (KHRP25A72T+KHRP25M72TP)			KHRP25A22T, KHRP25A33T, (KHRP25A72T+KHRP25M72TP), (KHRP25A73T+KHRP25M73TP)	
Outdoor unit multi connection piping kit		Model	BHFP26P90				
Central drain pan kit		Model	KWC26C280x2	★KWC26C280Ex2	KWC26C280x2	★KWC26C280Ex2	
Digital pressure gauge kit		Model	BHGP26A1	BHGP26A1E	BHGP26A1	BHGP26A1E	

Series			VRV III H/R			
Optional accessories			REYQ26PY1 REYQ28PY1	REYQ26PY1E REYQ28PY1E	REYQ30PY1 REYQ32PY1	REYQ30PY1E REYQ32PY1E
Distributive Piping	Refnet header	Model	KHRP25M33H, KHRP25M72H, KHRP25M73H (Max. 8 branch) (Max. 8 branch) (Max. 8 branch)			
	Refnet joint	Model	KHRP25A22T, KHRP25A33T, (KHRP25A72T+KHRP25M72TP), (KHRP25A73T+KHRP25M73TP)			
Outdoor unit multi connection piping kit		Model	BHFP26P90			
Central drain pan kit		Model	KWC26C280 KWC26C450	★KWC26C280E ★KWC26C450E	KWC26C450×2	★KWC26C450E×2
Digital pressure gauge kit		Model	BHGP26A1	BHGP26A1E	BHGP26A1	BHGP26A1E

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REYQ34 ~ 48PY1(E)

Series			VRV III H/R		
Optional accessories			REYQ34PY1 REYQ36PY1 REYQ38PY1 REYQ40PY1	REYQ34PY1E REYQ36PY1E REYQ38PY1E REYQ40PY1E	REYQ42PY1 REYQ44PY1
Distributive Piping	Refnet header	Model	KHRP25M33H, KHRP25M72H, KHRP25M73H (Max. 8 branch) (Max. 8 branch) (Max. 8 branch)		
	Refnet joint	Model	KHRP25A22T, KHRP25A33T, (KHRP25A72T+ KHRP25M72TP), (KHRP25A73T+KHRP25M73TP)		
Outdoor unit multi connection piping kit		Model	BHFP26P136		
Central drain pan kit		Model	KWC26C280×2 KWC26C450	★KWC26C280E×2 ★KWC26C450E	KWC26C280 KWC26C450×2
Digital pressure gauge kit		Model	BHGP26A1	BHGP26A1E	BHGP26A1

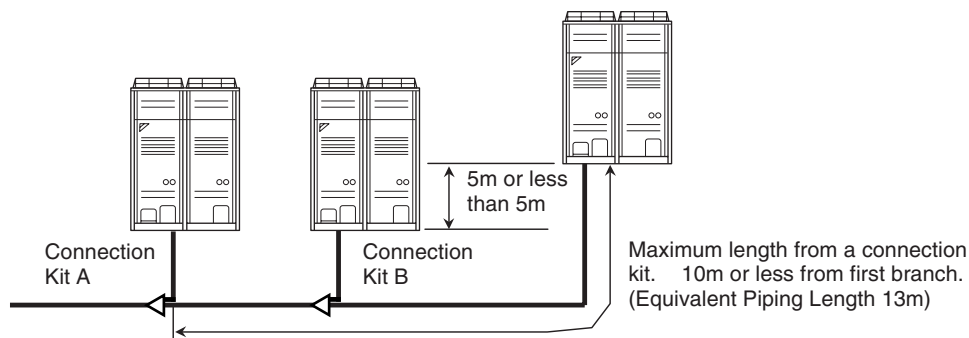
Series			VRV III H/R		
Optional accessories			REYQ42PY1E REYQ44PY1E	REYQ46PY1 REYQ48PY1	REYQ46PY1E REYQ48PY1E
Distributive Piping	Refnet header	Model	KHRP25M33H, KHRP25M72H, KHRP25M73H (Max. 8 branch) (Max. 8 branch) (Max. 8 branch)		
	Refnet joint	Model	KHRP25A22T, KHRP25A33T, (KHRP25A72T+ KHRP25M72TP), (KHRP25A73T+KHRP25M73TP)		
Outdoor unit multi connection piping kit		Model	BHFP26P136		
Central drain pan kit		Model	★KWC26C280E ★KWC26C450E×2	KWC26C450×3	★KWC26C450×3
Digital pressure gauge kit		Model	BHGP26A1E	BHGP26A1	BHGP26A1E

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Note) ★ : Order products

5. Piping Installation Point

5.1 Piping Installation Point



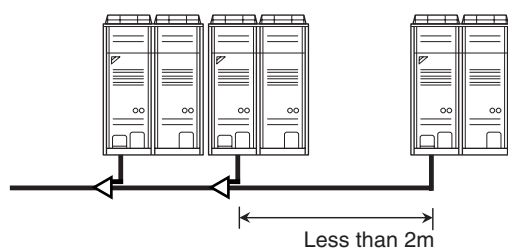
Since there is a possibility that oil may be collected on a stop machine side, install piping between outdoor units to go to level or go up to an outdoor unit, and to make a slope.

(V3036)

The projection part between multi connection piping kits

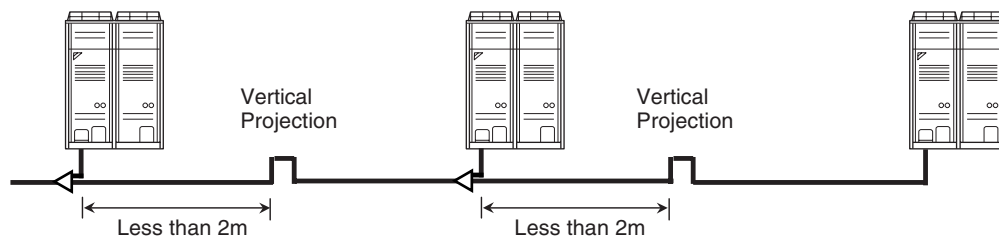
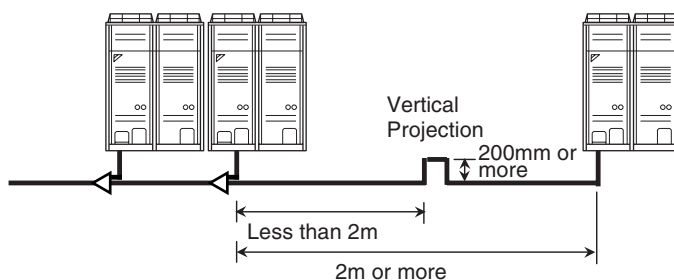
When the piping length between the multi connection kits or between multi connection kit and outdoor unit is 2m or more, prepare a vertical projection part (200mm or more as shown below) only on the gas pipe line location less than 2m from multi connection kit.

In the case of 2m or less



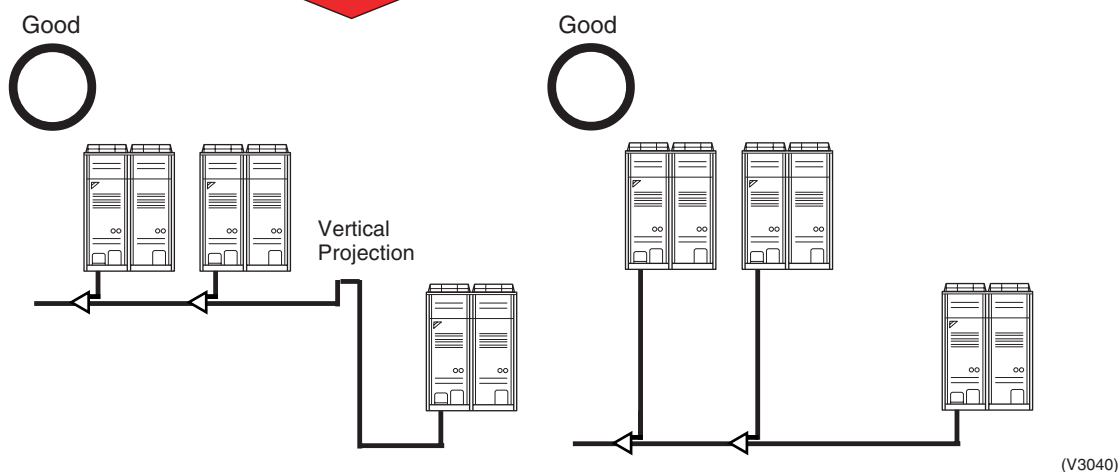
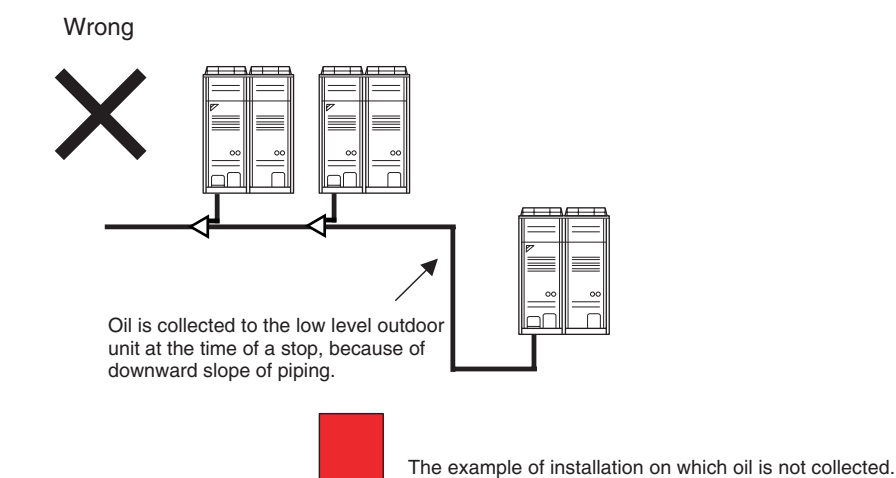
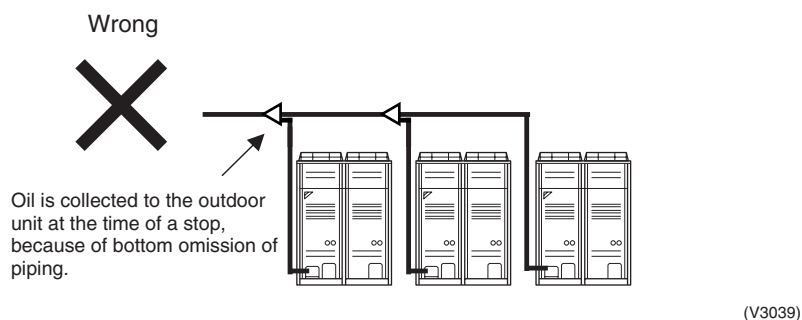
(V3037)

In the case of 2m or more



(V3038)

5.2 The Example of a Wrong Pattern



Max.allowable Piping Length	Outdoor Unit - Multi Connection Piping Kit	Actual piping length 10m or less, equivalent length 13m or less	
	Multi Connection Piping Kit - Indoor Unit	Actual piping length 165m or less, equivalent length 190m or less, the total extension 1000m or less	
	REFNET Joint - Indoor Unit	Actual piping length 40m or less (Refer to Page 403 Note 2 in case of up to 90m)	
Allowable Level Difference	Outdoor Unit - Outdoor Unit	5m or less	
	Outdoor Unit - Indoor Unit	Outdoor Unit is above	50m or less ★90m or less
		Outdoor Unit is below	90m
	Indoor Unit - Indoor Unit	15m or less	

Note: ★ Available on request if the outdoor unit is above.

6. Example of Connection (R-410A Type)

Example of connection (Connection of 8 indoor units)			Branch with REFNET joint	Branch with REFNET joint and header	Branch with REFNET header
<p>Outdoor unit side (3 pipes) Indoor unit side (2 pipes)</p> <p>Suction gas pipe Gas pipe</p> <p>HP/LP gas pipe BS Unit Liquid pipe</p> <p>Liquid pipe Liquid pipe</p> <p>• Piping from outdoor unit to BS unit</p> <p>—— (Bold): 3 pipes { Suction gas pipe HP/LP gas pipe Liquid pipe</p> <p>• Piping from BS unit to indoor unit or Piping from Refrigerant branch kit to indoor unit used as cooling only</p> <p>—— (Thin): 2 pipes { (Suction) gas pipe Liquid pipe</p> <p>(*1) " " " " Indicate the Outdoor unit multi connection piping kit.</p> <p>(*2) In case of multi outdoor system, re-read "outdoor unit" to "the first Outdoor unit multi connection piping kit" as seen from the indoor unit.</p>			<p>Single outdoor system (REYQ) 8~16</p> <p>[B1] ~ [B4] : BS Unit [1] ~ [6] : Indoor unit (Cool/Heat selection possible) [7], [8] : Indoor unit (Cooling only)</p>	<p>[B1] ~ [B5] : BS Unit [1] ~ [4], [7], [8] : Indoor unit (Cool/Heat selection possible) [5], [6] : Indoor unit (Cooling only)</p>	<p>[B1] ~ [B4] : BS Unit [1] ~ [6] : Indoor unit (Cool/Heat selection possible) [7], [8] : Indoor unit (Cooling only)</p>
<p>Multi outdoor system (REYQ) 18~48</p> <p>[B1] ~ [B4] : BS Unit [1] ~ [6] : Indoor unit (Cool/Heat selection possible) [7], [8] : Indoor unit (Cooling only)</p>			<p>[B1] ~ [B4] : BS Unit [1] ~ [6] : Indoor unit (Cool/Heat selection possible) [7], [8] : Indoor unit (Cooling only)</p>	<p>[B1] ~ [B5] : BS Unit [1] ~ [4], [7], [8] : Indoor unit (Cool/Heat selection possible) [5], [6] : Indoor unit (Cooling only)</p>	<p>[B1] ~ [B4] : BS Unit [1] ~ [6] : Indoor unit (Cool/Heat selection possible) [7], [8] : Indoor unit (Cooling only)</p>
Maximum allowable length	Between outdoor unit (*2) and indoor unit	Actual pipe length	Pipe length between outdoor unit (*2) and indoor unit ≤ 165m		
		Equivalent length	Example [8] : a + b + c + d + e + s ≤ 165m Example [6] : a + b + l ≤ 165m, [8] : a + m + n + p ≤ 165m Example [8] : a + o ≤ 165m		
	Between first outdoor unit multi connection piping kit and outdoor unit (in case of multi system)	Total extension length	Equivalent pipe length between outdoor unit (*2) and indoor unit ≤ 190m (Note 1) (Assume equivalent pipe length of REFNET joint to be 0.5m, that of REFNET header to be 1m, that of BSVQ100, 160 to be 4m, that of BSVQ250 to be 6m for calculation purposes)		
Allowable height difference	Between outdoor and indoor units	Actual and Equivalent pipe length	Total piping length from outdoor unit (*2) to all indoor unit ≤ 1000m		
		Difference in height	Actual pipe length from first outdoor unit multi connection piping kit to outdoor unit ≤ 10m Equivalent pipe length from first outdoor unit multi connection piping kit to outdoor unit ≤ 13m		
		Difference in height	Difference in height between outdoor unit and indoor unit (H1) ≤ 50m (Max 40m if the outdoor unit is below)		
Allowable length after the branch	Between indoor and indoor units	Difference in height	Difference in height between adjacent indoor units (H2) ≤ 15m		
		Difference in height	Difference in height between adjacent outdoor units (H3) ≤ 5m		
		Difference in height	Actual pipe length from first refrigerant branch kit (either REFNET joint or REFNET header) to indoor unit ≤ 40m (Note 2) Example [8] : b + c + d + e + s ≤ 40m Example [6] : b + l ≤ 40m, [8] : m + n + p ≤ 40m Example [8] : o ≤ 40m		

Outdoor unit multi connection piping kit and Refrigerant branch kit selection

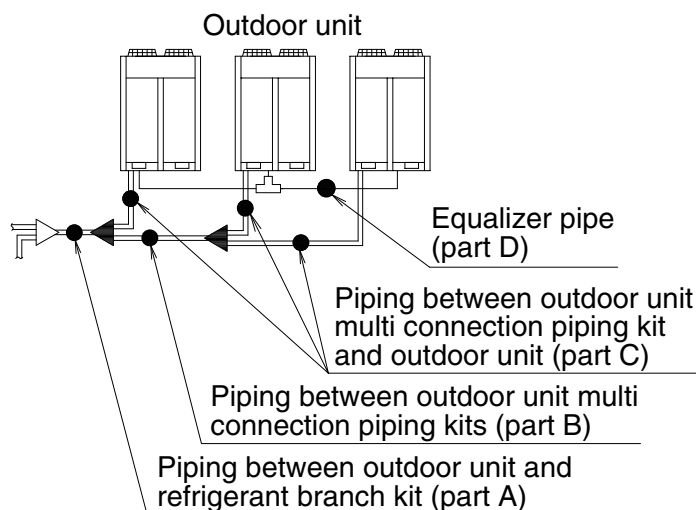
- Refrigerant branch kits can only be used with R410A.
- When multi outdoor system are installed, be sure to use the special separately sold Outdoor unit multi connection piping kit. (BHFP26P90・136).
(For how to select the proper kit, follow the table at right.)
- Never use BHFP26M90・135, BHFP22M90・135P for M type of this series or T joint (field supplied).

Example for indoor units connected downstream

Pipe size selection

- ⚠** The thickness of the pipes in the table shows the requirements of Japanese High Pressure Gas Controll low. (As of Jan. 2003)
The thickness and material shall be selected in accordance with local code.

For an outdoor unit installation, make the settings in accordance with the following figure.



How to select the REFNET joint

- When using REFNET joint at the first branch counted from the outdoor unit side, choose from the following table in accordance with the outdoor unit capacity type. (Example : REFNET joint A)

Outdoor unit capacity type	Refrigerant branch kit name
8,10HP type	KHRP25A33T
12~22HP type	KHRP25A72T+KHRP25M72TP
24HP type ~	KHRP25A73T+KHRP25M73TP

- Choose the REFNET joints other than the first branch from the following table in accordance with the total capacity index of all the indoor units connected below the REFNET joint.

Indoor unit total capacity index	Refrigerant branch kit name	
	3 pipes	2 pipes
$x < 200$	KHRP25A22T	KHRP26A22T
$200 \leq x < 290$	KHRP25A33T	KHRP26A33T
$290 \leq x < 640$	KHRP25A72T+KHRP25M72TP	KHRP26A72T
$640 \leq x$	KHRP25A73T+KHRP25M73TP	—

Example REFNET joint C : Indoor units $\boxed{5} + \boxed{6} + \boxed{7} + \boxed{8}$

Example REFNET joint B : Indoor units $\boxed{7} + \boxed{8}$

Example REFNET header : Indoor units $\boxed{1} + \boxed{2} + \boxed{3} + \boxed{4} + \boxed{5} + \boxed{6}$

Example REFNET header :

Indoor units $\boxed{1} + \boxed{2} + \boxed{3} + \boxed{4} + \boxed{5} + \boxed{6} + \boxed{7} + \boxed{8}$

Piping between outdoor unit (*2) and refrigerant branch kit (part A)

- Choose from the following table in accordance with the outdoor unit system capacity type.

Piping between outdoor unit multi connection piping kits (part B)

- Choose from the following table in accordance with the total capacity of all the outdoor units connected upstream. (unit : mm)

Outdoor unit capacity type	Piping size (O. D.)		
	Suction gas pipe	HP/LP gas pipe	Liquid pipe
8HP type	$\phi 19.1$	$\phi 15.9$	$\phi 9.5$
10HP type	$\phi 22.2$	$\phi 19.1$	$\phi 12.7$
12HP type	$\phi 28.6$	$\phi 22.2$	$\phi 15.9$
14,16HP type	$\phi 34.9$	$\phi 28.6$	$\phi 19.1$
18HP type	$\phi 41.3$	$\phi 34.9$	
20,22HP type			
24HP type			
26~34HP type			
36HP type			
38~48HP type			

Piping between outdoor unit multi connection piping kit and outdoor unit (part C)

- Choose from the following table in accordance with the capacity type of the outdoor unit connected. (unit : mm)

Outdoor unit capacity type	Piping size (O. D.)		
	Suction gas pipe	HP/LP gas pipe	Liquid pipe
8,10HP type	$\phi 22.2$	$\phi 19.1$	$\phi 9.5 \times 0.8$
12HP type	$\phi 28.6$	$\phi 22.2$	$\phi 12.7$
14,16HP type			

Temper grade and wall thickness for pipes

(Temper grade, O type and 1/2H type indicate the material type specified in JIS H 3300.)

Copper tube O. D.	$\phi 6.4$	$\phi 9.5$	$\phi 12.7$	$\phi 15.9$	$\phi 19.1$	$\phi 22.2$	$\phi 25.4$	$\phi 28.6$	$\phi 31.8$	$\phi 34.9$	$\phi 38.1$	$\phi 41.3$
Temper grade	O type						1/2H type					
Wall thickness (Min. requirement)	0.80	0.80	0.80	0.99	0.80	0.80	0.88	0.99	1.10	1.21	1.32	1.43

How to select the REFNET header

- Choose from the following table in accordance with the total capacity index of all the indoor units connected below the REFNET header.
- Indoor unit of FXY ~ P280・450・560 can not be connected below the REFNET header.

Indoor unit total capacity index	Refrigerant branch kit name	
	3 pipes	2 pipes
$x < 200$	KHRP25M33H	KHRP26M22H or KHRP26M33H
$200 \leq x < 290$		KHRP26M33H
$290 \leq x < 640$	KHRP25M72H+KHRP25M72HP	KHRP26M72H
$640 \leq x$	KHRP25M73H+KHRP25M73HP	KHRP26M73H+KHRP26M73HP

How to select the outdoor unit multi connection piping kit
(This is required when the system is multi outdoor unit system.)

- Choose from the following table in accordance with the number of outdoor units.

Number of outdoor unit	Connecting piping kit name
2 units	BHFP26P90
3 units	BHFP26P136

Piping between refrigerant branch kits

Piping between refrigerant branch kit and BS unit

Piping between BS unit and refrigerant branch kit

- Choose from the following table in accordance with the total capacity type of all the indoor units connected downstream.

*1 Connection piping must not exceed the refrigerant Piping size between outdoor unit and refrigerant branch kit (part A).

*2 When selecting 2 pipes line (gas pipe and liquid pipe), use Suction gas pipe column for gas pipe and Liquid pipe column for liquid pipe. (unit : mm)

Indoor capacity index	Piping size (O. D.)		
	Suction gas pipe	HP/LP gas pipe	Liquid pipe
$x < 150$	$\phi 15.9$	$\phi 12.7$	$\phi 9.5$
$150 \leq x < 200$	$\phi 19.1$	$\phi 15.9$	$\phi 12.7$
$200 \leq x < 290$	$\phi 22.2$	$\phi 19.1$	$\phi 15.9$
$290 \leq x < 420$	$\phi 28.6$	$\phi 28.6$	$\phi 19.1$
$420 \leq x < 640$	$\phi 34.9$		
$640 \leq x < 920$	$\phi 41.3$		
$920 \leq x$			

Piping between refrigerant branch kit, BS unit and indoor unit

- Match to the size of the connection piping on the indoor unit. (unit : mm)

Indoor unit capacity type	Piping size (O. D.)	
	gas pipe	Liquid pipe
20・25・32・40・50 type	$\phi 12.7$	$\phi 6.4$
63・80・100・125 type	$\phi 15.9$	$\phi 9.5$
200 type	$\phi 19.1$	
250 type	$\phi 22.2$	

Equalizer pipe (part D) (outdoor multi system only) (unit : mm)

Piping size (O. D.)	$\phi 19.1$
---------------------	-------------

How to calculate the additional refrigerant to be charged

Additional refrigerant to be charged : R(kg)
(R should be rounded off in units of 0.1 kg.)

$$R = \left[\begin{aligned} &\left(\text{Total length(m) of liquid piping size at } \phi 22.2 \right) \times 0.37 + \left(\text{Total length(m) of liquid piping size at } \phi 19.1 \right) \times 0.26 \\ &+ \left(\text{Total length(m) of liquid piping size at } \phi 15.9 \right) \times 0.18 + \left(\text{Total length(m) of liquid piping size at } \phi 12.7 \right) \times 0.12 \\ &+ \left(\text{Total length(m) of liquid piping size at } \phi 9.5 \right) \times 0.059 + \left(\text{Total length(m) of liquid piping size at } \phi 6.4 \right) \times 0.022 \end{aligned} \right] \times 1.02 +$$

HEAT RECOVER SYSTEM	
MODEL NAME	THE AMOUNT OF REFRIGERANT
REYQ8 ~ 16PY1	3.6kg
REYQ18 ~ 20PY1	1.0kg
REYQ22 ~ 24PY1	1.5kg
REYQ26PY1	2.0kg
REYQ28 ~ 30PY1	2.5kg
REYQ32 ~ 40PY1	3.0kg
REYQ42PY1	3.5kg
REYQ44 ~ 46PY1	4.0kg
REYQ48PY1	4.5kg

REFRIGERANT AMOUNT FOR EXCEEDING CONNECTION CAPACITY OF INDOOR UNIT		
INDOOR CONNECTION CAPACITY	MODEL NAME	
	REYQ18 ~ 32PY1	REYQ34 ~ 48PY1
MORE THAN 100% 120% OR LESS	0.5kg	
MORE THAN 120% 130% OR LESS	0.5kg	1.0kg

Example for refrigerant branch using REFNET joint and REFNET header for the systems and each pipe length as shown below.

Outdoor system : REYQ34PY1
Total capacity of indoor unit : 116%

a : $\phi 19.1 \times 30\text{m}$	e : $\phi 9.5 \times 10\text{m}$	i : $\phi 9.5 \times 10\text{m}$	m : $\phi 9.5 \times 20\text{m}$	r : $\phi 12.7 \times 3\text{m}$
b : $\phi 19.1 \times 20\text{m}$	f : $\phi 9.5 \times 10\text{m}$	j : $\phi 9.5 \times 10\text{m}$	n : $\phi 9.5 \times 10\text{m}$	s : $\phi 9.5 \times 3\text{m}$
c : $\phi 9.5 \times 10\text{m}$	g : $\phi 9.5 \times 10\text{m}$	k : $\phi 9.5 \times 20\text{m}$	o : $\phi 6.4 \times 10\text{m}$	t : $\phi 9.5 \times 3\text{m}$
d : $\phi 9.5 \times 10\text{m}$	h : $\phi 9.5 \times 10\text{m}$	l : $\phi 9.5 \times 20\text{m}$	p : $\phi 6.4 \times 10\text{m}$	u : $\phi 15.9 \times 1\text{m}$

$$R = \left(\underbrace{50 \times 0.26}_{a, b} + \underbrace{1 \times 0.18}_u + \underbrace{3 \times 0.12}_r + \underbrace{156 \times 0.059}_{c \sim n, s, t} + \underbrace{20 \times 0.022}_{o, p} \right) \times 1.02 + \underbrace{3.0}_{\text{REYQ34PY1}} + \underbrace{0.5}_{116\%}$$

$$= 27.148 \longrightarrow \boxed{27.1\text{kg}}$$

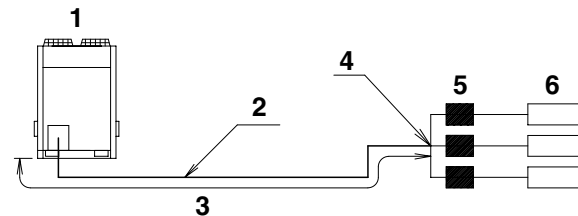
Round off in units of 0.1 kg.

Note 1.

When the equivalent pipe length between outdoor and indoor units is 90m or more, the size of main pipes on the liquid side (refer to figure 9) must be increased according to the right table.
(Never increase suction gas pipe and HP/LP gas pipe.)

System	Liquid pipe
REYQ8 ~ 10PY1	$\phi 9.5 \rightarrow \phi 12.7$
REYQ12 ~ 16PY1	$\phi 12.7 \rightarrow \phi 15.9$
REYQ18 ~ 24PY1	$\phi 15.9 \rightarrow \phi 19.1$
REYQ26 ~ 48PY1	$\phi 19.1 \rightarrow \phi 22.2$

It is necessary to increase the main pipes of outdoor unit and first refrigerant branch kit (liquid side) by one size, if the difference in height between outdoor unit and indoor unit is over than 50m.



1. Outdoor unit
2. Main pipes
3. Increase only liquid pipe size
4. First refrigerant branch kit
5. BS unit
6. Indoor unit

Note 2. Allowable length after the first refrigerant branch kit to indoor units is 40m or less, however it can be extended up to 90m if all the following conditions are satisfied. (In case of "Branch with REFNET joint")

Required Conditions	Example Drawings	
1. It is necessary to increase the pipe size if the pipe length between the first branch kit and the final branch kit is over than 40m. (Reducer must be procured on site.) If the increased pipe size is larger than main pipe size, then increase the main (liquid, suction gas) pipe size to the same pipe size. (It is not necessary to increase the high and low pressure gas pipe.)	$\boxed{8}$ $b+c+d+e+f+g+p \leq 90\text{ m}$ increase the pipe size of b, c, d, e, f, g	Increase the pipe size as follows $\phi 9.5 \rightarrow \phi 12.7$ $\phi 15.9 \rightarrow \phi 19.1$ $\phi 22.2 \rightarrow \phi 25.4^*$ $\phi 34.9 \rightarrow \phi 38.1^*$ $\phi 12.7 \rightarrow \phi 15.9$ $\phi 19.1 \rightarrow \phi 22.2$ $\phi 28.6 \rightarrow \phi 31.8^*$
2. For calculation of Total extension length, the actual length of above pipes must be doubled. (except main pipe and the pipes that are not increased)	$a+b \times 2 + c \times 2 + d \times 2 + e \times 2 + f \times 2 + g \times 2 + h+i+j+k+l+m+n+p \leq 1000\text{ m}$	<p>Outdoor unit</p> <p>REFNET joint (A-G)</p> <p>Indoor units ($\boxed{1} - \boxed{8}$)</p>
3. Indoor unit to the nearest branch kit $\leq 40\text{ m}$	$h, i, j, \dots, p \leq 40\text{ m}$	
4. The difference between [Outdoor unit to the farthest indoor unit] and [Outdoor unit to the nearest indoor unit] $\leq 40\text{ m}$	The farthest indoor unit $\boxed{8}$ The nearest indoor unit $\boxed{1}$ $(a+b+c+d+e+f+g+p) - (a+h) \leq 40\text{ m}$	

*If available on the site, use this size. Otherwise it can not be increased.

7. Thermistor Resistance / Temperature Characteristics

Indoor unit For air suction R1T
 For liquid pipe R2T
 For gas pipe R3T

Outdoor unit for fin thermistor R1T

Outdoor unit For outdoor air R1T
 For coil R2T
 For suction pipe R4T
 For Receiver gas pipe R5T
 For Receiver outlet liquid pipe R6T

(kΩ)

T°C	0.0
-10	-
-8	-
-6	88.0
-4	79.1
-2	71.1
0	64.1
2	57.8
4	52.3
6	47.3
8	42.9
10	38.9
12	35.3
14	32.1
16	29.2
18	26.6
20	24.3
22	22.2
24	20.3
26	18.5
28	17.0
30	15.6
32	14.2
34	13.1
36	12.0
38	11.1
40	10.3
42	9.5
44	8.8
46	8.2
48	7.6
50	7.0
52	6.7
54	6.0
56	5.5
58	5.2
60	4.79
62	4.46
64	4.15
66	3.87
68	3.61
70	3.37
72	3.15
74	2.94
76	2.75
78	2.51
80	2.41
82	2.26
84	2.12
86	1.99
88	1.87
90	1.76
92	1.65
94	1.55
96	1.46
98	1.38

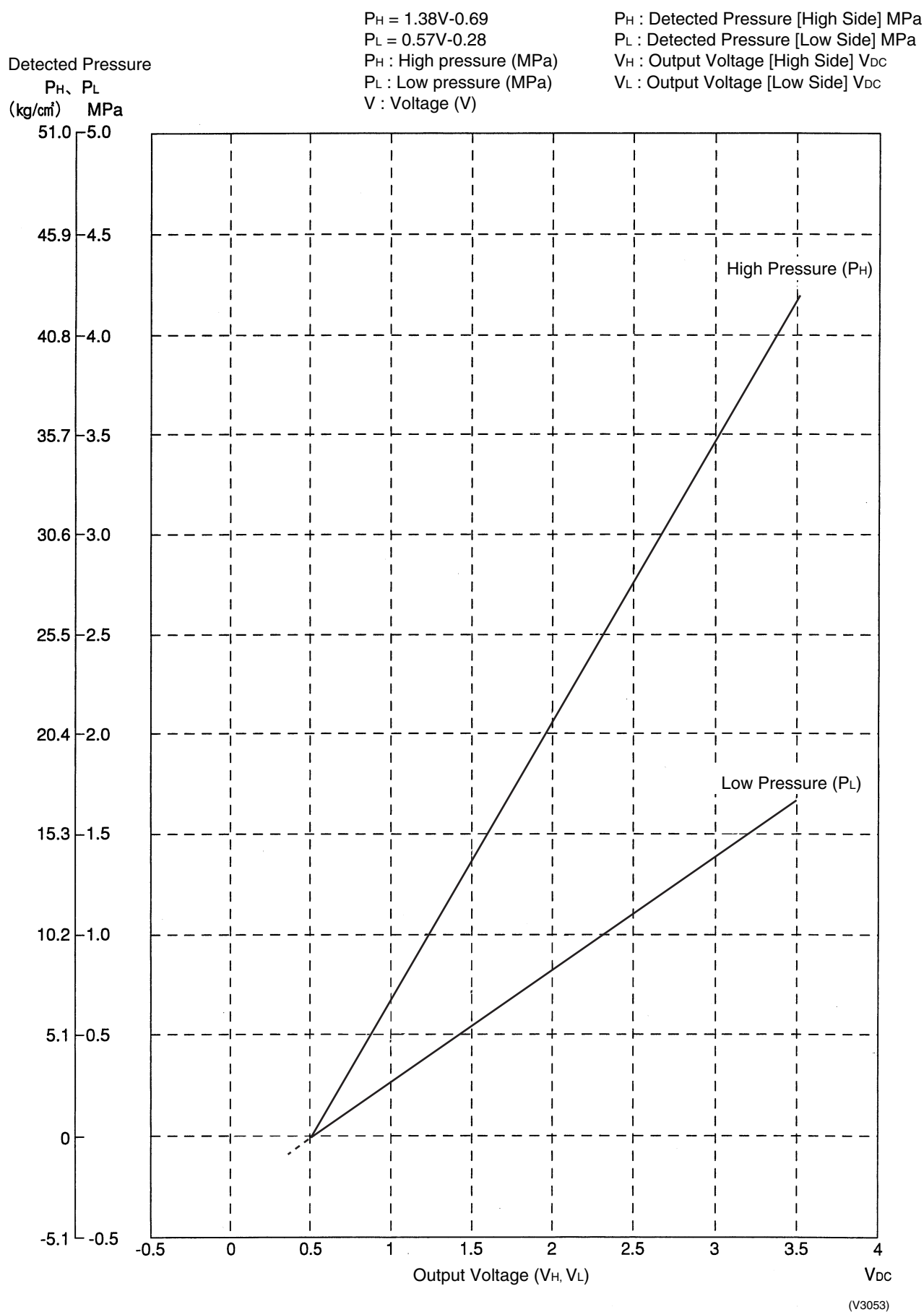
T°C	0.0	0.5
-20	197.81	192.08
-19	186.53	181.16
-18	175.97	170.94
-17	166.07	161.36
-16	156.80	152.38
-15	148.10	143.96
-14	139.94	136.05
-13	132.28	128.63
-12	125.09	121.66
-11	118.34	115.12
-10	111.99	108.96
-9	106.03	103.18
-8	100.41	97.73
-7	95.14	92.61
-6	90.17	87.79
-5	85.49	83.25
-4	81.08	78.97
-3	76.93	74.94
-2	73.01	71.14
-1	69.32	67.56
0	65.84	64.17
1	62.54	60.96
2	59.43	57.94
3	56.49	55.08
4	53.71	52.38
5	51.09	49.83
6	48.61	47.42
7	46.26	45.14
8	44.05	42.98
9	41.95	40.94
10	39.96	39.01
11	38.08	37.18
12	36.30	35.45
13	34.62	33.81
14	33.02	32.25
15	31.50	30.77
16	30.06	29.37
17	28.70	28.05
18	27.41	26.78
19	26.18	25.59
20	25.01	24.45
21	23.91	23.37
22	22.85	22.35
23	21.85	21.37
24	20.90	20.45
25	20.00	19.56
26	19.14	18.73
27	18.32	17.93
28	17.54	17.17
29	16.80	16.45
30	16.10	15.76

T°C	0.0	0.5
30	16.10	15.76
31	15.43	15.10
32	14.79	14.48
33	14.18	13.88
34	13.59	13.31
35	13.04	12.77
36	12.51	12.25
37	12.01	11.76
38	11.52	11.29
39	11.06	10.84
40	10.63	10.41
41	10.21	10.00
42	9.81	9.61
43	9.42	9.24
44	9.06	8.88
45	8.71	8.54
46	8.37	8.21
47	8.05	7.90
48	7.75	7.60
49	7.46	7.31
50	7.18	7.04
51	6.91	6.78
52	6.65	6.53
53	6.41	6.53
54	6.65	6.53
55	6.41	6.53
56	6.18	6.06
57	5.95	5.84
58	5.74	5.43
59	5.14	5.05
60	4.96	4.87
61	4.79	4.70
62	4.62	4.54
63	4.46	4.38
64	4.30	4.23
65	4.16	4.08
66	4.01	3.94
67	3.88	3.81
68	3.75	3.68
69	3.62	3.56
70	3.50	3.44
71	3.38	3.32
72	3.27	3.21
73	3.16	3.11
74	3.06	3.01
75	2.96	2.91
76	2.86	2.82
77	2.77	2.72
78	2.68	2.64
79	2.60	2.55
80	2.51	2.47

Outdoor Unit
Thermistors for
Discharge Pipe
(R3T, R31~33T)

						(kΩ)		
T°C	0.0	0.5	T°C	0.0	0.5	T°C	0.0	0.5
0	640.44	624.65	50	72.32	70.96	100	13.35	13.15
1	609.31	594.43	51	69.64	68.34	101	12.95	12.76
2	579.96	565.78	52	67.06	65.82	102	12.57	12.38
3	552.00	538.63	53	64.60	63.41	103	12.20	12.01
4	525.63	512.97	54	62.24	61.09	104	11.84	11.66
5	500.66	488.67	55	59.97	58.87	105	11.49	11.32
6	477.01	465.65	56	57.80	56.75	106	11.15	10.99
7	454.60	443.84	57	55.72	54.70	107	10.83	10.67
8	433.37	423.17	58	53.72	52.84	108	10.52	10.36
9	413.24	403.57	59	51.98	50.96	109	10.21	10.06
10	394.16	384.98	60	49.96	49.06	110	9.92	9.78
11	376.05	367.35	61	48.19	47.33	111	9.64	9.50
12	358.88	350.62	62	46.49	45.67	112	9.36	9.23
13	342.58	334.74	63	44.86	44.07	113	9.10	8.97
14	327.10	319.66	64	43.30	42.54	114	8.84	8.71
15	312.41	305.33	65	41.79	41.06	115	8.59	8.47
16	298.45	291.73	66	40.35	39.65	116	8.35	8.23
17	285.18	278.80	67	38.96	38.29	117	8.12	8.01
18	272.58	266.51	68	37.63	36.98	118	7.89	7.78
19	260.60	254.72	69	36.34	35.72	119	7.68	7.57
20	249.00	243.61	70	35.11	34.51	120	7.47	7.36
21	238.36	233.14	71	33.92	33.35	121	7.26	7.16
22	228.05	223.08	72	32.78	32.23	122	7.06	6.97
23	218.24	213.51	73	31.69	31.15	123	6.87	6.78
24	208.90	204.39	74	30.63	30.12	124	6.69	6.59
25	200.00	195.71	75	29.61	29.12	125	6.51	6.42
26	191.53	187.44	76	28.64	28.16	126	6.33	6.25
27	183.46	179.57	77	27.69	27.24	127	6.16	6.08
28	175.77	172.06	78	26.79	26.35	128	6.00	5.92
29	168.44	164.90	79	25.91	25.49	129	5.84	5.76
30	161.45	158.08	80	25.07	24.66	130	5.69	5.61
31	154.79	151.57	81	24.26	23.87	131	5.54	5.46
32	148.43	145.37	82	23.48	23.10	132	5.39	5.32
33	142.37	139.44	83	22.73	22.36	133	5.25	5.18
34	136.59	133.79	84	22.01	21.65	134	5.12	5.05
35	131.06	128.39	85	21.31	20.97	135	4.98	4.92
36	125.79	123.24	86	20.63	20.31	136	4.86	4.79
37	120.76	118.32	87	19.98	19.67	137	4.73	4.67
38	115.95	113.62	88	19.36	19.05	138	4.61	4.55
39	111.35	109.13	89	18.75	18.46	139	4.49	4.44
40	106.96	104.84	90	18.17	17.89	140	4.38	4.32
41	102.76	100.73	91	17.61	17.34	141	4.27	4.22
42	98.75	96.81	92	17.07	16.80	142	4.16	4.11
43	94.92	93.06	93	16.54	16.29	143	4.06	4.01
44	91.25	89.47	94	16.04	15.79	144	3.96	3.91
45	87.74	86.04	95	15.55	15.31	145	3.86	3.81
46	84.38	82.75	96	15.08	14.85	146	3.76	3.72
47	81.16	79.61	97	14.62	14.40	147	3.67	3.62
48	78.09	76.60	98	14.18	13.97	148	3.58	3.54
49	75.14	73.71	99	13.76	13.55	149	3.49	3.45
50	72.32	70.96	100	13.35	13.15	150	3.41	3.37

8. Pressure Sensor



9. Method of Checking the Inverter's Power Transistors and Diode Modules

9.1 Method of Checking the Inverter's Power Transistors and Diode Modules

Checking failures in power semiconductors mounted on inverter PC board

Check the power semiconductors mounted on the inverter PC board by the use of a multiple tester.

<Items to be prepared>

- 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.

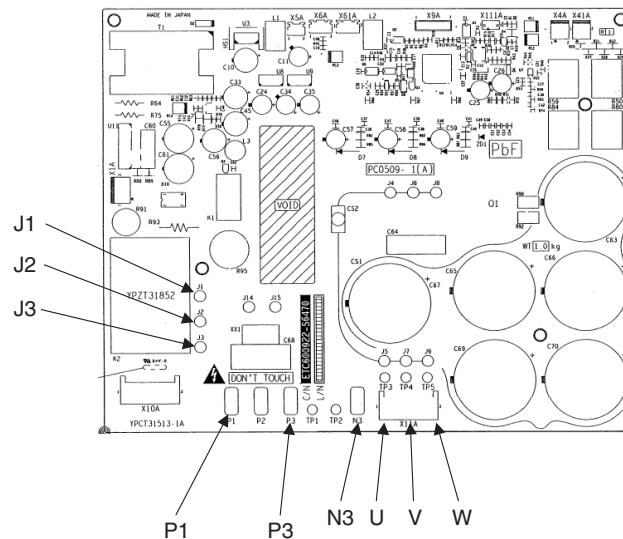
<Test points>

- Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.

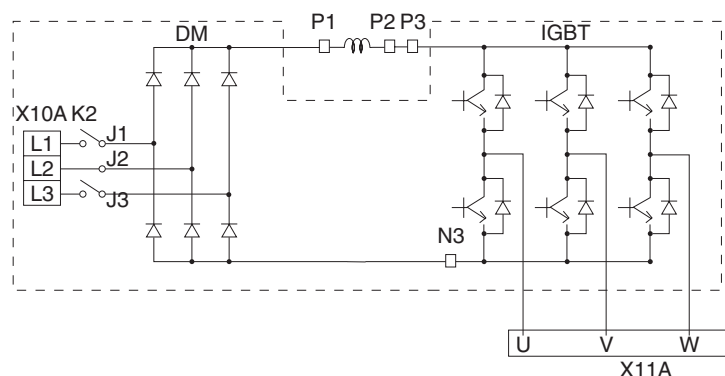
<Preparation>

- To make measurement, disconnect all connectors and terminals.

Inverter PC board



Electronic circuit



(V2895)

- According to the checking aforementioned, it is probed that the malfunction results from the faulty inverter. The following section describes supposed causes of the faulty inverter.
 - Faulty compressor (ground leakage)
 - Faulty fan motor (ground leakage)
 - Entry of conductive foreign particles
 - Abnormal voltage (e.g. overvoltage, surge (thunder), or unbalanced voltage)
- In order to replace the faulty inverter, be sure to check for the points aforementioned.

1. Power module checking

When using the analog type of multiple tester, make measurement in resistance measurement mode in the x1k Ω range.

No.	Measuring point		Criterion	Remark
	+	-		
1	P3	U	2 to 15k Ω	
2	P3	V		
3	P3	W		
4	U	P3	Not less than 15k Ω (including)	It may take time to determine the resistance due to capacitor charge or else.
5	V	P3		
6	W	P3		
7	N3	U		
8	N3	V		
9	N3	W	2 to 15k Ω	
10	U	N3		
11	V	N3		
12	W	N3		

When using the digital type of multiple tester, make measurement in diode check mode ($\rightarrow|$).

No.	Measuring point		Criterion	Remark
	+	-		
1	P3	U	Not less than 1.2V (including)	It may take time to determine the voltage due to capacitor charge or else.
2	P3	V		
3	P3	W		
4	U	P3	0.3 to 0.7V	
5	V	P3		
6	W	P3		
7	N3	U		
8	N3	V		
9	N3	W	Not less than 1.2V (including)	It may take time to determine the voltage due to capacitor charge or else.
10	U	N3		
11	V	N3		
12	W	N3		

2. Diode module checking

When using the analog type of multiple tester, make measurement in resistance measurement mode in the x1k Ω range.

No.	Measuring point		Criterion	Remark
	+	-		
1	P1	J1	2 to 15k Ω	
2	P1	J2		
3	P1	J3		
4	J1	P1	Not less than 15k Ω (including)	It may take time to determine the resistance due to capacitor charge or else.
5	J2	P1		
6	J3	P1		
7	N3	J1		
8	N3	J2		
9	N3	J3	2 to 15k Ω	
10	J1	N3		
11	J2	N3		
12	J3	N3		

When using the digital type of multiple tester, make measurement in diode check mode ($\rightarrow|$).

No.	Measuring point		Criterion	Remark
	+	-		
1	P1	J1	Not less than 1.2V (including)	It may take time to determine the voltage due to capacitor charge or else.
2	P1	J2		
3	P1	J3		
4	J1	P1	0.3 to 0.7V	
5	J2	P1		
6	J3	P1		
7	N3	J1		
8	N3	J2		
9	N3	J3	Not less than 1.2V (including)	It may take time to determine the voltage due to capacitor charge or else.
10	J1	N3		
11	J2	N3		
12	J3	N3		

Part 8

Precautions for New Refrigerant (R-410A)

1. Precautions for New Refrigerant (R-410A)	412
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1. Precautions for New Refrigerant (R-410A)

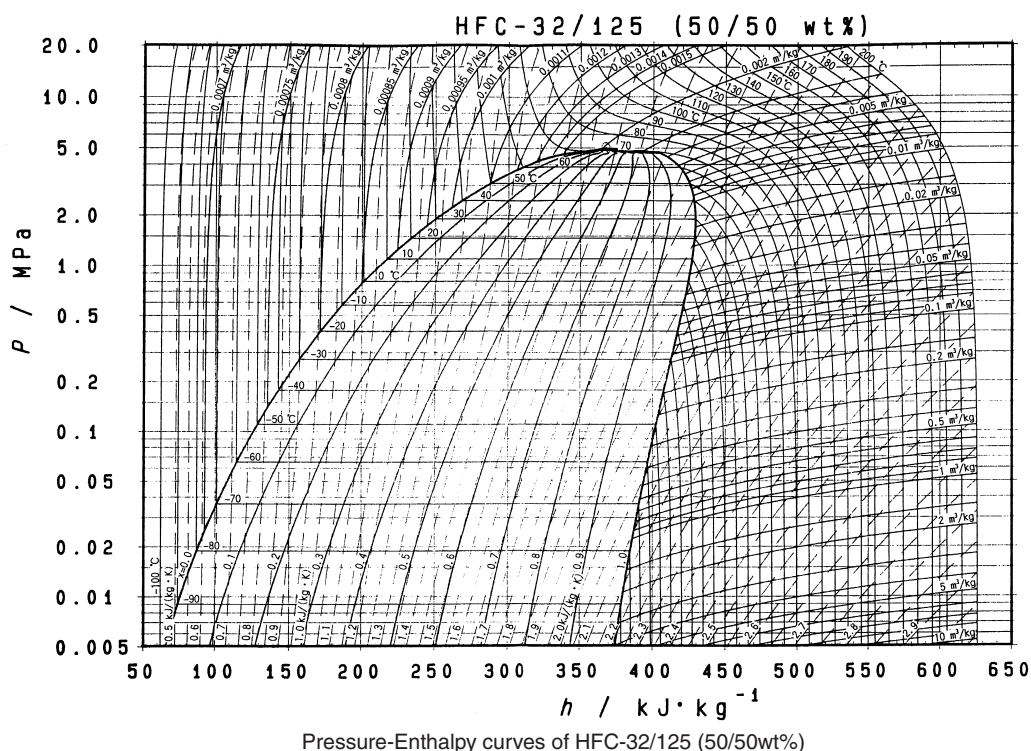
1.1 Outline

1.1.1 About Refrigerant R-410A

- Characteristics of new refrigerant, R-410A
 1. Performance
Almost the same performance as R-22 and R-407C
 2. Pressure
Working pressure is approx. 1.4 times more than R-22 and R-407C.
 3. Refrigerant composition
Few problems in composition control, since it is a Quasi-azeotropic mixture refrigerant.

	HFC units (Units using new refrigerants)		HCFC units
Refrigerant name	R-407C	R-410A	R-22
Composing substances	Non-azeotropic mixture of HFC32, HFC125 and HFC134a (*1)	Quasi-azeotropic mixture of HFC32 and JFC125 (*1)	Single-component refrigerant
Design pressure	3.2 MPa (gauge pressure) = 32.6 kgf/cm ²	4.0 MPa (gauge pressure) = 40.8 kgf/cm ²	2.75MPa (gauge pressure) = 28.0 kgf/cm ²
Refrigerant oil	Synthetic oil (Ether)		Mineral oil (Suniso)
Ozone destruction factor (ODP)	0	0	0.05
Combustibility	None	None	None
Toxicity	None	None	None

- ★1. Non-azeotropic mixture refrigerant: mixture of two or more refrigerants having different boiling points.
 - ★2. Quasi-azeotropic mixture refrigerant: mixture of two or more refrigerants having similar boiling points.
 - ★3. The design pressure is different at each product. Please refer to the installation manual for each product.
- (Reference) 1 MPa \doteq 10.19716 kgf / cm²



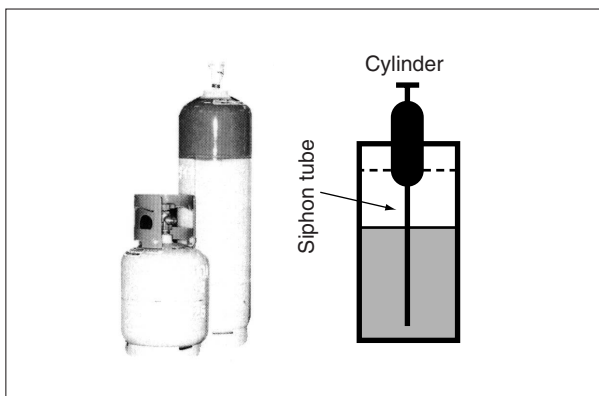
■ Thermodynamic characteristic of R-410A

DAIREP ver2.0

Temperature (°C)	Steam pressure (kPa)		Density (kg/m ³)		Specific heat at constant pressure (kJ/kgK)		Specific enthalpy (kJ/kg)		Specific entropy (kJ/KgK)	
	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor
-70	36.13	36.11	1410.7	1.582	1.372	0.695	100.8	390.6	0.649	2.074
-68	40.83	40.80	1404.7	1.774	1.374	0.700	103.6	391.8	0.663	2.066
-66	46.02	45.98	1398.6	1.984	1.375	0.705	106.3	393.0	0.676	2.058
-64	51.73	51.68	1392.5	2.213	1.377	0.710	109.1	394.1	0.689	2.051
-62	58.00	57.94	1386.4	2.463	1.378	0.715	111.9	395.3	0.702	2.044
-60	64.87	64.80	1380.2	2.734	1.379	0.720	114.6	396.4	0.715	2.037
-58	72.38	72.29	1374.0	3.030	1.380	0.726	117.4	397.6	0.728	2.030
-56	80.57	80.46	1367.8	3.350	1.382	0.732	120.1	398.7	0.741	2.023
-54	89.49	89.36	1361.6	3.696	1.384	0.737	122.9	399.8	0.754	2.017
-52	99.18	99.03	1355.3	4.071	1.386	0.744	125.7	400.9	0.766	2.010
-51.58	101.32	101.17	1354.0	4.153	1.386	0.745	126.3	401.1	0.769	2.009
-50	109.69	109.51	1349.0	4.474	1.388	0.750	128.5	402.0	0.779	2.004
-48	121.07	120.85	1342.7	4.909	1.391	0.756	131.2	403.1	0.791	1.998
-46	133.36	133.11	1336.3	5.377	1.394	0.763	134.0	404.1	0.803	1.992
-44	146.61	146.32	1330.0	5.880	1.397	0.770	136.8	405.2	0.816	1.987
-42	160.89	160.55	1323.5	6.419	1.401	0.777	139.6	406.2	0.828	1.981
-40	176.24	175.85	1317.0	6.996	1.405	0.785	142.4	407.3	0.840	1.976
-38	192.71	192.27	1310.5	7.614	1.409	0.792	145.3	408.3	0.852	1.970
-36	210.37	209.86	1304.0	8.275	1.414	0.800	148.1	409.3	0.864	1.965
-34	229.26	228.69	1297.3	8.980	1.419	0.809	150.9	410.2	0.875	1.960
-32	249.46	248.81	1290.6	9.732	1.424	0.817	153.8	411.2	0.887	1.955
-30	271.01	270.28	1283.9	10.53	1.430	0.826	156.6	412.1	0.899	1.950
-28	293.99	293.16	1277.1	11.39	1.436	0.835	159.5	413.1	0.911	1.946
-26	318.44	317.52	1270.2	12.29	1.442	0.844	162.4	414.0	0.922	1.941
-24	344.44	343.41	1263.3	13.26	1.448	0.854	165.3	414.9	0.934	1.936
-22	372.05	370.90	1256.3	14.28	1.455	0.864	168.2	415.7	0.945	1.932
-20	401.34	400.06	1249.2	15.37	1.461	0.875	171.1	416.6	0.957	1.927
-18	432.36	430.95	1242.0	16.52	1.468	0.886	174.1	417.4	0.968	1.923
-16	465.20	463.64	1234.8	17.74	1.476	0.897	177.0	418.2	0.980	1.919
-14	499.91	498.20	1227.5	19.04	1.483	0.909	180.0	419.0	0.991	1.914
-12	536.58	534.69	1220.0	20.41	1.491	0.921	182.9	419.8	1.003	1.910
-10	575.26	573.20	1212.5	21.86	1.499	0.933	185.9	420.5	1.014	1.906
-8	616.03	613.78	1204.9	23.39	1.507	0.947	189.0	421.2	1.025	1.902
-6	658.97	656.52	1197.2	25.01	1.516	0.960	192.0	421.9	1.036	1.898
-4	704.15	701.49	1189.4	26.72	1.524	0.975	195.0	422.6	1.048	1.894
-2	751.64	748.76	1181.4	28.53	1.533	0.990	198.1	423.2	1.059	1.890
0	801.52	798.41	1173.4	30.44	1.543	1.005	201.2	423.8	1.070	1.886
2	853.87	850.52	1165.3	32.46	1.552	1.022	204.3	424.4	1.081	1.882
4	908.77	905.16	1157.0	34.59	1.563	1.039	207.4	424.9	1.092	1.878
6	966.29	962.42	1148.6	36.83	1.573	1.057	210.5	425.5	1.103	1.874
8	1026.5	1022.4	1140.0	39.21	1.584	1.076	213.7	425.9	1.114	1.870
10	1089.5	1085.1	1131.3	41.71	1.596	1.096	216.8	426.4	1.125	1.866
12	1155.4	1150.7	1122.5	44.35	1.608	1.117	220.0	426.8	1.136	1.862
14	1224.3	1219.2	1113.5	47.14	1.621	1.139	223.2	427.2	1.147	1.859
16	1296.2	1290.8	1104.4	50.09	1.635	1.163	226.5	427.5	1.158	1.855
18	1371.2	1365.5	1095.1	53.20	1.650	1.188	229.7	427.8	1.169	1.851
20	1449.4	1443.4	1085.6	56.48	1.666	1.215	233.0	428.1	1.180	1.847
22	1530.9	1524.6	1075.9	59.96	1.683	1.243	236.4	428.3	1.191	1.843
24	1615.8	1609.2	1066.0	63.63	1.701	1.273	239.7	428.4	1.202	1.839
26	1704.2	1697.2	1055.9	67.51	1.721	1.306	243.1	428.6	1.214	1.834
28	1796.2	1788.9	1045.5	71.62	1.743	1.341	246.5	428.6	1.225	1.830
30	1891.9	1884.2	1034.9	75.97	1.767	1.379	249.9	428.6	1.236	1.826
32	1991.3	1983.2	1024.1	80.58	1.793	1.420	253.4	428.6	1.247	1.822
34	2094.5	2086.2	1012.9	85.48	1.822	1.465	256.9	428.4	1.258	1.817
36	2201.7	2193.1	1001.4	90.68	1.855	1.514	260.5	428.3	1.269	1.813
38	2313.0	2304.0	989.5	96.22	1.891	1.569	264.1	428.0	1.281	1.808
40	2428.4	2419.2	977.3	102.1	1.932	1.629	267.8	427.7	1.292	1.803
42	2548.1	2538.6	964.6	108.4	1.979	1.696	271.5	427.2	1.303	1.798
44	2672.2	2662.4	951.4	115.2	2.033	1.771	275.3	426.7	1.315	1.793
46	2800.7	2790.7	937.7	122.4	2.095	1.857	279.2	426.1	1.327	1.788
48	2933.7	2923.6	923.3	130.2	2.168	1.955	283.2	425.4	1.339	1.782
50	3071.5	3061.2	908.2	138.6	2.256	2.069	287.3	424.5	1.351	1.776
52	3214.0	3203.6	892.2	147.7	2.362	2.203	291.5	423.5	1.363	1.770
54	3361.4	3351.0	875.1	157.6	2.493	2.363	295.8	422.4	1.376	1.764
56	3513.8	3503.5	856.8	168.4	2.661	2.557	300.3	421.0	1.389	1.757
58	3671.3	3661.2	836.9	180.4	2.883	2.799	305.0	419.4	1.403	1.749
60	3834.1	3824.2	814.9	193.7	3.191	3.106	310.0	417.6	1.417	1.741
62	4002.1	3992.7	790.1	208.6	3.650	3.511	315.3	415.5	1.433	1.732
64	4175.7	4166.8	761.0	225.6	4.415	4.064	321.2	413.0	1.450	1.722

1.2 Refrigerant Cylinders

- Cylinder specifications
 - The cylinder is painted refrigerant color (pink).
 - The cylinder valve is equipped with a siphon tube.



Refrigerant can be charged in liquid state with cylinder in upright position.

Caution: Do not lay cylinder on its side during charging, since it cause refrigerant in gas state to enter the system.

■ Handling of cylinders

(1) Laws and regulations

R-410A is liquefied gas, and the High-Pressure Gas Safety Law must be observed in handling them. Before using, refer to the High-Pressure Gas Safety Law.

The Law stipulates standards and regulations that must be followed to prevent accidents with high-pressure gases. Be sure to follow the regulations.

(2) Handling of vessels

Since R-410A is high-pressure gas, it is contained in high-pressure vessels.

Although those vessels are durable and strong, careless handling can cause damage that can lead to unexpected accidents. Do not drop vessels, let them fall, apply impact or roll them on the ground.

(3) Storage

Although R-410A is not flammable, it must be stored in a well-ventilated, cool, and dark place in the same way as any other high-pressure gases.

It should also be noted that high-pressure vessels are equipped with safety devices that releases gas when the ambient temperature reaches more than a certain level (fusible plug melts) and when the pressure exceeds a certain level (spring-type safety valve operates).

1.3 Service Tools

R-410A is used under higher working pressure, compared to previous refrigerants (R-22, R-407C). Furthermore, the refrigerating machine oil has been changed from Suniso oil to Ether oil, and if oil mixing is occurred, sludge results in the refrigerants and causes other problems. Therefore, gauge manifolds and charge hoses that are used with a previous refrigerant (R-22, R-407C) can not be used for products that use new refrigerants.

Be sure to use dedicated tools and devices.

■ Tool compatibility

Tool	Compatibility			Reasons for change
	HFC		HCFC	
	R-410A	R-407C	R-22	
Gauge manifold Charge hose	×			<ul style="list-style-type: none"> Do not use the same tools for R-22 and R-410A. Thread specification differs for R-410A and R-407C.
Charging cylinder	×		○	<ul style="list-style-type: none"> Weighting instrument used for HFCs.
Gas detector	○		×	<ul style="list-style-type: none"> The same tool can be used for HFCs.
Vacuum pump (pump with reverse flow preventive function)	○			<ul style="list-style-type: none"> To use existing pump for HFCs, vacuum pump adaptor must be installed.
Weighting instrument	○			
Charge mouthpiece	×			<ul style="list-style-type: none"> Seal material is different between R-22 and HFCs. Thread specification is different between R-410A and others.
Flaring tool (Clutch type)	○			<ul style="list-style-type: none"> For R-410A, flare gauge is necessary.
Torque wrench	○			<ul style="list-style-type: none"> Torque-up for 1/2 and 5/8
Pipe cutter	○			
Pipe expander	○			
Pipe bender	○			
Pipe assembling oil	×			<ul style="list-style-type: none"> Due to refrigerating machine oil change. (No Suniso oil can be used.)
Refrigerant recovery device	Check your recovery device.			
Refrigerant piping	See the chart below.			<ul style="list-style-type: none"> Only $\phi 19.1$ is changed to 1/2H material while the previous material is "O".

As for the charge mouthpiece and packing, 1/2UNF20 is necessary for mouthpiece size of charge hose.

■ Copper tube material and thickness

Pipe size	Ve-up R-407C		Ve-upII R-410A	
	Material	Thickness t (mm)	Material	Thickness t (mm)
$\phi 6.4$	O	0.8	O	0.8
$\phi 9.5$	O	0.8	O	0.8
$\phi 12.7$	O	0.8	O	0.8
$\phi 15.9$	O	1.0	O	1.0
$\phi 19.1$	O	1.0	1/2H	1.0
$\phi 22.2$	1/2H	1.0	1/2H	1.0
$\phi 25.4$	1/2H	1.0	1/2H	1.0
$\phi 28.6$	1/2H	1.0	1/2H	1.0
$\phi 31.8$	1/2H	1.2	1/2H	1.1
$\phi 38.1$	1/2H	1.4	1/2H	1.4
$\phi 44.5$	1/2H	1.6	1/2H	1.6

* O: Soft (Annealed)
H: Hard (Drawn)

1. Flaring tool



■ Specifications

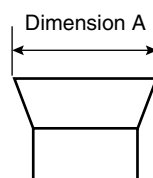
- Dimension A

Unit:mm

Nominal size	Tube O.D. Do	A ^{+0 -0.4}	
		Class-2 (R-410A)	Class-1 (Conventional)
1/4	6.35	9.1	9.0
3/8	9.52	13.2	13.0
1/2	12.70	16.6	16.2
5/8	15.88	19.7	19.4
3/4	19.05	24.0	23.3

■ Differences

- Change of dimension A



For class-1: R-407C
For class-2: R-410A

Conventional flaring tools can be used when the work process is changed.

(change of work process)

Previously, a pipe extension margin of 0 to 0.5mm was provided for flaring. For R-410A air conditioners, perform pipe flaring with a pipe extension margin of 1.0 to 1.5mm.

(For clutch type only)

Conventional tool with pipe extension margin adjustment can be used.

2. Torque wrench



■ Specifications

• Dimension B

Unit:mm

Nominal size	Class-1	Class-2	Previous
1/2	24	26	24
5/8	27	29	27

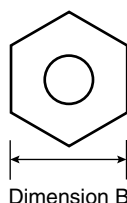
No change in tightening torque

No change in pipes of other sizes

■ Differences

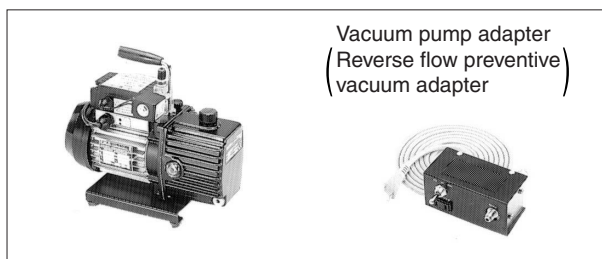
• Change of dimension B

Only 1/2", 5/8" are extended



For class-1: R-407C
For class-2: R-410A

3. Vacuum pump with check valve



■ Specifications

- Discharge speed
50 l/min (50Hz)
60 l/min (60Hz)
- Suction port UNF7/16-20(1/4 Flare)
UNF1/2-20(5/16 Flare) with adapter

● Maximum degree of vacuum

Select a vacuum pump which is able to keep the vacuum degree of the system in excess of -100.7 kPa (5 torr - 755 mmHg).

■ Differences

- Equipped with function to prevent reverse oil flow
- Previous vacuum pump can be used by installing adapter.

4. Leak tester



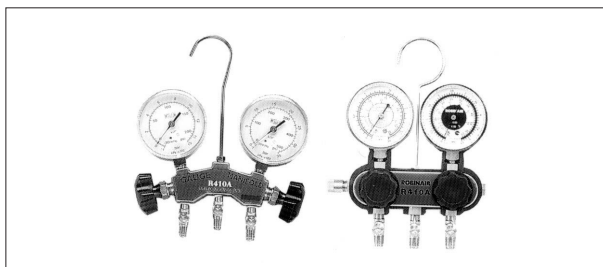
- Specifications
 - Hydrogen detecting type, etc.
 - Applicable refrigerants
R-410A, R-407C, R-404A, R-507A, R-134a, etc.
- Differences
 - Previous testers detected chlorine. Since HFCs do not contain chlorine, new tester detects hydrogen.

5. Refrigerant oil (Air compal)



- Specifications
 - Contains synthetic oil, therefore it can be used for piping work of every refrigerant cycle.
 - Offers high rust resistance and stability over long period of time.
- Differences
 - Can be used for R-410A and R-22 units.

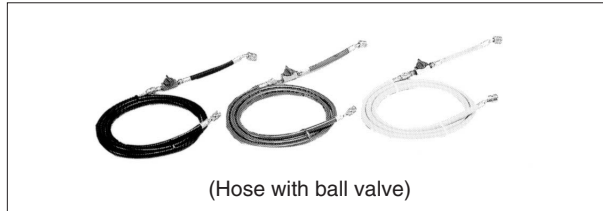
6. Gauge manifold for R-410A



- Specifications
 - High pressure gauge
- 0.1 to 5.3 MPa (-76 cmHg to 53 kg/cm²)
 - Low pressure gauge
- 0.1 to 3.8 MPa (-76 cmHg to 38 kg/cm²)
 - 1/4" → 5/16" (2min → 2.5min)
 - No oil is used in pressure test of gauges.
→ For prevention of contamination

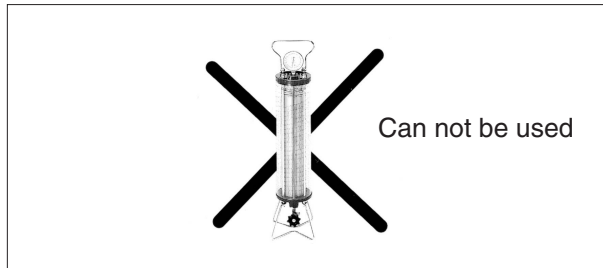
- Temperature scale indicates the relationship between pressure and temperature in gas saturated state.
- Differences
 - Change in pressure
 - Change in service port diameter

7. Charge hose for R-410A



- Specifications
 - Working pressure 5.08 MPa (51.8 kg/cm²)
 - Rupture pressure 25.4 MPa (259 kg/cm²)
 - Available with and without hand-operate valve that prevents refrigerant from outflow.
- Differences
 - Pressure proof hose
 - Change in service port diameter
 - Use of nylon coated material for HFC resistance

8. Charging cylinder



- Specifications
 - Use weigher for refrigerant charge listed below to charge directly from refrigerant cylinder.
- Differences
 - The cylinder can not be used for mixed refrigerant since mixing ratio is changed during charging.

When R-410A is charged in liquid state using charging cylinder, foaming phenomenon is generated inside charging cylinder.

9. Weigher for refrigerant charge



- Specifications
 - High accuracy
 - TA101A (for 10-kg cylinder) = $\pm 2\text{g}$
 - TA101B (for 20-kg cylinder) = $\pm 5\text{g}$
 - Equipped with pressure-resistant sight glass to check liquid refrigerant charging.
 - A manifold with separate ports for HFCs and previous refrigerants is equipped as standard accessories.
- Differences
 - Measurement is based on weight to prevent change of mixing ratio during charging.

10. Charge mouthpiece



- Specifications
 - For R-410A, 1/4" → 5/16" (2min → 2.5min)
 - Material is changed from CR to H-NBR.
- Differences
 - Change of thread specification on hose connection side (For the R-410A use)
 - Change of sealer material for the HFCs use.

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2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.



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