



Si34 - 603A

R-410A

Service Manual

VRV[®] III-S

RX(Y)MQ4.5.6PVE

R-410A

Heat Pump 50/60Hz

Cooling Only 50/60Hz



VRV[®] III-S R-410A

Heat Pump / Cooling Only

50/60Hz

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1. Introduction

1.1 Safety Cautions

Cautions and Warnings

- Be sure to read the following safety cautions before conducting repair work.
- The caution items are classified into “ **Warning**” and “ **Caution**”. The “ **Warning**” items are especially important since they can lead to death or serious injury if they are not followed closely. The “ **Caution**” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.
- About the pictograms
 -  This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.
 -  This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.
 -  This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.
- After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer

1.1.1 Caution in Repair

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

 Caution	
Do not repair the electrical components with wet hands. Working on the equipment with wet hands can cause an electrical shock.	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shocks.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	

1.1.2 Cautions Regarding Products after Repair

 Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only
Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.	

 Warning	
Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections can cause excessive heat generation or fire.	
When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.	
Do not mix air or gas other than the specified refrigerant (R-410A) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
When replacing the coin battery in the remote controller, be sure to dispose of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

 Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	For integral units only

1.1.3 Inspection after Repair

 Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it can cause an electrical shock, excessive heat generation or fire.	

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

1.1.4 Using Icons

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

1.1.5 Using Icons List

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

1.2 PREFACE

Thank you for your continued patronage of Daikin products.

This is the new service manual for Daikin's Year 2007 VRVIII-S series Heat Pump / Cooling Only System.

Daikin offers a wide range of models to respond to building and office air conditioning needs. We are confident that customers will be able to find the models that best suit their needs.

This service manual contains information regarding the servicing of VRVIII-S series R-410A Heat Pump / Cooling Only System.

March, 2007

After Sales Service Division

Part 1

General Information

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1. Model Names of Indoor/Outdoor Units

*Indoor Units

Type		Model Name									Power Supply
Ceiling Mounted Cassette Type (Double Flow)	FXCQ	20M	25M	32M	40M	50M	63M	80M	—	125M	VE *1
Ceiling Mounted Cassette Type (Multi Flow)	FXFQ	—	25M	32M	40M	50M	63M	80M	100M	125M	
Ceiling Mounted Cassette Corner Type	FXKQ	—	25MA	32MA	40MA	—	63MA	—	—	—	
Slim Ceiling Mounted Duct Type	FXDQ-PVE	20P	25P	32P	—	—	—	—	—	—	
	FXDQ-PVET	20P	25P	32P	—	—	—	—	—	—	
	FXDQ-NAVE	20NA	25NA	32NA	40NA	50NA	63NA	—	—	—	
	FXDQ-NVET	20N	25N	32N	40N	50N	63N	—	—	—	
Ceiling Mounted Built-In Type	FXSQ	20M	25M	32M	40M	50M	63M	80M	100M	125M	
Ceiling Mounted Duct Type	FXMQ	—	—	—	40MA	50MA	63MA	80MA	100MA	125MA	
Ceiling Suspended Type	FXHQ	—	—	32MA	—	—	63MA	—	100MA	—	
Wall Mounted Type	FXAQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	
Floor Standing Type	FXLQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	
Concealed Floor Standing Type	FXNQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—	
Ceiling Suspended Cassette Type	FXUQ	—	—	—	—	—	—	71MA	100MA	125MA	V1
Connection Unit	BEVQ-M(A)	—	—	—	—	—	—	71MA	100MA	125MA	VE *1

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

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

FXDQ-P, NAVE: with Drain Pump

BEV unit is required for FXUQ only.

*1 VE:1φ, 220~240V, 50Hz, 1φ, 220V, 60Hz

V1:1φ, 220~240V, 50Hz

Outdoor Units

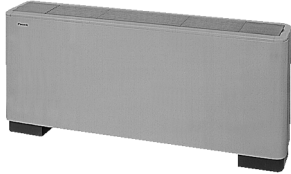
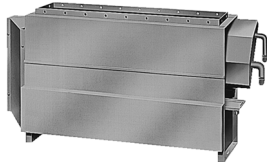
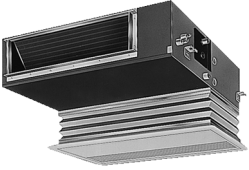
Series		Model Name				Power Supply
Inverter	Heat Pump	RXYMQ	4P	5P	6P	VE *2
	Cooling Only	RXMQ	4P	5P	6P	VE *2

*2 VE: 1φ, 220~230V, 50Hz, 1φ, 220V, 60Hz



2. External Appearance

2.1 Indoor Units

Ceiling Mounted Cassette Type (Double Flow) FXCQ20M FXCQ25M FXCQ32M FXCQ40M FXCQ50M FXCQ63M FXCQ80M FXCQ125M 	Ceiling Suspended Type FXHQ32MA FXHQ63MA FXHQ100MA 
Ceiling Mounted Cassette Type (Multi Flow) FXFQ25M FXFQ32M FXFQ40M FXFQ50M FXFQ63M FXFQ80M FXFQ100M FXFQ125M 	Wall Mounted Type FXAQ20MA FXAQ25MA FXAQ32MA FXAQ40MA FXAQ50MA FXAQ63MA 
Ceiling Mounted Cassette Corner Type FXKQ25MA FXKQ32MA FXKQ40MA FXKQ63MA 	Floor Standing Type FXLQ20MA FXLQ25MA FXLQ32MA FXLQ40MA FXLQ50MA FXLQ63MA 
Slim Ceiling Mounted Duct Type FXDQ20P FXDQ20N(A) FXDQ25P FXDQ25N(A) FXDQ32P FXDQ32N(A) FXDQ40N(A) FXDQ50N(A) FXDQ63N(A) with Drain Pump (VE) without Drain Pump (VET) 	Concealed Floor Standing Type FXNQ20MA FXNQ25MA FXNQ32MA FXNQ40MA FXNQ50MA FXNQ63MA 
Ceiling Mounted Built-In Type FXSQ20M FXSQ25M FXSQ32M FXSQ40M FXSQ50M FXSQ63M FXSQ80M FXSQ100M FXSQ125M 	Ceiling Suspended Cassette Type (Connection Unit Series) FXUQ71MA + BEVQ71MA FXUQ100MA + BEVQ100MA FXUQ125MA + BEVQ125MA Connection Unit  
Ceiling Mounted Duct Type FXMQ40MA FXMQ50MA FXMQ63MA FXMQ80MA FXMQ100MA FXMQ125MA 	

3. Capacity Range

Outdoor Units

Capacity Range	4HP	5HP	6HP
RX(Y)MQ	4P	5P	6P
No of Indoor Units to be Connected	6	8	9
Total Capacity Index of Indoor Units to be Connected	50~130	62.5~162.5	70~182

Indoor Units

Capacity Range		0.8HP	1HP	1.25HP	1.6HP	2HP	2.5HP	3.2HP	4HP	5HP
Capacity Index		20	25	31.25	40	50	62.5	80	100	125
Ceiling Mounted Cassette Type (Double Flow)	FXCQ	20M	25M	32M	40M	50M	63M	80M	—	125M
Ceiling Mounted Cassette Type (Multi Flow)	FXFQ	—	25M	32M	40M	50M	63M	80M	100M	125M
Ceiling Mounted Cassette Corner Type	FXKQ	—	25MA	32MA	40MA	—	63MA	—	—	—
Slim Ceiling Mounted Duct Type	FXDQ-PVE	20P	25P	32P	—	—	—	—	—	—
	FXDQ-PVET	20P	25P	32P	—	—	—	—	—	—
	FXDQ-NAVE	20NA	25NA	32NA	40NA	50NA	63NA	—	—	—
	FXDQ-NVET	20N	25N	32N	40N	50N	63N	—	—	—
Ceiling Mounted Built-In Type	FXSQ	20M	25M	32M	40M	50M	63M	80M	100M	125M
Ceiling Mounted Duct Type	FXMQ	—	—	—	40MA	50MA	63MA	80MA	100MA	125MA
Ceiling Suspended Type	FXHQ	—	—	32MA	—	—	63MA	—	100MA	—
Wall Mounted Type	FXAQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—
Floor Standing Type	FXLQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—
Concealed Floor Standing Type	FXNQ	20MA	25MA	32MA	40MA	50MA	63MA	—	—	—
Ceiling Suspended Cassette Type	FXUQ	—	—	—	—	—	—	71MA	100MA	125MA

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

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

FXDQ-P, NAVE: with Drain Pump

Part 2

Specifications

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1. Specifications

1.1 Outdoor Units

Heat Pump 50/60Hz <RXYSMQ-PVE>

Model Name			RXYMQ4PVE	RXYMQ5PVE
★1 Cooling Capacity	kcal / h		9,600	12,000
	Btu / h		38,200	47,800
	kW		11.2	14.0
★2 Heating Capacity	kcal / h		10,800	13,800
	Btu / h		42,700	54,600
	kW		12.5	16.0
Casing Color			Ivory White	Ivory White
Dimensions: (H×W×D)		mm	1,345×900×320	1,345×900×320
Heat Exchanger			Cross Fin Coil	Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type	Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	19.36	19.36
	Number of Revolutions	r.p.m	6,480	6,480
	Motor Output×Number of Units	kW	2.5×1	3.0×1
	Starting Method		Direct on line	Direct on line
Fan	Type		Propeller Fan	Propeller Fan
	Motor Output	W	70×2	70×2
	Air Flow Rate	m³/min	106	106
	Drive		Direct Drive	Direct Drive
Connecting Pipes	Liquid Pipe	mm	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipe	mm	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)
Machine Weight		kg	125	125
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Inverter Overload Protector, Fusible Plugs, Fuse	High Pressure Switch, Fan Driver Overload Protector, Inverter Overload Protector, Fusible Plugs, Fuse
Defrost Method			Reverse cycle defrosting	Reverse cycle defrosting
Capacity Control		%	24~100	24~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	4.0	4.0
	Control		Electronic Expansion Valve	Electronic Expansion Valve
Refrigerator Oil			DAPHNE FVC68D	DAPHNE FVC68D
	Charge Volume	L	1.5	1.5
Standard Accessories			Installation Manual, Operation Manual, Clamps	Installation Manual, Operation Manual, Clamps
Drawing No.			C: 4D052608	

Notes:

- ★1 Indoor temp. : 27°CDB, 19°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

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

Model Name			RXYMQ6PVE
★1 Cooling Capacity	kcal / h		13,300
	Btu / h		52,900
	kW		15.5
★2 Heating Capacity	kcal / h		15,500
	Btu / h		61,400
	kW		18.0
Casing Color			Ivory White
Dimensions: (HxWxD)		mm	1,345×900×320
Heat Exchanger			Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	19.36
	Number of Revolutions	r.p.m	6,480
	Motor Output×Number of Units	kW	3.5×1
	Starting Method		Direct on line
Fan	Type		Propeller Fan
	Motor Output	W	70×2
	Air Flow Rate	m³/min	106
	Drive		Direct Drive
Connecting Pipes	Liquid Pipe	mm	φ9.5 (Flare Connection)
	Gas Pipe	mm	φ19.1 (Brazing Connection)
Machine Weight		kg	125
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Inverter Overload Protector, Fusible Plugs, Fuse
Defrost Method			Reverse cycle defrosting
Capacity Control		%	24~100
Refrigerant	Refrigerant Name		R-410A
	Charge	kg	4.0
	Control		Electronic Expansion Valve
Refrigerator Oil			DAPHNE FVC68D
	Charge Volume	L	1.5
Standard Accessories			Installation Manual, Operation Manual, Clamps, Auxiliary Piping
Drawing No.			C: 4D052608

Notes:

- ★1 Indoor temp. : 27°CDB, 19°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
- ★2 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

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

Cooling Only 50/60Hz <RXMQ-PVE>

Model Name			RXMQ4PVE	RXMQ5PVE
★1 Cooling Capacity	kcal / h		9,600	12,000
	Btu / h		38,200	47,800
	kW		11.2	14.0
Casing Color			Ivory White	Ivory White
Dimensions: (H×W×D)		mm	1,345×900×320	1,345×900×320
Heat Exchanger			Cross Fin Coil	Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type	Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	19.36	19.36
	Number of Revolutions	r.p.m	6,480	6,480
	Motor Output×Number of Units	kW	2.5×1	3.0×1
	Starting Method		Direct on line	Direct on line
Fan	Type		Propeller Fan	Propeller Fan
	Motor Output	W	70×2	70×2
	Air Flow Rate	m³/min	106	106
	Drive		Direct Drive	Direct Drive
Connecting Pipes	Liquid Pipe	mm	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipe	mm	φ15.9 (Flare Connection)	φ15.9 (Flare Connection)
Machine Weight		kg	125	125
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Inverter Overload Protector, Fusible Plugs, Fuse	High Pressure Switch, Fan Driver Overload Protector, Inverter Overload Protector, Fusible Plugs, Fuse
Defrost Method			Reverse cycle defrosting	Reverse cycle defrosting
Capacity Control		%	24~100	24~100
Refrigerant	Refrigerant Name		R-410A	R-410A
	Charge	kg	4.0	4.0
	Control		Electronic Expansion Valve	Electronic Expansion Valve
Refrigerator Oil			DAPHNE FVC68D	DAPHNE FVC68D
	Charge Volume	L	1.5	1.5
Standard Accessories			Installation Manual, Operation Manual, Clamps	Installation Manual, Operation Manual, Clamps
Drawing No.			C: 4D052613	

Notes:

- ★1 Indoor temp. : 27°CDB, 19°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

Conversion Formulae

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

Model Name			RXMQ6PVE
★1 Cooling Capacity	kcal / h		13,300
	Btu / h		52,900
	kW		15.5
Casing Color			Ivory White
Dimensions: (H×W×D)		mm	1,345×900×320
Heat Exchanger			Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	19.36
	Number of Revolutions	r.p.m	6,480
	Motor Output×Number of Units	kW	3.5×1
	Starting Method		Direct on line
Fan	Type		Propeller Fan
	Motor Output	W	70×2
	Air Flow Rate	m³/min	106
	Drive		Direct Drive
Connecting Pipes	Liquid Pipe	mm	φ9.5 (Flare Connection)
	Gas Pipe	mm	φ19.1 (Brazing Connection)
Machine Weight		kg	125
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Inverter Overload Protector, Fusible Plugs, Fuse
Defrost Method			Reverse cycle defrosting
Capacity Control		%	24~100
Refrigerant	Refrigerant Name		R-410A
	Charge	kg	4.0
	Control		Electronic Expansion Valve
Refrigerator Oil			DAPHNE FVC68D
	Charge Volume	L	1.5
Standard Accessories			Installation Manual, Operation Manual, Clamps, Auxiliary Piping
Drawing No.			C: 4D052613

Notes:

- ★1 Indoor temp. : 27°CDB, 19°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

Conversion Formulae

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

1.2 Indoor Units

Ceiling Mounted Cassette Type (Double Flow)

Model			FXCQ20MVE	FXCQ25MVE	FXCQ32MVE	FXCQ40MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200	4,000
		Btu/h	7,800	9,900	12,600	16,000
		kW	2.3	2.9	3.7	4.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6	4.5
★3 Heating Capacity		kcal/h	2,200	2,800	3,400	4,300
		Btu/h	8,500	10,900	13,600	17,100
		kW	2.5	3.2	4.0	5.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	305×775×600	305×775×600	305×775×600	305×990×600
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.5	2×10×1.5	2×10×1.5	2×10×1.5
	Face Area	m²	2×0.100	2×0.100	2×0.100	2×0.145
Fan	Model		D17K2AA1	D17K2AB1	D17K2AB1	2D17K1AA1
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	10×1	15×1	15×1	20×1
	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			R-410A P Series	R-410A P Series	R-410A P Series	R-410A P Series
Decoration Panels (Option)	Model		BYBC32G-W1	BYBC32G-W1	BYBC32G-W1	BYBC50G-W1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	53×1,030×680	53×1,030×680	53×1,030×680	53×1,245×680
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	8	8	8	8.5
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			3D039413			

Notes:

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

Conversion Formulae

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

Ceiling Mounted Cassette Type (Double Flow)

Model			FXCQ50MVE	FXCQ63MVE	FXCQ80MVE	FXCQ125MVE	
★1 Cooling Capacity (19.5°CWB)			kcal/h	5,000	6,300	8,000	12,500
			Btu/h	19,800	24,900	31,700	49,500
			kW	5.8	7.3	9.3	14.5
★2 Cooling Capacity (19.0°CWB)			kW	5.6	7.1	9.0	14.0
★3 Heating Capacity			kcal/h	5,400	6,900	8,600	13,800
			Btu/h	21,500	27,300	34,100	54,600
			kW	6.3	8.0	10.0	16.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	
Dimensions: (H×W×D)			mm	305×990×600	305×1,175×600	305×1,665×600	305×1,665×600
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.5	2×10×1.5	2×10×1.5	2×10×1.5	
	Face Area	m²	2×0.145	2×0.184	2×0.287	2×0.287	
Fan	Model		2D17K1AA1	2D17K2AA1VE	3D17K2AA1	3D17K2AB1	
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan	
	Motor Output × Number of Units	W	20×1	30×1	50×1	85×1	
	Air Flow Rate (H/L)	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			R-410A P Series	R-410A P Series	R-410A P Series	R-410A P Series	
Decoration Panels (Option)	Model		BYBC50G-W1	BYBC63G-W1	BYBC125G-W1	BYBC125G-W1	
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	
	Dimensions: (H×W×D)	mm	53×1,245×680	53×1,430×680	53×1,920×680	53×1,920×680	
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	
	Weight	kg	8.5	9.5	12	12	
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers.	
Drawing No.			3D039413				

Notes:

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

Conversion Formulae

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

Ceiling Mounted Cassette Type (Multi-flow)

Model			FXFQ25MVE	FXFQ32MVE	FXFQ40MVE	FXFQ50MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,500	3,200	4,000	5,000
		Btu/h	9,900	12,600	16,000	19,800
		kW	2.9	3.7	4.7	5.8
★2 Cooling Capacity (19.0°CWB)		kW	2.8	3.6	4.5	5.6
★3 Heating Capacity		kcal/h	2,800	3,400	4,300	5,400
		Btu/h	10,900	13,600	17,100	21,500
		kW	3.2	4.0	5.0	6.3
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (HxWxD)		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			R-410A P Series	R-410A P Series	R-410A P Series	R-410A P Series
Decoration Panels (Option)	Model		BYCP125D-W1	BYCP125D-W1	BYCP125D-W1	BYCP125D-W1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (HxWxD)	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

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

Ceiling Mounted Cassette Type (Multi-flow)

Model			FXFQ63MVE	FXFQ80MVE	FXFQ100MVE	FXFQ125MVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	6,300	8,000	10,000	12,500
		Btu/h	24,900	31,700	39,600	49,500
		kW	7.3	9.3	11.6	14.5
★2 Cooling Capacity (19.0°CWB)		kW	7.1	9.0	11.2	14.0
★3 Heating Capacity		kcal/h	6,900	8,600	10,800	13,800
		Btu/h	27,300	34,100	42,700	54,600
		kW	8.0	10.0	12.5	16.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	246×840×840	246×840×840	288×840×840	288×840×840
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×10×1.2	2×10×1.2	2×12×1.2	2×12×1.2
	Face Area	m²	0.454	0.454	0.544	0.544
Fan	Model		QTS46D14M	QTS46D14M	QTS46C17M	QTS46C17M
	Type		Turbo Fan	Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output × Number of Units	W	30×1	30×1	120×1	120×1
	Air Flow Rate (H/L)	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			R-410A P Series	R-410A P Series	R-410A P Series	R-410A P Series
Decoration Panels (Option)	Model		BYCP125D-W1	BYCP125D-W1	BYCP125D-W1	BYCP125D-W1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	45×950×950	45×950×950	45×950×950	45×950×950
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	5.5	5.5	5.5	5.5
Standard Accessories			Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting.
Drawing No.			3D038812			

Notes:

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

Conversion Formulae

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

Ceiling Mounted Cassette Corner Type

Model			FXKQ25MAVE	FXKQ32MAVE	FXKQ40MAVE	FXKQ63MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,500	3,200	4,000	6,300
		Btu/h	9,900	12,600	16,000	24,900
		kW	2.9	3.7	4.7	7.3
★2 Cooling Capacity (19.0°CWB)		kW	2.8	3.6	4.5	7.1
★3 Heating Capacity		kcal/h	2,800	3,400	4,300	6,900
		Btu/h	10,900	13,600	17,100	27,300
		kW	3.2	4.0	5.0	8.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (HxWxD)		mm	215x1,110x710	215x1,110x710	215x1,110x710	215x1,310x710
Coil (Cross Fin Coil)	RowsxStagesxFin Pitch	mm	2x11x1.75	2x11x1.75	2x11x1.75	3x11x1.75
	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	15x1	15x1	20x1	45x1
	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			R-410A P Series	R-410A P Series	R-410A P Series	R-410A P Series
Decoration Panels (Option)	Model		BYK45FJW1	BYK45FJW1	BYK45FJW1	BYK71FJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (HxWxD)	mm	70x1,240x800	70x1,240x800	70x1,240x800	70x1,440x800
	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.			3D038813A			

Notes:

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

Conversion Formulae

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

Slim Ceiling Mounted Duct Type (with Drain Pump)

Model			FXDQ20NAVE	FXDQ25NAVE	FXDQ32NAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	200×900×620	200×900×620	200×900×620
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×12×1.5	2×12×1.5	2×12×1.5
	Face Area	m²	0.176	0.176	0.176
Fan	Model		—	—	—
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62×1	62×1	62×1
	Air Flow Rate (H/L)	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.			3D051253		

Notes:

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

Conversion Formulae

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

Slim Ceiling Mounted Duct Type (with Drain Pump)

Model			FXDQ40NAVE	FXDQ50NAVE	FXDQ63NAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing			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.			3D051253		

Notes:

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

Conversion Formulae

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

Slim Ceiling Mounted Duct Type (without Drain Pump)

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

Notes:

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

Conversion Formulae

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

Slim Ceiling Mounted Duct Type (without Drain Pump)

Model			FXDQ40NVET	FXDQ50NVET	FXDQ63NVET
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing			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, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter	Operation Manual, Installation Manual, Drain Hose, Sealing Pads, Clamps, Washers, Insulation for Fitting, Clamp Metal, Washer Fixing Plate, Screws for Duct Flanges, Air Filter
Drawing No.			3D049693		

Notes:

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

Conversion Formulae

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

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

Model			FXDQ20PVE FXDQ20PVET	FXDQ25PVE FXDQ25PVET	FXDQ32PVE FXDQ32PVET
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	200×900×620	200×900×620	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.			3D052136		

Notes:

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

Conversion Formulae

kcal/h=kW×860
Btu/h=kW×3412
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	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		mm	300×550×800	300×550×800	300×550×800
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.75	3×14×1.75	3×14×1.75
	Face Area	m²	0.088	0.088	0.088
Fan	Model		D18H3A	D18H3A	D18H3A
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	50×1	50×1	50×1
	Air Flow Rate (H/L)	m³/min	9/6.5	9/6.5	9.5/7
	★4 External static pressure	Pa	88-39-20	88-39-20	64-39-15
	Drive		Direct Drive	Direct Drive	Direct Drive
	Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
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
★6 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			R-410A P Series	R-410A P Series	R-410A P Series
Decoration Panel (Option)	Model		BYBS32DJW1	BYBS32DJW1	BYBS32DJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	mm	55×650×500	55×650×500	55×650×500
	Weight	kg	3	3	3
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			3D039431		

Notes:

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

Conversion Formulae

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

Ceiling Mounted Built-in Type

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

Notes:

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

Conversion Formulae

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

Ceiling Mounted Built-in Type

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

Notes:

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

Conversion Formulae

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

Ceiling Mounted Duct Type

Model			FXMQ40MAVE	FXMQ50MAVE	FXMQ63MAVE	FXMQ80MAVE
★1 Cooling Capacity (19.5°CWB)	kcal/h		4,000	5,000	6,300	8,000
	Btu/h		16,000	19,800	24,900	31,700
	kW		4.7	5.8	7.3	9.3
★2 Cooling Capacity (19.0°CWB)	kW		4.5	5.6	7.1	9.0
★3 Heating Capacity	kcal/h		4,300	5,400	6,900	8,600
	Btu/h		17,100	21,500	27,300	34,100
	kW		5.0	6.3	8.0	10.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)			mm	390×720×690	390×720×690	390×720×690
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	m ²	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)	m ³ /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			R-410A P Series	R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.
Drawing No.			3D038814A			

Notes:

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

Conversion Formulae

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

Ceiling Mounted Duct Type

Model			FXMQ100MAVE	FXMQ125MAVE
★1 Cooling Capacity (19.5°CWB)	kcal/h		10,000	12,500
	Btu/h		39,600	49,500
	kW		11.6	14.5
★2 Cooling Capacity (19.0°CWB)	kW		11.2	14.0
★3 Heating Capacity	kcal/h		10,800	13,800
	Btu/h		42,700	54,600
	kW		12.5	16.0
Casing			Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)			mm	390×1,110×690
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×16×2.0	3×16×2.0
	Face Area	m ²	0.319	0.319
Fan	Model		2D11/2D3AG1VE	2D11/2D3AF1VE
	Type		Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	270×1	430×1
	Air Flow Rate (H/L)	m ³ /min	29/23	36/29
		cfm	1,024/812	1,271/1,024
	External Static Pressure 50 / 60Hz	Pa	157/172-98/98 ★4	191/245-152/172 ★4
Drive			Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber
Air Filter			★5	★5
Piping Connections	Liquid Pipes	mm	φ9.5 (Flare Connection)	φ9.5 (Flare Connection)
	Gas Pipes	mm	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)
Machine Weight (Mass)		kg	63	65
★7 Sound Level (H/L)		dBA	43/39	45/42
Safety Devices			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.
Drawing No.			3D038814A	

Notes:

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

Conversion Formulae

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

Ceiling Suspended Type

Model			FXHQ32MAVE	FXHQ63MAVE	FXHQ100MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	3,200	6,300	10,000
		Btu/h	12,600	24,900	39,600
		kW	3.7	7.3	11.6
★2 Cooling Capacity (19.0°CWB)		kW	3.6	7.1	11.2
★3 Heating Capacity		kcal/h	3,400	6,900	10,800
		Btu/h	13,600	27,300	42,700
		kW	4.0	8.0	12.5
Casing Color			White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
Dimensions: (H×W×D)		mm	195×960×680	195×1,160×680	195×1,400×680
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×12×1.75	3×12×1.75	3×12×1.75
	Face Area	m²	0.182	0.233	0.293
Fan	Model		3D12K1AA1	4D12K1AA1	3D12K2AA1
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	62×1	62×1	130×1
	Air Flow Rate (H/L)	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			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers.
Drawing No.			3D038815A		

Notes:

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

Conversion Formulae

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

Wall Mounted Type

Model			FXAQ20MAVE	FXAQ25MAVE	FXAQ32MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing Color			White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)
Dimensions: (H×W×D)		mm	290×795×230	290×795×230	290×795×230
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×14×1.4	2×14×1.4	2×14×1.4
	Face Area	m²	0.161	0.161	0.161
Fan	Model		QCL9661M	QCL9661M	QCL9661M
	Type		Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	Motor Output × Number of Units	W	40×1	40×1	40×1
	Air Flow Rate (H/L)	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			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.
Drawing No.			3D039370B		

Notes:

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

Conversion Formulae

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

Wall Mounted Type

Model			FXAQ40MAVE	FXAQ50MAVE	FXAQ63MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)	White (3.0Y8.5/10.5)
Dimensions: (H×W×D)		mm	290×1,050×230	290×1,050×230	290×1,050×230
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	2×14×1.4	2×14×1.4	2×14×1.4
	Face Area	m²	0.213	0.213	0.213
Fan	Model		QCL9686M	QCL9686M	QCL9686M
	Type		Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	Motor Output × Number of Units	W	43×1	43×1	43×1
	Air Flow Rate (H/L)	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			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws.
Drawing No.			3D039370B		

Notes:

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

Conversion Formulae

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

Floor Standing Type

Model			FXLQ20MAVE	FXLQ25MAVE	FXLQ32MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing Color			Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		mm	600×1,000×222	600×1,000×222	600×1,140×222
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.5	3×14×1.5	3×14×1.5
	Face Area	m²	0.159	0.159	0.200
Fan	Model		D14B20	D14B20	2D14B13
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	15×1	15×1	25×1
	Air Flow Rate (H/L)	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			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			3D038816A		

Notes:

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

Conversion Formulae

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

Floor Standing Type

Model			FXLQ40MAVE	FXLQ50MAVE	FXLQ63MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing Color			Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		mm	600×1,140×222	600×1,420×222	600×1,420×222
Coil (Cross Fin Coil)	Rows×Stages×Fin Pitch	mm	3×14×1.5	3×14×1.5	3×14×1.5
	Face Area	m²	0.200	0.282	0.282
Fan	Model		2D14B13	2D14B20	2D14B20
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output × Number of Units	W	25×1	35×1	35×1
	Air Flow Rate (H/L)	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			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			3D038816A		

Notes:

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

Conversion Formulae

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

Concealed Floor Standing Type

Model			FXNQ20MAVE	FXNQ25MAVE	FXNQ32MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	2,000	2,500	3,200
		Btu/h	7,800	9,900	12,600
		kW	2.3	2.9	3.7
★2 Cooling Capacity (19.0°CWB)		kW	2.2	2.8	3.6
★3 Heating Capacity		kcal/h	2,200	2,800	3,400
		Btu/h	8,500	10,900	13,600
		kW	2.5	3.2	4.0
Casing			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			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			3D038817A		

Notes:

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

Conversion Formulae

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

Concealed Floor Standing Type

Model			FXNQ40MAVE	FXNQ50MAVE	FXNQ63MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h	4,000	5,000	6,300
		Btu/h	16,000	19,800	24,900
		kW	4.7	5.8	7.3
★2 Cooling Capacity (19.0°CWB)		kW	4.5	5.6	7.1
★3 Heating Capacity		kcal/h	4,300	5,400	6,900
		Btu/h	17,100	21,500	27,300
		kW	5.0	6.3	8.0
Casing			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			R-410A P Series	R-410A P Series	R-410A P Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			3D038817A		

Notes:

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

Conversion Formulae

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

Ceiling Suspended Cassette Type

Model		Indoor Unit		FXUQ71MAV1	FXUQ100MAV1	FXUQ125MAV1
		Connection	Unit	BEVQ71MAVE	BEVQ100MAVE	BEVQ125MAVE
★1 Cooling Capacity (19.5°CWB)		kcal/h		7,100	10,000	12,500
		Btu/h		28,300	39,600	49,500
		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	47,800
		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:4D045395A		

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×3412
cfm=m ³ /min×35.3

BEV Units

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

Part 3

List of Electrical and Functional Parts

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1. List of Electrical and Functional Parts

1.1 Outdoor Unit

Item	Name		Symbol	Model			Remark (PCB terminal)
				4HP	5HP	6HP	
Compressor	Inverter	Type	M1C	JT100G-VDL@T			Relay
		Output		2.5kW	3.0kW	3.5kW	A1P X102A
	Crankcase heater (INV)		E1HC	33W			A1P X28A
Fan motor	Motor		M1F-M2F	0.07kW			—
	Over-current relay		—	3.2A			—
Functional parts	Electronic expansion valve (Main)	Cooling	Y1E	480pls			A1P X21A
		Heating		PI control			
	Electronic expansion valve (Subcool)	Cooling	Y3E	PI control			A1P X22A
		Heating		PI control			
	4 way valve		Y1S	STF-0404G			A1P X25A
	Solenoid valve (Hot gas)		Y2S	TEV1620DQ2			A1P X26A
	Solenoid valve (Unload circuit)		Y3S	TEV1620DQ2			A1P X27A
Pressure-related parts	Pressure switch (INV)		S1PH	ACB-4UB10 OFF: 4.0+0/-0.15MPa ON: 3.0±0.15MPa			A1P X32A
	Fusible plug		—	FPGH-3D 70~75°C			—
	Pressure sensor (HP)		S1NPH	PS8051A 0~4.15MPa			A1P X17A
	Pressure sensor (LP)		S1NPL	PS8051A -0.05~1.7MPa			A1P X18A
Thermistor	Main PCB	For outdoor air	R1T	3.5~360kΩ			A1P X11A
		For discharge pipe	R2T	5.0~640kΩ			A1P X12A 1-2Pin
		For suction pipe 1	R3T	3.5~360kΩ			A1P X12A 3-4Pin
		For heat exchanger	R4T	3.5~360kΩ			A1P X12A 5-6Pin
		For suction pipe 2	R5T	3.5~360kΩ			A1P X12A 7-8Pin
		For subcooling heat exchanger	R6T	3.5~360kΩ			A1P X13A 1-2Pin
		For liquid pipe	R7T	3.5~360kΩ			A1P X13A 3-4Pin
Others	Fuse (A3P)		F1U	AC250V 6.3A Time lag fuse			—

1.2 Indoor Unit

Parts Name			Symbol	Model							Remark
				FXFQ25 MVE	FXFQ32 MVE	FXFQ40 MVE	FXFQ50 MVE	FXFQ63 MVE	FXFQ80 MVE	FXFQ100 MVE	
Remote Controller	Wired Remote Controller			BRC1C62							Option
	Wireless Remote Controller	H/P		BRC7E61W							
		C/O		BRC7E65							
Motors	Fan Motor		M1F	DC380V 30W 8P					DC 380V 120W 8P		
	Drain Pump		M1P	AC220-240V (50Hz) AC220V (60Hz) PLD-12230DM Thermal Fuse 145°C							
	Swing Motor		M1S	MP35HCA[3P007482-1] Stepping Motor DC16V							
Thermistors	Thermistor (Suction Air)		R1T	In PC board A4P or wired remote controller							
	Thermistor (for Heat Exchanger High Temp.)		R3T	ST8605-5 φ8 L1000 20kΩ (25°C)							
	Thermistor (Heat Exchanger)		R2T	ST8602A-5 φ6 L1000 20kΩ (25°C)							
Others	Float Switch		S1L	FS-0211B							
	Fuse		F1U	250V 5A φ5.2							
	Thermal Fuse		TFu	—							
	Transformer		T1R	—							

Parts Name			Symbol	Model							Remark	
				FXCQ 20MVE	FXCQ 25MVE	FXCQ 32MVE	FXCQ 40MVE	FXCQ 50MVE	FXCQ 63MVE	FXCQ 80MVE		FXCQ 125MVE
Remote Controller	Wired Remote Controller			BRC1C62							Option	
	Wireless Remote Controller	H/P		BRC7C62								
		C/O		BRC7C67								
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
				FXKQ 25MAVE	FXKQ 32MAVE	FXKQ 40MAVE	FXKQ 63MAVE	
Remote Controller	Wired Remote Controller			BRC1C62				Option
	Wireless Remote Controller	H/P		BRC4C61				
		C/O		BRC4C63				
Motors	Fan Motor		M1F	AC220-240V (50Hz) AC220V (60Hz)				
				1φ15W 4P		1φ20W 4P	1φ45W 4P	
				Thermal Fuse 146°C		Thermal protector 120°C : OFF 105°C : ON		
	Drain Pump		M1P	AC 220-240V (50Hz) PLD-12200DM Thermal Fuse 145°C				
	Swing Motor		M1S	MP35HCA [3P080801-1] AC200~240V				
Thermistors	Thermistor (Suction Air)		R1T	ST8601-13 φ4 L630 20kΩ (25°C)				
	Thermistor (for Heat Exchanger High Temp.)		R3T	ST8605-7 φ8 L1600 20kΩ (25°C)				
	Thermistor (Heat Exchanger)		R2T	ST8602A-7 φ6 L1600 20kΩ (25°C)				
Others	Float Switch		S1L	FS-0211B				
	Fuse		F1U	250V 5A φ5.2				
	Transformer		T1R	TR22H21R8				

Parts Name			Symbol	Model						Remark
				FXDQ 20N(A)VE(T), PVE(T)	FXDQ 25N(A)VE(T), PVE(T)	FXDQ 32N(A)VE(T), PVE(T)	FXDQ 40N(A)VE(T)	FXDQ 50N(A)VE(T)	FXDQ 63N(A)VE(T)	
Remote Controller	Wired Remote Controller			BRC1C62						Option
	Wireless Remote Controller	H/P		BRC4C62						
		C/O		BRC4C64						
Motors	Fan Motor		M1F	AC220-240V (50Hz) AC220V (60Hz)						
				1ϕ62W				1ϕ130W		
				Thermal protector 130°C: OFF, 83°C: ON						
	Drain Pump		M1P	AC220-240V (50Hz) PLD-12230DM Thermal Fuse 145°C						*
Thermistors	Thermistor (Suction Air)		R1T	ST8601-1 ϕ4 L=250 20kΩ (25°C)						
	Thermistor (for Heat Exchanger High Temp.)		R3T	ST8605-4 ϕ8 L=800 20kΩ (25°C)						
	Thermistor (Heat Exchanger)		R2T	ST8602A-4 ϕ6 L=800 20kΩ (25°C)						
Others	Float Switch		S1L	FS-0211E						*
	Fuse		F1U	250V 5A ϕ5.2						
	Transformer		T1R	TR22H21R8						

*only for FXDQ20~63N(A)VE, FXDQ20~32PVE (with Drain Pump Type)

Parts Name			Symbol	Model									Remark
				FXSQ 20MVE	FXSQ 25MVE	FXSQ 32MVE	FXSQ 40MVE	FXSQ 50MVE	FXSQ 63MVE	FXSQ 80MVE	FXSQ 100MVE	FXSQ 125MVE	
Remote Controller	Wired Remote Controller			BRC1C62									Option
	Wireless Remote Controller	H/P		BRC4C62									
		C/O		BRC4C64									
Motors	Fan Motor		M1F	AC220-240V (50Hz) AC220V (60Hz)									
				1φ50W		1φ65W	1φ85W	1φ125 W	1φ225W				
				Thermal Fuse 152°C						Thermal protector 135°C : OFF 87°C : ON			
	Drain Pump		M1P	AC220-240V (50Hz) PLD-12230DM Thermal Fuse 145°C									
Thermistors	Thermistor (Suction Air)		R1T	ST8601-4 φ4 L800 20kΩ (25°C)									
	Thermistor (for Heat Exchanger High Temp.)		R3T	ST8605-7 φ8 L1600 20kΩ (25°C)									
	Thermistor (Heat Exchanger)		R2T	ST8602A-6 φ6 L1250 20kΩ (25°C)									
Others	Float Switch		S1L	FS-0211B									
	Fuse		F1U	250V 5A φ5.2									
	Transformer		T1R	TR22H21R8									

Parts Name			Symbol	Model						Remark
				FXMQ 40MAVE	FXMQ 50MAVE	FXMQ 63MAVE	FXMQ 80MAVE	FXMQ 100MAVE	FXMQ 125MAVE	
Remote Controller	Wired Remote Controller			BRC1C62						Option
	Wireless Remote Controller	H/P		BRC4C62						
		C/O		BRC4C64						
Motors	Fan Motor		M1F	AC220-240V (50Hz) AC220V (60Hz)						
				1ϕ100W			1ϕ160W	1ϕ270W	1ϕ430W	
				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	
Thermistors	Thermistor (Suction Air)		R1T	ST8601A-5 ϕ4 L1000 20kΩ (25°C)						
	Thermistor (for Heat Exchanger High Temp.)		R3T	ST8605A-4 ϕ8 L800 20kΩ (25°C)						
	Thermistor (Heat Exchanger)		R2T	ST8602A-4 ϕ6 L800 20kΩ (25°C)						
Others	Float switch		S1L	FS-0211						
	Fuse		F1U	250V 5A ϕ5.2				250V 10A ϕ5.2		
	Transformer		T1R	TR22H21R8						

Parts Name			Symbol	Model			Remark
				FXHQ 32MAVE	FXHQ 63MAVE	FXHQ 100MAVE	
Remote Controller	Wired Remote Controller			BRC1C62			Option
	Wireless Remote Controller	H/P		BRC7E63W			
		C/O		BRC7E66			
Motors	Fan Motor		M1F	AC220-240V (50Hz) AC220V (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 20MAVE	FXAQ 25MAVE	FXAQ 32MAVE	FXAQ 40MAVE	FXAQ 50MAVE	FXAQ 63MAVE	
Remote Controller	Wired Remote Controller			BRC1C62						Option
	Wireless Remote Controller	H/P		BRC7E618						
		C/O		BRC7E619						
Motors	Fan Motor		M1F	AC220-240V (50Hz) AC220V (60Hz)						
				1φ40W			1φ43W			
				Thermal protector 130℃ : OFF 80℃ : 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℃)						
	Thermistor (for Heat Exchanger High Temp.)		R3T	ST8605-2 φ8 L400 20kΩ (25℃)						
	Thermistor (for Heat Exchanger)		R2T	ST8602-2 φ6 L400 20kΩ (25℃)						
Others	Float Switch		S1L	OPTION						
	Fuse		F1U	250V 5A φ5.2						

Parts Name			Symbol	Model						Remark
				FXLQ 20MAVE	FXLQ 25MAVE	FXLQ 32MAVE	FXLQ 40MAVE	FXLQ 50MAVE	FXLQ 63MAVE	
Remote Controller	Wired Remote Controller			BRC1C62						Option
	Wireless Remote Controller	H/P		BRC4C62						
		C/O		BRC4C64						
Motors	Fan Motor		M1F	AC220-240V (50Hz) AC220V (60Hz)						
				1φ15W		1φ25W		1φ35W		
				Thermal protector 135°C : OFF 120°C : ON						
	Capacitor for Fan Motor		C1R	1.0μF-400V		0.5μF-400V	1.0μF-400V	1.5μF-400V	2.0μF-400V	
Thermistors	Thermistor (Suction Air)		R1T	ST8601-6 φ4 L1250 20kΩ (25°C)						
	Thermistor (for Heat Exchanger High Temp.)		R3T	ST8605-9 φ8 L2500 20kΩ (25°C)						
	Thermistor (for Heat Exchanger)		R2T	ST8602A-9 φ6 L2500 20kΩ (25°C)						
Others	Fuse		F1U	AC250V 5A						
	Transformer		T1R	TR22H21R8						

Parts Name			Symbol	Model						Remark
				FXNQ 20MAVE	FXNQ 25MAVE	FXNQ 32MAVE	FXNQ 40MAVE	FXNQ 50MAVE	FXNQ 63MAVE	
Remote Controller	Wired Remote Controller			BRC1C62						Option
	Wireless Remote Controller	H/P		BRC4C62						
		C/O		BRC4C64						
Motors	Fan Motor		M1F	AC220-240V (50Hz) AC220V (60Hz)						
				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			Remarks
				FXUQ71MAV1	FXUQ100MAV1	FXUQ125MAV1	
Remote Controller	Wired Remote Controller			BRC1C62			Option
	Wireless Remote Controller	H/P		BRC7C528W			
		C/O		BRC7C529W			
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			

Part 4

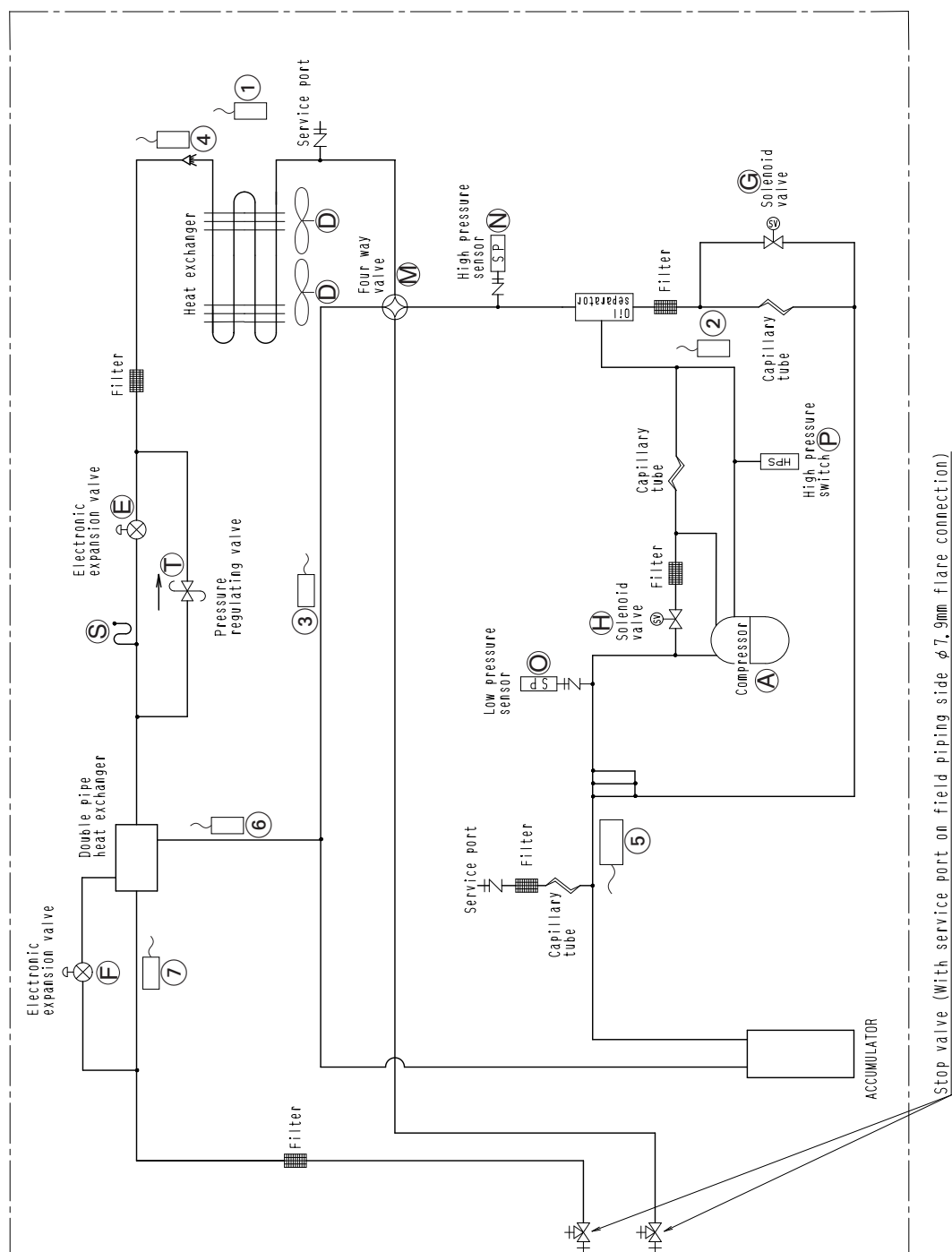
Refrigerant Circuit

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2.1 RX(Y)MQ4 / 5 / 6P	46

1. Refrigerant Circuit

1.1 RX(Y)MQ4 / 5 / 6P

No. in refrigerant system diagram	Symbol	Name	Major Function
A	M1C	Inverter compressor (INV)	Inverter compressor is operated on frequencies between 36 Hz and 195 Hz by using the inverter. 31 steps
D	M1F M2F	Inverter fan	Since the system is of air heat exchanging type, the fan is operated at 8-step rotation speed by using the inverter.
E	Y1E	Electronic expansion valve (Main: EV1)	While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.
F	Y3E	Electronic expansion valve (Subcool: EV3)	PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant.
G	Y2S	Solenoid valve (Hot gas: SVP)	Used to prevent the low pressure from transient falling.
H	Y3S	Solenoid valve (Unload circuit SVUL)	Used to the unloading operation of compressor.
M	Y1S	Four way valve	Used to switch the operation mode between cooling and heating.
N	S1NPH	High pressure sensor	Used to detect high pressure.
O	S1NPL	Low pressure sensor	Used to detect low pressure.
P	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.
S	—	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.
T	—	Pressure regulating valve 1 (Receiver to discharge pipe)	This valve opens at a pressure of 4.0 MPa for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage.
1	R1T	Thermistor (Outdoor air: Ta)	Used to detect outdoor temperature, correct discharge pipe temperature, and others.
2	R2T	Thermistor (INV discharge pipe: Tdi)	used to detect discharge pipe temperature, make the temperature protection control of compressor, and others.
3	R3T	Thermistor (Suction pipe1: Ts1)	used to detect suction pipe temperature, keep the suction superheated degree constant in heating operation, and others.
4	R4T	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger, determine defrosting operation, and others.
5	R5T	Thermistor (Suction pipe2: Ts2)	Used to the calculation of an internal temperature of compressor etc.
6	R6T	Thermistor (Subcooling heat exchanger gas pipe: Tsh)	Used to control of subcooling electronic expansion valve.
7	R7T	Thermistor (Liquid pipe: Tl)	Used to detect refrigerant over charge in check operation, and others.

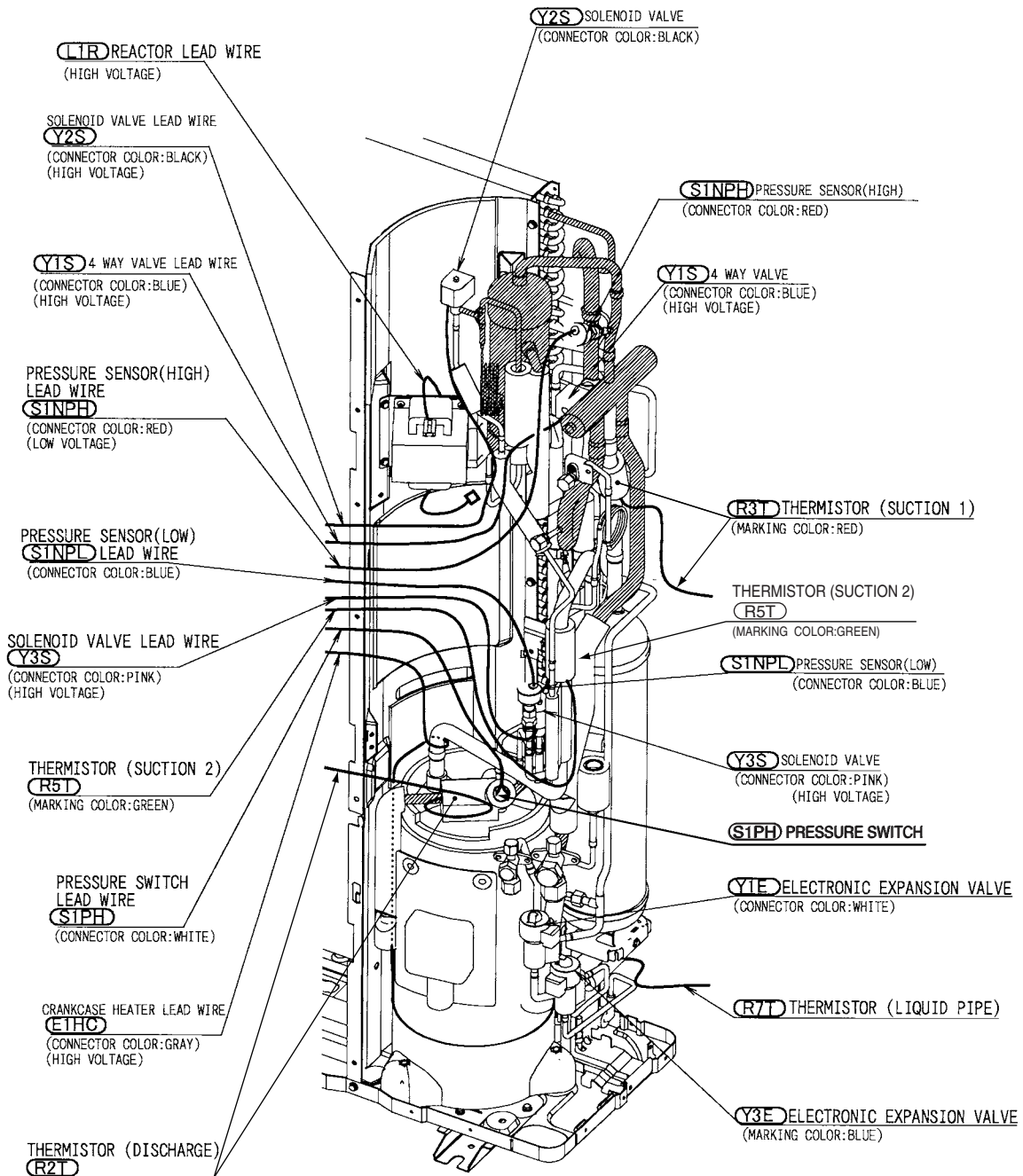


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2. Functional Parts Layout

2.1 RX(Y)MQ4 / 5 / 6P

Birds-eye view

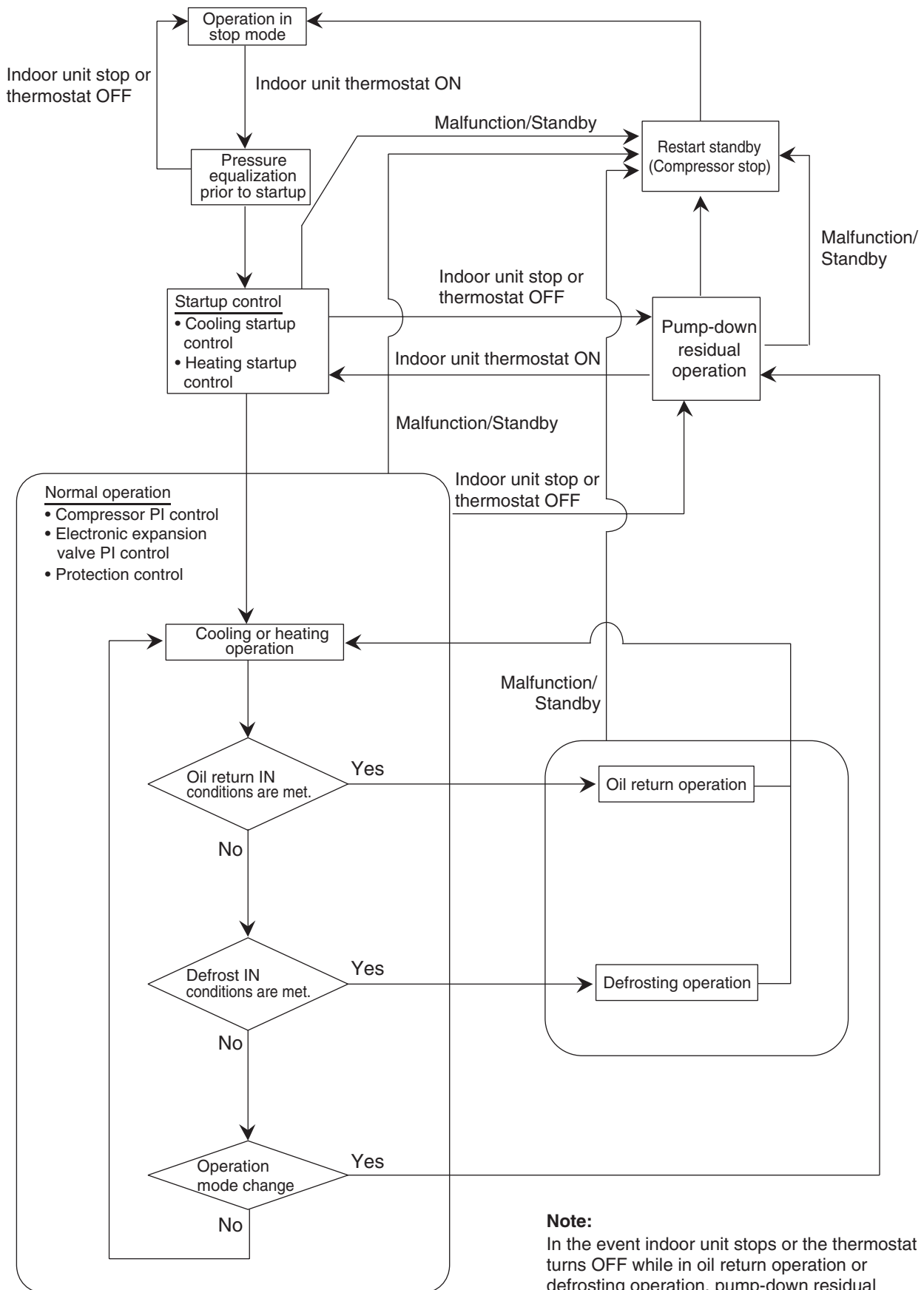


Part 5

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1. Operation Mode



Note:

In the event indoor unit stops or the thermostat turns OFF while in oil return operation or defrosting operation, pump-down residual operation is performed on completion of the oil return operation or defrosting operation.

(V3152)

2. Basic Control

2.1 Normal Operation

■ Cooling Operation

Actuator	Operation	Remarks
Compressor	Compressor PI control	Used for high pressure protection control, low pressure protection control, discharge pipe temperature protection control, and compressor operating frequency upper limit control with inverter protection control.
Outdoor unit fan	Cooling fan control	—
Four way valve	OFF	—
Main electronic expansion valve (EV1)	480 pls	—
Subcooling electronic expansion valve (EV3)	PI control	—
Hot gas bypass valve (SVP)	OFF	This valve turns on with low pressure protection control.

■ Heating Operation

Actuator	Operation	Remarks
Compressor	Compressor PI control	Used for high pressure protection control, low pressure protection control, discharge pipe temperature protection control, and compressor operating frequency upper limit control with inverter protection control.
Outdoor unit fan	STEP 7 or 8	—
Four way valve	ON	—
Main electronic expansion valve (EV1)	PI control	—
Subcooling electronic expansion valve (EV3)	PI control	—
Hot gas bypass valve (SVP)	OFF	This valve turns on with low pressure protection control.

★Heating operation is not functional at an outdoor air temperature of 24°CDB or more.

2.2 Compressor PI Control

Compressor PI Control

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

[Cooling operation]

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

Te setting (Set in Set-up mode 2)

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

Te : Low pressure equivalent saturation temperature (°C)

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

[Heating operation]

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

Tc setting

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

Tc : High pressure equivalent saturation temperature (°C)

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

RX(Y)MQ4 · 5 · 6P

STn	INV(Fullload)	INV(Unload)
1		36.0Hz
2		39.0Hz
3		43.0Hz
4		47.0Hz
5		52.0Hz
6	52.0Hz	57.0Hz
7	57.0Hz	64.0Hz
8	62.0Hz	71.0Hz
9	68.0Hz	78.0Hz
10	74.0Hz	

STn	INV(Fullload)	INV(Unload)
11	80.0Hz	
12	86.0Hz	
13	92.0Hz	
14	98.0Hz	
15	104.0Hz	
16	110.0Hz	
17	116.0Hz	
18	122.0Hz	
19	128.0Hz	
20	134.0Hz	

STn	INV(Fullload)	INV(Unload)
21	140.0Hz	
22	146.0Hz	
23	152.0Hz	
24	158.0Hz	
25	164.0Hz	
26	170.0Hz	
27	175.0Hz	
28	180.0Hz	
29	185.0Hz	
30	190.0Hz	
31	195.0Hz	

- * Compressors may operate in a pattern other than those listed in above tables subject to the operating conditions. Selection of full load operation to/from unload operation is made with the unload circuit solenoid valve (Y3S=SVUL). The full load operation is performed with the SVUL set to OFF, while the unload operation is performed with the SVUL set to ON.

2.3 Electronic Expansion Valve PI Control

Main Electronic Expansion Valve EV1 Control

Carries out the electronic expansion 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).

$$SH = Ts1 - Te$$

SH : Evaporator outlet superheated degree (°C)

Ts1 : Suction pipe temperature detected by thermistor R3T (°C)

Te : Low pressure equivalent saturation temperature (°C)

The optimum initial value of the evaporator outlet superheated degree is 3°C, but varies depending on the discharge pipe superheated degree of inverter compressor.

Subcooling Electronic Expansion Valve EV3 Control

Makes PI control of the electronic expansion valve (Y3E) to keep the superheated degree (SH) of the outlet gas pipe on the evaporator side for the full use of the subcooling heat exchanger.

$$SH = Tsh - Te$$

SH : Outlet superheated degree of evaporator (°C)

Tsh : Suction pipe temperature detected with the thermistor R6T (°C)

Te : Low pressure equivalent saturation temperature (°C)

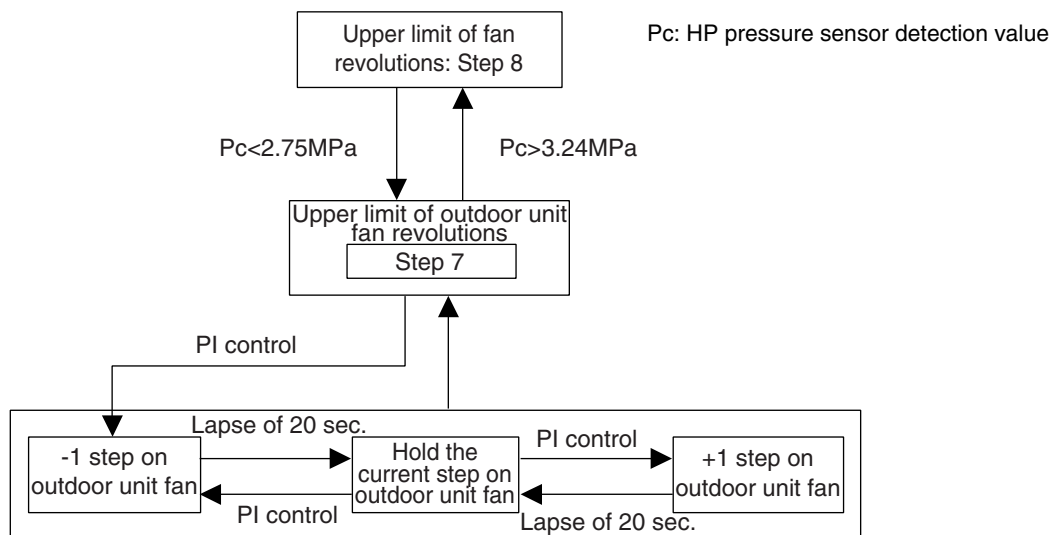
2.4 Cooling Operation Fan Control

In cooling operation with low outdoor air temperature, this control is used to provide the adequate amount of circulation air with liquid pressure secured by high pressure control using outdoor unit fan.

Furthermore, when outdoor temperature $\geq 20^{\circ}\text{C}$, the compressor will run in Step 7 or higher.

When outdoor temperature $\geq 18^{\circ}\text{C}$, it will run in Step 5 or higher.

When outdoor temperature $\geq 12^{\circ}\text{C}$, it will run in Step 1 or higher.



Fan Steps

Cooling	M1F	M2F
STEP0	0 rpm	0 rpm
STEP1	250 rpm	0 rpm
STEP2	400 rpm	0 rpm
STEP3	285 rpm	250 rpm
STEP4	360 rpm	325 rpm
STEP5	445 rpm	410 rpm
STEP6	580 rpm	545 rpm
STEP7	715 rpm	680 rpm
STEP8	850 rpm	815 rpm

3. Special Control

3.1 Startup Control

This control is used to equalize the pressure in the front and back of the compressor prior to the startup of the compressor, thus reducing startup loads. Furthermore, the inverter is turned ON to charge the capacitor. In addition, to avoid stresses to the compressor due to oil return or else after the startup, the following control is made and the position of the four way valve is also determined. To position the four way valve, the master and slave units simultaneously start up.

3.1.1 Startup Control in Cooling Operation

	Pressure equalization control prior to startup	Startup control	
		STEP1	STEP2
Compressor	0 Hz	57 Hz Unload	57 Hz Unload +2 steps/20 sec. (until $P_c - P_e > 0.39\text{MPa}$ is achieved)
Outdoor unit fan	STEP7	$T_a < 20^\circ\text{C}$: OFF $T_a \geq 20^\circ\text{C}$: STEP4	+1 step/15 sec. (when $P_c > 2.16\text{MPa}$) -1 step/15 sec. (when $P_c < 1.77\text{MPa}$)
Four way valve (20S1)	Holds	OFF	OFF
Main electronic expansion valve (EV1)	0 pls	480 pls	480 pls
Subcooling electronic expansion valve (EV3)	0 pls	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	OFF	OFF
Ending conditions	OR • $P_c - P_e < 0.3\text{MPa}$ • A lapse of 1 to 5 min.	A lapse of 10 sec.	OR • A lapse of 130 sec. • $P_c - P_e > 0.39\text{MPa}$

3.1.2 Startup Control in Heating Operation

	Pressure equalization control prior to startup	Startup control	
		STEP1	STEP2
Compressor	0 Hz	57 Hz Unload	57 Hz Unload +2 steps/20 sec. (until $P_c - P_e > 0.39\text{MPa}$ is achieved)
Outdoor unit fan	From starting ~ 1 min. : STEP 7 1 ~ 3 min. : STEP 3 3 ~ 5 min. : OFF	STEP8	STEP8
Four way valve	Holds	ON	ON
Main electronic expansion valve (EV1)	0 pls	0 pls	0 pls
Subcooling electronic expansion valve (EV3)	0 pls	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	OFF	OFF
Ending conditions	OR • $P_c - P_e < 0.3\text{MPa}$ • A lapse of 1 to 5 min.	A lapse of 10 sec.	OR • A lapse of 130 sec. • $P_c > 2.70\text{MPa}$ • $P_c - P_e > 0.39\text{MPa}$

3.2 Oil Return Operation

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

3.2.1 Oil Return Operation in Cooling Operation

[Start conditions]

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

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

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

Outdoor unit actuator	Oil return preparation operation	Oil return operation	Post-oil-return operation
Compressor	Take the current step as the upper limit.	52 Hz Full load (→ Low pressure constant control)	Same as the "oil return operation" mode.
Outdoor unit fan	Fan control (Normal cooling)	Fan control (Normal cooling)	Fan control (Normal cooling)
Four way valve	OFF	OFF	OFF
Main electronic expansion valve (EV1)	480 pls	480 pls	480 pls
Subcooling electronic expansion valve (EV3)	SH control	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	OFF	OFF
Ending conditions	20 sec.	or [• 3 min. • $T_s - T_e < 5^{\circ}\text{C}$	or [• 3 min. • $P_e < 0.6\text{MPa}$ • $HT_{di} > 110^{\circ}\text{C}$

Indoor unit actuator		Cooling oil return operation
Fan	Thermostat ON unit	Remote controller setting
	Stopping unit	OFF
	Thermostat OFF unit	Remote controller setting
Electronic expansion valve	Thermostat ON unit	Normal opening
	Stopping unit	224 pls
	Thermostat OFF unit	Normal opening with forced thermostat ON

3.2.2 Oil Return Operation in Heating Operation

[Conditions to start]

The heating oil-returning operation is started referring following conditions.

- Integrated amount of displaced oil
- Timer

(After the power is turned on, integrated operating-time is 2 hours and subsequently every 8 hours.)

In addition, integrated amount of displaced oil is derived from Tc, Te, and the compressor load.

Outdoor Unit Actuator	Oil return preparation operation	Oil return operation	Post-oil-return operation
Compressor	Upper limit control	140 Hz Full load	2-step increase from 36 Hz Unload to (Pc - Pe>0.4 MPa) every 20 sec.
Outdoor unit fan	STEP8	OFF	STEP8
Four way valve	ON	OFF	ON
Main electronic expansion valve (EV1)	SH control	480 pls	55 pls
Subcooling electronic expansion valve (EV3)	0 pls	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	OFF	OFF
Ending conditions	2 min.	or $\left[\begin{array}{l} \bullet 12 \text{ min.} \\ \bullet Ts1 - Te < 5^{\circ}\text{C} \\ \bullet Tb > 11^{\circ}\text{C} \end{array} \right]$	or $\left[\begin{array}{l} \bullet 160 \text{ sec.} \\ \bullet Pc - Pe > 0.4 \text{ MPa} \end{array} \right]$

* From the preparing oil-returning operation to the oil-returning operation, and from the oil-returning operation to the operation after oil-returning, the compressor stops for 1 minute to reduce noise on changing of the four way valve.

Indoor unit actuator		Heating oil return operation
Fan	Thermostat ON unit	OFF
	Stopping unit	OFF
	Thermostat OFF unit	OFF
Electronic expansion valve	Thermostat ON unit	416 pls
	Stopping unit	256 pls
	Thermostat OFF unit	416 pls

3.3 Defrosting Operation

The defrost operation is performed to solve frost on the outdoor unit heat exchanger when heating, and the heating capacity is recovered.

[Conditions to start]

The defrost operation is started referring following conditions.

- Outdoor heat exchanger heat transfer co-efficiency
- Temperature of heat-exchange (Tb)
- Timer (2 hours at the minimum)

In addition, outdoor heat-exchange co-efficiency is derived from Tc, Te, and the compressor load.

Outdoor unit actuator	Defrost preparation operation	Defrost operation	Post Defrost operation
Compressor	Upper limit control	140 Hz Full load	2-step increase from 36 Hz Unload to (Pc - Pe>0.4 MPa) every 20 sec.
Outdoor unit fan	STEP8	OFF	STEP8
Four way valve	ON	OFF	ON
Main electronic expansion valve (EV1)	SH control	480 pls	55 pls
Subcooling electronic expansion valve (EV3)	0 pls	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	ON	ON
Ending conditions	2 min.	or $\left[\begin{array}{l} \bullet 15 \text{ min.} \\ \bullet Tb > 11^{\circ}\text{C} \\ \bullet Ts1 - Te < 5^{\circ}\text{C} \end{array} \right.$	or $\left[\begin{array}{l} \bullet 160 \text{ sec.} \\ \bullet Pc - Pe > 0.4 \text{ MPa} \end{array} \right.$

* From the preparing operation to the defrost operation, and from the defrost operation to the operation after defrost, the compressor stops for 1 minute to reduce noise on changing of the four way valve.

Indoor unit actuator		Heating oil return operation
Fan	Thermostat ON unit	OFF
	Stopping unit	OFF
	Thermostat OFF unit	OFF
Electronic expansion valve	Thermostat ON unit	416 pls
	Stopping unit	256 pls
	Thermostat OFF unit	416 pls

3.4 Pump-down Residual Operation

When activating compressor, if the liquid refrigerant remains in the heat-exchanger, the liquid enters into the compressor and dilutes oil therein resulting in decrease of lubricity.

Therefore, the pump-down residual operation is performed to collect the refrigerant in the heat-exchanger when the compressor is down.

3.4.1 Pump-down Residual Operation in Cooling Operation

Actuator	Pump-down residual operation Step 1	Pump-down residual operation Step 2
Compressor	124 Hz Full load	52 Hz Full load
Outdoor unit fan	Fan control	Fan control
Four way valve	OFF	OFF
Main electronic expansion valve (EV1)	480 pls	240 pls
Subcooling electronic expansion valve (EV3)	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	OFF
Ending conditions	2 sec.	2 sec.

3.4.2 Pump-down Residual Operation in Heating Operation

Actuator	Pump-down residual operation
Compressor	124 Hz Full load
Outdoor unit fan	STEP7
Four way valve	ON
Main electronic expansion valve (EV1)	0 pls
Subcooling electronic expansion valve (EV3)	0 pls
Hot gas bypass valve (SVP)	OFF
Ending conditions	4 sec.

3.5 Restart Standby

Restart is stood by force to prevent frequent power-on/off and to equalize pressure in the refrigerant system.

Actuator	Operation	Remarks
Compressor	OFF	—
Outdoor unit fan	Ta>30°C: STEP4 Ta≤30°C: OFF	—
Four way valve	Keep former condition.	—
Main electronic expansion valve (EV1)	0 pls	—
Subcooling electronic expansion valve (EV3)	0 pls	—
Hot gas bypass valve (SVP)	OFF	—
Ending conditions	2 min.	—

3.6 Stopping Operation

Operation of the actuator when the system is down, is cleared up.

3.6.1 When System is in Stop Mode

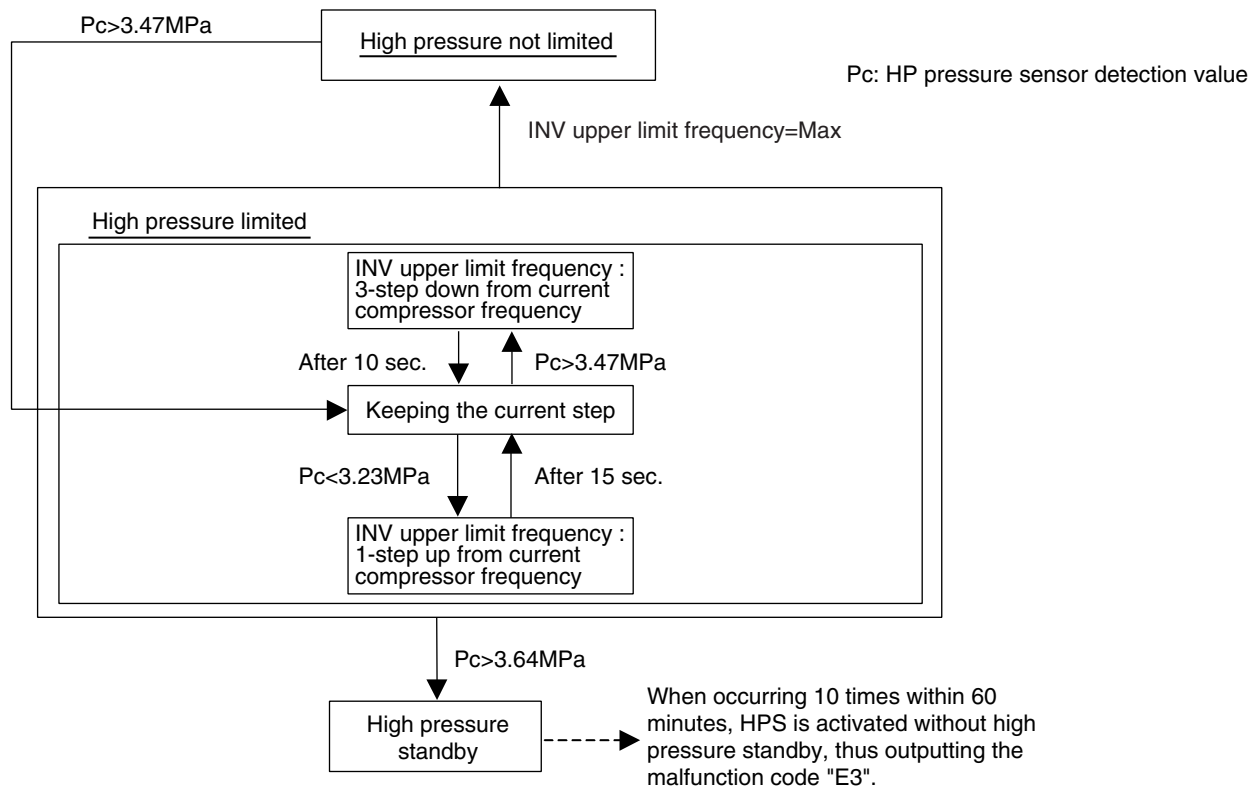
Actuator	Operation
Compressor	OFF
Outdoor unit fan	OFF
Four way valve	Keep former condition.
Main electronic expansion valve (EV1)	0 pls
Subcooling electronic expansion valve (EV3)	0 pls
Hot gas bypass valve (SVP)	OFF
Ending conditions	Indoor unit thermostat is turned ON.

4. Protection Control

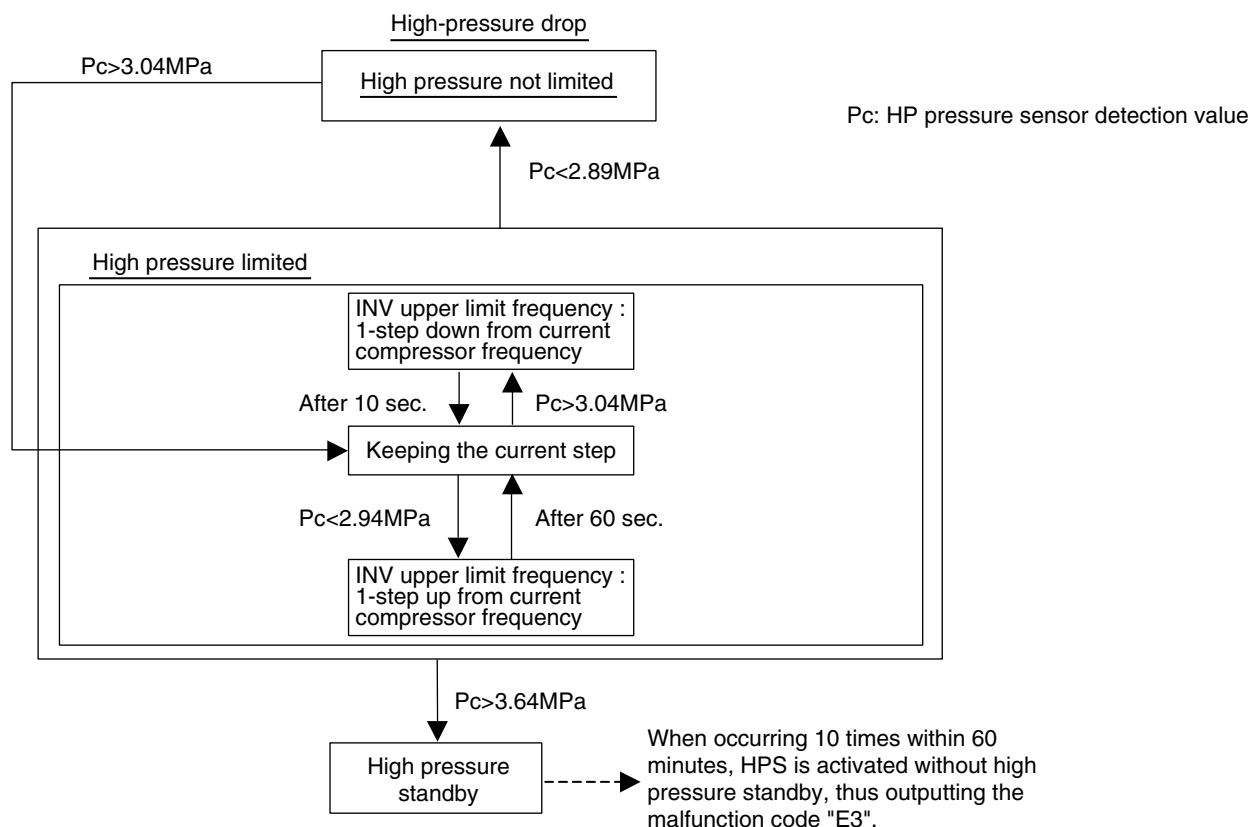
4.1 High Pressure Protection Control

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

[In cooling operation]



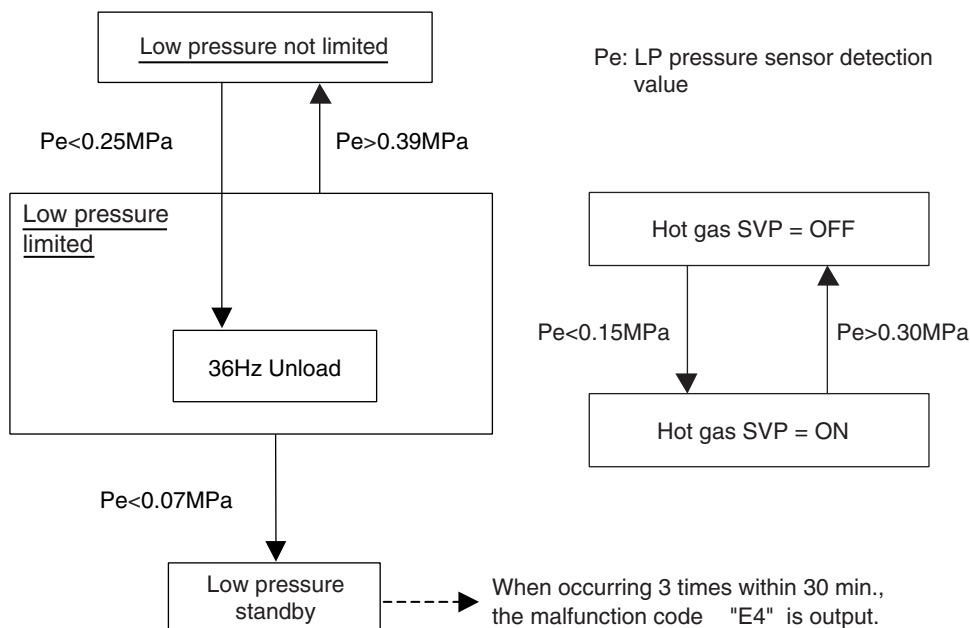
[In heating operation]



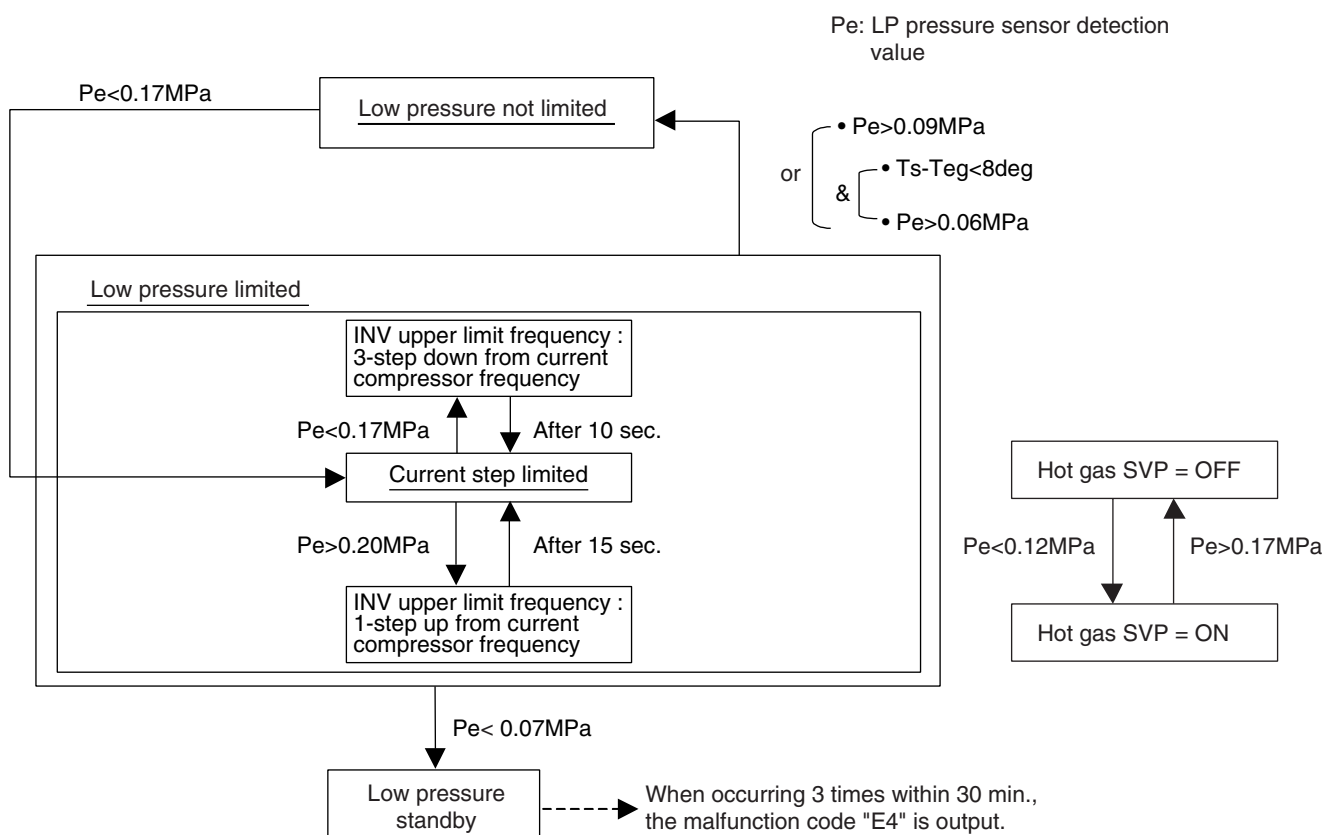
4.2 Low Pressure Protection Control

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

[In cooling operation]



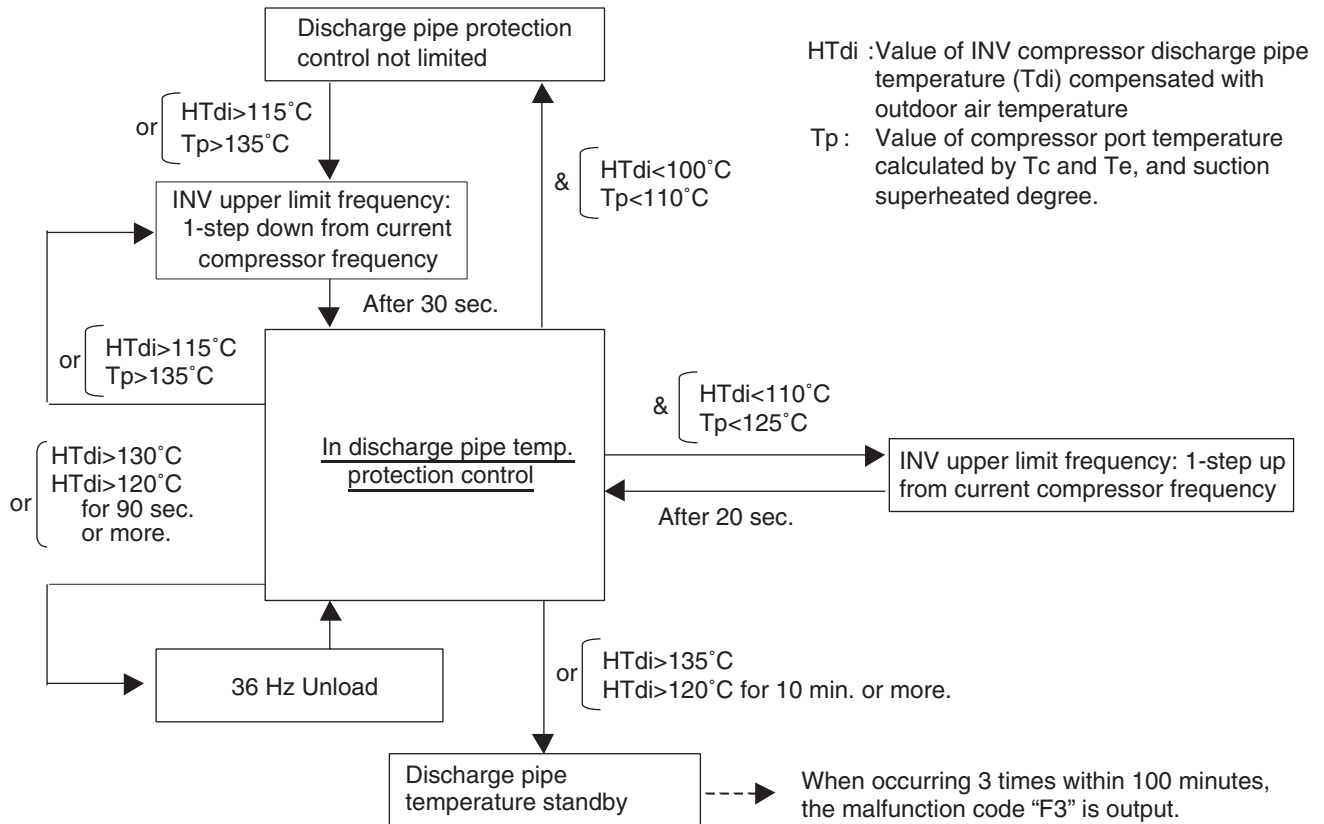
[In heating operation]



4.3 Discharge Pipe Protection Control

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

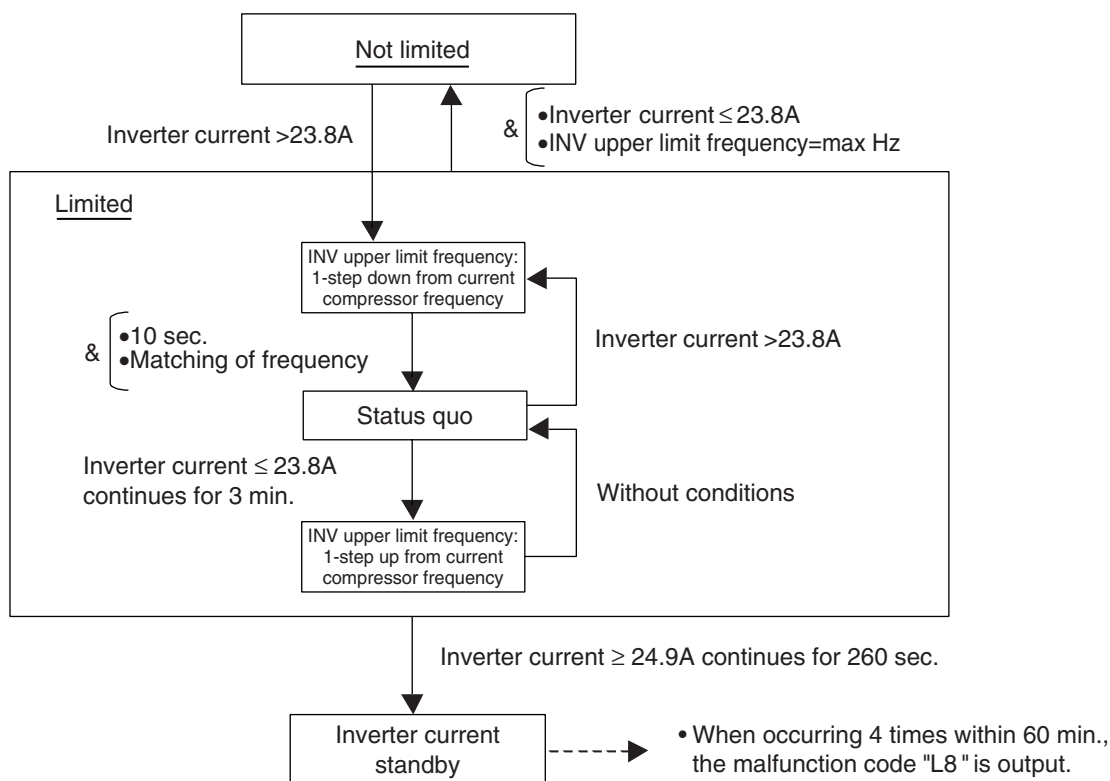
[INV compressor]



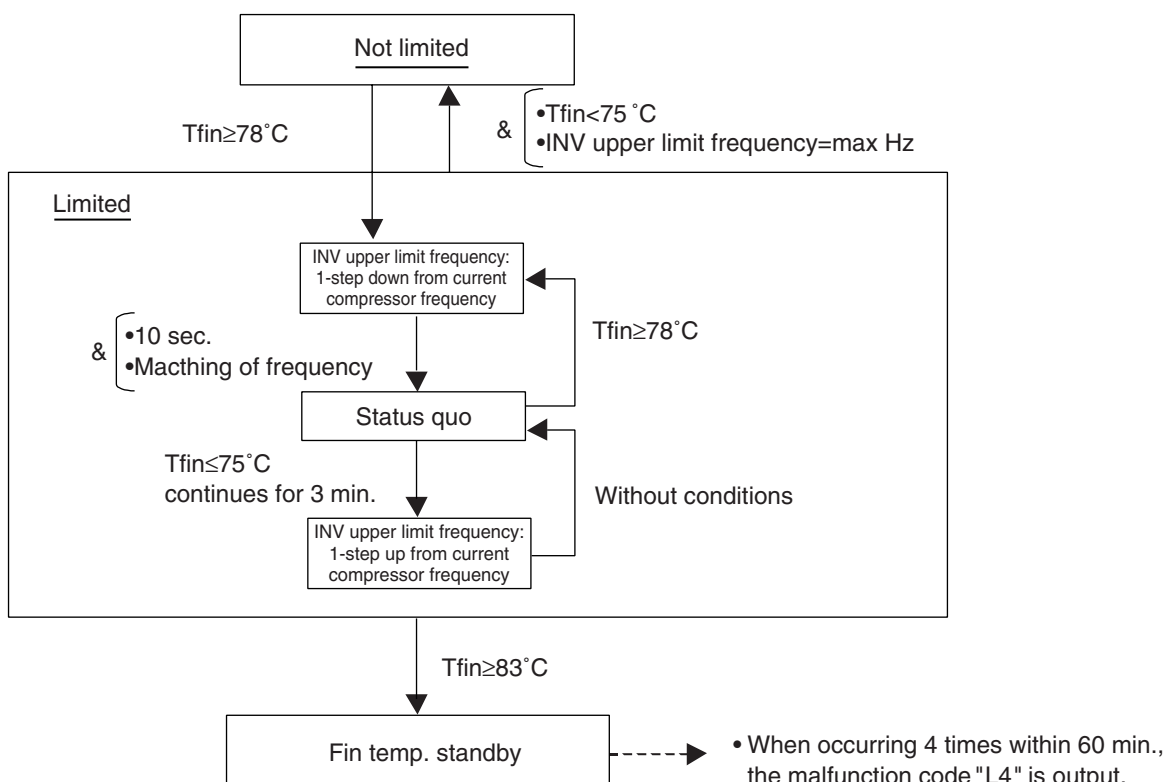
4.4 Inverter Protection Control

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

[Inverter overcurrent protection control]



[Inverter fin temperature control]



5. Other Control

5.1 Demand Operation

In order to save the power consumption, the capacity of outdoor unit is saved with control forcibly by using "Demand 1 Setting".

To operate the unit with this mode, additional setting of "Continuous Demand Setting".

[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%

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

5.2 Heating Operation Prohibition

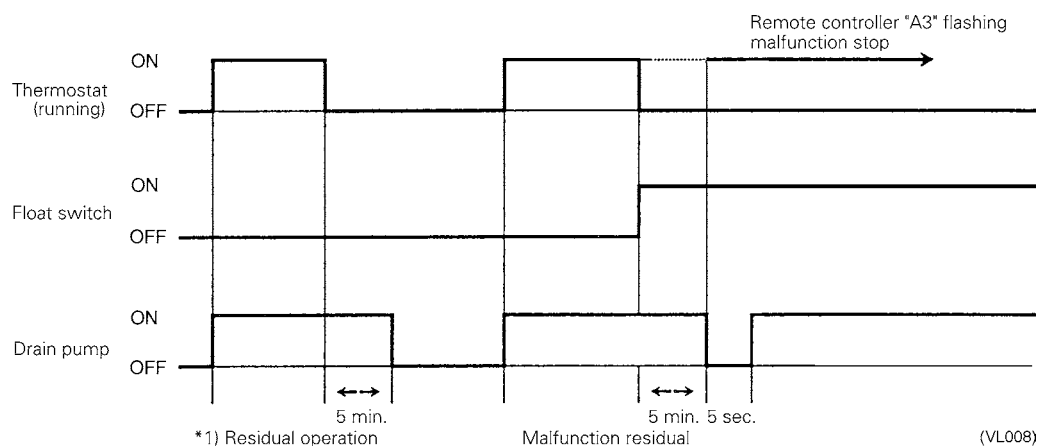
Heating operation is prohibited above 24°CDB outdoor air temperature.

6. Outline of Control (Indoor Unit)

6.1 Drain Pump Control

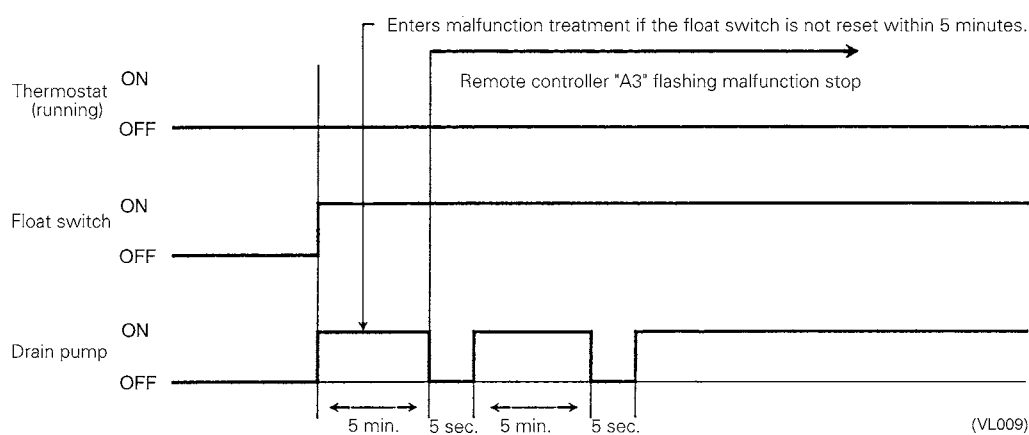
- The drain pump is controlled by the ON/OFF buttons (4 button (1) - (4) given in the figure below).

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

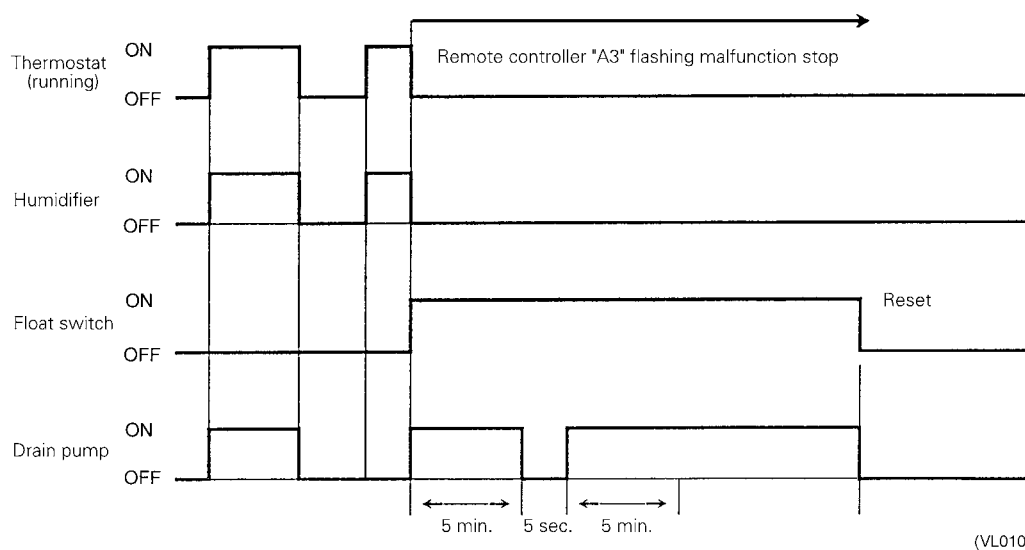


- * 1. The objective of residual operation is to completely drain any moisture adhering to the fin of the indoor unit heat exchanger when the thermostat goes off during cooling operation.

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

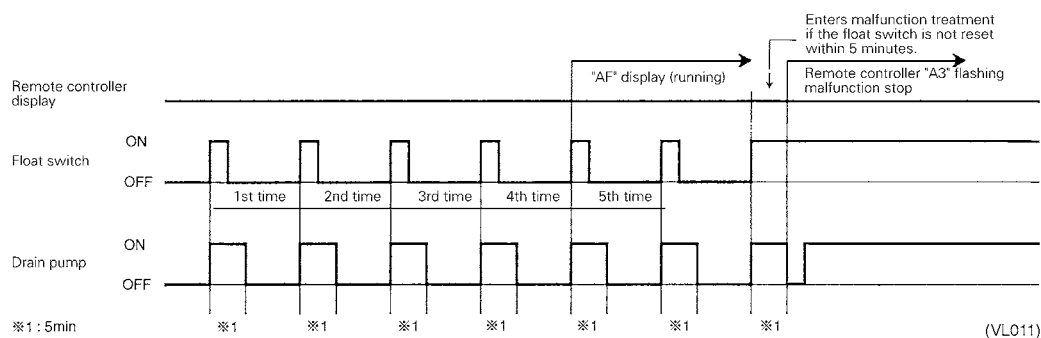


6.1.3 When the Float Switch is Tripped During Heating Operation:



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.

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

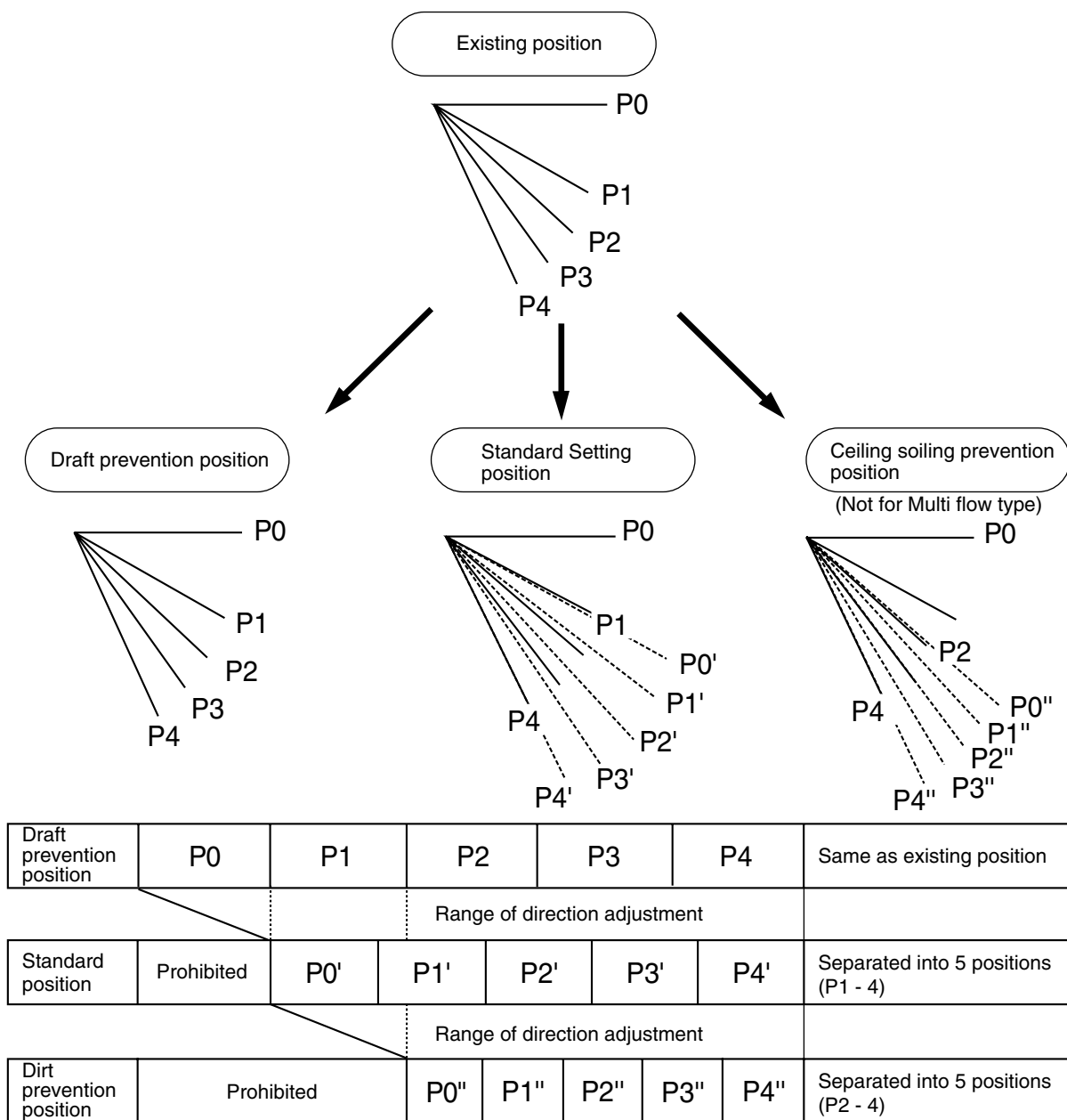


Note:

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

6.2 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.)



The factory set position is standard position.

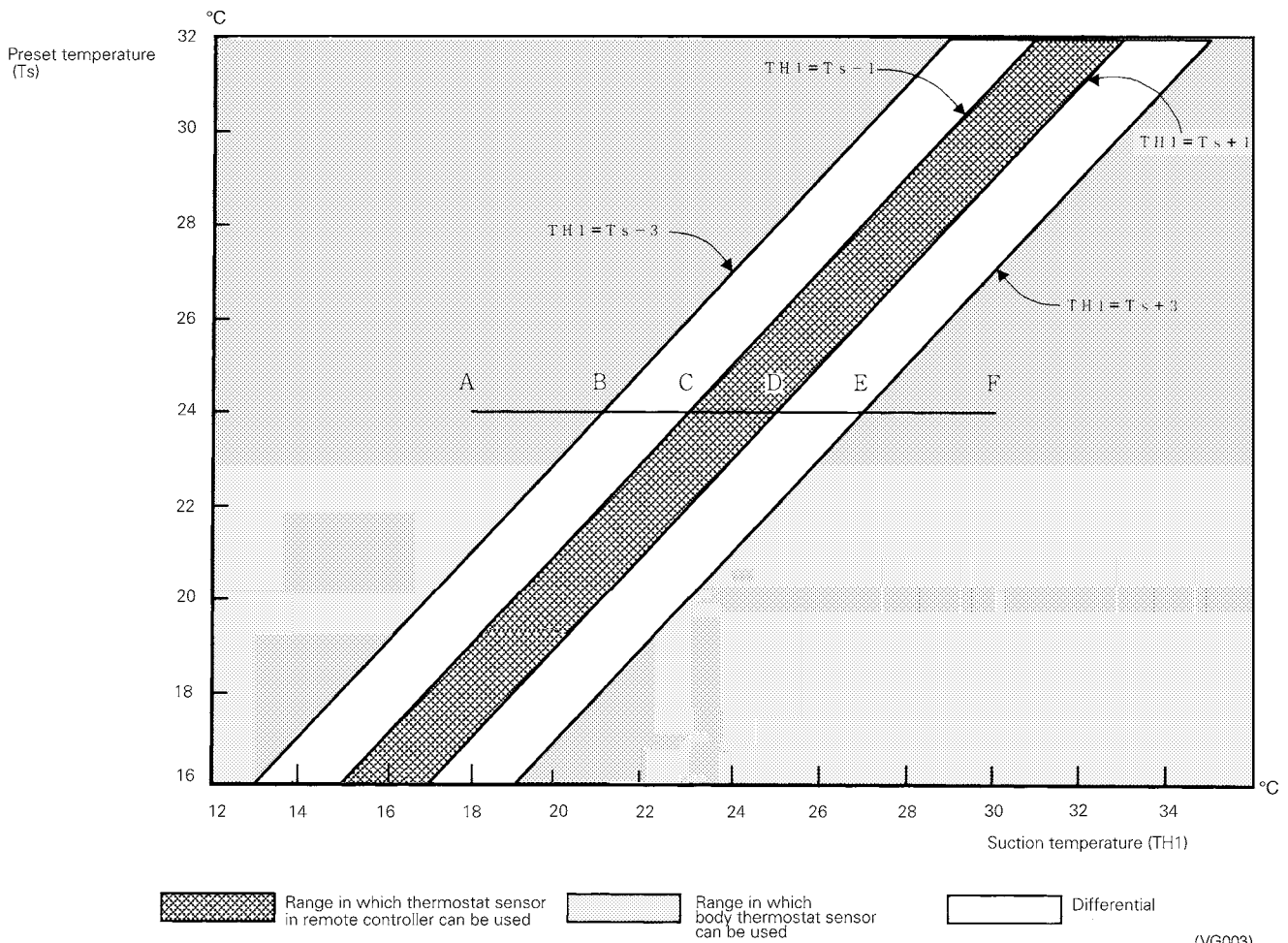
(VL012)

6.3 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 (A → F):

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

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

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

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

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

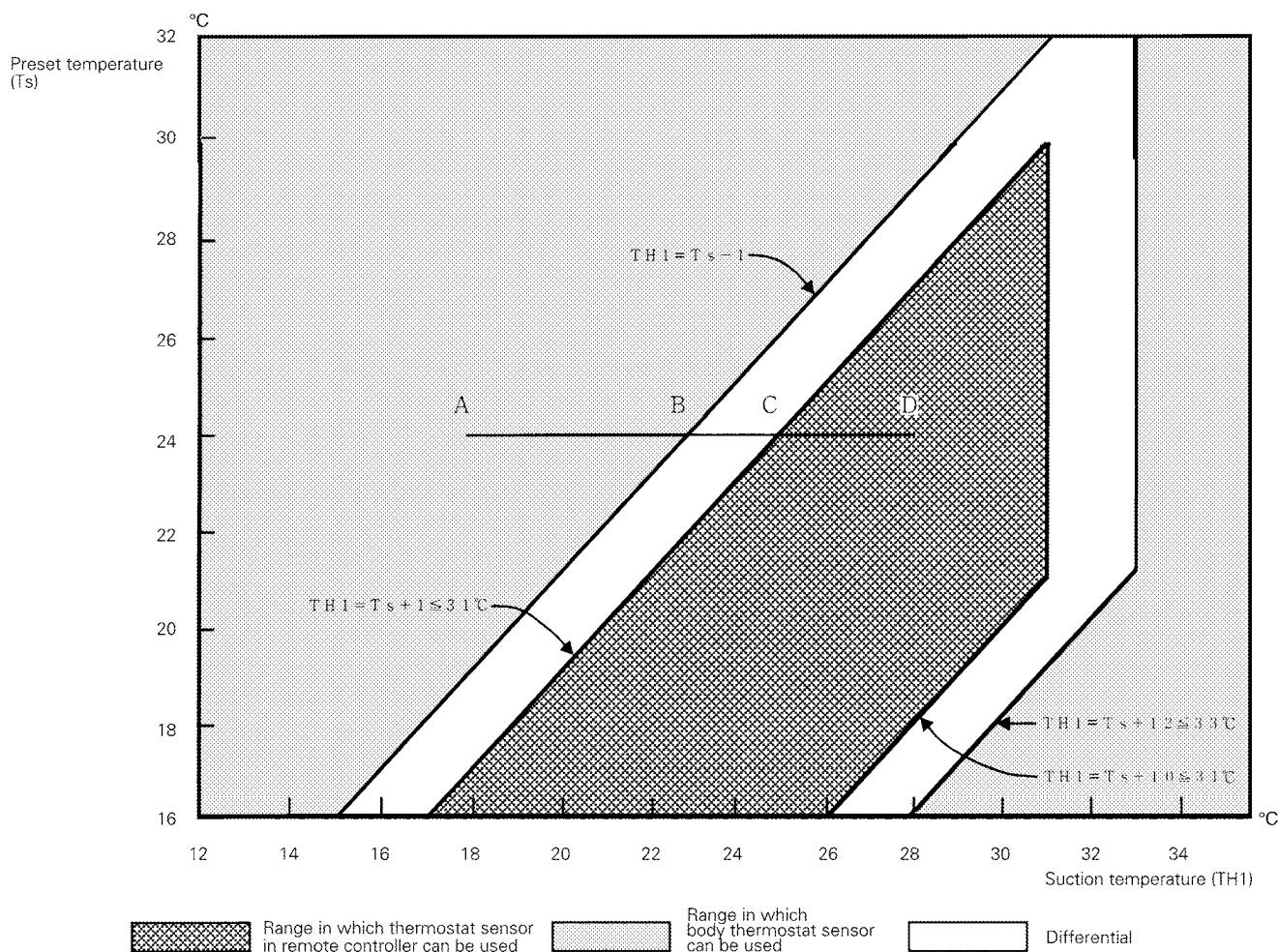
Body thermostat sensor is used for temperatures from 30°C to 25°C (F → D).

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

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

Heating

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



(V2769)

■ Ex: When heating

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

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

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

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

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

Remote controller thermostat sensor is used for temperatures from 28°C to 23°C (D → B).
Body thermostat sensor is used for temperatures from 23°C to 18°C (B → A).

6.4 Freeze Prevention

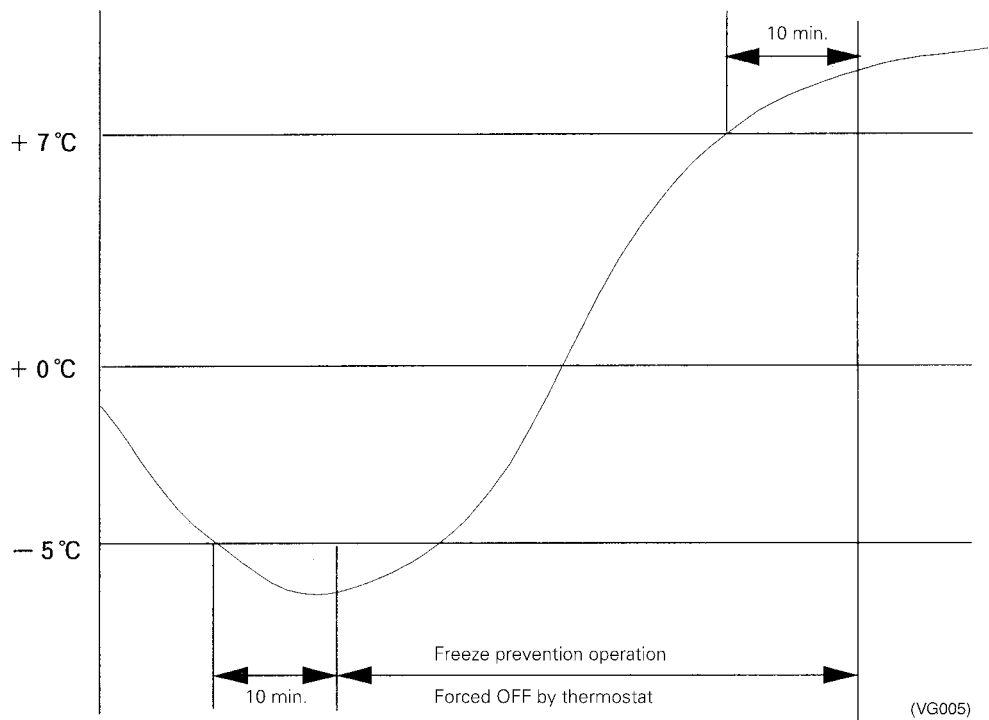
Freeze Prevention by Off Cycle (Indoor Unit)

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 $+7^{\circ}\text{C}$ or more for 10 min. continuously

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



6.5 View of Operations of Swing Flaps

Swing flaps work as following.

			Fan	Flap control		
				FXFQ	FXCQ FXKQ FXHQ	FXAQ
Heating	Hot-start from defrosting	Swinging	OFF	Level	Level	Level
		Setting the wind direction	OFF	Level	Level	Level
	Defrosting	Swinging	OFF	Level	Level	Level
		Setting the wind direction	OFF	Level	Level	Level
	Thermostat is off	Swinging	LL	Level	Level	Level
		Setting the wind direction	LL	Level	Level	Level
	Hot-start from the state that the thermostat is off	Swinging	LL	Level	Level	Level
		Setting the wind direction	LL	Level	Level	Level
	Halt	Swinging	OFF	Level	Level	Level
		Setting the wind direction	OFF	Level	Level	Level
Cooling	Thermostat of microcomputer-dry is on	Swinging	L ^{*1}	Swinging	Swinging	Swinging
		Setting the wind direction	L ^{*1}	Set up	Set up	Set up
	Thermostat of microcomputer-dry is off	Swinging	OFF or L	Swinging	Swinging	Swinging
		Setting the wind direction		Set up	Set up	Set up
	Cooling thermostat is off	Swinging	Set up	Swinging	Swinging	Swinging
		Setting the wind direction	Set up	Set up	Set up	Set up
	Halt	Swinging	OFF	Level	Level	Level
		Setting the wind direction	OFF	Set up	Level	Level
	Microcomputer is controlled (including the cooling state)	Swinging	L	Swinging	Swinging	Swinging
		Setting the wind direction	L	Set up	Set up	Set up

* 1. Only in FXFQ case, L or LL.

6.6 Electronic Expansion Valve Control

• Electronic expansion Valve Control

In cooling, to maximize the capacity of indoor unit heat exchanger (evaporator), operate the electronic expansion valve under PI control so that the evaporator outlet superheated degree (SH) will become constant.

In heating, to maximize the capacity of indoor unit heat exchanger (condenser), operate the electronic expansion valve under PI control so that the evaporator outlet superheated degree (Condenser outlet subcooled degree) will become constant.

Cooling $SH=TH_2-TH_1$
(Heating $SC=TC-TH_1$)

SH : Evaporator outlet superheated degree
TH₁: Temperature (°C) detected with the liquid thermistor
TH₂: Temperature (°C) detected with the gas thermistor
SC : Condenser outlet subcooled degree
TC : High pressure equivalent saturated temperature

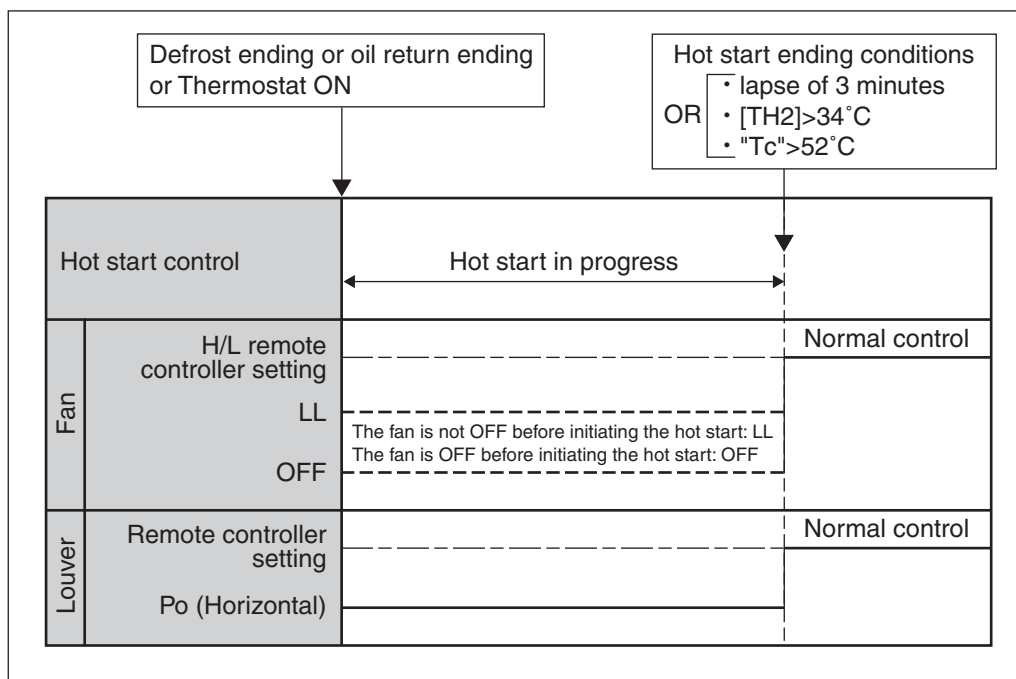
Furthermore, the default value of the optimal evaporator outlet superheated degree (condenser outlet subcooled degree) is 5 deg. However, this default value varies with the operating performance.

6.7 Hot Start Control (In Heating Operation Only)

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

[Detail of operation]

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



TH₂: Temperature (°C) detected with the gas thermistor
TC : High pressure equivalent saturated temperature

Part 6

Test Operation

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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
- Earth wire



Check on refrigerant piping



Check on amount of refrigerant charge

- Is the power supply single-phase 220-230V / 50Hz, 220V / 60Hz?
- Have you finished a ductwork to drain?
- Have you detach transport fitting?
- 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 220-230V circuit.
- Are the setscrews of wiring not loose?
- Is the electrical component box covered with an insulation cover completely?
- 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.)
- Are respective stop valves on liquid and gas line securely open?
- 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.
- Has the amount of refrigerant charge been recorded on "Record Chart of Additional Refrigerant Charge Amount"?

(V3180)

1.1.2 Turn Power On

Turn outdoor unit power on.



Turn indoor unit power on.



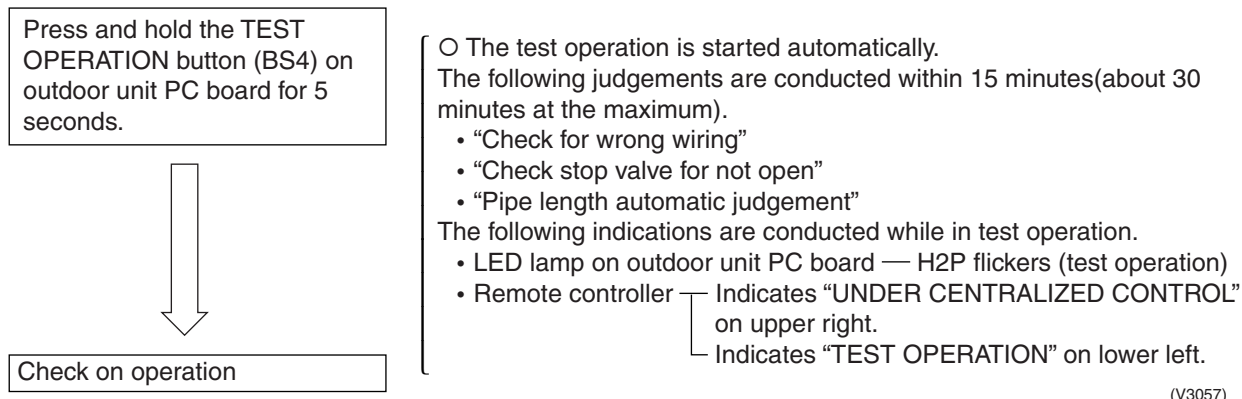
Carry out field setting on outdoor PC board

- Be sure to turn the power on 6 hours before starting operation to protect compressors.
- Close outside panels of the outdoor unit.

(V3056)

1.1.3 Check Operation

- * During check operation, mount front panel to avoid the misjudging.
- * Check operation is mandatory for normal unit operation.
(When the check operation is not executed, alarm code "U3" will be displayed.)



On completion of test operation, LED on outdoor unit PC board displays the following.

H3P ON: Normal completion

H2P and H3P ON: Abnormal completion → Check the indoor unit remote controller for abnormal display and correct it.

Malfunction code

In case of an alarm code displayed on remote controller:

Malfunction code	Nonconformity during installation	Remedial action
E3	The shutoff valve of an outdoor unit is left closed.	Open the gas-side shutoff valve and the liquid-side shutoff valve.
	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	The shutoff valve of an outdoor unit is left closed.	Open the gas-side shutoff valve and the liquid-side shutoff valve.
	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.
F3	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.
	The shutoff valve of an outdoor unit is left closed.	Open the gas-side shutoff valve and the liquid-side shutoff valve.
	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.
F6	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.
U2	Insufficient supply voltage	Check to see if the supply voltage is supplied properly.
U3	If a check operation has not been performed.	Perform a check operation.
U4	No power is supplied to an outdoor unit.	Turn the power on for the outdoor unit.
UA	If no dedicated indoor unit is being used.	Check the indoor unit. If it is not a dedicated unit, replace the indoor unit.
UF	The shutoff valve of an outdoor unit is left closed.	Open the gas-side shutoff valve and the liquid-side shutoff valve.
	If the right indoor unit piping and wiring are not properly connected to the outdoor unit.	Make sure that the right indoor unit piping and wiring are properly connected to the outdoor unit.
UH	If the interunit wiring has not be connected or it has shorted.	Make sure the interunit wiring is correctly attached to terminals (X2M) F1/F2 (TO IN/D UNIT) on the outdoor unit circuit board.

1.1.4 Confirmation on Normal Operation

- Conduct normal unit operation after the check operation has been completed.
(When outdoor air temperature is 24°CDB or higher, the unit can not be operated with heating mode. See the installation manual attached.)
- 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.

1.2 Operation when Power is Turned On

1.2.1 When Turning On Power First Time

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

Status

Outdoor unit

Test lamp H2P Blinks

Can also be set during operation described above.

Indoor unit

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

1.2.2 When Turning On Power the Second Time and Subsequent

Tap the RESET(BS5) button on the outdoor unit PC board. Operation becomes possible for about 2 minutes. If you do not push the RESET button, the unit cannot be run for up to 10 minutes to automatically set master power.

Status

Outdoor unit

Test lamp H2P Blinks

Can also be set during operation described above.

Indoor unit

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

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

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

Status

Outdoor unit

Test lamp H2P ON

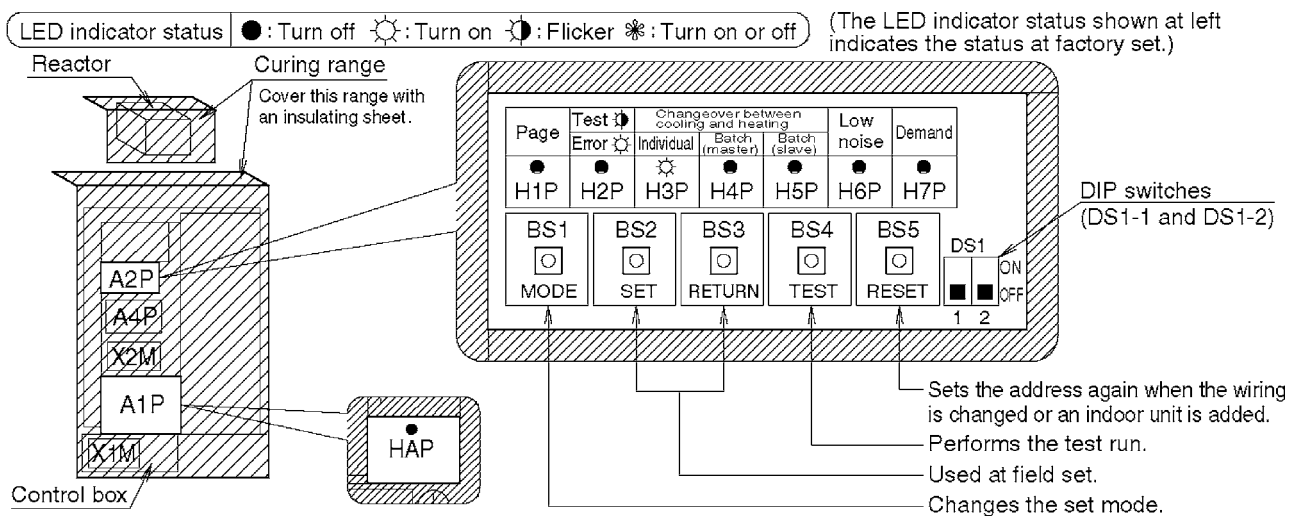
Can also be set during operation described above.

Indoor unit

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

2. Outdoor Unit PC Board Layout

Outdoor unit PC board



Caution Cover electric parts with an insulating sheet during inspection to prevent electric shock.

3. Field Setting

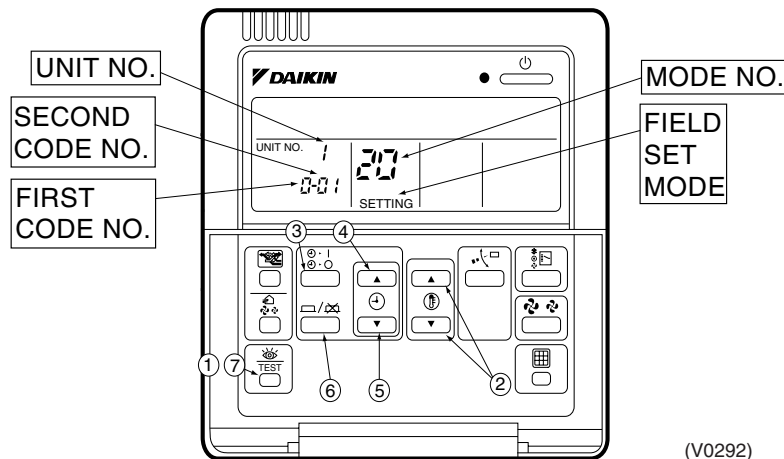
3.1 Field Setting from Remote Controller

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 <BRC1C62>



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

(Example)

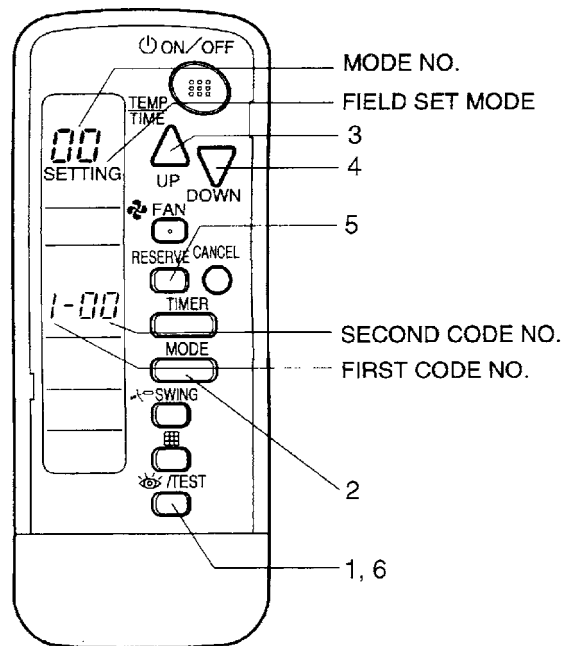
If during group setting and the time to clean air filter is set to FILTER CONTAMINATION, HEAVY, SET MODE NO. to “10” FIRST CODE NO. to “0”, and SECOND CODE NO. to “02”.

3.1.2 Wireless Remote Controller - Indoor Unit

BRC7C type

BRC7E type

BRC4C type



(V2770)

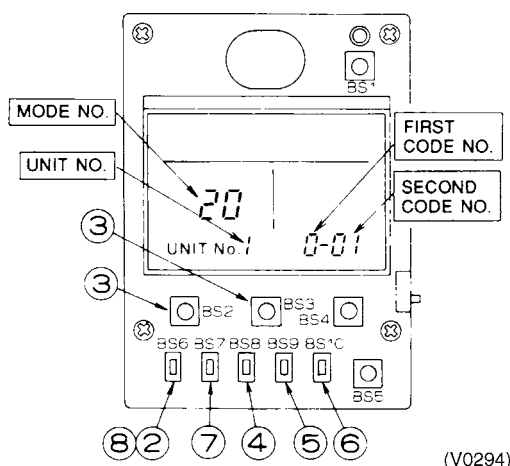
1. When in the normal mode, push the “ / TEST ” button for 4 seconds or more, and operation then enters the “field set mode.”
2. Select the desired “mode No.” with the “ ” button.
3. Pushing the “ ” button, select the first code No.
4. Pushing the “ ” button, select the second code No.
5. Push the timer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

BRC2C51



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

3.1.4 Setting Contents and Code No. – VRV Indoor Unit

VRV system indoor unit settings	Mode No. Note 2	Setting Switch No.	Setting Contents	Second Code No.(Note 3)							
				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		Ultra 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		External protection device input		—	
		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 :**
- Settings are made simultaneously for the entire group, however, if you select the mode No. inside parentheses, you can also set by each individual unit. Setting changes however cannot be checked except in the individual mode for those in parentheses.
 - The mode numbers inside parentheses cannot be used by wireless remote controllers, so they cannot be set individually. Setting changes also cannot be checked.
 - Marked are factory set.
 - Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
 - "88" may be displayed to indicate the remote controller is resetting when returning to the normal mode.
 - If the setting mode to "Equipped", heat reclaim ventilation fan conducts the fan residual operation by linking to indoor unit.

3.1.5 Applicable Range of Field Setting

	Ceiling mounted cassette type			Slim Ceiling mounted duct type	Ceiling mounted built-in type	Ceiling mounted duct type	Ceiling suspended type	Wall mounted type	Floor standing type	Concealed Floor standing type	Ceiling suspended cassette type
	Multi flow	Double flow	Corner type								
	FXFQ	FXCQ	FXKQ								
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

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

Ultra-Long-Life Filter Sign Setting

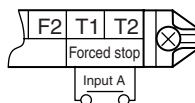
When a Ultra-long-life filter is installed, the filter sign timer setting must be changed.

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	—

External ON/OFF input

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



Setting Table

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

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 FXUQ71~125

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

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.

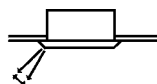
When only the front-flow is used, sets yes/no of the swing flap operation of down-flow.

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)

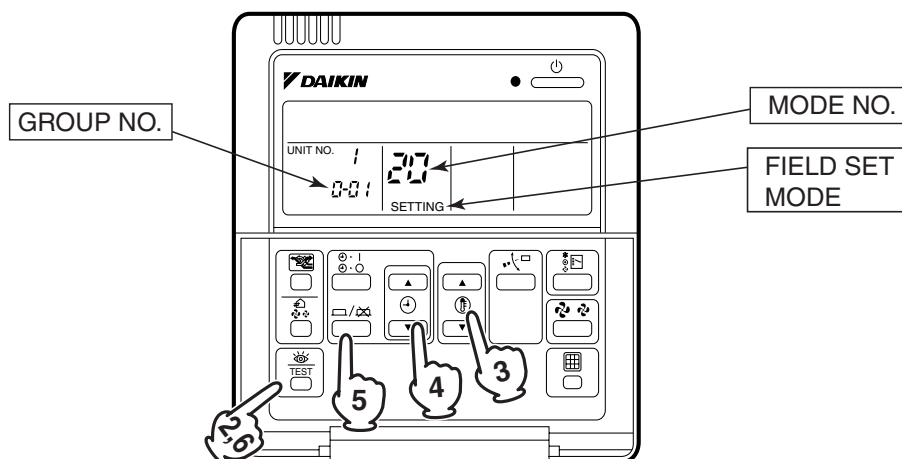
3.1.7 Centralized Control Group No. Setting

BRC1C Type

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

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

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



Note:

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

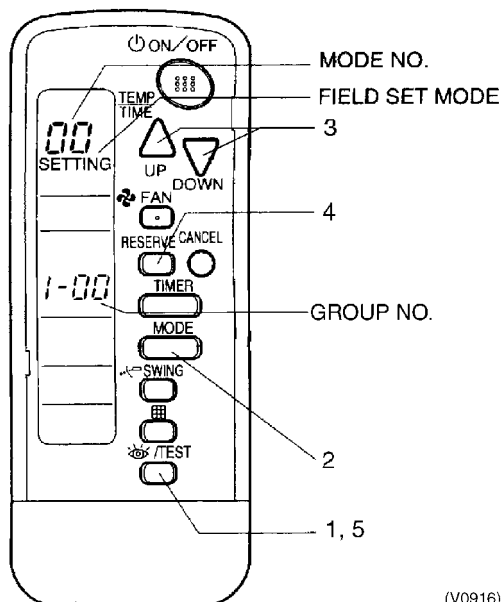
NOTICE

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

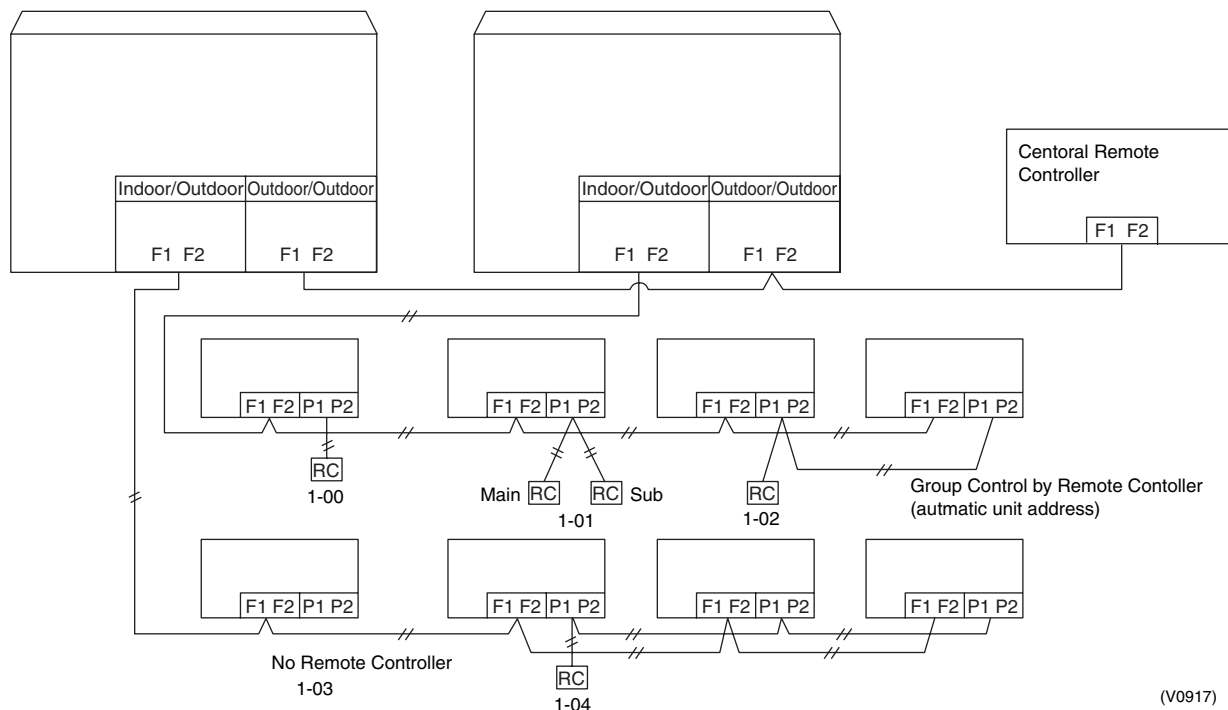
BRC7C Type
BRC7E Type
BRC4C Type

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

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



Group No. Setting Example



Caution

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

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

The operation control mode is compatible with a variety of controls and operations by limiting the functions of the operation remote controller. Furthermore, operations such as remote controller ON/OFF can be limited in accordance with the combination conditions. (Refer to information in the next page.)

Central remote controller is normally available for operations. (Except when centralized monitor is connected)

3.1.9 Contents of Control Modes

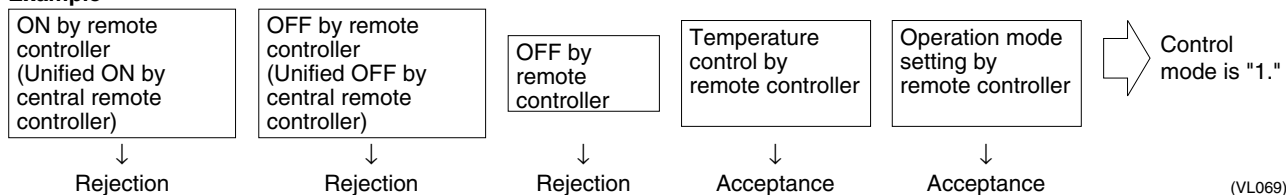
Twenty modes consisting of combinations of the following five operation modes with temperature and operation mode setting by remote controller can be set and displayed by operation modes 0 through 19.

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

How to Select Operation Mode

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

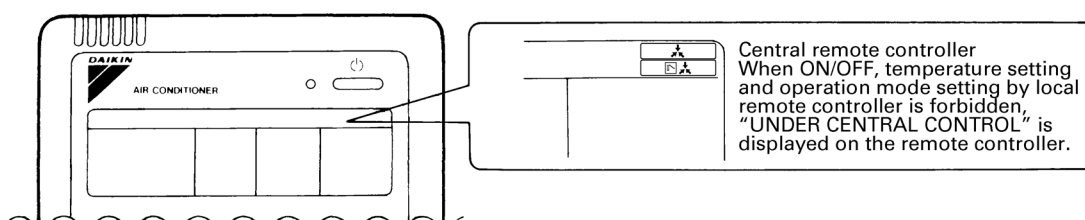
Example



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

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

*1. Factory setting



3.2 Field Setting from Outdoor Unit

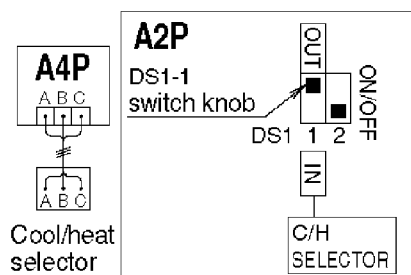
3.2.1 Setting by Dip Switches

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

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

Cool/heat selector connection procedure

- Set the remote controller only when changing over the operation mode between cooling and heating using the remote controller installed in the outdoor.
- ① Connect the cool/heat selector (optional accessory) to the terminals (A, B and C) on the outdoor PC board (A4P).
 - ② Set the cool/heat selector switch DS1-1 from "IN (inside) " (which is selected at the factory before shipment) to "OUT (outside) ".





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.

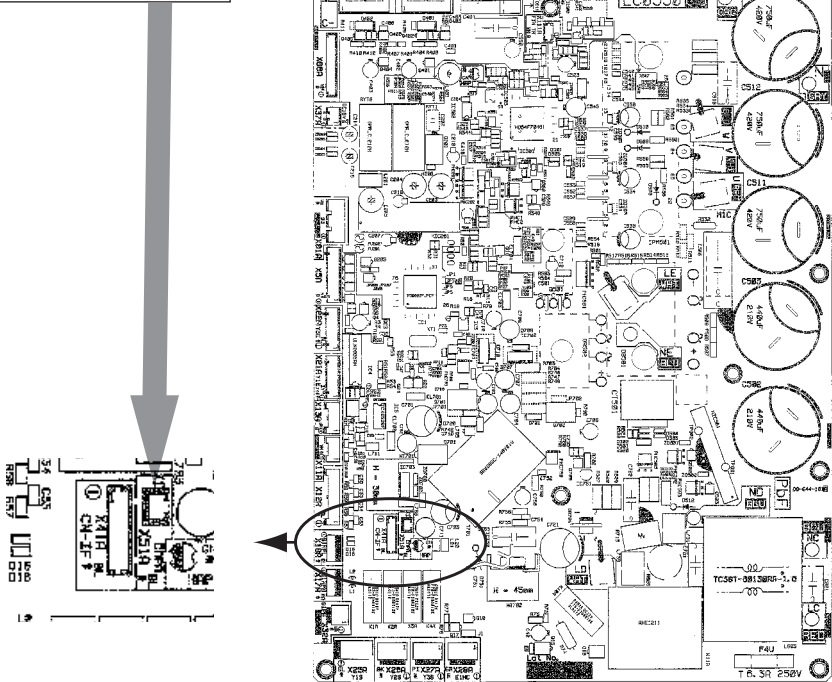
Please Attach the Capacity Setting Adapter corresponding to Capacity Class (ex. 112, 140, 160) in connector X51A. (See Below)

Capacity Setting Adapter

	Capacity Class	Note
①	4 (112)	CAPACITY SETTING ADAPTER (for 100/J112)
②	5 (140)	CAPACITY SETTING ADAPTER (for 125/J140)
③	6 (160)	CAPACITY SETTING ADAPTER (for 140/J160)

Position of Attaching the Capacity Setting Adapter

X51A
Position of Attaching
the Capacity Setting Adapter

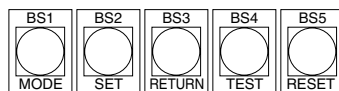


■ Setting by pushbutton switches

The following settings are made by pushbutton switches on PC board.

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

(Factory setting)



(V2760)

There are the following three setting modes.

① Setting mode 1 (H1P off)

Initial status (when normal) : Also indicates during “abnormal”.

② Setting mode 2 (H1P on)

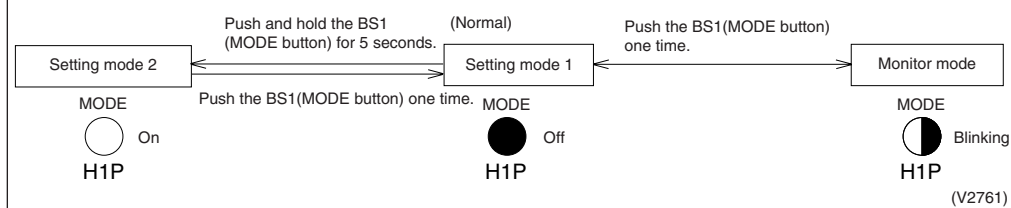
Used to modify the operating status and to set program addresses, etc. Usually used in servicing the system.

③ Monitor mode (H1P blinks)

Used to check the program made in Setting mode 2.

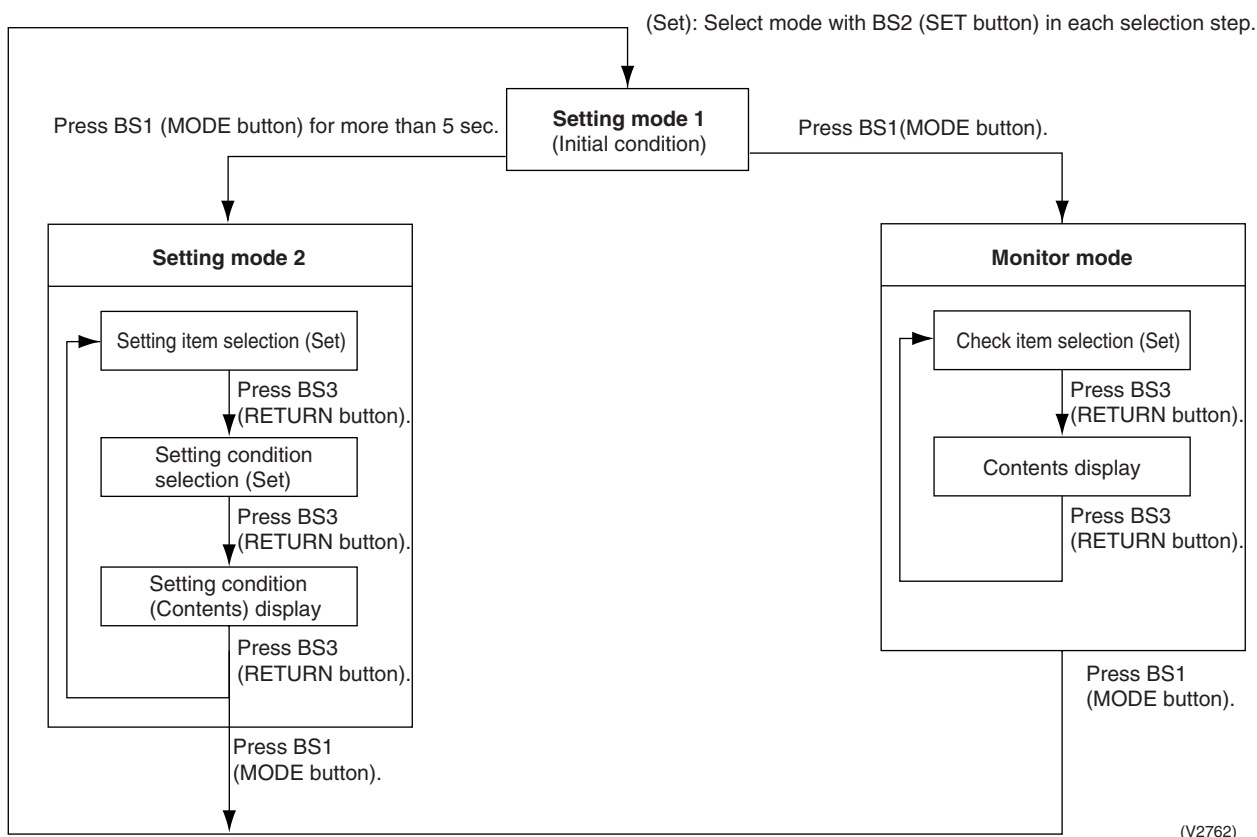
■ Mode changing procedure

Using the MODE button, the modes can be changed as follows.



(V2761)

■ Mode changing procedure



(V2762)

a. "Setting mode 1"

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

1. Set items In order to make COOL/HEAT selection in a batch of outdoor unit group, change the setting.
 - COOL/HEAT selection (IND) Used to select COOL or HEAT by individual outdoor unit (factory set).
 - COOL/HEAT selection (MASTER) Used to select COOL or HEAT by outdoor unit group with the master unit.
 - COOL/HEAT selection (SLAVE) Used to select COOL or HEAT by outdoor unit group with the slave unit.
2. Check items The following items can be checked.
 - (1) Current operating conditions (Normal / Abnormal / In check operation)
 - (2) Setting conditions of COOL/HEAT selection (Individual / Batch master / Batch slave)
 - (3) Low noise operating conditions (In normal operation / In low noise operation)
 - (4) Demand operating conditions (In normal operation / In demand operation)

Procedure for changing COOL/HEAT selection setting

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

Push the **SET (BS2)** button to set the blinking of LED to any of conditions shown on the right.

Push the **RETURN (BS3)** button to determine the setting.

Setting (displaying) item	MODE H1P	TEST H2P	COOL/HEAT select			Low noise H6P	Demand H7P
			IND H3P	MASTER H4P	SLAVE H5P		
For selection by individual outdoor unit (factory set)	●	●	○	●	●	●	●
For selection in a batch of outdoor unit group with master unit	●	●	●	○	●	●	●
For selection in a batch of outdoor unit group with slave unit	●	●	●	●	○	●	●

○ ON
● OFF
○ Blink

Pushing the **RETURN (BS3)** button will return the system to the initial condition of "Setting mode 1".

Procedure for checking check items

The system is normally set to "Setting mode 1".
Should the system be set to any mode other than that, push the **MODE (BS1)** button to set the system to "Setting mode 1".

Check the system for each condition through LED displays. (Refer to information in table on the right.)

Pushing the **RETURN (BS3)** button will bring the system to the initial state of "Setting mode 1".

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

- Current operating conditions
 - Normal ○ Abnormal
 - In preparation or in check operation
- Setting of COO/HEAT selection
 - ● ● By individual outdoor unit
 - ○ ● In a batch of outdoor unit group with master unit
 - ● ○ In a batch of outdoor unit group with slave unit
- Low noise operating conditions
 - In normal operation
 - In low noise operation
- Demand operating conditions
 - In normal operation
 - In demand operation

(V2763)

b. "Setting mode 2"

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

<Selection of setting items>

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

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

<Selection of setting conditions>

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

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

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

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

(V2764)

No.	Setting item	Description
1	Cool/heat unified address	Sets address for cool/heat unified operation.
2	Low noise/demand address	Address for low noise/demand operation
3	Test operation settings	Used to conduct test operation without making changes to the PCB and replacing the refrigerant, after the completion of maintenance.
5	Indoor unit forced fan H	Allows forced operation of indoor unit fan while unit is stopped. (H tap)
6	Indoor unit forced operation	Allows forced operation of indoor unit.
8	Te setting	Target evaporation temperature for cooling
9	Tc setting	Target condensation temperature for heating
10	Defrost changeover setting	Changes the temperature condition for defrost and sets to quick defrost or slow defrost.
12	External low noise setting / Demand setting	Reception of external low noise or demand signal
13	AIRNET address	Set address for AIRNET.
16	Setting of hot water	Make this setting to conduct heating operation with hot water heater.
20	Additional refrigerant charge operation setting	Carries out additional refrigerant charge operation.
21	Refrigerant recovery / vacuuming mode setting	Sets to refrigerant recovery or vacuuming mode.
22	Night-time low noise setting	Sets automatic nighttime low noise operation in a simple way. The operating time is based on "Starting set" and "Ending set".
25	Setting of external low noise level	Sets low noise level when the low noise signal is input from outside.
26	Night-time low noise operation start setting	Sets starting time of nighttime low noise operation. (Night-time low noise setting is also required.)
27	Night-time low noise operation end setting	Sets ending time of nighttime low noise operation. (Night-time low noise setting is also required.)
28	Power transistor check mode *Check after disconnection of compressor wires	Used for trouble diagnosis of DC compressor. Since the waveform of inverter is output without wiring to the compressor, it is convenient to probe whether the trouble comes from the compressor or PC board.
29	Capacity precedence setting	If the capacity control is required, the low noise control is automatically released by this setting during carrying out low noise operation and nighttime low noise operation.
30	Demand setting 1	Changes target value of power consumption when demand control 1 is input.
32	Normal demand setting	Normally enables demand control 1 without external input. (Effective to prevent a problem that circuit breaker of small capacity is shut down due to large load.)

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

No.	Setting item display								Setting condition display										
	Setting item	MODE H1P	TEST H2P	C/H selection			Low noise H6P	Demand H7P											
				IND H3P	Master H4P	Slave H5P													
									* Factory set										
1	Cool / Heat Unified address	☐	☒	☒	☒	☒	☒	☐	Address	0	☐	☒	☒	☒	☒	☒	☒	☒	*
									Binary number	1	☐	☒	☒	☒	☒	☒	☐		
									(6 digits)	~	☐	☒	☐	☐	☐	☐	☐		
2	Low noise/demand address	☐	☒	☒	☒	☒	☐	☒	Address	0	☐	☒	☒	☒	☒	☒	☒	*	
									Binary number	1	☐	☒	☒	☒	☒	☒	☐		
									(6 digits)	~	☐	☒	☐	☐	☐	☐	☐		
3	Test operation	☐	☒	☒	☒	☒	☐	☐	Test operation : OFF	☐	☒	☒	☒	☒	☒	☐			
									Test operation : ON	☐	☒	☒	☒	☒	☐	☒	*		
5	Indoor forced fan H	☐	☒	☒	☒	☐	☒	☐	Normal operation	☐	☒	☒	☒	☒	☒	☐	*		
									Indoor forced fan H	☐	☒	☒	☒	☒	☐	☒			
6	Indoor forced operation	☐	☒	☒	☒	☐	☐	☒	Normal operation	☐	☒	☒	☒	☒	☒	☐	*		
									Indoor forced operation	☐	☒	☒	☒	☒	☐	☒			
8	Te setting	☐	☒	☒	☐	☒	☒	☒	High	☐	☒	☒	☒	☐	☒	☒			
									Normal (factory setting)	☐	☒	☒	☒	☐	☒	*			
									Low	☐	☒	☒	☒	☒	☒	☐			
9	Tc setting	☐	☒	☒	☐	☒	☒	☐	High	☐	☒	☒	☒	☐	☒	☒			
									Normal (factory setting)	☐	☒	☒	☒	☐	☒	*			
									Low	☐	☒	☒	☒	☒	☒	☐			
10	Defrost changeover setting	☐	☒	☒	☐	☒	☐	☒	Quick defrost	☐	☒	☒	☒	☐	☒	☒			
									Normal (factory setting)	☐	☒	☒	☒	☐	☒	*			
									Slow defrost	☐	☒	☒	☒	☒	☒	☐			
12	External low noise/ demand setting	☐	☒	☒	☐	☐	☒	☒	External low noise/demand: NO	☐	☒	☒	☒	☒	☐	*			
									External low noise/demand: YES	☐	☒	☒	☒	☒	☐	☒			
13	Airmet address	☐	☒	☒	☐	☐	☒	☐	Address	0	☐	☒	☒	☒	☒	☒	☒	*	
									Binary number	1	☐	☒	☒	☒	☒	☒	☐		
									(6 digits)	~	☐	☒	☐	☐	☐	☐	☐		
16	Setting of hot water heater	☐	☒	☐	☒	☒	☒	☒	OFF	☐	☒	☒	☒	☒	☒	☐	*		
									ON	☐	☒	☒	☒	☒	☐	☒			
20	Additional refrigerant charging operation setting	☐	☒	☐	☒	☐	☒	☒	Refrigerant charging: OFF	☐	☒	☒	☒	☒	☒	☐	*		
									Refrigerant charging: ON	☐	☒	☒	☒	☒	☐	☒			
21	Refrigerant recovery / vacuuming mode setting	☐	☒	☐	☒	☐	☒	☐	Refrigerant recovery / vacuuming: OFF	☐	☒	☒	☒	☒	☒	☐	*		
									Refrigerant recovery / vacuuming: ON	☐	☒	☒	☒	☒	☐	☒			
22	Night-time low noise setting	☐	☒	☐	☒	☐	☐	☒	OFF	☐	☒	☒	☒	☒	☒	☒	*		
									Level 1 (outdoor fan with 6 step or lower)	☐	☒	☒	☒	☒	☒	☐			
									Level 2 (outdoor fan with 5 step or lower)	☐	☒	☒	☒	☒	☐	☒			
									Level 3 (outdoor fan with 4 step or lower)	☐	☒	☒	☒	☒	☐	☐			

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

No.	Setting item display								Setting condition display
	Setting item	MODE H1P	TEST H2P	C/H selection			Low noise H6P	Demand H7P	
				IND H3P	Master H4P	Slave H5P			* Factory set
25	Low noise setting	○	●	○	○	●	●	○	Level 1 (outdoor fan with 6 step or lower) ○ ● ● ● ● ● ○
									Level 2 (outdoor fan with 5 step or lower) ○ ● ● ● ● ○ ● *
									Level 3 (outdoor fan with 4 step or lower) ○ ● ● ● ○ ● ●
26	Night-time low noise operation start setting	○	●	○	○	●	○	●	About 20:00 ○ ● ● ● ● ● ○
									About 22:00 (factory setting) ○ ● ● ● ● ○ ● *
									About 24:00 ○ ● ● ● ○ ● ●
27	Night-time low noise operation end setting	○	●	○	○	●	○	○	About 6:00 ○ ● ● ● ● ● ○
									About 7:00 ○ ● ● ● ● ○ ●
									About 8:00 (factory setting) ○ ● ● ● ○ ● ● *
28	Power transistor check mode	○	●	○	○	○	●	●	OFF ○ ● ● ● ● ● ○ *
									ON ○ ● ● ● ● ○ ●
29	Capacity precedence setting	○	●	○	○	○	●	○	OFF ○ ● ● ● ● ● ○ *
									ON ○ ● ● ● ● ○ ●
30	Demand setting 1	○	●	○	○	○	○	●	60 % demand ○ ● ● ● ● ● ○
									70 % demand ○ ● ● ● ● ○ ● *
									80 % demand ○ ● ● ● ○ ● ●
32	Normal demand setting	○	○	●	●	●	●	●	OFF ○ ● ● ● ● ● ○ *
									ON ○ ● ● ● ● ○ ●

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

c. Monitor mode

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

<Selection of setting item>

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

<Confirmation on setting contents>

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

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

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

(V2765)

No.	Setting item	LED display							Data display
		H1P	H2P	H3P	H4P	H5P	H6P	H7P	
0	Various 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	●	●	●	●	○	●	○	
7	Number of connected zone units (excluding outdoor and BS unit)	●	●	●	●	○	○	○	
8	Number of outdoor units	●	●	●	○	●	●	●	Lower 6 digits
11	Number of zone units (excluding outdoor and BS unit)	●	●	●	○	●	○	○	
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 Refer to page 124.
15	Contents of malfunction (1 cycle before)	○	●	●	○	○	○	○	
16	Contents of malfunction (2 cycle before)	○	●	○	●	●	●	●	
20	Contents of retry (the latest)	○	●	○	●	○	●	●	
21	Contents of retry (1 cycle before)	○	●	○	●	○	●	○	
22	Contents of retry (2 cycle before)	○	●	○	●	○	○	●	
25	Normal judgment of outdoor units PC board	●	●	○	○	●	●	○	Lower 2 digits: ○ ● Abnormal ● ○ Normal ● ● Unjudgment

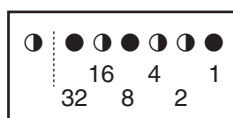
The numbers in the "No." column represent the number of times to press the SET (BS2) button.

Setting item 0 Display contents of "Various setting"

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

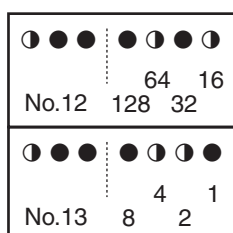
Push the SET button and match with the LEDs No. 1 - 15, push the RETURN button, and confirm the data for each setting.

★ 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 - 25.

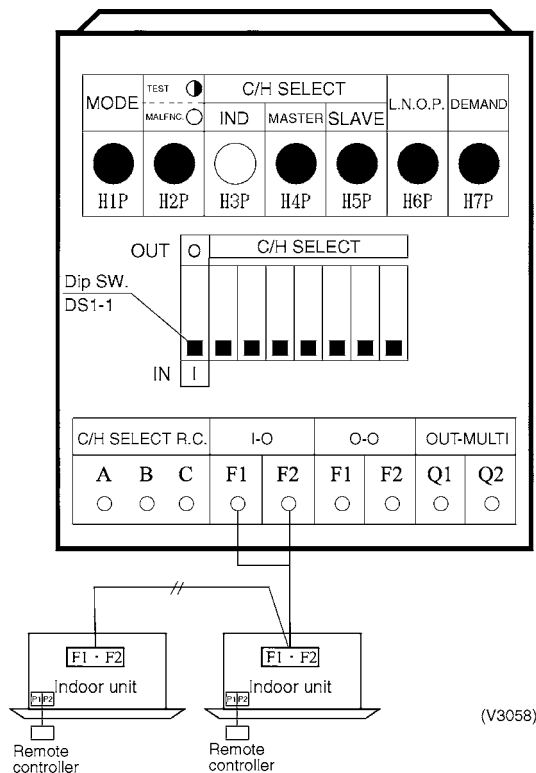
3.2.2 Cool / Heat Mode Switching

There are the following 4 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 Unit 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 IN (factory set).
- ◆ Set cool/heat switching to IND (individual) for "Setting mode 1" (factory set).



<Set the master unit (= indoor unit having the right to select the cooling/heating operation mode).>

In the case of wired remote controllers

- After the check operation, "CHANGEOVER UNDER CONTROL" is flashing in all connected remote controllers.
- Select an indoor unit to be used as the master unit in accordance with the request from the customer. (It is recommended to select an indoor unit which will be used most often as the master unit.)
- Press the operation mode selector button in the remote controller of the indoor unit selected as the master unit.
- In that remote controller, "CHANGEOVER UNDER CONTROL" disappears. That remote controller will control changeover of the cooling/heating operation mode.
- In other remote controllers, "CHANGEOVER UNDER CONTROL" lights.

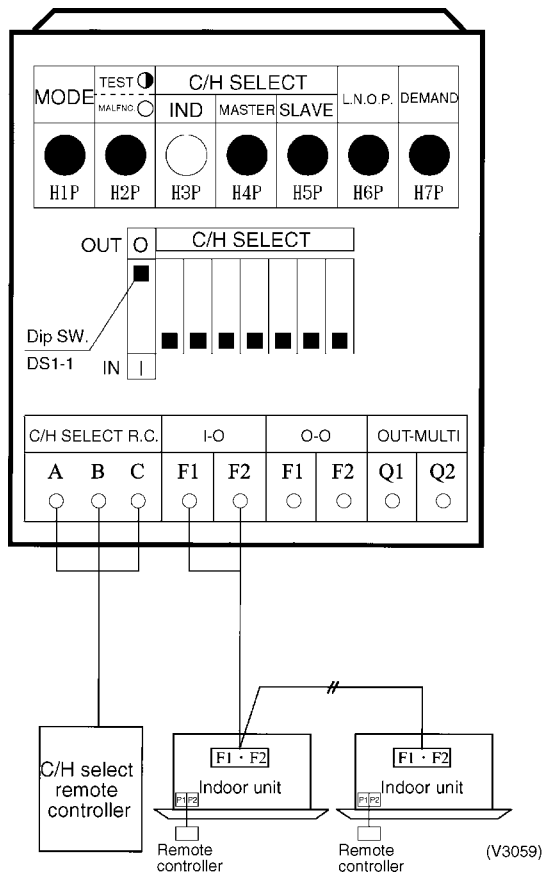
For the details, refer to the installation manual supplied together with the indoor unit.

In the case of wireless remote controllers

- After the check operation, the timer lamp is flashing in all connected indoor units.
- Select an indoor unit to be used as the master unit in accordance with the request from the customer. (It is recommended to select an indoor unit which will be used most often as the master unit.)
- Press the operation selector mode button in the remote controller of the indoor unit selected as the master unit. A "peep" sound is emitted, and the timer lamp turns off in all indoor units.
- That indoor unit will control changeover of the cooling/heating operation mode.

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 **OUT** (factory set).
- ◆ Set cool/heat switching to **IND** (individual) for "Setting mode 1" (factory set).



3.2.3 Setting of Low Noise Operation and Demand Operation

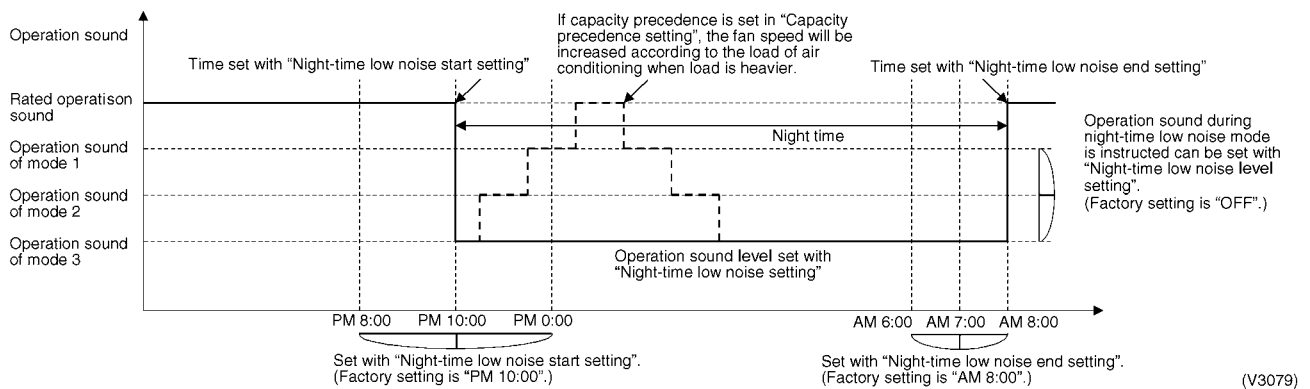
Setting of Low Noise Operation

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

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

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

Image of operation



(V3079)

Setting of Demand Operation

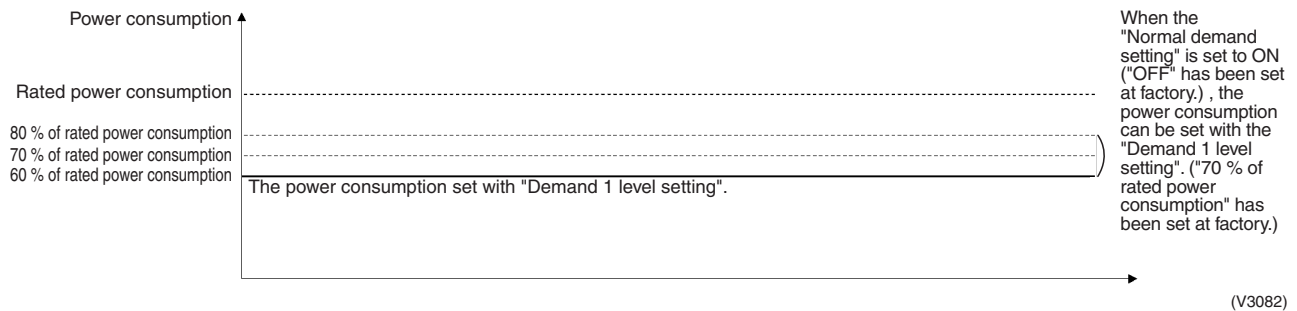
By connecting the external contact input to the demand input of the outdoor unit external control adapter (optional), the power consumption of unit operation can be saved suppressing the compressor operating condition.

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

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

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

Image of operation



Detailed Setting Procedure of Low Noise Operation and Demand Control

1. Setting mode 1 (H1P off)

- ① In setting mode 2, push the BS1 (MODE button) one time. → Setting mode 1 is entered and H1P off.

During the setting mode 1 is displayed, “In low noise operation” and “In demand control” are displayed.

2. Setting mode 2 (H1P on)

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

○: ON ●: OFF ◐: Blink

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

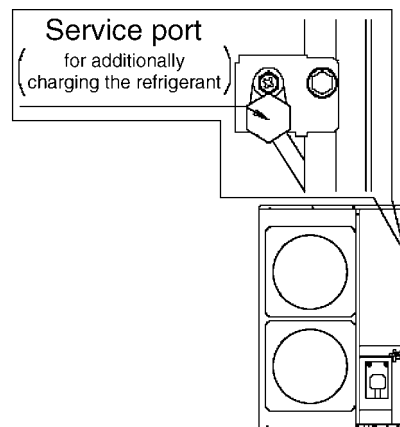
Setting mode indication section

Setting No. indication section

Set contents indication section

3.2.4 Setting of Refrigerant Additional Charging Operation

- * When the outdoor unit is stopped and the entire quantity of refrigerant cannot be charged from the stop valve on the liquid side, make sure to charge the remaining quantity of refrigerant using this procedure. If the refrigerant quantity is insufficient, the unit may malfunction.
- ① Turn ON the power of the indoor unit and the outdoor unit.
 - ② Make sure to completely open the stop valve on the gas side and the stop valve on the liquid side.
 - ③ Connect the refrigerant charge hose to the service port (for additionally charging the refrigerant).
 - ④ In the stopped status, set to ON the refrigerant additional charging operation (A) in set mode 2 (H1P: Turn on).
 - ⑤ The operation is automatically started.
(The LED indicator H2P flickers, and "Test run" and "Under centralized control" are displayed in the remote controller.)
 - ⑥ After charging the specified quantity of refrigerant, press the RETURN button (BS3) to stop the operation.
 (The operation is automatically stopped within 30 minutes.
 If charging is not completed within 30 minutes, set and perform the refrigerant additional charging operation (A) again.
If the refrigerant additional charging operation is stopped soon, the refrigerant may be overcharged.
Never charge extra refrigerant.)
 - ⑦ Disconnect the refrigerant charge hose.



3.2.5 Setting of Refrigerant Recovery Mode

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

All indoor and outdoor unit's operation are prohibited.

[Operation procedure]

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

3.2.6 Setting of Vacuuming Mode

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

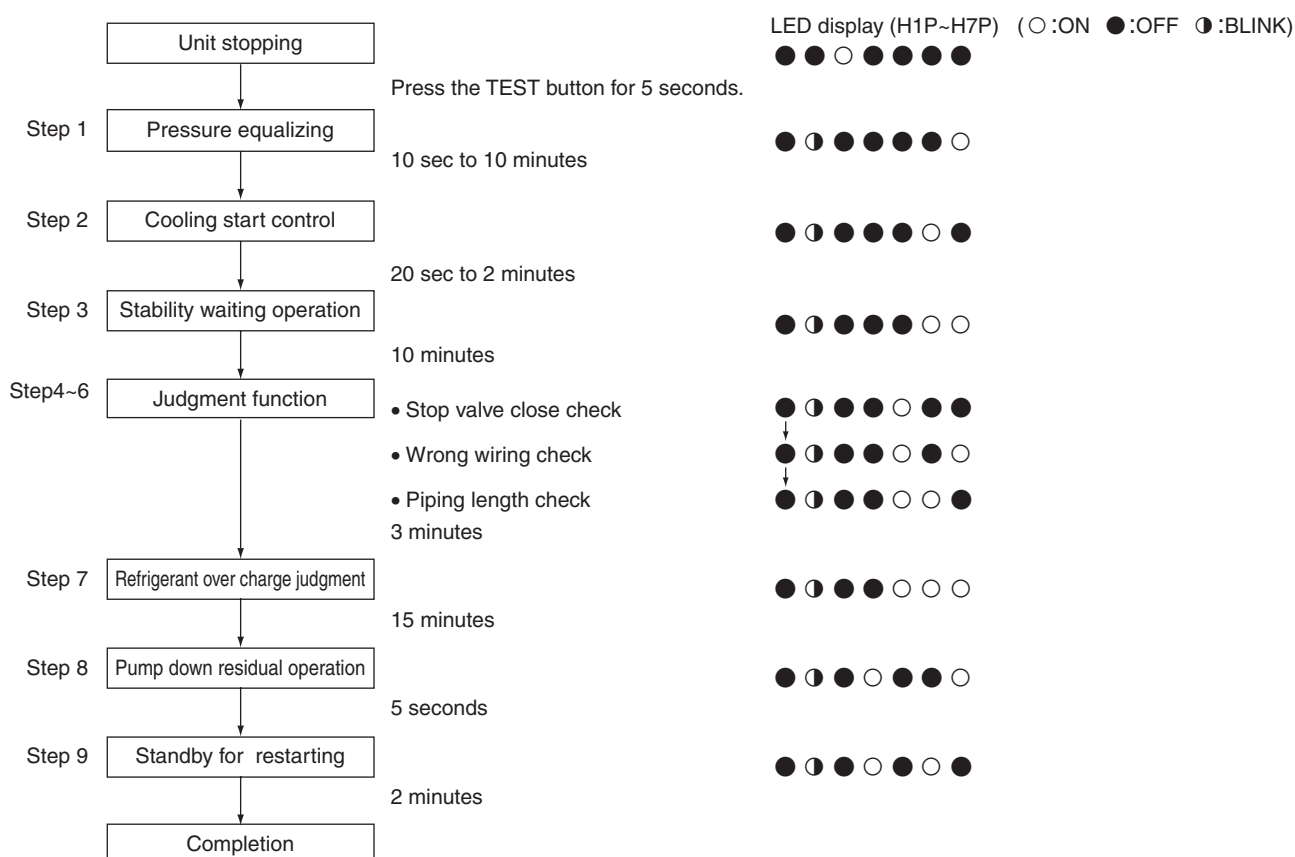
[Operating procedure]

- ① 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. "TEST OPERATION" and "UNDER CENTRALIZED CONTROL" are displayed on the remote controller, and the indoor / outdoor unit operation is prohibited. 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".

3.2.7 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) or discharge pipe thermistor and judgment of piping length, refrigerant overcharging, and learning for the minimum opening degree of electronic expansion valve.

CHECK OPERATION FUNCTION



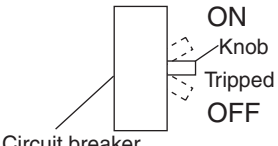
Part 7

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1. Symptom-based Troubleshooting

	Symptom	Supposed Cause	Countermeasure
1	The system does not start operation at all.	Blowout of fuse(s)	Turn Off the power supply and then replace the fuse(s).
		Cutout of breaker(s)	- If the knob of any breaker is in its OFF position, turn ON the power supply. - If the knob of any circuit breaker is in its tripped position, do not turn ON the power supply. 
		Power failure	After the power failure is reset, restart the system.
2	The system starts operation but makes an immediate stop.	Blocked air inlet or outlet of indoor or outdoor unit	Remove obstacle(s).
		Clogged air filter(s)	Clean the air filter(s).
3	The system does not cool or heat air well.	Blocked air inlet or outlet of indoor or outdoor unit	Remove obstacle(s).
		Clogged air filter(s)	Clean the air filter(s).
		Enclosed outdoor unit(s)	Remove the enclosure.
		Improper set temperature	Set the temperature to a proper degree.
		Airflow rate set to "LOW"	Set it to a proper airflow rate.
		Improper direction of air diffusion	Set it to a proper direction.
		Open window(s) or door(s)	Shut it tightly.
		[In cooling] Direct sunlight received	Hang curtains or shades on windows.
		[In cooling] Too many persons staying in a room	
		[In cooling] Too many heat sources (e.g. OA equipment) located in a room	
4	The system does not operate.	The system stops and immediately restarts operation.	Normal operation. The system will automatically start operation after a lapse of five minutes.
		Pressing the TEMP ADJUST button immediately resets the system.	
		The remote controller displays "UNDER CENTRALIZED CONTROL", which blinks for a period of several seconds when the OPERATION button is depressed.	Operate the system using the COOL/HEAT centralized remote controller.
		The system stops immediately after turning ON the power supply.	Wait for a period of approximately one minute.
5	The system makes intermittent stops.	The remote controller displays malfunction codes "U4" and "U5", and the system stops but restarts after a lapse of several minutes.	The system stops due to an interruption in communication between units caused by electrical noises coming from equipment other than air conditioners.
6	COOL-HEAT selection is disabled.	The remote controller displays "UNDER CENTRALIZED CONTROL".	Remove causes of electrical noises. If these causes are removed, the system will automatically restart operation.
		The remote controller displays "UNDER CENTRALIZED CONTROL", and the COOL-HEAT selection remote controller is provided.	This remote controller has no option to select cooling operation.
		COOL-HEAT selection is made using the COOL-HEAT selection remote controller.	Use a remote controller with option to select cooling operation.
			Use the COOL-HEAT selection remote controller to select cool or heat.

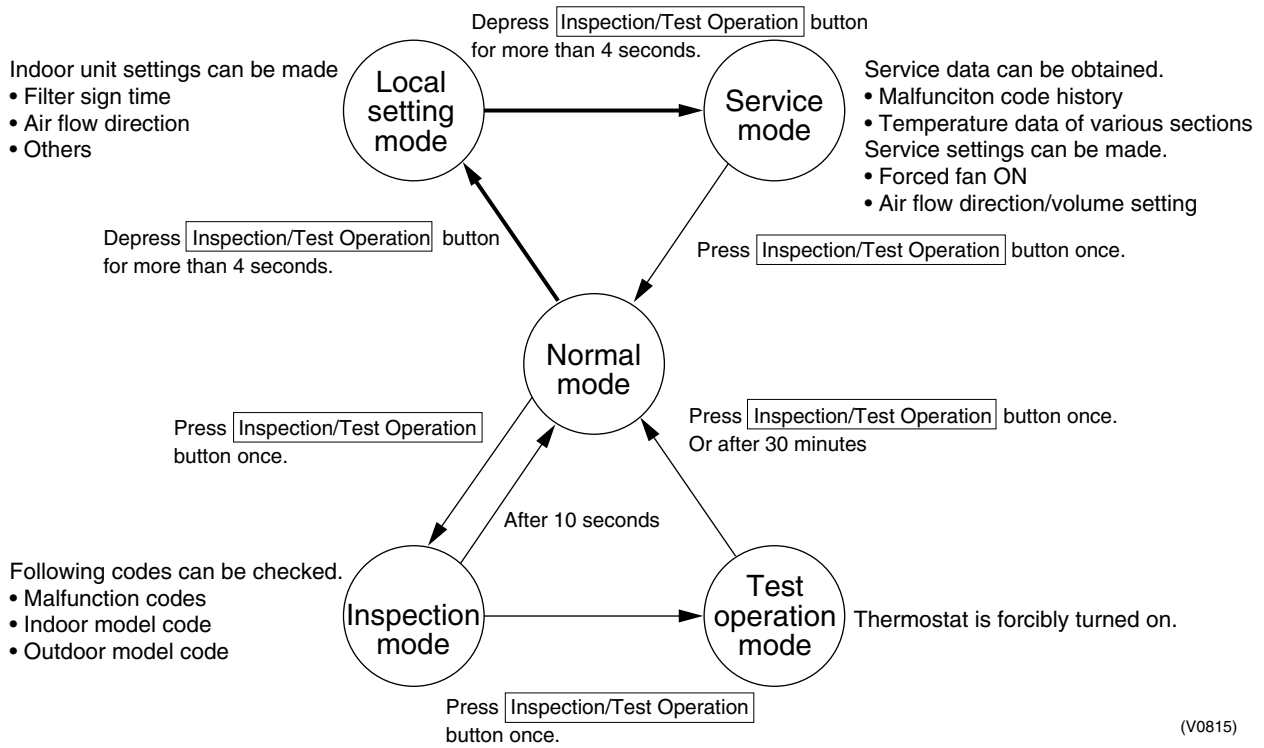
	Symptom		Supposed Cause	Countermeasure
7	The system conducts fan operation but not cooling or heating operation.	This symptom occurs immediately after turning ON the power supply.	The system is in preparation mode of operation.	Wait for a period of approximately 10 minutes.
8	The airflow rate is not reproduced according to the setting.	Even pressing the AIRFLOW RATE SET button makes no changes in the airflow rate.	In heating operation, when the room temperature reaches the set degree, the outdoor unit will stop while the indoor unit is brought to fan LL operation so that no one gets cold air. Furthermore, if fan operation mode is selected when other indoor unit is in heating operation, the system will be brought to fan LL operation. (The fan LL operation is also enabled while in oil return mode in cooling operation.)	Normal operation.
9	The airflow direction is not reproduced according to the setting.	The airflow direction is not corresponding to that displayed on the remote controller. The flap does not swing.	Automatic control	Normal operation.
10	A white mist comes out from the system.	<Indoor unit> In cooling operation, the ambient humidity is high. (This indoor unit is installed in a place with much oil or dust.)	Uneven temperature distribution due to heavy stain of the inside of the indoor unit	Clean the inside of the indoor unit.
		<Indoor unit> Immediately after cooling operation stopping, the ambient temperature and humidity are low.	Hot gas (refrigerant) flown in the indoor unit results to be vapor from the unit.	Normal operation.
		<Indoor and outdoor units> After the completion of defrosting operation, the system is switched to heating operation.	Defrosted moisture turns to be vapor and comes out from the units.	Normal operation.
11	The system produces sounds.	<Indoor unit> Immediately after turning ON the power supply, indoor unit produces "ringing" sounds.	These are operating sounds of the electronic expansion valve of the indoor unit.	Normal operation. This sound becomes low after a lapse of approximately one minute.
		<Indoor and outdoor units> "Hissing" sounds are continuously produced while in cooling or defrosting operation.	These sounds are produced from gas (refrigerant) flowing respectively through the indoor and outdoor units.	Normal operation.
		<Indoor and outdoor units> "Hissing" sounds are produced immediately after the startup or stop of the system, or the startup or stop of defrosting operation.	These sounds are produced when the gas (refrigerant) stops or changes flowing.	Normal operation.
		<Indoor unit> Faint sounds are continuously produced while in cooling operation or after stopping the operation.	These sounds are produced from the drain discharge device in operation.	Normal operation.
		<Indoor unit> "Creaking" sounds are produced while in heating operation or after stopping the operation.	These sounds are produced from resin parts expanding and contracting with temperature changes.	Normal operation.
		<Indoor unit> Sounds like "trickling" or the like are produced from indoor units in the stopped state.	On VRV systems, these sounds are produced when other indoor units in operation. The reason is that the system runs in order to prevent oil or refrigerant from dwelling.	Normal operation.
		<Outdoor unit> Pitch of operating sounds changes.	The reason is that the compressor changes the operating frequency.	Normal operation.

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

2. Troubleshooting by Remote Controller

2.1 The INSPECTION / TEST Button

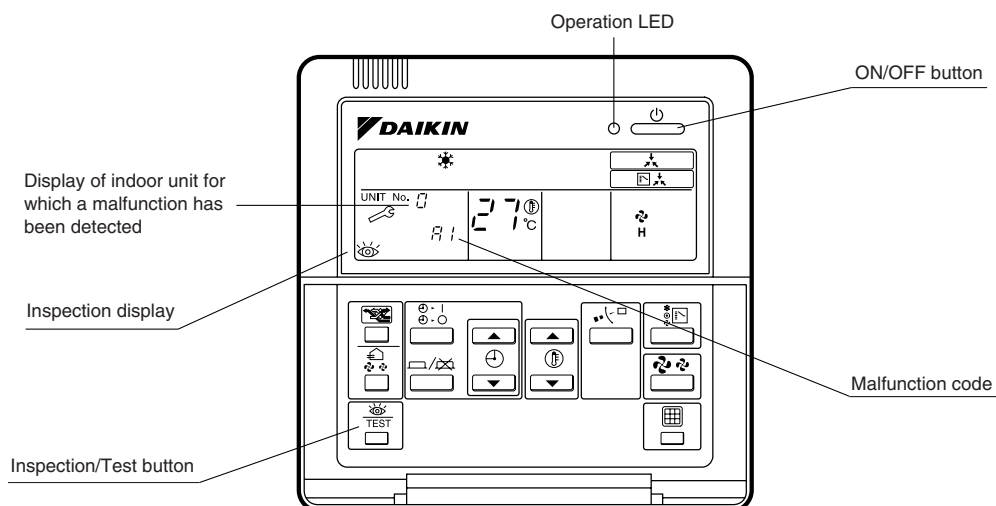
The following modes can be selected by using the [Inspection/Test Operation] button on the remote control.



2.2 Self-diagnosis by Wired Remote Controller

Explanation

If operation stops due to malfunction, the remote controller's operation LED blinks, and malfunction code is displayed. (Even if stop operation is carried out, malfunction contents are displayed when the inspection mode is entered.) The malfunction code enables you to tell what kind of malfunction caused operation to stop. See page 124 for malfunction code and malfunction contents.



Note:

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

2.3 Self-diagnosis by Wireless Remote Controller

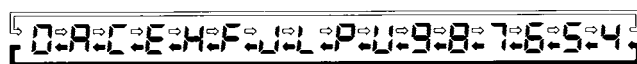
In the Case of BRC7C Type BRC7E Type BRC4C Type

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

The malfunction code can be determined by following the procedure described below. (The malfunction code is displayed when an operation error has occurred. In normal condition, the malfunction code of the last problem is displayed.)

1. Press the INSPECTION/TEST button to select "Inspection."
The equipment enters the inspection mode. The "Unit" indication lights and the Unit No. display shows flashing "0" indication.
2. Set the Unit No.
Press the UP or DOWN button and change the Unit No. display until the buzzer (*1) is generated from the indoor unit.
*1 Number of beeps
3 short beeps : Conduct all of the following operations.
1 short beep : Conduct steps 3 and 4.
Continue the operation in step 4 until a buzzer remains ON. The continuous buzzer indicates that the malfunction code is confirmed.
Continuous beep : No abnormality.
3. Press the MODE selector button.
The left "0" (upper digit) indication of the malfunction code flashes.
4. Malfunction code upper digit diagnosis
Press the UP or DOWN button and change the malfunction code upper digit until the malfunction code matching buzzer (*2) is generated.

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



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

*2 Number of beeps

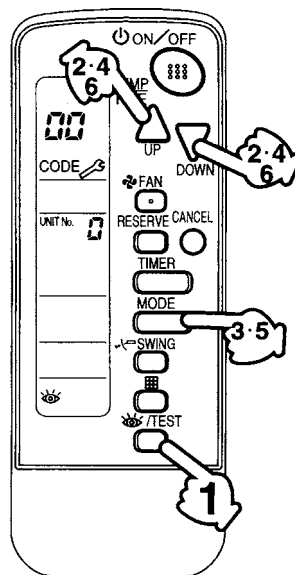
Continuous beep : Both upper and lower digits matched. (Malfunction code confirmed)

2 short beeps : Upper digit matched.

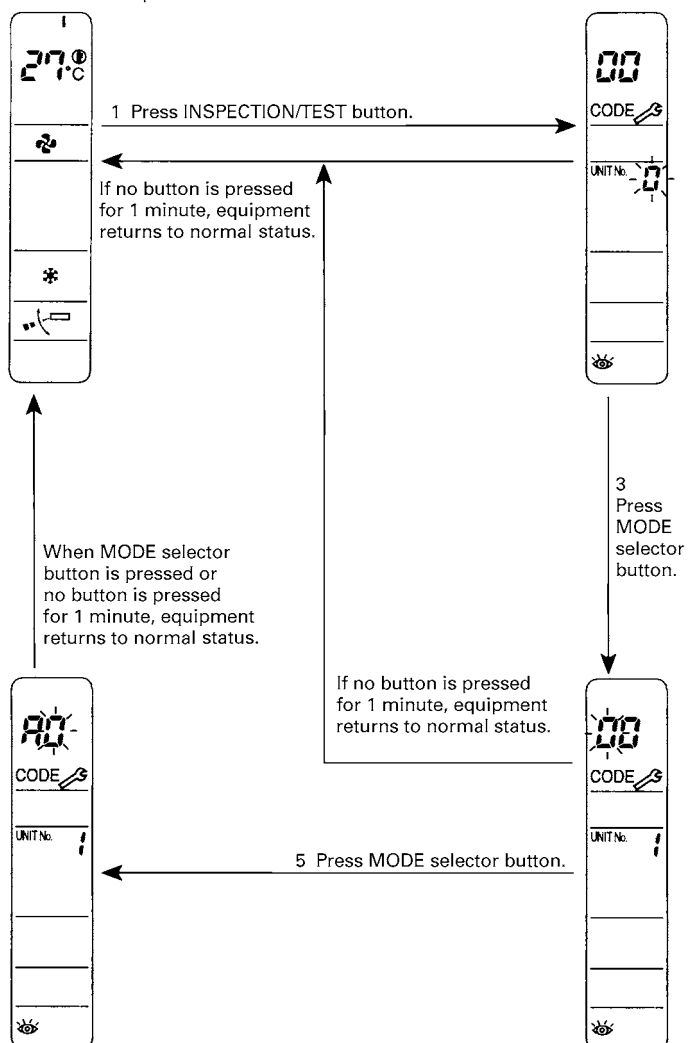
1 short beep : Lower digit matched.

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

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

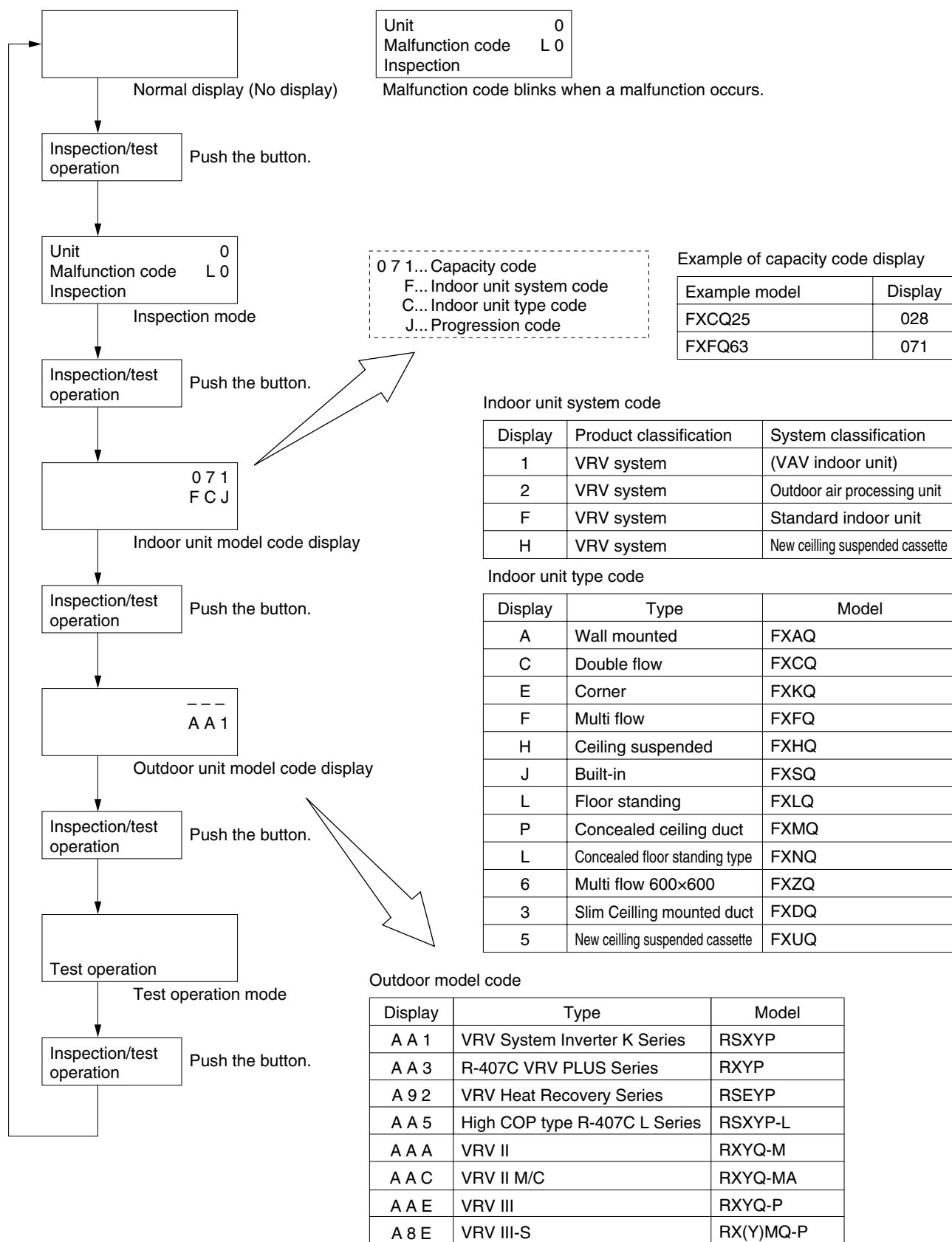


Normal status
Enters inspection mode from normal status when the INSPECTION/TEST button is pressed.



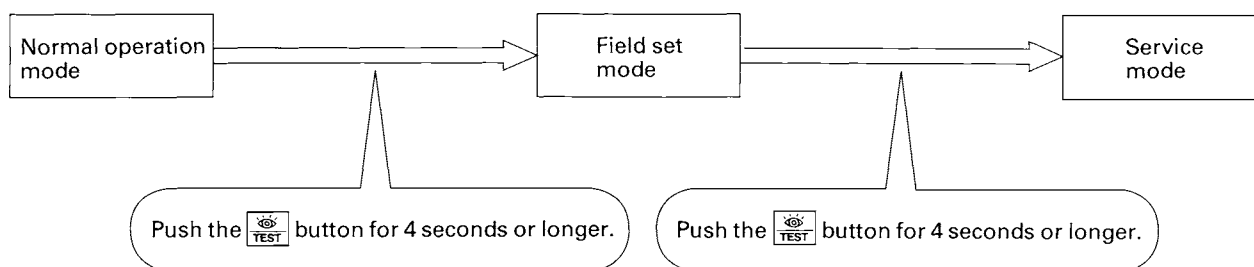
(SF008)

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



2.5 Remote Controller Service Mode

How to Enter the Service Mode



(VF020)

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.

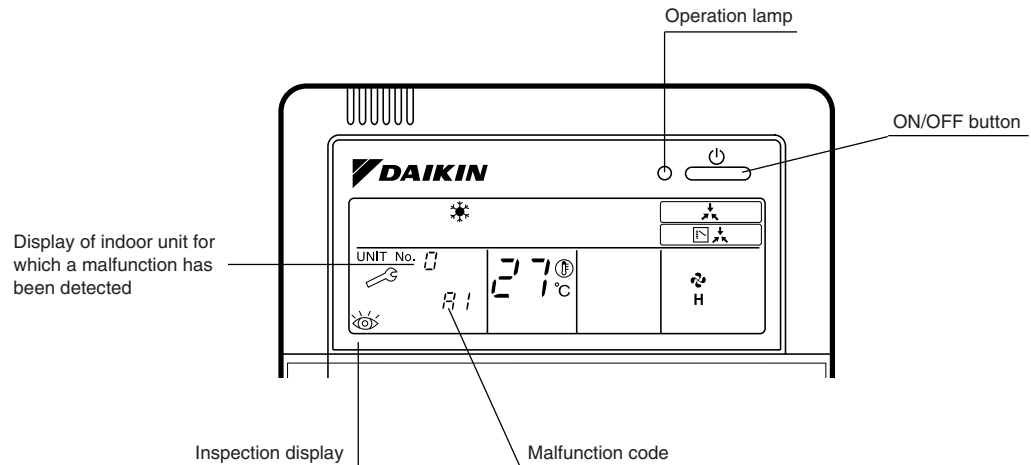
Push the  button one time.

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.	Unit 1 Malfunction code 40 2-U4 Malfunction code History No: 1 - 9 1: Latest (VE007)
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	Sensor data display Unit No. Sensor type 1 1 2 7 41 Temperature °C Address display Unit No. Address type 1 8 1 41 Address (VE008)
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.	Unit 1 43 (VE009)
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.	Unit 1 Code 44 1 3 Fan speed 1: Low 3: High Air flow direction P0 - P4 (VE010)
45	Unit No. transfer	Transfer unit No. Select the unit No. with the  button. Set the unit No. after transfer with the  button.	Present unit No. Unit 1 Code 45 0 2 Unit No. after transfer (VE011)

2.6 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.



(VL050)

○: ON ●: OFF ◐: Blink

	Malfunction code	Operation lamp	Inspection display	Unit No.	Malfunction contents	Page Referred
Indoor Unit	A0	◐	◐	◐	Error of external protection device	130
	A1	◐	◐	◐	PC board defect, E ² PROM defect	131
	A3	◐	◐	◐	Malfunction of drain level control system (S1L)	132
	A6	◐	◐	◐	Fan motor (M1F) lock, overload	134
	A7	○	◐	◐	Malfunction of swing flap motor (M1S)	135
	A9	◐	◐	◐	Malfunction of moving part of electronic expansion valve (Y1E)	137
	AF	○	●	◐	Drain level above limit	139
	AJ	◐	◐	◐	Malfunction of capacity setting	140
	C4	◐	◐	◐	Malfunction of thermistor (R2T) for heat exchange (loose connection, disconnection, short circuit, failure)	141
	C5	◐	◐	◐	Malfunction of thermistor (R3T) for gas pipes (loose connection, disconnection, short circuit, failure)	142
	C9	◐	◐	◐	Malfunction of thermistor (R1T) for air inlet (loose connection, disconnection, short circuit, failure)	143
	CA	◐	◐	◐	Malfunction of thermistor for air inlet (loose connection, disconnection, short circuit, failure)	144
	CJ	○	◐	○	Malfunction of thermostat sensor in remote controller	145
Outdoor Unit	E1	◐	◐	◐	PC board defect	146
	E3	◐	◐	◐	Actuation of high pressure switch	147
	E4	◐	◐	◐	Actuation of low pressure sensor	149
	E5	◐	◐	◐	Compressor motor lock	151
	E6	◐	◐	◐	Standard compressor lock or over current	—
	E7	◐	◐	◐	Malfunction of outdoor unit fan motor	152
	E9	◐	◐	◐	Malfunction of moving part of electronic expansion valve (Y1E, Y2E)	153
	F3	◐	◐	◐	Abnormal discharge pipe temperature	155
	F6	◐	◐	◐	Refrigerant overcharged	156
	H3	○	●	◐	Failure of high pressure switch	—
	H4	◐	◐	◐	Actuation of low pressure switch	—
	H7	◐	◐	◐	Abnormal outdoor fan motor signal	—
	H9	◐	◐	◐	Malfunction of thermistor (R1T) for outdoor air (loose connection, disconnection, short circuit, failure)	157
	J2	◐	◐	◐	Current sensor malfunction	—
	J3	◐	◐	◐	Malfunction of discharge pipe thermistor (R2T) (loose connection, disconnection, short circuit, failure)	158
	J5	◐	◐	◐	Malfunction of thermistor (R3T, R5T) for suction pipe (loose connection, disconnection, short circuit, failure)	159
	J6	◐	◐	◐	Malfunction of thermistor (R4T) for heat exchanger (loose connection, disconnection, short circuit, failure)	160
	J7	◐	◐	◐	Malfunction of receiver outlet liquid pipe thermistor (R7T)	161
	J9	◐	◐	◐	Malfunction of subcooling heat exchanger gas pipe thermistor (R5T)	162
	JA	◐	◐	◐	Malfunction of discharge pipe pressure sensor	163
	JC	◐	◐	◐	Malfunction of suction pipe pressure sensor	164
	L0	◐	◐	◐	Inverter system error	—
	L1	◐	◐	◐	Malfunction of PC board	165
	L4	◐	◐	◐	Malfunction of inverter radiating fin temperature rise	166
	L5	◐	◐	◐	DC output overcurrent of inverter compressor	167
	L8	◐	◐	◐	Inverter current abnormal	168
	L9	◐	◐	◐	Inverter start up error	169

○: ON ●: OFF ◐: Blink

	Malfunction code	Operation lamp	Inspection display	Unit No.	Malfunction contents	Page Referred
Outdoor Unit	LA	◐	◐	◐	Malfunction of power unit	—
	LC	◐	◐	◐	Malfunction of transmission between inverter and control PC board	170
	P1	◐	◐	◐	High voltage of capacitor in main inverter circuit.	171
	P4	○	◐	○	Malfunction of inverter radiating fin temperature rise sensor	172
System	U0	○	●	◐	Low pressure drop due to refrigerant shortage or electronic expansion valve failure	173
	U1	◐	◐	◐	Reverse phase / open phase	—
	U2	◐	◐	◐	Power supply insufficient or instantaneous failure	175
	U3	◐	◐	◐	Check operation is not completed.	177
	U4	◐	◐	◐	Malfunction of transmission between indoor and outdoor units	178
	U5	◐	◐	◐	Malfunction of transmission between remote controller and indoor unit	180
	U5	●	○	●	Failure of remote controller PC board or setting during control by remote controller	180
	U7	◐	◐	◐	Malfunction of transmission between outdoor units	—
	U8	◐	◐	●	Malfunction of transmission between main and sub remote controllers (malfunction of sub remote controller)	181
	U9	◐	◐	◐	Malfunction of transmission between indoor unit and outdoor unit in the same system	182
	UA	◐	◐	◐	Improper combination of indoor and outdoor units, indoor units and remote controller	184
	UC	○	○	○	Address duplication of central remote controller	185
	UE	◐	◐	◐	Malfunction of transmission between central remote controller and indoor unit	186
	UF	◐	◐	◐	Refrigerant system not set, incompatible wiring / piping	188
	UH	◐	◐	◐	Malfunction of system, refrigerant system address undefined	189
Central Remote Controller and Schedule Timer	UE	◐	◐	◐	Malfunction of transmission between central remote controller and indoor unit	190
	M1	○ or ●	◐	◐	Central remote controller PC board defect Schedule timer PC board defect	191
	M8	○ or ●	◐	◐	Malfunction of transmission between optional controllers for centralized control	192
	MA	○ or ●	◐	◐	Improper combination of optional controllers for centralized control	193
	MC	○ or ●	◐	◐	Address duplication, improper setting	195
Heat Reclaim Ventilation	64	○	●	◐	Indoor unit's air thermistor error	—
	65	○	●	◐	Outside air thermistor error	—
	68	○	●	◐	Malfunction of HVU	—
	6A	○	●	◐	Damper system alarm	—
	6A	◐	◐	◐	Damper system + thermistor error	—
	6F	○	●	◐	Malfunction of simple remote controller	—
	94	◐	◐	◐	Internal transmission error	—

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

Malfunction code indication by outdoor unit PC board

<Monitor mode>

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

<Selection of setting item>

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

<Confirmation of malfunction 1>

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

<Confirmation of malfunction 2>

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

<Confirmation of malfunction 3>

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

<Confirmation of malfunction 4>

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

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

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

Detail description on next page.

Contents of malfunction		Malfunction code
In-phase malfunction of DIII Net	Detection of DIII Net	E1
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	Detection of DC fan 1 motor lock	E7
	Detection of DC fan 2 motor lock	
Malfunction of electronic expansion valve	EV1	E9
	EV3	
Faulty sensor of outdoor air temperature	Faulty Ta sensor (short)	H9
Abnormal discharge pipe temperature	Abnormal Td	F3
Abnormal heat exchanger temperature	Refrigerant over charge	F6
Faulty sensor of discharge pipe temperature	Faulty Tdi sensor (short)	J3
Faulty sensor of suction pipe temperature	Faulty Ts1 sensor (short)	J5
	Faulty Ts2 sensor (short)	
Faulty sensor of heat exchanger temperature	Faulty Tb sensor (short)	J6
Malfunction of the liquid pipe temperature sensor	Faulty TI sensor (short)	J7
Faulty sensor of subcool heat exchanger temperature	Faulty Tsh sensor (short)	J9
Faulty sensor of discharge pressure	Faulty Pc sensor (short)	JA
Faulty sensor of suction pressure	Faulty Pe sensor (short)	JC
Faulty Inverter PC board	Faulty IPM	L1
	Abnormal Current sensor offset	
	Abnormal IGBT	
	Faulty Current sensor	
Inverter radiation fin temperature rising	Over heating of inverter radiation fin temperature	L4
DC output over current	Inverter instantaneous over current	L5
Electronic thermal	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 start up)	
	Abnormal wave form in startup	
	Out-of-step	
Transmission error between inverter and outdoor unit	Inverter transmission error	LC

○: ON ●: OFF ◐: Blink

Malfunction code	Confirmation of malfunction 1							Confirmation of malfunction 2							Confirmation of malfunction 3							Confirmation of malfunction 4						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
E1	◐			●	●	◐	◐	◐			●	●	●	◐	◐	○	●	●	●	●	◐	○	○	●	●	●	◐	◐
E3				●	●	●	●	◐			●	●	◐	◐	◐			●	●	●	●	◐			●	●	*1	
E4				●	●	●	●	◐			●	◐	●	●	◐			●	●	●	●	◐			●	●		
E5				●	●	●	●	◐			●	◐	●	◐	◐			●	●	●	●	◐			●	●		
E7				●	●	●	●	◐			●	◐	◐	◐	◐			●	●	●	●	◐			●	◐		
E9				●	●	●	●	◐			◐	●	●	◐	◐			●	●	●	●	◐			●	●		
H9				●	●	●	●	◐			◐	●	●	◐	◐			●	●	●	●	◐			●	●	*1	
F3	◐			●	◐	●	◐	◐			●	●	◐	◐	◐			●	●	●	●	◐			●	●	*1	
F6				●	●	●	●	◐			●	◐	◐	●	◐			●	●	●	●	◐			●	●	◐	◐
J3	◐			●	◐	◐	●	◐			●	●	◐	◐	◐			●	●	●	●	◐			●	●	*1	
J5				●	●	●	●	◐			●	◐	●	◐	◐			●	●	●	●	◐			●	●		
J6				●	●	●	●	◐			●	◐	◐	●	◐			●	●	●	●	◐			●	●		
J7				●	●	●	●	◐			●	◐	◐	◐	◐			●	●	●	●	◐			●	●		
J9				●	●	●	●	◐			◐	●	●	◐	◐			●	●	●	●	◐			●	●		
JA				●	●	●	●	◐			◐	●	◐	●	◐			●	●	●	●	◐			●	●		
JC				●	●	●	●	◐			◐	◐	●	●	◐			●	●	●	●	◐			●	●		
L1	◐			●	◐	◐	◐	◐			●	●	●	◐	◐			●	●	●	●	◐			●	●	●	●
				●	●	●	●	◐			●	●	●	◐	◐			●	●	●	●	◐			●	●	●	◐
				●	●	●	●	◐			●	●	●	◐	◐			●	●	●	●	◐			●	●	◐	◐
				●	●	●	●	◐			●	●	●	◐	◐			●	●	●	●	◐			●	●	◐	◐
				●	●	●	●	◐			●	●	●	◐	◐			●	●	●	●	◐			●	◐	●	●
L4				●	◐	●	●	◐			●	◐	●	●	◐			●	●	●	●	◐			●	●	*1	
L5				●	◐	●	●	◐			●	◐	●	◐	◐			●	●	●	●	◐			●	●		
L8				●	●	●	●	◐			◐	●	●	●	◐			●	●	●	●	◐			●	●		
				●	●	●	●	◐			◐	●	●	●	◐			●	●	●	●	◐			●	●		
				●	●	●	●	◐			◐	●	●	●	◐			●	●	●	●	◐			●	●		
L9				●	●	●	●	◐			◐	●	●	◐	◐			●	●	●	●	◐			●	●	*1	
				●	●	●	●	◐			◐	●	●	◐	◐			●	●	●	●	◐			●	●		
				●	●	●	●	◐			◐	●	●	◐	◐			●	●	●	●	◐			●	●		
LC				●	◐	●	●	◐			◐	◐	●	●	◐			●	●	●	●	◐			●	●	*1	
				●	●	●	●	◐			◐	●	●	●	◐			●	●	●	●	◐			●	●		

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

*1

●	●	Master
●	◐	Slave1
◐	●	Slave2
◐	◐	System

<Monitor mode>

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

<Selection of setting item>

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

<Confirmation of malfunction 1>

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

<Confirmation of malfunction 2>

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

<Confirmation of malfunction 3>

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

<Confirmation of malfunction 4>

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

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

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

Detail description on next page.

Contents of malfunction		Malfunction code
Open phase/Power supply imbalance	Imbalance of inverter power supply voltage	P1
Faulty temperature sensor of inverter radiation fin	Faulty thermistor of inverter fin	P4
Refrigerant shortage	Refrigerant shortage alarm	U0
Abnormal power supply voltage	Insufficient Inverter voltage	U2
	Faulty charge of capacitor in main inverter circuit	
	Malfunction due to SP-PAM overvoltage	
	Malfunction due to P-N short circuit	
No implementation of test-run		U3
Transmission error between indoor and outdoor unit	I/O transmission error	U4
	I/O transmission error	
Transmission error of other system	Indoor unit system abnormal in other system or other indoor unit system abnormal in own system	U9
Erroneous field setting	System transmission malfunction	UA
	Overconnection malfunction of indoor units	
	Malfunction of field setting	
	Refrigerant abnormal	
	Connection error (BP unit)	
Faulty system malfunction	Wiring error (Auto-address error)	UH
Conflict in wiring and piping, no setting for system	Conflict in wiring and piping	UF

○: ON ●: OFF ◐: Blink

Malfunction code	Confirmation of malfunction 1							Confirmation of malfunction 2							Confirmation of malfunction 3							Confirmation of malfunction 4						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
P1	◐			◐	●	●	●	◐			●	●	●	◐	◐			●	●	●	●	◐			●	●	*1	
P4								◐			●	◐	●	●	◐			●	●	●	●	◐			●	●		
U0	◐			◐	●	●	◐	◐			●	●	●	●	◐			●	●	●	●	◐			●	●	◐	◐
U2								◐			●	●	◐	●	◐			●	●	●	●	◐			●	●	*1	
															◐			●	●	●	●				●	◐		
															◐			●	●	●	●	◐			●	●		
															◐			●	●	●	●	◐			●	●		
U3								◐			●	●	◐	◐	◐			●	●	●	●	◐			●	●	◐	◐
U4								◐			●	◐	●	●	◐			●	●	●	●	◐			●	●	◐	◐
U9								◐			◐	●	●	◐	◐			●	●	●	●	◐			●	●	◐	◐
UA								◐			◐	●	◐	●	◐			●	●	●	●	◐			●	●	◐	◐
															◐			●	●	●	●	◐			●	◐	◐	◐
															◐			●	●	●	●	◐			◐	●	◐	◐
															◐			●	●	●	●	◐			◐	●	◐	◐
															◐			●	●	●	●	◐			◐	●	◐	◐
UH								◐			◐	●	◐	◐	◐			●	●	●	●	◐			●	●	◐	◐
UF								◐			◐	◐	◐	◐	◐			●	●	●	●	◐			●	●	◐	◐

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

*1

●	●	Master
●	◐	Slave1
◐	●	Slave2
◐	◐	System

3. Troubleshooting by Indication on the Remote Controller

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

Remote
Controller
Display

RD

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

Malfunction
Decision
Conditions

Supposed
Causes

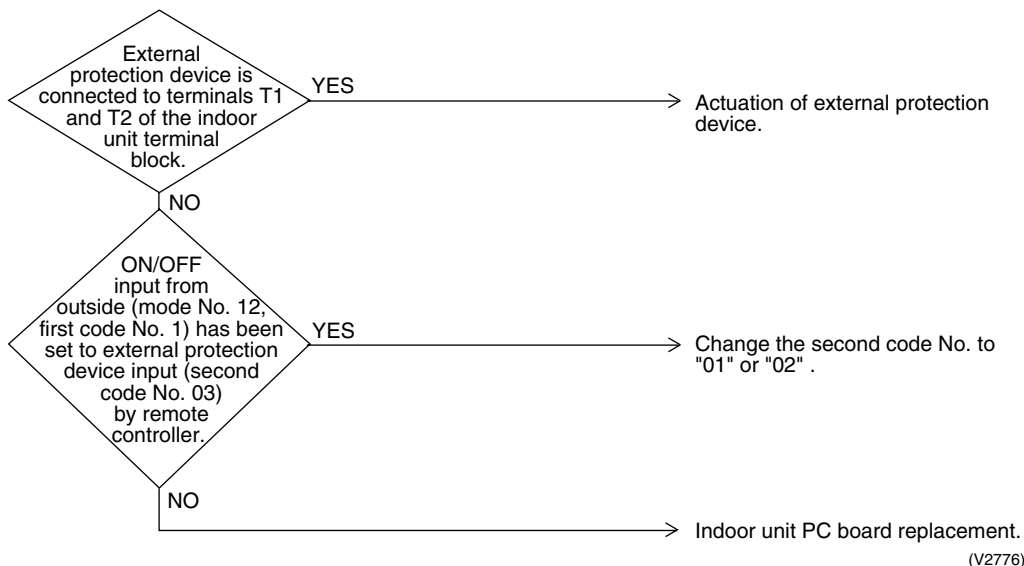
- Actuation of external protection device
- Improper field set
- Defect of indoor unit PC board

Troubleshooting



Caution

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



3.2 “A1” Indoor Unit: PC Board Defect

Remote
Controller
Display

A1

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

Check data from E²PROM.

Malfunction
Decision
Conditions

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

Supposed
Causes

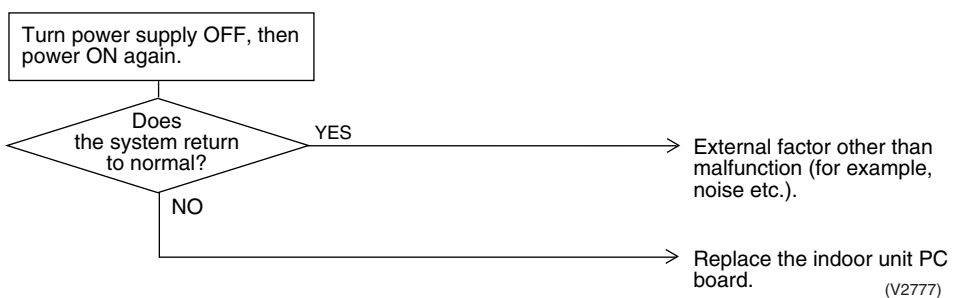
- Defect of indoor unit PC board

Troubleshooting



Caution

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



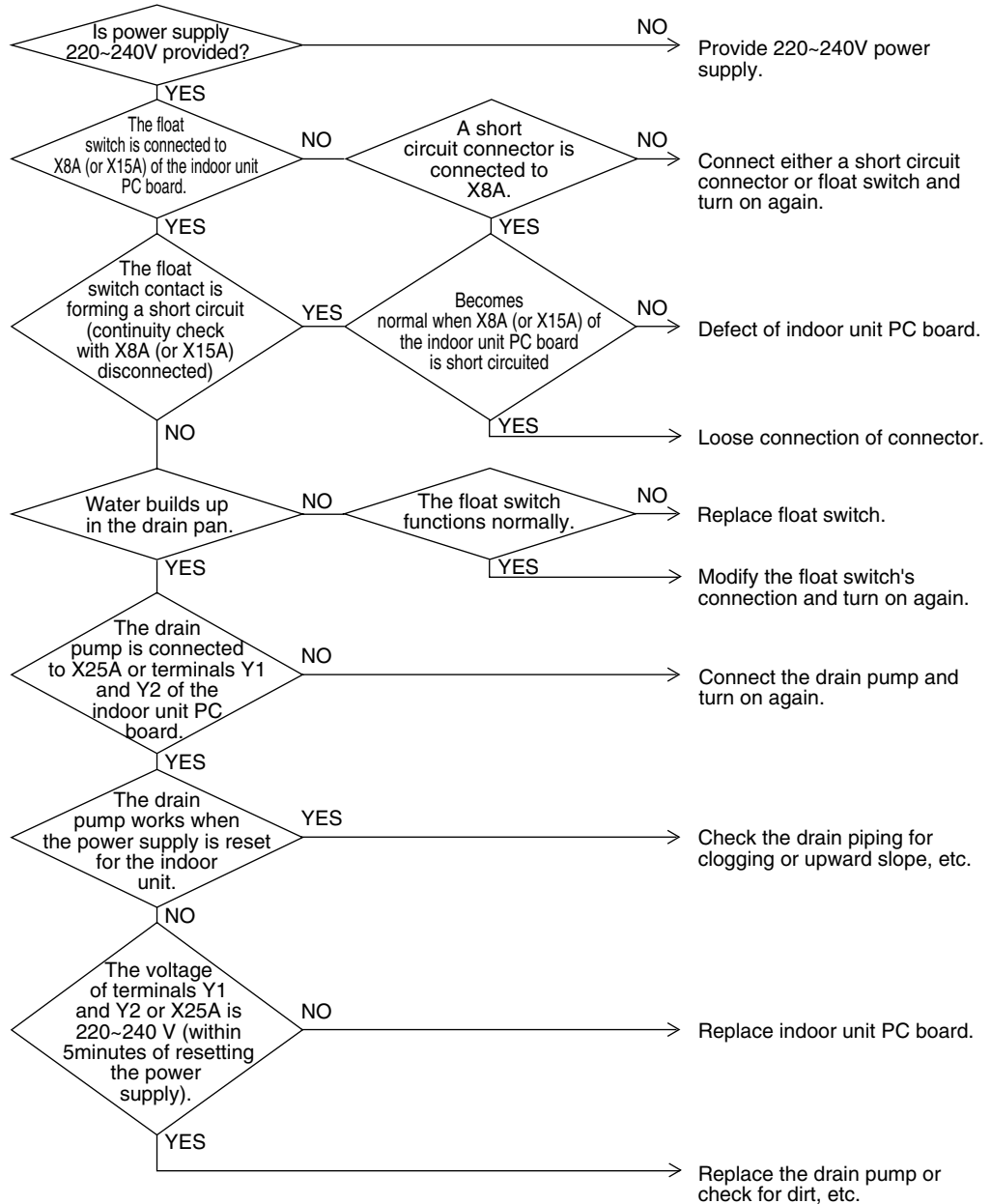
3.3 “A3” Indoor Unit: Malfunction of Drain Level Control System (S1L)

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

Troubleshooting


Caution

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



(V2778)

3.4 “R6” Indoor Unit: Fan Motor (M1F) Lock, Overload

Remote
Controller
Display

R6

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

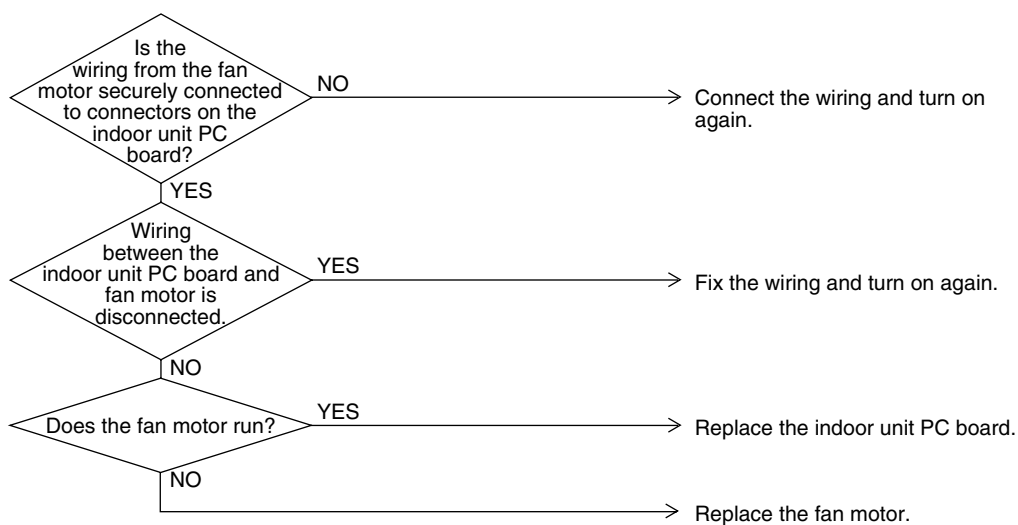
- Fan motor lock
- Disconnected or faulty wiring between fan motor and PC board

Troubleshooting



Caution

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



(V2779)

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

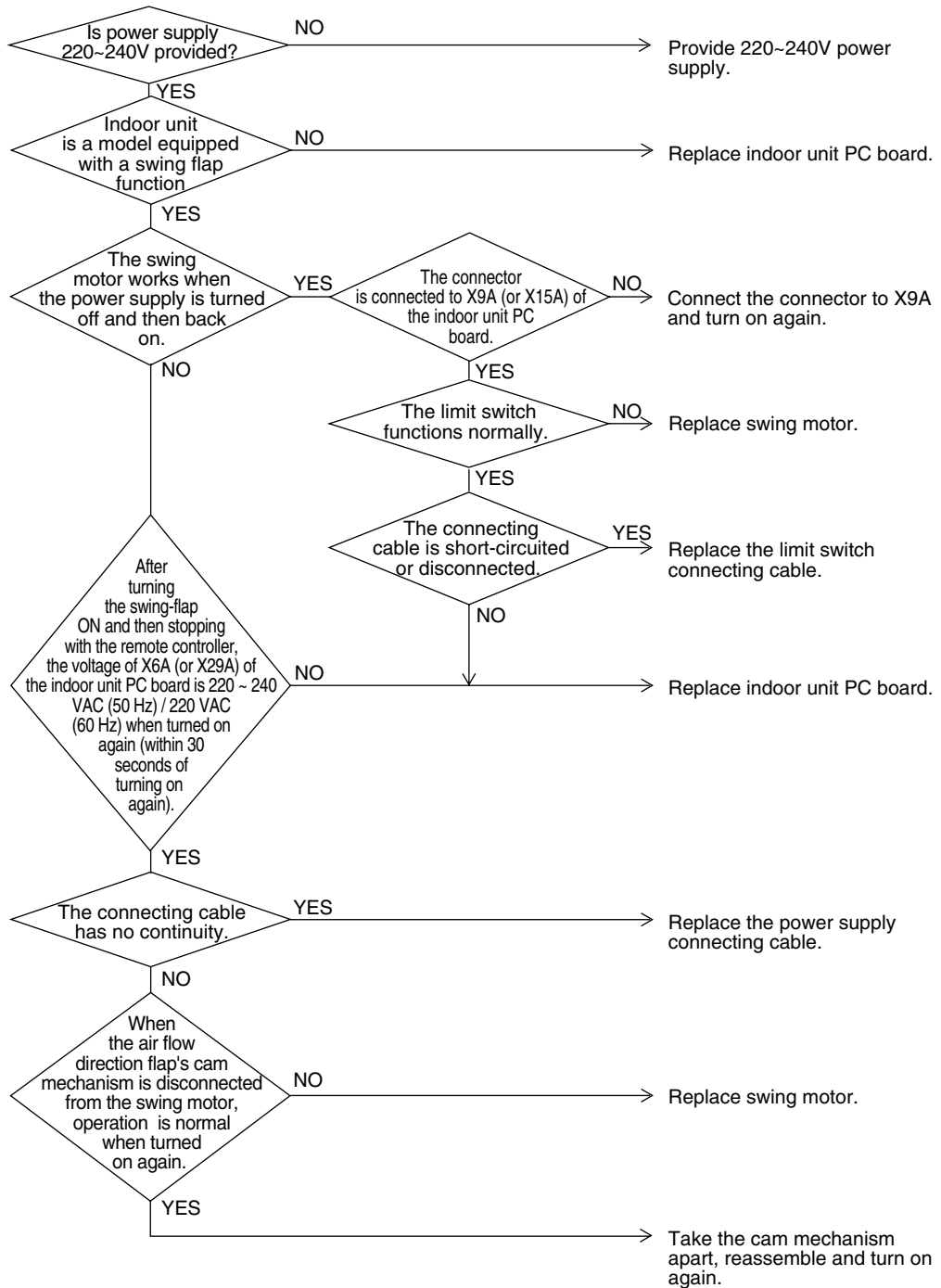
Remote Controller Display	A7
Applicable Models	FXCQ, FXKQ, FXHQ, FXUQ
Method of Malfunction Detection	Utilizes ON/OFF of the limit switch when the motor turns.
Malfunction Decision Conditions	When ON/OFF of the microswitch for positioning cannot be reversed even though the swing flap motor is energized 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)

3.6 “R9” Indoor Unit: Malfunction of Moving Part of Electronic Expansion Valve (Y1E)

Remote
Controller
Display

R9

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

Malfunction
Decision
Conditions

Supposed
Causes

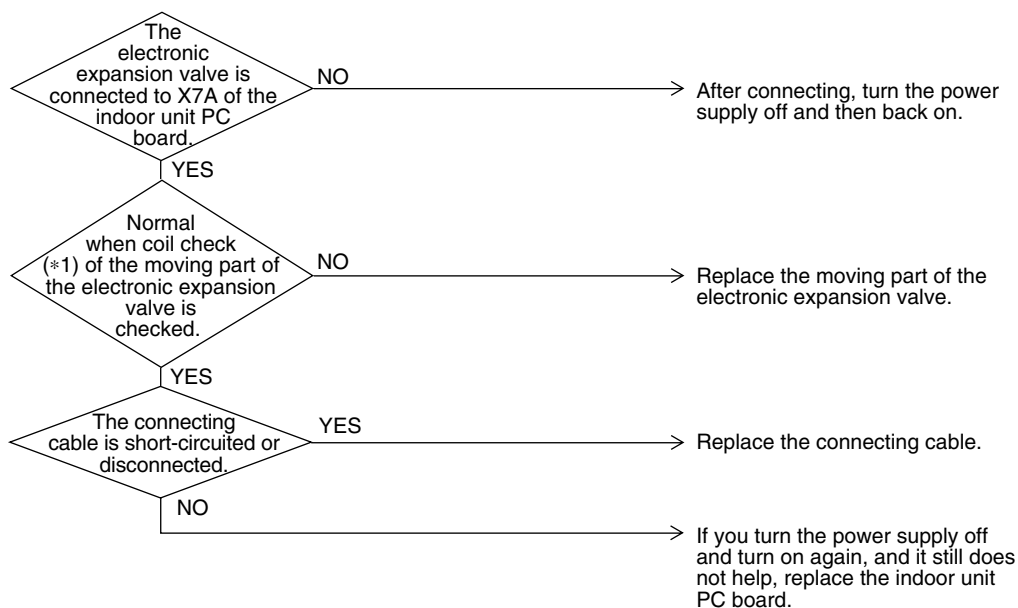
- Malfunction of moving part of electronic expansion valve
- Defect of indoor unit PC board
- Defect of connecting cable

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

3.7 “AF” Indoor Unit: Drain Level above Limit

Remote
Controller
Display

AF

Applicable
Models

FXCQ, FXSQ, FXKQ, FXMQ, FXDQ

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

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

Supposed
Causes

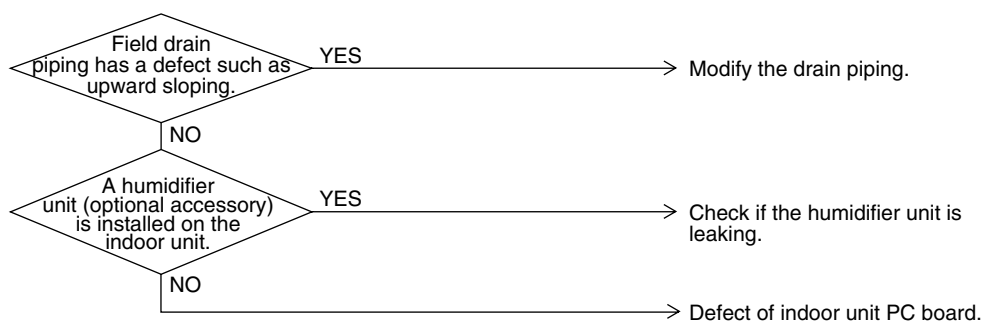
- Humidifier unit (optional accessory) leaking
- Defect of drain pipe (upward slope, etc.)
- Defect of indoor unit PC board

Troubleshooting



Caution

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



(V2782)

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

Remote controller display

RJ

Applicable Models

All indoor unit models

Method of Malfunction Detection

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

Malfunction Decision Conditions

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

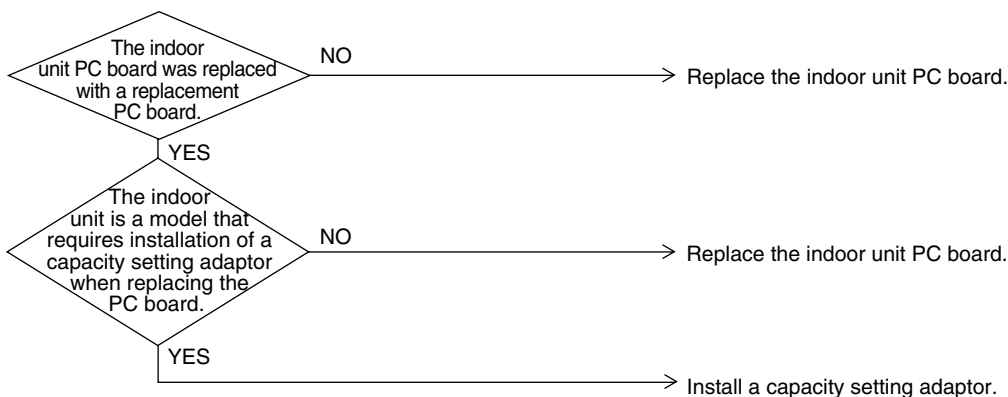
- You have forgotten to install the capacity setting adaptor.
- Defect of indoor unit PC board

Troubleshooting



Caution

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



(V2783)

3.9 “**E4**” Indoor Unit: **Malfunction of Thermistor (R2T) for Heat Exchanger**

Remote
Controller
Display

E4

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

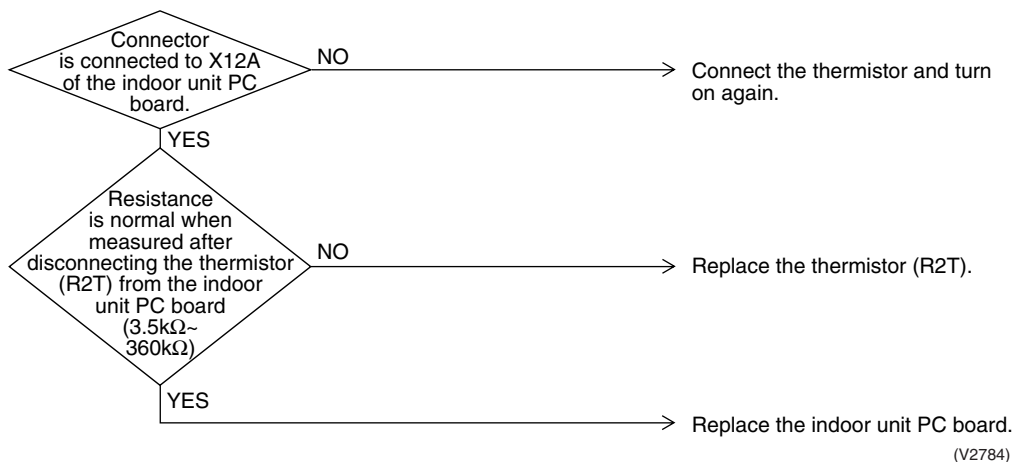
- Defect of thermistor (R2T) for liquid pipe
- Defect of indoor unit PC board

Troubleshooting



Caution

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



(V2784)



* Refer to thermistor resistance / temperature characteristics table on P231.

3.10 “**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

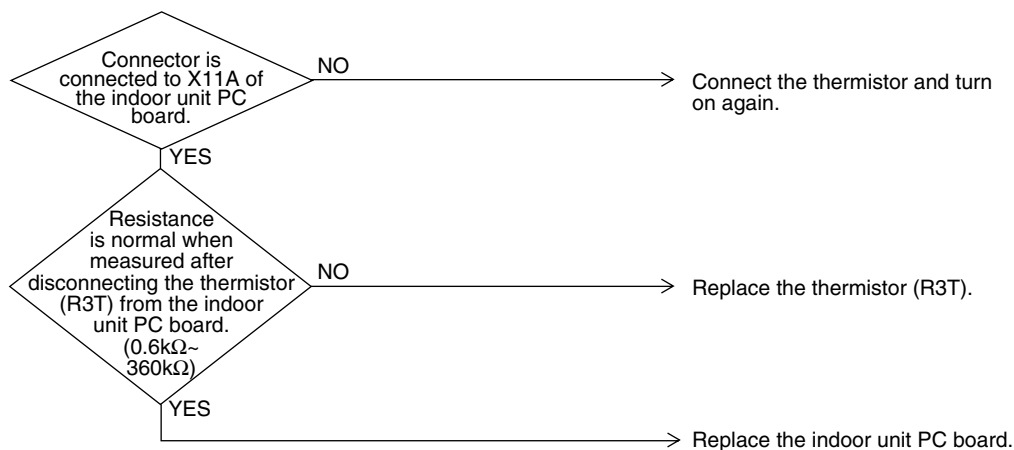
- Defect of indoor unit thermistor (R3T) for gas pipe
- Defect of indoor unit PC board

Troubleshooting



Caution

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



(V2785)



* Refer to thermistor resistance / temperature characteristics table on P231.

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

Remote
Controller
Display

C9

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

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

Supposed
Causes

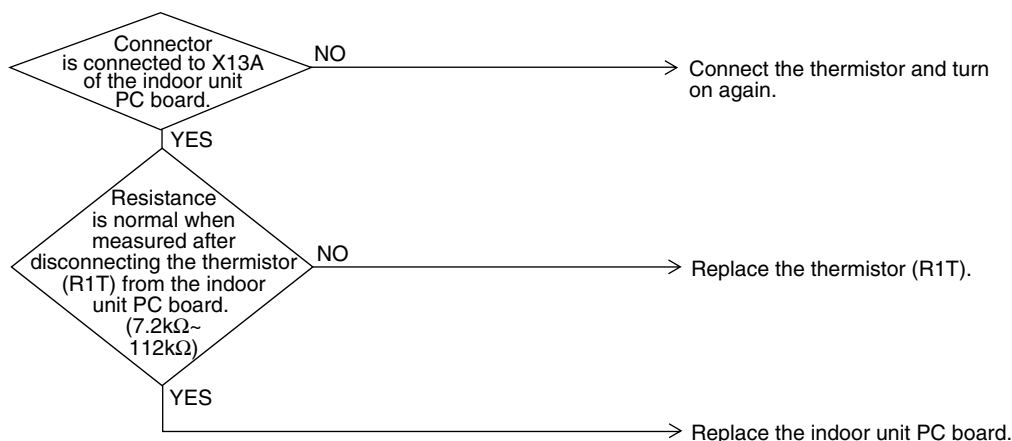
- Defect of indoor unit thermistor (R1T) for air inlet
- Defect of indoor unit PC board

Troubleshooting



Caution

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



(V2786)



* Refer to thermistor resistance / temperature characteristics table on P231.

3.12 “CR” Indoor Unit: Malfunction of Thermistor for Discharge Air

Remote
Controller
Display

CR

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

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

Supposed
Causes

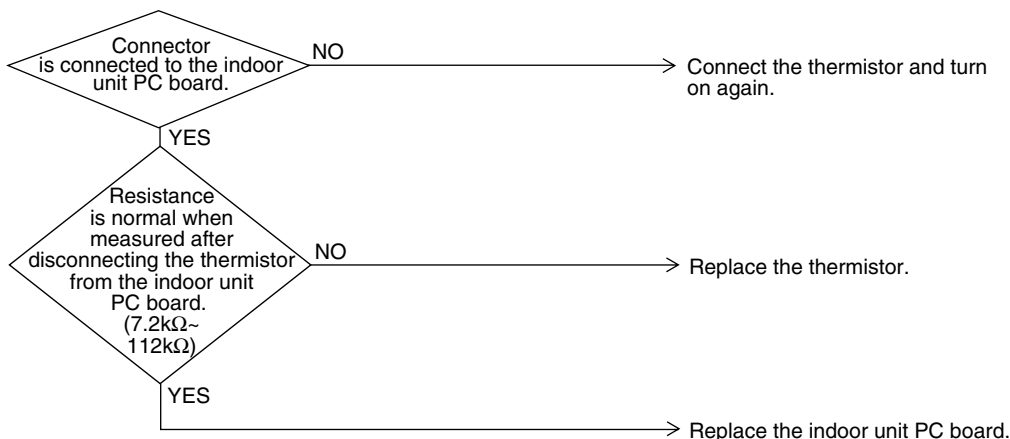
- Defect of indoor unit thermistor for air outlet
- Defect of indoor unit PC board

Troubleshooting



Caution

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



(V2786)



* Refer to thermistor resistance / temperature characteristics table on P231.

3.13 “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

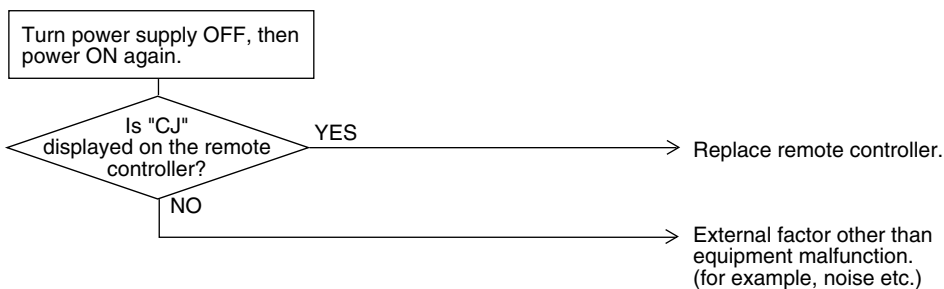
- Defect of remote controller thermistor
- Defect of remote controller PC board

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.



* Refer to thermistor resistance / temperature characteristics table on P231.

3.14 “E1” Outdoor Unit: PC Board Defect

Remote
Controller
Display

E1

Applicable
Models

RX(Y)MQ4~6P

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

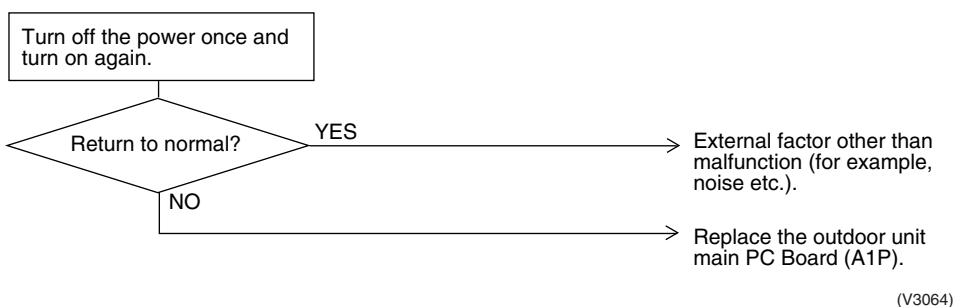
- Defect of outdoor unit PC board (A1P)

Troubleshooting



Caution

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



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

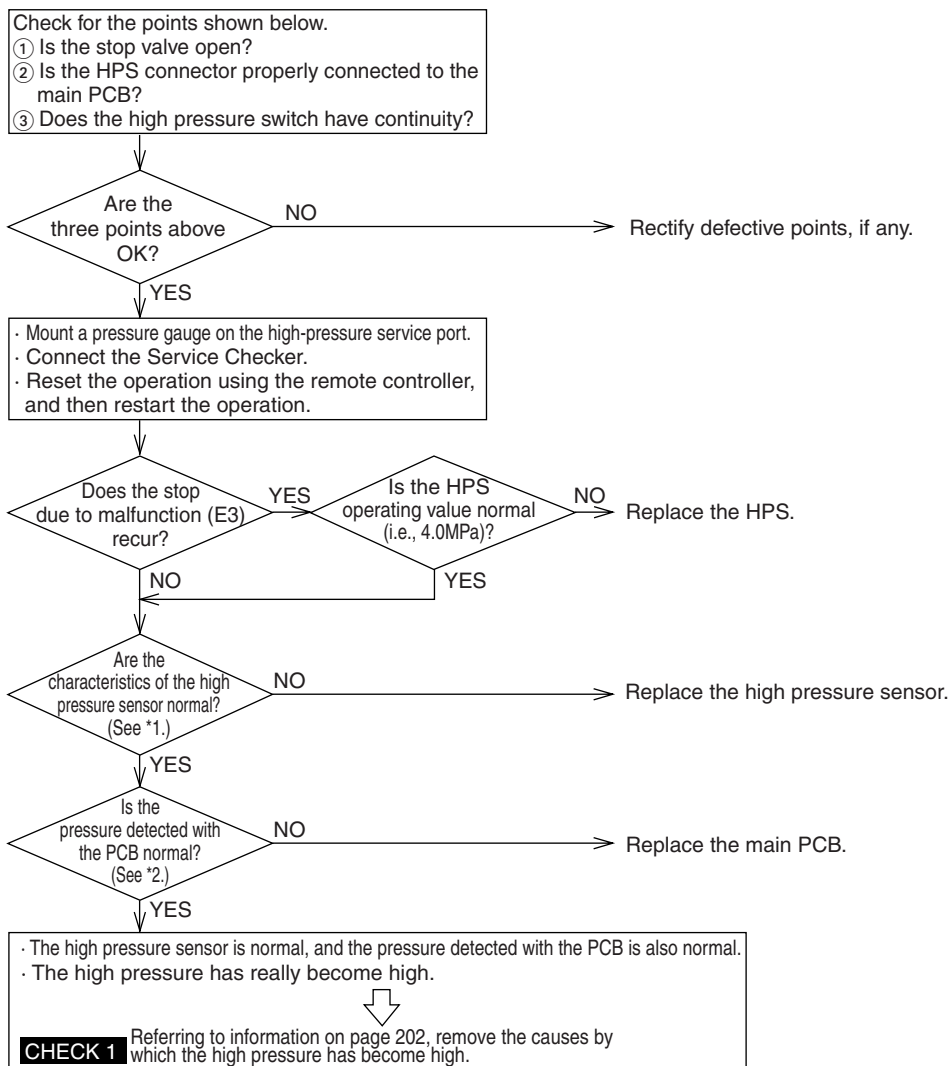
Remote Controller Display	E3
Applicable Models	RX(Y)MQ4~6P
Method of Malfunction Detection	Abnormality is detected when the contact of the high pressure protection switch opens.
Malfunction Decision Conditions	Error is generated when the HPS activation count reaches the number specific to the operation mode. (Reference) Operating pressure of high pressure switch Operating pressure: 4.0MPa Reset pressure: 3.0MPa
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

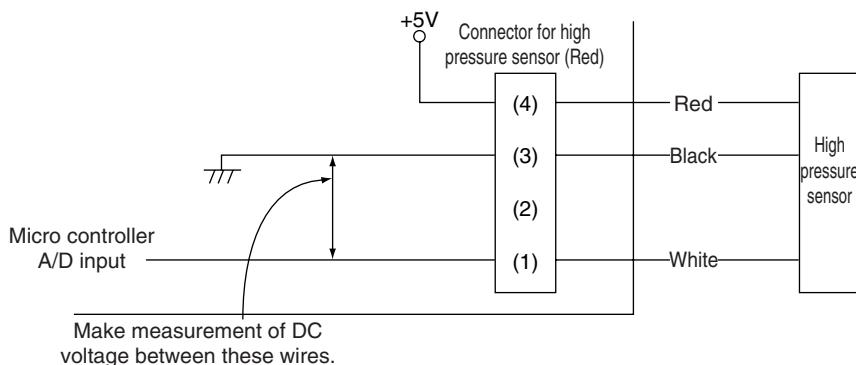


Caution

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



- *1: Make a comparison between the voltage of the pressure sensor and that read by the pressure gauge.
(As to the voltage of the pressure sensor, make measurement of voltage at the connector, and then convert it to pressure according to information on page 233.)
- *2: Make a comparison between the high pressure value checked with the Service Checker and the voltage of the pressure sensor (see *1).
- *3: Make measurement of voltage of the pressure sensor.



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

Remote
Controller
Display

E4

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

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

Supposed
Causes

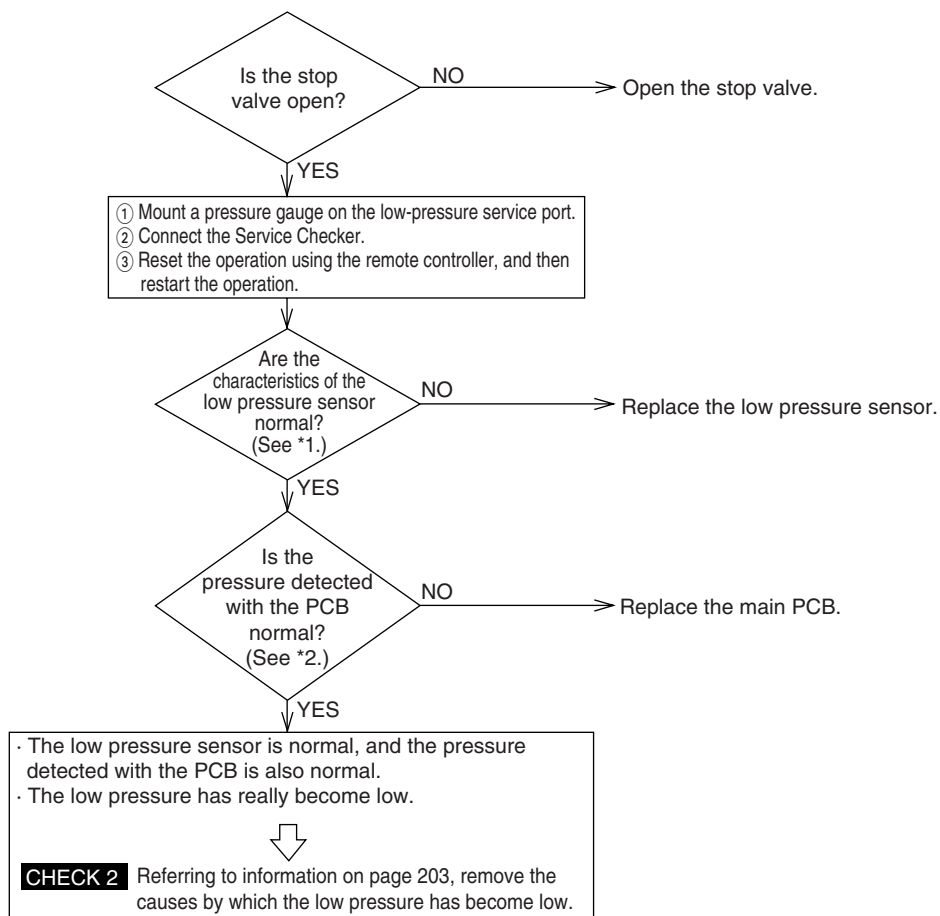
- Abnormal drop of low pressure (Lower than 0.07MPa)
- Defect of low pressure sensor
- Defect of outdoor unit PC board
- Stop valve is not opened.

Troubleshooting



Caution

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

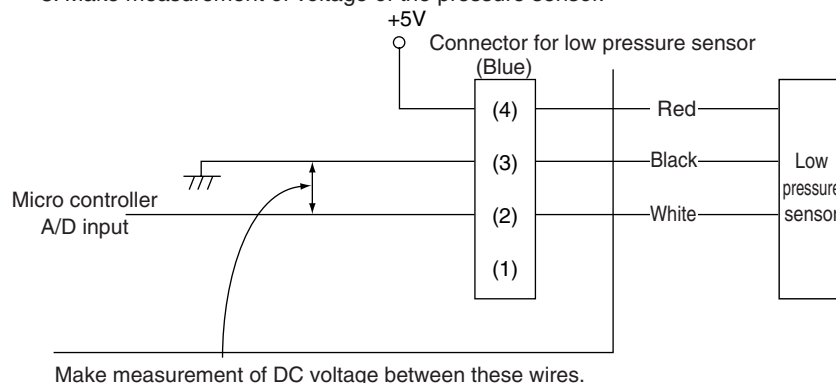


*1: Make a comparison between the voltage of the pressure sensor and that read by the pressure gauge.

(As to the voltage of the pressure sensor, make measurement of voltage at the connector, and then convert it to pressure according to information on page 233.)

*2: Make a comparison between the low pressure value checked with the Service Checker and the voltage of the pressure sensor (see *1).

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



3.17 “E5” Inverter Compressor Motor Lock

Remote
Controller
Display

E5

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

Inverter PC board takes the position signal from UVW line connected between the inverter and compressor, and the malfunction is detected when any abnormality is observed in the phase-current waveform.

Malfunction
Decision
Conditions

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

Supposed
Causes

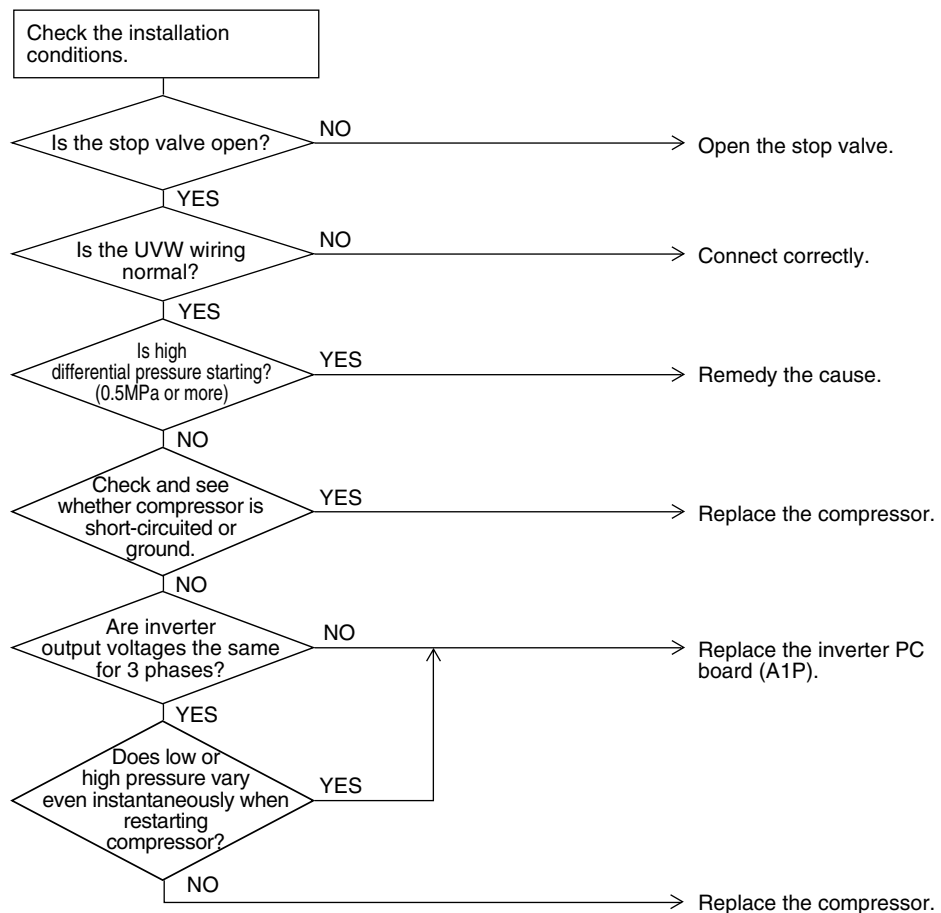
- Compressor lock
- High differential pressure (0.5MPa or more)
- Incorrect UVW wiring
- Faulty inverter PC board
- Stop valve is left in closed.

Troubleshooting



Caution

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



(V2793)

3.18 “E7” Malfunction of Outdoor Unit Fan Motor

Remote
Controller
Display

E7

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

Malfunction of fan motor system is detected according to the fan speed detected by hall IC when the fan motor runs.

Malfunction
Decision
Conditions

- When the fan runs with speed less than a specified one for 6 seconds or more when the fan motor running conditions are met
- When malfunction is generated 4 times, the system shuts down.

Supposed
Causes

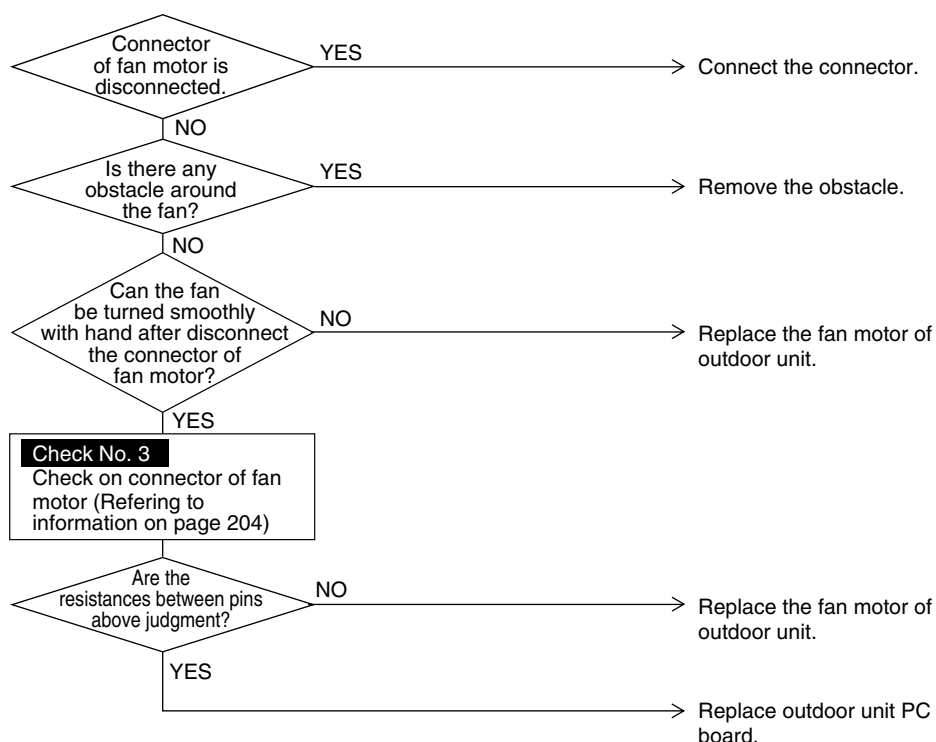
- Malfunction of fan motor
- The harness connector between fan motor and PC board is left in disconnected, or faulty connector
- Fan does not run due to foreign matters tangled
- Clearing condition: Operate for 5 minutes (normal)

Troubleshooting



Caution

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



3.19 “E9” Outdoor Unit: Malfunction of Moving Part of Electronic Expansion Valve (Y1E, Y3E)

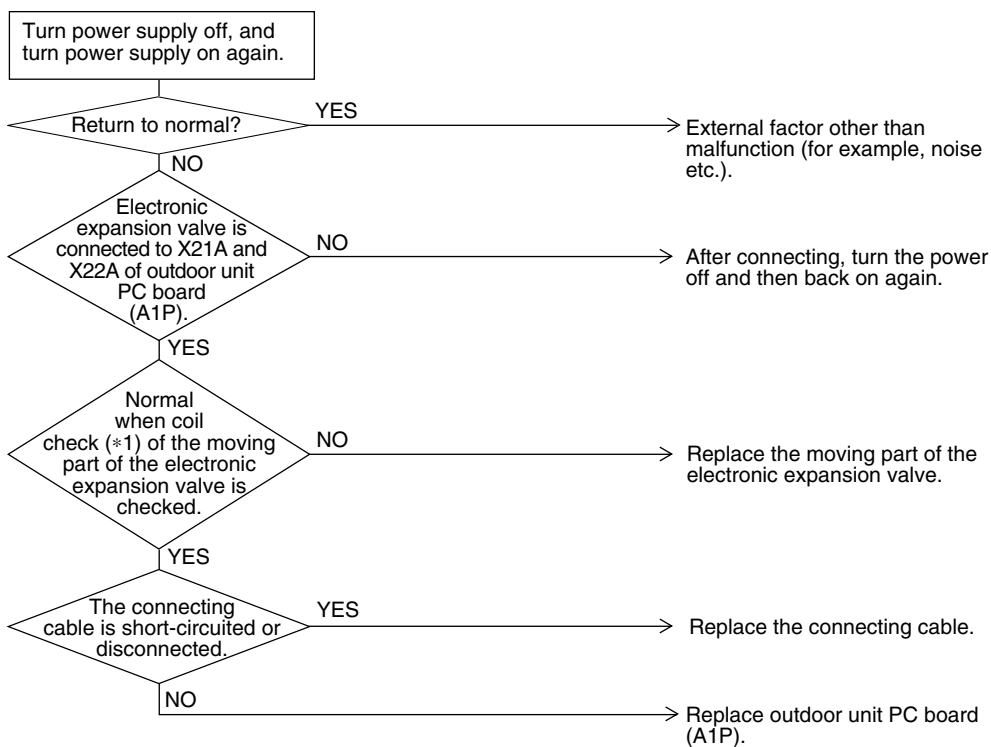
Remote Controller Display	E9
Applicable Models	RX(Y)MQ4~6P
Method of Malfunction Detection	Check disconnection of connector Check continuity of expansion valve coil
Malfunction Decision Conditions	Error is generated under no common power supply when the power is on.
Supposed Causes	■ Defect of moving part of electronic expansion valve ■ Defect of outdoor unit PC board (A1P) ■ Defect of connecting cable

Troubleshooting



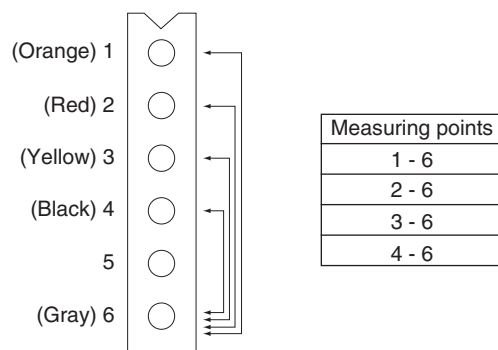
Caution

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



(V3067)

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



(V3067)

3.20 “F3” Outdoor Unit: Abnormal Discharge Pipe Temperature

Remote
Controller
Display

F3

Applicable
Models

RX(Y)MQ4~6P

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

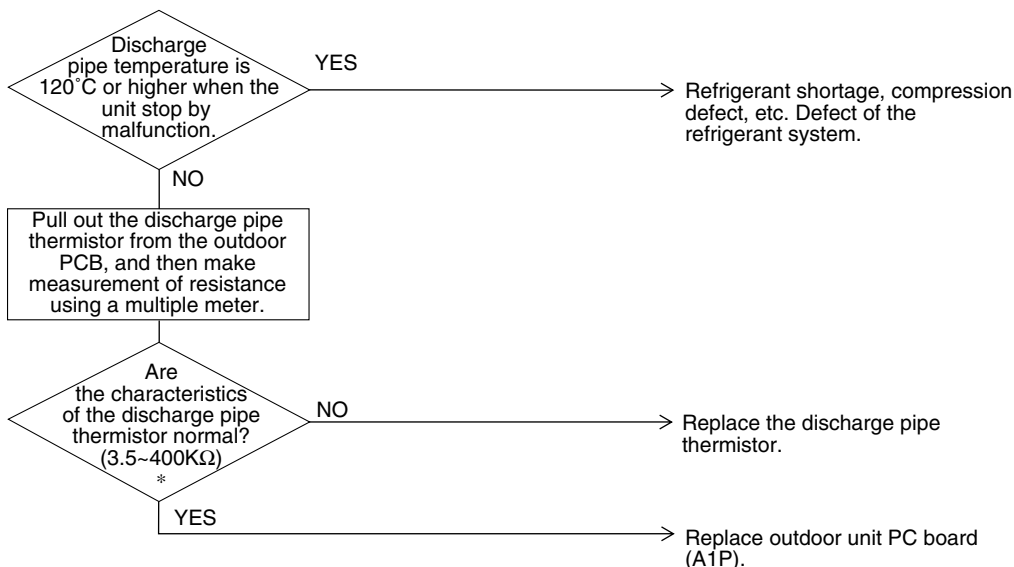
- Faulty discharge pipe temperature sensor
- Faulty connection of discharge pipe temperature sensor
- Faulty outdoor unit PC board

Troubleshooting



Caution

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



(V3068)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P231.

3.21 “F6” Outdoor Unit: Refrigerant Overcharged

Remote
Controller
Display

F6

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

Excessive charging of refrigerant is detected by using the heat exchanging deicer temperature during a check operation.

Malfunction
Decision
Conditions

When the amount of refrigerant, which is calculated by using the heat exchanging deicer temperature during a check run, exceeds the standard.

Supposed
Causes

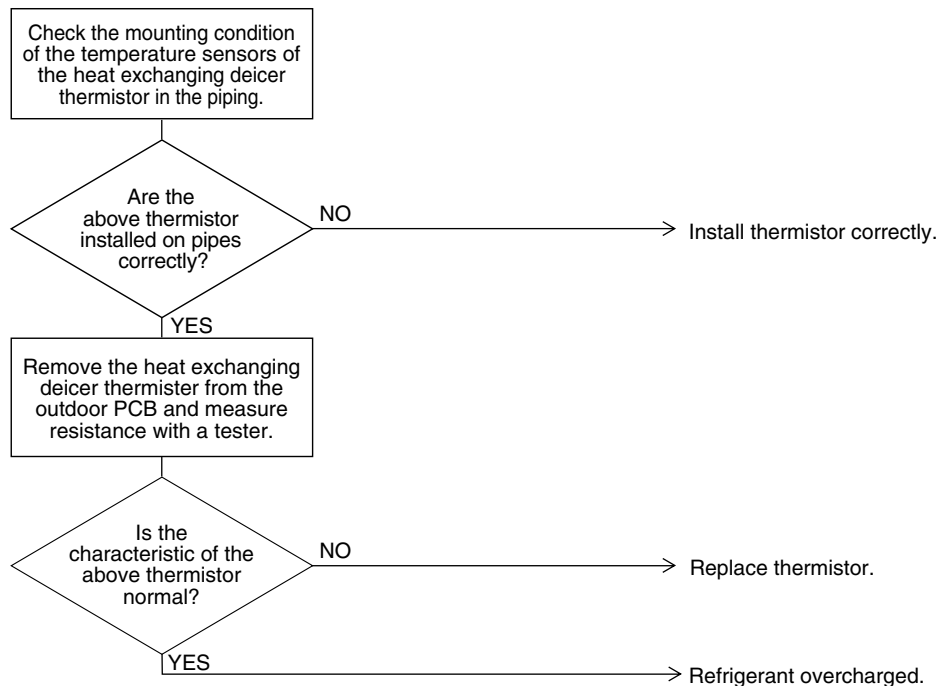
- Refrigerant overcharge
- Misalignment of the thermistor for heat exchanger
- Defect of the thermistor for heat exchanger

Troubleshooting



Caution

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



(V2797)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P231.

3.22 “H9” Outdoor Unit: Malfunction of Thermistor (R1T) for Outdoor Air

Remote
Controller
Display

H9

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

Malfunction is detected from the temperature detected by the outdoor air thermistor.

Malfunction
Decision
Conditions

When the outside air temperature thermistor has short circuit or open circuit.

Supposed
Causes

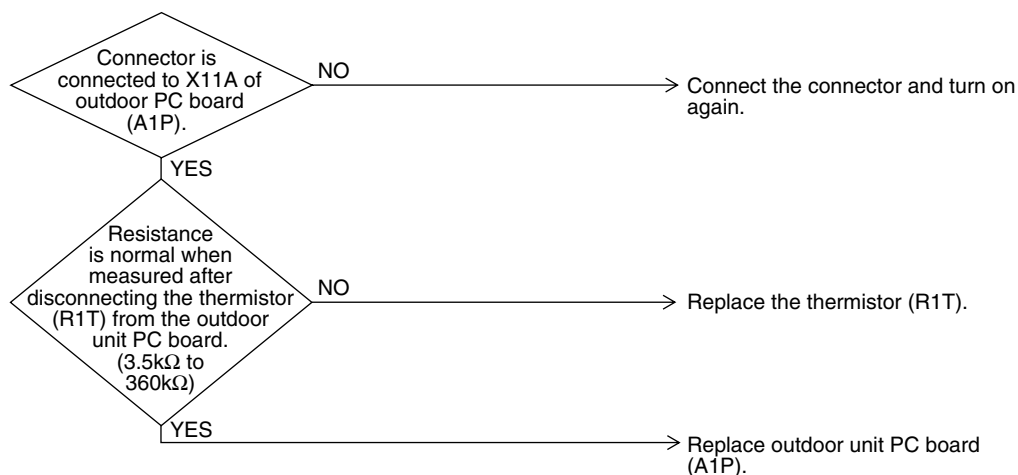
- Defect of thermistor (R1T) for outdoor air
- Defect of outdoor unit PC board (A1P)

Troubleshooting



Caution

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



(V3070)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P231.

3.23 “J3” Outdoor Unit: Malfunction of Discharge Pipe Thermistor (R2T)

Remote
Controller
Display

J3

Applicable
Models

RX(Y)MQ4~6P

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

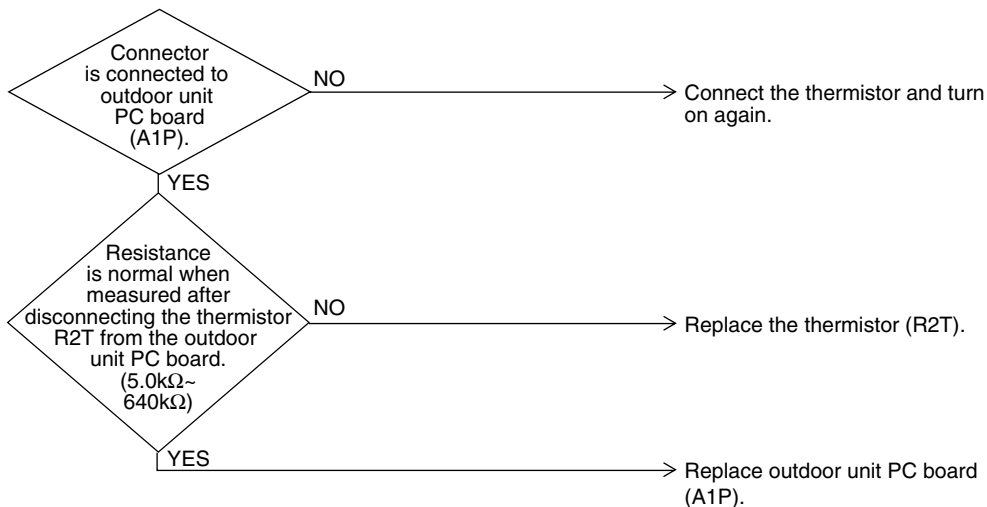
- Defect of thermistor (R2T) for outdoor unit discharge pipe
- Defect of outdoor unit PC board (A1P)

Troubleshooting



Caution

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



(V3072)



* Refer to thermistor resistance / temperature characteristics table on P232.

3.24 “J5” Outdoor Unit: Malfunction of Thermistor (R3T, R5T) for Suction Pipe 1, 2

Remote
Controller
Display

J5

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

Malfunction is detected from the temperature detected by the thermistor for suction pipe 1, 2.

Malfunction
Decision
Conditions

When a short circuit or an open circuit in the thermistor for suction pipe 1, 2 are detected.

Supposed
Causes

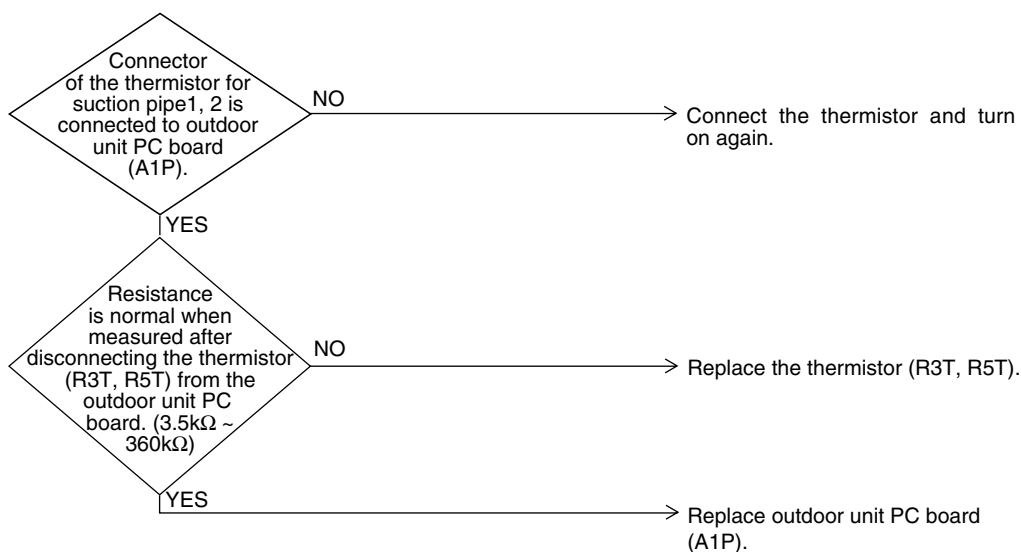
- Defect of thermistor (R3T, R5T) for outdoor unit suction pipe
- Defect of outdoor unit PC board (A1P)

Troubleshooting



Caution

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



(V3073)



* Refer to thermistor resistance / temperature characteristics table on P231.

3.25 “J6” Outdoor Unit: Malfunction of Thermistor (R4T) for Outdoor Unit Heat Exchanger

Remote
Controller
Display

J6

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

Malfunction is detected from the temperature detected by the heat exchanger thermistor.

Malfunction
Decision
Conditions

When a short circuit or an open circuit in the heat exchange thermistor is detected.

Supposed
Causes

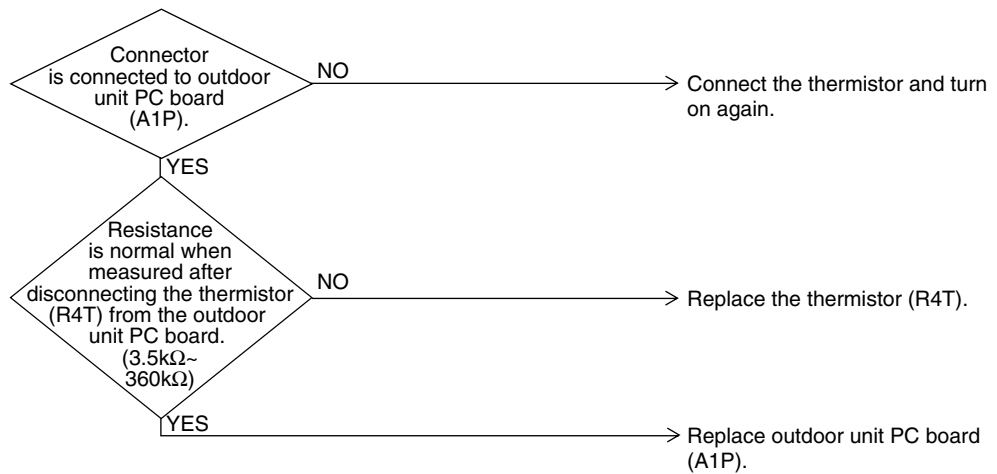
- Defect of thermistor (R4T) for outdoor unit heat exchanger
- Defect of outdoor unit PC board (A1P)

Troubleshooting



Caution

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



(V3074)



* Refer to thermistor resistance / temperature characteristics table on P231.

3.26 “J7” Outdoor Unit: Malfunction of Thermistor (R7T) for Outdoor Unit Liquid Pipe

Remote
Controller
Display

J7

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

When a short circuit or an open circuit in the heat exchange thermistor is detected.

Supposed
Causes

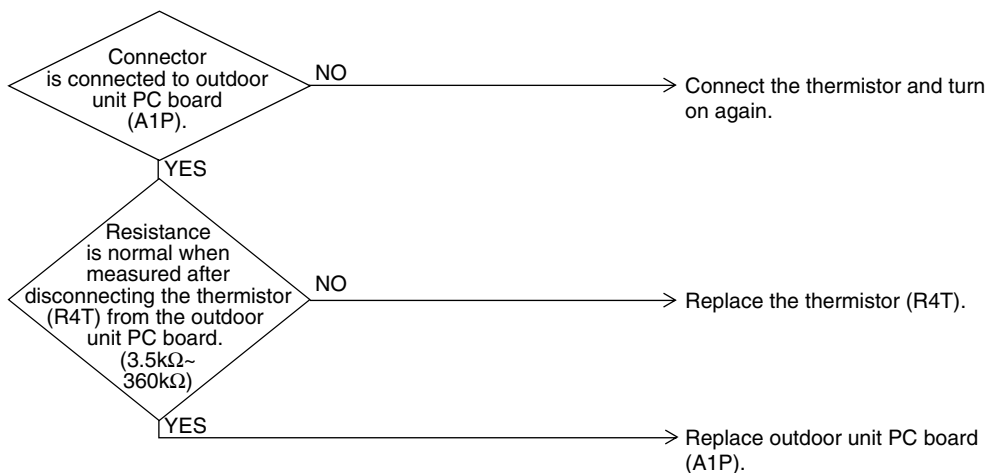
- Defect of thermistor (R7T) for outdoor unit liquid pipe
- Defect of outdoor unit PC board (A1P)

Troubleshooting



Caution

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



(V3074)



* Refer to thermistor resistance / temperature characteristics table on P231.

3.27 “J9” Outdoor Unit: Malfunction of Subcooling Heat Exchanger Gas Pipe Thermistor (R6T)

Remote
Controller
Display

J9

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

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

Supposed
Causes

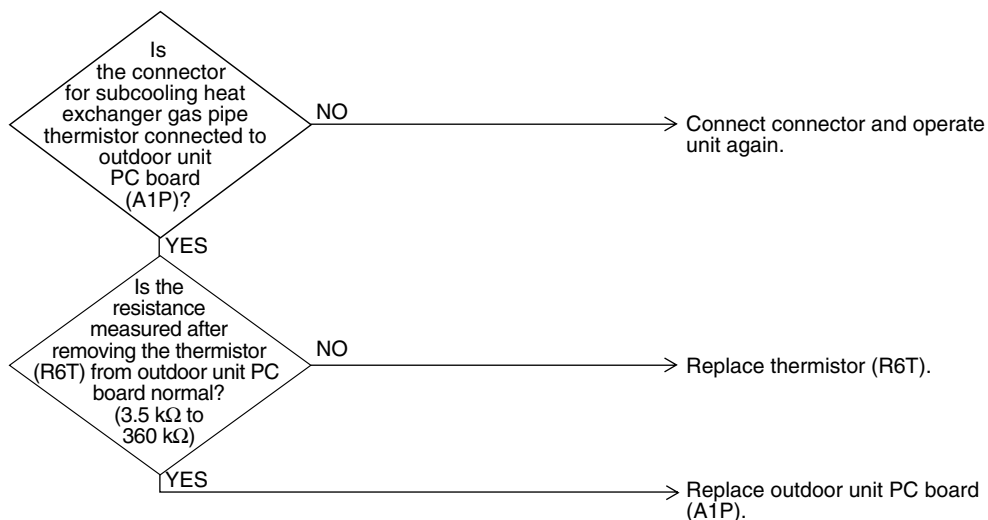
- Faulty subcooling heat exchanger gas pipe thermistor (R6T)
- Faulty outdoor unit PC board

Troubleshooting



Caution

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



(V3075)



* Refer to “Thermistor Resistance / Temperature Characteristics” table on P231.

3.28 “JA” Outdoor Unit: Malfunction of High Pressure Sensor

Remote
Controller
Display

JA

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

When the high pressure sensor is short circuit or open circuit.

Supposed
Causes

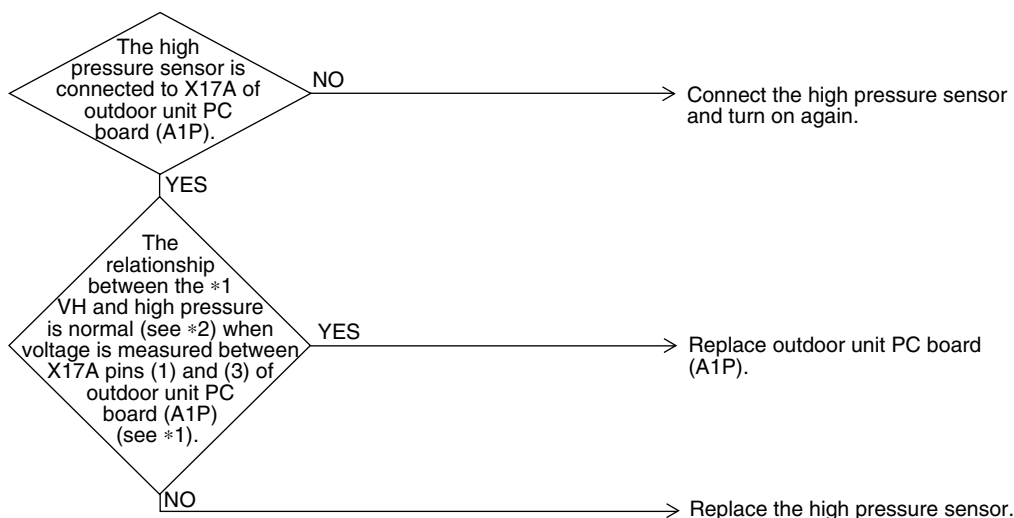
- Defect of high pressure sensor
- Connection of low pressure sensor with wrong connection.
- Defect of outdoor unit PC board.

Troubleshooting



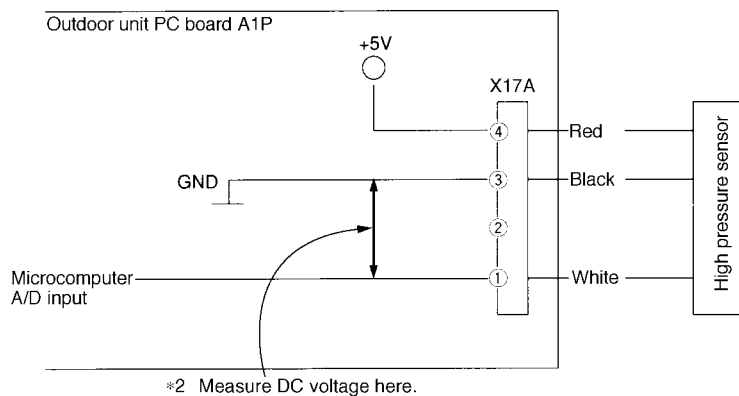
Caution

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 P233.

3.29 “JC” Outdoor Unit: Malfunction of Low Pressure Sensor

Remote
Controller
Display



Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

Malfunction is detected from pressure detected by low pressure sensor.

Malfunction
Decision
Conditions

When the low pressure sensor is short circuit or open circuit.

Supposed
Causes

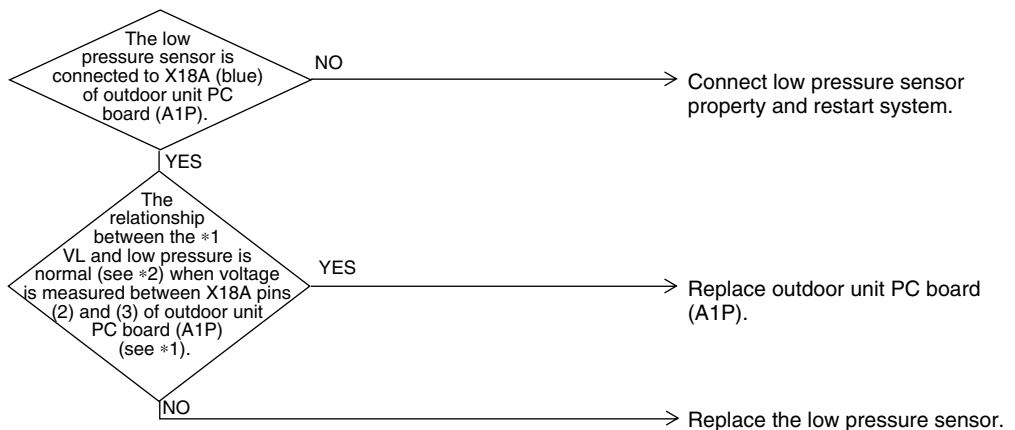
- Defect of low pressure sensor
- Connection of high pressure sensor with wrong connection.
- Defect of outdoor unit PC board.

Troubleshooting



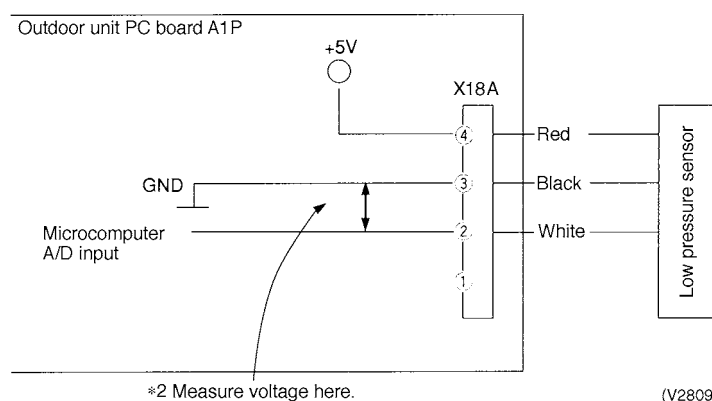
Caution

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 P233.

3.30 “L1” Outdoor Unit: Malfunction of PC Board

Remote
Controller
Display

L1

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

- Detect malfunctions by current value during waveform output before compressor startup.
- Detect malfunctions by current sensor value during synchronized operation at the time of startup.
- Detect malfunctions using an SP-PAM series capacitor overvoltage sensor.

Malfunction
Decision
Conditions

- In case of overcurrent (OCP) during waveform output
- When the current sensor malfunctions during synchronized operation
- When overvoltage occurs in SP-PAM
- In case of IGBT malfunction

Supposed
Causes

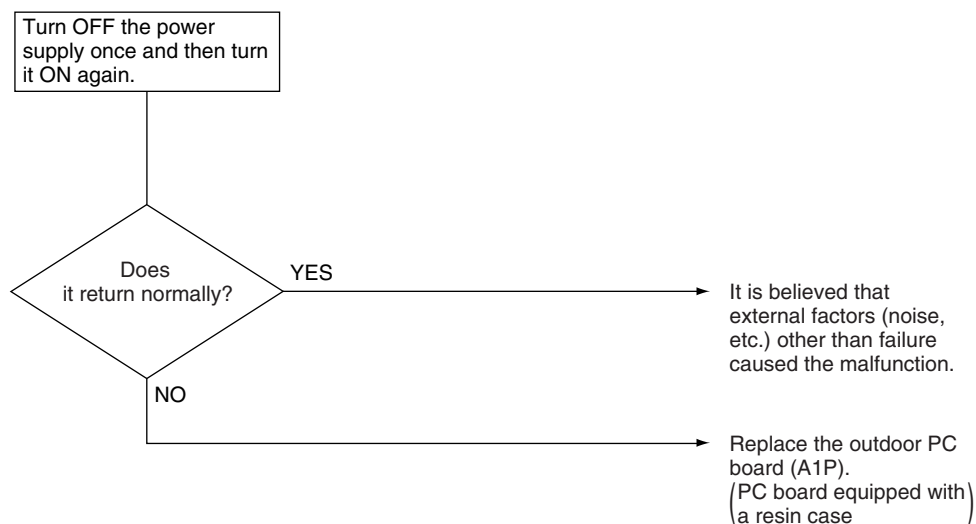
- Faulty outdoor PC board (A1P)
 - IPM failure
 - Current sensor failure
 - SP-PAM failure
 - Failure of IGBT or drive circuit

Troubleshooting



Caution

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



3.31 “L4” Outdoor Unit: Malfunction of Inverter Radiating Fin Temperature Rise

Remote
Controller
Display

L4

Applicable
Models

RX(Y)MQ4~6P

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 83°C.

Supposed
Causes

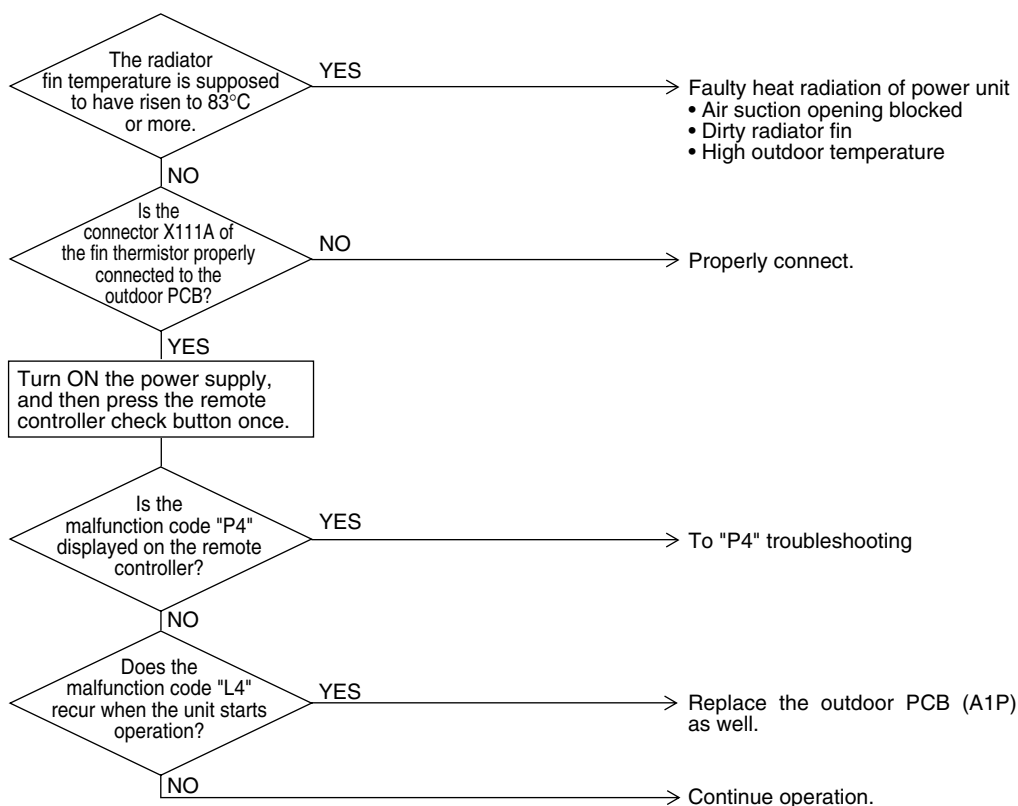
- Actuation of fin thermal (Actuates above 83°C)
- Defect of inverter PCB board
- Defect of fin thermistor

Troubleshooting



Caution

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



3.32 “L5” Outdoor Unit: Inverter Compressor Abnormal

Remote
Controller
Display

L5

Applicable
Models

RX(Y)MQ4~6P

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

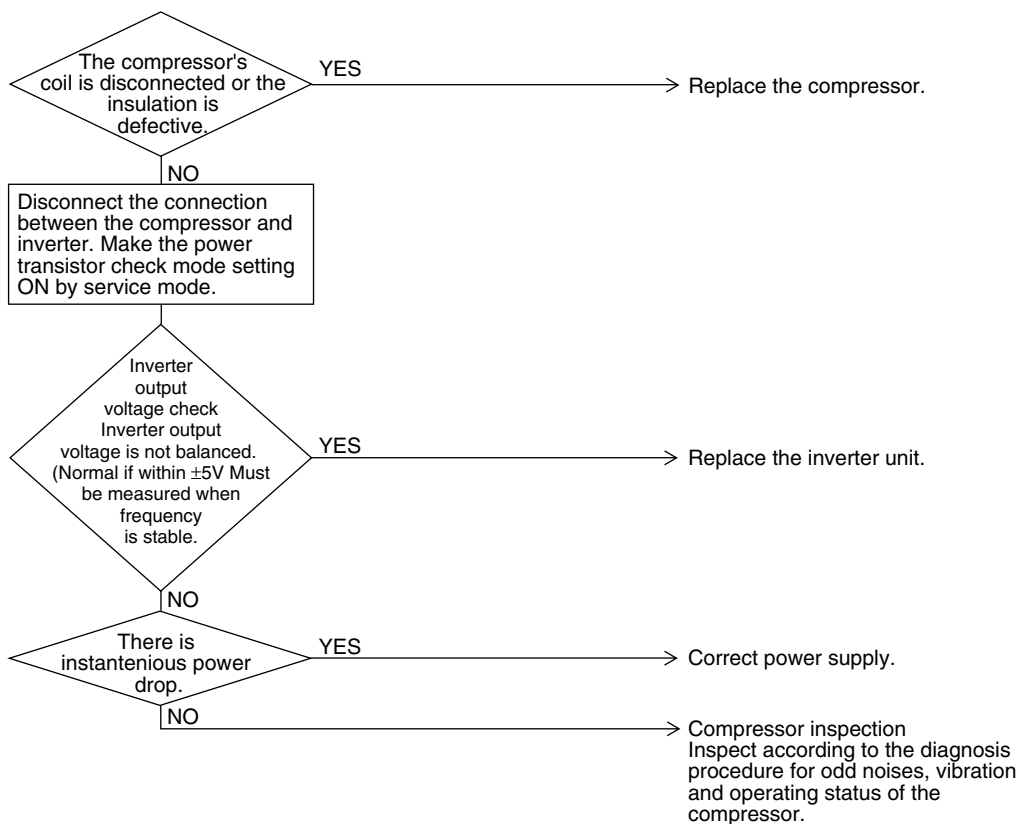
Troubleshooting



Caution

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

Compressor inspection



(V2812)

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

3.33 “L8” Outdoor Unit: Inverter Current Abnormal

Remote
Controller
Display

L8

Applicable
Models

RX(Y)MQ4~6P

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 outdoor unit PC board (A1P)

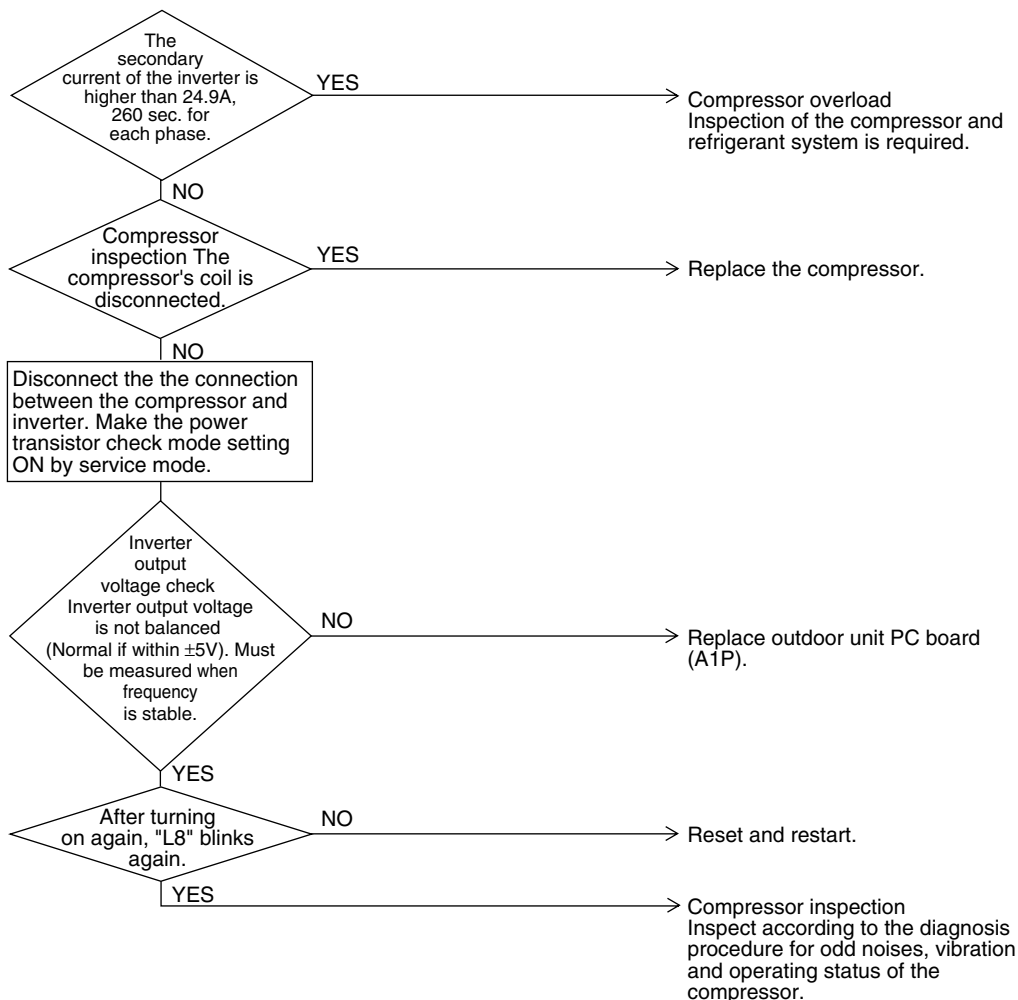
Troubleshooting



Caution

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

Output current check



(V3184)

3.34 “L9” Outdoor Unit: Inverter Start up Error

Remote
Controller
Display

L9

Applicable
Models

RX(Y)MQ4~6P

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

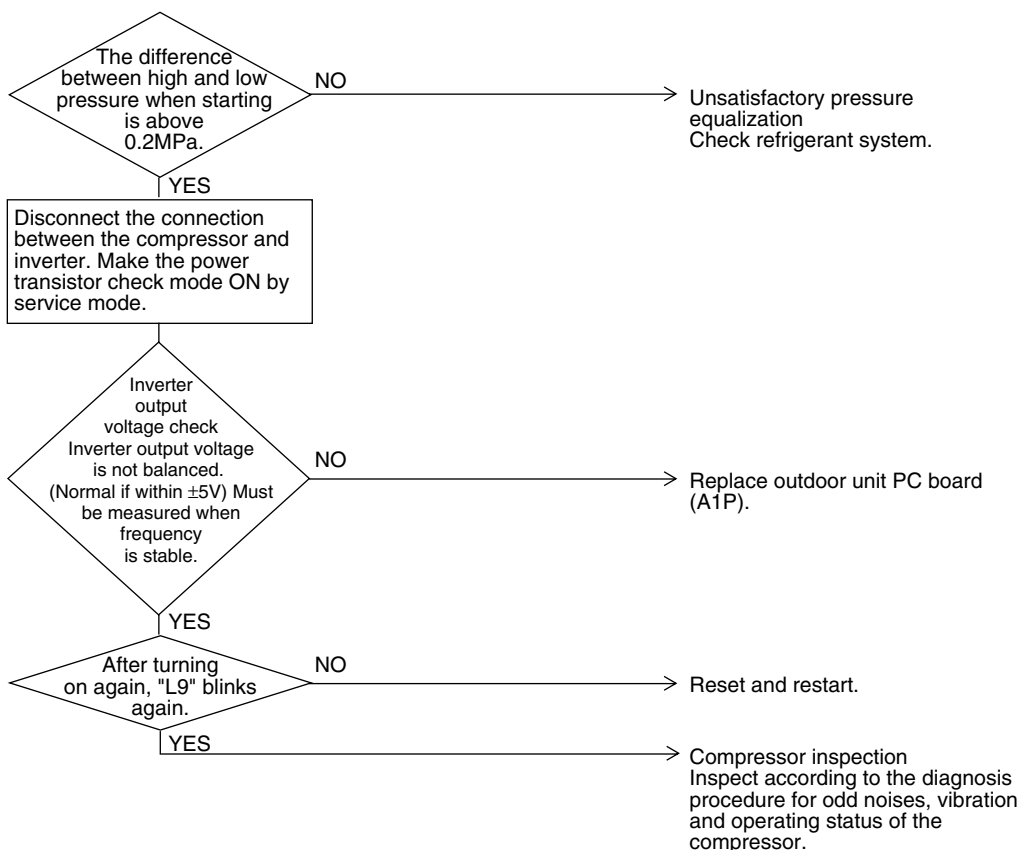
- Defect of compressor
- Pressure differential start
- Defect of outdoor unit PC board (A1P)

Troubleshooting



Caution

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



(V2814)

3.35 “*LC*” Outdoor Unit: Malfunction of Transmission between Inverter and Control PC Board

Remote
Controller
Display

LC

Applicable
Models

RX(Y)MQ4~6P

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

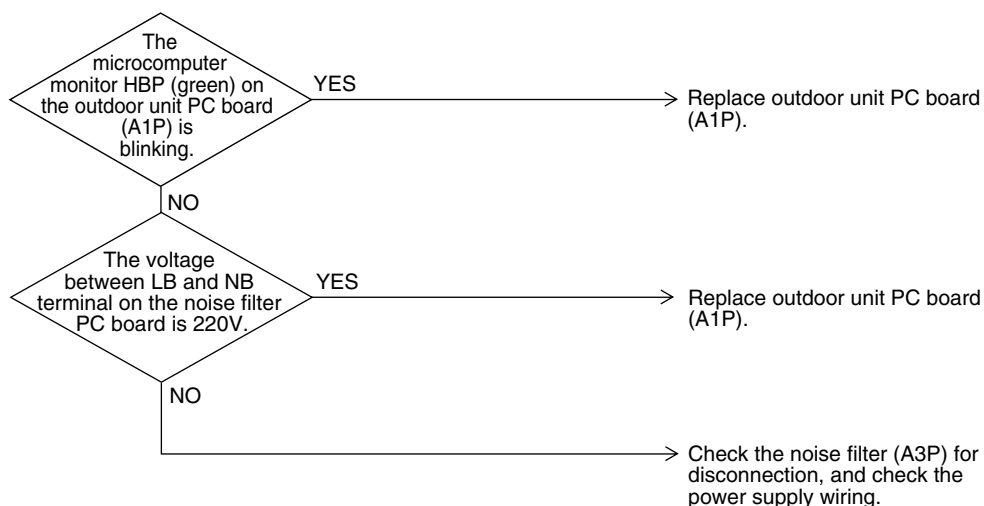
- Malfunction of connection between the inverter microcomputer and outdoor control microcomputer
- Defect of outdoor unit PC board
- Defect of noise filter
- External factor (Noise etc.)

Troubleshooting



Caution

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



3.36 “P1” Outdoor Unit: High Voltage of Capacitor in Main Inverter Circuit

Remote
Controller
Display

P1

Applicable
Models

RX(Y)MQ4~6P

Method of
Malfunction
Detection

Malfunction is detected according to the voltage waveform of main circuit capacitor built in the inverter.

Malfunction
Decision
Conditions

When the aforementioned voltage waveform becomes identical with the waveform of the power supply open phase.

Supposed
Causes

- Defect of main circuit capacitor
- Improper main circuit wiring
- 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.



3.37 “P4” Outdoor Unit: Malfunction of Inverter Radiating Fin Temperature Rise Sensor

Remote
Controller
Display

P4

Applicable
Models

RX(Y)MQ4~6P

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

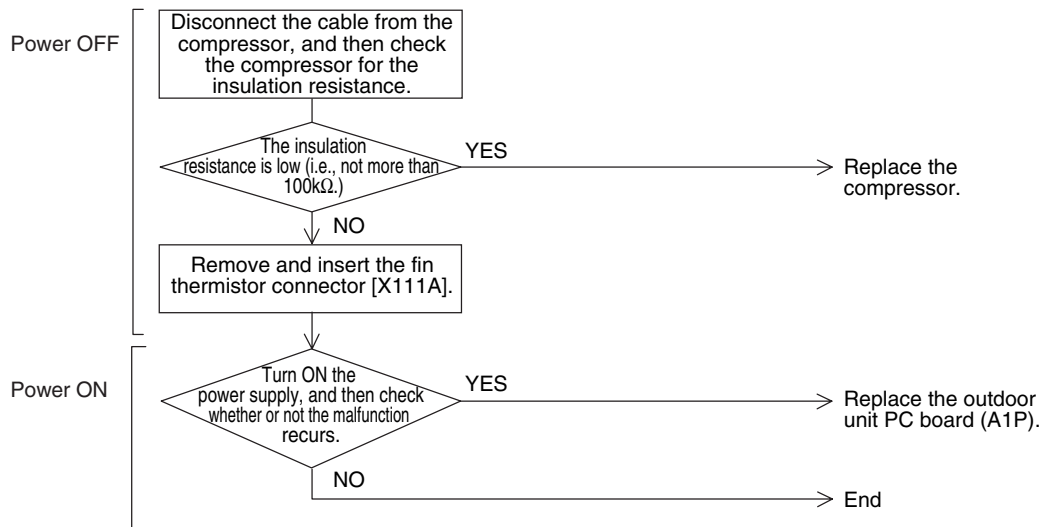
- Defect of radiator fin temperature sensor
- Defect of outdoor unit PC board (A1P)

Troubleshooting



Caution

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



3.38 “U0” Outdoor Unit: Low Pressure Drop Due to Refrigerant Shortage or Electronic Expansion Valve Failure

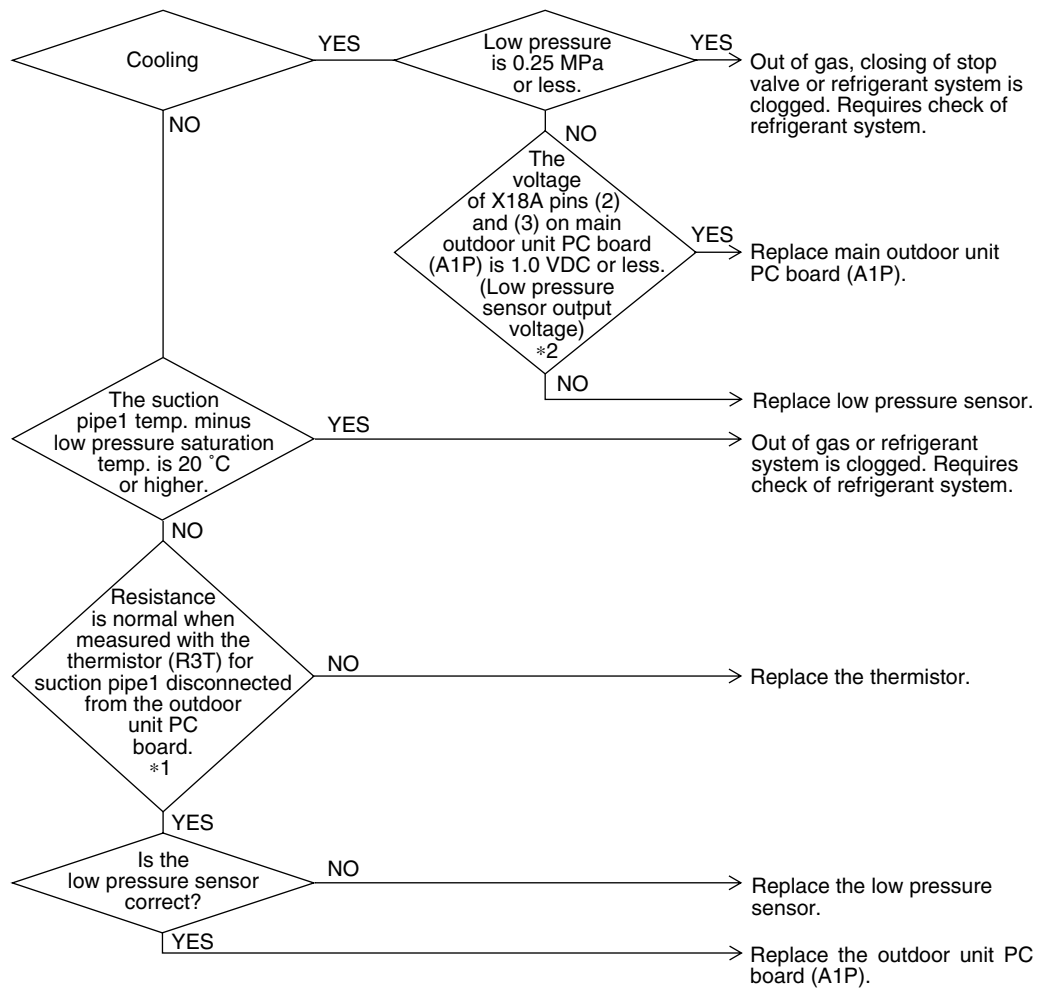
Remote Controller Display	U0
Applicable Models	RX(Y)MQ4~6P
Method of Malfunction Detection	Short of gas malfunction is detected by discharge pipe temperature thermistor and low pressure saturation temperature.
Malfunction Decision Conditions	Microcomputer judge and detect if the system is short of refrigerant. ★Malfunction is not decided while the unit operation is continued.
Supposed Causes	■ Out of gas or refrigerant system clogging (incorrect piping) ■ Defect of pressure sensor ■ Defect of outdoor unit PC board (A1P) ■ Defect of thermistor R3T

Troubleshooting



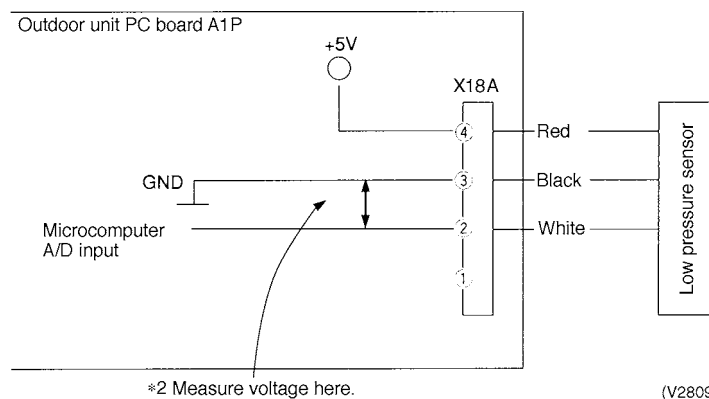
Caution

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



(V2819)

*2: Voltage measurement point



*1: Refer to "Thermistor Resistance / Temperature Characteristics" table on P231.

*2: Refer to "Pressure Sensor, Pressure / Voltage Characteristics" table on P233.

3.39 “U2” Power Supply Insufficient or Instantaneous Failure

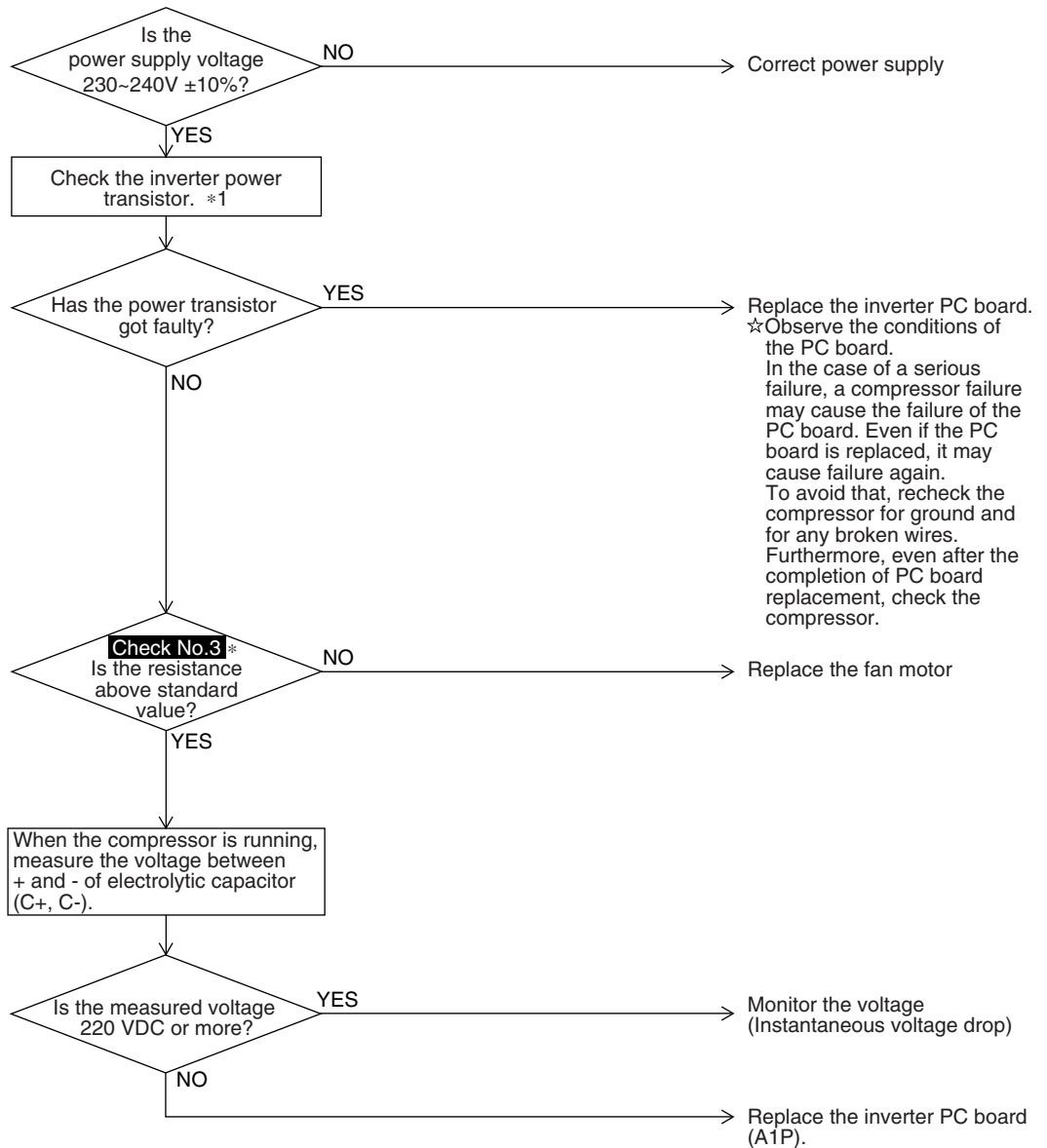
Remote Controller Display	U2
Applicable Models	RX(Y)MQ4~6P
Method of Malfunction Detection	Detection of voltage of main circuit capacitor built in the inverter and power supply voltage.
Malfunction Decision Conditions	When the abnormal voltage of main circuit capacitor built in the inverter and abnormal power supply voltage are detected.
Supposed Causes	■ Power supply insufficient ■ Instantaneous power failure ■ Defect of outdoor unit fan motor ■ Defect of outdoor control PC board (A1P)

Troubleshooting



Caution

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



(S2605)



*1: Inverter's Power Transistors Check : Referring to information on page 234, 235.

*Check No.3 : Referring to information on page 204.

3.40 “U3” Check Operation not Executed

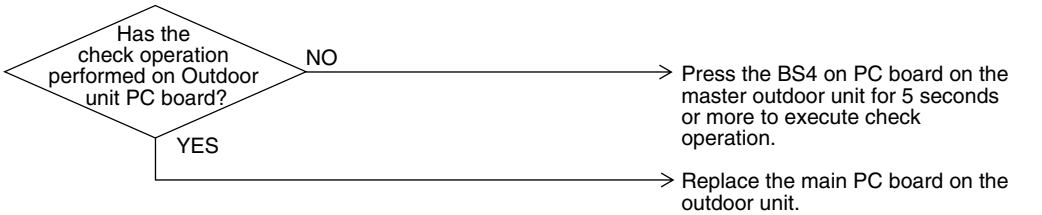
Remote Controller Display	U3
Applicable Models	RX(Y)MQ4~6P
Method of Malfunction Detection	Check operation is executed or not
Malfunction Decision Conditions	Malfunction is decided when the unit starts operation without check operation.
Supposed Causes	■ Check operation is not executed.

Troubleshooting



Caution

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



(V3052)

3.41 “U4” Malfunction of Transmission between Indoor Units and Outdoor Units

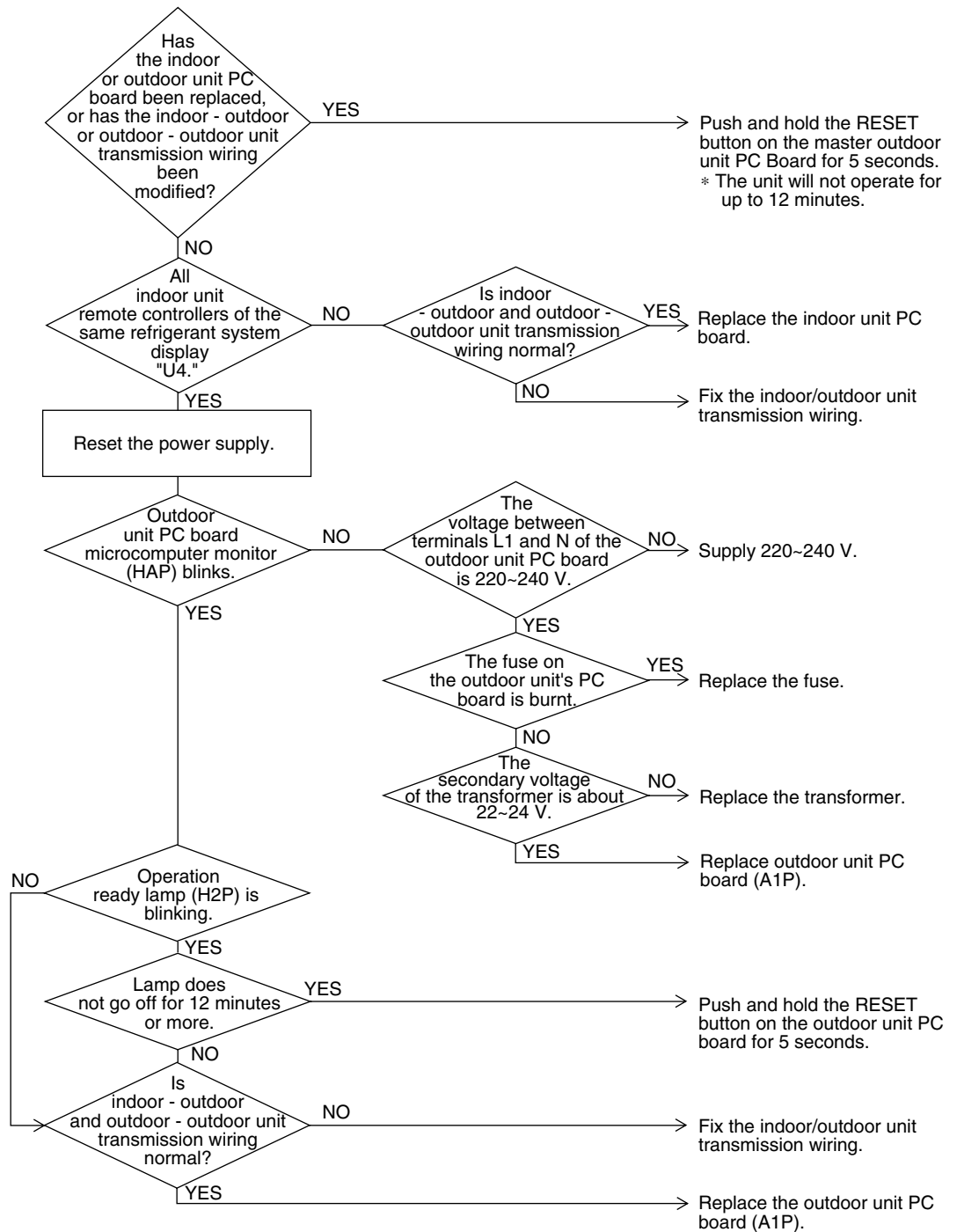
Remote Controller Display	U4
Applicable Models	All indoor unit models RX(Y)MQ4~6P
Method of Malfunction Detection	Microcomputer checks if transmission between indoor and outdoor units is normal.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time
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 outdoor unit 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.



(V3187)

3.42 “U5” Malfunction of Transmission between Remote Controller and Indoor Unit

Remote
Controller
Display

U5

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

Normal transmission does not continue for specified period.

Supposed
Causes

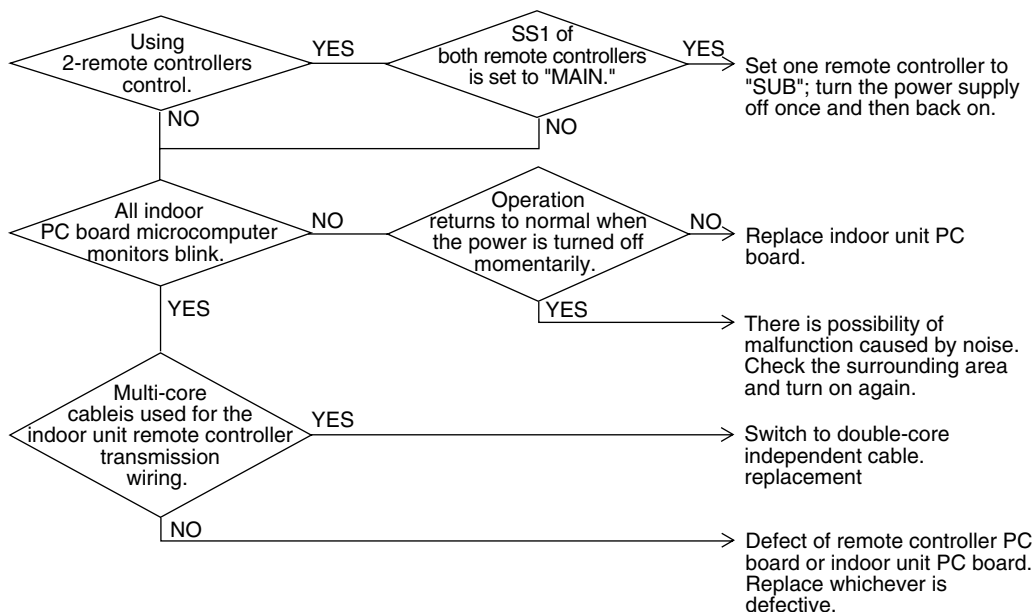
- Malfunction of indoor unit remote controller transmission
- Connection of two main remote controllers (when using 2 remote controllers)
- Defect of indoor unit PC board
- Defect of remote controller PC board
- Malfunction of transmission caused by noise

Troubleshooting



Caution

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



(V2823)

3.43 “U8” Malfunction of Transmission between Main and Sub Remote Controllers

Remote
Controller
Display

U8

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

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

Malfunction
Decision
Conditions

Normal transmission does not continue for specified period.

Supposed
Causes

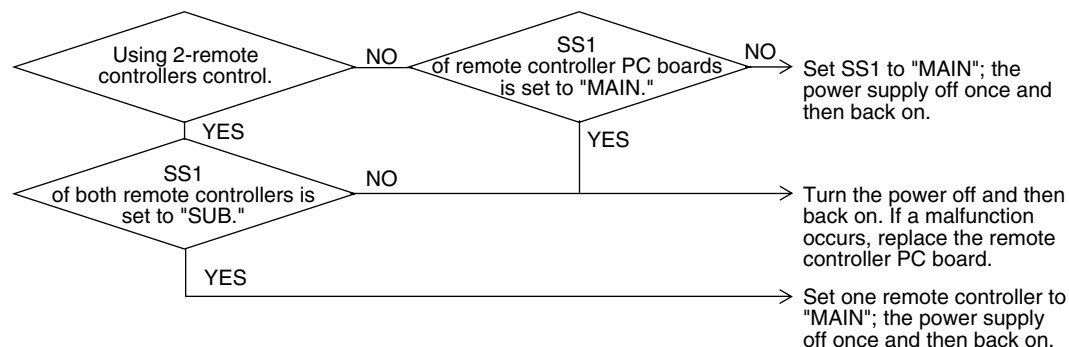
- Malfunction of transmission between main and sub remote controller
- Connection between sub remote controllers
- Defect of remote controller PC board

Troubleshooting



Caution

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



(V2825)

3.44 “U9” Malfunction of Transmission between Indoor and Outdoor Units in the Same System

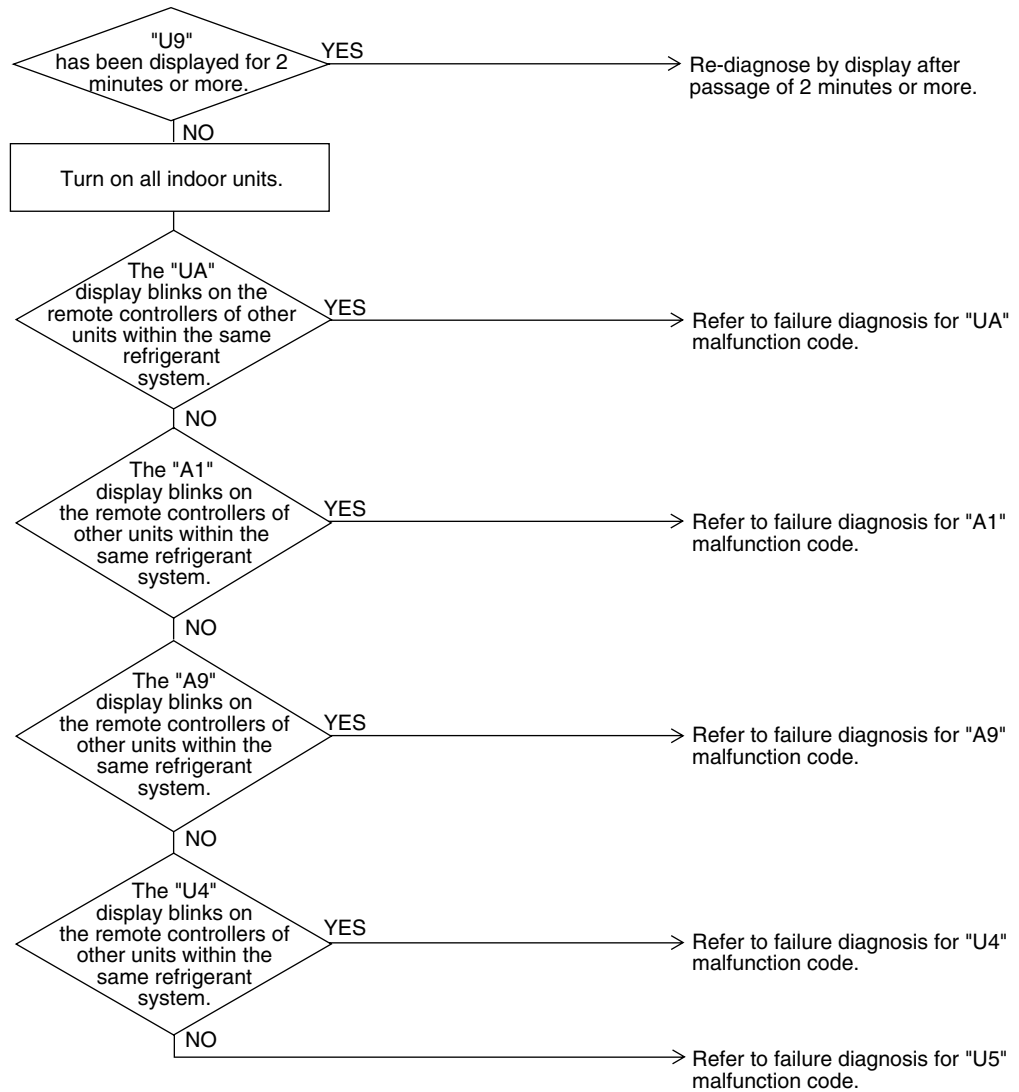
Remote Controller Display	U9
Applicable Models	All indoor unit models
Method of Malfunction Detection	
Malfunction Decision Conditions	
Supposed Causes	■ Malfunction of transmission within or outside of other system ■ Malfunction of electronic expansion valve in indoor unit of other system ■ Defect of 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)

3.45 “UA” Excessive Number of Indoor Units

Remote
Controller
Display

UA

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

Malfunction
Decision
Conditions

Supposed
Causes

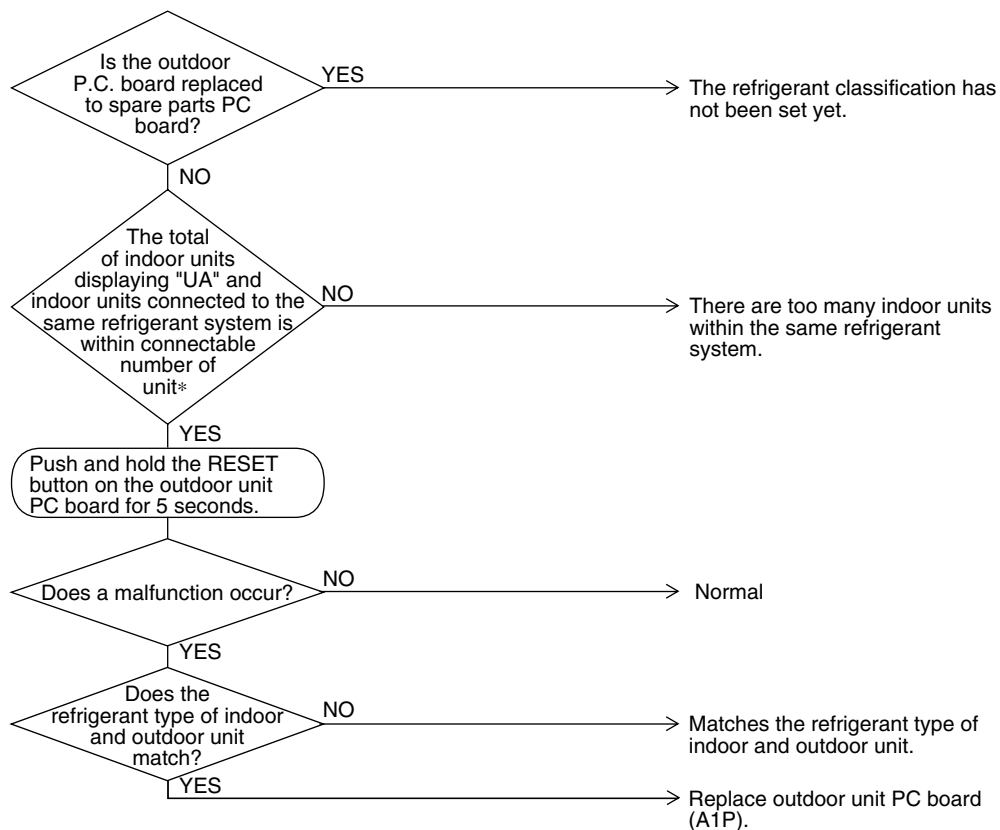
- Excess of connected indoor units
- Defect of outdoor unit PC board (A1P)
- Mismatching of the refrigerant type of indoor and outdoor unit.
- Setting of outdoor PC board was not conducted after replacing to spare parts P.C. board.

Troubleshooting



Caution

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



(V3169)

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

3.46 “UC” Address Duplication of Central Remote Controller

Remote
Controller
Display

UC

Applicable
Models

All indoor unit models

Method of
Malfunction
Detection

Malfunction
Decision
Conditions

Supposed
Causes

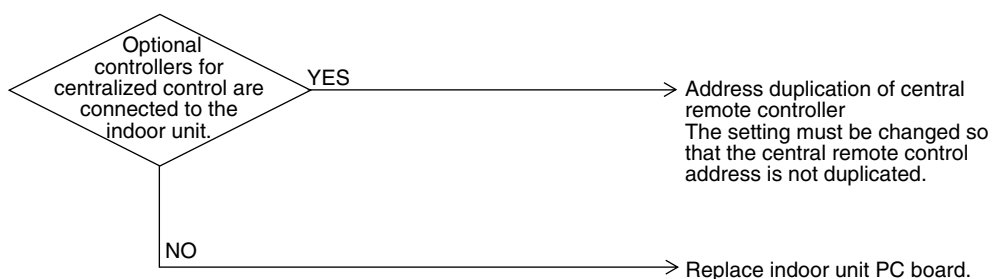
- Address duplication of centralized remote controller
- Defect of indoor unit PC board

Troubleshooting



Caution

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



(V2828)

3.47 “UE” Malfunction of Transmission between Central Remote Controller and Indoor Unit

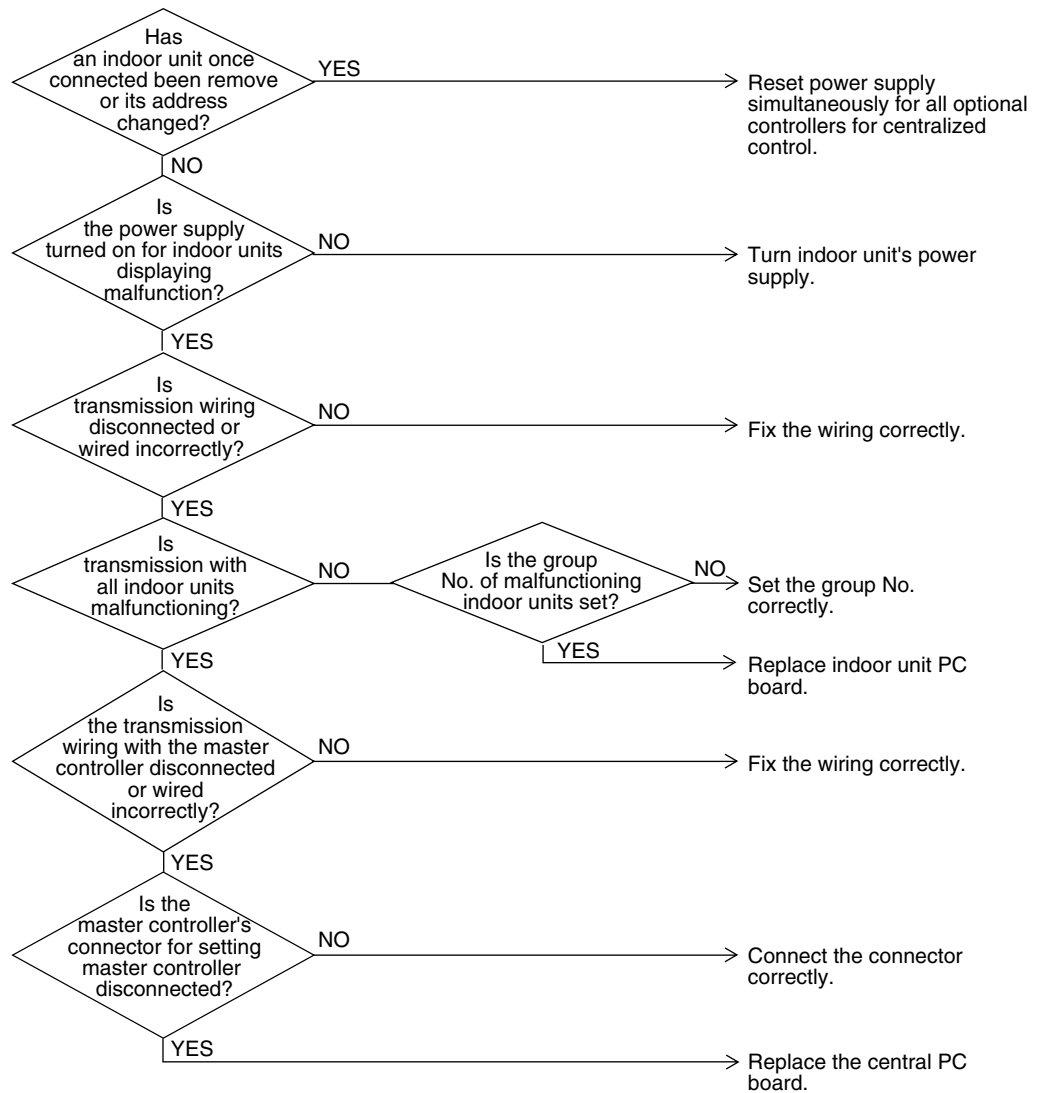
Remote Controller Display	UE
Applicable Models	All indoor unit models Centralized controller
Method of Malfunction Detection	Microcomputer checks if transmission between indoor unit and centralized remote controller is normal.
Malfunction Decision Conditions	When transmission is not carried out normally 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.



(V2829)

3.48 “UF” System is not Set yet

Remote
Controller
Display

UF

Applicable
Models

All models of indoor units
RX(Y)MQ4~6P

Method of
Malfunction
Detection

On check operation, the number of indoor units in terms of transmission is not corresponding to that of indoor units that have made changes in temperature.

Malfunction
Decision
Conditions

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

Supposed
Causes

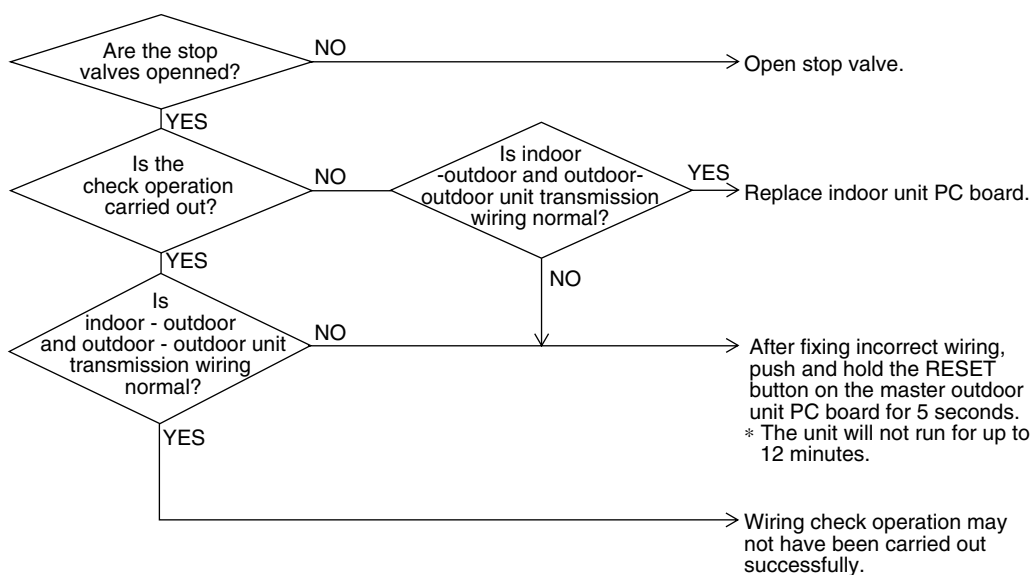
- Improper connection of transmission wiring between indoor-outdoor units and outdoor-outdoor units
- Failure to execute check operation
- Defect of indoor unit PC board
- Stop valve is left in closed

Troubleshooting



Caution

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



(V2830)



Note:

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

3.49 “UH” Malfunction of System, Refrigerant System Address Undefined

Remote
Controller
Display

UH

Applicable
Models

All indoor unit models
RX(Y)MQ4~6P

Method of
Malfunction
Detection

Malfunction
Decision
Conditions

Supposed
Causes

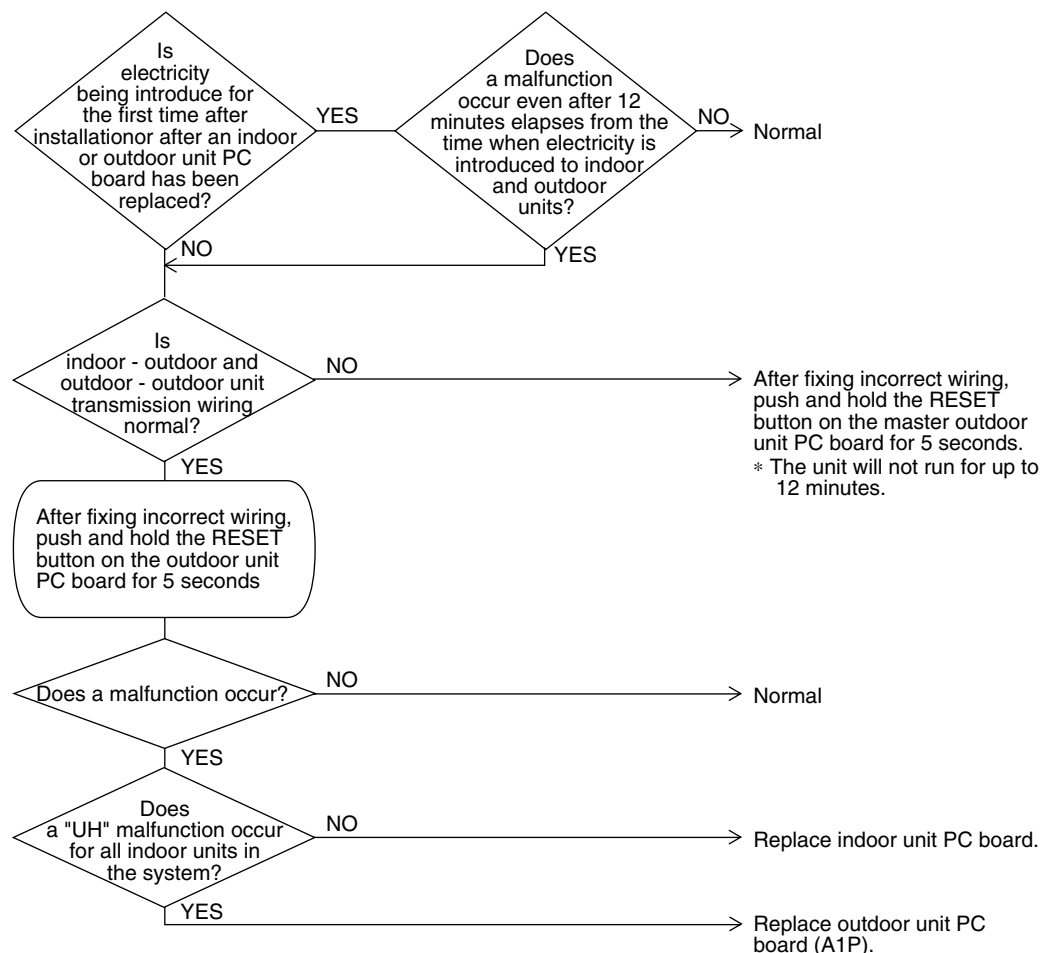
- Improper connection of transmission wiring between outdoor unit and outdoor unit outside control adaptor
- Defect of indoor unit PC board
- Defect of outdoor unit PC board (A1P)

Troubleshooting



Caution

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



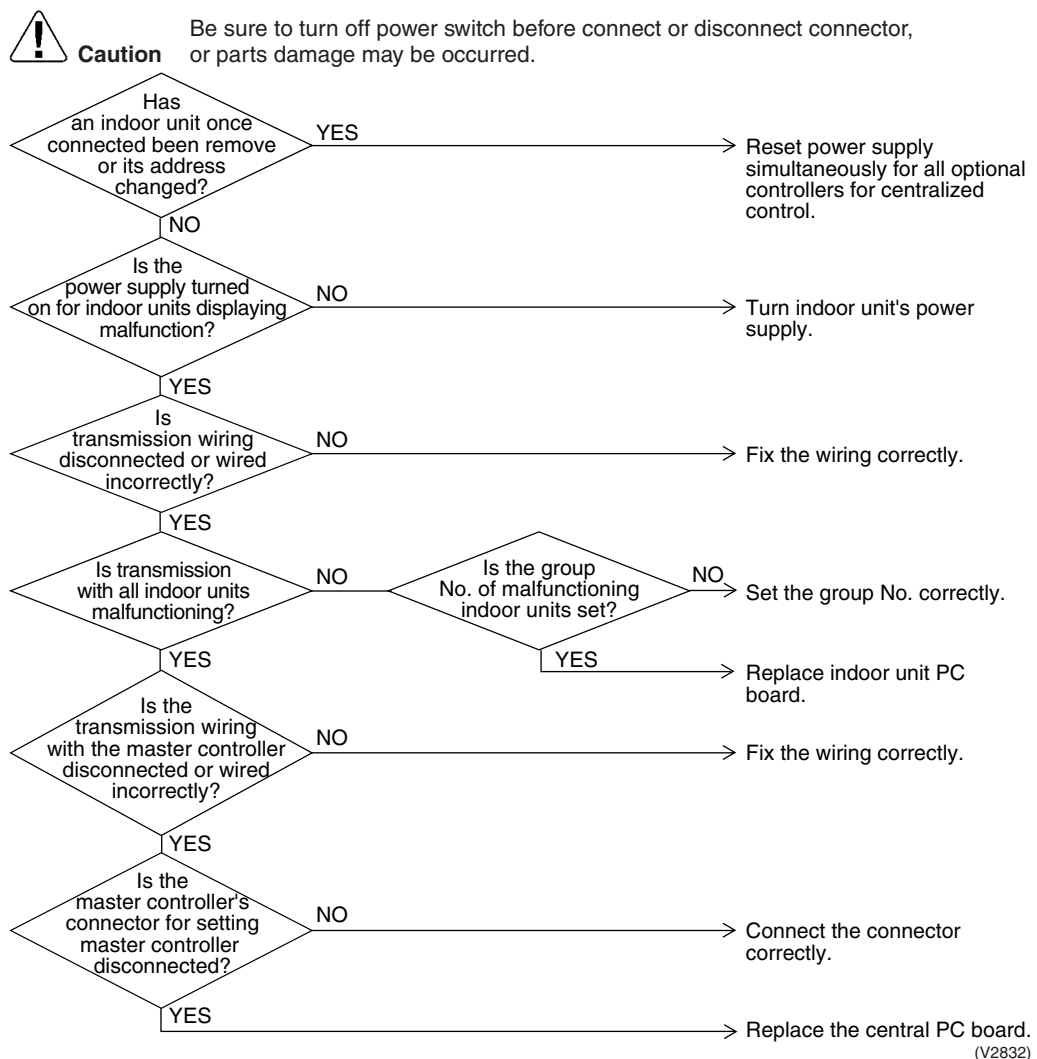
(V2831)

4. Troubleshooting by Indication on the Centralized Remote Controller

4.1 “UE” Malfunction of Transmission between Centralized Remote Controller and Indoor Unit

Remote Controller Display	UE
Applicable Models	All indoor unit models Centralized Remote Controller
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



(V2832)

4.2 “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.

4.3 “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

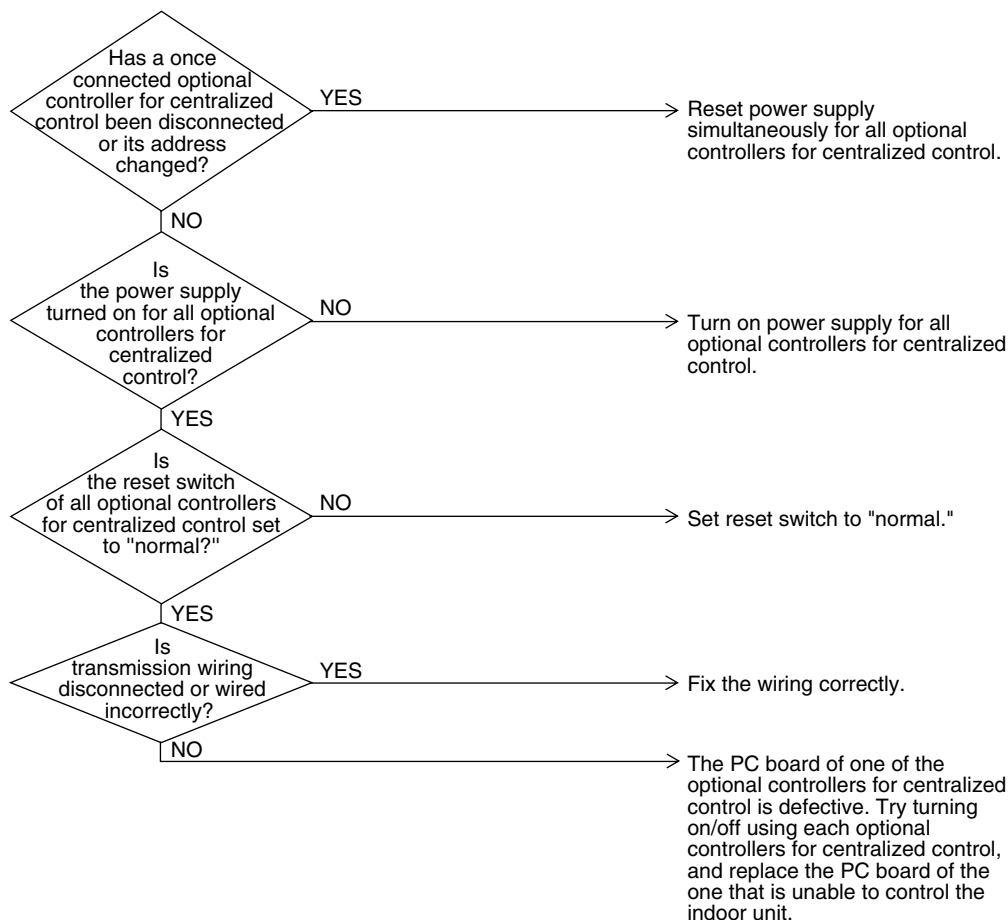
- Malfunction of transmission between optional controllers for centralized control
- Defect of PC board of optional controllers for centralized control

Troubleshooting



Caution

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



(V2833)

4.4 “MR” Improper Combination of Optional Controllers for Centralized Control

Remote
Controller
Display

MR

Applicable
Models

Centralized remote controller

Method of
Malfunction
Detection

Malfunction
Decision
Conditions

Supposed
Causes

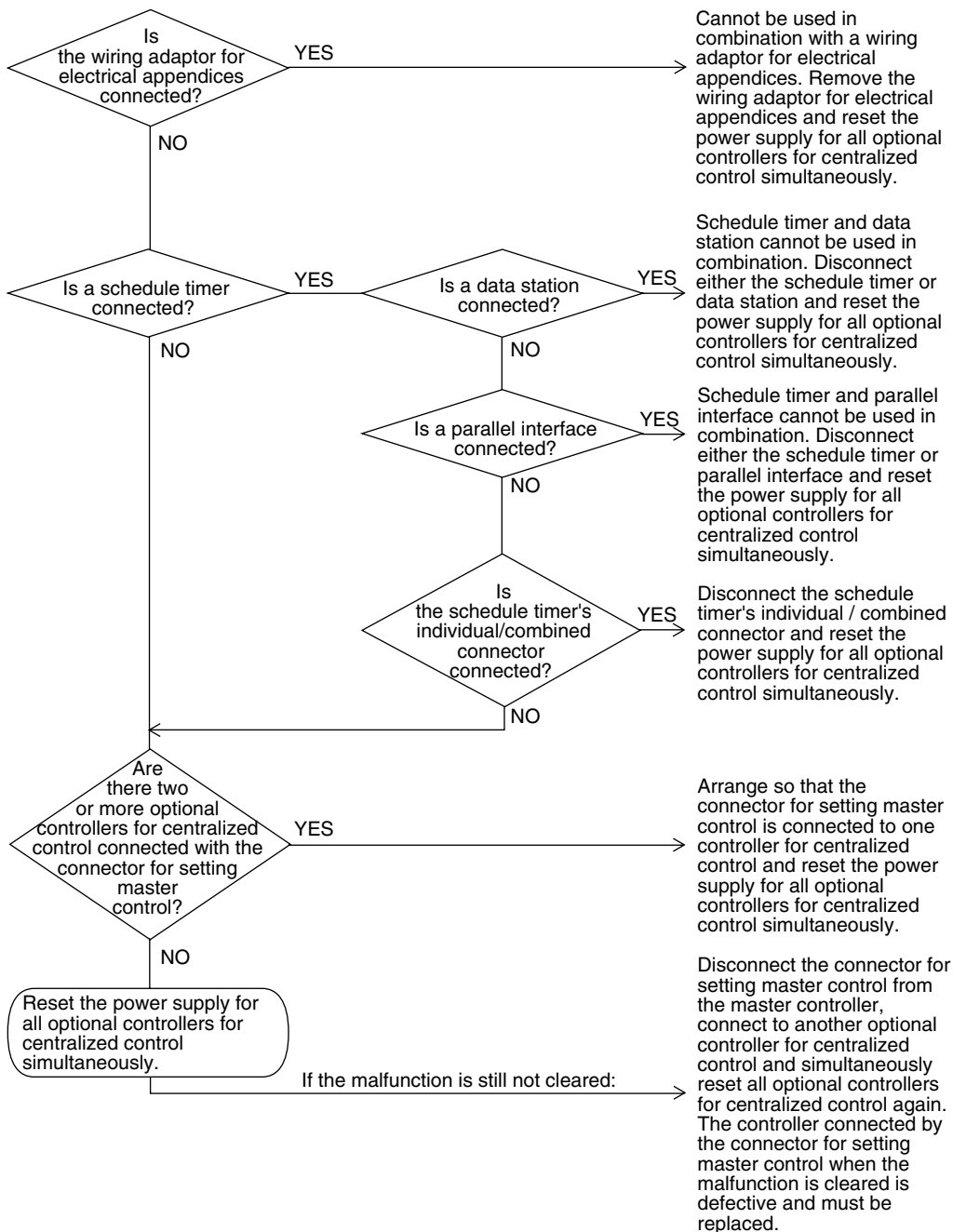
- Improper combination of optional controllers for centralized control
- More than one master controller is connected
- Defect of PC board of optional controller for centralized control

Troubleshooting



Caution

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



(V2834)

4.5 “MC” Address Duplication, Improper Setting

Remote
Controller
Display

MC

Applicable
Models

Centralized remote controller

Method of
Malfunction
Detection

Malfunction
Decision
Conditions

Supposed
Causes

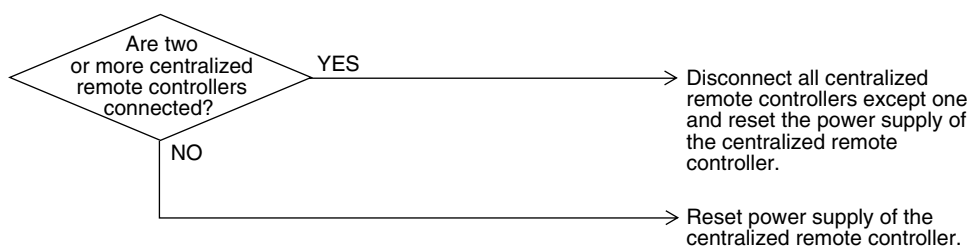
- Address duplication of centralized remote controller

Troubleshooting



Caution

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



(V2835)

5. Troubleshooting by Indication on the Unified ON/OFF Controller

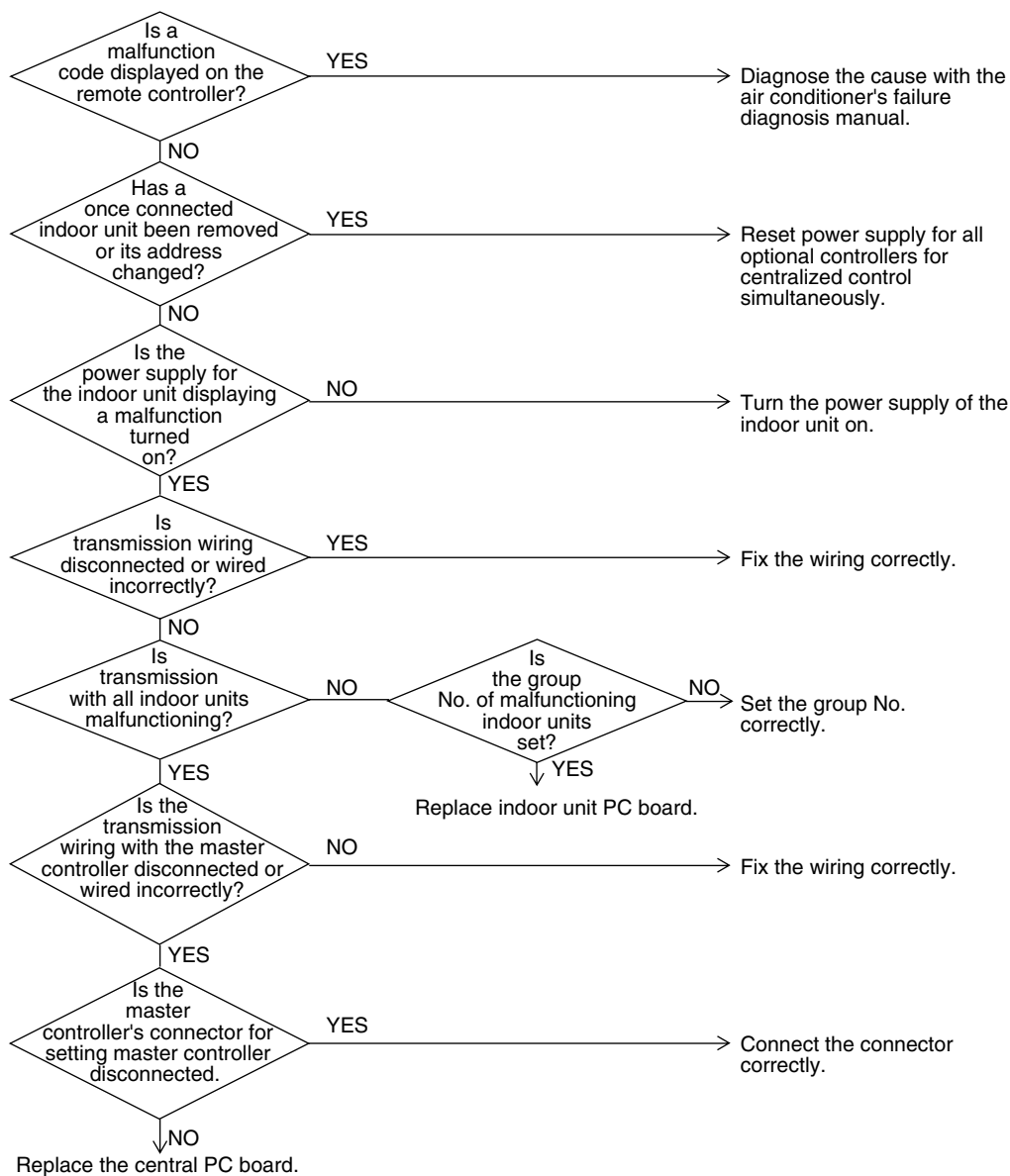
5.1 Operation Lamp Blinks

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)

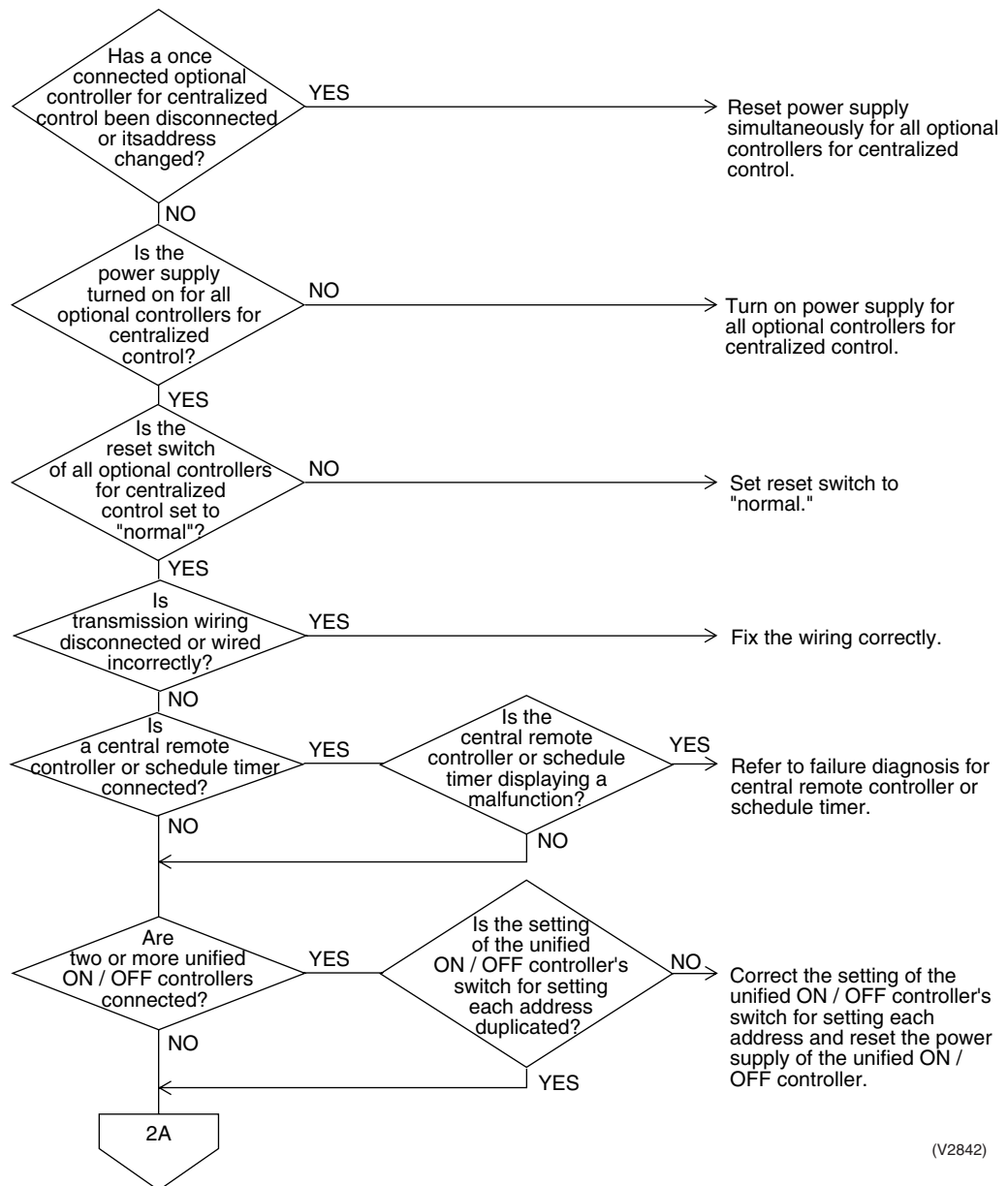
5.2 Display “Under Host Computer Integrate Control” Blinks (Repeats Single Blink)

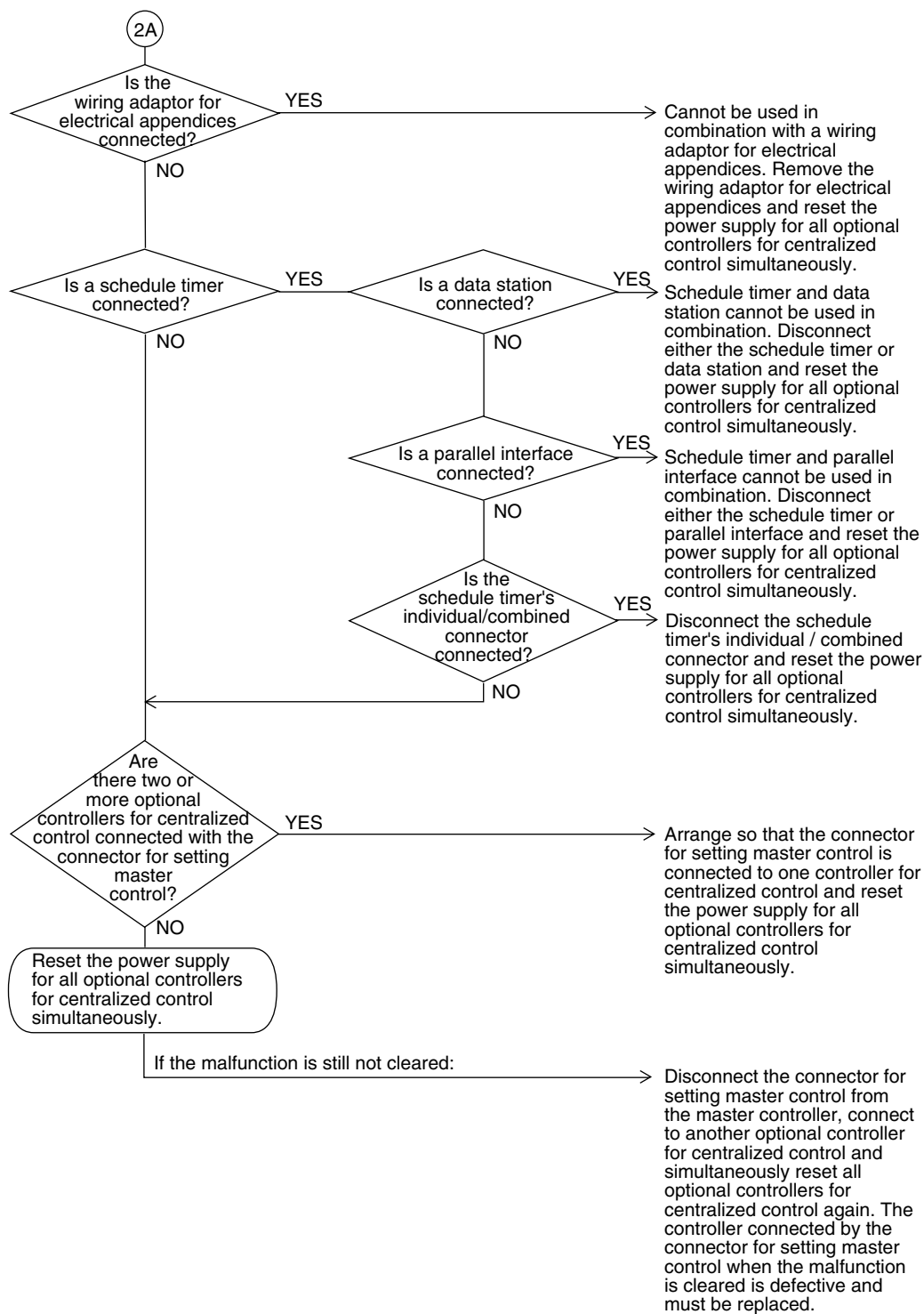
Remote Controller Display	“under host computer integrated control” (Repeats single blink)
Applicable Models	Unified ON/OFF controller Central controller, Schedule timer
Method of Malfunction Detection	
Malfunction Decision Conditions	
Supposed Causes	■ Address duplication of central remote controller ■ 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.





(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

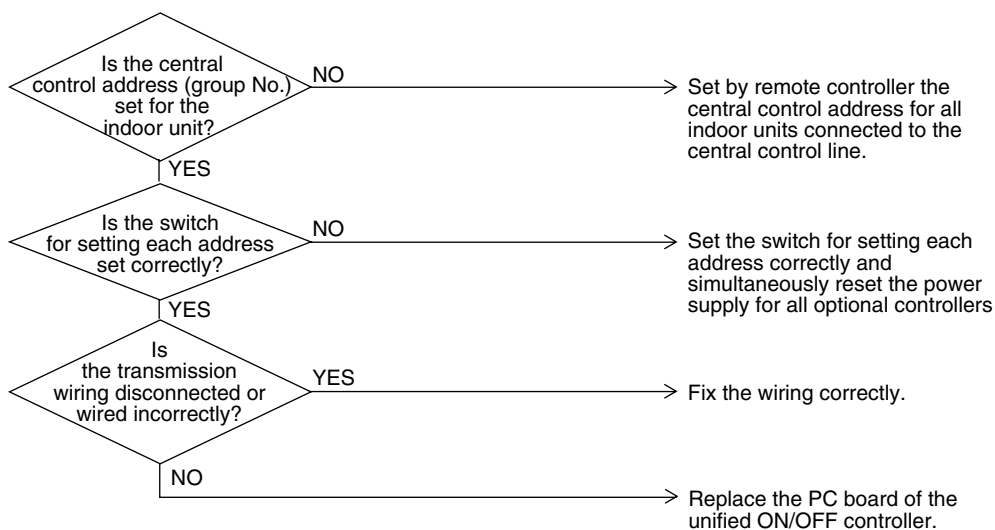
- Central control address (group No.) is not set for indoor unit.
- Improper address setting
- Improper wiring of transmission wiring

Troubleshooting



Caution

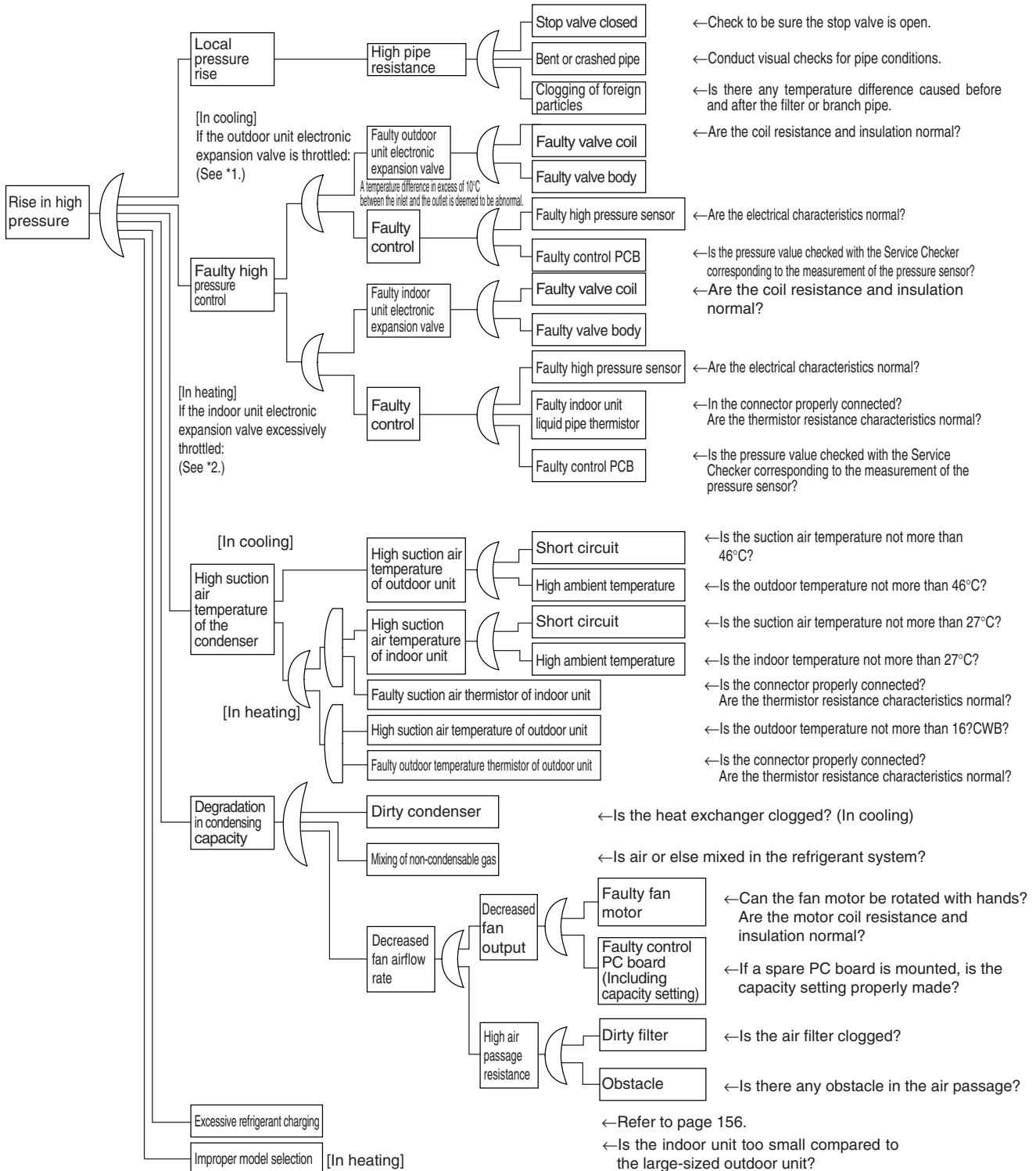
Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2844)

[CHECK 1] Check for causes of rise in high pressure

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



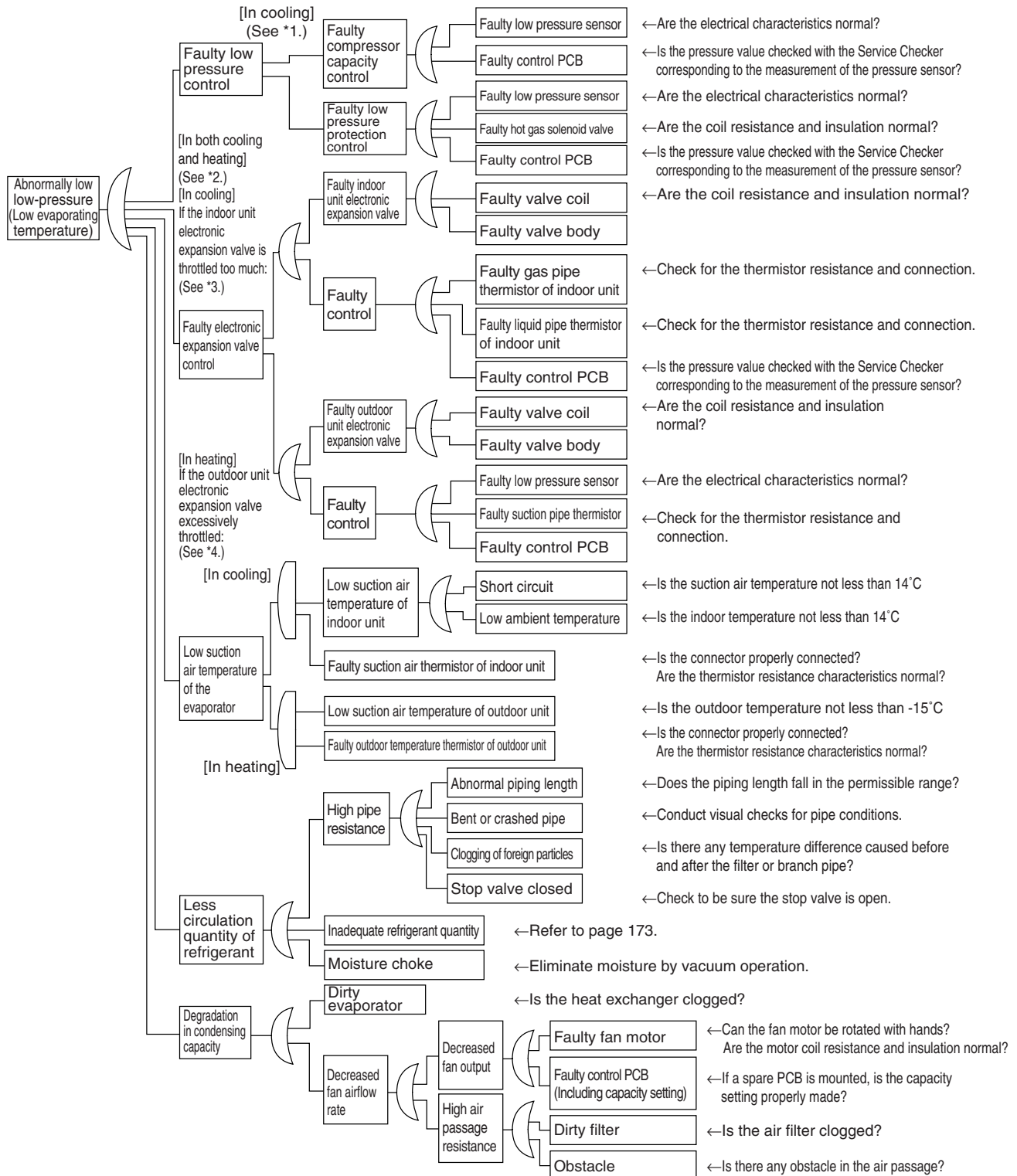
*1: In cooling, it is normal if the outdoor unit electronic expansion valve (EV1) is fully open.

*2: In heating, the indoor unit electronic expansion valve is used for "subcooled degree control".
(For details, refer to "Electronic Expansion Valve Control" on page 72.)

C: SDK04009

[CHECK 2] Check for causes of drop in low pressure

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



*1: For details of the compressor capacity control while in cooling, refer to "Compressor PI Control" on page 50.

*2: The "low pressure protection control" includes low pressure protection control and hot gas bypass control. For details, refer to page 61.

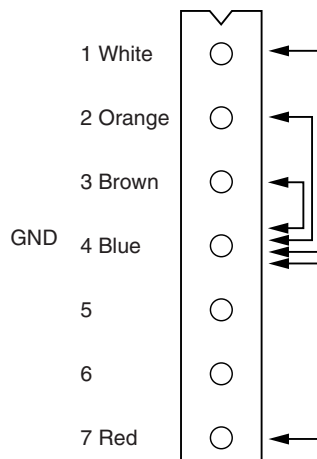
*3: In cooling, the indoor unit electronic expansion valve is used for "superheated degree control". (For details, refer to page 72.)

*4: In heating, the outdoor unit electronic expansion valve (EV1) is used for "superheated degree control of outdoor unit heat exchanger". (For details, refer to page 51.)

C: SDK04009

[CHECK 3] Check for Fan Motor Connector

- (1) Turn the power supply off.
- (2) With the fan motor connector disconnected, measure the resistance between each pin, then make sure that the resistance is more than the value mentioned in the following table.



Measurement point	Judgment
1 - 4	1MΩ or more
2 - 4	100kΩ or more
3 - 4	100Ω or more
4 - 7	100kΩ or more

Part 8

Appendix

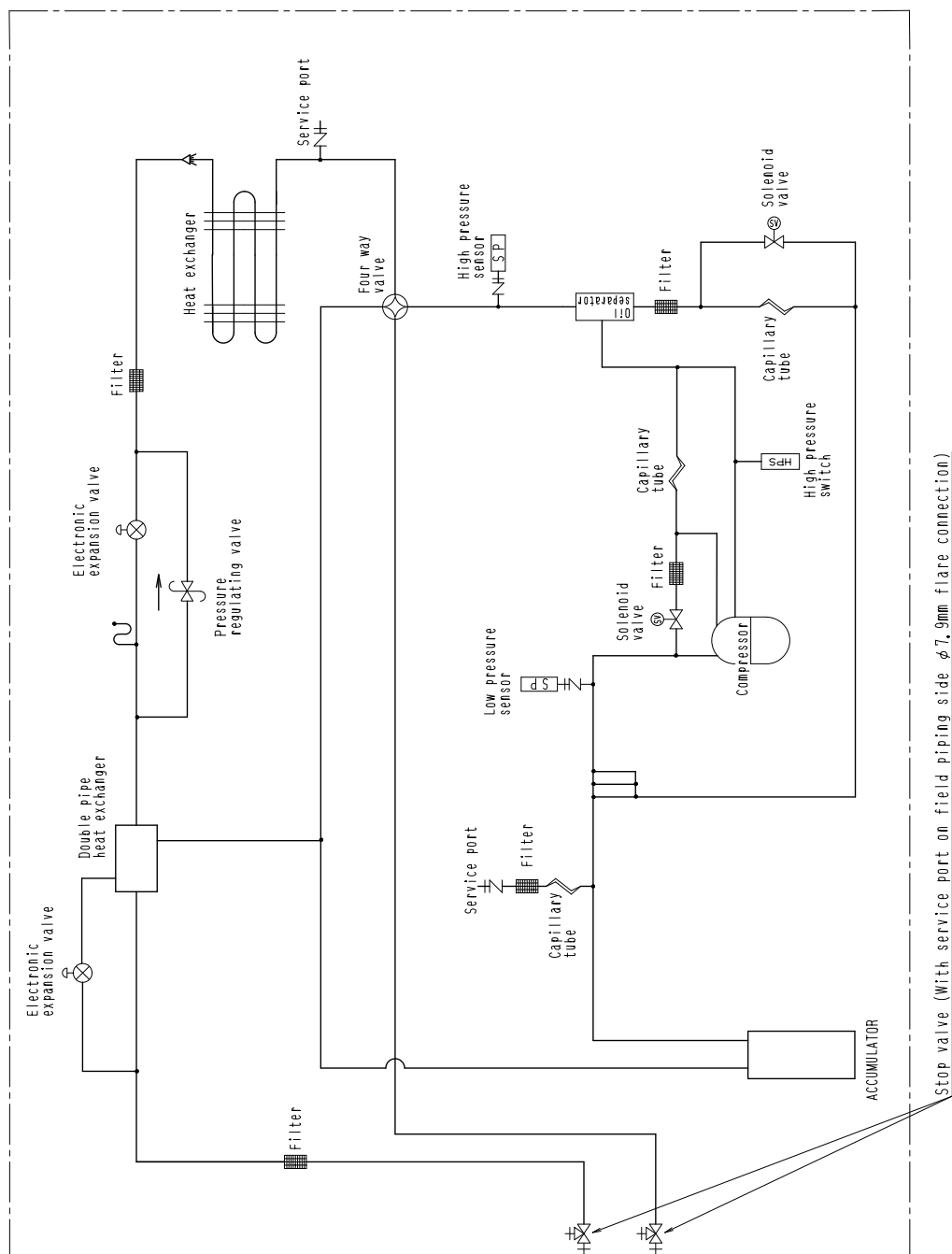
1. Piping Diagrams.....	206
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6. Pressure Sensor	233
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1. Piping Diagrams

1.1 Outdoor Unit

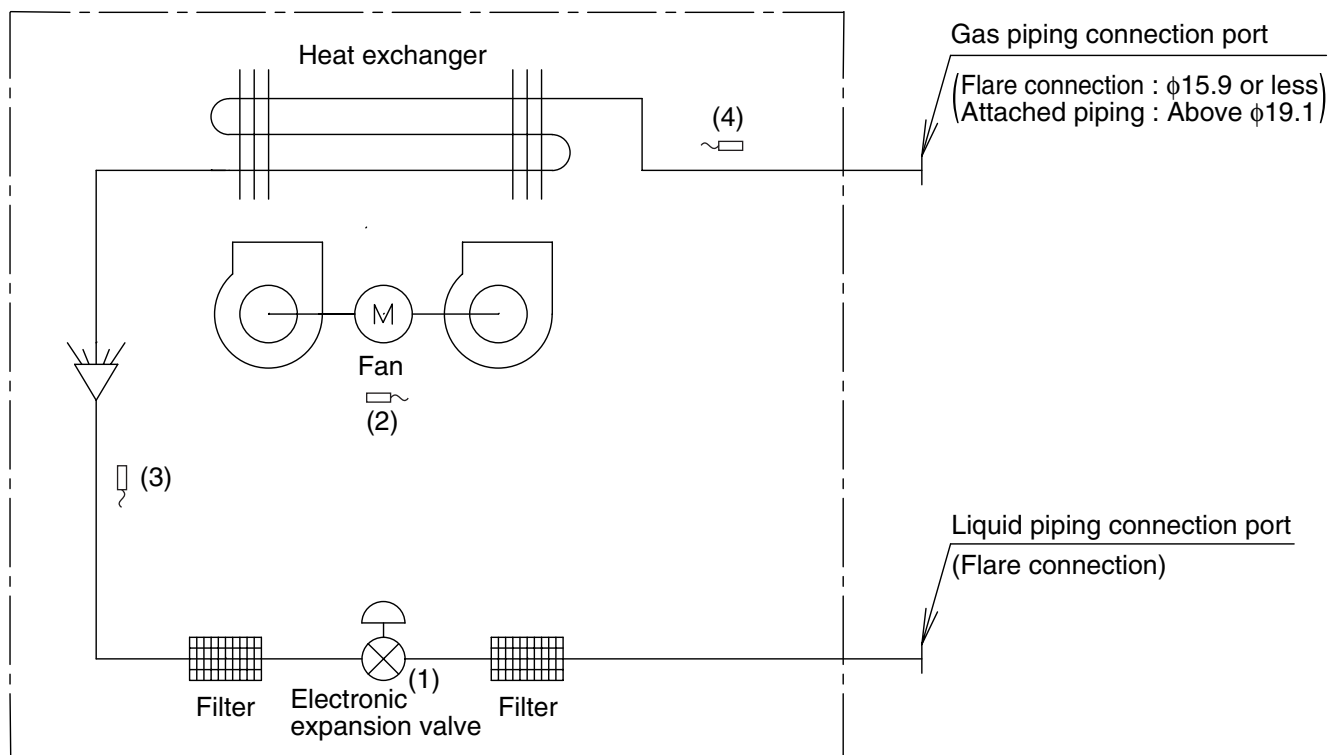
RX(Y)MQ4 / 5 / 6PVE

3D052628



1.2 Indoor Unit

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

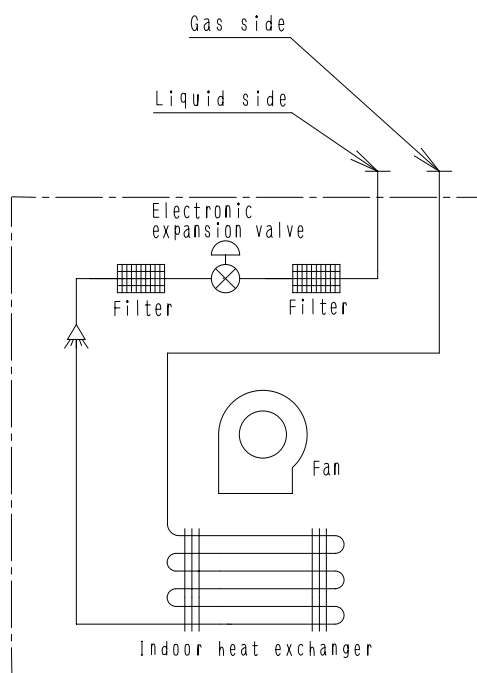


DU220-602J

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

(mm)		
Capacity	GAS	Liquid
20 / 25 / 32 / 40 / 50M(A)	$\phi 12.7$	$\phi 6.4$
63 / 80 / 100 / 125M(A)	$\phi 15.9$	$\phi 9.5$

FXDQ



4D043864H

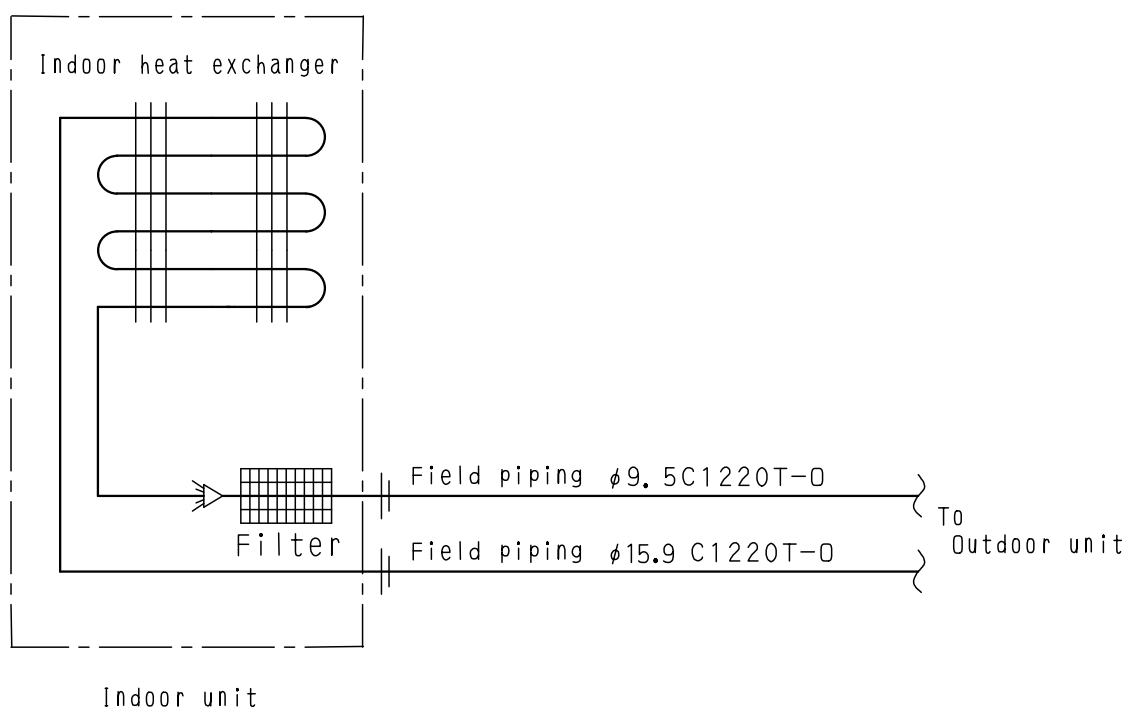
■ Refrigerant pipe connection port diameters

(mm)

Model	Gas	Liquid
FXDQ20N(A), P / 25N(A), P / 32N(A), P / 40N(A) / 50N(A)VE(T)	φ12.7	φ6.4
FXDQ63N(A)VE(T)	φ15.9	φ9.5

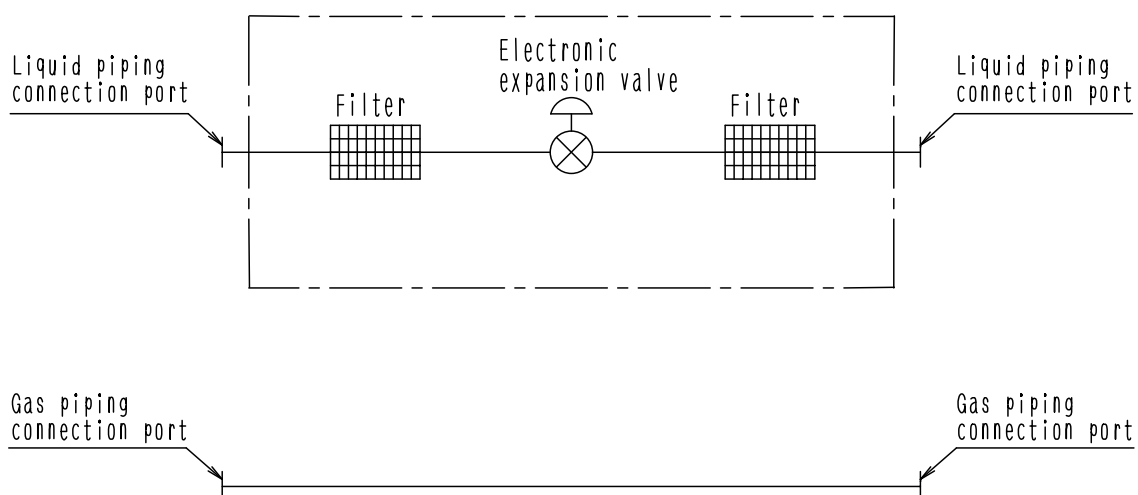
FXUQ + BEVQ

Indoor Unit



4D037995F

Connection Unit



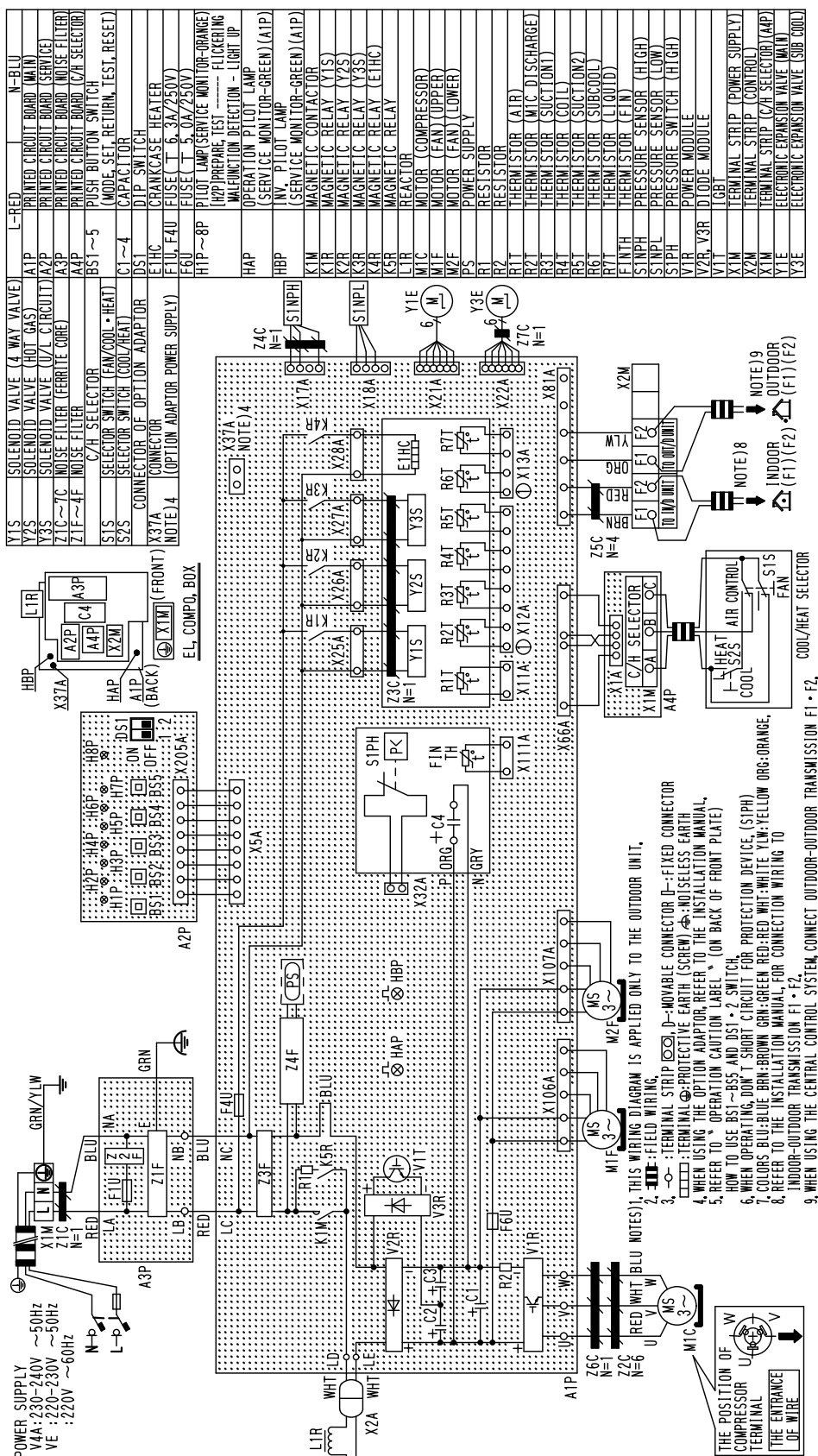
4D034127B

2. Wiring Diagrams

2.1 Outdoor Unit

2.1.1 Heat Pump

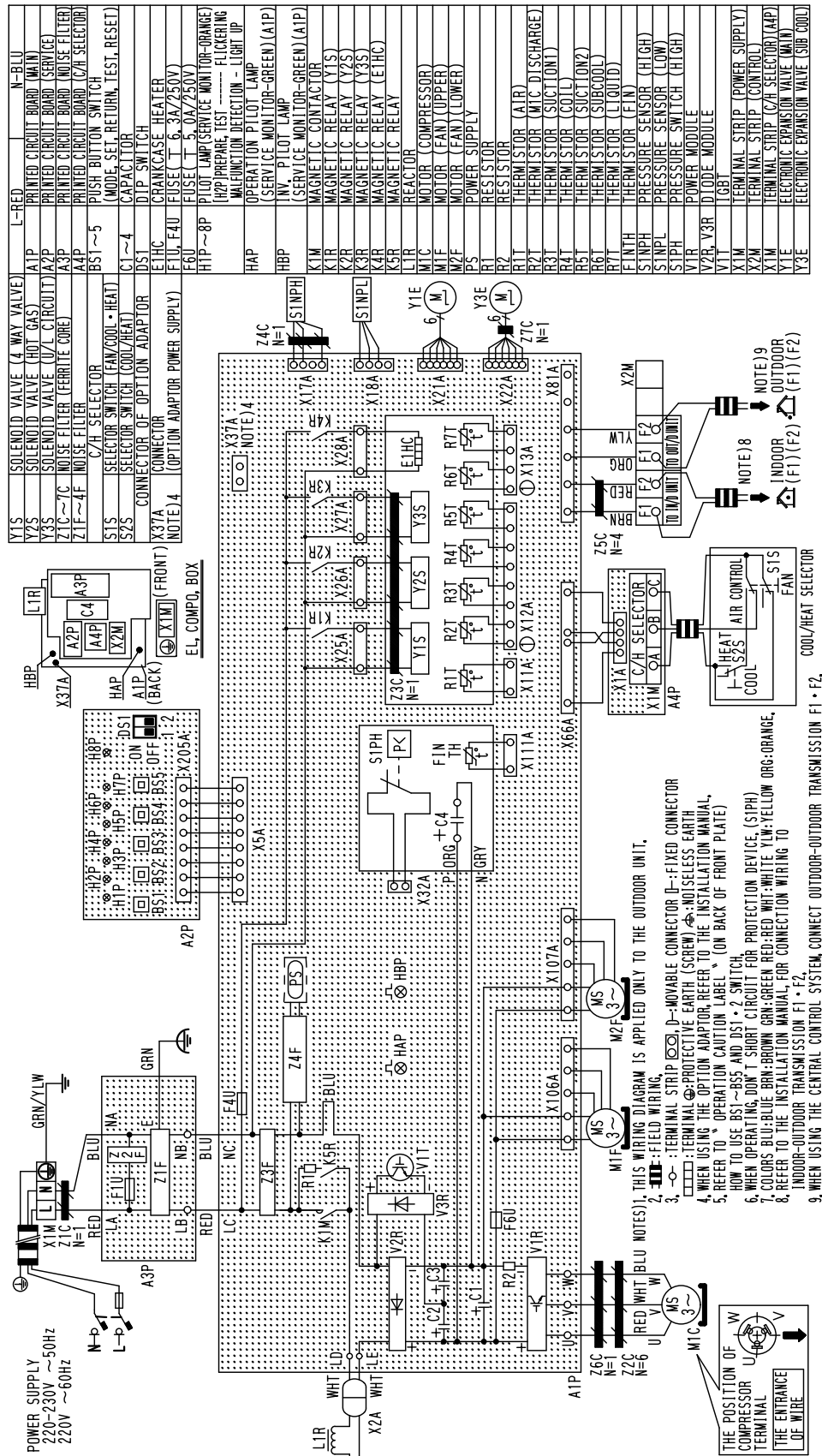
RXYMQ4 / 5 / 6PVE



3D051730D

2.1.2 Cooling Only

RXMQ4 / 5 / 6PVE

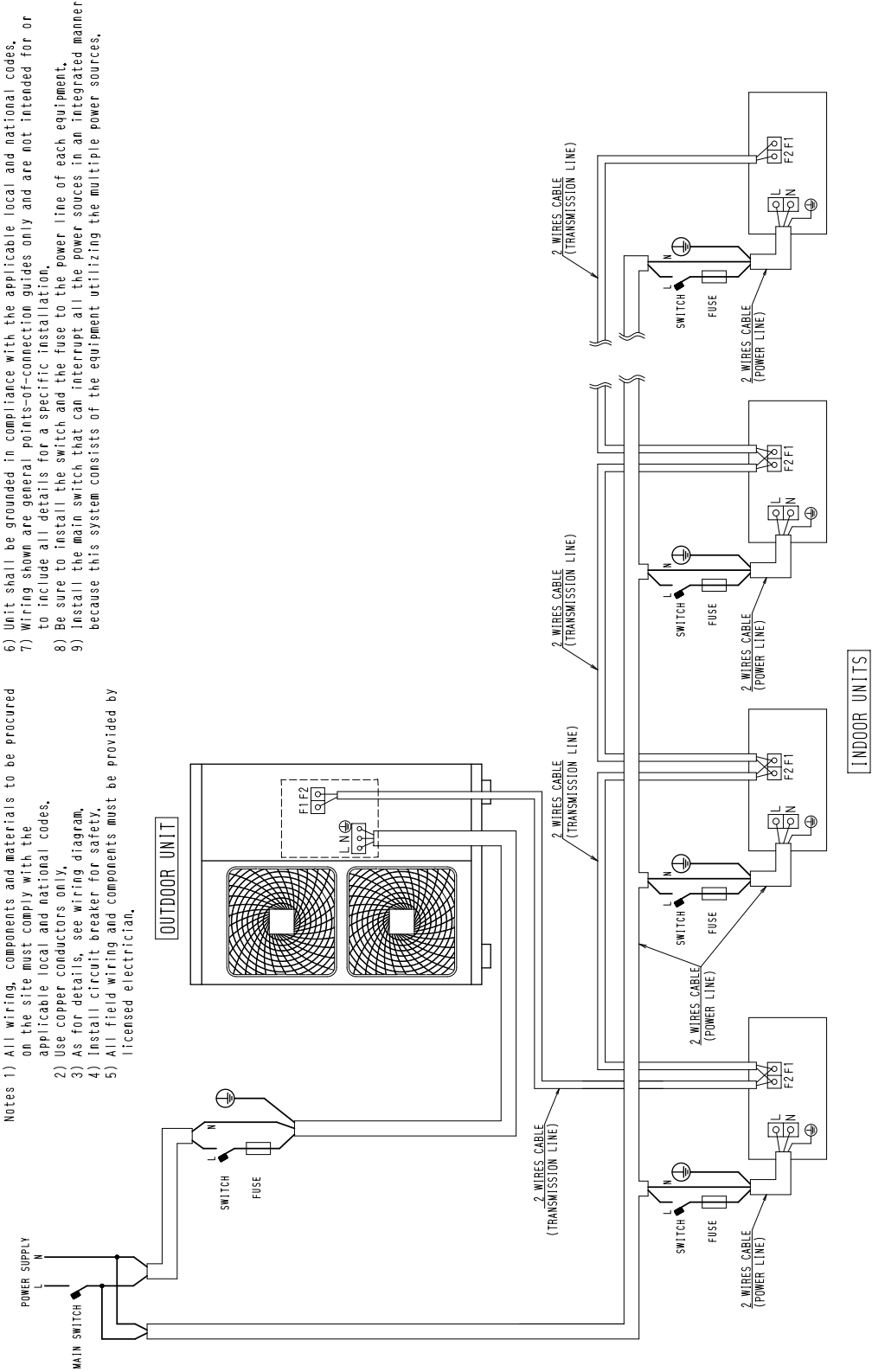


3D051731C

2.2 Field Wiring

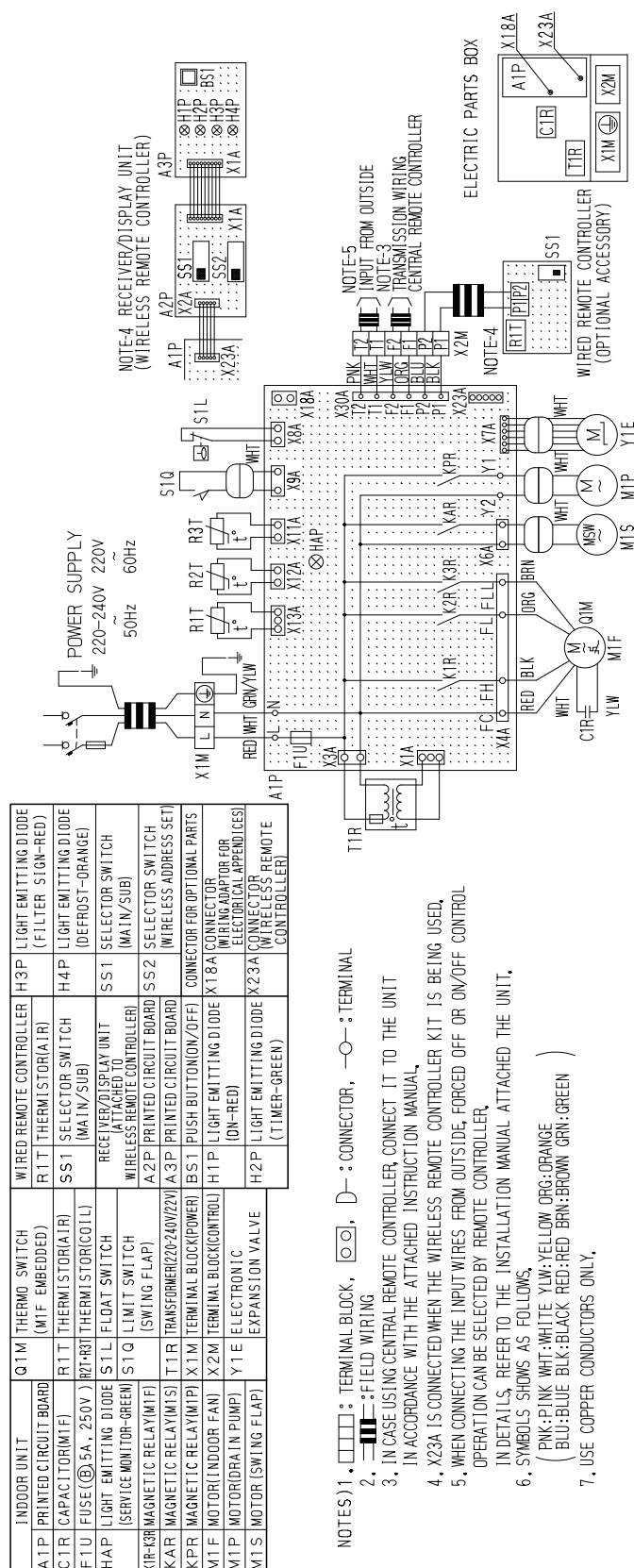
RX(Y)MQ4 / 5 / 6PVE

3D052597



2.3 Indoor Unit

FXCQ20M / 25M / 32M / 63MVE



3D039556A

FXCQ40M / 50M / 80M/ 125MVE

INDOOR UNIT		OUTDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD	H1P	LIGHT EMITTING DIODE (ON-RED)
C1P	CAPACITOR(M1F)	H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
F1U	FUSE (⑤.5A, 250V)	H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
H4P	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
K1R-K3R	MAGNETIC RELAY(M1F)	Y1E	ELECTRONIC EXPANSION VALVE
K4R	MAGNETIC RELAY(M1S)	SS1	SELECTOR SWITCH (MAIN/SUB)
K5P	MOTOR(INDOOR FAN)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
M1P	MOTOR(DRAIN PUMP)	SS1	RECEIVER/DISPLAY UNIT (WIRELESS REMOTE CONTROLLER)
M1S	MOTOR (SWING FLAP)	SS2	RECEIVER/DISPLAY UNIT (WIRELESS REMOTE CONTROLLER)
Q1M	THERMO SWITCH (M1F EMBEDDED)	X18A	CONNECTOR FOR OPTIONAL PARTS (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)
R1T	THERMISTOR(AIR)	X2P	PRINTED CIRCUIT BOARD (WIRELESS REMOTE CONTROLLER)
R2T-R3T	THERMISTOR(COIL)	X3A	PRINTED CIRCUIT BOARD (WIRELESS REMOTE CONTROLLER)

NOTES) 1. : TERMINAL BLOCK, : FIELD WIRING

2. : TERMINAL

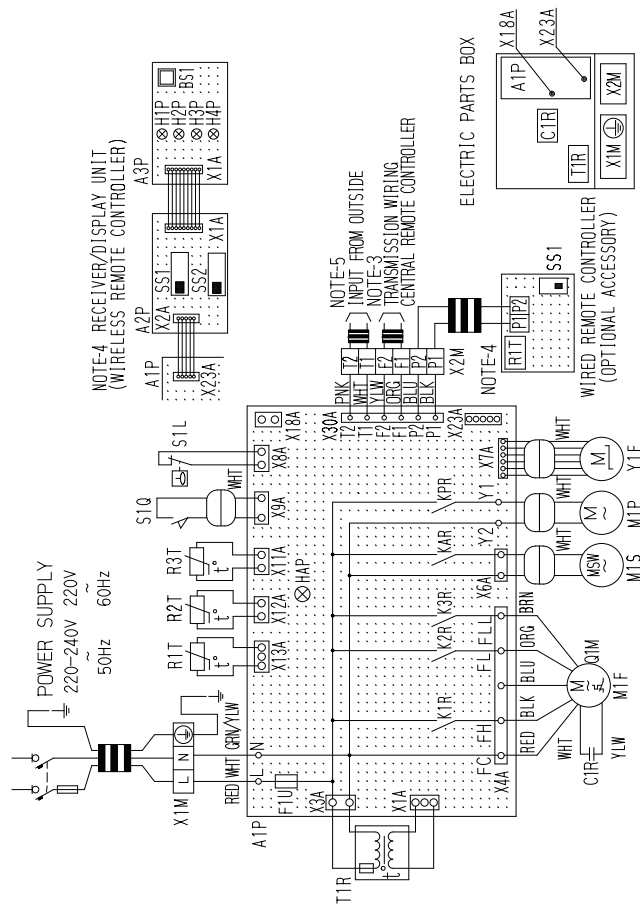
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTION MANUAL.

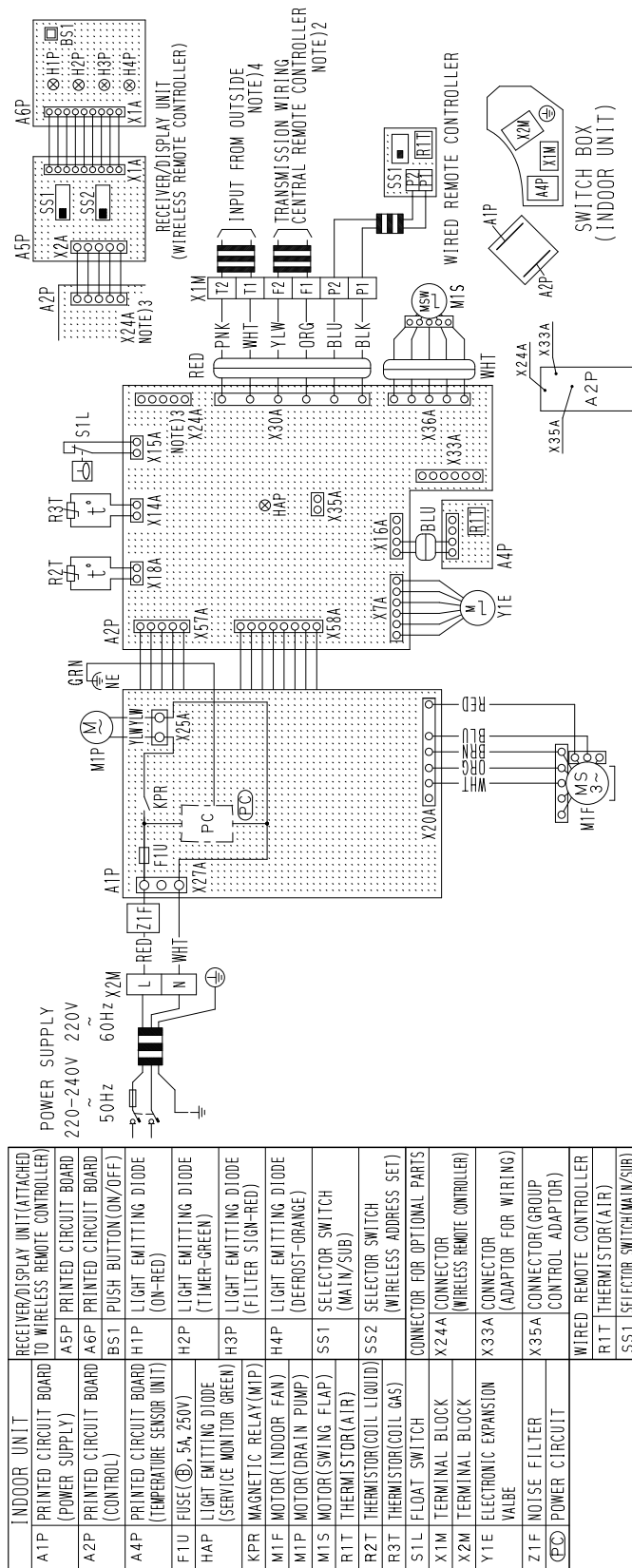
4. X23A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.

5. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER.

6. SYMBOLS SHOWS AS FOLLOWS.
(PINK: PINK WHT: WHITE YLW: YELLOW ORG: ORANGE
BLU: BLUE BLK: BLACK RED: RED BRN: BROWN GRN: GREEN)

7. USE COPPER CONDUCTORS ONLY.

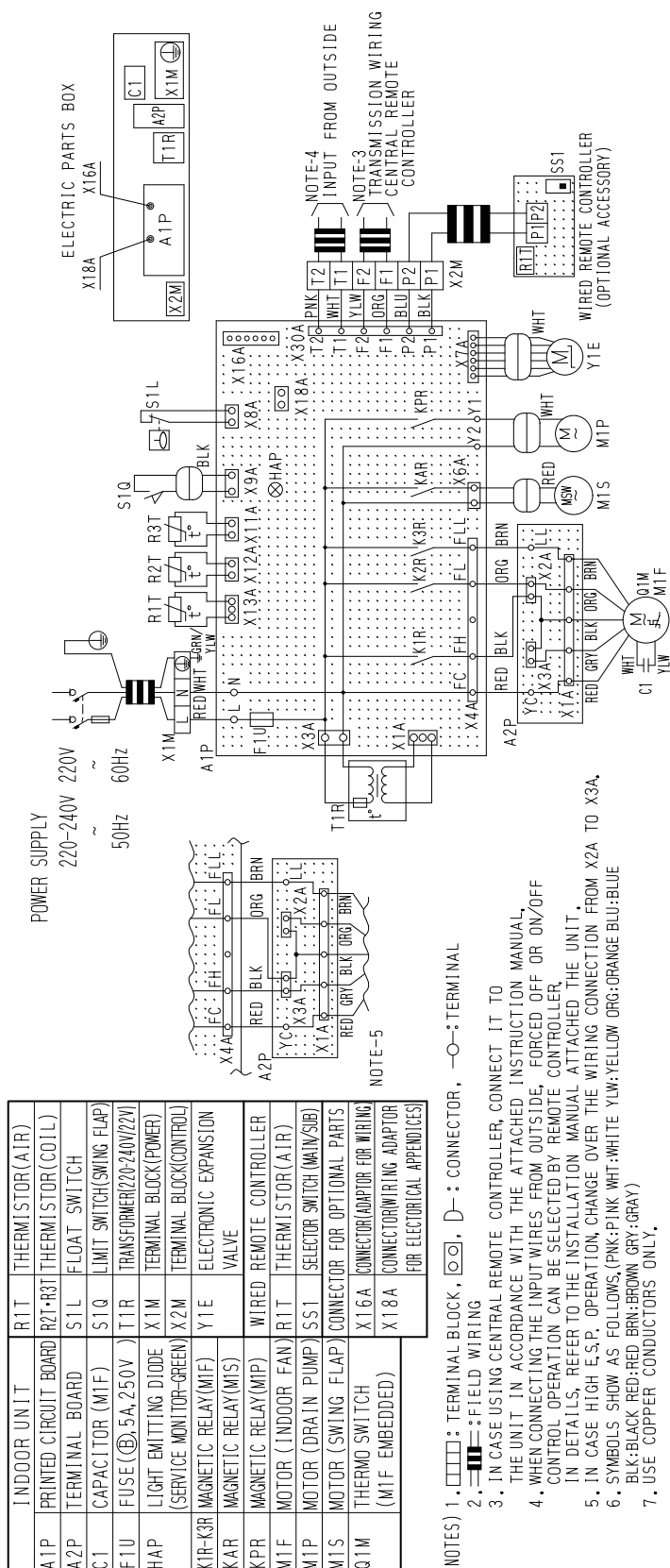


FXFQ25M / 32M / 40M / 50M / 63M / 80M / 100M / 125MVE


5. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING DATA AND CATALOGS, ETC, BEFORE CONNECTING.
6. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH (SS1, SS2) OF WIRED REMOTE CONTROLLER AND WIRELESS REMOTE CONTROLLER BY INSTALLATION MANUAL AND ENGINEERING DATA, ETC.
7. SYMBOLS SHOWS AS FOLLOWS:
RED: RED BLK: BLACK WHT: WHITE YLW: YELLOW GRN: GREEN
ORG: ORANGE BRN: BROWN PNK: PINK GRV: GRAY BLU: BLUE

3D039600A

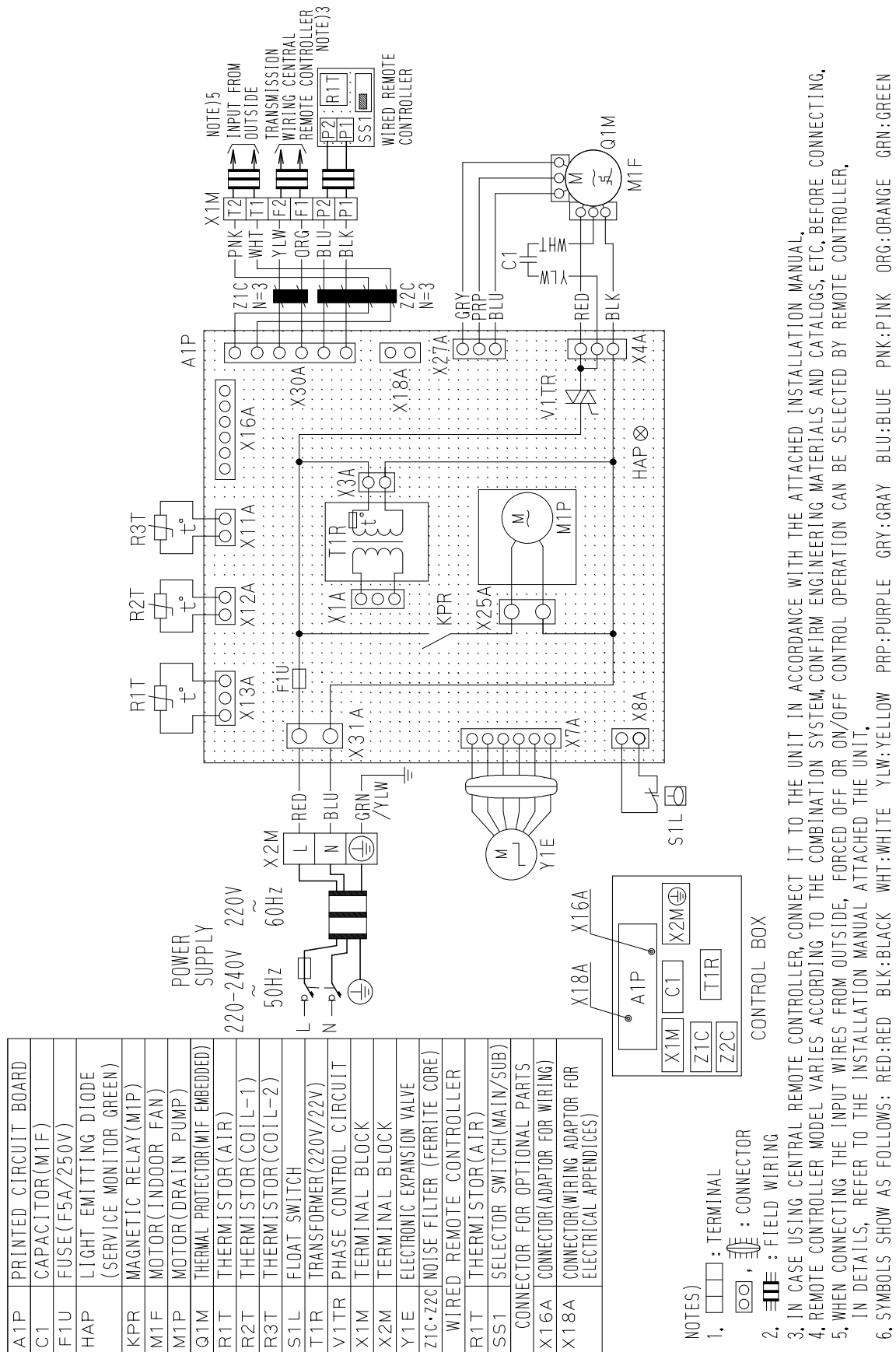
FXKQ25MA / 32MA / 40MA / 63MAVE



3D039564C

FXDQ20P / 25P / 32P

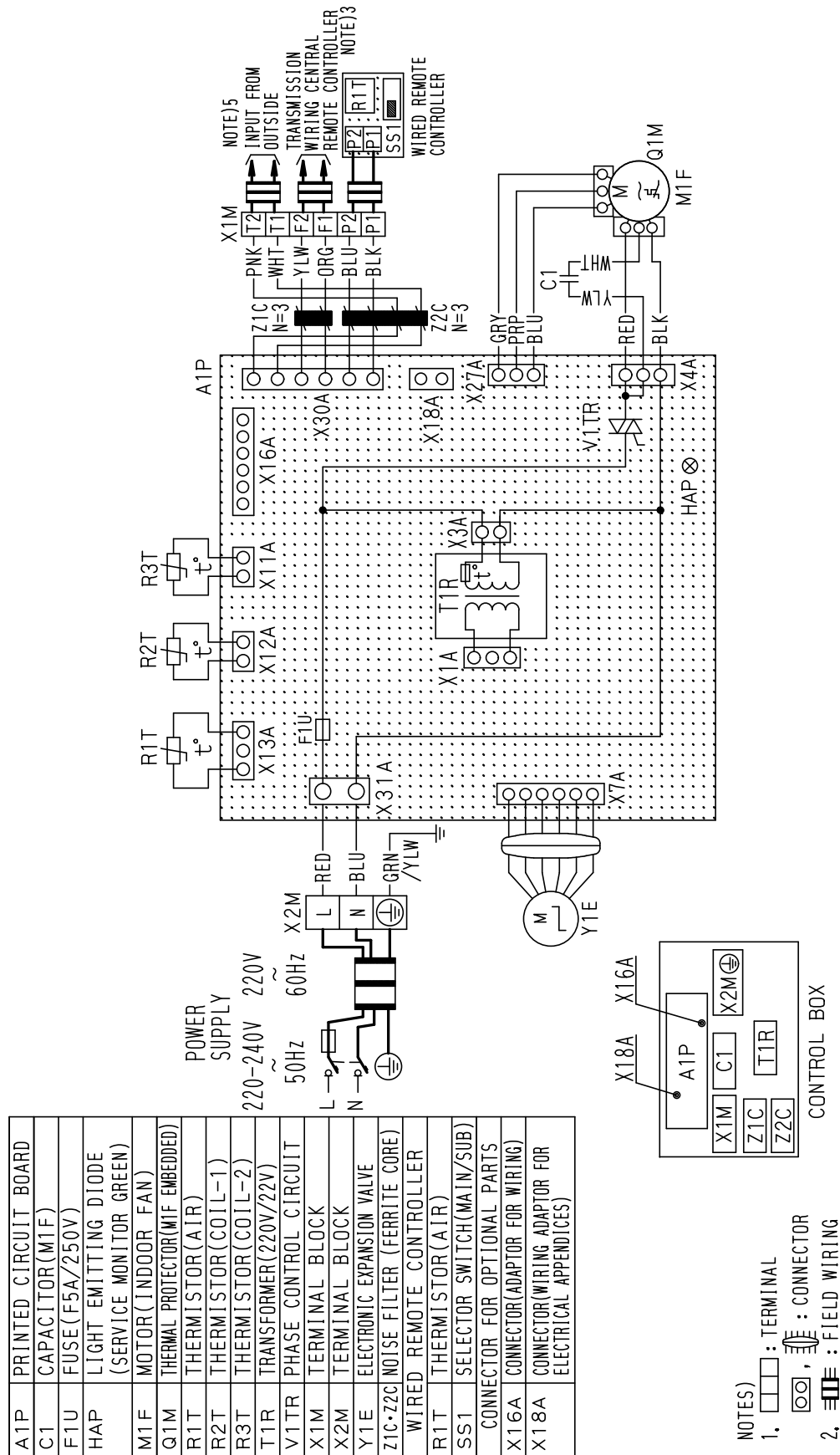
FXDQ20NA / 25NA / 32NA / 40NA / 50NA / 63NAVE (with Drain Pump)



3D045500C

FXDQ20P / 25P / 32P

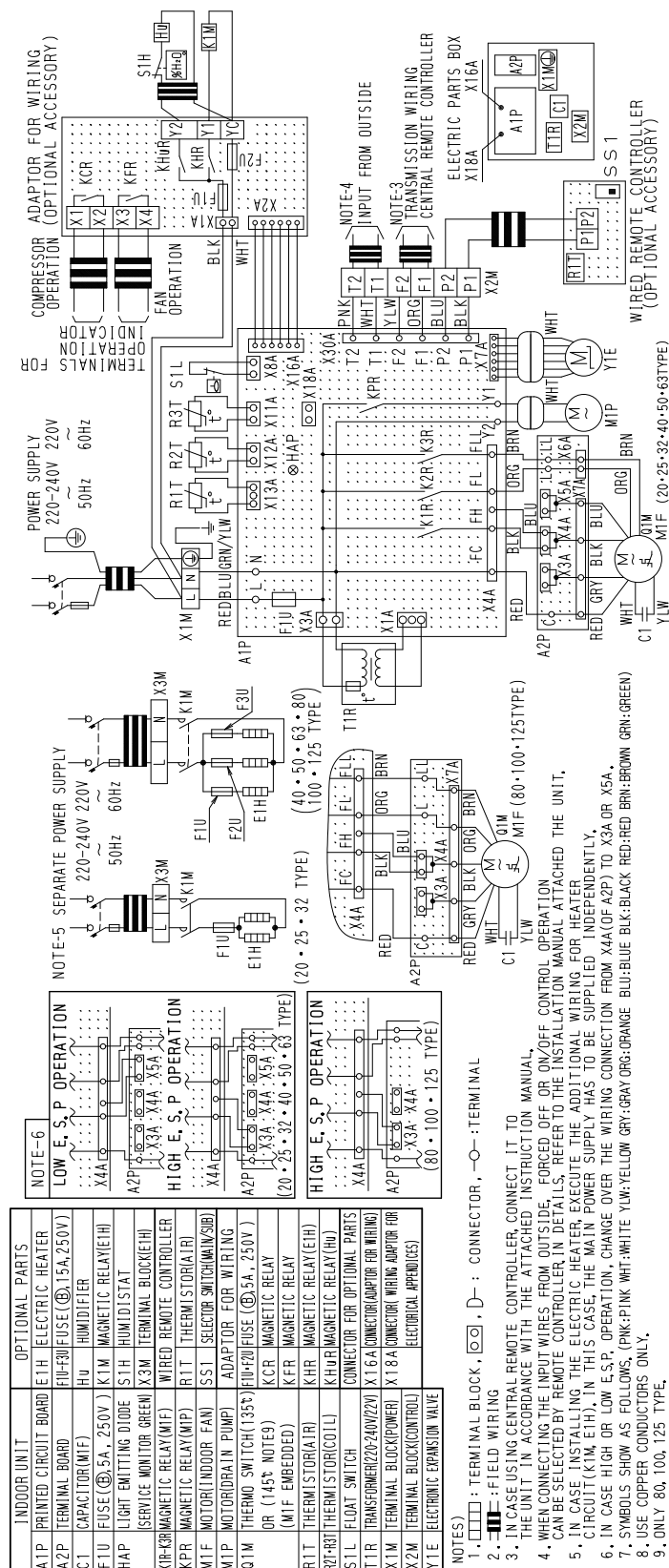
FXDQ20N / 25N / 32N / 40N / 50N / 63NAVET (without Drain Pump)



3D049604A

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

3D039561B



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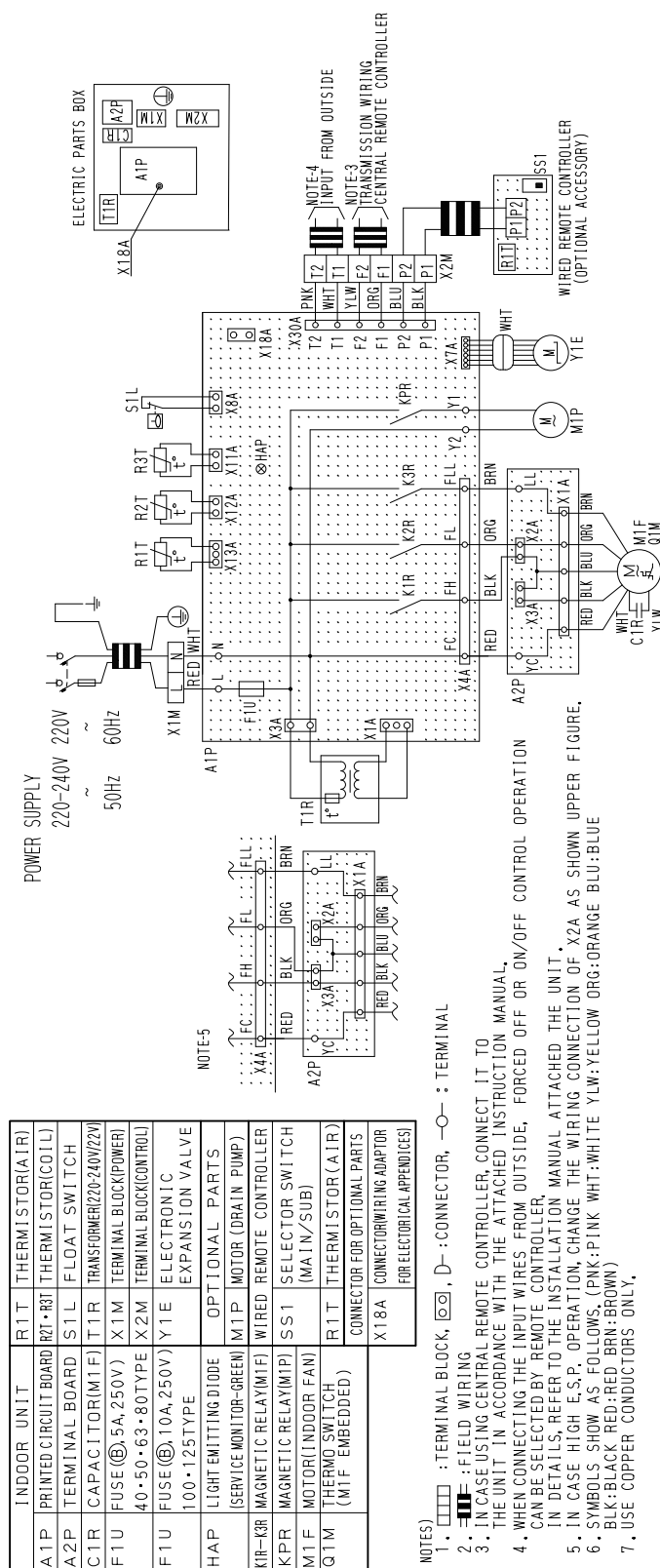
6. INC

7. SYMB

8. USE

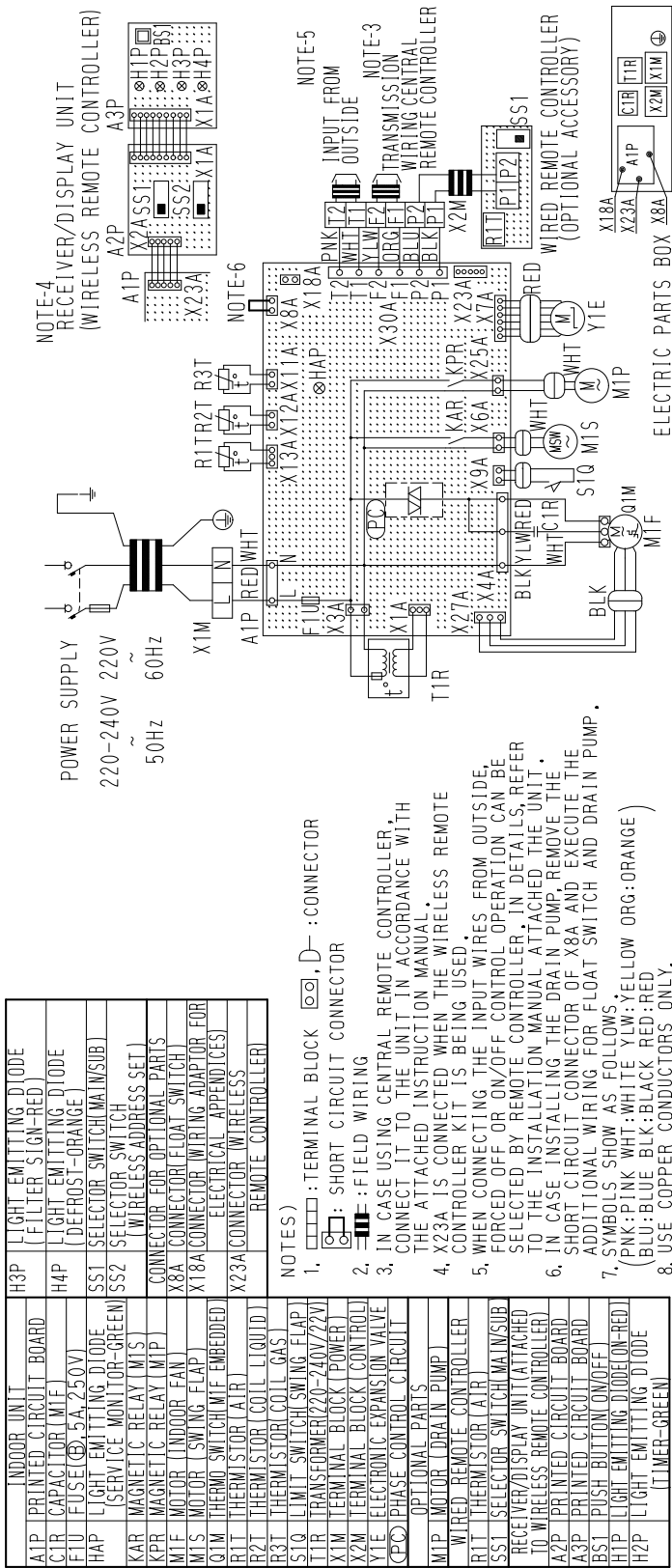
9. ONLY

FXMQ40MA / 50MA / 63MA / 80MA / 100MA / 125MAVE



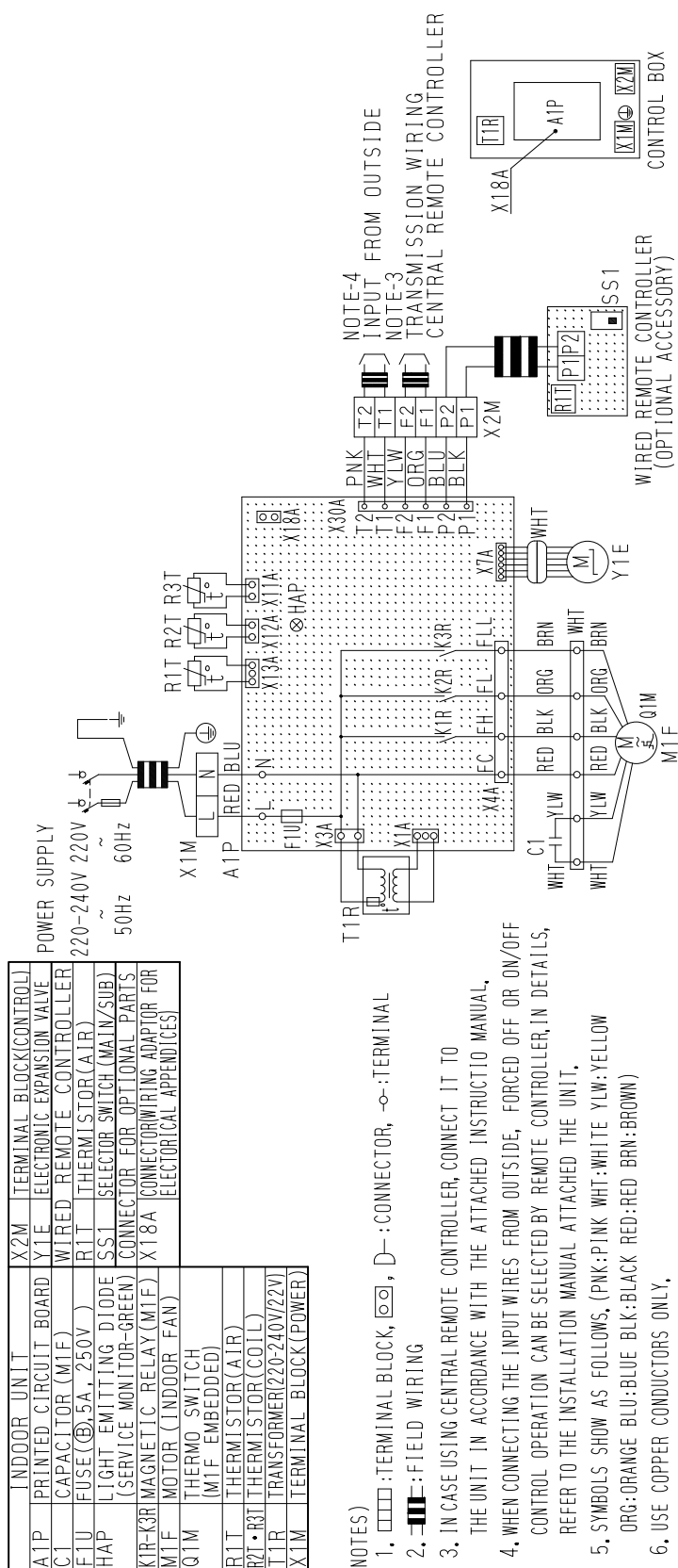
3D039620B

FXHQ32MA / 63MA / 100MAVE



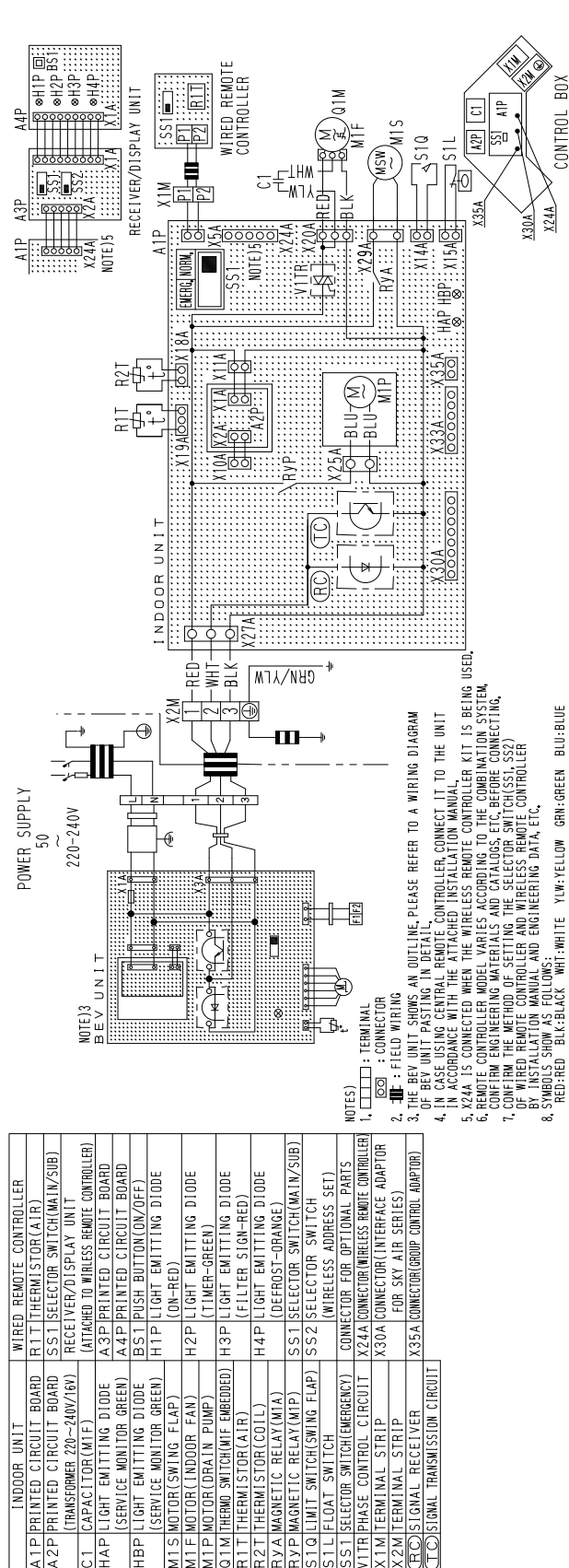
3D039801D

FXLQ20MA / 25MA / 32MA / 40MA / 50MA / 63MAVE
FXNQ20MA / 25MA / 32MA / 40MA / 50MA / 63MAVE



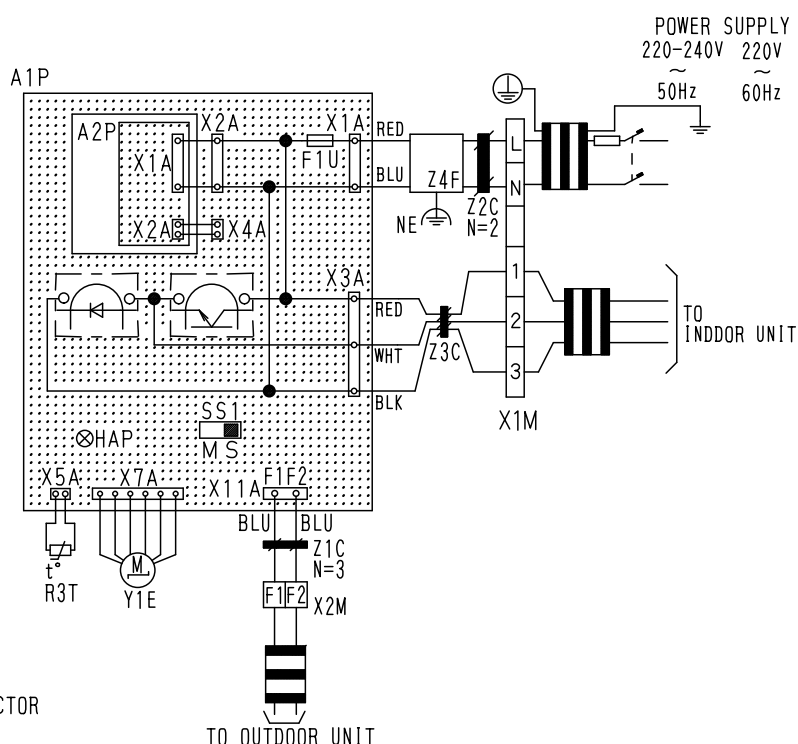
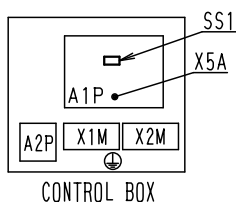
3D039826D

FXUQ71MA / 100MA / 125MAV1



BEVQ71MA / 100MA / 125MAVE

BEV UNIT	
A1P	PRINTED CIRCUIT BOARD ASSY
A2P	POWER SUPPLY PRINTED CIRCUIT BOARD ASSY(220-240V/16V)
F1U	FUSE(②, 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



注) 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.

6. ALWAYS USE THE SKY AIR CONNECTION ADAPTER FOR THE INDOOR UNIT WHEN USING A CENTRAL CONTROL UNIT.

REFER TO THE MANUAL ATTACHED THE UNIT WHEN CONNECTING.

7. COOL/HEAT CHANGEOVER OF INDOOR UNITS CONNECTED TO BEV UNIT CANNOT BE CARRIED OUT UNLESS
THEY ARE CONNECTED TO BS UNIT.

IN CASE OF A SYSTEM WITH BEV UNIT ONLY, COOL/HEAT SELECTOR IS REQUIRED.

8. SET THE SS1 TO "M" ONLY FOR THE BEV UNIT CONNECTED TO THE INDOOR UNIT WHICH IS TO HAVE
COOL/HEAT SWITCHING CAPABILITY, WHEN CONNECTING THE BS UNIT.

THE "M/S" ON THE SS1 STANDS FOR "MAIN/SUB".

THIS IS SET TO "S" WHEN SHIPPED FROM THE FACTORY.

9. CONNECT THE ATTACHED THERMISTOR TO THE R3T.

10. SYMBOLS SHOW AS FOLLOWS.

(BLU:BLUE RED:RED WHT:WHITE BLK:BLACK)

3D044901B

3. Option List

3.1 Option List of Controllers

Operation Control System Optional Accessories

No.	Item	Type	FXCQ-M	FXFQ-M	FXKQ-MA	FXDQ-N(A) FXDQ-P	FXUQ-MA	FXSQ-M	FXMQ-MA	FXHQ-MA	FXAQ-MA	FXLQ-MA FXNQ-MA
1	Remote controller	Wireless	H/P	BRC7C62	BRC7E61W	BRC4C61	BRC4C62	BRC7C528W	BRC4C62	BRC7E63W	BRC7E618	BRC4C62
		C/O		BRC7C67	BRC7E65	BRC4C63	BRC4C64	BRC7C529W	BRC4C64	BRC7E66	BRC7E619	BRC4C64
		Wired		BRC1C62								
2	Wired remote controller with weekly schedule timer			BRC1D61								
3	Simplified remote controller			—			Note 8 BRC2C51	—	Note 8 BRC2C51	—		Note 8 BRC2C51
4	Remote controller for hotel use			—			BRC3A61	—	BRC3A61	—		BRC3A61
5	Adaptor for wiring			★KRP1B61	★KRP1B59	KRP1B61	★KRP1B56	—	KRP1B61	KRP1C3	—	KRP1B61
6-1	Wiring adaptor for electrical appendices (1)			★KRP2A61	★KRP2A62	KRP2A61	★KRP2A53	★KRP2A62	KRP2A61	★KRP2A62	★KRP2A61	KRP2A61
6-2	Wiring adaptor for electrical appendices (2)			★KRP4A51	★KRP4A53	KRP4A51	★KRP4A54	★KRP4A53	KRP4A51	★KRP4A52	★KRP4A51	KRP4A51
7	Remote sensor			KRCS01-1	—	KRCS01-1						
8	Installation box for adaptor PC board			Note 2, 3 KRP1B96	Note 2, 3 KRP1D98	—	Note 4, 6 KRP1B101	KRP1B97	Note 5 KRP4A91	—	Note 3 KRP1C93	Note 2, 3 KRP4A93
9	Central remote controller			DCS302CA61								
9-1	Electrical box with earth terminal (3 blocks)			KJB311A								
10	Unified on/off controller			DCS301BA61								
10-1	Electrical box with earth terminal (2 blocks)			KJB212A								
10-2	Noise filter (for electromagnetic interface use only)			KEK26-1								
11	Schedule timer			DST301B(A)61								
12	External control adaptor for outdoor unit (Must be installed on indoor units)			★DTA104A61	★DTA104A62	DTA104A61	★DTA104A53	—	DTA104A61	★DTA104A62	★DTA104A61	DTA104A61
13	Interface adaptor for SkyAir-series			—	—	—	—	Note 7 DTA102A52	—	—	—	—

Note:

1. Installation box (No.8) is necessary for each adaptor marked ★.
2. Up to 2 adaptors can be fixed for each installation box.
3. Only one installation box can be installed for each indoor unit.
4. Up to 2 installation boxes can be installed for each indoor unit.
5. Installation box (No. 8) is necessary for second adaptor.
6. Installation box (No. 8) is necessary for each adaptor.
7. This adaptor is required when connecting with optional controller for centralized control.
8. BRC2A51 is also available.

Various PC Boards

No.	Part name	Model No.	Function
1	Adaptor for wiring	KRP1B56 KRP1B57 KRP1B59 KRP1B61 KRP1C3	■ PC board when equipped with auxiliary electric heater in the indoor unit.
2	DIII-NET Expander Adaptor	DTA109A51	■ Up to 1024 units can be centrally controlled in 64 different groups. ■ Wiring restrictions (max. length: 1000m, total wiring length: 2000m, max. number of branches: 16) apply to each adaptor.

System Configuration

No.	Part name	Model No.	Function
1	Central remote controller	DCS302CA61	■ Up to 64 groups of indoor units (128 units) can be connected, and ON/OFF, temperature setting and monitoring can be accomplished individually or simultaneously. Connectable up to "2" controllers in one system.
2	Unified ON/OFF controller	DCS301BA61	■ Up to 16 groups of indoor units (128 units) can be turned, ON/OFF individually or simultaneously, and operation and malfunction can be displayed. Can be used in combination with up to 8 controllers.
3	Schedule timer	DST301BA61	■ Programmed time weekly schedule can be controlled by unified control for up to 64 groups of indoor units (128 units). Can turn units ON/OFF twice per day.
4	Unification adaptor for computerized control	★DCS302A52	■ Interface between the central monitoring board and central control units
5	Interface adaptor for SkyAir-series	★DTA102A52	■ Adaptors required to connect products other than those of the VRV System to the high-speed DIII-NET communication system adopted for the VRV System. ■ To use any of the above optional controllers, an appropriate adaptor must be installed on the product unit to be controlled.
6	Central control adaptor kit	★DTA107A55	
7	Wiring adaptor for other air-conditioner	★DTA103A51	
8	DIII-NET Expander adaptor	DTA109A51	■ Up to 1,024 units can be centrally controlled in 64 different groups. ■ Wiring restrictions (max. length : 1,000m, total wiring length : 2,000m, max. number of branches : 16) apply to each adaptor.
9	Mounting plate	KRP4A92	■ Fixing plate for DTA109A51

Note:

Installation box for ★ adaptor must be procured on site.

Building management system

No.	Part name				Model No.	Function
1	Intelligent Touch Controller	basic	Hardware	intelligent Touch Controller	DCS601C51	• Air-Conditioning management system that can be controlled by a compact all-in-one unit.
1-1		Option	Hardware	DIII-NET plus adaptor	DCS601A52	• Additional 64 groups (10 outdoor units) is possible.
1-2			Software	P.P.D.	DCS002C51	• P.P.D.: Power Proportional Distribution function
1-3				Web	DCS004A51	• Monitors and controls the air conditioning system using the Internet and Web browser application on a PC.
1-4	Electrical box with earth terminal (4blocks)				KJB411A	• Wall embedded switch box.
2	Intelligent Manager III	Number of units to be connected		128 units	DAM602B52	Air conditioner management system (featuring minimized engineering) that can be controlled by personal computers.
				256 units	DAM602B51	
				512 units	DAM602B51x2	
				768 units	DAM602B51x3	
				1024 units	DAM602B51x4	
2-1	Option	Software	P.P.D.	DAM002A51	• P.P.D.: Power Proportional Distribution function	
			ECO.	DAM003A51	Software for energy-saving control.	
2-2	Communication Line	Optional DIII Ai unit			DAM101A51	Analog input for "sliding temperature" function (to reduce cold shock) for intelligent Manager EC021.
3		★2 Interface for use in BACnet®			DMS502B51	Interface unit to allow communications between VRV and BMS. Operation and monitoring of air-conditioning systems through BACnet® communications.
3-1		Optional DIII board			DAM411A1	Expansion kit, installed on DMS502B51, to provide 3 more DIII-NET communication ports. Not usable independently.
3-2		Optional Di board			DAM412A1	Expansion kit, installed on DMS502B51, to provide 16 more wattmeter pulse input points. Not usable independently.
4		★3 Interface for use in LONWORKS®			DMS504B51	Interface unit to allow communications between VRV and BMS. Operation and monitoring of air-conditioning systems through LONWORKS® communication.
5	Contact/Analog signal	Parallel interface	Basic unit		DPF201A51	Enables ON/OFF command, operation and display of malfunction; can be used in combination with up to 4 units.
6			Temperature measurement units		DPF201A52	Enables temperature measurement output for 4 groups; 0-5VDC.
7			Temperature setting units		DPF201A53	Enables temperature setting input for 16 groups; 0-5VDC.
8		Unification adaptor for computerized control			DCS302A52	Interface between the central monitoring board and central control units
9-1		Wiring adaptor for electrical appendices (1)			KRP2A53, 61, 62	Simultaneously controls air-conditioning control computer and up to 64 groups of indoor units.
9-2		Wiring adaptor for electrical appendices (2)			KRP4A51-54	To control the group of indoor units collectively, which are connected by the transmission wiring of remote controller.
13		External control adaptor for outdoor unit (Must be installed on indoor units.)			DTA104A53, 61, 62	Cooling/Heating mode change over. Demand control and Low noise control are available between the plural outdoor units.

Notes:

*1. PPD does not support Connection Unit Series.

*2. BACnet® is a registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

*3. LONWORKS® is a registered trade mark of Echelon Corporation.

Please refer to Option Handbook etc. for detail.

3.2 Option List of Outdoor Unit

RX(Y)MQ4 / 5 / 6P

Optional accessories		RXYMQ4PVE, RXMQ4PVE RXYMQ5PVE, RXMQ5PVE RXYMQ6PVE, RXMQ6PVE
Cool/Heat Selector		KRC19-26A
Fixing box		KJB111A
Distributive Piping	Refnet header	KHRP26M22H, KHRP26M33H (MAX. 4 branch) (MAX. 8 branch)
	Refnet joint	KHRP26M22T
Central drain plug		KKPJ5F180
Fixture for preventing overturning		KPT-60B160
Wire fixture for preventing overturning		K-KYZP15C

C: 3D045727B

4. Example of Connection

Example of connection (Connection of 8 indoor units Heat pump system)			Branch with refnet joint		Branch with refnet joint and refnet header		Branch with refnet header																																							
Maximum allowable length	Between outdoor and indoor units	Actual pipe length	Pipe length between outdoor and indoor units ≤ 150m																																											
		Equivalent length	Equivalent pipe length between outdoor and indoor units ≤ 175m (assume equivalent pipe length of refnet joint to be 0.5m, that of refnet header to be 1m, calculation purposes)																																											
		Total extension length	Total piping length from outdoor unit to all indoor units ≥10m, ≤ 300m																																											
Allowable height length	Between outdoor and indoor units	Difference in height	Difference in height between outdoor and indoor units (H1) ≤ 50m (Max 40m if the outdoor unit is below)																																											
	Between indoor and indoor units	Difference in height	Difference in height between adjacent indoor units (H2) ≤ 15m																																											
Allowable length after the branch		Actual pipe length	Pipe length from first refrigerant branch kit (either refnet joint or refnet header) to indoor unit ≤ 40m																																											
			Example unit 8: b + c + d + e + f + g + p ≤ 40m		Example unit 6: b + h ≤ 40m, unit 8: i + k ≤ 40m		Example unit 8: i ≤ 40m																																							
Refrigerant branch kit selection Refrigerant branch kits can only be used with R-410A.			Use refnet joint from the following table. <table><tr><th>Outdoor unit capacity type</th><th>Refrigerant branch kit name</th></tr><tr><td>RX(Y)MQ4,5, 6 type</td><td>KHRP26M22T</td></tr></table>		Outdoor unit capacity type	Refrigerant branch kit name	RX(Y)MQ4,5, 6 type	KHRP26M22T	How to select the refnet header Choose from the following table below the REFNET header according to the number of units on the system. <table><tr><th>Outdoor unit capacity type</th><th>Refrigerant branch kit name</th></tr><tr><td rowspan="2">RX(Y)MQ4, 5, 6 type</td><td>KHRP26M22H (Max. 4 branch)</td></tr><tr><td>KHRP26M33H (Max. 8 branch)</td></tr></table>				Outdoor unit capacity type	Refrigerant branch kit name	RX(Y)MQ4, 5, 6 type	KHRP26M22H (Max. 4 branch)	KHRP26M33H (Max. 8 branch)																													
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	KHRP26M33H (Max. 8 branch)																																													
Pipe size selection 〈Caution on selecting connection pipes〉 When the equivalent piping length between the outdoor unit and the indoor unit is 90 m or more, make sure to use a thicker pipe as the main pipe on the gas side. When the air-conditioning ability is reduced due to the refrigerant piping distance, a thicker pipe may be used also as the main pipe. [Gas side] RXYMQ4,5 type φ15.9 → φ 19.1 RXYMQ6 type φ19.1 → φ 22.2 Caution) In brazing connection in the size increase area in the piping, use a different-diameter joint for connection. (The different-diameter joint should be arranged in the local field.) The connection area is located near the outdoor unit (usually after the first bending outside the unit).			Piping between outdoor unit and refrigerant branch kit Match to the size of the connection piping on the outdoor unit. <table><tr><th colspan="3">Outdoor unit connection pipe size (Unit: mm)</th></tr><tr><th rowspan="2">Outdoor unit capacity type</th><th colspan="2">Piping size (outer diameter × minimum thickness)</th></tr><tr><th>Gas pipe</th><th>Liquid pipe</th></tr><tr><td rowspan="2">RX(Y)MQ4,5 type</td><td>φ 15.9 × 1.0</td><td rowspan="2">φ 9.5 × 0.8</td></tr><tr><td>φ 19.1 × 1.0 *</td></tr><tr><td rowspan="2">RX(Y)MQ6 type</td><td>φ 19.1 × 1.0</td><td rowspan="2">φ 9.5 × 0.8</td></tr><tr><td>φ 22.2 × 1.0 *</td></tr></table> * When the size is larger		Outdoor unit connection pipe size (Unit: mm)			Outdoor unit capacity type	Piping size (outer diameter × minimum thickness)		Gas pipe	Liquid pipe	RX(Y)MQ4,5 type	φ 15.9 × 1.0	φ 9.5 × 0.8	φ 19.1 × 1.0 *	RX(Y)MQ6 type	φ 19.1 × 1.0	φ 9.5 × 0.8	φ 22.2 × 1.0 *	Piping between refrigerant branch kits Use the pipe size from the following table. <table><tr><th colspan="2">Connection pipe size (Unit: mm)</th></tr><tr><th colspan="2">Piping size (outer diameter × minimum thickness)</th></tr><tr><th>Gas pipe</th><th>Liquid pipe</th></tr><tr><td>φ 15.9 × 1.0</td><td>φ 9.5 × 0.8</td></tr></table>		Connection pipe size (Unit: mm)		Piping size (outer diameter × minimum thickness)		Gas pipe	Liquid pipe	φ 15.9 × 1.0	φ 9.5 × 0.8	Between refrigerant branch kit and indoor unit Pipe size for direct connection to indoor unit must be the same as the connection size of indoor unit. <table><tr><th colspan="3">Indoor unit connection pipe size (Unit: mm)</th></tr><tr><th rowspan="2">Indoor unit capacity type</th><th colspan="2">Piping size (outer diameter × minimum thickness)</th></tr><tr><th>Gas pipe</th><th>Liquid pipe</th></tr><tr><td>20 · 25 · 32 · 40 · 50 type</td><td>φ 12.7 × 0.8</td><td>φ 6.4 × 0.8</td></tr><tr><td>63 · 80 · 100 · 125 type</td><td>φ 15.9 × 1.0</td><td>φ 9.5 × 0.8</td></tr></table>		Indoor unit connection pipe size (Unit: mm)			Indoor unit capacity type	Piping size (outer diameter × minimum thickness)		Gas pipe	Liquid pipe	20 · 25 · 32 · 40 · 50 type	φ 12.7 × 0.8	φ 6.4 × 0.8	63 · 80 · 100 · 125 type	φ 15.9 × 1.0	φ 9.5 × 0.8
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How to calculate the additional refrigerant to be charged Additional refrigerant to be charged R (Kg) R should be rounded off in units of 0.1Kg.			$R = \left(\frac{\text{Total length (m) of liquid piping size at } \phi 9.5}{1} \right) \times 0.054 + \left(\frac{\text{Total length (m) of liquid piping size at } \phi 6.4}{1} \right) \times 0.022$		Example for refrigerant branch using refnet joint and refnet header The piping lengths are as at right <table><tr><td>a: φ9.5 × 30m</td><td>d: φ9.5 × 13m</td><td>g: φ6.4 × 10m</td><td>j: φ6.4 × 10m</td></tr><tr><td>b: φ9.5 × 10m</td><td>e: φ6.4 × 10m</td><td>h: φ6.4 × 20m</td><td>k: φ6.4 × 9m</td></tr><tr><td>c: φ9.5 × 10m</td><td>f: φ6.4 × 10m</td><td>i: φ9.5 × 10m</td><td></td></tr></table> $R = \frac{73 \times 0.054}{1} + \frac{69 \times 0.022}{1} = 5.46$ a+b+c+d+i e+f+g+h+j+k 5.5			a: φ9.5 × 30m	d: φ9.5 × 13m	g: φ6.4 × 10m	j: φ6.4 × 10m	b: φ9.5 × 10m	e: φ6.4 × 10m	h: φ6.4 × 20m	k: φ6.4 × 9m	c: φ9.5 × 10m	f: φ6.4 × 10m	i: φ9.5 × 10m																												
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c: φ9.5 × 10m	f: φ6.4 × 10m	i: φ9.5 × 10m																																												

5. Thermistor Resistance / Temperature Characteristics

Indoor unit For air suction R1T
 For liquid pipe R2T
 For gas pipe R3T

Outdoor unit for fin thermistor R1T

Outdoor unit For outdoor air R1T
 For suction pipe 1 R3T
 For heat exchanger R4T
 For suction pipe 2 R5T
 For Subcooling heat exchanger outlet R6T
 For Liquid pipe R7T

(kΩ)

T°C	0.0
-10	-
-8	-
-6	88.0
-4	79.1
-2	71.1
0	64.1
2	57.8
4	52.3
6	47.3
8	42.9
10	38.9
12	35.3
14	32.1
16	29.2
18	26.6
20	24.3
22	22.2
24	20.3
26	18.5
28	17.0
30	15.6
32	14.2
34	13.1
36	12.0
38	11.1
40	10.3
42	9.5
44	8.8
46	8.2
48	7.6
50	7.0
52	6.7
54	6.0
56	5.5
58	5.2
60	4.79
62	4.46
64	4.15
66	3.87
68	3.61
70	3.37
72	3.15
74	2.94
76	2.75
78	2.51
80	2.41
82	2.26
84	2.12
86	1.99
88	1.87
90	1.76
92	1.65
94	1.55
96	1.46
98	1.38

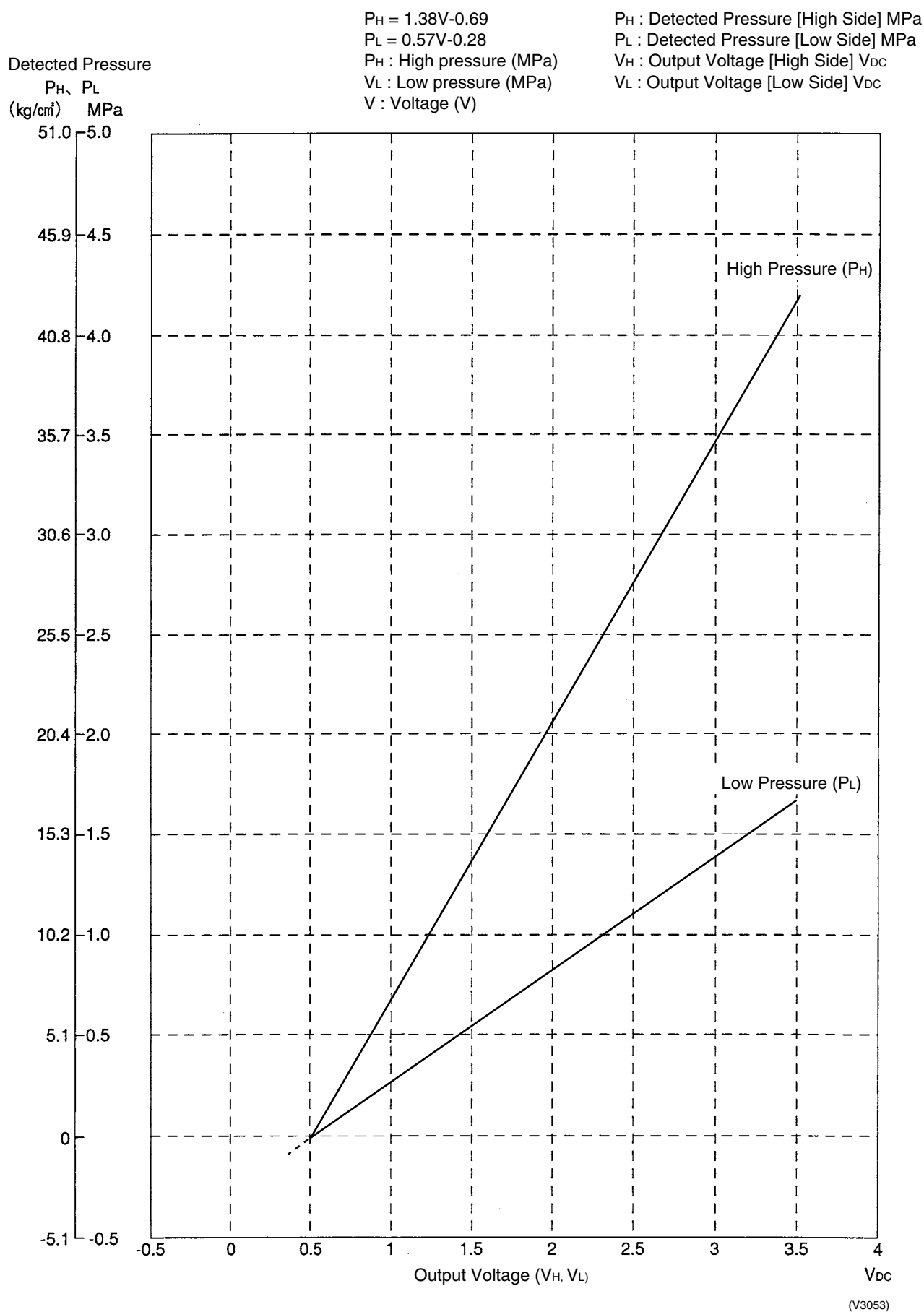
T°C	0.0	0.5
-20	197.81	192.08
-19	186.53	181.16
-18	175.97	170.94
-17	166.07	161.36
-16	156.80	152.38
-15	148.10	143.96
-14	139.94	136.05
-13	132.28	128.63
-12	125.09	121.66
-11	118.34	115.12
-10	111.99	108.96
-9	106.03	103.18
-8	100.41	97.73
-7	95.14	92.61
-6	90.17	87.79
-5	85.49	83.25
-4	81.08	78.97
-3	76.93	74.94
-2	73.01	71.14
-1	69.32	67.56
0	65.84	64.17
1	62.54	60.96
2	59.43	57.94
3	56.49	55.08
4	53.71	52.38
5	51.09	49.83
6	48.61	47.42
7	46.26	45.14
8	44.05	42.98
9	41.95	40.94
10	39.96	39.01
11	38.08	37.18
12	36.30	35.45
13	34.62	33.81
14	33.02	32.25
15	31.50	30.77
16	30.06	29.37
17	28.70	28.05
18	27.41	26.78
19	26.18	25.59
20	25.01	24.45
21	23.91	23.37
22	22.85	22.35
23	21.85	21.37
24	20.90	20.45
25	20.00	19.56
26	19.14	18.73
27	18.32	17.93
28	17.54	17.17
29	16.80	16.45
30	16.10	15.76

T°C	0.0	0.5
30	16.10	15.76
31	15.43	15.10
32	14.79	14.48
33	14.18	13.88
34	13.59	13.31
35	13.04	12.77
36	12.51	12.25
37	12.01	11.76
38	11.52	11.29
39	11.06	10.84
40	10.63	10.41
41	10.21	10.00
42	9.81	9.61
43	9.42	9.24
44	9.06	8.88
45	8.71	8.54
46	8.37	8.21
47	8.05	7.90
48	7.75	7.60
49	7.46	7.31
50	7.18	7.04
51	6.91	6.78
52	6.65	6.53
53	6.41	6.53
54	6.65	6.53
55	6.41	6.53
56	6.18	6.06
57	5.95	5.84
58	5.74	5.43
59	5.14	5.05
60	4.96	4.87
61	4.79	4.70
62	4.62	4.54
63	4.46	4.38
64	4.30	4.23
65	4.16	4.08
66	4.01	3.94
67	3.88	3.81
68	3.75	3.68
69	3.62	3.56
70	3.50	3.44
71	3.38	3.32
72	3.27	3.21
73	3.16	3.11
74	3.06	3.01
75	2.96	2.91
76	2.86	2.82
77	2.77	2.72
78	2.68	2.64
79	2.60	2.55
80	2.51	2.47

Outdoor Unit
Thermistors for
Discharge Pipe
(R2T)

						(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



7. Method of Replacing the Inverter's Power Transistors Modules

Checking failures in power semiconductors mounted on inverter PC board

Check the power semiconductors mounted on the inverter PC board by the use of a multiple tester.

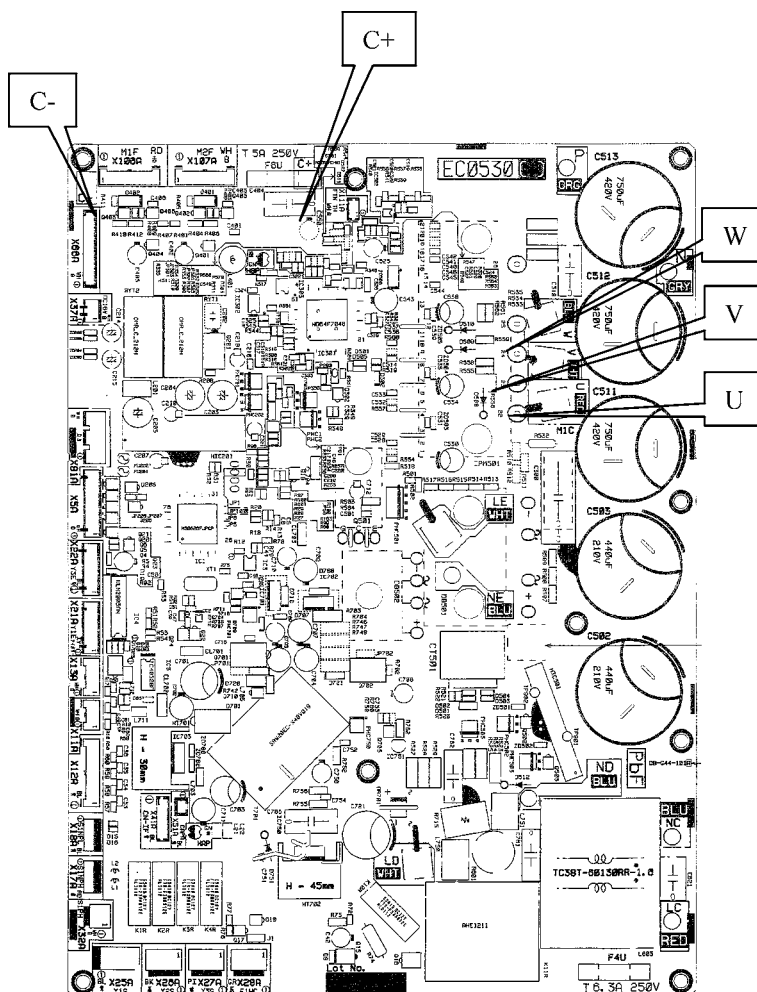
<Items to be prepared>

- Multiple tester : Prepare the digital type of multiple tester with diode check function.

<Preparation>

- Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.
- To make measurement, disconnect all connectors and terminals.

Inverter PC board



Power module checking

When using the digital type of multiple tester, make measurement in diode check mode.

Tester terminal		Criterion	Remark
+	-		
C+	U	Not less than 0.3V (including ∞)*	It may take time to determine the voltage due to capacitor charge or else.
	V		
	W		
U	C-	Not less than 0.3V (including ∞)*	
V			
W			
U	C+	0.3 to 0.7V (including ∞)*	
V			
W			
C-	U	0.3 to 0.7V (including ∞)*	
	V		
	W		

*There needs to be none of each value variation.

The following abnormalities are also doubted besides the PC board abnormality.

- Faulty compressor (ground fault, ground leakage)
- Faulty fan motor (ground leakage)

Part 9

Precautions for New Refrigerant (R-410A)

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1. Precautions for New Refrigerant (R-410A)

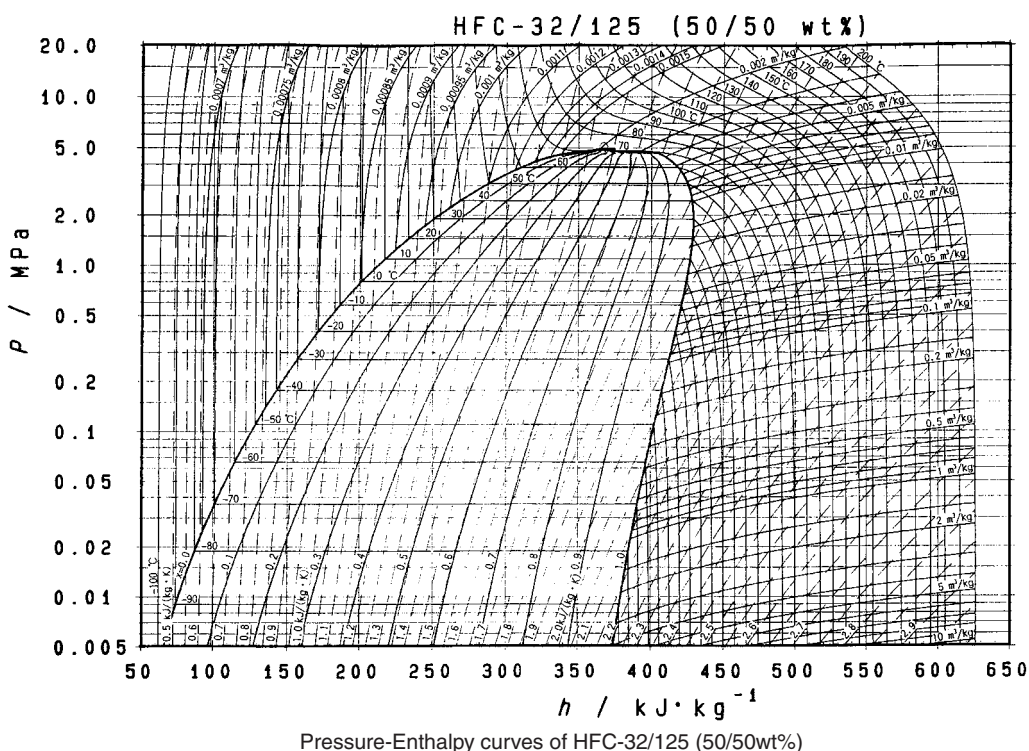
1.1 Outline

1.1.1 About Refrigerant R-410A

- Characteristics of new refrigerant, R-410A
 1. Performance
Almost the same performance as R-22 and R-407C
 2. Pressure
Working pressure is approx. 1.4 times more than R-22 and R-407C.
 3. Refrigerant composition
Few problems in composition control, since it is a Quasi-azeotropic mixture refrigerant.

	HFC units (Units using new refrigerants)		HCFC units
Refrigerant name	R-407C	R-410A	R-22
Composing substances	Non-azeotropic mixture of HFC32, HFC125 and HFC134a (*1)	Quasi-azeotropic mixture of HFC32 and JFC125 (*1)	Single-component refrigerant
Design pressure	3.2 MPa (gauge pressure) = 32.6 kgf/cm ²	4.0 MPa (gauge pressure) = 40.8 kgf/cm ²	2.75MPa (gauge pressure) = 28.0 kgf/cm ²
Refrigerant oil	Synthetic oil (Ether)		Mineral oil (Suniso)
Ozone destruction factor (ODP)	0	0	0.05
Combustibility	None	None	None
Toxicity	None	None	None

- ★1. Non-azeotropic mixture refrigerant: mixture of two or more refrigerants having different boiling points.
 - ★2. Quasi-azeotropic mixture refrigerant: mixture of two or more refrigerants having similar boiling points.
 - ★3. The design pressure is different at each product. Please refer to the installation manual for each product.
- (Reference) 1 MPa $\doteq$ 10.19716 kgf / cm²



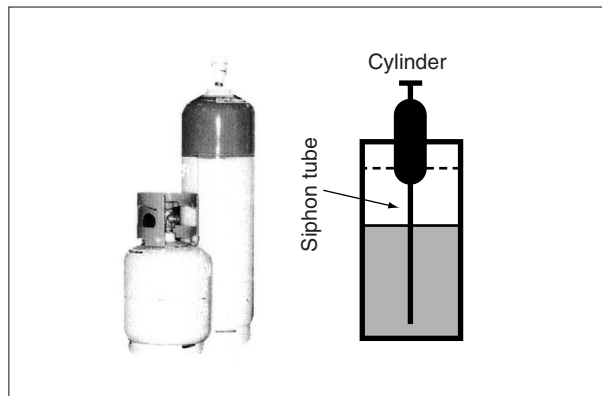
■ Thermodynamic characteristic of R-410A

DAIREP ver2.0

Temperature (°C)	Steam pressure (kPa)		Density (kg/m ³)		Specific heat at constant pressure (kJ/kgK)		Specific enthalpy (kJ/kg)		Specific entropy (kJ/KgK)	
	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor
-70	36.13	36.11	1410.7	1.582	1.372	0.695	100.8	390.6	0.649	2.074
-68	40.83	40.80	1404.7	1.774	1.374	0.700	103.6	391.8	0.663	2.066
-66	46.02	45.98	1398.6	1.984	1.375	0.705	106.3	393.0	0.676	2.058
-64	51.73	51.68	1392.5	2.213	1.377	0.710	109.1	394.1	0.689	2.051
-62	58.00	57.94	1386.4	2.463	1.378	0.715	111.9	395.3	0.702	2.044
-60	64.87	64.80	1380.2	2.734	1.379	0.720	114.6	396.4	0.715	2.037
-58	72.38	72.29	1374.0	3.030	1.380	0.726	117.4	397.6	0.728	2.030
-56	80.57	80.46	1367.8	3.350	1.382	0.732	120.1	398.7	0.741	2.023
-54	89.49	89.36	1361.6	3.696	1.384	0.737	122.9	399.8	0.754	2.017
-52	99.18	99.03	1355.3	4.071	1.386	0.744	125.7	400.9	0.766	2.010
-51.58	101.32	101.17	1354.0	4.153	1.386	0.745	126.3	401.1	0.769	2.009
-50	109.69	109.51	1349.0	4.474	1.388	0.750	128.5	402.0	0.779	2.004
-48	121.07	120.85	1342.7	4.909	1.391	0.756	131.2	403.1	0.791	1.998
-46	133.36	133.11	1336.3	5.377	1.394	0.763	134.0	404.1	0.803	1.992
-44	146.61	146.32	1330.0	5.880	1.397	0.770	136.8	405.2	0.816	1.987
-42	160.89	160.55	1323.5	6.419	1.401	0.777	139.6	406.2	0.828	1.981
-40	176.24	175.85	1317.0	6.996	1.405	0.785	142.4	407.3	0.840	1.976
-38	192.71	192.27	1310.5	7.614	1.409	0.792	145.3	408.3	0.852	1.970
-36	210.37	209.86	1304.0	8.275	1.414	0.800	148.1	409.3	0.864	1.965
-34	229.26	228.69	1297.3	8.980	1.419	0.809	150.9	410.2	0.875	1.960
-32	249.46	248.81	1290.6	9.732	1.424	0.817	153.8	411.2	0.887	1.955
-30	271.01	270.28	1283.9	10.53	1.430	0.826	156.6	412.1	0.899	1.950
-28	293.99	293.16	1277.1	11.39	1.436	0.835	159.5	413.1	0.911	1.946
-26	318.44	317.52	1270.2	12.29	1.442	0.844	162.4	414.0	0.922	1.941
-24	344.44	343.41	1263.3	13.26	1.448	0.854	165.3	414.9	0.934	1.936
-22	372.05	370.90	1256.3	14.28	1.455	0.864	168.2	415.7	0.945	1.932
-20	401.34	400.06	1249.2	15.37	1.461	0.875	171.1	416.6	0.957	1.927
-18	432.36	430.95	1242.0	16.52	1.468	0.886	174.1	417.4	0.968	1.923
-16	465.20	463.64	1234.8	17.74	1.476	0.897	177.0	418.2	0.980	1.919
-14	499.91	498.20	1227.5	19.04	1.483	0.909	180.0	419.0	0.991	1.914
-12	536.58	534.69	1220.0	20.41	1.491	0.921	182.9	419.8	1.003	1.910
-10	575.26	573.20	1212.5	21.86	1.499	0.933	185.9	420.5	1.014	1.906
-8	616.03	613.78	1204.9	23.39	1.507	0.947	189.0	421.2	1.025	1.902
-6	658.97	656.52	1197.2	25.01	1.516	0.960	192.0	421.9	1.036	1.898
-4	704.15	701.49	1189.4	26.72	1.524	0.975	195.0	422.6	1.048	1.894
-2	751.64	748.76	1181.4	28.53	1.533	0.990	198.1	423.2	1.059	1.890
0	801.52	798.41	1173.4	30.44	1.543	1.005	201.2	423.8	1.070	1.886
2	853.87	850.52	1165.3	32.46	1.552	1.022	204.3	424.4	1.081	1.882
4	908.77	905.16	1157.0	34.59	1.563	1.039	207.4	424.9	1.092	1.878
6	966.29	962.42	1148.6	36.83	1.573	1.057	210.5	425.5	1.103	1.874
8	1026.5	1022.4	1140.0	39.21	1.584	1.076	213.7	425.9	1.114	1.870
10	1089.5	1085.1	1131.3	41.71	1.596	1.096	216.8	426.4	1.125	1.866
12	1155.4	1150.7	1122.5	44.35	1.608	1.117	220.0	426.8	1.136	1.862
14	1224.3	1219.2	1113.5	47.14	1.621	1.139	223.2	427.2	1.147	1.859
16	1296.2	1290.8	1104.4	50.09	1.635	1.163	226.5	427.5	1.158	1.855
18	1371.2	1365.5	1095.1	53.20	1.650	1.188	229.7	427.8	1.169	1.851
20	1449.4	1443.4	1085.6	56.48	1.666	1.215	233.0	428.1	1.180	1.847
22	1530.9	1524.6	1075.9	59.96	1.683	1.243	236.4	428.3	1.191	1.843
24	1615.8	1609.2	1066.0	63.63	1.701	1.273	239.7	428.4	1.202	1.839
26	1704.2	1697.2	1055.9	67.51	1.721	1.306	243.1	428.6	1.214	1.834
28	1796.2	1788.9	1045.5	71.62	1.743	1.341	246.5	428.6	1.225	1.830
30	1891.9	1884.2	1034.9	75.97	1.767	1.379	249.9	428.6	1.236	1.826
32	1991.3	1983.2	1024.1	80.58	1.793	1.420	253.4	428.6	1.247	1.822
34	2094.5	2086.2	1012.9	85.48	1.822	1.465	256.9	428.4	1.258	1.817
36	2201.7	2193.1	1001.4	90.68	1.855	1.514	260.5	428.3	1.269	1.813
38	2313.0	2304.0	989.5	96.22	1.891	1.569	264.1	428.0	1.281	1.808
40	2428.4	2419.2	977.3	102.1	1.932	1.629	267.8	427.7	1.292	1.803
42	2548.1	2538.6	964.6	108.4	1.979	1.696	271.5	427.2	1.303	1.798
44	2672.2	2662.4	951.4	115.2	2.033	1.771	275.3	426.7	1.315	1.793
46	2800.7	2790.7	937.7	122.4	2.095	1.857	279.2	426.1	1.327	1.788
48	2933.7	2923.6	923.3	130.2	2.168	1.955	283.2	425.4	1.339	1.782
50	3071.5	3061.2	908.2	138.6	2.256	2.069	287.3	424.5	1.351	1.776
52	3214.0	3203.6	892.2	147.7	2.362	2.203	291.5	423.5	1.363	1.770
54	3361.4	3351.0	875.1	157.6	2.493	2.363	295.8	422.4	1.376	1.764
56	3513.8	3503.5	856.8	168.4	2.661	2.557	300.3	421.0	1.389	1.757
58	3671.3	3661.2	836.9	180.4	2.883	2.799	305.0	419.4	1.403	1.749
60	3834.1	3824.2	814.9	193.7	3.191	3.106	310.0	417.6	1.417	1.741
62	4002.1	3992.7	790.1	208.6	3.650	3.511	315.3	415.5	1.433	1.732
64	4175.7	4166.8	761.0	225.6	4.415	4.064	321.2	413.0	1.450	1.722

1.2 Refrigerant Cylinders

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



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

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

- Handling of cylinders
 - (1) Laws and regulations

R-410A is liquefied gas, and the High-Pressure Gas Safety Law must be observed in handling them. Before using, refer to the High-Pressure Gas Safety Law.

The Law stipulates standards and regulations that must be followed to prevent accidents with high-pressure gases. Be sure to follow the regulations.
 - (2) Handling of vessels

Since R-410A is high-pressure gas, it is contained in high-pressure vessels.

Although those vessels are durable and strong, careless handling can cause damage that can lead to unexpected accidents. Do not drop vessels, let them fall, apply impact or roll them on the ground.
 - (3) Storage

Although R-410A is not flammable, it must be stored in a well-ventilated, cool, and dark place in the same way as any other high-pressure gases.

It should also be noted that high-pressure vessels are equipped with safety devices that releases gas when the ambient temperature reaches more than a certain level (fusible plug melts) and when the pressure exceeds a certain level (spring-type safety valve operates).

1.3 Service Tools

R-410A is used under higher working pressure, compared to previous refrigerants (R-22,R-407C). Furthermore, the refrigerating machine oil has been changed from Suniso oil to Ether oil, and if oil mixing is occurred, sludge results in the refrigerants and causes other problems. Therefore, gauge manifolds and charge hoses that are used with a previous refrigerant (R-22,R-407C) can not be used for products that use new refrigerants.

Be sure to use dedicated tools and devices.

■ Tool compatibility

Tool	Compatibility			Reasons for change
	HFC		HCFC	
	R-410A	R-407C	R-22	
Gauge manifold Charge hose	×			- Do not use the same tools for R-22 and R-410A. - Thread specification differs for R-410A and R-407C.
Charging cylinder	×		○	Weighting instrument used for HFCs.
Gas detector	○		×	The same tool can be used for HFCs.
Vacuum pump (pump with reverse flow preventive function)	○			To use existing pump for HFCs, vacuum pump adaptor must be installed.
Weighting instrument	○			
Charge mouthpiece	×			- Seal material is different between R-22 and HFCs. - Thread specification is different between R-410A and others.
Flaring tool (Clutch type)	○			For R-410A, flare gauge is necessary.
Torque wrench	○			Torque-up for 1/2 and 5/8
Pipe cutter	○			
Pipe expander	○			
Pipe bender	○			
Pipe assembling oil	×			Due to refrigerating machine oil change. (No Suniso oil can be used.)
Refrigerant recovery device	Check your recovery device.			
Refrigerant piping	See the chart below.			Only φ19.1 is changed to 1/2H material while the previous material is "O".

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

■ Copper tube material and thickness

Pipe size	R-407C		R-410A	
	Material	Thickness t (mm)	Material	Thickness t (mm)
φ6.4	O	0.8	O	0.8
φ9.5	O	0.8	O	0.8
φ12.7	O	0.8	O	0.8
φ15.9	O	1.0	O	1.0
φ19.1	O	1.0	1/2H	1.0
φ22.2	1/2H	1.0	1/2H	1.0
φ25.4	1/2H	1.0	1/2H	1.0
φ28.6	1/2H	1.0	1/2H	1.0
φ31.8	1/2H	1.2	1/2H	1.1
φ38.1	1/2H	1.4	1/2H	1.4
φ44.5	1/2H	1.6	1/2H	1.6

* O: Soft (Annealed)

H: Hard (Drawn)

1. Flaring tool



■ Specifications

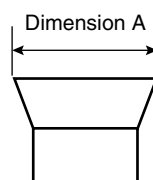
- Dimension A

Unit:mm

Nominal size	Tube O.D.	$A^{+0}_{-0.4}$	
		Class-2 (R-410A)	Class-1 (Conventional)
1/4	6.35	9.1	9.0
3/8	9.52	13.2	13.0
1/2	12.70	16.6	16.2
5/8	15.88	19.7	19.4
3/4	19.05	24.0	23.3

■ Differences

- Change of dimension A



For class-1: R-407C
For class-2: R-410A

Conventional flaring tools can be used when the work process is changed.

(change of work process)

Previously, a pipe extension margin of 0 to 0.5mm was provided for flaring. For R-410A air conditioners, perform pipe flaring with a pipe extension margin of 1.0 to 1.5mm.

(For clutch type only)

Conventional tool with pipe extension margin adjustment can be used.

2. Torque wrench



■ Specifications

• Dimension B

Unit:mm

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

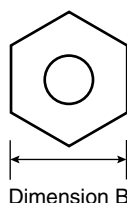
No change in tightening torque

No change in pipes of other sizes

■ Differences

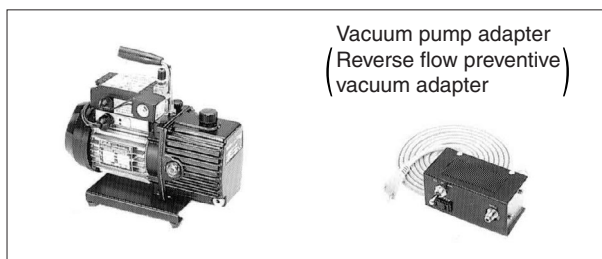
• Change of dimension B

Only 1/2", 5/8" are extended



For class-1: R-407C
For class-2: R-410A

3. Vacuum pump with check valve



■ Specifications

- Discharge speed
50 l/min (50Hz)
60 l/min (60Hz)
- Suction port UNF7/16-20(1/4 Flare)
UNF1/2-20(5/16 Flare) with adapter

● Maximum degree of vacuum

Select a vacuum pump which is able to keep the vacuum degree of the system in excess of -100.7 kPa (5 torr - 755 mmHg).

■ Differences

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

4. Leak tester



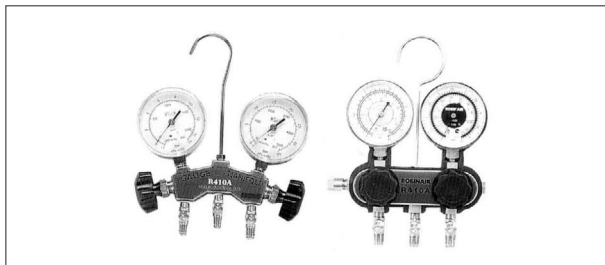
- Specifications
 - Hydrogen detecting type, etc.
 - Applicable refrigerants
R-410A, R-407C, R-404A, R-507A, R-134a, etc.
- Differences
 - Previous testers detected chlorine. Since HFCs do not contain chlorine, new tester detects hydrogen.

5. Refrigerant oil (Air compal)



- Specifications
 - Contains synthetic oil, therefore it can be used for piping work of every refrigerant cycle.
 - Offers high rust resistance and stability over long period of time.
- Differences
 - Can be used for R-410A and R-22 units.

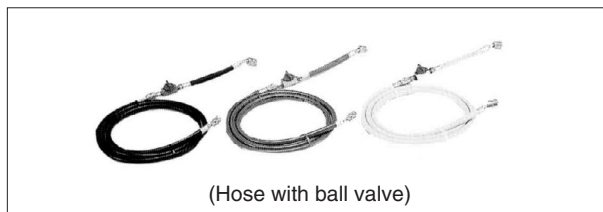
6. Gauge manifold for R-410A



- Specifications
 - High pressure gauge
- 0.1 to 5.3 MPa (-76 cmHg to 53 kg/cm²)
 - Low pressure gauge
- 0.1 to 3.8 MPa (-76 cmHg to 38 kg/cm²)
 - 1/4" → 5/16" (2min → 2.5min)
 - No oil is used in pressure test of gauges.
→ For prevention of contamination

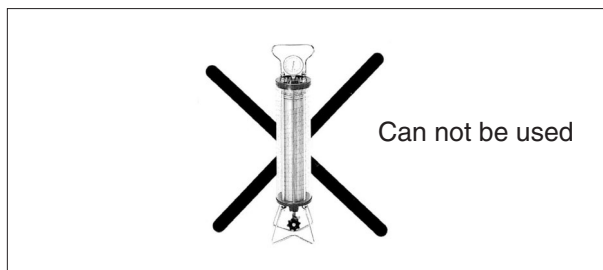
- Temperature scale indicates the relationship between pressure and temperature in gas saturated state.
- Differences
 - Change in pressure
 - Change in service port diameter

7. Charge hose for R-410A



- Specifications
 - Working pressure 5.08 MPa (51.8 kg/cm²)
 - Rupture pressure 25.4 MPa (259 kg/cm²)
 - Available with and without hand-operate valve that prevents refrigerant from outflow.
- Differences
 - Pressure proof hose
 - Change in service port diameter
 - Use of nylon coated material for HFC resistance

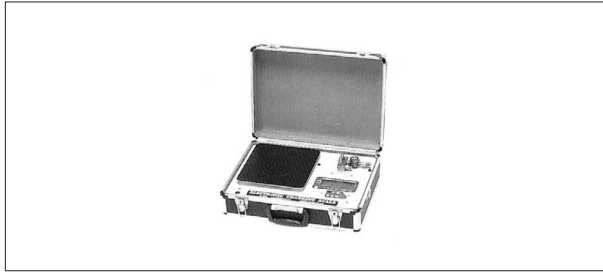
8. Charging cylinder



- Specifications
 - Use weigher for refrigerant charge listed below to charge directly from refrigerant cylinder.
- Differences
 - The cylinder can not be used for mixed refrigerant since mixing ratio is changed during charging.

When R-410A is charged in liquid state using charging cylinder, foaming phenomenon is generated inside charging cylinder.

9. Weigher for refrigerant charge



- Specifications
 - High accuracy
 - TA101A (for 10-kg cylinder) = $\pm 2\text{g}$
 - TA101B (for 20-kg cylinder) = $\pm 5\text{g}$
 - Equipped with pressure-resistant sight glass to check liquid refrigerant charging.
 - A manifold with separate ports for HFCs and previous refrigerants is equipped as standard accessories.
- Differences
 - Measurement is based on weight to prevent change of mixing ratio during charging.

10. Charge mouthpiece



- Specifications
 - For R-410A, 1/4" $\rightarrow$ 5/16" (2min $\rightarrow$ 2.5min)
 - Material is changed from CR to H-NBR.
- Differences
 - Change of thread specification on hose connection side (For the R-410A use)
 - Change of sealer material for the HFCs use.

Part 10

Removal Procedure

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1. RX(Y)MQ4 · 5 · 6 PVE

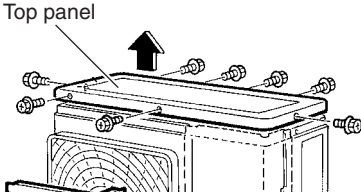
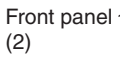
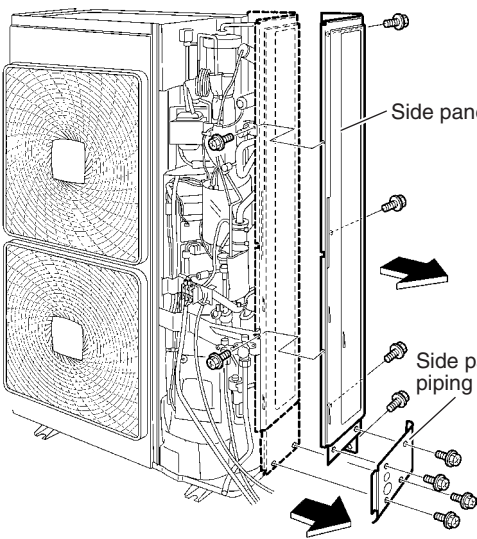
1.1 Procedure to Remove Outside Panels

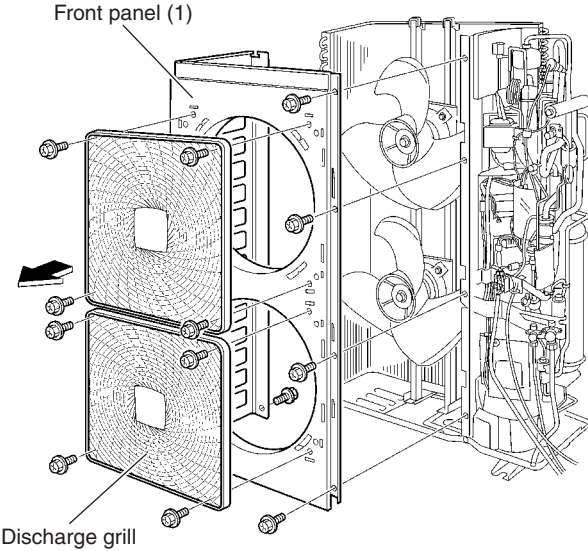
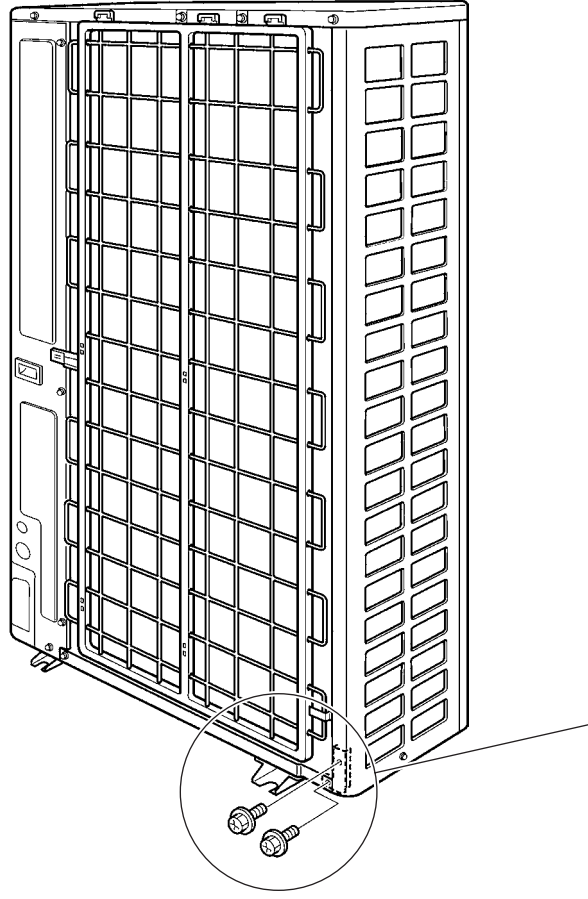
Procedure

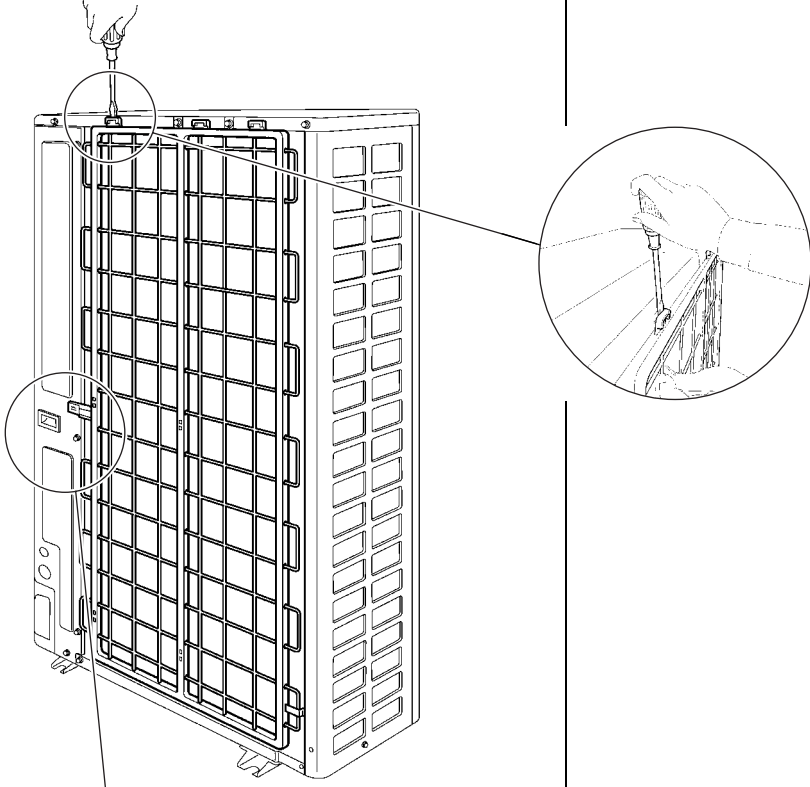
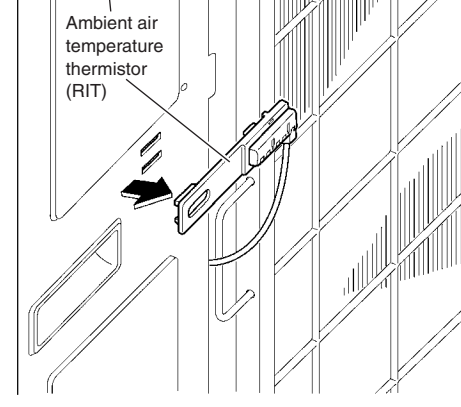
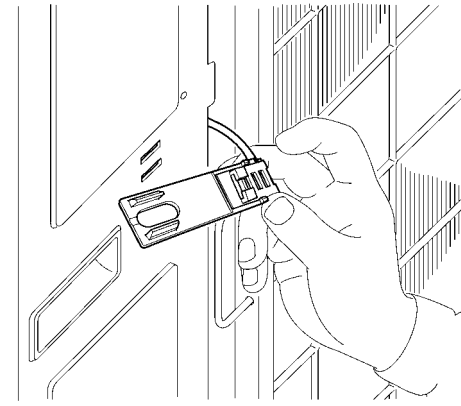


Warning

Be sure to commence the disassembling work after 10 minutes or more elapsed from all power supplies have been turned off.

Step	Procedure	Points
1	Remove eight screws of the top panel.	■ It is possible to remove only the front panel without removing the top panel.    
2	Remove one screw of the front panel (2), and then remove the panel after pushing it downward to release the hook.	
3	To remove the front panel for piping cover, remove its one screw.	
4	To remove the side panel for piping cover, remove four screws of the side panel.	
5	To remove the side panel, remove its six screws after removing the ambient air temperature thermistor.	

Step		Procedure	Points
6	Remove the discharge grill after removing its four screws and releasing its four hooks.	 Front panel (1) Discharge grill Hook	■ On the rear side of the front panel (1), a reinforce plate is attached. Be careful not to lose it while removing the front panel (1).
7	Remove the front panel (1) after removing its seven screws and pushing it upward.	 Reinforce plate	

Step	Procedure	Points
8	Removing heat exchanger cover Remove the heat exchanger cover after releasing its three hooks with a minus driver. 	
9	Remove the ambient air temperature thermistor after pulling it to the near side and sliding to the right. 	
10	The figure in the right is of rear side view. 	

1.2 Procedure to Remove PC board and Electrical Component Box

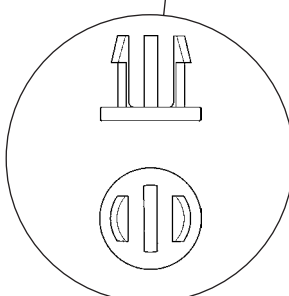
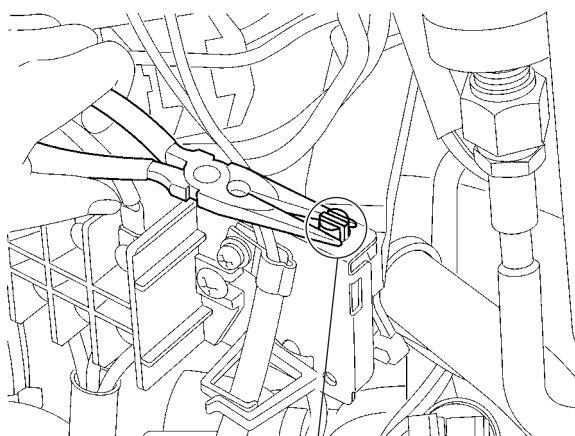
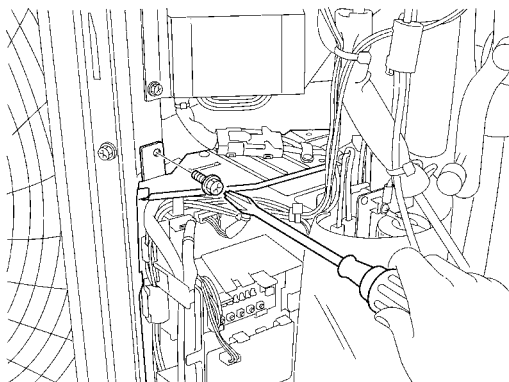
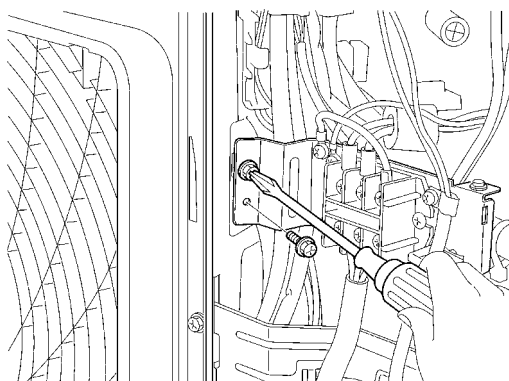
Procedure



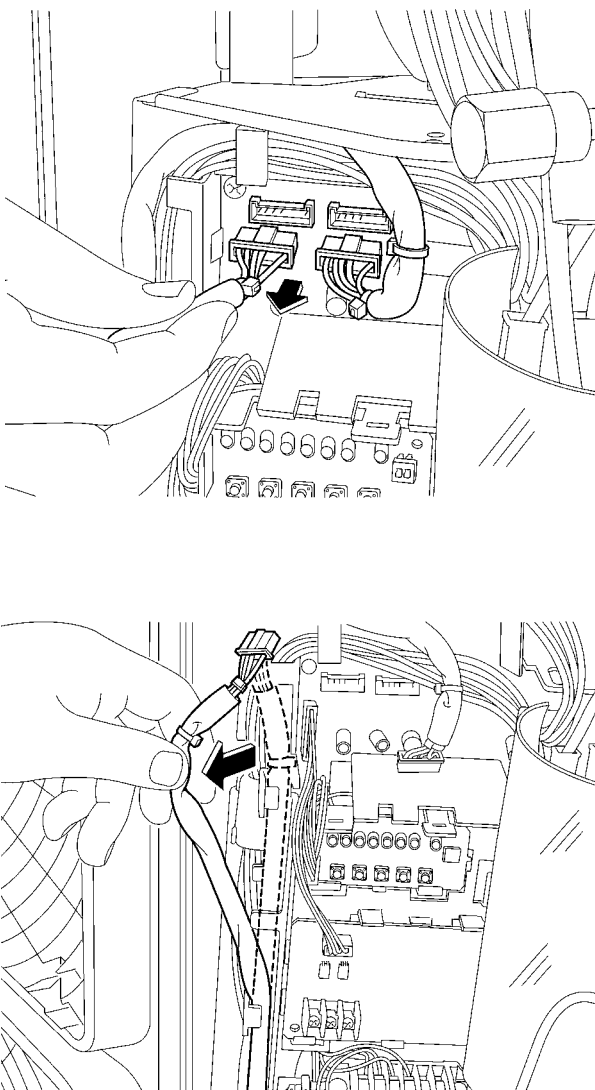
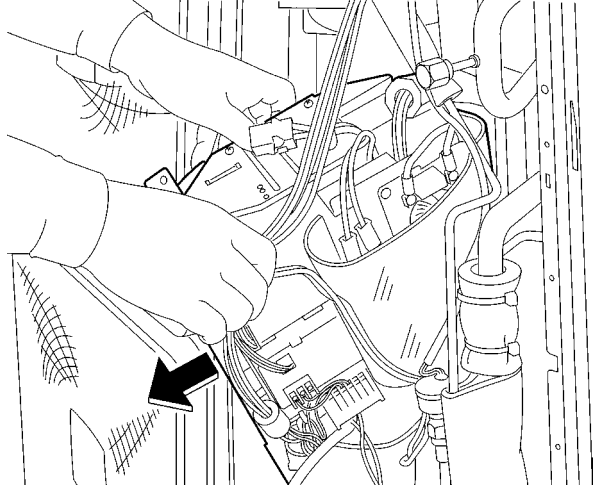
Warning

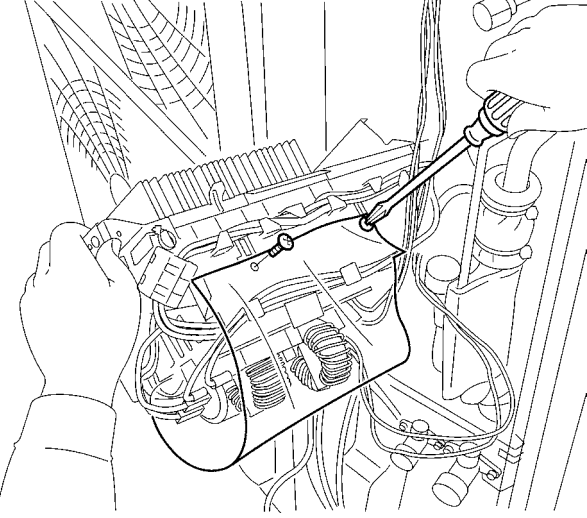
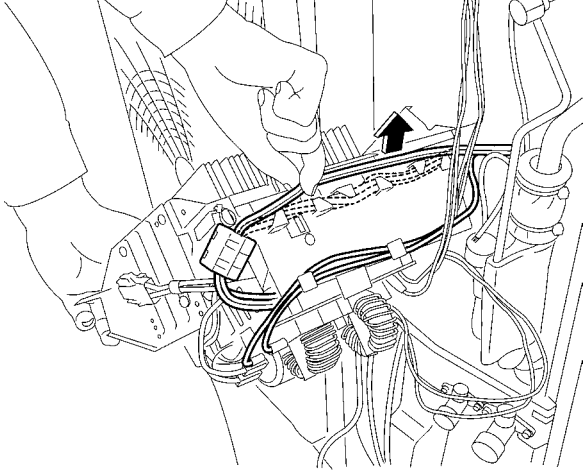
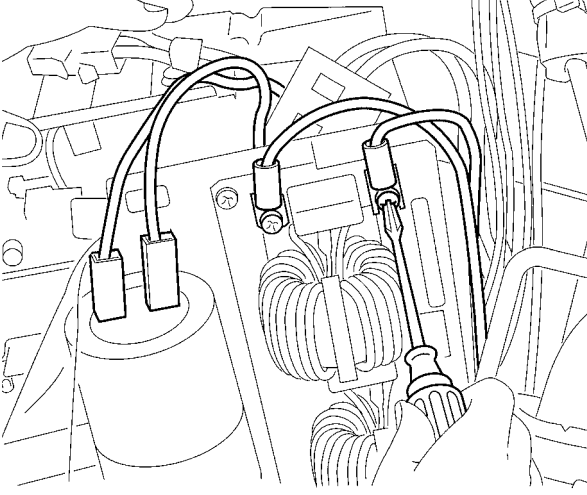
Be sure to commence the disassembling work after 10 minutes or more elapsed from all power supplies have been turned off.

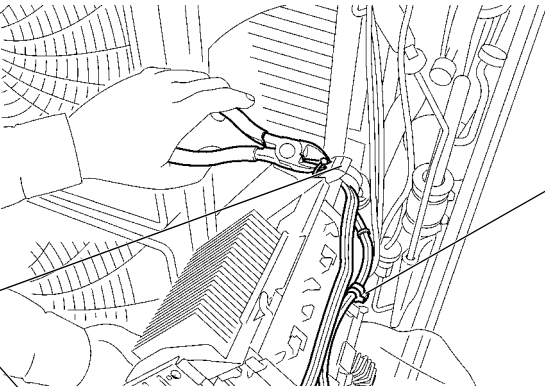
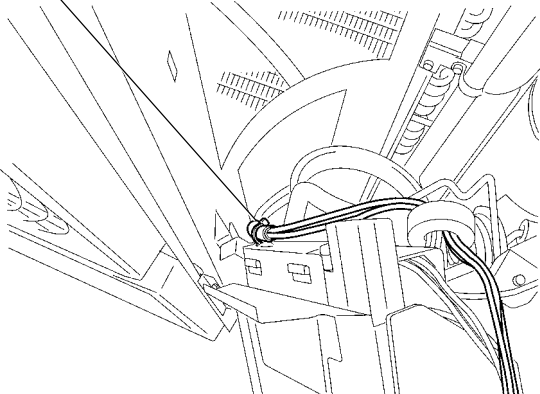
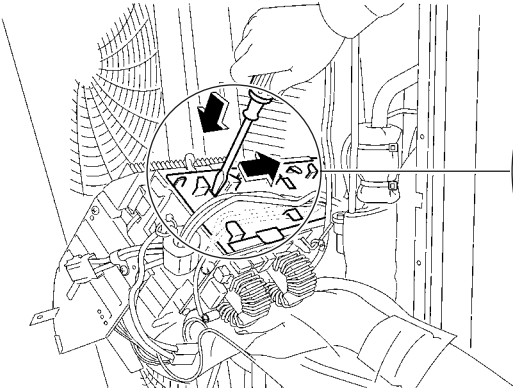
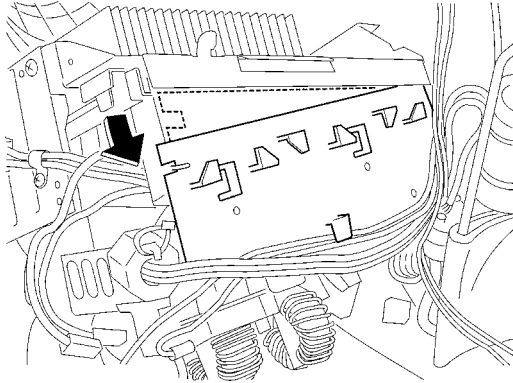
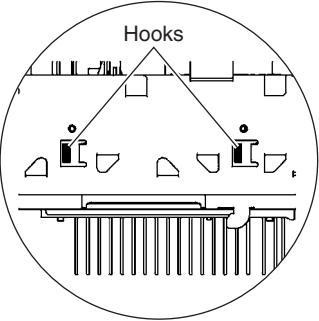
Step	Procedure	Points
1	Remove the fixing screws (three kinds x 2, M5) of terminal block mounting plate.	Preliminary preparation ■ Remove the top, front and side panels according to the "Procedure to Remove Outside panels" .
2	Remove the fixing screws (three kinds x 1, M5) above the electrical component.	
3	Release the hook of the resin stay from the terminal block mounting plate.	

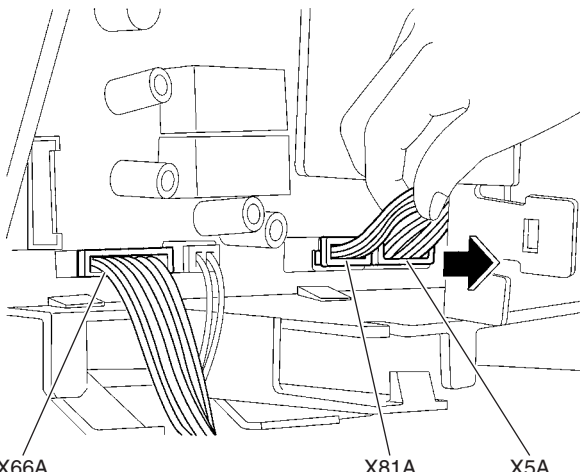
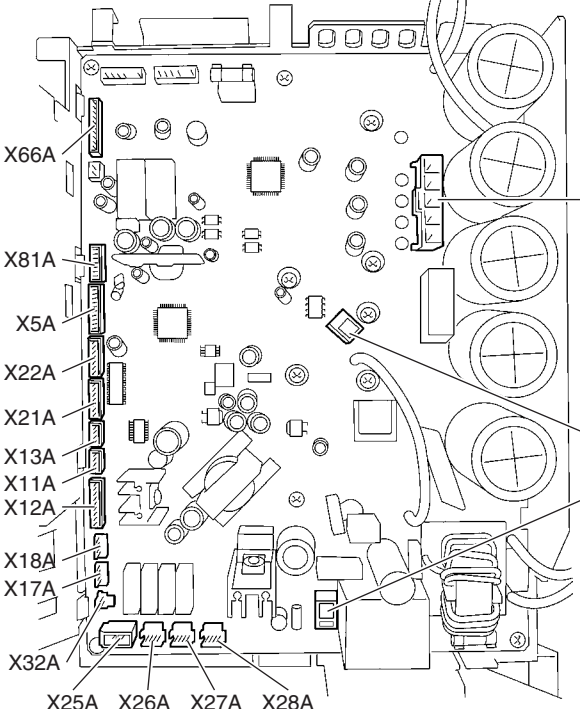


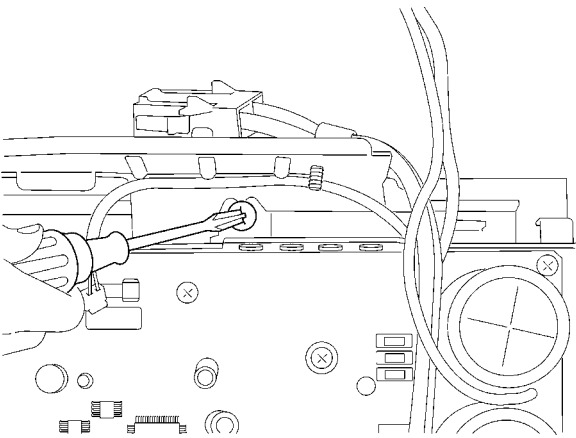
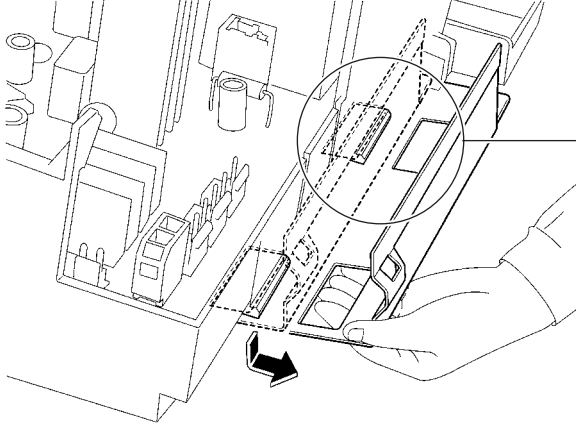
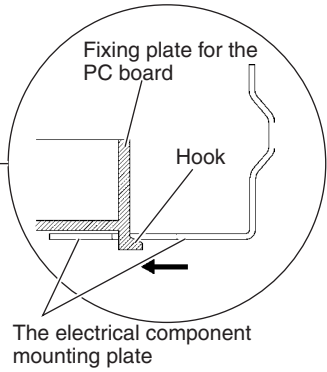
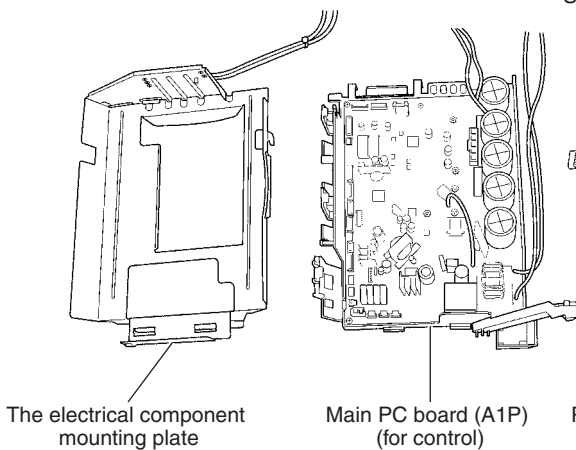
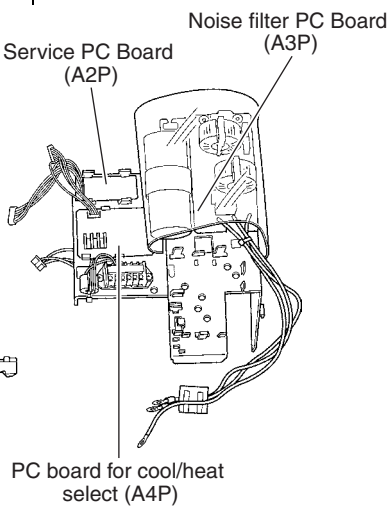
Step	Procedure	Points
4	Cut off the wiring clamp materials (three places).	
5	Disconnect the connector set for the reactor lead wire from each other.	

Step	Procedure	Points
6	Pull off the connector for the motor lead wires and then release the wire from the hook of resin casing. 	
7	Remove the wire harnesses of the solenoid valve and the four way valve from the fixing plate and then remove the electrical component. 	

Step	Procedure	Points
8	Remove the securing screws (two kinds x 2, M4) of insulation sheet and then release the lead wires to the compressor (blue, red and white colors) and the lead wires A1P to A3P (red and blue colors) from the hook of resin casing.  	
9	Remove the securing screws (three kinds x two, M4 and with spring washers) for the lead wires A1P to A3P (red and blue colors) and the condenser lead wires (orange and ash colors). 	

Step	Procedure	Points
10	Cut off the clamp materials, for fixing the compressor lead wires (two places) and the lead wires A3P to X11 (red, blue, and green colors) (one place). Clamps (two places) for the compressor lead wires  	Clamps for the lead wires A3P to X11
11	Fold the hooks (two places) and slide the resin casing to the right to remove the casing from the electrical component assembly.  	Hooks 

Step		Procedure	Points
12	Pull off the PC board connectors X66A, X81A and X5A.	 X66A X81A X5A	
13	Pull off the reactor lead wire connectors, compressor lead wire one and lead wire ones X22A, X21A, X13A, X11A, X12A, X18A, X17A, X32A, X25A, X26A, X27A and X28A, by pulling them.	 X66A X81A X5A X22A X21A X13A X11A X12A X18A X17A X32A X25A X26A X27A X28A Compressor lead wire connector Reactor lead wire connectors	

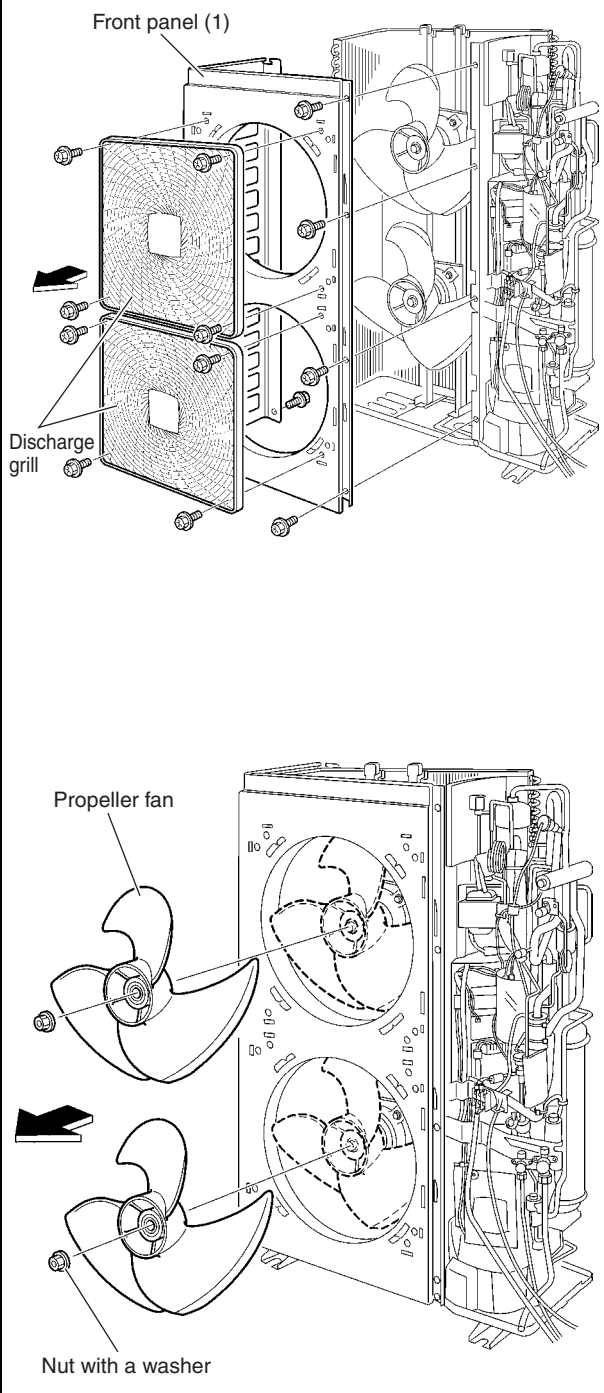
Step	Procedure	Points
14	Remove the fixing screws (two kinds x 1, M4) at the top of the PC board assembly. 	
15	Release the locking engaging hook (two places) at the rear side. 	
16	The figures in the right are PC board assembly. 	

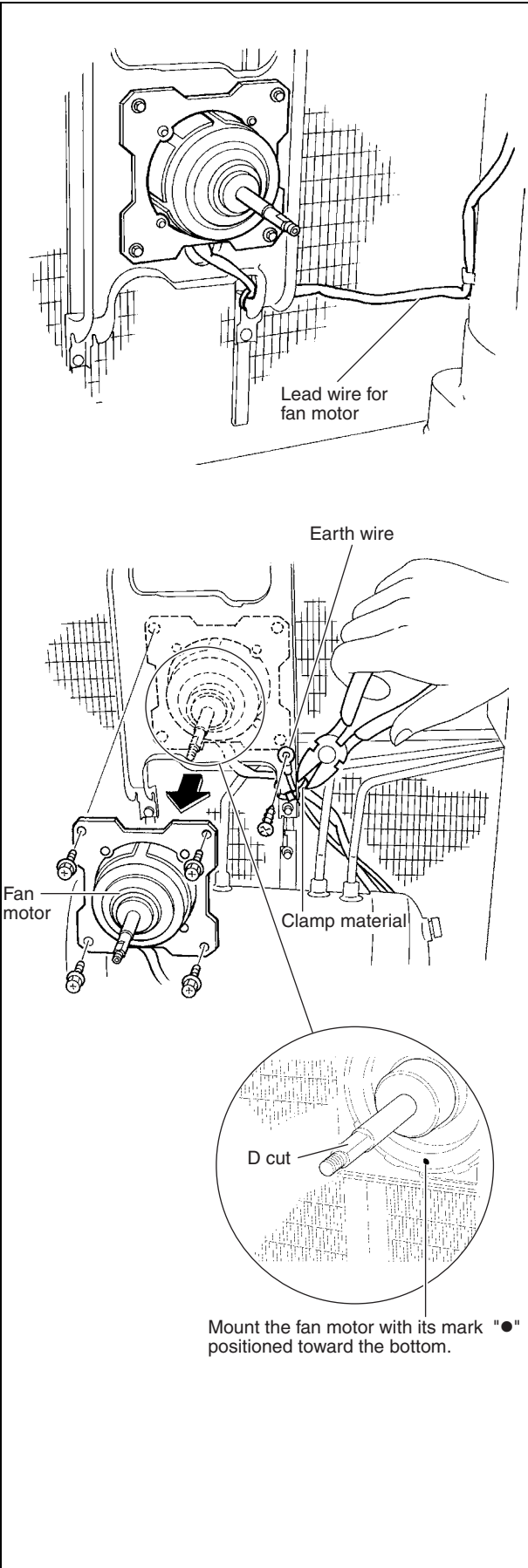
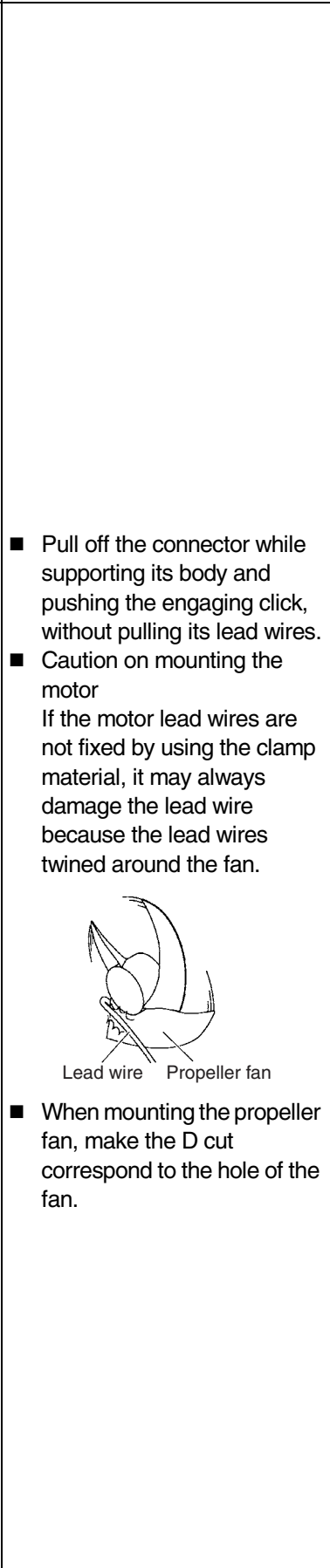
1.3 Procedure to Remove Propeller Fan and Fan Motor

Procedure



Warning Be sure to commence the disassembling work after 10 minutes or more elapsed from all power supplies have been turned off.

Step	Procedure	Points
1	Remove the nuts with a washer, which fixing the propeller fan.  Front panel (1) Discharge grill Propeller fan Nut with a washer	Preliminary preparation ■ Remove the discharge grill, front panel and front panel for piping cover, according to the "Procedure to Remove Outside Panels".

Step		Procedure	Points
			■ Pull off the connector while supporting its body and pushing the engaging click, without pulling its lead wires. ■ Caution on mounting the motor If the motor lead wires are not fixed by using the clamp material, it may always damage the lead wire because the lead wires twined around the fan.  ■ When mounting the propeller fan, make the D cut correspond to the hole of the fan.

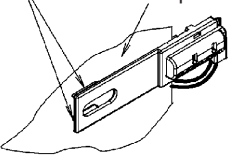
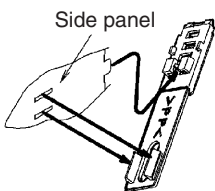
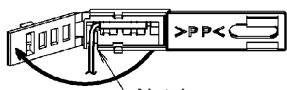
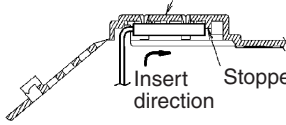
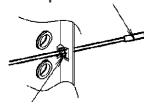
1.4 Procedure to Remove Thermistor

Procedure



Warning

Be sure to commence the disassembling work after 10 minutes or more elapsed from all power supplies have been turned off.

Step	Procedure	Points
1	For the details of the removal of the thermistor for air temperature (R1T), see the points to the right.	Preliminary preparation
2	Pull out the discharge pipe thermistor after inclining the mounting spring outward.	- Remove the front panel (2) and side panel according to the "Procedure to Remove Outside panels". [Procedure to remove thermistor for air temperature] Hooks (two places) Side panel  Side panel  Notch  Fixing plate for thermistor (R1T)  Insert direction Stopper direction Thermistor for outdoor air temperature  Marking (yellow color) - When passing the thermistor for outdoor air temperature gain through the outside panel, do it through the hole nearby attached with a yellow color mark.
3	Pull out the thermistor for suction pipe 1 and thermistor for suction pipe 2, after inclining the mounting spring outward.	
4	Pull out the subcooling thermistor and thermistor for liquid pipe, after inclining the mounting spring outward.	
5	Pull out the thermistor for heat exchanger after pulling the fixing metal part.	
6	Pull out the thermistor for liquid pipe after inclining the mounting spring outward.	

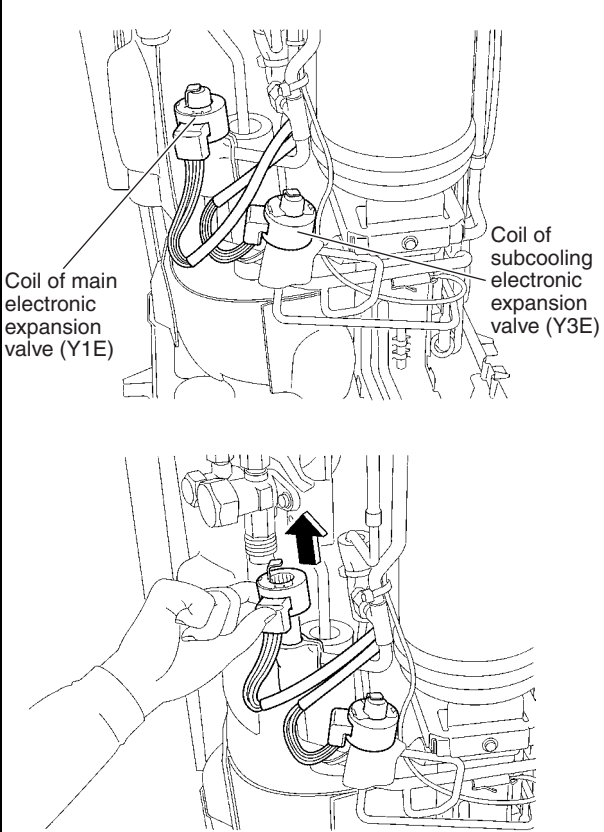
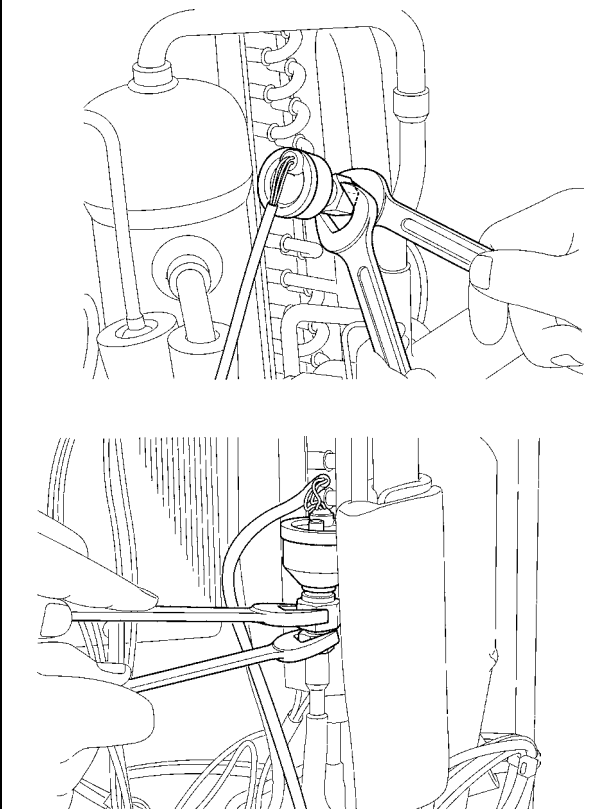
1.5 Procedure to Remove Electronic Expansion Valve and Peripheral Equipment

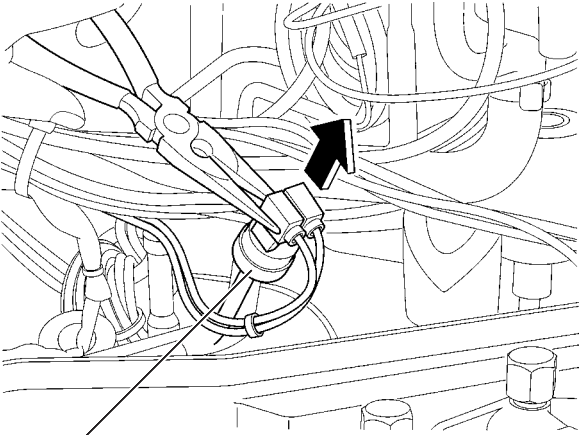
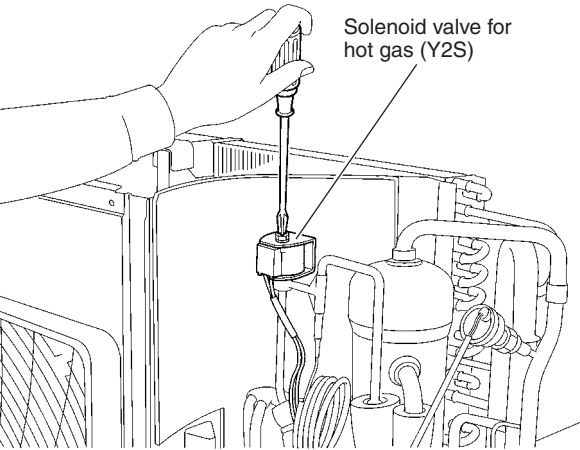
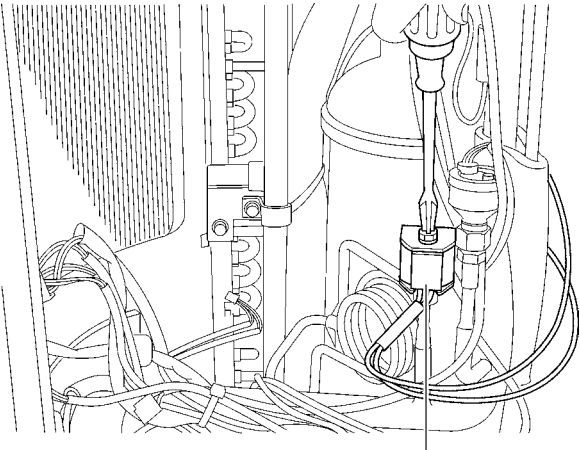
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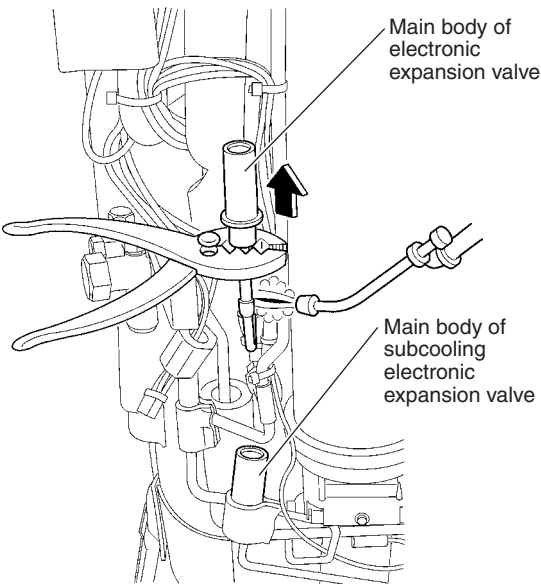
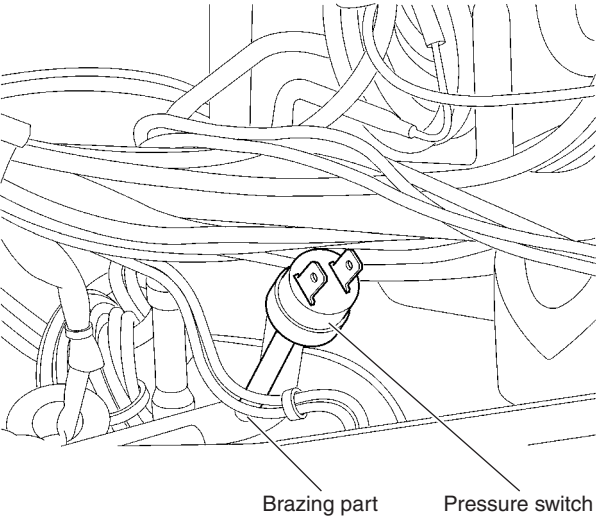


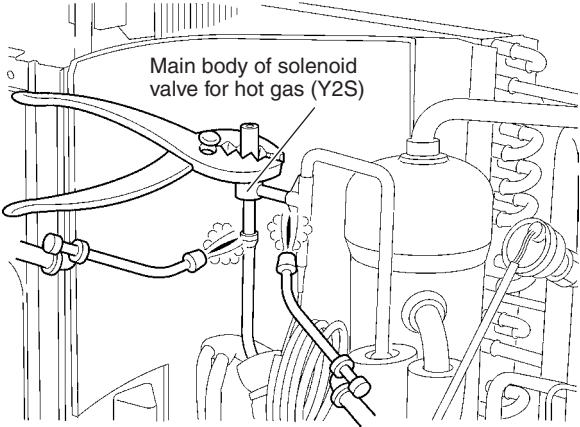
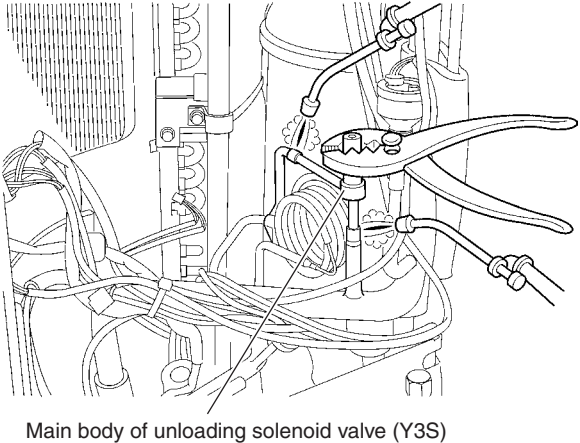
Warning

Be sure to commence the disassembling work after 10 minutes or more elapsed from all power supplies have been turned off.

Step	Procedure	Points
1	Pull out the coils of electronic expansion valve (two places)  Coil of main electronic expansion valve (Y1E) Coil of subcooling electronic expansion valve (Y3E)	
2	Remove the pressure sensors (two places) 	■ When removing the sensor, be sure to use two spanners as the left figure shows. ■ The pressure sensor is equipped with a gauge joint having a check valve. Therefore, when loosening the fixing nut of sensor, a refrigerant leak is stopped.

Step		Procedure	Points
3	Pull off the lead wire of pressure switch (HPS) .	 High pressure switch	
4	Remove the coil of solenoid valves (two portions).	 Solenoid valve for hot gas (Y2S)  Unloading solenoid valve (Y3S)	■ Loosen the fixing bolt above the coil of solenoid valve and then remove the coil.

Step	Procedure	Points
■ Make sure that there is no refrigerant gas left within the refrigerant circuit system before performing the operation.		
5 Disconnect the brazing part of main body at electronic expansion valve at its soldered portion.	 Main body of electronic expansion valve Main body of subcooling electronic expansion valve	Warning If refrigerant gas leaks during operation, ventilate the room. (The exposure of refrigerant gas to a fire causes generates toxic gas.) Caution Do not suffer burns due to contact with piping etc. heated by a gas welder.
Caution Protect the periphery of the above by welding operation sheets or steel plates, etc. so that flame from a gas welder does not affect surrounding of the electronic expansion valve.		Precautions on mounting ① Mount it by means of the non-oxidation brazing method. If nitrogen gas is not available, quickly operate to mount it. ② It is necessary to prevent the packing from deterioration due to the carbonization of oil or the heat affection within the four way valve. For this purpose, avoid the heating of the valve by wrapping its body with wet cloth and then supplying water to the cloth to keep wet. (Keeping a temperature of 120°C or lower) ■ Be careful not to crash the piping by over-pressing it with a plier when pulling out it.
6 Disconnect the brazing part of main body at pressure switch at its soldered portion.	 Brazing part Pressure switch	<u>In case it is difficult to cut off by a gas welder and remove it.</u> 1. Remove any point of the piping connections (brazing portions), which is easy to remove or mount. 2. Make it easy to remove it by cutting the piping etc. of the body with a small copper pipe cutter. Note: Never use a metal saw for sure since cut chips may be mixed into the piping.

Step	Procedure	Points
7	Disconnect the brazing part of main body at solenoid valve.  Main body of solenoid valve for hot gas (Y2S)  Main body of unloading solenoid valve (Y3S)	Warning If refrigerant gas leaks during operation, ventilate the room. (The exposure of refrigerant gas to a fire causes generates toxic gas.) Caution Do not suffer burns due to contact with piping etc. heated by a gas welder. Precautions on mounting ① Mount it by means of the non-oxidation brazing method. If nitrogen gas is not available, quickly operate to mount it. ② It is necessary to prevent the packing from deterioration due to the carbonization of oil or the heat affection within the four way valve. For this purpose, avoid the heating of the valve by wrapping its body with wet cloth and then supplying water to the cloth to keep wet. (Keeping a temperature of 120°C or lower) ■ Be careful not to crash the piping by over-pressing it with a plier when pulling out it. <u>In case it is difficult to cut off by a gas welder and remove it,</u> 1. Remove any point of the piping connections (brazing portions), which is easy to remove or mount. 2. Make it easy to remove it by cutting the piping etc. of the body with a small copper pipe cutter. Note: Never use a metal saw for sure since cut chips may be mixed into the piping.

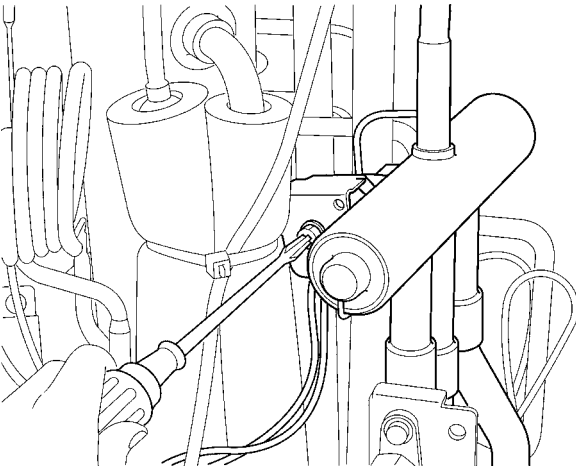
1.6 Procedure to Remove Four Way Valve

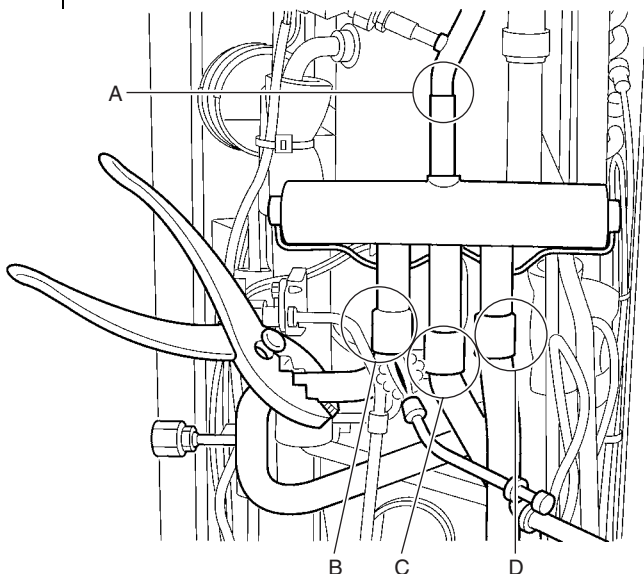
Procedure



Warning

Be sure to commence the disassembling work after 10 minutes or more elapsed from all power supplies have been turned off.

Step	Procedure	Points
■ Make sure that there is no refrigerant gas left in the refrigerant circuit system before performing the operation. ■ Cut off the clamp material of wire harness.		Warning If refrigerant gas leaks during operation, ventilate the room. (The exposure of refrigerant gas to a fire causes generates toxic gas.) Caution Do not suffer burns due to contact with piping etc. heated by a gas welder.
1	Remove the coil of four way valve.	
2	Disconnect the brazing part of four way valve (4 places) (A, B, C and D).	Precautions on mounting ① Mount it by means of the non-oxidation brazing method. If nitrogen gas is not available, quickly operate to mount it. ② It is necessary to prevent the packing from deterioration due to the carbonization of oil or the heat affection within the four way valve. For this purpose, avoid the heating of the valve by wrapping its body with wet cloth and then supplying water to the cloth to keep wet. (Keeping a temperature of 120°C or lower) ■ Be careful not to crash the piping by over-pressing it with a plier when pulling out it. <u>In case it is difficult to cut off by a gas welder and remove it.</u> 1. Remove any point of the piping connections (brazing portions), which is easy to remove or mount. 2. Make it easy to remove it by cutting the piping etc. of the body with a small copper pipe cutter. Note: Never use a metal saw for sure since cut chips may be mixed into the piping.



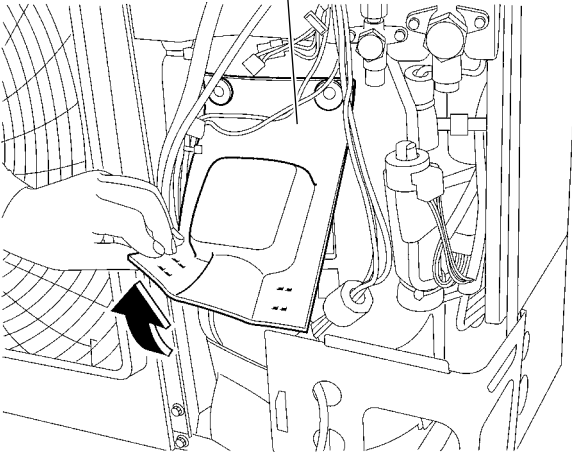
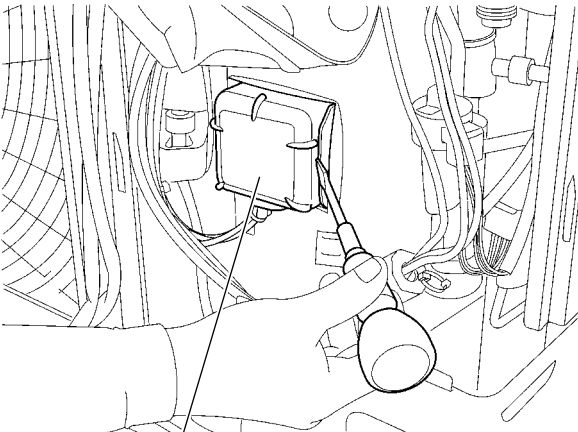
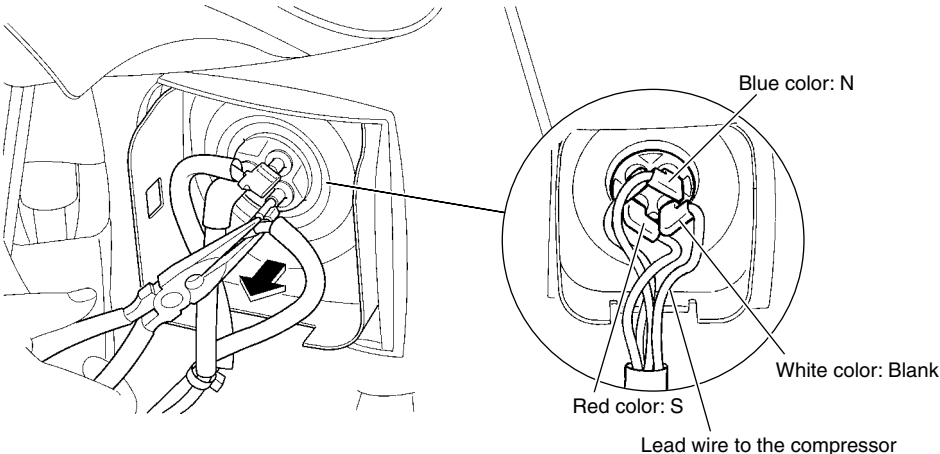
1.7 Procedure to Remove Compressor

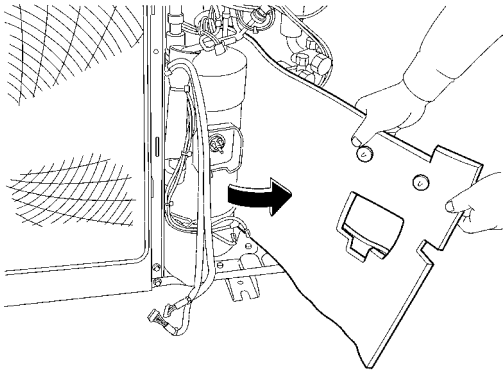
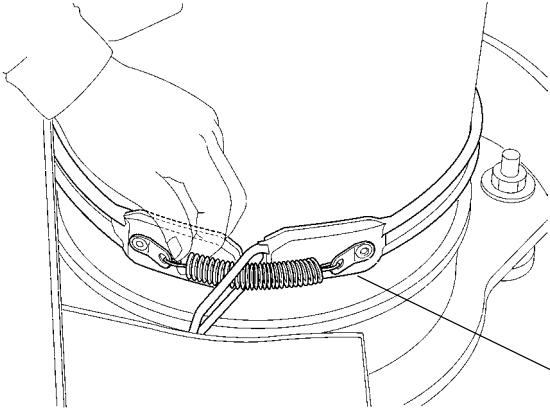
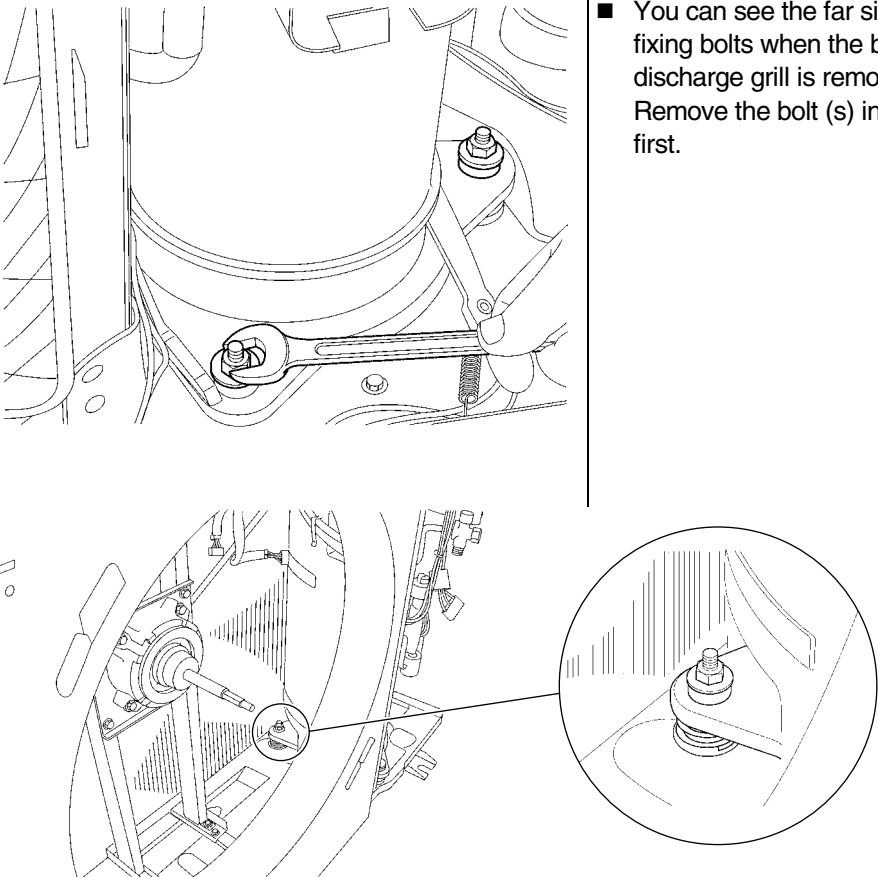
Procedure

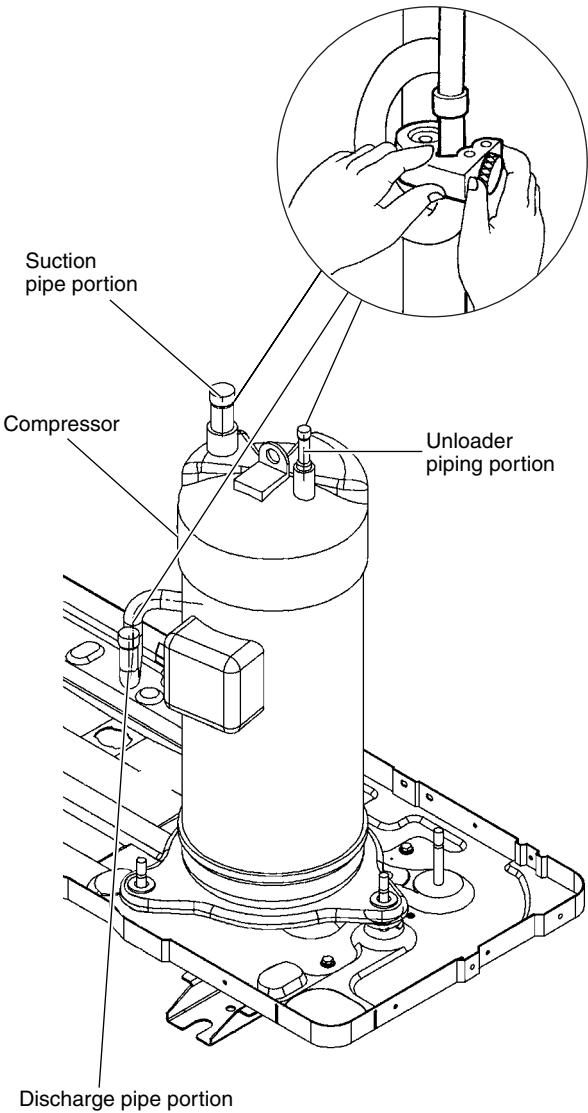


Warning

Be sure to commence the disassembling work after 10 minutes or more elapsed from all power supplies have been turned off.

Step	Procedure	Points
■ Remove the outside panels, electrical component, and compressor fixing panel, according to the "Procedure to Remove Outside Panels"	Sound insulation for the terminal cover 	
1. Pull off the lead wire of compressor.		
1 Open upward the sound insulation for the terminal cover. 2 Remove the terminal cover with a minus driver, etc.	 Terminal cover	
3 Remove the terminals for the compressor with a round nose chain pliers with side cutters, etc.	 Blue color: N White color: Blank Red color: S Lead wire to the compressor	

Step		Procedure	Points
4	Remove the sound insulation for the compressor.		
5	Remove the crankcase heater under the compressor.		Pull the spring to trip the catch.
6	Remove the three fixing bolts of the compressor.		■ You can see the far side fixing bolts when the bottom discharge grill is removed. Remove the bolt (s) in view first.

Step	Procedure	Points
■ Make sure that there is no refrigerant gas left within the refrigerant circuit system before performing the operation 7 Cut off the suction pipe, discharge pipe and unloader pipe of compressor with a pipe cutter (three places).	 Suction pipe portion Compressor Unloader piping portion Discharge pipe portion	■ The cutting part is in the compressor side relative to the brazing part. ■ Preliminarily cut off with a gas welder, a part of the piping from the end side to the soldered portion, which have remained after being cut using a pipe cutter, before replacing with a new compressor. Warning Refrigerant oil in the compressor may catch fire, so prepare wet cloth so as to extinguish a fire rapidly. Warning If refrigerant gas leaks during operation, ventilate the room. (The exposure of refrigerant gas to a fire causes generates toxic gas.) Caution Do not suffer burns due to contact with piping etc. heated by a gas welder.

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- Daikin Industries, Ltd.'s products are manufactured for export to numerous countries throughout the world. Daikin Industries, Ltd. does not have control over which products are exported to and used in a particular country. Prior to purchase, please therefore confirm with your local authorised importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.
- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
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- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.



JMI-0107



JQA-1452

About ISO 9001

ISO 9001 is a plant certification system defined by the International Organization for Standardization (ISO) relating to quality assurance. ISO 9001 certification covers quality assurance aspects related to the "design, development, manufacture, installation, and supplementary service" of products manufactured at the plant.



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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.

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