DAIKIN

SiE25-110

Service Manual

Split System Air Conditioners
SkyAir R-407C
Super Inverter 70
D Series

[Applied Models]

●SkyAir : Inverter Heat Pump

Split-System Air Conditioners SkyAir Super Inverter 70 D Series

1. Introduction

1.1 Safety Cautions

Cautions and Warnings

- Be sure to read the following safety cautions before conducting repair work.
- The caution items are classified into "⚠**Warning**" and "⚠**Caution**". The "⚠**Warning**" items are especially important since they can lead to death or serious injury if they are not followed closely. The "⚠**Caution**" items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.
- About the pictograms

△ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.

◯ This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.

● This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.

- After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer.

1.1.1 Caution in Repair

⚠ Warning	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair. Working on the equipment that is connected to a power supply can cause an electrical shook. 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 be 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 on 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-407C) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

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

1.1.3 Inspection after Repair

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

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

1.1.4 Using Icons

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

1.1.5 Using Icons List

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

SkyAir Super Inverter 70 D Series

Heat Pump

Model Series

Class			71	100	125	140
Indoor Units	FHYCP	Pair	71D	100D	125D	140D
		Twin	—	50D×2	60D×2	—
	FHYP	Pair	71B	100B	125B	—
		Twin	—	45B×2	60B×2	—
	FUYP		71B	100B	125B	—
	FAYP		71B	100B	—	—
Outdoor Units	RZP		71D	100D	125D	140D

Cautions

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 and choose an outdoor unit with anti-corrosion treatment.

Part 1
Model Name and Power Supply

1. Model Name and Power Supply

1.1 Model Name and Power Supply

50Hz Model Series

Indoor Units		Outdoor Units	Power Supply
Ceiling Mounted Cassette Type	FHYCP71DVE★	RZP71DV1★	1ϕ, 220-240V, 50Hz
	FHYCP100DVE★	RZP100DV1★	
	FHYCP50DVE+FHYCP50DVE (Twin)★		
	FHYCP125DVE★	RZP125DV1★	
	FHYCP60DVE+FHYCP60DVE (Twin)★		
Ceiling Suspended Type	FHYP71BV1★	RZP71DV1★	
	FHYP100BV1★	RZP100DV1★	
	FHYP45BV1+FHYP45BV1 (Twin)★		
	FHYP125BV1★	RZP125DV1★	
	FHYP60BV1+FHYP60BV1 (Twin)★		
New Ceiling Suspended Cassette Type	FUYP71BV1★	RZP71DV1★	
	FUYP100BV1★	RZP100DV1★	
	FUYP125BV1★	RZP125DV1★	
Wall Mounted Type	FAYP71BV1★	RZP71DV1★	
	FAYP100BV1★	RZP100DV1★	

Complied with Australian Standard (50Hz)

Indoor Units		Outdoor Units	Power Supply
Ceiling Mounted Cassette Type	FHYCP71DVE★	RZP71DV1★	1ϕ, 220-240V, 50Hz
	FHYCP100DVE★	RZP100DV1★	
	FHYCP50DVE+FHYCP50DVE (Twin)★		
	FHYCP125DVE★	RZP125DV1★	
	FHYCP60DVE+FHYCP60DVE (Twin)★		

60Hz Model Series

Indoor Units		Outdoor Units	Power Supply
Ceiling Mounted Cassette Type	FHYCP71DVL★	RZP71DVAL★	1ϕ, 220V, 60Hz
	FHYCP100DVL★	RZP100DVAL★	
	FHYCP125DVL★	RZP125DTAL★	3ϕ, 220V, 60Hz
	FHYCP140DVL★	RZP140DTAL★	

Notes:
1. ★ : New Model or Changed Model.
2. Power Supply Intake : Outdoor Units.

1.2 External Appearance

Indoor Units

FHYCP-D

FHYP-B

FUYP-B

FAYP-B

Remote Controller

Wireless Type

Wired Type

Outdoor Units

RZP71D

RZP100D
RZP125D
RZP140D

Part 2
Functions

1. List of Functions

1.1 Functions

FHYCP / FUYP

Items	Improved Points and Functions		Ceiling Mounted Super Cassette (FHYCP)	New Ceiling Mounted Suspended Cassette (FUYP)
			50~140D	71~125B
Model Type	Indoor Units		New	○
	Outdoor Units		New	New
Main Improvement	Appearance Improved		●	○
	Reduction of Dimensions or Weight		○	○
	Reduction of Operation Sound		●	○
For Comfortable Air Conditioning	Auto Restart		○	○
	Fan Operation Mode		○	○
	LCD Remote Controller (Option)		○	○
	Auto Swing Function		○	○
	Ceiling Soiling Prevention		●	—
	Program Dry		○	○
	High Fan Speed Mode		—	—
	High Ceiling Application		○	○
	Two Select Thermostat Sensor	Wired Type	○	○
		Wireless Type	—	—
	Hot Start		○	○
	Timer Selector		○	○
For Easy Construction and Maintenance	Fresh Air Intake Directly from the Unit		○	—
	Drain Pump		○	—
	Long Life Filter		●	○
	Ultra-Long Life Filter (Option)		○	—
	Mold Resistant Treatment for Filter		○	○
	Filter Sign		○	○
	Mold Resistant Drain Pan		○	○
	Emergency Operation		○	○
	Self Diagnosis Function		○	○
For Flexible Control	Set Back Time Clock		○	○
	Double Remote Control		○	○
	Group Control by 1 Remote Controller		○	○
	Control by External Command	Wired Type	○	○
		Wireless Type	—	—
	Remote/Centralized Control	Wired Type	○	○
		Wireless Type	—	—

● : Improved Points and Functions
○ : No Change
— : No Functions

FHYP/FAYP

Items	Improved Points and Functions		Ceiling Suspended (FHYP)	Wall Mounted (FAYP)
			50~125B	71, 100B
Model Type	Indoor Units		○	○
	Outdoor Units		New	New
Main Improvement	Appearance Improved		○	○
	Reduction of Dimensions or Weight		○	○
	Reduction of Operation Sound		○	○
For Comfortable Air Conditioning	Auto Restart		○	○
	Fan Operation Mode		○	○
	LCD Remote Controller (Option)		○	○
	Auto Swing Function		○	○
	Ceiling Soiling Prevention		—	—
	Program Dry		○	○
	High Fan Speed Mode		—	○
	High Ceiling Application		○	—
	Two Select Thermostat Sensor	Wired Type	○	○
		Wireless Type	—	—
	Hot Start		○	○
	Timer Selector		○	○
For Easy Construction and Maintenance	Fresh Air Intake Directly from the Unit		—	—
	Drain Pump		—(Option)	—
	Long Life Filter		○	—
	Ultra-Long Life Filter (Option)		—	—
	Mold Resistant Treatment For Filter		○	○
	Filter Sign		○	○
	Mold Resistant Drain Pan		○	○
	Emergency Operation		○	○
	Self Diagnosis Function		○	○
For Flexible Control	Set Back Time Clock		○	○
	Double Remote Control		○	○
	Group Control by 1 Remote Controller		○	○
	Control by External Command	Wired Type	○	○
		Wireless Type	—	○
	Remote/ Centralized Control	Wired Type	○	○
		Wireless Type	—	○

● : Improved Points and Functions
○ : No Change
— : No Functions

RZP

Items	Functions		RZP71~140D
For Comfortable Air Conditioning	Inverter Control		○
	PMV Control		○
	MIO Control		○
Operation Range	Wide Operation Range	Cooling	–5~50˚CDB
		Heating	–15~15.5˚CWB

Note: PMV : Predicted Mean Vote
MIO : Multi Input and Output

Part 3
Specifications

1. Specifications

1.1 50Hz

FHYCP (Ceiling Mounted Cassette Type: Pair System)

Model	Indoor Units		FHYCP71DVE	FHYCP100DVE	FHYCP125DVE
	Outdoor Units		RZP71DV1	RZP100DV1	RZP125DV1
★1 Cooling Capacity (1) (Min~Max)		kW	7.1 (3.3~8.0)	10.0 (5.0~11.4)	12.5 (6.0~14.3)
		Btu/h	24,200 (11,200~27,300)	34,100 (17,000~38,900)	42,600 (20,400~48,800)
		kcal/h	6,100 (2,800~6,800)	8,600 (4,300~9,800)	10,700 (5,100~12,200)
★1 Heating Capacity (Min~Max)		kW	8.0 (3.5~9.0)	11.2 (5.6~12.8)	14.0 (6.0~16.2)
		Btu/h	27,300 (11,900~30,700)	38,200 (19,100~43,600)	47,700 (20,400~55,300)
		kcal/h	6,800 (3,000~7,700)	9,600 (4,800~11,000)	12,000 (5,100~13,900)
Indoor Units			**FHYCP71DVE**	**FHYCP100DVE**	**FHYCP125DVE**
Dimensions	H×W×D	mm	246×840×840	288×840×840	288×840×840
Coil	Type		Cross Fin Coil (Multi Louver Fins and Hi-XA Tubes)		
	Row×Stages×Fin Pitch		2×10×1.2	2×12×1.2	2×12×1.2
	Face Area	m^2	0.454	0.544	0.544
Fan	Model		QTS46D14M	QTS46C17M	QTS46C17M
	Type		Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output	W	30	120	120
	Air Flow Rate	m^3/min.	(H) 19 (L) 14	(H) 26 (L) 21	(H) 30 (L) 24
Air Filter			—	—	—
Machine Weight		kg	24	28	28
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	I. Dϕ25×O. Dϕ32	I. Dϕ25×O. Dϕ32	I. Dϕ25×O. Dϕ32
Remote Controller (Option)	Wired		BRC1C61	BRC1C61	BRC1C61
	Wireless		BRC7E61W	BRC7E61W	BRC7E61W
Decoration Panel (Option)	Model		BYCP125D-W1	BYCP125D-W1	BYCP125D-W1
	Color		White	White	White
	Dimensions (H×W×D)	mm	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)
	Weight	kg	5.5	5.5	5.5
Outdoor Units			**RZP71DV1**	**RZP100DV1**	**RZP125DV1**
Color			Pale Ivory	Pale Ivory	Pale Ivory
Dimensions	H×W×D	mm	905×900×320	1,435×900×320	1,435×900×320
Coil	Type		Cross Fin Coil (Waffle Fins and NHi-XA Tubes)		
	Row×Stages×Fin Pitch		2×40×1.4	2×64×1.4	2×64×1.4
	Face Area	m^2	0.991	1.598	1.598
Comp.	Model		2YC63AXD	JT100FAVD	JT100FAVD
	Type		Hermetically Sealed Swing Type	Hermetically Sealed Scroll type	
	Motor Output	kW	1.9	1.9	2.4
Fan	Model		P47M11F	P47M11F×2	P47M11F×2
	Type		Propeller	Propeller	Propeller
	Motor Output	W	55	55+55	55+55
	Air Flow Rate	m^3/min.	53	97	102
Machine Weight		kg	71	119	119
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	ϕ26.0 (Hole)	ϕ26.0 (Hole)	ϕ26.0 (Hole)
Safety Devices			High Pressure Switch. Fuse.		
Capacity Control			Compressor Revolution Speed Control (Inverter System)		
Refrigerant Control			Expansion Valve (Electronic Type)		
Ref. Piping	Max. Length	m	50 (Equivalent Length 70m)	70 (Equivalent Length 90m)	70 (Equivalent Length 90m)
	Max. Height Difference	m	30	30	30
Refrigerant	Model		R-407C	R-407C	R-407C
	Charge	kg	3.2 (Charged for 30m)	5.0 (Charged for 30m)	5.0 (Charged for 30m)
Ref. Oil	Model		DAPHNE FVC50K	DAPHNE FVC68D	DAPHNE FVC68D
	Charge	L	0.65	1.20	1.20
Drawing No.			C : 4D034045		

Notes:

★1. Nominal capacities are based on the following conditions:

Mark	Cooling	Heating	Piping length	Hz-Volts
(1)	Indoor: 27˚CDB, 19.0˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 20˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	7.5m (Horizontal)	50Hz-230V

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

★3. In case of drain piping for outdoor unit, drain piping kit (option) is needed.

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

FHYCP (Ceiling Mounted Cassette Type: Twin Stem)

Model	Indoor Units		FHYCP50DVE×2	FHYCP60DVE×2
	Outdoor Units		RZP100DV1	RZP125DV1
★1 Cooling Capacity (1) (Min.~Max.)		kW	10.0 (5.0~11.4)	12.5 (6.0~14.3)
		Btu/h	34,100 (17,000~38,900)	42,600 (20,400~48,800)
		kcal/h	8,600 (4,300~9,800)	10,700 (5,100~12,200)
★1 Heating capacity (Min.~Max.)		kW	11.2 (5.6~12.8)	14.0 (6.0~16.2)
		Btu/h	38,200 (19,100~43,600)	47,700 (20,400~55,300)
		kcal/h	9,600 (4,800~11,000)	12,000 (5,100~13,900)
Indoor Units ★4			**FHYCP50DVE×2**	**FHYCP60DVE×2**
Dimensions	H×W×D	mm	246×840×840	246×840×840
Coil	Type		Cross Fin Coil (Multi Louver Fins and N-hix Tubes)	
	Row×Stages×Fin Pitch		2×8×1.2	2×10×1.2
	Face Area	m^2	0.363	0.454
Fan	Model		QTS46D14M	QTS46D14M
	Type		Turbo Fan	
	Motor Output	W	30	30
	Air Flow Rate	m^3/min.	(H) 16 (L) 11	(H) 17 (L) 13
Air Filter			—	
Machine Weight		kg	23	24
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ15.9 (Flare)
	Drain	mm	I. Dϕ25×O. Dϕ32	I. Dϕ25×O. Dϕ32
Remote Controller (Option)	Wired		BRC1C61	BRC1C61
	Wireless		BRC7E61W	BRC7E61W
Decoration Panel (Option) ★4	Model		BYCP125D-W1	BYCP125D-W1
	Color		White	White
	Dimensions (H×W×D)	mm	45×950×950	45×950×950
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	5.5	5.5
Outdoor Units			**RZP100DV1**	**RZP125DV1**
Color			Pale Ivory	Pale Ivory
Dimensions	H×W×D	mm	1,435×900×320	1,435×900×320
Coil	Type		Cross Fin Coil (Waffle Fins and NHi-XA Tubes)	
	Row×Stages×Fin Pitch		2×64×1.4	2×64×1.4
	Face Area	m^2	1.598	1.598
Comp.	Model		JT100FAVD	JT100FAVD
	Type		Hermetically Sealed Scroll type	
	Motor Output	kW	1.9	2.4
Fan	Model		P47M11F×2	P47M11F×2
	Type		Propeller	Propeller
	Motor Output	W	55+55	55+55
	Air Flow Rate	m^3/min.	97	102
Machine Weight		kg	119	119
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	ϕ26.0 (Hole)	ϕ26.0 (Hole)
Safety Devices			High Pressure Switch. Fuse.	
Capacity Control			Compressor Revolution Speed Control (Inverter System)	
Refrigerant Control			Expansion Valve (Electronic Type)	
Ref. Piping	Max. Length	m	70 (Equivalent Length 90m)	70 (Equivalent Length 90m)
	Max. Height Difference	m	30	30
Refrigerant	Model		R-407C	R-407C
	Charge	kg	5.0 (Charged for 30m)	5.0 (Charged for 30m)
Ref. Oil	Model		DAPHNE FVC68D	DAPHNE FVC68D
	Charge	L	1.20	1.20
Drawing No.			C : 4D034044	

Notes:

★1. Nominal capacities are based on the following conditions:

Mark	Cooling	Heating	Piping length	Hz-Volts
(1)	Indoor: 27˚CDB, 19.0˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 20˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	7.5m (Horizontal)	50Hz-230V

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

★3. In case of drain piping for outdoor unit, drain piping kit (option) is needed.

★4. Each value for indoor unit shows the specification per one unit.

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

FHYP (Ceiling Suspended Type: Pair System)

Model	Indoor Units		FHYP71BV1	FHYP100BV1	FHYP125BV1
	Outdoor Units		RZP71DV1	RZP100DV1	RZP125DV1
★1 Cooling Capacity		kW	7.1 (3.3~8.0)	10.0 (5.0~11.4)	12.5 (6.0~14.3)
		Btu/h	24,200 (11,200~27,300)	34,100 (17,000~38,900)	42,600 (20,400~48,800)
		kcal/h	6,100 (2,800~6,800)	8,600 (4,300~9,800)	10,700 (5,100~12,200)
★1 Heating Capacity		kW	8.0 (3.5~9.0)	11.2 (5.6~12.8)	14.0 (6.0~16.2)
		Btu/h	27,300 (11,900~30,700)	38,200 (19,100~43,600)	47,700 (20,400~55,300)
		kcal/h	6,800 (3,000~7,700)	9,600 (4,800~11,000)	12,000 (5,100~13,900)
Indoor Units			**FHYP71BV1**	**FHYP100BV1**	**FHYP125DV1**
Color			White	White	White
Dimensions	H×W×D	mm	195×1,160×680	195×1,400×680	195×1,590×680
Coil	Type		Cross Fin Coil (Multi Louver Fins and N-hix Tubes)		
	Row×Stages×Fin Pitch		3×12×1.75	3×12×1.75	3×12×1.75
	Face Area	m^2	0.233	0.293	0.341
Fan	Model		4D12K1AA1	3D12K2AA1	4D12K2AA1
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output	W	62	130	130
	Air Flow Rate	m^3/min.	(H) 17 (L) 14	(H) 24 (L) 20	(H) 30 (L) 25
Air Filter			—	—	—
Weight		kg	27	32	35
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	I. Dϕ20×O. Dϕ26	I. Dϕ20×O. Dϕ26	I. Dϕ20×O. Dϕ26
Remote Controller (Option)	Wired		BRC1C61	BRC1C61	BRC1C61
	Wireless		BRC7E63W	BRC7E63W	BRC7E63W
Outdoor Units			**RZP71DV1**	**RZP100DV1**	**RZP125DV1**
Color			Pale Ivory	Pale Ivory	Pale Ivory
Dimensions	H×W×D	mm	905×900×320	1,435×900×320	1,435×900×320
Coil	Type		Cross Fin Coil (Waffle Fins and NHi-XA Tubes)		
	Row×Stages×Fin Pitch		2×40×1.4	2×64×1.4	2×64×1.4
	Face Area	m^2	0.991	1.598	1.598
Comp.	Model		2YC63AXD	JT100FAVD	JT100FAVD
	Type		Hermetically Sealed Swing Type	Hermetically Sealed Scroll type	
	Motor Output	kW	1.9	1.9	2.4
Fan	Model		P47M11F	P47M11F×2	P47M11F×2
	Type		Propeller	Propeller	Propeller
	Motor Output	W	55	55+55	55+55
	Air Flow Rate	m^3/min.	53	97	102
Weight		kg	71	119	119
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	ϕ26.0 (Hole)	ϕ26.0 (Hole)	ϕ26.0 (Hole)
Safety Devices			High Pressure Switch. Fuse.		
Capacity Control			Compressor Revolution Speed Control (Inverter System)		
Refrigerant Control			Expansion Valve (Electronic Type)		
Ref.Piping	Max. Length	m	50 (Equivalent Length 70m)	70 (Equivalent Length 90m)	70 (Equivalent Length 90m)
	Max. Height Difference	m	30	30	30
Refrigerant	Model		R-407C	R-407C	R-407C
	Charge	kg	3.2 (Charged for 30m)	5.0 (Charged for 30m)	5.0 (Charged for 30m)
Ref. Oil	Model		DAPHNE FVC50K	DAPHNE FVC68D	DAPHNE FVC68D
	Charge	L	0.65	1.20	1.20
Drawing No.			C : 4D034212		

Notes:

★1. Nominal capacities are based on the following conditions:

Mark	Cooling	Heating	Piping length	Hz-Volts
(1)	Indoor: 27˚CDB, 19.0˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 20˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	7.5m (Horizontal)	50Hz-230V
(2)	Indoor: 27˚CDB, 19.5˚CWB Outdoor: 35˚CDB, 24˚CWB			

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

★3. In case of drain piping for outdoor unit, drain piping kit (option) is needed.

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

FHYP (Ceiling Suspended Type: Twin System)

Model	Indoor Units		FHYP45BV1×2	FHYP60BV1×2
	Outdoor Units		RZP100DV1	RZP125DV1
★1 Cooling Capacity		kW	10.0 (5.0~11.4)	12.5 (6.0~14.3)
		Btu/h	34,100 (17,000~38,900)	42,600 (20,400~48,800)
		kcal/h	8,600 (4,300~9,800)	10,700 (5,100~12,200)
★1 Heating Capacity		kW	11.2 (5.6~12.8)	14.0 (6.0~16.2)
		Btu/h	38,200 (19,100~43,600)	47,700 (20,400~55,300)
		kcal/h	9,600 (4,800~11,000)	12,000 (5,100~13,900)
Indoor Units			**FHYP45BV1×2**	**FHYP60BV1×2**
Dimensions	H×W×D	mm	195×960×680	195×1,160×680
Coil	Type		Cross Fin Coil (Multi Louver Fins and N-hix Tubes)	
	Row×Stages×Fin Pitch		3×12×1.75	3×12×1.75
	Face Area	m²	0.182	0.233
Fan	Model		3D12K1AA1	4D12K1AA1
	Type		Sirocco Fan	Sirocco Fan
	Motor Output	W	62	62
	Air Flow Rate	m³/min.	(H) 13 (L) 10	(H) 16 (L) 13
Air Filter			—	—
Weight		kg	24	26
Piping Connections	Liquid	mm	ϕ6.4 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ12.7 (Flare)	ϕ15.9 (Flare)
	Drain	mm	I. Dϕ20×O. Dϕ26	I. Dϕ20×O. Dϕ26
Remote Controller (Option)	Wired		BRC1C61	BRC1C61
	Wireless		BRC7E63W	BRC7E63W
Outdoor Units			**RZP100DV1**	**RZP125DV1**
Color			Pale Ivory	Pale Ivory
Dimensions	H×W×D	mm	1,435×900×320	1,435×900×320
Coil	Type		Cross Fin Coil (Waffle Fins and NHi-XA Tubes)	
	Row×Stages×Fin Pitch		2×64×1.4	2×64×1.4
	Face Area	m²	1.598	1.598
Comp.	Model		JT100FAVD	JT100FAVD
	Type		Hermetically Sealed Scroll type	
	Motor Output	kW	1.9	2.4
Fan	Model		P47M11F×2	P47M11F×2
	Type		Propeller	Propeller
	Motor Output	W	55+55	55+55
	Air Flow Rate	m³/min.	97	102
Weight		kg	119	119
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	ϕ26.0 (Hole)	ϕ26.0 (Hole)
Safety Devices			High Pressure Switch. Fuse.	
Capacity Control			Compressor Revolution Speed Control (Inverter System)	
Refrigerant Control			Expansion Valve (Electronic Type)	
Ref.Piping	Max. Length	m	70 (Equivalent Length 90m)	70 (Equivalent Length 90m)
	Max. Height Difference	m	30	30
Refrigerant	Model		R-407C	R-407C
	Charge	kg	5.0 (Charged for 30m)	5.0 (Charged for 30m)
Ref. Oil	Model		DAPHNE FVC68D	DAPHNE FVC68D
	Charge	L	1.20	1.20
Drawing No.			C : 4D034211	

Notes:

★1. Nominal capacities are based on the following conditions:

Mark	Cooling	Heating	Piping length	Hz-Volts
(1)	Indoor: 27˚CDB, 19.0˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 20˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	7.5m (Horizontal)	50Hz-230V
(2)	Indoor: 27˚CDB, 19.5˚CWB Outdoor: 35˚CDB, 24˚CWB			

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

★3. In case of drain piping for outdoor unit, drain piping kit (option) is needed.

★4. Each value for indoor unit shows the specification per one unit.

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

FUYP (New Ceiling Suspended Cassette Type)

Model	Indoor Units		FUYP71BV1	FUYP100BV1	FUYP125BV1
	Outdoor Units		RZP71DV1	RZP100DV1	RZP125DV1
★1 Cooling Capacity		kW	7.1 (3.3~8.0)	10.0 (5.0~11.4)	12.5 (6.0~14.3)
		Btu/h	24,200 (11,200~27,300)	34,100 (17,000~38,900)	42,600 (20,400~48,800)
		kcal/h	6,100 (2,800~6,800)	8,600 (4,300~9,800)	10,700 (5,100~12,200)
★1 Heating Capacity		kW	8.0 (3.5~9.0)	11.2 (5.6~12.8)	14.0 (6.0~16.2)
		Btu/h	27,300 (11,900~30,700)	38,200 (19,100~43,600)	47,700 (20,400~55,300)
		kcal/h	6,800 (3,000~7,700)	9,600 (4,800~11,000)	12,000 (5,100~13,900)
Indoor Units			**FUYP71BV1**	**FUYP100BV1**	**FUYP125BV1**
Color			White	White	White
Dimensions	H×W×D	mm	165×895×895	230×895×895	230×895×895
Coil	Type		Cross Fin Coil (Multi Louver Fins and N-hix Tubes)		
	Row×Stages×Fin Pitch		3×6×1.5	3×8×1.5	3×8×1.5
	Face Area	m^2	0.265	0.353	0.353
Fan	Model		QTS48A10M	QTS50B15M	QTS50B15M
	Type		Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output	W	45	90	90
	Air Flow Rate	m^3/min.	(H) 19 (L) 14	(H) 29 (L) 21	(H) 32 (L) 23
Air Filter			Resin net (With Mold Resistant)		
Machine Weight		kg	25	31	31
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	I. Dϕ20×O. Dϕ26	I. Dϕ20×O. Dϕ26	I. Dϕ20×O. Dϕ26
Remote Controller (Option)	Wired		BRC1C61	BRC1C61	BRC1C61
	Wireless		BRC7C612W	BRC7C612W	BRC7C612W
Outdoor Units			**RZP71DV1**	**RZP100DV1**	**RZP125DV1**
Color			Pale Ivory	Pale Ivory	Pale Ivory
Dimensions	H×W×D	mm	905×900×320	1,435×900×320	1,435×900×320
Coil	Type		Cross Fin Coil (Waffle Fins and NHi-XA Tubes)		
	Row×Stages×Fin Pitch		2×40×1.4	2×64×1.4	2×64×1.4
	Face Area	m^2	0.991	1.598	1.598
Comp.	Model		2YC63AXD	JT100FAVD	JT100FAVD
	Type		Hermetically Sealed Swing Type	Hermetically Sealed Scroll type	
	Motor Output	kW	1.9	1.9	2.4
Fan	Model		P47M11F	P47M11F×2	P47M11F×2
	Type		Propeller	Propeller	Propeller
	Motor Output	W	55	55+55	55+55
	Air Flow Rate	m^3/min.	53	97	102
Machine Weight		kg	71	119	119
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	ϕ26.0 (Hole)	ϕ26.0 (Hole)	ϕ26.0 (Hole)
Safety Devices			High Pressure Switch. Fuse.		
Capacity Control			Compressor Revolution Speed Control (Inverter System)		
Refrigerant Control			Expansion Valve (Electronic Type)		
Ref.Piping	Max. Length	m	50 (Equivalent Length 70m)	70 (Equivalent Length 90m)	70 (Equivalent Length 90m)
	Max. Height Difference	m	30	30	30
Refrigerant	Model		R-407C	R-407C	R-407C
	Charge	kg	3.2 (Charged for 30m)	5.0 (Charged for 30m)	5.0 (Charged for 30m)
Ref. Oil	Model		DAPHNE FVC50K	DAPHNE FVC68D	DAPHNE FVC68D
	Charge	L	0.65	1.20	1.20
Drawing No.			C : 4D034213		

Notes:

★1. Nominal capacities are based on the following conditions:

Mark	Cooling	Heating	Piping length	Hz-Volts
(1)	Indoor: 27˚CDB, 19.0˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 20˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	7.5m (Horizontal)	50Hz-230V
(2)	Indoor: 27˚CDB, 19.5˚CWB Outdoor: 35˚CDB, 24˚CWB			

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

★3. In case of drain piping for outdoor unit, drain piping kit (option) is needed.

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

FAYP (Wall Mounted Type)

Model	Indoor Units		FAYP71BV1	FAYP100BV1
	Outdoor Units		RZP71DV1	RZP100DV1
★1 Cooling Capacity		kW	7.1 (3.3~8.0)	10.0 (5.0~11.4)
		Btu/h	24,200 (11,200~27,300)	34,100 (17,000~38,900)
		kcal/h	6,100 (2,800~6,800)	8,600 (4,300~9,800)
★1 Heating Capacity		kW	8.0 (3.5~9.0)	11.2 (5.6~12.8)
		Btu/h	27,300 (11,900~30,700)	38,200 (19,100~43,600)
		kcal/h	6,800 (3,000~7,700)	9,600 (4,800~11,000)
Indoor Units			**FAYP71BV1**	**FAYP100BV1**
Color			White	White
Dimensions	H×W×D	mm	360×1,570×200	360×1,570×200
Coil	Type		Cross Fin Coil (Multi Louver Fins and N-hixTubes)	
	Row×Stages×Fin Pitch		2×12×1.4	2×12×1.4
	Face Area	m²	0.332	0.332
Fan	Model		QCL1163MA+QCL1163MB	QCL1163MA+QCL1163MB
	Type		Cross Flow Fan	Cross Flow Fan
	Motor Output	W	46	49
	Air Flow Rate	m³/min.	(H) 19 (L) 16	(H) 23 (L) 19
Air Filter			—	—
Machine Weight		kg	26	26
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)
	Drain	mm	I. Dϕ20×O. Dϕ26	I. Dϕ20×O. Dϕ26
Remote Controller (Option)	Wired		BRC1C61	BRC1C61
	Wireless		BRC7C610W	BRC7C610W
Outdoor Units			**RZP71DV1**	**RZP100DV1**
Color			Pale Ivory	Pale Ivory
Dimensions	H×W×D	mm	905×900×320	1,435×900×320
Coil	Type		Cross Fin Coil (Waffle Fins and NHi-XA Tubes)	
	Row×Stages×Fin Pitch		2×40×1.4	2×64×1.4
	Face Area	m²	0.991	1.598
Comp.	Model		2YC63AXD	JT100FAVD
	Type		Hermetically Sealed Swing Type	Hermetically Sealed Scroll Type
	Motor Output	kW	1.9	1.9
Fan	Model		P47M11F	P47M11F×2
	Type		Propeller	Propeller
	Motor Output	W	55	55+55
	Air Flow Rate	m³/min.	53	97
Machine Weight		kg	71	119
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)
	Drain	mm	ϕ26.0 (Hole)	ϕ26.0 (Hole)
Safety Devices			High Pressure Switch. Fuse.	
Capacity Control			Compressor Revolution Speed Control (Inverter System)	
Refrigerant Control			Expansion Valve (Electronic Type)	
Ref.Piping	Max. Length	m	50 (Equivalent Length 70m)	70 (Equivalent Length 90m)
	Max. Height Difference	m	30	30
Refrigerant	Model		R-407C	R-407C
	Charge	kg	3.2 (Charged for 30m)	5.0 (Charged for 30m)
Ref. Oil	Model		DAPHNE FVC50K	DAPHNE FVC68D
	Charge	L	0.65	1.2
Drawing No.			C : 4D034214	

Notes:

★1. Nominal capacities are based on the following conditions:

Cooling	Heating	Piping length	Hz-Volts
Indoor: 27˚CDB, 19.0˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 20˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	7.5m (Horizontal)	50Hz~230V

★2. AFR(Air flow rate) is shown at 220V~240V.

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

★4. In case of drain piping for outdoor unit, drain piping kit (option) is needed.

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

1.2 60Hz

FHYCP (Ceiling Mounted Cassette Type)

Model	Indoor Units		FHYCP71DVL	FHYCP100DVL
	Outdoor Units		RZP71DVAL	RZP100DVAL
★1 Cooling Capacity (1)/(2)		kW	7.1 / 7.2 (3.3~8.1) / (3.4~8.2)	10.0 / 10.1 (5.0~11.4) / (5.1~11.6)
		Btu/h	24,200 / 24,500 (11,200~27,600) / (11,600~27,900)	34,100 / 34,400 (17,000~38,900) / (17,400~39,600)
		kcal/h	6,100 / 6,100 (2,800~6,900) / (2,900~7,000)	8,600 / 8,600 (4,300~9,800) / (4,300~9,900)
★1 Heating Capacity (1)/(2)		kW	8.0 / 8.0 (3.5~9.0) / (3.5~9.0)	11.2 / 11.2 (5.6~12.8) / (5.6~12.8)
		Btu/h	27,300 / 27,300 (11,900~30,700) / (11,900~30,700)	38,200 / 38,200 (19,100~43,600) / (19,100~43,600)
		kcal/h	6,800 / 6,800 (3,000~7,700) / (3,000~7,700)	9,600 / 9,600 (4,800~11,000) / (4,800~11,000)
Indoor Units			**FHYCP71DVL**	**FHYCP100DVL**
Dimensions	H×W×D	mm	246×840×840	288×840×840
Coil	Type		Cross Fin Coil (Waffle Louver Fins and N-hix Tubes)	
	Row×Stages×Fin Pitch		2×10×1.2	2×12×1.2
	Face Area	m²	0.454	0.544
Fan	Model		QTS46D14M	QTS46C17M
	Type		Turbo Fan	Turbo Fan
	Motor Output	W	30	120
	Air Flow Rate	m³/min.	(H) 19 (L) 14	(H) 26 (L) 21
Air Filter			—	—
Machine Weight		kg	24	28
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)
	Drain	mm	I. Dϕ25×O. Dϕ32	I. Dϕ25×O. Dϕ32
Remote Controller (Option)	Wired		BRC1C61	BRC1C61
	Wireless		BRC7E61W	BRC7E61W
Decoration Panel (Option)	Model		BYCP125D-W1	BYCP125D-W1
	Color		White	White
	Dimensions (H×W×D)	mm	45×950×950	45×950×950
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	5.5	5.5
Outdoor Units			**RZP71DVAL**	**RZP100DVAL**
Color			Pale Ivory	Pale Ivory
Dimensions	H×W×D	mm	905×900×320	1,435×900×320
Coil	Type		Cross Fin Coil (Waffle Fins and NHi-XA Tubes)	
	Row×Stages×Fin Pitch		2×40×1.4	2×64×1.4
	Face Area	m²	0.991	1.598
Comp.	Model		2YC63AXD	JT100FA-VD
	Type		Hermetically Sealed Swing Type	Hermetically Sealed Scroll Type
	Motor Output	kW	1.9	1.9
Fan	Model		P47M11F	P47M11F×2
	Type		Propeller	Propeller
	Motor Output	W	55	55+55
	Air Flow Rate	m³/min.	53	97
Machine Weight		kg	71	119
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)
	Drain	mm	ϕ26.0 (Hole)	ϕ26.0 (Hole)
Safety Devices			High Pressure Switch. Fuse.	
Capacity Control			Compressor Revolution Speed Control (Inverter System)	
Refrigerant Control			Expansion Valve (Electronic Type)	
Ref.Piping	Max. Length	m	50 (Equivalent Length 70m)	70 (Equivalent Length 90m)
	Max. Height Difference	m	30	30
Refrigerant	Model		R-407C	R-407C
	Charge	kg	3.2 (Charged for 30m)	5.0 (Charged for 30m)
Ref. Oil	Model		DAPHNE FVC50K	DAPHNE FVC68D
	Charge	L	0.65	1.2
Drawing No.			4D034046	

Notes:

★1. Nominal capacities are based on the following conditions:

Mark	Cooling	Heating	Piping length
(1)	Indoor: 27˚CDB, 19.0˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 20˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	7.5m (Horizontal)
(2)	Indoor: 27˚CDB, 19.5˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 21˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	5m (Horizontal)

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

★3. In case of drain piping for outdoor unit, drain piping kit (option) is needed.

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

FHYCP (Ceiling Mounted Cassette Type)

Model	Indoor Units		FHYCP125DVL	FHYCP140DVL
	Outdoor Units		RZP125DTAL	RZP140DTAL
★1 Cooling Capacity (1)/(2)		kW	12.5 / 12.7 (6.0~14.3) / (6.1~14.5)	14.0 / 14.2 (6.2~15.8) / (6.3~16.1)
		Btu/h	42,600 / 43,300 (20,400~48,800) / (20,800~49,500)	47,700 / 48,400 (21,100~53,900) / (21,500~54,900)
		kcal/h	10,700 / 10,900 (5,100~12,200) / (5,200~12,400)	12,000 / 12,200 (5,300~13,500) / (5,400~13,800)
★1 Heating Capacity (1)/(2)		kW	14.0 / 14.0 (6.0~16.2) / (6.0~16.2)	16.0 / 16.0 (6.2~18.1) / (6.2~18.1)
		Btu/h	47,700 / 47,700 (20,400~55,300) / (20,400~55,300)	54,600 / 54,600 (21,100~61,700) / (21,100~61,700)
		kcal/h	12,000 / 12,000 (5,100~13,900) / (5,100~13,900)	13,700 / 13,700 (5,300~15,500) / (5,300~15,500)
Indoor Units			**FHYCP125DVL**	**FHYCP140DVL**
Dimensions	H×W×D	mm	288×840×840	288×840×840
Coil	Type		Cross Fin Coil (Waffle Louver Fins and N-hix Tubes)	
	Row×Stages×Fin Pitch		2×12×1.2	2×12×1.2
	Face Area	m²	0.544	0.544
Fan	Model		QTS46C17M	QTS46C17M
	Type		Turbo Fan	Turbo Fan
	Motor Output	W	120	120
	Air Flow Rate	m³/min.	(H) 30 (L) 24	(H) 33 (L) 25
Air Filter			—	—
Machine Weight		kg	28	28
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	I. Dϕ25×O. Dϕ32	I. Dϕ25×O. Dϕ32
Remote Controller (Option)	Wired		BRC1C61	BRC1C61
	Wireless		BRC7E61W	BRC7E61W
Decoration Panel (Option)	Model		BYCP125D-W1	BYCP125D-W1
	Color		White	White
	Dimensions (H×W×D)	mm	45×950×950	45×950×950
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	5.5	5.5
Outdoor Units			**RZP125DTAL**	**RZP140DTAL**
Color			Pale Ivory	Pale Ivory
Dimensions	H×W×D	mm	1,435×900×320	1,435×900×320
Coil	Type		Cross Fin Coil (Waffle Fins and NHi-XA Tubes)	
	Row×Stages×Fin Pitch		2×64×1.4	2×64×1.4
	Face Area	m²	1.598	1.598
Comp.	Model		JT100FAVD	JT100FAVD
	Type		Hermetically Sealed Scroll Type	
	Motor Output	kW	2.4	2.9
Fan	Model		P47M11F×2	P47M11F×2
	Type		Propeller	Propeller
	Motor Output	W	55+55	55+55
	Air Flow Rate	m³/min.	102	102
Machine Weight		kg	119	119
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	ϕ26.0 (Hole)	ϕ26.0 (Hole)
Safety Devices			High Pressure Switch. Fuse.	
Capacity Control			Compressor Revolution Speed Control (Inverter System)	
Refrigerant Control			Expansion Valve (Electronic Type)	
Ref.Piping	Max. Length	m	70 (Equivalent Length 90m)	70 (Equivalent Length 90m)
	Max. Height Difference	m	30	30
Refrigerant	Model		R-407C	R-407C
	Charge	kg	5.0 (Charged for 30m)	5.0 (Charged for 30m)
Ref. Oil	Model		DAPHNE FVC68D	DAPHNE FVC68D
	Charge	L	1.2	1.2
Drawing No.			4D034047	

Notes:

★1. Nominal capacities are based on the following conditions:

Mark	Cooling	Heating	Piping length
(1)	Indoor: 27˚CDB, 19.0˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 20˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	7.5m (Horizontal)
(2)	Indoor: 27˚CDB, 19.5˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 21˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	5m (Horizontal)

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

★3. In case of drain piping for outdoor unit, drain piping kit (option) is needed.

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

1.3 Comply with Australian Standard (50Hz)

FHYCP (Ceiling Mounted Cassette Type: Pair System)

Model	Indoor Units		FHYCP71DVE	FHYCP100DVE	FHYCP125DVE
	Outdoor Units		RZP71DV1	RZP100DV1	RZP125DV1
★1 Cooling Capacity (Min.~Max.)		kW	6.9 (3.2~7.8)	9.7 (4.9~11.0)	12.1 (5.8~13.8)
		Btu/h	23,500 (10,900~26,600)	33,100 (16,700~37,500)	41,300 (19,800~47,100)
		kcal/h	5,900 (2,700~6,700)	8,300 (4,200~9,400)	10,400 (4,900~11,800)
★1 Heating Capacity (Min.~Max.)		kW	7.8 (3.4~8.8)	11.0 (5.5~12.6)	13.7 (5.9~15.9)
		Btu/h	26,600 (11,600~30,000)	37,500 (18,700~43,000)	46,700 (20,100~54,200)
		kcal/h	6,700 (2,900~7,500)	9,400 (4,700~10,800)	11,700 (5,000~13,600)
Indoor Units			**FHYCP71DVE**	**FHYCP100DVE**	**FHYCP125DVE**
Dimensions	H×W×D	mm	246×840×840	288×840×840	288×840×840
Coil	Type		Cross Fin Coil (Multi Louver Fins and N-hix Tubes)		
	Row×Stages×Fin Pitch		2×10×1.2	2×12×1.2	2×12×1.2
	Face Area	m^2	0.454	0.544	0.544
Fan	Model		QTS46D14M	QTS46C17M	QTS46C17M
	Type		Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output	W	30	120	120
	Air Flow Rate	m^3/min.	(H) 19 (L) 14	(H) 26 (L) 21	(H) 30 (L) 24
Air Filter			—	—	—
Machine Weight		kg	24	28	28
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	I. Dϕ25×O. Dϕ32	I. Dϕ25×O. Dϕ32	I. Dϕ25×O. Dϕ32
Remote Controller (Option)	Wired		BRC1C61	BRC1C61	BRC1C61
	Wireless		BRC7E61W	BRC7E61W	BRC7E61W
Decoration Panel (Option)	Model		BYCP125D-W1	BYCP125D-W1	BYCP125D-W1
	Color		White	White	White
	Dimensions (H×W×D)	mm	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)
	Weight	kg	5.5	5.5	5.5
Outdoor Units			**RZP71DV1**	**RZP100DV1**	**RZP125DV1**
Color			Pale Ivory	Pale Ivory	Pale Ivory
Dimensions	H×W×D	mm	905×900×320	1,435×900×320	1,435×900×320
Coil	Type		Cross Fin Coil (Waffle Fins and NHi-XA Tubes)		
	Row×Stages×Fin Pitch		2×40×1.4	2×64×1.4	2×64×1.4
	Face Area	m^2	0.991	1.598	1.598
Comp.	Model		2YC63AXD	JT100FAVD	JT100FAVD
	Type		Hermetically Sealed Swing Type	Hermetically Sealed Scroll type	
	Motor Output	kW	1.9	1.9	2.4
Fan	Model		P47M11F	P47M11F×2	P47M11F×2
	Type		Propeller	Propeller	Propeller
	Motor Output	W	55	55+55	55+55
	Air Flow Rate	m^3/min.	53	97	102
Machine Weight		kg	71	119	119
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	ϕ26.0 (Hole)	ϕ26.0 (Hole)	ϕ26.0 (Hole)
Safety Devices			High Pressure Switch. Fuse.		
Capacity Control			Compressor Revolution Speed Control (Inverter System)		
Refrigerant Control			Expansion Valve (Electronic Type)		
Ref. Piping	Max. Length	m	50 (Equivalent Length 70m)	70 (Equivalent Length 90m)	70 (Equivalent Length 90m)
	Max. Height Difference	m	30	30	30
Refrigerant	Model		R-407C	R-407C	R-407C
	Charge	kg	3.2 (Charged for 30m)	5.0 (Charged for 30m)	5.0 (Charged for 30m)
Ref. Oil	Model		DAPHNE FVC50K	DAPHNE FVC68D	DAPHNE FVC68D
	Charge	L	0.65	1.20	1.20
Drawing No.			4D034232		

Notes:

★1. Nominal capacities are based on the following conditions:

Cooling	Heating	Piping length	Hz-Volts
Indoor: 27˚CDB, 19.0˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 20˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	7.5m (Horizontal)	50Hz-240V

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

★3. In case of drain piping for outdoor unit, drain piping kit (option) is needed.

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

FHYCP (Ceiling Mounted Cassette Type: Twin System)

Model	Indoor Units		FHYCP50DVE×2	FHYCP60DVE×2
	Outdoor Units		RZP100DV1	RZP125DV1
★1 Cooling Capacity (Min.~Max.)		kW	9.7 (4.9~11.0)	12.1 (5.8~13.8)
		Btu/h	33,100 (16,700~37,500)	41,300 (19,800~47,100)
		kcal/h	8,300 (4,200~9,400)	10,400 (4,900~11,800)
★1 Heating Capacity (Min.~Max.)		kW	11.0 (5.5~12.6)	13.7 (5.9~15.9)
		Btu/h	37,500 (18,700~43,000)	46,700 (20,100~54,200)
		kcal/h	9,400 (4,700~10,800)	11,700 (5,000~13,600)
Indoor Units			**FHYCP50DVE×2**	**FHYCP60DVE×2**
Dimensions	H×W×D	mm	246×840×840	246×840×840
Coil	Type		Cross Fin Coil (Multi Louver Fins and N-hix Tubes)	
	Row×Stages×Fin Pitch		2×8×1.2	2×10×1.2
	Face Area	m^2	0.363	0.454
Fan	Model		QTS46D14M	QTS46D14M
	Type		Turbo Fan	
	Motor Output	W	30	30
	Air Flow Rate	m^3/min.	(H) 16 (L) 11	(H) 17 (L) 13
Air Filter			—	Resin Net (with Mold Resistant)
Machine Weight		kg	23	24
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ15.9 (Flare)	ϕ15.9 (Flare)
	Drain	mm	I. Dϕ25×O. Dϕ32	I. Dϕ25×O. Dϕ32
Remote Controller (Option)	Wired		BRC1C61	BRC1C61
	Wireless		BRC7E61W	BRC7E61W
Decoration Panel (Option)	Model		BYCP125D-W1	BYCP125D-W1
	Color		White	White
	Dimensions (H×W×D)	mm	45×950×950	45×950×950
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	kg	5.5	5.5
Outdoor Units			**RZP100DV1**	**RZP125DV1**
Color			Pale Ivory	Pale Ivory
Dimensions	H×W×D	mm	1,435×900×320	1,435×900×320
Coil	Type		Cross Fin Coil (Waffle Fins and NHi-XA Tubes)	
	Row×Stages×Fin Pitch		2×64×1.4	2×64×1.4
	Face Area	m^2	1.598	1.598
Comp.	Model		JT100FAVD	JT100FAVD
	Type		Hermetically Sealed Scroll type	
	Motor Output	kW	1.9	2.4
Fan	Model		P47M11F×2	P47M11F×2
	Type		Propeller	Propeller
	Motor Output	W	55+55	55+55
	Air Flow Rate	m^3/min.	97	102
Machine Weight		kg	119	119
Piping Connections	Liquid	mm	ϕ9.5 (Flare)	ϕ9.5 (Flare)
	Gas	mm	ϕ19.1 (Flare)	ϕ19.1 (Flare)
	Drain	mm	ϕ26.0 (Hole)	ϕ26.0 (Hole)
Safety Devices			High Pressure Switch. Fuse.	
Capacity Control			Compressor Revolution Speed Control (Inverter System)	
Refrigerant Control			Expansion Valve (Electronic Type)	
Ref. Piping	Max. Length	m	70 (Equivalent Length 90m)	70 (Equivalent Length 90m)
	Max. Height Difference	m	30	30
Refrigerant	Model		R-407C	R-407C
	Charge	kg	5.0 (Charged for 30m)	5.0 (Charged for 30m)
Ref. Oil	Model		DAPHNE FVC68D	DAPHNE FVC68D
	Charge	L	1.20	1.20
Drawing No.			4D034231	

Notes:

★1. Nominal capacities are based on the following conditions:

Cooling	Heating	Piping length	Hz-Volts
Indoor: 27˚CDB, 19.0˚CWB Outdoor: 35˚CDB, 24˚CWB	Indoor: 20˚CDB, 15˚CWB Outdoor: 7˚CDB, 6˚CWB	7.5m (Horizontal)	50Hz~240V

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

★3. In case of drain piping for outdoor unit, drain piping kit (option) is needed.

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

Part 4
Remote Controller

1. Wired Remote Controller

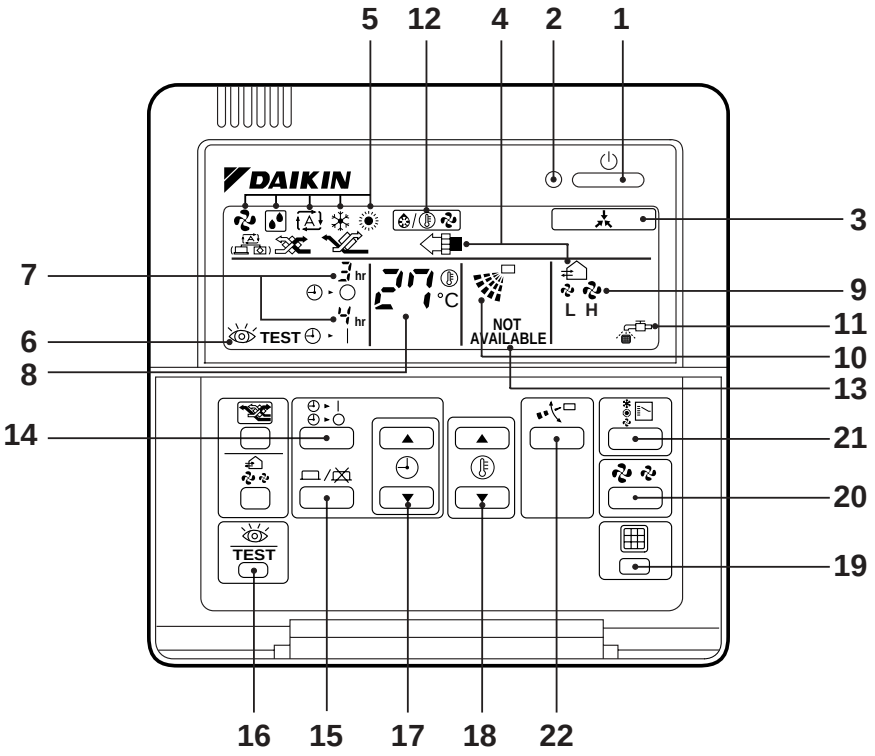
1.1 Wired Remote Controller - NEW MODEL (For Cooling only and heat-pump Model)

BRC1C61	FHYCP, FHYP, FUYP, FAYP

BRC1C61

	New BRC1C61	BRC1B61
ON / OFF Operation with Air Conditioner	○	
Independent operation in intermediate season	○	
Ventilation mode change over (Auto / HRV / Normal)	○	☐
Air flow change over (Auto / High / Low)	○	☐
Setting of precooling / preheating	☐	☐
Setting of fresh-up operation	☐	☐
Filter sign display	○	○

☐ : Initial Setting Only (Field setting by well known service person)



3PA59583-16Z-1

1	**ON/OFF BUTTON**
	Press the button and the system will start. Press the button again and the system will stop.
2	**OPERATION LAMP (RED)**
	The lamp lights up during operation.
3	**DISPLAY “ ” (UNDER CENTRALIZED CONTROL)**
	When this display shows, the system is UNDER CENTRALIZED CONTROL.
4	**DISPLAY “ ” “ ” “ ” “ ” (VENTILATION/AIR CLEANING)**
	This display shows that the total heat exchange and the air cleaning unit are in operation (These are optional accessories).
5	**DISPLAY “ ” “ ” “ ” “ ” “ ” (OPERATION MODE)**
	This display shows the current OPERATION MODE. For cooling only type, “ ” (Auto) and “ ” (Heating) are not installed.
6	**DISPLAY “ TEST” (INSPECTION/TEST OPERATION)**
	When the INSPECTION/TEST OPERATION BUTTON is pressed, the display shows the system mode is in.
7	**DISPLAY “ ” (PROGRAMMED TIME)**
	This display shows the PROGRAMMED TIME of the system start or stop.
8	**DISPLAY “ ” (SET TEMPERATURE)**
	This display shows the set temperature.
9	**DISPLAY “ ” (FAN SPEED)**
	This display shows the set fan speed.
10	**DISPLAY “ ” (AIR FLOW FLAP)**
11	**DISPLAY “ ” (TIME TO CLEAN AIR FILTER)**
12	**DISPLAY “ ” (DEFROST)**
13	**NON-FUNCTIONING DISPLAY**
	If that particular function is not available, pressing the button may display the words “NOT AVAILABLE” for a few seconds. When running multiple units simultaneously The “NOT AVAILABLE” message will only be appear if none of the indoor units is equipped with the function. If even one unit is equipped with the function, the display will not appear.

14	**TIMER MODE START/STOP BUTTON**
15	**TIMER ON/OFF BUTTON**
16	**INSPECTION/TEST OPERATION BUTTON**
	This button is used only by qualified service persons for maintenance purposes.
17	**PROGRAMMING TIME BUTTON**
	Use this button for programming “START and/or STOP” time.
18	**TEMPERATURE SETTING BUTTON**
	Use this button for SETTING TEMPERATURE.
19	**FILTER SIGN RESET BUTTON**
20	**FAN SPEED CONTROL BUTTON**
	Press this button to select the fan speed, HIGH or LOW, of your choice.
21	**OPERATION MODE SELECTOR BUTTON**
	Press this button to select OPERATION MODE.
22	**AIR FLOW DIRECTION ADJUST BUTTON**

NOTE

- For the sake of explanation, all indications are shown on the display in Figure 1 contrary to actual running situations.

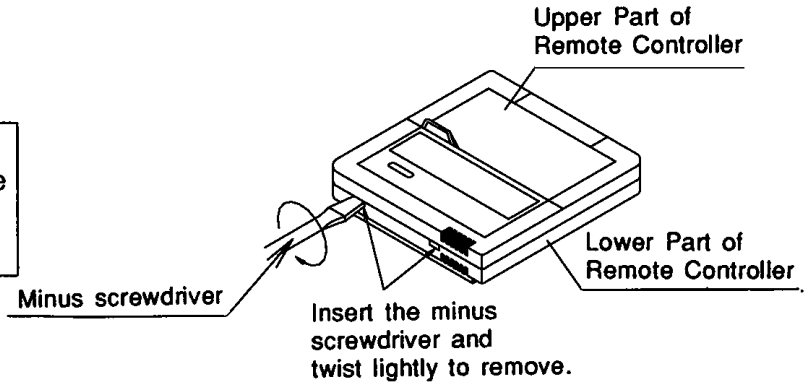
3PA59583-16Z-2

1.2 Installation

1. Remove the upper part of remote controller.

Insert minus screwdriver into the slots in the lower part of remote controller (2 places), and remove the upper part of remote controller.

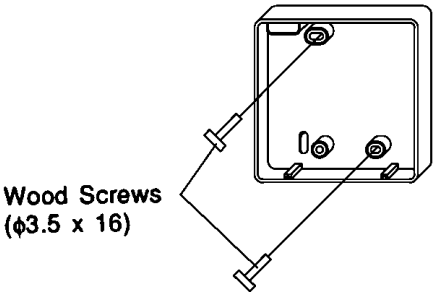
The P C board is mounted in the upper part of remote controller. Be careful not to damage the board with the minus screwdriver.

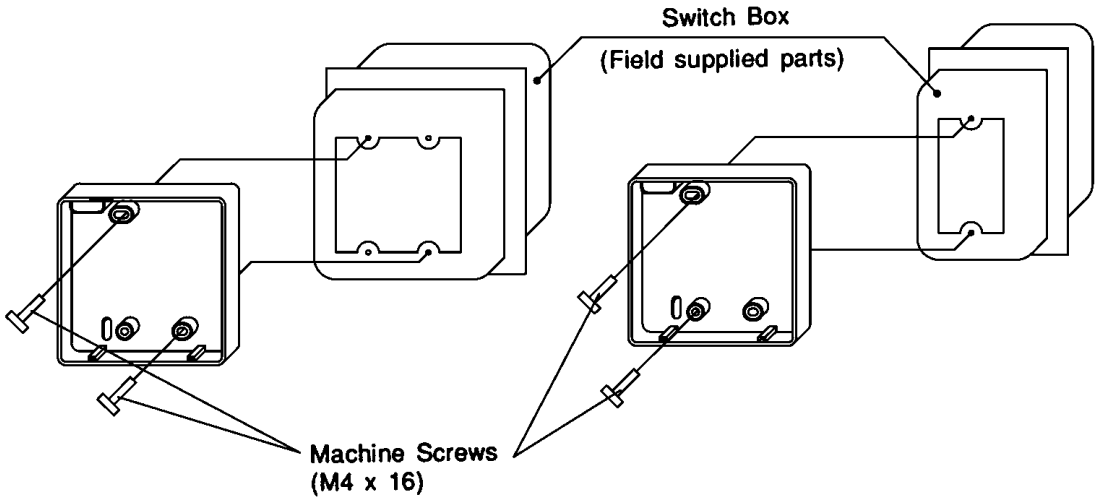


2. Fasten the remote controller.

① For exposed mounting, fasten with the included wood screws (2).

② For flush-mounting, fasten with the included machine screws (2).





For the field supplied switch box, use optional accessories KJB111A or KJB211A.

NOTE

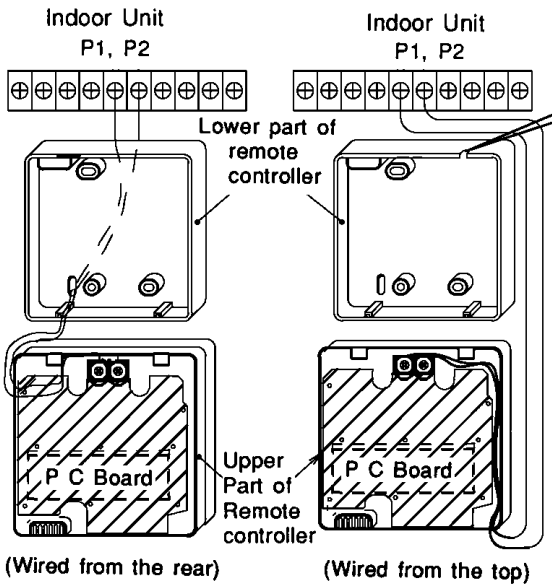
Choose the flattest place possible for the mounting surface. Be careful not to distort the shape of the lower part of remote controller by over-tightening the mounting screws.

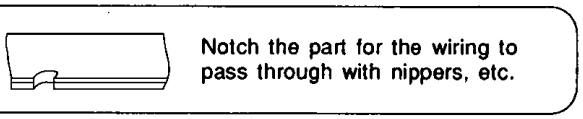
(S1019)

3. Wire the indoor unit.

Connect the terminals on top of the upper part of remote controller(P1, P2), and the terminals of the indoor unit (P1, P2). (P1 and P2 do not have polarity.)

NOTE
When wiring, run the wiring away the power supply wiring in order to avoid receiving electric noise (external noise).

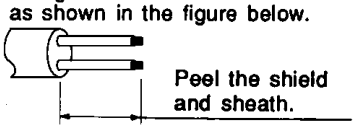




Wiring Specifications

Wiring Type	Sheathed vinyl code or cable (2 wire) (See NOTE 2)
Size	0.75 – 1.25 mm^2

NOTE) 1. Peel the shield and sheath for the part that is to pass through the inside of the remote controller case, as shown in the figure below.



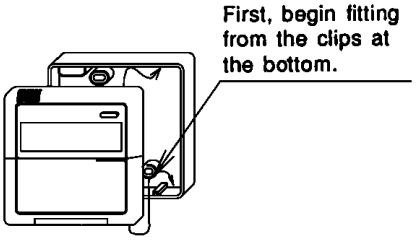
2. Shield wire (2 wire) can be used for remote controller wiring, but it must confirm to EMC (Electromagnetic Compatibility) (Australian regulation).

4. Reattach the upper part of remote controller.

Be careful not to pinch the wiring when attaching.

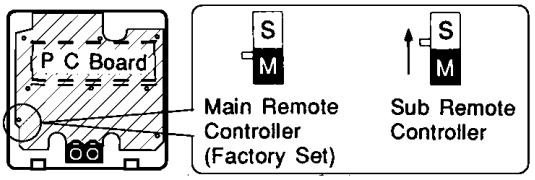
NOTE

1. The switch box and wiring for connection are not included.
2. Do not directly touch the PC board with your hand.



If controlling one indoor unit with two remote controllers

Change the MAIN/SUB changeover switch setting as described below.



Set one remote controller to "main," and the other to "sub."

NOTE

- If controlling with one remote controller, be sure to set it to "main."
- Set the remote controller before turning power supply on.

"88" is displayed for about one minute when the power supply is turned on, and the remote controller cannot be operated in some cases.

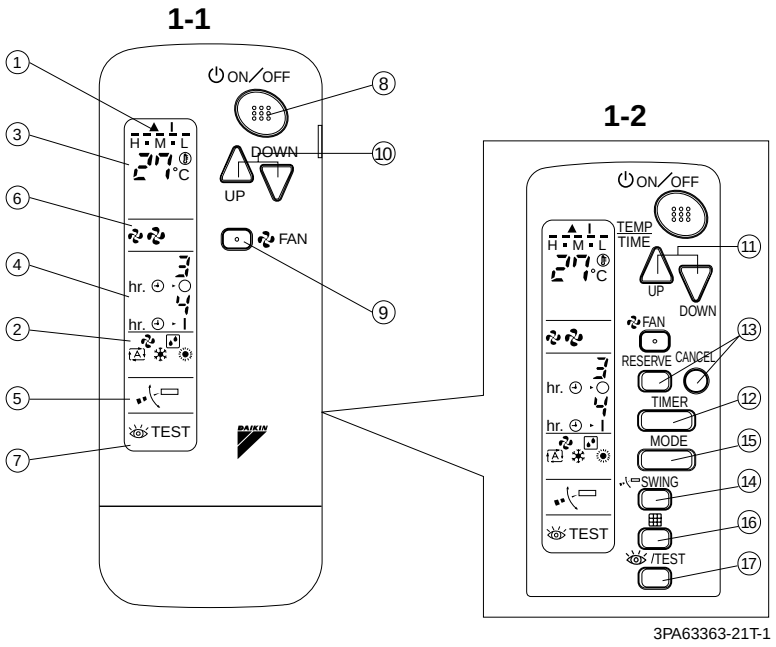
(S1020)

2. Wireless Remote Controller

2.1 Wireless Remote Controller

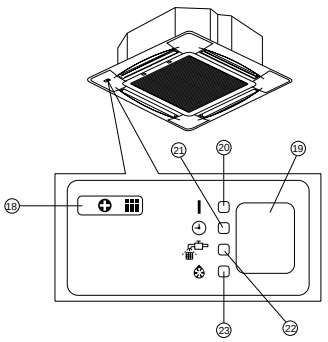
Names and Function

Name of Option	Model Series			
	FHYCP	FHYP	FUYP	FAYP
Remote Controller	BRC7E61W	BRC7E63W	BRC7C528W	BRC7C610W

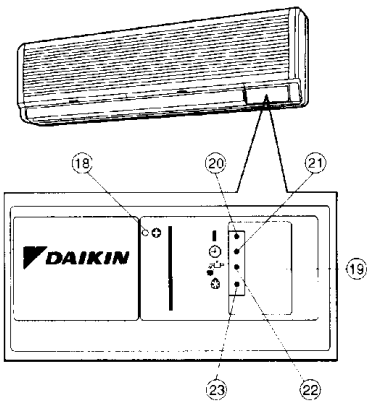


Explanation of Receiver

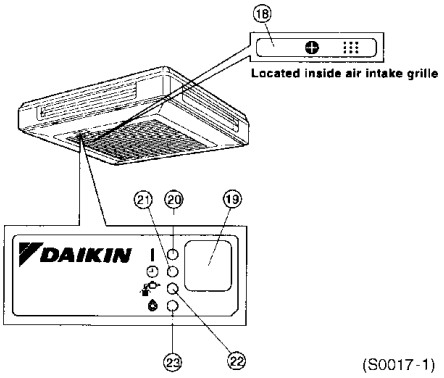
FHYCP



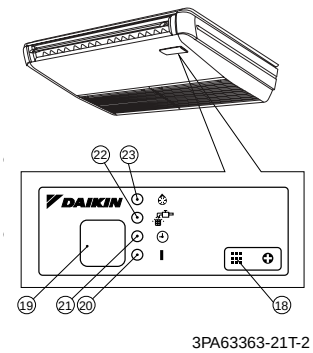
FAYP



FUYP



FHYP



1	**DISPLAY " ▲ " (SIGNAL TRANSMISSION)**
	This lights up when a signal is being transmitted.
2	**DISPLAY " " " " " " " " " " (OPERATION MODE)**
	This display shows the current OPERATION MODE. For straight cooling type, " " (Auto) and " " (Heating) are not installed.
3	**DISPLAY " " (SET TEMPERATURE)**
	This display shows the set temperature.
4	**DISPLAY " " (PROGRAMMED TIME)**
	This display shows PROGRAMMED TIME of the system start or stop.
5	**DISPLAY " " (AIR FLOW FLAP)**
6	**DISPLAY " " " " (FAN SPEED)**
	The display shows the set fan speed.
7	**DISPLAY " TEST " (INSPECTION/ TEST OPERATION)**
	When the INSPECTION/TEST OPERATION BUTTON is pressed, the display shows the system mode is in.
8	**ON/OFF BUTTON**
	Press the button and the system will start. Press the button again and the system will stop.
9	**FAN SPEED CONTROL BUTTON**
	Press this button to select the fan speed, HIGH or LOW, of your choice.
10	**TEMPERATURE SETTING BUTTON**
	Use this button for SETTING TEMPERATURE (Operates with the front cover of the remote controller closed.)
11	**PROGRAMMING TIMER BUTTON**
	Use this button for programming "START and/or STOP" time. (Operates with the front cover of the remote controller opened.)
12	**TIMER MODE START/STOP BUTTON**
13	**TIMER RESERVE/CANCEL BUTTON**
14	**AIR FLOW DIRECTION ADJUST BUTTON**
15	**OPERATION MODE SELECTOR BUTTON**
	Press this button to select OPERATION MODE.
16	**FILTER SIGN RESET BUTTON**
	Refer to the section of MAINTENANCE in the operation manual attached to the indoor unit.
17	**INSPECTION/TEST OPERATION BUTTON**
	This button is used only by qualified service persons for maintenance purposes.
18	**EMERGENCY OPERATION SWITCH**
	This switch is readily used if the remote controller does not work.
19	**RECEIVER**
	This receives the signals from the remote controller.
20	**OPERATING INDICATOR LAMP (Red)**
	This lamp stays lit while the air conditioner runs. It flashes when the unit is in trouble.
21	**TIMER INDICATOR LAMP (Green)**
	This lamp stays lit while the timer is set.
22	**AIR FILTER CLEANING TIME INDICATOR LAMP (Red)**
	Lights up when it is time to clean the air filter.
23	**DEFROST LAMP (Orange)**
	Lights up when the defrosting operation has started. (For straight cooling type this lamp does not turn on.)

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Part 5
Field Piping and Wiring

1. Field Piping and Wiring

1.1 Precautions

Caution to be Taken When Brazing Refrigerant Piping

"Do not use flux when brazing copper-to-copper refrigerant piping. (Particularly for the HFC refrigerant piping) Therefore, use the phosphor copper brazing filler metal (BCuP) which does not require flux."

(Flux has extremely harmful influence on refrigerant piping systems. For instance, if the chlorine based flux is used, it will cause pipe corrosion or, in particular, if the flux contains fluorine, it will damage the refrigerant oil. The use of flux is strictly forbidden since the cleaning on site is impossible.)

(Caution) Keep in mind that if the phosphor copper brazing filler metal is used and the brazing temperature and the heating time exceed a certain point, the phosphor changes into the gaseous state (e.g. BCuP -1 to 5 : between 700 and 800C) which causes pin holes and results in refrigerant leakage.

R-407C applies higher pressure than R-22 and uses refrigeration oil different from R-22. Therefore, piping works and tools are also different from those for R-22 refrigerants.

Refrigerant	R-22 (Single-component refrigerant)	R-407C (Multiple-component refrigerant)
Refrigeration oil	Mineral oil (Suniso)	Synthetic (ether) oil
Condensing pressure	1.84MPa (18.8kg/cm^2)	2.01MPa (20.5kg/cm^2)

Refrigerant Piping Materials

Other refrigerant piping materials

■ Use C1220 type copper tube for refrigerant piping. Wall thickness of copper tube shown in the below table can be applied. (The table is same as the recommendation for R-22)

Recommendable oil for pipe processing

DAPHNE MASTER DRAW 510LS·530LS·565NR·566LS (Idemitsu Kosan Co.,Ltd.)
MASTER DRAW 5128 (ETNA PRODUCTS INC.)
Shell Drawing XA (SHELL)

* Mixing amount of oil is 30 mg/10m at maximum.

Wall thickness of refrigerant pipe

(Unit : mm)

Type	O type		
Copper tube O.D.	ϕ9.5	ϕ15.9	ϕ19.1
Copper tube W.T.	0.8	1.0	1.0

* When select and use a copper tube, observe strictly the relevant standards or regulations of each country.

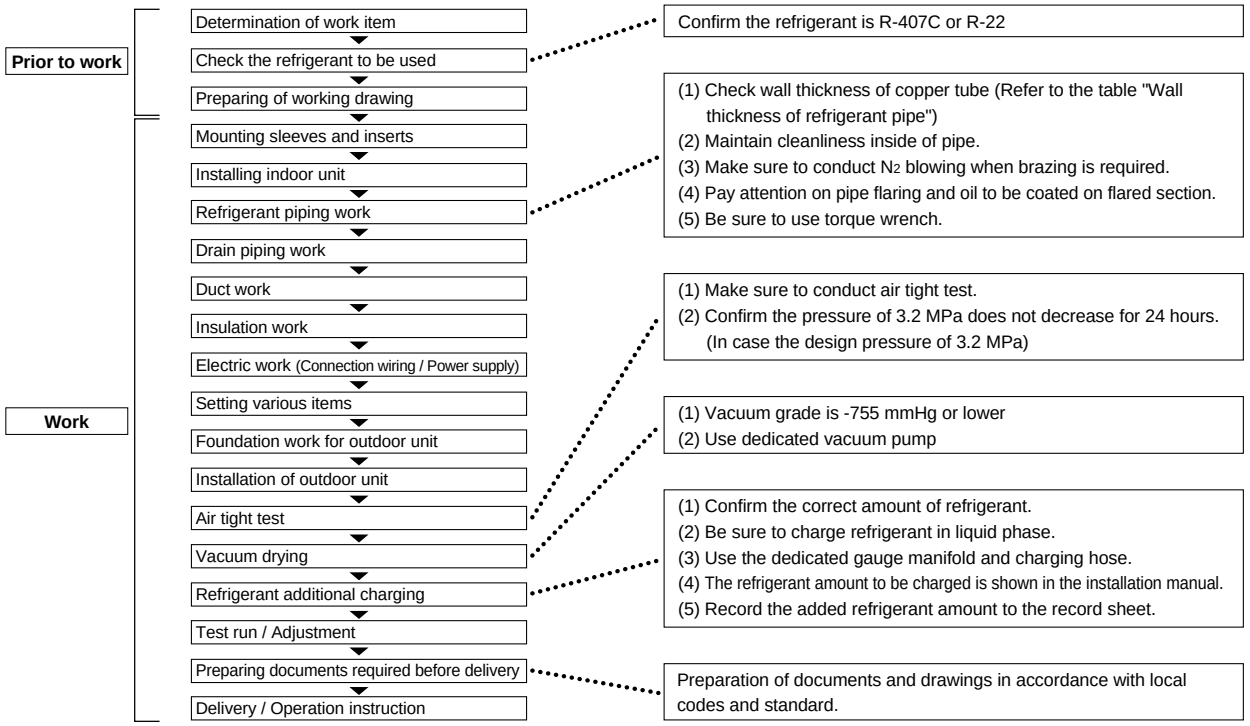
(As of March 2001)

Procedure and Tools for Refrigerant Piping Work

Procedure

■ Piping work for R-407C model partially differs from R-22 model in items and procedures of piping work and refrigerant charging due to different component and higher pressure for R-407C. The below chart shows general work procedure for R-407C model.

Work items and precautions



Tools

■ Several dedicated tools are required for the installation work of R-407C models. Some of conventional tools can be used except tools actually used to the installation work for R-22 models.

Representative tools and devices and interchangeability

Tool name	Work process / Usage		Interchangeability with conventional tool
Pipe cutter	Refrigerant piping work	Pipe cutting	Interchangeable and can be used.
Flaring tool		Pipe flaring	
Refrigeration oil		Applying to flared section	Use dedicated ether oil, ester oil, alkyl-benzene oil or mixture of those oil.
Torque wrench		Flare nut jointing	Interchangeable and can be used.
Pipe expander		Pipe expanding in connection of pipe	
Pipe bender		Pipe bending	
Nitrogen	Air tight test	Oxidation proof for inside pipe	
Welder		Pipe brazing	
Gauge manifold	From air tight test to refrigerant additional charging	Refrigerant charging using vacuum and operation check	Dedicated gauge is required due to high pressure.
Charging hose			For preventing refrigerant leakage and mixing of foreign matters, dedicated charging hose is required.
Vacuum pump	Vacuum drying		Interchangeable and can be used. (Be strictly sure that oil does not flow in reverse to the unit during pump stop.)
Charging cylinder	Refrigerant additional charging		Not required since charging work conducted with weighing scale.
Weighing scale for refrigerant charging			Interchangeable and can be used.
Gas leakage detector		Gas leakage check	Dedicated detector is required (Detector for R134a can be used).

Precautions for Installation Work

Joint brazing

■ Since stricter caution should be necessary for R-407C to prevent intrusion of foreign matters into the refrigerant piping line, be sure to conduct N_2 blowing when brazing is required.

■ Other than brazing, a stricter work control including pipe covering and drying is required to prevent pipe from intrusion of foreign matters.

Flaring

■ Make sure to conduct chamfering (filing) at cut section, since a large wall thickness of pipe results large burr. Be aware of no cutting chips left inside pipe.

■ Apply appropriate amount of refrigeration oil on outer / inner surface of flared section to prevent leakage. Make sure to use synthetic oil (ether oil, ester oil, archi-benzene oil or mixture of those oils) as refrigeration oil.

Refrigerant charging

■ Charge R-407C from service port at liquid side stop value of outdoor unit in liquid phase. At that time, conduct vacuum drying using vacuum pump.

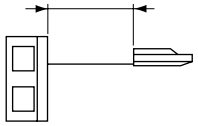
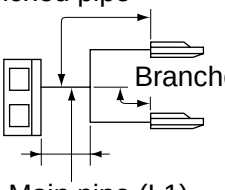
Air-tightness test

■ Make sure to conduct air-tightness test.

Conduct installation work for R-407C model following above mentioned piping work procedure. Otherwise, unit may have trouble. Refer to the "Work execution and control for R-407C model" for the details on handling of R-407C, installation works and tools.

1.2 Field Piping

This unit requires additional charging of refrigerant according to the length of pipe connected at the site.
When the entire refrigerant pipe length is within 30 meters, the additional changing is not needed.
Take the following steps for proper charging.

When connected to indoor units	When connected to two indoor units
One way length of pipe (L) 	Branched pipe (L2)  Branched pipe (L3) Main pipe (L1) One-way length of pipe (L) : L1+L2+L3

(1) Additional charging of refrigerant

Select the appropriate refrigerant charging amout from Table 2, 3 and charge the refrigerant. Fill out the notice plate attached in the rear of the front plate (2) for future servicing.

- **Pair-type**

Table 1 Additional charging refrigerant amount (unit: kg)

Pipe excess length over 30 meters	20m or less	40m or less
71, 100, 125, 140 type	0.8	1.6

Simultaneous operation multi-type

- Find the entire pipe length by totaling that of each pipe in the order of the main pipe (L1), and branched pipes (L2), (L3) calculate the excess length going over 30 meters, then select from Table 3 the amount of refrigerant corresponding to the excess length.
  The total value is the amount required for additional charging.

Table 2 Additional charging amount (unit: kg)

Pipe excess length over 30 meters		10m or less	20m or less	30m or less	40m or less
Liquid pipe	9.5	0.4	0.8	1.2	1.6

(2) Complete charging of the refrigerant

When the entire refrigerant pipe length is within 30 meters, charge the refrigerant in accordance with the amount mentioned in the nameplate, and when the pipe length exceeds 30 meters, the charging amount mentioned in the nameplate and that required for additional charging are to be totaled as the net charging amount.

*Vacuum drying when refilling the refrigerant will not be sufficient if done only at the shut-off valve service port (gas and liquid sides), so it should be done from a service port set up on the pipe leading from the outdoor unit 4-path switch valve to the heat exchanger.

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(4) Precautions for pumping-down operation (When moving and remounting the indoor or outdoor units, etc.)

When running pump-down operation, turn off the power and protect the terminal block to prevent it from coming into contact with the insulating sheet, as shown in the figure.

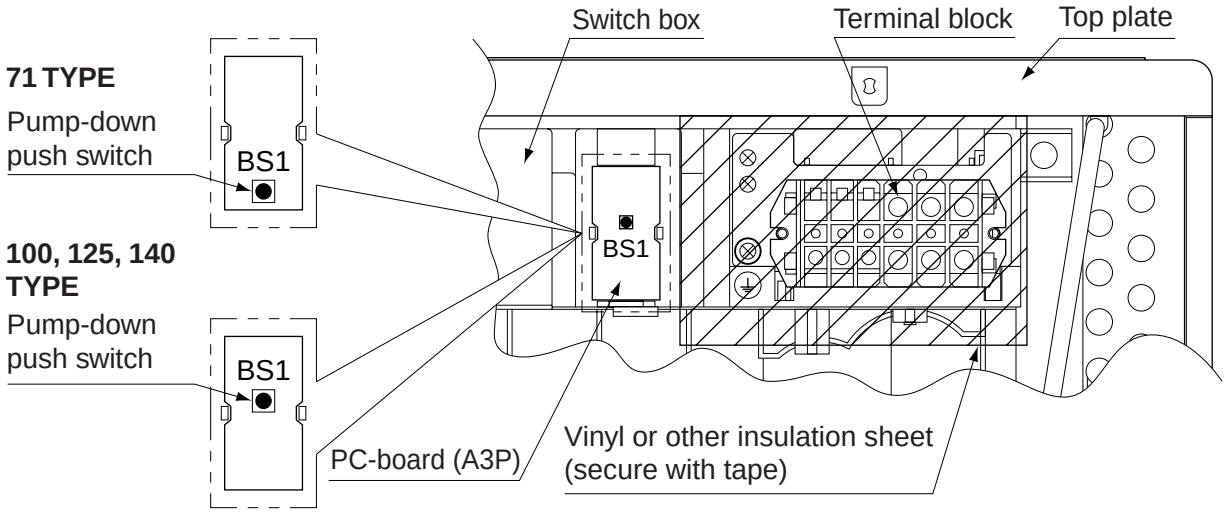

Figure of front side of outdoor unit (PC-board (A3P) vicinity)

Pressing the pump-down push switch on the outdoor PC-board (A3P) may cause the indoor fan to automatically start spinning, so use caution.

Turn on the power and enter pump-down operation using the following procedure.

	Procedure	Precautions
1	Start fan operation with the remote controller.	Confirm that stop valves both on the liquid and gas side are open. Take care when the procedure 2 is done first because the indoor unit fan may operate automatically.
2	Push the pumping down button on the PC board of the outdoor unit.	Compressor and outdoor fan will start operation automatically.
3	Once operation stops after about 3 or 5 minutes, close the shut-off valves for the gas and liquid sides. **(Refer to Fig. 11)**	

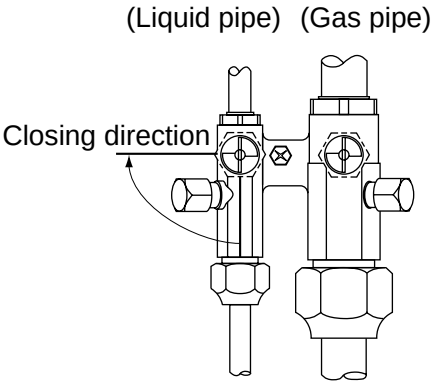

Fig. 11

This is the end of pumping-down operation. After pumping-down operation, the remote controller shows “U4” even when ON button on the remote controller is pressed, and it will not operate. Turn off the main power supply switch and turn it on again in need of operation.

To all persons doing pipe work.

Be sure to open the shut-off valve after finishing pipe work. (Operating the unit with it closed will cause the compressor to break.)

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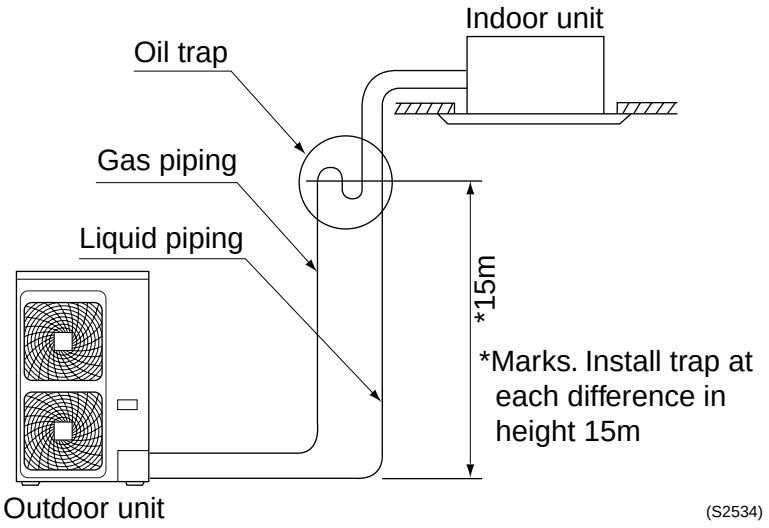
■ **Necessity of a trap**

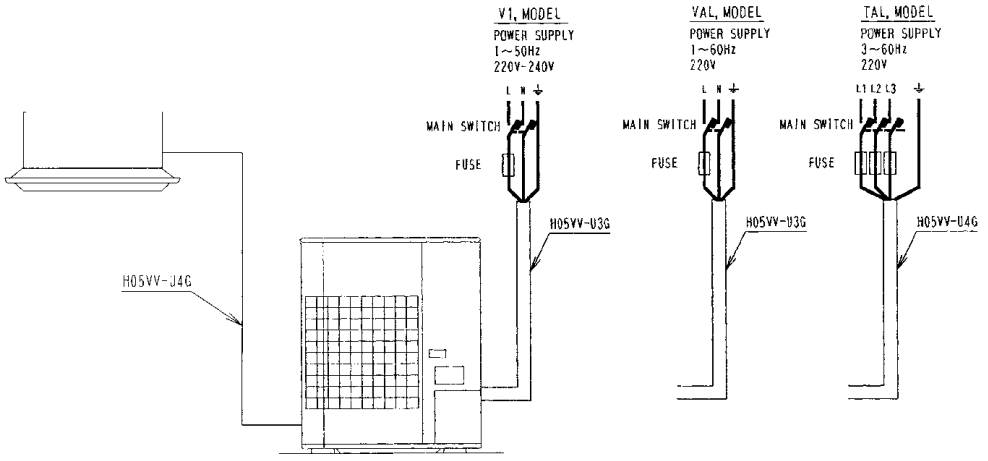
Since there is fear of the oil held inside the riser piping flowing back into the compressor when stopped and causing liquid compression phenomenon, or cases of deterioration of oil return, it will be necessary to provide a trap at an appropriate place in the riser gas piping.

■ **Trap installation spacing**



Note: A trap is not necessary when the outdoor unit is installed in a higher position than the indoor unit.

1.3 Field Wiring



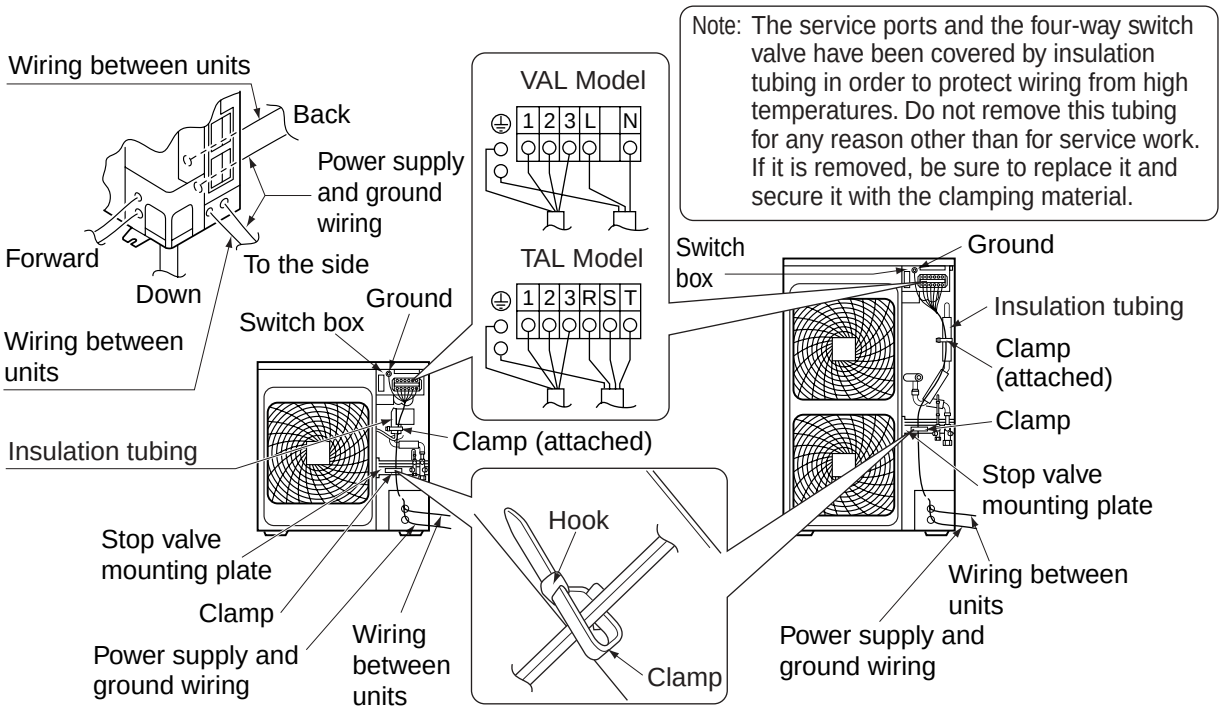
WARNING

Electrical wiring must be carried out by qualified personnel.
Before obtainging access to terminal devices, all supply circuits munt be interrupted.

CAUTION

Be sure to ground the air conditioner.
Do not connect the earth wire to a gas pipe, water pipe, lightning conductor or telephone earth wire.
Use only copper wires.

The wiring between the indoor unit and outdoor unit must be for 220V.
Do not turn on the main switch until all the wiring is complated.
The resistance of the grounding must not exceed 500 .
When performing electrical wiring, refer also to the wiring diagram affixed to the unit.
Use the specified wires and fix them with clamps so that no external forces act on the terminals. For clamping, push the hook in tail end of the clamp to loosen it, pass the wires through it, then fasten the clamp.
Clamp the wiring as shown below, taking care that the wires do not touch the piping. (especially high-pressure piping)
Never squeeze extra wires into the unit.
When leading out the wires to the front or side, you can use a wire conduit passing through the knock-out hole (34mm). When you don't use a wire conduit, be sure to protect the wires with vinyl tubes etc. to prevent the edge of the knock-out hole from cutting the wires.
Form the wires and fix the cover firmly so that the cover may be fit in properly.



When using 71 model **When using 100 · 125 · 140 model**

CAUTIONS

As this unit is equipped with an inverter, installing a phase advancing capacitor not only will deteriorate power factor improvement effect, but also may cause a capacitor abnomal heating accident due to high-frequency waves. Therefore never install a phase advancing capacitor.
keep power imbalance to within 2% of the supply rating.
1. Large imbalance will shorten the life of the smoothing capacitor.
2. As a protective measure, the product will stop operating and an error indication will be made, when power imbalance exceeds 4% of the supply rating.

When installing the leakage breaker make sure it is an inverter-type (high-frequency/high-freq. non-sensing type) breaker.

Part 6
Field Setting

1. Method of Field Set (Reset after Maintenance Inspection/Repair)

1.1 Explanation

Field set is carried out from the remote controller. At time of installation, or after maintenance inspection/repair, carry out field set according to the explanation below. Incorrect settings will cause a malfunction to occur. (The indoor unit settings are sometimes changed if optional accessories are mounted on the indoor unit. Refer to the optional accessory manual.)

1.2 Field Setting

1.2.1 Wired Remote Controller

Notes: (Field setting must be made from the remote controller in accordance with the installation conditions.)

- Setting can be made by changing the “Mode number”, “FIRST CODE NO.”, and “SECOND CODE NO.”.
- Refer to the following procedures for Field setting.

Procedure

① When in the normal mode, press the “ TEST ” button for a minimum of four seconds, and the FIELD SET MODE is entered.

② Select the desired MODE NO. with the “ ” button.

③ During group control, when setting by each indoor unit (mode No. 20, 21 and 23 have been selected), push the “ ” button and select the INDOOR UNIT NO to be set. (This operation is unnecessary when setting by group.)

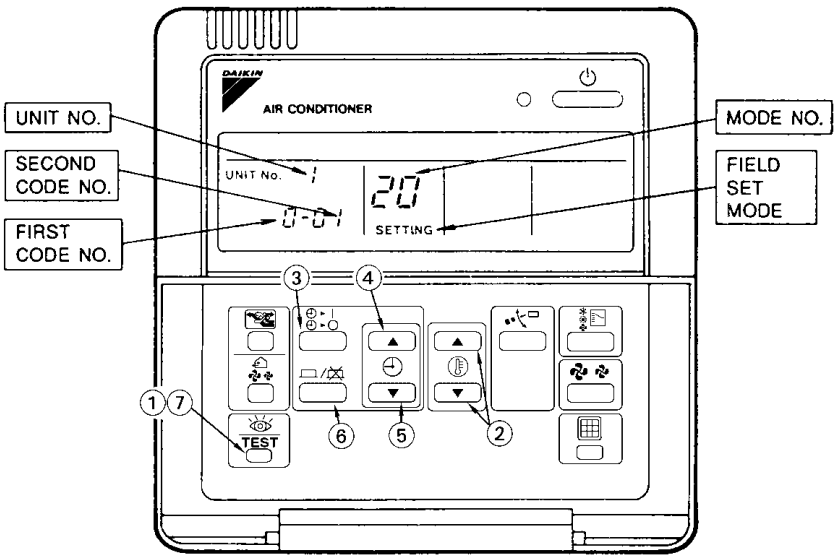
④ Push the “ ” upper button and select FIRST CODE NO.

⑤ Push the “ ” lower button and select the SECOND CODE NO.

⑥ Push the “ ” button once and the present settings are SET.

⑦ Push the “ TEST ” button for about one second 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.”



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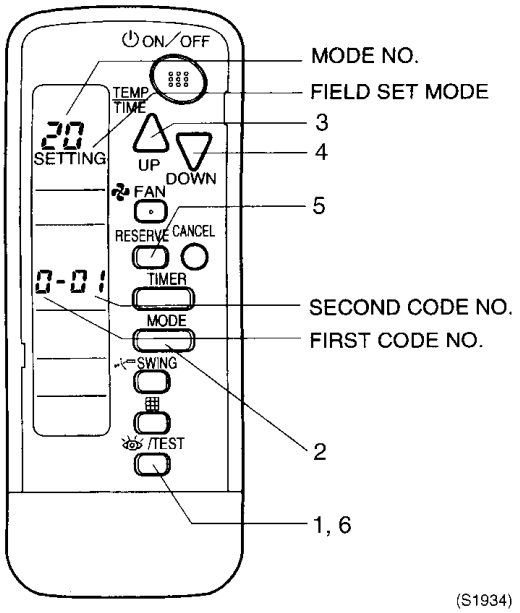
1.2.2 Wireless Remote Controller

Note: If optional accessories are mounted on the indoor unit, the indoor unit setting may have to be changed. Refer to the instruction manual (optional hand book) for each optional accessory.

Procedure

1. When in the normal mode, push the " /TEST " button for a minimum of four seconds, and the FIELD SET MODE is entered.
2. Select the desired MODE NO. with the " MODE " button.
3. Push the " UP " button and select the FIRST CODE NO.
4. Push the " DOWN " button and select the SECOND CODE NO.
5. Push the " RESERVE " button and the present settings are SET.
6. Push the " /TEST " button to return to the NORMAL MODE.



1.3 Initial Setting Contents

Setting Contents / Indoor Models		Filter Sign	Filter Sign Estimation of Accumulated Operating Hours	High Air Outlet Velocity (for Application to Ceiling Higher than 2.7m)	Selection of Air Flow Direction F, T, W	Air Flow Direction Adjust	Air Flow Direction Range Setting	External Static Pressure	Long Life Filter Type	Fan Speed Up	Simul-taneous operation (Twin)
Ceiling Mounted Super Cassette (FHYCP)	(Heat Pump) FHYCP 50~140D	○	○	○	○		○		○		○
New Ceiling Mounted Suspended Cassette (FUYP)	(Heat Pump) FUYP 71~125B	○	○	○							
Ceiling Suspended (FHYP)	(Heat Pump) FHYP 50~125B	○	○	○							○
Wall Mounted Type	(Heat Pump) FAYP 71, 100B	○	○							○	

1.4 Local Setting Mode No.

Example

To set the filter sign time to “filter contamination - heavy” for all units in a group:
Set mode No. to “10,” setting switch No. to “0,” and setting position No. to “02.”

Table

Mode No. Note 1	Setting Switch No.	Setting Description		Setting Position No. *Note 2				
				01		02		03
10 (20)	0	Filter contamination - heavy / light (Setting of operating hours for filter sign indication) (Change setting when reducing filter sign indication time to half due to quick soiling of filter)	Ultra-Long-Life Type	Light	Approx. 10,000 hours	Heavy	Approx. 5,000 hours	—
			Long-Life Type		Approx. 2,500 hours		Approx. 1,250 hours	
			Standard Type		Approx. 200 hours		Approx. 100 hours	
	1	Long-life filter type (Setting of filter sign indication time) (Change setting when Ultra-long-life filter is installed)		Long-Life Filter		Ultra-Long-Life Filter (1)		—
	2	Remote control thermostat (Set when remote control thermostat sensor is used.)		Use		Not use		
	3	Estimation of filter operating hour (Change setting when filter sign indication is not used)		ON		OFF		—
11 (21)	0	No. of Sky Air indoor units connected for simultaneous ON-OFF multi system (Change setting when simultaneous operation multi system is used) *Note 3		Pair		Twin		Triple
	2	Indoor unit fan OFF when cooling/heating is OFF		—		Fan OFF		—
	4	PMV Control		Permitted		Prohibited		—
12 (22)	5	Automatic restart after power outage reset *Note 6		OFF		ON		—
13 (23)	0	High Ceiling	Ceiling-mounted built-in multi-flow cassette type, Ceiling suspended cassette type	N		H		S
			Ceiling-suspended type, wall-mounted type	2.7 m or Lower		2.7~3.5 m		—
		Fan speed increase (wall-mounted type)		Standard		Slight Increase		Normal Increase
	1	Air flow direction selection (Change setting when blocking kit is installed) *Note 4		F		T		W
	3	Air flow direction adjustment (Change setting when decorative air outlet panel is installed)		Equipped		Equipped		—
	4	Setting of air flow direction adjustment range		Upward		Standard		Downward
	6	External static pressure setting (To be set according to connected duct resistance)		Standard (Standard)		High Static Pressure (High Ceiling Setting)		Low Static Pressure

Notes:

1. Setting is made in all units in a group. To set for individual indoor units or to check the setting, use the mode Nos. (with “2” in upper digit) in parentheses ( ).
2. The setting position No. is set to “01” at the factory, except for the following cases in which “02” is set.
   - Setting of air flow direction adjustment range 13(23)-4
   - Automatic restart after power outage. 12(22)-5
   - Remote control thermostat
   - Filter sign indication (only for ceiling-mounted duct type) 10(20)-3
3. For further details, see the installation instruction.
4. Since drafts may result, carefully select the installation location.
5. When power returns, units resume the settings made before the power outage.
6. When installing Sky Air simultaneous operation multi-unit, set to “twin”.
   Only when the factory setting is changed, it is necessary to make a setting using a remote controller.

Caution When “auto restart after power outage reset” is set, be sure to turn off air conditioners, then cut off the power supply before conducting maintenance, inspection and other work. If the power supply is cut off with the power switch left ON, air conditioners will automatically start operating when the power supply is turned on.

7. Do not set any items other than those listed in the above table.
8. Functions that indoor units are not equipped with will not be displayed.
9. When returning to normal mode, “88” may be displayed on the LCD section of the remote controller due to initialization operation.

1.5 Detailed Explanation of Setting Modes

1.5.1 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 FAYP**

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 FHYCP (50 ~ 71 class), FUYP**

			No. of Air Outlets Used		
			4-way Outlets	3-way Outlets	2-way Outlets
Ceiling Height	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 FHYCP (100 ~ 140 class)**

			No. of Air Outlets Used		
			4-way Outlets	3-way Outlets	2-way Outlets
Ceiling Height	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	—

1.5.2 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

1.5.3 Filter Sign Setting

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

Set Time

Filter Specs. / Setting		Standard	Long Life	Ultra Long Life Filter
Contamination Light	01	200 hrs.	2,500 hrs. ∗1	10,000 hrs.
Contamination Heavy	02	100 hrs.	1,100 hrs. ∗2	5,000 hrs.

∗1 FHYCP only 5,000 hrs., ∗2 FHYCP only 2,500 hrs.

1.5.4 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	—

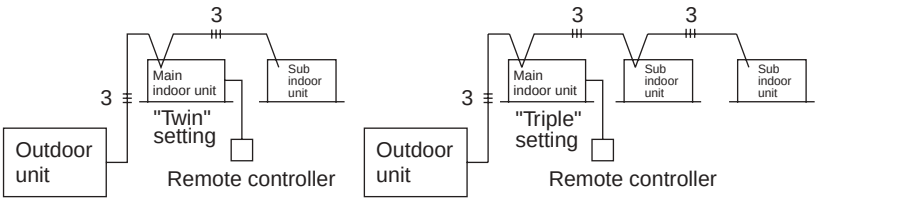
1.5.5 No. of Connected Twin System Indoor Units

If using as twin system, switch the second code No. according to the number of units connected as given in the table below. The second code No. is factory set to “01” (No. of connected units = 1).

Setting Table

Mode No.	First Code No.	Second Code No.	Setting
11(21)	0	01	Pair (1)
		02	Twin (2)
		03	Triple (3)

Example



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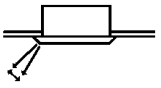
Note:
1. If set incorrectly, a connection mistake malfunction (remote controller display UA) will result. (3 minutes after turning the power ON is required for detection.)
2. If different models are used in combination, designate the unit that is equipped with the most functions as the main unit.

1.5.6 Setting of Air Flow Direction Adjustment Range

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



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

1.5.7 Fan Speed OFF When Thermostat is OFF

When the cool/heat thermostat is OFF, you can stop the indoor unit fan by switching the setting to “Fan OFF.”

∗ Used as a countermeasure against odor for barber shops and restaurants.

Setting Table

Mode No.	First Code No.	Second Code No.	Setting
11(21)	2	01	—
		02	Fan OFF

1.5.8 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

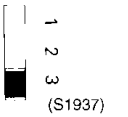
1.5.9 Wireless Setting (Address and MAIN/SUB Setting)

Explanation

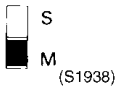
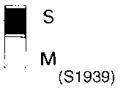
If several wireless remote controller units are used together in the same room (including the case where both group control and individual remote controller control are used together), be sure to set the addresses for the receiver and wireless remote controller. (For group control, see the attached installation manual for the indoor unit.) If using together with a wired remote controller, you have to change the main/sub setting or the receiver.

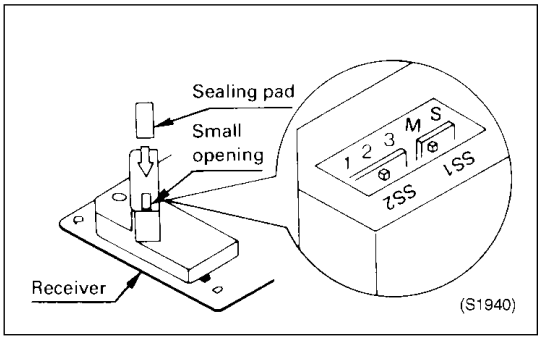
Setting The Receiver

Through the small opening on the back of the receiver, set the wireless address switch (SS2) on the printed circuit board according to the table below.

Unit No.	No.1	No.2	No.3
Wireless Address Switch (SS2)	 (S1935)	 (S1936)	 (S1937)

When using both a wired and a wireless remote controller for 1 indoor unit, the wired controller should be set to MAIN. Therefore, set the MAIN/SUB switch (SS1) of the receiver to SUB.

	MAIN	SUB
MAIN/SUB Switch (SS1)	 (S1938)	 (S1939)

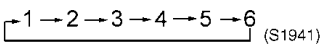


After completing setting, seal off the opening of the address switch and the MAIN/SUB switch with the attached sealing pad.

Setting The Address of Wireless Remote Controller (It is Factory Set to "1")

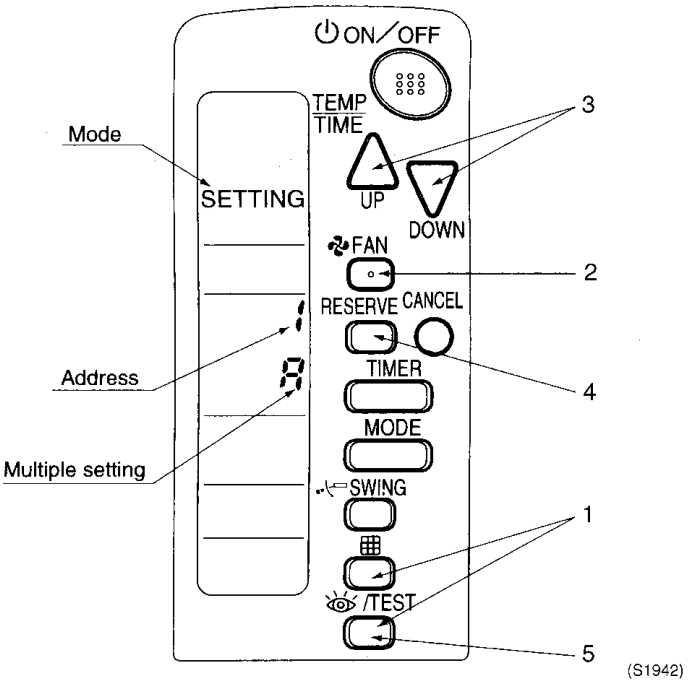
<Setting from the remote controller>

1. Hold down the " ▦ " button and the " /TEST " button for at least 4 seconds, to get the FIELD SET MODE. (Indicated in the display area in the figure at right).
2. Press the " FAN " button and select a multiple setting (A/b). Each time the button is pressed the display switches between "A" and "b".
3. Press the " UP " button and " DOWN " button to set the address.



Address can be set from 1 to 6, but set it to 1 ~ 3 and to same address as the receiver. (The receiver does not work with address 4 ~ 6.)

4. Press the " RESERVE " button to enter the setting.
5. Hold down the " /TEST " button for at least 1 second to quit the FIELD SET MODE and return to the normal display.



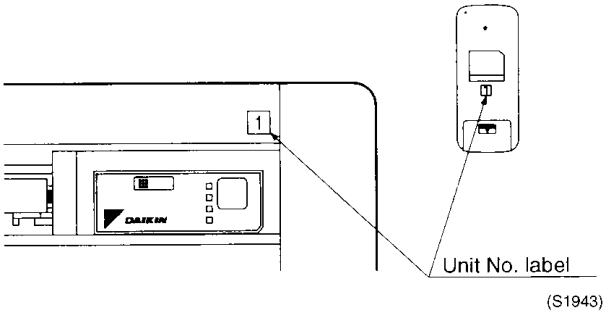
Multiple Settings A/b

When the indoor is being operating by outside control (central remote controller, etc.), it sometimes does not respond to ON/OFF and temperature setting commands from this remote controller. Check what setting the customer wants and make the multiple setting as shown below.

Remote Controller		Indoor Unit	
Multiple Setting	Remote Controller Display	Controlled by other Air Conditioners and Devices	For other than on Left
A: Standard	All items Displayed.	Commands other than ON/OFF and Temperature Setting Accepted. (1 LONG BEEP or 3 SHORT BEEPS Emitted)	
b: Multiple display	Operations set only is displayed shortly after execution.	All Commands Accepted (2 SHORT BEEPS)	

After Setting

Stick the Unit No. label at decoration panel air discharge outlet as well as on the back of the wireless remote controller.



PRECAUTIONS

Set the Unit No. of the receiver and the wireless remote controller to be equal. If the setting differs, the signal from the remote controller cannot be transmitted.

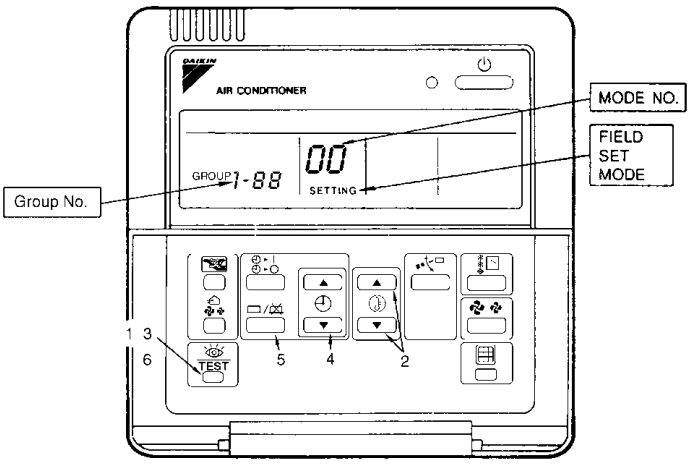
1. Do not use any settings not listed in the table.
2. For group control with a wireless remote controller, initial settings for all the indoor units of the group are equal. (For group control, refer to the installation manual attached to the indoor unit for group control.)

1.6 Centralized Group No. Setting

- If carrying out centralized control with a central remote controller and unified ON/OFF controller, you have to set the group No. for each group by remote controller.
- To set the group No., first turn on the power supply of the central remote controller, unified ON/OFF controller and indoor unit.

Centralized Group No. Setting by Remote Controller.

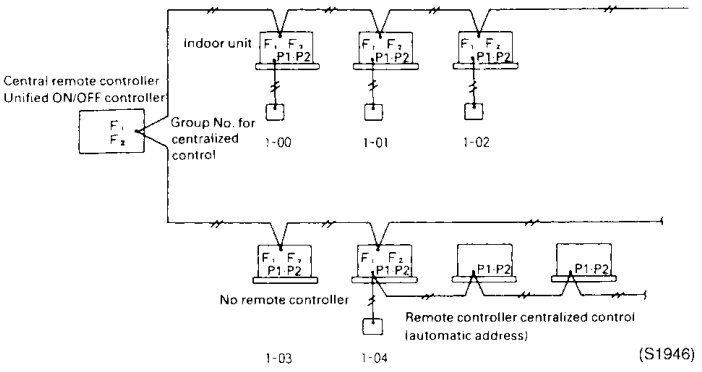
1. If the inspection/test button is pushed for 4 seconds or more when in the normal mode, operation enters the “field set mode.”
2. Using the temperature control buttons, set the mode No. to “00.”
3. Push the inspection/test button to inspect the group No. display.
4. Using the programming time button, set the group No. for each group. (Group No. rises in the order of 1-00, 1-01, ...1-15, 2-00 ...4-15, etc. The unified ON/OFF controller however displays only the range of group numbers selected by the switch for setting each address.)
5. Push the timer ON/OFF button and enter the selected group No.
6. Push the inspection/test button and return to the normal mode.



(S1095)

∗ If the address has to be set individually for each unit for power consumption counting, etc., set the mode No. to “30.”

Group No. Setting Example



(S1946)

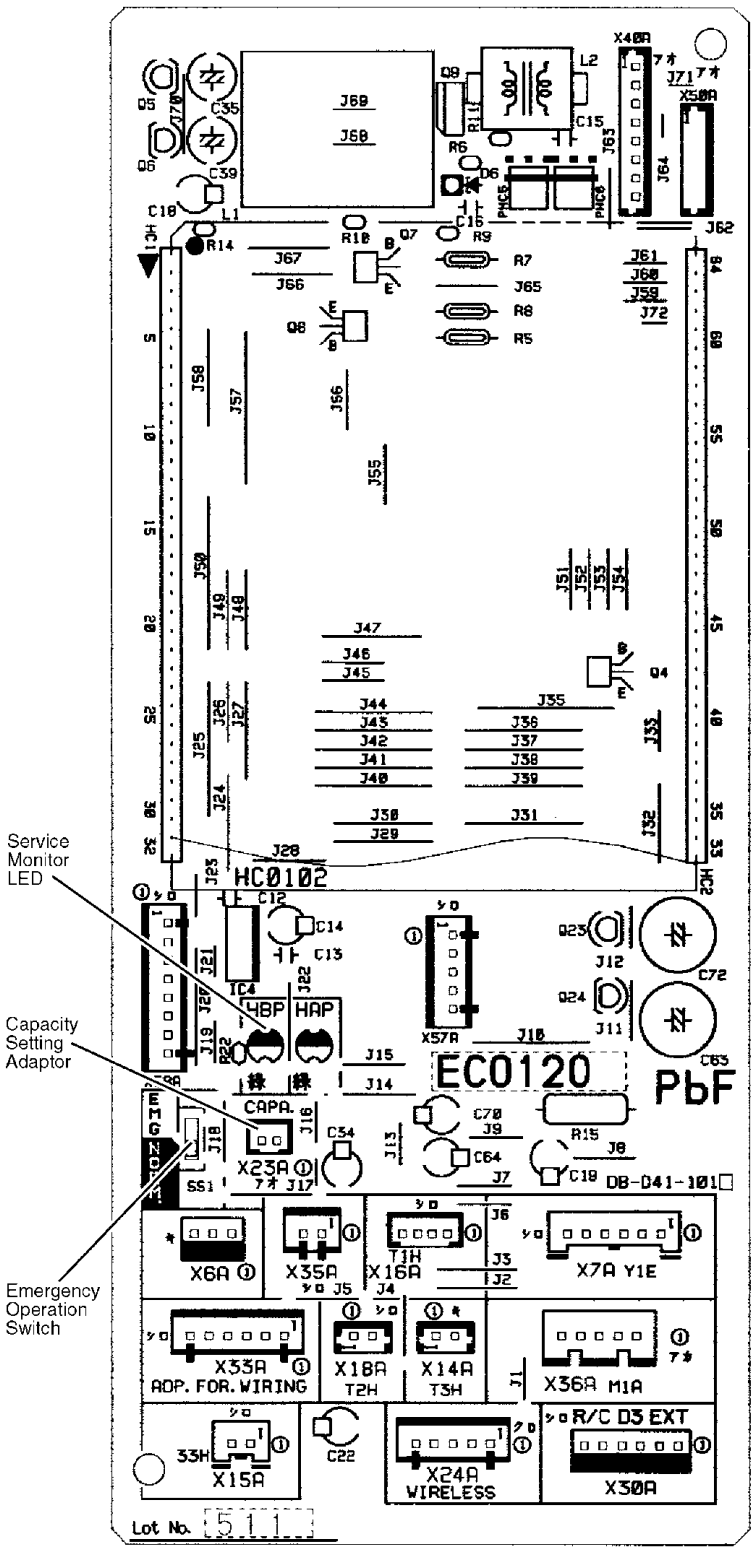
Note:

1. “F1,F2” indicates interface adaptor for SkyAir series.
2. If not using remote controllers, temporarily connect a remote controller to set the group No., set the group No. for centralized control, and then disconnect the controller.

2. Settings Concerning Maintenance

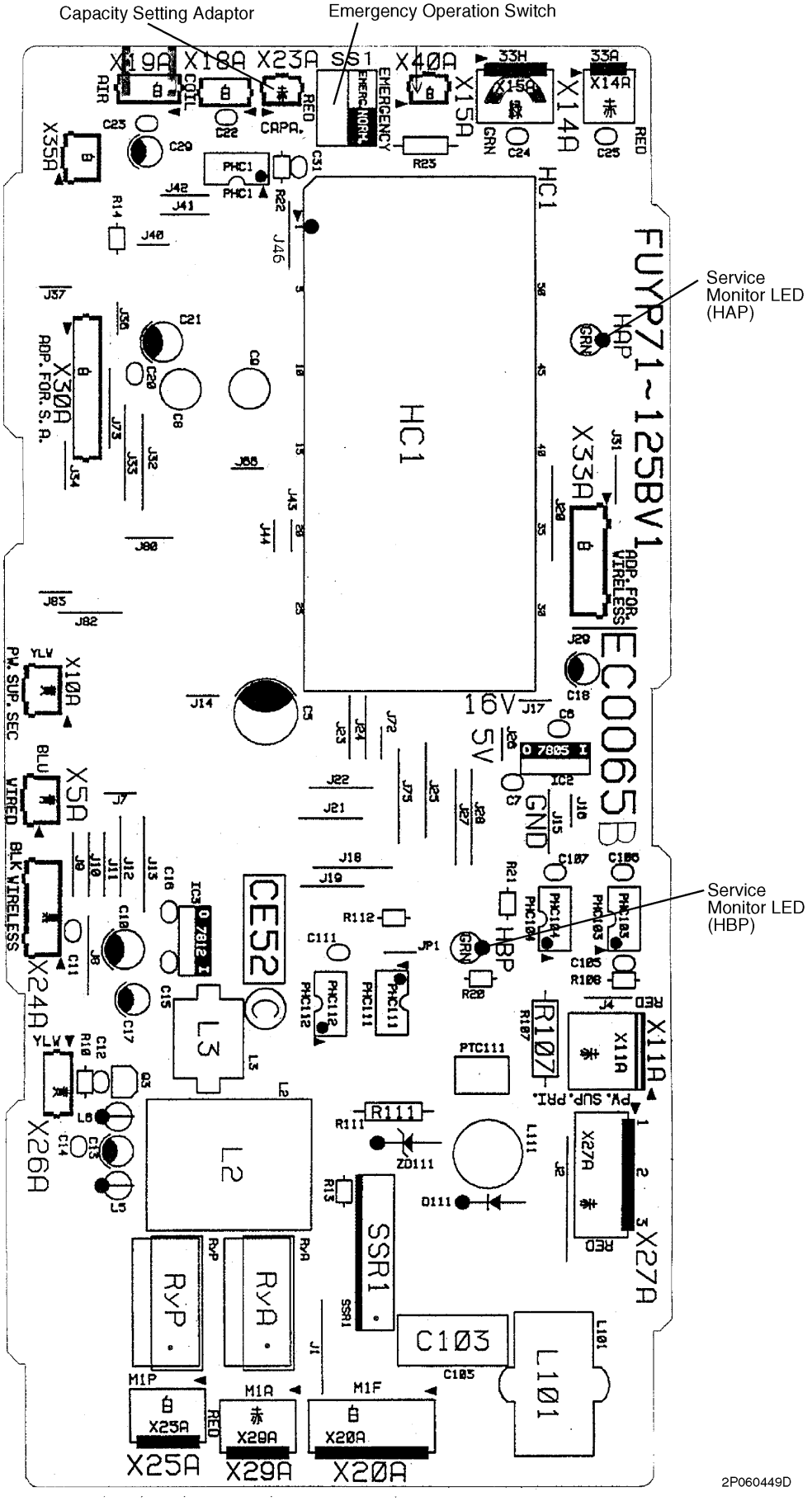
2.1 Indoor Unit PCB

FHYCP

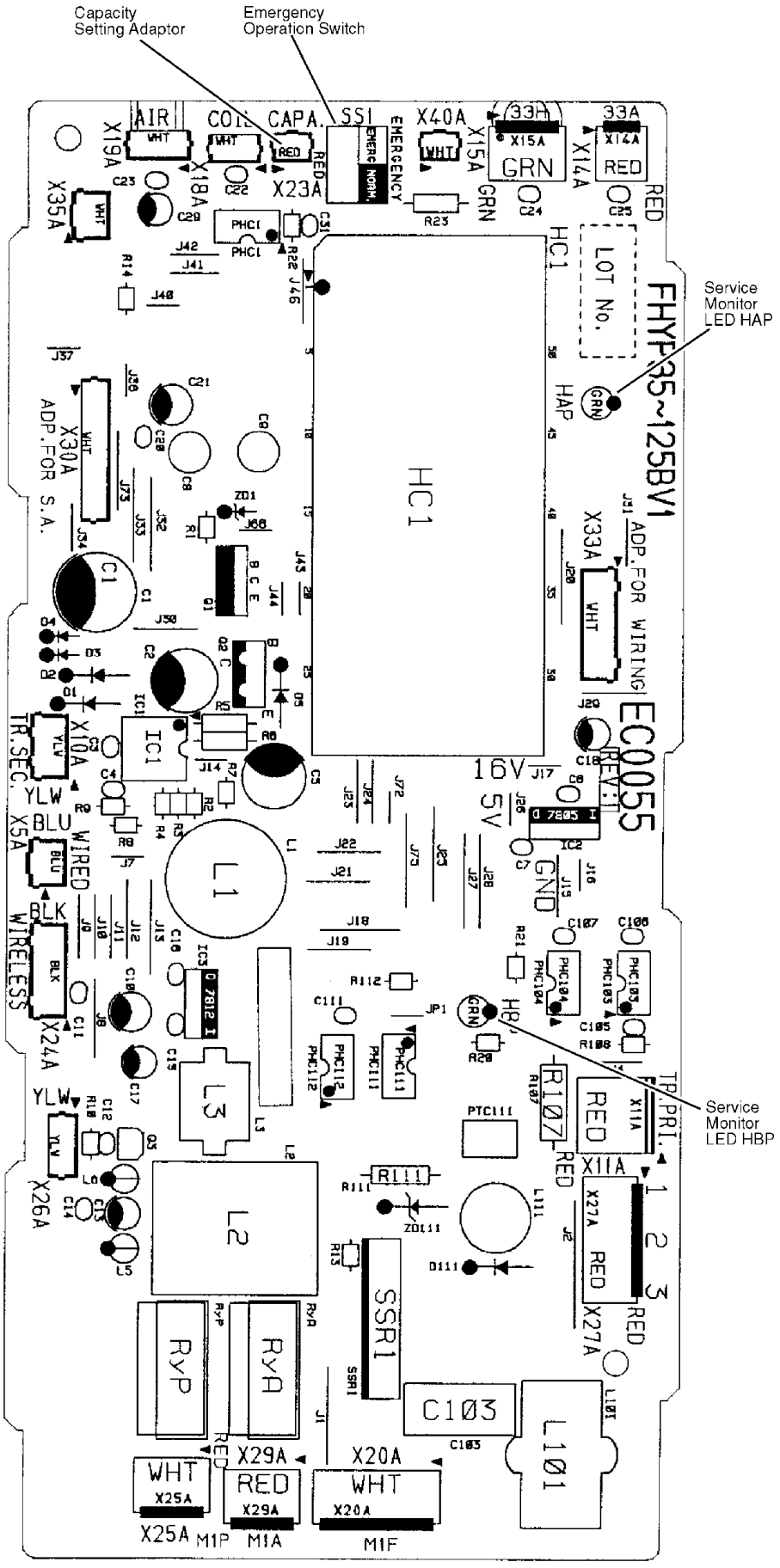


2P078917C

FUYP

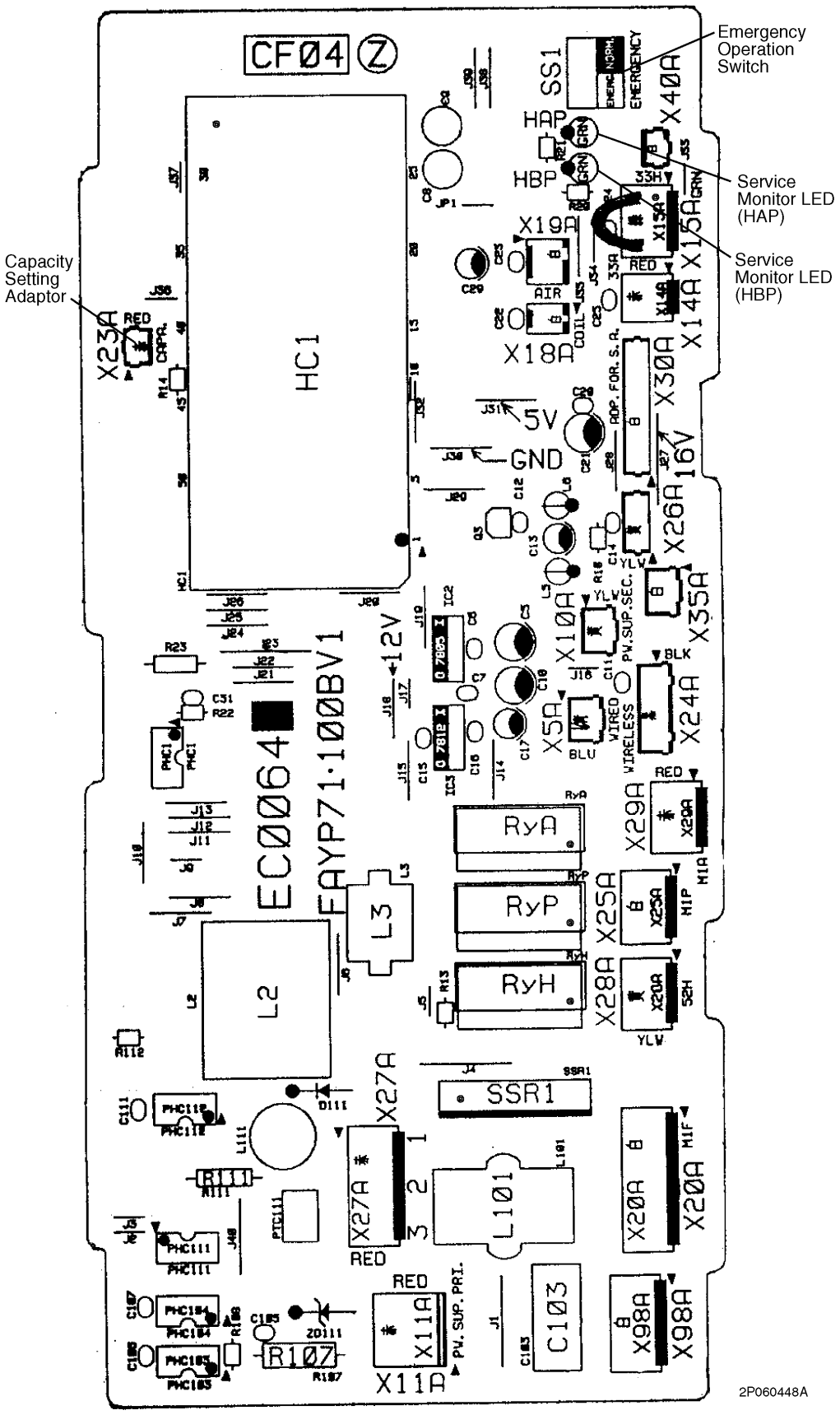

Capacity Setting Adaptor
Emergency Operation Switch
Service Monitor LED (HAP)
Service Monitor LED (HBP)
FUYR71~125BV1
ECO065B
HC1
X19A
X18A
X23A
SS1
X40A
X15A
X14A
X35A
X30A
X33A
X10A
X5A
X24A
X26A
X11A
X27A
X25A
X29A
X20A
L3
L2
L1Ø1
C1Ø3
SSR1
RyP
RyA
2P060449D

FHYP



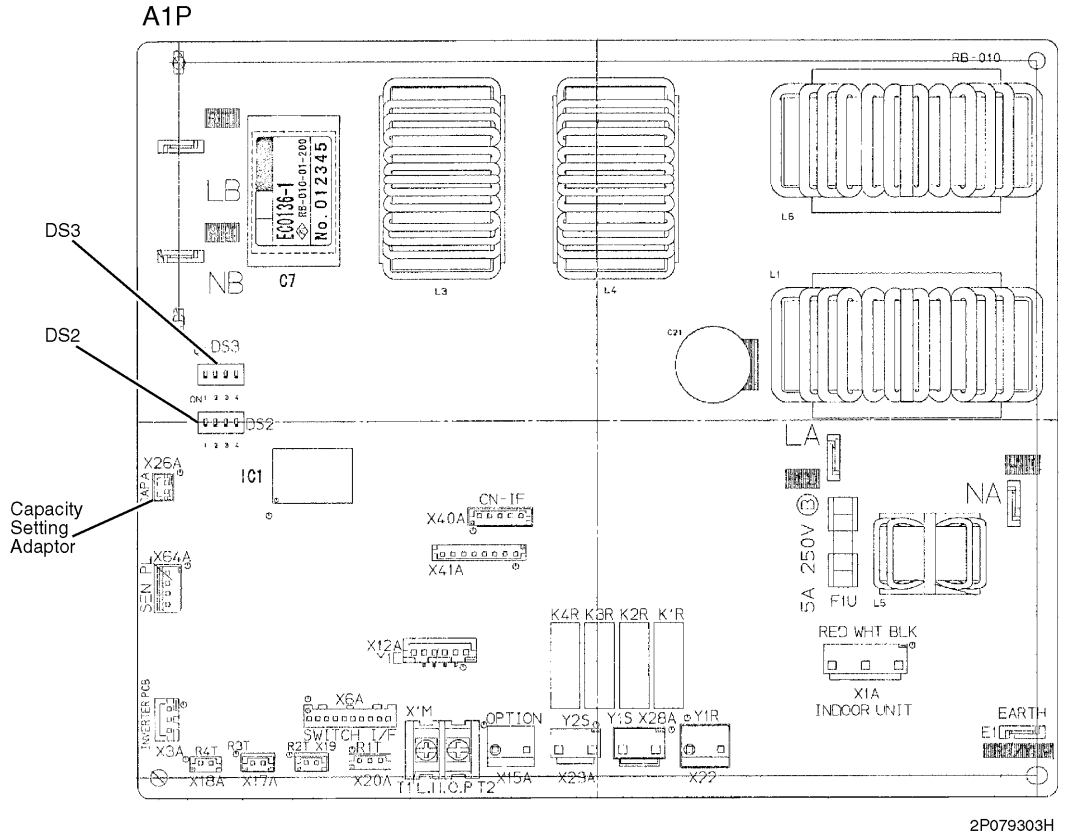
2P064849A

FAYP

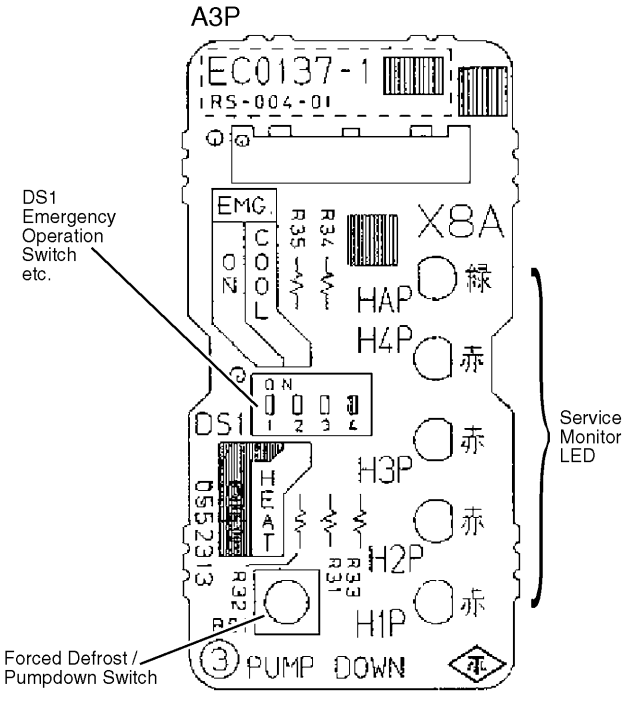

Emergency Operation Switch
Service Monitor LED (HAP)
Service Monitor LED (HBP)
Capacity Setting Adaptor
CF04
HC1
SS1
HAP
HBP
X40A
X15A
X14A
X19A
X18A
X23A
X30A
X26A
X10A
X35A
X24A
X5A
X29A
X25A
X28A
X27A
X20A
X98A
X11A
L3
L2
L101
C103
RyA
RyP
RyH
SSR1
5V
GND
12V
16V
EC00641
FAYP71·100BV1
2P060448A

2.2 Outdoor Unit Switches / Setting Jumper

RZP71DV1, VAL(E)

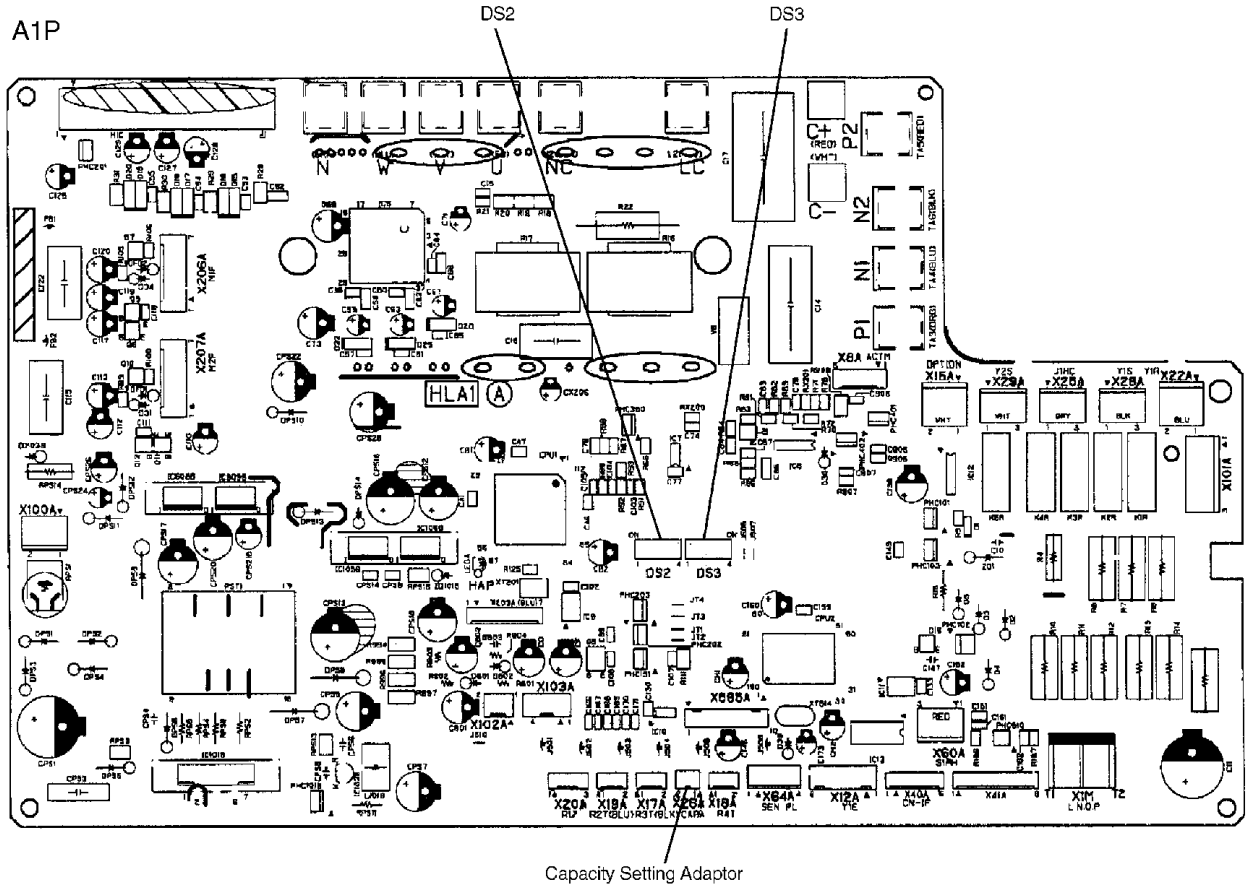


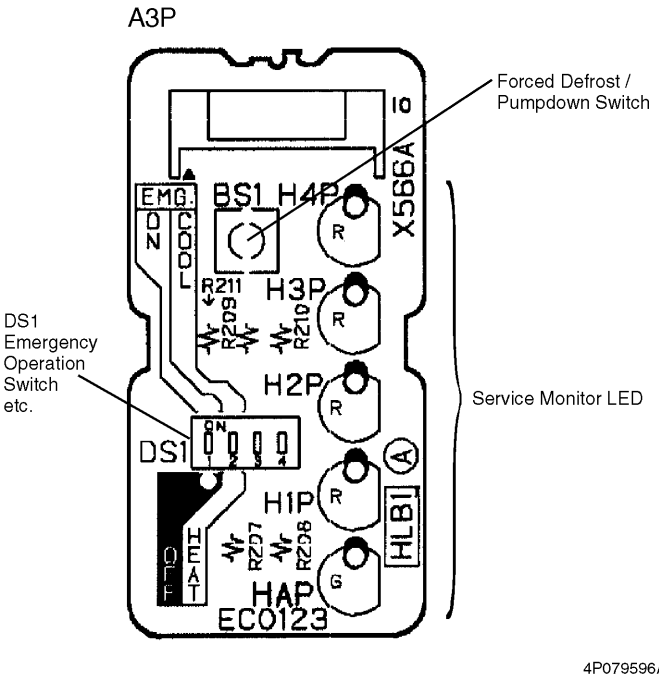
2P079303H



4P079304A

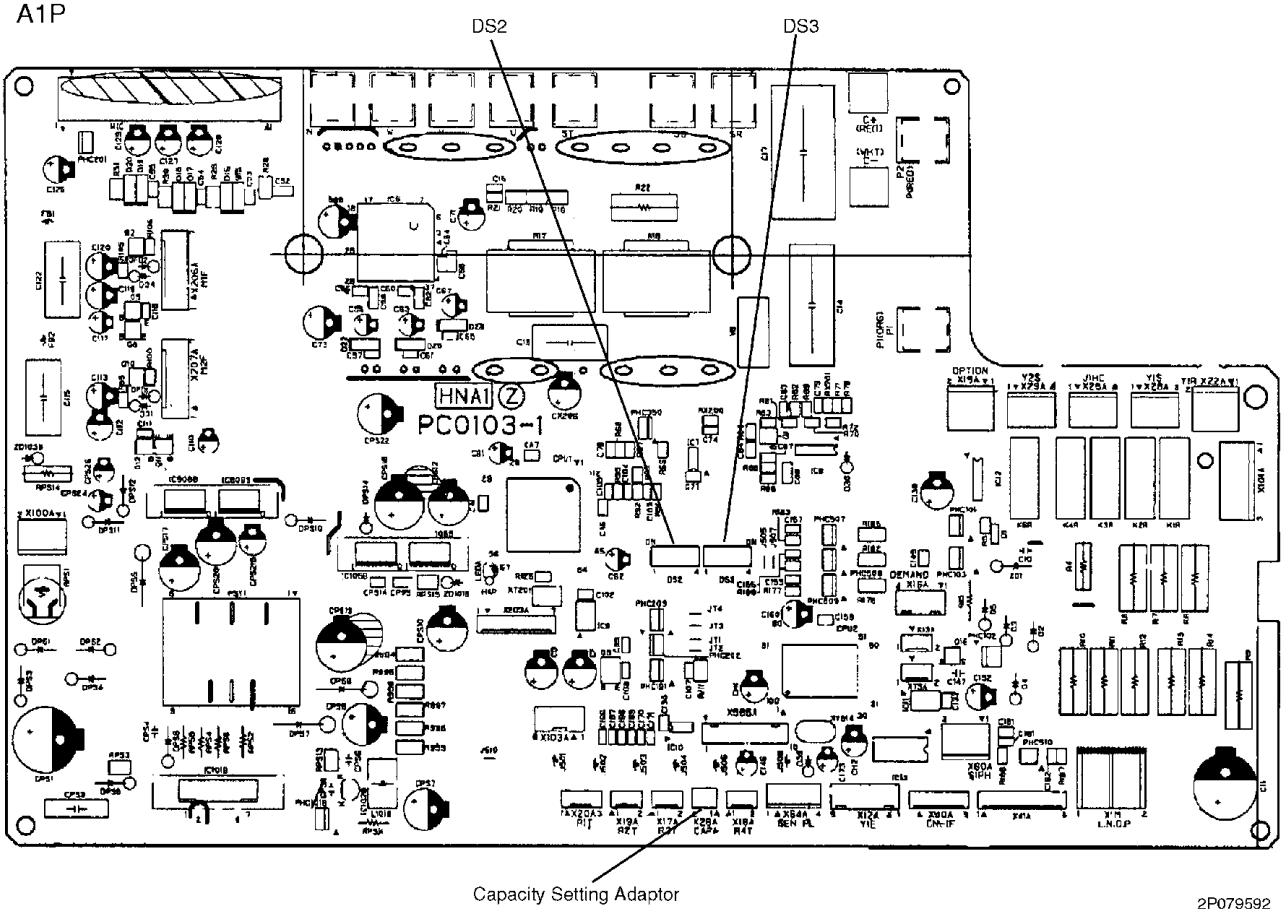
RZP100,
125DV1 (E)
RZP100DVAL (E)



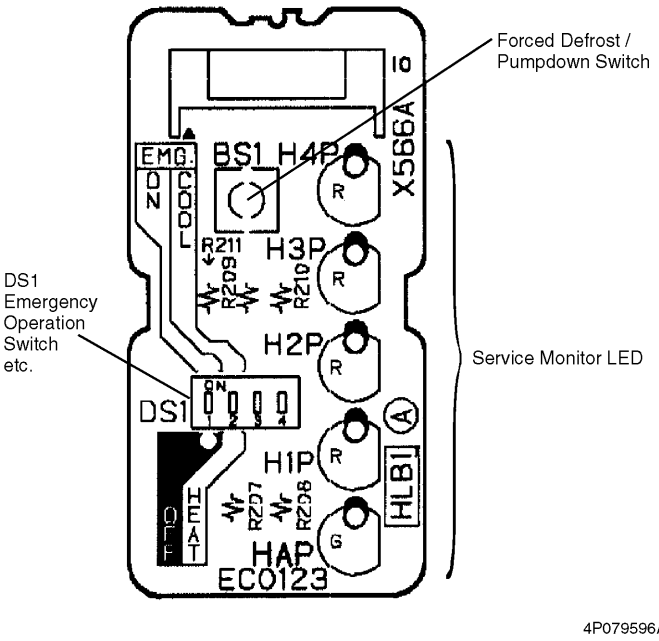


RZP125,
140DTAL

A1P



A3P



3. Existence of DIP Switch, Jumper and BS

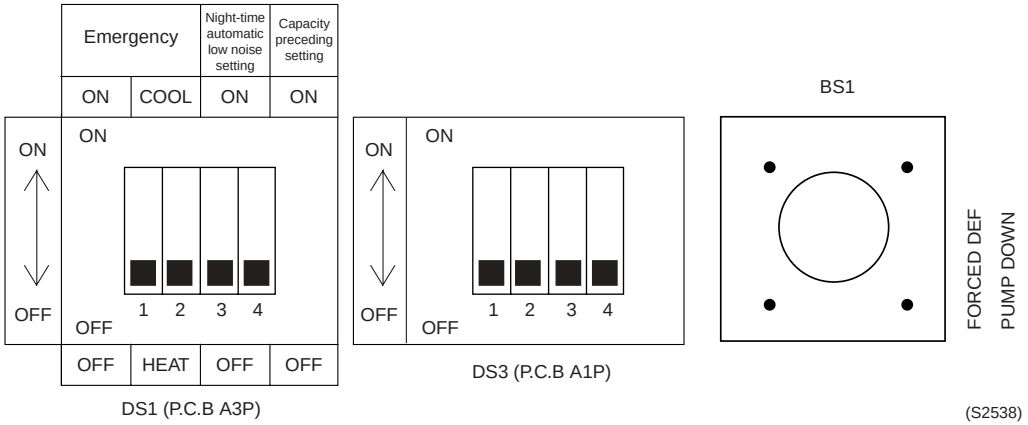
3.1 Reference Table

RZP71~140D

Model					RZP71~140D
DIP Switch 1	1	Emergency Operation	ON/OFF	Refer to “(20) Emergency operation” on page 155.	○
	2		Cool/Heat		○
	3	Night-time Automatic Low Noise Setting		Lowers operation sound by conducting a Low noise operation automatically in night-time.	○
	4	Capacity Preceding Setting		Capacity has priority to operation sound when night-time automatic low noise mode has been set.	○
DIP Switch 3	1	Defrost Slow Starting Setting		Makes defrost starting hard by changing temperature or time conditions for defrost starting.	○
	2	Defrost Quick Starting Setting		Makes defrost starting easy by changing temperature or time conditions for defrost starting.	○
	3	Defrost Sound Reduction Setting		Reduces impact sound by stopping compressor once at starting or ending defrost operation.	○
	4	ON/OFF Frequency Reduction Setting		Reduces ON/OFF frequency by changing thermostat ON condition.	○
BS		Forced Defrost/Pump Down		Forced defrost/pump down operation.	○
CN26/X26A		Capacity Setting Adapter		The switch is used when installing spare PCB.	(Spare parts is ○.)

★Do not change switches other than above mentioned, otherwise, operation trouble may be occurred.

Note: DIP Switch and BS Detail



Caution: Do not set DS2 dip switch.

Caution: DIP switches are factory set and it is not necessary to change switches in normal condition. Make sure to confirm the settings on spare parts P.C. board, before replacing.

Refer “Initial DIP switch setting list” on next page.

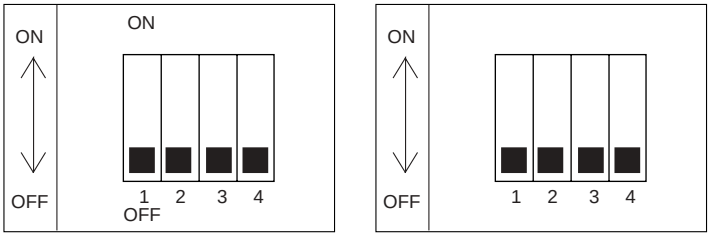
Refer “On-site setting switches” on following page for more detail.

Notes: BS button (Pump down / Forced defrosting)

Pressing the BS button forcibly operates the air conditioner in the cooling mode.

1. To conduct a pump-down operation (sending refrigerant to outdoor unit), press the BS button to forcibly operate the equipment in the cooling mode, then operate the unit for about 1 minute to stabilize the system. After stabilizing system, close the liquid pipe stop valve on the outdoor unit, and after the pressure decreases and the low pressure switch activates, close the gas pipe stop valve.
2. Forced defrost
   To activate the defrost operation during the heating operation, press the BS button. This will activate the forced defrost operation (cooling operation).
   When the defrost cancel conditions are met, the equipment automatically switches off the defrost operation.

3.2 Initial DIP Switch Setting List (Factory Set)



DS1 (P.C.B A3P) DS3 (P.C.B A1P)

(S2539)

Notes: The power supply breaker should be switched off before changing position of switches.

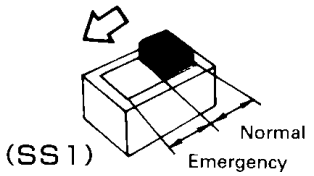
3.3 Emergency Operation

Emergency Operation of Indoor Units

You can operate the system manually by changing the setting of the emergency switch (SS1) on the indoor unit's PC board from "Normal" to "Emergency." When switched however the equipment cannot regulate temperature. The table below contains a list by model of actuators for manually operating indoor units in time of emergency.

Model	Fan	Drain Raising
FHYCP	○	○
FUYP	○	○
FHYP	○	○ (OPTION)
FAYP	○	—

■ Method of switching in time of emergency

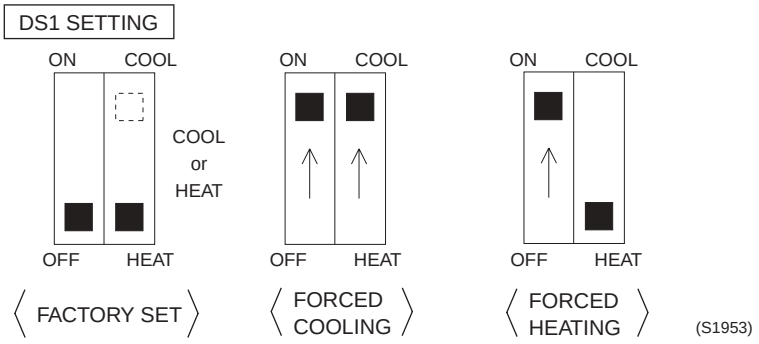


(S1952)

Notes:
1. Do not operate from remote controller during emergency operation.
2. Operate the switch only when the power supply is turned OFF.

Emergency Operation of Outdoor Units

Turn off the power supply and set the emergency switch to ON and "Heat" for heating or "Cool" for cooling. Operation will be started manually when you turn the power back on. ("Heat" cannot be set for a cooling only air-conditioner.)



(S1953)

Concerning Emergency Operation

If a safety device should be actuated during emergency operation, all actuators are turned OFF. If you reset after waiting for 3 minutes, operation will start again. Emergency operation cannot be carried out if the PC board itself is defective.

Note: For emergency operation, be sure to set emergency operation for both the indoor and outdoor units. Do not attempt to operate the equipment from the remote controller during emergency operation. Emergency operation is computer-controlled, and therefore cannot be carried out if the microcomputer is not operating properly.

The table below contains a list of actuators for manually operating the equipment in time of emergency.

Actuator	Cooling	Heating
Compressor	ON	ON
4-WAY VALVE	OFF	ON
Indoor Unit Fan	H Fan Speed	H Fan Speed
Drain Pump	ON	ON

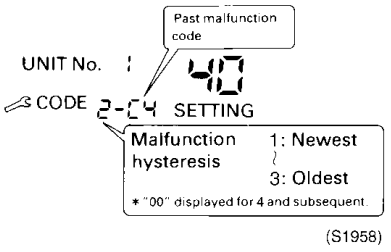
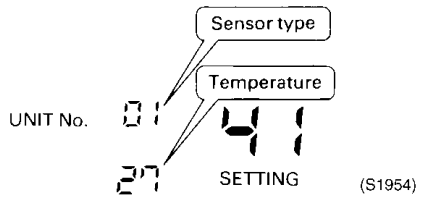
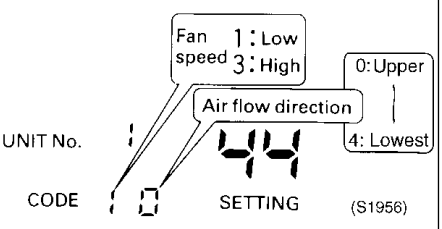
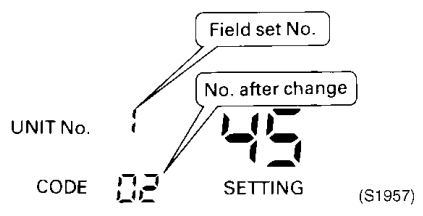
During emergency heating operation, defrosting is carried out for 3 minutes every hour. (4-way valve, outdoor unit fan and indoor unit fan are turned OFF.)

3.4 Maintenance Mode Setting

Procedure

1. Enter the field set mode.
   Continue to push the inspection / test operation button for a minimum of 4 seconds.
2. Enter the maintenance mode.
   After having entered the field set mode, continue to push the inspection / test operation button for a minimum of 4 seconds.
3. Select the mode No.
   Set the desired mode No. with the up/down temperature setting button.
4. Select the unit No.
   Select the indoor unit No. set with the time mode START/STOP button.
5. Carry out the necessary settings for each mode. (Modes 41, 44 and 45)
   See the table below for details.
6. Enter the setting contents. (Modes 44 and 45)
   Enter by pushing the timer ON/OFF button.
7. Return to the normal operation mode.
   Tap the inspection / test operation button one time.

Table

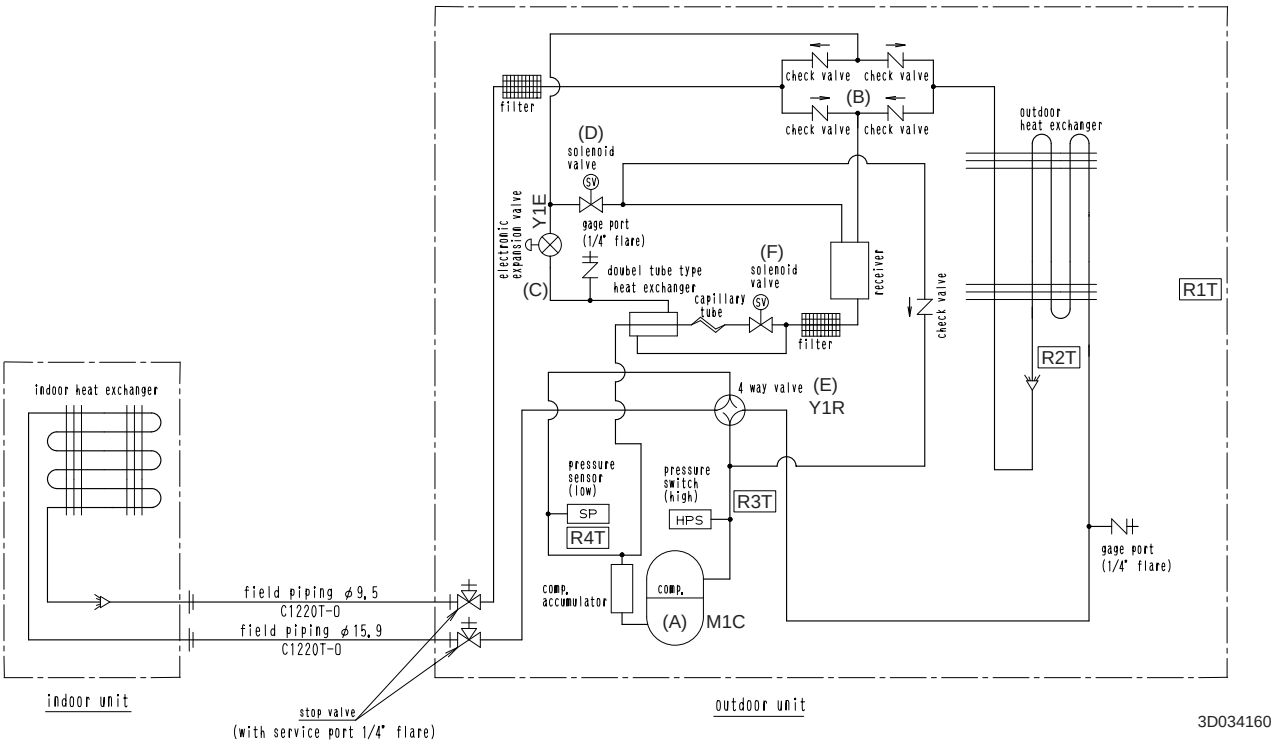
Mode No.	Function	Content and Operation Method	Example of Remote Controller Display
40	Malfunction Hysteresis	You can change the history with the programming time up-down button.	
41	Sensor Data Display	Select the display sensor with the programming time up-down button Display sensor *00* Remote control sensor *01* Suction *02* Heat exchange	
43	Forced Fan ON	Turns the fan ON for each unit individually.	
44	Individual Setting	Sets fan speed and air flow direction for each unit individually when using group control. Settings are made using the "air flow direction adjust" and "fan speed adjust" buttons.	
45	Unit No. Change	Changes unit No. Set the unit No. after changing with the programming time up-down button.	

Operation is not reset by malfunction code reset for inspection.
(Cannot be reset because the count is updated each time a malfunction occurs.)

Part 7
Function and Operation

1. Function of Main Components and Thermistors

1.1 Function of Main Components and Thermistors



(A) Compressor
Inverter drive unit varies compressor operating frequency to control capacity and other factors.

(B) Check Valve Bridge Circuit
Regulates refrigerant flow to maintain high pressure in liquid receiver at all times.

(C) Electronic Expansion Valve
Provides control to maintain optimum operating condition for high efficiency.

(D) Solenoid Valve Y1S
Equalizes pressure in non-operating condition, and controls oil supply during defrosting operation.

(E) 4 way Valve
Changes operation of cooling / heating.
* Coil energized : heating
  Coil not energized : cooling

(F) Solenoid Valve Y2S
Used for increasing capacity by subcooling liquid refrigerant passing through the double tube type heat exchanger.

R1T (Outdoor Air Thermistor)
Used for startup condition control and defrost control.

R2T (Heat Exchanger Thermistor)
Used for protection control during overload cooling operation and defrost control.

R3T (Discharge Thermistor)
Used for discharge temperature protection during compression operation.

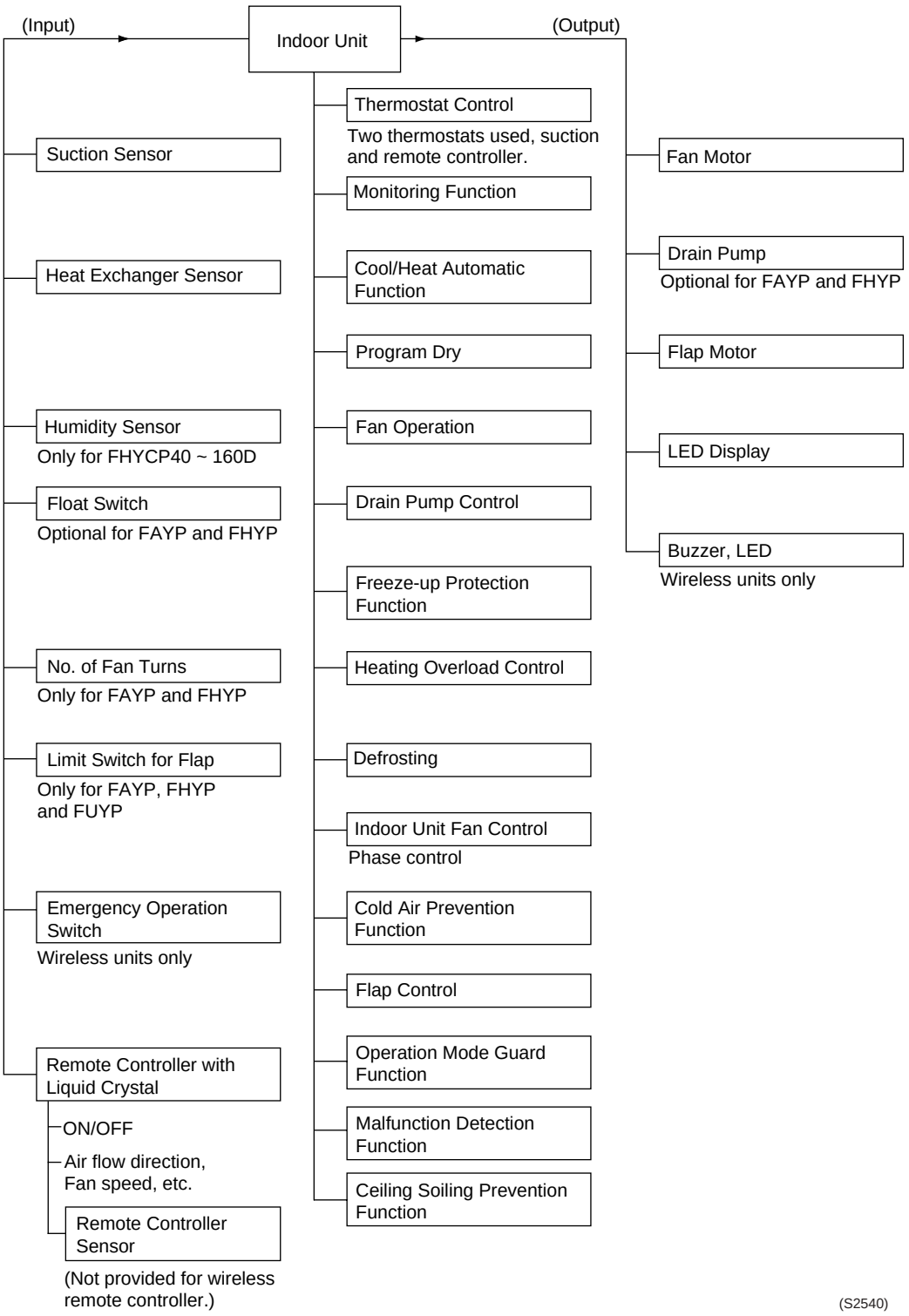
R4T (Suction Pipe Thermistor)
Used for suction super heat control by electronic expansion valve.

R5T (Power Module Thermistor)
Used for inverter protection.

2. Function Outline

2.1 Indoor Unit

**FHYCP, FHYP,
FUYP, FAYP**

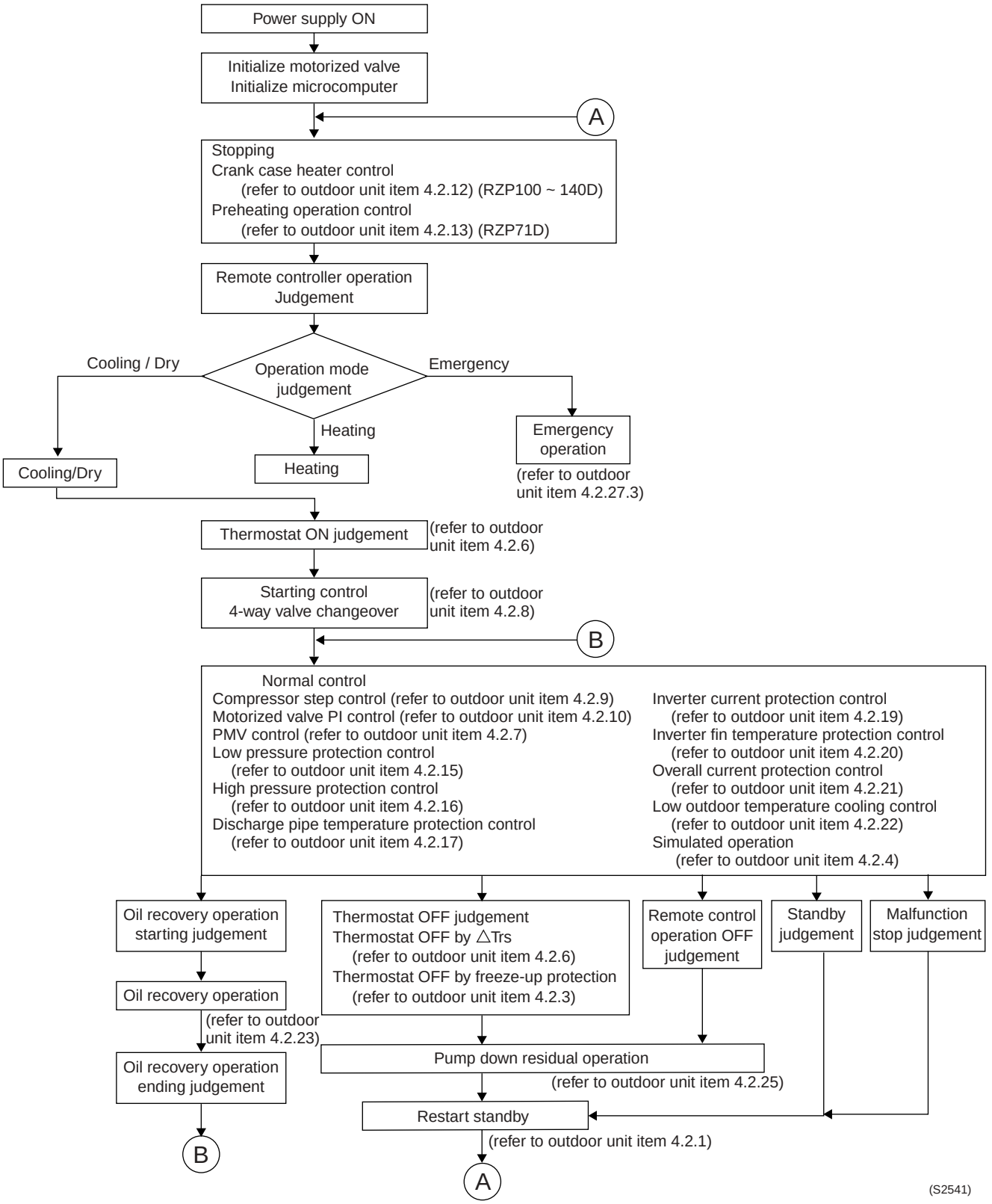


2.2 Outdoor Unit

RZP71~140D

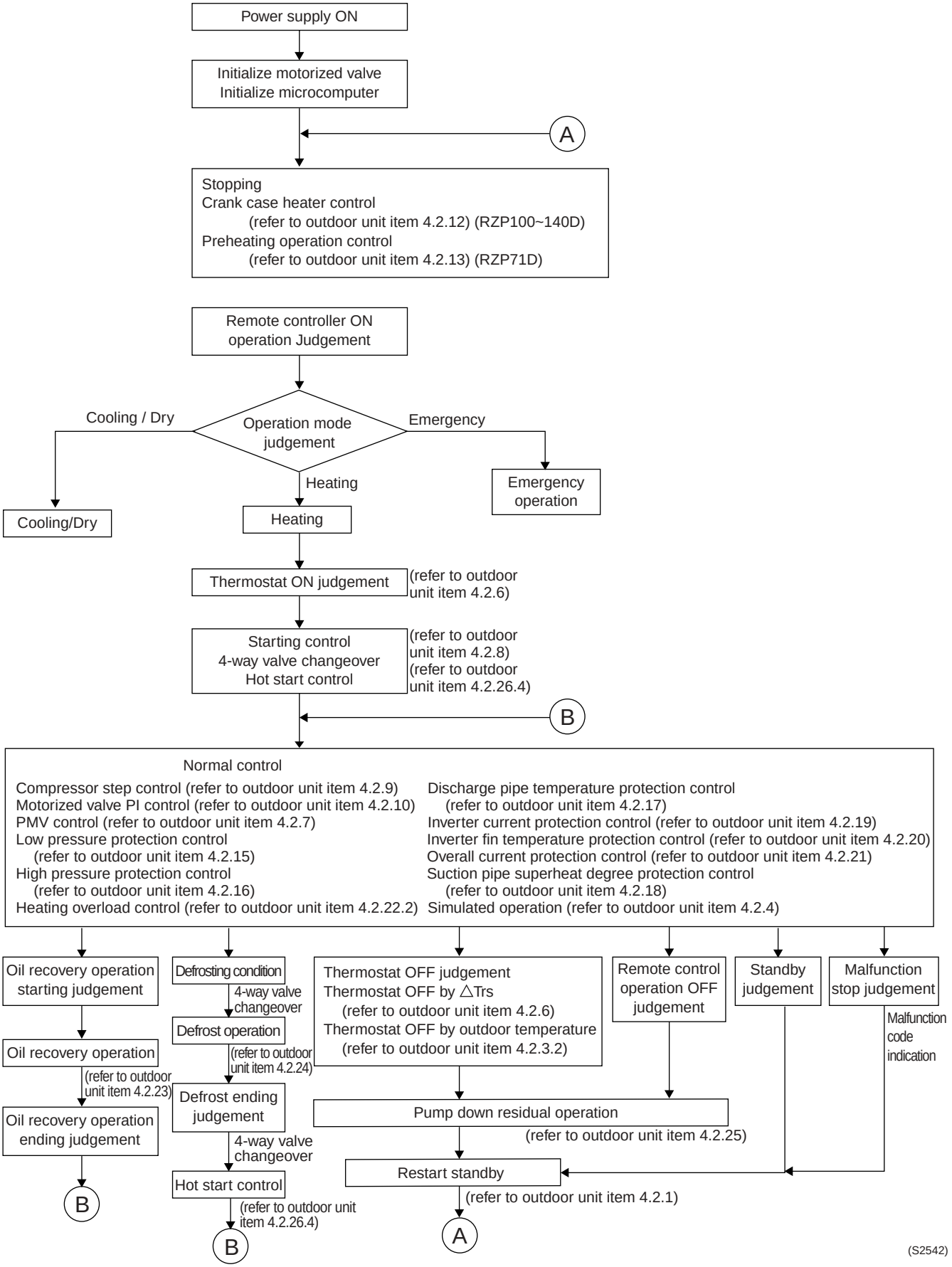
[Cooling/Dry operation]

Note: (Refer to outdoor unit item (XX)) means refer to Outdoor Unit (P.82 and after) in detailed description of function.



[Heating operation]

Note: (Refer to outdoor unit item XX) means refer to Outdoor Unit (P.82 and after) in detailed description of function.



3. Electric Function Parts

3.1 Indoor Unit

FHYCP – DVE, DVL

Capacity	50	60	71	100	125	140	Remarks
Wired remote controller	BRC1C61						Optional Accessory
Wireless remote controller	BRC7E61W						Optional Accessory
Electronic control unit	[2P078917-1] EC0120						
Fan motor	[3P082779-1] 8P 30W			[3P078850-1] 8P 120W			
Fan motor capacitor	—			—			
Swing flap motor	MP35HCA [3P080801-1]						
Float switch	[3P079543-1] FS-0211						
Drain pump	[3P078347-2]	[3P078347-4]					

FHYP – BV1

Capacity	45	60	71	100	125	Remarks
Wired remote controller	BRC1C61					Optional Accessory
Wireless remote controller	BRC7E63W					Optional Accessory
Electronic Control Unit	[2P064849-1]					
Fan Motor	[3PN04213-1] 4P 62W			[3PN04404-1] 4P 130W		
Fan Motor Capacitor	3.0MF 400V			9.0MF 400V		
Swing Motor	[3PN04208-1]					

FUYP – BV1

Capacity	71	100	125	Remarks
Wired remote controller	BRC1C61			Optional Accessory
Wireless remote controller	BRC7C612W			Optional Accessory
Electronic Control Unit	[3P056034-8]			
Fan Motor	[3P032205-1]	[3P035977-1]		
Fan Motor Capacitor	3.5MF 400VAC	6.0MF 400VAC		
Swing Flap Motor	[3PA07572-1] MT8-L			
Limit Switch	[4PA65848-1]			

FAYP – BV1

Capacity	71	100	Remarks
Wired remote controller	BRC1C61		Optional Accessory
Wireless remote controller	BRC7C610W		Optional Accessory
Electronic Control Unit	[2P060448-1]		
Fan Motor (Temperature Protector 130˚C)	[3PA07514-1]	[3PA07515-1]	
Fan Motor Capacitor	2.0MF 400VAC		
Swing Motor	[3SB40350-1] MT8-L		

Drawing No. given inside brackets [ ].

3.2 Outdoor Unit

				RZP71DV1	RZP71DVAL
MIC	Compressor			2YC63AXD (Swing)	
M1F	Fan motor			55W [3P079118-1]	
M2F				—	
S1PH	Pressure switch	For high pressure		ACB-DB143 [3P083074-1] OFF: 2.94± $^{0}_{0.1}$ (MPa) ON: 2.16±0.15(MPa)	
SENPL	Pressure sensor	For low pressure		PS8040A [3SA48112-1]	
R1T	Thermistor	For outdoor air		[4P082218-1]	
R2T	Thermistor	For outdoor unit heat exchanger		[3SA48004-5]	
R3T	Thermistor	For discharge pipe		[3SA48009-4]	
R4T	Thermistor	For suction pipe		[3SA48002-4]	
R5T	Thermistor	Fin thermistor		Included in inverter PCB	
J1HC	Crank case heater			—	
Y1R	4-way valve		Main body	[3P079432-1] VK24	
			Coil	[3P079433-2] LB81000	
Y1E	Electronic expansion valve		Main body	[3P078905-1] CAM20-B20YPDM-1	
			Coil	[3P078907-1] CAM-MD12DM-2	
Y1S	Solenoid valve	For receiver gas purging (SVG)	Main body	[3P078908-1] TEV1920D	
			Coil	[3P078909-4] TEV-MOAJ901B1	[3P078909-1] TEV-MOAG901B1
Y2S	Solenoid valve	For supercool heat exchanger (SVC)	Main body	[3P078908-1] TEV1920D	
			Coil	[3P078909-5] TEV-MOAJ902B1	[3P078909-2] TEV-MOAG902B1
A1P	Control P.C. board			[2P079303-3]	
A2P	Inverter P.C. board			[2P080066-3]	
A3P	Indication P.C. board			[4P079304-1]	
PM	Power module			[3P050185-3]	[3EB10021-1]

★ Inside [ ] shows drawing numbers.

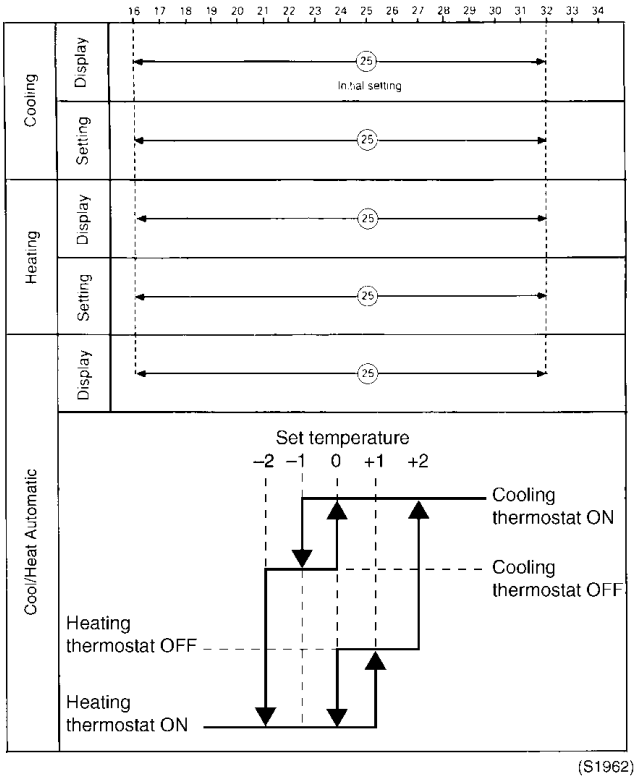
				RZP100DV1	RZP100DVAL	RZP125DV1	RZP125DTAL	RZP140DTAL
MIC	Compressor			JT100FAVD (Scroll)				
M1F	Fan motor			55W [3P079118-1]				
M2F				55W [3P079118-1]				
S1PH	Pressure switch	For high pressure		ACB-DB143 [3P083074-1] OFF: 2.94± $^{0}_{0.1}$ (MPa) ON: 2.16±0.15(MPa)				
SENPL	Pressure sensor	For low pressure		PS8040A [3SA48112-1]				
R1T	Thermistor	For outdoor air		[4P082218-1]				
R2T	Thermistor	For outdoor unit heat exchanger		[3SA48004-8]				
R3T	Thermistor	For discharge pipe		[3SA48009-6]				
R4T	Thermistor	For suction pipe		[3SA48002-6]				
R5T	Thermistor	Fin thermistor		Included in inverter PCB				
J1HC	Crank case heater			[3P082299-2] 33W				
Y1R	4-way valve		Main body	[3SA52018-1] CHV-0301		[3SA52023-1] VH40100		
			Coil	[3SA52020-1-KU] AJ535B		[3SA52037-7-KU] LB6412CAL		
Y1E	Electronic expansion valve		Main body	[3P078906-1] CAM-B40YPDM-1		[3SA52029-1] EKV-26D35		[3SA52028-1] EKV-30D36
			Coil	[3P078907-1] CAM-MD12DM-2		[3P002169-3] EKV-MOZS		
Y1S	Solenoid valve	For receiver gas purging (SVG)	Main body	[3P078908-1] TEV1920VD				
			Coil	[3P078909-6] TEV- MOAJ903B1	[3P078909-3] TEV- MOAG903B1	[3P078909-6] TEV- MOAJ903B1	[3P078909-3] TEV-MOAG903B1	
Y2S	Solenoid valve	For supercool heat exchanger (SVC)	Main body	[3P078908-1] TEV1920D				
			Coil	[3P078909-5] TEV- MOAJ902B1	[3P078909-2] TEV- MOAG902B1	[3P078909-5] TEV- MOAJ902B1	[3P078909-2] TEV-MOAG902B1	
A1P	Control P.C. board			[2P079595-1]			[2P079592-3]	
A2P	Inverter P.C. board			[3P079594-1]	[3P082288-1]	[3P079594-1]	[3P082287-1]	
A3P	Indication P.C. board			[4P079596-1]				
PM	Power module			[3EA38012-1]	[3P083704-1]	[3EA38012-1]	[3P083705-1]	

★ Inside [ ] shows drawing numbers.

4. Function Details

4.1 Indoor Unit

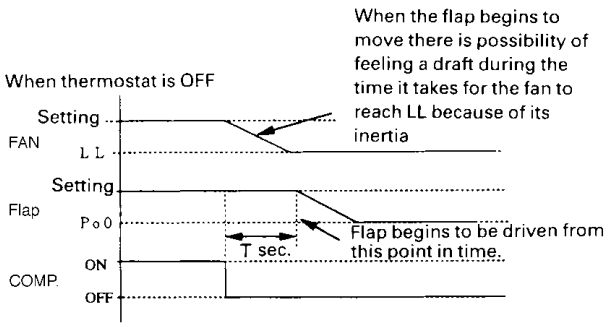
Thermostat Control



(S1962)

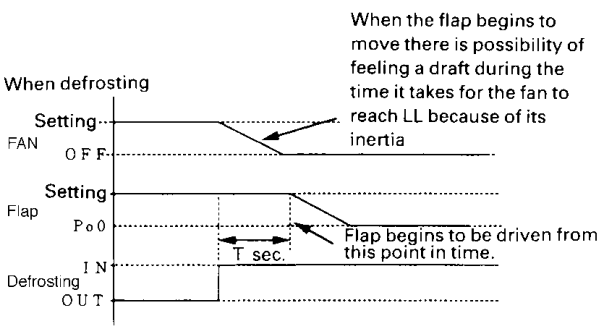
Draft Avoidance Control 1

Draft is circumvented by delaying transfer of the flap to the Po0 (horizontal) position for a certain amount of time when defrosting and in the heating mode with the thermostat OFF.



T: 5 sec (FHYCP)
T: 20 sec (Other models)

(S1963)

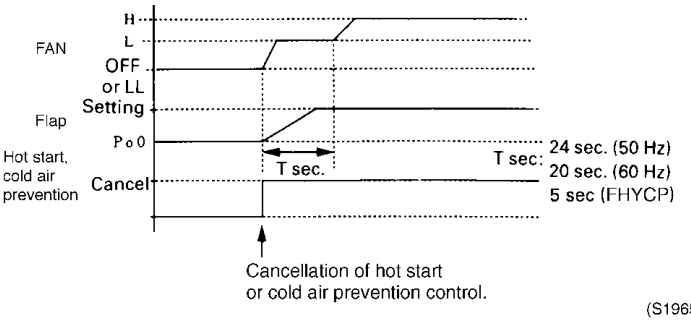


T: 5 sec (FHYCP)
T: 20 sec (Other models)

(S1964)

Draft Avoidance Control 2

When hot start is canceled or when cold air prevention control is finished, if the fan speed is set to “H,” the fan turns at L speed for a certain amount of time, thus avoiding draft while the flap is moving.



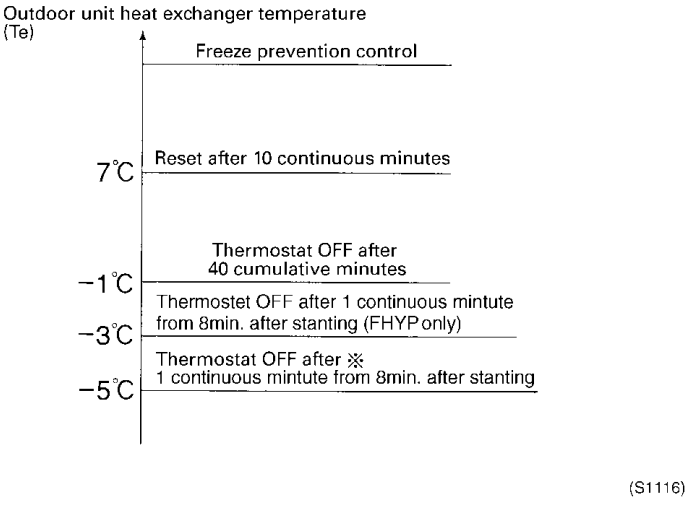
Air Flow Volume Shift Control

The air flow volume of an indoor unit is varied to prevent shutdown due to a rise in the high pressure level.
(Air volume up at heating operation)
ON condition Tc≥58.8˚C
Reset condition Tc<50˚C
Note that the air flow volume is varied for a preset time when the thermostat is ON.

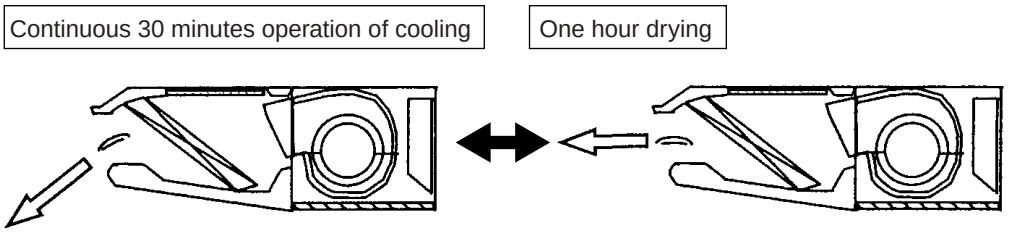
Freeze Prevention Control

The thermostat turns OFF under the following temperature conditions to prevent freezing of the indoor unit heat exchanger.

- The motorized valve is controlled to maintain the indoor unit heat exchanger temperature (Te) above 0˚C.
- The outdoor unit fan speed is reduced to prevent freeze prevention control from activating during cooling operation under low outside air temperature. (For details, see the section on cooling operation under low outside air temperature.)



Condensation Avoidance Control (FHYP Model Only)



After continuous 30 minutes of operation with downward horizontal blade position, change the blade position to level, and after one hour, the unit operation can be reset.

The unit operation can be reset with changing operation mode into "heating" or "fan", changing air flow direction or turning "ON" or "OFF" the unit operation.

(S1117)

Note

1. Regardless of thermostat ON or OFF, the control can be functioned with the operation mode of " cooling (automatic cooling) " or " programmed drying ".
2. The function is not provided for models other than FHYP71~125B.

Outdoor Unit Identification Function

If the indoor unit is for both a heat pump and cooling only type, this function differentiates whether the outdoor unit is functioning as a heat pump or cooling only unit, and automatically decides the which operation modes can be set.

■ Operation modes which can be set

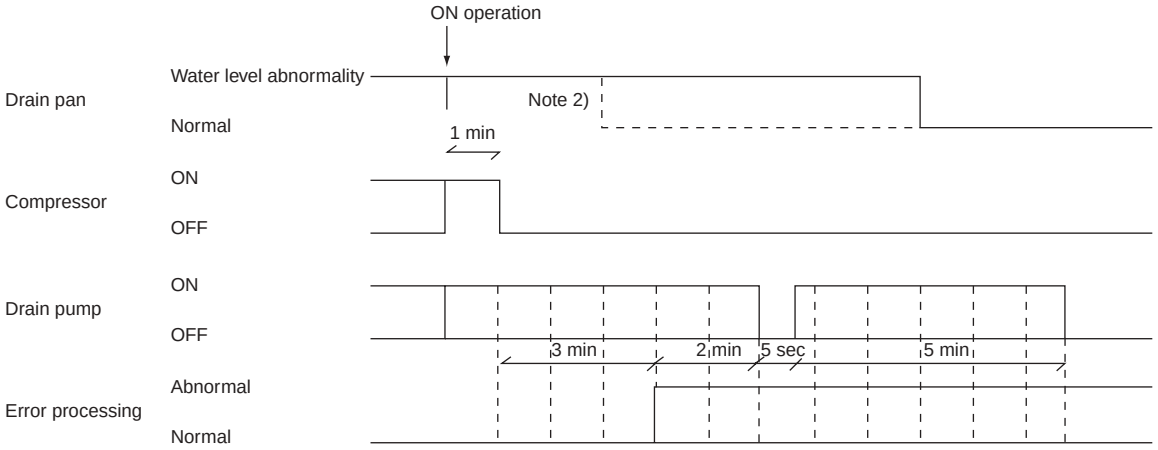
Heat pump : Fan / cool / dry / auto / heat

Drain Pump Control (FHYCP and FHYP (OPTION) Only)

1. During cooling and program dry operation modes, the control function turns on the drain pump according to the compressor operation. When the compressor turns OFF, the drain pump continues operating for additional 5 minutes.
2. During cooling and microcomputer-controlled operation modes as well as in the initial stage of heating operation, the control function detects the water level in the drain pan, and performs an error shutdown process if the water level is abnormal.

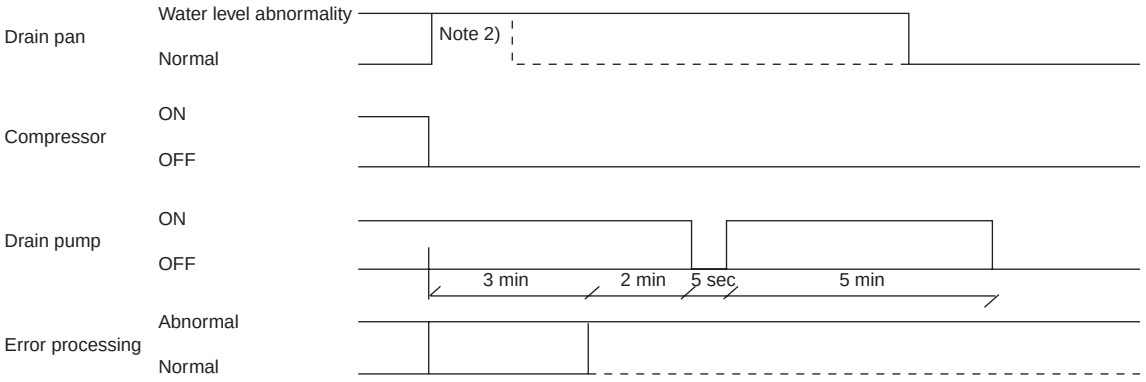
(A) Drain pan water level detection system (water level sensor type) : cassette type

i) During operation startup



Note: 1. In the initial stage of operation, the same control is also provided in heating mode.

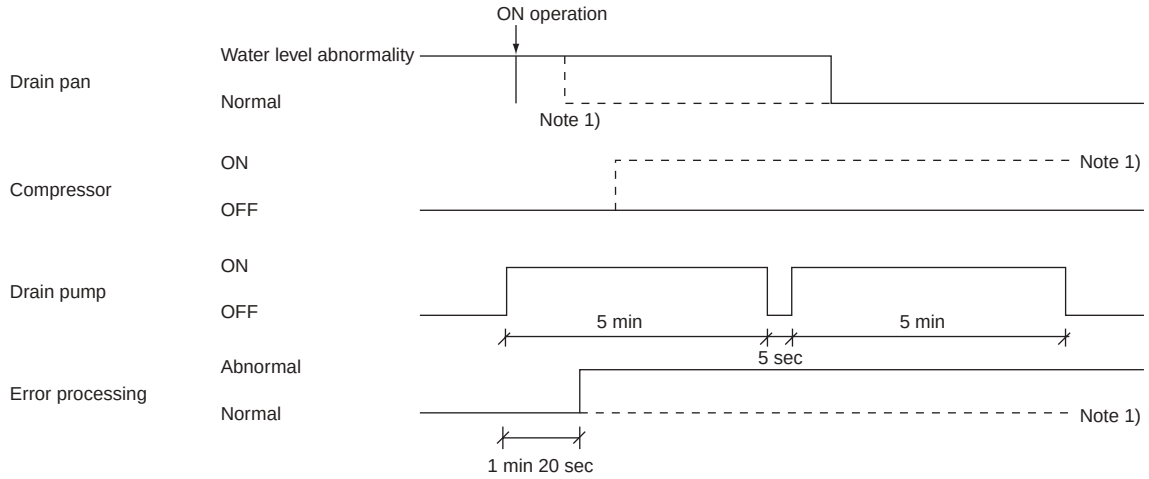
ii) During operation (compressor ON)



Note: 2. After detecting abnormal drain pan water level, if the control function determines that there is no abnormality within 3 minutes, the error shutdown processing is not conducted.
3. Once drain pan water level abnormality is determined, the compressor does not turn on for 2 minutes after the unit is restarted even if the water level is normal.

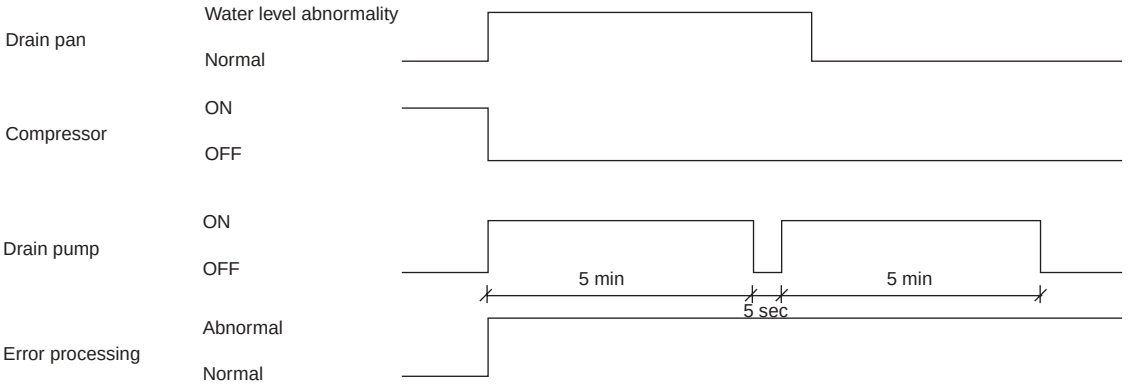
(B) Drain pan water level detection system (float type): units other than cassette type

i) During operation startup



Note: 1. If the drain pan water level becomes normal within 1 minute and 20 seconds after the unit is turned on, the error shutdown processing is not conducted.
If the thermostat is ON at that time, the compressor turns ON.
2. In the initial stage of operation, the same control is also provided in heating mode.

ii) During operation (compressor ON)



Note: 3. Once drain pan water level abnormality is determined, the compressor does not turn on for 2 minutes after the unit is restarted even if the water level is normal.

Auto-restart Function

If there is a power cut when the unit is operating, it will automatically resume the same operating mode when the power is restored.

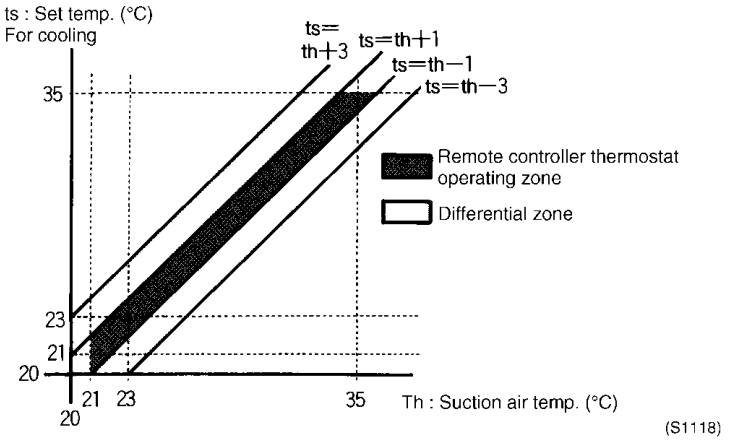
Caution When performing maintenance and the power supply is to be shut off, be sure to turn the remote controller's ON/OFF switch OFF first.

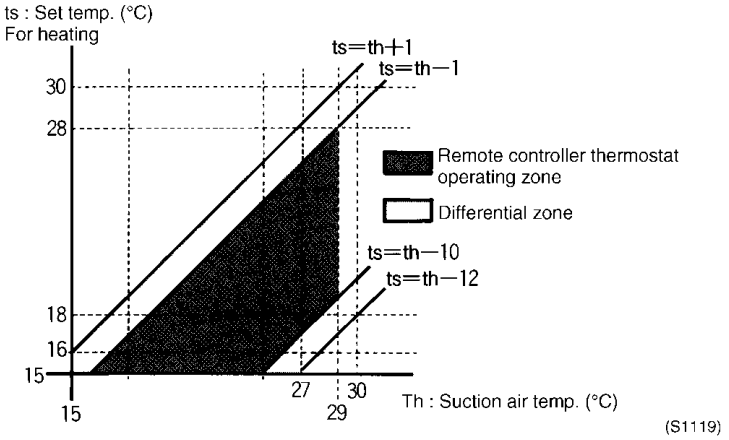
Shutting the power supply switch off while the ON/OFF switch is still ON is dangerous because the "power failure automatic reset function" will cause the indoor fan to start turning immediately, or the outdoor unit fan to automatically start turning three minutes after the power supply is turned back on.

Using Conditions for Remote Controller Thermostat

(Applicable models: FHY-B, FHYC-K, FUY-F, FAY-FA only)
Remote controller thermostat is equipped only in wired remote controller.
Even when " use remote controller thermostat " is selected in service mode, the remote controller thermostat may not be used.
< Conditions not to use >

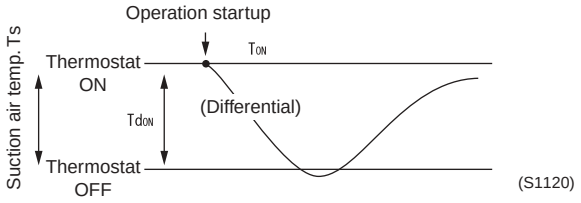
1. When the remote controller thermostat malfunctions.
2. When the one remote controller group control is applied.
   (Excluding simultaneous ON/OFF operation)
3. When conditions relating set temperature with remote controller and suction air temperature are out of the operating zone of remote controller thermostat shown in below diagram.
   (Excluding when automatic operation mode is selected. Whenever operation is in the automatic mode, remote controller thermostat can be used.)





Program Dry Operation Function

The points of thermostat ON or OFF are determined according to the suction air temperature at the startup of unit operation.
The set temperature and flow rate are not displayed on remote controller.



1. Thermostat ON point (TON) according to suction air temp. (TS).

Suction air temp	TON(˚C)	TdON(˚C)
Ts≥24˚C	Ts	1.5
24˚C> Ts≥18˚C	Ts	1.0
18˚C> Ts	18˚C	1.0

2. Operation condition

Compressor condition	ON	OFF
Setting of flow rate Angle of flap Air flow direction set with remote controller	L operation Set angle Set angle	OFF Set angle Set angle

Auto-restart Function

If there is a power cut when the unit is operating, it will automatically resume the same operating mode when the power is restored.

Caution

When performing maintenance and the power supply is to be shut off, be sure to turn the remote controller's ON/OFF switch OFF first.

Shutting the power supply switch off while the ON/OFF switch is still ON is dangerous because the "power failure automatic reset function" will cause the indoor fan to start turning immediately, or the outdoor unit fan to automatically start turning three minutes after the power supply is turned back on.

Fan and flap operations

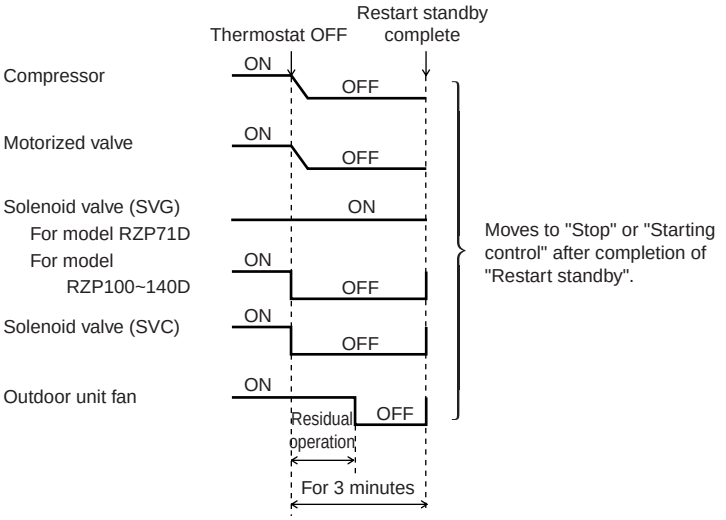
			Fan	Flap			Remote Controller Indication
				FHYCP	FAYP	FHYP FUYP	
Heating Operation	Hot Start from Defrost	In Swing Operation	OFF	Horizontal	Horizontal	Horizontal	Swing
		In Airflow Direction Setting	OFF	Horizontal	Horizontal	Horizontal	Set Position
	Defrost	In Swing Operation	OFF	Horizontal	Horizontal	Horizontal	Swing
		In Airflow Direction Setting	OFF	Horizontal	Horizontal	Horizontal	Set Position
	Thermostat OFF	In Swing Operation	LL	Horizontal	Horizontal	Horizontal	Swing
		In Airflow Direction Setting	LL	Horizontal	Horizontal	Horizontal	Set Position
	Hot Start from Thermostat OFF (Cold Air Prevention)	In Swing Operation	LL	Horizontal	Horizontal	Horizontal	Swing
		In Airflow Direction Setting	LL	Horizontal	Horizontal	Horizontal	Set Position
	Stop (Error)	In Swing Operation	OFF	Horizontal	Downward (Horizontal)	Horizontal	—
		In Airflow Direction Setting	OFF	Horizontal	Downward (Horizontal)	Horizontal	—
	Overload Thermostat OFF	In Swing Operation	LL	Horizontal	Horizontal	Horizontal	Swing
		In Airflow Direction Setting	LL	Horizontal	Horizontal	Horizontal	Set Position
Cooling Operation	Thermostat ON in Program Dry Mode	In Swing Operation	L ★1	Swing	Swing	Swing	Swing
		In Airflow Direction Setting	L ★1	Setting	Setting	Setting	Set Position
	Thermostat OFF in Program Dry Mode	In Swing Operation	OFF	Swing	Horizontal	Horizontal	Swing
		In Airflow Direction Setting	OFF	Setting	Setting	Setting	Set Position
	Cooling Thermostat OFF	In Swing Operation	Setting	Swing	Horizontal	Horizontal	Swing
		In Airflow Direction Setting	Setting	Setting	Setting	Setting	Set Position
	Stop (Error)	In Swing Operation	OFF	Horizontal	Downward (Horizontal)	Horizontal	—
		In Airflow Direction Setting	OFF	Setting	Downward (Setting)	Setting	—
	Freeze Prevention in Program Dry Mode (Including Cooling Operation)	In Swing Operation	L	Swing	Horizontal	Horizontal	Swing
		In Airflow Direction Setting	L	Setting	Setting	Setting	Set Position

★1: L or LL operation for FHYCP-D model only.

4.2 Inverter Outdoor Unit (R-407C) (RZP71 ~ 140D)

4.2.1 Restart standby

To prevent compressor from frequent ON/OFF and equalize pressure in refrigerant line, conducts forced thermostat OFF for 3 minutes after compressor stopping. Moreover, outdoor unit fan conducts residual operation for a period of time to expedite equalization and prevent refrigerant from entering in evaporator.



(S2544)

4.2.2 Retry Control

In the following control, conducts retry when thermostat is OFF and confirms malfunction depending on the frequency of retries.

- HPS activation
- High inverter cooling fin temperature
- Instantaneous overcurrent
- Electronic thermal
- Stall protection
- High discharge pipe temperature
- Malfunction of outdoor unit fan motor
- High pressure increasing
- Low pressure decreasing
- Wet detection

4.2.3 Forced Thermostat OFF

Thermostat OFF due to Freeze-up Protection (Only in cooling operation)

Conducts thermostat OFF under the following temperature and period of time to prevent the indoor unit heat exchanger from freezing up.

& { • Indoor unit heat exchange temperature<–5˚C for 1 continuous minute
• Indoor unit heat exchange temperature<–1˚C for 25 integral minutes

(S2568)

Thermostat OFF due to Outside Temperature (Only in heating operation)

If outside temperature is high, turns off thermostat at the following temperature to protect the system.

- Outside temperature>27˚C

4.2.4 Simulated operation Function

- Outside temperature thermistor
- Outdoor unit heat exchange thermistor
- Fin thermistor
- Discharge pipe thermistor
- Indoor unit suction thermistor
- Indoor unit heat exchanger thermistor

When malfunctions, quasi-operation is conducted while displaying the applicable alarm. (If the fin thermistor malfunctions, the alarm is not displayed on the remote controller, and displayed only when pushing Inspection Button.)
If low pressure sensor or suction pipe thermistor malfunctions, compressor stops operation due to malfunction and does not conduct the simulated-operation.

4.2.5 Capacitor Discharging Control

Outputs non-phase waveform for condenser to discharge for about 1 minute after K11R turns OFF (remote controller stop, stop due to malfunction, compressor and outdoor unit fan motor stop with thermostat OFF in the retry system).

4.2.6 Thermostat ON/OFF judgement

Room temperature thermostat control

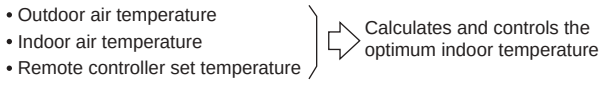
Thermostat ON $\Delta Trs \geq 0^{\circ}C$

Thermostat OFF Executes thermostat OFF when either one of the following conditions is met.

- $\Delta Trs \leq -1.0^{\circ}C$ continues for 1 minutes.
- Cooling: $\Delta Trs \leq -2.5^{\circ}C$
  Heating: $\Delta Trs \leq -3.0^{\circ}C$
- $\Delta Trs \geq 1.0^{\circ}C$ changed suddenly into $\Delta Trs \geq -1.5^{\circ}C$.
- ΔTrs = [Indoor suction temperature] - [Remote controller set temperature] $-0.5^{\circ}C$

4.2.7 “Automatic Operation Mode” Control (PMV Control)

When selecting “Automatic Operation Mode” with the remote controller, conducts the most comfortable operation in which you do not feel too cool or too hot.

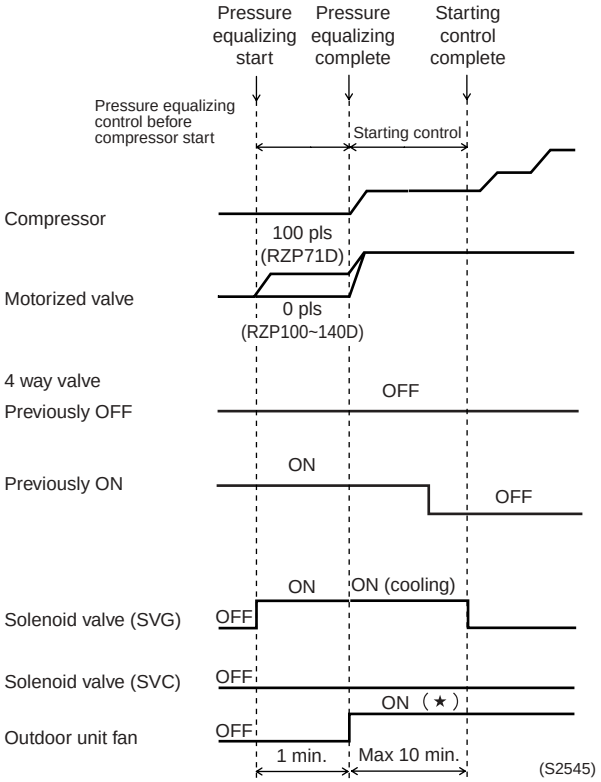


(S2565)

4.2.8 Starting control

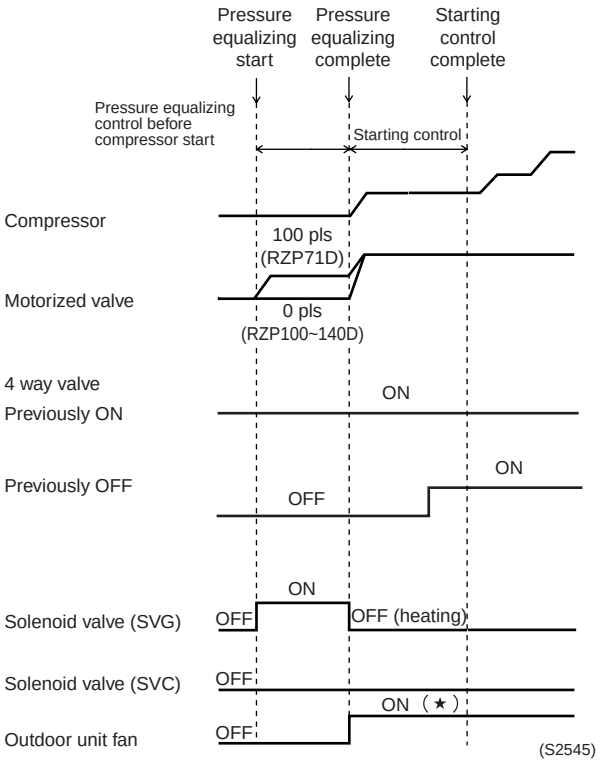
Starting control (Cooling)

When compressor start up, the starting frequency is fixed for specified period of time at low frequency to prevent returning of refrigerant.



Starting control (Heating)

When compressor start up, the starting frequency is fixed for specified period of time at low frequency to prevent returning of refrigerant.



★ When heating operation start, outdoor unit fan is stopped until the condition of Low pressure<0.3 MPa is met in order to prevent returning of liquid refrigerant.

4.2.9 Compressor step control

- Compressor operation frequency is controlled with the following steps in order to make evaporating temperature constant when cooling and make condensing temperature constant when heating.
- The target temperature of evaporation (Tes) in cooling varies within the range of 2˚C ≤ Tes ≤ 20˚C in accordance with ΔTrs and indoor air conditioning load.
- The target temperature of condensation (Tcs) also varies within the range of 42˚C ≤ Tcs ≤ 51˚C.

Step No.	Compressor operation frequency	
	Model RZP71D	Model RZP100 ~ 140D
1	41Hz	52Hz
2	45Hz	57Hz
3	48Hz	62Hz
4	53Hz	68Hz
5	58Hz	74Hz
6	63Hz	81Hz
7	68Hz	88Hz
8	74Hz	96Hz
9	81Hz	104Hz
10	88Hz	110Hz
11	96Hz	116Hz
12	104Hz	124Hz
13	113Hz	133Hz
14	123Hz	143Hz
15	134Hz	158Hz
16	145Hz(upper limit when heating)	165Hz(upper limit when cooling)
17	156Hz	177Hz(upper limit when heating: RZP100, 125D)
18	172Hz(upper limit when cooling)	189Hz
19	—	202Hz(upper limit when heating: RZP140D)

4.2.10 Motorized valve PI control

When cooling/heating, PI control of motorized valve is conducted to make heat exchanger outlet superheat degree (SH) constant in order to utilize outdoor unit heat exchanger (evaporator) fully.

SH=R4T-Te Te: Low pressure equivalent saturation temperature (˚C)
R4T: Suction pipe temperature (˚C)

[When slight wet operation]

Target heat exchanger outlet superheat degree > Heat exchanger outlet superheat degree
→Motorized valve closes

[When slight overheat operation]

Target heat exchanger outlet superheat degree < Heat exchanger outlet superheat degree
→Motorized valve opens

- The initial value of target heat exchanger outlet superheat degree is 5˚C, however, it varies depending on change of discharge pipe superheat degree of inverter compressor, etc.

4.2.11 Fan step table

RZP71D

4 way valve		OFF	ON
Operation mode		Cooling cycle	Heating cycle
Outdoor unit fan step	0 step	0 rpm	
	1	250	
	2	300	
	3	360	
	4	430	
	5	515	
	6	619	542
	7	750	
	8	870	839

RZP100D

4 way valve		OFF		ON	
Operation mode		Cooling cycle		Heating cycle	
Fan		M1F	M2F	M1F	M2F
Outdoor unit fan step	0 step	0 rpm	0 rpm	0 rpm	0 rpm
	1	250	0	250	0
	2	365	0	285	250
	3	285	250	345	310
	4	370	335	425	390
	5	480	445	520	485
	6	620	585	620	585
	7	740	705	740	705
	8	850	815	801	766

RZP125D

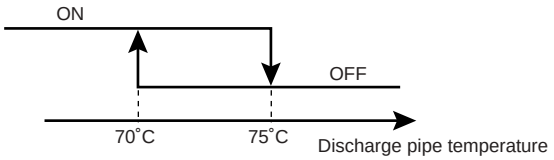
4 way valve		OFF		ON	
Operation mode		Cooling cycle		Heating cycle	
Fan		M1F	M2F	M1F	M2F
Outdoor unit fan step	0 step	0 rpm	0 rpm	0 rpm	0 rpm
	1	250	0	250	0
	2	365	0	285	250
	3	285	250	345	310
	4	370	335	425	390
	5	480	445	520	485
	6	620	585	620	585
	7	740	705	740	705
	8	885	850	857	822

RZP140D

4 way valve		OFF		ON	
Operation mode		Cooling cycle		Heating cycle	
Fan		M1F	M2F	M1F	M2F
Outdoor unit fan step	0 step	0 rpm	0 rpm	0 rpm	0 rpm
	1	250	0	250	0
	2	365	0	285	250
	3	285	250	345	310
	4	370	335	425	390
	5	480	445	520	485
	6	620	585	620	585
	7	740	705	740	705
	8	872	837	797	757

4.2.12 Crankcase heater control

When compressor stops for extended period of time, crank case heater control is conducted in order to prevent refrigerant from dissolving in compressor oil.



(S2546)

4.2.13 Preheating Operation Control (For RZP71D only)

Conducts preheating operation in the following conditions during compressor stops operation.

Starting conditions &
- or
  - Power supply ON to First operation
  - 60 minutes or more elapsed after compressor stop
- T2 (Discharge pipe temperature)<20˚C
- Ta (Outside temperature)<20˚C

Ending conditions or
- T2 (Discharge pipe temperature)>23˚C
- Ta (Outside temperature)>23˚C
- Thermostat ON confirmation

(S2566)

* Pre-heating operation ON = Compressor Mg S ON

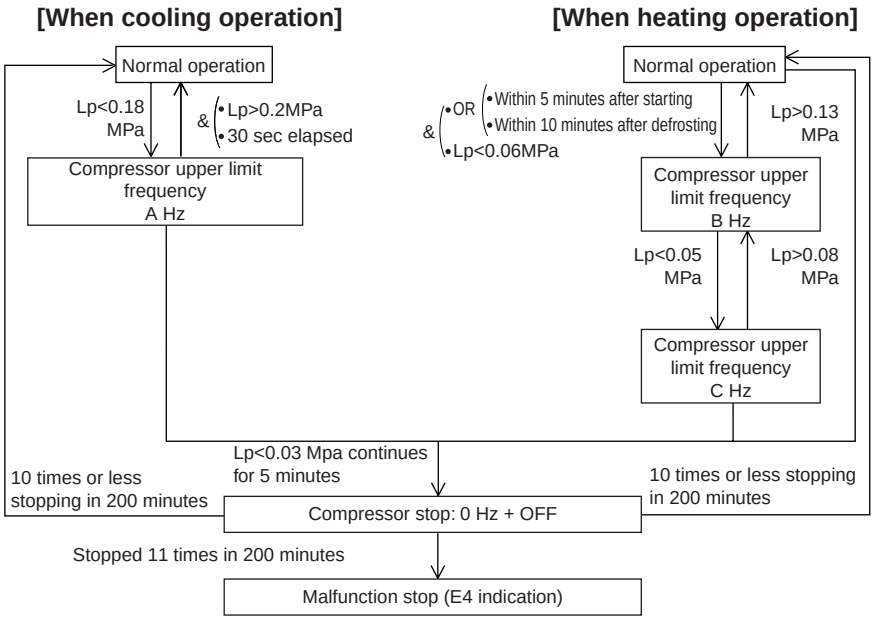
4.2.14 Subcooling heat exchanger control

Conducts ON/OFF control of the solenoid valve for subcooling circuit as follows.

- When the compressor operation frequency is at step 10 or lower or either temperature of discharge pipe or suction pipe is low, the valve does not open.
- Collect the oil by opening the SVC for 10 seconds in oil return mode.

4.2.15 Low pressure protection control

Drooping control and protection control below mentioned are conducted to prevent low pressure from abnormal lowering.

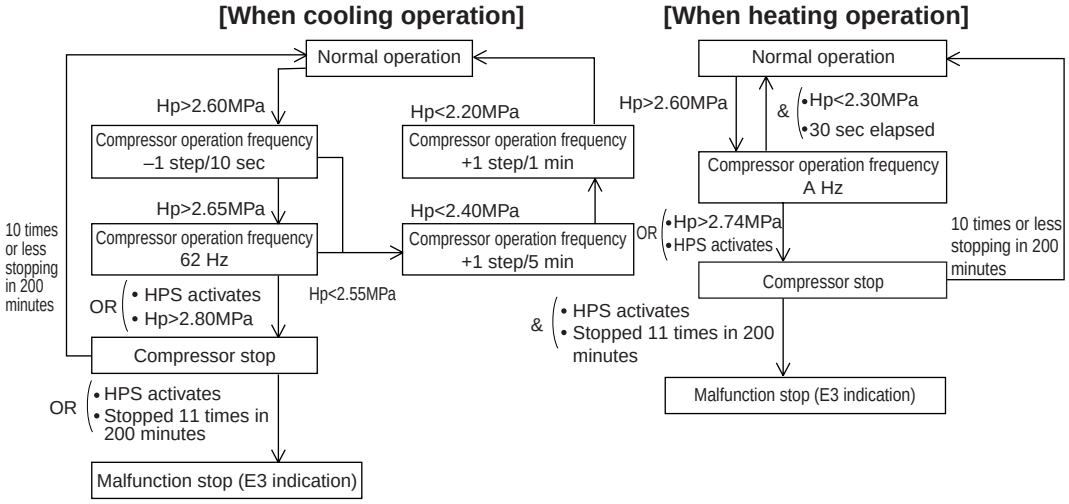


(S2547)

	Model RZP71D	Model RZP100~140D
AHz	53Hz	62Hz
BHz	123Hz	124Hz
CHz	63Hz	62Hz

4.2.16 High pressure protection control

Drooping control and protection control below mentioned are conducted to prevent high pressure from abnormal rising and activation of protection devices.



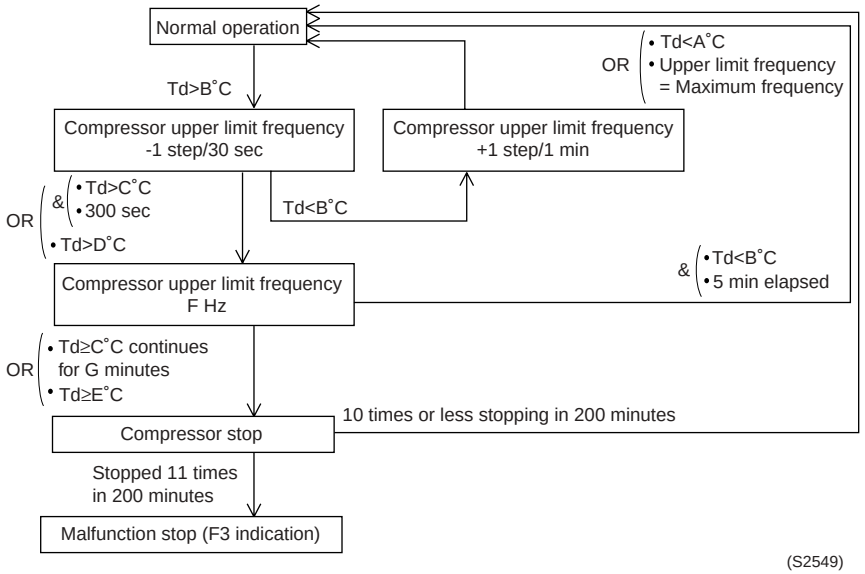
(S2548)

	Model RZP71D	Model RZP100~140D
AHz	63Hz	62Hz

4.2.17 Discharge pipe temperature protection control

Controls motorized valve opening degree and compressor operation frequency to prevent compressor internal temperature from abnormal rising.

[Operation frequency control]

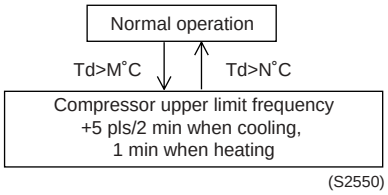


(S2549)

	Model RZP71D	Model RZP100~140D
A˚C	100˚C	100˚C
B˚C	105˚C	105˚C
C˚C	110˚C	110˚C
D˚C	120˚C	120˚C
E˚C	125˚C	135˚C
FHz	81Hz	62Hz
Gmin	15min	10min

Td: Discharge pipe temperature of compressor (˚C)

[Motorized valve opening degree control]

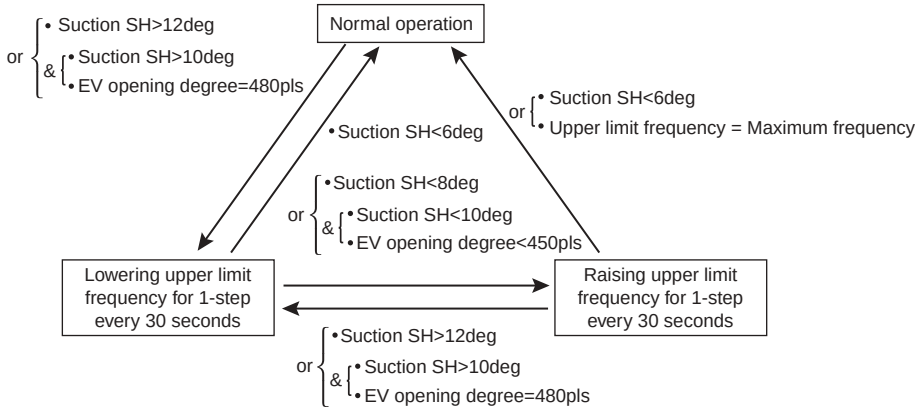


(S2550)

	Model RZP71D	Model RZP100~140D
M˚C	95˚C	95˚C
N˚C	80˚C	

4.2.18 Suction Pipe Superheat Protection Control (Only in heating operation)

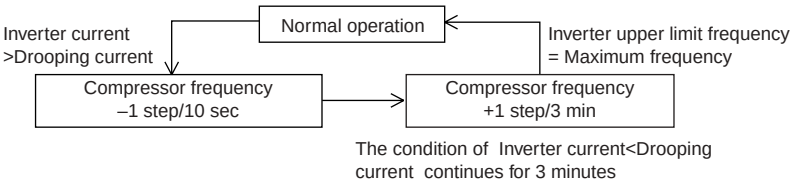
In heating operation, controls compressor operating frequency to prevent oil from remaining in the outdoor unit heat exchanger by the continuous operation of compressor at high superheated degree of the suction pipe.



(S2568)

4.2.19 Inverter current protection control

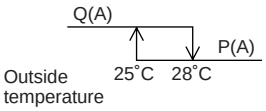
Restricts compressor operation frequency to prevent compressor from tripping due to inverter overcurrent.



(S2551)

Drooping current

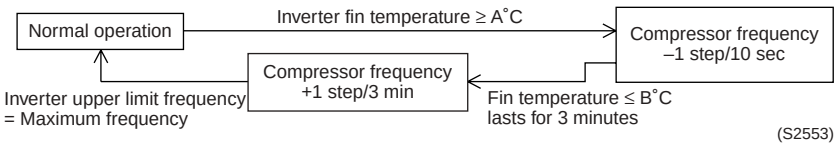
	Model RZP71D	Model RZP100~140D
P(A)	14A	24A
Q(A)		25A



(S2552)

4.2.20 Control by inverter fin temperature

Restricts compressor operation upper limit frequency to prevent compressor from tripping due to inverter fin temperature.

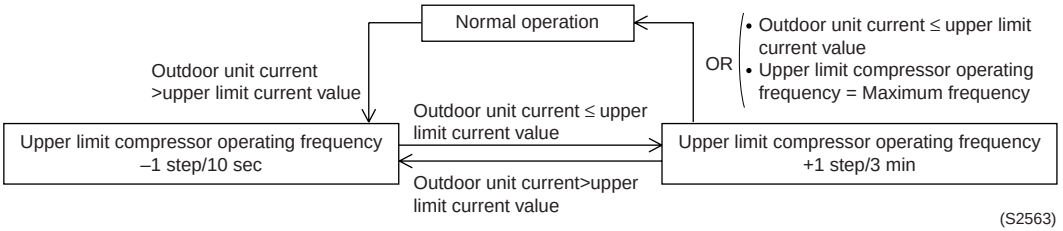


(S2553)

	Model RZP71D	Model RZP100~140D
A˚C	85˚C	93˚C
B˚C	82˚C	90˚C

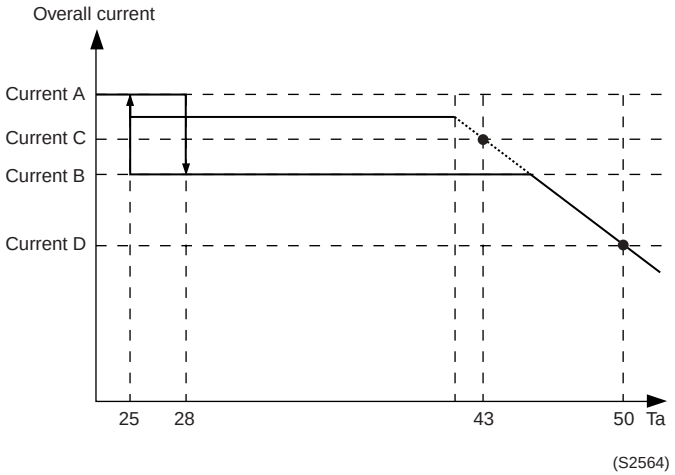
4.2.21 Protection Control by Overall Current

Monitors the overall current and restricts the upper limit compressor operating frequency to prevent circuit breakers from exceeding the rated capacity.



Upper limit current (A)

Takes the following values depending on the outside temperature.
Also varies depending on model.



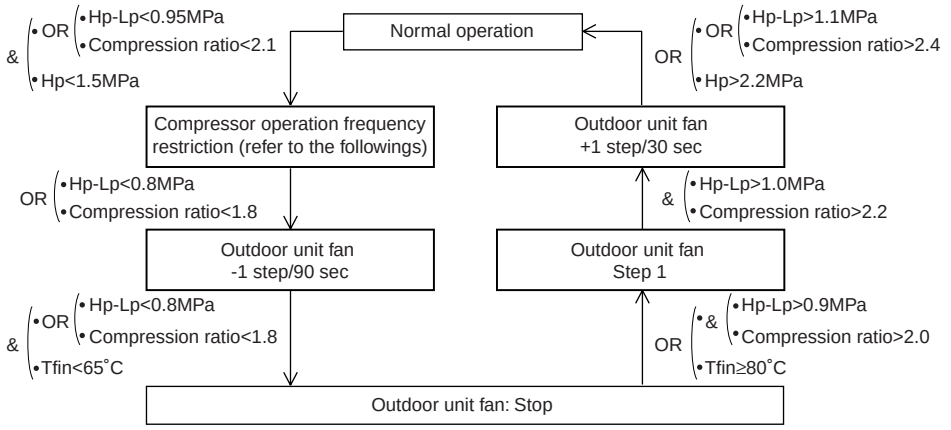
	A	B	C	D
RZP71DV1, DVAL	16.5A	16.5A	17.2A	6.3A
RZP100DV1, DVAL	21.0A	18.0A	21.2A	16.3A
RZP125DV1	23.6A	23.6A		
RZP125DTAL	23.8A	13.1A	14.5A	7.5A
RZP140DTAL	24.5A	17.2A		

4.2.22 Low pressure difference, low compression protection control

To ensure the compression ratio under low outdoor temperature cooling condition and the pressure difference between liquid pressure and low pressure, controls the outdoor unit fan and changes the target value of compressor PI control.

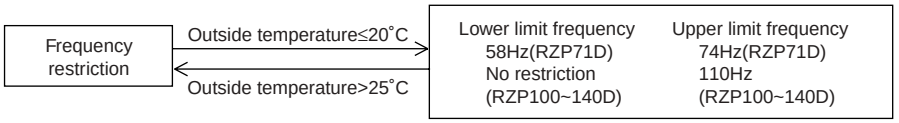
Low outside temperature control in cooling operation

Controls outdoor unit fan under low outside temperature condition to secure pressure difference between high and low pressure.



(S2559)

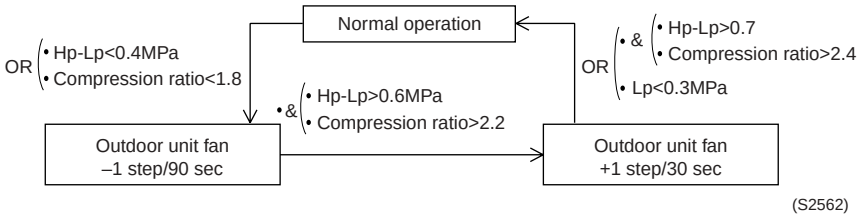
Compressor operation frequency restriction



(S2560)

Heating Overload Control

In heating overload condition, controls outdoor unit fan to secure the differential pressure between high and low pressures of compressor.



(S2562)

4.2.23 Oil recovery operation

When compressor operates for extended period of time with low frequency, oil level in compressor may be lowered due to incomplete oil recovery. To prevent the problem, conducts oil recovery operation with higher compressor operation frequency for 10 minutes.

- The interval of oil recovery operation may be shortened when the compressor operates frequently with low frequency.

4.2.24 Defrost control

When heating operation, defrost operation is conducted to melt frost on outdoor unit heat exchanger.

[Defrost starting condition]

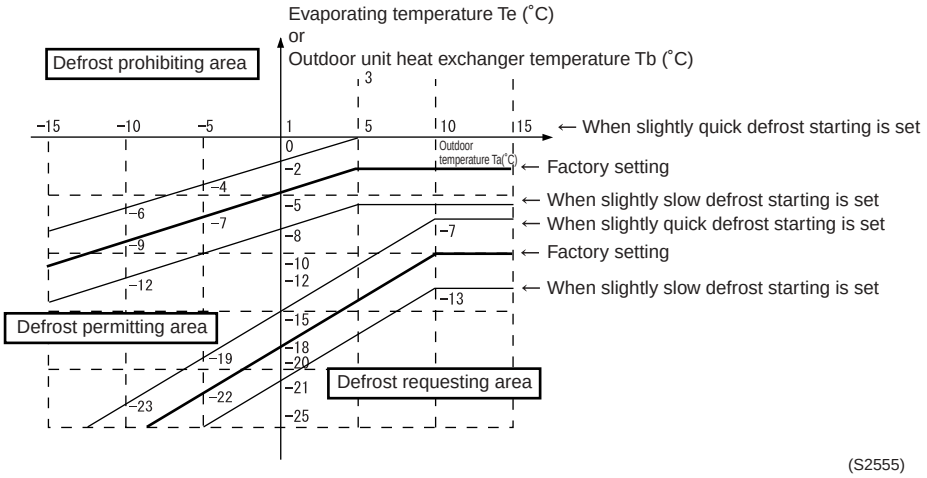
■ Intelligent type

Defrosting starts when the following conditions have been realized.

- & [
  - • Integral compressor run time is 25 minutes or more from the completion of previous defrost operation.
  - • Low pressure equivalent saturation temperature (Te) is within the defrost permitting area.
  - • Outdoor unit heat exchanger temperature (Tb) is within the defrost permitting area.
  - • OR [
    - • Defrost upper limit time A is met.
    - • Low pressure equivalent saturation temperature (Te) is within the defrost requesting area.
    - • Outdoor unit heat exchanger temperature (Tb) is within the defrost requesting area.
    - • Heating integral capacity is low.
    ]
  ]

(S2554)

Defrost condition



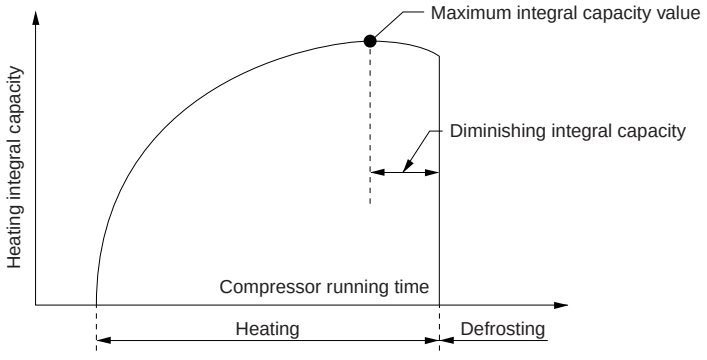
(S2555)

Defrost upper limit time A

When Outdoor temperature>–5 ˚C, A = 3 hours

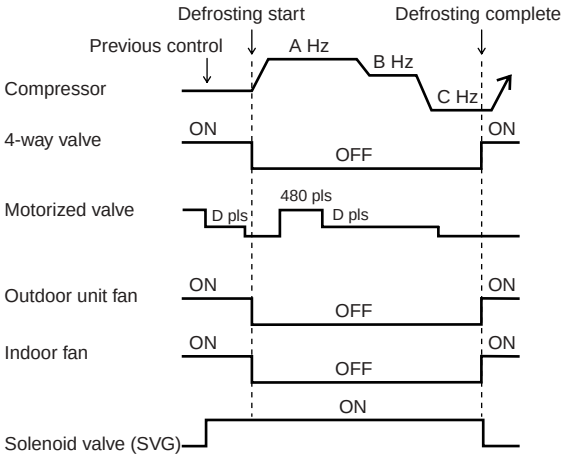
When Outdoor temperature≤–5 ˚C, A = 6 hours

Heating integral capacity



(S2556)

[Defrost control]



(S2557)

	Model RZP71D	Model RZP100~140D
AHz	172Hz	210Hz
BHz	134Hz	177Hz
CHz	48Hz	74Hz
D pls	95 pls	95 pls (RZP100D) 135 pls (RZP125D) 154 pls (RZP140D)

[Defrost ending condition]

Defrosting ends when the following conditions have been realized after 1 minute elapsed from defrosting start. Note that defrosting can be operated for 10 minutes at longest.

- OR
  - Outdoor unit heat exchanger outlet temperature (Tb)≥10˚C
  - High pressure (Hp)≥2.16 MPa

(S2558)

4.2.25 Pump down residual operation

Conducts pump down residual operation when compressor stops to collect refrigerant in evaporator for preventing liquid refrigerant from remaining in the evaporator.

[Contents of control]

Compressor:For RZP71D; 41 Hz

For RZP100~140D; 110 Hz

Motorized valve: 0 pls (fixed opening degree)

Solenoid valve for receiver gas purging (SVG): ON (open)

[Ending condition]

OR
- 30 seconds elapsed with residual operation
- •
  - LP<0.1 MPa (when cooling)
  - LP<0.02 MPa (when heating)

(S2561)

4.2.26 Indoor unit fan control

Following indoor fan control is conducted with instruction from outdoor unit.

Indoor fan control before compressor stop

The residual operation of indoor unit fan is conducted before compressor stop (during pump down residual operation) to startup compressor smoothly next time.

- Cooling operation:Minimizes the residual refrigerant amount in indoor unit heat exchanger.
- Heating operation:Lowers the high pressure by discharging stagnant air around the indoor unit heat exchanger.

"Indoor fan control before compressor stop"

		Indoor fan tap
Indoor cooling Automatic indoor cooling	Thermostat OFF	L
	Remote controller OFF	LL
Indoor heating Automatic indoor heating	Thermostat OFF	LL
	Remote controller OFF	LL
Indoor drying	Thermostat OFF	LL
	Remote controller OFF	LL

<Actual operation of indoor unit fan>

When the unit operation is turned off by remote controller, the indoor fan stops once, however, if the 1 step up signal for indoor fan is received from outdoor unit, rotates again with LL tap.

Indoor fan control during compressor stop

"Indoor fan control during compressor stop"

		Indoor fan tap
Indoor cooling Automatic indoor cooling	Thermostat OFF	Remote controller setting air flow rate
	Remote controller OFF	OFF
Indoor heating Automatic indoor heating	Thermostat OFF	LL
	Remote controller OFF	OFF
Indoor drying	Thermostat OFF	OFF
	Remote controller OFF	OFF

Indoor fan control before compressor startup

	Indoor fan tap
Indoor cooling Automatic indoor cooling	Remote controller setting air flow rate
Indoor heating Automatic indoor heating	OFF (LL+1step down)
Indoor drying	L (OFF+2step up)

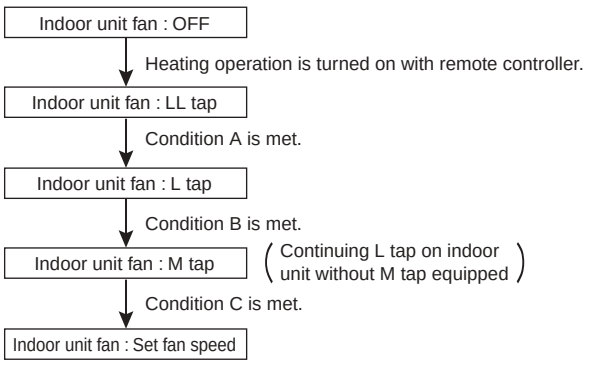
Indoor fan control at compressor startup

A. When cooling

The indoor fan is operated with upper limit L until the low pressure reaches 0.3 MPa.

B. Hot Startup Control (Only in heating operation)

When startup or after defrosting has been completed in heating operation, controls indoor unit fan to prevent cool air from blasting and secure the startup performance.



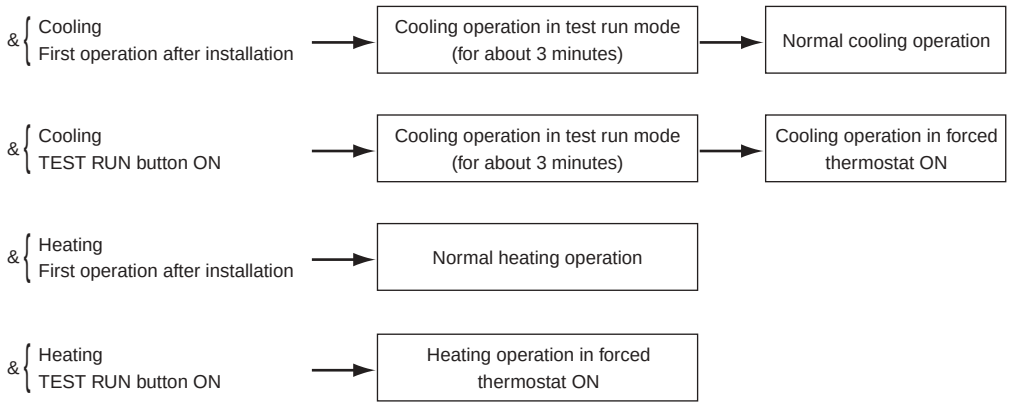
(S2569)

	Condition A	Condition B	Condition C
■ Indoor unit heat exchange temp.>34˚C	○	○	○
■ Indoor unit heat exchange temp.>Indoor unit intake temp.+17˚C (+12˚C if outside temperature is below 5˚C)	○	○	—
■ Indoor unit heat exchange temp.>Indoor unit intake temp.+22˚C (+20˚C if outside temperature is below 5˚C)	—	—	○
■ 3 minutes elapsed after compressor startup	○	—	—
■ 5.5 minutes elapsed after compressor startup	—	○	—
■ 10.5 minutes elapsed after compressor startup	—	—	○

4.2.27 Setting mode

Test Run Control

- When carrying out cooling operation first time after installation and by pushing TEST RUN button on the indoor unit remote controller, the unit runs for about 3 minutes in "Test Run Mode".
- When carrying out operation first time in heating mode after installation, the unit will not run in the "Test Run Mode".
  Further, when carrying out heating operation by pushing the TEST RUN button on the indoor unit remote controller, the unit will not run in the "Test Run Mode" too. (Carries out heating operation in forced thermostat ON.)



(S2570)

- In the "Test Run Mode", senses on-site installation status including failure to open stop 300valves, etc. and determines malfunction immediately. When "U0" malfunction code is displayed, check the on-site installation status for failure to open stop valves, etc.
- When the malfunction code is not displayed, continues cooling operation.
  (This control is carried out again when turning power on first time after refrigerant collection by pump down switch is complete.)

Outdoor Unit Low Noise Control

A. Setting by dip switch

[Night-time automatic low noise setting]

When setting dip switches DS1-3 on the outdoor unit PC board to ON, carries out low noise operation by presuming the current time in accordance with changes of outside temperature and automatically restricting the number of revolutions of outdoor unit fan and operating frequency of compressor at night (22 to 8 o'clock). (Time at night is a target only.)

B. Setting via contact input (manual low noise setting)

When short circuit between T_1 and T_2 on terminal block X1M mounted on the outdoor unit PC board, carries out low noise operation by restricting the outdoor unit fan speed and operating frequency of compressor.

C. Setting by capacity precedence

When setting dip switches DS1-4 on the outdoor unit PC board to ON, activates capacity precedence setting in both A and B. If the air conditioning load increases, the low noise operation stops to return to normal operation.

When setting the dip switches DS1-4 to OFF, precedes the low noise operation. Even if the air conditioning load increases, the low noise operation continues.

Low noise setting (DS1-3)	Capacity precedence setting (DS1-4)	Operation of outdoor unit
OFF	OFF	Carries out low noise operation only when short circuit between Contact T_1 and T_2 of X1M.
	ON	Carries out low noise operation only when short circuit between Contact T_1 and T_2 of X1M, but if the air conditioning load increases, returns to normal operation.
ON	OFF	Carries out low noise operation when short circuit between Contact T_1 and T_2 of X1M and at night (22-8 o'clock).
	ON	Carries out low noise operation when short circuit between Contact T_1 and T_2 of X1M and at night (22-8 o'clock),but if the air conditioning load increases, returns to normal operation.

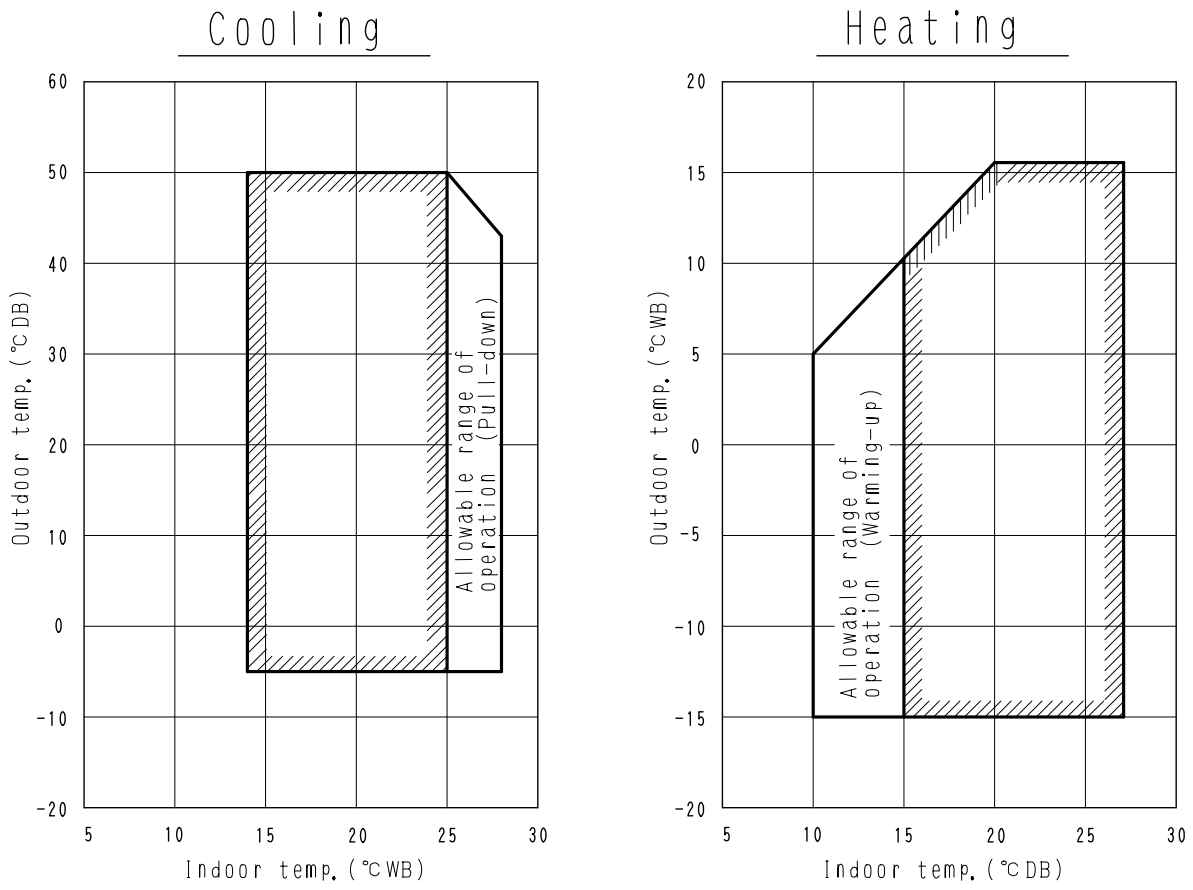
- Since the night time judgement (22-8 o'clock) is made in accordance with outside temperature, the night time is a target only.

Emergency Operation

- Transmission between indoor and outdoor units is not conducted.
- In cooling operation, ON for 20 minutes and OFF for 10 minutes are conducted in succession.
- In heating operation, defrosting is conducted once every 1 hour (for 3 minutes).
- In other conditions than the above-mentioned, the same control as normal control is conducted.

5. Operation Range

5.1 Operation Limits



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Part 8
Troubleshooting

1. Maintenance Inspections

1.1 Optimal Operation Condition

Guide Lines for Optimal Operation Condition

The operation value guide lines when operating under standard conditions **(at Rated frequency)** by pushing the test run button on the remote controller are as given in the table below. RZ(Y)71~125L are used as example outdoor units in the table.

Indoor Unit Fan: "H" Operation Compressor: Rated Frequency

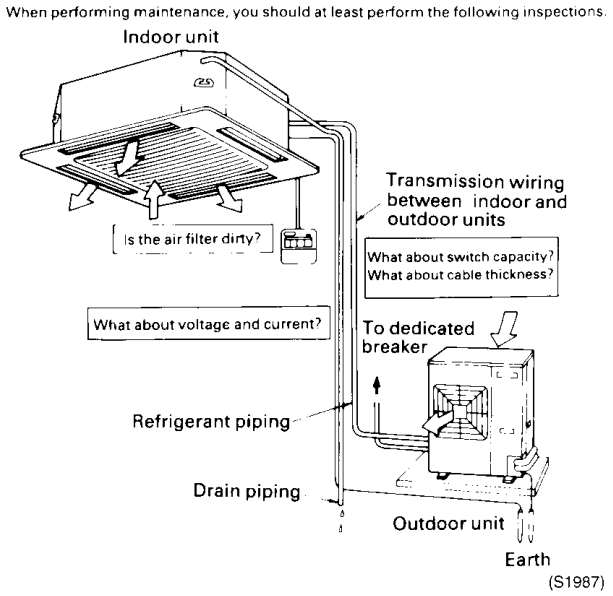
		High Pressure (Mpa)	Low Pressure (Mpa)	Discharge Pipe Temperature (˚C)	Suction Temperature (˚C)	Indoor Unit Side: Differential Between Suction Temperature and Discharge Temperature (˚C)	Outdoor Unit Side: Differential Between Suction Temperature and Discharge Temperature (˚C)
Cooling	50Hz	1.62~2.11 (16.5~21.5)	0.39~0.59 (4.0~6.0)	60~95	0~14	8~18	7~12
	60Hz	1.72~2.21 (17.5~22.5)	0.34~0.54 (3.5~5.5)	70~115	–2~10		
Heating	50Hz	1.42~2.06 (14.5~21.0)	0.29~0.44 (3.0~4.5)	55~95	–4~4	14~30	2~6
	60Hz	1.62~2.11 (16.5~21.5)	0.29~0.44 (3.0~4.5)	60~115	–6~2		

Note: Figures given inside parentheses are in unit of kg/cm²

Standard Conditions

	Indoor Unit Conditions	Outdoor Unit Conditions
Cooling Operation	27˚C DB/19˚C WB	35˚C DB
Heating Operation	20˚C DB	7˚C DB/6˚C WB

■ During or after maintenance, when the power supply is turned back on, operation restarts automatically by the "auto restart function." Please exercise the proper caution.



Correlation of Air-Conditioner's Operation Status and Pressure / Running Current

What happens in comparison to normal values is summarized in the table below.
(Measured from 15 ~ 20 minutes or more after operation starts.)

When Cooling

Air-Conditioner Status	Low Pressure	High Pressure	Running Current
Air Filter Fouling	Lower	Lower	Lower
Short Circuit of Indoor Unit Inlet/ Outlet Air	Lower	Lower	Lower
Outdoor Unit Fin Fouling	Higher	Higher	Higher
Short Circuit of Outdoor Unit Inlet/ Outlet Air	Higher	Higher	Higher
Air Mixed in Refrigerant	Higher	Higher	Higher
Water Mixed in Refrigerant	∗1 Lower	Lower	Lower
Dirt Mixed in Refrigerant	∗2 Lower	Lower	Lower
Lack of Refrigerant (Gas)	Lower	Lower	Lower
Unsatisfactory Compression	∗1 Higher	Lower	Lower

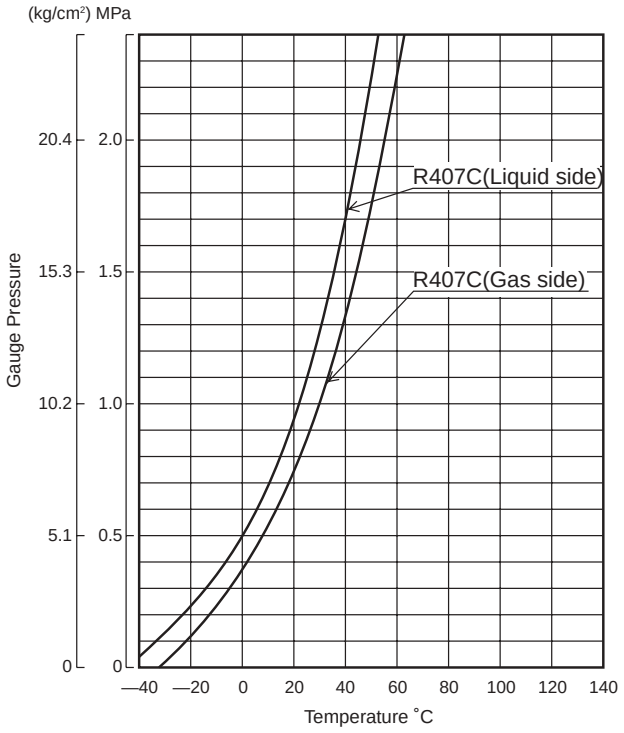
When Heating

Air-Conditioner Status	Low Pressure	High Pressure	Running Current
Air Filter Fouling	Higher	Higher	Higher
Short Circuit of Indoor Unit Inlet/ Outlet Air	Higher	Higher	Higher
Outdoor Unit Fin Fouling	Lower	Lower	Lower
Short Circuit of Outdoor Unit Inlet/ Outlet Air	Lower	Lower	Lower
Air Mixed in Refrigerant	Higher	Higher	Higher
Water Mixed in Refrigerant	∗1 Lower	Lower	Lower
Dirt Mixed in Refrigerant	∗2 Lower	Lower	Lower
Lack of Refrigerant (Gas)	Lower	Lower	Lower
Unsatisfactory Compression	∗3 Higher	Lower	Lower

Notes:

1. ∗1. Water in the refrigerant freezes inside the capillary tube or expansion valve, and is basically the same phenomenon as pump down.
2. ∗2. Dirt in the refrigerant clogs filters inside the piping, and is basically the same phenomenon as pump down.
3. ∗3.Pressure differential between high and low pressure becomes slight.

Refrigerant Saturation Curve



(S2571)

1.2 Cautions in Handling New Refrigerant

The working pressure of the new refrigerant R-407C is rather high as compared to the conventional refrigerants R-22, and the applicable refrigerant oil is different from one to R-22. Therefore, some service work and tools for piping may not be allowed for use with the new refrigerant.

Refrigerant	Previous refrigerant	New refrigerant
	R-22 (Single refrigerant)	R-407C (Mixed refrigerant)
Refrigerating machine oil	Mineral oil (Suniso)	Synthetic oil (Ether oil)
Condensation pressure	1.84MPa (18.8kg/cm^2)	2.01MPa (20.5kg/cm^2)

Required tools

Special tools are required to carry out service work for the refrigerant circuit on units using the new refrigerant. Select tools referring to the following table.

■ **Compatibility of representative tools and devices used for piping work**

Tool	Work process·Purpose		Compatibility with conventional tools (used for R-22 refrigerant)
Pipe cutter	Refrigerant piping work	Pipe cutting	Compatible and can be used.
Flaring tool		Pipe flaring	
Refrigerant oil		Applying on flare sections	Use special ether-base oil, ester-base oil, alkylbenzene-base oil, or mixed oil of these oils.
Torque wrench		Jointing flare nuts	Compatible and can be used.
Expanding tool (Expander)		Expanding in pipe connection	
Pipe bender		Bending pipe	
Nitrogen	Air tight test	Preventing oxidation inside pipes	
Welder		Brazing pipes	
Gauge manifold	From air tight test to refrigerant additional charging	Refrigerant charging with vacuuming , and checking equipment operation	Gauge manifold designed for the new refrigerant is necessary since the pressure is high and cannot be measured by conventional manifold.
Charge hose			Charge hose designed for the new refrigerant is necessary since the refrigerant leaks and intrusion of impurities can occur.
Vacuum pump	Vacuum drying		Compatible and can be used. (Pay utmost care for oil not to return into the unit during pump stops operation.)
Charging cylinder	Refrigerant additional charging		Not required since a scale is used for refrigerant charging.
Scale for refrigerant charging			Compatible and can be used.
Gas leakage detector		Checking gas leakage	Detector designed for the new refrigerant is necessary. (Detector for R134a can be used.)

Cautions in working with the new refrigerant

Brazing

- The new refrigerant required very stringent cares to prevent the intrusion of impurities. Therefore, a nitrogen gas must be supplied into the pipe during brazing.
- Ensure to carry out proper protection covering work for refrigerant pipes and vacuum drying, and also exercise more thorough process control on the new refrigerant than on the previous refrigerant to prevent the intrusion of impurities into pipes even in other processes than brazing.

Flaring

- Carry out thorough deburring (filing) on the cut sections. Pay utmost care to prevent chips from remaining in the pipes.
- Apply an appropriate amount of oil on the inside and outside of the flared section. Be sure to use refrigerant oil or synthetic oil (ether-base oil, ester-base oil, alkylbenzene-base oil, or mixed oil of these oils).

Refrigerant charge

- Charge the new refrigerant in the liquid state through the service port of stop valve on the liquid side (outdoor unit). Conduct vacuum drying using vacuum pump, and never conduct flushing during refrigerant charging.

Air tight test

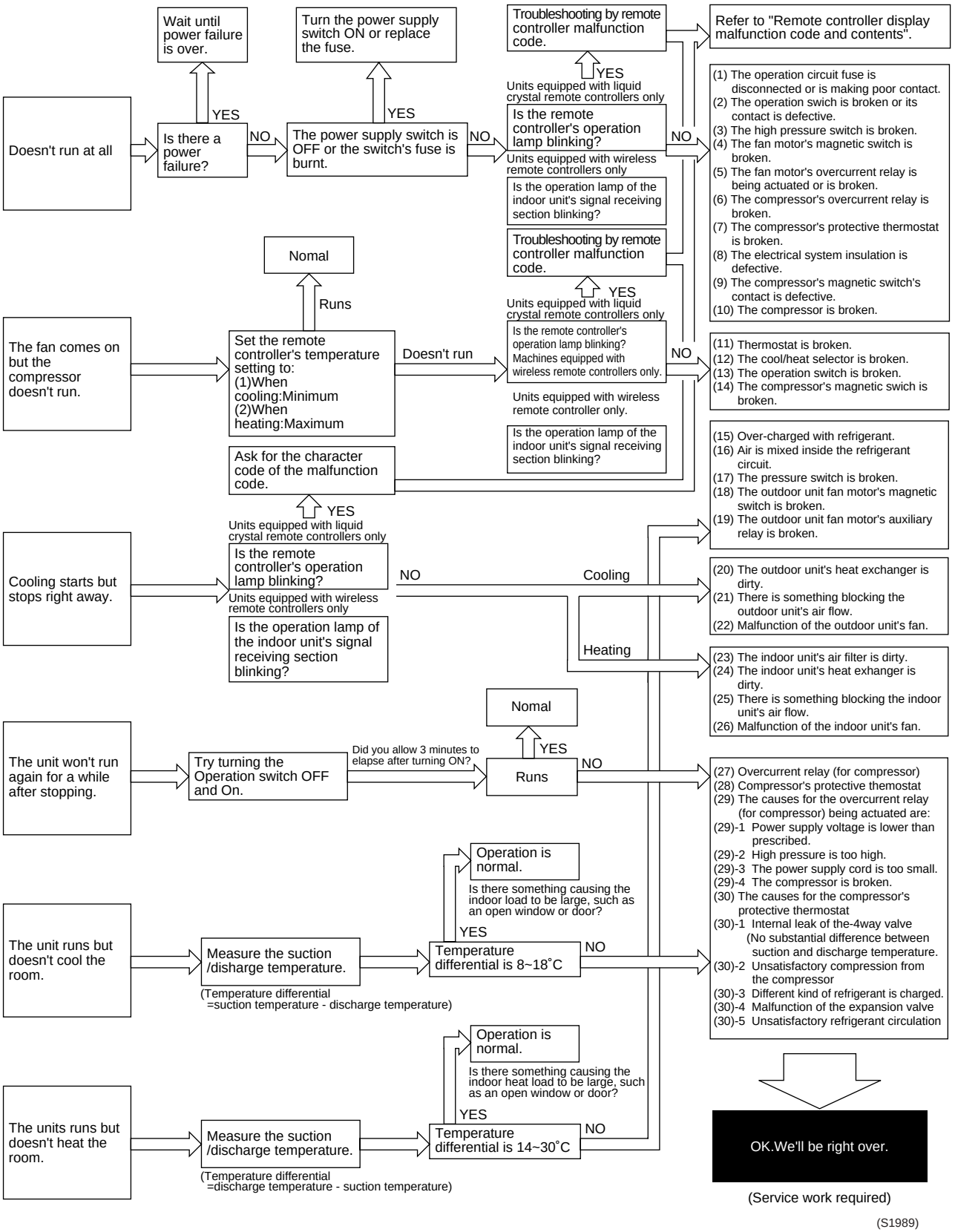
- An air tight test for equipment must be conducted.

Caution Be sure to conduct service work strictly following the contents mentioned above. Conducting service work in improper methods can cause equipment trouble.

2. How to Handle Request for Maintenance

2.1 Flow Chart

Find out the situation according to the following procedure when there is a request for service from the customer.



3. Troubleshooting Based on Equipment Condition

3.1 Troubleshooting Based on Equipment Condition

	Equipment Condition	Remedy
1	Equipment does not operate.	See page 108
2	Fan operates, but compressor does not.	See page 108
3	Cooling/heating operation starts but stops immediately.	See page 111
4	After equipment shuts down, it cannot be restarted for a while.	See page 112
5	Equipment operates but does not provide cooling.	See page 113
6	Equipment operates but does not provide heating.	See page 115
7	Equipment discharges white mist.	See page 116
8	Equipment produces loud noise or shakes.	See page 117
9	Equipment discharges dust.	See page 118
10	Remote controller LCD displays “88.”	See page 119
11	Equipment emits odor.	Room smell and cigarette odors accumulated inside the indoor unit are discharged with air. Inside of the indoor unit must be cleaned.
12	Flap operates when power is turned on.	It is normal. The flap initializes for accurate positioning.
13	Change of operation mode causes flap to move.	It is normal. There is a control function that moves the flap when operation mode is changed.
14	Fan operates in “M” mode during heating even if remote controller is set to “Low.”	It is normal. It is caused by the activation of the overload control (airflow shift control).
15	Flap automatically moves during cooling.	It is normal. It is caused by the activation of the dew prevention function or ceiling soiling prevention function.
16	Indoor unit fan operates in “L” mode for 1 minute in microcomputer-controlled dry mode even if compressor is not operating.	It is normal. The monitoring function forcibly operates the fan for one minute.
17	In simultaneous ON/OFF multi-system setup, indoor unit (sub) does not operate in sync with the other indoor unit (main). (Flat, fan, etc.)	It is normal. It is caused by a signal transmission lag.
18	Indoor unit fan operates after heating operation stops.	It is normal. The fan operates in the “LL” mode for 60 to 100 seconds to dissipate the residual heat in the heater.
19	Drain pump operates when equipment is not operating.	It is normal. The drain pump continues to operate for several minutes after equipment is turned off.
20	Horizontal wing sends air to different directions in cooling and heating even if it is set to the same position.	It is normal. The airflow direction in cooling/dry operation is different from that in heating/fan operation.
21	Flap remains horizontal even if it is set to Swing.	It is normal. The flap does not swing in the thermostat OFF mode.

3.2 Equipment does not Operate

Applicable Model

All models of SkyAir series

Error Detection Method

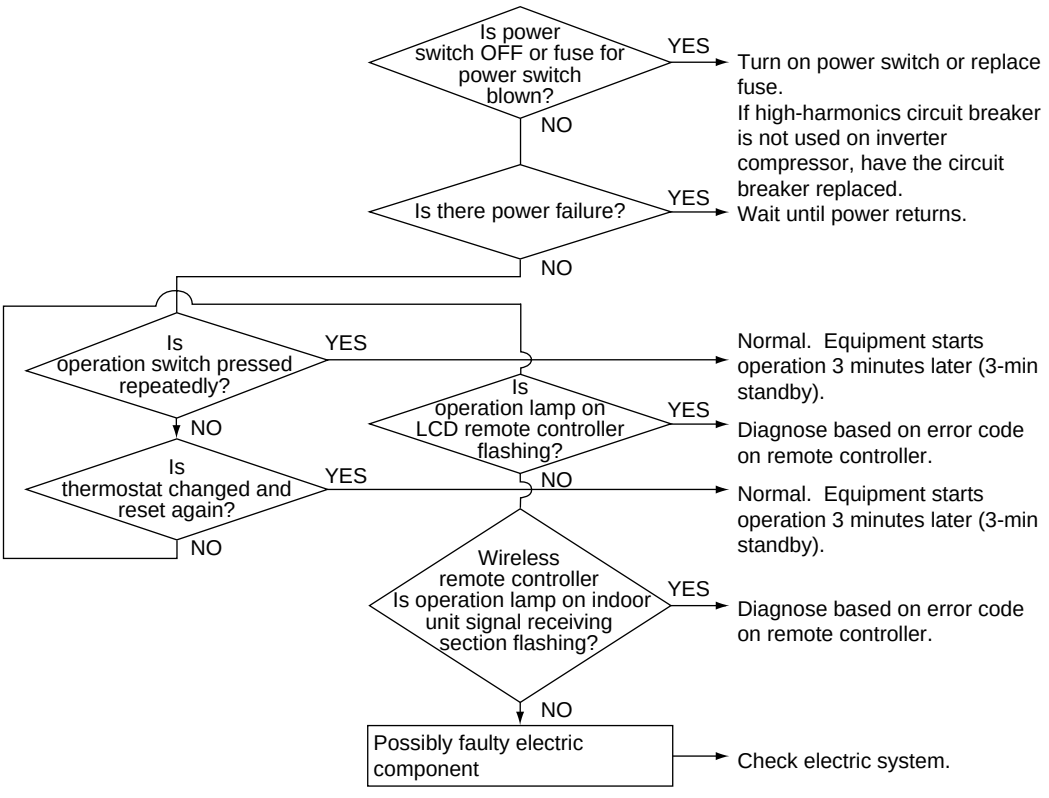
Error Generating Condition

Possible Causes

- Fuse blown or disorder of contact in operation circuit
- Faulty operation switch or contact point
- Faulty high pressure switch
- Faulty magnetic switch for fan motor
- Activation or fault of overcurrent relay for fan motor
- Faulty overcurrent relay for compressor
- Faulty compressor protection thermostat
- Insufficient insulation in electric system
- Faulty contact point of magnetic switch for compressor
- Malfunction of compressor

Troubleshooting

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



(S2575)

3.3 Indoor Fan Operates, but Compressor does not.

Applicable Model

All models of SkyAir series

Method of Malfunction Detection

Malfunction Decision Conditions

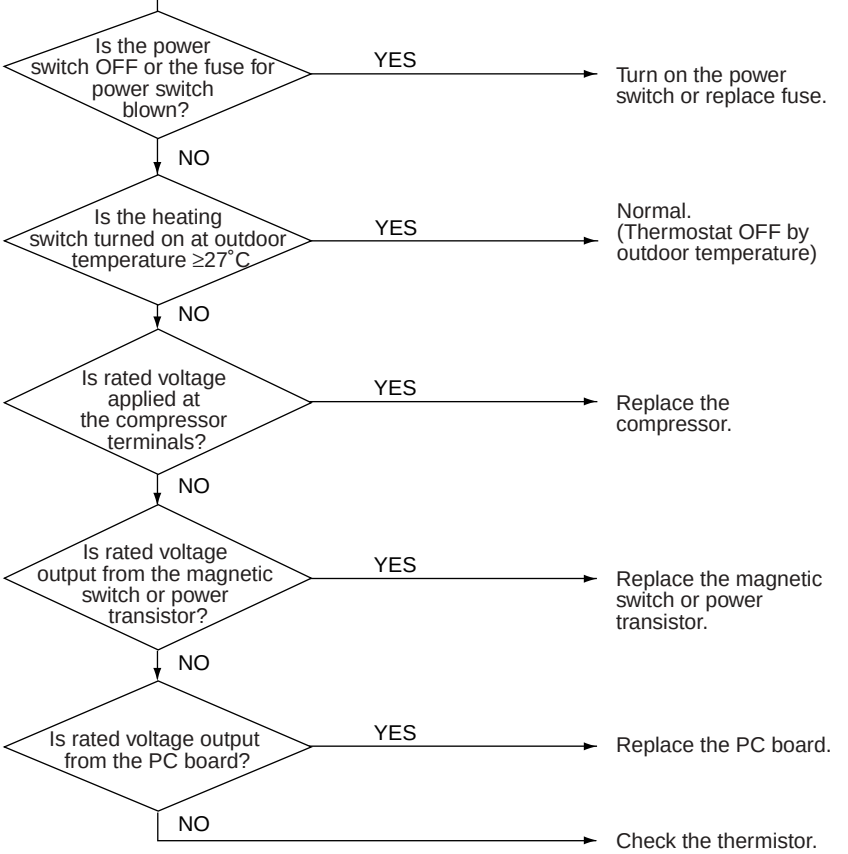
Possible Causes

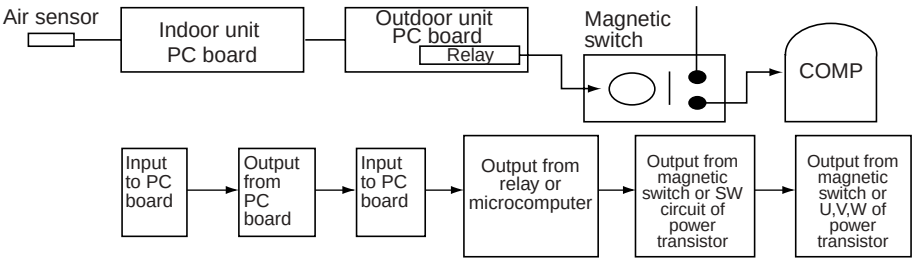
- Faulty thermistor
- Faulty indoor/outdoor unit PCB
- Faulty magnetic switch
- Faulty power transistor
- Faulty compressor

Troubleshooting

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

· Indoor unit fan runs at set airflow rate.
· (In cooling operation)
When air thermistor ambient temperature is higher than set temperature
· (In heating operation)
When air thermistor ambient temperature is lower than set temperature





(S2576)

3.4 Cooling/Heating Operation Starts but Stops Immediately.

Applicable Model

All models of SkyAir series

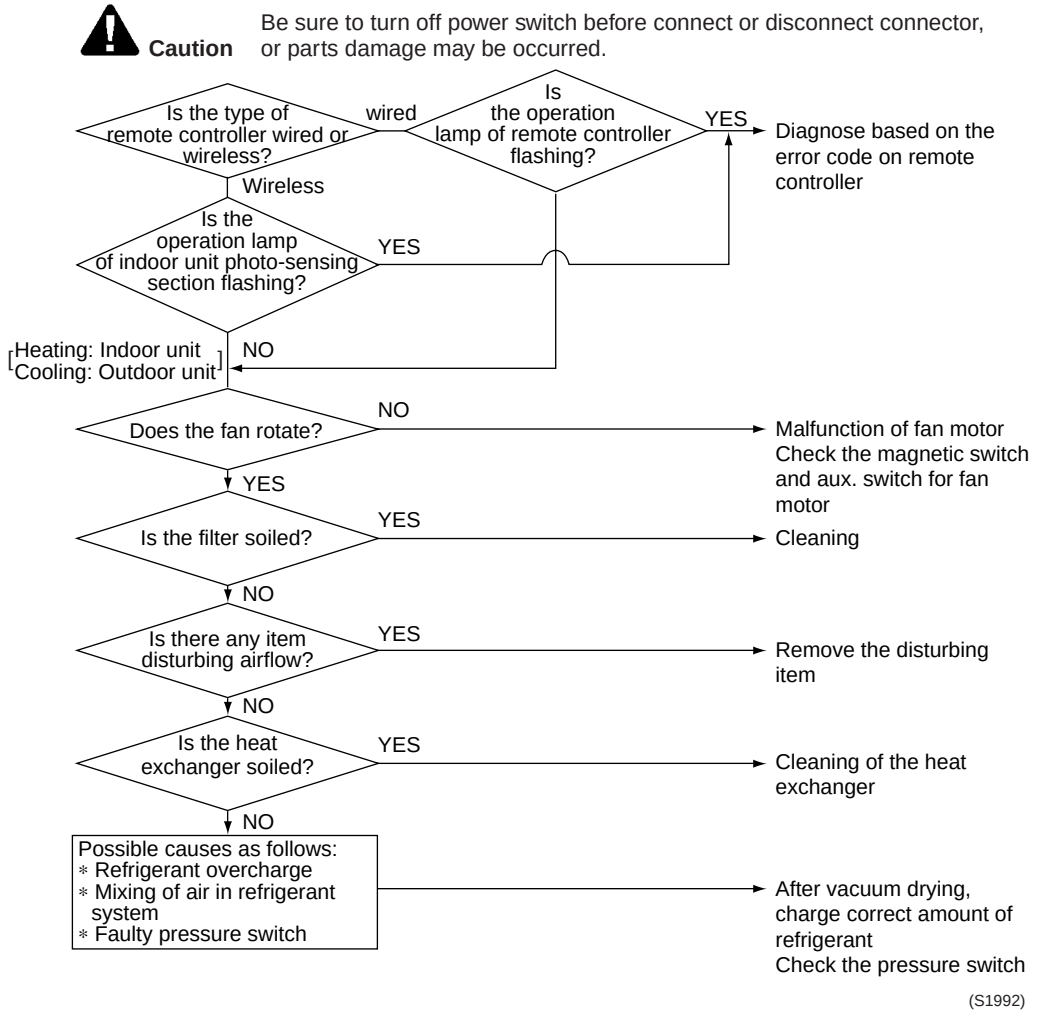
Error Detection Method

Error Generating Condition

Possible Cause

- Excess charge of refrigerant
- Air intrudes into refrigerant system
- Faulty pressure switch
- Faulty magnetic switch for outdoor unit fan motor
- Faulty aux. relay for outdoor unit fan motor
- Soiled heat exchanger of outdoor unit
- There is an interfering item in air flow of outdoor unit
- Malfunction of outdoor unit fan
- Soiled air filter of indoor unit
- Soiled heat exchanger of indoor unit
- There is some interfering item in airflow of indoor unit
- Malfunction of indoor unit fan

Troubleshooting



3.5 After Equipment Shuts Down, It cannot be Restarted for a While.

Applicable Model

All models of SkyAir series

Error Detection Method

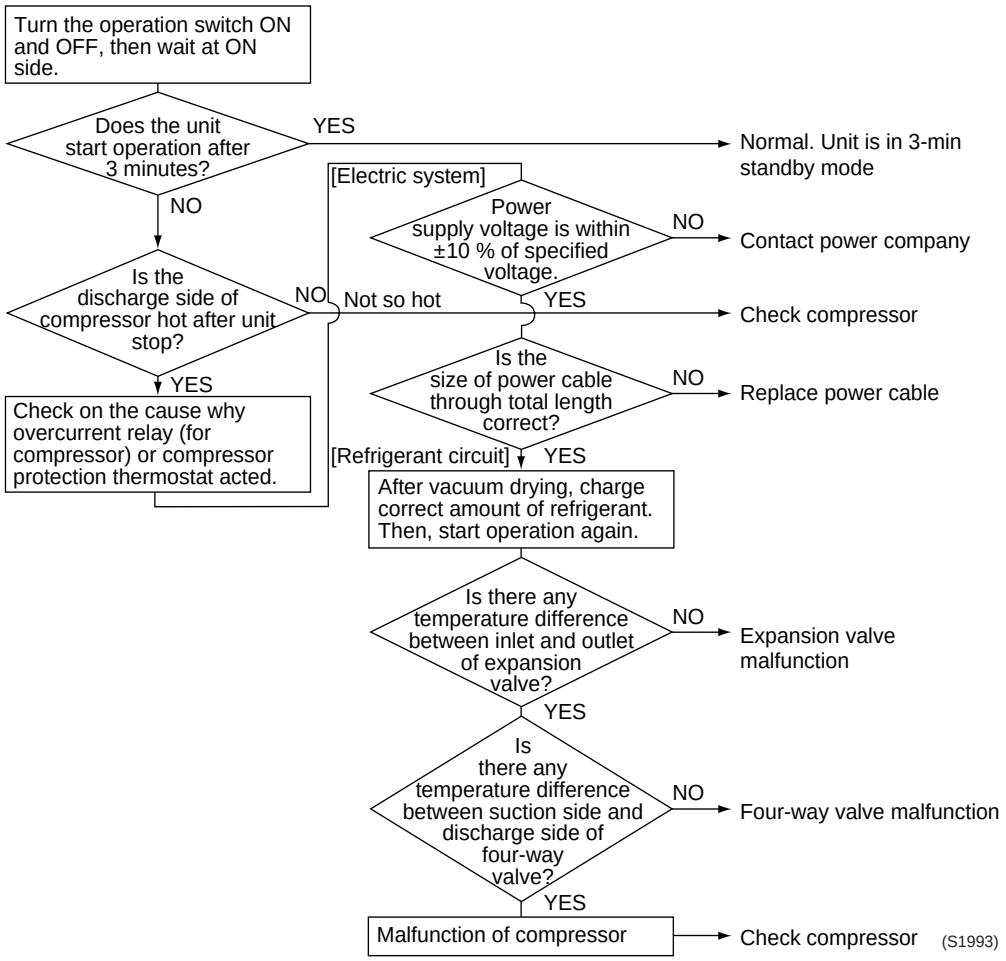
Error Generating Condition

Possible Cause

- Overcurrent relay (for compressor)
- Compressor protection thermostat
- Overcurrent relay may act due to the following reasons
  Lower voltage of power supply
  Excess level of high pressure
  Insufficient size of power cable
  Malfunction of compressor
- Compressor protection thermostat may act due to the following reasons
  Internal leakage of four-way valve (There is no difference between suction and discharge temperature)
  Insufficient compression of compressor
  Incorrect refrigerant
  Faulty expansion valve
  Insufficient circulation of refrigerant

Troubleshooting

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



3.6 Equipment Operates but does not Provide Cooling.

Applicable Model

All models of SkyAir series

Error Detection Method

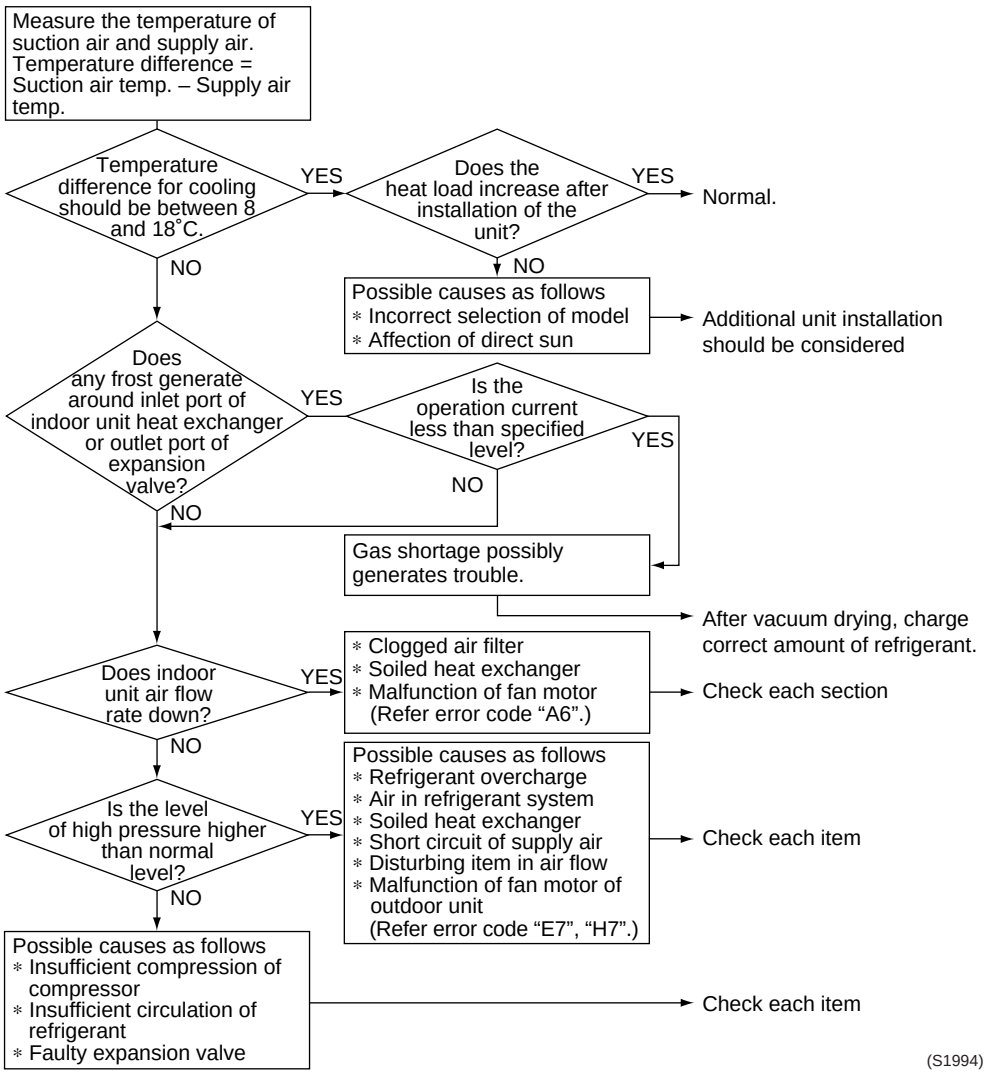
Error Generating Condition

Possible Cause

- Overcurrent relay (for compressor)
- Compressor protection thermostat
- Overcurrent relay may act due to the following reasons
  Lower voltage of power supply
  Excess level of high pressure
  Insufficient size of power cable
  Malfunction of compressor
- Compressor protection thermostat may act due to the following reasons
  Internal leakage of four-way valve (There is no difference between suction and discharge temperature)
  Insufficient compression of compressor
  Incorrect refrigerant
  Faulty expansion valve
  Insufficient circulation of refrigerant

Troubleshooting

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



3.7 Equipment Operates but does not Provide Heating.

Applicable Model

All models of SkyAir series

Error Detection Method

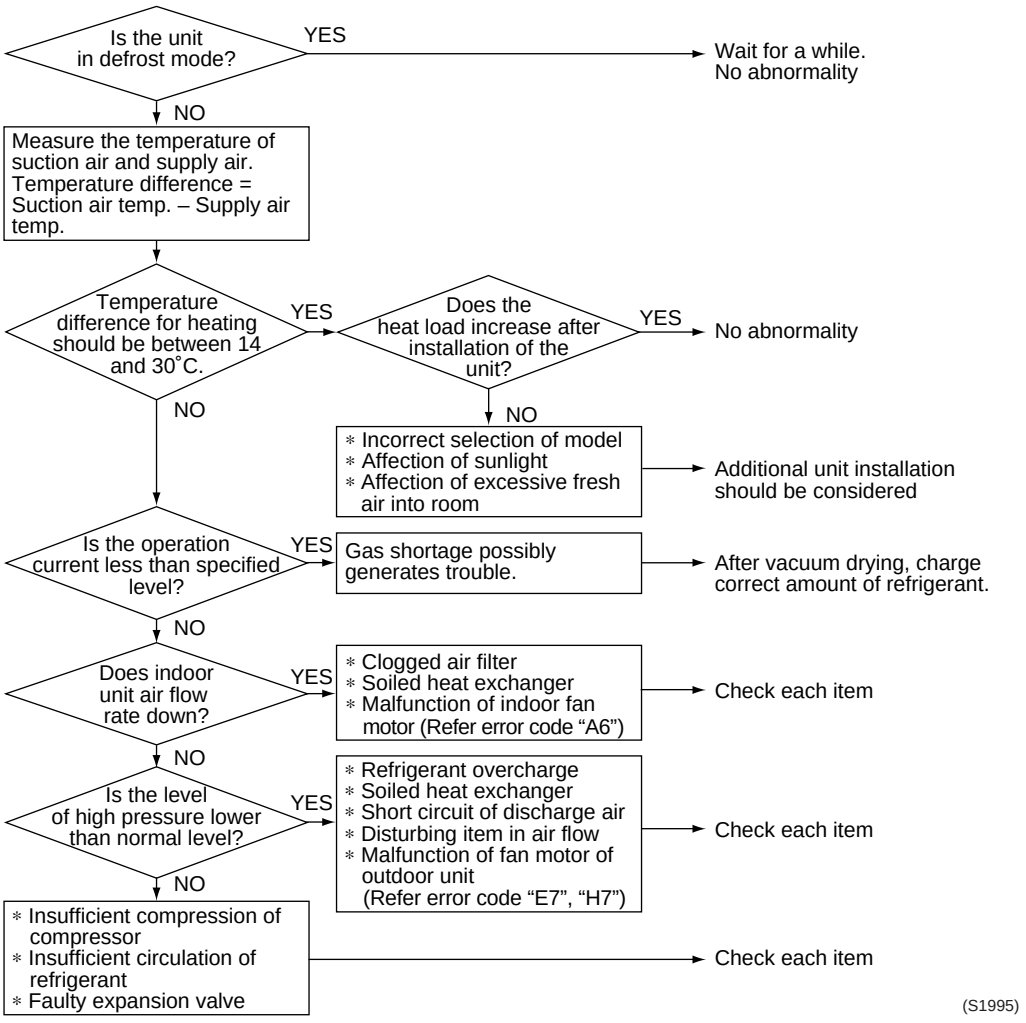
Error Generating Condition

Possible Cause

- Excess charge of refrigerant
- Air intrudes into refrigerant system
- Faulty pressure switch
- Faulty magnetic switch for outdoor unit fan motor
- Faulty aux. relay for outdoor unit fan motor
- Soiled heat exchanger of outdoor unit
- There is an interfering item in air flow of outdoor unit
- Malfunction of outdoor unit fan
- Soiled air filter of indoor unit
- Soiled heat exchanger of indoor unit
- There is some interfering item in airflow of indoor unit
- Malfunction of indoor unit fan

Troubleshooting

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



3.8 Equipment Discharges White Mist

Applicable Model

All models of SkyAir series

Error Detection Method

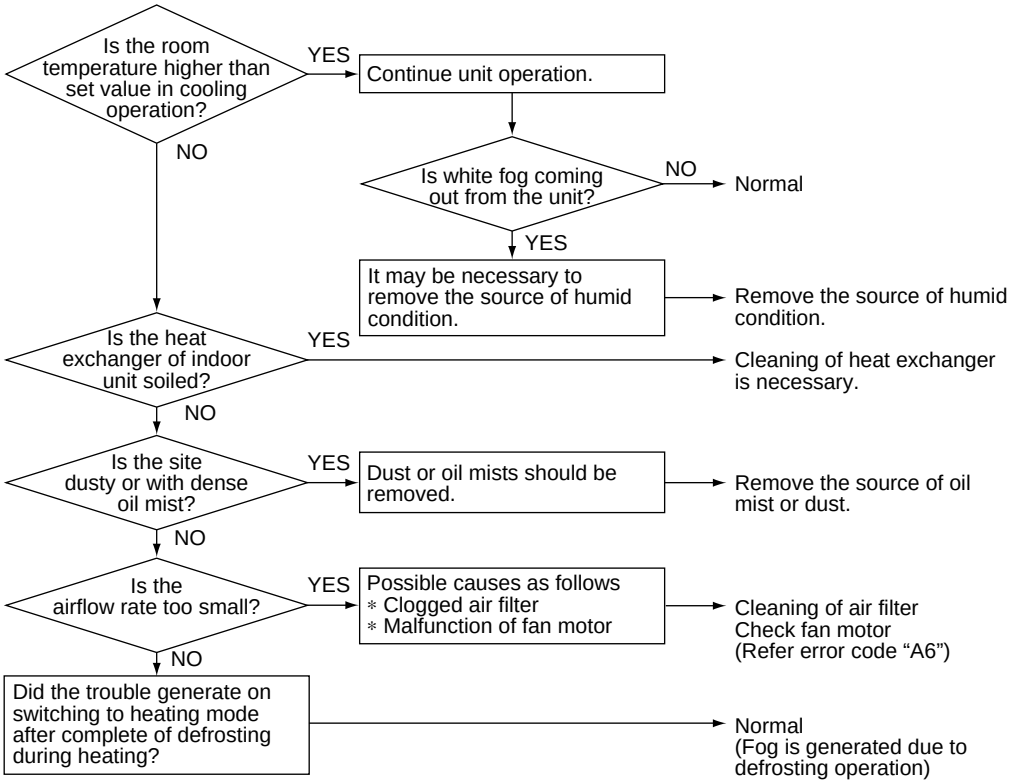
Error Generating Condition

Possible Cause

- Humid installation site
- Installation site is dirty and with dense oil mists.
- Soiled heat exchanger
- Clogged air filter
- Malfunction of fan motor

Troubleshooting

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



(S1996)

3.9 Equipment Produces Loud Noise or Shakes

Applicable Model

All models of SkyAir series

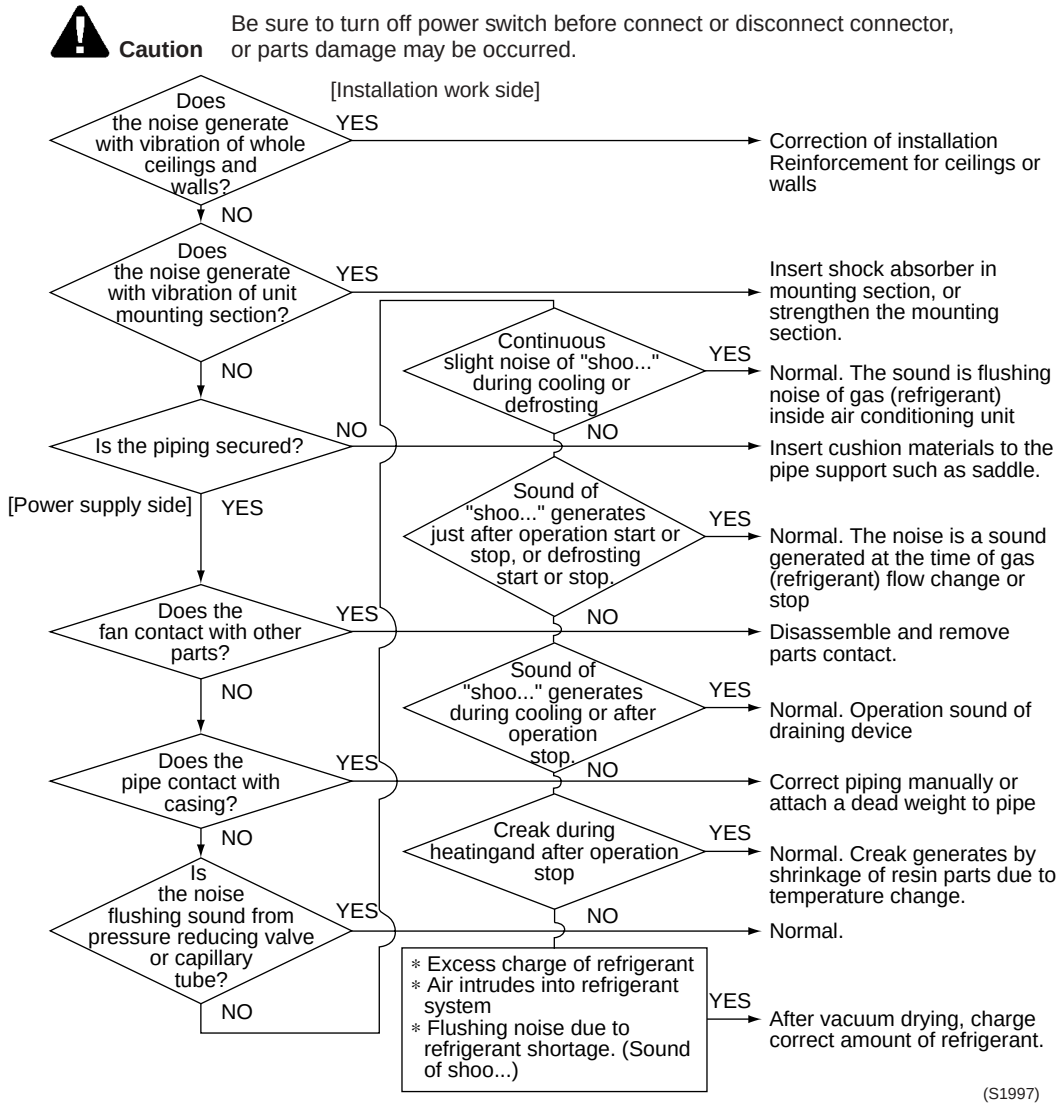
Error Detection Method

Error Generating Condition

Possible Cause

- Faulty installation
- Excess charge of refrigerant
- Air intrudes into refrigerant system
- Flushing noise due to refrigerant shortage. (Sound of shoo...)

Troubleshooting



3.10 Equipment Discharges Dust.

Applicable Model

All models of SkyAir series

Error Detection Method

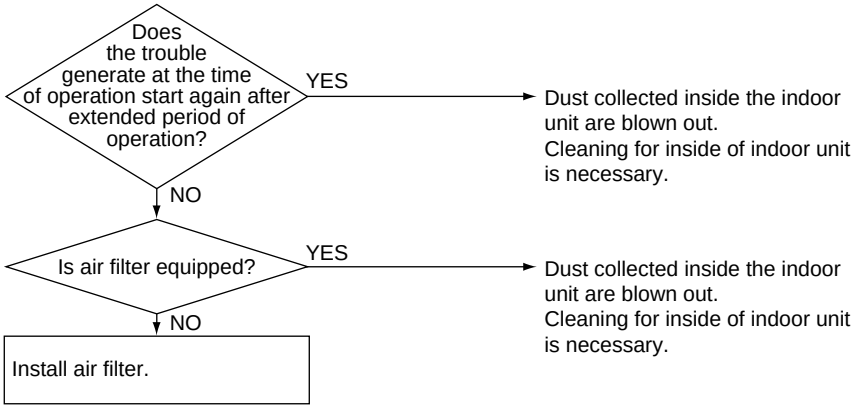
Error Generating Condition

Possible Cause

- Carpet spread room
- Animal's hair

Troubleshooting

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



(S1998)

3.11 Remote Controller LCD Displays "88".

Applicable Model All models of SkyAir series

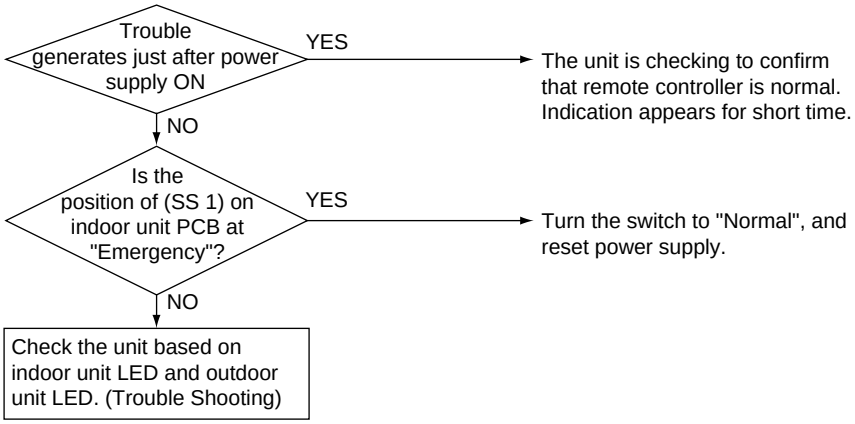
Error Detection Method

Error Generating Condition

Possible Cause

Troubleshooting

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



(S1999)

3.12 Swing Flap does not Operate

Applicable Models

FHYCP, FUYP, FHYP, FAYP

Method of Malfunction Detection

Utilizes ON/OFF of the limit switch when the motor turns.

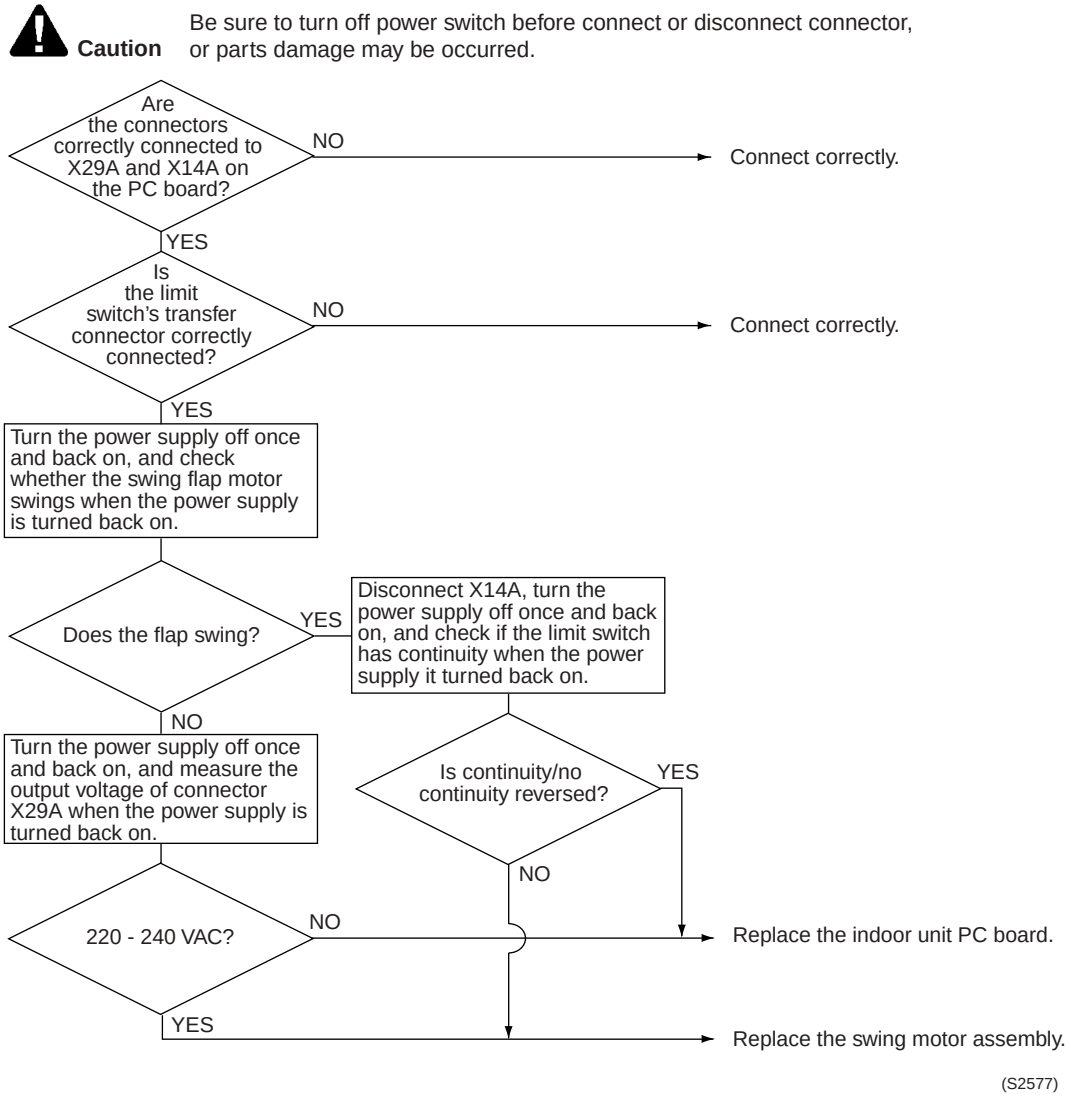
Malfunction Decision Conditions

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

Possible Causes

- Faulty swing motor
- Faulty micro switch
- Faulty connector connection
- Faulty indoor unit PC board

Troubleshooting

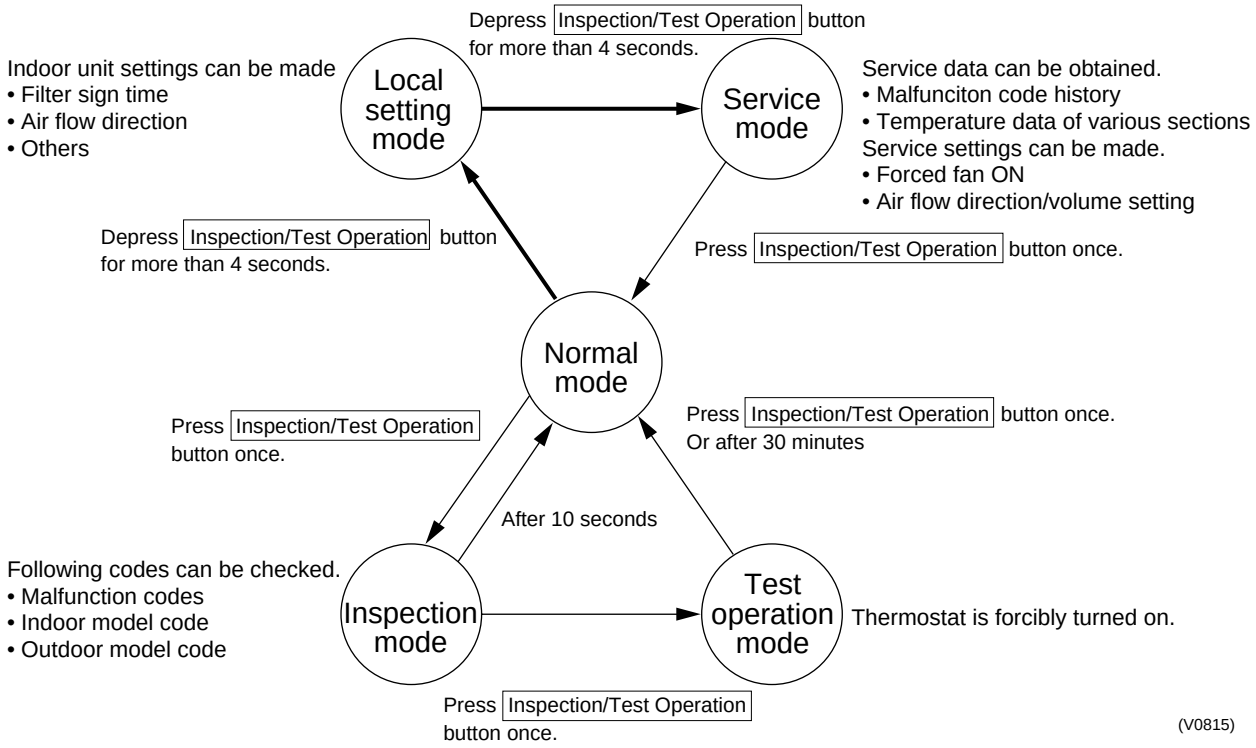


4. Procedure of Self-Diagnosis by Remote Controller

4.1 The INSPECTION/TEST Button

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

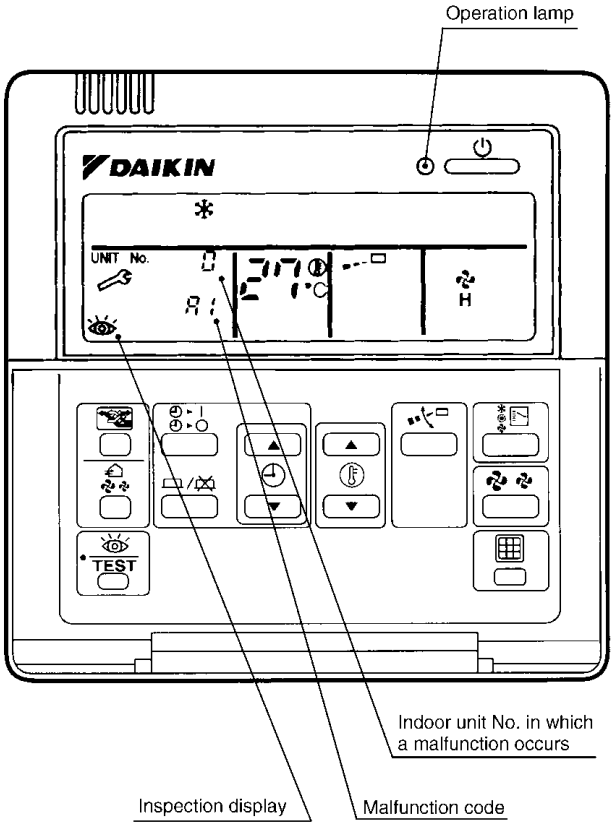
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



4.2 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 125 for malfunction code and malfunction contents.



(S2001)

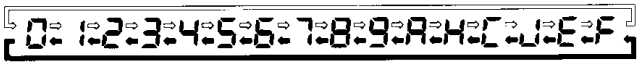
4.3 Fault Diagnosis by Wireless Remote Controller

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.)

Procedure

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.

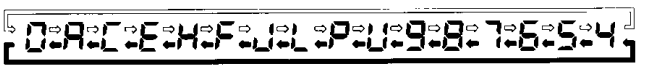


(S2002)

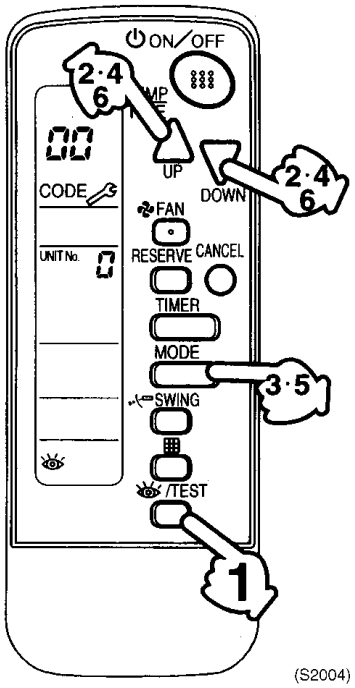
∗2 Number of beeps
Continuous beep : Both upper and lower digits matched.(Malfunction code confirmed)
2 short beeps: Upper digit matched.
1 short beep : Lower digit matched.

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.

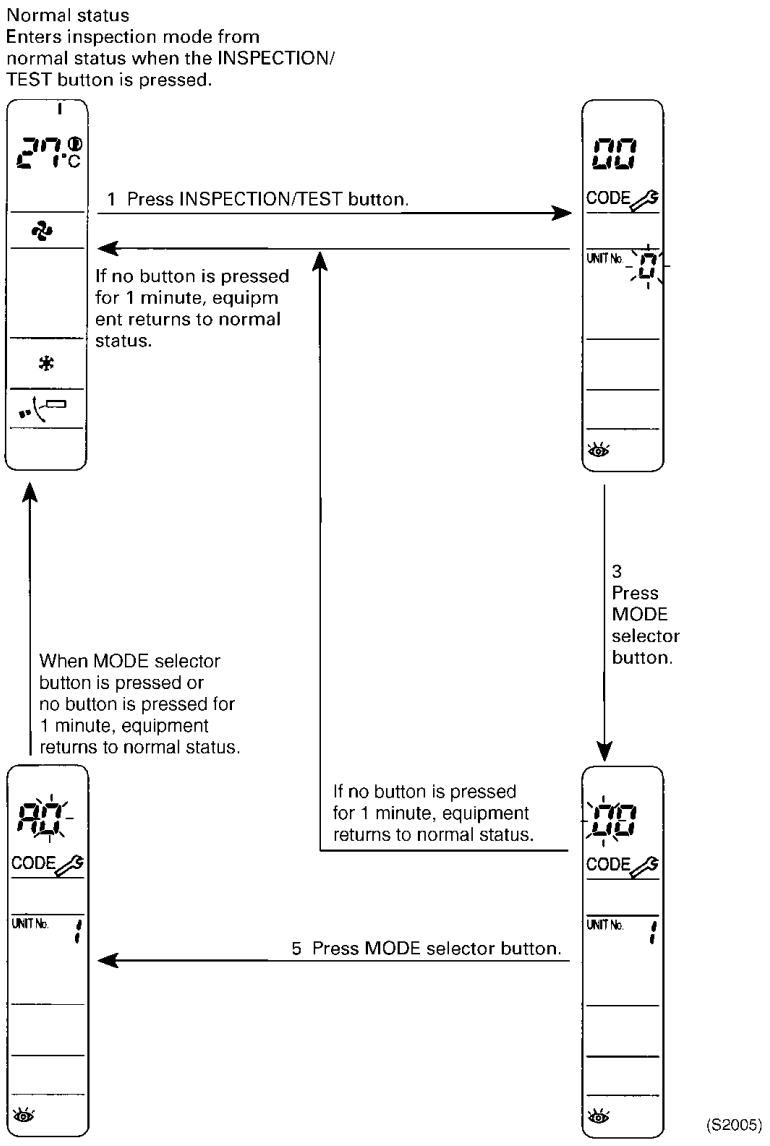
■ The lower digit of the code changes as shown below when the UP and DOWN buttons are pressed.



(S2003)


ON/OFF
2·4
6
UP
DOWN
2·4
6
CODE
FAN
UNIT No.
RESERVE
CANCEL
TIMER
MODE
3·5
SWING
/TEST
1

(S2004)


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

(S2005)

4.4 Remote Controller Display Malfunction Code and Contents

Malfunction Code	Contents/Processing	Remarks
A1	Failure of PC board ass'y for indoor unit	
A3 or AF	Malfunction of drain water level system	
A6	Indoor unit fan motor overload / overcurrent / lock	(Note 1)
A7	Swing flap motor lock	Only Air flow direction adjustment cannot be set.
AF	Abnormal drain water level	Activation of float switch during compressor off.
AJ	Failure of capacity setting	Either capacity data is set incorrectly, or capacity has not been set for the data IC
C4	Malfunction of heat exchanger temperature sensor system	
C9	Malfunction of suction air temperature sensor system	
CJ	Malfunction of remote control air temperature sensor system	Failure of remote controller air thermistor etc. Unit can be operated by indoor unit thermistor.
CC	Malfunction of humidity sensor system	Failure of humidity sensor etc.
E0	Actuation of safety device (outdoor unit)	(Note 1)
E1	Outdoor unit P.C board malfunction	
E3	High pressure malfunction (outdoor unit)	
E4	Abnormality of low pressure (outdoor)	Failure of low pressure sensor system. Check if the stop valve open.
E5	Compressor motor lock malfunction	Compressor motor lock on incorrect wiring etc.
E7	Outdoor fan motor lock or outdoor fan instantaneous overcurrent malfunction	
E9	Malfunction of electronic expansion valve (outdoor unit)	
F3	Discharge pipe temperature malfunction (outdoor unit)	
H3	Failure of high pressure switch (outdoor unit)	
H7	Malfunction of outdoor fan motor signal	
H9	Malfunction of outdoor air temperature sensor system (outdoor unit)	(Note 2)
J3	Malfunction of discharge pipe temperature sensor system (outdoor unit)	
J5	Suction pipe thermistor malfunction	Failure of suction pipe thermister system
J6	Malfunction of heat exchanger temperature sensor system (outdoor unit)	(Note 2)
JC	Malfunction of suction pressure sensor	Failure of suction pressure sensor system
L4	Radiation fin temperature rise	Malfunction of inverter cooling
L5	Instantaneous over current	Possibility of compressor motor grounding or shortage of motor winding
(L8)	Electronic thermal	Possibility of compressor overload, open circuit in compressor motor
L9	Stall prevention	Possibility of compressor seizing
LC	Malfunction of transmission system (between control PCB and inverter PCB)	

Malfunction Code	Contents/Processing	Remarks
P1	Open phase or voltage unbalance	
P4	Abnormal radiation fin temperature sensor (outdoor unit)	
PJ	Failure of capacity setting (outdoor unit)	Either capacity data is set incorrectly, or capacity has not been set for the data IC
U0	Lack of gas malfunction	
U2	Abnormal power supply voltage	Including malfunction of K1M, K2M
U4	Failure of transmission (between indoor and outdoor unit)	Transmission between indoor and outdoor unit is not being correctly carried out. (Note 1, Note 2)
U5	Failure of transmission (between indoor unit and remote controller)	Transmission between indoor and remote controller is not being correctly carried out.
U8	Failure of transmission (between “main” and “sub” remote controller	Transmission between “main” and “sub” remote controller is not being correctly carried out.
UA	Number of indoor units connected to this system is more than limited etc.	
UC	Address error of central remote controller	

- In the case of the shaded error codes, “inspection” is not displayed. The system operates, but be sure to inspect and repair it.

Notes:
1. There is a possibility of open phase power supply, check power supply also.
2. Operation when a malfunction occurs may differ according to the model.

5. Procedure of Self-Diagnosis by LED

5.1 Troubleshooting by LED on the Indoor Unit's

Foreword

Troubleshooting can be carried out by service monitor LED (green). (Blinks when normal)
☼ : LED on ● : LED off ◑ : LED blinks — : No connection with troubleshooting

Microcomputer Normal Monitor	Transmission Normal Monitor	Contents/Processing
HAP (LED-A)	HBP (LED-B)	
◑	◑	Indoor unit normal → Outdoor unit trouble shooting
◑	☼	Incorrect transmission wiring between indoor and outdoor unit
	●	If outdoor unit's LED-A is off, proceed outdoor unit's trouble shooting. If outdoor unit's LED-A blinks, failure of wiring or indoor or outdoor unit P.C board ass'y. (Note 4)
☼	—	Failure of indoor unit PC board ass'y (Note 5)
●		Malfunction of power supply or failure of PC board ass'y or broken transmission wire between indoor and outdoor unit. (Note 5)

Notes:

1. When the INSPECTION/TEST button of remote controller is pushed, **INSPECTION** display blinks entering **INSPECTION** mode.
2. In the **INSPECTION** mode, when the ON/OFF button is pushed and held for 5 seconds or more, the aforementioned malfunctioning history display is off. In this case, after the malfunction code blinks 2 times, the code display turns to "00" (=Normal) and the unit No. turns to "0". The INSPECTION mode automatically switches to the normal mode (set temperature display).
3. Operation halts due to malfunction depending on the model or condition.
4. If LED-B is off, the transmission wiring between indoor and outdoor unit may be incorrect or disconnected. Before performing the previously described troubleshooting, check the transmission wiring.
5. Troubleshoot by turning off the power supply for a minimum of 5 seconds, turning it back on, and then rechecking the LED display.

5.2 Troubleshooting by LED on Inverter Outdoor Unit PCB

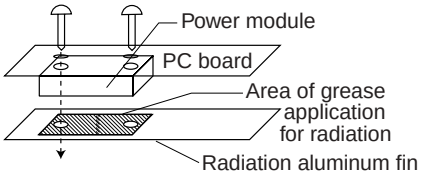
The following diagnosis can be conducted by turning on the power switch and checking the LED indication on the printed circuit board of the outdoor unit.

☼ : LED on ● : LED off ◑ : LED blinks — : Not used for diagnosis

Microcomputer in normal operation	Error detection				Description
HAP	H1P	H2P	H3P	H4P	
(Green)	(Red)	(Red)	(Red)	(Red)	
◑	●	●	●	●	Normal
☼	—	—	—	—	Faulty outdoor unit PCB (Note 1)
●	—	—	—	—	Power supply abnormality, or faulty outdoor unit PCB (Note 2)
◑	☼	●	●	●	Activation of protection device (Note 4)
	☼	☼	●	●	Faulty thermistor
	●	●	☼	●	Compressor motor ground fault, short-circuit, power transistor short-circuit
	●	●	●	☼	Faulty inverter cooling
	☼	●	●	☼	Momentary outage of supply voltage
	●	●	○	○	Fan motor system error
	●	☼	☼	☼	Compressor overload, open circuit in compressor motor
	☼	☼	☼	☼	Compressor seizing
	●	☼	●	●	Open phase power supply or main circuit capacitor malfunction

Notes:

1. Turn off the power switch, and turn it on again after 5 seconds or more. Check the error condition, and diagnose the problem.
2. Turn off the power switch. After 5 seconds or more, disconnect the connection wire (2). Then turn on the power switch. If the HAP on the outdoor unit PCB flashes after about 10 seconds, the indoor unit PCB is faulty.
3. The error detection monitor continues to indication the previously generated error until the power switch is turned off.
   Be sure to turn off the power switch after inspection.
4. Also check for open phase.

<table>
<tr><th>Items</th><th></th><th>Key points</th><th>Items</th><th>Key points</th></tr>
<tr><td rowspan="4">Power supply section and PC board replacement</td><td rowspan="3">Inverter PC board</td><td rowspan="3">To replace the PC board assembly with service parts, follow the procedure shown below.
[Procedure]
① Remove the 2 screws securing the power module to the radiation fin.
② While tilting the PC board resin spacer to one side, remove the PC board.
③ Wipe grease from the radiation fin surface.
④ Apply new grease to the same area on the radiation fin surface.
⑤ Install a new PC board.
⑥ Secure the PC board assembly in place using the 2 screws.
For details, see Removal of Parts.
 
</td><td>Selection of installation site</td><td>Provide a space of 400 mm or more above the outdoor unit for maintenance of the switch box. Especially, make sure that an adequate space is provided when stacking outdoor units.</td></tr>
<tr><td>Instantaneous power failure detection</td><td>In other inverter models, insufficient voltage and instantaneous power failure resulted in an operation shutdown due to “U2” error (supply voltage abnormality). In new models, LED1+4 light in those cases without indicating an error code, and the unit will automatically reset.</td></tr>
<tr><td>Fan residual operation</td><td>The fan operates for about 30 seconds to cool the inverter after the compressor stops operating. If the fin temperature is high, the fan will keep operating until the fin temperature lowers.</td></tr>
<tr><td>Fan motor replacement</td><td>Before replacing the fan motor, make sure that the fan is not operating and disconnect the fan motor connector from the PC board. If the fan is operating, the fan motor generates power to supply voltage to the PC board circuit. Further, make sure that the voltage between the capacitor terminals of the main circuit is 50 V or less before replacing the fan motor. To prevent the PC board from damage, touch the grounding terminal of the switch box by hands without fail to relieve static electricity from yourself right before detaching the connector.</td></tr>
<tr><td>Control PC board</td><td>When replacing to a spare control PC board, install a capacity setting adapter to meet the capacity. The capacity is written in E^2PROM at factory but not in the spare control PC board.</td><td>DC fan motor</td><td>If the contrary winds blow hard, the contrary winds are automatically detected to stop the fan and conduct heat exchange utilizing the natural wind. In this case, the fan motor may not output voltage, while such an operating status is not abnormal.</td></tr>
<tr><td colspan="2">Electric discharge of capacitor</td><td>During the compressor stops operating, controls the electric discharge of capacitor. In this case, a noise may be heard, while it is not an abnormal status.</td><td>Reluctance DC compressor</td><td>AC inverter compressors and constant speed compressors are provided with 3 lead wires. However, reluctance DC compressors are provided with 4 lead wires. All of the 4 lead wires must be connected to the respective correct places. Therefore, pay attention to the wire connection when replacing the compressor, etc. Operation in mistaken wire connection can result in trouble with equipment.</td></tr>
<tr><td colspan="2">Residual electric charge of capacitor</td><td>Before conducting maintenance of the switch box, turn off the power switch, and make sure that the voltage between the capacitor terminals is 50 VDC or less. If it is not possible to check the voltage, wait for 10 minutes or more before servicing.</td><td>New type scroll compressor</td><td>New type scroll compressors are different from the previous scroll compressors in the structure. The suction pipe is attached to the top of the compressor, and the discharge pipe to the side. Therefore, pay attention to the piping positions when measuring temperature, etc.</td></tr>
<tr><td colspan="2">Pre-heating operation (For P63 and 80 only)</td><td>Even when the compressor is not operating, open-phase voltage is supplied via the inverter instead of the compressor’s crankcase heater to prevent refrigerant from dissolving in oil. The ON/OFF of this open-phase voltage is automatically controlled according to the discharge pipe temperature and outdoor temperature. Therefore, be sure to turn the power supply off before conducting maintenance.</td><td>PAM control</td><td>Single-phase compressors are equipped with PAM. Therefore, DC voltage during operation increases up to 300 to 400 V, while this operating status is not abnormal. Pay attention to safety and measuring instruments, etc.</td></tr>
<tr><td colspan="2">Not possible to improve power factor by installation of phase-advance capacitor</td><td>On standard models, it was possible to increase the power factor by installing a capacitor. On inverter models, installation of a capacitor can damage the IGBT. Be sure not to install a capacitor on inverter models.</td><td>Startup control</td><td>ON/OFF switching of solenoid valve is conducted several times to ensure the reliability of compressor during compressor startup. In this case, a noise may be heard, while this operating status is not abnormal.</td></tr>
<tr><td colspan="2">Selection of leakage breaker</td><td>Select a leakage breaker (high-harmonics/ high-frequency non-operating type) designed for inverters. If the leakage breaker is not designed for inverters, high frequency can result in a malfunction.</td><td>Caution about top panel sealing material damage</td><td>The shape and material of the top panel sealing material are different from those of standard models of Skyair series. The top panel sealing material prevents water in the fan compartment from entering the machine compartment (electric components) and also prevents water resulting dew condensation on the top panel from entering the switch box. When the top panel sealing material peels or tears during servicing, replace the sealing material.</td></tr>
<tr><td colspan="2">Fin temperature increase</td><td>Does not result in malfunction stop, and the unit will automatically reset after standby for 3 minutes. The fin temperature increase can be checked by service mode or LED on the PC board.</td><td>Pump down operation</td><td>Low pressure protection switch (LPS) is not provided on products equipped with scroll compressor. Therefore, in normal cooling operation, LPS cannot be actuated by shutting stop valve. Collect refrigerant without fail by using the pump down operation switch.</td></tr>
</table>

6. Troubleshooting by Remote Controller Display / LED Display

6.1 Explanation for Symbols

◑ : Blinks ☼ : On ● : Off — : No connection with troubleshooting

◎ : High probability of malfunction
○ : Possibility of malfunction
☐ : Low probability of malfunction
— : No possibility of malfunction (do not replace)

6.2 Malfunction Code and LED Display Table

Indoor Unit

Indoor Unit Malfunctions	Indoor Unit LED Display Note 2		Remote Controller Display	Location of Malfunction				Contents of Malfunction	Details of Malfunction (Reference Page)
	H1P	H2P		Other than PC Board	PC Board				
					Outdoor Unit	Indoor Unit	Remote Controller		
	◑	◑	*Note 1	—	—	—	—	Normal → to outdoor unit	—
	◑	☼	A1	—	—	○	—	Failure of indoor unit PC board (For troubleshooting by LED, refer to p.127.)	134
	◑	●							
	☼	—							
	●	—							
	◑	◑	A3	◎	—	—	—	Malfunction of drain water level system	135
	◑	◑	AF	◎	—	—	—	Float switch operation during compressor stop	137
	◑	◑	A6	◎	—	□	—	Indoor unit fan motor overload/ overcurrent/lock	138,139
	◑	◑	A7	◎	—	□	—	Swing flap motor Malfunction / Lock	141
	◑	◑	AJ	◎	—	○	—	Failure of capacity setting	143
	◑	◑	C4	◎	—	□	—	Malfunction of heat exchanger temperature sensor system	144
	◑	◑	C9	◎	—	□	—	Malfunction of suction air temperature sensor system	145
	◑	◑	CJ	—	—	□	—	Malfunction of remote control air temperature sensor system	146
	◑	◑	CC	◎	—	—	—	Malfunction of humidity sensor system	147

Outdoor Unit

Outdoor Unit Malfunction	Outdoor unit LED Display					Remote Controller Display	Location of Malfunction				Contents of Malfunction	Details of Malfunction (Reference Page)
	A	1	2	3	4		Other than PC Board	PC Board				
								Outdoor Unit	Indoor Unit	Remote Controller		
	◑	☼	●	●	●	E0	◎	☐	—	—	Activation of protection device Note 1.	148
	◑	—	—	—	—	E1	◎	◎	—	—	Outdoor unit P.C board malfunction	149
	◑	☼	●	●	●	E3	◎	—	—	—	Abnormality of high pressure (HPS)	150
	◑	☼	●	●	●	E4	◎	☐	—	—	Abnormality of low pressure (outdoor)	152
	◑	☼	●	●	●	E5	◎	☐	—	—	Compressor motor lock malfunction	153
	◑	●	●	☼	☼	E7	◎	☐			Outdoor fan motor lock or outdoor fan instantaneous overcurrent malfunction	155
	◑	●	●	●	●	E9	◎	☐	—	—	Malfunction of Electronic expansion valve	156
	◑	☼	●	●	●	F3	◎	☐	—	—	Discharge pipe temperature malfunction	158
	◑	☼	☼	●	●	H3	◎	◎	—	—	Faulty high pressure switch (HPS)	160
	◑	☼	☼	●	●	H7	◎	◎	—	—	Malfunction of outdoor fan signal	161
	◑	☼	☼	●	●	H9	◎	☐	—	—	Malfunction of outdoor air temperature sensor system	162
	◑	☼	☼	●	●	J3	◎	☐	—	—	Malfunction of discharge pipe temperature sensor system	162
	◑	☼	☼	●	●	J5	◎	☐	—	—	Suction pipe thermistor malfunction	162
	◑	☼	☼	●	●	J6	◎	☐	—	—	Malfunction of heat exchanger temperature sensor system	162
	◑	☼	☼	●	●	JC	◎	☐	—	—	Suction pipe pressure sensor malfunction	163
	◑	●	●	●	☼	L4	◎	☐	—	—	High temperature of radiation fin	164
	◑	●	●	☼	●	L5	◎	☐	—	—	Overcurrent of DC output (instantaneous)	165
	◑	●	☼	☼	☼	(L8) Note 2	◎	☐	—	—	Electronic thermal switch (time lag)	167
	◑	☼	☼	☼	☼	L9	◎	☐	—	—	Stall prevention (time lag)	169
	—	—	—	—	—	LC	◎	○	—	—	Malfunction of transmission system (between control PCB and inverter PCB)	171
	◑	☼	●	●	☼	P1	◎	☐	—	—	Open phase or voltage unbalance	173
	◑	☼	☼	●	●	P4	◎	☐	—	—	Faulty radiation fin temperature sensor	175,176
	◑	—	—	—	—	PJ	◎	☐	—	—	Error in capacity setting	177

Note: 1. Possibility of open phase in power supply.
2. In RZP model, L8 is not displayed on remote controller. Please see page 167 for more detail.

System

Outdoor Unit Malfunction	Outdoor unit LED Display					Remote Controller Display	Location of Malfunction				Contents of Malfunction	Details of Malfunction (Reference Page)
	A	1	2	3	4		Other than PC Board	PC Board				
								Outdoor Unit	Indoor Unit	Remote Controller		
	—	—	—	—	—	U0	◎	—	—	—	Gas shortage	178
	◑	☼	●	●	☼	U2	◎	□	—	—	Insufficient voltage	179
	◑	●	○	●	●	U2	◎	◎	—	—	Open phase or main circuit capacitor malfunction	179
	—	—	—	—	—	U4 or UF	◎	○	○	—	Transmission error (between indoor and outdoor unit)	181
	—	—	—	—	—	U5	◎	—	○	○	Transmission error (between indoor and remote controller)	183
	—	—	—	—	—	U8	◎	—	○	○	Transmission error between “main” remote controller and “sub” remote controller	184
	—	—	—	—	—	UR	◎	—	○	—	Excessive indoor units connected to this system.	185
	—	—	—	—	—	UC	◎	—	—	○	Centralized address setting error	187

6.3 Failure of Indoor Unit PC Board

Remote Controller Display

A1

Applicable Models

All indoor unit models

Method of Malfunction Detection

Check data from E²PROM.

Malfunction Decision Conditions

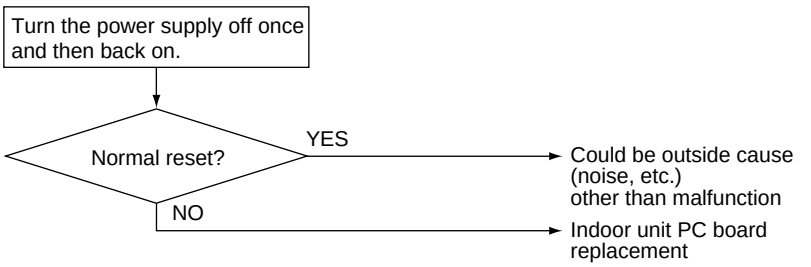
When data could not be correctly received from the E²PROM
E²PROM : Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.

Supposed Causes

- Failure of PC board

Troubleshooting

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

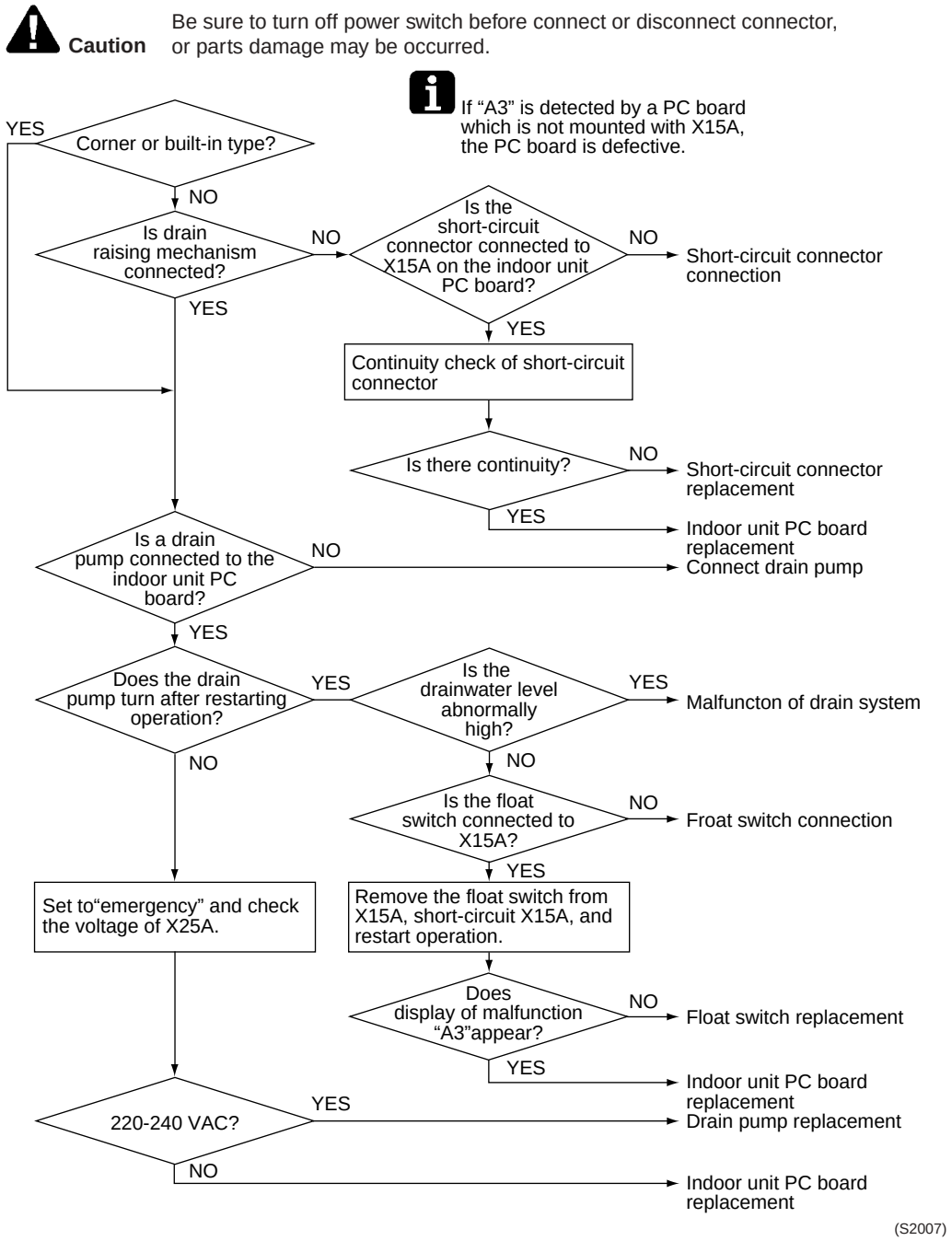


(S2006)

6.4 Malfunction of Drain Water Level System (Float Type)

Remote Controller Display	A3
Applicable Models	FHYCP, FUYP
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	■ Failure of drain pump ■ Improper drain piping work ■ Drain piping clogging ■ Failure of float switch ■ Failure of indoor unit PC board ■ Failure of short-circuit connector

Troubleshooting



6.5 Failure of Drain System

Remote Controller Display

AF

Applicable Models

FHYCP, FUYP

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

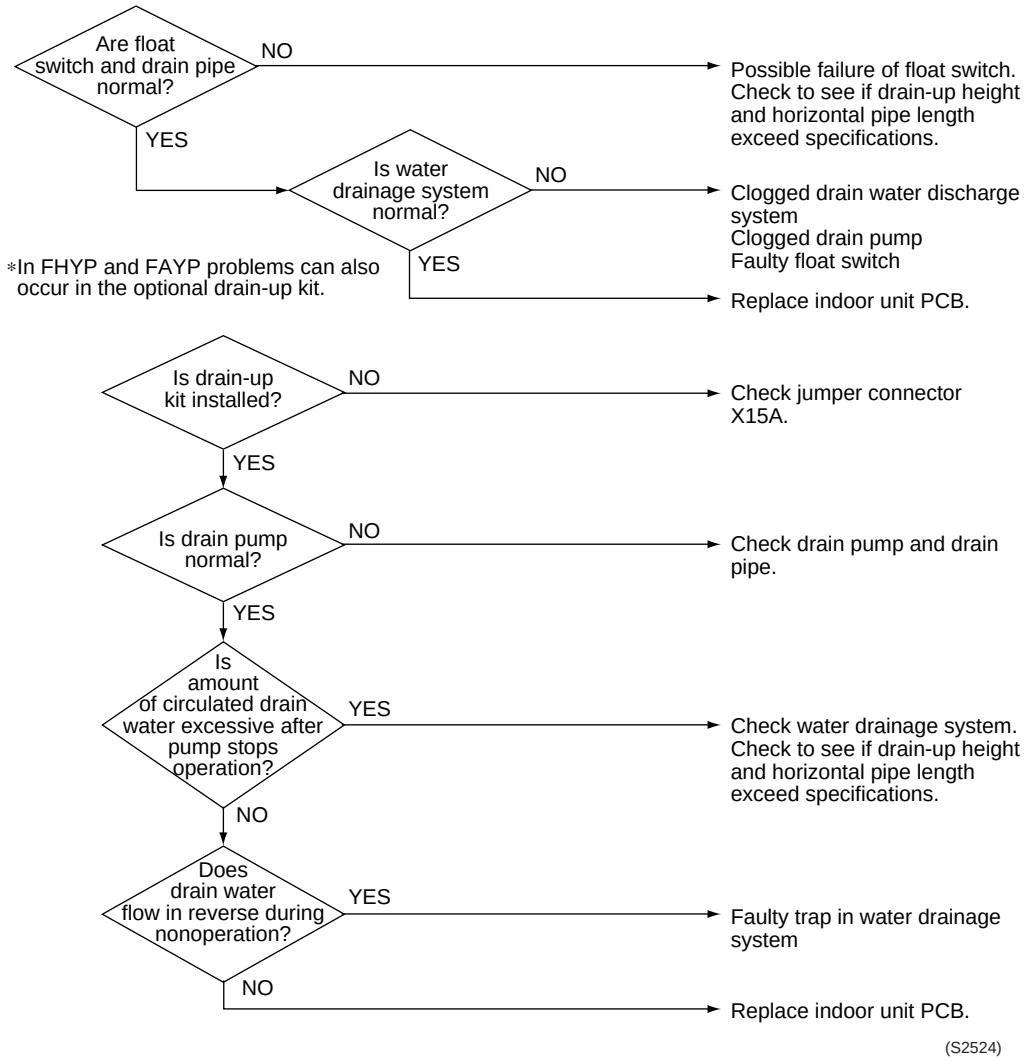
When the float switch changes from ON to OFF while the compressor is in non-operation.

Supposed Causes

- Error in drain pipe installation
- Faulty float switch
- Faulty indoor unit PCB

Troubleshooting

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



(S2524)

6.6 Indoor Unit Fan Motor Lock

Remote Controller Display

A6

Applicable Models

FAYP, FHYP

Method of Malfunction Detection

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

Malfunction Decision Conditions

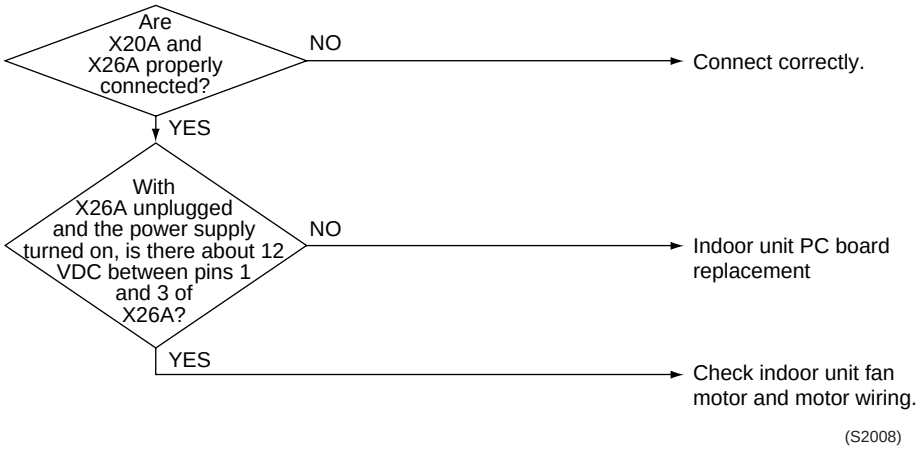
When number of turns can't be detected even when output voltage to the fan is maximum

Supposed Causes

- Failure of indoor unit fan motor
- Broken or disconnected wire
- Failure of contact
- Failure 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.

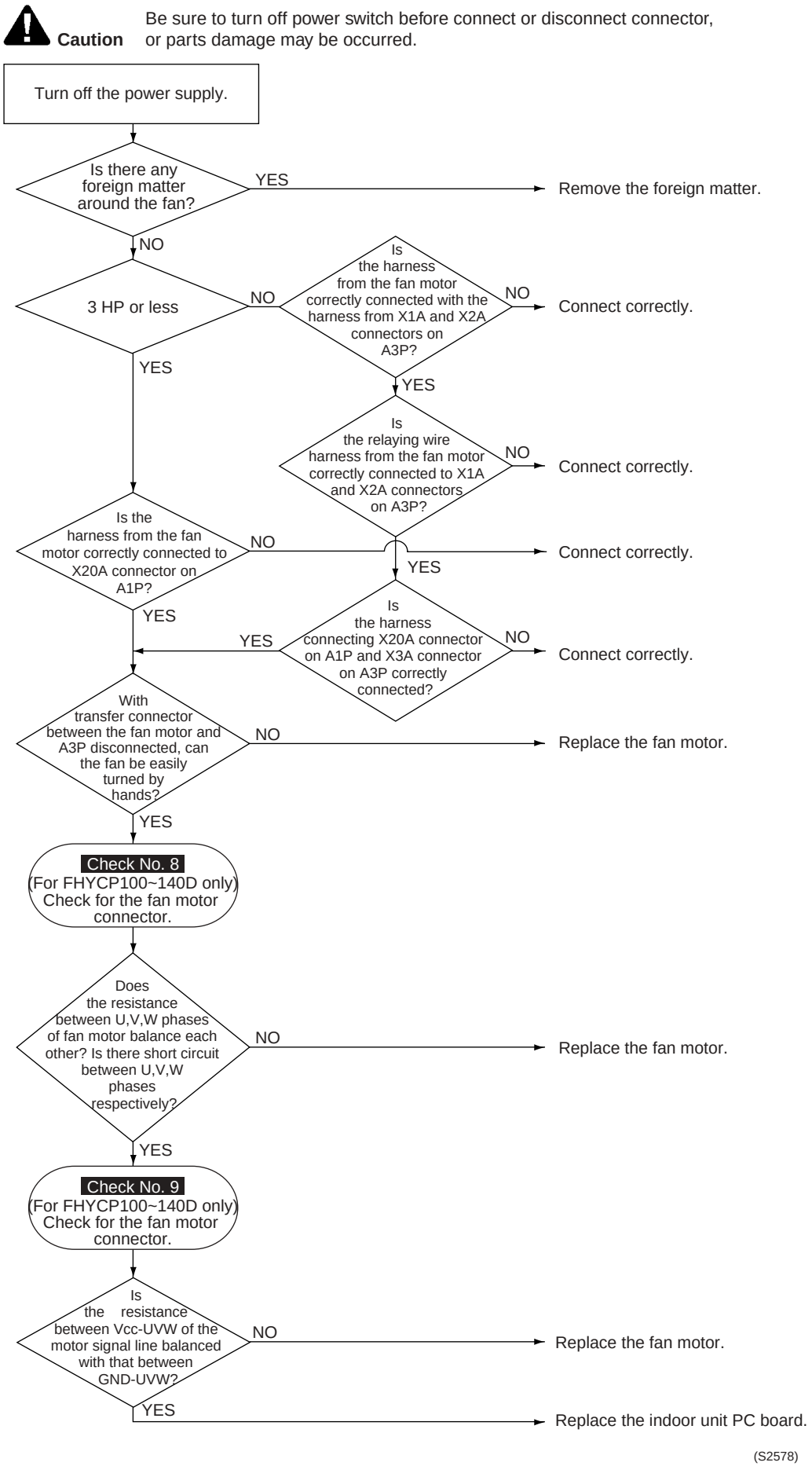


(S2008)

6.7 Malfunction of Indoor Unit Fan Motor

Remote Controller Display	A6
Applicable Models	FHYCP
Method of Malfunction Detection	Detection of abnormal fan speed by signal from the fan motor
Malfunction Decision Conditions	When fan speed does not increase
Supposed Causes	■ Disconnection, short circuit or disengagement of connector in fan motor harness ■ Faulty fan motor (disconnection, poor insulation) ■ Abnormal signal from fan motor (faulty circuit) ■ Faulty PC board ■ Instantaneous fluctuation of power supply voltage ■ Fan motor lock (Caused by motor or other external factors) ■ Fan does not turn due to a tangle of foreign matters.

Troubleshooting



6.8 Swing Flap Motor Malfunction / Lock

Remote Controller Display

A7

Applicable Models

FHYCP, FHYP, FUYP, FAYP

Method of Malfunction Detection

Utilizes ON/OFF of the limit switch when the motor turns.

Malfunction Decision Conditions

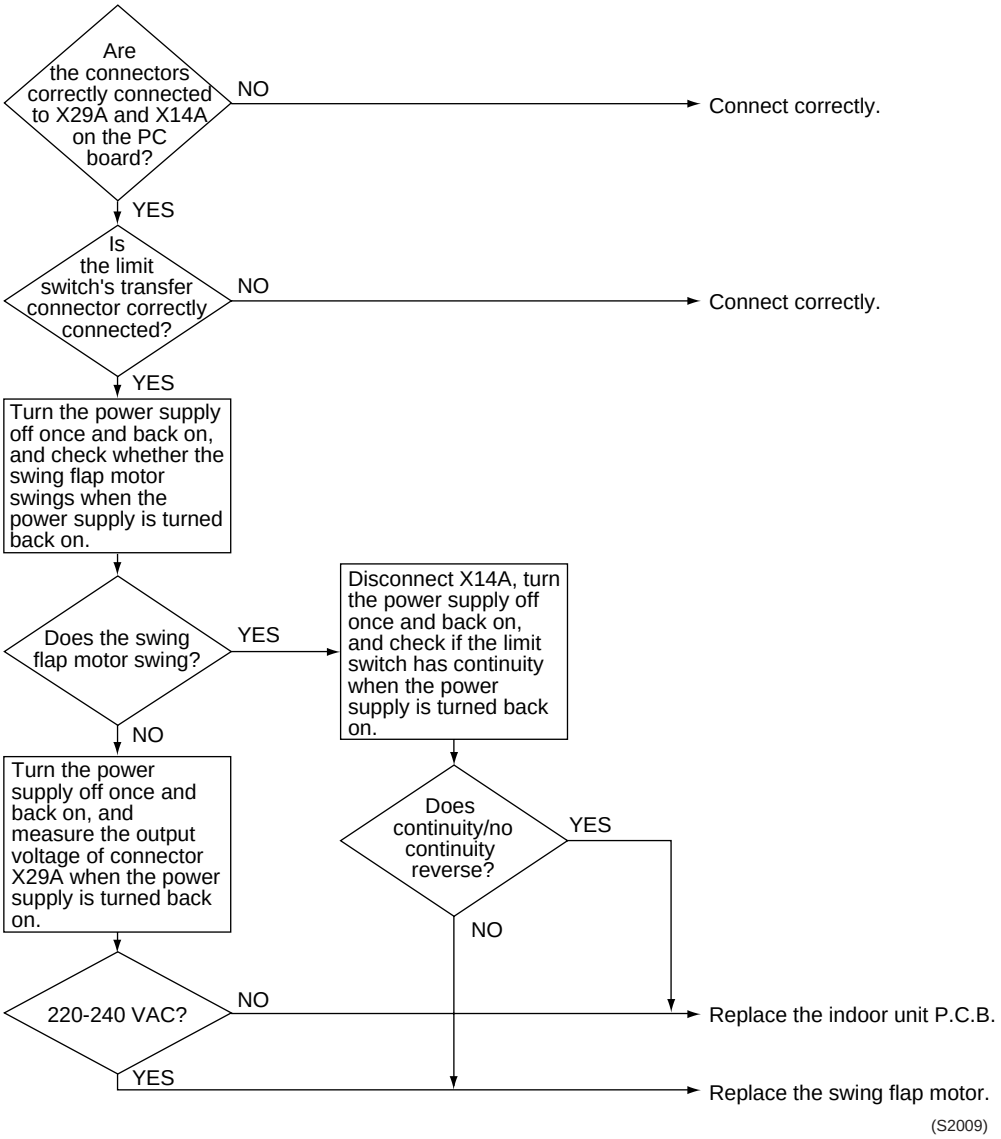
When ON/OFF of the microswitch for positioning cannot be reversed even though the swing flap motor is energized for a specified amount of time (about 30 seconds).

Supposed Causes

- Failure of motor
- Failure of microswitch
- Failure of connector connection
- Failure 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.



(S2009)

6.9 Failure of Capacity Setting

Remote Controller Display

AJ

Applicable Models

FHYCP, FHYP, FUYP, FAYP

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.

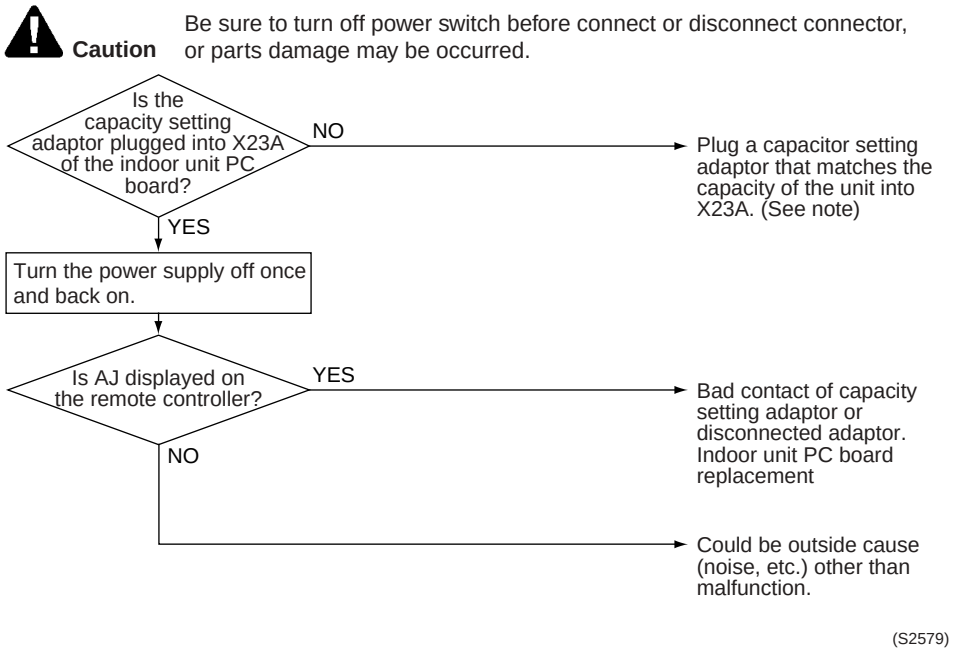
Malfunction Decision Conditions

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

- Failure of capacity setting adaptor connection
- Failure of indoor unit PC board

Troubleshooting



Note: Capacity is factory set in the data IC on the PC board. A capacity setting adaptor that matches the capacity of the unit is required in the following case.
If the indoor PC board installed at the factory is for some reason changed at the installation site, the capacity will not be contained in the replacement PC board.
If you connect a capacity setting adaptor to a PC board in which the capacity is memorized, the capacity setting for the PC board will become the capacity setting of the adaptor. (Priority of capacity setting adaptor)

6.10 Malfunction of Heat Exchange Temperature Sensor System

Remote Controller Display

C4

Applicable Models

All indoor unit models

Method of Malfunction Detection

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

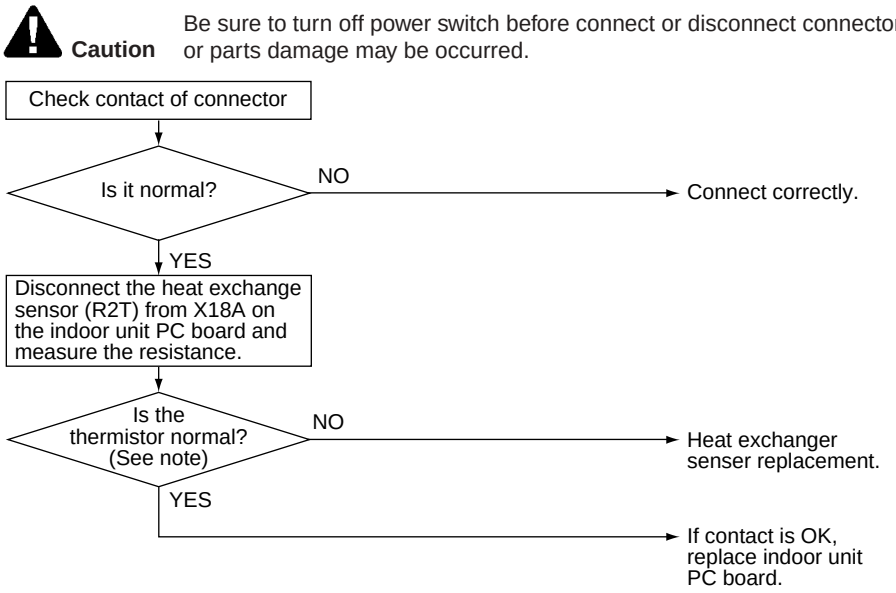
Malfunction Decision Conditions

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

Supposed Causes

- Failure of the sensor itself
- Broken or disconnected wire
- Failure of electronic circuitry (indoor unit PC board)
- Failure of connector contact

Troubleshooting



★See Check No. 12 for “Thermistor temperature/Resistance characteristics”.

(S2011)

6.11 Malfunction of Suction Air Temperature Sensor System

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 sensor.

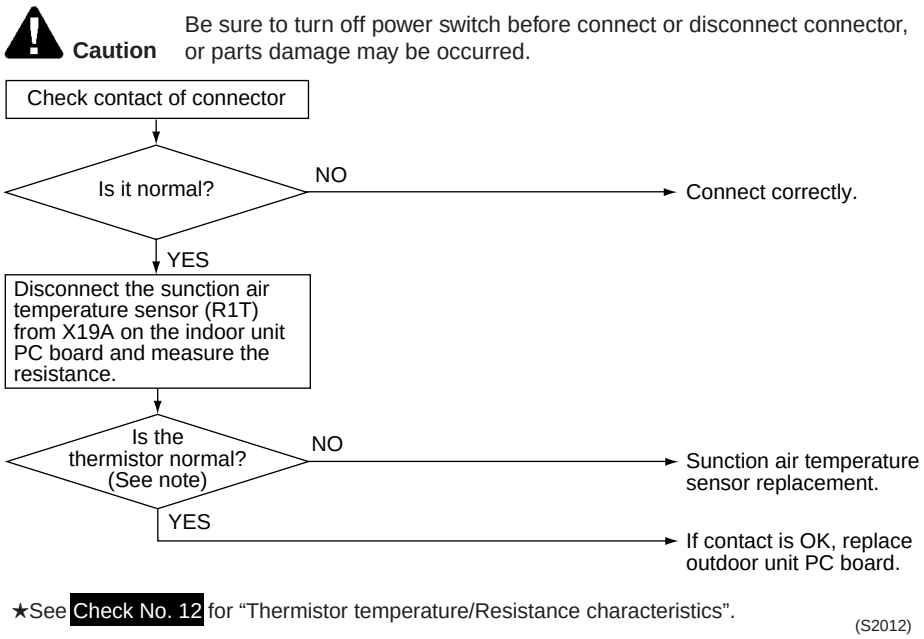
Malfunction Decision Conditions

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

Supposed Causes

- Failure of the sensor itself
- Broken or disconnected wire
- Failure of indoor unit PC board
- Failure of connector contact

Troubleshooting



★See Check No. 12 for "Thermistor temperature/Resistance characteristics".

(S2012)

6.12 Malfunction of Remote Controller Air Thermistor

Remote Controller Display

CJ

Applicable Models

FHYCP, FHYP, FUYP, FAYP

Method of Malfunction Detection

Even if remote controller thermistor is faulty, system is possible to operate by system thermistor. Malfunction detection is carried out by temperature detected by remote controller thermistor.

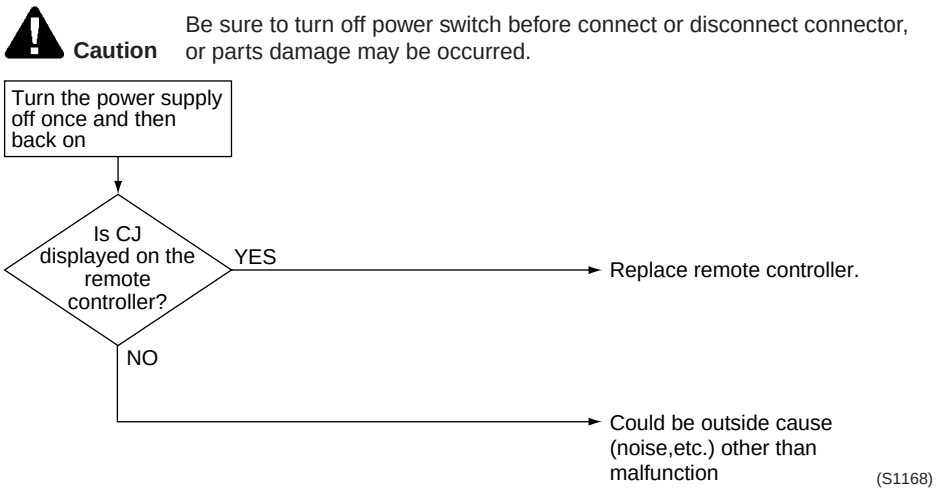
Malfunction Decision Conditions

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

Supposed Causes

- Failure of sensor itself
- Broken wire

Troubleshooting



6.13 Malfunction of Moisture Sensor System

Remote Controller Display

CC

Applicable Models

FHYCP

Method of Malfunction Detection

Even if a malfunction occurs, operation still continues.
Malfunction is detected according to the moisture (output voltage) detected by the moisture sensor.

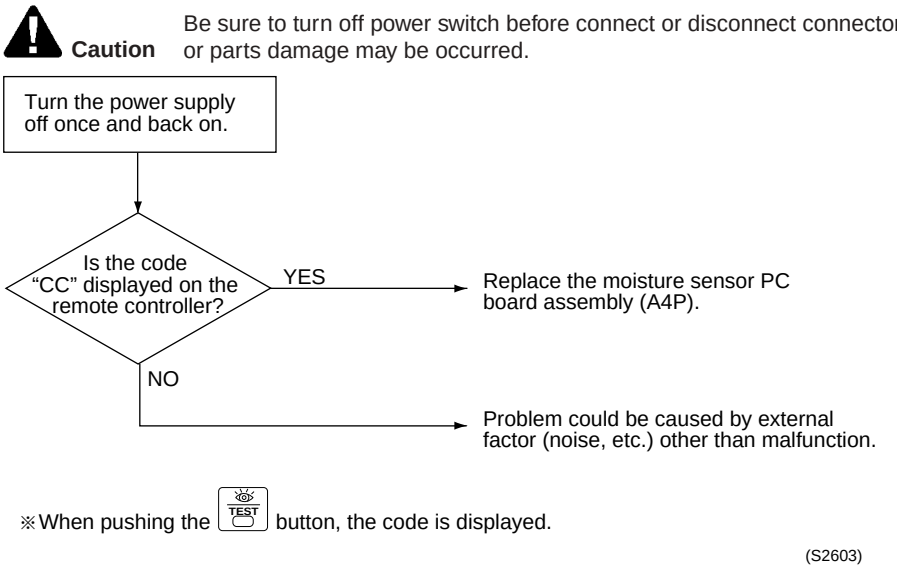
Malfunction Decision Conditions

When the moisture sensor is disconnected or short-circuited

Supposed Causes

- Faulty sensor
- Disconnection

Troubleshooting



6.14 Actuation of Protection Device

Remote Controller Display

E0

Applicable Models

RZP71~140D

Method of Malfunction Detection

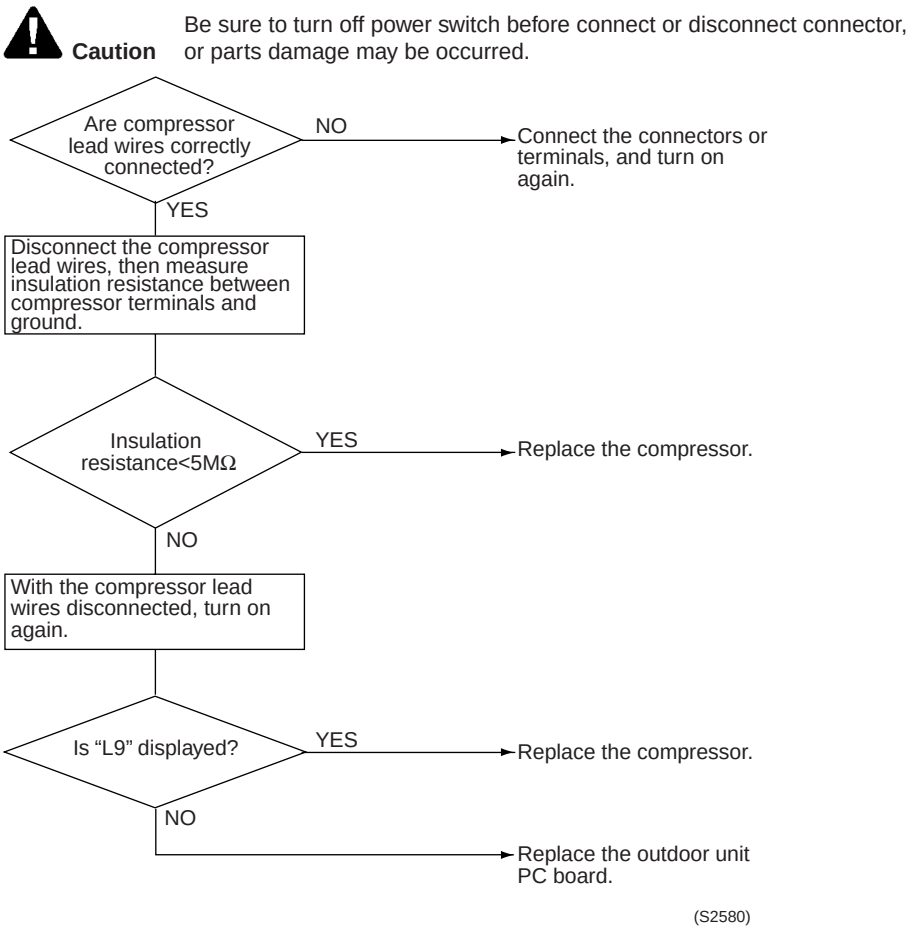
The protection device input circuit checks the actuation of each individual protection device. (Batch detection of all protection devices)

Malfunction Decision Conditions

Supposed Causes

- Actuation of outdoor unit protection device
- Faulty outdoor unit PC board
- Instantaneous power failure

Troubleshooting



6.15 Failure of Outdoor Unit PC Board

Remote Controller Display

E1

LED Display

A ◑ 1 — 2 — 3 — 4 —

Applicable Models

RZP71~140D

Method of Malfunction Detection

Microcomputer checks whether E^2PROM is normal.

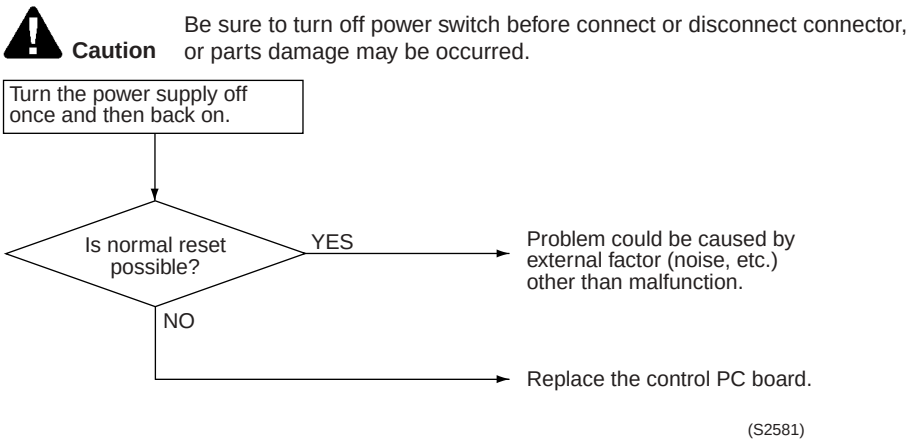
Malfunction Decision Conditions

E^2PROM:
When E^2PROM malfunctions when turning the power supply on

Supposed Causes

- Faulty outdoor unit PC board

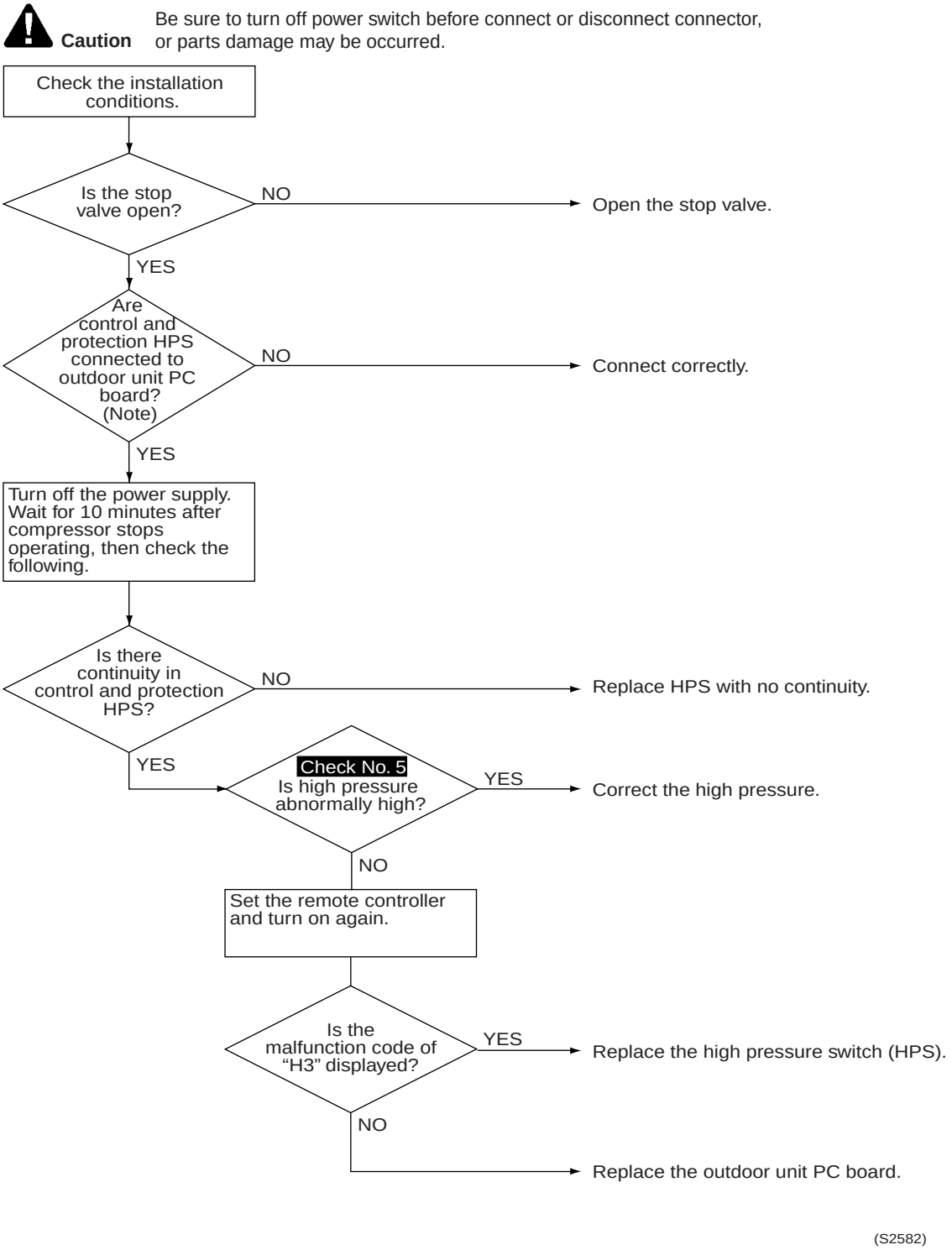
Troubleshooting



6.16 Abnormal High Pressure Level

Remote Controller Display	E3
Outdoor Unit LED Display	A ◑ 1 ☼ 2 ● 3 ● 4 ●
Applicable Models	RZP71~140D
Method of Malfunction Detection	The protection device circuit checks continuity in the high pressure switch.
Malfunction Decision Conditions	When the high pressure switch is actuated Actuating pressure: RZP71 ~ 140D
Supposed Causes	■ Faulty high pressure switch ■ Disconnection in high pressure switch harness ■ Faulty connection of high pressure switch connector ■ Clogged indoor unit suction filter (in heating operation) ■ Dirty outdoor unit heat exchanger ■ Faulty outdoor unit fan ■ Refrigerant overcharge ■ Stop valve is left in closed.

Troubleshooting



(S2582)

Notes: Some models are not equipped with protection or control HPS.

6.17 Low Pressure System (LPS) Malfunction

Remote Controller Display

E4

Outdoor Unit LED Display

HAP ◑ H1P ☼ H2P ●

Applicable Models

RZP71~140D

Method of Malfunction Detection

Continuity of the low pressure switch is detected by the safety device circuitry.

Malfunction Decision Conditions

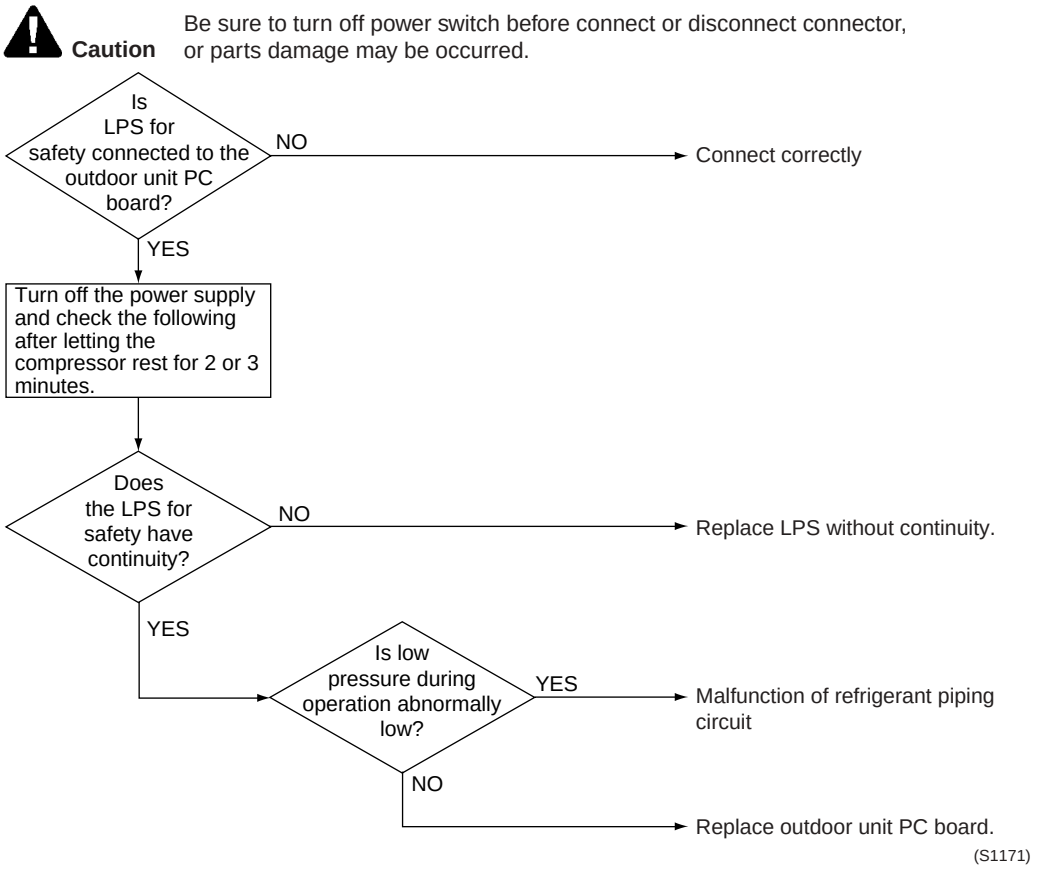
Case where low pressure switch is actuated when the compressor is operating

Supposed Causes

<Causes related to PC board>
- Failure of low pressure switch
- Low pressure switch's harness is broken or disconnected
- Failure of low pressure switch's connector connection
- Failure of outdoor unit PC board

<Causes related to product as a whole>
- Malfunction of refrigerant piping circuit

Troubleshooting



6.18 Compressor Motor Lock

Remote Controller Display

E5

Outdoor Unit LED Display

A ◑ 1 ☼ 2 ● 3 ● 4 ●

Applicable Models

RZP71~140D

Method of Malfunction Detection

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

Malfunction Decision Conditions

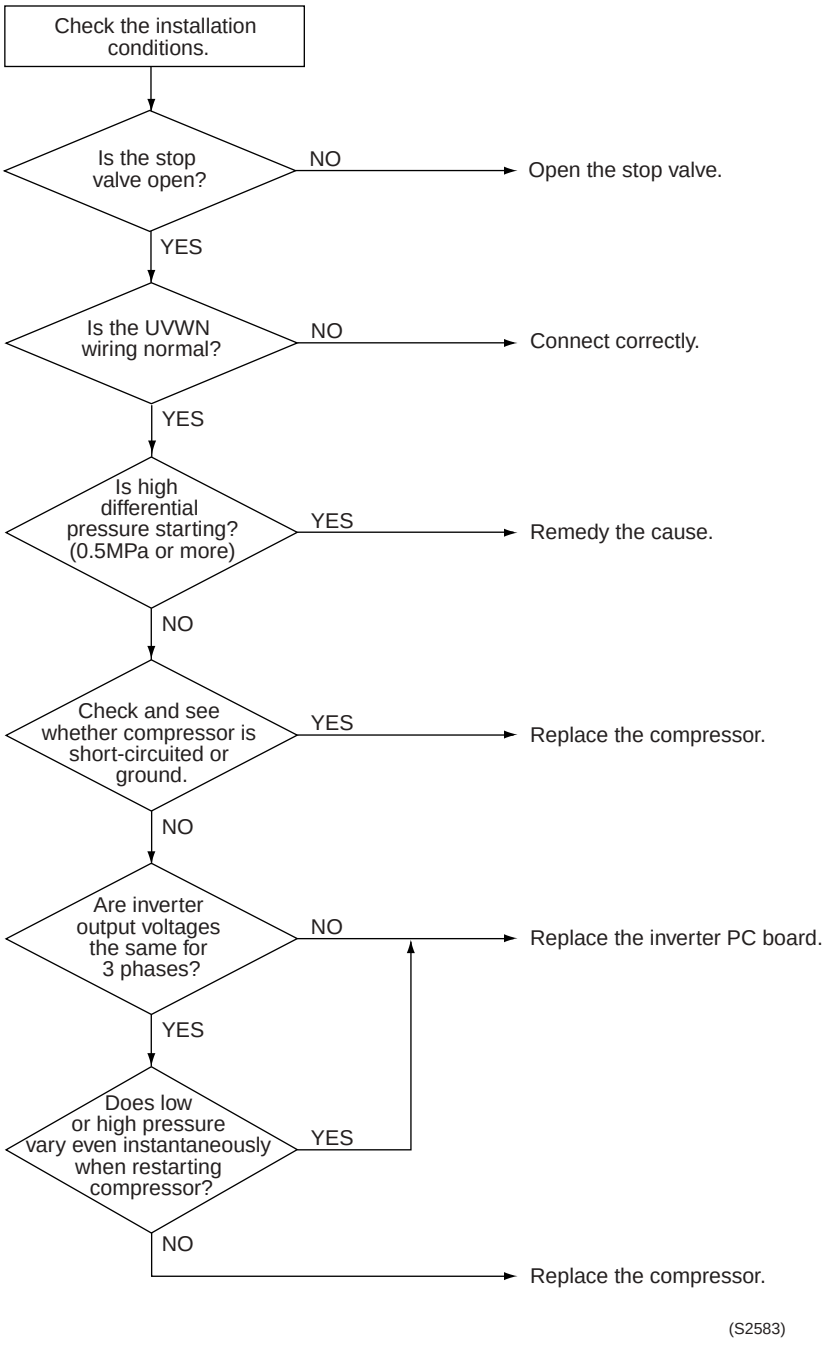
The position signal with 3 times cycle as imposed frequency is detected when compressor motor operates normally, but 2 times cycle when compressor motor locks. When the position signal in 2 times cycle is detected

Supposed Causes

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

Troubleshooting

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



(S2583)

6.19 Malfunction of Outdoor Unit Fan Motor

Remote Controller Display

E7

Outdoor Unit LED Display

A ◑ 1 ● 2 ● 3 ☼ 4 ☼

Applicable Models

RZP71~140D

Method of Malfunction Detection

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

Malfunction Decision Conditions

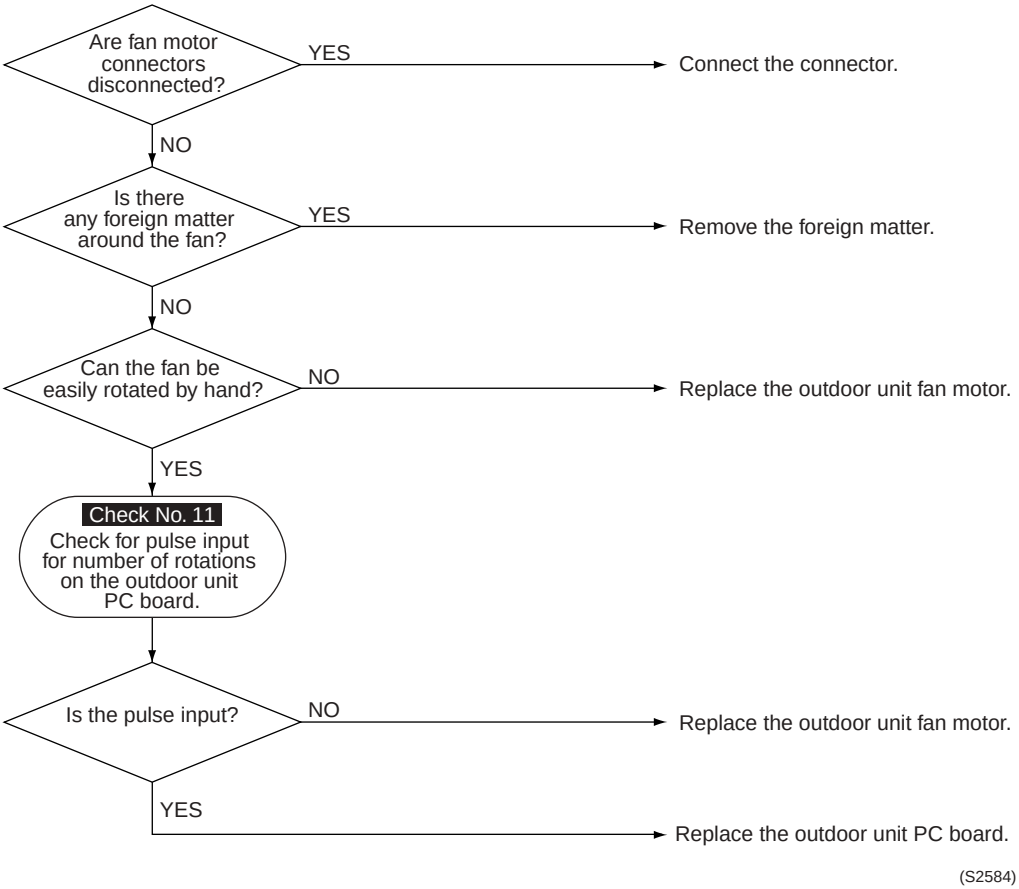
- When the fan runs with speed less than a specified one for 15 seconds or more when the fan motor running conditions are met
- When connector detecting fan speed is disconnected
- When malfunction is generated 4 times, the system shuts down.

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.



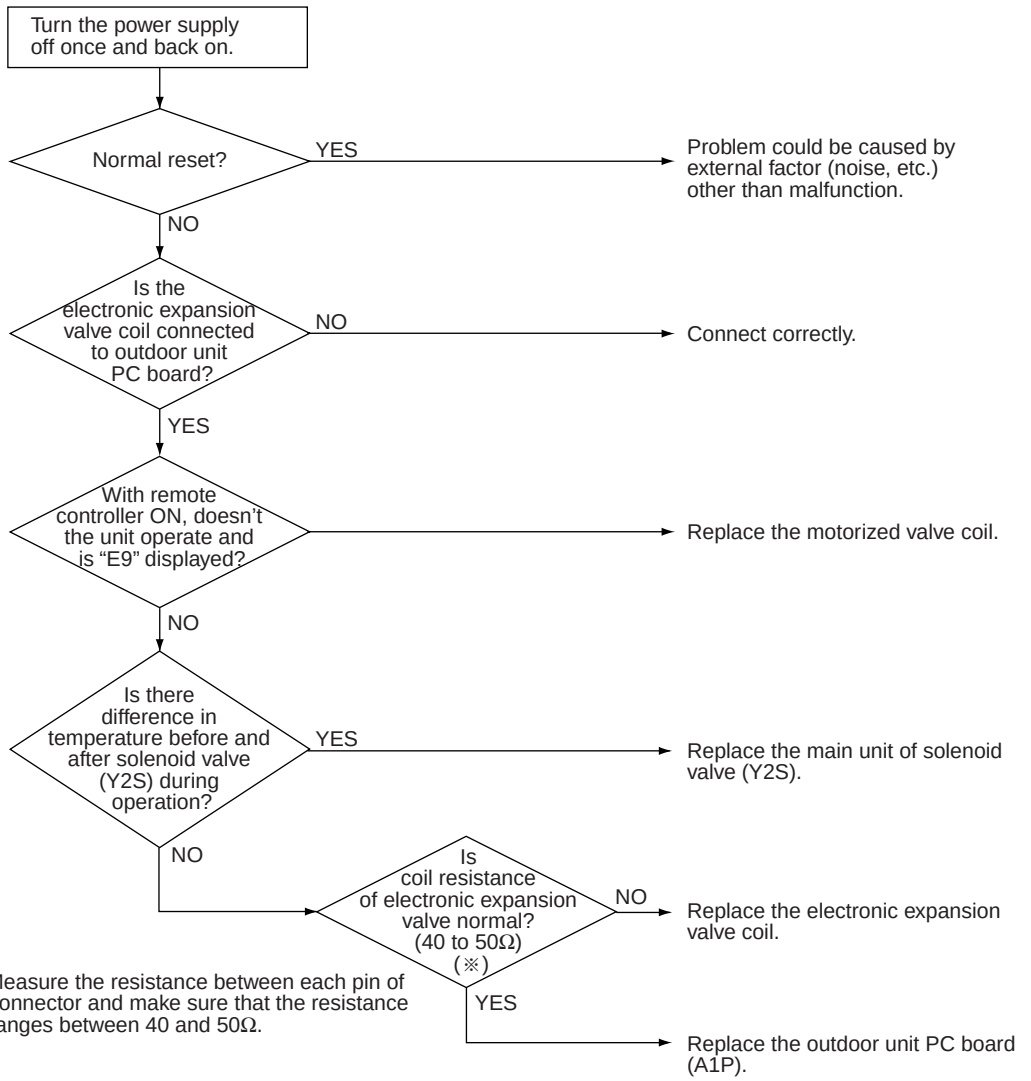
(S2584)

6.20 Malfunction of Electronic Expansion Valve

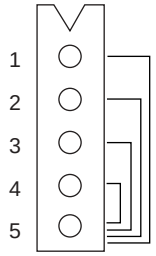
Remote Controller Display	E9
Outdoor Unit LED Display	A ◑ 1 ● 2 ● 3 ● 4 ●
Applicable Models	RZP71~140D
Method of Malfunction Detection	Method is determined according to the suction pipe superheat degree and electronic expansion valve opening degree calculated by values of low pressure sensor and suction pipe temperature thermistor.
Malfunction Decision Conditions	When the following conditions are met for 10 minutes ■ Suction pipe superheat degree<2˚C ■ Minimum electronic expansion valve opening degree
Supposed Causes	■ Faulty electronic expansion valve ■ Faulty solenoid valve ■ Faulty check valve

Troubleshooting

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



※ Measure the resistance between each pin of connector and make sure that the resistance ranges between 40 and 50Ω.



Measurement point
1—5
2—5
3—5
4—5

(S2585)

6.21 Malfunction of Discharge Pipe Temperature

Remote Controller Display

F3

Outdoor Unit LED Display

A ◑ 1 ☼ 2 ● 3 ● 4 ●

Applicable Models

RZP71~140D

Method of Malfunction Detection

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

Malfunction Decision Conditions

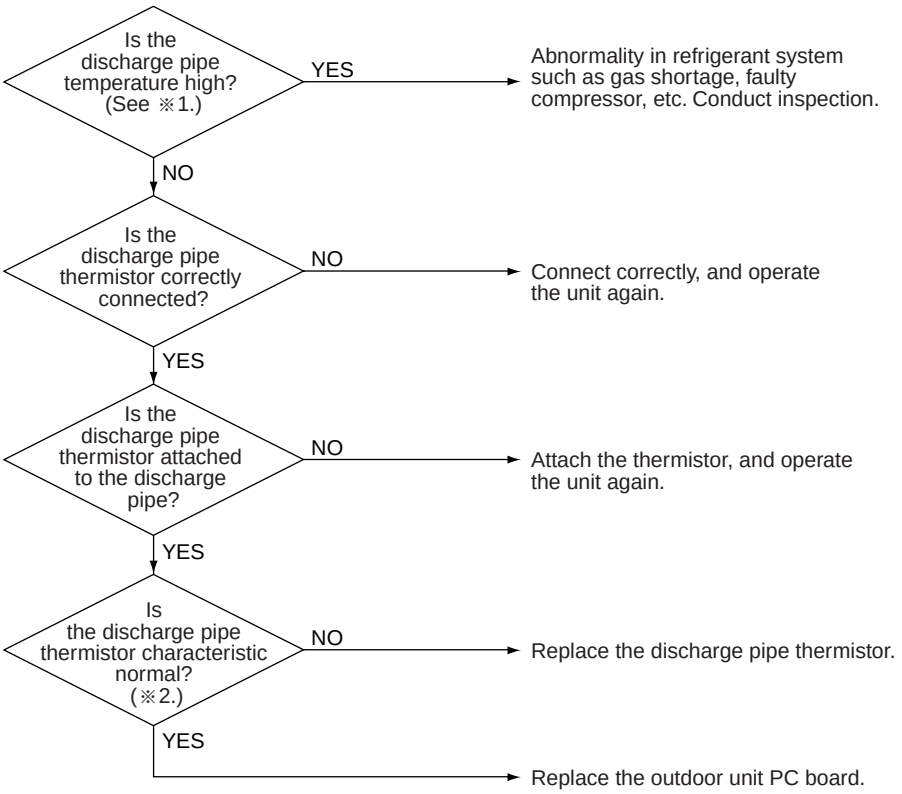
- When the discharge pipe temperature rises to an abnormally high level
- When the discharge pipe temperature rises suddenly

Supposed Causes

- Faulty discharge pipe thermistor
- Faulty connection of discharge pipe thermistor
- Insufficient refrigerant amount
- Faulty compressor
- Disconnection of discharge pipe temperature thermistor piping

Troubleshooting

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



※1 Temperature varies depending on model type.

Model name	Temperature
RZP71D	110˚C
RZP100 ~ 140D	115˚C

※2 See Check No. 12 for “Thermistor temperature/Resistance characteristics”.

(S2586)

6.22 Malfunction of High Pressure Switch System

Remote Controller Display

H3

Outdoor Unit LED Display

A ◑ 1 ☼ 2 ☼ 3 ● 4 ●

Applicable Models

RZP71~140D

Method of Malfunction Detection

The protection device circuit checks continuity in the high pressure switch.

Malfunction Decision Conditions

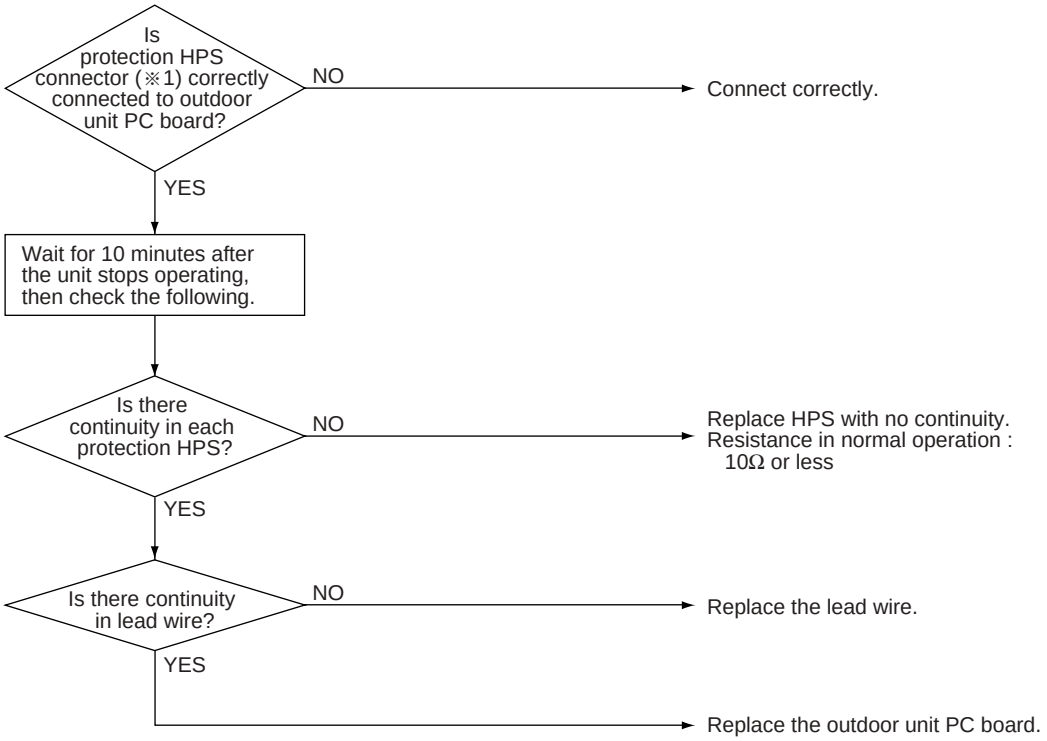
When there is no continuity in the high pressure switch during compressor stops operating

Supposed Causes

- Incomplete high pressure switch
- Disconnection in high pressure switch harness
- Faulty connection of high pressure switch connector
- Faulty outdoor unit PC board
- Disconnected lead wire

Troubleshooting

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



※1 Connector symbol
RZP71 ~140D : X60A

(S2587)

6.23 Malfunction of outdoor fan motor signal

Remote Controller Display

H7

Outdoor Unit LED Display

Applicable Models

RZP71 ~ 140D

Method of Malfunction Detection

Detection of signal malfunction from outdoor fan motor

Malfunction Decision Conditions

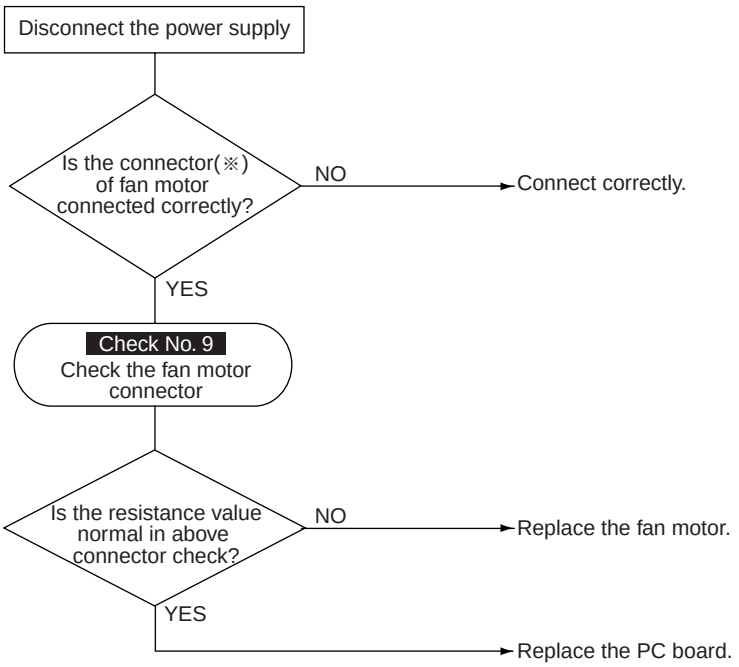
When malfunction signal is detected at the start of fan motor operation.

Supposed Causes

- Malfunction of fan motor signal (circuit failure)
- Disconnection, short of fan motor lead wire and coming off the connector
- Faulty PC board

Troubleshooting

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



※Connector symbol of fan motor

Model name	Connector symbol
RZP71D	X206A
RZP100 to 140D	X206A, X207A

★Caution for service
If the outdoor fan rotates due to strong wind, voltage generates in main circuit capacitor. To prevent electric shock, make sure the low voltage of main circuit (50 VDC or lower) before carrying out troubleshooting. To prevent PC board from being damaged, touch the earth connector in an electric parts box immediately before the inserting and extracting the connector, which discharges the static from human body.

(S2588)

6.24 Malfunction of Thermistor System

Remote Controller Display

H9,J3,J5,J6

Outdoor Unit LED Display

Refer to P.132

Applicable Models

RZP71~140D

Method of Malfunction Detection

Abnormality is detected according to the temperature detected by each individual thermistor.

Malfunction Decision Conditions

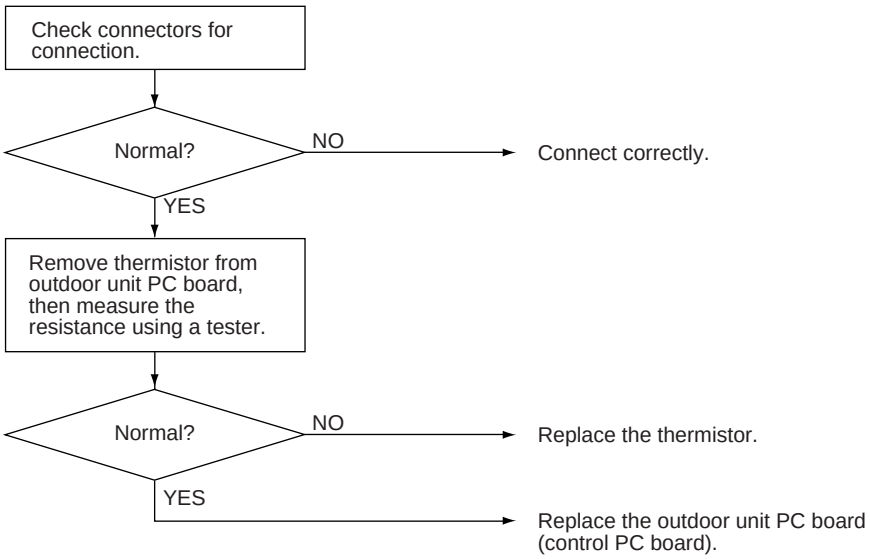
When thermistor is disconnected or short-circuited during operation

Supposed Causes

- Faulty thermistor
- Faulty connection of connector
- Faulty outdoor unit PC board (control PC board)

Troubleshooting

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



H9 : Malfunction of outdoor temperature thermistor system
J3 : Malfunction of discharge pipe thermistor system
J5 : Malfunction of suction pipe thermistor system
J6 : Malfunction of heat exchange thermistor

★See Check No. 12 for “Thermistor temperature/Resistance characteristics”.

(S2589)

6.25 Malfunction of Suction Pipe Pressure Sensor

Remote Controller Display

JC

Outdoor Unit LED Display

A ◑ 1 ☼ 2 ☼ 3 ● 4 ●

Applicable Models

RZP71 ~ 140D

Method of Malfunction Detection

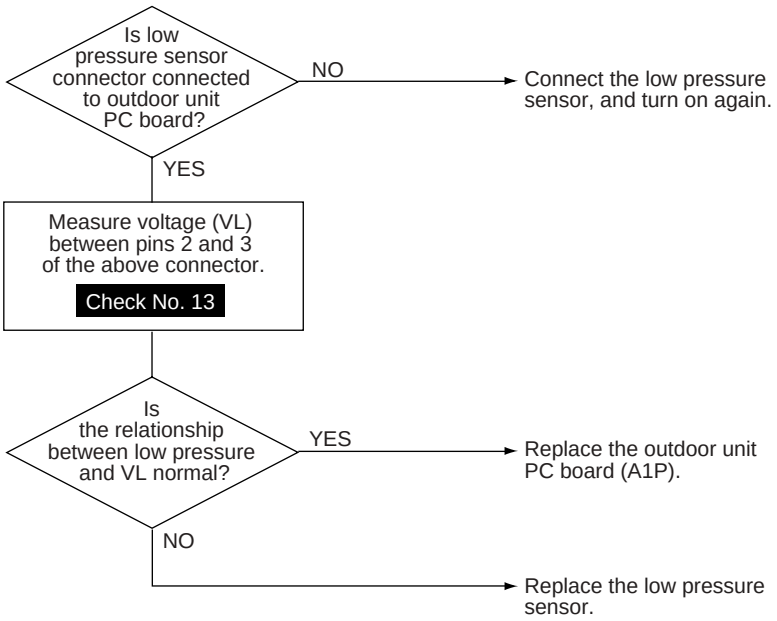
Malfunction Decision Conditions

Supposed Causes

- Faulty low pressure sensor
- Connection of low pressure sensor with wrong connection
- Faulty outdoor unit PC board
- Incorrect connection of connector

Troubleshooting

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



★See Check No. 13 for “Voltage measuring procedure (sensor pressure and voltage characteristics).

(S2591)

6.26 Radiation Fin Temperature Increased

Remote Controller Display

L4

Outdoor Unit LED Display

A ◑ 1 ● 2 ● 3 ● 4 ☼

Applicable Models

RZP71~140D

Method of Malfunction Detection

Fin temperature is detected by the thermistor of the radiation fin.
(Thermistor for RZP 100, 125, 140D is on power transistor (IGBT).)

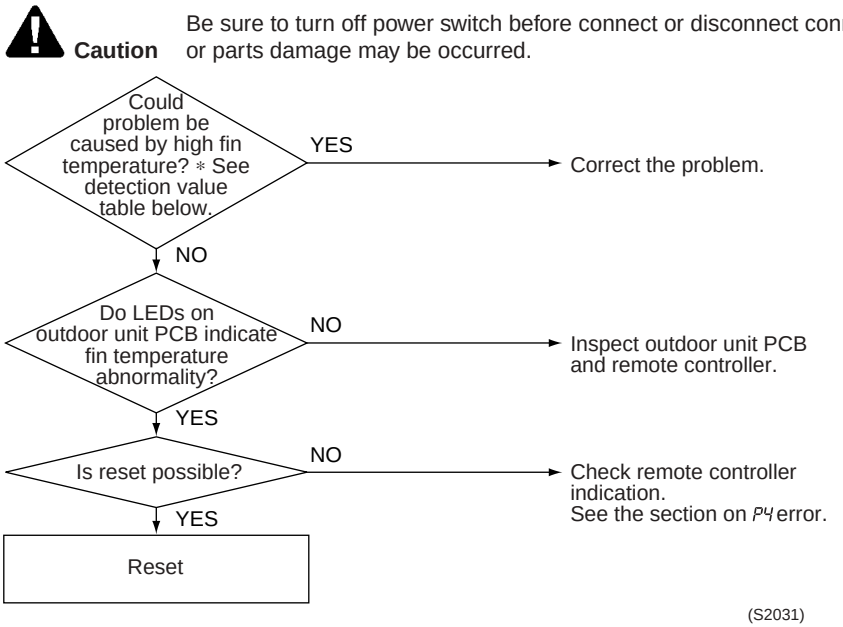
Malfunction Decision Conditions

When the temperature of the inverter radiation fin increases abnormally due to faulty heat dissipation.

Supposed Causes

- Activation of fin thermal switch
- Faulty fin thermistor
- High outside air temperature
- Insufficient cooling of inverter radiation fin
- Blocked suction opening
- Dirty radiation fin
- Faulty outdoor unit PCB

Troubleshooting



∗ Fin temperature detection values

	Detection	Reset
RZP71D	90˚C	80˚C
RZP100~140D	98˚C	88˚C

6.27 DC Output Overcurrent (Instantaneous)

Remote Controller Display

L5

Outdoor Unit LED Display

A ◑ 1 ● 2 ● 3 ☼ 4 ●

Applicable Models

RZP71~140D

Method of Malfunction Detection

Malfunction is detected by converting the current flowing to power transistor into voltage with CT1 (DC current sensor).

Malfunction Decision Conditions

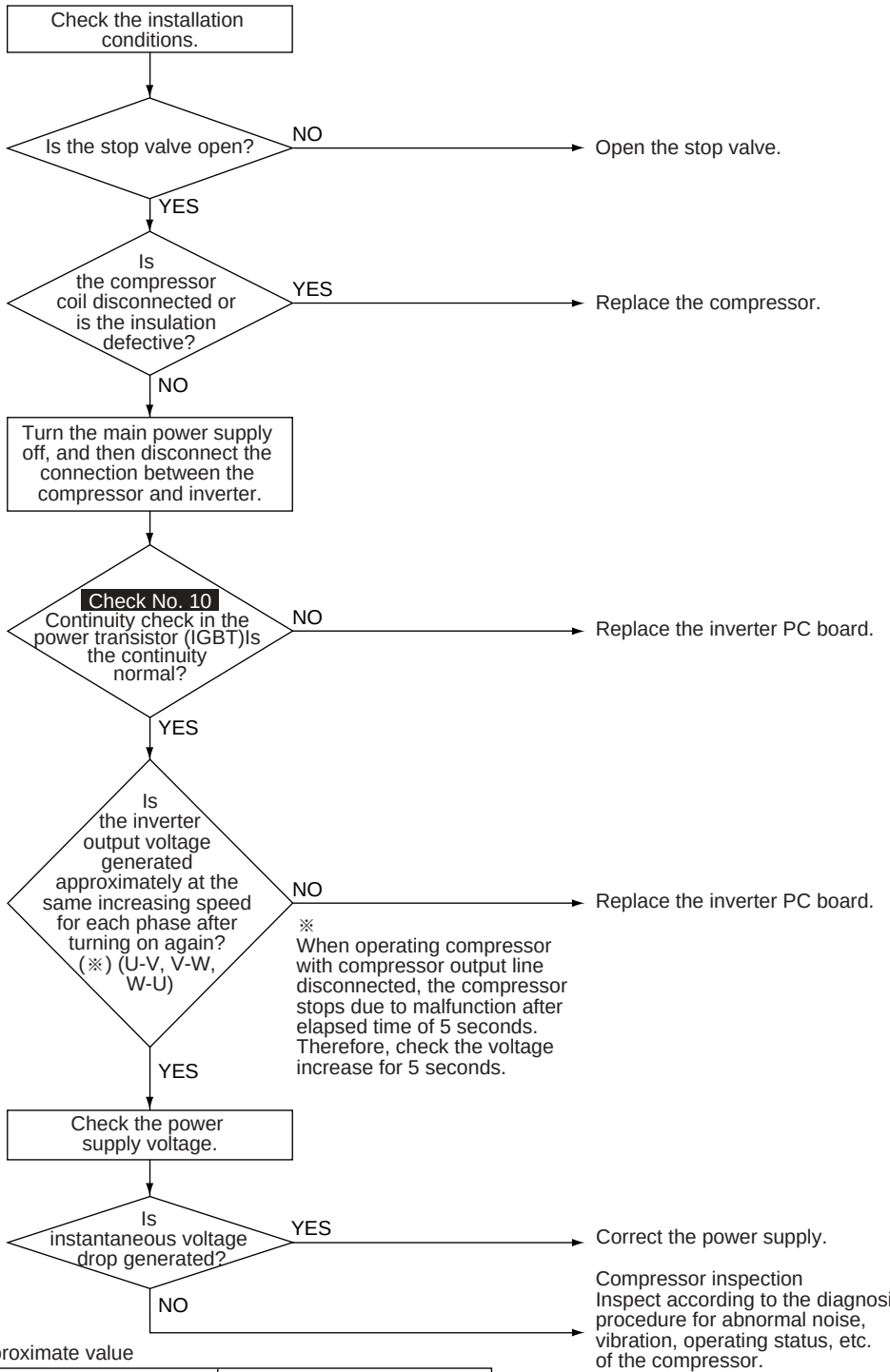
When overcurrent has run to power transistor.
(Actuated even by instantaneous overcurrent)

Supposed Causes

- Faulty compressor coil (disconnection, poor insulation)
- Compressor startup malfunction (mechanical lock)
- Faulty inverter PC board
- Instantaneous fluctuation of power supply voltage
- Faulty compressor (if bearing is scratched)
- The 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.



★Approximate value

	Instantaneous overcurrent detection value
RZP71DV1 RZP71DVAL	20A
RZP100 ~ 140DV1 RZP100DVAL	65A
RZP125DTAL RZP140DTAL	65A

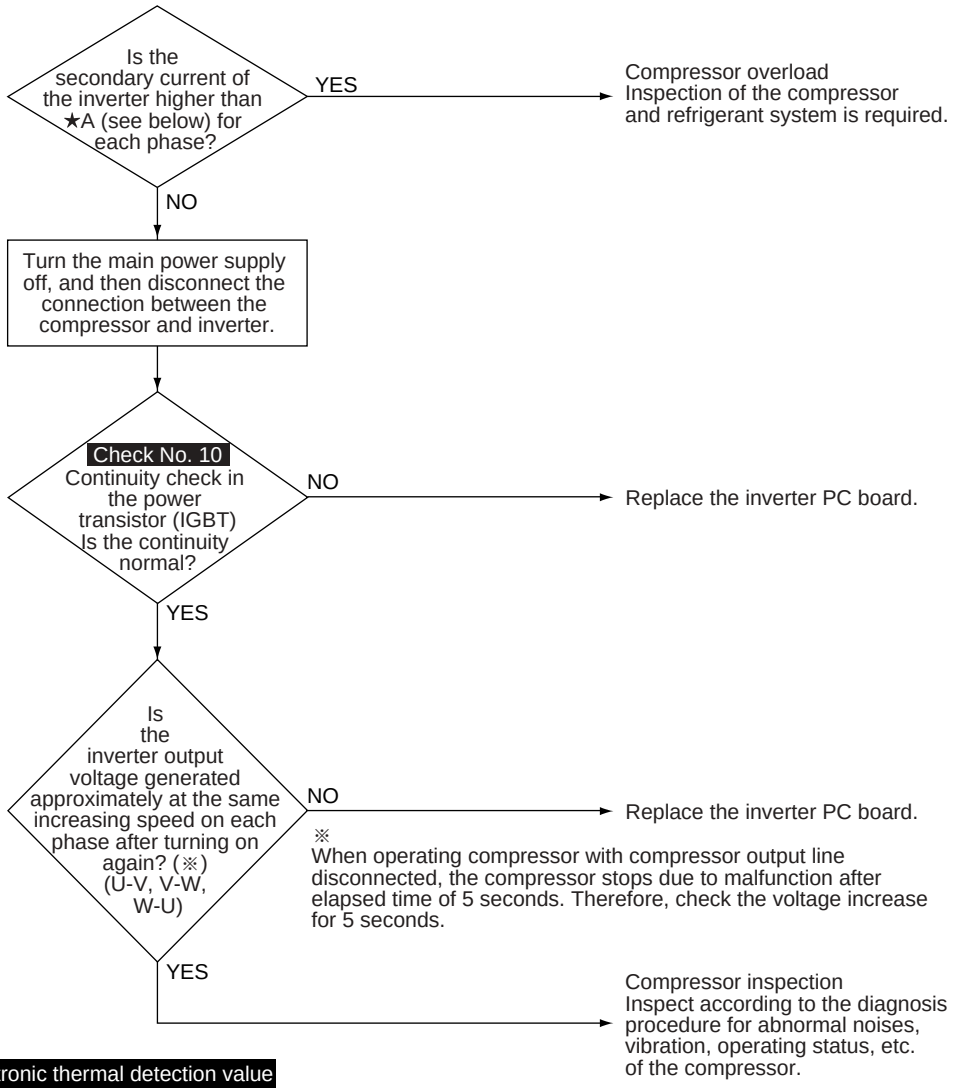
(S2592)

6.28 Electronic Thermal (Time Lag)

Remote Controller Display	L8
Outdoor Unit LED Display	A ◑ 1 ● 2 ☼ 3 ☼ 4 ☼
Applicable Models	RZP71~140D
Method of Malfunction Detection	Malfunction is detected by converting the current flowing to power transistor into voltage with CT1 (DC current sensor). Inverter PC board detects the disorder of position signal.
Malfunction Decision Conditions	When compressor overload (except for when startup) is detected.
Supposed Causes	■ Compressor overload (during operation) ■ Disconnected compressor coil ■ Faulty inverter ■ Faulty compressor (if bearing is scratched)

Troubleshooting

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



★ Electronic thermal detection value

		Detection value
RZP71D	Cooling	22A × 5 seconds or 13.6A (cooling), 15.1A (heating) × 260 seconds
	Heating	
RZP100 ~ 140D	Cooling	33A × 5 seconds or 26A × 260 seconds
	Heating	

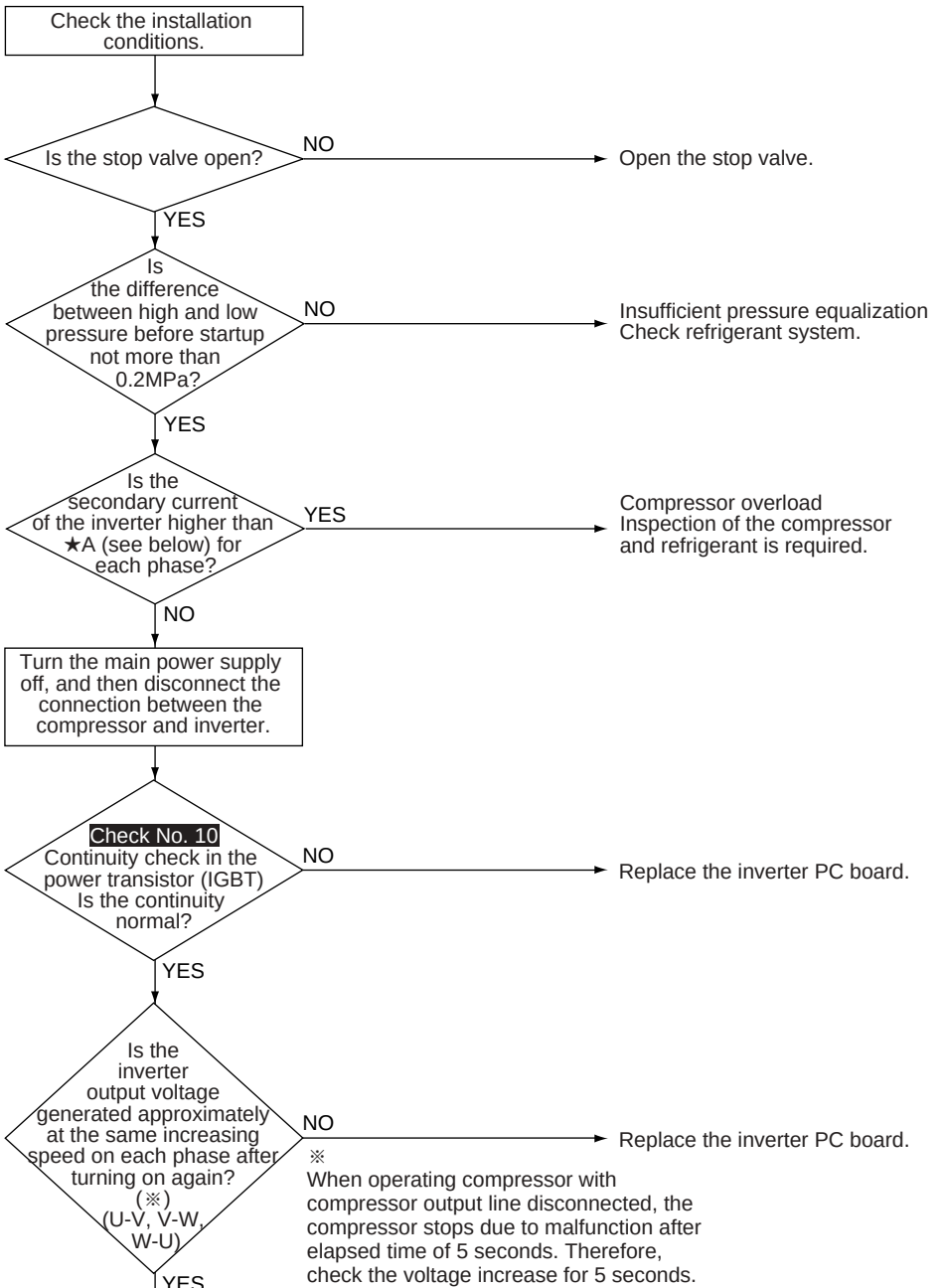
(S2593)

6.29 Stall Prevention (Time Lag)

Remote Controller Display	L9
Outdoor Unit LED Display	A ◑ 1 ☼ 2 ☼ 3 ☼ 4 ☼
Applicable Models	RZP71~140D
Method of Malfunction Detection	Malfunction is detected by converting the current flowing to power transistor into voltage with CT1 (DC current sensor). Inverter PC board detects the disorder of position signal.
Malfunction Decision Conditions	When compressor overload (except for when startup) is detected When position signal is disordered
Supposed Causes	◆ Faulty compressor (lock) ◆ Pressure differential startup ◆ Faulty inverter ◆ The 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.



★Approximate value

	Detection value
RZP71D	22.0A
RZP100 ~ 140D	33.0A

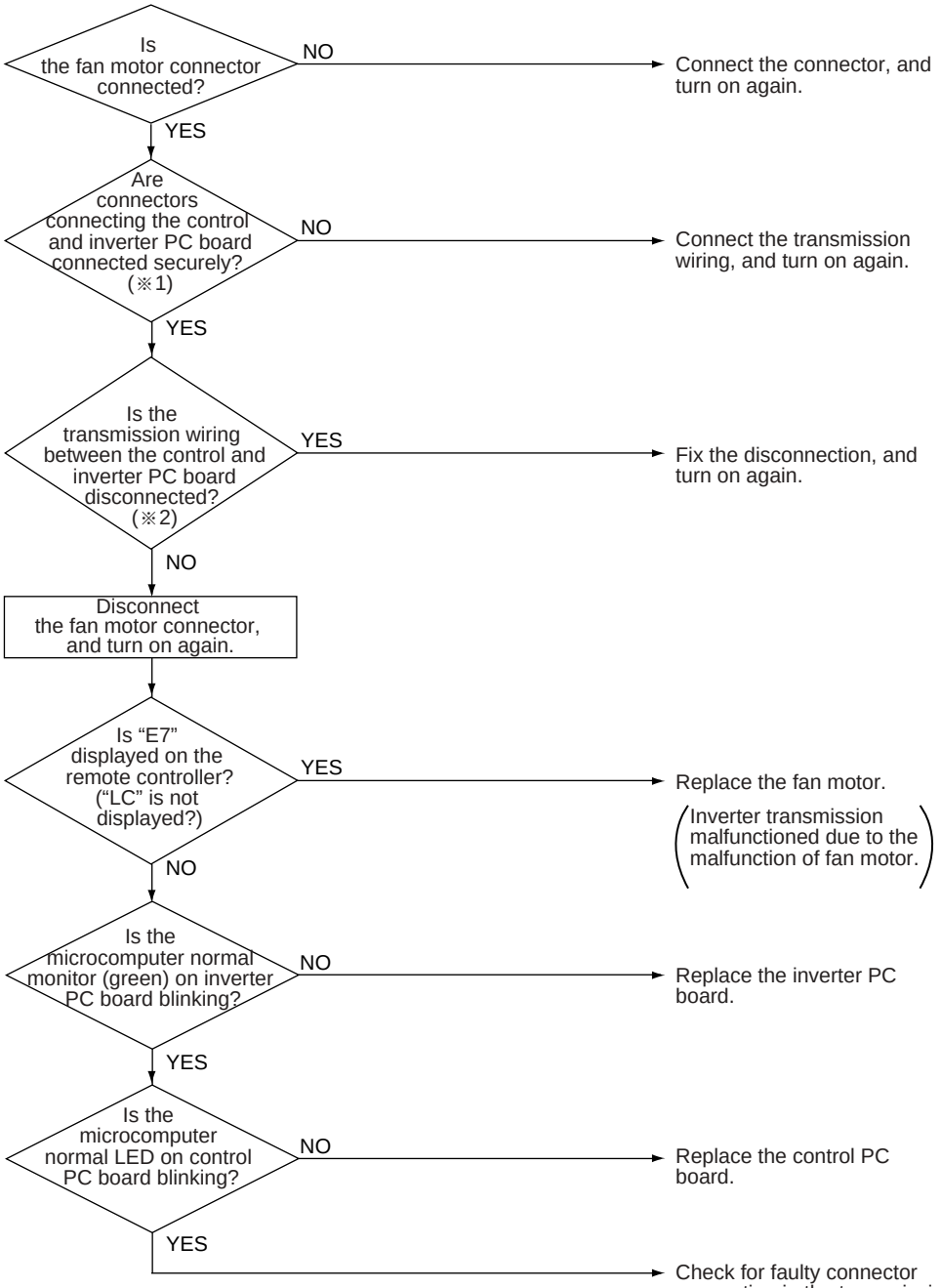
(S2594)

6.30 Malfunction of Transmission system (Between Control PCB and Inverter PCB)

Remote Controller Display	LC
Outdoor Unit LED Display	Refer to P.132
Applicable Models	RZP71~140D
Method of Malfunction Detection	Checks and sees whether transmission between control and inverter PC board is carried out normally.
Malfunction Decision Conditions	When the transmission is not carried out in a specified period of time or longer
Supposed Causes	■ Incorrect transmission wiring between control and inverter PC board/insufficient contact in wiring ■ Faulty control and inverter PC board ■ External factors (noise, etc.)

Troubleshooting

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



※1: Applicable models are RZP71D.
※2: Applicable models are RZP71D.

(S2595)

6.31 Open Phase

Remote Controller Display

P1

Outdoor Unit LED Display

A ◑ 1 ☼ 2 ● 3 ● 4 ☼

Applicable Models

RZP71~140D

Method of Malfunction Detection

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

Malfunction Decision Conditions

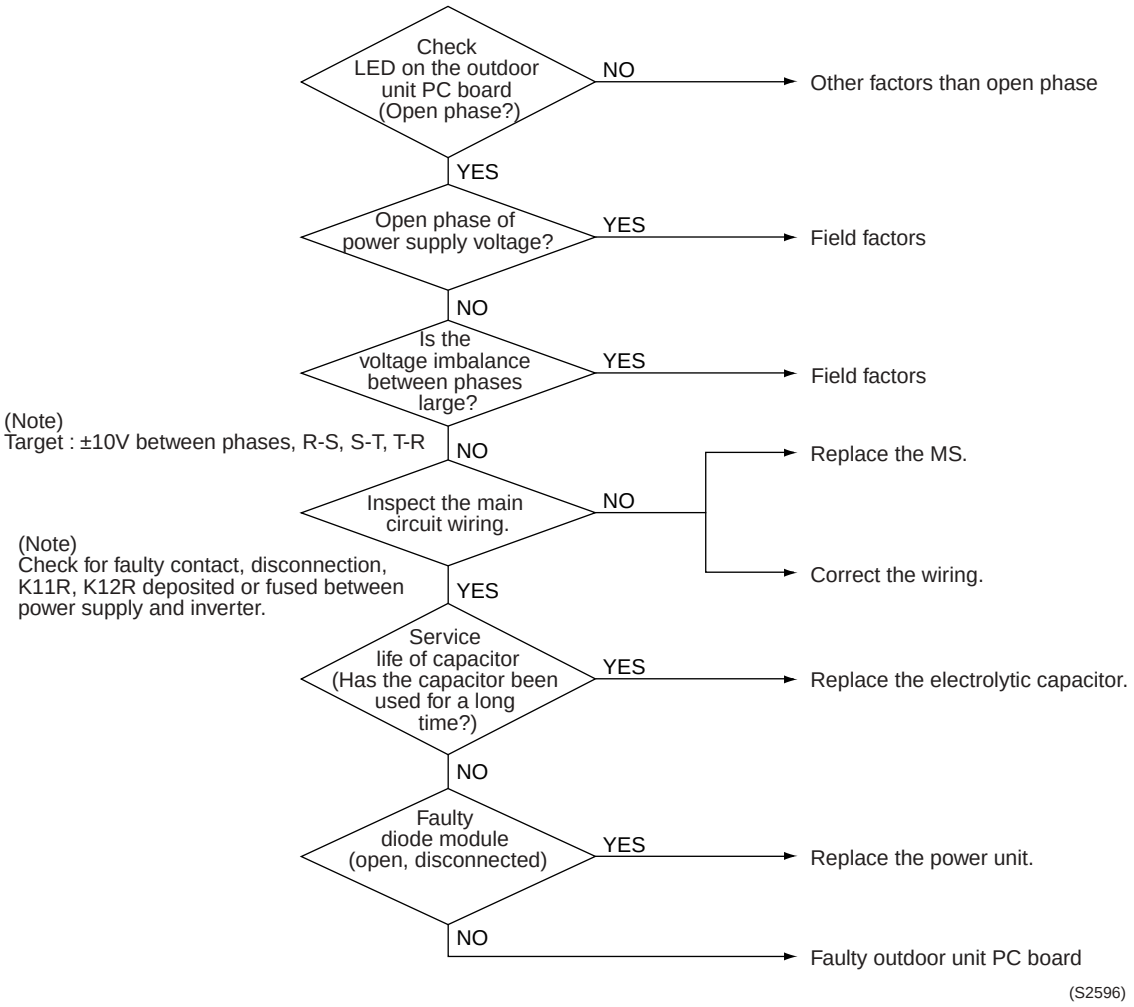
When the aforementioned voltage waveform becomes identical with the waveform of the power supply open phase.

Supposed Causes

- Open phase
- Voltage imbalance between phases
- Faulty main circuit capacitor
- Power unit (Disconnection in diode module)
- Faulty outdoor unit PC board
- Faulty Magnetic Relay (K11R, K12R)
- Improper main circuit wiring

Troubleshooting

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



(S2596)

6.32 Malfunction of Radiator Fin Temperature Thermistor

Remote Controller Display

P4

Outdoor Unit LED Display

A ◑ 1 ☼ 2 ● 3 ● 4 ●

Applicable Models

RZP71~140D

Method of Malfunction Detection

Detection by open or short circuit of the radiator fin temperature thermistor during the compressor stops operating.

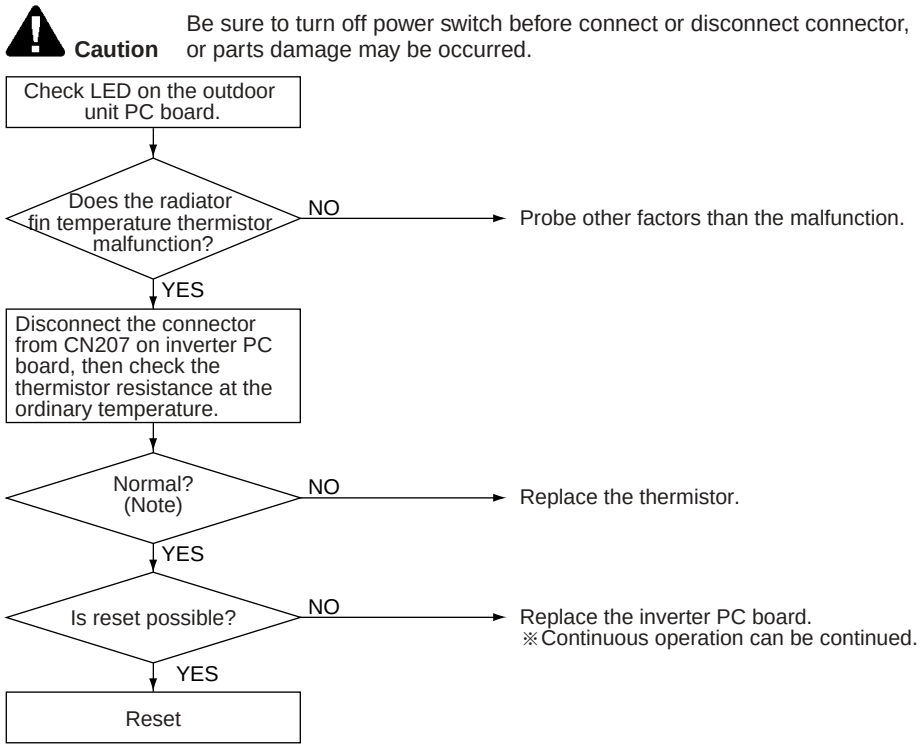
Malfunction Decision Conditions

When open or short circuit of the radiator fin temperature thermistor is detected during the compressor stops operating

Supposed Causes

- Faulty radiator fin temperature thermistor
- Faulty outdoor unit PC board

Troubleshooting



★See Check 12 for “Thermistor temperature/Resistance characteristics”.

(S2597)

6.33 Malfunction of Radiator Fin Temperature Thermistor

Remote Controller Display

P4

Outdoor Unit LED Display

A ◑ 1 ☼ 2 ☼ 3 ● 4 ●

Applicable Models

RZP71~140D

Method of Malfunction Detection

Detection by open or short circuit of the radiator fin temperature thermistor during the compressor stops operating.

Malfunction Decision Conditions

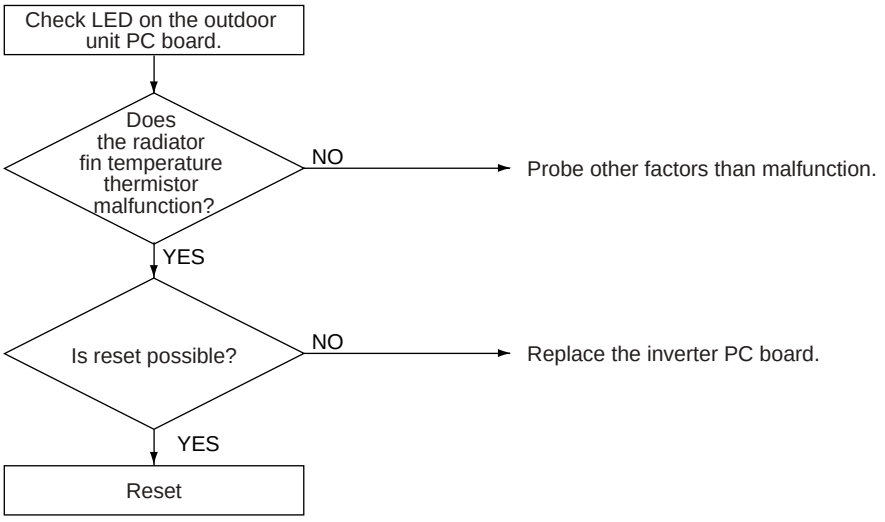
When open or short circuit of the radiator fin temperature thermistor is detected during the compressor stops operating

Supposed Causes

- Faulty inverter PC board
- Faulty radiator fin temperature thermistor
  (Independent replacement of the thermistor is not allowed.)

Troubleshooting

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



※1. This error code is displayed only when TEST button is pushed. While the normal operation still continues, inverter protection cannot be actuated.
※2. On this unit, the radiator fin temperature thermistor cannot be mantled/dismantled independently. Replace by inverter PC board.
※3. See Check 12 for “Thermistor temperature/Resistance characteristics”.

(S2600)

6.34 Failure of Capacity Setting

Remote Controller Display

PJ

Outdoor Unit LED Display

A ◑ 1 — 2 — 3 — 4 —

Applicable Models

RZP71~140D

Method of Malfunction Detection

Check whether set value written in E^2PROM (at factory) or set value of capacity setting adapter (for replacement) is the same as outdoor unit capacity.

Malfunction Decision Conditions

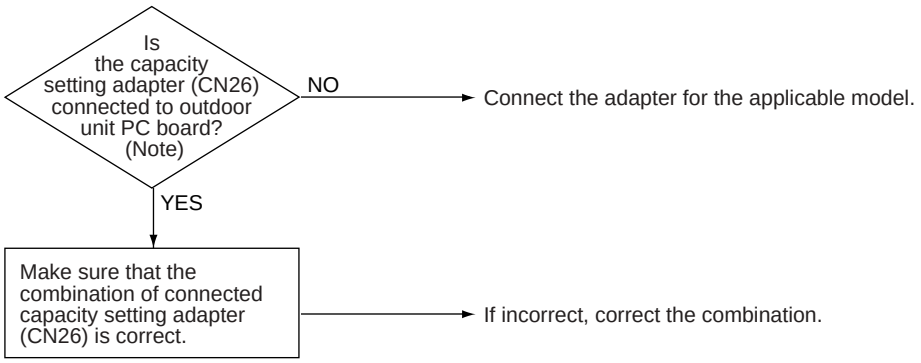
When the set value on E^2PROM differs from the outdoor unit capacity or a capacity setting adapter except for PC board applicable models is installed. (Malfunction decision is made only when turning the power supply on.)

Supposed Causes

- Improper set value of E^2PROM
- Improper capacity setting adapter
- 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.



(Note)
Capacity setting adapter is not connected at factory. (Capacity is written in E^2PROM.) Capacity setting adapter is required only when the PC board was replaced with spare PC board.

(S2601)

6.35 Gas Shortage (Malfunction)

Remote Controller Display

U0

LED Display

A — 1 — 2 — 3 — 4 —

Applicable Models

RZP71~140D

Method of Malfunction Detection

(In test operation)
Detection by closed stop valve.
(In normal operation)
Gas shortage is detected according to the discharge pipe temperature.

Malfunction Decision Conditions

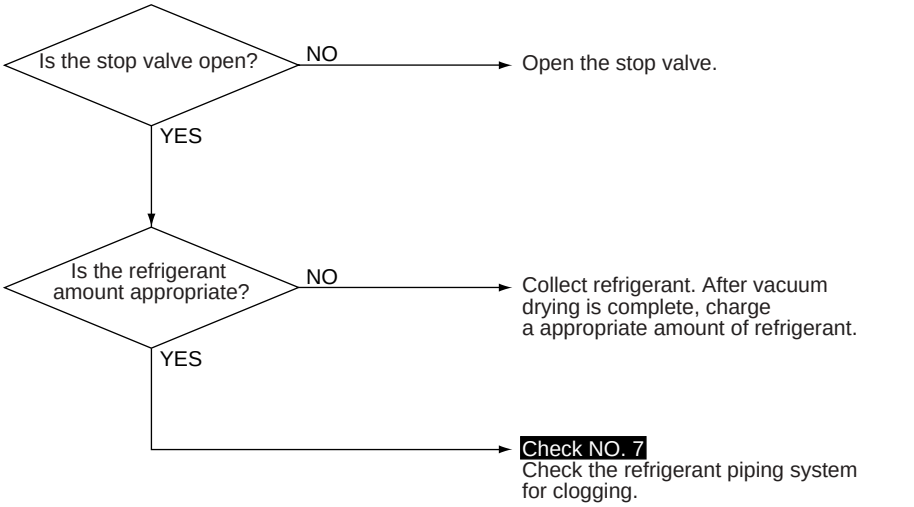
(In test operation)
Variations of the indoor unit heat exchange temperature judge whether stop valve is open or closed.
(In normal operation)
When microcomputer judges and detects gas shortage.
※ Gas shortage is not decided repeating retry. When INSPECTION button on the remote controller is pushed, “U0” is displayed.

Supposed Causes

- The stop valve is left in closed.
- Insufficient refrigerant amount
- Clogged refrigerant piping system

Troubleshooting

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



★ For RZP71~100D models, gas shortage alarm is indicated but operation continues. On other models than aforementioned, operation halts due to malfunction.

(S2602)

6.36 Abnormal Power Supply Voltage

Remote Controller Display

U2

LED Display

Refer to P.133

Applicable Models

RZP71~140D

Method of Malfunction Detection

Malfunction is detected according to the voltage of main circuit capacitor built in the inverter and power supply voltage.

Malfunction Decision Conditions

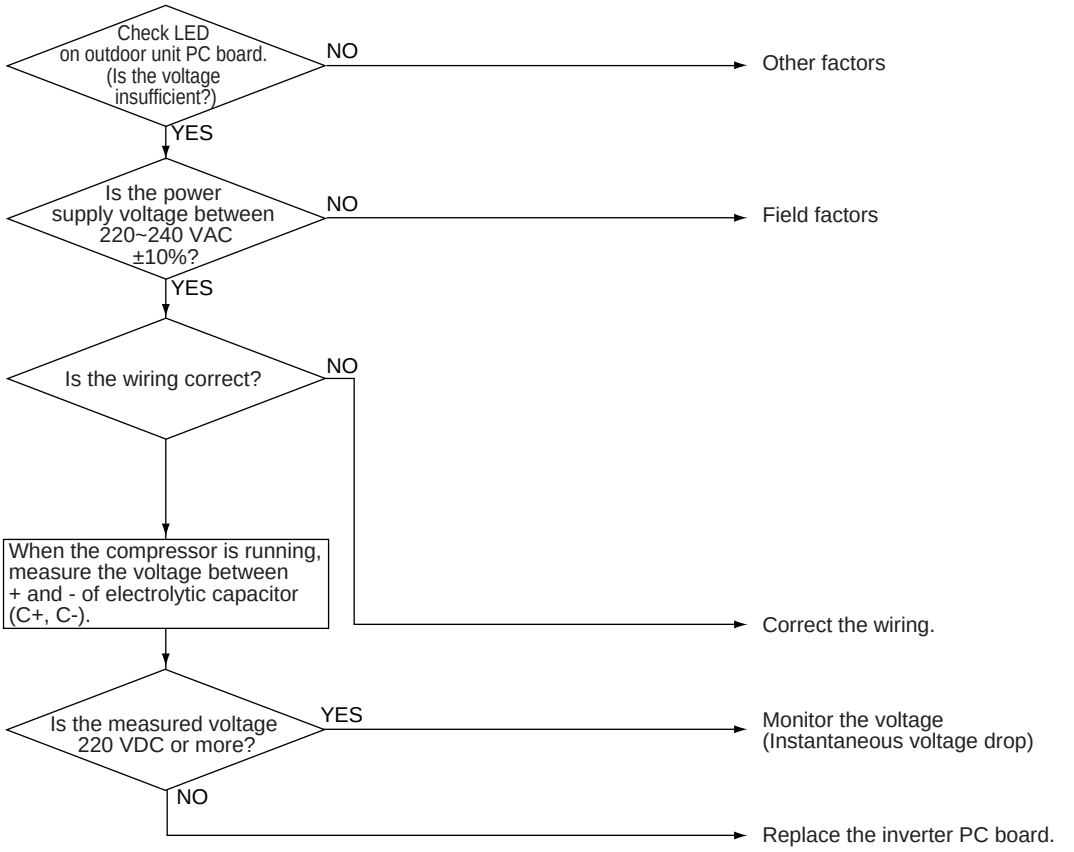
When the voltage of main circuit capacitor built in the inverter and power supply voltage drop (150-170 VAC) or when the power failure of several tons of ms or longer is generated.
※ Remote controller does not decide the abnormality.

Supposed Causes

- Drop in power supply voltage (180 V or less)
- Instantaneous power failure
- Inverter open phase (Phase T)
- Faulty main circuit wiring
- Faulty outdoor unit PC board
- Main circuit parts damaged

Troubleshooting

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



(S2605)

6.37 Malfunction of Transmission (Between Indoor and Outdoor Unit)

Remote Controller Display

U4

LED Display

A — 1 — 2 — 3 — 4 —

Applicable Models

RZP71~140D

Method of Malfunction Detection

Microcomputer checks if transmission between indoor and outdoor units is normal.

Malfunction Decision Conditions

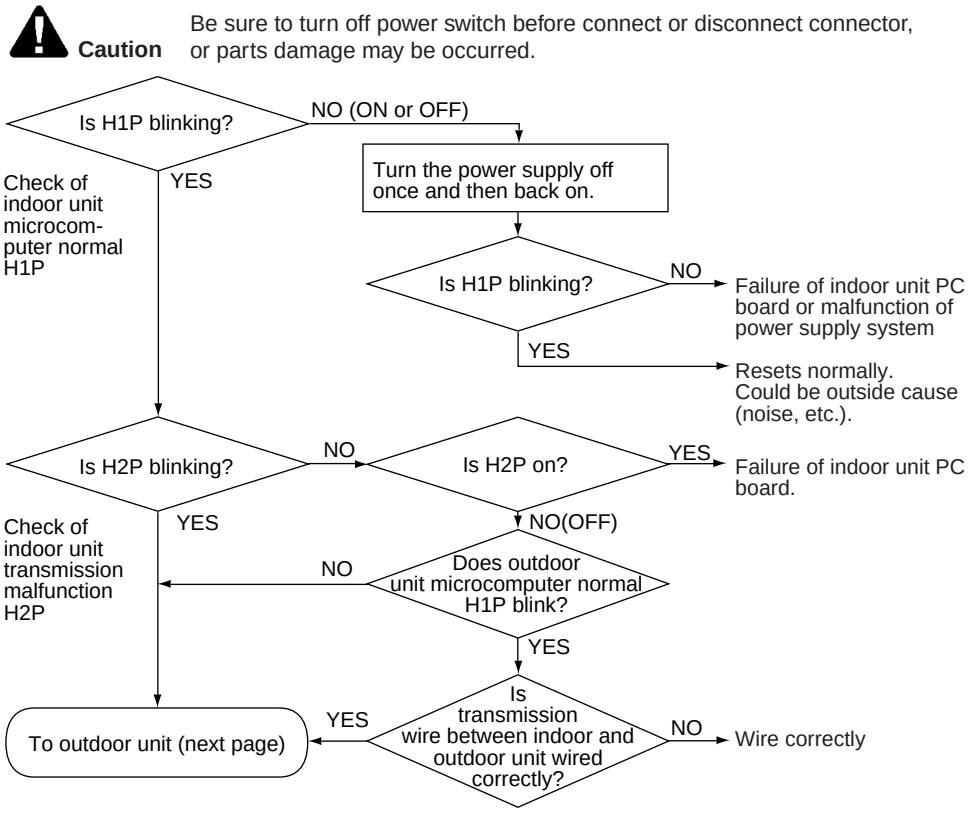
When transmission is not carried out normally for a certain amount of time

Supposed Causes

- Wiring indoor-outdoor transmission wire is incorrect.
- Failure of indoor unit PC board
- Failure of outdoor unit PC board
- Outside cause (noise, etc.)
- Power supply -open phase

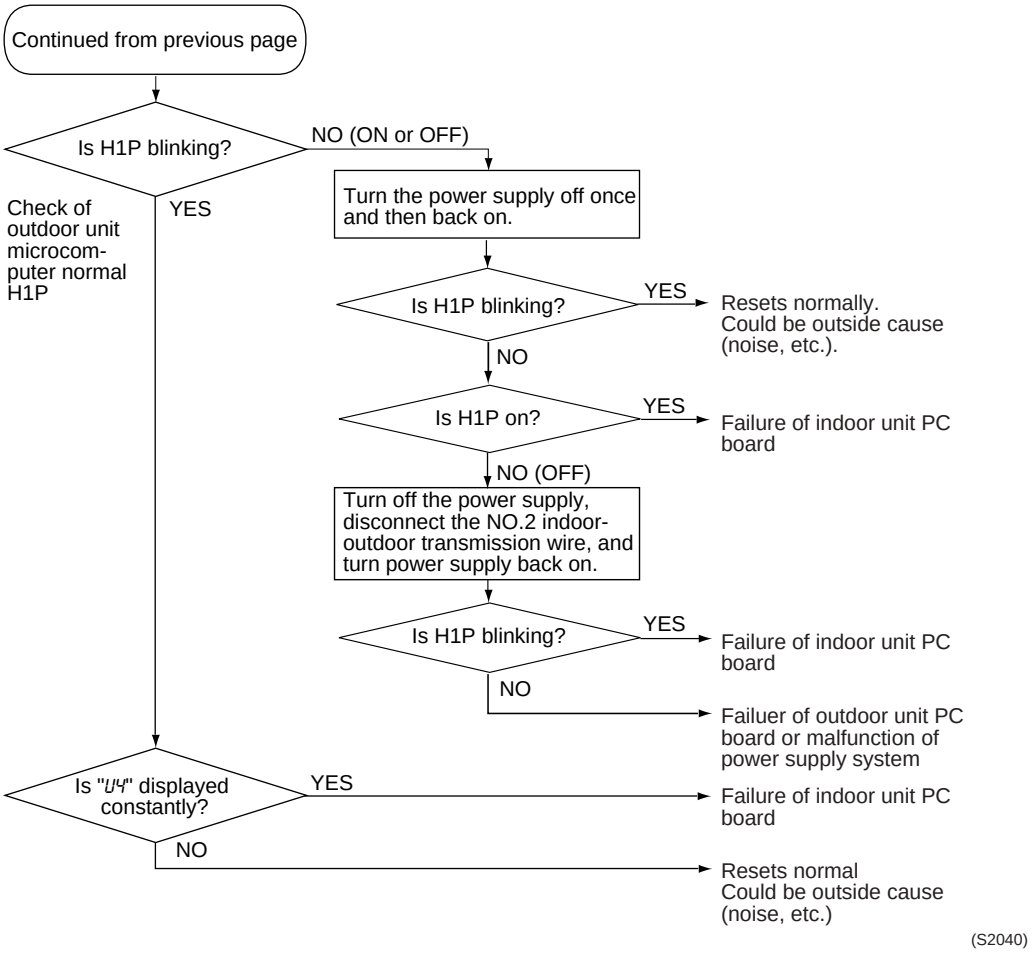
Troubleshooting 1

Diagnosis of incorrect or broken/disconnected wiring
If the LEDs on the indoor unit PC board are off, it indicates that the transmission wiring between indoor and outdoor units may be incorrect or broken/disconnected.



(S2039)

Troubleshooting 2



6.38 Malfunction of Transmission (Between Indoor Unit and Remote Controller)

Remote Controller Display

U5

LED Display

A — 1 — 2 — 3 — 4 —

Applicable Models

All models of indoor units

Method of Malfunction Detection

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

Malfunction Decision Conditions

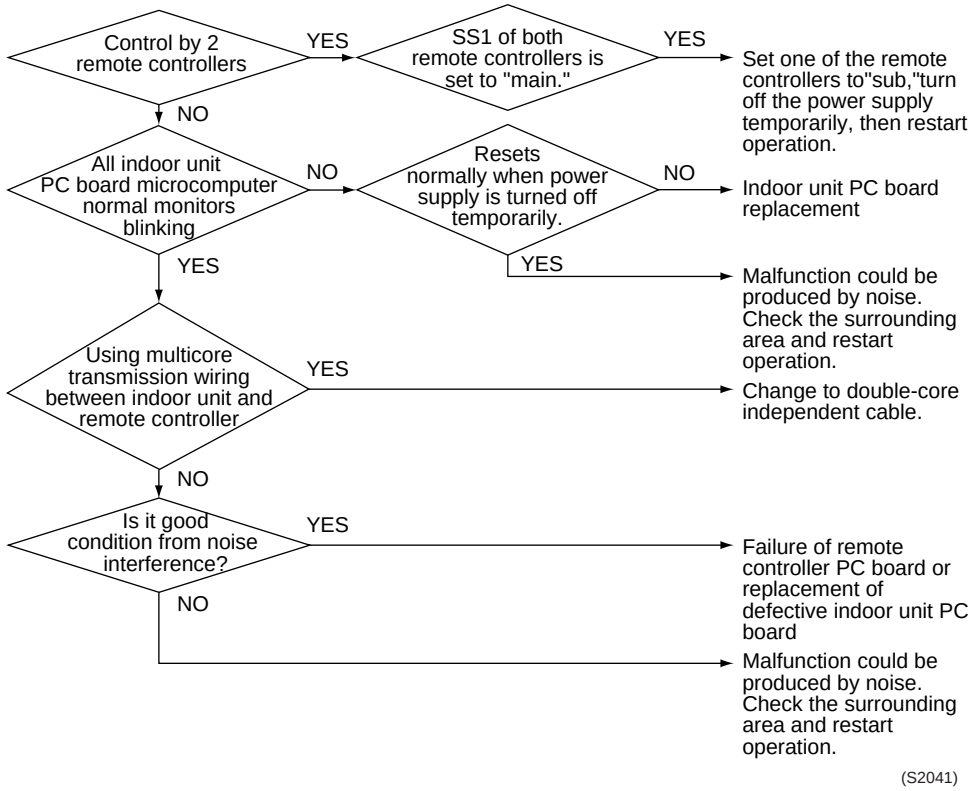
When transmission is not carried out normally for a certain amount of time

Supposed Causes

- Failure of remote controller
- Failure of indoor PC board
- Outside cause (noise, etc.)
- Connection of 2 master remote controllers (When using 2 remote controllers)

Troubleshooting

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



(S2041)

6.39 Transmission Error Between Main Remote Controller and Sub Remote Controller

Remote Controller Display

U8

LED Display

A — 1 — 2 — 3 — 4 —

Applicable Models

All models of indoor unit

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

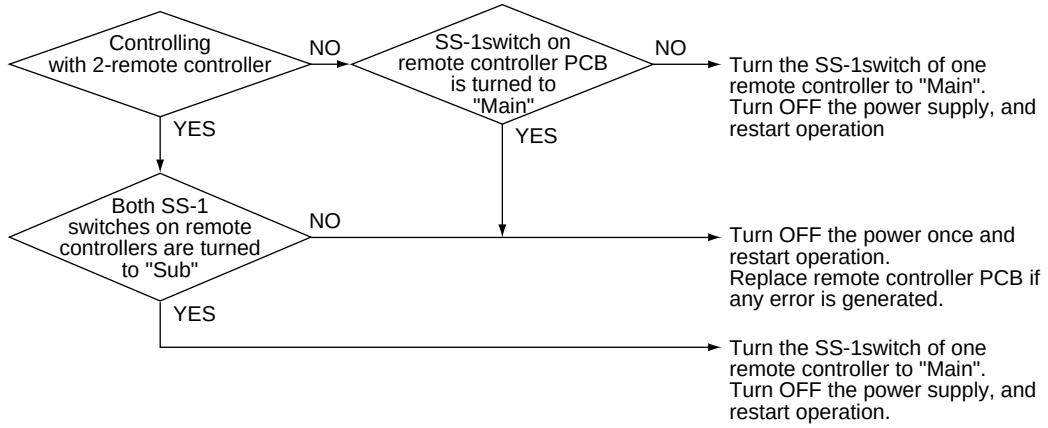
Normal transmission does not continue for specified period.

Supposed Causes

- Transmission error between Main remote controller and Sub remote controller
- Connection among “Sub” remote controllers
- Faulty remote controller PCB

Troubleshooting

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



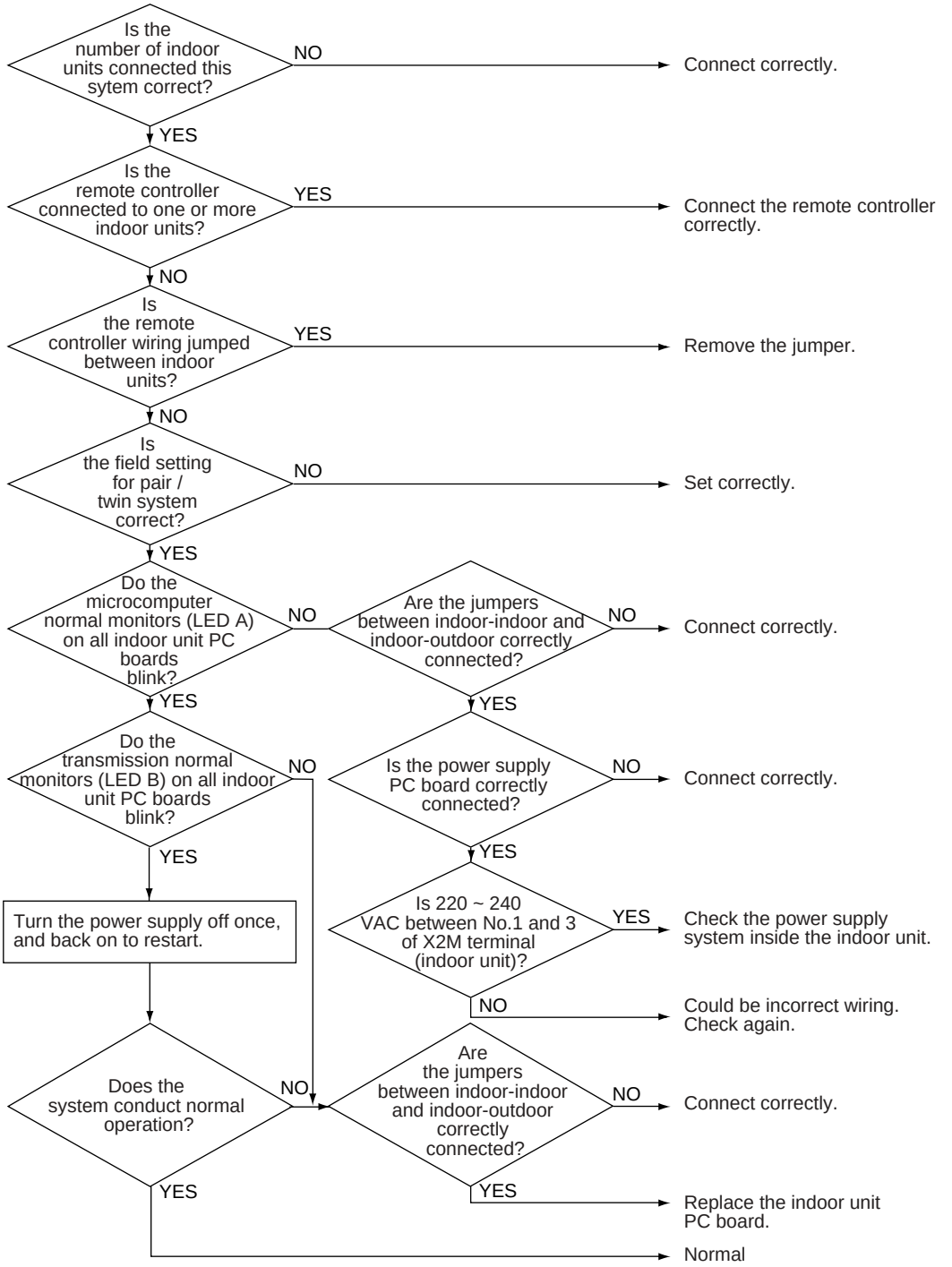
(S2042)

6.40 Malfunction of Field Setting Switch

Remote Controller Display	UA
LED Display	Refer to P.133
Applicable Models	Indoor unit
Method of Malfunction Detection	
Malfunction Decision Conditions	Incorrect field setting The number of indoor units connected to this system is more than limited.
Supposed Causes	■ Indoor-Outdoor, Indoor-Indoor transmission line ■ Faulty remote controller wiring

Troubleshooting

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



(S2606)

6.41 Centralized Address Setting Error

Remote Controller Display

UC

LED Display

Refer to P.133

Applicable Models

All indoor unit models

Method of Malfunction Detection

Indoor unit microcomputer detects and judges the centralized address signal according to the transmission between indoor units.

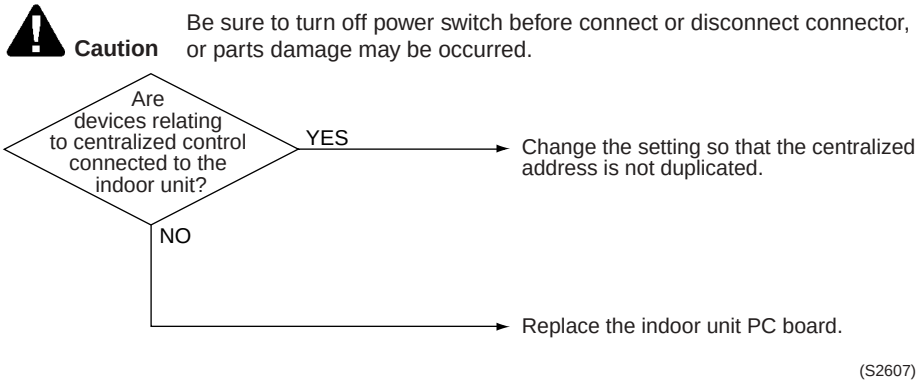
Malfunction Decision Conditions

When the microcomputer judges that the centralized address signal is duplicated

Supposed Causes

- Faulty centralized address setting
- Faulty indoor unit PC board

Troubleshooting



Check No. 5 **If the high pressure is abnormally high**

Conception

Abnormally high pressure level is mostly caused by the condenser side.
The following contents are provided by service engineer based on their field checks.
Further, the number is listed in the order of degree of influence.

a In cooling operation

Check items (Possible causes)	Judgment
1. Does the outdoor unit fan run normally?	1. Visual inspection
2. Is the outdoor unit heat exchanger clogged?	2. Visual inspection
3. Is there clogging before or after the EV (capillary)?	3. Check if there is a temperature difference before and after EV (capillary). Check if the main valve unit of EV operates (by noise, vibration).
4. Is the check valve clogged? ※RZP71-140D models only	4. Check if there is a temperature difference before and after check valve. →If YES, the check valve is caught.
5. Is the HPS normal?	5. Check continuity by using a tester.
6. Is the outdoor unit installed under such conditions that short circuit easily occurs?	6. Visual inspection
7. Is the piping length 5 meters or less?	7. Visual inspection
8. Does air enter the refrigerant system?	8. Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.
9. Is the refrigerant overcharged?	9. Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.

a. In heating operation

Check items (Possible causes)	Judgment
1. Does the indoor unit fan run normally?	1. Visual inspection
2. Is the indoor unit heat exchanger clogged?	2. Visual inspection
3. Is the indoor unit installed under such conditions that short circuit easily occurs?	3. Visual inspection
4. Is there clogging before or after the EV (capillary)?	4. Check if there is a temperature difference before and after EV (capillary). Check if the main valve unit of EV operates (by noise, vibration).
5. Is the check valve clogged? → RZP71~140D models only	5. Check if there is a temperature difference before and after check valve. →If YES, the check valve is caught.
6. Is the HPS normal?	6. Check continuity using a tester.
7. Is the piping length 5 meters or less?	7. Visual inspection
8. Does air enter the refrigerant system?	8. Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.
9. Is the refrigerant overcharged?	9. Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.

Check No. 6 **If the low pressure is abnormally low**

Conception

Abnormally low pressure level is mostly caused by the evaporator side.
The following contents are provided based on field checking of service engineer.
Further, the number is listed in the order of degree of influence.

a. In cooling operation

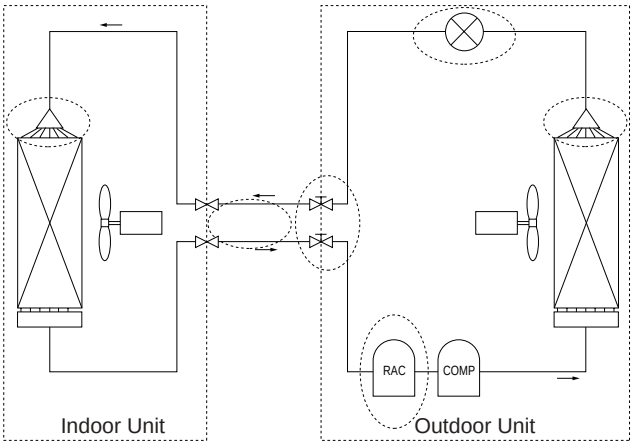
Check items (Possible causes)	Judgment
1. Does the outdoor unit fan run normally?	1. Visual inspection
2. Is the indoor unit filter clogged?	2. Visual inspection
3. Is there clogging before or after the EV (capillary)?	3. Check if there is a temperature difference before and after EV (capillary). Check if the main valve unit of EV operates (by noise, vibration).
4. Is the check valve clogged?	4. Check if there is a temperature difference before and after check valve. →If YES, the check valve is caught.
5. Is the LPS normal?	5. Check continuity using a tester.
6. Is the indoor unit installed under such conditions that short circuit easily occurs?	6. Visual inspection
7. Is the refrigerant gas short?	7. Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.

a. In heating operation

Check items (Possible causes)	Judgment
1. Does the outdoor unit fan run normally?	1.Visual inspection
2. Is the outdoor unit heat exchanger clogged?	2. Visual inspection
3. Is the outdoor unit installed under such conditions that short circuit easily occurs?	3. Visual inspection
4. Is there clogging before or after the EV (capillary)?	4. Check if there is a temperature difference before and after EV (capillary). Check if the main valve unit of EV operates (by noise, vibration).
5. Is the check valve clogged?	5. Check if there is a temperature difference before and after check valve. →If YES, the check valve is caught.
6. Is the LPS normal?	6. Check continuity using a tester.
7. Is the refrigerant gas short?	7. Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.

Check No. 7 **Check for Clogged Points**

Temperature differences must occur before or after the clogged points!



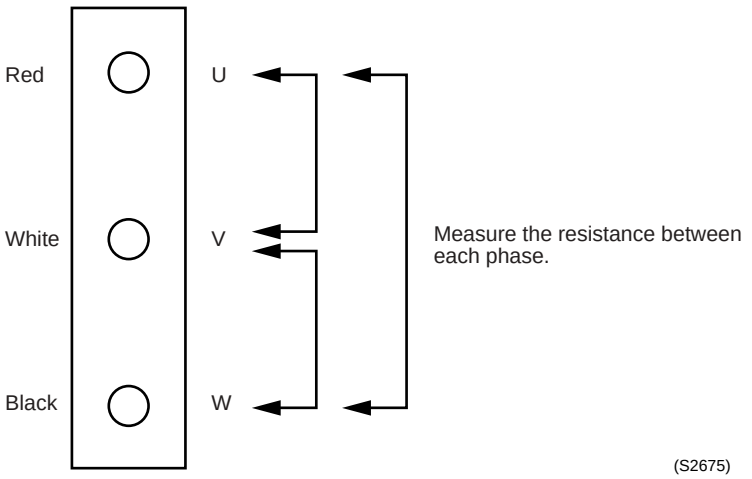
(S2674)

Check points		Check factor	Causes	Remedies
①	Around expansion mechanism	Temperature difference	· Dust · Choked moisture · Reduced effective pipe diameter due to adherent contamination, etc.	Replace the expansion valve.
②	Accumulator	Frosting	· Choked moisture	Blow a nitrogen gas, and then replace the refrigerant.
③	Distributor	Temperature difference	· Dust · Choked moisture · Reduced effective pipe diameter due to adherent contamination, etc.	Replace the heat exchanger or distributor.
④	Field piping	Temperature difference	· Collapsed pipe	Replace the pipe.
⑤	Stop valve	Temperature difference	· The stop valve is not fully open.	Open the stop valve fully.

Check No. 8 **Check for Fan Motor Connector (Power Supply Line)**

(1) Turn the power supply off.

With the relay connector disconnected, measure the resistance between UVW phases of the connector (3 cores) at the motor side, then make sure that the resistance between each phase is balanced and not short-circuited.



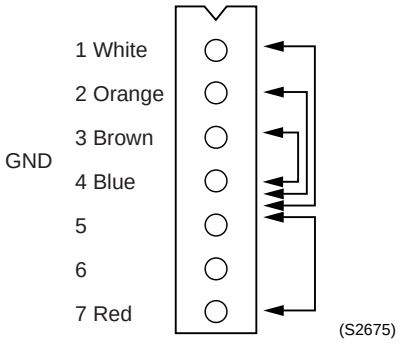
(S2675)

Check No. 9 **Check for Fan Motor Connector (Signal Line)**

For RZP71~140D models

(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

Check No. 10 **Check for Power Transistor**

■ Judgment according to the continuity check by using an analog tester.

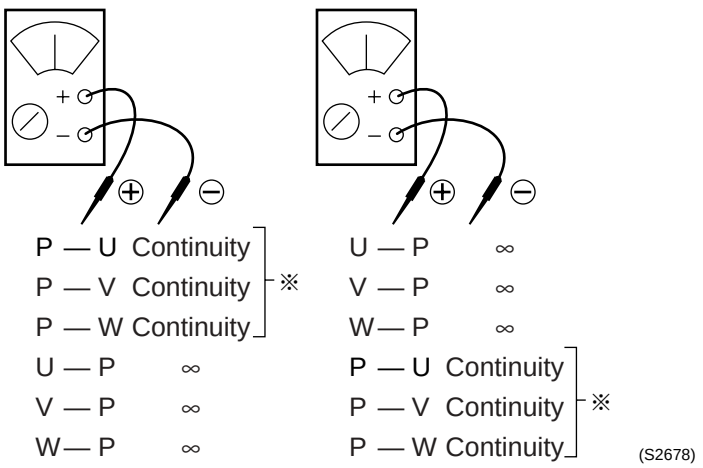
(1) Do not touch the charged area (high voltage) for 10 minutes after turning the power supply off.

(2) If you must touch such an area, make sure that the power supply voltage of power transistor is 50 V or less.

(3) Before measuring the continuity, disconnect the connection between compressor and power transistor.

(4) Measure the continuity in the following procedure.
[Judgment] Normal if the continuity check results in the following.

Power transistor (on inverter PC board)



※ If there is continuity, the resistance should be the same as each phase.

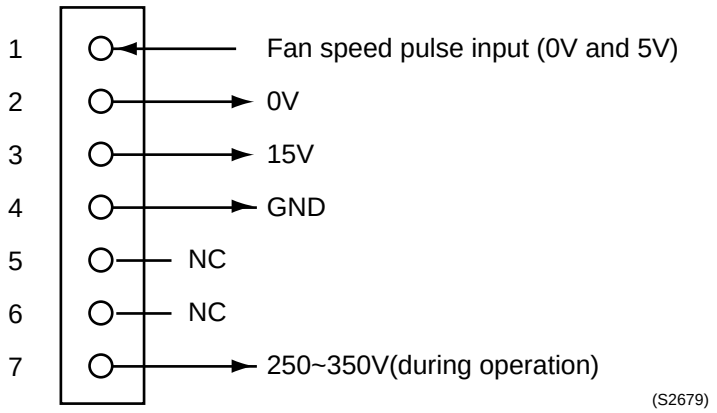
※ If a digital tester is used for the measurement of continuity, ∞ and continuity may be reversed.

Check No. 11 **Check for Fan Speed Pulse Input on Outdoor Unit PC Board**

For RZP71~140D models

(1) Disconnect the connector X206A with the power supply OFF and Operation OFF.
(2) Is the voltage between pins 4 and 3 of X206A about 15 VDC after turning the power supply on?
(3) Is the voltage between pins 4 and 1 of X206A about 5 VDC?
(4) Connect the connector X206A with the power supply OFF and Operation OFF.
(5) When making one turn of the upper fan motor by hand after turning the power supply on, is a pulse (0 and 5 V) generated 4 times between pins 4 and 1 of X206A? (Measure at the contact terminal on the harness side with the connector connected.)
(6) Disconnect the connector X207A with the power supply OFF and Operation OFF.
(7) Is the voltage between pins 4 and 3 of X207A about 15 VDC after turning the power supply on?
(8) Is the voltage between pins 4 and 1 of X207A about 5 VDC?
(9) Connect the connector X207A with the power supply OFF and Operation OFF.
(10)When making one turn of the lower fan motor by hand after turning the power supply on, is a pulse (0 and 5 V) generated 4 times between pins 4 and 1 of X207A?

(2) (7): NO → Faulty PC board → Replace the PC board.
(3) (8): NO → Faulty PC board → Replace the PC board.
(5)(10): NO → Faulty hall IC → Replace the DC fan motor.
(2) (3) (5) (7) (8) (10): YES → Replace the PC board.



Check No. 12 Check for Thermistors

Disconnect the thermistor connector from PC board, then measure the resistance by using a tester.

Thermistor temperature and resistance measurement

Unit : kΩ

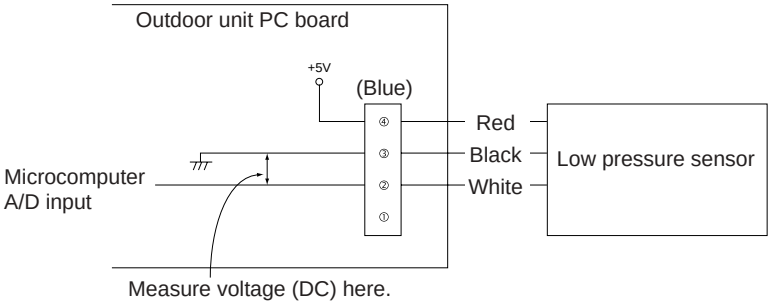
Temperature ˚C	A	B	Temperature ˚C	A	B
-6.0	90.8	88.0	28.0	17.6	17.0
-4.0	81.7	79.1	30.0	16.2	15.6
-2.0	73.5	71.1	32.0	14.8	4.2
0.0	66.3	64.1	34.0	13.6	13.1
2.0	59.8	57.8	36.0	12.5	12.0
4.0	54.1	52.3	38.0	11.5	11.1
6.0	48.9	47.3	40.0	10.6	10.3
8.0	44.3	42.9	42.0	9.8	9.5
10.0	40.2	38.9	44.0	9.1	8.8
12.0	36.5	35.3	46.0	8.4	8.2
14.0	33.2	32.1	48.0	7.8	7.6
16.0	30.2	29.2	50.0	7.2	7.0
18.0	27.5	26.6	52.0	6.9	6.7
20.0	25.1	24.3	54.0	6.2	6.0
22.0	23.0	22.2	56.0	5.7	5.5
24.0	21.0	20.3	58.0	5.3	5.2
26.0	19.2	18.5	Application	● Heat exchanger (Indoor/ Outdoor units) ● Suction air ● Remote controller ●Air ●Outdoor air ●Suction pipe	●Radiator fin

Temperature (˚C)	Discharge Pipe Sensor (kΩ)	Temperature (˚C)	Discharge Pipe Sensor (kΩ)	Temperature (˚C)	Discharge Pipe Sensor (kΩ)	Temperature (˚C)	Discharge Pipe Sensor (kΩ)
-6.0	1120.0	40.0	118.7	94.0	15.8	140.0	4.1
-4.0	1002.5	42.0	109.0	96.0	14.8	142.0	3.9
-2.0	898.6	44.0	100.2	98.0	13.9	144.0	3.7
0.0	806.5	46.0	92.2	100.0	13.1	146.0	3.5
2.0	724.8	48.0	84.9	102.0	12.3	148.0	3.3
4.0	652.2	50.0	78.3	104.0	11.5	150.0	3.2
6.0	587.6	52.0	72.2	106.0	10.8	152.0	3.0
8.0	530.1	54.0	66.7	108.0	10.2	154.0	2.9
10.0	478.8	56.0	61.6	110.0	9.6	156.0	2.7
12.0	432.9	58.0	57.0	112.0	9.0	158.0	2.6
14.0	392.0	60.0	52.8	114.0	8.5	160.0	2.5
16.0	355.3	62.0	48.9	116.0	8.0	162.0	2.3
18.0	322.4	64.0	45.3	118.0	7.6	164.0	2.5
20.0	292.9	66.0	42.0	120.0	7.1	166.0	2.1
22.0	266.3	68.0	39.0	122.0	6.7	168.0	2.0
24.0	242.5	70.0	36.3	124.0	6.4	170.0	1.9
26.0	221.0	72.0	33.7	126.0	6.0	172.0	1.9
28.0	201.6	74.0	31.4	128.0	5.7	174.0	1.8
30.0	184.1	76.0	29.2	130.0	5.4	176.0	1.7
32.0	168.3	78.0	27.2	132.0	5.4	178.0	1.6
34.0	154.0	80.0	25.4	134.0	4.8	180.0	1.5
36.0	141.0	82.0	23.7	136.0	4.6		
38.0	129.3	92.0	16.9	138.0	4.3		

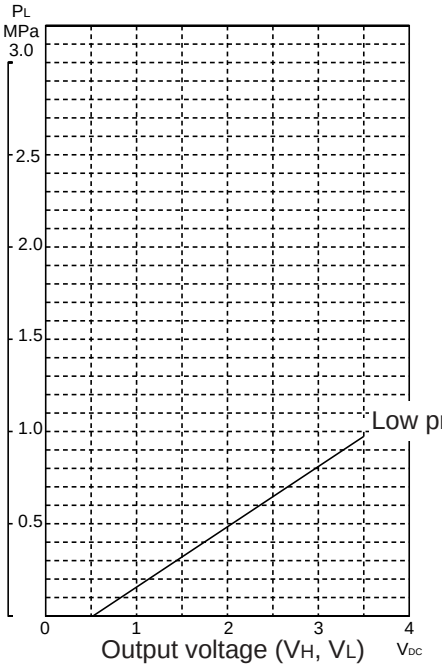
Check No. 13 Voltage Measuring Method

Measure the voltage (DC) between pins 2 and 3 of the connector.

■ For RZP71~140D models



Detected pressure



Low pressure $P_L = (V_L - 0.5) \times 0.98/3$

P_L : Detected pressure (low pressure side)MPa
V_L : Output voltage (low pressure side)V_{DC}

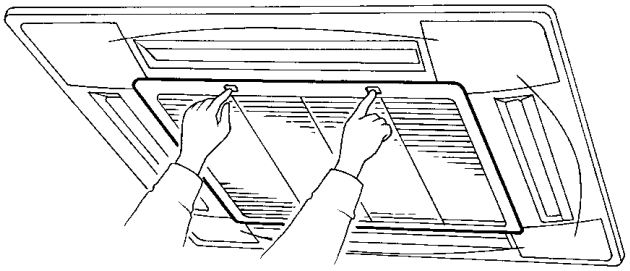
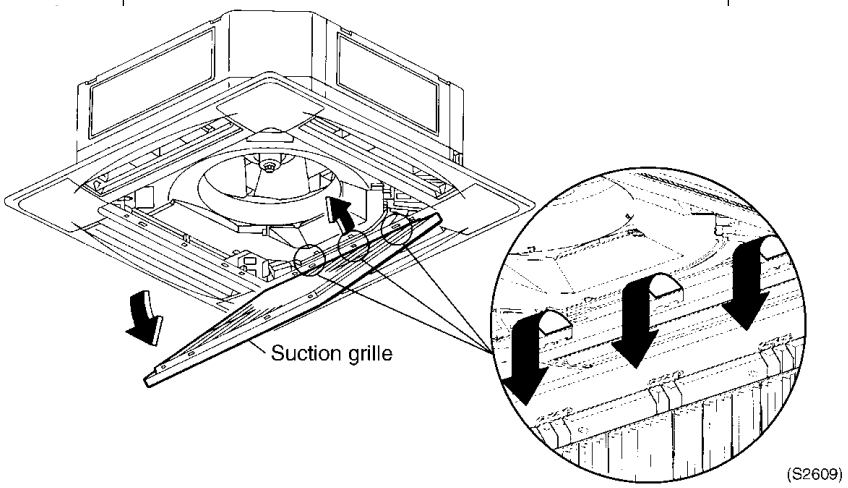
(S2680)

Part 9
Removal Procedure

1. FHYCP71~140D

1.1 Removal of Suction Grille

Procedure **Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

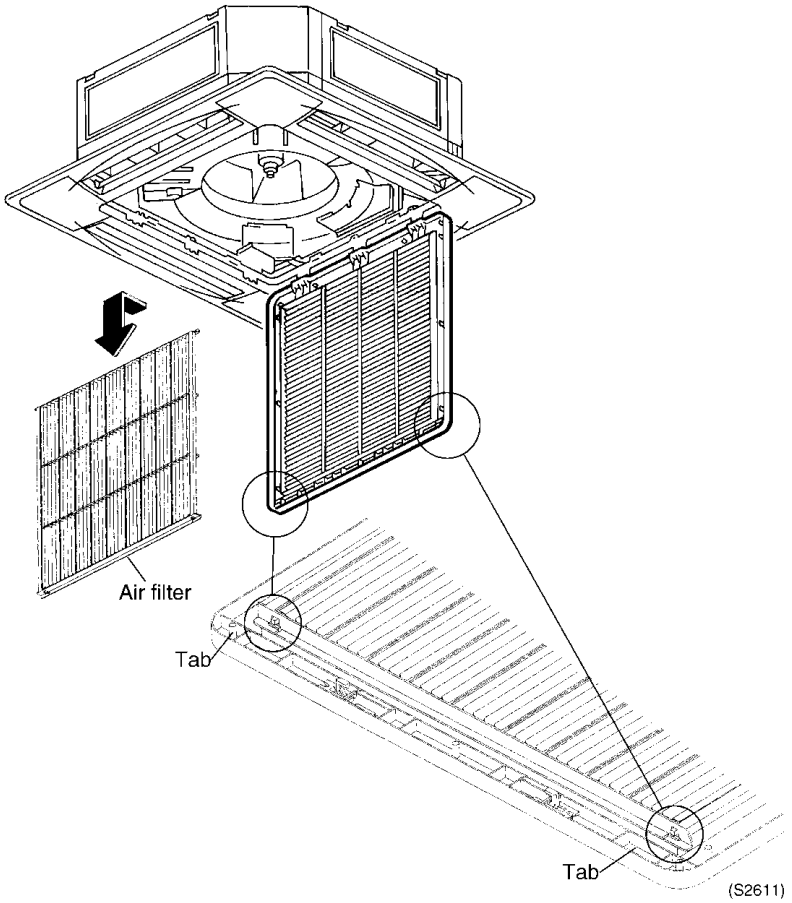
Step	Procedure	Points
1. Removing the suction grille	①Push the buttons and pull down.	■ When closing, push up the grille slowly.
1	Push the 2 buttons simultaneously and pul the suction grille down slowly.  (S2608)	
2	With the suction grille open at an angle of 45˚, lift it up to rer ②Open to 45˚.  (S2609)	■ Grille is attached with 3 hooks.

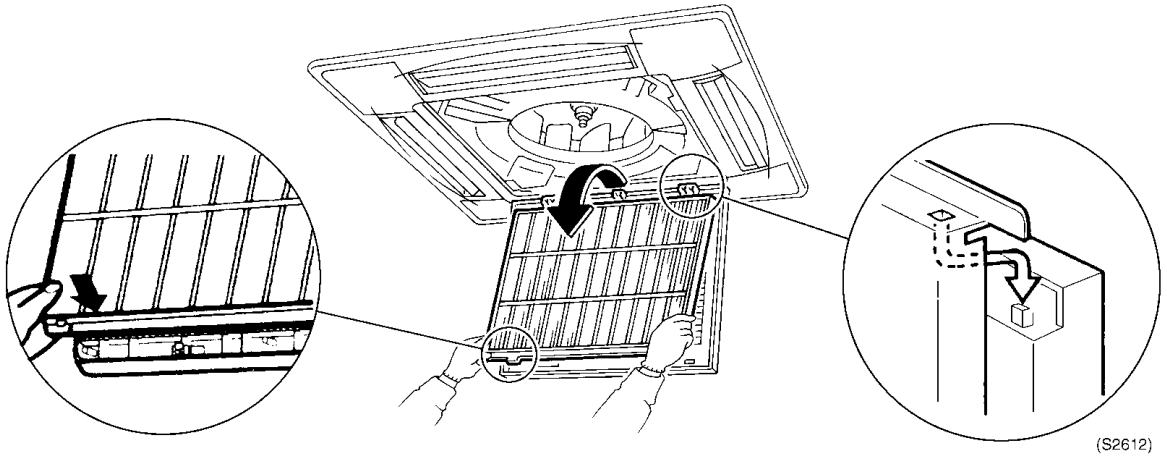
1.2 Removal of Air Filter

Procedure

⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1. Removing the air filter		
1	Open the suction grille. (Refer to the procedure for removing the suction grille.)	
2	Pull the hooks on the air filter down slantwise to remove the air filter.	
2. Mounting the air filter		
1	Hook the air filter on projections at the top of the suction grille.	
2	Force the bottom of the air filter into projections at the bottom of the suction grille to secure the air filter.	



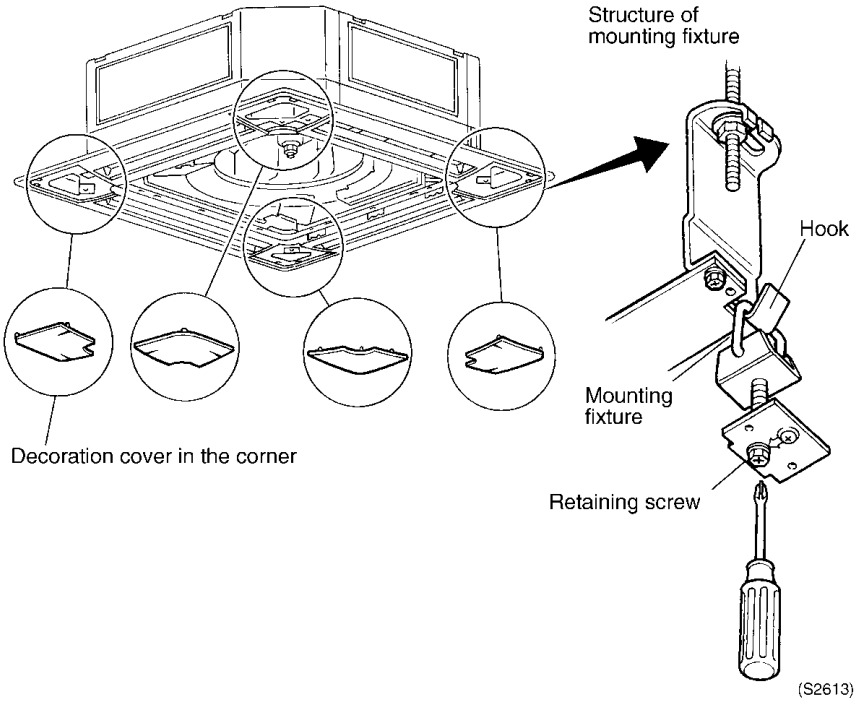


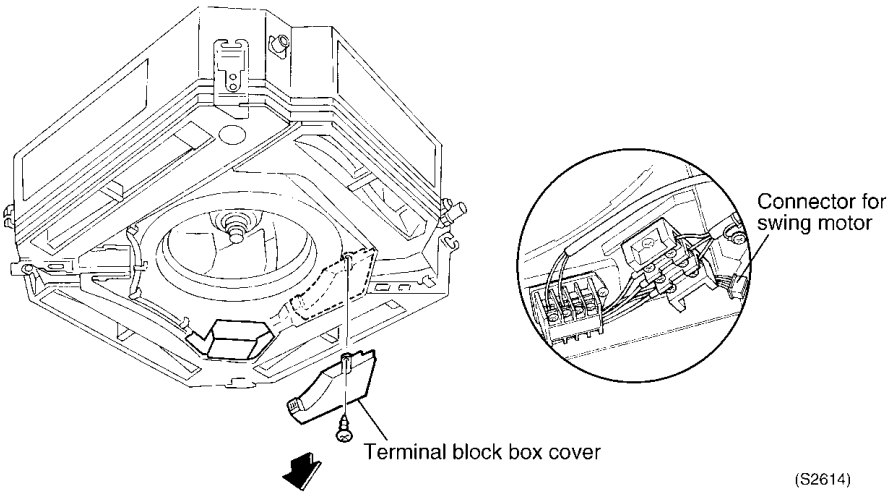
1.3 Removal of Decoration Panel

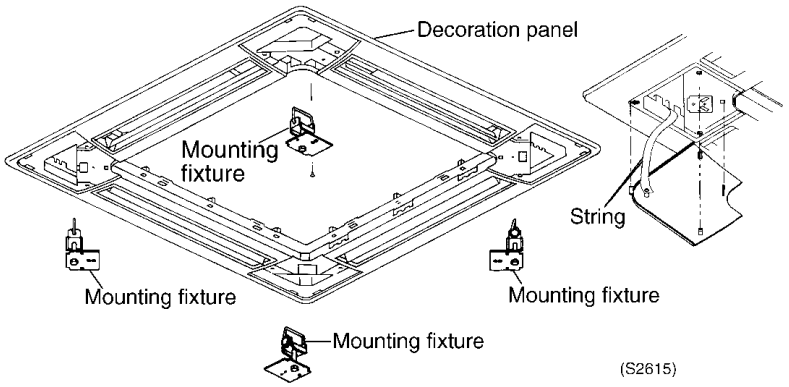
Procedure

⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1. Removing the decoration covers in the corner of decoration panel		■ Remove a string (provided to prevent the decoration cover from dropping) from the decoration cover in the corner from the pin to dismount the decoration cover.
1	To remove the decoration covers in the corner, pull the inside (suction grille side) down.	
2	Remove the one screw to dismount the terminal block box cover, then disconnect the connector for swing motor. For the auto grille, disconnect the auto grille power supply cable from the power supply terminal block.	
3	Loosen the 4 retaining screws from the decoration panel.	
4	The decoration panel is caught on the 4 hooks of the main unit.	





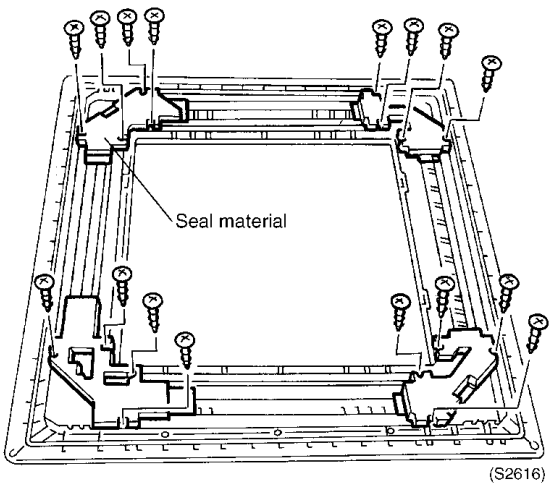
Step	Procedure		Points
5	Remove the 2 mounting fixtures on the outside (Section A), then remove the 2 mounting fixtures on the inside (Section B).		
6	Remove the decoration panel.		■ Mounting the decoration cover in the corner Mount the decoration cover so that the 4 hooks on the decoration cover can engage with the hole in the decoration panel.

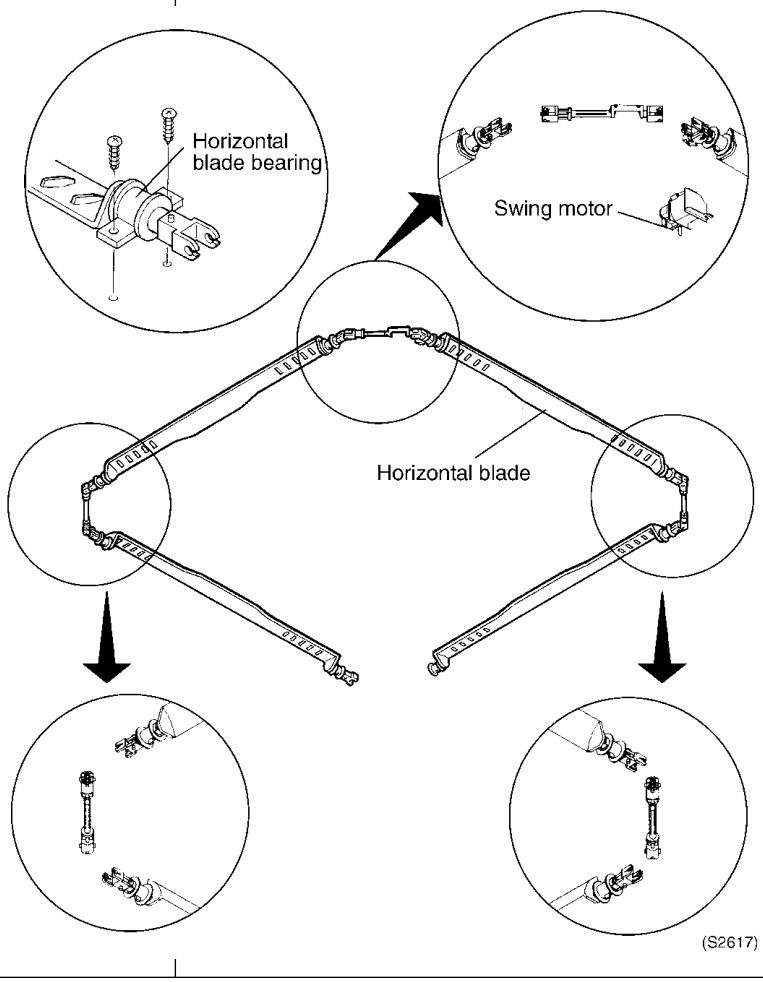
1.4 Removal of Horizontal Blade

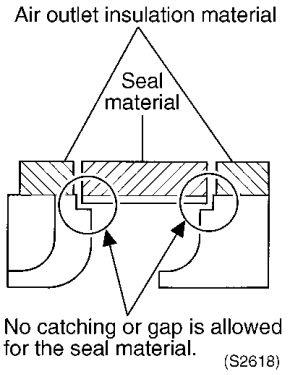
Procedure

⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1	Remove 4 screws each (16 screws in total) to dismount the 4 seal materials.	
2	Remove 2 screws each (16 screws in total) to dismount the 8 horizontal blade bearings.	**Reassembling** ■ Make sure that the air outlet insulation material (seal material) is as shown below (may result in dew condensation).

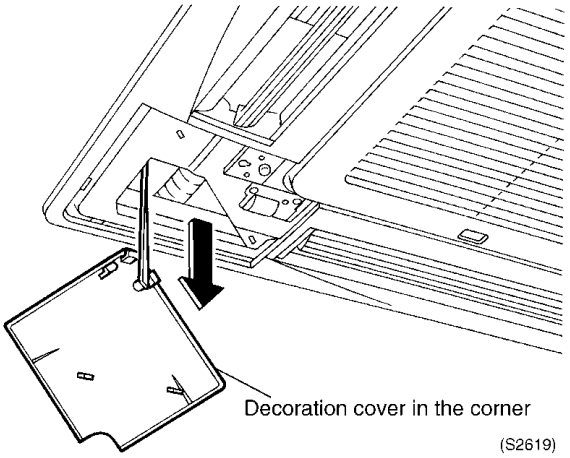
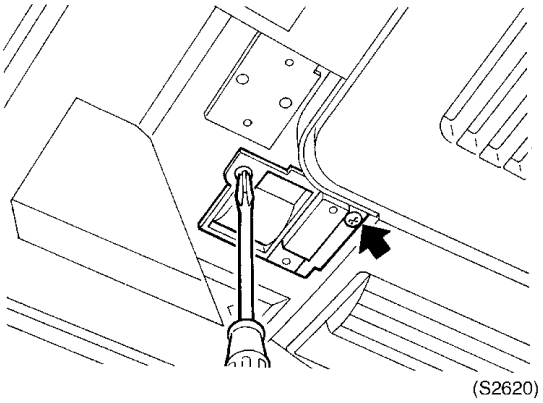
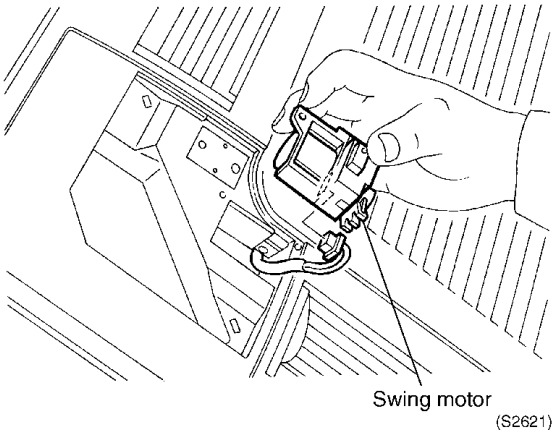


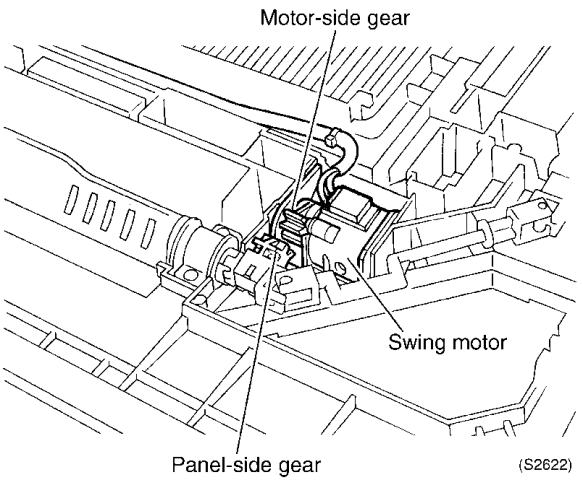
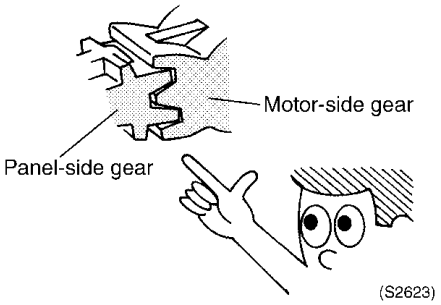




1.5 Removal of Swing Motor

Procedure **Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

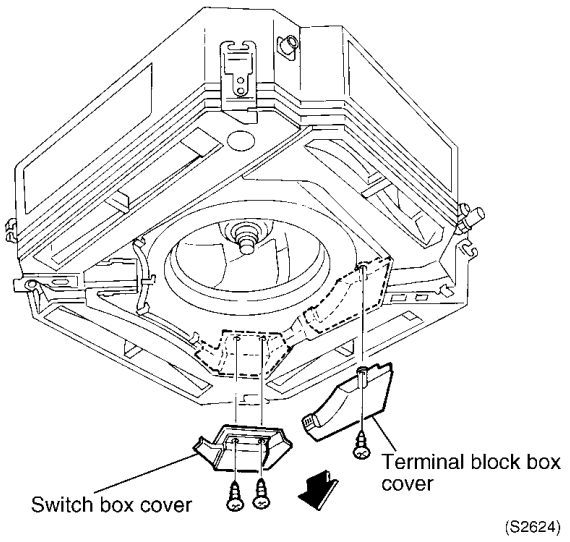
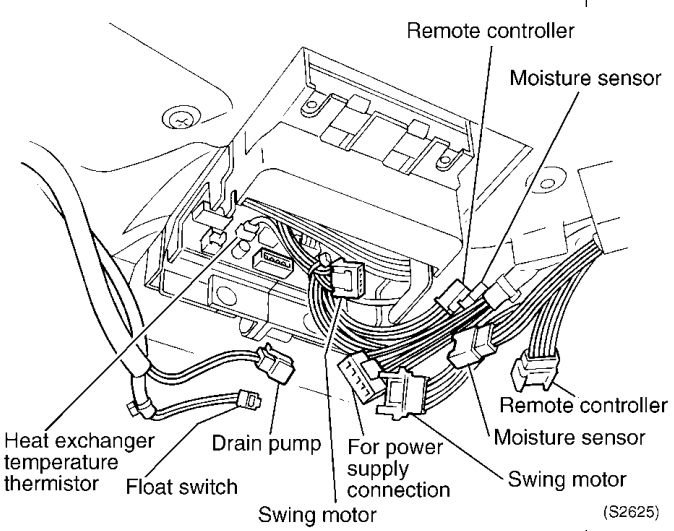
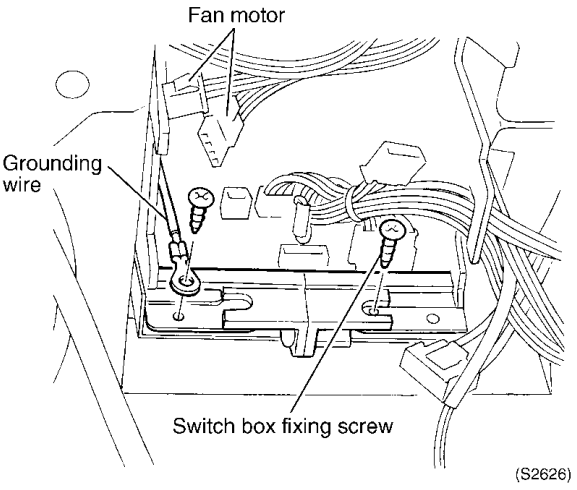
Step	Procedure		Points
1	Remove the decoration cover in the corner located right below the refrigerant piping.		
2	Remove the 2 swing motor mounting screws.		
3	Disconnect the swing motor connector.		■ The connector section is protected with the use of aluminum tape. Remove the aluminum tape.

Step	Procedure		Points
■ Caution during swing motor installation			■ Protect the connector section with using the aluminum tape.
1.	After installing the swing motor, be sure to turn off the power supply for reset (for initializing the vane positions).		
2	Be sure to engage the gears on the motor side and panel side. (Improper gear engagement results in faulty swing operation and abnormal noise.)		

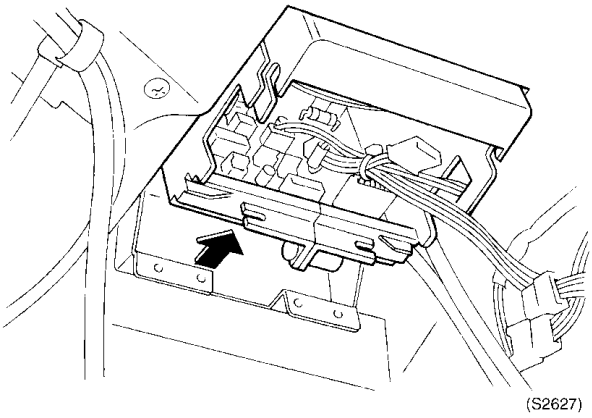
1.6 Removal of Switch Box

Procedure

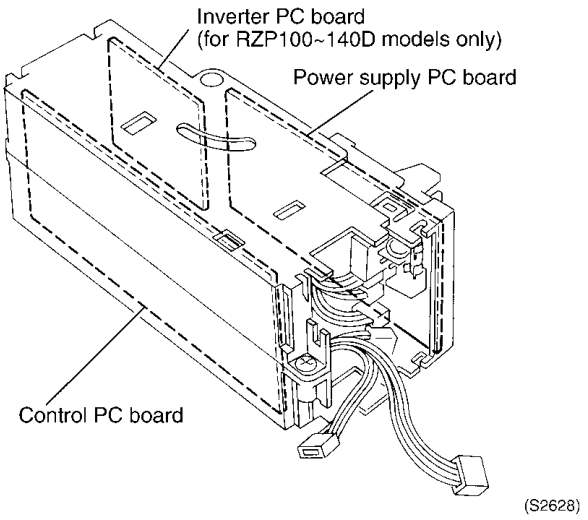
⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure		Points
1	Remove the 2 mounting screws on the switch box cover.		
2	Remove the 1 mounting screw on the terminal block cover.		
3	Disconnect each connector (7 connectors in total) connected to the inside of the switch box. ◆ Transfer connector x 3 pieces ◆ Direct connector x 4 pieces		
4	Disconnect the connector for fan motor. ◆ For FHYCP71D : Direct connector ◆ For FHYCP100~140D : Relay connector		
5	Remove the grounding wire mounting screw.		
6	Remove the switch box fixing screw.		

Step	Procedure	Points
7	Tilt the switch box in the direction shown by the arrow, then draw the entire switch box out.	


(S2627)

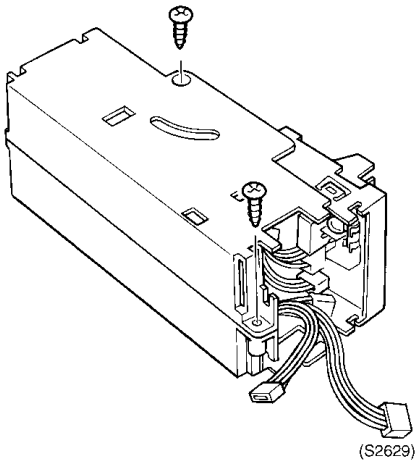
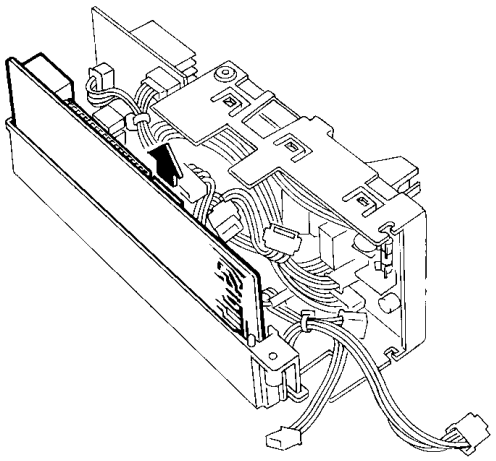
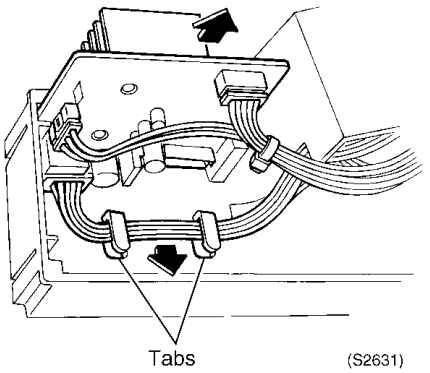
(Status after removal)

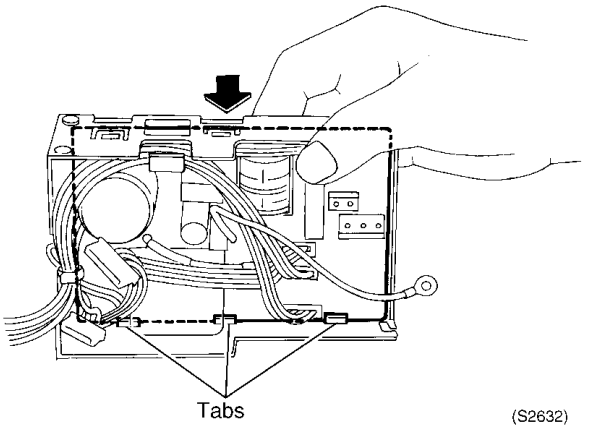


(S2628)

1.7 Removal of PC Board

Procedure **Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
■ Remove the switch box according to the procedure for removing the switch box.	 (S2629)	
1 Remove 2 switch box mounting screws to open the box.		
1. Disconnect the control PC board.	 (S2630)	
1 Disconnect the 2 connectors between the power supply and control PC boards, then draw the control PC board out in the direction shown by the arrow.		
2. Disconnect the inverter PC board.	 Tabs (S2631)	
1 Disconnect the harness from the 2 tabs provided in the box.		
2 Draw the inverter PC board out in the direction shown by the arrow.		

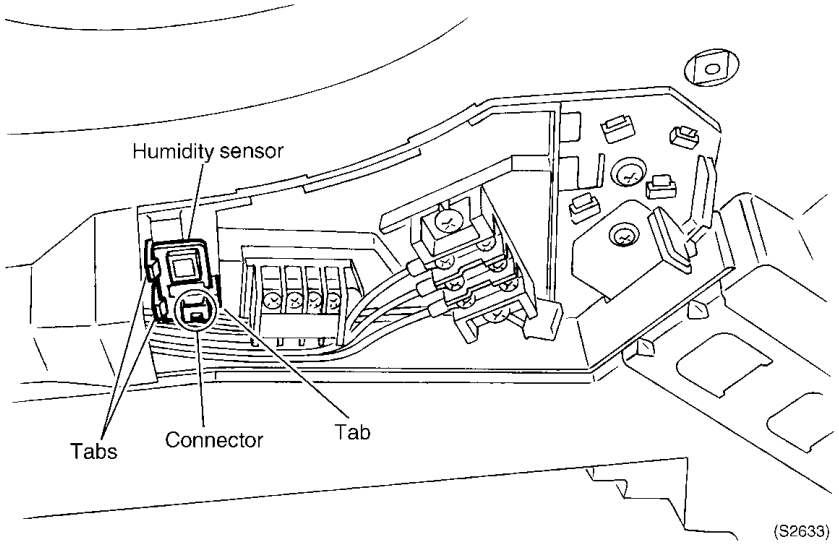
Step	Procedure		Points
3. Disconnect the power supply PC board.			
1	Disengage the 3 tabs on the front by pressing the back of the PC board in the direction shown by the arrow, then remove the power supply PC board.		

1.8 Removal of Humidity Sensor and Air Temperature Thermistor

Procedure

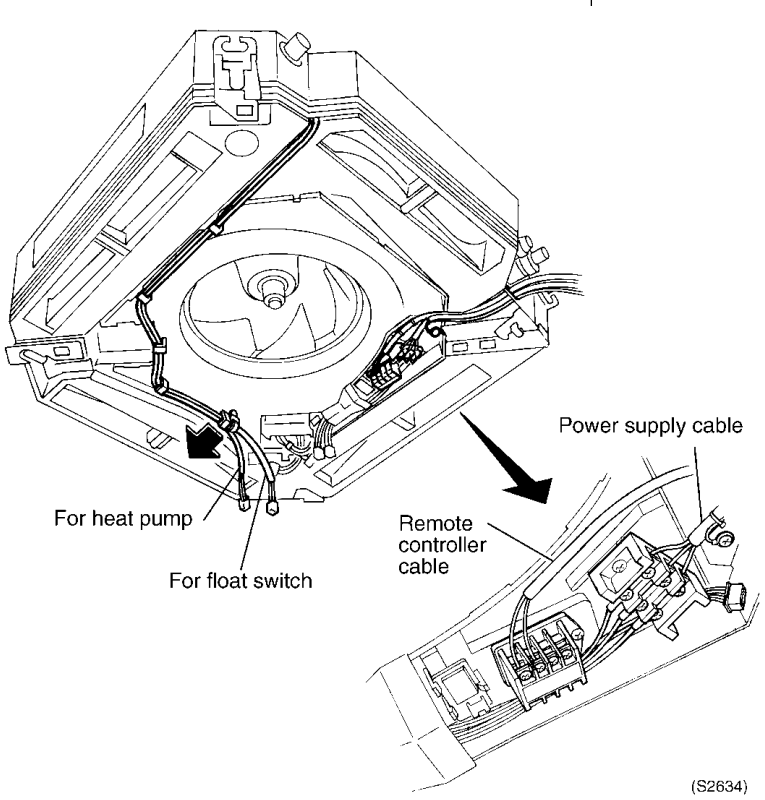
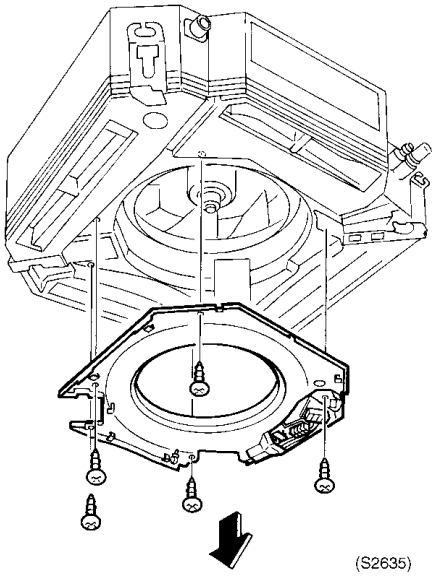
⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

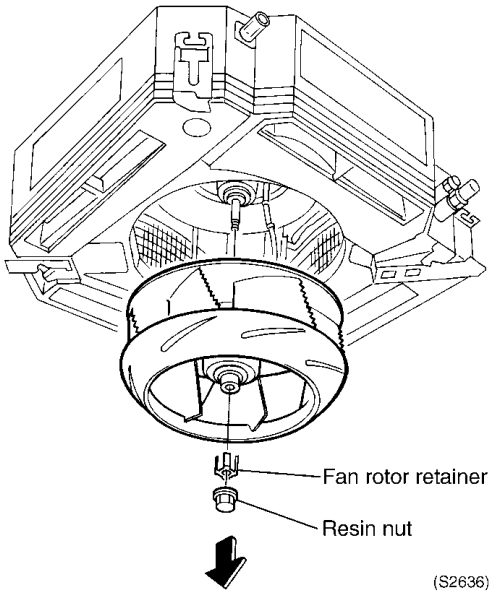
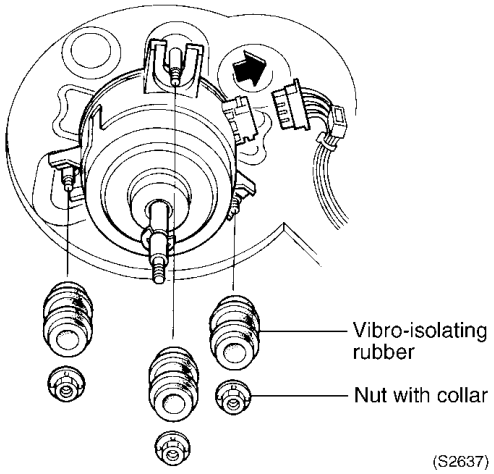
Step	Procedure	Points
■ Remove the terminal block box cover according to the procedure for removing the switch box.		
1	Disconnect the connector for humidity sensor.	■ The moisture sensor and air temperature thermistor is integrated.
2	Disengage the 3 tabs to remove the humidity sensor.	



1.9 Removal of Fan Motor

Procedure **⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

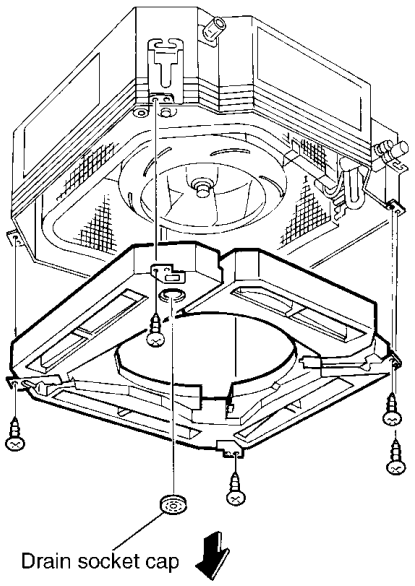
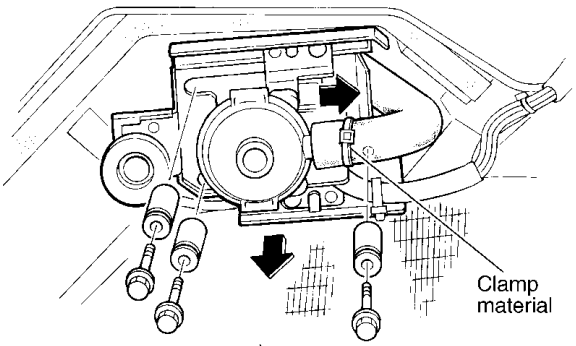
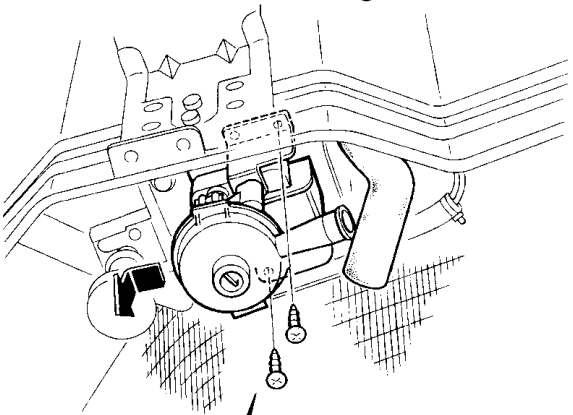
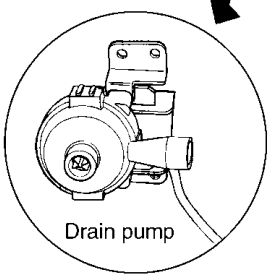
Step	Procedure	Points
■ Remove the terminal block box cover according to the procedure for removing the switch box, then disconnect the following connectors. Transfer connector ● Wired remote controller ● Swing motor ● Humidity sensor Connector built in the switch box ● Connector used for power supply cables		
1. Removing the bell mouth. 1 Disconnect the 2 remote controller cables and 3 power supply cables. 2 Disconnect the drain pump and float switch wiring from bell mouth. (※1) 3 Remove the 5 mounting screws on the bell mouth.		※1: At this time, do not cut the clamp material attached to the drain pan near the switch box. Loosen the mounting screw to remove the clamp material.

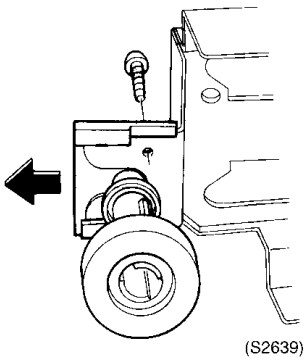
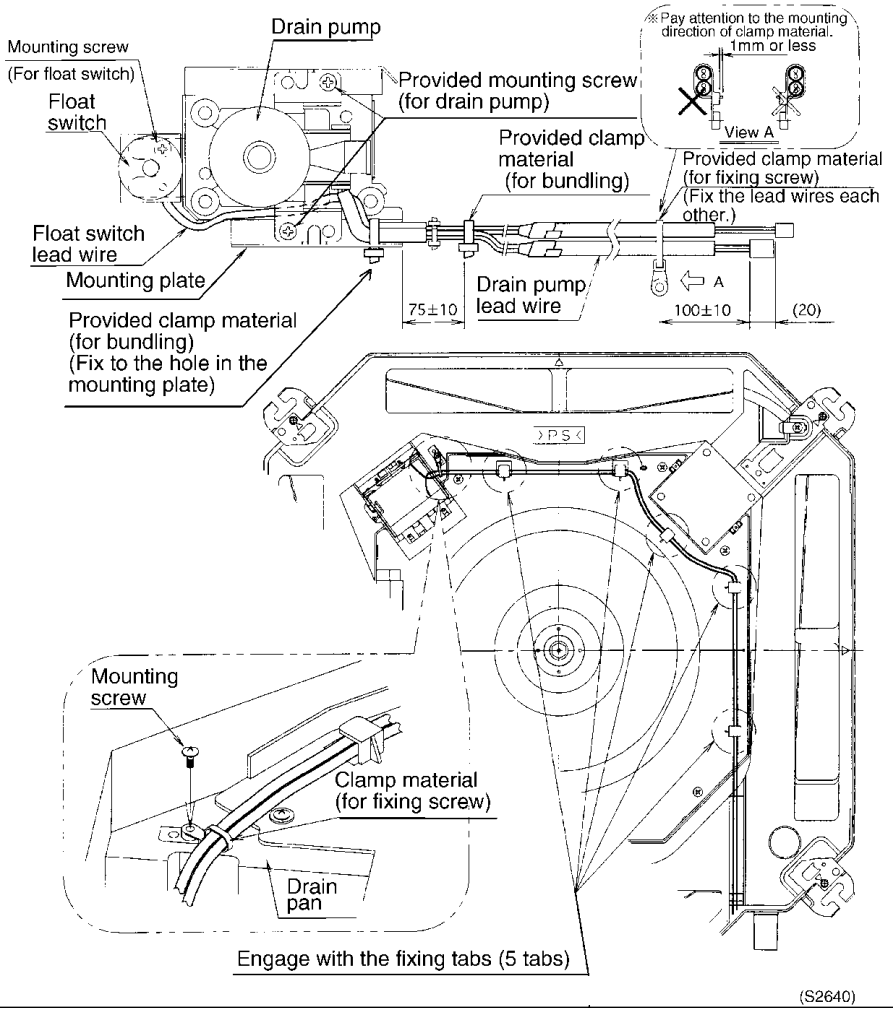
Step	Procedure	Points
2. Removing the fan rotor.		
1 Remove the resin nut and fan rotor retainer to dismount the fan rotor.		
3. Remove the fan motor.		
1 Disconnect the 2 connectors on the fan motor.		
2 Remove the nut with collar and vibro-isolating runner to dismount the fan motor.		

1.10 Removal of Drain Pan, Drain Pump, Float Switch

Procedure

⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

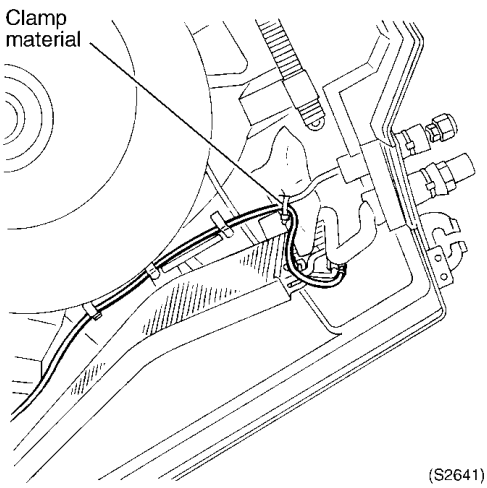
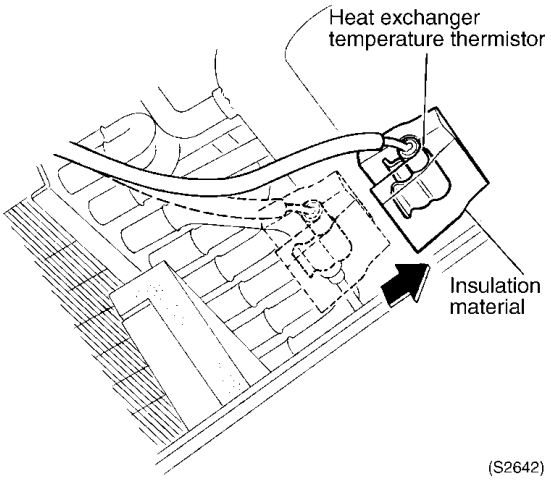
Step	Procedure	Points
1. Removing the drain pan		
1 Remove the drain socket cap to discharge water. 2 Remove the 5 mounting screws to pull the drain pan out downward.		
2. Removing the drain pump	   (S2638)	■ When removing the drain pump, cut the following clamp materials. ● Clamp material securing the drain pump lead wire to the drain pump mounting plate. ● Clamp material bundling the drain pump lead wire and float switch lead wire.
1 Cut the clamp material. 2 Pull the drain hose out. 3 Remove the 3 screws on the drain pump mounting plate. 4 Remove the 2 mounting screws on the drain pump. 5 Displace the drain pump sideward to remove it.		

Step	Procedure	Points
3. Removing the float switch	 (S2639)	■ When removing the float switch, cut the following clamp materials. ● Clamp material securing the drain pump lead wire to the drain pump mounting plate. ● Clamp material bundling the drain pump lead wire and float switch lead wire.
1 Reverse the drain pump mounting plate which was removed according to the procedure described on the preceding page.		
2 Remove the 1 screw, displace the float switch sideward, then dismount the float switch.		
[Installation procedure of drain pump or float switch]		
1 Install a spare drain pump or float switch on the mounting plate, then firmly secure the lead wires using the provided clamp materials (3 pieces).		
2 Connect the lead wires of the drain pump or float switch in the original state, firmly secure the aforementioned clamp materials (screw type fixing) to the drain pan with the use of mounting screws.	 (S2640)	

1.11 Removal of Heat Exchanger Temperature Thermistor

Procedure

⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

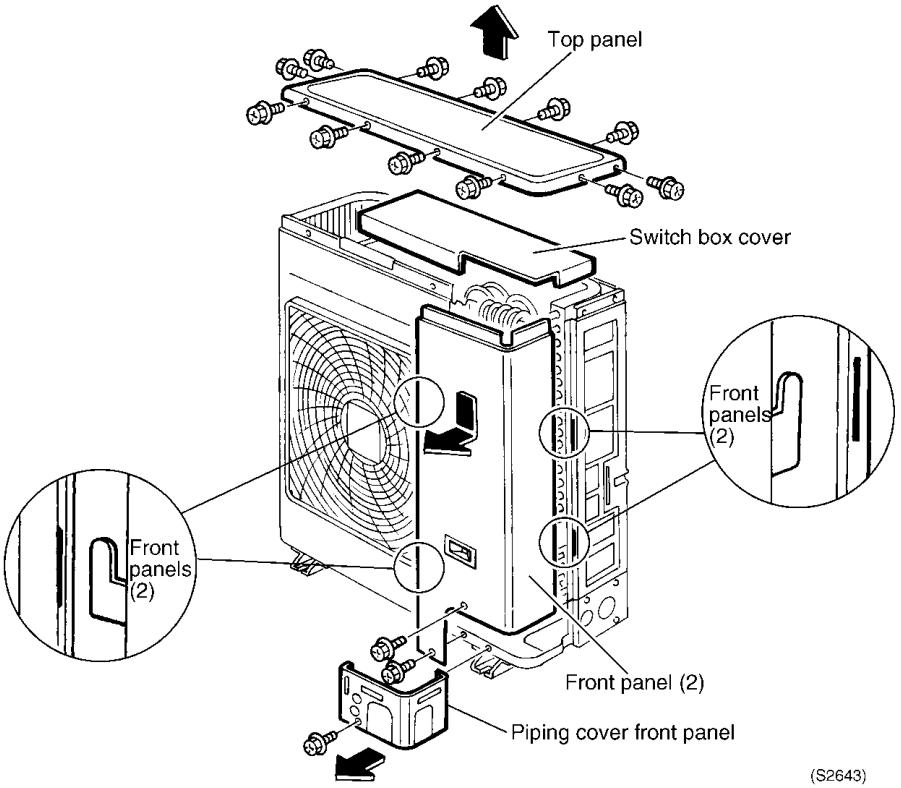
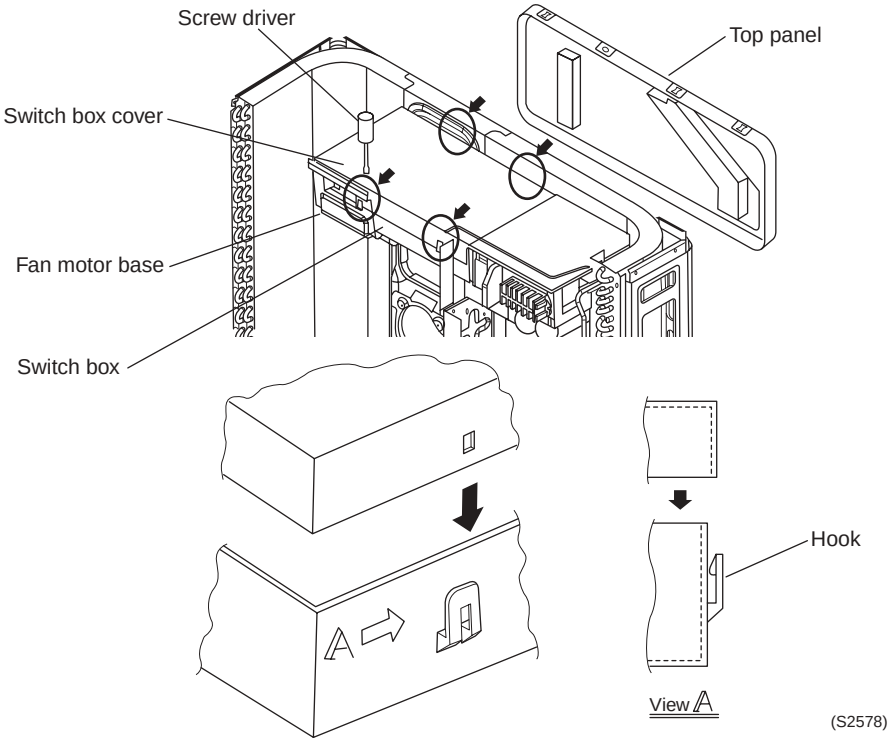
Step	Procedure	Points
■ Remove the drain pan according to the procedure for removing the drain pan.		
1 Cut the clamp material. 2 Draw the heat exchange temperature thermistor together with the insulation material out in the direction shown by the arrow.		

2. RZP71~140D

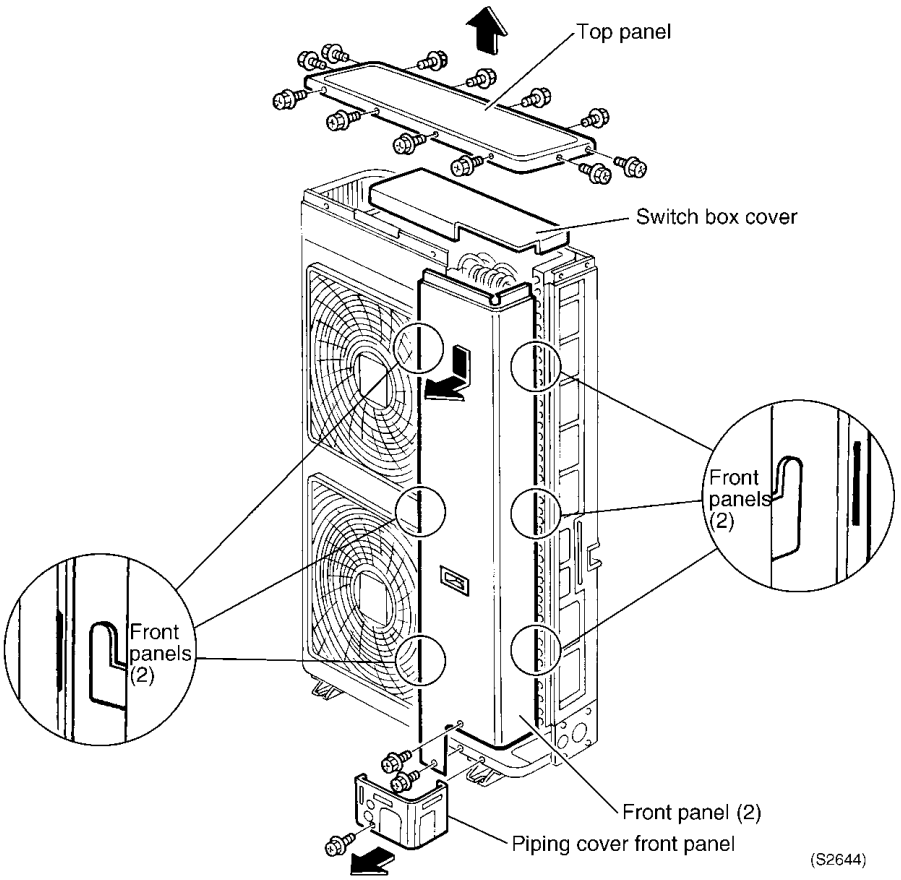
2.1 Removal of Outside Panels

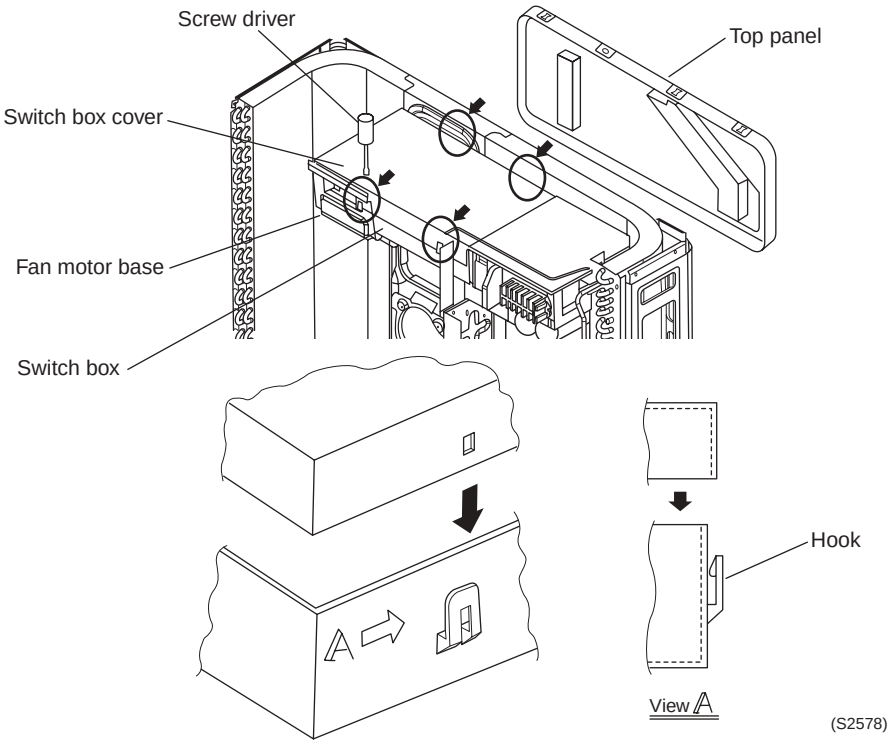
Procedure

⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1	Remove the 12 screws on the top panel to dismount the top panel.	■ For RZP71D models 	■ Take care not to fail to mount, lose or damage the switch box cover.
2	To remove the switch box cover, fit a slotted screwdriver in four hooks on the switch box circled in the right figure. Then raise the hooks and pull the switch box cover upward.		

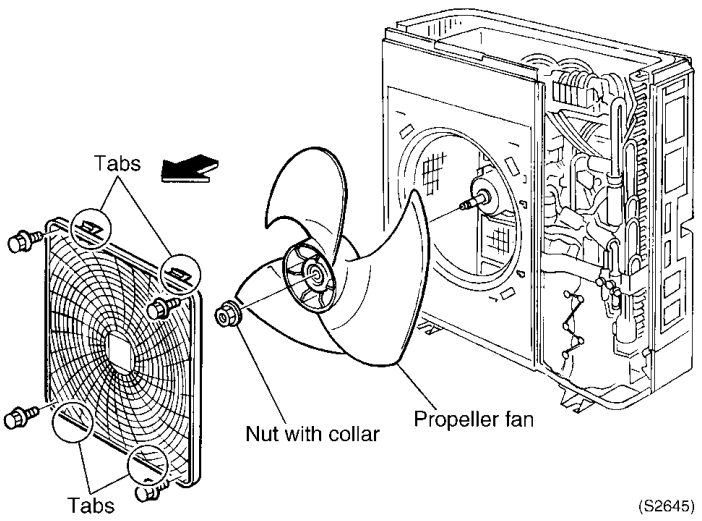
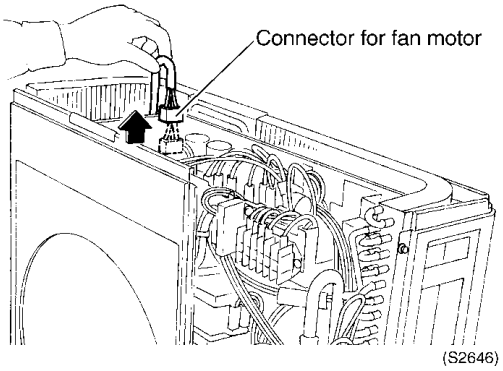
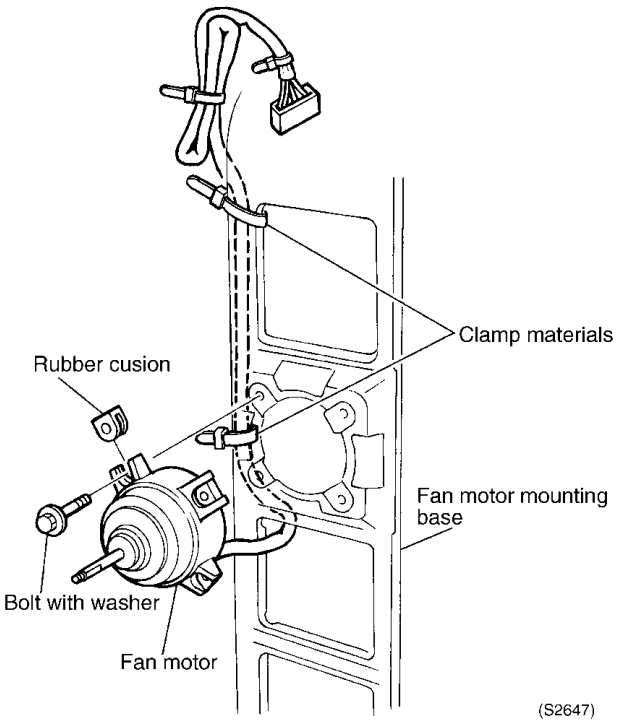
Step	Procedure	Points
3	Remove the 2 screws on the front panel (2) and push the front panel downward to dismount it.	■ For RZP100~140D models
4	Remove the 1 screw on the piping cover front panel to dismount it.	
5	To remove the switch box cover, fit a slotted screwdriver in four hooks on the switch box circled in the right figure. Then raise the hooks and pull the switch box cover upward.	





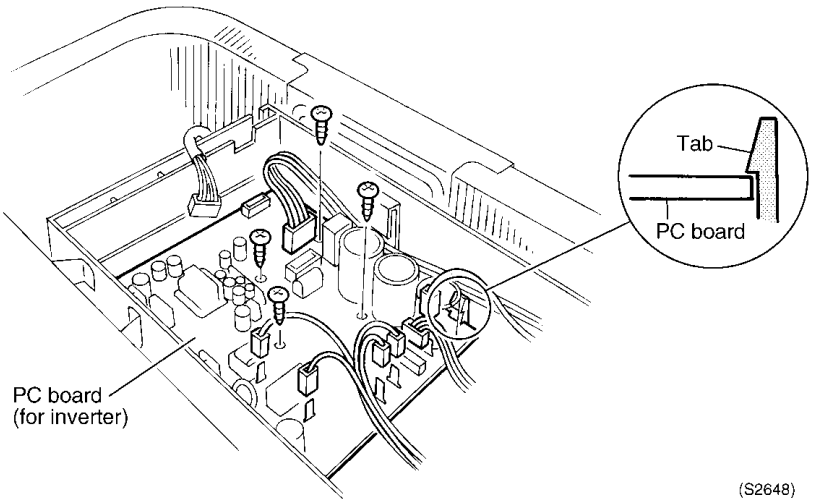
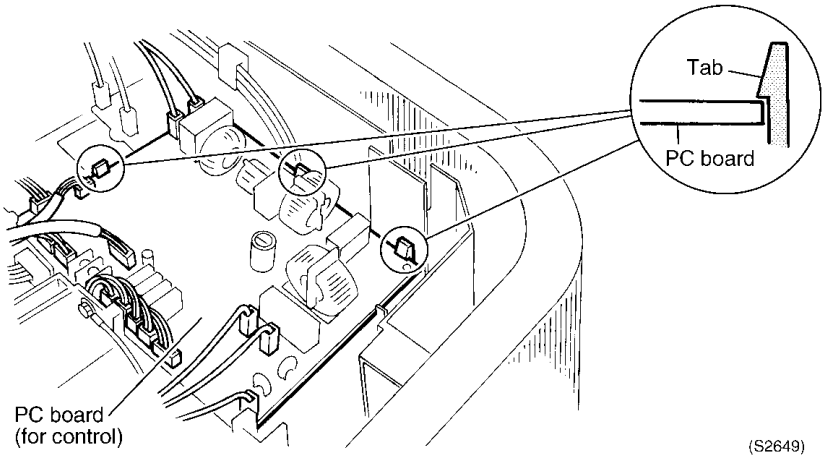
2.2 Removal of Propeller Fan and Fan Motor

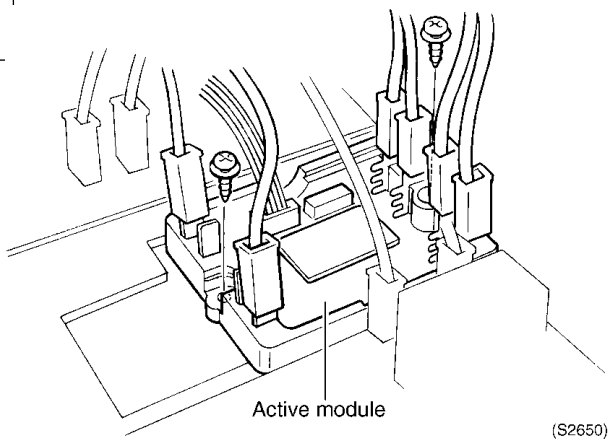
Procedure **Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
■ Remove the top panel, front panel (2), etc. according to the procedure for removing outside panels.		
1. Removing the propeller fan		
1 Disengage the 4 tabs at the top and bottom of the discharge grille to remove the 4 mounting screws, and dismount the discharge grille. 2 Remove the nut with collar on the propeller fan.		
2. Removing the fan motor		
1 Disconnect the connector for fan motor from the PC board provided in the switch box. 2 The fan motor lead wire is clamped at 2 locations. 3 Remove the 4 bolts with washer securing the fan motor to dismount the fan motor.		

2.3 Removal of PC Board

Procedure **Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

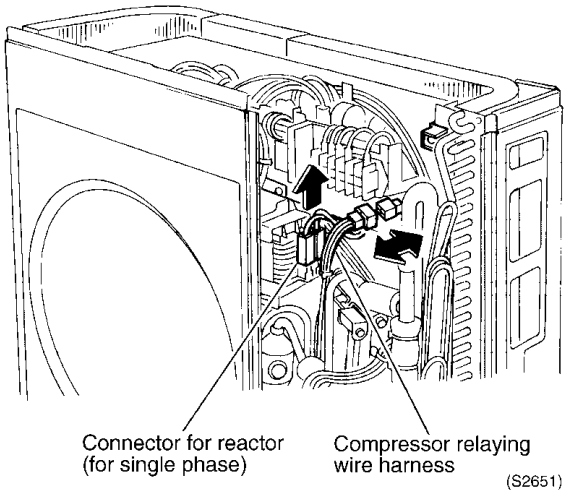
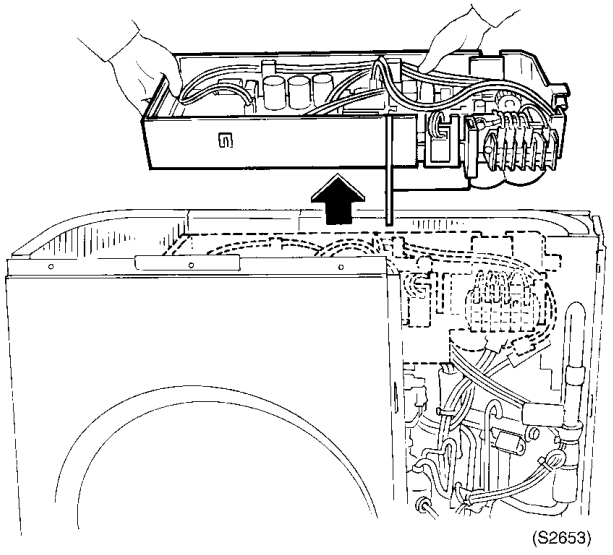
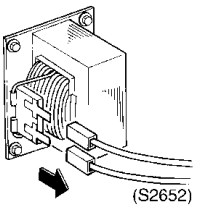
Step	Procedure	Points
■ Remove the top panel, front panel (2), and switch box cover according to the procedure for removing outside panels.		■ The diagram on the left shows the PC board of RZP71D as an example.
1. Removing the PC board (for inverter)		
1 Disconnect each connector. 2 Remove the 4 screws (2 screws for RZP100~140D models). 3 Disengage the 1 tab (2 tabs for RZP100~140D models) to disconnect the PC board (for inverter).		
2. Removing the PC board (for control)		■ The diagram on the left shows the PC board of RZP71D as an example.
1 Disconnect each connector. 2 Disengage the 3 tabs (2 tabs for RZP100~140D models) to disconnect the PC board (for control).		

Step	Procedure	Points
3. Removing the active module (for single-phase unit only) 1 Disconnect each connector. 2 Remove the 2 screws to disconnect the active module.		**Warning** **Caution for Electric Shocks** 1. Turn the power supply off without fail before servicing. 2. Do not touch the charging area (high voltage) for 10 minutes after turning the power supply off. 3. If you must touch the charging area, be sure that the main circuit capacitor voltage is 50 VDC or less and disconnect the connector X206A. 4. Caution when touching high temperature area Be noted that there are high temperature areas inside the switch box.

2.4 Removal of Switch Box (A)

Procedure

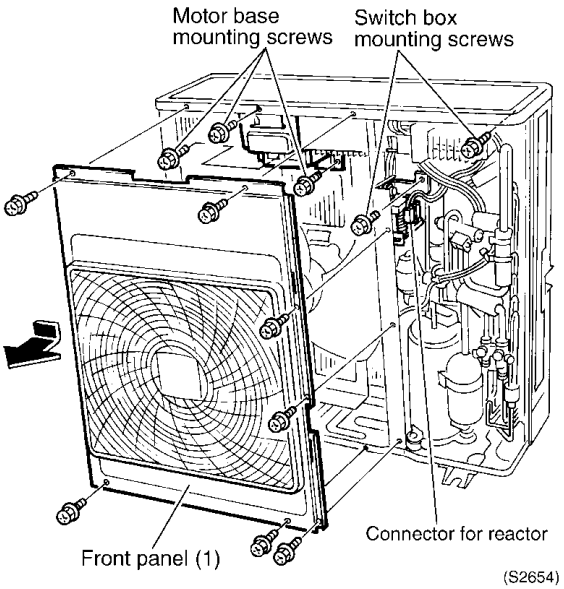
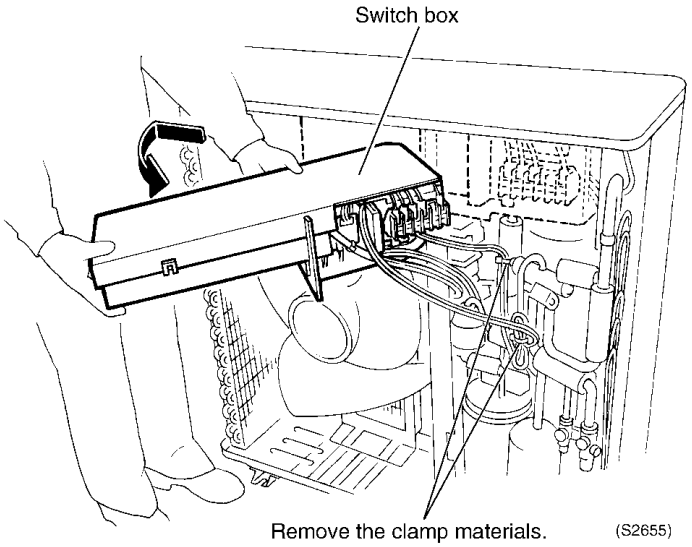
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
■ Remove the top panel, front panel (2), switch box cover according to the procedure for removing outside panels.		**Warning** **Caution for Electric Shocks** 1. Turn the power supply off without fail before servicing. 2. Do not touch the charging area (high voltage) for 10 minutes after turning the power supply off. 3. If you must touch the charging area, be sure that the main circuit capacitor voltage is 50 VDC or less and disconnect the connector X206A. 4. Caution when touching high temperature area Be noted that there are high temperature areas inside the switch box.
1 Remove the 2 switch box mounting screws. 2 Disconnect the following connectors. ● Compressor transfer harness ● Reactor 3 Disconnect each connector on other PC boards 4 Lift the switch box by hand to dismount it.		 For 3-phase reactor

2.5 Removal of Switch Box (B)

Procedure

⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

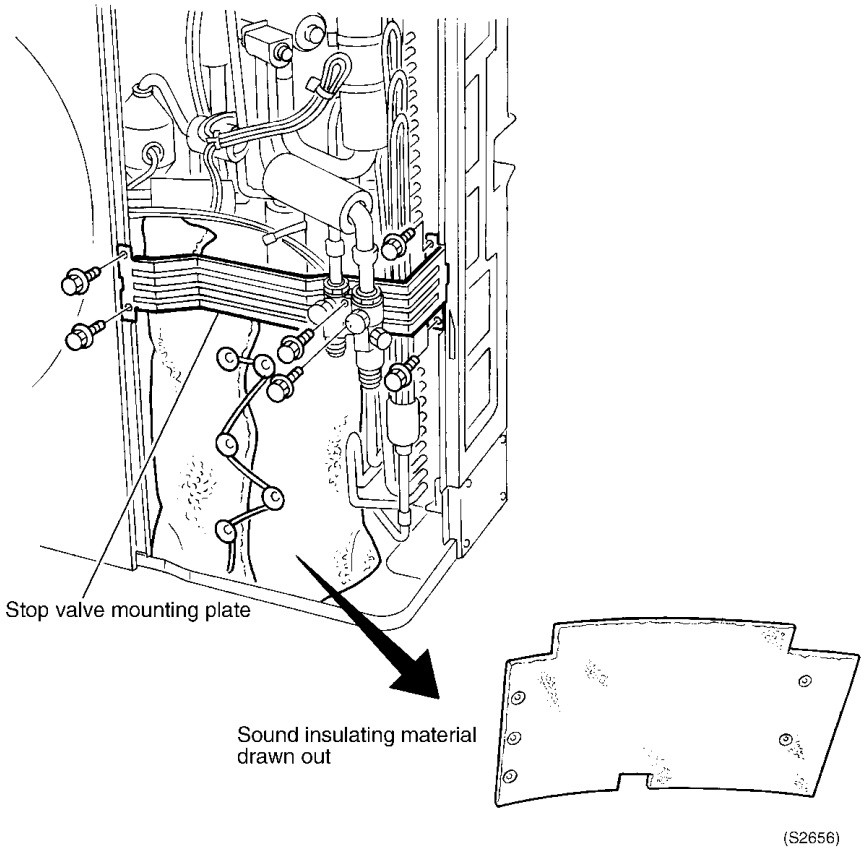
Step	Procedure	Points
(The switch box can be dismounted without removal of the top panel.) ■ Remove the front panel (2) according to the procedure for removing outside panels.		**⚠ Warning** **Caution for Electric Shocks** 1. Turn the power supply off without fail before servicing. 2. Do not touch the charging area (high voltage) for 10 minutes after turning the power supply off. 3. If you must touch the charging area, be sure that the main circuit capacitor voltage is 50 VDC or less and disconnect the connector X206A. 4. Caution when touching high temperature area Be noted that there are high temperature areas inside the switch box.
1 Remove the 7 mounting screws (8 mounting screws for RZP100~140D) on the front panel (1). 2 Remove the 3 motor base mounting screws. 3 Disconnect the connector for reactor. 4 Remove the 2 switch box mounting screws.		
5 Remove the clamp materials of each lead wire connecting to the switch box. ● Lead wire of four way valve and solenoid valve ● Wiring for low voltage ● Screws for grounding wire 6 Push the switch box upward and move it to the left. Then, while moving the switch box further to the left, draw it out to the front.		
7 Remove the switch box cover according to the procedure for removing outside panels.		■ Caution during switch box installation in the original position ● Make sure that the wires do not contact the refrigerant piping (to prevent damages due to high temperature or vibration).

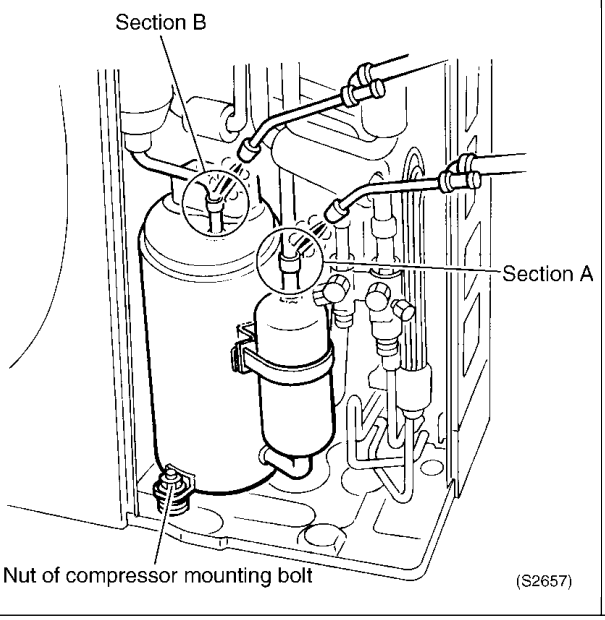
2.6 Removal of Compressor (For RZP71D)

Procedure

⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
■ Remove the front panel (2) and piping cover front panel according to the procedure for removing outside panels.		■ Make sure that there is no refrigerant in the unit before disassembling.
1. Removing the sound insulation cover		
1	Remove the 6 screws on the stop valve mounting plate to dismount it.	
2	Remove the string securing the sound insulating material to draw it out.	
3	Remove the compressor terminal cover and disconnect the lead wire.	
2. Removing the compressor		
1	Remove the nut from the compressor mounting bolt (1 location).	
2	Disconnect the suction pipe (A) and discharge pipe (B) at the brazed sections.	
3	Lift up the compressor to clear the mounting bolt to remove the compressor.	



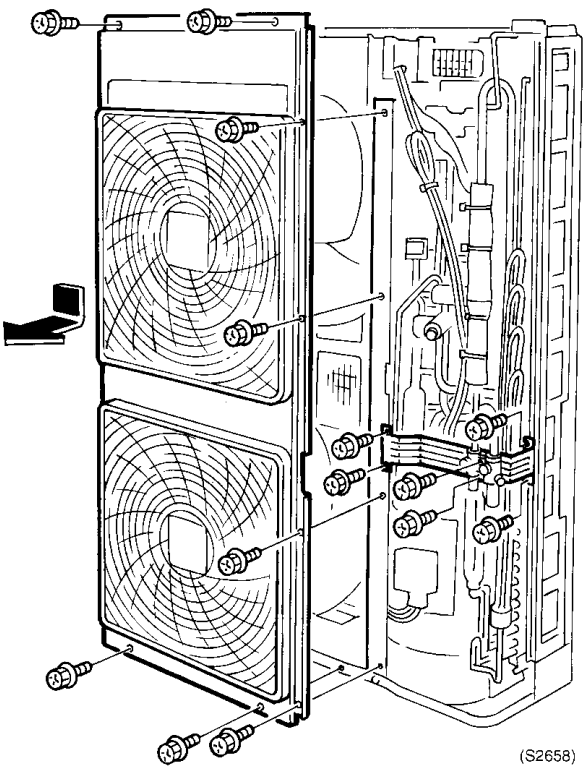
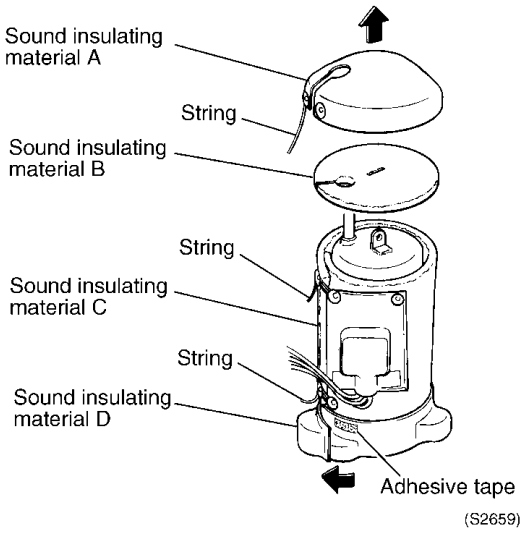


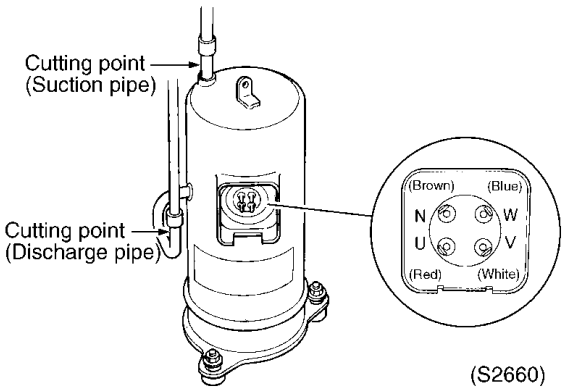
⚠ Warning
If the refrigerant gas leaks during the service work, ventilate the area. (When the refrigerant gas contacts flames, toxic gases may be generated.)

2.7 Removal of Compressor (For RZP100~140D)

Procedure

Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

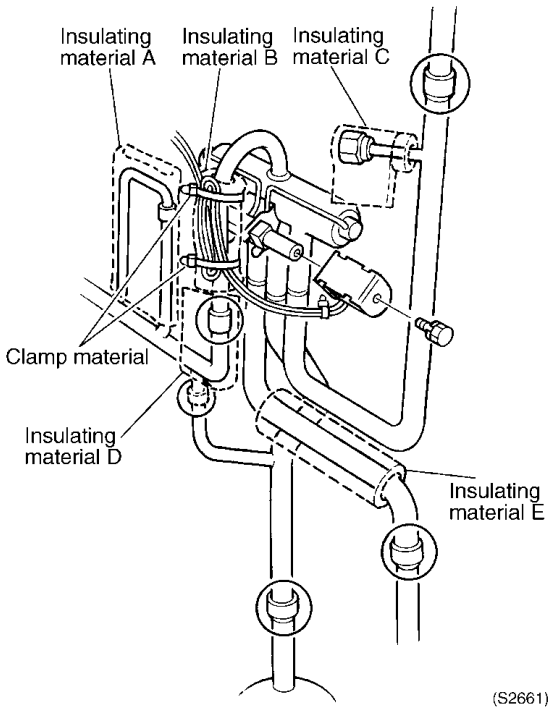
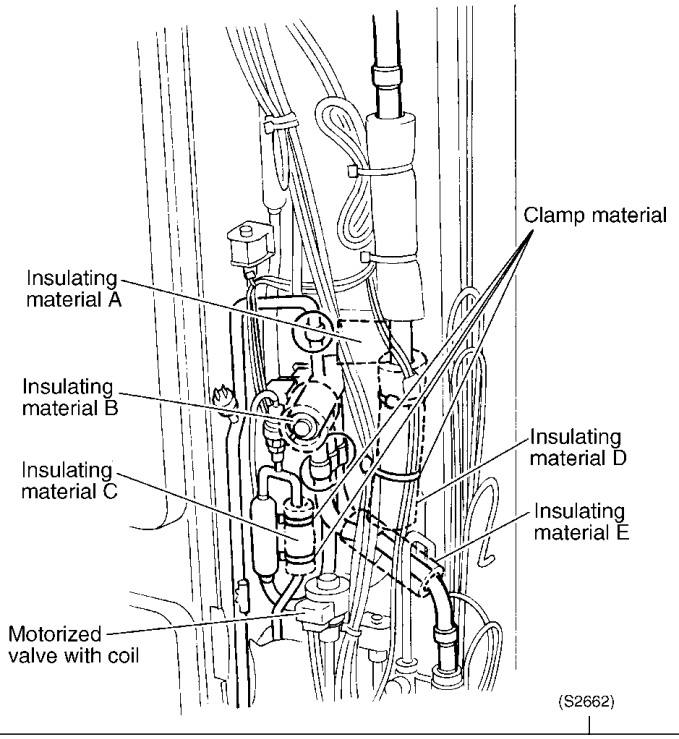
Step	Procedure	Points
■ Remove the outside panels according to the procedure for removing outside panels, etc.	 (S2658)	■ Make sure that there is no refrigerant in the unit before disassembling.
1. Removing the front panel and partition plate		
1 Remove the 8 screws on the front panel (1) to dismount it.		
2 Remove the 6 screws on the stop valve mounting plate to dismount it.		
3 Remove the 8 screws on the partition plate to dismount it.		
2. Removing the sound insulating material	 (S2659)	**Warning** **If the refrigerant gas leaks during the service work, ventilate the area. (When the refrigerant gas contacts flames, toxic gases may be generated.)**
1 Remove the compressor terminal cover and disconnect the lead wire.		
2 Remove the 1 string to dismount the sound insulating materials A and B.		
3 Remove the adhesive tape to draw the insulating material D out.		
4 Remove the 2 strings to draw the insulating material C.		

Step	Procedure		Points
3. Removing the compressor		 (S2660)	■ Be sure to cut the pipes by using a pipe cutter before disconnecting the brazed sections of the pipes. ■ A sudden disconnection of the brazed sections can cause oil to catch fire.
1	Remove the nuts from the compressor mounting bolts (3 locations).		
2	Cut the suction and discharge pipes using a pipe cutter.		
3	Lift up the compressor to clear the mounting bolts to remove the compressor.		
4	Disconnect the brazed section of other pipes.		

2.8 Removal of Four Way Valve

Procedure

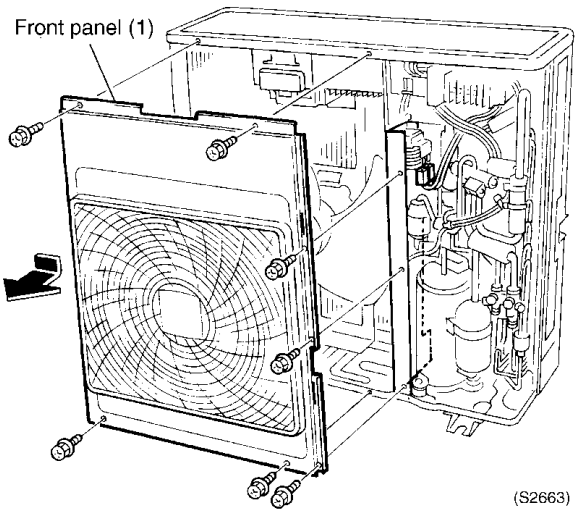
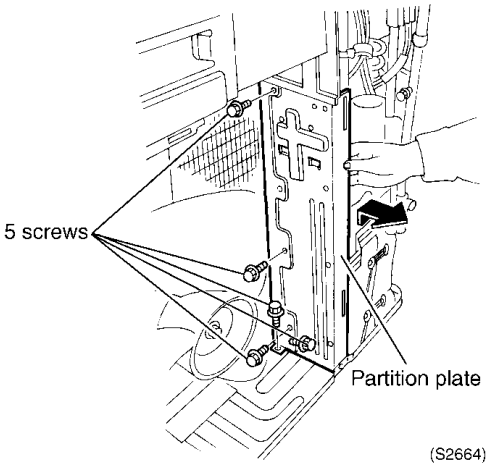
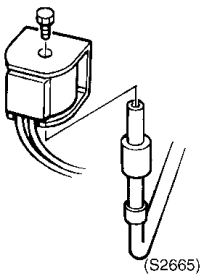
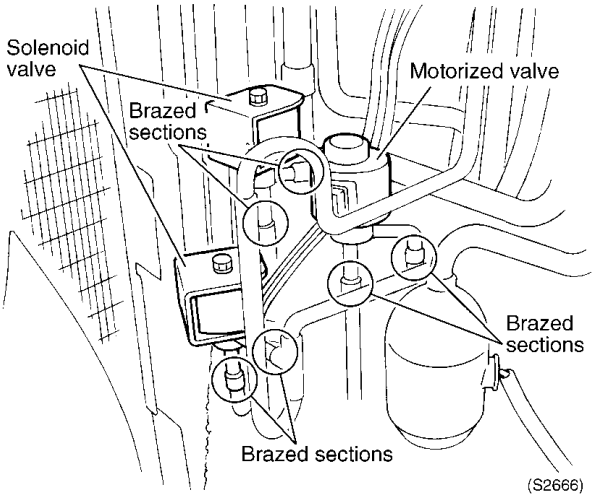
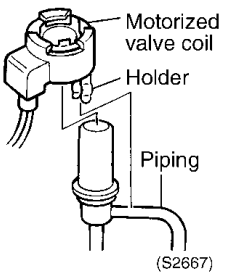
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
■ Remove the outside panels according to the procedure for removing outside panels, etc. Remove the stop valve mounting plate according to the procedure for removing the compressor.	■ For RZP71D	■ Make sure that there is no refrigerant in the unit before disassembling.
1 Remove the clamp material securing the lead wires for four way valve and solenoid valve.		**Warning** **If the refrigerant gas leaks during the service work, ventilate the area. (When the refrigerant gas contacts flames, toxic gases may be generated.)**
2 Remove the 5 insulating materials (A to E).		■ When welding the pipes, provide preparation sheets or iron plates to prevent flames of gas welder from contacting other pipes.
3 Remove the 1 screw to disconnect the four way valve coil.		■ Caution When installing, use wet cloths to cool the valve and piping. Do not allow the temperature of the main unit to exceed 120˚C or more.
4 Disconnect the four way valve main unit at the 5 brazed sections (4 brazed sections for RZP100~140D models).	■ For RZP100~140D 	

2.9 Removal of Solenoid Valve and Motorized Valve (For RZP71D)

Procedure

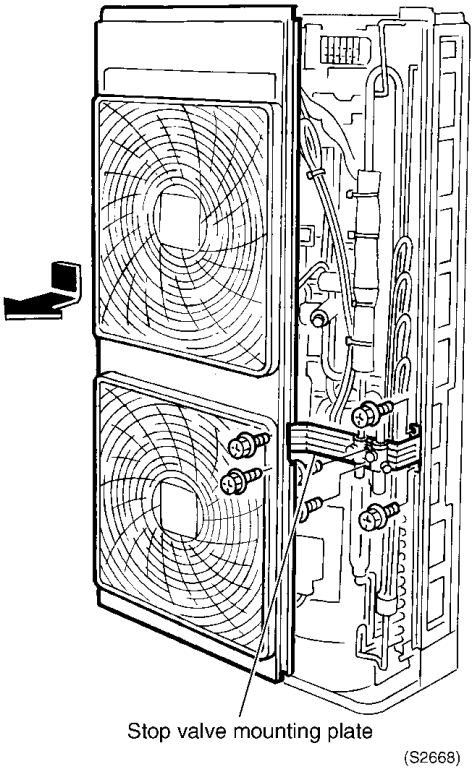
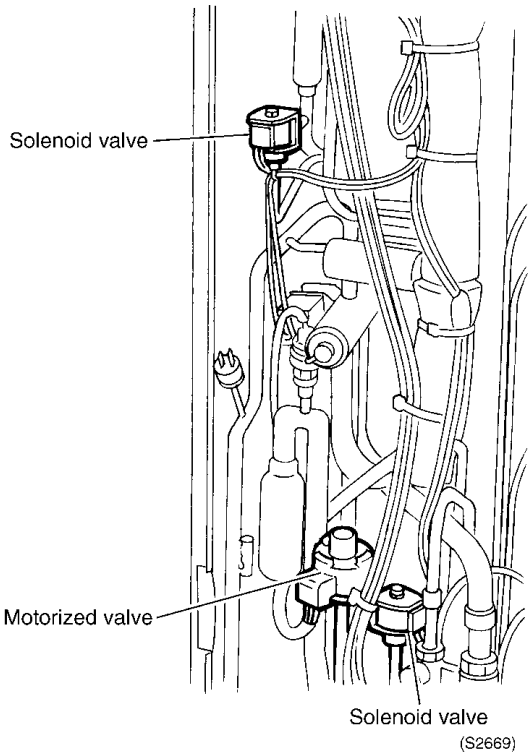
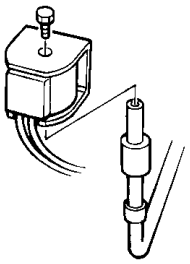
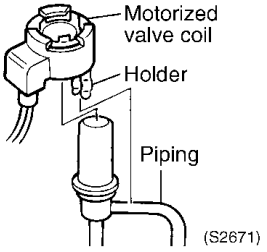
⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
■ Remove the front panel (2) and piping cover front panel according to the procedure for removing outside panels, etc. Remove the stop valve mounting plate according to the procedure for removing the compressor.		■ Make sure that there is no refrigerant in the unit before disassembling. **⚠ Warning** **If the refrigerant gas leaks during the service work, ventilate the area. (When the refrigerant gas contacts flames, toxic gases may be generated.)**
1 Remove the 7 screws on the front panel (1) to dismount it. 2 Disconnect the connector of reactor. 3 Disconnect the internal wiring from the clamp material attached to the partition plate. 4 Remove the 5 screws on the partition plate to dismount it.		■ Installing solenoid valve coil Install the coil by using one screw. 
1. Removing the solenoid valve		■ Installing motorized valve coil Insert the coil so that the holder can fit into the piping. **Check that the coil cannot be removed when lifting it.**
1 Remove the 1 screw to disconnect the solenoid valve coil. 2 Disconnect the solenoid valves at each 2 brazed sections.		
2. Removing the motorized valve		
1 Pull the motorized valve coil out upward. 2 Disconnect the motorized valve at the 2 brazed sections.		

2.10 Removal of Solenoid Valve and Motorized Valve (For RZP100~140D)

Procedure

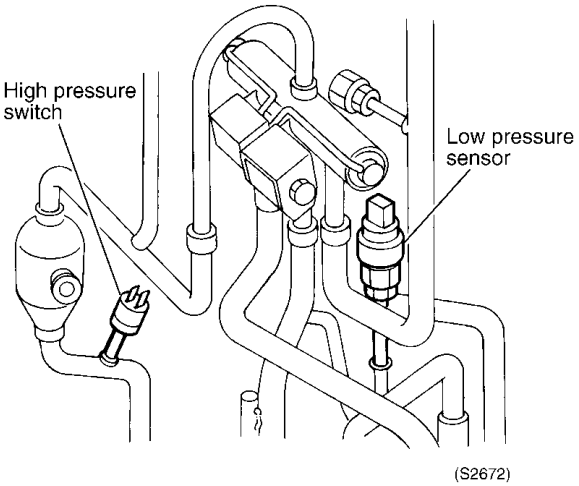
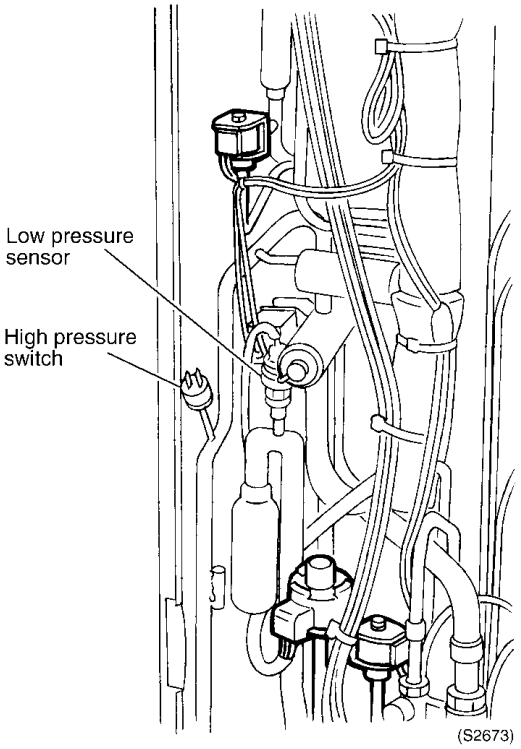
⚠ Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
■ Remove the front panel (2) and piping cover front panel according to the procedure for removing outside panels, etc. Remove the stop valve mounting plate according to the procedure for removing the compressor.	 (S2668)	
1 Remove the 6 screws on the stop valve mounting plate to dismount it.		
1. Removing the solenoid valve	 (S2669)	■ Installing solenoid valve coil Install the coil using one screw.  (S2670)
1 Remove the 1 screw to disconnect the solenoid valve coil. 2 Disconnect the solenoid valves at each 2 brazed sections.		
2. Removing the motorized valve		■ Installing motorized valve coil (For RZP100D model) Insert the coil so that the holder can fit into the piping. **Check that the coil cannot be removed when lifting it.**  (S2671)
1 Pull the motorized valve coil out upward. 2 Disconnect the motorized valve at the 2 brazed sections.		

2.11 Removal of Pressure Switch and Pressure Sensor

Procedure

Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

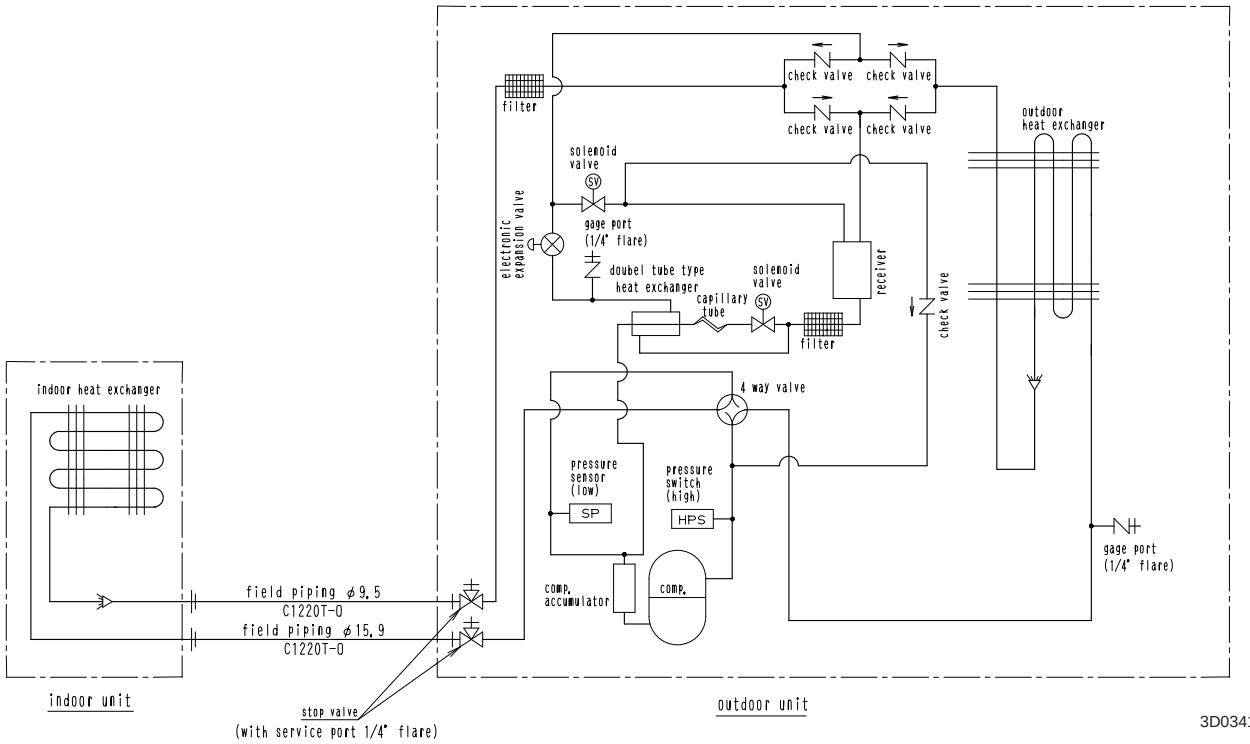
Step	Procedure		Points
■ Remove the front panel (2) according to the procedure for removing outside panels. Remove the stop valve mounting plate according to the procedure for removing the compressor.		■ For RZP71D  (S2672) ■ For RZP100~140D  (S2673)	■ Make sure that there is no refrigerant in the unit before disassembling. **Warning** **If the refrigerant gas leaks during the service work, ventilate the area. (When the refrigerant gas contacts flames, toxic gases may be generated.)**
1	Disconnect the high pressure switch at the 1 brazed section.		
2	Disconnect the low pressure sensor using 2 spanners.		

Part 10
Appendix

1. Piping Diagrams

1.1 Pair system

RZP71D



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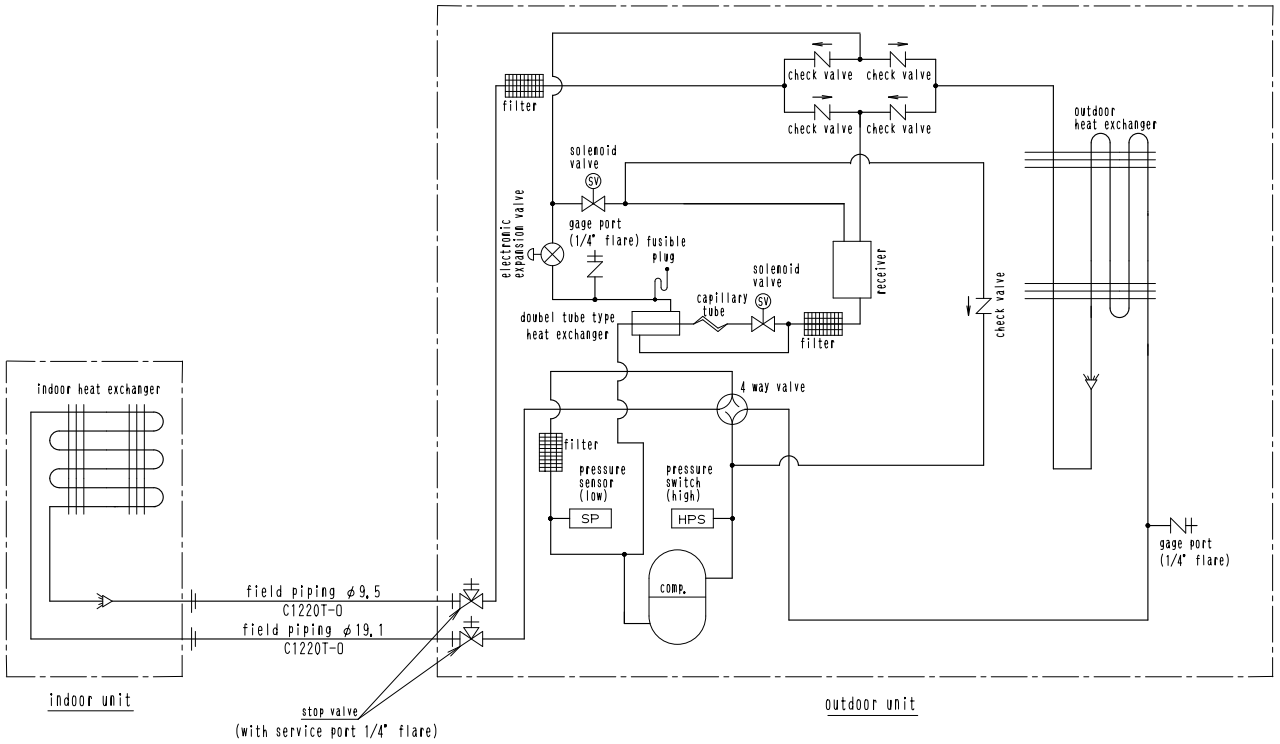
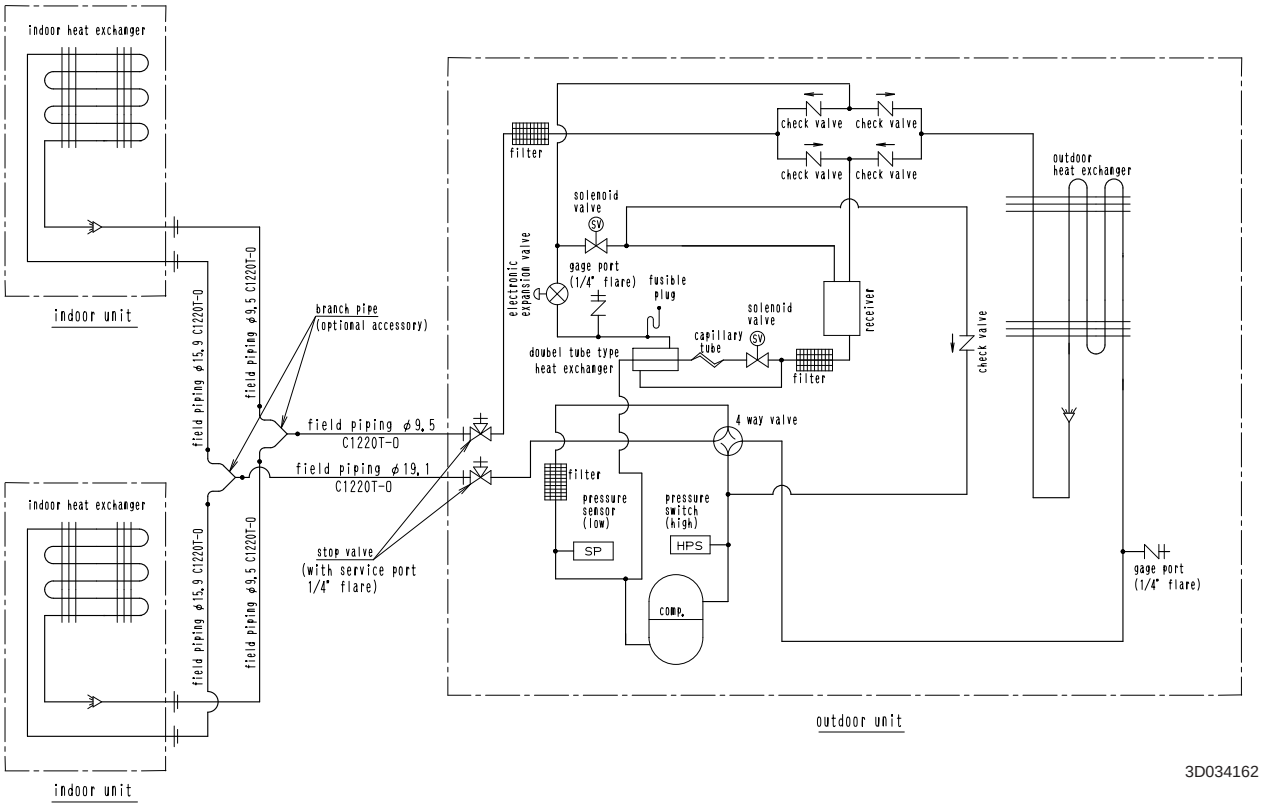
RZP100D
RZP125D
RZP140D



3D034161

1.2 Twin System

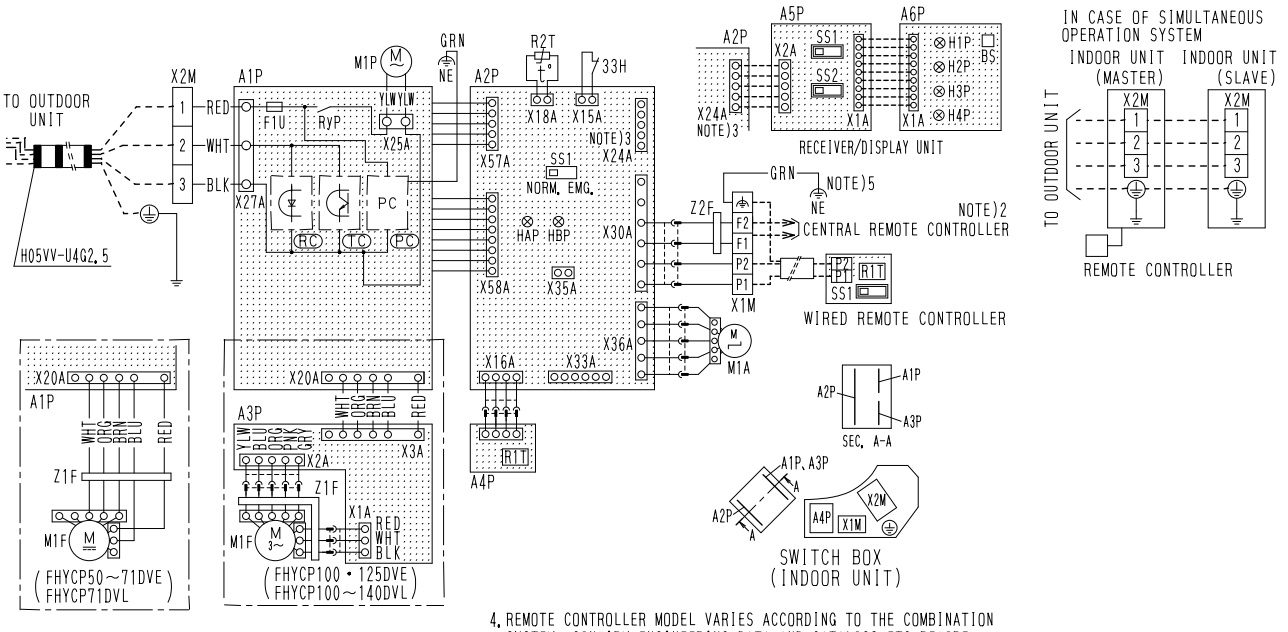
RZP100D
RZP125D



2. Wiring Diagrams

2.1 Indoor Units

FHYCP50DVE / FHYCP60DVE / FHYCP71DVE / FHYCP100DVE / FHYCP125DVE
FHYCP71DVL / FHYCP100DVL / FHYCP125DVL / FHYCP140DVL



NOTES)

1. □□□□ : TERMINAL ⊡, ⊡ : CONNECTOR
   --- : FIELD WIRING
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. X24A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
4. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING DATA AND CATALOGS, ETC. BEFORE CONNECTING.
5. GROUND THE SHIELD OF THE REMOTE CONTROLLER CORD TO THE INDOOR UNIT(IN CASE OF USING SHIELD WIRE).
6. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH(SS1, SS2) 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 GRY:GRAY BLU:BLUE

1—RED	2—WHITE	3—BLACK

INDOOR UNIT	
33H	FLOAT SWITCH
A1P	PRINTED CIRCUIT BOARD (POWER SUPPLY)
A2P	PRINTED CIRCUIT BOARD (CONTROL)
A3P	PRINTED CIRCUIT BOARD (INVERTER)
A4P	PRINTED CIRCUIT BOARD (HUMIDITY SENSOR UNIT)
F1U	FUSE(Ⓑ, 250V, 5A)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)
HBP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)
M1A	MOTOR(SWING FLAP)
M1F	MOTOR(INDOOR FAN)
M1P	MOTOR(DRAIN PUMP)
R1T	THERMISTOR(AIR)
R2T	THERMISTOR(COIL)
RyP	MAGNETIC RELAY(M1P)
SS1	SELECTOR SWITCH (EMERGENCY)
Z1F	NOISE FILTER
Z2F	NOISE FILTER
X1M	TERMINAL STRIP
X2M	TERMINAL STRIP
Ⓟ	POWER CIRCUIT
Ⓡ	SIGNAL RECEIVER CIRCUIT
Ⓣ	SIGNAL TRANSMISSION CIRCUIT
WIRED REMOTE CONTROLLER	
R1T	THERMISTOR(AIR)
SS1	SELECTOR SWITCH(MAIN/SUB)

RECEIVER/DISPLAY UNIT(ATTACHED TO WIRELESS REMOTE CONTROLLER)	
A5P	PRINTED CIRCUIT BOARD
A6P	PRINTED CIRCUIT BOARD
BS	PUSH BUTTON(ON/OFF)
H1P	LIGHT EMITTING DIODE (ON-RED)
H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
SS1	SELECTOR SWITCH (MAIN/SUB)
SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
CONNECTOR FOR OPTIONAL PARTS	
X33A	CONNECTOR (ADAPTOR FOR WIRING)
X35A	CONNECTOR(GROUP CONTROL ADAPTOR)

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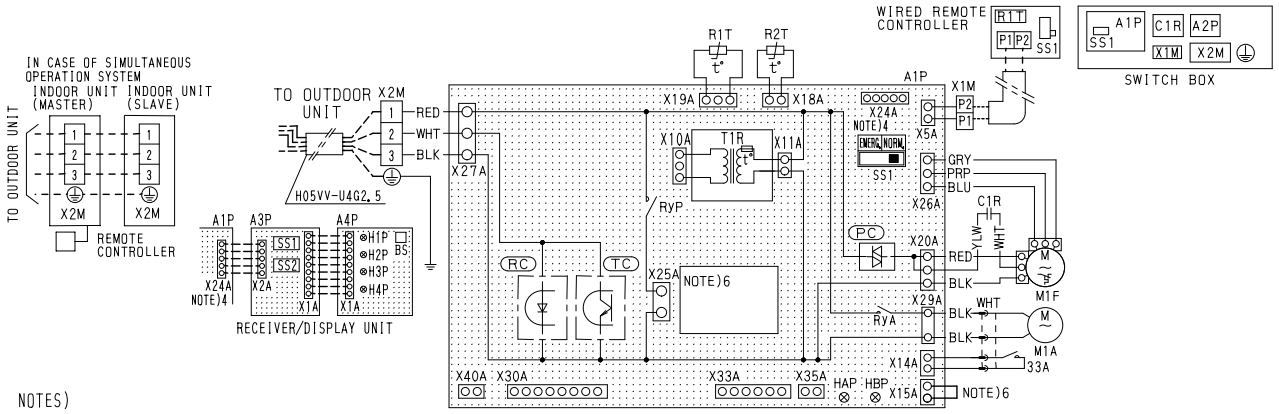
FHYP45BV1 / FHYP60BV1 / FHYP71BV1 / FHYP100BV1 / FHYP125BV1



NOTES)

1. □□□ : TERMINAL
   ⊡⊡ , ⊂⊃ : CONNECTOR
2. ~—~ : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. X24A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
5. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING MATERIALS AND CATALOGS, ETC. BEFORE CONNECTING.
6. IN CASE INSTALLING THE DRAIN PUMP, REMOVE THE JUMPER CONNECTOR OF X15A AND EXECUTE THE ADDITIONAL WIRING FOR FLOAT SWITCH AND DRAIN PUMP.
7. SYMBOLS SHOW AS FOLLOWS: RED:RED BLK:BLACK WHT:WHITE YLW:YELLOW PRP:PURPLE GRY:GRAY BLU:BLUE
8. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH(SS1) BY INSTALLATION MANUAL AND ENGINEERING MATERIALS, ETC.

1-RED	2-WHITE	3-BLACK
33A	LIMIT SWITCH(SWING FLAP)	
A1P	PRINTED CIRCUIT BOARD	
C1R	CAPACITOR(M1F)	
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)	
HBP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)	
M1A	MOTOR(SWING FLAP)	
M1F	MOTOR(INDOOR FAN)	
Q1F	THERMO SWITCH(M1F EMBEDDED)	
R1T	THERMISTOR(AIR)	
R2T	THERMISTOR(COIL)	
RyA	MAGNETIC RELAY(M1A)	
RyP	MAGNETIC RELAY(M1P)	
SS1	SELECTOR SWITCH (EMERGENCY)	
T1R	TRANSFORMER(220-240V/22V)	
X1M	TERMINAL STRIP	
X2M	TERMINAL STRIP	
(PC)	PHASE CONTROL CIRCUIT	
(RC)	SIGNAL RECEIVER CIRCUIT	
(TC)	SIGNAL TRANSMISSION CIRCUIT	
WIRED REMOTE CONTROLLER		
R1T	THERMISTOR(AIR)	
SS1	SELECTOR SWITCH(MAIN/SUB)	
WIRELESS REMOTE CONTROLLER (RECEIVER/DISPLAY UNIT)		
A3P	PRINTED CIRCUIT BOARD	
A4P	PRINTED CIRCUIT BOARD	
BS	PUSH BUTTON(ON/OFF)	

H1P	LIGHT EMITTING DIODE (ON-RED)
H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
SS1	SELECTOR SWITCH (MAIN/SUB)
SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
CONNECTOR FOR OPTIONAL PARTS	
X15A	CONNECTOR(FLOAT SWITCH)
X25A	CONNECTOR(DRAIN PUMP)
X30A	CONNECTOR (INTERFACE ADAPTOR FOR SKY AIR SERIES)
X33A	CONNECTOR (ADAPTOR FOR WIRING)
X35A	CONNECTOR (GROUP CONTROL ADAPTOR)
X40A	CONNECTOR (ON/OFF INPUT FROM OUTSIDE)

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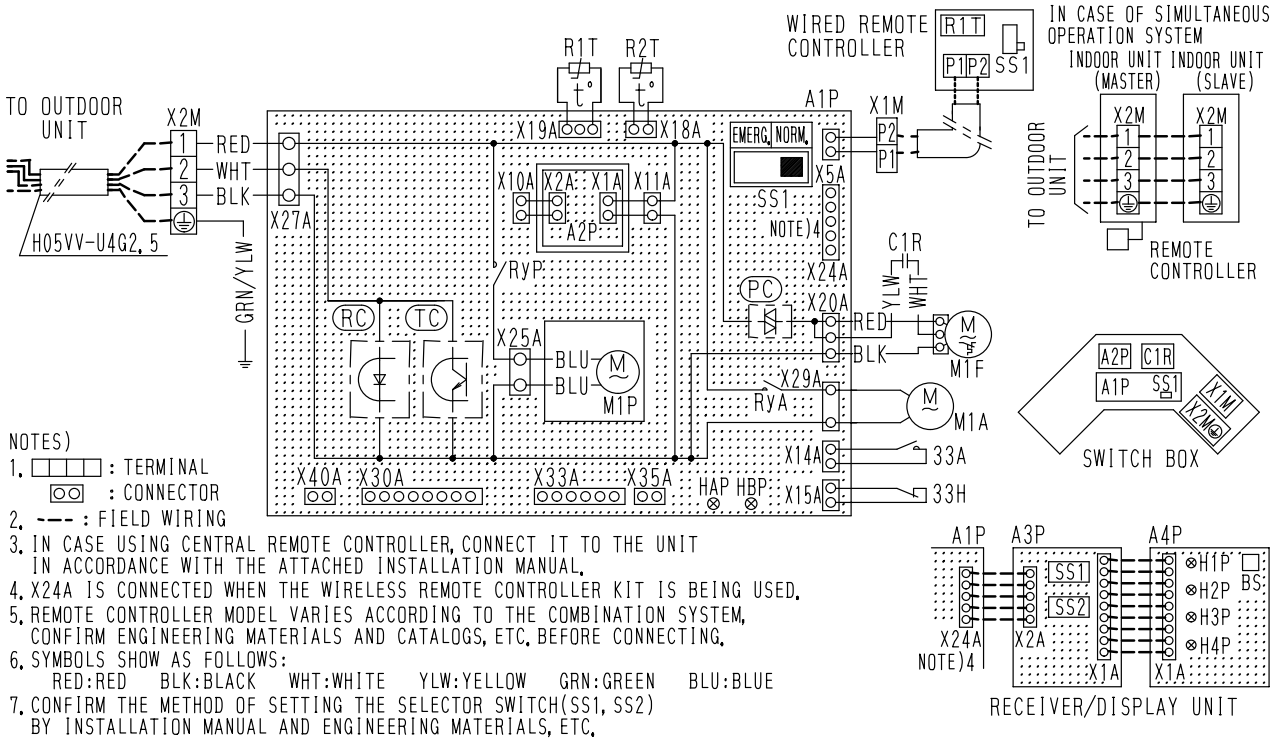
FUYP71BV1 / FUYP100BV1 / FUYP125BV1



NOTES)
1. □□□□ : TERMINAL
   ⊡⊡ : CONNECTOR
2. --- : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. X24A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
5. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING MATERIALS AND CATALOGS, ETC. BEFORE CONNECTING.
6. SYMBOLS SHOW AS FOLLOWS:
   RED:RED BLK:BLACK WHT:WHITE YLW:YELLOW GRN:GREEN BLU:BLUE
7. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH(SS1, SS2) BY INSTALLATION MANUAL AND ENGINEERING MATERIALS, ETC.

1-RED | 2-WHITE | 3-BLACK		WIRED REMOTE CONTROLLER	
33A	LIMIT SWITCH(SWING FLAP)	R1T	THRMISTOR(AIR)
33H	FLOAT SWITCH	SS1	SELECTOR SWITCH(MAIN/SUB)
A1P	PRINTED CIRCUIT BOARD	RECEIVER/DISPLAY UNIT (ATTACHED TO WIRLESS REMOTE CONTROLLER)	
A2P	PRINTED CIRCUIT BOARD (TRANSFORMER 230V/16V)	A3P	PRINTED CIRCUIT BOARD
C1R	CAPACITOR(M1F)	A4P	PRINTED CIRCUIT BOARD
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)	BS	PUSH BUTTON(ON/OFF)
HBP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)	H1P	LIGHT EMITTING DIODE (ON-RED)
M1A	MOTOR(SWING FLAP)	H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
M1F	MOTOR(INDOOR FAN)	H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
M1P	MOTOR(DRAIN PUMP)	H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
Q1F	THERMO SWITCH(M1F EMBEDDED)	SS1	SELECTOR SWITCH(MAIN/SUB)
R1T	THERMISTOR(AIR)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
R2T	THERMISTOR(COIL)	CONNECTOR FOR OPTIONAL PARTS	
RyA	MAGNETIC RELAY(M1A)	X30A	CONNECTOR(INTERFACE ADAPTOR FOR SKY AIR SERIES)
RyP	MAGNETIC RELAY(M1P)	X33A	CONNECTOR(ADAPTOR FOR WIRING)
SS1	SELECTOR SWITCH(EMERGENCY)	X35A	CONNECTOR(GROUP CONTROL ADAPTOR)
X1M	TERMINAL STRIP	X40A	CONNECTOR(ON/OFF INPUT FROM OUTSIDE)
X2M	TERMINAL STRIP		
(PC)	PHASE CONTROL CIRCUIT		
(RC)	SIGNAL RECEIVER		
(TC)	SIGNAL TRANSMISSION CIRCUIT		

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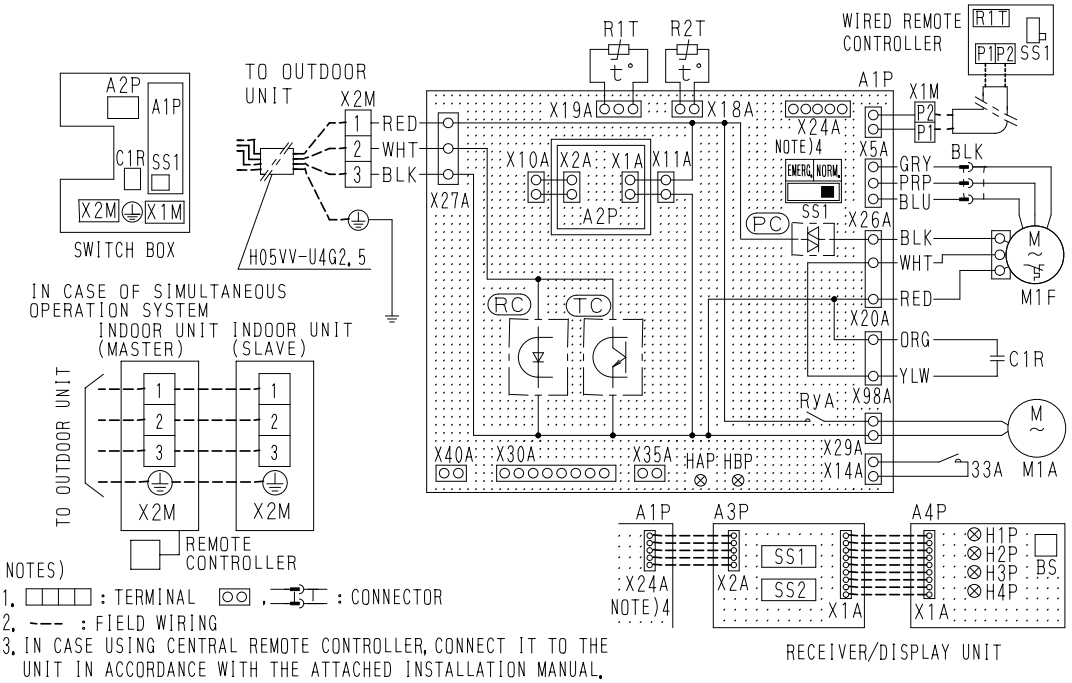
FAYP71BV1 / FAYP100BV1



NOTES)

1. □□□□ : TERMINAL ⊙⊙ , ⊙⊙ : CONNECTOR
2. ---- : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. X24A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
5. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING MATERIALS AND CATALOGS, ETC. BEFORE CONNECTING.
6. SYMBOLS SHOW AS FOLLOWS: RED:RED BLK:BLACK WHT:WHITE YLW:YELLOW ORG:ORANGE GRY:GRAY PRP:PURPLE BLU:BLUE
7. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH(SS1, SS2) BY INSTALLATION MANUAL AND ENGINEERING MATERIALS, ETC.

1-RED	2-WHITE	3-BLACK

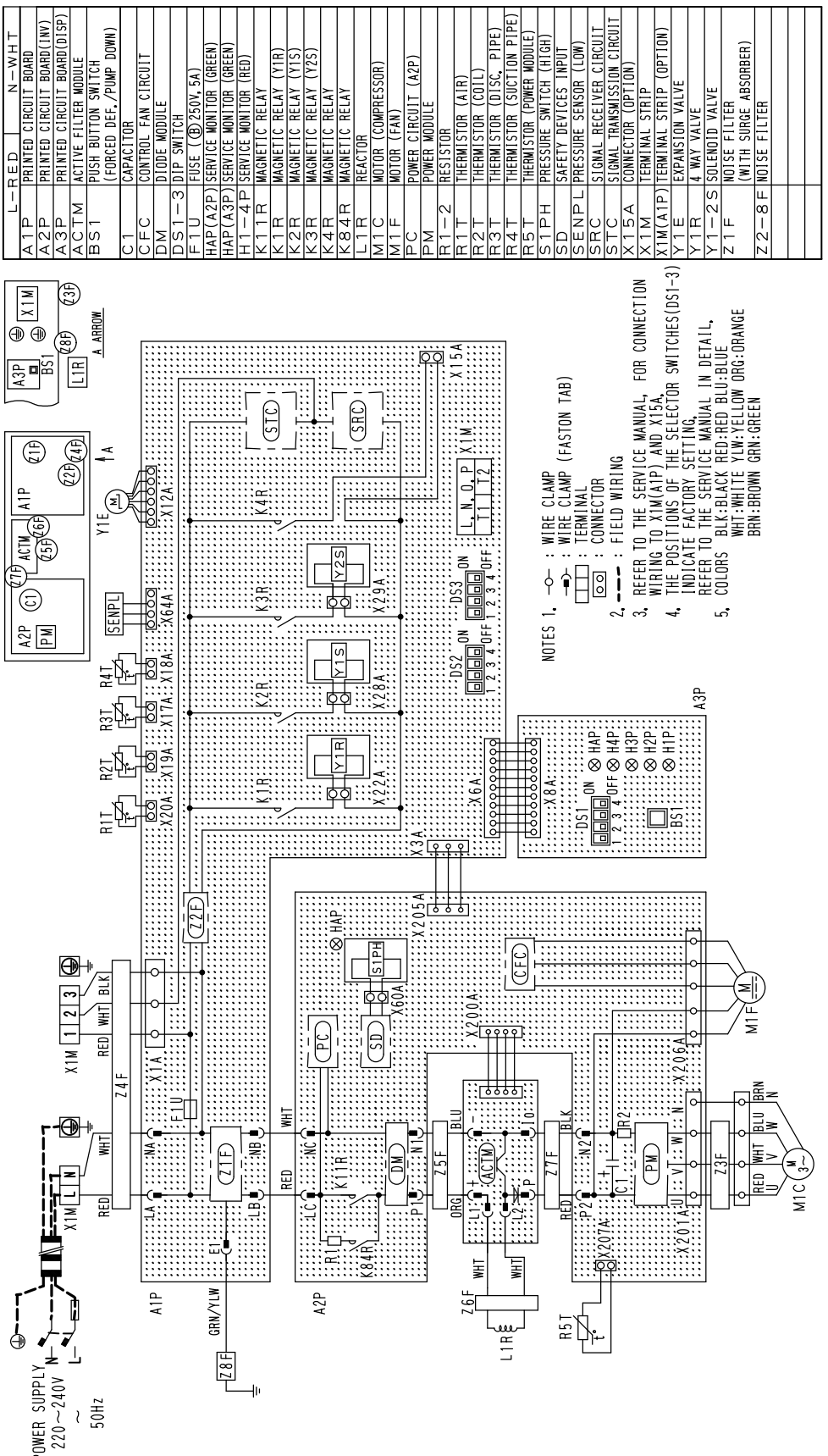
33A	LIMIT SWITCH(SWING FLAP)	WIRELESS REMOTE CONTROLLER (RECEIVER/DISPLAY UNIT)	
A1P	PRINTED CIRCUIT BOARD		
A2P	PRINTED CIRCUIT BOARD (TRANSFORMER 230V/16V)	A3P	PRINTED CIRCUIT BOARD
		A4P	PRINTED CIRCUIT BOARD
C1R	CAPACITOR(M1F)	BS	PUSH BUTTON(ON/OFF)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	H1P	LIGHT EMITTING DIODE (ON-RED)
HBP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
M1A	MOTOR(SWING FLAP)	H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
M1F	MOTOR(INDOOR FAN)		
Q1F	THERMO SWITCH (M1F EMBEDDED)	H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
R1T	THERMISTOR(AIR)	SS1	SELECTOR SWITCH (MAIN/SUB)
R2T	THERMISTOR(COIL)		
RyA	MAGNETIC RELAY(M1A)	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
SS1	SELECTOR SWITCH (EMERGENCY)	CONNECTOR FOR OPTIONAL PARTS	
X1M	TERMINAL STRIP	X30A	CONNECTOR (INTERFACE ADAPTOR FOR SKY AIR SERIES)
X2M	TERMINAL STRIP		
PC	PHASE CONTROL CIRCUIT		
RC	SIGNAL RECEIVER CIRCUIT	X35A	CONNECTOR (GROUP CONTROL ADAPTOR)
TC	SIGNAL TRANSMISSION CIRCUIT		
WIRED REMOTE CONTROLLER		X40A	CONNECTOR (ON/OFF INPUT FROM OUTSIDE)
R1T	THERMISTOR(AIR)		
SS1	SELECTOR SWITCH (MAIN/SUB)		

3D027748

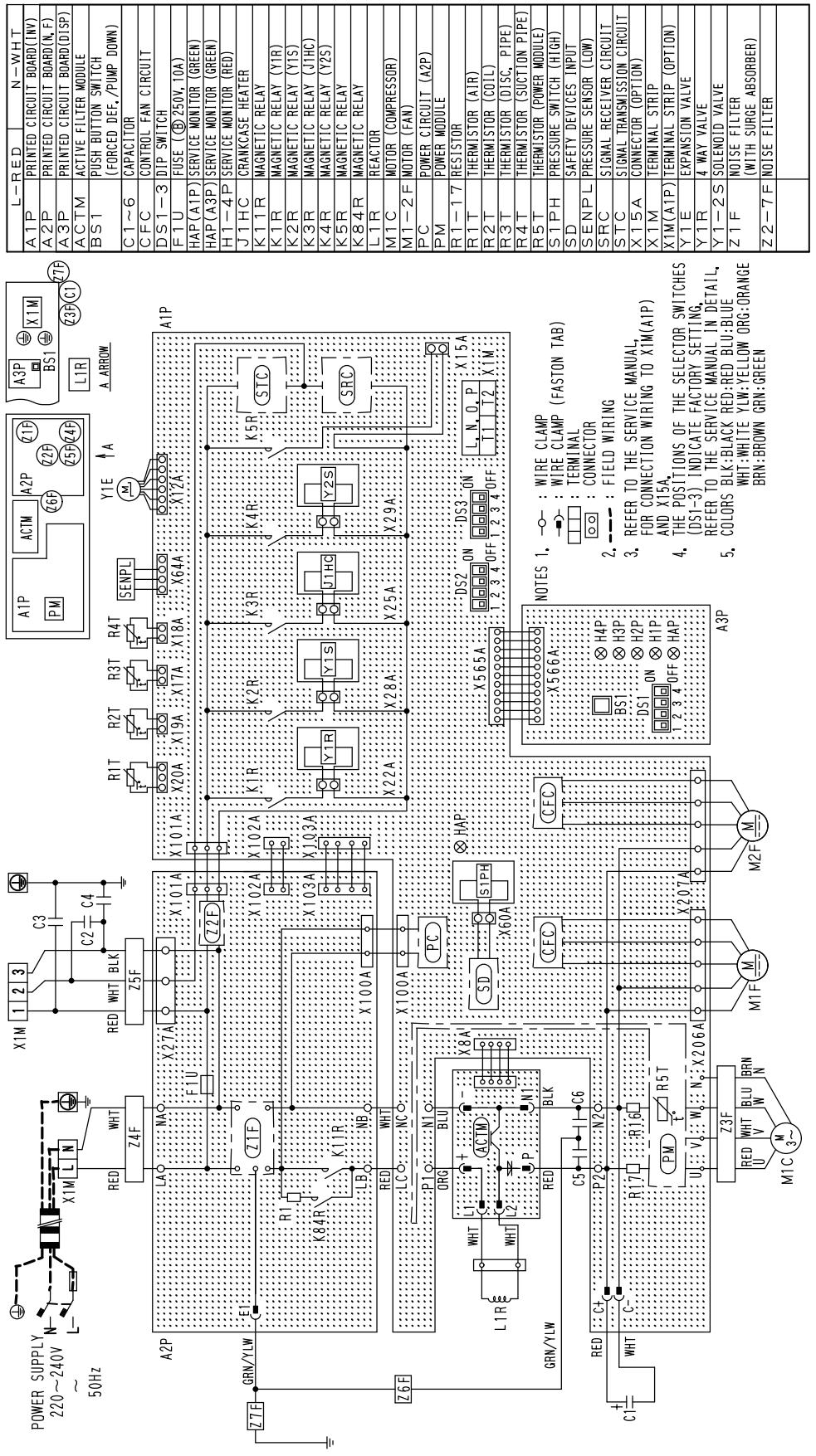
2.2 Outdoor Units

2.2.1 50Hz

RZP71DV1

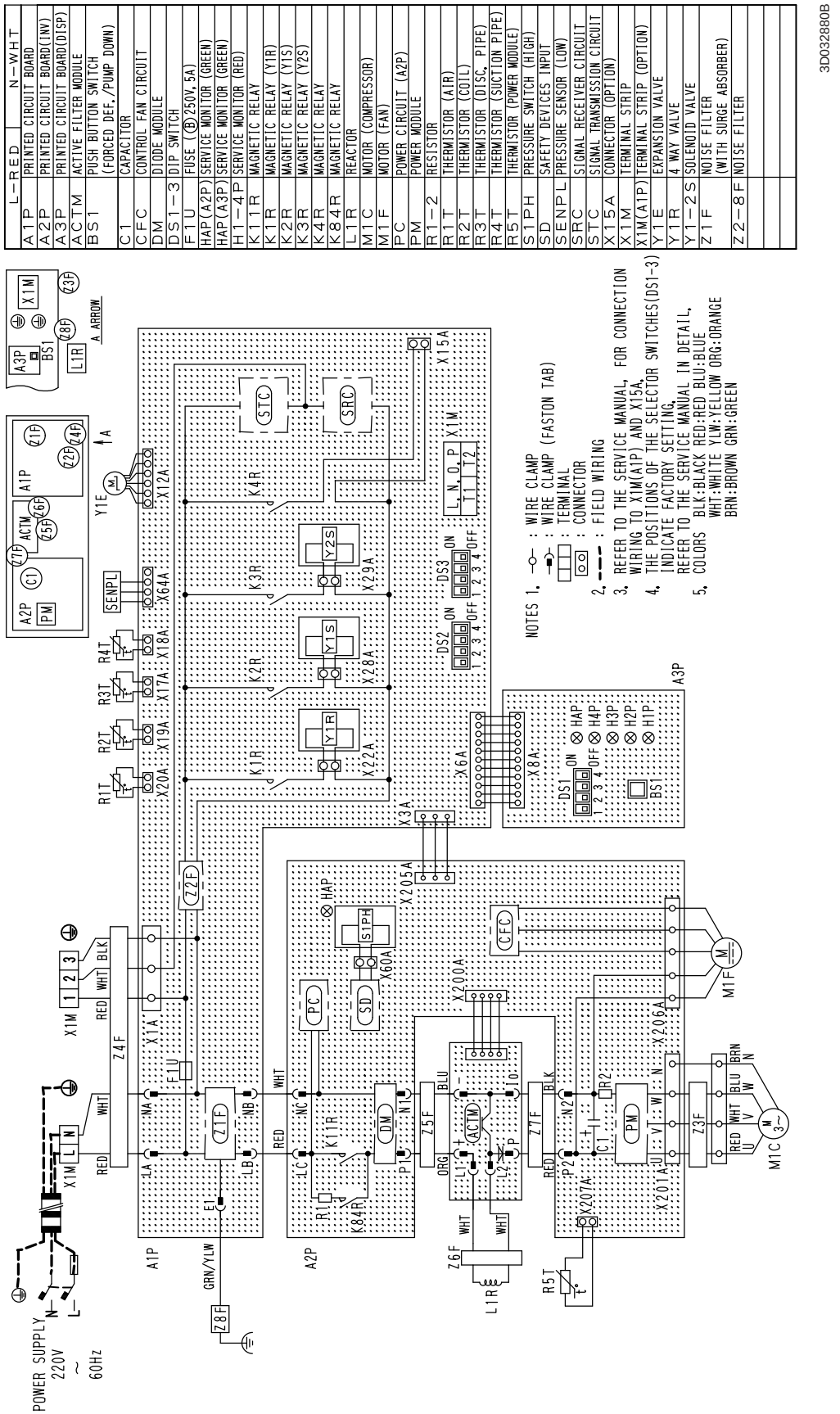


RZP100DV1 / RZP125DV1

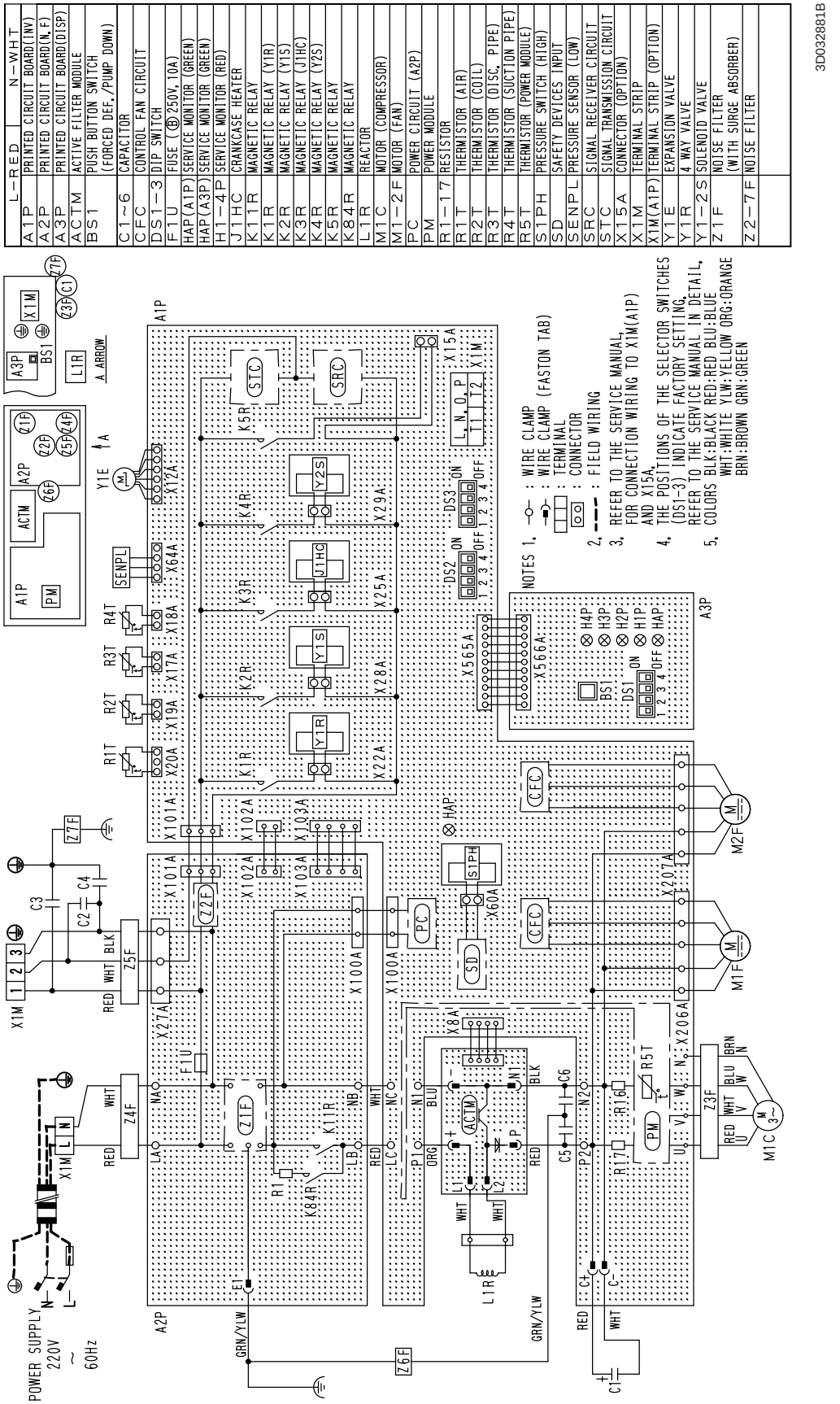


2.2.2 60Hz

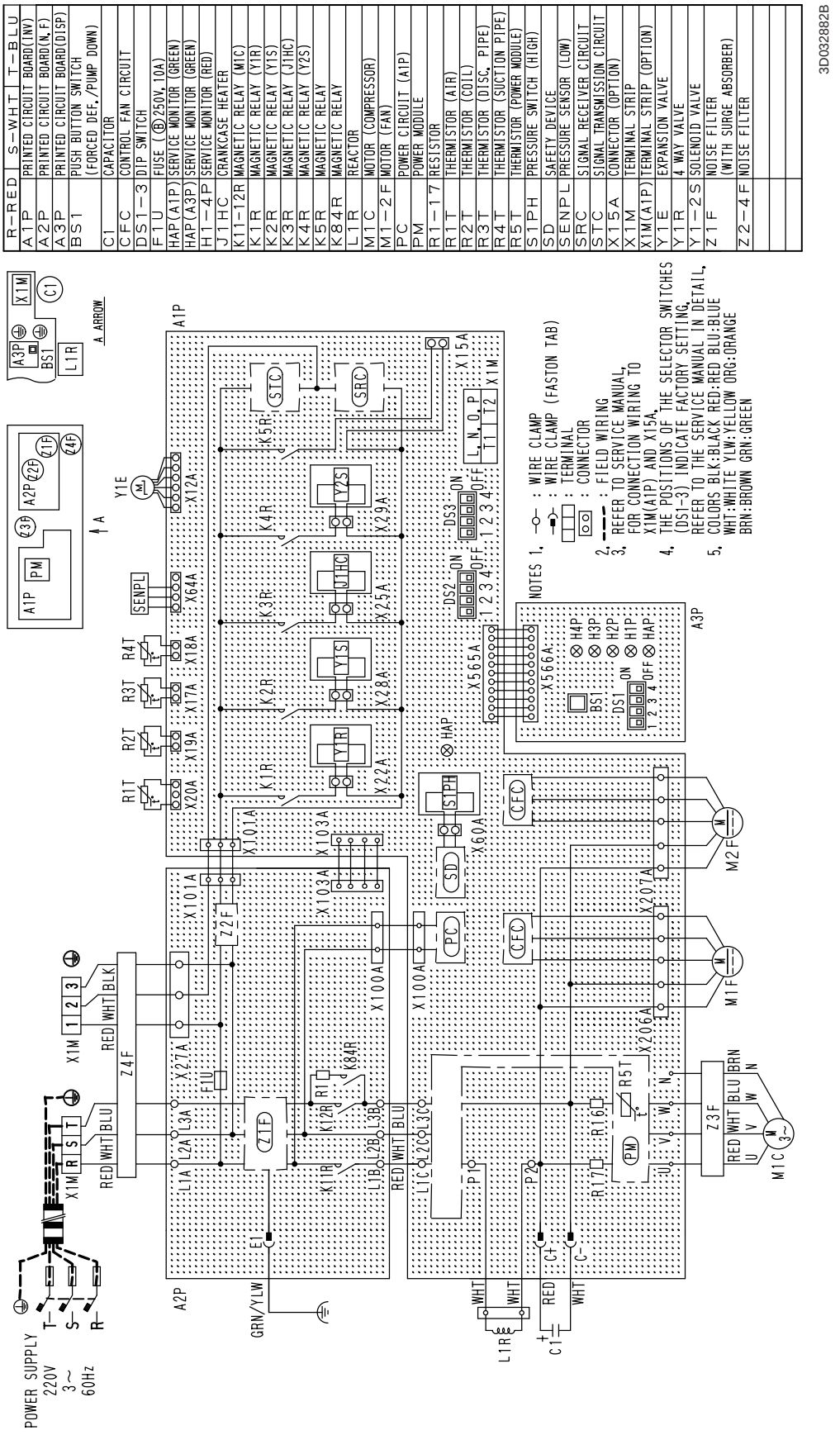
RZP71DVAL



RZP100DVAL


L-RED N-WHT
A1P PRINTED CIRCUIT BOARD(INV)
A2P PRINTED CIRCUIT BOARD(N,F)
A3P PRINTED CIRCUIT BOARD(DISP)
ACTM ACTIVE FILTER MODULE
BS1 PUSH BUTTON SWITCH (FORCED DEF./PUMP DOWN)
C1~6 CAPACITOR
CFC CONTROL FAN CIRCUIT
DS1-3 DIP SWITCH
F1U FUSE (T 250V,10A)
HAP(A1P) SERVICE MONITOR (GREEN)
HAP(A3P) SERVICE MONITOR (GREEN)
HT-4P SERVICE MONITOR (RED)
J1HC CRANKCASE HEATER
K1R MAGNETIC RELAY
K1R MAGNETIC RELAY (Y1R)
K2R MAGNETIC RELAY (Y1S)
K3R MAGNETIC RELAY (J1HC)
K4R MAGNETIC RELAY (Y2S)
K5R MAGNETIC RELAY
K84R MAGNETIC RELAY
L1R REACTOR
M1C MOTOR (COMPRESSOR)
M1-2F MOTOR (FAN)
PC POWER CIRCUIT (A2P)
PM POWER MODULE
R1-17 RESISTOR
R1T THERMISTOR (AIR)
R2T THERMISTOR (COIL)
R3T THERMISTOR (DISC. PIPE)
R4T THERMISTOR (SUCTION PIPE)
R5T THERMISTOR (POWER MODULE)
S1PH PRESSURE SWITCH (HIGH)
SD SAFETY DEVICES INPUT
SENPL PRESSURE SENSOR (LOW)
SRC SIGNAL RECEIVER CIRCUIT
STC SIGNAL TRANSMISSION CIRCUIT
X15A CONNECTOR (OPTION)
X1M TERMINAL STRIP
X1M(A1P) TERMINAL STRIP (OPTION)
Y1E EXPANSION VALVE
Y1R 4 WAY VALVE
Y1~2S SOLENOID VALVE
Z1F NOISE FILTER (WITH SURGE ABSORBER)
Z2~7F NOISE FILTER
3D032881B
NOTES 1. : WIRE CLAMP
: WIRE CLAMP (FASTON TAB)
: TERMINAL
: CONNECTOR
2. : FIELD WIRING
3. REFER TO THE SERVICE MANUAL, FOR CONNECTION WIRING TO X1M(A1P) AND X15A.
4. THE POSITIONS OF THE SELECTOR SWITCHES (DS1-3) INDICATE FACTORY SETTING. REFER TO THE SERVICE MANUAL IN DETAIL.
5. COLORS BLK:BLACK RED:RED BLU:BLUE WHT:WHITE YLW:YELLOW ORG:ORANGE BRN:BROWN GRN:GREEN
POWER SUPPLY 220V ~ 60Hz
A ARROW
A1P
A2P
A3P
ACTM
PM
X1M
BS1
L1R
Y1E
SENPL
R4T
R3T
R2T
R1T
K4R
K3R
K2R
K1R
K5R
STC
SRC
J1HC
Y2S
Y1S
Y1R
DS2
DS3
X565A
X566A
DS1
H4P
H3P
H2P
H1P
HAP
X15A
X1M
X12A
X64A
X18A
X17A
X19A
X20A
X25A
X29A
X28A
X22A
X101A
X102A
X103A
X100A
X27A
X207A
X206A
X8A
X60A
S1PH
PC
SD
CFC
M1F
M2F
M1C
F1U
Z1F
Z2F
Z3F
Z4F
Z5F
Z6F
Z7F
C1
C2
C3
C4
C5
C6
R1
R16
R17
R5T
K84R
K11R
E1
P1
P2
N1
N2
L1
L2
LA
NA
LB
NB
LC
NC
RED
WHT
BLK
BLU
ORG
GRN/YLW
BRN

RZP125DTAL / RZP140DTAL



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Drawings & Flow Charts

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Wiring Diagrams

Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

Daikin units comply with the European regulations that guarantee the safety of the product.

ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.

Daikin Europe N.V. is participating in the EUROVENT Certification Programme. Products are as listed in the EUROVENT Directory of Certified Products.

Specifications are subject to change without prior notice

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