DAIKIN

Si39-409

Service Manual

VRV II®

Water Cooled Inverter Series

VRV II Water Cooled Inverter Series

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 (R410A) 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 Mohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.1.4 Using Icons

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

1.1.5 Using Icons List

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

1.2 PREFACE

Thank you for your continued patronage of Daikin products.

This is the new service manual for Daikin's water cooled VRV 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 water cooled VRV System.

March. 2005

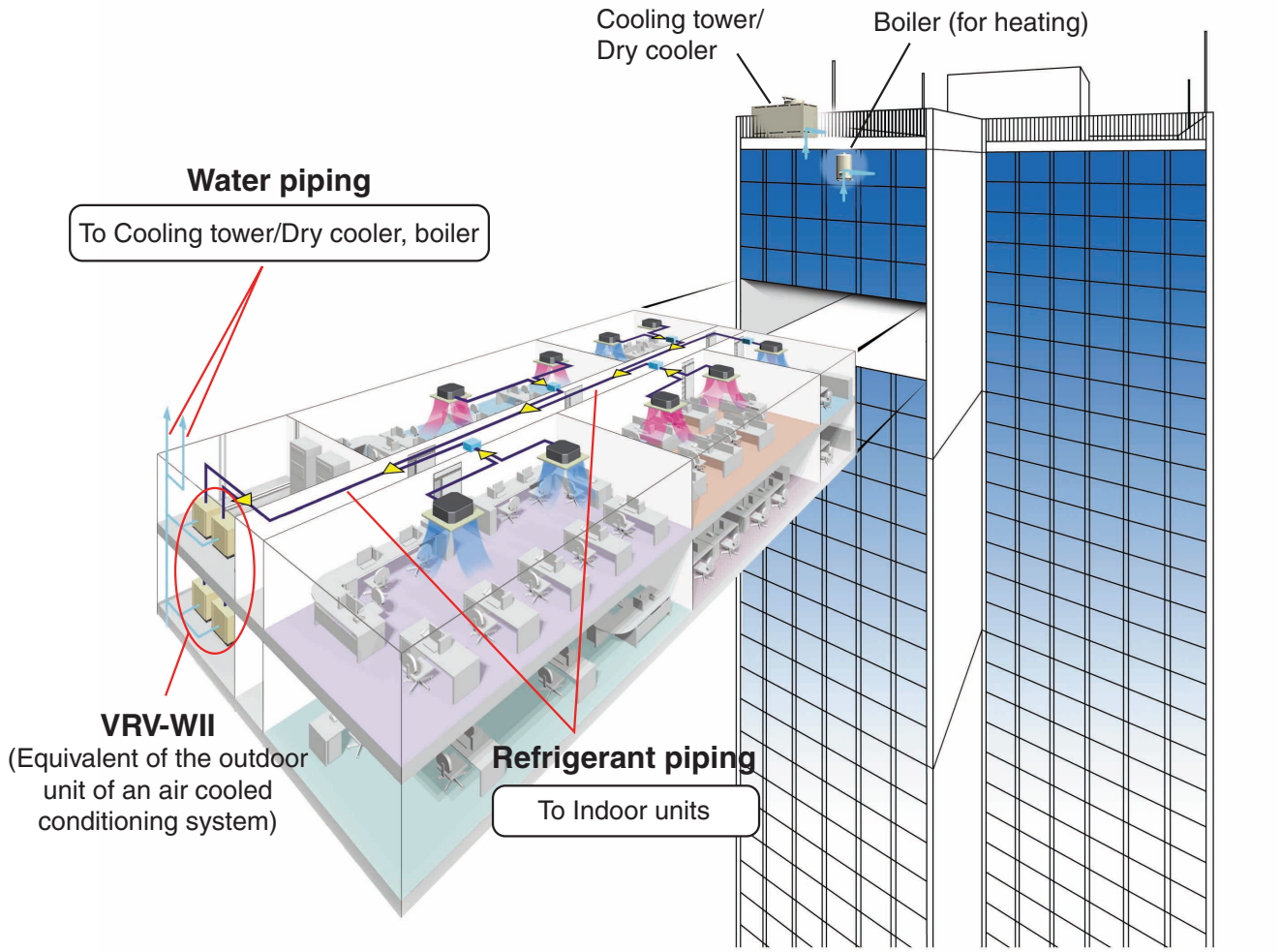
After Sales Service Division

Part 1
General Information

1. Features

An intelligent individual air conditioning system suitable for tall multistoried buildings.

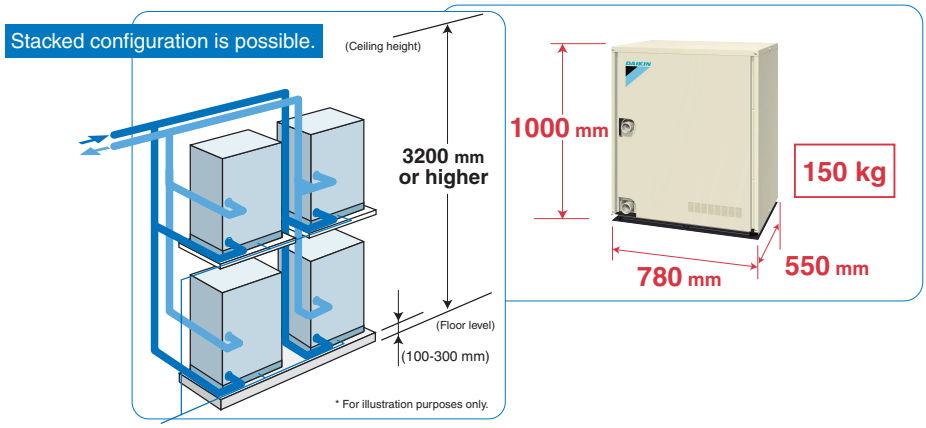
This unique system can perform as heat pump or heat recovery to any suitable application.



Compact and lightweight

Adoption of a new water heat exchanger and optimization of the refrigerant control circuit has resulted in the Industry's most compact and lightweight design. A weight of 150 kg and height of 1,000 mm makes installation easy. Stacked configuration is also possible, further contributing to space savings.

* Unit is designed for indoor installation only.



Large capacity

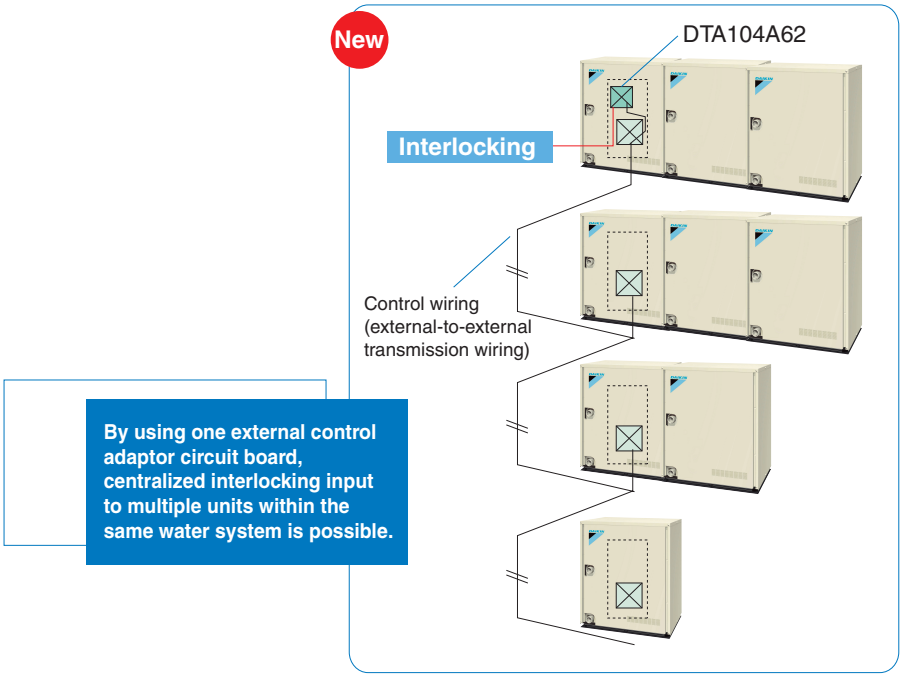
A lineup of 10, 20, and 30 HP units is available using external multiple connections. Selecting from this wide range of capacities, the most common office spaces (200-600 m²) can be air conditioned using one refrigerant system.

Low water temperature

The heat source water can have a temperature as low as 15°C, enabling stable heating operation. Quick and comfortable heating is assured, because the water cooled system requires no defrost operation and is unaffected by the outdoor air temperature, starting up rapidly even in cold conditions.

Centralized interlocking function

Centralized interlocking input is possible using an external control adaptor (DTA104A62).



2. Model Names

2.1 Water Cooled System

2.1.1 Indoor Units

Type		Model Name											Power Supply
Ceiling Mounted Cassette Type (Double Flow)	FXCQ	20M	25M	32M	40M	50M	63M	80M	—	125M	—	—	VE
Ceiling Mounted Cassette Type (Multi Flow)	FXFQ	—	25M	32M	40M	50M	63M	80M	100M	125M	—	—	
Ceiling Mounted Cassette Type (Multi Flow) 600×600	FXZQ	20M	25M	32M	40M	50M	—	—	—	—	—	—	
Ceiling Mounted Cassette Corner Type	FXKQ	—	25M	32M	40M	—	63M	—	—	—	—	—	
Slim Ceiling Mounted Duct Type	FXDQ	20N	25N	32N	40N	50N	63N	—	—	—	—	—	
Ceiling Mounted Built-In Type	FXSQ	20M	25M	32M	40M	50M	63M	80M	100M	125M	—	—	
Ceiling Mounted Duct Type	FXMQ	—	—	—	40M	50M	63M	80M	100M	125M	200M	250M	
Ceiling Suspended Type	FXHQ	—	—	32M	—	—	63M	—	100M	—	—	—	
Wall Mounted Type	FXAQ	20M	25M	32M	40M	50M	63M	—	—	—	—	—	
Floor Standing Type	FXLQ	20M	25M	32M	40M	50M	63M	—	—	—	—	—	
Concealed Floor Standing Type	FXNQ	20M	25M	32M	40M	50M	63M	—	—	—	—	—	

Indoor Units (Connection Unit Series)

Type		Model Name											Power Supply
Ceiling Suspended Cassette Type	FXUQ	—	—	—	—	—	—	71M	100M	125M	—	—	V1
Connection Unit	BEVQ-M	—	—	—	—	—	—	71M	100M	125M	—	—	VE

Notes: BEV unit is required for each indoor unit.

2.1.2 Outside Units

Series		Model Name			Power Supply
Heat Pump	RWEYQ	10M	20M	30M	Y1

VE: 1ϕ, 220~240V, 50Hz, 1ϕ, 220V, 60Hz
V1: 1ϕ, 220~240V, 50Hz
Y1: 3ϕ, 380~415V, 50Hz

Note: Refer to ED39-226B for the information of indoor units. (Except for capacity tables of indoor units)

3. External Appearance

3.1 Indoor Units

Ceiling Mounted Cassette Type (Double Flow)

FXCQ20M
FXCQ25M
FXCQ32M
FXCQ40M
FXCQ50M
FXCQ63M
FXCQ80M
FXCQ125M

Ceiling Mounted Duct Type

FXMQ40M
FXMQ50M
FXMQ63M
FXMQ80M
FXMQ100M
FXMQ125M
FXMQ200M
FXMQ250M

FXMQ40~125M

FXMQ200 · 250M

Ceiling Mounted Cassette Type (Multi Flow)

FXFQ25M
FXFQ32M
FXFQ40M
FXFQ50M
FXFQ63M
FXFQ80M
FXFQ100M
FXFQ125M

Ceiling Suspended Type

FXHQ32M
FXHQ63M
FXHQ100M

Ceiling Mounted Cassette Type (Multi Flow) 600×600

FXZQ20M
FXZQ25M
FXZQ32M
FXZQ40M
FXZQ50M

Wall Mounted Type

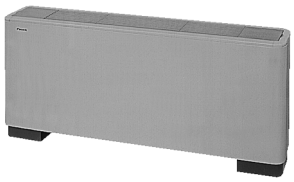
FXAQ20M
FXAQ25M
FXAQ32M
FXAQ40M
FXAQ50M
FXAQ63M

Ceiling Mounted Cassette Corner Type

FXKQ25M
FXKQ32M
FXKQ40M
FXKQ63M

Floor Standing Type

FXLQ20M
FXLQ25M
FXLQ32M
FXLQ40M
FXLQ50M
FXLQ63M

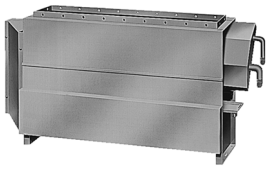


Slim Ceiling Mounted Duct Type

FXDQ20N
FXDQ25N
FXDQ32N
FXDQ40N
FXDQ50N
FXDQ63N

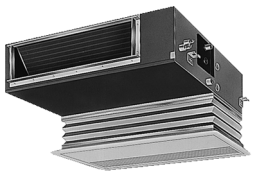
Concealed Floor Standing Type

FXNQ20M
FXNQ25M
FXNQ32M
FXNQ40M
FXNQ50M
FXNQ63M



Ceiling Mounted Built-In Type

FXSQ20M
FXSQ25M
FXSQ32M
FXSQ40M
FXSQ50M
FXSQ63M
FXSQ80M
FXSQ100M
FXSQ125M



Ceiling Suspended Cassette Type (Connection Unit Series)

FXUQ71M	+	BEVQ71M
FXUQ100M	+	BEVQ100M
FXUQ125M	+	BEVQ125M

Connection Unit

Part 2
Specifications

1. Specifications

1.1 Outdoor Units

Model Name		Y1	RWEYQ10MY1	RWEYQ20MY1	RWEYQ30MY1
★1 Cooling Capacity (19.5°CWB)		kcal / h	23,200	46,400	69,600
		Btu / h	92,100	184,200	276,300
		kW	27.0	54.0	81.0
★2 Cooling Capacity (19.0°CWB)		kW	26.7	53.4	80.1
★3 Heating Capacity		kcal / h	27,000	54,000	81,000
		Btu / h	107,500	215,000	322,500
		kW	31.5	63.0	94.5
Casing Color			Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		mm	1,000×780×550	(1,000×780×550)×2	(1,000×780×550)×3
Heat Exchanger	Type		Stainless Steel Plate Type	Stainless Steel Plate Type	Stainless Steel Plate Type
Comp.	Type		Hermetically Sealed Scroll Compressor	Hermetically Sealed Scroll Compressor	Hermetically Sealed Scroll Compressor
	Piston Displacement	m^3/h	14.61	(14.61)×2	(14.61)×3
	Number of Revolutions	r.p.m	6,900	(6,900)×2	(6,900)×3
	Motor Output×Number of Units	kW	4.2	(4.2)×2	(4.2)×3
	Starting Method		Soft start	Soft start	Soft start
Refrigerant Connecting Pipes	Liquid Pipe	mm	ϕ9.5 (Flare)	ϕ15.9 (Flare)	ϕ19.1 (Flare)
	Suction Gas Pipe	mm	ϕ22.2 (Brazing) ★4	ϕ28.6 (Brazing) ★4	ϕ34.9 (Brazing) ★7
	Discharge gas pipe	mm	★5 ϕ19.1, ★6 ϕ22.2 (Brazing)	★5 ϕ22.2, ★6 ϕ28.6 (Brazing)	★5 ϕ28.6, ★6 ϕ34.9 (Brazing)
Water Connecting Pipes	Water inlet		PT1 1/4B internal thread		
	Water outlet		PT1 1/4B internal thread		
	Drain outlet		PS 1/2B internal thread		
Machine Weight / Operating Weight		kg	150	150+150	150+150+150
★8 Sound Level		dB (A)	51	51	51
Safety Devices			High Pressure Switch, Inverter Overload Protector, Fusible Plugs	High Pressure Switch, Inverter Overload Protector, Fusible Plugs	High Pressure Switch, Inverter Overload Protector, Fusible Plugs
Capacity Control		%	23~100	11~100	8~100
Refrigerant	Refrigerant Name		R410A	R410A	R410A
	Charge	kg	5.2	5.2+5.2	5.2+5.2+5.2
	Control		Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Refrigerator Oil			Refer to the nameplate of compressor	Refer to the nameplate of compressor	Refer to the nameplate of compressor
Standard Accessories			Connection Pipes, Clamps, Installation Manual, Operation Manual	Connection Pipes, Clamps, Installation Manual, Operation Manual	Connection Pipes, Clamps, Installation Manual, Operation Manual
Drawing No.			C: 4D046563C	C: 4D048255B	C: 4D048256B

Notes:

1. ★1 Indoor temp. : 27°CDB, 19.5°CWB / inlet water temp.: 30°C / Equivalent piping length: 7.5m, level difference: 0m.
   ★2 Indoor temp. : 27°CDB, 19.0°CWB / inlet water temp.: 30°C / Equivalent piping length: 7.5m, level difference: 0m.
   ★3 Indoor temp. : 20°CDB / inlet water temp.: 20°C / Equivalent piping length: 7.5m, level difference: 0m.
   ★4 In the case of heat pump system, suction gas pipe is not used.
   ★5 In the case of heat recovery system.
   ★6 In the case of heat pump system.
   ★7 Basically ϕ31.8, but use ϕ34.9 for availability of oversea market.
   ★8 This sound level per unit.
2. This unit cannot be installed in the outdoors.
   Install indoors (Machine room, etc).
3. Hold ambient temperature at 0~40°C.
   Heat rejection from the casing: 0.71kw / 10HP

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m^3/min×35.3

1.2 BS Units

Model				BSVQ100MV1	BSVQ160MV1	BSVQ250MV1
Power Supply				1 Phase 50Hz 220~240V	1 Phase 50Hz 220~240V	1 Phase 50Hz 220~240V
Total Capacity Index of Connectable Indoor Unit				100 or less	More than 100 but 160 or less	More than 160 but 250 or less
No. of Connectable Indoor Units				Max. 5	Max. 8	Max. 5
Casing				Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)			mm	185×310×280	185×310×280	185×310×280
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		ϕ 9.5mm (Flare Connection) ★1	ϕ 9.5mm (Flare Connection)	ϕ 9.5mm (Flare Connection)
		Gas Pipes		ϕ 15.9mm (Flare Connection) ★1	ϕ 15.9mm (Flare Connection)	ϕ 22.2mm (Flange Connection) ★2
	Outdoor Unit	Liquid Pipes		ϕ 9.5mm (Flare Connection) ★1	ϕ 9.5mm (Flare Connection)	ϕ 9.5mm (Flare Connection)
		Suction Gas Pipes		ϕ 15.9mm (Flare Connection) ★1	ϕ 15.9mm (Flare Connection)	ϕ 22.2mm (Flange Connection) ★2
		Discharge Gas Pipes		ϕ 12.7mm (Flare Connection) ★1	ϕ 12.7mm (Flare Connection)	19.1mm (Flare Connection)
Weight			kg	9	9	10
Standard Accessories				Installation Manual, Attached Pipe, Insulation pipe cover, Clamps	Installation Manual, Insulation pipe cover, Clamps	Installation Manual, Attached Pipe, Insulation pipe cover Clamps.
Drawing No.				4D042118	4D042119	4D042120

Note:

★1 If the total capacity of all indoor units connected to the system is less than 7.1 kW, connect the attached pipe to the field pipe.
(Braze the connection between the attached pipe and field pipe.)

★2 Use the field flanged pipe.
Also, with a 200 class indoor unit, connect the attached reducer to the field pipe. (Braze the connection between the attached pipe and field pipe.)

3 The indoor unit size of 20.25.32.40 can not be connected to BSVQ250MV1.

1.3 Indoor Units

Ceiling Mounted Cassette Type (Double Flow)

Model			FXCQ20MVE	FXCQ25MVE	FXCQ32MVE	FXCQ40MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,150	4,000
		Btu/h	7,900	9,900	12,500	15,900
		kW	2.3	2.9	3.7	4.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6	4.5
★3 Heating Capacity		kcal/h	2,200	2,800	3,400	4,300
		Btu/h	8,500	10,900	13,600	17,000
		kW	2.5	3.2	4.0	5.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	305×775×600	305×775×600	305×775×600	305×990×600
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.5	2×10×1.5	2×10×1.5	2×10×1.5
	Face Area	m²	2×0.100	2×0.100	2×0.100	2×0.145
Fan	Model		D17K2AA1	D17K2AB1	D17K2AB1	2D17K1AA1
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	10×1	15×1	15×1	20×1
	Air Flow Rate (H/L)	m³/min	7/5	9/6.5	9/6.5	12/9
		cfm	247/177	318/230	318/230	424/318
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Wool/Urethane Foam	Glass Wool/Urethane Foam	Glass Wool/Urethane Foam	Glass Wool/Urethane Foam
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Machine Weight (Mass)		kg	26	26	26	31
★5 Sound Level (H/L) (220V)		dBA	32/27	34/28	34/28	34/29
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series	R410A M Series
Decoration Panels (Option)	Model		BYBC32G-W1	BYBC32G-W1	BYBC32G-W1	BYBC50G-W1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	53×1,030×680	53×1,030×680	53×1,030×680	53×1,245×680
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	8	8	8	8.5
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			3D039413			

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Cassette Type (Double Flow)

Model			FXCQ50MVE	FXCQ63MVE	FXCQ80MVE	FXCQ125MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	5,000	6,300	8,000	12,500
		Btu/h	19,900	25,000	31,800	49,600
		kW	5.8	7.3	9.3	14.5
★2 Cooling Capacity (19.0°CWB)		kW	5.6	7.1	9.0	14.0
★3 Heating Capacity		kcal/h	5,400	6,900	8,600	13,800
		Btu/h	21,500	27,300	34,100	54,600
		kW	6.3	8.0	10.0	16.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	305×990×600	305×1,175×600	305×1,665×600	305×1,665×600
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.5	2×10×1.5	2×10×1.5	2×10×1.5
	Face Area	m²	2×0.145	2×0.184	2×0.287	2×0.287
Fan	Model		2D17K1AA1	2D17K2AA1VE	3D17K2AA1	3D17K2AB1
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	20×1	30×1	50×1	85×1
	Air Flow Rate (H/L)	m³/min	12/9	16.5/13	26/21	33/25
		cfm	424/318	582/459	918/741	1,165/883
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Wool/Urethane Foam	Glass Wool/Urethane Foam	Glass Wool/Urethane Foam	Glass Wool/Urethane Foam
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ15.9 (Flare Connection)	ϕ15.9 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Machine Weight (Mass)		kg	32	35	47	48
★5 Sound Level (H/L)		dBA	34/29	37/32	39/34	44/38
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series	R410A M Series
Decoration Panels (Option)	Model		BYBC50G-W1	BYBC63G-W1	BYBC125G-W1	BYBC125G-W1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	53×1,245×680	53×1,430×680	53×1,920×680	53×1,920×680
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	8.5	9.5	12	12
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			3D039413			

Notes:

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.

★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.

★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)

4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Cassette Type (Multi-flow)

Model			FXFQ25MVE	FXFQ32MVE	FXFQ40MVE	FXFQ50MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,500	3,150	4,000	5,000
		Btu/h	9,900	12,500	15,900	19,900
		kW	2.9	3.7	4.7	5.8
★2 Cooling Capacity (19.0°CWB)		kW	2.8	3.6	4.5	5.6
★3 Heating Capacity		kcal/h	2,800	3,400	4,300	5,400
		Btu/h	10,900	13,600	17,000	21,500
		kW	3.2	4.0	5.0	6.3
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	246×840×840	246×840×840	246×840×840	246×840×840
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×8×1.2	2×8×1.2	2×8×1.2	2×8×1.2
	Face Area	m²	0.363	0.363	0.363	0.363
Fan	Model		QTS46D14M	QTS46D14M	QTS46D14M	QTS46D14M
	Type		Turbo Fan	Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output × Number of Units	W	30×1	30×1	30×1	30×1
	Air Flow Rate (H/L)	m³/min	13/10	13/10	15/11	16/11
		cfm	459/353	459/353	530/388	565/388
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Polyurethane Form	Polyurethane Form	Polyurethane Form	Polyurethane Form
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Machine Weight (Mass)		kg	24	24	24	24
★5 Sound Level (H/L) (220V)		dBA	30/27	30/27	31/27	32/27
Safety Devices			Fuse	Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series	R410A M Series
Decoration Panels (Option)	Model		BYCP125D-W1	BYCP125D-W1	BYCP125D-W1	BYCP125D-W1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	45×950×950	45×950×950	45×950×950	45×950×950
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	5.5	5.5	5.5	5.5
Standard Accessories			Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.
Drawing No.			3D038812			

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Cassette Type (Multi-flow)

Model			FXFQ63MVE	FXFQ80MVE	FXFQ100MVE	FXFQ125MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	6,300	8,000	10,000	12,500
		Btu/h	25,000	31,800	39,700	49,600
		kW	7.3	9.3	11.6	14.5
★2 Cooling Capacity (19.0°CWB)		kW	7.1	9.0	11.2	14.0
★3 Heating Capacity		kcal/h	6,900	8,600	10,800	13,800
		Btu/h	27,300	34,100	42,700	54,600
		kW	8.0	10.0	12.5	16.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	246×840×840	246×840×840	288×840×840	288×840×840
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.2	2×10×1.2	2×12×1.2	2×12×1.2
	Face Area	m²	0.454	0.454	0.544	0.544
Fan	Model		QTS46D14M	QTS46D14M	QTS46C17M	QTS46C17M
	Type		Turbo Fan	Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output × Number of Units	W	30×1	30×1	120×1	120×1
	Air Flow Rate (H/L)	m³/min	18.5/14	20/15	26/21	30/24
		cfm	653/494	706/530	918/741	1,059/847
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Polyurethane Form	Polyurethane Form	Polyurethane Form	Polyurethane Form
Piping Connections	Liquid Pipes	mm	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Machine Weight (Mass)		kg	25	25	29	29
★5 Sound Level (H/L)		dBA	33/28	36/31	39/33	42/36
Safety Devices			Fuse	Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series	R410A M Series
Decoration Panels (Option)	Model		BYCP125D-W1	BYCP125D-W1	BYCP125D-W1	BYCP125D-W1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	45×950×950	45×950×950	45×950×950	45×950×950
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	5.5	5.5	5.5	5.5
Standard Accessories			Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.
Drawing No.			3D038812			

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Cassette Type (Multi Flow) 600×600

Model			FXZQ20MVE	FXZQ25MVE	FXZQ32MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,150
		Btu/h	7,900	9,900	12,500
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	260×575×575	260×575×575	260×575×575
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.5	2×10×1.5	2×10×1.5
	Face Area	m²	0.269	0.269	0.269
Fan	Model		QTS32C15M	QTS32C15M	QTS32C15M
	Type		Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output × Number of Units	W	55×1	55×1	55×1
	Air Flow Rate (H/L)	m³/min	9/7	9/7	9.5/7.5
		cfm	318/247	318/247	335/265
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene/ Foamed Polyethylene	Foamed Polystyrene/ Foamed Polyethylene	Foamed Polystyrene/ Foamed Polyethylene
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Machine Weight (Mass)		kg	18	18	18
★5 Sound Level (H/L) (230V)		dBA	30/25	30/25	32/26
Safety Devices			Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series
Decoration Panels (Option)	Model		BYFQ60BW1	BYFQ60BW1	BYFQ60BW1
	Panel Color		White (Ral 9010)	White (Ral 9010)	White (Ral 9010)
	Dimensions: (H×W×D)	mm	55×700×700	55×700×700	55×700×700
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	2.7	2.7	2.7
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting.
Drawing No.			3D038929A		

Notes:

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.

★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.

★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)

4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Cassette Type (Multi Flow) 600×600

Model			FXZQ40MVE	FXZQ50MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000
		Btu/h	15,900	19,900
		kW	4.7	5.8
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6
★3 Heating Capacity		kcal/h	4,300	5,400
		Btu/h	17,000	21,500
		kW	5.0	6.3
Casing			Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	260×575×575	260×575×575
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.5	2×10×1.5
	Face Area	m²	0.269	0.269
Fan	Model		QTS32C15M	QTS32C15M
	Type		Turbo Fan	Turbo Fan
	Motor Output × Number of Units	W	55×1	55×1
	Air Flow Rate (H/L)	m³/min	11/8	14/10
		cfm	388/282	494/353
	Drive		Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene/Foamed Polyethylene	Foamed Polystyrene/Foamed Polyethylene
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 / Internal Dia. 20)	VP20 (External Dia. 26 / Internal Dia. 20)
Machine Weight (Mass)		kg	18	18
★5 Sound Level (H/L) (230V)		dBA	36/28	41/33
Safety Devices			Fuse	Fuse,
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series
Decoration Panels (Option)	Model		BYFQ60BW1	BYFQ60BW1
	Panel Color		White (Ral 9010)	White (Ral 9010)
	Dimensions: (H×W×D)	mm	55×700×700	55×700×700
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	2.7	2.7
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting.
Drawing No.			3D038929A	

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Cassette Corner Type

Model			FXKQ25MVE	FXKQ32MVE	FXKQ40MVE	FXKQ63MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,500	3,150	4,000	6,300
		Btu/h	9,900	12,500	15,900	25,000
		kW	2.9	3.7	4.7	7.3
★2 Cooling Capacity (19.0°CWB)		kW	2.8	3.6	4.5	7.1
★3 Heating Capacity		kcal/h	2,800	3,400	4,300	6,900
		Btu/h	10,900	13,600	17,000	27,300
		kW	3.2	4.0	5.0	8.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	215×1,110×710	215×1,110×710	215×1,110×710	215×1,310×710
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×11×1.75	2×11×1.75	2×11×1.75	3×11×1.75
	Face Area	m²	0.180	0.180	0.180	0.226
Fan	Model		3D12H1AN1V1	3D12H1AN1V1	3D12H1AP1V1	4D12H1AJ1V1
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	15×1	15×1	20×1	45×1
	Air Flow Rate (H/L)	m³/min	11/9	11/9	13/10	18/15
		cfm	388/318	388/318	459/353	635/530
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Polyethylene Foam	Polyethylene Foam	Polyethylene Foam	Polyethylene Foam
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Machine Weight (Mass)		kg	31	31	31	34
★5 Sound Level (H/L) (220V)		dBA	38/33	38/33	40/34	42/37
Safety Devices			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Units			R410A M Series	R410A M Series	R410A M Series	R410A M Series
Decoration Panels (Option)	Model		BYK45FJW1	BYK45FJW1	BYK45FJW1	BYK71FJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	70×1,240×800	70×1,240×800	70×1,240×800	70×1,440×800
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	8.5	8.5	8.5	9.5
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad.
Drawing No.			3D038813			

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Slim Ceiling Mounted Duct Type

Model			FXDQ20NVE	FXDQ25NVE	FXDQ32NVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,150
		Btu/h	7,900	9,900	12,500
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	200×900×620	200×900×620	200×900×620
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×12×1.5	2×12×1.5	2×12×1.5
	Face Area	m²	0.176	0.176	0.176
Fan	Model		—	—	—
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62×1	62×1	62×1
	Air Flow Rate (H/L)	m³/min	9.5/7.5	9.5/7.5	10.5/8.5
	External Static Pressure	Pa	44-15 ★5	44-15 ★5	44-15 ★5
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene
Air Filter			Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Machine Weight (Mass)		kg	26	26	26
★6 Sound Level (H/L)		dBA	33/29	33/29	33/29
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Standard Accessories			Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter
Drawing No.			3D045744		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Slim Ceiling Mounted Duct Type

Model			FXDQ40NVE	FXDQ50NVE	FXDQ63NVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	15,900	19,900	25,000
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,000	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	200×900×620	200×900×620	200×1100×620
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×12×1.5	3×12×1.5	3×12×1.5
	Face Area	m²	0.176	0.176	0.227
Fan	Model		—	—	—
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62×1	130×1	130×1
	Air Flow Rate (H/L)	m³/min	10.5/8.5	12.5/10.0	16.5/13.0
	External Static Pressure	Pa	44-15 ★5	44-15 ★5	44-15 ★5
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene
Air Filter			Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof	Removal / Washable / Mildew Proof
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Machine Weight (Mass)		kg	27	28	31
★6 Sound Level (H/L)		dBA	34/30	35/31	36/32
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Standard Accessories			Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Warranty, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter
Drawing No.			3D045744		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Built-in Type

Model			FXSQ20MVE	FXSQ25MVE	FXSQ32MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,150
		Btu/h	7,900	9,900	12,500
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	300×550×800	300×550×800	300×550×800
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.75	3×14×1.75	3×14×1.75
	Face Area	m²	0.088	0.088	0.088
Fan	Model		D18H3A	D18H3A	D18H3A
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	50×1	50×1	50×1
	Air Flow Rate (H/L)	m³/min	9/6.5	9/6.5	9.5/7
	★4 Static external pressure	Pa	88-39-20	88-39-20	64-39-15
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Machine Weight (Mass)		kg	30	30	30
★7 Sound Level (H/L) (220V)		dBA	37/32	37/32	38/32
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series
Decoration Panel (Option)	Model		BYBS32DJW1	BYBS32DJW1	BYBS32DJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	55×650×500	55×650×500	55×650×500
	Weight	kg	3	3	3
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			3D039431		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Built-in Type

Model			FXSQ40MVE	FXSQ50MVE	FXSQ63MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	15,900	19,900	25,000
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,000	21,500	27,300
		kW	5.0	6.3	8.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	300×700×800	300×700×800	300×1,000×800
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.75	3×14×1.75	3×14×1.75
	Face Area	m²	0.132	0.132	0.221
Fan	Model		D18H2A	D18H2A	2D18H2A
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	65×1	85×1	125×1
	Air Flow Rate (H/L)	m³/min	11.5/9	15/11	21/15.5
	★4 Static external pressure	Pa	88-49-20	88-59-29	88-49-20
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Machine Weight (Mass)		kg	30	31	41
★7 Sound Level (H/L)		dBA	38/32	41/36	42/35
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series
Decoration Panel (Option)	Model		BYBS45DJW1	BYBS45DJW1	BYBS71DJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	55×800×500	55×800×500	55×1,100×500
	Weight	kg	3.5	3.5	4.5
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			3D039431		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Built-in Type

Model			FXSQ80MVE	FXSQ100MVE	FXSQ125MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	8,000	10,000	12,500
		Btu/h	31,800	39,700	49,600
		kW	9.3	11.6	14.5
★2 Cooling Capacity (19.0°CWB)		kW	9.0	11.2	14.0
★3 Heating Capacity		kcal/h	8,600	10,800	13,800
		Btu/h	34,100	42,700	54,600
		kW	10.0	12.5	16.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	300×1,400×800	300×1,400×800	300×1,400×800
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.75	3×14×1.75	3×14×1.75
	Face Area	m²	0.338	0.338	0.338
Fan	Model		3D18H2A	3D18H2A	3D18H2A
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	225×1	225×1	225×1
	Air Flow Rate (H/L)	m³/min	27/21.5	28/22	38/28
	★5 Static external pressure	Pa	113-82	107-75	78-39
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ15.9 (Flare Connection)	ϕ15.9 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Machine Weight (Mass)		kg	51	51	52
★7 Sound Level (H/L)		dBA	43/37	43/37	46/41
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series
Decoration Panel (Option)	Model		BYBS125DJW1	BYBS125DJW1	BYBS125DJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	55×1,500×500	55×1,500×500	55×1,500×500
	Weight	kg	6.5	6.5	6.5
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			3D039431		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Duct Type

Model			FXMQ40MVE	FXMQ50MVE	FXMQ63MVE	FXMQ80MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300	8,000
		Btu/h	15,900	19,900	25,000	31,800
		kW	4.7	5.8	7.3	9.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1	9.0
★3 Heating Capacity		kcal/h	4,300	5,400	6,900	8,600
		Btu/h	17,000	21,500	27,300	34,100
		kW	5.0	6.3	8.0	10.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	390×720×690	390×720×690	390×720×690	390×720×690
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×16×2.0	3×16×2.0	3×16×2.0	3×16×2.0
	Face Area	m²	0.181	0.181	0.181	0.181
Fan	Model		D11/2D3AB1VE	D11/2D3AB1VE	D11/2D3AB1VE	D11/2D3AA1VE
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	100×1	100×1	100×1	160×1
	Air Flow Rate (H/L)	m³/min	14/11.5	14/11.5	14/11.5	19.5/16
		cfm	494/406	494/406	494/406	688/565
	External Static Pressure 50 / 60Hz	Pa	157/157-118/108 ★4	157/157-118/108 ★4	157/157-118/108 ★4	157/160-108/98 ★4
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			★5	★5	★5	★5
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ15.9 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)
Machine Weight (Mass)		kg	44	44	44	45
★7 Sound Level (H/L)		dBA	39/35	39/35	39/35	42/38
Safety Devices			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series	R410A M Series
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.
Drawing No.			3D038814			

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Mounted Duct Type

Model			FXMQ100MVE	FXMQ125MVE	FXMQ200MVE	FXMQ250MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	10,000	12,500	20,000	25,000
		Btu/h	39,700	49,600	79,000	99,000
		kW	11.6	14.5	23.0	28.8
★2 Cooling Capacity (19.0°CWB)		kW	11.2	14.0	22.4	28.0
★3 Heating Capacity		kcal/h	10,800	13,800	21,500	27,000
		Btu/h	42,700	54,600	85,300	107,500
		kW	12.5	16.0	25.0	31.5
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	390×1,110×690	390×1,110×690	470×1,380×1,100	470×1,380×1,100
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×16×2.0	3×16×2.0	3×26×2.0	3×26×2.0
	Face Area	m²	0.319	0.319	0.68	0.68
Fan	Model		2D11/2D3AG1VE	2D11/2D3AF1VE	D13/4G2DA1×2	D13/4G2DA1×2
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	270×1	430×1	380×2	380×2
	Air Flow Rate (H/L)	m³/min	29/23	36/29	58/50	72/62
		cfm	1,024/812	1,271/1,024	2,047/1,765	2,542/2,189
	External Static Pressure 50 / 60Hz	Pa	157/172-98/98 ★4	191/245-152/172 ★4	221/270-132 ★4	270/191-147 ★4
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			★5	★5	★5	★5
Piping Connections	Liquid Pipes	mm	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ15.9 (Flare Connection)	ϕ15.9 (Flare Connection)	ϕ19.1(Brazing Connection)	ϕ22.2 (Brazing Connection)
	Drain Pipe	mm	VP25 (External Dia. 32 Internal Dia. 25)	VP25 (External Dia. 32 Internal Dia. 25)	PS1B	PS1B
Machine Weight (Mass)		kg	63	65	137	137
★7 Sound Level (H/L)		dBA	43/39	45/42	48/45	48/45
Safety Devices			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series	R410A M Series
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Sealing Pads, Connection Pipes, Screws, Clamps.	Operation Manual, Installation Manual, Sealing Pads, Connection Pipes, Screws, Clamps.
Drawing No.			3D038814			

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Suspended Type

Model			FXHQ32MVE	FXHQ63MVE	FXHQ100MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	3,150	6,300	10,000
		Btu/h	12,500	25,000	39,700
		kW	3.7	7.3	11.6
★2 Cooling Capacity (19.0°CWB)		kW	3.6	7.1	11.2
★3 Heating Capacity		kcal/h	3,400	6,900	10,800
		Btu/h	13,600	27,300	42,700
		kW	4.0	8.0	12.5
Casing Color			White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
Dimensions: (H×W×D)		mm	195×960×680	195×1,160×680	195×1,400×680
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×12×1.75	3×12×1.75	3×12×1.75
	Face Area	m²	0.182	0.233	0.293
Fan	Model		3D12K1AA1	4D12K1AA1	3D12K2AA1
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62×1	62×1	130×1
	Air Flow Rate (H/L)	m³/min	12/10	17.5/14	25/19.5
		cfm	424/353	618/494	883/688
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Wool	Glass Wool	Glass Wool
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ15.9 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe	mm	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)	VP20 (External Dia. 26 Internal Dia. 20)
Machine Weight (Mass)		kg	24	28	33
★5 Sound Level (H/L)		dBA	36/31	39/34	45/37
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers.
Drawing No.			3D038815		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Wall Mounted Type

Model			FXAQ20MVE	FXAQ25MVE	FXAQ32MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,150
		Btu/h	7,900	9,900	12,500
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing Color			White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)
Dimensions: (H×W×D)		mm	290×795×230	290×795×230	290×795×230
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×14×1.4	2×14×1.4	2×14×1.4
	Face Area	m²	0.161	0.161	0.161
Fan	Model		QCL9661M	QCL9661M	QCL9661M
	Type		Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	Motor Output × Number of Units	W	40×1	40×1	40×1
	Air Flow Rate (H/L)	m³/min	7.5/4.5	8/5	9/5.5
		cfm	265/159	282/177	318/194
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene
Air Filter			Resin Net (Washable)	Resin Net (Washable)	Resin Net (Washable)
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)
	Drain Pipe	mm	VP13 (External Dia. 18 Internal Dia. 13)	VP13 (External Dia. 18 Internal Dia. 13)	VP13 (External Dia. 18 Internal Dia. 13)
Machine Weight (Mass)		kg	11	11	11
★5 Sound Level (H/L)		dBA	35/29	36/29	37/29
Safety Devices			Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series
Standard Accessories			Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.
Drawing No.			3D039370A		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Wall Mounted Type

Model			FXAQ40MVE	FXAQ50MVE	FXAQ63MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	15,900	19,900	25,000
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,000	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)
Dimensions: (H×W×D)		mm	290×1,050×230	290×1,050×230	290×1,050×230
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×14×1.4	2×14×1.4	2×14×1.4
	Face Area	m²	0.213	0.213	0.213
Fan	Model		QCL9686M	QCL9686M	QCL9686M
	Type		Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	Motor Output × Number of Units	W	43×1	43×1	43×1
	Air Flow Rate (H/L)	m³/min	12/9	15/12	19/14
		cfm	424/318	530/424	671/494
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene
Air Filter			Resin Net (Washable)	Resin Net (Washable)	Resin Net (Washable)
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe	mm	VP13 (External Dia. 18 Internal Dia. 13)	VP13 (External Dia. 18 Internal Dia. 13)	VP13 (External Dia. 18 Internal Dia. 13)
Machine Weight (Mass)		kg	14	14	14
★5 Sound Level (H/L)		dBA	39/34	42/36	46/39
Safety Devices			Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R410A M Series	R410A M Series	R410A M Series
Standard Accessories			Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.
Drawing No.			3D039370A		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Floor Standing Type

Model			FXLQ20MVE	FXLQ25MVE	FXLQ32MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,150
		Btu/h	7,900	9,900	12,500
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing Color			Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		mm	600×1,000×222	600×1,000×222	600×1,140×222
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.5	3×14×1.5	3×14×1.5
	Face Area	m²	0.159	0.159	0.200
Fan	Model		D14B20	D14B20	2D14B13
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	15×1	15×1	25×1
	Air Flow Rate (H/L)	m³/min	7/6	7/6	8/6
		cfm	247/212	247/212	282/212
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)
	Drain Pipe	mm	ϕ21 O.D (Vinyl Chloride)	ϕ21 O.D (Vinyl Chloride)	ϕ21 O.D (Vinyl Chloride)
Machine Weight (Mass)		kg	25	25	30
★5 Sound Level (H/L)		dBA	35/32	35/32	35/32
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			R410A M Series	R410A M Series	R410A M Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			3D038816		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Floor Standing Type

Model			FXLQ40MVE	FXLQ50MVE	FXLQ63MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	15,900	19,900	25,000
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,000	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		mm	600×1,140×222	600×1,420×222	600×1,420×222
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.5	3×14×1.5	3×14×1.5
	Face Area	m²	0.200	0.282	0.282
Fan	Model		2D14B13	2D14B20	2D14B20
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	25×1	35×1	35×1
	Air Flow Rate (H/L)	m³/min	11/8.5	14/11	16/12
		cfm	388/300	494/388	565/424
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe	mm	ϕ21 O.D (Vinyl Chloride)	ϕ21 O.D (Vinyl Chloride)	ϕ21 O.D (Vinyl Chloride)
Machine Weight (Mass)		kg	30	36	36
★5 Sound Level (H/L)		dBA	38/33	39/34	40/35
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			R410A M Series	R410A M Series	R410A M Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			3D038816		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Concealed Floor Standing Type

Model			FXNQ20MVE	FXNQ25MVE	FXNQ32MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,150
		Btu/h	7,900	9,900	12,500
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	610×930×220	610×930×220	610×1,070×220
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.5	3×14×1.5	3×14×1.5
	Face Area	m²	0.159	0.159	0.200
Fan	Model		D14B20	D14B20	2D14B13
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	15×1	15×1	25×1
	Air Flow Rate (H/L)	m³/min	7/6	7/6	8/6
		cfm	247/212	247/212	282/212
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)
	Drain Pipe	mm	ϕ21 O.D (Vinyl Chloride)	ϕ21 O.D (Vinyl Chloride)	ϕ21 O.D (Vinyl Chloride)
Machine Weight (Mass)		kg	19	19	23
★5 Sound Level (H/L)		dBA	35/32	35/32	35/32
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			R410A M Series	R410A M Series	R410A M Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			3D038817		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Concealed Floor Standing Type

Model			FXNQ40MVE	FXNQ50MVE	FXNQ63MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	15,900	19,900	25,000
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,000	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	610×1,070×220	610×1,350×220	610×1,350×220
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.5	3×14×1.5	3×14×1.5
	Face Area	m²	0.200	0.282	0.282
Fan	Model		2D14B13	2D14B20	2D14B20
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	25×1	35×1	35×1
	Air Flow Rate (H/L)	m³/min	11/8.5	14/11	16/12
		cfm	388/300	494/388	565/424
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber / Urethane Foam	Glass Fiber / Urethane Foam	Glass Fiber / Urethane Foam
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	mm	ϕ6.4 (Flare Connection)	ϕ6.4 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes	mm	ϕ12.7 (Flare Connection)	ϕ12.7 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe	mm	ϕ21 O.D (Vinyl Chloride)	ϕ21 O.D (Vinyl Chloride)	ϕ21 O.D (Vinyl Chloride)
Machine Weight (Mass)		kg	23	27	27
★5 Sound Level (H/L)		dBA	38/33	39/34	40/35
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			R410A M Series	R410A M Series	R410A M Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			3D038817		

Notes:

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.

★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.

★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5m, level difference: 0m. (Heat pump only)

4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★5 Anechoic chamber conversion value, measured at a point 1.5 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

Ceiling Suspended Cassette Type

Model		Indoor Unit		FXUQ71MV1	FXUQ100MV1	FXUQ125MV1
		Connection Unit		BEVQ71MVE	BEVQ100MVE	BEVQ125MVE
★1 Cooling Capacity (19.5°CWB)			kcal/h	7,100	10,000	12,500
			Btu/h	28,200	39,700	49,600
			kW	8.3	11.6	14.5
★2 Cooling Capacity (19.0°CWB)			kW	8.0	11.2	14.0
★3 Heating Capacity			kcal/h	7,700	10,800	12,000
			Btu/h	30,700	42,700	47,700
			kW	9.0	12.5	14.0
Casing Color				White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
Dimensions: (H×W×D)			mm	165×895×895	230×895×895	230×895×895
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch		mm	3×6×1.5	3×8×1.5	3×8×1.5
	Face Area		m²	0.265	0.353	0.353
Fan	Model			QTS48A10M	QTS50B15M	QTS50B15M
	Type			Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output × Number of Units		W	45×1	90×1	90×1
	Air Flow Rate (H/L)		m³/min	19/14	29/21	32/23
			cfm	671/494	1,024/741	1,130/812
	Drive			Direct Drive	Direct Drive	Direct Drive
Temperature Control				Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material				Heat Resistant Foamed Polyethylene, Regular Foamed Polyethylene	Heat Resistant Foamed Polyethylene, Regular Foamed Polyethylene	Heat Resistant Foamed Polyethylene, Regular Foamed Polyethylene
Piping Connections	Liquid Pipes		mm	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)	ϕ9.5 (Flare Connection)
	Gas Pipes		mm	ϕ15.9 (Flare Connection)	ϕ15.9 (Flare Connection)	ϕ15.9 (Flare Connection)
	Drain Pipe		mm	I.Dϕ20×O.Dϕ26	I.Dϕ20×O.Dϕ26	I.Dϕ20×O.Dϕ26
Machine Weight (Mass)			kg	25	31	31
★5 Sound Level (H/L)			dBA	40/35	43/38	44/39
Safety Devices				Thermal Protector for Fan Motor	Thermal Protector for Fan Motor	Thermal Protector for Fan Motor
Standard Accessories				Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Holding Plate.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Holding Plate.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Holding Plate.
Drawing No.				C:4D045395		

Notes:

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

Conversion Formulae
kcal/h=kW×860 Btu/h=kW×3414 cfm=m³/min×35.3

BEV Units

Model				BEVQ71MVE	BEVQ100MVE	BEVQ125MVE
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.				4D045387	4D045387	4D045388

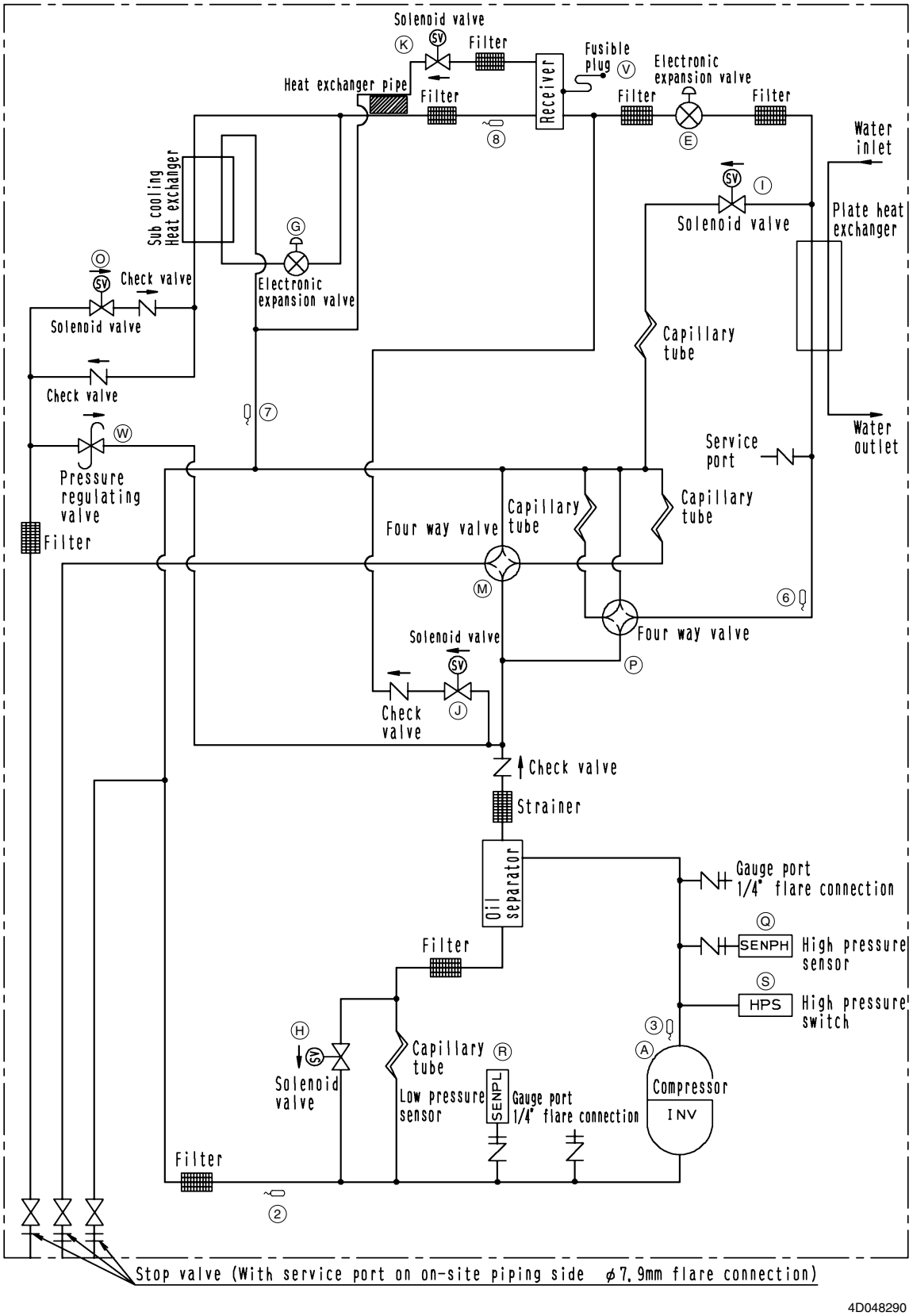
Part 3
Refrigerant Circuit

1. Refrigerant Circuit

1.1 RWEYQ10MY1

No. in refrigerant system diagram	Symbol	Name	Major Function
A	M1C	Inverter compressor (INV)	Inverter compressor is operated on frequencies between 52 Hz and 230 Hz by using the inverter. The number of operating steps is as follows. RWEYQ10MY1: 23 steps
E	Y1E	Electronic expansion valve (Main: EV1)	In cooling operation: High pressure control In heating or simultaneous cooling/heating operation: When the heat exchanger is used as the evaporator : SH control When the heat exchanger is used as the condenser : High pressure control
G	Y3E	Electronic expansion valve (Subcool: EV3)	PI control is applied to keep the outlet superheated degree of sub-cooling heat exchanger constant.
H	Y1S	Solenoid valve (Hot gas: SVP)	Used to prevent the low pressure from transient falling.
I	Y2S	Solenoid valve (Oil return of water heat exchanger: SVE)	Used to collect the refrigerant oil from water heat exchanger.
J	Y3S	Solenoid valve (Receiver gas charging: SVL)	Used to maintain high pressure while in cooling operation at low water temperature. And also used to prevent the accumulation of refrigerant in non-operating outdoor units in the case of multiple-outdoor-unit system.
K	Y4S	Solenoid valve (Receiver gas discharging: SVG)	Used to collect refrigerant to receiver.
M	Y5S	4-way selector valve (Main: 20S1)	Changes the operation into cooling, heating or simultaneous cooling/ heating operation.
O	Y6S	Solenoid valve (Non-operating unit liquid pipe closing: SVSL)	Used to prevent the accumulation of refrigerant in non-operating outdoor units in the case of multiple-outdoor-unit system.
P	Y7S	4-way selector valve (Sub: 20S2)	Changes the water heat exchanger into condenser or evaporator.
Q	S1NPH	High pressure sensor	Used to detect high pressure.
R	S2NPL	Low pressure sensor	Used to detect low pressure.
S	S1PH	HP pressure switch (For INV compressor)	In order to prevent the increase of high pressure when a malfunction occurs, this switch is activated at high pressure of 4.0 MPa or more to stop the compressor operation.
V	–	Fusible plug	In order to prevent the increase of pressure when abnormal heating is caused by fire or others, the fusible part of the plug is molten at a temperature of 70 to 75°C to release the pressure into the atmosphere.
W	–	Pressure regulating valve 1 (Liquid pipe to discharge pipe)	This valve opens at a pressure of 4.0 MPa or more for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage.
2	R2T	Thermistor (Suction pipe: Ts)	Used to detect suction pipe temperature, keep the suction superheated degree constant in heating operation, and others.
3	R3T	Thermistor (INV discharge pipe: Tdi)	Used to detect discharge pipe temperature, make the temperature protection control of compressor, and others.
6	R4T	Thermistor (Heat exchanger gas pipe: Tg)	Used to detect gas pipe temperature of water heat exchanger.
7	R5T	Thermistor (Sub-cooling heat exchanger outlet pipe: Tsh)	Used to detect gas pipe temperature on the evaporation side of sub-cooling heat exchanger, keep the superheated degree at the outlet of sub-cooling heat exchanger constant, and others.
8	R6T	Thermistor (Receiver outlet liquid pipe: Tl)	Used to detect receiver outlet liquid pipe temperature, prevent the drift between outdoor units while in heating operation in the case of multiple-outdoor-unit system, and others.

RWEYQ10MY1



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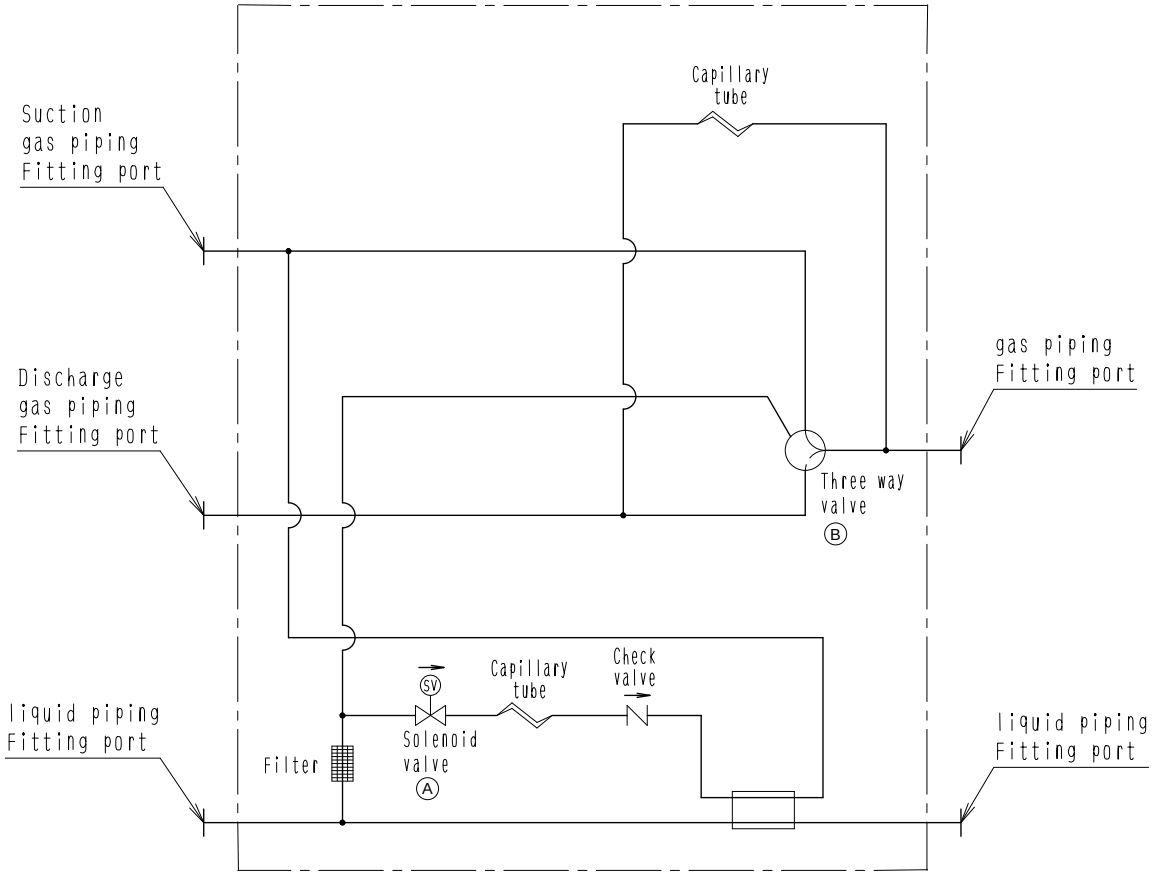
1.2 BSVQ100, 160, 250M

No.	Symbol	Name	Major function
A	Y1S	Solenoid valve (20RT)	Used to sub-cool the liquid refrigerant
B	Y3S	Solenoid valve (20RH)	Used to changeover the cooling and heating operation of indoor units



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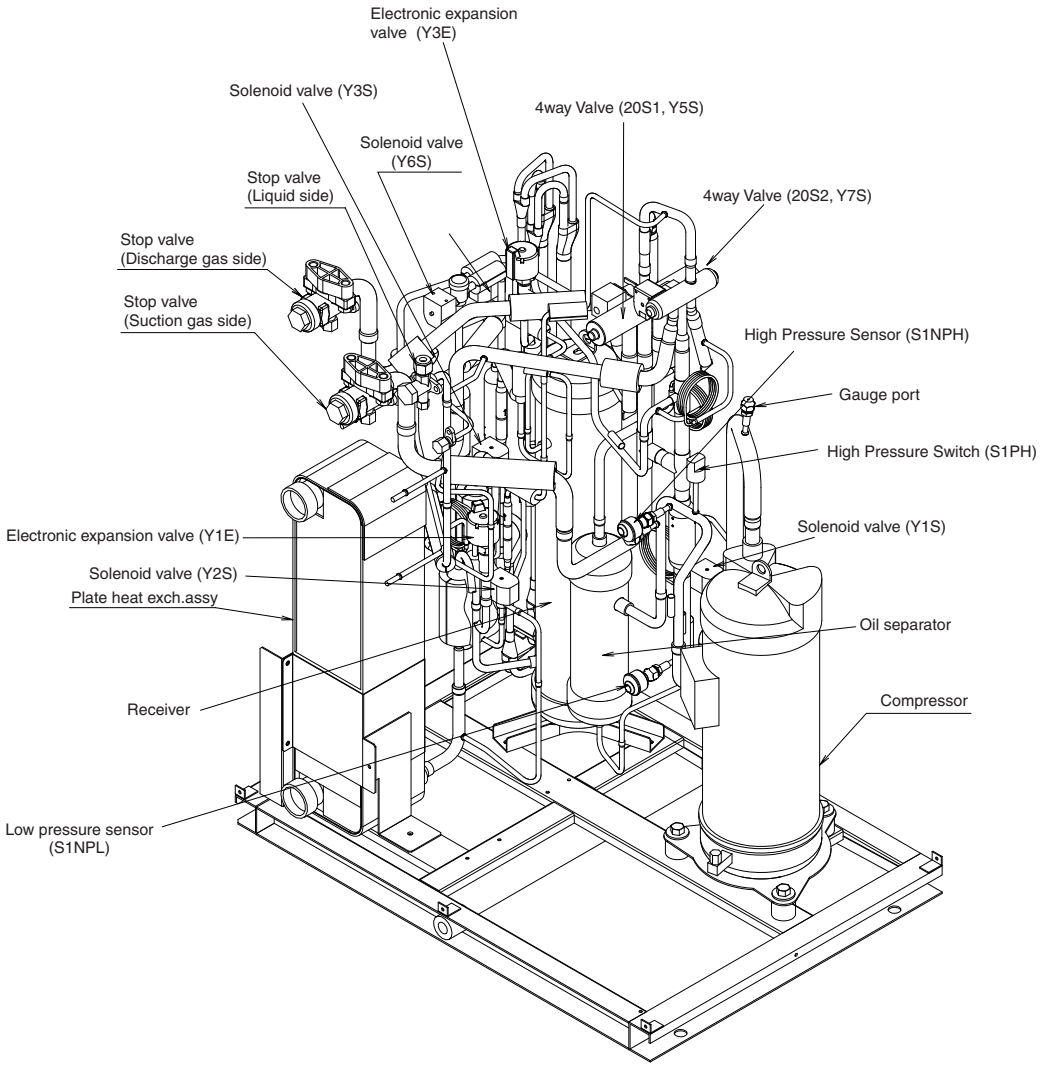
2. Functional Parts Layout

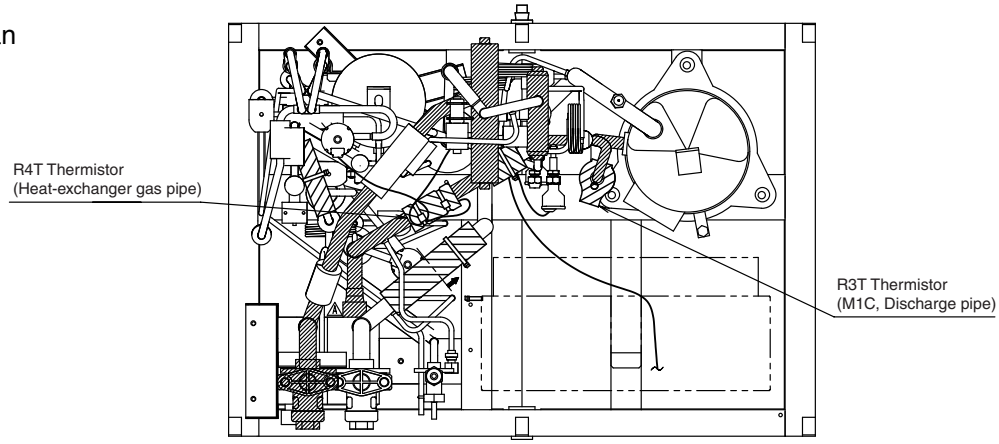
2.1 RWEYQ10MY1

2.1.1 Functional Parts Layout (Solenoid Valve etc.)

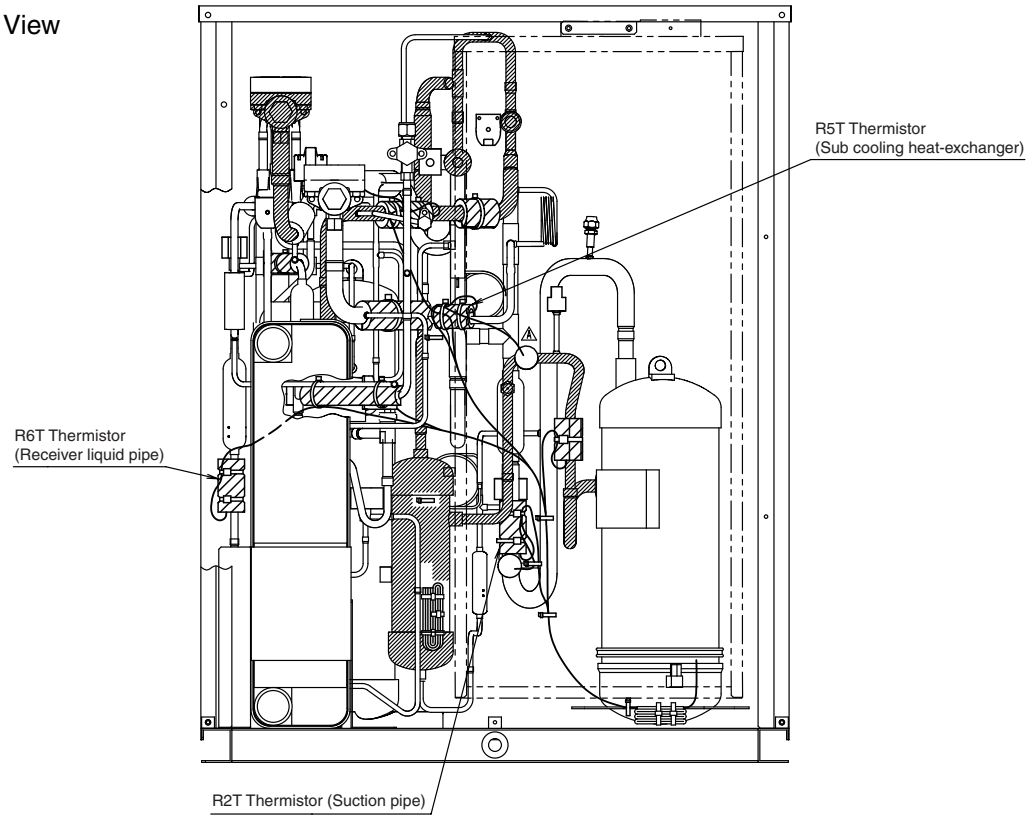


2.1.2 Sensors

Plan



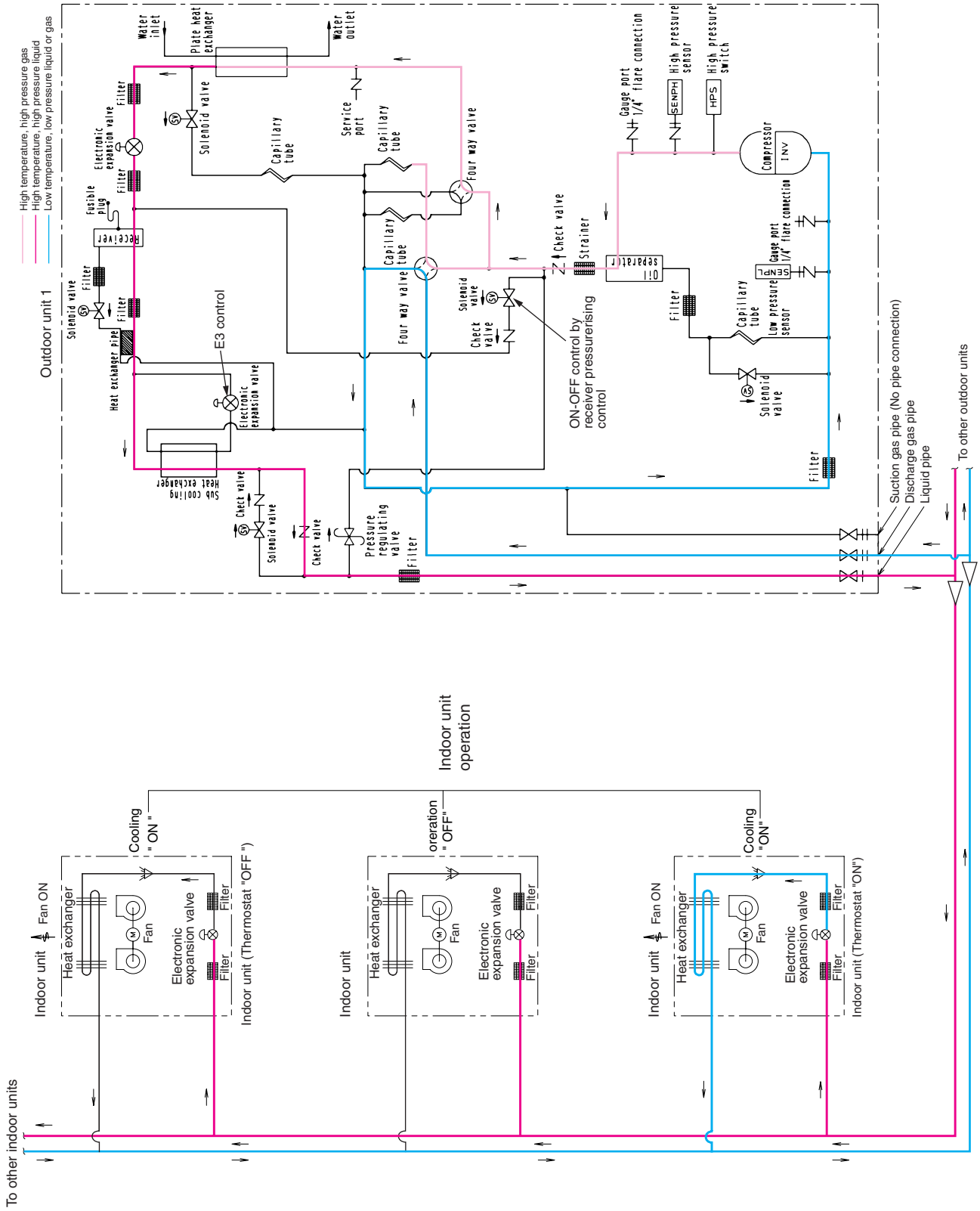
Front View



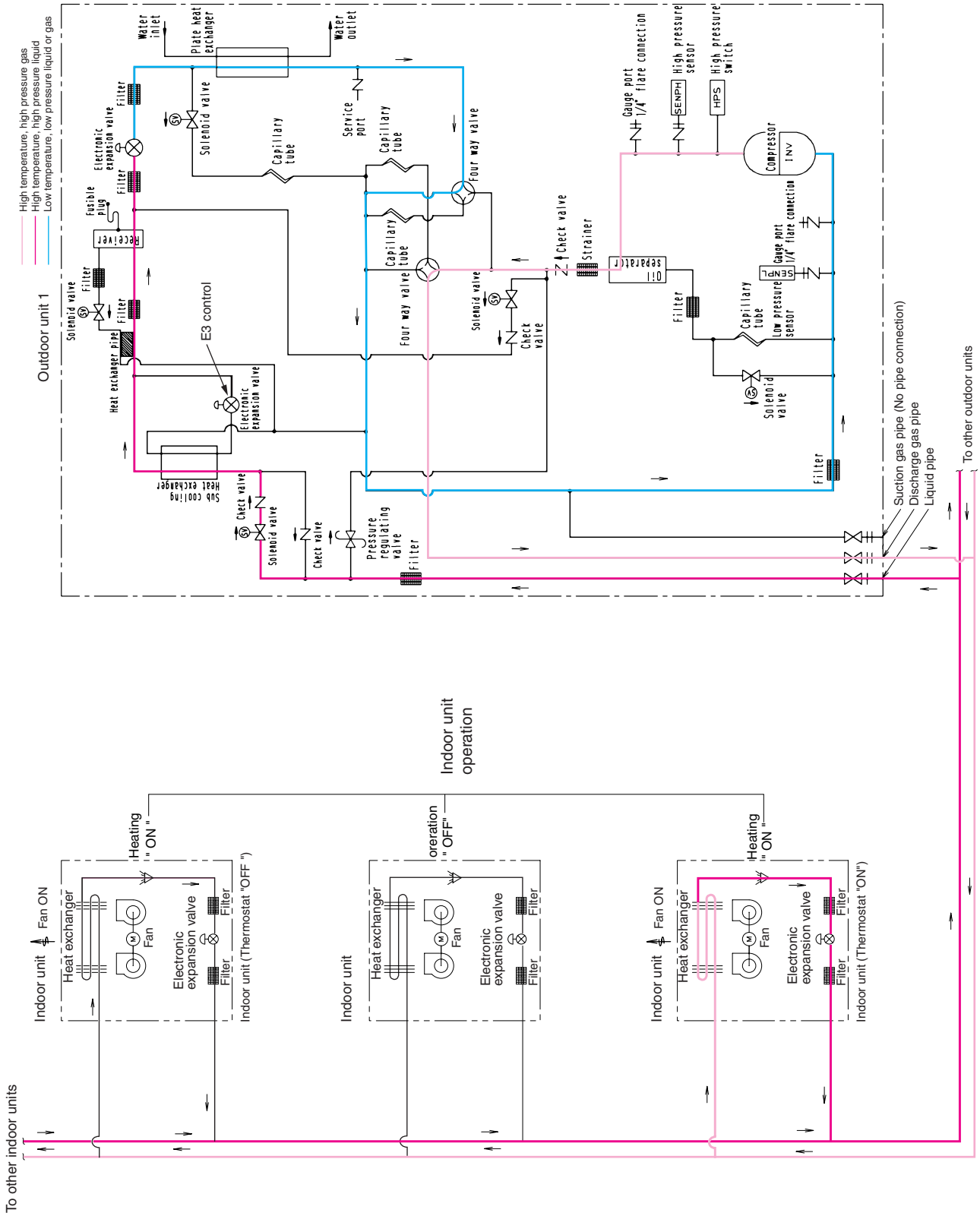
3. Refrigerant Flow for Each Operation Mode

3.1 In Case of Heat Pump Connection

A. Cooling Operation

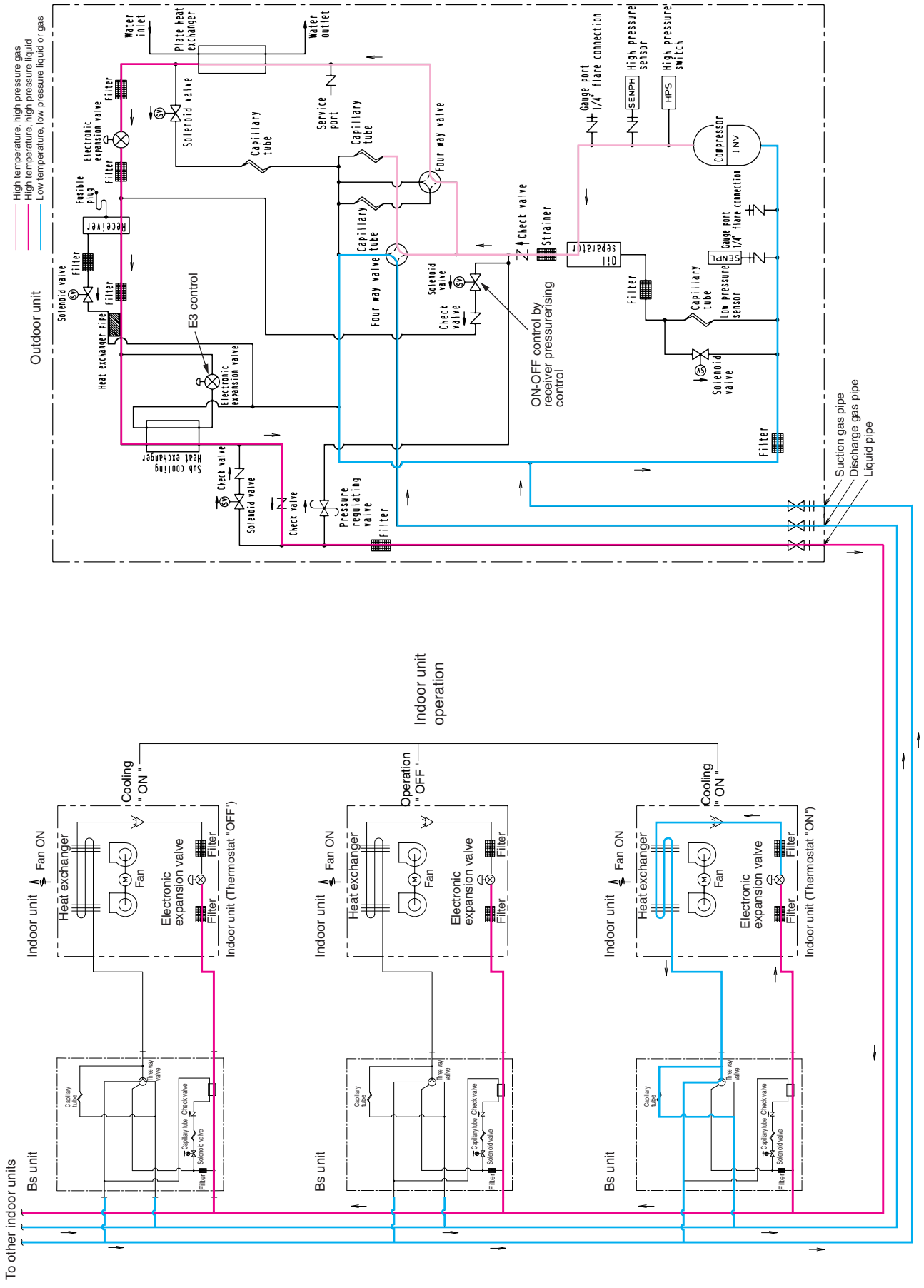


B. Heating Operation

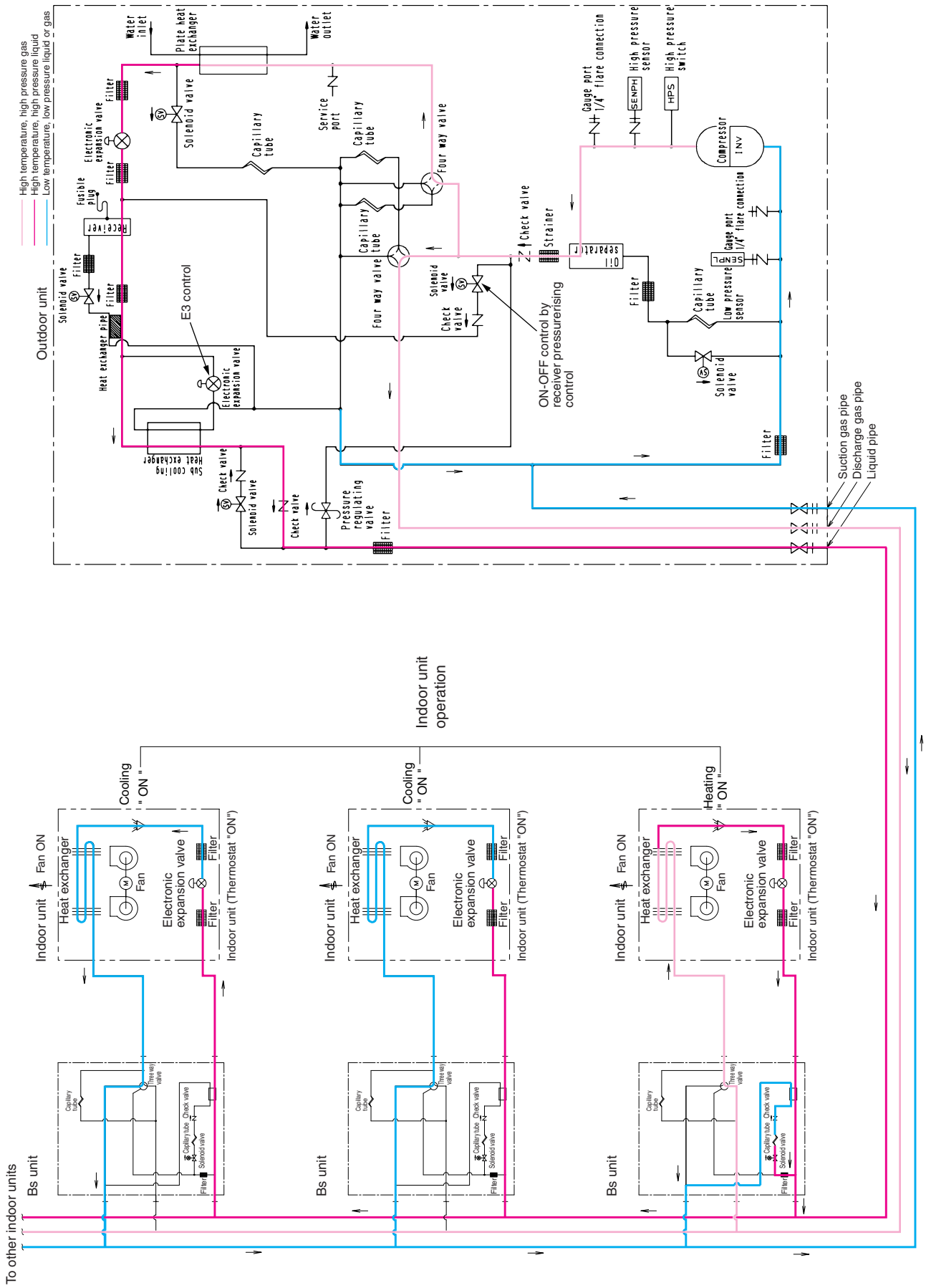


3.2 In Case of Heat Recovery Connection (One Outdoor Unit Installation)

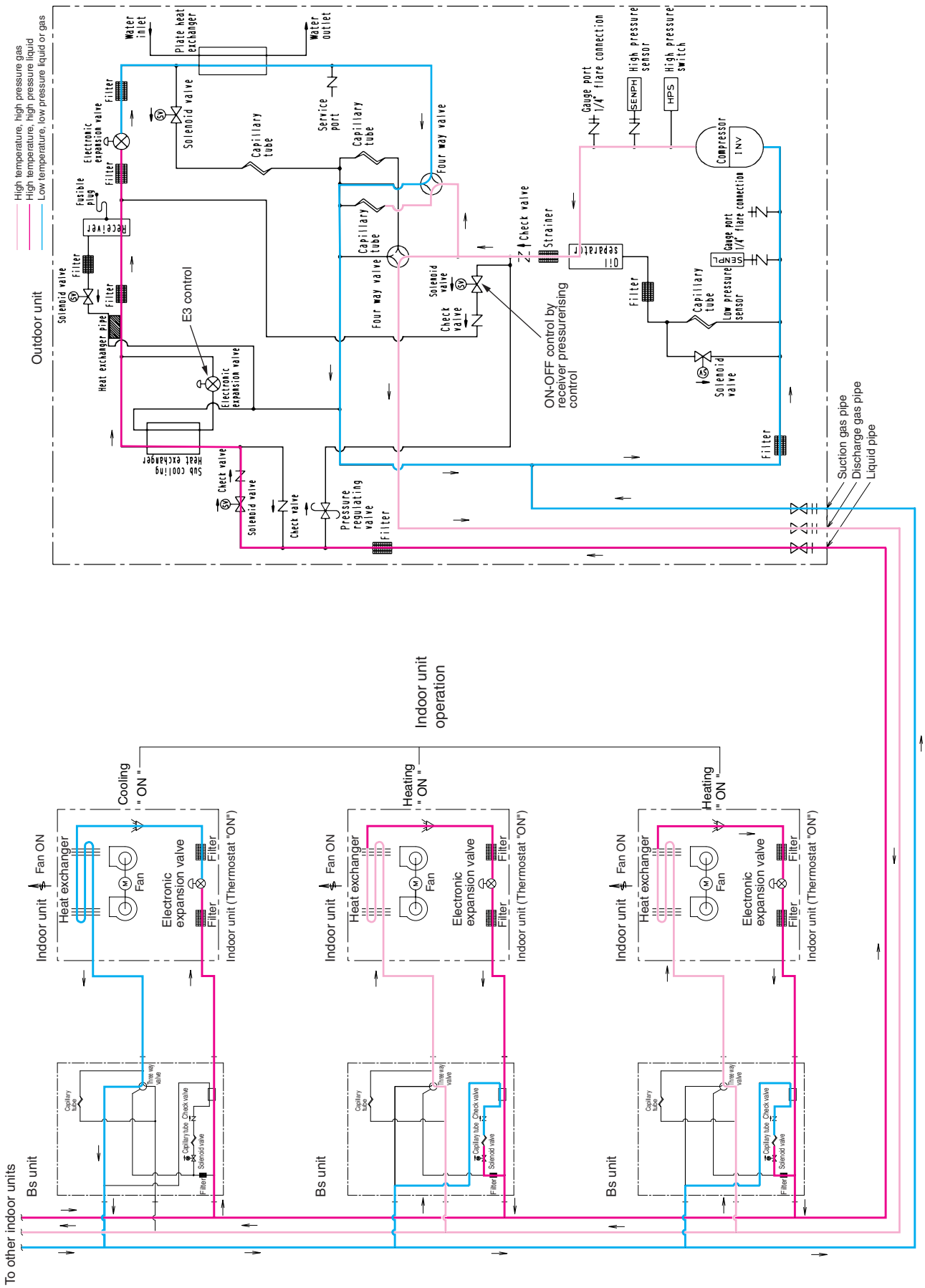
A. Cooling Operation



B. Heating and simultaneous cooling/heating operation (When the outdoor water cooled heat exchanger is used as condenser.)

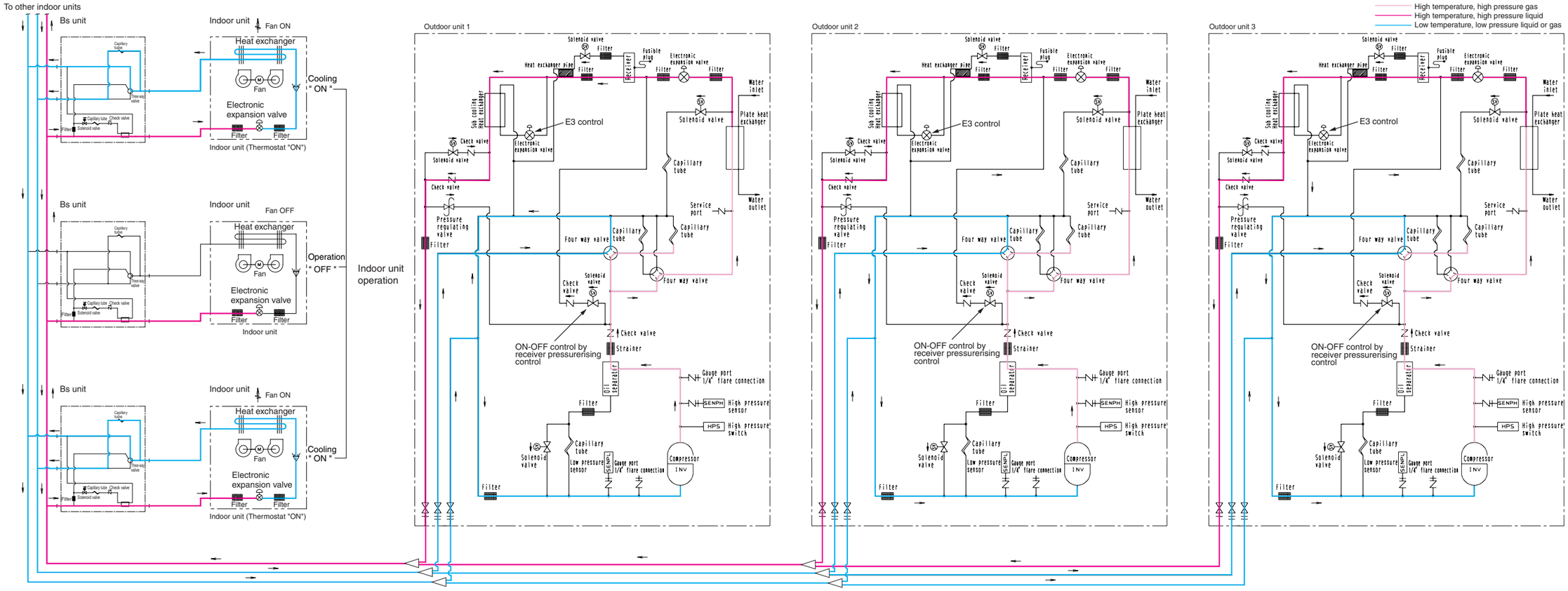


C. Heating and simultaneous cooling heating operation mode (When the outdoor water cooled heat exchanger is used as evaporator.)
(In case there are indoor units operating with cooling thermostat "ON".)

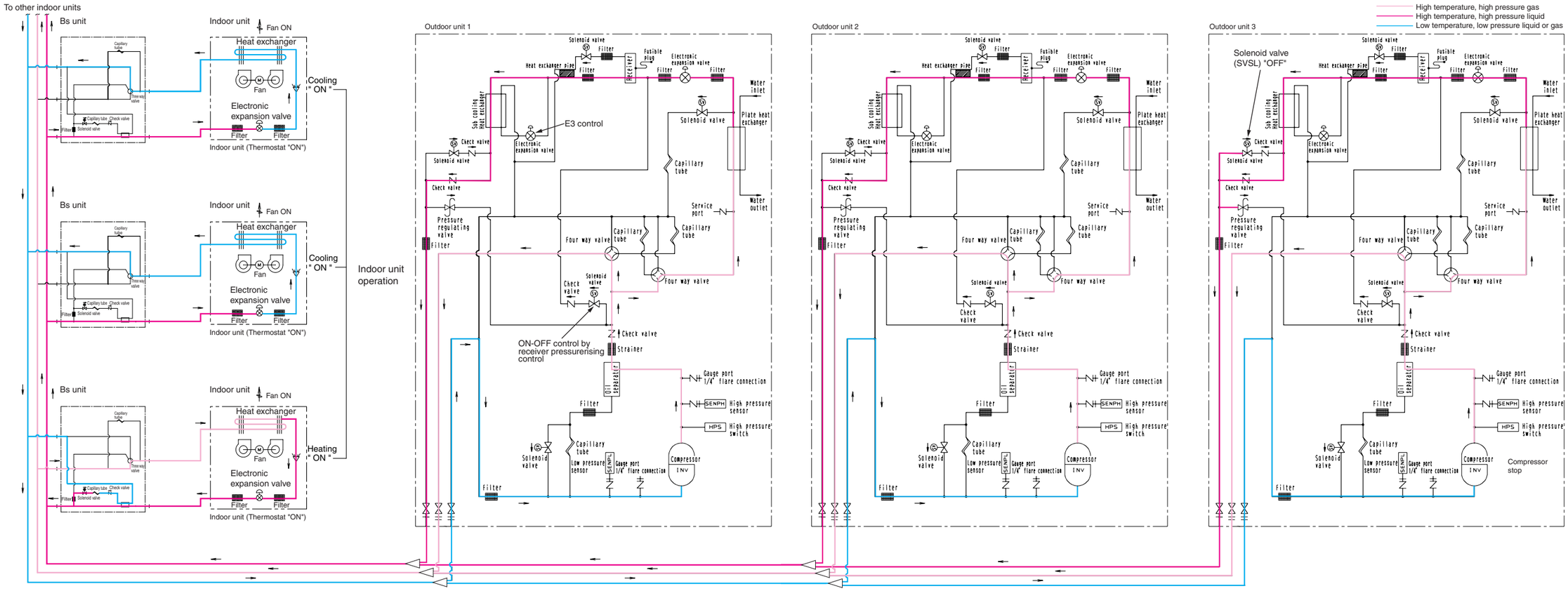


3.3 In Case of Heat Recovery Connection (3 Outdoor units Connection.)

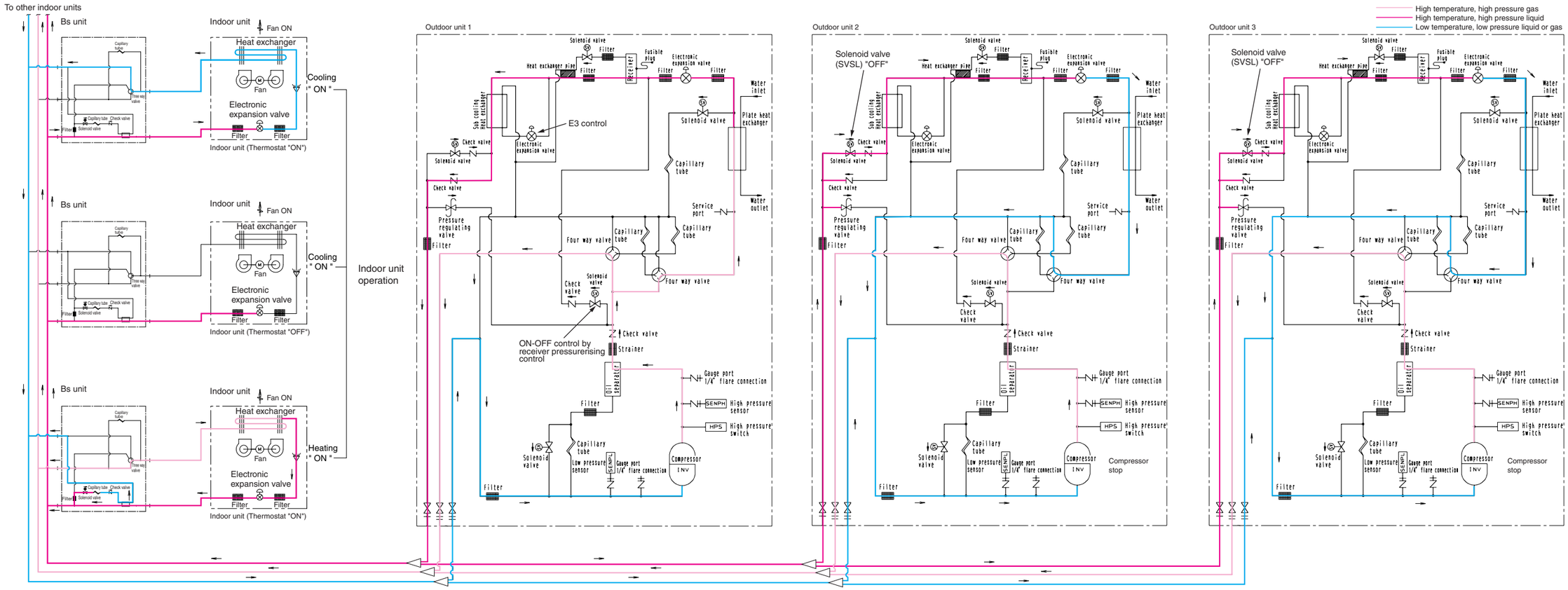
A. Cooling Operation



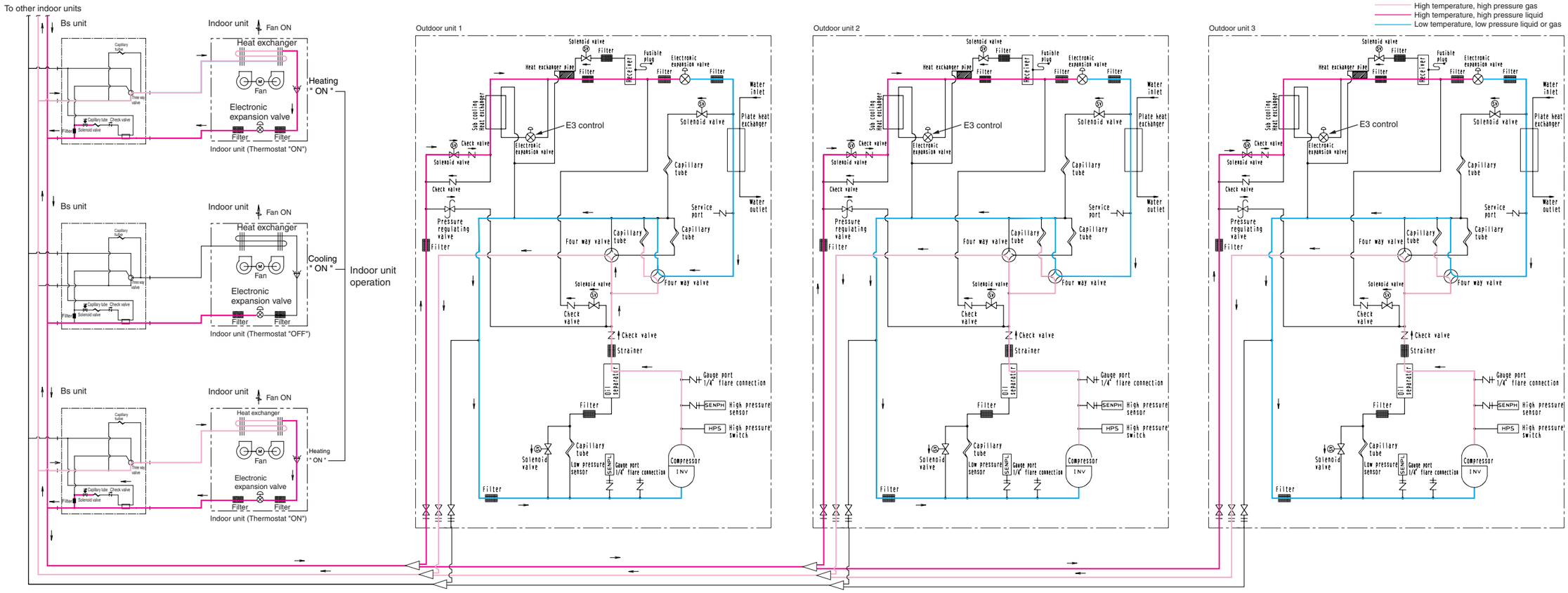
B: Heating and simultaneous cooling/heating operation mode (When the outdoor water cooled heat exchangers are used only as condenser.)



C: Heating and simultaneous cooling/heating operation mode (When the outdoor water cooled heat exchangers are used as condenser and evaporator mixed.)



D: Heating and simultaneous cooling/heating operation mode (When the outdoor water cooled heat exchangers are used only as evaporator.)



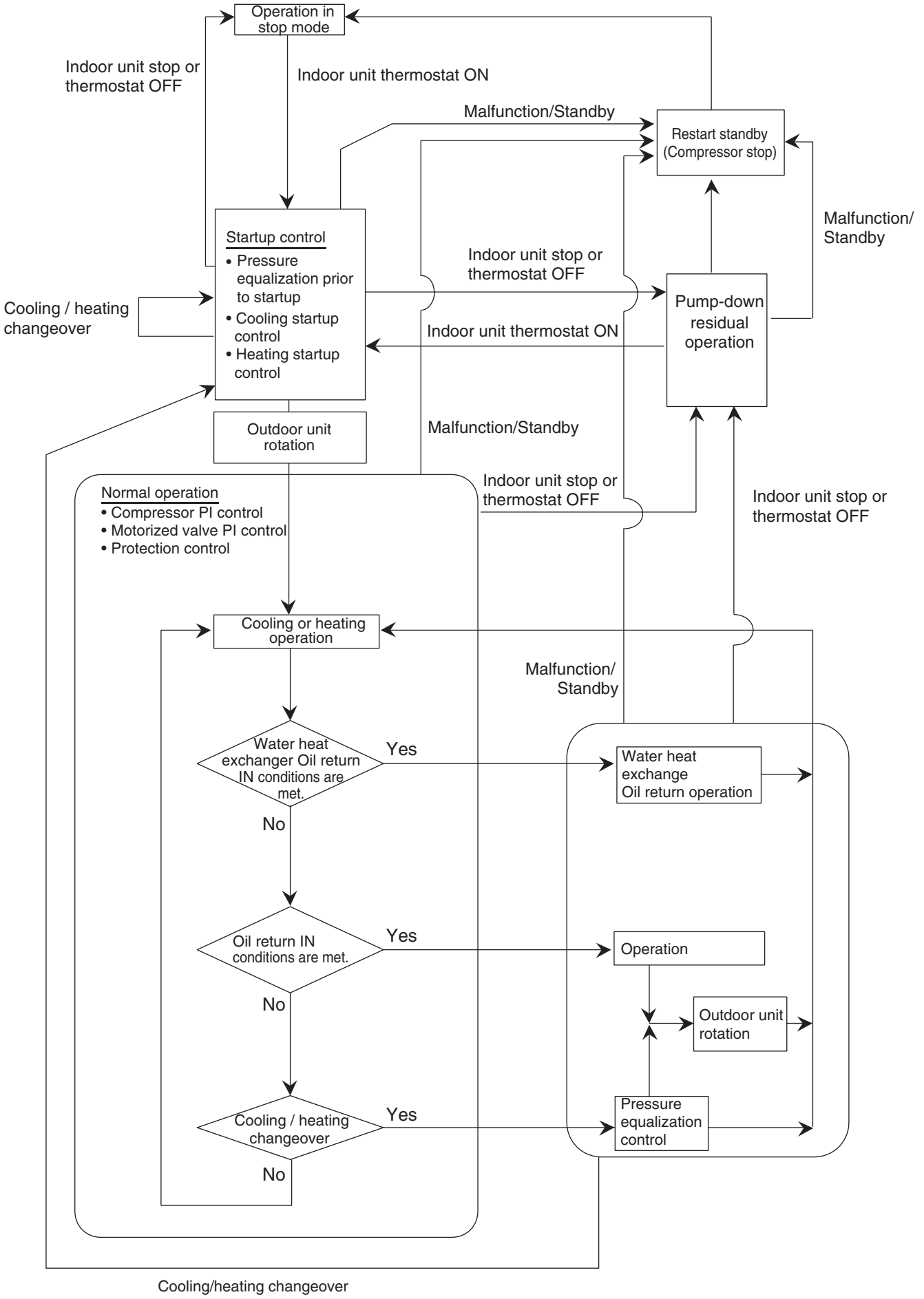
Part 4
Function

1. Function General

1.1 Symbol

Symbol	Electric symbol	Description or function
20S1	Y5S	Four way valve (Main)
20S2	Y7S	Four way valve (Sub)
DSH	–	Discharge pie superheat
DSHi	–	Discharge pie superheat of inverter compressor
EV	(Y1E, Y3E)	Opening of electronic expansion valve
EV1	Y1E	Electronic expansion valve for water heat exchanger
EV3	Y3E	Electronic expansion valve for sub-coolig heat exchanger
HTDi	–	Value of INV compressor discharge pie temperature (R3T) compensated with outdoor air temperature
Pc	S1NPH	Value detected by high pressure sensor
Pe	S1NPL	Value detected by low pressure sensor
SH	–	Evaporator outlet superheat
SHS	–	Target evaporator outlet superheat
SVG	Y4S	Solenoid valve for discharging gas from receiver
SVL	Y3S	Solenoid valve for gas charging to receiver
SVE	Y2S	Solenoid valve for oil collection from water heat exchanger
SVP	Y1S	Solenoid valve for hot gas bypass
SVSL	Y6S	Solenoid valve for non-operating unit liquid pipe closing
Tb	R4T	Heat exchanger outlet temperature at cooling
Tc	–	High pressure equivalent saturation temperature
TcS	–	Target temperature of Tc (Condensing temperature)
Te	–	Low pressure equivalent saturation temperature
TeS	–	Target temperature of Te (Evaporating temperature)
Tfin	R1T	Inverter fin temperature
Ts	R2T	Suction pipe temperature detected by R2T (Suction pipe)
Tsh	R5T	Temperature detected by R5T-gas pipe temperature of sub-cooling heat exchanger gas side (outlet temperature)
Tp	–	Calculated value of compressor port temperature
Tdi	R3T	Discharge temperature detected by thermistor located the inverter compressor discharge pipe
Tl	R6T	Liquid pipe temperature
Tg	R4T	The gas pipe temperature of water heat exchanger

1.2 Operation Mode



1.3 Normal Operation

Parts name	Symbol	Electrical symbol	Actuator function	
			Normal cooling	Normal heating or normal cooling/ heating simultaneous operation
Compressor	—	(M1C)	PI control, High pressure protection, Low pressure protection, Discharge pipe temperature protection control, Inverter protection control, oil level control	PI control, High pressure protection, Low pressure protection, Discharge pipe temperature protection control, Inverter protection control, oil level control
Inverter cooling fan	—	(M1,2F)	Inverter cooling fan control	Inverter cooling fan control
4 way valve 1	20S1	(Y5S)	OFF	ON
4 way valve 2	20S2	(Y7S)	OFF	Heat exchanger mode control (In case of heating and simultaneous cooling/heating operation)
Main heat exchanger electronic exp. valve	EV1	(Y1E)	Heat exchanger mode control (In case of cooling operation)	Heat exchanger mode control (In case of heating and simultaneous cooling/heating operation)
Sub-cooling electronic exp. valve	EV3	(Y3E)	EV3 control	EV3 control
Hot gas bypass solenoid valve	SVP	(Y1S)	Protection control	Protection control
Water heat exch. oil return solenoid valve	SVE	(Y2S)	OFF	Water heat exchanger oil return control
Receiver gas charging solenoid valve	SVL	(Y3S)	Receiver pressurising control	Receiver pressurising control and drift protection control
Receiver gas discharge solenoid valve	SVG	(Y4S)	OFF	Drift protection control
Non-operation unit liquid pipe stop solenoid valve	SVSL	(Y6S)	ON	ON
Indoor cooling unit fan	—	—	Indoor unit control	Indoor unit control
Indoor cooling unit expansion valve	EV	—	Indoor unit control	Indoor unit control
Indoor heating unit fan	—	—	—	Indoor unit control
Indoor heating unit expansion valve	EV	—	—	Indoor unit control
BS 20RH (3 way)	20RH	(Y3S)	BS operation	BS operation
BS 20RT	20RT	(Y1S)	BS operation	BS operation

2. STOP

2.1 Stopping Operation

This operation is used to define the operation of the actuator while the system stops.

2.1.1 When System is in Stop Mode (All Master and Slave Units Stop) (H/R System Master and Slave Units)

Parts name	Symbol	Electrical symbol	Actuator function
			Normal cooling
Compressor	—	(M1C)	OFF
Inverter cooling fan	—	(M1,2F)	Inverter cooling fan control
4 way valve 1	20S1	(Y5S)	Holding
4 way valve 2	20S2	(Y7S)	Holding
Main heat exchanger electronic exp. valve	EV1	(Y1E)	0 pulse
Sub-cooling electronic exp. valve	EV3	(Y3E)	0 pulse
Hot gas bypass solenoid valve	SVP	(Y1S)	OFF
Water heat exch. oil return solenoid valve	SVE	(Y2S)	OFF
Receiver gas charging solenoid valve	SVL	(Y3S)	OFF
Receiver gas discharge solenoid valve	SVG	(Y4S)	OFF
Non-operation unit liquid pipe stop solenoid valve	SVSL	(Y6S)	ON

2.1.2 Stopping Operation of Slave Units During Master Unit is in Operation with Multi-Outdoor-Unit System

This operation is used to make adjustments of required refrigerant amount with non-operating slave units while the master unit is in operation.

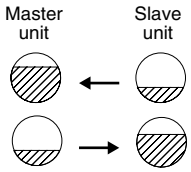
In cooling operation : The system operates in mode A or mode B listed in the table below.

Parts name	Symbol	Electrical symbol	Mode A operation	Mode B operation
Compressor	—	(M1C)	Compressor PI control (at H/R operation)	Compressor PI control (at H/R operation)
Inverter cooling fan	—	(M1,2F)	Inverter cooling fan control	Inverter cooling fan control
4 way valve 1	20S1	(Y5S)	Holding	Holding
4 way valve 2	20S2	(Y7S)	Holding	Holding
Main heat exchanger electronic exp. valve	EV1	(Y1E)	150 to 300 pulse	0 pulse
Sub-cooling electronic exp. valve	EV3	(Y3E)	0 pulse	0 pulse
Hot gas bypass solenoid valve	SVP	(Y1S)	OFF	OFF
Water heat exch. oil return solenoid valve	SVE	(Y2S)	ON	OFF
Receiver gas charging solenoid valve	SVL	(Y3S)	OFF	OFF
Receiver gas discharge solenoid valve	SVG	(Y4S)	OFF	OFF
Non-operation unit liquid pipe stop solenoid valve	SVSL	(Y6S)	OFF	ON
Mode transition conditions			To Mode B when No gas shortage signal is sent from indoor unit	To Mode A when gas shortage signal is sent from indoor unit
Ending conditions			Slave units are required to operate.	

∗ Mode A or B operation

Mode A : Master unit collects refrigerant.

Mode B : Slave unit storage refrigerant.



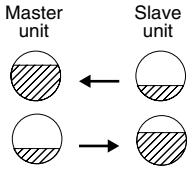
The changeover operation for mode A and B is performed for the reason that the required refrigerant amount varies depending on the indoor unit operation capacity.

In heating operation or simultaneously in cooling / heating operation :
The system operates in mode A or mode B listed in the table below.

Parts name	Symbol	Electrical symbol	Mode A operation	Mode B operation
Compressor	—	(M1C)	Compressor PI control (at H/R operation)	Compressor PI control (at H/R operation)
Inverter cooling fan	—	(M1,2F)	Inverter cooling fan control	Inverter cooling fan control
4 way valve 1	20S1	(Y5S)	Holding	Holding
4 way valve 2	20S2	(Y7S)	Holding	Holding
Main heat exchanger electronic exp. valve	EV1	(Y1E)	0 pulse	0 pulse
Sub-cooling electronic exp. valve	EV3	(Y3E)	0 pulse	0 pulse
Hot gas bypass solenoid valve	SVP	(Y1S)	OFF	OFF
Water heat exch. oil return solenoid valve	SVE	(Y2S)	OFF	OFF
Receiver gas charging solenoid valve	SVL	(Y3S)	ON	OFF
Receiver gas discharge solenoid valve	SVG	(Y4S)	OFF	OFF
Non-operation unit liquid pipe stop solenoid valve	SVSL	(Y6S)	OFF	ON
Mode transition conditions			To Mode B when No gas shortage signal is sent from indoor unit	To Mode A when gas shortage signal is sent from indoor unit
Ending conditions			Slave units are required to operate.	

∗ Mode A or B operation

Mode A : Master unit collects refrigerant.
Mode B : Slave unit storage refrigerant.



The changeover operation for mode A and B is performed for the reason that the required refrigerant amount varies depending on the indoor unit operation capacity.

2.1.3 Abnormal Stop

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	Judgement value	Retry number	Malfunction code
1. Low pressure abnormal	0.07 MPa	3 times in 60 minutes	E4
2. High pressure abnormal	3.71MPa	2 times in 30 minutes	E3
3. Discharge temperature abnormal	135°C	2 times in 100 minutes	F3
4. Power supply abnormal	Reverse phase	No retry	U1
5. Inverter current abnormal	17A for 5 sec.	3 times in 60 minutes	L8
6. Radiation fin temperature abnormal	89°C	3 times in 60 minutes	L4

3. Standby

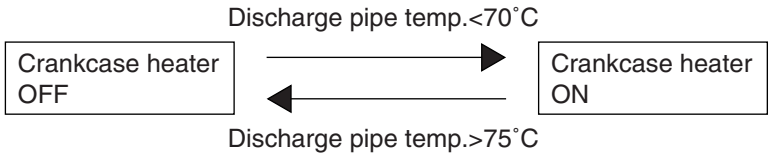
3.1 Restart Standby

Forced standby is performed to prevent frequent repetition of ON/OFF of the compressor, and to equalize pressure in the refrigerant system.

Parts name	Symbol	Electrical symbol	Actuator function
Compressor	—	(M1C)	0 Hz
Inverter cooling fan	—	(M1,2F)	Inverter cooling fan control
4 way valve 1	20S1	(Y5S)	Holding
4 way valve 2	20S2	(Y7S)	Holding
Main heat exchanger electronic exp. valve	EV1	(Y1E)	0 pulse
Sub-cooling electronic exp. valve	EV3	(Y3E)	0 pulse
Hot gas bypass solenoid valve	SVP	(Y1S)	OFF
Water heat exch. oil return solenoid valve	SVE	(Y2S)	OFF
Receiver gas charging solenoid valve	SVL	(Y3S)	OFF
Receiver gas discharge solenoid valve	SVG	(Y4S)	OFF
Non-operation unit liquid pipe stop solenoid valve	SVSL	(Y6S)	ON
Indoor cooling unit fan	—	(M1, 2F)	Remote controller setting
Indoor cooling unit expansion valve	EV	(Y1E)	All indoor EV 0 pulse
Indoor heating unit fan	—	(M1, 2F)	Indoor unit control
Indoor heating unit expansion valve	EV	(Y1E)	All indoor EV 0 pulse
BS 20RH (3 way)	20RH	(Y3S)	Holding
BS 20RT	20RT	(Y1S)	OFF
Ending condition			4 minutes

3.2 Crankcase Heater Control

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



4. Startup Control

This startup control is used to provide the following control to reduce the compressor load resulting from liquid return or else during compressor startup, and also determine the position of four way valves.

4.1 Cooling Start-up Control

Both master and slave units operate same time for changing 4 way valve position → Normal operation after completion.

Parts name	Symbol	Electrical symbol	Starting control
Compressor	—	(M1C)	52Hz +2 steps/20 sec. (Self unit till Pc-Pe >0.49 MPa)
Inverter cooling fan	—	(M1,2F)	Inverter cooling fan control
4 way valve 1	20S1	(Y5S)	OFF
4 way valve 2	20S2	(Y7S)	OFF
Main heat exchanger electronic exp. valve	EV1	(Y1E)	2000 pulse
Sub-cooling electronic exp. valve	EV3	(Y3E)	0 pulse
Hot gas bypass solenoid valve	SVP	(Y1S)	ON
Water heat exch. oil return solenoid valve	SVE	(Y2S)	OFF
Receiver gas charging solenoid valve	SVL	(Y3S)	OFF
Receiver gas discharge solenoid valve	SVG	(Y4S)	OFF
Non-operation unit liquid pipe stop solenoid valve	SVSL	(Y6S)	ON
Indoor cooling unit fan	—	(M1,2F)	Remote controller setting
Indoor cooling unit expansion valve	EV	(Y1E)	Indoor unit control (No instruction)
Indoor heating unit fan	—	(M1,2F)	—
Indoor heating unit expansion valve	EV	(Y1E)	—
BS 20RH Cooling Heating	20RH	(Y3S)	OFF
BS 20RT	20RT	(Y1S)	OFF
Ending condition			or (Pc-Pe>0.49 MPa 200sec.

4.2 Heating Start-up Control

Both master and slave units operate same time for changing 4 way valve position → Normal operation after completion.

Parts name		Symbol	Electrical symbol	Starting control
Compressor		—	(M1C)	52Hz +2 steps/20 sec. (Self unit till Pc-Pe >0.49 MPa)
Inverter cooling fan		—	(M1,2F)	Inverter cooling fan control
4 way valve 1		20S1	(Y5S)	ON
4 way valve 2		20S2	(Y7S)	OFF
Main heat exchanger electronic exp. valve		EV1	(Y1E)	180 pulse
Sub-cooling electronic exp. valve		EV3	(Y3E)	0 pulse
Hot gas bypass solenoid valve		SVP	(Y1S)	ON
Water heat exch. oil return solenoid valve		SVE	(Y2S)	OFF
Receiver gas charging solenoid valve		SVL	(Y3S)	OFF
Receiver gas discharge solenoid valve		SVG	(Y4S)	OFF
Non-operation unit liquid pipe stop solenoid valve		SVSL	(Y6S)	ON
Indoor cooling unit fan		—	(M1,2F)	Remote controller setting
Indoor cooling unit expansion valve		EV	(Y1E)	No instruction
Indoor heating unit fan		—	(M1,2F)	OFF ↓ 2.35 MPa Indoor unit control
Indoor heating unit expansion valve		EV	(Y1E)	No instruction
BS 20R	Cooling	20RH	(Y3S)	OFF
	Heating			ON
BS 20RT		20RT	(Y1S)	OFF
Ending condition				OR(Pc-Pe>0.49 MPa 200sec.

4.3 Pressure Equalizing Control

This pressure equalization control is used to equalize the pressure of discharge piping and suction piping in order to reduce refrigerant passing noise when changing over the BS units.

[Starting conditions]

The temperature control of indoor units with thermostat ON does not match up with the state of the BS unit changeover valve to which the indoor units are connected.

Parts name		Symbol	Electrical symbol	Preparation	During pressure equalization	After pressure equalization operation
Compressor		—	(M1C)	74 Hz High limit	74Hz	74Hz +2 steps/20 sec. >0.83 MPa
4 way valve 1		20S1	(Y5S)	Holding	OFF	ON
4 way valve 2		20S2	(Y7S)	Holding	OFF	Heat exchanger mode
Main heat exchanger		EV1	(Y1E)	Heat exchanger mode	2000 pulse	20S2=0 : 2000 pulse 20S2=1 : 180 pulse
Sub-cooling electronic expansion valve		EV3	(Y3E)	0 pls	0 pls	0 pls
Hot gas bypass solenoid valve		SVP	(Y1S)	ON	ON	ON
Water heat exch. oil return solenoid valve		SVE	(Y2S)	OFF	OFF	ON
Receiver gas charging solenoid valve		SVL	(Y3S)	OFF	OFF	OFF
Receiver gas		SVG	(Y4S)	ON	OFF	OFF
Non-operation unit liquid pipe stop		SVSL	(Y6S)	ON	ON	ON
Indoor cooling unit fan		—	(M1,2F)	No instruction	No instruction	No instruction
Indoor cooling unit		EV	(Y1E)	No instruction	No instruction	No instruction
Indoor heating unit fan		—	(M1,2F)	No instruction	OFF	OFF → Indoor unit control at Pc>2.35 MPa
Indoor heating unit expansion valve		EV	(Y1E)	500 pulse	192 pulse	No instruction
BS 20RH	Cooling	20RH	(Y3S)	No instruction	No instruction	OFF
	Heating			No instruction	No instruction	ON
BS 20RT		20RT	(Y1S)	OFF	OFF	OFF
Ending condition				2 min.	1 min.	OR (Pc-Pe>0.83 MPa 200sec.

5. Normal Control

5.1 Compressor Control

5.1.1 Compressor 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 : Low pressure equivalent saturation temperature (°C)

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

Te setting

L	M (Normal) (factory setting)	H
3	6	9

[Heating operation]

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

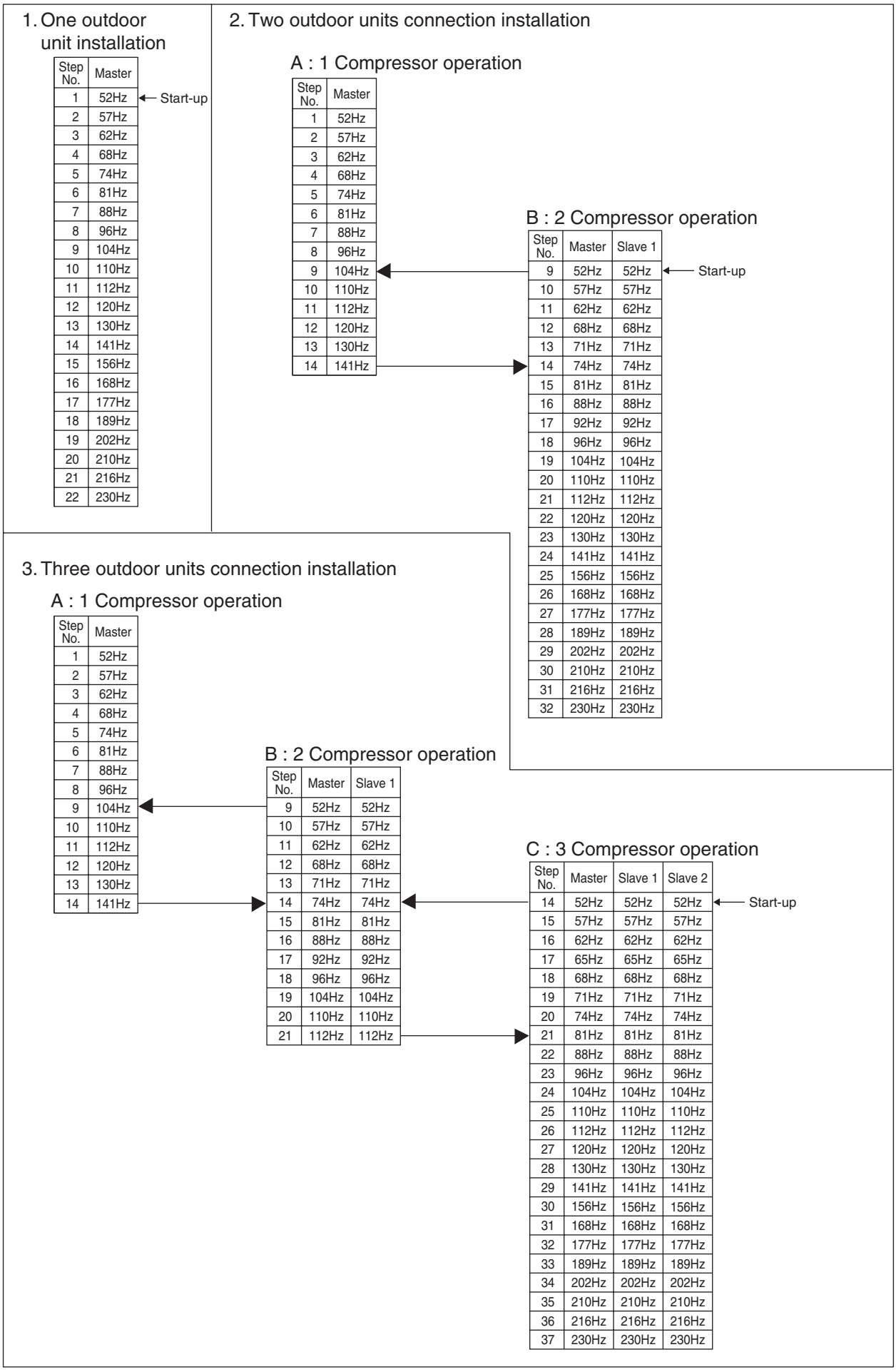
Tc : High pressure equivalent saturation temperature (°C)

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

Tc setting

L	M (Normal) (factory setting)	H
43	46	49

5.1.2 Compressor Operation Frequency Steps



1. One outdoor unit installation

Step No.	Master
1	52Hz ← Start-up
2	57Hz
3	62Hz
4	68Hz
5	74Hz
6	81Hz
7	88Hz
8	96Hz
9	104Hz
10	110Hz
11	112Hz
12	120Hz
13	130Hz
14	141Hz
15	156Hz
16	168Hz
17	177Hz
18	189Hz
19	202Hz
20	210Hz
21	216Hz
22	230Hz

2. Two outdoor units connection installation

A : 1 Compressor operation

Step No.	Master
1	52Hz
2	57Hz
3	62Hz
4	68Hz
5	74Hz
6	81Hz
7	88Hz
8	96Hz
9	104Hz
10	110Hz
11	112Hz
12	120Hz
13	130Hz
14	141Hz

B : 2 Compressor operation

Step No.	Master	Slave 1
9	52Hz	52Hz ← Start-up
10	57Hz	57Hz
11	62Hz	62Hz
12	68Hz	68Hz
13	71Hz	71Hz
14	74Hz	74Hz
15	81Hz	81Hz
16	88Hz	88Hz
17	92Hz	92Hz
18	96Hz	96Hz
19	104Hz	104Hz
20	110Hz	110Hz
21	112Hz	112Hz
22	120Hz	120Hz
23	130Hz	130Hz
24	141Hz	141Hz
25	156Hz	156Hz
26	168Hz	168Hz
27	177Hz	177Hz
28	189Hz	189Hz
29	202Hz	202Hz
30	210Hz	210Hz
31	216Hz	216Hz
32	230Hz	230Hz

3. Three outdoor units connection installation

A : 1 Compressor operation

Step No.	Master
1	52Hz
2	57Hz
3	62Hz
4	68Hz
5	74Hz
6	81Hz
7	88Hz
8	96Hz
9	104Hz
10	110Hz
11	112Hz
12	120Hz
13	130Hz
14	141Hz

B : 2 Compressor operation

Step No.	Master	Slave 1
9	52Hz	52Hz
10	57Hz	57Hz
11	62Hz	62Hz
12	68Hz	68Hz
13	71Hz	71Hz
14	74Hz	74Hz
15	81Hz	81Hz
16	88Hz	88Hz
17	92Hz	92Hz
18	96Hz	96Hz
19	104Hz	104Hz
20	110Hz	110Hz
21	112Hz	112Hz

C : 3 Compressor operation

Step No.	Master	Slave 1	Slave 2
14	52Hz	52Hz	52Hz ← Start-up
15	57Hz	57Hz	57Hz
16	62Hz	62Hz	62Hz
17	65Hz	65Hz	65Hz
18	68Hz	68Hz	68Hz
19	71Hz	71Hz	71Hz
20	74Hz	74Hz	74Hz
21	81Hz	81Hz	81Hz
22	88Hz	88Hz	88Hz
23	96Hz	96Hz	96Hz
24	104Hz	104Hz	104Hz
25	110Hz	110Hz	110Hz
26	112Hz	112Hz	112Hz
27	120Hz	120Hz	120Hz
28	130Hz	130Hz	130Hz
29	141Hz	141Hz	141Hz
30	156Hz	156Hz	156Hz
31	168Hz	168Hz	168Hz
32	177Hz	177Hz	177Hz
33	189Hz	189Hz	189Hz
34	202Hz	202Hz	202Hz
35	210Hz	210Hz	210Hz
36	216Hz	216Hz	216Hz
37	230Hz	230Hz	230Hz

5.2 Electronic Expansion Valve Control

Main Motorized Valve EV1 Control

Carries out the motorized valve (Y1E) PI control to maintain the evaporator outlet superheated degree (SH) at constant during heating operation to make maximum use of the outdoor unit heat exchanger (evaporator).

SH = Ts - Te

SH : Evaporator outlet superheated degree (°C)

Ts : Suction pipe temperature detected by thermistor R2T (°C)

Te : Low pressure equivalent saturation temperature (°C)

The optimum initial value of the evaporator outlet superheated degree is 5°C, but varies depending on the discharge pipe superheated degree of inverter compressor.

Sub-cooling Motorized Valve EV3 Control

Makes PI control of the motorized valve (Y2E) to keep the superheated degree of the outlet gas pipe on the evaporator side for the full use of the sub-cooling heat exchanger.

SH = Tsh -Te

SH : Outlet superheated degree of evaporator (°C)

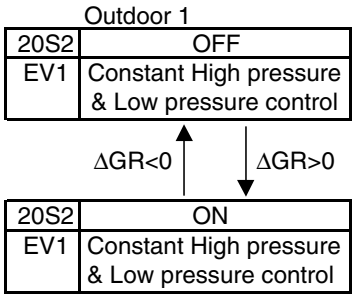
Tsh : Suction pipe temperature detected with the thermistor R5T (°C)

Te : Low pressure equivalent saturation temperature (°C)

5.3 Heat Exchange Mode in Heating Operation or Simultaneous Cooling / Heating Operation

In heating or simultaneous cooling / heating operation, a target condensing and evaporating temperature can be secured by switching the water heat exchanger of the outdoor unit into evaporator or condenser with load.

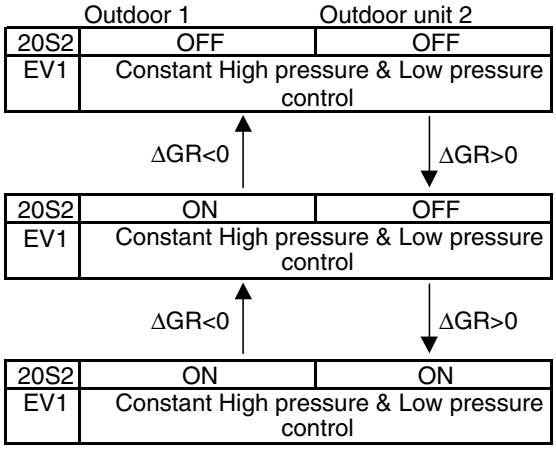
One outdoor installation



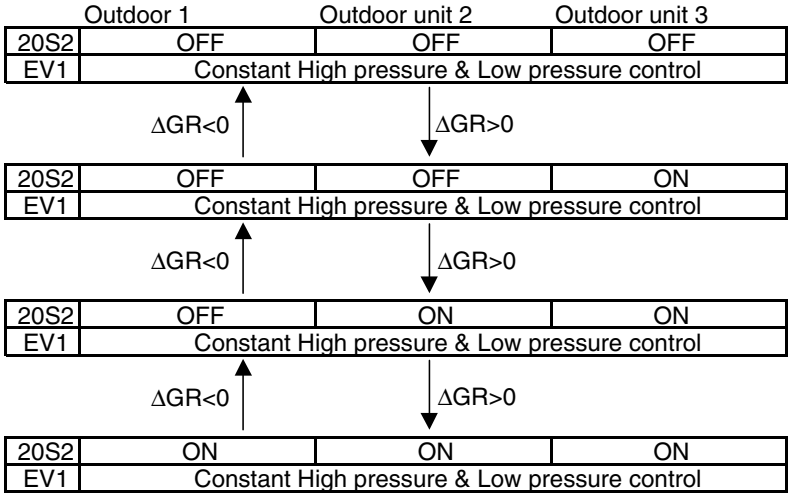
*

- The ΔGR is a numerical value representing the current balancing conditions, which is computed in accordance with the target condensing temperature, target evaporating temperature, current condensing temperature, and current evaporating temperature.

Two outdoor installation



Three outdoor installation

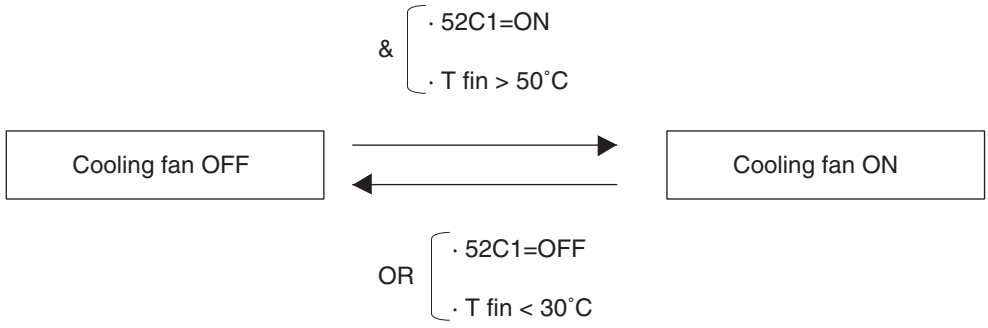


5.4 Cooling Fan Control

This function is used for ON-OFF control of the cooling fan to cool the inverter. This cooling fan operates only when the temperature of the inverter fan is high, in order to reduce the operating time of the fan.

[Details]

Control the cooling fan by each outdoor unit.

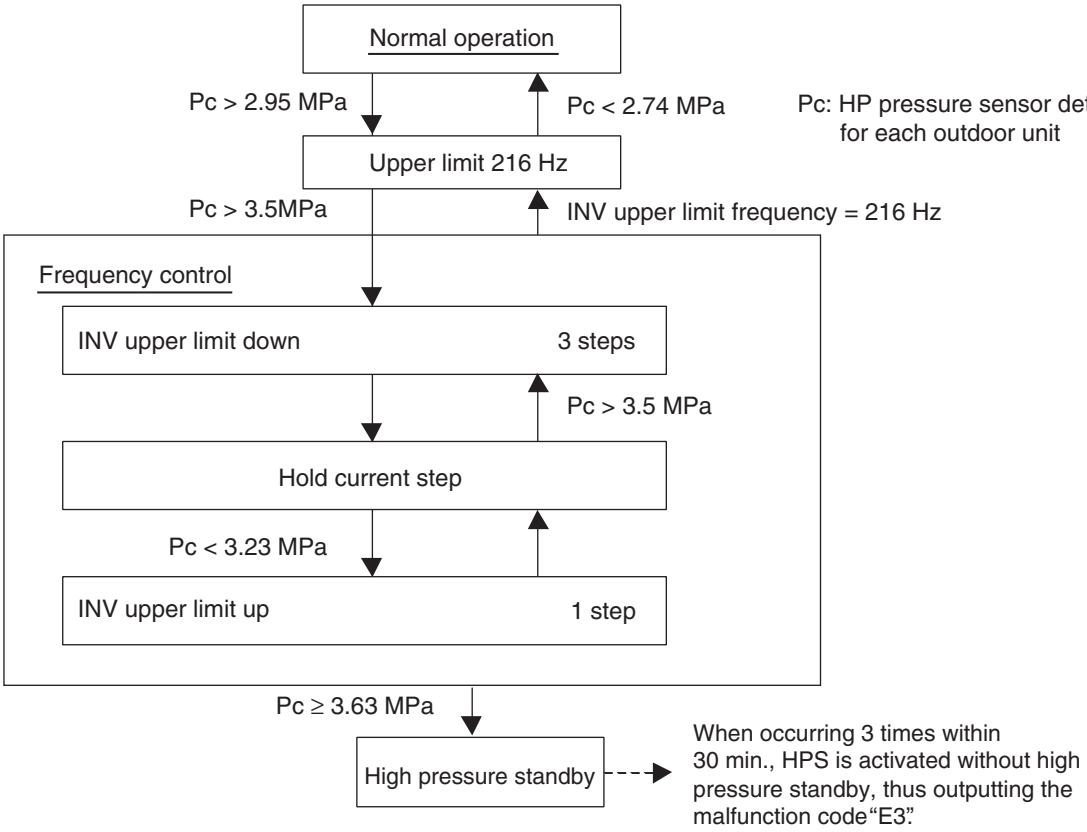


6. Protection Control

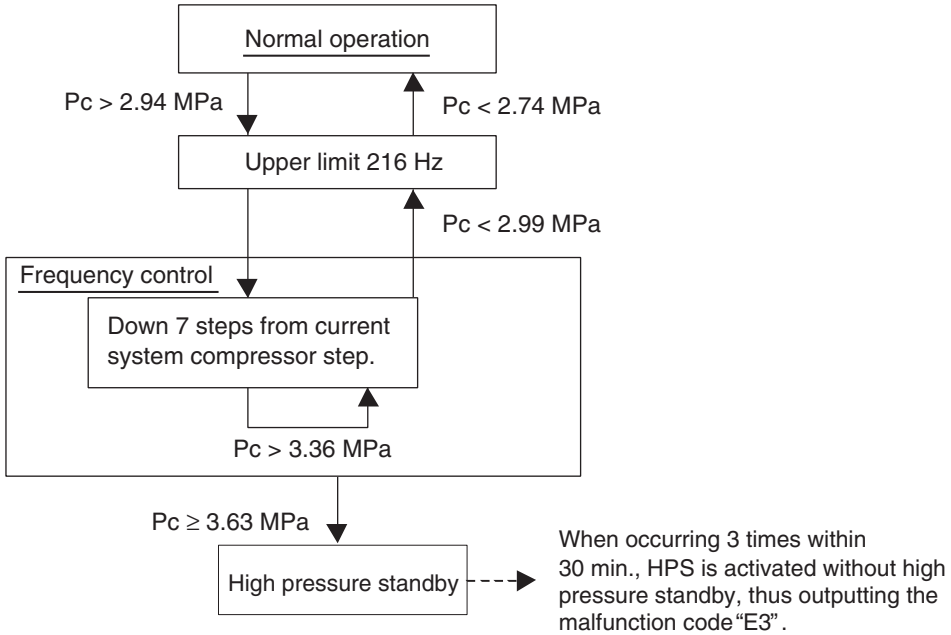
6.1 High Pressure Protection Control

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

[In cooling operation]



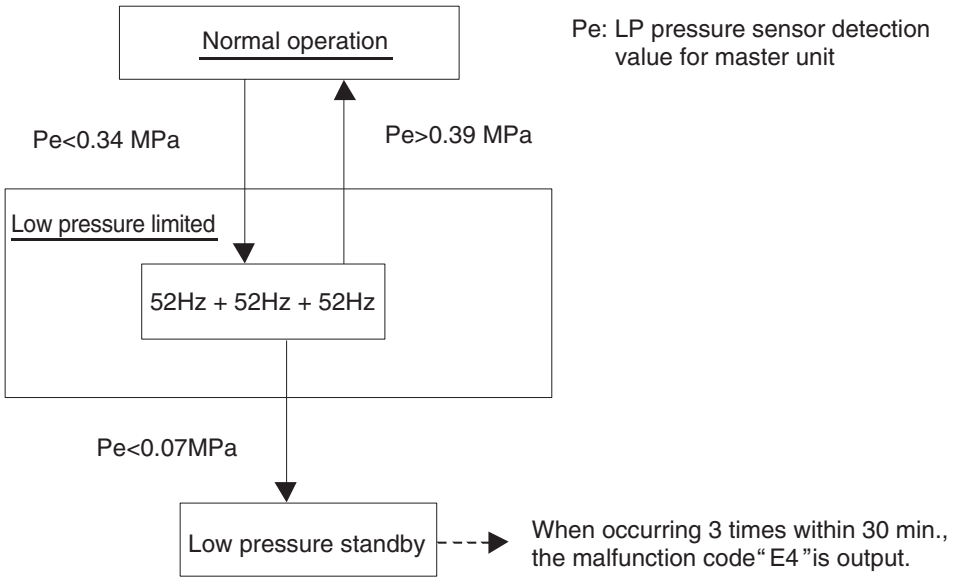
[In heating operation or simultaneous cooling/heating operation]



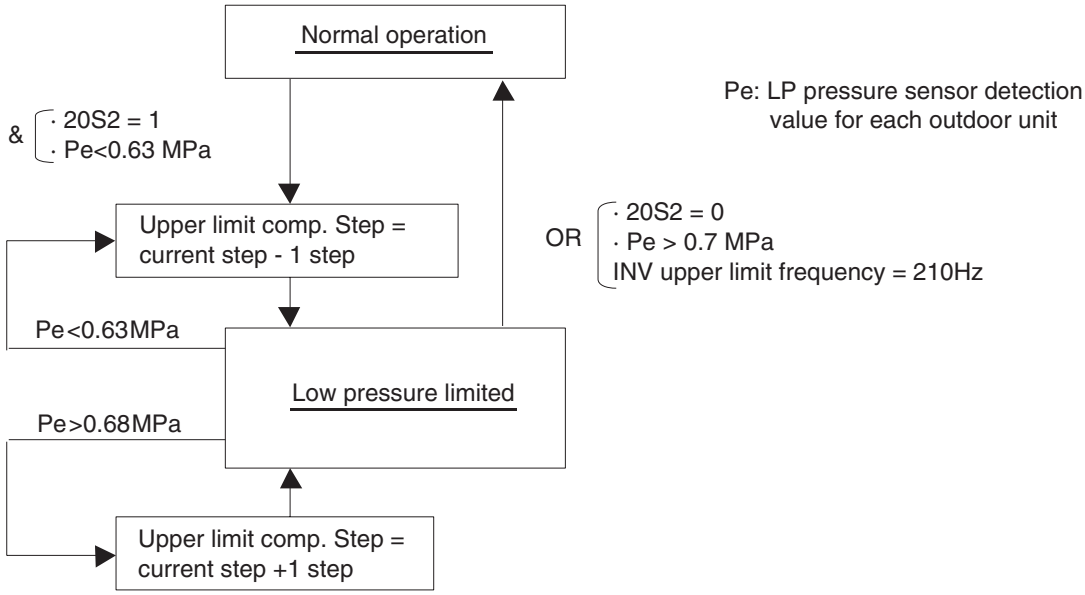
6.2 Low Pressure Protection Control

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

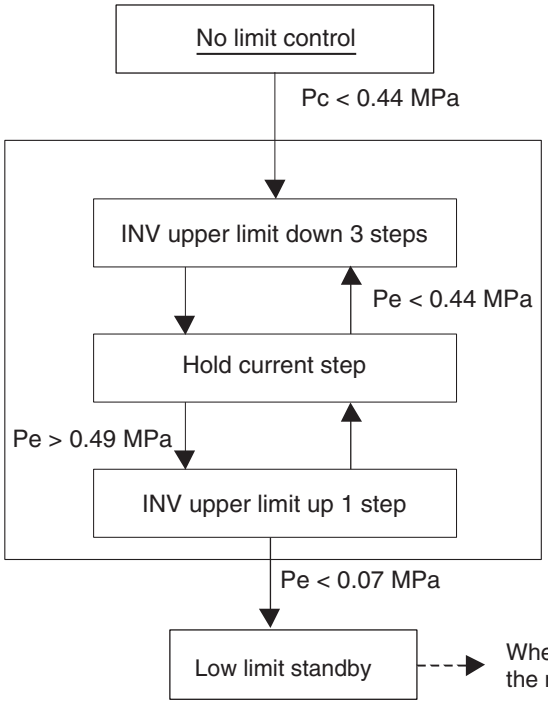
[In cooling operation]



[In heating operation] (When the outdoor heat exchanger is used as evaporator.)



[In heating operation] (When the outdoor heat exchanger is used as condenser.)



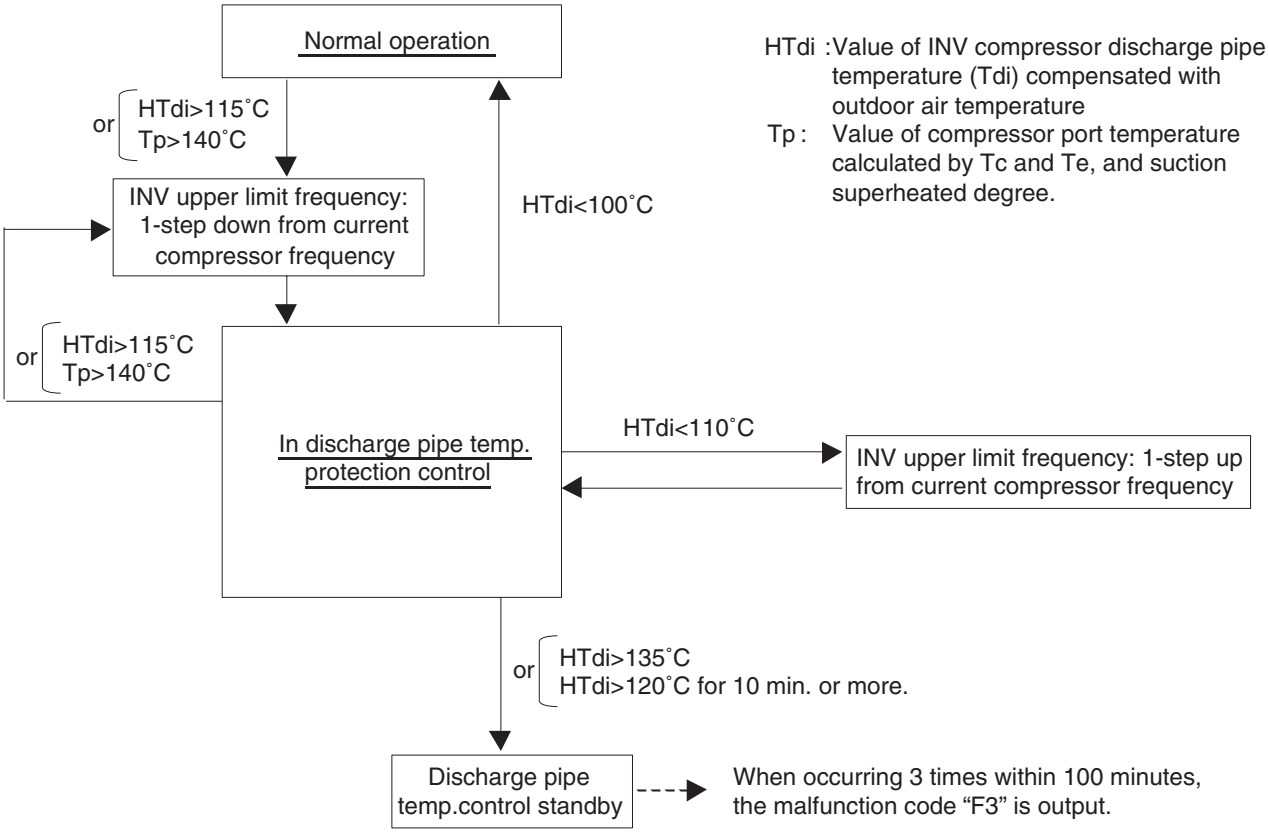
Pe: LP pressure sensor detection value for each outdoor unit

When occurring 3 times within 30 min., the malfunction code “E4” is output.

6.3 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.

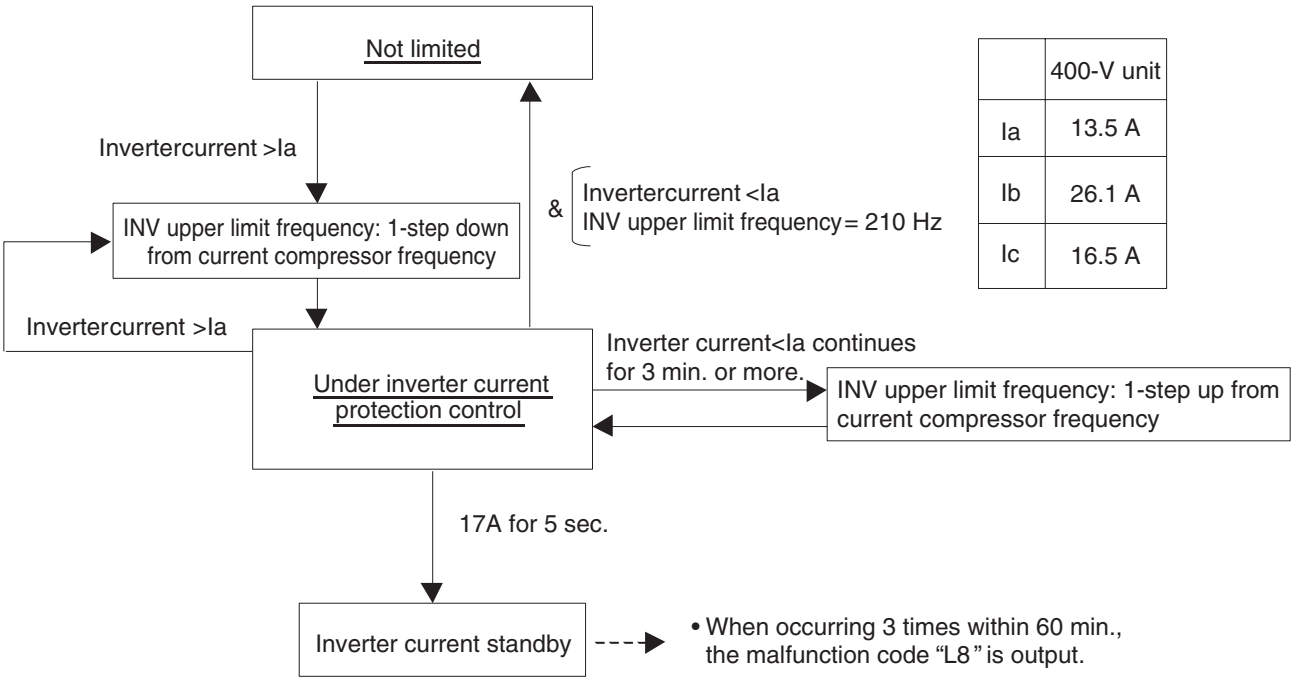
[INV compressor]



6.4 Inverter Protection Control

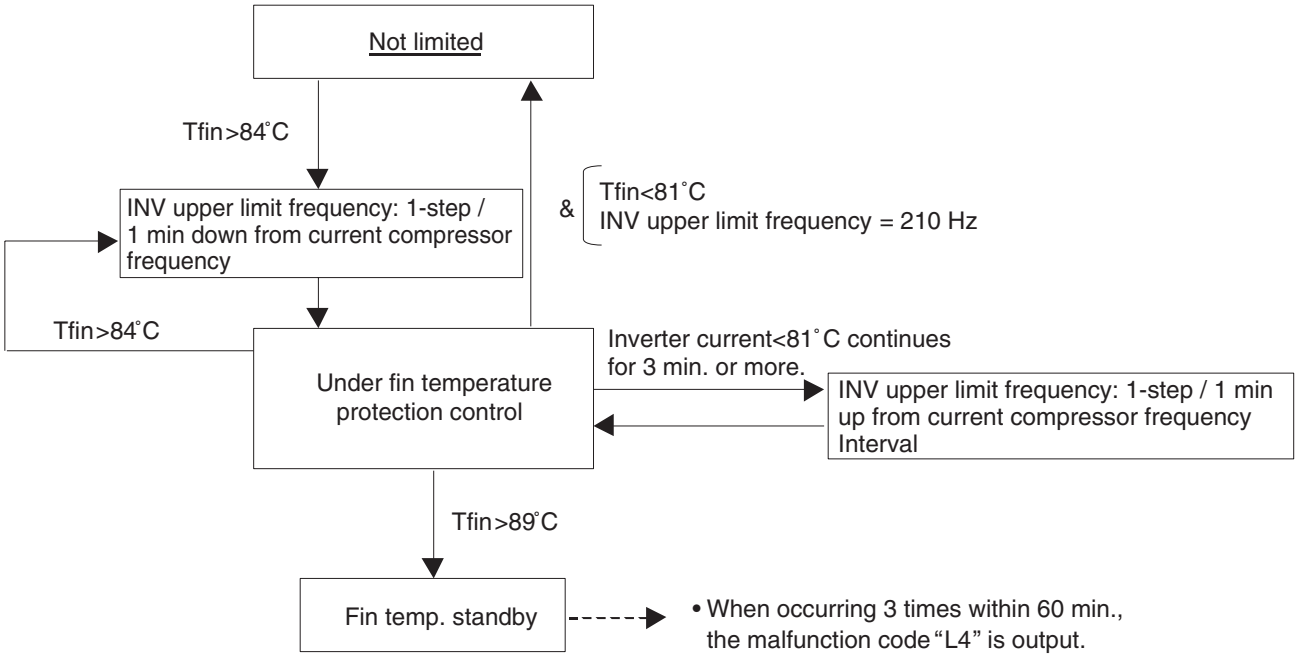
Inverter current protection control and inverter fin temperature control are performed to prevent tripping due to a malfunction, or transient inverter overcurrent, and fin temperature increase.

[Inverter overcurrent protection control]



	400-V unit
Ia	13.5 A
Ib	26.1 A
Ic	16.5 A

[Inverter fin temperature control]



7. Special Operation

7.1 Oil Return Operation

In order to prevent the running-out of refrigerating machine oil in the compressor, the oil flowing out from the compressor to the system side is collected through the oil return operation.

7.1.1 Oil Return Operation in Cooling Operation

[Starting conditions]

Start oil return operation in cooling operation referring to the following conditions.

* Cumulative oil return amount
* Timer

Cumulative compressor operating time after power supply turns on exceeds 2 hours and the time after the completion of previous oil return operation exceeds 8 hours.

Furthermore, the cumulative oil return is calculated according to To, Te, and compressor load.

Cooling oil return

Parts name		Symbol	Electrical symbol	Preperation	During oil return operation		After oil return operation
Compressor		—	(M1C)	Current step will be upper limit.	104 Hz		52 Hz
4 way valve 1		20S1	(Y5S)		OFF		OFF
4 way valve 2		20S2	(Y7S)		OFF		OFF
Main heat exchanger electronic expansion valve		EV1	(Y1E)		2000 pulse		2000 pulse
Sub-cooling electronic expansion valve		EV3	(Y3E)		0 pulse		0 pulse
Hot gas bypass solenoid valve		SVP	(Y1S)		ON		ON
Water heat exch. oil return solenoid valve		SVE	(Y2S)		OFF		OFF
Receiver gas charging solenoid valve		SVL	(Y3S)		OFF		OFF
Receiver gas discharge solenoid valve		SVG	(Y4S)		OFF		OFF
Liquid pipe stop solenoid valve		SVSL	(Y6S)		ON		ON
Indoor cooling unit fan		—	(M1,2F)	Same as normal cooling operation	Thermostat on/Stop : Indoor unit control Thermostat off : OFF		Normal control
Indoor cooling unit expansion valve		EV	(Y1E)		Stop/thermo off: 200 pls Thermo ON: Indoor unit control		Normal control
Indoor heating unit fan		—	(M1,2F)		—		—
Indoor heating unit expansion valve		EV	(Y1E)		—		—
BS 20RH	Cooling	20RH	(Y3S)		ON	OFF	OFF
	Heating				—	—	—
BS 20RT		20RT	(Y1S)		OFF	OFF	OFF
Ending condition				20 sec.	Max.3 min.	Max.3 min.	Max. 3min.30sec

7.1.2 Oil Return Operation in Heating Operation

[Starting conditions]

Start oil return operation in heating operation referring to the following conditions.
Cumulative compressor operating time after power supply turns on exceeds 2 hours and the time after the completion of previous oil return operation exceeds 8 hours. And cumulative oil return is calculated based on To, Te compressor load.

Heating & Cooling/heating simultaneous operation oil return

Parts name	Symbol	Electrical symbol	Preperation	During oil return operation		After oil return operation
Compressor	—	(M1C)	Current step will be upper limit.	104 Hz		52 Hz
4 way valve 1	20S1	(Y5S)	↑	OFF		OFF
4 way valve 2	20S2	(Y7S)		OFF		Heat exchanger mode
Main heat exchanger electronic expansion valve	EV1	(Y1E)		2000 pulse		20S2=0 : 2000 pulse 20S2=1 : 180 pulse
Sub-cooling electronic expansion valave	EV3	(Y3E)		0 pulse		0 pulse
Hot gas bypass solenoid valve	SVP	(Y1S)		ON		ON
Water heat exch. oil return solenoid valve	SVE	(Y2S)		OFF		OFF
Receiver gas charging solenoid valve	SVL	(Y3S)		OFF		OFF
Receiver gas discharge solenoid valve	SVG	(Y4S)		OFF		OFF
Liquid pipe stop solenoid valve	SVSL	(Y6S)		ON		ON
Indoor cooling unit fan	—	(M1,2F)	Same as normal cooling operation	Thermostat on/Stop : Indoor unit control Thermostat off : OFF		Normal control
Indoor cooling unit expansion valve	EV	(Y1E)		320 pulse		Normal control
Indoor heating unit fan	—	(M1,2F)		OFF		Pc>2.35MPa OFF ⟶ Indoor unit control
Indoor heating unit expansion valve	EV	(Y1E)		320 pulse		Normal control
BS 20RH Cooling	20RH	(Y3S)		ON	OFF	OFF
BS 20RH Heating	20RH	(Y3S)		ON	OFF	ON
BS 20RT	20RT	(Y1S)	↓	OFF	OFF	OFF
Ending condition			2 min.	Max.2 min.	Max.4 min.	OR { 200 sec Pc-Pe>0.83MPa

7.2 Oil Return Operation of Water Heat Exchanger

[Oil return operation of Water heat exchanger]

When the water heat exchanger is used as evaporator during heating or simultaneous cooling/ heating operation, the operation that the oil accumulated in the water heat exchanger is returned to compressor is conducted.

[IN condition]

Following operation is conducted referring to the compressor loading etc.

Water heat exchanger oil return control

Manster unit (When 20S2=ON)

Parts name	Symbol	Electrical symbol	Water heat exchanger oil return control
Compressor	—	(M1C)	52 Hz
4 way valve 1	20S1	(Y5S)	ON
4 way valve 2	20S2	(Y7S)	OFF
Main heat exchanger electronic expansion valve	EV1	(Y1E)	300 pulse
Sub-cooling electronic expansion valve	EV3	(Y3E)	180 pulse
Hot gas bypass solenoid valve	SVP	(Y1S)	ON
Water heat exch. oil return solenoid valve	SVE	(Y2S)	ON
Receiver gas charging solenoid	SVL	(Y3S)	OFF
Receiver gas discharge solenoid valve	SVG	(Y4S)	OFF
Non-operation unit liquid pipe stop solenoid valve	SVSL	(Y6S)	ON
Indoor cooling unit fan	—	(M1,2F)	↑
Indoor cooling unit expansion valve	EV	(Y1E)	Normal control
Indoor heating unit fan	—	(M1,2F)	↓
Indoor heating unit expansion valve	EV	(Y1E)	Tharmostat on : Normal control Tharmostat off/Stop : 500 pulse
BS 20RH Cooling / Heating	20RH	(Y3S)	↕ Normal control
BS 20RT	20RT	(Y1S)	
Ending condition			Max.90 sec.

7.3 Pump-down Residual Operation Control

If any liquid refrigerant remains in the heat exchanger during compressor startup, the liquid refrigerant will enter the compressor, resulting in the dilution of the refrigerating machine oil in the compressor and the degradation of lubricating capacity.
Therefore, before the compressor stops, pump-down operation is performed to collect the refrigerant in the heat exchanger.

7.3.1 Cooling Operation Mode

→ To restart standby

Parts name	Symbol	Electrical symbol	Master unit operation	Slave unit operation
Compressor	—	(M1C)	Current load	OFF
Inverter cooling fan	—	(M1,2F)	Inverter cooling fan control	Inverter cooling fan control
4 way valve 1	20S1	(Y5S)	OFF	OFF
4 way valve 2	20S2	(Y7S)	OFF	OFF
Main heat exchanger electronic exp. valve	EV1	(Y1E)	2000 pulse	0 pulse
Sub-cooling electronic exp. valve	EV3	(Y3E)	0 pls	0 pulse
Hot gas bypass solenoid valve	SVP	(Y1S)	ON	OFF
Water heat exch. oil return solenoid valve	SVE	(Y2S)	OFF	OFF
Receiver gas charging solenoid valve	SVL	(Y3S)	OFF	OFF
Receiver gas discharge solenoid valve	SVG	(Y4S)	OFF	OFF
Non-operation unit liquid pipe stop solenoid valve	SVSL	(Y6S)	OFF	ON
Indoor cooling unit fan	—	(M1,2F)	No instruction	
Indoor cooling unit expansion valve	EV	(Y1E)	All 0 pulse	
Indoor heating unit fan	—	(M1,2F)	No instruction	
Indoor heating unit expansion valve	EV	(Y1E)	All 0 pulse	
BS 20RH	20RH	(Y3S)	BS unit control	
BS 20RT	20RT	(Y1S)	BS unit control	
Ending condition			Max. 5 min.	Same ending with master unit

7.3.2 Heating & Simultaneous Cooling/Heating Mode

→ To restart standby

Parts name	Symbol	Electrical symbol	Master unit operation	Slave unit operation
Compressor	—	(M1C)	Current load	OFF
Inverter cooling fan	—	(M1,2F)	Inverter cooling fan control	Inverter cooling fan control
4 way valve 1	20S1	(Y5S)	ON	ON
4 way valve 2	20S2	(Y7S)	Holding	Holding
Main heat exchanger electronic exp. valve	EV1	(Y1E)	20S2=0: 2000 pulse 20S2=1: 0 pulse	0 pulse
Sub-cooling electronic exp. valve	EV3	(Y3E)	0 pulse	0 pulse
Hot gas bypass solenoid valve	SVP	(Y1S)	ON	OFF
Water heat exch. oil return solenoid valve	SVE	(Y2S)	OFF	OFF
Receiver gas charging solenoid valve	SVL	(Y3S)	OFF	OFF
Receiver gas discharge solenoid valve	SVG	(Y4S)	OFF	OFF
Non-operation unit liquid pipe stop solenoid valve	SVSL	(Y6S)	OFF	ON
Indoor cooling unit fan	—	(M1,2F)	No instruction	
Indoor cooling unit expansion valve	EV	(Y1E)	All 0 pulse	
Indoor heating unit fan	—	(M1,2F)	No instruction	
Indoor heating unit expansion valve	EV	(Y1E)	All 500 pulse	
BS 20RH	20RH	(Y3S)	BS unit control	
BS 20RT	20RT	(Y1S)	OFF	
Ending condition			Max. 5 min.	Same ending with master unit

8. Other Control

8.1 Outdoor Unit Rotation

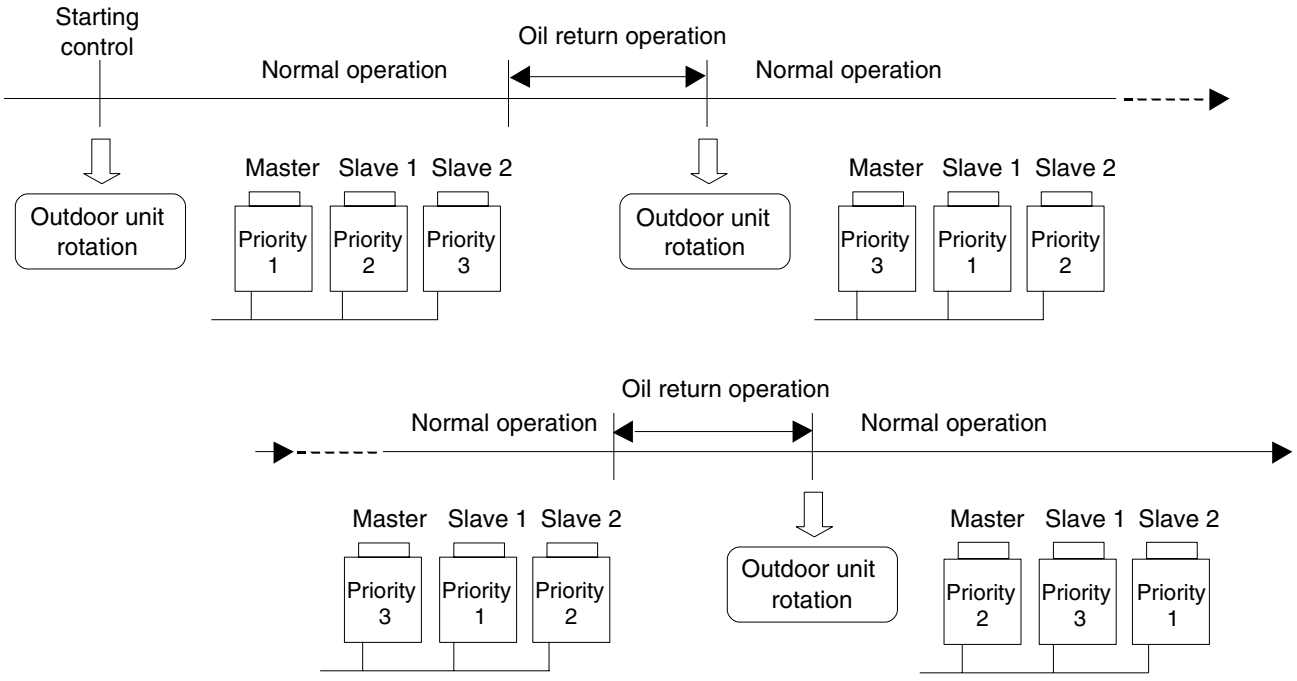
In the case of multi-outdoor-unit system, this outdoor unit rotation is used to prevent the compressor from burning out due to unbalanced oil level between outdoor units.

[Details of outdoor unit rotation]
In the case of multi-outdoor-unit system, each outdoor unit is given an operating priority for the control.
Outdoor unit rotation makes it possible to change the operating priority of outdoor units.
Thus, the system becomes free of compressors that stop over an extended period of time at the time of partial loading, preventing unbalanced oil level.

[Timing of outdoor unit rotation]

- After oil return operation
- At the beginning of the starting control
- When there is a unit stopping more than 15 min.

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



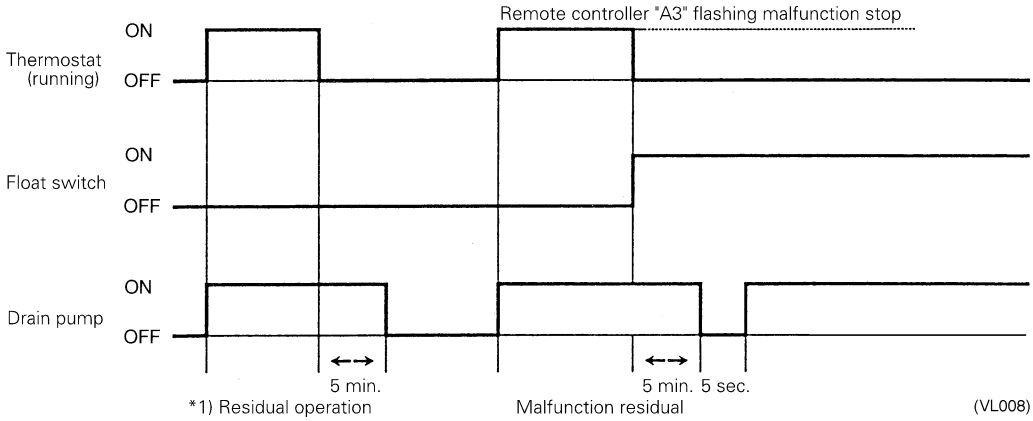
* "Master unit", "slave unit 1" and "slave unit 2" in this section are the names for installation. They are determined in installation work, and not changed thereafter. (These names are different from "master unit" and "slave unit" for control.)
The outdoor unit connected the control wires (F1 and F2) for the indoor unit should be designated as master unit
Consequently, The LED display on the main PCB for "master unit", "slave unit 1" and "slave unit 2" do not change. (Refer to the page 87.)

9. Outline of Control (Indoor Unit)

9.1 Drain Pump Control

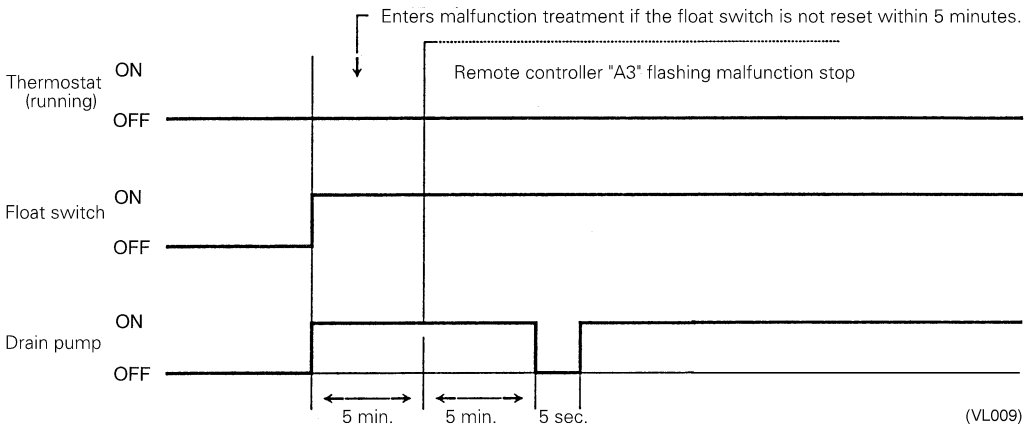
1. The drain pump is controlled by the ON/OFF buttons (4 button (1) - (4) given in the figure below).

9.1.1 When the Float Switch is Tripped While the Cooling Thermostat is ON:

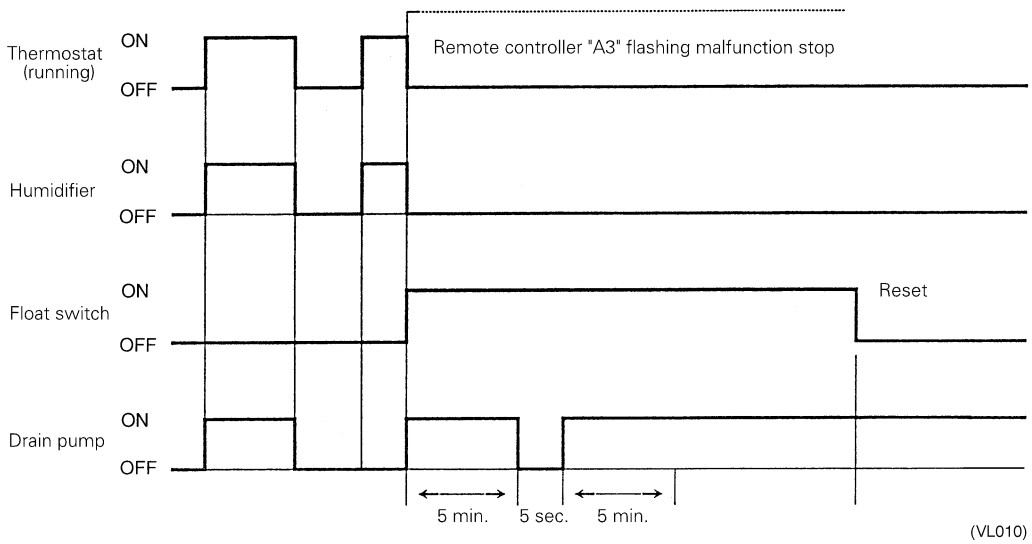


∗ 1. The objective of residual operation is to completely drain any moisture adhering to the fin of the indoor unit heat exchanger when the thermostat goes off during cooling operation.

9.1.2 When the Float Switch is Tripped During Cooling OFF by Thermostat:

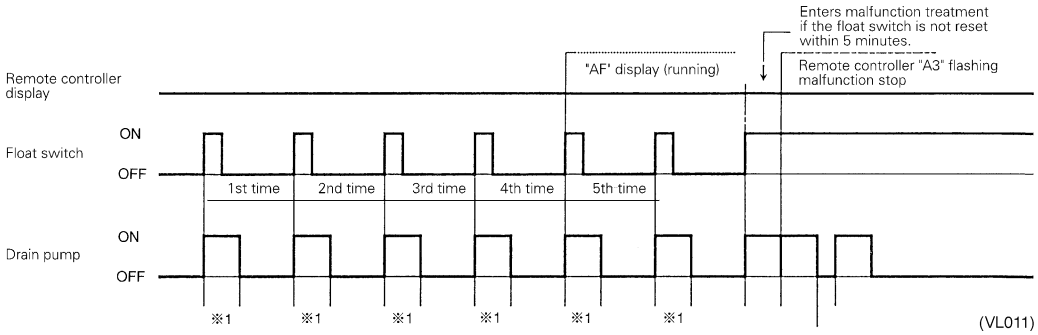


9.1.3 When the Float Switch is Tripped During Heating Operation:



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.

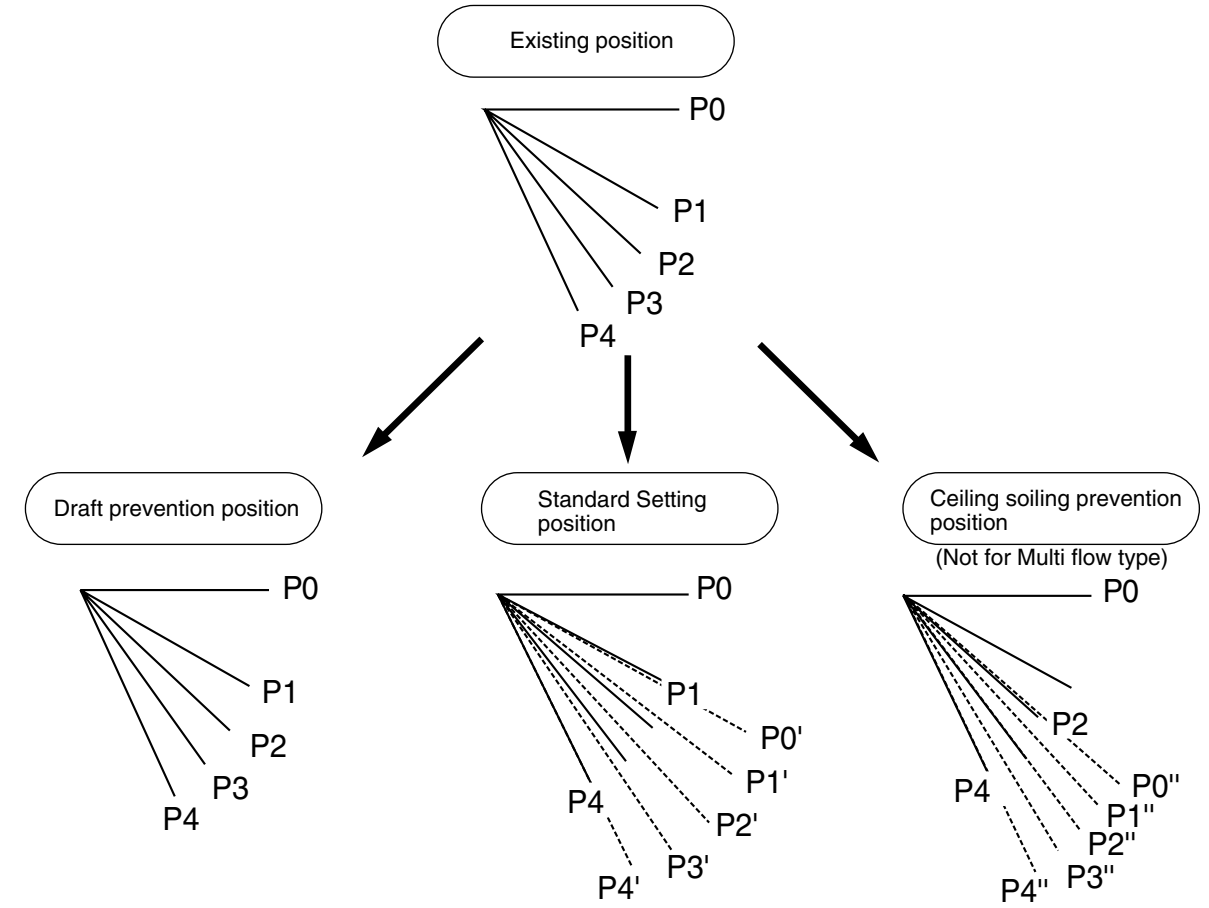
9.1.4 When the Float Switch is Tripped and “AF” is Displayed on the Remote Controller:



Notes: 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.

9.2 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 set position is standard position.

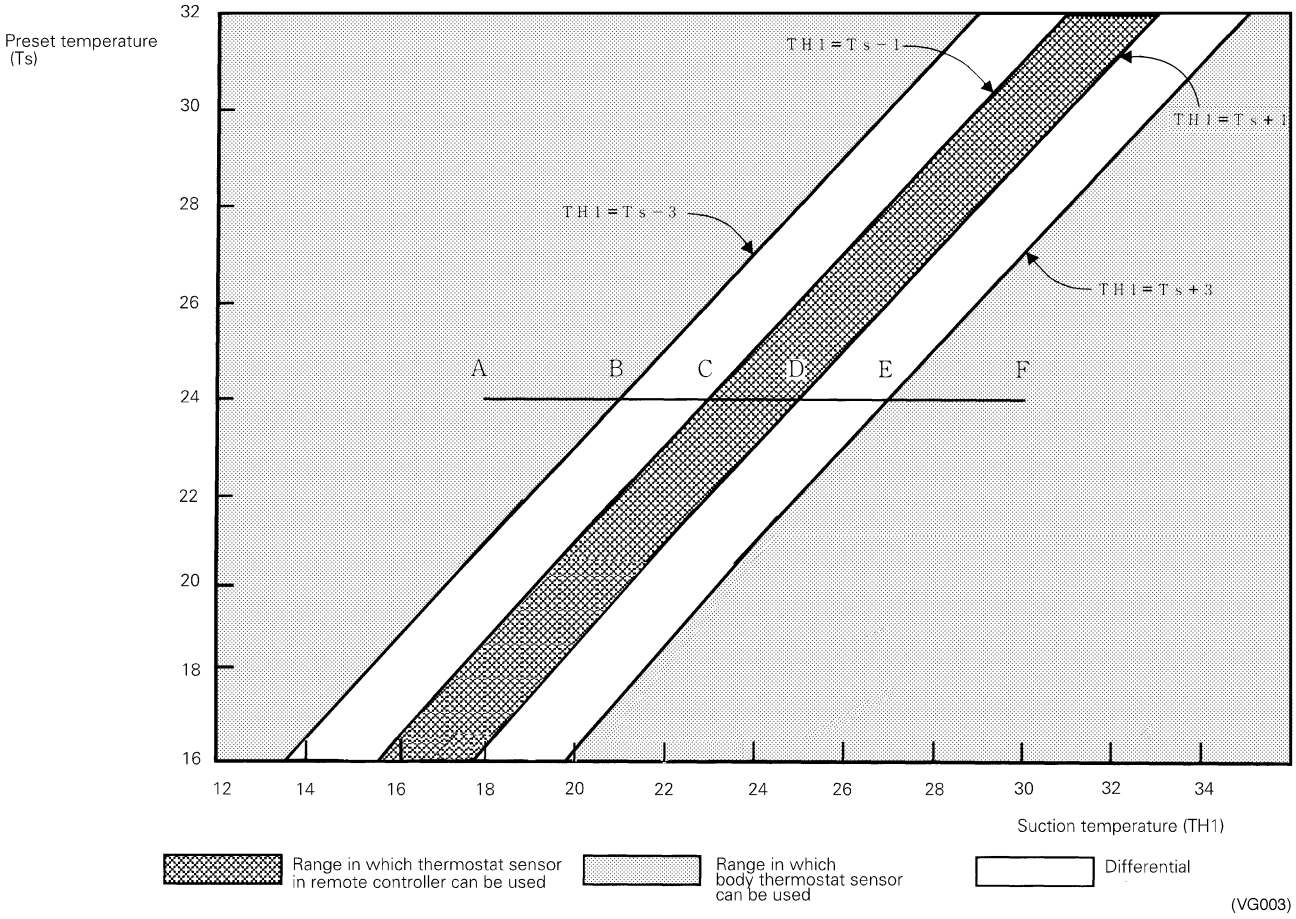
(VL012)

9.3 Thermostat Sensor in Remote Controller

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

Cooling

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



■ **Ex: When cooling**

Assuming the preset temperature in the figure above is 24°C, and the suction temperature has changed from 18°C to 30°C

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

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

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

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

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

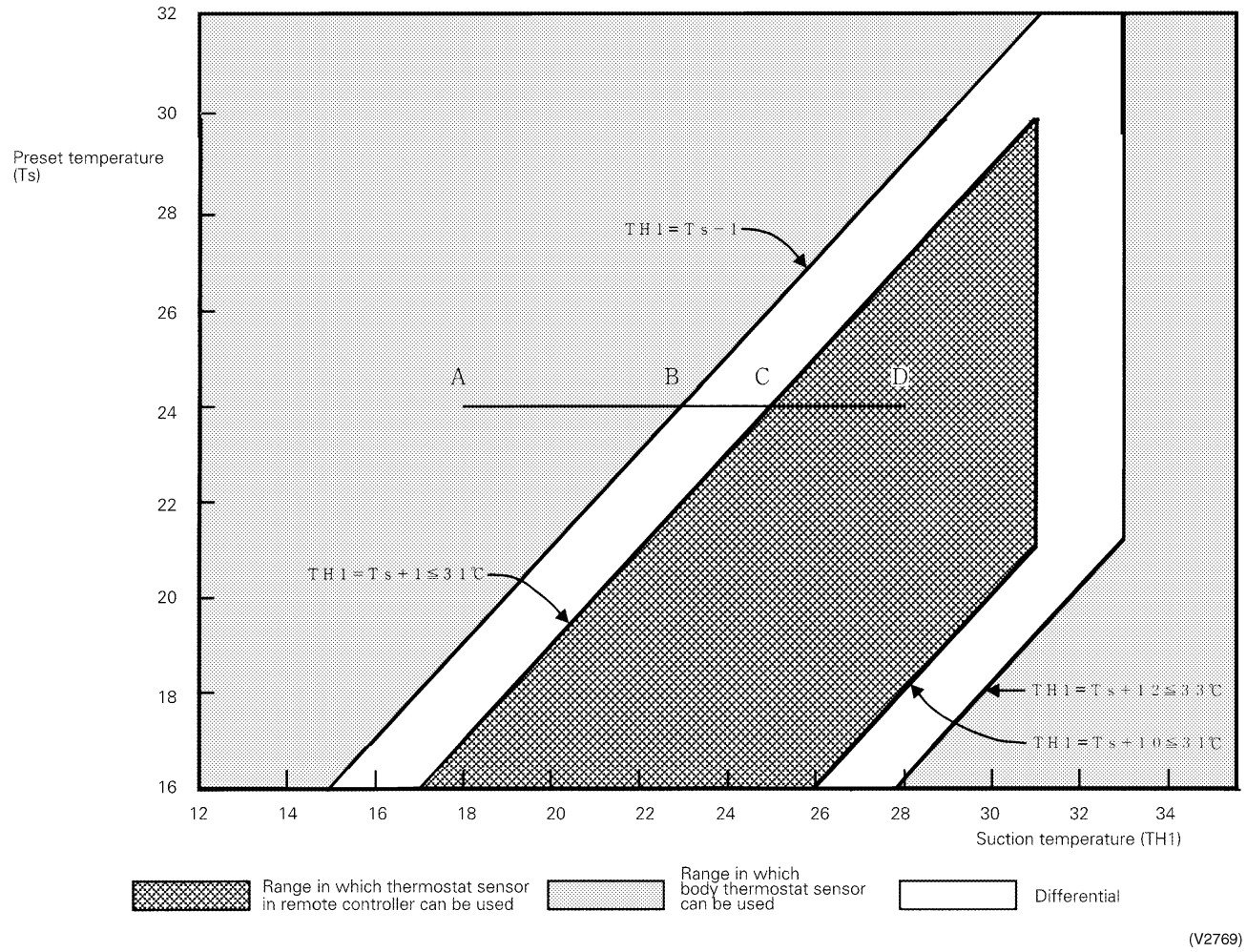
Body thermostat sensor is used for temperatures from 30°C to 25°C (F → D).

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

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

Heating

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



■ **Ex: When heating**

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

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

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

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

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

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

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

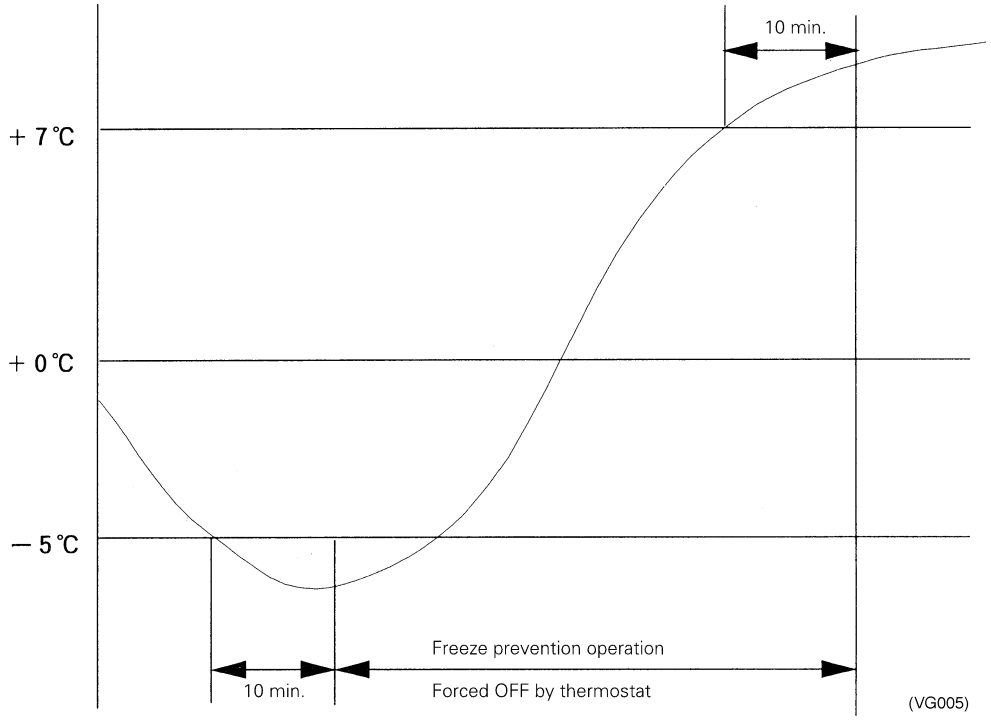
9.4 Freeze Prevention

Freeze Prevention by Off Cycle (Indoor Unit)

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

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

Ex: Case where temperature is –5°C or less for total of 10 min.



Part 5
Test Operation

1. Test Operation

1.1 Procedure and Outline

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

1.1.1 Check Work Prior to Turn Power Supply On

Check the below items.
- Power wiring
- Control transmission wiring between units
- Operation signal to heat source pump and interlock wiring from pump
- Earth wire

○ Is the wiring performed as specified?
○ Are the designated wires used?
○ Is the grounding work completed?
Use a 500V megger tester to measure the insulation.
- Do not use a megger tester for other circuits than 200V (or 240v) circuit.

○ Are the setscrews of wiring not loose?

⇩

Check on refrigerant piping and piping insulation

○ Is pipe size proper? (The design pressure of this product is 4.0MPa.)
○ Are pipe insulation materials installed securely?
Liquid and gas pipes need to be insulated. (Otherwise causes water leak.)
○ Is refrigerant piping carried out correctly as per installation manual?
(Special care is required for multi-outdoor installation.)

⇩

Check on air tight test and vaccume drying

○ Is the air tight test and vaccume drying carried out as per installation manual?

⇩

Check on amount of additional refrigerant charge

○ Is refrigerant charged up to the specified amount?
If insufficient, charge the refrigerant from the service port of stop valve on the liquid side with outdoor unit in stop mode after turning power on.
○ If the specified amount of refrigerant can not be charged in stop mode, charge the required refrigerant as per "Additional refrigerant charge mode" in operation. (Refer page)
○ Has the amount of refrigerant charge been recorded on “Record Chart of Additional Refrigerant Charge Amount”?

⇩

Check on stop valves opening

○ Check to make sure the all stop valves on outdoor units are open.

(V3055)

1.1.2 Turn Power On

Turn outdoor unit indoor unit, BS unit and heat source water pump power on.

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

⇩

Confirm LED display on outdoor unit's PCB

○ Make sure the display is normal.
Following table shows correct display.

⇩

Carry out field setting on outdoor PC board

○ For field settings, refer to “Field Settings” on and after P89.
After the completion of field settings, set to “Setting mode 1”.
In case of multi-outdoor unit connection, carry out the field settings on master unit.(The setting on slave unit is not effective.)

(V3056)

○ON ●OFF ◑Blink

LED display (Factory set)		Micro computer normal monitor	MODE	TEST	CH selection			Low noise	Demand	Multi
					IND	Master	Slave			
		HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
1 outdoor installation		◑	●	●	○	●	●	●	●	●
outdoor unit multi installation(*)	master	◑	●	●	○	●	●	●	●	○
	slave1	◑	●	●	●	●	●	●	●	◑
	slave2	◑	●	●	●	●	●	●	●	●

* The outdoor unit connected the control wires (F1 and F2) for the indoor unit should be designated as master unit. The other outdoor unit not connected the control wires will be slave unit.

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.)

2. When Turning On Power the Second Time and Subsequent

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

Status

Outdoor unit — Test lamp H2P .... Blinks
Can also be set during operation described above.

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

3. When an Indoor Unit or Outdoor Unit Has Been Added, or Indoor or Outdoor Unit PC Board Has Been Changed

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

Status

Outdoor unit — Test lamp H2P .... Blinks
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 applyed to "N" phase by mistake, replace Inverter P.C.B (A2P) and control transformer (T1R, T2R) in switch box together.**

(V0847)

1.1.3 Check Operation

Be sure to conduct the check operation. If the check operation is not conducted, the malfunction code "U3" will be displayed on the remote controller, thus disabling the normal operation. Through the following procedure, the check operation is automatically conducted. A period of approximately 20 minutes (approximately 30 minutes at maximum) is required to complete the judgment.

* For details of the check operation and LED display, refer to information on page 125.

Check Setting mode 1

If the LED "H1P" turns OFF, the system is set to "Setting mode 1".
If the "H1P" turns ON or OFF, pressing the PAGE FEED button (BS1) will set the system to "Setting mode 1".

Start check operation.

Press and hold the TEST OPERATION button (BS4) on the outdoor PC board for a period of 5 seconds or more.

The following check operation is automatically started.

1 Check the erroneous wiring.
2 Check whether or not the stop valve is failed to open.
3 Check the refrigerant for overcharging.
4 Judge the piping length automatically.

∗1. The "H2P" blinks during operation, and "TEST OPERATION" and "UNDER CENTRALIZED CONTROL" are displayed on the remote controller.
2. There may be cases where a period of approximately 10 minutes are required for the compressor to start up, which, however, is not a malfunction but used to ensure even refrigerant conditions.
3. The check operation will be automatically conducted in cooling mode.
4. In order to stop the compressor operation, press the CHECK button (BS3). The compressor will stop after the completion of residual operation for a period of approximately 30 seconds. (The compressor operation cannot be stopped from the remote controller.)

Completion of check operation

After the completion of check operation, check the operation results through the LED displays.

(For normal completion) ● ● ○ ● ● ● ●
(For abnormal completion) ● ○ ○ ● ● ● ●

→Check the malfunction code on the remote controller and then rectify the malfunction according to information in the "Troubleshooting".

<Precautions for check operation>

· If the test operation is started within approximately 12 minutes after turning ON the power supply to the indoor and outdoor units, H2P will turn ON and the compressor will not operate. Referring to information in table in 1.1.2 Turning ON power supply (on page 84), check to be sure the LED displays are normal and then operate the compressor.
· For the outdoor-multi system, an outdoor unit to which the indoor unit connecting wires are connected serves as the master unit. Be sure to make settings with pushbutton switches on the master unit.
· No malfunctions can be checked on individual indoor unit. After the completion of this test operation, check the individual indoor unit for any malfunctions while in normal operation mode using the remote controller.
· While in check operation mode, the indoor units as well as the outdoor units start the operation.
Do not attempt to conduct the check operation while working on the indoor unit.
· Work with all the outside panels closed except for the switch box.
· While in the test operation, operating sounds such as refrigerant passing sounds or solenoid valve switching sounds may become louder.
· In the case of multi-outdoor-unit system, make setting on the master unit PC board. (Setting with the slave unit is disabled.)

[LED display in the case of multi-outdoor-unit system] (Same as that in emergency operation)

* Discriminate the operating status of the master unit/slave units through the following LED display.

LED display (○:ON ●:OFF ◑:Blink)
H1P — — — H7P H8P

Master: ●●○●●●● ○
Slave 1: ●●●●●●● ◑
Slave 2: ●●●●●●● ●
(Factory set)

Malfunction code

In case of an alarm code displayed on remote controller:

Malfunction code	Installation error	Remedial action
E3 E4 F3 F6 UF U2	The shutoff valve of an outside unit is left closed.	Open the shutoff valve.
U1	The phases of the power to the outside units are reversed.	Exchange two of the three phases (L1, L2, L3) to make a positive phase connection.
U1 U2 U4	No power is supplied to an outdoor or indoor unit (including phase interruption).	Check if the power wiring for the outside units are connected correctly. (If the power wire is not connected to L2 phase, no malfunction display will appear and the compressor will not work.)
UF	Incorrect transmission between units	Check if the refrigerant piping line and the unit transmission wiring are consistent with each other.
E3 F6 UF U2	Refrigerant overcharge	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.
E4 F3	Insufficient refrigerant	■ 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.
U7 UF	If an outdoor multi terminal is connected when there is one outside unit installed	Remove the line from the outdoor multi terminals (Q1 and Q2).
UF E4	The operation mode on the remote controller was changed before the check operation.	Set the operation mode on all indoor unit remote controllers to “cooling.”
HJ	The heat source water is not circulating.	Make sure that the water pump is running.

1.1.4 Confirmation on Normal Operation

- Conduct normal unit operation after the check operation has been completed.
  Confirm that the indoor/outdoor units can be operated normally.
  (When an abnormal noise due to liquid compression by the compressor can be heard, stop the unit immediately, and turn on the crankcase heater to heat up it sufficiently, then start operation again.)
- Operate indoor unit one by one to check that the corresponding outdoor unit operates.
- Confirm that the indoor unit discharges cold air (or warm air).
- Operate the air direction control button and flow rate control button to check the function of the devices.

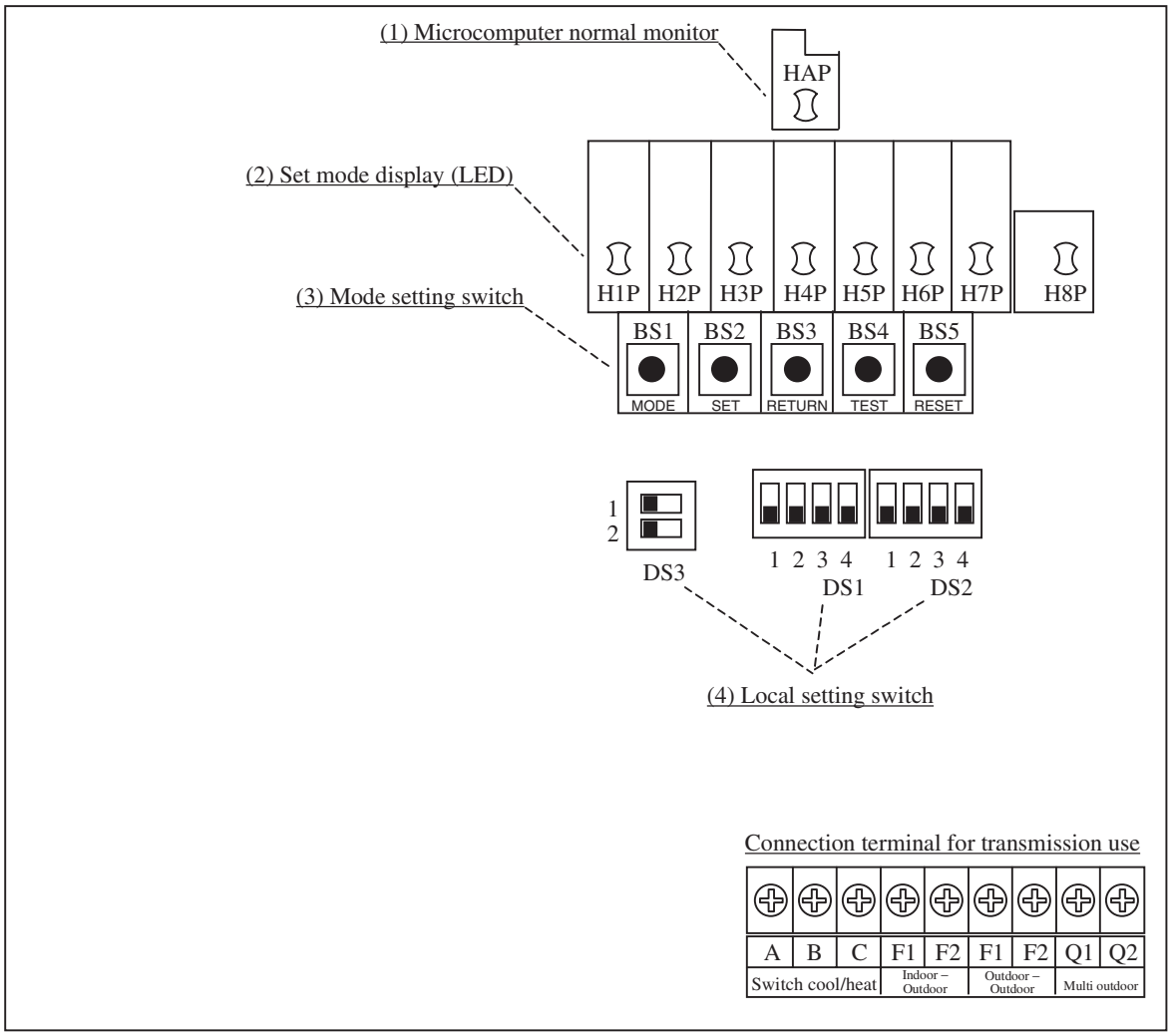
<Precautions for checking normal operation>

- For a period of approximately 5 minutes after the compressor stops, even if the ON/OFF button for the indoor units in one and the same system is pressed, the compressor will not operate.
- After stopping the compressor operation using the remote controller, the outdoor unit may conduct the residual operation for a period of 5 minutes at maximum.

- When the check operation is not conducted using the TEST OPERATION button at the first test operation after installation, the malfunction code "U3" will be displayed.Be sure to conduct the check operation according to 1.1.3 Check Operation.

2. Outdoor Unit PC Board Layout

Outdoor unit PC board



(V3054)

(1) Microcomputer normal monitor
This monitor blinks while in normal operation, and turns on or off when a malfunction occurs.

(2) Set mode display (LED)
LEDs display mode according to the setting.

(3) Mode setting switch
Used to change mode.

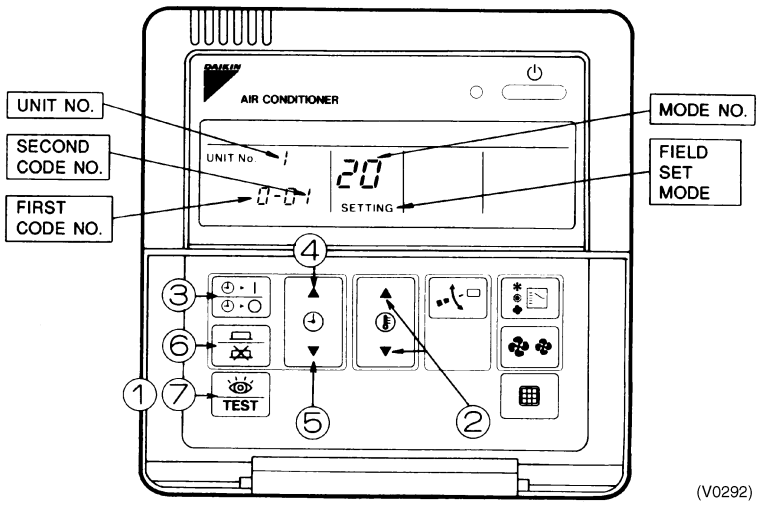
(4) Local setting switch
Used to make local settings.

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 <BRC1A61, 62>

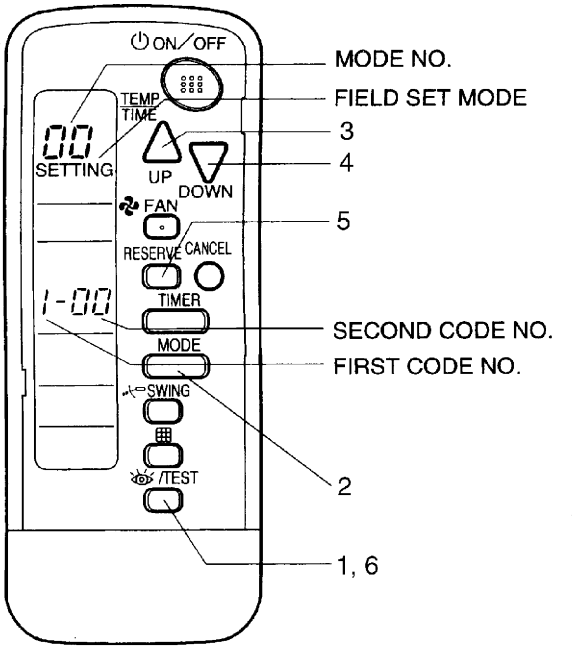


1. When in the normal mode, press the " TEST " button for a minimum of four seconds, and the FIELD SET MODE is entered.
2. Select the desired MODE NO. with the " " button (②).
3. During group control, when setting by each indoor unit (mode No. 20, 22 and 23 have been selected), push the " " button (③)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

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

3.1.2 Wireless Remote Controller - Indoor Unit

BRC7C type



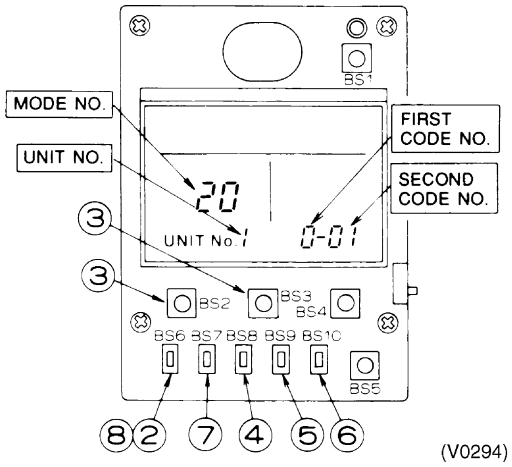
(V2770)

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

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

3.1.3 Simplified Remote Controller

BRC2A51



1. Remove the upper part of remote controller.
2. When in the normal mode, press the [BS6] BUTTON (②) (field set), and the FIELD SET MODE is entered.
3. Select the desired MODE No. with the [BS2] BUTTON (③) (temperature setting ▲) and the [BS3] BUTTON (③) (temperature setting ▼).
4. During group control, when setting by each indoor unit (mode No. 20, 22, and 23 have been selected), push the [BS8] (④) BUTTON (unit No.) and select the INDOOR UNIT NO. to be set. (This operation is unnecessary when setting by group.)
5. Push the [BS9] BUTTON (⑤) (set A) and select FIRST CODE NO.
6. Push the [BS10] BUTTON (⑥) (set B) and select SECOND CODE NO.
7. Push the [BS7] BUTTON (⑦) (set/cancel) once and the present settings are SET.
8. Push the [BS6] BUTTON (⑧) (field set) to return to the NORMAL MODE.
9. (Example) If during group setting and the time to clean air filter is set to FILTER CONTAMINATION - HEAVY, SET MODE NO. to “10”, FIRST CODE NO. to “0”, and SECOND CODE NO. to “02”.

3.1.4 Setting Contents and Code No. – VRV Indoor Unit

VRV system indoor unit settings	Mode No. Note 2	Setting Switch No.	Setting Contents		Second Code No.(Note 3)							
					01		02		03		04	
	10(20)	0	Filter contamination heavy/light (Setting for display time to clean air filter) (Sets display time to clean air filter to half when there is heavy filter contamination.)	Super long life filter	Light	Approx. 10,000 hrs.	Heavy	Approx. 5,000 hrs.	—		—	
				Long life filter		Approx. 2,500 hrs.		Approx. 1,250 hrs.				
				Standard filter		Approx. 200 hrs.		Approx. 100 hrs.				
		1	Long life filter type		Long life filter		Super long life filter		—		—	
		2	Thermostat sensor in remote controller		Use		No use		—			
		3	Display time to clean air filter calculation (Set when filter sign is not to be displayed.)		Display		No display		—			
	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	
		1	ON/OFF input from outside (Set when ON/OFF is to be controlled from outside.)		Forced OFF		ON/OFF control		—		—	
		2	Thermostat differential changeover (Set when remote sensor is to be used.)		1°C		0.5°C		—		—	
		3	OFF by thermostat fan speed		LL		Set fan speed		—		—	
		4	Automatic mode differential (automatic temperature differential setting for VRV system heat recovery series cool/heat)		01:0	02:1	03:2	04:3	05:4	06:5	07:6	08:7
		5	Power failure automatic reset		Not equipped		Equipped		—		—	
	13(23)	0	High air outlet velocity (Set when installed in place with ceiling higher than 2.7 m.)		N		H		S		—	
		1	Selection of air flow direction (Set when a blocking pad kit has been installed.)		F (4 directions)		T (3 directions)		W (2 directions)		—	
		3	Air flow direction adjustment (Set at installation of decoration panel.)		Equipped		Not equipped				—	
		4	Field set air flow position setting		Draft prevention		Standard		Ceiling Soiling prevention		—	
		5	Field set fan speed selection (fan speed control by air discharge outlet for phase control)		Standard		Optional accessory 1		Optional accessory 2		—	
	15(25)	1	Thermostat OFF excess humidity		Not equipped		Equipped		—		—	
		2	Direct duct connection (when the indoor unit and heat reclaim ventilation unit are connected by duct directly.) ∗Note 6		Not equipped		Equipped		—		—	
		3	Drain pump humidifier interlock selection		Not equipped		Equipped		—		—	
		5	Field set selection for individual ventilation setting by remote controller		Not equipped		Equipped		—		—	
		6	Field set selection for individual ventilation setting by remote controller		Not equipped		Equipped		—		—	

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

*1 Static pressure selection

3.1.6 Detailed Explanation of Setting Modes

Filter Sign Setting

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

Set Time

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

Ultra-Long-Life Filter Sign Setting

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

Setting Table

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

Fan Speed Changeover When Thermostat is OFF

By setting to “Set Fan Speed,” you can switch the fan speed to the set fan speed when the heating thermostat is OFF.

∗ Since there is concern about draft if using “fan speed up when thermostat is OFF,” you should take the setup location into consideration.

Setting Table

Mode No.	First Code No.	Second Code No.	Setting
12(22)	3	01	LL Fan Speed
		02	Set Fan Speed

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).

Air Flow Adjustment - Ceiling height

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

■ **In the Case of FXAQ, FXHQ**

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

■ **In the Case of FXFQ25~80**

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

■ **In the Case of FXFQ100~125**

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

■ **In the Case of FXUQ71~125M**

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	—

Air Flow Direction Setting

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

Setting Table

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

Setting of Air Flow Direction Adjustment

Only the model FXKQ has the function.

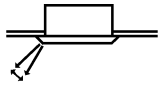
When only the front-flow is used, sets yes/no of the swing flap operation of down-flow.

Setting Table

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

Setting of Air Flow Direction Adjustment Range

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



(S2537)

Setting Table

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

Air flow rate switching at discharge grille for field air flow rate switching

When the optional parts (high performance filter, etc.) is installed, sets to change fan speed for securing air flow rate.

Follow the instruction manual for the optional parts to enter the setting numbers.

Setting of the static pressure selection (for FXDQ model)

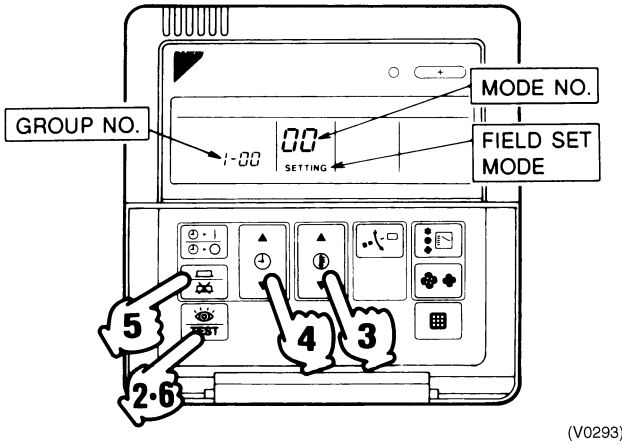
Model No.	First Code No.	Second Code No.	External static pressure
13 (23)	5	01	Standard (15Pa)
		02	High static pressure (44Pa)

3.1.7 Centralized Control Group No. Setting

BRC1A Type

Set the group number of each group of the indoor unit from the remote controller. (In case of no remote controller, also connect the remote controller and set the group No. Then, remove the remote controller.)

1. Turn ON the power of the indoor unit and central remote controller.
   (Unless the power is ON, no setting can be made.)
   Check that the installation and electrical wiring are correct before turning the power supply ON.
   (When the power supply is turned ON, all LCD appear once and the unit may not accept the operation for about one minute with the display of "*88*".)
2. While in the normal mode, hold down the " TEST " button for a minimum of 4 seconds.
   The remote controller will enter the FIELD SET MODE.
3. Select the MODE No. "*00*" with the " " button.
4. Use the " " button to select the group No. for each group.
5. (Group numbers increase in the order of 1-00, 1-01, ... 1-15, 2-00, ... 4-15.)
6. Press " " to set the selected group No.
7. Press " TEST " to return to the NORMAL MODE.



(V0293)

Note:

- For simplified 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

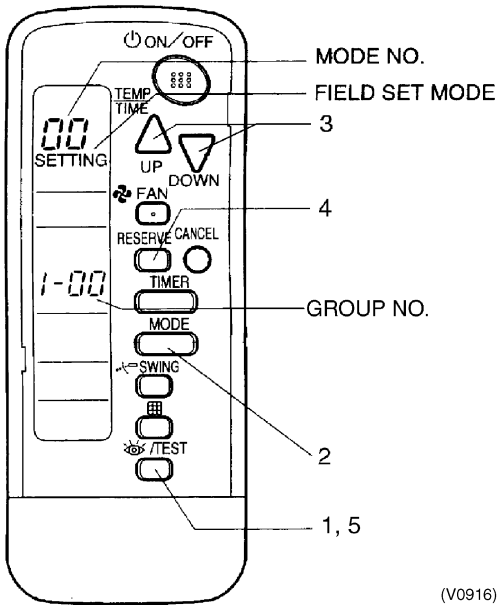
Enter the group No. and installation place of the indoor unit into the attached installation table. Be sure to keep the installation table with the operation manual for maintenance.

BRC7C Type

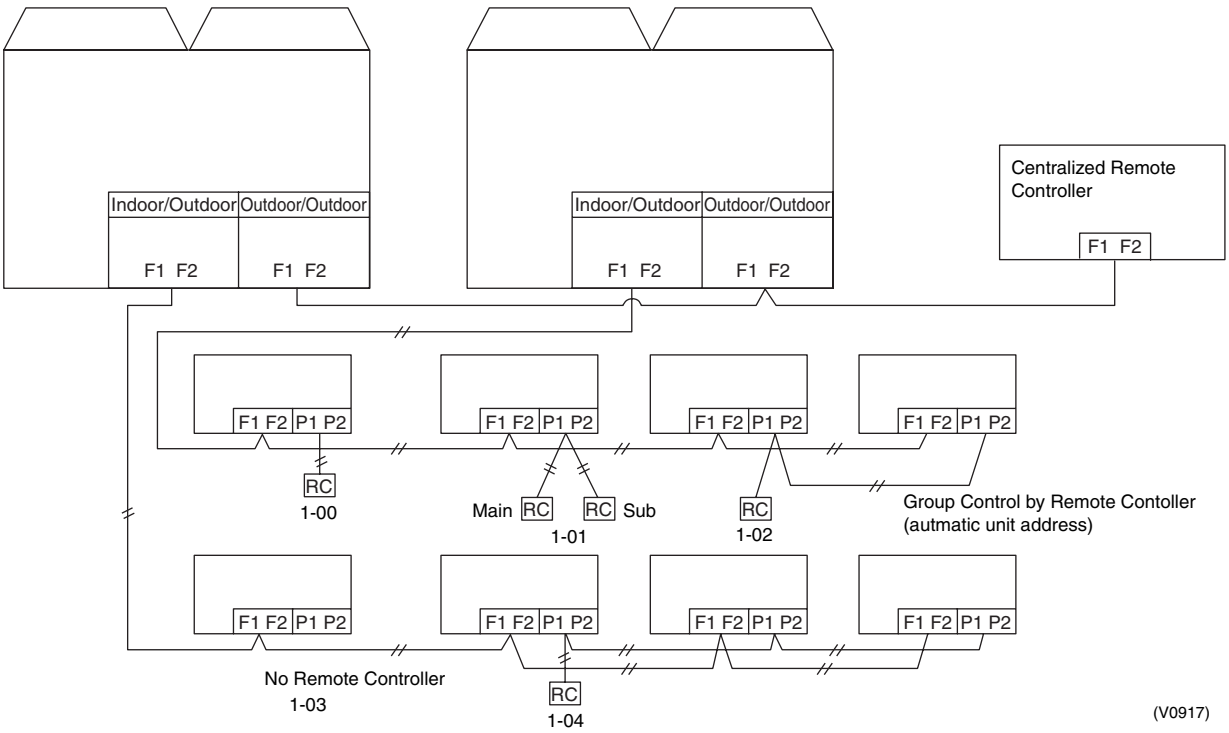
■ Group No. setting by wireless remote controller for centralized control

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.

BRC7C Type



Group No. Setting Example



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

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

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

3.1.9 Contents of Control Modes

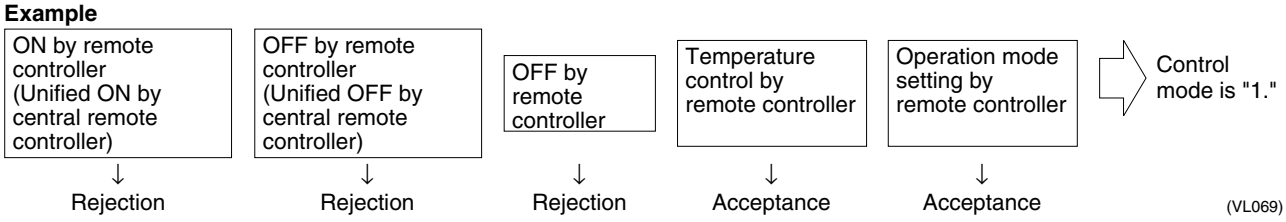
Twenty modes consisting of combinations of the following five operation modes with temperature and operation mode setting by remote controller can be set and displayed by operation modes 0 through 19.

- ON/OFF control impossible by remote controller
  Used when you want to turn on/off by central remote controller only.
  (Cannot be turned on/off by remote controller.)
- OFF control only possible by remote controller
  Used when you want to turn on by central remote controller only, and off by remote controller only.
- Centralized
  Used when you want to turn on by central remote controller only, and turn on/off freely by remote controller during set time.
- Individual
  Used when you want to turn on/off by both central remote controller and remote controller.
- Timer operation possible by remote controller
  Used when you want to turn on/off by remote controller during set time and you do not want to start operation by central remote controller when time of system start is programmed.

How to Select Operation Mode

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

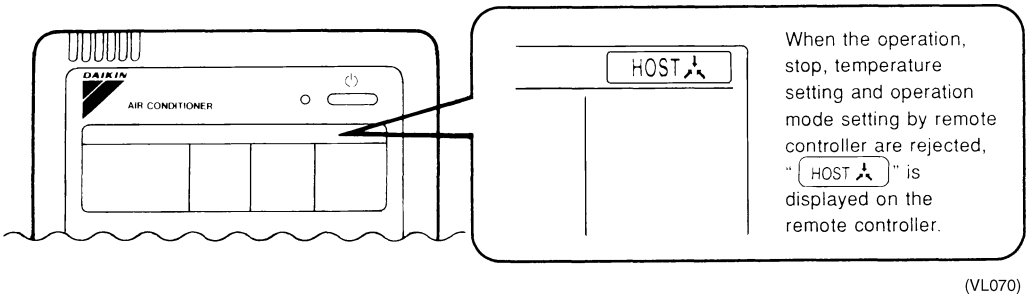
Example



Control mode	Control by remote controller					Control mode
	Operation		OFF	Temperature control	Operation mode setting	
	Unified operation, individual operation by central remote controller, or operation controlled by timer	Unified OFF, individual stop by central remote controller, or timer stop				
ON/OFF control impossible by remote controller	Rejection (Example)	Rejection (Example)	Rejection (Example)	Rejection	Acceptance	0
					Rejection	10
				Acceptance (Example)	Acceptance (Example)	1(Example)
					Rejection	11
OFF control only possible by remote controller			Acceptance	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



(VL070)

3.2 Field Setting from Outdoor Unit

3.2.1 Field Setting from Outdoor Unit

■ **Setting by dip switches**

The following field settings are made by dip switches on PC board.

Dipswitch		Setting item	Description
No.	Setting		
DS1-1	ON	Cool/Heat select	Used to set cool/heat select by remote controller equipped with outdoor unit.
	OFF (Factory set)		
DS1-2 ~DS1-4	ON	Not used	Do not change the factory settings.
	OFF (Factory set)		
DS2-1 ~4	ON	Not used	Do not change the factory settings.
	OFF (Factory set)		
DS3-1, 2	ON	Not used	Do not change the factory settings.
	OFF (Factory set)		

Caution

DIP switch Setting after changing the main P.C.Board(A1P) to spare parts P.C.B.

When you change the main P.C.Board(A1P) to spare parts P.C.B., please carry out the following setting.

DIP Switch Detail

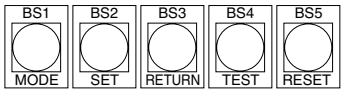
DS No.	Item	Contents	
DS1-1	—	—	
DS1-2	Domestic/Overseas setting	ON	Domestic Japan 200V (Mainly for domestic Japan)
		OFF	Overseas 400V (Mainly for overseas)
DS1-3	—	—	
DS1-4	—	—	
DS2-1	Domestic/Overseas setting	ON	Overseas
		OFF	Domestic Japan
DS2-2	HP setting (Horse power)	10	
DS2-3		DS2-2	OFF
DS2-4		DS2-3	ON
		DS2-4	OFF

■ Setting by pushbutton switches

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

	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
Master unit	●	●	○	●	●	●	●	○
Slave unit 1	●	●	●	●	●	●	●	◑
Slave unit 2	●	●	●	●	●	●	●	●

(Factory setting)



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”.

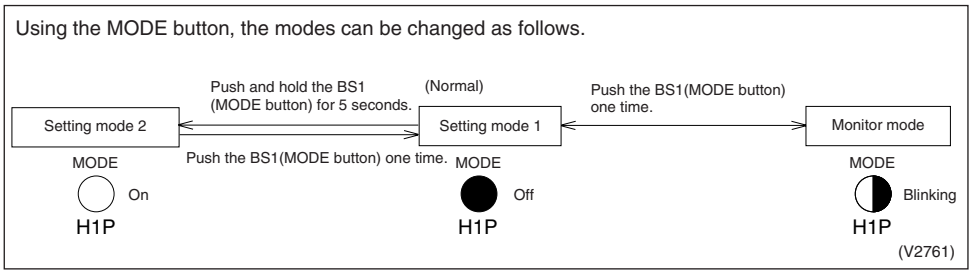
② **Setting mode 2 (H1P on)**

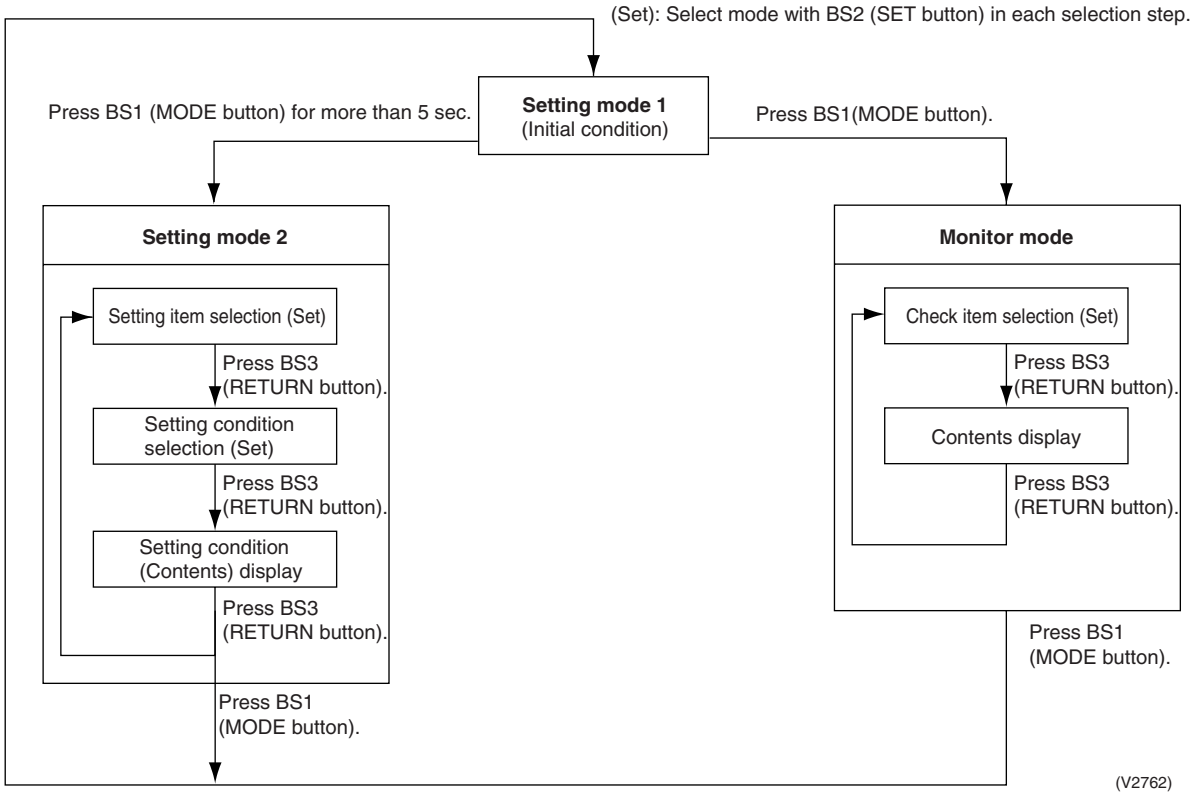
Used to modify the operating status and to set program addresses, etc. Usually used in servicing the system.

③ **Monitor mode (H1P blinks)**

Used to check the program made in Setting mode 2.

■ Mode changing procedure





a. “Setting mode 1”

“Normally, “Setting mode 1” is set. In case of other status, push MODE button (BS1) one time and set to “Setting mode 1”.

<Selection of setting items>

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

- Regarding setting item No. 1,5 only the present status is displayed. For the respective description, refer to the table shown on lower right.
- The cool/heat selection setting can be changed on setting item 2, 3, 4.
  → After setting, push the RETURN button (BS3) and decide the item.

When the RETURN button (BS3) is pushed, the status becomes the initial status of “Setting mode 1”.

(V2763)

No.	Setting (displaying) item	LED display example						
		H1P	H2P	H3P	H4P	H5P	H6P	H7P
1	Display for malfunction / preparing / test run *	●	●	○	●	●	●	●
2	C/H selector (individual)	●	●	○	●	●	●	●
3	C/H selector (Master)	●	●	●	○	●	●	●
4	C/H selector (Slave)	●	●	●	●	○	●	●
5	Demand operation *	●	●	○	●	●	●	●

* Setting No. 1, 5, 6 are the present status display only.

Display for malfunction/preparing/test-run

Normal	●	●	○	●	●	●	●
Malfunction	●	○	○	●	●	●	●
Preparing/Test-run	●	◑	○	●	●	●	●

Display during demand operation

Normal	●	●	○	●	●	●	●
During demand operation	●	●	○	●	●	●	○

H3P to H5P LED display changes depending on setting No. 2, 3, 4.

○ : ON
● : OFF
◑ : Blinking

b. “Setting mode 2”

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

<Selection of setting items>

Push the SET button (BS2) and set the LED display to a setting item shown in the table on the right.
↓
Push the RETURN button (BS3) and decide the item. (The present setting condition is blinked.)

<Selection of setting conditions>

Push the SET button (BS2) and set to the setting condition you want.
↓
Push the RETURN button (BS3) and decide the condition.

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

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

(V2764)

No.	Setting item	Description
1	Cool/heat unified address	Sets address for cool/heat unified operation.
2	demand address	Address for demand operation
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.
7	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.
12	External low noise setting / Demand setting	Reception of external low noise or demand signal
13	AIRNET address	Set address for AIRNET.
20	Additional refrigerant charge operation setting	Carries out additional refrigerant charge operation.
21	Refrigerant collection mode setting	Sets to refrigerant collection mode.
28	Power transistor check mode ∗Check after disconnection of compressor wires	Used for trouble diagnosis of DC compressor. Since the waveform of inverter is output without wiring to the compressor, it is convenient to probe whether the trouble comes from the compressor or PC board.
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 master unit 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 slave unit 1 operation prohibition in multi-outdoor-unit system)	
40	Emergency operation (Setting for the slave unit 2 operation prohibition in multi-outdoor-unit system)	

No.	Setting item display								Setting condition display								
	Setting item	MODE H1P	TEST H2P	C/H selection IND H3P	C/H selection Master H4P	C/H selection Slave H5P	Low noise H6P	Demand H7P									∗ Factory set
1	Cool / Heat Unified address	○	●	●	●	●	●	○	Address Binary number (6 digits)	0 1 ~ 31	○ ○ ○	● ● ●	● ● ○	● ● ○	● ● ○	● ● ○	● ○ ○	∗
2	Low noise/demand address	○	●	●	●	●	○	●	Address Binary number (6 digits)	0 1 ~ 31	○ ○ ○	● ● ●	● ● ○	● ● ○	● ● ○	● ● ○	● ○ ○	∗
5	Indoor forced fan H	○	●	●	●	○	●	○	Normal operation Indoor forced fan H		○ ○	● ●	● ●	● ●	● ○	○ ●	∗	
6	Indoor forced operation	○	●	●	●	○	○	●	Normal operation Indoor forced operation		○ ○	● ●	● ●	● ●	● ○	○ ●	∗	
8	Te setting	○	●	●	○	●	●	●	High Normal (factory setting) Low		○ ○ ○	● ● ●	● ● ●	○ ● ●	● ○ ●	● ● ○	∗	
9	Tc setting	○	●	●	○	●	●	○	High Normal (factory setting) Low		○ ○ ○	● ● ●	● ● ●	○ ● ●	● ○ ●	● ● ○	∗	
10	Defrost setting	○	●	●	○	●	○	●	Quick defrost Normal (factory setting) Slow defrost		○ ○ ○	● ● ●	● ● ●	○ ● ●	● ○ ●	● ● ○	∗	
12	External low noise/ demand setting	○	●	●	○	○	●	●	External low noise/demand: NO External low noise/demand: YES		○ ○	● ●	● ●	● ●	● ○	○ ●	∗	
13	Airnet address	○	●	●	○	○	●	○	Address Binary number (6 digits)	0 1 ~ 63	○ ○ ○	● ● ●	● ● ○	● ● ○	● ● ○	● ● ○	● ○ ○	∗
20	Additional refrigerant operation setting	○	●	○	●	○	●	●	Refrigerant charging: OFF Refrigerant charging: ON		○ ○	● ●	● ●	● ●	● ○	○ ●	∗	
21	Refrigerant recovery mode setting	○	●	○	●	○	●	○	Refrigerant recovery: OFF Refrigerant recovery: ON		○ ○	● ●	● ●	● ●	● ○	○ ●	∗	

No.	Setting item	Setting item display							Setting condition display
		MODE H1P	TEST H2P	C/H selection			Low noise H6P	Demand H7P	∗ Factory set
				IND H3P	Master H4P	Slave H5P			
28	Power transistor check mode	○	●	○	○	○	●	●	OFF ○●●●●●○ ∗ ON ○●●●●○●
30	Demand setting 1	○	●	○	○	○	○	●	60 % demand ○●●●●●○ 70 % demand ○●●●●○● ∗ 80 % demand ○●●●○●●
32	Continuous demand setting	○	○	●	●	●	●	●	OFF ○●●●●●○ ∗ ON ○●●●●○●
38	Emergency operation (Master unit with multi-outdoor-unit system is inhibited to operate.)	○	○	●	●	○	○	●	OFF ○●●●●●○ ∗ Master unit operation: Inhibited ○●●●●○●
39	Emergency operation (Slave unit 1 with multi-outdoor-unit system is inhibited to operate.)	○	○	●	●	○	○	○	OFF ○●●●●●○ ∗ Slave unit 1 operation: Inhibited ○●●●●○●
40	Emergency operation (Slave unit 2 with multi-outdoor-unit system is inhibited to operate.)	○	○	●	○	●	●	●	OFF ○●●●●●○ ∗ Slave unit 2 operation: Inhibited ○●●●●○●

c. Monitor mode

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

<Selection of setting item>

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

<Confirmation on setting contents>

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

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

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

(V2765)

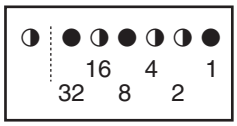
No.	Setting item	LED display							Data display
		H1P	H2P	H3P	H4P	H5P	H6P	H7P	
0	Operation/backup operation setting	◑	●	●	●	●	●	●	See below
1	C/H unified address	◑	●	●	●	●	●	○	Lower 6 digits
2	Low noise/demand address	◑	●	●	●	●	○	●	
3	Not used	◑	●	●	●	●	○	○	
4	Airnet address	◑	●	●	●	○	●	●	
5	Number of connected indoor units	◑	●	●	●	○	●	○	
6	Number of connected BS units	◑	●	●	●	○	○	●	
7	Number of connected zone units (excluding outdoor and BS unit)	◑	●	●	●	○	○	○	
8	Number of outdoor units	◑	●	●	○	●	●	●	
9	Number of connected BS units	◑	●	●	○	●	●	○	Lower 4 digits: upper
10	Number of connected BS units	◑	●	●	○	●	○	●	Lower 4 digits: lower
11	Number of zone units (excluding outdoor and BS unit)	◑	●	●	○	●	○	○	Lower 6 digits
12	Number of terminal blocks	◑	●	●	○	○	●	●	Lower 4 digits: upper
13	Number of terminal blocks	◑	●	●	○	○	●	○	Lower 4 digits: lower
14	Contents of malfunction (the latest)	○	●	●	○	○	○	●	Malfunction code table
15	Contents of malfunction (1 cycle before)	○	●	●	○	○	○	○	Refer page 142, 143.
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)	○	●	○	●	○	○	●	

Setting item 0 Display contents of "Operation/backup operation setting, and others"

Operation /backup operation setting	ON	◑	●	●	○	●	●	●
	OFF	◑	●	●	●	●	●	●
Te setting	H	◑	●	●	●	●	○	●
	M	◑	●	●	●	●	◑	●
	L	◑	●	●	●	●	●	●
Tc setting	H	◑	●	●	●	●	●	○
	M	◑	●	●	●	●	●	◑
	L	◑	●	●	●	●	●	●

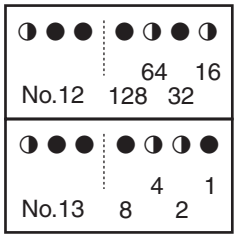
Push the SET button and match with the LEDs No. 1 - 15, push the RETURN button, and enter the data for each setting.

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



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

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



The number of terminal blocks for No. 12 and 13 is expressed as an 8-digit binary number, which is the combination of four upper, and four lower digits for No. 12 and 13 respectively. (0 - 128)
In ② the address for No. 12 is 0101, the address for No. 13 is 0110, and the combination of the two is 01010110 (binary number), which translates to 64 + 16 + 4 + 2 = 86 (base 10 number). In other words, the number of terminal block is 86.

★ See the preceding page for a list of data, etc. for No. 0 - 22.

3.2.2 Cool / Heat Mode Switching (In case of heating and simultaneous cooling / heating) operation connection

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

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

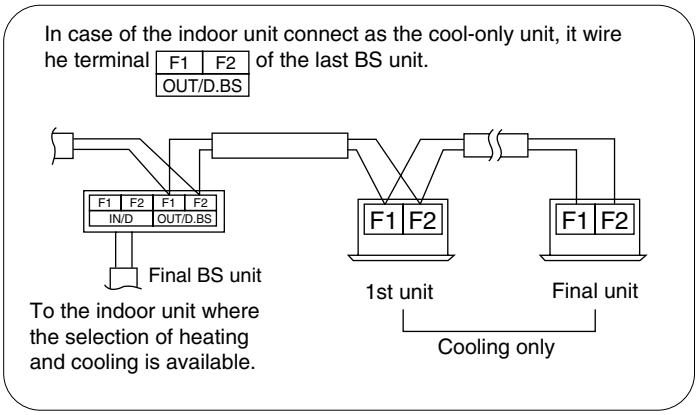
- When using COOL/HEAT selector, turn this switch to the BS side.

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

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

EXAMPLE OF TRANSMISSION LINE CONNECTION

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



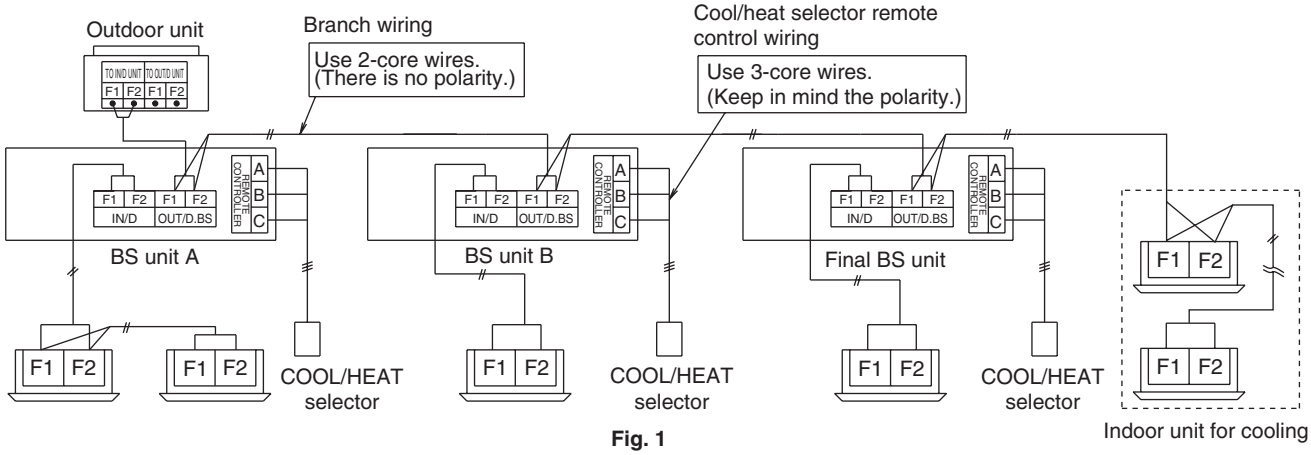


Fig. 1

3.2.3 Cool / Heat Mode Switching (In case of heat pump connection)

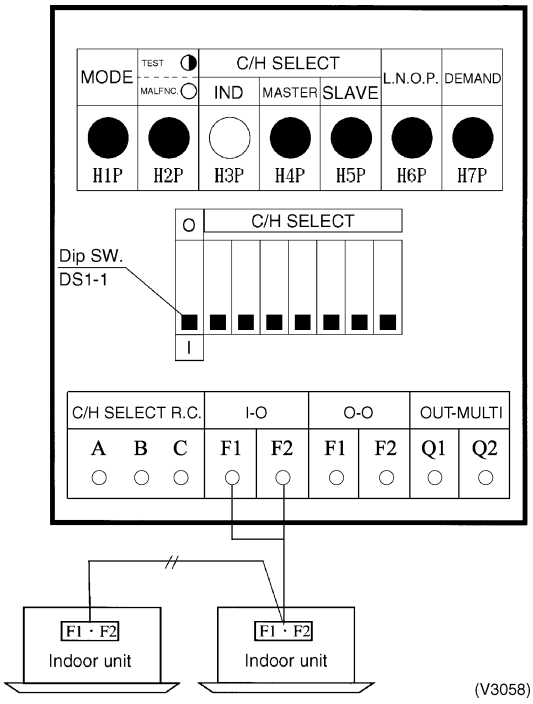
There are the following 5 cool/heat switching modes.

① Set cool/heat separately for each outdoor unit system by indoor unit remote controller.
② Set cool/heat separately for each outdoor unit system by cool/heat switching remote controller.
③ Set cool/heat for more than one outdoor unit system simultaneously in accordance with unified master outdoor unit by indoor unit remote controller.
④ Set cool/heat for more than one outdoor unit system simultaneously in accordance with unified master outdoor unit by cool/heat switching remote controller.

---

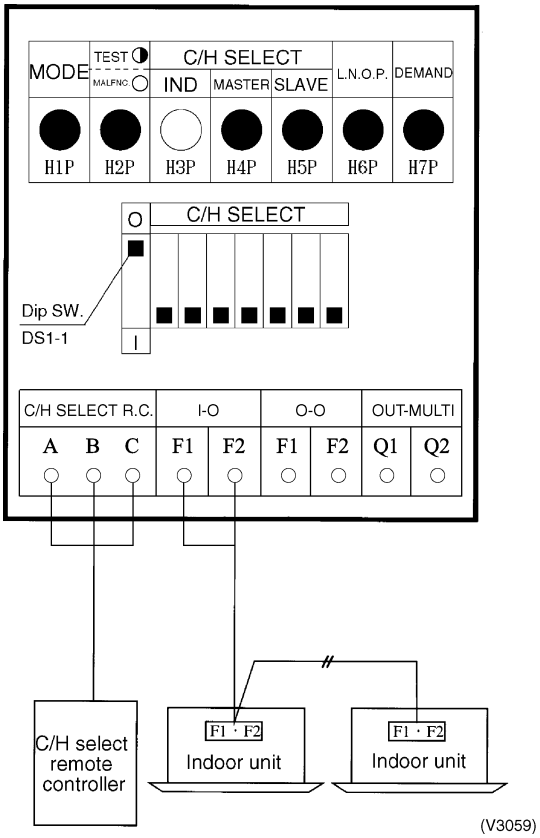
① Set Cool/Heat Separately for Each Outdoor System by Indoor Unit Remote Controller

- ◆ It does not matter whether or not there is outdoor - outdoor unit wiring.
- ◆ Set outdoor unit PC board DS1-1 to “indoor” (factory set).
- ◆ Set cool/heat switching to “individual” for “Setting mode 1” (factory set).



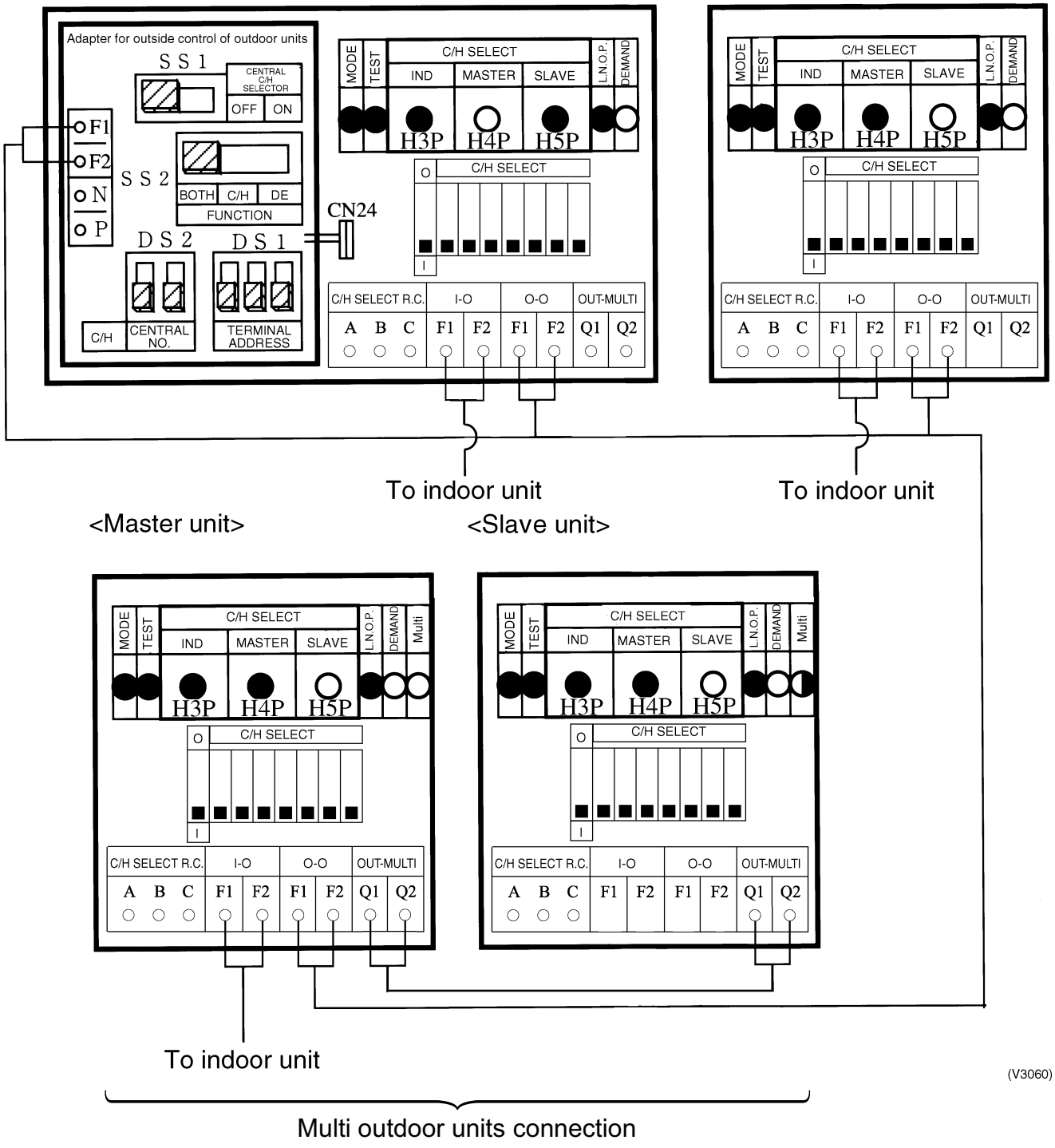
② **Set Cool / Heat Separately for Each Outdoor Unit System by Cool/Heat Switching Remote Controller**

- ◆ It does not matter whether or not there is outdoor - outdoor unit wiring.
- ◆ Set outdoor unit PC board DS1-1 to “outdoor” (factory set).
- ◆ Set cool/heat switching to “individual” for “Setting mode 1” (factory set).



③ Set Cool / Heat for More Than One Outdoor Unit System Simultaneously in Accordance with Unified Master Outdoor Unit by Indoor Unit Remote Controller

- Install the outdoor unit external control adapter on either the outdoor-outdoor, indoor-outdoor, or transmission line.
- Set outdoor unit PC board DS1-1 to “Indoor” (factory set).
- In setting mode 1, set the outdoor unit you want to give cool/heat selection permission to as the group master, and set the other outdoor units as group slave units.
- Set the outdoor unit external control adapter SS1 to Unified (factory set) or Cool, and SS2 to No (factory set).



(V3060)

④ Set Cool / Heat for More Than One Outdoor Unit System Simultaneously in Accordance with Unified Master Outdoor Unit by Cool/Heat Switching Remote Controller

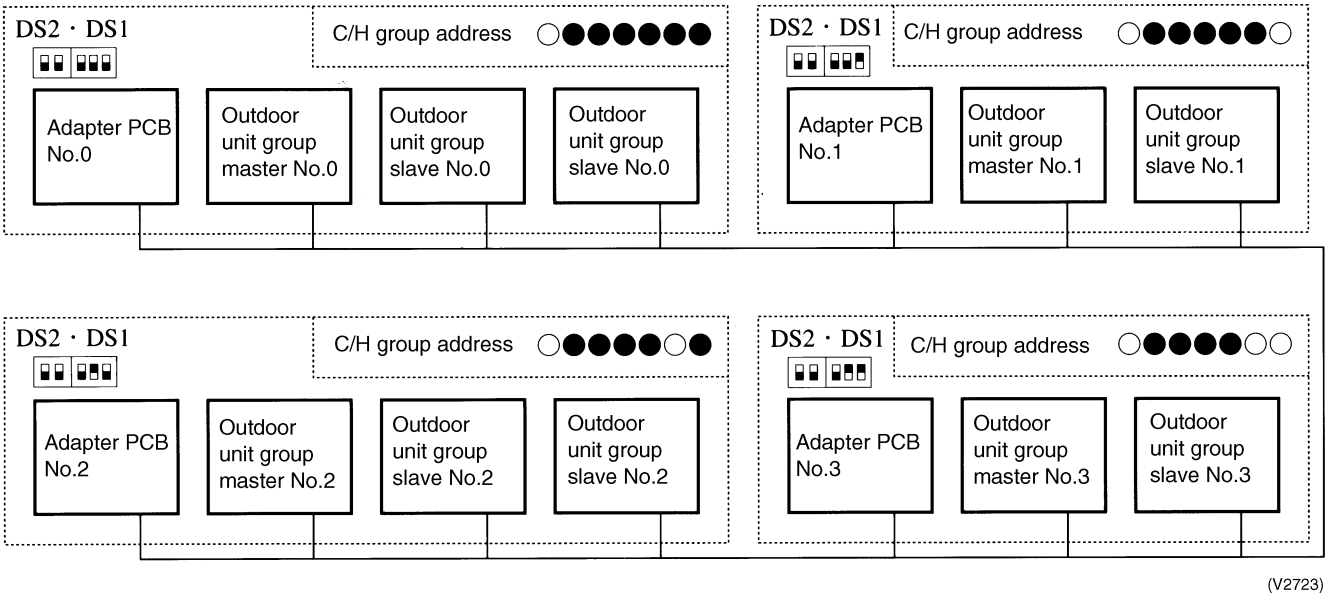
◆ Add and change the following items to ③.

★ Install cool/heat switching remote controller on the group master outdoor unit.

★ Set SS1 on the group master outdoor unit PC board.

Supplementation on ③ and ④.

When switching cool/heat for each adapter PC board with the use of more than one adapter PC board, set the address of the adapter PC board DS1 and DS2 so that it matches the unified cool/heat address of outdoor unit PC board.



(V2723)

Address setting for ③ and ④ (Set lower 5 digits with binary number.) [No.0 to No.31]

Address No.	Outdoor unit PCB LED Set with setting mode 2	Adapter PCB DS2 DS1
No 0	○ ● ● ● ● ● 0	0
No 1	○ ● ● ● ● ○ 1	1
No 2	○ ● ● ● ○ ● 2	2
No 3	○ ● ● ● ○ ○ 3	3
No 4	○ ● ● ○ ● ● 4	4
≀	≀	≀
No 30	○ ● ○ ○ ○ ○ ● 30	30
No 31	○ ● ○ ○ ○ ○ ○ 31	31

○ ON ● OFF Upper position (ON) Lower position (OFF)

(The shaded part shows knob)

(V2724)

3.2.4 Setting of Demand Operation

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

[Demand 1 setting]

Setting	Standard for upper limit of power consumption
Demand 1 setting 1	Approx. 60%
Demand 1 setting 2 (factory setting)	Approx. 70%
Demand 1 setting 3	Approx. 80%

[Demand 2 setting]

Setting	Standard for upper limit of power consumption
Demand 2 setting 2 (factory setting)	Approx. 40%

★ Other protection control functions have precedence over the above operation.

Setting of Demand Operation

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

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

- Set the "External low noise/Demand YES/NO setting" switch on the outdoor unit PCB to the "External low noise/Demand YES".
  (Set by Setting Mode 2)
- Set the "Demand 1 level setting " on the outdoor unit PCB, as the need arises.
  (During the demand level 1 instruction, the power consumption can be saved to 80 %, 70 % or 60 % of the rated value respectively.)

B. When the continuous demand operation is carried out. (Use of the outdoor unit external control adapter is not required.)

- Set the "Continuous demand setting" on the outdoor unit PCB.
- If the "Continuous demand setting" is set to the "Continuous demand 1 fixing", set the "Demand 1 setting " on the outdoor unit PCB, as the need arises.
  (During the continuous demand level 1 operation, the power consumption can be saved to 80 %, 70 % or 60 % of the rated value respectively.)

Image of operation in the case of A

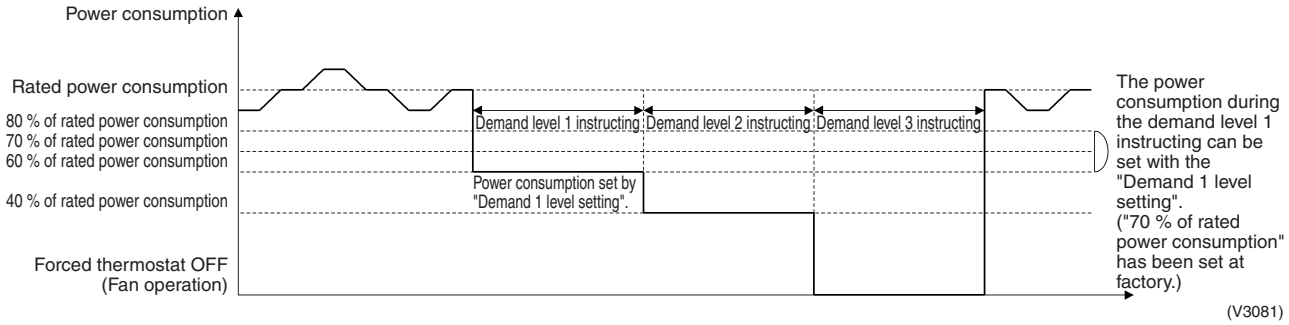


Image of operation in the case of B

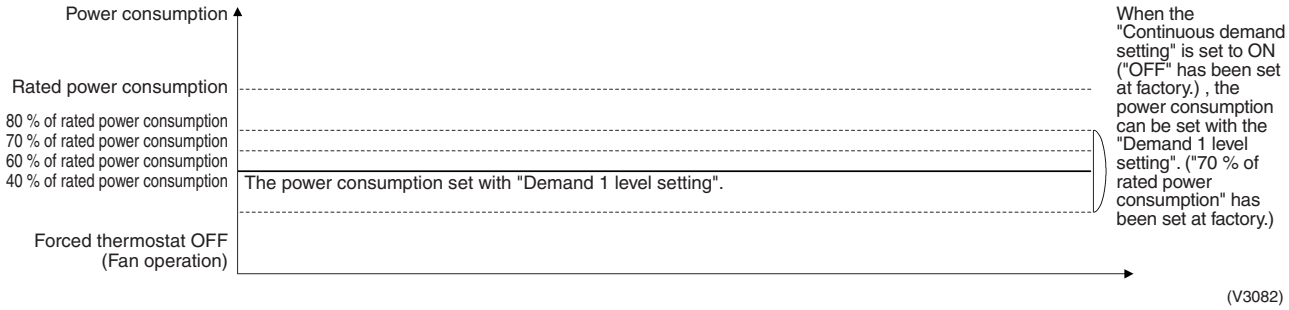
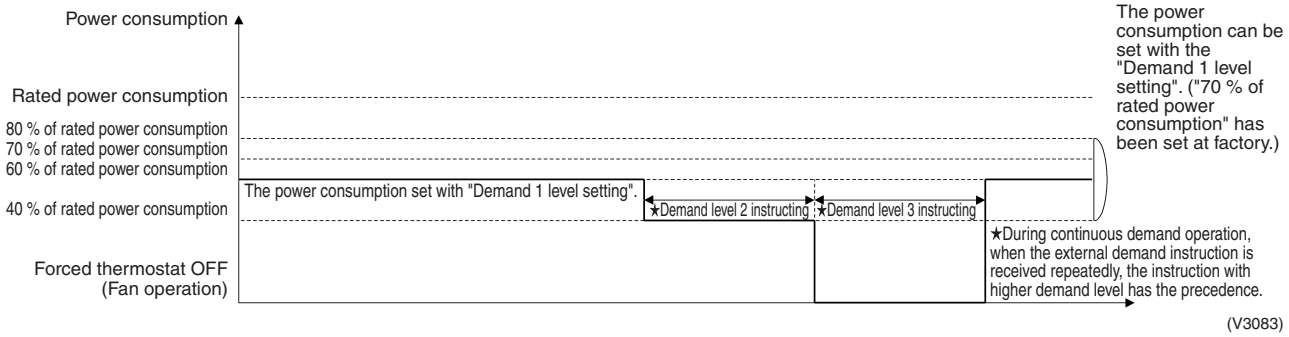


Image of operation in the case of A and B



Detailed Setting Procedure and Demand Control

1. Setting mode 1 (H1P off)

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

2. Setting mode 2 (H1P on)

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

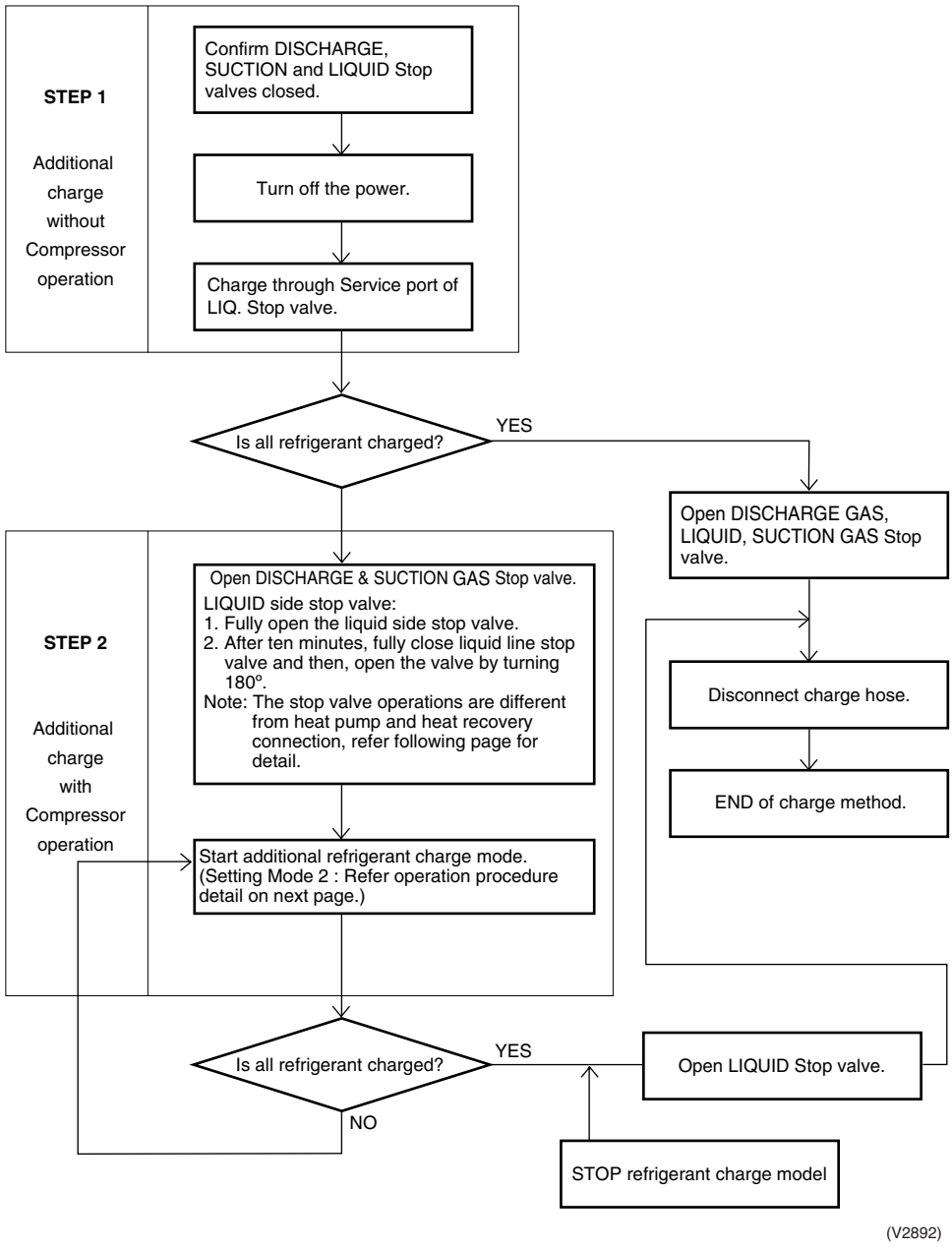
		①							②								③						
Setting No.	Setting contents	Setting No. indication							Setting No. indication							Setting contents	Setting contents indication (Initial setting)						
		H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P		H1P	H2P	H3P	H4P	H5P	H6P	H7P
12	External low noise / Demand setting								○	●	●	○	○	●	●	NO (Factory set)	○	●	●	●	●	●	○
																YES	○	●	●	●	●	○	●
30	Demand setting 1								○	●	○	○	○	○	●	60 % of rated power consumption	○	●	●	●	●	●	◎
																70 % of rated power consumption (Factory setting)	○	●	●	●	●	◎	●
																80 % of rated power consumption	○	●	●	●	◎	●	●
32	Continuous demand setting								○	●	●	●	●	●	●	OFF (Factory setting)	○	●	●	●	●	●	◎
																Continuous demand 1 fixed	○	●	●	●	●	◎	●

Setting mode indication section Setting No. indication section Set contents indication section

3.2.5 Setting of Refrigerant Additional Charging Operation

When additional refrigerant is not charged all with outdoor unit in stop mode, operate the outdoor unit and charge the liquid refrigerant from the service port of liquid stop value. The additional charging operation is activated by pushbutton switch on the outdoor unit PC board.

[Additional refrigerant charge total flow]



Caution Refrigerant cannot be charged until field wiring has been completed.
Refrigerant may only be charged after performing the leak test and the vacuum drying.
When charging a system, care shall be taken that its maximum permissible charge is never exceeded, in view of the danger of liquid hammer.
Charging with an unsuitable substance may cause explosions and accidents, so always ensure that the appropriate refrigerant (R410A) is charged.
Refrigerant containers shall be opened slowly.
Always use protective gloves and protect your eyes when charging refrigerant.

- This outside unit is factory charged with refrigerant and depending on pipe sizes and pipe lengths some systems require additional charging of refrigerant.
- Determine the amount of refrigerant to be added by referring to the table, write it down on the included “Added Refrigerant” plate and attach it to the rear side of the front cover.
  Note: refer to the example of connection for the amount to be added.

Additional refrigerant charge procedure (1)-normally

- Charge the refrigerant to the liquid pipe in its liquid state. Since R410A is a mixed refrigerant, its composition changes if charged in a state of gas and normal system operation would no longer be assured.
- Make sure to use installation tools you exclusively use on R410A installations to withstand the pressure and to prevent foreign materials from mixing into the system.

1. Before charging, check whether the tank has a siphon attached or not.
   How to charge with a siphon attached tank.

Charge with the tank upright.
(There is a siphon tube inside, so there is no need to turn the tank upside-down.)

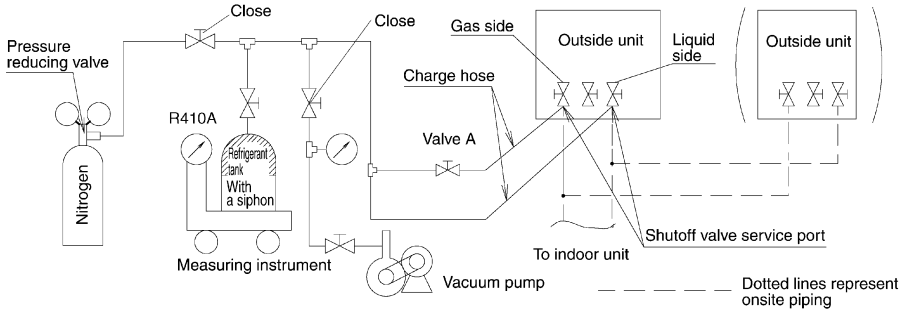
How to charge with other tank.

Charge with the tank upside-down.

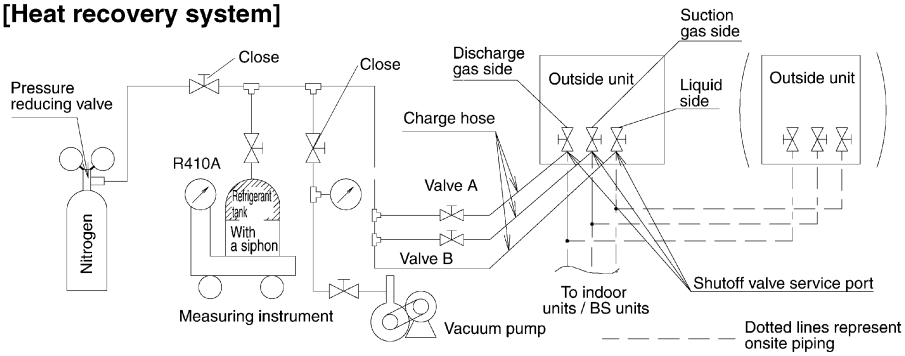
2. After the vacuum drying is finished, charge the additional refrigerant in its liquid state through the liquid shutoff valve service port.
   Taking into account following instructions:
   - Check that gas and liquid shutoff valves are closed.
   - Stop the compressor and charge the specified weight of refrigerant.
     (If the outside unit is not in operation and the total amount cannot be charged, follow the Additional refrigerant charge procedure (2) shown below.)

■ **Procedures for charging additional refrigerant.**

[Heat pump system]



[Heat recovery system]



Additional refrigerant charge procedure (2)-by Additional refrigerant charge operation

About the system settings for additional refrigerant charge operation, refer to the [Service Precaution] label attached on the electric box cover in the outside unit.

1. Fully open all shutoff valves (valve A and valve B must be left fully closed).
2. After ten minutes, fully close liquid line shutoff valve and then, open the valve by turning 180°. Start the additional refrigerant charge operation.
   See [Service precautions] Label for detail.
   If it is difficult to charge the refrigerant additionally, decrease the water temperature or warm the refrigerant tank.
   (Warm the refrigerant tank with a stupe or a warm hot water of 40 degrees or less.)
3. After the system is charged with a specified amount of refrigerant, press the RETURN button (BS3) on the PC board (A1P) in the outside unit to stop the additional refrigerant charge operation.
4. Immediately open both liquid-side and gas-side shutoff valve.
   (If do not open the shutoff valve immediately, liquid seal may cause the pipe to burst.)

Caution

9-10 Shutoff valve operation procedure

Do not open the shutoff valve until 1-6 of “9-8 Checking of device and installation conditions” are completed. If the shutoff valve is left open without turning on power, it may cause refrigerant to buildup in the compressor, leading to insulation degradation.

Opening shutoff valve

1. Remove the cap and turn the valve counterclockwise with the hexagon wrench (JISB4648).
2. Turn it until the shaft stops.
   Do not apply excessive force to the shutoff valve. Doing so may break the valve body, as the valve is not a backseat type. Always use the hexagon wrench.
3. Make sure to tighten the cap securely.

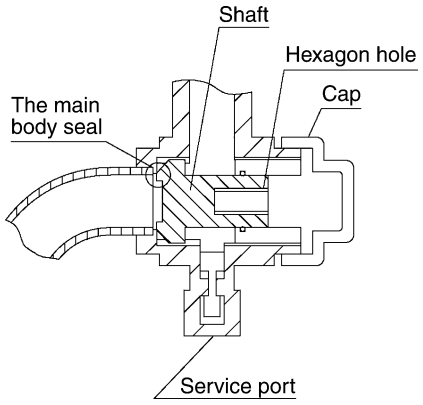
Closing shutoff valve

1. Remove the cap and turn the valve clockwise with the hexagon wrench (JISB4648).
2. Securely tighten the valve until the shaft contacts the main body seal.
3. Make sure to tighten the cap securely.
   * For the tightening torque, refer to the table on the bellow.

Tightening torque

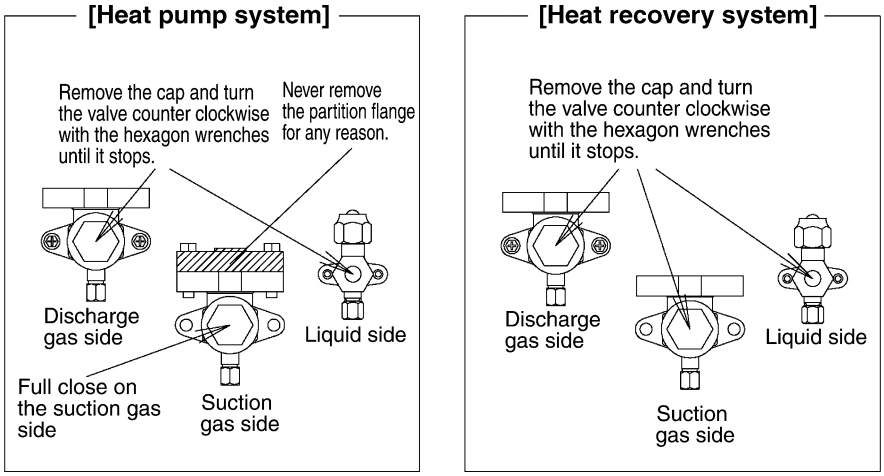
Shutoff valve size	Tightening torque N-m (Turn clockwise to close)					
	Shaft (valve body)		Cap (valve lid)	Service port	Flare nut	Gas side accessory pipe (1)
Liquid side	5.4-6.6	Hexagonal wrench 4 mm	13.5-16.5	11.5-13.9	32.7-39.9	—
Gas side	27-33	Hexagonal wrench 10 mm	36-44	11.5-13.9	—	22-28

(Refer to figure below)



Caution

- Do not damage the cap sealing.
- Always use a charge hose for service port connection.
- After tightening the cap, check that no refrigerant leaks are present.
- After working, securely tighten the cover of service port without fail by specified torque.
- When loosening a flare nut, always use two wrenches in combination. When connecting the piping, always use a spanner and torque wrench in combination to tighten the flare nut.
- When connecting a flare nut, coat the flare (inner and outer faces) with ether oil or ester oil and hand-tighten the nut 3 to 4 turns as the initial tightening.
- Do not forget to open the stop valve before starting operation.



[Operation state]

- Compressor frequency : Normal cooling PI control, upper limit 177Hz
- Y5S, Y7S, 4 way valve: OFF Y1E, electronic expansion valve : Normal cooling control
- Indoor unit expansion valve (All unit) : 1024 pulse Y3E: 0 pls
- Indoor unit fan : H tap

3.2.6 Setting of Refrigerant Recovery Mode

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

[Operation procedure]

① In **setting mode 2** with units in stop mode, set “B Refrigerant Recovery / Vacuuming mode” to ON. The respective expansion valve of indoor and outdoor units are fully opened. (H2P turns to display “TEST OPERATION” (blinks), “TEST OPERATION” and “IN CENTRALIZED CONTROL” are displayed on the remote controller, and the operation is prohibited.

② Collect the refrigerant using a refrigerant recovery unit. (See the instruction attached to the refrigerant recovery unit for more detal.)

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 to turn on some solenoid valves.

[Operating procedure]

① With **Setting Mode 2** while the unit stops, set (B) 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 "In Centralized control", thus prohibiting operation.)
After setting, do not cancel “Setting Mode 2” until completion of Vacuuming operation.

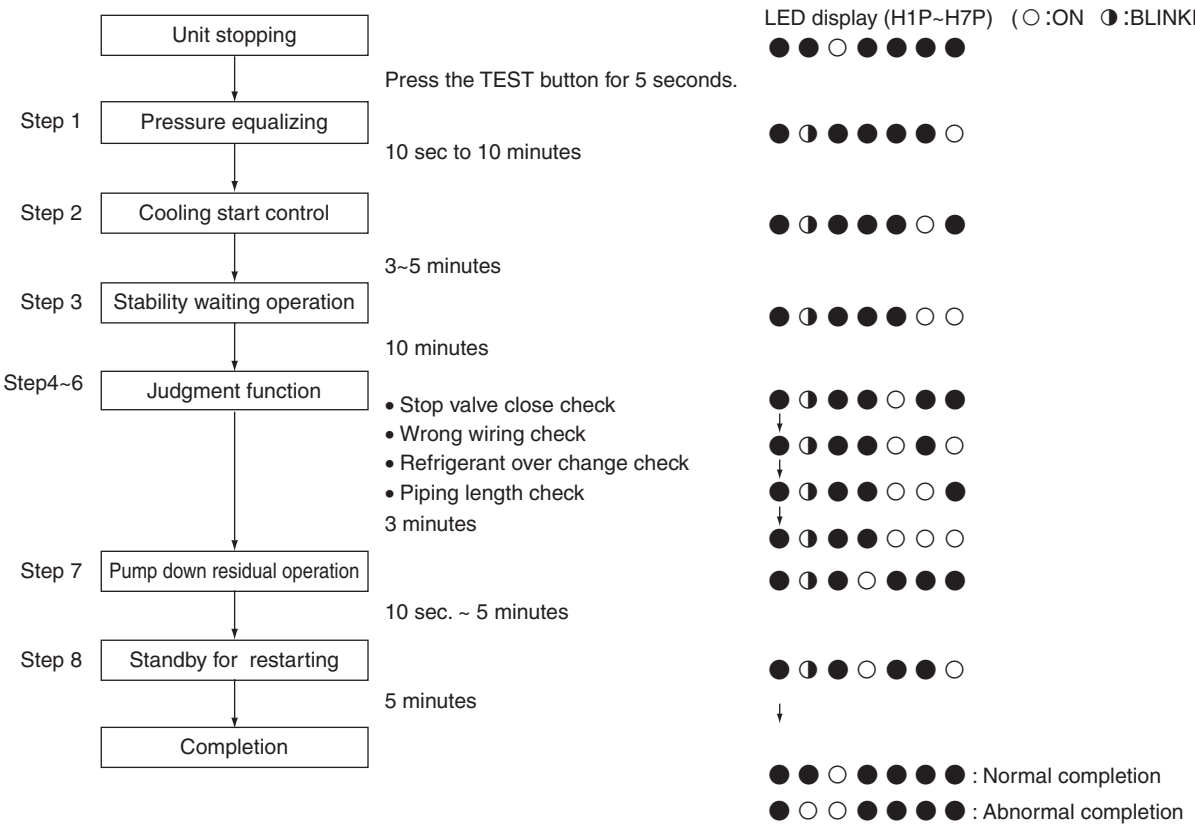
② Use the vacuum pump to perform vacuuming operation.

③ Press Mode button “BS1” once and reset “Setting Mode 2”.

3.2.8 Check Operation

To prevent any trouble in the period of installation at site, the system is provided with a test operation mode enabling check for incorrect wiring, stop valve left in closed, coming out (or misplacing with suction pipe thermistor) of discharge pipe thermistor and judgment of piping length, refrigerant overcharging, and learning for the minimum opening degree of motorized valve.

CHECK OPERATION FUNCTION



3.2.9 Power Transistor Check Operation

When the inverter system malfunctions (malfunction of inverter, INV compressor), to locate where the malfunction occurs, switching to the power transistor check mode of inverter in the service mode setting enables not to judge the position detection signal malfunction but to output waveform only during inverter operation. (The waveform can be checked by disconnecting the wiring of compressor.)
After the completion of checks, return the system to the previous mode and wait for 30 seconds or more until the discharge of capacitor is completed. Then, conduct a subsequent work.

Notes: Be sure to disconnect the compressor wiring when conducting the check operation mentioned above.
When the output voltage is approx. 100~200 V (10 Hz) and the voltage balance between phases U-V, V-W, W-U is within ±5%, the inverter PCB is normal.

Refer the detail power transistor check to page 262.

3.2.10 Emergency Operation

If the compressor cannot operate, this control inhibits any applicable compressor or outdoor unit from operating to perform emergency operation only with the operative compressor or outdoor unit.

Caution
"For making a compressor unable to operate due to malfunction, etc., be sure to conduct the work with emergency operation setting.
Never execute work such as disconnection of the power cable from magnet contactor. (Otherwise, other normal compressors may malfunction.)
∗ Because the units will be operated in the combination with which oil pressure equalization between compressors cannot be performed.

3.2.11 Restrictions for Emergency Operation

- If the emergency operation is set while the outdoor unit is in operation, the outdoor unit stops once after pump-down residual operation (a maximum of 5 minutes elapsed).

3.2.12 In the Case of Multi-Outdoor-Unit System

Automatic backup operation
With multi-outdoor-unit system, if a certain outdoor unit system malfunctions (i.e., the system stops and indoor unit remote controller displays the malfunction), by resetting the system with the indoor unit remote controller, the applicable outdoor unit is inhibited from operating for 8 hours, thus making it possible to perform emergency operation automatically.
However, in the event any of the following malfunctions occurs, automatic backup operation can be performed.

Malfunctions under which automatic backup operation can be performed:
- E3, E4, E5, E7
- F3
- H7, H9
- J2, J3, J5, J6, J7, J9, JA, JC
- L3, L4, L5, L8, L9, LC
- U2, UJ

Emergency operation with settings in service mode

∗ “Inhibition of operation” is set with each outdoor unit.

Make the following settings with the master unit. (Setting with the slave unit becomes disabled.)

∗ Discriminate the operating status of the master unit/slave units through the following LED display.

	LED display (○:ON ●:OFF ◑:Blink) H1P — — — H7P H8P	
Master:	●●○●●●●	○
Slave 1:	●●●●●●●	◑
Slave 2:	●●●●●●●	● (Factory set)

• To inhibit the master unit from operating → Set setting mode 2 from No. 38 to No. 2.

(Procedure)	LED display (○:ON ●:OFF ◑:Blink) H1P — — — H7P	
(1) Press and hold the MODE button (BS1) for 5 sec. or more.	○●●●●●●	
(2) Press the SET button (BS2) 38 times.	○○●●○○●	
(3) Press the RETURN button (BS3) once.	○●●●●●◑	(Factory set)
(4) Press the SET button (BS2) once.	○●●●●◑●	
(5) Press the RETURN button (BS3) twice.	○●●●●●●	
(6) Press the MODE button (BS1) once.	●●○●●●●	

• To inhibit the slave unit 1 from operating → Set setting mode 2 from No. 39 to No. 2.

(Procedure)	LED display (○:ON ●:OFF ◑:Blink) H1P — — — H7P	
(1) Press and hold the MODE button (BS1) for 5 sec. or more.	○●●●●●●	
(2) Press the SET button (BS2) 39 times.	○○●●○○○	
(3) Press the RETURN button (BS3) once.	○●●●●●◑	(Factory set)
(4) Press the SET button (BS2) once.	○●●●●◑●	
(5) Press the RETURN button (BS3) twice.	○●●●●●●	
(6) Press the MODE button (BS1) once.	●●○●●●●	

• To inhibit the slave unit 2 from operating → Set setting mode 2 from No. 40 to No. 2.

(Procedure)	LED display (○:ON ●:OFF ◑:Blink) H1P — — — H7P	
(1) Press and hold the MODE button (BS1) for 5 sec. or more.	○●●●●●●	
(2) Press the SET button (BS2) 40 times.	○○●○●●●	
(3) Press the RETURN button (BS3) once.	○●●●●●◑	(Factory set)
(4) Press the SET button (BS2) once.	○●●●●◑●	
(5) Press the RETURN button (BS3) twice.	○●●●●●●	
(6) Press the MODE button (BS1) once.	●●○●●●●	

• In the case of multi-outdoor-unit system, when the above “Inhibition of operation” is set, outdoor unit rotation is not functional.

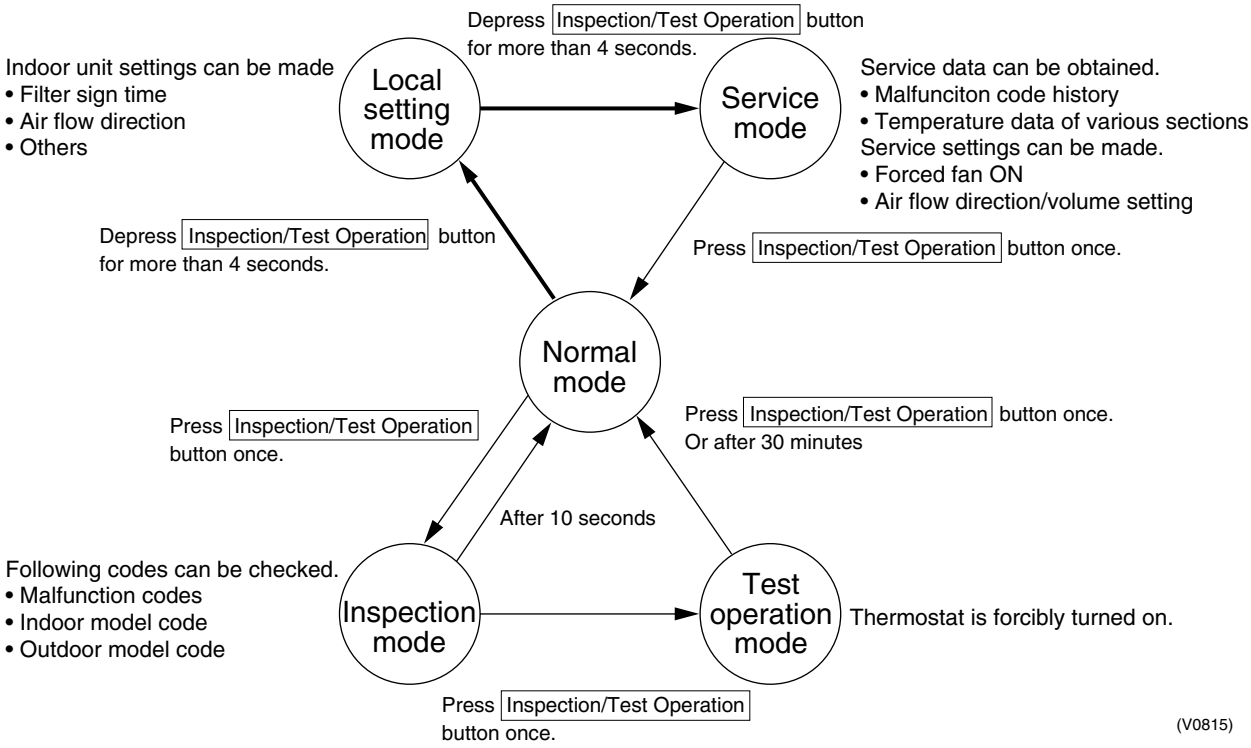
Notes : Reset the power supply during the outdoor unit is stopping to cancel the automatic backup operation forcibly.

Part 6
Troubleshooting

1. Troubleshooting by Remote Controller

1.1 The INSPECTION / TEST Button

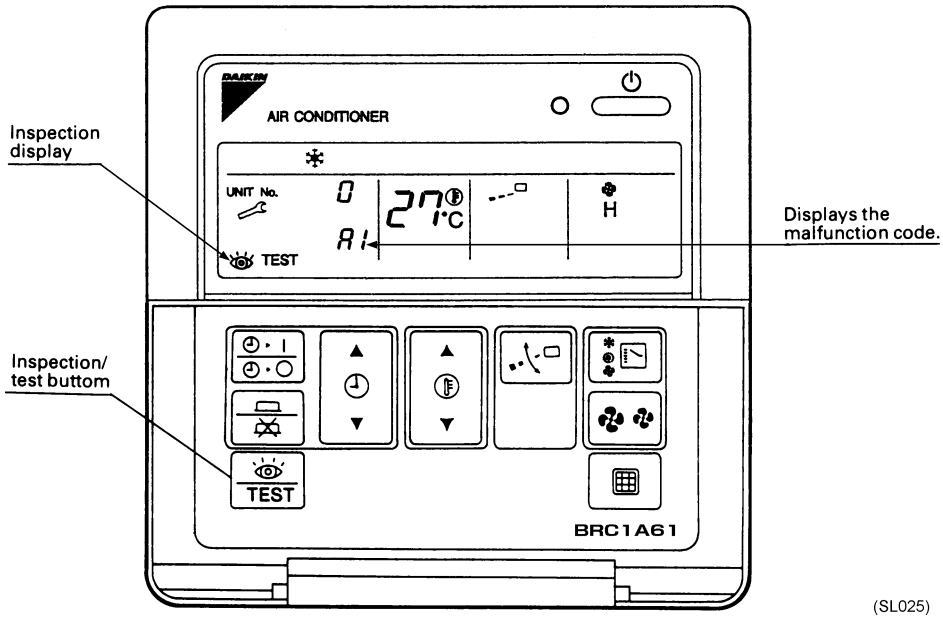
The following modes can be selected by using the [Inspection/Test Operation] button on the remote control.



1.2 Self-diagnosis by Wired Remote Controller

Explanation

If operation stops due to malfunction, the remote controller's operation LED blinks, and malfunction code is displayed. (Even if stop operation is carried out, malfunction contents are displayed when the inspection mode is entered.) The malfunction code enables you to tell what kind of malfunction caused operation to stop. See page 140 for malfunction code and malfunction contents.



(SL025)

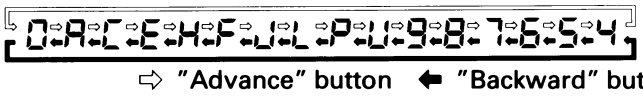
1.3 Self-diagnosis by Wireless Remote Controller

In the Case of BRC7C ~ 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.)

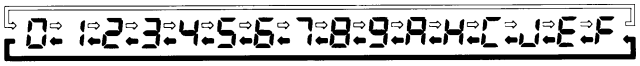
1. Press the INSPECTION/TEST button to select “Inspection.”
   The equipment enters the inspection mode. The “Unit” indication lights and the Unit No. display shows flashing “0” indication.
2. Set the Unit No.
   Press the UP or DOWN button and change the Unit No. display until the buzzer (*1) is generated 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.

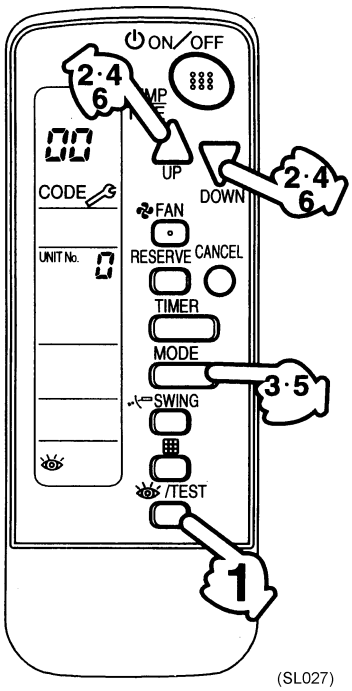


   *2 Number of beeps
   Continuous beep : Both upper and lower digits matched. (Malfunction code confirmed)
   2 short beeps : Upper digit matched.
   1 short beep : Lower digit matched.
5. Press the MODE selector button.
   The right “0” (lower digit) indication of the malfunction code flashes.
6. Malfunction 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.

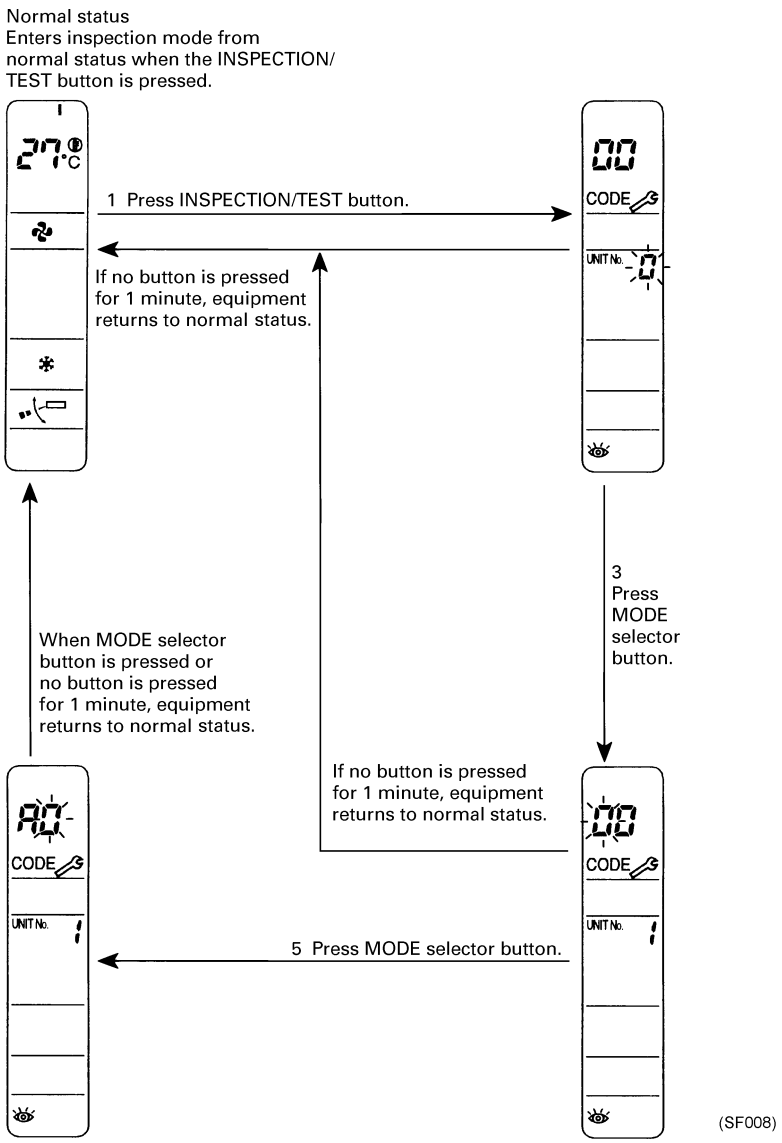
■ The lower digit of the code changes as shown below when the UP and DOWN buttons are pressed.



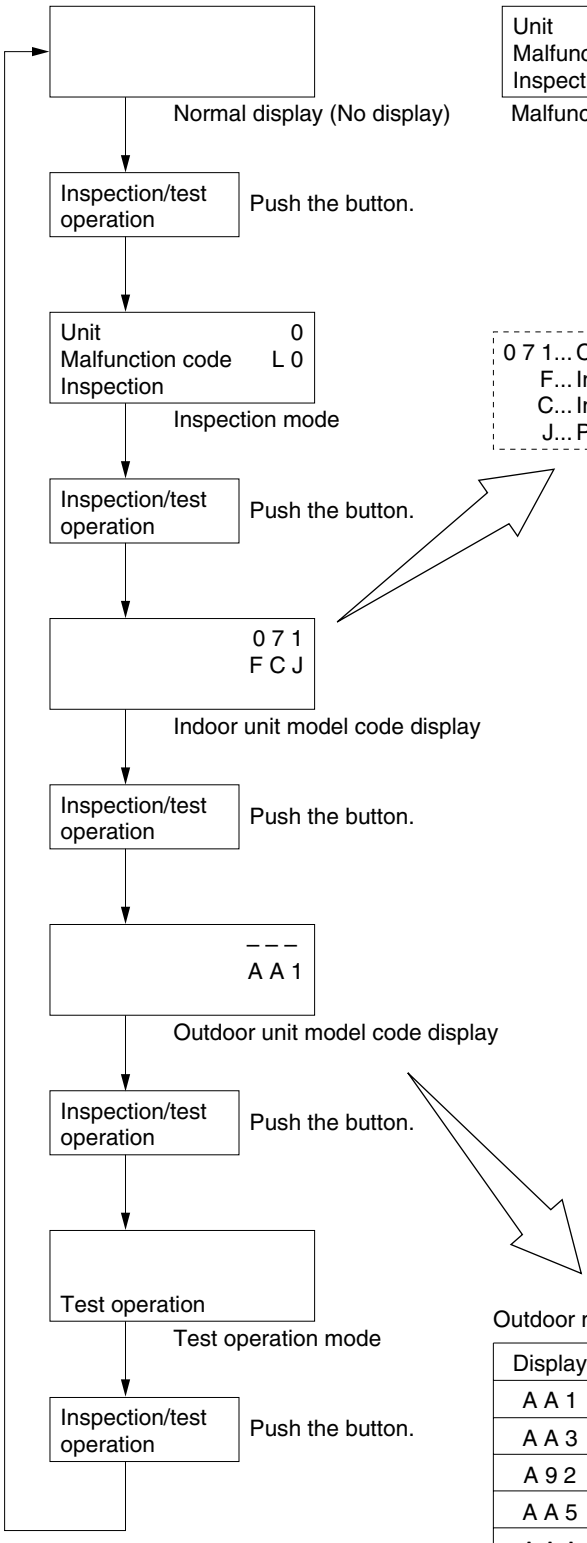
(SE007)



(SL027)


Normal status
Enters inspection mode from
normal status when the INSPECTION/
TEST button is pressed.
27 °C
00
CODE
UNIT No.
0
1 Press INSPECTION/TEST button.
If no button is pressed
for 1 minute, equipment
returns to normal status.
3
Press
MODE
selector
button.
When MODE selector
button is pressed or
no button is pressed
for 1 minute, equipment
returns to normal status.
If no button is pressed
for 1 minute, equipment
returns to normal status.
A0
CODE
UNIT No.
1
00
CODE
UNIT No.
1
5 Press MODE selector button.
(SF008)

1.4 Operation of the Remote Controller's Inspection / Test Operation Button



Unit 0
Malfunction code L 0
Inspection

Malfunction code blinks when a malfunction occurs.

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

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 ceilling suspended cassette

Indoor unit type code

Display	Type	Model
A	Wall mounted	FXAQ
C	Double flow	FXCQ
E	Corner	FXKQ
F	Multi flow	FXFQ
H	Ceiling suspended	FXHQ
J	Built-in	FXSQ
L	Floor standing	FXLQ
P	Concealed ceiling duct	FXMQ
L	Concealed floor standing type	FXNQ
6	Multi flow 600×600	FXZQ
3	Slim Ceilling mounted duct	FXDQ
5	New ceilling suspended cassette	FXUQ

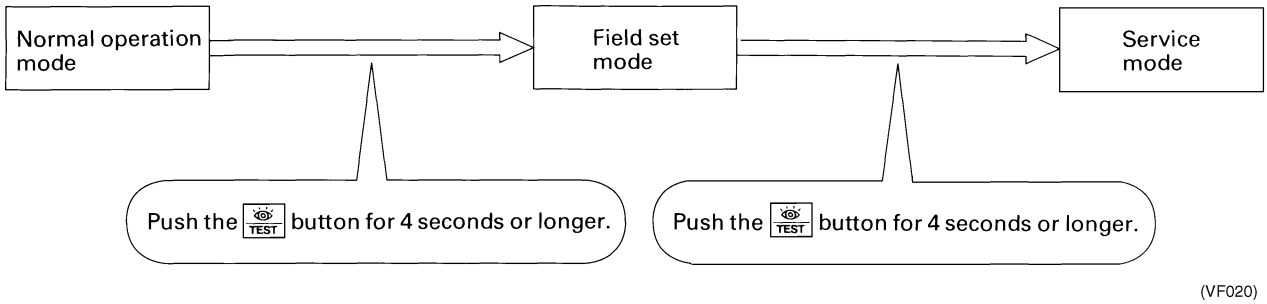
Outdoor model code

Display	Type	Model
A A 1	VRV System Inverter K Series	RSXYP
A A 3	R407C VRV PLUS Series	RXYP
A 9 2	VRV Heat Recovery Series	RSEYP
A A 5	High COP type R407C L Series	RSXYP-L
A A A	VRV II	RXYQ-M
A 96	VRV II Heat Recovery	REYQ-M
		RWEYQ-M

(V2775)

1.5 Remote Controller Service Mode

How to Enter the Service Mode



Service Mode Operation Method

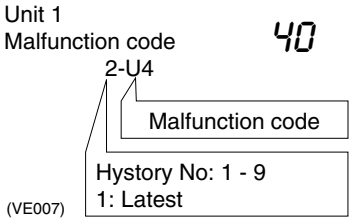
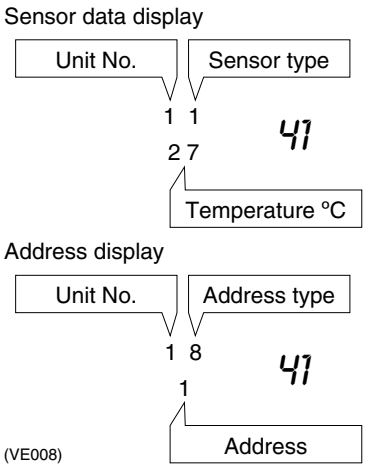
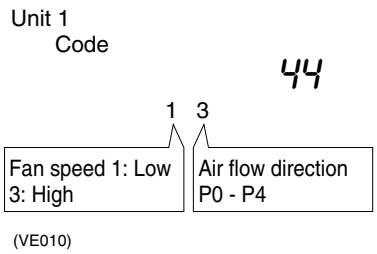
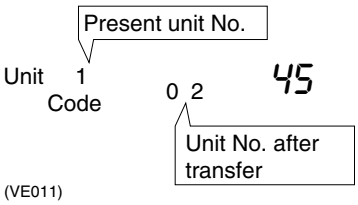
1. Select the mode No.
Set the desired mode No. with the button.
(For wireless remote controller, Mode 43 only can be set.)

2. Select the unit No. (For group control only)
Select the indoor unit No. to be set with the time mode . (For wireless remote controller, button.)

3. Make the settings required for each mode. (Modes 41, 44, 45)
In case of Mode 44, 45, push button to be able to change setting before setting work. (LCD “code” blinks.)
For details, refer to the table in next page.

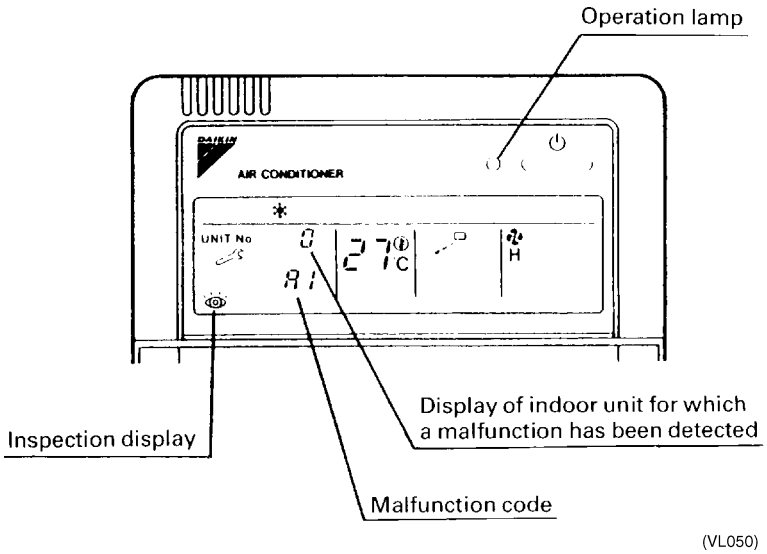
4. Define the setting contents. (Modes 44, 45)
Define by pushing the timer button.
After defining, LCD “code” changes blinking to ON.

5. Return to the normal operation mode.
Push the button one time.

Mode No	Function	Contents and operation method	Remote controller display example
40	Malfunction hysteresis display	Display malfunction hysteresis. The history No. can be changed with the button.	
41	Display of sensor and address data	Display various types of data. Select the data to be displayed with the button. Sensor data 0: Thermostat sensor in remote controller. 1: Suction 2: Liquid pipe 3: Gas pipe Address data 4: Indoor unit address 5: Outdoor unit address 6: BS unit address 7: Zone control address 8: Cool/heat group address 9: Demand / low noise address	
43	Forced fan ON	Manually turn the fan ON by each unit. (When you want to search for the unit No.) By selecting the unit No. with the button, you can turn the fan of each indoor unit on (forced ON) individually.	
44	Individual setting	Set the fan speed and air flow direction by each unit Select the unit No. with the time mode button. Set the fan speed with the button. Set the air flow direction with the button.	
45	Unit No. transfer	Transfer unit No. Select the unit No. with the button. Set the unit No. after transfer with the button.	
46 47	This function is not used by VRV II R410A Heat Pump 50Hz.		

1.6 Remote Controller Self-Diagnosis Function

The remote controller switches are equipped with a self diagnosis function so that more appropriate maintenance can be carried out. If a malfunction occurs during operation, the operation lamp, malfunction code and display of malfunctioning unit No. let you know the contents and location of the malfunction.
When there is a stop due to malfunction, the contents of the malfunction given below can be diagnosed by a combination of operation lamp, INSPECTION display of the liquid crystal display and display of malfunction code. It also lets you know the unit No. during group control.



	Malfunction code	Operation lamp	Inspection display	Unit No.	Malfunction contents	Page Referred
Indoor Unit	A0	◑	◑	◑	Error of external protection device	144
	A1	◑	◑	◑	PC board defect, E^2 PROM defect	145
	A3	◑	◑	◑	Malfunction of drain level control system (33H)	146
	A6	◑	◑	◑	Fan motor (MF) lock, overload	148
	A7	○	●	◑	Malfunction of swing flap motor (MA)	149
	A9	◑	◑	◑	Malfunction of moving part of electronic expansion valve (20E)	151
	AF	○	●	◑	Drain level about limit	153
	AH	○	●	◑	Malfunction of air filter maintenance	—
	AJ	◑	◑	◑	Malfunction of capacity setting	154
	C4	◑	◑	◑	Malfunction of thermistor (R2T) for heat exchange (loose connection, disconnection, short circuit, failure)	155
	C5	◑	◑	◑	Malfunction of thermistor (R3T) for gas pipes (loose connection, disconnection, short circuit, failure)	156
	C9	◑	◑	◑	Malfunction of thermistor (R1T) for air inlet (loose connection, disconnection, short circuit, failure)	157
	CA	◑	◑	◑	Malfunction of discharge air thermistor	158
	CJ	○	○	○	Malfunction of thermostat sensor in remote controller	159
	E1	◑	◑	◑	PC board defect	160
	E3	◑	◑	◑	Actuation of high pressure switch	161
	E4	◑	◑	◑	Actuation of low pressure sensor	162
	E5	◑	◑	◑	Compressor motor lock	163
	E9	◑	◑	◑	Malfunction of moving part of electronic expansion valve (Y1E~3E)	164
	F3	◑	◑	◑	Abnormal discharge pipe temperature	166
	F6	◑	◑	◑	Refrigerant overcharged	167
	HJ	◑	◑	◑	Water system defect	168
	J3	◑	◑	◑	Malfunction of discharge pipe thermistor (R3T) (loose connection, disconnection, short circuit, failure)	169
	J4	◑	◑	◑	Malfunction of heat exchanger gas pipe thermistor (R4T)	170
	J5	◑	◑	◑	Malfunction of thermistor (R2T) for suction pipe (loose connection, disconnection, short circuit, failure)	171
	J7	◑	◑	◑	Malfunction of liquid pipe thermistor (R6T)	172
	J9	◑	◑	◑	Malfunction of the evaporating side gas pipe temperature thermistor on subcooling heat exchanger (R5T)	173
	JA	◑	◑	◑	Malfunction of discharge pipe pressure sensor	174
	JC	◑	◑	◑	Malfunction of suction pipe pressure sensor	175
	L0	◑	◑	◑	Inverter system error	—
	L4	◑	◑	◑	Malfunction of inverter radiating fin temperature rise	176
	L5	◑	◑	◑	Inverter compressor motor grounding, short circuit	177
	L6	◑	◑	◑	Compressor motor coil grounding on short circuit	—
	L8	◑	◑	◑	Inverter current abnormal	178
	L9	◑	◑	◑	Inverter start up error	179
Outdoor Unit	LA	◑	◑	◑	Malfunction of power unit	—
	LC	◑	◑	◑	Malfunction of transmission between inverter and control PC board	180
	P1	◑	◑	◑	Inverter over-ripple protection	182
	P4	◑	◑	◑	Malfunction of inverter radiating fin temperature rise sensor	183

	Malfunction code	Operation lamp	Inspection display	Unit No.	Malfunction contents	Page Referred
System	U0	○	●	◑	Low pressure drop due to refrigerant shortage or electronic expansion valve failure	184
	U1	◑	◑	◑	Reverse phase / open phase	185
	U2	◑	◑	◑	Power supply insufficient or instantaneous failure	186
	U3	◑	◑	◑	Check operation is not conducted.	188
	U4	◑	◑	◑	Malfunction of transmission between indoor and outdoor units	189
	U5	◑	◑	◑	Malfunction of transmission between remote controller and indoor unit	191
	U5	●	○	●	Failure of remote controller PC board or setting during control by remote controller	191
	U7	◑	◑	◑	Malfunction of transmission between outdoor units	192
	U8	◑	◑	●	Malfunction of transmission between master and slave remote controllers (malfunction of slave remote controller)	194
	U9	◑	◑	◑	Malfunction of transmission between indoor unit and outdoor unit in the same system	195
	UA	◑	◑	◑	Excessive number of indoor units etc.	197
	UC	○	○	○	Address duplication of central remote controller	198
	UE	◑	◑	◑	Malfunction of transmission between central remote controller and indoor unit	199 203 209
	UF	◑	◑	◑	Refrigerant system not set, incompatible wiring / piping	201
	UH	◑	◑	◑	Malfunction of system, refrigerant system address undefined	202
Centralized Control and Schedule Timer	M1	○ or ●	◑	◑	PC board defect	204 211
	M8	○ or ●	◑	◑	Malfunction of transmission between optional controllers for centralized control	205 212
	MA	○ or ●	◑	◑	Improper combination of optional controllers for centralized control	206 213
	MC	○ or ●	◑	◑	Address duplication, improper setting	208 215
Heat Reclaim Ventilation	64	○	●	◑	Indoor unit's air thermistor error	—
	65	○	●	◑	Outside air thermistor error	—
	68	○	●	◑		—
	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

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

* Refer P.103 for Monitor mode.

<Selection of setting item>

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

* Refer P.103 for Monitor mode.

<Confirmation of malfunction 1>

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

<Confirmation of malfunction 2>

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

<Confirmation of malfunction 3>

Push the SET button (BS2) once to display "master or slave1 or slave2" and "malfunction location".

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

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

Detail description on next page.

Contents of malfunction		Malfunction code
Abnormal discharge pressure	HPS activated	E3
Abnormal suction pressure	Abnormal Pe	E4
Compressor lock	Detection of INV compressor lock	E5
Over load, over current, abnormal lock of outdoor unit fan motor	Instantaneous over current of DC fan motor Detection of DC fan motor lock	E7
Malfunction of electronic expansion valve	EV1	E9
	EV3	
Abnormal position signal of outdoor unit fan motor	Abnormal position signal of DC fan motor	H7
Faulty sensor of outdoor air temperature	Faulty Ta sensor	H9
Abnormality in water system		HJ
Abnormal discharge pipe temperature	Abnormal Td	F3
Abnormal heat exchanger temperature	Refrigerant over charge	F6
Faulty sensor of discharge pipe temperature	Faulty Tdi sensor	J3
Faulty sensor of heat exchanger gas pipe thermistor	Faulty Tg sensor	J4
Faulty sensor of suction pipe temperature	Faulty Ts sensor	J5
Faulty sensor of receiver temperature	Faulty Tl sensor	J7
Faulty sensor of subcool heat exchanger temperature	Faulty Tsh sensor	J9
Faulty sensor of discharge pressure	Faulty Pc sensor	JA
Faulty sensor of suction pressure	Faulty Pe sensor	JC
Inverter radiation fin temperature rising	Over heating of inverter radiation fin temperature	L4
DC output over current	Inverter instantaneous over current	L5
Electronic thermal switch	Electronic thermal switch 1	L8
	Electronic thermal switch 2	
	Out-of-step	
	Speed down after startup	
	Lightening detection	
Stall prevention (Limit time)	Stall prevention (Current increasing)	L9
	Stall prevention (Faulty startup)	
	Abnormal wave form in startup	
	Out-of-step	
Transmission error between inverter and outdoor unit	Inverter transmission error	LC
Open phase/Power supply imbalance	Imbalance of inverter power supply voltage	P1
Faulty temperature sensor inside switch box	Faulty thermistor of inverter box	P3
Faulty temperature sensor of inverter radiation fin	Faulty thermistor of inverter fin	P4
Incorrect combination of inverter and fan driver	Incorrect combination of inverter and fan driver	PJ
Gas shortage	Gas shortage alarm	U0
Reverse phase	Reverse phase error	U1
Abnormal power supply voltage	Insufficient inverter voltage	U2
	Inverter open phase (phase T)	
	Charging error of capacitor in inverter main circuit	
No implementation of test-run		U3
Transmission error between indoor and outdoor unit	I/O transmission error	U4
Transmission error between outdoor units, transmission error between thermal storage units, duplication of IC address	O/O transmission error	U7
Transmission error of other system	Indoor unit system malfunction in other system or other unit of own system	U9
Erroneous on-site setting	Abnormal connection with excessive number of indoor units	UA
	Conflict of refrigerant type in indoor units	
Faulty system function	Incorrect wiring (Auto address error)	UH
Transmission error in accessory devices, conflict in wiring and piping, no setting for system	Malfunction of multi level converter, abnormality in conflict check	UJ UF

Malfunction code	Confirmation of malfunction 1							Confirmation of malfunction 2							Confirmation of malfunction 3						
	LED1	LED2	LED3	LED4	LED5	LED6	LED7	LED1	LED2	LED3	LED4	LED5	LED6	LED7	LED1	LED2	LED3	LED4	LED5	LED6	LED7
E3	◎	●	○	●	●	◎	◎	◎	○	●	●	●	◎	◎	◎	○	○			●	●
E4								◎	○	●	●	◎	●	●	◎	○	○			●	●
E5								◎	○	●	●	◎	●	◎	◎	○	○			●	●
E7								◎	○	●	●	◎	◎	◎	◎	○	○			●	◎
E9								◎	○	●	◎	●	●	◎	◎	○	○			●	◎
															◎	○	○			◎	◎
H7	◎	●	○	●	◎	●	●	◎	○	●	●	◎	◎	◎	◎	○	○			●	◎
H9								◎	○	●	◎	●	●	◎	◎	○	○			●	●
HJ								◎	○	●	◎	◎	●	◎	◎	○	○			●	●
F3	◎	●	○	●	◎	●	◎	◎	○	●	●	●	◎	◎	◎	○	○			●	●
F6								◎	○	●	●	◎	◎	●	◎	○	○			●	●
J3	◎	●	○	●	◎	◎	●	◎	○	●	●	●	◎	◎	◎	○	○			●	◎
J4								◎	○	●	●	○	●	●	◎	○	○			●	◎
J5								◎	○	●	●	◎	●	◎	◎	○	○			●	●
J7								◎	○	●	●	◎	◎	◎	◎	○	○			●	●
J9								◎	○	●	◎	●	●	◎	◎	○	○			●	●
JA								◎	○	●	◎	●	◎	●	◎	○	○			●	●
JC								◎	○	●	◎	◎	●	●	◎	○	○			●	●
L4								◎	○	●	●	◎	●	●	◎	○	○			●	●
L5								◎	○	●	●	◎	●	◎	◎	○	○			●	●
L8								◎	○	●	◎	●	●	●	◎	○	○			●	●
L9								◎	○	●	◎	●	●	◎	◎	○	○			●	●
LC								◎	○	●	◎	◎	●	●	◎	○	○			●	●
P1	◎	●	○	◎	●	●	●	◎	○	●	●	●	●	◎	◎	○	○			●	●
P3								◎	○	●	●	●	◎	◎	◎	○	○			●	●
P4								◎	○	●	●	◎	●	●	◎	○	○			●	●
PJ								◎	○	●	◎	◎	●	◎	◎	○	○			●	●
U0	◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	●	◎	○	○			●	●
U1								◎	○	●	●	●	●	◎	◎	○	○			●	●
U2								◎	○	●	●	●	◎	●	◎	○	○			●	●
U3								◎	○	●	●	●	◎	◎	◎	○	○			●	●
U4								◎	○	●	●	◎	●	●	◎	○	○			●	●
U7								◎	○	●	●	◎	◎	◎	◎	○	○			●	●
U9								◎	○	●	◎	●	●	◎	◎	○	○			●	●
UA								◎	○	●	◎	●	◎	●	◎	○	○			●	●
UH								◎	○	●	◎	●	◎	◎	◎	○	○			●	●
UJ								◎	○	●	◎	◎	●	◎	◎	○	○			●	●
UF								◎	○	●	◎	◎	◎	◎	◎	○	○			●	●

○ : ON
◎ : Blink
● : OFF

Malfunction code 1st digit display section

○ : ON
◎ : Blink
● : OFF

Malfunction code 2nd digit display section

Master	●	●
Slave 1	●	◎
Slave 2	◎	●

Malfunction location

2. Troubleshooting by Indication on the Remote Controller

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

Remote Controller Display

A0

Applicable Models

All indoor unit models

Method of Malfunction Detection

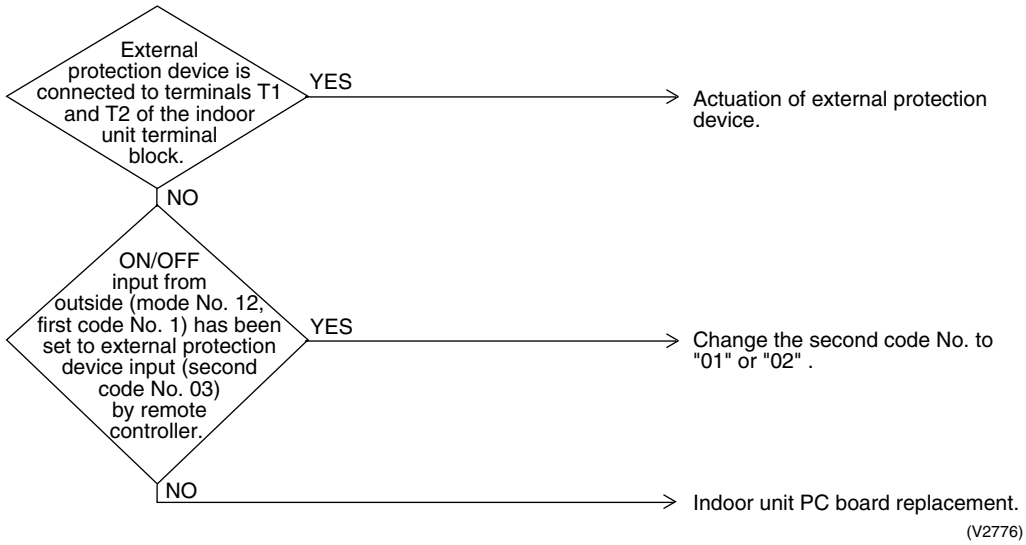
Malfunction Decision Conditions

Supposed Causes

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

Troubleshooting

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



2.2 "A1" Indoor Unit: PC Board Defect

Remote Controller Display

A1

Applicable Models

All indoor unit models

Method of Malfunction Detection

Check data from E²PROM.

Malfunction Decision Conditions

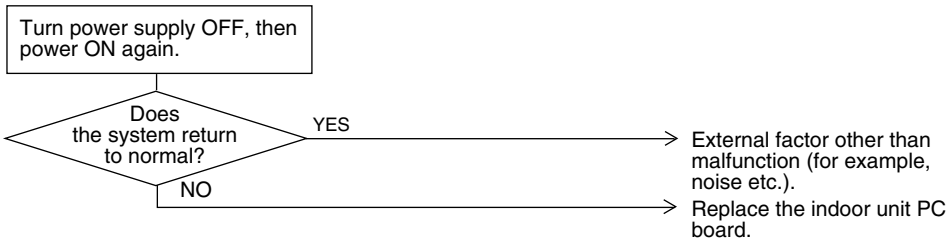
When data could not be correctly received from the E²PROM
E²PROM : Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.

Supposed Causes

- Defect of indoor unit PC board

Troubleshooting

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



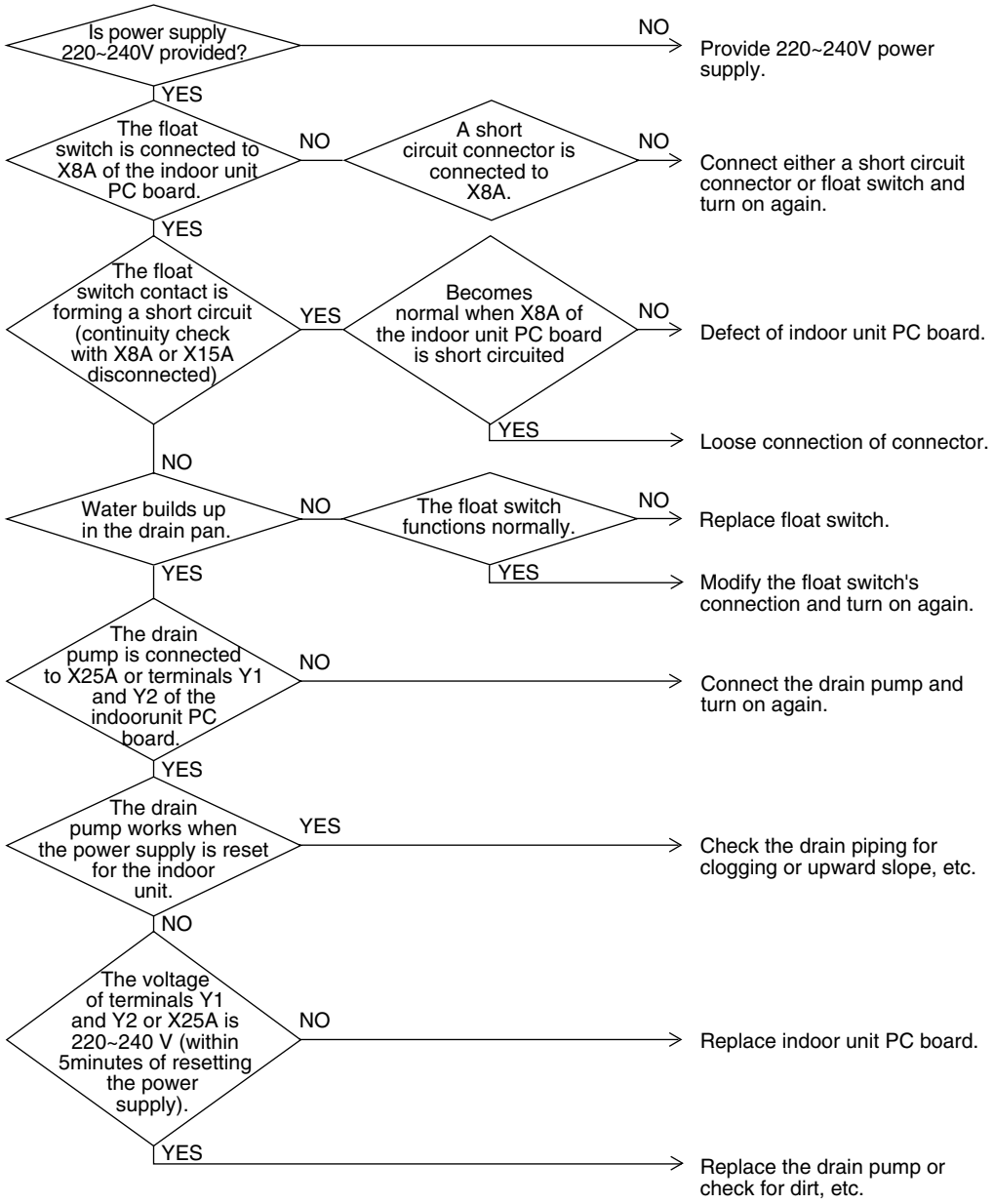
(V2777)

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

Remote Controller Display	A3
Applicable Models	FXCQ, FXFQ, FXZQ, FXSQ, FXKQ, FXDQ, FXMQ, FXUQ, FXHQ (Option), FXMQ200·250M (Option), FXAQ (Option), FXMQ-MF (Option)
Method of Malfunction Detection	By float switch OFF detection
Malfunction Decision Conditions	When rise of water level is not a condition and the float switch goes OFF.
Supposed Causes	■ 220~240V power supply is not provided ■ Defect of float switch or short circuit connector ■ Defect of drain pump ■ Drain clogging, upward slope, etc. ■ Defect of indoor unit PC board ■ Loose connection of connector

Troubleshooting

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



(V2778)

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

Remote Controller Display

A6

Applicable Models

All indoor units

Method of Malfunction Detection

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

Malfunction Decision Conditions

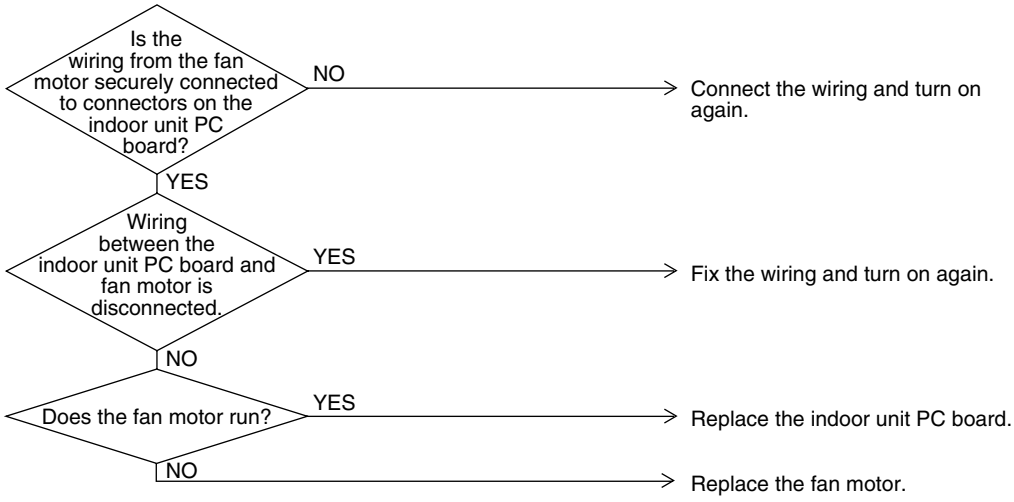
When number of turns can't be detected even when output voltage to the fan is maximum

Supposed Causes

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

Troubleshooting

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



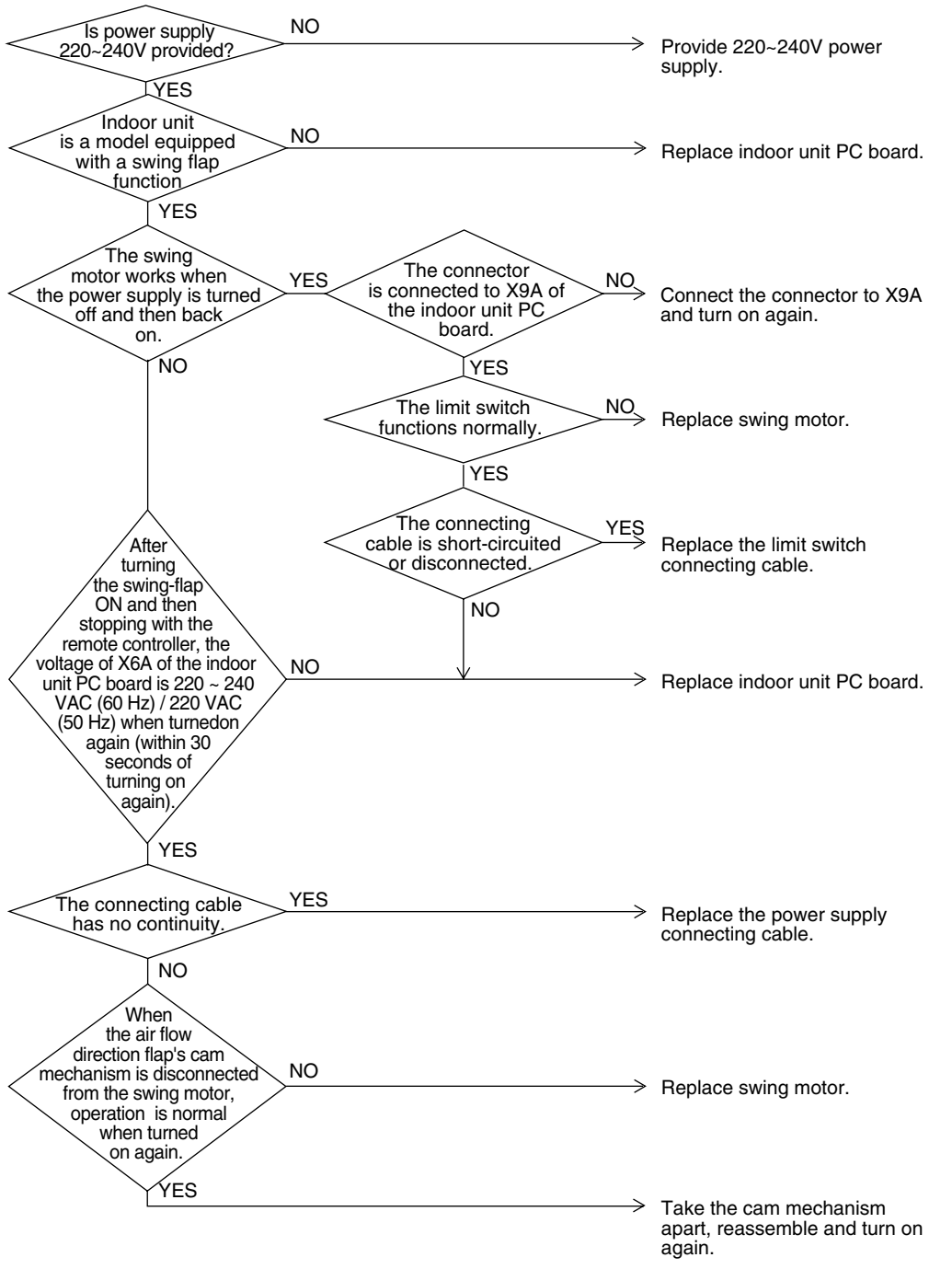
(V2779)

2.5 "A7" Indoor Unit: Malfunction of Swing Flap Motor (MA)

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 microswitch for positioning cannot be reversed even though the swing flap motor is energized for a specified amount of time (about 30 seconds).
Supposed Causes	■ Defect of swing motor ■ Defect of connection cable (power supply and limit switch) ■ Defect of air flow direction adjusting flap-cam ■ Defect of indoor unit PC board

Troubleshooting

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



(V2780)

2.6 "A9" Indoor Unit: Malfunction of Moving Part of Electronic Expansion Valve (20E)

Remote Controller Display

A9

Applicable Models

All indoor unit models

Method of Malfunction Detection

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

Malfunction Decision Conditions

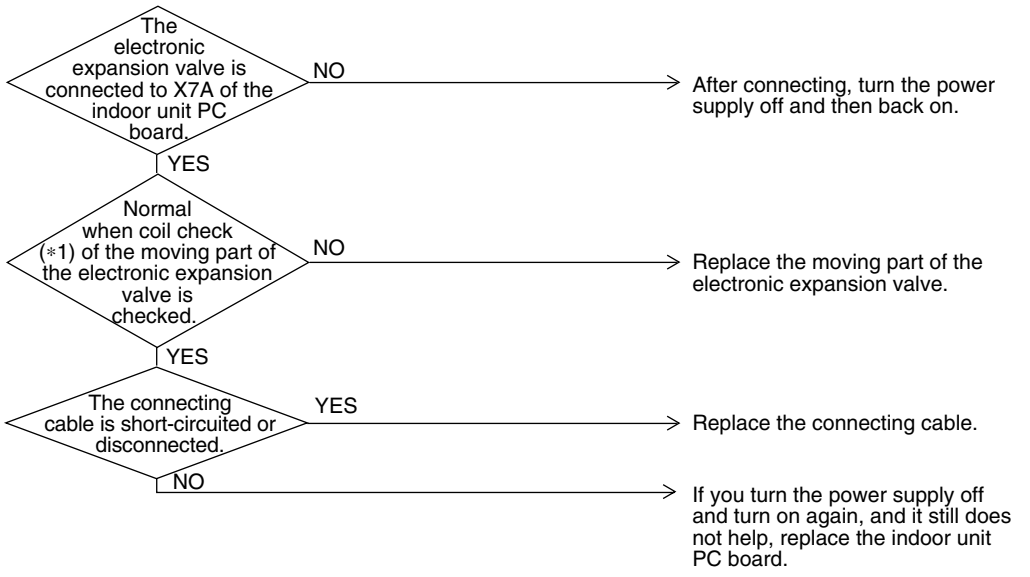
When number of turns can't be detected even when output voltage to the fan is maximum

Supposed Causes

- Malfunction of moving part of electronic expansion valve
- Defect of indoor unit PC board
- Defect of connecting cable

Troubleshooting

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



(V2781)

∗1: Coil check method for the moving part of the electronic expansion valve
Discount the electronic expansion valve from the PC board and check the continuity between the connector pins.

(Normal)

Pin No.	1. White	2. Yellow	3. Orange	4. Blue	5. Red	6. Brown
1. White		×	○ Approx. 300Ω	×	○ Approx. 150Ω	×
2. Yellow			×	○ Approx. 300Ω	×	○ Approx. 150Ω
3. Orange				×	○ Approx. 150Ω	×
4. Blue					×	○ Approx. 150Ω
5. Red						×
6. Brown						

○: Continuity
×: No continuity

2.7 "AF" Indoor Unit: Drain Level above Limit

Remote Controller Display

AF

Applicable Models

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

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

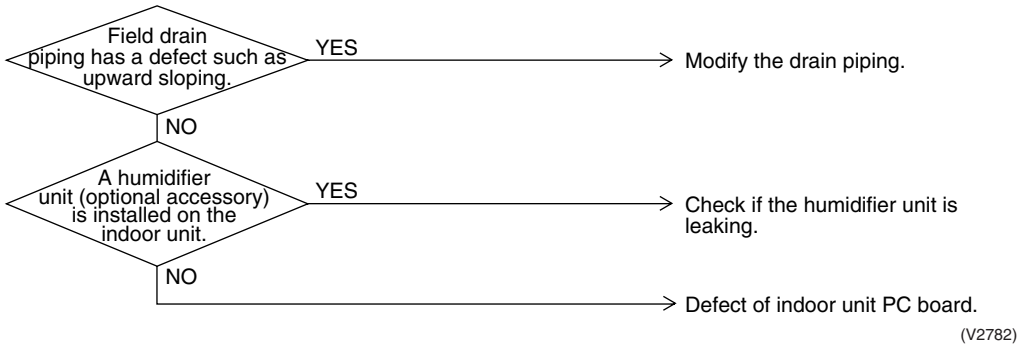
When the float switch changes from ON to OFF while the compressor is in non-operation.

Supposed Causes

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

Troubleshooting

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



2.8 "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 PC board, and whether the value is normal or abnormal is determined.

Malfunction Decision Conditions

Operation and:

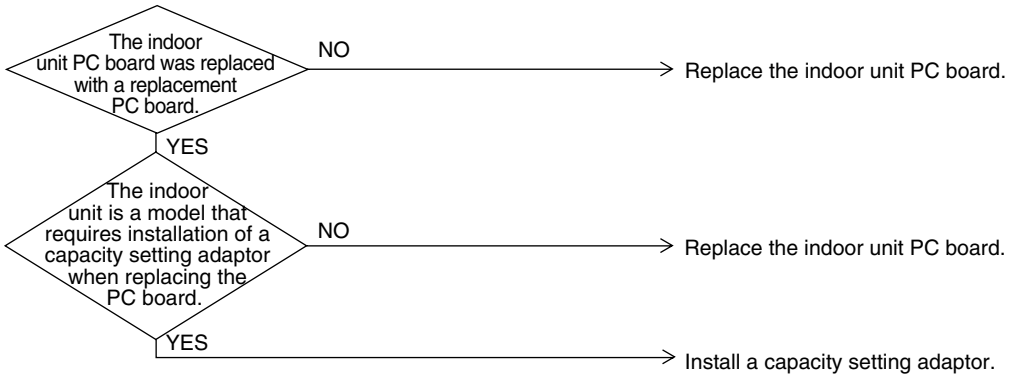
1. When the capacity code is not contained in the PC board's memory, and the capacity setting adaptor is not connected.
2. When a capacity that doesn't exist for that unit is set.

Supposed Causes

- You have forgotten to install the capacity setting adaptor.
- Defect of indoor unit PC board

Troubleshooting

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



(V2783)

2.9 "C4" Indoor Unit: Malfunction of Thermistor (R2T) for Heat Exchanger

Remote Controller Display

C4

Applicable Models

All indoor unit models

Method of Malfunction Detection

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

Malfunction Decision Conditions

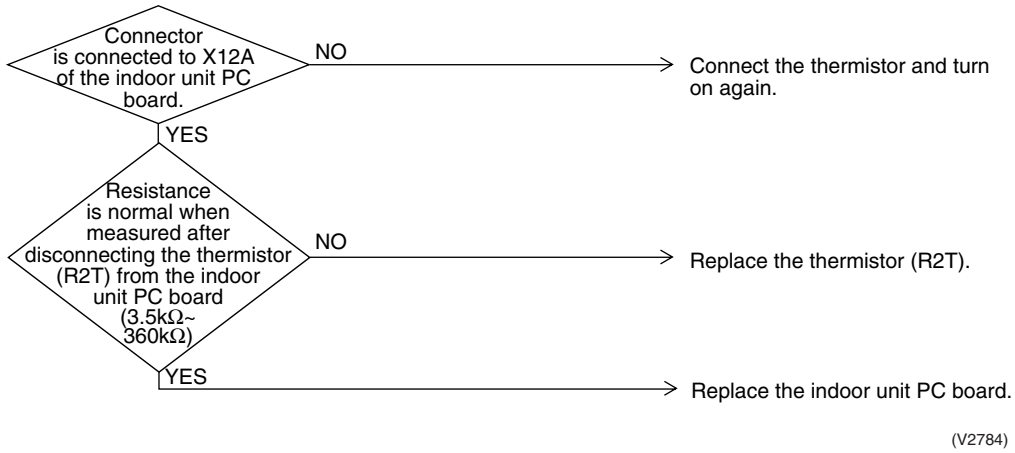
When the heat exchanger thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

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

Troubleshooting

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



∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.10 "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

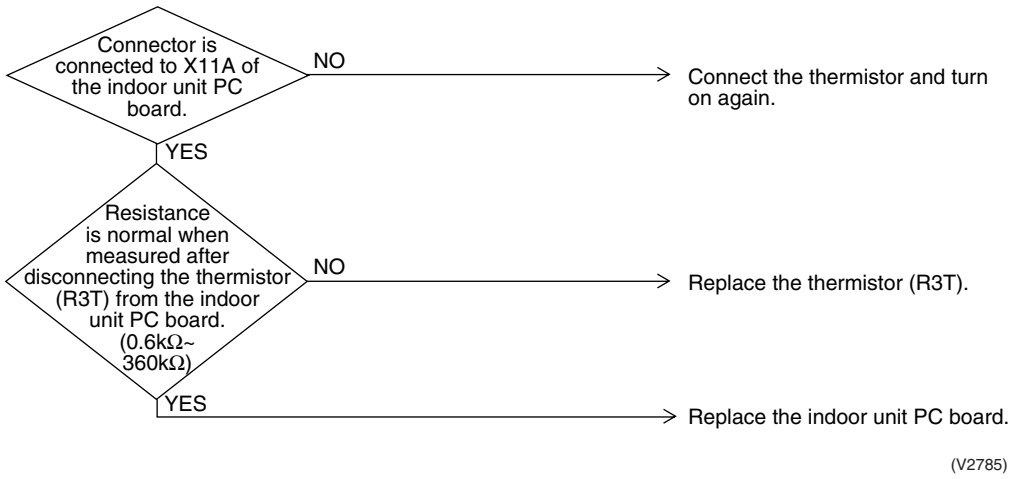
When the gas pipe thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

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

Troubleshooting

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



∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.11 "C9" Indoor Unit: Malfunction of Thermistor (R1T) for Suction Air

Remote Controller Display

C9

Applicable Models

All indoor unit models

Method of Malfunction Detection

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

Malfunction Decision Conditions

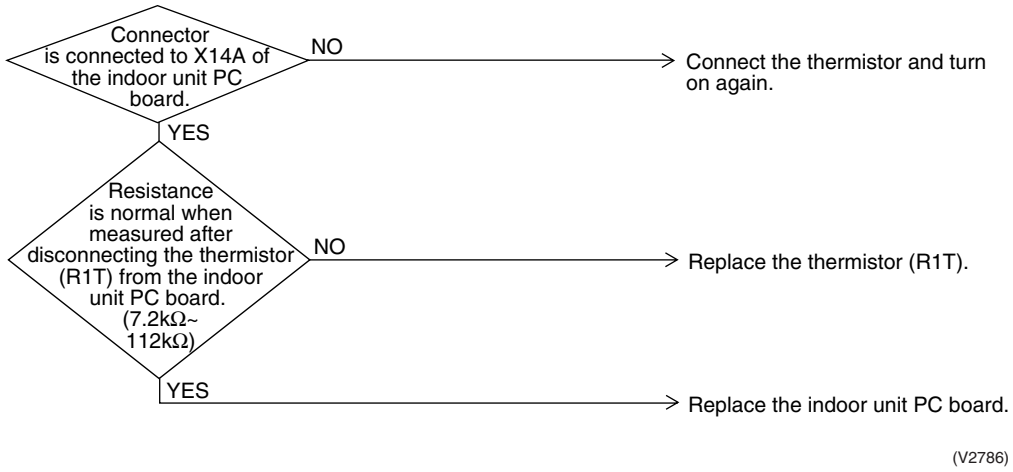
When the suction air temperature thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

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

Troubleshooting

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



∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.12 "CA" Indoor Unit: Malfunction of Thermistor (R1T) for Suction Air

Remote Controller Display

CA

Applicable Models

Indoor unit

Method of Malfunction Detection

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

Malfunction Decision Conditions

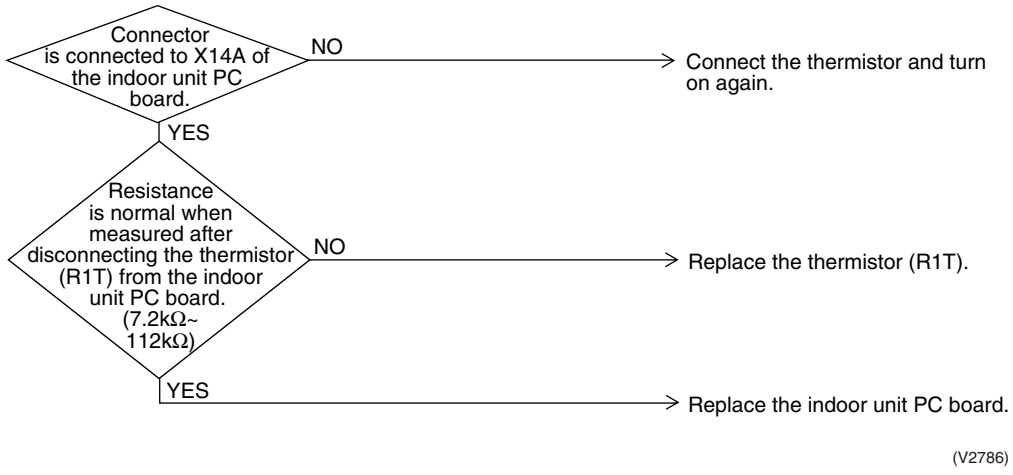
When the suction air temperature thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

- Defect of indoor unit thermistor for discharge air
- Defect of indoor unit PC board (R4T)

Troubleshooting

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



∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.13 "CJ" Indoor Unit: Malfunction of Thermostat Sensor in Remote Controller

Remote Controller Display

CJ

Applicable Models

All indoor unit models

Method of Malfunction Detection

Malfunction detection is carried out by temperature detected by remote controller air temperature thermistor. (Note1)

Malfunction Decision Conditions

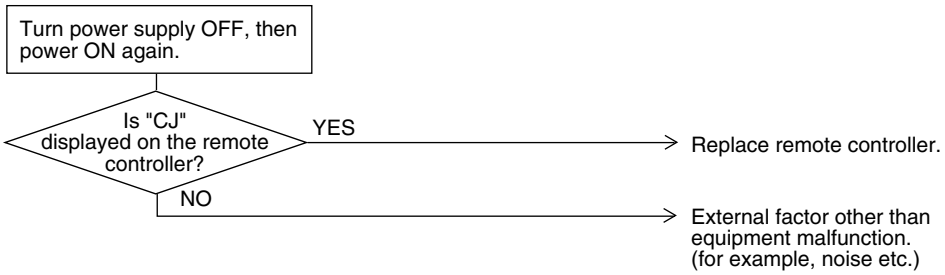
When the remote controller air temperature thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

- Defect of remote controller thermistor
- Defect of remote controller PC board

Troubleshooting

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



(V2787)

Note: In case of remote controller thermistor malfunction, unit is still operable by suction air thermistor on indoor unit.

∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.14 "E1" Outdoor Unit: PC Board Defect

Remote Controller Display

E1

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Check data from E²PROM

Malfunction Decision Conditions

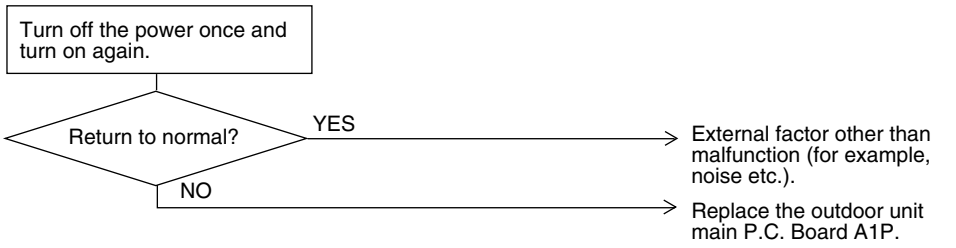
When data could not be correctly received from the E²PROM
E²PROM : Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.

Supposed Causes

- Defect of outdoor unit PC board (A1P)

Troubleshooting

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



(V3064)

2.15 "E3" Outdoor Unit: Actuation of High Pressure Switch

Remote Controller Display

E3

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Abnormality is detected when the contact of the high pressure protection switch opens.

Malfunction Decision Conditions

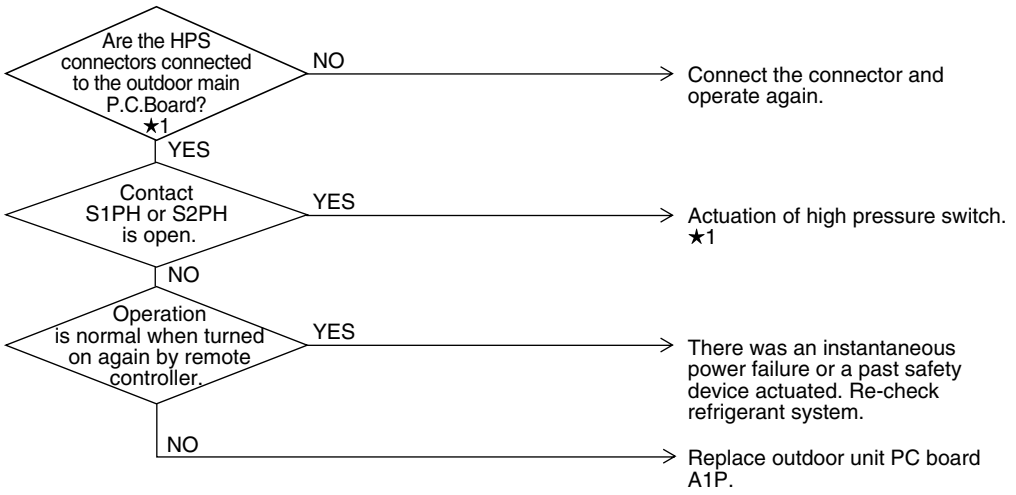
Error is generated when the HPS activation count reaches the number specific to the operation mode.

Supposed Causes

- Actuation of outdoor unit high pressure switch
- Defect of High pressure switch
- Defect of outdoor unit PC board
- 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.



(V3065)

★1: Actuation of high pressure switch (HPS)

- The outdoor unit PC board's connector is disconnected.
- Is the outdoor unit heat exchanger dirty?
- Defect of outdoor fan
- Cooling water volume is short or soiled water heat exchanger.
- Is the refrigerant over-charged?
- Faulty high pressure sensor

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

Remote Controller Display

E4

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction Decision Conditions

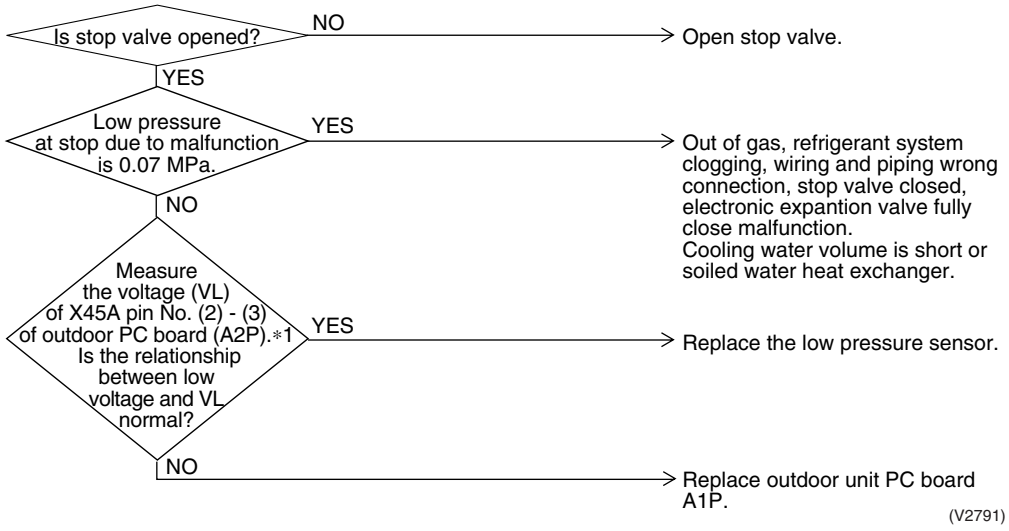
Error is generated when the low pressure is dropped under specific pressure.

Supposed Causes

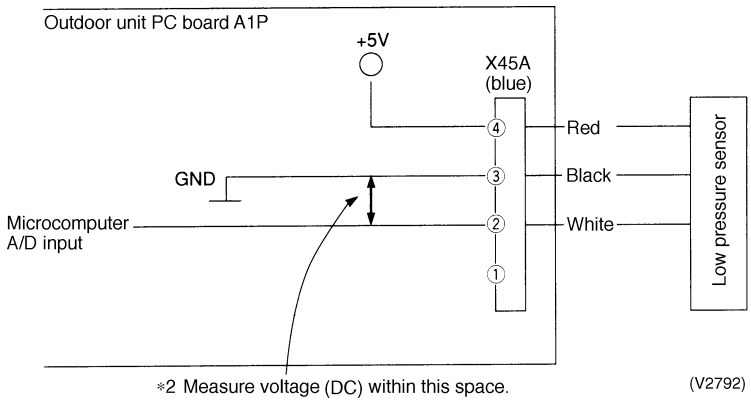
- Abnormal drop of low pressure (Lower than 0.07MPa)
- Defect of low pressure sensor
- Defect of outdoor unit PC board
- Stop valve is not opened.

Troubleshooting

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



*1: Voltage measurement point



*2: Refer to pressure sensor, pressure / voltage characteristics table on P261.

2.17 "E5" Compressor Motor Lock

Remote Controller Display

E5

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Inverter PC board takes the position signal from UVWN line connected between the inverter and compressor, and detects the position signal pattern.

Malfunction Decision Conditions

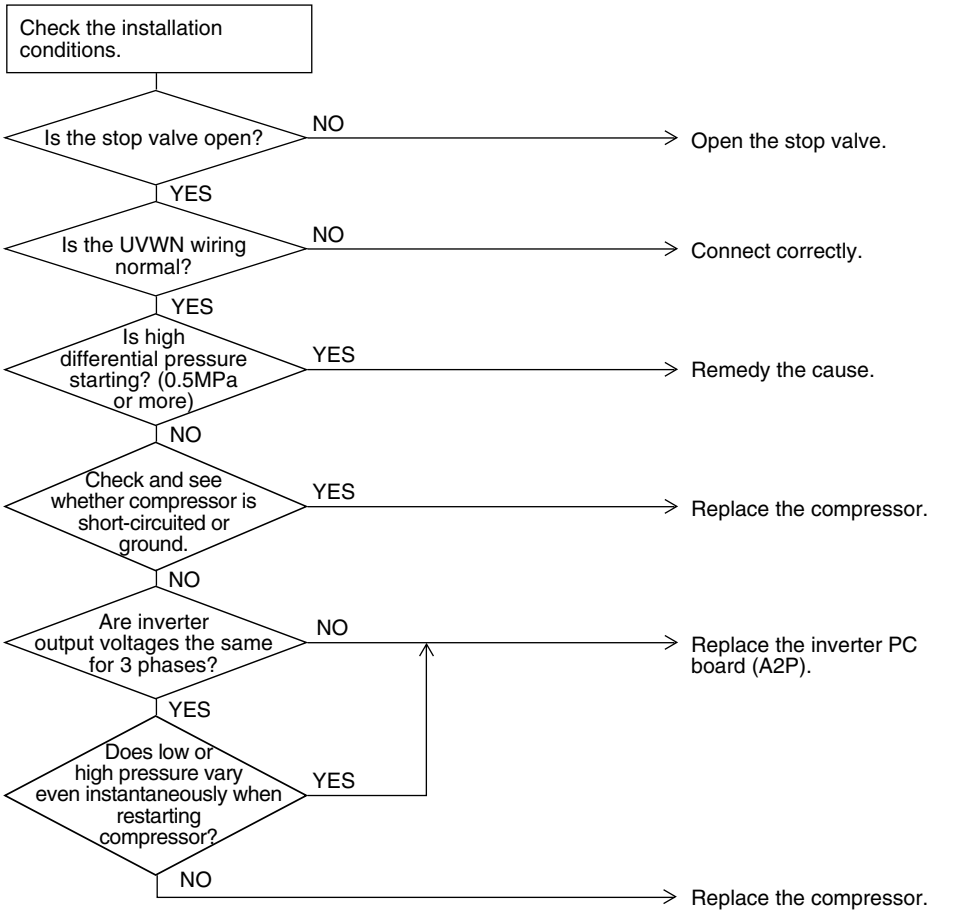
The position signal with 3 times cycle as imposed frequency is detected when compressor motor operates normally, but 2 times cycle when compressor motor locks. When the position signal in 2 times cycle is detected.

Supposed Causes

- Compressor lock
- High differential pressure (0.5MPa or more)
- Incorrect UVWN wiring
- Faulty inverter PC board
- Stop valve is left in closed.

Troubleshooting

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



(V2793)

2.18 "E9" Outdoor Unit: Malfunction of Moving Part of Electronic Expansion Valve (Y1E, Y2E)

Remote Controller Display

E9

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Check disconnection of connector
Check continuity of expansion valve coil

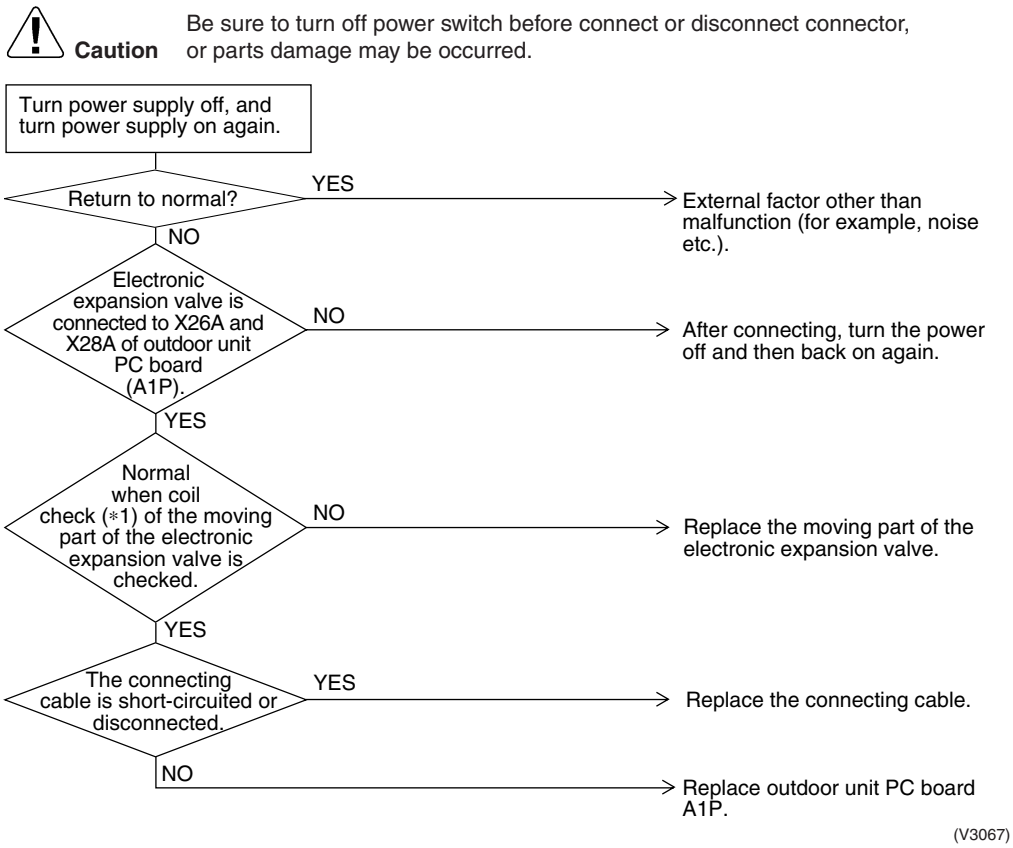
Malfunction Decision Conditions

Error is generated under no common power supply when the power is on.

Supposed Causes

- Defect of moving part of electronic expansion valve
- Defect of outdoor unit PC board (A1P)
- Defect of connecting cable

Troubleshooting



∗1 Coil check method for the moving part of the electronic expansion valve
Disconnect the electronic expansion valve from the PC board and check the continuity between the connector pins.

(Normal)

Pin No.	1. White	2. Yellow	3. Orange	4. Blue	5. Red	6. Brown
1. White		×	◎	×	○	×
2. Yellow			×	◎	×	○
3. Orange				×	○	×
4. Blue					×	○
5. Red						×
6. Brown						

◎ : Continuity Approx. 300Ω
○ : Continuity Approx. 150Ω
× : No continuity

2.19 "F3" Outdoor Unit: Abnormal Discharge Pipe Temperature

Remote Controller Display

F3

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Abnormality is detected according to the temperature detected by the discharge pipe temperature sensor.

Malfunction Decision Conditions

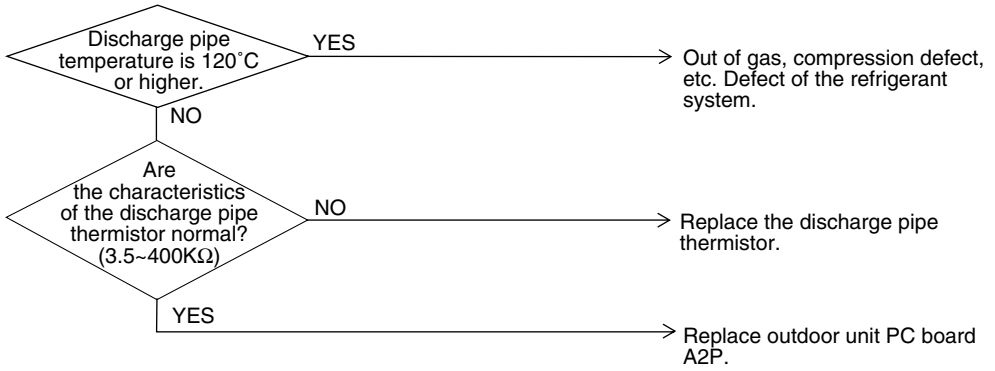
- When the discharge pipe temperature rises to an abnormally high level
- When the discharge pipe temperature rises suddenly

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.



(V3068)

∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.20 "F6" Refrigerant Overcharged

Remote Controller Display

F6

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Refrigerant overcharge is detected from the receiver gas pipe temperature during test operation.

Malfunction Decision Conditions

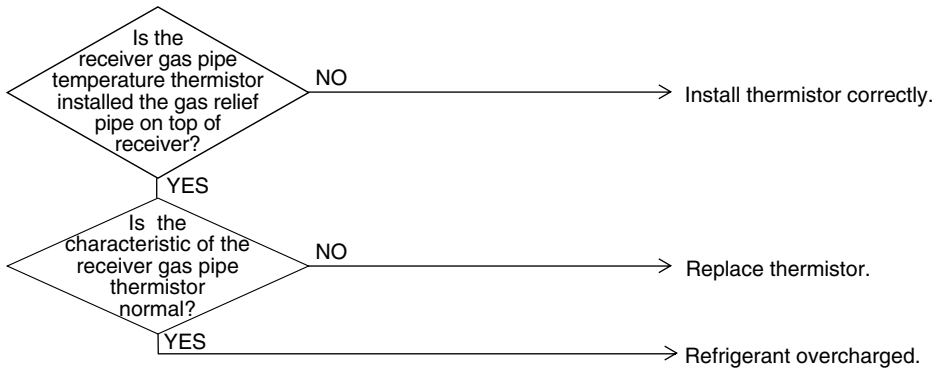
When the receiver gas pipe temperature is lower than evaporating temperature during test operation.

Supposed Causes

- Refrigerant overcharge
- Disconnection of the receiver gas pipe thermistor

Troubleshooting

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



(V2797)

2.21 "HJ" Malfunction of Water system

remote controller display

HJ

Applicable models

RWEYQ10MY1

Method of Malfunction detection

Malfunction of water system is judged from detection values of the water heat exchanger gas pipe temperature sensor, low pressure sensor and compressor load.

Malfunction decision conditions

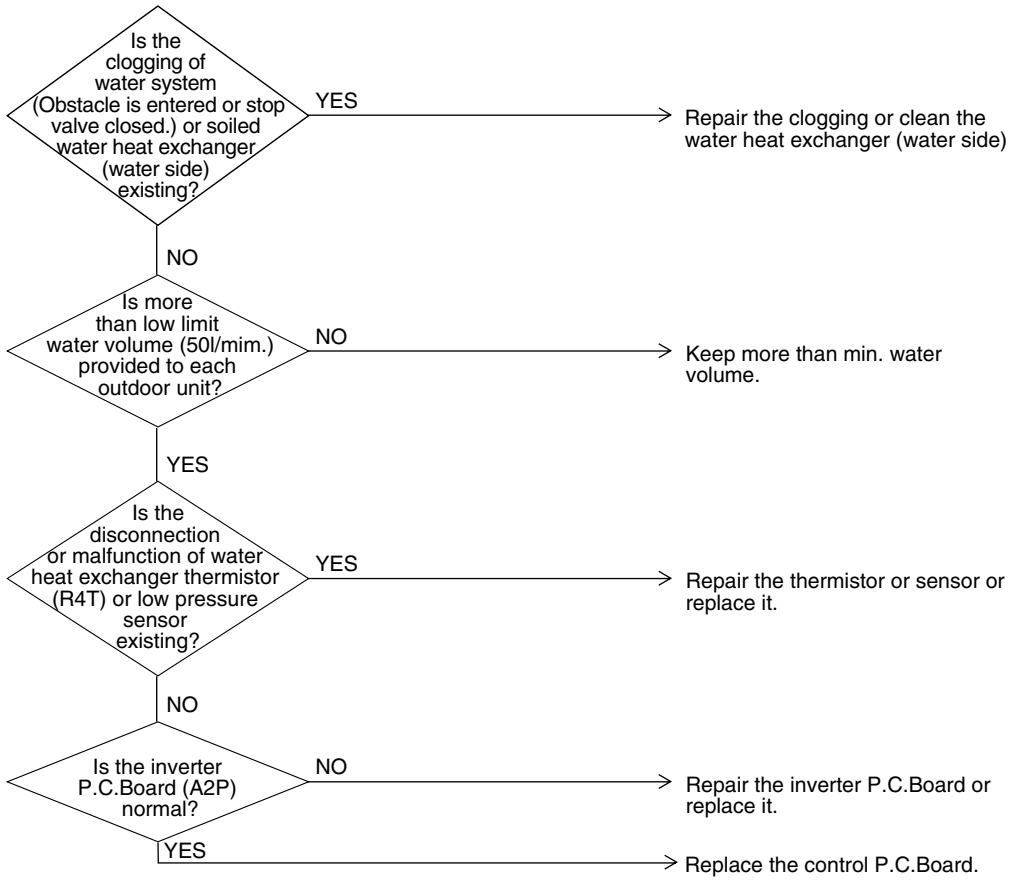
"HJ" alarm is made immediately after judgment. (No retry)

Supposed cause

- Water is not flowing.
- Water volume is too small.

Troubleshooting

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



(V2798)

2.22 "J3" Outdoor Unit: Malfunction of Discharge Pipe Thermistor (R3T)

Remote Controller Display

J3

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction is detected from the temperature detected by discharge pipe temperature thermistor.

Malfunction Decision Conditions

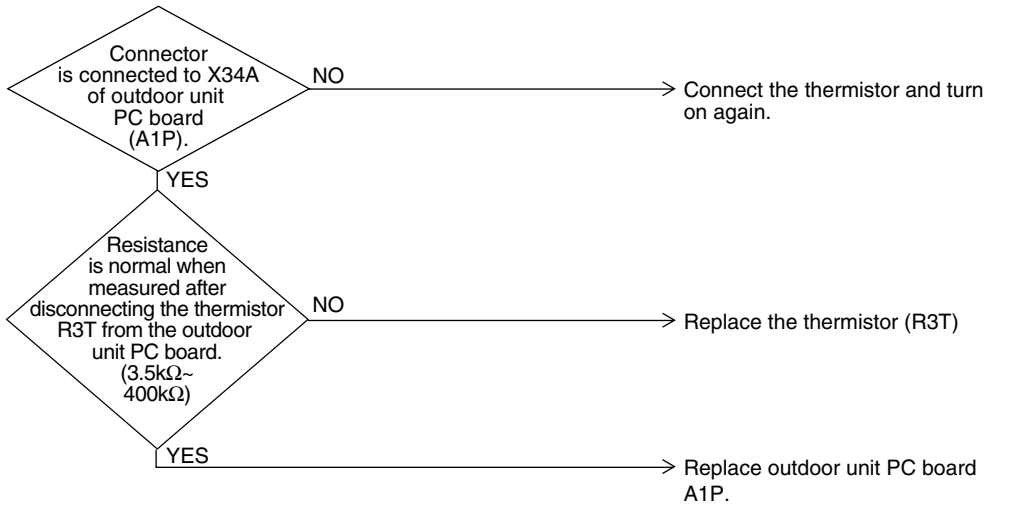
When a short circuit or an open circuit in the discharge pipe temperature thermistor is detected.

Supposed Causes

- Defect of thermistor (R3T) for outdoor unit discharge pipe
- Defect of outdoor unit PC board (A1P)

Troubleshooting

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



(V3072)

2.23 "J4" Malfunction of Heat Exchanger Gas Pipe Thermistor (R4T)

Remote Controller Display

J4

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction is detected according to the temperature detected by heat exchanger gas pipe thermistor.

Malfunction Decision Conditions

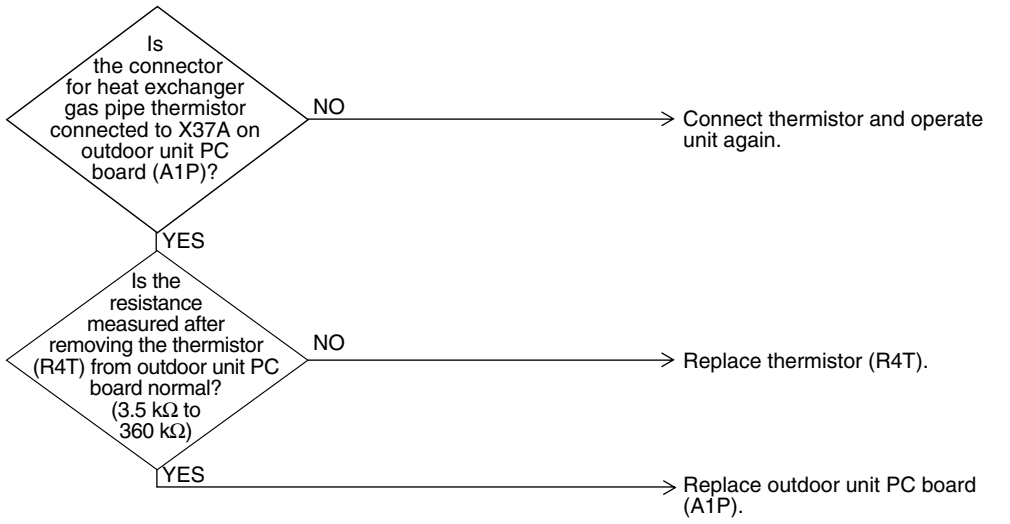
When the heat exchanger gas pipe thermistor is short circuited or open.

Supposed Causes

- Faulty heat exchanger gas pipe thermistor (R4T)
- Faulty outdoor unit PC board

Troubleshooting

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



(V3075)

∗2: Refer to thermistor resistance / temperature characteristics table on P.259.

2.24 "J5" Outdoor Unit: Malfunction of Thermistor (R2T) for Suction Pipe

Remote Controller Display

J5

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction is detected from the temperature detected by the suction pipe temperature thermistor.

Malfunction Decision Conditions

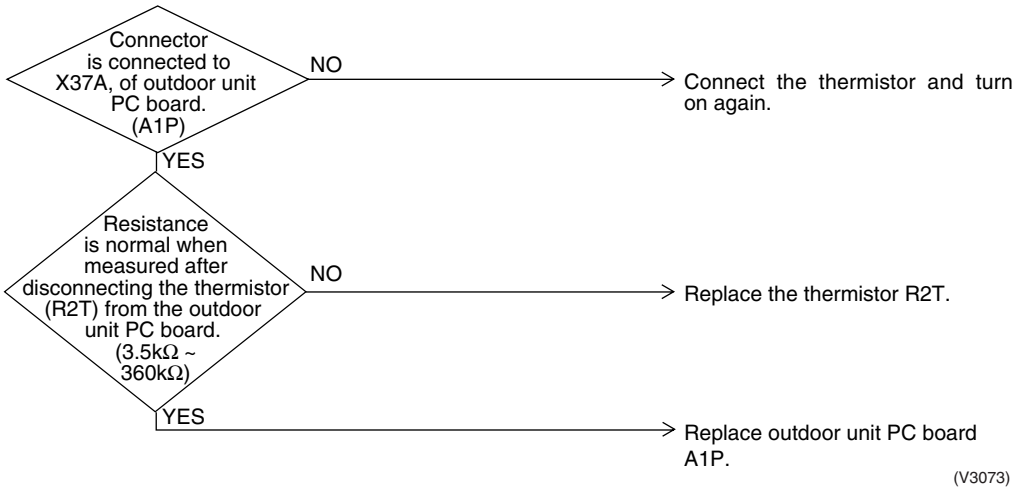
When a short circuit or an open circuit in the suction pipe temperature thermistor is detected.

Supposed Causes

- Defect of thermistor (R2T) for outdoor unit suction pipe
- Defect of outdoor unit PC board (A1P)

Troubleshooting

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



∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.25 "J7" Malfunction of Liquid Pipe Thermistor (R6T)

Remote Controller Display

J7

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction is detected according to the temperature detected by receiver outlet liquid pipe thermistor.

Malfunction Decision Conditions

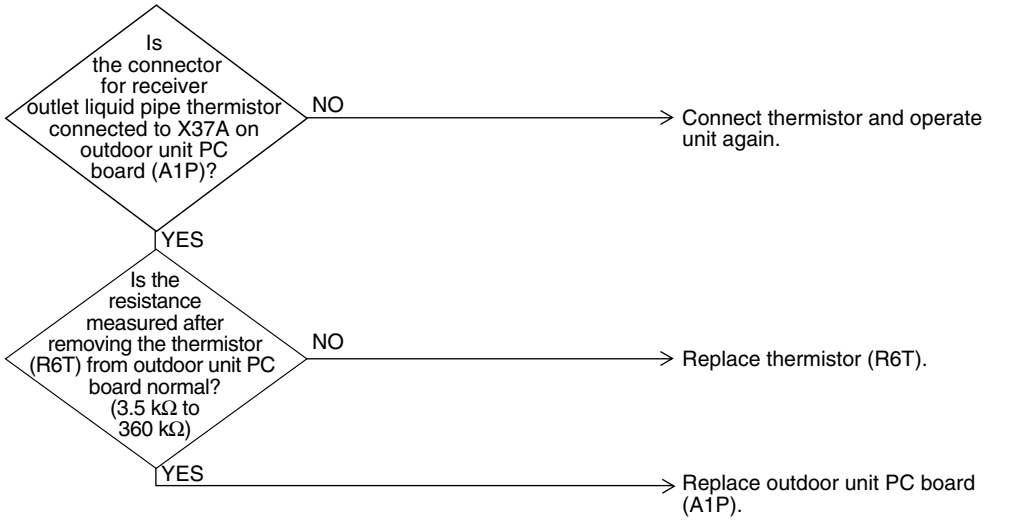
When the liquid pipe thermistor is short circuited or open.

Supposed Causes

- Faulty liquid pipe thermistor (R6T)
- Faulty outdoor unit PC board

Troubleshooting

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



(V3075)

∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.26 "J9" Malfunction of Sub Cooling Heat Exchanger Outlet Thermistor (R5T)

Remote Controller Display

J9

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction is detected according to the temperature detected by sub cooling heat exchanger outlet thermistor.

Malfunction Decision Conditions

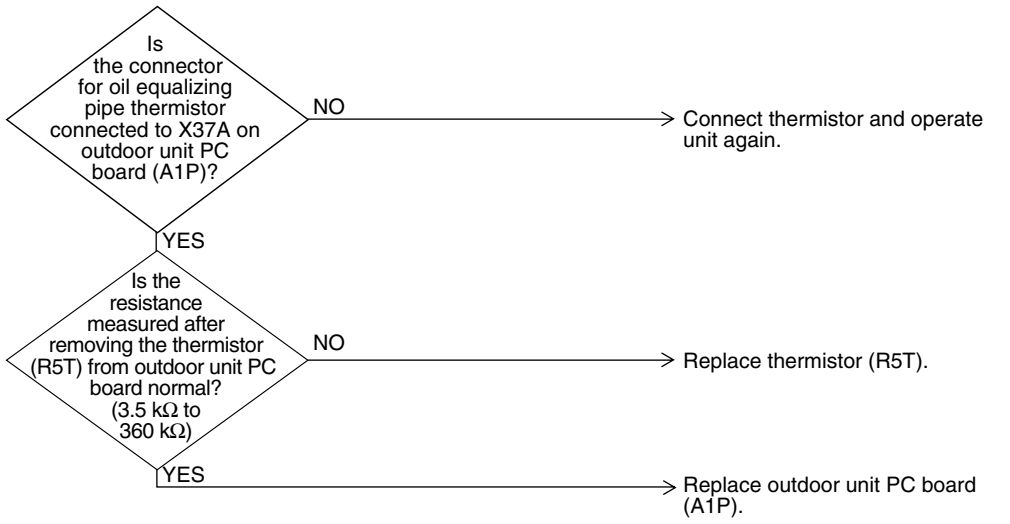
When the sub cooling heat exchanger outlet thermistor is short circuited or open.

Supposed Causes

- Faulty receiver gas pipe thermistor (R5T)
- Faulty outdoor unit PC board

Troubleshooting

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



(V3075)

∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.27 "JA" Outdoor Unit: Malfunction of Discharge Pipe Pressure Sensor

Remote Controller Display

JA

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction is detected from the pressure detected by the high pressure sensor.

Malfunction Decision Conditions

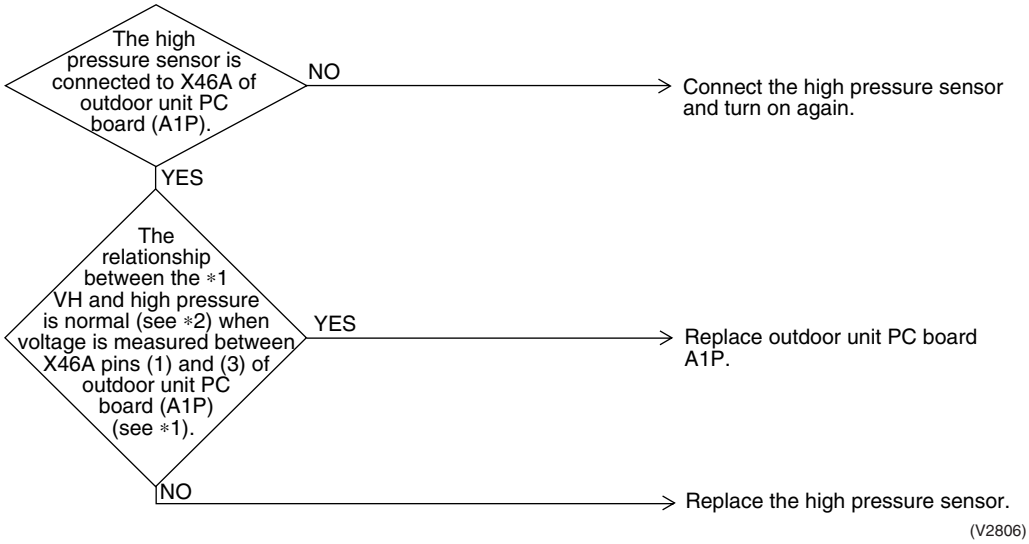
When the discharge pipe pressure sensor is short circuit or open circuit.

Supposed Causes

- Defect of high pressure sensor system
- Connection of low pressure sensor with wrong connection.
- Defect of outdoor unit PC board.

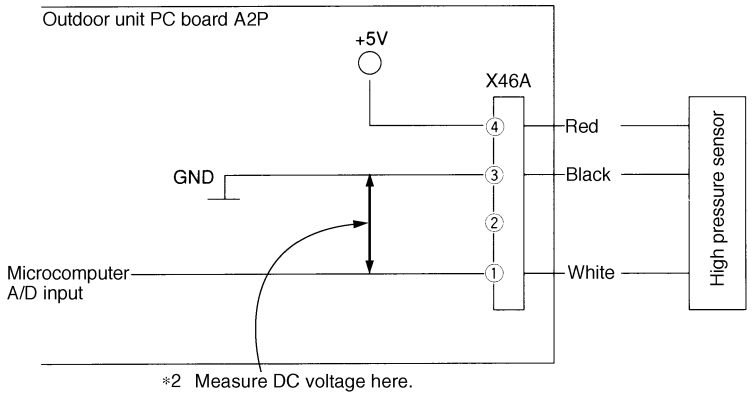
Troubleshooting

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



(V2806)

∗1: Voltage measurement point



(V2807)

∗2: Refer to pressure sensor, pressure / voltage characteristics table on P261.

2.28 "JC" Outdoor Unit: Malfunction of Suction Pipe Pressure Sensor

Remote Controller Display

JC

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction is detected from pressure detected by low pressure sensor.

Malfunction Decision Conditions

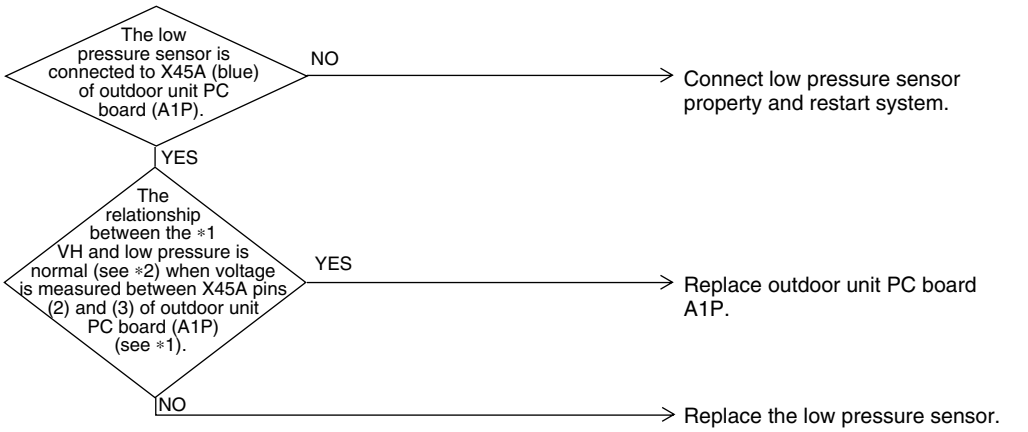
When the suction pipe pressure sensor is short circuit or open circuit.

Supposed Causes

- Defect of low pressure sensor system
- Connection of high pressure sensor with wrong connection.
- Defect of outdoor unit PC board.

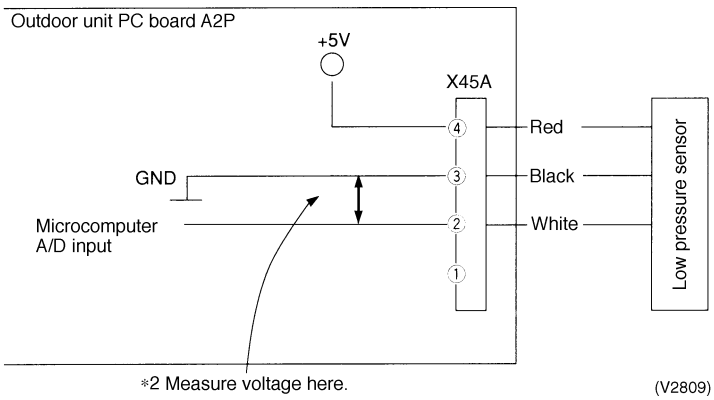
Troubleshooting

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



(V2808)

∗1: Voltage measurement point



(V2809)

∗2: Refer to pressure sensor, pressure/voltage characteristics table on P261.

2.29 "L4" Outdoor Unit: Malfunction of Inverter Radiating Fin Temperature Rise (R1T)

Remote Controller Display

L4

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Fin temperature is detected by the thermistor of the radiation fin.

Malfunction Decision Conditions

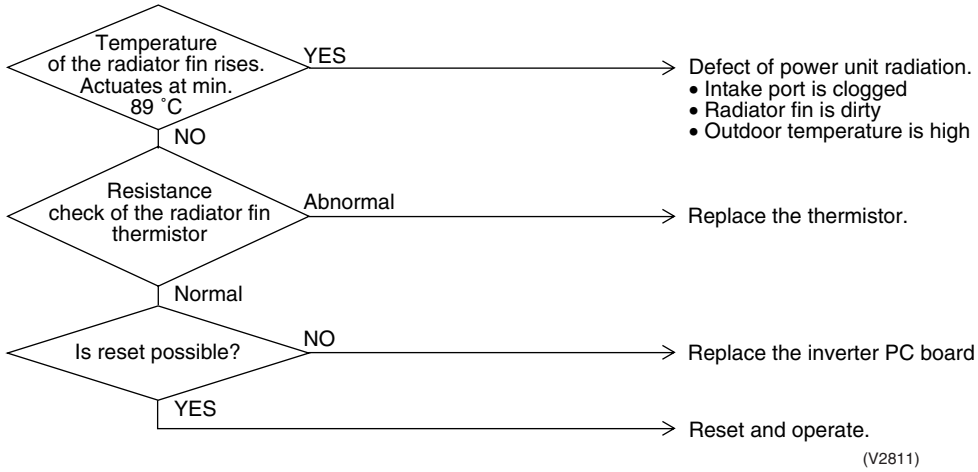
When the temperature of the inverter radiation fin increases above 89°C.

Supposed Causes

- Actuation of fin thermal (Actuates above 89°C)
- Defect of inverter PC board
- Defect of fin thermistor

Troubleshooting

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



∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.30 "L5" Outdoor Unit: Inverter Compressor Abnormal

Remote Controller Display

L5

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction is detected from current flowing in the power transistor.

Malfunction Decision Conditions

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

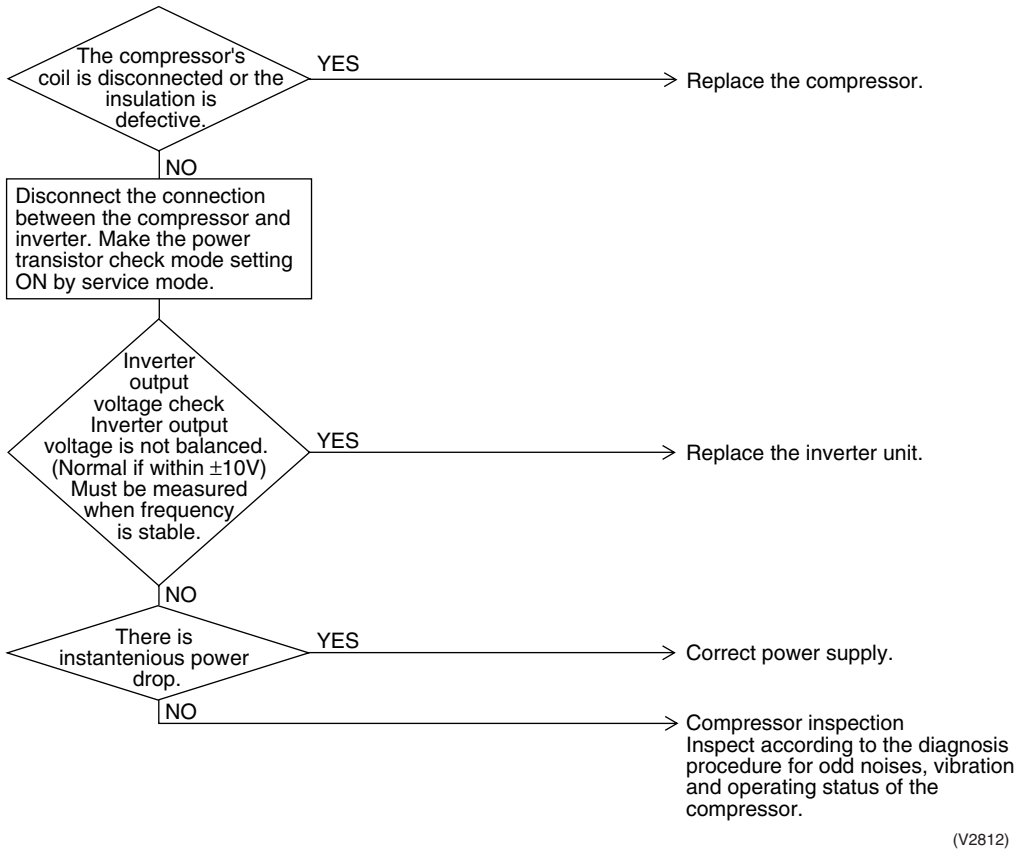
Supposed Causes

- Defect of compressor coil (disconnected, defective insulation)
- Compressor start-up malfunction (mechanical lock)
- Defect of inverter PC board

Troubleshooting

Compressor inspection

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



Higher voltage than actual is displayed when the inverter output voltage is checked by tester.

2.31 "L8" Outdoor Unit: Inverter Current Abnormal

Remote Controller Display

L8

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction is detected by current flowing in the power transistor.

Malfunction Decision Conditions

When overload in the compressor is detected.

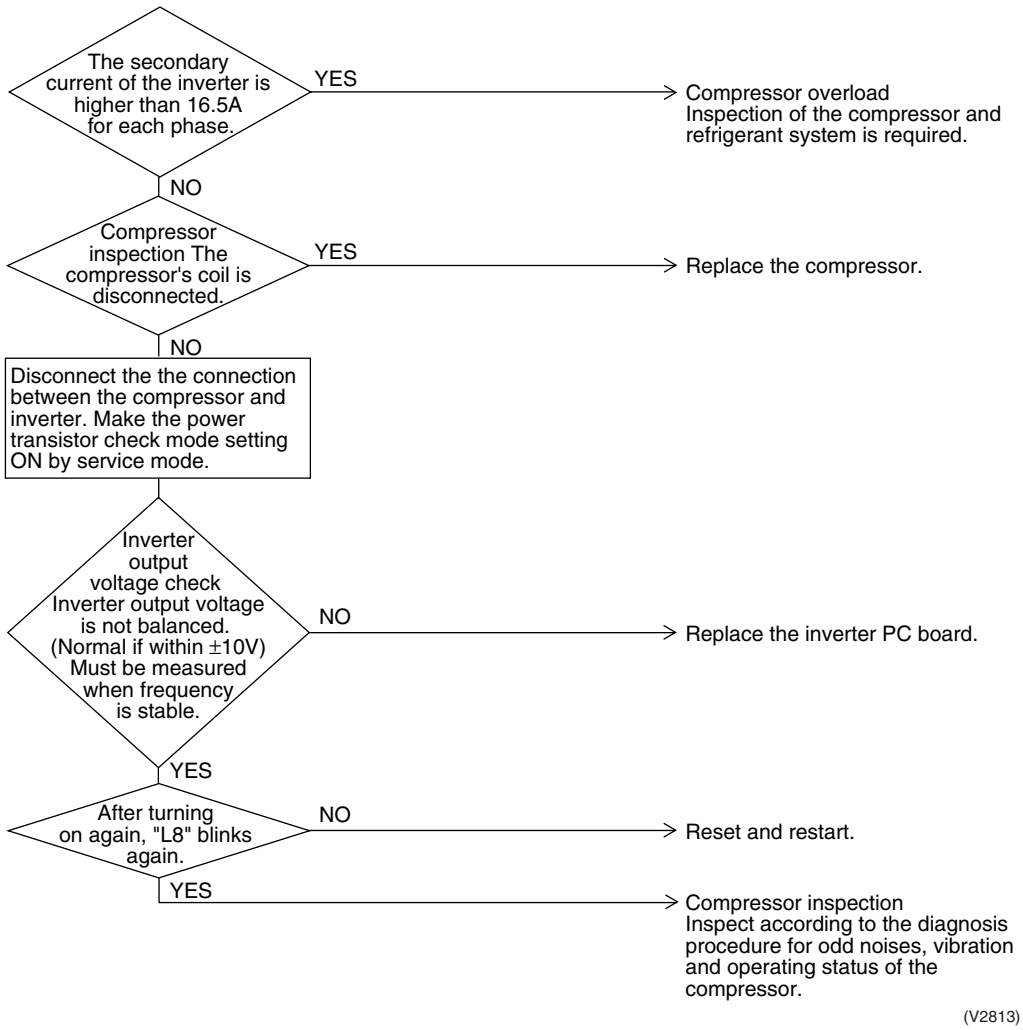
Supposed Causes

- Compressor overload
- Compressor coil disconnected
- Defect of inverter PC board

Troubleshooting

Output current check

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



(V2813)

Higher voltage than actual is displayed when the inverter output voltage is checked by tester.

2.32 "L9" Outdoor Unit: Inverter Start up Error

Remote Controller Display

L9

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Malfunction is detected from current flowing in the power transistor.

Malfunction Decision Conditions

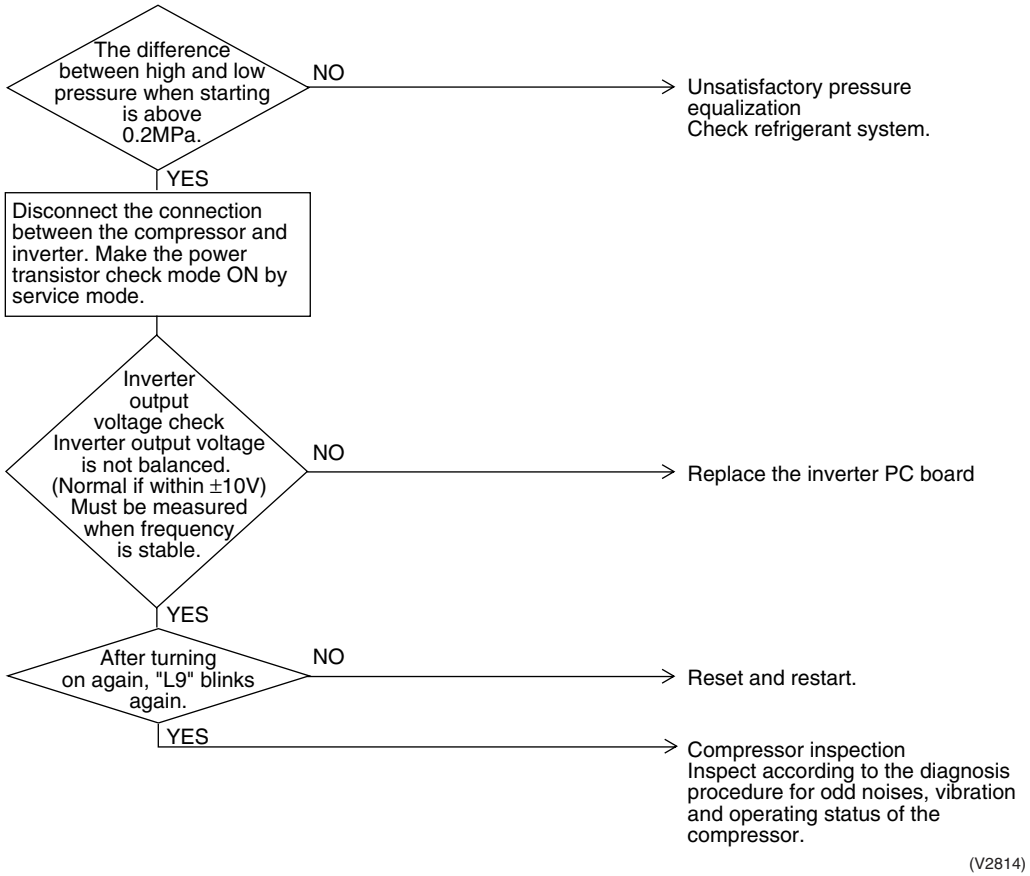
When overload in the compressor is detected during startup

Supposed Causes

- Defect of compressor
- Pressure differential start
- Defect of inverter PC board

Troubleshooting

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



(V2814)

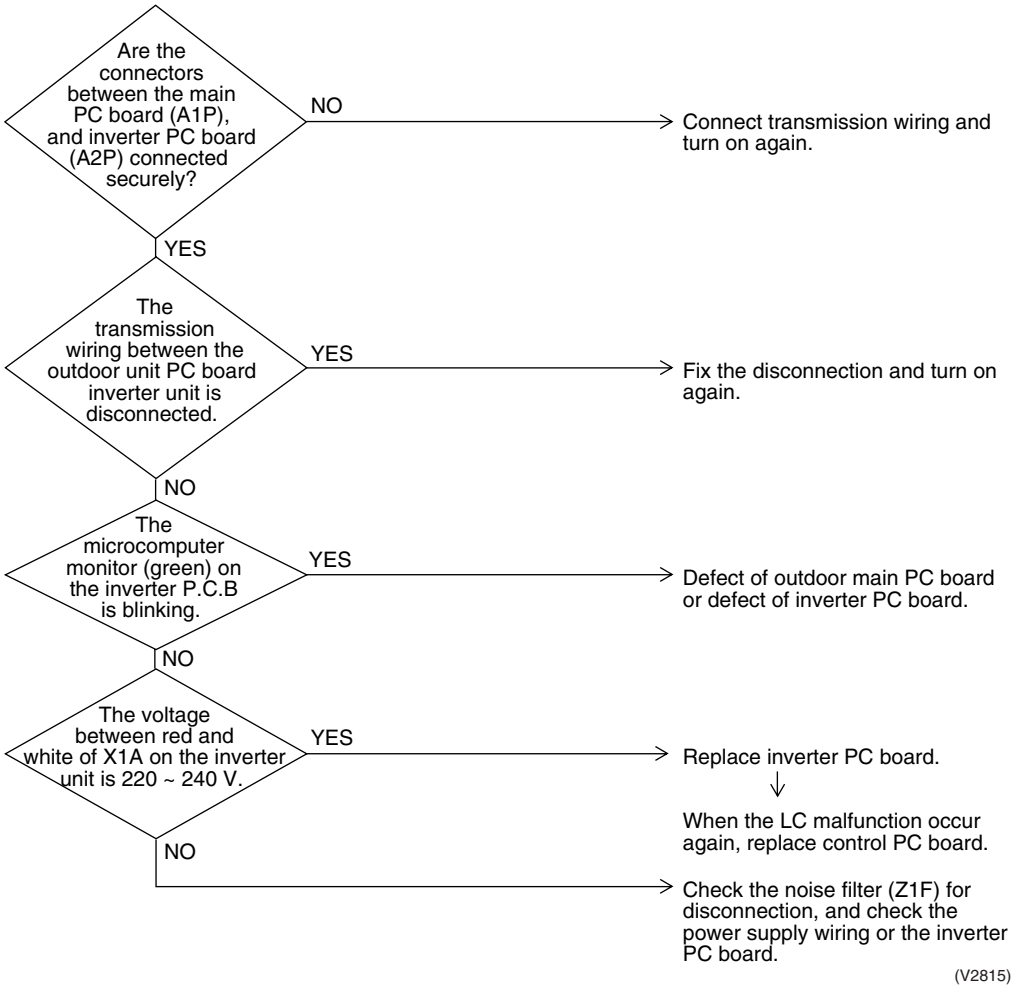
Higher voltage than actual is displayed when the inverter output voltage is checked by tester.

2.33 "LC" Outdoor Unit: Malfunction of Transmission Between Inverter and Control PC Board

Remote Controller Display	LC
Applicable Models	RWEYQ10MY1
Method of Malfunction Detection	Check the communication state between inverter PC board and control PC board by micro-computer.
Malfunction Decision Conditions	When the correct communication is not conducted in certain period.
Supposed Causes	■ Malfunction of connection between the inverter PC board and outdoor control PC board ■ Defect of outdoor control PC board (transmission section) ■ Defect of inverter PC board ■ Defect of noise filter ■ External factor (Noise etc.)

Troubleshooting

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



2.34 "P1" Outdoor Unit: Inverter Over-Ripple Protection

Remote Controller Display

P1

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Imbalance in supply voltage is detected in PC board.

Malfunction Decision Conditions

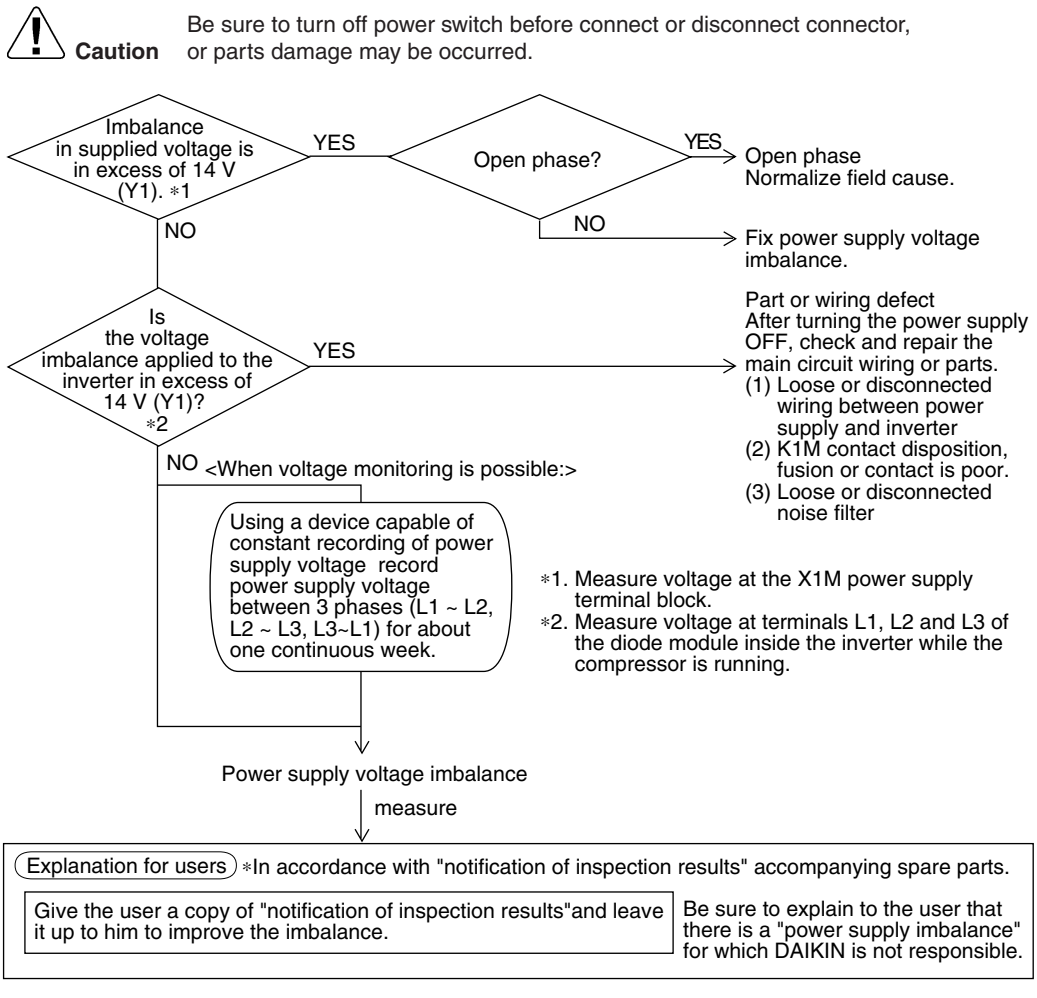
When the resistance value of thermistor becomes a value equivalent to open or short circuited status.

- Malfunction is not decided while the unit operation is continued.
  "P1" will be displayed by pressing the inspection button.

Supposed Causes

- Open phase
- Voltage imbalance between phases
- Defect of main circuit capacitor
- Defect of inverter PC board
- Defect of K1M
- Improper main circuit wiring

Troubleshooting



(V2816)

2.35 "P4" Outdoor Unit: Malfunction of Inverter Radiating Fin Temperature Sensor

Remote Controller Display

P4

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

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

Malfunction Decision Conditions

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

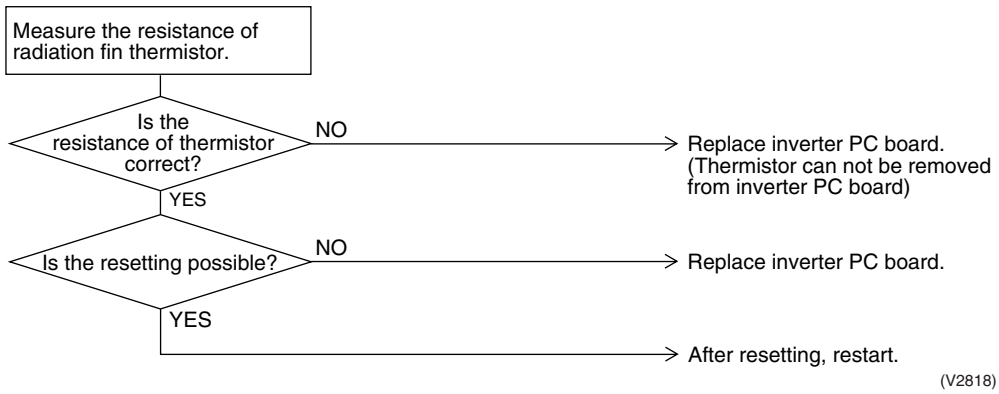
- Malfunction is not decided while the unit operation is continued.
  "P4" will be displayed by pressing the inspection button.

Supposed Causes

- Defect of radiator fin temperature sensor
- Defect of inverter PC board

Troubleshooting

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



∗2: Refer to thermistor resistance / temperature characteristics table on P259.

2.36 "U0" Low Pressure Drop Due to Refrigerant Shortage or Electronic Expansion Valve Failure

Remote Controller Display

U0

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Short of gas malfunction is detected by discharge pipe temperature thermistor.

Malfunction Decision Conditions

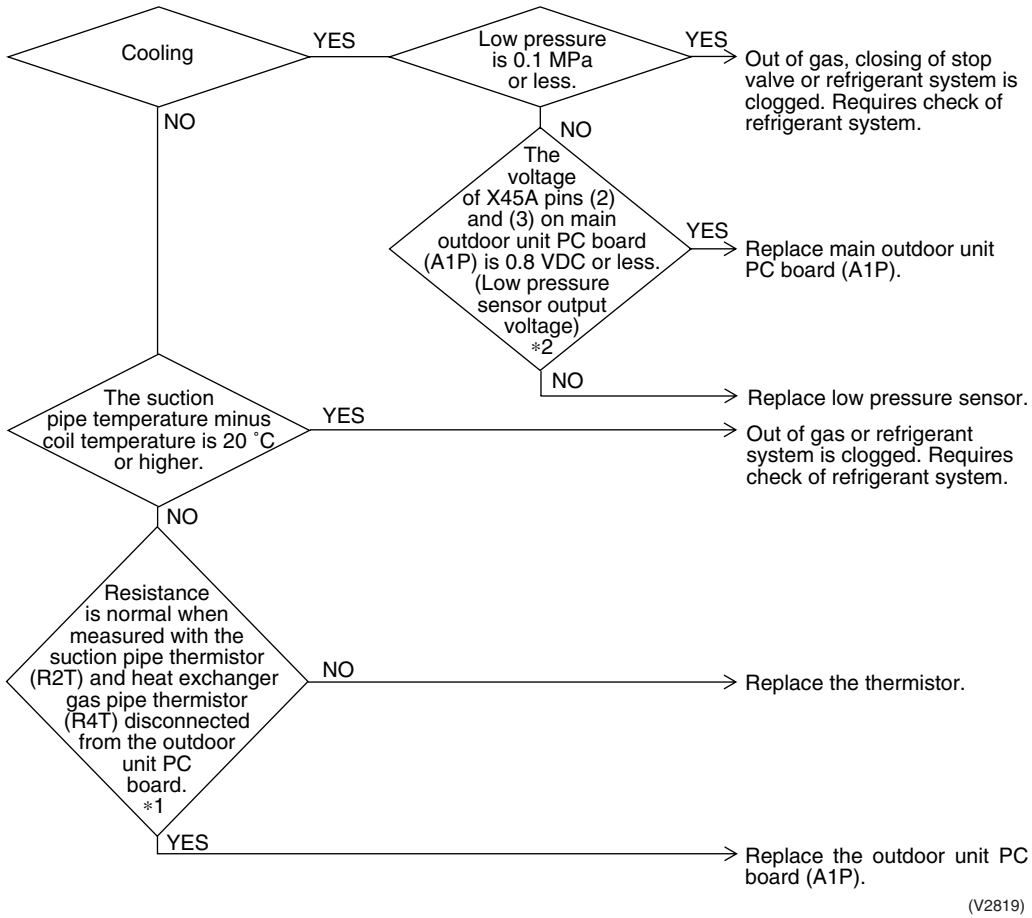
Microcomputer judge and detect if the system is short of refrigerant.
★Malfunction is not decided while the unit operation is continued.

Supposed Causes

- Out of gas or refrigerant system clogging (incorrect piping)
- Defect of low pressure sensor
- Defect of outdoor unit PC board (A1P)
- Defect of thermistor R2T or R4T

Troubleshooting

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



*1: Refer to thermistor resistance / temperature characteristics table on P259.
*2: Refer to pressure sensor, pressure / voltage characteristics table on P261.

2.37 "U1" Reverse Phase, Open Phase

Remote Controller Display

U1

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Detection is based on the voltage in main circuit capacitor for inverter and supply voltage. The phase of each phase are detected by reverse phase detection circuit and right phase or reverse phase are judged.

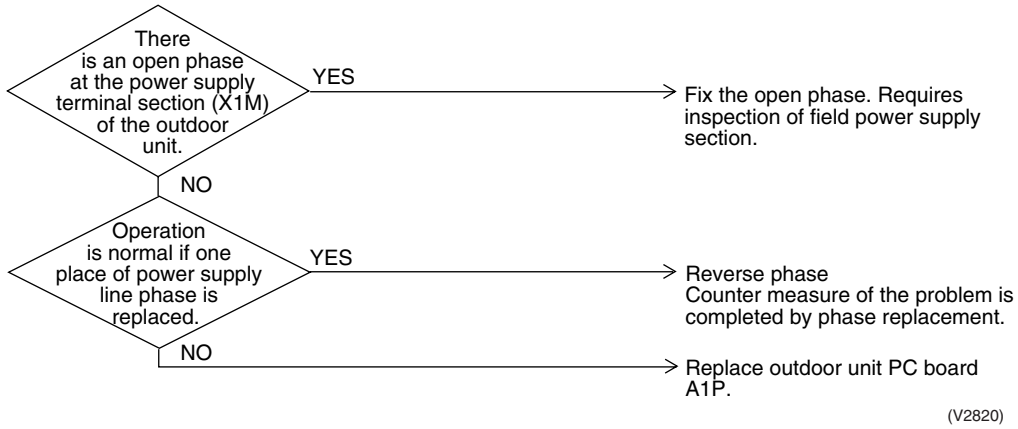
Malfunction Decision Conditions

Supposed Causes

- Power supply reverse phase
- Power supply open phase
- Defect of outdoor PC board A1P

Troubleshooting

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



2.38 "U2" Power Supply Insufficient or Instantaneous Failure

Remote Controller Display

U2

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Detection of voltage of main circuit capacitor built in the inverter and power supply voltage.

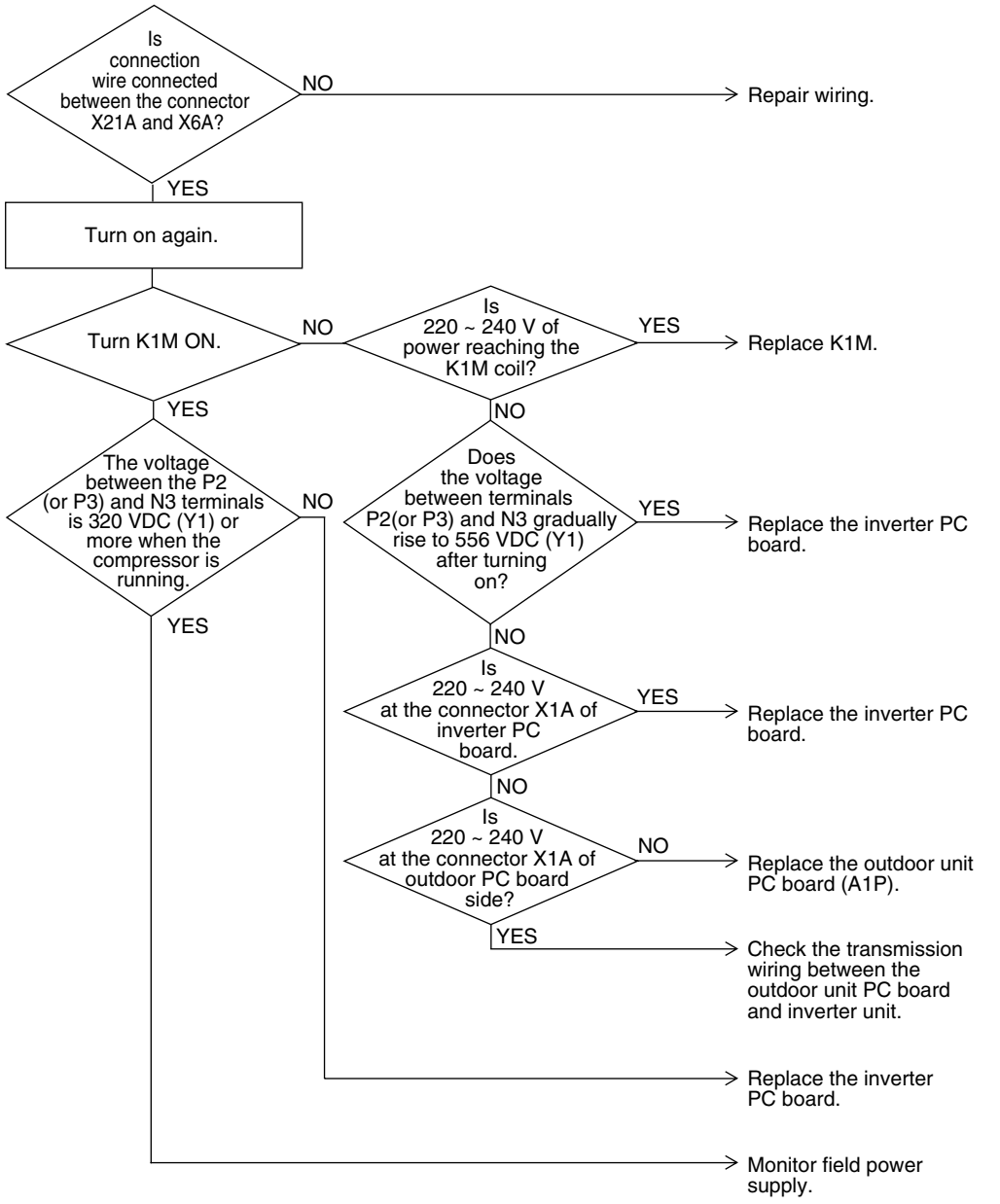
Malfunction Decision Conditions

Supposed Causes

- Power supply insufficient
- Instantaneous failure
- Open phase
- Defect of inverter PC board
- Defect of outdoor control PC board
- Defect of K1M.
- Main circuit wiring defect

Troubleshooting

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



(V2821)

2.39 "U3" Check Operation not Executed

Remote Controller Display

U3

Applicable Models

RWEYQ10MY1

Method of Malfunction Detection

Check operation is executed or not

Malfunction Decision Conditions

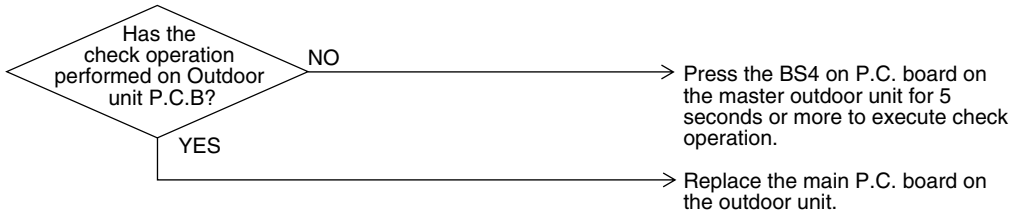
Malfunction is decided when the unit starts operation without check operation.

Supposed Causes

- Check operation is not executed.

Troubleshooting

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



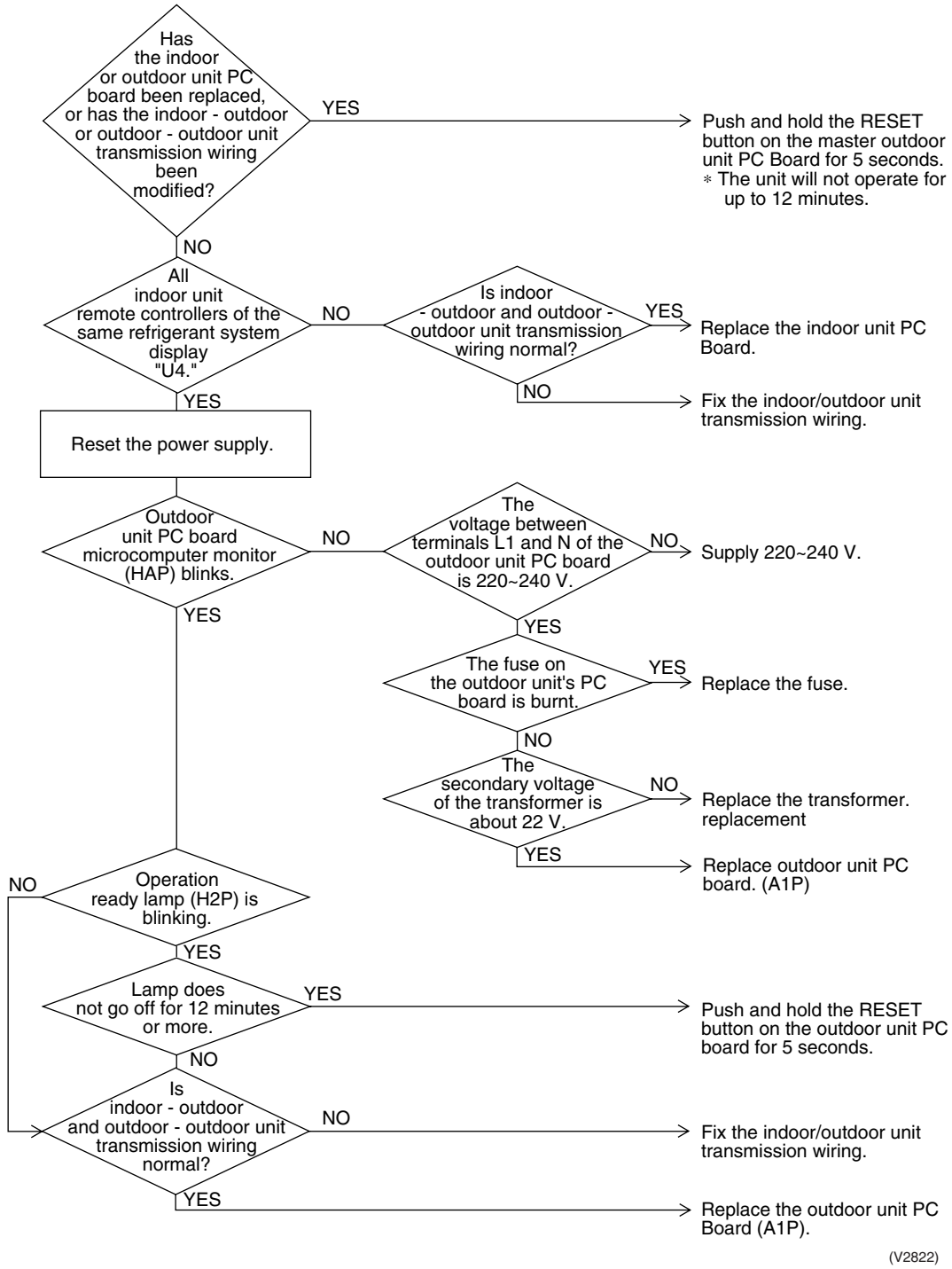
(V3052)

2.40 "U4" Malfunction of Transmission Between Indoor Units

Remote Controller Display	U4
Applicable Models	All model of indoor unit RWEYQ10MY1
Method of Malfunction Detection	Microcomputer checks if transmission between indoor and outdoor units is normal.
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 doesn't match ■ Defect of indoor unit PC board ■ Defect of outdoor unit PC board

Troubleshooting

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



2.41 "U5" Malfunction of Transmission Between Remote Controller and Indoor Unit

Remote Controller Display

U5

Applicable Models

All models of indoor units

Method of Malfunction Detection

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

Malfunction Decision Conditions

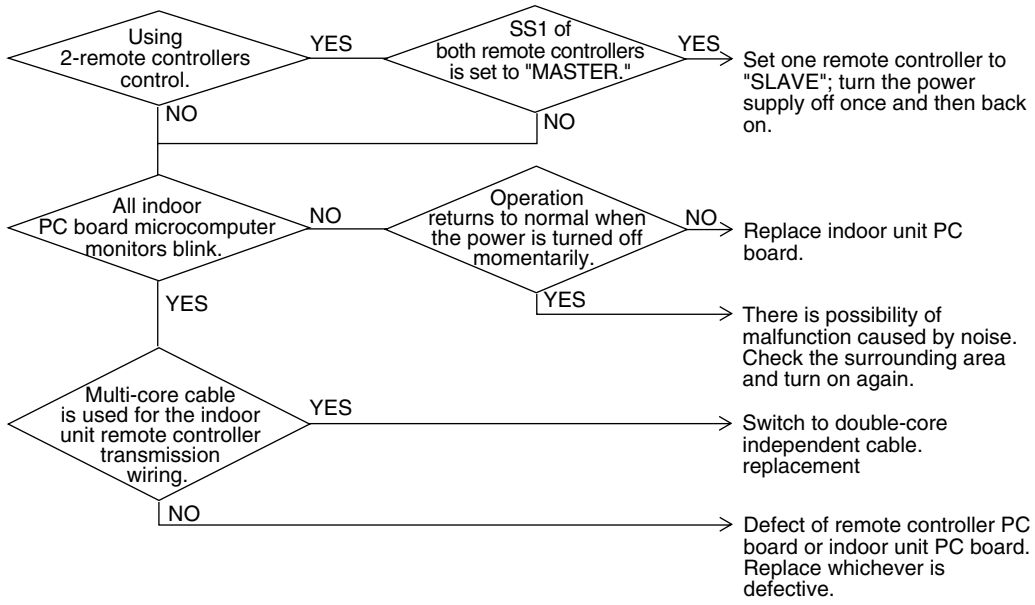
Normal transmission does not continue for specified period.

Supposed Causes

- Malfunction of indoor unit remote controller transmission
- Connection of two main remote controllers (when using 2 remote controllers)
- Defect of indoor unit PC board
- Defect of remote controller PC board
- Malfunction of transmission caused by noise

Troubleshooting

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



(V2823)

2.42 "U7" Malfunction of Transmission Between Outdoor Units

Remote Controller Display

U7

Applicable Models

All models of indoor units

Method of Malfunction Detection

Microcomputer checks if transmission between indoor unit and remote controller is normal.

Malfunction Decision Conditions

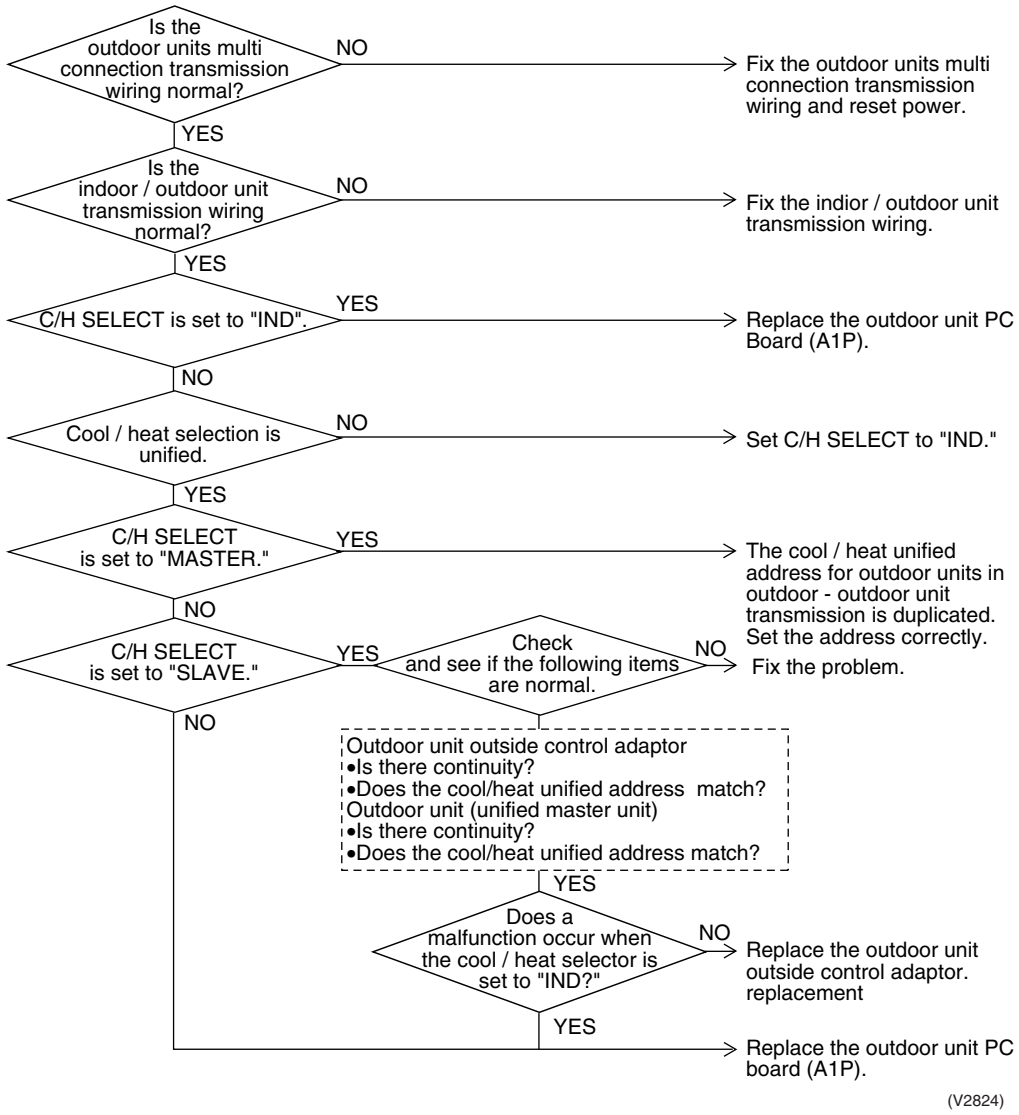
When transmission is not carried out normally for a certain amount of time

Supposed Causes

- Improper connection of transmission wiring between outdoor unit and outdoor unit outside control adaptor
- Improper cool/heat selection
- Improper cool/heat unified address (outdoor unit, external control adaptor for outdoor unit)
- Defect of outdoor unit PC board (A1P)
- Defect of outdoor unit outside control adaptor
- Improper connection of transmission wiring between outdoor units of multi outdoor unit connection.

Troubleshooting

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



(V2824)

2.43 "U8" Malfunction of Transmission Between Master and Slave Remote Controllers

Remote Controller Display

U8

Applicable Models

All models of indoor units

Method of Malfunction Detection

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

Malfunction Decision Conditions

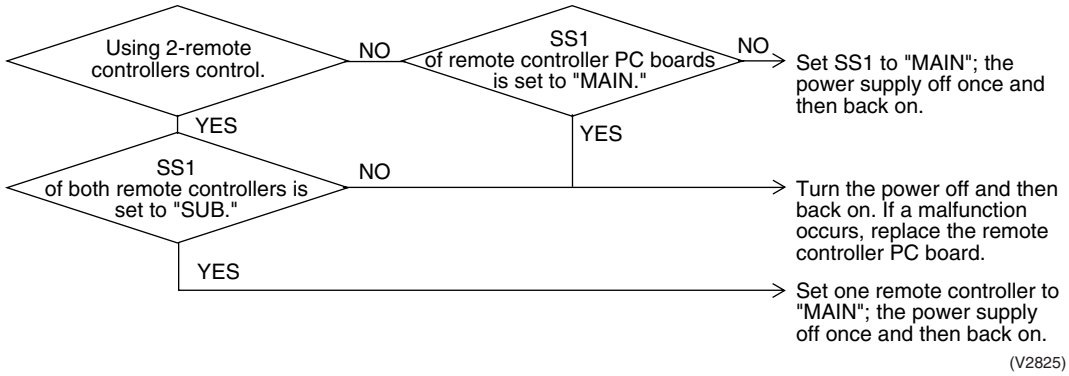
Normal transmission does not continue for specified period.

Supposed Causes

- Malfunction of transmission between main and sub remote controller
- Connection between sub remote controllers
- Defect of remote controller PC board

Troubleshooting

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



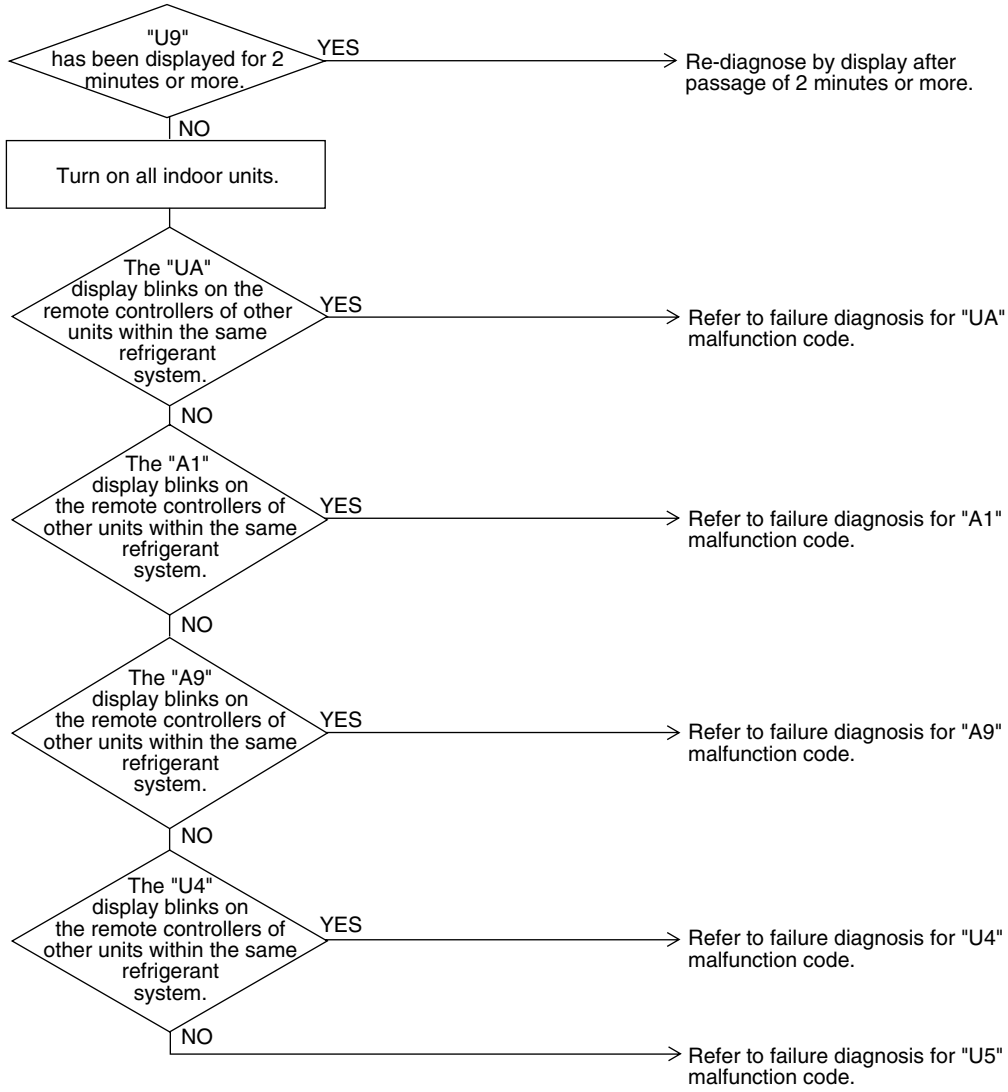
(V2825)

2.44 "U9" Malfunction of Transmission Between Indoor and Outdoor Units in the Same System

Remote Controller Display	U9
Applicable Models	All models of indoor units
Method of Malfunction Detection	
Malfunction Decision Conditions	
Supposed Causes	■ Malfunction of transmission within or outside of other system ■ Malfunction of electronic expansion valve in indoor unit of other system ■ Defect of PC board of indoor unit in other system ■ Improper connection of transmission wiring between indoor and outdoor unit

Troubleshooting

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



(V2826)

2.45 "UA" Excessive Number of Indoor Units

Remote Controller Display

UA

Applicable Models

All models of indoor unit
RWEYQ10MY1

Method of Malfunction Detection

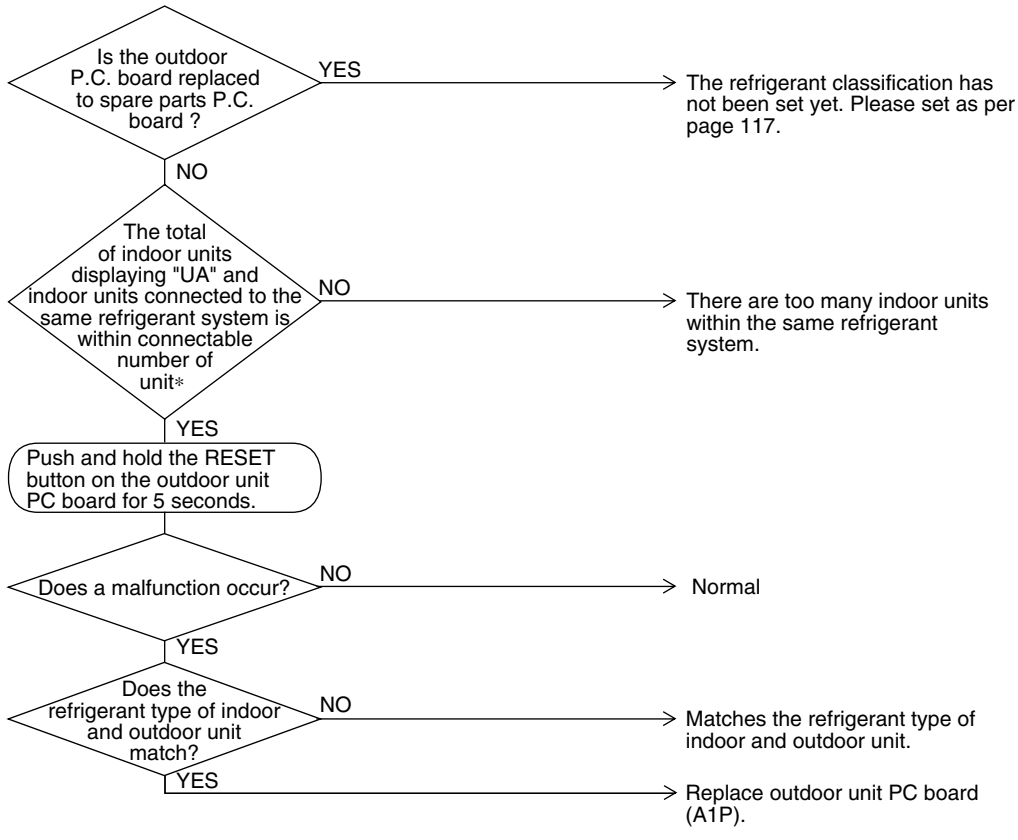
Malfunction Decision Conditions

Supposed Causes

- Excess of connected indoor units
- Defect of outdoor unit PC board (A1P)
- Mismatching of the refrigerant type of indoor and outdoor unit.
- Setting of outdoor P.C. board was not conducted after replacing to spare parts P.C. board.

Troubleshooting

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



* The number of indoor units that can be connected to a single outdoor unit system depends on the type of outdoor unit.

2.46 "UC" Address Duplication of Central Remote Controller

Remote Controller Display

UC

Applicable Models

All models of indoor unit
Centralized controller

Method of Malfunction Detection

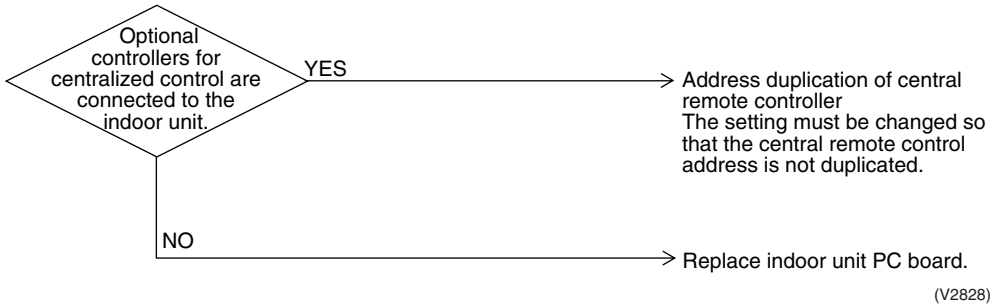
Malfunction Decision Conditions

Supposed Causes

- Address duplication of centralized remote controller
- Defect of indoor unit PC board

Troubleshooting

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

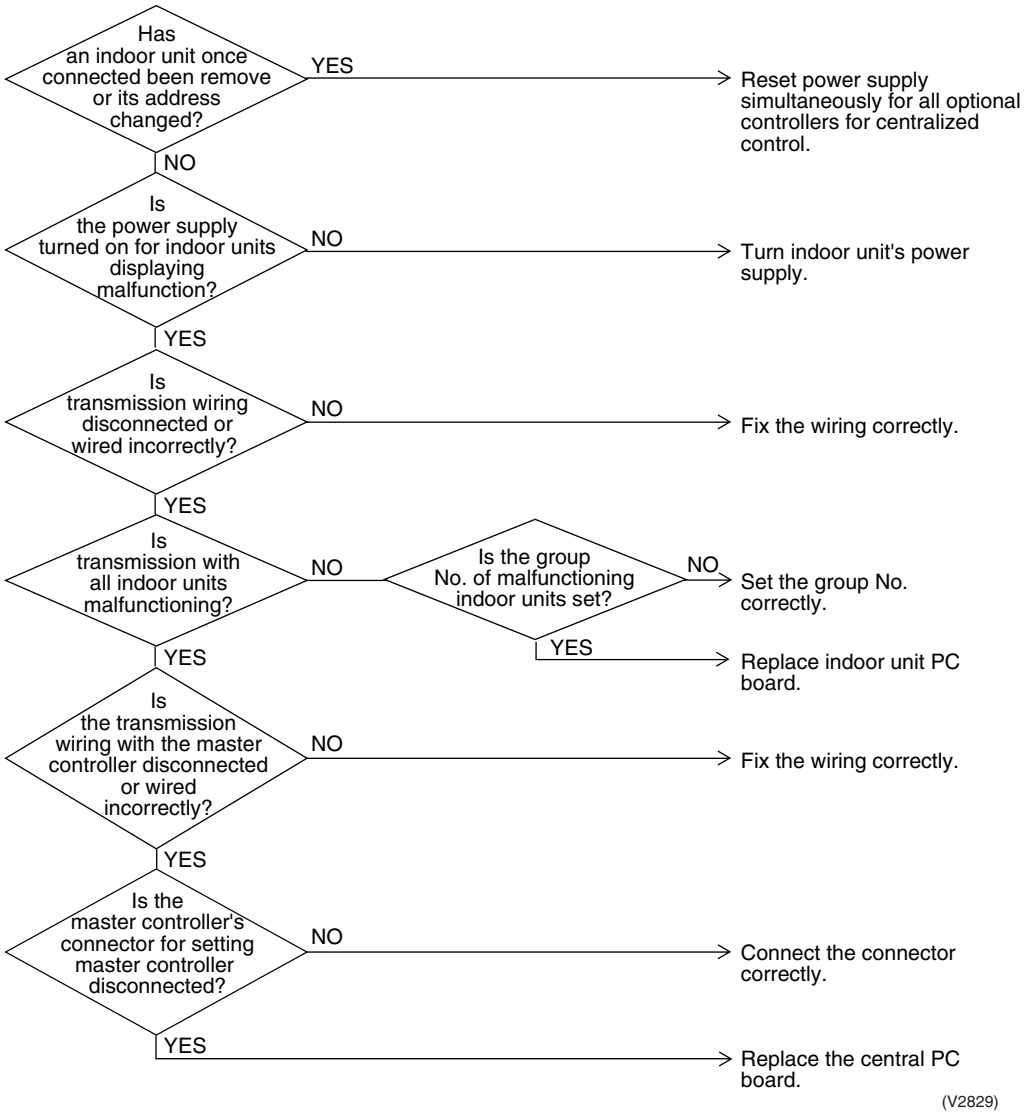


2.47 "UE" Malfunction of Transmission Between Central Remote Controller and Indoor Unit

Remote Controller Display	UE
Applicable Models	All models of indoor units Centralized controller
Method of Malfunction Detection	Microcomputer checks if transmission between indoor unit and centralized remote 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. ■ Failure of PC board for centralized remote controller ■ Defect of indoor unit PC board

Troubleshooting

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



2.48 "UF" Refrigerant System not Set, Incompatible Wiring/ Piping

Remote Controller Display

UF

Applicable Models

All models of indoor units
RWEYQ10MY1

Method of Malfunction Detection

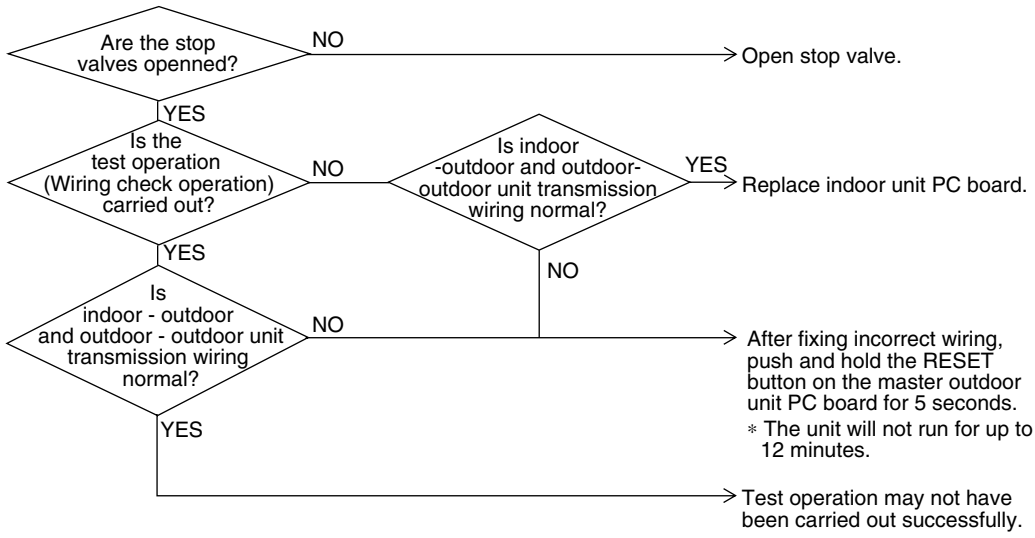
Malfunction Decision Conditions

Supposed Causes

- Improper connection of transmission wiring between outdoor unit and outdoor unit outside control adaptor
- Failure to execute wiring check operation
- Defect of indoor unit PC board

Troubleshooting

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



(V2830)

Note: Test 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.

2.49 "UH" Malfunction of System, Refrigerant System Address Undefined

Remote Controller Display

UH

Applicable Models

All models of indoor units
RWEYQ10MY1

Method of Malfunction Detection

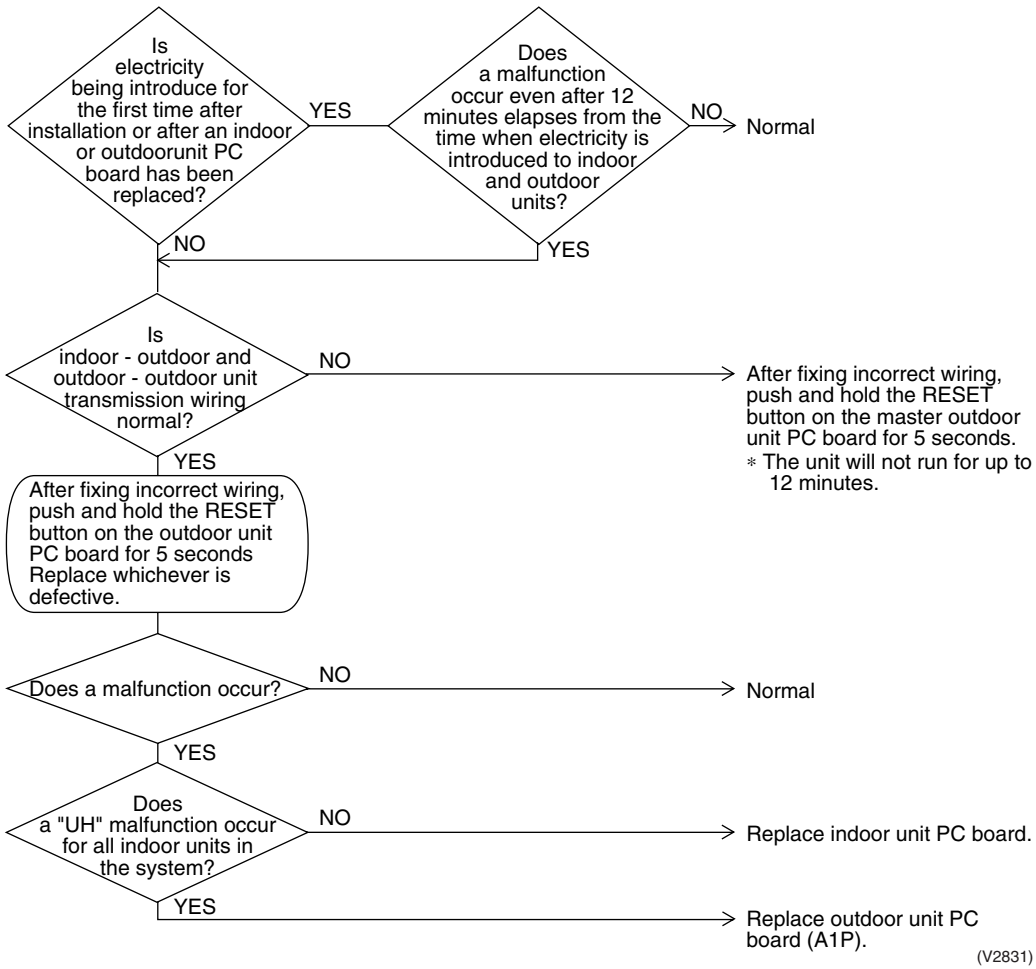
Malfunction Decision Conditions

Supposed Causes

- Improper connection of transmission wiring between outdoor unit and outdoor unit outside control adaptor
- Defect of indoor unit PC board
- Defect of outdoor unit PC board (A1P)

Troubleshooting

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



3. Troubleshooting (OP: Central Remote Controller)

3.1 "UE" Malfunction of Transmission Between Central Remote Controller and Indoor Unit

Remote Controller Display

UE

Applicable Models

All models of indoor units
RWEYQ10MY1

Method of Malfunction Detection

Microcomputer checks if transmission between indoor unit and central remote controller is normal.

Malfunction Decision Conditions

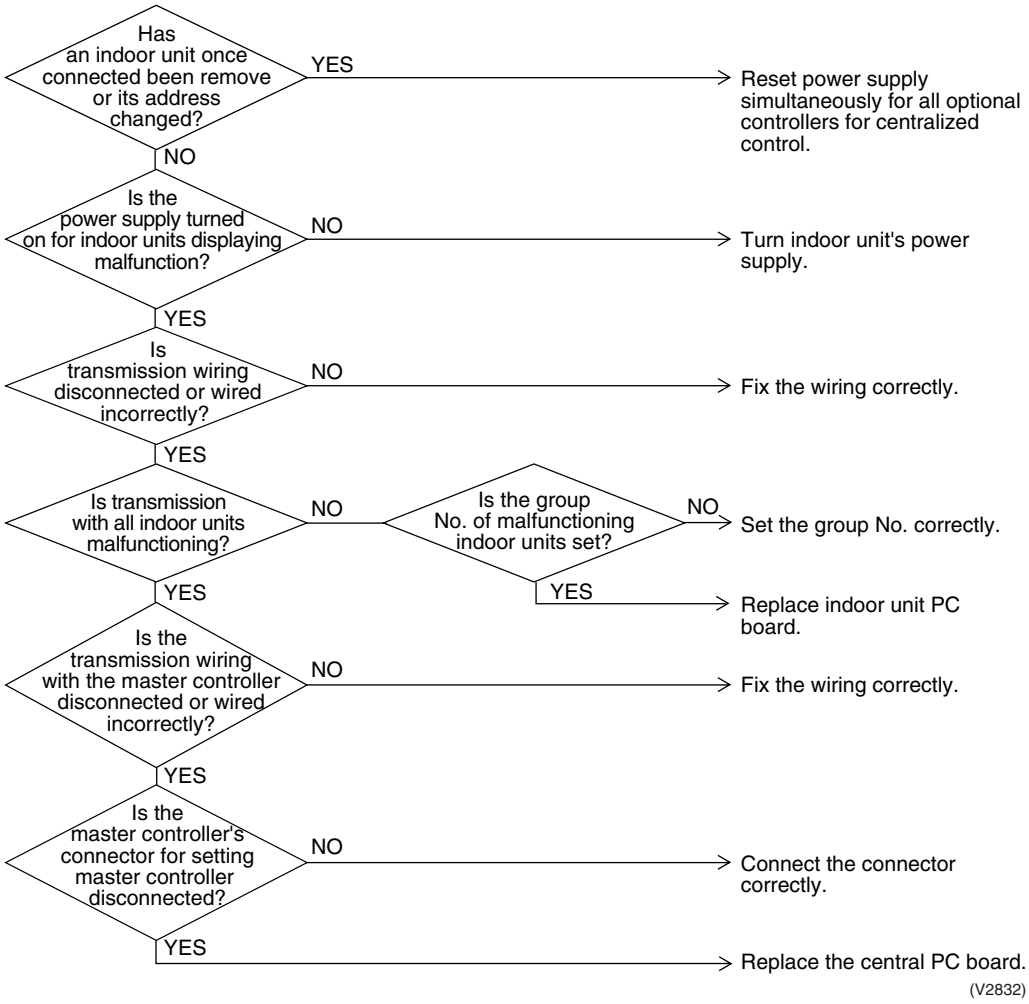
When transmission is not carried out normally for a certain amount of time

Supposed Causes

- Malfunction of transmission between optional controllers for centralized control and indoor unit
- Connector for setting master controller is disconnected.
- Failure of PC board for central remote controller
- Defect of indoor unit PC board

Troubleshooting

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



(V2832)

3.2 "M1" PC Board Defect

Remote Controller Display	M1
Applicable Models	Centralized remote controller
Method of Malfunction Detection	
Malfunction Decision Conditions	
Supposed Causes	■ Defect of central remote controller PC board
Troubleshooting	Replace the central remote controller PC board.

3.3 "M8" Malfunction of Transmission Between Optional Controllers for Centralized Control

Remote Controller Display

M8

Applicable Models

Centralized remote controller

Method of Malfunction Detection

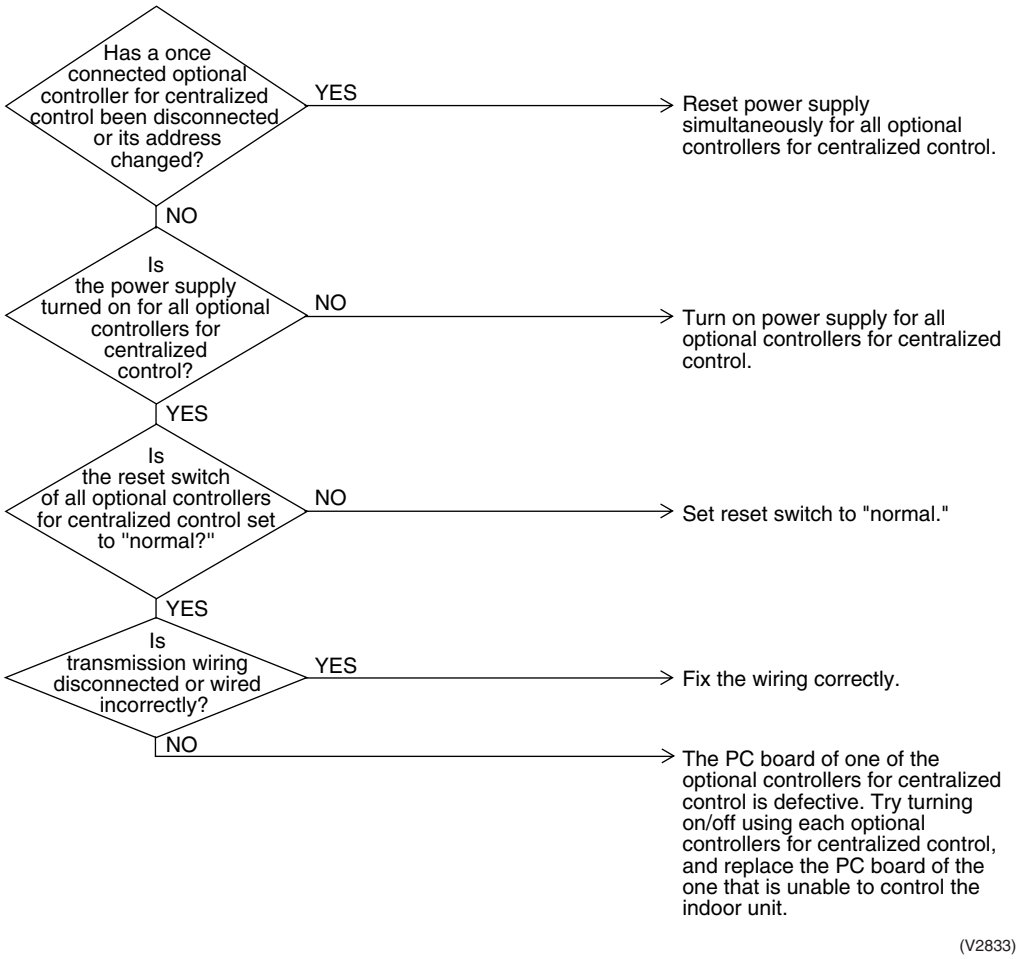
Malfunction Decision Conditions

Supposed Causes

- Malfunction of transmission between optional controllers for centralized control
- Defect of PC board of optional controllers for centralized control

Troubleshooting

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



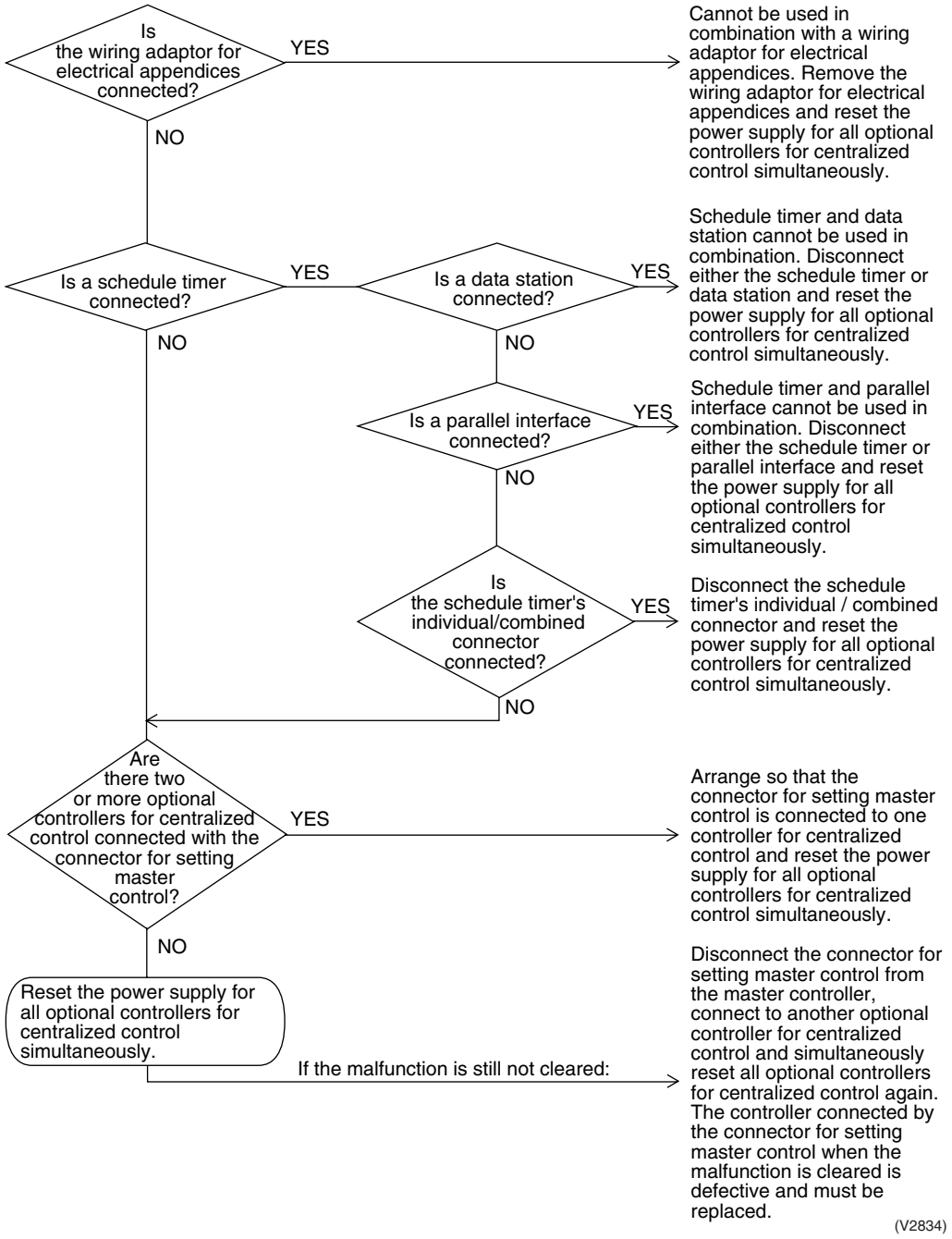
(V2833)

3.4 "MA" Improper Combination of Optional Controllers for Centralized Control

Remote Controller Display	MA
Applicable Models	Centralized remote controller
Method of Malfunction Detection	
Malfunction Decision Conditions	
Supposed Causes	■ Improper combination of optional controllers for centralized control ■ More than one master controller is connected ■ Defect of PC board of optional controller for centralized control

Troubleshooting

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



3.5 "MC" Address Duplication, Improper Setting

Remote Controller Display

MC

Applicable Models

Central remote controller

Method of Malfunction Detection

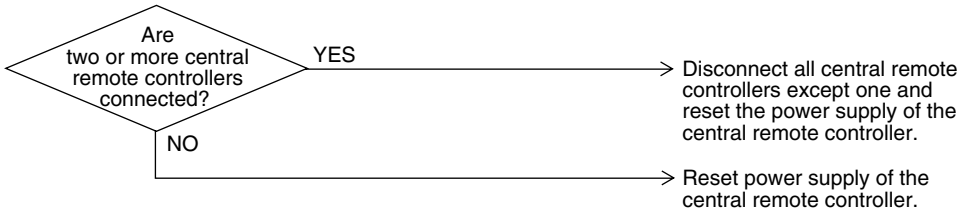
Malfunction Decision Conditions

Supposed Causes

- Address duplication of centralized remote controller

Troubleshooting

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



(V2835)

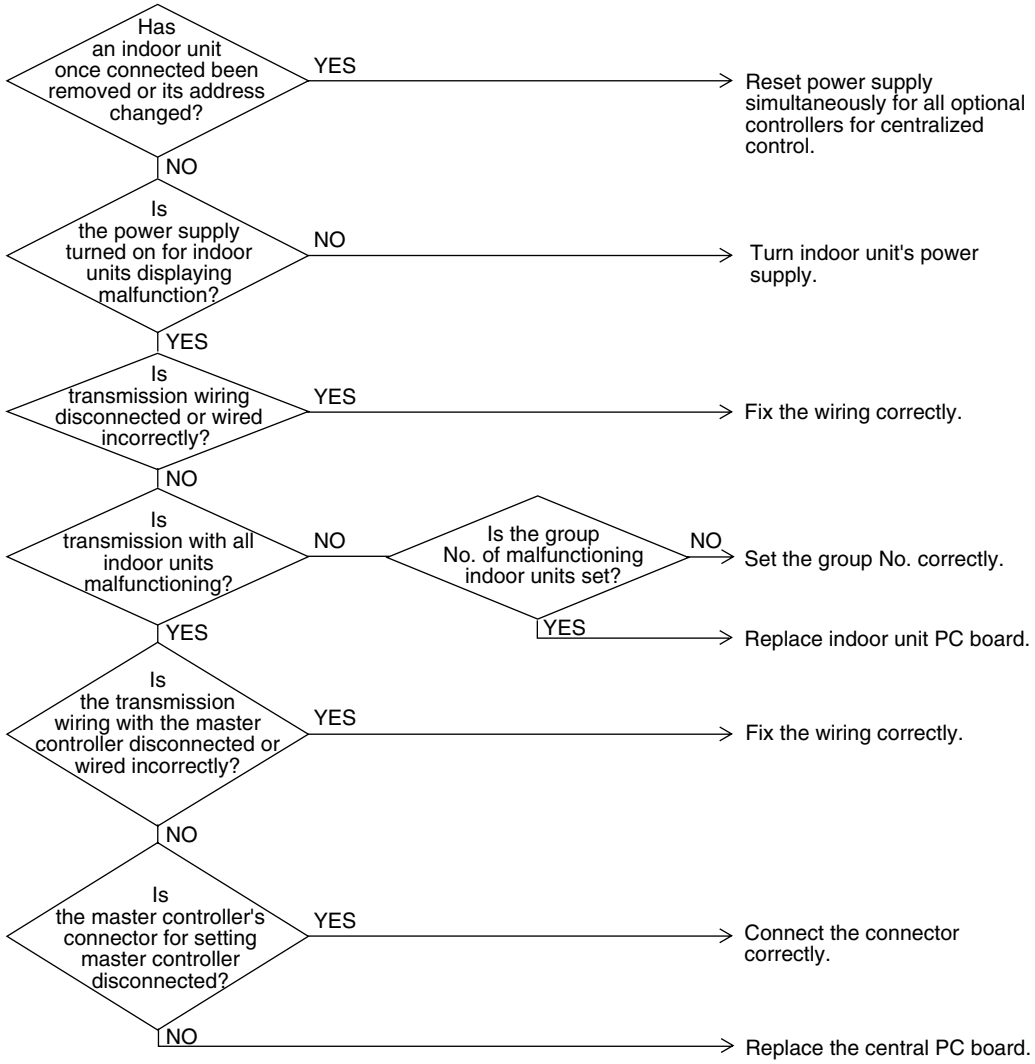
4. Troubleshooting (OP: Schedule Timer)

4.1 "UE" Malfunction of Transmission Between Central Remote Controller and Indoor Unit

Remote Controller Display	UE
Applicable Models	Schedule timer
Method of Malfunction Detection	Microcomputer checks if transmission between indoor unit and centralized remote 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 central remote controller and indoor unit ■ Disconnection of connector for setting master controller (or individual/combined switching connector) ■ Defect of schedule timer PC board ■ Defect of indoor unit PC board

Troubleshooting

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



(V2836)

4.2 "M1" PC Board Defect

Remote Controller Display

M1

Applicable Models

Schedule timer

Method of Malfunction Detection

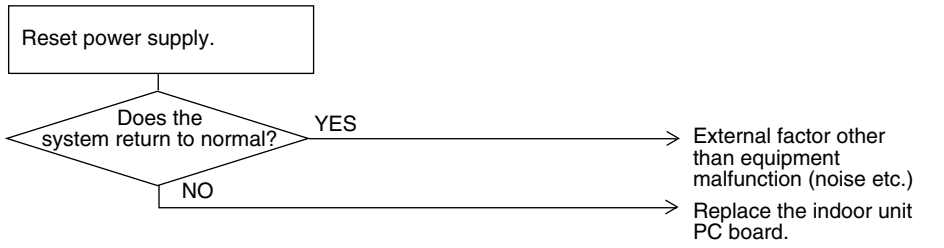
Malfunction Decision Conditions

Supposed Causes

- Defect of schedule timer PC board

Troubleshooting

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



(V2837)

4.3 "M8" Malfunction of Transmission Between Optional Controllers for Centralized Control

Remote Controller Display

M8

Applicable Models

All models of indoor units, schedule timer

Method of Malfunction Detection

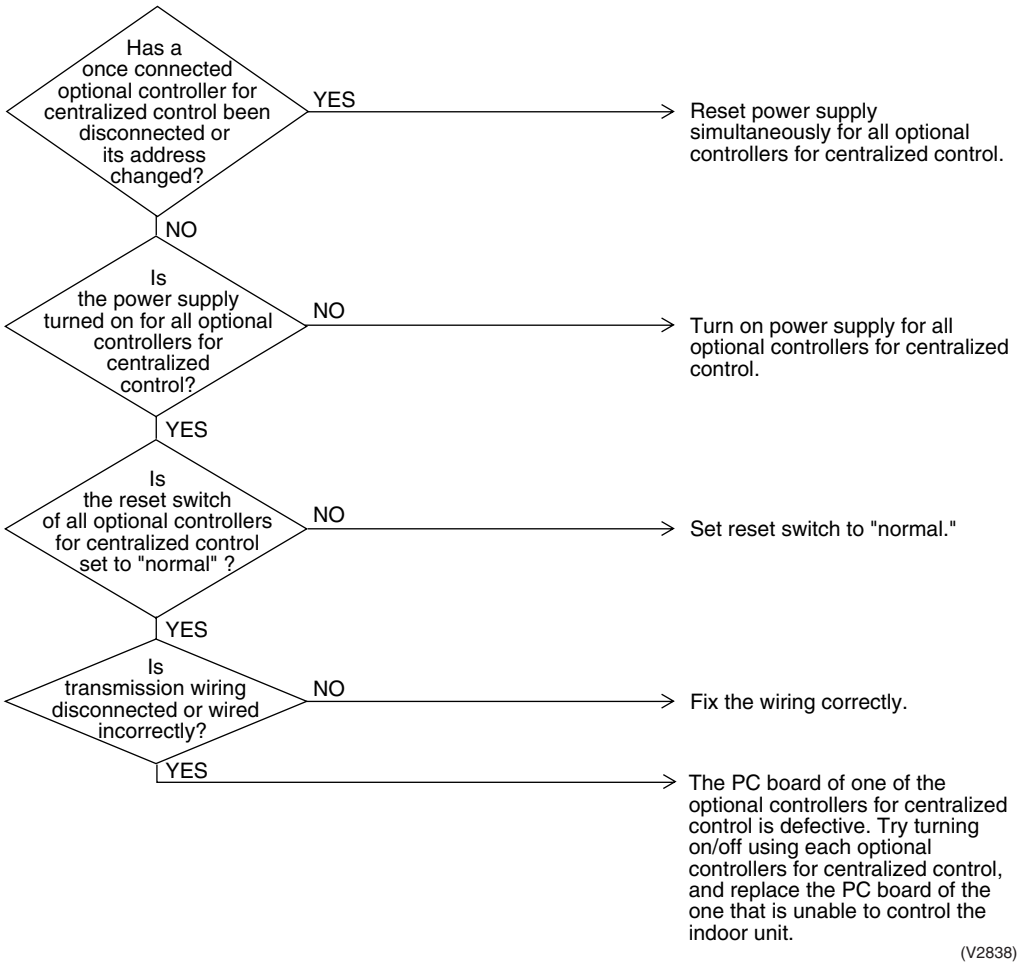
Malfunction Decision Conditions

Supposed Causes

- Malfunction of transmission between optional controllers for centralized control
- Defect of PC board of optional controllers for centralized control

Troubleshooting

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

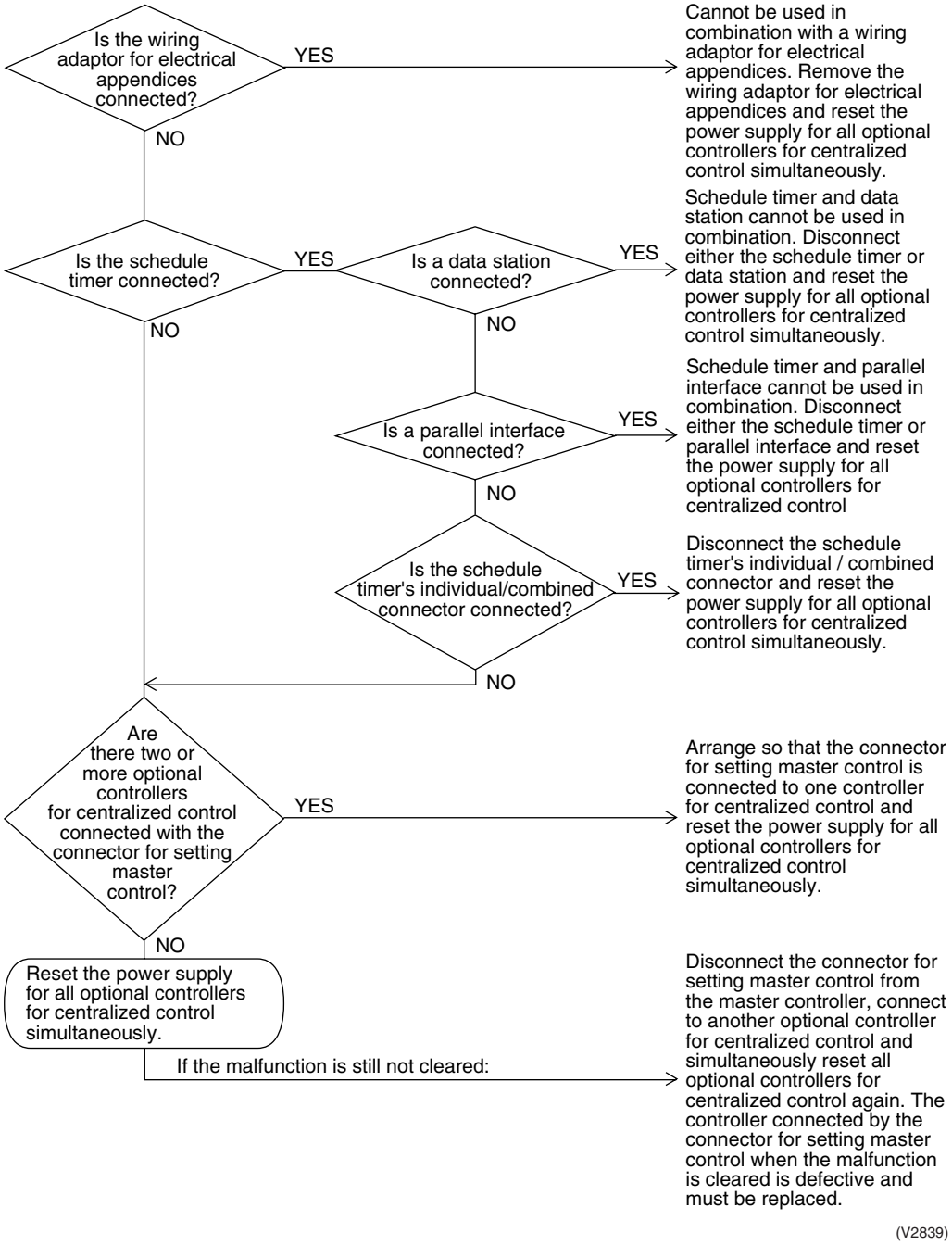


4.4 "MA" Improper Combination of Optional Controllers for Centralized Control

Remote Controller Display	MA
Applicable Models	All models of indoor units, schedule timer
Method of Malfunction Detection	
Malfunction Decision Conditions	
Supposed Causes	■ Improper combination of optional controllers for centralized control ■ More than one master controller is connected. ■ Defect of PC board of optional controller for centralized control

Troubleshooting

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



4.5 "MC" Address Duplication, Improper Setting

Remote Controller Display

MC

Applicable Models

All models of indoor units,
schedule timer

Method of Malfunction Detection

Malfunction Decision Conditions

Supposed Causes

- Address duplication 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.

(V2840)

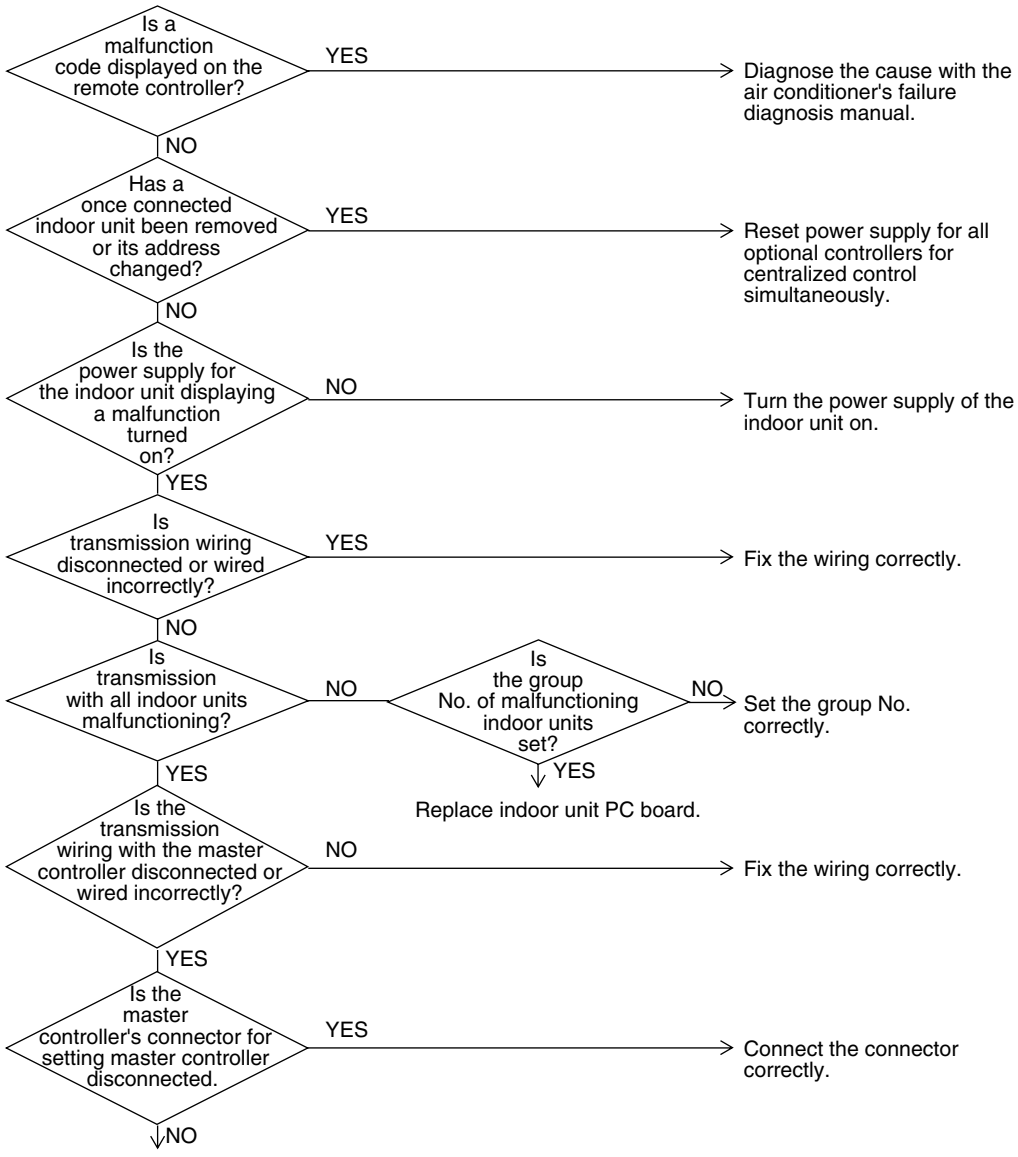
5. Troubleshooting (OP: Unified ON/OFF Controller)

5.1 Operation Lamp Blinks

Remote Controller Display	Operation lamp blinks
Applicable Models	All models of indoor units Unified ON/OFF controller
Method of Malfunction Detection	
Malfunction Decision Conditions	
Supposed Causes	■ Malfunction of transmission between optional controller and indoor unit ■ Connector for setting master controller is disconnected ■ Defect of unified ON/OFF controller ■ Defect of indoor unit PC board ■ Malfunction of air conditioner

Troubleshooting

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



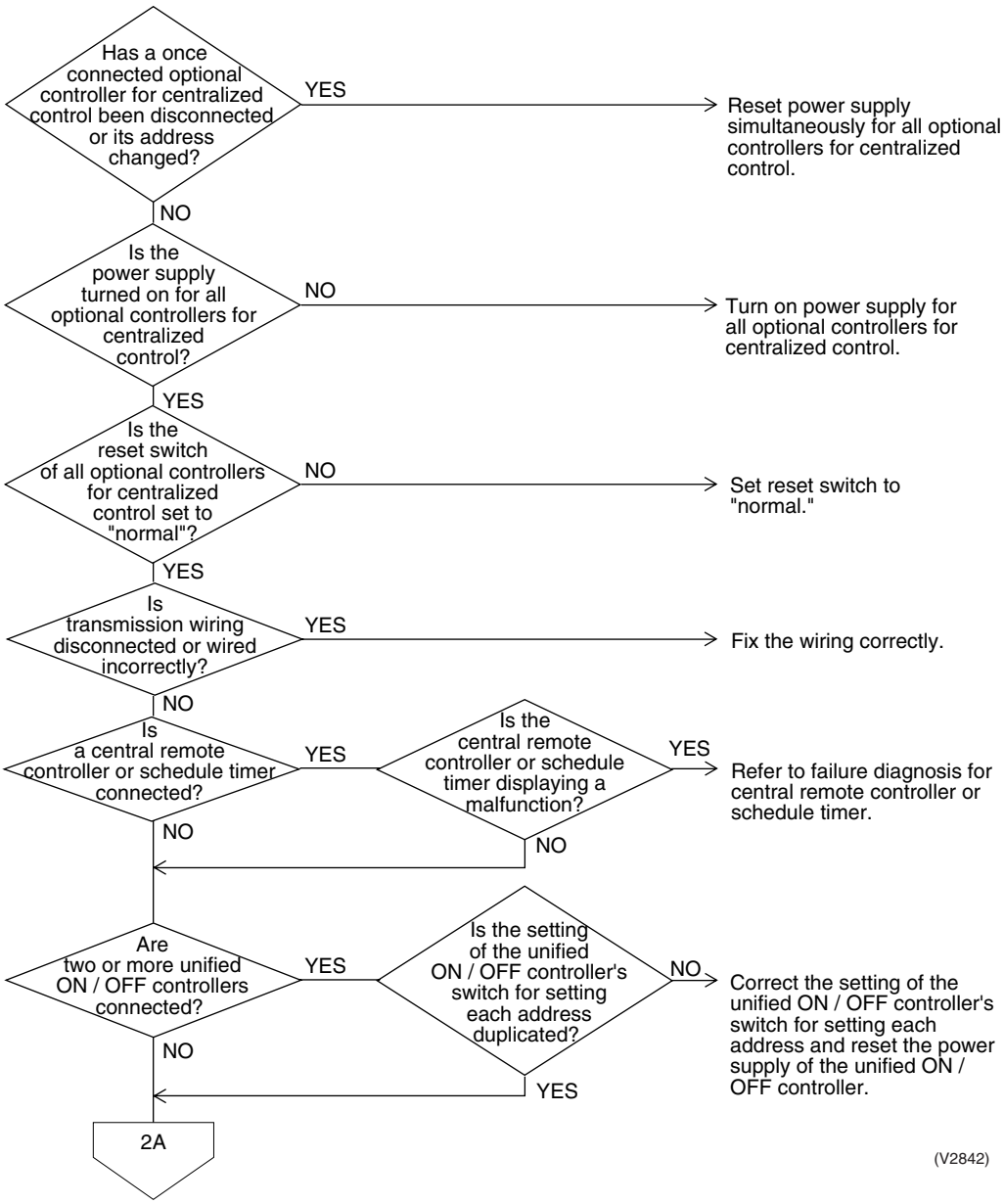
(V2841)

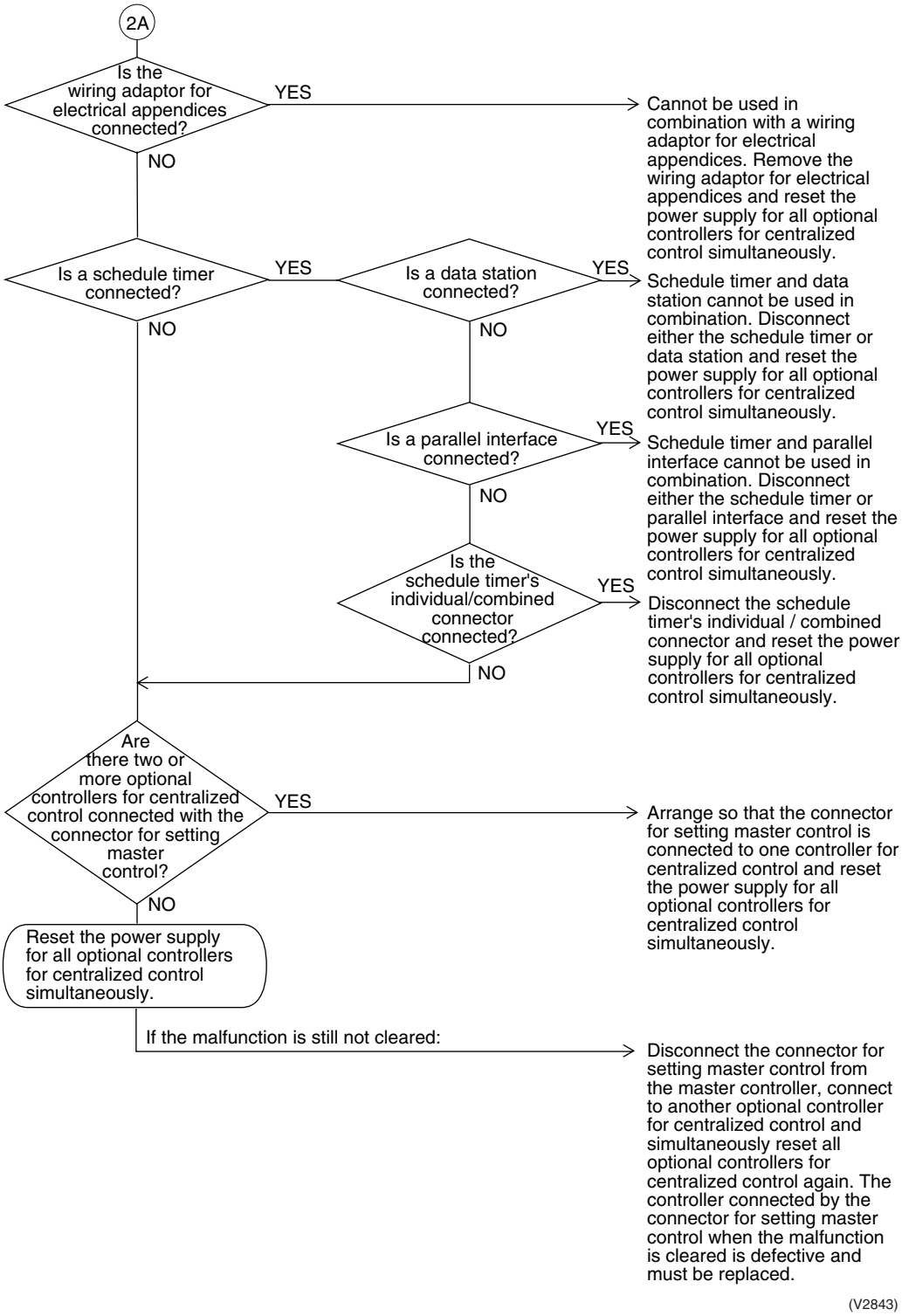
5.2 Display “Under Host Computer Integrate Control” Blinks (Repeats Single Blink)

Remote Controller Display	“under host computer integrated control” (Repeats single blink)
Applicable Models	Unified ON/OFF controller Central controller, Schedule timer
Method of Malfunction Detection	
Malfunction Decision Conditions	
Supposed Causes	■ Address duplication of central remote controller ■ Improper combination of optional controllers for centralized control ■ Connection of more than one master controller ■ Malfunction of transmission between optional controllers for centralized control ■ Defect of PC board of optional controllers for centralized control

Troubleshooting

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




2A
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
Is a data station connected?
YES
Schedule timer and data station cannot be used in combination. Disconnect either the schedule timer or data station and reset the power supply for all optional controllers for centralized control simultaneously.
NO
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 control?
YES
Arrange so that the connector for setting master control 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 control 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 control when the malfunction is cleared is defective and must be replaced.
(V2843)

5.3 Display “Under Host Computer Integrate Control” Blinks (Repeats Double Blink)

Remote Controller Display

“under host computer integrated control” (Repeats double blink)

Applicable Models

Unified ON/OFF controller

Method of Malfunction Detection

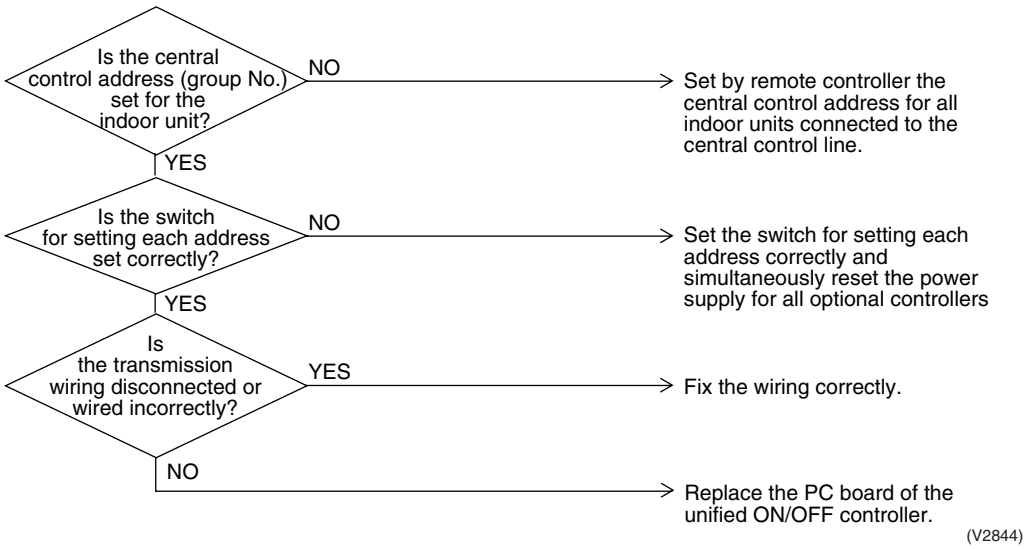
Malfunction Decision Conditions

Supposed Causes

- Central control address (group No.) is not set for indoor unit.
- Improper address setting
- 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.

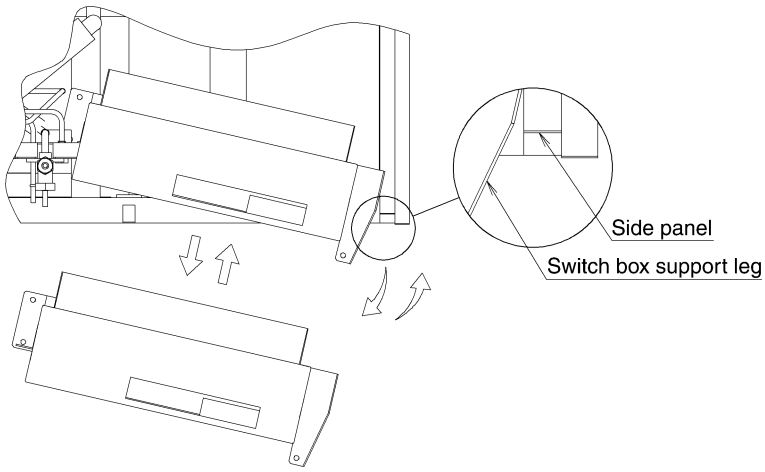


Part 7
Procedure for Mounting / Dismounting of Switch Box

1. Procedure for Mounting / Dismounting of Switch Box

1.1 Procedure for Dismounting

1. Dismount the lid from the switch box.
2. Disconnect high voltage and low voltage wirings from the PC board and the terminal blocks, referring to Figure on the right.
3. Unscrew mounting screws from the top plate, the stop valve mounting plate, and the bottom frame in a total of 6 places.
4. With attention paid not to make the switch box support leg into contact with the side panel, rotate the switch box to pull out it, while referring to Figure on the right.
   In order to pull out the switch box, check to be sure no wirings get stuck with the switch box.

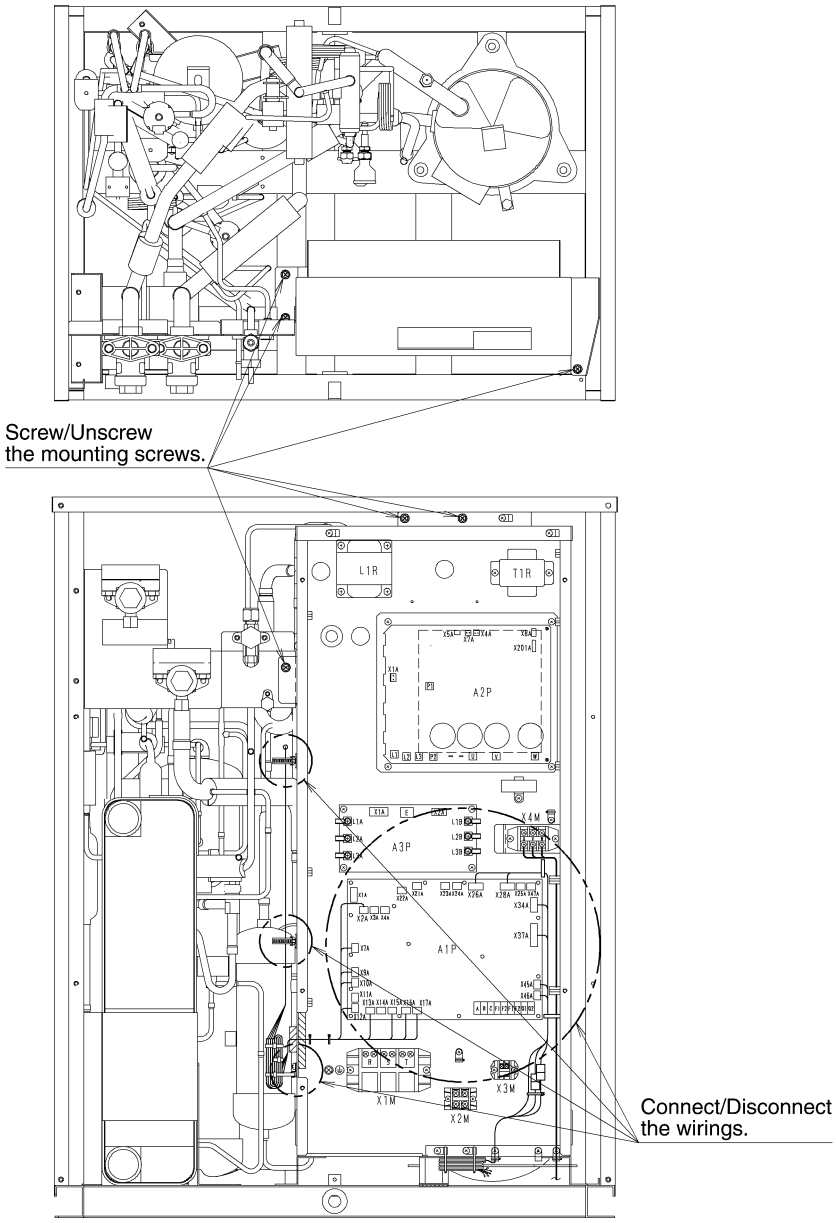


Procedure for Mounting/Dismounting of Switch Box

1.2 Procedure for Mounting

- Mount the switch box, following the procedure for dismounting in reverse.
  After the completion of mounting, check to be sure connectors are all properly connected.

List of Detachable Connectors			
High voltage wiring	A1P	X7A White (WHT)	Y1S
		X9A Blue (BLU)	Y3S
		X10A Pink (PNK)	Y4S
		X12A Gray (GRY)	Y6S
		X2A Red (RED)	S1PH
		X17A Gray (GRY)	E1HC
		X13A Green (GRN)	Y2S
		X15A Blue (BLU)	Y5S
		X16A Black (BLK)	Y7S
	X4M	U, V, W	M1C
Low voltage wiring	A1P	X34A Red (RED)	R3T
		X37A White (WHT)	R2T
		X37A White (WHT)	R4T
		X37A White (WHT)	R5T
		X37A White (WHT)	R6T
		X46A Red (RED)	S1NPH
		X45A Blue (BLU)	S1NPL
		X26A White (WHT) ※	Y1E
		X28A Blue (BLU) ※	Y3E
		※ Attach or detach any connector at the relay connector.	

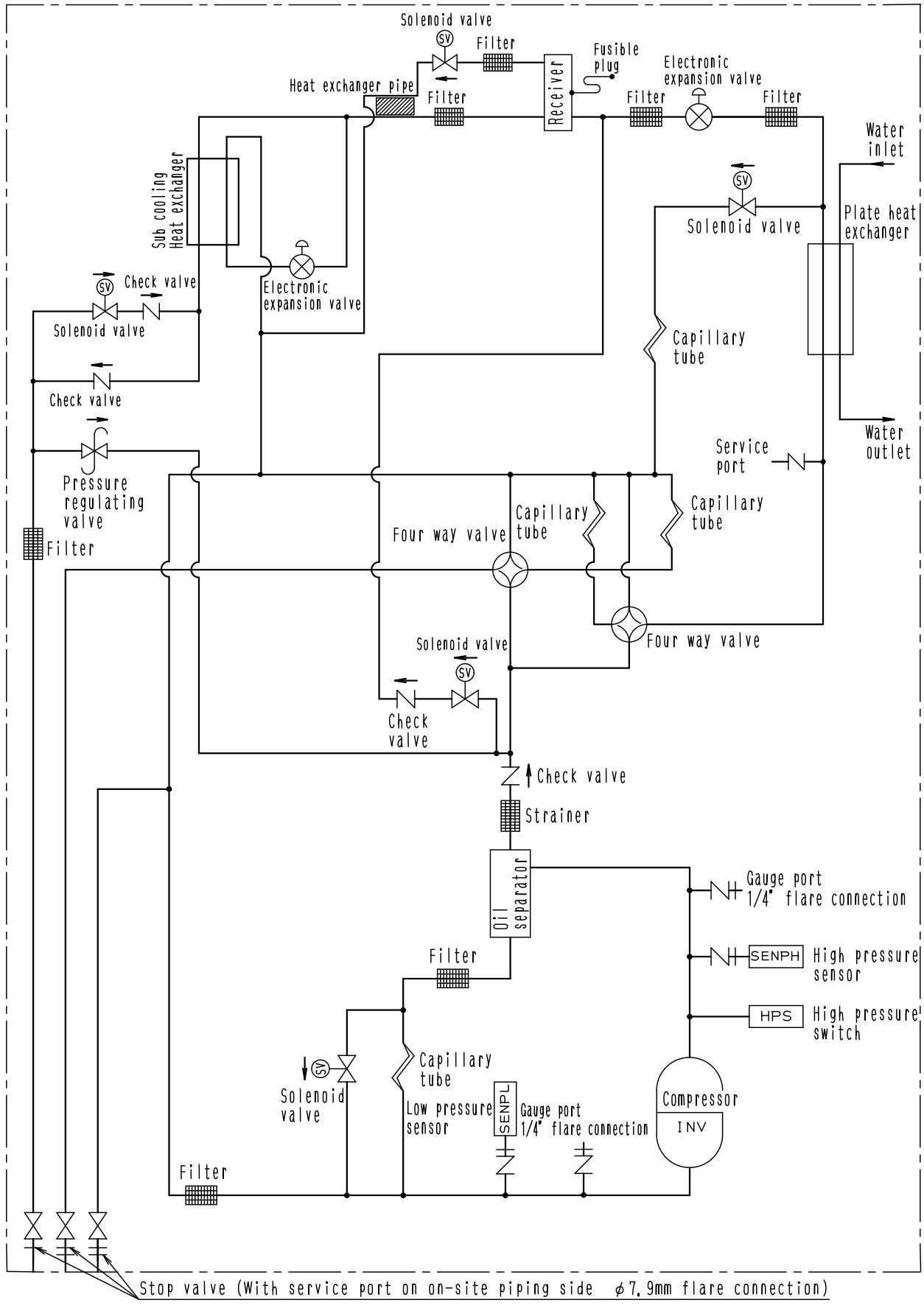

Screw/Unscrew
the mounting screws.
L1R
T1R
A2P
A3P
A1P
X4M
X3M
X1M
X2M
Connect/Disconnect
the wirings.

Part 8
Appendix

1. Piping Diagrams

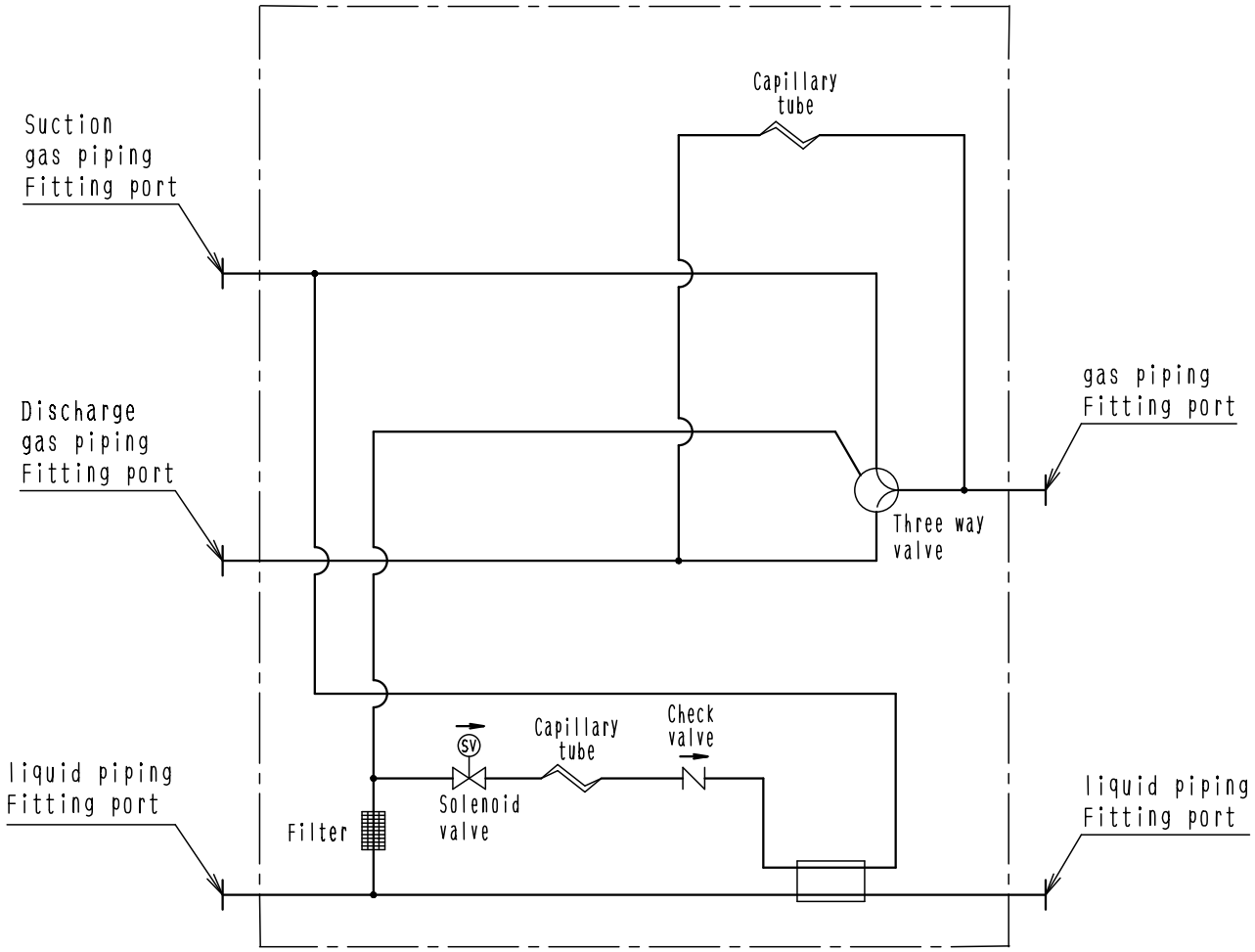
1.1 Outdoor Units

RWEYQ10MY1 / RWEYQ20MY1 / RWEYQ30MY1



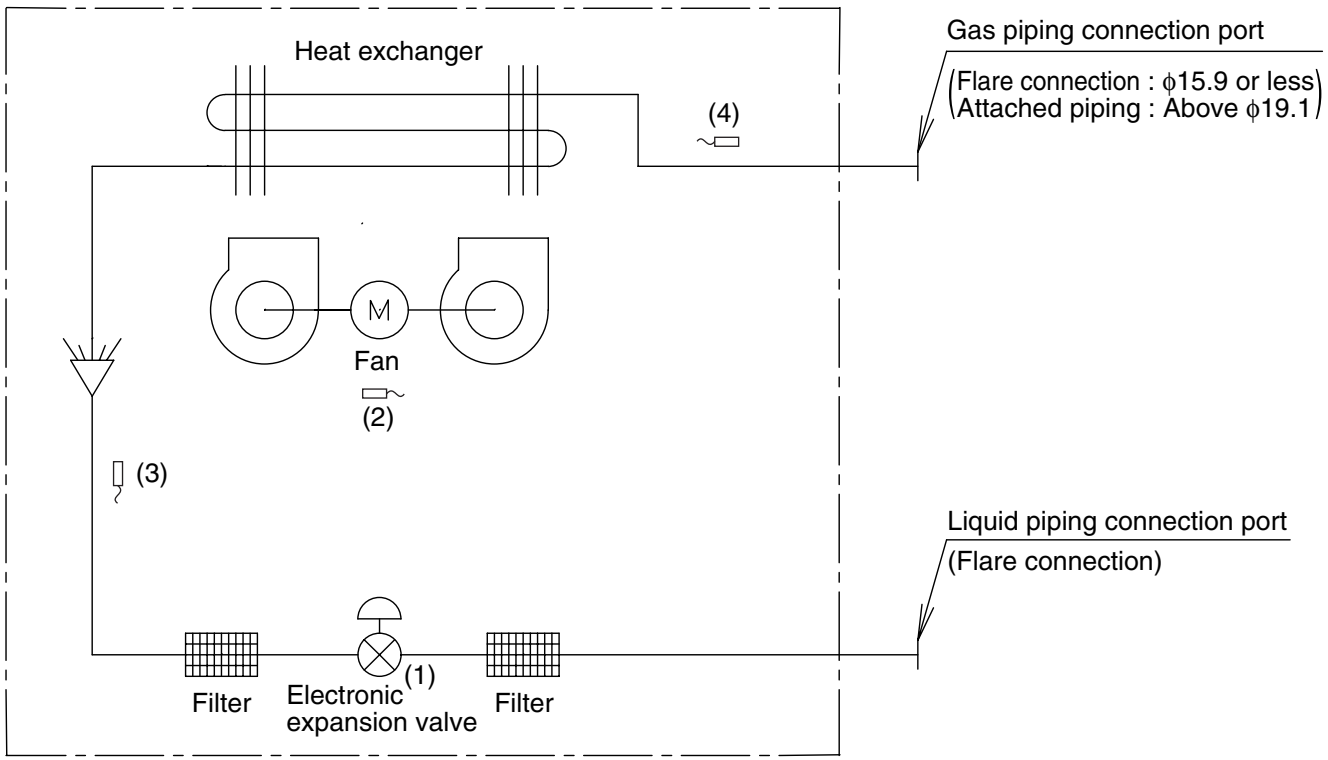
1.2 BS Units

BSVQ100MV1
BSVQ160MV1
BSVQ250MV1



1.3 Indoor Unit

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



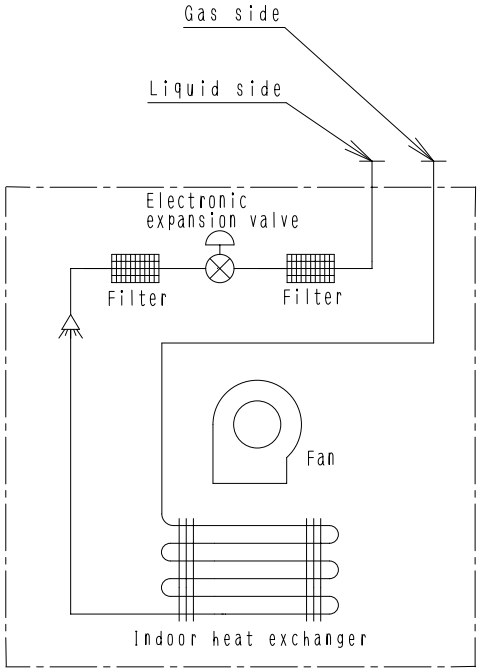
DU220-602J

Code	Name	Code	Main function
(1)	Electronic expansion valve	Y1E	Used for gas superheated degree control while in cooling operation or subcooled degree control while in heating operation.
(2)	Suction air temperature thermistor	R1T	Used for thermostat control.
(3)	Liquid pipe	R2T	Used for gas superheated degree control while in cooling operation or subcooled degree control while in heating operation.
(4)	Gas pipe	R3T	Used for gas superheated degree control while in cooling operation.

(mm)

Capacity	GAS	Liquid
20 / 25 / 32 / 40 / 50M	ϕ12.7	ϕ6.4
63 / 80 / 100 / 125M	ϕ15.9	ϕ9.5
200M	ϕ19.1	ϕ9.5
250M	ϕ22.2	ϕ9.5

FXDQ



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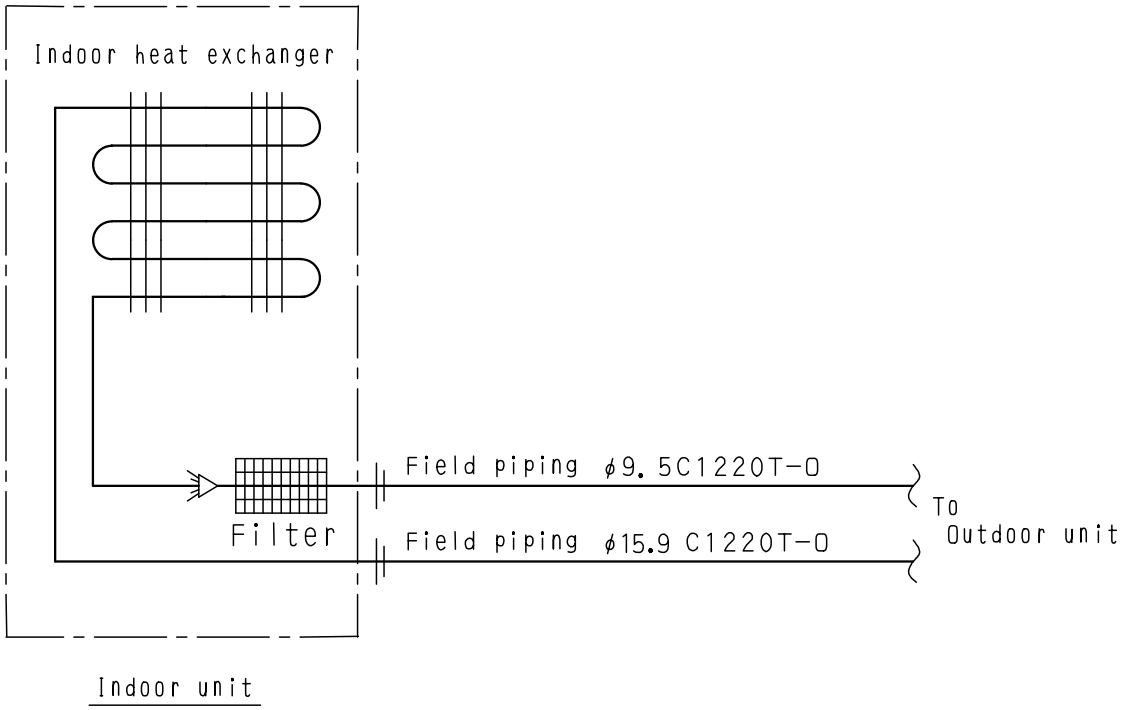
■ Refrigerant pipe connection port diameters

(mm)

Model	Gas	Liquid
FXDQ20N / 25N / 32N / 40N / 50NVE	ϕ12.7	ϕ6.4
FXDQ63NVE	ϕ15.9	ϕ9.5

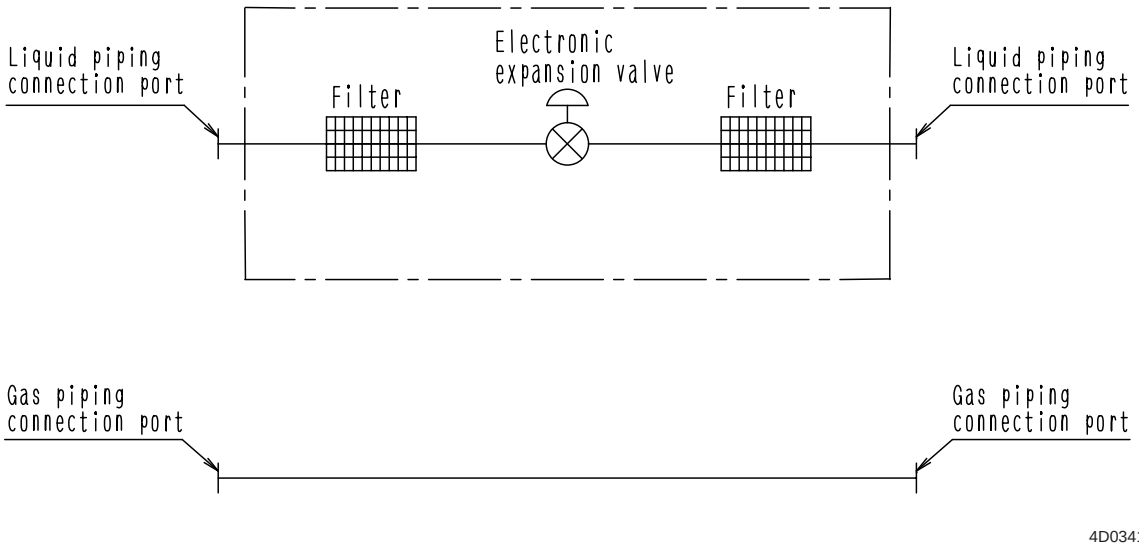
FXUQ + BEVQ

Indoor unit



4D037995E

Connection Unit



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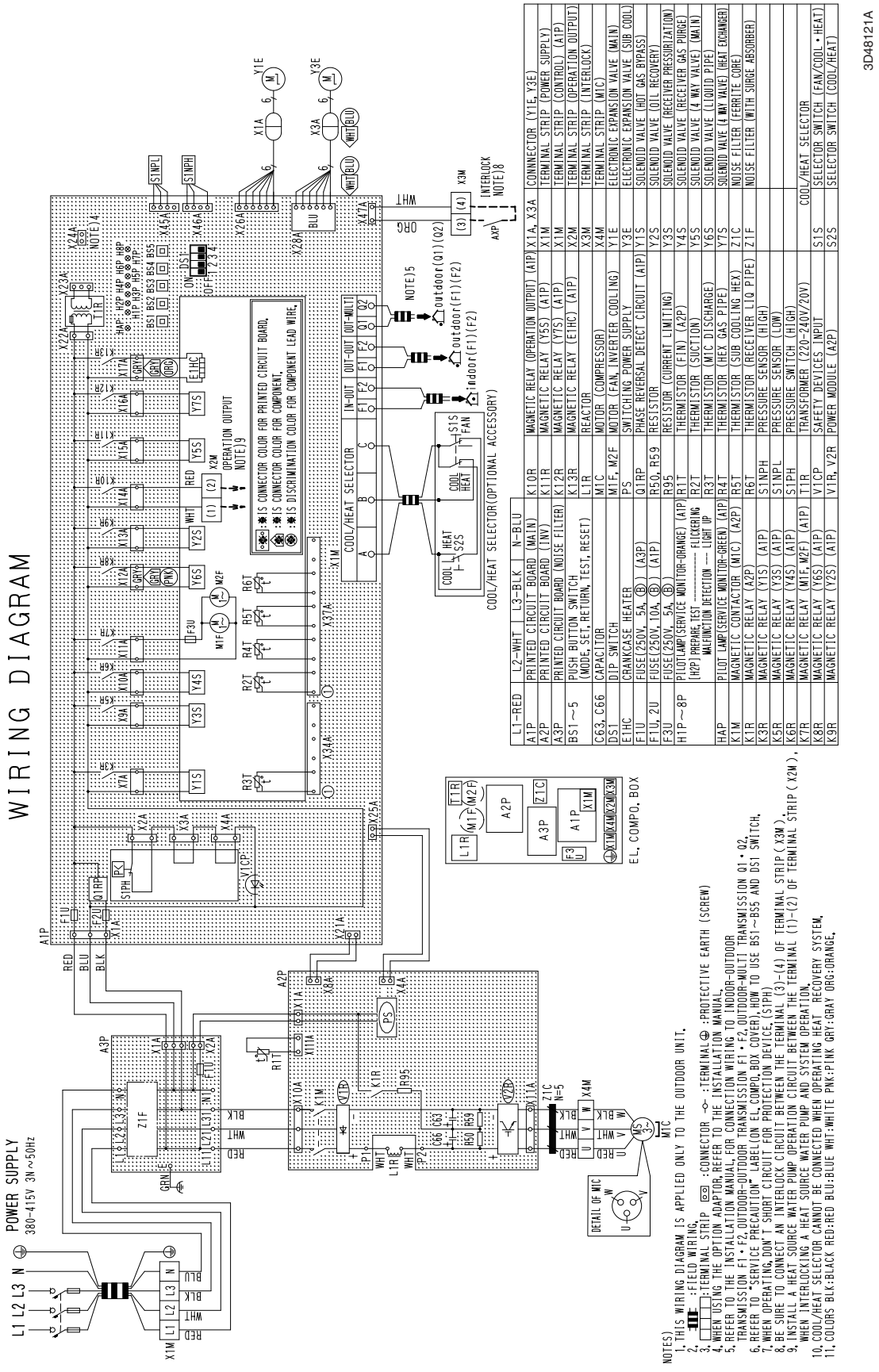
2. Wiring Diagrams

2.1 Outdoor Unit

RWEYQ10MY1 / RWEYQ20MY1 / RWEYQ30MY1

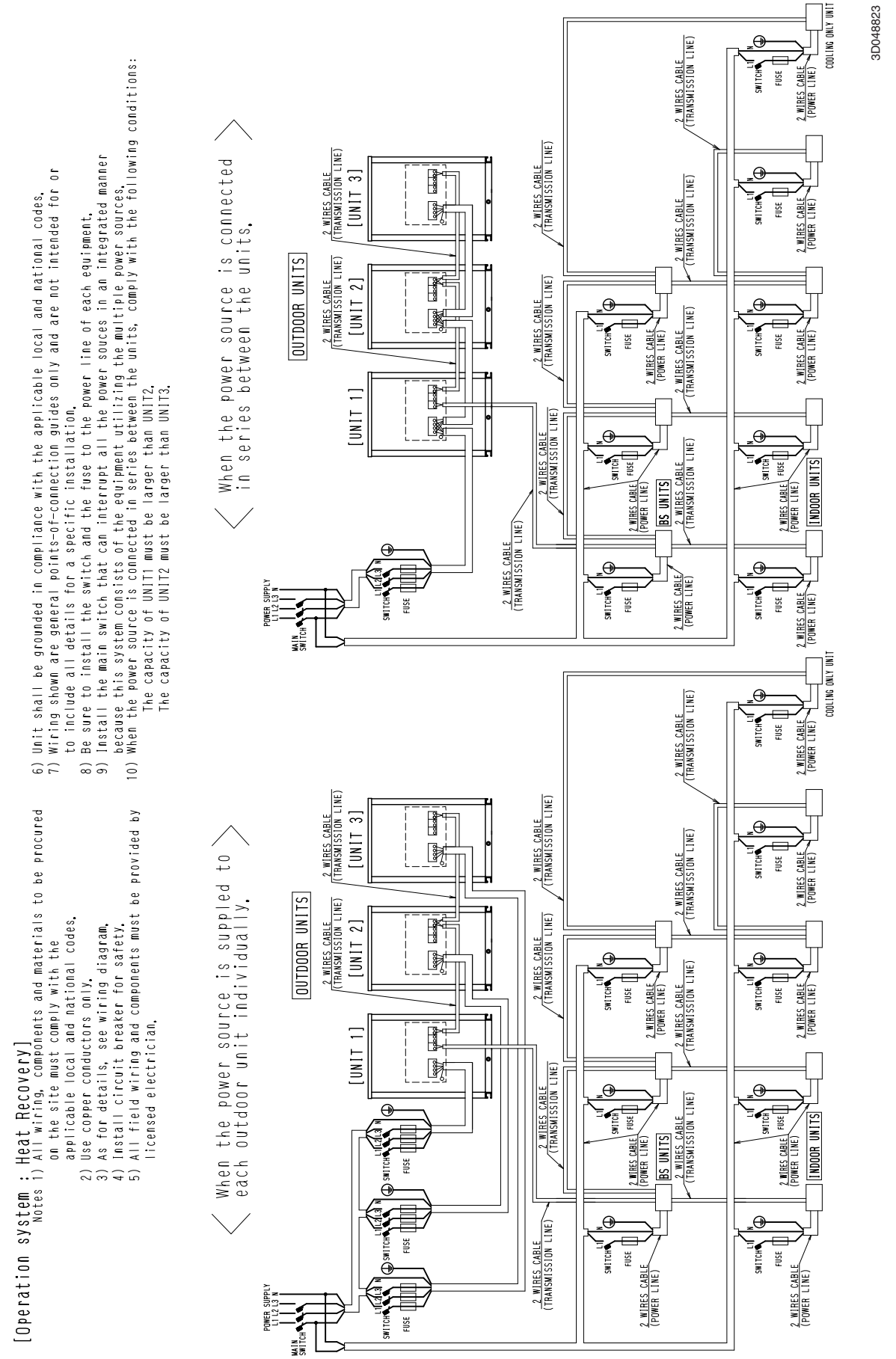


L1-RED	L2-WHT	L3-BLK	N-BLU			
A1P	PRINTED CIRCUIT BOARD (MAIN)			K10R	MAGNETIC RELAY (OPERATION OUTPUT) (A1P)	X1A, X3A	CONNECTOR (Y1E, Y3E)
A2P	PRINTED CIRCUIT BOARD (INV)			K11R	MAGNETIC RELAY (Y5S) (A1P)	X1M	TERMINAL STRIP (POWER SUPPLY)
A3P	PRINTED CIRCUIT BOARD (NOISE FILTER)			K12R	MAGNETIC RELAY (Y7S) (A1P)	X1M	TERMINAL STRIP (CONTROL) (A1P)
BS1～5	PUSH BUTTON SWITCH (MODE, SET, RETURN, TEST, RESET)			K13R	MAGNETIC RELAY (E1HC) (A1P)	X2M	TERMINAL STRIP (OPERATION OUTPUT)
C63, C66	CAPACITOR			L1R	REACTOR	X3M	TERMINAL STRIP (INTERLOCK)
DS1	DIP SWITCH			M1C	MOTOR (COMPRESSOR)	X4M	TERMINAL STRIP (M1C)
E1HC	CRANKCASE HEATER			M1F, M2F	MOTOR (FAN, INVERTER COOLING)	Y1E	ELECTRONIC EXPANSION VALVE (MAIN)
F1U	FUSE(250V, 5A, Ⓑ) (A3P)			PS	SWITCHING POWER SUPPLY	Y3E	ELECTRONIC EXPANSION VALVE (SUB COOL)
F1U, 2U	FUSE(250V, 10A, Ⓑ) (A1P)			Q1RP	PHASE REVERSAL DETECT CIRCUIT (A1P)	Y1S	SOLENOID VALVE (HOT GAS BYPASS)
F3U	FUSE(250V, 5A, Ⓑ)			R50, R59	RESISTOR	Y2S	SOLENOID VALVE (OIL RECOVERY)
H1P～8P	PILOT LAMP(SERVICE MONITOR-ORANGE) (A1P)			R95	RESISTOR (CURRENT LIMITING)	Y3S	SOLENOID VALVE (RECEIVER PRESSURIZATION)
	[H2P] PREPARE TEST ---------- FLICKERING			R1T	THERMISTOR (FIN) (A2P)	Y4S	SOLENOID VALVE (RECEIVER GAS PURGE)
	MALFUNCTION DETECTION ---- LIGHT UP			R2T	THERMISTOR (SUCTION)	Y5S	SOLENOID VALVE (4 WAY VALVE) (MAIN)
HAP	PILOT LAMP(SERVICE MONITOR-GREEN) (A1P)			R3T	THERMISTOR (M1C DISCHARGE)	Y6S	SOLENOID VALVE (LIQUID PIPE)
K1M	MAGNETIC CONTACTOR (M1C) (A2P)			R4T	THERMISTOR (HEX GAS PIPE)	Y7S	SOLENOID VALVE (4 WAY VALVE) (HEAT EXCHANGER)
K1R	MAGNETIC RELAY (A2P)			R5T	THERMISTOR (SUB COOLING HEX)	Z1C	NOISE FILTER (FERRITE CORE)
K3R	MAGNETIC RELAY (Y1S) (A1P)			R6T	THERMISTOR (RECEIVER LIQ PIPE)	Z1F	NOISE FILTER (WITH SURGE ABSORBER)
K5R	MAGNETIC RELAY (Y3S) (A1P)			S1NPH	PRESSURE SENSOR (HIGH)		
K6R	MAGNETIC RELAY (Y4S) (A1P)			S1NPL	PRESSURE SENSOR (LOW)		
K7R	MAGNETIC RELAY (M1F, M2F) (A1P)			S1PH	PRESSURE SWITCH (HIGH)		
K8R	MAGNETIC RELAY (Y6S) (A1P)			T1R	TRANSFORMER (220-240V/20V)		COOL/HEAT SELECTOR
K9R	MAGNETIC RELAY (Y2S) (A1P)			V1CP	SAFETY DEVICES INPUT	S1S	SELECTOR SWITCH (FAN/COOL・HEAT)
				V1R, V2R	POWER MODULE (A2P)	S2S	SELECTOR SWITCH (COOL/HEAT)

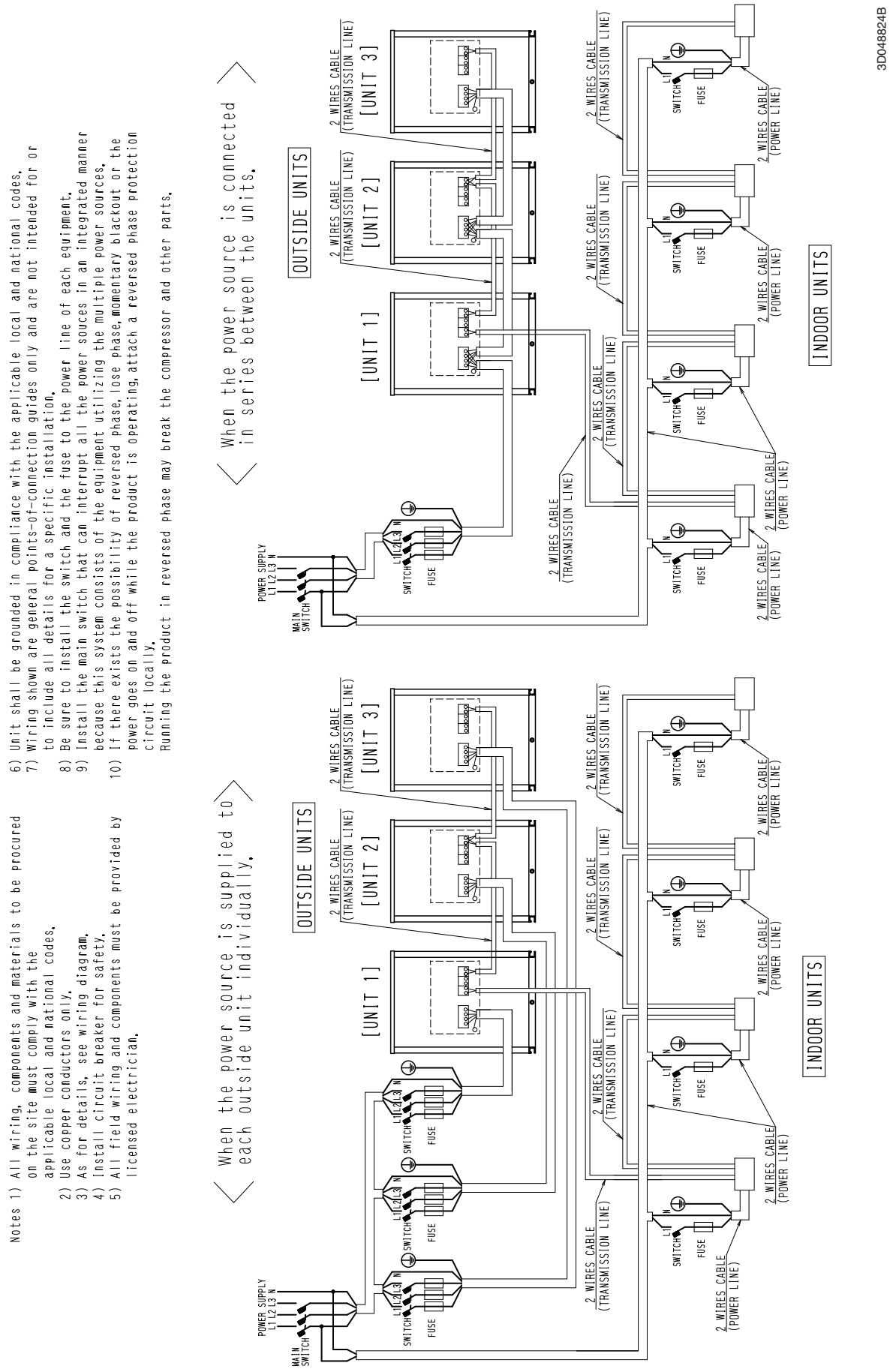
NOTES)
1. THIS WIRING DIAGRAM IS APPLIED ONLY TO THE OUTDOOR UNIT.
2. ⏚ :FIELD WIRING,
3. ▭ :TERMINAL STRIP ⊙⊙ :CONNECTOR ⏚ :TERMINAL ⏚ :PROTECTIVE EARTH (SCREW)
4. WHEN USING THE OPTION ADAPTOR, REFER TO THE INSTALLATION MANUAL.
5. REFER TO THE INSTALLATION MANUAL FOR CONNECTION WIRING TO INDOOR-OUTDOOR TRANSMISSION F1・F2, OUTDOOR-MULTI TRANSMISSION Q1・Q2.
6. REFER TO "SERVICE PRECAUTION" LABELLION EL. COMPO. BOX COVER), HOW TO USE BS1～BS5 AND DS1 SWITCH.
7. WHEN OPERATING, DON'T SHORT CIRCUIT FOR PROTECTION DEVICE, (S1PH)
8. BE SURE TO CONNECT AN INTERLOCK CIRCUIT BETWEEN THE TERMINAL (3)-(4) OF TERMINAL STRIP (X3M).
9. INSTALL A HEAT SOURCE WATER PUMP OPERATION CIRCUIT BETWEEN THE TERMINAL (1)-(2) OF TERMINAL STRIP (X2M), WHEN INTERLOCKING A HEAT SOURCE WATER PUMP AND SYSTEM OPERATION.
10. COOL/HEAT SELECTOR CANNOT BE CONNECTED WHEN OPERATING HEAT RECOVERY SYSTEM.
11. COLORS BLK:BLACK RED:RED BLU:BLUE WHT:WHITE PNK:PINK GRY:GRAY ORG:ORANGE.

2.2 Outdoor Unit Field Wiring

RWEYQ10MY1 / RWEYQ20MY1 / RWEYQ30MY1



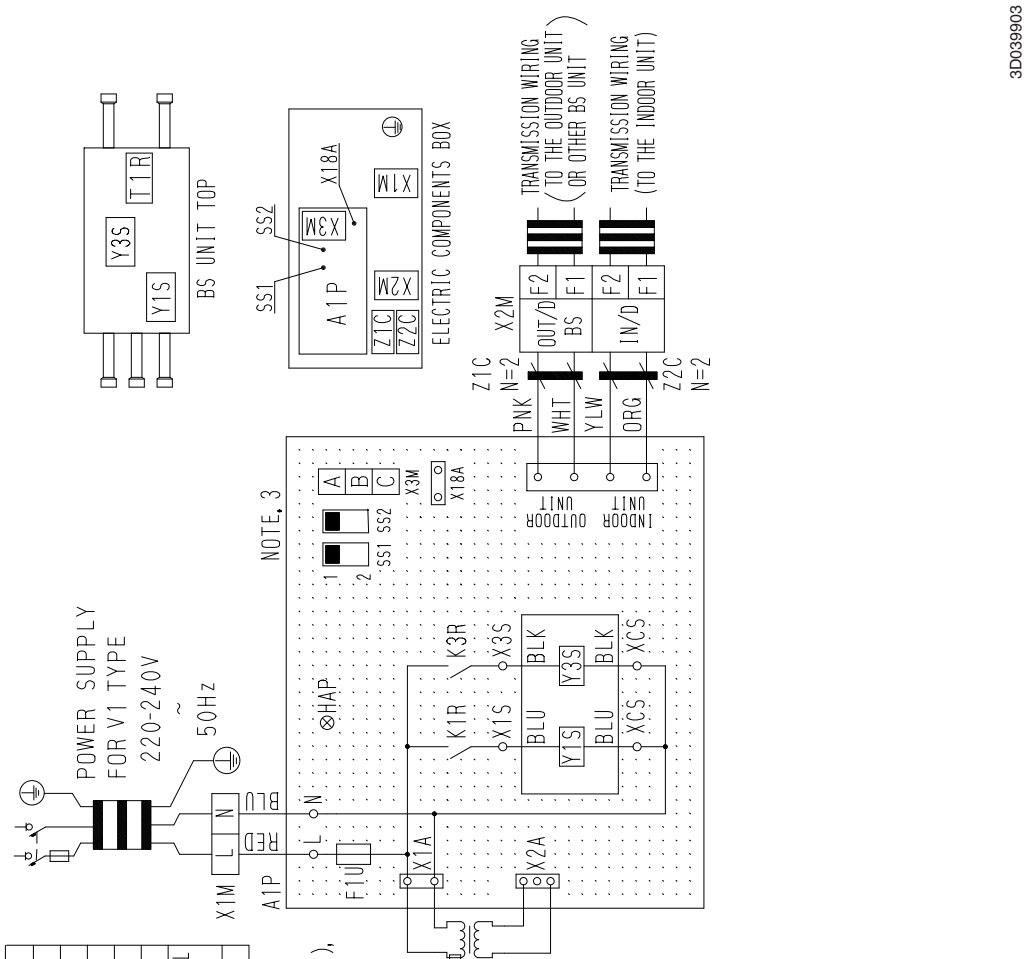
RWEYQ10MY1 / RWEYQ20MY1 / RWEYQ30MY1



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 souces 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.

2.3 BS Unit

BSVQ100MV1
BSVQ160MV1
BSVQ250MV1



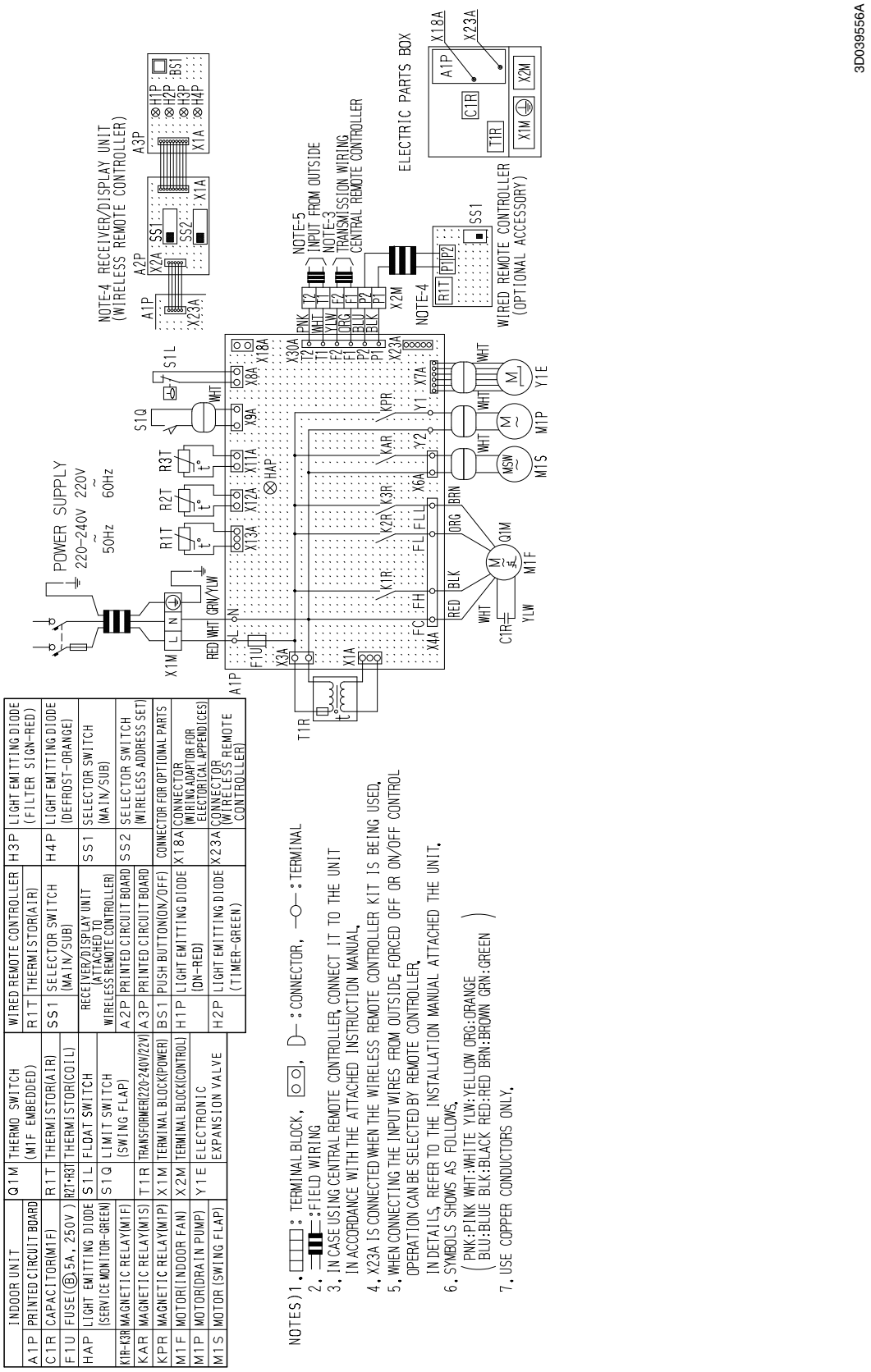
A1P	PRINTED CIRCUIT BOARD	X1M	TERMINAL STRIP(POWER)
F1U	FUSE(Ⓑ, 250V, 5A)	X2M	TERMINAL STRIP(CONTROL)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	X3M	TERMINAL STRIP(C/H SELECTOR)
		Y1S	SOLENOID VALVE(LIQUID LINE)
K1R・3R	MAGNETIC RELAY	Y3S	4WAY VALVE(DISCHARGE LINE)
SS1・2	SELECTOR SWITCH (SELECTION OF REMOTE CONTROLLER)		CONNECTOR FOR OPTIONAL PARTS
		X18A	CONNECTOR(WIRING EXTERNAL CONTROL ADAPTOR FOR OUTDOOR UNIT)
T1R	TRANSFORMER(220-240V/22V)		
	L:RED N:BLUE	Z1C・2C	NOISE FILTER (FERITE CORE)

NOTES) 1. □□□ : TERMINAL, ⊙⊙ : CONNECTOR, —○— : WIRE CLAMP
2. ▬ : FIELD WIRING
3. WHEN USING THE COOL/HEAT SELECTOR(OPTIONAL ACCESSORY), CONNECT IT TO TERMINALS A, B AND C ON X3M (A1P).
IN THIS CASE, SET THE SELECTOR SWITCH SS1&SS2 ON THE A1P ACCORDING TO BELOW DRAWING.

4. AS FOR WIRING TO THE IN/D F1&F2 AND OUT/D, BS F1&F2 ON X2M, REFER TO INSTALLATION MANUAL.
5. THIS WIRING DIAGRAM APPLIES TO THE BS UNIT ONLY.
6. SYMBOLS SHOW AS FOLLOWS.
(BLU:BLUE ORG:ORANGE PNK:PINK RED:RED)
(WHT:WHITE YLW:YELLOW BLK:BLACK)
7. USE COPPER CONDUCTORS ONLY.

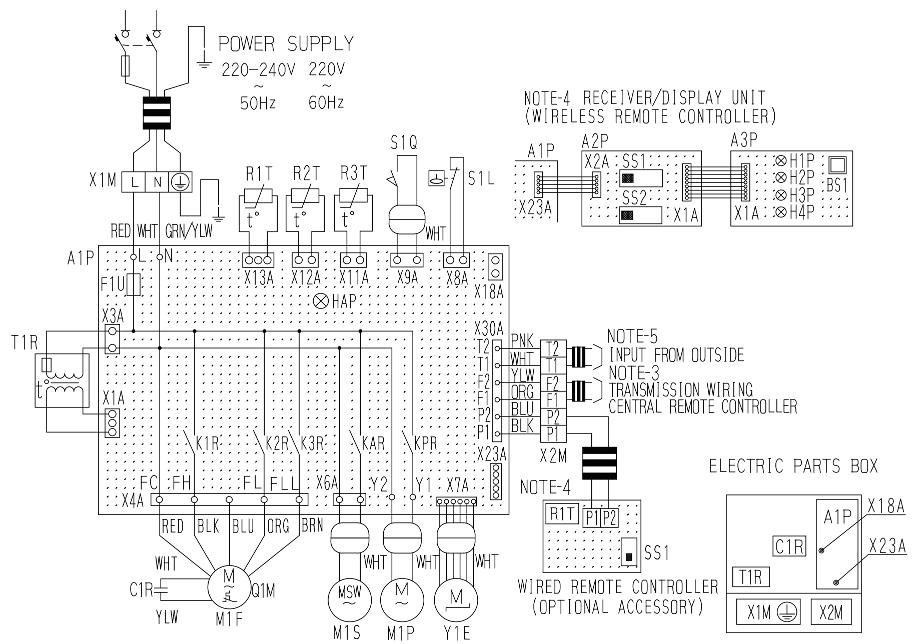
2.4 Indoor Unit

FXCQ20M / 25M / 32M / 63MVE



FXCQ40M / 50M / 80M/ 125MVE

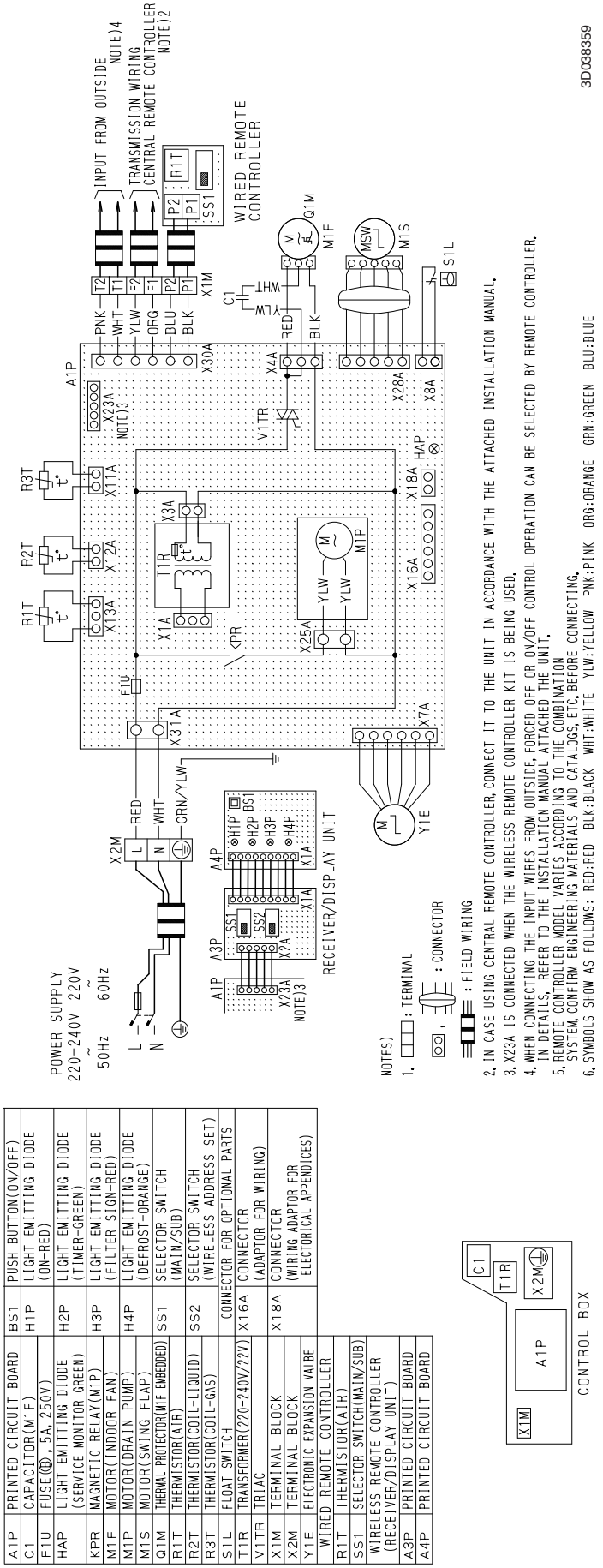
3D039557A



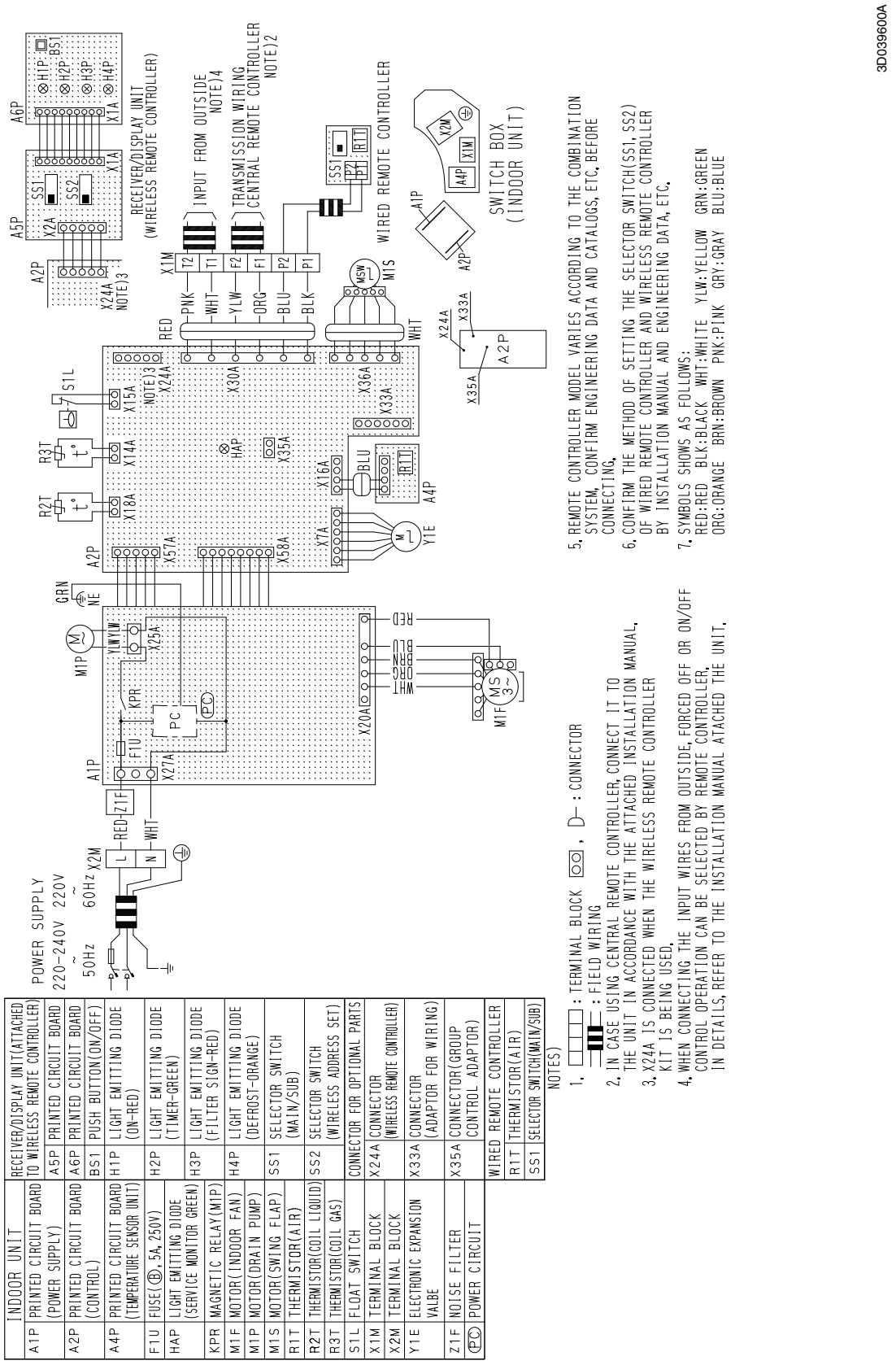
INDOOR UNIT					
		S1L	FLOAT SWITCH	H1P	LIGHT EMITTING DIODE (ON-RED)
A1P	PRINTED CIRCUIT BOARD	S1Q	LIMIT SWITCH (SWING FLAP)		
C1R	CAPACITOR(M1F)			H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
F1U	FUSE(Ⓑ,5A, 250V)	T1R	TRANSFORMER(220-240V/22V)		
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	X1M	TERMINAL BLOCK(POWER)	H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
		X2M	TERMINAL BLOCK(CONTROL)		
K1R-K3R	MAGNETIC RELAY(M1F)	Y1E	ELECTRONIC EXPANSION VALVE	H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
KAR	MAGNETIC RELAY(M1S)				
KPR	MAGNETIC RELAY(M1P)	WIRED REMOTE CONTROLLER		SS1	SELECTOR SWITCH (MAIN/SUB)
M1F	MOTOR(INDOOR FAN)	R1T	THERMISTOR(AIR)		
M1P	MOTOR(DRAIN PUMP)	SS1	SELECTOR SWITCH (MAIN/SUB)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
M1S	MOTOR (SWING FLAP)				
Q1M	THERMO SWITCH (M1F EMBEDDED)	RECEIVER/DISPLAY UNIT (ATTACHED TO WIRELESS REMOTE CONTROLLER)		CONNECTOR FOR OPTIONAL PARTS	
				X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTORICAL APPENDICES)
R1T	THERMISTOR(AIR)	A2P	PRINTED CIRCUIT BOARD		
R2T·R3T	THERMISTOR(COIL)	A3P	PRINTED CIRCUIT BOARD	X23A	CONNECTOR (WIRELESS REMOTE CONTROLLER)
		BS1	PUSH BUTTON(ON/OFF)		

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. X23A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
5. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER.
   IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
6. SYMBOLS SHOWS AS FOLLOWS.
   (PNK:PINK WHT:WHITE YLW:YELLOW ORG:ORANGE
   BLU:BLUE BLK:BLACK RED:RED BRN:BROWN GRN:GREEN)
7. USE COPPER CONDUCTORS ONLY.

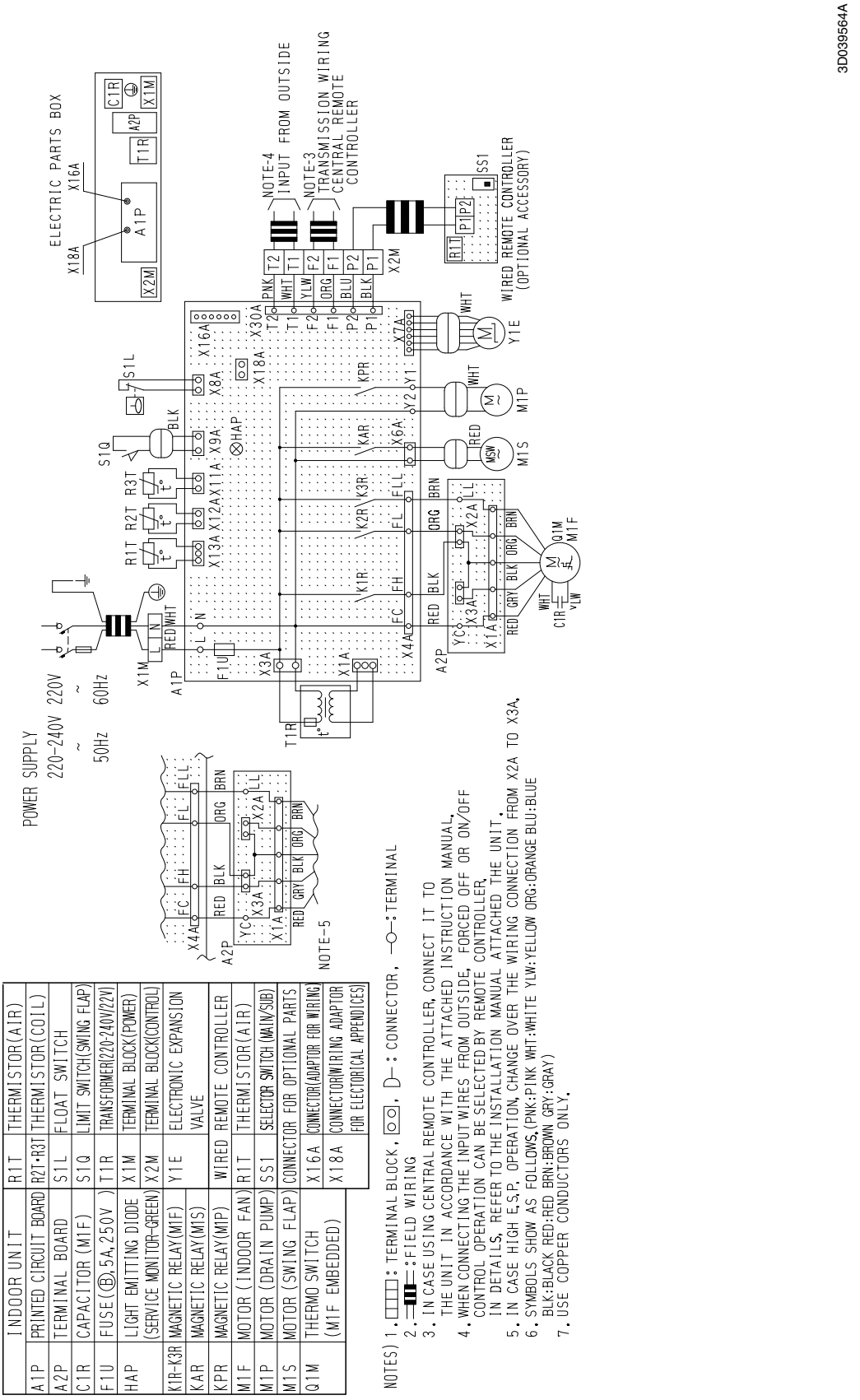
FXZQ20M / 25M / 32M / 40M / 50MVE



FXFQ25M / 32M / 40M / 50M / 63M / 80M / 100M / 125MVE

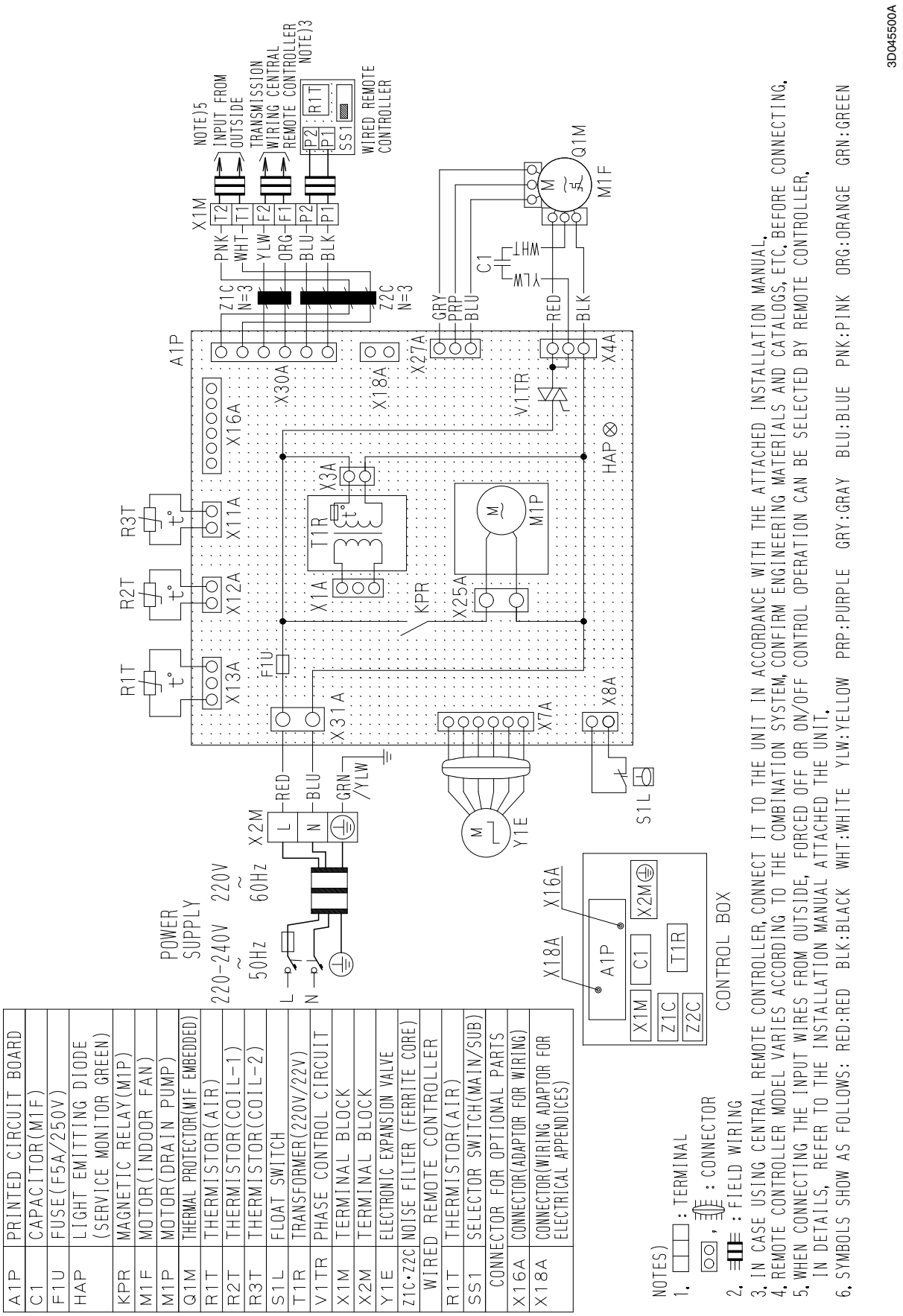


FXKQ25M / 32M / 40M / 63MVE

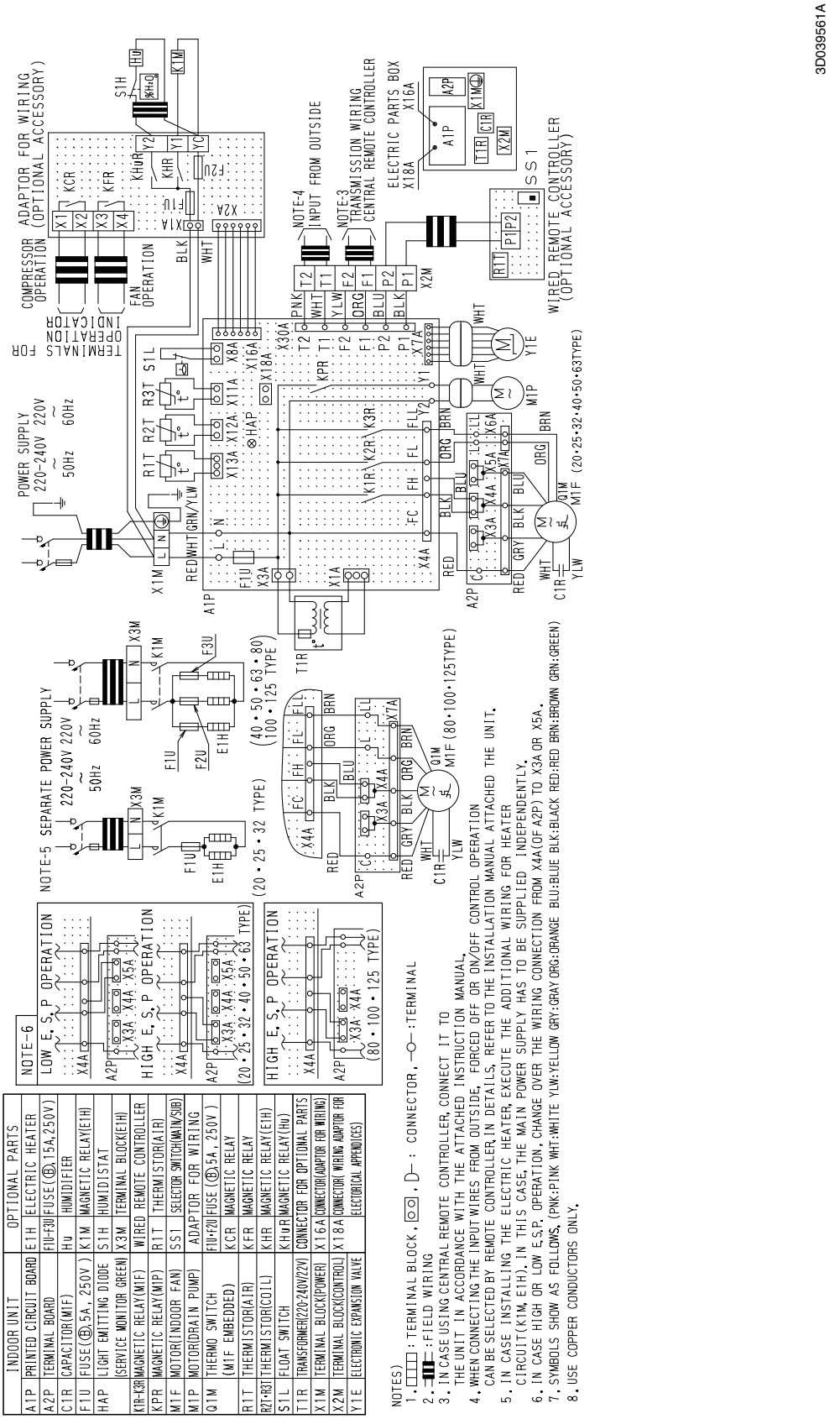


INDOOR UNIT		R1T	THERMISTOR(AIR)
A1P	PRINTED CIRCUIT BOARD	R2T•R3T	THERMISTOR(COIL)
A2P	TERMINAL BOARD	S1L	FLOAT SWITCH
C1R	CAPACITOR (M1F)	S1Q	LIMIT SWITCH(SWING FLAP)
F1U	FUSE(Ⓑ,5A,250V)	T1R	TRANSFORMER(220-240V/22V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	X1M	TERMINAL BLOCK(POWER)
		X2M	TERMINAL BLOCK(CONTROL)
K1R-K3R	MAGNETIC RELAY(M1F)	Y1E	ELECTRONIC EXPANSION VALVE
KAR	MAGNETIC RELAY(M1S)		
KPR	MAGNETIC RELAY(M1P)	WIRED	REMOTE CONTROLLER
M1F	MOTOR (INDOOR FAN)	R1T	THERMISTOR(AIR)
M1P	MOTOR (DRAIN PUMP)	SS1	SELECTOR SWITCH (MAIN/SUB)
M1S	MOTOR (SWING FLAP)	CONNECTOR	FOR OPTIONAL PARTS
Q1M	THERMO SWITCH (M1F EMBEDDED)	X16A	CONNECTOR(ADAPTOR FOR WIRING)
		X18A	CONNECTOR(WIRING ADAPTOR FOR ELECTORICAL APPENDICES)

FXDQ20N / 25N / 32N / 40N / 50N / 63NVE

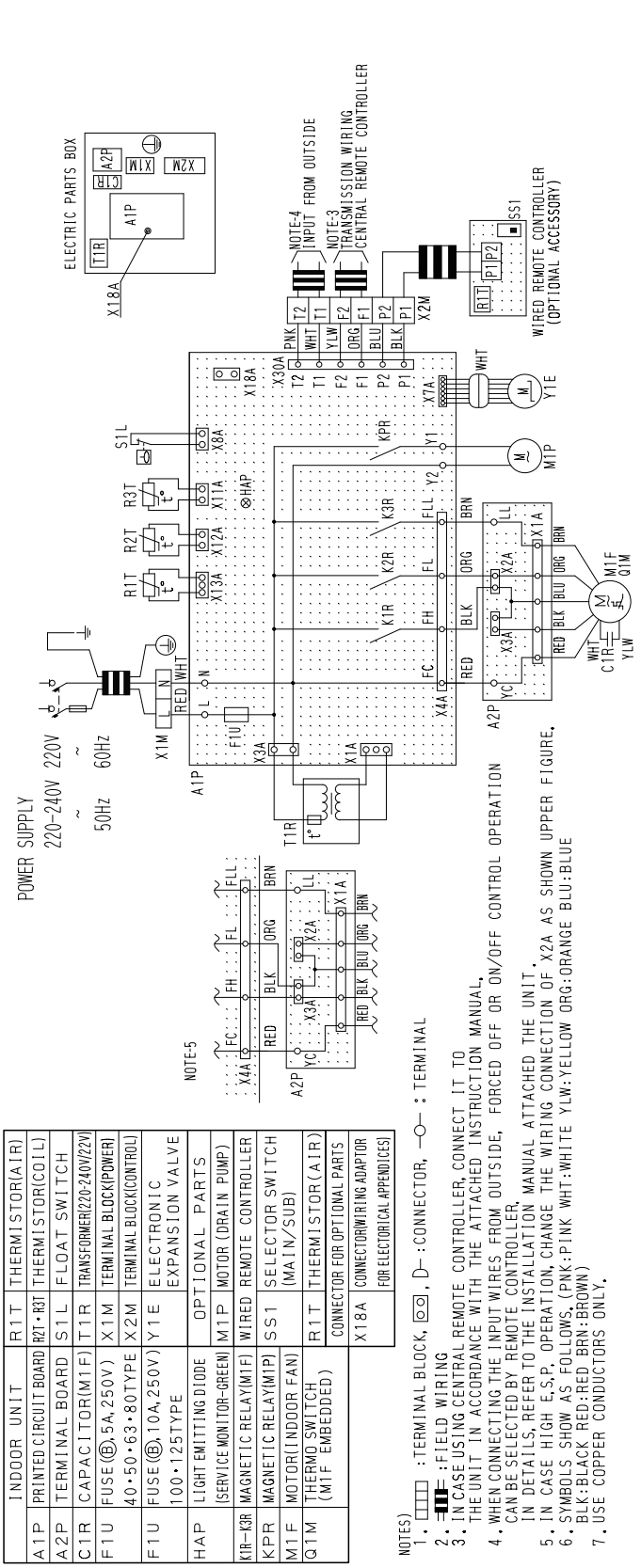


FXSQ20M / 25M / 32M / 40M / 50M / 63M / 80M / 100M / 125MVE



FXMQ40M / 50M / 63M / 80M / 100M / 125MVE

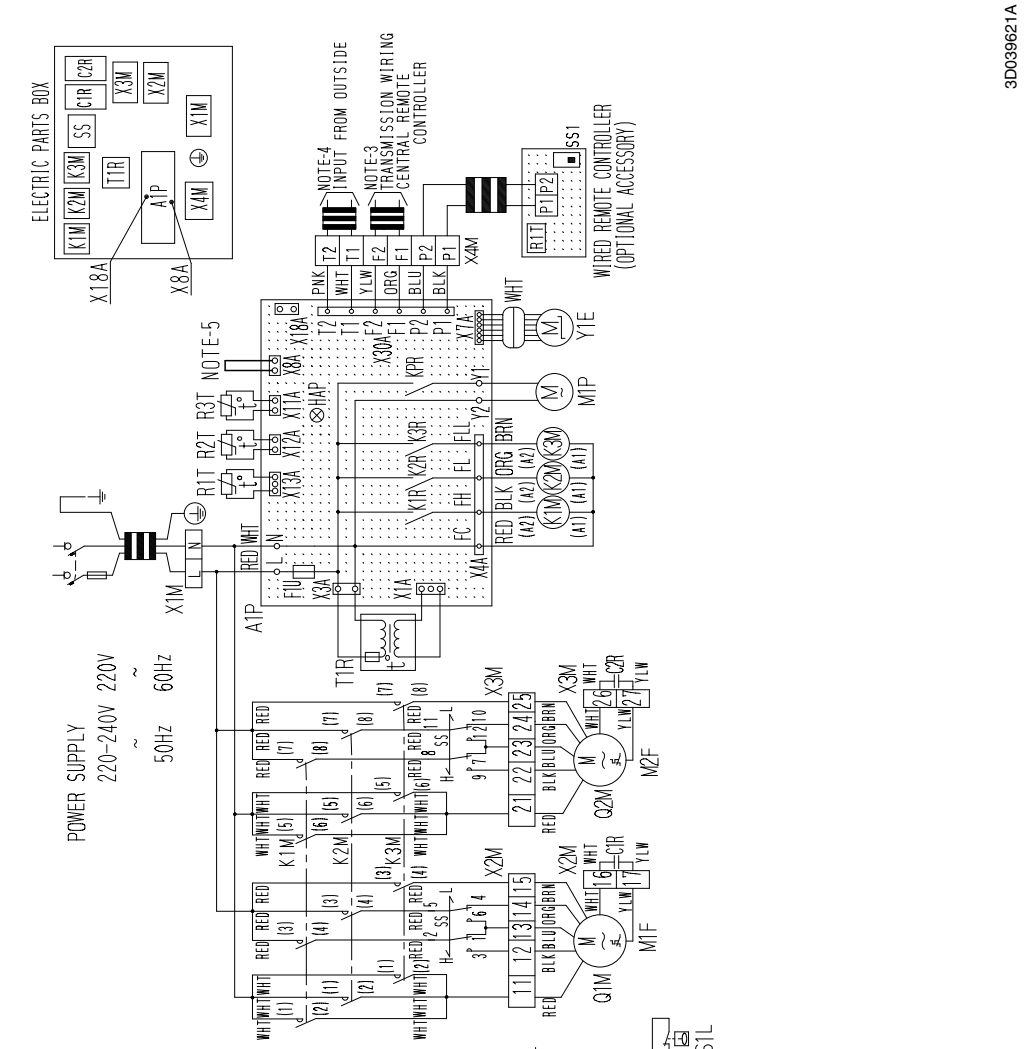
3D039620A



INDOOR UNIT		R1T	THERMISTOR(AIR)
A1P	PRINTED CIRCUIT BOARD	R2T・R3T	THERMISTOR(COIL)
A2P	TERMINAL BOARD	S1L	FLOAT SWITCH
C1R	CAPACITOR(M1F)	T1R	TRANSFORMER(220-240V/22V)
F1U	FUSE(Ⓑ,5A,250V) 40・50・63・80TYPE	X1M	TERMINAL BLOCK(POWER)
		X2M	TERMINAL BLOCK(CONTROL)
F1U	FUSE(Ⓑ,10A,250V) 100・125TYPE	Y1E	ELECTRONIC EXPANSION VALVE
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	OPTIONAL PARTS	
		M1P	MOTOR (DRAIN PUMP)
K1R-K3R	MAGNETIC RELAY(M1F)	WIRED	REMOTE CONTROLLER
KPR	MAGNETIC RELAY(M1P)	SS1	SELECTOR SWITCH (MAIN/SUB)
M1F	MOTOR(INDOOR FAN)	R1T	THERMISTOR(AIR)
Q1M	THERMO SWITCH (M1F EMBEDDED)	CONNECTOR FOR OPTIONAL PARTS	
		X18A	CONNECTOR(WIRING ADAPTOR FOR ELECTORICAL 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 THE WIRING CONNECTION OF X2A AS SHOWN UPPER FIGURE.
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.

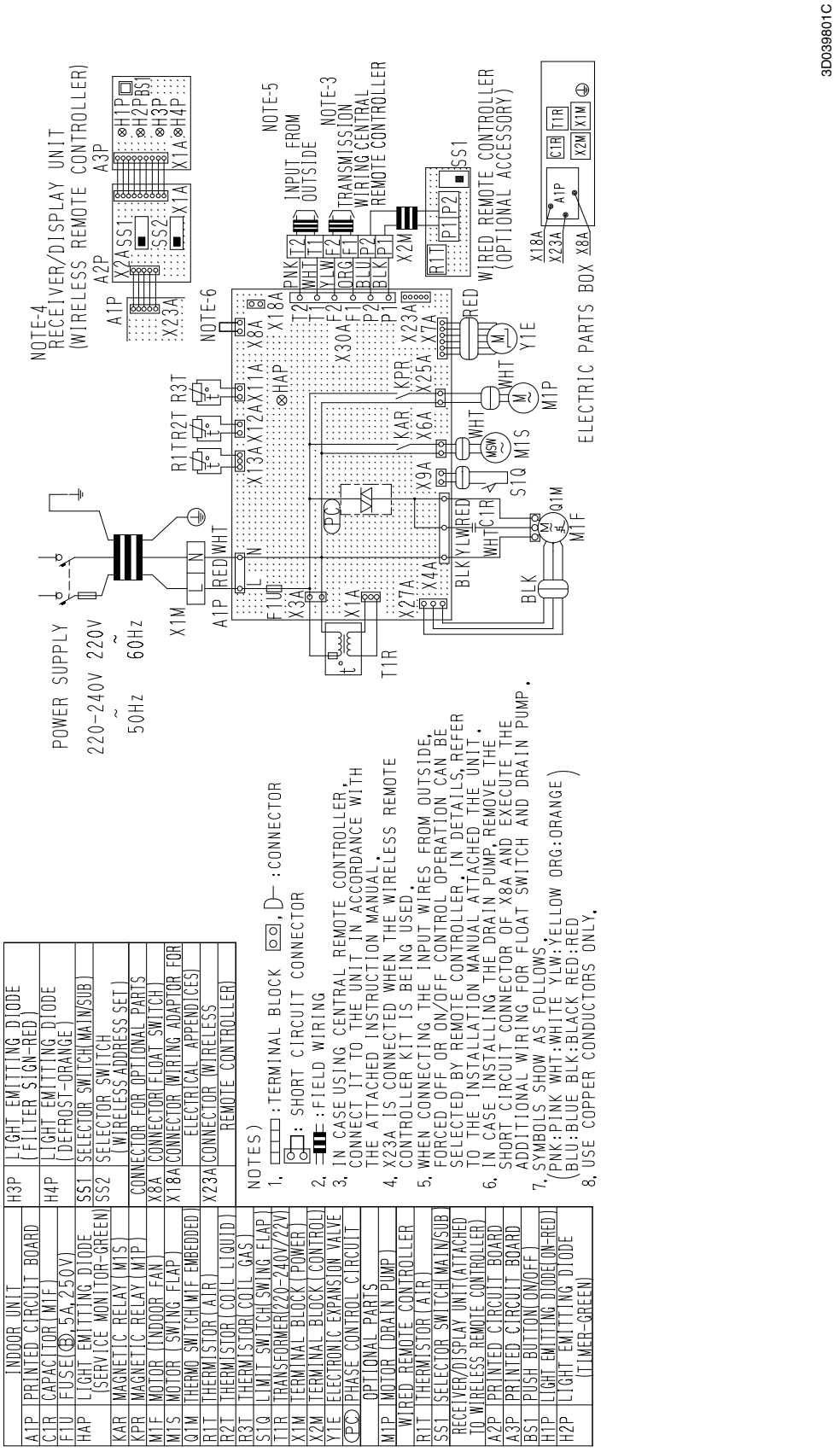
FXMQ200M / 250MVE



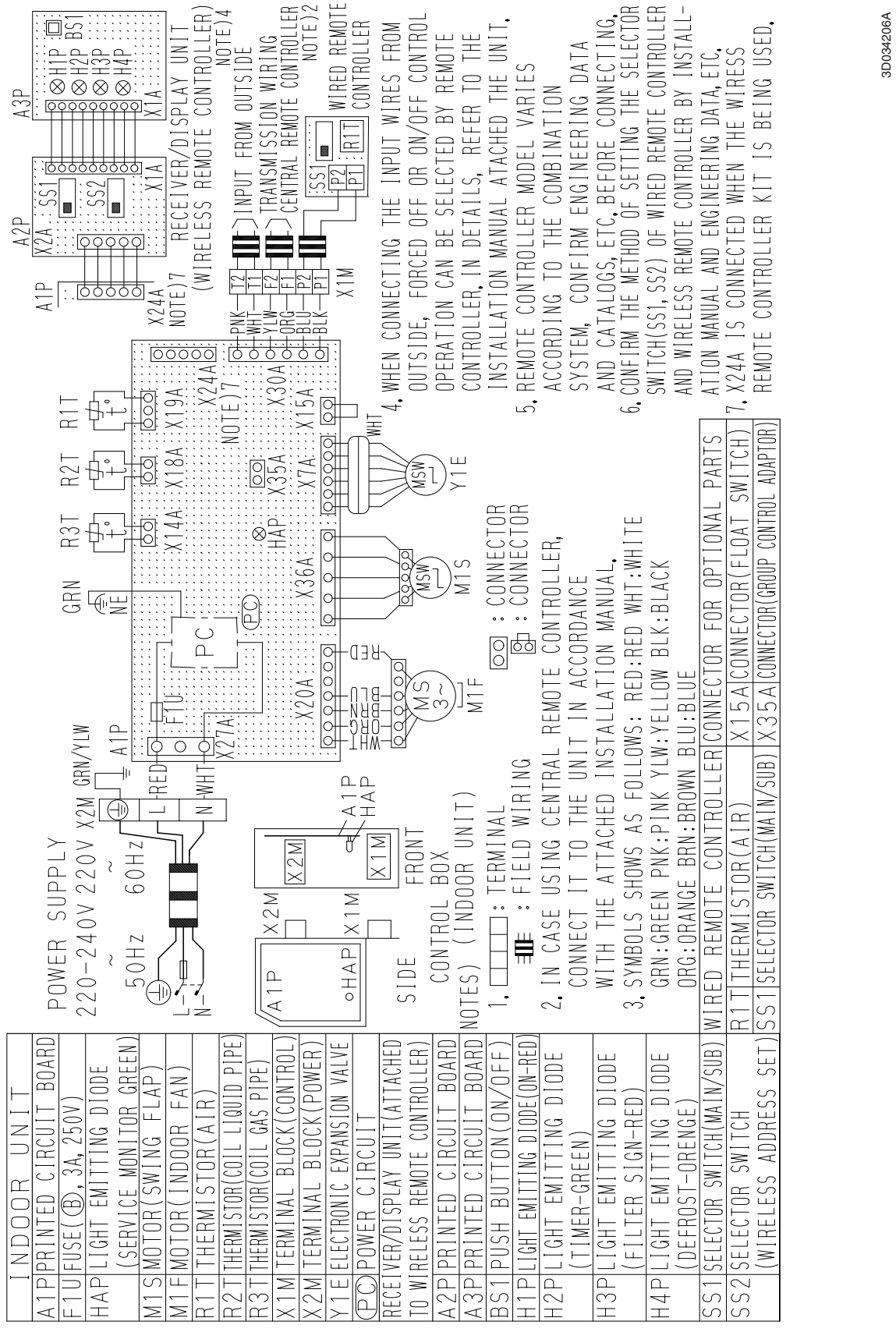
INDOOR UNIT		R1T	THERMISTOR(AIR)
A1P	PRINTED CIRCUIT BOARD	R2T•R3T	THERMISTOR(COIL)
C1R•C2R	CAPACITOR(M1F•2F)	SS	SELECTOR SWITCH (STATIC PRESSURE)
F1U	FUSE(Ⓑ,5A, 250V)		
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	T1R	TRANSFORMER(220-240V/22V)
		X1M	TERMINAL BLOCK(POWER)
K1M	MAGNETIC CONTACTOR(M1F•2F)	X2M-X3M	TERMINAL BLOCK
K2M	MAGNETIC CONTACTOR(M1F•2F)	X4M	TERMINAL BLOCK(CONTROL)
K3M	MAGNETIC CONTACTOR(M1F•2F)	Y1E	ELECTRONIC EXPANSION VALVE
K1R-K3R	MAGNETIC RELAY(M1F•2F)		OPTIONAL PARTS
KPR	MAGNETIC RELAY(M1P)	M1P	MOTOR(DRAIN PUMP)
M1F•M2F	MOTOR (INDOOR FAN)		WIRED REMOTE CONTROLLER
Q1M•Q2M	THERMO SWITCH (M1F•2F EMBEDDED)	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
◎, D- : CONNECTOR
▣ : SHORT CIRCUIT CONNECTOR
—○— : TERMINAL
2. ═══ : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE 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".

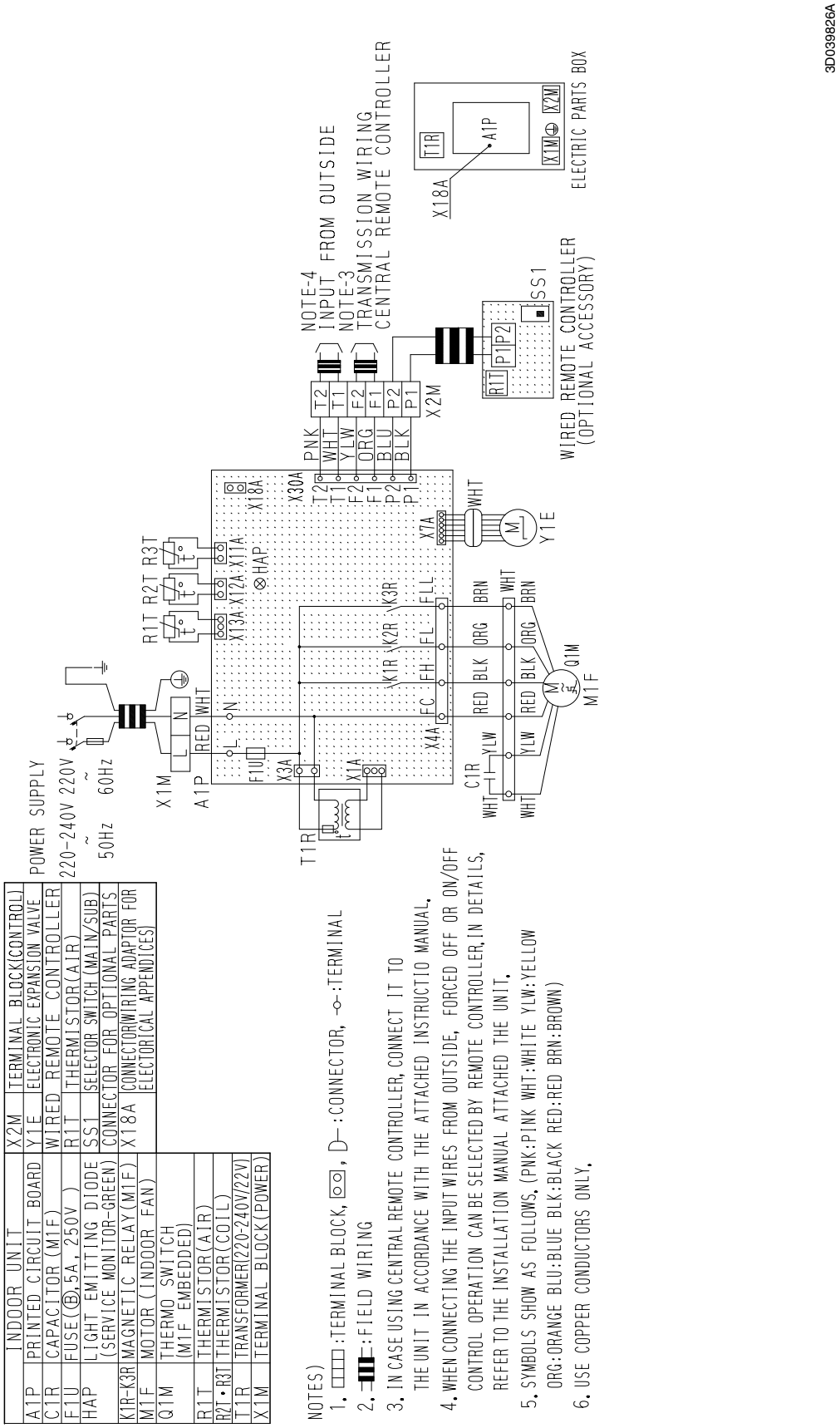
FXHQ32M / 63M / 100MVE



FXAQ20M / 25M / 32MVE / 40M / 50M / 63MVE

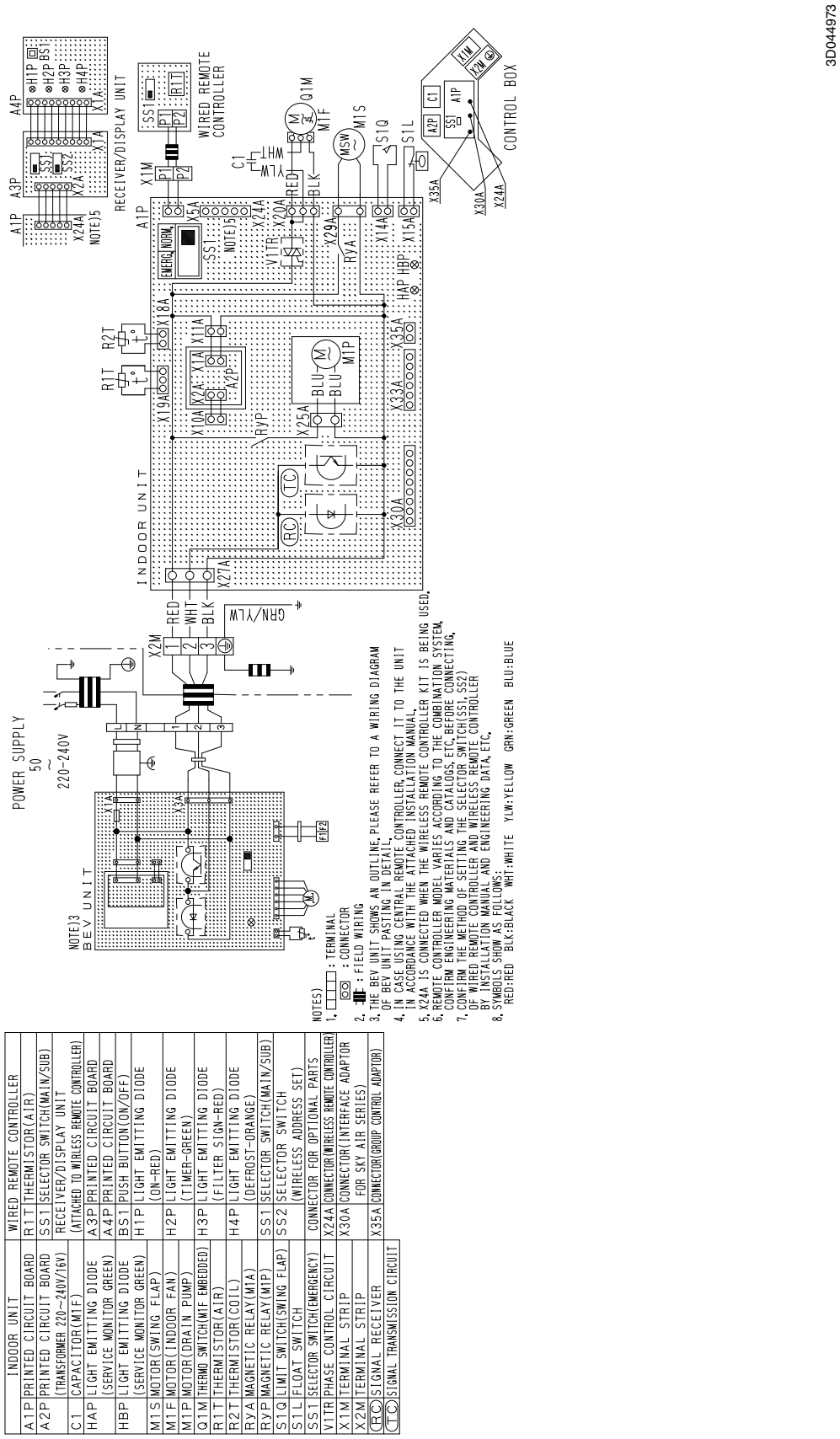


FXLQ20M / 25M / 32M / 40M / 50M / 63MVE
FXNQ20M / 25M / 32M / 40M / 50M / 63MVE



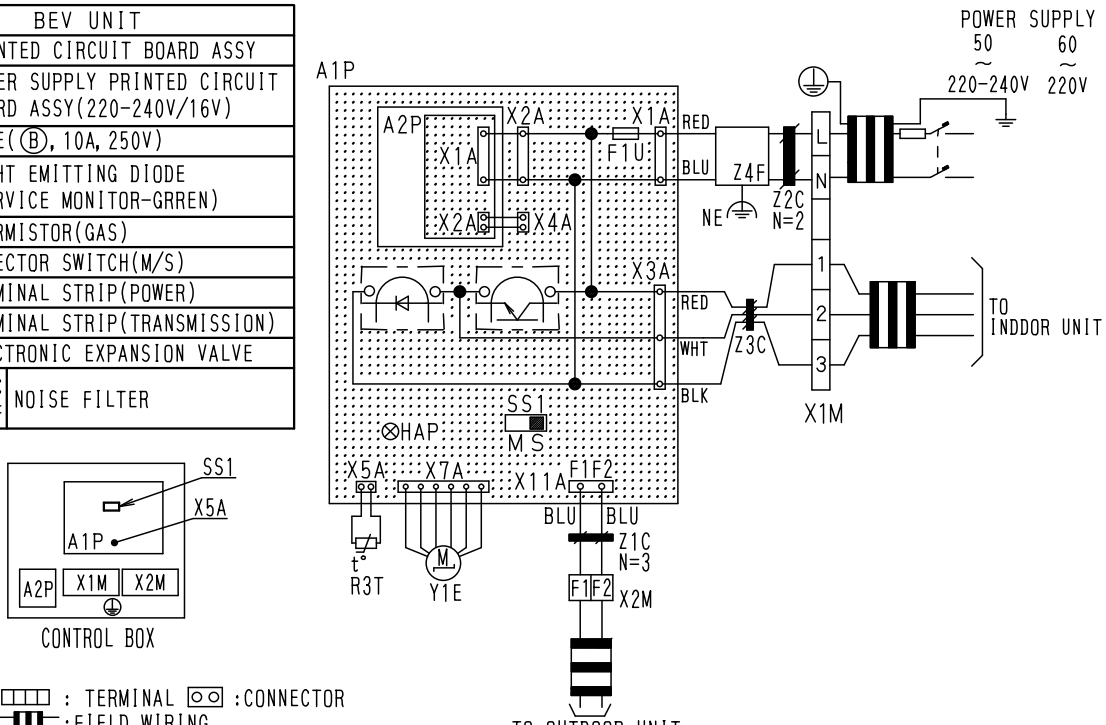
INDOOR UNIT		X2M	TERMINAL BLOCK(CONTROL)
A1P	PRINTED CIRCUIT BOARD	Y1E	ELECTRONIC EXPANSION VALVE
C1R	CAPACITOR(M1F)		WIRED REMOTE CONTROLLER
F1U	FUSE(Ⓑ,5A,250V)	R1T	THERMISTOR(AIR)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	SS1	SELECTOR SWITCH(MAIN/SUB)
K1R-K3R	MAGNETIC RELAY(M1F)	X18A	CONNECTOR FOR OPTIONAL PARTS
M1F	MOTOR(INDOOR FAN)		CONNECTORWIRING ADAPTOR FOR ELECTORICAL APPENDICES)
Q1M	THERMO SWITCH (M1F EMBEDDED)		
R1T	THERMISTOR(AIR)		
R2T・R3T	THERMISTOR(COIL)		
T1R	TRANSFORMER(220-240V/22V)		
X1M	TERMINAL BLOCK(POWER)		

FXUQ71M / 100M / 125MV1



BEVQ71M / 100M / 125MVE

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-GRREN)
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



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)

3D044901A

3. List of Electrical and Functional Parts

3.1 Outdoor Unit

3.1.1 RWEYQ10MY1

Item	Name		Symbol	Model
				RWEYQ10MY1
Compressor	Inverter	Type	M1C	JT1G-VDKYR@T
		OC protection device		13.5A
Electronic expansion valve (Main)			Y1E	Fully closed: 0pls Fully open: 2000pls
Electronic expansion valve (Subcool)			Y2E	Fully closed: 0pls Fully open: 2000pls
Pressure protection	High pressure switch	For M1C	HPS	OFF: $4.0\ ^{+0}_{-0.12}$ MPa ON: 3.0±0.15MPa
	Low pressure sensor		S1NPL	OFF: 0.07MPa
	Fusible plug		—	Open: 70~75°C
Temperature protection	Discharge gas temperature protection (Discharge pipe thermistor)		R3T	OFF: 135°C
	Inverter fin temperature protection (Radiator fin thermistor)		R1T	OFF: 89°C
Others	Fuse	For main PC board	F1U	250V AC 10A Class B
			F2U	250V AC 10A Class B
		For Noise filter PC board	F1U	250V AC 5A Class B

3.2 Indoor Side

3.2.1 Indoor Unit

Parts Name		Symbol	Model								Remark
			FXFQ25 MVE	FXFQ32 MVE	FXFQ40 MVE	FXFQ50 MVE	FXFQ63 MVE	FXFQ80 MVE	FXFQ100 MVE	FXFQ125 MVE	
Remote Controller	Wired Remote Controller		BRC1A61								Option
	Wireless Remote Controller		BRC7E61W								
Motors	Fan Motor	M1F	DC380V 30W 8P						DC 380V 120W 8P		
	Drain Pump	M1P	AC220-240V (50Hz) AC220V (60Hz) PLD-12230DM Thermal Fuse 145°C								
	Swing Motor	M1S	MP35HCA[3P007482-1] Stepping Motor DC16V								
Thermistors	Thermistor (Suction Air)	R1T	In PCB A4P or wired remote controller								
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-5 ϕ8 L1000 20kΩ (25°C)								
	Thermistor (Heat Exchanger)	R2T	ST8602A-5 ϕ6 L1000 20kΩ (25°C)								
Others	Float Switch	S1L	FS-0211B								
	Fuse	F1U	250V 5A ϕ5.2								
	Thermal Fuse	TFu	—								
	Transformer	T1R	—								

Parts Name		Symbol	Model								Remark
			FXCQ 20MVE	FXCQ 25MVE	FXCQ 32MVE	FXCQ 40MVE	FXCQ 50MVE	FXCQ 63MVE	FXCQ 80MVE	FXCQ 125MVE	
Remote Controller	Wired Remote Controller		BRC1A61								Option
	Wireless Remote Controller		BRC7C62								
Motors	Fan Motor	M1F	AC 220~240V 50Hz								
			1ϕ10W	1ϕ15W		1ϕ20W		1ϕ30W	1ϕ50W	1ϕ85W	
			Thermal Fuse 152°C				—	Thermal protector 135°C : OFF 87°C : ON			
	Drain Pump	M1P	AC220-240V (50Hz) AC220V (60Hz) PLD-12230DM Thermal Fuse 145°C								
	Swing Motor	M1S	MT8-L[3PA07509-1] AC200~240V								
Thermistors	Thermistor (Suction Air)	R1T	ST8601-6 ϕ4 L1250 20kΩ (25°C)								
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-6 ϕ8 L1250 20kΩ (25°C)								
	Thermistor (Heat Exchanger)	R2T	ST8602A-5 ϕ6 L1000 20kΩ (25°C)								
Others	Float Switch	S1L	FS-0211B								
	Fuse	F1U	250V 5A ϕ5.2								
	Transformer	T1R	TR22H21R8								

Parts Name		Symbol	Model					Remark
			FXZQ 20MVE	FXZQ 25MVE	FXZQ 32MVE	FXZQ 40MVE	FXZQ 50MVE	
Remote Controller	Wired Remote Controller		BRC1A61					Option
	Wireless Remote Controller		BRC7E530W					
Motors	Fan Motor	M1F	AC 220~240V 50Hz					
			1φ55W 4P					
			Thermal Fuse 135°C					
	Capacitor, fan motor	C1	4.0μ F 400VAC					
	Drain Pump	M1P	AC220-240V (50Hz) PLD-12230DM Thermal Fuse 145°C					
	Swing Motor	M1S	MP35HCA [3P080801-1] AC200~240V					
Thermistors	Thermistor (Suction Air)	R1T	ST8601A-1 φ4 L250 20kΩ (25°C)					
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-3 φ8 L630 20kΩ (25°C)					
	Thermistor (Heat Exchanger)	R2T	ST8602A-3 φ6 L630 20kΩ (25°C)					
Others	Float Switch	S1L	FS-0211					
	Fuse	F1U	250V 5A φ5.2					
	Transformer	T1R	TR22H21R8					

Parts Name		Symbol	Model				Remark
			FXKQ 25MVE	FXKQ 32MVE	FXKQ 40MVE	FXKQ 63MVE	
Remote Controller	Wired Remote Controller		BRC1A61				Option
	Wireless Remote Controller		BRC4C61				
Motors	Fan Motor	M1F	AC 220~240V 50Hz				
			1φ15W 4P		1φ20W 4P	1φ45W 4P	
			Thermal Fuse 146°C		Thermal protector 120°C : OFF 105°C : ON		
	Drain Pump	M1P	AC 220-240V (50Hz) PLD-12200DM Thermal Fuse 145°C				
	Swing Motor	M1S	MP35HCA [3P080801-1] AC200~240V				
Thermistors	Thermistor (Suction Air)	R1T	ST8601-13 φ4 L630 20kΩ (25°C)				
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-7 φ8 L1600 20kΩ (25°C)				
	Thermistor (Heat Exchanger)	R2T	ST8602A-7 φ6 L1600 20kΩ (25°C)				
Others	Float Switch	S1L	FS-0211B				
	Fuse	F1U	250V 5A φ5.2				
	Transformer	T1R	TR22H21R8				

Parts Name		Symbol	Model						Remark
			FXDQ 20MVE	FXDQ 25MVE	FXDQ 32MVE	FXDQ 40MVE	FXDQ 50MVE	FXDQ 63MVE	
Remote Controller	Wired Remote Controller		BRC1A62						Option
	Wireless Remote Controller		BRC4C62						
Motors	Fan Motor	M1F	AC 220~240V 50Hz						
			1φ62W				1φ130W		
			Thermal protector 130°C: OFF, 83°C: ON						
	Drain Pump	M1P	AC220-240V (50Hz) PLD-12230DM Thermal Fuse 145°C						
Thermistors	Thermistor (Suction Air)	R1T	ST8601-1 φ4 L=250 20kΩ (25°C)						
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-4 φ8 L=800 20kΩ (25°C)						
	Thermistor (Heat Exchanger)	R2T	ST8602A-4 φ6 L=800 20kΩ (25°C)						
Others	Float Switch	S1L	FS-0211E						
	Fuse	F1U	250V 5A φ5.2						
	Transformer	T1R	TR22H21R8						

Parts Name		Symbol	Model								Remark
			FXSQ 20MVE	FXSQ 25MVE	FXSQ 32MVE	FXSQ 40MVE	FXSQ 50MVE	FXSQ 63MVE	FXSQ 80MVE	FXSQ 100MVE	FXSQ 125MVE	
Remote Controller	Wired Remote Controller		BRC1A62									Option
	Wireless Remote Controller		BRC4C62									
Motors	Fan Motor	M1F	AC 220~240V 50Hz									
			1φ50W			1φ65W	1φ85W	1φ125 W	1φ225W			
			Thermal Fuse 152°C						Thermal protector 135°C : OFF 87°C : ON			
	Drain Pump	M1P	AC220-240V (50Hz) PLD-12230DM Thermal Fuse 145°C									
Thermistors	Thermistor (Suction Air)	R1T	ST8601-4 φ4 L800 20kΩ (25°C)									
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-7 φ8 L1600 20kΩ (25°C)									
	Thermistor (Heat Exchanger)	R2T	ST8602A-6 φ6 L1250 20kΩ (25°C)									
Others	Float Switch	S1L	FS-0211B									
	Fuse	F1U	250V 5A φ5.2									
	Transformer	T1R	TR22H21R8									

Parts Name		Symbol	Model								Remark
			FXMQ 40MVE	FXMQ 50MVE	FXMQ 63MVE	FXMQ 80MVE	FXMQ 100MVE	FXMQ 125MVE	FXMQ 200MVE	FXMQ 250MVE	
Remote Controller	Wired Remote Controller		BRC1A62								Option
	Wireless Remote Controller		BRC4C62								
Motors	Fan Motor	M1F	AC 220~240V 50Hz								
			1φ100W			1φ160W	1φ270W	1φ430W	1φ380W×2		
			Thermal protector 135°C : OFF 87°C : ON								
	Capacitor for Fan Motor	C1R	5μ F-400V			7μ F 400V	10μ F 400V	8μ F 400V	10μ F 400V	12μ F 400V	
Thermistors	Thermistor (Suction Air)	R1T	ST8601A-5 φ4 L1000 20kΩ (25°C)						ST8601A-13 φ4 L630		
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605A-4 φ8 L800 20kΩ (25°C)						ST8605A-5 φ8 L1000		
	Thermistor (Heat Exchanger)	R2T	ST8602A-4 φ6 L800 20kΩ (25°C)						ST8602A-6 φ6 L1250		
Others	Float switch	S1L	FS-0211								
	Fuse	F1U	250V 5A φ5.2			250V 10A φ5.2			250V 10A		
	Transformer	T1R	TR22H21R8								

Parts Name		Symbol	Model			Remark
			FXHQ 32MVE	FXHQ 63MVE	FXHQ 100MVE	
Remote Controller	Wired Remote Controller		BRC1A61			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 20MVE	FXAQ 25MVE	FXAQ 32MVE	FXAQ 40MVE	FXAQ 50MVE	FXAQ 63MVE	
Remote Controller	Wired Remote Controller		BRC1A61						Option
	Wireless Remote Controller		BRC7E618						Option
Motors	Fan Motor	M1F	AC 220~240V 50Hz						
			1φ40W			1φ43W			
			Thermal protector 130°C : OFF 80°C : ON						
	Swing Motor	M1S	MP24[3SB40333-1] AC200~240V			MSFBC20C21 [3SB40550-1] AC200~240V			
Thermistors	Thermistor (Suction Air)	R1T	ST8601-2 φ4 L400 20kΩ (25°C)						
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-2 φ8 L400 20kΩ (25°C)						
	Thermistor (for Heat Exchanger)	R2T	ST8602-2 φ6 L400 20kΩ (25°C)						
Others	Float Switch	S1L	OPTION						
	Fuse	F1U	250V 5A φ5.2						

Parts Name		Symbol	Model						Remark
			FXLQ 20MVE	FXLQ 25MVE	FXLQ 32MVE	FXLQ 40MVE	FXLQ 50MVE	FXLQ 63MVE	
Remote Controller	Wired Remote Controller		BRC1A62						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 20MVE	FXNQ 25MVE	FXNQ 32MVE	FXNQ 40MVE	FXNQ 50MVE	FXNQ 63MVE	
Remote Controller	Wired Remote Controller		BRC1A62						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
			FXUQ71MV1	FXUQ100MV1	FXUQ125MV1	
Remote Controller	Wired Remote Controller		BRC1A61			Option
	Wireless Remote Controller		BRC7C528W			Option
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			

4. Option List

4.1 Optional Accessories

Optional accessories \ Models		RWEYQ10MY1	RWEYQ20MY1	RWEYQ30MY1
COOL/HEAT Selector		KRC19-26A		
Fixing box		KJB111A		
Distributive piping	Refnet header	KHRP25M33H (Max. 8 branch) KHRP26M22H, KHRP26M33H (Max. 4 branch) (Max. 8 branch)	KHRP25M33H, KHRP25M72H (Max. 8 branch) (Max. 8 branch) KHRP26M22H, KHRP26M33H, (Max. 4 branch) (Max. 8 branch) KHRP26M72H (Max. 8 branch)	KHRP25M33H, KHRP25M72H, (Max. 8 branch) (Max. 8 branch) KHRP25M73H (Max. 8 branch) KHRP26M22H, KHRP26M33H, (Max. 4 branch) (Max. 8 branch) KHRP26M72H, KHRP26M73H (Max. 8 branch) (Max. 8 branch)
	Refnet joint	KHRP25M22T, KHRP25M33T KHRP26M22T, KHRP26M33T	KHRP25M22T, KHRP25M33T, KHRP25M72T, KHRP26M22T, KHRP26M33T, KHRP26M72T	KHRP25M22T, KHRP25M33T, KHRP25M72T, KHRP25M73T, KHRP26M22T, KHRP26M33T, KHRP26M72T, KHRP26M73T
	Outside unit multi connection piping kit	—	BHFP22MA56	BHFP22M84
Strainer kit		BWU26A15, BWU26A20		
External control adaptor for outdoor unit		DTA104A62		

NOTE)1. Refer to the latest drawing.
2. In the case of heat recovery system, COOL/HEAT Selector cannot be connected.

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5. Thermistor Resistance / Temperature Characteristics

Indoor unit	For air suction	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

(kΩ)

T°C	0.0	0.5	T°C	0.0	0.5
-20	197.81	192.08	30	16.10	15.76
-19	186.53	181.16	31	15.43	15.10
-18	175.97	170.94	32	14.79	14.48
-17	166.07	161.36	33	14.18	13.88
-16	156.80	152.38	34	13.59	13.31
-15	148.10	143.96	35	13.04	12.77
-14	139.94	136.05	36	12.51	12.25
-13	132.28	128.63	37	12.01	11.76
-12	125.09	121.66	38	11.52	11.29
-11	118.34	115.12	39	11.06	10.84
-10	111.99	108.96	40	10.63	10.41
-9	106.03	103.18	41	10.21	10.00
-8	100.41	97.73	42	9.81	9.61
-7	95.14	92.61	43	9.42	9.24
-6	90.17	87.79	44	9.06	8.88
-5	85.49	83.25	45	8.71	8.54
-4	81.08	78.97	46	8.37	8.21
-3	76.93	74.94	47	8.05	7.90
-2	73.01	71.14	48	7.75	7.60
-1	69.32	67.56	49	7.46	7.31
0	65.84	64.17	50	7.18	7.04
1	62.54	60.96	51	6.91	6.78
2	59.43	57.94	52	6.65	6.53
3	56.49	55.08	53	6.41	6.53
4	53.71	52.38	54	6.65	6.53
5	51.09	49.83	55	6.41	6.53
6	48.61	47.42	56	6.18	6.06
7	46.26	45.14	57	5.95	5.84
8	44.05	42.98	58	5.74	5.43
9	41.95	40.94	59	5.14	5.05
10	39.96	39.01	60	4.96	4.87
11	38.08	37.18	61	4.79	4.70
12	36.30	35.45	62	4.62	4.54
13	34.62	33.81	63	4.46	4.38
14	33.02	32.25	64	4.30	4.23
15	31.50	30.77	65	4.16	4.08
16	30.06	29.37	66	4.01	3.94
17	28.70	28.05	67	3.88	3.81
18	27.41	26.78	68	3.75	3.68
19	26.18	25.59	69	3.62	3.56
20	25.01	24.45	70	3.50	3.44
21	23.91	23.37	71	3.38	3.32
22	22.85	22.35	72	3.27	3.21
23	21.85	21.37	73	3.16	3.11
24	20.90	20.45	74	3.06	3.01
25	20.00	19.56	75	2.96	2.91
26	19.14	18.73	76	2.86	2.82
27	18.32	17.93	77	2.77	2.72
28	17.54	17.17	78	2.68	2.64
29	16.80	16.45	79	2.60	2.55
30	16.10	15.76	80	2.51	2.47

Outdoor Unit Thermistors for Discharge Pipe (R3T)

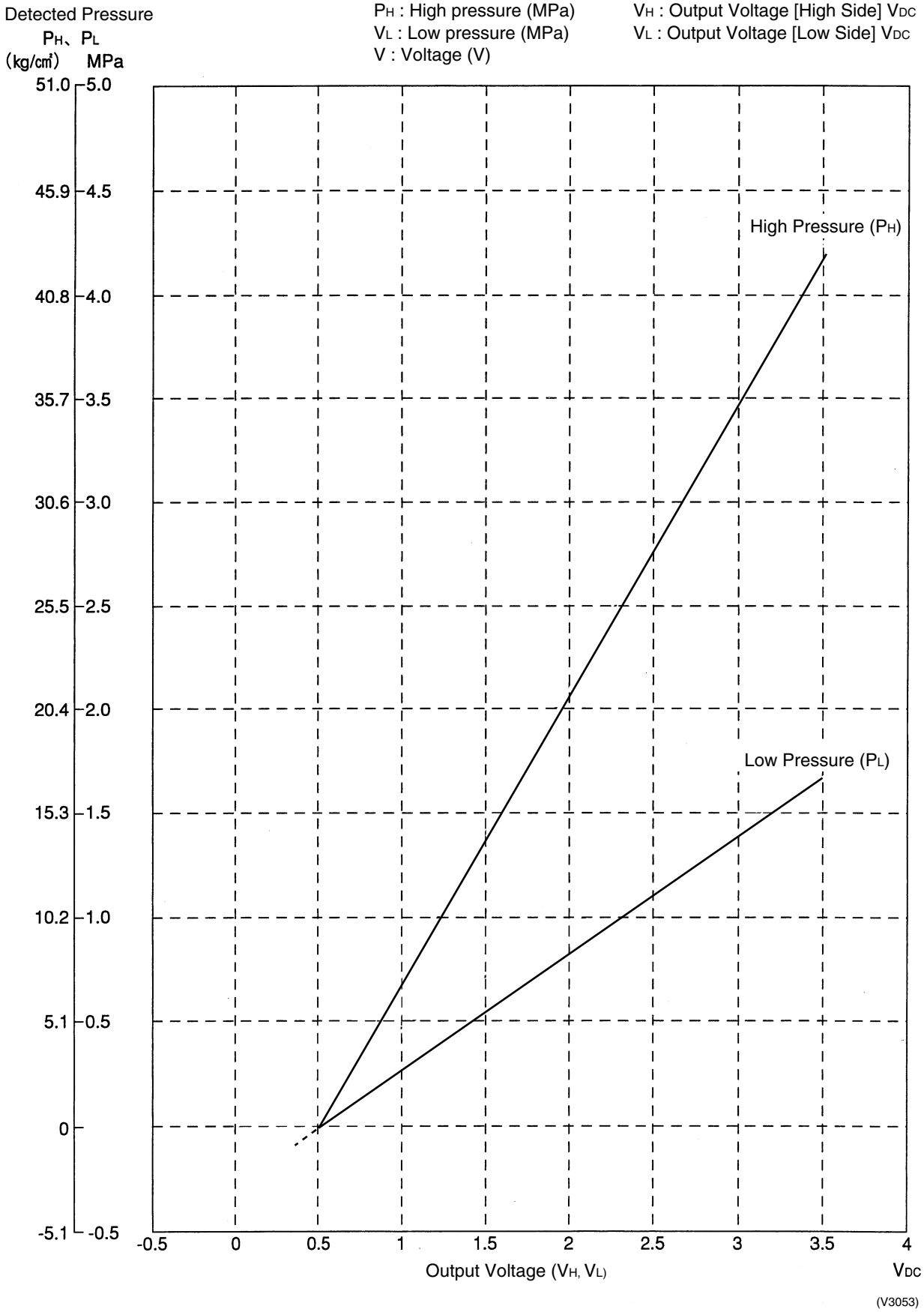
(kΩ)

T°C	0.0	0.5	T°C	0.0	0.5	T°C	0.0	0.5
0	640.44	624.65	50	72.32	70.96	100	13.35	13.15
1	609.31	594.43	51	69.64	68.34	101	12.95	12.76
2	579.96	565.78	52	67.06	65.82	102	12.57	12.38
3	552.00	538.63	53	64.60	63.41	103	12.20	12.01
4	525.63	512.97	54	62.24	61.09	104	11.84	11.66
5	500.66	488.67	55	59.97	58.87	105	11.49	11.32
6	477.01	465.65	56	57.80	56.75	106	11.15	10.99
7	454.60	443.84	57	55.72	54.70	107	10.83	10.67
8	433.37	423.17	58	53.72	52.84	108	10.52	10.36
9	413.24	403.57	59	51.98	50.96	109	10.21	10.06
10	394.16	384.98	60	49.96	49.06	110	9.92	9.78
11	376.05	367.35	61	48.19	47.33	111	9.64	9.50
12	358.88	350.62	62	46.49	45.67	112	9.36	9.23
13	342.58	334.74	63	44.86	44.07	113	9.10	8.97
14	327.10	319.66	64	43.30	42.54	114	8.84	8.71
15	312.41	305.33	65	41.79	41.06	115	8.59	8.47
16	298.45	291.73	66	40.35	39.65	116	8.35	8.23
17	285.18	278.80	67	38.96	38.29	117	8.12	8.01
18	272.58	266.51	68	37.63	36.98	118	7.89	7.78
19	260.60	254.72	69	36.34	35.72	119	7.68	7.57
20	249.00	243.61	70	35.11	34.51	120	7.47	7.36
21	238.36	233.14	71	33.92	33.35	121	7.26	7.16
22	228.05	223.08	72	32.78	32.23	122	7.06	6.97
23	218.24	213.51	73	31.69	31.15	123	6.87	6.78
24	208.90	204.39	74	30.63	30.12	124	6.69	6.59
25	200.00	195.71	75	29.61	29.12	125	6.51	6.42
26	191.53	187.44	76	28.64	28.16	126	6.33	6.25
27	183.46	179.57	77	27.69	27.24	127	6.16	6.08
28	175.77	172.06	78	26.79	26.35	128	6.00	5.92
29	168.44	164.90	79	25.91	25.49	129	5.84	5.76
30	161.45	158.08	80	25.07	24.66	130	5.69	5.61
31	154.79	151.57	81	24.26	23.87	131	5.54	5.46
32	148.43	145.37	82	23.48	23.10	132	5.39	5.32
33	142.37	139.44	83	22.73	22.36	133	5.25	5.18
34	136.59	133.79	84	22.01	21.65	134	5.12	5.05
35	131.06	128.39	85	21.31	20.97	135	4.98	4.92
36	125.79	123.24	86	20.63	20.31	136	4.86	4.79
37	120.76	118.32	87	19.98	19.67	137	4.73	4.67
38	115.95	113.62	88	19.36	19.05	138	4.61	4.55
39	111.35	109.13	89	18.75	18.46	139	4.49	4.44
40	106.96	104.84	90	18.17	17.89	140	4.38	4.32
41	102.76	100.73	91	17.61	17.34	141	4.27	4.22
42	98.75	96.81	92	17.07	16.80	142	4.16	4.11
43	94.92	93.06	93	16.54	16.29	143	4.06	4.01
44	91.25	89.47	94	16.04	15.79	144	3.96	3.91
45	87.74	86.04	95	15.55	15.31	145	3.86	3.81
46	84.38	82.75	96	15.08	14.85	146	3.76	3.72
47	81.16	79.61	97	14.62	14.40	147	3.67	3.62
48	78.09	76.60	98	14.18	13.97	148	3.58	3.54
49	75.14	73.71	99	13.76	13.55	149	3.49	3.45
50	72.32	70.96	100	13.35	13.15	150	3.41	3.37

6. Pressure Sensor

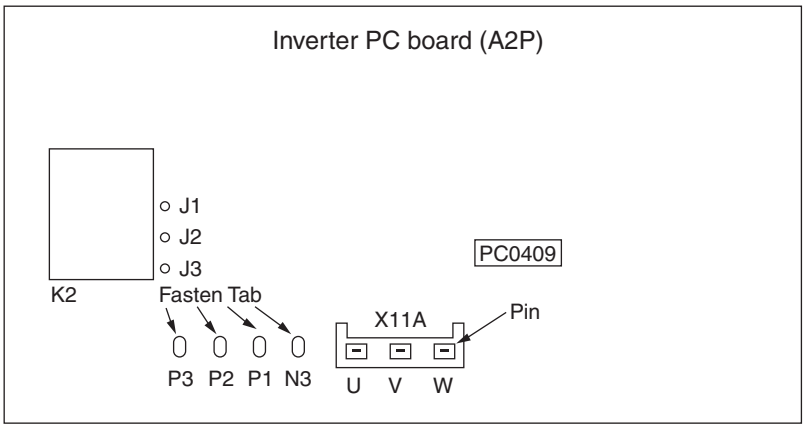
$P_H = 1.38V-0.69$
$P_L = 0.57V-0.28$
P_H : High pressure (MPa)
V_L : Low pressure (MPa)
V : Voltage (V)

P_H : Detected Pressure [High Side] MPa
P_L : Detected Pressure [Low Side] MPa
V_H : Output Voltage [High Side] V_{DC}
V_L : Output Voltage [Low Side] V_{DC}

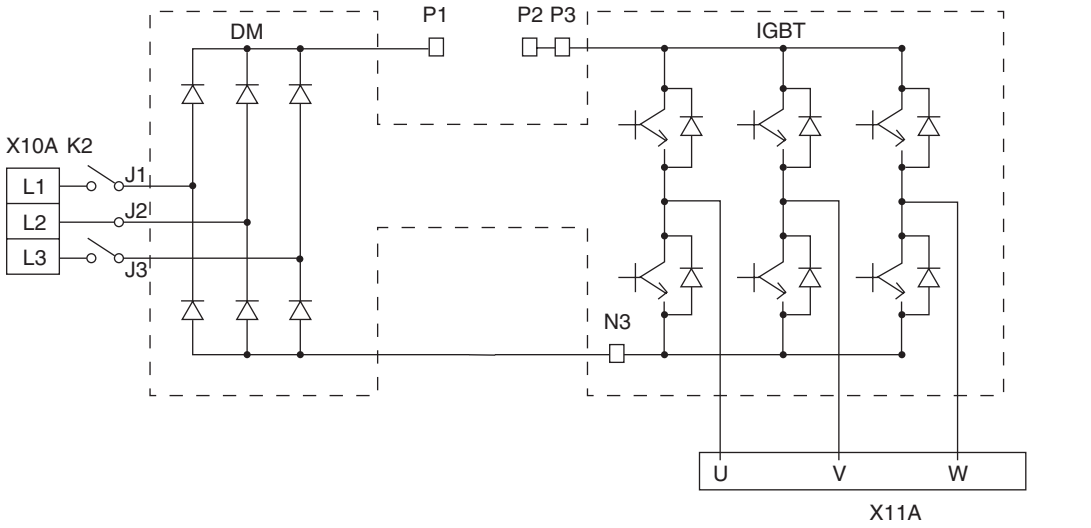


7. Method of Replacing The Inverter's Power Transistors and Diode Modules

Inverter P.C.Board



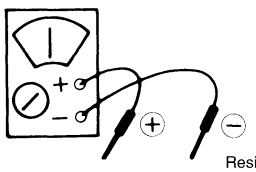
Electronic circuit



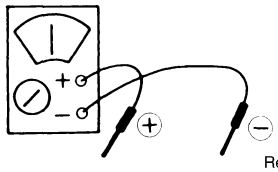
[Decision according to continuity check by analog tester]

- Before checking, disconnect the electric wiring connected to the power transistor and diode module.

Power Transistor IGBT (On Inverter PC Board)



			Resistance	Tester Range
P3	–	U	9±6Ω	x 1k
〃	–	V	9±6Ω	x 1k
〃	–	W	9±6Ω	x 1k
U	–	P3	17±12Ω	x 1k
V	–	〃	17±12Ω	x 1k
W	–	〃	17±12Ω	x 1k



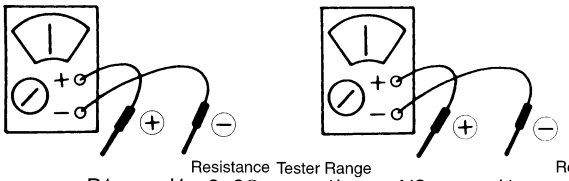
			Resistance	Tester Range
N3	–	U	17±12Ω	x 1k
〃	–	V	17±12Ω	x 1k
〃	–	W	17±12Ω	x 1k
U	–	N3	9±6Ω	x 1k
V	–	〃	9±6Ω	x 1k
W	–	〃	9±6Ω	x 1k

(V2896)

(Decision)
If other than given above, the power unit is defective and must be replaced.

Note: Above figures are measured by analogue tester. Make sure to set "Tester Range" to "x 1k".

Diode Module



			Resistance	Tester Range
P1	–	J1	9±6Ω	x 1k
P1	–	J3	9±6Ω	x 1k
P1	–	J2	9±6Ω	x 1k
J1	–	P1	∞	x 1k
J3	–	P1	∞	x 1k
J2	–	P1	∞	x 1k

			Resistance	Tester Range
N3	–	J1	∞	x 1k
〃	–	J3	∞	x 1k
〃	–	J2	∞	x 1k
L1	–	N3	9±6Ω	x 1k
L2	–	N3	9±6Ω	x 1k
L3	–	N3	9±6Ω	x 1k

(V2897)

(Decision)
If other than given above, the diode module is defective and must be replaced.

Note: Above figures are measured by analogue tester. Make sure to set "Tester Range" to "x 1k".

Part 9
Precautions for New Refrigerant (R410A)

1. Precautions for New Refrigerant (R410A)

1.1 Outline

1.1.1 About Refrigerant R410A

■ Characteristics of new refrigerant, R410A

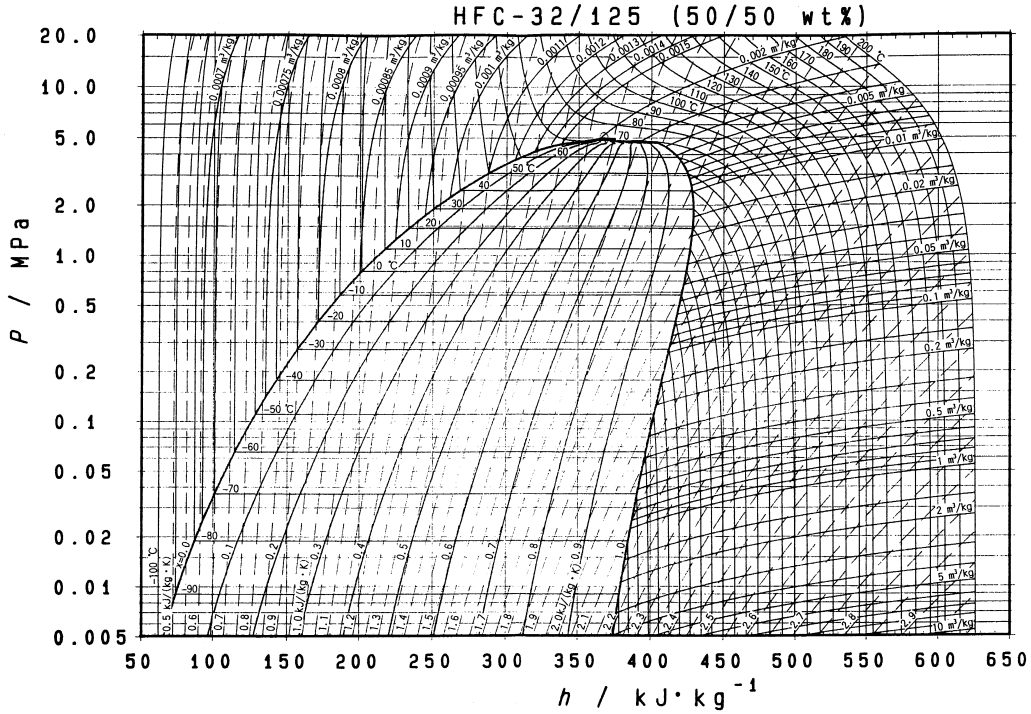
1. Performance
   Almost the same performance as R22 and R407C
2. Pressure
   Working pressure is approx. 1.4 times more than R22 and R407C.
3. Refrigerant composition
   Few problems in composition control, since it is a Quasi-azeotropic mixture refrigerant.

	HFC units (Units using new refrigerants)		HCFC units
Refrigerant name	R407C	R410A	R22
Composing substances	Non-azeotropic mixture of HFC32, HFC125 and HFC134a (*1)	Quasi-azeotropic mixture of HFC32 and JFC125 (*1)	Single-component refrigerant
Design pressure	3.2 MPa (gauge pressure) = 32.6 kgf/cm^2	4.0 MPa (gauge pressure) = 40.78 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 R410A

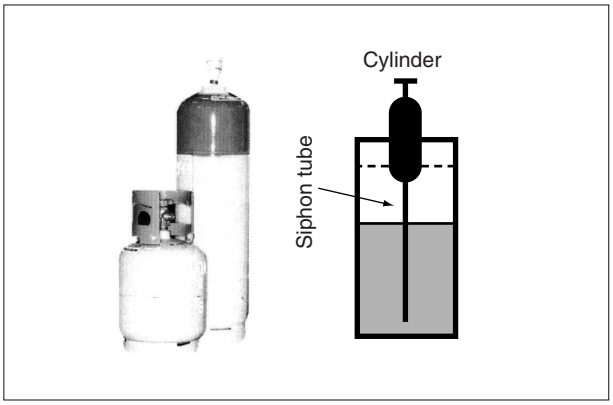
DAIREP ver2.0

Temperature (℃)	Steam pressure (kPa)		Density (kg/m³)		Specific heat at constant pressure (kJ/kgK)		Specific enthalpy (kJ/kg)		Specific entropy (kJ/KgK)	
	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor
-70	36.13	36.11	1410.7	1.582	1.372	0.695	100.8	390.6	0.649	2.074
-68	40.83	40.80	1404.7	1.774	1.374	0.700	103.6	391.8	0.663	2.066
-66	46.02	45.98	1398.6	1.984	1.375	0.705	106.3	393.0	0.676	2.058
-64	51.73	51.68	1392.5	2.213	1.377	0.710	109.1	394.1	0.689	2.051
-62	58.00	57.94	1386.4	2.463	1.378	0.715	111.9	395.3	0.702	2.044
-60	64.87	64.80	1380.2	2.734	1.379	0.720	114.6	396.4	0.715	2.037
-58	72.38	72.29	1374.0	3.030	1.380	0.726	117.4	397.6	0.728	2.030
-56	80.57	80.46	1367.8	3.350	1.382	0.732	120.1	398.7	0.741	2.023
-54	89.49	89.36	1361.6	3.696	1.384	0.737	122.9	399.8	0.754	2.017
-52	99.18	99.03	1355.3	4.071	1.386	0.744	125.7	400.9	0.766	2.010
-51.58	101.32	101.17	1354.0	4.153	1.386	0.745	126.3	401.1	0.769	2.009
-50	109.69	109.51	1349.0	4.474	1.388	0.750	128.5	402.0	0.779	2.004
-48	121.07	120.85	1342.7	4.909	1.391	0.756	131.2	403.1	0.791	1.998
-46	133.36	133.11	1336.3	5.377	1.394	0.763	134.0	404.1	0.803	1.992
-44	146.61	146.32	1330.0	5.880	1.397	0.770	136.8	405.2	0.816	1.987
-42	160.89	160.55	1323.5	6.419	1.401	0.777	139.6	406.2	0.828	1.981
-40	176.24	175.85	1317.0	6.996	1.405	0.785	142.4	407.3	0.840	1.976
-38	192.71	192.27	1310.5	7.614	1.409	0.792	145.3	408.3	0.852	1.970
-36	210.37	209.86	1304.0	8.275	1.414	0.800	148.1	409.3	0.864	1.965
-34	229.26	228.69	1297.3	8.980	1.419	0.809	150.9	410.2	0.875	1.960
-32	249.46	248.81	1290.6	9.732	1.424	0.817	153.8	411.2	0.887	1.955
-30	271.01	270.28	1283.9	10.53	1.430	0.826	156.6	412.1	0.899	1.950
-28	293.99	293.16	1277.1	11.39	1.436	0.835	159.5	413.1	0.911	1.946
-26	318.44	317.52	1270.2	12.29	1.442	0.844	162.4	414.0	0.922	1.941
-24	344.44	343.41	1263.3	13.26	1.448	0.854	165.3	414.9	0.934	1.936
-22	372.05	370.90	1256.3	14.28	1.455	0.864	168.2	415.7	0.945	1.932
-20	401.34	400.06	1249.2	15.37	1.461	0.875	171.1	416.6	0.957	1.927
-18	432.36	430.95	1242.0	16.52	1.468	0.886	174.1	417.4	0.968	1.923
-16	465.20	463.64	1234.8	17.74	1.476	0.897	177.0	418.2	0.980	1.919
-14	499.91	498.20	1227.5	19.04	1.483	0.909	180.0	419.0	0.991	1.914
-12	536.58	534.69	1220.0	20.41	1.491	0.921	182.9	419.8	1.003	1.910
-10	575.26	573.20	1212.5	21.86	1.499	0.933	185.9	420.5	1.014	1.906
-8	616.03	613.78	1204.9	23.39	1.507	0.947	189.0	421.2	1.025	1.902
-6	658.97	656.52	1197.2	25.01	1.516	0.960	192.0	421.9	1.036	1.898
-4	704.15	701.49	1189.4	26.72	1.524	0.975	195.0	422.6	1.048	1.894
-2	751.64	748.76	1181.4	28.53	1.533	0.990	198.1	423.2	1.059	1.890
0	801.52	798.41	1173.4	30.44	1.543	1.005	201.2	423.8	1.070	1.886
2	853.87	850.52	1165.3	32.46	1.552	1.022	204.3	424.4	1.081	1.882
4	908.77	905.16	1157.0	34.59	1.563	1.039	207.4	424.9	1.092	1.878
6	966.29	962.42	1148.6	36.83	1.573	1.057	210.5	425.5	1.103	1.874
8	1026.5	1022.4	1140.0	39.21	1.584	1.076	213.7	425.9	1.114	1.870
10	1089.5	1085.1	1131.3	41.71	1.596	1.096	216.8	426.4	1.125	1.866
12	1155.4	1150.7	1122.5	44.35	1.608	1.117	220.0	426.8	1.136	1.862
14	1224.3	1219.2	1113.5	47.14	1.621	1.139	223.2	427.2	1.147	1.859
16	1296.2	1290.8	1104.4	50.09	1.635	1.163	226.5	427.5	1.158	1.855
18	1371.2	1365.5	1095.1	53.20	1.650	1.188	229.7	427.8	1.169	1.851
20	1449.4	1443.4	1085.6	56.48	1.666	1.215	233.0	428.1	1.180	1.847
22	1530.9	1524.6	1075.9	59.96	1.683	1.243	236.4	428.3	1.191	1.843
24	1615.8	1609.2	1066.0	63.63	1.701	1.273	239.7	428.4	1.202	1.839
26	1704.2	1697.2	1055.9	67.51	1.721	1.306	243.1	428.6	1.214	1.834
28	1796.2	1788.9	1045.5	71.62	1.743	1.341	246.5	428.6	1.225	1.830
30	1891.9	1884.2	1034.9	75.97	1.767	1.379	249.9	428.6	1.236	1.826
32	1991.3	1983.2	1024.1	80.58	1.793	1.420	253.4	428.6	1.247	1.822
34	2094.5	2086.2	1012.9	85.48	1.822	1.465	256.9	428.4	1.258	1.817
36	2201.7	2193.1	1001.4	90.68	1.855	1.514	260.5	428.3	1.269	1.813
38	2313.0	2304.0	989.5	96.22	1.891	1.569	264.1	428.0	1.281	1.808
40	2428.4	2419.2	977.3	102.1	1.932	1.629	267.8	427.7	1.292	1.803
42	2548.1	2538.6	964.6	108.4	1.979	1.696	271.5	427.2	1.303	1.798
44	2672.2	2662.4	951.4	115.2	2.033	1.771	275.3	426.7	1.315	1.793
46	2800.7	2790.7	937.7	122.4	2.095	1.857	279.2	426.1	1.327	1.788
48	2933.7	2923.6	923.3	130.2	2.168	1.955	283.2	425.4	1.339	1.782
50	3071.5	3061.2	908.2	138.6	2.256	2.069	287.3	424.5	1.351	1.776
52	3214.0	3203.6	892.2	147.7	2.362	2.203	291.5	423.5	1.363	1.770
54	3361.4	3351.0	875.1	157.6	2.493	2.363	295.8	422.4	1.376	1.764
56	3513.8	3503.5	856.8	168.4	2.661	2.557	300.3	421.0	1.389	1.757
58	3671.3	3661.2	836.9	180.4	2.883	2.799	305.0	419.4	1.403	1.749
60	3834.1	3824.2	814.9	193.7	3.191	3.106	310.0	417.6	1.417	1.741
62	4002.1	3992.7	790.1	208.6	3.650	3.511	315.3	415.5	1.433	1.732
64	4175.7	4166.8	761.0	225.6	4.415	4.064	321.2	413.0	1.450	1.722

1.2 Refrigerant Cylinders

■ Cylinder specifications

- The cylinder is painted refrigerant color (pink).
- The cylinder valve is equipped with a siphon tube.



Refrigerant can be charged in liquid state with cylinder in upright position.

Caution: Do not lay cylinder on its side during charging, since it cause refrigerant in gas state to enter the system.

■ Handling of cylinders

(1) Laws and regulations

R410A 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 R410A 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 R410A is not flammable, it must be stored in a well-ventilated, cool, and dark place in the same way as any other high-pressure gases.
It should also be noted that high-pressure vessels are equipped with safety devices that releases gas when the ambient temperature reaches more than a certain level (fusible plug melts) and when the pressure exceeds a certain level (spring-type safety valve operates).

1.3 Service Tools

R410A is used under higher working pressure, compared to previous refrigerants (R22,R407C). 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 (R22,R407C) 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	
	R410A	R407C	R22	
Gauge manifold Charge hose	×			• Do not use the same tools for R22 and R410A. • Thread specification differs for R410A and R407C.
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 R22 and HFCs. • Thread specification is different between R410A and others.
Flaring tool (Clutch type)	○			• For R410A, 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".

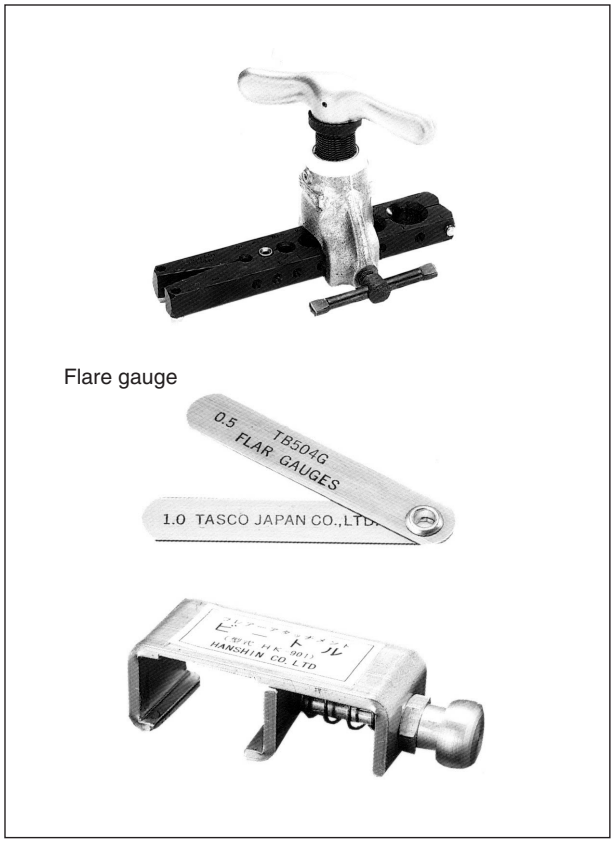
As for the charge mouthpiece and packing, 1/2UNF20 is necessary for mouthpiece size of charge hose.

■ Copper tube material and thickness

Pipe size	Ve-up		Ve-upII	
	R407C		R410A	
	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



■ Specifications

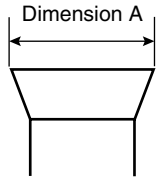
• Dimension A

Unit:mm

Nominal size	Tube O.D.	$A^{+0}_{-0.4}$	
	Do	Class-2 (R410A)	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: R407C
For class-2: R410A

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 R410A air conditioners, perform pipe flaring with a pipe extension margin of 1.0 to 1.5mm.
(For clutch type only)
Conventional tool with pipe extension margin adjustment can be used.

2. Torque wrench

■ Specifications

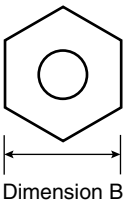
• Dimension B Unit:mm

Nominal size	Class-1	Class-2	Previous
1/2	24	26	24
5/8	27	29	27

No change in tightening torque
No change in pipes of other sizes

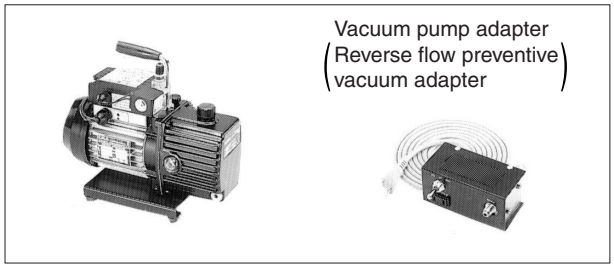
■ Differences

• Change of dimension B
Only 1/2", 5/8" are extended



For class-1: R407C
For class-2: R410A

3. Vacuum pump with check valve



■ Specifications

• Discharge speed
50 l/min (50Hz)
60 l/min (60Hz)

● Maximum degree of vacuum
–100.7 kPa (5 torr – 755 mmHg)

• Suction port UNF7/16-20(1/4 Flare)
UNF1/2-20(5/16 Flare) with adapter

■ Differences

• Equipped with function to prevent reverse oil flow
• Previous vacuum pump can be used by installing adapter.

4. Leak tester

■ Specifications
- Hydrogen detecting type, etc.
- Applicable refrigerants
  R410A, R407C, R404A, R507A, R134a, etc.

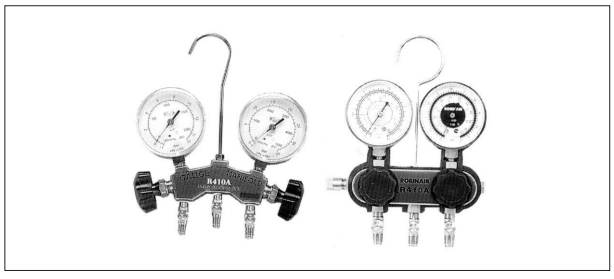
■ Differences
- Previous testers detected chlorine. Since HFCs do not contain chlorine, new tester detects hydrogen.

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 R410A and R22 units.

6. Gauge manifold for R410A

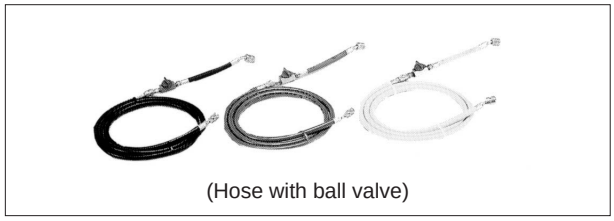


■ Specifications
- High pressure gauge
  - 0.1 to 5.3 MPa (-76 cmHg to 53 kg/cm^2)
- Low pressure gauge
  - 0.1 to 3.8 MPa (-76 cmHg to 38 kg/cm^2)
- 1/4" → 5/16" (2min → 2.5min)
- No oil is used in pressure test of gauges.
  → For prevention of contamination

- Temperature scale indicates the relationship between pressure and temperature in gas saturated state.

■ Differences
- Change in pressure
- Change in service port diameter

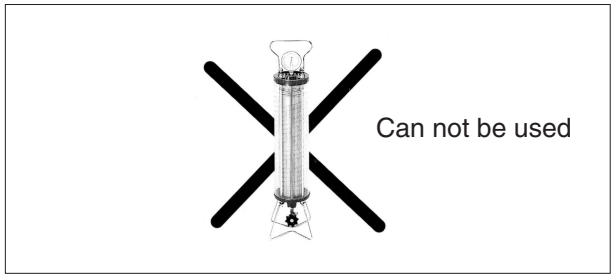
7. Charge hose for R410A


(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 R410A is charged in liquid state using charging cylinder, foaming phenomenon is generated inside charging cylinder.

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The air conditioners manufactured by Daikin Industries have received **ISO 9001** certification for quality assurance.

Certificate Number. **JMI-0107**
JQA-0495
JQA-1452

All Daikin Industries locations and subsidiaries in Japan have received environmental management system standard **ISO 14001** certification.

Daikin Industries, Ltd.
Domestic Group
Certificate Number. EC99J2044

About ISO 14001

ISO 14001 is the standard defined by the International Organization for Standardization (ISO) relating to environmental management systems. Our group has been acknowledged by an internationally accredited compliance organisation as having an appropriate programme of environmental protection procedures and activities to meet the requirements of ISO 14001.

Dealer

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•The specifications, designs, and information in this brochure are subject to change without notice.

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