SiBE37-704_B

Service Manual

VRV III ®

REYQ8-48P8Y1B
R-410A Heat Recovery 50Hz

VRV III R-410A Heat Recovery 50Hz

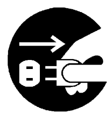
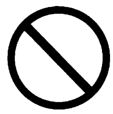
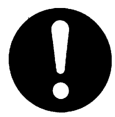
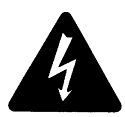
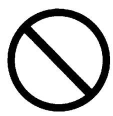
1. Introduction

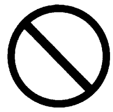
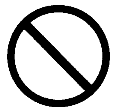
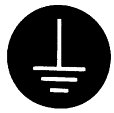
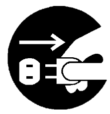
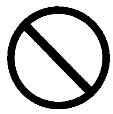
1.1 Safety Cautions

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 disposed 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 MΩ 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 2011 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.

January, 2011

After Sales Service Division

Part 1
General Information

1. Model Names of Indoor/Outdoor Units

Indoor Units

Type		Model Name													Power Supply
Roundflow Ceiling Mounted Cassette	FXFQ	20P8	25P8	32P8	40P8	50P8	63P8	—	80P8	100P8	125P8	—	—	—	VEB
600×600 4-Way Blow Ceiling Mounted Cassette	FXZQ	20M9	25M9	32M9	40M9	50M9	—	—	—	—	—	—	—	—	V1B
2-Way Blow Ceiling Mounted Cassette	FXCQ	20M8	25M8	32M8	40M8	50M8	63M8	—	80M8	—	125M8	—	—	—	V3B
Ceiling Mounted Corner Cassette	FXKQ	—	25MA	32MA	40MA	—	63MA	—	—	—	—	—	—	—	VE
Slim Concealed Ceiling Unit	FXDQ-PBVE	20PB	25PB	32PB	—	—	—	—	—	—	—	—	—	—	
	FXDQ-NBVE	—	—	—	40NB	50NB	63NB	—	—	—	—	—	—	—	
Concealed Ceiling Unit (Small)	FXDQ	20M9	25M9	—	—	—	—	—	—	—	—	—	—	—	V3B
Concealed Ceiling Unit	FXSQ	20P7	25P7	32P7	40P7	50P7	63P7	—	80P7	100P7	125P7	—	—	—	VEB
Concealed Ceiling Unit	FXMQ	20P	25P	32P	40P	50P	63P	—	80P	100P	125P	140P	—	—	VE
Concealed Ceiling Unit (Large)	FXMQ	—	—	—	—	—	—	—	—	—	—	—	200MA	250MA	
Ceiling Suspended Unit	FXHQ	—	—	32MA	—	—	63MA	—	—	100MA	—	—	—	—	
Wall Mounted Unit	FXAQ	20P	25P	32P	40P	50P	63P	—	—	—	—	—	—	—	V1
Floor Standing Unit	FXLQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	VE
Concealed Floor Standing Unit	FXNQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	
4-way blow ceiling suspended unit	FXUQ	—	—	—	—	—	—	71MA	—	100MA	125MA	—	—	—	V1

Connection Unit for FXUQ	BEVQ	—	—	—	—	—	—	71MA	—	100MA	125MA	—	—	—	VE

Note: FXDQ has following 2 Series, as show below.
FXDQ-P, NAVE: with Drain Pump
BEV unit is required for FXUQ only.
MA: RoHS Directive models; Specifications, Dimensions and other functions are not changed compared with M type.

BS Units

Type	Model Name			Power Supply
Heat Recovery Series	BSV	4Q100P	6Q100P	V1

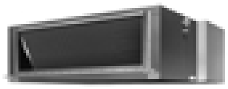
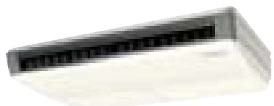
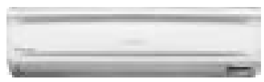
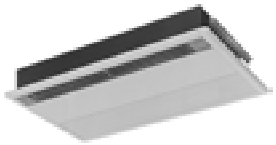
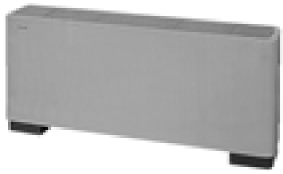
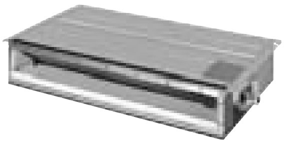
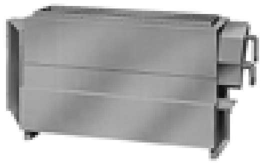
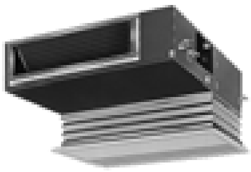
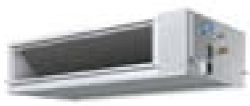
Outdoor Units
Normal Series

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

Power Supply:
VE : 1ϕ, 220~240V, 50Hz
V1 : 1ϕ, 220~240V, 50Hz
V3 : 1ϕ, 230V, 50Hz
Y1 : 3ϕ, 380~415V, 50Hz

2. External Appearance

2.1 Indoor Units

Roundflow Ceiling Mounted Cassette FXFQ20P FXFQ25P FXFQ32P FXFQ40P FXFQ50P FXFQ63P FXFQ80P FXFQ100P FXFQ125P 	Concealed Ceiling Unit (Large) FXMQ200MA FXMQ250MA 
600×600 4-Way Blow Ceiling Mounted Cassette FXZQ20M FXZQ25M FXZQ32M FXZQ40M FXZQ50M 	Ceiling Suspended Unit FXHQ32MA FXHQ63MA FXHQ100MA 
2-Way Blow Ceiling Mounted Cassette FXCQ20M FXCQ25M FXCQ32M FXCQ40M FXCQ50M FXCQ63M FXCQ80M FXCQ125M 	Wall Mounted Unit FXAQ20P FXAQ25P FXAQ32P FXAQ40P FXAQ50P FXAQ63P 
Ceiling Mounted Corner Cassette FXKQ25MA FXKQ32MA FXKQ40MA FXKQ63MA 	Floor Standing Unit FXLQ20MA FXLQ25MA FXLQ32MA FXLQ40MA FXLQ50MA FXLQ63MA 
Slim Concealed Ceiling Unit FXDQ20PB FXDQ40NB FXDQ25PB FXDQ50NB FXDQ32PB FXDQ63NB with Drain Pump (VE) 	Concealed Floor Standing Unit FXNQ20MA FXNQ25MA FXNQ32MA FXNQ40MA FXNQ50MA FXNQ63MA 
Concealed Ceiling Unit (Small) FXDQ20M FXDQ25M 	BS Units BSV4Q100P BSV6Q100P 
Concealed Ceiling Unit FXSQ20P FXSQ25P FXSQ32P FXSQ40P FXSQ50P FXSQ63P FXSQ80P FXSQ100P FXSQ125P 	4-way blow ceiling suspended unit (Connection Unit Series) FXUQ71MA + BEVQ71MA FXUQ100MA + BEVQ100MA FXUQ125MA + BEVQ125MA Connection Unit 
Concealed Ceiling Unit FXMQ20P FXMQ25P FXMQ32P FXMQ40P FXMQ50P FXMQ63P FXMQ80P FXMQ100P FXMQ125P FXMQ140P 	

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

Normal Series

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
Roundflow Ceiling Mounted Cassette	FXFQ	20P8	25P8	32P8	40P8	50P8	63P8	—	80P8	100P8	125P8	—	—	—	VEB
600×600 4-Way Blow Ceiling Mounted Cassette	FXZQ	20M9	25M9	32M9	40M9	50M9	—	—	—	—	—	—	—	—	V1B
2-Way Blow Ceiling Mounted Cassette	FXCQ	20M8	25M8	32M8	40M8	50M8	63M8	—	80M8	—	125M8	—	—	—	V3B
Ceiling Mounted Corner Cassette	FXKQ	—	25MA	32MA	40MA	—	63MA	—	—	—	—	—	—	—	VE
Slim Concealed Ceiling Unit	FXDQ-PBVE	20PB	25PB	32PB	—	—	—	—	—	—	—	—	—	—	
	FXDQ-NBVE	—	—	—	40NB	50NB	63NB	—	—	—	—	—	—	—	
Concealed Ceiling Unit (Small)	FXDQ	20M9	25M9	—	—	—	—	—	—	—	—	—	—	—	V3B
Concealed Ceiling Unit	FXSQ	20P7	25P7	32P7	40P7	50P7	63P7	—	80P7	100P7	125P7	—	—	—	VEB
Concealed Ceiling Unit	FXMQ	20P	25P	32P	40P	50P	63P	—	80P	100P	125P	140P	—	—	VE
Concealed Ceiling Unit (Large)	FXMQ	—	—	—	—	—	—	—	—	—	—	—	200MA	250MA	
Ceiling Suspended Unit	FXHQ	—	—	32MA	—	—	63MA	—	—	100MA	—	—	—	—	
Wall Mounted Unit	FXAQ	20P	25P	32P	40P	50P	63P	—	—	—	—	—	—	—	V1
Floor Standing Unit	FXLQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	VE
Concealed Floor Standing Unit	FXNQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	—	—	—	—	
4-way blow ceiling suspended unit	FXUQ	—	—	—	—	—	—	71MA	—	100MA	125MA	—	—	—	V1
Connection Unit for FXUQ	BEVQ	—	—	—	—	—	—	71MA	—	100MA	125MA	—	—	—	VE

Note: FXDQ has following 2 Series, as shown below.
FXDQ-P, NAVE: with Drain Pump
BEV unit is required for FXUQ only.

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	P140 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	16.0 kW	22.4 kW	28.0 kW
Equivalent output	0.8HP	1HP	1.25HP	1.6HP	2.0HP	2.5HP	3.2HP	4HP	5HP	6HP	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

1. Specifications

1.1 Outdoor Units

Heat Recovery 50Hz <REYQ-P>

Model Name			REYQ8P8Y1B	REYQ10P8Y1B
★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
	Airflow Rate	l/s	3,166	3,166
		m³/min	190	190
	Drive		Direct Drive	Direct Drive
Connecting Pipes	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	331	331
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		%	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.			4D057563B	4D057564B

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.

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			REYQ12P8Y1B	REYQ14P8Y1B
★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	m^3/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
	Airflow Rate	l/s	3,500	3,916
		m^3/min	210	235
	Drive		Direct Drive	Direct Drive
Connecting Pipes	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, Overcurrent Relay, Inverter Overload Protector	High Pressure Switch, Fan Driver Overload Protector, Overcurrent 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.			4D057565B	4D057566B

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.

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

Model Name			REYQ16P8Y1B
★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	m^3/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
	Airflow Rate	l/s	4,000
		m^3/min	240
	Drive		Direct Drive
Connecting Pipes	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, Overcurrent 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.			4D057567B

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.

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

Model Name (Combination Unit)			REYQ18P8Y1B	REYQ20P8Y1B
Model Name (Independent Unit)			**REMQ8P8Y1B+REMQ10P8Y1B**	**REMQ8P8Y1B+REMQ12P8Y1B**
★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)
	Airflow Rate	l/s	3,000+3,083	3,000+3,333
		m³/min	180+185	180+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)	ϕ28.6 C1220T (Brazing connection)
	High and Low Pressure Gas Pipe		ϕ22.2 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	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, Clamps	Installation manual, Operation manual, Connection pipes, Clamps
Drawing No.			C: 4D057568A	C: 4D057569A

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.

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

Model Name (Combination Unit)			REYQ22P8Y1B	REYQ24P8Y1B
Model Name (Independent Unit)			REMQ10P8Y1B+REMQ12P8Y1B	REMQ12P8Y1B+REMQ12P8Y1B
★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	m^3/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
	Airflow Rate	l/s	3,083+3,333	3,333+3,333
		m^3/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, Clamps	Installation manual, Operation manual, Connection pipes, Clamps
Drawing No.			C: 4D057570A	C: 4D057571A

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.

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

Model Name (Combination Unit)			REYQ26P8Y1B	REYQ28P8Y1B
Model Name (Independent Unit)			**REMQ10P8Y1B+REMQ16P8Y1B**	**REMQ12P8Y1B+REMQ16P8Y1B**
★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)
	Airflow Rate	l/s	3,083+3,833	3,333+3,833
		m³/min	185+230	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)	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+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, Clamps	Installation manual, Operation manual, Connection pipes, Clamps
Drawing No.			C: 4D057572A	C: 4D057808A

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.

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

Model Name (Combination Unit)			REYQ30P8Y1B	REYQ32P8Y1B
Model Name (Independent Unit)			REMQ14P8Y1B+REMQ16P8Y1B	REMQ16P8Y1B+REMQ16P8Y1B
★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
	Airflow Rate	l/s	3,833+3,833	3,833+3,833
		m³/min	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		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)
	Pressure Equalizer Tube		ϕ19.1 C1220T (Brazing connection)	ϕ19.1 C1220T (Brazing connection)
Mass (Weight)		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, Clamps	Installation manual, Operation manual, Connection pipes, Clamps
Drawing No.			C: 4D057809A	C: 4D057810A

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.

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

Model Name (Combination Unit)			REYQ34P8Y1B	REYQ36P8Y1B
Model Name (Independent Unit)			REMQ8P8Y1B+REMQ10P8Y1B+REMQ16P8Y1B	REMQ8P8Y1B+REMQ12P8Y1B+REMQ16P8Y1B
★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)
	Airflow 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, Clamps	Installation manual, Operation manual, Connection pipes, Clamps
Drawing No.			C: 4D057811A	C: 4D057812A

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.

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

Model Name (Combination Unit)			REYQ38P8Y1B	REYQ40P8Y1B
Model Name (Independent Unit)			REMQ10P8Y1B+REMQ12P8Y1B+REMQ16P8Y1B	REMQ12P8Y1B+REMQ12P8Y1B+REMQ16P8Y1B
★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)
	Airflow 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, Clamps	Installation manual, Operation manual, Connection pipes, Clamps
Drawing No.			C: 4D057813A	C: 4D057814A

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.

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

Model Name (Combination Unit)			REYQ42P8Y1B	REYQ44P8Y1B
Model Name (Independent Unit)			**REMQ10P8Y1B+REMQ16P8Y1B+REMQ16P8Y1B**	**REMQ12P8Y1B+REMQ16P8Y1B+REMQ16P8Y1B**
★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	m^3/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
	Airflow Rate	l/s	3,083+3,833+3,833	3,333+3,833+3,833
		m^3/min	185+230+230	200+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	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, Clamps	Installation manual, Operation manual, Connection pipes, Clamps
Drawing No.			C: 4D057815A	C: 4D057816A

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.

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

Model Name (Combination Unit)			REYQ46P8Y1B	REYQ48P8Y1B
Model Name (Independent Unit)			**REMQ14P8Y1B+REMQ16P8Y1B+REMQ16P8Y1B**	**REMQ16P8Y1B+REMQ16P8Y1B+REMQ16P8Y1B**
★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
	Airflow 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, Clamps	Installation manual, Operation manual, Connection pipes, Clamps
Drawing No.			C: 4D057817A	C: 4D057818A

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.

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

1.2 Indoor Units

Roundflow Ceiling Mounted Cassette

1-1 TECHNICAL SPECIFICATIONS				FXFQ20P8VEB	FXFQ25P8VEB	FXFQ32P8VEB	FXFQ40P8VEB	FXFQ50P8VEB
Capacity	Cooling		kW	2.2	2.8	3.6	4.5	5.6
	Heating		kW	2.5	3.2	4.0	5.0	6.3
Power Input (50Hz)	Cooling		kW	0.053	0.053	0.053	0.063	0.083
	Heating		kW	0.045	0.045	0.045	0.055	0.067
Power Input (60Hz)	Cooling		kW	0.052	0.052	0.052	0.062	0.082
	Heating		kW	0.045	0.045	0.045	0.055	0.067
Casing	Material			Galvanised steel				
Dimensions	Packing	Height	mm	220				
		Width	mm	882				
		Depth	mm	882				
	Unit	Height	mm	204				
		Width	mm	840				
		Depth	mm	840				
Weight	Unit		kg	20	20	20	20	21
	Packed Unit		kg	24	24	24	24	26
Dimensions	Length	Inside	mm	2,096				
		Outside	mm	2,152				
Heat Exchanger	Dimensions	Nr of Rows		2				
		Fin Pitch	mm	1.2				
		Nr of Passes		2	2	3	3	7
		Face Area	m²	0.267	0.267	0.267	0.267	0.357
		Nr of Stages		6	6	6	6	8
		Empty Tube Plate Hole		4	4			
	Fin	Fin type		Cross fin coil (Multi louver fins and Hi-XSS tubes)				
Fan	Type			Turbo fan				
	Quantity			1				
Airflow Rate	Cooling	High	m³/min	12.5	12.5	12.5	13.5	15.5
		Low	m³/min	9.0	9.0	9.0	9.0	10.0
	Heating	High	m³/min	12.5	12.5	12.5	13.5	15.0
		Low	m³/min	9.0	9.0	9.0	9.0	9.5
Fan	Motor	Model		QTS48D11M				
		Steps		2				
		Output (high)	W	56				
Refrigerant	Name			R-410A				
Sound level	Cooling	Sound power (nominal)	dBA	49	49	49	50	51
Cooling	Sound Pressure	High	dBA	31	31	31	32	33
		Low	dBA	28				
Heating	Sound Pressure	High	dBA	31	31	31	32	33
		Low	dBA	28				
Piping connections	Liquid (OD)	Type		Flare connection				
		Diameter	mm	6.4				
	Gas	Type		Flare connection				
		Diameter	mm	12.7				
	Drain	Diameter	mm	VP25 (I.D. 25/O.D. 32)				
	Heat Insulation			Foamed polystyrene/foamed polyethylene				
	Sound absorbing insulation			(Foamed Polyurethane)				
Decoration Panel	Model			BYCQ140CW1 / BYCQ140CW1W				
	Colour			RAL9010				
	Dimensions	Height	mm	50				
		Width	mm	950				
		Depth	mm	950				
	Weight		kg	5.5				
Air Filter				Resin net with mold resistance				

Roundflow Ceiling Mounted Cassette

1-1 TECHNICAL SPECIFICATIONS	FXFQ20P8VEB	FXFQ25P8VEB	FXFQ32P8VEB	FXFQ40P8VEB	FXFQ50P8VEB
Standard Accessories	Installation and operation manual				
	Drain hose				
	Washer for hanging bracket				
	Screws				
	Sealing pads				
	Insulation for fitting				
	Clamp for drain hose				
	Installation guide				
	Drain sealing pad				
Notes	The sound pressure values are mentioned for a unit installed with rear suction				
	The sound power level is an absolute value indicating the power which a sound source generates.				
	Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 5m, level difference : 0m.				
	Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 5m, level difference : 0m.				
	Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.				
	The BYCQ140CW1W has white insulations. Be informed that formation of dirt on white insulations is visibly stronger and that it is consequently not advised to install the BYCQ140W1W decoration panel in environments exposed to concentrations of dirt.				

Roundflow Ceiling Mounted Cassette

1-1 TECHNICAL SPECIFICATIONS				FXFQ63P8VEB	FXFQ80P8VEB	FXFQ100P8VEB	FXFQ125P8VEB
Capacity	Cooling		kW	7.1	9.0	11.2	14.0
	Heating		kW	8.0	10.0	12.5	16.0
Power Input (50Hz)	Cooling		kW	0.095	0.120	0.173	0.258
	Heating		kW	0.114	0.108	0.176	0.246
Power Input (60Hz)	Cooling		kW	0.094	0.119	0.172	0.257
	Heating		kW	0.114	0.108	0.176	0.246
Casing	Material			Galvanised steel			
Dimensions	Packing	Height	mm	220	262	262	304
		Width	mm	882			
		Depth	mm	882			
	Unit	Height	mm	204	246	246	288
		Width	mm	840			
		Depth	mm	840			
Weight	Unit		kg	21	24	24	26
	Packed Unit		kg	26	28	28	31
Dimensions	Length	Inside	mm	2,096			
		Outside	mm	2,152			
Heat Exchanger	Dimensions	Nr of Rows		2			
		Fin Pitch	mm	1.2			
		Nr of Passes		7	9	9	11
		Face Area	m²	0.357	0.446	0.446	0.535
		Nr of Stages		8	10	10	12
	Fin	Fin type		Cross fin coil (Multi louver fins and Hi-XSS tubes)			
Fan	Type			Turbo fan			
	Quantity			1			
Airflow Rate	Cooling	High	m³/min	16.5	23.5	26.5	33.0
		Low	m³/min	11.0	14.5	17.0	20.0
	Heating	High	m³/min	17.5	23.5	28.0	33.0
		Low	m³/min	12.0	14.5	17.5	20.0
Fan	Motor	Model		QTS48D11M	QTS48C15M	QTS48C15M	QTS48C15M
		Steps		2			
		Output (high)	W	56	120	120	120
Refrigerant	Name			R-410A			
Sound level	Cooling	Sound power (nominal)	dBA	52	55	58	61
Cooling	Sound Pressure	High	dBA	34	38	41	44
		Low	dBA	29	32	33	34
Heating	Sound Pressure	High	dBA	36	38	42	44
		Low	dBA	30	32	34	34
Piping connections	Liquid (OD)	Type		Flare connection			
		Diameter	mm	9.52			
	Gas	Type		Flare connection			
		Diameter	mm	15.9			
	Drain	Diameter	mm	VP25 (I.D. 25/O.D. 32)			
	Heat Insulation			Foamed polystyrene/foamed polyethylene			
	Sound absorbing insulation			(Foamed Polyurethane)			
Decoration Panel	Model			BYCQ140CW1 / BYCQ140CW1W			
	Colour			RAL9010			
	Dimensions	Height	mm	50			
		Width	mm	950			
		Depth	mm	950			
	Weight		kg	5.5			
Air Filter				Resin net with mold resistance			

1-1 TECHNICAL SPECIFICATIONS	FXFQ63P8VEB	FXFQ80P8VEB	FXFQ100P8VEB	FXFQ125P8VEB
Standard Accessories	Installation and operation manual			
	Drain hose			
	Washer for hanging bracket			
	Screws			
	Sealing pads			
	Insulation for fitting			
	Clamp for drain hose			
	Installation guide			
	Drain sealing pad			
Notes	The sound pressure values are mentioned for a unit installed with rear suction			
	The sound power level is an absolute value indicating the power which a sound source generates.			
	Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 5m, level difference : 0m.			
	Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 5m, level difference : 0m.			
	Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.			
	The BYCQ140CW1W has white insulations. Be informed that formation of dirt on white insulations is visibly stronger and that it is consequently not advised to install the BYCQ140W1W decoration panel in environments exposed to concentrations of dirt.			

1-2 ELECTRICAL SPECIFICATIONS			FXFQ20P8VEB	FXFQ25P8VEB	FXFQ32P8VEB	FXFQ40P8VEB	FXFQ50P8VEB
Power Supply	Name		VE				
	Frequency	Hz	50				
	Voltage	V	220-240				
Current	Minimum circuit amps (MCA)	A	0.4	0.4	0.4	0.5	0.6
	Maximum fuse amps (MFA)	A	16				
	Full load amps (FLA)	A	0.3	0.3	0.3	0.4	0.5
Voltage range	Minimum	V	-10%				
	Maximum	V	+10%				
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.				
			Maximum allowable voltage range variation between phases is 2%.				
			MCA/MFA : MCA = 1.25 × FLA				
			MFA is smaller than or equal to 4 × FLA				
			Next lower standard fuse rating minimum 16A				
			Select wire size based on the MCA				
			Instead of a fuse, use a circuit breaker				

1-1 ELECTRICAL SPECIFICATIONS			FXFQ63P8VEB	FXFQ80P8VEB	FXFQ100P8VEB	FXFQ125P8VEB
Power Supply	Name		VE			
	Frequency	Hz	50			
	Voltage	V	220-240			
Current	Minimum circuit amps (MCA)	A	0.9	0.9	1.4	1.9
	Maximum fuse amps (MFA)	A	16			
	Full load amps (FLA)	A	0.7	0.7	1.1	1.5
Voltage range	Minimum	V	-10%			
	Maximum	V	+10%			
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.			
			Maximum allowable voltage range variation between phases is 2%.			
			MCA/MFA : MCA = 1.25 × FLA			
			MFA is smaller than or equal to 4 × FLA			
			Next lower standard fuse rating minimum 16A			
			Select wire size based on the MCA			
			Instead of a fuse, use a circuit breaker			

600×600 4-Way Blow Ceiling Mounted Cassette

1-1 TECHNICAL SPECIFICATIONS				FXZQ20M9V1B	FXZQ25M9V1B	FXZQ32M9V1B	FXZQ40M9V1B	FXZQ50M9V1B
Capacity	Cooling		kW	2.2	2.8	3.6	4.5	5.6
	Heating		kW	2.5	3.2	4.0	5.0	6.3
Power Input (50Hz)	Cooling		kW	0.073	0.073	0.076	0.089	0.115
	Heating		kW	0.064	0.064	0.068	0.080	0.107
Casing	Material			Galvanised steel				
Dimensions	Unit	Height	mm	286				
		Width	mm	575				
		Depth	mm	575				
Weight	Unit		kg	18				
Heat Exchanger	Dimensions	Nr of Rows		2				
		Fin Pitch	mm	1.5				
		Face Area	m²	0.269				
		Nr of Stages		10				
Fan	Type			Turbo fan				
	Quantity			1				
Cooling	High	m³/min		9.0	9.0	9.5	11.0	14.0
	Low	m³/min		7.0	7.0	7.5	8.0	10.0
Fan	Motor	Quantity		1				
		Model		QTS32C15M				
		Output (high)	W	55				
		Drive		Direct drive				
Refrigerant	Name			R-410A				
Sound level	Cooling	Sound power (nominal)	dBA	47	47	49	53	58
Cooling	Sound Pressure	High	dBA	30	30	32	36	41
		Low	dBA	25	25	26	28	33
Piping connections	Liquid (OD)	Type		Flare connection				
		Diameter	mm	6.35				
	Gas	Type		Flare connection				
		Diameter	mm	12.7				
	Drain	Diameter	mm	26				
	Heat Insulation			Foamed polystyrene/foamed polyethylene				
Decoration Panel	Model			BYFQ60B7W1				
	Colour			White (Ral 9010)				
	Dimensions	Height	mm	55				
		Width	mm	700				
		Depth	mm	700				
	Weight		kg	2.7				
Air Filter				Resin net with mold resistance				
Refrigerant control				Electronic expansion valve				
Temperature control				Microprocessor thermostat for cooling and heating				
Safety devices				PCB fuse				
				Fan motor thermal protector				
Standard Accessories				Installation and operation manual				
				Paper pattern for installation				
				Drain hose				
				Clamp metal				
				Washer fixing plate				
				Sealing pads				
				Clamps				
				Screws				
				Washer for hanger bracket				
				Insulation for fitting				
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 7,5m (horizontal)				
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m (horizontal)				
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.				

1-2 ELECTRICAL SPECIFICATIONS				FXZQ20M9V1B	FXZQ25M9V1B	FXZQ32M9V1B	FXZQ40M9V1B	FXZQ50M9V1B
Power Supply	Name			V1				
	Phase			1~				
	Frequency		Hz	50				
	Voltage		V	220-240				
Current	Minimum circuit amps (MCA)		A	0.8	0.8	0.8	0.8	0.9
	Maximum fuse amps (MFA)		A	15				
	Full load amps (FLA)		A	0.6	0.6	0.6	0.6	0.7
Voltage range	Minimum		V	-10%				
	Maximum		V	+10%				
Notes				Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.				
				Maximum allowable voltage range variation between phases is 2%.				
				MCA/MFA : MCA = 1.25 x FLA				
				MFA is smaller than or equal to 4 x FLA				
				Next lower standard fuse rating minimum 15A				
				Select wire size based on the MCA				
				Instead of a fuse, use a circuit breaker				

2-Way Blow Ceiling Mounted Cassette

1-1 TECHNICAL SPECIFICATIONS				FXCQ20M8V3B	FXCQ25M8V3B	FXCQ32M8V3B	FXCQ40M8V3B	FXCQ50M8V3B
Nominal Capacity	Cooling		kW	2.20	2.80	3.60	4.50	5.60
	Heating		kW	2.50	3.20	4.00	5.00	6.30
Power input (Nominal)	Cooling		kW	0.077	0.092	0.092	0.130	0.130
	Heating		kW	0.044	0.059	0.059	0.097	0.097
Casing	Colour			Non painted				
	Material			Galvanised steel				
Dimensions	Packing	Height	mm	405	405	405	405	405
		Width	mm	1060	1060	1060	1280	1280
		Depth	mm	665	665	665	665	665
	Unit	Height	mm	305	305	305	305	305
		Width	mm	780	780	780	995	995
		Depth	mm	600	600	600	600	600
Weight	Unit		kg	26	26	26	31	32
	Packed Unit		kg	30	30	30	37	38
Required Ceiling Void			mm	350	350	350	350	350
Heat Exchanger	Dimensions	Length	mm	475 × 2	475 × 2	475 × 2	690 × 2	475 × 2
		Nr of Rows		2 × 2				
		Fin Pitch	mm	1.50	1.50	1.50	1.50	1.50
		Nr of Passes		3 × 2				
		Face Area	m²	0.1 × 2	0.1 × 2	0.1 × 2	0.145 × 2	0.145 × 2
		Nr of Stages		10 × 2				
		Empty Tube Plate Hole					6	
	Tube type			Hi-XSS (7)				
	Fin	Fin type		Symmetric waffle louvre				
		Treatment		Hydrophilic				
Fan	Type			Sirocco fan				
	Quantity			1	1	1	2	2
Airflow Rate	Cooling	High	m³/min	7.0	9.0	9.0	12.0	12.0
		Low	m³/min	5.0	6.5	6.5	9.0	9.0
	Heating	High	m³/min	7.0	9.0	9.0	12.0	12.0
		Low	m³/min	5.0	6.5	6.5	9.0	9.0
Fan	Motor	Quantity		1	1	1	1	1
		Steps		Phase cut control				
		Output (high)	W	10	15	15	20	20
		Drive		Direct drive				
Refrigerant	Name			R-410A				
Sound Level	Cooling	Sound power (nominal)	dBA	45.0	50.0	50.0	50.0	50.0
Cooling	Sound Pressure	High	dBA	33.0	35.0	35.0	35.5	35.5
		Low	dBA	28.0	29.0	29.0	30.5	30.5
Heating	Sound Pressure	High	dBA	33.0	35.0	35.0	35.5	35.5
		Low	dBA	28.0	29.0	29.0	30.5	30.5
Piping connections	Liquid (OD)	Type		Flare connection				
		Diameter	mm	6.35	6.35	6.35	6.35	6.35
	Gas	Type		Flare connection				
		Diameter	mm	12.7	12.7	12.7	12.7	12.7
	Drain	Diameter	mm	32	32	32	32	32
	Heat Insulation			Both liquid and gas pipes				
Decoration Panel	Model			BYBC32GJW1	BYBC32GJW1	BYBC32GJW1	BYBC50GJW1	BYBC50GJW1
	Colour			White (10Y9/0,5)				
	Dimensions	Height	mm	53	53	53	53	53
		Width	mm	1030	1030	1030	1245	1245
		Depth	mm	680	680	680	680	680
	Weight		kg	8.0	8.0	8.0	8.5	8.5
Drain-up Height			mm	600	600	600	600	600

2-Way Blow Ceiling Mounted Cassette

1-1 TECHNICAL SPECIFICATIONS		FXCQ20M8V3B	FXCQ25M8V3B	FXCQ32M8V3B	FXCQ40M8V3B	FXCQ50M8V3B
Air Filter		Resin net with mold resistance				
Air direction control		Up and downwards				
Refrigerant control		Electronic expansion valve				
Temperature control		Microprocessor thermostat for cooling and heating				
Safety devices		PCB fuse				
		Fan motor thermal fuse				
		Drain pump fuse				
Standard Accessories	Standard Accessories	Screws for fixing the paper pattern for installation				
	Quantity	4	4	4	4	4
	Standard Accessories	Washer for hanging bracket				
	Quantity	8	8	8	8	8
	Standard Accessories	Clamps				
	Quantity	1	1	1	1	1
	Standard Accessories	Installation and operation manual				
	Quantity	1	1	1	1	1
	Standard Accessories	Paper pattern for installation				
	Quantity	1	1	1	1	1
	Standard Accessories	Insulation for fitting				
	Quantity	2	2	2	2	2
	Standard Accessories	Drain hose				
	Quantity	1	1	1	1	1
Notes		Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 8m, level difference : 0m.				
		Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 8m, level difference : 0m.				
		Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.				

1-1 TECHNICAL SPECIFICATIONS				FXCQ63M8V3B	FXCQ80M8V3B	FXCQ125M8V3B
Nominal Capacity	Cooling		kW	7.10	9.00	14.00
	Heating		kW	8.00	10.00	16.00
Power input (Nominal)	Cooling		kW	0.161	0.209	0.256
	Heating		kW	0.126	0.176	0.223
Casing	Colour			Non painted		
	Material			Galvanised steel		
Dimensions	Packing	Height	mm	405	405	405
		Width	mm	1460	1808	1808
		Depth	mm	665	645	645
	Unit	Height	mm	305	305	305
		Width	mm	1180	1670	1670
		Depth	mm	600	600	600
Weight	Unit		kg	35	47	48
	Packed Unit		kg	42	55	56
Required Ceiling Void			mm	350	350	350
Heat Exchanger	Dimensions	Length	mm	875 × 2	1365	1365
		Nr of Rows		2 × 2		
		Fin Pitch	mm	1.50	1.50	1.50
		Nr of Passes		6 × 2	5 × 2	6
		Face Area	m²	0.184 × 2	0.287 × 2	0.287 × 2
		Nr of Stages		10 × 2		
		Empty Tube Plate Hole			8	
	Tube type			Hi-XSS (7)		
	Fin	Fin type		Symmetric waffle louvre		
		Treatment		Hydrophilic		
Fan	Type			Sirocco fan		
	Quantity			2	3	3
Airflow Rate	Cooling	High	m³/min	16.5	26.0	33.0
		Low	m³/min	13.0	21.0	25.0
	Heating	High	m³/min	16.5	26.0	33.0
		Low	m³/min	13.0	21.0	25.0
Fan	Motor	Quantity		1	1	1
		Steps		Phase cut control		
		Output (high)	W	30	50	85
		Drive		Direct drive		
Refrigerant	Name			R-410A		
Sound Level	Cooling	Sound power (nominal)	dBA	52.0	54.0	60.0
Cooling	Sound Pressure	High	dBA	38.0	40.0	45.0
		Low	dBA	33.0	35.0	39.0
Heating	Sound Pressure	High	dBA	38.0	40.0	45.0
		Low	dBA	33.0	35.0	39.0
Piping connections	Liquid (OD)	Type		Flare connection		
		Diameter	mm	9.5	9.5	9.5
	Gas	Type		Flare connection		
		Diameter	mm	15.9	15.9	15.9
	Drain	Diameter	mm	32	32	32
	Heat Insulation			Both liquid and gas pipes		
Decoration Panel	Model			BYBC63GJW1	BYBC125GJW1	BYBC125GJW1
	Colour			White (10Y9/0,5)		
	Dimensions	Height	mm	53	53	53
		Width	mm	1430	1920	1920
		Depth	mm	680	680	680
	Weight		kg	9.5	12.0	12.0
Drain-up Height			mm	600	600	600

1-1 TECHNICAL SPECIFICATIONS		FXCQ63M8V3B	FXCQ80M8V3B	FXCQ125M8V3B
Air Filter		Resin net with mold resistance		
Air direction control		Up and downwards		
Refrigerant control		Electronic expansion valve		
Temperature control		Microprocessor thermostat for cooling and heating		
Safety devices		PCB fuse		
		Fan motor thermal fuse	Fan motor thermal protector	Fan motor thermal protector
		Drain pump fuse		
Standard Accessories	Standard Accessories	Screws for fixing the paper pattern for installation		
	Quantity	4	4	4
	Standard Accessories	Washer for hanging bracket		
	Quantity	8	8	8
	Standard Accessories	Clamps		
	Quantity	1	1	1
	Standard Accessories	Installation and operation manual		
	Quantity	1	1	1
	Standard Accessories	Paper pattern for installation		
	Quantity	1	1	1
	Standard Accessories	Insulation for fitting		
	Quantity	2	2	2
	Standard Accessories	Drain hose		
	Quantity	1	1	1
Notes		Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 8m, level difference : 0m.		
		Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 8m, level difference : 0m.		
		Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.		

1-2 ELECTRICAL SPECIFICATIONS			FXCQ20M8V3B	FXCQ25M8V3B	FXCQ32M8V3B	FXCQ40M8V3B	FXCQ50M8V3B
Power Supply	Name		V3				
	Phase		1	1	1	1	1
	Frequency	Hz	50	50	50	50	50
	Voltage	V	230	230	230	230	230
Current	Minimum circuit amps (MCA)	A	0.50	0.50	0.50	0.80	0.80
	Maximum fuse amps (MFA)	A	16.00	16.00	16.00	16.00	16.00
	Full load amps (FLA)	A	0.40	0.40	0.40	0.60	0.60
Voltage range	Minimum	V	-10%				
	Maximum	V	+10%				
Power Supply Intake			Both indoor and outdoor unit				
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.				
			Maximum allowable voltage range variation between phases is 2%.				
			MCA/MFA : MCA = 1.25 × FLA				
			MFA<= 4 × FLA				
			select wire size based on the MCA				
			instead of a fuse, use a circuit breaker				
			For more details concerning conditional connections, see http://extranet.daikineurope.com, select "E-Data Books". Finally, click on the document title of your choice.				

1-2 ELECTRICAL SPECIFICATIONS			FXCQ63M8V3B	FXCQ80M8V3B	FXCQ125M8V3B
Power Supply	Name		V3		
	Phase		1	1	1
	Frequency	Hz	50	50	50
	Voltage	V	230	230	230
Current	Minimum circuit amps (MCA)	A	0.90	1.10	1.30
	Maximum fuse amps (MFA)	A	16.00	16.00	16.00
	Full load amps (FLA)	A	0.70	0.90	1.00
Voltage range	Minimum	V	-10%		
	Maximum	V	+10%		
Power Supply Intake			Both indoor and outdoor unit		
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.		
			Maximum allowable voltage range variation between phases is 2%.		
			MCA/MFA : MCA = 1.25 × FLA		
			MFA<= 4 × FLA		
			select wire size based on the MCA		
			instead of a fuse, use a circuit breaker		
			For more details concerning conditional connections, see http://extranet.daikineurope.com, select "E-Data Books". Finally, click on the document title of your choice.		

Ceiling Mounted Corner Cassette

1-1 TECHNICAL SPECIFICATIONS				FXKQ25MAVE	FXKQ32MAVE	FXKQ40MAVE	FXKQ63MAVE
Nominal Capacity	Cooling		kW	2.80	3.60	4.50	7.10
	Heating		kW	3.20	4.00	5.00	8.00
Power input (50Hz)	Cooling		kW	0.066	0.066	0.076	0.105
	Heating		kW	0.046	0.046	0.056	0.085
Power input (60Hz)	Cooling		kW	0.069	0.069	0.092	0.120
	Heating		kW	0.049	0.049	0.072	0.100
Casing	Material			Galvanised steel			
Dimensions	Unit	Height	mm	215			
		Width	mm	1110	1110	1110	1310
		Depth	mm	710			
Weight	Unit		kg	31	31	31	34
Heat Exchanger	Dimensions	Nr of Rows		2	2	2	3
		Fin Pitch	mm	1.75			
		Face Area	m²	0.180	0.180	0.180	0.226
		Nr of Stages		11			
Fan	Type			Sirocco fan			
	Quantity			1			
Airflow Rate	Cooling	High	m³/min	11.00	11.00	13.00	18.00
		Low	m³/min	9.00	9.00	10.00	15.00
Fan	Motor	Quantity		1			
		Model		3D12H1AN1V1	3D12H1AN1V1	3D12H1AP1V1	4D12H1AJ1V1
		Output (high)	W	15	15	20	45
		Drive		Direct drive			
Refrigerant	Name			R-410A			
Cooling	Sound Pressure	High	dBA	38.0	38.0	40.0	42.0
		Low	dBA	33.0	33.0	34.0	37.0
Piping connections	Liquid (OD)	Type		Flare connection			
		Diameter	mm	6.4	6.4	6.4	9.5
	Gas	Type		Flare connection			
		Diameter	mm	12.7	12.7	12.7	15.9
	Drain	Diameter	mm	32			
	Heat Insulation			Foamed Polyethylene			
Decoration Panel	Model			BYK45FJW1	BYK45FJW1	BYK45FJW1	BYK71FJW1
	Colour			White			
	Dimensions	Height	mm	70			
		Width	mm	1240	1240	1240	1440
		Depth	mm	800			
	Weight		kg	8.5	8.5	8.5	9.5
Air Filter				Resin net with mold resistance			
Refrigerant control				Electronic expansion valve			
Temperature control				Microprocessor thermostat for cooling and heating			
Safety devices				PCB fuse			
				Drain pump fuse			
				Fan motor thermal			
Standard Accessories	Standard Accessories			Installation and operation manual			
				Metal clamp for drain hose			
				Clamps			
				Insulation for hangar bracket			
				Positioning Jig for Installation			
				Paper pattern for installation			
				Drain hose			
				Insulation for fitting			
				Sealing Pads			
				Screws			
				Washer			
				Air Outlet blocking pad			
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 7,5m (horizontal)			
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m (horizontal)			
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.			
				Sound pressure levels are measured at 220V			

1-2 ELECTRICAL SPECIFICATIONS			FXKQ25MAVE	FXKQ32MAVE	FXKQ40MAVE	FXKQ63MAVE
Power Supply	Name		VE			
	Phase		1			
	Frequency	Hz	50			
	Voltage	V	220-240			
Current	Minimum circuit amps (MCA)	A	0.30	0.30	0.30	0.50
	Maximum fuse amps (MFA)	A	15.00			
	Full load amps (FLA)	A	0.20	0.20	0.20	0.40
Voltage range	Minimum	V	-10%			
	Maximum	V	+10%			
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.			
			Maximum allowable voltage range variation between phases is 2%.			
			MCA/MFA : MCA = 1.25 × FLA			
			MFA<= 4 × FLA			
			next lower standard fuse rating minimum 15A			
			select wire size based on the MCA			
			instead of a fuse, use a circuit breaker			
			For more details concerning conditional connections, see http://extranet.daikineurope.com, select "E-Data Books". Finally, click on the document title of your choice.			

Slim Concealed Ceiling Unit (with Drain Pump)

1-1 TECHNICAL SPECIFICATIONS				FXDQ20PBVE	FXDQ25PBVE	FXDQ32PBVE
Capacity	Cooling		kW	2.2	2.8	3.6
	Heating		kW	2.5	3.2	4.0
Power Input (50Hz)	Cooling		kW	0.086	0.086	0.089
	Heating		kW	0.067	0.067	0.070
Power Input (60Hz)	Cooling		kW	0.092	0.092	0.095
	Heating		kW	0.073	0.073	0.076
Casing	Material			Galvanised steel plate		
Dimensions	Unit	Height	mm	200		
		Width	mm	700		
		Depth	mm	620		
Weight	Unit		kg	23		
Heat Exchanger	Dimensions	Nr of Rows		2	2	3
		Fin Pitch	mm	1.5		
		Face Area	m²	0.126		
		Nr of Stages		12		
Fan	Type			Sirocco fan		
Airflow Rate	Cooling	High high	m³/min	8.0		
		High	m³/min	7.2		
		Low	m³/min	6.4		
Fan	External static pressure	High	Pa	30		
		Standard	Pa	10		
	Motor	Output (high)	W	62		
		Drive		Direct drive		
Cooling	Sound Pressure	High high	dBA	33		
		High	dBA	31		
		Low	dBA	29		
Piping connections	Liquid (OD)	Type		Flare connection		
		Diameter	mm	6.35		
	Gas	Type		Flare connection		
		Diameter	mm	12.7		
	Drain	Diameter	mm	VP20 (I.D. 20/O.D. 26)		
	Sound absorbing insulation			Foamed polyethylene		
Air Filter				Removable/washable/Mildew proof		
Refrigerant control				Electronic expansion valve		
Temperature control				Microprocessor thermostat for cooling and heating		
Safety devices				Fuse		
				Fan motor thermal protector		
Standard Accessories	Standard Accessories			Operation manual		
				Installation manual		
				Drain hose		
				Sealing pads		
				Clamps		
				Washer		
				Insulation for fitting		
				Clamp metal		
				Washer fixing plate		
				Screws for duct flanges		
				Air filter		
				Product Quality Certificate		
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 7.5m (horizontal)		
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m (horizontal)		
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.		
				External static pressure is changeable to set by the remote control; this pressure means : high static pressure - standard static pressure.		
				The operation sound levels are conversion values in anechoic chamber. In practice, sound levels tend to be higher than the specified values due to ambient noise or reflection. When the suction place is changed to bottom suction, sound level will increase		

Slim Concealed Ceiling Unit (with Drain Pump)

1-2 ELECTRICAL SPECIFICATIONS			FXDQ20PBVE	FXDQ25PBVE	FXDQ32PBVE
Power Supply	Name		VE		
	Phase		1~		
	Frequency	Hz	50		
	Voltage	V	220-240		
Current	Minimum circuit amps (MCA)	A	0.8		
	Maximum fuse amps (MFA)	A	15		
	Full load amps (FLA)	A	0.6		
Voltage range	Minimum	V	-10%		
	Maximum	V	+10%		
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.		
			Maximum allowable voltage range variation between phases is 2%.		
			MCA/MFA : MCA = 1.25 × FLA		
			MFA is smaller than or equal to 4 × FLA		
			Next lower standard fuse rating minimum 15A		
			Select wire size based on the MCA		
			Instead of a fuse, use a circuit breaker		

Slim Concealed Ceiling Unit (with Drain Pump)

1-1 TECHNICAL SPECIFICATIONS				FXDQ40NBVE	FXDQ50NBVE	FXDQ63NBVE
Capacity	Cooling		kW	4.5	5.6	7.1
	Heating		kW	5.0	6.3	8.0
Power Input (50Hz)	Cooling		kW	0.160	0.165	0.181
	Heating		kW	0.147	0.152	0.168
Power Input (60Hz)	Cooling		kW	0.182	0.185	0.192
	Heating		kW	0.168	0.170	0.179
Casing	Material			Galvanised steel plate		
Dimensions	Unit	Height	mm	200	200	200
		Width	mm	900	900	1,100
		Depth	mm	620	620	620
Weight	Unit		kg	27	28	31
Heat Exchanger	Dimensions	Nr of Rows		3	3	3
		Fin Pitch	mm	1.5	1.5	1.5
		Face Area	m²	0.176	0.176	0.227
		Nr of Stages		12	12	12
Fan	Type			Sirocco fan		
Airflow Rate	Cooling	High high	m³/min	10.5	12.5	16.5
		High	m³/min	9.5	11.0	14.5
		Low	m³/min	8.5	10.0	13.0
Fan	External static pressure	High	Pa	44	44	44
		Standard	Pa	15	15	15
	Motor	Output (high)	W	62	130	130
		Drive		Direct drive		
Cooling	Sound Pressure	High high	dBA	34	35	36
		High	dBA	32	33	34
		Low	dBA	30	31	32
Piping connections	Liquid (OD)	Type		Flare connection		
		Diameter	mm	6.35	6.35	9.52
	Gas	Type		Flare connection		
		Diameter	mm	12.7	12.7	15.9
	Drain (OD)	Diameter	mm	VP20 (I.D. 20/O.D. 26)		
	Sound absorbing insulation			Foamed polyethylene		
Air Filter				Removable/washable/Mildew proof		
Refrigerant control				Electronic expansion valve		
Temperature control				Microprocessor thermostat for cooling and heating		
Safety devices				Fuse		
				Fan motor thermal protector		
Standard Accessories	Standard Accessories			Operation manual		
				Installation manual		
				Drain hose		
				Sealing pads		
				Clamps		
				Washer		
				Insulation for fitting		
				Clamp metal		
				Washer fixing plate		
				Screws for duct flanges		
				Air filter		
				Product Quality Certificate		
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 7,5m (horizontal)		
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m (horizontal)		
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.		
				External static pressure is changeable to set by the remote control; this pressure means : high static pressure - standard static pressure.		
				The operation sound levels are conversion values in anechoic chamber. In practice, sound levels tend to be higher than the specified values due to ambient noise or reflection. When the suction place is changed to bottom suction, sound level will increase		

1-2 ELECTRICAL SPECIFICATIONS			FXDQ40NBVE	FXDQ50NBVE	FXDQ63NBVE
Power Supply	Name		VE		
	Phase		1~		
	Frequency	Hz	50	50	50
	Voltage	V	220-240		
Current	Minimum circuit amps (MCA)	A	1.0	1.0	1.1
	Maximum fuse amps (MFA)	A	15	15	15
	Full load amps (FLA)	A	0.8	0.8	0.9
Voltage range	Minimum	V	-10%		
	Maximum	V	+10%		
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.		
			Maximum allowable voltage range variation between phases is 2%.		
			MCA/MFA : MCA = 1.25 × FLA		
			MFA is smaller than or equal to 4 × FLA		
			Next lower standard fuse rating minimum 15A		
			Select wire size based on the MCA		
			Instead of a fuse, use a circuit breaker		

Concealed Ceiling Unit (Small)

1-1 TECHNICAL SPECIFICATIONS				FXDQ20M9V3B	FXDQ25M9V3B
Capacity	Cooling		kW	2.2	2.8
	Heating		kW	2.5	3.2
Power Input (50Hz)	Cooling		kW	0.050	
	Heating		kW	0.050	
Casing	Colour			Non painted	
	Material			Galvanised steel	
Dimensions	Packing	Height	mm	301	
		Width	mm	584	
		Depth	mm	753	
	Unit	Height	mm	230	
		Width	mm	502	
		Depth	mm	652	
Weight	Unit		kg	17	
	Packed Unit		kg	18	
Required Ceiling Void			mm	>250	
Heat Exchanger	Dimensions	Length	mm	430	
		Nr of Rows		2	
		Fin Pitch	mm	1.4	
		Nr of Passes		2	
		Face Area	m²	0.108	
		Nr of Stages		12	
		Empty Tube Plate Hole		4	
	Tube type			Hi-XSS (7)	
	Fin	Fin type		Symmetric waffle louvre	
		Treatment		Hydrophilic	
Fan	Type			Sirocco fan	
	Quantity			1	
Cooling	High	m³/min		6.7	7.4
	Low	m³/min		5.2	5.8
Heating	High	m³/min		6.7	7.4
	Low	m³/min		5.2	5.8
Fan	Motor	Quantity		1	
		Steps		step motor	
		Output (high)	W	10	
		Drive		Direct drive	
Refrigerant	Name			R-410A	
Sound level	Cooling	Sound power (nominal)	dBA	50	
Cooling	Sound Pressure	High	dBA	37	
		Low	dBA	32	
Heating	Sound Pressure	High	dBA	37	
		Low	dBA	32	
Piping connections	Liquid (OD)	Type		Flare connection	
		Diameter	mm	6.35	
	Gas	Type		Flare connection	
		Diameter	mm	12.7	
	Drain	Diameter	mm	I.D. 21.6, O.D. 27.2	
Air Filter				Resin net with mold resistance	
Air direction control				Up and downwards	
Refrigerant control				Electronic expansion valve	
Temperature control				Microprocessor thermostat for cooling and heating	
Safety devices				PCB fuse	
				Fan motor thermal protector	
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 8m, level difference : 0m.	
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 8m, level difference : 0m.	
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.	

1-2 ELECTRICAL SPECIFICATIONS			FXDQ20M9V3B	FXDQ25M9V3B
Power Supply	Name		V1	
	Phase		1~	
	Frequency	Hz	50	
	Voltage	V	230	
Current	Minimum circuit amps (MCA)	A	0.2	
	Maximum fuse amps (MFA)	A	16	
	Full load amps (FLA)	A	0.1	
Voltage range	Minimum	V	-10%	
	Maximum	V	+10%	
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.	
			Maximum allowable voltage range variation between phases is 2%.	
			MCA/MFA : MCA = 1.25 × FLA	
			MFA < 4 × FLA	
			Next lower standard fuse rating minimum 16A	
			Select wire size based on the MCA	
			Instead of a fuse, use a circuit breaker	

Concealed Ceiling Unit

1-1 TECHNICAL SPECIFICATIONS				FXSQ20P7VEB	FXSQ25P7VEB	FXSQ32P7VEB	FXSQ40P7VEB	FXSQ50P7VEB
Capacity	Cooling		kW	2.2	2.8	3.6	4.5	5.6
	Heating		kW	2.5	3.2	4.0	5.0	6.3
Power Input (50Hz)	Cooling		kW	0.073	0.073	0.079	0.192	0.192
	Heating		kW	0.061	0.061	0.067	0.180	0.180
Power Input (60Hz)	Cooling		kW	0.073	0.073	0.079	0.192	0.192
	Heating		kW	0.061	0.061	0.067	0.180	0.180
Casing	Colour			Non painted				
	Material			Galvanised steel				
Dimensions	Packing	Height	mm	355				
		Width	mm	770	770	770	920	920
		Depth	mm	900				
	Unit	Height	mm	300				
		Width	mm	550	550	550	700	700
		Depth	mm	700				
Weight	Unit		kg	23	23	23	26	26
	Packed Unit		kg	28	28	28	32	32
Required Ceiling Void			mm	>350				
Heat Exchanger	Dimensions	Length	mm	290	290	290	440	440
		Nr of Rows		3				
		Fin Pitch	mm	1.75				
		Nr of Passes		3	3	3	4	4
		Face Area	m²	0.097	0.097	0.097	0.148	0.148
		Nr of Stages		16				
		Empty Tube Plate Hole		12				
	Tube type			Hi-XSS (7)				
	Fin	Fin type		Symmetric waffle louvre				
		Treatment		Hydrophilic				
Fan	Type			Sirocco fan				
	Quantity			1				
Cooling	High	m³/min		9	9	9.5	16	16
	Low	m³/min		6.5	6.5	7	11	11
Heating	High	m³/min		9	9	9.5	16	16
	Low	m³/min		6.5	6.5	7	11	11
Fan	External static pressure	High	Pa	70	70	70	100	100
		Standard	Pa	30				
	Motor	Quantity		1				
		Model		Brushless DC motor				
		Steps		9	9	9	10	10
Motor	Speed (cooling)	High	rpm	1,031	1,031	1,061	1,186	1,186
		Low	rpm	802	802	827	875	875
	Speed (heating)	High	rpm	1,031	1,031	1,061	1,186	1,186
		Low	rpm	802	802	827	875	875
Fan	Motor	Output (high)	W	90	90	90	140	140
		Drive		Direct drive				
Refrigerant	Name			R-410A				
Sound level	Cooling	Sound power (nominal)	dBA	55	55	56	63	63
Cooling	Sound Pressure	High	dBA	32	32	33	37	37
		Low	dBA	26	26	27	29	29
Heating	Sound Pressure	High	dBA	32	32	33	37	37
		Low	dBA	26	26	27	29	29
Piping connections	Liquid (OD)	Type		Flare connection				
		Diameter	mm	6.35				
	Gas	Type		Flare connection				
		Diameter	mm	12.7				
	Drain	Diameter	mm	VP25 (O.D. 32 / I.D. 25)				
	Heat Insulation			Both liquid and gas pipes				

Concealed Ceiling Unit

1-1 TECHNICAL SPECIFICATIONS				FXSQ20P7VEB	FXSQ25P7VEB	FXSQ32P7VEB	FXSQ40P7VEB	FXSQ50P7VEB
Decoration Panel	Model			BYBS32DJW1	BYBS32DJW1	BYBS32DJW1	BYBS45DJW1	BYBS45DJW1
	Colour			White (10Y9/0,5)				
	Dimensions	Height	mm	55				
		Width	mm	650	650	650	800	800
		Depth	mm	500				
	Weight		kg	3.0	3.0	3.0	3.5	3.5
Drain-up Height			mm	625				
Air Filter				Resin net with mold resistance				
Refrigerant control				Electronic expansion valve				
Safety devices				PCB fuse				
				PCB fuse (fan driver)				
				Drain pump fuse				
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 7.5m, level difference : 0m.				
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m, level difference : 0m.				
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.				
				The sound pressure values are mentioned for a unit installed with rear suction				

Concealed Ceiling Unit

1-1 TECHNICAL SPECIFICATIONS				FXSQ63P7VEB	FXSQ80P7VEB	FXSQ100P7VEB	FXSQ125P7VEB
Capacity	Cooling		kW	7.1	9.0	11.2	14.0
	Heating		kW	8.0	10.0	12.5	16.0
Power Input (50Hz)	Cooling		kW	0.142	0.163	0.247	0.303
	Heating		kW	0.130	0.151	0.235	0.291
Power Input (60Hz)	Cooling		kW	0.142	0.163	0.247	0.303
	Heating		kW	0.130	0.151	0.235	0.291
Casing	Colour			Non painted			
	Material			Galvanised steel			
Dimensions	Packing	Height	mm	355			
		Width	mm	1,220	1,220	1,620	1,620
		Depth	mm	900			
	Unit	Height	mm	300			
		Width	mm	1,000	1,000	1,400	1,400
		Depth	mm	700			
Weight	Unit		kg	35	35	46	46
	Packed Unit		kg	42	42	54	54
Required Ceiling Void			mm	>350			
Heat Exchanger	Dimensions	Length	mm	740	740	1,140	1,140
		Nr of Rows		3			
		Fin Pitch	mm	1.75			
		Nr of Passes		7	7	11	11
		Face Area	m^2	0.249	0.249	0.383	0.383
		Nr of Stages		16			
	Tube type			Hi-XSS (7)			
	Fin	Fin type		Symmetric waffle louvre			
		Treatment		Hydrophilic			
Fan	Type			Sirocco fan			
	Quantity			2	2	3	3
Cooling	High	m^3/min		19.5	25	32	39
	Low	m^3/min		16	20	23	28
Heating	High	m^3/min		19.5	25	32	39
	Low	m^3/min		16	20	23	28
Fan	External static pressure	High	Pa	100	100	120	120
		Standard	Pa	30	40	40	50
	Motor	Quantity		1			
		Model		Brushless DC motor			
		Steps		8			
Motor	Speed (cooling)	High	rpm	975	1,161	1,060	1,218
		Low	rpm	840	960	813	920
	Speed (heating)	High	rpm	975	1,161	1,060	1,218
		Low	rpm	840	960	813	920
Fan	Motor	Output (high)	W	350			
		Drive		Direct drive			
Refrigerant	Name			R-410A			
Sound level	Cooling	Sound power (nominal)	dBA	59	63	61	66
Cooling	Sound Pressure	High	dBA	37	38	38	40
		Low	dBA	30	32	32	33
Heating	Sound Pressure	High	dBA	37	38	38	40
		Low	dBA	30	32	32	33

Concealed Ceiling Unit

1-1 TECHNICAL SPECIFICATIONS				FXSQ63P7VEB	FXSQ80P7VEB	FXSQ100P7VEB	FXSQ125P7VEB
Piping connections	Liquid (OD)	Type		Flare connection			
		Diameter	mm	9.52			
	Gas	Type		Flare connection			
		Diameter	mm	15.9			
	Drain	Diameter	mm	VP25 (O.D. 32 / I.D. 25)			
	Heat Insulation			Both liquid and gas pipes			
Decoration Panel	Model			BYBS71DJW1	BYBS71DJW1	BYBS125DJW1	BYBS125DJW1
	Colour			White (10Y9/0,5)			
	Dimensions	Height	mm	55			
		Width	mm	1,100	1,100	1,500	1,500
		Depth	mm	500			
	Weight		kg	4.5	4.5	6.5	6.5
Drain-up Height			mm	625			
Air Filter				Resin net with mold resistance			
Refrigerant control				Electronic expansion valve			
Safety devices				PCB fuse			
				PCB fuse (fan driver)			
				Drain pump fuse			
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 7.5m, level difference : 0m.			
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m, level difference : 0m.			
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.			
				The sound pressure values are mentioned for a unit installed with rear suction			

1-2 ELECTRICAL SPECIFICATIONS			FXSQ20P7VEB	FXSQ25P7VEB	FXSQ32P7VEB	FXSQ40P7VEB	FXSQ50P7VEB
Power Supply	Name		VE				
	Frequency	Hz	50				
	Voltage	V	220-240				
Current	Minimum circuit amps (MCA)	A	0.4	0.4	0.4	1.2	1.2
	Maximum fuse amps (MFA)	A	16				
Voltage range	Minimum	V	-10%				
	Maximum	V	+10%				
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.				
			Maximum allowable voltage range variation between phases is 2%.				
			Select wire size based on the MCA				
			Instead of a fuse, use a circuit breaker				

1-1 ELECTRICAL SPECIFICATIONS			FXSQ63P7VEB	FXSQ80P7VEB	FXSQ100P7VEB	FXSQ125P7VEB
Power Supply	Name		VE			
	Frequency	Hz	50			
	Voltage	V	220-240			
Current	Minimum circuit amps (MCA)	A	1.1	1.3	1.6	2.1
	Maximum fuse amps (MFA)	A	16			
Voltage range	Minimum	V	-10%			
	Maximum	V	+10%			
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.			
			Maximum allowable voltage range variation between phases is 2%.			
			Select wire size based on the MCA			
			Instead of a fuse, use a circuit breaker			

Concealed Ceiling Unit

1-1 TECHNICAL SPECIFICATIONS				FXMQ20PVE	FXMQ25PVE	FXMQ32PVE	FXMQ40PVE	FXMQ50PVE
Capacity	Cooling		kW	2.2	2.8	3.6	4.5	5.6
	Heating		kW	2.5	3.2	4.0	5.0	6.3
Power Input (50Hz)	Cooling		kW	0.081	0.081	0.085	0.194	0.215
	Heating		kW	0.069	0.069	0.073	0.182	0.203
Casing	Material			Galvanised steel plate				
Dimensions	Unit	Height	mm	300				
		Width	mm	550	550	550	700	1,000
		Depth	mm	700				
Weight	Unit		kg	25	25	25	28	36
Heat Exchanger	Dimensions	Nr of Rows		3				
		Fin Pitch	mm	1.75				
		Face Area	m²	0.098	0.098	0.098	0.148	0.249
		Nr of Stages		16				
Fan	Type			Sirocco fan				
Airflow Rate	Cooling	High high	m³/min	9	9	9	16	18
		High	m³/min	7.5	7.5	8	13	16.5
		Low	m³/min	6.5	6.5	7	11	15
Fan	External static pressure	High	Pa	100	100	100	160	200
		Standard	Pa	50			100	
		Low	Pa	30	30	30	30	50
	Motor	Output (high)	W	90	90	90	140	350
		Drive		Direct drive				
Piping connections	Liquid (OD)	Type		Flare connection				
		Diameter	mm	6.35	6.35	6.35	6.35	6.35
	Gas	Type		Flare connection				
		Diameter	mm	12.7	12.7	12.7	12.7	12.7
	Drain	Diameter	mm	VP25 (I.D. 32/O.D. 25)				
Refrigerant control				Electronic expansion valve				
Temperature control				Microprocessor thermostat for cooling and heating				
Safety devices				Fuse				
				Fan driver overload protector				
Standard Accessories				Operation manual				
				Installation manual				
				Drain hose				
				Sealing pads				
				Clamps				
				Washer				
				Screws				
				Insulation for fitting				
				Clamp metal				
				Air discharge flange				
				Air suction flange				
Notes				Nominal cooling capacities are based on following conditions: return air temperature: 27°CDB/19°CWB; outdoor temperature: 35°CDB; standard external static pressure: 100Pa; equivalent refrigerant piping: 7.5m (horizontal)				
				Nominal heating capacities are based on following conditions: return air temperature: 20°CDB; outdoor temperature: 7°CDB/6°CWB; standard external static pressure: 100Pa; equivalent refrigerant piping: 7.5m (horizontal)				
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.				
				External static pressure is changeable in 7, 18, 14, 10 stages within the ( ) range by the remote control.				
				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.				

1-1 TECHNICAL SPECIFICATIONS				FXMQ63PVE	FXMQ80PVE	FXMQ100PVE	FXMQ125PVE	FXMQ140PVE
Capacity	Cooling		kW	7.1	9.0	11.2	14.0	16.0
	Heating		kW	8.0	10.0	12.5	16.0	18.0
Power Input (50Hz)	Cooling		kW	0.230	0.298	0.376	0.461	0.461
	Heating		kW	0.218	0.286	0.364	0.449	0.449
Casing	Material			Galvanised steel plate				
Dimensions	Unit	Height	mm	300				
		Width	mm	1,000	1,000	1,400	1,400	1,400
		Depth	mm	700				
Weight	Unit		kg	36	36	46	46	47
Heat Exchanger	Dimensions	Nr of Rows		3				
		Fin Pitch	mm	1.75				1.5
		Face Area	m²	0.249	0.249	0.383	0.383	0.383
		Nr of Stages		16				
Fan	Type			Sirocco fan				
Airflow Rate	Cooling	High high	m³/min	19.5	25	32	39	46
		High	m³/min	17.5	22.5	27	33	39
		Low	m³/min	16	20	23	28	32
Fan	External static pressure	High	Pa	200	200	200	200	140
		Standard	Pa	100				
		Low	Pa	50	50	50	50	50
	Motor	Output (high)	W	350	350	350	350	350
		Drive		Direct drive				
Piping connections	Liquid (OD)	Type		Flare connection				
		Diameter	mm	9.52	9.52	9.52	9.52	9.52
	Gas	Type		Flare connection				
		Diameter	mm	15.9	15.9	15.9	15.9	15.9
	Drain	Diameter	mm	VP25 (I.D. 32/O.D. 25)				
Refrigerant control				Electronic expansion valve				
Temperature control				Microprocessor thermostat for cooling and heating				
Safety devices				Fuse				
				Fan driver overload protector				
Standard Accessories				Operation manual				
				Installation manual				
				Drain hose				
				Sealing pads				
				Clamps				
				Washer				
				Screws				
				Insulation for fitting				
				Clamp metal				
				Air discharge flange				
				Air suction flange				
Notes				Nominal cooling capacities are based on following conditions: return air temperature: 27°CDB/19°CWB; outdoor temperature: 35°CDB; standard external static pressure: 100Pa; equivalent refrigerant piping: 7.5m (horizontal)				
				Nominal heating capacities are based on following conditions: return air temperature: 20°CDB; outdoor temperature: 7°CDB/6°CWB; standard external static pressure: 100Pa; equivalent refrigerant piping: 7.5m (horizontal)				
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.				
				External static pressure is changeable in 7, 13, 14, 10 stages within the ( ) range by the remote control.				
				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.				

1-2 ELECTRICAL SPECIFICATIONS			FXMQ20PVE	FXMQ25PVE	FXMQ32PVE	FXMQ40PVE	FXMQ50PVE
Power Supply	Name		VE				
	Phase		1~				
	Frequency	Hz	50				
	Voltage	V	220-240				
Current	Minimum circuit amps (MCA)	A	0.6	0.6	0.6	1.4	1.6
	Maximum fuse amps (MFA)	A	16				
	Full load amps (FLA)	A	0.5	0.5	0.5	1.1	1.3
Voltage range	Minimum	V	-10%				
	Maximum	V	+10%				
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.				
			Maximum allowable voltage range variation between phases is 2%.				
			MCA/MFA : MCA = 1.25 × FLA				
			MFA is smaller than or equal to 4 × FLA				
			Next lower standard fuse rating minimum 16A				
			Select wire size based on the MCA				
			Instead of a fuse, use a circuit breaker				

1-2 ELECTRICAL SPECIFICATIONS			FXMQ63PVE	FXMQ80PVE	FXMQ100PVE	FXMQ125PVE	FXMQ140PVE
Power Supply	Name		VE				
	Phase		1~				
	Frequency	Hz	50				
	Voltage	V	220-240				
Current	Minimum circuit amps (MCA)	A	1.8	2.3	2.9	3.4	3.4
	Maximum fuse amps (MFA)	A	16				
	Full load amps (FLA)	A	1.4	1.8	2.3	2.7	2.7
Voltage range	Minimum	V	-10%				
	Maximum	V	+10%				
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.				
			Maximum allowable voltage range variation between phases is 2%.				
			MCA/MFA : MCA = 1.25 × FLA				
			MFA is smaller than or equal to 4 × FLA				
			Next lower standard fuse rating minimum 16A				
			Select wire size based on the MCA				
			Instead of a fuse, use a circuit breaker				

Concealed Ceiling Unit (Large)

1-1 TECHNICAL SPECIFICATIONS				FXMQ200MAVE	FXMQ250MAVE
Capacity	Cooling		kW	22.4	28.0
	Heating		kW	25.0	31.5
Power Input (50Hz)	Cooling		kW	1.294	1.465
	Heating		kW	1.294	1.465
Power Input (60Hz)	Cooling		kW	1.490	1.684
	Heating		kW	1.490	1.684
Casing	Material			Galvanised steel	
Dimensions	Unit	Height	mm	470	470
		Width	mm	1,380	1,380
		Depth	mm	1,100	1,100
Weight	Unit		kg	137	137
Heat Exchanger	Dimensions	Nr of Rows		3	3
		Fin Pitch	mm	2.0	2.0
		Face Area	m^2	0.68	0.68
		Nr of Stages		26	26
Fan	Type			Sirocco fan	
	Quantity			2	2
Cooling	High	m^3/min		58	72
	Low	m^3/min		50	62
Fan	External static pressure (Max)	High	Pa	221	270
		Standard	Pa	132	147
	Motor	Quantity		2	2
		Model		D13/4G2DA1	D13/4G2DA1
		Output (high)	W	380	380
		Drive		Direct drive	
Refrigerant	Name			R-410A	
Cooling	Sound Pressure	High	dBA	48	48
		Low	dBA	45	45
Piping connections	Liquid (OD)	Type		Flare connection	
		Diameter	mm	9.52	9.52
	Gas	Type		Braze connection	
		Diameter	mm	19.1	22.2
	Drain	Diameter	mm	PS1B	PS1B
	Heat Insulation			Glass fiber	
Refrigerant control				Electronic expansion valve	
Temperature control				Microprocessor thermostat for cooling and heating	
Safety devices				Fuse	
				Fan motor thermal protector	
Standard Accessories				Operation manual	
				Installation manual	
				Connection pipes	
				Sealing pads	
				Clamps	
				Screws	
				Insulation for fitting	
				Clamp metal	
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 7,5m (horizontal)	
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m (horizontal)	
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.	
				The external static pressure is changeable : change the connectors inside the el. compo. box, this pressure means : High static pressure -standard	
				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.	
				Sound pressure levels are measured at 220V	

1-2 TECHNICAL SPECIFICATIONS			FXMQ200MAVE	FXMQ250MAVE
Power Supply	Name		VE	
	Phase		1~	
	Frequency	Hz	50	
	Voltage	V	220-240	
Current	Minimum circuit amps (MCA)	A	8.1	9.0
	Maximum fuse amps (MFA)	A	15	15
	Full load amps (FLA)	A	6.5	7.2
Voltage range	Minimum	V	-10%	
	Maximum	V	+10%	
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.	
			Maximum allowable voltage range variation between phases is 2%.	
			MCA/MFA : MCA = 1.25 × FLA	
			MFA is smaller than or equal to 4 × FLA	
			Next lower standard fuse rating minimum 15A	
			Select wire size based on the MCA	
			Instead of a fuse, use a circuit breaker	

Ceiling Suspended Unit

1-1 TECHNICAL SPECIFICATIONS				FXHQ32MAVE	FXHQ63MAVE	FXHQ100MAVE
Capacity	Cooling		kW	3.6	7.1	11.2
	Heating		kW	4.0	8.0	12.5
Power Input (50Hz)	Cooling		kW	0.111	0.115	0.135
	Heating		kW	0.111	0.115	0.135
Power Input (60Hz)	Cooling		kW	0.142	0.145	0.199
	Heating		kW	0.142	0.145	0.199
Casing	Colour			White (10Y9/0,5)		
Dimensions	Unit	Height	mm	195	195	195
		Width	mm	960	1,160	1,400
		Depth	mm	680	680	680
Weight	Unit		kg	24	28	33
Heat Exchanger	Dimensions	Nr of Rows		2	3	3
		Fin Pitch	mm	1.75	1.75	1.75
		Face Area	m²	0.182	0.233	0.293
		Nr of Stages		12	12	12
Fan	Type			Sirocco fan		
Cooling	High	m³/min		12	17.5	25
	Low	m³/min		10	14	19.5
Fan	Motor	Model		3D12K1AA1	4D12K1AA1	3D12K2AA1
		Output (high)	W	62	62	130
		Drive		Direct drive		
Refrigerant	Name			R-410A		
Cooling	Sound Pressure	High	dBA	36	39	45
		Low	dBA	31	34	37
Piping connections	Liquid (OD)	Type		Flare connection		
		Diameter	mm	6.35	9.52	9.52
	Gas	Type		Flare connection		
		Diameter	mm	12.7	15.9	15.9
	Drain	Diameter	mm	VP20 (I.D. 20/O.D. 26)		
	Heat Insulation			Glass wool		
Air Filter				Resin net with mold resistance		
Refrigerant control				Electronic expansion valve		
Temperature control				Microprocessor thermostat for cooling and heating		
Safety devices				Fuse		
				Fan motor thermal protector		
Standard Accessories				Operation manual		
				Installation manual		
				Drain hose		
				Paper pattern for installation		
				Clamp metal		
				Insulation for fitting		
				Clamps		
				Washer		
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 7.5m (horizontal)		
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m (horizontal)		
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.		

1-2 ELECTRICAL SPECIFICATIONS			FXHQ32MAVE	FXHQ63MAVE	FXHQ100MAVE
Power Supply	Name		VE		
	Phase		1~		
	Frequency	Hz	50		
	Voltage	V	220-240		
Current	Minimum circuit amps (MCA)	A	0.8	0.8	0.9
	Maximum fuse amps (MFA)	A	15	15	15
	Full load amps (FLA)	A	0.6	0.6	0.7
Voltage range	Minimum	V	-10%		
	Maximum	V	+10%		
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.		
			Maximum allowable voltage range variation between phases is 2%.		
			MCA/MFA : MCA = 1.25 × FLA		
			MFA is smaller than or equal to 4 × FLA		
			Next lower standard fuse rating minimum 15A		
			Select wire size based on the MCA		
			Instead of a fuse, use a circuit breaker		

Wall Mounted Unit

1-1 TECHNICAL SPECIFICATIONS				FXAQ20PV1	FXAQ25PV1	FXAQ32PV1	FXAQ40PV1	FXAQ50PV1	FXAQ63PV1
Capacity	Cooling		kW	2.2	2.8	3.6	4.5	5.6	7.1
	Heating		kW	2.5	3.2	4.0	5.0	6.3	8.0
Power Input (50Hz)	Cooling		kW	0.016	0.022	0.027	0.020	0.027	0.050
	Heating		kW	0.024	0.027	0.032	0.020	0.032	0.060
Power Input (60Hz)	Cooling		kW	0.016	0.022	0.027	0.020	0.027	0.050
	Heating		kW	0.024	0.027	0.032	0.020	0.032	0.060
Casing	Colour			white (3.0Y8.5/0.5)					
Dimensions	Unit	Height	mm	290					
		Width	mm	795	795	795	1,050	1,050	1,050
		Depth	mm	238					
Weight	Unit		kg	11	11	11	14	14	14
Heat Exchanger	Dimensions	Nr of Rows		2					
		Fin Pitch	mm	1.40					
		Face Area	m²	0.161	0.161	0.161	0.213	0.213	0.213
		Nr of Stages		14					
Fan	Type			Cross flow fan					
	Quantity			1					
Cooling	High	m³/min		7.5	8	8.5	12	15	19
	Low	m³/min		4.5	5	5.5	9	12	14
Fan	Motor	Quantity		1					
		Model		QCL9661M	QCL9661M	QCL9661M	QCL9686M	QCL9686M	QCL9686M
		Output (high)	W	40	40	40	43	43	43
		Drive		Direct drive					
Refrigerant	Name			R-410A					
Cooling	Sound Pressure	High	dBA	36.0	37.0	38.0	40.0	43.0	47.0
		Low	dBA	31.0	31.0	31.0	36.0	38.0	41.0
Piping connections	Liquid (OD)	Type		Flare connection					
		Diameter	mm	6.35	6.35	6.35	6.35	6.35	9.52
	Gas	Type		Flare connection					
		Diameter	mm	12.7	12.7	12.7	12.7	12.7	15.9
	Drain	Diameter	mm	VP13 (I.D. 13/O.D. 18)					
	Heat Insulation			Foamed polystyrene/foamed polyethylene					
Air Filter				Washable resin net					
Refrigerant control				Electronic expansion valve					
Temperature control				Microprocessor thermostat for cooling and heating					
Safety devices				PCB fuse					
Standard Accessories				Installation and operation manual					
				Installation panel					
				Paper pattern for installation					
				Insulation tape					
				Clamps					
				Screws					
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 5m (horizontal)					
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 5m (horizontal)					
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.					

Wall Mounted Unit

1-2 ELECTRICAL SPECIFICATIONS			FXAQ20PV1	FXAQ25PV1	FXAQ32PV1	FXAQ40PV1	FXAQ50PV1	FXAQ63PV1
Power Supply	Name		VE					
	Phase		1~					
	Frequency	Hz	50					
	Voltage	V	220-240					
Current	Minimum circuit amps (MCA)	A	0.3	0.4	0.4	0.4	0.4	0.6
	Maximum fuse amps (MFA)	A	15					
	Full load amps (FLA)	A	0.2	0.3	0.3	0.3	0.3	0.5
Voltage range	Minimum	V	-10%					
	Maximum	V	+10%					
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.					
			Maximum allowable voltage range variation between phases is 2%.					
			MCA/MFA : MCA = 1.25 × FLA					
			MFA is smaller than or equal to 4 × FLA					
			Next lower standard fuse rating minimum 15A					
			Select wire size based on the MCA					
			Instead of a fuse, use a circuit breaker					

Floor Standing Unit

1-1 TECHNICAL SPECIFICATIONS				FXLQ20MAVE	FXLQ25MAVE	FXLQ32MAVE	FXLQ40MAVE	FXLQ50MAVE	FXLQ63MAVE
Nominal Capacity	Cooling		kW	2.20	2.80	3.60	4.50	5.60	7.10
	Heating		kW	2.50	3.20	4.00	5.00	6.30	8.00
Power input (50Hz)	Cooling		kW	0.049	0.049	0.090	0.090	0.110	0.110
	Heating		kW	0.049	0.049	0.090	0.090	0.110	0.110
Power input (60Hz)	Cooling		kW	0.0.047	0.047	0.079	0.084	0.105	0.108
	Heating		kW	0.047	0.047	0.079	0.084	0.105	0.108
Casing	Colour			Ivory white (5Y7,5/1)					
Dimensions	Unit	Height	mm	600	600	600	600	600	600
		Width	mm	1000	1000	1140	1140	1420	1420
		Depth	mm	222	222	222	222	222	222
Weight	Unit		kg	25	25	30	30	36	36
Heat Exchanger	Dimensions	Nr of Rows		3	3	3	3	3	3
		Fin Pitch	mm	1.50	1.50	1.50	1.50	1.50	1.50
		Face Area	m²	0.159	0.159	0.200	0.200	0.282	0.282
		Nr of Stages		14	14	14	14	14	14
Fan	Type			Sirocco fan					
	Quantity			1	1	1	1	1	1
Airflow Rate	Cooling	High	m³/min	7.00	7.00	8.00	11.00	14.00	16.00
		Low	m³/min	6.00	6.00	6.00	8.50	11.00	12.00
Fan	Motor	Quantity		1	1	1	1	1	1
		Model		D14B20	D14B20	2D14B13	2D14B13	2D14B20	2D14B20
		Output (high)	W	15	15	25	25	35	35
		Drive		Direct drive					
Refrigerant	Name			R-410A					
Cooling	Sound Pressure	High	dBA	35.0	35.0	35.0	38.0	39.0	40.0
		Low	dBA	32.0	32.0	32.0	33.0	34.0	35.0
Piping connections	Liquid (OD)	Type		Flare connection					
		Diameter	mm	6.4	6.4	6.4	6.4	6.4	9.5
	Gas	Type		Flare connection					
		Diameter	mm	12.7	12.7	12.7	12.7	12.7	15.9
	Drain	Diameter	mm	O.D. 21					
	Heat Insulation			Glass Fiber/Urethane Foam					
Air Filter				Resin net with mold resistance					
Refrigerant control				Electronic expansion valve					
Temperature control				Microprocessor thermostat for cooling and heating					
Safety devices				PCB fuse					
				Fan motor thermal protector					
Standard Accessories	Standard Accessories			Installation and operation manual					
				Insulation for fitting					
				Drain hose					
				Clamps					
				Screws					
				Level adjustment screw					
				Washer					
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 7,5m (horizontal)					
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m (horizontal)					
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.					
				Sound pressure levels are measured at 220V					

Floor Standing Unit

1-2 ELECTRICAL SPECIFICATIONS			FXLQ20PV1	FXLQ25PV1	FXLQ32PV1	FXLQ40PV1	FXLQ50PV1	FXLQ63PV1
Power Supply	Name		VE					
	Phase		1					
	Frequency	Hz	50					
	Voltage	V	220-240					
Current	Minimum circuit amps (MCA)	A	0.30	0.30	0.60	0.60	0.60	0.60
	Maximum fuse amps (MFA)	A	15.00					
	Full load amps (FLA)	A	0.20	0.20	0.50	0.50	0.50	0.50
Voltage range	Minimum	V	-10%					
	Maximum	V	+10%					
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.					
			Maximum allowable voltage range variation between phases is 2%.					
			MCA/MFA : MCA = 1.25 × FLA					
			MFA<= 4 × FLA					
			next lower standard fuse rating minimum 15A					
			select wire size based on the MCA					
			instead of a fuse, use a circuit breaker					
			For more details concerning conditional connections, see http://extranet.daikineurope.com, select "E-Data Books". Finally, click on the document title of your choice.					

Concealed Floor Standing Unit

1-1 TECHNICAL SPECIFICATIONS				FXNQ20MAVE	FXNQ25MAVE	FXNQ32MAVE	FXNQ40MAVE	FXNQ50MAVE	FXNQ63MAVE
Capacity	Cooling		kW	2.20	2.80	3.60	4.50	5.60	7.10
	Heating		kW	2.50	3.20	4.00	5.00	6.30	8.00
Power Input (50Hz)	Cooling		kW	0.049	0.049	0.090	0.090	0.110	0.110
	Heating		kW	0.049	0.049	0.090	0.090	0.110	0.110
Power Input (60Hz)	Cooling		kW	0.047	0.047	0.079	0.084	0.105	0.108
	Heating		kW	0.047	0.047	0.079	0.084	0.105	0.108
Casing	Material			Galvanised steel					
Dimensions	Unit	Height	mm	610	610	610	610	610	610
		Width	mm	930	930	1070	1070	1350	1350
		Depth	mm	220	220	220	220	220	220
Weight	Unit		kg	19	19	23	23	27	27
Heat Exchanger	Dimensions	Nr of Rows		3	3	3	3	3	3
		Fin Pitch	mm	1.50	1.50	1.50	1.50	1.50	1.50
		Face Area	m²	0.159	0.159	0.200	0.200	0.282	0.282
		Nr of Stages		14	14	14	14	14	14
Fan	Type			Sirocco fan					
	Quantity			1	1	1	1	1	1
Airflow Rate	Cooling	High	m³/min	7.00	7.00	8.00	11.00	14.00	16.00
		Low	m³/min	6.00	6.00	6.00	8.50	11.00	12.00
Fan	Motor	Quantity		1	1	1	1	1	1
		Model		D14B20	D14B20	2D14B13	2D14B13	2D14B20	2D14B20
		Output (high)	W	15	15	25	25	35	35
		Drive		Direct drive					
Refrigerant	Name			R-410A					
Cooling	Sound Pressure	High	dBA	35.0	35.0	35.0	38.0	39.0	40.0
		Low	dBA	32.0	32.0	32.0	33.0	34.0	35.0
Piping connections	Liquid (OD)	Type		Flare connection					
		Diameter	mm	6.35	6.35	6.35	6.35	6.35	9.52
	Gas	Type		Flare connection					
		Diameter	mm	12.7	12.7	12.7	12.7	12.7	15.9
	Drain	Diameter	mm	21	21	21	21	21	21
	Heat Insulation			Glass Fiber/Urethane Foam					
Air Filter				Resin net with mold resistance					
Refrigerant control				Electronic expansion valve					
Temperature control				Microprocessor thermostat for cooling and heating					
Safety devices				PCB fuse					
				Fan motor thermal protector					
Standard Accessories	Standard Accessories			Installation and operation manual					
				Insulation for fitting					
				Drain hose					
				Clamps					
				Screws					
				Washer					
				Level adjustment screw					
Notes				Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, outdoor temperature : 35°CDB, equivalent refrigerant piping : 7.5m (horizontal)					
				Nominal heating capacities are based on : indoor temperature : 20°CDB, outdoor temperature : 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m (horizontal)					
				Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.					
				Sound pressure levels are measured at 220V					

Concealed Floor Standing Unit

1-2 ELECTRICAL SPECIFICATIONS			FXNQ20MAVE	FXNQ25MAVE	FXNQ32MAVE	FXNQ40MAVE	FXNQ50MAVE	FXNQ63MAVE
Power Supply	Name		VE					
	Phase		1~					
	Frequency	Hz	50					
	Voltage	V	220-240					
Current	Minimum circuit amps (MCA)	A	0.3	0.3	0.6	0.6	0.6	0.6
	Maximum fuse amps (MFA)	A	15	15	15	15	15	15
	Full load amps (FLA)	A	0.2	0.2	0.5	0.5	0.5	0.5
Voltage range	Minimum	V	-10%					
	Maximum	V	+10%					
Notes			Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.					
			Maximum allowable voltage range variation between phases is 2%.					
			MCA/MFA : MCA = 1.25 × FLA					
			MFA is smaller than or equal to 4 × FLA					
			Next lower standard fuse rating minimum 15A					
			Select wire size based on the MCA					
			Instead of a fuse, use a circuit breaker					

4-way Blow Ceiling Suspended Unit

1-1 TECHNICAL SPECIFICATIONS				FXUQ71MAV1	FXUQ100MAV1	FXUQ125MAV1
Power input (Nominal)	Cooling		kW	0.180	0.289	0.289
	Heating		kW	0.160	0.269	0.269
Casing	Colour			White		
	Material			Resin		
Dimensions	Packing	Height	mm	230	295	295
		Width	mm	960	960	960
		Depth	mm	960	960	960
	Unit	Height	mm	165	230	230
		Width	mm	895	895	895
		Depth	mm	895	895	895
Weight	Unit		kg	25	31	31
	Packed Unit		kg	35	42	42
Heat Exchanger	Dimensions	Length	mm	2101	2101	2101
		Nr of Rows		3	3	3
		Fin Pitch	mm	1.50	1.50	1.50
		Nr of Passes		8	8	12
		Face Area	m²	0.265	0.353	0.353
		Nr of Stages		6	8	8
		Empty Tube Plate Hole			4	
	Fin	Fin type		Cross fin coil (Multi louver fins and N-hex tubes)		
Fan	Type			Turbo fan		
	Quantity			1	1	1
Airflow Rate	Cooling	High	m³/min	19.00	29.00	32.00
		Low	m³/min	14.00	21.00	23.00
	Heating	High	m³/min	19.00	29.00	32.00
		Low	m³/min	14.00	21.00	23.00
Fan	Motor	Steps		2	2	2
		Output (high)	W	45	90	90
Refrigerant	Name			R-410A		
Sound Level	Cooling	Sound power (nominal)	dBA	56.0	59.0	60.0
Cooling	Sound Pressure	High	dBA	40.0	43.0	44.0
		Low	dBA	35.0	38.0	39.0
Heating	Sound Pressure	High	dBA	40.0	43.0	44.0
		Low	dBA	35.0	38.0	39.0
Piping connections	Liquid (OD)	Type		Flare connection		
		Diameter	mm	9.5	9.5	9.5
	Gas	Type		Flare connection		
		Diameter	mm	15.9	15.9	15.9
	Drain	Diameter	mm	I.D. 20/O.D. 26		
	Heat Insulation			Heat resistant foamed polyethylene, regular foamed polyethylene		
Air Filter				Resin net with mold resistance		
Safety devices				Fan motor thermal protector		
Standard Accessories	Standard Accessories			Installation and operation manual		
				Drain hose		
				Clamp metal		
				Insulation for fitting		
				Sealing Pads		
				Clamps		
				Washer		

4-way Blow Ceiling Suspended Unit

1-2 ELECTRICAL SPECIFICATIONS			FXUQ71MAV1	FXUQ100MAV1	FXUQ125MAV1
Power Supply	Name		V1		
	Phase		1	1	1
	Frequency	Hz	50	50	50
	Voltage	V	220-240		
Current	Full load amps (FLA)	A	0.60	1.00	1.00
Note			For more details concerning conditional connections, see http://extranet.daikineurope.com, select "E-Data Books". Finally, click on the document title of your choice.		

BEV Units

Model				BEVQ71MAVE	BEVQ100MAVE	BEVQ125MAVE
Power Supply				1 Phase 50Hz 220~240V	1 Phase 50Hz 220~240V	1 Phase 50Hz 220~240V
Casing				Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)			mm	100×350×225	100×350×225	100×350×225
Sound Absorbing Thermal Insulation Material				Flame and Heat Resistant Foamed Polyethylene	Flame and Heat Resistant Foamed Polyethylene	Flame and Heat Resistant Foamed Polyethylene
Piping Connection	Indoor Unit	Liquid Pipes		9.5mm (Flare Connection)	9.5mm (Flare Connection)	9.5mm (Flare Connection)
		Gas Pipes		15.9mm (Flare Connection)	15.9mm (Flare Connection)	15.9mm (Flare Connection)
	Outdoor Unit	Liquid Pipes		9.5mm (Flare Connection)	9.5mm (Flare Connection)	9.5mm (Flare Connection)
		Suction Gas Pipes		15.9mm (Flare Connection)	15.9mm (Flare Connection)	15.9mm (Flare Connection)
Machine Weight (Mass)			kg	3.0	3.0	3.5
Standard Accessories				Installation manual, Gas piping connections, Insulation for fitting, Sealing material, Clamps	Installation manual, Gas piping connections, Insulation for fitting, Sealing material, Clamps	Installation manual, Gas piping connections, Insulation for fitting, Sealing material, Clamps
Drawing No.				4D045387A	4D045387A	4D045388A

1.3 BS Units

Model			BSV4Q100PV1	BSV6Q100PV1
Power Supply			1 Phase 50Hz 200-240V	1 Phase 50Hz 200-240V
Total capacity index of connectable indoor units			400 or less	600 or less
Capacity index of connectable indoor units per branch			100 or less	
No. of Connectable Indoor Units			Max. 20	Max. 30
Casing			Galvanized steel plate	Galvanized steel plate
Dimensions: (H×W×D)		mm	209×1053×635	209×1577×635
Sound Absorbing Thermal Insulation Material			Foamed polyurethane, Flame resistant needle felt	Foamed polyurethane, Flame resistant needle felt
Piping Connection	Indoor Unit	Liquid Pipes	9.5mm C1220T (brazing connection) ★1	9.5mm C1220T (brazing connection)
		Gas Pipes	15.9mm C1220T (brazing connection) ★1	15.9mm C1220T (brazing connection) ★2
	Outdoor Unit	Liquid Pipes	12.7mm C1220T (brazing connection)	15.9mm C1220T (brazing connection)
		Suction Gas Pipes	28.6mm C1220T (brazing connection)	28.6mm C1220T (brazing connection) ★2
		HP/LP Gas Pipes	19.1mm C1220T (brazing connection)	28.6mm C1220T (brazing connection) ★2
Weight		kg	60	89
Standard Accessories			Installation manual, Attached pipe Insulation pipe cover, Clamps	Installation manual, Attached pipe Insulation pipe cover, Clamps
Drawing No.			4D064131A	4D064132A

Note:
★1 When connecting with a 20 to 50 class indoor unit, connect to the attached pipe to the field pipe.
(Braze the connection between the attached and field pipe.)
★2 When connecting with an indoor unit of 150 or more and 160 or less, connect to the attached pipe to the field pipe.
(Braze the connection between the attached and field 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)	Same number of BS units
	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.

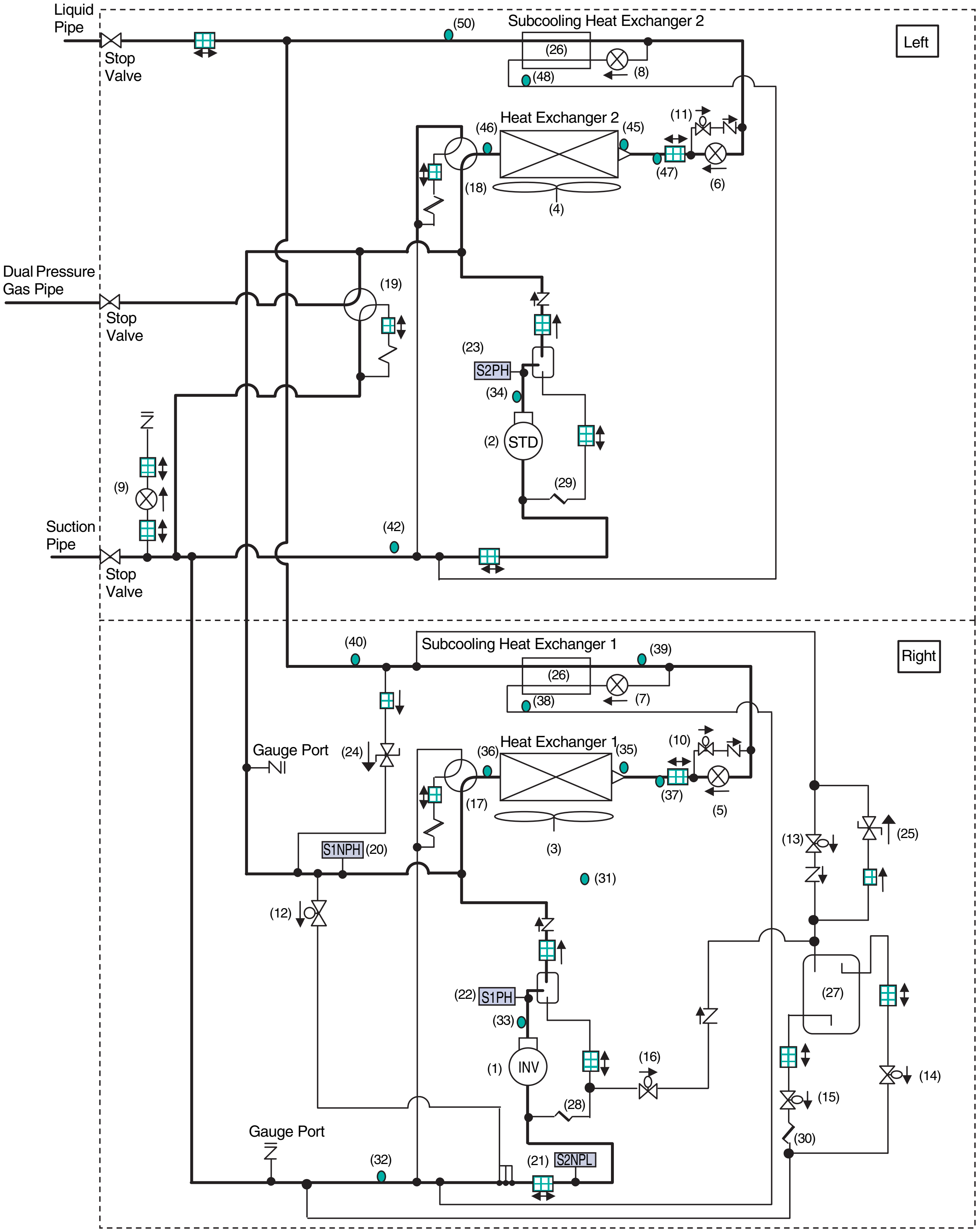
Part 3
Refrigerant Circuit

1. Refrigerant Circuit

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. REYQ8P : 30 steps, REYQ10, 12P : 37 steps
2	M2C	Standard compressor 1 (STD1)	
3	M1F	Inverter fan	Because the system is an air heat exchange 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 (Main: EVM)	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 (Subcooling: EVT)	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 bypass: SVE)	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 vent 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)	Four way valve (Heat exchanger switch: 20SA)	This is used to switch outdoor heat exchanger to evaporator or condenser.
19	Y8S	Four 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	High pressure switch (For INV)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
23	S2PH	High 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 judgements 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 judgements 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 evaporation side of subcooling heat exchanger. Used to exercise the constant control of superheated degree at the outlet of subcooled 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.

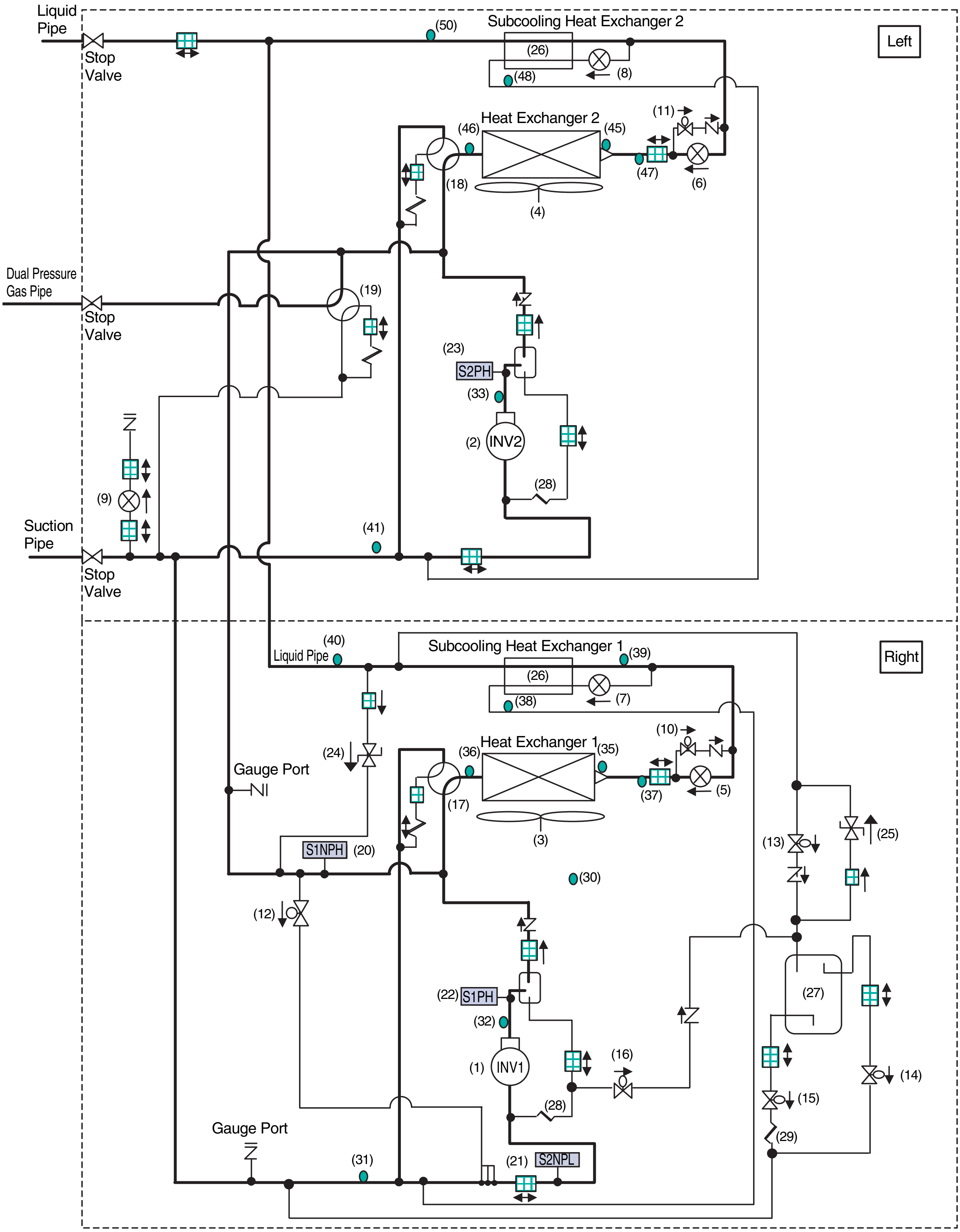
REYQ8P, 10P, 12P
(8HP, 10HP, 12HP Single Type)
(INV Unit + STD Unit)



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	Because the system is an air heat exchange 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 (Main: EVM)	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 (Subcooling: EVT)	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 bypass: SVE)	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 vent 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)	Four way valve (Heat exchanger switch: 20SA)	This is used to switch outdoor heat exchanger to evaporator or condenser.
19	Y8S	Four 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)	High 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 judgements 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 judgements 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 subcooled 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.

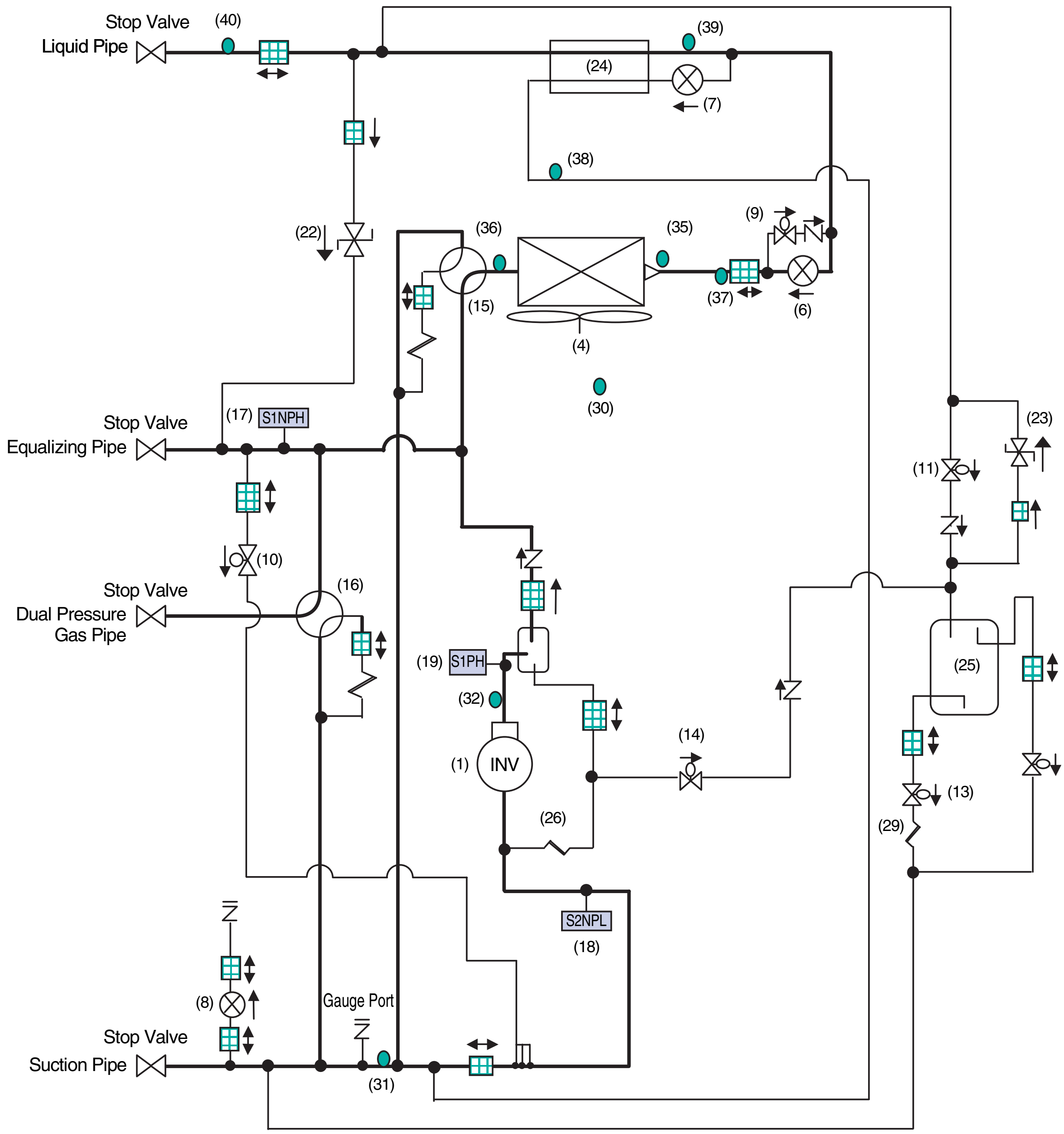
REYQ14P, 16P
(14HP, 16HP Single Type)
(INV Unit × 2)



1.3 REMQ8P (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 113~117.
4	M1F	Inverter fan	Because the system is an air heat exchange 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 (Subcooling: 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 vent 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	Four way valve (Heat exchanger switch: 20SA)	This is used to switch outdoor heat exchanger to evaporator or condenser.
16	Y2S	Four 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	High 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, 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. Used for compressor temperature protection control.
35	R4T	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger. Used to make judgements on defrosting operation.
36	R2T	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	R7T	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 judgements on the recover or discharge refrigerants to the refrigerant regulator.
38	R5T	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 subcooled 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.

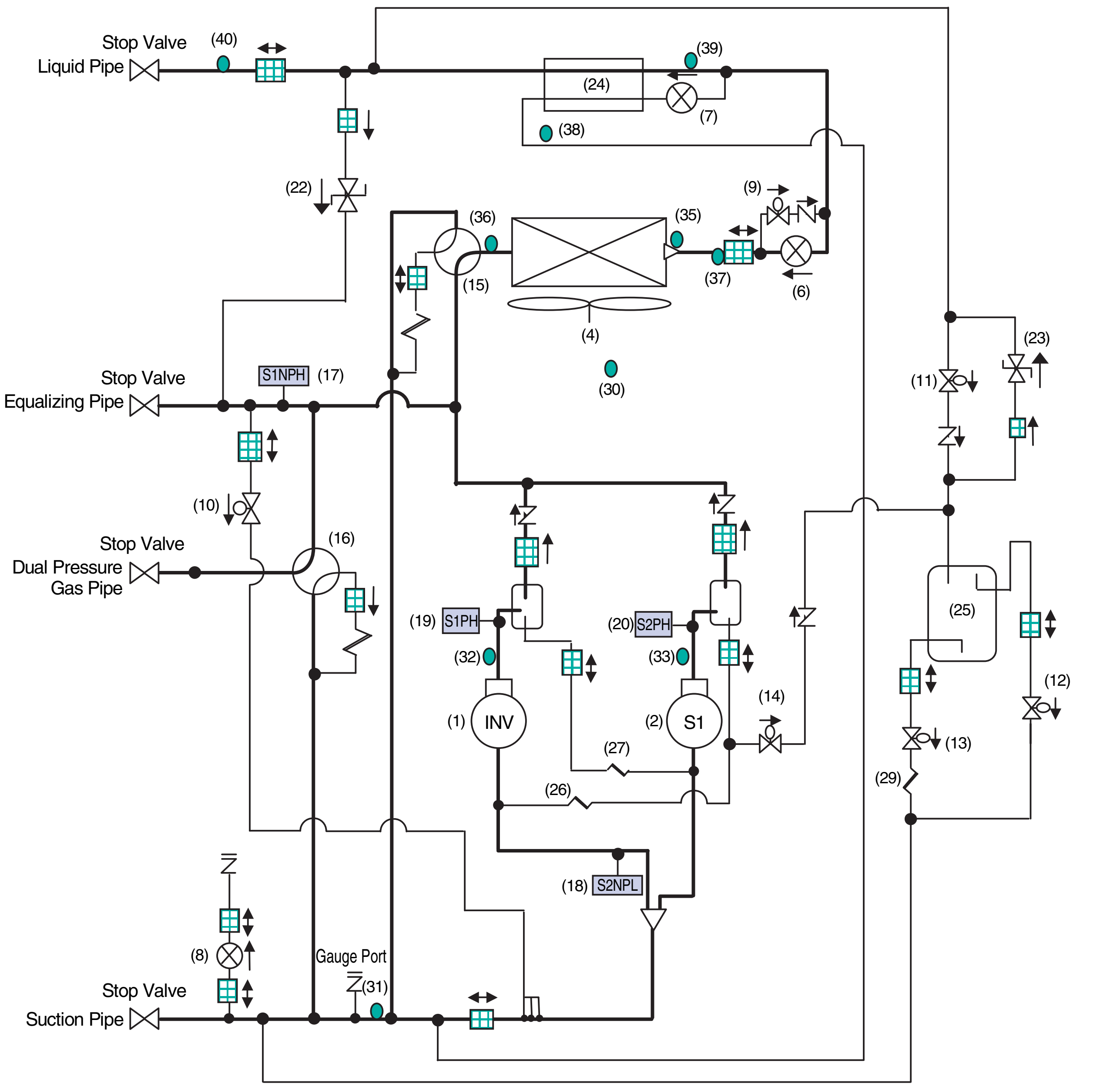
REMQ8P


Stop Valve
Liquid Pipe
(40)
(39)
(24)
(7)
(38)
(22)
(36)
(35)
(9)
(15)
(37)
(6)
(4)
(30)
Stop Valve
Equalizing Pipe
(17)
S1NPH
(23)
(11)
(10)
Stop Valve
Dual Pressure
Gas Pipe
(16)
(19)
S1PH
(25)
(32)
(14)
(1)
INV
(12)
(13)
(26)
(29)
S2NPL
(18)
(8)
Gauge Port
Stop Valve
Suction Pipe
(31)

1.4 REMQ10P, 12P (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 113~117.
2	M2C	Standard compressor 1 (STD1)	
4	M1F	Inverter fan	Because the system is an air heat exchange 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 (Subcooling: 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 vent 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	Four way valve (Heat exchanger switch: 20SA)	This is used to switch outdoor heat exchanger to evaporator or condenser.
16	Y2S	Four 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	High pressure switch (For INV compressor)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
20	S2PH	High 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. Used for compressor temperature protection control.
33	R32T	Thermistor (STD1 discharge pipe: Tds1)	
35	R4T	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger. Used to make judgements on defrosting operation.
36	R2T	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	R7T	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 judgements on the recover or discharge refrigerants to the refrigerant regulator.
38	R5T	Thermistor (Subcooling heat exchanger gas pipe: Tsh)	This detects temperature of gas pipe on the evaporation side of subcooling heat exchanger. Used to exercise the constant control of superheated degree at the outlet of subcooled 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.

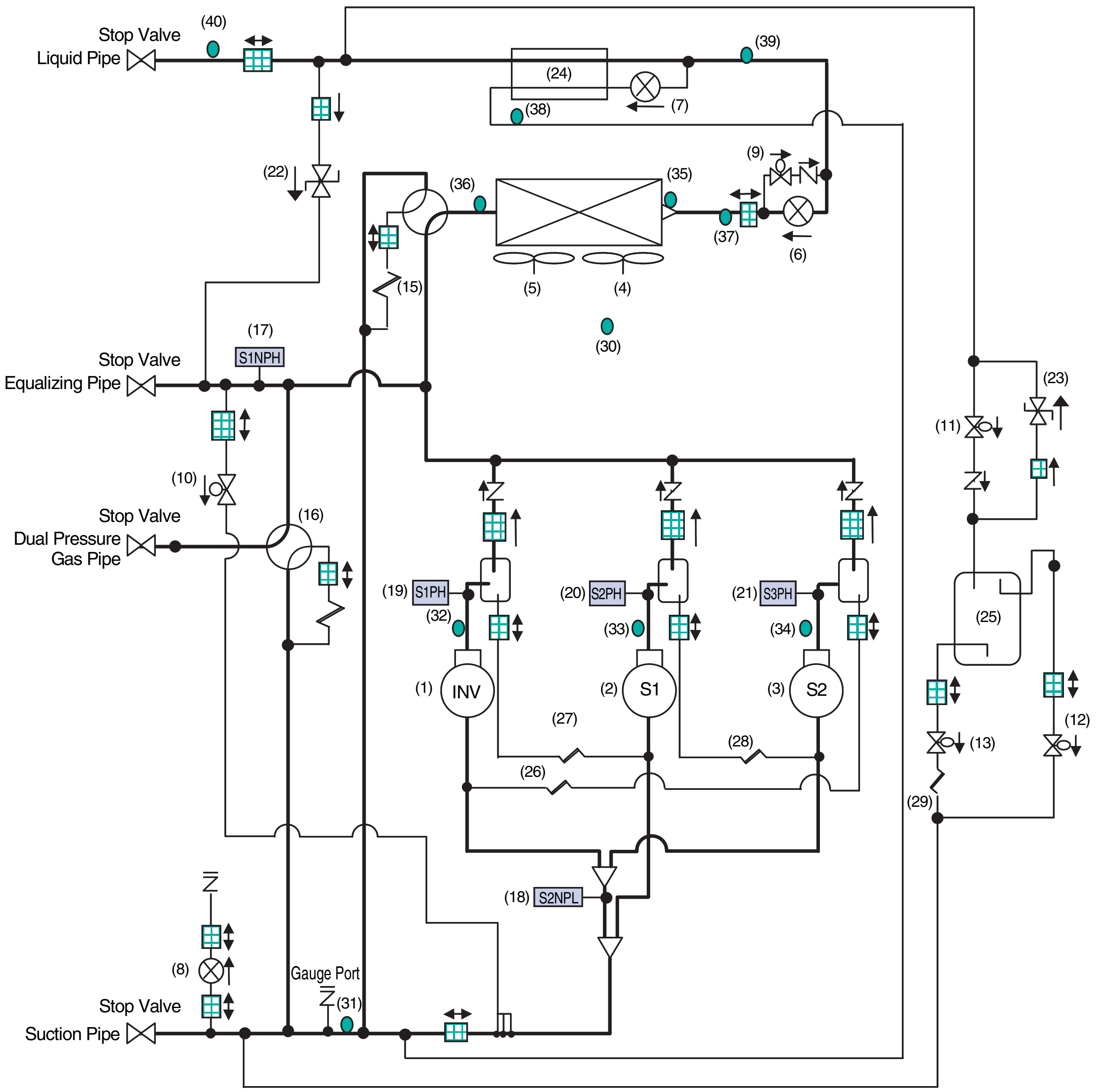
REMQ10P, 12P


Stop Valve
Liquid Pipe
(40)
(39)
(24)
(7)
(38)
(22)
(9)
(36)
(35)
(37)
(6)
(15)
(4)
(23)
(11)
Stop Valve
Equalizing Pipe
S1NPH
(17)
(30)
(10)
Stop Valve
Dual Pressure
Gas Pipe
(16)
(25)
(19)
S1PH
(20)
S2PH
(32)
(33)
(12)
(14)
(1)
INV
(2)
S1
(13)
(27)
(29)
(26)
(18)
S2NPL
(8)
Gauge Port
(31)
Stop Valve
Suction Pipe

1.5 REMQ14P, 16P (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 113~117.
2	M2C	Standard compressor 1 (STD1)	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 113~117.
3	M3C	Standard compressor 2 (STD2)	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 113~117.
4	M1F	Inverter fan	Because the system is an air heat exchange 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 (Subcooling: 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 vent 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	Four way valve (Heat exchanger switch: 20SA)	This is used to switch outdoor heat exchanger to evaporator or condenser.
16	Y2S	Four 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	High pressure switch (For INV compressor)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
20	S2PH	High pressure switch (For STD compressor 1)	This functions when pressure increases to stop operation and avoid high pressure increase in the fault operation.
21	S3PH	High pressure switch (For STD compressor 2)	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.
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. Used for compressor temperature protection control.
33	R32T	Thermistor (STD1 discharge pipe: Tds1)	Used to detect discharge pipe temperature. Used for compressor temperature protection control.
34	R33T	Thermistor (STD2 discharge pipe: Tds2)	Used to detect discharge pipe temperature. Used for compressor temperature protection control.
35	R4T	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger. Used to make judgements on defrosting operation.
36	R2T	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	R7T	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 judgements on the recover or discharge refrigerants to the refrigerant regulator.
38	R5T	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 subcooled 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.

REMQ14P, 16P

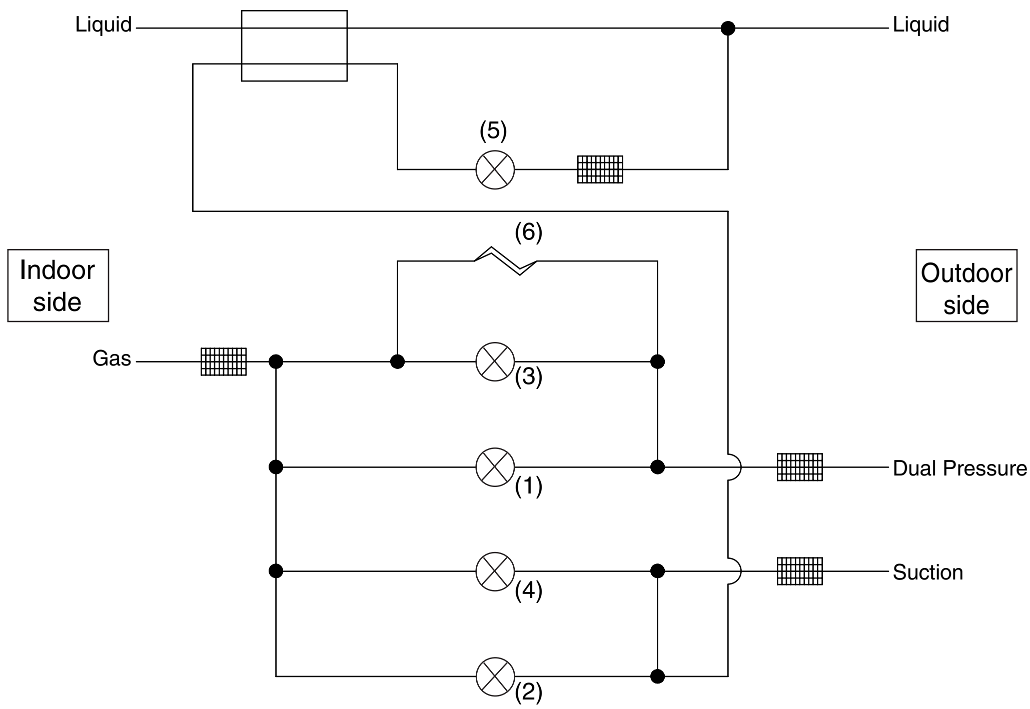

Stop Valve
Liquid Pipe
(40)
(39)
(24)
(7)
(38)
(9)
(22)
(36)
(35)
(37)
(6)
(15)
(5)
(4)
(30)
(17)
S1NPH
Stop Valve
Equalizing Pipe
(23)
(11)
(10)
Stop Valve
Dual Pressure
Gas Pipe
(16)
(19) S1PH
(20) S2PH
(21) S3PH
(25)
(32)
(33)
(34)
(1) INV
(2) S1
(3) S2
(27)
(28)
(26)
(12)
(13)
(29)
(18) S2NPL
(8)
Gauge Port
(31)
Stop Valve
Suction Pipe

1.6 BS Unit Functional Parts

BSV4Q100PV1, 6Q100PV1

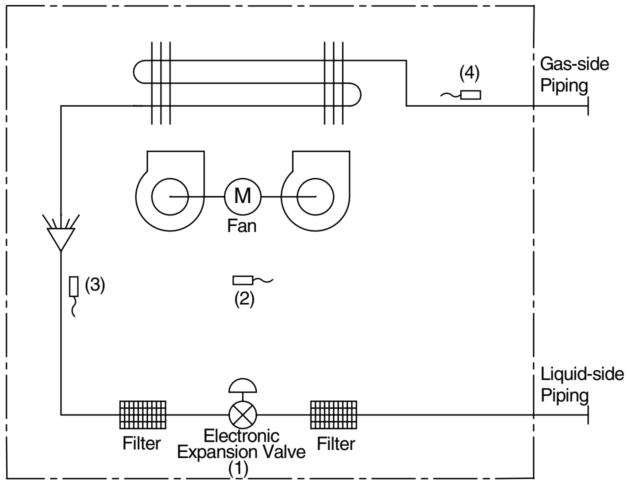
No.	Name	Symbol	Function
1	Electronic expansion valve (EVH)	Y4E	Opens while in heating operation or all indoor units are in cooling operation. (Max : 760pls)
2	Electronic expansion valve (EVL)	Y5E	Opens while in cooling operation. (Max : 760pls)
3	Electronic expansion valve (EVHS)	Y2E	Opens while in 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	In simultaneous cooling and heating operation, it is used to subcooling liquid refrigerants when an indoor unit downstream of this BS unit is in heating operation. (Max : 480pls)
6	Capillary tube	—	Used to bypass high pressure gas to low pressure side to protect “Refrigerant accumulation” in high and low pressure gas pipes.

Note : Factory setting of all EV opening : 60pls



1.7 Indoor Units

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

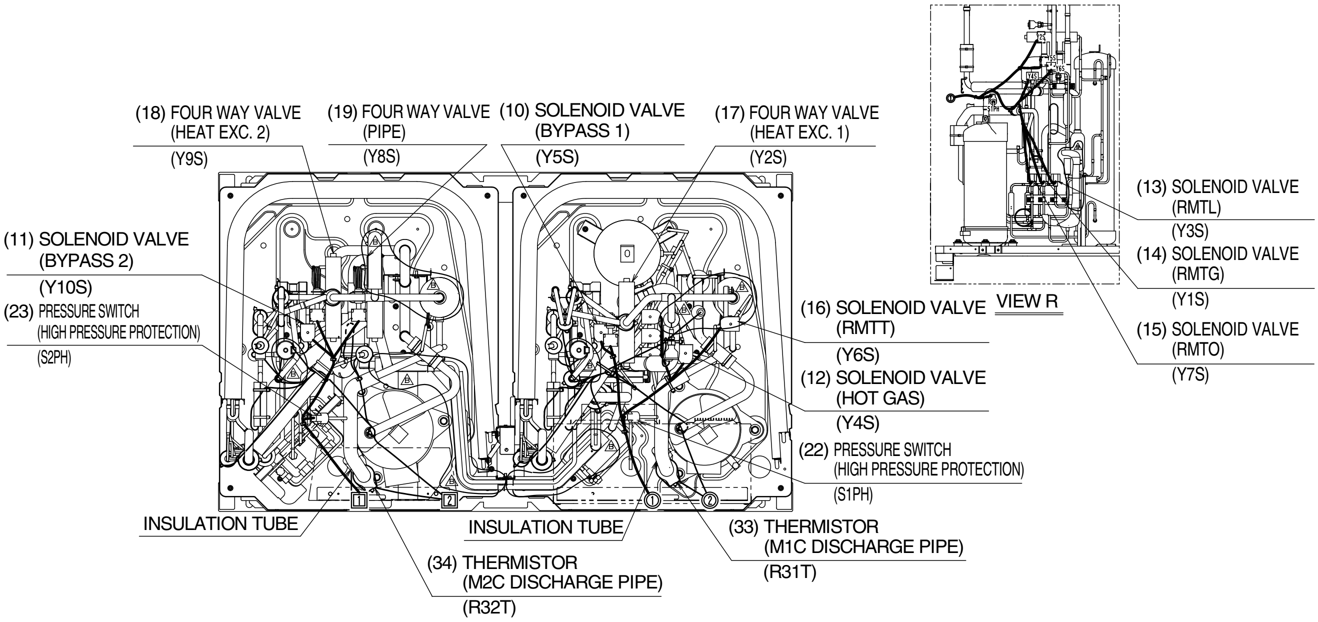


No.	Name	Symbol	Function
①	Electronic expansion valve	Y1E	Used to control superheated degree of gas when cooling and subcooled degree when heating. (Max. 2000 pls)
②	Suction air thermistor	R1T	Used for thermostat control.
③	Liquid pipe thermistor	R2T	Used to control superheated degree of gas when cooling and subcooled degree when heating.
④	Gas pipe thermistor	R3T	Used for gas superheated degree control when cooling.

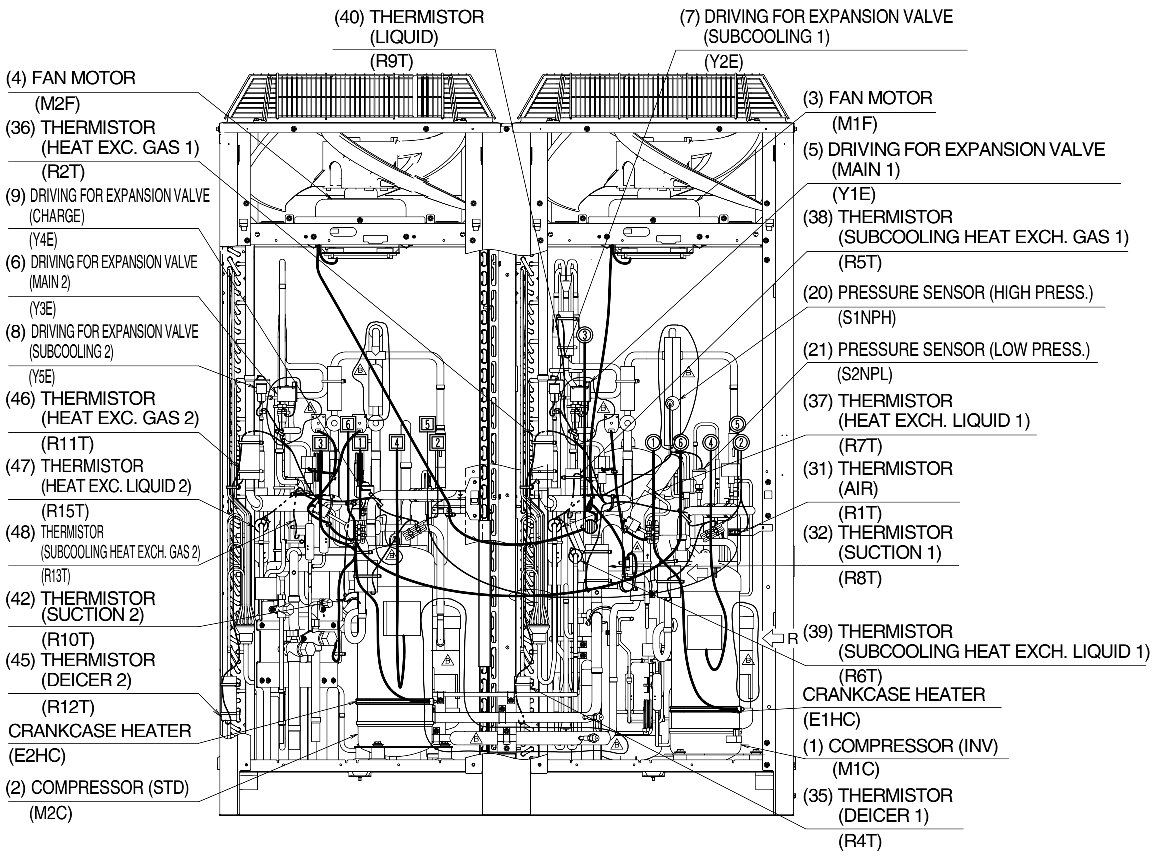
2. Functional Parts Layout

2.1 REYQ8P, 10P, 12P

Plan



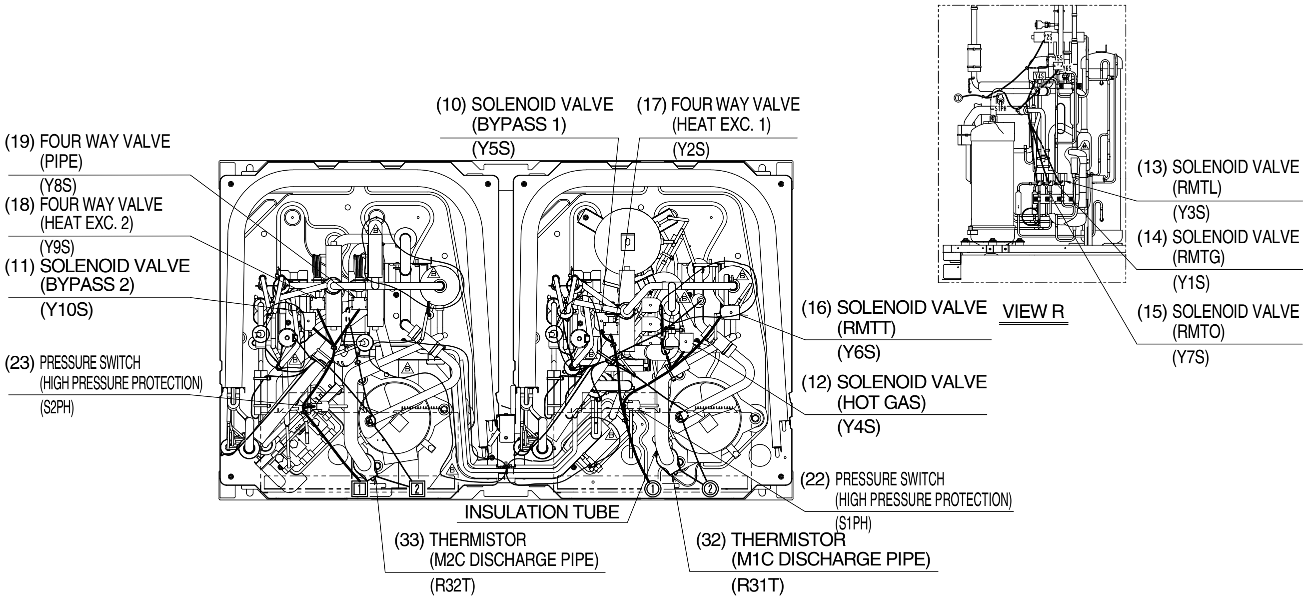
Front View



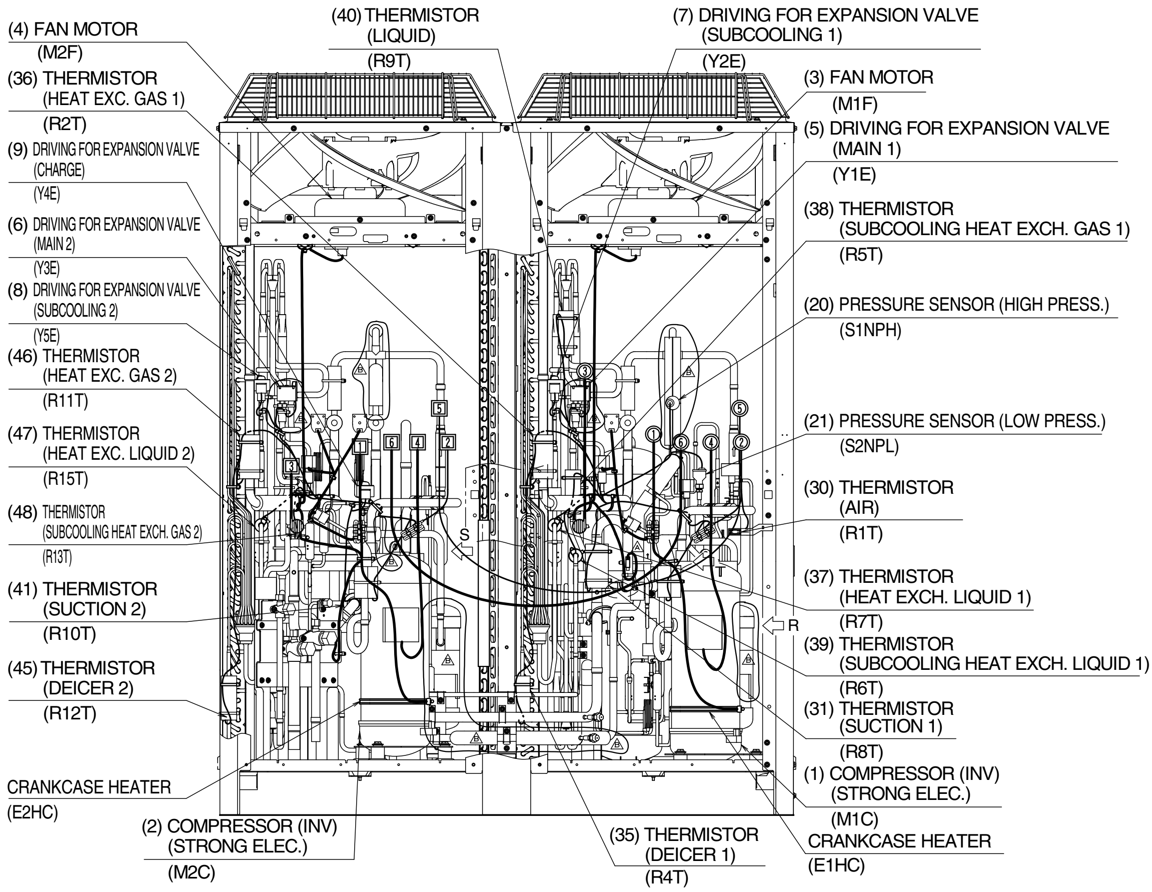
Note: For reference numbers, refer to page 61.

2.2 REYQ14P, 16P

Plan



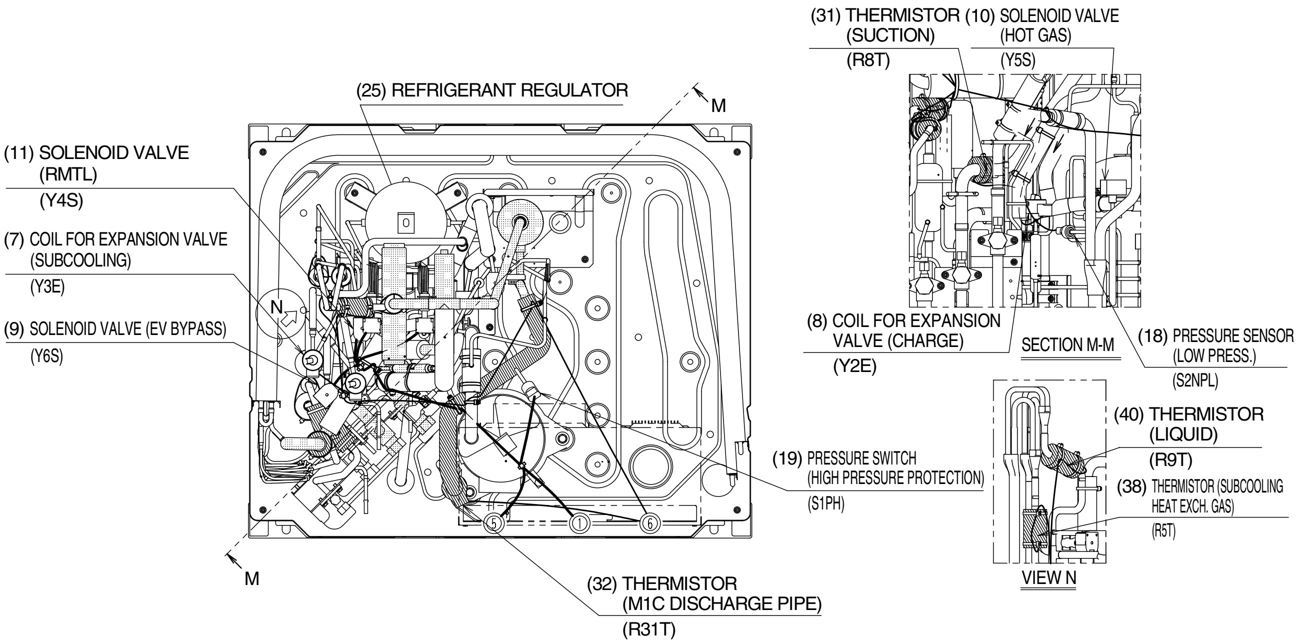
Front View



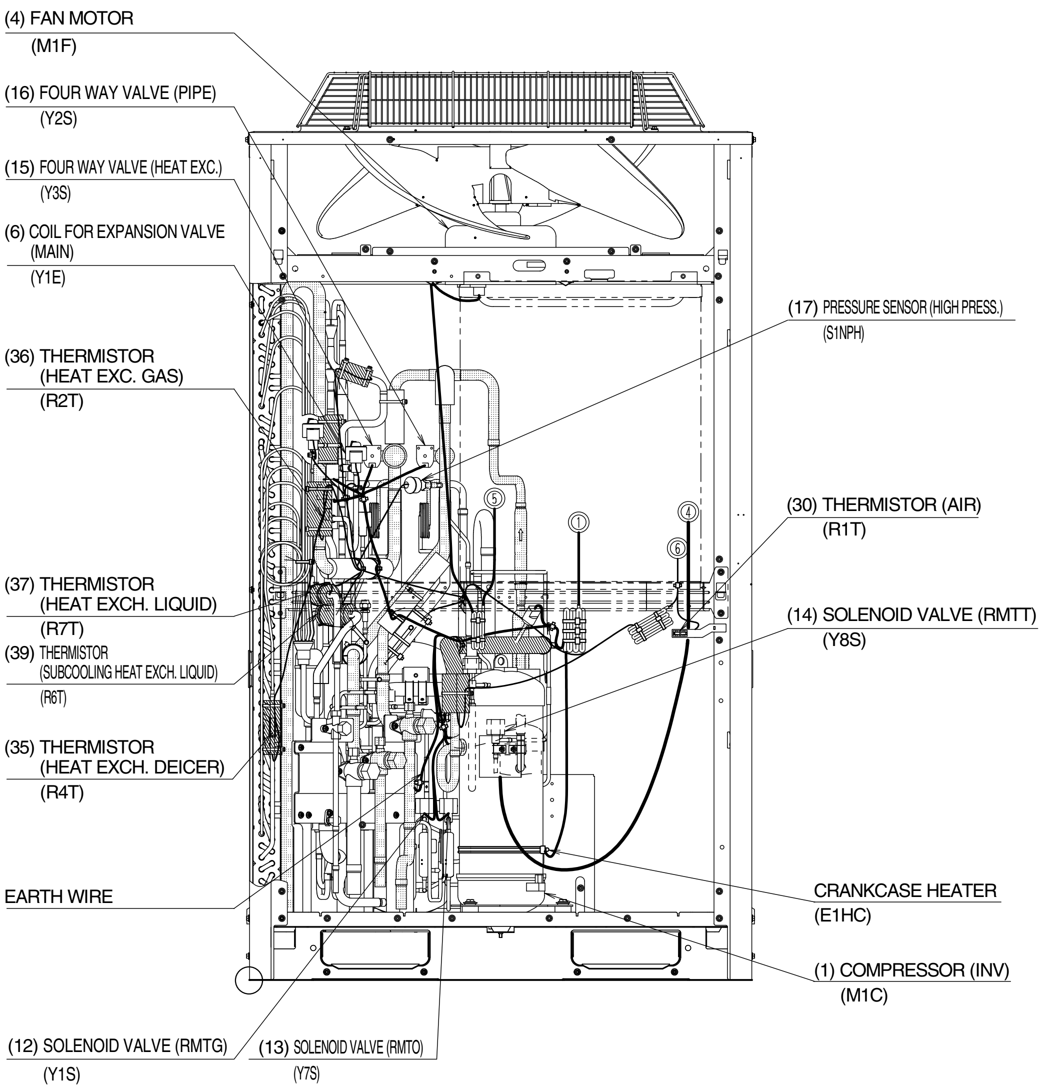
Note: For reference numbers, refer to page 63.

2.3 REMQ8P

Plan



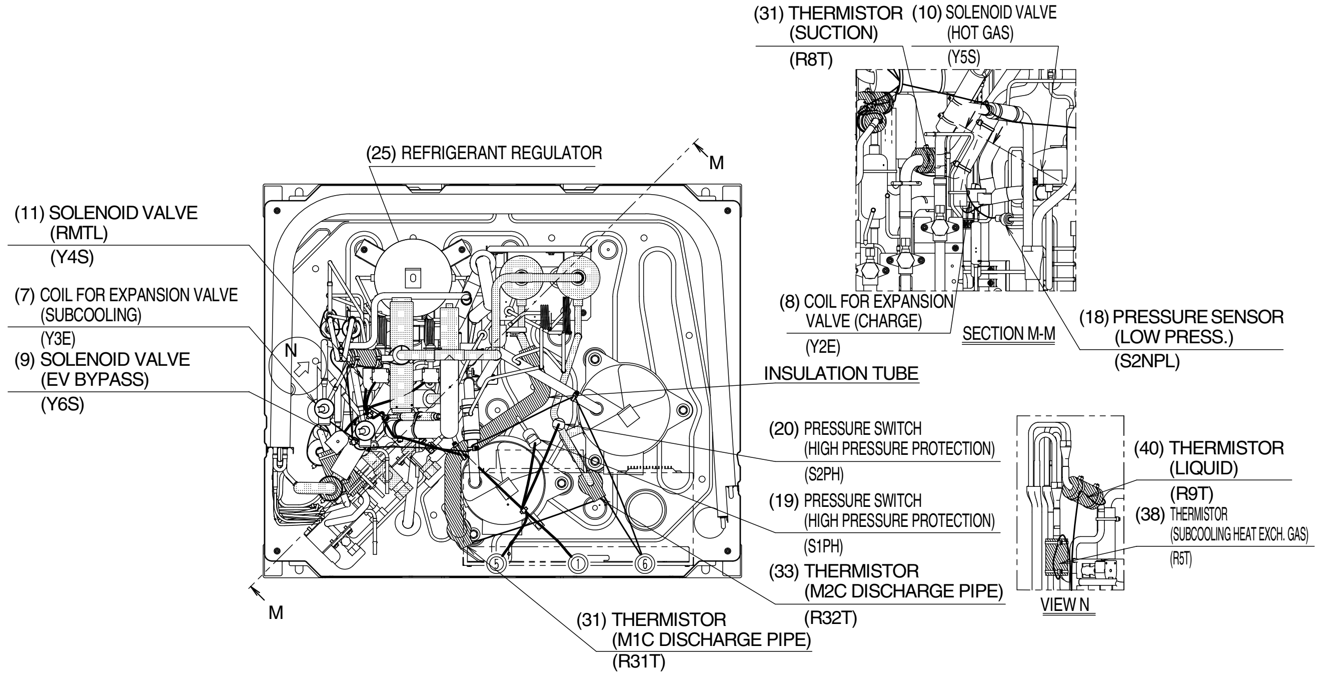
Front View



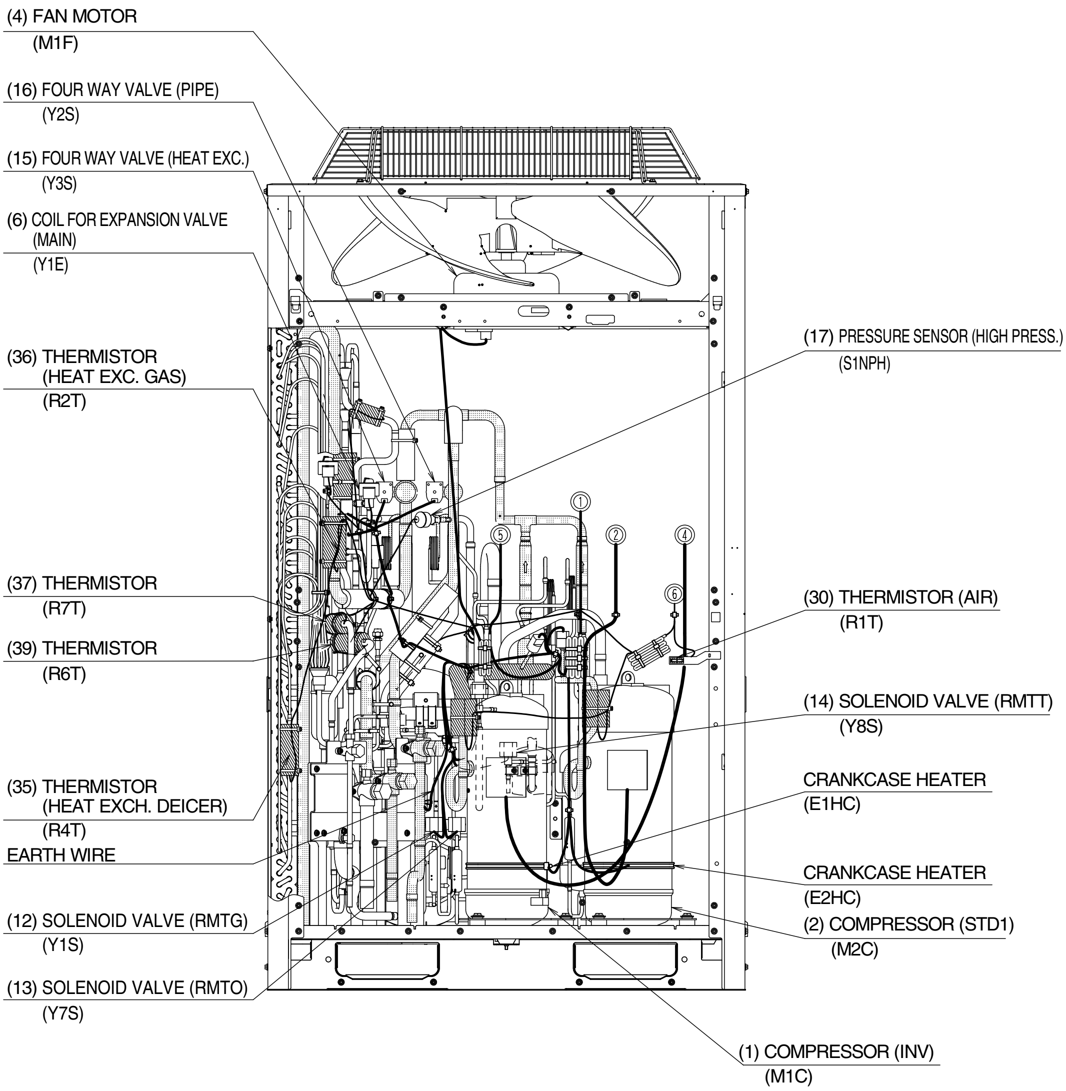
Note: For reference numbers, refer to page 65.

2.4 REMQ10P, 12P

Plan



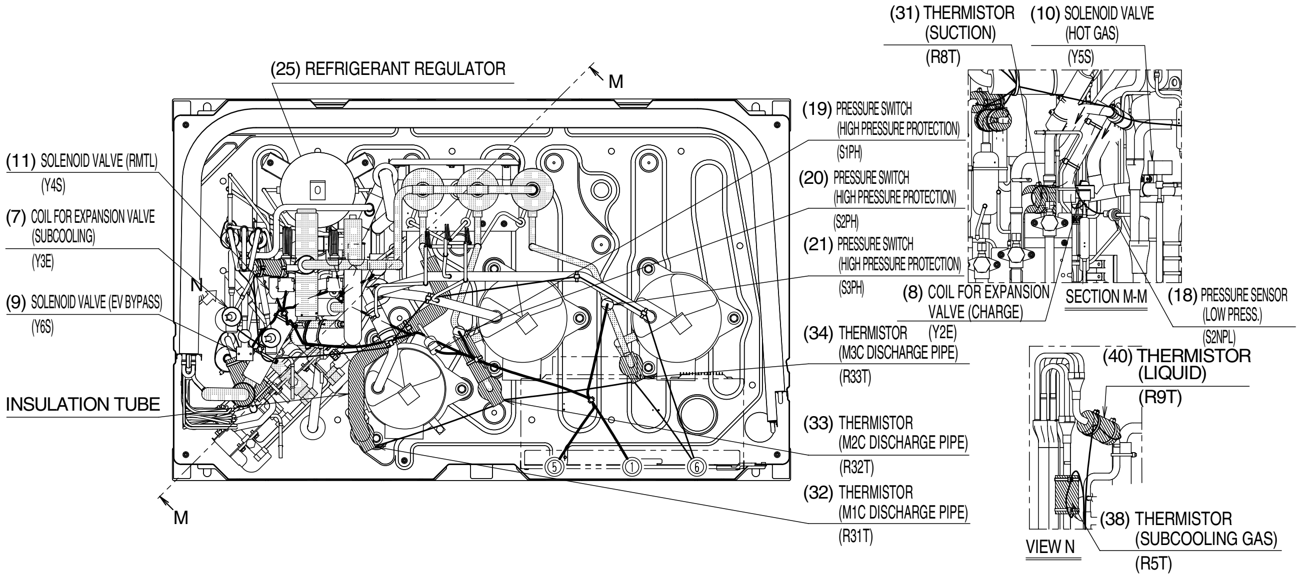
Front View



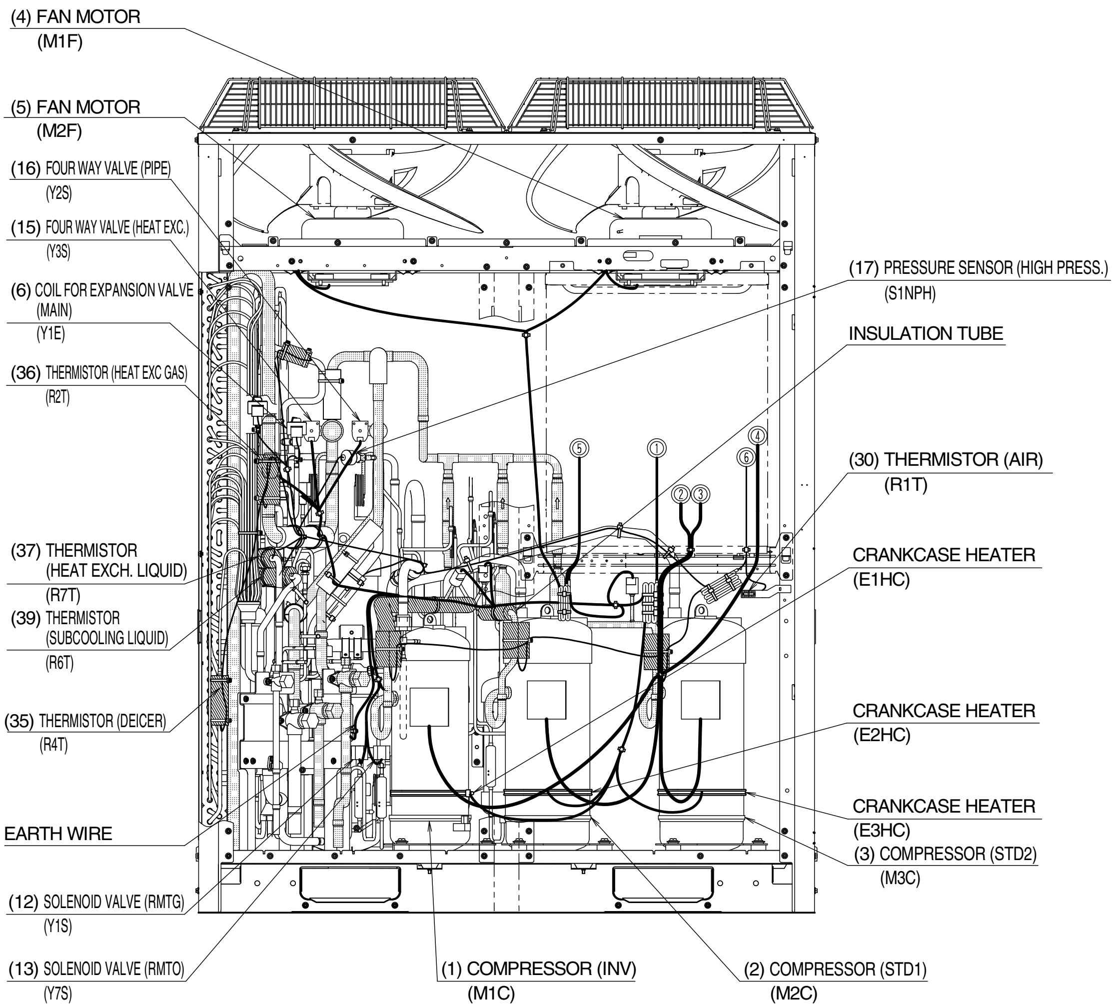
Note: For reference number, refer to page 67.

2.5 REMQ14P, 16P

Plan



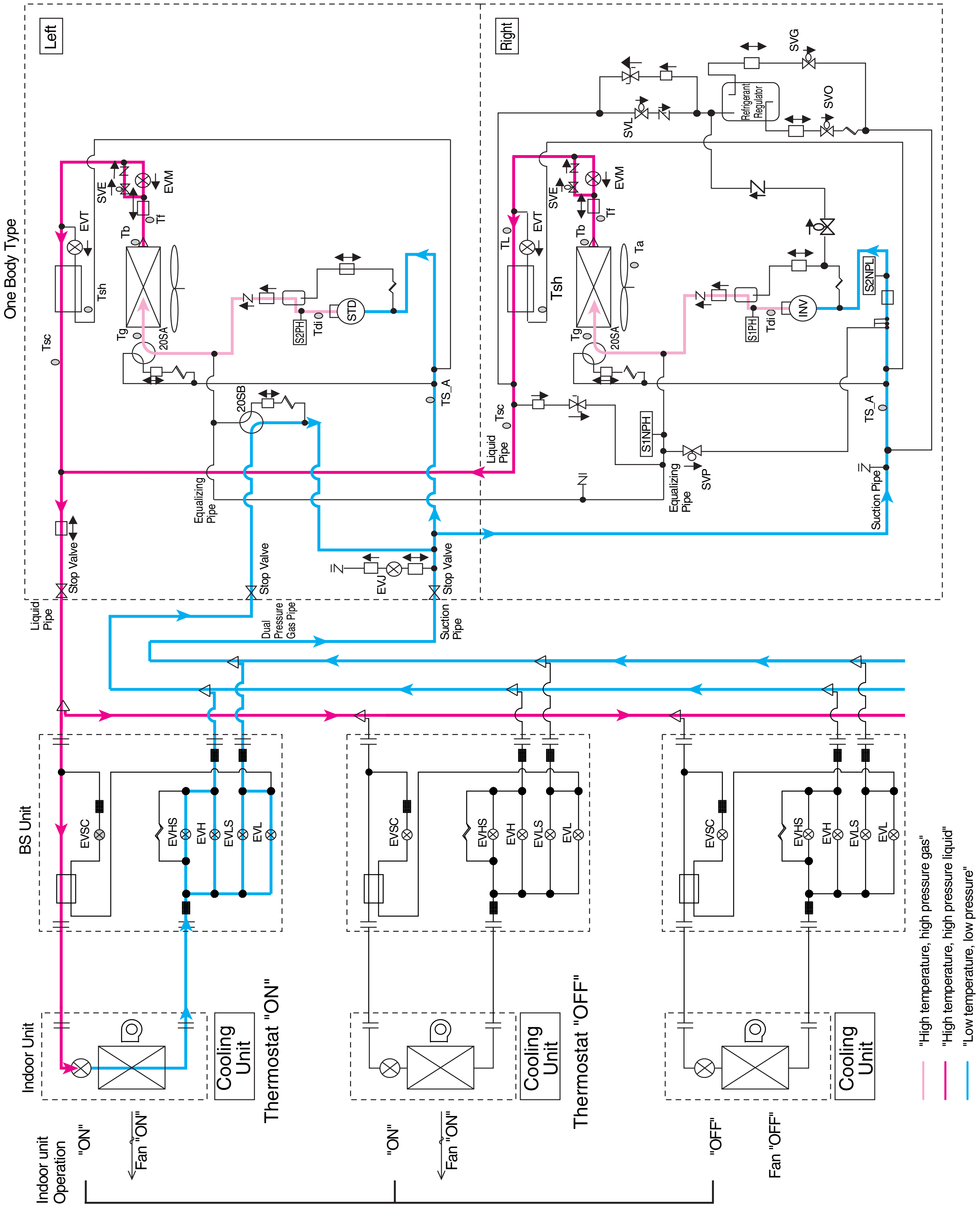
Front View



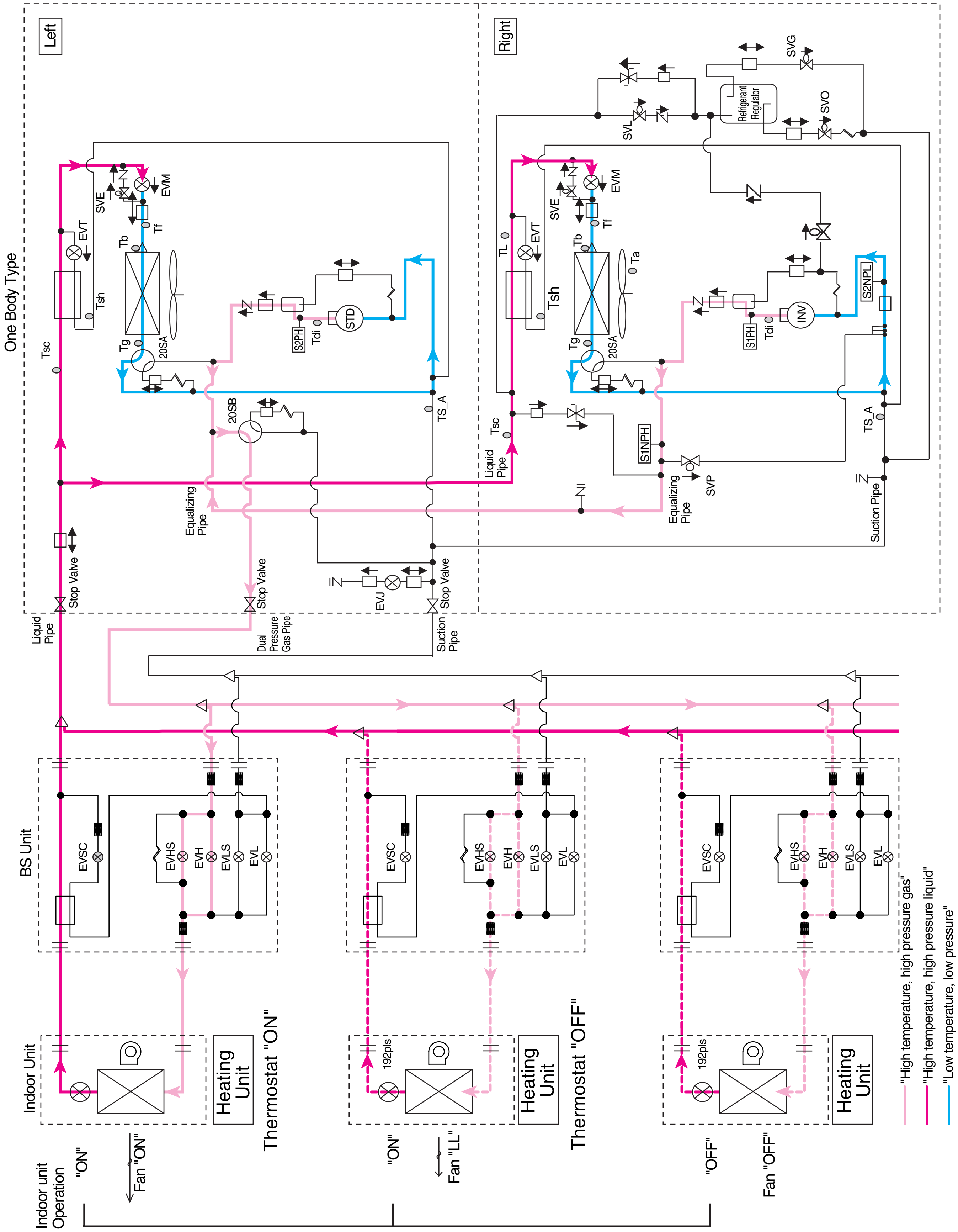
Note: For reference number, refer to page 69.

3. Refrigerant Flow for Each Operation Mode

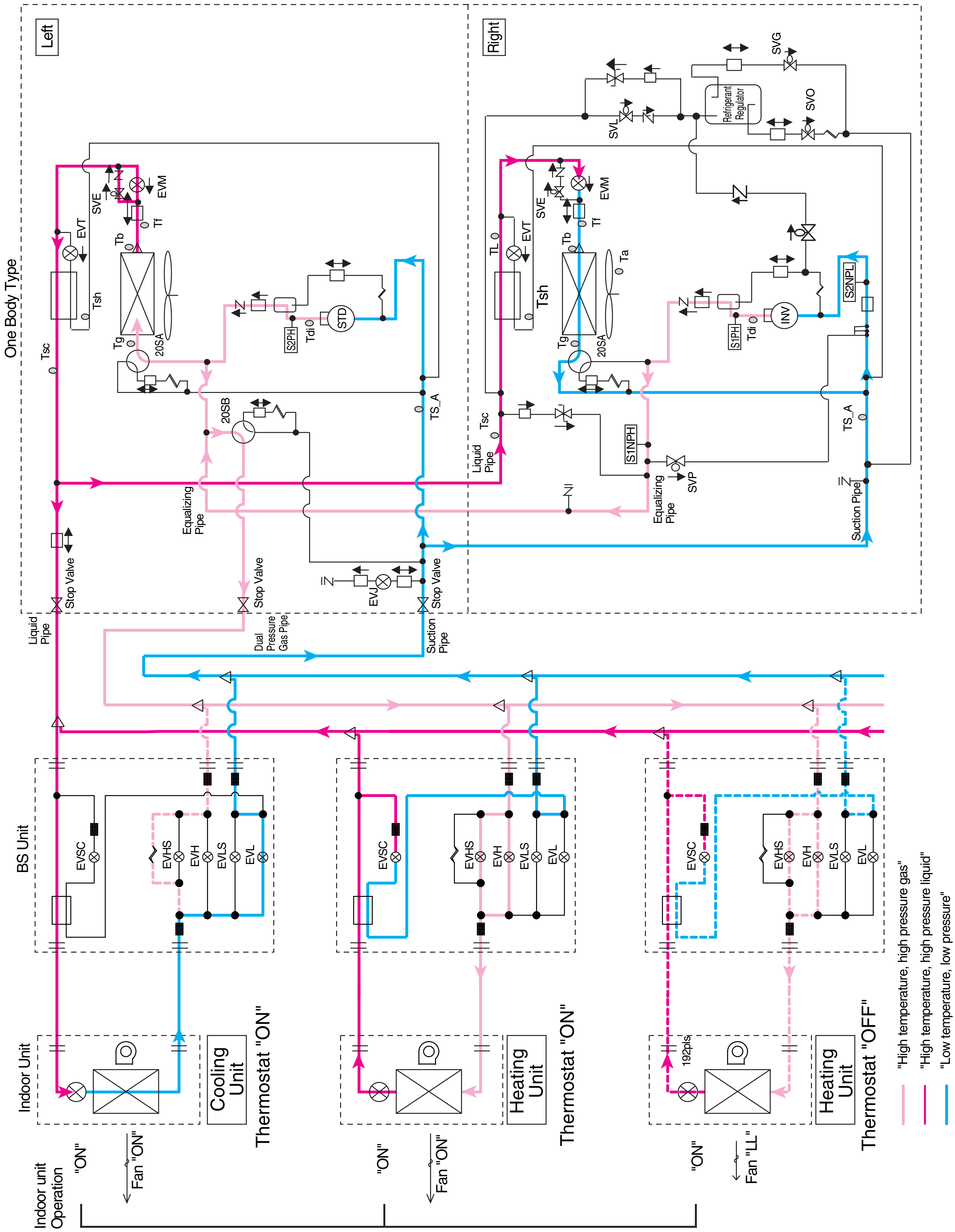
REYQ8P, 10P, 12P
Cooling Operation



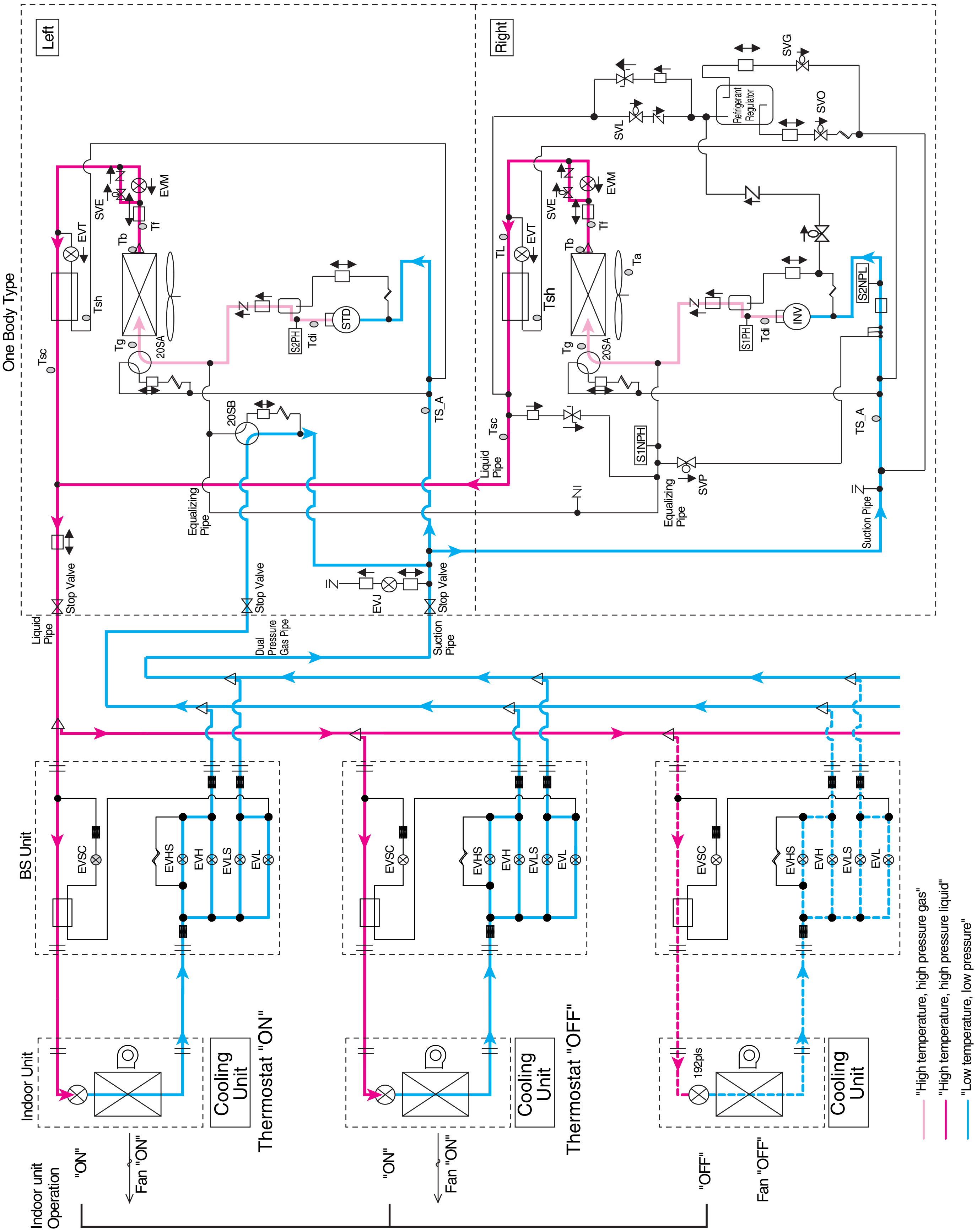
Heating Operation



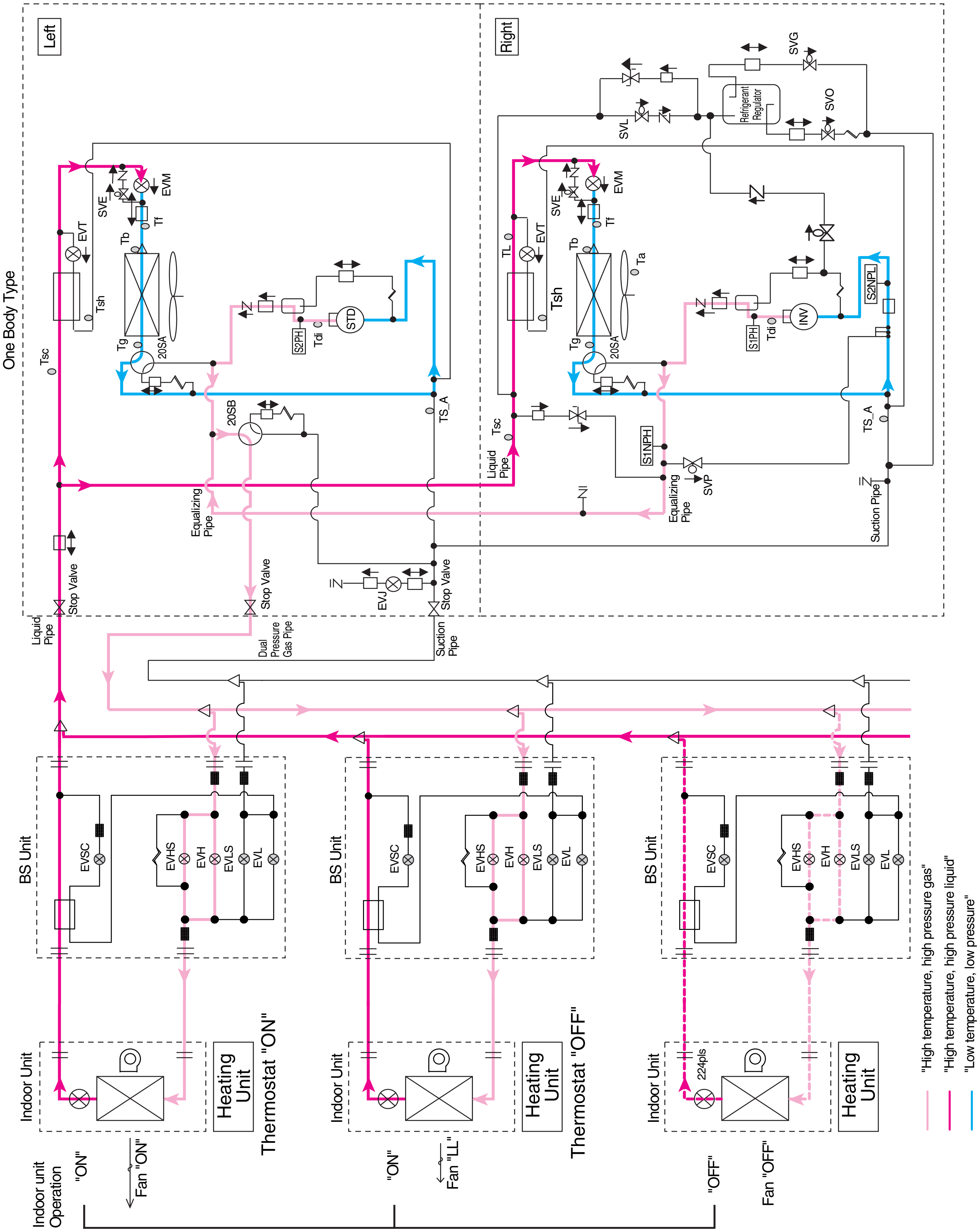
Simultaneous Cooling / Heating Operation



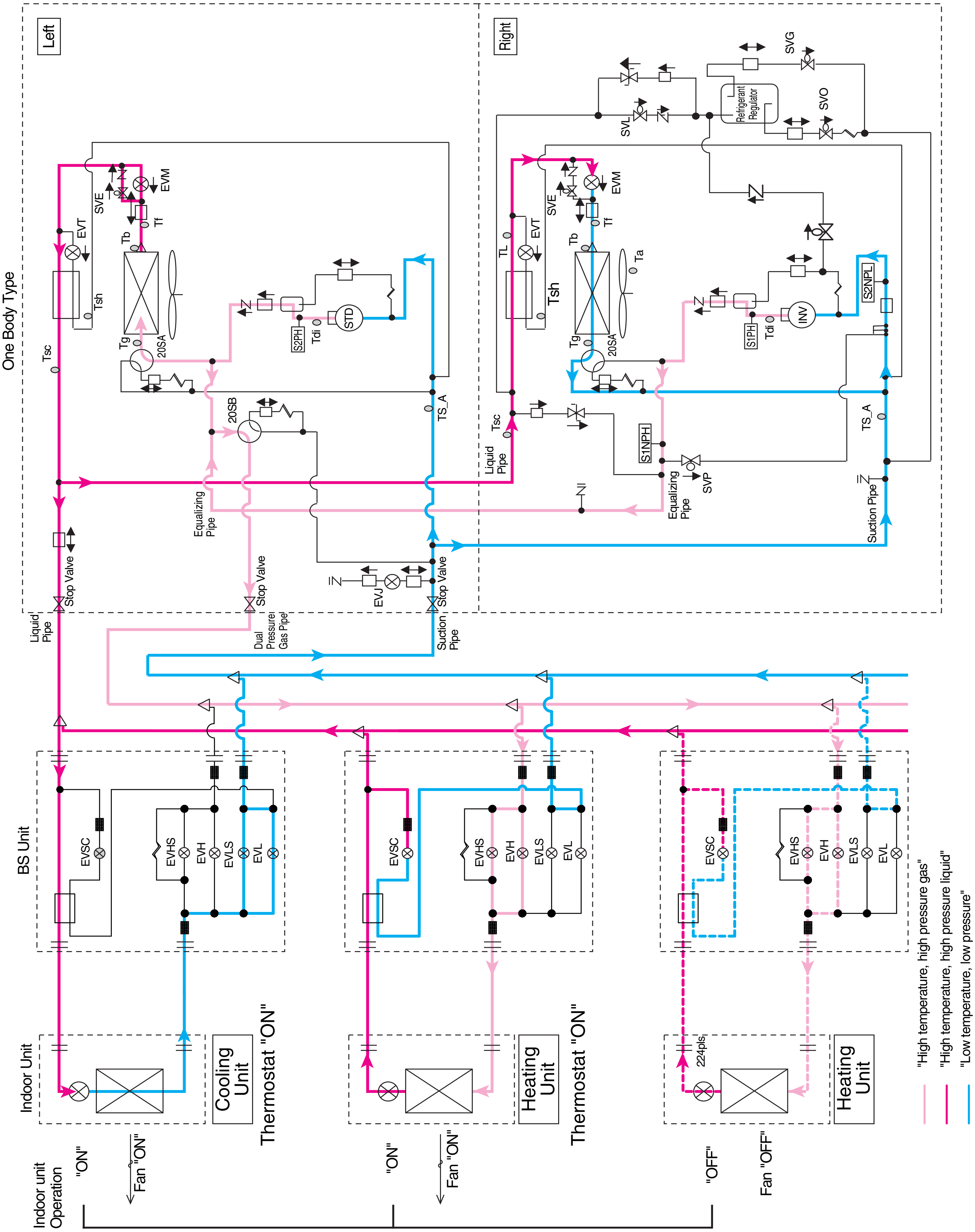
Cooling Oil Return Operation



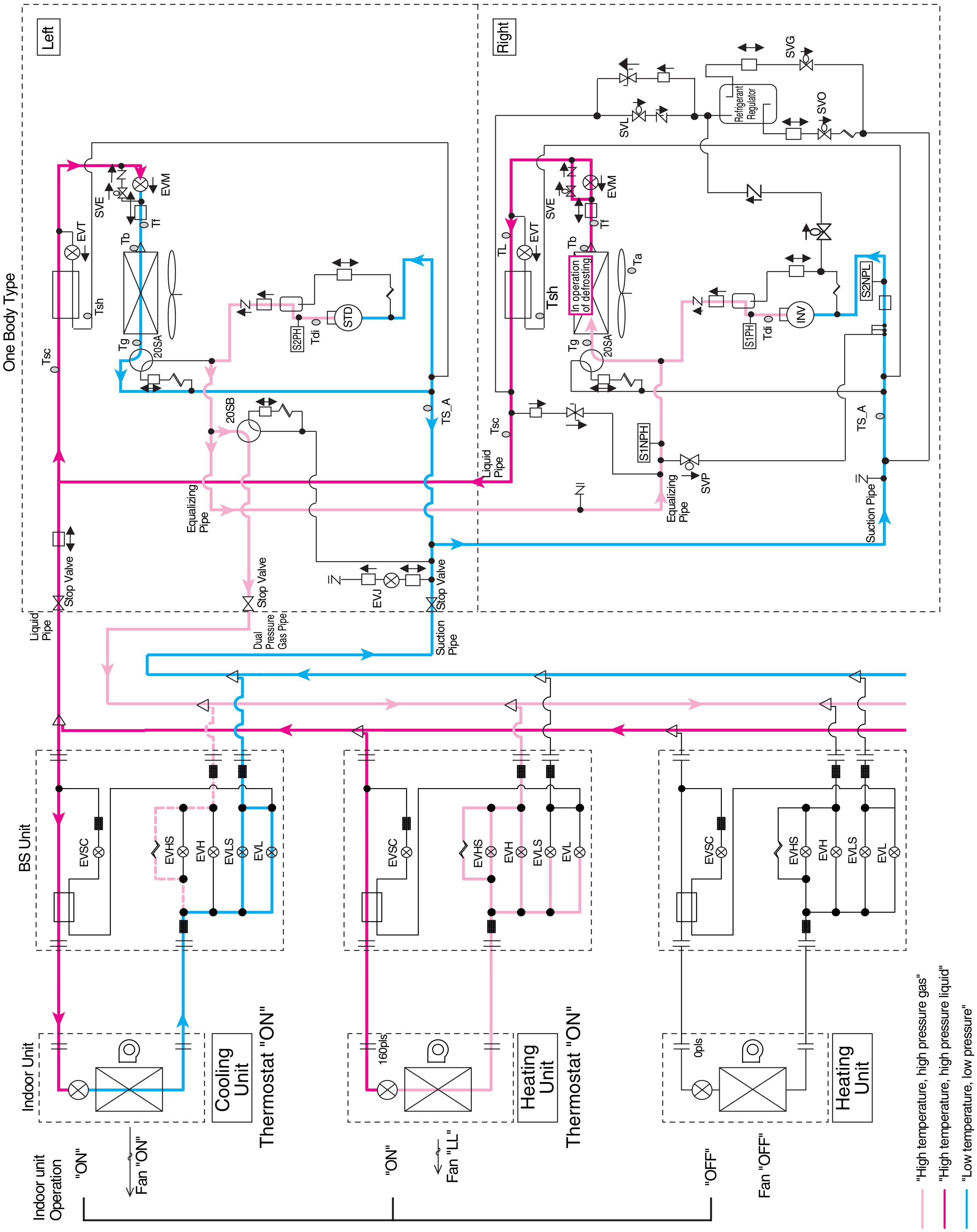
Heating Oil Return Operation



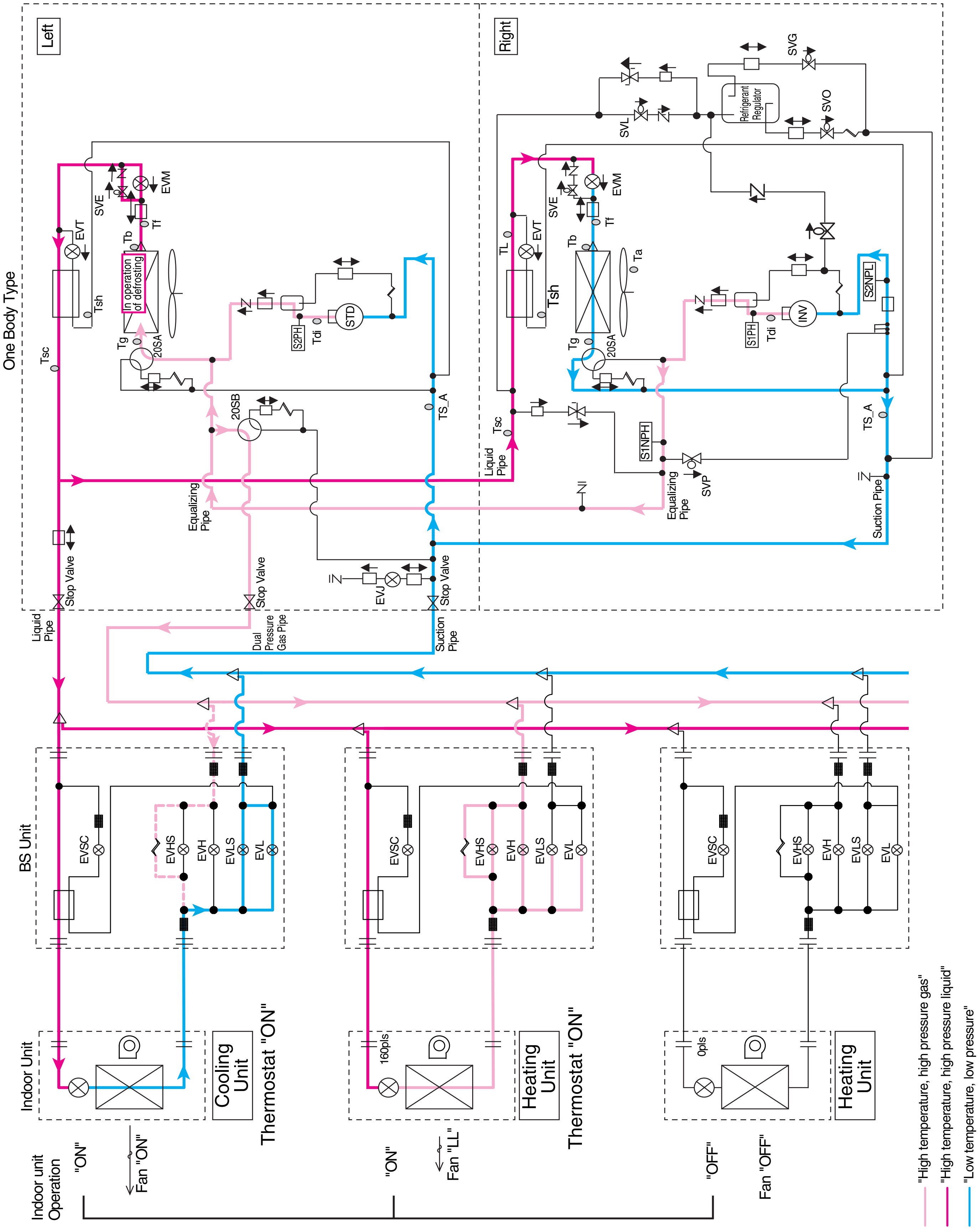
Oil Return Operation at Simultaneous Cooling / Heating Operation



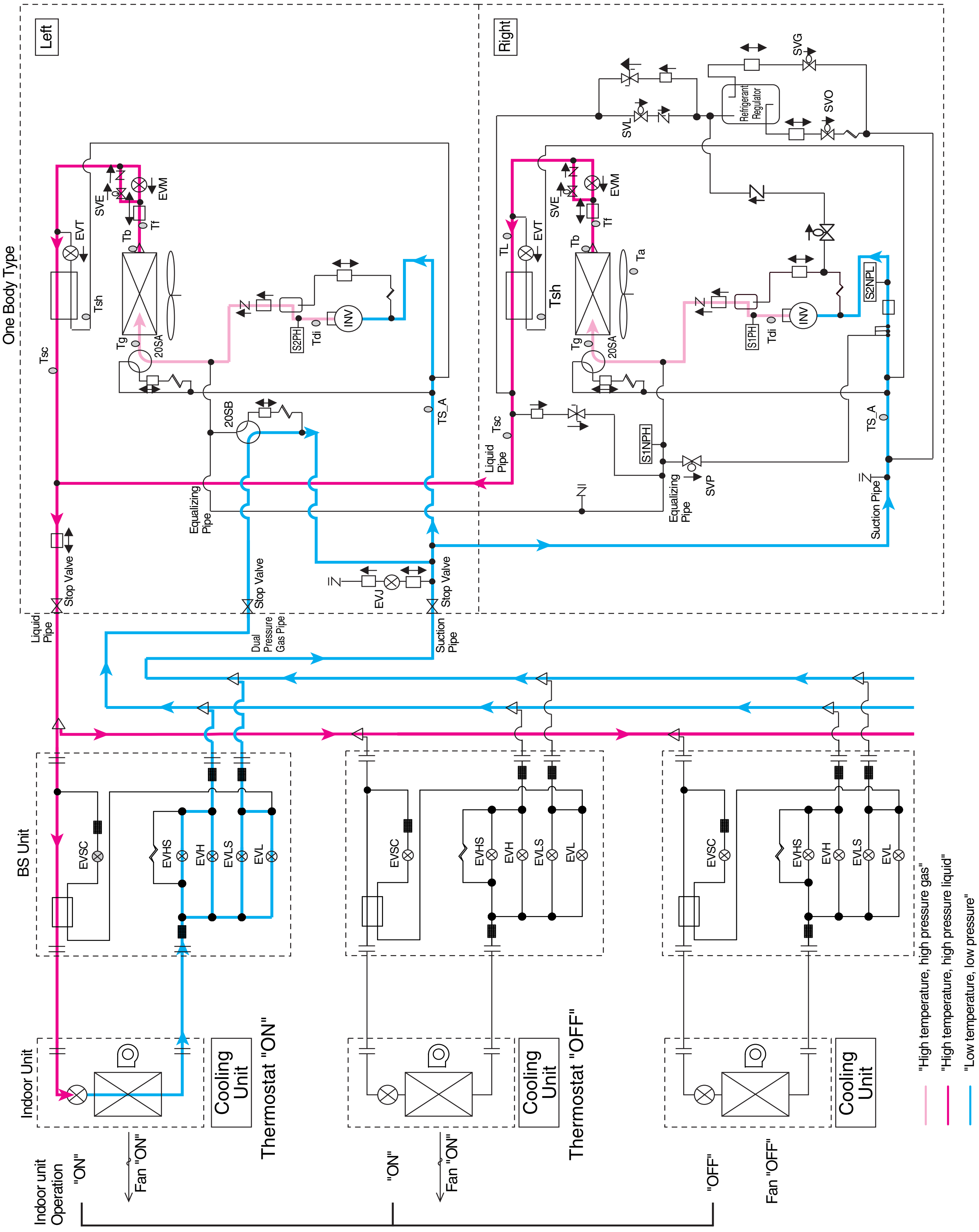
Partial Defrosting 1 (Defrosting in the Right Unit)



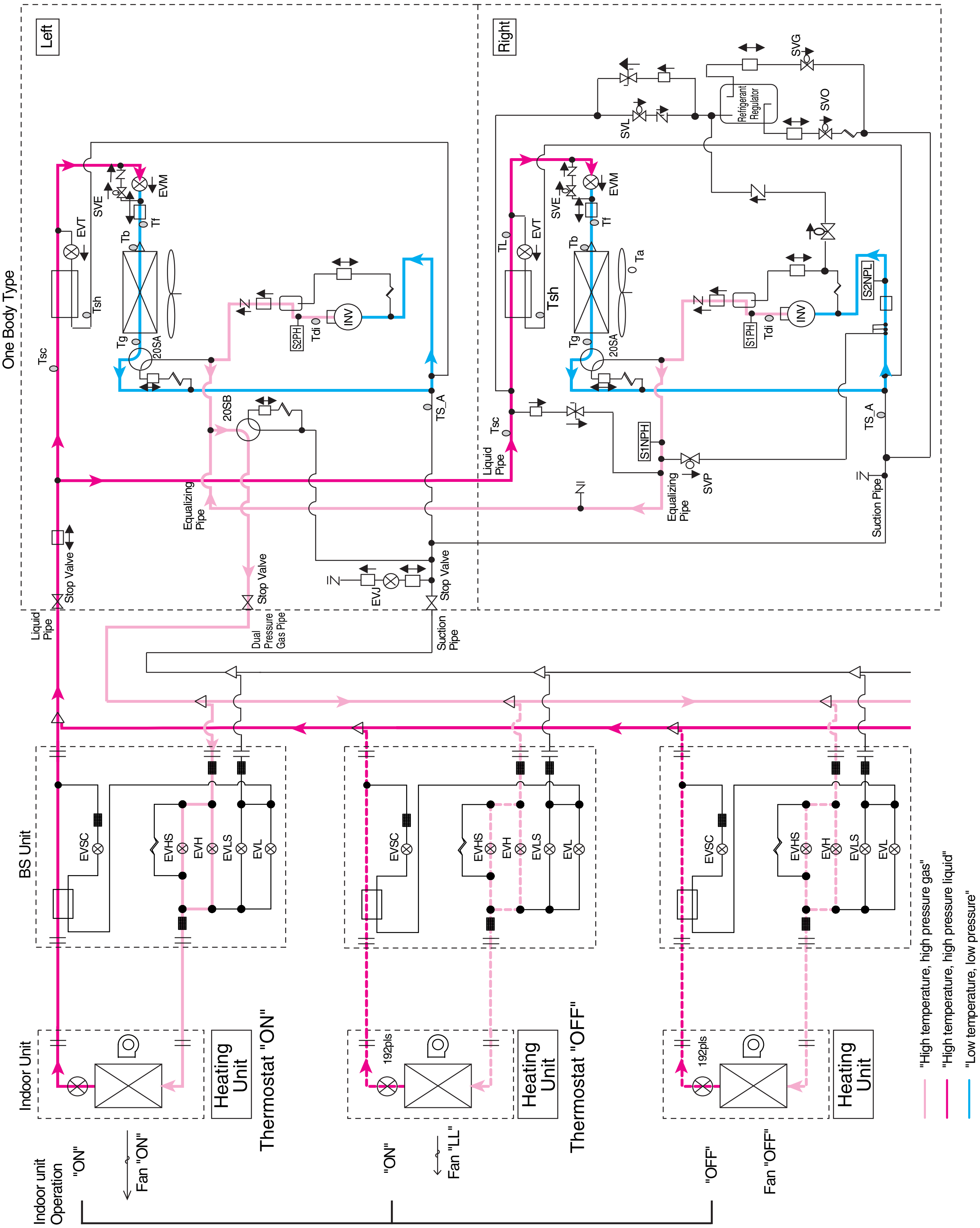
Partial Defrosting 2 (Defrosting in the Left Unit)



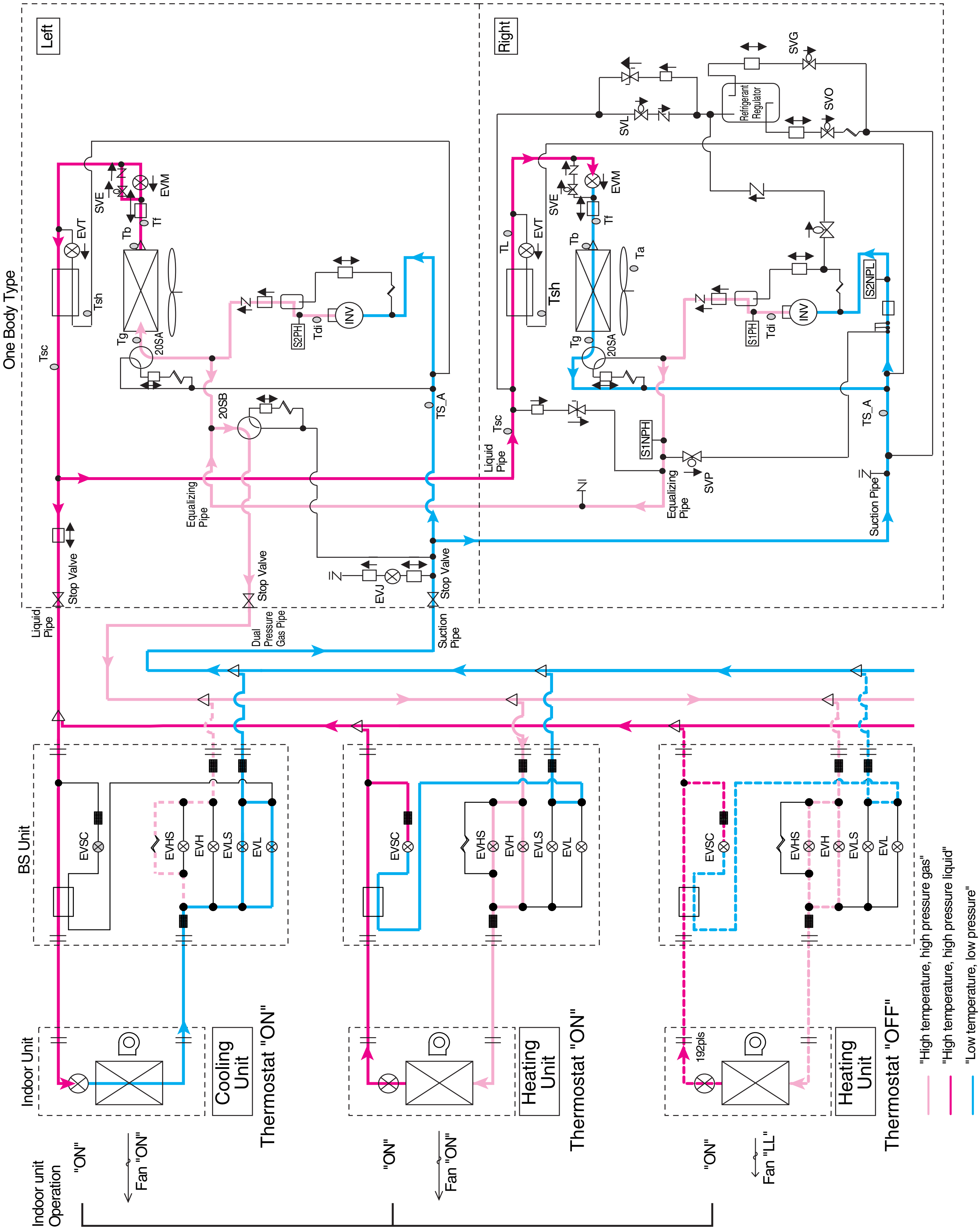
REYQ14P, 16P
Cooling Operation



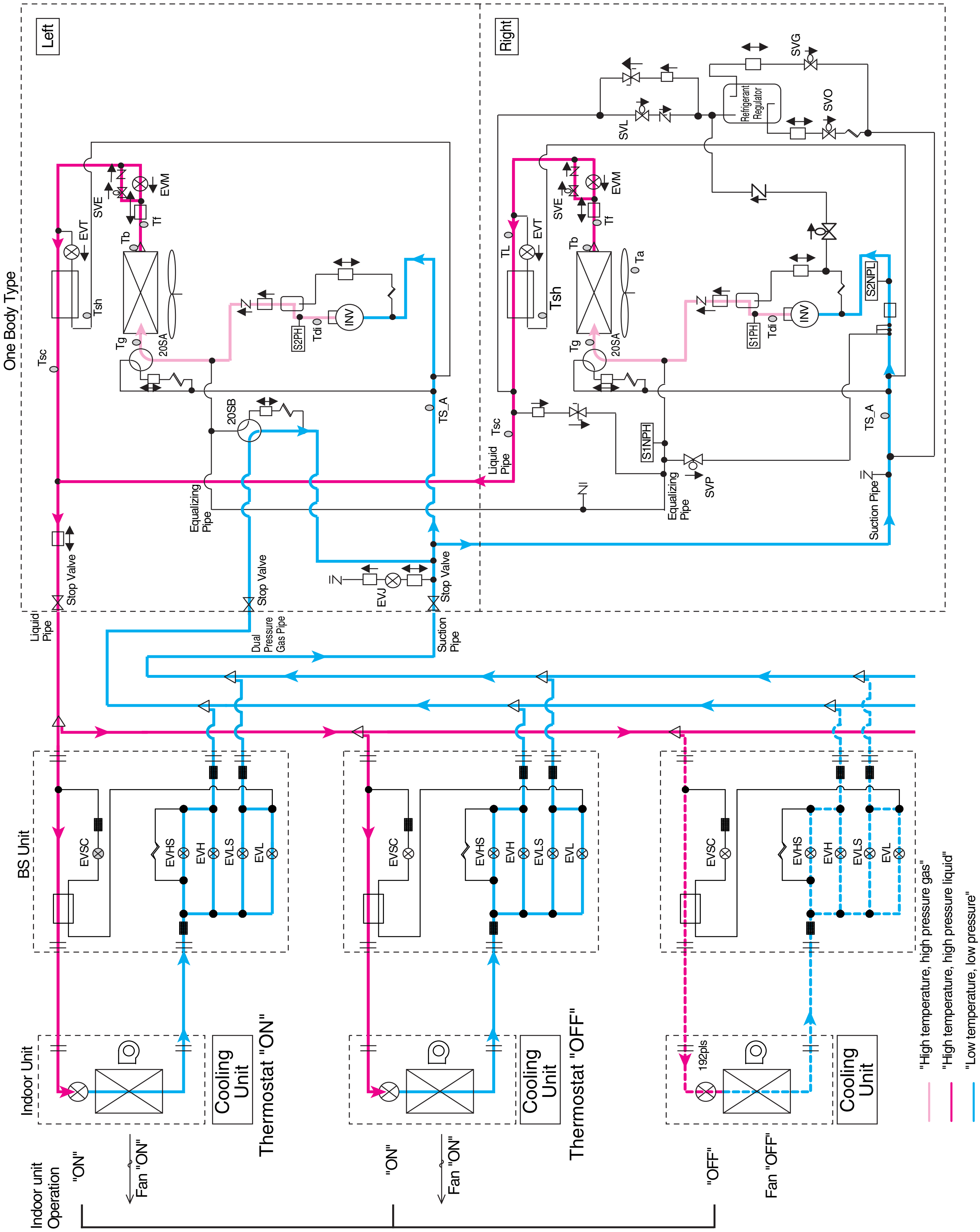
Heating Operation



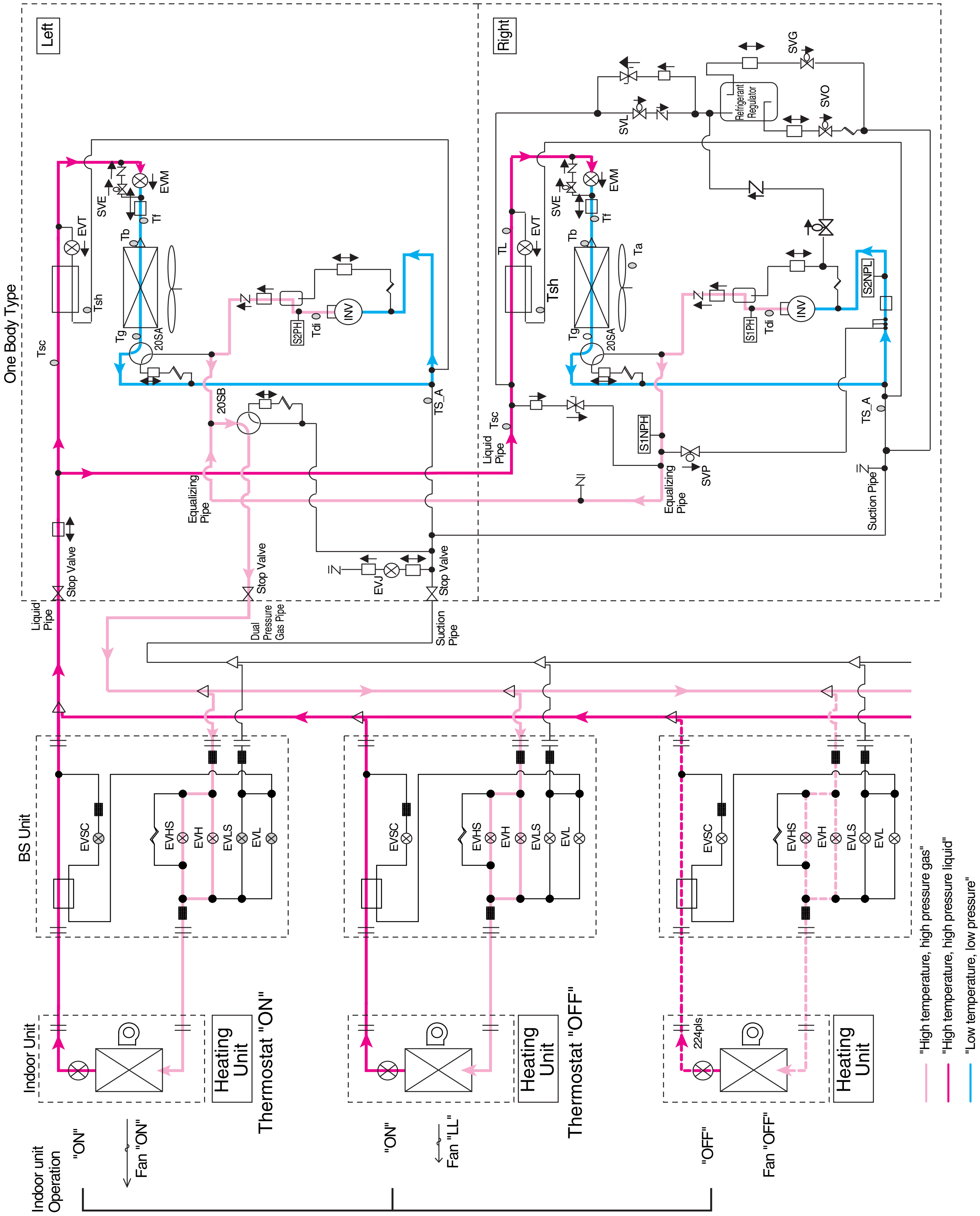
Simultaneous Cooling / Heating Operation



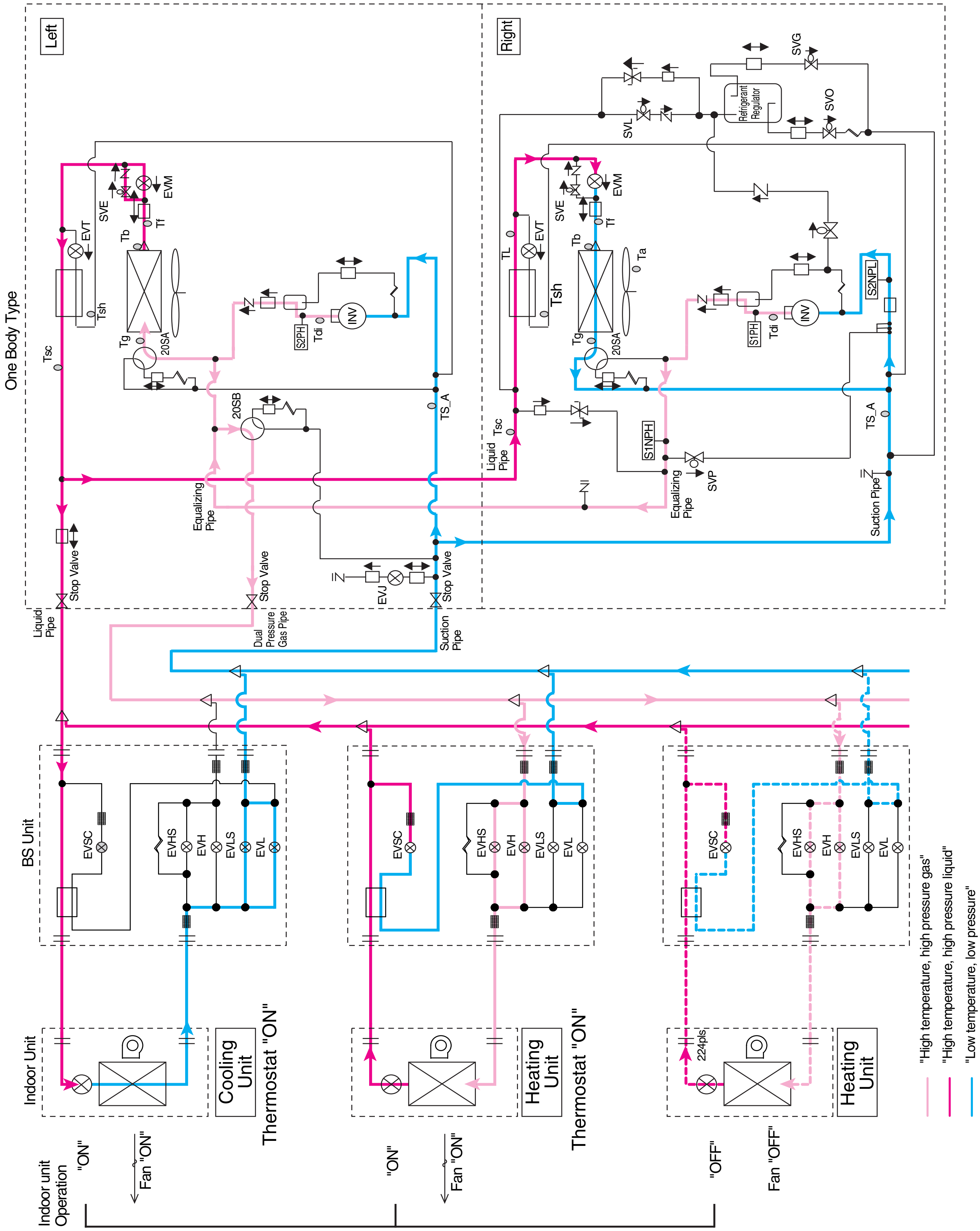
Cooling Oil Return Operation



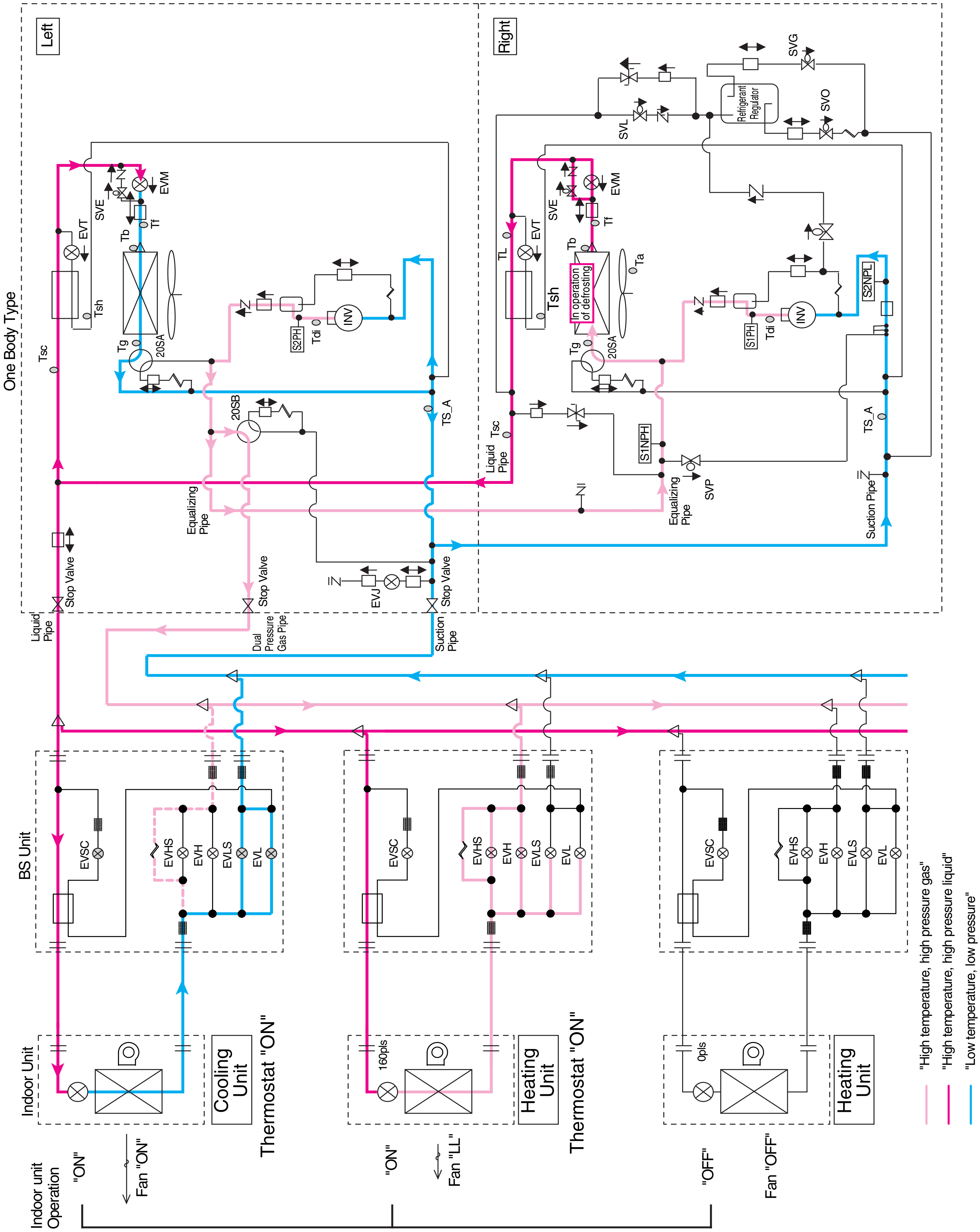
Heating Oil Return Operation



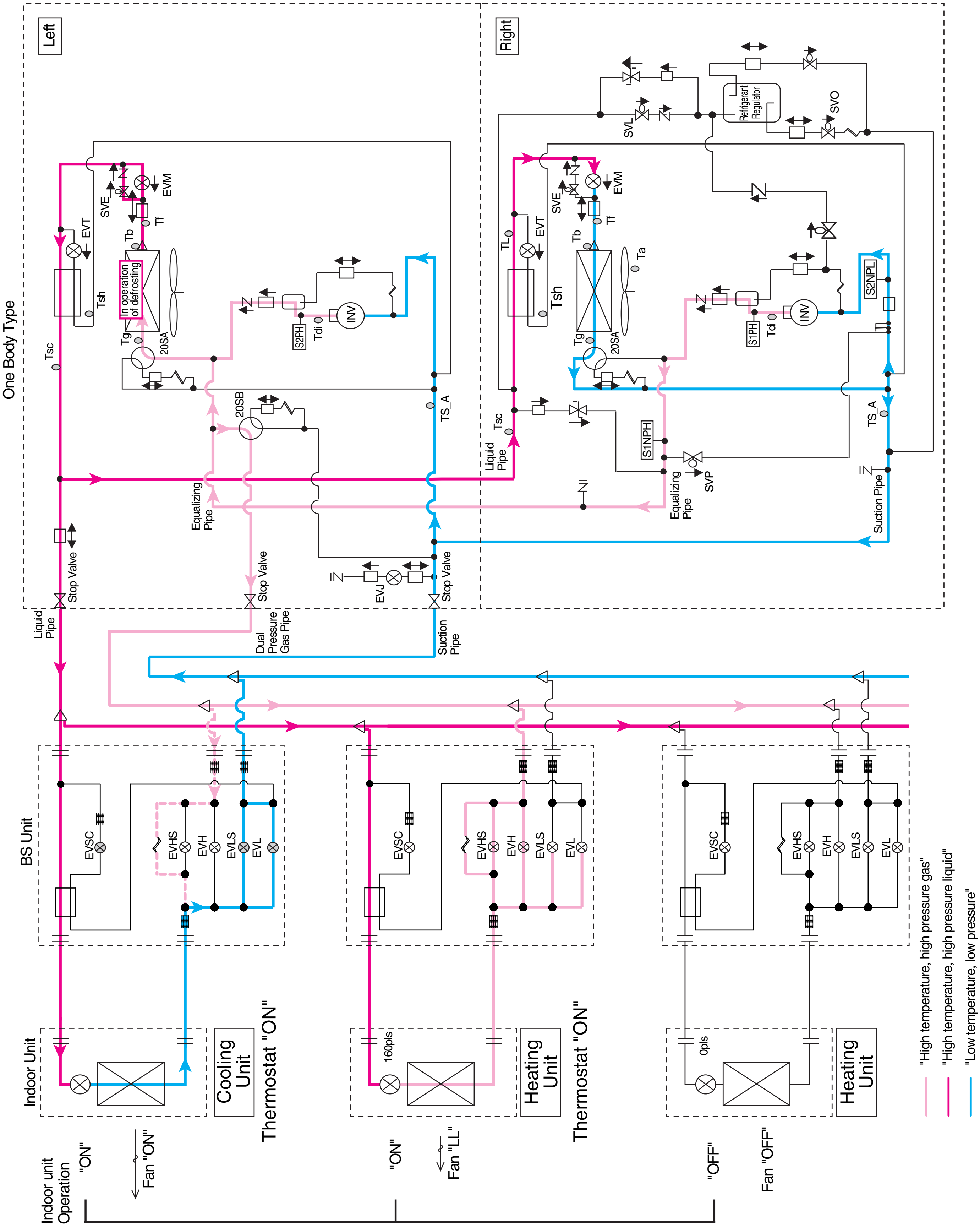
Oil Return Operation at Simultaneous Cooling / Heating Operation



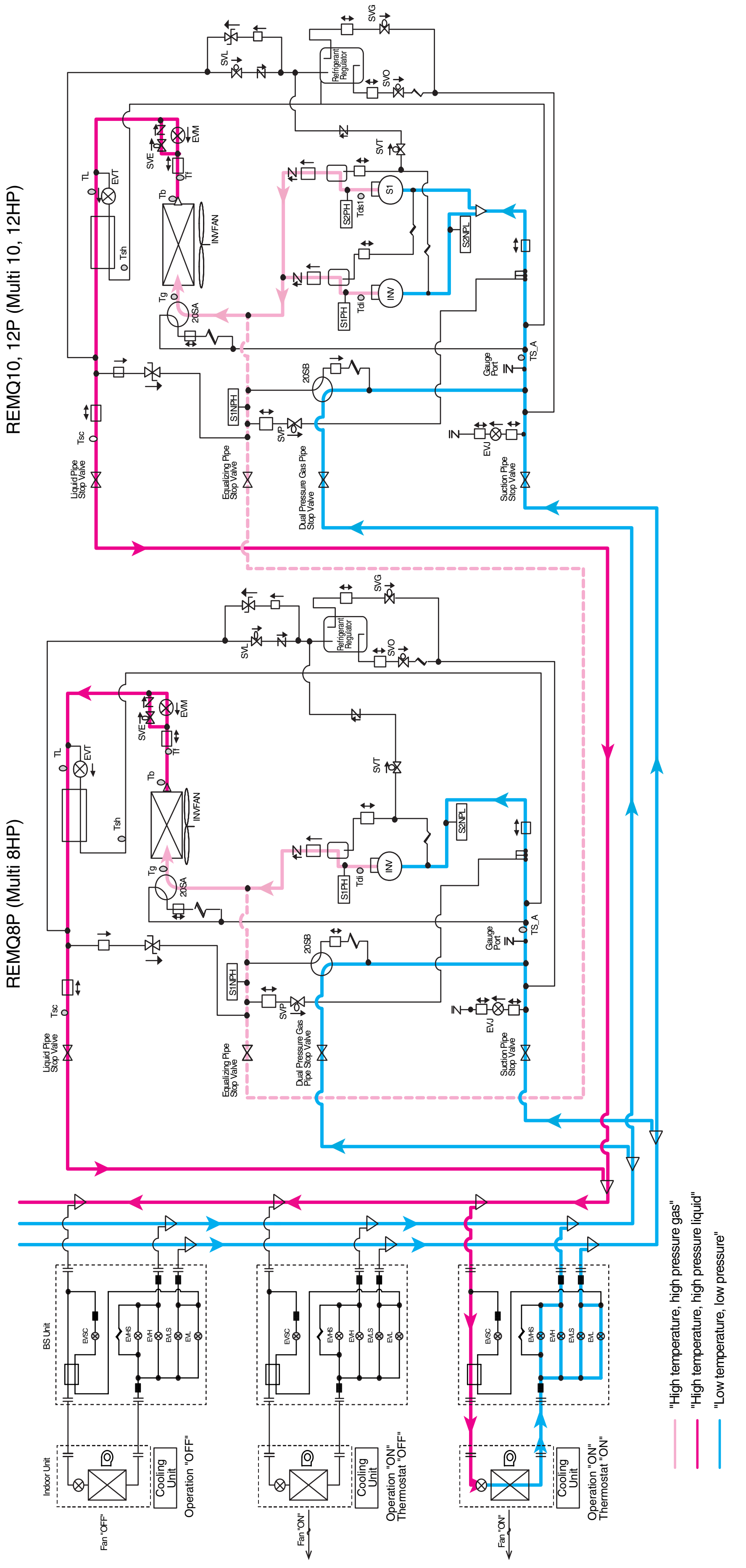
Partial Defrosting 1 (Defrosting in the Right Unit)



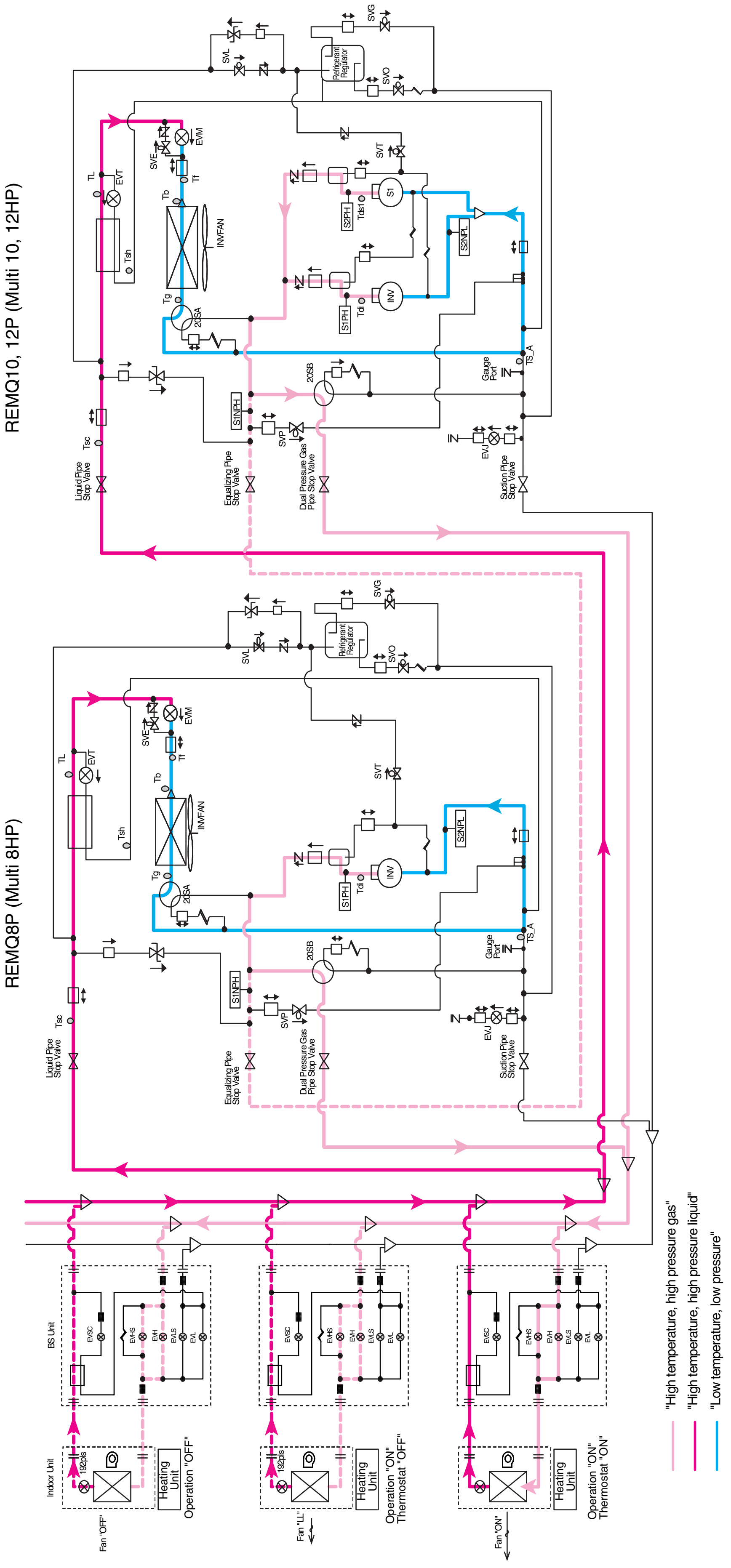
Partial Defrosting 2 (Defrosting in the Left Unit)



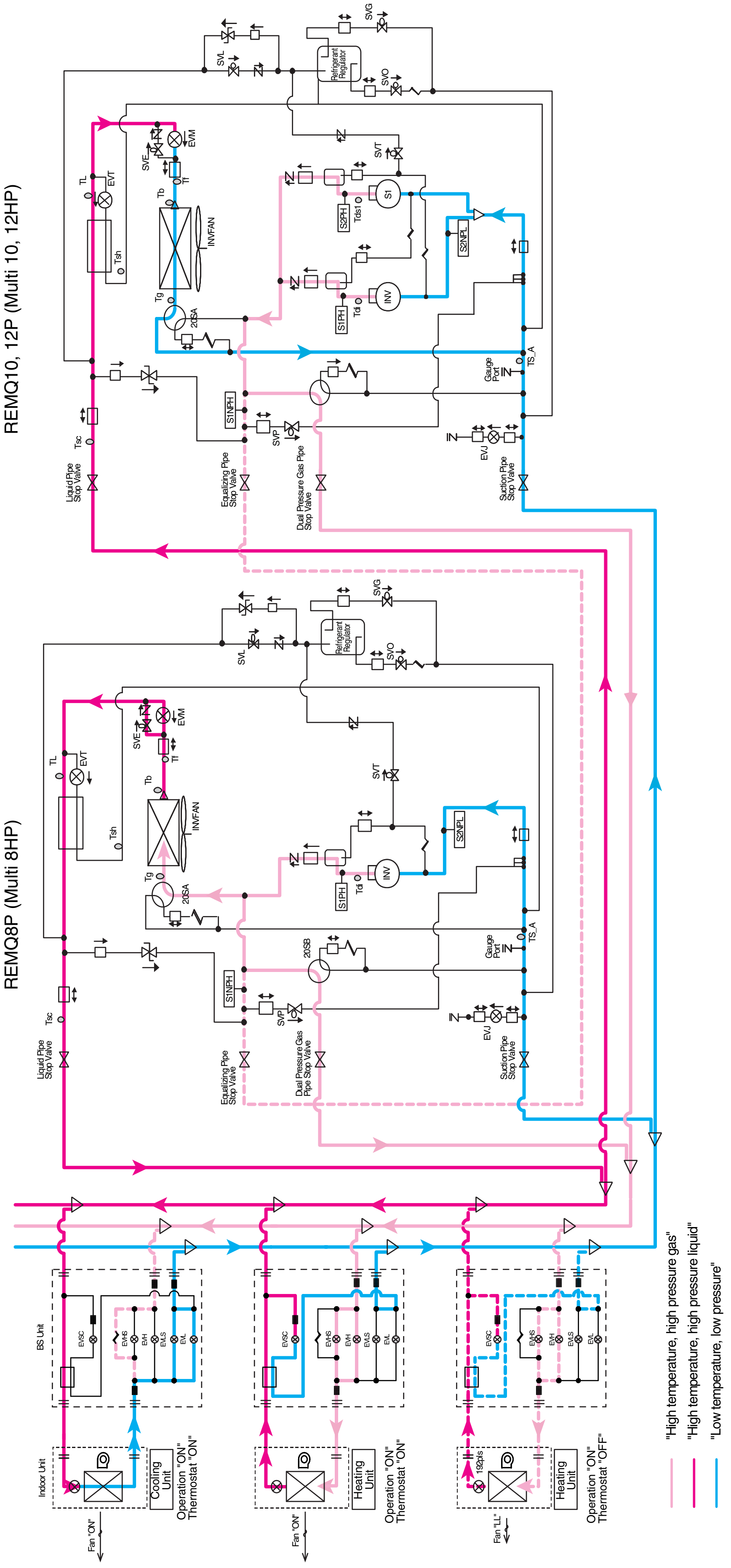
REYQ18P, 20P
Cooling Operation



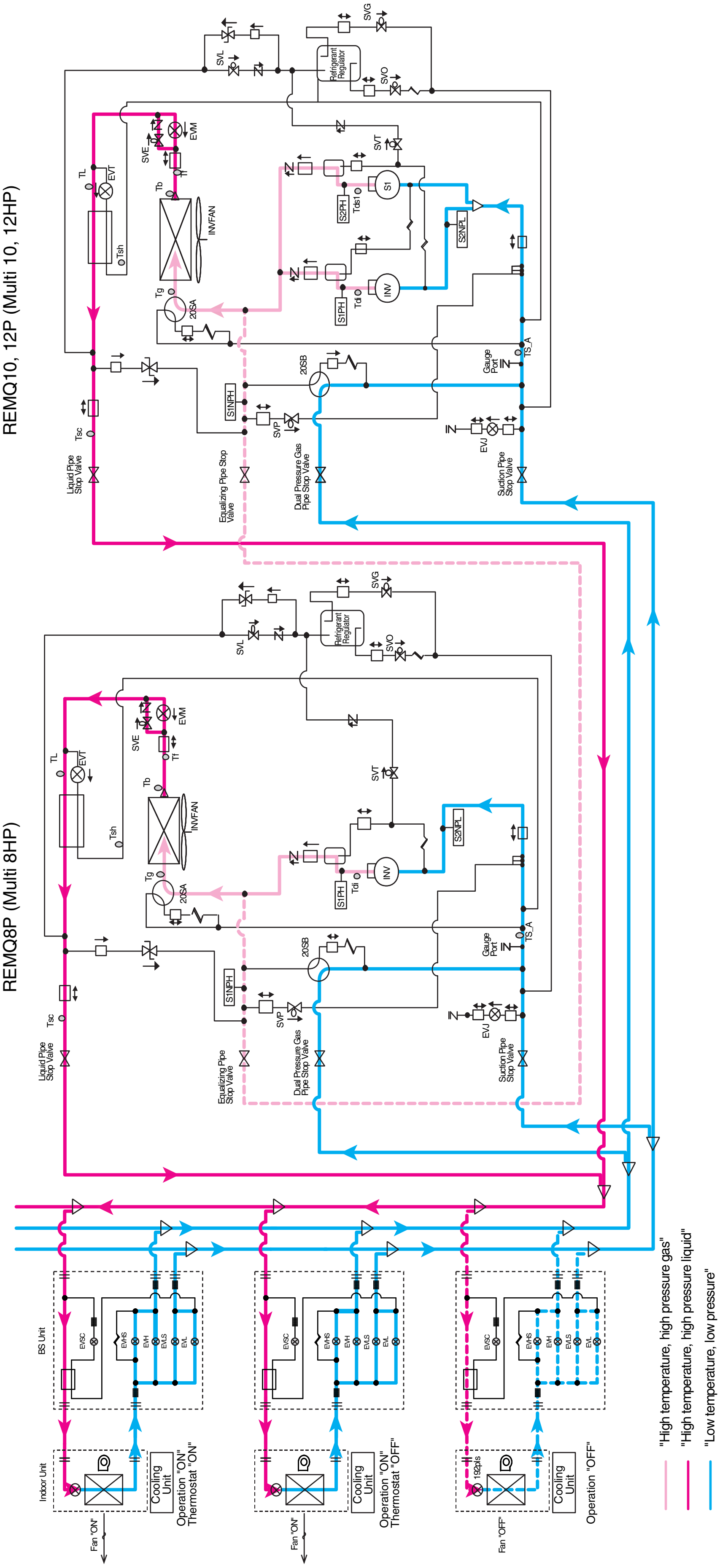
Heading Operation



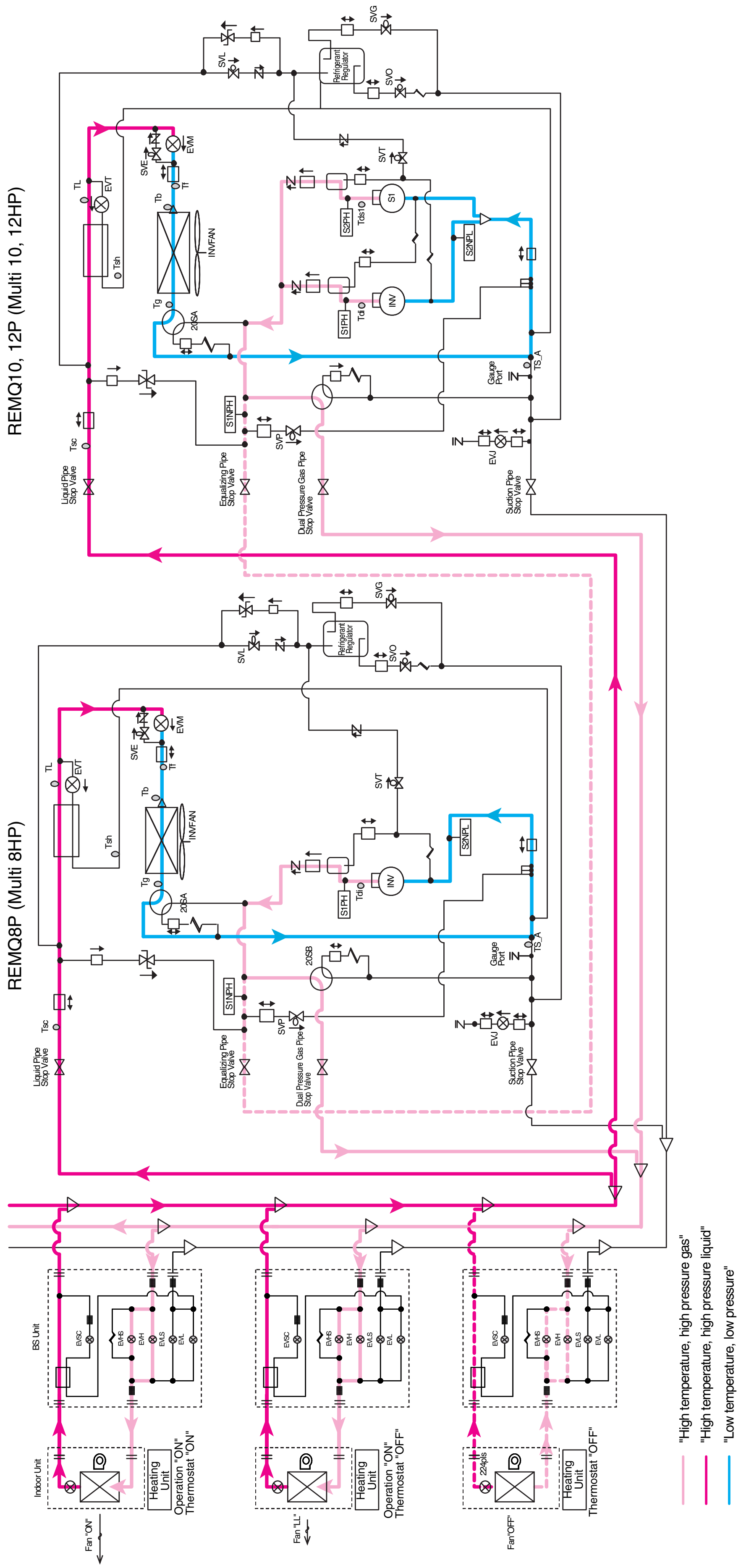
Simultaneous Cooling / Heating Operation



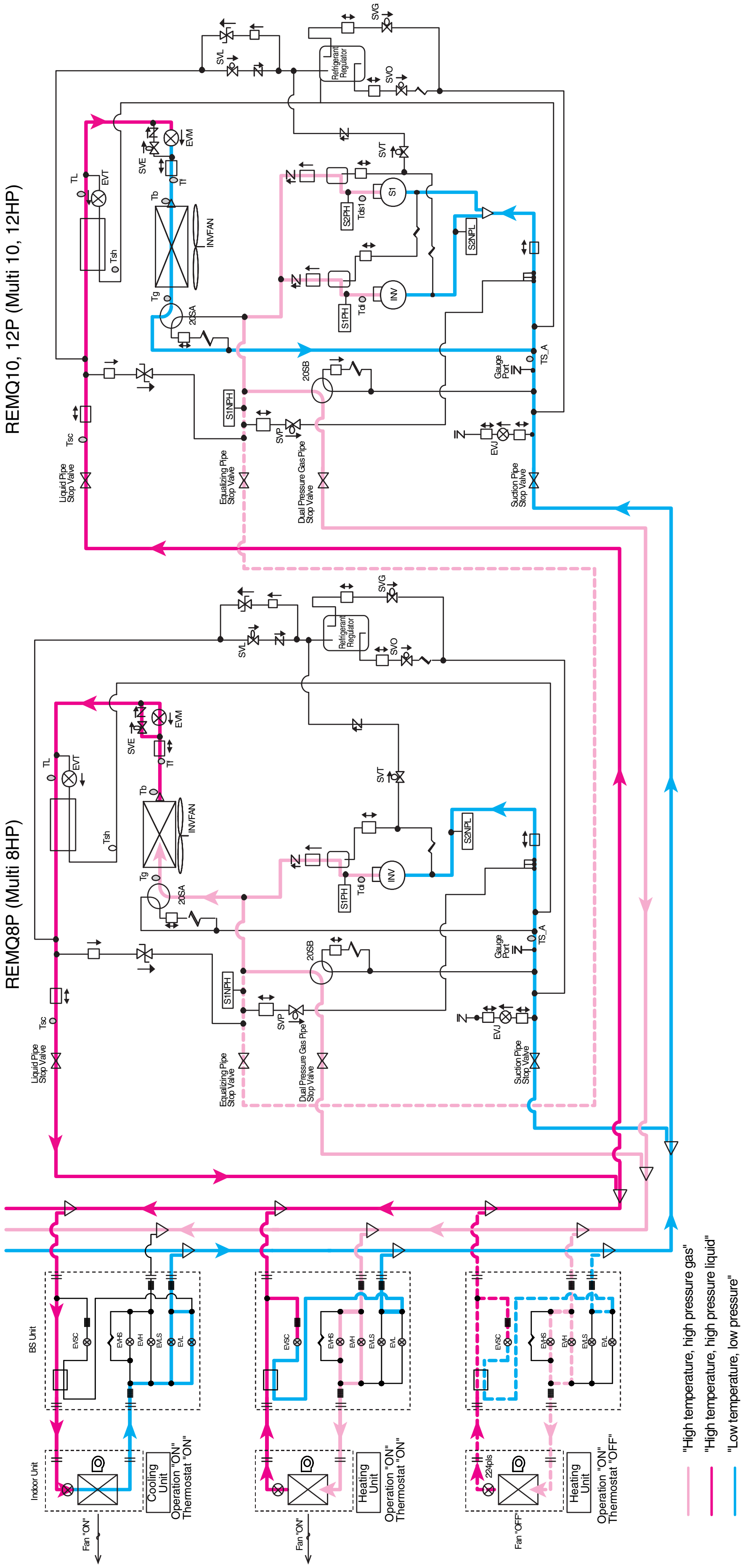
Cooling Oil Return Operation



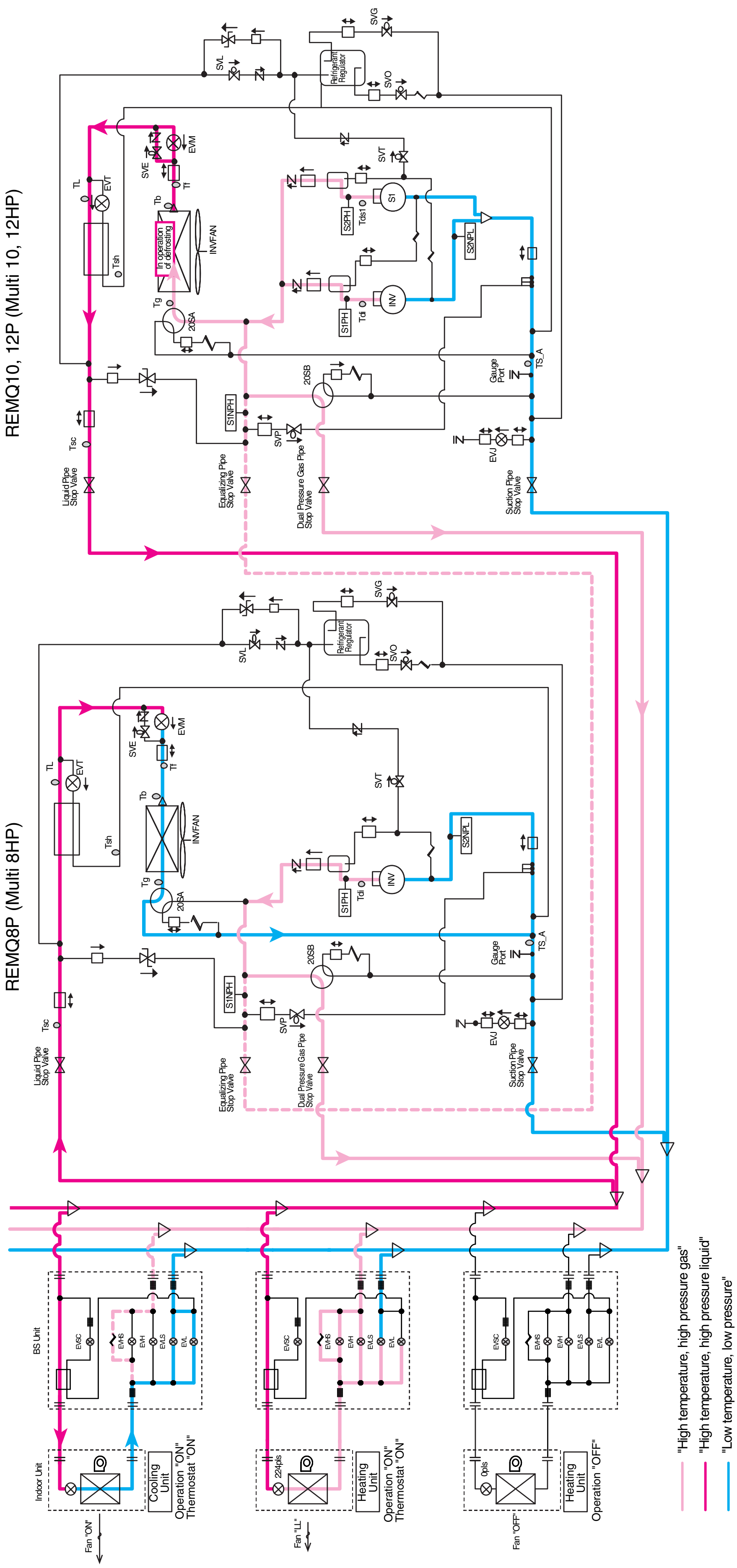
Heating Oil Return Operation



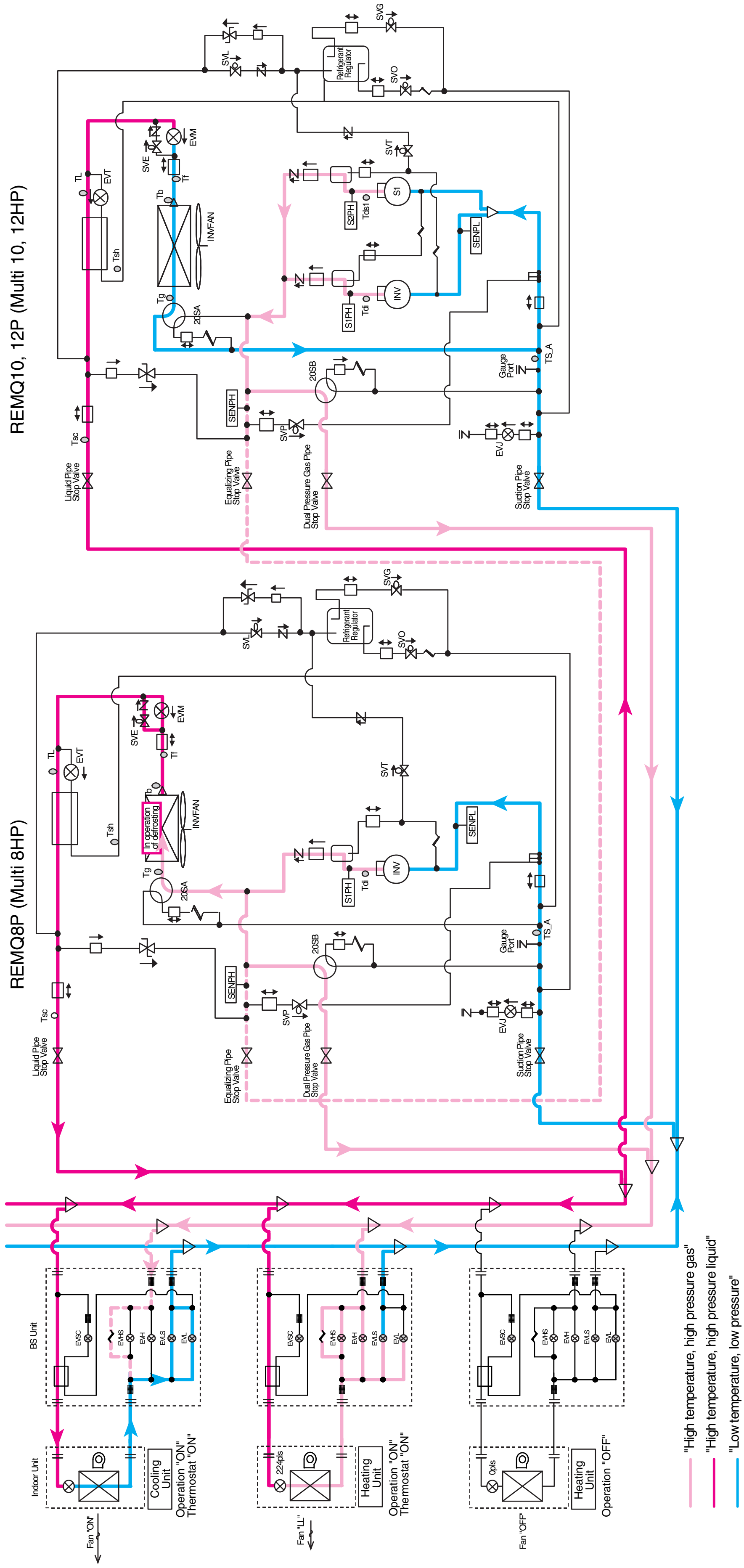
Oil Return Operation at Simultaneous Cooling / Heating Operation



Partial Defrosting 1 (Defrosting in the Right Unit)

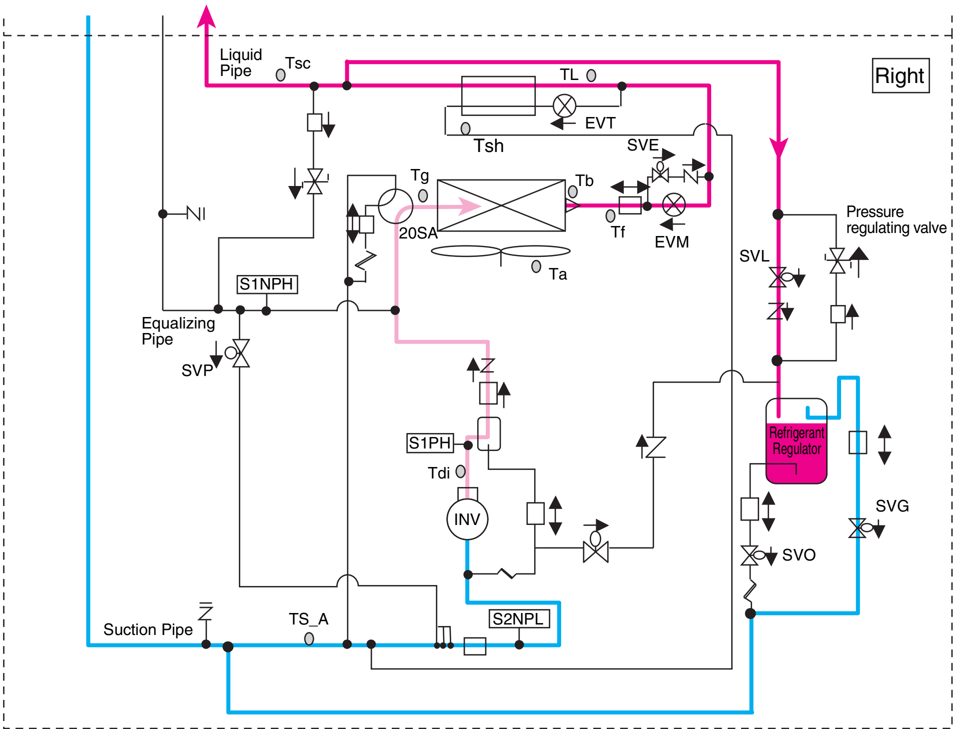


Partial Defrosting 2 (Defrosting in the Left Unit)

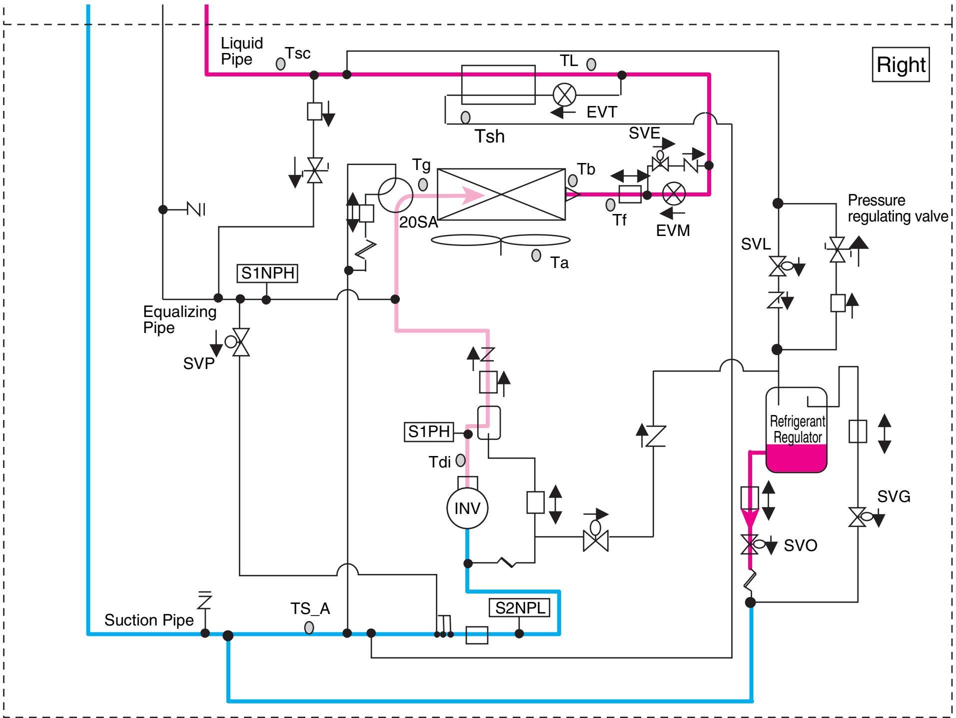


Operation of refrigerant regulator

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.

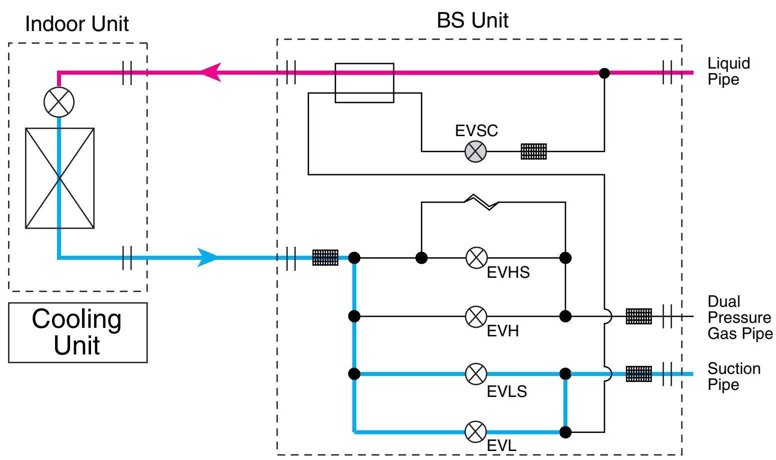


3. **Pressure regulating valve (Refrigerant regulator)**
   The circuit will be closed when SVL, SVO, SVG are all closed. In this case, the increased pressure in the refrigerant regulator will be transferred to the liquid refrigerant pipe side, to regulate the pressure.

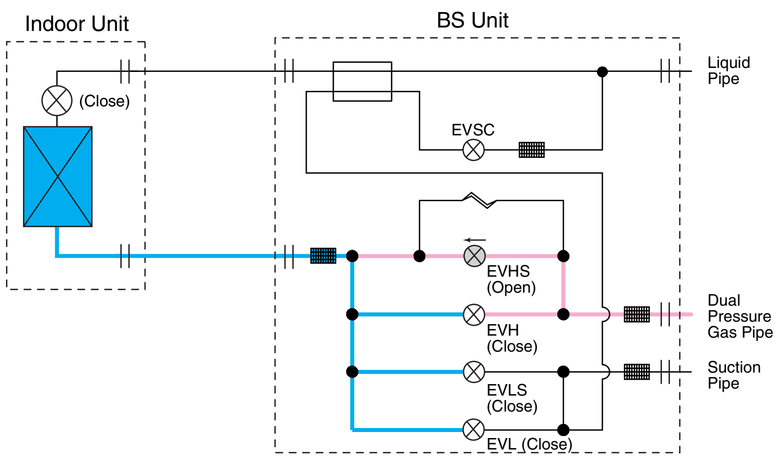
Pressure equalizing when switching operation cooling / heating

1. **When switching operation from to cooling to heating**
   First, the electronic 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 electronic expansion valve of the indoor unit is opened to start the operation as a heating circuit.

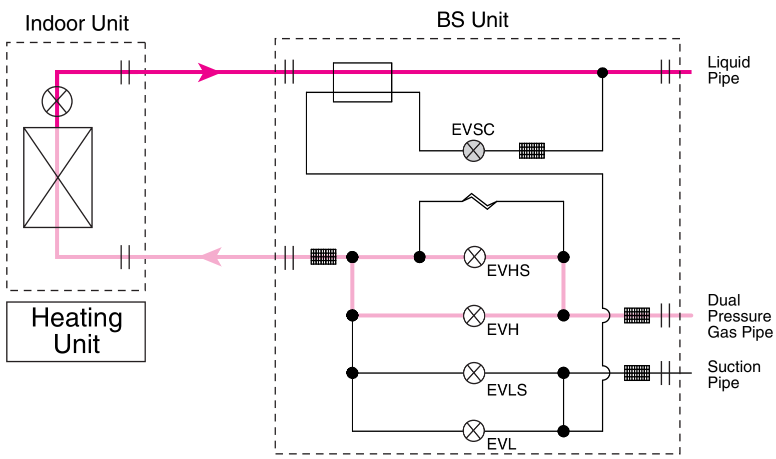
In cooling operation



In equalization

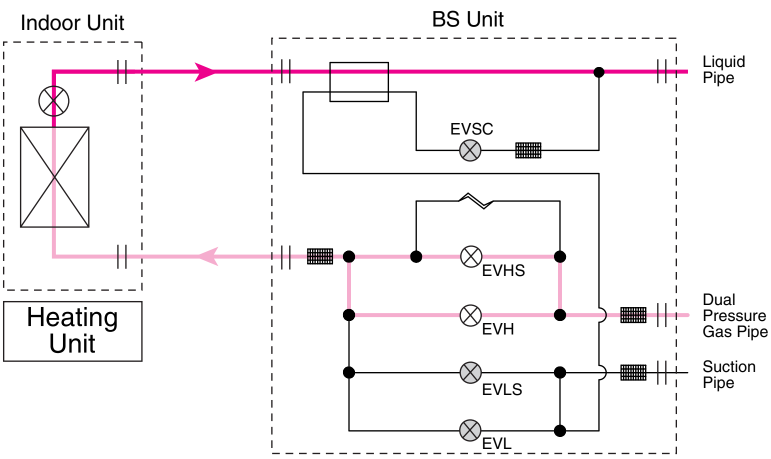


To heating operation

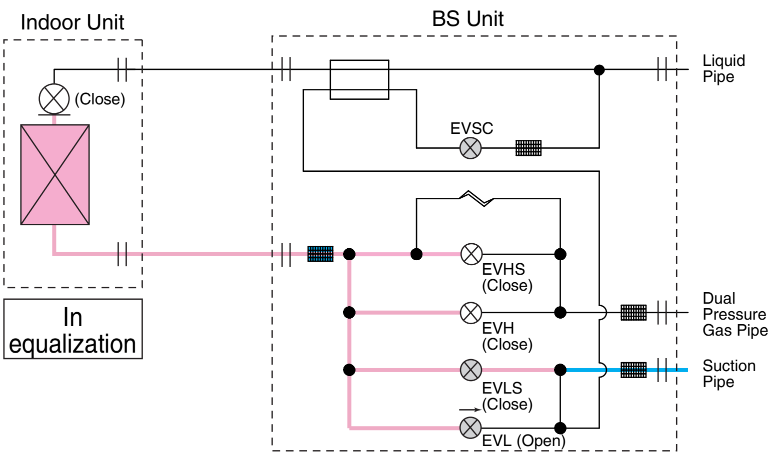


2. **When switching operation from heating to cooling**
   First, the electronic expansion valve and the solenoid valve for EVHS, EVH, EVL and EVLS of the indoor unit will be closed.
   Next, open the EVLS, and it makes to balance the system pressure.
   Finally, EVL and EVLS are opened and the electronic expansion valve of the indoor unit is opened to start the operation as a cooling circuit.

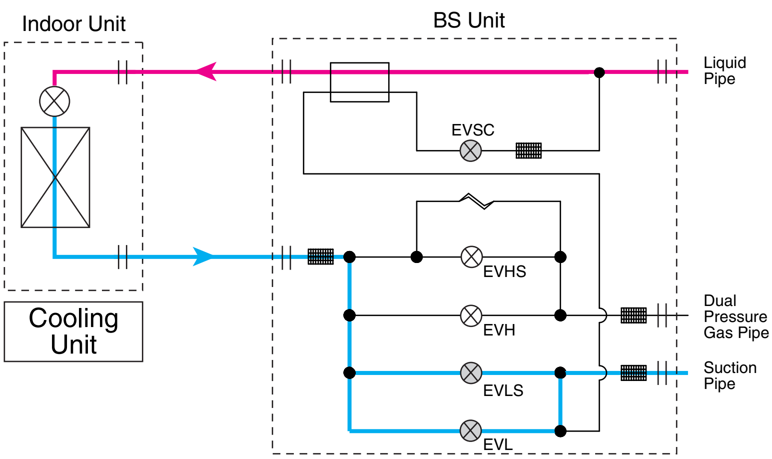
In heating operation



In equalization



To cooling operation



Part 4
Function

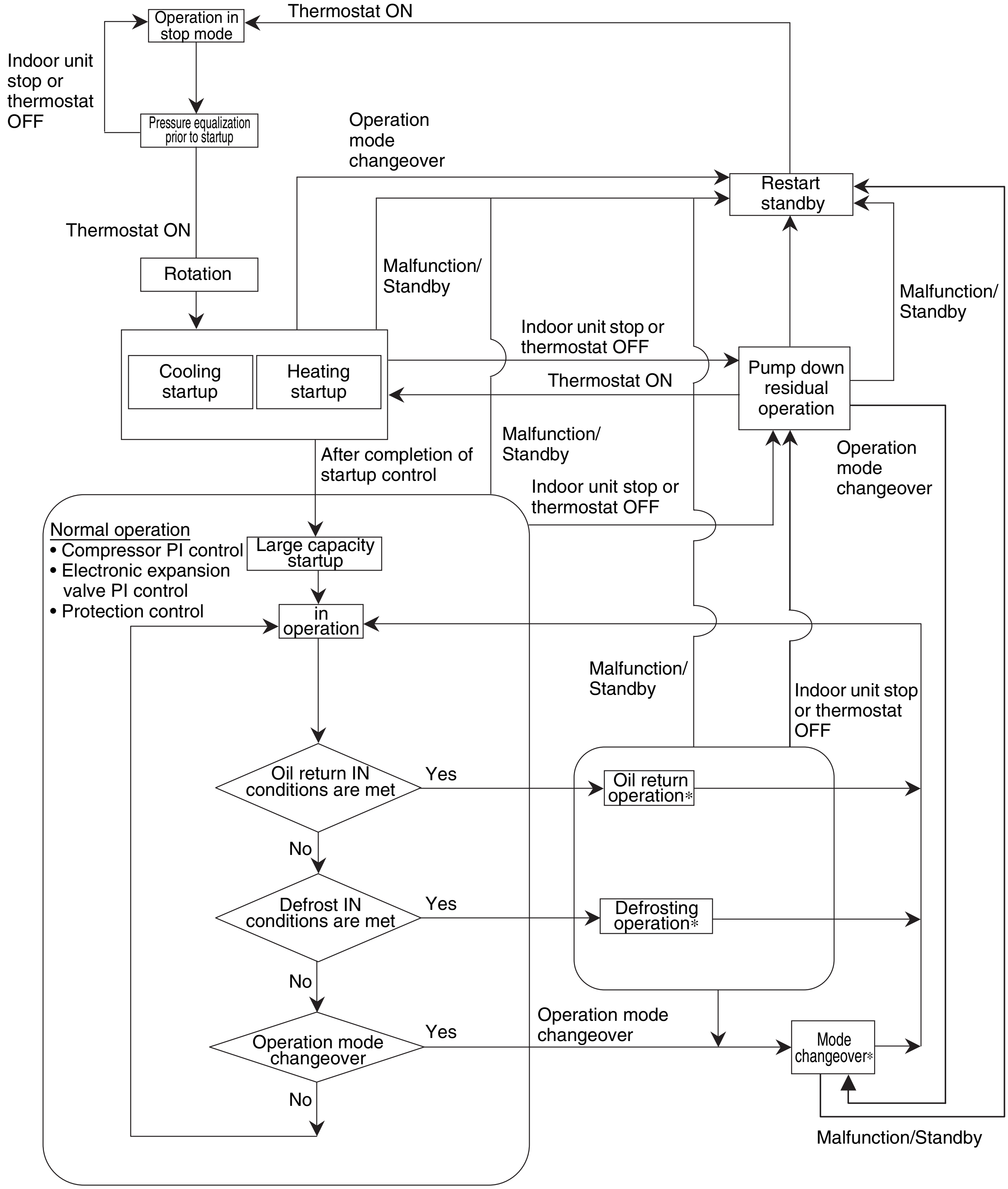
1. Function General

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 subcooling 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 discharge 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) R10T (Suction pipe2)	R8T	Suction pipe temperature
Tb	R4T (Deicer1) R12T (Deicer2)	R4T	Heat exchanger outlet temperature at cooling
Tg	R2T (Gas pipe1) R11T (Gas pipe2)	R2T	Heat exchanger gas pipe temperature
Tf	R7T (Liquid pipe1) R15T (Liquid pipe2)	R7T	Temperature of liquid pipe between heat exchanger and main electronic expansion valve
Tsh	R5T (Gas pipe1) R13T (Gas pipe2)	R5T	Temperature detected with the subcooling heat exchanger outlet thermistor
Tl	R6T (Liquid pipe1) R14T (Liquid pipe2)	R6T	Liquid pipe temperature detected with the liquid pipe thermistor
Tsc	R9T	R9T	Temperature of liquid pipe between liquid stop valve and subcooled 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)	Radiation 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) REYQ	(Electric Symbol) REMQ	Function of Functional Part: Normal Cooling	Normal Heating	Normal Simultaneous Cooling / Heating
Compressor 1	—	M1C	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	M2C			
Compressor 3		—	M3C			
Outdoor unit fan 1	—	M1F	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	M2F			
Electronic expansion valve (Main)	EVM	Y1E Y3E	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
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	PI control	PI control	PI control
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80 pls	80 pls	80 pls
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	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
Four way valve (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	ON	OFF	OFF
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	ON	OFF	OFF
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	ON for refrigerant recovery	ON for refrigerant recovery	ON for refrigerant recovery
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	ON for refrigerant recovery	ON for refrigerant recovery	ON for refrigerant recovery
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	ON for refrigerant discharge	ON for refrigerant discharge	ON for refrigerant discharge
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	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 to “6.4 Control of Electronic Expansion Valve” on page 151.

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).

Te 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

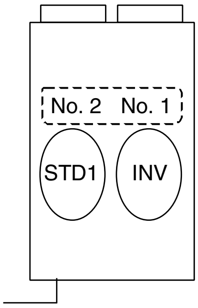
■ Operating Priority and Rotation of Compressors

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.

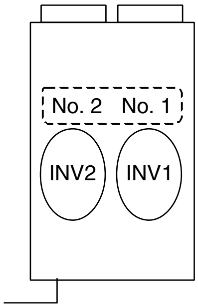
INV: Inverter compressor
STD1: Standard compressor 1
STD2: Standard compressor 2

Pattern 1 Pattern 2 Pattern 3

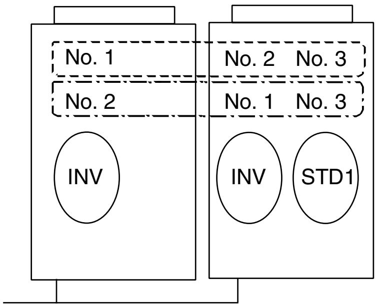
REYQ8P, 10P, 12P



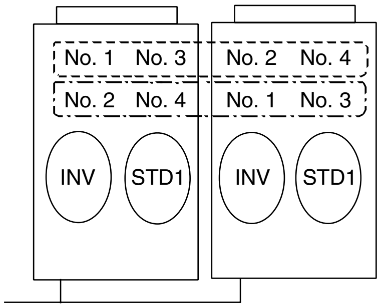
REYQ14P, 16P



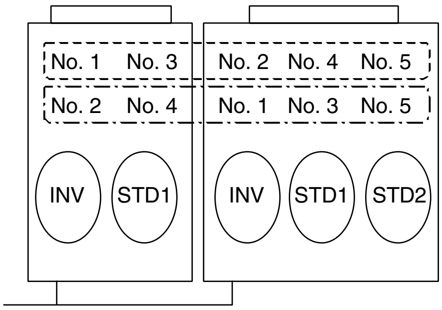
REYQ18P, 20P



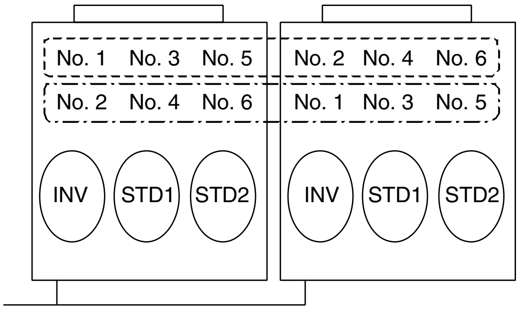
REYQ22P, 24P



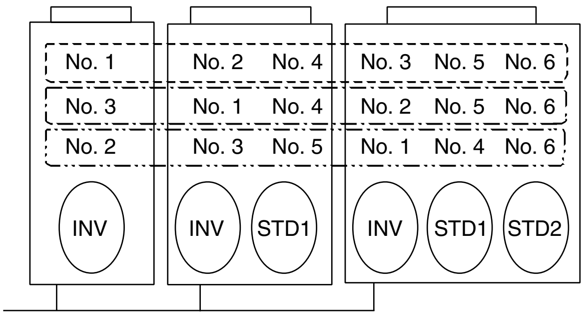
REYQ26P, 28P



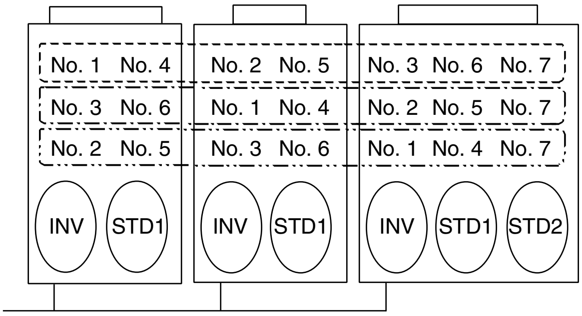
REYQ30P, 32P



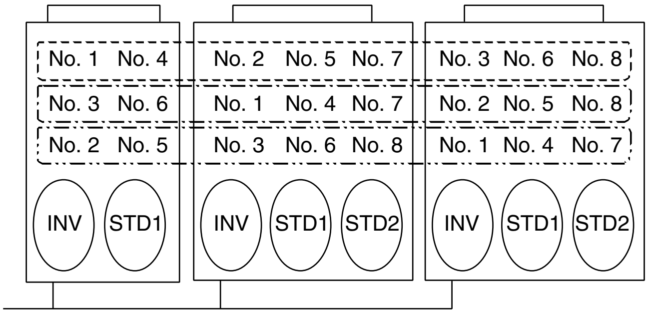
REYQ34P, 36P



REYQ38P, 40P

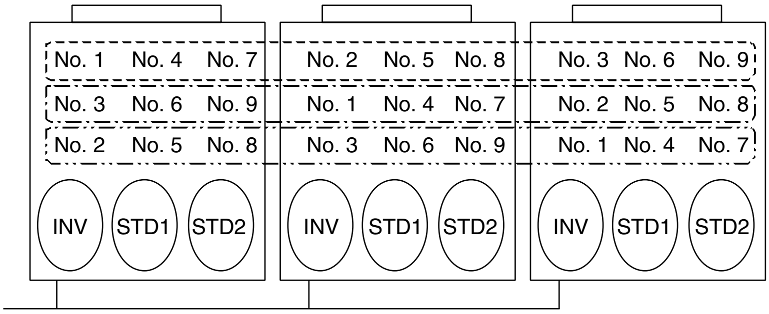


REYQ42P, 44P



◄ REYQ8PY1 upper limit

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
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		◄ Initial step
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	◄ REYQ8PY1 upper limit
31	132Hz	ON	
32	144Hz	ON	
33	158Hz	ON	
34	176Hz	ON	
35	188Hz	ON	
36	202Hz	ON	
37	210Hz	ON	

REYQ14PY1, 16PY1

STEP No.	INV1	INV2	
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	188Hz	188Hz	
21	202Hz	202Hz	
22	210Hz	210Hz	
23	218Hz	218Hz	
24	232Hz	232Hz	
25	248Hz	248Hz	
26	266Hz	266Hz	

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

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

REYQ 30PY1, 32PY1 (14/16+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.

REYQ34PY1, 36PY1 (8+10/12+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

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	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.
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.

REYQ42PY1, 44PY1 (10/12+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

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	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.
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.

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 or Y3E) so that the evaporator outlet superheated degree (SH) will become constant.

SH = Tg - Te

SH: Evaporator outlet superheated degree (°C)
Tg : Suction pipe temperature (°C) detected by the heat exchanger gas pipe thermistor R2T.
Te : Low pressure equivalent saturated temperature (°C)

Subcooling electronic expansion valve EVT control

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

SH = Tsh - Te

SH: Evaporator outlet superheated degree (°C)
Tsh: Suction pipe temperature (°C) detected by the subcooling heat exchanger outlet thermistor R5T
Te: 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 or Y4E) 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

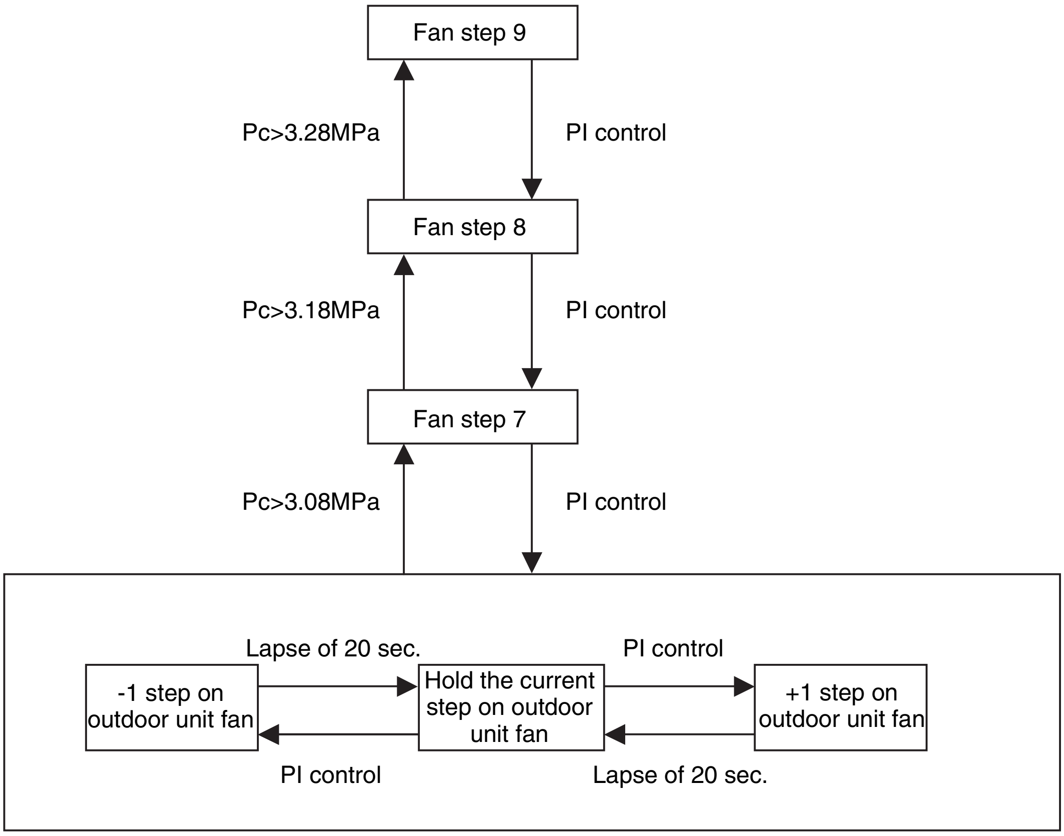
Used to control the revolutions of outdoor unit fans in the steps listed in table below, according to condition changes.

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

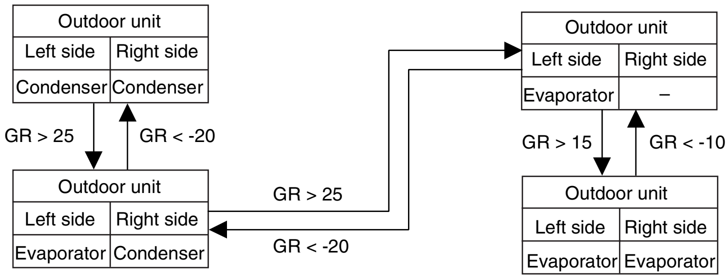
While in cooling operation, if the outdoor temperature is low, this mode provides high-pressure control using the outdoor unit fan to retain appropriate liquid pressure, thus ensuring refrigerant circulation rate to be supplied to indoor units.



2.6 Heat Exchanger Control

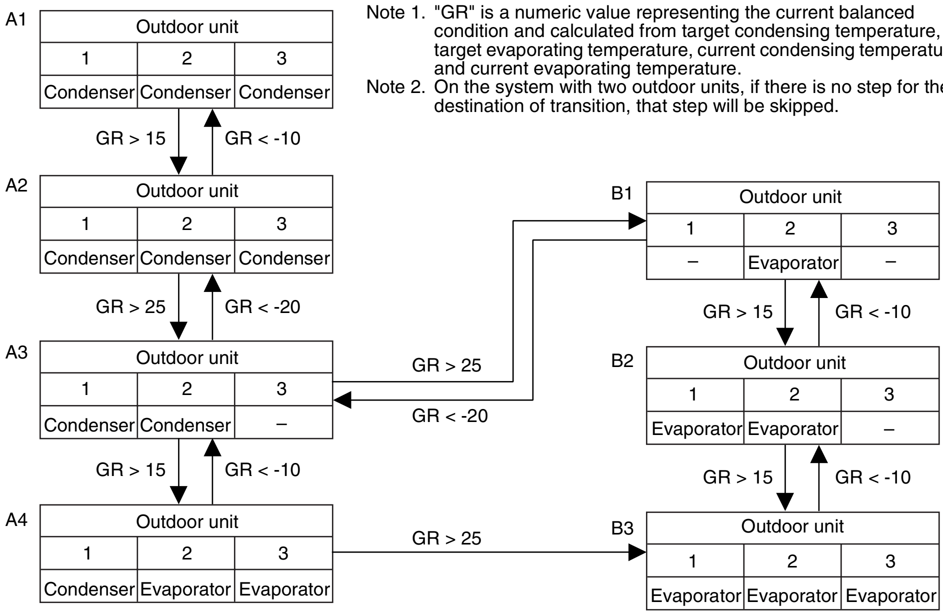
While in heating or cool/heat simultaneous operation, ensure target condensing and evaporating temperature by changing over the air heat exchange of outdoor unit to the evaporator or the condenser in response to loads.

[Single 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

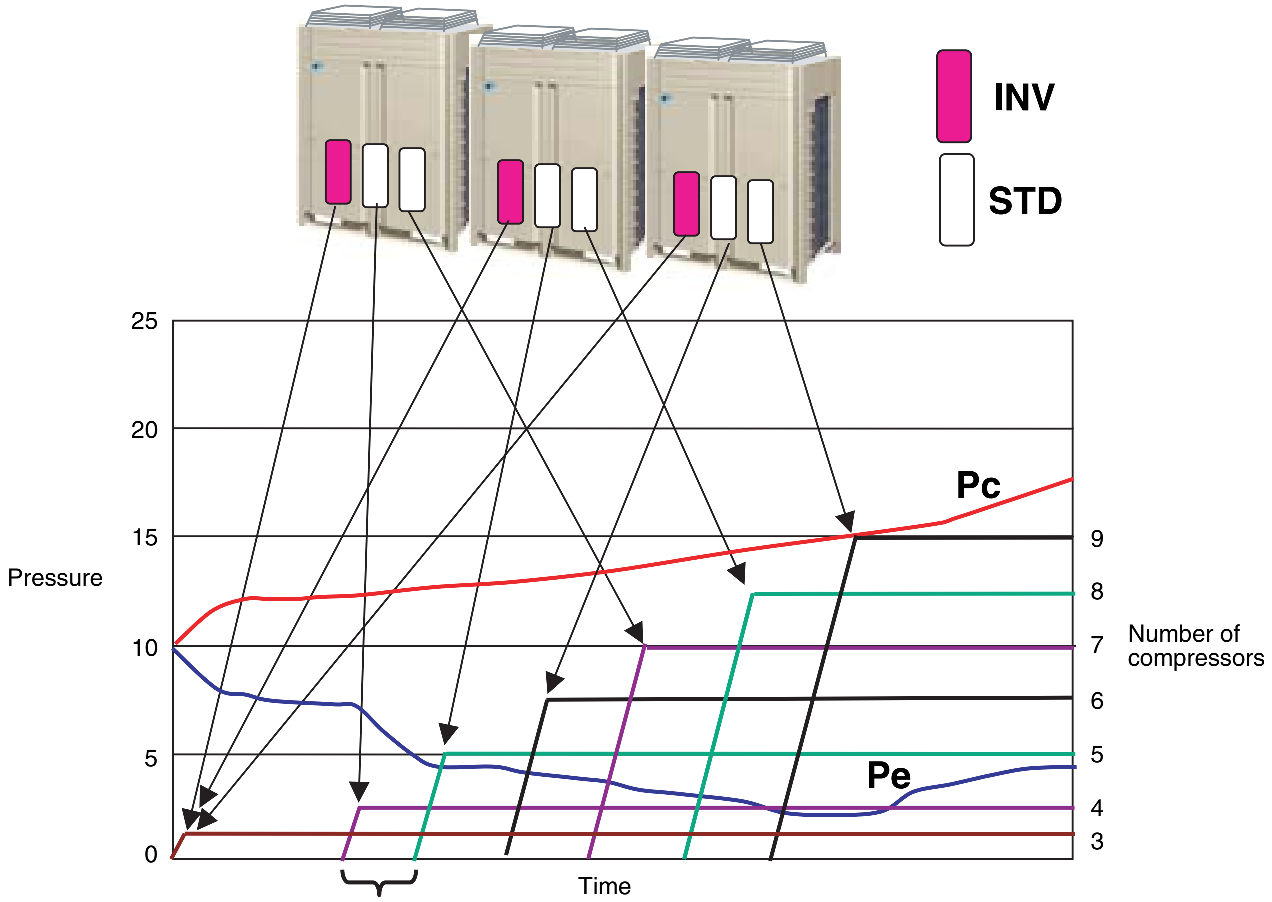
Actuator	Symbol	Elect. symbol		Control before startup	Startup control	
		REYQ	REMQ		STEP 1	STEP 2
Compressor 1	—	M1C	M1C	0 Hz	52 Hz+OFF+OFF	52Hz+OFF+OFF+2 STEP / 20 sec. (Until it reaches Pc-Pe>0.39 MPa)
Compressor 2		M2C	M2C			
Compressor 3		—	M3C			
Outdoor unit fan 1	—	M1F	M1F	STEP 4	Ta<20°C: OFF Ta≥20°C: STEP 4	+1step/15 sec. (When Pc_max>2.16 MPa) -1step/15 sec. (When Pc_max<1.77 MPa)
Outdoor unit fan 2		M2F	M2F			
Electronic expansion valve (Main)	EVM	Y1E Y3E	Y1E	0 pls	1375 pls	1375 pls
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	0 pls	0 pls	0 pls
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80 pls	80 pls	80 pls
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	OFF	OFF	OFF
Four way valve (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	ON	ON	ON
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	OFF	ON	ON
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	OFF	OFF	OFF
Ending conditions				A lapse of 60 sec.	A lapse of 15 sec.	OR • 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	
		REYQ	REMQ		STEP 1	STEP 2
Compressor 1	—	M1C	M1C	0 Hz	52 Hz+OFF+OFF	52Hz+OFF+OFF+2 STEP / 20 sec. (Until it reaches Pc-Pe>0.39 MPa)
Compressor 2		M2C	M2C			
Compressor 3		—	M3C			
Outdoor unit fan 1	—	M1F	M1F	STEP 4	20SA=ON: STEP 7 20SA=OFF +1step/15 sec. (When Pc_max>2.16 MPa) -1step/15 sec. (When Pc_max<1.77 MPa)	20SA=ON: STEP 7 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	M2F			
Electronic expansion valve (Main)	EVM	Y1E Y3E	Y1E	0 pls	20SA=ON: SH Control 20SA=OFF: 1375 pls	20SA=ON: SH Control 20SA=OFF: 1375 pls
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	0 pls	0 pls	0 pls
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80 pls	80 pls	80 pls
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	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 (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	OFF	OFF	OFF
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	OFF	OFF	OFF
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	OFF	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	OFF	OFF	OFF
Ending conditions				A lapse of 60 sec.	A lapse of 15 sec.	OR • 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.



Start up STD compressors at intervals of 15 seconds.

[Starting conditions]

OR
- The system starts heating operation with thermostat ON at a high load.
- The system completes defrosting operation.
- The system switches the operation mode from cooling to heating or simultaneous cooling and heating 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
		REYQ	REMQ		
Compressor 1	—	M1C	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	M2C		
Compressor 3		—	M3C		
Outdoor unit fan 1	—	M1F	M1F	Cooling fan control	Cooling fan control
Outdoor unit fan 2		M2F	M2F		
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	OFF	OFF
Four way valve (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	ON	ON
Electronic expansion valve (Main)	EVM	Y1E Y3E	Y1E	1375pls	1375pls
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	SH control	SH control
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80pls	80pls
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	ON	ON
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	0pls	0pls
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	0pls	0pls
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	0pls	0pls
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	0pls	0pls
End conditions				or • After a lapse of 5 min. • TsA - Te<5°C	or • 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
Electronic expansion 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 valve (EVH)	Y4E	600pls
Electronic expansion valve (EVL)	Y5E	760pls
Electronic expansion valve (EVHS)	Y2E	480pls
Electronic expansion valve (EVLS)	Y3E	480pls
Electronic expansion valve (EVSC)	Y1E	0pls

3.3.2 Heating Oil Return Operation (including cooling / heating simultaneous 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
		REYQ	REMQ	
Compressor 1	—	M1C	M1C	Maintain load that was applied before oil return operation. 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 2		M2C	M2C	
Compressor 3		—	M3C	
Outdoor unit fan 1	—	M1F	M1F	When outdoor unit heat exchanger is condenser, the fan will run under cooling fan control. When outdoor unit heat exchanger is evaporator, the fan will run at the fan step 7 or 8.
Outdoor unit fan 2		M2F	M2F	
Electronic expansion valve (Main)	EVM	Y1E Y3E	Y1E	20SA=ON : PI control 20SA=OFF : 418pls
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	PI control
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80pls
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	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 (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	OFF
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	OFF
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	0pls
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	0pls
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	0pls
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	0pls
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	0pls
End conditions				or • 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
Electronic expansion 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	Remote controller setting
Electronic expansion 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 valve (EVH)	Y4E	0pls
Electronic expansion valve (EVL)	Y5E	760pls
Electronic expansion valve (EVHS)	Y2E	0pls (60pls when Pc_max>2.85MPa)
Electronic expansion valve (EVLS)	Y3E	480pls
Electronic expansion valve (EVSC)	Y1E	PI control

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

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 continuity of outdoor unit heat exchanger is calculated by Tc, Te, and compressor loads.

Defrosting outdoor unit actuator	Symbol	Elect. symbol REYQ	Elect. symbol REMQ	Defrost operation	Operation after defrost
Compressor 1	—	M1C	M1C	REYQ8•10•12P: 232Hz+ON REYQ14•16P: 232Hz+232Hz REMQ8P: 210Hz REMQ10•12P: 210Hz+ON REMQ14•16P: 202Hz+ON+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	M2C		
Compressor 3		—	M3C		
Outdoor unit fan 1	—	M1F	M1F	OFF Pcmax>2.45MPa ↓ ↑ Pcmax<2.36MPa FANSTEP4 Pcmax>3.04MPa ↓ ↑ Pcmax<2.95MPa FANSTEP6	OFF Pcmax>2.45MPa ↓ ↑ Pcmax<2.36MPa FANSTEP4 Pcmax>3.04MPa ↓ ↑ Pcmax<2.95MPa FANSTEP6
Outdoor unit fan 2		M2F	M2F		
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	OFF	OFF
Four way valve (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	Holds	Holds
Electronic expansion valve (Main)	EVM	Y1E Y3E	Y1E	1375pls	0pls
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	SH control	0pls
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80pls	80pls
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	ON	OFF
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	0pls	0pls
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	0pls	0pls
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	0pls	0pls
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	0pls	0pls
End conditions				REYQ8 to 16P (by unit) or • 6 min. and 30 sec. • Tb > 11°C continues for a period of 90 consecutive sec. • Pc_max > 3.04MPa REMQ8 to 12P (by unit) or • 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 • 5 min. and 30 sec. • Tb > 11°C for a period of 30 consecutive sec. • Pc_max > 3.04MPa	or • 30 sec. • Pc_max>3.04MPa

Evaporating outdoor unit actuator	Symbol	Elect. symbol		Defrost operation	Operation after defrost
		REYQ	REMQ		
Compressor 1	—	M1C	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	M2C		
Compressor 3		M3C	M3C		
Outdoor unit fan 1	—	M1F	M1F	Fan control	Fan control
Outdoor unit fan 2		M2F	M2F		
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	ON	ON
Four way valve (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	Holds	Holds
Electronic expansion valve (Main)	EVM	Y1E Y3E	Y1E	PI control	PI control
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	SH control	0pls
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80pls	80pls
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	OFF	OFF
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	0pls	0pls
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	0pls	0pls
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	0pls	0pls
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	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
Electronic expansion 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	LL	LL
	Unit not in operation	OFF	OFF
	Thermo. OFF unit	LL	LL
Electronic expansion valve	Thermo. ON unit	160pls	224pls
	Unit not in operation	0pls	0pls
	Thermo. OFF unit	160pls	224pls

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

Heating BS unit actuator	Elect. symbol	Defrost operation
Electronic expansion valve (EVH)	Y4E	760pls
Electronic expansion valve (EVL)	Y5E	0pls
Electronic expansion valve (EVHS)	Y2E	60pls
Electronic expansion valve (EVLS)	Y3E	0pls (REYQ8~16P) 60pls (REMQ8~16P)
Electronic expansion valve (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
		REYQ	REMQ		
Compressor 1	—	M1C	M1C	124 Hz+OFF+OFF	OFF
Compressor 2		M2C	M2C		
Compressor 3		M3C	M3C		
Outdoor unit fan 1	—	M1F	M1F	Fan control	Fan control
Outdoor unit fan 2		M2F	M2F		
Electronic expansion valve (Main)	EVM	Y1E Y3E	Y1E	1375 pls	1375 pls
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	0 pls	0 pls
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80 pls	80 pls
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	OFF	OFF
Four way valve (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	ON	ON
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	ON	ON
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	OFF	OFF
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	OFF	OFF
Ending conditions				or • 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
		REYQ	REMQ		
Compressor 1	—	M1C	M1C	124 Hz+OFF+OFF	OFF
Compressor 2		M2C	M2C		
Compressor 3		M3C	M3C		
Outdoor unit fan 1	—	M1F	M1F	Fan control	Fan control
Outdoor unit fan 2		M2F	M2F		
Electronic expansion valve (Main)	EVM	Y1E Y3E	Y1E	When 20SA=ON: 0 pls When 20SA=OFF: 1375 pls	When 20SA=ON: 0 pls When 20SA=OFF: 1375 pls
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	0 pls	0 pls
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80 pls	80 pls
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	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 (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	OFF	OFF
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	OFF	OFF
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	OFF	OFF
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	OFF	OFF
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	OFF	OFF
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	OFF	OFF
Ending conditions				or • 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

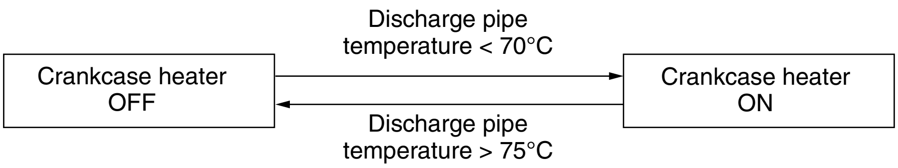
3.6.1 Restart Standby

Used to forcedly stop the compressor for a period of 3 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			
		REYQ	REMQ	REYQ8~16P	REMQ8P	REMQ10•12P	REMQ14•16P
Compressor1	—	M1C	M1C	OFF	OFF	OFF	OFF
Compressor2	—	M2C	M2C	OFF	—	OFF	OFF
Compressor3	—	M3C	M3C	—	—	—	OFF
Outdoor unit fan1	—	M1F	M1F	Ta>30°C: STEP 4 Ta≤30°C: OFF	Ta>30°C: STEP 4 Ta≤30°C: OFF	Ta>30°C: STEP 4 Ta≤30°C: OFF	Ta>30°C: STEP 4 Ta≤30°C: OFF
Outdoor unit fan2	—	M2F	M2F	Ta>30°C: STEP 4 Ta≤30°C: OFF	—	—	Ta>30°C: STEP 4 Ta≤30°C: OFF
Electronic expansion valve (Main)	EVM	Y1E Y3E	Y1E	0 pls			
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	0 pls			
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80 pls			
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	Holds			
Four way valve (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	Holds			
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	OFF			
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	OFF			
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	OFF			
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	OFF			
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	OFF			
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	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			
		REYQ	REMQ	REYQ8~16P	REMQ8P	REMQ10•12P	REMQ14•16P
Compressor1	—	M1C	M1C	OFF	OFF	OFF	OFF
Compressor2	—	M2C	M2C	OFF	—	OFF	OFF
Compressor3	—	M3C	M3C	—	—	—	OFF
Outdoor unit fan1	—	M1F	M1F	OFF	OFF	OFF	OFF
Outdoor unit fan2	—	M2F	M2F	OFF	—	—	OFF
Electronic expansion valve (Main)	EVM	Y1E Y3E	Y1E	0 pls			
Electronic expansion valve (Subcooling)	EVT	Y2E Y5E	Y3E	0 pls			
Electronic expansion valve (Refrigerant charge)	EVJ	Y4E	Y2E	80 pls			
Four way valve (Heat exchanger switch)	20SA	Y2S Y9S	Y3S	Holds			
Four way valve (Dual pressure gas pipe switch)	20SB	Y8S	Y2S	Holds			
Solenoid valve (Main bypass)	SVE	Y5S Y10S	Y6S	OFF			
Solenoid valve (Hot gas)	SVP	Y4S	Y5S	OFF			
Solenoid valve (Refrigerant regulator liquid pipe)	SVL	Y3S	Y4S	OFF			
Solenoid valve (Refrigerant regulator gas vent pipe)	SVG	Y1S	Y1S	OFF			
Solenoid valve (Refrigerant regulator discharge pipe)	SVO	Y7S	Y7S	OFF			
Solenoid valve (Refrigerant regulator discharge pipe)	SVT	Y6S	Y8S	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

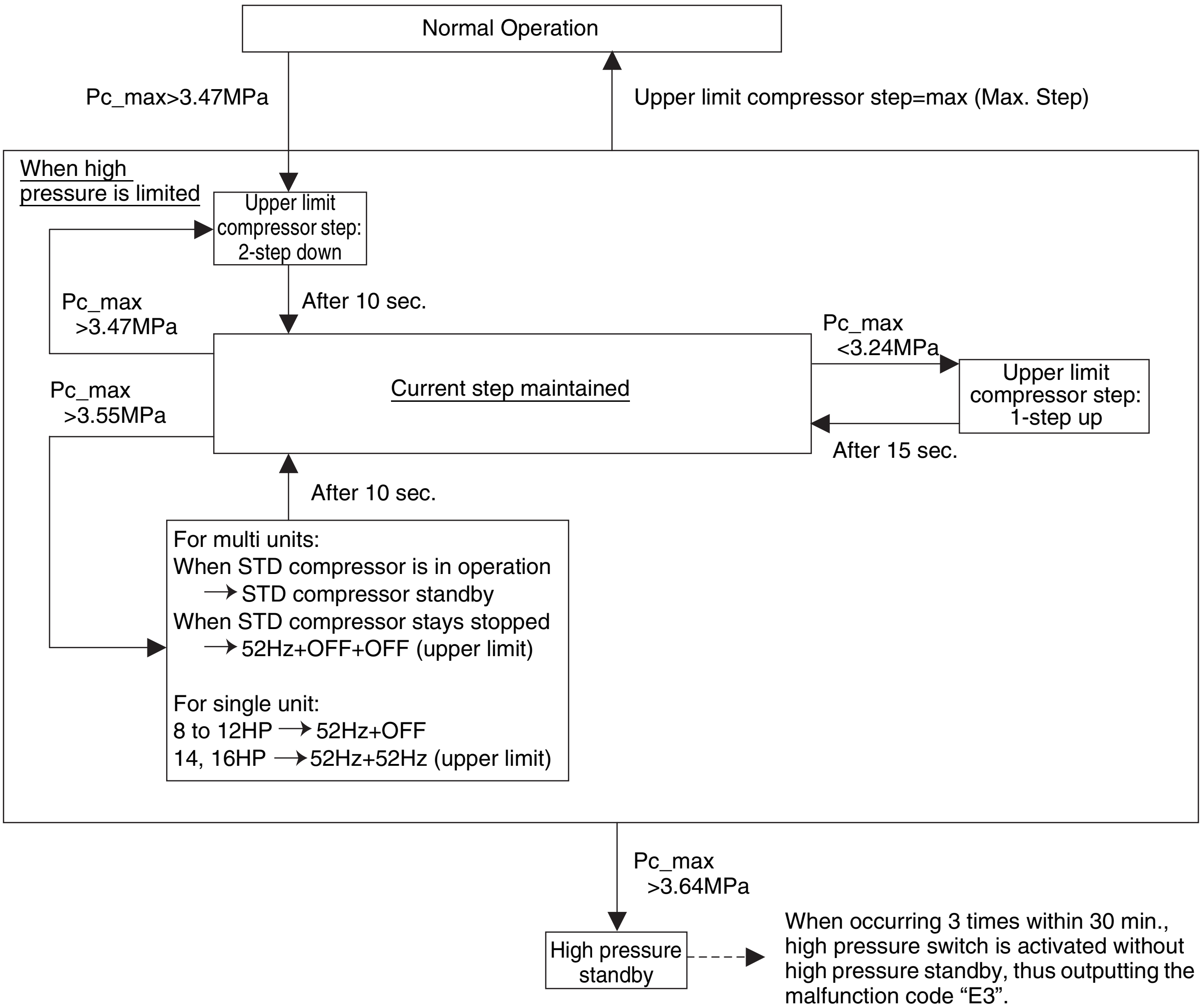
4. Protection Control

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.

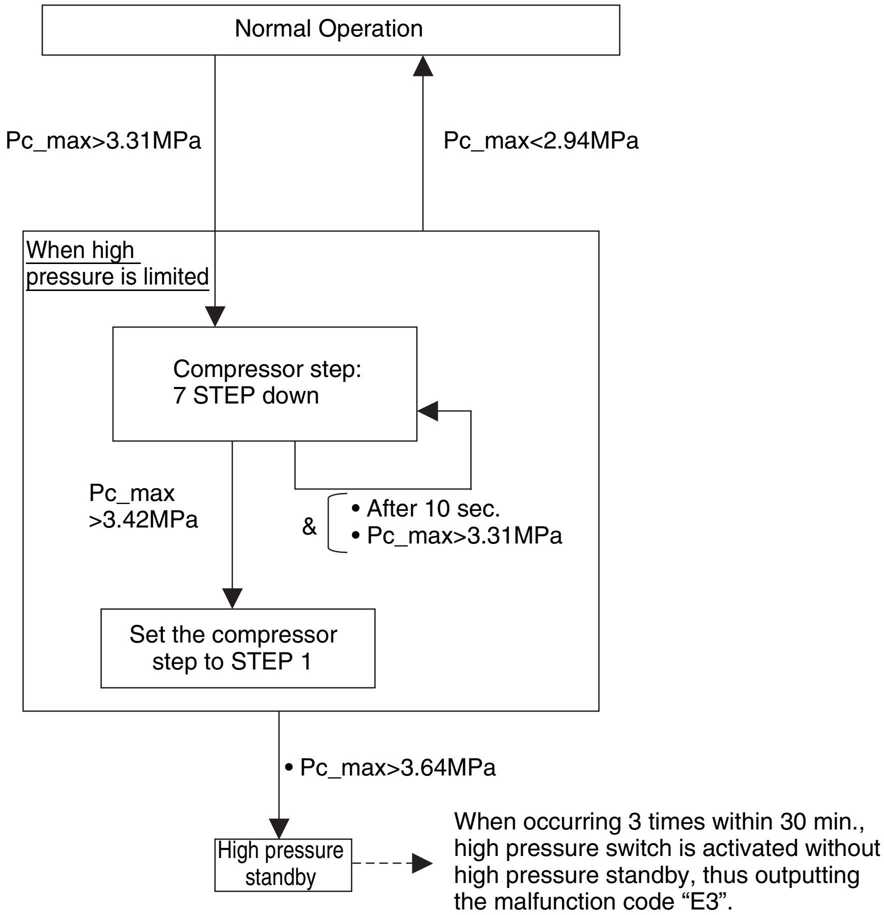
[In cooling operation]

★ 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.

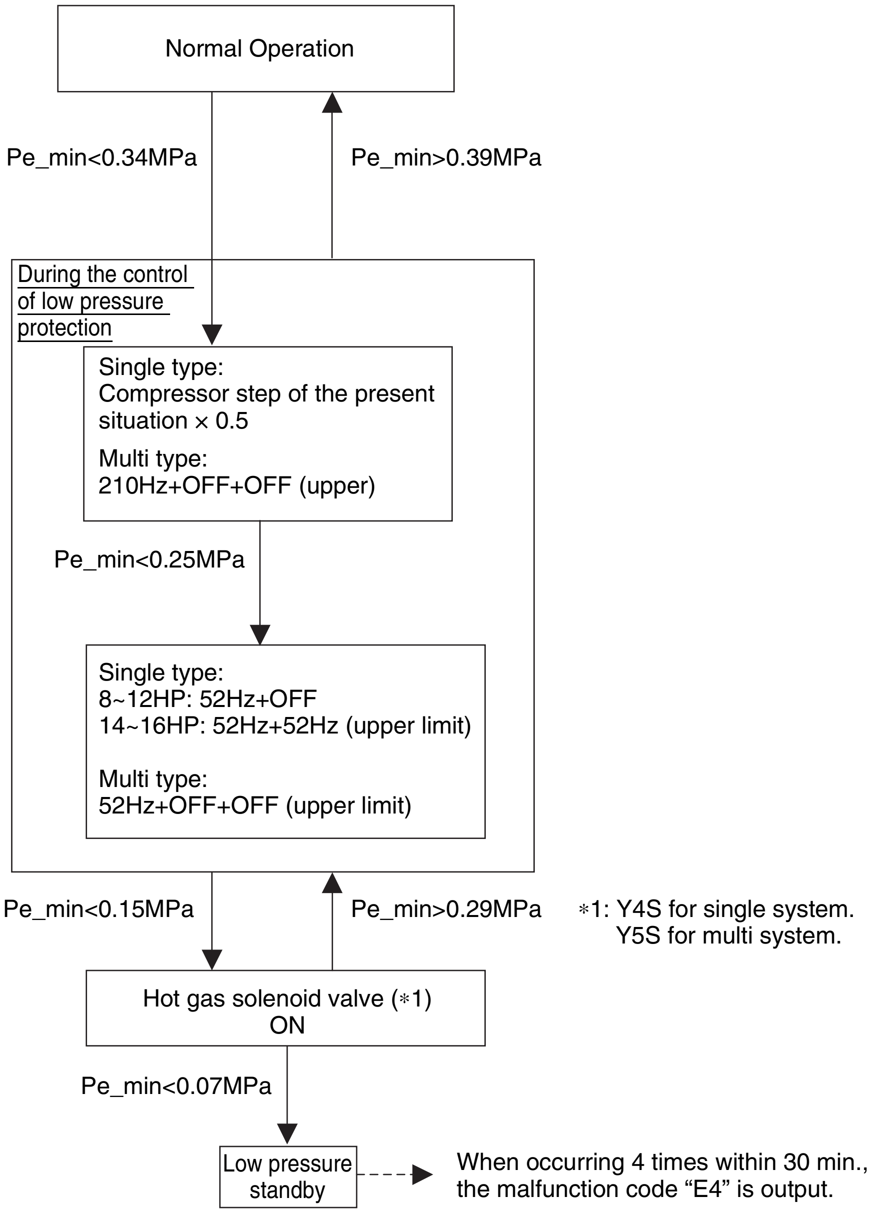


4.2 Low Pressure Protection Control

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

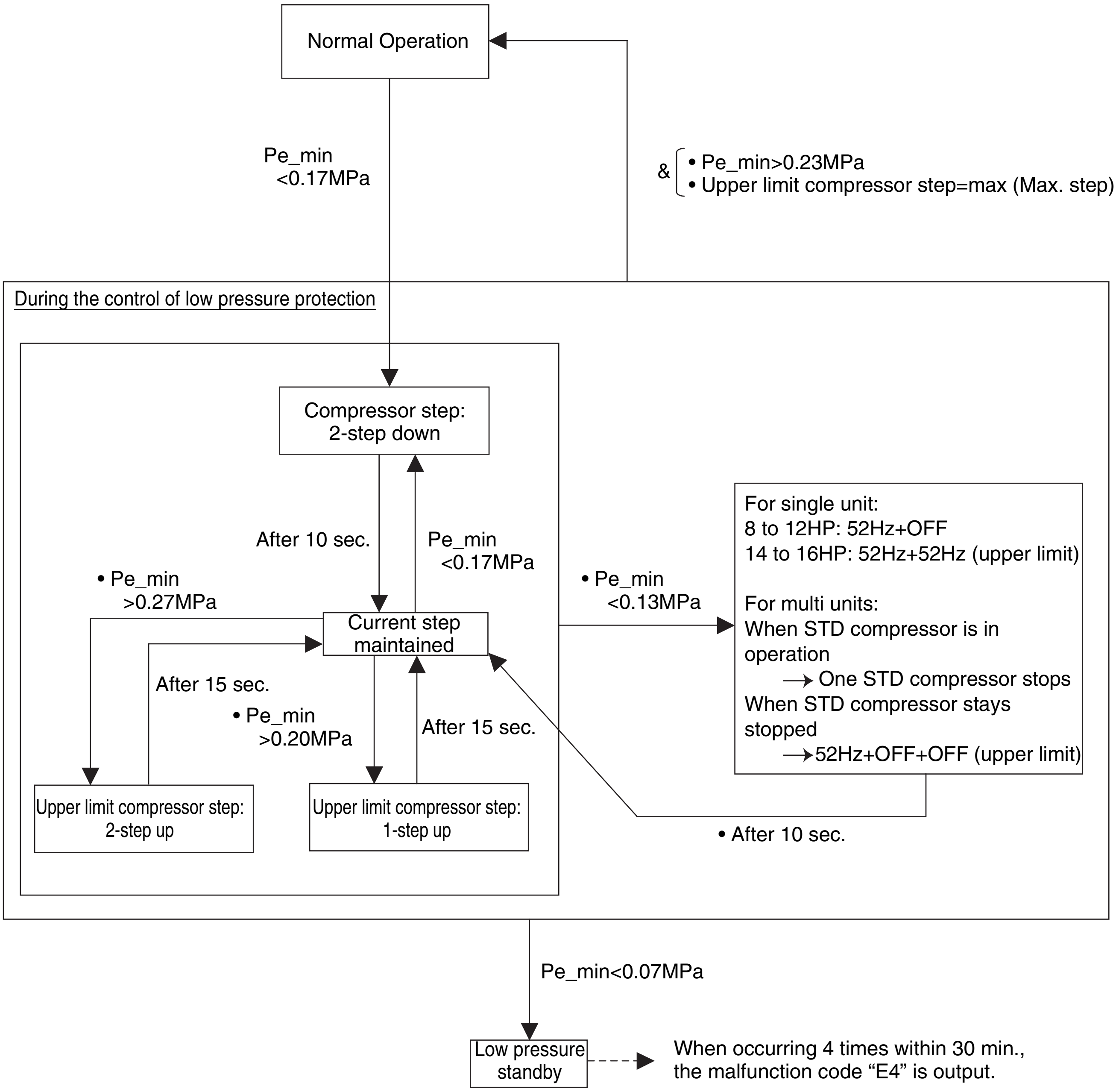
[In cooling operation]

★ 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.



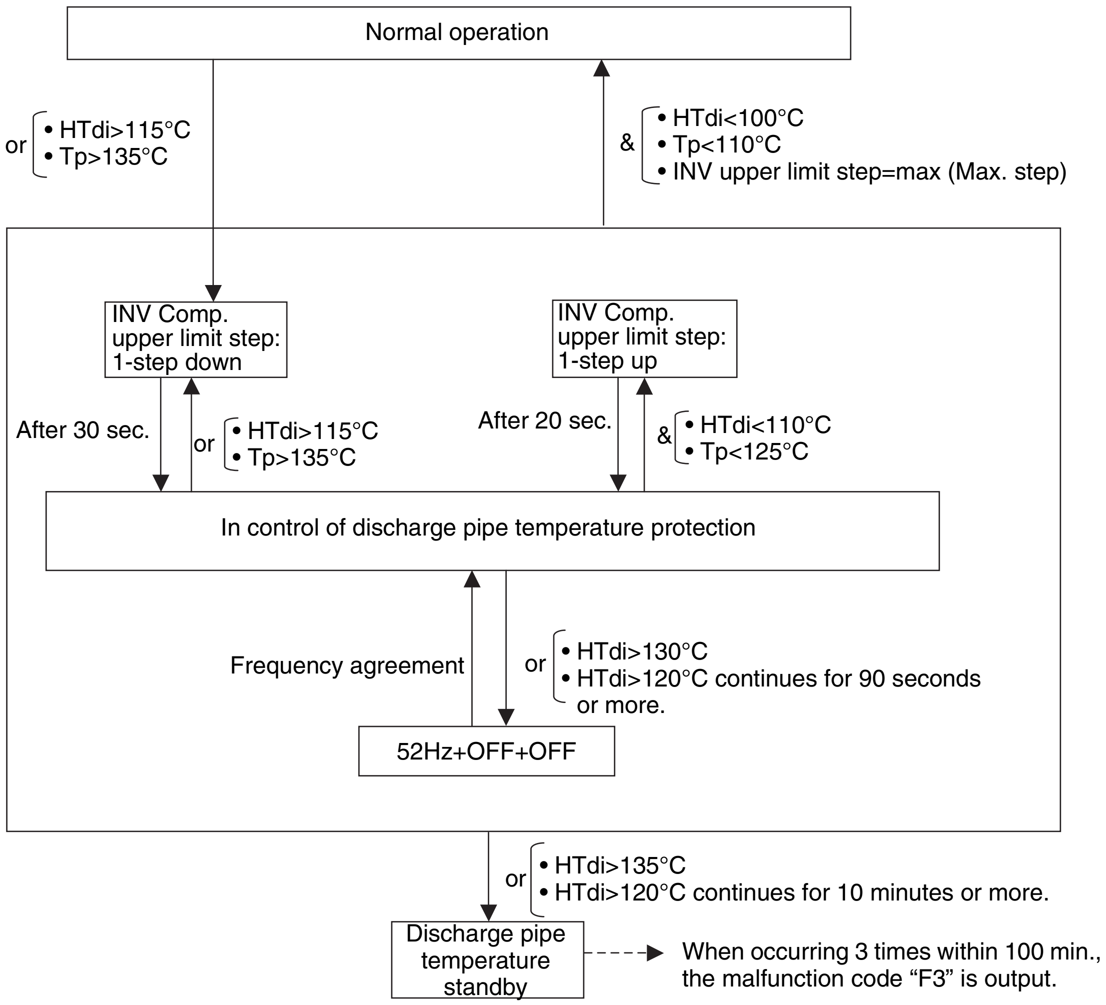
4.3 Discharge Pipe Protection Control

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]

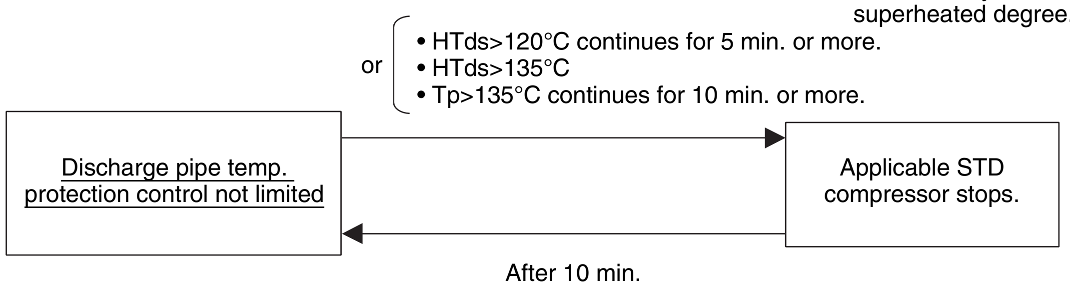


[STD compressor]

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

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.



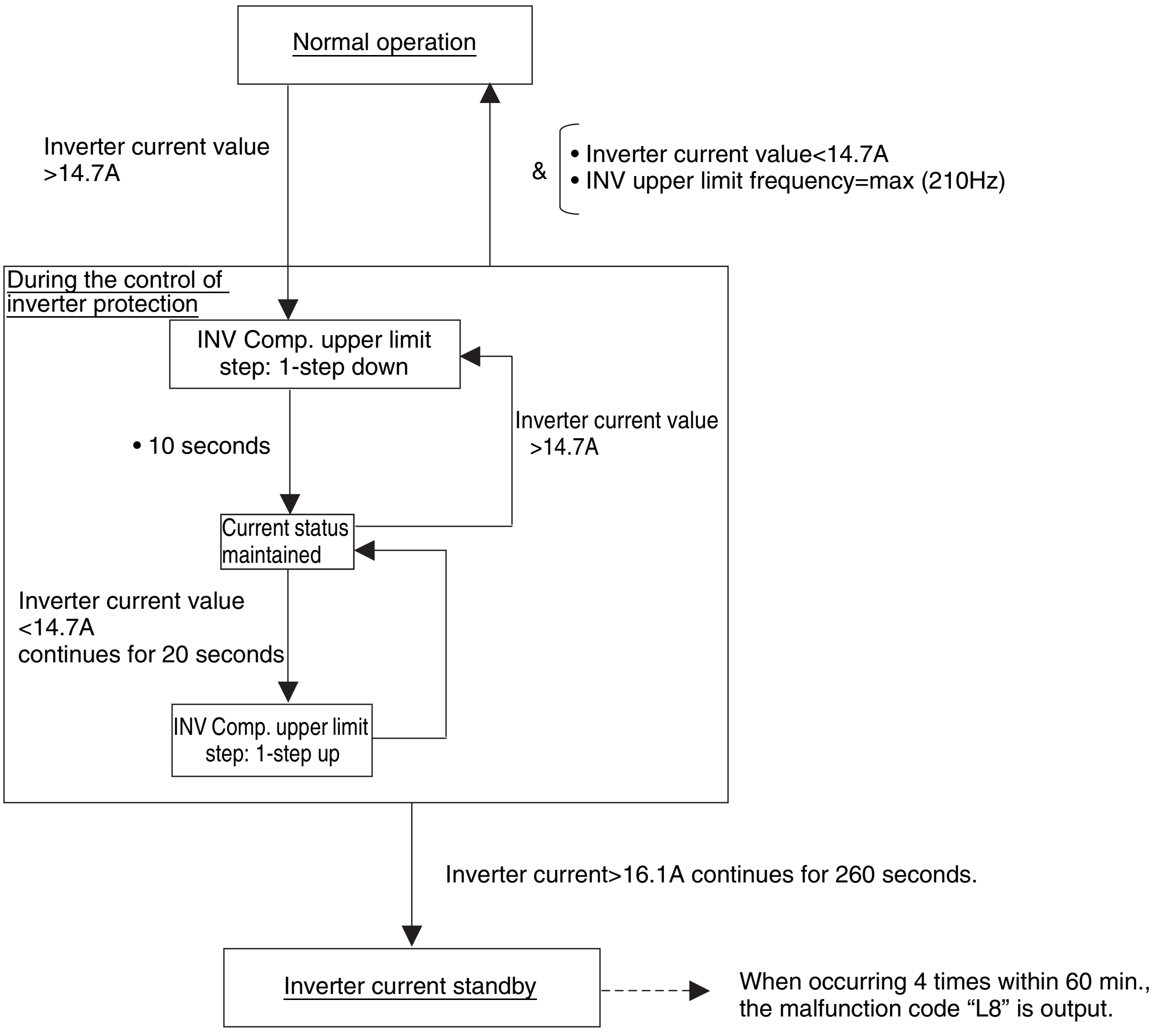
4.4 Inverter Protection Control

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.

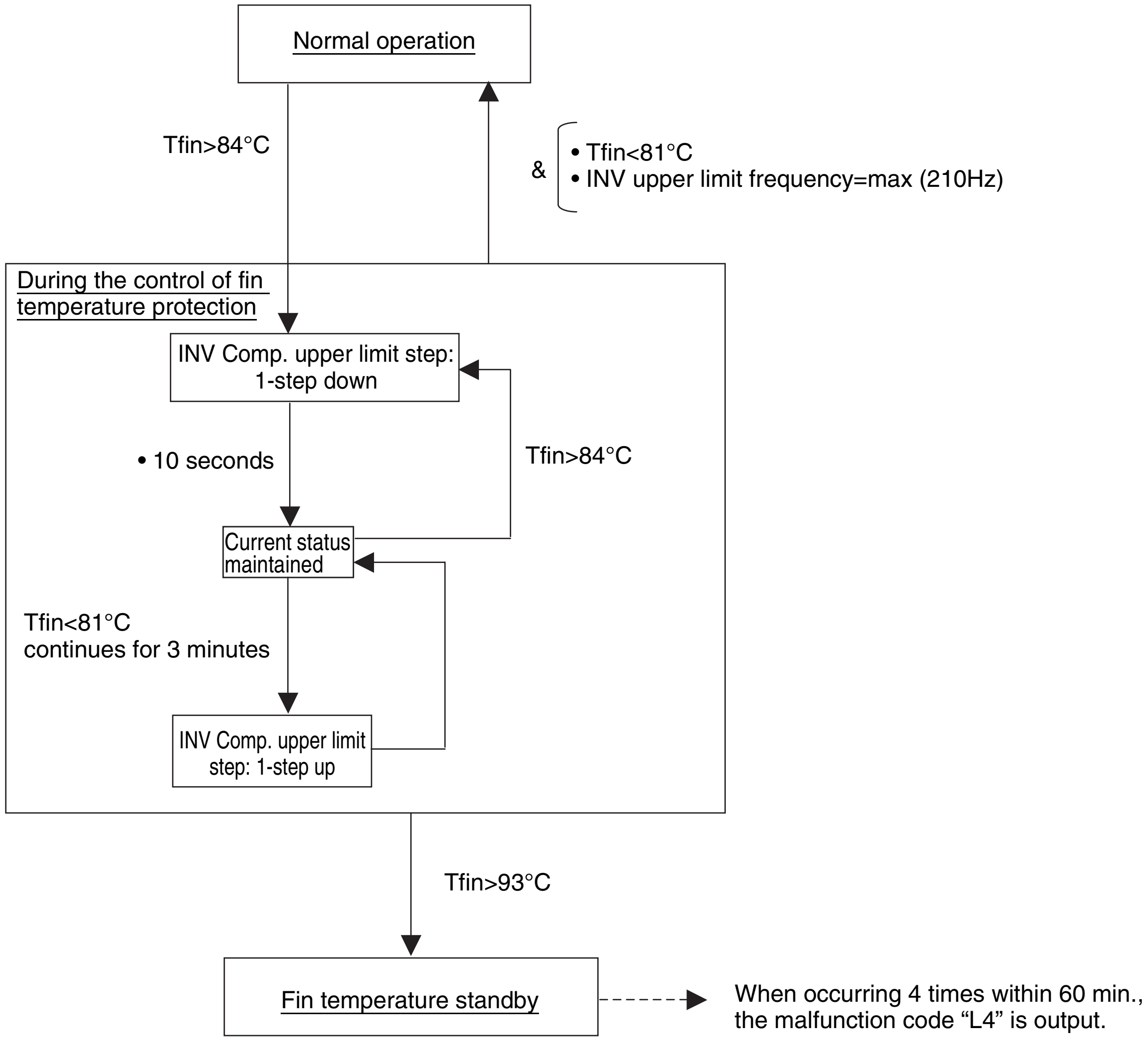
[Inverter overcurrent protection control]

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



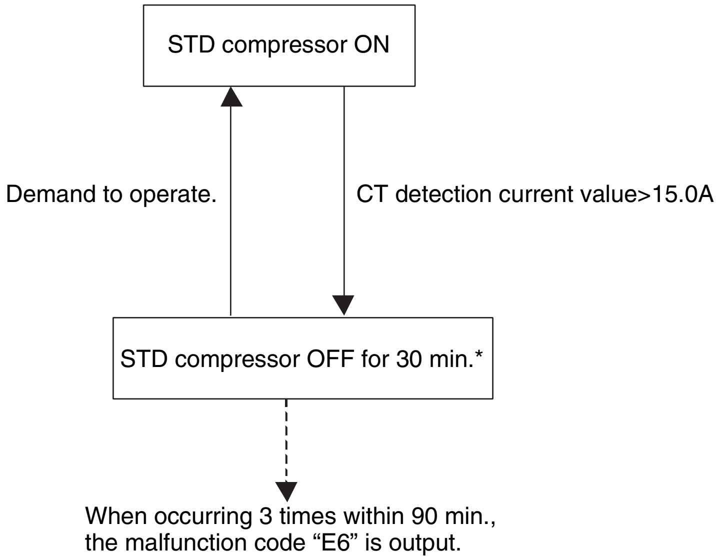
[Radiation fin temperature control]

★ 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 PCB setting" are available

Operating method / Applicable model	(1) Emergency operation with remote controller reset (Auto backup operation)	(2) Emergency operation with outdoor unit PCB setting (Manual backup operation)
REYQ8 ~ 16PY1	–	Backup operation by the compressor
REYQ18 ~ 48PY1	Backup operation by the outdoor unit	Backup operation by the outdoor unit

(1) Emergency operation with remote controller reset

[Operating method]

Reset the remote controller. (Press the $\boxed{\text{ON/OFF}}$ button for 4 seconds or more.)

[Details of operation]

Disable the defective outdoor unit from operating, and then only operate other outdoor units.
(On systems with 1 outdoor unit, this emergency operation is not available.)

(2) Emergency operation with outdoor unit PCB setting

[Setting method]

Make setting of the compressor, "the operation of which is to be disabled", in field setting mode (setting mode 2).
(For detail of the setting method, refer to page 244.)

[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 adaptor is required.

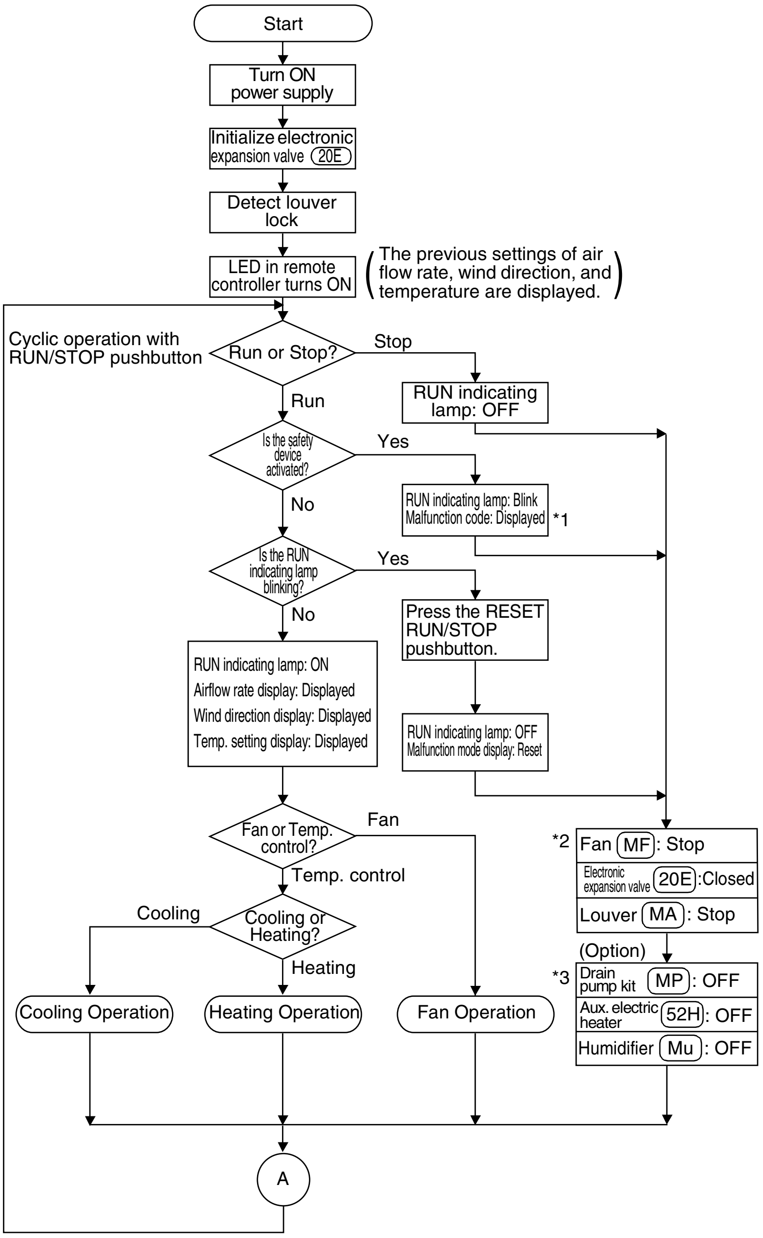
Set item	Condition	Content
Demand 1	Mode 1	The compressor operates at approx. 60% or less of rating.
	Mode 2	The compressor operates at approx. 70% or less of rating.
	Mode 3	The compressor operates at approx. 80% or less of rating.
Demand 2	—	The compressor operates at approx. 40% or less of rating.

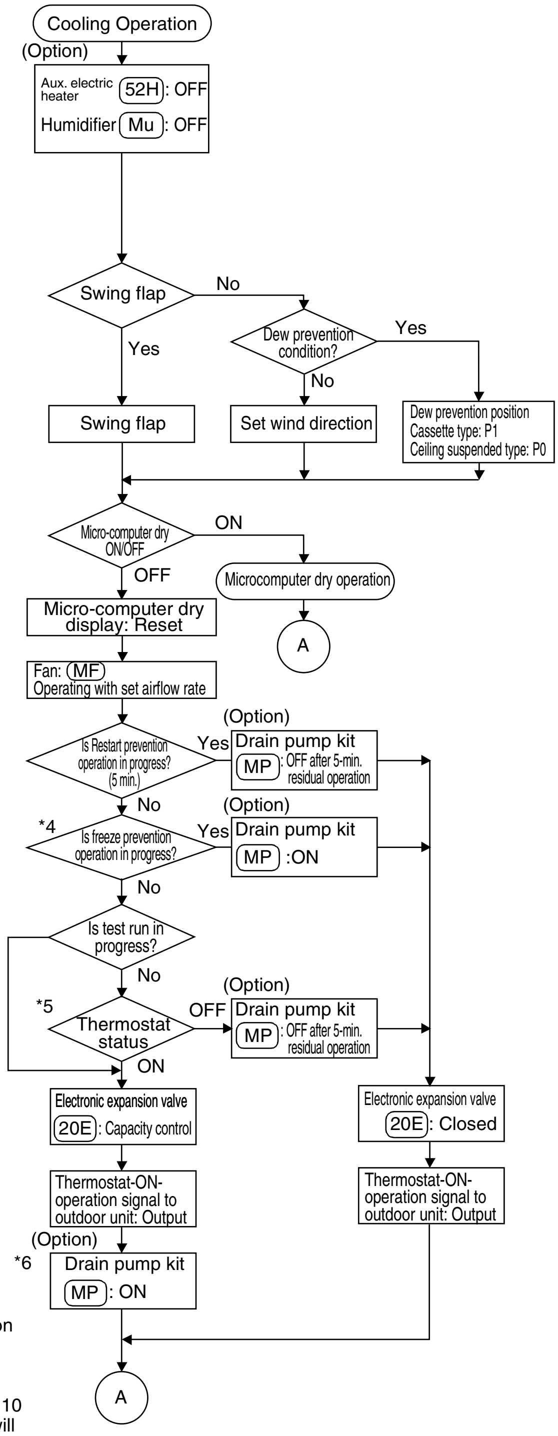
5.3 Heating Operation Prohibition

Heating operation is prohibited above 24°C outdoor air temperature.

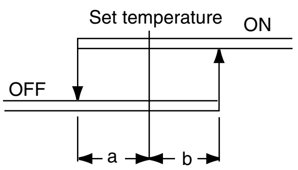
6. Outline of Control (Indoor Unit)

6.1 Operation Flow Chart



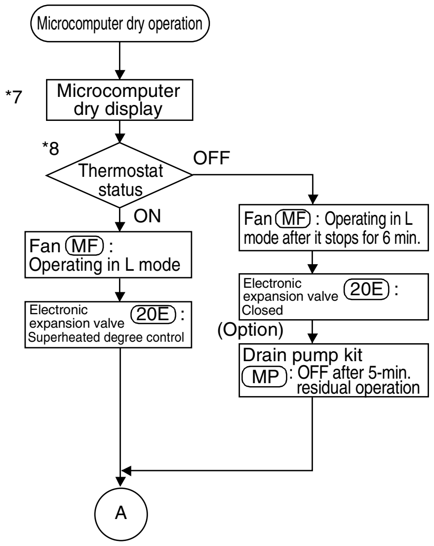


*1. If any malfunction occurs, the relevant malfunction code will be displayed according to the malfunction code display of the remote controller.
*2. When the aux. electric heater turns ON, the fan will stop after it conducts residual operation for 1 min.
*3. When the drain pump kit turns ON, the drain 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



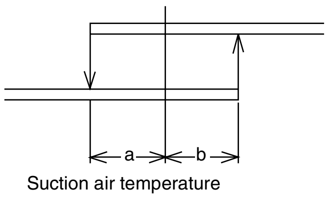
Suction air temperature
a=b=1
(a=b=0.5 is only available for the FXCQ, FXFQ, FXHQ, and FXKQ series.)

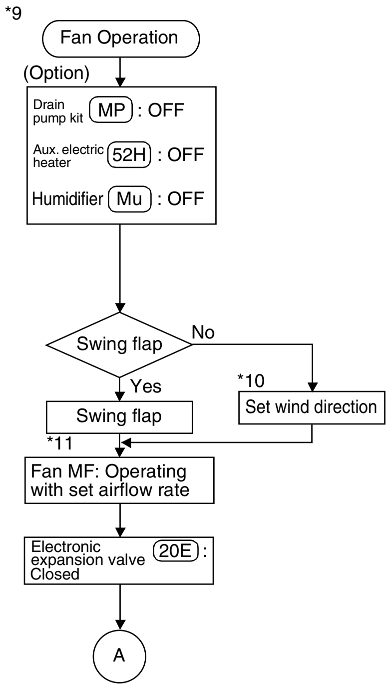
*6. The FXCQ, FXFQ, FXKQ, and FXSQ series have the drain pump as standard equipment.



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

*8. Thermostat status
Set temperature when operating the micro-computer dry mechanism.

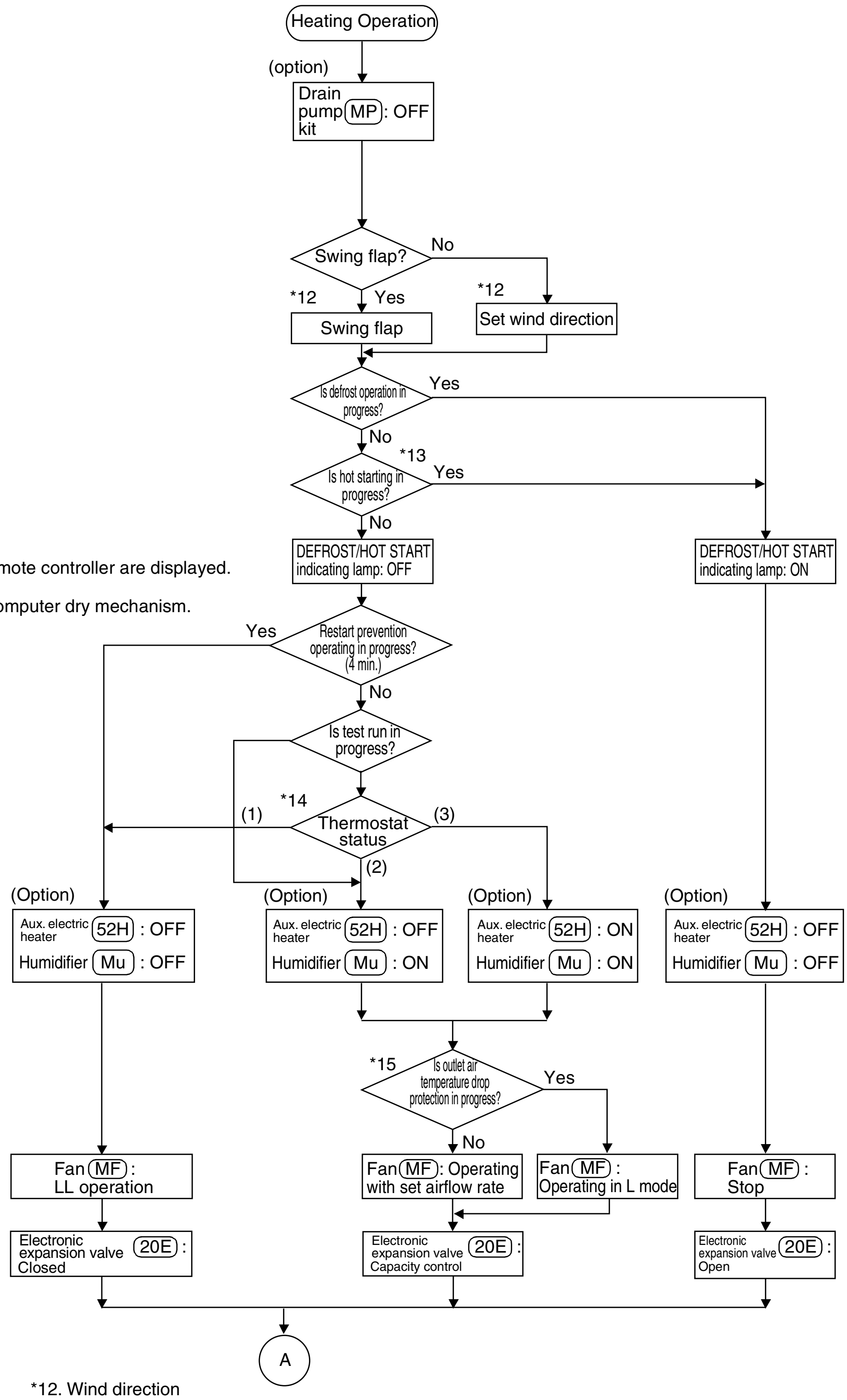




*9. Fan operation
By setting the remote controller to Fan, the fan will operate with thermostat OFF in set temperature control operation mode.

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

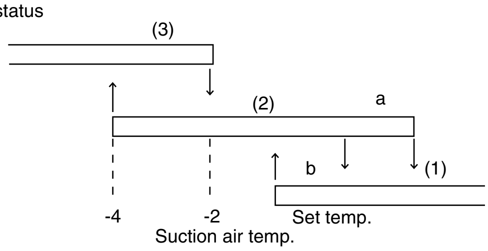
*11. Fan
According to fan speed instruction from the remote controller, the fan is put into operation in LL mode while in heating operation.



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

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

*14. Thermostat status



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

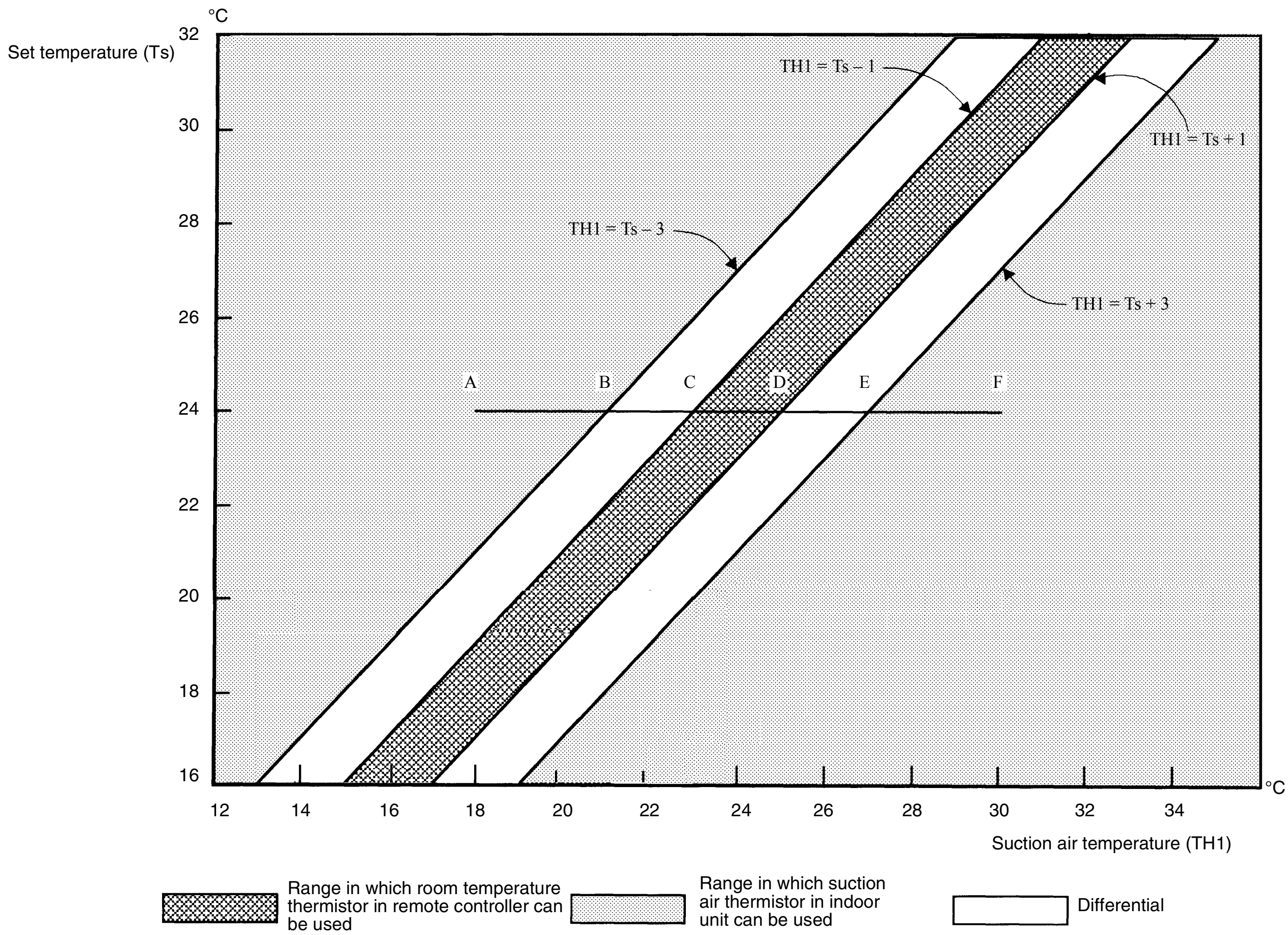
6.2 Thermostat Control

6.2.1 Room Temperature Thermistor in Remote Controller

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

Cooling

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



■ **Ex: When cooling**

Assuming the set temperature in the figure above is 24°C, and the suction air 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.)

Suction air thermistor in indoor unit is used for temperatures from 18°C to 23°C (A → C).

Room temperature thermistor in remote controller is used for temperatures from 23°C to 27°C (C → E).

Suction air thermistor in indoor unit 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):

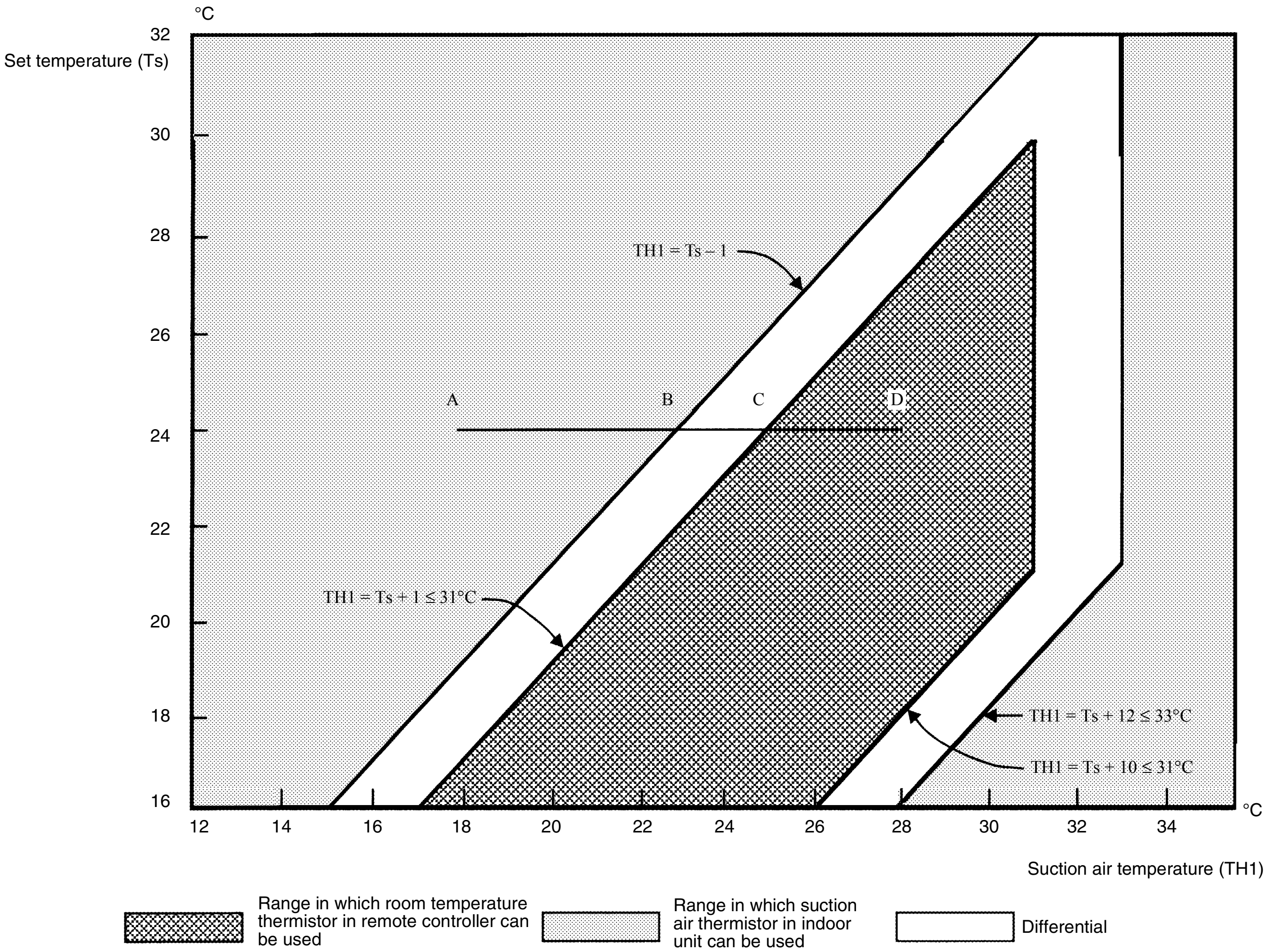
Suction air thermistor in indoor unit is used for temperatures from 30°C to 25°C (F → D).

Room temperature thermistor in remote controller is used for temperatures from 25°C to 21°C (D → B).

Suction air thermistor in indoor unit 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 suction air thermistor in indoor unit only, the unit may therefore be turned off by the thermostat before the lower part of the room reaches the set temperature. The temperature can be controlled so the lower part of the room where the occupants are does not become cold by widening the range in which room temperature thermistor in remote controller can be used so that suction air temperature is higher than the set temperature.



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

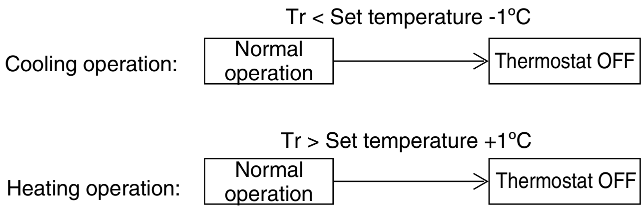
(This example also assumes there are several other air conditioners, the VRV system is off, and that temperature changes even when the thermostat sensor is off.)
Suction air thermistor in indoor unit is used for temperatures from 18°C to 25°C (A → C).
Room temperature thermistor in remote controller 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):

Room temperature thermistor in remote controller is used for temperatures from 28°C to 23°C (D → B).
Suction air thermistor in indoor unit 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 setting mode), the thermostat turns OFF when the system reaches a temperature of -1°C from the set temperature while in cooling operation or of +1°C from that while in heating operation.



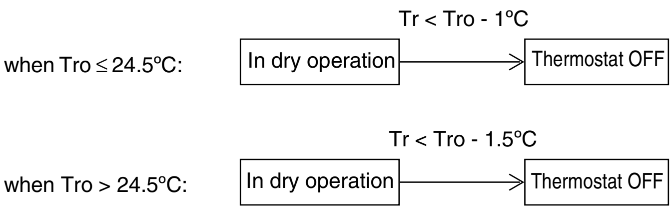
Tr: Temperature detected with the suction air thermistor (R1T)

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 air temperature at the time of starting the dry operation.

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



Tro: Suction air temperature at the time of starting the dry operation

Tr: Temperature detected with the suction air thermistor (R1T)

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.)

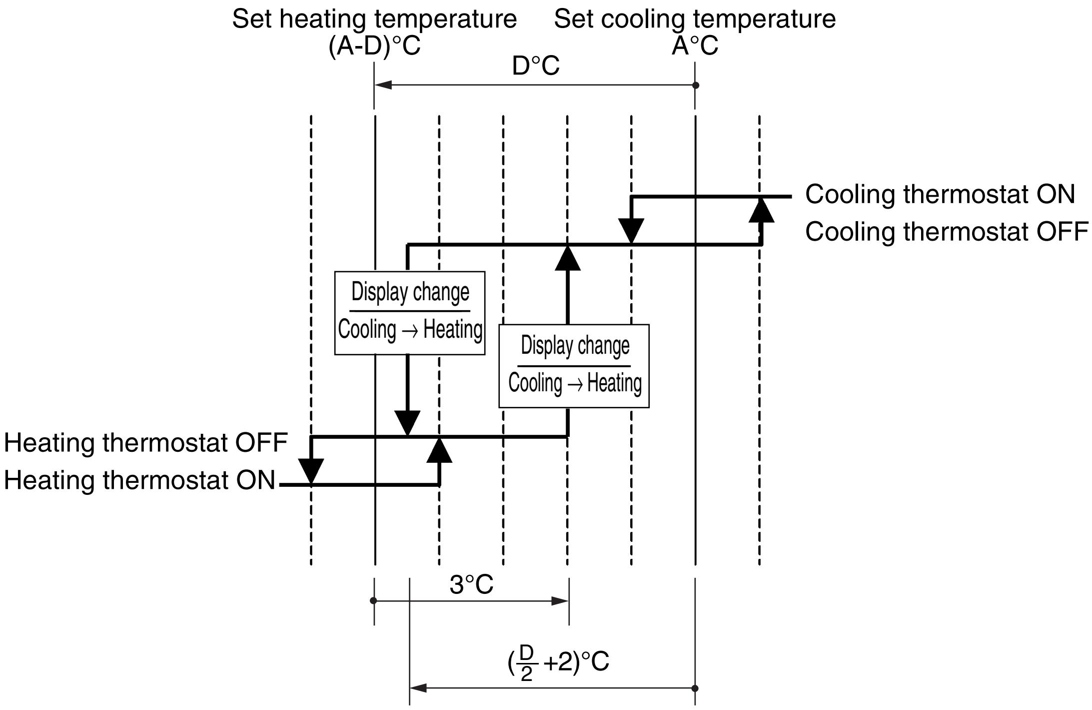
6.2.4 Thermostat Control with Operation Mode Set to "AUTO"

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

Furthermore, setting changes of the differential value (D°C) can be made according to information in the "Field settings with remote controller (p. 204 and later)" section.

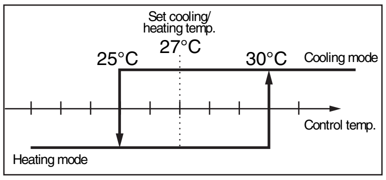
Mode No.	First code No.	Contents of setting	Second code No.							
			01	02	03	04	05	06	07	08
12	4	Differential value while in "AUTO" operation mode	0°C	1°C	2°C	3°C	4°C	5°C	6°C	7°C

▭ : Factory setting

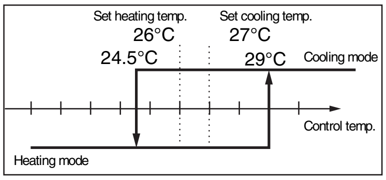


(Ex.) When automatic cooling temperature is set to 27°C:

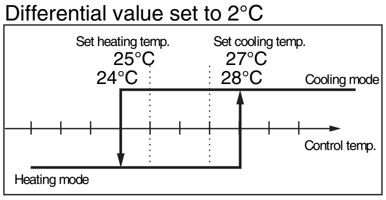
Differential value :0°C



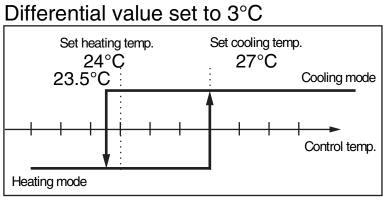
Differential value set to 1°C



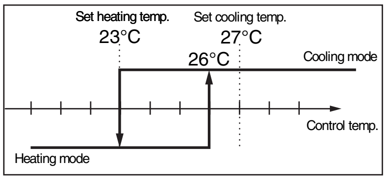
Differential value set to 2°C



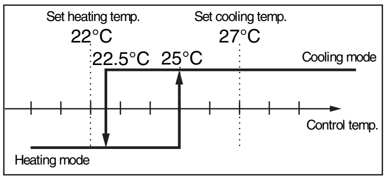
Differential value set to 3°C



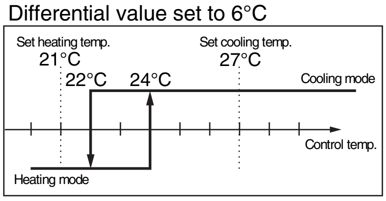
Differential value set to 4°C



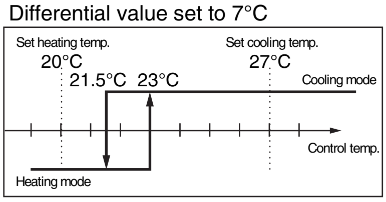
Differential value set to 5°C



Differential value set to 6°C



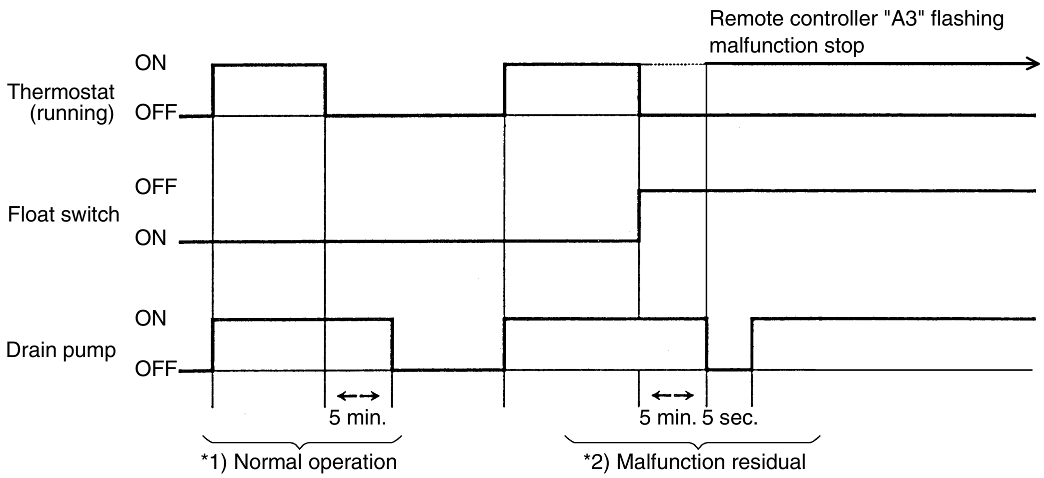
Differential value set to 7°C



6.3 Drain Pump Control

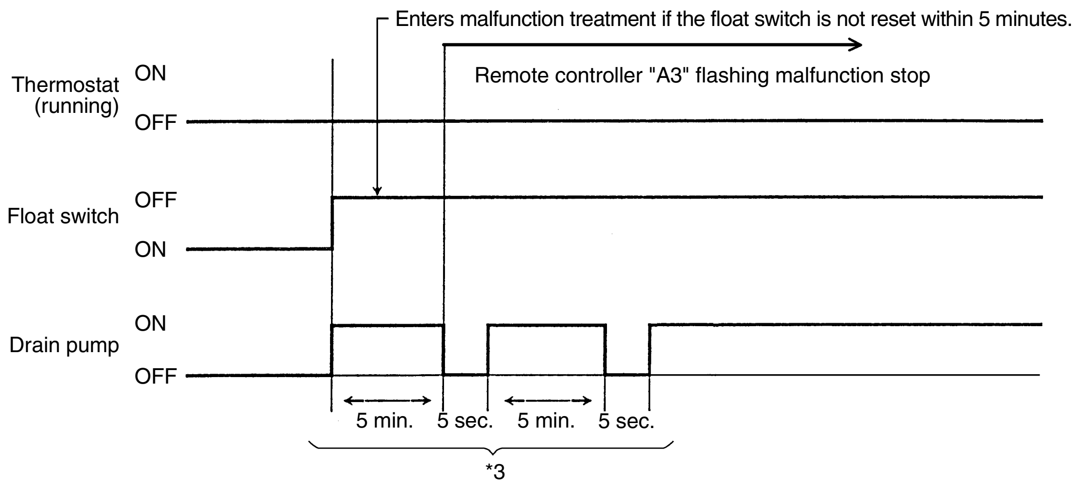
1. The drain pump is controlled by the ON/OFF buttons (4 button (1) - (4) given in the figure below).

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



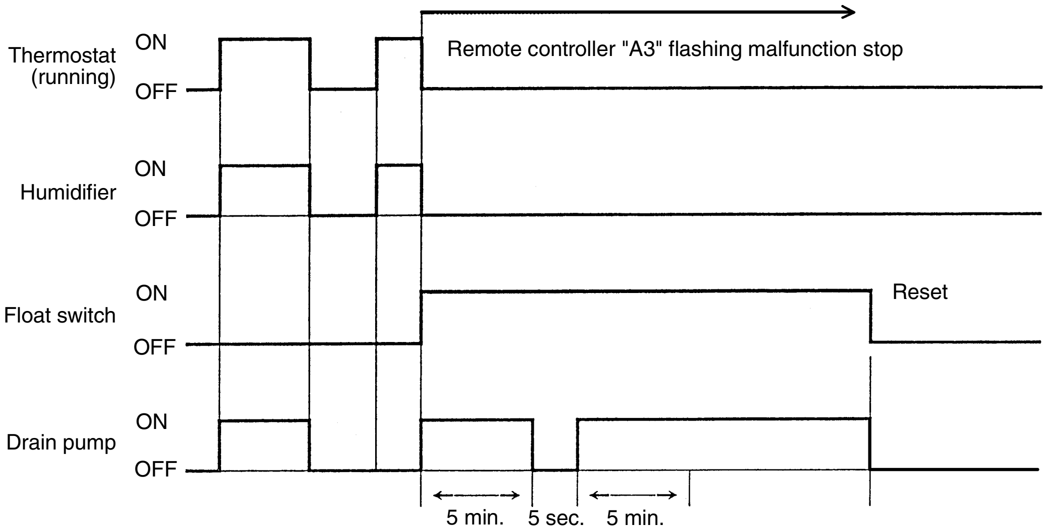
∗1. (Normal operation):
The objective of residual operation is to completely drain any moisture adhering to the fin of the indoor unit heat exchanger when the thermostat goes off during cooling operation.
∗2. (Malfunction residual):
The remote controller will display "A3" and the air conditioner will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

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



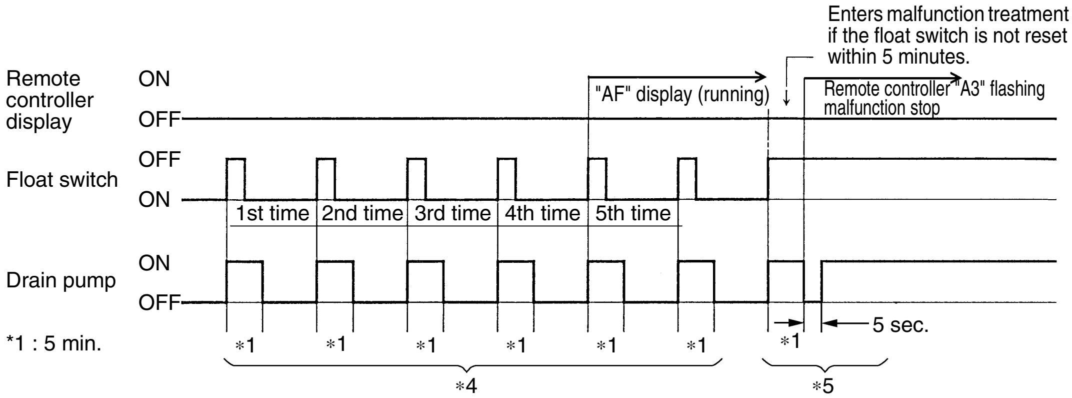
*3. (Malfunction residual):
The remote controller will display "A3" and the air conditioner will come to an abnormal stop if the float switch is turned OFF and not turned ON again within 5 minutes while the cooling thermo. is OFF.

6.3.3 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:



*4. (Malfunction residual):
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.

*5. (Malfunction residual):
The remote controller will display "A3" and the air conditioner will come to an abnormal stop if the float switch is OFF for more than 5 minutes in the case of *4.

6.4 Control of Electronic Expansion Valve

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

• Superheated degree control in cooling operation

This function is used to adjust the opening of the electronic expansion valve so that superheated degree (SH), which is calculated from the detection temperature (Tg) of the gas pipe thermistor (R3T) and the detection temperature (T1) of the liquid temperature thermistor (R2T) of the indoor unit, will come close to a target superheated degree (SHS).
At that time, correction to the superheated degree is made according to the differences (ΔT) between set temperature and suction air thermistor temperature.

SH = Tg - T1	SH: Evaporator outlet superheated degree (°C)
	Tg: Indoor unit gas pipe temperature (R3T)
	T1: Indoor unit liquid pipe temperature (R2T)
SHS (Target SH value)	SHS: Target superheated degree

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

• Sub cooled degree control in heating operation

This function is used to adjust the opening of the electronic expansion valve so that the high-pressure equivalent saturated temperature (Tc), which is converted from the detected pressure of the high pressure sensor in the outdoor unit, and the subcooled degree (SC), which is calculated from the detected temperature (T1) of the liquid temperature thermistor (R2T) in the indoor unit, will come close to the target subcooled degree (SCS).
At that time, corrections to the subcooled degree are made according to differences (ΔT) between set temperature and suction air thermistor temperatures.

SC = Tc - T1	SC: Condenser outlet subcooled degree (°C)
	Tc: High pressure equivalent saturated temperature detected by the high pressure sensor (S1NPH)
	T1: Indoor unit liquid pipe temperature (R2T)
SCS (Target SC value)	SCS: Target subcooled degree

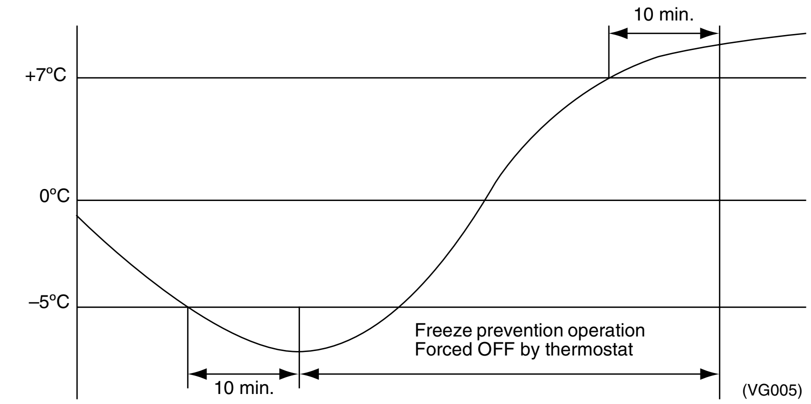
- Normally 5°C.
- As ΔT (Remote controller set temp. - Suction air temp.) becomes larger, SCS becomes lower.
- As ΔT (Remote controller set temp. - Suction air temp.) becomes lower, SCS becomes larger.

6.5 Freeze Prevention

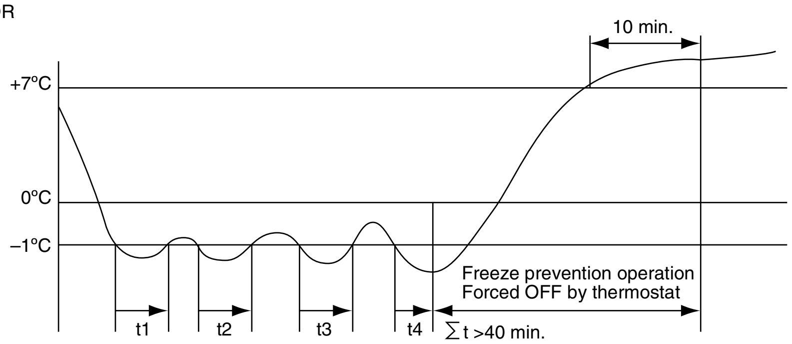
Freeze Prevention by Off Cycle (Indoor Unit)

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.

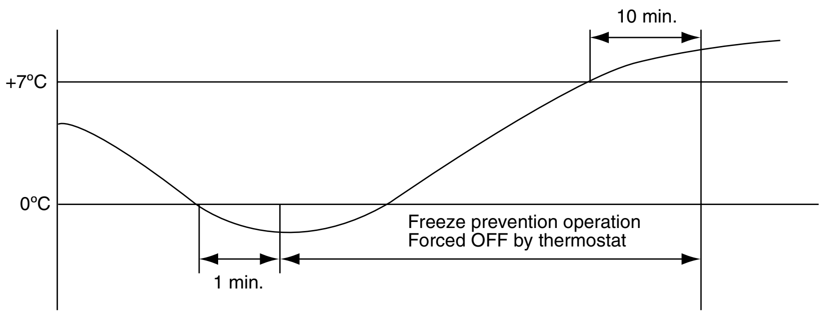
When freeze prevention is activated, the electronic expansion valve is closed, the drain pump turns ON and the fan tap is fixed to L airflow. When the following conditions for stopping are satisfied, it returns.
Conditions for starting freeze prevention: Temperature is -1°C or less for total of 40 min.,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



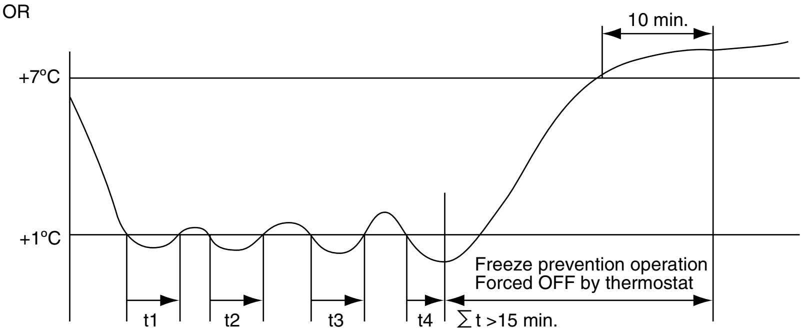
OR



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



OR

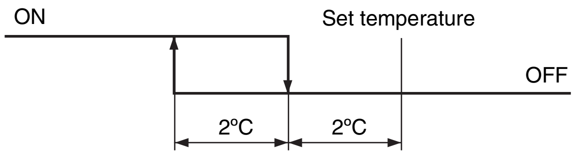


6.6 Heater Control (Optional PCB KRP1B...is required.)

The heater control is conducted in the following manner.

[Normal control]

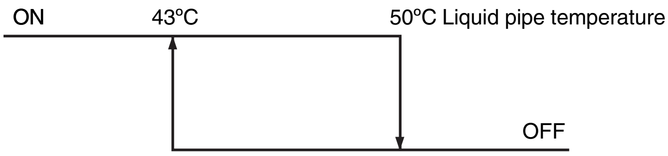
While in heating operation, the heater control (ON/OFF) is conducted as shown on the right.



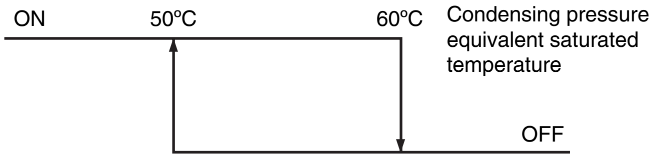
[Overload control]

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 (S1NPH) of the outdoor unit.



[Fan residual operation]

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

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

6.7 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

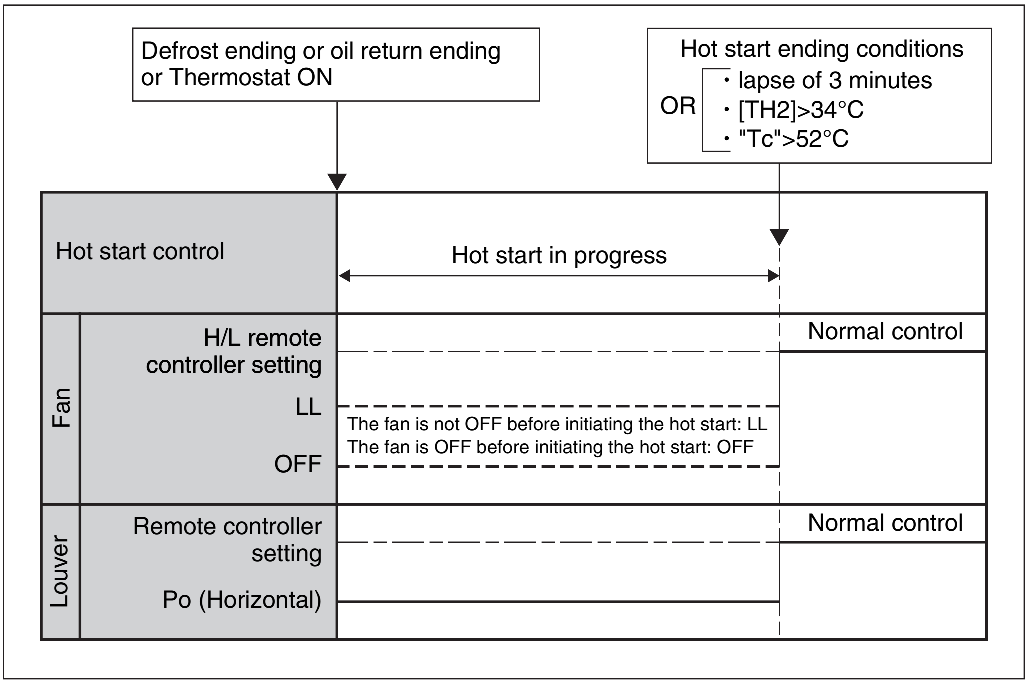
*1. L or LL only on FXFQ models

6.8 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.

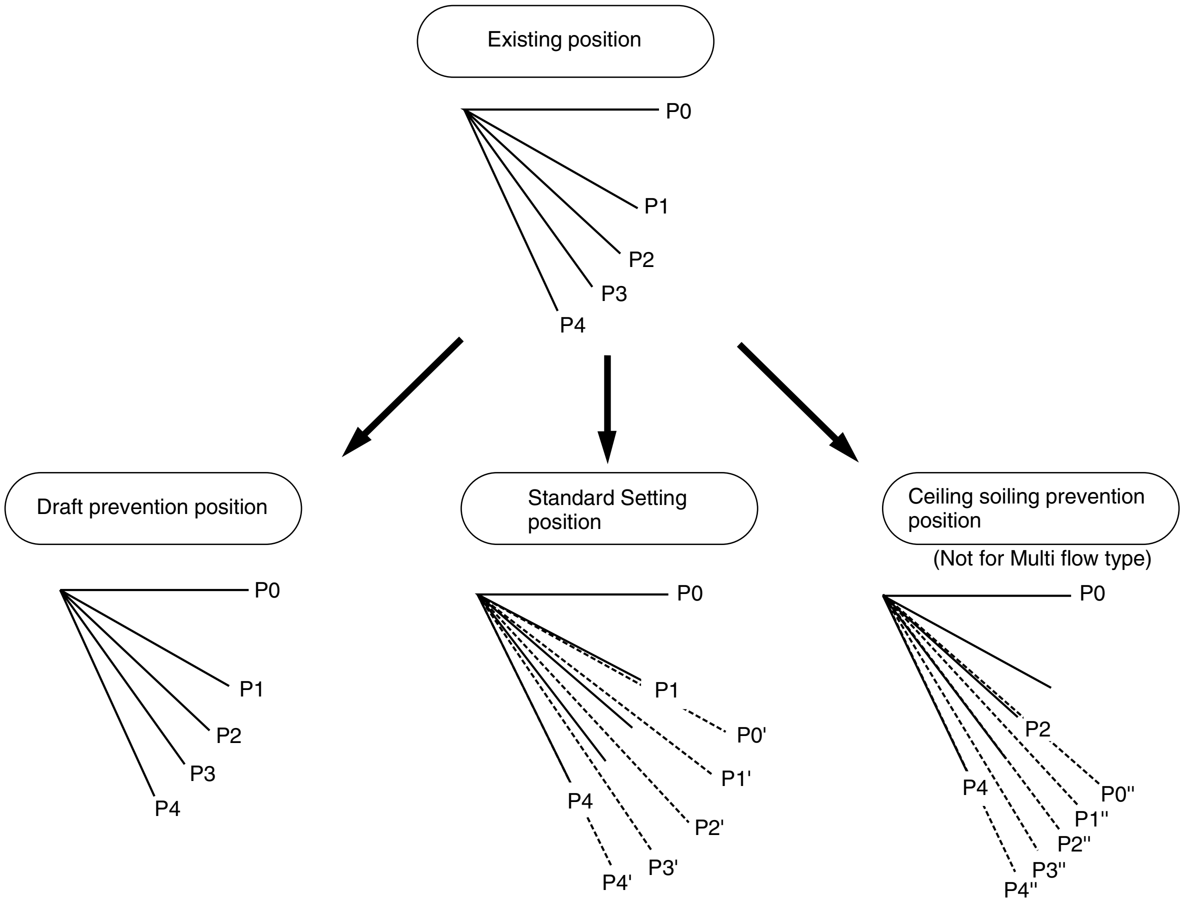


TH_2: Temperature (°C) detected with the gas thermistor

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.)



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

The factory setting position is standard position.

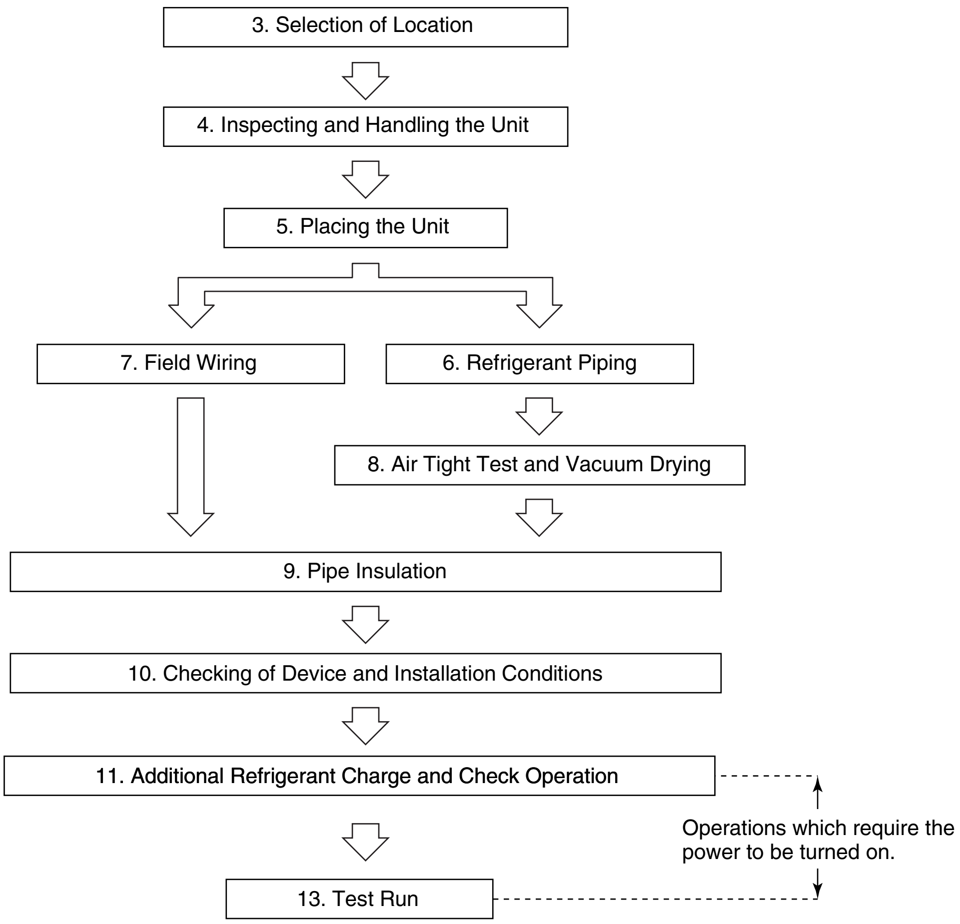
(VL012)

Part 5
Test Operation

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

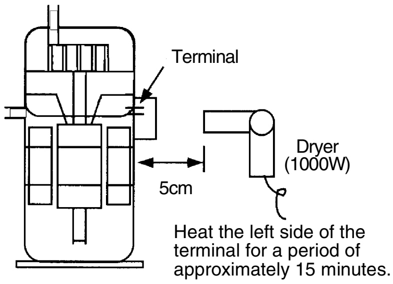
Follow the following procedure to conduct the initial test operation after installation.

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

- Is the pipe size proper?
- Are the design pressures for the liquid pipe, suction pipe, dual pressure gas pipe, and pressure equalizer pipe (in case of multi units) all not less than 4.0 MPa?
- Is the pipe insulation material installed securely?
  Liquid, suction and high & low pressure gas pipe need to be insulated. (Otherwise causes water leak.)

Check air tight test and vacuum drying.

- Have the air tight test and the vacuum drying been conducted according to the procedure in the Installation Manual?

Check on amount of refrigerant charge

- 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 = [(Total length of φ22.2-mm liquid pipe) × 0.37 + (Total length of φ19.1-mm liquid pipe) × 0.26 + (Total length of φ15.9-mm liquid pipe) × 0.18 + (Total length of φ12.7-mm liquid pipe) × 0.12 + (Total length of φ9.5-mm liquid pipe) × 0.059 + (Total length of φ6.4-mm liquid pipe) × 0.022] × 1.02

\+ Correction amount with indoor unit

System name	Correction amount
Model REYQ8-16P8Y1B	3.6 kg
Model REYQ18-20P8Y1B	1.0kg
Model REYQ22-24P8Y1B	1.5kg
Model REYQ26P8Y1B	2.0kg
Model REYQ28-30P8Y1B	2.5kg
Model REYQ32-40P8Y1B	3.0kg
Model REYQ42P8Y1B	3.5kg
Model REYQ44-46P8Y1B	4.0kg
Model REYQ48P8Y1B	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 - 32P8Y1B	Model REYQ34 - 48P8Y1B
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 page 164 ~.

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

Check the stop valves for conditions.

- Check to be sure the stop valves are under the following 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.

⇩

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

Check the LED display of the outdoor unit PCB.

⇩

○ 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			
		HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
One outdoor unit installed		◑	●	●	○	●	●	●	●	●
When multiple outdoor unit installed (*)	Master	◑	●	●	○	●	●	●	●	○
	Slave 1	◑	●	●	●	●	●	●	●	◑
	Slave 2	◑	●	●	●	●	●	●	●	●

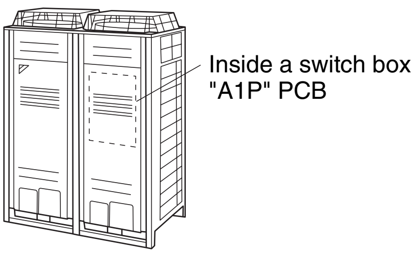
(*) The master unit is the outdoor unit to which the transmission wiring for the indoor units is connected.
The other outdoor units are slave units.

Make field settings with outdoor unit PCB.

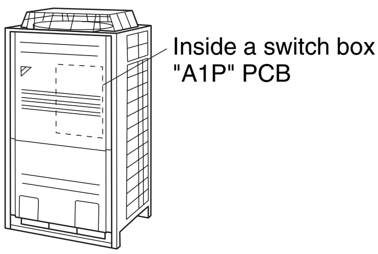
⇩

○ Make field settings if needed.
(For the setting procedure, refer to information in "3.2. Field Setting from Outdoor Unit" on page 220 onward.)
For the outdoor-multi system, make field settings with the master unit.
(Field settings made with the slave unit will be all invalid.)

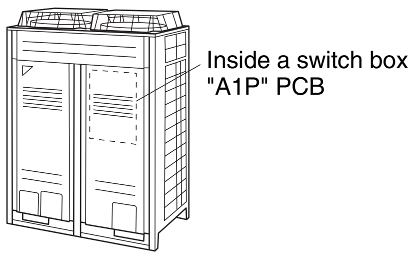
<REYQ8~16P8Y1B>



<REMQ8~12P8Y1B>



<REMQ14, 16P8Y1B>



* Another switch box is provided on the front left side of the unit, but it requires no field settings.

Conduct check operations.

⇩

The check operations shown below will be automatically initiated.

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

Check for normal operation.

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

1.2.3 Air Tight Test and Vacuum Drying

Note:

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

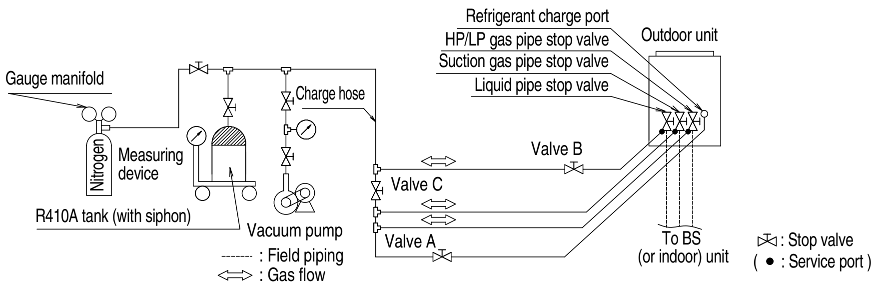
<Needed tools>

Gauge manifold Charge hose valve	• 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 stop valves or refrigerant charge port.
Vacuum pump	• 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.

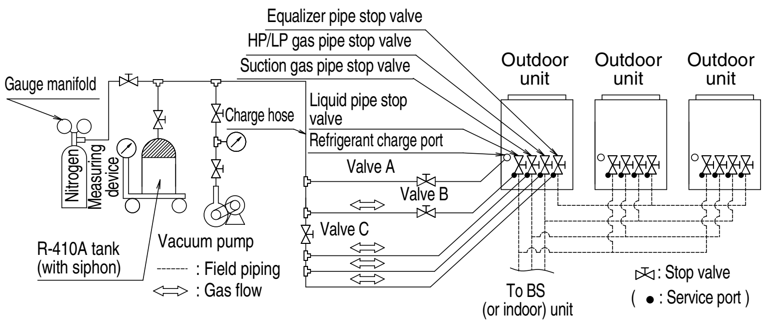
<The system for air tight test and vacuum drying>

- 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 Charging Refrigerant".**

REYQ8~16P8Y1

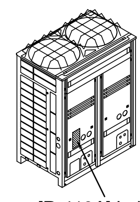


REYQ18~48P8Y1



Note:

- The air tight test and vacuum drying should be done using the service ports of equalizer pipe, HP/LP gas pipe, suction gas pipe and liquid pipe stop 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 **"1.2.5.3 Stop valve operation procedure"** for details on handling the stop 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 stop valve to 4.0MPa (do not pressurize more than 4.0MPa). 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:

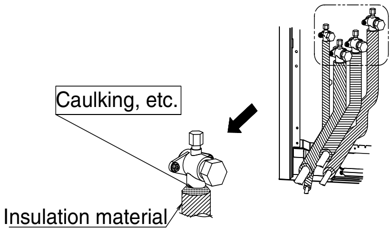
- **If moisture might enter the piping, follow below.**
  (I.e., if doing work during the rainy season, if the actual work takes long enough that condensation may form on the inside of the pipes, if rain might enter the pipes during work, etc.)

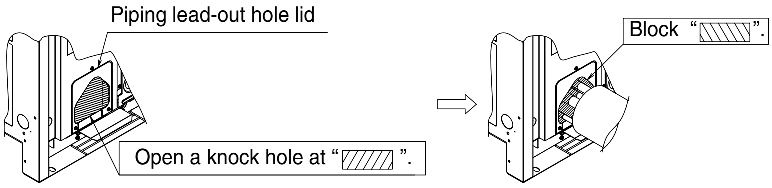
1. After performing the vacuum drying for two hours, pressurize to 0.05 MPa (i.e., vacuum breakdown) with nitrogen gas, then depressurize down to –100.7 kPa for an hour using the vacuum pump (vacuum drying).
2. If the pressure does not reach –100.7 kPa even after depressurizing for at least two hours, 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.
  - Outdoor air temperature : 30°C, humidity : 75% to 80% RH : min. thickness : 15mm.
  - If the outdoor air 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 stop 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 Charging Refrigerant”. (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 Charging Refrigerant - REYQ8~16P8Y1B

The outdoor unit is factory charged, but depending on the length of the piping when installed, the outdoor unit may require additional charging.
For charging the additional refrigerant follow the procedure as described in this chapter.

Refrigerant cannot be charged until all field wiring and field piping has been completed.
Refrigerant may only be charged after performing the leak test and the vacuum drying.

1.2.5.1 Important information regarding the refrigerant used

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.

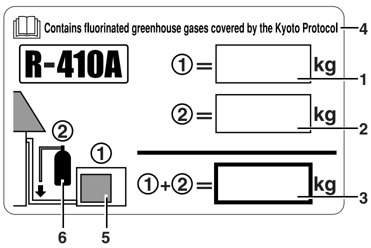
Refrigerant type : R-410A
GWP(1) value : 1975

(1) GWP = global warming potential

Please fill in with indelible ink,
- 1 the factory refrigerant charge of the product,
- 2 the additional refrigerant amount charged in the field and
- 1 + 2 the total refrigerant charge

on the refrigerant charge label supplied with the product.

The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the service cover).



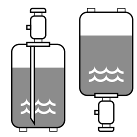
1 factory refrigerant charge of the product: see unit name plate
2 additional refrigerant amount charged in the field
3 total refrigerant charge
4 contains fluorinated greenhouse gases covered by the Kyoto Protocol
5 outdoor unit
6 refrigerant cylinder and manifold for charging

1.2.5.2 Precautions when adding R-410A

Be sure to charge the specified amount of refrigerant in liquid state.
Since this refrigerant is a mixed refrigerant, adding it in gas form may cause the refrigerant composition to change, preventing normal operation.

- Before charging, check whether the refrigerant cylinder is equipped with a siphon tube or not.

Charge the liquid refrigerant with the cylinder in upright position.



Charge the liquid refrigerant with the cylinder in up-side-down position.

- Be sure to use tools exclusively for R-410A to ensure required pressure resistance and to prevent foreign materials from mixing into the system.

Charging with an unsuitable substance may cause explosions and accidents, so always make sure that the appropriate refrigerant (R-410A) is charged.
Refrigerant containers must be opened slowly.

1.2.5.3 Stop valve operation procedure

Size of stop valve

The sizes of the stop valves connected to the system are as listed in the table below.

Type of stop valve	8 HP	10 HP	12 HP	14 HP	16 HP
Liquid pipe	ϕ9.5 (a)			ϕ12.7	
Suction gas pipe	ϕ25.4 (b)				
High pressure/low pressure gas pipe	ϕ19.1 (c)				

(a) The 12 HP model supports field piping of ϕ12.7 on the accessory pipe supplied with the unit.
(b) The 8 HP model supports field piping of ϕ19.1 on the accessory pipe supplied with the unit.
The 10 HP model supports field piping of ϕ22.2 on the accessory pipe supplied with the unit.
The 12~16 HP models support field piping of ϕ28.6 on the accessory pipe supplied with the unit.
(c) The 8 HP model supports field piping of ϕ15.9 on the accessory pipe supplied with the unit.
The 14 and 16 HP models support field piping of ϕ22.2 on the accessory pipe supplied with the unit.

- Do not open the stop valve until all piping and electrical steps of "**1.2.4 Pipe Insulation**" on page 163 are completed. If the stop valve is left open without turning on the power, it may cause refrigerant to build up in the compressor, leading to insulation degradation.
- Always use a charge hose for service port connection.
- After tightening the cap, check that no refrigerant leaks are present.

Opening stop valve (See figure 19)

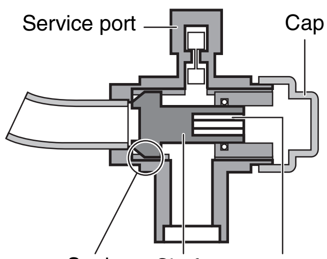


figure 19

1. Remove the cap and turn the valve counterclockwise with the hexagon wrench.
2. Turn it until the shaft stops.

Do not apply excessive force to the stop valve. Doing so may break the valve body.

3. Make sure to tighten the cap securely. Refer to the table below.

Stop valve size	Tightening torque N•m (Turn clockwise to close)			
	Shaft		Cap (valve lid)	Service port
	Valve body	Hexagonal wrench		
ϕ9.5	5.4~6.6	4 mm	13.5~16.5	11.5~13.9
ϕ12.7	8.1~9.9		18.0~22.0	
ϕ22.2	27.0~33.0	8 mm	22.5~27.5	
ϕ25.4				

Closing stop valve (See figure 19)

1. Remove the cap and turn the valve clockwise with the hexagon wrench.
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 table above.

1.2.5.4 How to check how many units are connected

It is possible to find out how many indoor units are active and connected by operating the push-button switch on the printed circuit board (A1P) of the working outdoor unit.
Make sure that all the indoor units connected to the outdoor unit are active.

Follow the 5-step procedure as explained below.

- The LEDs on the A1P shows the operating status of the outdoor unit and the number of indoor units that are active.

  ● OFF ○ ON ◑ Blinking

- The number of units that are active can be read from the LED display in the "Monitor Mode" procedure below.
  Example: in the following procedure there are 22 units active:

Note: Wherever during this procedure, press the **BS1 MODE** button if something becomes unclear. You will return to setting mode 1 (H1P= ● "OFF").

1 Setting mode 1 (default system status)

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Default status (normal)	●	●	○	●	●	●	●

Press the **BS1 MODE** button to switch from setting mode 1 to monitor mode.

2 Monitor mode

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Default status display	◑	●	●	●	●	●	●

To check the number of indoor units, press the **BS2 SET** button 5 times.

3 Monitor mode

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Selection status of how many connected indoor units to display.	◑	●	●	●	○	●	○

Pressing the **BS3 RETURN** button causes the LED display to show the data on the number of indoor units that are connected.

4 Monitor mode

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Displaying the number of connected indoor units	◑	●	◑	●	◑	◑	●
		32	16	8	4	2	1

Calculate the number of connected indoor units by adding the values of all (H2P~H7P) blinking (◑) LEDs together.
In this example: 16+4+2=**22** units
Press the **BS1 MODE** button to return to step 1, setting mode 1 (H1P= ● "OFF").

1.2.5.5 Additional refrigerant charge

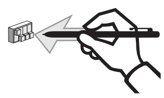
Adding refrigerant using the automatic refrigerant charging function is recommended.

Follow the procedures below.

- When charging a system, charging over the permissible quantity can cause liquid hammer.
- Always use protective gloves and protect your eyes when charging refrigerant.
- When the refrigerant charging procedure is done or when pausing, close the valve of the refrigerant tank immediately.
  - The refrigerant charge port has a electronic expansion valve and will be closed at the end of the refrigerant charging. However, the valve will be opened when operating the unit after refrigerant charging.
  - If the tank is left with the valve open, the amount of refrigerant which is properly charged may get off point. More refrigerant may be charged by any remaining pressure after the unit has stopped.

Electric shock warning

- Close the electric component box lid before turning on the main power.
- Perform the settings on the circuit board (A1P) of the outdoor unit and check the LED display after the power is on via the service lid which is in the lid of the el. compo. box.
  Operate switches with an insulated stick (such as a ball-point pen) to avoid touching the life parts.
  Make sure to re-attach the inspection cover into the switch box cover after the job is finished.



- If the power of some units is turned off, the charging procedure can not be finished properly.
- Make sure to turn ON the power 6 hours before starting the operation. This is necessary to warm the crankcase by the electric heater.
- If operation is performed within 12 minutes after the indoor units, BS units and outdoor unit are turned on, the H2P-LED will be lit and the compressor will not operate.

Note:

- See " 1.2.5.3 Stop valve operation procedure" on page 165 for details on how to handle stop valves.
- The refrigerant charging port is connected to the piping inside the unit.
  The unit's internal piping is already factory charged with refrigerant, so be careful when connecting the charge hose.
- After adding the refrigerant, do not forget to close the lid of the refrigerant charging port.
  The tightening torque for the lid is 11.5 to 13.9 N•m.
- In order to ensure uniform refrigerant distribution, it may take the compressor ±10 minutes to start up after the unit has started operation. This is not a malfunction.

1. Procedure for additional refrigerant charge

The automatic refrigerant charging has limits as described below.
At out of limit, the system can not operate the automatic refrigerant charging.

Outdoor temperature	: 0°C DB~43°C DB
Indoor temperature	: 10°C DB~32°C DB
Total indoor unit capacity	: ≥80%

Pre-charging

To speed up the process of charging refrigerant for large systems, it is recommended to first manually charge a portion of the refrigerant first before performing automatic charging.

1. Calculate how much refrigerant to be added using the formula explained in the chapter "How to calculate the additional refrigerant to be charged" on page 160.
2. The amount of pre-charging is 10 kg less than the calculated amount.

3. Open valve B (the valves A and C, the liquid pipe, the suction gas pipe and the high pressure/low pressure gas pipe stop valves must be left closed) and charge the refrigerant in liquid form via the liquid pipe stop valve service port.
   (See figure 23)

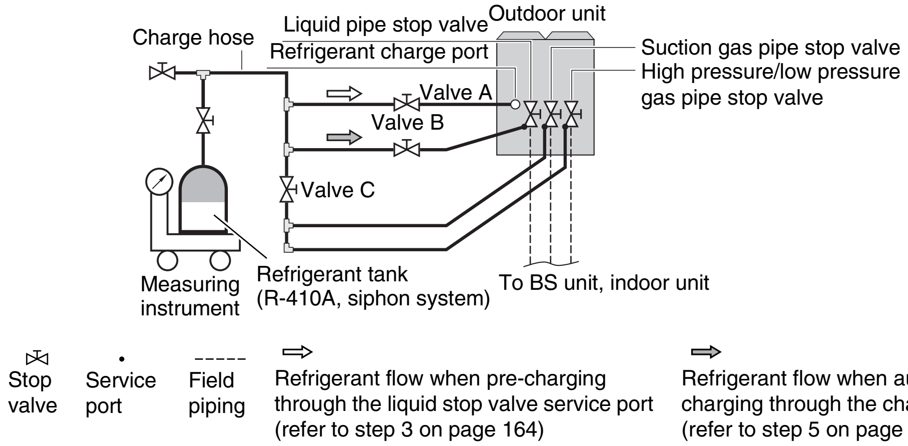


figure 23

4. If the calculated amount of pre-charging is reached, close valve B.

At least the unit should be charged with its original amount of refrigerant (refer to the nameplate on the unit), before starting the automatic charging.

Note: When the leak detection function is not required, complete charging when using the previous described method (unit is not operating) can be done.
If it is not possible to charge the entire quantity through the service port of the liquid pipe stop valve with the unit not operating, refer to " 1.2.5.8.7 Additional refrigerant charging method" on page 182.

5. After pre-charging, perform the refrigerant charge operation as shown below and charge the remaining refrigerant of the additional charging amount through valve A. (See figure 23)

Note: The refrigerant will be charged with ±30 kg in 1 hour time at an outdoor temperature of 30°C DB or with ±12 kg at an outdoor temperature of 0°C DB.
During the automatic charging operation, you can force the operation to a halt by pushing the **BS1 MODE** button.

1. Start of automatic charging refrigerant
- Open the liquid pipe, suction gas pipe and high pressure/low pressure gas pipe stop valves and the service port stop valve. (Valves A, B and C must be closed.)
- Close all front panels except the electric component box front panel and turn the power ON.
- Make sure all indoor units are connected, refer to " 1.2.5.4 How to check how many units are connected" on page 166.
- If the H2P LED is not flashing (in 12 minutes time after turning on the power), make sure it is displayed as shown in the "2. Normal system display" on page 171.
  If the H2P LED is flashing, check the malfunction code on the remote controller "3. Remote controller malfunction code display" on page 172.

- If you perform the refrigerant charging operation within the refrigerant system with one or more units with power OFF, the refrigerant charging operation can not be accomplished properly.
  For confirming the number of indoor units with power ON, refer to " 1.2.5.4 How to check how many units are connected" on page 166.

- To energize the crankcase heater, make sure to turn the power ON at least 6 hours before starting operation.

2. Press the **BS1 MODE** button once if the LEDs combination is not as in the figure below.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
●	●	○	●	●	●	●

3. Press the **BS4 TEST** button once.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	○	○	○	○	○	○

4. Hold the **BS4 TEST** button down for 5 seconds or more.
5. **Charging mode judgement**
However, if the indoor temperature is 10°C DB or lower, in some cases the unit will charge in heating mode to increase the indoor temperature.
The unit will automatically select the cooling mode or heating mode for charging.

- When charging in cooling mode, the unit will stop operating when the required amount of refrigerant is charged.
- During charging in heating mode, a person must manually close valve A before complete charging is finished. The required amount is the calculated amount (see "6. Example of connection (R-410A Type)" on page 462), therefore, the weight must be monitored constantly.

<Charging in heating mode >

6. Start up
Wait while the unit is preparing for charging in heating mode.

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Pressure control (for the first minute)	●	◑	●	●	●	●	○
Start up control (for the next 2 minutes)	◑	◑	●	●	●	○	●
Waiting for stable heating conditions (for the next ±15 minutes (according to the system))	◑	◑	●	●	●	○	○

It takes about 2 to 10 minutes for the system to become stable.
In case of a small charging amount, the system will start charging the refrigerant before the system reaches the stable state. It may disturb a correct decision and may cause overcharging.

7. Ready

H1P	H2P	H3P	H4P	H5P	H6P	H7P
◑	◑	●	●	○	●	○

Press the **BS4 TEST** button once within 5 minutes.
If the **BS4 TEST** button is not pushed within 5 minutes, P2 will be displayed on the remote controller. Refer to "3. Remote controller malfunction code display" on page 172.

8. Operation
When the following LED display is shown, open valve A and close the front panel. If the front panel is left open, the system can not operate properly during the refrigerant charging.

When the refrigerant tank is not connected or is left with the valve closed for 30 minutes or more, the outdoor unit will stop operation and the P2 code will be displayed on the remote controller of the indoor unit. Follow the procedure as described in "3. Remote controller malfunction code display" on page 172.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	◑	*	*	*	*	*

* = The state of this LED is not important.

When a malfunction occurs, check the display of the remote controller and refer to "3. Remote controller malfunction code display" on page 172.

9. Complete
   If the calculated amount of refrigerant is reached, close valve A and press the **BS3 RETURN** button once.

Note: Always close valve A and remove the refrigerant tank immediately after finishing the refrigerant charge operation.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
◑	◑	◑	○	○	○	○

Beware of the fan blades when you open the front panel.
The fan may still rotate for a while after unit operation has stopped.

10. In case leak detection function is required
Press the **BS4 TEST** button once for post-processing with regard to the leak detection function and press the **BS1 MODE** button to confirm that charging is completed.
Record the amount that was added on the additional refrigerant charge label provided with the unit and attach it on the back side of the front panel.
Perform the procedure " 1.2.5.6 Procedure for inputting the additional refrigerant charge weight into the PCB" as described on page 172.

10. In case leak detection function is not required
Press the **BS1 MODE** button once and the charging is complete.
Record the amount that was added on the additional refrigerant charge label provided with the unit and attach it on the back side of the front panel.
Perform the procedure " 1.2.5.6 Procedure for inputting the additional refrigerant charge weight into the PCB" as described on page 172.

<Charging in cooling mode>

6. Start up
   Wait while the unit is preparing for charging in cooling mode.

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Pressure control (for the first minute)	●	◑	●	●	●	●	○
Start up control (for the next 2 minutes)	●	◑	●	●	●	○	●
Waiting for stable cooling conditions (for the next ±15 minutes (according to the system))	●	◑	●	●	●	○	○

It takes about 2 to 10 minutes for the system to become stable.
In case of a small charging amount, the system will start charging the refrigerant before the system reaches the stable state. It may disturb a correct decision and may cause overcharging.

7. Ready

H1P	H2P	H3P	H4P	H5P	H6P	H7P
◑	◑	◑	●	○	●	○

Press the **BS4 TEST** button once within 5 minutes.
If the **BS4 TEST** button is not pushed within 5 minutes, P2 will be displayed on the remote controller. Refer to "3. Remote controller malfunction code display" on page 172.

8. Operation
   When the following LED display is shown, open valve A and close the front panel. If the front panel is left open, the system can not operate properly during the refrigerant charging.

When the refrigerant tank is not connected or is left with the valve closed for 30 minutes or more, the outdoor unit will stop operation and the P2 code will be displayed on the remote controller of the indoor unit. Follow the procedure as described in "3. Remote controller malfunction code display" on page 172.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	◑	∗	∗	∗	∗	∗

∗ = The state of this LED is not important.

When a malfunction occurs, check the display of the remote controller and refer to "3. Remote controller malfunction code display" on page 172.

9. Complete

H1P	H2P	H3P	H4P	H5P	H6P	H7P
◑	◑	◑	○	○	○	○

The display on the remote controller shows a flashing PE code for signalling that automatic charging will be finished in about 10 minutes.
When the unit stops operating, close valve A immediately and check the LEDs and check if the P9 code is displayed on the remote controller.

Note: Always close valve A and remove the refrigerant tank immediately after finishing the refrigerant charge operation.
The refrigerant charge port of these units have electronic expansion valves that will close automatically when refrigerant charging operation has finished. However, the electronic expansion valves will be opened when other operations start after finishing refrigerant charging operation.
If the refrigerant tank is left with the valve open, the amount of refrigerant which is properly charged may be off the point.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	◑	◑	○	○	○	○

If the LED indication is not as shown above, correct the malfunction (as indicated in the display of the remote controller) and restart the complete charging procedure. When the charging amount is little, the PE code may not be displayed, but instead the P9 code will be displayed immediately.

Beware of the fan blades when you open the front panel.
The fan may still rotate for a while after unit operation has stopped.

10. In case leak detection function required
Press the **BS4 TEST** button once for post-processing with regard to the leak detection function and press the **BS1 MODE** button to confirm that charging is completed.
Record the amount that was added on the additional refrigerant charge label provided with the unit and attach it on the back side of the front panel.
Perform the procedure " 1.2.5.6 Procedure for inputting the additional refrigerant charge weight into the PCB" as described on page 172.

10. In case leak detection function not required
Press the **BS1 MODE** button once and the charging is complete.
Record the amount that was added on the additional refrigerant charge label provided with the unit and attach it on the back side of the front panel.
Perform the procedure " 1.2.5.6 Procedure for inputting the additional refrigerant charge weight into the PCB" as described on page 172.

2. Normal system display

LED display (Default status before delivery)	Micro-computer operation monitor	Mode	Ready/ Error	Cooling/Heating changeover			Low noise	Demand
				Indivi-dual	Bulk (master)	Bulk (slave)		
	HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Outdoor unit system	◑	●	●	○	●	●	●	●

3. Remote controller malfunction code display

Remote controller heating mode malfunction codes

<table>
<tr><th colspan="3">Error code</th></tr>
<tr><td>P8
recharge operation</td><td colspan="2">Close valve A immediately and press the TEST OPERATION button once.
The operation will restart from the charging mode judgement onwards.</td></tr>
<tr><td>P2
charge hold</td><td>Close valve A immediately. Check following items:
- Check if the gas stop valve is opened correctly
- Check if the valve of the refrigerant cylinder is opened
- Check if the air inlet and outlet of the indoor unit are not obstructed</td><td>After correcting the abnormality, restart the automatic charging procedure again.</td></tr>
</table>

Remote controller cooling mode malfunction codes

<table>
<tr><th colspan="3">Error code</th></tr>
<tr><td>PE</td><td colspan="2">Charging is almost finished. Ready to close valve A.</td></tr>
<tr><td>P9</td><td colspan="2">Charging is finished. Close valve A and remove the refrigerant tank.</td></tr>
<tr><td>PA, PH
replace cylinder</td><td colspan="2">Close valve A and replace the empty cylinder.
After replacing the cylinder, open valve A again and continue the work (the outdoor unit will not stop operating).</td></tr>
<tr><td>P8
recharge operation</td><td colspan="2">Close valve A immediately.
Restart the automatic charging procedure again.</td></tr>
<tr><td>P2
charge hold</td><td>Close valve A immediately. Check following items:
- Check if the high pressure/low pressure gas pipe, suction gas pipe and liquid pipe stop valves are opened correctly
- Check if the valve of the refrigerant cylinder is opened
- Check if the air inlet and outlet of the indoor unit are not obstructed</td><td rowspan="2">After correcting the abnormality, restart the automatic charging procedure again.</td></tr>
<tr><td>*
abnormal stop</td><td>Close valve A immediately. Confirm the malfunction code by the remote controller and correct the abnormality by following the " Correcting after abnormal completion of the test operation" on page 180.</td></tr>
</table>

1.2.5.6 Procedure for inputting the additional refrigerant charge weight into the PCB

Availability of the leak detection function feature requires input of the additional refrigerant charge amount immediately after finishing the automatic charging. The input must be executed before performing the test operation.

If a wrong value is input for the additional charged refrigerant weight, the accuracy of the leak detection function will decrease.

Procedure

1. Close the electric box lid and all front panels except the one on the side of the electric box.
2. Press and hold the **BS1 MODE** button for 5 seconds to enter into setting mode 2.
   The H1P LED is on ○.
3. Press the **BS2 SET** button 14 times.
   The LED display must be as follows:

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	●	●	○	○	○	●

   Press the **BS3 RETURN** button once as confirmation of the LEDs combination.
   LEDs will be blinking in function of the last entered setting (factory setting = 0 kg).
4. The weighed and already recorded amount of additional refrigerant charge (not the total amount of refrigerant present in the system) must be entered by selecting the corresponding LED display.
   Scroll through the possible LED combinations by pressing the **BS2 SET** button until the LED combination corresponds to the weight of additional refrigerant charge you must input.
   Select the required input by pressing the **BS3 RETURN** button and confirm the input into the PCB by pressing the **BS3 RETURN** button again.

Possible LED combinations in function of weight of additional refrigerant charge (= x) to input;

	kg	H1P	H2P	H3P	H4P	H5P	H6P	H7P
0	**x=0**	○	●	●	●	●	●	●
1	**0<x<5**	○	●	●	●	●	●	○
2	**5≤x<10**	○	●	●	●	●	○	●
3	**10≤x<15**	○	●	●	●	●	○	○
4	**15≤x<20**	○	●	●	●	○	●	●
5	**20≤x<25**	○	●	●	●	○	●	○
6	**25≤x<30**	○	●	●	●	○	○	●
7	**30≤x<35**	○	●	●	●	○	○	○
8	**35≤x<40**	○	●	●	○	●	●	●
9	**40≤x<45**	○	●	●	○	●	●	○
10	**45≤x<50**	○	●	●	○	●	○	●
11	**50≤x<55**	○	●	●	○	●	○	○
12	**55≤x<60**	○	●	●	○	○	●	●
13	**60≤x<65**	○	●	●	○	○	●	○
14	**65≤x<70**	○	●	●	○	○	○	●
15	**70≤x<75**	○	●	●	○	○	○	○
16	**75≤x<80**	○	●	○	●	●	●	●
17	**80≤x<85**	○	●	○	●	●	●	○
18	**85≤x<90**	○	●	○	●	●	○	●
19	**90≤x<95**	○	●	○	●	●	○	○
20	**95≤x<100**	○	●	○	●	○	●	●
21	**100≤x**	○	●	○	●	○	●	○

5. Return to setting mode 1 (= initial state) by pressing the **BS1 MODE** button.

Note: If you get confused in the middle of the input process, press the **BS1 MODE** button to return to setting mode 1 (= initial state).
The H1P LED is off ●.
Resume the input procedure from step 2 onwards.

Perform a test operation as described in " 1.2.5.8.4 Test operation" on page 179.

1.2.5.7 Checks after adding refrigerant

- Are the stop valves for both liquid and gas open?
- Is the amount of refrigerant, that has been added, recorded on the refrigerant charge label?

Make sure to open the stop valves after charging the refrigerant.
Operating with the stop valves closed will damage the compressor.

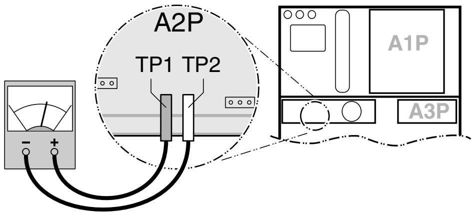
1.2.5.8 Before operation

1.2.5.8.1 Service precautions

WARNING: ELECTRIC SHOCK

Caution when performing service to inverter equipment

1. Do not open the electric component box cover for 10 minutes after the power supply is turned off.
2. Measure the voltage between terminals on the terminal block for power supply with a tester and confirm that the power supply is shut off.
   In addition, measure the points, as shown in the figure below, with a tester and confirm that the voltage of the capacitor in the main circuit is less than 50 V DC.



3. To prevent damaging the PCB, touch a non-coated metal part to eliminate static electricity before pulling out or plugging in connectors.
4. Pull out junction connectors X1A, X2A, X3A, X4A (X3A and X4A of REYQ14+16P are inside the electric component box (2), refer to the wiring diagram) for the fan motors in the outdoor unit before starting service operation on the inverter equipment. Be careful not to touch the live parts.
   (If a fan rotates due to strong wind, it may store electricity in the capacitor or in the main circuit and cause electric shock.)
5. After the service is finished, plug the junction connecter back in. Otherwise the error code E7 will be displayed on the remote controller and normal operation will not be performed.

For details refer to the wiring diagram labelled on the back of the electric component box cover.

Pay attention to the fan. It is dangerous to inspect the unit while the fan is running. Be sure to turn off the main switch and to remove the fuses from the control circuit located in the outdoor unit.

Note: **Play it safe!**
For protection of the PCB, touch the switch box casing by hand in order to eliminate static electricity from your body before performing service.

1.2.5.8.2 Checks before initial start-up

Note: Remark that during the first running period of the unit, required power input may be higher than stated on the nameplate of the unit. This phenomenon originates from the compressor that needs elapse of a 50 hours run in period before reaching smooth operation and stable power consumption.

- Make sure that the circuit breaker on the power supply panel of the installation is switched off.
- Attach the power wire securely.
- Introducing power with a missing N-phase or with a mistaken N-phase will break the equipment.

After the installation, check the following before switching on the circuit breaker:

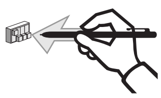
1. The position of the switches that require an initial setting
   Make sure that switches are set according to your application needs before turning the power supply on.
2. Power supply wiring and transmission wiring
   Use a designated power supply and transmission wiring and make sure that it has been carried out according to the instructions described in this manual, according to the wiring diagrams and according to local and national regulations.
3. Pipe sizes and pipe insulation
   Make sure that correct pipe sizes are installed and that the insulation work is properly executed.
4. Air tight test and vacuum drying
   Make sure the air tight test and vacuum drying were completed.
5. Additional refrigerant charge
   The amount of refrigerant to be added to the unit should be written on the included "Added Refrigerant" plate and attached to the rear side of the front cover.
6. Insulation test of the main power circuit
   Measure the insulation resistance and check if the value is in accordance with relevant local and national regulations..
7. Installation date and field setting
   Be sure to keep record of the installation date on the sticker on the rear of the upper front panel according to EN60335-2-40. and keep record of the contents of the field setting.

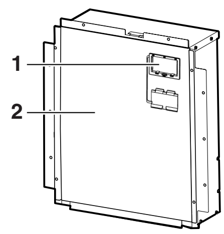
1.2.5.8.3 Field setting

If required, carry out field settings according to the following instructions. Refer to the service manual for more details.

Opening the switch box and handling the switches

When carrying out field settings, remove the inspection cover (1).
Operate the switches with an insulated stick (such as a ball-point pen) to avoid touching live parts.

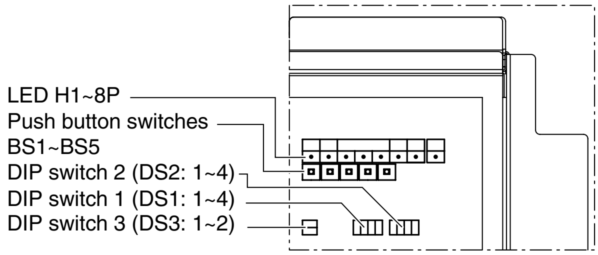




Make sure to re-attach the inspection cover (1) into the switch box cover (2) after the job is finished.

Note: Make sure that all outside panels, except for the panel on the electric component box (1), are closed while working.
Close the lid of the electric component box firmly before turning on the power.

Location of the DIP switches, LEDs and buttons



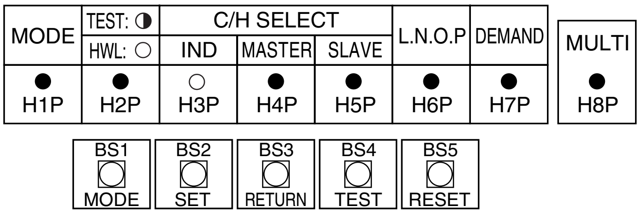
LED state

Throughout the manual the state of the LEDs is indicated as follows:

- ● OFF
- ○ ON
- ◑ Blinking

Setting the push button switch (BS1~5)

Function of the push button switch which is located on the outdoor unit PCB (A1P):



BS1 MODE	For changing the set mode
BS2 SET	For field setting
BS3 RETURN	For field setting
BS4 TEST	For test operation
BS5 RESET	For resetting the address when the wiring is changed or when an additional indoor unit is installed

The figure shows state of the LED indications when the unit is shipped from the factory.

Check operation procedure

1. Turn the power on for the outdoor unit and the indoor unit.
   Be sure to turn the power on at least 6 hours before operation in order to have power running to the crankcase heater.
2. Make sure that transmission is normal by checking the LED display on the outdoor unit circuit board (A1P). (If transmission is normal, each LED will be displayed as shown below.)

LED display (Default status before delivery)	Micro-computer operation monitor	Mode	Ready/ Error	Cooling/Heating changeover			Low noise	Demand
				Indivi-dual	Bulk (master)	Bulk (slave)		
	HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Outdoor unit system	◑	●	●	○	●	●	●	●

Setting the mode

The set mode can be changed with the **BS1 MODE** button according to the following procedure:

- **For setting mode 1**: Press the **BS1 MODE** button once, the H1P LED is off ●. This mode is not available for heat recovery units.
- **For setting mode 2**: Press the **BS1 MODE** button for 5 seconds, the H1P LED is on ○.

If the H1P LED is blinking ◑ and the **BS1 MODE** button is pushed once, the setting mode will change to setting mode 1.

Note: If you get confused in the middle of the setting process, push the **BS1 MODE** button. Then it returns to setting mode 1 (H1P LED is off).

Setting mode 2

The H1P LED is on.

Setting procedure

1. Push the **BS2 SET** button according to the required function (A~H). The LED indication that matches the required function is shown below in the field marked :

   Possible functions

   A additional refrigerant charging operation.
   B refrigerant recovery operation/vacuuming operation.
   C automatic low noise operation setting at nighttime.
   D low noise operation level setting (**L.N.O.P**) via the external control adaptor.
   E power consumption limitation setting (**DEMAND**) via the external control adaptor.
   F enabling function of the low noise operation level setting (**L.N.O.P**) and/or power consumption limitation setting (**DEMAND**) via the external control adaptor (DTA104A61/62).
   G high static pressure setting
   H evaporating temperature setting

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
A	○	●	○	●	○	●	●
B	○	●	○	●	○	●	○
C	○	●	○	●	○	○	●
D	○	●	○	○	●	●	○
E	○	●	○	○	○	○	●
F	○	●	●	○	○	●	●
G	○	●	○	●	●	○	●
H	○	●	●	○	●	●	●

2. When the **BS3 RETURN** button is pushed, the current setting is defined.
3. Push the **BS2 SET** button according to the required setting possibility as shown below in the field marked .

3.1 Possible settings for function A, B, F, and G are **ON** (ON) or **OFF** (OFF).

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
ON	○	●	●	●	●	◑	●
OFF[a]	○	●	●	●	●	●	◑

(a) This setting = factory setting

3.2 Possible settings for function C

The noise of level 3 < level 2 < level 1 (◢ 1).

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
OFF[a]	○	●	●	●	●	●	●
◢ **1**	○	●	●	●	●	●	◑
◢ **2**	○	●	●	●	●	◑	●
◢ **3**	○	●	●	●	●	◑	◑

(a) This setting = factory setting

3.3 Possible settings for function D and E
For function D (**L.N.O.P**) only: the noise of level 3 < level 2 < level 1 (◢ 1).
For function E (**DEMAND**) only: the power consumption of level 1< level 2 < level 3 (◢ 3).

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
◢ 1	○	●	●	●	●	●	◑
◢ 2 [(a)]	○	●	●	●	●	◑	●
◢ 3	○	●	●	●	◑	●	●

(a) This setting = factory setting

3.4 Possible settings for function H
The evaporating temperature level H (high) < level M (medium) < level L (low) (◢ L).

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
◢ H	○	●	●	●	●	●	◑
◢ M [(a)]	○	●	●	●	●	◑	●
◢ L	○	●	◑	●	●	●	●

(a) This setting = factory setting

4. Push the **BS3 RETURN** button and the setting is defined.
5. When the **BS3 RETURN** button is pushed again, the operation starts according to the setting.

Refer to the service manual for more details and for other settings.

Confirmation of the set mode

The following items can be confirmed by setting mode 1 (H1P LED is off)

Check the LED indication in the field marked .

1. Indication of the present operation state
   - ●, normal
   - ○, abnormal
   - ◑, under preparation or under test operation

H1P	H2P	H3P	H4P	H5P	H6P	H7P
●	●	○	●	●	●	●

2. Indication of low noise operation state **L.N.O.P**
   - ● standard operation (= factory setting)
   - ○ **L.N.O.P** operation

H1P	H2P	H3P	H4P	H5P	H6P	H7P
●	●	○	●	●	●	●

3. Indication of power consumption limitation setting **DEMAND**
   - ● standard operation (= factory setting)
   - ○ **DEMAND** operation

H1P	H2P	H3P	H4P	H5P	H6P	H7P
●	●	○	●	●	●	●

1.2.5.8.4 Test operation

Do not insert fingers, rods or other objects into the air inlet or outlet. When the fan is rotating at high speed, it will cause injury.

Do not perform the test operation while working on the indoor units.
When performing the test operation, not only the outdoor unit, but the connected indoor unit will operate as well. Working on a indoor unit while performing a test operation is dangerous.

- In case the unit is operated with the leak detection function available:
  - the outdoor temperature must be 0°C DB~43°C DB
  - the indoor temperature must be 20°C DB~32°C DB

  In case the unit is operated out of the temperature range as instructed above, the display of the remote controller shows U3 and the unit operates without the availability of the leak detection function.
- In the test operation, the following checks and judgement will be performed:
  - Check of the stop valve opening
  - Check for wrong wiring
  - Check of refrigerant overcharge
  - Initial refrigerant detection
- In case the leak detection function is available, the check operation will last 2 hours, otherwise it takes between 40 and 60 minutes to complete the check operation.
- Make sure to carry out the test operation after the first installation. Otherwise, the malfunction code U3 will be displayed on the remote controller and normal operation can not be carried out.
- Abnormalities on indoor units can not be checked for each unit individual. After the test operation is finished, check the indoor units one by one by performing a normal operation using the remote controller.

Note: A test operation can not be carried out when the outdoor temperature is less than –5°C.

Test operation procedure

1. Close all front panels except the front panel of the electric component box.
2. Turn ON the power to the outdoor unit and the connected indoor units.
   Be sure to turn on the power 6 hours before operation in order to have power running to the crankcase heater and to protect the compressor.
3. Make the field setting as described in the paragraph " 1.2.5.8.3 Field setting" on page 175.
4. Press the **BS1 MODE** button once, and set to the SETTING MODE (H1P LED = OFF).
5. **In case the leak detection function is required,**
   press and hold the BS4 TEST button down for 5 seconds or more. The unit will start the test operation.
   In case the leak detection function is not required,
   go into setting mode 2 by pressing the **BS1 MODE** button for 5 seconds. The H1P LED is on ○.
   Perform following steps.
   1. Press the **BS2 SET** button 3 times.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	●	●	●	●	○	○

   2. Press the **BS3 RETURN** button once to confirm.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	●	●	●	●	●	◑

   3. Press the **BS2 SET** button in order to change the LED display to the following display.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	●	●	●	●	◑	●

   4. Press the **BS3 RETURN** button once to confirm.

5. Press the **BS3 RETURN** button a second time to start the test operation. The unit will start the test operation.
   - The test operation is automatically carried out in cooling mode, the H2P LED will light up and the messages "Test operation" and "Under centralized control" will display on the remote controller.
   - It may take 10 minutes to bring the state of the refrigerant uniform before the compressor starts.
   - During the test operation, the refrigerant running sound or the magnetic sound of a solenoid valve may become loud and the LED display may change, but these are not malfunctions.
   - During the test operation, it is not possible to stop the unit operation from a remote controller. To abort the operation, press the **BS3 RETURN** button. The unit will stop after ±30 seconds.
6. Close the front panel in order to let it not be the cause of misjudgement.
7. Check the test operation results by the LED display on the outdoor unit.

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Normal completion	●	●	○	●	●	●	●
Abnormal completion	●	○	○	●	●	●	●

8. When the test operation is fully completed, normal operation will be possible after 5 minutes. Otherwise, refer to "Correcting after abnormal completion of the test operation" on page 180 to take actions for correcting the abnormality.

Correcting after abnormal completion of the test operation

The test operation is only completed if there is no malfunction code displayed on the remote controller. In case of a displayed malfunction code, perform the following actions to correct the abnormality:

- Confirm the malfunction code on the remote controller

Installation error	Error code	Remedial action
The stop valve of an outdoor unit is left closed.	E3 E4 F3 F6 UF	Open the stop valve.
The phases of the power to the outdoor unit is reversed.	U1	Exchange two of the three phases (L1, L2, L3) to make a positive phase connection.
No power is supplied to an outdoor or indoor unit (including phase interruption).	LC U1 U4	Check if the power wiring for the outdoor units are connected correctly.
Incorrect interconnections between units.	UF	Check if the refrigerant line piping and the unit wiring are consistent with each other.
Refrigerant overcharge.	E3 F6 UF	Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.
Insufficient refrigerant.	E4 F3	Check if the additional refrigerant charge has been finished correctly. Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.
The added amount of refrigerant was not inputted after automatic charging.	PF	Availability of the leak detection function feature requires input of the additional refrigerant charge amount immediately after finishing the automatic charging. Refer to " 1.2.5.6 Procedure for inputting the additional refrigerant charge weight into the PCB" on page 172.
In case the test operation was interrupted or the unit was operating out of the instructed temperature range, the initial refrigerant detection has failed.	U3	In case the test operation was interrupted, perform the test operation again. In case the unit was operating out of the instructed temperature range, the unit can still be operated normally, but the leak detection function will not be available. Perform the test operation again within the instructed temperature range.

- After correcting the abnormality, press the **BS3 RETURN** button and reset the malfunction code.
- Carry out the test operation again and confirm that the abnormality is properly corrected.

1.2.5.8.5 Final check after installation

After all installation works are completed, operate the unit normally and check the following:

- Make sure the indoor units and outdoor unit are operating normally.
- Operate each indoor unit separately and make sure the corresponding outdoor unit is also operating properly.
- Check if cold or hot air is coming out from the indoor unit.
- Push the fan direction and fan strength buttons on the remote controller to check if they are operating properly.

Note:

- Heating is not possible if the outdoor temperature is 24°C or higher. Refer to the operation manual.
- If a knocking sound is heard in the liquid compression of the compressor, stop the unit immediately and then energize the crankcase heater for a sufficient length of time before restarting the operation.
- Once stopped, the compressor will not restart in about 5 minutes, even if the ON/OFF button on the remote controller is pushed.
- When the system operation is stopped by the remote controller, the outdoor unit may continue operation for a maximum of 5 minutes.
- The outdoor fan may rotate at low speeds in the night-time low noise setting or the external low noise level setting is made; but this is not a malfunction.

1.2.5.8.6 Service mode operation

Note: Do not shut off the power and do not reset the setting of mode 2 when vacuuming or recovering refrigerant. Otherwise the expansion valves will close making it impossible to vacuum the system or to recover the refrigerant.

Vacuuming method

At the first installation, this vacuuming is not required. It is required only for repair purposes.

1. When the unit is at standstill and under the setting mode 2, set the required function B (refrigerant recovery operation/vacuuming operation) to **ON** (ON).
   - The indoor unit, BS units and the outdoor unit expansion valves will fully open.
   - The H1P LED is on and the remote controller indicates **TEST** (test operation) and (external control) and the operation will be prohibited.
2. Evacuate the system with a vacuum pump.
3. Press the **BS1 MODE** button and reset the setting mode 2.

Refrigerant recovery operation method

by a refrigerant reclaimer

1. When the unit is at standstill and under the setting mode 2, set the required function B (refrigerant recovery operation/vacuuming operation) to **ON** (ON).
   - The indoor unit, BS unit and the outdoor unit expansion valves will fully open.
   - The H1P LED is on and the remote controller indicates **TEST** (test operation) and (external control) and the operation will be prohibited.
2. Recover the refrigerant by a refrigerant reclaimer. For details, see the operation manual delivered with the refrigerant reclaimer.
3. Press the **BS1 MODE** button and reset the setting mode 2.

1.2.5.8.7 Additional refrigerant charging method

When the leak detection function is not required and the entire refrigerant quantity can not be charged through the liquid pipe stop valve service port with the unit not operating (refer to "Pre-charging" on page 167), make sure to charge the remaining charging quantity using the following procedure:

1. Turn the power of the indoor unit, the BS unit and the outdoor unit on.
2. Make sure to open the stop valves of the suction gas pipe, the high pressure/low pressure gas pipe and the liquid pipe completely.
3. Connect the refrigerant charge hose to the refrigerant charging port (for additionally charging).
4. When the unit is not operating, push the **BS2 SET** button until the additional refrigerant charging operation function A in setting mode 2 can be defined (refer to "Setting the mode" on page 177), the H1P LED is on (○).
5. The operation starts automatically.
   The H2P LED will start flashing (◑) and the messages "Test operation" and "Under centralized control" will display on the remote controller.
6. After charging the specified quantity of refrigerant, press the **BS3 RETURN** button to stop the operation.
   The operation will stop within 30 minutes.
   - If charging is not completed after 30 minutes, set and perform the additional refrigerant charging operation again.
   - If the additional refrigerant charging operation stops before the passing of 30 minutes, the system may be overcharged.

⚠ Never charge extra refrigerant.

7. Disconnect the refrigerant charge hose.
8. Perform " 1.2.5.7 Checks after adding refrigerant" as explained on page 173.

1.2.6 Charging Refrigerant - REMQ8~16P8Y1B

The outdoor unit is factory charged, but depending on the length of the piping when installed, the outdoor unit may require additional charging.
For charging the additional refrigerant follow the procedure as described in this chapter.

Refrigerant cannot be charged until all field wiring and field piping has been completed.
Refrigerant may only be charged after performing the leak test and the vacuum drying.

The refrigerant charge of the system must be less than 100 kg. This means that in case the calculated refrigerant charge is equal to or more than 95 kg you must divide your multiple outdoor system into smaller independent systems, each containing less than 95 kg refrigerant charge.

For factory charge, refer to the unit name plate.

1.2.6.1 Important information regarding the refrigerant used

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.

Refrigerant type : R-410A
GWP(1) value : 1975

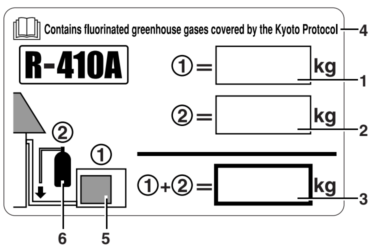
(1) GWP = global warming potential

Please fill in with indelible ink,

- ① the factory refrigerant charge of the product,
- ② the additional refrigerant amount charged in the field and
- ① + ② the total refrigerant charge

on the refrigerant charge label supplied with the product.

The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the service cover).



1. factory refrigerant charge of the product: see unit name plate(2)
2. additional refrigerant amount charged in the field
3. total refrigerant charge
4. contains fluorinated greenhouse gases covered by the Kyoto Protocol
5. outdoor unit
6. refrigerant cylinder and manifold for charging

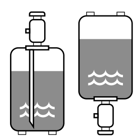
(2) In case of multiple outdoor systems, only 1 label must be adhered, mentioning the total factory refrigerant charge of all outdoor units connected on the refrigerant system.

1.2.6.2 Precautions when adding R-410A

Be sure to charge the specified amount of refrigerant in liquid state to the liquid pipe.
Since this refrigerant is a mixed refrigerant, adding it in gas form may cause the refrigerant composition to change, preventing normal operation.

- Before charging, check whether the refrigerant cylinder is equipped with a siphon tube or not.

Charge the liquid refrigerant with the cylinder in upright position.



Charge the liquid refrigerant with the cylinder in up-side-down position.

- Be sure to use tools exclusively for R-410A to ensure required pressure resistance and to prevent foreign materials from mixing into the system.

Charging with an unsuitable substance may cause explosions and accidents, so always make sure that the appropriate refrigerant (R-410A) is charged.
Refrigerant containers must be opened slowly.

1.2.6.3 Stop valve operation procedure

Size of stop valve

The sizes of the stop valves connected to the system are as listed in the table below.

Type of stop valve	8 HP	10 HP	12 HP	14 HP	16 HP
Liquid pipe	φ9.5[a]			φ12.7	
Suction gas pipe	φ25.4[b]				
HP/LP gas pipe	φ19.1[c]				
Equalizer pipe	φ19.1				

(a) The 12 HP model supports field piping of φ12.7 on the accessory pipe supplied with the unit.
(b) The 8 and 10 HP models support field piping of φ22.2 on the accessory pipe supplied with the unit.
The 12~16 HP models support field piping of φ28.6 on the accessory pipe supplied with the unit.
(c) The 14 and 16 HP models support field piping of φ22.2 on the accessory pipe supplied with the unit.

- Do not open the stop valve until all piping and electrical steps of "1.2.4 Pipe Insulation" on page 163 are completed. If the stop valve is left open without turning on the power, it may cause refrigerant to build up in the compressor, leading to insulation degradation.
- Always use a charge hose for service port connection.
- After tightening the cap, check that no refrigerant leaks are present.

Opening stop valve (See figure 13)

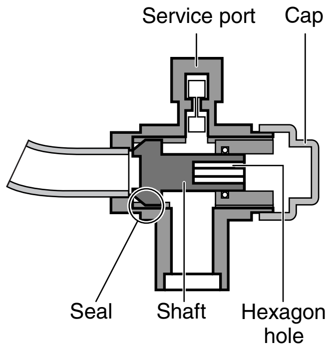


figure 13

1. Remove the cap and turn the valve counterclockwise with the hexagon wrench.
2. Turn it until the shaft stops.

Do not apply excessive force to the stop valve. Doing so may break the valve body.

3. Make sure to tighten the cap securely. Refer to the table below.

Stop valve size	Tightening torque N•m (Turn clockwise to close)			
	Shaft		Cap (valve lid)	Service port
	Valve body	Hexagonal wrench		
φ9.5	5.4~6.6	4 mm	13.5~16.5	11.5~13.9
φ12.7	8.1~9.9		18.0~22.0	
φ22.2	27.0~33.0	8 mm	22.5~27.5	
φ25.4				

Closing stop valve (See figure 13)

1. Remove the cap and turn the valve clockwise with the hexagon wrench.
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 table above.

1.2.6.4 How to check how many units are connected

It is possible to find out how many indoor units are active and connected by operating the push-button switch on the printed circuit board (A1P) of the working outdoor unit. In a multiple outdoor unit system, you can find out how many outdoor units are connected to the system by using the same procedure.

Make sure that all the indoor units connected to the outdoor unit are active.

Follow the 5-step procedure as explained below.

- The LEDs on the A1P shows the operating status of the outdoor unit and the number of indoor units that are active.

  ◑ : OFF ○ : ON ◑ : Blinking

- The number of units that are active can be read from the LED display in the "Monitor Mode" procedure below.
  Example: in the following procedure there are 22 units active:

Note: Wherever during this procedure, press the **BS1 MODE** button if something becomes unclear. You will return to setting mode 1 (H1P= ● "OFF").

1 Setting mode 1 (default system status)

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Default status (normal)	●	●	○	●	●	●	●

Press the **BS1 MODE** button to switch from setting mode 1 to monitor mode.

2 Monitor mode

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Default status display	◑	●	●	●	●	●	●

To check the number of indoor units, press the **BS2 SET** button 5 times.
To check the number of outdoor units, press the **BS2 SET** button 8 times.

3 Monitor mode

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Selection status of how many connected indoor units to display.	◑	●	●	●	○	●	○

OR

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Selection status of how many connected outdoor units to display.	◑	●	●	○	●	●	●

Pressing the **BS3 RETURN** button causes the LED display to show the data on the number of indoor units that are connected or how many outdoor units that are connected in a multiple outdoor unit system.

4 Monitor mode

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Displaying the number of connected indoor units	◑	●	◑	●	◑	◑	●
		32	16	8	4	2	1

Calculate the number of connected indoor units by adding the values of all (H2P~H7P) blinking (◑) LEDs together.

In this example: 16+4+2=**22** units

Press the **BS1 MODE** button to return to step 1, setting mode 1 (H1P= ● "OFF").

1.2.6.5 Additional refrigerant charge

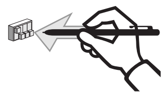
Adding refrigerant using the automatic refrigerant charging function is recommended.

Follow the procedures below.

- When charging a system, charging over the permissible quantity can cause liquid hammer.
- Always use protective gloves and protect your eyes when charging refrigerant.
- When the refrigerant charging procedure is done or when pausing, close the valve of the refrigerant tank immediately.
  - The refrigerant charge port has a electronic expansion valve and will be closed at the end of the refrigerant charging. However, the valve will be opened when operating the unit after refrigerant charging.
  - If the tank is left with the valve open, the amount of refrigerant which is properly charged may get off point. More refrigerant may be charged by any remaining pressure after the unit has stopped.

Electric shock warning

- Close the electric box lid before turning on the main power.
- Perform the settings on the circuit board (A1P) of the outdoor unit and check the LED display after the power is on via the service lid which is in the lid of the electric box.
  Operate switches with an insulated stick (such as a ball-point pen) to avoid touching the life parts.
  Make sure to re-attach the inspection cover into the switch box cover after the job is finished.



- If the power of some units is turned off, the charging procedure can not be finished properly.
- In case of a multiple outdoor system, turn on the power of all outdoor units.
- Make sure to turn ON the power 6 hours before starting the operation. This is necessary to warm the crankcase by the electric heater.
- If operation is performed within 12 minutes after the indoor, BS unit and outdoor units are turned on, the H2P-LED will be lit and the compressor will not operate.

Note:

- See " 1.2.6.3 Stop valve operation procedure" on page 184 for details on how to handle stop valves.
- The refrigerant charging port is connected to the piping inside the unit.
  The unit's internal piping is already factory charged with refrigerant, so be careful when connecting the charge hose.
- After adding the refrigerant, do not forget to close the lid of the refrigerant charging port.
  The tightening torque for the lid is 11.5 to 13.9 N•m.
- In order to ensure uniform refrigerant distribution, it may take the compressor ±10 minutes to start up after the unit has started operation. This is not a malfunction.

1. Procedure for additional refrigerant charge

The automatic refrigerant charging has limits as described below.
At out of limit, the system can not operate the automatic refrigerant charging.

Outdoor temperature	: 0°C DB~43°C DB
Indoor temperature	: 10°C DB~32°C DB
Total indoor unit capacity	: ≥80%

Pre-charging

To speed up the process of charging refrigerant for large systems, it is recommended to first manually charge a portion of the refrigerant first before performing automatic charging.

1. Calculate how much refrigerant to be added using the formula explained in the chapter "How to calculate the additional refrigerant to be charged" on page 160.
2. The amount of pre-charging is 10 kg less than the calculated amount.

3. Open valve B (the valves A and C, the liquid pipe, the suction gas pipe, the high pressure/ low pressure gas pipe and the equalizer pipe stop valves must be left closed) and charge the refrigerant in liquid form via the liquid pipe stop valve service port. (See figure 24)

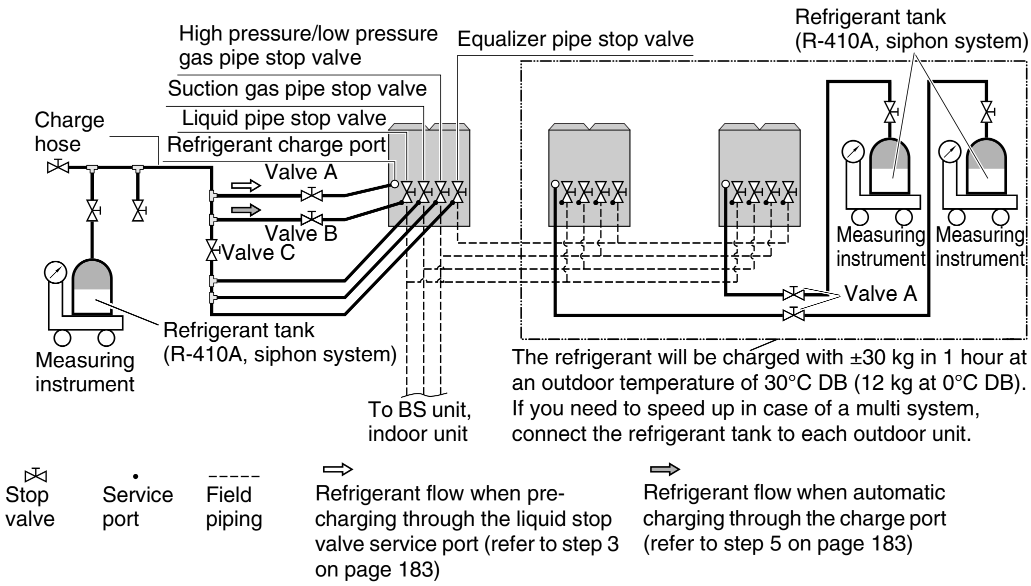


figure 24

4. If the calculated amount of pre-charging is reached, close valve B.

At least the unit should be charged with its original amount of refrigerant (refer to the nameplate on the unit), before starting the automatic charging.

Note: When the leak detection function is not required, complete charging when using the previous described method (unit is not operating) can be done.
If it is not possible to charge the entire quantity through the service port of the liquid pipe stop valve with the unit not operating, refer to " 1.2.6.8.7 Additional refrigerant charging method" on page 201.

5. After pre-charging, perform the refrigerant charge operation as shown below and charge the remaining refrigerant of the additional charging amount through valve A. (See figure 24)

Note: For a multi outdoor unit system, it is not required to connect all charge ports to a refrigerant tank.
The refrigerant will be charged with ±30 kg in 1 hour time at an outdoor temperature of 30°C DB or with ±12 kg at an outdoor temperature of 0°C DB.
If you need to speed up in case of a multiple outdoor system, connect the refrigerant tanks to each outdoor unit as shown in figure 24.

1. Start of automatic charging refrigerant

- Open the liquid pipe, suction gas pipe, high pressure/low pressure gas pipe and equalizer pipe stop valves and the service port stop valve. (Valves A, B and C must be closed.)
- Close all front panels except the electric box front panel and turn the power ON.
- Make sure all indoor units are connected, refer to " 1.2.6.4 How to check how many units are connected" on page 185.
- If the H2P LED is not flashing (in 12 minutes time after turning on the power), make sure it is displayed as shown in the "2. Normal system display" on page 190.
  If the H2P LED is flashing, check the malfunction code on the remote controller "3. Remote controller malfunction code display" on page 191.

■ If you perform the refrigerant charging operation within the refrigerant system with one or more units with power OFF, the refrigerant charging operation can not be accomplished properly.
For confirming the number of outdoor units and indoor units with power ON, refer to " 1.2.6.4 How to check how many units are connected" on page 185.
In case of a multi system, turn the power ON to all outdoor units in the refrigerant system.

- To energize the crankcase heater, make sure to turn the power ON at least 6 hours before starting operation.

2. Press the **BS1 MODE** button once if the LEDs combination is not as in the figure below.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
●	●	○	●	●	●	●

3. Press the **BS4 TEST** button once.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	○	○	○	○	○	○

4. Hold the **BS4 TEST** button down for 5 seconds or more.
5. **Charging mode judgement**
   However, if the indoor temperature is 10°C DB or lower, in some cases the unit will charge in heating mode to increase the indoor temperature.
   The unit will automatically select the cooling mode or heating mode for charging.

- When charging in cooling mode, the unit will stop operating when the required amount of refrigerant is charged.
- During charging in heating mode, a person must manually close valve A before complete charging is finished. The required amount is the calculated amount (see "6. Example of connection (R-410A Type)" on page 462), therefore, the weight must be monitored constantly.

- **Charging in heating mode**

6. Start up
   Wait while the unit is preparing for charging in heating mode.

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Pressure control (for the first minute)	●	◑	●	●	●	●	○
Start up control (for the next 2 minutes)	◑	◑	●	●	●	○	●
Waiting for stable heating conditions (for the next ±15 minutes (according to the system))	◑	◑	●	●	●	○	○

   It takes about 2 to 10 minutes for the system to become stable.
   In case of a small charging amount, the system will start charging the refrigerant before the system reaches the stable state. It may disturb a correct decision and may cause overcharging.
7. Ready

H1P	H2P	H3P	H4P	H5P	H6P	H7P
◑	◑	●	●	○	●	○

   Press the **BS4 TEST** button once within 5 minutes.
   If the **BS4 TEST** button is not pushed within 5 minutes, P2 will be displayed on the remote controller. Refer to "3. Remote controller malfunction code display" on page 191.
8. Operation
   When the following LED display is shown, open valve A and close the front panel. If the front panel is left open, the system can not operate properly during the refrigerant charging.

When the refrigerant tank is not connected or is left with the valve closed for 30 minutes or more, the outdoor unit will stop operation and the P2 code will be displayed on the remote controller of the indoor unit. Follow the procedure as described in "3. Remote controller malfunction code display" on page 191.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	◑	*	*	*	*	*

* = The state of this LED is not important.

When a malfunction occurs, check the display of the remote controller and refer to "3. Remote controller malfunction code display" on page 191.

9. Complete
   If the calculated amount of refrigerant is reached, close valve A and press the **BS3 RETURN** button once.

Note: Always close valve A and remove the refrigerant tank immediately after finishing the refrigerant charge operation.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
◑	◑	◑	○	○	○	○

10. In case leak detection function is required
   Press the **BS4 TEST** button once for post-processing with regard to the leak detection function and press the **BS1 MODE** button to confirm that charging is completed.
   Record the amount that was added on the additional refrigerant charge label provided with the unit and attach it on the back side of the front panel.
   Perform the procedure " 1.2.6.6 Procedure for inputting the additional refrigerant charge weight into the PCB" as described on page 191.

10. In case leak detection function is not required
   Press the **BS1 MODE** button once and the charging is complete.
   Record the amount that was added on the additional refrigerant charge label provided with the unit and attach it on the back side of the front panel.
   Perform the procedure " 1.2.6.6 Procedure for inputting the additional refrigerant charge weight into the PCB" as described on page 191.

■ **Charging in cooling mode**

6. Start up
   Wait while the unit is preparing for charging in cooling mode.

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Pressure control (for the first minute)	●	◑	●	●	●	●	○
Start up control (for the next 2 minutes)	●	◑	●	●	●	○	●
Waiting for stable cooling conditions (for the next ±15 minutes (according to the system))	●	◑	●	●	●	○	○

   It takes about 2 to 10 minutes for the system to become stable.
   In case of a small charging amount, the system will start charging the refrigerant before the system reaches the stable state. It may disturb a correct decision and may cause overcharging.

7. Ready

H1P	H2P	H3P	H4P	H5P	H6P	H7P
◑	◑	◑	●	○	●	○

   Press the **BS4 TEST** button once within 5 minutes.
   If the **BS4 TEST** button is not pushed within 5 minutes, P2 will be displayed on the remote controller. Refer to "3. Remote controller malfunction code display" on page 191.

8. Operation
   When the following LED display is shown, open valve A and close the front panel. If the front panel is left open, the system can not operate properly during the refrigerant charging.

When the refrigerant tank is not connected or is left with the valve closed for 30 minutes or more, the outdoor unit will stop operation and the P2 code will be displayed on the remote controller of the indoor unit. Follow the procedure as described in "3. Remote controller malfunction code display" on page 191.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	◑	*	*	*	*	*

* = The state of this LED is not important.

When a malfunction occurs, check the display of the remote controller and refer to "3. Remote controller malfunction code display" on page 191.

9. Complete

H1P	H2P	H3P	H4P	H5P	H6P	H7P
◑	◑	◑	○	○	○	○

The display on the remote controller shows a flashing PE code for signalling that automatic charging will be finished in about 10 minutes.
When the unit stops operating, close valve A immediately and check the LEDs and check if the P9 code is displayed on the remote controller.

Note: Always close valve A and remove the refrigerant tank immediately after finishing the refrigerant charge operation.
The refrigerant charge port of these units have electronic expansion valves that will close automatically when refrigerant charging operation has finished. However, the electronic expansion valves will be opened when other operations start after finishing refrigerant charging operation.
If the refrigerant tank is left with the valve open, the amount of refrigerant which is properly charged may be off the point.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	◑	◑	○	○	○	○

If it is not as shown above, correct the malfunction (as indicated in the display of the remote controller) and restart the complete charging procedure. When the charging amount is little, the PE code may not be displayed, but instead the P9 code will be displayed immediately.

10. In case leak detection function required
Press the **BS4 TEST** button once for post-processing with regard to the leak detection function and press the **BS1 MODE** button to confirm that charging is completed.
Record the amount that was added on the additional refrigerant charge label provided with the unit and attach it on the back side of the front panel.
Perform the procedure " 1.2.6.6 Procedure for inputting the additional refrigerant charge weight into the PCB" as described on page 191.

10. In case leak detection function not required
Press the **BS1 MODE** button once and the charging is complete.
Record the amount that was added on the additional refrigerant charge label provided with the unit and attach it on the back side of the front panel.
Perform the procedure " 1.2.6.6 Procedure for inputting the additional refrigerant charge weight into the PCB" as described on page 191.

2. Normal system display

LED display (Default status before delivery)		Micro-computer operation monitor	Mode	Ready/ Error	Cooling/Heating changeover			Low noise	Demand	Multi
					Indivi-dual	Bulk (master)	Bulk (slave)			
		HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
Single outdoor unit system		◑	●	●	○	●	●	●	●	●
Multiple outdoor unit system	Master unit[a]	◑	●	●	○	●	●	●	●	○
	Slave unit 1[a]	◑	●	●	●	●	●	●	●	◑
	Slave unit 2[a]	◑	●	●	●	●	●	●	●	●

(a) The state of the H8P (multi) LED in a multi-system shows which unit is the master unit (○), slave 1 unit (◑) or slave 2 unit (●).
Only the master unit is connected to the indoor units with interunit wiring.

3. Remote controller malfunction code display

Remote controller heating mode malfunction codes

Error code		
P8 recharge operation	Close valve A immediately and press the TEST OPERATION button once. The operation will restart from the charging mode judgement onwards.	
P2 charge hold	Close valve A immediately. Check following items: - Check if the gas side stop valve is opened correctly - Check if the valve of the refrigerant cylinder is opened - Check if the air inlet and outlet of the indoor unit are not obstructed	After correcting the abnormality, restart the automatic charging procedure again.

Remote controller cooling mode malfunction codes

Error code		
PA, PH, PC replace cylinder	Close valve A and replace the empty cylinder. When renewed, open valve A (the outdoor unit will not stop operating). The code on the display shows the unit where a cylinder is to be renewed: PA = master unit, PH = slave unit 1, PC = slave unit 2, flashing PA, PH and PC = all units After replacing the cylinder, open valve A again and continue the work.	
	In case of an outdoor multi system, replacing the refrigerant tank of the outdoor unit during the refrigerant charging operation when the display on the remote controller is not showing PA, PH or PC, may cause an abnormal stop of the refrigerant charging operation.	
P8 recharge operation	Close valve A immediately. Restart the automatic charging procedure again.	
P2 charge hold	Close valve A immediately. Check following items: - Check if the high pressure/low pressure gas pipe, suction gas pipe, liquid pipes and equalizer pipe stop valves are opened correctly - Check if the valve of the refrigerant cylinder is opened - Check if the air inlet and outlet of the indoor unit are not obstructed	After correcting the abnormality, restart the automatic charging procedure again.
* abnormal stop	Close valve A immediately. Confirm the malfunction code by the remote controller and correct the abnormality by following the "Correcting after abnormal completion of the test operation" on page 199.	

1.2.6.6 Procedure for inputting the additional refrigerant charge weight into the PCB

Availability of the leak detection function feature requires input of the additional refrigerant charge amount immediately after finishing the automatic charging. The input must be executed before performing the test operation.

If a wrong value is inputted for the additional charged refrigerant weight, the accuracy of the leak detection function will decrease.

Procedure

1. Close the electric box lid and all front panels except the one on the side of the electric box.
2. Press and hold the **BS1 MODE** button for 5 seconds to enter into setting mode 2.
   The H1P LED is on ○.
3. Press the **BS2 SET** button 14 times.
   The LED display must be as follows:

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	●	●	○	○	○	●

   Press the **BS3 RETURN** button once as confirmation of the LEDs combination.
   LEDs will be blinking in function of the last entered setting (factory setting = 0 kg).
4. The weighed and already recorded amount of additional refrigerant charge (not the total amount of refrigerant present in the system) must be entered by selecting the corresponding LED display.
   Scroll through the possible LED combinations by pressing the **BS2 SET** button until the LED

combination corresponds to the weight of additional refrigerant charge you must input.
Select the required input by pressing the **BS3 RETURN** button and confirm the input into the PCB by pressing the **BS3 RETURN** button again.
Possible LED combinations in function of weight of additional refrigerant charge (= x) to input;

	kg	H1P	H2P	H3P	H4P	H5P	H6P	H7P
0	x=0	○	●	●	●	●	●	●
1	0<x<5	○	●	●	●	●	●	○
2	5≤x<10	○	●	●	●	●	○	●
3	10≤x<15	○	●	●	●	●	○	○
4	15≤x<20	○	●	●	●	○	●	●
5	20≤x<25	○	●	●	●	○	●	○
6	25≤x<30	○	●	●	●	○	○	●
7	30≤x<35	○	●	●	●	○	○	○
8	35≤x<40	○	●	●	○	●	●	●
9	40≤x<45	○	●	●	○	●	●	○
10	45≤x<50	○	●	●	○	●	○	●
11	50≤x<55	○	●	●	○	●	○	○
12	55≤x<60	○	●	●	○	○	●	●
13	60≤x<65	○	●	●	○	○	●	○
14	65≤x<70	○	●	●	○	○	○	●
15	70≤x<75	○	●	●	○	○	○	○
16	75≤x<80	○	●	○	●	●	●	●
17	80≤x<85	○	●	○	●	●	●	○
18	85≤x<90	○	●	○	●	●	○	●
19	90≤x<95	○	●	○	●	●	○	○
20	95≤x<100	○	●	○	●	○	●	●
21	100≤x	○	●	○	●	○	●	○

5. Return to setting mode 1 (= initial state) by pressing the **BS1 MODE** button.

Note: If you get confused in the middle of the input process, press the **BS1 MODE** button to return to setting mode 1 (= initial state).
The H1P LED is off ●.

Resume the input procedure from step 2 onwards.

Perform a test operation as described in " 1.2.6.8.4 Test operation" on page 198.

1.2.6.7 Checks after adding refrigerant

- Are the stop valves for both liquid and gas open?
- Is the amount of refrigerant, that has been added, recorded?

Make sure to open the stop valves after charging the refrigerant.
Operating with the stop valves closed will damage the compressor.

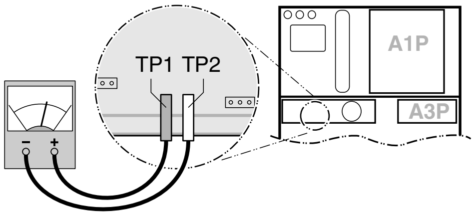
1.2.6.8 Before operation

1.2.6.8.1 Service precautions

WARNING: ELECTRIC SHOCK

Caution when performing service to inverter equipment

1. Do not open the electric box cover for 10 minutes after the power supply is turned off.
2. Measure the voltage between terminals on the terminal block for power supply with a tester and confirm that the power supply is shut off.
   In addition, measure the points, as shown in the figure below, with a tester and confirm that the voltage of the capacitor in the main circuit is less than 50 V DC.



3. To prevent damaging the PCB, touch a non-coated metal part to eliminate static electricity before pulling out or plugging in connectors.
4. The performing of the service to the inverter equipment must be started after the junction connectors X1A, X2A, X3A, X4A (X3A and X4A are for 14+16 unit type only) for the fan motors in the outdoor unit are been pulled out. Be careful not to touch the live parts.
   (If a fan rotates due to strong wind, it may store electricity in the capacitor or in the main circuit and cause electric shock.)
5. After the service is finished, plug the junction connecter back in. Otherwise the error code E7 will be displayed on the remote controller and normal operation will not be performed.

For details refer to the wiring diagram labelled on the back of the electric box cover.

Pay attention to the fan. It is dangerous to inspect the unit while the fan is running. Be sure to turn off the main switch and to remove the fuses from the control circuit located in the outdoor unit.

Note: **Play it safe!**
For protection of the PCB, touch the switch box casing by hand in order to eliminate static electricity from your body before performing service.

1.2.6.8.2 Checks before initial start-up

Note: Remark that during the first running period of the unit, required power input may be higher than stated on the nameplate of the unit. This phenomenon originates from the compressor that needs elapse of a 50 hours run in period before reaching smooth operation and stable power consumption.

- Make sure that the circuit breaker on the power supply panel of the installation is switched off.
- Attach the power wire securely.
- Introducing power with a missing N-phase or with a mistaken N-phase will break the equipment.

After the installation, check the following before switching on the circuit breaker:

1. The position of the switches that require an initial setting
   Make sure that switches are set according to your application needs before turning the power supply on.
2. Power supply wiring and transmission wiring
   Use a designated power supply and transmission wiring and make sure that it has been carried out according to the instructions described in this manual, according to the wiring diagrams and according to local and national regulations.
3. Pipe sizes and pipe insulation
   Make sure that correct pipe sizes are installed and that the insulation work is properly executed.
4. Air tight test and vacuum drying
   Make sure the air tight test and vacuum drying were completed.
5. Additional refrigerant charge
   The amount of refrigerant to be added to the unit should be written on the included "Added Refrigerant" plate and attached to the rear side of the front cover.
6. Insulation test of the main power circuit
   Measure the insulation resistance and check if the value is in accordance with relevant local and national regulations.
7. Installation date and field setting
   Be sure to keep record of the installation date on the sticker on the rear of the upper front panel according to EN60335-2-40. and keep record of the contents of the field setting.

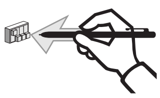
1.2.6.8.3 Field setting

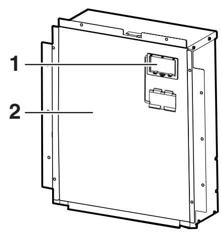
If required, carry out field settings according to the following instructions. Refer to the service manual for more details.

Opening the switch box and handling the switches

When carrying out field settings, remove the inspection cover (1).

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

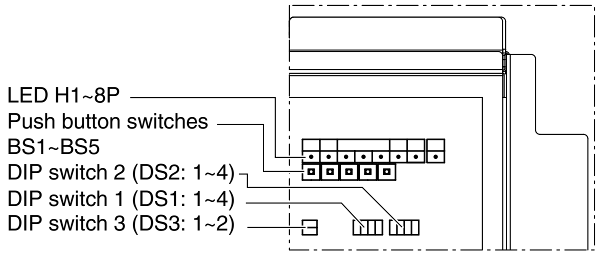




Make sure to re-attach the inspection cover (1) into the switch box cover (2) after the job is finished.

Note: Make sure that all outside panels, except for the panel on the electric box, are closed while working.
Close the lid of the electric box firmly before turning on the power.

Location of the dip switches, LEDs and buttons



LED state

Throughout the manual the state of the LEDs is indicated as follows:

- ● : OFF
- ○ : ON
- ◑ : Blinking

Setting the push button switch (BS1~5)

Function of the push button switch which is located on the outdoor unit PCB (A1P):

MODE	TEST: ◑ / HWL: ○	C/H SELECT: IND	C/H SELECT: MASTER	C/H SELECT: SLAVE	L.N.O.P	DEMAND	MULTI
●	●	○	●	●	●	●	●
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

BS1	BS2	BS3	BS4	BS5
MODE	SET	RETURN	TEST	RESET

BS1 MODE	For changing the set mode
BS2 SET	For field setting
BS3 RETURN	For field setting
BS4 TEST	For test operation
BS5 RESET	For resetting the address when the wiring is changed or when an additional indoor unit is installed

The figure shows state of the LED indications when the unit is shipped from the factory.

Check operation procedure

1. Turn the power on for the outdoor unit and the indoor unit.
   Be sure to turn the power on at least 6 hours before operation in order to have power running to the crankcase heater.
2. Make sure that transmission is normal by checking the LED display on the outdoor unit circuit board (A1P). (If transmission is normal, each LED will be displayed as shown below.)

LED display (Default status before delivery)		Micro-computer operation monitor	Mode	Ready/ Error	Cooling/Heating changeover: Indivi-dual	Cooling/Heating changeover: Bulk (master)	Cooling/Heating changeover: Bulk (slave)	Low noise	Demand	Multi
		HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
Single outdoor unit system		◑	●	●	○	●	●	●	●	●
Multiple outdoor unit system	Master unit[(a)]	◑	●	●	○	●	●	●	●	○
	Slave unit 1[(a)]	◑	●	●	●	●	●	●	●	◑
	Slave unit 2[(a)]	◑	●	●	●	●	●	●	●	●

(a) The state of the H8P (multi) LED in a multi-system shows which unit is the master unit (○), slave 1 unit (◑) or slave 2 unit (●).
Only the master unit is connected to the indoor units with interunit wiring.

Setting the mode

The set mode can be changed with the **BS1 MODE** button according to the following procedure:

- **For setting mode 1**: Press the **BS1 MODE** button once, the H1P LED is off ●. This mode is not available for heat recovery units.
- **For setting mode 2**: Press the **BS1 MODE** button for 5 seconds, the H1P LED is on ○.

If the H1P LED is blinking ◑ and the **BS1 MODE** button is pushed once, the setting mode will change to setting mode 1.

Note: If you get confused in the middle of the setting process, push the **BS1 MODE** button. Then it returns to setting mode 1 (H1P LED is off).

Setting mode 2

The H1P LED is on.

Setting procedure

1. Push the **BS2 SET** button according to the required function (A~H). The LED indication that matches the required function is shown below in the field marked :

   Possible functions

   A additional refrigerant charging operation.
   B refrigerant recovery operation/vacuuming operation.
   C automatic low noise operation setting at nighttime.
   D low noise operation level setting (**L.N.O.P**) via the external control adaptor.
   E power consumption limitation setting (**DEMAND**) via the external control adaptor.
   F enabling function of the low noise operation level setting (**L.N.O.P**) and/or power consumption limitation setting (**DEMAND**) via the external control adaptor (DTA104A61/62).
   G high static pressure setting
   H evaporating temperature setting

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
A	○	●	○	●	○	●	●
B	○	●	○	●	○	●	○
C	○	●	○	●	○	○	●
D	○	●	○	○	●	●	○
E	○	●	○	○	○	○	●
F	○	●	●	○	○	●	●
G	○	●	○	●	●	○	●
H	○	●	●	○	●	●	●

2. When the **BS3 RETURN** button is pushed, the current setting is defined.
3. Push the **BS2 SET** button according to the required setting possibility as shown below in the field marked .

3.1 Possible settings for function A, B, F, and G are **ON** (ON) or **OFF** (OFF).

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
ON	○	●	●	●	●	◑	●
OFF[(a)]	○	●	●	●	●	●	◑

(a) This setting = factory setting

3.2 Possible settings for function C

The noise of level 3 < level 2 < level 1 (◢ 1).

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
OFF[(a)]	○	●	●	●	●	●	●
◢ 1	○	●	●	●	●	●	◑
◢ 2	○	●	●	●	●	◑	●
◢ 3	○	●	●	●	●	◑	◑

(a) This setting = factory setting

3.3 Possible settings for function D and E

For function D (**L.N.O.P**) only: the noise of level 3 < level 2 < level 1 (◢ 1).

For function E (**DEMAND**) only: the power consumption of level 1< level 2 < level 3 (◢ 3).

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
◢ 1	○	●	●	●	●	●	◑
◢ 2 [(a)]	○	●	●	●	●	◑	●
◢ 3	○	●	●	●	◑	●	●

(a) This setting = factory setting

3.4 Possible settings for function H

The evaporating temperature level H (high) < level M (medium) < level L (low) (◢ L).

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
◢ H	○	●	●	●	●	●	◑
◢ M [(a)]	○	●	●	●	●	◑	●
◢ L	○	●	◑	●	●	●	●

(a) This setting = factory setting

4. Push the **BS3 RETURN** button and the setting is defined.
5. When the **BS3 RETURN** button is pushed again, the operation starts according to the setting.

Refer to the service manual for more details and for other settings.

Confirmation of the set mode

The following items can be confirmed by setting mode 1 (H1P LED is off)

Check the LED indication in the field marked ▭.

1. Indication of the present operation state
   - ●, normal
   - ○, abnormal
   - ◑, under preparation or under test operation

H1P	H2P	H3P	H4P	H5P	H6P	H7P
●	●	○	●	●	●	●

2. Indication of low noise operation state **L.N.O.P**
   - ● standard operation (= factory setting)
   - ○ **L.N.O.P** operation

H1P	H2P	H3P	H4P	H5P	H6P	H7P
●	●	○	●	●	●	●

3. Indication of power consumption limitation setting **DEMAND**
   - ● standard operation (= factory setting)
   - ○ **DEMAND** operation

H1P	H2P	H3P	H4P	H5P	H6P	H7P
●	●	○	●	●	●	●

1.2.6.8.4 Test operation

Do not insert fingers, rods or other objects into the air inlet or outlet. When the fan is rotating at high speed, it will cause injury.

Do not perform the test operation while working on the indoor units.
When performing the test operation, not only the outdoor unit, but the connected indoor unit will operate as well. Working on a indoor unit while performing a test operation is dangerous.

- In case the unit is operated with the leak detection function available:
  - the outdoor temperature must be 0°C DB~43°C DB
  - the indoor temperature must be 20°C DB~32°C DB

  In case the unit is operated out of the temperature range as instructed above, the display of the remote controller shows U3 and the unit operates without the availability of the leak detection function.
- In the test operation, the following checks and judgement will be performed:
  - Check of the stop valve opening
  - Check for wrong wiring
  - Check of refrigerant overcharge
  - Initial refrigerant detection
- In case the leak detection function is available, the check operation will last 2 hours, otherwise it takes between 40 and 60 minutes to complete the check operation.
- Make sure to carry out the test operation after the first installation. Otherwise, the malfunction code U3 will be displayed on the remote controller and normal operation can not be carried out.
- In case of a multi system, check the settings and results on the master unit.
- Abnormalities on indoor units can not be checked for each unit individual. After the test operation is finished, check the indoor units one by one by performing a normal operation using the remote controller.

Note: A test operation can not be carried out when the outdoor temperature is less than –5°C.

Test operation procedure

1. Close all front panels except the front panel of the electric box.
2. Turn ON the power to all outdoor units and the connected indoor units.
   Be sure to turn on the power 6 hours before operation in order to have power running to the crankcase heater and to protect the compressor.
3. Make the field setting as described in the paragraph " 1.2.6.8.3 Field setting" on page 194.
4. Press the **BS1 MODE** button once, and set to the SETTING MODE (H1P LED = OFF).
5. **In case the leak detection function is required,**
   press and hold the **BS4 TEST** button down for 5 seconds or more. The unit will start the test operation.
   In case the leak detection function is not required,
   go into setting mode 2 by pressing the **BS1 MODE** button for 5 seconds. The H1P LED is on ○. Perform following steps.
   1. Press the **BS2 SET** button 3 times.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	●	●	●	●	○	○

   2. Press the **BS3 RETURN** button once to confirm.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	●	●	●	●	●	◑

   3. Press the **BS2 SET** button in order to change the LED display to the following display.

H1P	H2P	H3P	H4P	H5P	H6P	H7P
○	●	●	●	●	◑	●

   4. Press the **BS3 RETURN** button once to confirm.

5. Press the **BS3 RETURN** button a second time to start the test operation. The unit will start the test operation.
   - The test operation is automatically carried out in cooling mode, the H2P LED will light up and the messages "Test operation" and "Under centralized control" will display on the remote controller.
   - It may take 10 minutes to bring the state of the refrigerant uniform before the compressor starts.
   - During the test operation, the refrigerant running sound or the magnetic sound of a solenoid valve may become loud and the LED display may change, but these are not malfunctions.
   - During the test operation, it is not possible to stop the unit operation from a remote controller. To abort the operation, press the **BS3 RETURN** button. The unit will stop after ±30 seconds.
6. Close the front panel in order to let it not be the cause of misjudgement.
7. Check the test operation results by the LED display on the outdoor unit.

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Normal completion	●	●	○	●	●	●	●
Abnormal completion	●	○	○	●	●	●	●

8. When the test operation is fully completed, normal operation will be possible after 5 minutes. Otherwise, refer to "Correcting after abnormal completion of the test operation" on page 199 to take actions for correcting the abnormality.

Correcting after abnormal completion of the test operation

The test operation is only completed if there is no malfunction code displayed on the remote controller. In case of a displayed malfunction code, perform the following actions to correct the abnormality:

- Confirm the malfunction code on the remote controller

Installation error	Error code	Remedial action
The stop valve of an outdoor unit is left closed.	E3 E4 F3 F6 UF	Open the stop valve.
The phases of the power to the outdoor units are reversed.	U1	Exchange two of the three phases (L1, L2, L3) to make a positive phase connection.
No power is supplied to an outdoor or indoor unit (including phase interruption).	LC U1 U4	Check if the power wiring for the outdoor units are connected correctly.
Incorrect interconnections between units	UF	Check if the refrigerant line piping and the unit wiring are consistent with each other.
Refrigerant overcharge	E3 F6 UF	Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.
Insufficient refrigerant	E4 F3	Check if the additional refrigerant charge has been finished correctly. Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.
The added amount of refrigerant was not inputted after automatic charging.	PF	Availability of the leak detection function feature requires input of the additional refrigerant charge amount immediately after finishing the automatic charging. Refer to " 1.2.6.6 Procedure for inputting the additional refrigerant charge weight into the PCB" on page 191.
In case the test operation was interrupted or the unit was operating out of the instructed temperature range, the initial refrigerant detection has failed.	U3	In case the test operation was interrupted, perform the test operation again. In case the unit was operating out of the instructed temperature range, the unit can still be operated normally, but the leak detection function will not be available. Perform the test operation again within the instructed temperature range.

- After correcting the abnormality, press the **BS3 RETURN** button and reset the malfunction code.
- Carry out the test operation again and confirm that the abnormality is properly corrected.

1.2.6.8.5 Final check after installation

After all installation works are completed, operate the unit normally and check the following:

- Make sure the indoor units and outdoor unit are operating normally.
- Operate each indoor unit separately and make sure the corresponding outdoor unit is also operating properly.
- Check if cold or hot air is coming out from the indoor unit.
- Push the fan direction and fan strength buttons on the remote controller to check if they are operating properly.

Note:

- Heating is not possible if the outdoor temperature is 24°C or higher. Refer to the operation manual.
- If a knocking sound is heard in the liquid compression of the compressor, stop the unit immediately and then energize the crankcase heater for a sufficient length of time before restarting the operation.
- Once stopped, the compressor will not restart in about 5 minutes, even if the ON/OFF button on the remote controller is pushed.
- When the system operation is stopped by the remote controller, the outdoor unit may continue operation for a maximum of 5 minutes.
- The outdoor fan may rotate at low speeds in the night-time low noise setting or the external low noise level setting is made; but this is not a malfunction.

1.2.6.8.6 Service mode operation

Note: Do not shut off the power and do not reset the setting of mode 2 when vacuuming or recovering refrigerant. Otherwise the expansion valves will close making it impossible to vacuum the system or to recover the refrigerant.

Vacuuming method

At the first installation, this vacuuming is not required. It is required only for repair purposes.

1. When the unit is at standstill and under the setting mode 2, set the required function B (refrigerant recovery operation/vacuuming operation) to **ON** (ON).
   - The indoor unit, BS unit and the outdoor unit expansion valves will fully open.
   - The H1P LED is on and the remote controller indicates **TEST** (test operation) and (external control) and the operation will be prohibited.
2. Evacuate the system with a vacuum pump.
3. Press the **BS1 MODE** button and reset the setting mode 2.

Refrigerant recovery operation method

by a refrigerant reclaimer

1. When the unit is at standstill and under the setting mode 2, set the required function B (refrigerant recovery operation/vacuuming operation) to **ON** (ON).
   - The indoor unit, BS unit and the outdoor unit expansion valves will fully open.
   - The H1P LED is on and the remote controller indicates **TEST** (test operation) and (external control) and the operation will be prohibited.
2. Recover the refrigerant by a refrigerant reclaimer. For details, see the operation manual delivered with the refrigerant reclaimer.
3. Press the **BS1 MODE** button and reset the setting mode 2.

1.2.6.8.7 Additional refrigerant charging method

When the leak detection function is not required and the entire refrigerant quantity can not be charged through the liquid pipe stop valve service port with the unit not operating (refer to "Pre-charging" on page 186), make sure to charge the remaining charging quantity using the following procedure:

1. Turn the power of the indoor unit, the BS unit and the outdoor unit on.
2. Make sure to open the stop valves of the suction gas pipe, the high pressure/low pressure gas pipe and the liquid pipe completely.
3. Connect the refrigerant charge hose to the refrigerant charging port (for additionally charging).
4. When the unit is not operating, push the **BS2 SET** button until the additional refrigerant charging operation function A in setting mode 2 can be defined (refer to "Setting the mode" on page 196), the H1P LED is on (○).
5. The operation starts automatically.
   The H2P LED will start flashing (◑) and the messages "Test operation" and "Under centralized control" will display on the remote controller.
6. After charging the specified quantity of refrigerant, press the **BS3 RETURN** button to stop the operation.
   The operation will stop within 30 minutes.
   - If charging is not completed after 30 minutes, set and perform the additional refrigerant charging operation again.
   - If the additional refrigerant charging operation stops before the passing of 30 minutes, the system may be overcharged.

⚠ Never charge extra refrigerant.

7. Disconnect the refrigerant charge hose.
8. Perform " 1.2.6.7 Checks after adding refrigerant" as explained on page 192.

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 PCB. 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

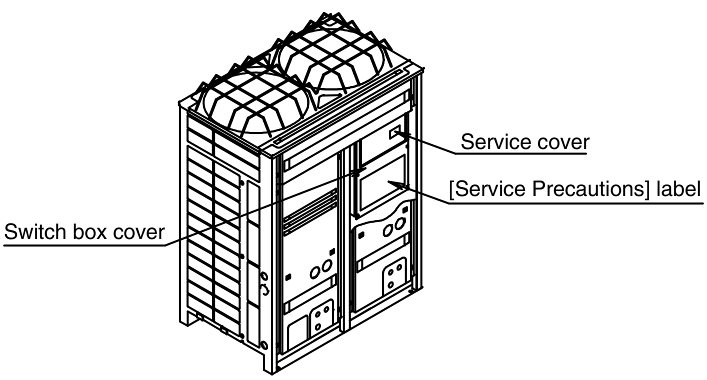
Outdoor unit	Test lamp H2P .... Blinks Can also be set during operation described above.
Indoor unit	If ON button is pushed during operation described above, the operation lamp lights but the compressor does not operate. (Returns to normal when automatic setting is complete.)

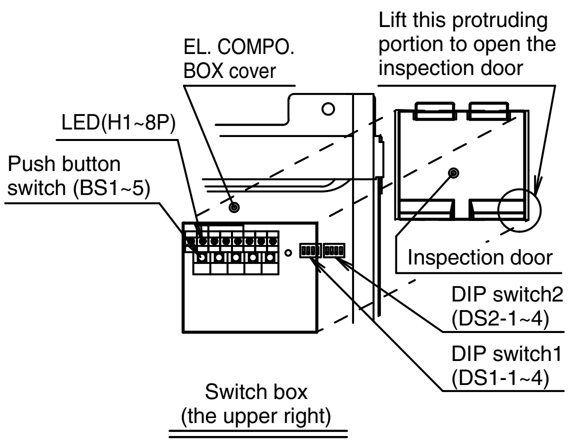
1.3.3 When an Indoor Unit or Outdoor Unit has been Added, or Indoor or Outdoor Unit PCB has been Changed

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.)



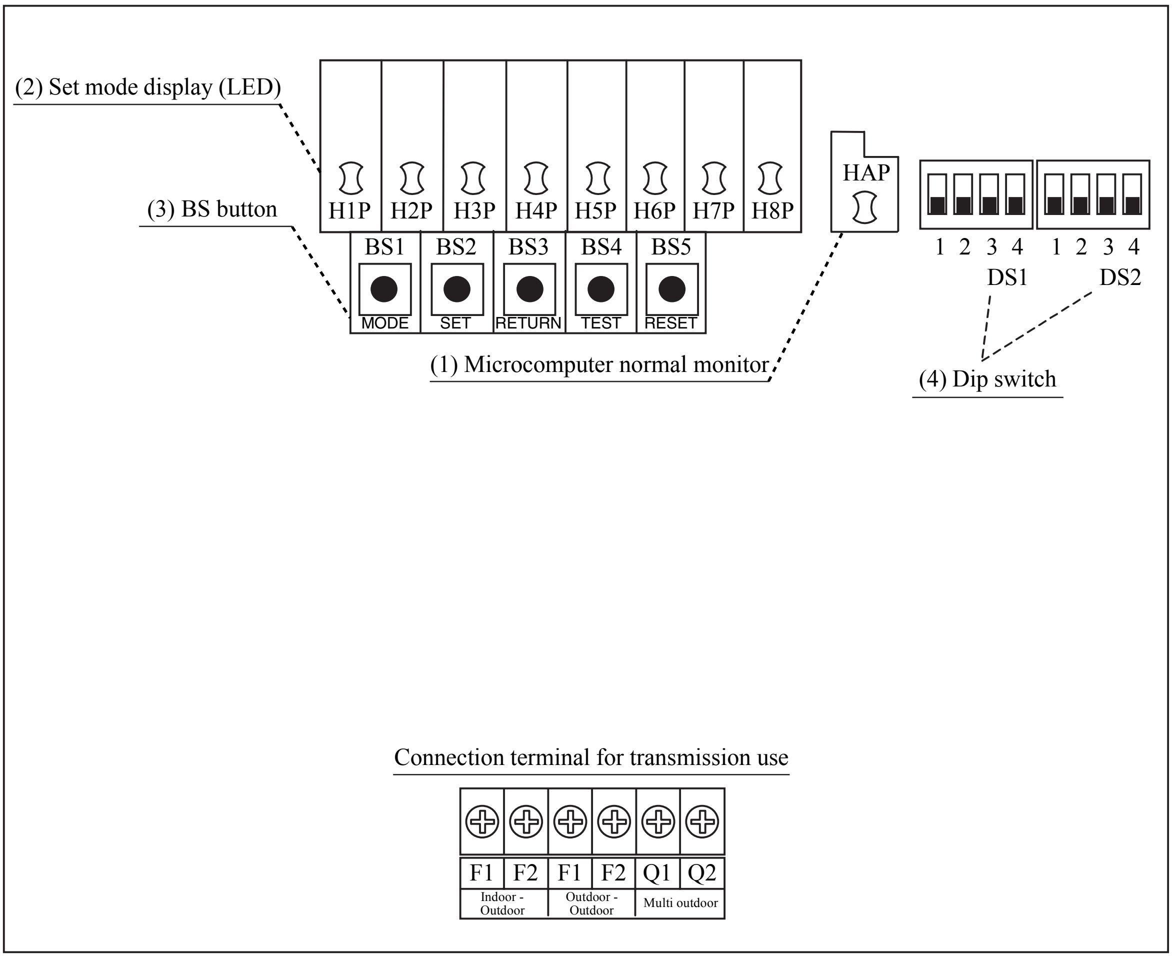


> ⚠ **Caution** **When the 400 volt power supply is applied to "N" phase by mistake, replace Inverter PCB (A2P) and control transformer (T1R, T2R) in switch box together.**

(V0847)

2. Outdoor Unit PCB Layout

Outdoor unit PCB



(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) BS button
Used to change mode.

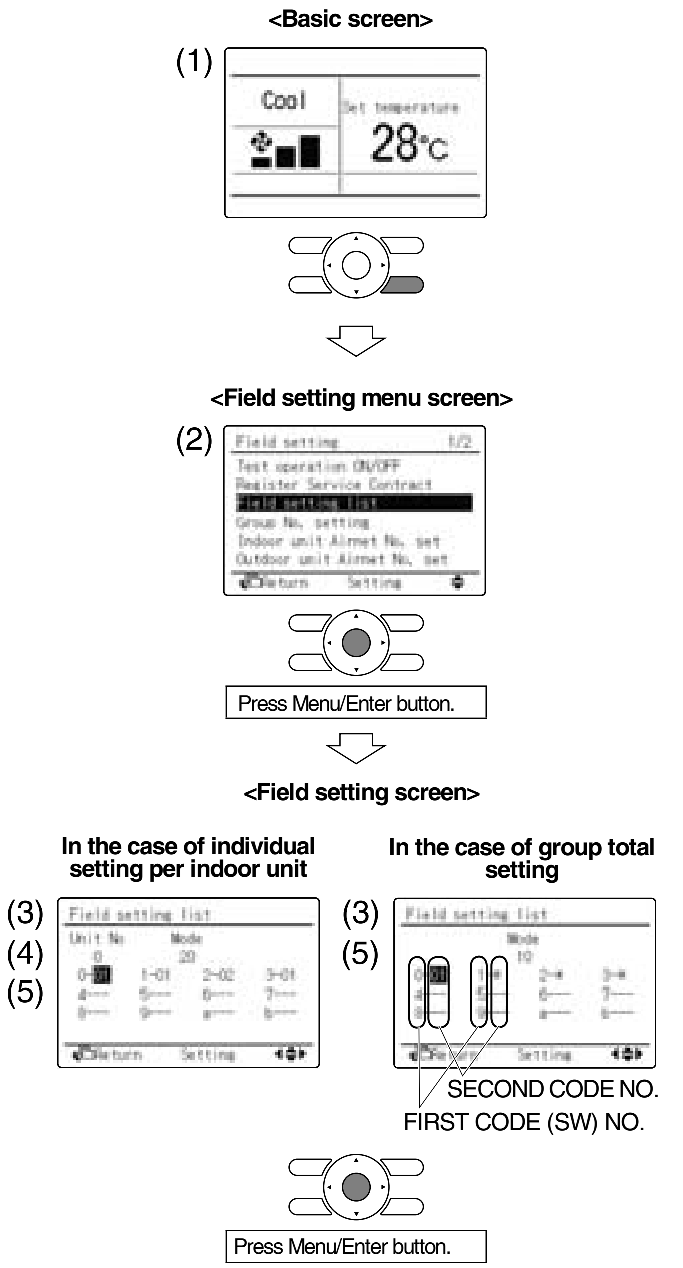
(4) Dip switch
Used to make field settings.

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 <BRC1E51>



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

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

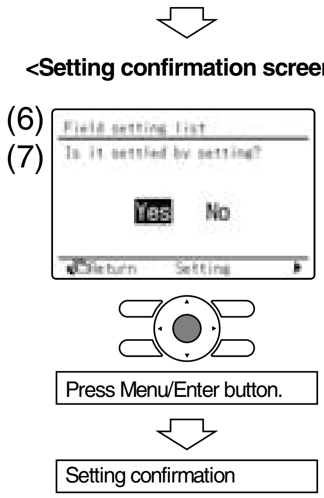
3 Highlight the mode, and select desired "Mode No." by using ▲▼ (Up/Down) button.

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

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

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

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



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

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

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

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

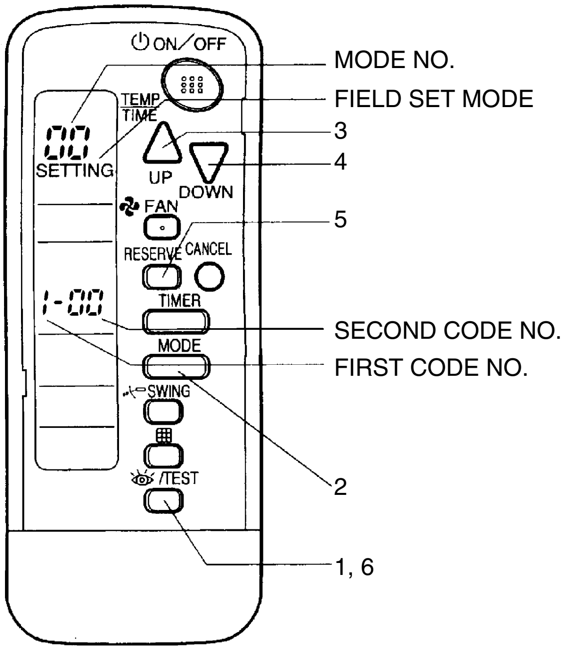
10 Backlight goes out, and “Connection under check Please wait for a moment” is displayed for initialization. After the initialization, the basic screen returns.

⚠ CAUTION

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

3.1.2 Wireless Remote Controller - Indoor Unit

BRC7C type
BRC7E type
BRC4C type



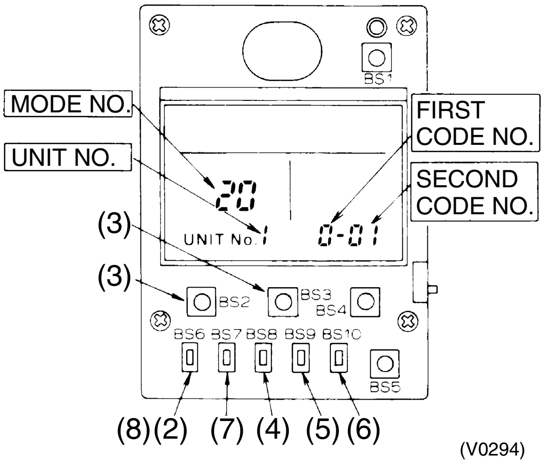
(V2770)

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 second code No. to “02”.

3.1.3 Simplified Remote Controller

BRC2A51
BRC2C51



(V0294)

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	First Code 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.)	Ultra long life filter	Light	Approx. 10,000 hrs.	Heavy	Approx. 5,000 hrs.	—		—		(1)
				Long life filter		Approx. 2,500 hrs.		Approx. 1,250 hrs.					
				Standard filter		Approx. 200 hrs.		Approx. 100 hrs.					
		1	Long life filter type		Long life filter		Ultra long life filter		—		—		(2)
		2	Room temperature thermistor in remote controller		Remote controller + Body thermostat		Only body thermostat		Only remote controller thermostat		—		(3)
		3	Display time to clean air filter calculation (Set when filter sign is not to be displayed.)		Display		No display		—		—		(4)
	11(21)	7	Airflow adjustment		OFF		Completion of airflow adjustment		Start of airflow adjustment		—		(5)
	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		(6)
		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		—		(7)
		2	Thermostat differential changeover (Set when remote sensor is to be used.)		1°C		0.5°C		—		—		(8)
		3	Airflow setting when heating thermostat is OFF		LL		Set fan speed		—		—		(9)
		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	(10)
		5	Power failure automatic reset		Not equipped		Equipped		—		—		(11)
		6	Airflow setting when Cooling thermostat is OFF		LL		Set fan speed		—		—		(12)
	13(23)	0	Setting of normal airflow		N		H		S		—		(13)
		1	Selection of airflow direction (Set when a blocking pad kit has been installed.)		F (4 directions)		T (3 directions)		W (2 directions)		—		(14)
		3	Operation of downward flow flap: Yes/No		Equipped		Not equipped		—		—		(15)
		4	Field set airflow position setting		Draft prevention		Standard		Ceiling Soiling prevention		—		(16)
		5	Setting of static pressure selection		Standard		High static pressure		—		—		(17)
		6	External Static Pressure Settings		01:30	02:50	03:60	04:70	05:80	06:90	07:100	08:110	(18)
					09:120	10:130	11:140	12:150	13:160	14:180	15:200	—	
	15(25)	1	Thermostat OFF excess humidity		Not equipped		Equipped		—		—		(19)
		2	Direct duct connection (when the indoor unit and heat reclaim ventilation unit are connected by duct directly.) *Note 6		Not equipped		Equipped		—		—		(20)
		3	Drain pump humidifier interlock selection		Not equipped		Equipped		—		—		(21)
		5	Field set selection for individual ventilation setting by remote controller		Not equipped		Equipped		—		—		(22)

Notes :

1. Settings are made simultaneously for the entire group, however, if you select the mode No. inside parentheses, you can also set by each individual unit. Setting changes however cannot be checked except in the individual mode for those in parentheses.
2. The mode numbers inside parentheses cannot be used by wireless remote controllers, so they cannot be set individually. Setting changes also cannot be checked.
3. Marked ▭ are factory setting.
4. Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
5. "88" may be displayed to indicate the remote controller is resetting when returning to the normal mode.
6. 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				Slim concealed ceiling unit	Concealed ceiling unit (small)	Concealed ceiling unit	Concealed ceiling unit (large)	Concealed ceiling unit	Ceiling suspended unit	Wall mounted unit	Floor standing unit	Concealed floor standing unit	4-way blow ceiling suspended unit
	Round-flow	4-way blow	2-way blow	Corner type										
	FXFQ	FXZQ	FXCQ	FXKQ	FXDQ	FXDQ	FXSQ	FXMQ	FXMQ	FXHQ	FXAQ	FXLQ	FXNQ	FXUQ
Filter sign	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ultra long life filter sign	○	○	○	—	—	—	—	—	—	—	—	—	—	—
Room temperature thermistor in remote controller	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Set fan speed when thermostat OFF	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Airflow adjustment Ceiling height	○	—	—	—	—	—	—	—	—	○	—	—	—	○
Airflow direction	○	○	—	—	—	—	—	—	—	—	—	—	—	○
Airflow direction adjustment (Down flow operation)	—	—	—	○	—	—	—	—	—	—	—	—	—	—
Airflow direction adjustment range	○	○	○	○	—	—	—	—	—	—	—	—	—	—
Field 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 Filter	Long Life Filter	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.	First Code No.	Second Code No.	Setting
10 (20)	1	01	Long Life Filter
		02	Ultra Long Life Filter

(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	Room temperature thermistor in remote controller and suction air thermistor for indoor unit
		02	Suction air thermistor for indoor unit
		03	Room temperature thermistor in remote controller

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

(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) Airflow Adjustment (AUTO)

External Static Pressure Settings

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

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

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

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

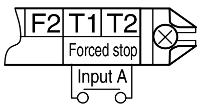
(6) Optional Output Switching

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 adaptor," 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.

(7) External ON/OFF input

This input is used for "ON / OFF operation" and "Protection device input" from the outside. The input is performed from the T1-T2 terminal of the operation terminal block (X1A) in the electric component box.



Setting Table

Mode No.	First Code No.	Second Code 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".

(8) Thermostat Switching

Differential value during thermostat ON/OFF control can be changed. (For details, refer to "6.2.2 Thermostat Control while in Normal Operation" on page 147.)

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

(9) Airflow Setting When Heating Thermostat is OFF

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

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

(10) Setting of operation mode to "AUTO"

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

Mode No.	First Code No.	Second Code No.							
		01	02	03	04	05	06	07	08
12 (22)	4	0°C	1°C	2°C	3°C	4°C	5°C	6°C	7°C

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

(11) 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).**

(12) Airflow When Cooling Thermostat is OFF

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

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

(13) Setting of Normal Airflow

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

■ **In the Case of FXAQ, FXHQ**

Mode No.	First Code No.	Second Code 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	—

■ **In the Case of FXUQ71~125**

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 2.7 m	Lower than 3.0 m	Lower than 3.5 m
		02	High Ceiling (H)	Lower than 3.0 m	Lower than 3.5 m	Lower than 3.8 m
		03	Higher Ceiling (S)	Lower than 3.5 m	Lower than 3.8 m	—

(14) Airflow Direction Setting

Set the airflow 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 setting to “01.”

Setting Table

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

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

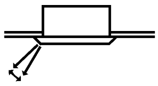
Only the model FXKQ has the function.
When only the front-flow is used, sets yes/no of the swing flap operation of down-flow.

Setting Table

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

(16) Setting of Airflow Direction Adjustment Range

Make the following airflow 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.

(17) 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)

(18) External Static Pressure Settings (for FXMQ-P model)

MODE NO.	FIRST CODE NO.	SECOND CODE NO.	External Static Pressure
13 (23)	06	01	30Pa (*1)
		02	50Pa
		03	60Pa
		04	70Pa
		05	80Pa
		06	90Pa
		07	100Pa
		08	110Pa
		09	120Pa
		10	130Pa
		11	140Pa
		12	150Pa
		13	160Pa
		14	180Pa (*2)
		15	200Pa (*2)

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

(19) Humidification When Heating Thermostat is OFF

Setting to "Humidification Setting" turns ON the humidifier if suction air temperature is 20°C or above and turns OFF the humidifier if suction air 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

(20) 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

(21) 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

(22) 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.)

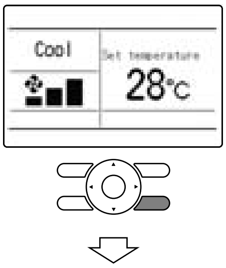
Mode No.	First Code No.	Second Code No.	Contents
15 (25)	5	01	—
		02	Individual operation of ventilation

3.1.7 Centralized Control Group No. Setting

BRC1E Type

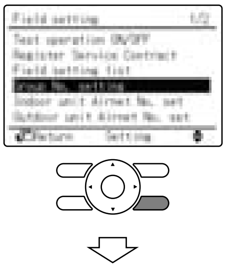
In order to conduct the centralized remote control using the centralized remote controller and the unified ON/OFF controller, Group No. settings should be made by group using the operating remote controller.
Make Group No. settings for centralized remote control using the operating remote controller.

(1) <Basic screen>



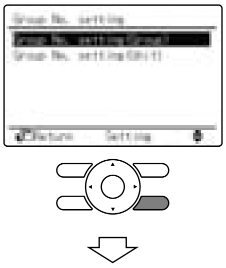
1. Press and hold Cancel button for 4 seconds or more.
   Field setting menu in displayed.

(2) <Field setting menu screen>



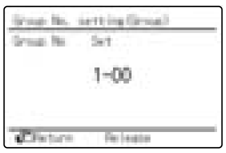
2. Select **Group No. setting** the field setting menu, and press Menu/Enter button.
   Group No. setting screen is displayed.

(3) <Group No. setting>



3. Select Group No. setting (Group), and press Menu/Enter button.
   Group No. setting (Group) screen is displayed.

(3) <Group No. setting (Group)>



4. Select the group No. by using ▲▼ (Up/Down) button.
   Press Menu/Enter button.

Notes:

- 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.

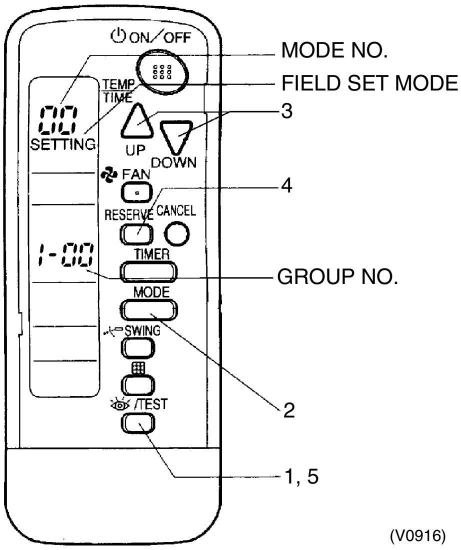
NOTICE

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

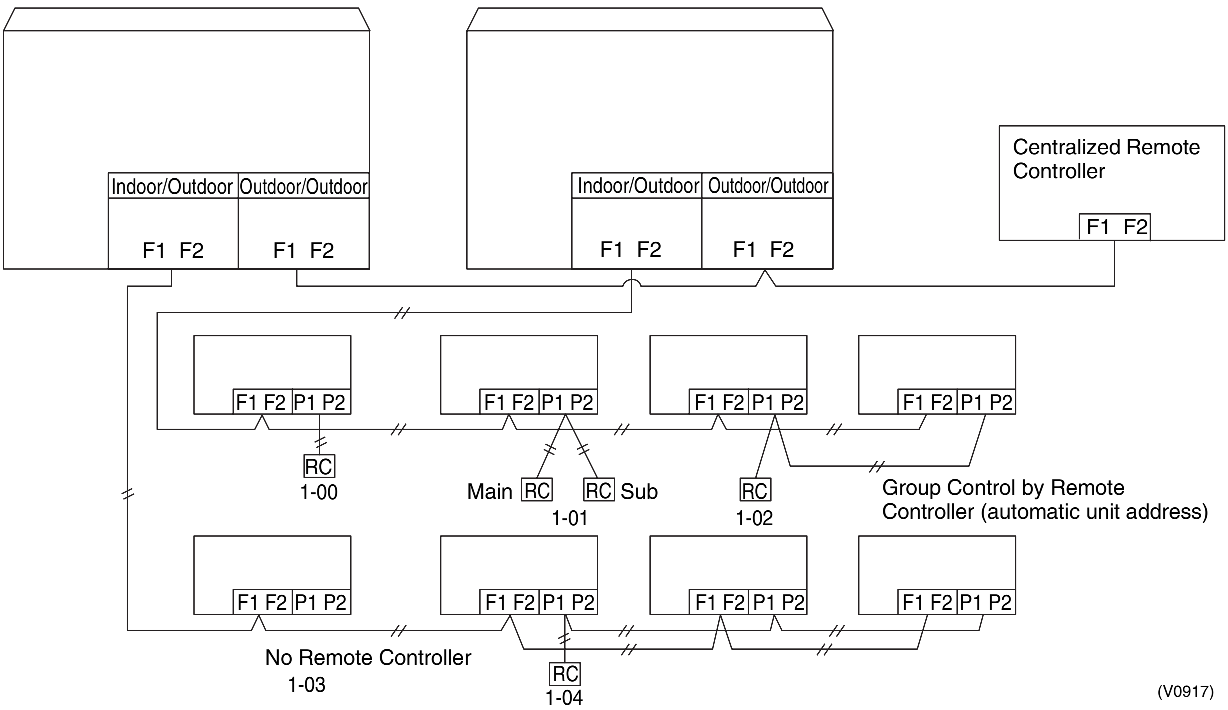
■ Group No. setting by wireless remote controller for centralized control

1. When in the normal mode, push " /TEST " button for 4 seconds or more, and operation then enters the "field set mode."
2. Set mode No. "00" with " MODE " button.
3. Set the group No. for each group with " UP " " DOWN " button (advance/backward).
4. Enter the selected group numbers by pushing " RESERVE " button.
5. Push " /TEST " button and return to the normal mode.



(V0916)

Group No. Setting Example



(V0917)

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.)
Centralized 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 centralized 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 centralized remote controller only, and off by remote controller only.
- Centralized
  Used when you want to turn on by centralized 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 centralized 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 centralized 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

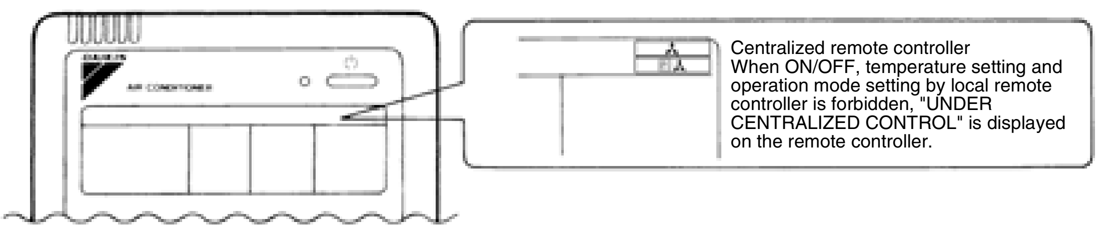
ON by remote controller (Unified ON by centralized remote controller)	OFF by remote controller (Unified OFF by centralized remote controller)	OFF by remote controller	Temperature control by remote controller	Operation mode setting by remote controller	⇨ Control mode is "1."
↓ Rejection	↓ Rejection	↓ Rejection	↓ Acceptance	↓ Acceptance	

(VL069)

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

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

∗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 237 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 setting 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.	236~240
			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.	236~240
	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 adaptor": Set the system to "External control adaptor for outdoor unit" with No. 12 of Setting mode 2" and select the mode with No. 30.	236~240
				■ 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.	236~240
	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".	229~232
	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.	229~232
	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”)	229~232
	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”.	229~232

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.	229~232
	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.	229~232
	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".	229~232
	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".	229~232
	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".	229~232
	6	Setting of sequential startup	■ Used to start units not in sequence but simultaneously.	■ Set No. 11 of "Setting mode 2" to NONE.	229~232
	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.	244~247
	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.	167~170
	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.	242
	10	Vacuuming 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.	243
	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.	229~232
	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 PCB.	■ Set No. 28 of "Setting mode 2" to ON.	229~232
	13	Setting of model with spare PCB	■ In order to replace the PCB by a spare one, be sure to make model setting.	■ For this setting, set the DS2-2, -3, and-4 switches on the PCB to the model concerned.	222~225

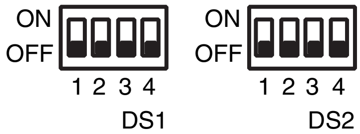
For setting items of (*1), refer to detailed information provided on page 228 onward.

3.2.2 Setting by Dip Switches

(1) Factory setting of initial PCB.

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

Status of DIP switches



■ : Represents the factory setting positions of the switches.

Setting at replacement by spare PCB

Caution

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

After the replacement by the spare PCB, be sure to make settings shown below.
When you change the main PCB (A1P) to spare parts PCB, please carry out the following setting.

Initial conditions of dip switches

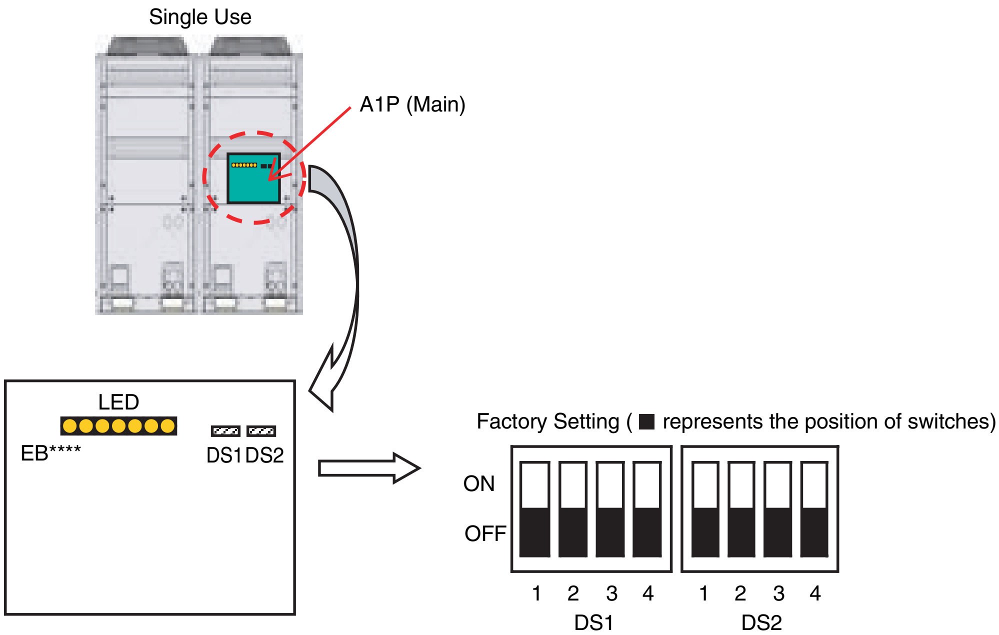
DIP Switch Detail

DS No.	Item	Contents	
DS1-2	Power supply specification	ON	200V class (220V)
		OFF (Factory setting of spare PCB)	400V class (380V)
DS1-3 Except Multiple use	Cooling only/Heat-pump setting	ON	Cooling only setting
		OFF (Factory setting of spare PCB)	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.) (see table below)
DS2-1		OFF (Factory setting of spare PCB)	
DS2-2	Model setting	Make the following settings according to models of outdoor units. (All models are set to OFF at factory.) * Refer to following pages for setting detail.	
DS2-3			
DS2-4			

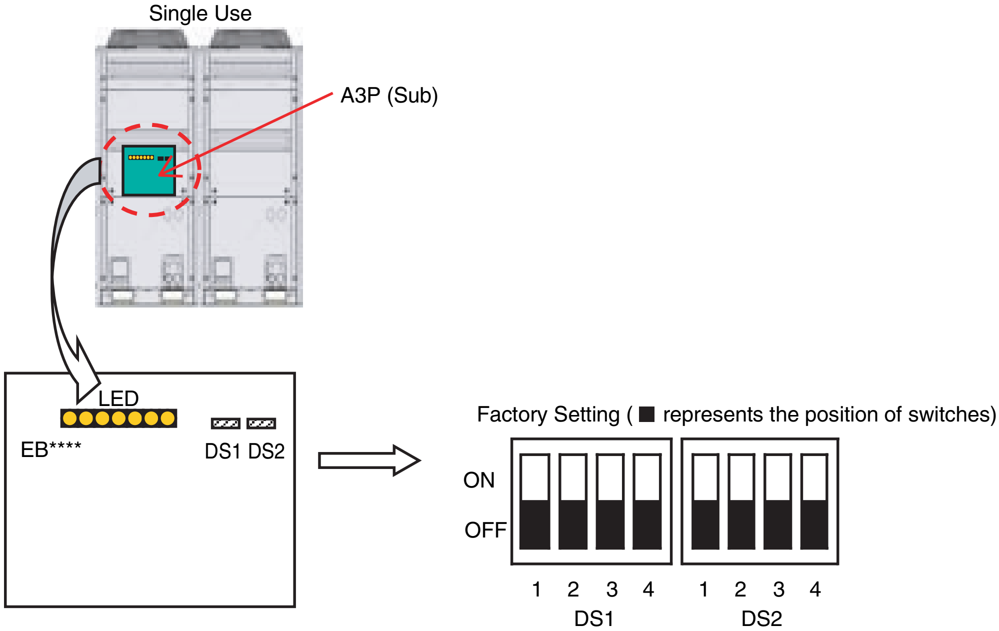
Multiple use Single use (Main)	Single use (Sub)	Domestic Japan	Overseas General	Europe
DS1-4	DS1-3	OFF	OFF	ON
DS2-1	DS1-4	OFF	ON	OFF

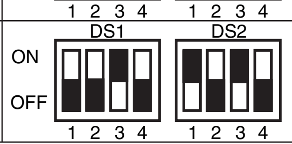
* For detail of the setting procedure, refer to information on the following pages.
While the PCB assembly is replaced, the "U3" malfunction (Test run not carried out yet) code is displayed. In this case, carry out the test run again.
If the "PJ", "UA", or "U7" malfunction code is displayed, recheck 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"



Allocation	Application model	Setting method (■ represents the position of switches)	
For Europe	HEAT RECOVERY (8HP) REYQ8P8Y1B	DS1 DS2 ON OFF 1 2 3 4 1 2 3 4	Set DS1-4 and DS2-3 to ON.
	HEAT RECOVERY (10HP) REYQ10P8Y1B	DS1 DS2 ON OFF 1 2 3 4 1 2 3 4	Set DS1-4 to ON.
	HEAT RECOVERY (12HP) REYQ12P8Y1B	DS1 DS2 ON OFF 1 2 3 4 1 2 3 4	Set DS1-4 and DS2-2 to ON.
	HEAT RECOVERY (14HP) REYQ14P8Y1B	DS1 DS2 ON OFF 1 2 3 4 1 2 3 4	Set DS1-3, DS1-4 and DS2-2 to ON.
	HEAT RECOVERY (16HP) REYQ16P8Y1B	DS1 DS2 ON OFF 1 2 3 4 1 2 3 4	Set DS1-3, DS1-4 and DS2-3 to ON.



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

Multiple Type

Allocation	Application model	Setting method (■ represents the position of switches)	
For Europe	HEAT RECOVERY (8HP) REMQ8P8Y1B		Set DS1-4, DS2-2 and DS2-3 to ON.
	HEAT RECOVERY (10HP) REMQ10P8Y1B		Set DS1-4 and DS2-4 to ON.
	HEAT RECOVERY (12HP) REMQ12P8Y1B		Set DS1-4, DS2-2 and DS2-4 to ON.
	HEAT RECOVERY (14HP) REMQ14P8Y1B		Set DS1-4, DS2-3 and DS2-4 to ON.
	HEAT RECOVERY (16HP) REMQ16P8Y1B		Set DS1-4, DS2-2, DS2-3 and DS2-4 to ON.

3.2.3 Setting by Push Button Switches

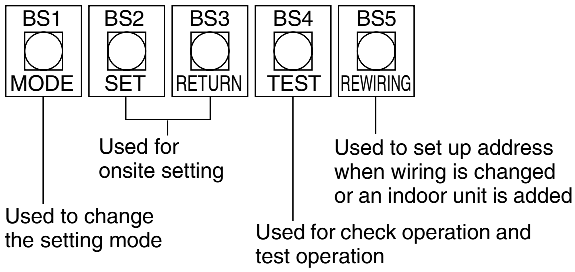
The following settings are made by push button switches on PCB.
In case of multi-outdoor unit system, various items should be set with the master unit. (Setting with the slave unit is disabled.)
The master unit and slave unit can be discriminated with the LED display as shown below.

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”.

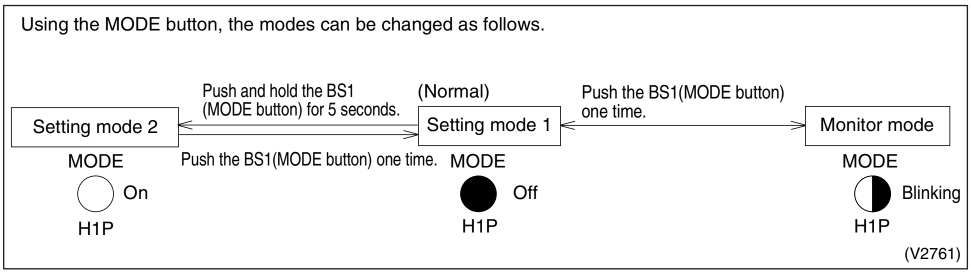
② **Setting mode 2 (H1P on)**

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

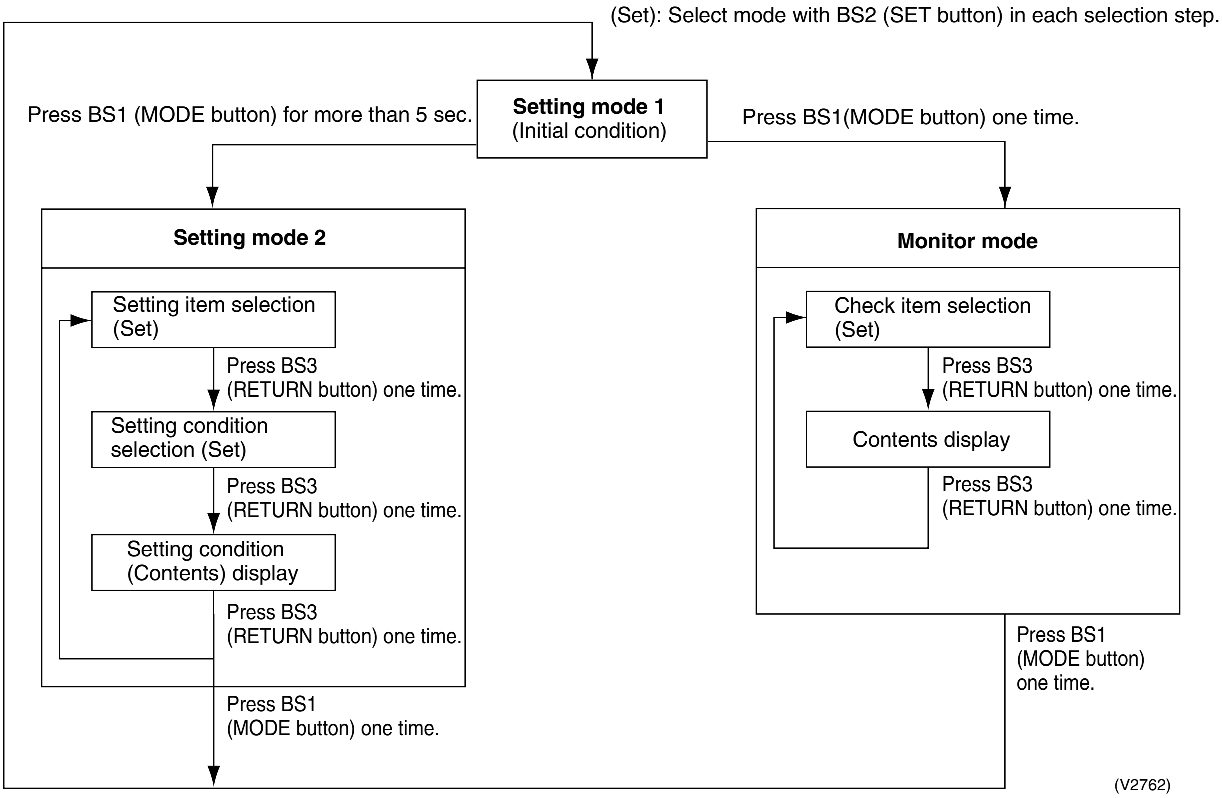
③ **Monitor mode (H1P blinks)**

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.

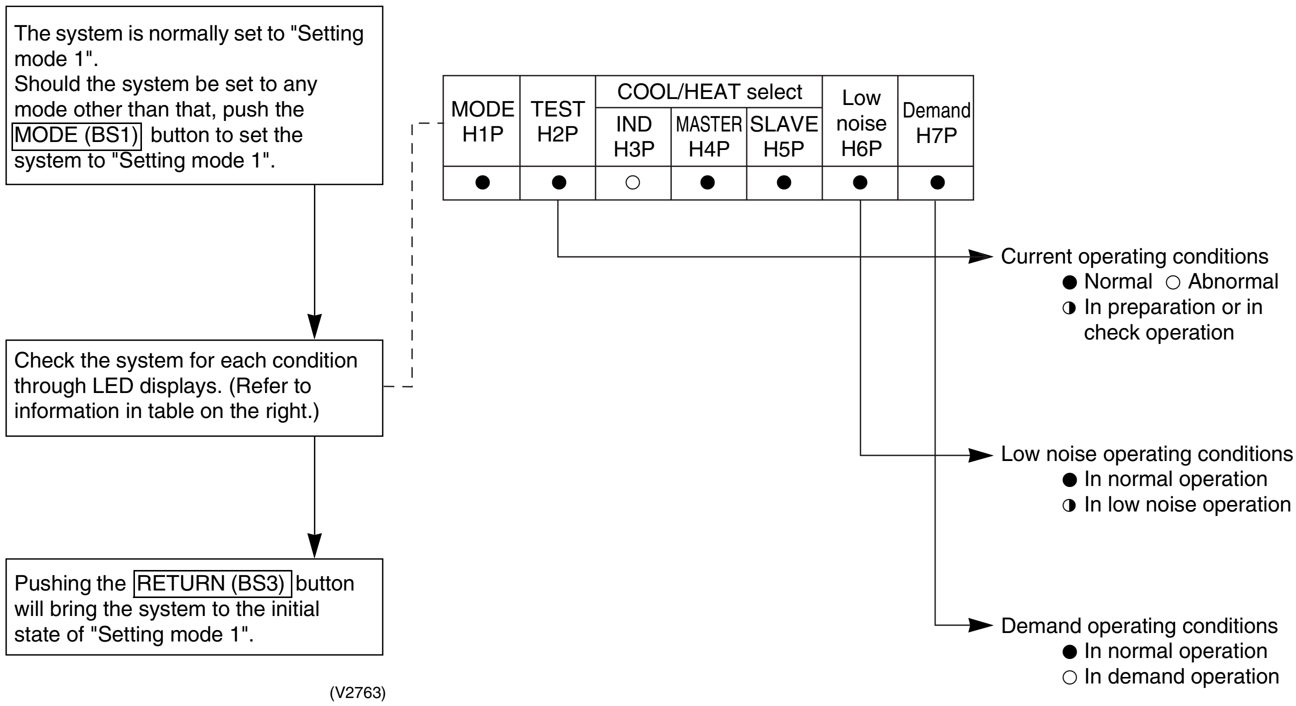
Check items ·········· The following items can be checked.

(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



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 setting	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. (Forced thermostat ON)
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 setting 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 forcedly 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 PCB.
29	Capacity precedence setting	If the capacity control is required, the low noise control is automatically released by this setting during carrying out low noise operation and nighttime low noise operation.
30	Demand setting 1	Changes target value of power consumption when demand control 1 is 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	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. • 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.)
42	Setting of BS Cool-Heat selection control time	Make this setting to shorten the BS Cool-Heat selection control time. However, make the setting, pay careful attention to the following: • 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.
51	Master-slave set-up for multi outdoor units	Set up master and slave units for multi-connection outdoor units. After setting up, press the BS5 (REWIRING) button for 5 seconds or more.

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

No.	Setting item	Setting item display							Setting condition display			✻ Factory setting
		MODE H1P	TEST H2P	C/H selection IND H3P	Master H4P	Slave H5P	Low noise H6P	Demand H7P				
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 setting	○	●	●	●	●	○	○	Test operation: OFF		○●●●●○●	✻
									Test operation: ON		○●●●●●○	
5	Indoor unit forced fan H	○	●	●	●	○	●	○	Normal operation		○●●●●●○	✻
									Indoor forced fan H		○●●●●○●	
6	Indoor unit forced operation	○	●	●	●	○	○	●	Normal operation		○●●●●●○	✻
									Indoor forced operation		○●●●●○●	
8	Te setting	○	●	●	○	●	●	●	Low (Level L)		○●●●●●○	
									Normal (Level M)		○●●●●○●	✻
									High① (Level H)		○●●●●○○	
									High② (Level H)		○●●●○●●	
									High③ (Level H)		○●●●○●○	
									High④ (Level H)		○●●●○○●	
									High⑤ (Level H)		○●●●○○○	
9	Tc setting	○	●	●	○	●	●	○	Low		○●●●●●○	
									Normal (factory setting)		○●●●●○●	✻
									High		○●●●○●●	
10	Defrost changeover setting	○	●	●	○	●	○	●	Slow defrost		○●●●●●○	
									Normal (factory setting)		○●●●●○●	✻
									Quick defrost		○●●●○●●	
11	Sequential operation setting	○	●	●	○	●	○	○	OFF		○●●●●●○	
									ON		○●●●●○●	✻
12	External low noise setting/demand setting	○	●	●	○	○	●	●	External low noise/demand: NO		○●●●●●○	✻
									External low noise/demand: YES		○●●●●○●	
13	AIRNET 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 charge operation setting	○	●	○	●	○	●	●	Refrigerant charging: OFF		○●●●●●○	✻
									Refrigerant charging: ON		○●●●●○●	
21	Refrigerant recovery/vacuuming mode setting	○	●	○	●	○	●	○	Refrigerant recovery / vacuuming: OFF		○●●●●●○	✻
									Refrigerant recovery / vacuuming: ON		○●●●●○●	
22	Night-time low noise setting	○	●	○	●	○	○	●	OFF		○●●●●●●	✻
									Level 1 (outdoor fan with 6 step or lower)		○●●●●●○	
									Level 2 (outdoor fan with 5 step or lower)		○●●●●○●	
									Level 3 (outdoor fan with 4 step or lower)		○●●●●○○	

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

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".

(V2765)

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 *2	◑	●	●	●	○	○	●	
7	Number of connected zone units (Fixed to "0")	◑	●	●	●	○	○	○	
8	Number of outdoor units *3	◑	●	●	○	●	●	●	
9	Number of BS units *4	◑	●	●	○	●	●	○	Lower 4 digits: upper
10	Number of BS units *4	◑	●	●	○	●	○	●	Lower 4 digits: lower
11	Number of zone units	◑	●	●	○	●	○	○	Lower 6 digits
12	Number of terminal units *5	◑	●	●	○	○	●	●	Lower 4 digits: upper
13	Number of terminal units *5	◑	●	●	○	○	●	○	Lower 4 digits: lower
14	Contents of malfunction (the latest)	◑	●	●	○	○	○	●	Malfunction code table Refer page 268.
15	Contents of malfunction (1 cycle before)	◑	●	●	○	○	○	○	
16	Contents of malfunction (2 cycle before)	◑	●	○	●	●	●	●	
20	Contents of retry (the latest)	◑	●	○	●	○	●	●	
21	Contents of retry (1 cycle before)	◑	●	○	●	○	●	○	
22	Contents of retry (2 cycle before)	◑	●	○	●	○	○	●	
25	Number of multi connection outdoor units	◑	●	○	○	●	●	○	Lower 6 digits

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

*1: Number of connected indoor units
Used to make setting of the number of indoor units connected to an outdoor unit.

*2: Number of connected BS units
Used to make setting of the number of BS units connected to an outdoor unit.

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

*4: Number of BS units
Used to make setting of the number of BS units connected to DIII-NET that is one of the communication lines.

*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	L	◑	●	●	●	●	●	●
	M	◑	●	●	●	●	◑	●
	H ①~⑤	◑	●	●	●	●	○	●
Tc setting	L	◑	●	●	●	●	●	●
	M	◑	●	●	●	●	●	◑
	H	◑	●	●	●	●	●	○

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

◑ ● ◑ ● ◑ ◑ ●
16 4 1
32 8 2

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.

◑ ● ● ● ◑ ● ◑
64 16
No.12 128 32

◑ ● ● ● ◑ ◑ ●
4 1
No.13 8 2

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

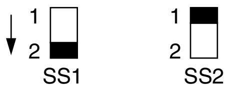
★ See the preceding page for a list of data, etc. for No. 0 - 25.

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.



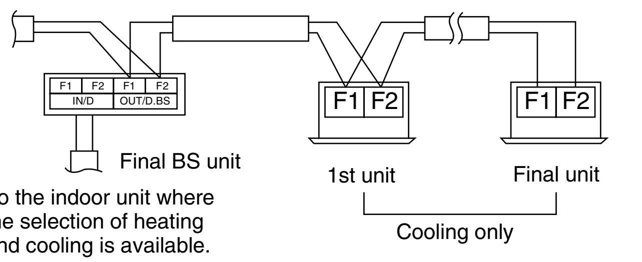
NOTE: This setting must be completed before turning power supply ON.

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.

In case of the indoor unit connect as the cool-only unit, it wire he terminal F1 F2 OUT/D.BS of the last BS unit.



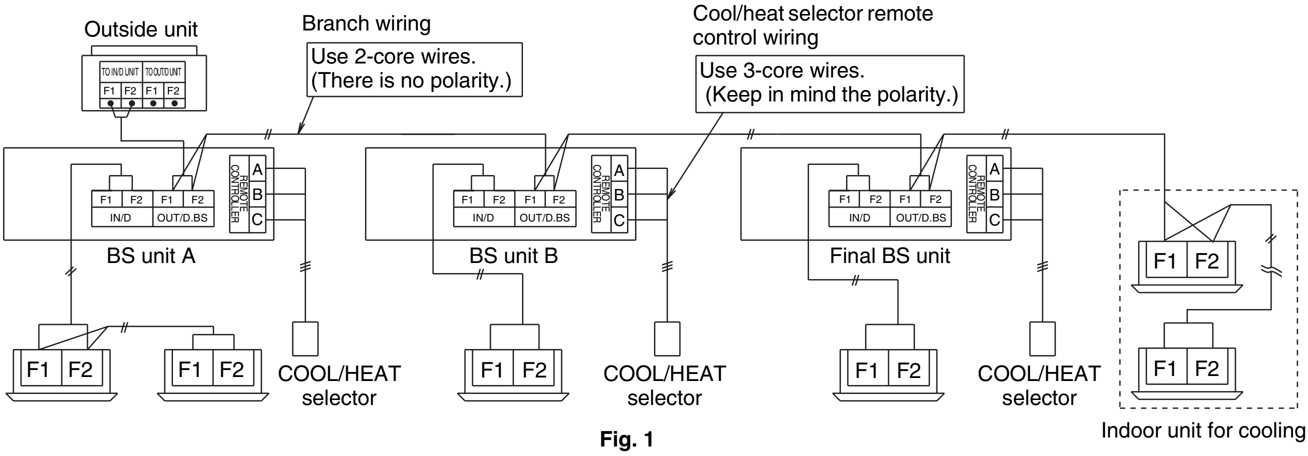


Fig. 1

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.

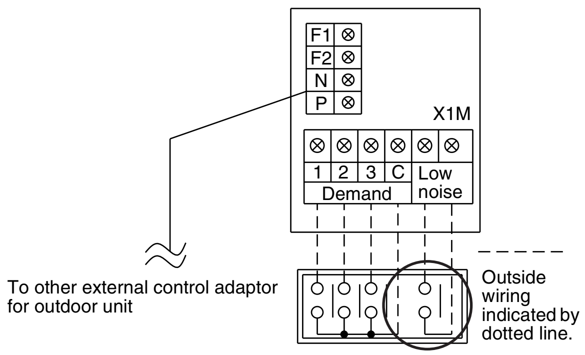
A. When the low noise operation is carried out by external contact (with the use of the external control adaptor for outdoor unit)

1. Connect the external adaptor for 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)

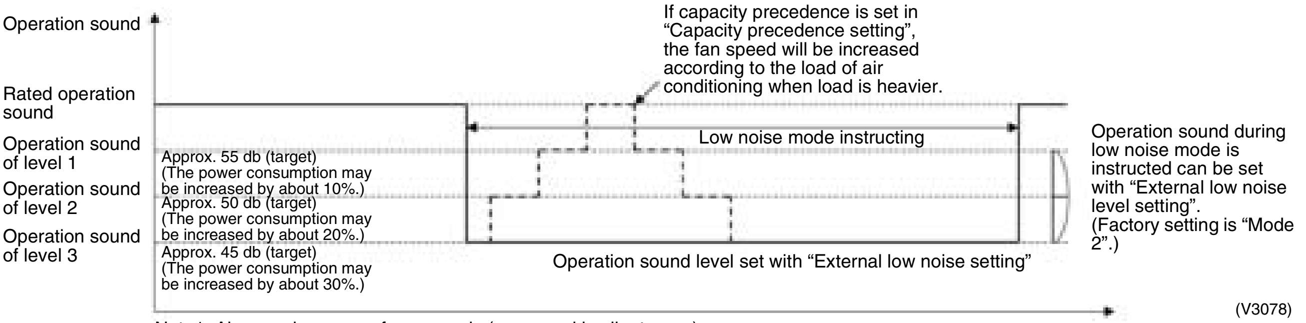
1. While in "Setting mode 2", select the setting condition (i.e., "Level 1", "Level 2", or "Level 3") for set item No. 22 (Setting of nighttime low noise level).
2. If necessary, while in "Setting mode 2", select the setting condition (i.e., "20:00", "22:00", or "24:00") for set item No. 26 (Setting 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 terminals of the external control adaptor for outdoor unit as shown below.



Host computer monitor panel or demand controller

Image of operation in the case of A



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

Image of operation in the case of B

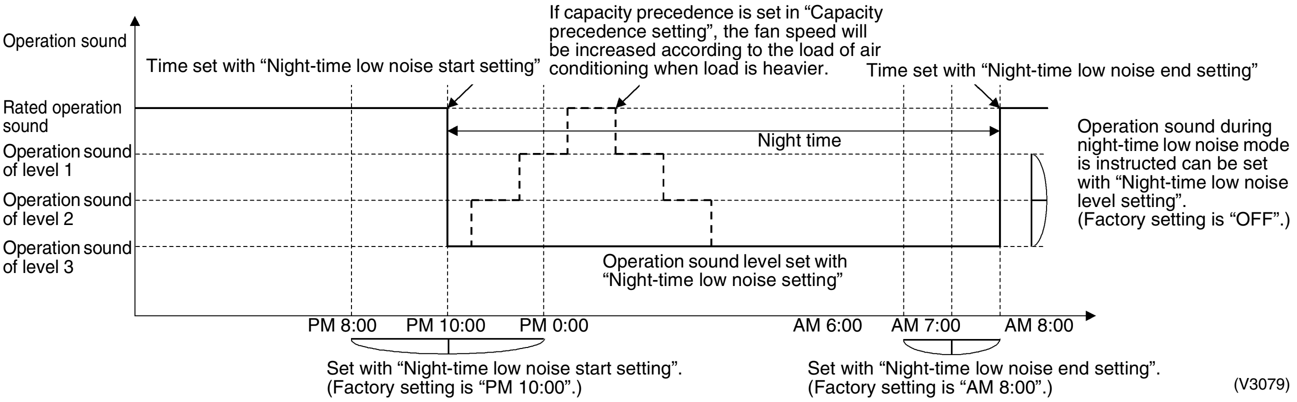
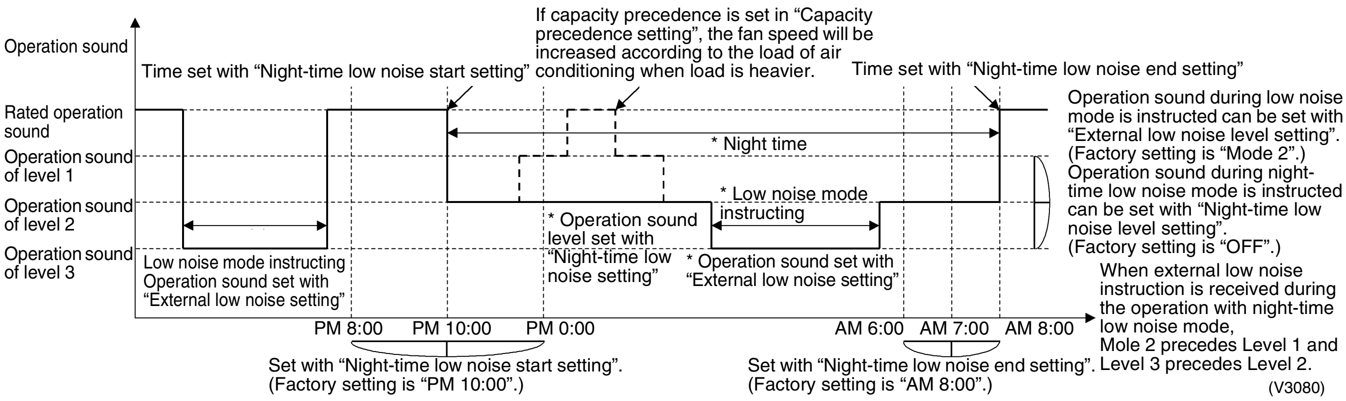


Image of operation in the case of A and B



Setting of Demand Operation

By connecting the external contact input to the demand input of the outdoor unit external control adaptor (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 adaptor	Outdoor unit PCB
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 contact (with the use of the external control adaptor for outdoor unit).

1. Connect the external adaptor 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 adaptor for outdoor unit is not required.)

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

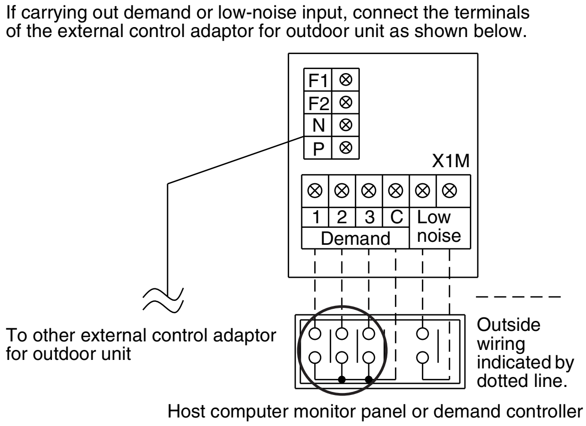
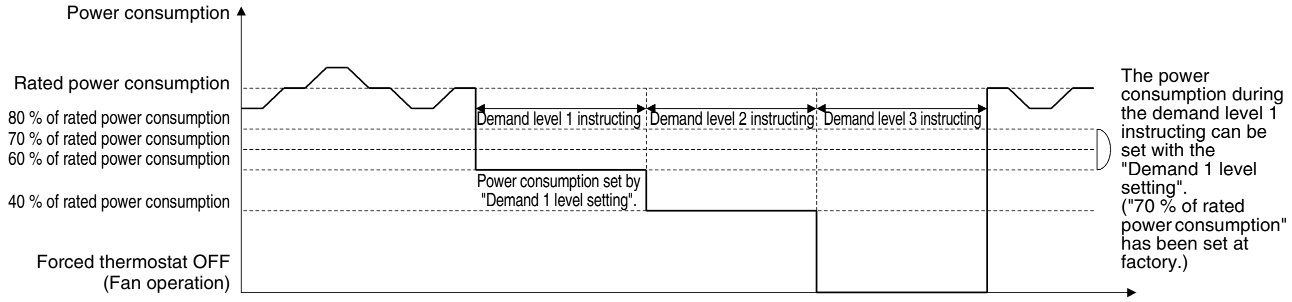
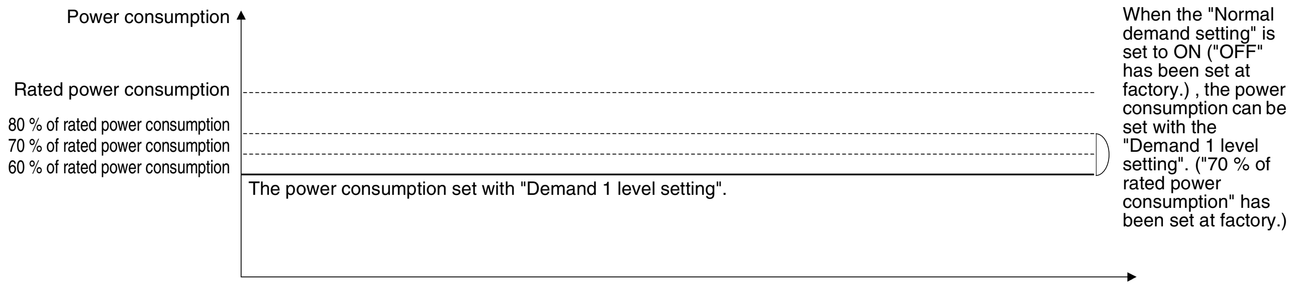


Image of operation in the case of A



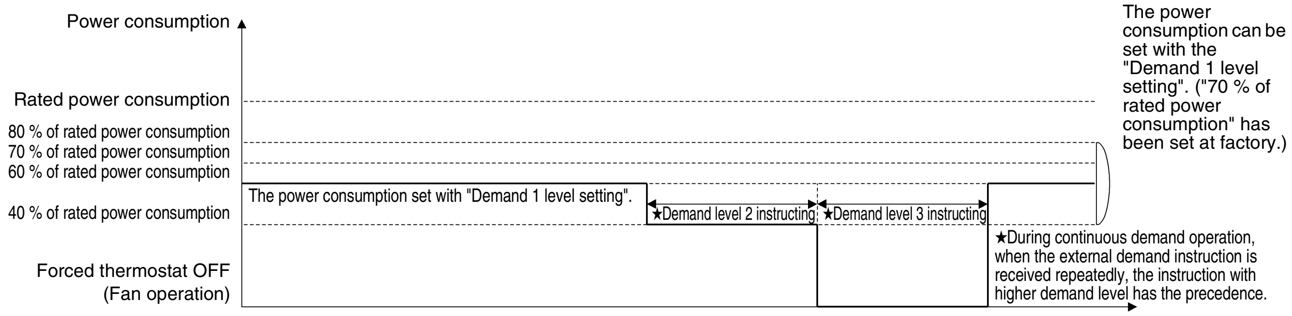
(V3081)

Image of operation in the case of B



(V3082)

Image of operation in the case of A and B



(V3083)

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 1 is entered and H1P lights off.
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 setting / Demand setting	○	●	●	●	●	●	●	○	●	●	○	○	●	●	NO (Factory setting)	○	●	●	●	●	●	◑
																YES	○	●	●	●	●	◑	●
22	Night-time low noise setting								○	●	○	●	○	○	●	OFF (Factory setting)	○	●	●	●	●	●	●
																Mode 1	○	●	●	●	●	●	◑
																Mode 2	○	●	●	●	●	◑	●
																Mode 3	○	●	●	●	●	◑	◑
25	Setting of external low noise level								○	●	○	○	●	●	○	Mode 1	○	●	●	●	●	●	◑
																Mode 2 (Factory setting)	○	●	●	●	●	◑	●
																Mode 3	○	●	●	●	◑	●	●
26	Night-time low noise operation start setting								○	●	○	○	●	○	●	PM 8:00	○	●	●	●	●	●	◑
																PM 10:00 (Factory setting)	○	●	●	●	●	◑	●
																PM 0:00	○	●	●	●	◑	●	●
27	Night-time low noise operation end setting								○	●	○	○	●	○	○	AM 6:00	○	●	●	●	●	●	◑
																AM 7:00	○	●	●	●	●	◑	●
																AM 8:00 (Factory setting)	○	●	●	●	◑	●	●
29	Capacity precedence setting								○	●	○	○	○	●	○	Low noise precedence (Factory setting)	○	●	●	●	●	●	◑
																Capacity precedence	○	●	●	●	●	◑	●
30	Demand setting 1								○	●	○	○	○	○	●	60 % of rated power consumption	○	●	●	●	●	●	◑
																70 % of rated power consumption (Factory setting)	○	●	●	●	●	◑	●
																80 % of rated power consumption	○	●	●	●	◑	●	●
32	Normal demand setting								○	●	●	●	●	●	●	OFF (Factory setting)	○	●	●	●	●	●	◑
																ON	○	●	●	●	●	◑	●

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 electronic 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 electronic 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))

LED display (H1P~H7P) (○: ON ●: OFF ◑: BLINK)

Step	Operation	Time / Content	LED display (H1P~H7P)
	Unit stopping	Press the TEST button for 5 seconds.	● ● ○ ● ● ● ●
Step 1	Pressure equalizing	10 sec to 10 minutes	● ◑ ● ● ● ● ○
Step 2	Cooling start control	20 sec to 2 minutes	● ◑ ● ● ● ○ ●
Step 3	Stop valve close check	• Stop valve close check	● ◑ ● ● ● ○ ○ Stop valve check ↓ ● ◑ ● ● ○ ● ● Stop valve check
Step4~8	Judgement function	• Wrong wiring check • Correct Refrigerant charge check • Piping length check	● ◑ ● ● ○ ● ○ Wrong wiring check ↓ ● ◑ ● ● ○ ○ ● Piping length check
Step 9	Pump-down residual operation	5 minutes	● ◑ ● ○ ● ● ○
Step 10	Standby for restarting	5 minutes	● ◑ ● ○ ● ○ ●
	Completion		

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 PCB.

Operating method / Applicable model	① Emergency operation with remote controller reset (Auto backup operation)	② Emergency operation with outdoor unit PCB setting (Manual backup operation)
REYQ8 to 16PY1	–	Backup operation by the compressor
REYQ18 to 48PY1	Backup operation by the outdoor 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
L1, 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 PCB**
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".

(Step)	LED display (○: ON, ●: OFF, ◑: Blink) 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 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".

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

(Step)	LED display (○: ON, ●: OFF, ◑: Blink) 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".

(Step)	LED display (○: ON, ●: OFF, ◑: Blink) 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.	●●○●●●●

[Cancel of Emergency Operation]

To cancel the emergency operation, conduct the following setting. (Return to Factory setting.)

<REYQ8 to 16PY1>

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

(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.	○●●●●◑●
(4) Press the OPERATE button (BS2) once.	○●●●●●◑ (Factory setting)
(5) Press the CHECK button (BS3) twice.	○●●●●●●
(6) Press the PAGE button (BS1) once.	●●○●●●●

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

(Step)	LED display (○: ON, ●: OFF, ◑: Blink) 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.	○●●●●◑●
(4) Press the OPERATE button (BS2) once.	○●●●●●◑ (Factory setting)
(5) Press the CHECK button (BS3) twice.	○●●●●●●
(6) Press the PAGE button (BS1) once.	●●○●●●●

<REYQ18 to 48PY1>

Cancel the 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 the LED displays shown below.

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

○ Cancel disabling the outdoor unit 1 from operating:
Set No. 38 "Disable outdoor unit 1 operation" of setting mode 2 to "OFF".

(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.	○●●●●◑●
(4) Press the OPERATE button (BS2) once.	○●●●●●◑ (Factory setting)
(5) Press the CHECK button (BS3) twice.	○●●●●●●
(6) Press the PAGE button (BS1) once.	●●○●●●●

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

(Step)	LED display (○: ON, ●: OFF, ◑: Blink) 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.	○●●●●◑●
(4) Press the OPERATE button (BS2) once.	○●●●●●◑ (Factory setting)
(5) Press the CHECK button (BS3) twice.	○●●●●●●
(6) Press the PAGE button (BS1) once.	●●○●●●●

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

(Step)	LED display (○: ON, ●: OFF, ◑: Blink) 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.	○●●●●◑●
(4) Press the OPERATE button (BS2) once.	○●●●●●◑ (Factory setting)
(5) Press the CHECK button (BS3) twice.	○●●●●●●
(6) Press the PAGE button (BS1) once.	●●○●●●●

3.2.10 Prevention of Micro Heating in Non-operating Unit

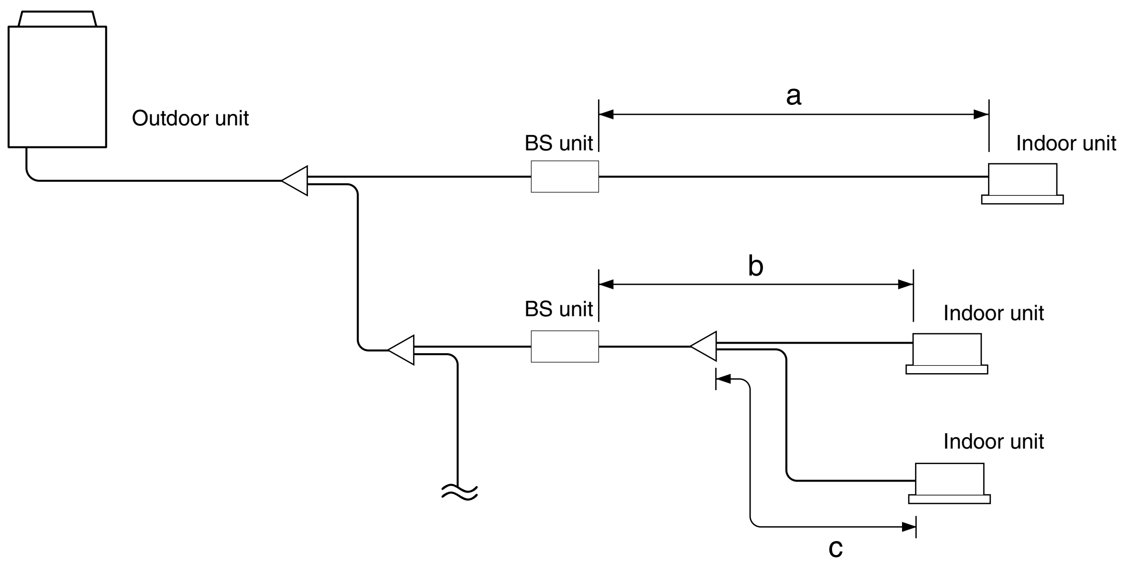
In heating operation, this setting is made to prevent room temperature from rising due to micro heating capacity generated in the unit with its heating thermostat OFF or in the unit with its heating operation stopped.

- By switching the BS units to cooling when the system turns OFF the heating thermostat or stops heating operation, micro heating is prevented.
- By enabling the micro heating prevention setting of the outdoor unit, prevention of micro heating of all BS units connected to the outdoor unit is enabled. (Default setting of BS unit)
- Setting by BS unit is enabled by changing the micro heating prevention setting of every BS unit. (In this case, enable the outdoor unit setting.)

3.2.11 Reduction of Cooling/Heating Selection Time of BS Units

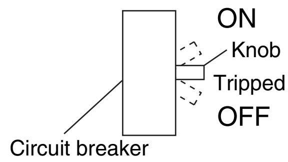
Make this setting to reduce selection time between cooling and heating of the BS units, with careful attention paid to the following points.

- This setting is only enabled in case the refrigerant piping length between every BS unit connected to the outdoor unit and the indoor unit is not more than 10 m. (Refer to the figure shown below: (a)≤10 m and (b)+(c)≤10 m and …)
- In case the refrigerant piping length between the BS units and the indoor units is long, refrigerant passing sounds may become louder when the BS unit selects operation mode between cooling and heating.
- This setting reduces the operation mode selection time in all the BS units within the same refrigerant circuit.



Part 6 Troubleshooting

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)	• If the knob of any breaker is in its OFF position, turn ON the power supply. • If the knob of any circuit breaker is in its tripped position, do not turn ON the power supply. 
			Power failure	After the power failure is reset, restart the system.
2	The system starts operation but makes an immediate stop.		Blocked air inlet or outlet of indoor or outdoor unit	Remove obstacle(s).
			Clogged air filter(s)	Clean the air filter(s).
3	The system does not cool or heat air well.		Blocked air inlet or outlet of indoor or outdoor unit	Remove obstacle(s).
			Clogged air filter(s)	Clean the air filter(s).
			Enclosed outdoor unit(s)	Remove the enclosure.
			Improper set temperature	Set the temperature to a proper degree.
			Airflow rate set to "LOW"	Set it to a proper airflow rate.
			Improper direction of air diffusion	Set it to a proper direction.
			Open window(s) or door(s)	Shut it tightly.
	[In cooling]		Direct sunlight received	Hang curtains or shades on windows.
	[In cooling]		Too many persons staying in a room	The model must be selected to match the air conditioning load.
	[In cooling]		Too many heat sources (e.g. OA equipment) located in a room	
4	The system does not operate.	The system stops and immediately restarts operation.	If the OPERATION lamp on the remote controller turns ON, the system will be normal. These symptoms indicate that the system is controlled so as not to put unreasonable loads on the system.	Normal operation. The system will automatically start operation after a lapse of 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.	The system is controlled with centralized controller. Blinking display indicates that the system cannot be operated using the remote controller.	Operate the system using the COOL/HEAT centralized remote controller.
		The system stops immediately after turning ON the power supply.	The system is in preparation mode of micro-computer operation.	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.	Remove causes of electrical noises. If these causes are removed, the system will automatically restart operation.
6	COOL-HEAT selection is disabled.	The remote controller displays "UNDER CENTRALIZED CONTROL".	This remote controller has no option to select cooling operation.	Use a remote controller with option to select cooling operation.
		The remote controller displays "UNDER CENTRALIZED CONTROL", and the COOL-HEAT selection remote controller is provided.	COOL-HEAT selection is made using the COOL-HEAT selection remote controller.	Use the COOL-HEAT selection remote controller to select cool or heat.

	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 outdoor air 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.

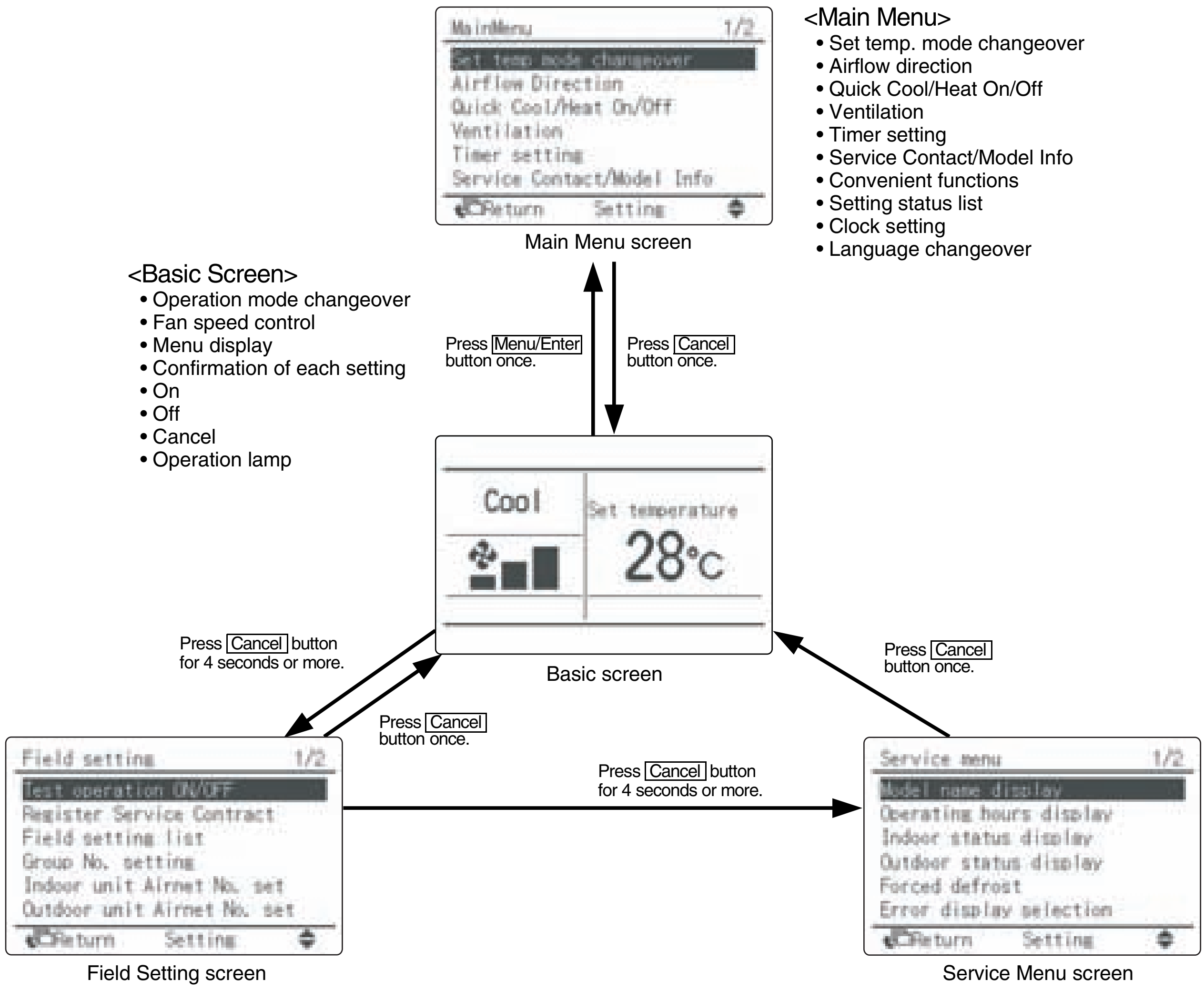
	Symptom		Supposed Cause	Countermeasure
12	Dust comes out from the system.	Dust comes out from the system when it restarts after the stop for an extended period of time.	Dust, which has deposited on the inside of indoor unit, is blown out from the system.	Normal operation.
13	Odors come out from the system.	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.

On power-up, the message "Connection under check. Please wait for a moment" will be displayed on the remote controller screen. Then that message will disappear and the basic screen will be displayed. To access a mode from the basic screen, refer to the figure below. When any of the operation buttons is pressed, the backlight will come on and remains lit for about 30 seconds. Be sure to press a button while the backlight is on (this does not apply to the On/Off button.)



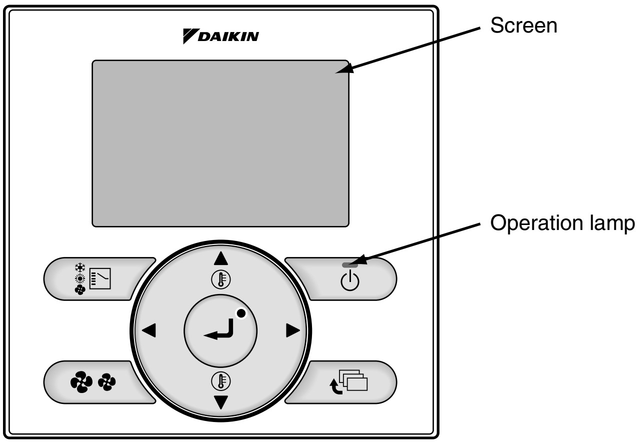
<Field Setting Menu>
- Test operation ON/OFF
- Register Service Contract
- Field setting list
- Group No. setting
- Indoor unit AIRNET No. set
- Outdoor unit AIRNET No. set
- Error record
- Indoor status display
- Outdoor status display
- Fan forced operation ON
- Main/Sub changeover
- Filter element sign OFF

<Service Menu>
- Model name display
- Operating hours display
- Indoor status display
- Outdoor status display
- Forced defrost
- Error display selection
- Unit No. transfer
- Sensor/address data display

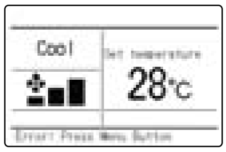
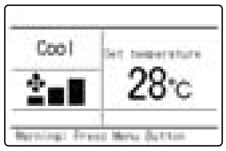
2.2 Self-diagnosis by Wired Remote Controller

Explanation

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



(1) Checking a malfunction or warning

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

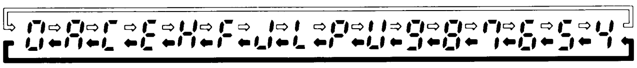
2.3 Self-diagnosis by Wireless Remote Controller

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.



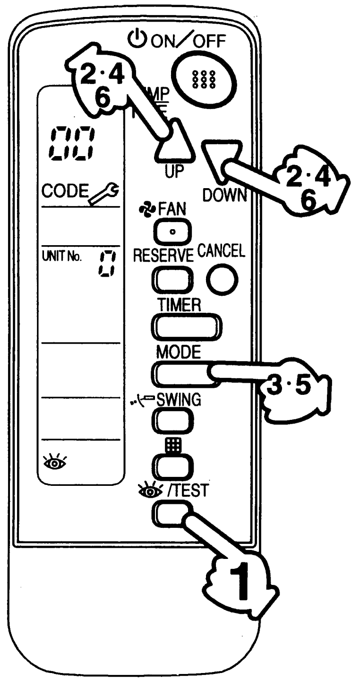
⇨ **“Advance” button** ⬅ **“Backward” button**

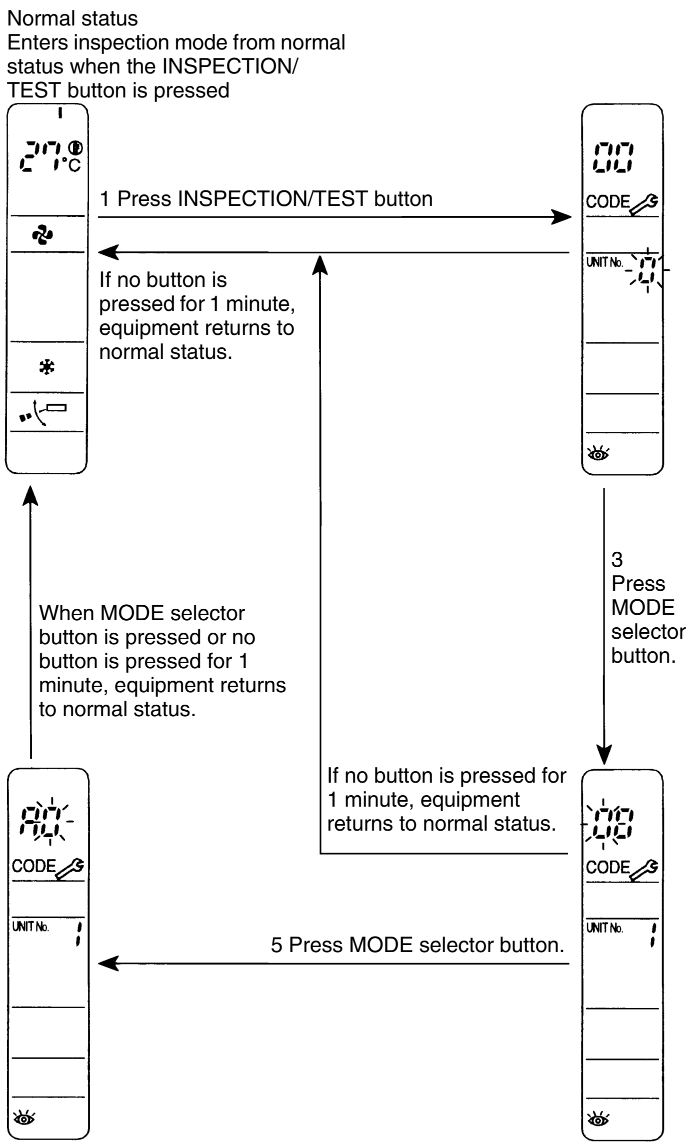
   *2 Number of beeps
   Continuous beep : Both upper and lower digits matched. (Malfunction code confirmed)
   2 short beeps : Upper digit matched.
   1 short beep : Lower digit matched.

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.

⇨ **"Advance" button** ⬅ **"Backward" button**




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

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.

Normal display (No display)

Unit 0
Malfunction code L 0
Inspection

Malfunction code blinks when a malfunction occurs.

Inspection/test operation — Push the button.

Unit 0
Malfunction code L 0
Inspection

Inspection mode

Inspection/test operation — Push the button.

0 7 1
F C J

Indoor unit model code display

0 7 1... Capacity code
F... Indoor unit system code
C... Indoor unit type code
J... Progression code

Inspection/test operation — Push the button.

– – –
A A 1

Outdoor unit model code display

Inspection/test operation — Push the button.

Test operation

Test operation mode

Inspection/test operation — Push the button.

Example of capacity code display

Example model	Display
FXCQ25	028
FXFQ63	071

Indoor unit system code

Display	Product classification	System classification
1	VRV system	(VAV indoor unit)
2	VRV system	Outdoor air processing unit
F	VRV system	Standard indoor unit
H	VRV system	New ceiling suspended cassette

Indoor unit type code

Display	Type	Model
A	Wall mounted	FXAQ
C	2-way blow	FXCQ
E	Corner	FXKQ
F	Roundflow	FXFQ
H	Ceiling suspended	FXHQ
J	Concealed ceiling	FXSQ
P	Floor standing	FXLQ
U	Concealed ceiling	FXMQ
L	Concealed floor standing type	FXNQ
6	600×600 4-way blow	FXZQ
3	Slim concealed ceiling	FXDQ

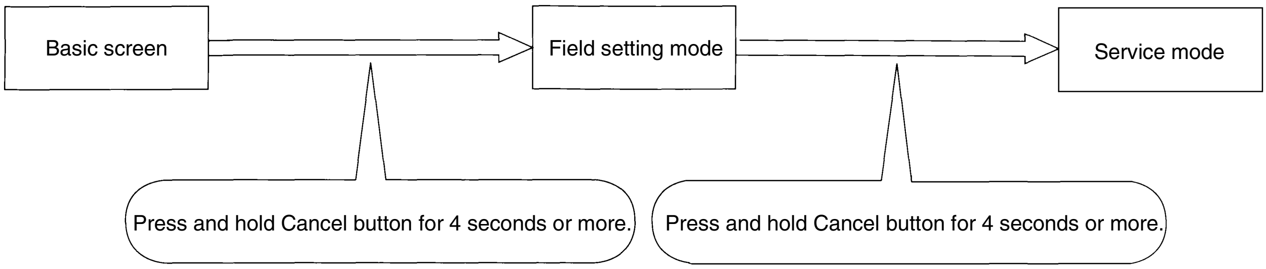
Outdoor model code

Display	Type		Model
A A 1	VRV System Inverter K Series		RSXYP
A A 3	R-407C VRV PLUS Series		RXYP
A 9 2	VRV Heat Recovery Series		RSEYP
A A 5	High COP type R-407C L Series		RSXYP-L
A A A	VRV II		RXYQ-M
A A C	VRV II M/C		RXYQ-MA
A A E	VRV III	Heat Pump Series	RXYQ-P
		Cooling Only Series	RXQ-P
A 9 E	VRV III Heat Recovery Series		REYQ-P

2.5 Remote Controller Service Mode

Operating the $\boxed{\text{CHECK/TEST}}$ 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



Service Mode Operation Method

1. **Select the mode No.**
Select the desired item from the Service menu, and then press Menu/Enter button.
2. **Select the Item 2.**
Select the desired Unit No. using the ▲/▼ (Up/Down) buttons. The corresponding data will be displayed.

For details, refer to the table in next page.

Service Menu	Item 2	Remarks	
1. Model Name Display	1. Unit No.	Select the Unit No. you want to check.	
	2. Indoor unit		
	3. Outdoor unit		
2. Operating Hours Display	1. Unit No.	Select the Unit No. you want to check.	
	2. Indoor unit operating time	All of these are displayed in hours.	
	3. Indoor fan operation		
	4. Indoor unit energized time		
	5. Outdoor operating time		
	6. Outdoor fan 1 operation		
	7. Outdoor fan 2 operation		
	8. Outdoor comp. 1 operation		
	9. Outdoor comp. 2 operation		
3. Indoor Status Display 1/2	1. Unit No.	Select the Unit No. you want to check.	
	2. FAN	Tap, speed (rpm)	
	3. FLAP	Swing, fixed	
	4. Speed	Fan speed (rpm)	
	5. EV	Degree that electronic expansion valve is open (pls)	
	6. MP	Drain pump ON/OFF	
	7. 52H	Electric heater ON/OFF	
	8. Hu	Humidifier ON/OFF	
	9. Anti-freezing	Anti-freezing control ON/OFF	
3. Indoor Status Display 2/2	1. Unit No.	Select the Unit No. you want to check.	
		SkyAir	VRV
	2. Th1	Suction air thermistor	Suction air thermistor
	3. Th2	Heat exchanger thermistor	Heat exchanger liquid pipe thermistor
	4. Th3	—	Heat exchanger gas pipe thermistor
	5. Th4	Discharge air thermistor	Discharge air thermistor
	6. Th5	—	—
	7. Th6	—	—
4. Outdoor Status Display	1. Unit No.	Select the Unit No. you want to check.	
	2. FAN Tap 1	Fan tap	
	3. COMP	Compressor power supply frequency (Hz)	
	4. EV1	Degree that electronic expansion valve is open (pls)	
	5. SV1	Solenoid valve ON/OFF	
		SkyAir	VRV
	6. Th1	Outdoor air thermistor	—
	7. Th2	Heat exchanger thermistor	—
	8. Th3	Discharge pipe thermistor	—
5. Forced Defrost (SkyAir only)	1. Forced defrost ON	Enables the forced defrost operation.	
	2. Forced defrost OFF	Disables the forced defrost operation.	

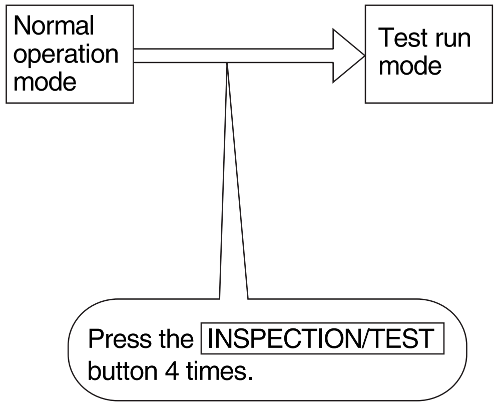
Service Menu	Item 2	Remarks
6. Error Display Selection	1. Warning display ON	Displays a warning on the screen if an error occurs.
	2. Warning display OFF	No warning is displayed.
	3. Error display ON	Displays the error on the screen.
	4. Error display OFF	Displays neither errors nor warnings.
7. Unit No. Transfer	1. Current Unit No.	A unit No. can be transferred to another.
	2. Transfer Unit No.	
8. Sensor Address Display	○ Unit No.: 0 - 15	Select the Unit No. you want to check.
	○ Code 00: 01: 02: 03: 04: 05: 06: 07: 08: 09:	 Remote controller thermistor (°C) Suction air thermistor (°C) Heat exchanger liquid pipe thermistor (°C) Heat exchanger gas thermistor (°C) Indoor unit address No. Outdoor unit address No. BS unit address No. Zone control address No. Cooling/Heating batch address No. Demand/low-noise address No.
	○ Data	The corresponding data will be displayed, based on the Unit No. and Code selected.

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

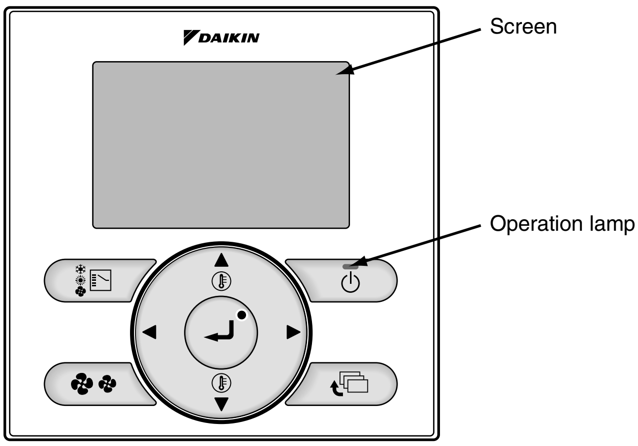
The test run mode setting can be made by conducting the following operation.



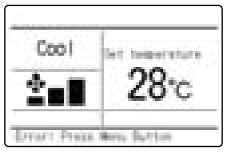
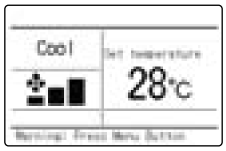
Press the ON/OFF button after the completion of test run mode setting, and a test run starts. (The remote controller will display "TEST RUN" on it.)

2.7 Remote Controller Self-Diagnosis Function

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



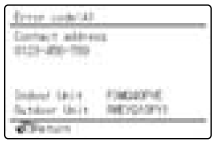
(1) Checking a malfunction or warning

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

(2) Taking corrective action

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

· Take the corrective action specific to the model.



— Malfunction code

├ Applicable model names

○: ON ●: OFF ◑: Blink

	Malfunction code	Operation lamp	Malfunction contents	Page Referred
Indoor Unit	A0	◑	Error of external protection device	272
	A1	◑	PCB defect	273
	A3	◑	Malfunction of drain level control system (S1L)	274
	A6	◑	Fan motor (M1F) lock, overload	276
			Malfunction of indoor unit fan motor	278
	A7	○	Malfunction of swing flap motor (M1S)	282
	A8	◑	Abnormal power supply voltage	283
	A9	◑	Electronic expansion valve malfunction / Dust clogging	285
			Malfunction of electronic expansion valve coil	287
	AF	○	Drain level above limit	289
	AH	○	Malfunction of air filter maintenance	—
	AJ	◑	Malfunction of capacity determination device	290
	C1	◑	Failure of transmission (Between indoor unit PCB and fan PCB)	291
	C4	◑	Malfunction of thermistor (R2T) for heat exchanger	293
	C5	◑	Malfunction of thermistor (R3T) for gas pipes	294
	C6	◑	Failure of combination (Between indoor unit PCB and fan PCB)	295
	C9	◑	Malfunction of thermistor (R1T) for suction air	296
	CJ	○	Malfunction of room temperature thermistor in remote controller	297
Outdoor Unit	E1	◑	PCB defect	298
	E3	◑	Actuation of high pressure switch	299
	E4	◑	Actuation of low pressure sensor	301
	E5	◑	Inverter compressor motor lock	303
	E6	◑	STD compressor motor overcurrent/lock	305
	E7	◑	Malfunction of outdoor unit fan motor	306
	E9	◑	Malfunction of electronic expansion valve coil (Y1E ~ Y5E)	309
	F3	◑	Abnormal discharge pipe temperature	311
	F6	◑	Refrigerant overcharged	313
	F9	◑	Malfunction of BS unit electronic expansion valve	314
	H7	◑	Abnormal outdoor fan motor signal	316
	H9	◑	Malfunction of thermistor (R1T) for outdoor air	318
	J2	◑	Current sensor malfunction	319
	J3	◑	Malfunction of discharge pipe thermistor (R31T, R32T, R33T)	320
	J4	◑	Malfunction of temperature sensor for heat exchanger gas (R2T or R11T)	321
	J5	◑	Malfunction of thermistor (R8T or R10T) for suction pipe	322
	J6	◑	Malfunction of thermistor (R4T or R12T) for outdoor unit heat exchanger	323
	J7	◑	Malfunction of liquid pipe thermistor 1 (R6T, R9T or R14T)	324
	J8	◑	Malfunction of liquid pipe thermistor 2 (R7T or R15T)	325
	J9	◑	Malfunction of subcooling heat exchanger gas pipe thermistor (R5T or R13T)	326
	JA	◑	Malfunction of high pressure sensor	327
	JC	◑	Malfunction of low pressure sensor	329
	L1	◑	Malfunction of inverter PCB	331
	L4	◑	Malfunction of inverter radiation fin temperature rise	333
	L5	◑	Momentary overcurrent of inverter compressor	336
	L8	◑	Momentary overcurrent of inverter compressor	338
	L9	◑	Inverter compressor starting failure	340
	LA	◑	Malfunction of power unit	—
	LC	◑	Malfunction of transmission between inverter and control PCB	343
	P1	◑	Inverter over-ripple protection	346
	P4	◑	Malfunction of inverter radiation fin temperature rise sensor	348
	PJ	◑	Faulty field setting after replacing main PCB or faulty combination of PCB	350

○: ON ●: OFF ◑: Blink

	Malfunction code	Operation lamp	Malfunction contents	Page Referred
System	U0	○	Refrigerant shortage alert	352
	U1	◑	Reverse phase, open phase	354
	U2	◑	Power supply insufficient or instantaneous failure	355
	U3	◑	Check operation is not executed	358
	U3	○	Check operation is not completed.	358
	U4	◑	Malfunction of transmission between indoor units and outdoor units	359
	U5	◑	Malfunction of transmission between indoor units	362
	U5	●	Malfunction of transmission between remote controller and indoor unit	362
	U7	◑	Transmission failure (Across outdoor units)	363
	U8	◑	Malfunction of transmission between main and sub remote controllers	369
	U9	◑	Malfunction of transmission between indoor and outdoor units in the same system	370
	UA	◑	Improper combination of indoor and outdoor units, indoor units and remote controller	371
	UC	○	Address duplication of centralized controller	377
	UE	◑	Malfunction of transmission between centralized controller and indoor unit	378
	UF	◑	System is not set yet	381
	UH	◑	Malfunction of system, refrigerant system address undefined	382
Centralized Remote Controller and Schedule Timer	M1	○ or ●	PCB defect	384
	M8	○ or ●	Malfunction of transmission between optional controllers for centralized control	385
	MA	○ or ●	Improper combination of optional controllers for centralized control	386
	MC	○ or ●	Address duplication, improper setting	388
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 PCB

<Monitor mode>

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

* Refer to Page 233 for Monitor mode.

<Selection of setting item>

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

* Refer to Page 233 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".

Detail description on next page.

<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".

Malfunctions		Malfunction code
Description of malfunction	Description of malfunction (PGF)	Remote controller
PCB malfunction	PCB malfunction	E1
	Faulty PCB	
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	
	Fan 1 IPM faulty protection detected	
	Instantaneous overcurrent of 2DC fan motor	
	2DC fan motor lock detected	
	Fan 2 IPM faulty protection detected	
Electronic expansion valve malfunction	EVM (main)	E9
	EVJ (refrigerant charging)	
	EVT (subcooling 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 (Y1E)	
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
Subcooling 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
INV PCB 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	L5
	IGBT malfunction	
Electronic thermal	Electronic thermal 1	L8
	Electronic thermal 2	
	Loss of synchronization	
	Speed degradation after startup	
	Thunder detected	
Stall prevention (time limit)	Stall prevention (increased current)	L9
	Stall prevention (startup failure)	
	Abnormal starting waveform	
	Loss of synchronization	
INV transmission malfunction	INV transmission data malfunction	LC
	INV transmission malfunction	

○ : 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								◑			●	◑	◑	◑	◑			●	●	●	●	◑			●	●		
															◑			●	●	●	●	◑			●	◑	*1	
															◑			●	●	●	●	◑			◑	●		
															◑			●	●	●	◑	◑			●	●		
															◑			●	●	●	◑	◑			●	◑		
															◑			●	●	●	◑	◑			◑	●		
E9								◑			◑	●	●	◑	◑			●	●	●	●	◑			●	●		
															◑			●	●	●	●	◑			●	◑		
															◑			●	●	●	●	◑			◑	●		
H7	◑			●	◑	●	●	◑			●	◑	◑	◑	◑			●	●	●	●	◑			●	●		
															◑			●	●	●	◑	◑			●	●	*1	
H9								◑			◑	●	●	◑	◑			●	●	●	●	◑			●	●		
F3	◑			●	◑	●	◑	◑			●	●	◑	◑	◑			●	●	●	●	◑			●	●	*1	
F6								◑			●	◑	◑	●	◑			●	●	●	●	◑			●	●	◑	◑
F9								◑			◑	●	●	◑	◑			●	●	●	◑	◑			●	●	◑	◑
															◑			●	●	◑	●	◑			●	●	◑	◑
															◑			●	●	◑	◑	◑			●	●	◑	◑
															◑			●	◑	●	●	◑			●	●	◑	◑
															◑			●	◑	●	◑	◑			●	●	◑	◑
J2	◑			●	◑	◑	●	◑			●	●	◑	●	◑			●	●	●	●	◑			●	●		
															◑			●	●	●	●	◑			●	◑		
															◑			●	●	●	●	◑			●	◑		
J3								◑			●	●	◑	◑	◑			●	●	●	●	◑			●	●		
															◑			●	●	●	●	◑			●	◑		
															◑			●	●	●	●	◑			◑	●		
J4								◑			●	◑	●	●	◑			●	●	●	●	◑			●	●		
J5								◑			●	◑	●	◑	◑			●	●	●	●	◑			●	●	*1	
J6								◑			●	◑	◑	●	◑			●	●	●	●	◑			●	●		
J7								◑			●	◑	◑	◑	◑			●	●	●	●	◑			●	◑		
															◑			●	●	●	●	◑			●	●		
J8								◑			◑	●	●	●	◑			●	●	●	●	◑			●	●		
J9								◑			◑	●	●	◑	◑			●	●	●	●	◑			●	●		
JA								◑			◑	●	◑	●	◑			●	●	●	●	◑			●	●		
JC								◑			◑	◑	●	●	◑			●	●	●	●	◑			●	●		
L1	◑			●	◑	◑	◑	◑			●	●	●	◑	◑			●	●	●	●	◑			●	●		
																						◑			●	◑		
																						◑			◑	●		
																						◑			◑	◑		
L4								◑			●	◑	●	●	◑			●	●	●	●	◑			●	●	*1	
L5								◑			●	◑	●	◑	◑			●	●	●	●	◑			●	●		
															◑			●	●	●	●	◑			●	◑		
L8								◑			◑	●	●	●	◑			●	●	●	●	◑			●	●		
L9								◑			◑	●	●	◑	◑			●	●	●	●	◑			●	●		
LC								◑			◑	◑	●	●	◑			●	●	●	●	◑			●	●		

Display of contents of malfunction (first digit) — Check 1 H4P–H7P

Display of contents of malfunction (second digit) — Check 2 H4P–H7P

Display 1 of malfunction in detail — Check 3 H4P–H7P

Display 2 of malfunction in detail — Check 4 H4P–H7P

*1: Faulty system

			Individual system	Multi system
●	●	→	Right-hand system	Master
●	◑	→	Left-hand system	Slave 1
◑	●	→	—	Slave 2
◑	◑	→	All systems	System

Malfunction code indication by outdoor unit PCB

<Monitor mode>

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

* Refer to Page 233 for Monitor mode.

↓

<Selection of setting item>

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

* Refer to Page 233 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".

Detail description on next page.

↓

<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”.

Malfunctions		Malfunction code
Description of malfunction	Description of malfunction (PGF)	Remote controller
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	U1
	Reversed phase malfunction (ON)	
Abnormal power supply voltage	Insufficient INV voltage	U2
	INV open phase (single phase)	
	Abnormal charge of capacitor of INV main circuit	
Test run not carried out yet	Test run not carried out yet	U3
Faulty transmission between indoor and outdoor units	IN-OUT transmission malfunction	U4
	System malfunction	
Faulty transmission between outdoor units	Malfunction caused when mounting the external control adaptor	U7
	Alarm given when mounting the external control adaptor	
	Malfunction caused between the master and the slave 1	
	Malfunction caused between the master and the slave 2	
	Multi REYQ 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	
Faulty transmission with other systems	Other system or other unit in the same system	U9
Faulty field setting	Excess indoor units connected	UA
	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	
Faulty system line	Wrong wiring (auto address error)	UH
Faulty transmission with accessory equipment	Multi level converter malfunction	UJ
	Multi level converter alarm	
	Multi level converter data malfunction	
	Multi level converter transmission malfunction	
Unmatched wiring/piping, no system settings	Unmatched wiring/piping	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	
P4								◑			●	◑	●	●	◑			●	●	●	●	◑			●	●		
PJ								◑			◑	◑	●	◑	◑			●	●	●	●	◑			●	●		
U0	◑	◑	●	◑	●	●	◑	◑			●	●	●	●	◑			●	●	●	●	◑			●	●	◑	◑
U1								◑			●	●	●	◑	◑			●	●	●	●	◑			●	●	*1	
															◑			●	●	●	●	◑			●	◑		
U2								◑			●	●	◑	●	◑			●	●	●	●	◑			●	●		
															◑			●	●	●	●	◑			●	◑		
U3								◑			●	●	◑	◑	◑			●	●	●	●	◑			●	●	◑	◑
U4								◑			●	◑	●	●	◑			●	●	●	●	◑			●	●	◑	◑
															◑			●	●	●	●	◑			●	◑	◑	◑
U7								◑			●	◑	◑	◑	◑			●	●	●	●	◑			●	●	◑	◑
															◑			●	●	●	●	◑			●	◑	◑	◑
															◑			●	●	●	●	◑			◑	●	◑	◑
															◑			●	●	●	●	◑			◑	◑	◑	◑
															◑			●	●	●	◑	◑			●	●	◑	◑
															◑			●	●	●	◑	◑			●	◑	◑	◑
															◑			●	●	●	◑	◑			◑	●	◑	◑
															◑			●	●	●	◑	◑			◑	◑	◑	◑
U9								◑			◑	●	●	◑	◑			●	●	●	●	◑			●	●	◑	◑
UA								◑			◑	●	◑	●	◑			●	●	●	●	◑			◑	●	◑	◑
															◑			●	●	●	◑	◑			●	●	◑	◑
															◑			●	●	●	◑	◑			●	◑	◑	◑
															◑			●	●	◑	●	◑			●	◑	◑	◑
															◑			●	●	◑	●	◑			◑	●	◑	◑
															◑			●	●	◑	◑	◑			●	◑	◑	◑
															◑			●	●	◑	◑	◑			◑	●	◑	◑
															◑			●	●	◑	◑	◑			◑	◑	◑	◑
UH								◑			◑	●	◑	◑	◑			●	●	●	●	◑			●	●	◑	◑
UJ								◑			◑	◑	●	◑	◑			●	●	●	●	◑			●	●	*1	
															◑			●	●	●	●	◑			●	◑		
															◑			●	●	●	●	◑			◑	●		
															◑			●	●	●	◑	◑			●	●		
UF		◑	●					◑			◑	◑	◑	◑	◑			●	●	●	●	◑			●	●	◑	◑

Check 1 H4P–H7P: Display of contents of malfunction (first digit)

Check 2 H4P–H7P: Display of contents of malfunction (second digit)

Check 3 H4P–H7P: Display 1 of malfunction in detail

Check 4 H4P–H7P: Display 2 of malfunction in detail

*1: Faulty system

			Individual system	Multi system
●	●	→	Right-hand system	Master
●	◑	→	Left-hand system	Slave 1
◑	●	→	—	Slave 2
◑	◑	→	All systems	System

3. Troubleshooting by Indication on the Remote Controller

3.1 "A0" Indoor Unit: Error of External Protection Device

Remote Controller Display

A0

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

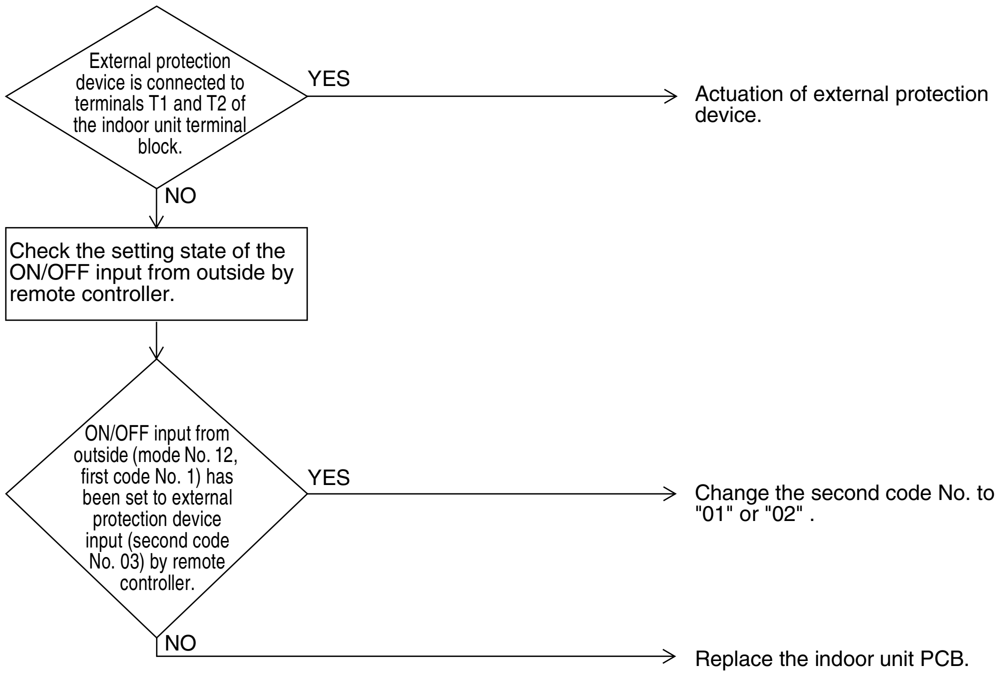
When an open circuit occurs between external input terminals with the remote controller set to "external ON/OFF terminal".

Supposed Causes

- Actuation of external protection device
- Improper field set
- Defect of indoor unit PCB

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: PCB Defect

Remote Controller Display

A1

Applicable Models

All indoor unit models

Method of Malfunction Detection

Check data from E²PROM.

Malfunction Decision Conditions

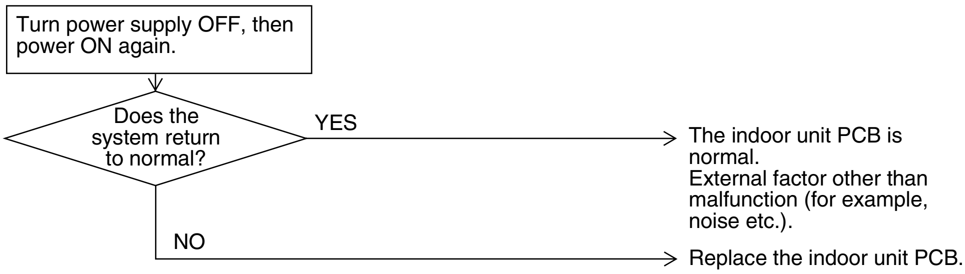
When data could not be correctly received from the E²PROM
E²PROM : Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.

Supposed Causes

- Defect of indoor unit PCB
- External factor (Noise, etc.)

Troubleshooting

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

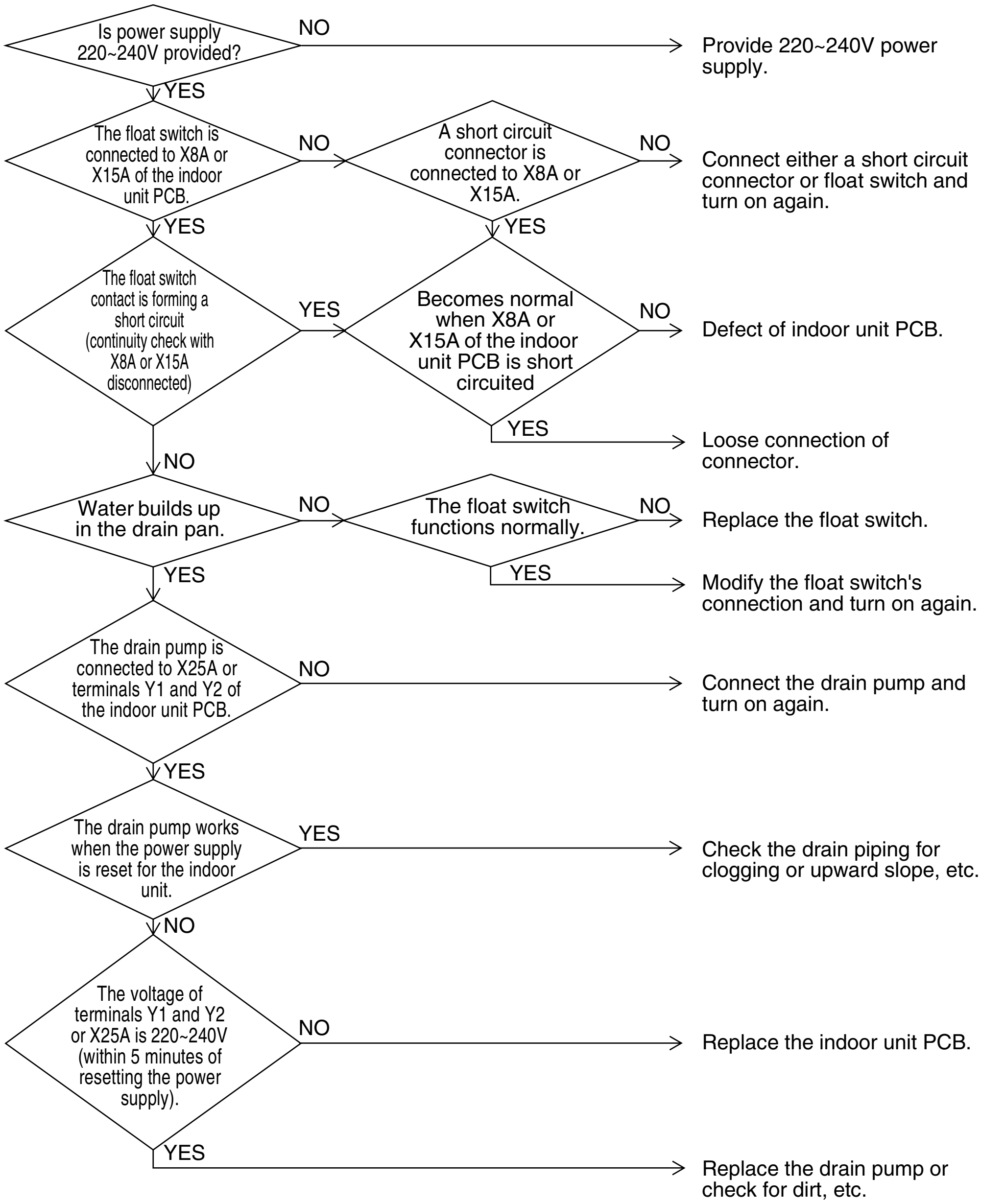


3.3 "A3" Indoor Unit: Malfunction of Drain Level Control System (S1L)

Remote Controller Display	A3
Applicable Models	FXCQ, FXZQ, FXFQ, FXSQ, FXKQ, FXDQ, FXMQ, FXHQ (Option), FXMQ200, 250M (Option), FXAQ (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	■ 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 PCB ■ Loose connection of connector

Troubleshooting

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



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

Remote Controller Display

A6

Applicable Models

FXAQ20~63PV1, FXFQ20~125P8VE

Method of Malfunction Detection

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

Malfunction Decision Conditions

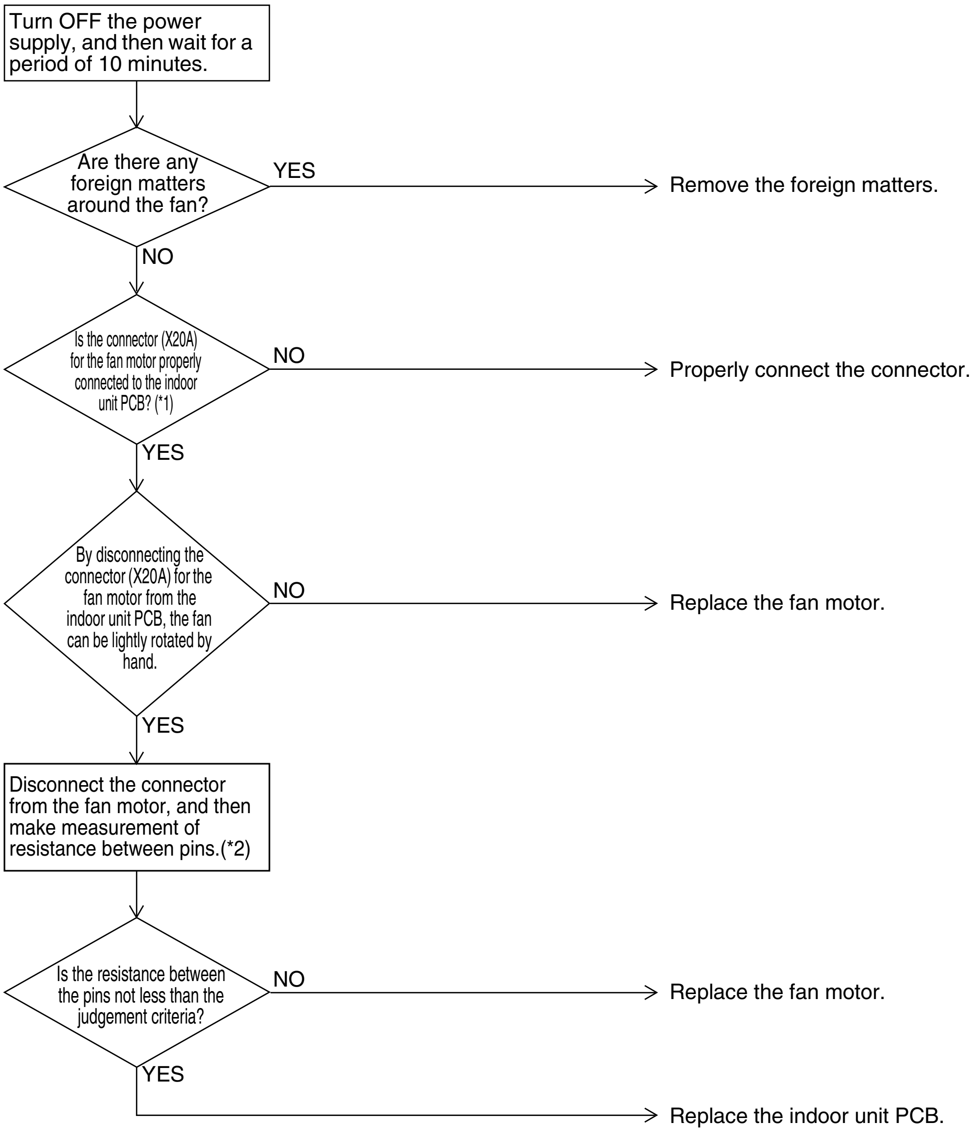
When the fan revolutions do not increase

Supposed Causes

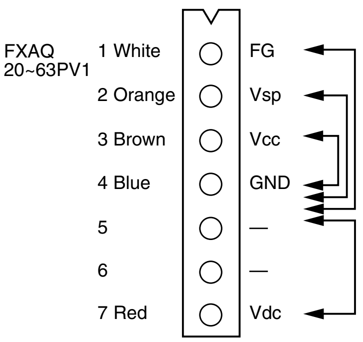
- Broken wires in, short circuit of, or disconnection of connectors from the fan motor harness
- Faulty fan motor
  (Broken wires or faulty insulation)
- Abnormal signal output from the fan motor (Faulty circuit)
- Faulty PCB
- Instantaneous disturbance in the power supply voltage
- Fan motor lock
  (Due to motor or external causes)
- The fan does not rotate due to foreign matters blocking the fan.
- Disconnection of the connector between the high-power PCB (A1P) and the low-power PCB (A2P).

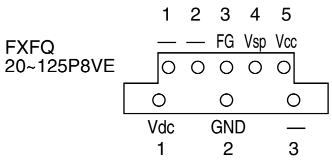
Troubleshooting

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



*1. If any junction connector is provided between the connector (X20A) on the indoor unit PCB and the fan motor, also check whether or not the junction connector is properly connected.
*2. All resistance measuring points and judgement criteria





Judgment Criteria

Measuring point	Criteria
FG-GND	Not less than 1MΩ
Vsp-GND	Not less than 100kΩ
Vcc-GND	Not less than 100Ω
Vdc-GND	Not less than 100kΩ

"A6" Indoor Unit: Malfunction of Indoor Unit Fan Motor

Remote Controller Display

A6

Applicable Models

FXHQ32~100MAVE, FXDQ20~32PB, 40~63NBVE

Method of Malfunction Detection

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

Malfunction Decision Conditions

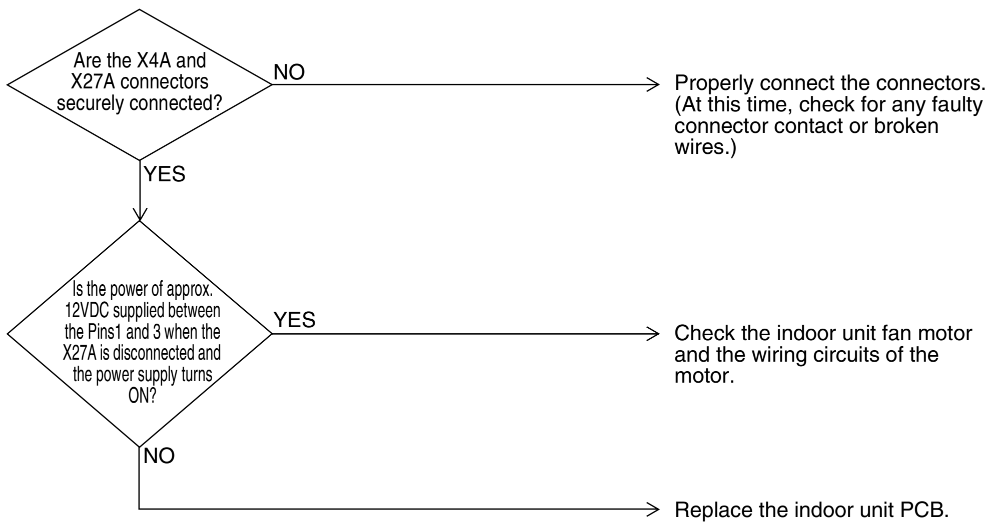
When no revolutions can be detected even at the maximum output voltage to the fan

Supposed Causes

- Faulty indoor fan motor
- Broken wires
- Faulty contact

Troubleshooting

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



Remote Controller Display

A6

Applicable Models

FXMQ50~140P

Method of Malfunction Detection

Detection from the current flow on the fan PCB.
Detection from the RPM of the fan motor in operation.
Detection from the position signal of the fan motor.
Detection from the current flow on the fan PCB when the fan motor starting operation.

Malfunction Decision Conditions

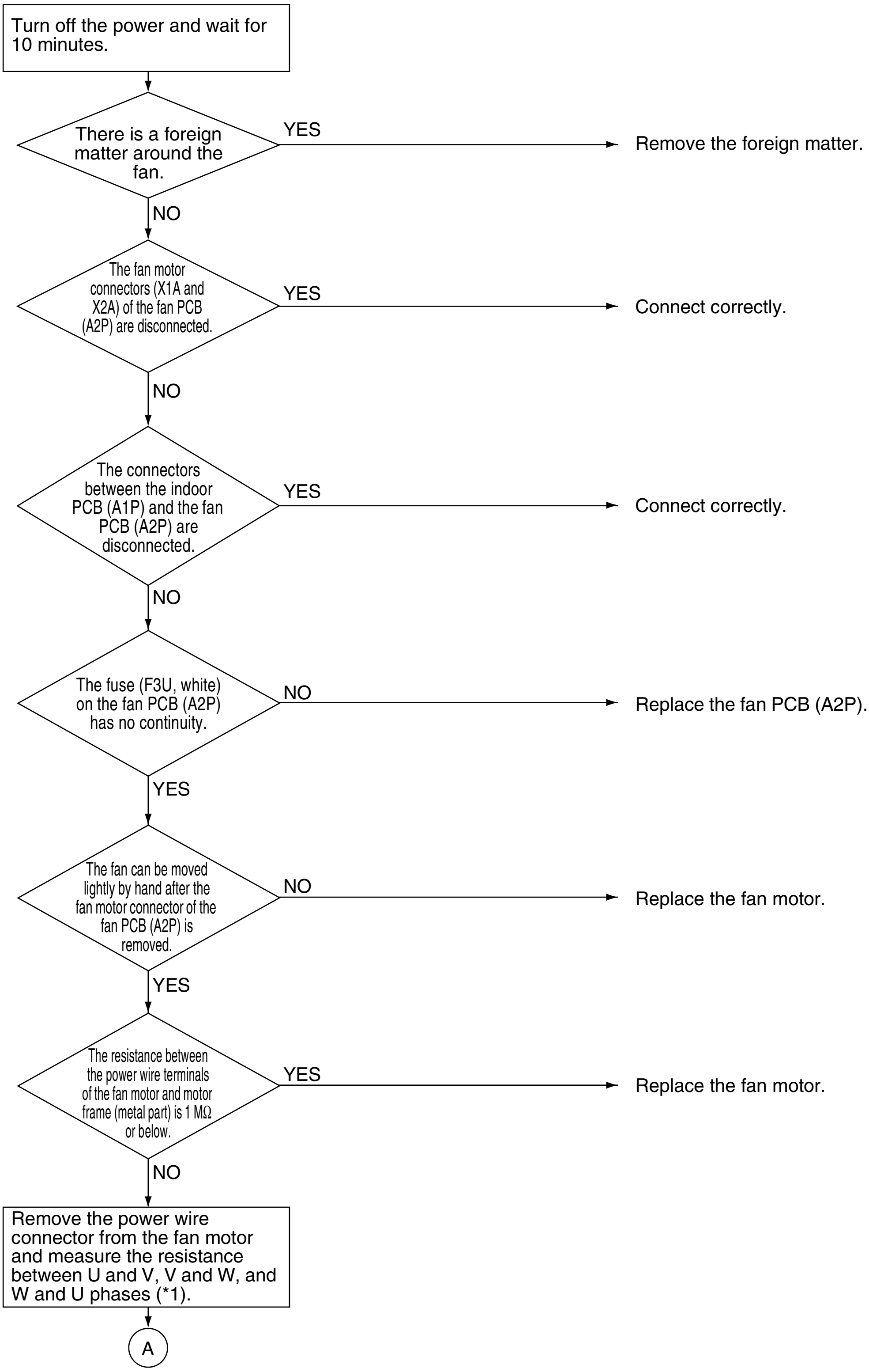
- An overcurrent flows.
- The RPM is less than a certain level for 6 seconds.
- A position error in the fan rotor continues for 5 seconds or more.
- An overcurrent flows.

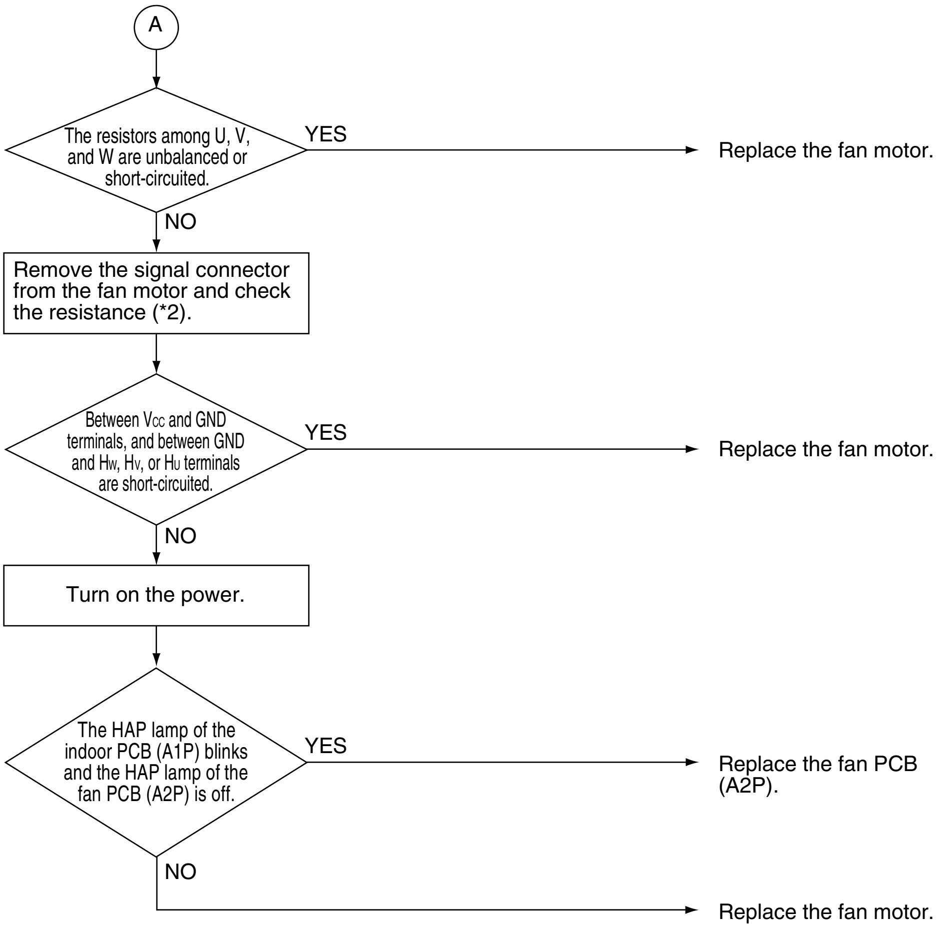
Supposed Causes

- The clogging of a foreign matter.
- The disconnection of the fan motor connectors (X1A and X2A).
- The disconnection of the connectors between the indoor PCB (A1P) and fan PCB (A2P).
- A failure in fan PCB (A2P).
- A failure in the fan motor.

Troubleshooting

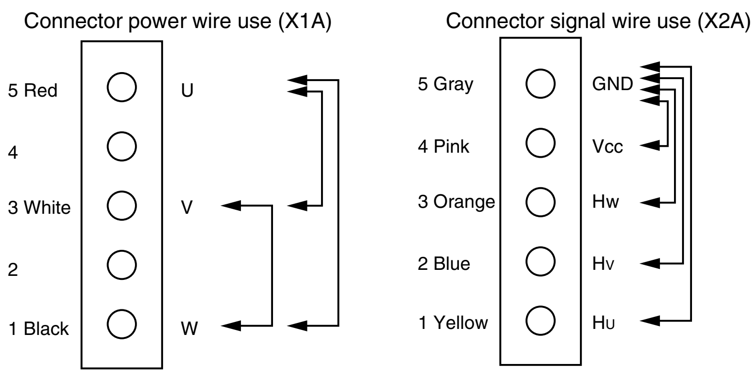
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.





*1. Measurement of power wire connector.
Remove the X1A connector from the fan PCB (A2P) and measure the resistance between the U and V, V and W, and W and U phases of the motor connector (with five conductors) and check that each phase are balanced (within a permissible dispersion range of ±20%).

*2. Measurement of signal wire connector.
Remove the X2A connector and measure the resistance between GND and V_{CC}, H_W, H_V, or H_U terminals of the motor connector (with five conductors).



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

When ON/OFF of the micro-switch for positioning cannot be reversed even though the swing flap motor is energized for a specified amount of time (about 30 seconds).

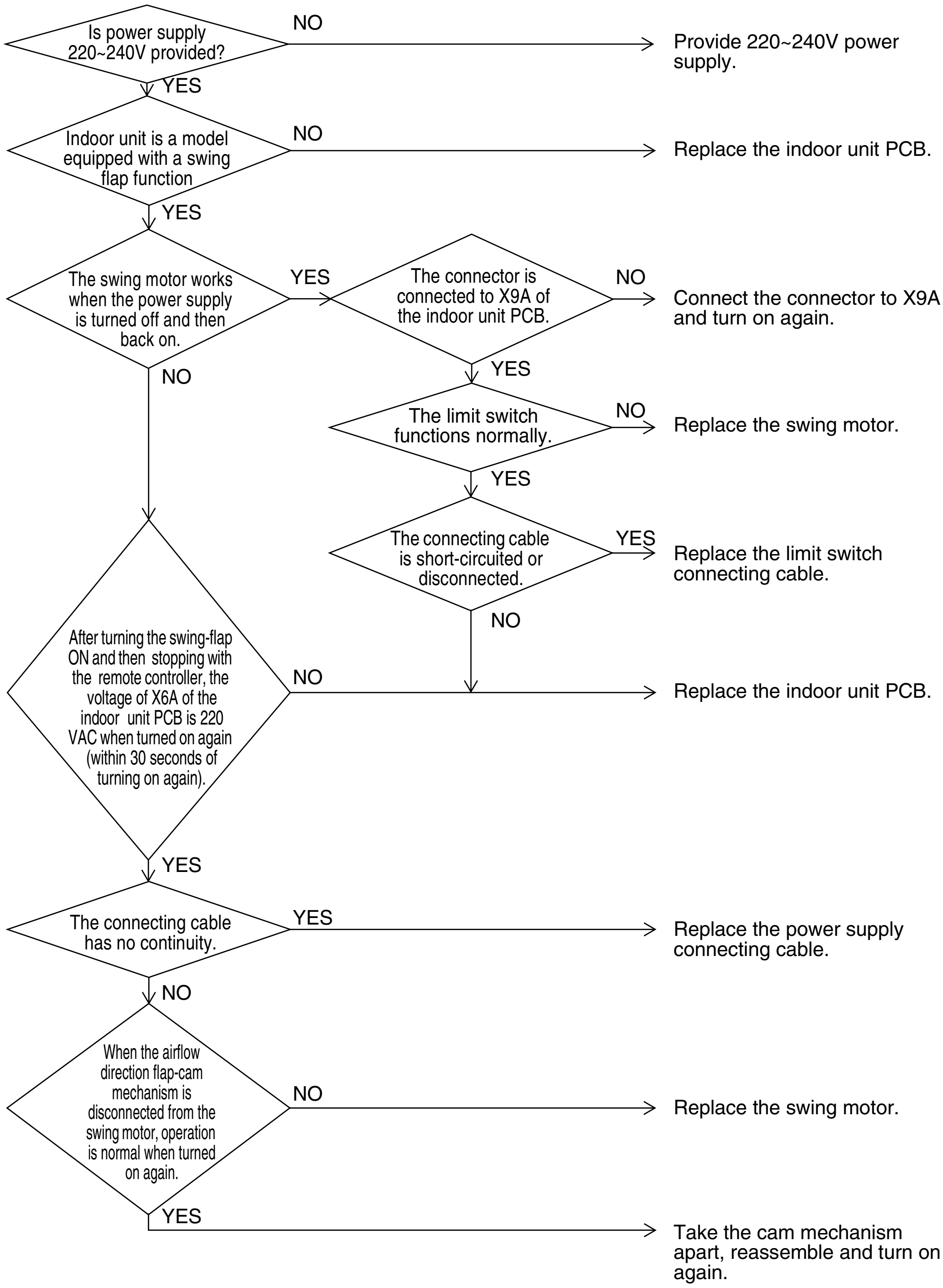
★ Error code is displayed but the system operates continuously.

Supposed Causes

- Defect of swing motor
- Defect of connection cable (power supply and limit switch)
- Defect of airflow direction adjusting flap-cam
- Defect of indoor unit PCB

Troubleshooting

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



3.6 "A8" Abnormal Power Supply Voltage

Remote Controller Display

A8

Applicable Models

FXMQ20~140P

Method of Malfunction Detection

Detect malfunction checking the input voltage of fan motor.

Malfunction Decision Conditions

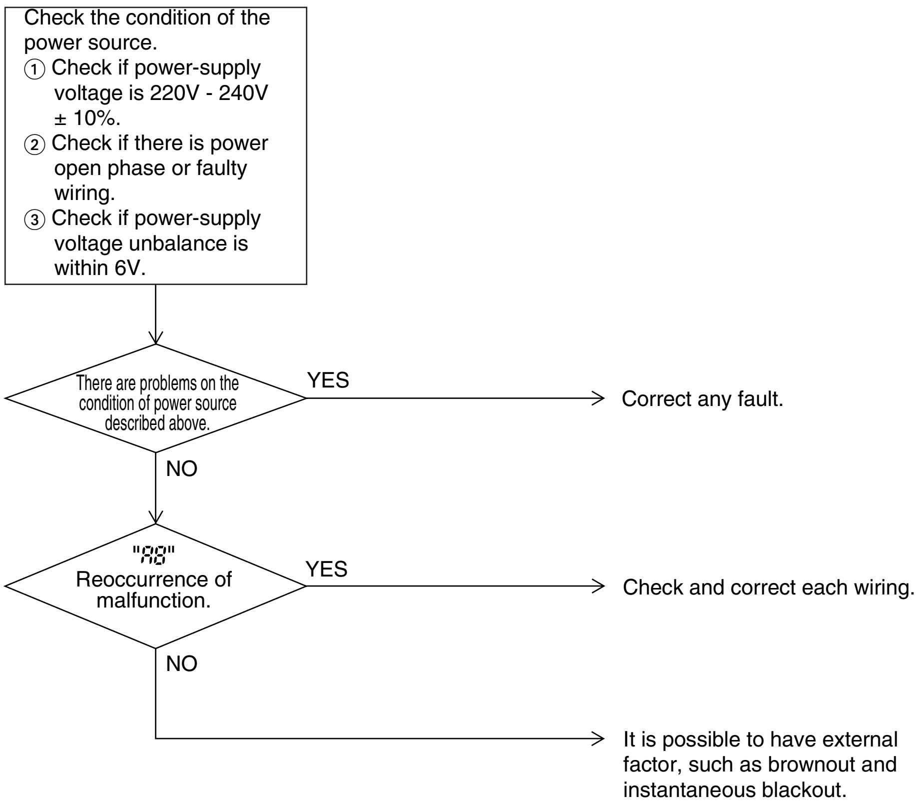
When the input voltage of fan motor is 150V and below, or 386V and above.

Supposed Causes

The possible causes are:
- Power-supply voltage malfunction.
- Connection defect on signal line.
- Wiring defect.
- Instantaneous blackout, others.

Troubleshooting

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



3.7 "A9" Electronic Expansion Valve Malfunction / Dust Clogging

Remote Controller Display

A9

Applicable Models

FXFQ25~125P

Method of Malfunction Detection

Check coil condition of electronic expansion valve by using micro-computer.
Check dust clogging condition of electronic expansion valve main body by using micro-computer.

Malfunction Decision Conditions

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

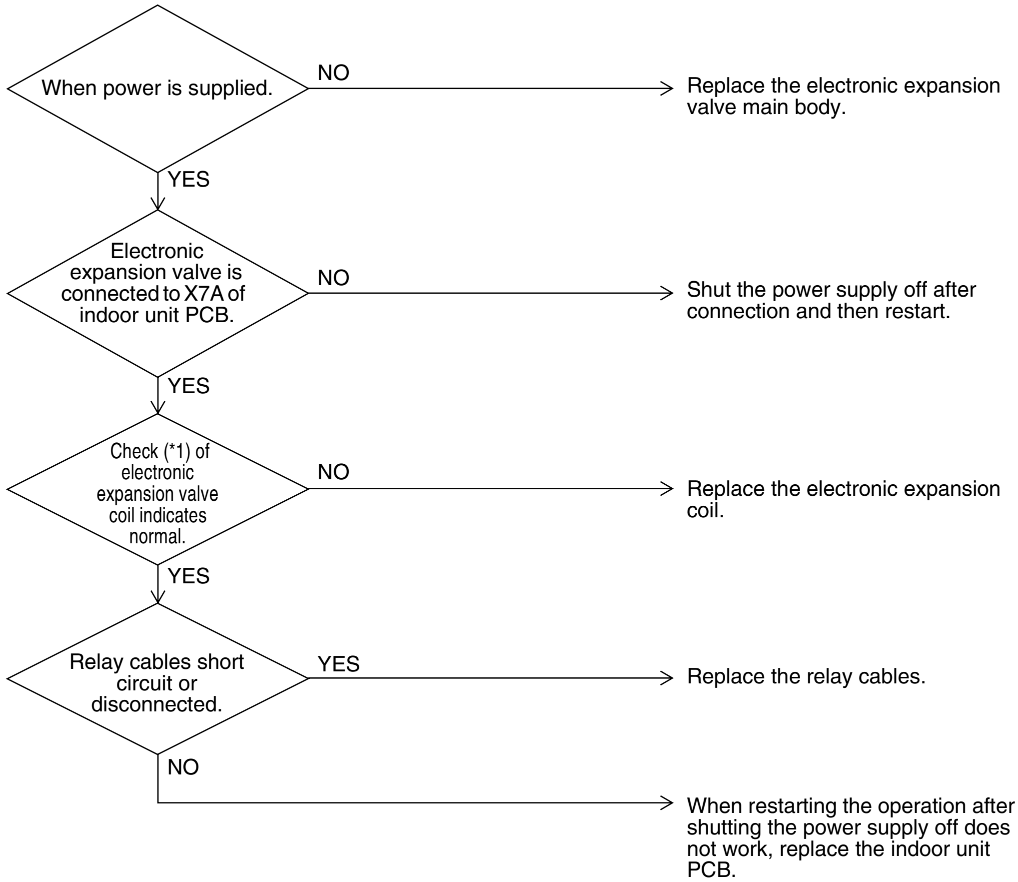
- Temperature of suction air (R1T) – temperature of liquid pipe of heat exchanger (R2T)>8°C.
- Temperature of liquid pipe of heat exchanger (R2T) shows fixed degrees or below.

Supposed Causes

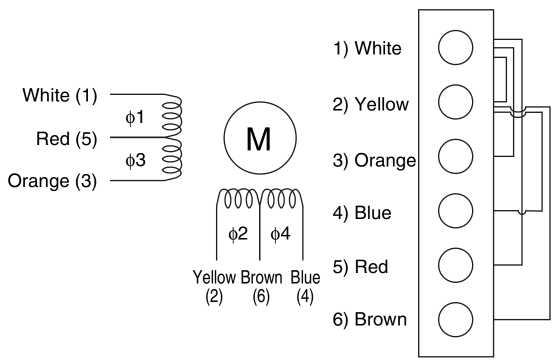
- Defective drive of electronic expansion valve
- Defective PCB of indoor unit
- Defective relay cables

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



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

"A9" Indoor Unit: Malfunction of Electronic Expansion Valve Coil

Remote Controller Display

A9

Applicable Models

Indoor units except FXFQ models

Method of Malfunction Detection

Check coil condition of electronic expansion valve by using micro-computer.

Malfunction Decision Conditions

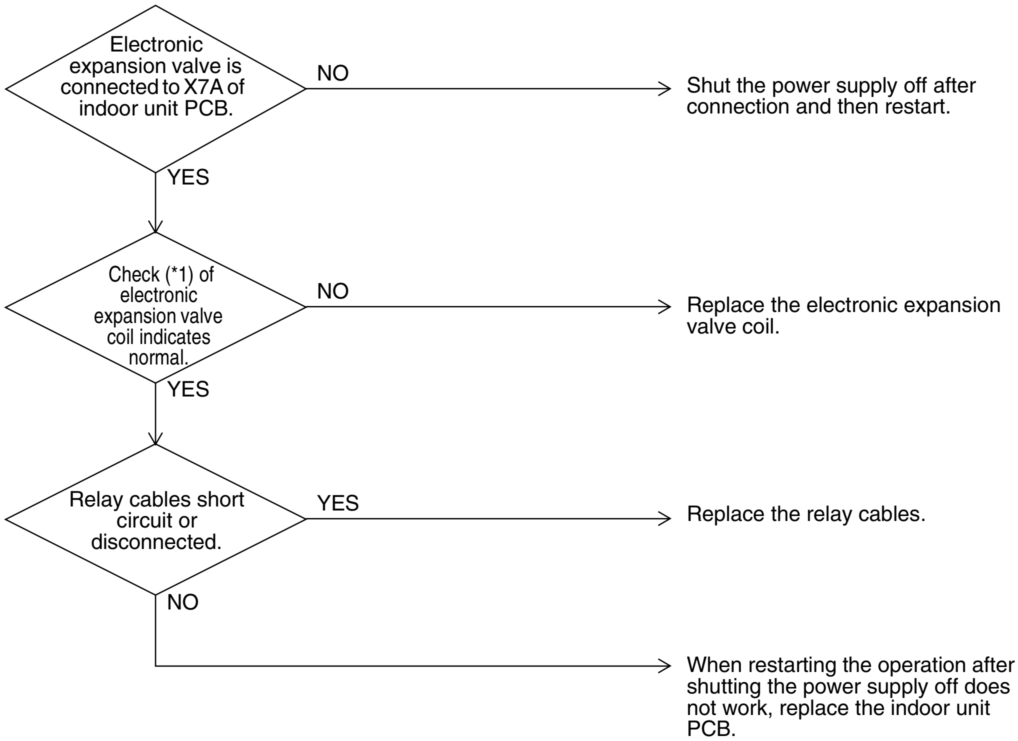
Pin input for electronic expansion valve coil is abnormal when initializing micro-computer.

Supposed Causes

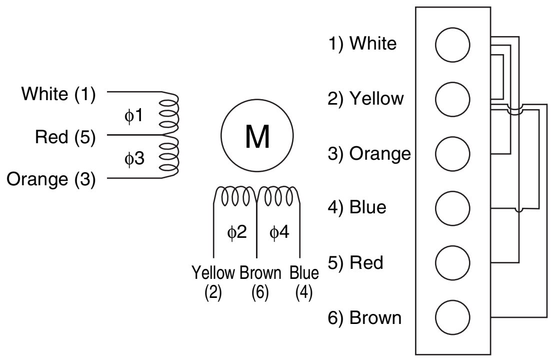
- Defective drive of electronic expansion valve
- Defective PCB of indoor unit
- Defective relay cables

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



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

3.8 “AF” Indoor Unit: Drain Level above Limit

Remote Controller Display

AF

Applicable Models

FXCQ, FXZQ, FXFQ, FXSQ, FXKQ, FXMQ, FXDQ

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.

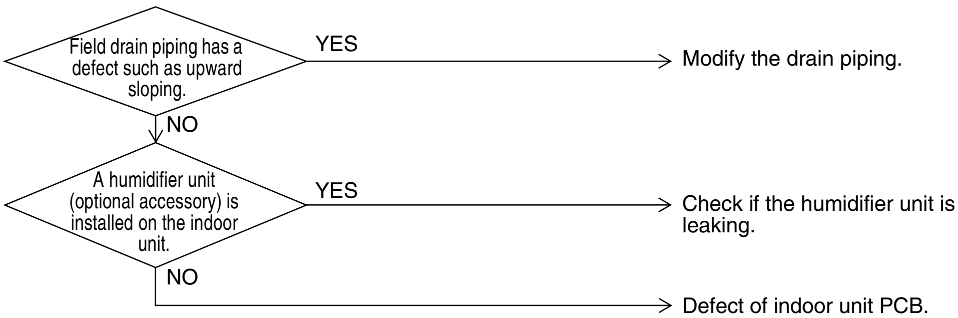
★ Error code is displayed but the system operates continuously.

Supposed Causes

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

Troubleshooting

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

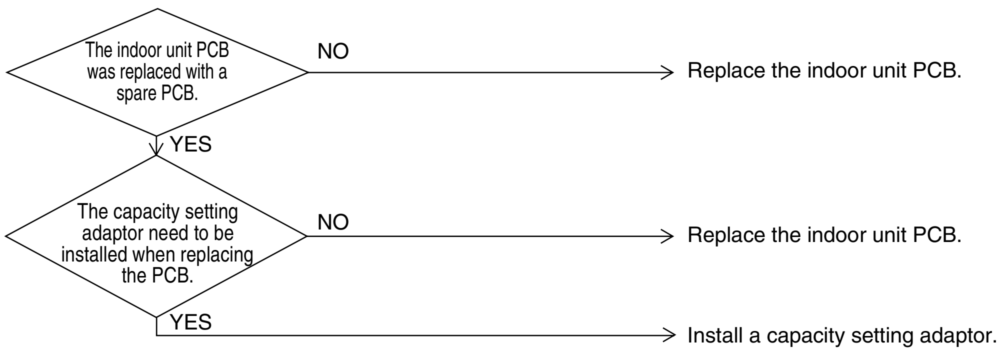


3.9 "AJ" Indoor Unit: Malfunction of Capacity Determination Device

Remote Controller Display	AJ
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 PCB, and whether the value is normal or abnormal is determined.
Malfunction Decision Conditions	When the capacity code is not saved to the PCB, and the capacity setting adaptor is not connected. When a capacity that does not exist for that unit is set.
Supposed Causes	■ The capacity setting adaptor was not installed. ■ Defect of indoor unit PCB

Troubleshooting

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



3.10 "C1" Indoor Unit: Failure of Transmission (Between Indoor unit PCB and Fan PCB)

Remote Controller Display

C1

Applicable Models

FXMQ20~140P

Method of Malfunction Detection

Check the condition of transmission between indoor PCB (A1P) and PCB for fan (A2P) using computer.

Malfunction Decision Conditions

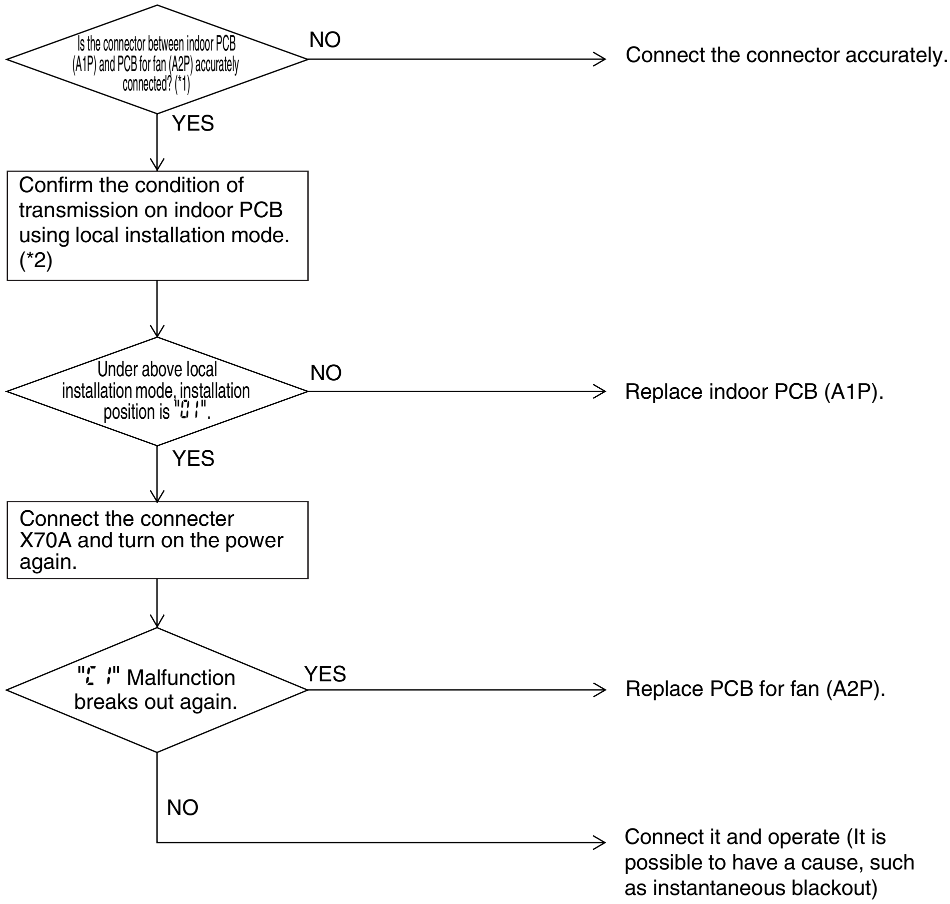
When normal transmission is not conducted for certain duration.

Supposed Causes

- Connection defect of the connecter between indoor PCB (A1P) and PCB for fan (A2P).
- Malfunction of indoor PCB (A1P).
- Malfunction of PCB for fan (A2P).
- External factor, such as instantaneous blackout.

Troubleshooting

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



∗1. Pull out and insert the connecter once and check it is absolutely connected.
∗2. Method to check transmission part of indoor PCB.
① Turn off the power and remove the connecter X70A of indoor PCB (A1P).
② Short-circuit X70A.
③ After turning on the power, check below numbers under local setting remote control.
(Confirmation: First code No. at the condition of second code No. 21 on mode No. 41)
↓

Determination [01: Normal
Other than 01: Transmission defect on indoor PCB]

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

3.11 "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

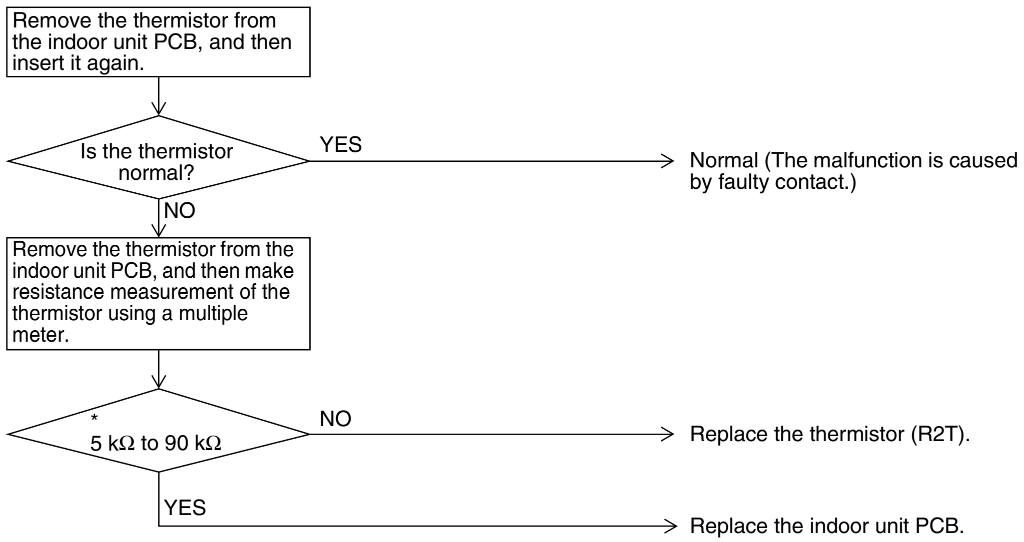
When the heat exchanger thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

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

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 P466.

3.12 “C5” Indoor Unit: Malfunction of Thermistor (R3T) for Gas Pipes

Remote Controller Display

C5

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

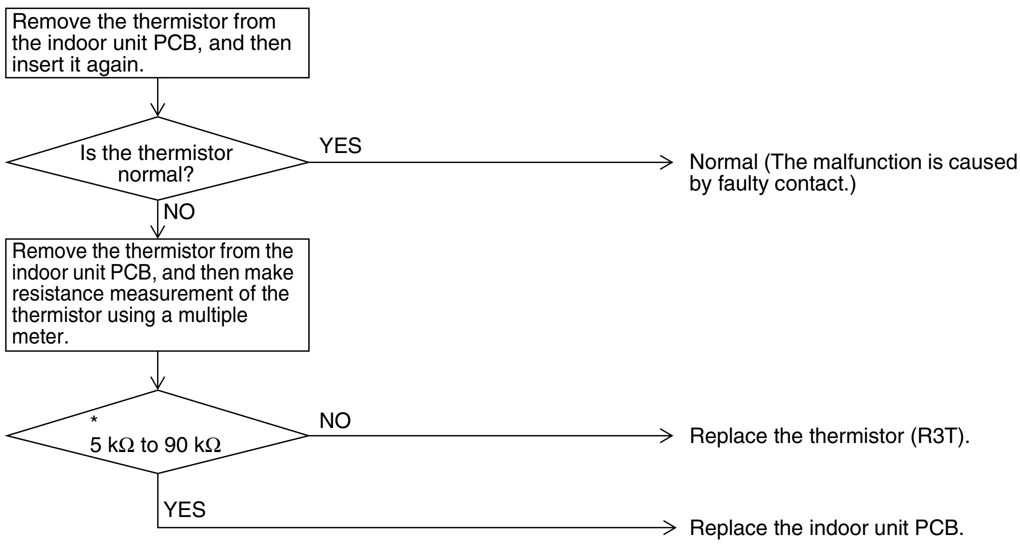
When the gas pipe thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

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

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 P466.

3.13 “C6” Indoor Unit: Failure of Combination (Between Indoor unit PCB and Fan PCB)

Remote Controller Display

C6

Applicable Models

FXMQ20~125P

Method of Malfunction Detection

Conduct open line detection with PCB for fan (A2P) using indoor PCB (A1P).

Malfunction Decision Conditions

When the communication data of PCB for fan (A2P) is determined as incorrect.

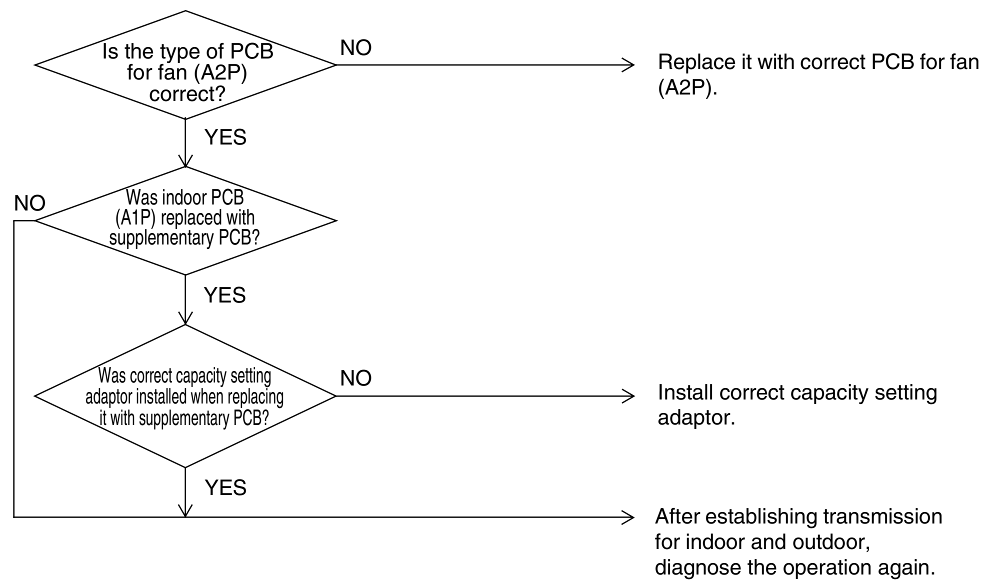
Supposed Causes

The possible causes are:

- Malfunction of PCB for fan (A2P).
- Connection defect of capacity setting adaptor.
- Setting mistake on site.

Troubleshooting

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



3.14 "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

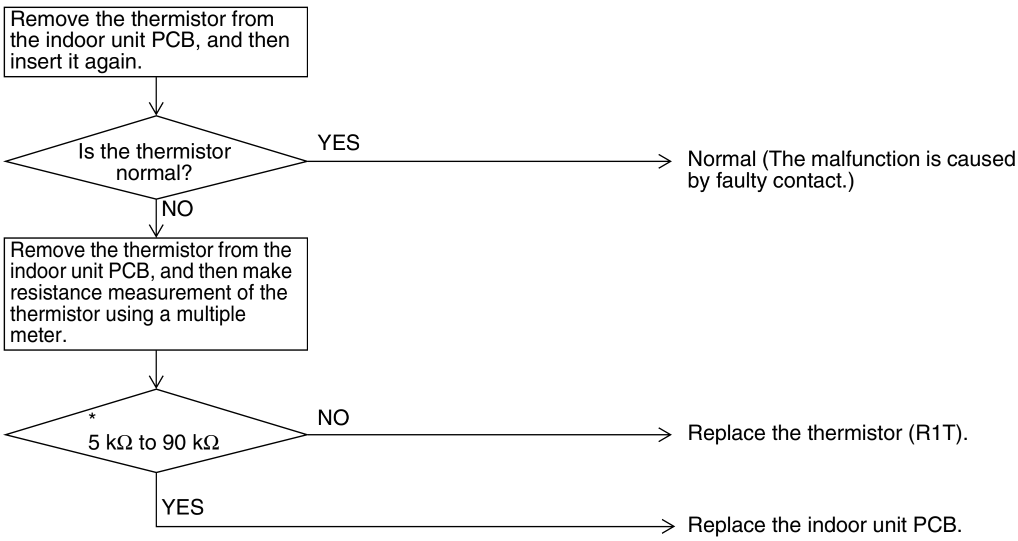
When the suction air temperature thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

- Defect of indoor unit thermistor (R1T) for suction air
- Defect of indoor unit PCB

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 P466.

3.15 "CJ" Indoor Unit: Malfunction of Room Temperature Thermistor 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 room temperature thermistor in remote controller. (Note:)

Malfunction Decision Conditions

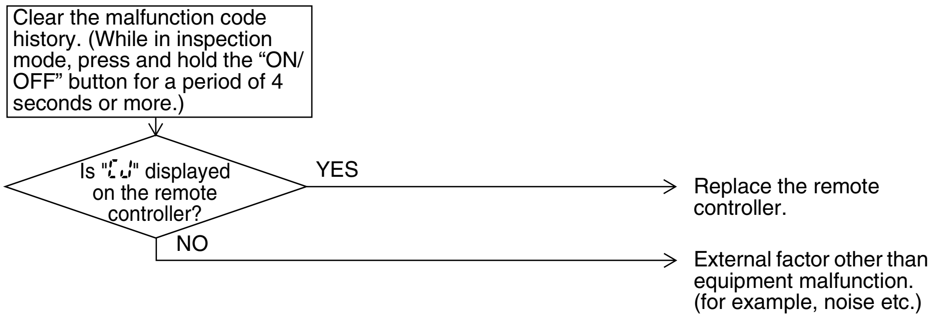
When the room temperature thermistor in remote controller becomes disconnected or shorted while the unit is running.

Supposed Causes

- Defect of remote controller thermistor
- Defect of remote controller PCB

Troubleshooting

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



Note: ∗1: How to delete "the record of malfunction codes".
Press the "ON/OFF" button for 4 seconds and more while the malfunction code is displayed in the inspection mode.

∗ Refer to "Thermistor Resistance / Temperature Characteristics" table on P466.

3.16 "E1" Outdoor Unit: PCB 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

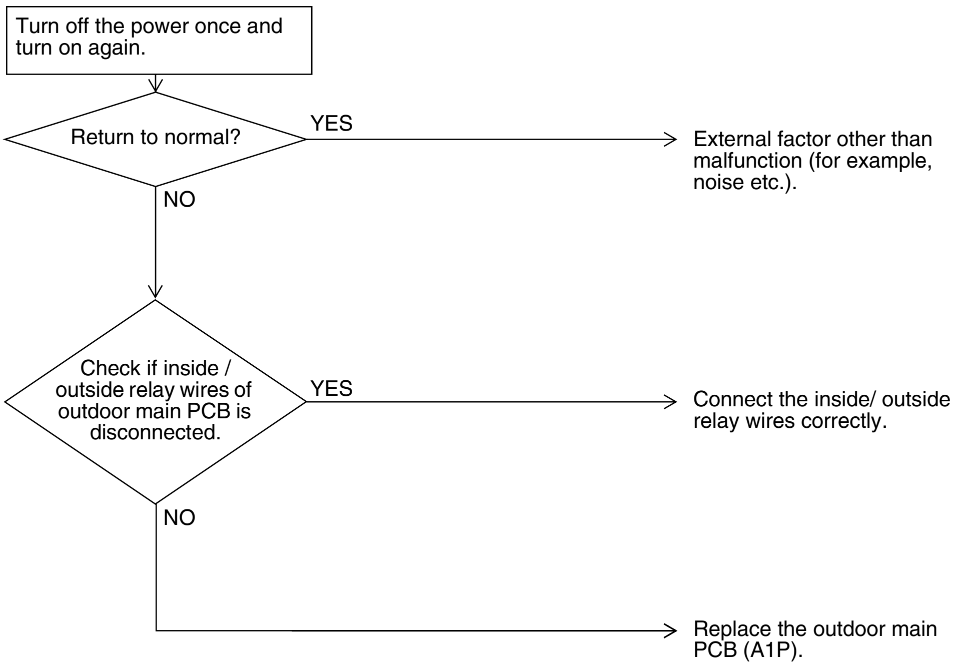
When the communication conditions in the hardware section between the indoor unit and the outdoor unit are not normal.

Supposed Causes

- Defect of outdoor unit PCB (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.



3.17 "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

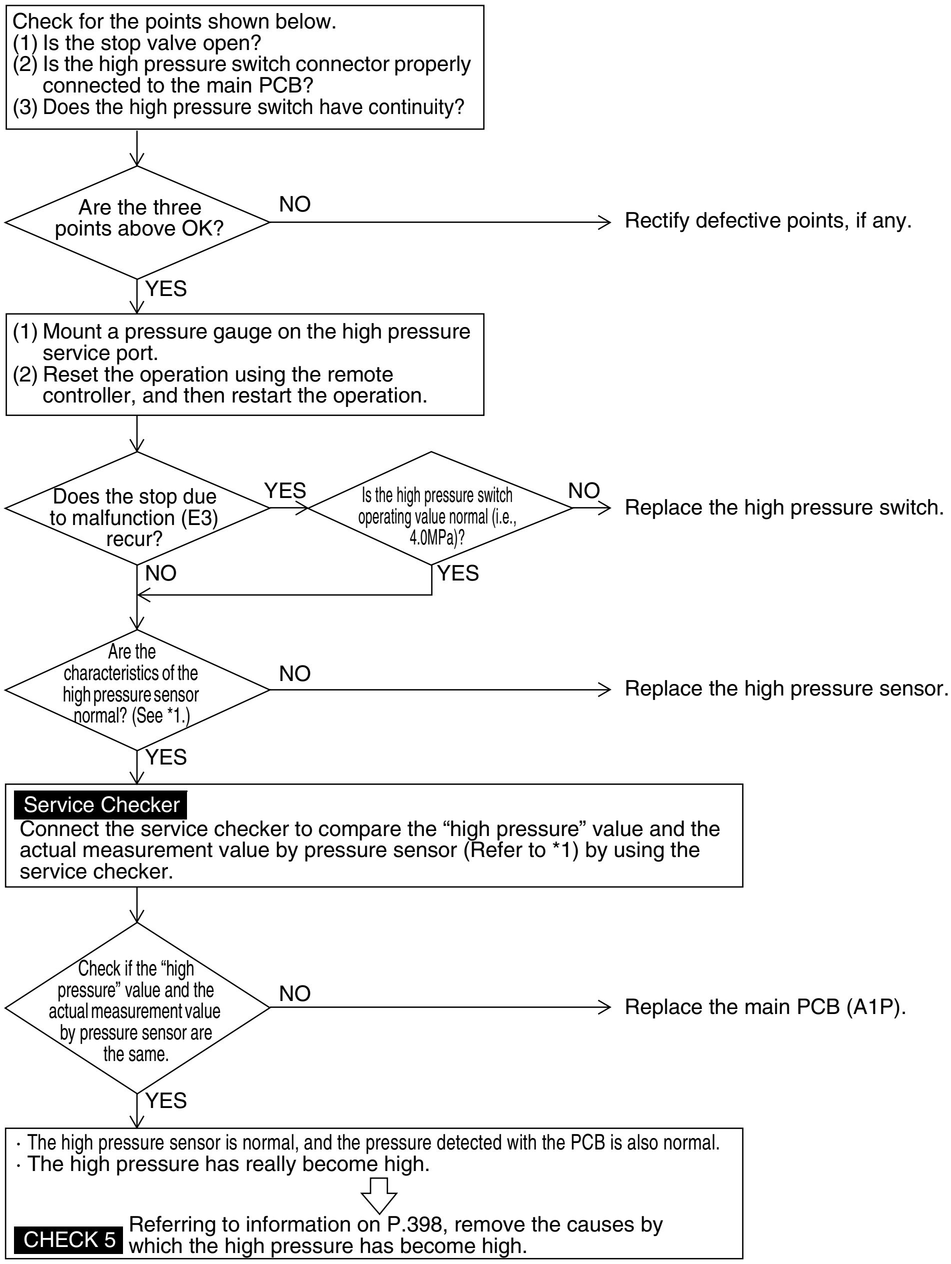
Error is generated when the high pressure switch activation count reaches the number specific to the operation mode.
(Reference) Operating pressure of high pressure switch
Operating pressure: 4.0MPa
Reset pressure: 2.85MPa

Supposed Causes

- Actuation of outdoor unit high pressure switch
- Defect of high pressure switch
- Defect of outdoor unit main PCB (A1P)
- Instantaneous power failure
- Faulty high pressure sensor

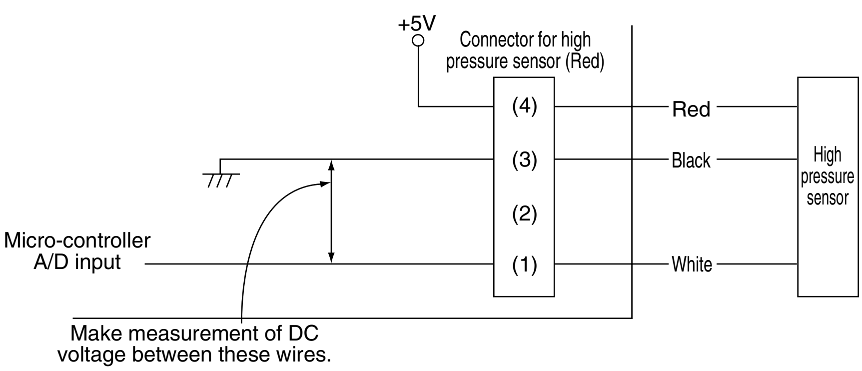
Troubleshooting

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 P.468.)

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

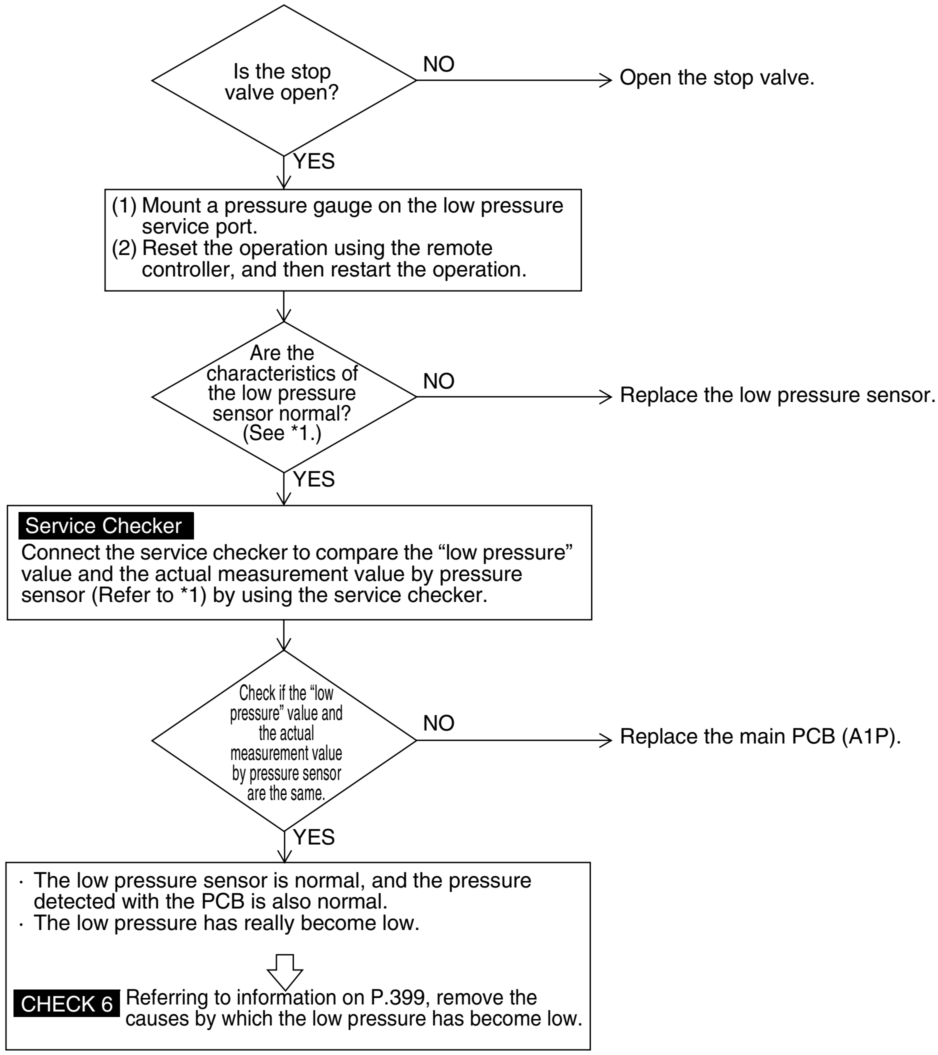


3.18 "E4" Outdoor Unit: Actuation of Low Pressure Sensor

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 PCB (A1P) ■ Stop valve is not opened. ■ Clogged filter

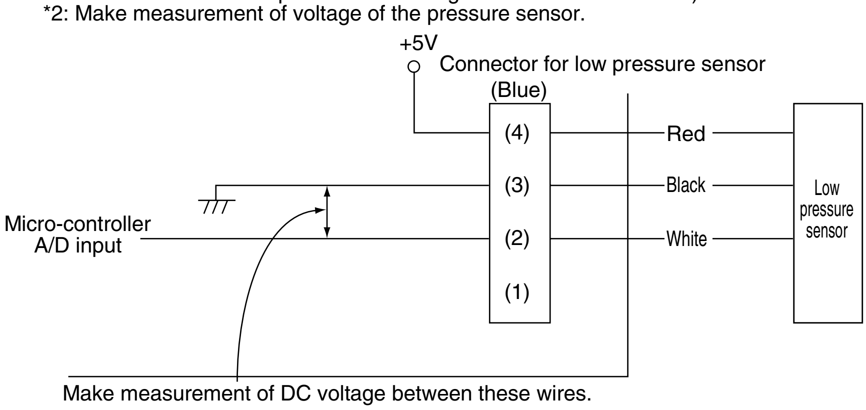
Troubleshooting

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 P.468.)

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



3.19 "E5" Outdoor Unit: Inverter Compressor Motor Lock

Remote Controller Display

E5

Applicable Models

REYQ8P~48P

Method of Malfunction Detection

Inverter PCB 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

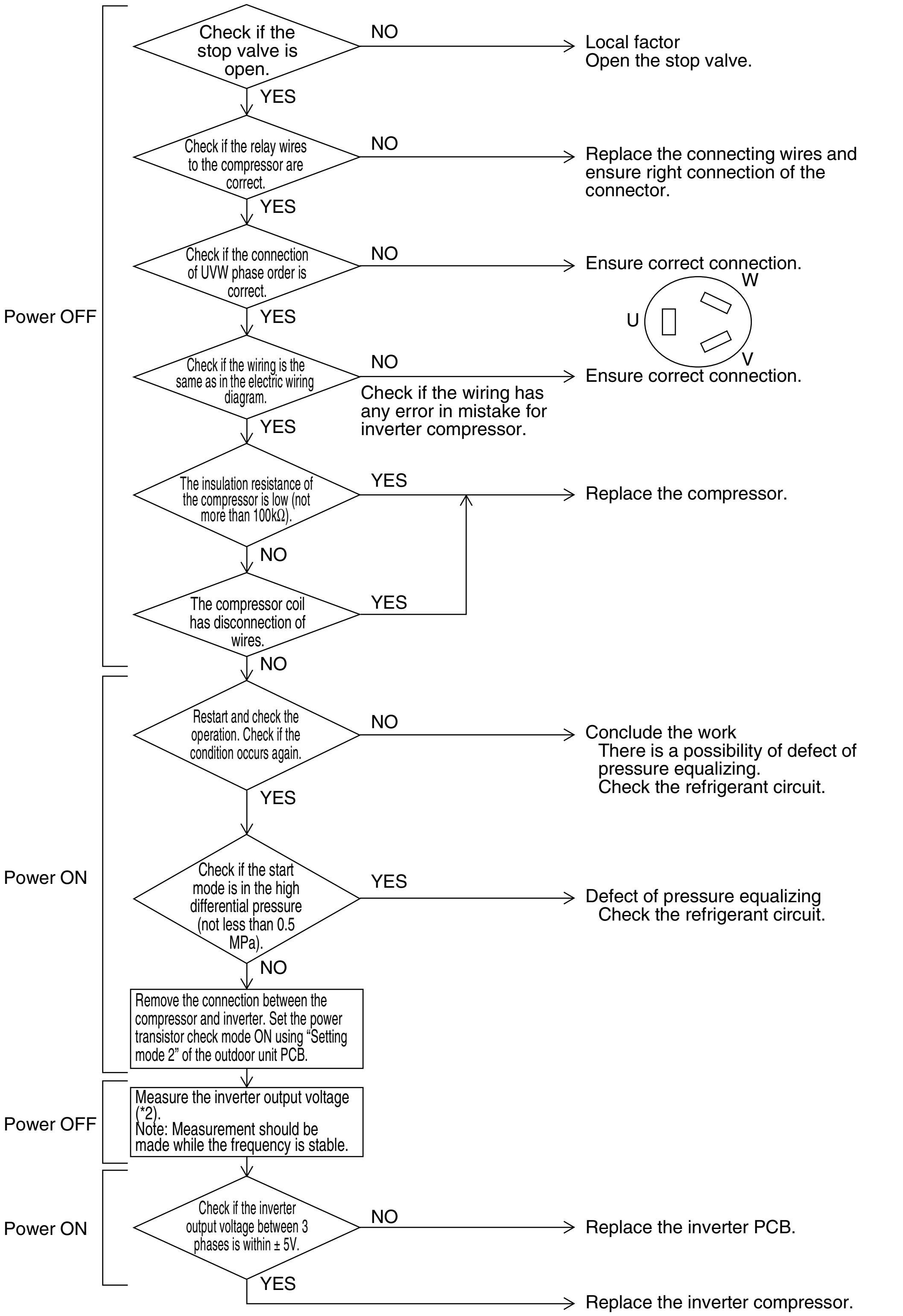
This malfunction will be output when the inverter compressor motor does not start up even in forced startup mode.

Supposed Causes

- Inverter compressor lock
- High differential pressure (0.5MPa or more)
- Incorrect UVW wiring
- Faulty inverter PCB
- 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 (P.397).

3.20 “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.

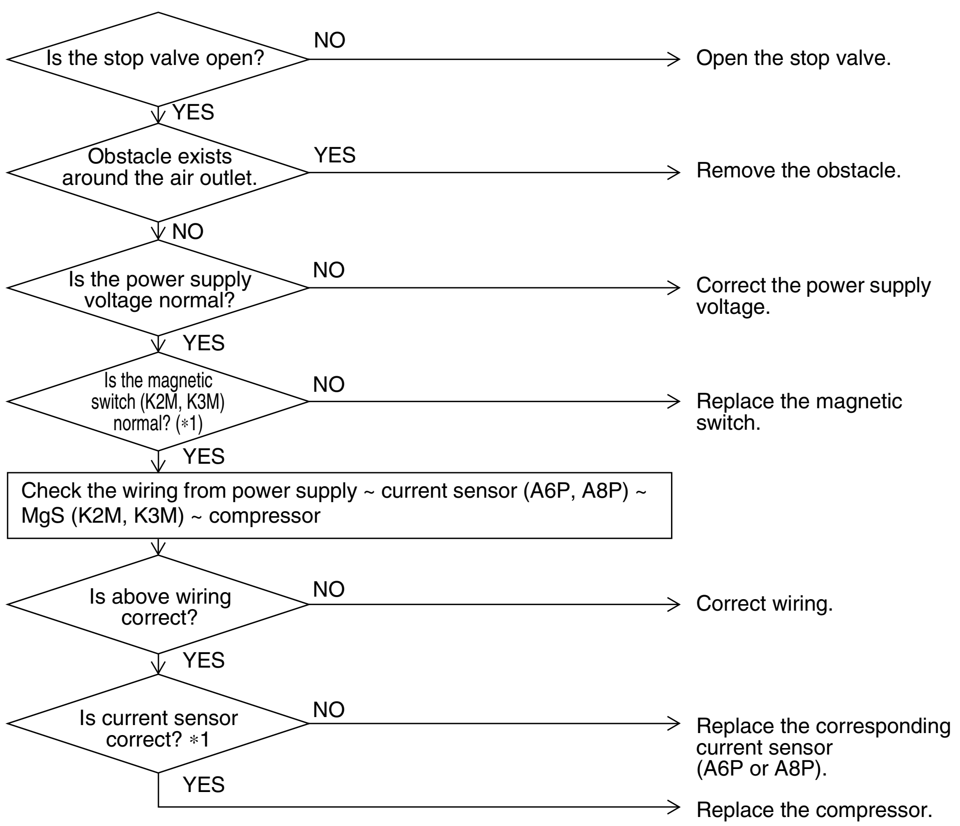
- 400 V unit : 15.0 A

Supposed Causes

- Closed stop value
- Obstacles at the air outlet
- Improper power voltage
- Faulty magnetic switch
- Faulty compressor
- Faulty current sensor (A6P, A8P)

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.

3.21 "E7" Outdoor Unit: Malfunction of Outdoor Unit Fan Motor

Remote Controller Display

E7

Applicable Models

REYQ8P~48P

Method of Malfunction Detection

Detect a malfunction based on the current value in the INVERTER PCB (as for motor 2, current value in the fan PCB).
Detect a malfunction for the fan motor circuit based on the number of rotation detected by hole IC during the fan motor operation.

Malfunction Decision Conditions

- Overcurrent is detected for INVERTER PCB (A2P) or fan INVERTER PCB (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

- Failure of fan motor
- Defect or connection error of the connectors/ harness between the fan motor and PCB
- The fan can not rotate due to any foreign substances entangled.
- Clear condition: Continue normal operation for 5 minutes

Troubleshooting

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

Check in the monitor mode
12HP ~18HP class models have 2 fans.
Check electric motor (electric motor 1 or 2) corresponding to malfunction code “E7” in the monitor mode of outdoor unit PCB. (Refer to P.268~P.269 for how to check)

↓

Cut the power supply OFF and wait for 10 minutes.

↓

Check if any foreign substances around the fan. — YES → Remove the foreign substances.

NO ↓

Check the connection status of the connectors
- Fan motor 1: relay connector or X1A, X2A of compressor inverter PCB.
- Fan motor 2: relay connector or X1A, X2A of fan inverter PCB.

↓

Check if any connector is disconnected. — YES → Insert the connector.

NO ↓

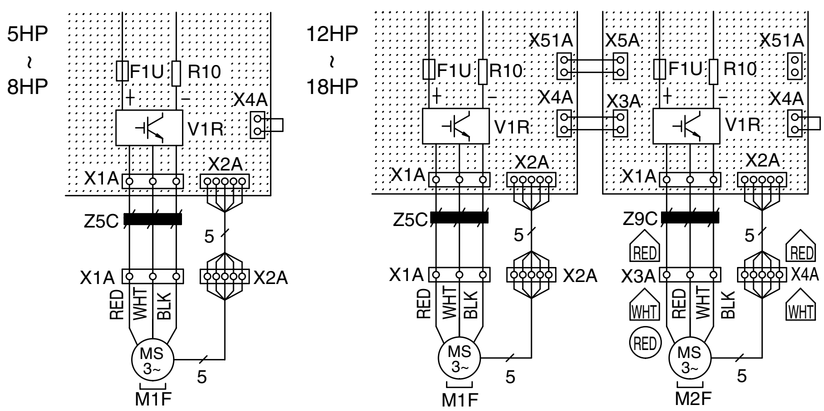
Check the color of relay connectors
- Fan motor 1: Both power supply wire and signal wire are all white.
- Fan motor 2: Both power supply wire and signal wire are red in the PCB side and white in the motor side.

↓

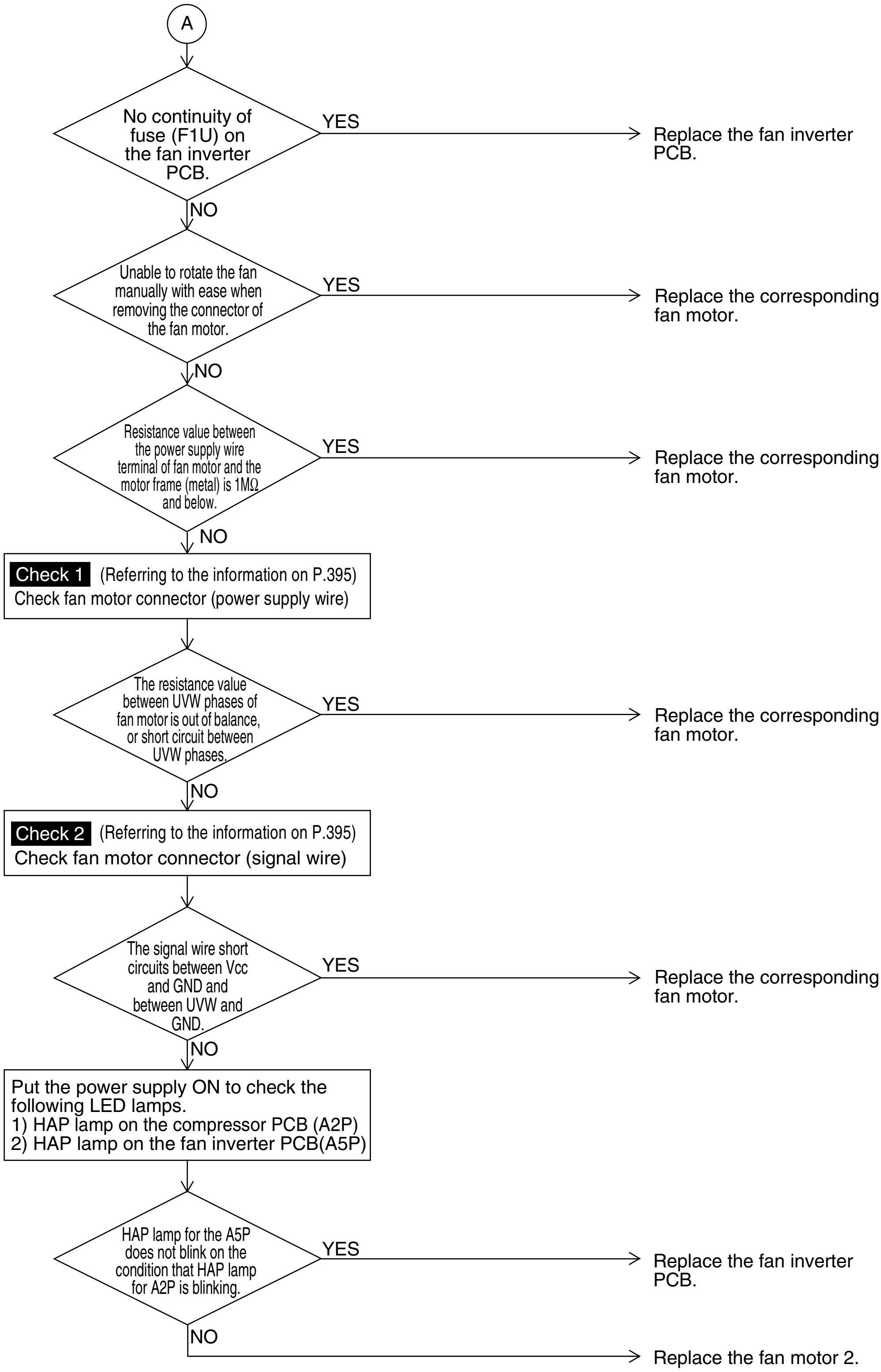
Relay connectors have any connection error. — YES → Correct the connection of the relay connectors.

NO ↓

A



Troubleshooting



3.22 "E9" Outdoor Unit: Malfunction of Electronic Expansion Valve Coil (Y1E~Y5E)

Remote Controller Display	E9
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Check disconnection of connector Check continuity of electronic expansion valve
Malfunction Decision Conditions	No current is detected in the common (COM [+]) when power supply is ON.
Supposed Causes	■ Disconnection of connectors for electronic expansion valve (Y1E) ■ Defect of electronic expansion valve coil ■ Defect of outdoor unit main PCB (A1P)

Troubleshooting

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

Turn power supply off, and turn power supply on again.

Return to normal? — YES → External factor other than malfunction (for example, noise etc.).

NO ↓

Check the electronic expansion valve corresponding to the malfunction code "E9" in the monitor mode.
(Refer to P.268~P.269 for how to check.)

- When Confirmation of malfunction 4 shows as follows:
  ◑○○●●※※ → Electronic expansion valve for main use (Y1E, Y3E for Single, Y1E for Multi)
- When Confirmation of malfunction 4 shows as follows:
  ◑○○●◑※※ → Electronic expansion valve for refrigerant charge (Y4E for Single, Y2E for Multi)
- When Confirmation of malfunction 4 shows as follows:
  ◑○○◑●※※ → Electronic expansion valve for subcooling (Y2E, Y5E for Single, Y3E for Multi)
- Explanation of "※※ "

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

↓

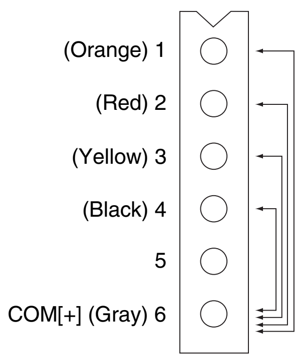
The connector of outdoor unit PCB (A1P) for electronic expansion valve is connected. — NO → Ensure correct connection.

YES ↓

The coil resistance of electronic expansion valve is normal. (Refer to ∗1) — NO → Replace the connecting cable.

YES → Replace the outdoor unit PCB (A1P).

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



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

3.23 "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	■ Faulty discharge pipe temperature sensor ■ Faulty connection of discharge pipe temperature sensor ■ Faulty outdoor unit PCB

Troubleshooting

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

Connect the service checker. Press reset and start operation again.

Check if discharge pipe thermistor property is normal. (∗1)

NO → Replace the discharge pipe thermistor.

YES

Service Checker Connect the service checker to compare the temperature of discharge pipe by using service checker with actual measurement value of discharge pipe thermistor (Refer to ∗1).

Check if temperature of discharge pipe by using service checker is the same with actual measurement value of discharge pipe thermistor.

NO → Replace the main PCB (A1P).

YES

- Discharge pipe thermistor is normal and the temperature detection of the main PCB is also normal.
- Actually the temperature of discharge pipe is high.

Check 3 Remove the factor of overheat operation referring to P.396.

∗1: Compare the resistance value of discharge pipe thermistor and the value based on the surface thermometer.
(Refer to P.466 for the temperature of thermistor and the resistance property)

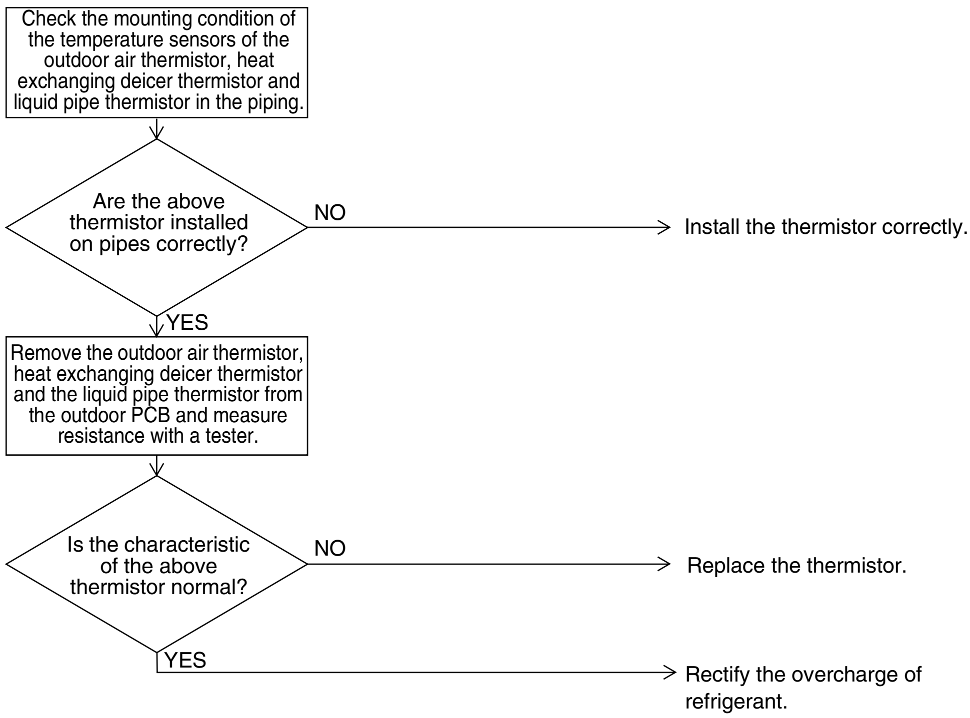
∗ Refer to "Thermistor Resistance / Temperature Characteristics" table on P466.

3.24 “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 outdoor 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 outdoor air temperature, heat exchanging deicer temperature and liquid pipe temperature during a check run, exceeds the standard.
Supposed Causes	■ Refrigerant overcharge ■ Disconnection of the outdoor air thermistor ■ Disconnection of the heat exchanging deicer thermistor ■ Disconnection 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.



∗ Refer to “Thermistor Resistance / Temperature Characteristics” table on P466.

3.25 "F9" Outdoor Unit: Malfunction of BS Unit Electronic Expansion Valve

Remote Controller Display	F9
Applicable Models	BS unit
Method of Malfunction Detection	This malfunction is detected by whether or not all coils of the electronic expansion valve have continuity.
Malfunction Decision Conditions	When the power supply turns ON, there is no currents pass through the common (COM[+]).
Supposed Causes	■ Connector disconnected from the electronic expansion valve ■ Faulty the electronic expansion valve coil ■ Faulty PCB of the BS unit

Troubleshooting

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

Turn OFF the power supply once and then ON again.

Does the power supply normally come back ON?

- YES → Probe any external causes other than failures (e.g. noises).
- NO ↓

While in monitor mode, identify an electronic expansion valve subject to the Malfunction Code "F9". (For checking procedure, refer to information on P.268~P.269.)
○ When Confirmation of malfunction 4 is set as shown below:

Confirmation of malfunction 3	Confirmation of malfunction 4	
◑ ○ ● ● ● ● ◑	◑ ○ ○ ● ● ◑ ◑	→ Electronic expansion valve (Y4E)
◑ ○ ● ● ● ◑ ●	◑ ○ ○ ● ● ◑ ◑	→ Electronic expansion valve (Y5E)
◑ ○ ● ● ● ◑ ◑	◑ ○ ○ ● ● ◑ ◑	→ Electronic expansion valve (Y2E)
◑ ○ ● ● ◑ ● ●	◑ ○ ○ ● ● ◑ ◑	→ Electronic expansion valve (Y3E)
◑ ○ ● ● ◑ ● ◑	◑ ○ ○ ● ● ◑ ◑	→ Electronic expansion valve (Y1E)

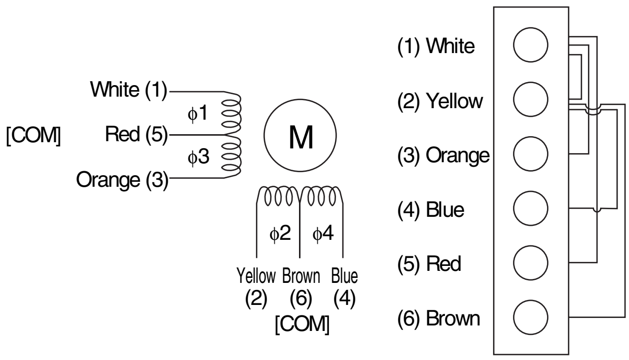
Is the connector for the electronic expansion valve of the PCB concerned properly connected?

- NO → Properly and securely connect the connector.
- YES ↓

Is the resistance of the electronic expansion valve coil normal? (See *1)

- NO → Replace the electronic expansion valve coil concerned.
- YES → Replace the BS unit PCB.

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



The normal states are as follows:
(1) No continuity between Pins (1) and (2)
(2) Approx. 300Ω resistance between Pins (1) and (3)
(3) Approx. 150Ω resistance between Pins (1) and (5)
(4) Approx. 300Ω resistance between Pins (2) and (4)
(5) Approx. 150Ω resistance between Pins (2) and (6)

3.26 “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 circuited or disconnection connector of fan motor connection cable ■ Fan Inverter PCB 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 P.268~P.269 for how to check.)
When Confirmation of malfunction 3 shows as follows:
◑○●●●●● → Fan motor 1 (M1F)
When Confirmation of malfunction 3 shows as follows:
◑○●●●●◑ → Fan motor 2 (M2F)
Identify outdoor unit based on Confirmation of malfunction 4.
◑○○●●※※

Explanation for "※※"

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

↓

Cut the power supply off.

↓

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

↓ YES

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

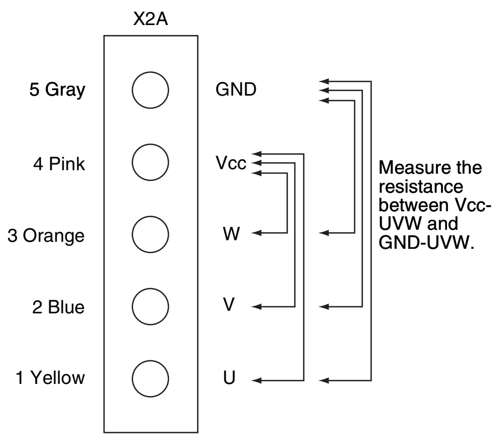
↓

Check if the resistance of the fan motor lead wire between Vcc and UVW and between GND and UVW are balanced. — NO → Replace the fan motor.

YES → Replace the inverter PCB.
- For fan motor 1: replace the inverter PCB (A2P)
- For fan motor 2: replace the fan inverter PCB (A5P)

∗1. Check the procedure for fan motor connector
(1) Power OFF the fan motor.
(2) Remove the connector (X2A or X4A) on the PCB to measure the following resistance value.
Judgement criteria: resistance value between each phase is within ±20%

Connector for signal wires
(X2A or X4A)



3.27 “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

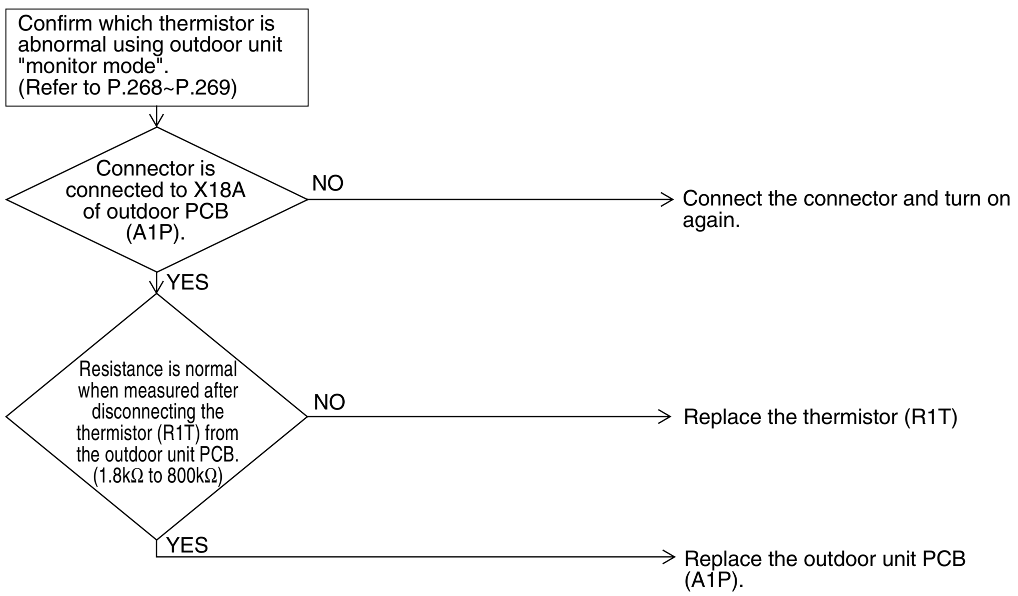
When the outdoor air temperature thermistor has short circuit or open circuit.

Supposed Causes

- Defective thermistor connection
- Defect of outdoor air thermistor (R1T)
- Defect of outdoor unit PCB (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 P466.

3.28 "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

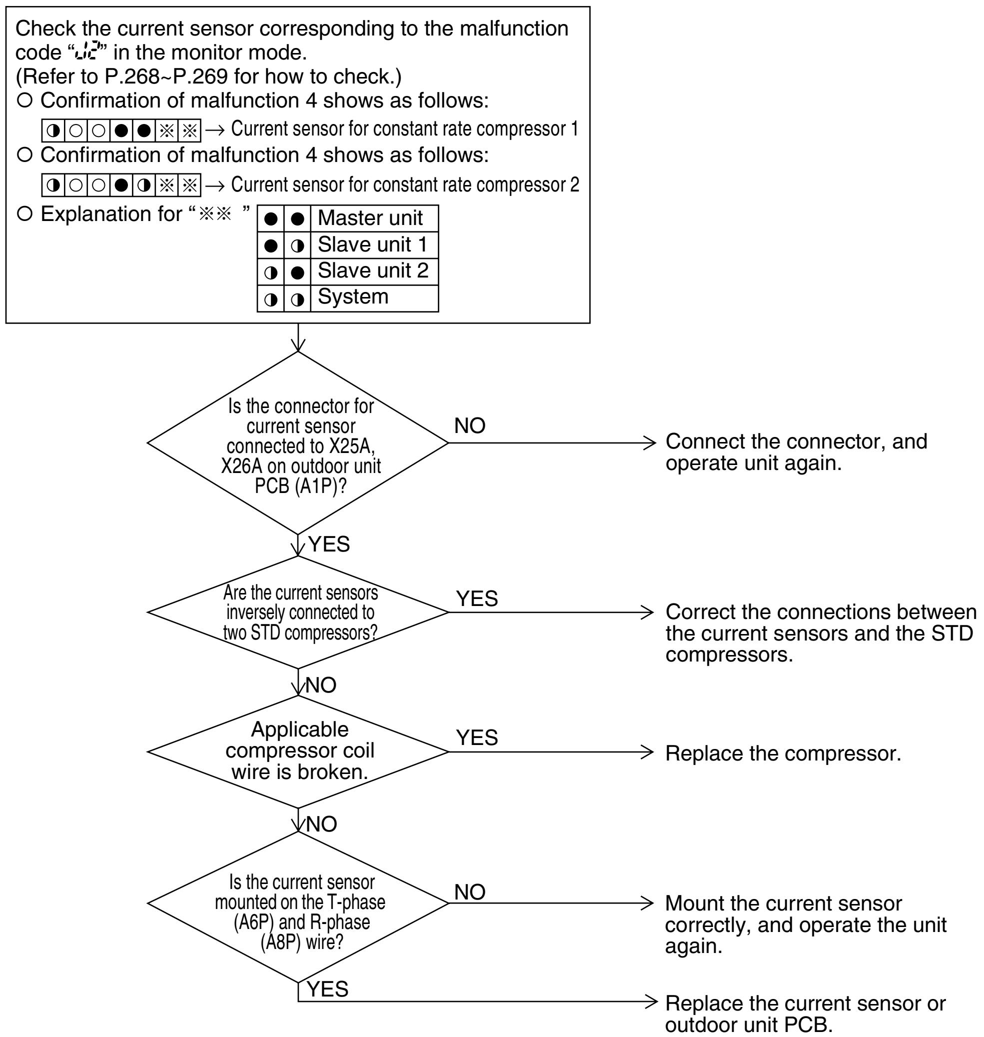
When the current value detected by current sensor becomes 5A or lower, or 40A or more during standard compressor operation.

Supposed Causes

- Faulty current sensor (A6P, A8P)
- Faulty outdoor unit PCB
- Defective compressor

Troubleshooting

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



3.29 "J3" Outdoor Unit: Malfunction of Discharge Pipe Thermistor (R31T, R32T, R33T)

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

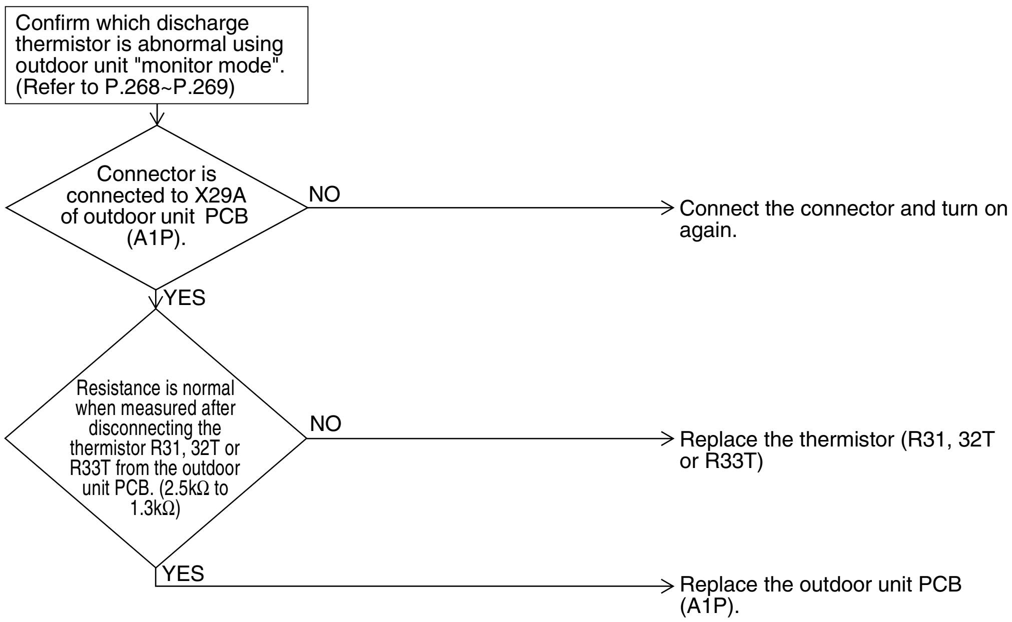
When a short circuit or an open circuit in the discharge pipe temperature thermistor is detected.

Supposed Causes

- Defect of thermistor (R31T, R32T, R33T) for outdoor unit discharge pipe
- Defect of outdoor unit PCB (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.



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

∗ Refer to "Thermistor Resistance / Temperature Characteristics" table on P466.

3.30 "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

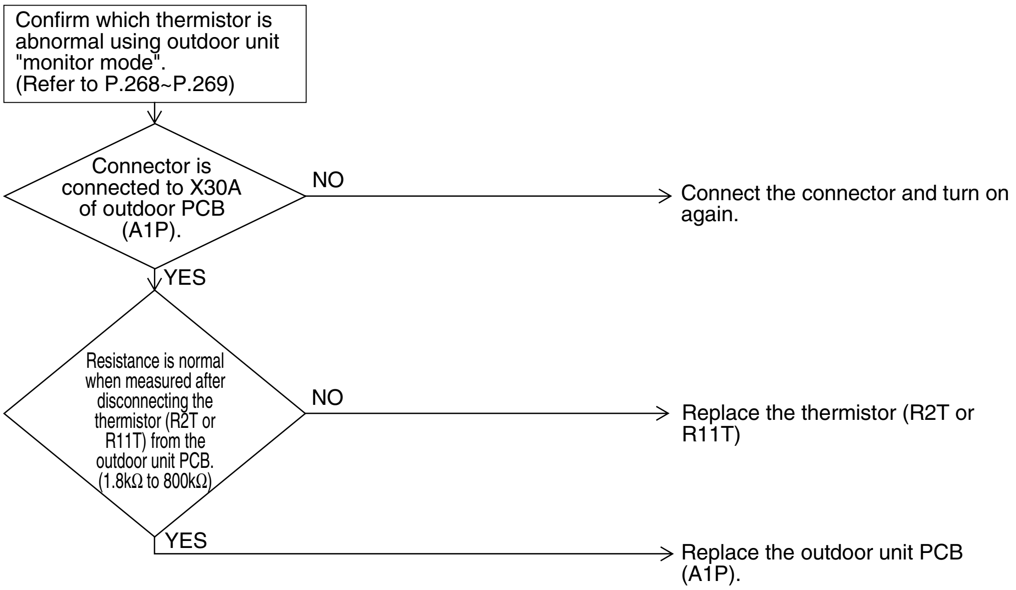
In operation, when a thermistor is disconnected or short circuits.

Supposed Causes

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

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 P466.

3.31 “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

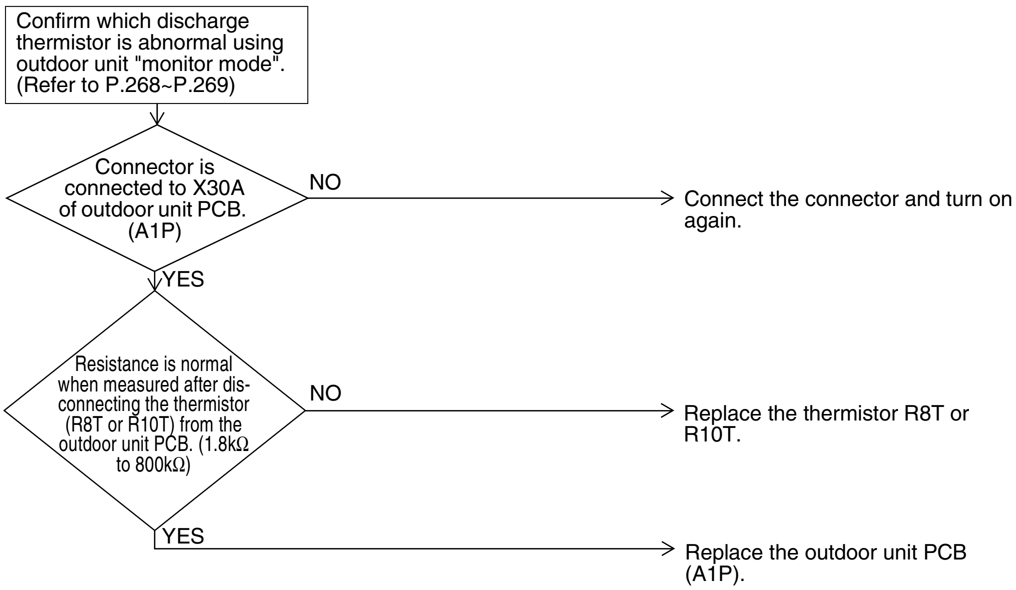
When a short circuit or an open circuit in the suction pipe temperature thermistor is detected.

Supposed Causes

- Defect of thermistor (R8T or R10T) for outdoor unit suction pipe
- Defect of outdoor unit PCB (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.



∗ Refer to “Thermistor Resistance / Temperature Characteristics” table on P466.

3.32 "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

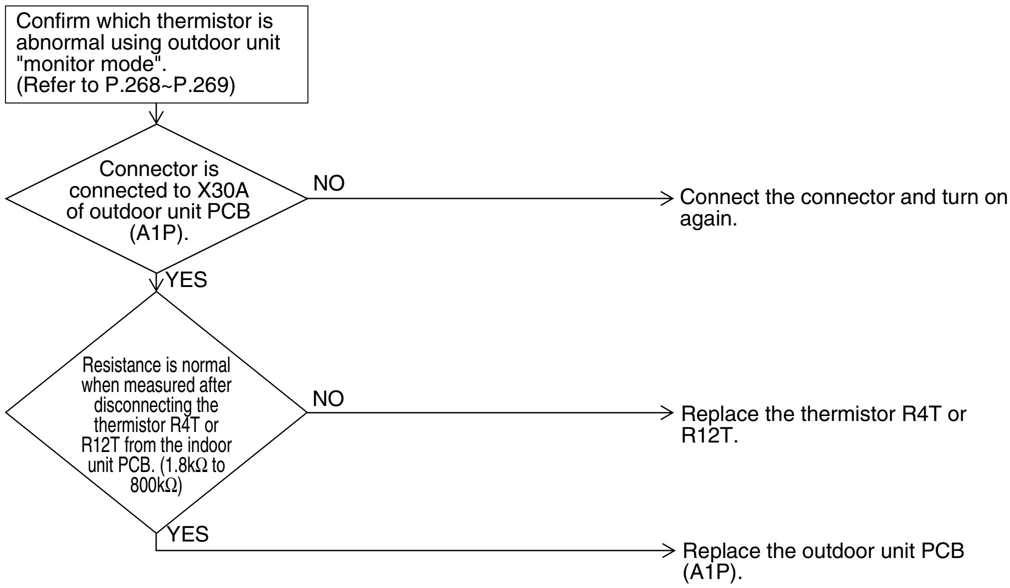
When a short circuit or an open circuit in the heat exchanger thermistor is detected.

Supposed Causes

- Defect of thermistor (R4T or R12T) for outdoor unit heat exchanger
- Defect of outdoor unit PCB (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.



∗ Refer to "Thermistor Resistance / Temperature Characteristics" table on P466.

3.33 “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

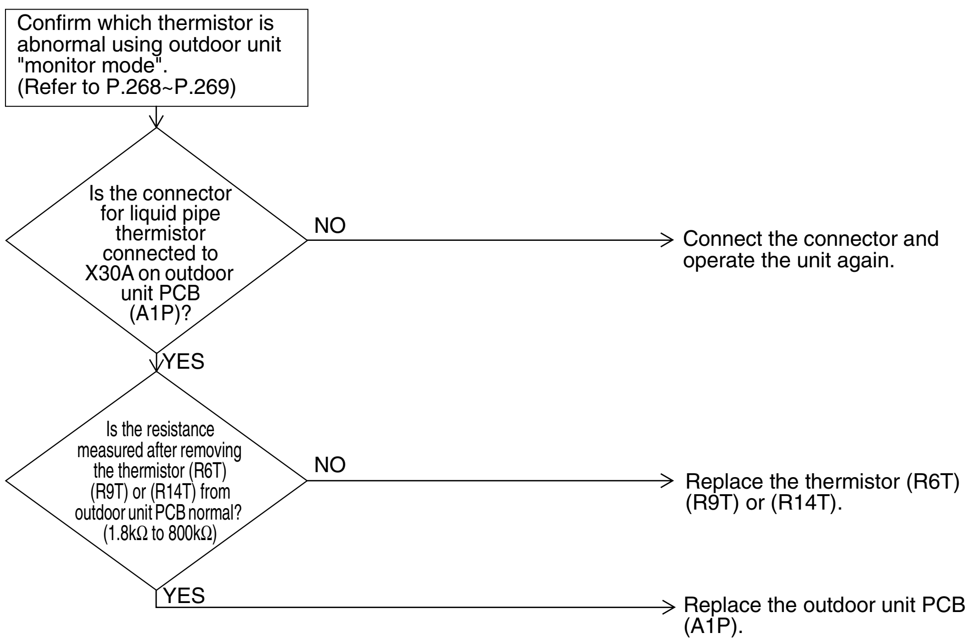
When the liquid pipe thermistor is short circuited or open circuited.

Supposed Causes

- Faulty liquid pipe thermistor 1 (R6T), (R9T) or (R14T)
- Faulty outdoor unit PCB
- Defect of thermistor connection

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 P466.

3.34 “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

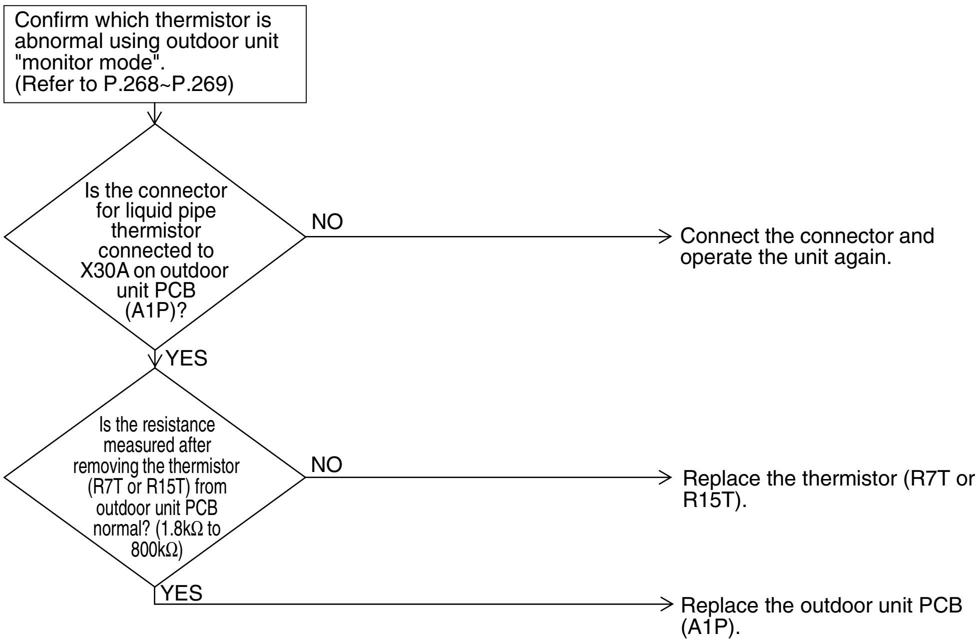
When the liquid pipe thermistor is short circuited or open circuited.

Supposed Causes

- Faulty liquid pipe thermistor 2 (R7T or R15T)
- Faulty outdoor unit PCB
- Defect of thermistor connection

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 P466.

3.35 “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

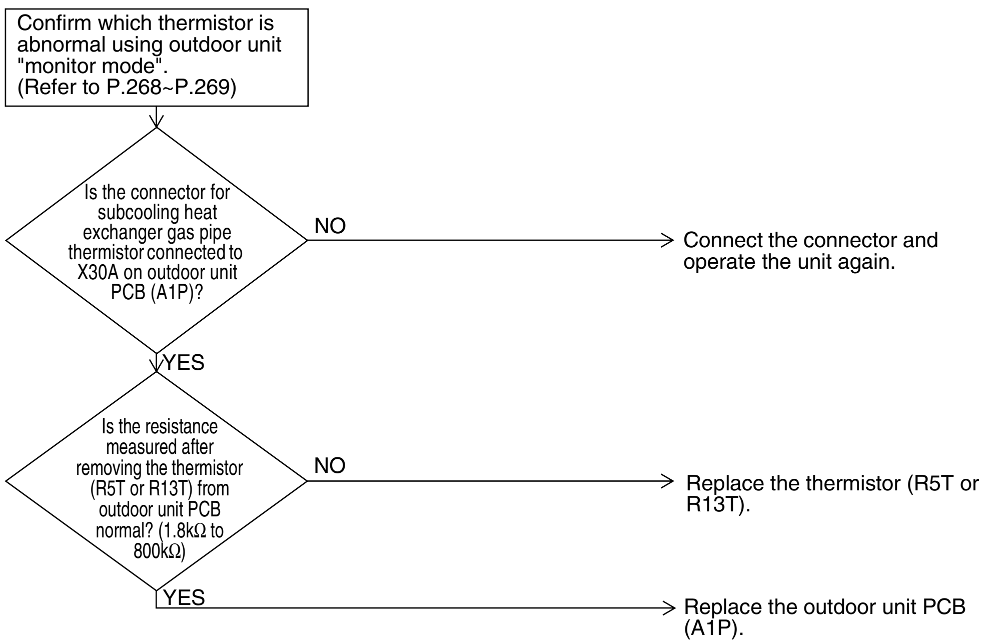
When the subcooling heat exchanger gas pipe thermistor is short circuited or open circuited.

Supposed Causes

- Faulty subcooling heat exchanger gas pipe thermistor (R5T or R13T)
- Faulty outdoor unit PCB

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 P466.

3.36 "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

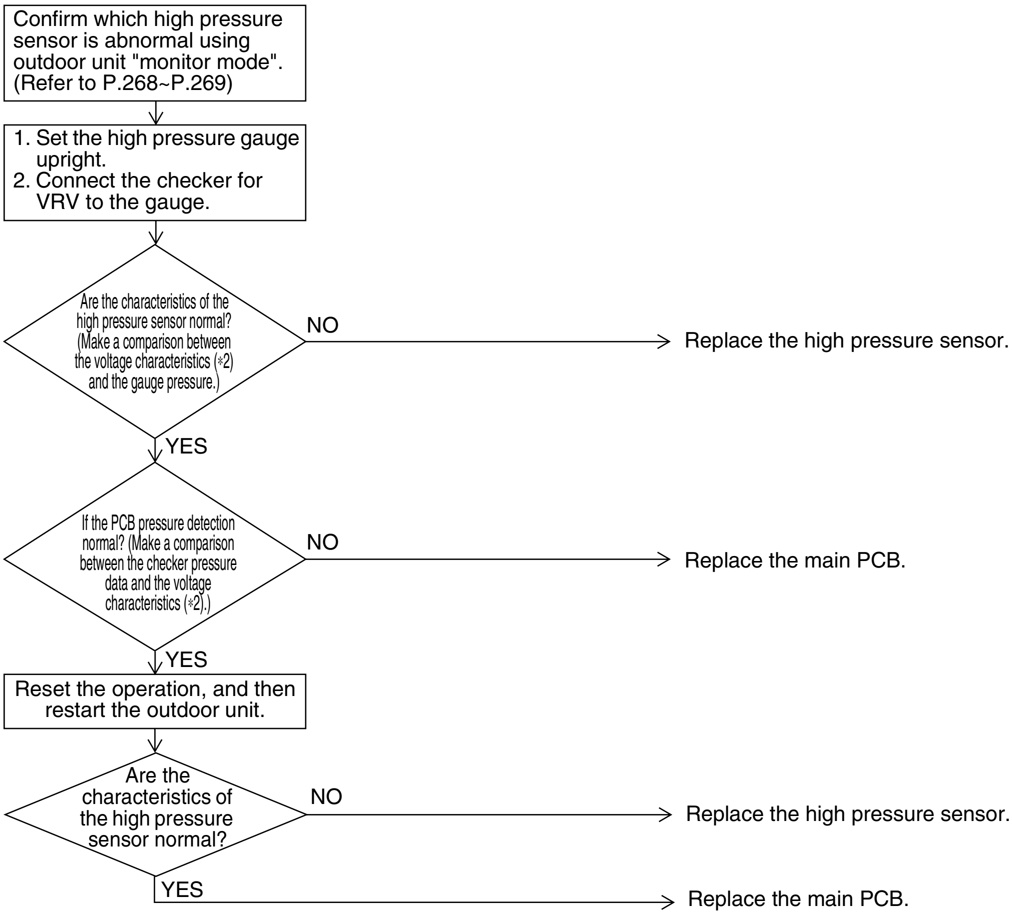
When the high pressure sensor is short circuit or open circuit.
(Not less than 4.22MPa, or 0.01MPa and below)

Supposed Causes

- Defect of high pressure sensor system
- Connection of low pressure sensor with wrong connection.
- Defect of outdoor unit PCB.
- Defective connection of high pressure sensor

Troubleshooting

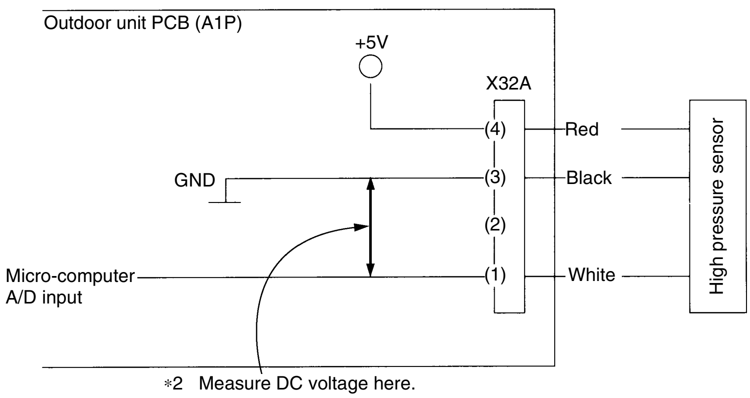
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: Pressure sensor subject to malfunction code

Malfunction code	Pressure sensor subject to malfunction code	Electric symbol
JA	High pressure sensor	S1NPH

*2: Voltage measurement point



*2: Refer to “Pressure Sensor, Pressure / Voltage Characteristics” table on P468.

3.37 “JC” Outdoor Unit: Malfunction of Low Pressure Sensor

Remote Controller Display

JC

Applicable Models

REYQ8P~48P

Method of Malfunction Detection

Malfunction is detected from the pressure detected by the low pressure sensor.

Malfunction Decision Conditions

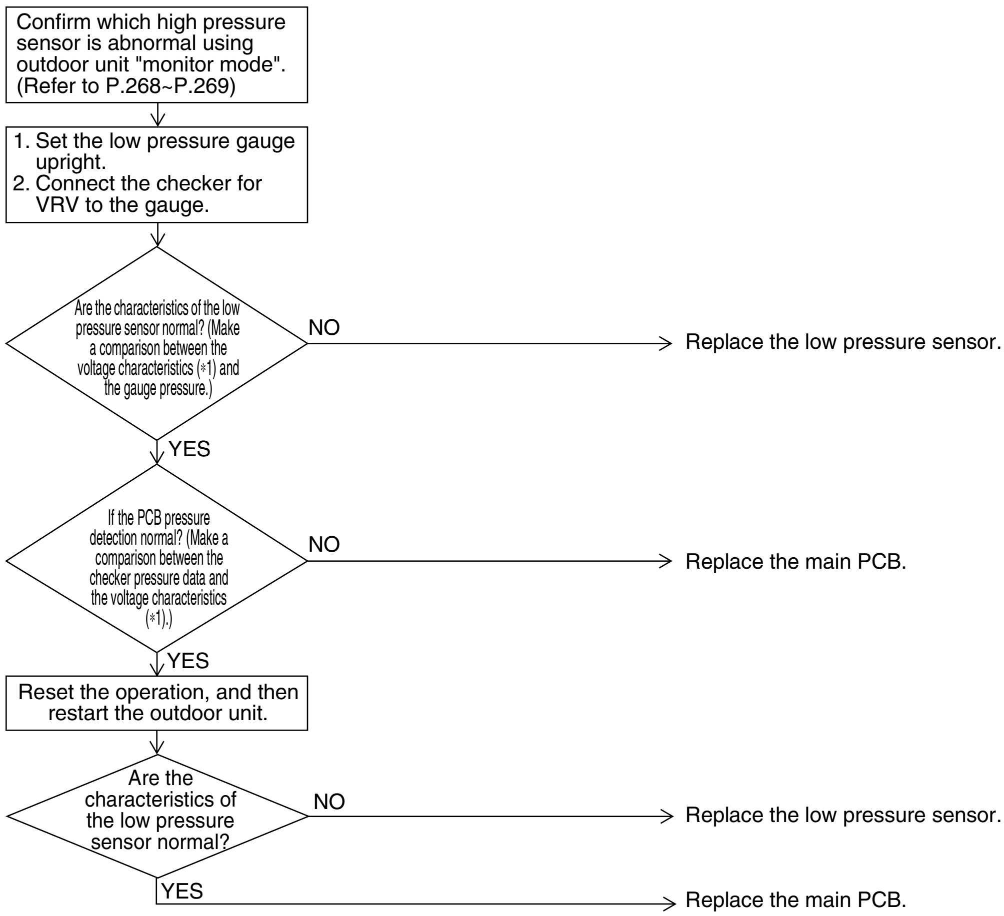
When the low pressure sensor is short circuit or open circuit.
(Not less than 1.77MPa, or -0.01MPa and below)

Supposed Causes

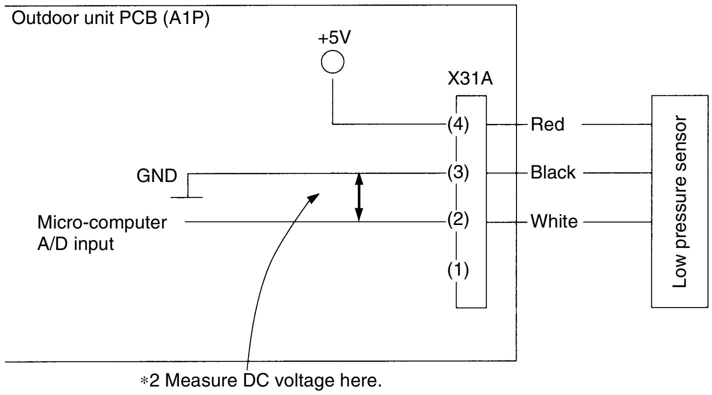
- Defect of low pressure sensor system
- Connection of high pressure sensor with wrong connection.
- Defect of outdoor unit PCB.
- Defective connection of low pressure sensor

Troubleshooting

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



∗1: Voltage measurement point



∗2: Refer to “Pressure Sensor, Pressure / Voltage Characteristics” table on P468.

3.38 "L1" Outdoor Unit: Malfunction of Inverter PCB

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

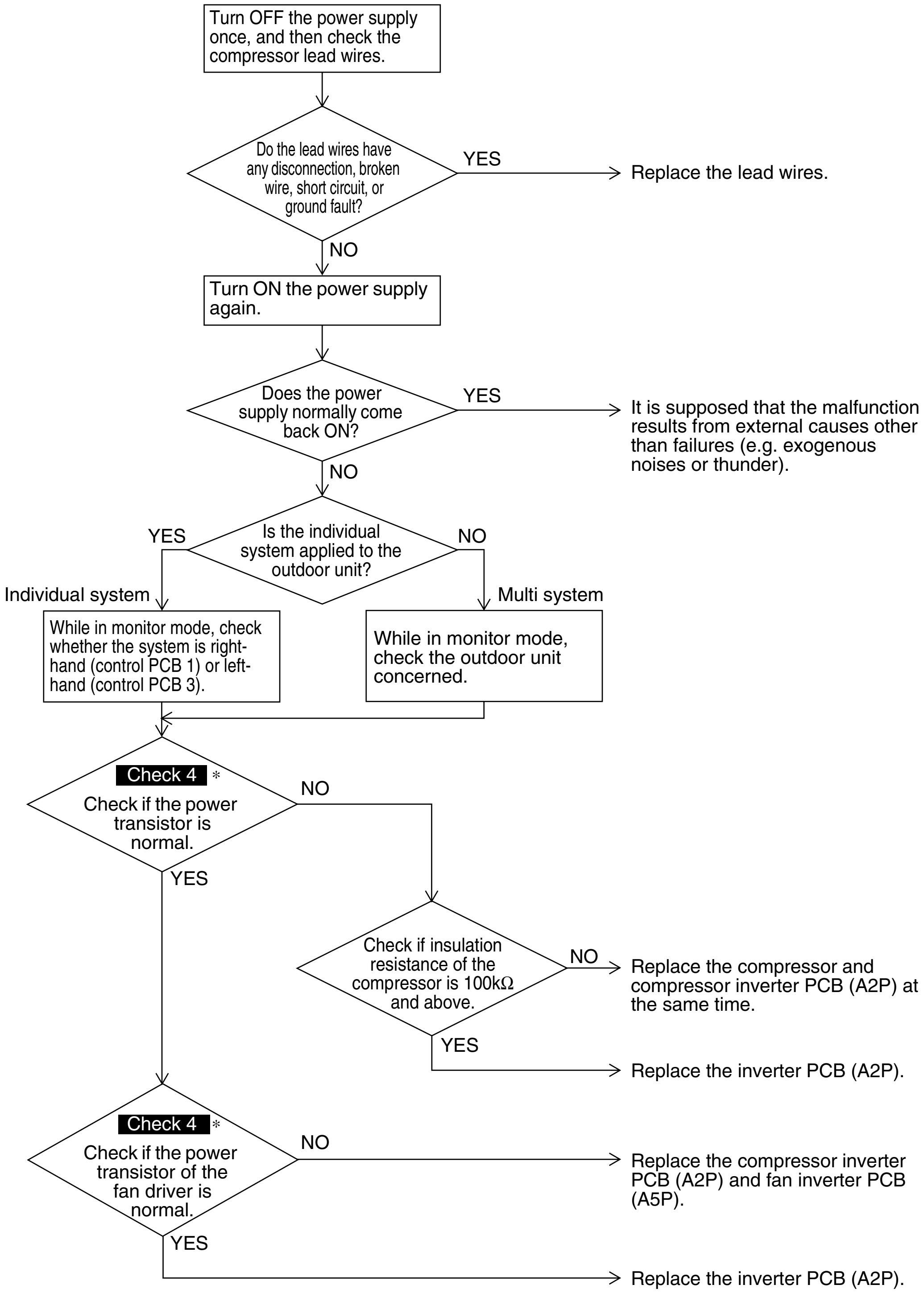
Overcurrent (OCP) flows during waveform output.
Malfunction of current sensor during synchronous operation.
IPM failure.

Supposed Causes

- Inverter PCB (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.



* Check 4 : Referring to the information on P397.

*1. List of Inverter PCBs

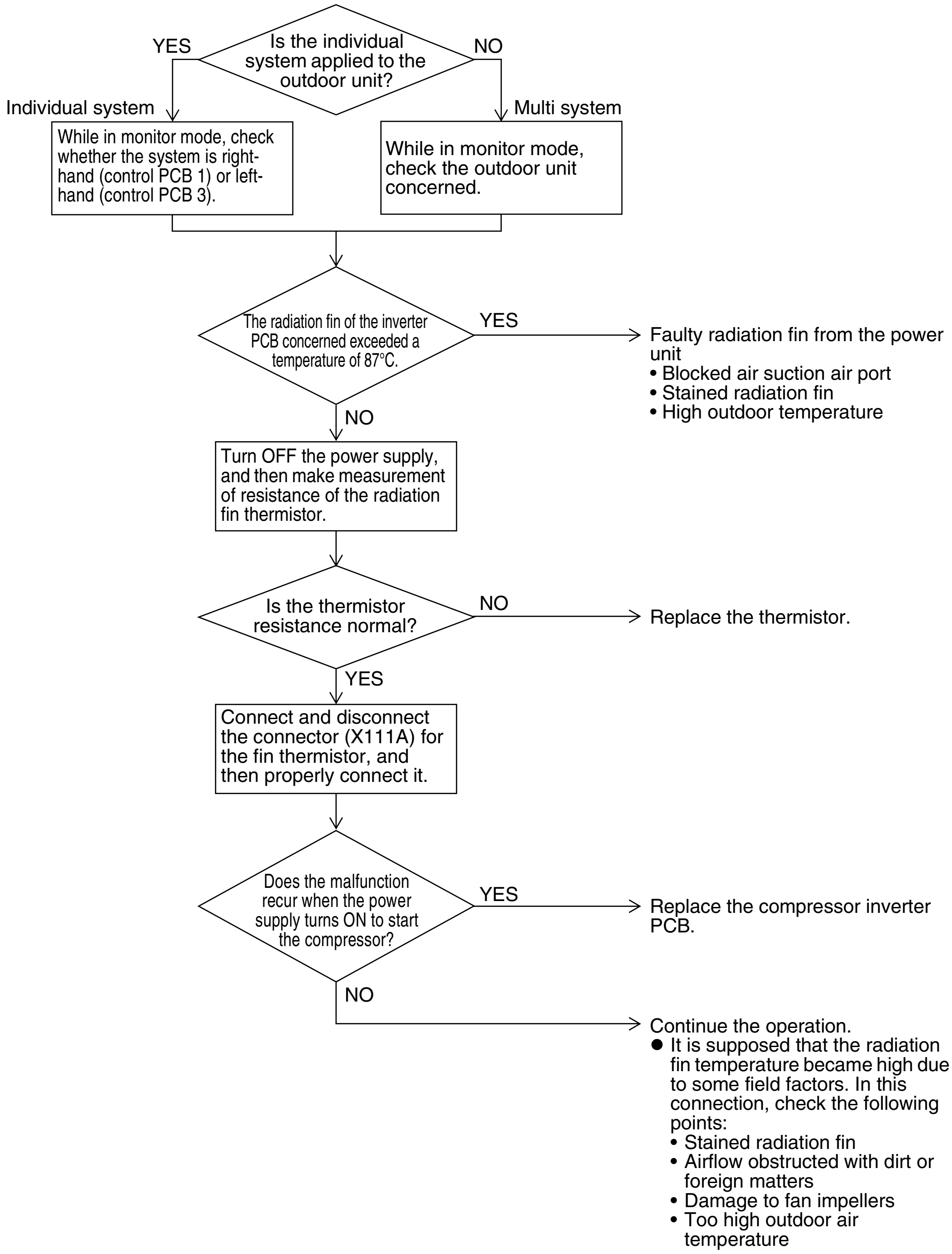
Model	Name	Electric symbol
REYQ 8, 10,12P	Compressor inverter PCB	A5P
	Fan inverter PCB	A6P, A7P
REYQ 14, 16P	Compressor inverter PCB	A4P, A7P
	Fan inverter PCB	A6P, A9P
REMQ 8, 10, 12P	Compressor inverter PCB	A4P
	Fan inverter PCB	A5P
REMQ 14, 16P	Compressor inverter PCB	A4P
	Fan inverter PCB	A5P, A7P

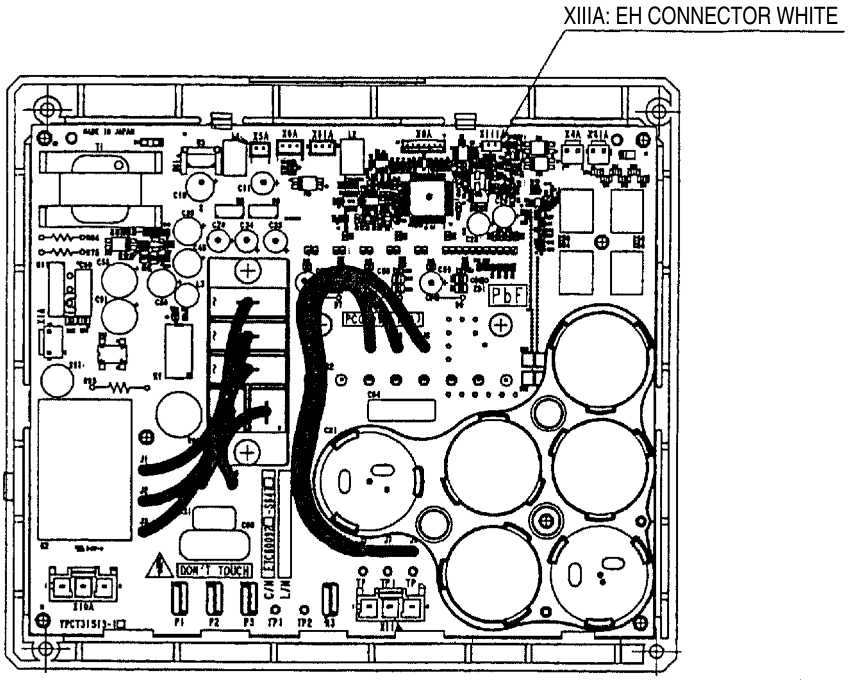
3.39 “L4” Outdoor Unit: Malfunction of Inverter Radiation Fin Temperature Rise

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 87°C.
Supposed Causes	■ Actuation of radiation fin thermal (Actuates above 87°C) ■ Defect of inverter PCB ■ Defect of radiation fin thermistor

Troubleshooting

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





Inverter PCB for compressor

∗ Refer to “Thermistor Resistance / Temperature Characteristics” table on P466.

3.40 "L5" Outdoor Unit: Momentary Overcurrent of Inverter Compressor

Remote Controller Display

L5

Applicable Models

REYQ8P~48P

Method of Malfunction Detection

Malfunction is detected from the current flowing in the power transistor.

Malfunction Decision Conditions

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

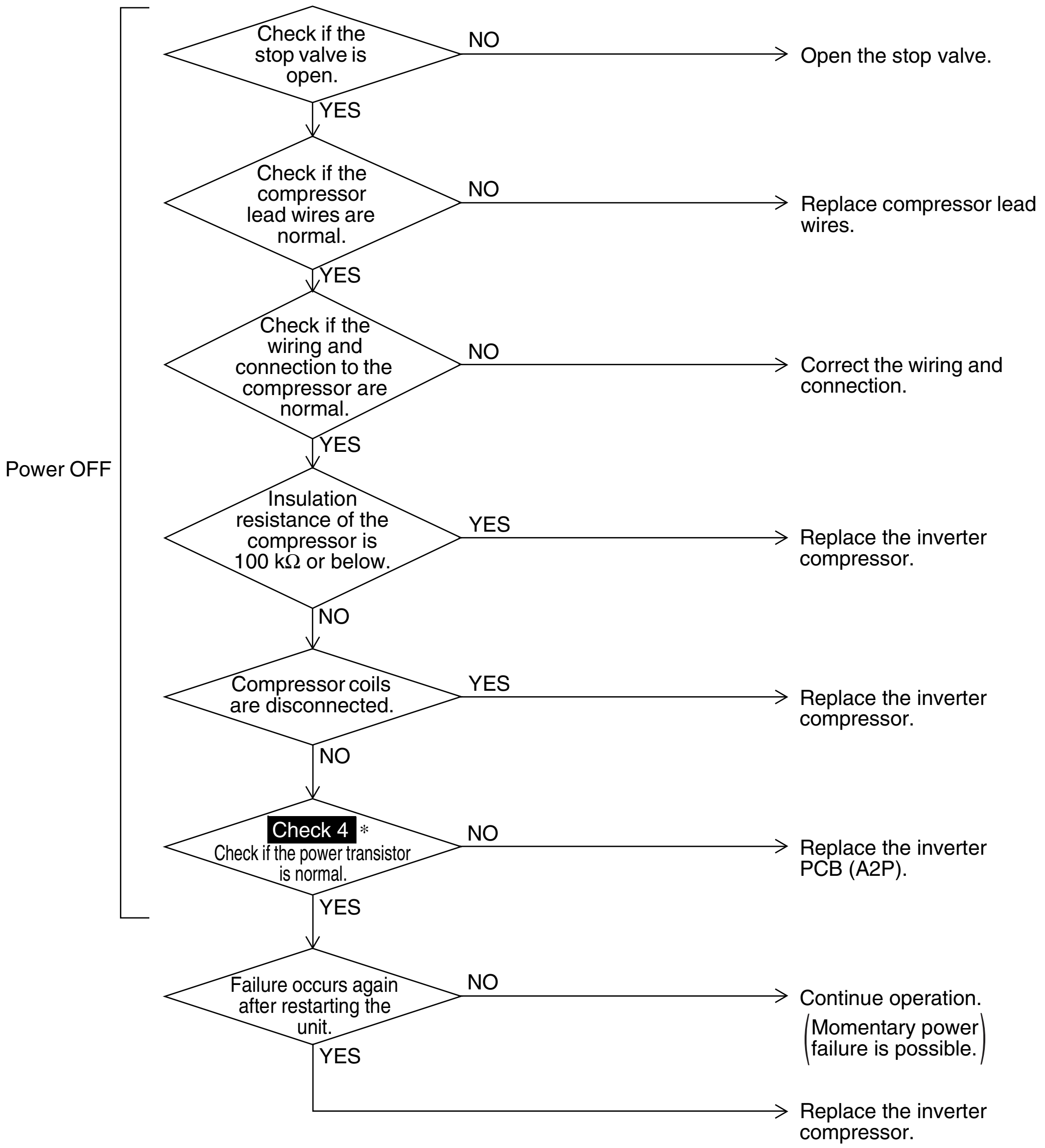
Supposed Causes

- Defect of compressor coil (disconnected, defective insulation)
- Compressor start-up malfunction (mechanical lock)
- Defect of inverter PCB

Troubleshooting

Compressor inspection

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



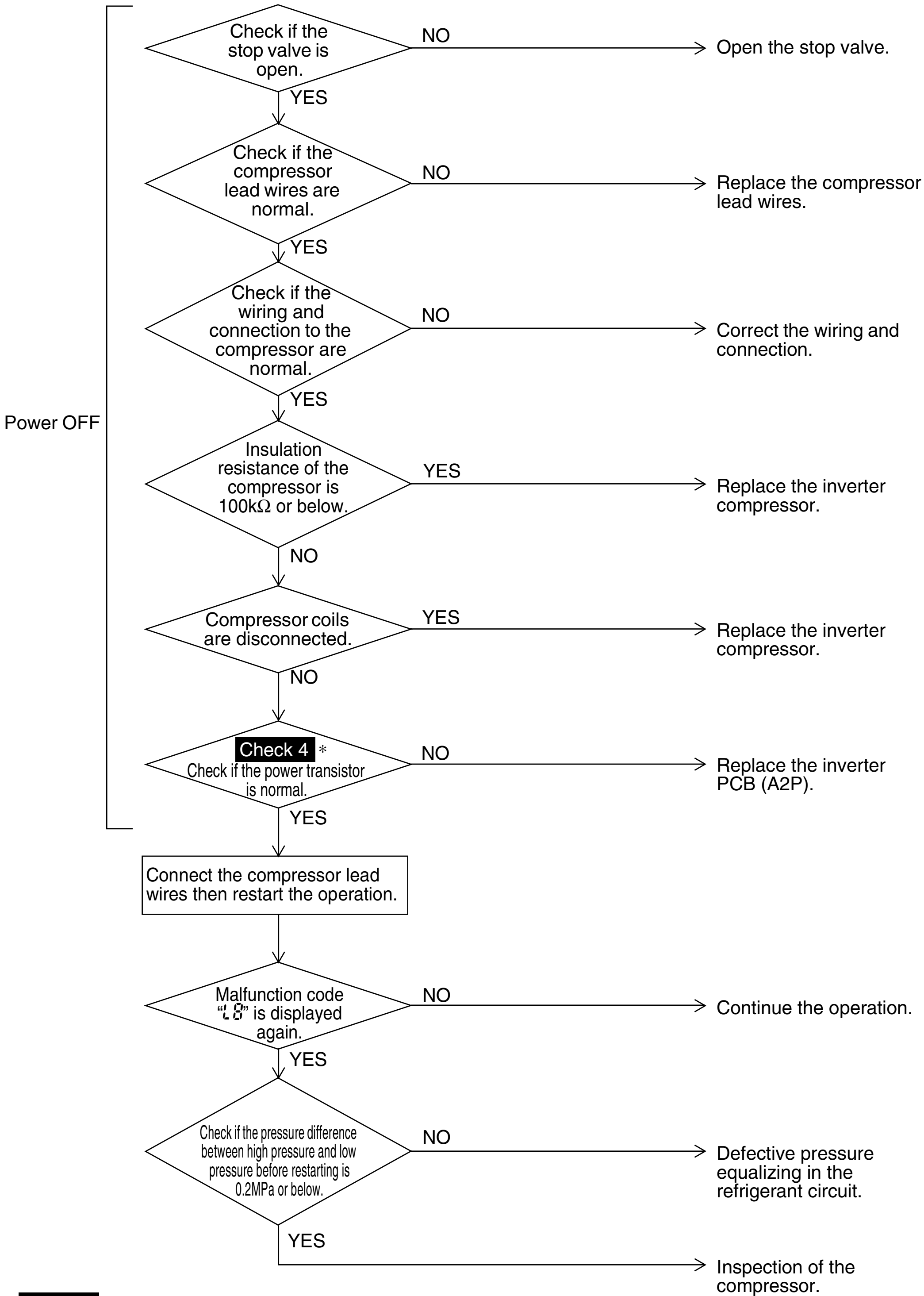
* Check 4 : Referring to the information on P397.

3.41 "L8" Outdoor Unit: Momentary Overcurrent of Inverter Compressor

Remote Controller Display	L8
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Malfunction is detected from the current flowing in the power transistor.
Malfunction Decision Conditions	When overload in the compressor is detected. (Inverter secondary current 16.1A) (1) 19.0A and over continues for 5 seconds. (2) 16.1A and over continues for 260 seconds.
Supposed Causes	■ Compressor overload ■ Compressor coil disconnected ■ Defect of inverter PCB ■ 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.



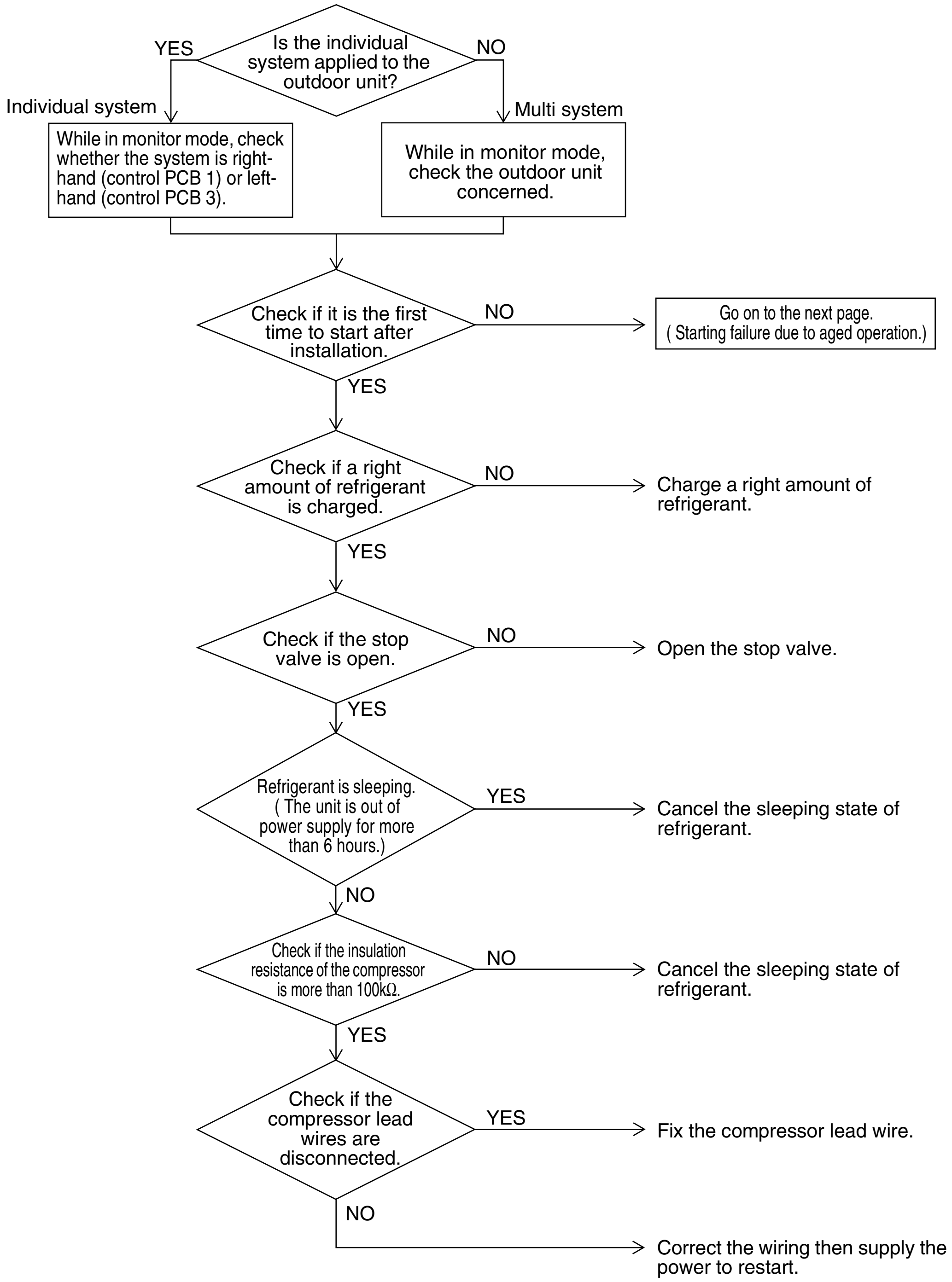
* Check 4 : Referring to the information on P397.

3.42 "L9" Outdoor Unit: Inverter Compressor Starting Failure

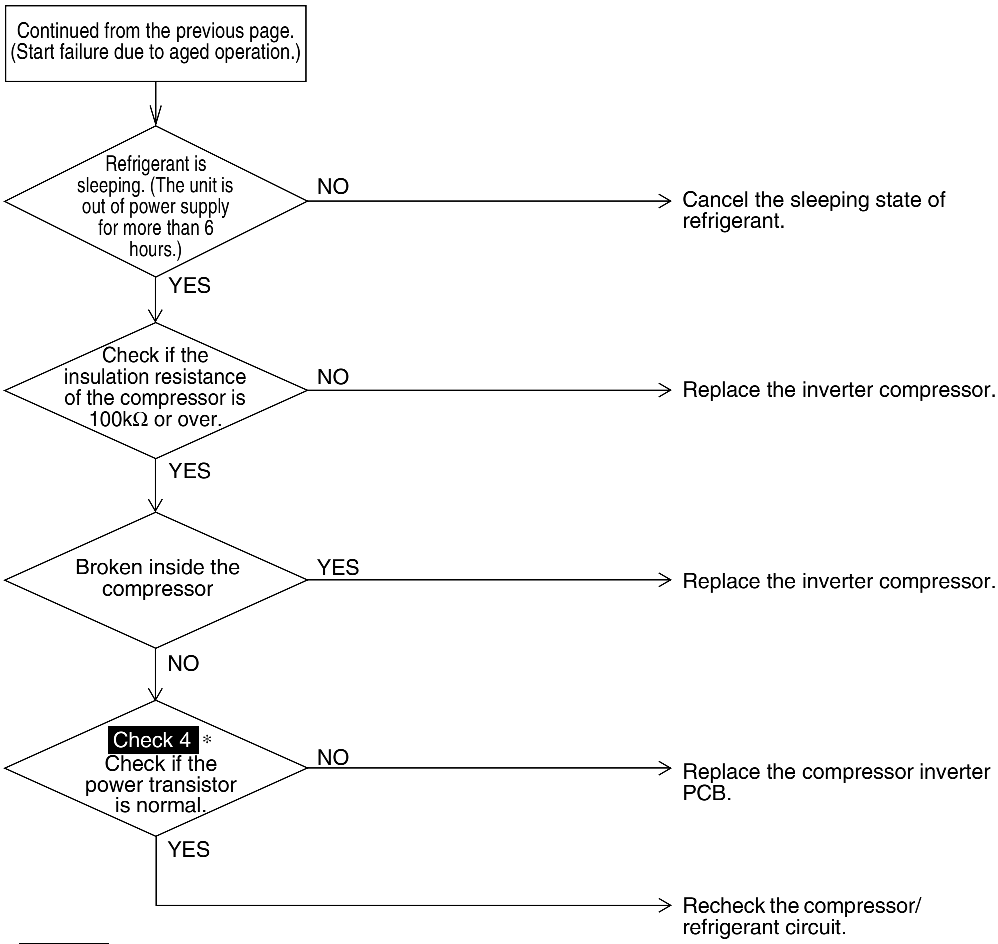
Remote Controller Display	L9
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	Detect the failure based on the signal waveform of the compressor.
Malfunction Decision Conditions	Starting the compressor does not complete.
Supposed Causes	■ Failure to open the stop valve ■ Defective compressor ■ Wiring connection error to the compressor ■ Large pressure difference before starting the compressor ■ Defective inverter PCB

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 P.397.

3.43 “LC” Outdoor Unit: Malfunction of Transmission between Inverter and Control PCB

Remote Controller Display

LC

Applicable Models

REYQ8P~48P

Method of Malfunction Detection

Check the communication state between inverter PCB and control PCB by micro-computer.

Malfunction Decision Conditions

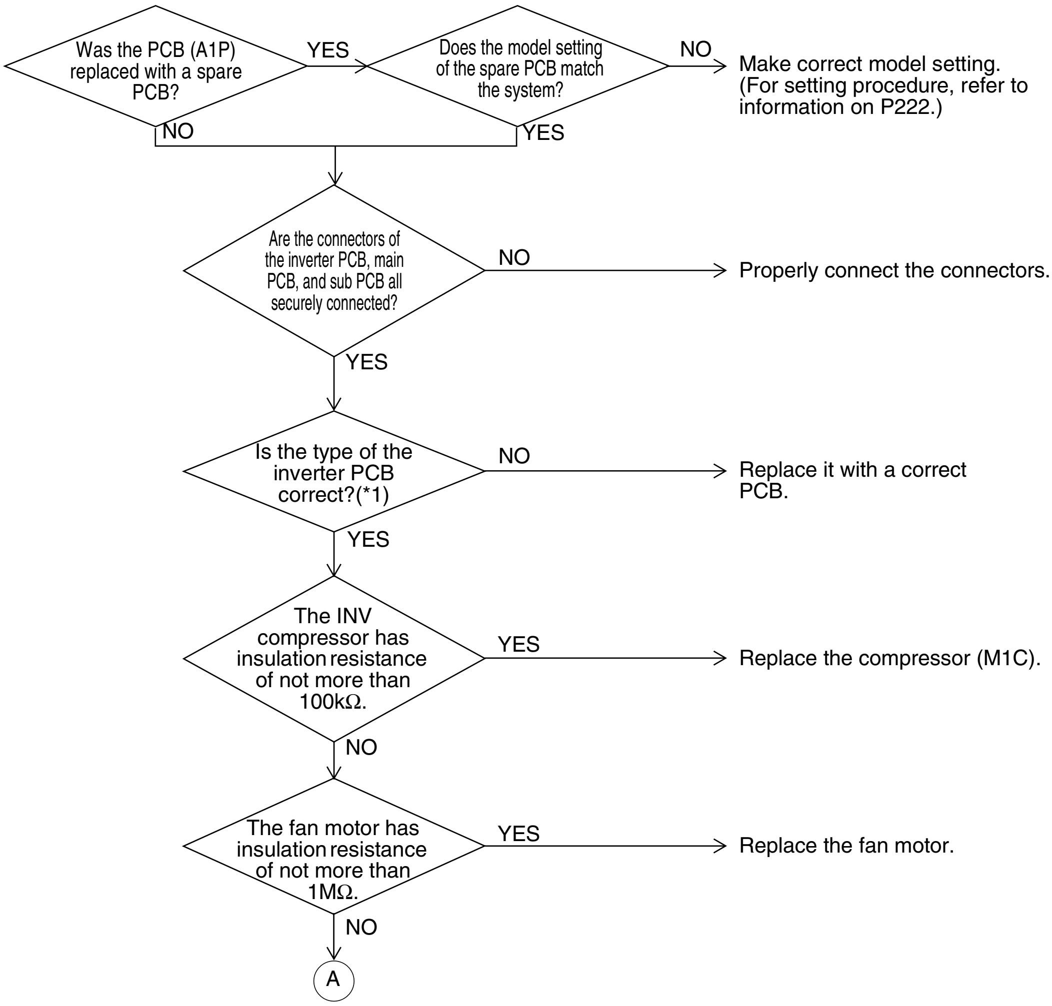
When the correct communication is not conducted in certain period.

Supposed Causes

- Malfunction of connection between the inverter PCB and outdoor main PCB
- Defect of outdoor main PCB (transmission section)
- Defect of inverter PCB
- Defect of noise filter
- Faulty fan inverter
- Incorrect type of inverter PCB
- Faulty inverter compressor
- Faulty fan motor
- External factor (noise etc.)

Troubleshooting

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



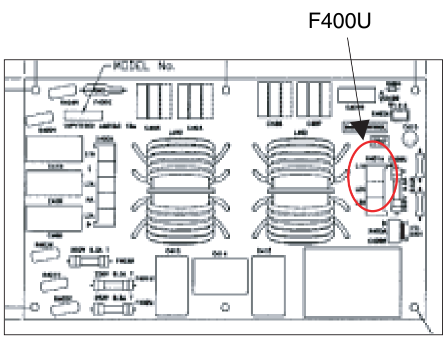
*1. List of Inverter PCBs

	Comp1	Comp2	FAN1	FAN2
REYQ8PY1	PC0509-1	—	PC0511-3	PC0511-4
REYQ10PY1	PC0509-1	—	PC0511-3	PC0511-4
REYQ12PY1	PC0509-1	—	PC0511-3	PC0511-4
REYQ14PY1	PC0509-1	PC0509-1	PC0511-1	PC0511-1
REYQ16PY1	PC0509-1	PC0509-1	PC0511-1	PC0511-1
REMQ8PY1	PC0509-1	—	PC0511-1	—
REMQ10PY1	PC0509-1	—	PC0511-1	—
REMQ12PY1	PC0509-1	—	PC0511-1	—
REMQ14PY1	PC0509-1	—	PC0511-3	PC0511-4
REMQ16PY1	PC0509-1	—	PC0511-3	PC0511-4

Troubleshooting

A

- The fuse F400U of the A3P has been molten down.
  - YES → Replace the noise filter of the A3P. → (go to next step)
  - NO → (go to next step)
- Disconnect the sensor connector (X2A or X4A) from the fan motor, and then turn ON the power supply.
- Is any malfunction code other than "LC" displayed?
  - YES → Take countermeasures following the displayed malfunction code.
  - NO → (next)
- The micro-computer normal monitor (green) of the main PCB (A1P) is blinking.
  - NO → Not the LC malfunction. Check the malfunction code again.
  - YES → (next)
- The micro-computer normal monitor (green) of the main PCB (A4P) is blinking.
  - NO → Replace the inverter PCB (A4P).
    * If the replaced PCB has significant damage, the compressor is probably get faulty. In this case, carry out inspections on the compressor again.
  - YES → (next)
- The LC malfunction recurs.
  - YES → Replace the main PCB (A1P).
  - NO → Continue operation. (It is supposed that the malfunction results from causes such as instantaneous power failure.)



3.44 "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 PCB.
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.

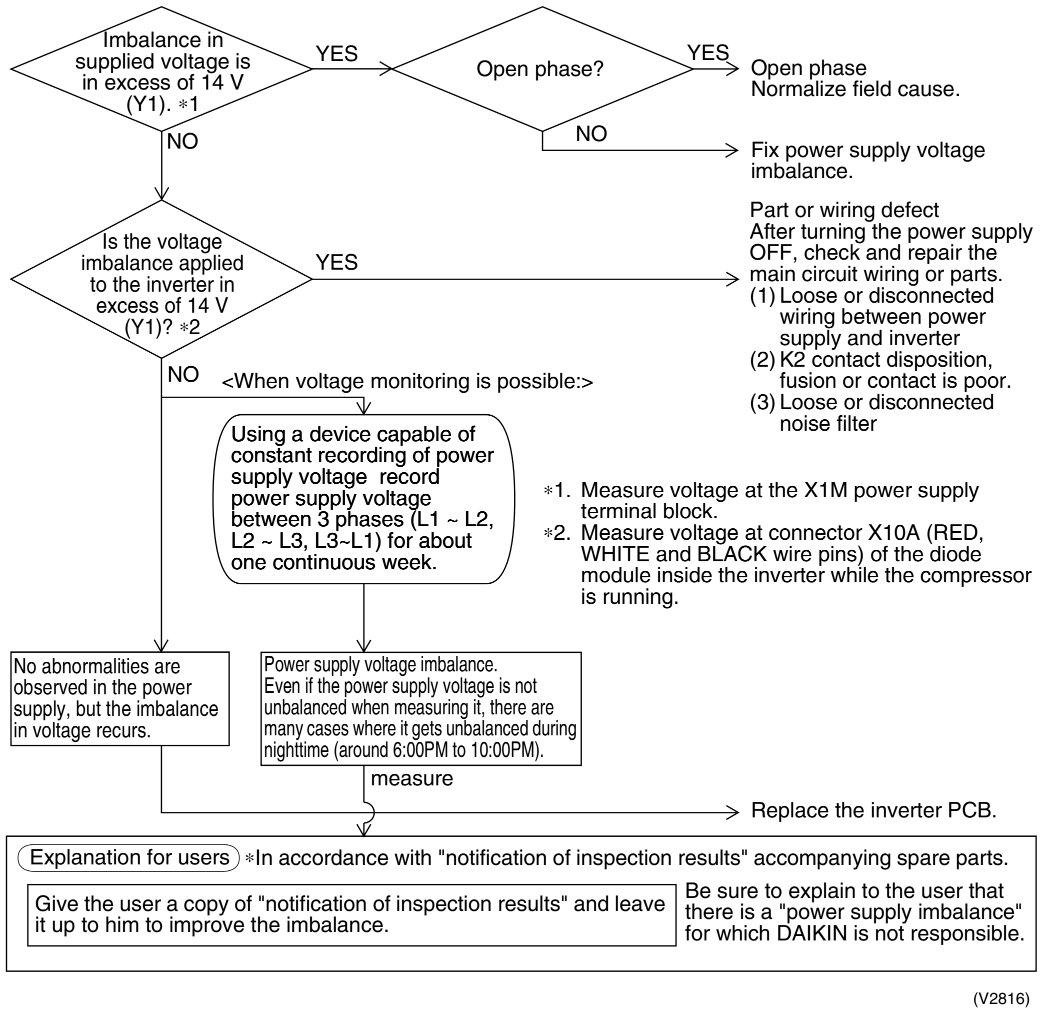
When the amplitude of the ripple exceeding a certain value is detected for consecutive 4 minutes.

Supposed Causes

- Open phase
- Voltage imbalance between phases
- Defect of main circuit capacitor
- Defect of inverter PCB
- Defect of K2 relay in inverter PCB
- Improper main circuit wiring

Troubleshooting

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



3.45 “P4” Outdoor Unit: Malfunction of Inverter Radiation 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.

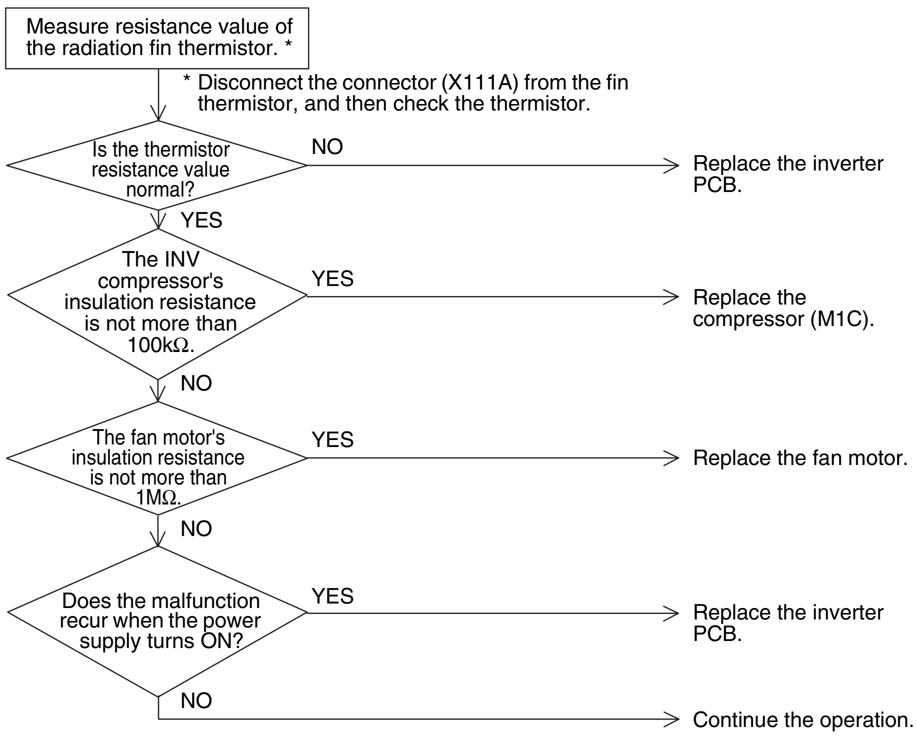
★ Malfunction is not decided while the unit operation is continued.
"P4" will be displayed by pressing the inspection button.

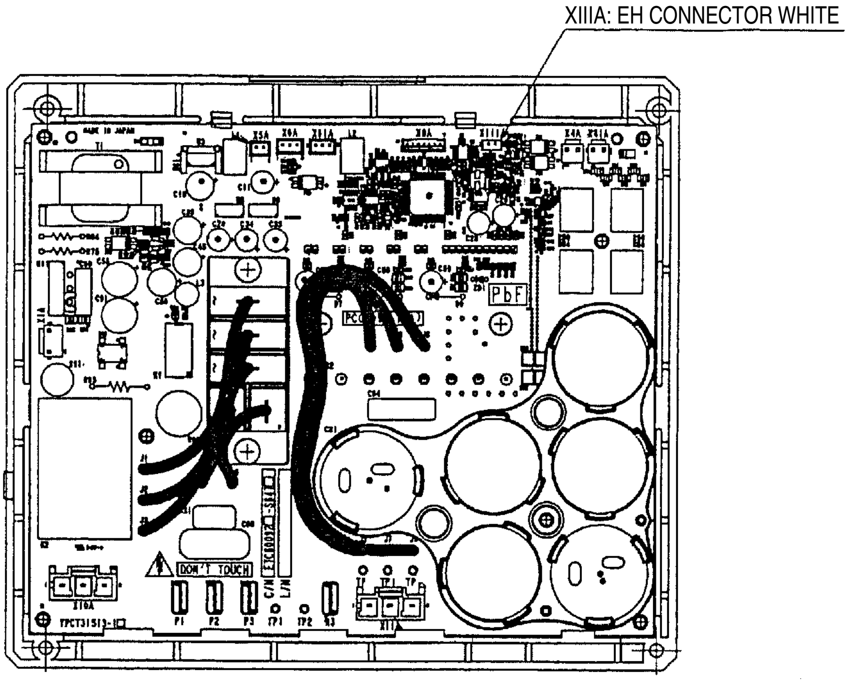
Supposed Causes

- Defect of radiation fin temperature sensor
- Defect of inverter PCB
- Faulty inverter compressor
- Faulty fan motor

Troubleshooting

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





Inverter PCB for compressor

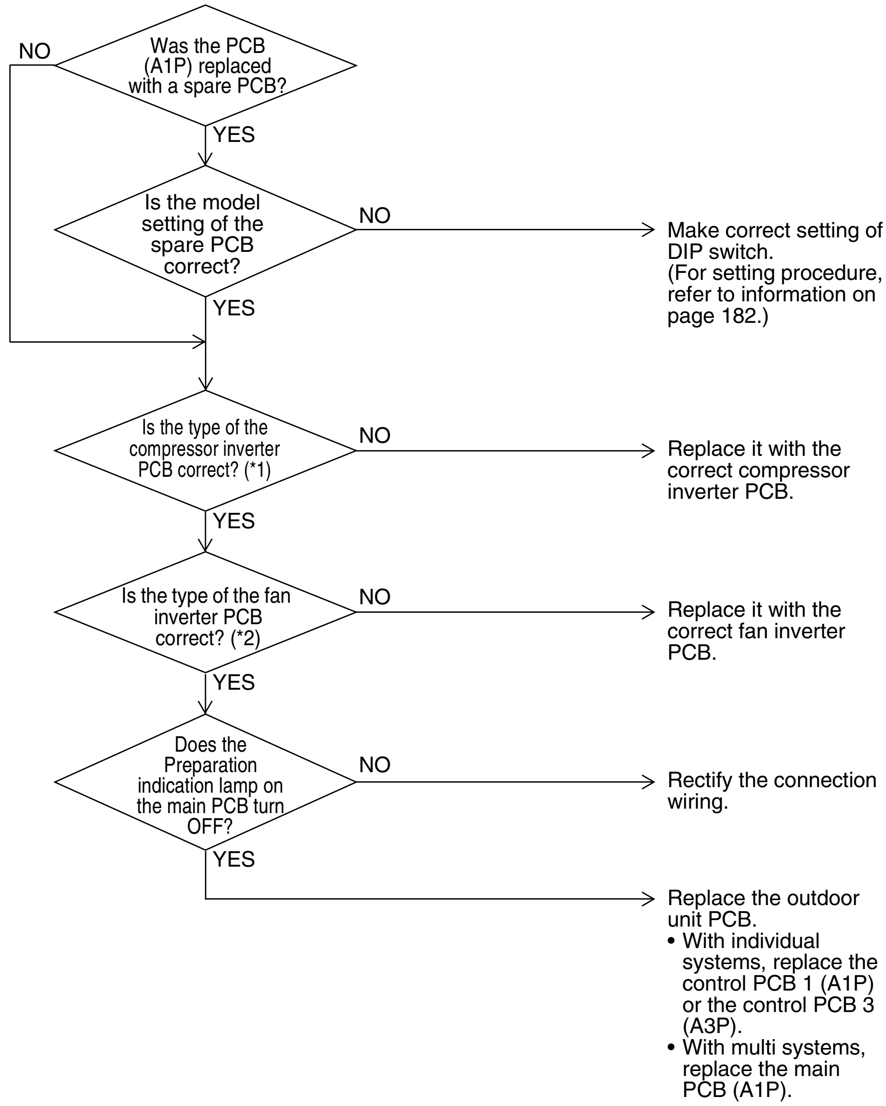
∗ Refer to “Thermistor Resistance / Temperature Characteristics” table on P466.

3.46 “PJ” Outdoor Unit: Faulty Field Setting after Replacing Main PCB or Faulty Combination of PCB

Remote Controller Display	PJ
Applicable Models	REYQ8P~48P
Method of Malfunction Detection	This malfunction is detected according to communications with the inverter.
Malfunction Decision Conditions	Make judgment according to communication data on whether or not the type of the inverter PCB is correct.
Supposed Causes	■ Faulty (or no) field setting after replacing main PCB ■ Mismatching of type of PCB

Troubleshooting

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



*1. List of Inverter PCBs

	Comp1	Comp2	FAN1	FAN2
REYQ8PY1	PC0509-1	—	PC0511-3	PC0511-4
REYQ10PY1	PC0509-1	—	PC0511-3	PC0511-4
REYQ12PY1	PC0509-1	—	PC0511-3	PC0511-4
REYQ14PY1	PC0509-1	PC0509-1	PC0511-1	PC0511-1
REYQ16PY1	PC0509-1	PC0509-1	PC0511-1	PC0511-1
REMQ8PY1	PC0509-1	—	PC0511-1	—
REMQ10PY1	PC0509-1	—	PC0511-1	—
REMQ12PY1	PC0509-1	—	PC0511-1	—
REMQ14PY1	PC0509-1	—	PC0511-3	PC0511-4
REMQ16PY1	PC0509-1	—	PC0511-3	PC0511-4

3.47 "U0" Outdoor Unit: Refrigerant Shortage Alert

Remote Controller Display

U0

Applicable Models

REYQ8P~48P

Method of Malfunction Detection

Detect refrigerant shortage based on the temperature difference between low pressure or suction pipe
and heat exchanger.

Malfunction Decision Conditions

[In cooling mode]
Low pressure becomes 0.1MPa or below.
[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 the operation.

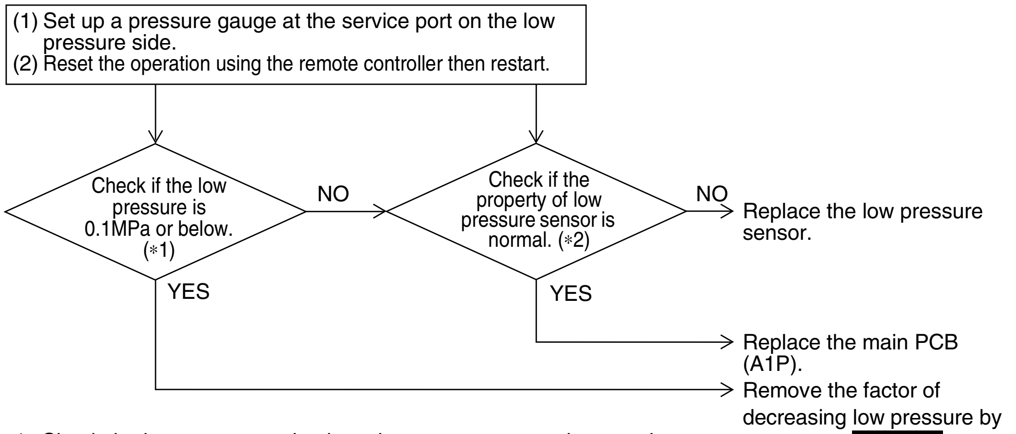
Supposed Causes

- Refrigerant shortage or refrigerant clogging (piping error)
- Defective thermistor (R4T, R7T, R12T, R15T)
- Defective low pressure sensor
- Defective outdoor unit PCB (A1P)

Troubleshooting

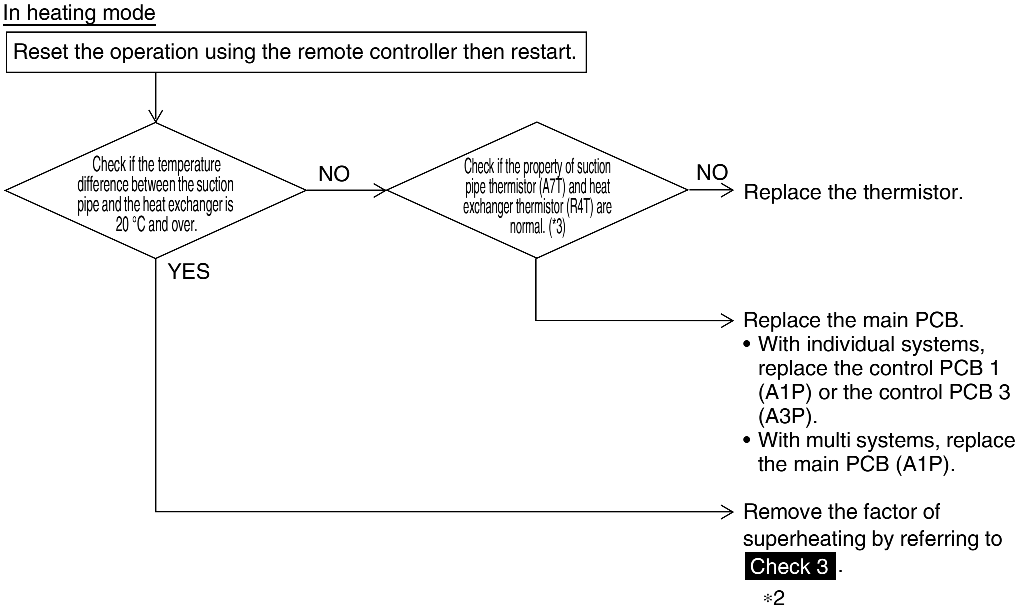
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

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 P468.)

In heating mode



∗3: Compare the thermistor resistance value with the value on the surface thermometer.

∗ 1 Check 6 : Referring to the information on P399.

∗ 2 Check 3 : Referring to the information on P396.

3.48 “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

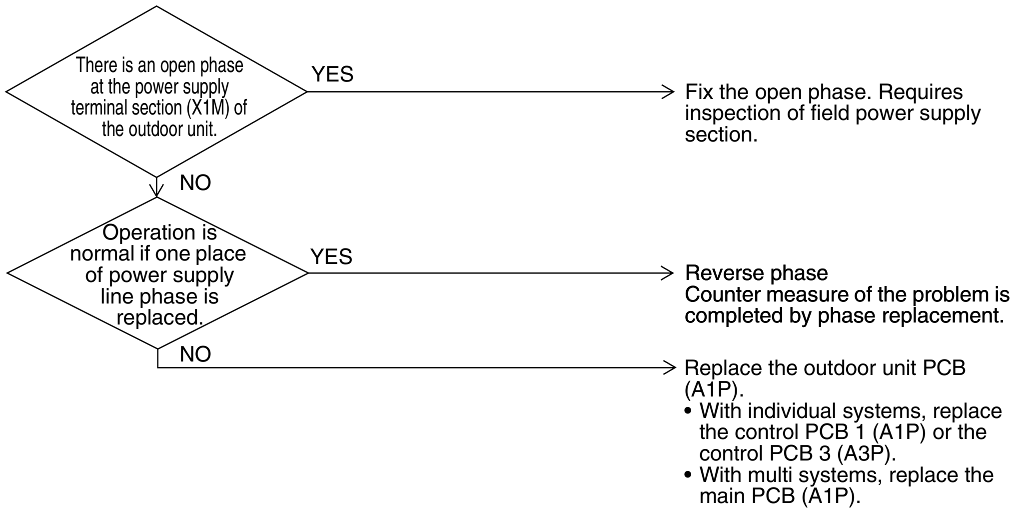
When a significant phase difference is made between phases.

Supposed Causes

- Power supply reverse phase
- Power supply open phase
- Defect of outdoor PCB (A1P)

Troubleshooting

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



3.49 “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

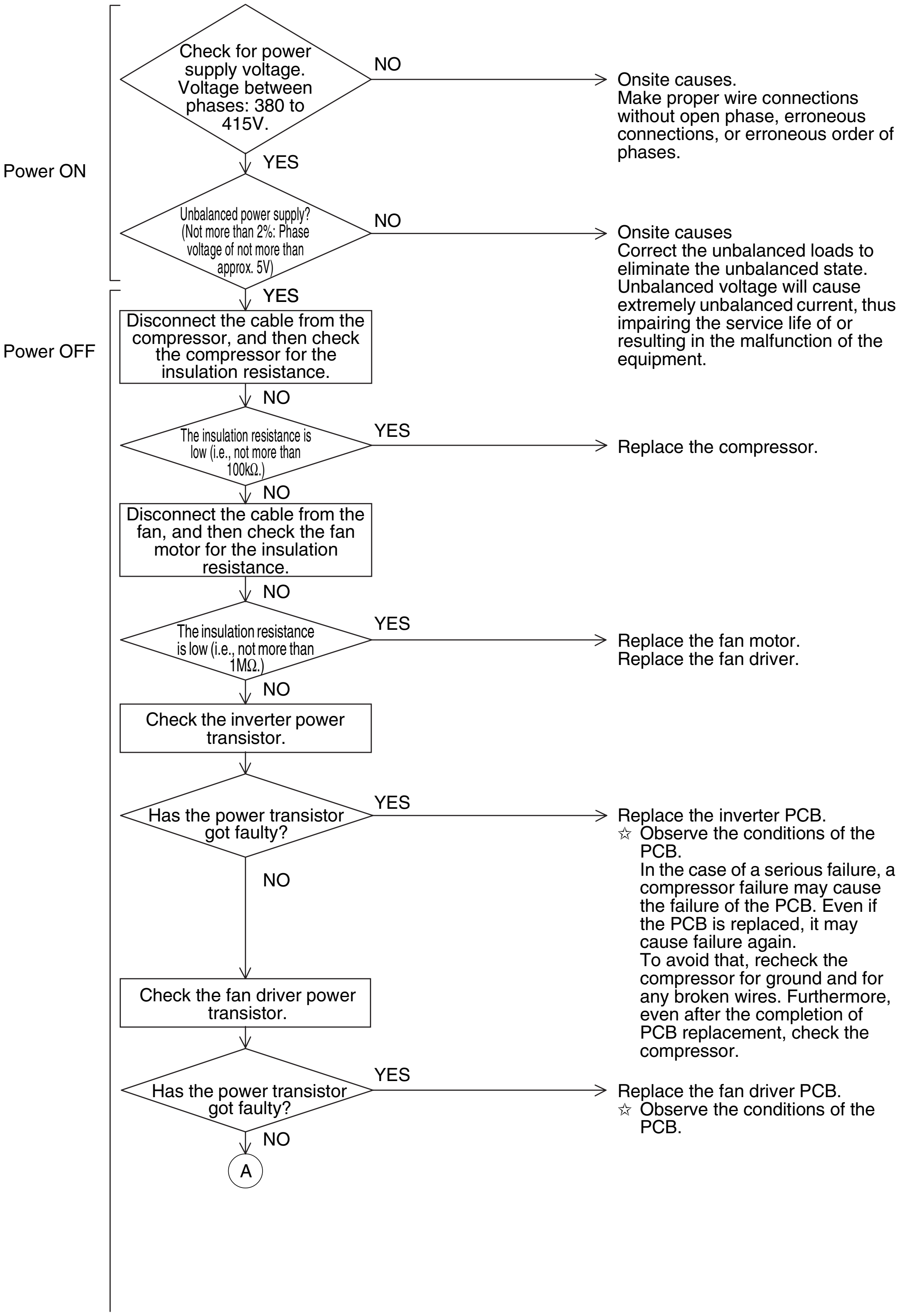
When the voltage aforementioned is not less than 780V or not more than 320V, or when the current-limiting voltage does not reach 200V or more or exceeds 740V.

Supposed Causes

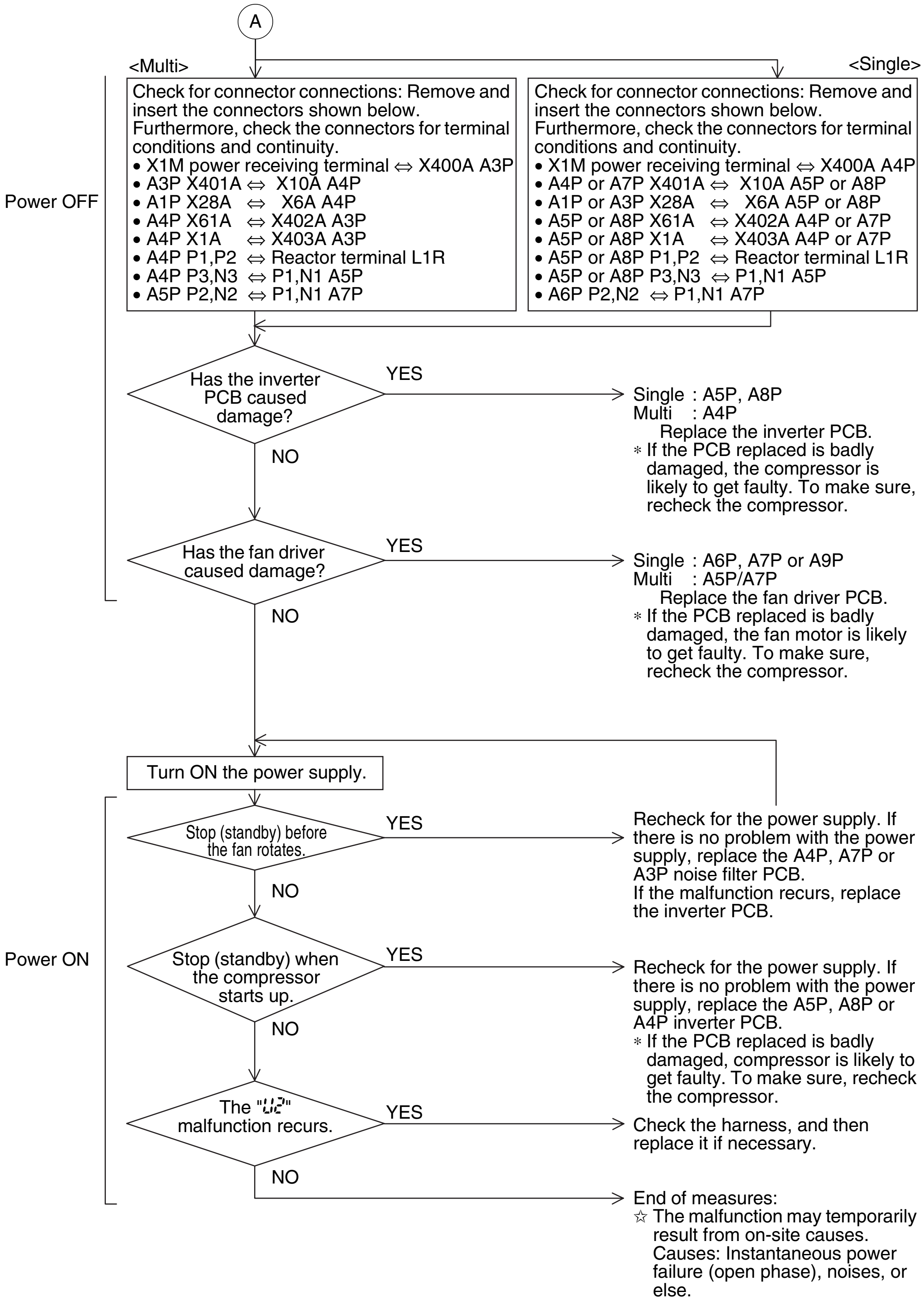
- Power supply insufficient
- Instantaneous power failure
- Open phase
- Defect of inverter PCB
- Defect of outdoor control PCB
- Defect of main circuit wiring
- Faulty compressor
- Faulty fan motor
- Faulty connection of signal cable

Troubleshooting

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



Troubleshooting



3.50 "U3" Outdoor Unit: Check Operation is not Executed

Remote Controller Display

U3

Applicable Models

REYQ8P~48P

Method of Malfunction Detection

Check operation is executed or not executed

Malfunction Decision Conditions

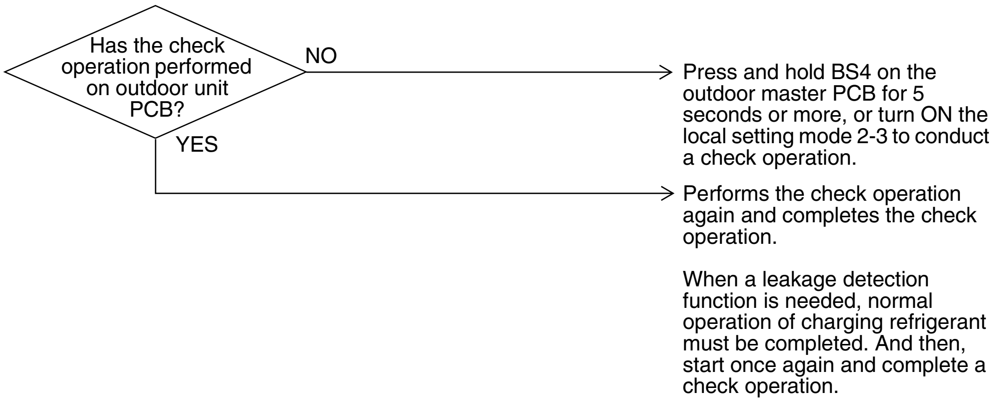
Malfunction is decided when the unit starts operation without check operation.

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.

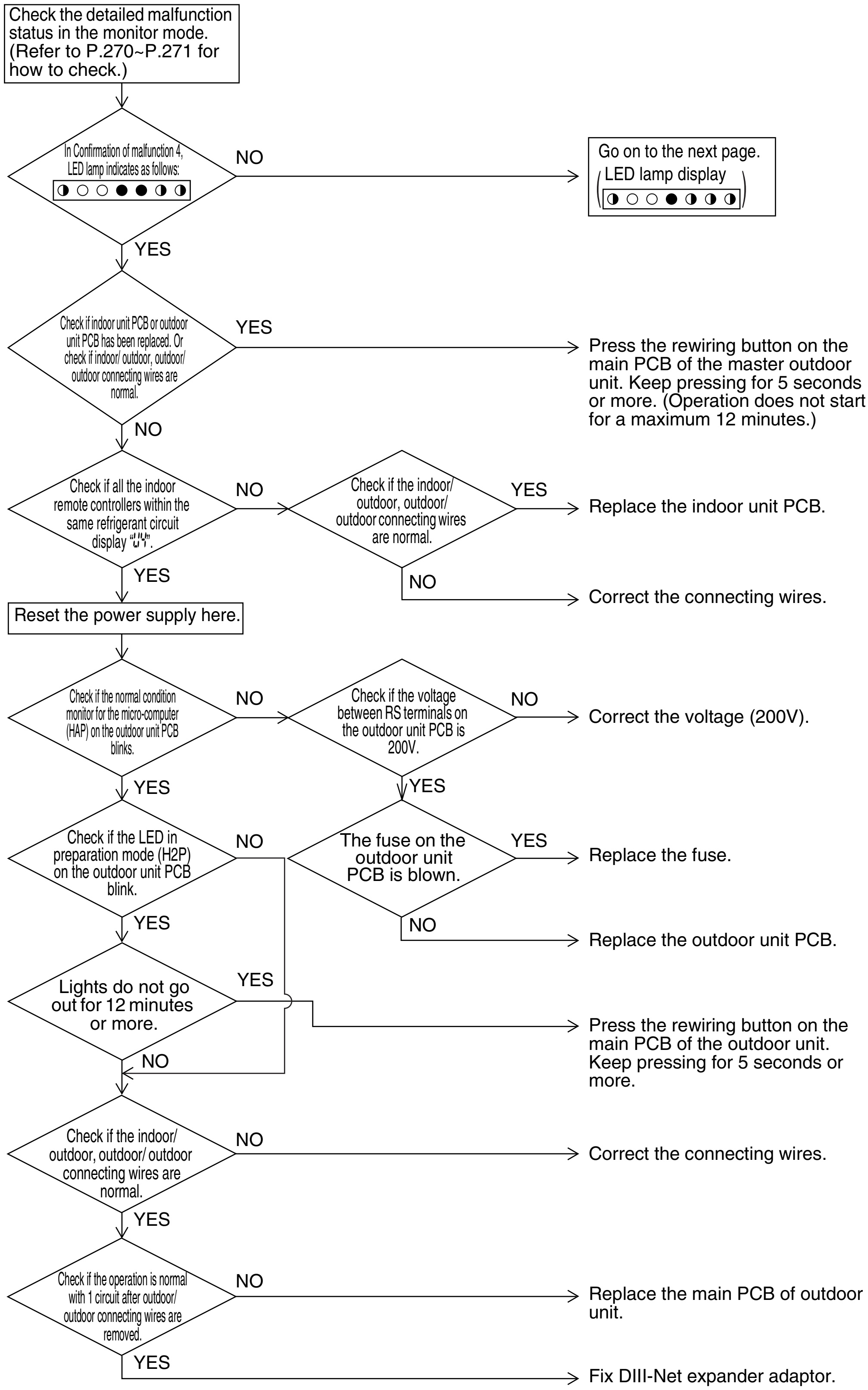


3.51 "U4" Malfunction of Transmission between Indoor Units and Outdoor Units

Remote Controller Display	U4
Applicable Models	All indoor unit models REYQ8P~48P
Method of Malfunction Detection	Check if the transmission between indoor unit and outdoor unit is correctly executed using micro-computer.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ Indoor to outdoor, outdoor to outdoor transmission wiring F1, F2 disconnection, short circuit or wrong wiring ■ Outdoor unit power supply is OFF ■ System address does not match ■ Defect of indoor unit PCB ■ Defect of outdoor unit PCB

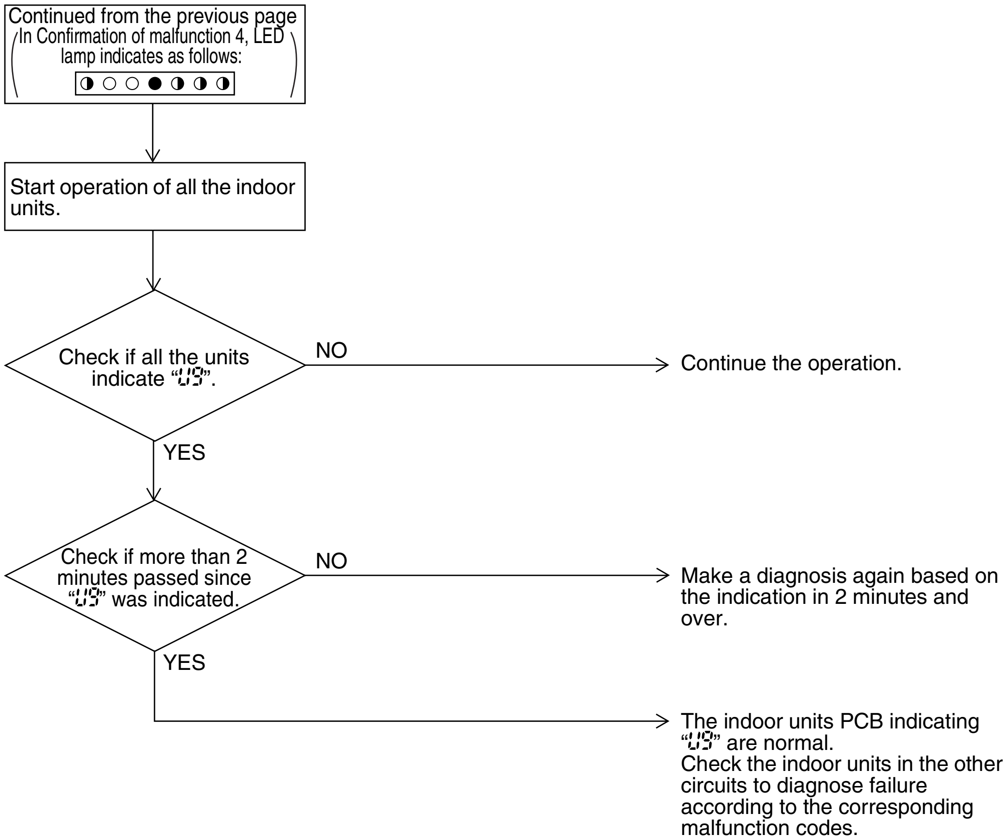
Troubleshooting

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.



3.52 "U5" Indoor Unit: Malfunction of Transmission between Remote Controller and Indoor Unit

Remote Controller Display

U5

Applicable Models

All indoor unit models

Method of Malfunction Detection

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

Malfunction Decision Conditions

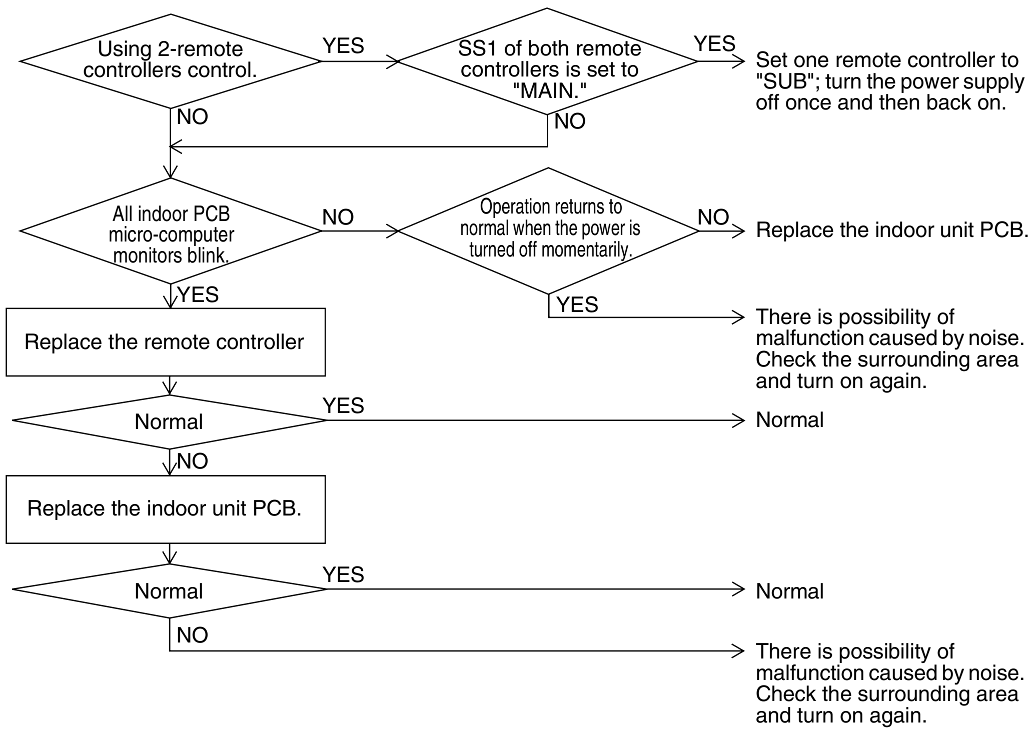
Normal transmission does not continue for specified period.

Supposed Causes

- Malfunction of indoor unit remote controller transmission
- Connection of two main remote controllers (when using 2 remote controllers)
- Defect of indoor unit PCB
- Defect of remote controller PCB
- 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.



3.53 "U7" Outdoor Unit: Transmission Failure (Across Outdoor Units)

Remote Controller Display	U7
Applicable Models	All outdoor unit models
Method of Malfunction Detection	Micro-computer checks if transmission between outdoor units.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time

Supposed Causes

- Connection error in connecting wires between outdoor unit and external control adaptor for outdoor unit
- Connection error in connecting wires across outdoor units
- Setting error in switching cooling/ heating
- Integrated address setting error for cooling/ heating (function unit, external control adaptor for outdoor unit)
- Defective outdoor unit PCB (A1P or A3P)
- Defective external control adaptor for outdoor unit

Troubleshooting

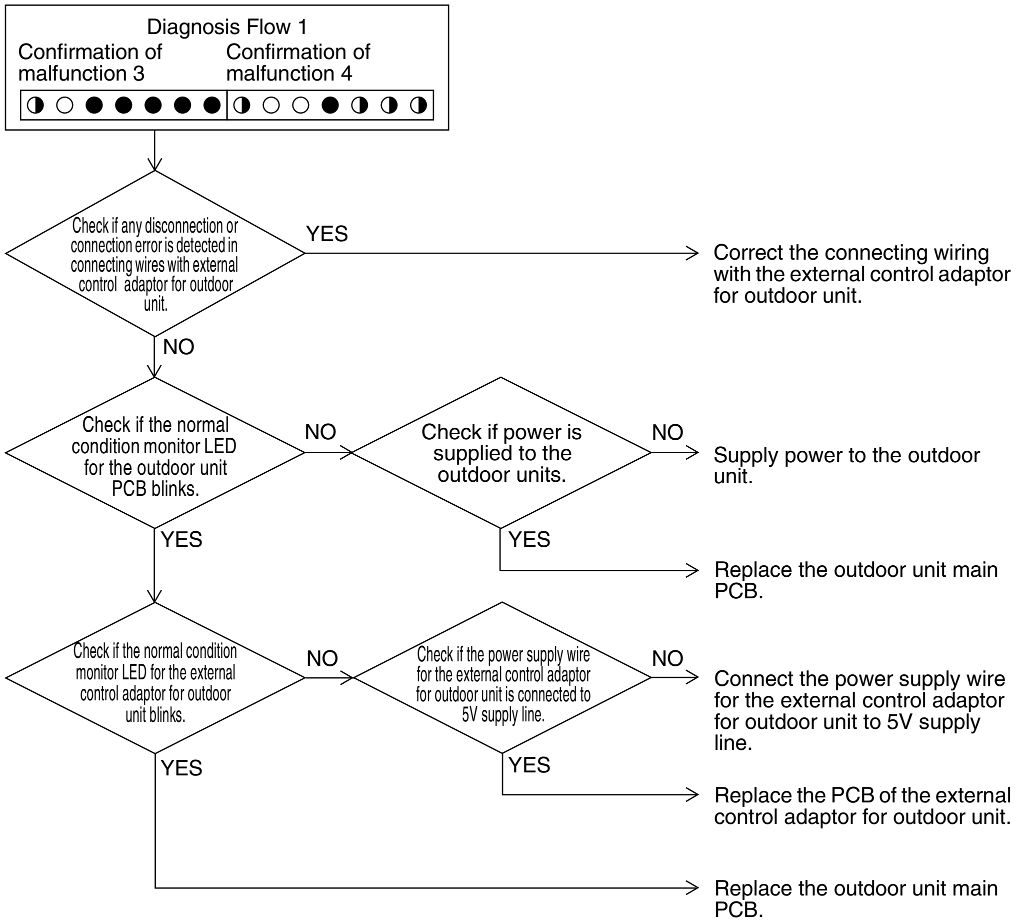
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Check the LED lamps for "Confirmation of malfunction 3" corresponding to the malfunction code "U7" and for Confirmation of malfunction 4 in the monitor mode. (Refer to P.270~P.271 for how to check)

Confirmation of malfunction 3	Confirmation of malfunction 4	
◑ ○ ● ● ● ● ●	◑ ○ ○ ● ◑ ◑ ◑	Go on to the Diagnosis Flow 1 (Faulty transmission caused when the external control adaptor for outdoor unit is mounted)
◑ ○ ● ● ● ● ●	◑ ○ ● ● ◑ ◑ ◑	Go on to the Diagnosis Flow 2 (Transmission alarm given when the external control adaptor for outdoor unit is mounted)
◑ ○ ● ● ● ● ●	◑ ○ ○ ◑ ● ◑ ◑	Go on to the Diagnosis Flow 3 (Abnormal transmission between the master unit and the slave unit 1)
◑ ○ ● ● ● ● ●	◑ ○ ○ ◑ ◑ ◑ ◑	Go on to the Diagnosis Flow 4 (Abnormal transmission between the master unit and the slave unit 2)
◑ ○ ● ● ● ● ◑	◑ ○ ○ ● ● ◑ ◑	Go on to the Diagnosis Flow 5 (Multi-connection REYQ units)
◑ ○ ● ● ● ● ◑	◑ ○ ○ ● ◑ ◑ ◑	Go on to the Diagnosis Flow 6 (Erroneous manual address settings of the slave units 1 and 2)
◑ ○ ● ● ● ● ◑	◑ ○ ○ ◑ ● ◑ ◑	Go on to the Diagnosis Flow 7 (Connection of four or more outdoor units to the same circuit)
◑ ○ ● ● ● ● ◑	◑ ○ ○ ◑ ◑ ◑ ◑	Go on to the Diagnosis Flow 8 (Faulty auto address of the slave units 1 and 2)

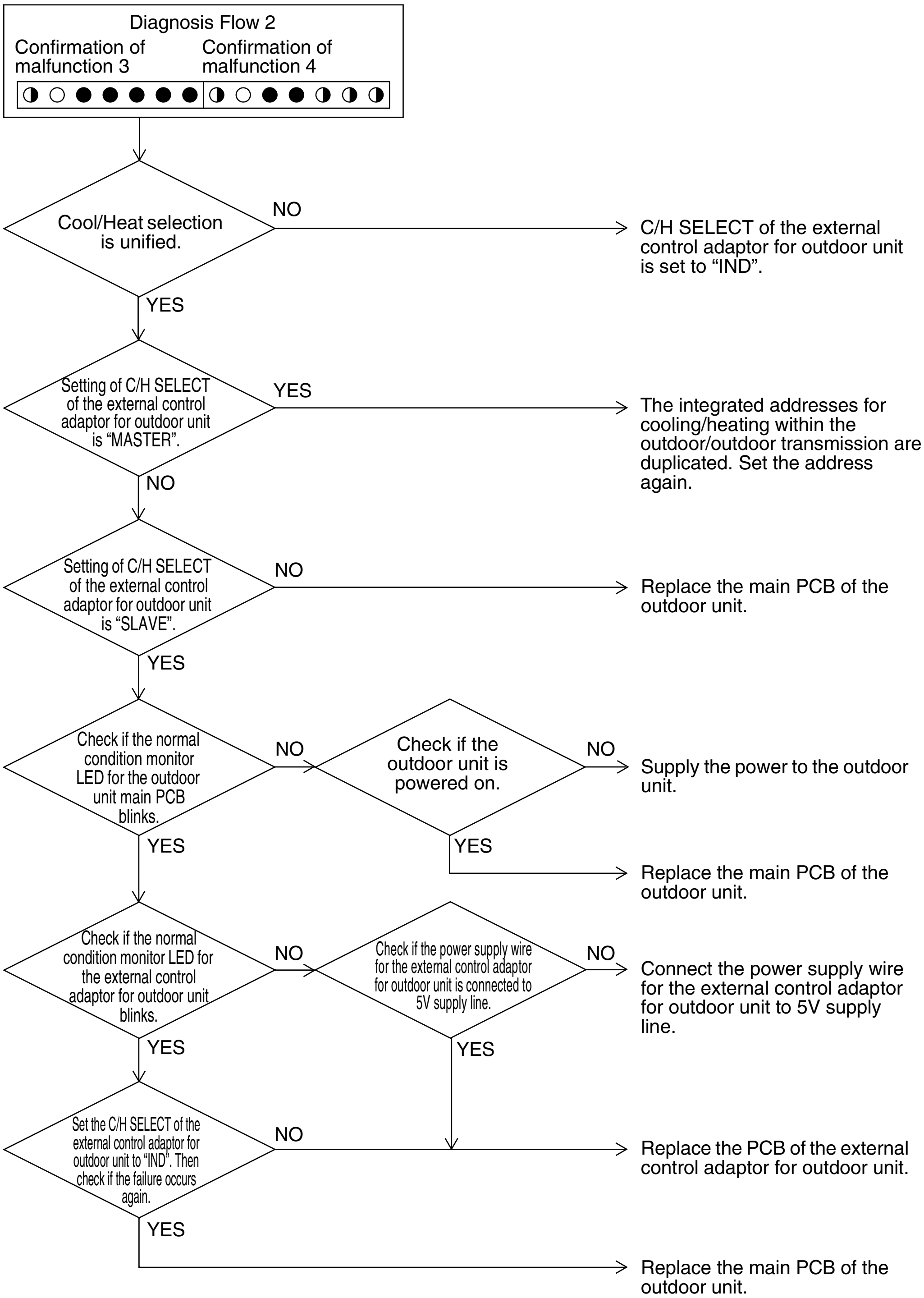
Troubleshooting

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



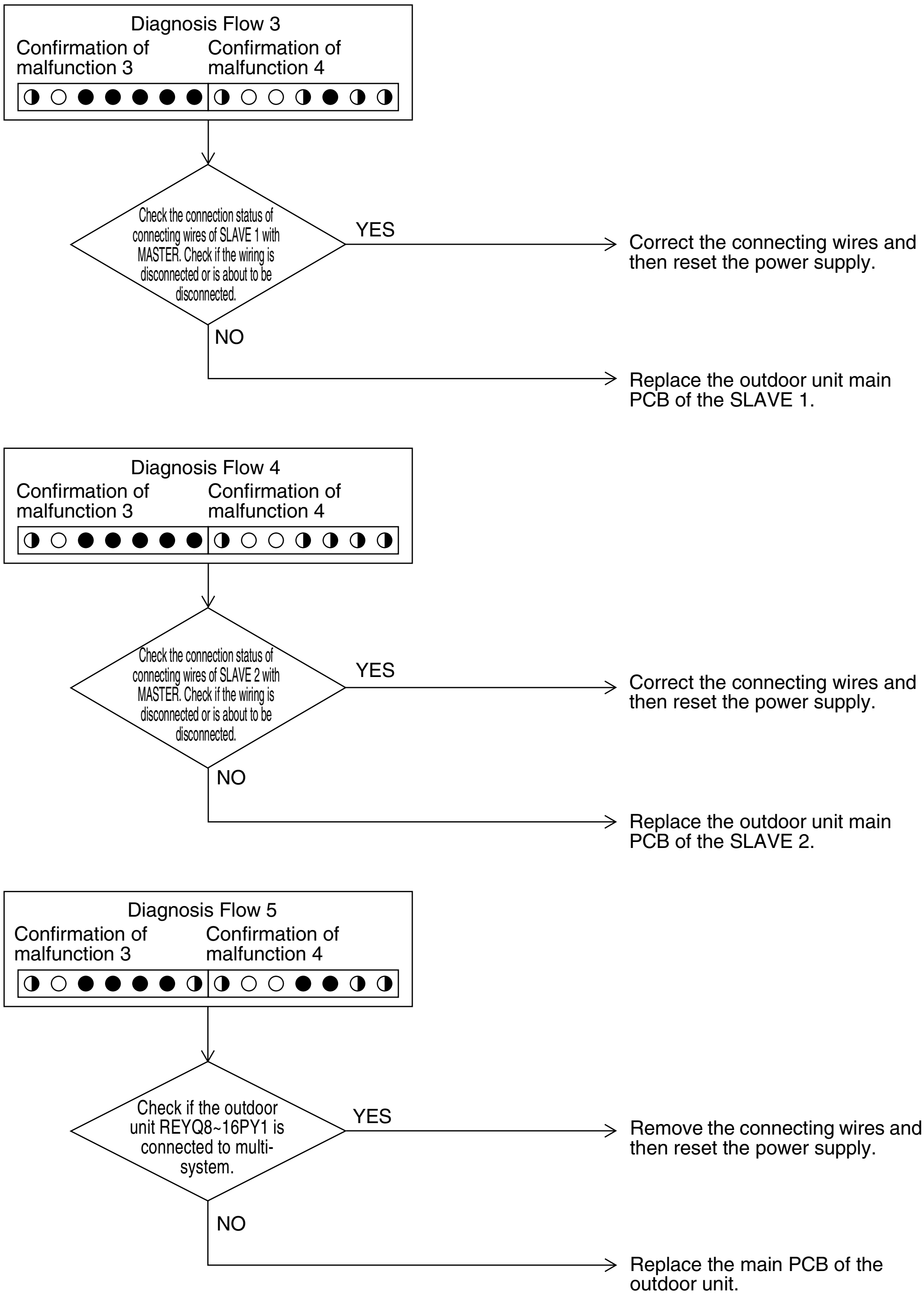
Troubleshooting

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



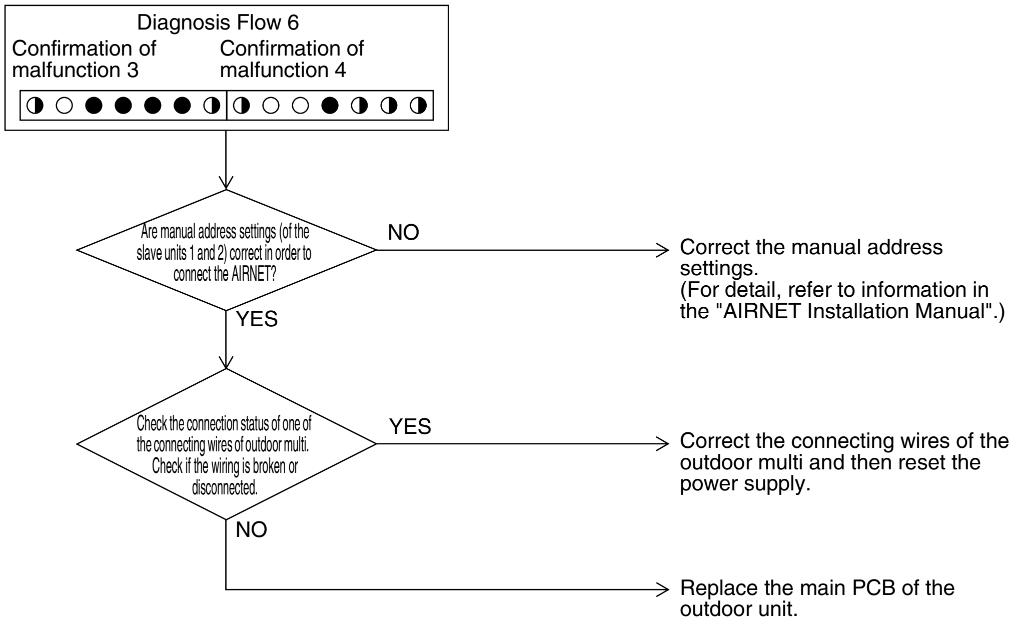
Troubleshooting

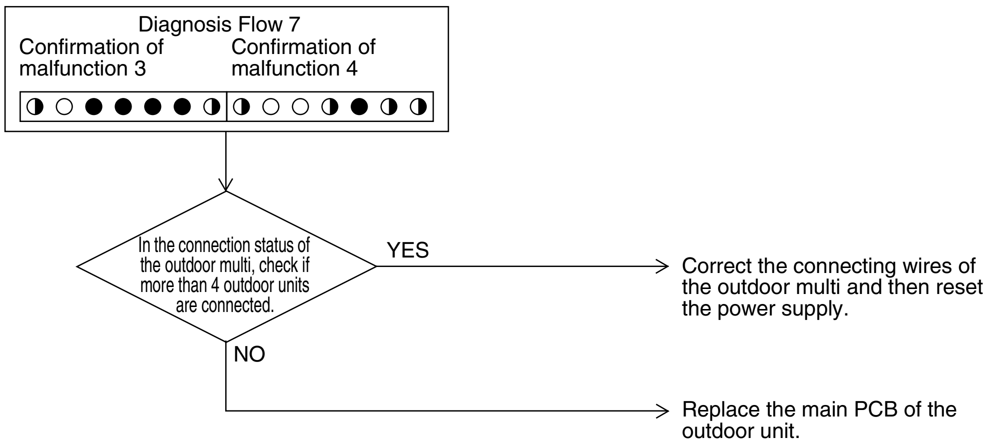
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

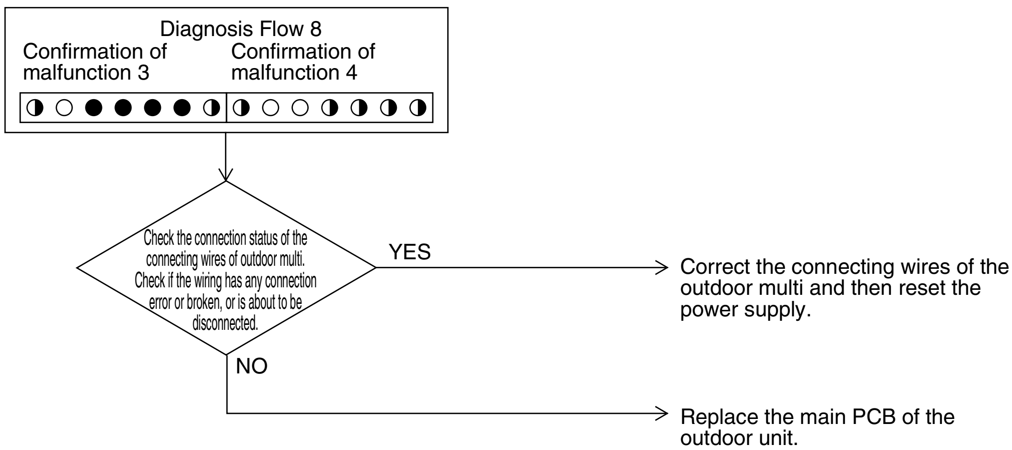


Troubleshooting

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







3.54 "U8" Indoor Unit: Malfunction of Transmission between Main and Sub Remote Controllers

Remote Controller Display

U8

Applicable Models

All indoor unit models

Method of Malfunction Detection

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

Malfunction Decision Conditions

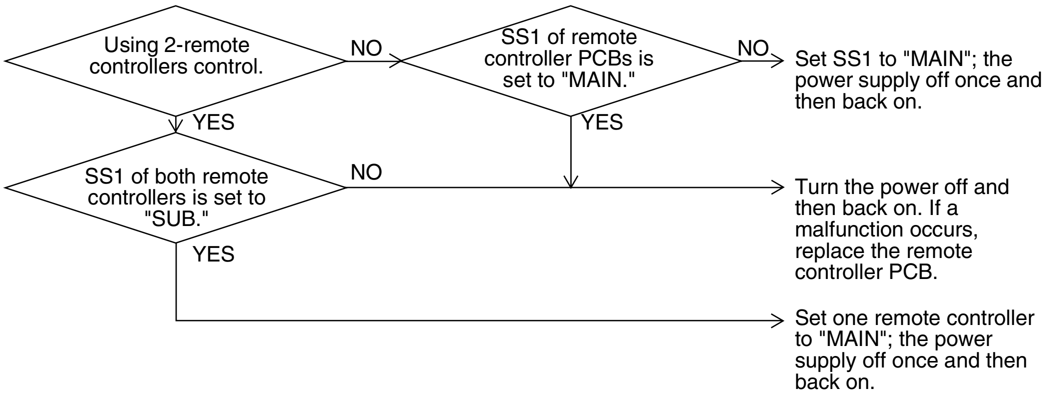
Normal transmission does not continue for specified period.

Supposed Causes

- Malfunction of transmission between main and sub remote controller
- Connection between sub remote controllers
- Defect of remote controller PCB

Troubleshooting

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



3.55 "U9" Indoor Unit: Malfunction of Transmission between Indoor and Outdoor Units in the Same System

Remote Controller Display

U9

Applicable Models

All indoor unit models
REYQ8P~48P

Method of Malfunction Detection

Detect malfunction signal for the other indoor units within the circuit by outdoor unit PCB.

Malfunction Decision Conditions

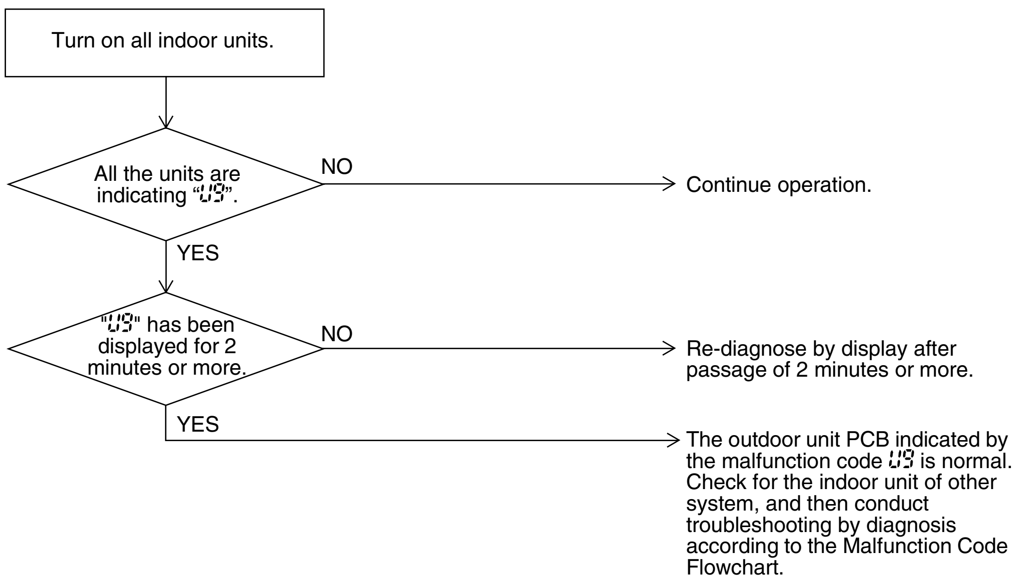
When the malfunction decision is made on any other indoor unit within the system concerned.

Supposed Causes

- Malfunction of transmission within or outside of other system
- Malfunction of electronic expansion valve in indoor unit of other system
- Defect of PCB 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.



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

Remote Controller Display

UA

Applicable Models

All indoor unit models
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.
Incorrect signals are transmitted among the indoor unit, BS unit, and outdoor unit.

Malfunction Decision Conditions

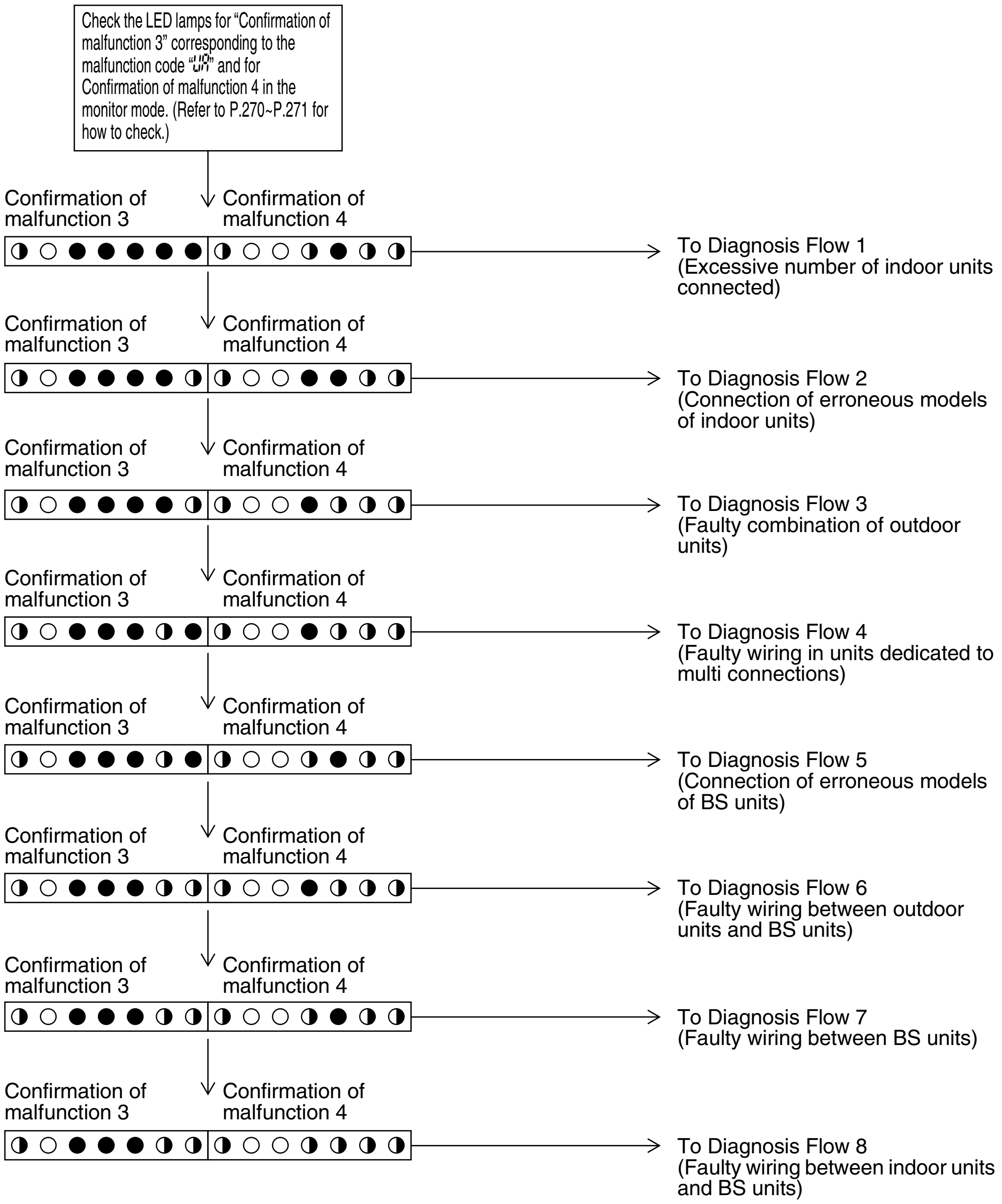
The malfunction decision is made as soon as either of the abnormalities aforementioned is detected.

Supposed Causes

- Excess of connected indoor units
- Defect of outdoor unit PCB (A1P)
- Mismatching of the refrigerant type of indoor and outdoor unit.
- Setting of outdoor PCB was not conducted after replacing to spare parts PCB.

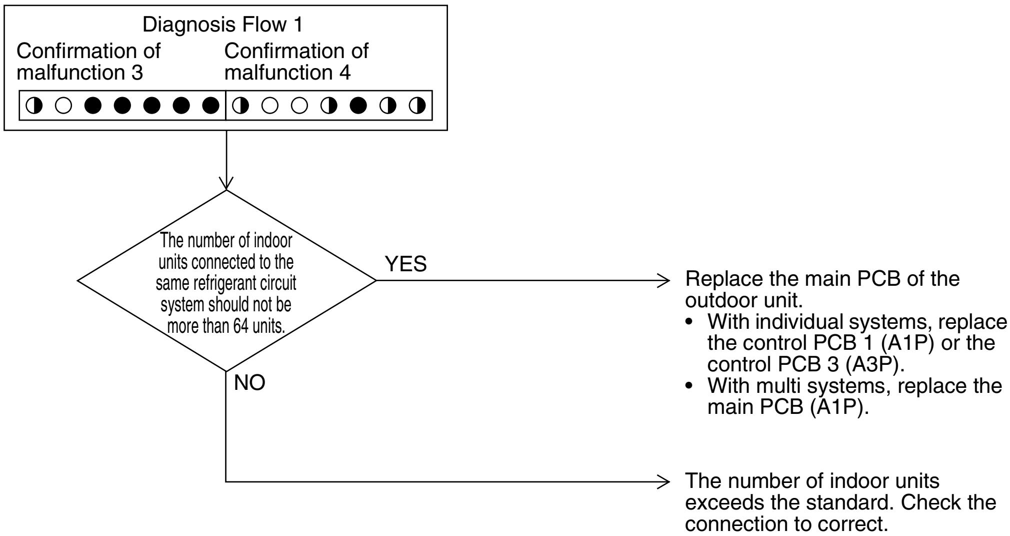
Troubleshooting

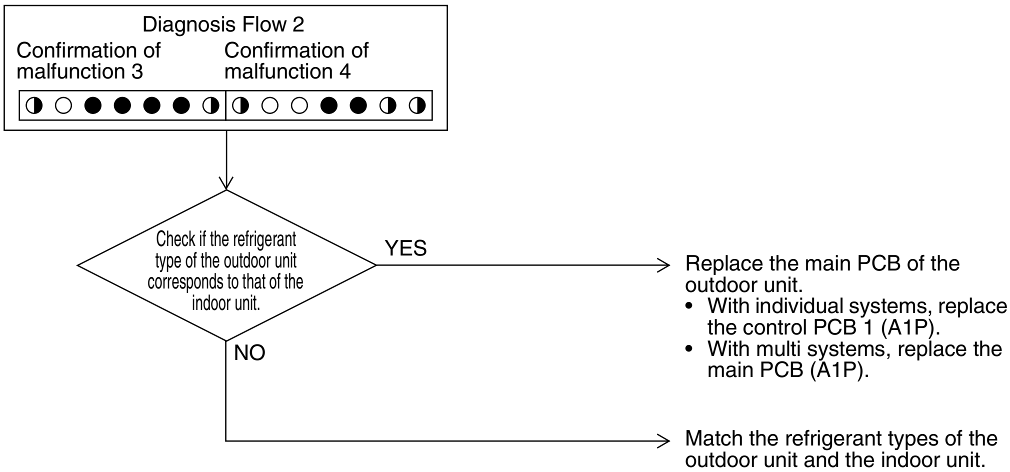
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



Troubleshooting

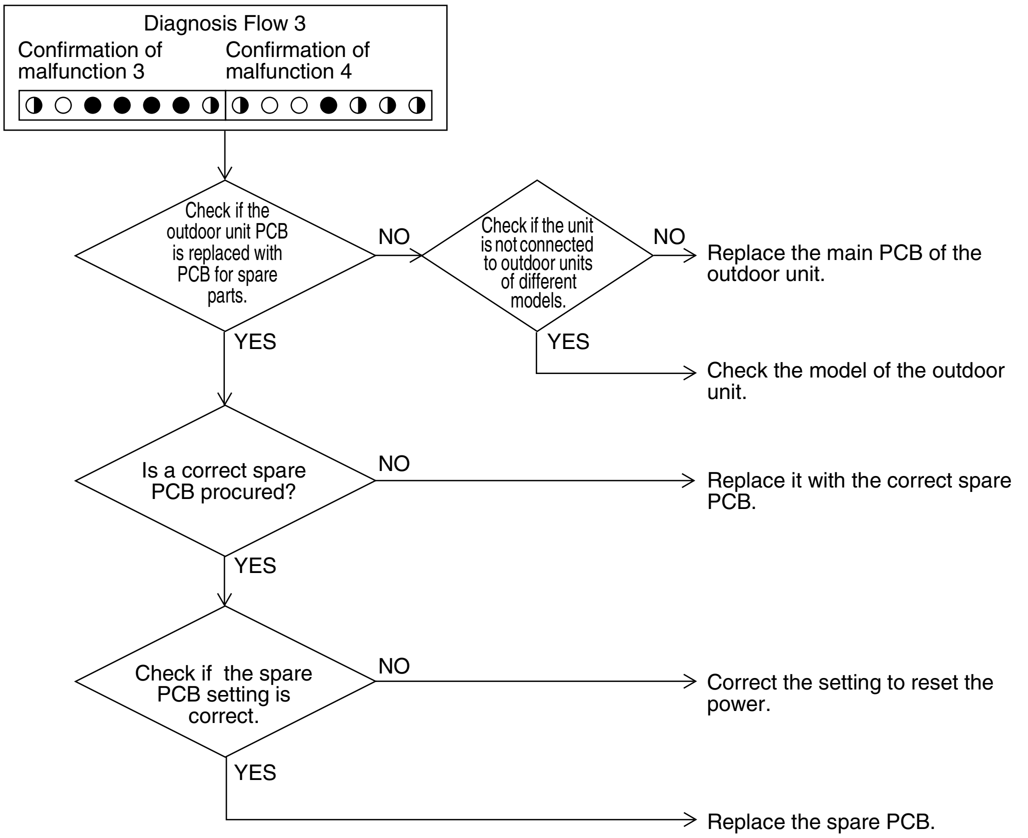
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

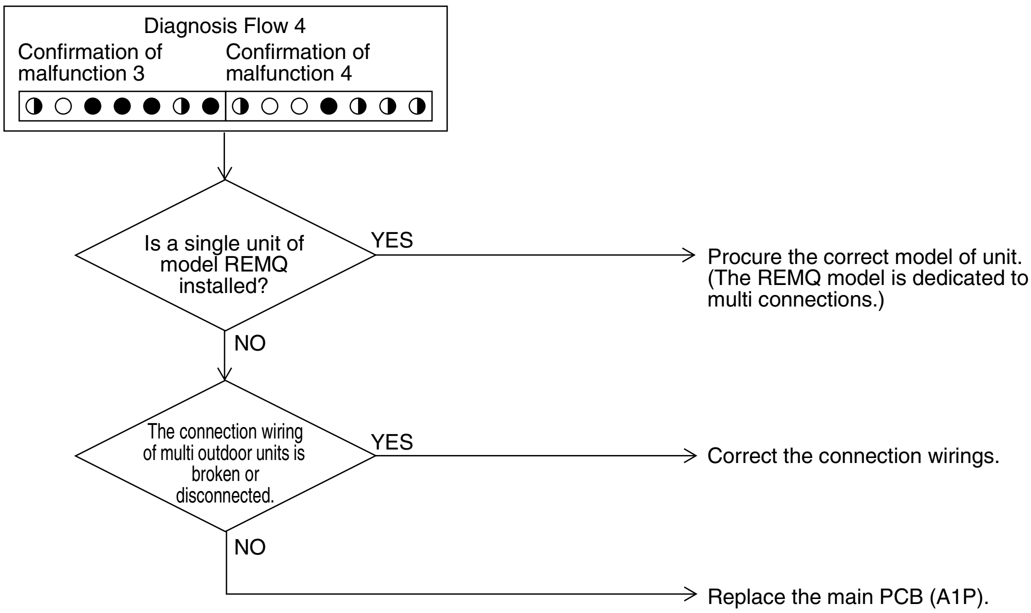




Troubleshooting

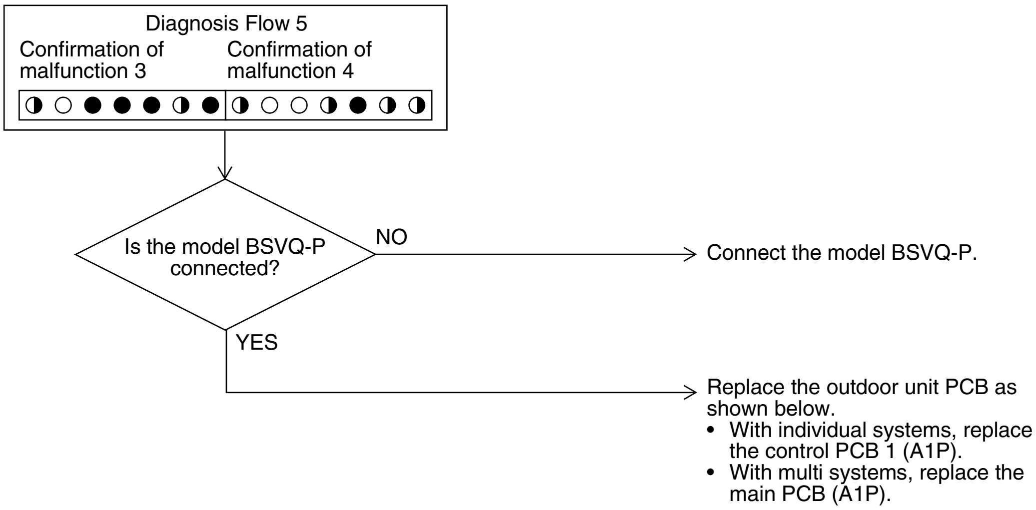
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

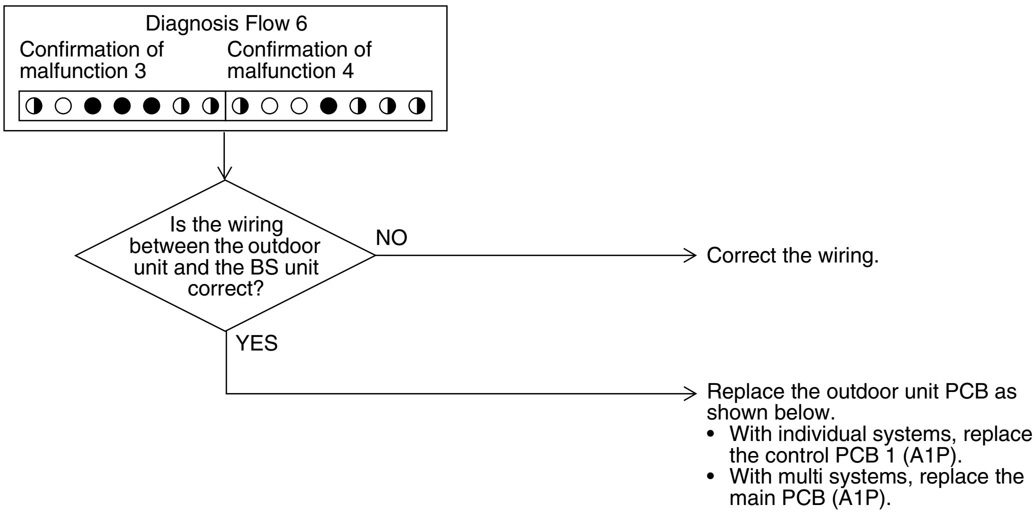




Troubleshooting

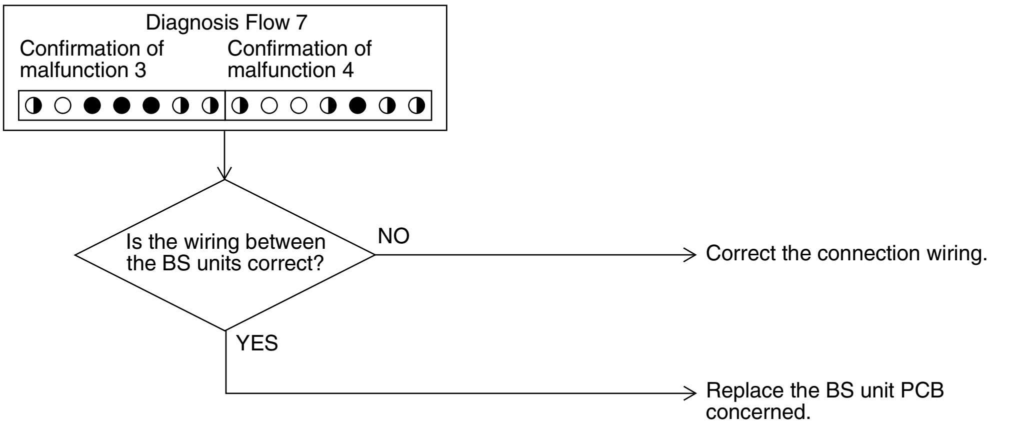
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

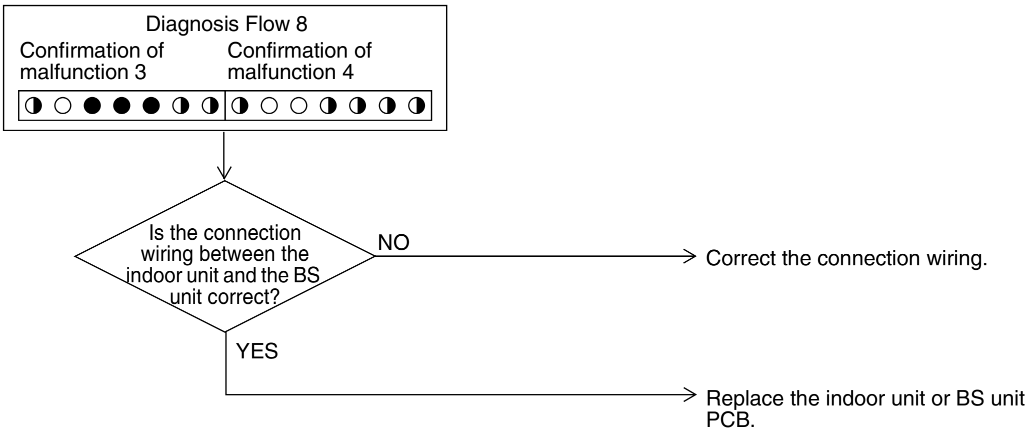




Troubleshooting

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





3.57 "UC" Address Duplication of Centralized Controller

Remote Controller Display

UC

Applicable Models

All indoor unit models
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.

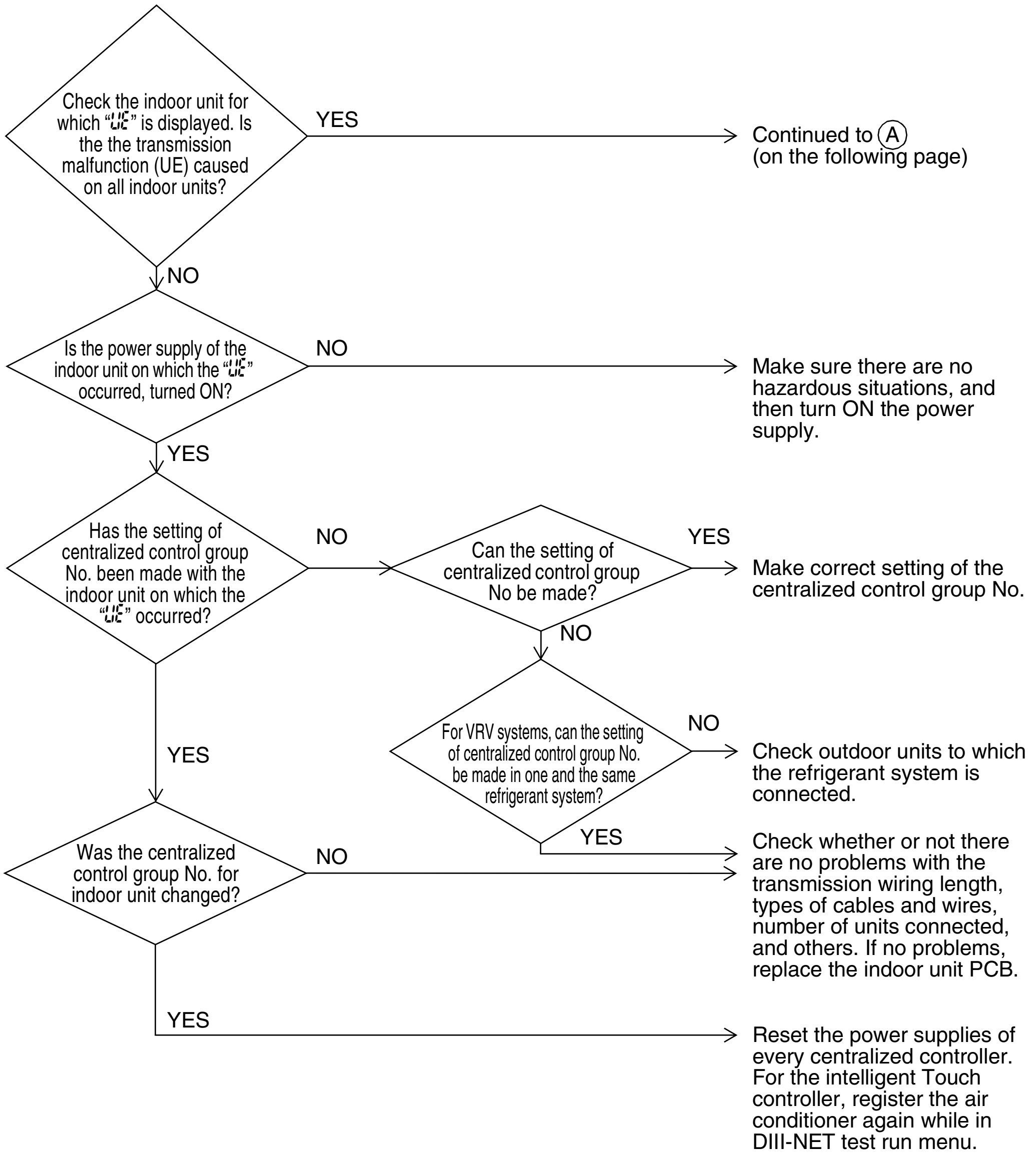
The centralized address is duplicated. → Make setting change so that the centralized address will not be duplicated.

3.58 "UE" Malfunction of Transmission between Centralized Controller and Indoor Unit

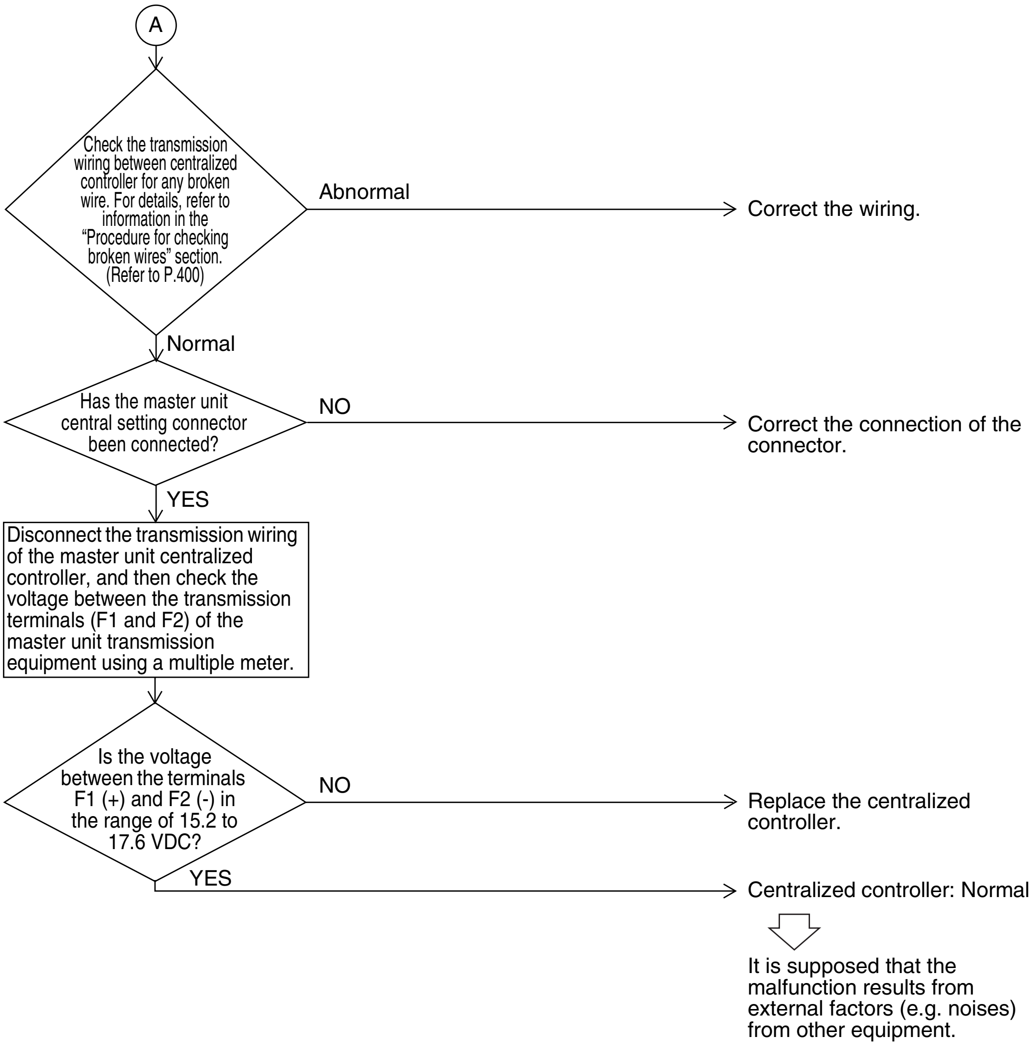
Remote Controller Display	UE
Applicable Models	All indoor unit models intelligent Touch Controller Centralized controller Schedule timer
Method of Malfunction Detection	Micro-computer checks if transmission between indoor unit and centralized controller is normal.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ 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 PCB for centralized remote controller ■ Defect of indoor unit PCB

Troubleshooting

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



Troubleshooting



3.59 "UF" System is not Set yet

Remote Controller Display

UF

Applicable Models

All indoor unit models
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

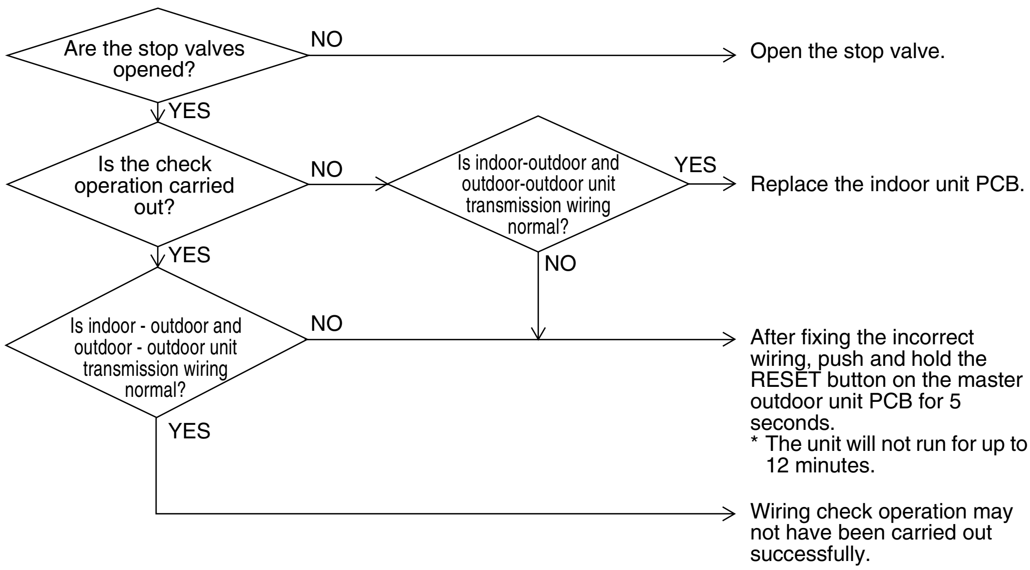
The malfunction is determined as soon as the abnormality aforementioned is detected through checking the system for any erroneous connection of units on the check operation.

Supposed Causes

- Improper connection of transmission wiring between indoor-outdoor units and outdoor-outdoor units
- Failure to execute check operation
- Defect of indoor unit PCB
- 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.



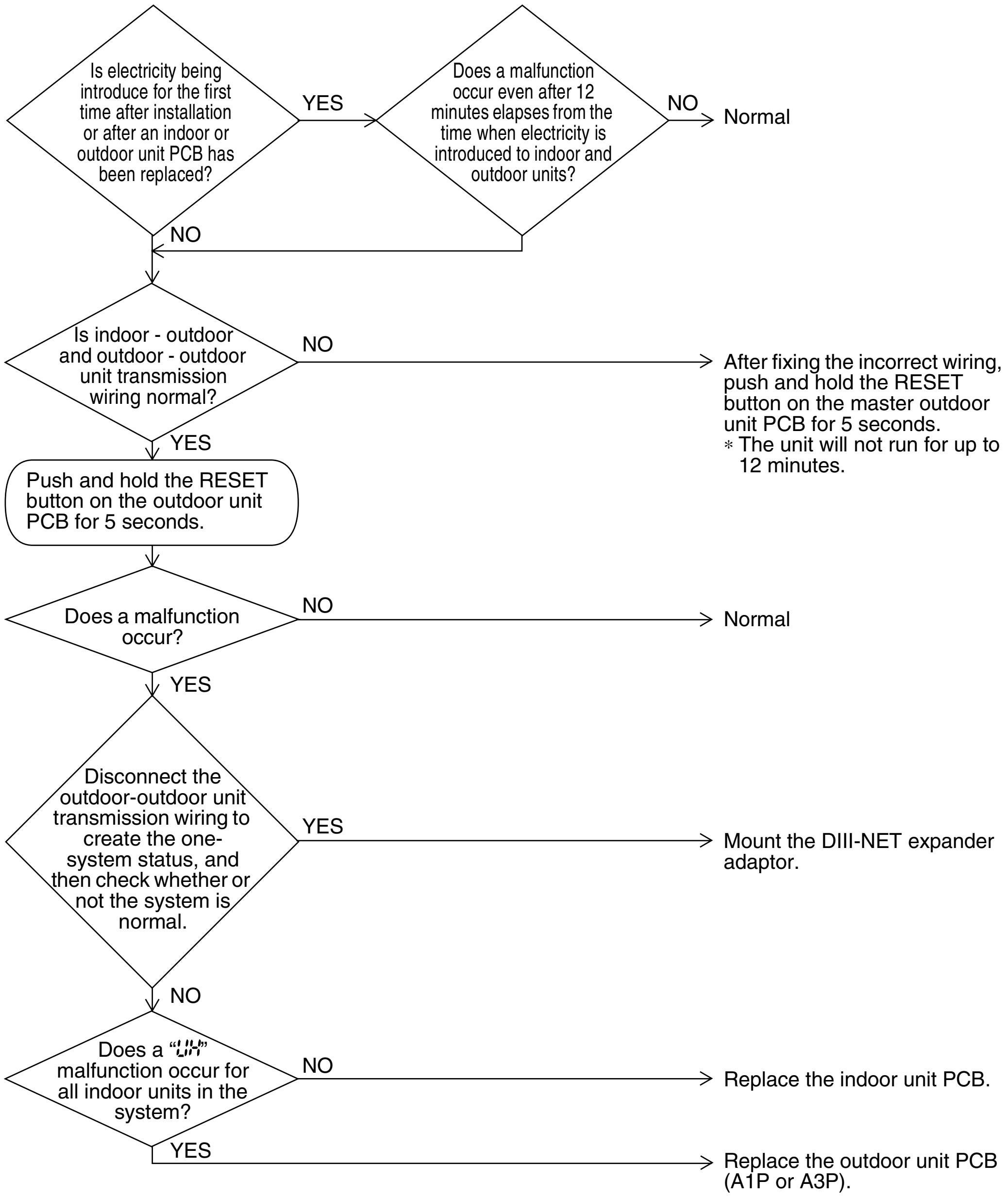
Note: Wiring check operation may not be successful if carried out after the outdoor unit has been off for more than 12 hours, or if it is not carried out after running all connected indoor units in the fan mode for at least an hour.

3.60 "UH" Malfunction of System, Refrigerant System Address Undefined

Remote Controller Display	UH
Applicable Models	All indoor unit models 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	■ Improper connection of transmission wiring between indoor-outdoor units and outdoor-outdoor units ■ Defect of indoor unit PCB ■ Defect of outdoor unit main PCB (A1P or A3P)

Troubleshooting

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



∗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: Centralized Remote Controller)

4.1 "M1" PCB Defect

Remote Controller Display

M1

Applicable Models

Centralized remote controller intelligent Touch Controller
Schedule timer

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.

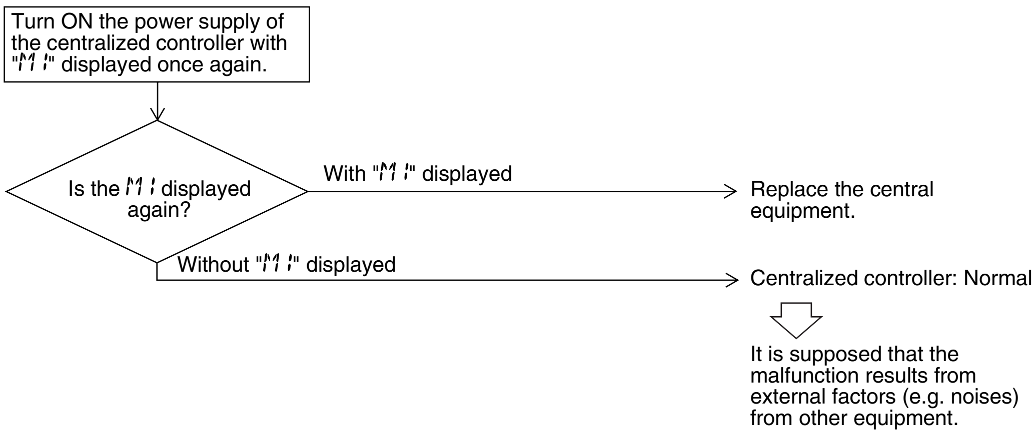
Supposed Causes

- Defect of centralized remote controller PCB
- Defect of intelligent Touch Controller PCB
- Defect of Schedule timer PCB

Troubleshooting

Replace the centralized remote controller.

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



4.2 “M8” Malfunction of Transmission between Optional Controllers for Centralized Control

Remote Controller Display

M8

Applicable Models

Centralized 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

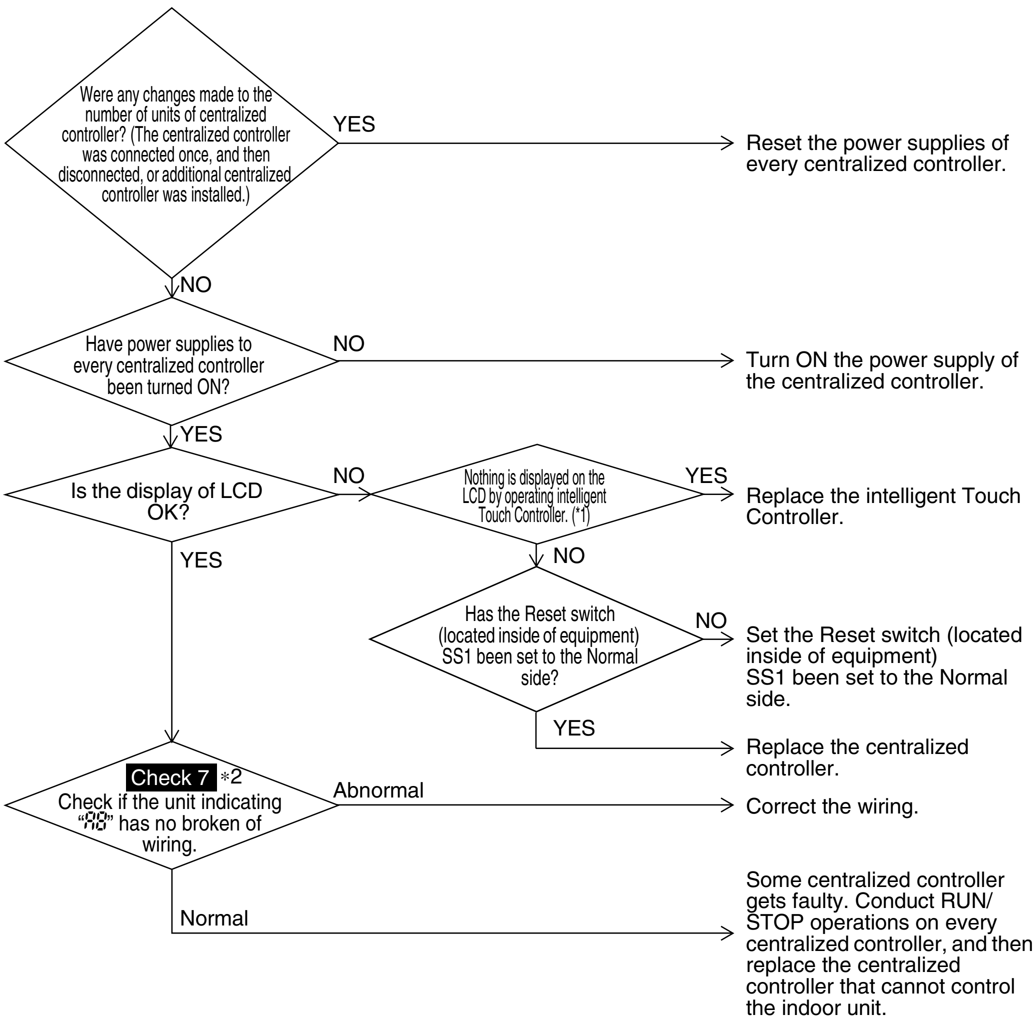
When no master controller is present at the time of the startup of slave controller.
When the centralized controller, which was connected once, shows no response.

Supposed Causes

- Malfunction of transmission between optional controllers for centralized control
- Defect of PCB 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 intelligent Touch Controller:
When the screen displays nothing by touching the screen, adjust the contrast volume.

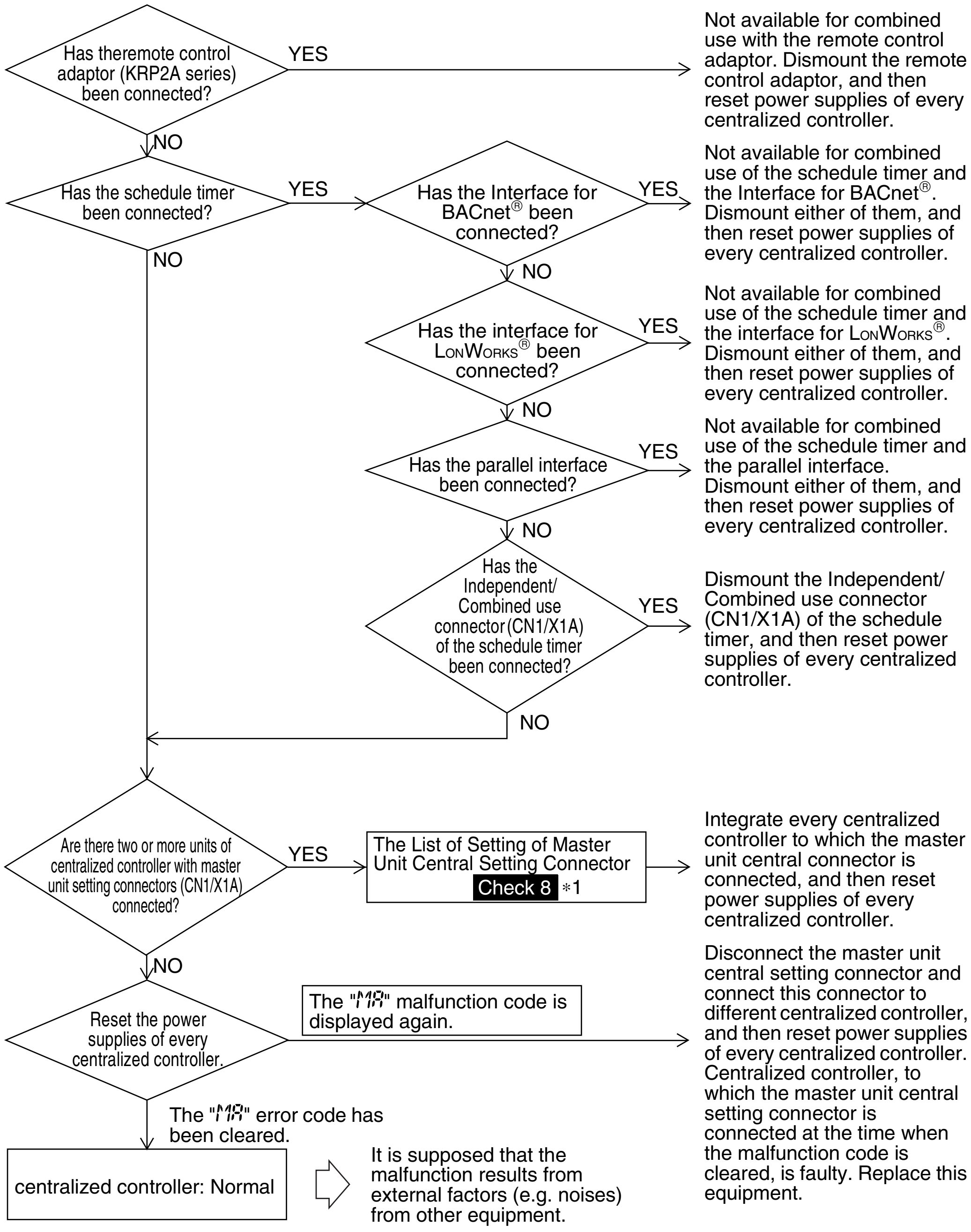
*2: Check 7 : Referring to the information on P400.

4.3 "MA" Improper Combination of Optional Controllers for Centralized Control

Remote Controller Display	MA
Applicable Models	Centralized remote controller intelligent Touch Controller Schedule timer
Method of Malfunction Detection	Detect the malfunction according to DIII-NET transmission data.
Malfunction Decision Conditions	When the schedule timer is set to individual use mode, other central component is present. When multiple master controller are present. When the remote control adaptor is present.
Supposed Causes	■ Improper combination of optional controllers for centralized control ■ More than one master controller is connected ■ Defect of PCB 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 P.401.

4.4 "MC" Address Duplication, Improper Setting

Remote Controller Display

MC

Applicable Models

Centralized remote controller intelligent Touch Controller
Schedule timer

Method of Malfunction Detection

Detect the malfunction according to DIII-NET transmission data.

Malfunction Decision Conditions

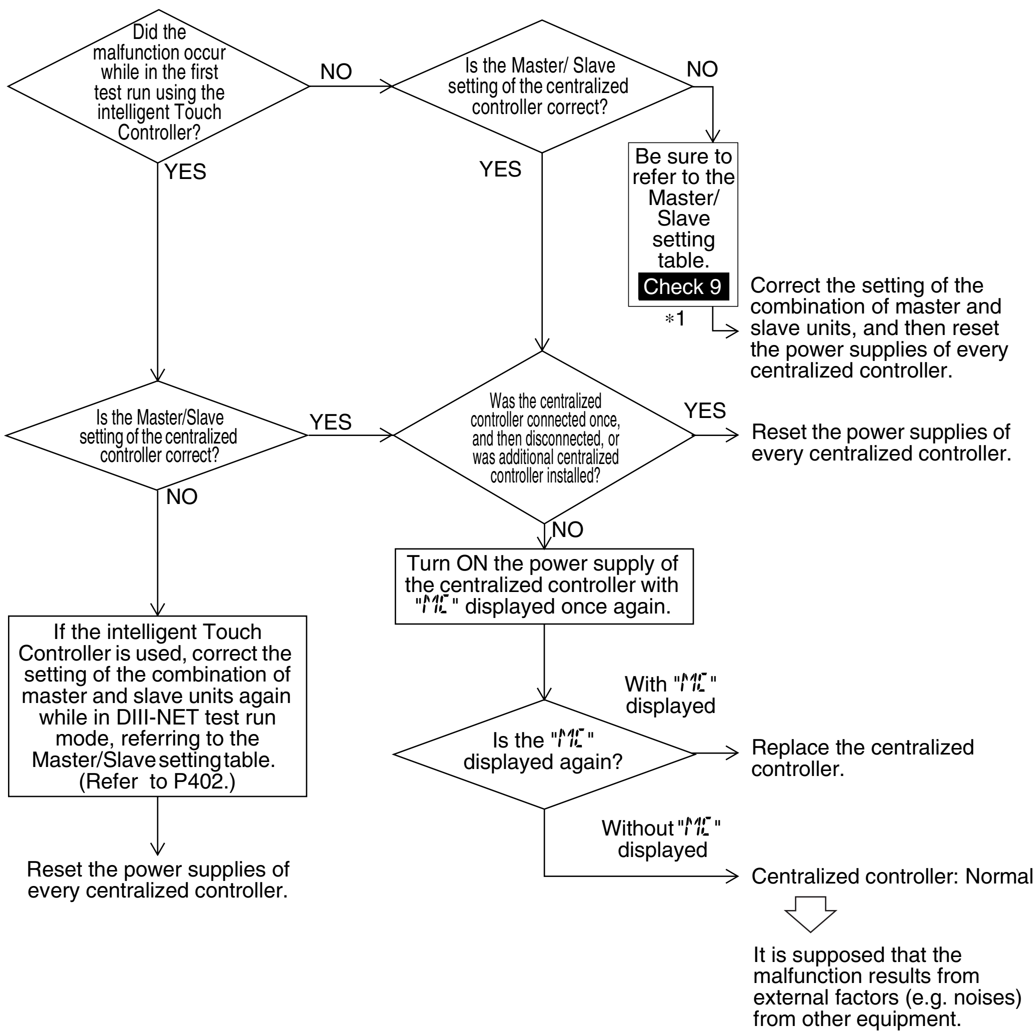
- Two or more units of centralized remote controllers and intelligent Touch Controllers are connected, and all of them are set to master unit central setting or slave unit central setting.
- Two units of schedule timers are connected.

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 P402.

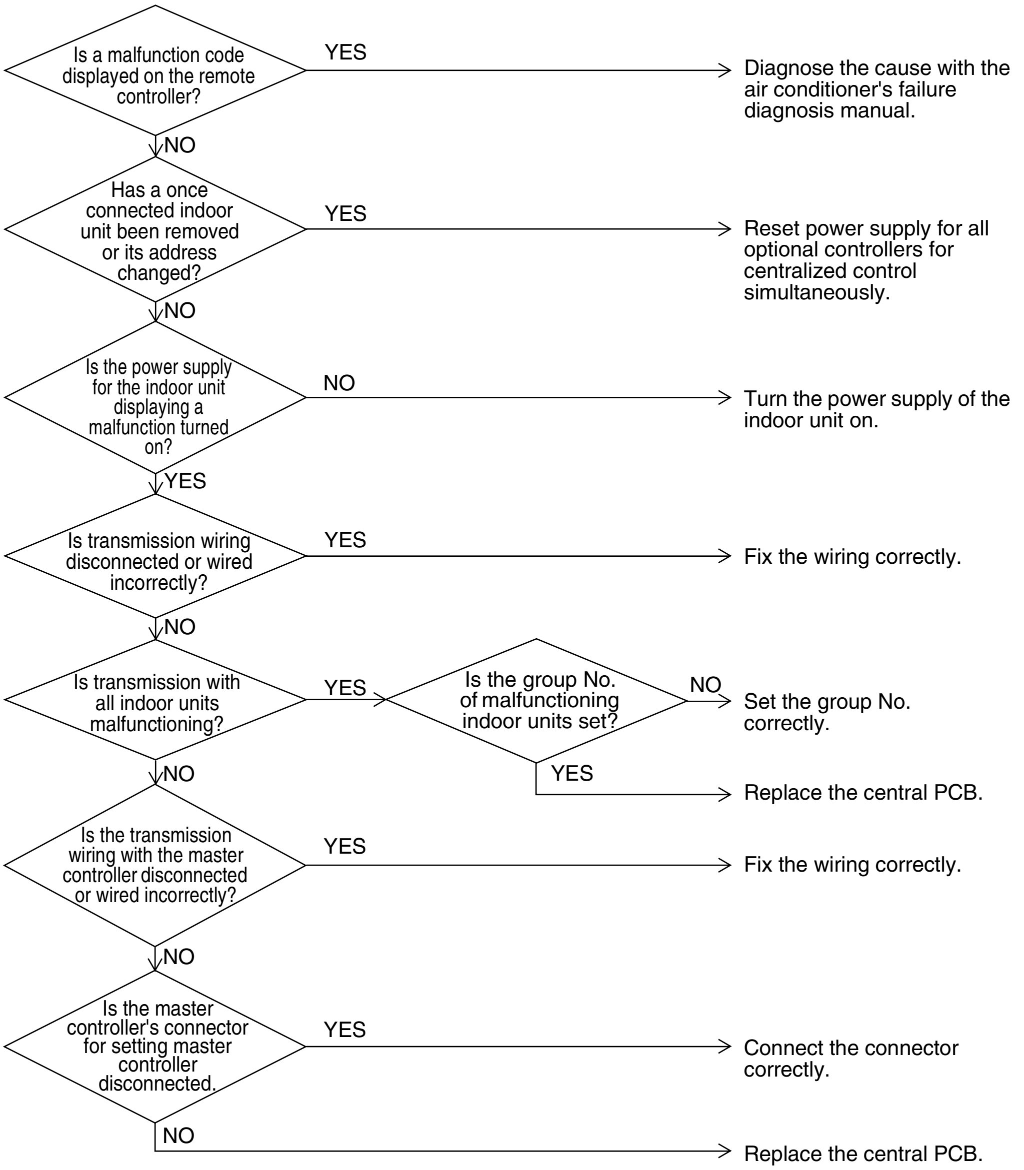
5. Troubleshooting (OP: Unified ON/OFF Controller)

5.1 Operation Lamp Blinks

Remote Controller Display	Operation lamp blinks
Applicable Models	All indoor unit models Unified ON/OFF controller
Method of Malfunction Detection	Detect the malfunction according to DIII-NET transmission data.
Malfunction Decision Conditions	
Supposed Causes	■ Malfunction of transmission between optional central controller and indoor unit ■ Connector for setting master controller is disconnected ■ Defect of unified ON/OFF controller PCB ■ Defect of indoor unit PCB ■ Malfunction of air conditioner

Troubleshooting

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

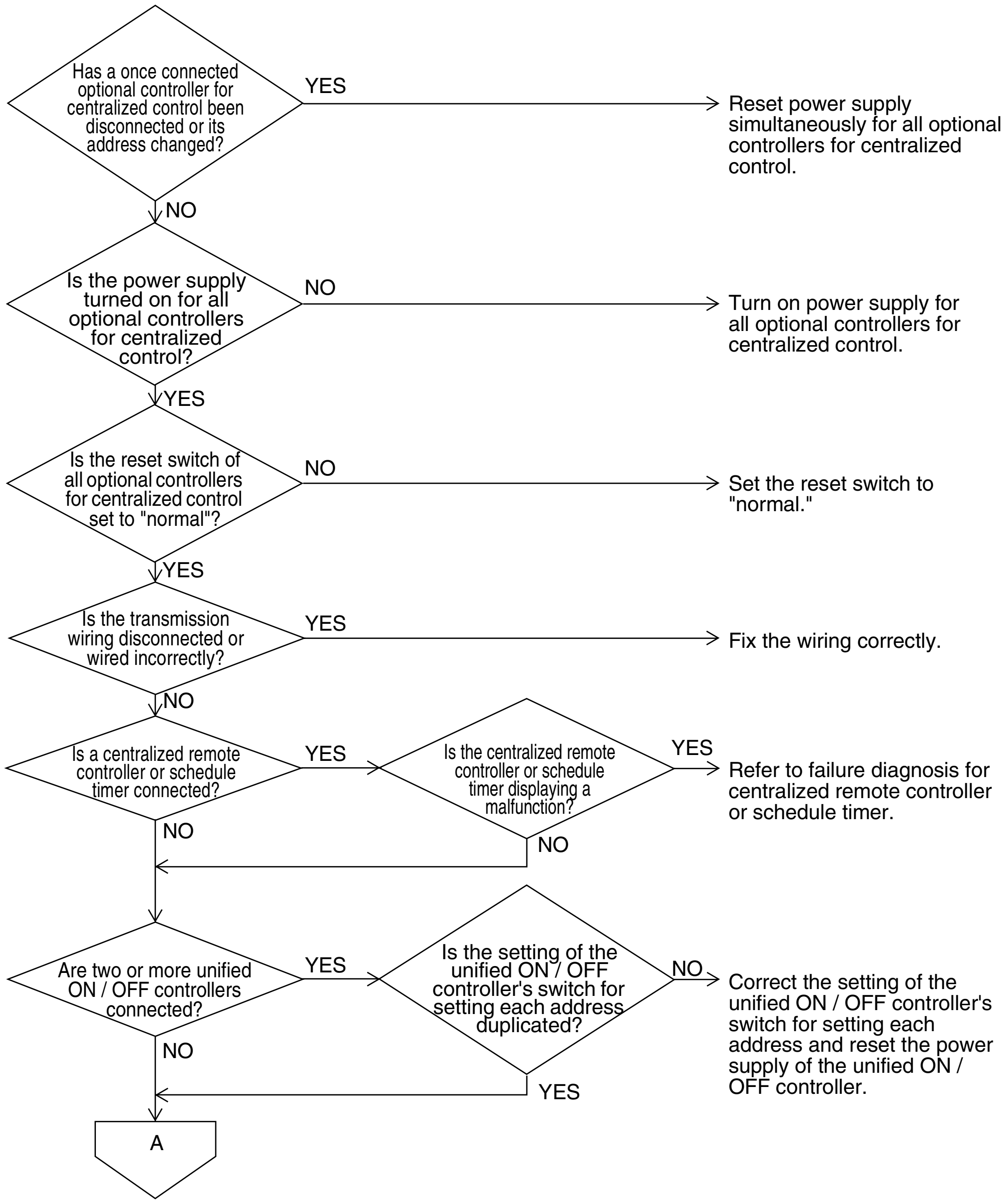


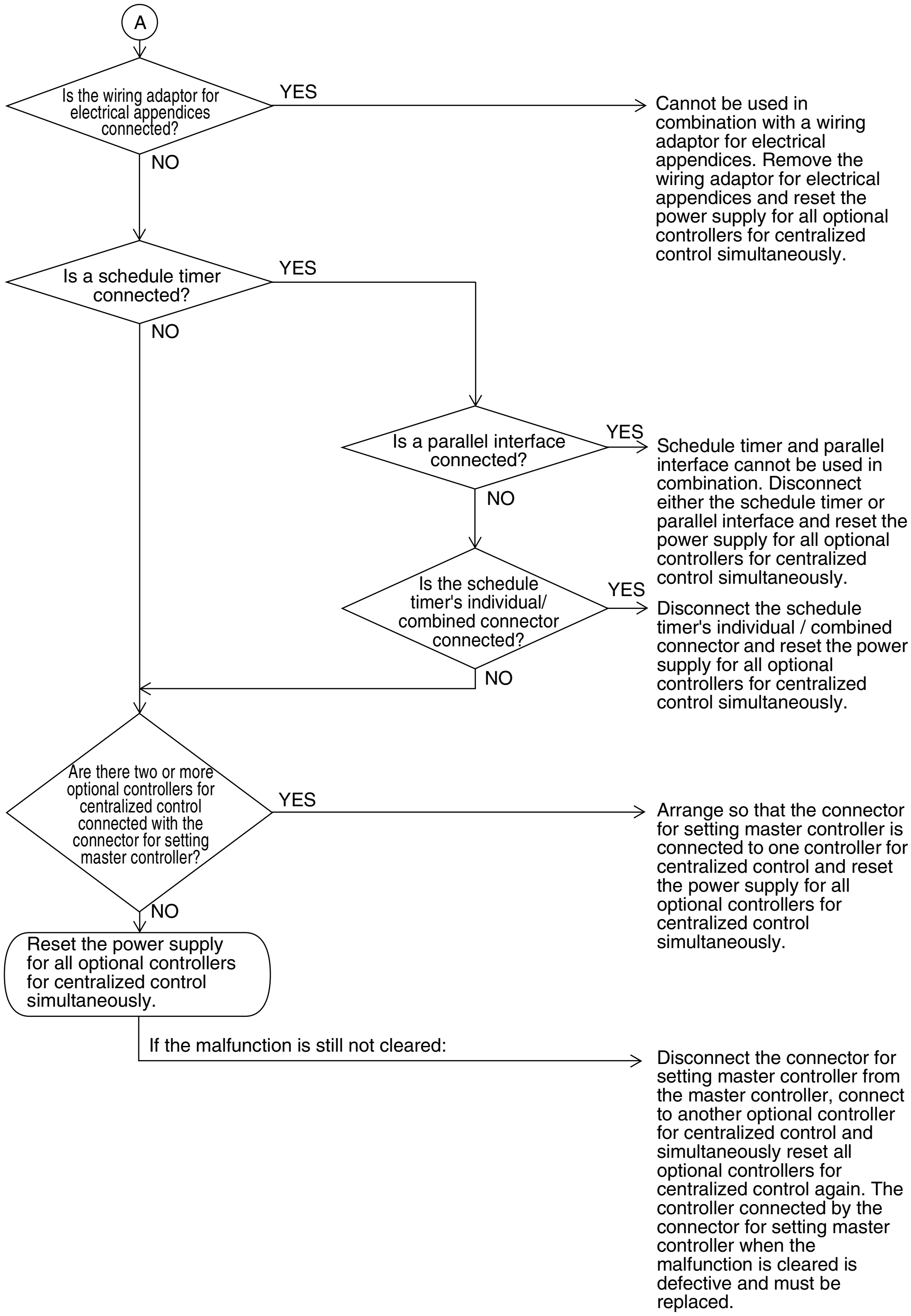
5.2 Display "Under Centralized Control" Blinks (Repeats Single Blink)

Remote Controller Display	"under centralized control" (Repeats single blink)
Applicable Models	Unified ON/OFF controller Centralized 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	■ 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 PCB 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.




A
Is the wiring adaptor for electrical appendices connected?
YES
Cannot be used in combination with a wiring adaptor for electrical appendices. Remove the wiring adaptor for electrical appendices and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Is a schedule timer connected?
YES
NO
Is a parallel interface connected?
YES
Schedule timer and parallel interface cannot be used in combination. Disconnect either the schedule timer or parallel interface and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Is the schedule timer's individual/ combined connector connected?
YES
Disconnect the schedule timer's individual / combined connector and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Are there two or more optional controllers for centralized control connected with the connector for setting master controller?
YES
Arrange so that the connector for setting master controller is connected to one controller for centralized control and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Reset the power supply for all optional controllers for centralized control simultaneously.
If the malfunction is still not cleared:
Disconnect the connector for setting master controller from the master controller, connect to another optional controller for centralized control and simultaneously reset all optional controllers for centralized control again. The controller connected by the connector for setting master controller when the malfunction is cleared is defective and must be replaced.

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

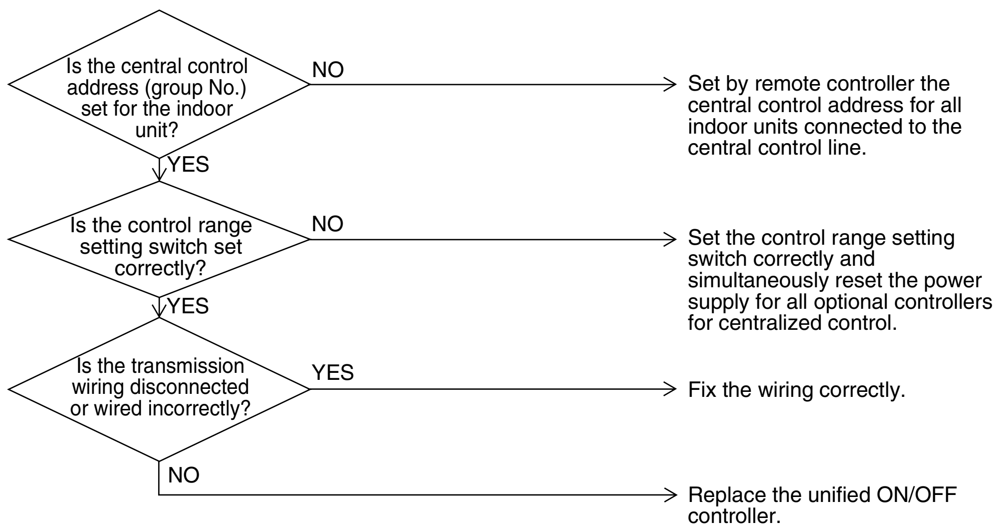
When no central control addresses are set to indoor units.
When no indoor units are connected within the control range.

Supposed Causes

- Central control address (group No.) is not set for indoor unit.
- Improper control range setting switch
- Improper wiring of transmission wiring

Troubleshooting

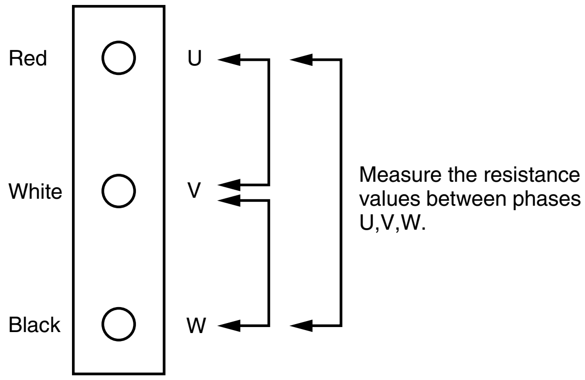
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



[CHECK 1]

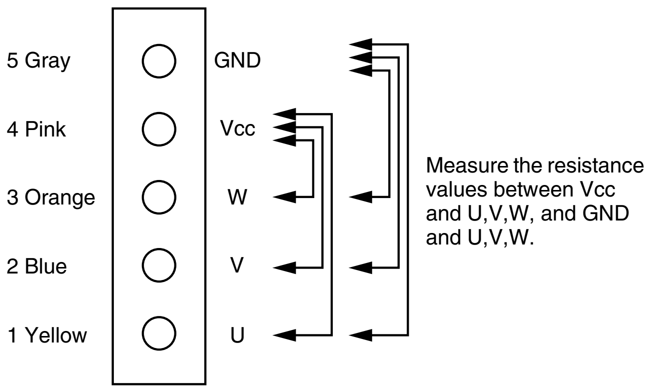
Check on connector of fan motor (Power supply cable)

(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.



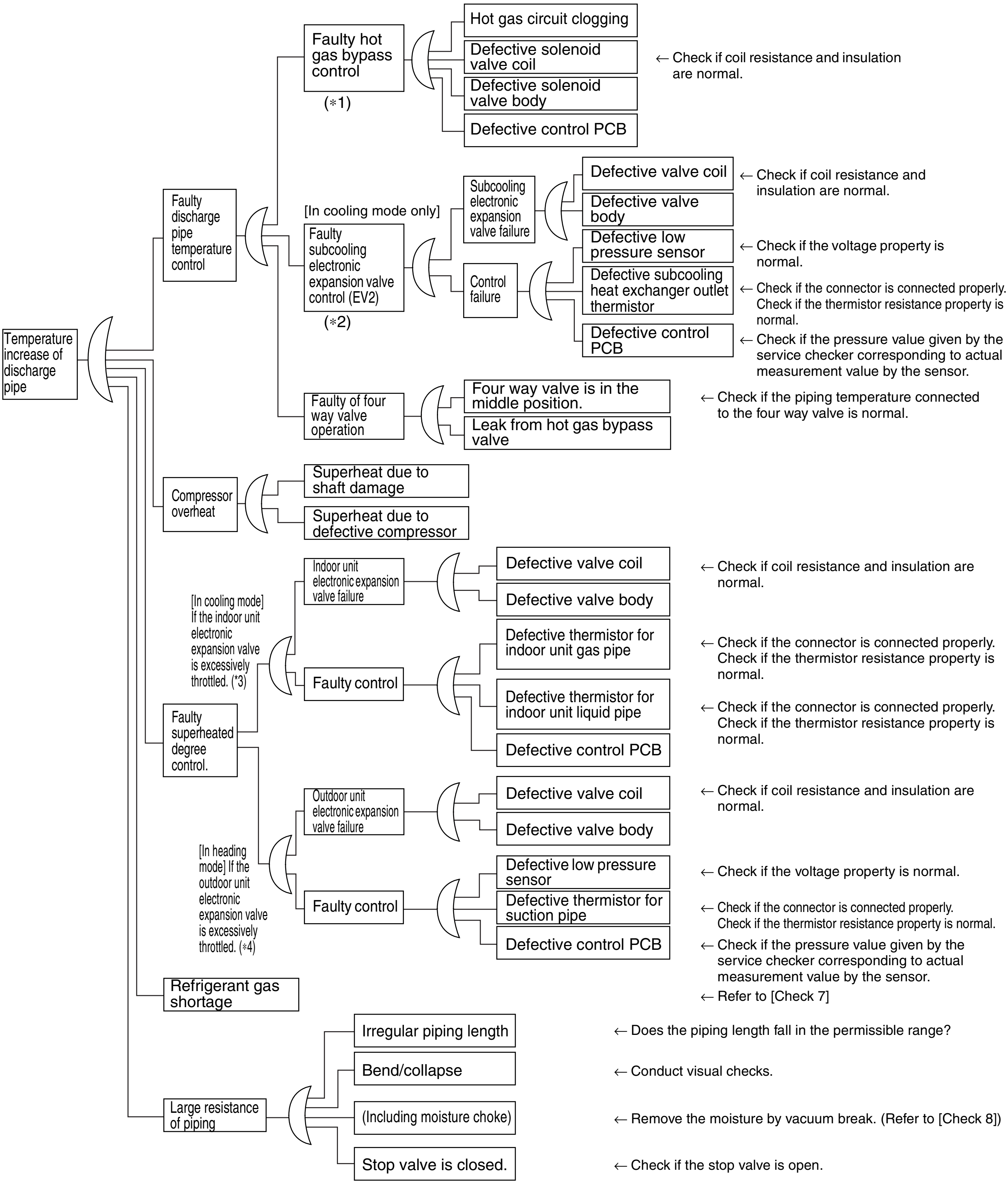
[CHECK 2]

(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 ± 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

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



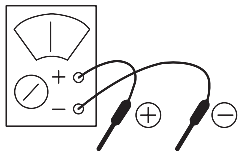
∗1: Refer to “Low pressure protection control” (P136) for hot gas bypass control.
∗2: Refer to P118 for subcooling electronic expansion valve control.
∗3: “Superheating temperature control” in cooling mode is conducted by indoor unit electronic expansion valve.(Refer to P151)
∗4: Superheating temperature control in heating mode is conducted by outdoor unit electronic expansion valve (EVM). (Refer to P118).
∗5: Judgement 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 PCB 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 Judgement 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.

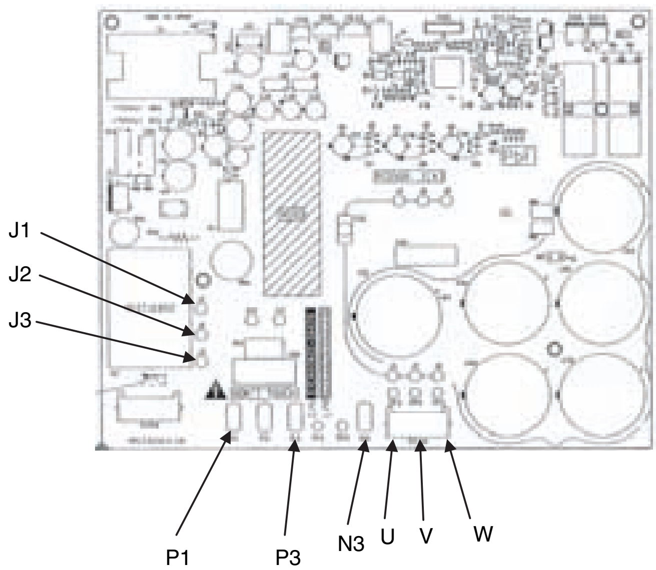
No.	Point of Measurement +	Point of Measurement –	Judgement Criteria	Remarks
1	P2	U	2 ~ 15kΩ	
2	P2	V		
3	P2	W		
4	U	P2	15kΩ and above (including ∞)	Due to condenser charge and so on, resistance measurement may require some time.
5	V	P2		
6	W	P2		
7	N3	U		
8	N3	V		
9	N3	W		
10	U	N3	2 ~ 15kΩ	
11	V	N3	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

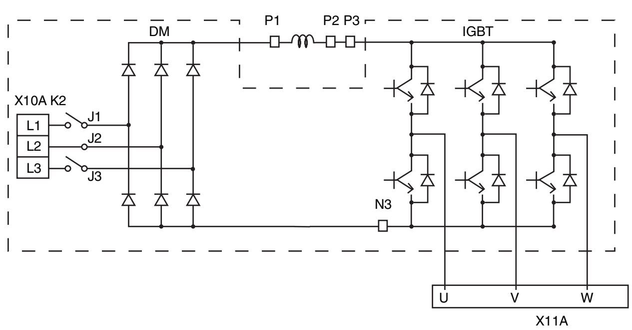
To use digital tester:

Measurement is executed in the diode check mode. ( )

No.	Point of Measurement +	Point of Measurement –	Judgement 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		
8	N3	V		
9	N3	W		
10	U	N3	1.2V and over	Due to condenser charge and so on, resistance measurement may require some time.
11	V	N3		
12	W	N3		

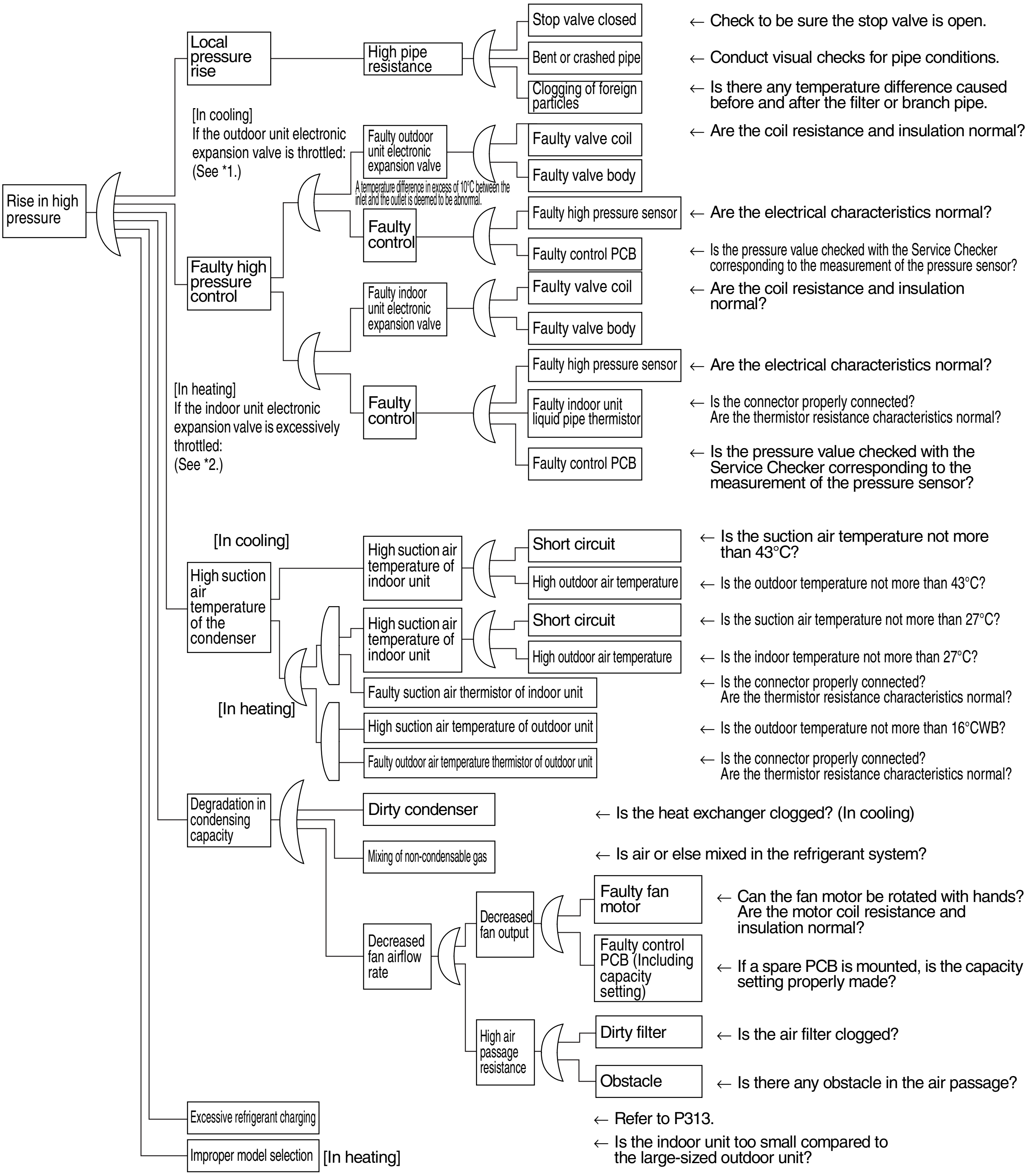
[PCB and Circuit Diagram]





[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 P151.)

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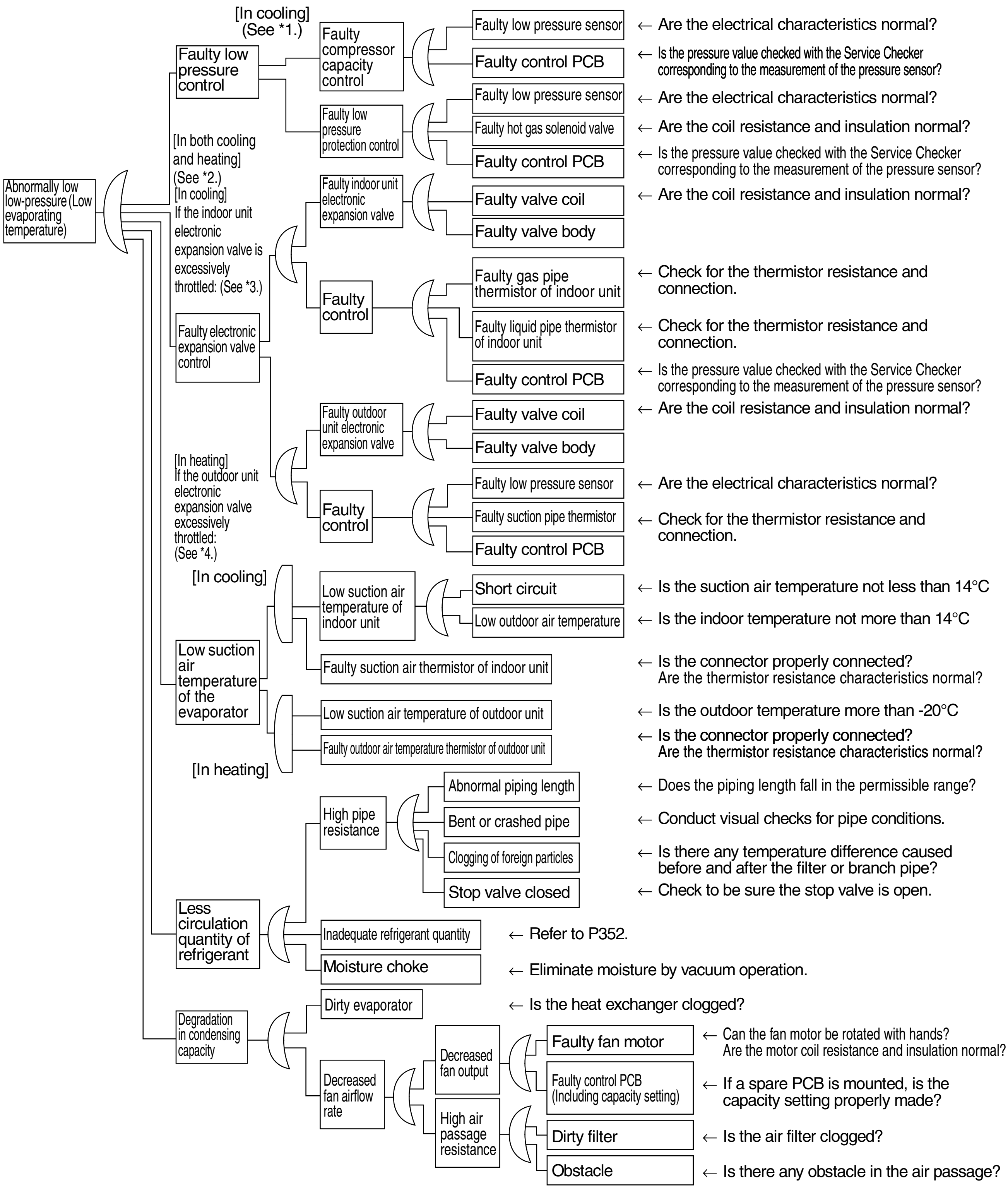
[CHECK 6] Check for causes of drop in low pressure

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 P110.
*2: The “low pressure protection control” includes low pressure protection control and hot gas bypass control. For details, refer to P136.
*3: In cooling, the indoor unit electronic expansion valve is used for “superheated degree control”. (For details, refer to P151.)
*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 P118.)

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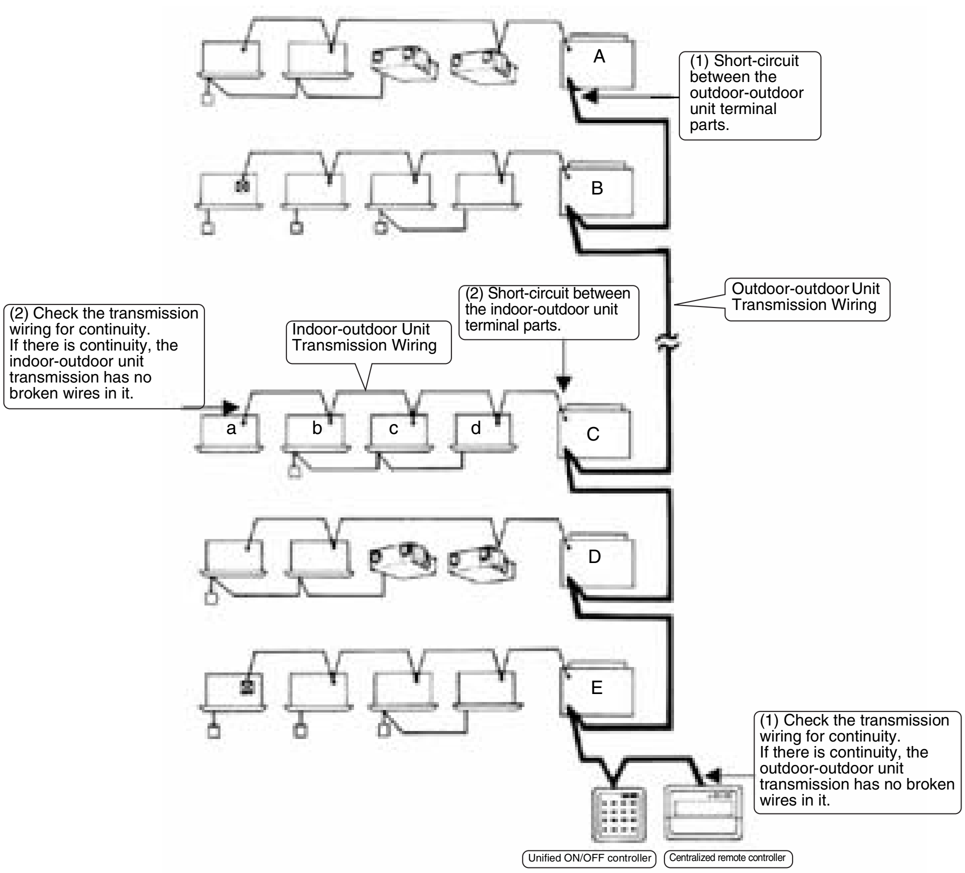
[CHECK 7] Broken Wire Check of the Connecting Wires

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 centralized remote controller, and then conduct continuity checks between the transmission wiring terminal blocks F1 and F2 of the centralized 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 centralized 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 PCB (CN1/X1A). (Independent-use connector=Master unit central setting connector)
- To use two or more centralized controller in combination, make settings according to the table shown below.

<table>
<tr><th rowspan="2">Pattern</th><th colspan="4">Centralized controller connection pattern</th><th colspan="4">Setting of master unit central setting connector(*2)</th></tr>
<tr><th>intelligent Touch Controller</th><th>Centralized remote controller</th><th>Unified ON/OFF controller</th><th>Schedule timer</th><th>intelligent Touch Controller</th><th>Centralized remote controller</th><th>Unified ON/OFF controller</th><th>Schedule timer</th></tr>
<tr><td>(1)</td><td>1 to 2 units</td><td></td><td></td><td>× (*1)</td><td>Only a single unit: "Provided", Others: "Not provided"</td><td></td><td></td><td></td></tr>
<tr><td>(2)</td><td rowspan="2">1 unit</td><td rowspan="2">1 unit</td><td></td><td>× (*1)</td><td rowspan="2">Provided</td><td rowspan="2">Not provided</td><td></td><td></td></tr>
<tr><td>(3)</td><td rowspan="2">1 to 8 units</td><td>× (*1)</td><td rowspan="2">All "Not provided"</td><td></td></tr>
<tr><td>(4)</td><td>1 to 2 units</td><td></td><td>× (*1)</td><td>Only a single unit: "Provided", Others: "Not provided"</td><td></td><td></td></tr>
<tr><td>(5)</td><td></td><td rowspan="4">1 to 4 units</td><td></td><td></td><td></td><td rowspan="4">Only a single unit: "Provided", Others: "Not provided"</td><td></td><td></td></tr>
<tr><td>(6)</td><td></td><td rowspan="2">1 to 16 units</td><td>1 unit</td><td></td><td rowspan="2">All "Not provided"</td><td>Not provided</td></tr>
<tr><td>(7)</td><td></td><td></td><td></td><td></td></tr>
<tr><td>(8)</td><td></td><td></td><td>1 unit</td><td></td><td></td><td>Not provided</td></tr>
<tr><td>(9)</td><td></td><td></td><td rowspan="2">1 to 16 units</td><td></td><td></td><td></td><td rowspan="2">Only a single unit: "Provided", Others: "Not provided"</td><td></td></tr>
<tr><td>(10)</td><td></td><td></td><td>1 unit</td><td></td><td></td><td>Not provided</td></tr>
<tr><td>(11)</td><td></td><td></td><td></td><td>1 unit</td><td></td><td></td><td></td><td>Provided</td></tr>
</table>

(*1) The intelligent Touch Controller and the schedule timer are not available for combined use.

(*2) The intelligent Touch Controller, centralized 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

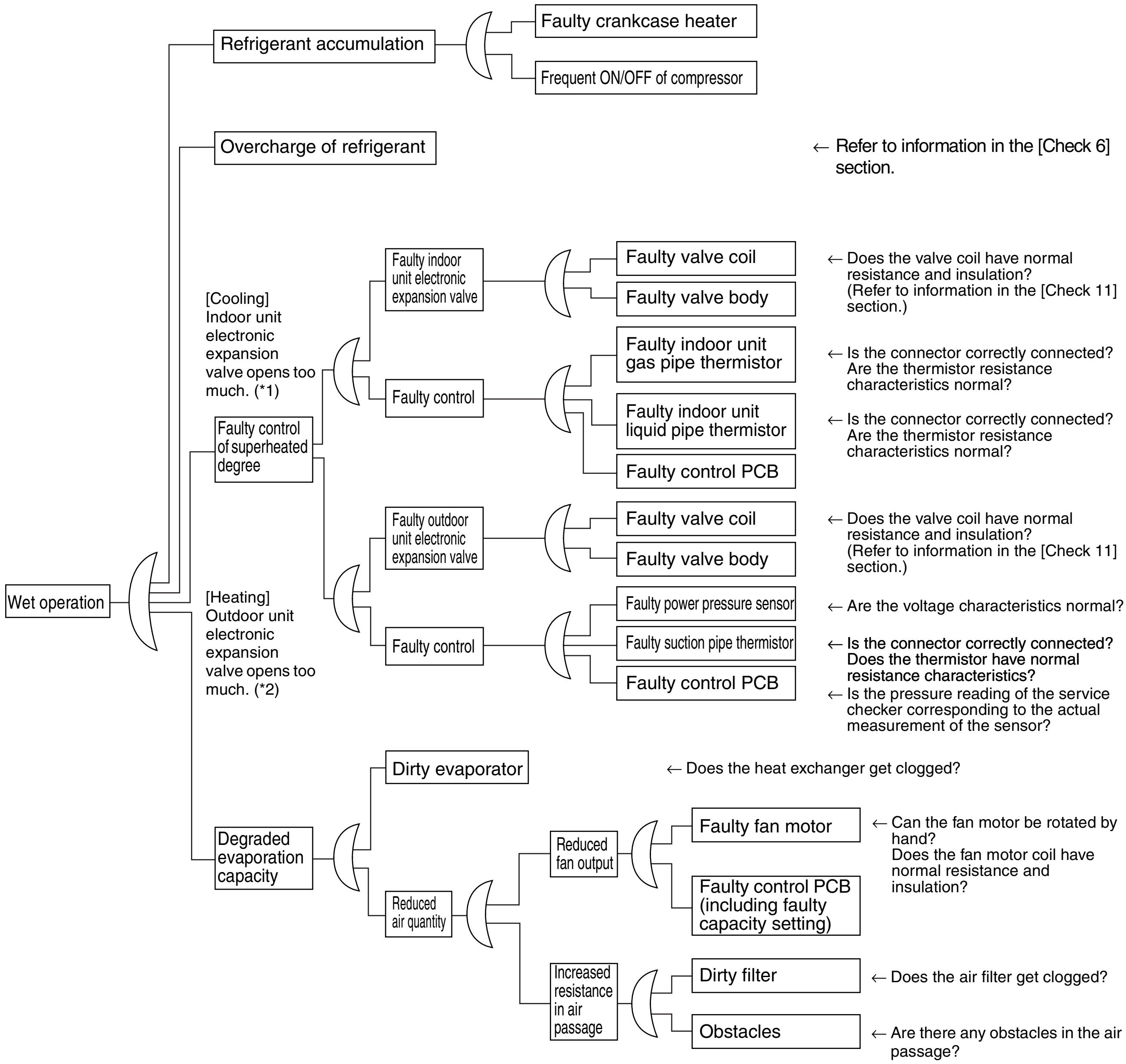
Combination of intelligent Touch Controller and Centralized Remote Controller

*	#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: Centralized 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 electronic expansion valve. (Refer to information on P151.)

*2: "Superheated degree control" in heating operation is exercised with the outdoor unit electronic expansion valve (EV1). (Refer to information on P118.)

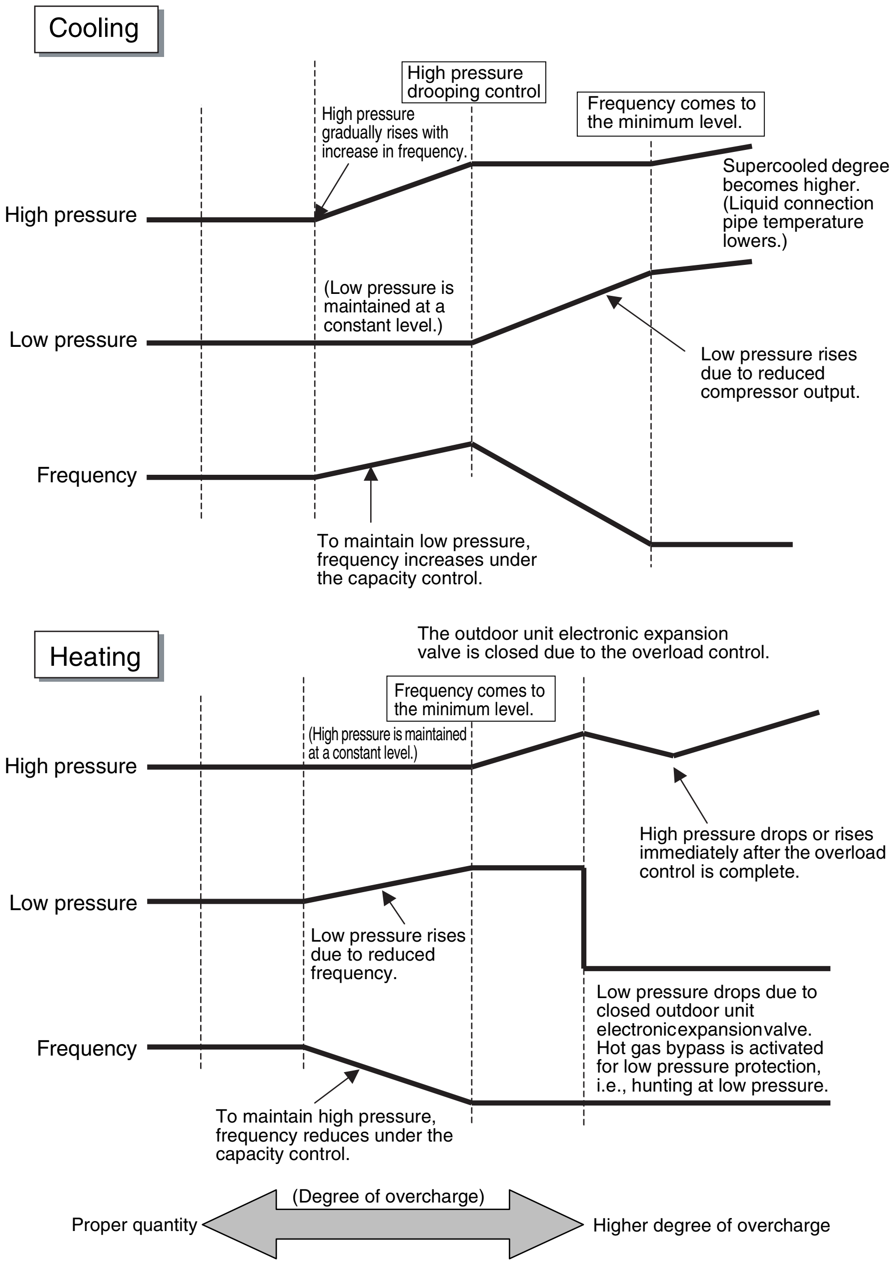
*3: Guideline of superheated degree to judge as wet operation
(1)Suction gas superheated degree: Not more than 3°C; (2)Discharge gas superheated degree: Not more than 15°C, except immediately after compressor starts up or is running under drooping control.
(Use the values shown above as a guideline. 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 judgement, 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.

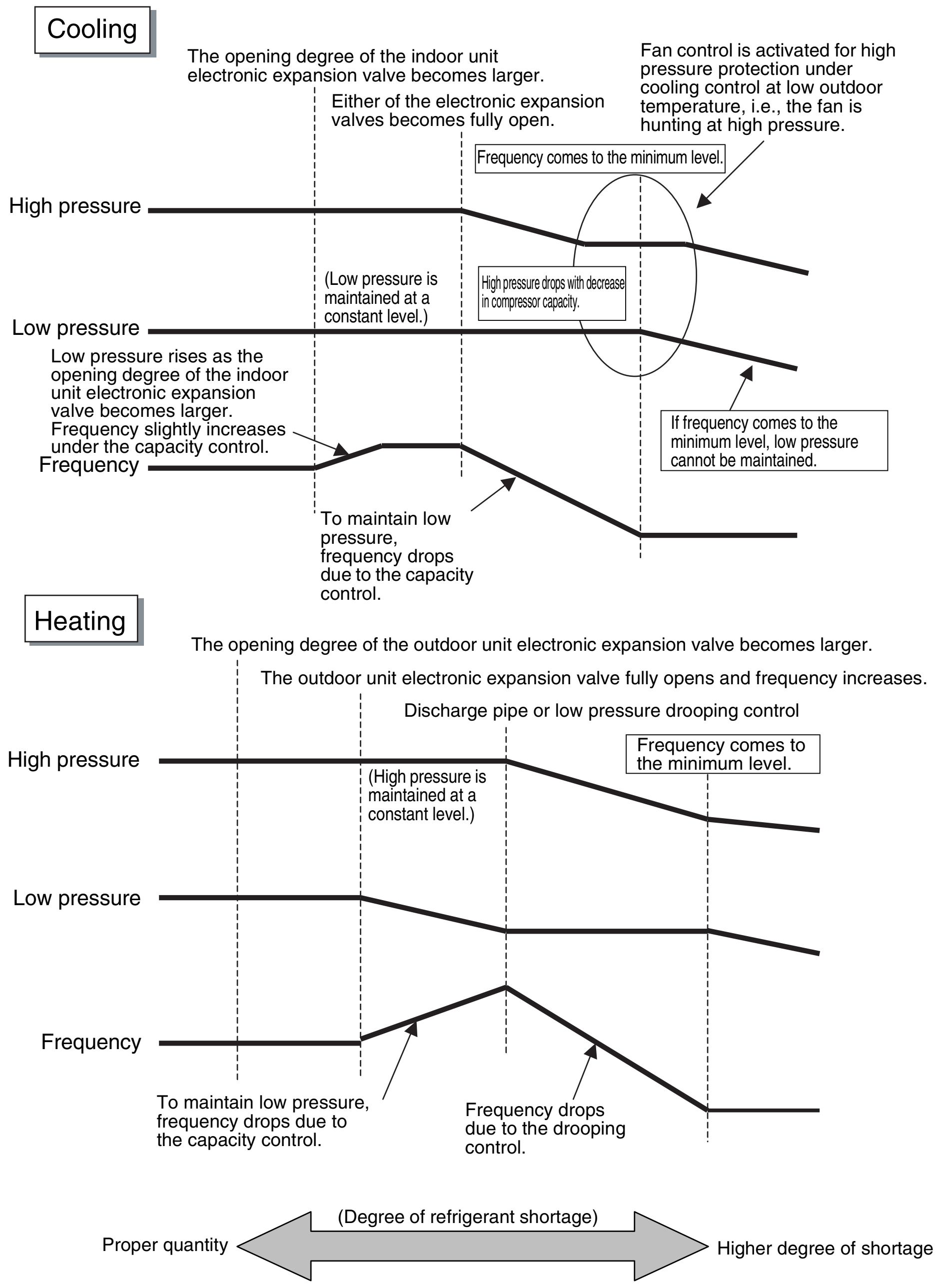


[Check 12] Check for shortage of refrigerant.

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 judgement, refer to information provided below.

<u>Diagnosis of shortage of refrigerant</u>

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.

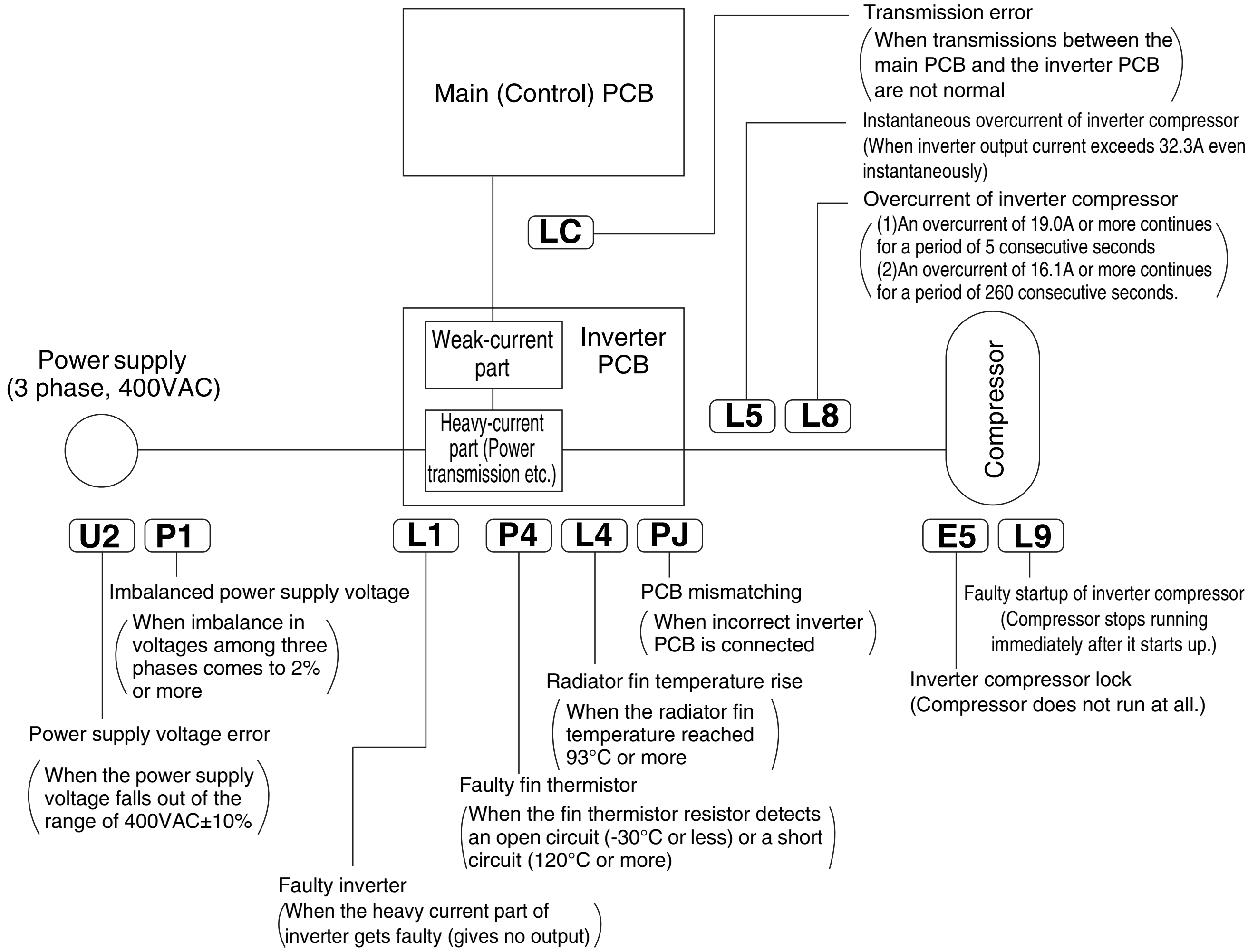
⑤ Refrigerant charge
- Purge air from the manifold gauge connection hoses, and then charge a necessary quantity of refrigerant.

* In case of construction during rainy reason, if dew condensation occurs in the piping due to extended construction period, or rainwater or else may enter the piping during construction work:

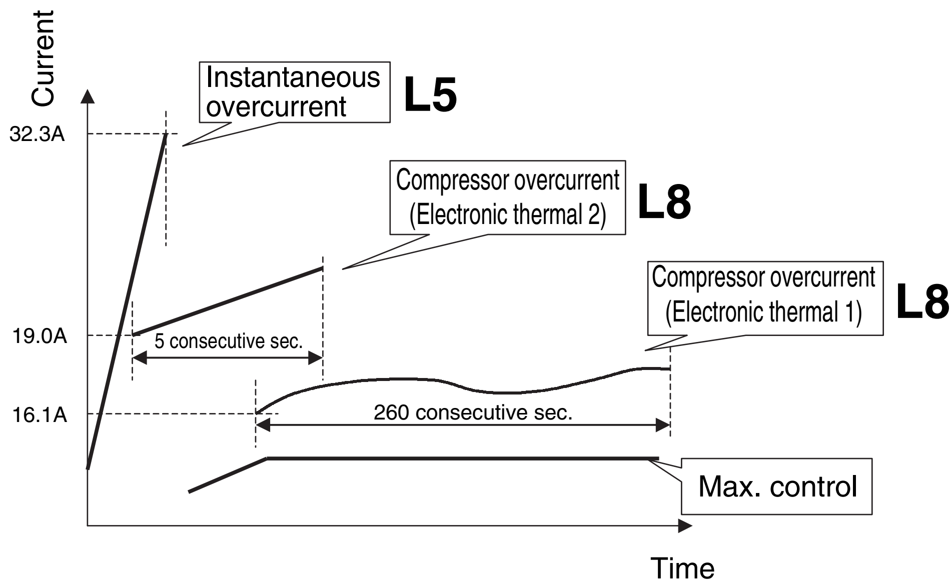
[Check 14] List of inverter-related malfunction codes

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

[Check 15] Concept of inverter-related malfunction codes



Malfunction codes related to compressor current

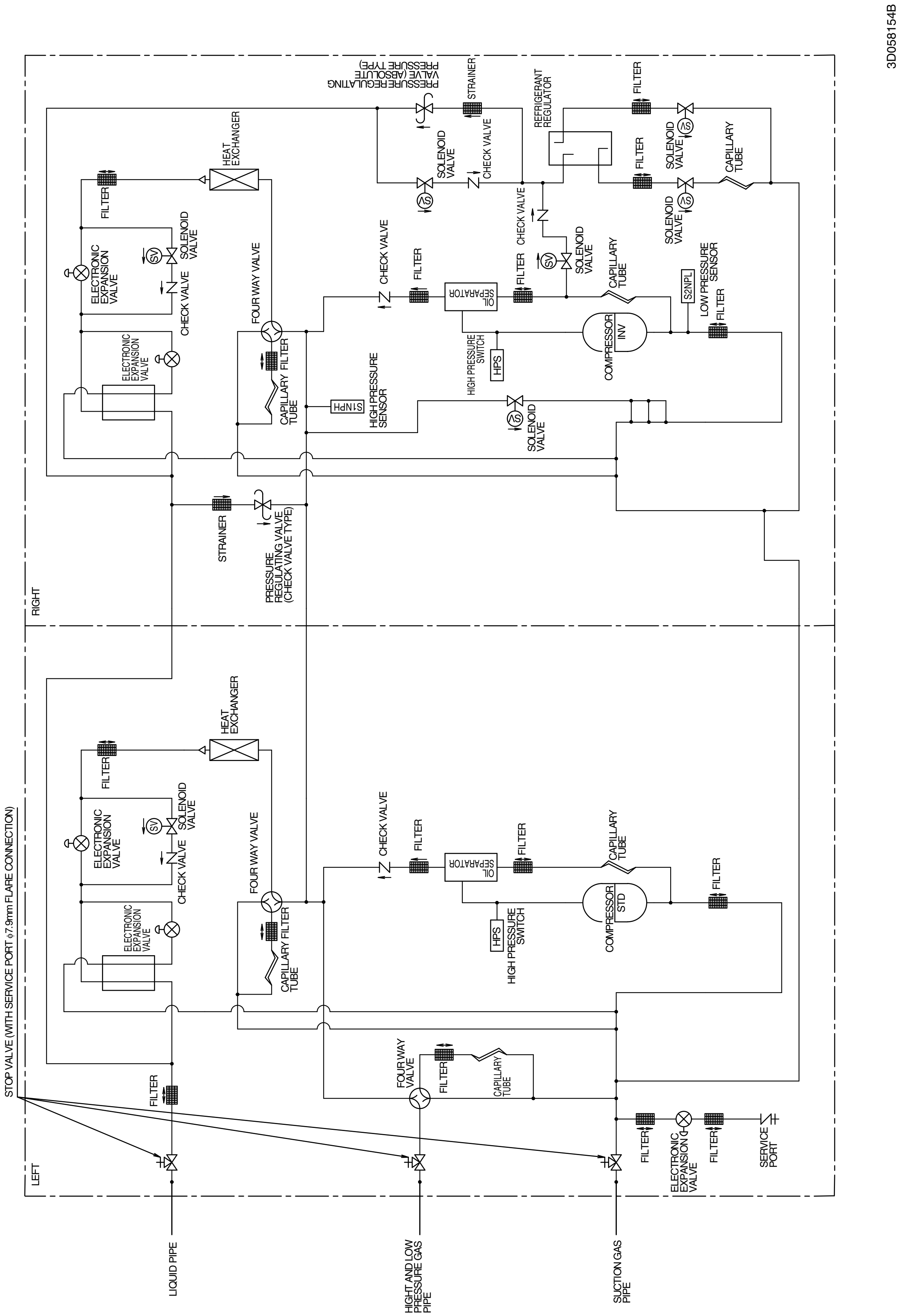


Part 7
Appendix

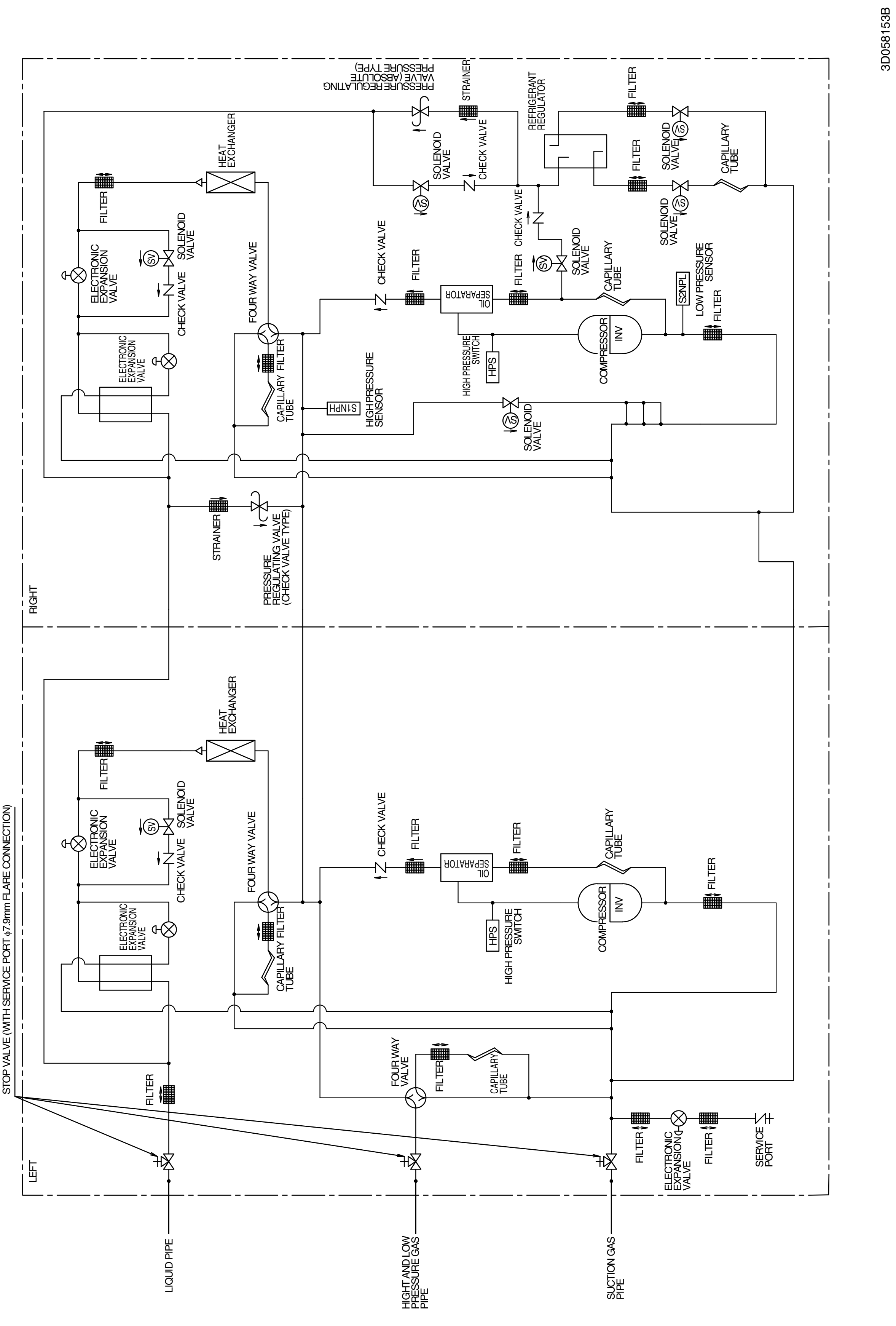
1. Piping Diagrams

1.1 Outdoor Unit

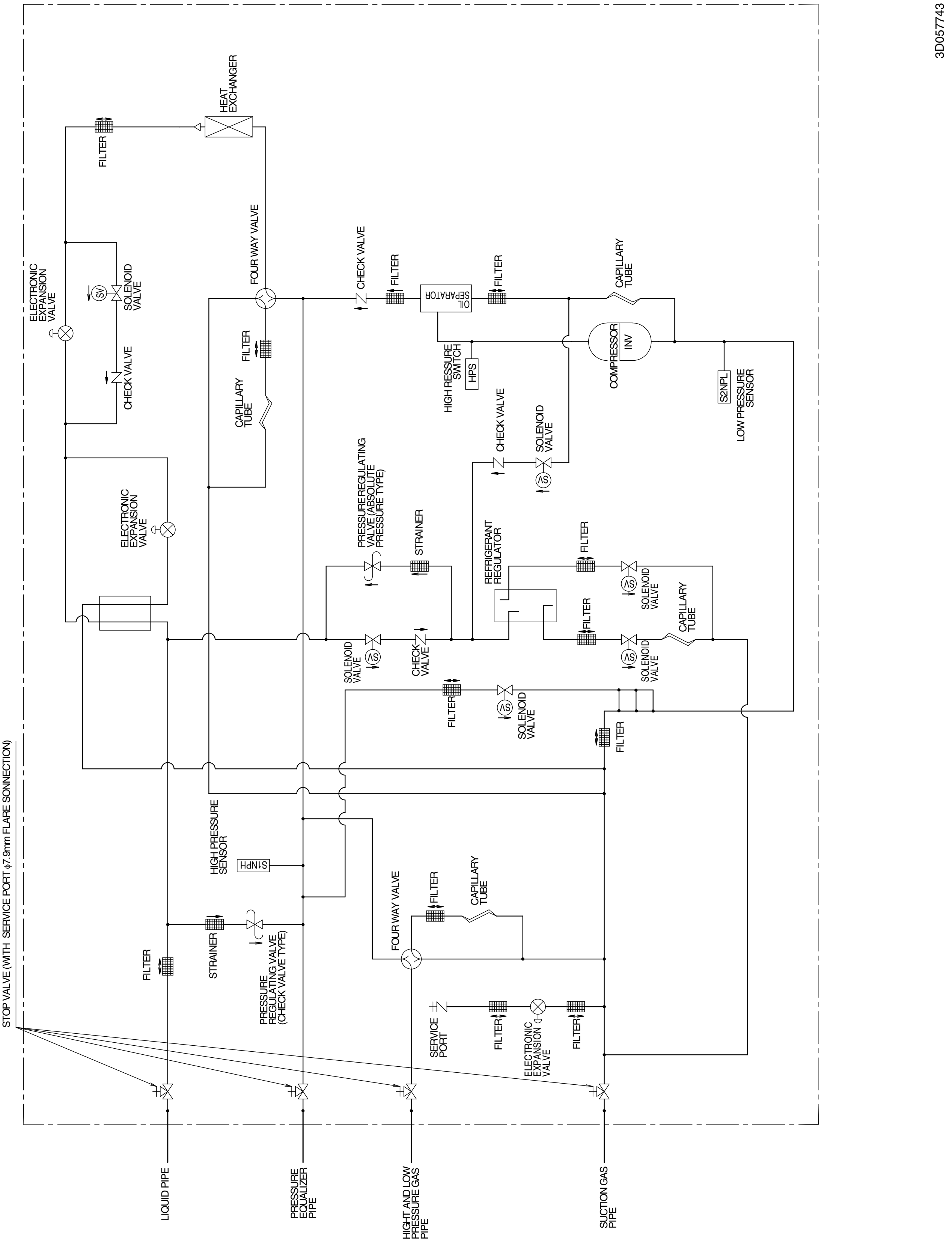
REYQ8P / 10P / 12P



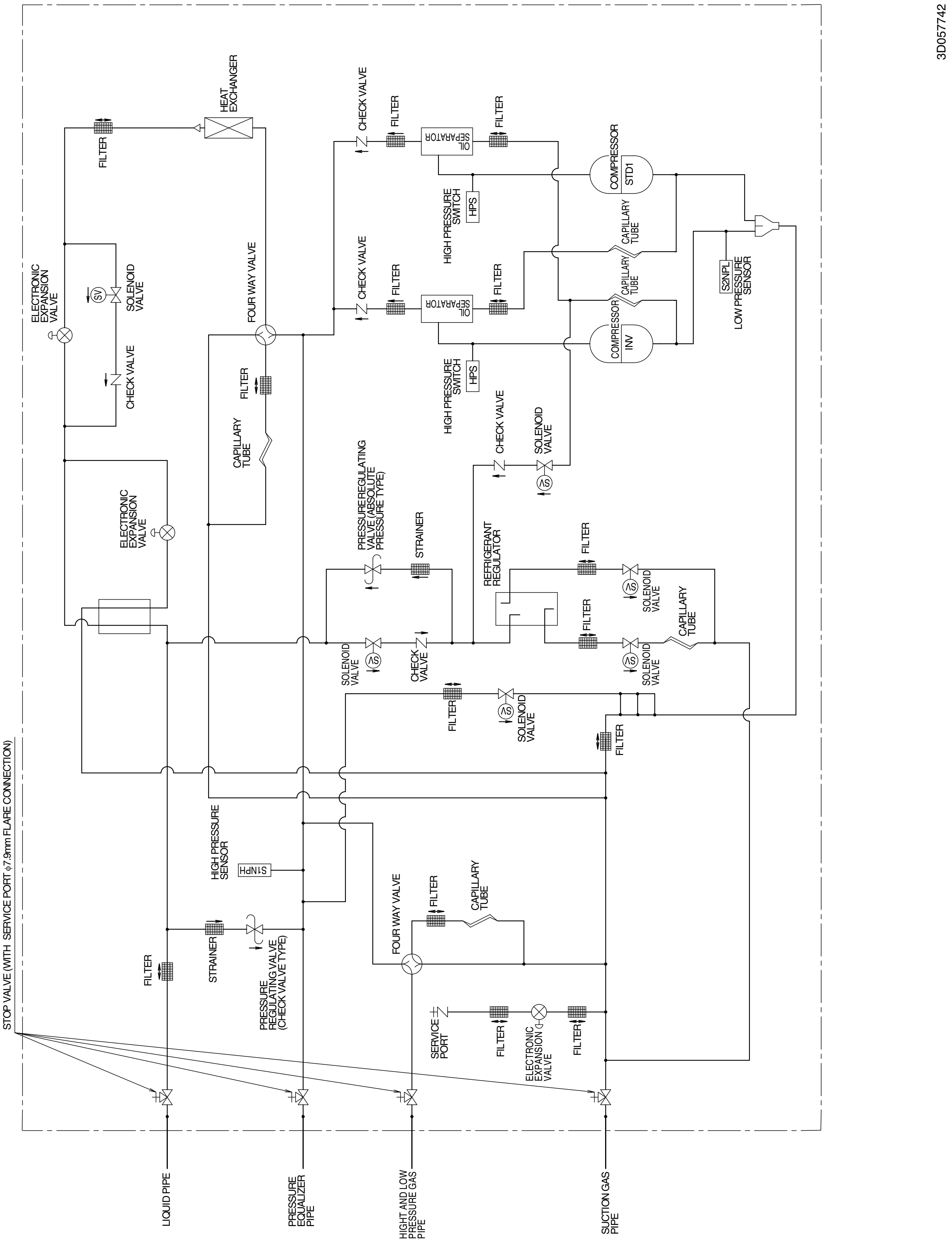
REYQ14P / 16P


3D058153B
RIGHT
LEFT
HEAT EXCHANGER
FILTER
ELECTRONIC EXPANSION VALVE
SOLENOID VALVE
CHECK VALVE
FOUR WAY VALVE
CAPILLARY TUBE
HIGH PRESSURE SENSOR
S1NPH
OIL SEPARATOR
HPS
HIGH PRESSURE SWITCH
COMPRESSOR
INV
S2NPL
LOW PRESSURE SENSOR
STRAINER
PRESSURE REGULATING VALVE (ABSOLUTE PRESSURE TYPE)
PRESSURE REGULATING VALVE (CHECK VALVE TYPE)
REFRIGERANT REGULATOR
STOP VALVE (WITH SERVICE PORT φ7.9mm FLARE CONNECTION)
SERVICE PORT
LIQUID PIPE
HIGHT AND LOW PRESSURE GAS PIPE
SUCTION GAS PIPE

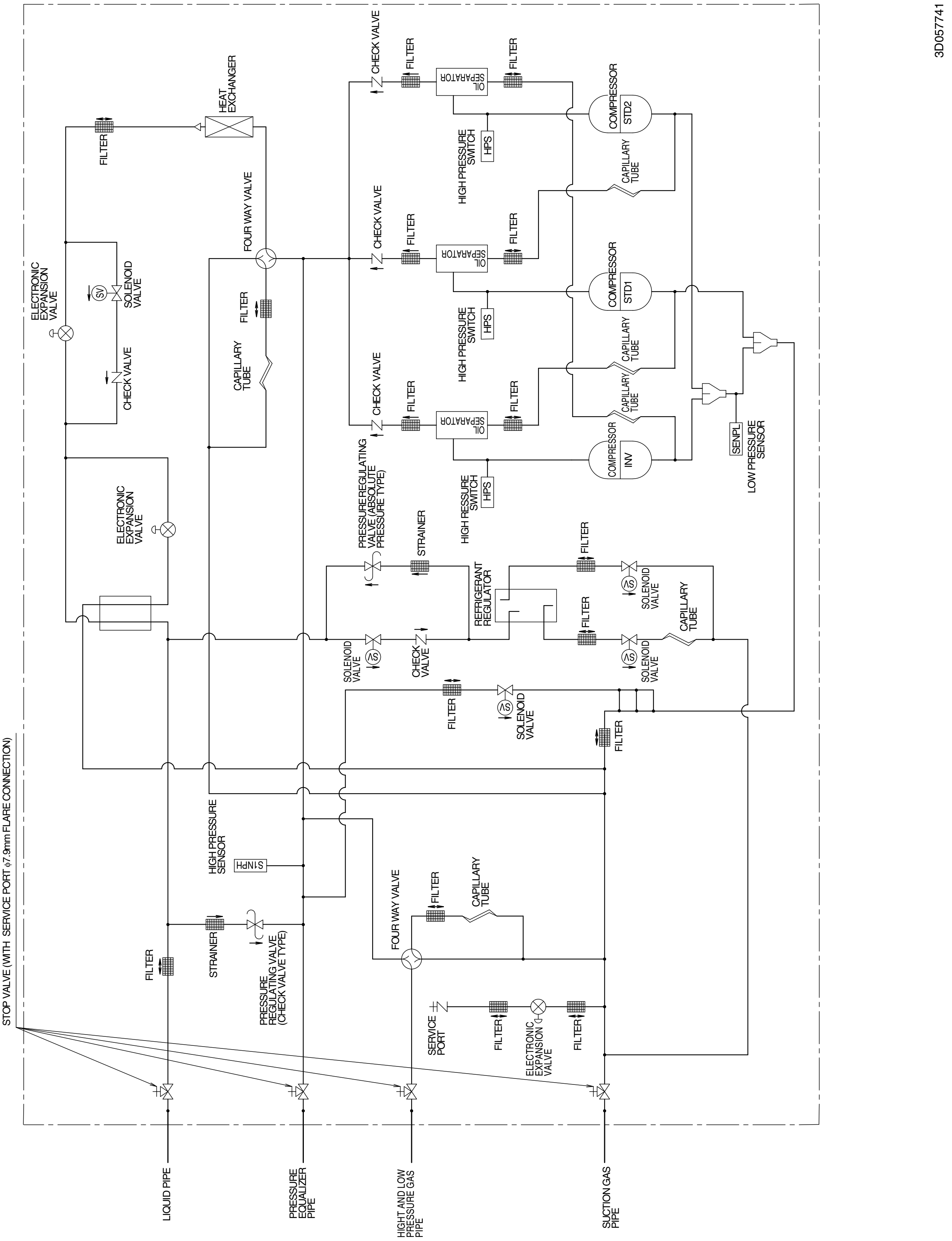
REMQ8P


3D057743
HEAT EXCHANGER
FILTER
ELECTRONIC EXPANSION VALVE
SOLENOID VALVE
CHECK VALVE
FOUR WAY VALVE
CAPILLARY TUBE
OIL SEPARATOR
HIGH RESSURE SWITCH
HPS
COMPRESSOR
INV
S2NPL
LOW PRESSURE SENSOR
PRESSUREREGULATING VALVE (ABSOLUTE PRESSURE TYPE)
STRAINER
REFRIGERANT REGULATOR
HIGH PRESSURE SENSOR
S1NPH
PRESSURE REGULATING VALVE (CHECK VALVE TYPE)
SERVICE PORT
STOP VALVE (WITH SERVICE PORT ϕ7.9mm FLARE SONNECTION)
LIQUID PIPE
PRESSURE EQUALIZER PIPE
HIGHT AND LOW PRESSURE GAS PIPE
SUCTION GAS PIPE

REMQ10P, 12P

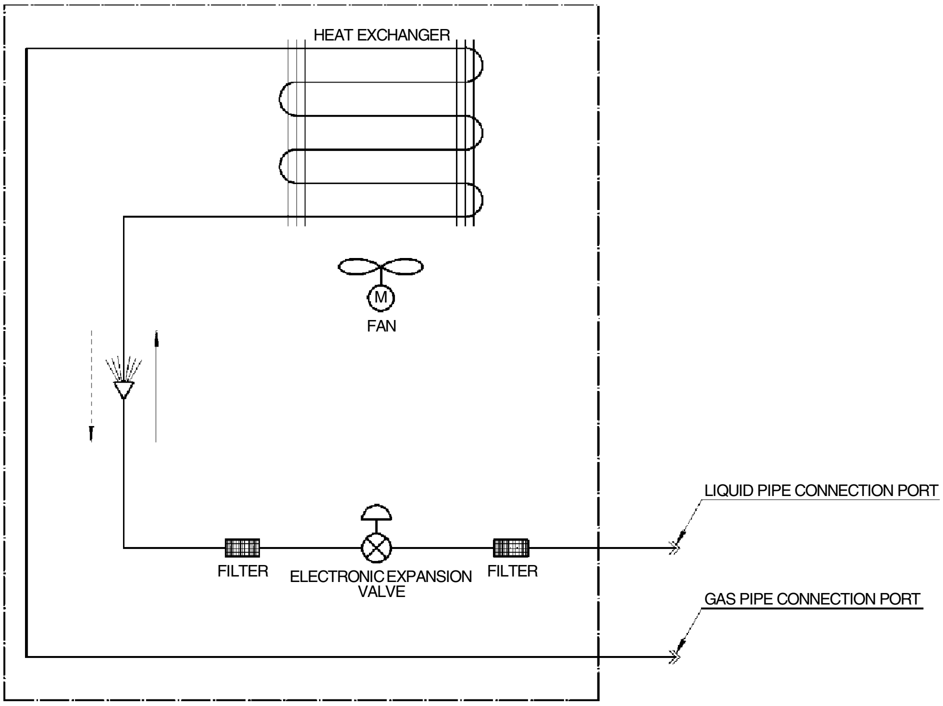

3D057742
HEAT EXCHANGER
FILTER
ELECTRONIC EXPANSION VALVE
SOLENOID VALVE
CHECK VALVE
FOUR WAY VALVE
CAPILLARY TUBE
OIL SEPARATOR
HIGH PRESSURE SWITCH
HPS
COMPRESSOR
STD1
INV
S2NPL
LOW PRESSURE SENSOR
PRESSURE REGULATING VALVE (ABSOLUTE PRESSURE TYPE)
STRAINER
REFRIGERANT REGULATOR
STOP VALVE (WITH SERVICE PORT φ7.9mm FLARE CONNECTION)
HIGH PRESSURE SENSOR
S1NPH
PRESSURE REGULATING VALVE (CHECK VALVE TYPE)
SERVICE PORT
LIQUID PIPE
PRESSURE EQUALIZER PIPE
HIGHT AND LOW PRESSURE GAS PIPE
SUCTION GAS PIPE

REMQ14P, 16P


3D057741
HEAT EXCHANGER
FILTER
FOUR WAY VALVE
ELECTRONIC EXPANSION VALVE
SOLENOID VALVE
CHECK VALVE
CAPILLARY TUBE
OIL SEPARATOR
HIGH PRESSURE SWITCH
HPS
COMPRESSOR
STD2
STD1
INV
SENPL
LOW PRESSURE SENSOR
PRESSURE REGULATING VALVE (ABSOLUTE PRESSURE TYPE)
STRAINER
REFRIGERANT REGULATOR
HIGH PRESSURE SENSOR
S1NPH
PRESSURE REGULATING VALVE (CHECK VALVE TYPE)
SERVICE PORT
STOP VALVE (WITH SERVICE PORT φ7.9mm FLARE CONNECTION)
LIQUID PIPE
PRESSURE EQUALIZER PIPE
HIGHT AND LOW PRESSURE GAS PIPE
SUCTION GAS PIPE

1.2 Indoor Unit

FXFQ-P



REFRIGERANT FLOW

COOLING

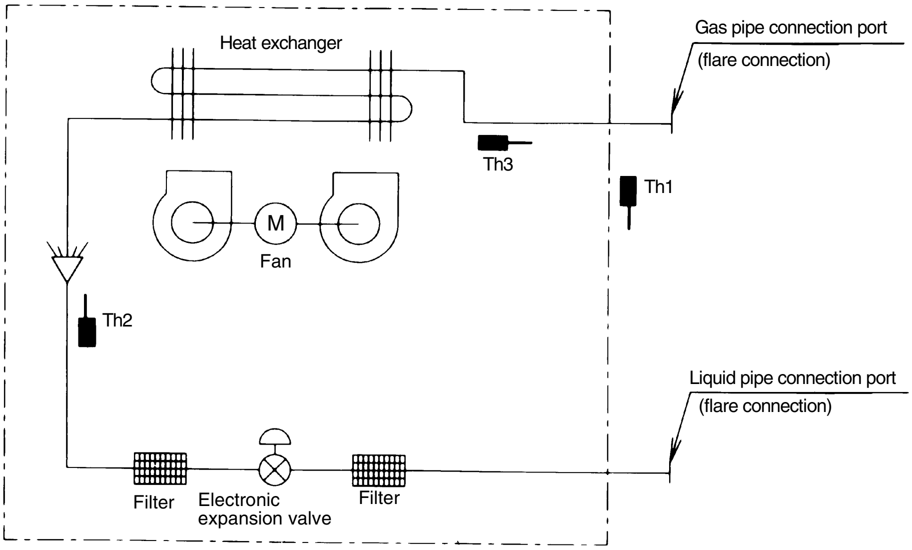
HEATING

REFRIGERANT PIPE CONNECTION PORT DIAMETERS

MODEL	GAS	LIQUID
FXFQ20, 25, 32, 40, 50P	φ12.70	φ6.35
FXFQ63, 80, 100, 125P	φ15.90	φ9.52

3TW28835-1

FXZQ



Th1: Thermistor for suction air temp.
Th2: Thermistor for liquid line temp.
Th3: Thermistor for gas line temp.

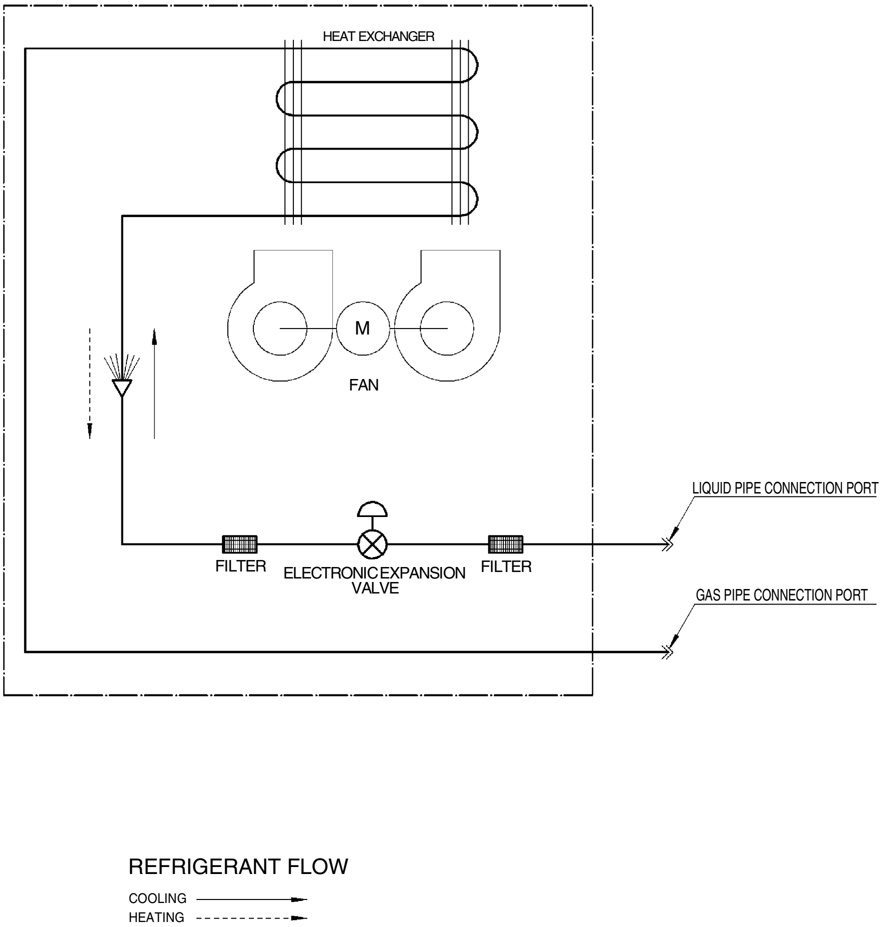
4D040157

■ Refrigerant pipe connection port diameters

(mm)

Model	Gas	Liquid
FXZQ20M / 25M / 32M / 40M / 50M	ϕ12.7	ϕ6.4

FXCQ, FXDQ25/25-M, FXSQ

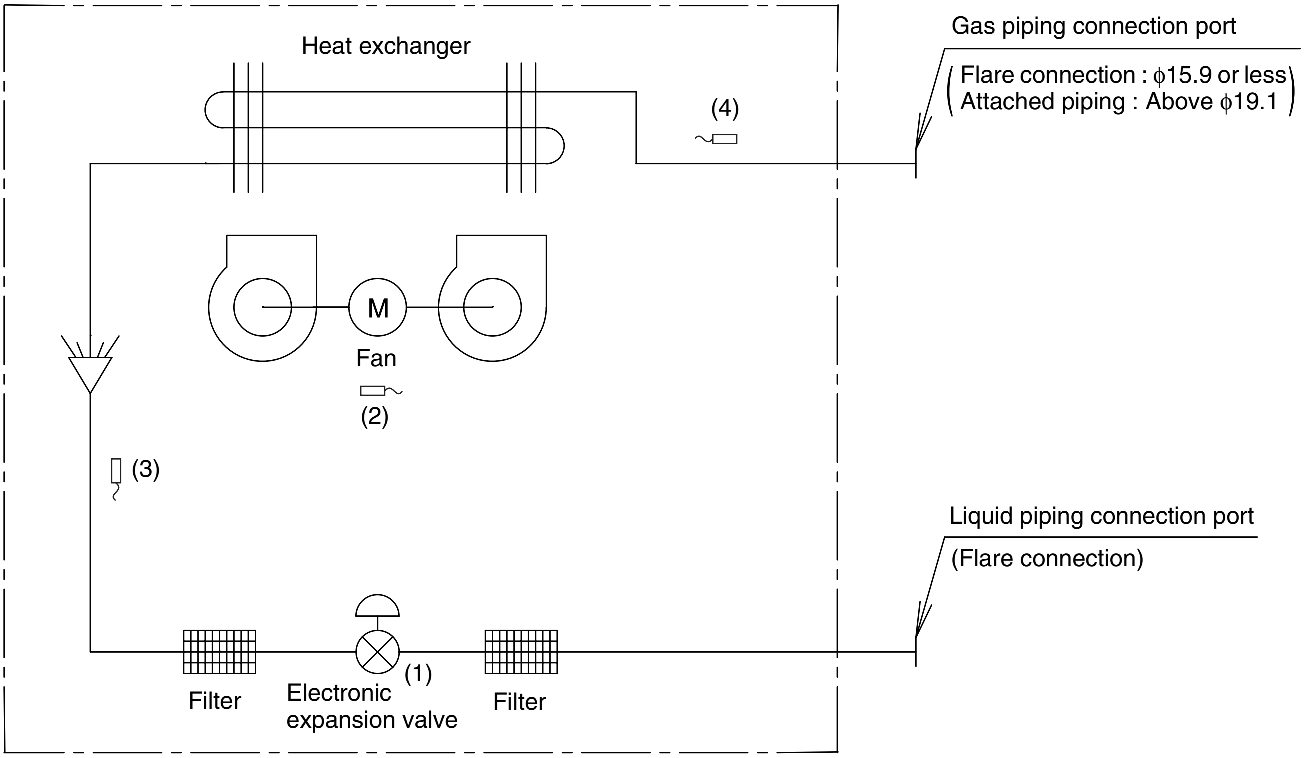


■ Refrigerant pipe connection port diameters

Model	Gas	Liquid
FXSQ20, 25, 32, 40, 50	ϕ12.70	ϕ6.35
FXSQ63, 80, 100, 125	ϕ15.90	ϕ9.52
FXCQ20, 25, 32, 40, 50	ϕ12.70	ϕ6.35
FXCQ63, 80, 125	ϕ15.90	ϕ9.52
FXDQ20, 25	ϕ12.70	ϕ6.35

C:3TW25515-1
C:3TW21175-1C
C:3TW31185-1

FXKQ-MA, FXHQ-MA, FXLQ-MA, FXNQ-MA, FXMQ-MA



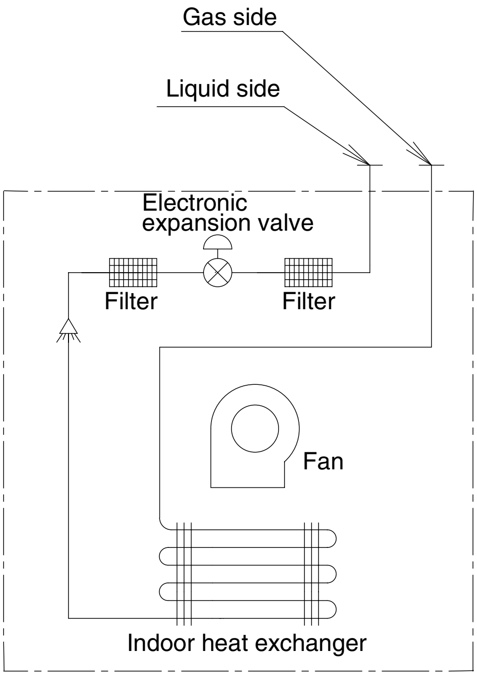
Code	Name	Code	Main function
(1)	Electronic expansion valve	Y1E	Used for gas superheated degree control while in cooling operation or subcooled degree control while in heating operation.
(2)	Suction air temperature thermistor	R1T	Used for thermostat control.
(3)	Liquid pipe thermistor	R2T	Used for gas superheated degree control while in cooling operation or subcooled degree control while in heating operation.
(4)	Gas pipe thermistor	R3T	Used for gas superheated degree control while in cooling operation.

(mm)

Capacity	GAS	Liquid
20 / 25 / 32 / 40 / 50MA	ϕ12.7	ϕ6.4
63 / 80 / 100 / 125MA	ϕ15.9	ϕ9.5
200MA	ϕ19.1	ϕ9.5
250MA	ϕ22.2	ϕ9.5

4D034245D

FXDQ-NB, PB



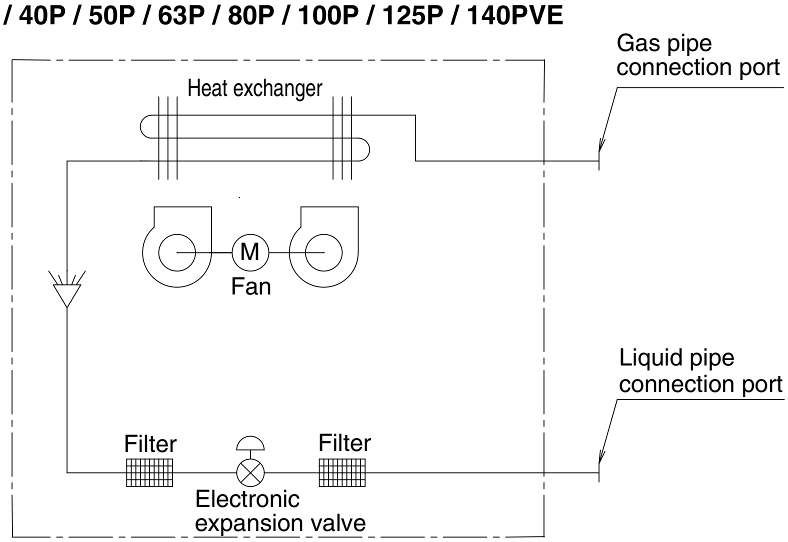
4D060927

■ **Refrigerant pipe connection port diameters**

(mm)

Model	Gas	Liquid
FXDQ20NB, PB / 25NB, PB / 32NB, PB / 40NB / 50NBVE	ϕ12.7	ϕ6.4
FXDQ63NBVE	ϕ15.9	ϕ9.5

FXMQ20P / 25P / 32P / 40P / 50P / 63P / 80P / 100P / 125P / 140PVE



4D034245D

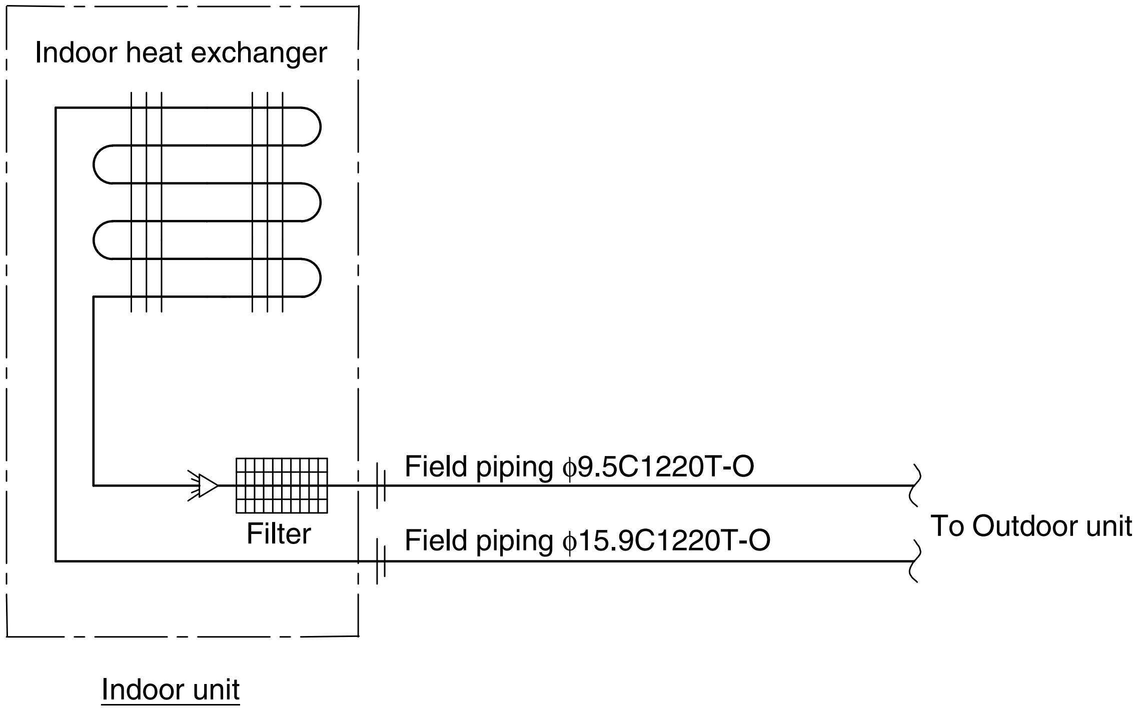
■ **Refrigerant pipe connection port diameters**

(mm)

Model	Gas	Liquid
FXMQ20P / 25P / 32P / 40P / 50PVE	ϕ12.7	ϕ6.4
FXMQ63P / 80P / 100P / 125P / 140PVE	ϕ15.9	ϕ9.5

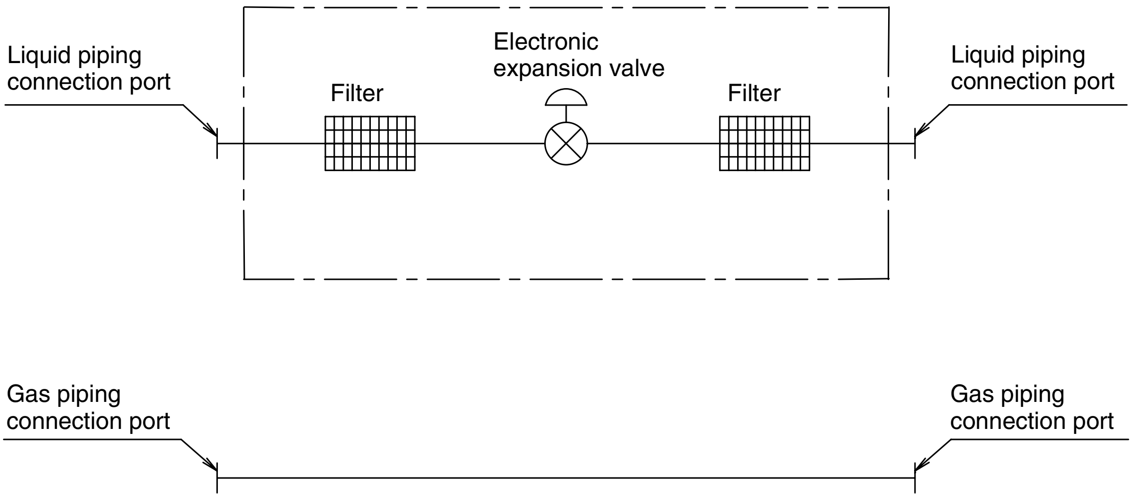
FXUQ + BEVQ

Indoor Unit



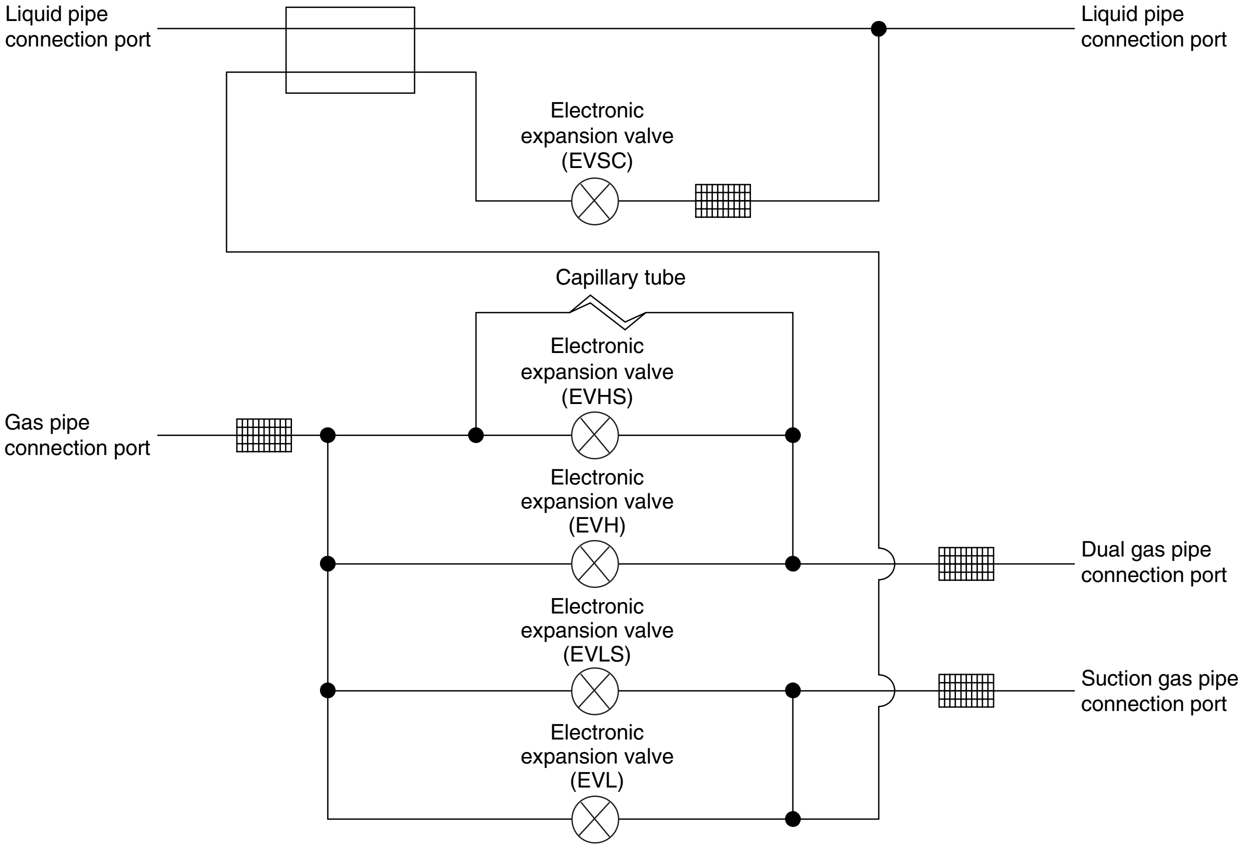
4D037995J

Connection Unit



4D034127B

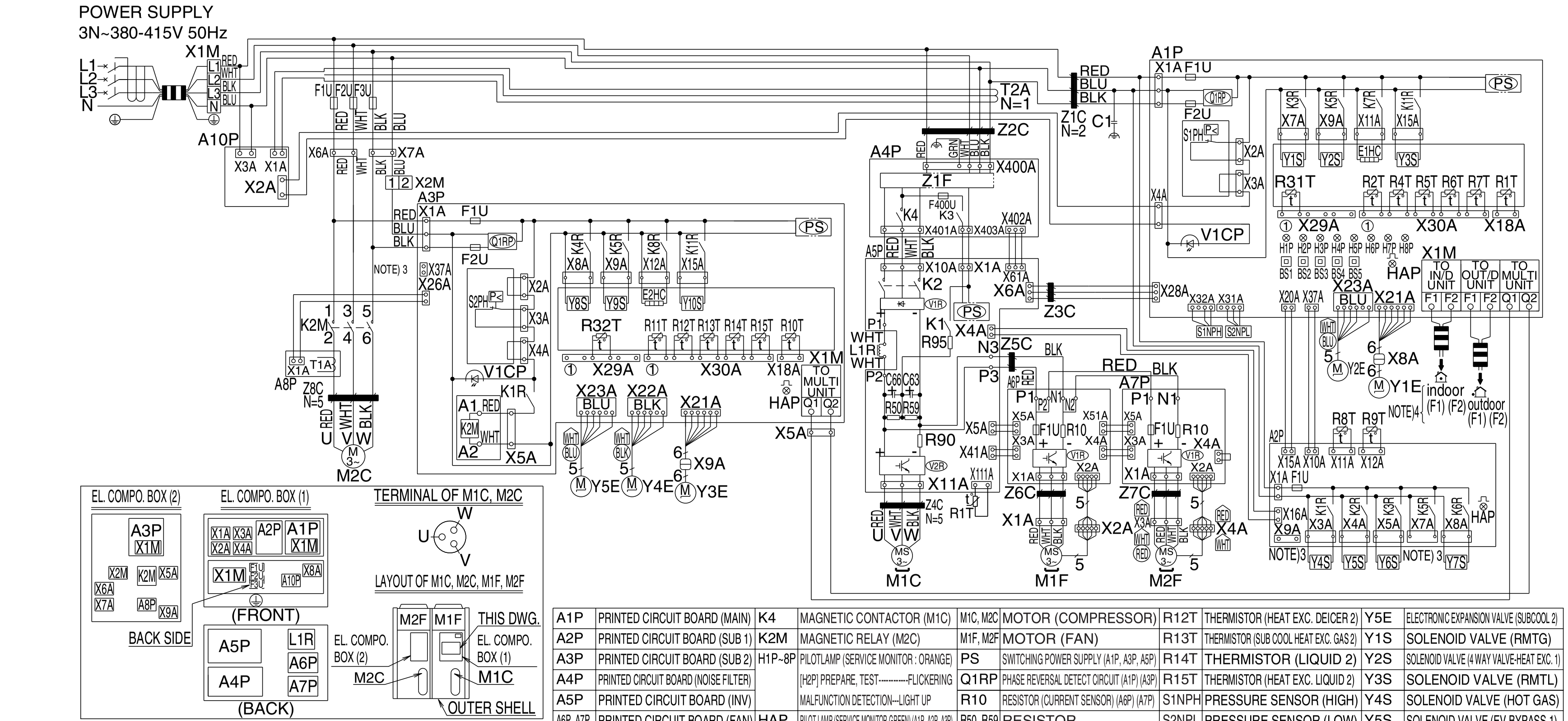
1.3 BS Unit


Liquid pipe
connection port
Liquid pipe
connection port
Electronic
expansion valve
(EVSC)
Capillary tube
Electronic
expansion valve
(EVHS)
Gas pipe
connection port
Electronic
expansion valve
(EVH)
Dual gas pipe
connection port
Electronic
expansion valve
(EVLS)
Suction gas pipe
connection port
Electronic
expansion valve
(EVL)

2. Wiring Diagrams for Reference

2.1 Outdoor Unit

REYQ8P / 10P / 12P8Y1B

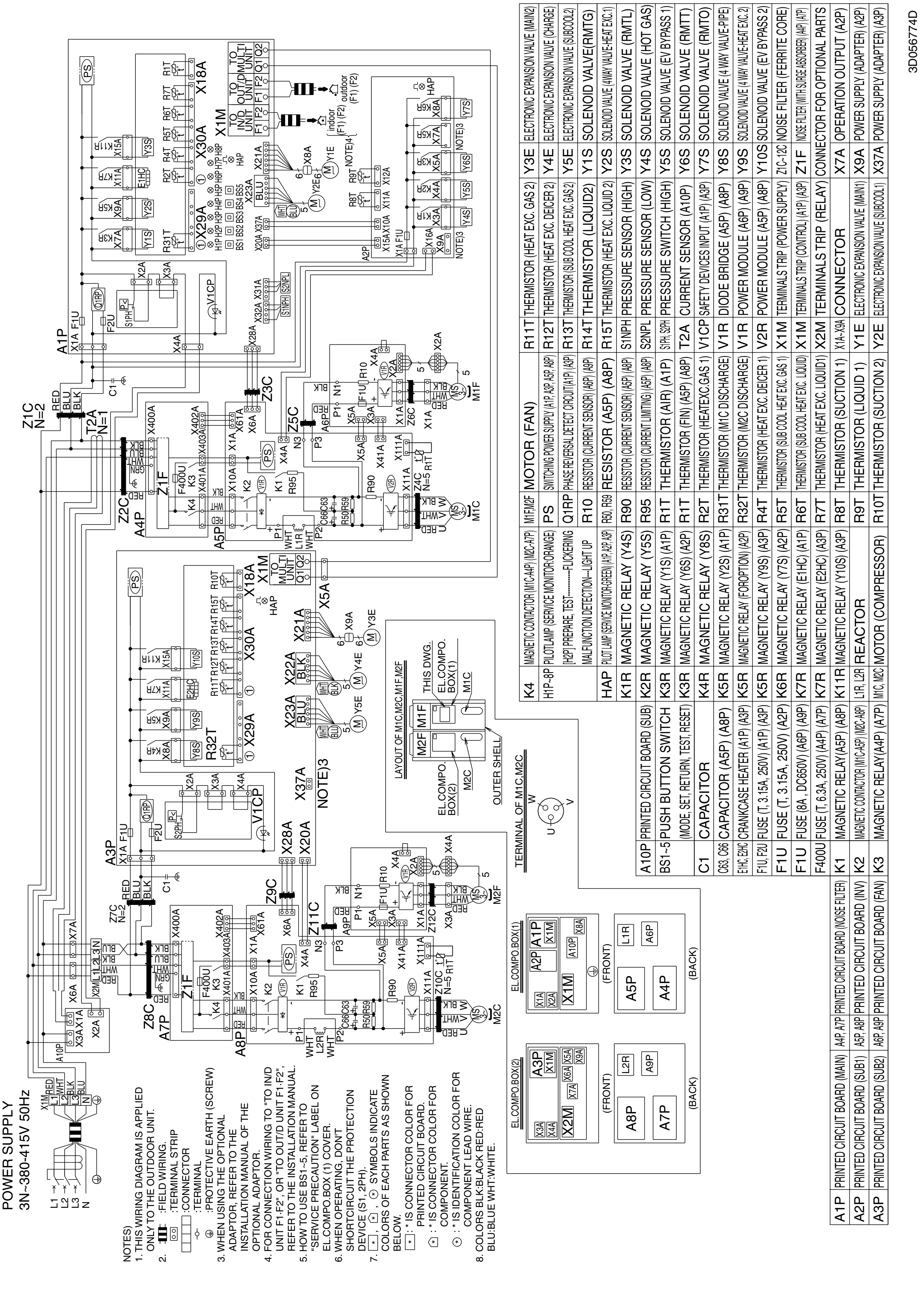


A1P	PRINTED CIRCUIT BOARD (MAIN)	K4	MAGNETIC CONTACTOR (M1C)	M1C, M2C	MOTOR (COMPRESSOR)	R12T	THERMISTOR (HEAT EXC. DEICER 2)	Y5E	ELECTRONIC EXPANSION VALVE (SUBCOOL 2)
A2P	PRINTED CIRCUIT BOARD (SUB 1)	K2M	MAGNETIC RELAY (M2C)	M1F, M2F	MOTOR (FAN)	R13T	THERMISTOR (SUB COOL HEAT EXC. GAS 2)	Y1S	SOLENOID VALVE (RMTG)
A3P	PRINTED CIRCUIT BOARD (SUB 2)	H1P~8P	PILOTLAMP (SERVICE MONITOR : ORANGE)	PS	SWITCHING POWER SUPPLY (A1P, A3P, A5P)	R14T	THERMISTOR (LIQUID 2)	Y2S	SOLENOID VALVE (4 WAY VALVE-HEAT EXC. 1)
A4P	PRINTED CIRCUIT BOARD (NOISE FILTER)		[H2P] PREPARE, TEST-----------FLICKERING	Q1RP	PHASE REVERSAL DETECT CIRCUIT (A1P) (A3P)	R15T	THERMISTOR (HEAT EXC. LIQUID 2)	Y3S	SOLENOID VALVE (RMTL)
A5P	PRINTED CIRCUIT BOARD (INV)		MALFUNCTION DETECTION---LIGHT UP	R10	RESISTOR (CURRENT SENSOR) (A6P) (A7P)	S1NPH	PRESSURE SENSOR (HIGH)	Y4S	SOLENOID VALVE (HOT GAS)
A6P, A7P	PRINTED CIRCUIT BOARD (FAN)	HAP	PILOT LAMP (SERVICE MONITOR-GREEN) (A1P, A2P, A3P)	R50, R59	RESISTOR	S2NPL	PRESSURE SENSOR (LOW)	Y5S	SOLENOID VALVE (EV BYPASS 1)
A8P	PRINTED CIRCUIT BOARD (CURRENT SENSOR)	K1R	MAGNETIC RELAY (Y4S) (A2P)	R90	RESISTOR (CURRENT SENSOR)	S1PH, S2PH	PRESSURE SWITCH (HIGH)	Y6S	SOLENOID VALVE (RMTT)
A10P	PRINTED CIRCUIT BOARD (SUB)	K1R	MAGNETIC RELAY (K2M) (A3P)	R95	RESISTOR (CURRENT LIMITING)	T1A	CURRENT SENSOR	Y7S	SOLENOID VALVE (RMTO)
BS1~5	PUSH BUTTON SWITCH	K2R	MAGNETIC RELAY (Y5S)	R1T	THERMISTOR (AIR) (A1P)	T2A	CURRENT SENSOR (A10P)	Y8S	SOLENOID VALVE (4 WAY VALVE-PIPE)
	(MODE, SET, RETURN, TEST, RESET)	K3R	MAGNETIC RELAY (Y1S) (A1P)	R1T	THERMISTOR (FIN) (A5P)	V1CP	SAFETY DEVICES INPUT (A1P) (A3P)	Y9S	SOLENOID VALVE (4 WAY VALVE-HEAT EXC. 2)
C1	CAPACITOR	K3R	MAGNETIC RELAY (Y6S) (A2P)	R2T	THERMISTOR (HEAT EXC. GAS 1)	V1R	DIODE BRIDGE (A5P)	Y10S	SOLENOID VALVE (EVBYPASS2)
C63, C66	CAPACITOR	K4R	MAGNETIC RELAY (Y8S)	R31T	THERMISTOR (M1C DISCHARGE)	V1R	POWER MODULE (A6P) (A7P)	Z1C~8C	NOISE FILTER (FERRITE CORE)
E1HC, E2HC	CRANKCASE HEATER (A1P) (A3P)	K5R	MAGNETIC RELAY (Y2S) (A1P)	R32T	THERMISTOR (M2C DISCHARGE)	V2R	POWER MODULE	Z1F	NOISE FILTER (WITH SURGE ABSORBER)
F1U, F2U	FUSE (T ,3.15A, 250V) (A1P) (A3P)	K5R	MAGNETIC RELAY (FOR OPTION) (A2P)	R4T	THERMISTOR (HEAT EXC.DEICER 1)	X1M	TERMINAL STRIP (POWER SUPPLY)		
F1U	FUSE (T, 3.15A, 250V) (A2P)	K5R	MAGNETIC RELAY (Y9S) (A3P)	R5T	THERMISTOR (SUB COOL HEAT EXC. GAS 1)	X1M	TERMINAL STRIP (CONTROL) (A1P) (A3P)		
F1U	FUSE (8A, DC650V) (A6P) (A7P)	K6R	MAGNETIC RELAY (Y7S)	R6T	THERMISTOR (SUB COOL HEAT EXC. LIQUID)	X2M	TERMINAL STRIP (RELAY)		
F1U~F3U	FUSE	K7R	MAGNETIC RELAY (E1HC) (A1P)	R7T	THERMISTOR (HEAT EXC. LIQUID 1)	X1A~X9A	CONNECTOR	CONNECTOR FOR OPTIONAL PARTS	
F400U	FUSE (T, 6.3A, 250V)	K8R	MAGNETIC RELAY (E2HC) (A3P)	R8T	THERMISTOR (SUCTION 1)	Y1E	ELECTRONIC EXPANSION VALVE (MAIN 1)	X7A	OPERATION OUTPUT (A2P)
K1	MAGNETIC RELAY	K11R	MAGNETIC RELAY (Y3S) (A1P)	R9T	THERMISTOR (LIQUID 1)	Y2E	ELECTRONIC EXPANSION VALVE (SUBCOOL 1)	X9A	POWER SUPPLY (ADAPTER) (A2P)
K2	MAGNETIC CONTACTOR (M1C)	K11R	MAGNETIC RELAY (Y10S) (A3P)	R10T	THERMISTOR (SUCTION 2)	Y3E	ELECTRONIC EXPANSION VALVE (MAIN 2)	X37A	POWER SUPPLY (ADAPTER) (A3P)
K3	MAGNETIC RELAY	L1R	REACTOR	R11T	THERMISTOR (HEAT EXC. GAS 2)	Y4E	ELECTRONIC EXPANSION VALVE (CHARGE)		

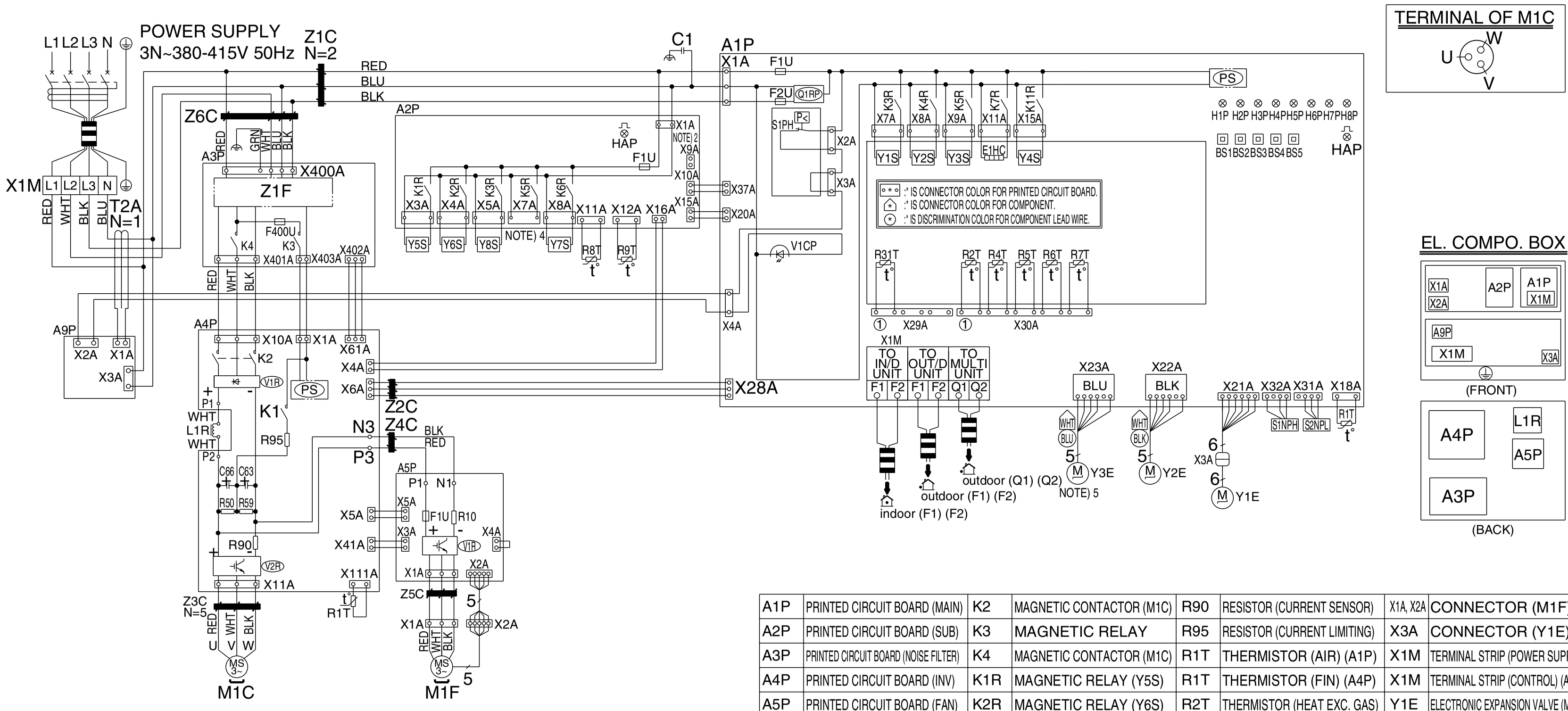
NOTES)
1. THIS WIRING DIAGRAM IS APPLIED ONLY TO THE OUTDOOR UNIT.
2. : FIELD WIRING : TERMINAL STRIP
   : CONNECTOR : TERMINAL
   : PROTECTIVE EARTH (SCREW)
3. WHEN USING THE OPTIONAL ADAPTOR, REFER TO THE INSTALLATION MANUAL OF THE OPTIONAL ADAPTOR.
4. FOR CONNECTION WIRING TO "TO IN/D UNIT F1·F2" OR "TO OUT/D UNIT F1·F2", REFER TO THE INSTALLATION MANUAL.
5. HOW TO USE BS1~5, REFER TO "SERVICE PRECAUTION" LABEL ON EL. COMPO. BOX (1) COVER.
6. WHEN OPERATING, DON'T SHORTCIRCUIT THE PROTECTION DEVICE (S1, 2PH).
7. , , SYMBOLS INDICATE COLORS OF EACH PARTS AS SHOWN BELOW.
   : * IS CONNECTOR COLOR FOR PRINTED CIRCUIT BOARD.
   : * IS CONNECTOR COLOR FOR COMPONENT.
   : * IS IDENTIFICATION COLOR FOR COMPONENT LEAD WIRE.
8. COLORS BLK : BLACK RED : RED BLU : BLUE WHT : WHITE.

3D056775E

REYQ14P / 16P8Y1B



REMQ8P8Y1B

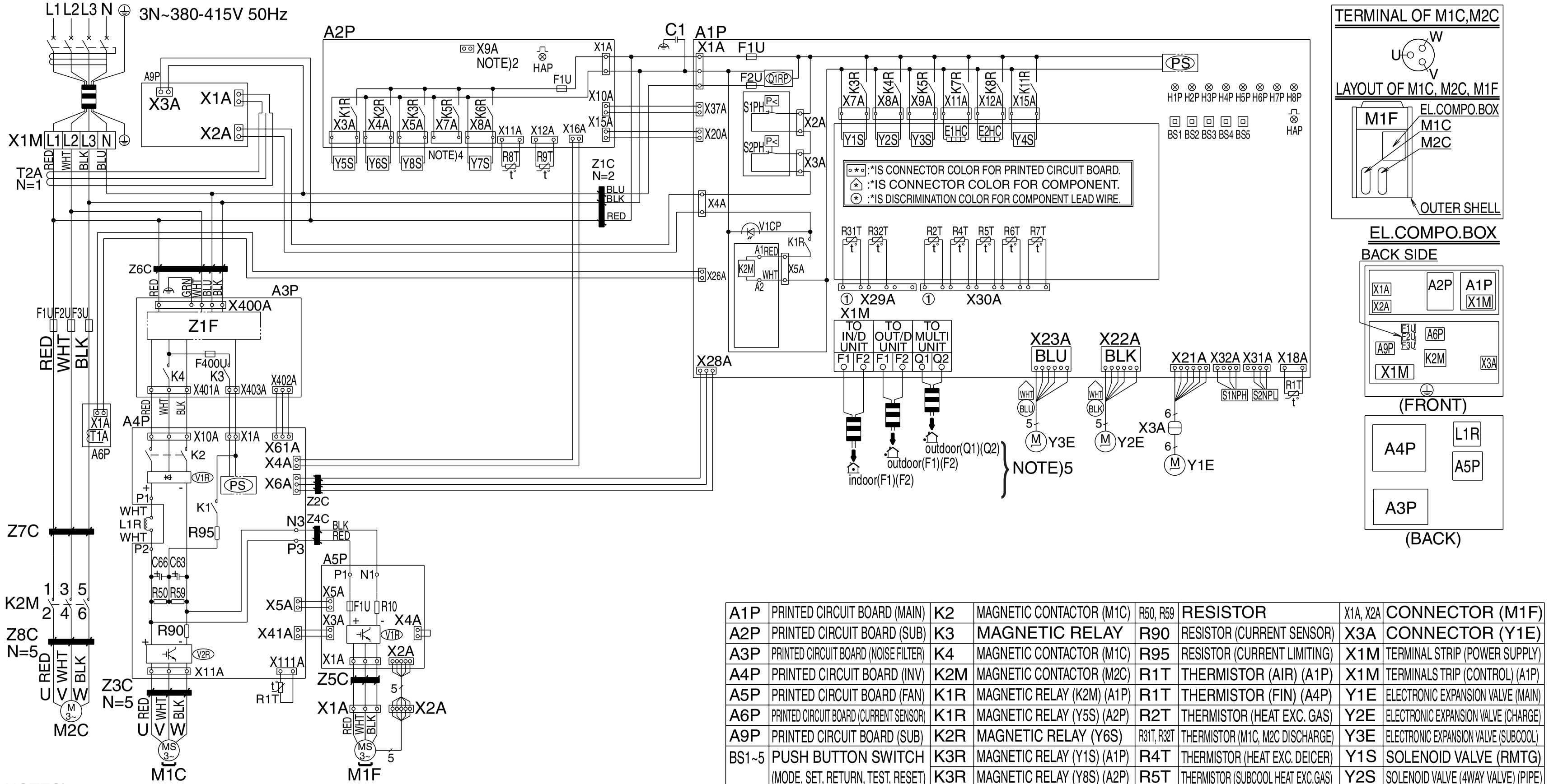


NOTES)
1. THIS WIRING DIAGRAM IS APPLIED ONLY TO THE OUTDOOR UNIT.
2. : FIELD WIRING.
3. : TERMINAL STRIP : CONNECTOR
   : TERMINAL : PROTECTIVE EARTH (SCREW)
4. WHEN USING THE OPTIONAL ADAPTOR, REFER TO THE INSTALLATION MANUAL OF THE OPTIONAL ADAPTOR.
5. FOR CONNECTION WIRING TO INDOOR-OUTDOOR TRANSMISSION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

A1P	PRINTED CIRCUIT BOARD (MAIN)	K2	MAGNETIC CONTACTOR (M1C)	R90	RESISTOR (CURRENT SENSOR)	X1A, X2A	CONNECTOR (M1F)
A2P	PRINTED CIRCUIT BOARD (SUB)	K3	MAGNETIC RELAY	R95	RESISTOR (CURRENT LIMITING)	X3A	CONNECTOR (Y1E)
A3P	PRINTED CIRCUIT BOARD (NOISE FILTER)	K4	MAGNETIC CONTACTOR (M1C)	R1T	THERMISTOR (AIR) (A1P)	X1M	TERMINAL STRIP (POWER SUPPLY)
A4P	PRINTED CIRCUIT BOARD (INV)	K1R	MAGNETIC RELAY (Y5S)	R1T	THERMISTOR (FIN) (A4P)	X1M	TERMINAL STRIP (CONTROL) (A1P)
A5P	PRINTED CIRCUIT BOARD (FAN)	K2R	MAGNETIC RELAY (Y6S)	R2T	THERMISTOR (HEAT EXC. GAS)	Y1E	ELECTRONIC EXPANSION VALVE (MAIN)
A9P	PRINTED CIRCUIT BOARD (SUB)	K3R	MAGNETIC RELAY (Y1S) (A1P)	R31T	THERMISTOR (M1C DISCHARGE)	Y2E	ELECTRONIC EXPANSION VALVE (CHARGE)
BS1~5	PUSH BUTTON SWITCH	K3R	MAGNETIC RELAY (Y8S) (A2P)	R4T	THERMISTOR (HEAT EXC. DEICER)	Y3E	ELECTRONIC EXPANSIONVALVE (SUBCOOL)
	(MODE, SET, RETURN, TEST, RESET)	K4R	MAGNETIC RELAY (Y2S)	R5T	THERMISTOR (SUB COOL HEAT EXC. GAS)	Y1S	SOLENOIDVALVE (RMTG)
C1	CAPACITOR	K5R	MAGNETIC RELAY (Y3S) (A1P)	R6T	THERMISTOR (SUB COOL HEAT EXC. LIQUID)	Y2S	SOLENOID VALVE (4 WAY VALVE) (PIPE)
C63, C66	CAPACITOR	K5R	MAGNETIC RELAY (FOR OPTION) (A2P)	R7T	THERMISTOR (HEAT EXC. LIQUID)	Y3S	SOLENOID VALV E (4 WAY VALVE) (HEAT EXC.)
E1HC	CRANKCASE HEATER	K6R	MAGNETIC RELAY (Y7S)	R8T	THERMISTOR (SUCTION)	Y4S	SOLENOID VALVE (RMTL)
F1U, F2U	FUSE (T,3.15A,250V) (A1P)	K7R	MAGNETIC RELAY (E1HC)	R9T	THERMISTOR (LIQUID)	Y5S	SOLENOID VALVE (HOT GAS)
F1U	FUSE (T,3.15A,250V) (A2P)	K11R	MAGNETIC RELAY (Y4S)	S1NPH	PRESSURE SENSOR (HIGH)	Y6S	SOLENOID VALVE (EV BYPASS)
F1U	FUSE (8A,DC650V) (A5P)	L1R	REACTOR	S2NPL	PRESSURE SENSOR (LOW)	Y7S	SOLENOID VALVE (RMTO)
F400U	FUSE (T,6.3A,250V)	M1C	MOTOR (COMPRESSOR)	S1PH	PRESSURE SWITCH (HIGH)	Y8S	SOLENOID VALVE (RMTT)
H1P~8P	PILOT LAMP (SERVICE MONITOR : ORANGE)	M1F	MOTOR (FAN)	T2A	CURRENT SENSOR (A9P)	Z1C~6C	NOISE FILTER (FERRITE CORE)
	[H2P] PREPARE, TEST-----------FLICKERING	PS	SWITCHING POWER SUPPLY (A1P,A4P)	V1CP	SAFETY DEVICES INPUT	Z1F	NOISE FILTER (WITH SURGE ABSORBER)
	MALFUNCTION DETECTION---LIGHT UP	Q1RP	PHASE REVERSAL DETECT CIRCUIT (A1P)	V1R	DIODE BRIDGE (A4P)	CONNECTOR FOR OPTIONAL PARTS	
HAP	PILOT LAMP (SERVICE MONITOR-GREEN) (A1P) (A2P)	R10	RESISTOR (CURRENT SENSOR)	V1R	POWER MODULE (A5P)	X7A	OPERATION OUTPUT (A2P)
K1	MAGNETIC RELAY	R50, R59	RESISTOR	V2R	POWER MODULE	X9A	POWER SUPPLY (ADOPTER) (A2P)

3D055307F

REMQ10P / 12P8Y1B

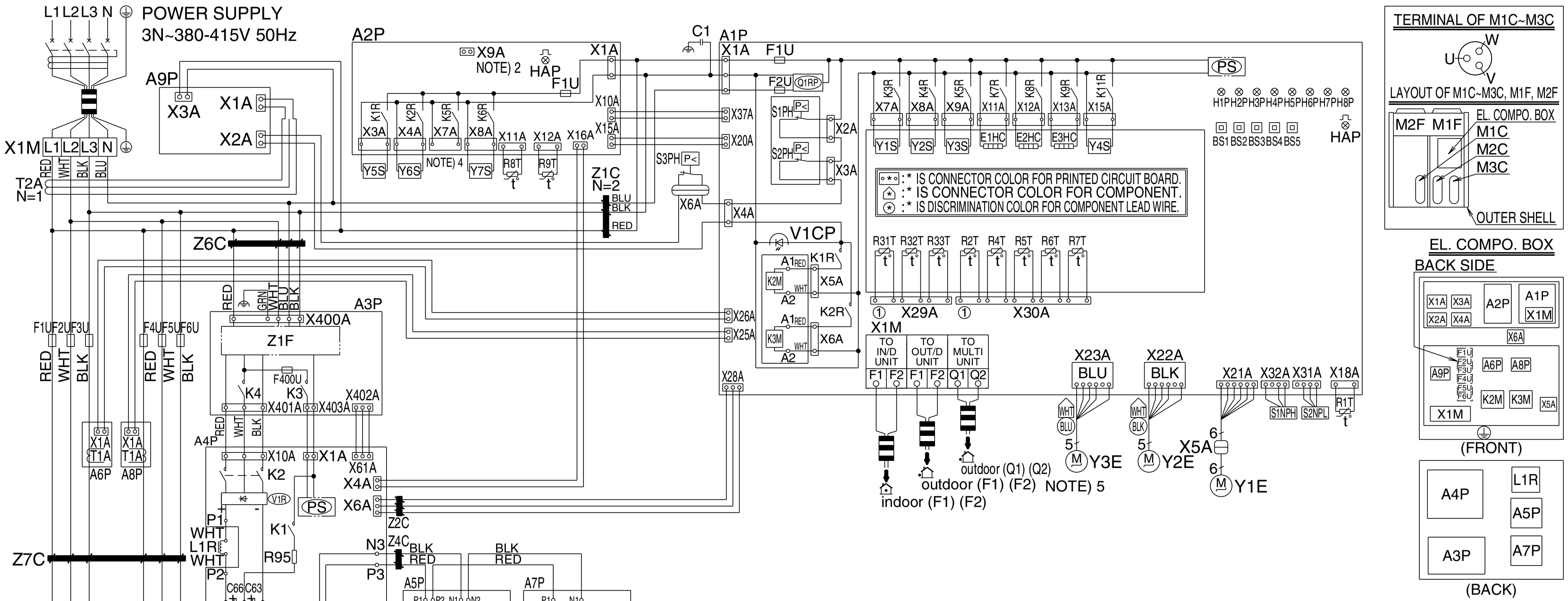


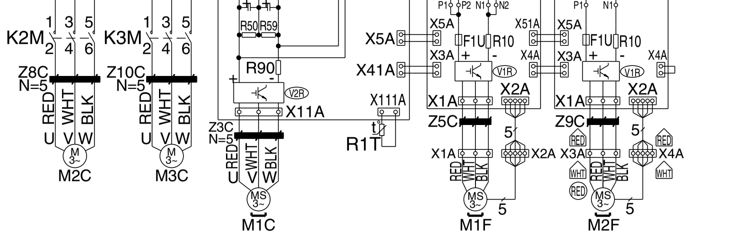
A1P	PRINTED CIRCUIT BOARD (MAIN)	K2	MAGNETIC CONTACTOR (M1C)	R50, R59	RESISTOR	X1A, X2A	CONNECTOR (M1F)
A2P	PRINTED CIRCUIT BOARD (SUB)	K3	MAGNETIC RELAY	R90	RESISTOR (CURRENT SENSOR)	X3A	CONNECTOR (Y1E)
A3P	PRINTED CIRCUIT BOARD (NOISE FILTER)	K4	MAGNETIC CONTACTOR (M1C)	R95	RESISTOR (CURRENT LIMITING)	X1M	TERMINAL STRIP (POWER SUPPLY)
A4P	PRINTED CIRCUIT BOARD (INV)	K2M	MAGNETIC CONTACTOR (M2C)	R1T	THERMISTOR (AIR) (A1P)	X1M	TERMINALS TRIP (CONTROL) (A1P)
A5P	PRINTED CIRCUIT BOARD (FAN)	K1R	MAGNETIC RELAY (K2M) (A1P)	R1T	THERMISTOR (FIN) (A4P)	Y1E	ELECTRONIC EXPANSION VALVE (MAIN)
A6P	PRINTED CIRCUIT BOARD (CURRENT SENSOR)	K1R	MAGNETIC RELAY (Y5S) (A2P)	R2T	THERMISTOR (HEAT EXC. GAS)	Y2E	ELECTRONIC EXPANSION VALVE (CHARGE)
A9P	PRINTED CIRCUIT BOARD (SUB)	K2R	MAGNETIC RELAY (Y6S)	R31T, R32T	THERMISTOR (M1C, M2C DISCHARGE)	Y3E	ELECTRONIC EXPANSION VALVE (SUBCOOL)
BS1~5	PUSH BUTTON SWITCH	K3R	MAGNETIC RELAY (Y1S) (A1P)	R4T	THERMISTOR (HEAT EXC. DEICER)	Y1S	SOLENOID VALVE (RMTG)
	(MODE, SET, RETURN, TEST, RESET)	K3R	MAGNETIC RELAY (Y8S) (A2P)	R5T	THERMISTOR (SUBCOOL HEAT EXC.GAS)	Y2S	SOLENOID VALVE (4WAY VALVE) (PIPE)
C1	CAPACITOR	K4R	MAGNETIC RELAY (Y2S)	R6T	THERMISTOR (SUBCOOL HEAT EXC. LIQUID)	Y3S	SOLENOID VALVE (4WAY VALVE) (HEATEXC.)
C63, C66	CAPACITOR	K5R	MAGNETIC RELAY (Y3S) (A1P)	R7T	THERMISTOR (HEAT EXC. LIQUID)	Y4S	SOLENOID VALVE (RMTL)
E1HC, E2HC	CRANKCASE HEATER	K5R	MAGNETIC RELAY (FOROPTION) (A2P)	R8T	THERMISTOR (SUCTION)	Y5S	SOLENOID VALVE (HOTGAS)
F1U, F2U	FUSE (T, 3.15A, 250V) (A1P)	K6R	MAGNETIC RELAY (Y7S)	R9T	THERMISTOR (LIQUID)	Y6S	SOLENOID VALVE (EVBYPASS)
F1U	FUSE (T, 3.15A, 250V) (A2P)	K7R	MAGNETIC RELAY (E1HC)	S1NPH	PRESSURE SENSOR (HIGH)	Y7S	SOLENOID VALVE (RMTO)
F1U	FUSE (8A, DC650V) (A5P)	K8R	MAGNETIC RELAY (E2HC)	S2NPL	PRESSURE SENSOR (LOW)	Y8S	SOLENOID VALVE (RMTT)
F1U~3U	FUSE	K11R	MAGNETICRELAY (Y4S)	S1PH, S2PH	PRESSURE SWITCH (HIGH)	Z1C~8C	NOISE FILTER (FERRITE CORE)
F400U	FUSE (T, 6.3A, 250V) (A3P)	L1R	REACTOR	T1A	CURRENT SENSOR (A6P)	Z1F	NOISE FILTER (WITH SURGE ABSORBER)
H1P~8P	PILOT LAMP (SERVICE MONITOR: ORANGE)	M1C, M2C	MOTOR (COMPRESSOR)	T2A	CURRENT SENSOR (A9P)		
	[H2P] PREPARE, TEST-----------FLICKERING	M1F	MOTOR (FAN)	V1CP	SAFETY DEVICES INPUT		
	MALFUNCTION DETECTION---LIGHT UP	PS	SWITCHING POWER SUPPLY (A1P,A4P)	V1R	DIODE BRIDGE (A4P)	CONNECTOR FOR OPTIONAL PARTS	
HAP	PILOT LAMP (SERVICE MONITOR-GREEN) (A1P) (A2P)	Q1RP	PHASE REVERSAL DETECT CIRCUIT	V1R	POWER MODULE (A5P)	X7A	OPERATION OUTPUT (A2P)
K1	MAGNETIC RELAY	R10	RESISTOR (CURRENT SENSOR)	V2R	POWER MODULE	X9A	POWER SUPPLY (ADOPTER) (A2P)

3D055308F

NOTES)
1. THIS WIRING DIAGRAM IS APPLIED ONLY TO THE OUTDOOR UNIT.
2. : FIELD WIRING.
3. : TERMINAL STRIP : CONNECTOR : TERMINAL
 : PROTECTIVE EARTH (SCREW)
4. WHEN USING THE OPTIONAL ADAPTOR, REFER TO THE INSTALLATIO MANUAL OF THE OPTIONAL ADAPTOR.
5. FOR CONNECTION WIRING TO INDOOR-OUTDOOR TRANSMISSION F1·F2, OUTDOOR-OUTDOOR TRANSMISSION F1·F2, OUTDOOR-MULTI TRANSMISSION Q1·Q2, REFER TO THE INSTALLATION MANUAL.
6. HOW TO USE BS1~5, REFER TO "SERVICE PRECAUTION" LABEL ON EL.COMPO.BOX COVER.
7. WHEN OPERATING, DON'T SHORTCIRCUIT THE PROTECTION DEVICE (S1PH, S2PH).
8. COLORS BLK:BLACK RED:RED BLU:BLUE WHT:WHITE GRN:GREEN.

REMQ14P / 16P8Y1B





NOTES)
1. THIS WIRING DIAGRAM IS APPLIED ONLY TO THE OUTDOOR UNIT.
2. : FIELD WIRING.
3. : TERMINAL STRIP : CONNECTOR : TERMINAL
   : PROTECTIVE EARTH (SCREW)
4. WHEN USING THE OPTIONAL ADAPTOR, REFER TO THE INSTALLATION MANUAL OF THE OPTIONAL ADAPTOR.
5. FOR CONNECTION WIRING TO INDOOR-OUTDOOR TRANSMISSION F1·F2, OUTDOOR-OUTDOOR TRANSMISSION F1·F2, OUTDOOR-MULTI TRANSMISSION Q1·Q2, REFER TO THE INSTALLATION MANUAL.
6. HOW TO USE BS1~5, REFER TO "SERVICE PRECAUTION" LABEL ON EL.COMPO.BOX COVER.
7. WHEN OPERATING, DON'T SHORTCIRCUIT THE PROTECTION DEVICE (S1~3PH).
8. COLORS BLK:BLACK RED:RED BLU:BLUE WHT:WHITE GRN:GREEN.

A1P	PRINTED CIRCUIT BOARD (MAIN)	K2	MAGNETIC CONTACTOR (M1C)	R50, R59	RESISTOR	X1A~4A	CONNECTOR (M1F, M2F)
A2P	PRINTED CIRCUIT BOARD (SUB)	K3	MAGNETIC RELAY	R90	RESISTOR (CURRENT SENSOR)	X5A	CONNECTOR (Y1E)
A3P	PRINTED CIRCUIT BOARD (NOISE FILTER)	K4	MAGNETIC CONTACTOR (M1C)	R95	RESISTOR (CURRENT LIMITING)	X6A	CONNECTOR (S3PH)
A4P	PRINTED CIRCUIT BOARD (INV)	K2M, K3M	MAGNETIC CONTACTOR (M2C, M3C)	R1T	THERMISTOR (AIR) (A1P)	X1M	TERMINAL STRIP (POWER SUPPLY)
A5P, A7P	PRINTED CIRCUIT BOARD (FAN)	K1R, K2R	MAGNETIC RELAY (K2M, K3M) (A1P)	R1T	THERMISTOR (FIN) (A4P)	X1M	TERMINAL STRIP (CONTROL) (A1P)
A6P, A8P	PRINTED CIRCUIT BOARD (CURRENT SENSOR)	K1R	MAGNETIC RELAY (Y5S) (A2P)	R2T	THERMISTOR (HEAT EXC. GAS)	Y1E	ELECTRONIC EXPANSION VALVE (MAIN)
A9P	PRINTED CIRCUIT BOARD (SUB)	K2R	MAGNETIC RELAY (Y6S)	R31~33T	THERMISTOR (M1C~3C DISCHARGE)	Y2E	ELECTRONIC EXPANSION VALVE (CHARGE)
BS1~5	PUSH BUTTON SWITCH	K3R	MAGNETIC RELAY (Y1S)	R4T	THERMISTOR (HEAT EXC. DEICER)	Y3E	ELECTRONIC EXPANSION VALVE (SUBCOOL)
	(MODE, SET, RETURN, TEST, RESET)	K4R	MAGNETIC RELAY (Y2S)	R5T	THERMISTOR (SUB COOL HEAT EXC. GAS)	Y1S	SOLENOID VALVE (RMTG)
C1	CAPACITOR	K5R	MAGNETIC RELAY (Y3S) (A1P)	R6T	THERMISTOR (SUB COOL HEAT EXC. LIQUID)	Y2S	SOLENOID VALVE (4 WAY VALVE) (PIPE)
C63, C66	CAPACITOR	K5R	MAGNETIC RELAY (FOROPTION) (A2P)	R7T	THERMISTOR (HEAT EXC. LIQUID)	Y3S	SOLENOID VALVE (4 WAY VALVE) (HEAT EXC.)
E1HC-3HC	CRANKCASE HEATER	K6R	MAGNETIC RELAY (Y7S)	R8T	THERMISTOR (SUCTION)	Y4S	SOLENOID VALVE (RMTL)
F1U, F2U	FUSE (T, 3.15A, 250V) (A1P)	K7R	MAGNETIC RELAY (E1HC)	R9T	THERMISTOR (LIQUID)	Y5S	SOLENOID VALVE (HOTGAS)
F1U	FUSE (T,3.15A,250V) (A2P)	K8R	MAGNETIC RELAY (E2HC)	S1NPH	PRESSURESENSOR (HIGH)	Y6S	SOLENOID VALVE (EV BYPASS)
F1U	FUSE (8A, DC650V) (A5P, A7P)	K9R	MAGNETICRELAY (E3HC)	S2NPL	PRESSURE SENSOR (LOW)	Y7S	SOLENOID VALVE (RMTO)
F1U~6U	FUSE	K11R	MAGNETIC RELAY (Y4S)	S1PH~3PH	PRESSURE SWITCH (HIGH)	Z1C~10C	NOISE FILTER (FERRITE CORE)
F400U	FUSE (T, 6.3A, 250V) (A3P)	L1R	REACTOR	T1A	CURRENT SENSOR (A6P, A8P)	Z1F	NOISE FILTER (WITH SURGE ABSORBER)
H1P~8P	PILOT LAMP (SERVICE MONITOR: ORANGE)	M1C~3C	MOTOR (COMPRESSOR)	T2A	CURRENT SENSOR (A9P)		
	[H2P] PREPARE, TEST------FLICKERING	M1F, M2F	MOTOR (FAN)	V1CP	SAFETY DEVICES INPUT		
	MALFUNCTION DETECTION---LIGHT UP	PS	SWITCHING POWER SUPPLY (A1P, A4P)	V1R	DIODE BRIDGE (A4P)	CONNECTOR FOR OPTIONAL PARTS	
HAP	PILOT LAMP (SERVICE MONITOR-GREEN) (A1P) (A2P)	Q1RP	PHASE REVERSAL DETECT CIRCUIT	V1R	POWER MODULE (A5P, A7P)	X7A	OPERATION OUTPUT (A2P)
K1	MAGNETIC RELAY	R10	RESISTOR (CURRENT SENSOR) (A5P, A7P)	V2R	POWER MODULE	X9A	POWER SUPPLY (ADOPTER) (A2P)

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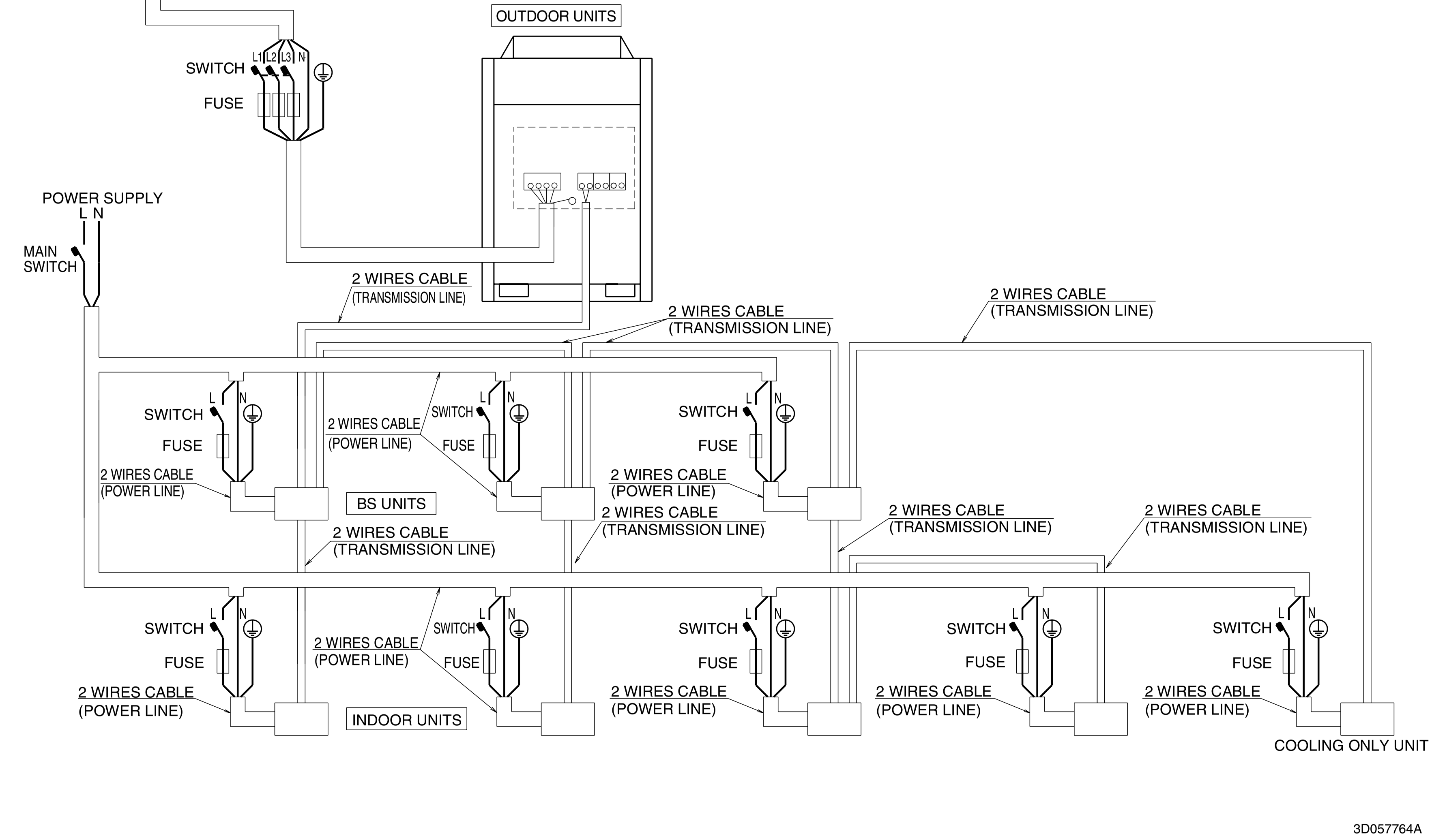
2.2 Field Wiring

REYQ8P / 10P / 12P / 14P / 16P8Y1B

Notes1) 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.



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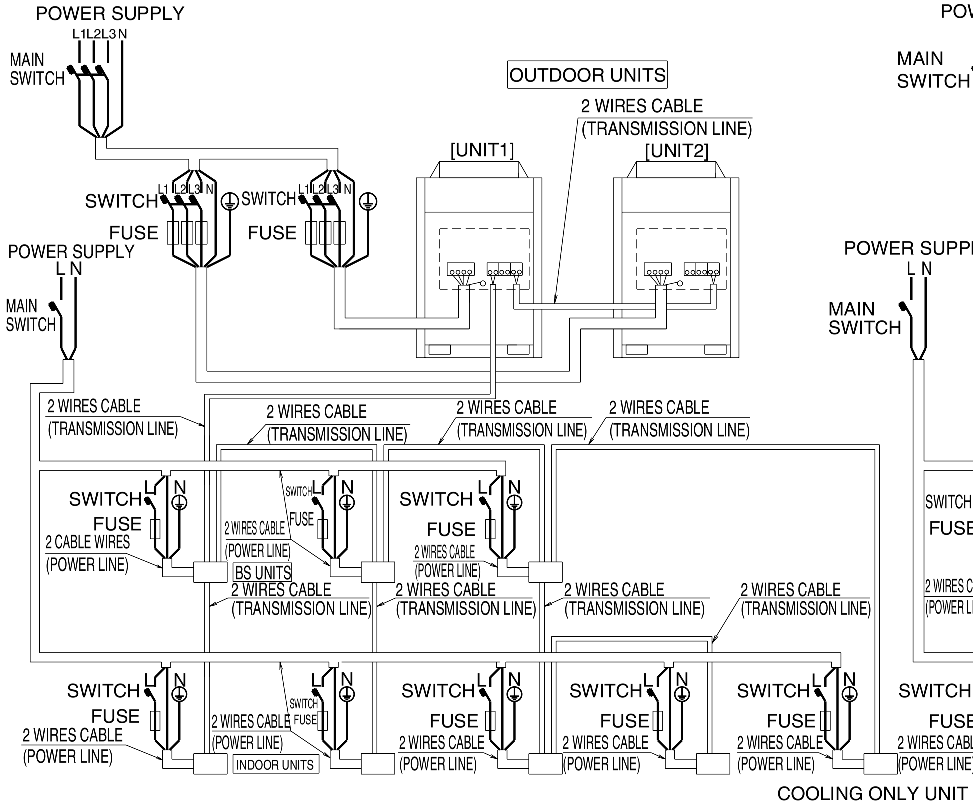
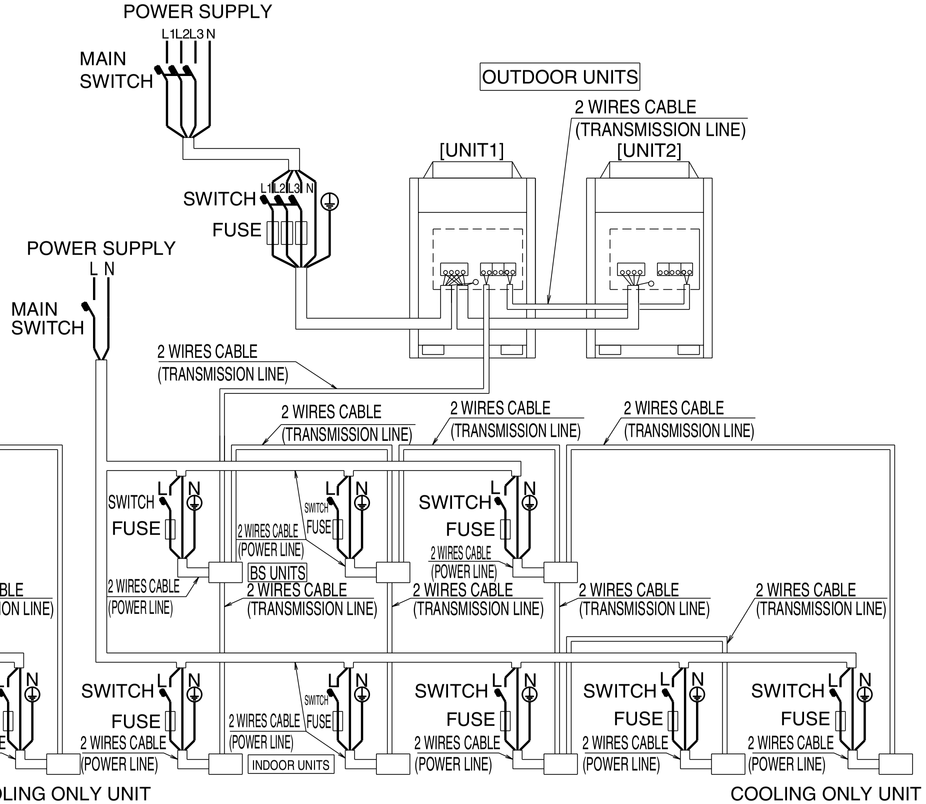
REYQ18P / 20P / 22P / 24P / 26P / 28P / 30P / 32P8Y1B

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 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.
12) Must install earth leakage circuit breaker.

< When the power source is supplied to each outdoor unit individually. >



< When the power source is connected in series between the units. >



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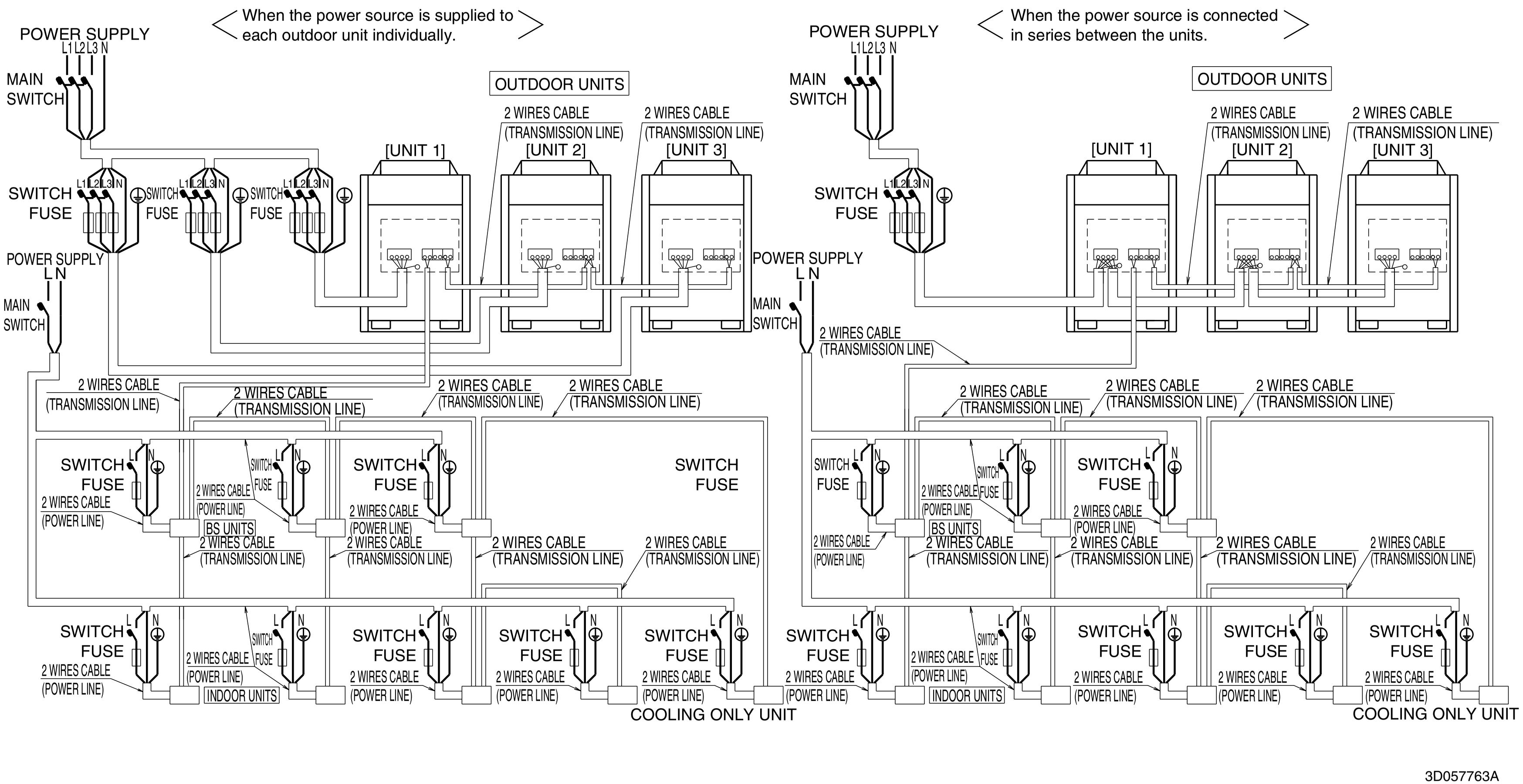
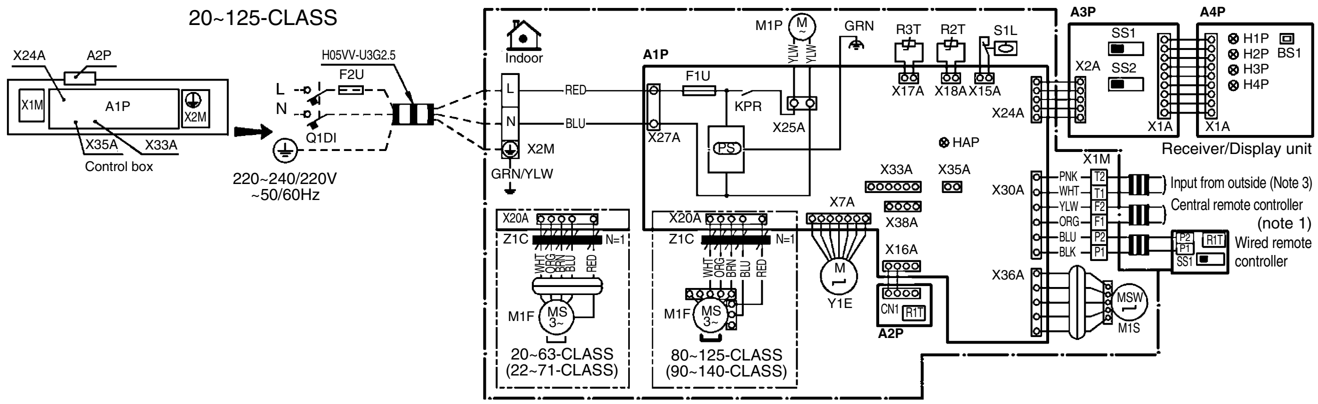
REYQ34P / 36P / 38P / 40P / 42P / 44P / 46P / 48P8Y1B

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 capa city 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.
12) Must install earth leakage circuit breaker.



2.3 Indoor Unit

FXFQ20P / 25P / 32P / 40P / 50P / 63P / 80P / 100P / 125P8VEB



Indoor unit		R2T	Thermistor (coil)	SS1	Selector switch (main/sub)
A1P	Printed circuit board	R3T	Thermistor (header)	SS2	Selector switch (Wireless address set)
A2P	Printed circuit board	S1L	Float Switch	**Connector for optional parts**	
C1	Capacitor	X1M	Terminal strip	X24A	Connector (Wireless remote control)
F1U	Fuse (T, 5A, 250V)	X2M	Terminal strip	X33A	Connector (Adaptor for wiring)
F2U	Field fuse	Y1E	Electronic expansion valve	X35A	Connector (Group control adaptor)
HAP	Light emitting diode (service motor green)	Z1C	Ferrite core	X38A	Connector (Multi tenant)
KPR	Magnetic relay (M1P)	**Receiver/display unit (attached to wireless remote control)**		**Wired remote control**	
L1	Coil	A3P	Printed circuit board	R1T	Thermistor (air)
M1F	Motor fan (indoor fan)	A4P	Printed circuit board	SS1	Selector switch (main/sub)
M1P	Motor fan (drain pump)	BS1	Push button (on/off)		
M1S	Motor (swing flap)	H1P	Light emitting diode (on-red)		
PS	Power supply circuit	H2P	Light emitting diode (timer-green)		
O1DI	Earth leak detector	H3P	Light emitting diode (filter sign-red)		
R1T	Thermistor (air)	H4P	Light emitting diode (defrost-orange)		

: Terminal
: Connector
: Connector
: Field wiring

Colors:

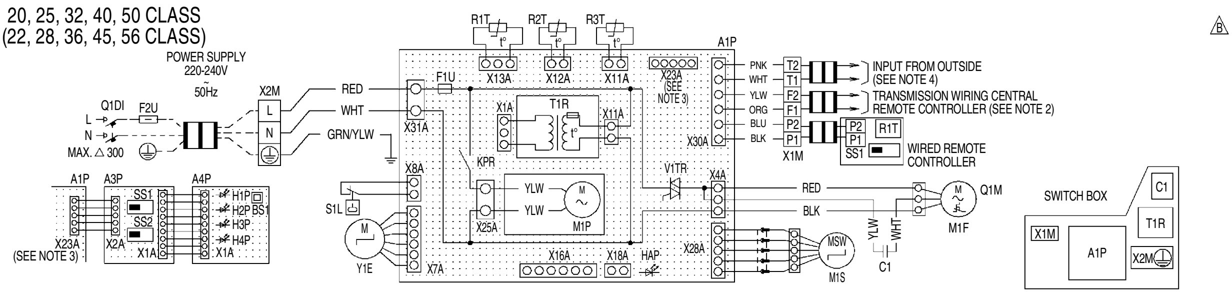
RED: Red	PRP: Purple	ORG: Orange
BLK: Black	GRY: Gray	GRN: Green
WHT: White	Blu: Blue	
YLW: Yellow	PNK: Pink	

NOTES

1 In case of using central remote control, connect it to the unit in accordance with the attached installation manual.
2 X24A, X33A, X35A en X38A are connected when the optional accessories are being used.
3 When connecting the input wires from outside, forced of on/off control operation can be selected by the remote controller. see installation manual for more details.
4 Confirm the method of setting the selector switch (SS1, SS2) by installation manual and engineering data, etc.

3TW31056-1

FXZQ20M / 25M / 32M / 40M / 50M9V1B



A1P	PRINTED CIRCUIT BOARD	T1R	TRANSFORMER (220-240V/22V)	H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
C1	CAPACITOR (M1F)	V1TR	TRIAC		
F1U	FUSE ((B), 5A, 250V)	X1M	TERMINAL STRIP	H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
F2U	FIELD FUSE	X2M	TERMINAL STRIP		
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)	Y1E	ELECTRONIC EXPANSION VALVE	SS1	SELECTOR SWITCH (MAIN/SUB)
		WIRED REMOTE CONTROLLER		SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
KPR	MAGNETIC RELAY (M1P)	R1T	THERMISTOR (AIR)		
M1F	MOTOR (INDOOR FAN)	SS1	SELECTOR SWITCH (MAIN/SUB)	CONNECTOR FOR OPTIONAL PARTS	
M1P	MOTOR (DRAIN PUMP)	WIRELESS REMOTE CONTROLLER (RECEIVER/DISPLAY UNIT)		X16A	CONNECTOR (ADAPTOR FOR WIRE)
M1S	MOTOR (SWING FLAP)				
Q1DI	FIELD EARTH LEAK DETECTOR (MAX. 300mA)	A3P	PRINTED CIRCUIT BOARD	X18A	CONNECTOR (ON/OFF) (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)
		A4P	PRINTED CIRCUIT BOARD		
Q1M	THERMAL PROTECTOR (M1F EMBEDDED)	BS1	PUSH BUTTON (ON/OFF)		
		H1P	LIGHT EMITTING DIODE (ON-RED)		
R1T	THERMISTOR (AIR)				
R2T	THERMISTOR (COIL-LIQUID)	H2P	LIGHT EMITTING DIODE (TIMER-GREEN)		
R3T	THERMISTOR (COIL-GAS)				
S1L	FLOAT SWITCH				

RED:RED PNK:PINK
BLK:BLACK ORG:ORANGE
WHT:WHITE GRN:GREEN
YLW:YELLOW BLU:BLUE

: TERMINAL

: CONNECTOR

: WIRE CLAMP

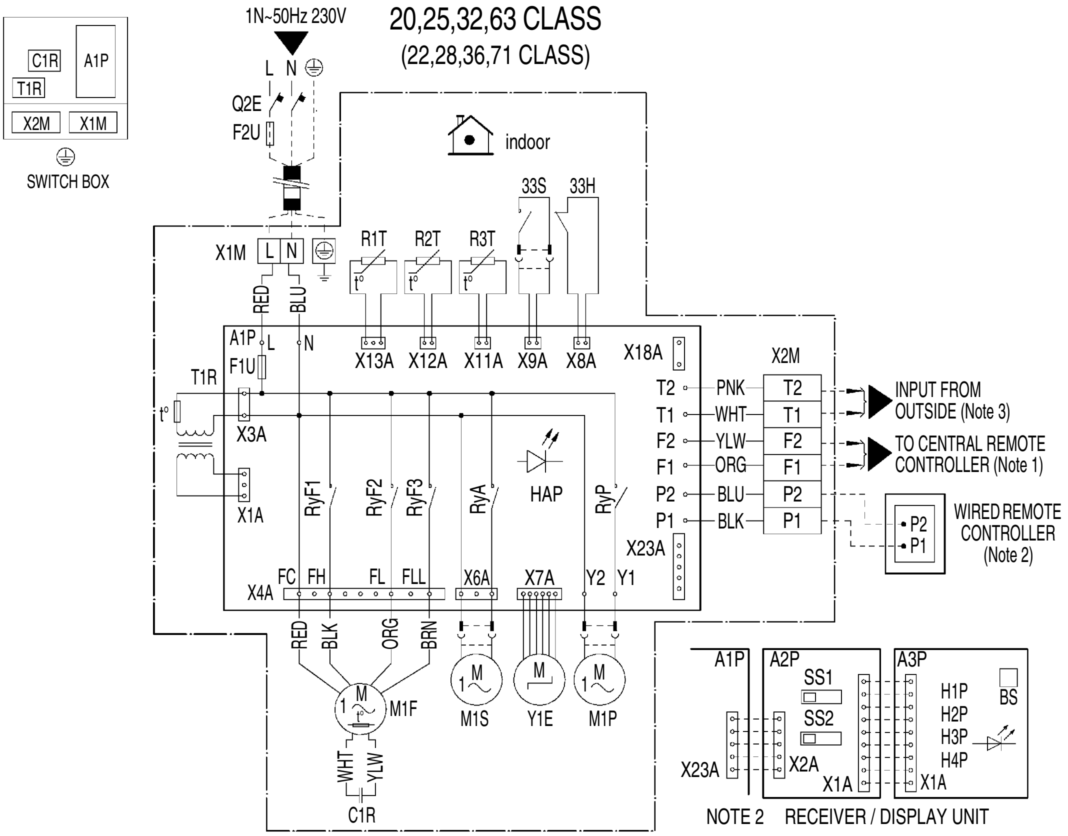
: FIELD WIRING

NOTES:

1. IN CASE OF USING A REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE TO THE ATTACHED INSTALLATION MANUAL.
2. X23A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
3. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED TO THE UNIT.
4. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM. SEE TECHNICAL DATA AND CATALOGS, ETC. BEFORE CONNECTION.

3TW26426-1C

FXCQ20M / 25M / 32M / 63M8V3B



FIELD WIRING

L : LIVE
N : NEUTRAL
: CONNECTOR
: WIRE CLAMP
: PROTECTIVE EARTH (SCREW)

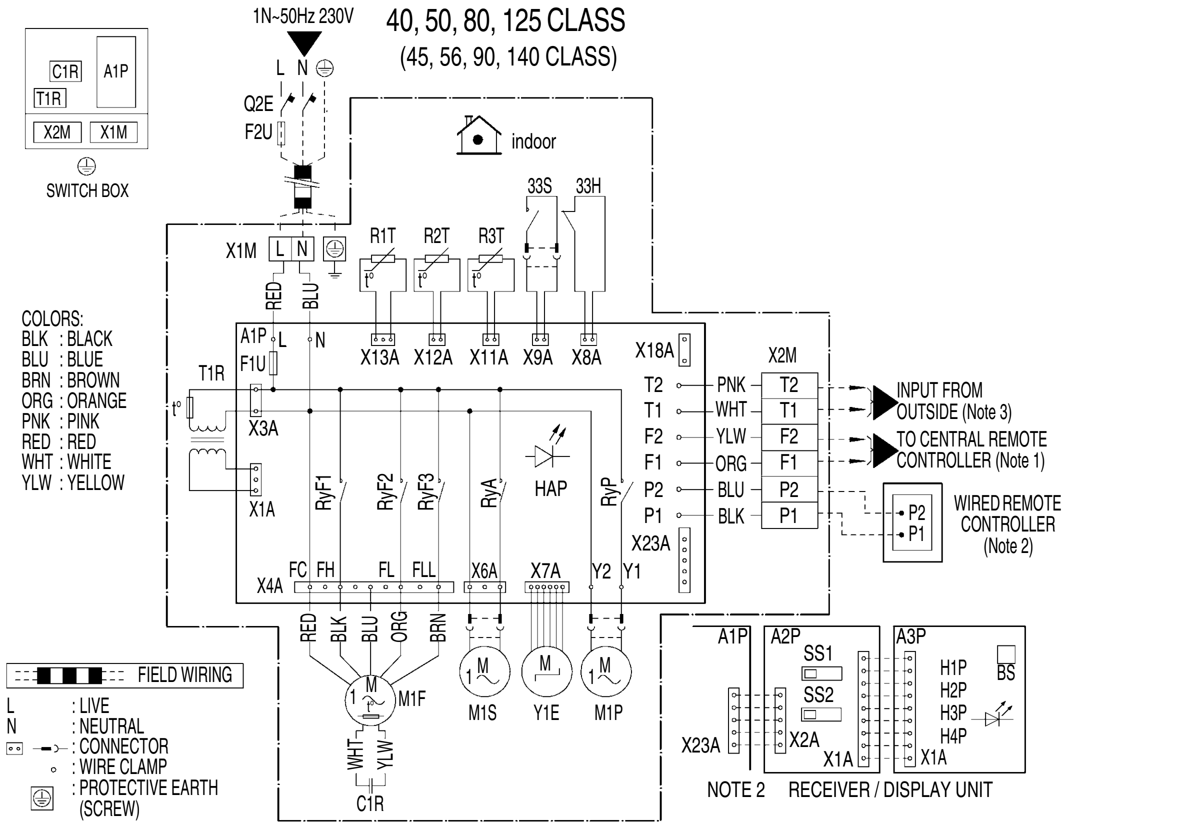
COLORS:
BLK : BLACK
BLU : BLUE
BRN : BROWN
ORG : ORANGE
PNK : PINK
RED : RED
WHT : WHITE
YLW : YELLOW

33H	FLOAT SWITCH	R2T, R3T	THERMISTOR (COIL)	H1P	LIGHT EMITTING DIODE (ON-RED)
33S	LIMIT SWITCH (SWING FLAP)	Q2E	EARTH LEAK DETECTOR	H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
A1P	PRINTED CIRCUIT BOARD	RyA	MAGNETIC RELAY (M1S)	H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
C1R	CAPACITOR (M1F)	RyF1-3	MAGNETIC RELAY (M1F)	H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
F1T	THERMAL FUSE (152°C) (M1F EMBEDDED)	RyP	MAGNETIC RELAY (M1P)	SS1	SELECTOR SWITCH (MAIN/SUB)
F1U	FUSE (250V, 5A)	T1R	TRANSFORMER (220-240V/22V)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
F2U	FIELD FUSE	X1M	TERMINAL STRIP (POWER)	CONNECTOR FOR OPTIONAL PARTS	
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	X2M	TERMINAL STRIP (CONTROL)	X18A	CONNECTOR (WIRING, ADAPTOR FOR ELECTRICAL APPENDICES)
		Y1E	ELECTRONIC EXPANSION VALVE		
M1F	MOTOR (INDOOR FAN)	RECEIVER/DISPLAY UNIT (ATTACHED TO WIRELESS REMOTE CONTROLLER)		X23A	CONNECTOR (WIRELESS REMOTE CONTROLLER)
M1S	MOTOR (SWING FLAP)				
M1P	MOTOR (DRAIN PUMP)	A2P, A3P	PRINTED CIRCUIT BOARD		
R1T	THERMISTOR (AIR)	BS	ON/OFF BUTTON		

NOTES:
1. WHEN USING A CENTRAL REMOTE CONTROLLER, SEE MANUAL FOR CONNECTION TO THE UNIT.
2. X23A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS USED.
3. WHEN CONNECTING THE INPUT WIRES FROM THE OUTDOOR UNIT, "FORCED OFF" OR "ON/OFF" OPERATION CAN BE SELECTED BY THE REMOTE CONTROLLER. FOR MORE DETAILS SEE INSTALLATION MANUAL.
4. USE COPPER CONDUCTORS ONLY.

2TW23776-1D

FXCQ40M / 50M / 80M / 125M8V3B



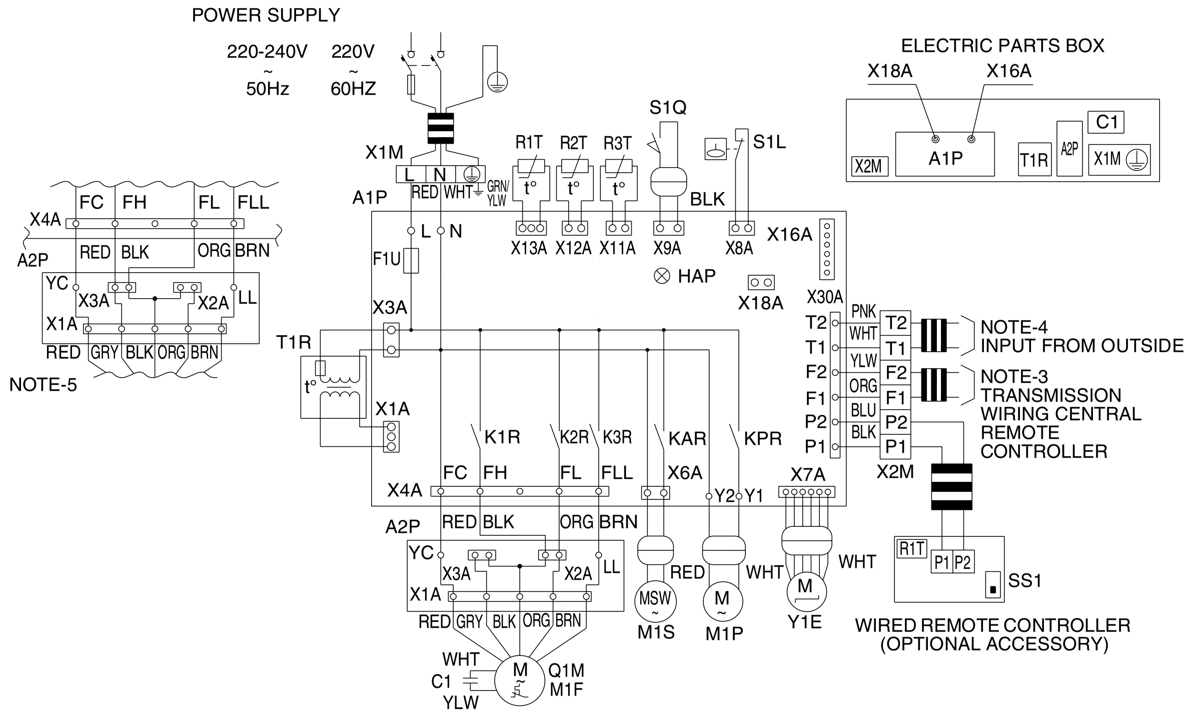
33H	FLOAT SWITCH	R2T, R3T	THERMISTOR (COIL)	H1P	LIGHT EMITTING DIODE (ON-RED)
33S	LIMIT SWITCH (SWING FLAP)	Q2E	EARTH LEAK DETECTOR	H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
A1P	PRINTED CIRCUIT BOARD	RyA	MAGNETIC RELAY (M1S)	H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
C1R	CAPACITOR (M1F)	RyF1-3	MAGNETIC RELAY (M1F)	H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
F1T	THERMAL FUSE (152°C) (M1F EMBEDDED)	RyP	MAGNETIC RELAY (M1P)	SS1	SELECTOR SWITCH (MAIN/SUB)
F1U	FUSE (250V, 5A)	T1R	TRANSFORMER (220-240V/22V)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
F2U	FIELD FUSE	X1M	TERMINAL STRIP (POWER)	CONNECTOR FOR OPTIONAL PARTS	
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	X2M	TERMINAL STRIP (CONTROL)	X18A	CONNECTOR (WIRING, ADAPTOR FOR ELECTRICAL APPENDICES)
		Y1E	ELECTRONIC EXPANSION VALVE		
M1F	MOTOR (INDOOR FAN)	RECEIVER/DISPLAY UNIT (ATTACHED TO WIRELESS REMOTE CONTROLLER)		X23A	CONNECTOR (WIRELESS REMOTE CONTROLLER)
M1S	MOTOR (SWING FLAP)				
M1P	MOTOR (DRAIN PUMP)	A2P, A3P	PRINTED CIRCUIT BOARD		
R1T	THERMISTOR (AIR)	BS	ON/OFF BUTTON		

NOTES:
1. WHEN USING A CENTRAL REMOTE CONTROLLER, SEE MANUAL FOR CONNECTION TO THE UNIT.
2. X23A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS USED.
3. WHEN CONNECTING THE INPUT WIRES FROM THE OUTDOOR UNIT, "FORCED OFF" OR "ON/OFF" OPERATION CAN BE SELECTED BY THE REMOTE CONTROLLER. FOR MORE DETAILS SEE INSTALLATION MANUAL.
4. USE COPPER CONDUCTORS ONLY.

2TW23806-1D

FXKQ25MA / 32MA / 40MA / 63MAVE

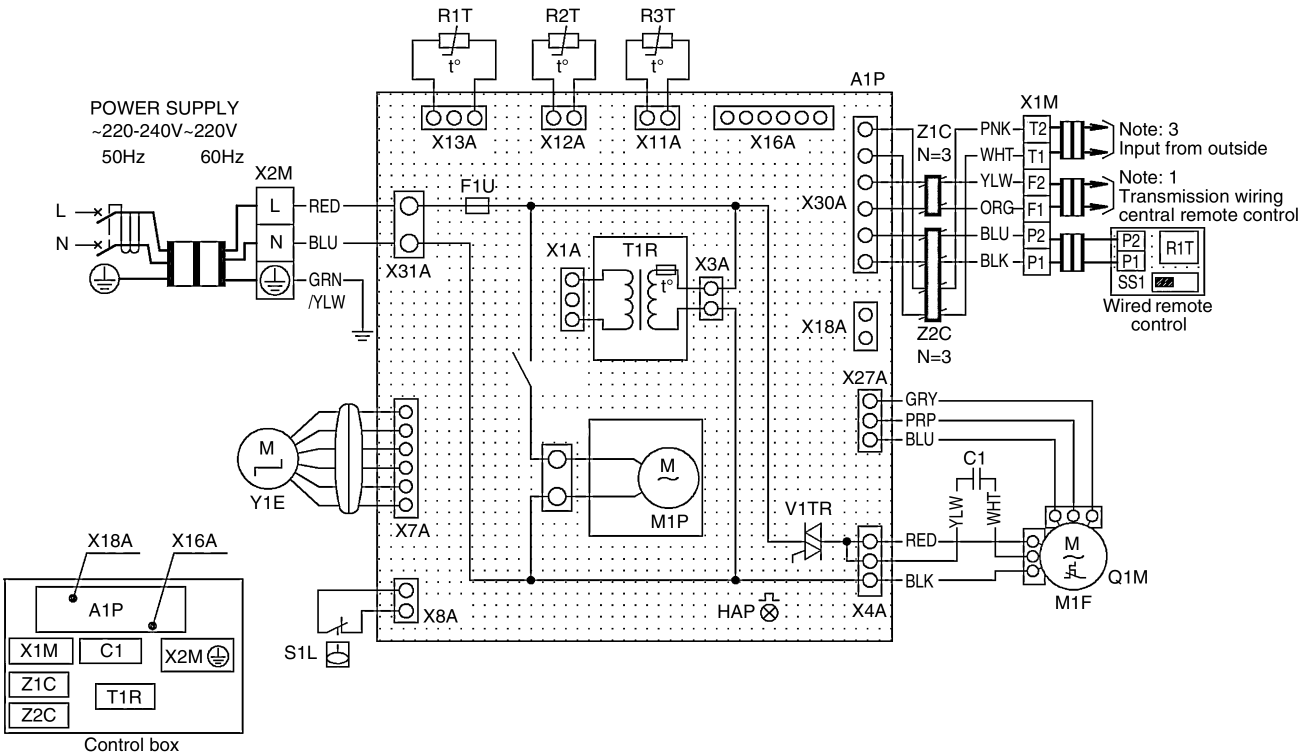
	INDOOR UNIT
A1P	PRINTED CIRCUIT BOARD
A2P	TERMINAL BOARD
C1	CAPACITOR (M1F)
F1U	FUSE((B),5A, 250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
K1R-K3R	MAGNETIC RELAY (M1F)
KAR	MAGNETIC RELAY (M1S)
KPR	MAGNETIC RELAY (M1P)
M1F	MOTOR (INDOOR FAN)
M1P	MOTOR (DRAIN PUMP)
M1S	MOTOR (SWING FLAP)
Q1M	THERMO. SWITCH (M1F EMBEDDED)
R1T	THERMISTOR (AIR)
R2T·R3T	THERMISTOR (COIL)
S1L	FLOAT SWITCH
S1Q	LIMIT SWITCH (SWING FLAP)
T1R	TRANSFORMER (220-240V/22V)
X1M	TERMINAL BLOCK (POWER)
X2M	TERMINAL BLOCK (CONTROL)
Y1E	ELECTRONIC EXPANSION VALVE
	WIRED REMOTE CONTROLLER
R1T	THERMISTOR (AIR)
SS1	SELECTOR SWITCH (MAIN/SUB)
	CONNECTOR FOR OPTIONAL PARTS
X16A	CONNECTOR (ADAPTOR FOR WIRING)
X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)



NOTES) 1. : TERMINAL BLOCK, , : CONNECTOR, : TERMINAL
2. : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTION MANUAL.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
5. IN CASE HIGH E.S.P. OPERATION, CHANGE OVER THE WIRING CONNECTION FROM X2A TO X3A.
6. SYMBOLS SHOW AS FOLLOWS. (PNK : PINK WHT : WHITE YLW : YELLOW ORG : ORANGE BLU : BLUE BLK : BLACK RED : RED BRN : BROWN GRY : GRAY)
7. USE COPPER CONDUCTORS ONLY.

3D039564C

FXDQ20PB / 25PB / 32PB / 40NB / 50NB / 63NBVE



A1P	Printed circuit board	R1T	Thermistor (air)	Z1C•Z2C	Noise filter (ferrite core)
C1	Capacitor (M1F)	R2T	Thermistor (coil - 1)	Wired remote control	
F1U	Fuse (F5A, 250V)	R3T	Thermistor (coil - 2)	R1T	Thermistor (air)
HAP	Light emitting diode (service monitor-green)	S1L	Float switch	SS1	Selector switch (main/sub)
		T1R	Transformer (220V/22V)	Connector for optional parts	
KPR	Magnetic relay (M1P)	V1TR	Phase control circuit	X16A	Connector (adapter for wiring)
M1F	Motor (indoor fan)	X1M	Terminal block	X18A	Connector (wiring adapter for electrical appendices)
M1P	Motor (drain pump)	X2M	Terminal block		
Q1M	Thermal protector (M1F embedded)	Y1E	Electronic expansion valve		

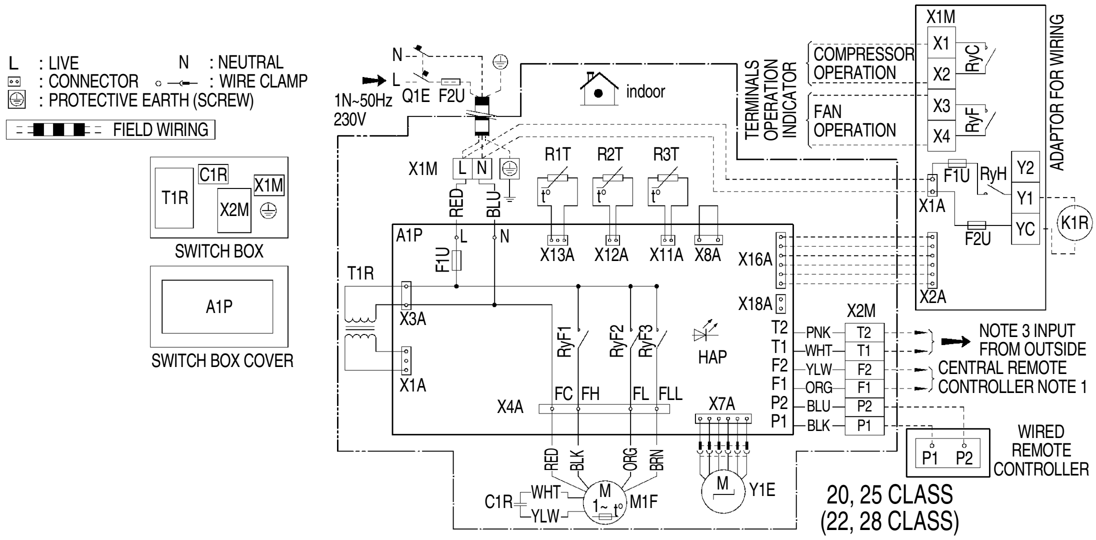
: Terminal	Colors:	BLK: Black	ORG: Orange	WHT: White
: Connector		BUL: Blue	PNK: Pink	YLW: Yellow
: Field wiring		GRY: Gray	PRP: Purple	
		GRN: Green	RED: Red	

NOTES

1 In case of using central remote control, connect it to the unit in accordance with the attached installation manual.
2 Remote control model varies according to the combination system, confirm engineering materials and catalogs, etc. before connecting.
3 When connecting the input wires from outside, forced off or on/off control operation can be selected by remote control.
In details, refer to the installation manual attached to the unit.

3D060547

FXDQ20M / 25M9V3B



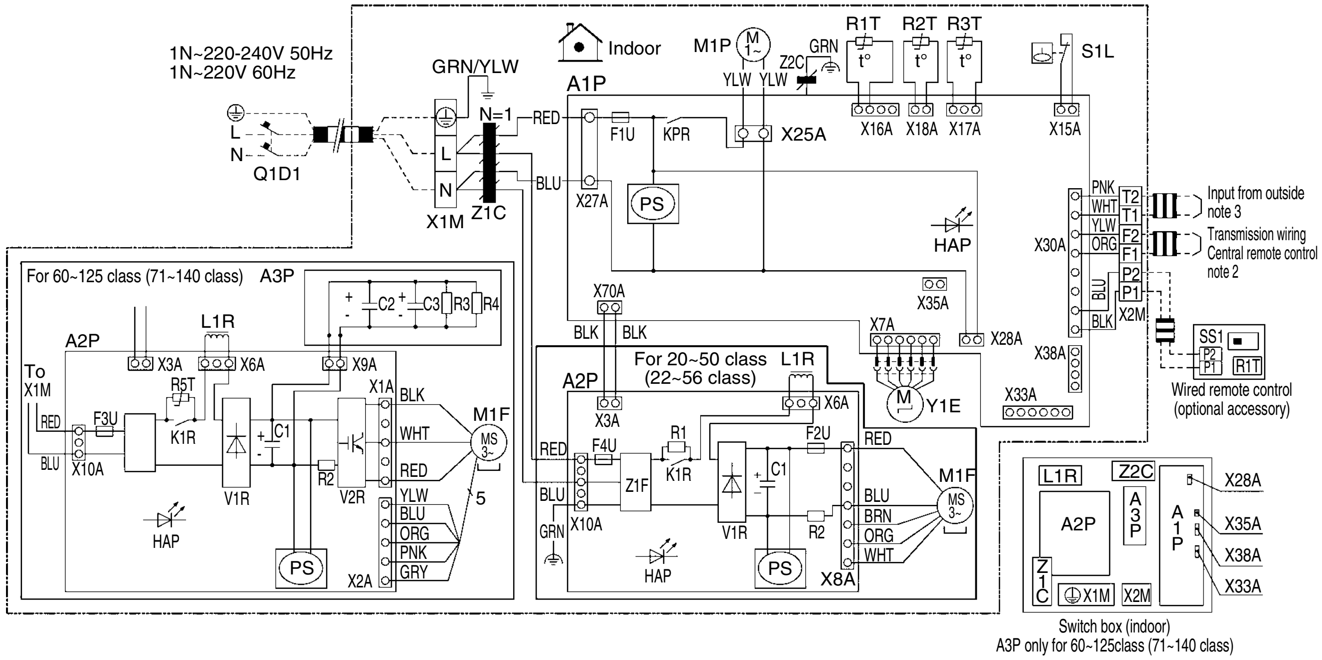
A1P	PRINTED CIRCUIT BOARD	RyF1-3	MAGNETIC RELAY (FAN)	ADAPTOR FOR WIRING		X1M	TERMINAL STRIP
C1R	CAPACITOR (FAN)	T1R	TRANSFORMER (220-240V/22V)	RyC, RyF	MAGNETIC RELAY	CONNECTOR FOR OPTIONAL PARTS	
F1U	FUSE (250V, 10A)			RyH	MAGNETIC RELAY (J1EH)	X16A	CONNECTOR (WIRING ADAPTOR)
F2U	FIELD FUSE	X1M	TERMINAL STRIP (POWER)	F1U, F2U	FUSE (250V, 5A)	X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTRONICAL APPENDICES)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	X2M	TERMINAL STRIP (CONTROL)	X1A, X2A	CONNECTOR (WIRING ADAPTOR)		
		Y1E	ELECTRONIC EXPANSION VALVE				
M1F	MOTOR (FAN)						
Q1E	EARTH LEAK DETECTOR	OPTIONAL PARTS					
R1T	THERMISTOR (AIR)	J1EH	ELECTRIC HEATER				
R2T, R3T	THERMISTOR (REFRIGERANT)	K1R	MAGNETIC RELAY (J1EH)				

COLORS:
BLK : BLACK; BLU : BLUE; BRN : BROWN; ORG : ORANGE;
PNK : PINK; WHT : WHITE; YLW : YELLOW; RED : RED

NOTES:
1. USE COPPER CONDUCTORS ONLY.
2. WHEN USING THE CENTRAL REMOTE CONTROLLER, SEE MANUAL FOR CONNECTION TO THE UNIT.
3. WHEN INSTALLING THE ELECTRIC HEATER, CHANGE THE WIRING FOR THE HEATER CIRCUIT. THE MAIN POWER SUPPLY HAS TO BE SUPPLIED INDEPENDENTLY.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, “FORCED OFF” OR “ON/OFF” OPERATION CAN BE SELECTED BY THE REMOTE CONTROLLER. SEE INSTALLATION MANUAL FOR DETAILS.

2TW23666-1E

FXSQ20P / 25P / 32P / 40P / 50P / 63P / 80P / 100P / 125P7VEB



Indoor unit		PS	Switching power supply	Y1E	Electronic expansion valve
A1P	Printed circuit board	Q1DI	Earth leak detector	Z1C, Z2C	Noise filter
A2P	Printed circuit board (fan)	R1	Resistor (current limiting)	Z1F	Noise filter
A3P	Printed circuit board (capacitor)	R2	Current sensing device		
C1, C2, C3	Capacitor	R3, R4	Resistor (electric discharge)		
F1UF	use (T, 3.15A, 250V)	R1T	Thermistor (suction air)		Connector optional accessory
F2UF	use (T, 5A, 250V)	R2T	Thermistor (Liquid)	X28A	Connector (power supply for wiring)
F3UF	use (T, 6.3A, 250V)	R3T	Thermistor (gas)	X35A	Connector (adapter)
F4UF	use (T, 6.3A, 250V)	R5T	Thermistor NTC (current limiting)	X38A	Connector (for wiring)
HAP	Light emitting diode (service monitor green)	S1L	Float switch		
KPR, K1R	Magnetic relay	V1R	Diode bridge		
L1R	Reactor	V2R	Power module		Wired remote control
M1F	Motor (fan)	X1M	Terminal strip (power supply)	R1T	Thermistor (air)
M1P	Motor (drain pump)	X2M	Terminal strip (control)	SS1	Selector switch (main/sub)

: Field wiring

: Connector

: Wire clamp

: Protective earth screw

L: Live

N: Neutral

Colors:

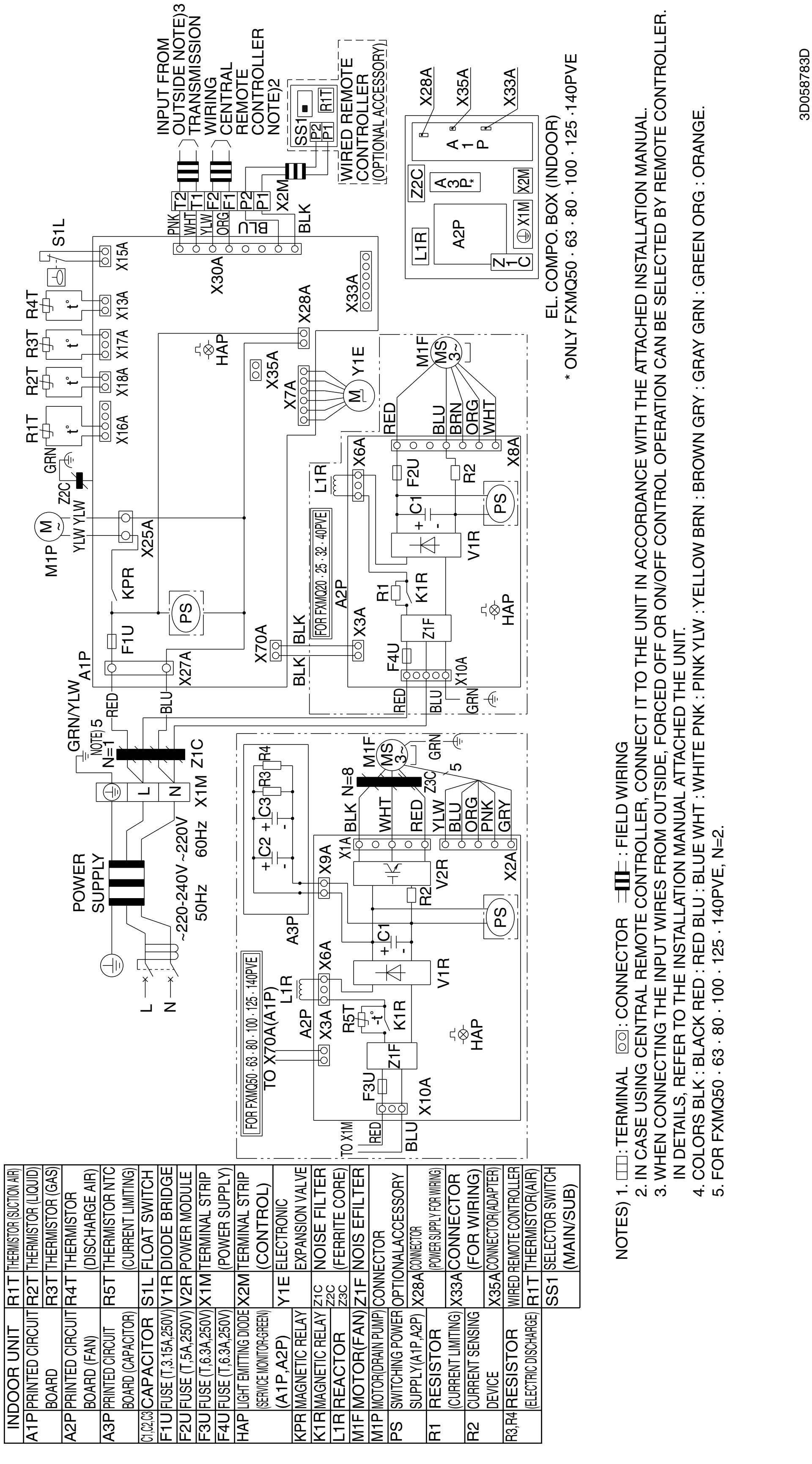
RED:	Red	BRN:	Brown
BLK:	Black	GRY:	Gray
WHT:	White	BLU:	Blue
YLW:	Yellow	PNK:	Pink
ORG:	Orange	GRN:	Green

NOTES

1 Use copper conductors only.
2 When using the central remote control, see manual for connection to the unit.
3 When connecting the input wires from outside, forced off or on/off operation can be selected by the remote control.
See installation manual for more details.

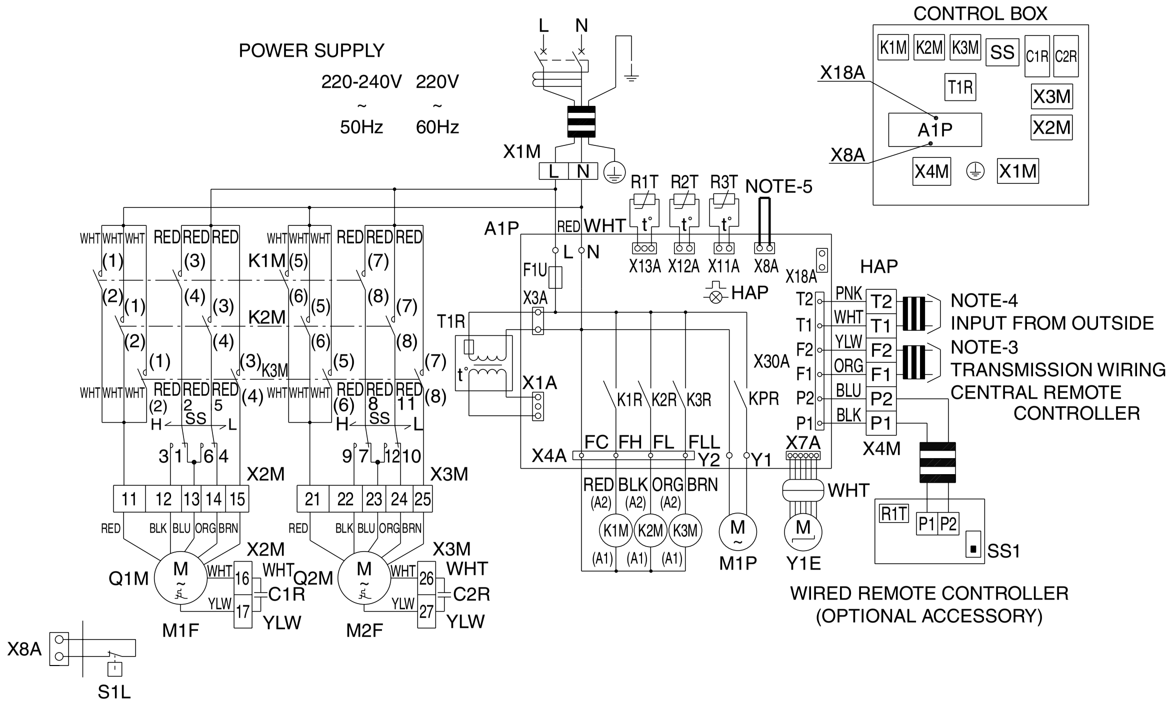
2TW31186-1C

FXMQ20P / 25P / 32P / 40P / 50P / 63P / 80P / 100P / 125P / 140PVE



FXMQ200MA / 250MAVE

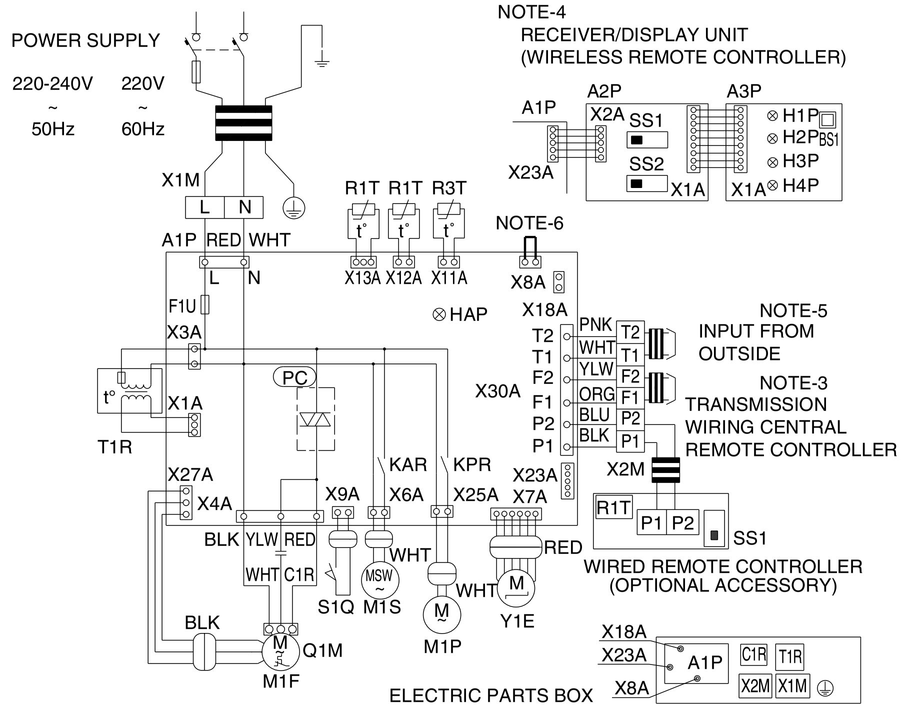
INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
C1R·C2R	CAPACITOR (M1F·2F)
F1U	FUSE (B ,5A, 250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
K1M	MAGNETIC CONTACTOR (M1F·2F)
K2M	MAGNETIC CONTACTOR (M1F·2F)
K3M	MAGNETIC CONTACTOR (M1F·2F)
K1R-K3R	MAGNETIC RELAY (M1F·2F)
KPR	MAGNETIC RELAY (M1P)
M1F·M2F	MOTOR (INDOOR FAN)
Q1M·Q2M	THERMO SWITCH (M1F·2F EMBEDDED)
R1T	THERMISTOR (AIR)
R2T·R3T	THERMISTOR (COIL)
SS	SELECTOR SWITCH (STATIC PRESSURE)
T1R	TRANSFORMER (220-240V/22V)
X1M	TERMINAL BLOCK (POWER)
X2M-X3M	TERMINAL BLOCK
X4M	TERMINAL BLOCK (CONTROL)
Y1E	ELECTRONIC EXPANSION VALVE
OPTIONAL PARTS	
M1P	MOTOR (DRAIN PUMP)
WIRED REMOTE CONTROLLER	
R1T	THERMISTOR (AIR)
SS1	SELECTOR SWITCH (MAIN/SUB)
CONNECTOR FOR OPTIONAL PARTS	
X8A	CONNECTOR (FLOAT SWITCH)
X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTORICAL APPENDICES)



NOTES)
1. : TERMINAL BLOCK
: CONNECTOR
: SHORT CIRCUIT CONNECTOR
: TERMINAL
2. : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTION MANUAL.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
5. IN CASE INSTALLING THE DRAIN PUMP, REMOVE THE SHORT CIRCUIT CONNECTOR OF X8A AND EXECUTE THE ADDITIONAL WIRING FOR FLOAT SWITCH AND DRAIN PUMP.
6. SYMBOLS SHOW AS FOLLOWS. (PNK : PINK WHT : WHITE YLW : YELLOW ORG : ORANGE BLU : BLUE BLK : BLACK RED : RED BRN : BROWN)
7. USE COPPER CONDUCTORS ONLY.
8. IN CASE HIGH E.S.P. OPERATION, CHANGE THE SWITCH (SS) FOR "H".

3D039621C

FXHQ32MA / 63MA / 100MAVE



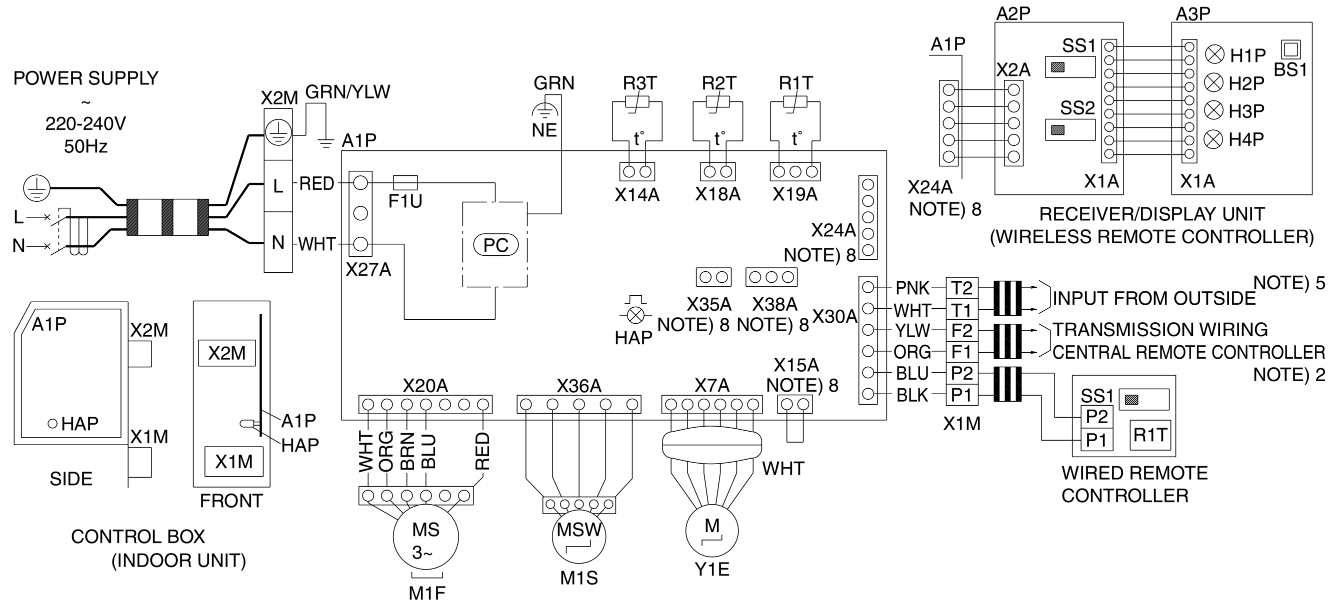
INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
C1R	CAPACITOR (M1F)
F1U	FUSE ((B), 5A, 250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
KAR	MAGNETIC RELAY (M1S)
KPR	MAGNETIC RELAY (M1P)
M1F	MOTOR (INDOOR FAN)
M1S	MOTOR (SWING FLAP)
Q1M	THERMO. SWITCH (M1F EMBEDDED)
R1T	THERMISTOR (AIR)
R2T	THERMISTOR (COIL LIQUID)
R3T	THERMISTOR (COIL GAS)
S1Q	LIMIT SWITCH (SWING FLAP)
T1R	TRANSFORMER (220-240V/22V)
X1M	TERMINAL BLOCK (POWER)
X2M	TERMINAL BLOCK (CONTROL)
Y1E	ELECTRONIC EXPANSION VALVE
(PC)	PHASE CONTROL CIRCUIT
OPTIONAL PARTS	
M1P	MOTOR (DRAIN PUMP)
WIRED REMOTE CONTROLLER	
R1T	THERMISTOR (AIR)
SS1	SELECTOR SWITCH (MAIN/SUB)
RECEIVER/DISPLAY UNIT(ATTACHED TO WIRELESS REMOTE CONTROLLER)	
A2P	PRINTED CIRCUIT BOARD
A3P	PRINTED CIRCUIT BOARD
BS1	PUSH BUTTON (ON/OFF)
H1P	LIGHT EMITTING DIODE (ON-RED)
H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
SS1	SELECTOR SWITCH (MAIN/SUB)
SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
CONNECTOR FOR OPTIONAL PARTS	
X8A	CONNECTOR (FLOAT SWITCH)
X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)
X23A	CONNECTOR (WIRELESS REMOTE CONTROLLER)

NOTES)
1. : TERMINAL BLOCK , : CONNECTOR : SHORT CIRCUIT CONNECTOR
2. : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED 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. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
6. IN CASE INSTALLING THE DRAIN PUMP, REMOVE THE SHORT CIRCUIT CONNECTOR OF X8A AND EXECUTE THE ADDITIONAL WIRING FOR FLOAT SWITCH AND DRAIN PUMP.
7. SYMBOLS SHOW AS FOLLOWS.
(PNK : PINK WHT : WHITE YLW : YELLOW
ORG : ORANGE BLU : BLUE BLK : BLACK RED : RED)
8. USE COPPER CONDUCTORS ONLY.

3D039801D

FXAQ20P / 25P / 32P / 40P / 50P / 63PV1

INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
F1U	FUSE (T, 3.15AH, 250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)
M1F	MOTOR (INDOOR FAN)
M1S	MOTOR (SWING FLAP)
R1T	THERMISTOR (AIR)
R2T	THERMISTOR (COIL LIQUID PIPE)
R3T	THERMISTOR (COIL GAS PIPE)
X1M	TERMINAL BLOCK (CONTROL)
X2M	TERMINAL BLOCK (POWER)
Y1E	ELECTRONIC EXPANSION VALVE
PC	POWER CIRCUIT
RECEIVER/DISPLAY UNIT (ATTACHED TO WIRELESS REMOTE CONTROLLER)	
A2P	PRINTED CIRCUIT BOARD
A3P	PRINTED CIRCUIT BOARD
BS1	PUSH BUTTON (ON/OFF)
H1P	LIGHT EMITTING DIODE (ON-RED)
H2P	LIGHTE MITTING DIODE (TIMER-GREEN)
H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
SS1	SELECTOR SWITCH (MAIN/SUB)
SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)



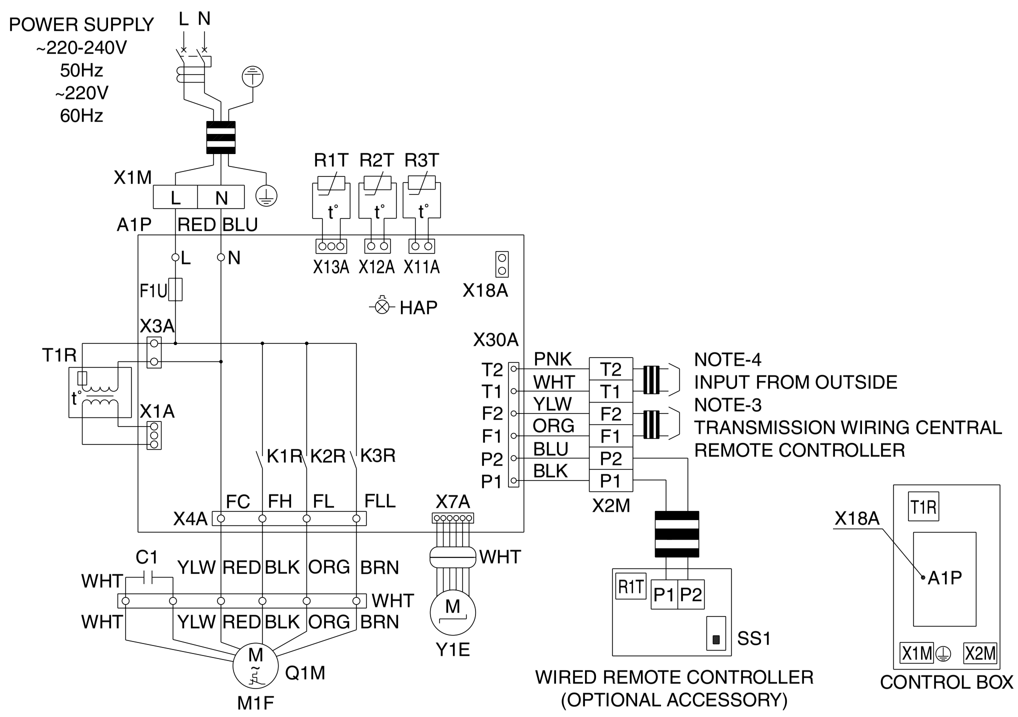
NOTES)
1. :TERMINAL :CONNECTOR
:FIELD WIRING :CONNECTOR
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. SYMBOLS SHOWS AS FOLLOWS: RED: RED WHT: WHITE GRN: GREEN PNK: PINK YLW: YELLOW BLK: BLACK ORG: ORANGE BLU: BLUE
4. SHOWS SHORT CIRCUIT CONNECTOR.
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. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING DATA AND CATALOGS, ETC. BEFORE CONNECTING.
7. 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.
8. X15A, X24A, X35A AND X38A ARE CONNECTED WHEN THE OPTIONAL ACCESSORIES ARE BEING USED.

WIRED REMOTE CONTROLLER	
R1T	THERMISTOR (AIR)SELECTOR
SS1	SWITCH (MAIN/SUB)

CONNECTOR FOR OPTIONAL PARTS	
X15A	CONNECTOR (FLOAT SWITCH)
X24A	CONNECTOR (WIRELESS REMOTE CONTROLLER)
X35A	CONNECTOR (GROUP CONTROL ADAPTOR)
X38A	CONNECTOR (ADAPTOR FOR MULTI TENANT)

3D064997A

FXLQ20MA / 25MA / 32MA / 40MA / 50MA / 63MAVE
FXNQ20MA / 25MA / 32MA / 40MA / 50MA / 63MAVE



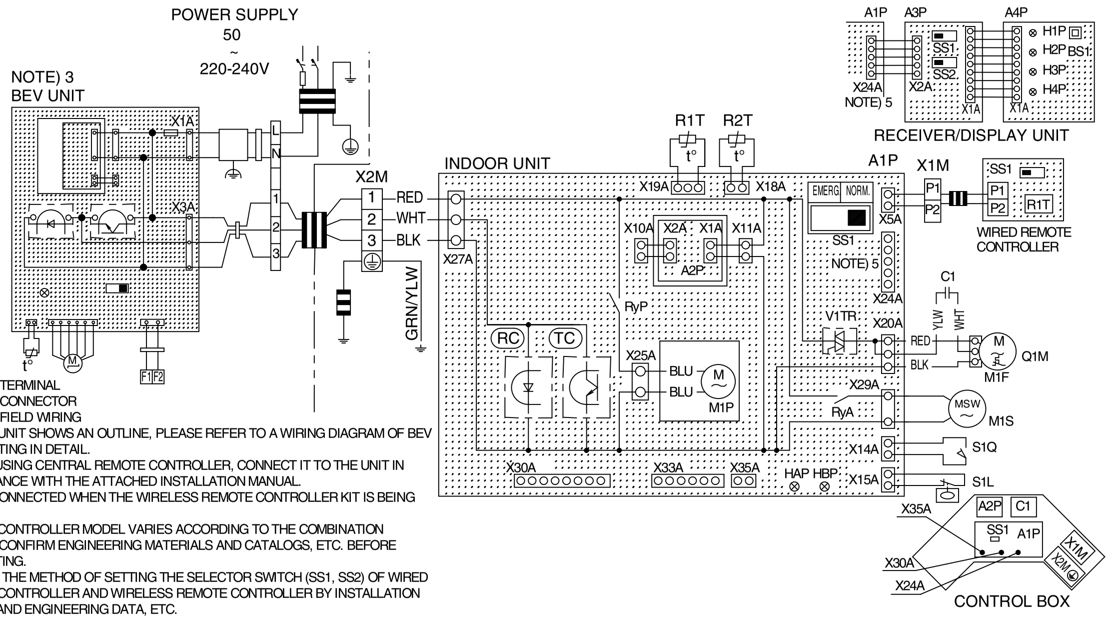
	INDOOR UNIT	X2M	TERMINAL BLOCK (CONTROL)
A1P	PRINTED CIRCUIT BOARD	Y1E	ELECTRONIC EXPANSION VALVE
C1	CAPACITOR (M1F)	WIRED REMOTE CONTROLLER	
F1U	FUSE (Ⓑ,5A, 50V)	R1T	THERMISTOR (AIR)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	SS1	SELECTOR SWITCH (MAIN/SUB)
		CONNECTOR FOR OPTIONAL PARTS	
K1R-K3R	MAGNETIC RELAY (M1F)	X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTORICAL APPENDICES)
M1F	MOTOR (INDOOR FAN)		
Q1M	THERMO SWITCH (M1F EMBEDDED)		
R1T	THERMISTOR (AIR)		
R2T·R3T	THERMISTOR (COIL)		
T1R	TRANSFORMER (220-240V/22V)		
X1M	TERMINAL BLOCK (POWER)		

NOTES)
1. ▭▭▭ : TERMINAL BLOCK, ▭ , ▷ : CONNECTOR, -○- : TERMINAL
2. ▬▌▌▌▬ : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTIO MANUAL.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
5. SYMBOLS SHOW AS FOLLOWS. (PNK : PINK WHT : WHITE YLW : YELLOW ORG : ORANGE BLU : BLUE BLK : BLACK RED : RED BRN : BROWN)
6. USE COPPER CONDUCTORS ONLY.

3D039826F

FXUQ71MA / 100MA / 125MAV1

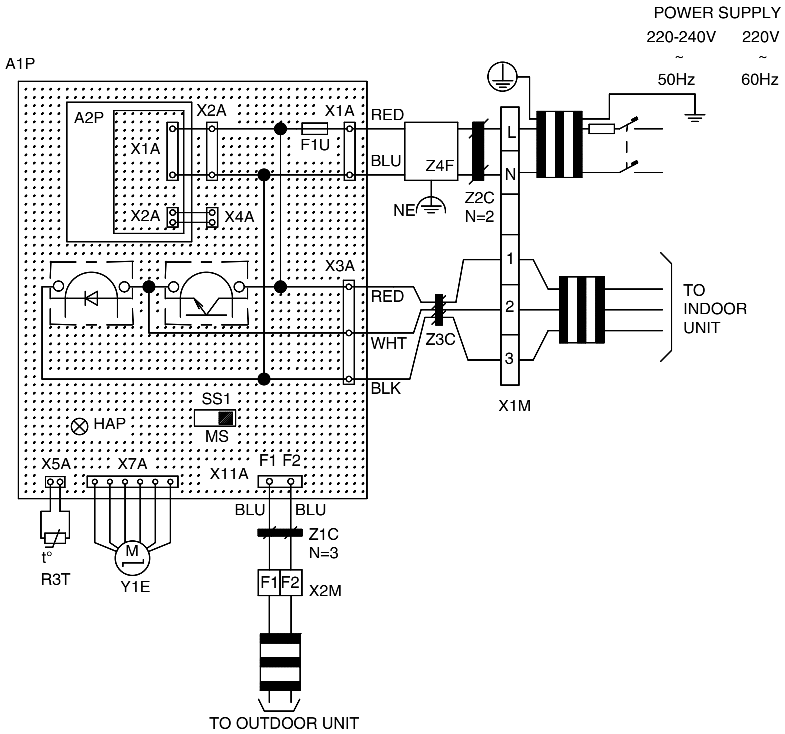
	INDOOR UNIT		WIRED REMOTE CONTROLLER
A1P	PRINTED CIRCUIT BOARD	R1T	THERMISTOR (AIR)
A2P	PRINTED CIRCUIT BOARD	SS1	SELECTOR SWITCH (MAIN/SUB)
	(TRANSFORMER 220~240V/16V)		RECEIVER/DISPLAY UNIT
C1	CAPACITOR (M1F)		(ATTACHED TO WIRELESS REMOTE CONTROLLER)
HAP	LIGHT EMITTING DIODE	A3P	PRINTED CIRCUIT BOARD
	(SERVICE MONITOR GREEN)	A4P	PRINTED CIRCUIT BOARD
HBP	LIGHT EMITTING DIODE	BS1	PUSH BUTTON (ON/OFF)
	(SERVICE MONITOR GREEN)	H1P	LIGHT EMITTING DIODE
M1S	MOTOR (SWING FLAP)		(ON-RED)
M1F	MOTOR (INDOOR FAN)	H2P	LIGHT EMITTING DIODE
M1P	MOTOR (DRAIN PUMP)		(TIMER-GREEN)
Q1M	THERMO SWITCH (M1F EMBEDDED)	H3P	LIGHT EMITTING DIODE
R1T	THERMISTOR (AIR)		(FILTER SIGN-RED)
R2T	THERMISTOR (COIL)	H4P	LIGHT EMITTING DIODE
RyA	MAGNETIC RELAY (M1A)		(DEFROST-ORANGE)
RyP	MAGNETIC RELAY (M1P)	SS1	SELECTOR SWITCH (MAIN/SUB)
S1Q	LIMIT SWITCH (SWING FLAP)	SS2	SELECTOR SWITCH
S1L	FLOAT SWITCH		(WIRELESS ADDRESS SET)
SS1	SELECTOR SWITCH (EMERGENCY)		CONNECTOR FOR OPTIONAL PARTS
V1TR	PHASE CONTROL CIRCUIT	X24A	CONNECTOR (WIRELESS REMOTE CONTROLLER)
X1M	TERMINAL STRIP	X30A	CONNECTOR (INTERFACE ADAPTOR
X2M	TERMINAL STRIP		FOR SKY AIR SERIES
RC	SIGNAL RECEIVER	X35A	CONNECTOR (GROUP CONTROL ADAPTOR)
TC	SIGNAL TRANSMISSION CIRCUIT		

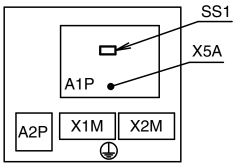


NOTES)
1. : TERMINAL
   : CONNECTOR
2. : FIELD WIRING
3. THE BEV UNIT SHOWS AN OUTLINE, PLEASE REFER TO A WIRING DIAGRAM OF BEV UNIT PASTING IN DETAIL.
4. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
5. X24A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
6. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING MATERIALS AND CATALOGS, ETC. BEFORE CONNECTING.
7. 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.
8. SYMBOLS SHOW AS FOLLOWS:
   RED : RED BLK : BLACK WHT : WHITE YLW : YELLOW GRN : GREEN BLU : BLUE

BEVQ71MA / 100MA / 125MAVE

BEV UNIT	
A1P	PRINTED CIRCUIT BOARD ASSY
A2P	POWER SUPPLY PRINTED CIRCUIT BOARD ASSY (220-240V/16V)
F1U	FUSE (Ⓑ, 10A, 250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
R3T	THERMISTOR (GAS)
SS1	SELECTOR SWITCH (M/S)
X1M	TERMINAL STRIP (POWER)
X2M	TERMINAL STRIP (TRANSMISSION)
Y1E	ELECTRONIC EXPANSION VALVE
Z1C • Z2C Z3C • Z4F	NOISE FILTER





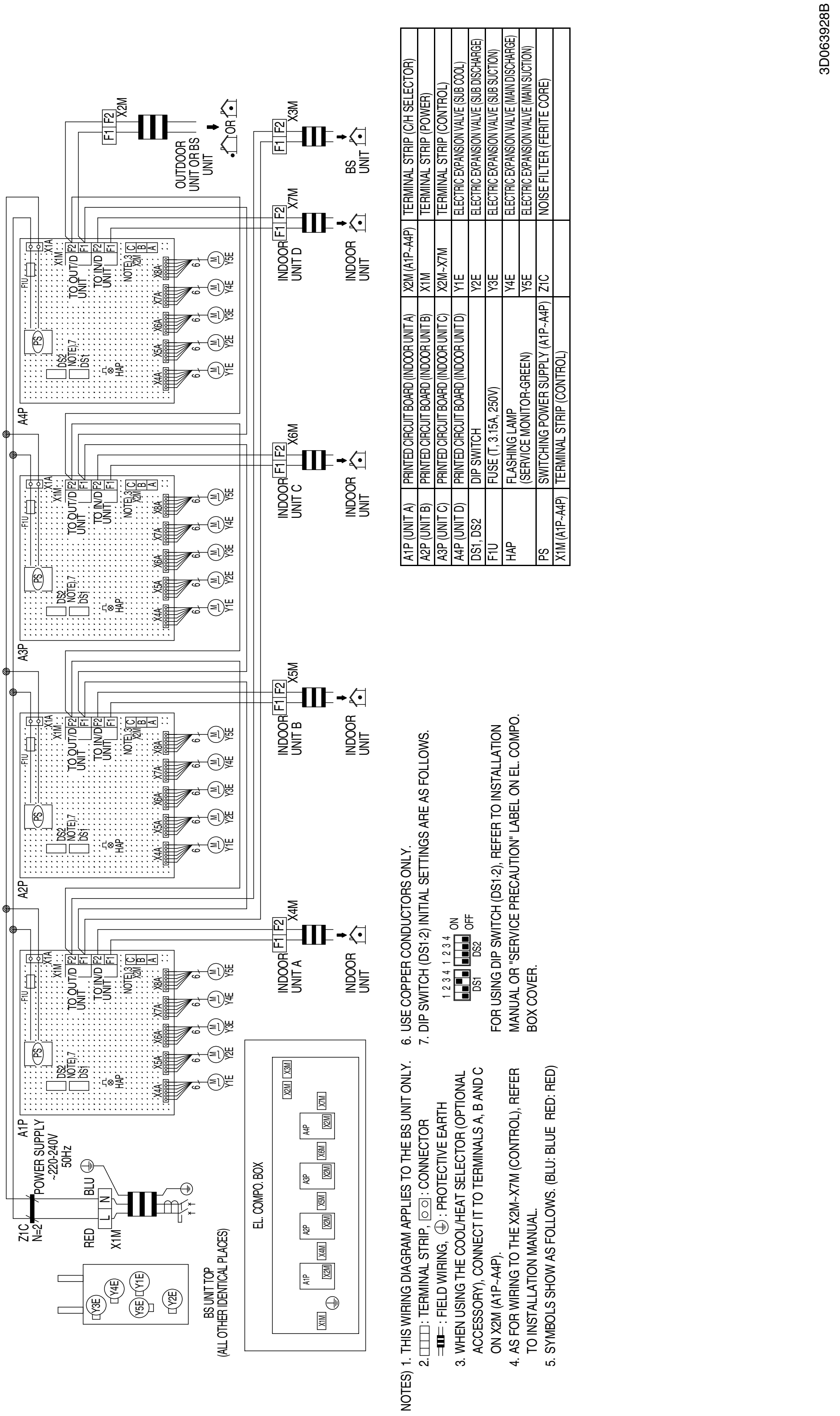
CONTROL BOX

NOTES)
1. : TERMINAL : CONNECTOR
2. : FIELD WIRING
3. THIS WIRING DIAGRAM ONLY SHOWS THE BEV UNIT.
   SEE THE WIRING DIAGRAMS AND INSTALLATION MANUALS FOR THE WIRING AND SETTINGS FOR THE INDOOR, OUTDOOR, AND BS UNITS.
4. SEE THE INDOOR UNIT'S WIRING DIAGRAM WHEN INSTALLING OPTIONAL PARTS FOR THE INDOOR UNIT.
5. ONLY ONE INDOOR UNIT MAY BE CONNECTED TO THE BEV UNIT.
   SEE THE INDOOR UNIT'S WIRING DIAGRAM FOR WHEN CONNECTING THE REMOTE CONTROL.
6. ALWAYS USE THE SKY AIR CONNECTION ADAPTER FOR THE INDOOR UNIT WHEN USING A CENTRAL CONTROL UNIT.
   REFER TO THE MANUAL ATTACHED THE UNIT WHEN CONNECTING.
7. COOL/HEAT CHANGEOVER OF INDOOR UNITS CONNECTED TO BEV UNIT CANNOT BE CARRIED OUT UNLESS THEY ARE CONNECTED TO BS UNIT.
   IN CASE OF A SYSTEM WITH BEV UNIT ONLY, COOL/HEAT SELECTOR IS REQUIRED.
8. SET THE SS1 TO "M" ONLY FOR THE BEV UNIT CONNECTED TO THE INDOOR UNIT WHICH IS TO HAVE COOL/HEAT SWITCHING CAPABILITY, WHEN CONNECTING THE BS UNIT.
   THE "M/S" ON THE SS1 STANDS FOR "MAIN/SUB".
   THIS IS SET TO "S" WHEN SHIPPED FROM THE FACTORY.
9. CONNECT THE ATTACHED THERMISTOR TO THE R3T.
10. SYMBOLS SHOW AS FOLLOWS.
    (BLU : BLUE RED : RED WHT : WHITE BLK : BLACK)

3D044901B

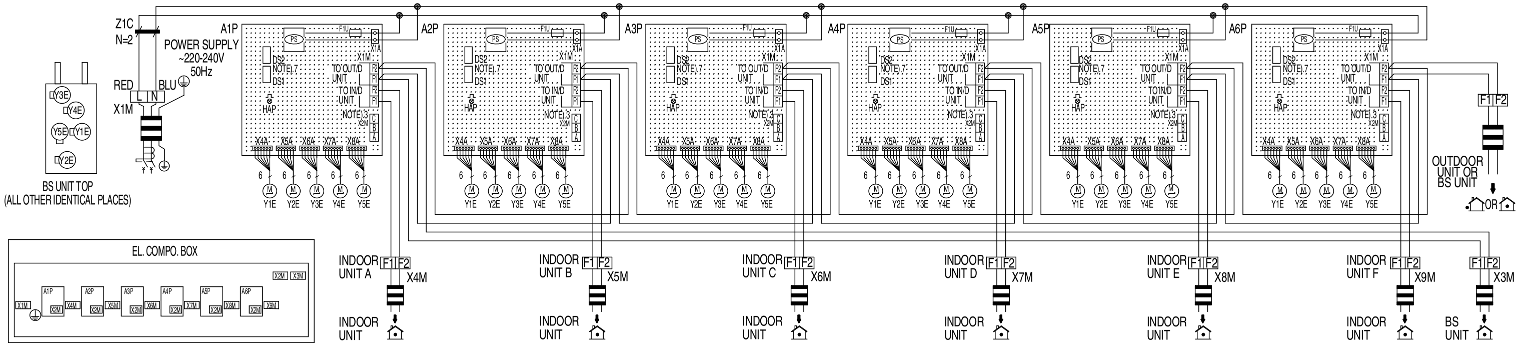
2.4 BS Unit

BSV4Q100PV1



BSV6Q100PV1

3D063929B



NOTES)
1. THIS WIRING DIAGRAM APPLIES TO THE BS UNIT ONLY.
2. ▭▭▭ : TERMINAL STRIP, ▭ : CONNECTOR
   ═▮▮═ : FIELD WIRING, ⏚ : PROTECTIVE EARTH
3. WHEN USING THE COOL/HEAT SELECTOR (OPTIONAL ACCESSORY), CONNECT IT TO TERMINALS A, B AND C ON X2M (A1P~A4P).
4. AS FOR WIRING TO THE X2M~X9M (CONTROL), REFER TO INSTALLATION MANUAL.
5. SYMBOLS SHOW AS FOLLOWS. (BLU: BLUE RED: RED)
6. USE COPPER CONDUCTORS ONLY.
7. DIP SWITCH (DS1·2) INITIAL SETTINGS ARE AS FOLLOWS.

   1 2 3 4 1 2 3 4 ON OFF
   DS1 DS2

   FOR USING DIP SWITCH (DS1·2), REFER TO INSTALLATION MANUAL OR "SERVICE PRECAUTION" LABEL ON EL. COMPO. BOX COVER.

A1P (UNIT A)	PRINTED CIRCUIT BOARD (INDOOR UNIT A)	X1M (A1P~A6P)	TERMINAL STRIP (CONTROL)
A1P (UNIT B)	PRINTED CIRCUIT BOARD (INDOOR UNIT B)	X2M (A1P~A6P)	TERMINAL STRIP (C/H SELECTOR)
A1P (UNIT C)	PRINTED CIRCUIT BOARD (INDOOR UNIT C)	X1M	TERMINAL STRIP (POWER)
A1P (UNIT D)	PRINTED CIRCUIT BOARD (INDOOR UNIT D)	X2M~X9M	TERMINAL STRIP (CONTROL)
A1P (UNIT E)	PRINTED CIRCUIT BOARD (INDOOR UNIT E)	Y1E	ELECTRIC EXPANSION VALVE (SUB COOL)
A1P (UNIT F)	PRINTED CIRCUIT BOARD (INDOOR UNIT F)	Y2E	ELECTRIC EXPANSION VALVE (SUB DISCHARGE)
DS1, DS2	DIP SWITCH	Y3E	ELECTRIC EXPANSION VALVE (SUB SUCTION)
F1U	FUSE (T, 3.15A, 250V)	Y4E	ELECTRIC EXPANSION VALVE (MAIN DISCHARGE)
HAP	FLASHING LAMP (SERVICE MONITOR-GREEN)	Y5E	ELECTRIC EXPANSION VALVE (MAIN SUCTION)
		Z1C	NOISE FILTER (FERITE CORE)
PS	SWITCHING POWER SUPPLY (A1P~A6P)		

3. List of Electrical and Functional Parts

3.1 Outdoor Unit

3.1.1 REYQ8P8Y1B~12P8Y1B

Item	Name		Symbol	Model		
				REYQ8P8Y1B	REYQ10P8Y1B	REYQ12P8Y1B
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 (Subcooling)			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		S2NPL	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 PCB	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 PCB	F1U	250V AC 5A Class B		

3.1.2 REYQ14P8Y1B~16P8Y1B

Item	Name		Symbol	Model	
				REYQ14P8Y1B	REYQ16P8Y1B
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 (Subcooling)			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		S2NPL	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 PCB	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 PCB	F1U	250V AC 5A Class B	

3.1.3 REMQ8P8Y1B~12P8Y1B

Item	Name		Symbol	Model		
				REMQ8P8Y1B	REMQ10P8Y1B	REMQ12P8Y1B
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 (Subcooling)			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		S2NPL	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 PCB	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 PCB	F1U	250V AC 5A Class B		

3.1.4 REMQ14P8Y1B~16P8Y1B

Item	Name		Symbol	Model	
				REMQ14P8Y1B	REMQ16P8Y1B
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 (Subcooling)			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		S2NPL	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 PCB	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 PCB	F1U	250V AC 5A Class B	

3.2 Indoor Side

3.2.1 Indoor Unit

Parts Name		Symbol	Model								Remark
			FXFQ25 PVE	FXFQ32 PVE	FXFQ40 PVE	FXFQ50 PVE	FXFQ63 PVE	FXFQ80 PVE	FXFQ100 PVE	FXFQ125 PVE	
Remote Controller	Wired Remote Controller		BRC1E51								Option
	Wireless Remote Controller		BRC7F634F								
Motors	Fan Motor	M1F	DC280V 56W 8P						DC 320V 120W 8P		
	Drain Pump	M1P	AC220-240V (50Hz) AC220V (60Hz) PLD-12230DM Thermal Fuse 145°C								
	Swing Motor	M1S	MP35HCA[3P080801-1] Stepping Motor DC12V								
Thermistors	Thermistor (Suction Air)	R1T	In PCB A2P or wired remote controller								
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-14 φ8 L1000 20kΩ (25°C)								
	Thermistor (Heat Exchanger)	R2T	ST8602A-15 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		BRC1E51								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 FXZQ 20MV1	FXZQ 25MV1	FXZQ 32MV1	FXZQ 40MV1	FXZQ 50MV1	Remark
Remote Controller	Wired Remote Controller		BRC1E51					Option
	Wireless Remote Controller		BRC7E530					
Motors	Fan Motor	M1F	AC 220~240V 50Hz					
			1φ55W 4P					
			Thermal Fuse OFF : $130^{\pm5}$ / ON : $80^{\pm20}$					
	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 FXKQ 25MAVE	FXKQ 32MAVE	FXKQ 40MAVE	FXKQ 63MAVE	Remark
Remote Controller	Wired Remote Controller		BRC1E51				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
			FXDQ20PBVE	FXDQ25PBVE	FXDQ32PBVE	FXDQ40NBVE	FXDQ50NBVE	FXDQ63NBVE	
Remote Controller	Wired Remote Controller		BRC1E51						Option
	Wireless Remote Controller		BRC4C65						
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						

Parts Name		Symbol	Model									Remark
			FXSQ20MVE	FXSQ25MVE	FXSQ32MVE	FXSQ40MVE	FXSQ50MVE	FXSQ63MVE	FXSQ80MVE	FXSQ100MVE	FXSQ125MVE	
Remote Controller	Wired Remote Controller		BRC1E51									Option
	Wireless Remote Controller		BRC4C62									
Motors	Fan Motor	M1F	AC 220~240V 50Hz									
			1φ50W			1φ65W	1φ85W	1φ125W	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 20PVE	FXMQ 25PVE	FXMQ 32PVE	FXMQ 40PVE	FXMQ 50PVE	FXMQ 63PVE	FXMQ 80PVE	FXMQ 100PVE	FXMQ 125PVE	FXMQ 140PVE	
Remote Controller	Wired Remote Controller		BRC1E51										
	Wireless Remote Controller		BRC4C65										
Motors	Fan Motor	M1F	DC280V 140W 8P							DC373V 350W 8P			
	Drain Pump	M1P	AC220-240V (50/60Hz) PLD-12230DM Thermal protector 145°C										
Thermistors	Thermistor (Suction Air)	R1T	ST8601-3 φ L630 20kΩ (25°C)										
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-14 φ8 L1000 20kΩ (25°C)										
	Thermistor (for Heat Exchanger)	R2T	ST8602A-6 φ8 L1250 20kΩ (25°C)										
Others	Float Switch	S1L	FS-0211B										
	Fuse (A1P)	F1U	250V 3.15A										
	Fuse (A2P, A3P)	F3U· F4U	250V 6.3A										
	Fuse (A2P)	F2U	250V 5A				—						

Parts Name		Symbol	Model		Remark
			FXMQ200MAVE	FXMQ250MAVE	
Remote Controller	Wired Remote Controller		BRC1E51		Option
	Wireless Remote Controller		BRC4C62		
Motors	Fan Motor	M1F	AC 220~240V 50Hz		
			1φ380W×2		
	Capacitor for Fan Motor	C1R	10μ F 400V	12μ F 400V	
Thermistors	Thermistor (Suction Air)	R1T	ST8601A-13 φ4 L630		
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605A-5 φ8 L1000		
	Thermistor (Heat Exchanger)	R2T	ST8602A-6 φ6 L1250		
Others	Float switch	S1L	FS-0211		
	Fuse	F1U	250V 5A φ5.2		
	Transformer	T1R	TR22H21R8		

Parts Name		Symbol	Model			Remark
			FXHQ 32MAVE	FXHQ 63MAVE	FXHQ 100MAVE	
Remote Controller	Wired Remote Controller		BRC1E51			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						Remark
			FXAQ 20PV1	FXAQ 25PV1	FXAQ 32PV1	FXAQ 40PV1	FXAQ 50PV1	FXAQ 63PV1	
Remote Controller	Wired Remote Controller		BRC1E51						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 3A φ5.2						

Parts Name		Symbol	Model			Remark
			FXUQ71MAV1	FXUQ100MAV1	FXUQ125MAV1	
Remote Controller	Wired Remote Controller		BRC1C62			Option
	Wireless Remote Controller		BRC7C528W			
Motors	Fan Motor	M1F	AC 220~240V 50Hz			
			1φ45W	1φ90W		
			Thermal protector 130°C	Thermal protector 130°C : OFF 83°C : ON		
	Drain Pump	M1P	AC220-240V (50Hz) AC220V (60Hz) PJV-1426			
	Swing Motor	M1S	MT8-L[3PA07572-1] AC200~240V			
Thermistors	Thermistor (Suction Air)	R1T	ST8601-1 φ4 L=250 20kΩ (25°C)			
	Thermistor (Heat Exchanger)	R2T	ST8602A-4 φ6 L=800 20kΩ (25°C)			
Others	Float Switch	S1L	FS-0211B			

Parts Name		Symbol	Model						Remark
			FXLQ 20MAVE	FXLQ 25MAVE	FXLQ 32MAVE	FXLQ 40MAVE	FXLQ 50MAVE	FXLQ 63MAVE	
Remote Controller	Wired Remote Controller		BRC1E51						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		BRC1E51						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		FXFQ-P	FXCQ-M	FXKQ-MA	FXDQ-NB FXDQ-PB	FXUQ-M	FXSQ-P	FXMQ-MA	FXMQ-P	FXHQ-MA	FXAQ-P	FXLQ-MA FXNQ-MA
1	Remote controller	Wireless	BRC7F634F	BRC7C62	BRC4C61	BRC4C65	BRC7C528W	BRC4C62		BRC4C65	BRC7E63W	BRC7E618	BRC4C62
		Wired	BRC1E51										
2	Wired remote controller with weekly schedule timer		BRC1D61										
3	Simplified remote controller		—			Note 8 BRC2C51	—	Note 8 BRC2C51			—		Note 8 BRC2C51
4	Remote controller for hotel use		—			BRC3A61	—	BRC3A61			—		BRC3A61
5	Adaptor for wiring		★KRP1C63	★KRP1B61	KRP1B61	★KRP1B56	—	KRP1B61		★KRP1C64	KRP1C3	—	KRP1B61
6-1	Wiring adaptor for electrical appendices (1)		★KRP2A62	★KRP2A61	KRP2A61	★KRP2A53	★KRP2A62	KRP2A61		★KRP2A61	★KRP2A62	★KRP2A61	KRP2A61
6-2	Wiring adaptor for electrical appendices (2)		★KRP4AA53	★KRP4A51	KRP4A51	★KRP4A54	★KRP4A53	KRP4A51		★KRP4AA51	★KRP4A52	★KRP4A51	KRP4A51
7	Remote sensor		KRCS01-4B	KRCS01-1	KRCS01-1					KRCS01-4B	KRCS01-1		
8	Installation box for adaptor PCB		Note 2, 3 KRP1H98	Note 2, 3 KRP1B96	—	Note 4, 6 KRP1B101	KRP1B97	Note 5 KRP4A91	—	Note 2, 3 KRP4A96	Note 3 KRP1C93	Note 2, 3 KRP4A93	—
9	Central remote controller		DCS302CA61										
9-1	Electrical box with earth terminal (3 blocks)		KJB311AA										
10	Unified on/off controller		DCS301BA61										
10-1	Electrical box with earth terminal (2 blocks)		KJB212AA										
10-2	Noise filter (for electromagnetic interface use only)		KEK26-1A										
11	Schedule timer		DST301BA61										
12	External control adaptor for outdoor unit (Must be installed on indoor units)		★ DTA104A62	★ DTA104A61	DTA104A61	★ DTA104A53	—	DTA104A61		★ DTA104A61	★ DTA104A62	★ DTA104A61	DTA104A61
13	Interface adaptor for SkyAir-series		—	—	—	—	Note 7 DTA102A52	—		—	—	—	—

Note:

1. Installation box (No.8) 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 (No. 8) is necessary for second adaptor.
6. Installation box (No. 8) is necessary for each adaptor.
7. This adaptor is required when connecting with optional controller for centralized control.
8. BRC2A51 is also available.

Various PCBs

No.	Part name	Model No.	Function
1	Adaptor for wiring	KRP1B56 KRP1B57 KRP1B61 KRP1B3	■ PCB 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		DCS302C51 DCS302CA51 (FXFQ-P)	• 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		DCS301B51 DCS301BA51 (FXFQ-P)	• 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.
2-1	Electrical box with earth terminal (2 blocks)		KJB212A	
2-2	Noise filter (for electromagnetic interface use only)		KEK26-1	
3	Schedule timer		DST301B51 DST301BA51 (FXFQ-P)	• 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	R-407C/R-22	★DTA102A52	• 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.
		R-410A	★DTA112B51	
5	Central control adaptor kit	For UAT(Y)-K(A),FD-K	★DTA107A55	
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	DAM602B51×2	
					768 units	DAM602B51×3	
					1024 units	DAM602B51×4	
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					DEC101B51	• Input contacts: 16 points
2-6	Dio unit					DEC102B51	• Input contacts: 8 points; output contacts: 4 points
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

Optional accessories \ Series / Models			VRV III H/R	
			REYQ8PY1	REYQ10PY1 REYQ12PY1 REYQ14PY1 REYQ16PY1
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	KWC25C450
Digital pressure gauge kit		Model	BHGP26A1	BHGP26A1

C : 3D057610A

REYQ18 ~ 32PY1

Optional accessories \ Series / Models			VRV III H/R	
			REYQ18PY1	REYQ20PY1 REYQ22PY1 REYQ24PY1
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	KWC26C280×2	KWC26C280×2
Digital pressure gauge kit		Model	BHGP26A1	BHGP26A1

Optional accessories \ Series / Models			VRV III H/R	
			REYQ26PY1 REYQ28PY1	REYQ30PY1 REYQ32PY1
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	KWC26C450×2
Digital pressure gauge kit		Model	BHGP26A1	BHGP26A1

C : 3D057611C

REYQ34 ~ 48PY1

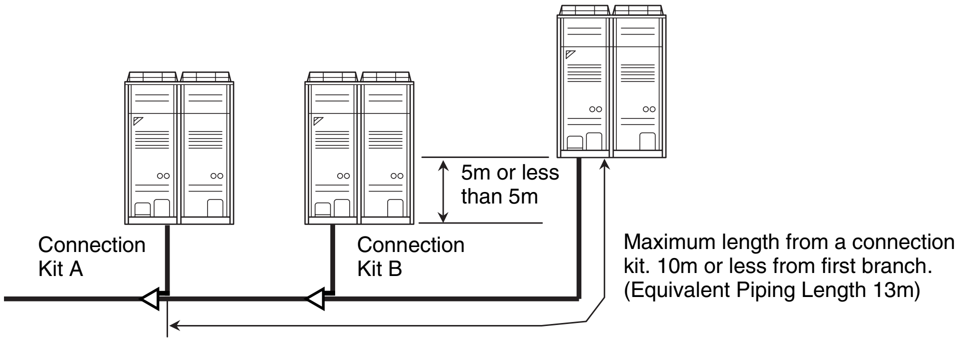
Optional accessories \ Series / Models			VRV III H/R	
			REYQ34PY1 REYQ36PY1 REYQ38PY1 REYQ40PY1	REYQ42PY1 REYQ44PY1
Distributive Piping	REFNET header	Model	KHRP25M33H, KHRP25M72H, KHRP25M73H (Max. 8 branch) (Max. 8 branch) (Max. 8 branch)	
	REFNET joint	Model	KHRP25A22T, KHRP25A33T, (KHRP25A72T+ KHRP25M72TP), (KHRP25A73T+KHRP25M73TP)	
Outdoor unit multi connection piping kit		Model	BHFP26P136	
Central drain pan kit		Model	KWC26C280×2 KWC26C450	KWC26C280 KWC26C450×2
Digital pressure gauge kit		Model	BHGP26A1	BHGP26A1

Optional accessories \ Series / Models			VRV III H/R
			REYQ46PY1 REYQ48PY1
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	KWC26C450×3
Digital pressure gauge kit		Model	BHGP26A1

C : 3D057612C

5. Piping Installation Point

5.1 Piping Installation Point



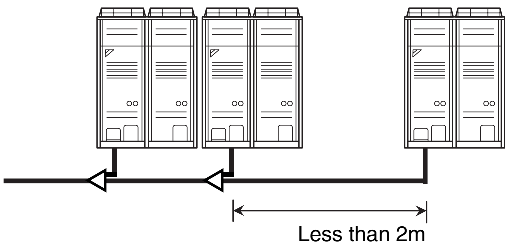
Since there is a possibility that oil may be collected on a stop machine side, install piping between outdoor units to go to level or go up to an outdoor unit, and to make a slope.

(V3036)

The projection part between multi connection piping kits

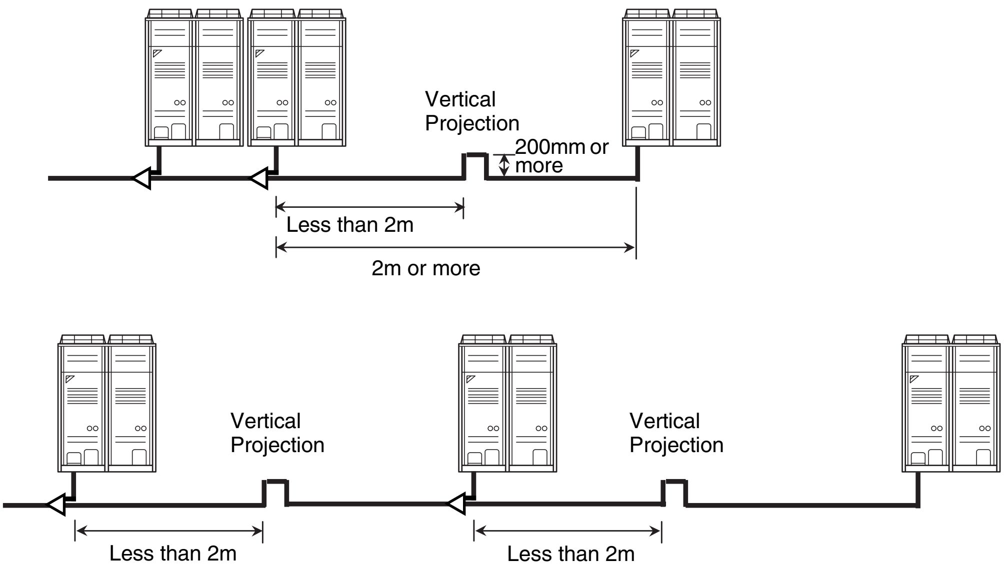
When the piping length between the multi connection kits or between multi connection kit and outdoor unit is 2m or more, prepare a vertical projection part (200mm or more as shown below) only on the gas pipe line location less than 2m from multi connection kit.

In the case of 2m or less



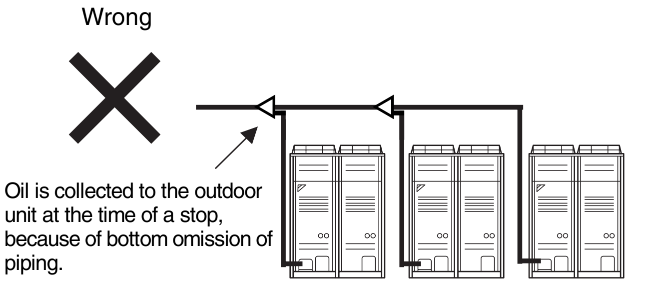
(V3037)

In the case of 2m or more

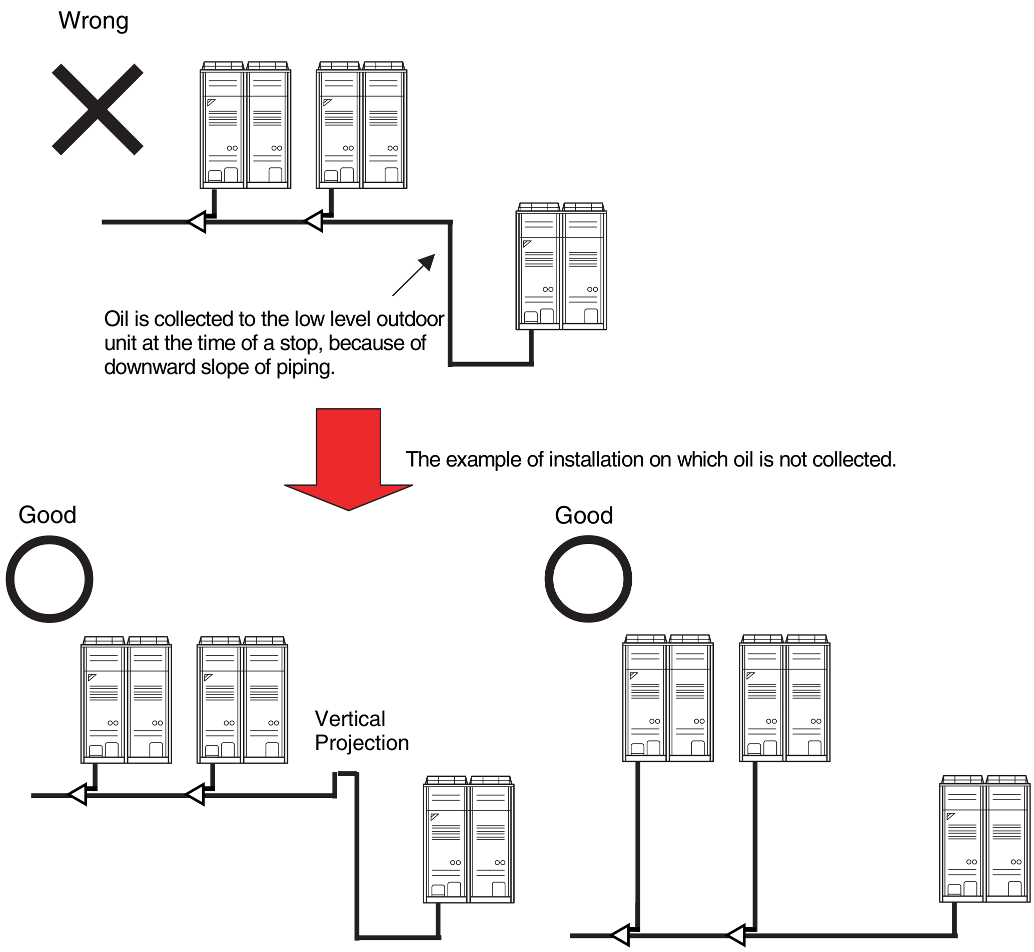


(V3038)

5.2 The Example of a Wrong Pattern



(V3039)

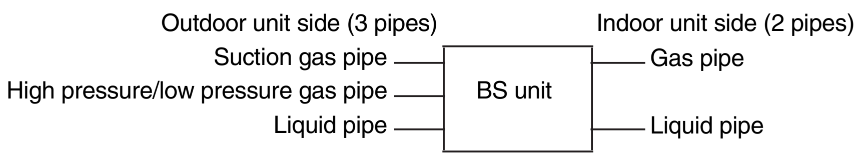
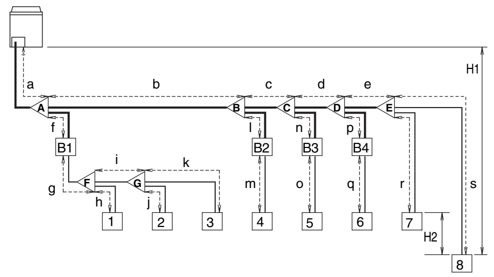
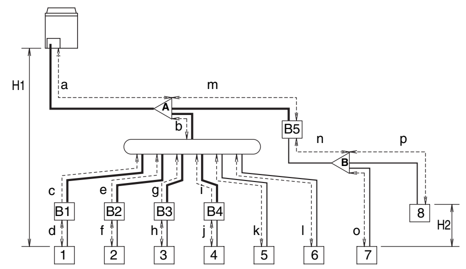
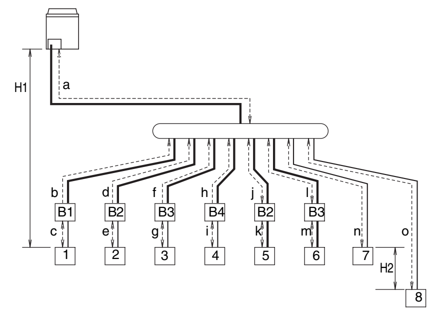


(V3040)

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 463 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 REFNET header**	**Branch with REFNET header**
		Single outdoor unit system (REYQ8~16)			
			1 indoor unit A REFNET joint	REFNET header	Outdoor unit side (3 pipes) Indoor unit side (2 pipes)
Maximum allowable length	Between outdoor and indoor units	Actual pipe length	Pipe length between outdoor and indoor units £165 m		
			[Example] unit 8: a+b+c+d+e+s≤165 m	[Example] unit 6: a+b+l≤165 m, unit 8: a+m+n+p≤165 m	[Example] unit 8: a+o≤165 m
		Equivalent length	Equivalent pipe length between outdoor and indoor units ≤190 m (Assume equivalent pipe length of the REFNET joint to be 0.5 m, of the REFNET header to be 1.0 m, of the BSVQ100 and BSVQ160 to be 4 m and of the BSVQ250 to be 6 m (for calculation purposes)) (See note 1 on next page)		
		Total extension length	Total piping length from outdoor to all indoor units ≤1000 m		
Allowable height difference	Between outdoor and indoor units		Difference in height between outdoor and indoor units (H1)≤50 m (≤40 m if outdoor unit is located in a lower position).		
	Between indoor and indoor units		Difference in height between adjacent indoor units (H2)≤15 m		
Allowable length after the branch		Actual pipe length	Pipe length from first refrigerant branch kit (either REFNET joint or REFNET header) to indoor unit ≤40 m (See note 2 on next page)		
			[Example] unit 8: b+c+d+e+s≤40 m	[Example] unit 6: b+l≤40 m, unit 8: m+n+p≤40 m	[Example] unit 8: o≤40 m

Refrigerant branch kit selection

Refrigerant branch kits can only be used with R410A.

How to select the REFNET joint
When using REFNET joints at the first branch counted from the outdoor unit side, choose from the following table in accordance with the capacity of the outdoor unit (example: REFNET joint A).

Outdoor unit capacity type (Hp)	Refrigerant branch kit name
8+10	KHRQ23M29T
12~16	KHRQ23M64T

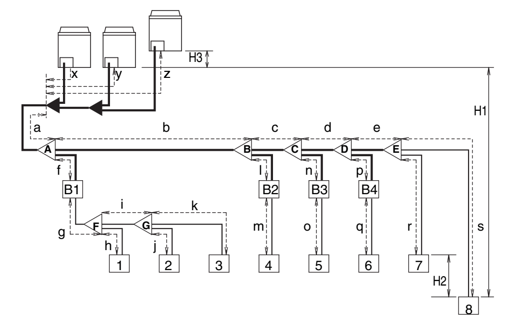
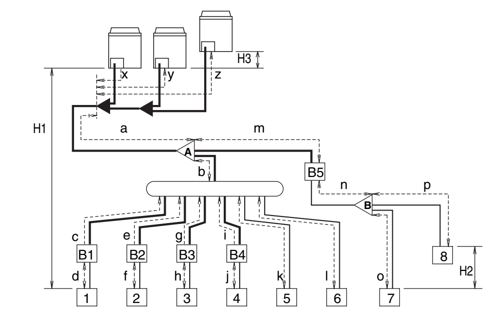
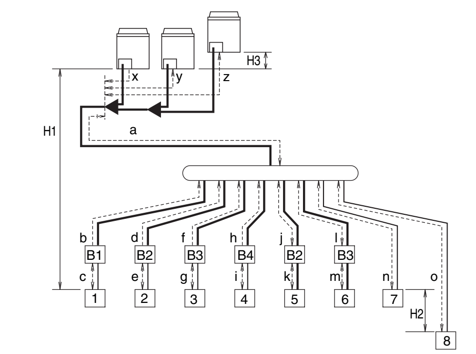
For REFNET joints other than the first branch, select the proper branch kit model based on the total capacity index of all indoor units connected after the refrigerant branch.

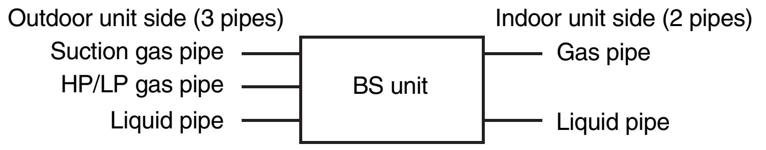
Indoor capacity type	Refrigerant branch kit name	
	3 pipes	2 pipes
<200	KHRQ23M20T	KHRQ22M20T
200≤x<290	KHRQ23M29T9	KHRQ22M29T
290≤x<640	KHRQ23M64T	KHRQ22M64T
≥640	KHRQ23M75T	KHRQ22M75T

How to select the REFNET header
Choose from the following table in accordance with the total capacity of all the indoor units connected below the REFNET header.
Note: 250 type indoor unit can not be connected lower than the REFNET header.

Indoor capacity type	Refrigerant branch kit name	
	3 pipes	2 pipes
<200	KHRQ23M29H	KHRQ22M29H
200≤x<290	KHRQ23M29H	KHRQ22M29H
290≤x<640	KHRQ23M64H	KHRQ22M64H
≥640	KHRQ23M75H	KHRQ22M75H

Example of downstream indoor units	Branch with REFNET joint	Branch with REFNET joint and REFNET header	Branch with REFNET header
	[Example] in case of REFNET joint C: indoor units 5+6+7+8	[Example] in case of REFNET joint B: indoor units 7+8, in case of REFNET header: indoor units 1+2+3+4+5+6	[Example] in case of REFNET header: indoor units 1+2+3+4+5+6+7+8

Example of connection (Connection of 8 indoor units)		Branch with REFNET joint	Branch with REFNET joint and REFNET header	Branch with REFNET header
Use the outdoor unit multi connection piping kit that is sold separately as an option (BHFQ23P907+1357) for the multi installation of outdoor units. Selection method is as shown in the right table.	Outdoor units installed in a multiple outdoor unit system (REYQ18~48)			



Install the joint part (◀ part in the figure) of the outdoor unit multi connection piping kit horizontally with attention to the installation restrictions described in "connecting the refrigerant piping".
(*) In case of multi combination, interprete the word "outdoor" as "first outdoor branch".

Legend: [1] indoor unit; ◁A REFNET joint; ⬭ REFNET header; ◀ outdoor multi connection piping kit; thick line: Outdoor unit side (3 pipes); thin line: Indoor unit side (2 pipes)

			Branch with REFNET joint	Branch with REFNET joint and REFNET header	Branch with REFNET header
Maximum allowable length	Between outdoor and indoor units	Actual pipe length	Pipe length between outdoor(*) and indoor units ≤165 m		
			[Example] unit 8: a+b+c+d+e+s≤165 m	[Example] unit 6: a+b+l≤165 m, unit 8: a+m+n+p≤165 m	[Example] unit 8: a+o≤165 m
		Equivalent length	Equivalent pipe length between outdoor(*) and indoor units ≤190m (Assume equivalent pipe length of the REFNET joint to be 0.5m, of the REFNET header to be 1.0m, of the BSVQ100 and BSVQ160 to be 4m and of the BSVQ250 to be 6m (for calculation purposes)) (See note 1 on next page)		
		Total extension length	Total piping length from outdoor(*) to all indoor units ≤1000 m		
	Between the first outdoor unit multi connection piping kit and outdoor unit (in case of a multiple outdoor unit system)	Actual and equivalent pipe length	The actual pipe length from the first outdoor unit multi connection piping kit to the outdoor unit ≤10m. (x≤10m, y≤10m, z≤10m) The equivalent pipe length from the first outdoor unit multi connection piping kit to the outdoor unit ≤13m. (x≤13m, y≤13m, z≤13m)		
Allowable height difference	Between outdoor and indoor units		Difference in height between outdoor and indoor units (H1)≤50m (≤40m if outdoor unit is located in a lower position).		
	Between indoor and indoor units		Difference in height between adjacent indoor units (H2)≤15m		
	Between outdoor and outdoor units		Difference in height between adjacent outdoor units (H3)≤5m		
Allowable length after the branch		Actual pipe length	Pipe length from first refrigerant branch kit (either REFNET joint or REFNET header) to indoor unit ≤40m (See note 2 on next page)		
			[Example] unit 8: b+c+d+e+s≤40m	[Example] unit 6: b+l≤40m, unit 8: m+n+p≤40m	[Example] unit 8: o≤40m

Outdoor unit multi connection piping kit and refrigerant branch kit selection

Refrigerant branch kits can only be used with R410A.

How to select the REFNET joint
When using REFNET joints at the first branch counted from the outdoor unit side, choose from the following table in accordance with the capacity of the outdoor unit (example: REFNET joint A).

Outdoor unit capacity type (Hp)	Refrigerant branch kit name
8+10	KHRQ23M29T
12~22	KHRQ23M64T
≥24	KHRQ23M75T

For REFNET joints other than the first branch, select the proper branch kit model based on the total capacity index of all indoor units connected after the refrigerant branch..

Indoor capacity type	Refrigerant branch kit name	
	3 pipes	2 pipes
<200	KHRQ23M20T	KHRQ22M20T
200≤x<290	KHRQ23M29T9	KHRQ22M29T
290≤x<640	KHRQ23M64T	KHRQ22M64T
≥640	KHRQ23M75T	KHRQ22M75T

How to select the REFNET header
Choose from the following table in accordance with the total capacity of all the indoor units connected below the REFNET header.
Note: 250 type indoor unit can not be connected lower than the REFNET header.

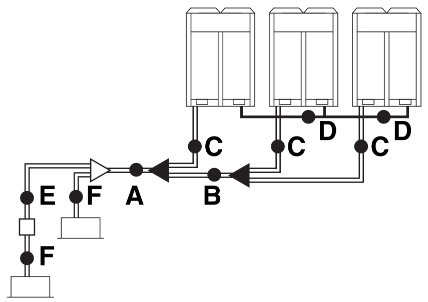
Indoor capacity type	Refrigerant branch kit name	
	3 pipes	2 pipes
<200	KHRQ23M29H	KHRQ22M29H
200≤x<290	KHRQ23M29H	KHRQ22M29H
290≤x<640	KHRQ23M64H	KHRQ22M64H
≥640	KHRQ23M75H	KHRQ22M75H

How to choose an outdoor multi connection piping kit (this is required when the system is a multiple outdoor unit system)
Choose from the following table in accordance with the number of outdoor units.

Number of outdoor units	Branch kit name
2	BHFQ23P907
3	BHFQ23P1357

	Branch with REFNET joint	Branch with REFNET joint and REFNET header	Branch with REFNET header
Example of downstream indoor units	[Example] in case of REFNET joint C: indoor units 5+6+7+8	[Example] in case of REFNET joint B: indoor units 7+8, in case of REFNET header: indoor units 1+2+3+4+5+6	[Example] in case of REFNET header: indoor units 1+2+3+4+5+6+7+8

Pipe size selection
For an outdoor unit multi installation (REYQ18~48P), select the pipe size in accordance with the following figure.



A. Piping between outdoor unit and refrigerant branch kit
B. Piping between outdoor unit multi connection piping units
Choose from the following table in accordance with the outdoor unit total capacity type, connected downstream.

Outdoor unit capacity type (Hp)	Piping outer diameter size (mm)		
	Suction gas pipe	HP/LP gas pipe	Liquid pipe
8	19.1	15.9	9.5
10	22.2	19.1	9.5
12	28.6	19.1	12.7
14+16	28.6	22.2	12.7
18	28.6	22.2	15.9
20+22	28.6	28.6	15.9
24	34.9	28.6	15.9
26~34	34.9	28.6	19.1
36	41.3	28.6	19.1
38~48	41.3	34.9	19.1

C. Piping between outdoor unit multi connection piping kit and outdoor unit
Choose from the following table in accordance with the capacity type of the connected outdoor unit.

Outdoor unit capacity type (Hp)	Piping outer diameter size (mm)		
	Suction gas pipe	HP/LP gas pipe	Liquid pipe
8+10	22.2	19.1	9.5
12	28.6	19.1	12.7
14+16	28.6	22.2	12.7

E. Piping between refrigerant branch kit and BS unit
Pipe size for direct connection to indoor unit must be the same as the connection size of indoor unit.
Choose from the following table in accordance with the indoor unit total capacity type, connected downstream.

Indoor unit capacity type	Piping outer diameter size (mm)		
	Suction gas pipe	HP/LP gas pipe	Liquid pipe
<150	15.9	12.7	9.5
150≤x<200	19.1	15.9	9.5
200≤x<290	22.2	19.1	9.5
290≤x<420	28.6	19.1	12.7
420≤x<640	28.6	28.6	15.9
640≤x<920	34.9	28.6	19.1
≥920	41.3	28.6	19.1

F. Piping between refrigerant branch kit or BS unit and indoor unit
Choose from the following table in accordance with the capacity type of the connected indoor unit.

Indoor unit capacity type	Piping outer diameter size (mm)	
	Suction gas pipe	Liquid pipe
20, 25, 32, 40, 50	12.7	6.4
63, 80, 100, 125	15.9	9.5
200	19.1	9.5
250	22.2	9.5

D. Equalizer piping (outdoor units only)

Piping outer diameter size (mm)	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

The refrigerant charge of the system must be less than 100 kg. This means that in case the calculated refrigerant charge is equal to or more than 95kg you must divide your multiple outdoor system into smaller independent systems, each containing less than 95kg refrigerant charge.
For factory charge, refer to the unit name plate.

$$R = \left[\begin{array}{l}[(X_1 \times \phi\mathbf{22.2}) \times 0.37] + [(X_2 \times \phi\mathbf{19.1}) \times 0.26] + \\ [(X_3 \times \phi\mathbf{15.9}) \times 0.18] + [(X_4 \times \phi\mathbf{12.7}) \times 0.12] + \\ [(X_5 \times \phi\mathbf{9.5}) \times 0.059] + [(X_6 \times \phi\mathbf{6.4}) \times 0.022]\end{array}\right] \times 1.02 \mathbf{+ A + B}$$

$X_{1...6}$ = Total length (m) of liquid piping size at ϕ**a**
A = Weight according to table A
B = Weight according to table B in function of indoor unit connection ratio

REYQ	A
18+20 HP	**1.0** kg
22+24 HP	**1.5** kg
26 HP	**2.0** kg
28+30 HP	**2.5** kg
32~40 HP	**3.0** kg
42 HP	**3.5** kg
44+46 HP	**4.0** kg
48 HP	**4.5** kg

REYQ		B
18~32 HP	>100% ≤130%	**0.5** kg
34~48 HP	>100% ≤120%	**0.5** kg
	>120% ≤130%	**1.0** kg

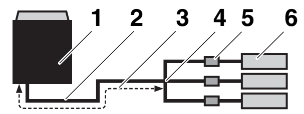
Example for refrigerant branch using REFNET joint and REFNET header for REYQ34. REYQ34 = REMQ8+REMQ10+REMQ16, the indoor unit connection ratio = 120% and the piping lengths are as below.

a: f19.1×30 m	f : f9.5×10 m	k : f9.5×20 m	p: f6.4×10 m
b: f19.1×20 m	g: f9.5×10 m	l : f9.5×20 m	r : 12.7×3 m
c: f9.5×10 m	h: f9.5×10 m	m :f9.5×20 m	s: f9.5×3 m
d: f9.5×10 m	i : f9.5×10 m	n :f9.5×10 m	t : f9.5×3 m
e: f9.5×10 m	j : f9.5×10 m	o : f6.4×10 m	u: f15.9×1m

R = [[50×0.26]+[1×0.18]+[3×0.12]+[156×0.059]+[20×0.022]]×1.02**+3.0+0.5**
= 27.148 ⇒ **R = 27.1 kg**

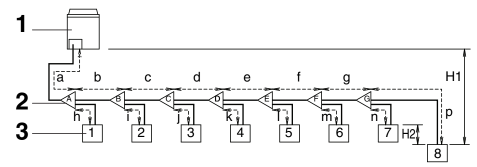
Note: When the equivalent pipe length between outdoor and indoor units is 90m or more, the size of the main liquid pipe must be increased. Never increase suction gas pipe and HP/LP gas pipe sizes.
Depending on the length of the piping, the capacity may drop, but even in such a case it is possible to increase the size of the main liquid pipe.

REYQ	ϕ	REYQ	ϕ
8+10	9.5 → 12.7	18~24	15.9 → 19.1
12~16	12.7 → 15.9	26~48	19.1 → 22.2



1 Outdoor unit
2 Main pipes
3 Increase only liquid pipe size
4 First refrigerant branch kit
5 BS unit
6 Indoor unit

Note: 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 fulfilled.

Required conditions	Example drawings	
It is necessary to increase the pipe size of the liquid and suction gas pipe if the pipe length between the first and the final branch kit is over 40m (reducers must be procured on site). Increasing the HP/LP gas pipe size is not allowed. If the increased liquid pipe size is larger than the pipe size of the main liquid pipe, then the pipe size of the main liquid pipe needs to be increased as well. If the increased suction gas pipe size is larger than the pipe size of the main suction gas pipe, then the allowable length after the first refrigerant branch kit may not be increased to 90m. Size-up of the main suction gas pipe may affect a good oil return to the outdoor unit due to influence of the HP/LP gas pipe.	indoor unit **8**: b+c+d+e+f+g+p≤90m increase the pipe size of b, c, d, e, f, g	Increase the pipe size as follows ϕ9.5→ϕ12.7 ϕ12.7→ϕ15.9 ϕ15.9→ϕ19.1 ϕ19.1→ϕ22.2
For calculation of total extension length, the actual length of above pipes must be doubled (except length of main pipes and of pipes which do not have an increased pipe size).	a+b*2+c*2+d*2+e*2+f*2+g*2 +h+i+j+k+l+m+n+p≤1000 m	 1 Outdoor unit 2 REFNET joints (a~g) 3 Indoor units (1~8)
Indoor unit to the nearest branch kit ≤40m	h, i, j....... p≤40m	
The difference between the distance of the outdoor unit to the farthest indoor unit and the distance of the outdoor unit to the nearest indoor unit ≤40m	The most remote indoor unit **8** The nearest indoor unit **1** (a+b+c+d+e+f+g+p)–(a+h)≤40m	

7. Thermistor Resistance / Temperature Characteristics

Indoor unit	For suction air	R1T
	For liquid pipe	R2T
	For gas pipe	R3T
Outdoor unit	For outdoor air	R1T
	For coil	R2T
	For suction pipe	R4T
	For Receiver gas pipe	R5T
	For Receiver outlet liquid pipe	R6T

Outdoor unit for fin thermistor R1T

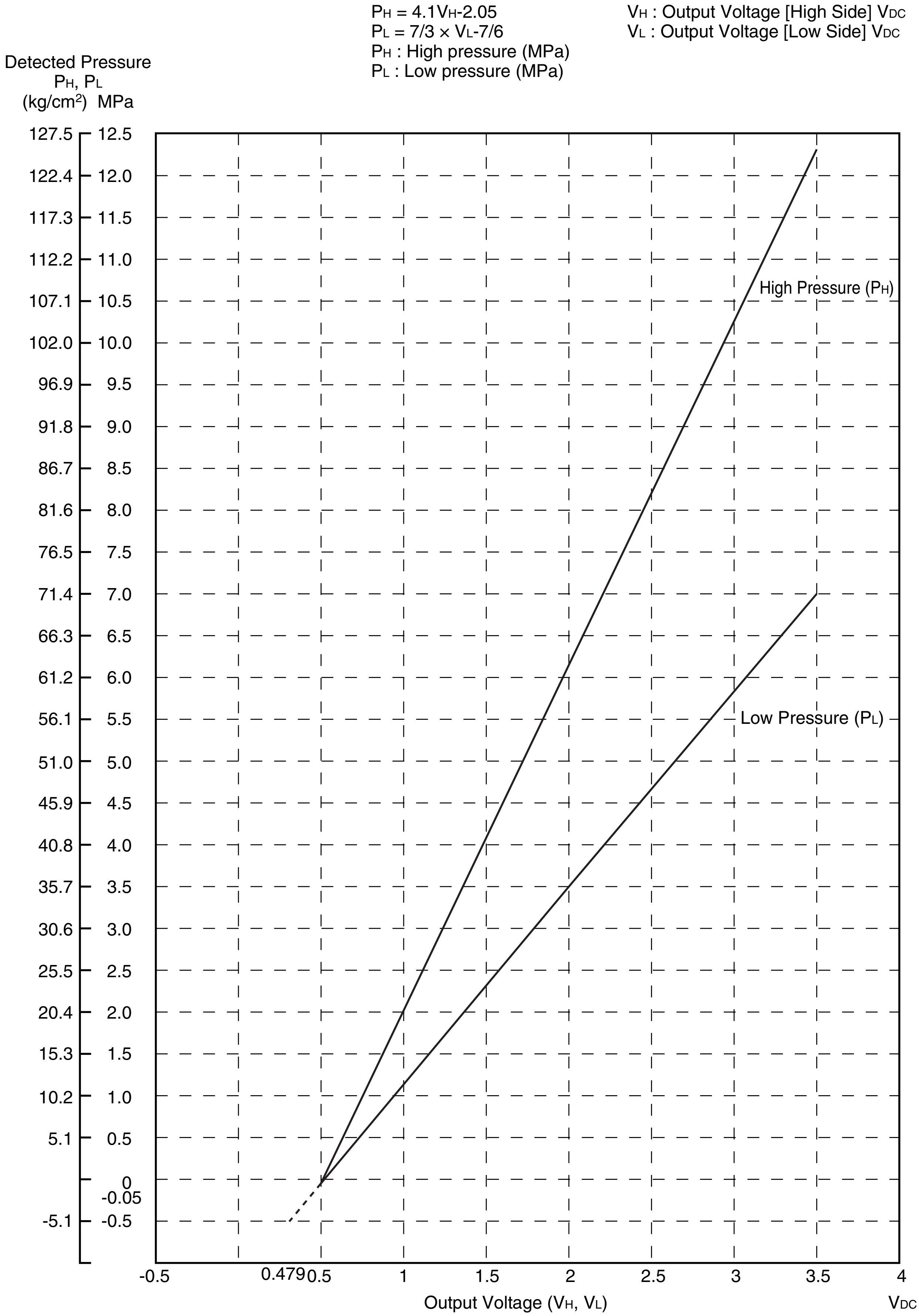
T°C	kΩ
-10	-
-8	-
-6	88.0
-4	79.1
-2	71.1
0	64.1
2	57.8
4	52.3
6	47.3
8	42.9
10	38.9
12	35.3
14	32.1
16	29.2
18	26.6
20	24.3
22	22.2
24	20.3
26	18.5
28	17.0
30	15.6
32	14.2
34	13.1
36	12.0
38	11.1
40	10.3
42	9.5
44	8.8
46	8.2
48	7.6
50	7.0
52	6.7
54	6.0
56	5.5
58	5.2
60	4.79
62	4.46
64	4.15
66	3.87
68	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	kΩ	T°C	kΩ	T°C	kΩ	T°C	kΩ
-20	197.81	-19.5	192.08	30	16.10	30.5	15.76
-19	186.53	-18.5	181.16	31	15.43	31.5	15.10
-18	175.97	-17.5	170.94	32	14.79	32.5	14.48
-17	166.07	-16.5	161.36	33	14.18	33.5	13.88
-16	156.80	-15.5	152.38	34	13.59	34.5	13.31
-15	148.10	-14.5	143.96	35	13.04	35.5	12.77
-14	139.94	-13.5	136.05	36	12.51	36.5	12.25
-13	132.28	-12.5	128.63	37	12.01	37.5	11.76
-12	125.09	-11.5	121.66	38	11.52	38.5	11.29
-11	118.34	-10.5	115.12	39	11.06	39.5	10.84
-10	111.99	-9.5	108.96	40	10.63	40.5	10.41
-9	106.03	-8.5	103.18	41	10.21	41.5	10.00
-8	100.41	-7.5	97.73	42	9.81	42.5	9.61
-7	95.14	-6.5	92.61	43	9.42	43.5	9.24
-6	90.17	-5.5	87.79	44	9.06	44.5	8.88
-5	85.49	-4.5	83.25	45	8.71	45.5	8.54
-4	81.08	-3.5	78.97	46	8.37	46.5	8.21
-3	76.93	-2.5	74.94	47	8.05	47.5	7.90
-2	73.01	-1.5	71.14	48	7.75	48.5	7.60
-1	69.32	-0.5	67.56	49	7.46	49.5	7.31
0	65.84	0.5	64.17	50	7.18	50.5	7.04
1	62.54	1.5	60.96	51	6.91	51.5	6.78
2	59.43	2.5	57.94	52	6.65	52.5	6.53
3	56.49	3.5	55.08	53	6.41	53.5	6.53
4	53.71	4.5	52.38	54	6.65	54.5	6.53
5	51.09	5.5	49.83	55	6.41	55.5	6.53
6	48.61	6.5	47.42	56	6.18	56.5	6.06
7	46.26	7.5	45.14	57	5.95	57.5	5.84
8	44.05	8.5	42.98	58	5.74	58.5	5.43
9	41.95	9.5	40.94	59	5.14	59.5	5.05
10	39.96	10.5	39.01	60	4.96	60.5	4.87
11	38.08	11.5	37.18	61	4.79	61.5	4.70
12	36.30	12.5	35.45	62	4.62	62.5	4.54
13	34.62	13.5	33.81	63	4.46	63.5	4.38
14	33.02	14.5	32.25	64	4.30	64.5	4.23
15	31.50	15.5	30.77	65	4.16	65.5	4.08
16	30.06	16.5	29.37	66	4.01	66.5	3.94
17	28.70	17.5	28.05	67	3.88	67.5	3.81
18	27.41	18.5	26.78	68	3.75	68.5	3.68
19	26.18	19.5	25.59	69	3.62	69.5	3.56
20	25.01	20.5	24.45	70	3.50	70.5	3.44
21	23.91	21.5	23.37	71	3.38	71.5	3.32
22	22.85	22.5	22.35	72	3.27	72.5	3.21
23	21.85	23.5	21.37	73	3.16	73.5	3.11
24	20.90	24.5	20.45	74	3.06	74.5	3.01
25	20.00	25.5	19.56	75	2.96	75.5	2.91
26	19.14	26.5	18.73	76	2.86	76.5	2.82
27	18.32	27.5	17.93	77	2.77	77.5	2.72
28	17.54	28.5	17.17	78	2.68	78.5	2.64
29	16.80	29.5	16.45	79	2.60	79.5	2.55
30	16.10	30.5	15.76	80	2.51	80.5	2.47

Outdoor Unit
Thermistors for Discharge Pipe
(R3T, R31~33T)

T°C	kΩ	T°C	kΩ	T°C	kΩ	T°C	kΩ	T°C	kΩ	T°C	kΩ
0	640.44	0.5	624.65	50	72.32	50.5	70.96	100	13.35	100.5	13.15
1	609.31	1.5	594.43	51	69.64	51.5	68.34	101	12.95	101.5	12.76
2	579.96	2.5	565.78	52	67.06	52.5	65.82	102	12.57	102.5	12.38
3	552.00	3.5	538.63	53	64.60	53.5	63.41	103	12.20	103.5	12.01
4	525.63	4.5	512.97	54	62.24	54.5	61.09	104	11.84	104.5	11.66
5	500.66	5.5	488.67	55	59.97	55.5	58.87	105	11.49	105.5	11.32
6	477.01	6.5	465.65	56	57.80	56.5	56.75	106	11.15	106.5	10.99
7	454.60	7.5	443.84	57	55.72	57.5	54.70	107	10.83	107.5	10.67
8	433.37	8.5	423.17	58	53.72	58.5	52.84	108	10.52	108.5	10.36
9	413.24	9.5	403.57	59	51.98	59.5	50.96	109	10.21	109.5	10.06
10	394.16	10.5	384.98	60	49.96	60.5	49.06	110	9.92	110.5	9.78
11	376.05	11.5	367.35	61	48.19	61.5	47.33	111	9.64	111.5	9.50
12	358.88	12.5	350.62	62	46.49	62.5	45.67	112	9.36	112.5	9.23
13	342.58	13.5	334.74	63	44.86	63.5	44.07	113	9.10	113.5	8.97
14	327.10	14.5	319.66	64	43.30	64.5	42.54	114	8.84	114.5	8.71
15	312.41	15.5	305.33	65	41.79	65.5	41.06	115	8.59	115.5	8.47
16	298.45	16.5	291.73	66	40.35	66.5	39.65	116	8.35	116.5	8.23
17	285.18	17.5	278.80	67	38.96	67.5	38.29	117	8.12	117.5	8.01
18	272.58	18.5	266.51	68	37.63	68.5	36.98	118	7.89	118.5	7.78
19	260.60	19.5	254.72	69	36.34	69.5	35.72	119	7.68	119.5	7.57
20	249.00	20.5	243.61	70	35.11	70.5	34.51	120	7.47	120.5	7.36
21	238.36	21.5	233.14	71	33.92	71.5	33.35	121	7.26	121.5	7.16
22	228.05	22.5	223.08	72	32.78	72.5	32.23	122	7.06	122.5	6.97
23	218.24	23.5	213.51	73	31.69	73.5	31.15	123	6.87	123.5	6.78
24	208.90	24.5	204.39	74	30.63	74.5	30.12	124	6.69	124.5	6.59
25	200.00	25.5	195.71	75	29.61	75.5	29.12	125	6.51	125.5	6.42
26	191.53	26.5	187.44	76	28.64	76.5	28.16	126	6.33	126.5	6.25
27	183.46	27.5	179.57	77	27.69	77.5	27.24	127	6.16	127.5	6.08
28	175.77	28.5	172.06	78	26.79	78.5	26.35	128	6.00	128.5	5.92
29	168.44	29.5	164.90	79	25.91	79.5	25.49	129	5.84	129.5	5.76
30	161.45	30.5	158.08	80	25.07	80.5	24.66	130	5.69	130.5	5.61
31	154.79	31.5	151.57	81	24.26	81.5	23.87	131	5.54	131.5	5.46
32	148.43	32.5	145.37	82	23.48	82.5	23.10	132	5.39	132.5	5.32
33	142.37	33.5	139.44	83	22.73	83.5	22.36	133	5.25	133.5	5.18
34	136.59	34.5	133.79	84	22.01	84.5	21.65	134	5.12	134.5	5.05
35	131.06	35.5	128.39	85	21.31	85.5	20.97	135	4.98	135.5	4.92
36	125.79	36.5	123.24	86	20.63	86.5	20.31	136	4.86	136.5	4.79
37	120.76	37.5	118.32	87	19.98	87.5	19.67	137	4.73	137.5	4.67
38	115.95	38.5	113.62	88	19.36	88.5	19.05	138	4.61	138.5	4.55
39	111.35	39.5	109.13	89	18.75	89.5	18.46	139	4.49	139.5	4.44
40	106.96	40.5	104.84	90	18.17	90.5	17.89	140	4.38	140.5	4.32
41	102.76	41.5	100.73	91	17.61	91.5	17.34	141	4.27	141.5	4.22
42	98.75	42.5	96.81	92	17.07	92.5	16.80	142	4.16	142.5	4.11
43	94.92	43.5	93.06	93	16.54	93.5	16.29	143	4.06	143.5	4.01
44	91.25	44.5	89.47	94	16.04	94.5	15.79	144	3.96	144.5	3.91
45	87.74	45.5	86.04	95	15.55	95.5	15.31	145	3.86	145.5	3.81
46	84.38	46.5	82.75	96	15.08	96.5	14.85	146	3.76	146.5	3.72
47	81.16	47.5	79.61	97	14.62	97.5	14.40	147	3.67	147.5	3.62
48	78.09	48.5	76.60	98	14.18	98.5	13.97	148	3.58	148.5	3.54
49	75.14	49.5	73.71	99	13.76	99.5	13.55	149	3.49	149.5	3.45
50	72.32	50.5	70.96	100	13.35	100.5	13.15	150	3.41	150.5	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 PCB

Check the power semiconductors mounted on the inverter PCB 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.

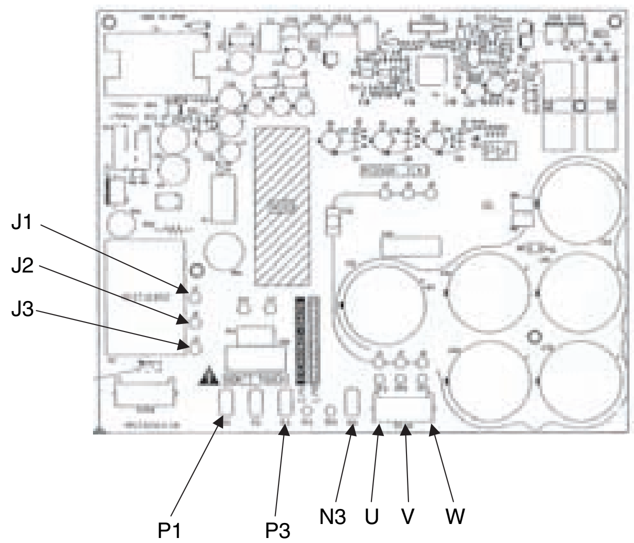
<Test points>

- Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.

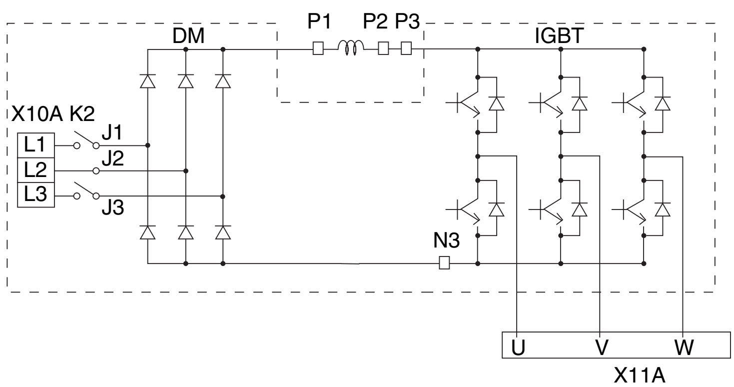
<Preparation>

- To make measurement, disconnect all connectors and terminals.

Inverter PCB



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 x1kΩ range.

No.	Measuring point +	Measuring point -	Criterion	Remark
1	P3	U	2 to 15kΩ	
2	P3	V		
3	P3	W		
4	U	P3	Not less than 15kΩ (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		
10	U	N3	2 to 15kΩ	
11	V	N3		
12	W	N3		

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

No.	Measuring point +	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		
10	U	N3	Not less than 1.2V (including)	It may take time to determine the voltage due to capacitor charge or else.
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 x1kΩ range.

No.	Measuring point +	Measuring point -	Criterion	Remark
1	P1	J1	2 to 15kΩ	
2	P1	J2		
3	P1	J3		
4	J1	P1	Not less than 15kΩ (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		
10	J1	N3	2 to 15kΩ	
11	J2	N3		
12	J3	N3		

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

No.	Measuring point +	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		
10	J1	N3	Not less than 1.2V (including)	It may take time to determine the voltage due to capacitor charge or else.
11	J2	N3		
12	J3	N3		

Part 8
Precautions for New Refrigerant (R-410A)

1. Precautions for New Refrigerant (R-410A)

1.1 Outline

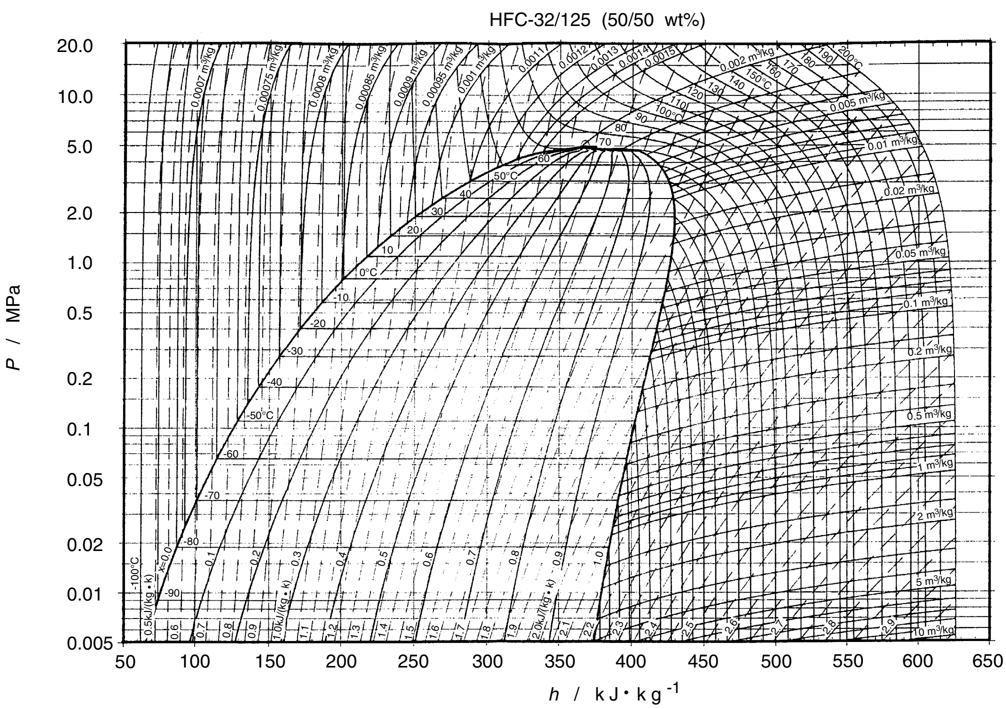
1.1.1 About Refrigerant R-410A

■ 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 HFC125 (*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 ≒ 10.19716 kgf / cm^2



Pressure-Enthalpy curves of HFC-32/125 (50/50wt%)

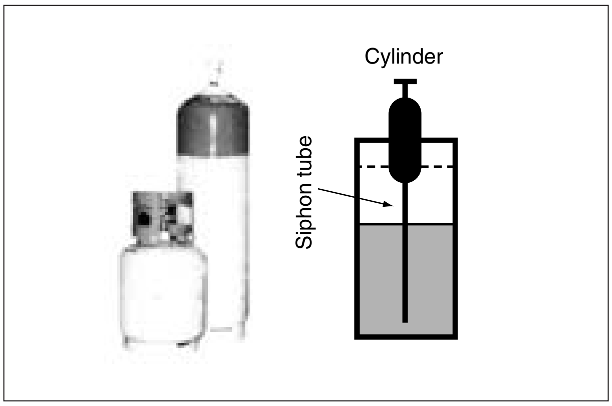
■ Thermodynamic characteristic of R-410A

DAIREP ver2.0

Temperature (°C)	Steam pressure (kPa) Liquid	Steam pressure (kPa) Vapor	Density (kg/m³) Liquid	Density (kg/m³) Vapor	Specific heat at constant pressure (kJ/kgK) Liquid	Specific heat at constant pressure (kJ/kgK) Vapor	Specific enthalpy (kJ/kg) Liquid	Specific enthalpy (kJ/kg) Vapor	Specific entropy (kJ/kgK) Liquid	Specific entropy (kJ/kgK) 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) Handing 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 outdoor air 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	×			• Do not use the same tools for R-22 and R-410A. • Thread specification differs for R-410A and R-407C.
Charging cylinder	×		○	• Weighting instrument used for HFCs.
Gas detector	○		×	• The same tool can be used for HFCs.
Vacuum pump (pump with reverse flow preventive function)	○			• To use existing pump for HFCs, vacuum pump adaptor must be installed.
Weighting instrument	○			
Charge mouthpiece	×			• Seal material is different between R-22 and HFCs. • Thread specification is different between R-410A and others.
Flaring tool (Clutch type)	○			• For R-410A, flare gauge is necessary.
Torque wrench	○			• Torque-up for 1/2 and 5/8
Pipe cutter	○			
Pipe expander	○			
Pipe bender	○			
Pipe assembling oil	×			• 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.			• Only ϕ19.1 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	R-407C		R-410A	
	Material	Thickness t (mm)	Material	Thickness t (mm)
ϕ6.4	O	0.8	O	0.8
ϕ9.5	O	0.8	O	0.8
ϕ12.7	O	0.8	O	0.8
ϕ15.9	O	1.0	O	1.0
ϕ19.1	O	1.0	1/2H	1.0
ϕ22.2	1/2H	1.0	1/2H	1.0
ϕ25.4	1/2H	1.0	1/2H	1.0
ϕ28.6	1/2H	1.0	1/2H	1.0
ϕ31.8	1/2H	1.2	1/2H	1.1
ϕ38.1	1/2H	1.4	1/2H	1.4
ϕ44.5	1/2H	1.6	1/2H	1.6

* O: Soft (Annealed)
H: Hard (Drawn)

1. Flaring tool

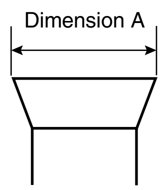
Flare gauge

■ Specifications
- Dimension A

Unit:mm

Nominal size	Tube O.D.	$A^{+0}_{-0.4}$	
	Do	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

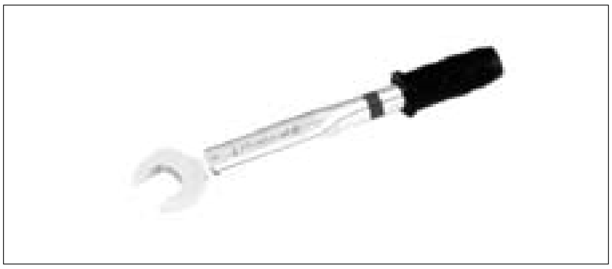
■ Differences
- Change of dimension A



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

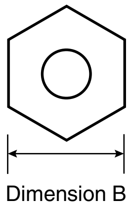


■ Specifications
- Dimension B Unit:mm

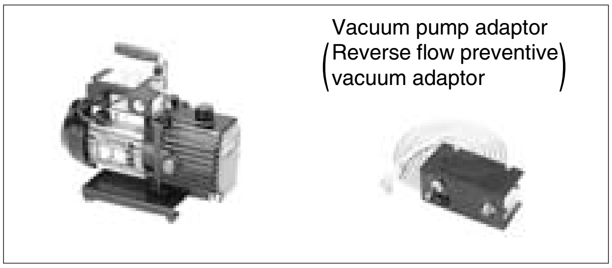
Nominal size	Class-1	Class-2	Previous
1/2	24	26	24
5/8	27	29	27

No change in tightening torque
No change in pipes of other sizes

■ Differences
- Change of dimension B
  Only 1/2", 5/8" are extended



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 adaptor
- 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 adaptor.

4. Leak tester

- ■ Specifications
- Hydrogen detecting type, etc.
- Applicable refrigerants
  R-410A, R-407C, R-404A, R-507A, R-134a, etc.

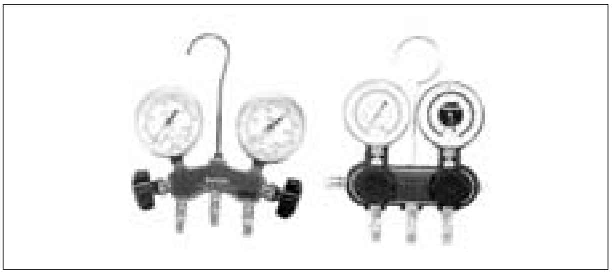
- ■ Differences
- Previous testers detected chlorine. Since HFCs do not contain chlorine, new tester detects hydrogen.

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/cm^2)
- Low pressure gauge
  - 0.1 to 3.8 MPa (-76 cmHg to 38 kg/cm^2)
- 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

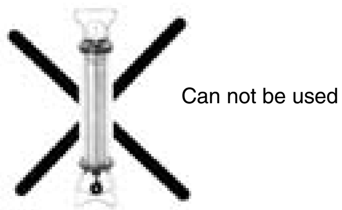
7. Charge hose for R-410A

(Hose with ball valve)

■ Specifications
- Working pressure 5.08 MPa (51.8 kg/cm^2)
- Rupture pressure 25.4 MPa (259 kg/cm^2)
- 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) = ± 2g
  TA101B (for 20-kg cylinder) = ± 5g
- 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.

Revision History

Date	News No.	Contents
2010/9/10	M-10011	Correction of service manual

Warning

- Daikin Industries, Ltd.'s products are manufactured for export to numerous countries throughout the world. Daikin Industries, Ltd. does not have control over which products are exported to and used in a particular country. Prior to purchase, please therefore confirm with your local authorised importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.
- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.

JMI-0107

Organization:
DAIKIN INDUSTRIES, LTD.
AIR CONDITIONING MANUFACTURING DIVISION

Scope of Registration:
THE DESIGN/DEVELOPMENT AND MANUFACTURE OF COMMERCIAL AIR CONDITIONING, HEATING, COOLING, REFRIGERATING EQUIPMENT, COMMERCIAL HEATING EQUIPMENT, RESIDENTIAL AIR CONDITIONING EQUIPMENT, HEAT RECLAIM VENTILATION, AIR CLEANING EQUIPMENT, MARINE TYPE CONTAINER REFRIGERATION UNITS, COMPRESSORS AND VALVES.

JQA-1452

Organization:
DAIKIN INDUSTRIES (THAILAND) LTD.

Scope of Registration:
THE DESIGN/DEVELOPMENT AND MANUFACTURE OF AIR CONDITIONERS AND THE COMPONENTS INCLUDING COMPRESSORS USED FOR THEM

EC99J2044

All of the Daikin Group's business facilities and subsidiaries in Japan are certified under the ISO 14001 international standard for environment management.

Dealer

DAIKIN INDUSTRIES, LTD.

Head Office:
Umeda Center Bldg., 2-4-12, Nakazaki-Nishi, Kita-ku, Osaka, 530-8323 Japan

Tokyo Office:
JR Shinagawa East Bldg., 2-18-1, Konan, Minato-ku, Tokyo, 108-0075 Japan

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