DAIKIN

SiBE04 - 705

Service Manual

Inverter Pair
Wall Mounted Type D-Series F-Series

[Applied Models]
- Inverter Pair : Cooling Only
- Inverter Pair : Heat Pump
- Non-Inverter Pair : Cooling Only
- Non-Inverter Pair : Heat Pump

Inverter Pair
D-Series
F-Series

●Cooling Only

Indoor Units

FTKS50D2V1W(L)
FTKS50FV1B
FTKS60FV1B
FTKS71FV1B
FTN50FV1B
FTN60FV1B

Outdoor Units

RKS50F2V1B
RKS60F2V1B
RKS71FV1B
RN50E3V1B
RN60E3V1B

●Heat Pump

Indoor Units

FTXS50D2V1W(L)
FTXS50FV1B
FTXS60FV1B
FTXS71FV1B
FTYN50FV1B
FTYN60FV1B

Outdoor Units

RXS50F2V1B
RXS60F2V1B
RXS71FV1B
RYN50E3V1B
RYN60E3V1B

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 the item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.

◯ This symbol indicates the prohibited action.
The prohibited item or action is shown in the illustration or near the symbol.

● This symbol indicates the action that must be taken, or the instruction.
The instruction is shown in the illustration 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 Cautions Regarding Safety of Workers

⚠ Warning	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for repair. Working on the equipment that is connected to the power supply may 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 is discharged during the repair work, do not touch the discharged refrigerant gas. The refrigerant gas may cause frostbite.	
When disconnecting the suction or discharge pipe of the compressor at the welded section, evacuate 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 may cause injury.	
If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas may 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 may 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 may cause an electrical shock or fire.	

Warning	
Be sure to wear a safety helmet, gloves, and a safety belt when working at a high place (more than 2m). Insufficient safety measures may cause a fall accident.	
In case of R410A refrigerant models, be sure to use pipes, flare nuts and tools for the exclusive use of the R410A refrigerant. The use of materials for R22 refrigerant models may cause a serious accident such as a damage of refrigerant cycle as well as an equipment failure.	

Caution	
Do not repair the electrical components with wet hands. Working on the equipment with wet hands may cause an electrical shock.	
Do not clean the air conditioner by splashing water. Washing the unit with water may 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.	
Be sure to conduct repair work with appropriate tools. The use of inappropriate tools may cause injury.	
Be sure to check that the refrigerating cycle section has cooled down enough before conducting repair work. Working on the unit when the refrigerating cycle section is hot may cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room may cause oxygen deficiency.	

1.1.2 Cautions Regarding Safety of Users

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 may cause an electrical shock, excessive heat generation or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires may 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 may cause an electrical shock, excessive heat generation or fire.	
Be sure to use an exclusive power circuit for the equipment, and follow the local 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 may cause an electrical shock or fire.	
Be sure to use the specified cable for wiring 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 may cause excessive heat generation or fire.	
When wiring 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 may cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable may cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable may damage the cable.	
Do not mix air or gas other than the specified refrigerant (R410A / R22) 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 leaking point and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leaking point 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 may generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
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 may fall and cause injury.	

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet securely. If the plug has dust or loose connection, it may cause an electrical shock or fire.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation may cause the equipment to fall, resulting in injury.	For unitary type only 
Be sure to install the product securely in the installation frame mounted on the window frame. If the unit is not securely mounted, it may fall and cause injury.	For unitary type only 
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 the combustible gas leaks and remains around the unit, it may cause a fire.	
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 may cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame may cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding may cause an electrical shock.	

Caution	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 MΩ or higher. Faulty insulation may cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage may cause the water to enter the room and wet the furniture and floor.	
Do not tilt the unit when removing it. The water inside the unit may spill and wet the furniture and floor.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water may enter the room and wet the furniture and floor.	For unitary type only 

1.2 Used 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:

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.

Part 1
List of Functions

1. List of Functions

Category	Functions	FTKS50D2V1W(L) RKS50F2V1B	FTXS50D2V1W(L) RXS50F2V1B	Category	Functions	FTKS50D2V1W(L) RKS50F2V1B	FTXS50D2V1W(L) RXS50F2V1B
Basic Function	Inverter (with Inverter Power Control)	○	○	Health & Clean	Air Purifying Filter	—	—
	Operation Limit for Cooling (°CDB) ★	–10 ~46	–10 ~46				
	Operation Limit for Heating (°CWB)	—	–15 ~18		Photocatalytic Deodorizing Filter	—	—
	PAM Control	○	○		Air Purifying Filter with Photocatalytic Deodorizing Function	—	—
Compressor	Oval Scroll Compressor	—	—		Titanium Apatite Photocatalytic Air-Purifying Filter	○	○
	Swing Compressor	○	○		Longlife Filter	—	—
	Rotary Compressor	—	—		Mold Proof Air Filter	○	○
	Reluctance DC Motor	○	○		Wipe-clean Flat Panel	○	○
Comfortable Airflow	Power-Airflow Flap	—	—		Washable Grille	—	—
	Power-Airflow Dual Flaps	○	○		Mold Proof Operation	—	—
	Power-Airflow Diffuser	—	—		Heating Dry Operation	—	—
	Wide-Angle Louvers	○	○		Good-Sleep Cooling Operation	—	—
	Vertical Auto-Swing (Up and Down)	○	○	Timer	24-Hour On/Off Timer	○	○
	Horizontal Auto-Swing (Right and Left)	—	—		Night Set Mode	○	○
	3-D Airflow	—	—	Worry Free “Reliability & Durability”	Auto-Restart (after Power Failure)	○	○
	Comfort Airflow Mode	○	○		Self-Diagnosis (Digital, LED) Display	○	○
	3-Step Airflow (H/P Only)	—	—		Wiring Error Check	—	—
Comfort Control	Auto Fan Speed	○	○		Anticorrosion Treatment of Outdoor Heat Exchanger	○	○
	Indoor Unit Quiet Operation	○	○				
	Night Quiet Mode (Automatic)	—	—	Flexibility	Multi-Split / Split Type Compatible Indoor Unit	○	○
	Outdoor Unit Quiet Operation (Manual)	○	○				
	Intelligent Eye	○	○		Flexible Voltage Correspondence	—	—
	Quick Warming Function	—	○		High Ceiling Application	—	—
	Hot-Start Function	—	○		Chargeless	10m	10m
	Automatic Defrosting	—	○		Either side Drain (Right or Left)	○	○
Operation	Automatic Operation	—	○		Power Selection	—	—
	Programme Dry Function	○	○	Remote Control	5-Rooms Centralized Controller (Option)	○	○
	Fan Only	○	○		Remote Control Adaptor (Normal Open-Pulse Contact) (Option)	○	○
Lifestyle Convenience	New Powerful Operation (Non-Inverter)	—	—				
	Inverter Powerful Operation	○	○		Remote Control Adaptor (Normal Open Contact) (Option)	○	○
	Priority-Room Setting	—	—				
	Cooling / Heating Mode Lock	—	—		DIII-NET Compatible (Adaptor) (Option)	○	○
	Home Leave Operation	—	—	Remote Controller	Wireless	○	○
	ECONO Mode	○	○		Wired	—	—
	Indoor Unit On/Off Switch	○	○				
	Signal Reception Indicator	○	○				
	Temperature Display	—	—				
	Another Room Operation	—	—				

Note: ○ : Holding Functions
— : No Functions

★ : Lower limit can be extended to –15°C by turning switch. (facility use only)

Category	Functions	FTKS50·60FV1B RKS50·60F2V1B	FTXS50·60FV1B RXS50·60F2V1B	Category	Functions	FTKS50·60FV1B RKS50·60F2V1B	FTXS50·60FV1B RXS50·60F2V1B
Basic Function	Inverter (with Inverter Power Control)	○	○	Health & Clean	Air Purifying Filter	—	—
	Operation Limit for Cooling (°CDB) ★	–10 ~46	–10 ~46		Photocatalytic Deodorizing Filter	—	—
	Operation Limit for Heating (°CWB)	—	–15 ~18		Air Purifying Filter with Photocatalytic Deodorizing Function	—	—
	PAM Control	○	○		Titanium Apatite Photocatalytic Air-Purifying Filter	○	○
Compressor	Oval Scroll Compressor	—	—				
	Swing Compressor	○	○		Longlife Filter	—	—
	Rotary Compressor	—	—		Mold Proof Air Filter	○	○
	Reluctance DC Motor	○	○		Wipe-clean Flat Panel	○	○
Comfortable Airflow	Power-Airflow Flap	—	—		Washable Grille	—	—
	Power-Airflow Dual Flaps	○	○		Mold Proof Operation	—	—
	Power-Airflow Diffuser	—	—		Heating Dry Operation	—	—
	Wide-Angle Louvers	○	○		Good-Sleep Cooling Operation	—	—
	Vertical Auto-Swing (Up and Down)	○	○	Timer	24-Hour On/Off Timer	○	○
	Horizontal Auto-Swing (Right and Left)	○	○		Night Set Mode	○	○
	3-D Airflow	○	○	Worry Free “Reliability & Durability”	Auto-Restart (after Power Failure)	○	○
	Comfort Airflow Mode	—	—		Self-Diagnosis (Digital, LED) Display	○	○
	3-Step Airflow (H/P Only)	—	—		Wiring Error Check	—	—
Comfort Control	Auto Fan Speed	○	○		Anticorrosion Treatment of Outdoor Heat Exchanger	○	○
	Indoor Unit Quiet Operation	○	○				
	Night Quiet Mode (Automatic)	—	—	Flexibility	Multi-Split / Split Type Compatible Indoor Unit	○	○
	Outdoor Unit Quiet Operation (Manual)	○	○				
	Intelligent Eye	○	○		Flexible Voltage Correspondence	—	—
	Quick Warming Function	—	○		High Ceiling Application	—	—
	Hot-Start Function	—	○		Chargeless	10m	10m
	Automatic Defrosting	—	○		Either side Drain (Right or Left)	○	○
Operation	Automatic Operation	—	○		Power Selection	—	—
	Programme Dry Function	○	○	Remote Control	5-Rooms Centralized Controller (Option)	○	○
	Fan Only	○	○				
Lifestyle Convenience	New Powerful Operation (Non-Inverter)	—	—		Remote Control Adaptor (Normal Open-Pulse Contact) (Option)	○	○
	Inverter Powerful Operation	○	○		Remote Control Adaptor (Normal Open Contact) (Option)	○	○
	Priority-Room Setting	—	—				
	Cooling / Heating Mode Lock	—	—		DIII-NET Compatible (Adaptor) (Option)	○	○
	Home Leave Operation	○	○				
	ECONO Mode	—	—	Remote Controller	Wireless	○	○
	Indoor Unit On/Off Switch	○	○		Wired	—	—
	Signal Reception Indicator	○	○				
	Temperature Display	—	—				
	Another Room Operation	—	—				

Note: ○ : Holding Functions
— : No Functions

★ : Lower limit can be extended to –15°C by turning switch. (facility use only)

Category	Functions	FTKS71FV1B RKS71FV1B	FTXS71FV1B RXS71FV1B	Category	Functions	FTKS71FV1B RKS71FV1B	FTXS71FV1B RXS71FV1B
Basic Function	Inverter (with Inverter Power Control)	○	○	Health & Clean	Air Purifying Filter	—	—
	Operation Limit for Cooling (°CDB)	–10 ~46	–10 ~46		Photocatalytic Deodorizing Filter	—	—
	Operation Limit for Heating (°CWB)	—	–15 ~18		Air Purifying Filter with Photocatalytic Deodorizing Function	—	—
	PAM Control	○	○		Titanium Apatite Photocatalytic Air-Purifying Filter	○	○
Compressor	Oval Scroll Compressor	—	—				
	Swing Compressor	○	○		Longlife Filter	—	—
	Rotary Compressor	—	—		Mold Proof Air Filter	○	○
	Reluctance DC Motor	○	○		Wipe-clean Flat Panel	○	○
Comfortable Airflow	Power-Airflow Flap	—	—		Washable Grille	—	—
	Power-Airflow Dual Flaps	○	○		Mold Proof Operation	—	—
	Power-Airflow Diffuser	—	—		Heating Dry Operation	—	—
	Wide-Angle Louvers	○	○		Good-Sleep Cooling Operation	—	—
	Vertical Auto-Swing (Up and Down)	○	○	Timer	24-Hour On/Off Timer	○	○
	Horizontal Auto-Swing (Right and Left)	○	○		Night Set Mode	○	○
	3-D Airflow	○	○	Worry Free “Reliability & Durability”	Auto-Restart (after Power Failure)	○	○
	Comfort Airflow Mode	—	—		Self-Diagnosis (Digital, LED) Display	○	○
	3-Step Airflow (H/P Only)	—	—		Wiring Error Check	—	—
Comfort Control	Auto Fan Speed	○	○		Anticorrosion Treatment of Outdoor Heat Exchanger	○	○
	Indoor Unit Quiet Operation	○	○				
	Night Quiet Mode (Automatic)	—	—	Flexibility	Multi-Split / Split Type Compatible Indoor Unit	○	○
	Outdoor Unit Quiet Operation (Manual)	○	○				
	Intelligent Eye	○	○		Flexible Voltage Correspondence	—	—
	Quick Warming Function	—	○		High Ceiling Application	—	—
	Hot-Start Function	—	○		Chargeless	10m	10m
	Automatic Defrosting	—	○		Either side Drain (Right or Left)	○	○
Operation	Automatic Operation	—	○		Power Selection	—	—
	Programme Dry Function	○	○	Remote Control	5-Rooms Centralized Controller (Option)	○	○
	Fan Only	○	○				
Lifestyle Convenience	New Powerful Operation (Non-Inverter)	—	—		Remote Control Adaptor (Normal Open-Pulse Contact) (Option)	○	○
	Inverter Powerful Operation	○	○		Remote Control Adaptor (Normal Open Contact) (Option)	○	○
	Priority-Room Setting	—	—				
	Cooling / Heating Mode Lock	—	—		DIII-NET Compatible (Adaptor) (Option)	○	○
	Home Leave Operation	○	○				
	ECONO Mode	—	—	Remote Controller	Wireless	○	○
	Indoor Unit On/Off Switch	○	○		Wired	—	—
	Signal Reception Indicator	○	○				
	Temperature Display	—	—				
	Another Room Operation	—	—				

Note: ○ : Holding Functions
— : No Functions

Category	Functions	FTN50·60FV1B RN50·60E3V1B	FTYN50·60FV1B RYN50·60E3V1B	Category	Functions	FTN50·60FV1B RN50·60E3V1B	FTYN50·60FV1B RYN50·60E3V1B
Basic Function	Inverter (with Inverter Power Control)	—	—	Health & Clean	Air Purifying Filter	—	—
	Operation Limit for Cooling (°CDB)	–10 ~46	–10 ~46		Photocatalytic Deodorizing Filter	—	—
	Operation Limit for Heating (°CWB)	—	–15 ~18		Air Purifying Filter with Photocatalytic Deodorizing Function	—	—
	PAM Control	—	—		Titanium Apatite Photocatalytic Air-Purifying Filter	○	○
Compressor	Oval Scroll Compressor	—	—		Longlife Filter	—	—
	Swing Compressor	○	○		Mold Proof Air Filter	○	○
	Rotary Compressor	—	—		Wipe-clean Flat Panel	○	○
	Reluctance DC Motor	—	—		Washable Grille	—	—
Comfortable Airflow	Power-Airflow Flap	—	—		Mold Proof Operation	—	—
	Power-Airflow Dual Flaps	○	○		Heating Dry Operation	—	—
	Power-Airflow Diffuser	—	—		Good-Sleep Cooling Operation	—	—
	Wide-Angle Louvers	○	○	Timer	24-Hour On/Off Timer	○	○
	Vertical Auto-Swing (Up and Down)	○	○		Night Set Mode	○	○
	Horizontal Auto-Swing (Right and Left)	—	—	Worry Free “Reliability & Durability”	Auto-Restart (after Power Failure)	○	○
	3-D Airflow	—	—		Self-Diagnosis (Digital, LED) Display	○	○
	Comfort Airflow Mode	—	—		Wiring Error Check	—	—
	3-Step Airflow (H/P Only)	—	—		Anticorrosion Treatment of Outdoor Heat Exchanger	○	○
Comfort Control	Auto Fan Speed	○	○	Flexibility	Multi-Split / Split Type Compatible Indoor Unit	—	—
	Indoor Unit Quiet Operation	—	—		Flexible Voltage Correspondence	—	—
	Night Quiet Mode (Automatic)	—	—		High Ceiling Application	—	—
	Outdoor Unit Quiet Operation (Manual)	—	—		Chargeless	10m	10m
	Intelligent Eye	—	—		Either side Drain (Right or Left)	○	○
	Quick Warming Function	—	○		Power Selection	—	—
	Hot-Start Function	—	○	Remote Control	5-Rooms Centralized Controller (Option)	○	○
	Automatic Defrosting	—	○		Remote Control Adaptor (Normal Open-Pulse Contact) (Option)	○	○
Operation	Automatic Operation	—	○		Remote Control Adaptor (Normal Open Contact) (Option)	○	○
	Programme Dry Function	○	○		DIII-NET Compatible (Adaptor) (Option)	—	—
	Fan Only	○	○	Remote Controller	Wireless	○	○
Lifestyle Convenience	New Powerful Operation (Non-Inverter)	○	○		Wired	—	—
	Inverter Powerful Operation	—	—				
	Priority-Room Setting	—	—				
	Cooling / Heating Mode Lock	—	—				
	Home Leave Operation	—	—				
	ECONO Mode	—	—				
	Indoor Unit On/Off Switch	○	○				
	Signal Reception Indicator	○	○				
	Temperature Display	—	—				
	Another Room Operation	—	—				

Note: ○ : Holding Functions
— : No Functions

Part 2
Specifications

1. Specifications

1.1 Cooling Only

50Hz 220-230-240V

Models	Indoor Units		FTKS50D2V1W	FTKS50D2V1L
	Outdoor Units		RKS50F2V1B	RKS50F2V1B
Capacity Rated (Min.~Max.)		kW	5.0 (1.7~5.2)	5.0 (1.7~5.2)
		Btu/h	17,100 (5,800~17,700)	17,100 (5,800~17,700)
		kcal/h	4,300 (1,460~4,470)	4,300 (1,460~4,470)
Running Current (Rated)		A	7.3	7.3
Power Consumption Rated (Min.~Max.)		W	1,650 (440~1,820)	1,650 (440~1,820)
Power Factor		%	98.3	98.3
COP (Rated)		W/W	3.03 (3.86~2.86)	3.03 (3.86~2.86)
Piping Connections	Liquid	mm	ϕ 6.4	ϕ 6.4
	Gas	mm	ϕ12.7	ϕ12.7
	Drain	mm	ϕ18.0	ϕ18.0
Heat Insulation			Both Liquid and Gas Pipes	Both Liquid and Gas Pipes
Max. Interunit Piping Length		m	30	30
Max. Interunit Height Difference		m	20	20
Chargeless		m	10	10
Amount of Additional Charge of Refrigerant		g/m	20	20
Indoor Units			**FTKS50D2V1W**	**FTKS50D2V1L**
Front Panel Color			White	Silver Line
Air Flow Rate	m^3/min (cfm)	H	11.4 (402)	11.4 (402)
		M	9.3 (328)	9.3 (328)
		L	7.1 (251)	7.1 (251)
		SL	6.2 (219)	6.2 (219)
Fan	Type		Cross Flow Fan	Cross Flow Fan
	Motor Output	W	40	40
	Speed	Steps	5 Steps, Quiet, Auto	5 Steps, Quiet, Auto
Air Direction Control			Right, Left, Horizontal, Downward	Right, Left, Horizontal, Downward
Air Filter			Removable / Washable / Mildew Proof	Removable / Washable / Mildew Proof
Running Current (Rated)		A	0.21	0.21
Power Consumption (Rated)		W	48	48
Power Factor		%	99.4	99.4
Temperature Control			Microcomputer Control	Microcomputer Control
Dimensions (HxWxD)		mm	283x800x195	283x800x195
Packaged Dimensions (HxWxD)		mm	265x855x340	265x855x340
Weight		kg	9	9
Gross Weight		kg	12	12
Operation Sound	H/M/L/SL	dBA	46 / 41 / 35 / 32	46 / 41 / 35 / 32
Sound Power		dBA	62	62
Outdoor Units			**RKS50F2V1B**	**RKS50F2V1B**
Casing Color			Ivory White	Ivory White
Compressor	Type		Hermetically Sealed Swing Type	Hermetically Sealed Swing Type
	Model		2YC36BXD	2YC36BXD
	Motor Output	W	1,100	1,100
Refrigerant Oil	Type		FVC50K	FVC50K
	Charge	L	0.65	0.65
Refrigerant	Type		R-410A	R-410A
	Charge	kg	1.50	1.50
Air Flow Rate	m^3/min (cfm)	HH	50.9 (1,797)	50.9 (1,797)
		H	48.9 (1,727)	48.9 (1,727)
		L	41.7 (1,473)	41.7 (1,473)
Fan	Type		Propeller	Propeller
	Motor Output	W	53	53
Running Current (Rated)		A	7.09	7.09
Power Consumption (Rated)		W	1,602	1,602
Power Factor		%	98.2	98.2
Starting Current		A	7.3	7.3
Dimensions (HxWxD)		mm	735x825x300	735x825x300
Packaged Dimensions (HxWxD)		mm	797x960x390	797x960x390
Weight		kg	47	47
Gross Weight		kg	52	52
Operation Sound	H / L	dBA	47 / 44	47 / 44
Sound Power	H	dBA	61	61
Drawing No.			3D057595	3D057596

Note: ■ The data are based on the conditions shown in the table below.

Cooling	Piping Length
Indoor ; 27°CDB/19°CWB Outdoor ; 35°CDB/24°CWB	7.5m

Conversion Formulae
kcal/h=kWx860 Btu/h=kWx3414 cfm=m^3/minx35.3

50Hz 220-230-240V

Models	Indoor Units		FTKS50FV1B	FTKS60FV1B
	Outdoor Units		RKS50F2V1B	RKS60F2V1B
Capacity Rated (Min.~Max.)		kW	5.0 (1.7~6.0)	6.0 (1.7~6.7)
		Btu/h	17,100 (5,800~20,500)	20,500 (5,800~22,900)
		kcal/h	4,300 (1,460~5,160)	5,160 (1,460~5,760)
Running Current (Rated)		A	7.2-6.9-6.6	9.2-8.8-8.4
Power Consumption Rated (Min.~Max.)		W	1,550 (440~2,080)	1,990 (440~2,400)
Power Factor		%	97.9-97.7-97.9	98.3-98.3-98.7
COP (Rated)		W/W	3.23 (3.86~2.88)	3.02 (3.86~2.79)
Piping Connections	Liquid	mm	ϕ 6.4	ϕ 6.4
	Gas	mm	ϕ12.7	ϕ12.7
	Drain	mm	ϕ18.0	ϕ18.0
Heat Insulation			Both Liquid and Gas Pipes	Both Liquid and Gas Pipes
Max. Interunit Piping Length		m	30	30
Max. Interunit Height Difference		m	20	20
Chargeless		m	10	10
Amount of Additional Charge of Refrigerant		g/m	20	20
Indoor Units			**FTKS50FV1B**	**FTKS60FV1B**
Front Panel Color			White	White
Air Flow Rate	m³/min (cfm)	H	14.7 (519)	16.2 (572)
		M	12.4 (438)	13.6 (480)
		L	10.3 (364)	11.4 (403)
		SL	9.5 (335)	10.2 (360)
Fan	Type		Cross Flow Fan	Cross Flow Fan
	Motor Output	W	43	43
	Speed	Steps	5 Steps, Quiet, Auto	5 Steps, Quiet, Auto
Air Direction Control			Right, Left, Horizontal, Downward	Right, Left, Horizontal, Downward
Air Filter			Removable / Washable / Mildew Proof	Removable / Washable / Mildew Proof
Running Current (Rated)		A	0.16-0.15-0.15	0.19-0.18-0.17
Power Consumption (Rated)		W	34	40
Power Factor		%	96.6-98.6-94.4	95.7-96.6-98.0
Temperature Control			Microcomputer Control	Microcomputer Control
Dimensions (H×W×D)		mm	290×1,050×238	290×1,050×238
Packaged Dimensions (H×W×D)		mm	337×1,147×366	337×1,147×366
Weight		kg	12	12
Gross Weight		kg	17	17
Operation Sound	H/M/L/SL	dBA	43 / 39 / 34 / 31	45 / 41 / 36 / 33
Sound Power		dBA	59	61
Outdoor Units			**RKS50F2V1B**	**RKS60F2V1B**
Casing Color			Ivory White	Ivory White
Compressor	Type		Hermetically Sealed Swing Type	Hermetically Sealed Swing Type
	Model		2YC36BXD	2YC36BXD
	Motor Output	W	1,100	1,100
Refrigerant Oil	Type		FVC50K	FVC50K
	Charge	L	0.65	0.65
Refrigerant	Type		R-410A	R-410A
	Charge	kg	1.50	1.50
Air Flow Rate	m³/min (cfm)	HH	50.9 (1,797)	54.2 (1,914)
		H	48.9 (1,727)	50.9 (1,797)
		L	41.7 (1,472)	45.0 (1,589)
Fan	Type		Propeller	Propeller
	Motor Output	W	53	53
Running Current (Rated)		A	7.04-6.75-6.45	9.01-8.62-8.23
Power Consumption (Rated)		W	1,516	1,950
Power Factor		%	97.9-97.6-97.9	98.4-98.4-98.7
Starting Current		A	7.2	9.2
Dimensions (H×W×D)		mm	735×825×300	735×825×300
Packaged Dimensions (H×W×D)		mm	797×960×390	797×960×390
Weight		kg	47	47
Gross Weight		kg	52	52
Operation Sound	H / L	dBA	47 / 44	49 / 46
Sound Power	H	dBA	61	63
Drawing No.			3D056016	3D056017

Note: ■ The data are based on the conditions shown in the table below.

Cooling	Piping Length
Indoor ; 27°CDB/19°CWB Outdoor ; 35°CDB/24°CWB	7.5m

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

50Hz 220-230-240V

Models	Indoor Units		FTKS71FV1B
	Outdoor Units		RKS71FV1B
Capacity Rated (Min.~Max.)		kW	7.1 (2.3~8.5)
		Btu/h	24,200 (7,800~29,000)
		kcal/h	6,110 (1,980~7,310)
Running Current (Rated)		A	10.8-10.4-9.9
Power Consumption Rated (Min.~Max.)		W	2,350 (570~3,200)
Power Factor		%	98.9-98.2-98.9
COP (Rated)		W/W	3.02 (4.04~2.66)
Piping Connections	Liquid	mm	ϕ 6.4
	Gas	mm	ϕ15.9
	Drain	mm	ϕ18.0
Heat Insulation			Both Liquid and Gas Pipes
Max. Interunit Piping Length		m	30
Max. Interunit Height Difference		m	20
Chargeless		m	10
Amount of Additional Charge of Refrigerant		g/m	20
Indoor Units			**FTKS71FV1B**
Front Panel Color			White
Air Flow Rate	m³/min (cfm)	H	17.4 (614)
		M	14.6 (516)
		L	11.6 (410)
		SL	10.6 (374)
Fan	Type		Cross Flow Fan
	Motor Output	W	43
	Speed	Steps	5 Steps, Quiet, Auto
Air Direction Control			Right, Left, Horizontal, Downward
Air Filter			Removable / Washable / Mildew Proof
Running Current (Rated)		A	0.21-0.20-0.19
Power Consumption (Rated)		W	45
Power Factor		%	97.4-97.8-98.7
Temperature Control			Microcomputer Control
Dimensions (H×W×D)		mm	290×1,050×238
Packaged Dimensions (H×W×D)		mm	337×1,147×366
Weight		kg	12
Gross Weight		kg	17
Operation Sound	H/M/L/SL	dBA	46 / 42 / 37 / 34
Sound Power		dBA	62
Outdoor Units			**RKS71FV1B**
Casing Color			Ivory White
Compressor	Type		Hermetically Sealed Swing Type
	Model		2YC63BXD
	Motor Output	W	1,920
Refrigerant Oil	Type		FVC50K
	Charge	L	0.75
Refrigerant	Type		R-410A
	Charge	kg	2.30
Air Flow Rate	m³/min (cfm)	HH	57.1 (2,016)
		H	54.5 (1,924)
		L	46.0 (1,624)
Fan	Type		Propeller
	Motor Output	W	66
Running Current (Rated)		A	10.59-10.20-9.71
Power Consumption (Rated)		W	2,305
Power Factor		%	98.9-98.3-98.9
Starting Current		A	10.8
Dimensions (H×W×D)		mm	770×900×320
Packaged Dimensions (H×W×D)		mm	900×925×390
Weight		kg	71
Gross Weight		kg	78
Operation Sound	H / L	dBA	52 / 49
Sound Power	H	dBA	66
Drawing No.			3D056018

Note: ■ The data are based on the conditions shown in the table below.

Cooling	Piping Length
Indoor ; 27°CDB/19°CWB Outdoor ; 35°CDB/24°CWB	7.5m

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

50Hz 220-230-240V

Models	Indoor Units		FTN50FV1B	FTN60FV1B
	Outdoor Units		RN50E3V1B	RN60E3V1B
Capacity Rated		kW	5.0	6.0
		Btu/h	17,100	20,500
		kcal/h	4,300	5,160
Running Current (Rated)		A	7.2-6.9-6.6	9.2-8.8-8.4
Power Consumption Rated		W	1,550	1,990
Power Factor		%	97.9-97.7-97.9	98.3-98.3-98.7
COP (Rated)		W/W	3.23	3.02
Piping Connections	Liquid	mm	ϕ 6.4	ϕ 6.4
	Gas	mm	ϕ12.7	ϕ12.7
	Drain	mm	ϕ18.0	ϕ18.0
Heat Insulation			Both Liquid and Gas Pipes	Both Liquid and Gas Pipes
Max. Interunit Piping Length		m	30	30
Max. Interunit Height Difference		m	20	20
Chargeless		m	10	10
Amount of Additional Charge of Refrigerant		g/m	20	20
Indoor Units			**FTN50FV1B**	**FTN60FV1B**
Front Panel Color			White	White
Air Flow Rate	m³/min (cfm)	H	14.7 (519)	16.2 (572)
		M	12.4 (438)	13.6 (480)
		L	10.3 (364)	11.4 (403)
		SL	—	—
Fan	Type		Cross Flow Fan	Cross Flow Fan
	Motor Output	W	43	43
	Speed	Steps	5 Steps, Auto	5 Steps, Auto
Air Direction Control			Right, Left, Horizontal, Downward	Right, Left, Horizontal, Downward
Air Filter			Removable / Washable / Mildew Proof	Removable / Washable / Mildew Proof
Running Current (Rated)		A	0.16-0.15-0.15	0.19-0.18-0.17
Power Consumption (Rated)		W	34	40
Power Factor		%	96.6-98.6-94.4	95.7-96.6-98.0
Temperature Control			Microcomputer Control	Microcomputer Control
Dimensions (H×W×D)		mm	290×1,050×238	290×1,050×238
Packaged Dimensions (H×W×D)		mm	337×1,147×366	337×1,147×366
Weight		kg	12	12
Gross Weight		kg	17	17
Operation Sound	H/L	dBA	43 / 34	45 / 36
Sound Power		dBA	59	61
Outdoor Units			**RN50E3V1B**	**RN60E3V1B**
Casing Color			Ivory White	Ivory White
Compressor	Type		Hermetically Sealed Swing Type	Hermetically Sealed Swing Type
	Model		2YC36BXD	2YC36BXD
	Motor Output	W	1,100	1,100
Refrigerant Oil	Type		FVC50K	FVC50K
	Charge	L	0.65	0.65
Refrigerant	Type		R-410A	R-410A
	Charge	kg	1.50	1.50
Air Flow Rate	m³/min (cfm)	HH	50.9 (1,797)	54.2 (1,914)
		H	48.9 (1,727)	50.9 (1,797)
		L	41.7 (1,472)	45.0 (1,589)
Fan	Type		Propeller	Propeller
	Motor Output	W	53	53
Running Current (Rated)		A	7.04-6.75-6.45	9.01-8.62-8.23
Power Consumption (Rated)		W	1,516	1,950
Power Factor		%	97.9-97.6-97.9	98.4-98.4-98.7
Starting Current		A	7.2	9.2
Dimensions (H×W×D)		mm	735×825×300	735×825×300
Packaged Dimensions (H×W×D)		mm	797×960×390	797×960×390
Weight		kg	47	47
Gross Weight		kg	52	52
Operation Sound	H	dBA	47	49
Sound Power	H	dBA	61	63
Drawing No.			3D056022	3D056023

Note: ■ The data are based on the conditions shown in the table below.

Cooling	Piping Length
Indoor ; 27°CDB/19°CWB Outdoor ; 35°CDB/24°CWB	7.5m

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

1.2 Heat Pump

50Hz 220-230-240V

Model	Indoor Units		FTXS50D2V1W		FTXS50D2V1L	
	Outdoor Units		RXS50F2V1B		RXS50F2V1B	
			Cooling	Heating	Cooling	Heating
Capacity Rated (Min.~Max.)		kW	5.0 (1.7~5.2)	5.8 (1.7~6.0)	5.0 (1.7~5.2)	5.8 (1.7~6.0)
		Btu/h	17,100 (5,800~17,700)	19,800 (5,800~20,500)	17,100 (5,800~17,700)	19,800 (5,800~20,500)
		kcal/h	4,300 (1,460~4,470)	4,990 (1,460~5,160)	4,300 (1,460~4,470)	4,990 (1,460~5,160)
Running Current Rated		A	7.3	9.1	7.3	9.1
Power Consumption Rated (Min.~Max.)		W	1,650 (440~1,820)	2,060 (400~2,190)	1,650 (440~1,820)	2,060 (400~2,190)
Power Factor		%	98.3	98.4	98.3	98.4
COP Rated (Min.~Max.)		W/W	3.03 (3.86~2.86)	2.82 (4.25~2.74)	3.03 (3.86~2.86)	2.82 (4.25~2.74)
Piping Connections	Liquid	mm	ϕ 6.4		ϕ 6.4	
	Gas	mm	ϕ12.7		ϕ12.7	
	Drain	mm	ϕ18.0		ϕ18.0	
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Max. Interunit Piping Length		m	30		30	
Max. Interunit Height Difference		m	20		20	
Chargeless		m	10		10	
Amount of Additional Charge of Refrigerant		g/m	20		20	
Indoor Unit			FTXS50D2V1W		FTXS50D2V1L	
Front Panel Color			White		Silver Line	
Air Flow Rate	m³/min (cfm)	H	11.4 (402)	11.4 (402)	11.4 (402)	11.4 (402)
		M	9.3 (328)	9.4 (332)	9.3 (328)	9.4 (332)
		L	7.1 (251)	7.4 (261)	7.1 (251)	7.4 (261)
		SL	6.2 (219)	6.3 (222)	6.2 (219)	6.3 (222)
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	40		40	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable / Washable / Mildew Proof		Removable / Washable / Mildew Proof	
Running Current (Rated)		A	0.21	0.21	0.21	0.21
Power Consumption (Rated)		W	48	48	48	48
Power Factor		%	99.4	99.4	99.4	99.4
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H×W×D)		mm	283×800×195		283×800×195	
Packaged Dimensions (H×W×D)		mm	265×855×340		265×855×340	
Weight		kg	9		9	
Gross Weight		kg	12		12	
Operation Sound	H/M/L/SL	dBA	46 / 41 / 35 / 32	46 / 40 / 34 / 31	46 / 41 / 35 / 32	46 / 40 / 34 / 31
Sound Power		dBA	62	62	62	62
Outdoor Unit			RXS50F2V1B		RXS50F2V1B	
Casing Color			Ivory White		Ivory White	
Compressor	Type		Hermetically Sealed Swing Type		Hermetically Sealed Swing Type	
	Model		2YC36BXD		2YC36BXD	
	Motor Output	W	1,100		1,100	
Refrigerant Oil	Model		FVC50K		FVC50K	
	Charge	L	0.65		0.65	
Refrigerant	Model		R-410A		R-410A	
	Charge	kg	1.50		1.50	
Air Flow Rate	m³/min (cfm)	HH	50.9 (1,797)	—	50.9 (1,797)	—
		H	48.9 (1,727)	45.0 (1,589)	48.9 (1,727)	45.0 (1,589)
		L	41.7 (1,473)	45.0 (1,589)	41.7 (1,473)	45.0 (1,589)
Fan	Type		Propeller		Propeller	
	Motor Output	W	53		53	
Running Current (Rated)		A	7.09	8.89	7.09	8.89
Power Consumption (Rated)		W	1,602	2,012	1,602	2,012
Power Factor (Rated)		%	98.2	98.4	98.2	98.4
Starting Current		A	9.1		9.1	
Dimensions (H×W×D)		mm	735×825×300		735×825×300	
Packaged Dimensions (H×W×D)		mm	797×960×390		797×960×390	
Weight		kg	48		48	
Gross Weight		kg	53		53	
Operation Sound	H/L	dBA	47 / 44	48 / 45	47 / 44	48 / 45
Sound Power	H	dBA	61	62	61	62
Drawing No.			3D057597		3D057598	

Note: ■ The data are based on the conditions shown in the table below.

Cooling	Heating	Piping Length
Indoor ; 27°CDB/19°CWB Outdoor ; 35°CDB/24°CWB	Indoor ; 20°CDB Outdoor ; 7°CDB/6°CWB	7.5m

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

50Hz 220-230-240V

Model	Indoor Units		FTXS50FV1B		FTXS60FV1B	
	Outdoor Units		RXS50F2V1B		RXS60F2V1B	
			Cooling	Heating	Cooling	Heating
Capacity Rated (Min.~Max.)		kW	5.0 (1.7~6.0)	5.8 (1.7~7.7)	6.0 (1.7~6.7)	7.0 (1.7~8.0)
		Btu/h	17,100 (5,800~20,500)	19,800 (5,800~26,300)	20,500 (5,800~22,900)	23,900 (5,800~27,300)
		kcal/h	4,300 (1,460~5,160)	4,990 (1,460~6,620)	5,160 (1,460~5,760)	6,020 (1,460~6,880)
Running Current Rated		A	7.2-6.9-6.6	7.4-7.1-6.8	9.2-8.8-8.4	9.4-9.0-8.6
Power Consumption Rated (Min.~Max.)		W	1,550 (440~2,080)	1,600 (400~2,530)	1,990 (440~2,400)	2,040 (400~2,810)
Power Factor		%	97.9-97.7-97.9	98.3-98.0-98.0	98.3-98.3-98.7	98.6-98.6-98.8
COP Rated (Min.~Max.)		W/W	3.23 (3.86~2.88)	3.63 (4.25~3.04)	3.02 (3.86~2.79)	3.43 (4.25~2.85)
Piping Connections	Liquid	mm	ϕ 6.4		ϕ 6.4	
	Gas	mm	ϕ12.7		ϕ12.7	
	Drain	mm	ϕ18.0		ϕ18.0	
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Max. Interunit Piping Length		m	30		30	
Max. Interunit Height Difference		m	20		20	
Chargeless		m	10		10	
Amount of Additional Charge of Refrigerant		g/m	20		20	
Indoor Unit			**FTXS50FV1B**		**FTXS60FV1B**	
Front Panel Color			White		White	
Air Flow Rate	m³/min (cfm)	H	14.7 (519)	16.1 (569)	16.2 (572)	17.4 (614)
		M	12.4 (438)	13.9 (491)	13.6 (480)	15.1 (533)
		L	10.3 (364)	11.5 (406)	11.4 (403)	12.7 (448)
		SL	9.5 (335)	10.2 (360)	10.2 (360)	11.4 (403)
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	43		43	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable / Washable / Mildew Proof		Removable / Washable / Mildew Proof	
Running Current (Rated)		A	0.16-0.15-0.15	0.17-0.16-0.16	0.19-0.18-0.17	0.21-0.20-0.19
Power Consumption (Rated)		W	34	36	40	45
Power Factor		%	96.6-98.6-94.4	96.3-97.8-93.8	95.7-96.6-98.0	97.4-97.8-98.7
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H×W×D)		mm	290×1,050×238		290×1,050×238	
Packaged Dimensions (H×W×D)		mm	337×1,147×366		337×1,147×366	
Weight		kg	12		12	
Gross Weight		kg	17		17	
Operation Sound	H/M/L/SL	dBA	43 / 39 / 34 / 31	42 / 38 / 33 / 30	45 / 41 / 36 / 33	44 / 40 / 35 / 32
Sound Power		dBA	59	58	61	60
Outdoor Unit			**RXS50F2V1B**		**RXS60F2V1B**	
Casing Color			Ivory White		Ivory White	
Compressor	Type		Hermetically Sealed Swing Type		Hermetically Sealed Swing Type	
	Model		2YC36BXD		2YC36BXD	
	Motor Output	W	1,100		1,100	
Refrigerant Oil	Model		FVC50K		FVC50K	
	Charge	L	0.65		0.65	
Refrigerant	Model		R-410A		R-410A	
	Charge	kg	1.50		1.50	
Air Flow Rate	m³/min (cfm)	HH	50.9 (1,797)	—	54.2 (1,914)	—
		H	48.9 (1,727)	45.0 (1,589)	50.9 (1,797)	46.3 (1,635)
		L	41.7 (1,472)	45.0 (1,589)	45.0 (1,589)	46.3 (1,635)
Fan	Type		Propeller		Propeller	
	Motor Output	W	53		53	
Running Current (Rated)		A	7.04-6.75-6.45	7.23-6.94-6.64	9.01-8.62-8.23	9.19-8.80-8.41
Power Consumption (Rated)		W	1,516	1,564	1,950	1,995
Power Factor (Rated)		%	97.9-97.6-97.9	98.3-98.0-98.1	98.4-98.4-98.7	98.7-98.6-98.8
Starting Current		A	7.4		9.4	
Dimensions (H×W×D)		mm	735×825×300		735×825×300	
Packaged Dimensions (H×W×D)		mm	797×960×390		797×960×390	
Weight		kg	48		48	
Gross Weight		kg	53		53	
Operation Sound	H/L	dBA	47 / 44	48 / 45	49 / 46	49 / 46
Sound Power	H	dBA	61	62	63	63
Drawing No.			3D056019		3D056020	

Note: ■ The data are based on the conditions shown in the table below.

Cooling	Heating	Piping Length
Indoor ; 27°CDB/19°CWB Outdoor ; 35°CDB/24°CWB	Indoor ; 20°CDB Outdoor ; 7°CDB/6°CWB	7.5m

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

50Hz 220-230-240V

Model	Indoor Units		FTXS71FV1B	
	Outdoor Units		RXS71FV1B	
			Cooling	Heating
Capacity Rated (Min.~Max.)		kW	7.1 (2.3~8.5)	8.2 (2.3~10.2)
		Btu/h	24,200 (7,800~29,000)	28,000 (7,800~34,800)
		kcal/h	6,110 (1,980~7,310)	7,050 (1,980~8,770)
Running Current Rated		A	10.8-10.4-9.9	11.7-11.2-10.7
Power Consumption Rated (Min.~Max.)		W	2,350 (570~3,200)	2,550 (520~3,820)
Power Factor		%	98.9-98.2-98.9	99.1-99.0-99.3
COP Rated (Min.~Max.)		W/W	3.02 (4.04~2.66)	3.22 (4.42~2.67)
Piping Connections	Liquid	mm	ϕ 6.4	
	Gas	mm	ϕ15.9	
	Drain	mm	ϕ18.0	
Heat Insulation			Both Liquid and Gas Pipes	
Max. Interunit Piping Length		m	30	
Max. Interunit Height Difference		m	20	
Chargeless		m	10	
Amount of Additional Charge of Refrigerant		g/m	20	
Indoor Unit			**FTXS71FV1B**	
Front Panel Color			White	
Air Flow Rate	m³/min (cfm)	H	17.4 (614)	19.7 (696)
		M	14.6 (516)	16.9 (597)
		L	11.6 (410)	14.3 (505)
		SL	10.6 (374)	12.7 (448)
Fan	Type		Cross Flow Fan	
	Motor Output	W	43	
	Speed	Steps	5 Steps, Quiet, Auto	
Air Direction Control			Right, Left, Horizontal, Downward	
Air Filter			Removable / Washable / Mildew Proof	
Running Current (Rated)		A	0.21-0.20-0.19	0.28-0.27-0.26
Power Consumption (Rated)		W	45	60
Power Factor		%	97.4-97.8-98.7	97.4-96.6-96.2
Temperature Control			Microcomputer Control	
Dimensions (H×W×D)		mm	290×1,050×238	
Packaged Dimensions (H×W×D)		mm	337×1,147×366	
Weight		kg	12	
Gross Weight		kg	17	
Operation Sound	H/M/L/SL	dBA	46 / 42 / 37 / 34	46 / 42 / 37 / 34
Sound Power		dBA	62	62
Outdoor Unit			**RXS71FV1B**	
Casing Color			Ivory White	
Compressor	Type		Hermetically Sealed Swing Type	
	Model		2YC63BXD	
	Motor Output	W	1,920	
Refrigerant Oil	Model		FVC50K	
	Charge	L	0.75	
Refrigerant	Model		R-410A	
	Charge	kg	2.30	
Air Flow Rate	m³/min (cfm)	HH	57.1 (2,016)	—
		H	54.5 (1,924)	52.5 (1,854)
		L	46.0 (1,624)	46.0 (1,624)
Fan	Type		Propeller	
	Motor Output	W	66	
Running Current (Rated)		A	10.59-10.20-9.71	11.42-10.93-10.44
Power Consumption (Rated)		W	2,305	2,490
Power Factor (Rated)		%	98.9-98.3-98.9	99.1-99.0-99.4
Starting Current		A	11.7	
Dimensions (H×W×D)		mm	770×900×320	
Packaged Dimensions (H×W×D)		mm	900×925×390	
Weight		kg	71	
Gross Weight		kg	78	
Operation Sound	H/L	dBA	52 / 49	52 / 49
Sound Power	H	dBA	66	66
Drawing No.			3D056021	

Note: ■ The data are based on the conditions shown in the table below.

Cooling	Heating	Piping Length
Indoor ; 27°CDB/19°CWB Outdoor ; 35°CDB/24°CWB	Indoor ; 20°CDB Outdoor ; 7°CDB/6°CWB	7.5m

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

50Hz 220-230-240V

Model	Indoor Units		FTYN50FV1B		FTYN60FV1B	
	Outdoor Units		RYN50E3V1B		RYN60E3V1B	
			Cooling	Heating	Cooling	Heating
Capacity Rated		kW	5.0	5.8	6.0	7.0
		Btu/h	17,100	19,800	20,500	23,900
		kcal/h	4,300	4,990	5,160	6,020
Running Current Rated		A	7.2-6.9-6.6	7.4-7.1-6.8	9.2-8.8-8.4	9.4-9.0-8.6
Power Consumption Rated		W	1,550	1,600	1,990	2,040
Power Factor		%	97.9-97.7-97.9	98.3-98.0-98.0	98.3-98.3-98.7	98.6-98.6-98.8
COP Rated		W/W	3.23	3.63	3.02	3.43
Piping Connections	Liquid	mm	ϕ 6.4		ϕ 6.4	
	Gas	mm	ϕ12.7		ϕ12.7	
	Drain	mm	ϕ18.0		ϕ18.0	
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Max. Interunit Piping Length		m	30		30	
Max. Interunit Height Difference		m	20		20	
Chargeless		m	10		10	
Amount of Additional Charge of Refrigerant		g/m	20		20	
Indoor Unit			FTYN50FV1B		FTYN60FV1B	
Front Panel Color			White		White	
Air Flow Rate	m³/min (cfm)	H	14.7 (519)	16.1 (569)	16.2 (572)	17.4 (614)
		M	12.4 (438)	13.9 (491)	13.6 (480)	15.1 (533)
		L	10.3 (364)	11.5 (406)	11.4 (403)	12.7 (448)
		SL	—	—	—	—
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	43		43	
	Speed	Steps	5 Steps, Auto		5 Steps, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable / Washable / Mildew Proof		Removable / Washable / Mildew Proof	
Running Current (Rated)		A	0.16-0.15-0.15	0.17-0.16-0.16	0.19-0.18-0.17	0.21-0.20-0.19
Power Consumption (Rated)		W	34	36	40	45
Power Factor		%	96.6-98.6-94.4	96.3-97.8-93.8	95.7-96.6-98.0	97.4-97.8-98.7
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H×W×D)		mm	290×1,050×238		290×1,050×238	
Packaged Dimensions (H×W×D)		mm	337×1,147×366		337×1,147×366	
Weight		kg	12		12	
Gross Weight		kg	17		17	
Operation Sound	H/L	dBA	43 / 34	42 / 33	45 / 36	44 / 35
Sound Power		dBA	59	58	61	60
Outdoor Unit			RYN50E3V1B		RYN60E3V1B	
Casing Color			Ivory White		Ivory White	
Compressor	Type		Hermetically Sealed Swing Type		Hermetically Sealed Swing Type	
	Model		2YC36BXD		2YC36BXD	
	Motor Output	W	1,100		1,100	
Refrigerant Oil	Model		FVC50K		FVC50K	
	Charge	L	0.65		0.65	
Refrigerant	Model		R-410A		R-410A	
	Charge	kg	1.50		1.50	
Air Flow Rate	m³/min (cfm)	HH	50.9 (1,797)	—	54.2 (1,914)	—
		H	48.9 (1,727)	45.0 (1,589)	50.9 (1,797)	46.3 (1,635)
		L	41.7 (1,472)	45.0 (1,589)	45.0 (1,589)	46.3 (1,635)
Fan	Type		Propeller		Propeller	
	Motor Output	W	53		53	
Running Current (Rated)		A	7.04-6.75-6.45	7.23-6.94-6.64	9.01-8.62-8.23	9.19-8.80-8.41
Power Consumption (Rated)		W	1,516	1,564	1,950	1,995
Power Factor (Rated)		%	97.9-97.6-97.9	98.3-98.0-98.1	98.4-98.4-98.7	98.7-98.6-98.8
Starting Current		A	7.4		9.4	
Dimensions (H×W×D)		mm	735×825×300		735×825×300	
Packaged Dimensions (H×W×D)		mm	797×960×390		797×960×390	
Weight		kg	48		48	
Gross Weight		kg	53		53	
Operation Sound	H	dBA	47	48	49	49
Sound Power	H	dBA	61	62	63	63
Drawing No.			3D056024		3D056025	

Note: ■ The data are based on the conditions shown in the table below.

Cooling	Heating	Piping Length
Indoor ; 27°CDB/19°CWB Outdoor ; 35°CDB/24°CWB	Indoor ; 20°CDB Outdoor ; 7°CDB/6°CWB	7.5m

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

Part 3
Printed Circuit Board Connector Wiring Diagram

1. Printed Circuit Board Connector Wiring Diagram

1.1 Indoor Units

1.1.1 FTK(X)S 50 D

Connectors

PCB(1) (Control PCB)

1)	S1	Connector for DC fan motor
2)	S6	Connector for swing motor (horizontal blades)
3)	S21	Connector for centralized control (HA)
4)	S26	Connector for display PCB
5)	S28	Connector for signal receiver PCB
6)	S32	Connector for heat exchanger thermistor
7)	S35	Connector for INTELLIGENT EYE sensor PCB

PCB(2) (Signal Receiver PCB)

1)	S29	Connector for control PCB

PCB(3) (Display PCB)

1)	S27	Connector for control PCB

PCB(4) (INTELLIGENT EYE sensor PCB)

1)	S36	Connector for control PCB

Note: Other designations

PCB(1) (Control PCB)

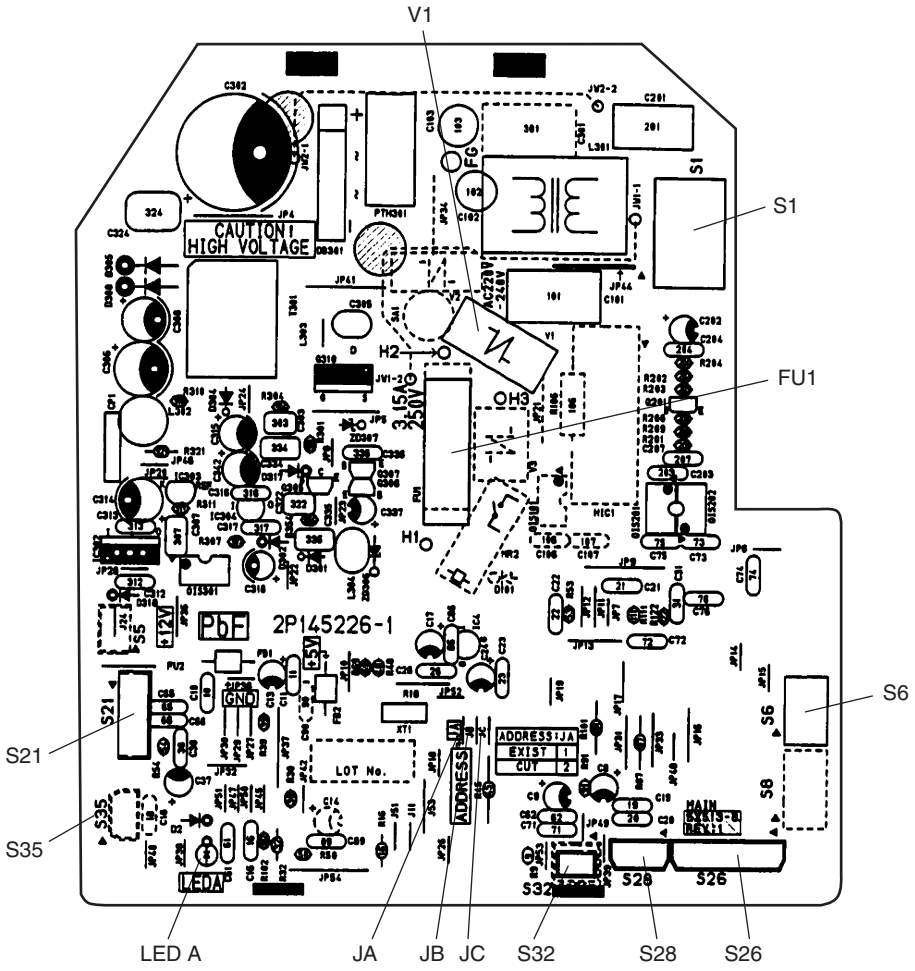
1)	V1	Varistor
2)	JA	Address setting jumper
	JB	Fan speed setting when compressor is OFF on thermostat
	JC	Power failure recovery function (auto-restart)
		∗ Refer to page 269 for detail.
3)	LED A	LED for service monitor (green)
4)	FU1	Fuse (3.15A)

PCB(3) (Display PCB)

1)	SW1 (S1W)	Forced operation ON / OFF switch
2)	LED1	LED for operation (green)
3)	LED2	LED for timer (yellow)
4)	LED3	LED for INTELLIGENT EYE (green)
5)	RTH1 (R1T)	Room temperature thermistor

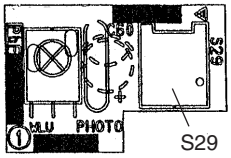
PCB Detail

PCB(1): Control PCB



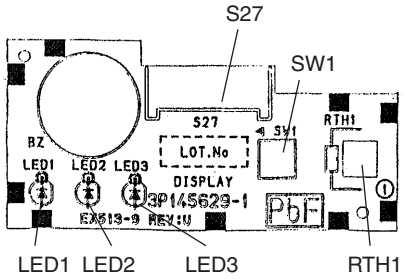
(R4288)

PCB(2): Signal Receiver PCB



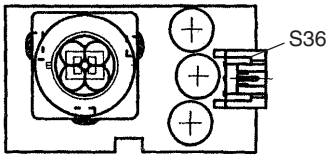
(R5183)

PCB(3): Display PCB



(R4290)

PCB(4): INTELLIGENT EYE sensor PCB



(R4291)

1.1.2 FTK(X)S 50/60/71 F, FT(Y)N 50/60 F

Connectors

PCB(1) (Control PCB)

1)	S1	Connector for DC fan motor
2)	S6	Connector for swing motor (horizontal blades)
3)	S8	Connector for swing motor (vertical blades)
4)	S21	Connector for centralized control (HA)
5)	S26	Connector for buzzer PCB
6)	S28	Connector for signal receiver PCB
7)	S32	Connector for heat exchanger thermistor
8)	S35	Connector for Intelligent Eye sensor PCB

PCB(2) (Signal Receiver PCB)

1)	S29	Connector for control PCB

PCB(3) (Buzzer PCB)

1)	S27	Connector for control PCB
2)	S38	Connector for display PCB

PCB(4) (Display PCB)

1)	S37	Connector for buzzer PCB

PCB(5) (INTELLIGENT EYE sensor PCB)

1)	S36	Connector for control PCB

Note: Other designations

PCB(1) (Control PCB)

1)	V1	Varistor
2)	JA	Address setting jumper
	JB	Fan speed setting when compressor is OFF on thermostat
	JC	Power failure recovery function
		∗ Refer to page 269 for detail.
3)	LED A	LED A for service monitor (green)
4)	FU1	Fuse (3.15A)

PCB(2) (Signal Receiver PCB)

1)	SW1 (S1W)	Forced operation ON/OFF switch

PCB(3) (Buzzer PCB)

1)	RTH1 (R1T)	Room temperature thermistor

PCB(4) (Display PCB)

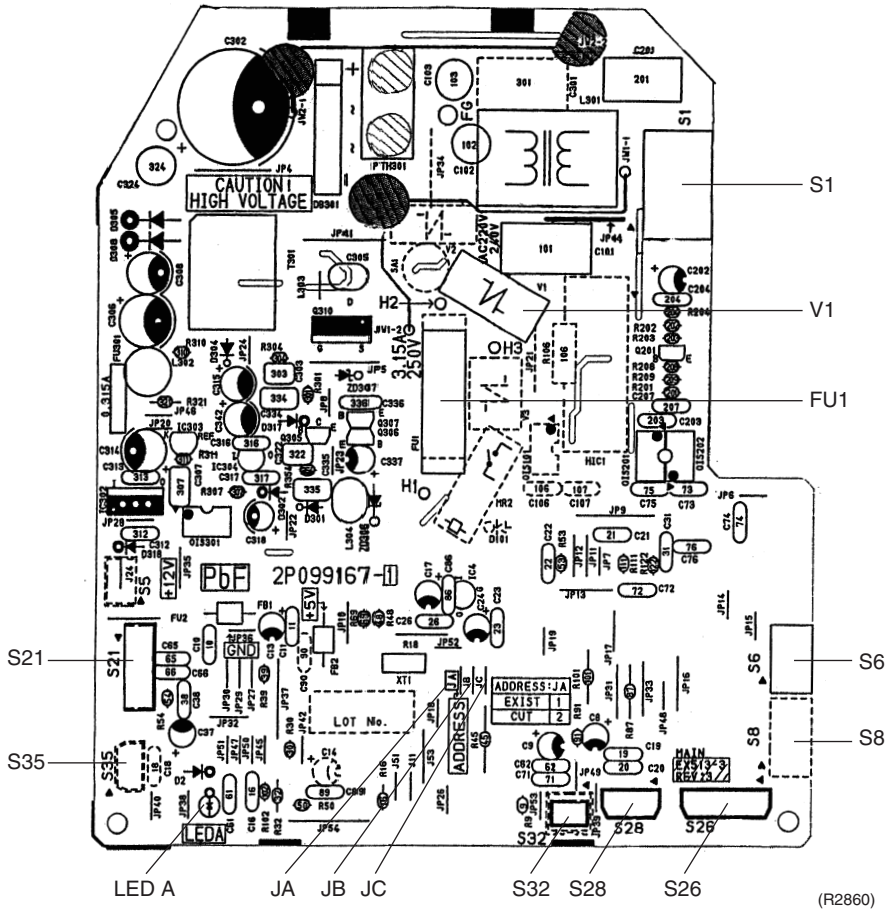
4)	LED1	LED for operation (green)
5)	LED2	LED for timer (yellow)
6)	LED3	LED for HOME LEAVE operation (red)

Note: Following parts are not on FT(Y)N 50/60 F series:

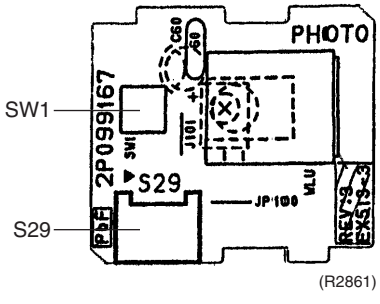
- Intelligent Eye sensor PCB
- S8
- S35
- LED3

PCB Detail

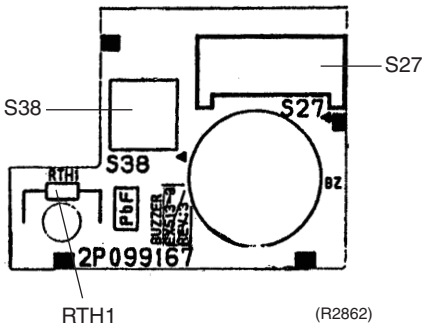
PCB(1): Control PCB (indoor unit)



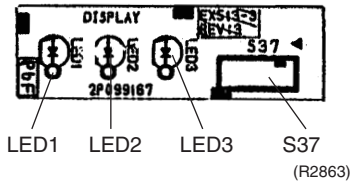
PCB(2): Signal Receiver PCB



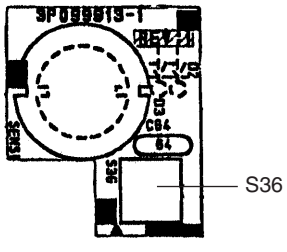
PCB(3): Buzzer PCB



PCB(4): Display PCB



PCB(5): Intelligent Eye sensor PCB



1.2 Outdoor Units

Connectors

PCB(1)(Main PCB)

1)	S10	Connector for terminal strip (indoor-outdoor transmission)
2)	S20	Connector for electronic expansion valve coil
3)	S40	Connector for overload protector
4)	S51, S101	Connector for service monitor PCB
5)	S70	Connector for fan motor
6)	S80	Connector for four way valve coil
7)	S90	Connector for thermistors (outdoor air, heat exchanger, and discharge pipe)
8)	AC1, AC2	Connector for terminal strip (power supply)
9)	HR1, HR2	Connector for reactor

PCB(2)(Service Monitor PCB)

1)	S52, S102	Connector for control PCB

Note: Other Designations

PCB(1)(Main PCB)

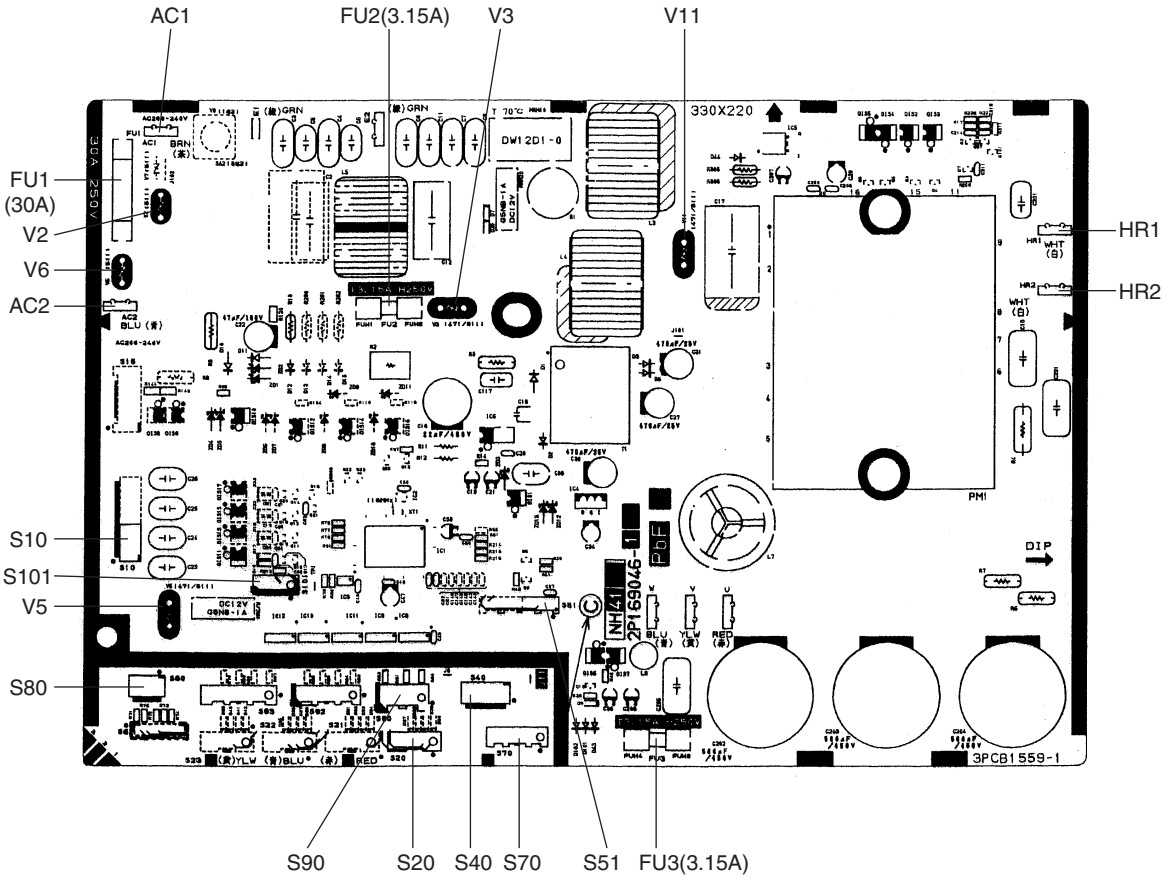
1)	FU1	Fuse (30A)
2)	FU2, FU3	Fuse (3.15A)
3)	V2, V3, V5	Varistor
	V6, V11	(for 50/60 models)
	V9, V100	(for 71 models)

PCB(2)(Service Monitor PCB)

1)	LED A	Service monitor LED (green)
2)	SW1	Forced operation ON/OFF switch
3)	SW4	Field setting switch (for RKS50/60F2V1B) ∗Switch B is for the changeover of the lower limit for cooling. (OFF: –10°C, ON: –15°C) Refer to page 57 for detail.

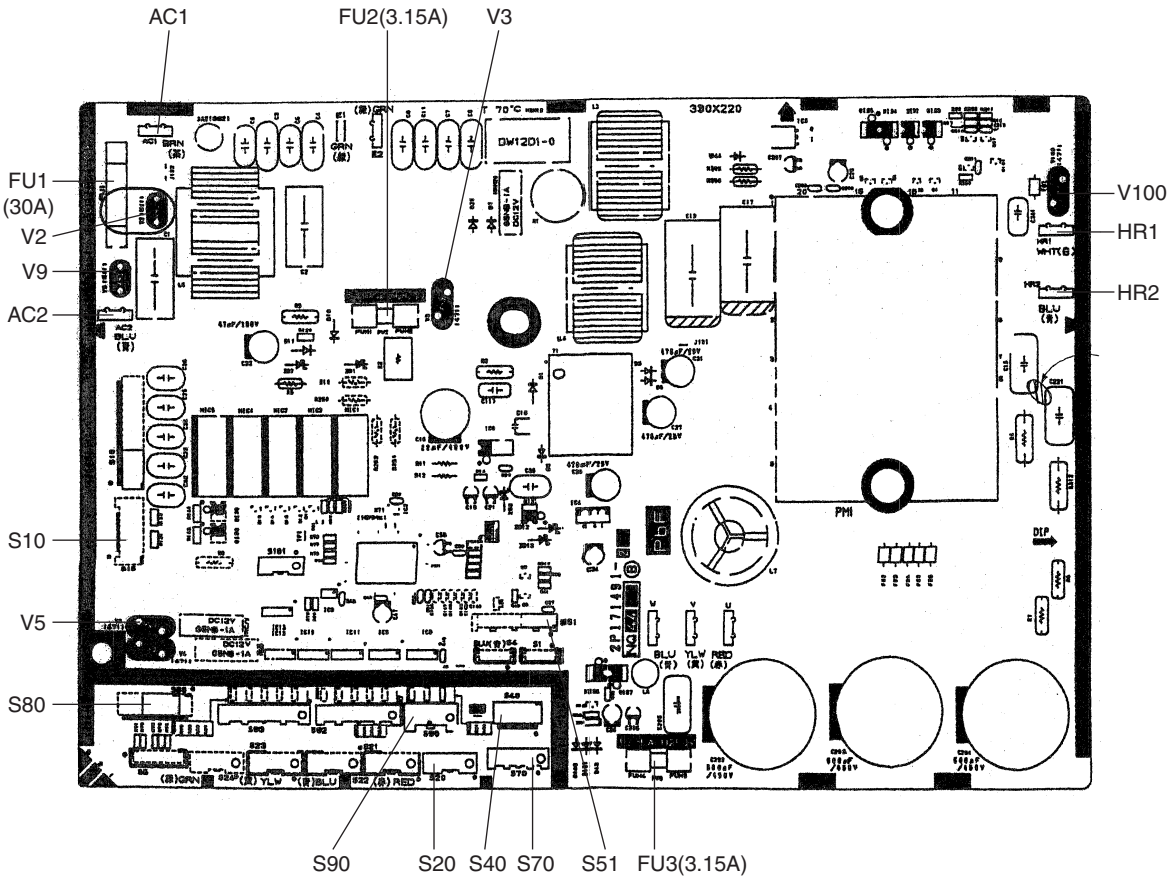
PCB Detail

PCB(1): Main PCB (outdoor unit 50/60 models)



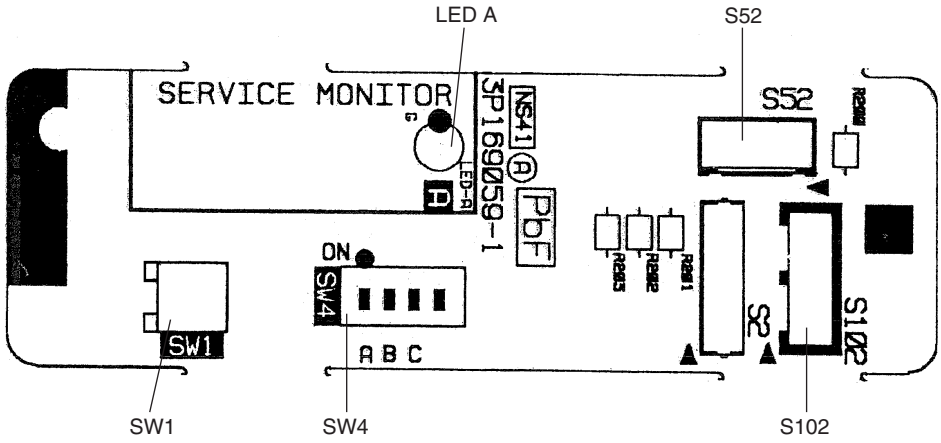
(R5201)

PCB(1): Main PCB (outdoor unit 71 models)



(R5202)

PCB(2): Service Monitor PCB



(R5203)

Part 4
Function and Control

1. Main Functions

Note: See the list of functions for the functions applicable to different models.

1.1 Frequency Principle

Main Control Parameters

The compressor is frequency-controlled during normal operation. The target frequency is set by the following 2 parameters coming from the operating indoor unit:

- The load condition of the operating indoor unit
- The difference between the room temperature and the set temperature

Additional Control Parameters

The target frequency is adapted by additional parameters in the following cases:

- Frequency restrictions
- Initial settings
- Forced cooling operation

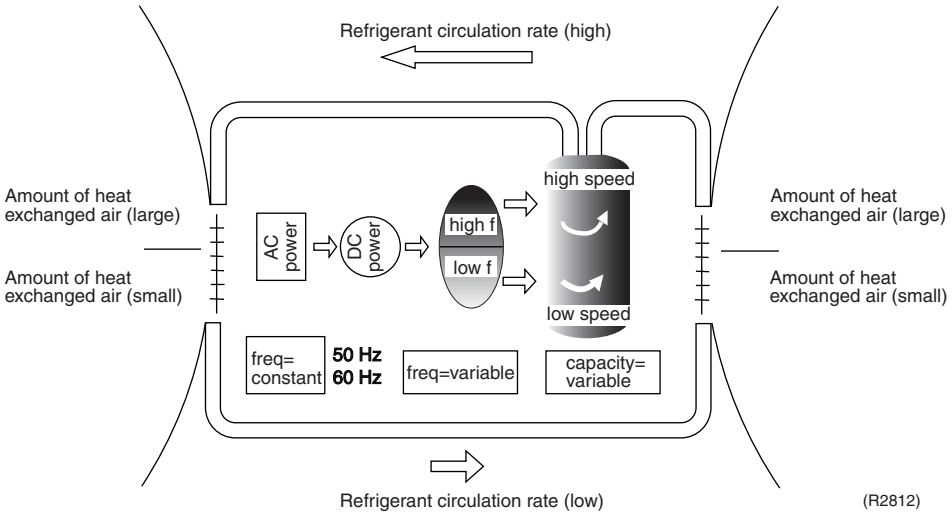
Inverter Principle

To regulate the capacity, a frequency control is needed. The inverter makes it possible to vary the rotation speed of the compressor. The following table explains the conversion principle:

Phase	Description
1	The supplied AC power source is converted into the DC power source for the present.
2	The DC power source is reconverted into the three phase AC power source with variable frequency. ■ When the frequency increases, the rotation speed of the compressor increases resulting in an increased refrigerant circulation. This leads to a higher amount of the heat exchange per unit. ■ When the frequency decreases, the rotation speed of the compressor decreases resulting in a decreased refrigerant circulation. This leads to a lower amount of the heat exchange per unit.

Drawing of Inverter

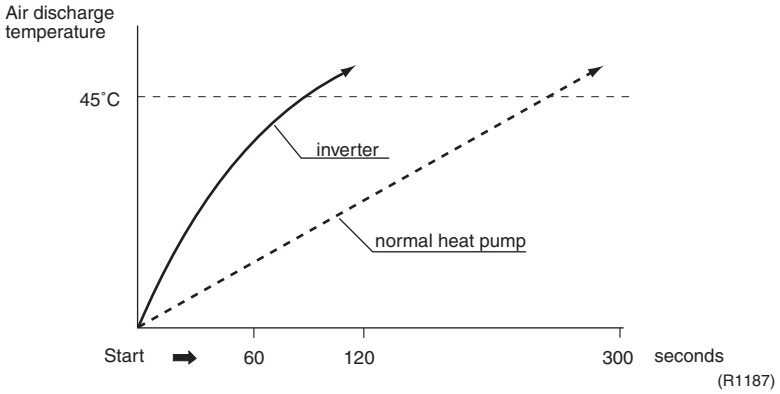
The following drawing shows a schematic view of the inverter principle:



Inverter Features

The inverter provides the following features:

- The regulating capacity can be changed according to the changes in the outside temperature and cooling/heating load.
- Quick heating and quick cooling
  The compressor rotational speed is increased when starting the heating (or cooling). This enables a quick set temperature.



- Even during extreme cold weather, the high capacity is achieved. It is maintained even when the outside temperature is 2°C.
- Comfortable air conditioning
  A detailed adjustment is integrated to ensure a fixed room temperature. It is possible to air condition with a small room temperature variation.
- Energy saving heating and cooling
  Once the set temperature is reached, the energy saving operation enables to maintain the room temperature at low power.

Frequency Limits

The following table shows the functions that define the minimum and maximum frequency:

Frequency limits	Limited during the activation of following functions
Low	■ Four way valve operation compensation. Refer to page 46.
High	■ Input current control. Refer to page 48. ■ Compressor protection function. Refer to page 47. ■ Heating peak-cut control. Refer to page 49. ■ Freeze-up protection control. Refer to page 49. ■ Defrost control. Refer to page 51.

Forced Cooling Operation

For more information, refer to “Forced operation mode” on page 56.

1.2 Power-Airflow Dual Flaps, Wide Angle Louvers and Auto-Swing

Power-airflow Dual Flaps

The large flaps send a large volume of air downwards to the floor. The flap provides an optimum control area in cooling, heating and dry mode.

Heating Mode

During heating mode, the large flap enables direct warm air straight downwards. The flap presses the warm air above the floor to reach the entire room.

Cooling Mode

During cooling mode, the flap retracts into the indoor unit. Then, cool air can be blown far and pervaded all over the room.

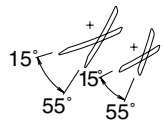
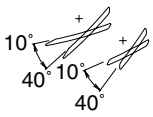
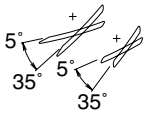
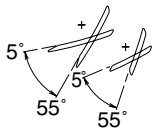
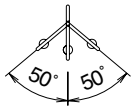
Wide-Angle Louvres

The louvres, made of elastic synthetic resin, provide a wide range of airflow that guarantees a comfortable air distribution.

Auto-Swing

In case of FT(X)S50-71F

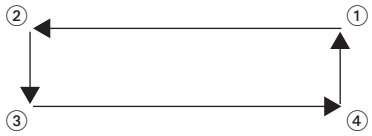
The following table explains the auto-swing process for heating, cooling, dry and fan :

Vertical Swing (up and down)				Horizontal Swing (right and left)
Heating	Cooling	Dry	Fan	Heating, Cooling
 (R2813)	 (R2814)	 (R2815)	 (R2816)	 (R2817)

3-D Airflow

FT(X)S50-71F

- Alternative repetition of vertical and horizontal swing motions enables uniform air-conditioning of the entire room. This function is effective for starting the air conditioner.
- When the horizontal swing and vertical swing are both set to auto mode, the airflow become 3-D airflow and the horizontal swing and vertical swing motions are alternated. The order of swing motion is such that it turns counterclockwise, starting from the right upper point as viewed to the front side of the indoor unit.



(R1024)

1.3 Fan Speed Control for Indoor Units

Control Mode

The airflow rate can be automatically controlled depending on the difference between the set temperature and the room temperature. This is done through rotation speed control and Hall IC control.

For more information about Hall IC, refer to the troubleshooting for fan motor on page 121.

Fan Steps

Fan speed control contains 9 steps: LLL, LL, SL, L, ML, M, MH, H and HH.
In automatic operation, the step “SL” is not available.

Step	Cooling	Heating
LLL	 (R2818)	 (R5225)
LL		
L		
ML		
M		
MH		
H		
HH (Powerful)		

= Within this range the airflow rate is automatically controlled when the FAN setting button is set to automatic.

Note:

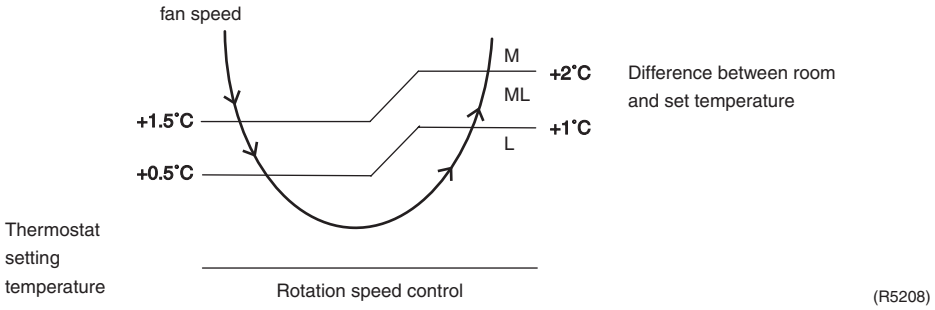
1. During powerful operation, fan operates H tap + 50 - 90 rpm.
2. Fan stops during defrost operation.
3. In time of thermostat OFF, the fan rotates at the following speed,
   Cooling : The fan keeps rotating at the set tap.
   Heating : FTK(X)S50D : The fan rotates at LLL tap.
   FTK(X)S50-71F : The fan stops.

Automatic Air Flow Control for Heating

On heating mode, the indoor fan speed will be regulated according to the indoor heat exchanger temperature and the difference between the room temperature and the required set point.

Automatic Air Flow Control for Cooling

The following drawing explains the principle of fan speed control for cooling:



(R5208)

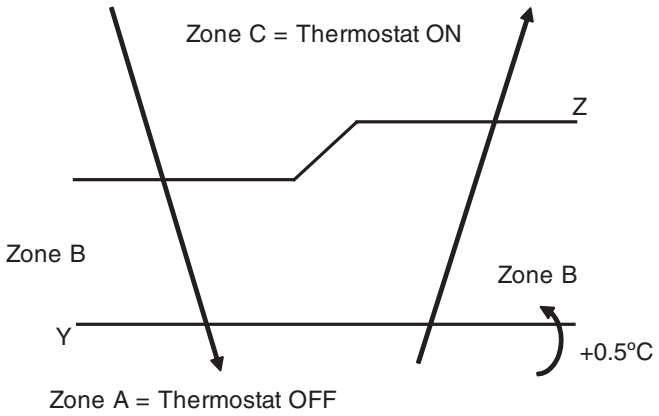
1.4 Programme Dry Function

Programme dry function removes humidity while preventing the room temperature from lowering.
Since the microcomputer controls both the temperature and air flow volume, the temperature adjustment and fan adjustment buttons are inoperable in this mode.

In Case of Inverter Units

The microcomputer automatically sets the temperature and fan settings. The difference between the room temperature at startup and the temperature set by the microcomputer is divided into two zones. Then, the unit operates in the dry mode with an appropriate capacity for each zone to maintain the temperature and humidity at a comfortable level.

Room temperature at startup	Set temperature X	Thermostat OFF point Y	Thermostat ON point Z
24°C or more	Room temperature at startup	X – 2.5°C	X – 0.5°C or Y + 0.5°C (zone B) continues for 10 min.
23.5°C ~ 18°C		X – 2.0°C	X – 0.5°C or Y + 0.5°C (zone B) continues for 10 min.
17.5°C ~	18°C	X – 2.0°C	X – 0.5°C = 17.5°C or Y + 0.5°C (zone B) continues for 10 min.



(R6841)

1.5 Automatic Operation

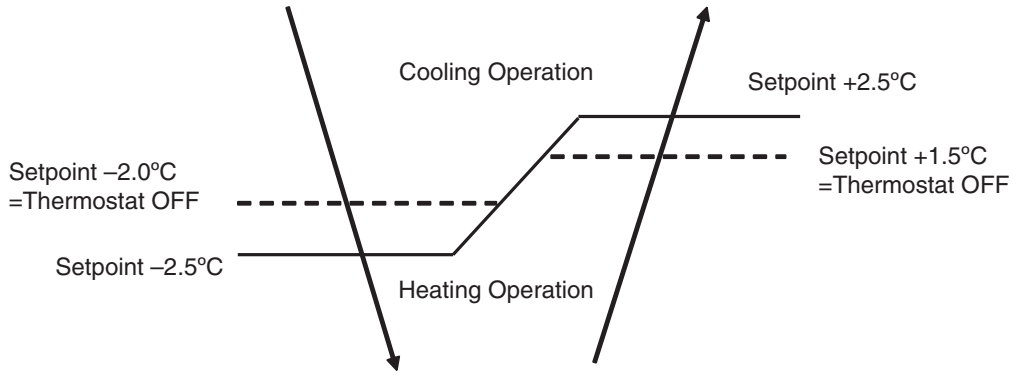
Automatic Cooling / Heating Function (Heat Pump Only)

When the AUTO mode is selected with the remote controller, the microcomputer automatically determines the operation mode from cooling and heating according to the room temperature and setting temperature at the time of the operation startup, and automatically operates in that mode.

The unit automatically switches the operation mode to cooling or heating to maintain the room temperature at the main unit setting temperature.

Detailed Explanation of the Function

1. Remote controller setting temperature is set as automatic cooling / heating setting temperature (18 to 30°C).
2. Main unit setting temperature equals remote controller setting temperature.
3. Operation ON / OFF point and mode switching point are as follows.
   ① Heating → Cooling switching point:
   Room temperature ≥ Main unit setting temperature +2.5 deg.
   ② Cooling → Heating switching point:
   Room temperature < Main unit setting temperature –2.5 deg.
   ③ Thermostat ON / OFF point is the same as the ON / OFF point of cooling or heating operation.
4. During initial operation
   Room temperature ≥ Remote controller setting temperature: Cooling operation
   Room temperature < Remote controller setting temperature: Heating operation



(R6842)

Ex: When the set point is 25°C

Cooling Operation → 23°C: Thermostat OFF → 22°C: Switch to Heating Operation

Heating Operation → 26.5°C: Thermostat OFF → 27.5°C: Switch to Cooling Operation

1.6 Thermostat Control

Thermostat control is based on the difference between the room temperature and the setpoint.

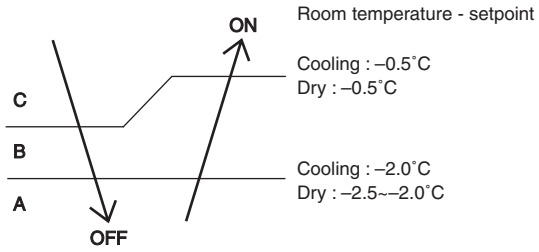
Thermostat OFF Condition

- The temperature difference is in the zone A.

Thermostat ON Condition

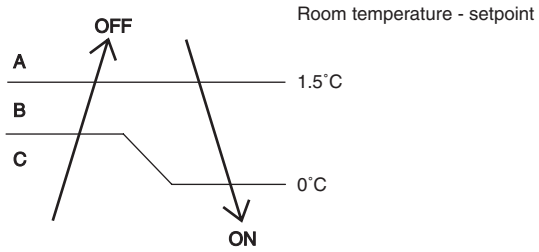
- The temperature difference is above the zone C after being in the zone A.
- The system resumes from defrost control in any zones except A.
- The operation turns on in any zones except A.
- The monitoring time has passed while the temperature difference is in the zone B. (Cooling / Dry : 10 minutes, Heating : 10 seconds)

Cooling / Dry



(R4668)

Heating



(R4669)

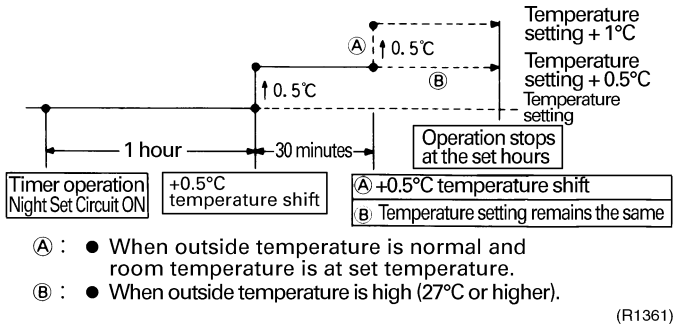
1.7 Night Set Mode

When the OFF timer is set, the Night Set circuit automatically activates.
The Night Set circuit maintains the airflow setting made by users.

The Night Set Circuit

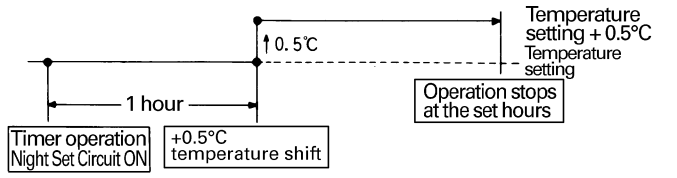
The Night Set circuit continues heating or cooling the room at the set temperature for the first one hour, then automatically raises the temperature setting slightly in the case of cooling, or lowers it slightly in the case of heating, for economical operations. This prevents excessive heating in winter and excessive cooling in summer to ensure comfortable sleeping conditions, and also conserves electricity.

Cooling Operation



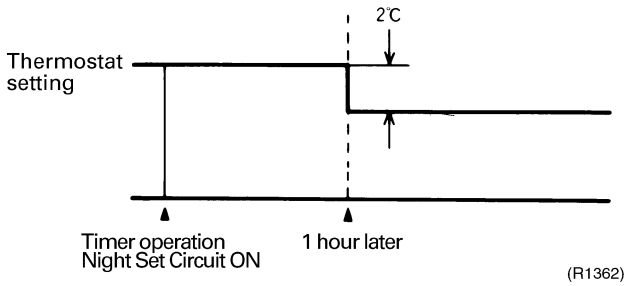
(R1361)

In case of FTK(X)S50D, the temperature rises once.



(R4421)

Heating Operation



(R1362)

1.8 ECONO Mode

Outline

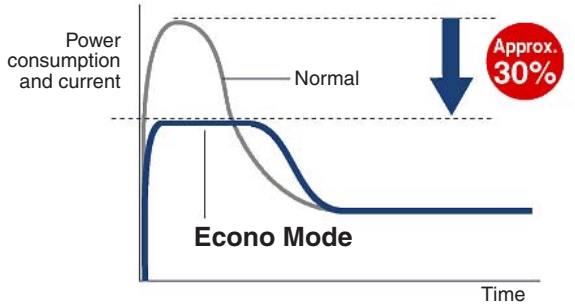
FTK(X)S50D

The "ECONO mode" reduces the maximum operating current and power consumption by approx. 30% during start up etc..

This mode is particularly convenient for energy-saving-oriented users. It is also a major bonus for those whose breaker capacities do not allow the use of multiple electrical devices and air conditioners.

It is easily activated from the wireless remote controller by pushing the ECONO button.

- When this function is ON, the maximum capacity is also down. (Approx. 20%)
- This function can only be set when the unit is running. Pressing the operation stop button causes the settings to be canceled.
- This function and POWERFUL operation cannot be used at the same time. The latest command has the priority.



Details

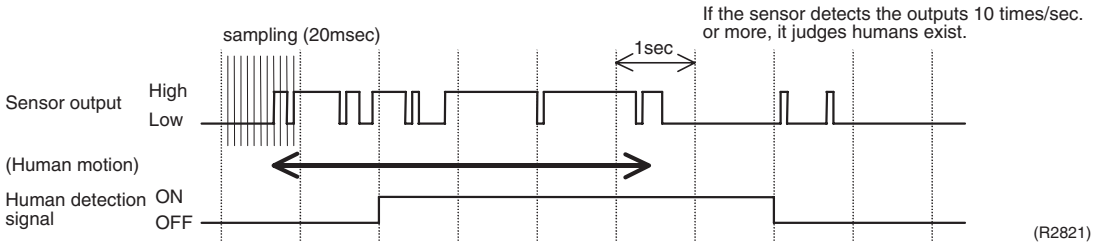
- ECONO mode can be activated while the unit is running. The remote controller can send the ECONO command when the unit is in COOL, HEAT, DRY, or AUTO operation.
- When the ECONO command is valid, the upper limit of frequency is restricted, and the input current is under reducing control.
  (Refer to “Input current control “on page 48.)

1.9 INTELLIGENT EYE

This is the function that detects existence of humans in the room by a human motion sensor (INTELLIGENT EYE) and reduces the capacity when there is no human in the room in order to save electricity.

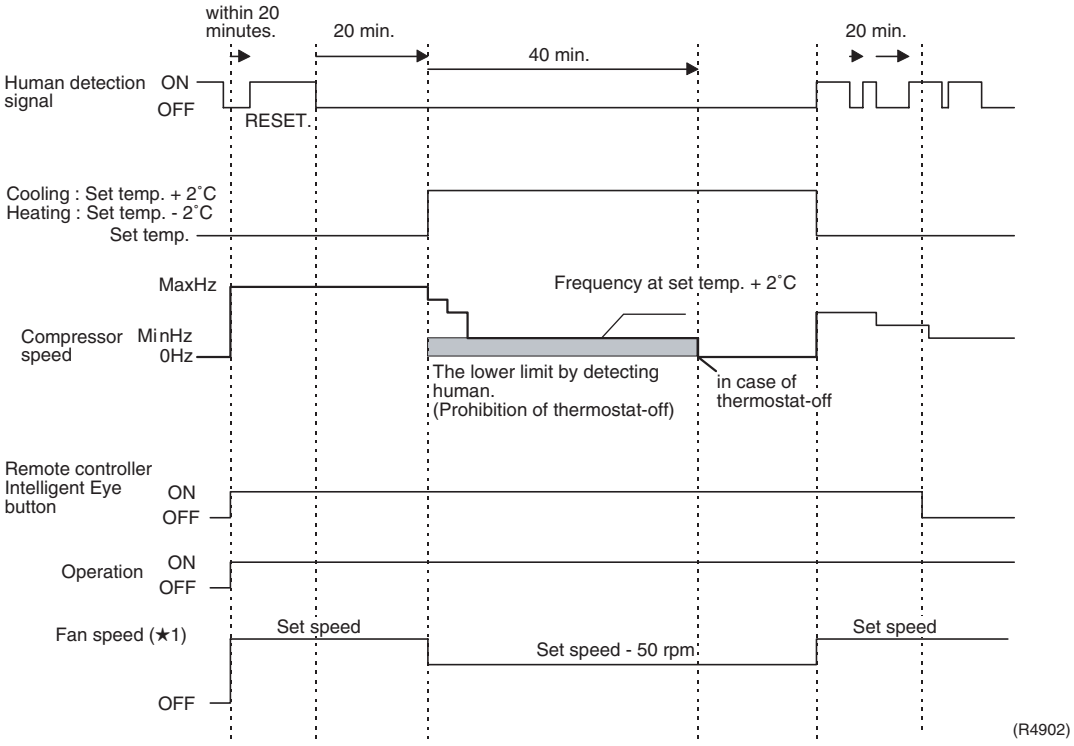
Processing

1. Detection method by Intelligent Eye



- This sensor detects human motion by receiving infrared rays and displays the pulse wave output.
- A microcomputer in an indoor unit carries out a sampling every 20 msec. and if it detects 10 cycles of the wave in one second in total (corresponding to 20msec.× 10 = 100msec.), it judges human is in the room as the motion signal is ON.

2. The motions (for example: in cooling)



- When a microcomputer doesn't have a signal from the sensor in 20 minutes, it judges that nobody is in the room and operates the unit in temperature shifted 2°C from the set temperature. (Cooling/Dry : 2°C higher, Heating: 2°C lower and Auto : according to the operation mode at that time.)

★1 In case of Fan mode, the fan speed reduces by 50 rpm.

- Since the set temperature is shifted by 2°C higher for 40 minutes, compressor speed becomes low and can realize energy saving operation. But as thermostat is prone to be off by the fact that the set temperature has been shifted, the thermostat-off action is prohibited in 40 minutes so as to prevent this phenomena.
  After this 40 minutes, the prohibition of the thermostat-off is cancelled and it can realize the conditions to conduct thermostat-off depending on the room temperature. In or after this 40 minutes, if the sensor detects human motion detection signal, it let the set temperature and the fan speed return to the original set point, keeping a normal operation.

Others

- The dry operation can't command the setting temperature with a remote controller, but internally the set temperature is shifted by 1°C.

1.10 HOME LEAVE Operation

Outline

FTK(X)S50-71F

In order to respond to the customer's need for immediate heating and cooling of the room after returning home or for house care, a measure to switch the temperature and air volume from that for normal time over to outing time by one touch is provided. (This function responds also to the need for keeping up with weak cooling or heating.)
This time, we seek for simplicity of operation by providing the special temperature and air volume control for outing to be set by the exclusive button.

Detail of the Control

1. Start of Function

The function starts when the [HOME LEAVE] button is pressed in cooling mode or heating mode (including stopping and powerful operation). If this button is pressed while the operation is stopped, the function becomes effective when the operation is started. If this button is pressed in powerful operation, the powerful operation is reset and this function becomes effective.

■ The [HOME LEAVE] button is ineffective in dry mode and fan mode.

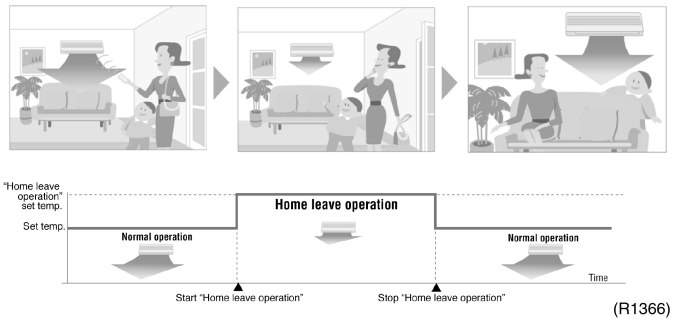
2. Details of Function

A mark representing [HOME LEAVE] is indicated on the liquid crystal display of the remote controller. The indoor unit is operated according to the set temperature and air volume for HOME LEAVE which were pre-set in the memory of the remote controller.
The LED (Red) of indoor unit representing [HOME LEAVE] lights up. (It goes out when the operation is stopped.)

3. End of Function

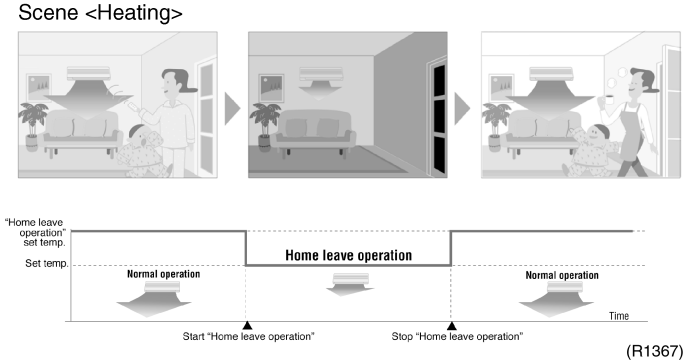
The function ends when the [HOME LEAVE] button is pressed again during [HOME LEAVE] operation or when the powerful operation button is pressed.

Scene <cooling>



(R1366)

Scene <Heating>



(R1367)

Others

The set temperature and set air volume are memorized in the remote controller. When the remote controller is reset due to replacement of battery, it is necessary to set the temperature and air volume again for [HOME LEAVE].

1.11 Inverter POWERFUL Operation

Outline

In order to exploit the cooling and heating capacity to full extent, operate the air conditioner by increasing the indoor fan rotating speed and the compressor frequency.

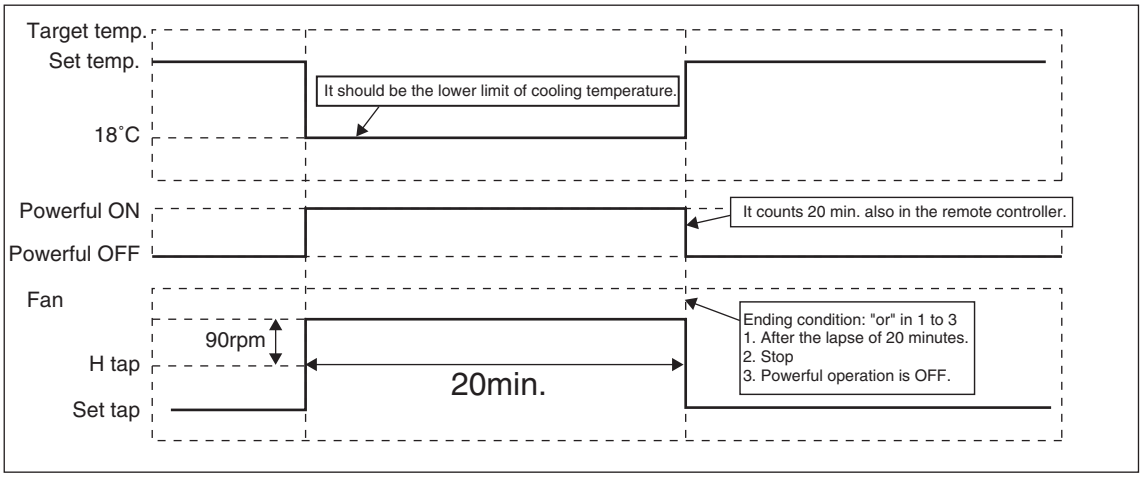
Details of the Control

When POWERFUL button is pushed in each operation mode, the fan speed/setting temperature will be converted to the following states in a period of twenty minutes.

FTK(X)S50/60/71F, FT(Y)N50/60F

Operation mode	Fan speed	Target set temperature
Cooling	H tap + 90 rpm	18°C
Dry	Dry rotating speed + 50 rpm	Normally targeted temperature in dry operation; Approx. –2°C
Heating	H tap + 90 rpm	30°C
Fan	H tap + 90 rpm	—
Automatic	Same as cooling / heating in Powerful operation	The target is kept unchanged

Ex.) : Powerful operation in cooling mode.



(R5166)

1.12 Other Functions

1.12.1 Hot Start Function

Heat Pump Only

In order to prevent the cold air blast that normally comes when heating is started, the temperature of the heat exchanger of the indoor unit is detected, and either the air flow is stopped or is made very weak thereby carrying out comfortable heating of the room.
*The cold air blast is also prevented using a similar control when the defrosting operation is started or when the thermostat gets turned ON.

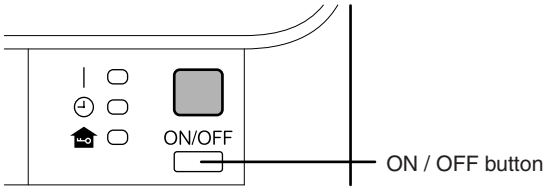
1.12.2 Signal Receiving Sign

When the indoor unit receives a signal from the remote controller, the unit emits a signal receiving sound.

1.12.3 ON/OFF Button on Indoor Unit

An ON/OFF switch is provided on the front panel of the unit. Use this switch when the remote controller is missing or if its battery has run out.
Every press of the switch changes from Operation to Stop or from Stop to Operation

In case of FTK(X)S50/60/71F, FT(Y)N50/60F



(R2824)

- Push this button once to start operation. Push once again to stop it.
- This button is useful when the remote controller is missing.
- The operation mode refers to the following table.

	Mode	Temperature setting	Air flow rate
Cooling Only	COOL	22ºC	AUTO
Heat Pump	AUTO	25ºC	AUTO

- In the case of multi system operation, there are times when the unit does not activate with this button.

<Forced operation mode>

Forced operation mode will be set by pressing the ON/OFF button for between 5 to 9 sec. while the unit is not operating.

Note: When the ON/OFF button is pressed for 10 sec. or more, the operation will be stopped.
See page 56 for the detail of "Forced Operation Mode".

1.12.4 Titanium Apatite Photocatalytic Air-Purifying Filter

This filter combines the Air Purifying Filter and Titanium Apatite Photocatalytic Deodorizing Filter in a single highly effective unit. The filter traps microscopic particles, decompose odours and even deactivates bacteria and viruses. It lasts for three years without replacement if washed about once every six months.

1.12.5 Mold Proof Air Filter (Prefilter)

The filter net is treated with mold resisting agent TBZ (harmless, colorless, and odorless). Due to this treatment, the amount of mold growth is much smaller than that of normal filters.

1.12.6 Self-Diagnosis Digital Display

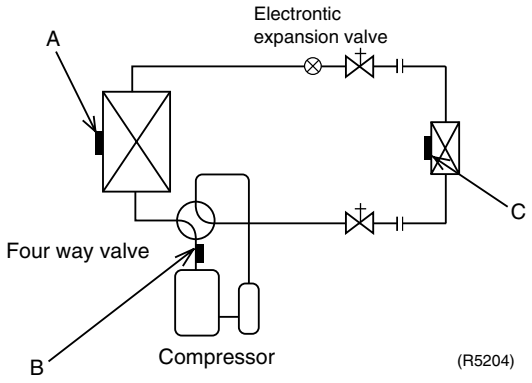
The microcomputer continuously monitors main operating conditions of the indoor unit, outdoor unit and the entire system. When an abnormality occur, the LCD remote controller displays error code. These indications allow prompt maintenance operations.

1.12.7 Auto-restart Function

Even if a power failure (including one for just a moment) occurs during the operation, the operation restarts in the condition before power failure automatically when power is restored. (Note) It takes 3 minutes to restart the operation because the 3-minute standby function is activated.

2. Function of Thermistor

2.1 Heat Pump Model



A Outdoor Heat Exchanger Thermistor

1. The outdoor heat exchanger thermistor is used for controlling target discharge temperature.
   The system sets a target discharge temperature according to the outdoor and indoor heat exchanger temperature, and controls the electronic expansion valve opening so that the target discharge temperature can be obtained.
2. The outdoor heat exchanger thermistor is used for detecting disconnection of the discharge thermistor when cooling.
   When the discharge pipe temperature becomes lower than the outdoor heat exchanger temperature, the discharge pipe thermistor is judged as disconnected.
3. The outdoor heat exchanger thermistor is used for high pressure protection during cooling operation.

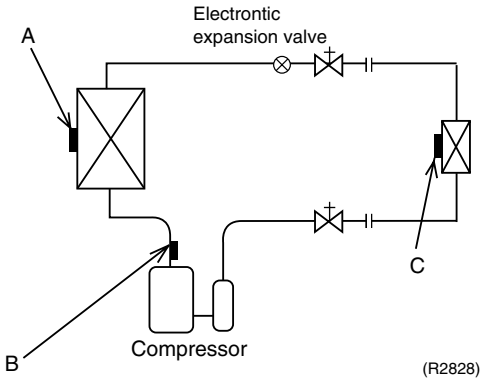
B Discharge Pipe Thermistor

1. The discharge pipe thermistor is used for controlling temperature of the discharge pipe.
   If the temperature of discharge pipe (used in place of the inner temperature of the compressor) rises abnormally, the operating frequency drops or the operation halts.
2. The discharge pipe thermistor is used for detecting disconnection of the discharge thermistor.

C Indoor Heat Exchanger Thermistor

1. The indoor heat exchanger thermistor is used for controlling target discharge temperature.
   The system sets a target discharge pipe temperature according to the outdoor and indoor heat exchanger temperature, and controls the electronic expansion valve opening so that the target discharge temperature can be obtained.
2. The indoor heat exchanger thermistor is used for preventing freezing.
   During the cooling operation, if the temperature drops abnormally, the operating frequency becomes lower, then the operation halts.
3. During heating: the indoor heat exchanger thermistor is used for detecting disconnection of the discharge pipe thermistor.
   When the discharge pipe temperature becomes lower than the indoor heat exchanger temperature, the discharge pipe thermistor is judged as disconnected.
   The indoor heat exchanger thermistor is also used for preventing abnormal high pressure.

2.2 Cooling Only Model



A Outdoor Heat Exchanger Thermistor

1. The outdoor heat exchanger thermistor is used for controlling target discharge temperature. The system sets a target discharge temperature according to the outdoor and indoor heat exchanger temperature, and controls the electronic expansion valve opening so that the target discharge temperature can be obtained.
2. The outdoor heat exchanger thermistor is used for detecting disconnection of the discharge thermistor when cooling.
   When the discharge pipe temperature becomes lower than the outdoor heat exchanger temperature, the discharge pipe thermistor is judged as disconnected.
3. The outdoor heat exchanger thermistor is used for high pressure protection during cooling operation.

B Discharge Pipe Thermistor

1. The discharge pipe thermistor is used for controlling temperature of the discharge pipe. If the temperature of discharge pipe (used in place of the inner temperature of the compressor) rises abnormally, the operating frequency drops or the operation halts.
2. The discharge pipe thermistor is used for detecting disconnection of the discharge thermistor.

C Indoor Heat Exchanger Thermistor

1. The indoor heat exchanger thermistor is used for controlling target discharge temperature. The system sets a target discharge pipe temperature according to the outdoor and indoor heat exchanger temperature, and controls the electronic expansion valve opening so that the target discharge temperature can be obtained.
2. The indoor heat exchanger thermistor is used for preventing freezing.
   During the cooling operation, if the temperature drops abnormally, the operating frequency becomes lower, then the operation halts.

3. Control Specification

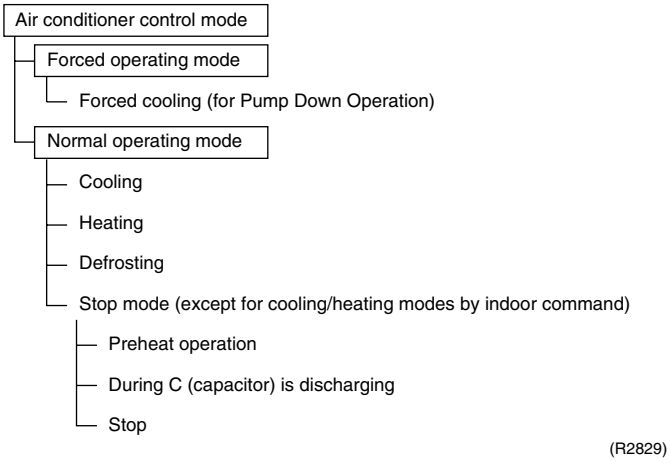
3.1 Mode Hierarchy

Outline

There are two modes; the mode selected in user's place (normal air conditioning mode) and forced operation mode for installation and providing service.

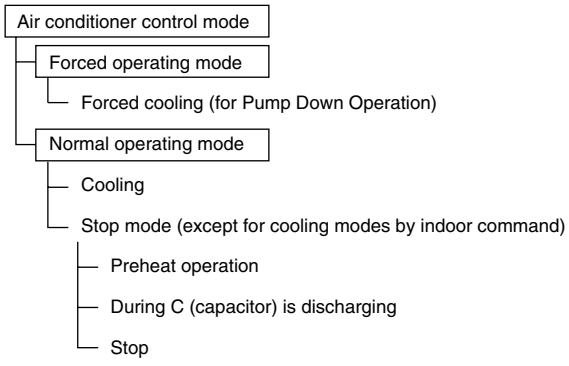
Detail

1. **For heat pump model**
   There are following modes; stop, cooling (includes drying), heating (include defrosting)



(R2829)

2. **For cooling only model**
   There are following models; stop and cooling (including drying).



(R2830)

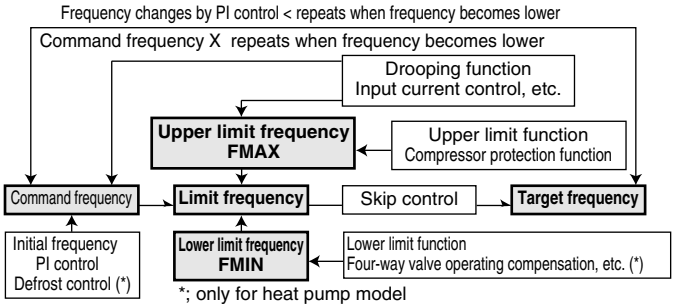
Note: Unless specified otherwise, an indoor dry operation command must be regarded as cooling operation.

3.2 Frequency Control

Outline

Frequency will be determined according to the difference between room and set temperature. The function is explained as follows.

1. How to determine frequency.
2. Frequency command from an indoor unit. (The difference between a room temperature and the temperature set by the remote controller.)
3. Frequency command from an indoor unit.
4. Frequency initial setting.
5. PI control.



(R2831)

Detail

How to Determine Frequency

The compressor's frequency will finally be determined by taking the following steps.

For Heat Pump Model

1. Determine command frequency

- Command frequency will be determined in the following order of priority.

1.1 Limiting frequency by drooping function

- Input current, discharge pipes, low Hz high pressure limit, peak cutting, freeze prevention, dew prevention, fin thermistor temperature.

1.2 Limiting defrost control time

1.3 Forced cooling

1.4 Indoor frequency command

2. Determine upper limit frequency

- Set a minimum value as an upper limit frequency among the frequency upper limits of the following functions:
  Compressor protection, input current, discharge pipes, Low Hz high pressure, peak cutting, freeze prevention, defrost.

3. Determine lower limit frequency

- Set a maximum value as an lower limit frequency among the frequency lower limits of the following functions:
  Four way valve operating compensation, draft prevention, pressure difference upkeep.

4. Determine prohibited frequency

- There is a certain prohibited frequency such as a power supply frequency.

For Cooling Only Model

1. Determine command frequency

- Command frequency will be determined in the following order of priority.

1.1 Limiting frequency by drooping function

- Input current, discharge pipes, freeze prevention, dew prevention, fin thermistor temperature.

1.2 Indoor frequency command

2. Determine upper limit frequency

- Set a minimum value as an upper limit frequency among the frequency upper limits of the following functions:
  Compressor protection, input current, discharge pipes, freeze prevention, dew prevention, fin thermistor temperature.

3. Determine lower limit frequency

- Set a maximum value as an lower limit frequency among the frequency lower limits of the following functions:
  Pressure difference upkeep.

4. Determine prohibited frequency

- There is a certain prohibited frequency such as a power supply frequency.

Indoor Frequency Command (ΔD signal)

The difference between a room temperature and the temperature set by the remote controller will be taken as the "ΔD signal" and is used for frequency command.

Temperature difference	ΔD signal	Temperature difference	ΔD signal	Temperature difference	ΔD signal	Temperature difference	ΔD signal
0	∗Th OFF	2.0	4	4.0	8	6.0	C
0.5	1	2.5	5	4.5	9	6.5	D
1.0	2	3.0	6	5.0	A	7.0	E
1.5	3	3.5	7	5.5	B	7.5	F

∗Th OFF = Thermostat OFF

Frequency Initial Setting

⟨Outline⟩

When starting the compressor, or when conditions are varied due to the change of the room, the frequency must be initialized according to the total of a maximum ΔD value of the indoor unit and the Q value of the indoor unit.

Q value: Indoor unit output determined from indoor unit volume, air flow rate and other factors.

PI Control (Determine Frequency Up/Down by ΔD Signal)

1. P control

Calculate ΔD value in each sampling time (20 seconds), and adjust the frequency according to its difference from the frequency previously calculated.

2. I control

If the operating frequency is not change more than a certain fixed time, adjust the frequency up and down according to the ΔD value, obtaining the fixed ΔD value.
When the ΔD value is small...lower the frequency.
When the ΔD value is large...increase the frequency.

3. Limit of frequency variation width

When the difference between input current and input current drooping value is less than 1.5 A, the frequency increase width must be limited.

4. Frequency management when other controls are functioning

- When frequency is drooping;
  Frequency management is carried out only when the frequency droops.
- For limiting lower limit
  Frequency management is carried out only when the frequency rises.

5. Upper and lower limit of frequency by PI control

The frequency upper and lower limits are set depending on indoor unit.
When low noise commands come from the indoor unit or when outdoor unit low noise or quiet commands come from indoor unit, the upper limit frequency must be lowered than the usual setting.

3.3 Controls at Mode Changing / Start-up

3.3.1 Preheating Operation

Outline

Operate the inverter in the open phase operation with the conditions including the outdoor air temperature, discharge pipe temperature, and fin temperature (internal temperature of PM1).

Detail

Outside temperature ≥ 10°C → Control A (preheating for normal state)
Outside temperature < 10°C → Control B (preheating of increased capacity)

Control A

- ON condition
  Discharge pipe temperature < 6°C
  Fin temperature < 85°C
- OFF condition
  Discharge pipe temperature > 8°C
  Fin temperature ≥ 90°C

Control B

- ON condition
  Discharge pipe temperature < 10.5°C
  Fin temperature < 85°C
- OFF condition
  Discharge pipe temperature > 12°C
  Fin temperature ≥ 90°C

3.3.2 Four Way Valve Switching

Outline

Heat Pump Only
During the heating operation current must be conducted and during cooling and defrosting current must not be conducted. In order to eliminate the switching sound (as the four way valve coil switches from ON to OFF) when the heating is stopped, the delay switch of the four way valve must be carried out after the operation stopped.

Detail

The OFF delay of four way valve
Energize the coil for 150 sec after unit operation is stopped.

3.3.3 Four Way Valve Operation Compensation

Outline

Heat Pump Only
At the beginning of the operation as the four way valve is switched, acquire the differential pressure required for activating the four way valve by having output the operating frequency, which is more than a certain fixed frequency, for a certain fixed time.

Detail

Starting Conditions

1. The MRC/W turns ON when the compressor starts for heating after the MRC/W has been OFF with compressor halted.
2. The MRC/W turns OFF when the compressor starts for cooling after the MRC/W has been ON with compressor running.
3. The compressor starts for the first time after reset.
4. The compressor starts after suspension caused by the trouble of cooling/heating changeover.
   Set the lower limit frequency to 48 Hz for 70 seconds with any conditions 1 through 4 above.

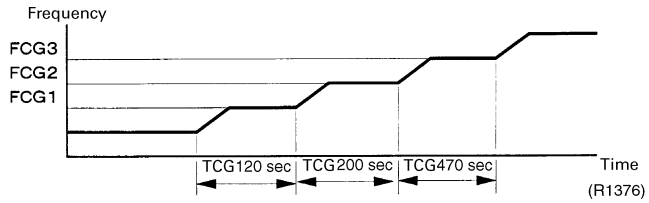
3.3.4 3 Minutes Stand-by

Prohibit to turn ON the compressor for 3 minutes after turning it off.
(Except when defrosting. (Only for Heat Pump Model).)

3.3.5 Compressor Protection Function

When turning the compressor from OFF to ON, the upper limit of frequency must be set as follows. (The function must not be used when defrosting (only for heat pump model).)

FCG 3	85
FCG 2	70
FCG 1	55



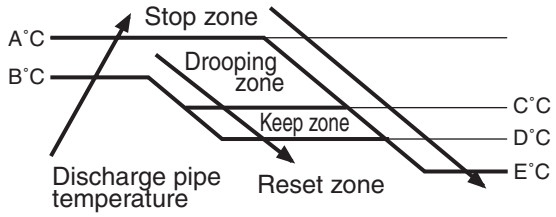
3.4 Discharge Pipe Temperature Control

Outline

The discharge pipe temperature is used as the compressor's internal temperature. If the discharge pipe temperature rises above a certain level, the operating frequency upper limit is set to keep this temperature from going up further.

Detail

Divide the Zone



(R5205)

	50/60 class	71 class
A	110	120
B	103	111
C	101.5	109
D	100	107
E	95	107

Management within the Zones

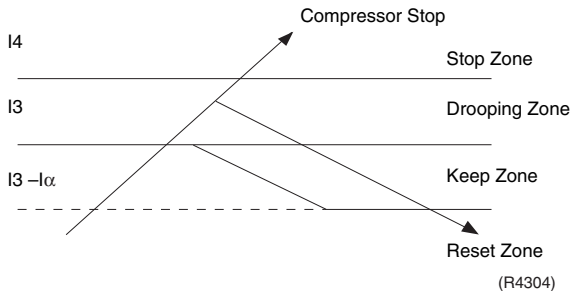
Zone	Control contents
Stop zone	When the temperature reaches the stop zone, stop the compressor and correct abnormality.
Drooping zone	Start the timer, and the frequency will be drooping.
Keep zone	Keep the upper limit of frequency.
Reset zone	Cancel the upper limit of frequency.

3.5 Input Current Control

Outline

The microcomputer calculates the input current during the compressor is running, and set the frequency upper limit from such input current.
In case of heat pump model, this control is the upper limit control function of the frequency which takes priority of the lower limit of four way valve activating compensation.

Detail



Frequency control in each zone

Drooping zone

- The maximum limit of the compressor frequency in this control is defined as operation frequency – 2Hz.
- After this, the output frequency is pulled down by 2Hz every second until it reaches the steady zone.

Keep zone

- The present maximum frequency goes on.

Reset zone

- Limit of the frequency is cancelled.

Stop zone

- After 2.5 s in this zone, the compressor is stopped.

		Cooling			Heating		
		50 class	60 class	71 class	50 class	60 class	71 class
I4 (A)		20			20		
I3 (A)	Normal mode	10.0	12.0	15.75	15.0	16.0	17.5
	ECONO mode	7.0	–	–	10.5	–	–
I3-Iα (A)	Normal mode	9.0	11.0	14.75	14.0	15.0	16.5
	ECONO mode	6.0	–	–	9.5	–	–

★FTK(X)S50D and ATXS50E only have ECONO mode.

Limitation of current drooping and stop value according to the outdoor air temperature

1. In case the operation mode is cooling
- The current droops when outdoor air temperature becomes higher than a certain level (model by model).
2. In case the operation mode is heating (only for heat pump model)
- The current droops when outdoor air temperature becomes higher than a certain level (model by model).

3.6 Freeze-up Protection Control

Outline

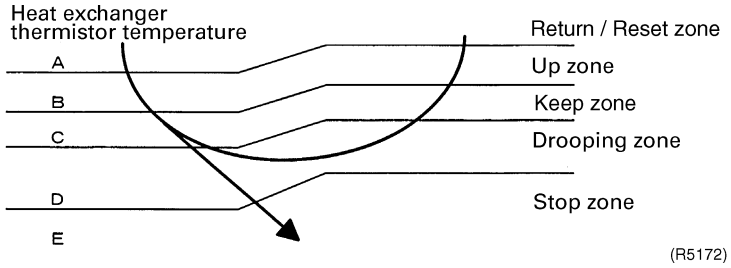
During cooling operation, the signals being sent from the indoor unit allow the operating frequency limitation and then prevent freezing of the indoor heat exchanger. (The signal from the indoor unit must be divided into the zones as the followings.

Detail

Conditions for Start Controlling

Judge the controlling start with the indoor heat exchanger temperature after 2 sec from operation start.

Control in Each Zone



3.7 Heating Peak-cut Control

Outline

Heat Pump Only

During heating operation, the signals being sent from the indoor unit allow the operating frequency limitation and prevent abnormal high pressure. (The signal from the indoor unit must be divided as follows.)

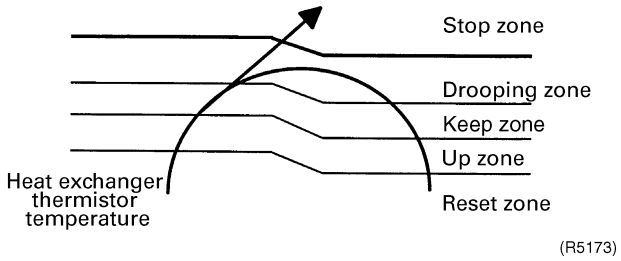
Detail

Conditions for Start Controlling

Judge the controlling start with the indoor heat exchanger temperature after 5 sec from operation start.

Control in Each Zone

The heat exchange intermediate temperature of indoor unit controls the following.



3.8 Fan Control

Outline

Fan control is carried out according to the following priority.

1. Fan ON control for electric component cooling fan
2. Fan control when defrosting
3. Fan OFF delay when stopped
4. Fan control for maintaining pressure difference
5. Fan control when the compressor starts for heating
6. Fan control in forced operation
7. Fan control in powerful mode
8. Fan control in low noise operation
9. Fan control in silent mode

Detail

Fan OFF Control when Stopped

- Fan OFF delay for 60 seconds must be made when the compressor is stopped.

3.9 Liquid Compression Protection Function 2

Outline

In order to obtain the dependability of the compressor, the compressor must be stopped according to the conditions of the temperature of the outdoor air and outdoor heat exchanger.

Detail

Heat Pump Model

- Operation stop depending on the outdoor air temperature.

Compressor operation turns OFF under the conditions that the system is in cooling operation and outdoor air temperature is below –10°C.

Cooling Only Model

- Operation stops depending on the outdoor air temperature.

Compressor operation turns OFF under the condition that outdoor air temperature is below –10°C

3.10 Defrost Control

Outline

Heat Pump Only

Defrosting is carried out by the cooling cycle (reverse cycle). The defrosting time or outdoor heat exchanger temperature must be more than its fixed value when finishing.

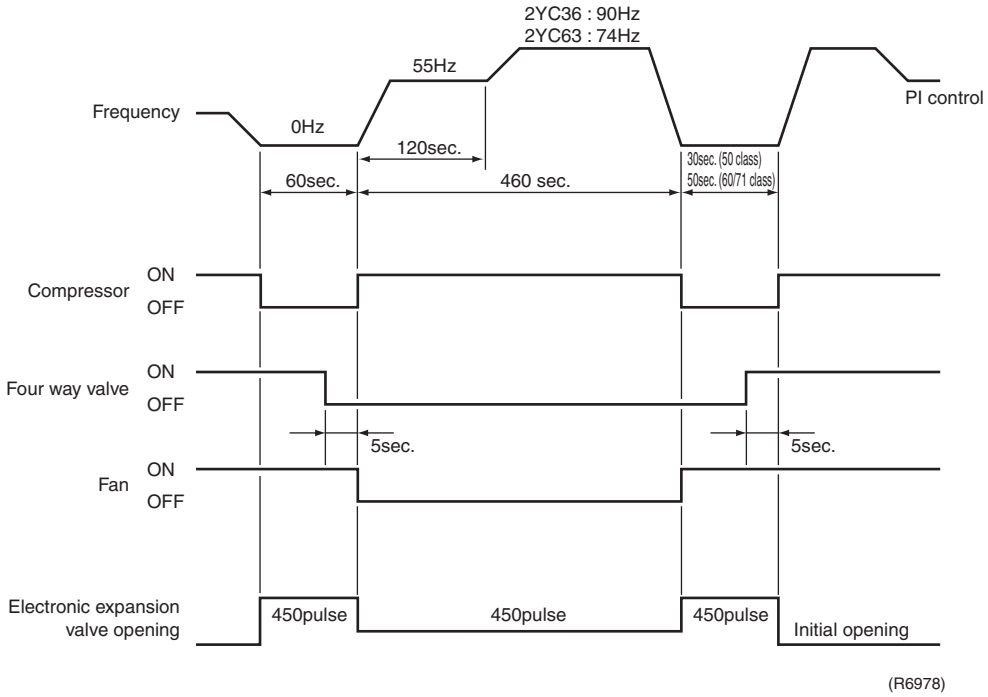
Detail

Conditions for Starting Defrost

The starting conditions must be made with the outdoor air temperature and heat exchanger temperature. Under the conditions that the system is in heating operation, 6 minutes after the compressor is started and more than 44 minutes of accumulated time pass since the start of the operation or ending the defrosting.

Conditions for Canceling Defrost

The judgment must be made with heat exchanger temperature. (4°C~12°C)



(R6978)

3.11 Electronic Expansion Valve Control

Outline

The following items are included in the electronic expansion valve control.

Electronic expansion valve is fully closed

1. Electronic expansion valve is fully closed when turning on the power.
2. Pressure equalizing control

Open Control

1. Electronic expansion valve control when starting operation
2. Control when frequency changed
3. Control for defrosting (only for heat pump model)
4. Control when a discharge pipe temperature is abnormally high
5. Control when the discharge pipe thermistor is disconnected

Feedback Control

1. Discharge pipe temperature control

Detail

The followings are the examples of control which function in each mode by the electronic expansion valve control.

Operation pattern	○ : function × : not function	Control when frequency changed	Control for abnormally high discharge pipe temperature
When power is turned ON	Fully closed when power is turned ON	×	×
Cooling operation	Open control when starting	×	○
	(Control of target discharge pipe temperature)	○	○
Stop	Pressure equalizing control	×	×
Heating operation (only for heat pump model)	Open control when starting	×	○
	(Control of target discharge pipe temperature)	○	○
	(Defrost control FD=1) (only for heat pump model)	×	×
Stop	Pressure equalizing control	×	×
Heating operation (only for heat pump model)	Open control when starting	×	○
Control of discharge pipe thermistor disconnection	Continue	×	×
Stop	Pressure equalizing control	×	×

(R2833)

3.11.1 Fully Closing with Power ON

Initialize the electronic expansion valve when turning on the power, set the opening position and develop pressure equalizing.

3.11.2 Pressure Equalization Control

When the compressor is stopped, open and close the electronic expansion valve and develop pressure equalization.

3.11.3 Opening Limit

Outline

Limit a maximum and minimum opening of the electronic expansion valve.

Detail

- A maximum electronic expansion valve opening : 480 pulses
- A minimum electronic expansion valve opening : 54 pulses

The electronic expansion valve is fully closed in the room where cooling is stopped and is opened with fixed opening during defrosting.

3.11.4 Starting Operation Control

Control the electronic expansion valve opening when the system is starting, and prevent the system to be super heated or moistened.

3.11.5 High Temperature of the Discharge Pipe

When the compressor is operating, if the discharge pipe temperature exceeds a certain value, open the electronic expansion valve and remove the refrigerant to the low pressure side and lower discharge temperature.

3.11.6 Disconnection of the Discharge Pipe Thermistor

Outline

Disconnection of the discharge pipe thermistor is detected by comparing the discharge pipe temperature with the heat exchanger temperature. If any is disconnected, open the electronic expansion valve according to the outdoor air temperature and the operating frequency, and operate for 9 minutes, and then stop.
After 3 minutes of waiting, the compressor restarts and the same process is carried out again. If the disconnection is detected 4 times in succession, then the system will be down.
When the compressor runs for 60 minutes without any error, the error counter will reset itself.

Detail

Detect Disconnection

When the 630-seconds timer for open control is over, the following adjustment must be made.

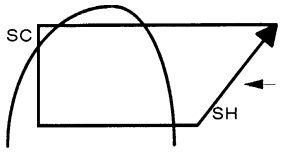
1. When the operation mode is cooling
   When the following condition is fulfilled, the discharge pipe thermistor disconnection is ascertained.
   Discharge pipe temperature +6°C < outdoor heat exchanger temperature
2. When the operation mode is heating (only for heat pump model)
   When the following condition is fulfilled, the discharge pipe thermistor disconnection is ascertained.
   Discharge pipe temperature +6°C < indoor heat exchanger temperature

3.11.7 Control when frequency is changed

When the target discharge pipe temperature control is active, if the target frequency is changed for a specified value in a certain time period, cancel the target discharge pipe temperature control and change the target opening of the electronic expansion valve according to the shift.

3.11.8 Target Discharge Pipe Temperature Control

Obtain the target discharge pipe temperature from the indoor and outdoor heat exchanger temperature, and adjust the electronic expansion valve opening so that the actual discharge pipe temperature become close to that temperature. (Indirect SH control using the discharge pipe temperature)



(R1389)

Determine a correction value of the electronic expansion valve compensation and drive it according to the deflection of the target discharge temperature and actual discharge temperature, and the discharge temperature variation by the 20 sec.

3.12 Malfunctions

3.12.1 Sensor Malfunction Detection

Sensor malfunction may occur either in the thermistor or current transformer (CT) system.

Relating to Thermistor Malfunction

1. Outdoor heat exchanger thermistor
2. Discharge pipe thermistor
3. Fin thermistor
4. Outside air thermistor

Relating to CT Malfunction

When the output frequency is more than 55 Hz and the input current is less than 0.5A, carry out abnormal adjustment.

3.12.2 Detection of Overload and Over Current

Outline

In order to protect the inverter, detect an excessive output current, and for protecting compressor, monitor the OL operation.

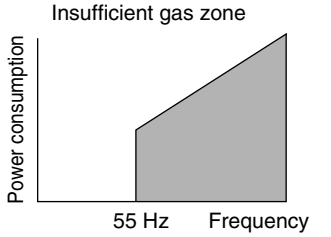
Detail

- **If the OL (compressor head) temperature exceeds 120~130°C (depending on the model), the compressor gets interrupted.**
- **If the inverter current exceeds 30 A, the compressor gets interrupted too.**

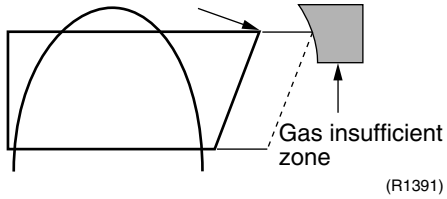
3.12.3 Insufficient Gas Control

Outline

If a power consumption is below the specified value in which the frequency is higher than the specified frequency, it must be regarded as gas insufficient.
In addition to such conventional function, if the discharge temperature is higher than the target discharge pipe temperature, and the electronic expansion valve is fully open (450 pulses) more than the specified time, it is considered as an insufficient gas.



With the conventional function, a power consumption is weak comparing with that in the normal operation when gas is insufficient, and gas insufficiency is detected by checking a power consumption.



When operating with insufficient gas, although the rise of discharge pipe temperature is great and the electronic expansion valve is open, it is presumed as an insufficient gas if the discharge pipe temperature is higher than the target discharge pipe temperature.

Refer to “Insufficient Gas” on page 150 for detail.

Detail

Judgment by Input Current
When an output frequency is exceeds 55 Hz (40Hz for 71 class) and the input current is less than specified value, the adjustment is made for insufficient gas.
Judgment by Discharge Pipe Temperature
When discharge pipe temperature is 20~45°C (depending on the model or mode) higher than target value and the electronic expansion value opening is 480 pulse (max.), the adjustment is made for insufficient gas.

3.13 Forced Operation Mode

Outline

Forced operating mode includes only forced cooling.

Detail

Forced Cooling

Item	Forced Cooling
Forced operation allowing conditions	1) The outdoor unit is not abnormal and not in the 3-minute stand-by mode.
	2) The operating mode of the outdoor unit is the stop mode.
	3) The forced operation is ON. The forced operation is allowed when the above “and” conditions are met.
Starting/adjustment	If the forced operation switch is pressed as the above conditions are met.
1) Command frequency	50/60 class : 66Hz (cooling) 71 class : 55Hz (cooling)
2) Electronic expansion valve opening	It depends on the capacity of the operating indoor unit.
3) Outdoor unit adjustment	Compressor is in operation
4) Indoor unit adjustment	The command of forced operation is transmitted to the indoor unit.
End	1) When the forced operation switch is pressed again.
	2) The operation is to end automatically after 15 min.
Others	The protect functions are prior to all others in the forced operation.

3.14 Additional Function

3.14.1 POWERFUL Operation Mode

Compressor operating frequency is increased to PI Max. (Max. Hz of operating room) and outdoor unit airflow rate is increased.

3.14.2 Voltage Detection Function

Power supply voltage is detected each time equipment operation starts.

3.15 Facility Setting Switch (cooling at low outdoor temperature)

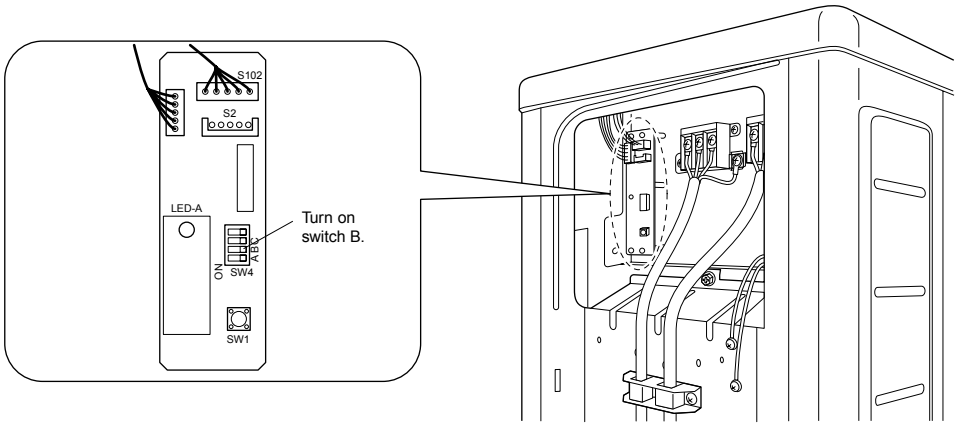
Outline

Only for RKS50/60F2V1B

This function is limited only for facilities (the target of air conditioning is equipment (such as computer)). Never use it in a residence or office (the space where there is a human).

Detail

You can expand the operation range to –15°C by turning on switch B (SW4) on the PCB. If the outdoor temperature falls to –20°C or lower, the operation will stop. If the outdoor temperature rises, the operation will start again.



(R6979)

Caution

1. If the outdoor unit is installed where the heat exchanger of the unit is exposed to direct wind, provide a windbreak wall.
2. Intermittent noises may be produced by the indoor unit due to the outdoor fan turning on and off when using facility settings.
3. Do not place humidifiers or other items which might raise the humidity in rooms where facility settings are being used.
   A humidifier might cause dew jumping from the indoor unit outlet vent.
4. Use the indoor unit at the highest level of air flow rate.

Part 5
Operation Manual

1. System Configuration

After the installation and test operation of the room air conditioner have been completed, it should be operated and handled as described below. Every user would like to know the correct method of operation of the room air conditioner, to check if it is capable of cooling (or heating) well, and to know a clever method of using it.
In order to meet this expectation of the users, giving sufficient explanations taking enough time can be said to reduce about 80% of the requests for servicing. However good the installation work is and however good the functions are, the customer may blame either the room air conditioner or its installation work because of improper handling. The installation work and handing over of the unit can only be considered to have been completed when its handling has been explained to the user without using technical terms but giving full knowledge of the equipment.

2. Instruction

2.1 Safety Precautions

Safety precautions

- Keep this manual where the operator can easily find them.
- Read this manual attentively before starting up the unit.
- For safety reason the operator must read the following cautions carefully.
- This manual classifies precautions into WARNING and CAUTION. Be sure to follow all precautions below: they are all important for ensuring safety.

⚠ WARNING	⚠ CAUTION
If you do not follow these instructions exactly, the unit may cause property damage, personal injury or loss of life.	If you do not follow these instructions exactly, the unit may cause minor or moderate property damage or personal injury.

Never do.

Be sure to follow the instructions.

Be sure to earth the air conditioner.

Never cause the air conditioner (including the remote controller) to get wet.

Never touch the air conditioner (including the remote controller) with a wet hand.

⚠ WARNING

- In order to avoid fire, explosion or injury, do not operate the unit when harmful, among which flammable or corrosive gases, are detected near the unit.
- It is not good for health to expose your body to the air flow for a long time.
- Do not put a finger, a rod or other objects into the air outlet or inlet. As the fan is rotating at a high speed, it will cause injury.
- Do not attempt to repair, relocate, modify or reinstall the air conditioner by yourself. Incorrect work will cause electric shocks, fire etc.
  For repairs and reinstallation, consult your Daikin dealer for advice and information.

- The refrigerant used in the air conditioner is safe. Although leaks should not occur, if for some reason any refrigerant happens to leak into the room, make sure it does not come in contact with any flame as of gas heaters, kerosene heaters or gas range.
- If the air conditioner is not cooling (heating) properly, the refrigerant may be leaking, so call your dealer.
  When carrying out repairs accompanying adding refrigerant, check the content of the repairs with our service staff.
- Do not attempt to install the air conditioner by your self. Incorrect work will result in water leakage, electric shocks or fire. For installation, consult the dealer or a qualified technician.
- In order to avoid electric shock, fire or injury, if you detect any abnormally such as smell of fire, stop the operation and turn off the breaker. And call your dealer for instructions.
- Depending on the environment, an earth leakage breaker must be installed. Lack of an earth leakage breaker may result in electric shocks or fire.

- The air conditioner must be earthed. Incomplete earthing may result in electric shocks. Do not connect the earth line to a gas pipe, water pipe, lightning rod, or a telephone earth line.

⚠ CAUTION

- In order to avoid any quality deterioration, do not use the unit for cooling precision instruments, food, plants, animals or works of art.
- Never expose little children, plants or animals directly to the air flow.
- Do not place appliances which produce open fire in places exposed to the air flow from the unit or under the indoor unit. It may cause incomplete combustion or deformation of the unit due to the heat.

2

- Do not block air inlets nor outlets. Impaired air flow may result in insufficient performance or trouble.
- Do not stand or sit on the outdoor unit. Do not place any object on the unit to avoid injury, do not remove the fan guard.
- Do not place anything under the indoor or outdoor unit that must be kept away from moisture. In certain conditions, moisture in the air may condense and drip.
- After a long use, check the unit stand and fittings for damage.
- Do not touch the air inlet and aluminum fins of outdoor unit. It may cause injury.
- The appliance is not intended for use by young children or infirm persons without supervision.
- Young children should be supervised to ensure that they do not play with the appliance.

- To avoid oxygen deficiency, ventilate the room sufficiently if equipment with burner is used together with the air conditioner.
- Before cleaning, be sure to stop the operation, turn the breaker off or pull out the supply cord.
- Do not connect the air conditioner to a power supply different from the one as specified. It may cause trouble or fire.
- Arrange the drain hose to ensure smooth drainage. Incomplete draining may cause wetting of the building, furniture etc.
- Do not place objects in direct proximity of the outdoor unit and do not let leaves and other debris accumulate around the unit.
  Leaves are a hotbed for small animals which can enter the unit. Once in the unit, such animals can cause malfunctions, smoke or fire when making contact with electrical parts.

- Do not operate the air conditioner with wet hands.

- Do not wash the indoor unit with excessive water, only use a slightly wet cloth.
- Do not place things such as vessels containing water or anything else on top of the unit. Water may penetrate into the unit and degrade electrical insulations, resulting in an electric shock.

Installation site.

■ To install the air conditioner in the following types of environments, consult the dealer.
- Places with an oily ambient or where steam or soot occurs.
- Salty environment such as coastal areas.
- Places where sulfide gas occurs such as hot springs.
- Places where snow may block the outdoor unit.

The drain from the outdoor unit must be discharged to a place of good drainage.

Consider nuisance to your neighbours from noises.

■ For installation, choose a place as described below.
- A place solid enough to bear the weight of the unit which does not amplify the operation noise or vibration.
- A place from where the air discharged from the outdoor unit or the operation noise will not annoy your neighbours.

Electrical work.

- For power supply, be sure to use a separate power circuit dedicated to the air conditioner.

System relocation.

- Relocating the air conditioner requires specialized knowledge and skills. Please consult the dealer if relocation is necessary for moving or remodeling.

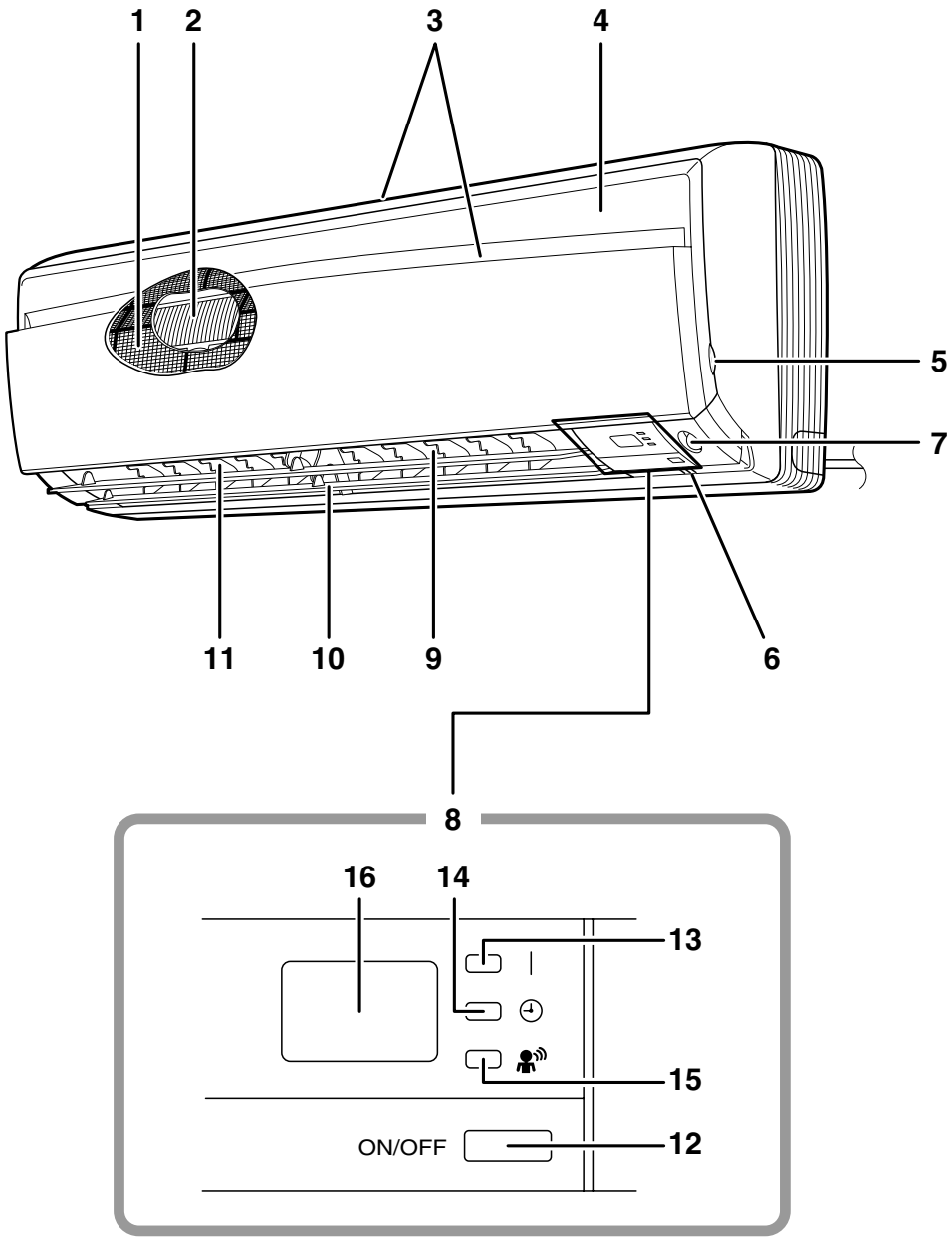
3

2.2 FTK(X)S 50 D

2.2.1 Names of Parts

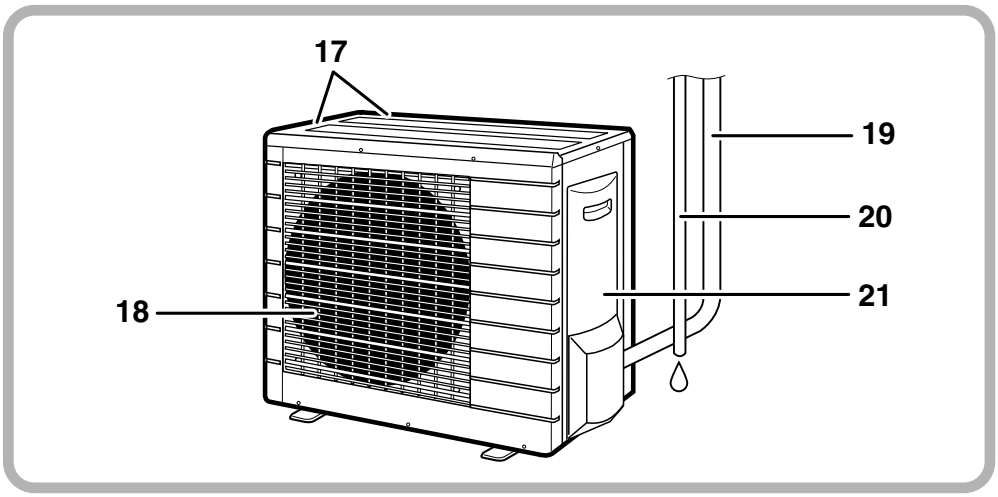
Names of parts

■ Indoor Unit



4

■ Outdoor Unit



■ Indoor Unit

1. **Air filter**
2. **Titanium Apatite Photocatalytic Air-Purifying Filter:**
   - These filters are attached to the inside of the air filters.
3. **Air inlet**
4. **Front panel**
5. **Panel tab**
6. **Room temperature sensor:**
   - It senses the air temperature around the unit.
7. **INTELLIGENT EYE sensor:**
   - It detects the movements of people and automatically switches between normal operation and energy saving operation. (page 17.)
8. **Display**
9. **Air outlet**
10. **Flaps (horizontal blades):** (page 12.)
11. **Louvers (vertical blades):**
    - The louvers are inside of the air outlet. (page 12.)
12. **Indoor Unit ON/OFF switch:** (page 10.)
    - Push this switch once to start operation. Push once again to stop it.
    - The operation mode refers to the following table.

	Mode	Temperature setting	Air flow rate
F(C)TKS	COOL	22°C	AUTO
F(C)TXS	AUTO	25°C	AUTO

    - This switch is useful when the remote controller is missing.
13. **Operation lamp (green)**
14. **TIMER lamp (yellow):** (page 19.)
15. **INTELLIGENT EYE lamp (green):** (page 17.)
16. **Signal receiver:**
    - It receives signals from the remote controller.
    - When the unit receives a signal, you will hear a short beep.
      - Operation start .....beep-beep
      - Settings changed.....beep
      - Operation stop .....beeeeep

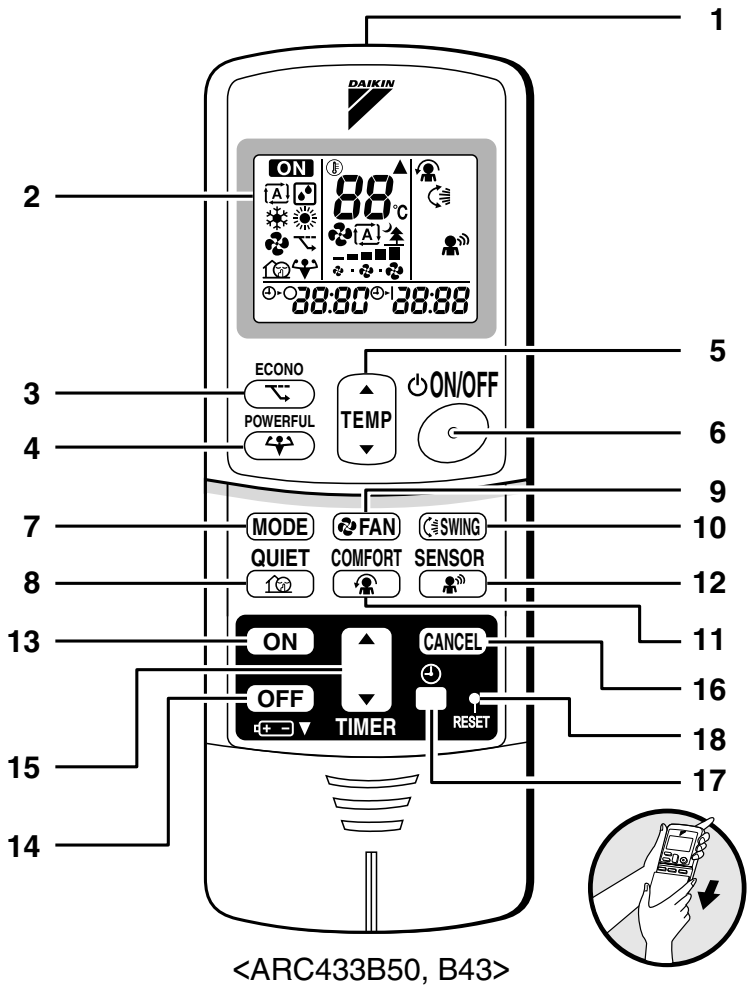
■ Outdoor Unit

17. **Air inlet:** (Back and side)
18. **Air outlet**
19. **Refrigerant piping and inter-unit cable**
20. **Drain hose**
21. **Earth terminal:**
    - It is inside of this cover.

Appearance of the outdoor unit may differ from some models.

5

■ Remote Controller



<ARC433B50, B43>

1. **Signal transmitter:**
   - It sends signals to the indoor unit.
2. **Display:**
   - It displays the current settings.
     (In this illustration, each section is shown with all its displays ON for the purpose of explanation.)
3. **ECONO button:**
   ECONO operation (page 16.)
4. **POWERFUL button:**
   POWERFUL operation (page 14.)
5. **TEMPERATURE adjustment buttons:**
   - It changes the temperature setting.
6. **ON/OFF button:**
   - Press this button once to start operation. Press once again to stop it.
7. **MODE selector button:**
   - It selects the operation mode. (AUTO/DRY/COOL/HEAT/FAN) (page 10.)
8. **QUIET button:** OUTDOOR UNIT QUIET operation (page 15.)
9. **FAN setting button:**
   - It selects the air flow rate setting.
10. **SWING button:**
    - Ajusting the Air Flow Direction. (page 12.)
11. **COMFORT AIRFLOW button:** COMFORT AIRFLOW operation (page 13.)
12. **SENSOR button:** INTELLIGENT EYE operation (page 17.)
13. **ON TIMER button:** (page 20.)
14. **OFF TIMER button:** (page 19.)
15. **TIMER Setting button:**
    - It changes the time setting.
16. **TIMER CANCEL button:**
    - It cancels the timer setting.
17. **CLOCK button:** (page 9.)
18. **RESET button:**
    - Restart the unit if it freezes.
    - Use a thin object to push.

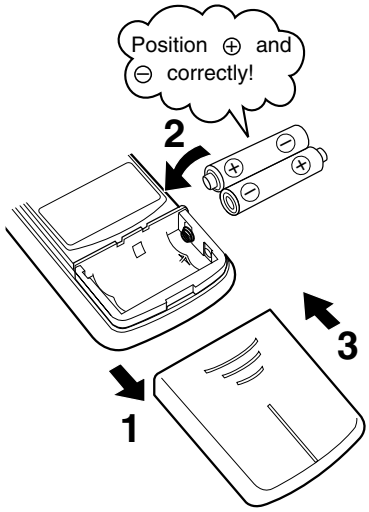
6

2.2.2 Preparation Before Operation

Preparation Before Operation

■ To set the batteries

1. **Slide the front cover to take it off.**
2. **Set two dry batteries (AAA).**
3. **Set the front cover as before.**



ATTENTION

■ **About batteries**

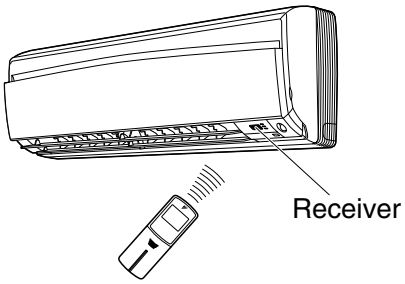
- When replacing the batteries, use batteries of the same type, and replace the two old batteries together.
- When the system is not used for a long time, take the batteries out.
- We recommend replacing once a year, although if the remote controller display begins to fade or if reception deteriorates, please replace with new alkali batteries. Do not use manganese batteries.
- The attached batteries are provided for the initial use of the system.
  The usable period of the batteries may be short depending on the manufactured date of the air conditioner.

7

Preparation Before Operation

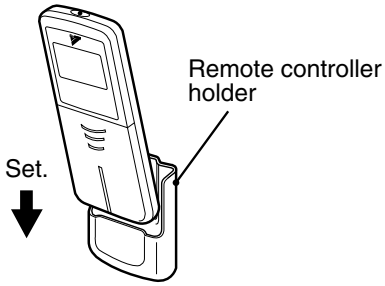
■ To operate the remote controller

- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- Do not drop the remote controller. Do not get it wet.
- The maximum distance for communication is about 7m.



■ To fix the remote controller holder on the wall

1. **Choose a place from where the signals reach the unit.**
2. **Fix the holder to a wall, a pillar, or similar location with the screws procured locally.**
3. **Place the remote controller in the remote controller holder.**



- To remove, pull it upwards.

ATTENTION

■ **About remote controller**

- Never expose the remote controller to direct sunlight.
- Dust on the signal transmitter or receiver will reduce the sensitivity. Wipe off dust with soft cloth.
- Signal communication may be disabled if an electronic-starter-type fluorescent lamp (such as inverter-type lamps) is in the room. Consult the shop if that is the case.
- If the remote controller signals happen to operate another appliance, move that appliance to somewhere else, or consult the shop.

■ To set the clock

1. **Press “CLOCK button”.**

   0:00 is displayed.

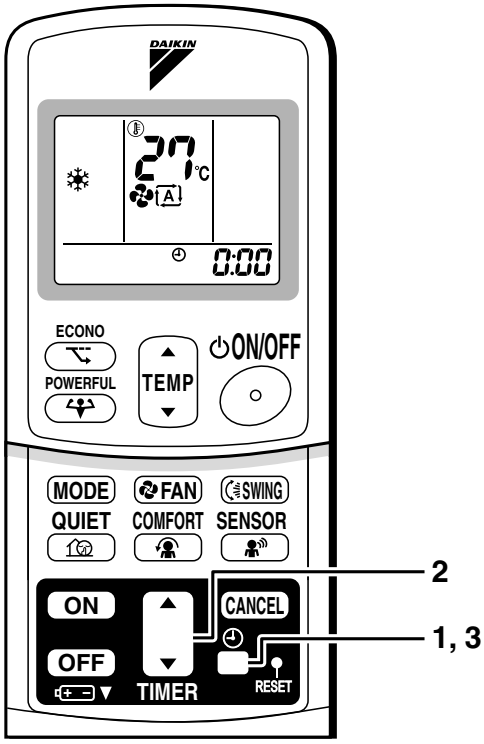
   ◷ blinks.

2. **Press “TIMER setting button” to set the clock to the present time.**

   Holding down “ ▲ ” or “ ▼ ” button rapidly increases or decreases the time display.

3. **Press “CLOCK button”.**

   : blinks.



■ Turn the breaker ON

- Turning ON the breaker opens the flap, then closes it again. (This is a normal procedure.)

NOTE

■ Tips for saving energy

- Be careful not to cool (heat) the room too much.
  Keeping the temperature setting at a moderate level helps save energy.
- Cover windows with a blind or a curtain.
  Blocking sunlight and air from outdoors increases the cooling (heating) effect.
- Clogged air filters cause inefficient operation and waste energy. Clean them once in about every two weeks.

Recommended temperature setting
For cooling:26°C – 28°C For heating:20°C – 24°C

■ Please note

- The air conditioner always consumes 15-35 watts of electricity even while it is not operating.
- If you are not going to use the air conditioner for a long period, for example in spring or autumn, turn the breaker OFF.
- Use the air conditioner in the following conditions.

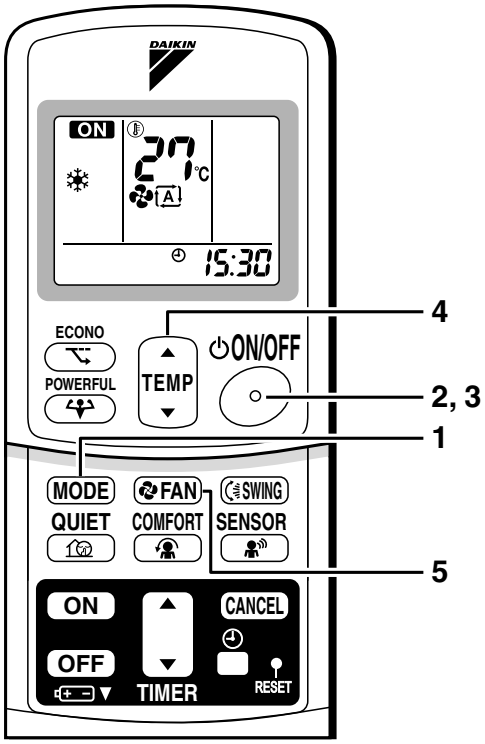
Mode	Operating conditions	If operation is continued out of this range
COOL	Outdoor temperature: ⟨2MK(X)S40⟩ 10 to 46°C ⟨2MXS52⟩ –10 to 46°C ⟨3/4/5MK(X)S⟩ –10 to 46°C ⟨RK(X)S⟩ –10 to 46°C Indoor temperature: 18 to 32°C Indoor humidity: 80% max.	• A safety device may work to stop the operation. (In multi system, it may work to stop the operation of the outdoor unit only.) • Condensation may occur on the indoor unit and drip.
HEAT	Outdoor temperature: ⟨2MXS40⟩ –10 to 15.5°C ⟨2MXS52⟩ –15 to 15.5°C ⟨3/4/5MXS⟩ –15 to 15.5°C ⟨RXS20/25/35⟩ –15 to 20°C ⟨RXS50⟩ –15 to 18°C Indoor temperature: 10 to 30°C	• A safety device may work to stop the operation.
DRY	Outdoor temperature: ⟨2MK(X)S40⟩ 10 to 46°C ⟨2MXS52⟩ –10 to 46°C ⟨3/4/5MK(X)S⟩ –10 to 46°C ⟨RK(X)S⟩ –10 to 46°C Indoor temperature: 18 to 32°C Indoor humidity: 80% max.	• A safety device may work to stop the operation. • Condensation may occur on the indoor unit and drip.

- Operation outside this humidity or temperature range may cause a safety device to disable the system .

2.2.3 AUTO • DRY • COOL • HEAT • FAN Operation

AUTO · DRY · COOL · HEAT · FAN Operation

The air conditioner operates with the operation mode of your choice.
From the next time on, the air conditioner will operate with the same operation mode.



■ To start operation

1. Press “MODE selector button” and select a operation mode.

- Each pressing of the button advances the mode setting in sequence.

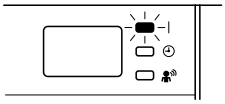
: AUTO
: DRY
: COOL
: HEAT
: FAN

<F(C)TKS>

<F(C)TXS>

2. Press “ON/OFF button” .

- The OPERATION lamp lights up.



■ To stop operation

3. Press “ON/OFF button” again.

- Then OPERATION lamp goes off.

■ To change the temperature setting

4. Press “TEMPERATURE adjustment button”.

DRY or FAN mode	AUTO or COOL or HEAT mode
The temperature setting is not variable.	Press “▲” to raise the temperature and press “▼” to lower the temperature.
	Set to the temperature you like. 

■ To change the air flow rate setting

5. Press “FAN setting button”.

DRY mode	AUTO or COOL or HEAT or FAN mode
The air flow rate setting is not variable.	Five levels of air flow rate setting from “ ” to “ ” plus “ ” “ ” are available. 

- Indoor unit quiet operation

  When the air flow is set to “ ”, the noise from the indoor unit will become quieter. Use this when making the noise quieter.

  The unit might lose capacity when the air flow rate is set to a weak level.

NOTE

■ **Note on HEAT operation**
- Since this air conditioner heats the room by taking heat from outdoor air to indoors, the heating capacity becomes smaller in lower outdoor temperatures. If the heating effect is insufficient, it is recommended to use another heating appliance in combination with the air conditioner.
- The heat pump system heats the room by circulating hot air around all parts of the room. After the start of heating operation, it takes some time before the room gets warmer.
- In heating operation, frost may occur on the outdoor unit and lower the heating capacity. In that case, the system switches into defrosting operation to take away the frost.
- During defrosting operation, hot air does not flow out of indoor unit.

■ **Note on COOL operation**
- This air conditioner cools the room by blowing the hot air in the room outside, so if the outside temperature is high, performance drops.

■ **Note on DRY operation**
- The computer chip works to rid the room of humidity while maintaining the temperature as much as possible. It automatically controls temperature and fan strength, so manual adjustment of these functions is unavailable.

■ **Note on AUTO operation**
- In AUTO operation, the system selects an appropriate operation mode (COOL or HEAT) based on the room temperature at the start of the operation.
- The system automatically reselects setting at a regular interval to bring the room temperature to user-setting level.
- If you do not like AUTO operation, you can manually select the operation mode and setting you like.

■ **Note on air flow rate setting**
- At smaller air flow rates, the cooling (heating) effect is also smaller.

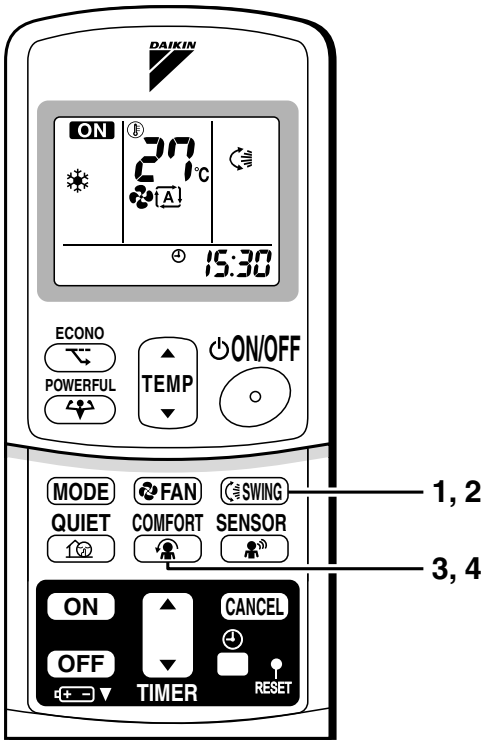
2.2.4 Adjusting the Air Flow Direction

Adjusting the Air Flow Direction

You can adjust the air flow direction to increase your comfort.

■ To adjust the horizontal blades (flaps)

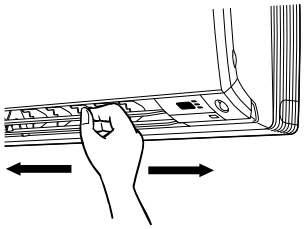
1. **Press “SWING button”.**
   - “ ” is displayed on the LCD and the flaps will begin to swing.
2. **When the flaps have reached the desired position, press “SWING button” once more.**
   - The flap will stop moving.
   - “ ” disappears from the LCD.



■ To adjust the vertical blades (louvers)

Hold the knob and move the louvers.
(You will find a knob on the left-side and the right-side blades.)

- When the unit is installed in the corner of a room, the direction of the louvers should be facing away from the wall.
  If they face the wall, the wall will block off the wind, causing the cooling (or heating) efficiency to drop.



■ To start COMFORT AIRFLOW operation

3. Press "COMFORT AIRFLOW button".

- The flap position will change, preventing air from blowing directly on the occupants of the room.
- " " is displayed on the LCD.

〈COOL/DRY〉 The flap will go up.

〈HEAT〉 The flap will go down.

■ To cancel COMFORT AIRFLOW operation

4. Press "COMFORT AIRFLOW button" again.

- The flaps will return to the memory position from before COMFORT AIRFLOW mode.
- " " disappears from the LCD.

Notes on COMFORT AIRFLOW operation

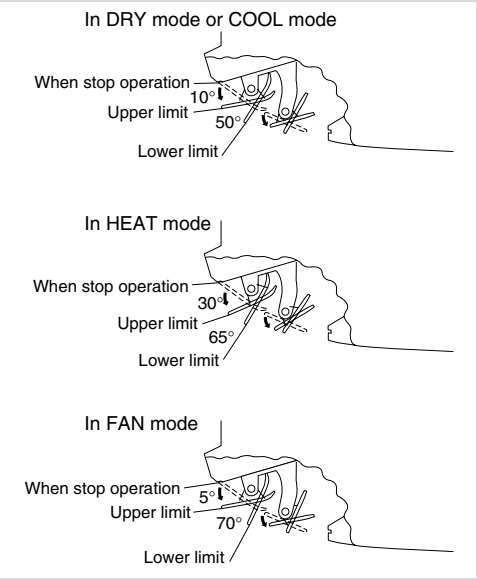
- POWERFUL operation and COMFORT AIRFLOW operation cannot be used at the same time. Priority is given to POWERFUL operation.

Notes on flaps and louvers angles

- When " **SWING button** " is selected, the flaps swinging range depends on the operation mode. (See the figure.)

■ **ATTENTION**

- Always use a remote controller to adjust the flaps angle. If you attempt to move it forcibly with hand when it is swinging, the mechanism may be broken.
- Be careful when adjusting the louvers. Inside the air outlet, a fan is rotating at a high speed.



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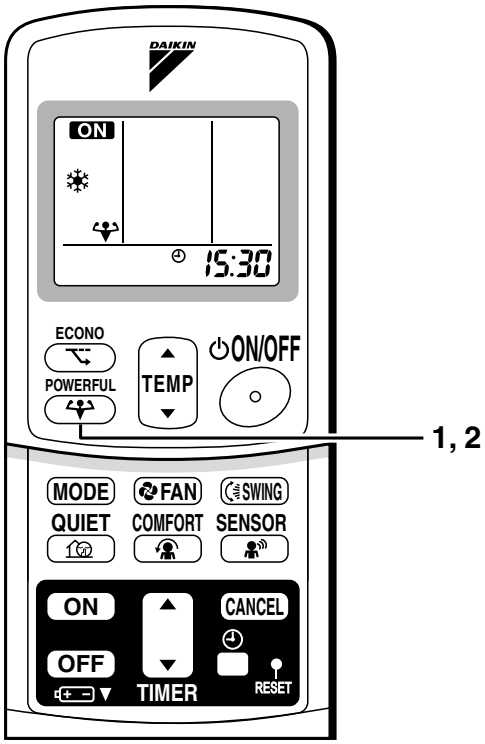
2.2.5 POWERFUL Operation

POWERFUL Operation

POWERFUL operation quickly maximizes the cooling (heating) effect in any operation mode. You can get the maximum capacity .



■ To start POWERFUL operation

1. **Press “POWERFUL button”.**
   - POWERFUL operation ends in 20 minutes. Then the system automatically operates again with the settings which were used before POWERFUL operation.
   - When using POWERFUL operation, there are some functions which are not available.
   - “ ” is displayed on the LCD.

■ To cancel POWERFUL operation

2. **Press “POWERFUL button” again.**
   - “ ” disappears from the LCD.

NOTE

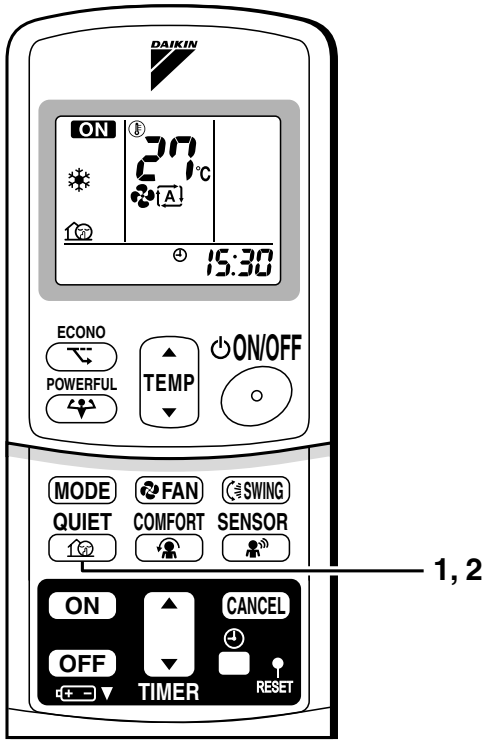
■ **Notes on POWERFUL operation**

- POWERFUL Operation cannot be used together with ECONO, QUIET, or COMFORT Operation. Priority is given to the function of whichever button is pressed last.
- POWERFUL Operation can only be set when the unit is running. Pressing the operation stop button causes the settings to be canceled, and the “ ” disappears from the LCD.
- **In COOL and HEAT mode**
  To maximize the cooling (heating) effect, the capacity of outdoor unit must be increased and the air flow rate be fixed to the maximum setting.
  The temperature and air flow settings are not variable.
- **In DRY mode**
  The temperature setting is lowered by 2.5°C and the air flow rate is slightly increased.
- **In FAN mode**
  The air flow rate is fixed to the maximum setting.

2.2.6 OUTDOOR UNIT QUIET Operation

OUTDOOR UNIT QUIET Operation

OUTDOOR UNIT QUIET operation lowers the noise level of the outdoor unit by changing the frequency and fan speed on the outdoor unit. This function is convenient during night.



■ To start OUTDOOR UNIT QUIET operation

1. **Press “QUIET button”.**
   - “ ” is displayed on the LCD.

■ To cancel OUTDOOR UNIT QUIET operation

2. **Press “QUIET button” again.**
   - “ ” disappears from the LCD.

NOTE

■ **Note on OUTDOOR UNIT QUIET operation**

- This function is available in COOL, HEAT, and AUTO modes. (This is not available in FAN and DRY mode.)
- POWERFUL operation and OUTDOOR UNIT QUIET operation cannot be used at the same time. Priority is given to the function of whichever button is pressed last.

2.2.7 ECONO Operation

ECONO Operation

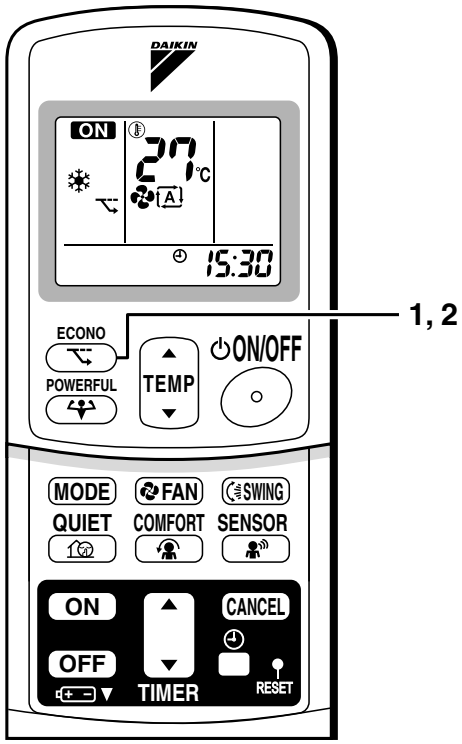
ECONO operation is a function which enables efficient operation by lowering the maximum power consumption value.

■ To start ECONO operation

1. **Press “ECONO button” .**
   - “ ” is displayed on the LCD.

■ To cancel ECONO operation

2. **Press “ECONO button” again.**
   - “ ” disappears from the LCD.



NOTE

- ECONO Operation can only be set when the unit is running. Pressing the operation stop button causes the settings to be canceled, and the “ ” disappears from the LCD.
- ECONO operation is a function which enables efficient operation by limiting the power consumption of the outdoor unit (operating frequency).
- ECONO operation functions in AUTO, COOL, DRY, and HEAT modes.
- POWERFUL operation and ECONO operation cannot be used at the same time. Priority is given to the function of whichever button is pressed last.
- Power consumption may not drop even if ECONO operation is used, when the level of power consumption is already low.

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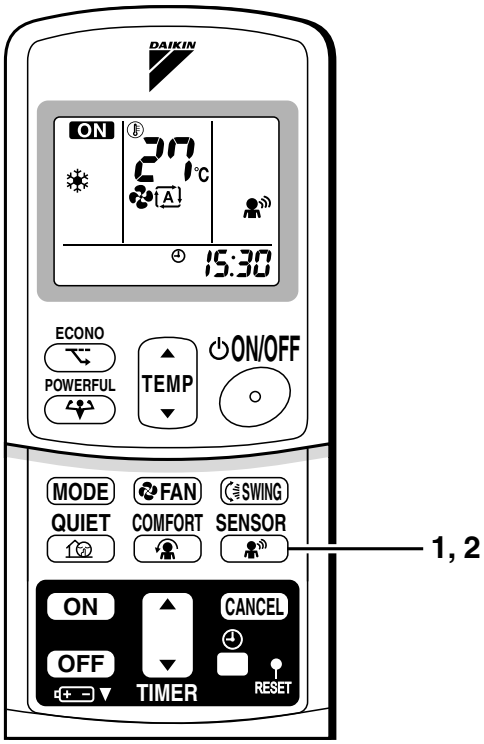
2.2.8 INTELLIGENT EYE Operation

INTELLIGENT EYE Operation

"INTELLIGENT EYE" is the infrared sensor which detects the human movement.



■ To start INTELLIGENT EYE operation

1. **Press "SENSOR button".**
   - "" is displayed on the LCD.

■ To cancel the INTELLIGENT EYE operation

2. **Press "SENSOR button" again.**
   - "" disappears from the LCD.

[EX.]

When somebody in the room
- **Normal operation.**

⇩

When nobody in the room
- **20 min. after, start energy saving operation.**

⇩

Somebody back in the room
- **Back to normal operation.**

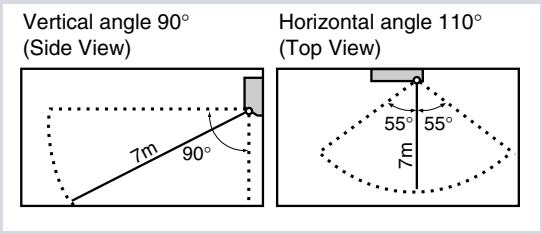
INTELLIGENT EYE Operation

“INTELLIGENT EYE” is useful for Energy Saving

■ **Energy saving operation**
- Change the temperature –2°C in heating / +2°C in cooling / +2°C in dry mode from set temperature.
- Decrease the air flow rate slightly in fan operation. (In FAN mode only)

Notes on “INTELLIGENT EYE”

- Application range is as follows.



- Sensor may not detect moving objects further than 7m away. (Check the application range)
- Sensor detection sensitivity changes according to indoor unit location, the speed of passersby, temperature range, etc.
- The sensor also mistakenly detects pets, sunlight, fluttering curtains and light reflected off of mirrors as passersby.
- INTELLIGENT EYE operation will not go on during powerful operation.
- Night set mode (page 19.) will not go on during you use INTELLIGENT EYE operation.

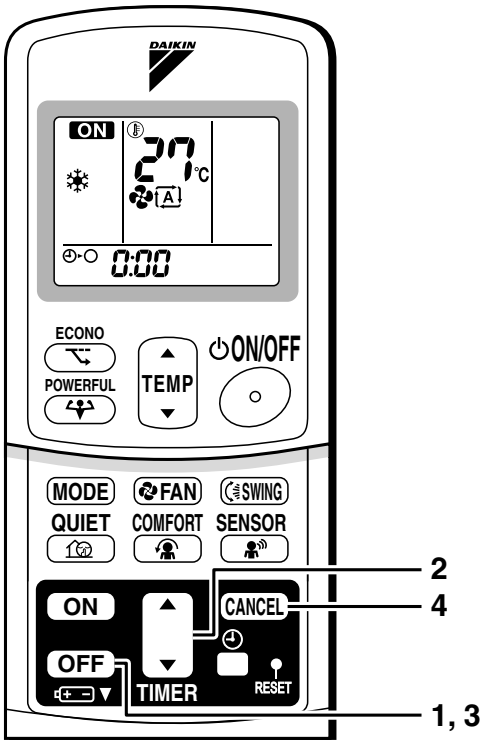
⚠ CAUTION

- Do not place large objects near the sensor.
  Also keep heating units or humidifiers outside the sensor’s detection area. This sensor can detect objects it shouldn’t as well as not detect objects it should.
- Do not hit or violently push the INTELLIGENT EYE sensor. This can lead to damage and malfunction.

2.2.9 TIMER Operation

TIMER Operation

Timer functions are useful for automatically switching the air conditioner on or off at night or in the morning. You can also use OFF TIMER and ON TIMER in combination.



■ To use OFF TIMER operation

- Check that the clock is correct. If not, set the clock to the present time. (page 9.)

1. Press “OFF TIMER button”.

0:00 is displayed.

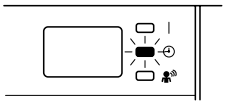
⏲ blinks.

2. Press “TIMER Setting button” until the time setting reaches the point you like.

- Every pressing of either button increases or decreases the time setting by 10 minutes. Holding down either button changes the setting rapidly.

3. Press “OFF TIMER button” again.

- The TIMER lamp lights up.



■ To cancel the OFF TIMER operation

4. Press “CANCEL button”.

- The TIMER lamp goes off.

NOTE

- When TIMER is set, the present time is not displayed.
- Once you set ON, OFF TIMER, the time setting is kept in the memory. (The memory is canceled when remote controller batteries are replaced.)
- When operating the unit via the ON/OFF Timer, the actual length of operation may vary from the time entered by the user.

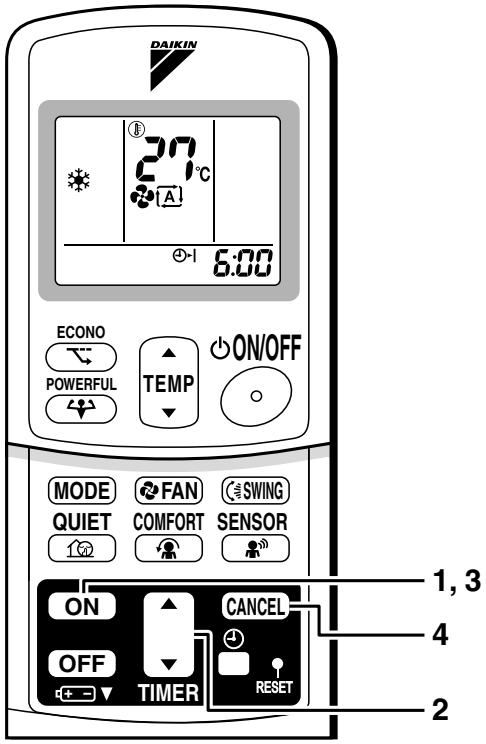
■ NIGHT SET MODE

When the OFF TIMER is set, the air conditioner automatically adjusts the temperature setting (0.5°C up in COOL, 2.0°C down in HEAT) to prevent excessive cooling (heating) for your pleasant sleep.

TIMER Operation

■ To use ON TIMER operation

- Check that the clock is correct. If not, set the clock to the present time (page 9.).



1. Press “ON TIMER button”.

6:00 is displayed.

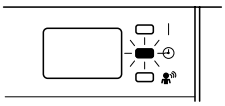
⏲ blinks.

2. Press “TIMER Setting button” until the time setting reaches the point you like.

- Every pressing of either button increases or decreases the time setting by 10 minutes. Holding down either button changes the setting rapidly.

3. Press “ON TIMER button” again.

- The TIMER lamp lights up.



■ To cancel ON TIMER operation

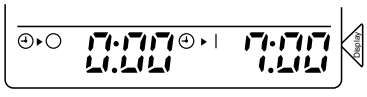
4. Press “CANCEL button”.

- The TIMER lamp goes off.

■ To combine ON TIMER and OFF TIMER

- A sample setting for combining the two timers is shown below.

(Example)
Present time: 11:00 p.m.
(The unit operating)
OFF TIMER at 0:00 a.m.
ON TIMER at 7:00 a.m.
} Combined



ATTENTION

■ **In the following cases, set the timer again.**

- After a breaker has turned OFF.
- After a power failure.
- After replacing batteries in the remote controller.

2.2.10 Care and Cleaning

Care and Cleaning

⚠ CAUTION Before cleaning, be sure to stop the operation and turn the breaker OFF.

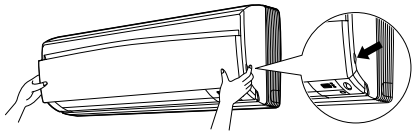
Units

■ Indoor unit, Outdoor unit and Remote controller

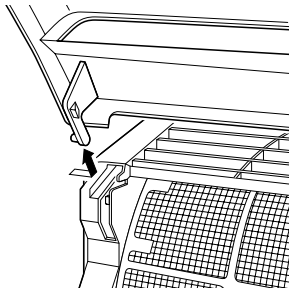
1. **Wipe them with dry soft cloth.**

■ Front panel

1. **Open the front panel.**
   - Hold the panel by the tabs on the two sides and lift it until it stops with a click.

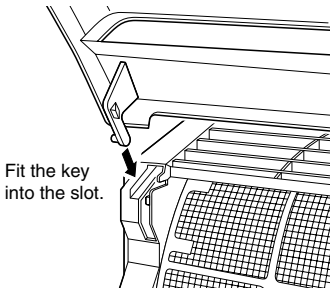


2. **Remove the front panel.**
   - Lift the front panel up, slide it slightly to the right, and remove it from the horizontal axle.



3. **Clean the front panel.**
   - Wipe it with a soft cloth soaked in water.
   - Only neutral detergent may be used.
   - In case of washing the panel with water, dry it with cloth, dry it up in the shade after washing.

4. **Attach the front panel.**
   - Set the 2 keys of the front panel into the slots and push them in all the way.
   - Close the front panel slowly and push the panel at the 3 points.
     (1 on each side and 1 in the middle.)

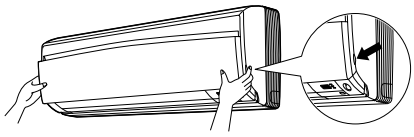


⚠ CAUTION

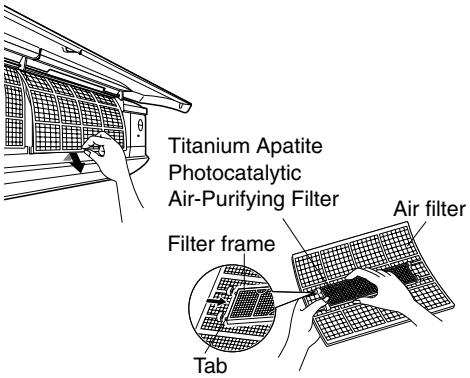
- Don't touch the metal parts of the indoor unit. If you touch those parts, this may cause an injury.
- When removing or attaching the front panel, use a robust and stable stool and watch your steps carefully.
- When removing or attaching the front panel, support the panel securely with hand to prevent it from falling.
- For cleaning, do not use hot water above 40°C, benzine, gasoline, thinner, nor other volatile oils, polishing compound, scrubbing brushes, nor other hand stuff.
- After cleaning, make sure that the front panel is securely fixed.

Filters

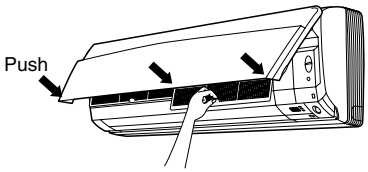
1. **Open the front panel. (page 23.)**
2. **Pull out the air filters.**
   - Push a little upwards the tab at the center of each air filter, then pull it down.



3. **Take off the Titanium Apatite Photocatalytic Air-Purifying Filter.**
   - Hold the recessed parts of the frame and unhook the four claws.
4. **Clean or replace each filter.**
   See figure.

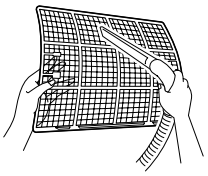


5. **Set the air filter and Titanium Apatite Photocatalytic Air-Purifying Filter as they were and close the front panel.**
   - Insert claws of the filters into slots of the front panel. Close the front panel slowly and push the panel at the 3 points. (1 on each side and 1 in the middle.)

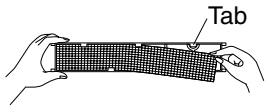


■ Air Filter

1. **Wash the air filters with water or clean them with vacuum cleaner.**
   - If the dust does not come off easily, wash them with neutral detergent thinned with lukewarm water, then dry them up in the shade.
   - It is recommended to clean the air filters every two weeks.



■ Titanium Apatite Photocatalytic Air-Purifying Filter.



The Titanium Apatite Photocatalytic Air-Purifying Filter can be renewed by washing it with water once every 6 months. We recommend replacing it once every 3 years.

[Maintenance]

1. **Remove dust with a vacuum cleaner and wash lightly with water.**
2. **If it is very dirty, soak it for 10 to 15 minutes in water mixed with a neutral cleaning agent.**
3. **Do not remove filter from frame when washing with water.**
4. **After washing, shake off remaining water and dry in the shade.**
5. **Since the material is made out of paper, do not wring out the filter when removing water from it.**

[Replacement]

1. **Remove the tabs on the filter frame and replace with a new filter.**
   - Dispose of the old filter as flammable waste.

NOTE

- Operation with dirty filters:
  (1) cannot deodorize the air. (2) cannot clean the air.
  (3) results in poor heating or cooling. (4) may cause odour.
- To order Titanium Apatite Photocatalytic Air-Purifying Filter contact to the service shop there you bought the air conditioner.
- Dispose of old filters as burnable waste.

Item	Part No.
Titanium Apatite Photocatalytic Air-Purifying Filter. (without frame) 1 set	KAF970A46

Check

Check that the base, stand and other fittings of the outdoor unit are not decayed or corroded.
Check that nothing blocks the air inlets and the outlets of the indoor unit and the outdoor unit.
Check that the drain comes smoothly out of the drain hose during COOL or DRY operation. • If no drain water is seen, water may be leaking from the indoor unit. Stop operation and consult the service shop if this is the case.

■ Before a long idle period

1. **Operate the "FAN only" for several hours on a fine day to dry out the inside.**
   - Press "MODE selector button" and select "FAN" operation.
   - Press "ON/OFF button" and start operation.
2. **After operation stops, turn off the breaker for the room air conditioner.**
3. **Clean the air filters and set them again.**
4. **Take out batteries from the remote controller.**

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2.2.11 Troubleshooting

Trouble Shooting

These cases are not troubles.

The following cases are not air conditioner troubles but have some reasons. You may just continue using it.

Case	Explanation
Operation does not start soon. • When ON/OFF button was pressed soon after operation was stopped. • When the mode was reselected.	• This is to protect the air conditioner. You should wait for about 3 minutes.
Hot air does not flow out soon after the start of heating operation.	• The air conditioner is warming up. You should wait for 1 to 4 minutes. (The system is designed to start discharging air only after it has reached a certain temperature.)
The heating operation stops suddenly and a flowing sound is heard.	• The system is taking away the frost on the outdoor unit. You should wait for about 3 to 8 minutes.
The outdoor unit emits water or steam.	■ In HEAT mode • The frost on the outdoor unit melts into water or steam when the air conditioner is in defrost operation. ■ In COOL or DRY mode • Moisture in the air condenses into water on the cool surface of outdoor unit piping and drips.
Mist comes out of the indoor unit.	■ This happens when the air in the room is cooled into mist by the cold air flow during cooling operation.
The indoor unit gives out odour.	■ This happens when smells of the room, furniture, or cigarettes are absorbed into the unit and discharged with the air flow. (If this happens, we recommend you to have the indoor unit washed by a technician. Consult the service shop where you bought the air conditioner.)
The outdoor fan rotates while the air conditioner is not in operation.	■ After operation is stopped: • The outdoor fan continues rotating for another 60 seconds for system protection. ■ While the air conditioner is not in operation: • When the outdoor temperature is very high, the out door fan starts rotating for system protection.
The operation stopped suddenly. (OPERATION lamp is on.)	■ For system protection, the air conditioner may stop operating on a sudden large voltage fluctuation. It automatically resumes operation in about 3 minutes.

Check again.

Please check again before calling a repair person.

Case	Check
The air conditioner does not operate. (OPERATION lamp is off.)	• Hasn't a breaker turned OFF or a fuse blown? • Isn't it a power failure? • Are batteries set in the remote controller? • Is the timer setting correct?
Cooling (Heating) effect is poor.	• Are the air filters clean? • Is there anything to block the air inlet or the outlet of the indoor and the outdoor units? • Is the temperature setting appropriate? • Are the windows and doors closed? • Are the air flow rate and the air direction set appropriately? • Is the unit set to the INTELLIGENT EYE mode? (page 17.)
Operation stops suddenly. (OPERATION lamp flashes.)	• Are the air filters clean? • Is there anything to block the air inlet or the outlet of the indoor and the outdoor units? Clean the air filters or take all obstacles away and turn the breaker OFF. Then turn it ON again and try operating the air conditioner with the remote controller. If the lamp still flashes, call the service shop where you bought the air conditioner.
An abnormal functioning happens during operation.	• The air conditioner may malfunction with lightning or radio waves. Turn the breaker OFF, turn it ON again and try operating the air conditioner with the remote controller.

Call the service shop immediately.

⚠ WARNING

- When an abnormality (such as a burning smell) occurs, stop operation and turn the breaker OFF.
  Continued operation in an abnormal condition may result in troubles, electric shocks or fire.
  Consult the service shop where you bought the air conditioner.
- Do not attempt to repair or modify the air conditioner by yourself.
  Incorrect work may result in electric shocks or fire.
  Consult the service shop where you bought the air conditioner.

If one of the following symptoms takes place, call the service shop immediately.

- **The power cord is abnormally hot or damaged.**
- **An abnormal sound is heard during operation.**
- **The safety breaker, a fuse, or the earth leakage breaker cuts off the operation frequently.**
- **A switch or a button often fails to work properly.**
- **There is a burning smell.**
- **Water leaks from the indoor unit.**

▶ Turn the breaker OFF and call the service shop.

■ After a power failure The air conditioner automatically resumes operation in about 3 minutes. You should just wait for a while.	■ Lightning If lightning may strike the neighbouring area, stop operation and turn the breaker OFF for system protection.

Disposal requirements

Your air conditioning product is marked with this symbol. This means that electrical and electronic products shall not be mixed with unsorted household waste.

Do not try to dismantle the system yourself: the dismantling of the air conditioning system, treatment of the refrigerant, of oil and of other parts must be done by a qualified installer in accordance with relevant local and national legislation.

Air conditioners must be treated at a specialized treatment facility for re-use, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information.

Batteries must be removed from the remote controller and disposed of separately in accordance with relevant local and national legislation.

We recommend periodical maintenance.

In certain operating conditions, the inside of the air conditioner may get foul after several seasons of use, resulting in poor performance. It is recommended to have periodical maintenance by a specialist aside from regular cleaning by the user. For specialist maintenance, contact the service shop where you bought the air conditioner. The maintenance cost must be born by the user.

Important information regarding the refrigerant used.

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol.

Refrigerant type:**R410A**

GWP(1) value:**1975**

(1) GWP = global warming potential

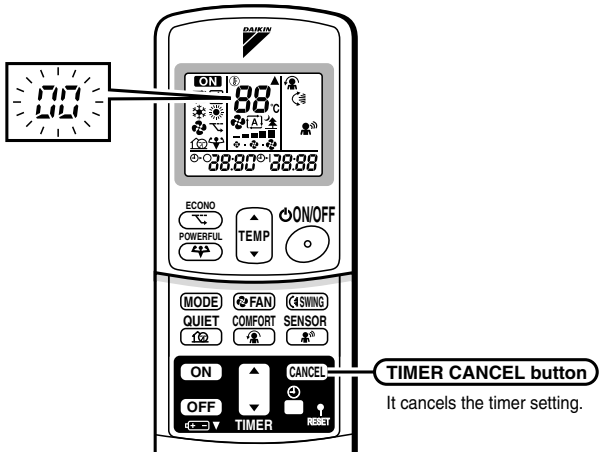
Periodical inspections for refrigerant leaks may be required depending on European or local legislation. Please contact your local dealer for more information.

Fault diagnosis.

FAULT DIAGNOSIS BY REMOTE CONTROLLER

In the ARC433 series, the temperature display sections on the main unit indicate corresponding codes.

1. **When the TIMER CANCEL button is held down for 5 seconds, a "00" indication flashes on the temperature display section.**



2. **Press the TIMER CANCEL button repeatedly until a continuous beep is produced.**
   - The code indication changes as shown below, and notifies with a long beep.

	CODE	MEANING
SYSTEM	00	NORMAL
	UA	INDOOR-OUTDOOR UNIT COMBINATION FAULT
	U0	REFRIGERANT SHORTAGE
	U2	DROP VOLTAGE OR MAIN CIRCUIT OVERVOLTAGE
	U4	FAILURE OF TRANSMISSION (BETWEEN INDOOR UNIT AND OUTDOOR UNIT)
INDOOR UNIT	A1	INDOOR PCB DEFECTIVENESS
	A5	HIGH PRESSURE CONTROL OR FREEZE-UP PROTECTOR
	A6	FAN MOTOR FAULT
	C4	FAULTY HEAT EXCHANGER TEMPERATURE SENSOR
	C7	FRONT PANEL OPEN/CLOSE FAULT
	C9	FAULTY SUCTION AIR TEMPERATURE SENSOR
OUTDOOR UNIT	EA	COOLING-HEATING SWITCHING ERROR
	E1	CIRCUIT BOARD FAULT
	E5	OL STARTED
	E6	FAULTY COMPRESSOR START UP
	E7	DC FAN MOTOR FAULT
	F3	HIGH TEMPERATURE DISCHARGE PIPE CONTROL
	F6	HIGH PRESSURE CONTROL (IN COOLING)
	H0	SENSOR FAULT
	H6	OPERATION HALT DUE TO FAULTY POSITION DETECTION SENSOR
	H8	CT ABNORMALITY
	H9	FAULTY SUCTION AIR TEMPERATURE SENSOR
	J3	FAULTY DISCHARGE PIPE TEMPERATURE SENSOR
	J6	FAULTY HEAT EXCHANGER TEMPERATURE SENSOR
	L3	ELECTRICAL PARTS HEAT FAULT
	L4	HIGH TEMPERATURE AT INVERTER CIRCUIT HEATSINK
	L5	OUTPUT OVERCURRENT
	P4	FAULTY INVERTER CIRCUIT HEATSINK TEMPERATURE SENSOR

NOTE

1. A short beep and two consecutive beeps indicate non-corresponding codes.
2. To cancel the code display, hold the TIMER CANCEL button down for 5 seconds. The code display also cancel itself if the button is not pressed for 1 minute.

3P194516-2B

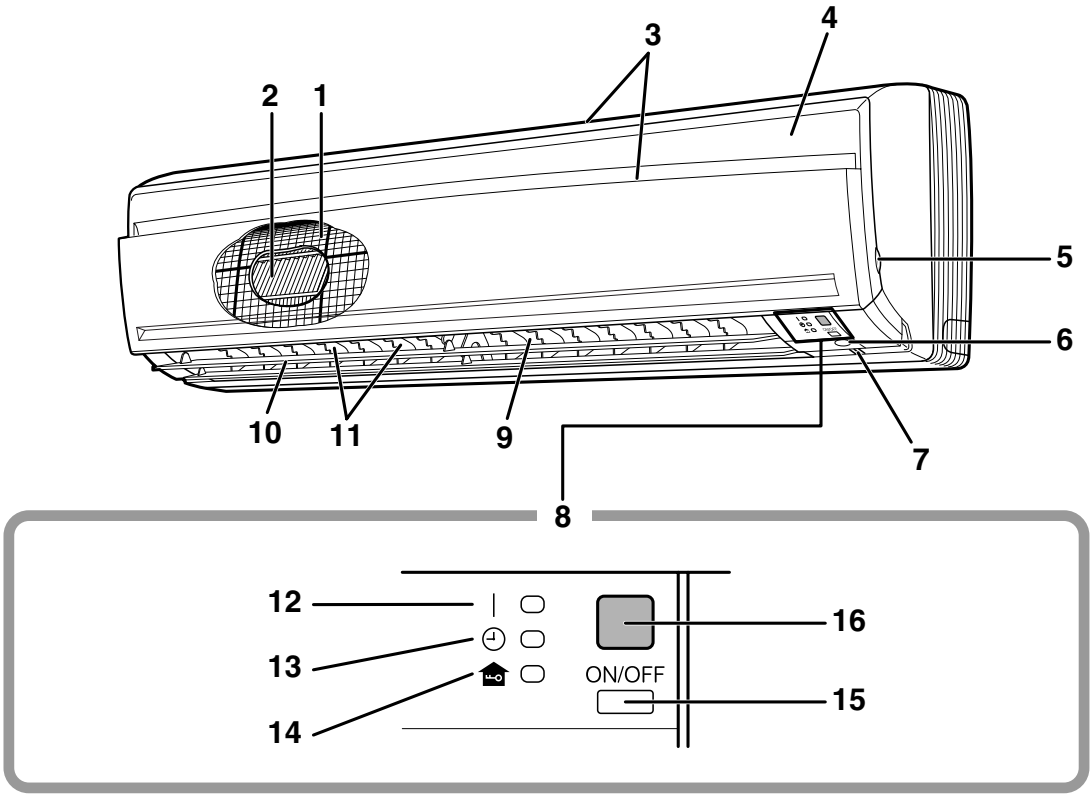
2.3 FTK(X)S 50/60/71 F, FT(Y) 50/60 F

2.3.1 Names of parts

Note: The instruction is for FTK(X)S50/60/71 F as representative.

Names of parts

■ Indoor Unit



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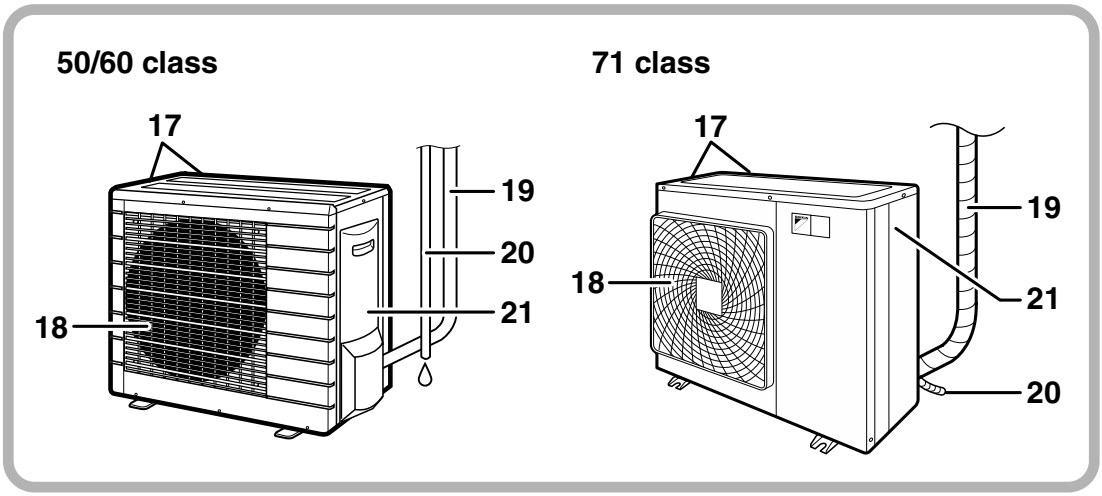
■ Outdoor Unit



■ Indoor Unit

1. **Air filter**
2. **Titanium Apatite Photocatalytic Air-Purifying Filter**
3. **Air inlet**
4. **Front panel**
5. **Panel tab**
6. **INTELLIGENT EYE sensor:**
   - It detects the movements of people and automatically switches between normal operation and energy saving operation. (page 18.)
7. **Room temperature sensor:**
   - It senses the air temperature around the unit.
8. **Display**
9. **Air outlet**
10. **Flap (horizontal blade):** (page 12.)
11. **Louvers (vertical blades):**
    - The Louvers are inside of the air outlet. (page 12.)
12. **Operation lamp (green)**
13. **TIMER lamp (yellow):** (page 20.)
14. **HOME LEAVE lamp (red):**
    - Lights up when you use HOME LEAVE Operation. (page 16.)
15. **Indoor Unit ON/OFF switch:**
    - Push this switch once to start operation. Push once again to stop it.
    - The operation mode refer to the following table.

	Mode	Temperature setting	Air flow rate
FTKS	COOL	22°C	AUTO
FTXS	AUTO	25°C	AUTO

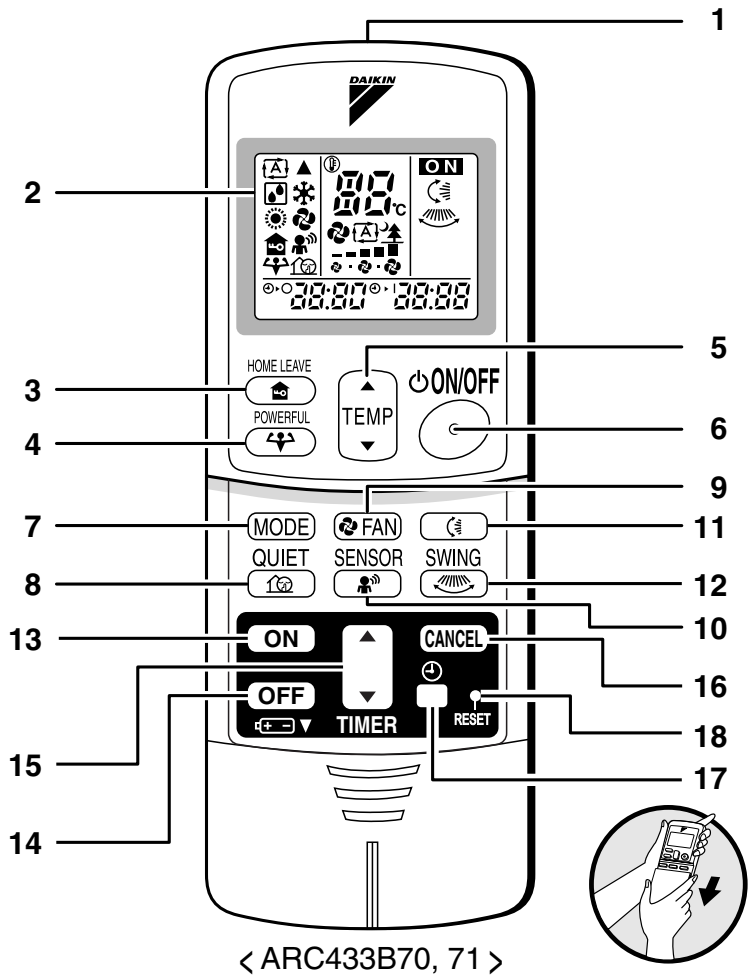
    - This switch is useful when the remote controller is missing.
16. **Signal receiver:**
    - It receives signals from the remote controller.
    - When the unit receives a signal, you will hear a short beep.
      - Operation start .....beep-beep
      - Settings changed.....beep
      - Operation stop .....beeeeep

■ Outdoor Unit

17. **Air inlet:** (Back and side)
18. **Air outlet**
19. **Refrigerant piping and inter-unit cable**
20. **Drain hose**
21. **Earth terminal:**
    - It is inside of this cover.

Appearance of the outdoor unit may differ from some models.

■ Remote Controller



< ARC433B70, 71 >

1. **Signal transmitter:**
   - It sends signals to the indoor unit.
2. **Display:**
   - It displays the current settings. (In this illustration, each section is shown with all its displays ON for the purpose of explanation.)
3. **HOME LEAVE button:** HOME LEAVE operation (page 16.)
4. **POWERFUL button:** POWERFUL operation (page 14.)
5. **TEMPERATURE adjustment buttons:**
   - It changes the temperature setting.
6. **ON/OFF button:**
   - Press this button once to start operation. Press once again to stop it.
7. **MODE selector button:**
   - It selects the operation mode. (AUTO/DRY/COOL/HEAT/FAN) (page 10.)
8. **QUIET button:** OUTDOOR UNIT QUIET operation (page 15.)
9. **FAN setting button:**
   - It selects the air flow rate setting.
10. **SENSOR button:** INTELLIGENT EYE operation (page 18.)
11. **SWING button:** (page 12.)
    - Flap (Horizontal blade)
12. **SWING button:** (page 12.)
    - Louver (Vertical blades)
13. **ON TIMER button:** (page 21.)
14. **OFF TIMER button:** (page 20.)
15. **TIMER Setting button:**
    - It changes the time setting.
16. **TIMER CANCEL button:**
    - It cancels the timer setting.
17. **CLOCK button:** (page 9.)
18. **RESET button:**
    - Restart the unit if it freezes.
    - Use a thin object to push.

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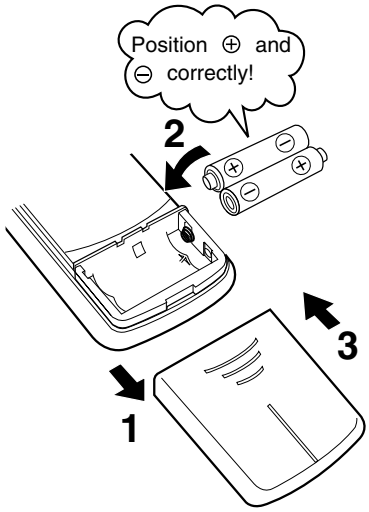
2.3.2 Preparation Before Operation

Preparation Before Operation

■ To set the batteries

1. **Slide the front cover to take it off.**
2. **Set two dry batteries (AAA).**
3. **Set the front cover as before.**



ATTENTION

■ **About batteries**

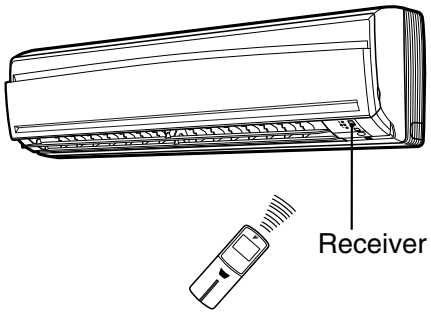
- When replacing the batteries, use batteries of the same type, and replace the two old batteries together.
- When the system is not used for a long time, take the batteries out.
- We recommend replacing once a year, although if the remote controller display begins to fade or if reception deteriorates, please replace with new alkali batteries. Using manganese batteries reduces the lifespan.
- The attached batteries are provided for the initial use of the system.
  The usable period of the batteries may be short depending on the manufactured date of the air conditioner.

7

Preparation Before Operation

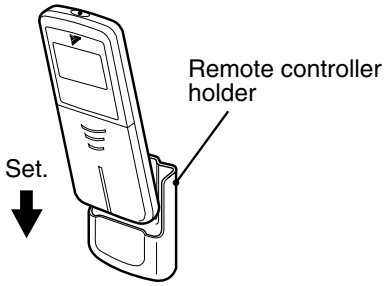
■ To operate the remote controller

- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- Do not drop the remote controller. Do not get it wet.
- The maximum distance for communication is about 7m.



■ To fix the remote controller holder on the wall

1. **Choose a place from where the signals reach the unit.**
2. **Fix the holder to a wall, a pillar, or similar location with the screws procured locally.**
3. **Place the remote controller in the remote controller holder.**



• To remove, pull it upwards.

ATTENTION

■ **About remote controller**

- Never expose the remote controller to direct sunlight.
- Dust on the signal transmitter or receiver will reduce the sensitivity. Wipe off dust with soft cloth.
- Signal communication may be disabled if an electronic-starter-type fluorescent lamp (such as inverter-type lamps) is in the room. Consult the shop if that is the case.
- If the remote controller signals happen to operate another appliance, move that appliance to somewhere else, or consult the shop.

■ To set the clock

1. **Press “CLOCK button”.**

   0:00 is displayed.

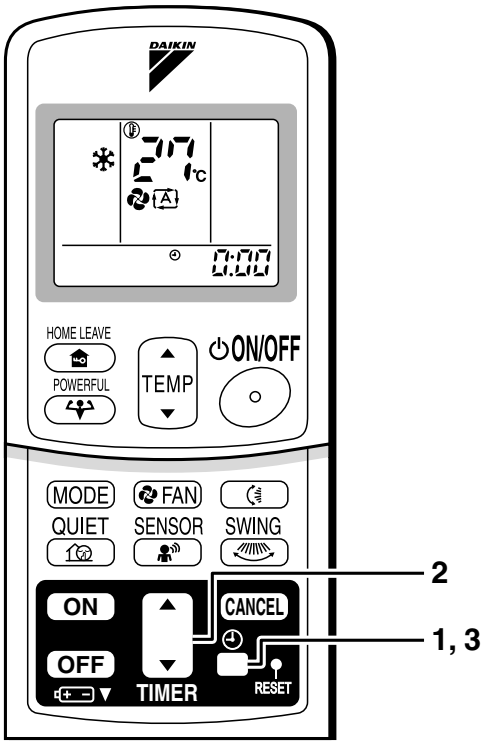
   blinks.

2. **Press “TIMER setting button” to set the clock to the present time.**

   Holding down “▲” or “▼” button rapidly increases or decreases the time display.

3. **Press “CLOCK button”.**

   : blinks.



■ Turn the breaker ON

- Turning ON the breaker opens the flap, then closes it again. (This is a normal procedure.)

NOTE

■ Tips for saving energy

- Be careful not to cool (heat) the room too much.
  Keeping the temperature setting at a moderate level helps save energy.
- Cover windows with a blind or a curtain.
  Blocking sunlight and air from outdoors increases the cooling (heating) effect.
- Clogged air filters cause inefficient operation and waste energy. Clean them once in about every two weeks.

Recommended temperature setting
For cooling:26°C – 28°C For heating:20°C – 24°C

■ Please note

- The air conditioner always consumes 15-35 watts of electricity even while it is not operating.
- If you are not going to use the air conditioner for a long period, for example in spring or autumn, turn the breaker OFF.
- Use the air conditioner in the following conditions.

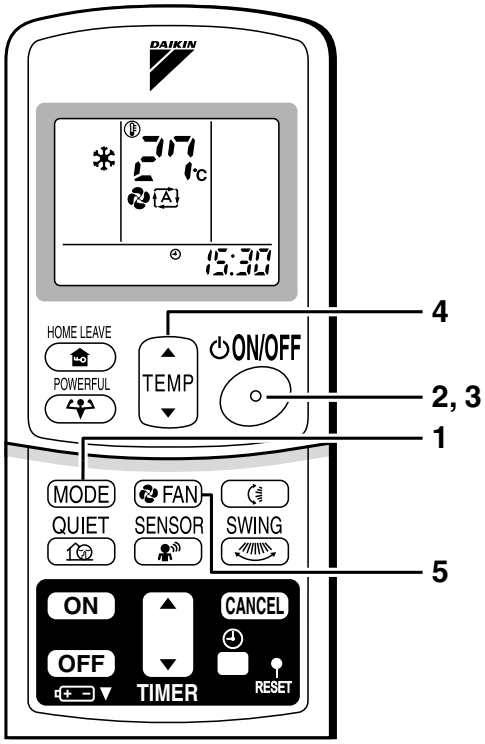
Mode	Operating conditions	If operation is continued out of this range
COOL	Outdoor temperature:〈2/3/MXS〉 –10 to 46°C 〈4/5MK(X)S〉 –10 to 46°C 〈RK(X)S〉 –10 to 46°C Indoor temperature: 18 to 32°C Indoor humidity: 80% max.	• A safety device may work to stop the operation. (In multi system, it may work to stop the operation of the outdoor unit only.) • Condensation may occur on the indoor unit and drip.
HEAT	Outdoor temperature:〈2/3/4/5MXS〉 –15 to 15.5°C 〈RXS〉 –15 to 18°C Indoor temperature: 10 to 30°C	• A safety device may work to stop the operation.
DRY	Outdoor temperature:〈2/3/MXS〉 –10 to 46°C 〈4/5MK(X)S〉 –10 to 46°C 〈RK(X)S〉 –10 to 46°C Indoor temperature: 18 to 32°C Indoor humidity: 80% max.	• A safety device may work to stop the operation. • Condensation may occur on the indoor unit and drip.

- Operation outside this humidity or temperature range may cause a safety device to disable the system .

2.3.3 AUTO • DRY • COOL • HEAT • FAN Operation

AUTO · DRY · COOL · HEAT · FAN Operation

The air conditioner operates with the operation mode of your choice.
From the next time on, the air conditioner will operate with the same operation mode.



■ To start operation

1. Press “MODE selector button” and select a operation mode.

- Each pressing of the button advances the mode setting in sequence.

: AUTO

: DRY

: COOL

: HEAT

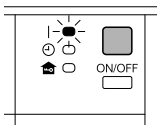
: FAN

<FTKS>

<FTXS>

2. Press “ON/OFF button”.

- The OPERATION lamp lights up.



■ To stop operation

3. Press “ON/OFF button” again.

- Then OPERATION lamp goes off.

■ To change the temperature setting

4. Press “TEMPERATURE adjustment button”.

DRY or FAN mode	AUTO or COOL or HEAT mode
The temperature setting is not variable.	Press “ ▲ ” to raise the temperature and press “ ▼ ” to lower the temperature.
	Set to the temperature you like. 

■ To change the air flow rate setting

5. Press “FAN setting button”.

DRY mode	AUTO or HEAT or COOL or FAN mode
The air flow rate setting is not variable.	Five levels of air flow rate setting from “ ” to “ ” plus “ ” “ ” are available. 

- Indoor unit quiet operation

  When the air flow is set to “ ”, the noise from the indoor unit will become quieter. Use this when making the noise quieter.

  The unit might lose capacity when the air flow rate is set to a weak level.

NOTE

■ **Note on HEAT operation**
- Since this air conditioner heats the room by taking heat from outdoor air to indoors, the heating capacity becomes smaller in lower outdoor temperatures. If the heating effect is insufficient, it is recommended to use another heating appliance in combination with the air conditioner.
- The heat pump system heats the room by circulating hot air around all parts of the room. After the start of heating operation, it takes some time before the room gets warmer.
- In heating operation, frost may occur on the outdoor unit and lower the heating capacity. In that case, the system switches into defrosting operation to take away the frost.
- During defrosting operation, hot air does not flow out of indoor unit.

■ **Note on COOL operation**
- This air conditioner cools the room by blowing the hot air in the room outside, so if the outside temperature is high, performance drops.

■ **Note on DRY operation**
- The computer chip works to rid the room of humidity while maintaining the temperature as much as possible. It automatically controls temperature and fan strength, so manual adjustment of these functions is unavailable.

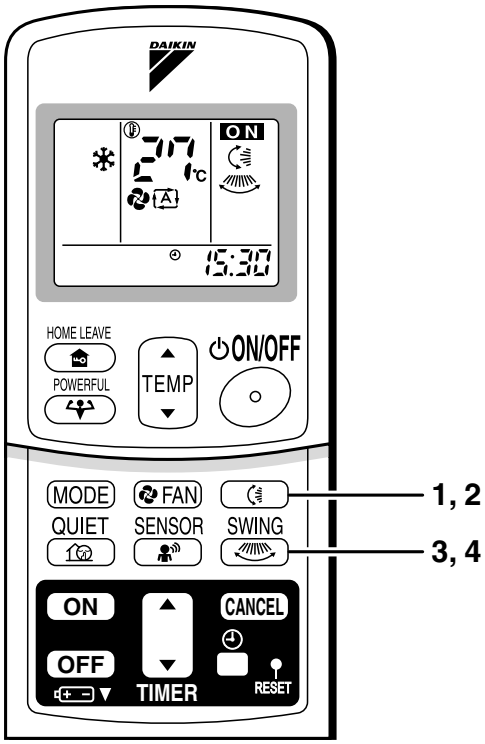
■ **Note on AUTO operation**
- In AUTO operation, the system selects a temperature setting and an appropriate operation mode (COOL or HEAT) based on the room temperature at the start of the operation.
- The system automatically reselects setting at a regular interval to bring the room temperature to user-setting level.
- If you do not like AUTO operation, you can manually select the operation mode and setting you like.

■ **Note on air flow rate setting**
- At smaller air flow rates, the cooling (heating) effect is also smaller.

2.3.4 Adjusting the Air Flow Direction

Adjusting the Air Flow Direction

You can adjust the air flow direction to increase your comfort.



■ To adjust the horizontal blade (flap)

1. **Press "SWING button".**
   - "" is displayed on the LCD and the flaps will begin to swing.
2. **When the flap has reached the desired position, press "SWING button" once more.**
   - The flap will stop moving.
   - "" disappears from the LCD.

■ To adjust the vertical blades (louvers)

3. **Press "SWING button".**
   - "" is displayed on the LCD.
4. **When the louvers have reached the desired position, press the "SWING button" once more.**
   - The louvers will stop moving.
   - "" disappears from the LCD.

■ To 3-D Airflow

1. 3. Press the "SWING button" and the "SWING button": the "" and "" display will light up and the flap and louvers will move in turn.

■ To cancel 3-D Airflow

2. 4. Press either the "SWING button" or the "SWING button".

Notes on louvers angles

■ **ATTENTION**

- Always use a remote controller to adjust the louvers angles. In side the air outlet, a fan is rotating at a high speed.

Notes on flap angle

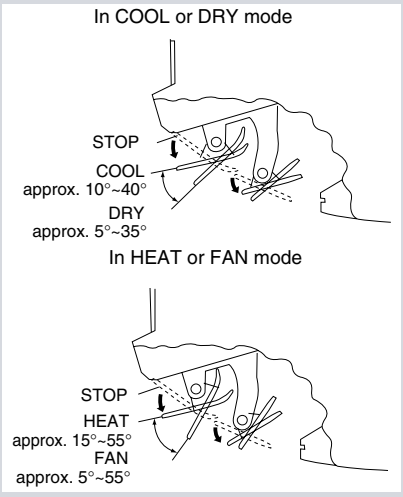
- When "**SWING button**" is selected, the flaps swinging range depends on the operation mode. (See the figure.)

Three-Dimensional (3-D) Airflow

- Using three-dimensional airflow circulates cold air, which tends to collected at the bottom of the room, and hot air, which tends to collect near the ceiling, throughout the room, preventing areas of cold and hot developing.

■ **ATTENTION**

- Always use a remote controller to adjust the flaps angle. If you attempt to move it forcibly with hand when it is swinging, the mechanism may be broken.
- Be careful when adjusting the louvers. Inside the air outlet, fan is rotating at a high speed.



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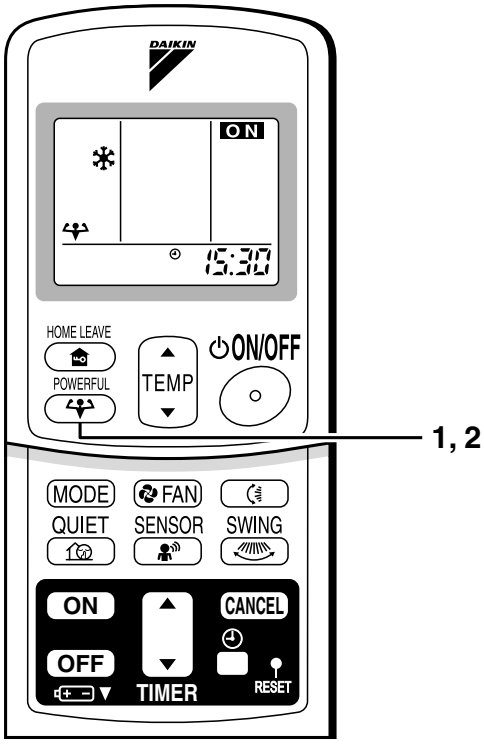
2.3.5 POWERFUL Operation

POWERFUL Operation

POWERFUL operation quickly maximizes the cooling (heating) effect in any operation mode. You can get the maximum capacity.



■ To start POWERFUL operation

1. **Press "POWERFUL button".**
   - POWERFUL operation ends in 20 minutes. Then the system automatically operates again with the settings which were used before POWERFUL operation.
   - When using Powerful operation, there are some functions which are not available.
   - "⚡" is displayed on the LCD.

■ To cancel POWERFUL operation

2. **Press "POWERFUL button" again.**
   - "⚡" disappears from the LCD.

NOTE

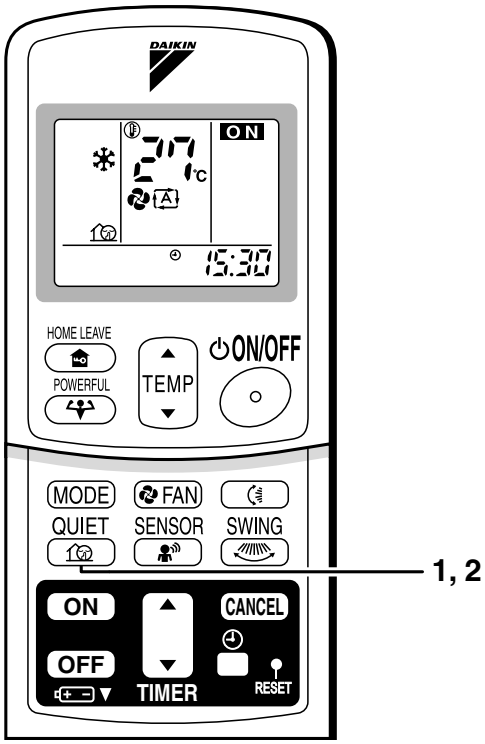
■ **Notes on POWERFUL operation**

- POWERFUL Operation cannot be used together with QUIET Operation. Priority is given to the function of whichever button is pressed last.
- POWERFUL Operation can only be set when the unit is running. Pressing the operation stop button causes the settings to be canceled, and the "⚡" disappears from the LCD.
- **In COOL and HEAT mode**
  To maximize the cooling (heating) effect, the capacity of outdoor unit must be increased and the air flow rate be fixed to the maximum setting.
  The temperature and air flow settings are not variable.
- **In DRY mode**
  The temperature setting is lowered by 2.5°C and the air flow rate is slightly increased.
- **In FAN mode**
  The air flow rate is fixed to the maximum setting.

2.3.6 OUTDOOR UNIT QUIET Operation

OUTDOOR UNIT QUIET Operation

OUTDOOR UNIT QUIET operation lowers the noise level of the outdoor unit by changing the frequency and fan speed on the outdoor unit. This function is convenient during night.



■ To start OUTDOOR UNIT QUIET operation

1. **Press “QUIET button”.**
   - “ ” is displayed on the LCD.

■ To cancel OUTDOOR UNIT QUIET operation

2. **Press “QUIET button” again.**
   - “ ” disappears from the LCD.

NOTE

■ **Note on OUTDOOR UNIT QUIET operation**

- This function is available in COOL, HEAT, and AUTO modes. (This is not available in FAN and DRY mode.)
- POWERFUL operation and OUTDOOR UNIT QUIET operation cannot be used at the same time. Priority is given to the function of whichever button is pressed last.
- If operation is stopped using the remote controller or the main unit ON/OFF switch when using OUTDOOR UNIT QUIET operation, “ ” will remain on the remote controller display.

2.3.7 HOME LEAVE Operation

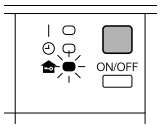
HOME LEAVE Operation

HOME LEAVE operation is a function which allows you to record your preferred temperature and air flow rate settings.

■ To start HOME LEAVE operation

1. Press “HOME LEAVE button”.

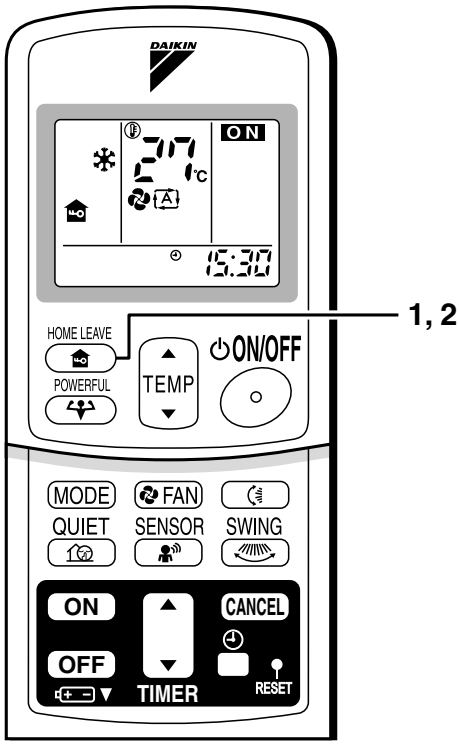
- “ ” is displayed on the LCD.
- The HOME LEAVE lamp lights up.



■ To cancel HOME LEAVE operation

2. Press “HOME LEAVE button” again.

- “ ” disappears from the LCD.
- The HOME LEAVE lamp goes off.



Before using HOME LEAVE operation.

■ **To set the temperature and air flow rate for HOME LEAVE operation**

When using HOME LEAVE operation for the first time, please set the temperature and air flow rate for HOME LEAVE operation. Record your preferred temperature and air flow rate.

	Initial setting		Selectable range	
	temperature	Air flow rate	temperature	Air flow rate
Cooling	25°C	“A”	18-32°C	5 step, “A” and “ ”
Heating	25°C	“A”	10-30°C	5 step, “A” and “ ”

1. Press “HOME LEAVE button”. Make sure “ ” is displayed in the remote controller display.

2. Adjust the set temperature with “ ▲ ” or “ ▼ ” as you like.

3. Adjust the air flow rate with “FAN” setting button as you like.

Home leave operation will run with these settings the next time you use the unit. To change the recorded information, repeat steps 1 – 3.

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■ What's the HOME LEAVE operation?

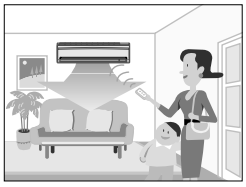
Is there a set temperature and air flow rate which is most comfortable, a set temperature and air flow rate which you use the most? HOME LEAVE operation is a function that allows you to record your favorite set temperature and air flow rate. You can start your favorite operation mode simply by pressing the HOME LEAVE button on the remote controller. This function is convenient in the following situations.

■ Useful in these cases

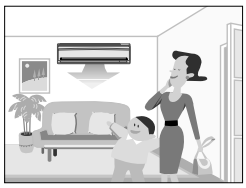
1.Use as an energy-saving mode.

Set the temperature 2-3°C higher (cooling) or lower (heating) than normal. Setting the fan strength to the lowest setting allows the unit to be used in energy-saving mode. Also convenient for use while you are out or sleeping.

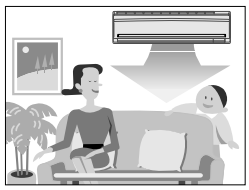
- **Every day before you leave the house...**



When you go out, push the "HOME LEAVE Operation" button, and the air conditioner will adjust capacity to reach the preset temperature for HOME LEAVE Operation.

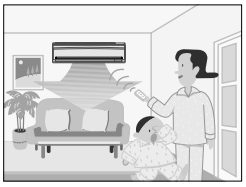


When you return, you will be welcomed by a comfortably air conditioned room.



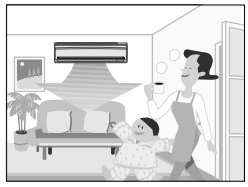
Push the "HOME LEAVE Operation" button again, and the air conditioner will adjust capacity to the set temperature for normal operation.

- **Before bed...**



Set the unit to HOME LEAVE Operation before leaving the living room when going to bed.

The unit will maintain the temperature in the room at a comfortable level while you sleep.



When you enter the living room in the morning, the temperature will be just right. Disengaging HOME LEAVE Operation will return the temperature to that set for normal operation. Even the coldest winters will pose no problem!

2.Use as a favorite mode.

Once you record the temperature and air flow rate settings you most often use, you can retrieve them by pressing HOME LEAVE button. You do not have to go through troublesome remote control operations.

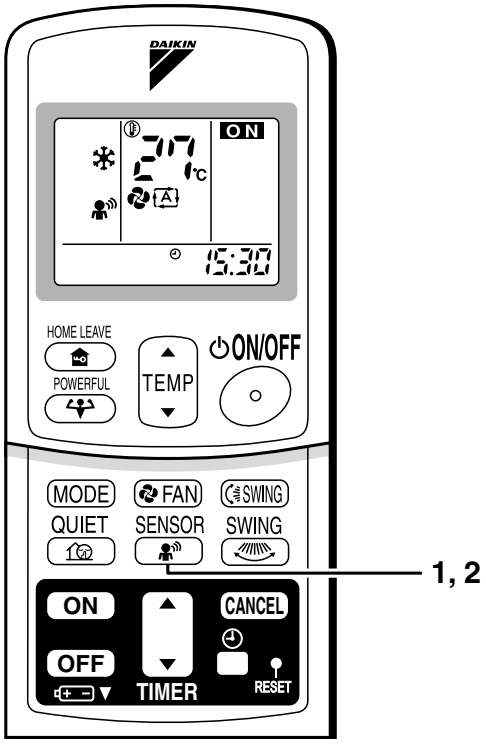
NOTE

- Once the temperature and air flow rate for HOME LEAVE operation are set, those settings will be used whenever HOME LEAVE operation is used in the future. To change these settings, please refer to the "Before using HOME LEAVE operation" section above.
- HOME LEAVE operation is only available in COOL and HEAT mode. Cannot be used in AUTO, DRY, and FAN mode.
- HOME LEAVE operation runs in accordance with the previous operation mode (COOL or HEAT) before using HOME LEAVE operation.
- HOME LEAVE operation and POWERFUL operation cannot be used at the same time. Last button that was pressed has priority.
- The operation mode cannot be changed while HOME LEAVE operation is being used.
- When operation is shut off during HOME LEAVE operation, using the remote controller or the indoor unit ON/OFF switch, " " will remain on the remote controller display.

2.3.8 INTELLIGENT EYE Operation

INTELLIGENT EYE Operation

"INTELLIGENT EYE" is the infrared sensor which detects the human movement.



■ To start INTELLIGENT EYE operation

1. **Press "SENSOR button".**
   - "" is displayed on the LCD.

■ To cancel the INTELLIGENT EYE operation

2. **Press "SENSOR button" again.**
   - "" disappears from the LCD.

[EX.]

When somebody in the room
- **Normal operation**

⇩

When nobody in the room
- **20 min. after, start energy saving operation.**

⇩

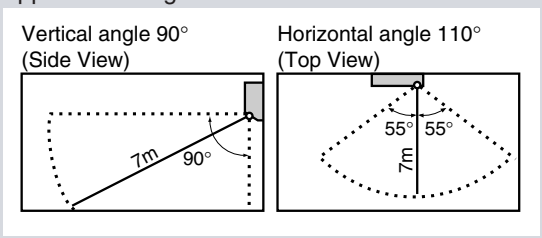
Somebody back in the room
- **Back to normal operation.**

“INTELLIGENT EYE” is useful for Energy Saving.

■ **Energy saving operation**
- Change the temperature –2°C in heating / +2°C in cooling / +1°C in dry mode from set temperature.
- Decrease the air flow rate slightly in fan operation. (In FAN mode only)

Notes on “INTELLIGENT EYE”

- Application range is as follows.



- Sensor may not detect moving objects further than 7m away. (Check the application range)
- Sensor detection sensitivity changes according to indoor unit location, the speed of passersby, temperature range, etc.
- The sensor also mistakenly detects pets, sunlight, fluttering curtains and light reflected off of mirrors as passersby.
- INTELLIGENT EYE operation will not go on during powerful operation.
- Night set mode (page 20.) will not go on during you use INTELLIGENT EYE operation.

⚠ CAUTION

- Do not place large objects near the sensor.
  Also keep heating units or humidifiers outside the sensor’s detection area. This sensor can detect objects it shouldn’t as well as not detect objects it should.
- Do not hit or violently push the INTELLIGENT EYE sensor. This can lead to damage and malfunction.

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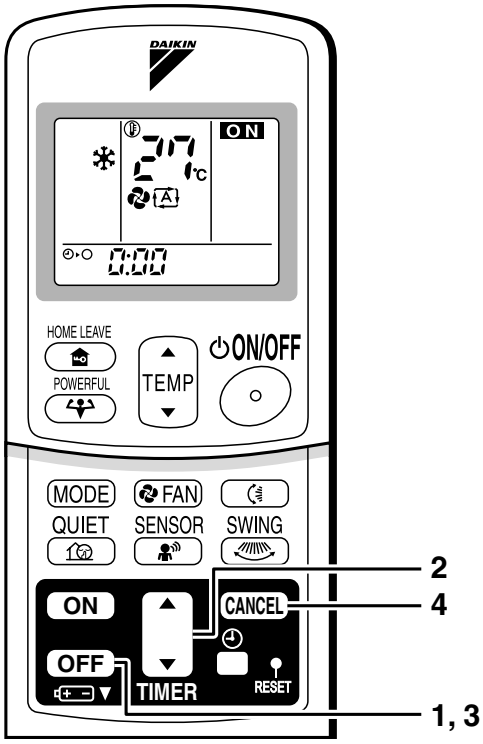
2.3.9 TIMER Operation

TIMER Operation

Timer functions are useful for automatically switching the air conditioner on or off at night or in the morning. You can also use OFF TIMER and ON TIMER in combination.



■ To use OFF TIMER operation

- Check that the clock is correct.
  If not, set the clock to the present time. (page 9.)

1. Press “OFF TIMER button”.

0:00 is displayed.

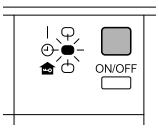
⏲ blinks.

2. Press “TIMER Setting button” until the time setting reaches the point you like.

- Every pressing of either button increases or decreases the time setting by 10 minutes. Holding down either button changes the setting rapidly.

3. Press “OFF TIMER button” again.

- The TIMER lamp lights up.



■ To cancel the OFF TIMER Operation

4. Press “CANCEL button”.

- The TIMER lamp goes off.

NOTE

- When TIMER is set, the present time is not displayed.
- Once you set ON, OFF TIMER, the time setting is kept in the memory. (The memory is canceled when remote controller batteries are replaced.)
- When operating the unit via the ON/OFF Timer, the actual length of operation may vary from the time entered by the user. (Maximum approx. 10 minutes)

■ **NIGHT SET MODE**

When the OFF TIMER is set, the air conditioner automatically adjusts the temperature setting (0.5°C up in COOL, 2.0°C down in HEAT) to prevent excessive cooling (heating) for your pleasant sleep.

■ To use ON TIMER operation

- Check that the clock is correct. If not, set the clock to the present time. (page 9.)

1. Press “ON TIMER button”.

6:00 is displayed.

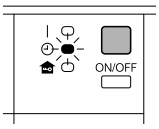
blinks.

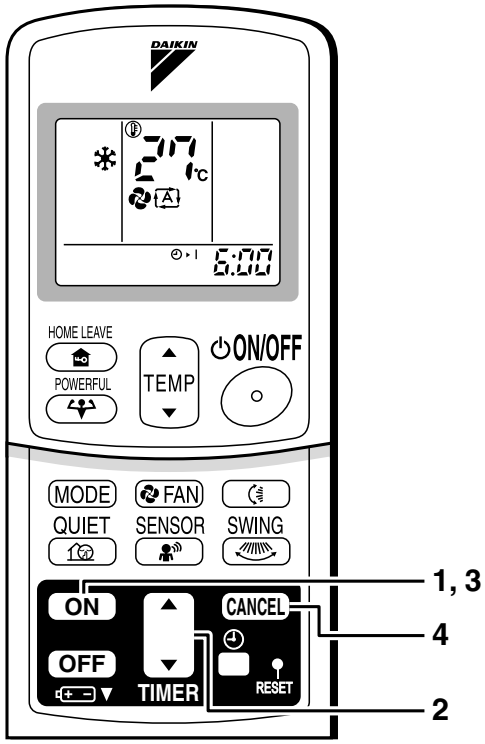
2. Press “TIMER Setting button” until the time setting reaches the point you like.

- Every pressing of either button increases or decreases the time setting by 10 minutes. Holding down either button changes the setting rapidly.

3. Press “ON TIMER button” again.

- The TIMER lamp lights up.





■ To cancel ON TIMER operation

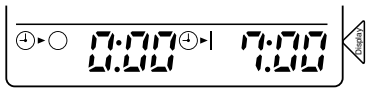
4. Press “CANCEL button”.

- The TIMER lamp goes off.

■ To combine ON TIMER and OFF TIMER

- A sample setting for combining the two timers is shown below.

(Example)
Present time: 11:00 p.m.
(The unit operating)
OFF TIMER at 0:00 a.m.
ON TIMER at 7:00 a.m.
) Combined



ATTENTION

■ **In the following cases, set the timer again.**

- After a breaker has turned OFF.
- After a power failure.
- After replacing batteries in the remote controller.

2.3.10 Care and Cleaning

Care and Cleaning

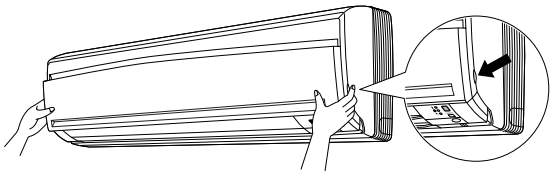
⚠ CAUTION **Before cleaning, be sure to stop the operation and turn the breaker OFF.**

Units

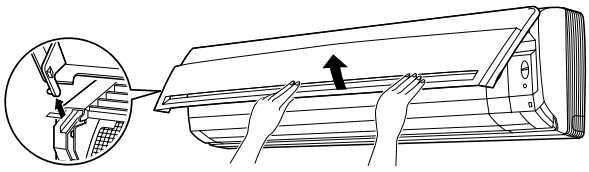
■ Indoor unit, Outdoor unit and Remote controller

1. **Wipe them with dry soft cloth.**

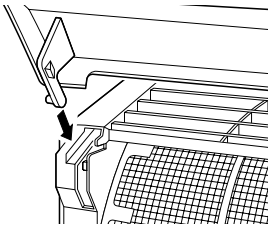
■ Front panel



1. **Open the front panel.**
   - Hold the panel by the tabs on the two sides and lift it until it stops with a click.
2. **Remove the front panel.**
   - Open the front panel further while sliding it to either the left or right and pulling it toward you. This will disconnect the rotation dowel on one side. Then disconnect the rotation dowel on the other side in the same manner.



3. **Clean the front panel.**
   - Wipe it with a soft cloth soaked in water.
   - Only neutral detergent may be used.
   - In case of washing the panel with water, dry it with cloth, dry it up in the shade after washing.
4. **Attach the front panel.**
   - Align the rotation dowels on the left and right of the front panel with the slots, then push them all the way in.
   - Close the front panel slowly. (Press the panel at both sides and the center.)

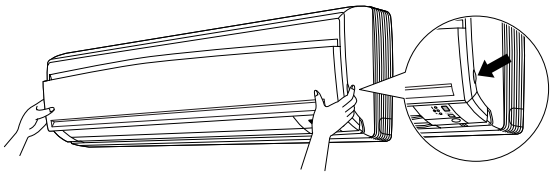


⚠ CAUTION

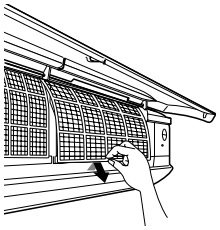
- Don't touch the metal parts of the indoor unit. If you touch those parts, this may cause an injury.
- When removing or attaching the front panel, use a robust and stable stool and watch your steps carefully.
- When removing or attaching the front panel, support the panel securely with hand to prevent it from falling.
- For cleaning, do not use hot water above 40°C, benzine, gasoline, thinner, nor other volatile oils, polishing compound, scrubbing brushes, nor other hand stuff.
- After cleaning, make sure that the front panel is securely fixed.

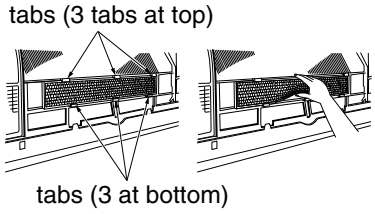
Filters

1. **Open the front panel. (page 24.)**
2. **Pull out the air filters.**
   - Push a little upwards the tab at the center of each air filter, then pull it down.

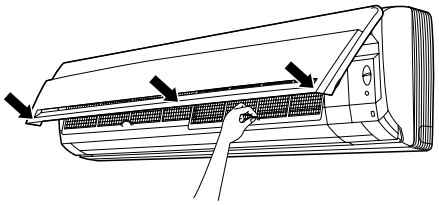


3. **Take off the Titanium Apatite Photocatalytic Air-Purifying Filter.**
   - Press the top of the air-cleaning filter onto the tabs (3 tabs at top). Then press the bottom of the filter up slightly, and press it onto the tabs (3 at bottom).



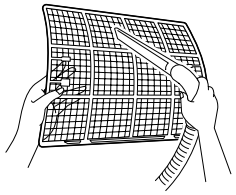


4. **Clean or replace each filter.**
   See figure.
5. **Set the air filter and the Titanium Apatite Photocatalytic Air-Purifying Filter as they were and close the front panel.**
   - Press the front panel at both sides and the center.



■ Air Filter

1. **Wash the air filters with water or clean them with vacuum cleaner.**
   - If the dust does not come off easily, wash them with neutral detergent thinned with lukewarm water, then dry them up in the shade.
   - It is recommended to clean the air filters every two weeks.



■ Titanium Apatite Photocatalytic Air-purifying Filter

The Titanium Apatite Photocatalytic Air-Purifying Filter can be renewed by washing it with water once every 6 months. We recommend replacing it once every 3 years.

[Maintenance]

1. **Remove dust with a vacuum cleaner and wash lightly with water.**
2. **If it is very dirty, soak it for 10 to 15 minutes in water mixed with a neutral cleaning agent.**
3. **After washing, shake off remaining water and dry in the shade.**
4. **Since the material is made out of polyester, do not wring out the filter when removing water from it.**

[Replacement]

1. **Remove the tabs on the filter frame and replace with a new filter.**
   - Dispose of the old filter as non-flammable waste.

NOTE

- Operation with dirty filters:
  (1) cannot deodorize the air. (2) cannot clean the air.
  (3) results in poor heating or cooling. (4) may cause odour.
- To order Titanium Apatite Photocatalytic Air-Purifying Filter contact to the service shop there you bought the air conditioner.
- Dispose of old filters as non-flammable waste.

Item	Part No.
Titanium Apatite Photocatalytic Air-Purifying Filter (without frame) 1 set	KAF952B42

Check

Check that the base, stand and other fittings of the outdoor unit are not decayed or corroded.
Check that nothing blocks the air inlets and the outlets of the indoor unit and the outdoor unit
Check that the drain comes smoothly out of the drain hose during COOL or DRY operation. • If no drain water is seen, water may be leaking from the indoor unit. Stop operation and consult the service shop if this is the case.

■ Before a long idle period

1. **Operate the “FAN only” for several hours on a fine day to dry out the inside.**
   - Press “MODE” button and select “FAN” operation.
   - Press “ON/OFF” button and start operation.
2. **After operation stops, turn off the breaker for the room air conditioner.**
3. **Clean the air filters and set them again.**
4. **Take out batteries from the remote controller.**

2.3.11 Troubleshooting

Trouble Shooting

These cases are not troubles.

The following cases are not air conditioner troubles but have some reasons. You may just continue using it.

Case	Explanation
Operation does not start soon. • When ON/OFF button was pressed soon after operation was stopped. • When the mode was reselected.	• This is to protect the air conditioner. You should wait for about 3 minutes.
Hot air does not flow out soon after the start of heating operation.	• The air conditioner is warming up. You should wait for 1 to 4 minutes. (The system is designed to start discharging air only after it has reached a certain temperature.)
The heating operation stops suddenly and a flowing sound is heard.	• The system is taking away the frost on the outdoor unit. You should wait for about 4 to 12 minutes.
The outdoor unit emits water or steam.	■ In HEAT mode • The frost on the outdoor unit melts into water or steam when the air conditioner is in defrost operation. ■ In COOL or DRY mode • Moisture in the air condenses into water on the cool surface of outdoor unit piping and drips.
Mist comes out of the indoor unit.	■ This happens when the air in the room is cooled into mist by the cold air flow during cooling operation. ■ This is because the air in the room is cooled by the heat exchanger and becomes mist during defrost operation.
The indoor unit gives out odour.	■ This happens when smells of the room, furniture, or cigarettes are absorbed into the unit and discharged with the air flow. (If this happens, we recommend you to have the indoor unit washed by a technician. Consult the service shop where you bought the air conditioner.)
The outdoor fan rotates while the air conditioner is not in operation.	■ After operation is stopped: • The outdoor fan continues rotating for another 60 seconds for system protection. ■ While the air conditioner is not in operation: • When the outdoor temperature is very high, the outdoor fan starts rotating for system protection.
The operation stopped suddenly. (OPERATION lamp is on.)	■ For system protection, the air conditioner may stop operating on a sudden large voltage fluctuation. It automatically resumes operation in about 3 minutes.

Check again.

Please check again before calling a repair person.

Case	Check
The air conditioner does not operate. (OPERATION lamp is off.)	• Hasn't a breaker turned OFF or a fuse blown? • Isn't it a power failure? • Are batteries set in the remote controller? • Is the timer setting correct?
Cooling (Heating) effect is poor.	• Are the air filters clean? • Is there anything to block the air inlet or the outlet of the indoor and the outdoor units? • Is the temperature setting appropriate? • Are the windows and doors closed? • Are the air flow rate and the air direction set appropriately?
Operation stops suddenly. (OPERATION lamp flashes.)	• Are the air filters clean? • Is there anything to block the air inlet or the outlet of the indoor and the outdoor units? Clean the air filters or take all obstacles away and turn the breaker OFF. Then turn it ON again and try operating the air conditioner with the remote controller. If the lamp still blinks, call the service shop where you bought the air conditioner.
An abnormal functioning happens during operation.	• The air conditioner may malfunction with lightning or radio waves. Turn the breaker OFF, turn it ON again and try operating the air conditioner with the remote controller.

Call the service shop immediately.

⚠ WARNING

- When an abnormality (such as a burning smell) occurs, stop operation and turn the breaker OFF.
  Continued operation in an abnormal condition may result in troubles, electric shocks or fire.
  Consult the service shop where you bought the air conditioner.
- Do not attempt to repair or modify the air conditioner by yourself.
  Incorrect work may result in electric shocks or fire.
  Consult the service shop where you bought the air conditioner.

If one of the following symptoms takes place, call the service shop immediately.

- **The power cord is abnormally hot or damaged.**
- **An abnormal sound is heard during operation.**
- **The safety breaker, a fuse, or the earth leakage breaker cuts off the operation frequently.**
- **A switch or a button often fails to work properly.**
- **There is a burning smell.**
- **Water leaks from the indoor unit.**

▶ Turn the breaker OFF and call the service shop.

■ After a power failure The air conditioner automatically resumes operation in about 3 minutes. You should just wait for a while.	■ Lightning If lightning may strike the neighbouring area, stop operation and turn the breaker OFF for system protection.

Disposal requirements

Your air conditioning product is marked with this symbol. This means that electrical and electronic products shall not be mixed with unsorted household waste.

Do not try to dismantle the system yourself: the dismantling of the air conditioning system, treatment of the refrigerant, of oil and of other parts must be done by a qualified installer in accordance with relevant local and national legislation.

Air conditioners must be treated at a specialized treatment facility for re-use, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information.

Batteries must be removed from the remote controller and disposed of separately in accordance with relevant local and national legislation.

We recommend periodical maintenance.

In certain operating conditions, the inside of the air conditioner may get foul after several seasons of use, resulting in poor performance. It is recommended to have periodical maintenance by a specialist aside from regular cleaning by the user. For specialist maintenance, contact the service shop where you bought the air conditioner. The maintenance cost must be born by the user.

Important information regarding the refrigerant used.

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol.

Refrigerant type:**R410A**

GWP(1) value:**1975**

(1) GWP = global warming potential

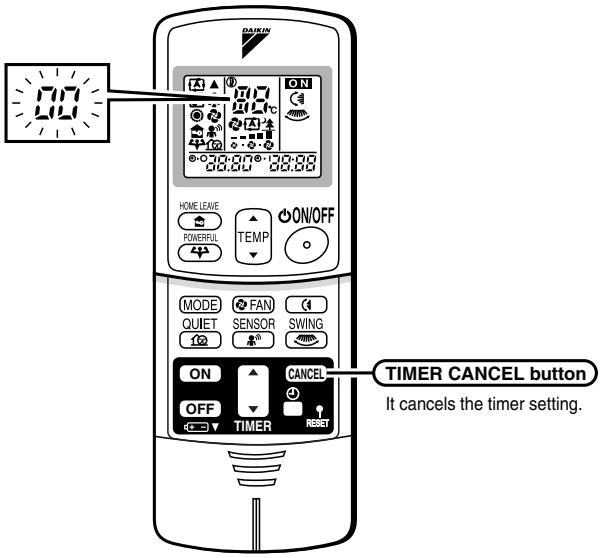
Periodical inspections for refrigerant leaks may be required depending on European or local legislation. Please contact your local dealer for more information.

Fault diagnosis.

FAULT DIAGNOSIS BY REMOTE CONTROLLER

In the ARC433 series, the temperature display sections on the main unit indicate corresponding codes.

1. **When the TIMER CANCEL button is held down for 5 seconds, a "00" indication flashes on the temperature display section.**



2. **Press the TIMER CANCEL button repeatedly until a continuous beep is produced.**
   - The code indication changes as shown below, and notifies with a long beep.

	CODE	MEANING
SYSTEM	00	NORMAL
	U0	REFRIGERANT SHORTAGE
	U2	DROP VOLTAGE OR MAIN CIRCUIT OVERVOLTAGE
	U4	FAILURE OF TRANSMISSION (BETWEEN INDOOR UNIT AND OUTDOOR UNIT)
INDOOR UNIT	A1	INDOOR PCB DEFECTIVENESS
	A5	HIGH PRESSURE CONTROL OR FREEZE-UP PROTECTOR
	A6	FAN MOTOR FAULT
	C4	FAULTY HEAT EXCHANGER TEMPERATURE SENSOR
	C9	FAULTY SUCTION AIR TEMPERATURE SENSOR
OUTDOOR UNIT	EA	COOLING-HEATING SWITCHING ERROR
	E5	OL STARTED
	E6	FAULTY COMPRESSOR START UP
	E7	DC FAN MOTOR FAULT
	E8	OPERATION HALT DUE TO DETECTION OF INPUT OVER CURRENT
	F3	HIGH TEMPERATURE DISCHARGE PIPE CONTROL
	H6	OPERATION HALT DUE TO FAULTY POSITION DETECTION SENSOR
	H8	CT ABNORMALITY
	H9	FAULTY SUCTION AIR TEMPERATURE SENSOR
	J3	FAULTY DISCHARGE PIPE TEMPERATURE SENSOR
	J6	FAULTY HEAT EXCHANGER TEMPERATURE SENSOR
	L4	HIGH TEMPERATURE AT INVERTER CIRCUIT HEATSINK
	L5	OUTPUT OVERCURRENT
	P4	FAULTY INVERTER CIRCUIT HEATSINK TEMPERATURE SENSOR

NOTE

1. A short beep and two consecutive beeps indicate non-corresponding codes.
2. To cancel the code display, hold the TIMER CANCEL button down for 5 seconds. The code display also cancel itself if the button is not pressed for 1 minute.

3P190111-1B

Part 6
Service Diagnosis

1. Caution for Diagnosis

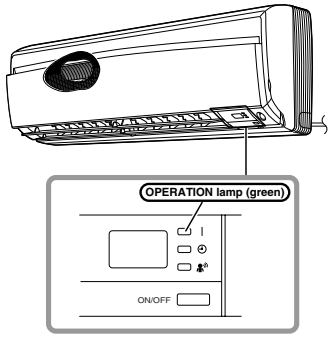
The operation lamp flashes when any of the following errors is detected.

1. When a protection device of the indoor or outdoor unit is activated or when the thermistor malfunctions, disabling equipment operation.
2. When a signal transmission error occurs between the indoor and outdoor units.

In either case, conduct the diagnostic procedure described in the following pages.

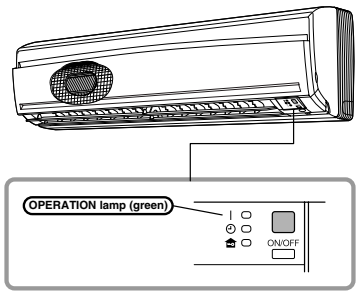
Location of Operation Lamp

In case of
FTK(X)S 50 D Series



(R4298)

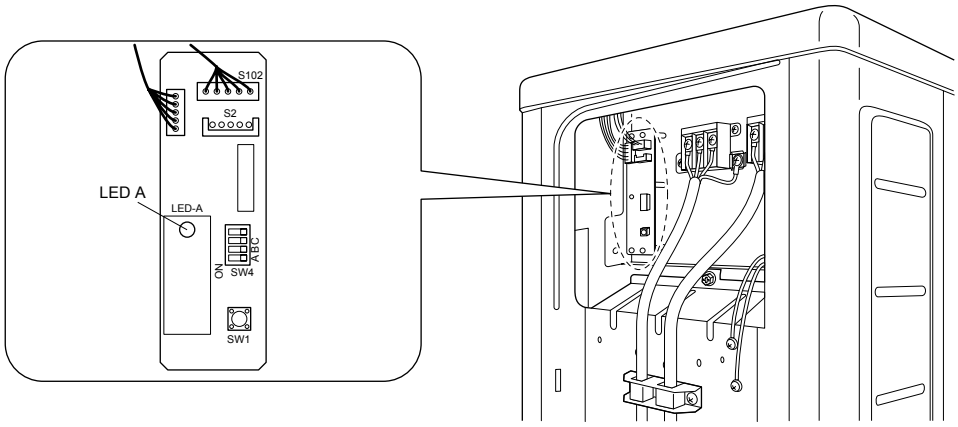
In case of
FTK(X)S 50/60/71 F Series
FT(Y)N 50/60 F Series



(R6332)

Troubleshooting with the LED Indication

Outdoor Unit



(R6980)

The outdoor unit has one green LED (LED A) on the PCB. The flashing green LED indicates normal condition of microcomputer operation.

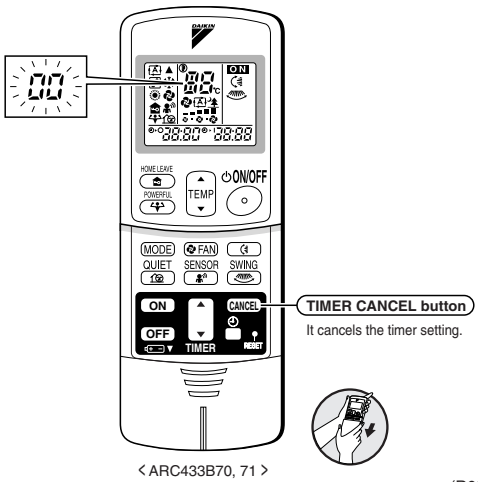
2. Problem Symptoms and Measures

Symptom	Check Item	Details of Measure	Reference Page
None of the units operates.	Check the power supply.	Check to make sure that the rated voltage is supplied.	—
	Check the type of the indoor units.	Check to make sure that the indoor unit type is compatible with the outdoor unit.	—
	Check the outdoor air temperature.	Heating operation cannot be used when the outdoor air temperature is 18°C or higher (only for heat pump model), and cooling operation cannot be used when the outside temperature is below –10°C.	—
	Diagnosis with remote controller indication	—	117
	Check the remote controller addresses.	Check to make sure that address settings for the remote controller and indoor unit are correct.	—
Operation sometimes stops.	Check the power supply.	A power failure of 2 to 10 cycles can stop air conditioner operation. (Operation lamp OFF)	—
	Check the outdoor air temperature.	Heating operation cannot be used when the outdoor air temperature is 18°C or higher (only for heat pump model), and cooling operation cannot be used when the outside temperature is below –10°C.	—
	Diagnosis with remote controller indication	—	117
Equipment operates but does not cool, or does not heat (only for heat pump model).	Check for wiring and piping errors in the indoor and outdoor units connection wires and pipes.	Conduct the wiring/piping error check described on the product diagnosis nameplate.	—
	Check for thermistor detection errors.	Check to make sure that the main unit's thermistor has not dismounted from the pipe holder.	—
	Check for faulty operation of the electronic expansion valve.	Set the units to cooling operation, and compare the temperatures of the liquid side connection pipes of the connection section among rooms to check the opening and closing operation of the electronic expansion valves of the individual units.	—
	Diagnosis with remote controller indication	—	117
	Diagnosis by service port pressure and operating current	Check for insufficient gas.	159
Large operating noise and vibrations	Check the output voltage of the power transistor.	—	160
	Check the power transistor.	—	—
	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Engineering Data book, etc.) are provided.	—

3. Service Check Function

In the ARC433B series remote controller, the temperature display sections on the main unit indicate corresponding codes.

1. When the timer cancel button is held down for 5 seconds, a "00" indication flashes on the temperature display section.



< ARC433B70, 71 >

(R6849)

2. Press the timer cancel button repeatedly until a continuous beep is produced.

■ The code indication changes in the sequence shown below, and notifies with a long beep

<FTK(X)S50-71F, FT(Y)N50/60F>

No.	Code	No.	Code	No.	Code
1	00	12	C7	23	H0
2	U4	13	H8	24	E1
3	F3	14	J3	25	P4
4	E6	15	A3	26	L3
5	L5	16	A1	27	L4
6	A6	17	C4	28	H6
7	E5	18	C5	29	H7
8	F6	19	H9	30	U2
9	C9	20	J6	31	UH
10	U0	21	UA	32	EA
11	E7	22	A5	33	AH

<FTK(X)S50D>

No.	Code	No.	Code	No.	Code
1	00	12	F6	23	A1
2	U4	13	C7	24	E1
3	L5	14	A3	25	UA
4	E6	15	H8	26	UH
5	H6	16	H9	27	P4
6	H0	17	C9	28	L3
7	A6	18	C4	29	L4
8	E7	19	C5	30	H7
9	U0	20	J3	31	U2
10	F3	21	J6	32	EA
11	A5	22	E5	33	AH

Note:

1. A short beep and two consecutive beeps indicate non-corresponding codes.
2. To cancel the code display, hold the timer cancel button down for 5 seconds. The code display also cancels itself if the button is not pressed for 1 minute.

4. Troubleshooting

4.1 Error Codes and Description

	Code Indication	Description	Reference Page
System	00	Normal	—
	U0★	Insufficient gas	150
	U2	Low-voltage detection or over-voltage detection	152
	U4	Signal transmission error (between indoor and outdoor units)	124
Indoor Unit	A1	Indoor unit PCB abnormality	118
	A5	Freeze-up protection control or high pressure control	119
	A6	Fan motor or related abnormality	121
	C4	Heat exchanger thermistor abnormality	123
	C9	Room temperature thermistor abnormality	123
Outdoor Unit	E1	Outdoor unit PCB abnormality	126
	E5★	OL activation (compressor overload)	127
	E6★	Compressor lock	128
	E7	DC fan lock	129
	E8	Input over current detection	130
	EA	Four Way Valve Abnormality	132
	F3	Discharge pipe temperature control	134
	F6	High Pressure Control in Cooling	135
	H0	Sensor abnormality	137
	H6	Position sensor abnormality	139
	H8	CT or related abnormality	140
	H9	Outdoor air thermistor or related abnormality	142
	J3	Discharge pipe thermistor or related abnormality	142
	J6	Heat exchanger thermistor or related abnormality	142
	L3	Electrical box temperature rise	144
	L4	Radiation fin temperature rise	146
	L5	Output over current detection	148
	P4	Radiation fin thermistor or related abnormality	142
	U7	Signal transmission error	153

★: Displayed only when system-down occurs.

4.2 Indoor Unit PCB Abnormality

Remote Controller Display

A1

Method of Malfunction Detection

Evaluation of zero-cross detection of power supply by indoor unit.

Malfunction Decision Conditions

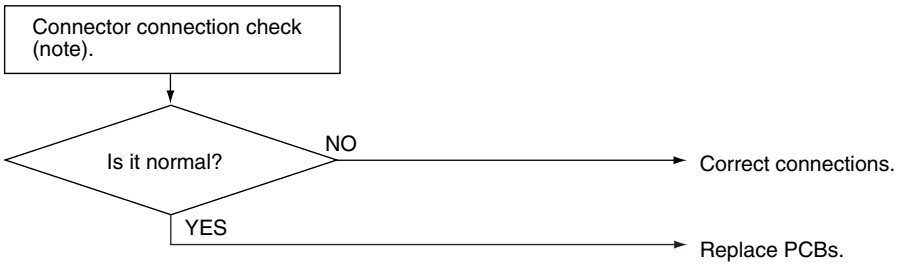
When there is no zero-cross detection in approximately 10 continuous seconds.

Supposed Causes

- Faulty indoor unit PCB
- Faulty connector connection

Troubleshooting

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



(R1400)

Note: Connector Nos. vary depending on models.

Model Type	Connector No.
Wall Mounted Type 50 / 60 / 71 class	Terminal strip~Control PCB (indoor unit)

4.3 Freeze-up Protection Control or High Pressure Control

Remote Controller Display

Method of Malfunction Detection

- High pressure control (heat pump model only)
  During heating operations, the temperature detected by the indoor heat exchanger thermistor is used for the high pressure control (stop, outdoor fan stop, etc.)
- The freeze-up protection control (operation halt) is activated during cooling operation according to the temperature detected by the indoor unit heat exchanger thermistor.

Malfunction Decision Conditions

- High pressure control
  During heating operations, the temperature detected by the indoor heat exchanger thermistor is above 65°C
- Freeze-up protection
  When the indoor unit heat exchanger temperature is below 0°C during cooling operation.

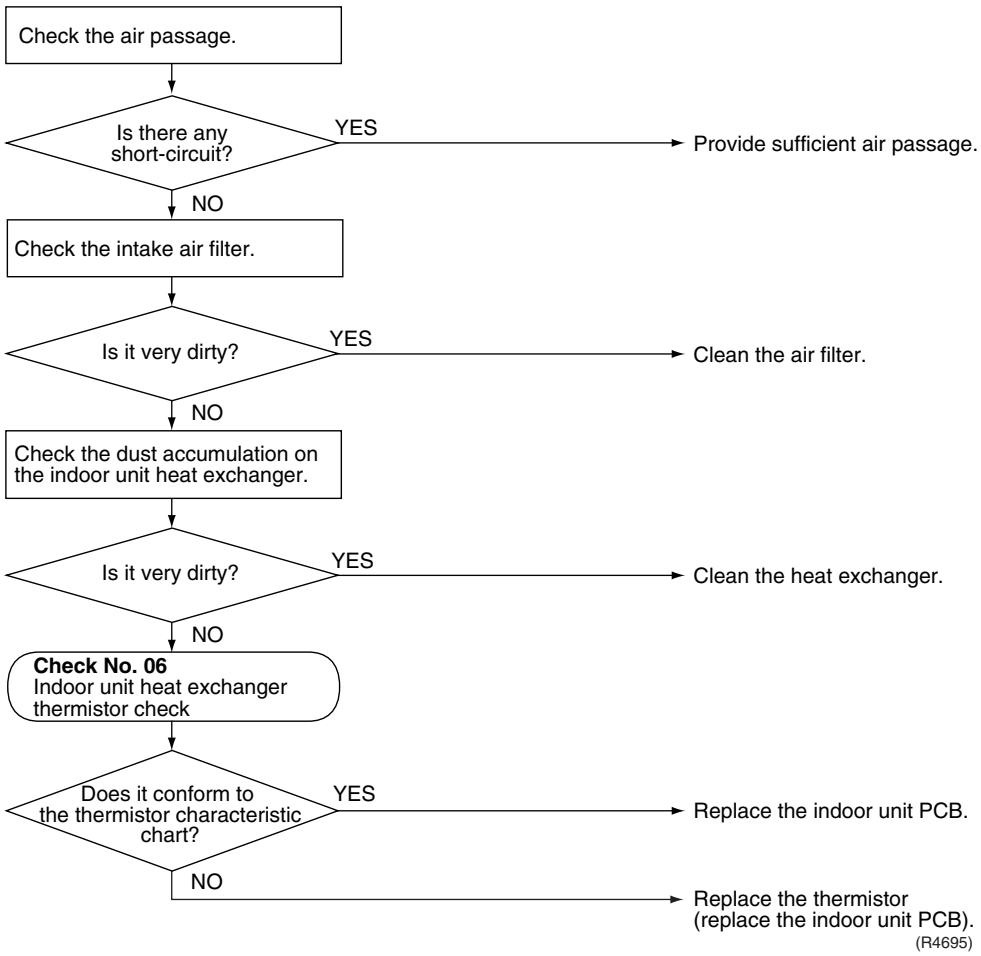
Supposed Causes

- Operation halt due to clogged air filter of the indoor unit.
- Operation halt due to dust accumulation on the indoor unit heat exchanger.
- Operation halt due to short-circuit.
- Detection error due to faulty indoor unit heat exchanger thermistor.
- Detection error due to faulty indoor unit PCB.

Troubleshooting

Check No.06
Refer to P.156

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



(R4695)

4.4 Fan Motor (DC Motor) or Related Abnormality

Remote Controller Display

Method of Malfunction Detection

The rotation speed detected by the Hall IC during fan motor operation is used to determine abnormal fan motor operation.

Malfunction Decision Conditions

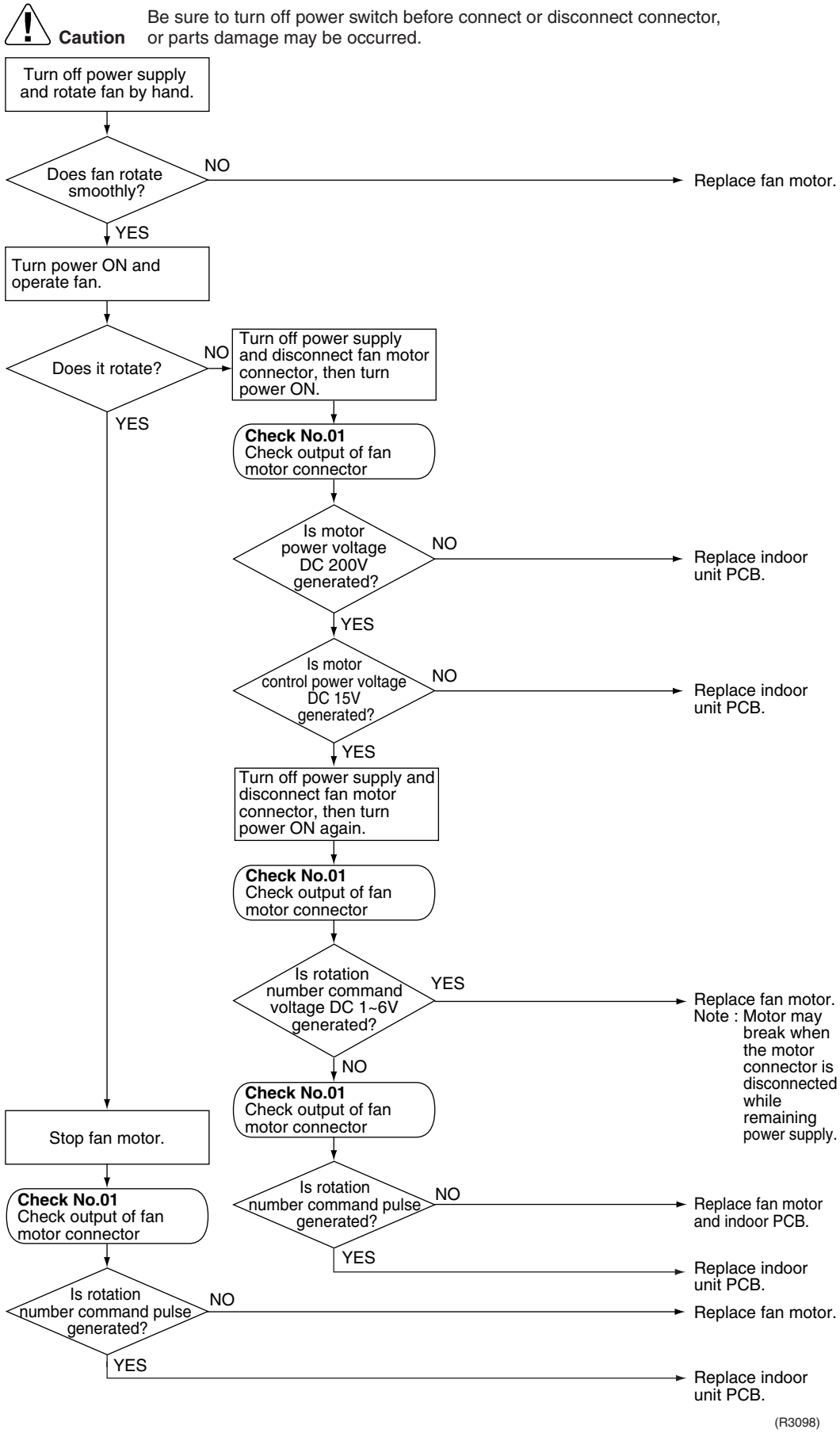
When the detected rotation speed does not reach the demanded rotation speed of the target tap, and is less than 50% of the maximum fan motor rotation speed.

Supposed Causes

- Operation halt due to short circuit inside the fan motor winding.
- Operation halt due to breaking of wire inside the fan motor.
- Operation halt due to breaking of the fan motor lead wires.
- Operation halt due to faulty capacitor of the fan motor.
- Detection error due to faulty indoor unit PCB.

Troubleshooting

Check No.01
Refer to P.154



4.5 Thermistor or Related Abnormality (Indoor Unit)

Remote Controller Display

C4, C9

Method of Malfunction Detection

The temperatures detected by the thermistors are used to determine thermistor errors.

Malfunction Decision Conditions

When the thermistor input is more than 4.96 V or less than 0.04 V during compressor operation∗.
∗ (reference)
When above about 212°C (less than 120 ohms) or below about –50°C (more than 1,860 kohms).

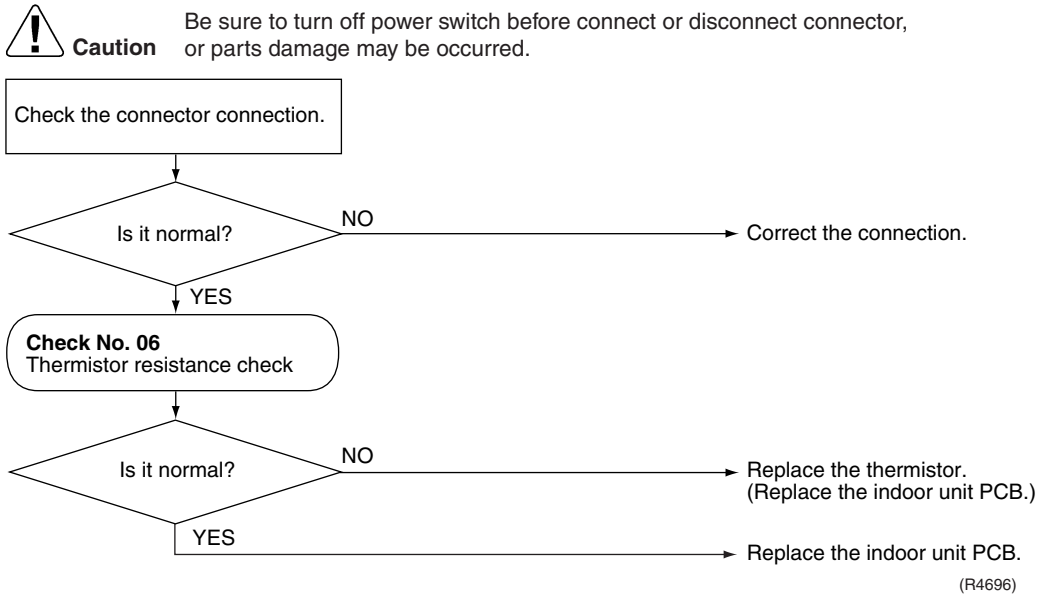
Note: The values vary slightly in some models.

Supposed Causes

- Faulty connector connection
- Faulty thermistor
- Faulty PCB

Troubleshooting

Check No.06
Refer to P.156



C4 : Indoor heat exchanger thermistor
C9 : Room temperature thermistor

4.6 Signal Transmission Error (between Indoor and Outdoor Unit)

Remote Controller Display

U4

Method of Malfunction Detection

The data received from the outdoor unit in indoor unit-outdoor unit signal transmission is checked whether it is normal.

Malfunction Decision Conditions

When the data sent from the outdoor unit cannot be received normally, or when the content of the data is abnormal.

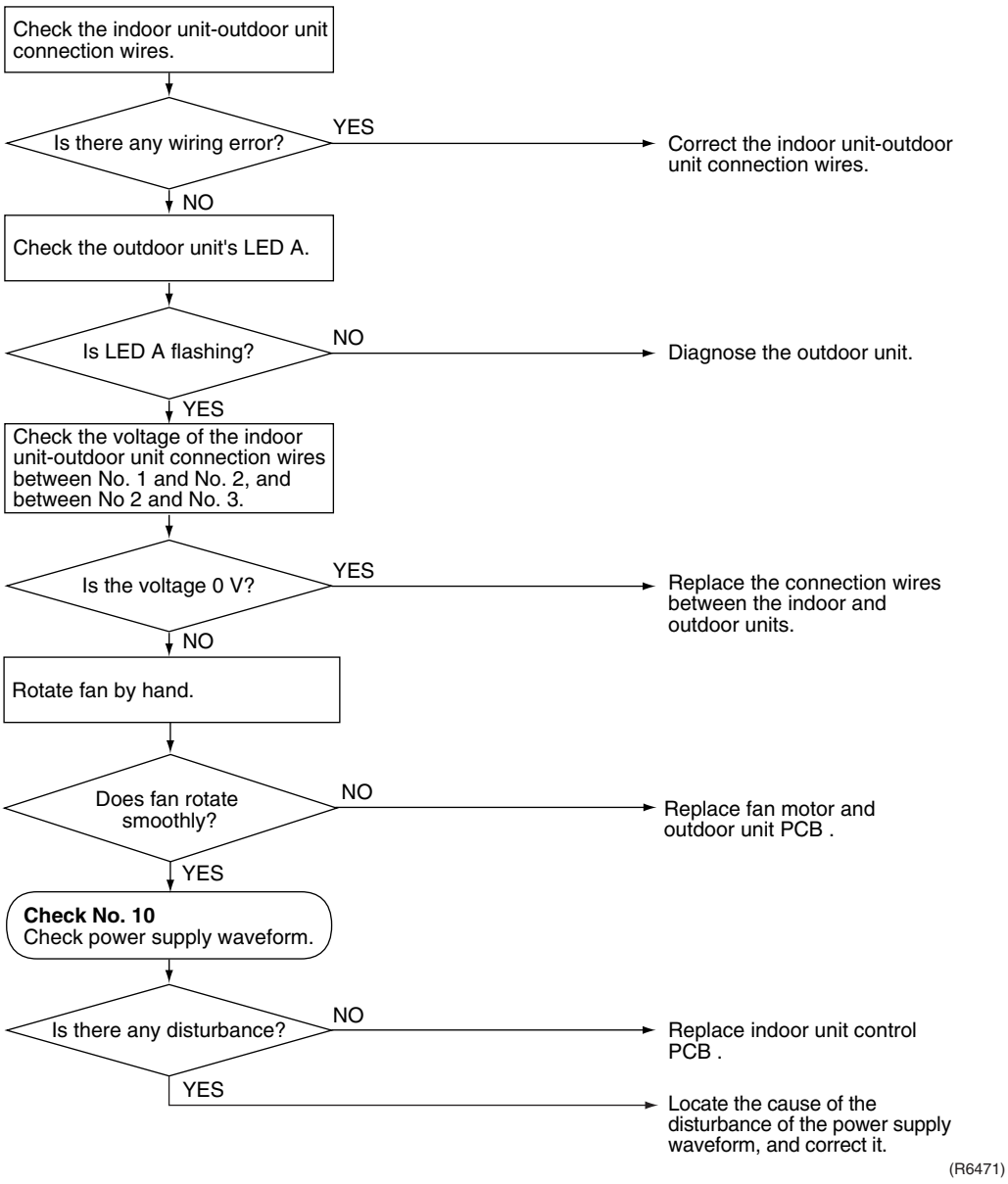
Supposed Causes

- Faulty outdoor unit PCB.
- Faulty indoor unit PCB.
- Indoor unit-outdoor unit signal transmission error due to wiring error.
- Indoor unit-outdoor unit signal transmission error due to disturbed power supply waveform.
- Indoor unit-outdoor unit signal transmission error due to breaking of wire in the connection wires between the indoor and outdoor units (wire No. 2).
- Short circuit inside the fan motor winding.

Troubleshooting

Check No.10
Refer to P.159

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



(R6471)

4.7 Outdoor Unit PCB Abnormality

Remote Controller Display

E1

Method of Malfunction Detection

- Detect within the programme of the microcomputer that the programme is in normal running order.

Malfunction Decision Conditions

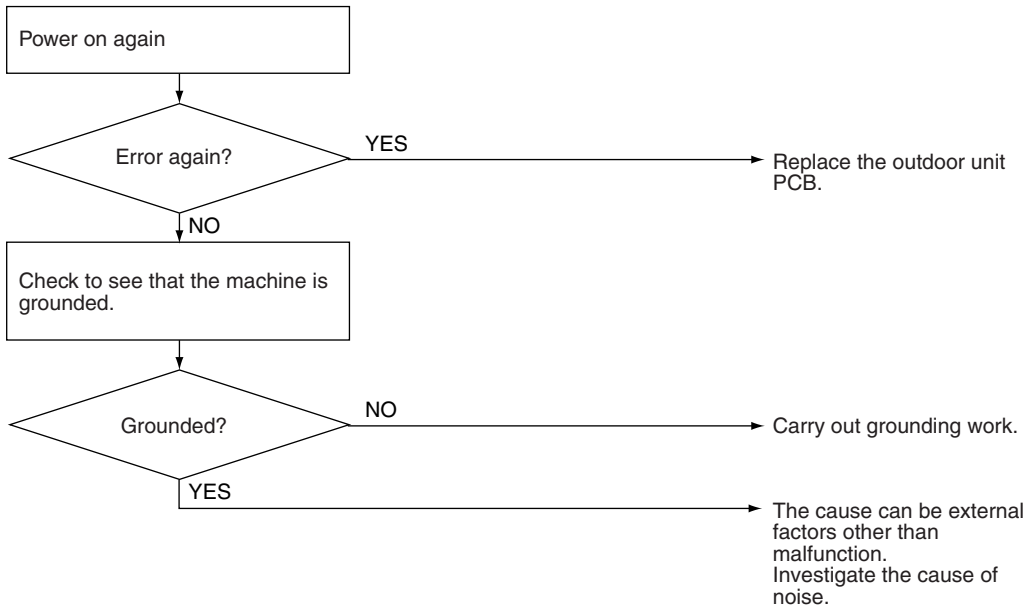
- When the programme of the microcomputer is in abnormal running order.

Supposed Causes

- Out of control of microcomputer caused by external factors
  - Noise
  - Momentary fall of voltage
  - Momentary power loss
- Defective outdoor unit PCB

Troubleshooting

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



(R5142)

4.8 OL Activation (Compressor Overload)

Remote Controller Display

E5

Method of Malfunction Detection

A compressor overload is detected through compressor OL.

Malfunction Decision Conditions

- If the compressor OL is activated twice, the system will be shut down.
- The error counter will reset itself if this or any other error does not occur during the following 60-minute compressor running time (total time).

* The operating temperature condition is not specified.

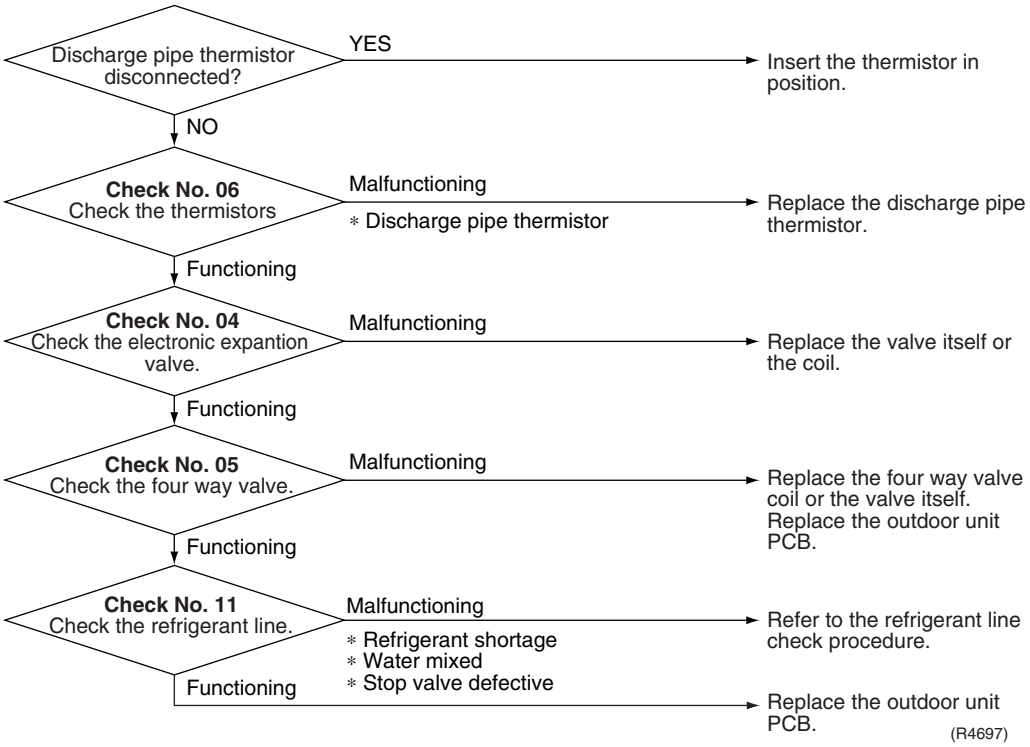
Supposed Causes

- Refrigerant shortage
- Four way valve malfunctioning
- Outdoor unit PCB defective
- Water mixed in the local piping
- Electronic expansion valve defective
- Stop valve defective

Troubleshooting

Check No.04 Refer to P.154
Check No.05 Refer to P.155
Check No.06 Refer to P.156
Check No.11 Refer to P.159

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



(R4697)

4.9 Compressor Lock

Remote Controller Display

E6

Method of Malfunction Detection

A compressor lock is detected by checking the compressor running condition through the position detection circuit.

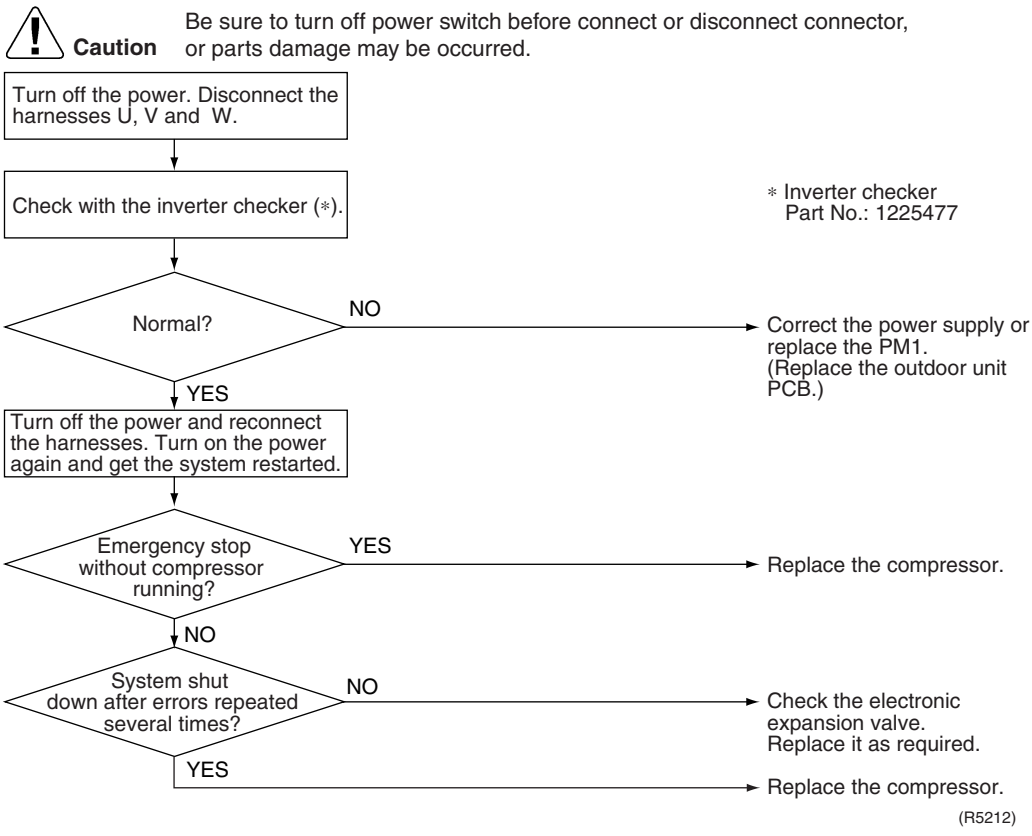
Malfunction Decision Conditions

- Judging from current waveform generated when high-frequency voltage is applied to the compressor.
- The system will be shut down if the error occurs 16 times.
- Clearing condition: Continuous run for about 5 minutes (normal)

Supposed Causes

- Compressor locked

Troubleshooting



4.10 DC Fan Lock

Remote Controller Display

E7

Method of Malfunction Detection

A fan motor or related error is detected by checking the high-voltage fan motor rpm being detected by the Hall IC.

Malfunction Decision Conditions

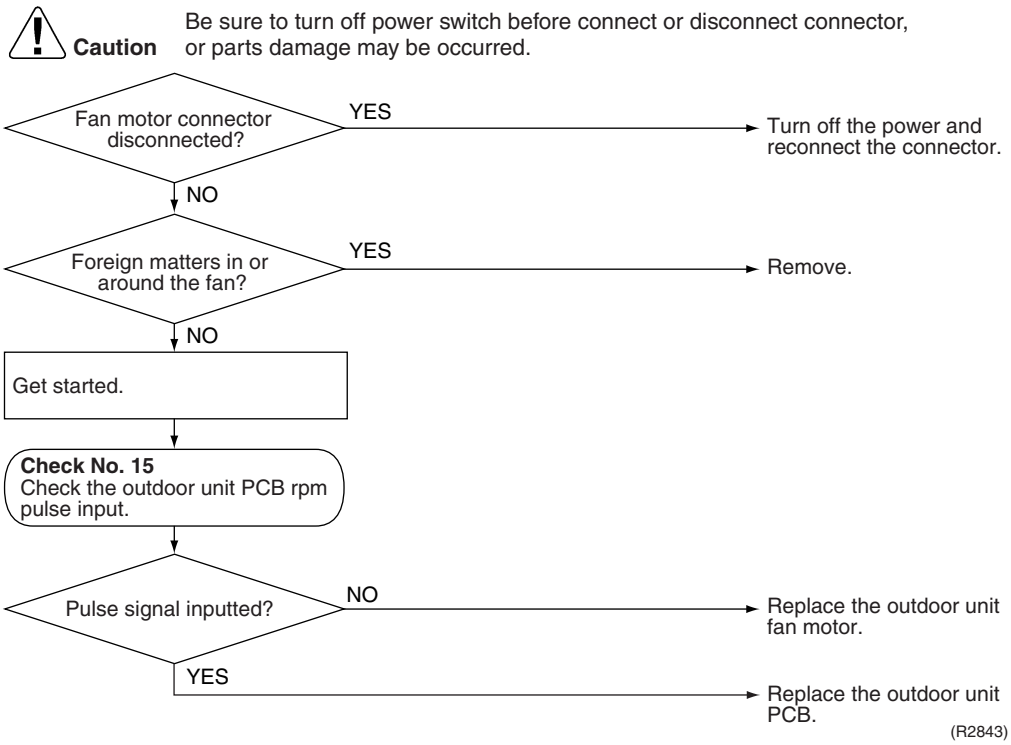
- The fan does not start in 30 seconds even when the fan motor is running.
- The system will be shut down if the error occurs 16 times.
- Clearing condition: Continuous run for about 5 minutes (normal)

Supposed Causes

- Fan motor breakdown
- Harness or connector disconnected between fan motor and PCB or in poor contact
- Foreign matters stuck in the fan

Troubleshooting

Check No.15
Refer to P.161



4.11 Input Over Current Detection

Remote Controller Display

E8

Method of Malfunction Detection

An input over-current is detected by checking the input current value being detected by CT with the compressor running.

Malfunction Decision Conditions

- The following CT input with the compressor running continues for 2.5 seconds.
  CT input : Above 20 A
- The system will be shut down if the error occurs 16 times.
- Clearing condition : Continuous run for about 5 minutes (normal)

Supposed Causes

- Over-current due to compressor failure
- Over-current due to defective power transistor
- Over-current due to defective inverter main circuit electrolytic capacitor
- Over-current due to defective outdoor unit PCB
- Error detection due to outdoor unit PCB
- Over-current due to short-circuit

Troubleshooting

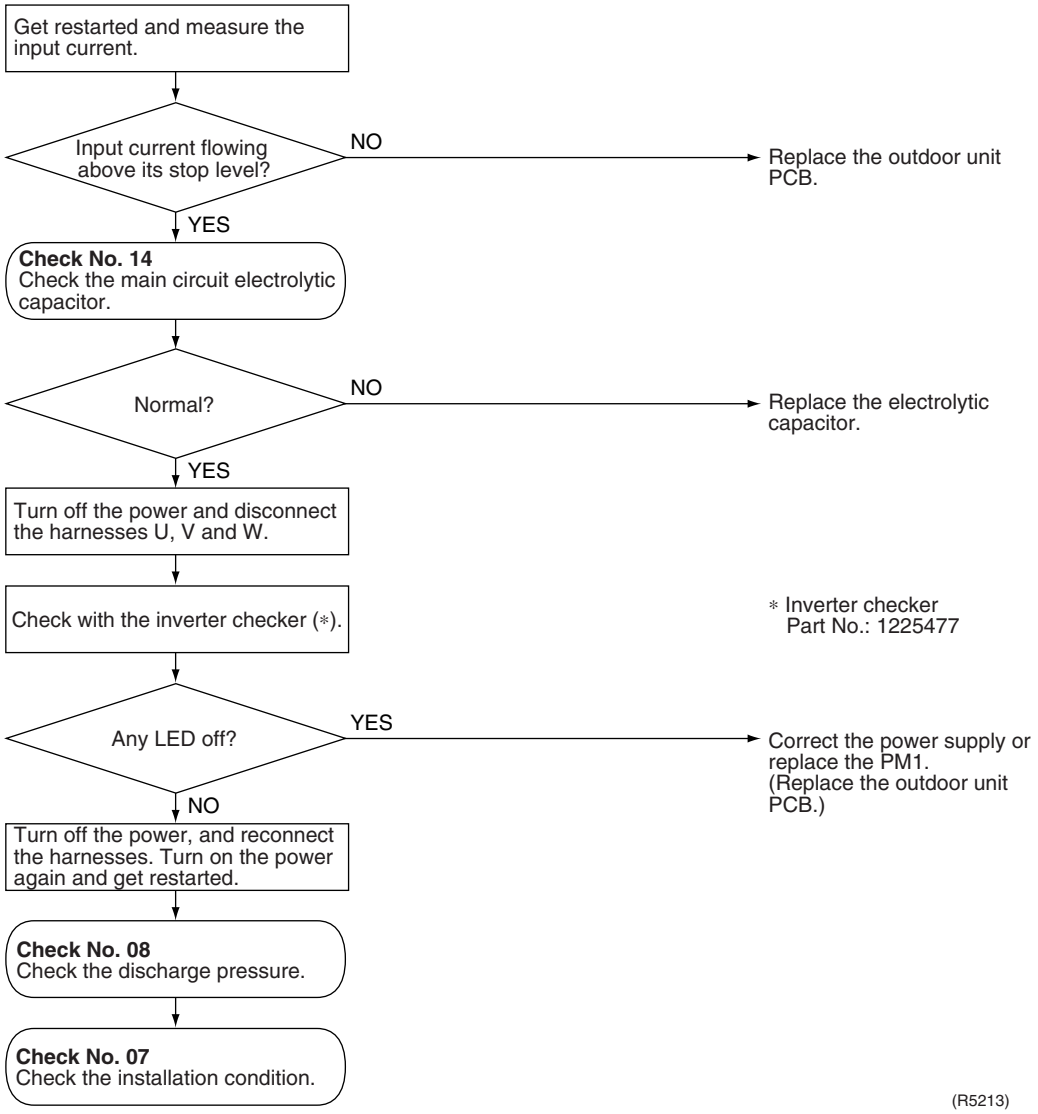
Check No.07
Refer to P.157

Check No.08
Refer to P.158

Check No.14
Refer to P.161

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

* An input over-current may result from wrong internal wiring. If the wires have been disconnected and reconnected for part replacement, for example, and the system is interrupted by an input over-current, take the following procedure.



(R5213)

4.12 Four Way Valve Abnormality

Remote Controller Display

E8

Method of Malfunction Detection

The room temperature thermistor, the indoor unit heat exchanger thermistor, the outdoor temperature thermistor and the outdoor unit heat exchanger thermistor are checked to see if they function within their normal ranges in the operating mode.

Malfunction Decision Conditions

A following condition continues over 1 minute after operating 10 minutes.

- Cooling / dry operation
  (room temp. – indoor heat exchanger temp.) < –5°C
- Heating
  (indoor unit heat exchanger temp. – room temp.) < –5°C
- The system will be shut down if the cooling / heating changeover abnormality occurs 5 times.

Supposed Causes

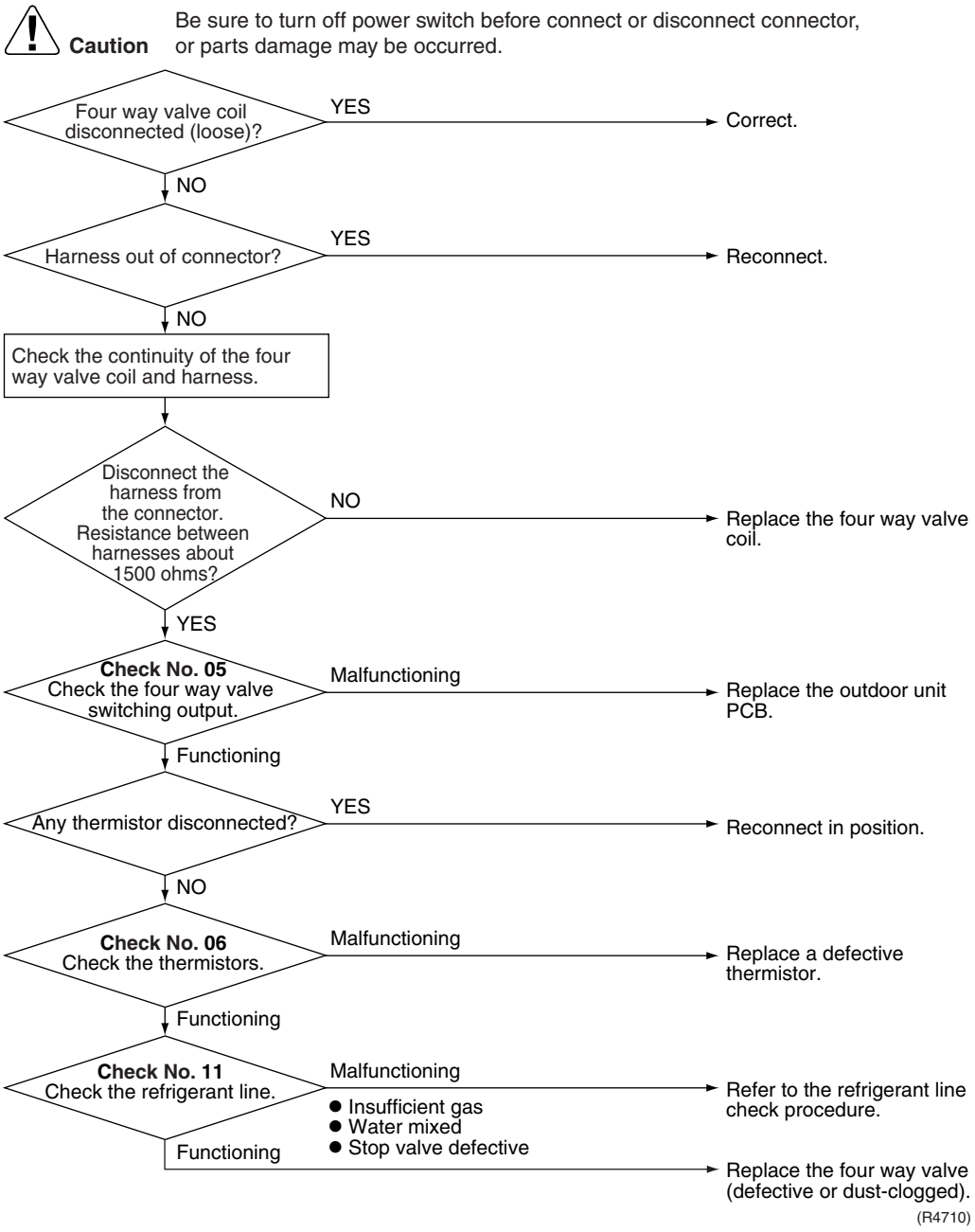
- Connector in poor contact
- Thermistor defective
- Outdoor unit PCB defective
- Four way valve coil or harness defective
- Four way valve defective
- Foreign substance mixed in refrigerant
- Insufficient gas

Troubleshooting

Check No.05
Refer to P.155

Check No.06
Refer to P.156

Check No.11
Refer to P.159



4.13 Discharge Pipe Temperature Control

Remote Controller Display

F3

Method of Malfunction Detection

The discharge pipe temperature control (stop, frequency drooping, etc.) is checked with the temperature being detected by the discharge pipe thermistor.

Malfunction Decision Conditions

- If a stop takes place 6 times successively due to abnormal discharge pipe temperature, the system will be shut down.
- If the temperature being detected by the discharge pipe thermistor rises above Ⓐ °C, the compressor will stop. (The error is cleared when the temperature has dropped below Ⓑ °C.)

	50/60 class	71 class
Ⓐ	110	120
Ⓑ	95	107

- The error counter will reset itself if this or any other error does not occur during the following 60-minute compressor running time (total time).

Supposed Causes

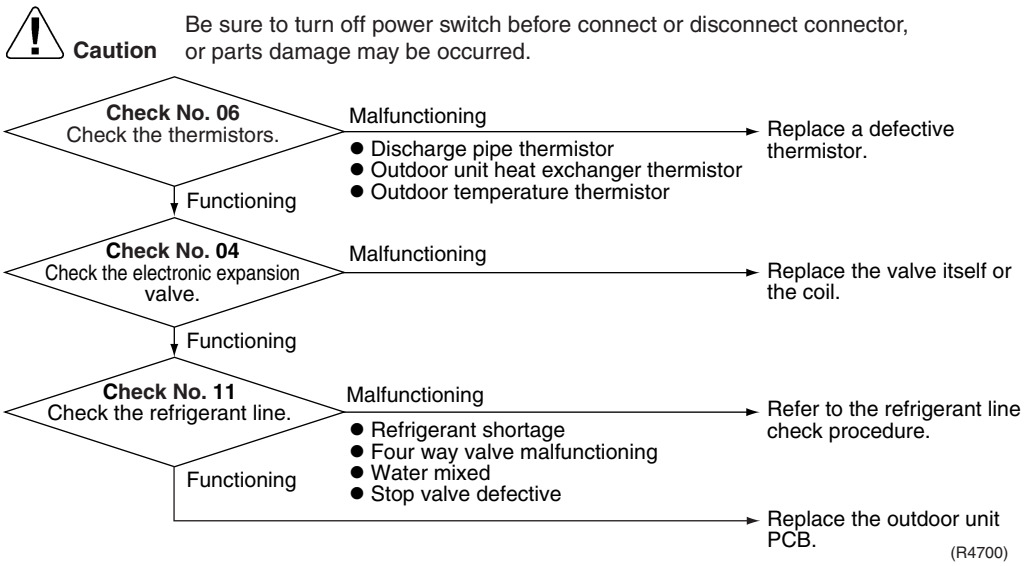
- Refrigerant shortage
- Four way valve malfunctioning
- Discharge pipe thermistor defective
  (heat exchanger or outdoor temperature thermistor defective)
- Outdoor unit PCB defective
- Water mixed in the local piping
- Electronic expansion valve defective
- Stop valve defective

Troubleshooting

Check No.04
Refer to P.154

Check No.06
Refer to P.156

Check No.11
Refer to P.159



4.14 High Pressure Control in Cooling

Remote Controller Display

F6

Method of Malfunction Detection

High-pressure control (stop, frequency drop, etc.) is activated in the cooling mode if the temperature being sensed by the heat exchanger thermistor exceeds the limit.

Malfunction Decision Conditions

Activated when the temperature being sensed by the heat exchanger thermistor rises above 65°C. (Deactivated when the said temperature drops below 51°C.)

Supposed Causes

- The installation space is not large enough.
- Faulty outdoor unit fan
- Faulty electronic expansion valve
- Faulty defrost thermistor
- Faulty outdoor unit PCB
- Faulty stop valve
- Dirty heat exchanger

Troubleshooting

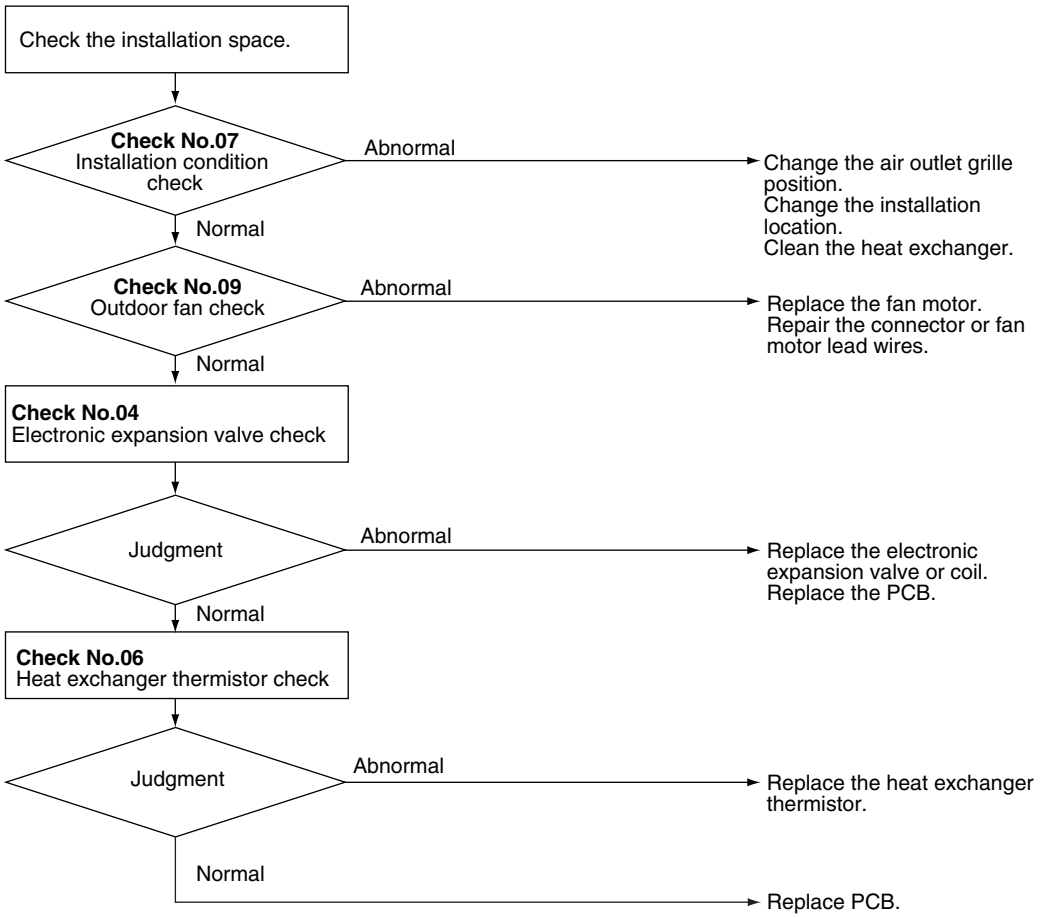
Check No.04
Refer to P.154

Check No.06
Refer to P.156

Check No.07
Refer to P.157

Check No.09
Refer to P.158

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



(R4701)

4.15 Compressor Sensor System Abnormality

Remote Controller Display

H0

Method of Malfunction Detection

- Fault condition is identified by the supply voltage and the DC voltage which is detected before the compressor startup.
- Fault condition is identified by compressor current which is detected right after the compressor startup.

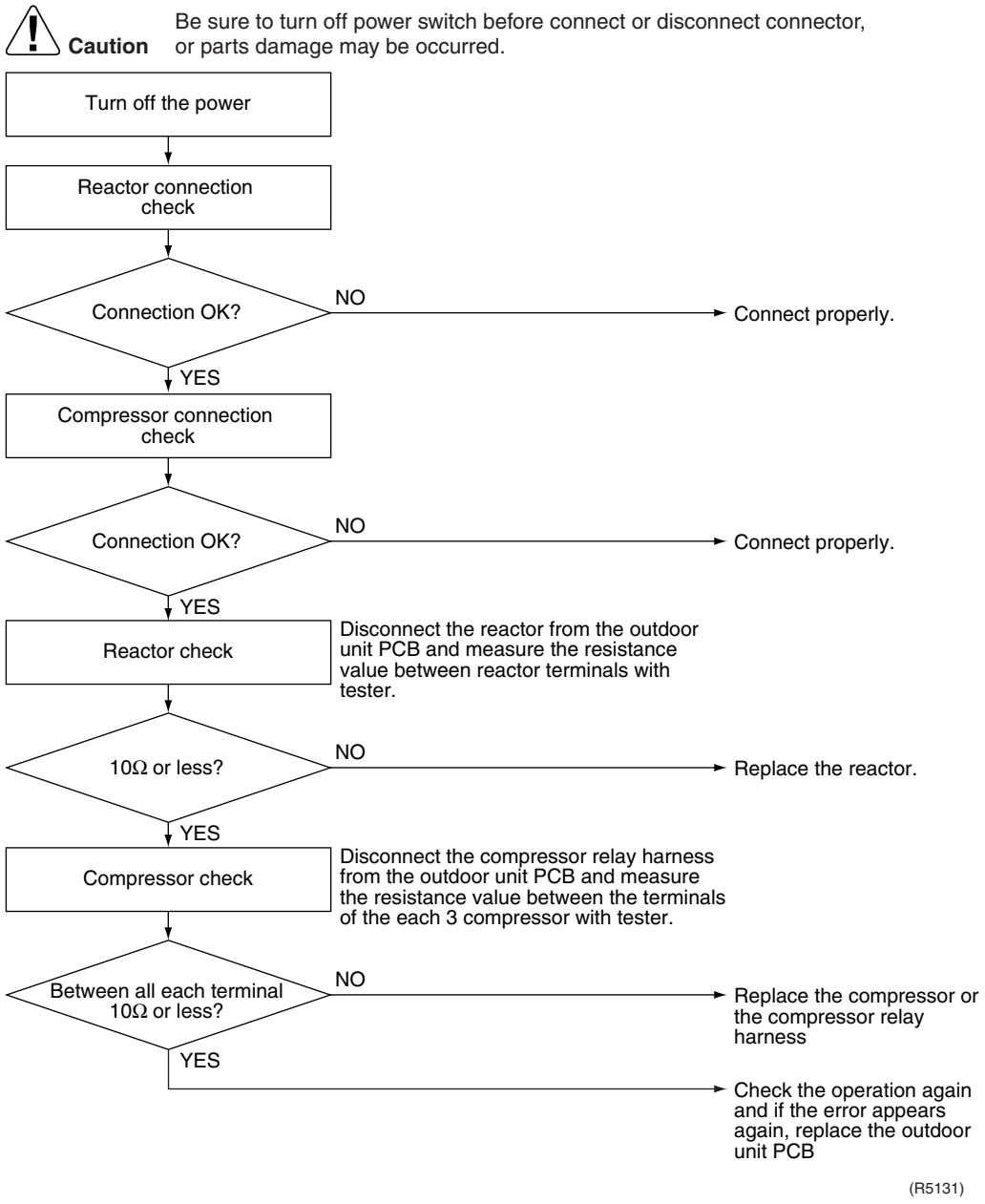
Malfunction Decision Conditions

- The detected valve of the supply voltage and the DC voltage is obviously low or high.
- The compressor current doesn't run when the compressor is started.

Supposed Causes

- Reactor disconnection
- Compressor disconnection
- Outdoor unit PCB defective
- Compressor defective

Troubleshooting



4.16 Position Sensor Abnormality

Remote Controller Display

H6

Method of Malfunction Detection

A compressor startup failure is detected by checking the compressor running condition through the position detection circuit.

Malfunction Decision Conditions

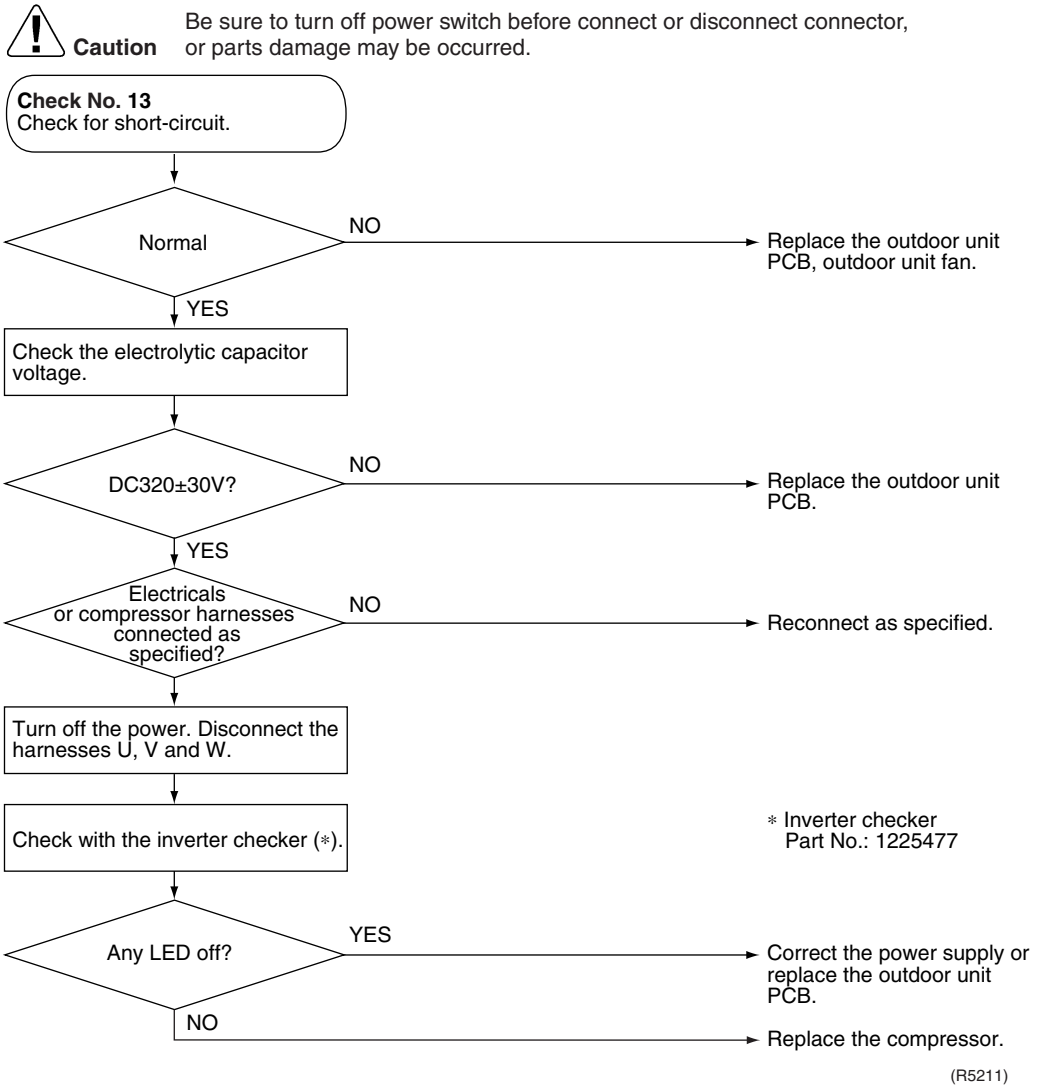
- The compressor fails to start in about 15 seconds after the compressor run command signal is sent.
- Clearing condition: Continuous run for about 5 minutes (normal)
- The system will be shut down if the error occurs 8 times.

Supposed Causes

- Compressor relay cable disconnected
- Compressor itself defective
- Outdoor unit PCB defective
- Stop valve closed
- Input voltage out of specification

Troubleshooting

Check No.13
Refer to P.160



4.17 CT or Related Abnormality

Remote Controller Display

H8

Method of Malfunction Detection

A CT or related error is detected by checking the compressor running frequency and CT-detected input current.

Malfunction Decision Conditions

The compressor running frequency is below 55 Hz and the CT input is below 0.1 V.
(The input current is also below 0.5 A.)

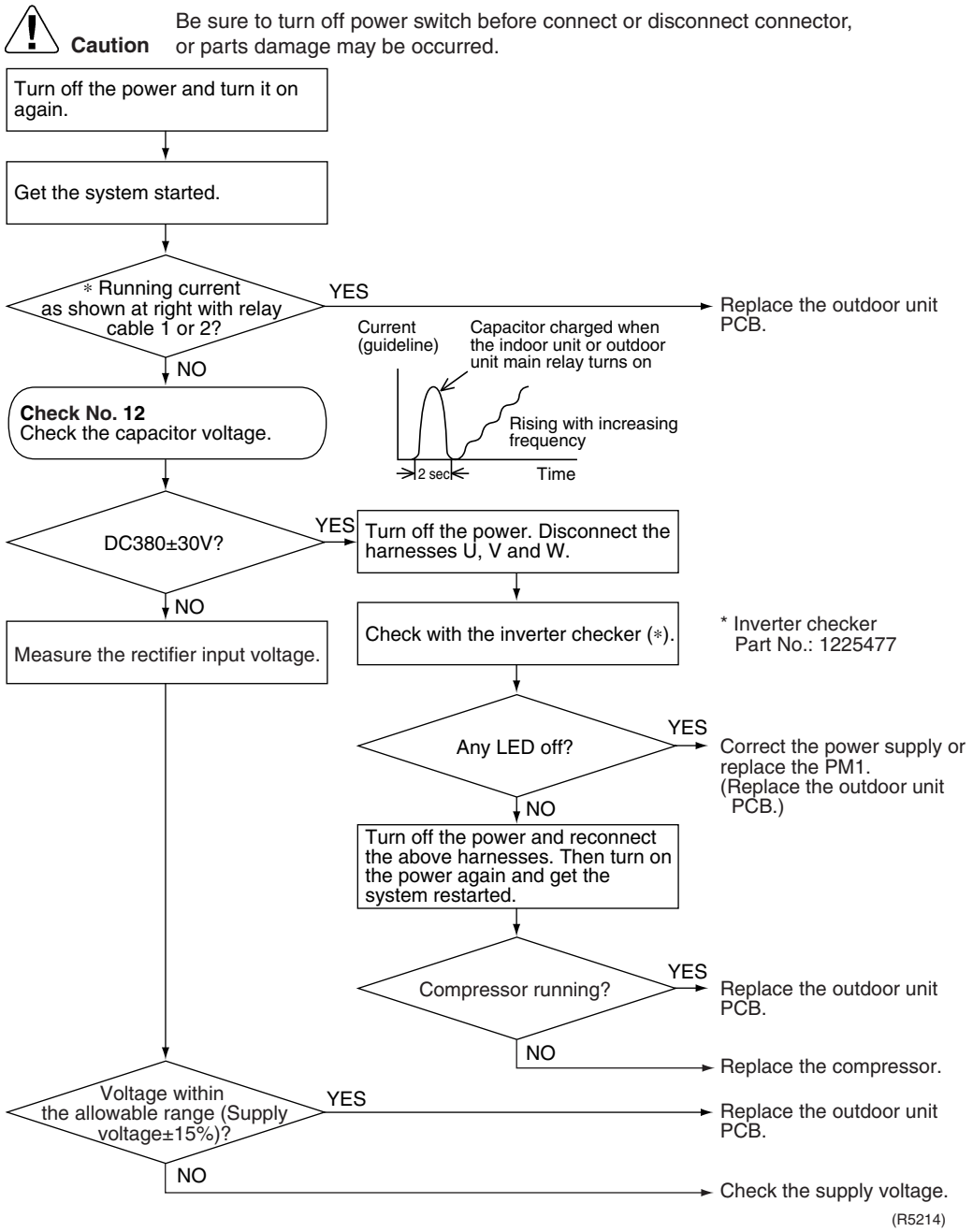
- If this error repeats 4 times, the system will be shut down.
- The error counter will reset itself if this or any other error does not occur during the following 60-minute compressor running time (total time).

Supposed Causes

- Power transistor defective
- Internal wiring broken or in poor contact
- Reactor defective
- Outdoor unit PCB defective

Troubleshooting

Check No.12
Refer to P.160



4.18 Thermistor or Related Abnormality (Outdoor Unit)

Remote Controller Display

P4, J3, J6, H9

Method of Malfunction Detection

This type of error is detected by checking the thermistor input voltage to the microcomputer.
[A thermistor error is detected by checking the temperature.]

Malfunction Decision Conditions

The thermistor input is above 4.96 V or below 0.04 V with the power on.
Error J3 is judged if the discharge pipe thermistor temperature is smaller than the condenser thermistor temperature.

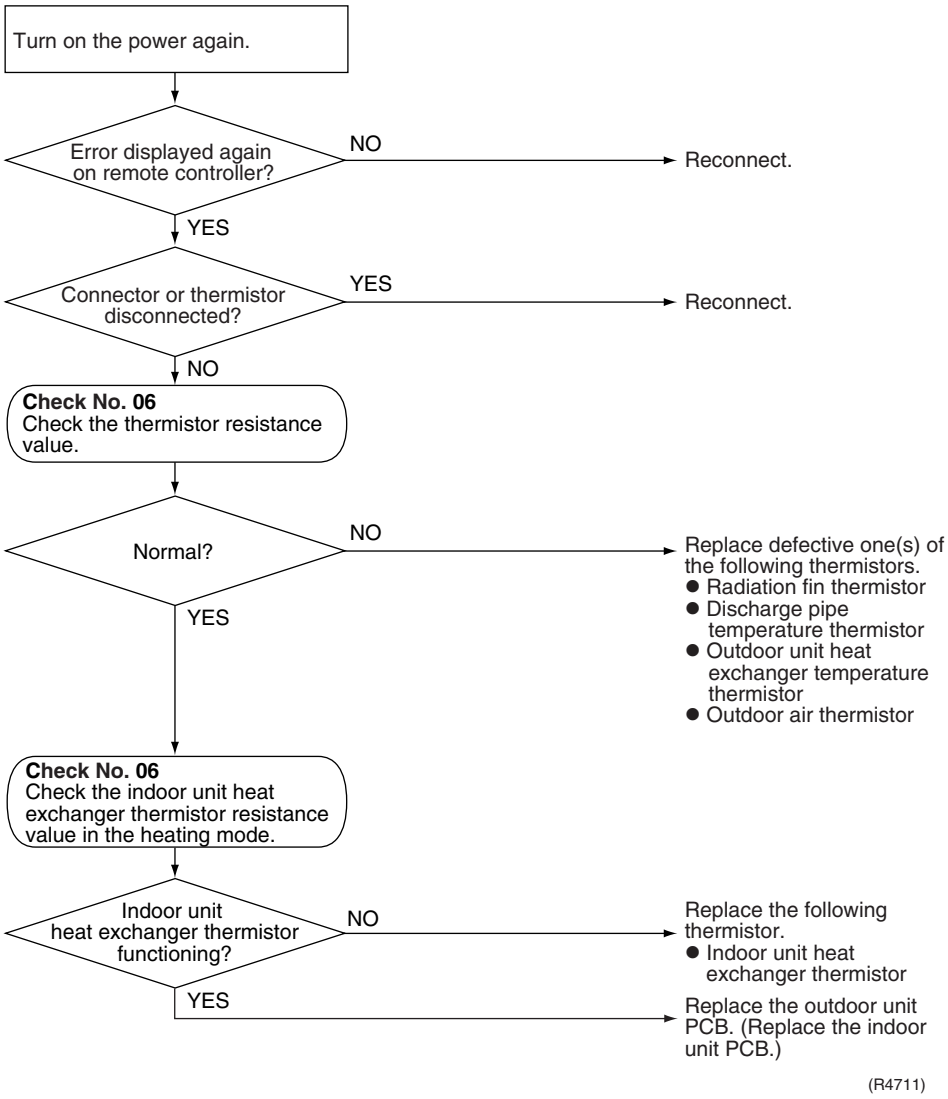
Supposed Causes

- Connector in poor contact
- Thermistor defective
- Outdoor unit PCB defective
- Indoor unit PCB defective
- Condenser thermistor defective in the case of J3 error (outdoor unit heat exchanger thermistor in the cooling mode, or indoor unit heat exchanger thermistor in the heating mode)

Troubleshooting

Check No.06
Refer to P.156

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



P4 : Radiation fin thermistor
J3 : Discharge pipe thermistor
J6 : Outdoor heat exchanger thermistor
H9 : Outdoor air thermistor

4.19 Electrical Box Temperature Rise

Remote Controller Display

L3

Method of Malfunction Detection

An electrical box temperature rise is detected by checking the radiation fin thermistor with the compressor off.

Malfunction Decision Conditions

With the compressor off, the radiation fin temperature is above 95°C. (Reset is made when the temperature drops below 80°C.)

Supposed Causes

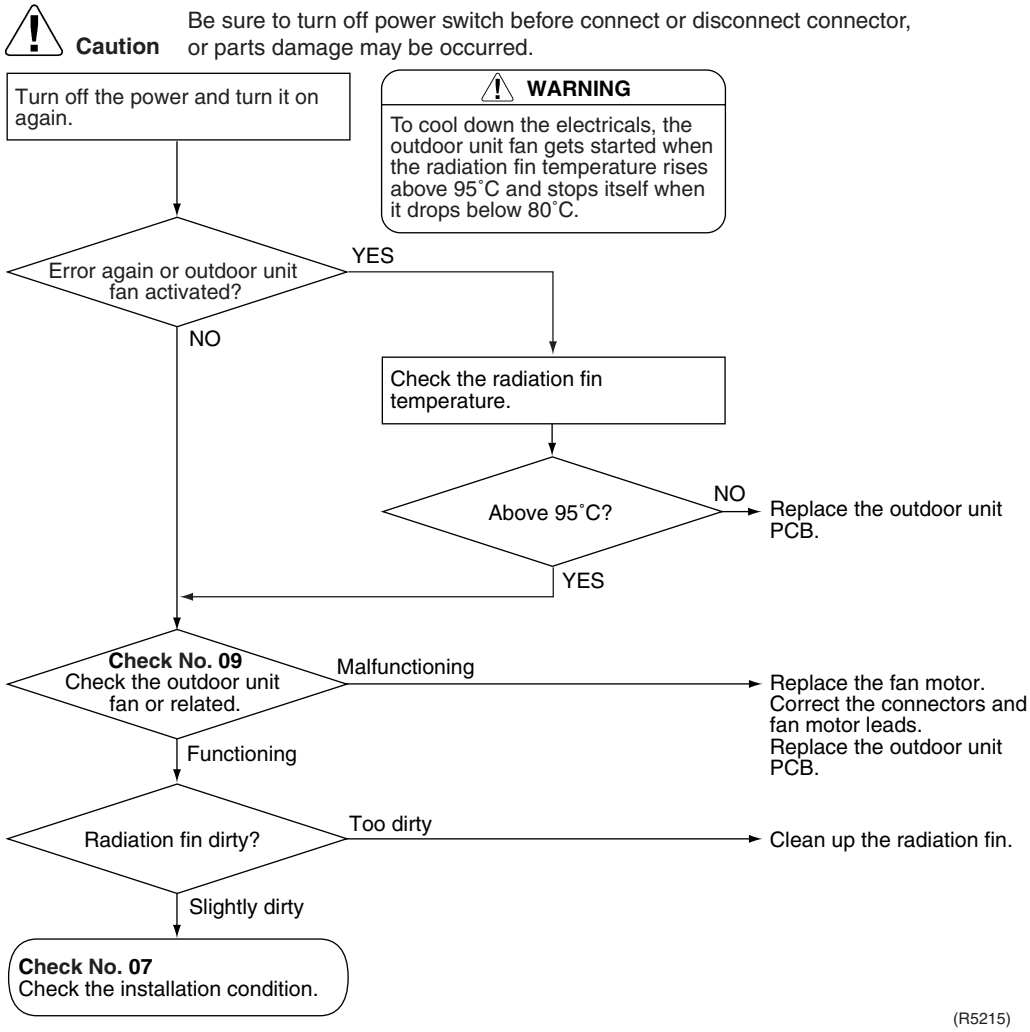
- Fin temperature rise due to defective outdoor unit fan
- Fin temperature rise due to short-circuit
- Fin thermistor defective
- Connector in poor contact
- Outdoor unit PCB defective

Troubleshooting

Check No.06
Refer to P.156

Check No.07
Refer to P.157

Check No.09
Refer to P.158



4.20 Radiation Fin Temperature Rise

Remote Controller Display

L4

Method of Malfunction Detection

A radiation fin temperature rise is detected by checking the radiation fin thermistor with the compressor on.

Malfunction Decision Conditions

- If the radiation fin temperature with the compressor on is above 105°C,
- The error is cleared when the temperature drops below 99°C.
- If a radiation fin temperature rise takes place 4 times successively, the system will be shut down.
- The error counter will reset itself if this or any other error does not occur during the following 60-minute compressor running time (total time).

Supposed Causes

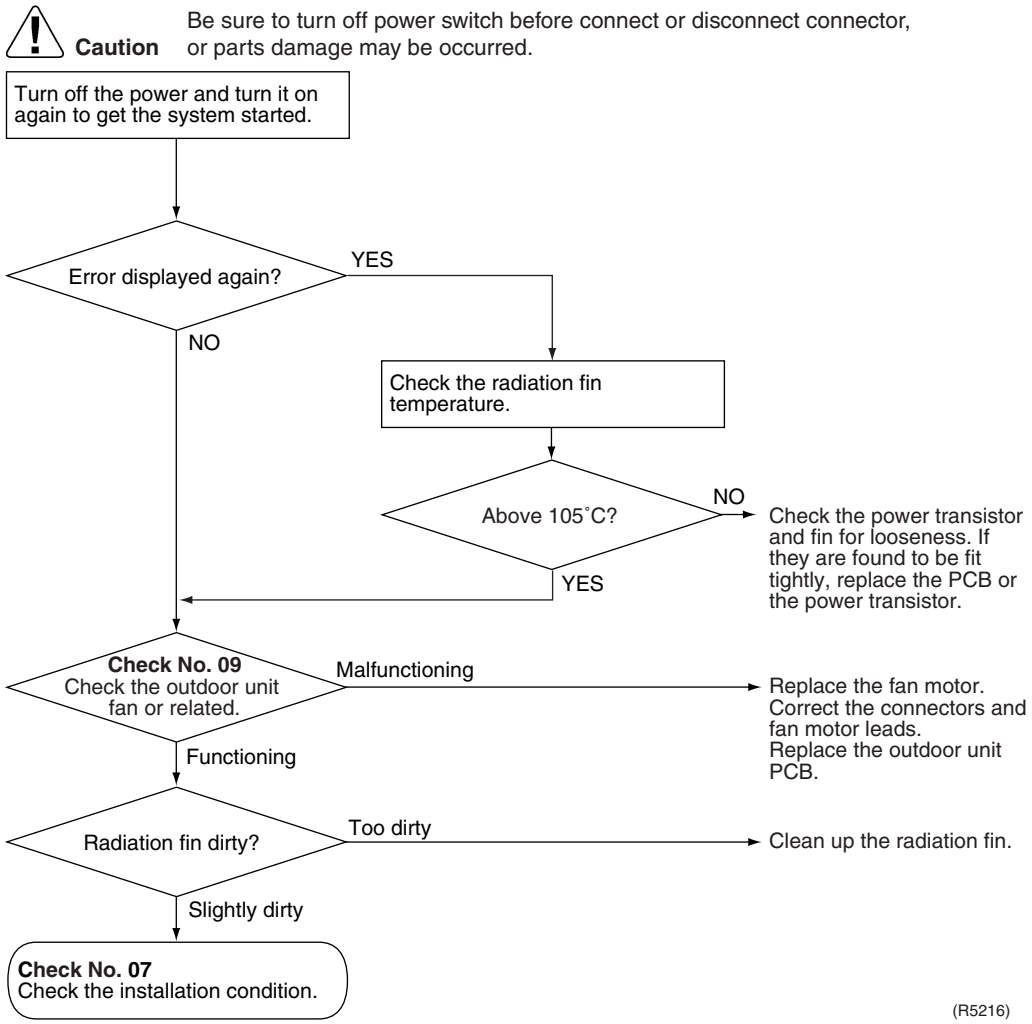
- Fin temperature rise due to defective outdoor unit fan
- Fin temperature rise due to short-circuit
- Fin thermistor defective
- Connector in poor contact
- Outdoor unit PCB defective

Troubleshooting

Check No.06
Refer to P.156

Check No.07
Refer to P.157

Check No.09
Refer to P.158



4.21 Output Over Current Detection

Remote Controller Display

L5

Method of Malfunction Detection

An output over-current is detected by checking the current that flows in the inverter DC section.

Malfunction Decision Conditions

- A position signal error occurs while the compressor is running.
- A speed error occurs while the compressor is running.
- An output over-current input is fed from the output over-current detection circuit to the microcomputer.
- The system will be shut down if the error occurs 16 times.
- Clearing condition: Continuous run for about 5 minutes (normal)

Supposed Causes

- Over-current due to defective power transistor
- Over-current due to wrong internal wiring
- Over-current due to abnormal supply voltage
- Over-current due to defective PCB
- Error detection due to defective PCB
- Over-current due to closed stop valve
- Over-current due to compressor failure
- Over-current due to poor installation condition

Troubleshooting

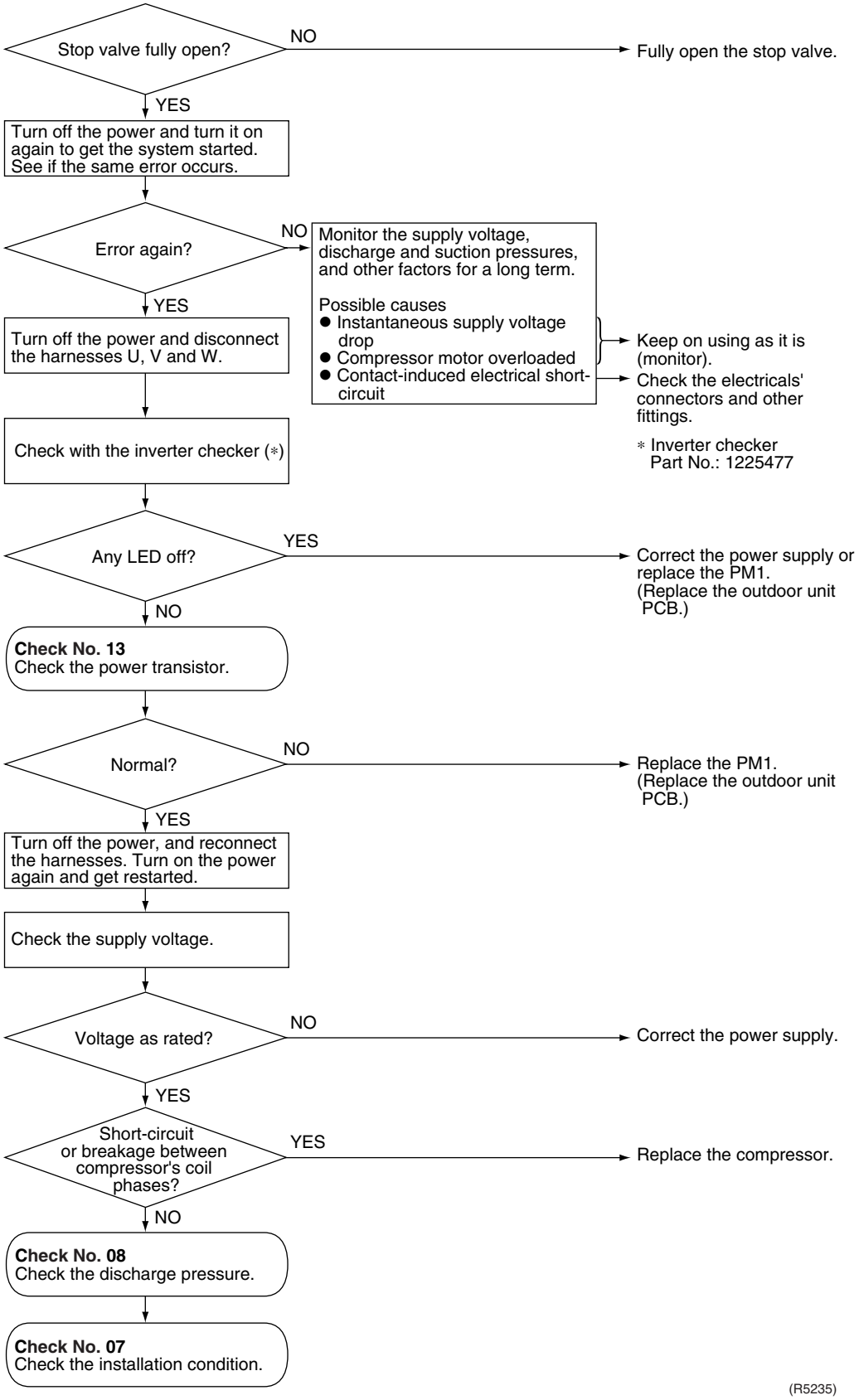
Check No.07
Refer to P.157

Check No.08
Refer to P.158

Check No.13
Refer to P.160

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

* An output over-current may result from wrong internal wiring. If the wires have been disconnected and reconnected for part replacement, for example, and the system is interrupted by an output over-current, take the following procedure.



(R5235)

4.22 Insufficient Gas

Remote Controller Display

UO

Method of Malfunction Detection

Gas shortage detection I : A gas shortage is detected by checking the CT-detected input current value and the compressor running frequency.
Gas shortage detection II : A gas shortage is detected by checking the difference between indoor unit heat exchanger temperature and room temperature as well as the difference between outdoor unit heat exchanger temperature and room temperature.

Malfunction Decision Conditions

Gas shortage detection I :
DC current ≤ 𝔸 (A/Hz) × Output frequency + 𝔹
However, when the status of running frequency > 55 (Hz) is kept on for a certain time.
Note : The values are different from model to model.

	𝔸	𝔹
50/60 class	18 / 1000	0.7
71 class	27 / 1000	2.5

Gas shortage detection II :
If a gas shortage error takes place 4 times successively, the system will be shut down. The error counter will reset itself if this or any other error does not occur during the following 60-minute compressor running time (total time).

Supposed Causes

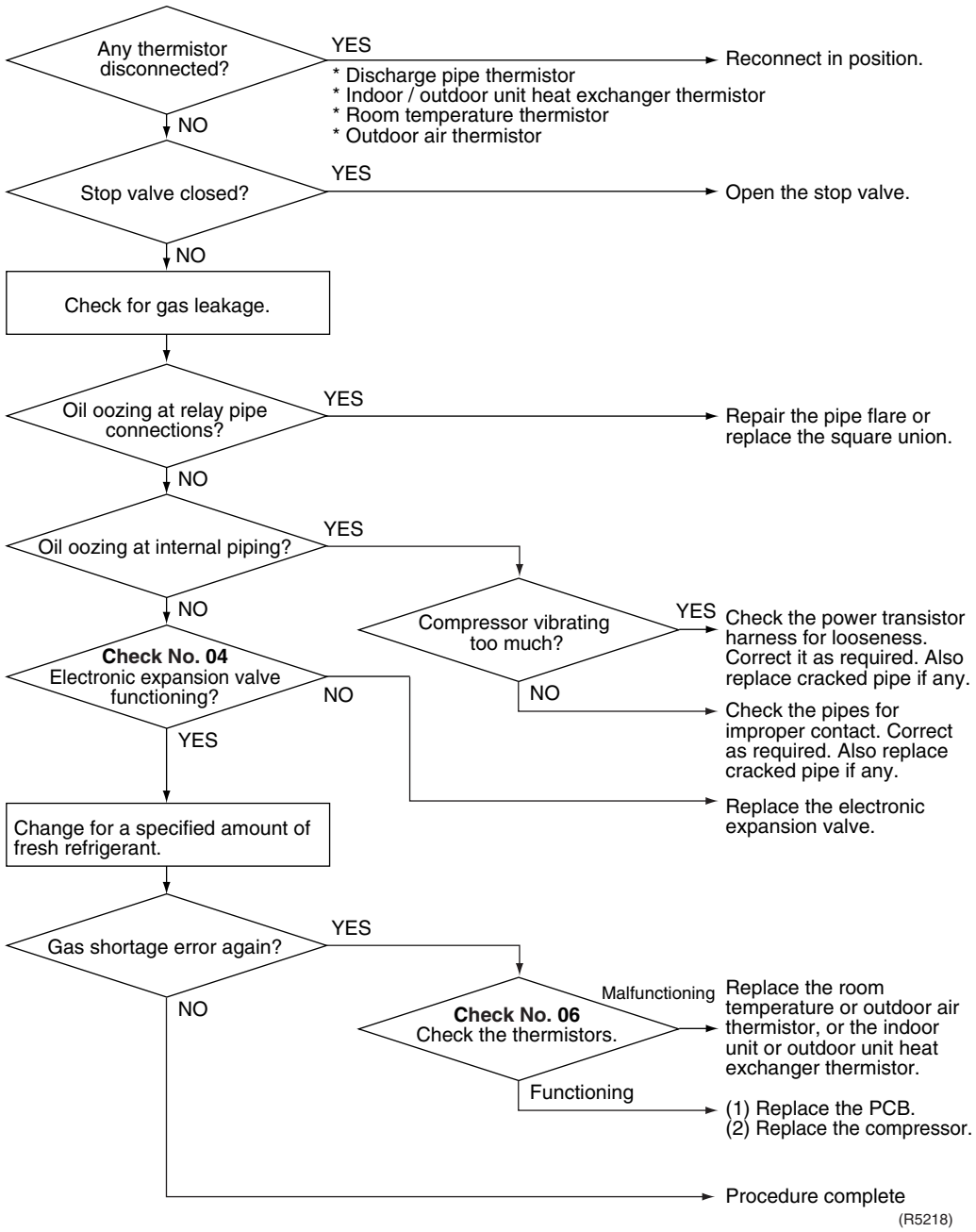
- Refrigerant shortage (refrigerant leakage)
- Poor compression performance of compressor
- Discharge pipe thermistor disconnected, or indoor unit or outdoor unit heat exchanger thermistor disconnected, room or outside air temperature thermistor disconnected
- Stop valve closed
- Electronic expansion valve defective

Troubleshooting

Check No.04
Refer to P.154

Check No.06
Refer to P.156

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



4.23 Low-voltage Detection or Over-voltage Detection

Remote Controller Display

U2

Method of Malfunction Detection

An abnormal voltage rise or drop is detected by checking the detection circuit or DC voltage detection circuit.

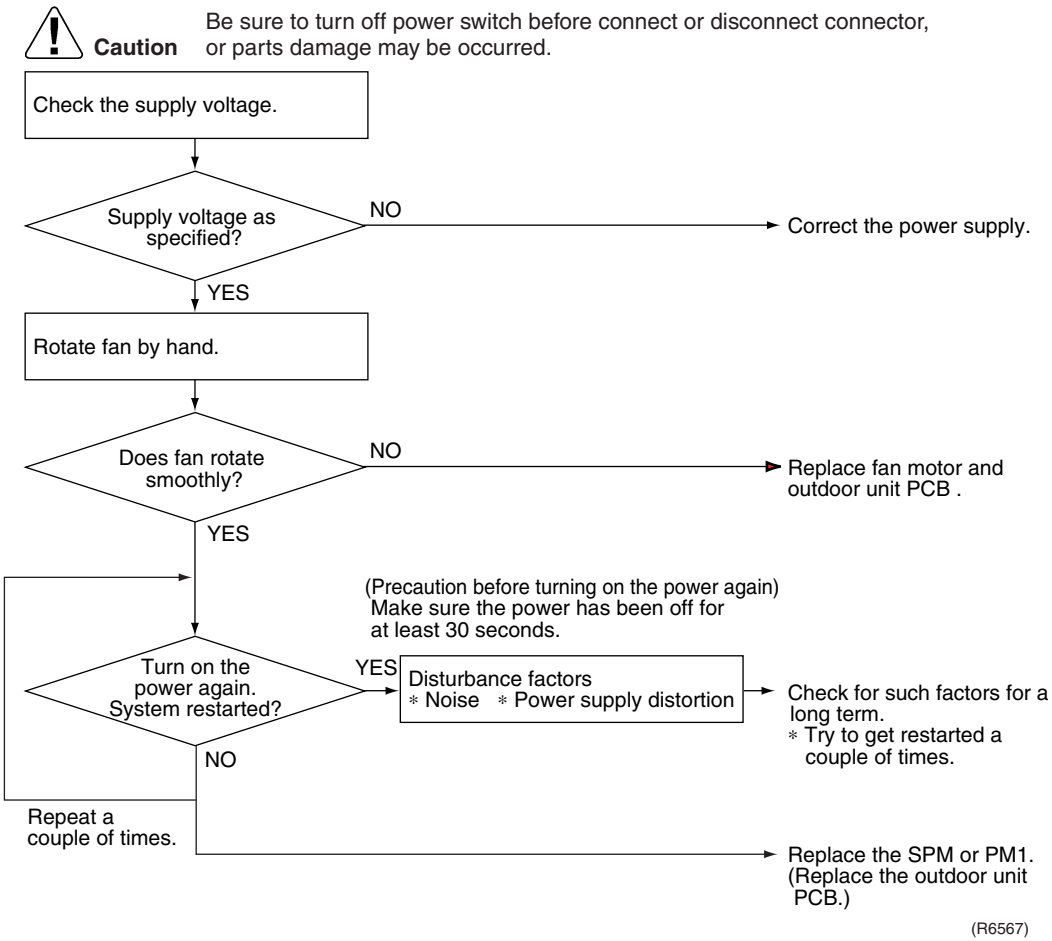
Malfunction Decision Conditions

- An over-voltage signal is fed from the over-voltage detection circuit to the microcomputer, or the voltage being detected by the DC voltage detection circuit is judged to be below 150 V for 0.1 second.
- The system will be shut down if the error occurs 16 times.
- Clearing condition: Continuous run for about 60 minutes (normal)

Supposed Causes

- Supply voltage not as specified
- Over-voltage detector or DC voltage detection circuit defective
- PAM control part(s) defective
- Short circuit inside the fan motor winding.

Troubleshooting



4.24 Signal Transmission Error on Outdoor Unit PCB

Remote Controller Display

U7

Method of Malfunction Detection

Communication error between microcomputer mounted on the main microcomputer and PM1.

Malfunction Decision Conditions

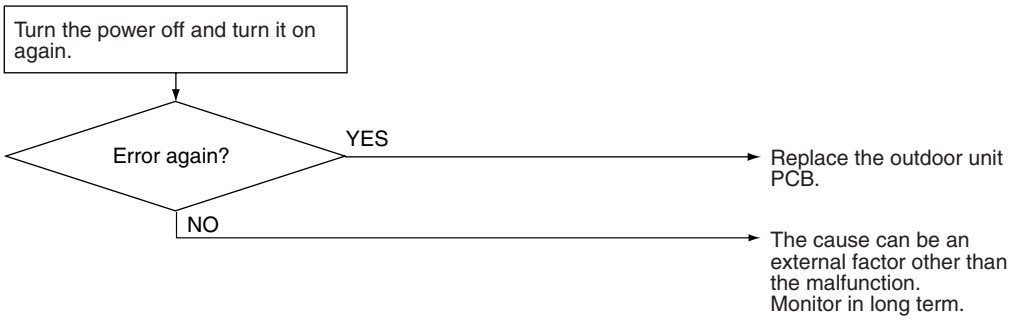
- When the data sent from the PM1 can not be received successively for 9 sec.
- The abnormality is determined if the above fault conditions occurs once.
- Fault counter is reset when the data from the PM1 can be successfully received.

Supposed Causes

- Defective outdoor unit PCB

Troubleshooting

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



(R5152)

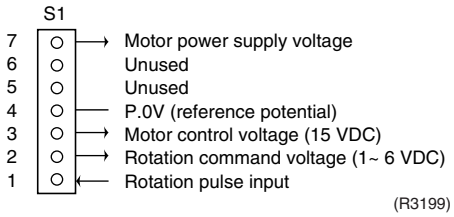
5. Check

5.1 How to Check

5.1.1 Fan Motor Connector Output Check

Check No.01

1. Check connector connection.
2. Check motor power supply voltage output (pins 4-7).
3. Check motor control voltage (pins 4-3).
4. Check rotation command voltage output (pins 4-2).
5. Check rotation pulse input (pins 4-1).

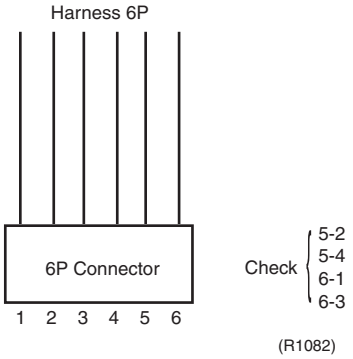


5.1.2 Electronic Expansion Valve Check

Check No.04

Conduct the followings to check the electronic expansion valve (EV).

1. Check to see if the EV connector is correctly inserted in the PCB. Compare the EV unit and the connector number.
2. Turn the power off and back on again, and check to see if all the EVs generate latching sound.
3. If any of the EVs does not generate latching noise in the above step 2, disconnect that connector and check the conductivity using a tester.
   Check the conductivity between pins 1, 3 and 6, and between pins 2, 4 and 5. If there is no conductivity between the pins, the EV coil is faulty.

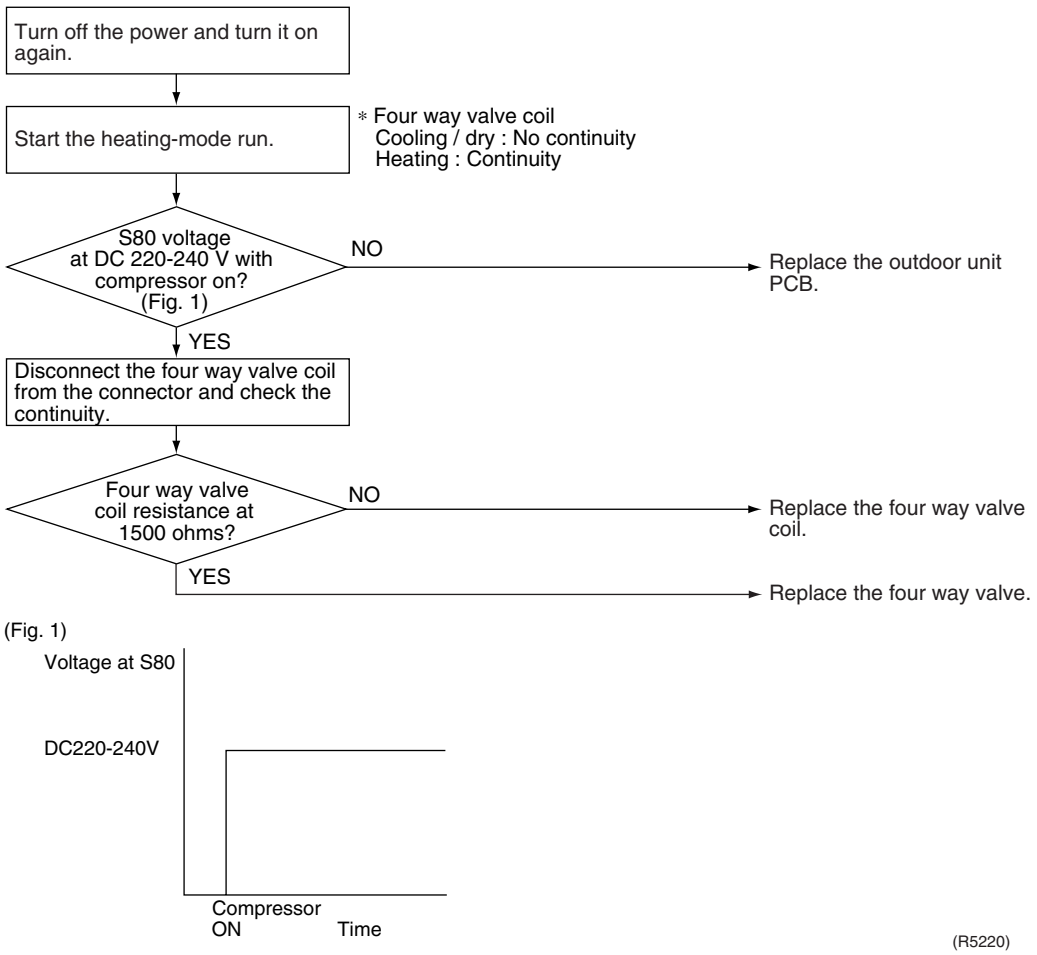


4. If no EV generates latching sound in the above step 2, the outdoor unit PCB is faulty.
5. If the conductivity is confirmed in the above step 2, mount a good coil (which generated latching sound) in the EV unit that did not generate latching sound, and check to see if that EV generates latching sound.
   ∗If latching sound is generated, the outdoor unit PCB is faulty.
   ∗If latching sound is not generated, the EV unit is faulty.

Note: Please note that the latching sound varies depending on the valve type.

5.1.3 Four Way Valve Performance Check

Check No.05



(Fig. 1)

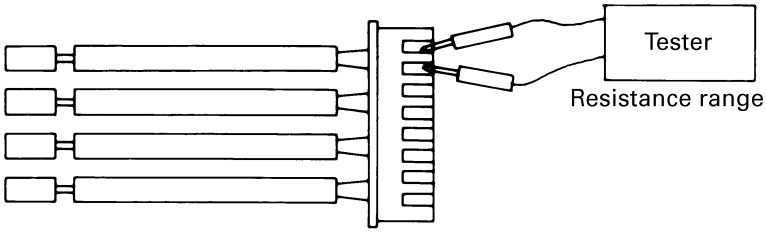
(R5220)

5.1.4 Thermistor Resistance Check

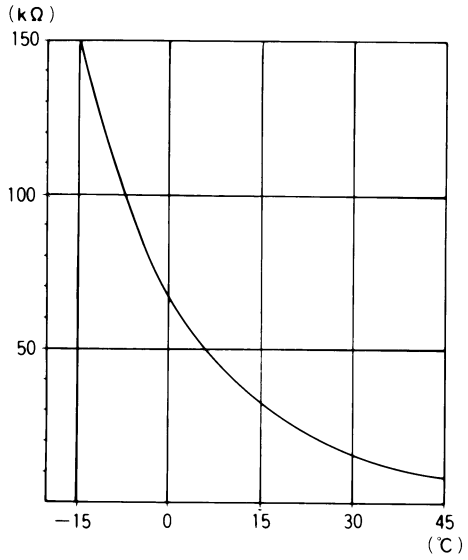
Check No.06

Remove the connectors of the thermistors on the PCB, and measure the resistance of each thermistor using tester.
The relationship between normal temperature and resistance is shown in the graph and the table below.

Thermistor Temperature (°C)	R25°C=20kΩ B=3950
–20	211.0 (kΩ)
–15	150
–10	116.5
–5	88
0	67.2
5	51.9
10	40
15	31.8
20	25
25	20
30	16
35	13
40	10.6
45	8.7
50	7.2



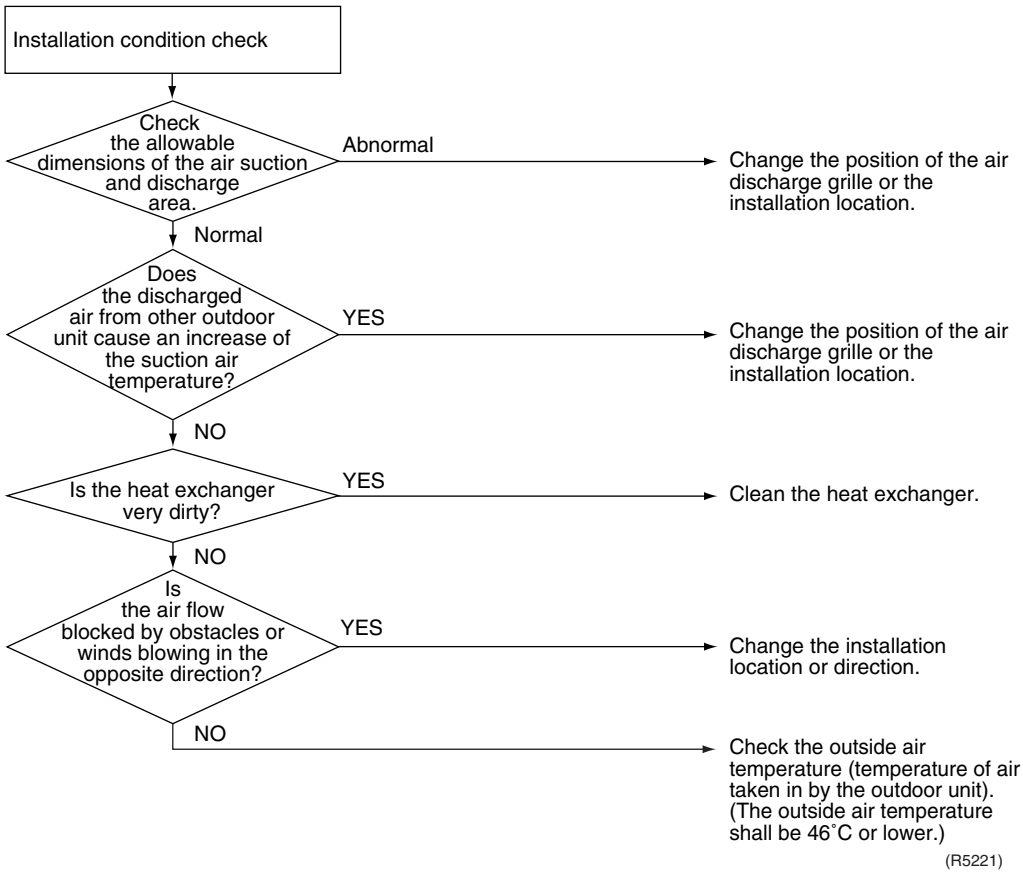
（R25＝20kΩ、B＝3950）



(R1437)

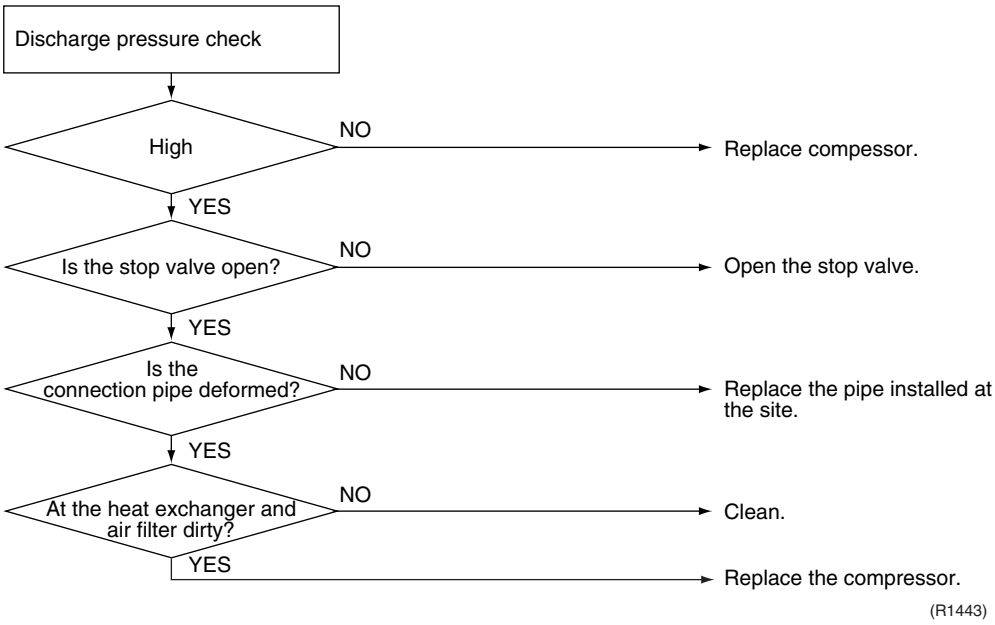
5.1.5 Installation Condition Check

Check No.07



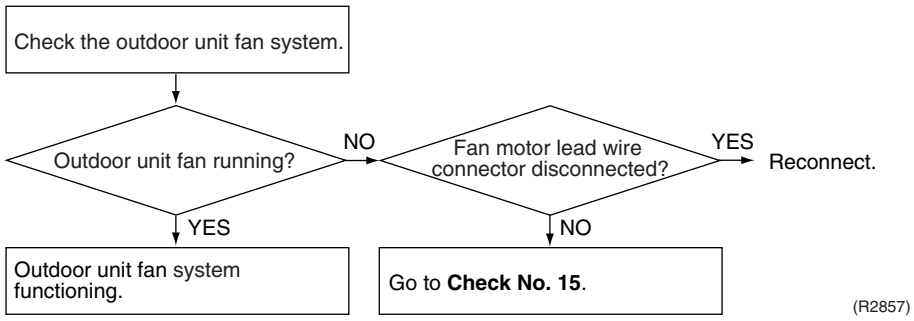
5.1.6 Discharge Pressure Check

Check No.08



5.1.7 Outdoor Unit Fan System Check (With DC Motor)

Check No.09



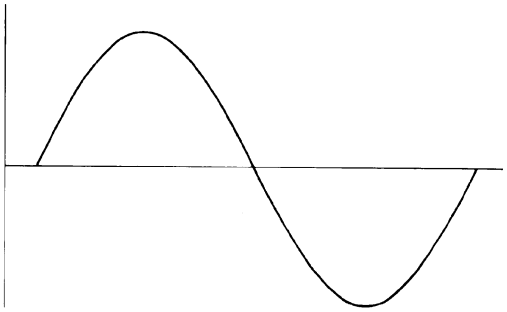
5.1.8 Power Supply Waveforms Check

Check No.10

Measure the power supply waveform between pins 1 and 3 on the terminal board, and check the waveform disturbance.

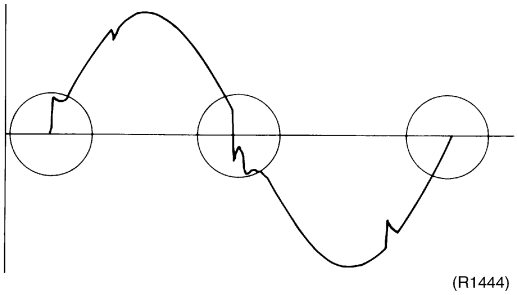
- Check to see if the power supply waveform is a sine wave (Fig.1).
- Check to see if there is waveform disturbance near the zero cross (sections circled in Fig.2)

[Fig.1]



(R1736)

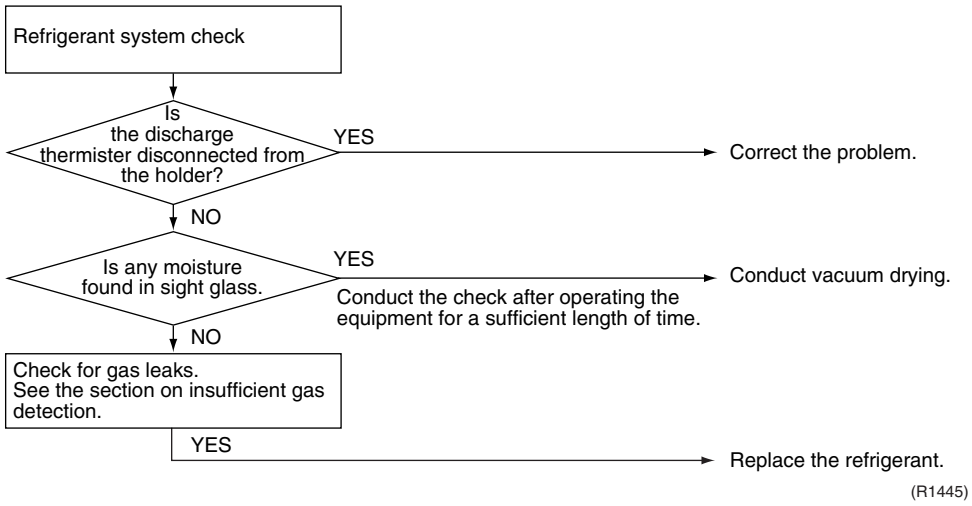
[Fig.2]



(R1444)

5.1.9 Inverter Units Refrigerant System Check

Check No.11



(R1445)

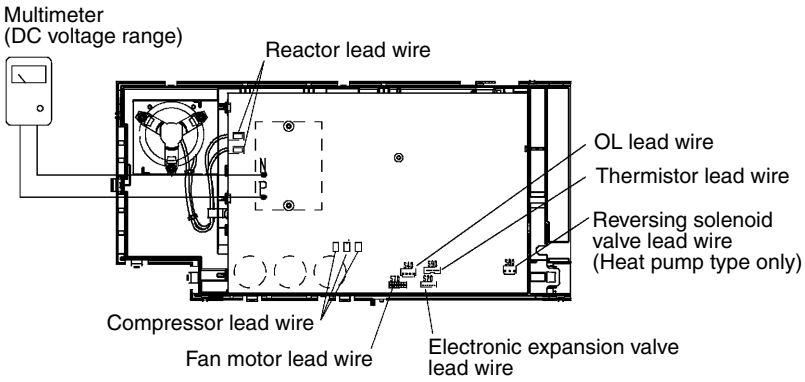
5.1.10 Capacitor Voltage Check

Check No.12

Before this checking, be sure to check the main circuit for short-circuit.

■ Checking the capacitor voltage

- With the circuit breaker still on, measure the voltage according to the drawing of the model in question. Be careful never to touch any live parts.



(R5222)

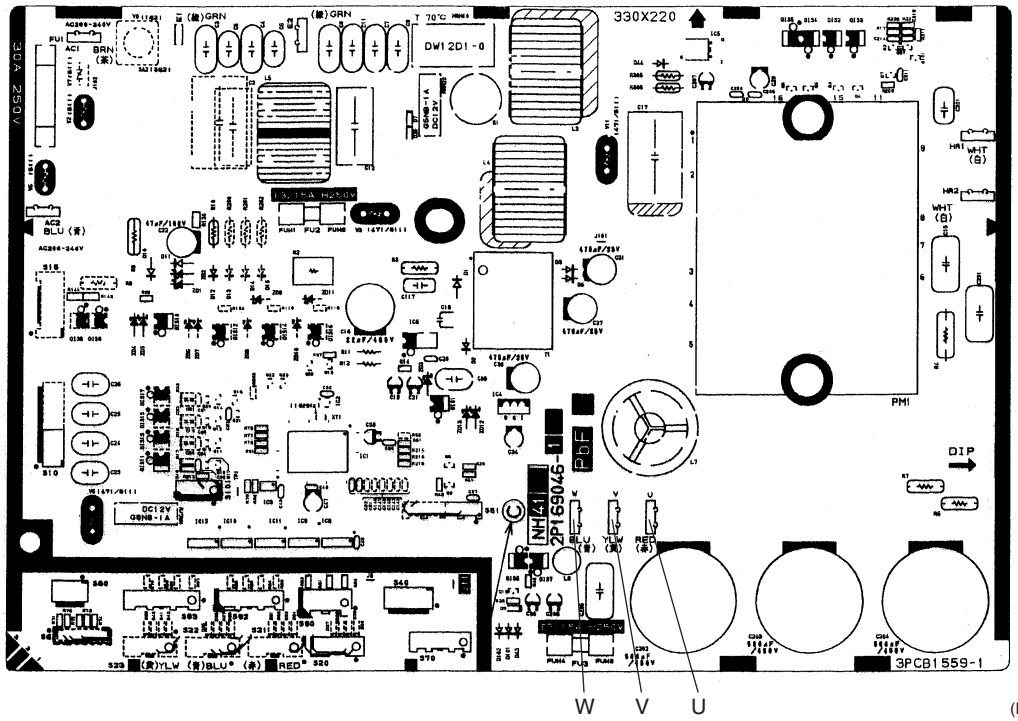
5.1.11 Power Transistor Check

Check No.13

■ Checking the power transistor

- Never touch any live parts for at least 10 minutes after turning off the circuit breaker.
- If unavoidably necessary to touch a live part, make sure the power transistor's supply voltage is below 50 V using the tester.
- For the UVW, make measurements at the Faston terminal on the board or the relay connector.

Tester's negative terminal	Power transistor (+)	UVW	Power transistor (–)	UVW
Tester's positive terminal	UVW	Power transistor (+)	UVW	Power transistor (–)
Normal resistance	Several kΩ to several MΩ			
Abnormal resistance	0 or ∞			

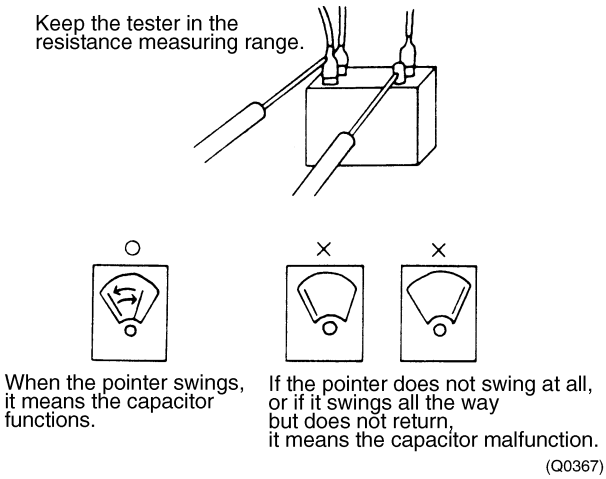


(R5237)

5.1.12 Main Circuit Electrolytic Capacitor Check

Check No.14

- Checking the main circuit electrolytic capacitor
- Never touch any live parts for at least 10 minutes after turning off the circuit breaker.
- If unavoidably necessary to touch a live part, make sure there is no DC voltage using the tester.
- Check the continuity with the tester. Reverse the pins and make sure there is continuity.

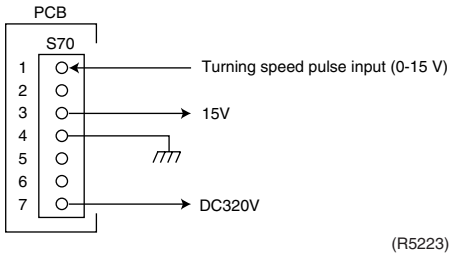


5.1.13 Turning Speed Pulse Input on the Outdoor Unit PCB Check

Check No.15

<Propeller fan motor>
Make sure the voltage of 320±30V is being applied.
(1) Stop the operation first and then the power off, and disconnect the connector S70.
(2) Make sure there is about DC 320 V between pins 4 and 7.
(3) With the system and the power still off, reconnect the connector S70.
(4) Make a turn of the fan motor with a hand, and make sure the pulse (0-15 V) appears twice at pins 1 and 4.

If the fuse for fan motor protection is blown out, the outdoor-unit fan may also be in trouble. Check the fan too.
If the voltage in Step (2) is not applied, it means the PCB is defective. Replace the PCB.
If the pulse in Step (4) is not available, it means the Hall IC is defective. Replace the DC fan motor.If there are both the voltage (2) and the pulse (4), replace the PCB.



∗ Propeller fan motor : S70

Part 7
Removal Procedure

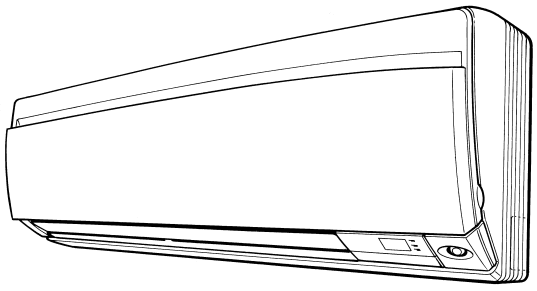
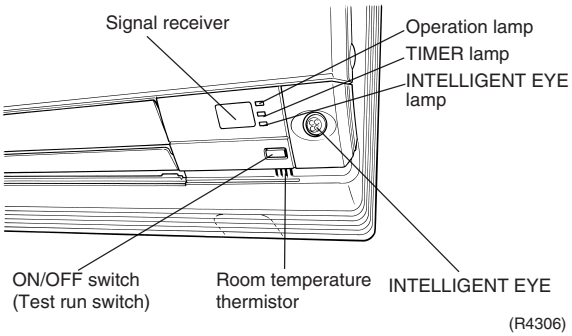
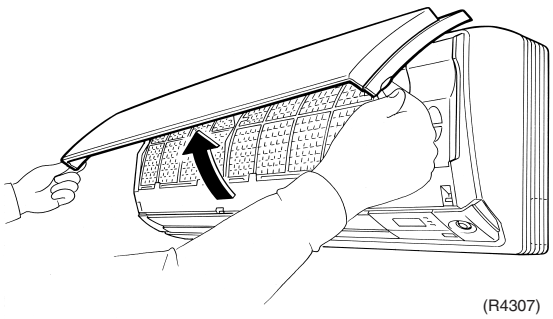
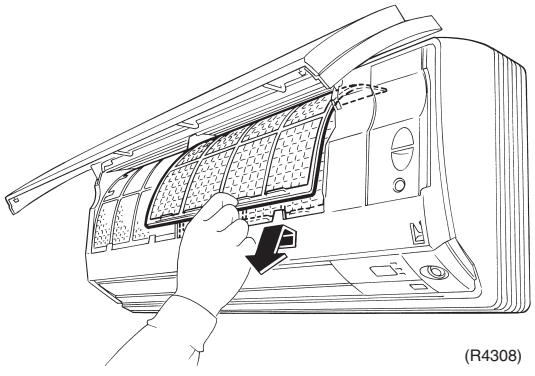
1. Indoor Unit

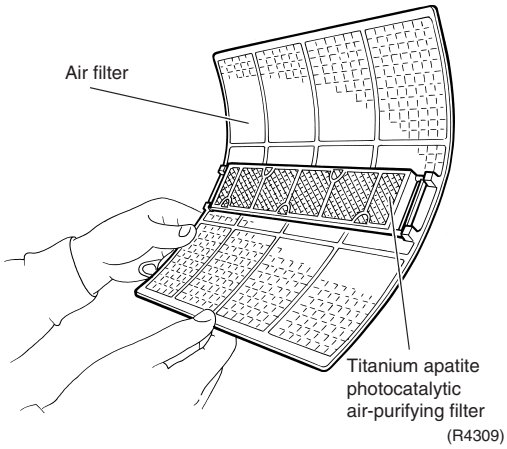
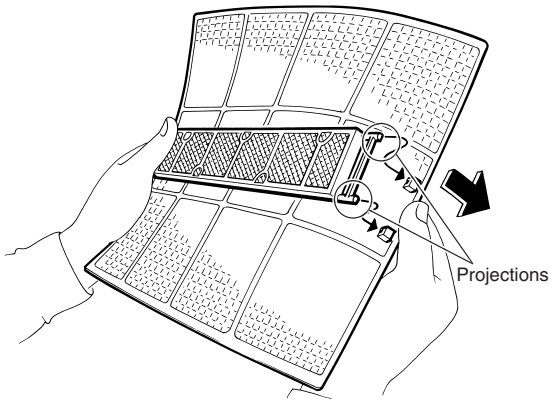
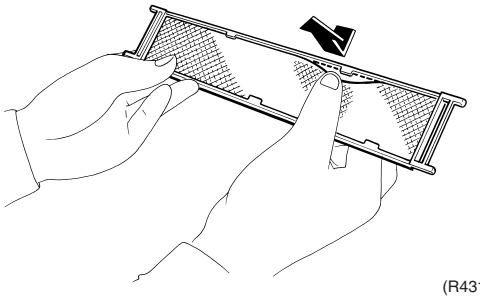
1.1 FTK(X)S 50 D

1.1.1 Removal of Air Filter

Procedure

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

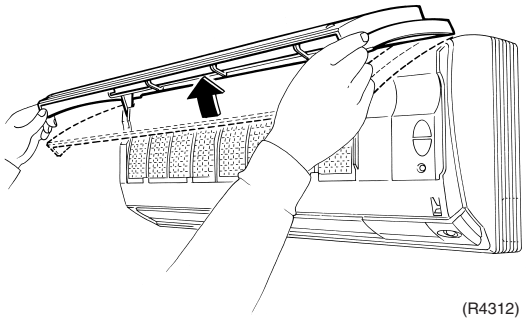
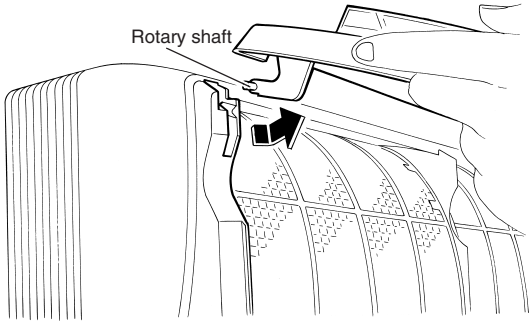
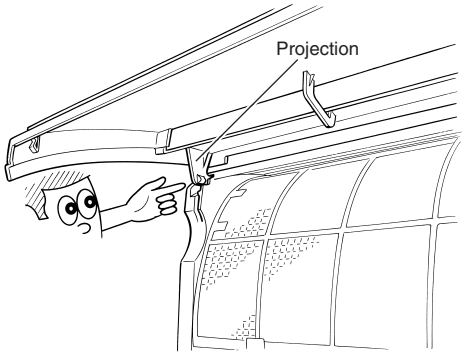
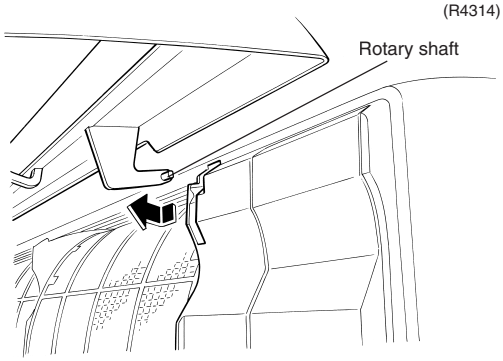
Step	Procedure	Points
1. Appearance feature	 (R4305)  (R4306)	**Warning** **Dangerous: High voltage** **A high voltage is applied to all the electric circuits of this product including thermistors.** ■ The panel designs are different according to the models. ■ When a signal from the remote controller is received, the receiving tone sounds and the operation lamp flickers immediately to confirm the signal reception. ■ When the ON/OFF switch is kept pressed for 5 seconds, the forced cooling operation is performed for about 15 minutes.
2. Removing the air filter		
1 Put your fingers on the right and left projections of the front panel, and open the panel to the position where it will stop.	 (R4307)	
2 Slightly push up the knob at the center of the air filter and release the hook.		■ The air filter is not marked for difference between the right and left sides. ■ The air filter can be set easily by inserting it along the guides. ■ Insert the air filter with the "FRONT"-marked face up. ■ Be sure to insert the hooks (at 2 lower positions) when mounting the air filter.
3 Pull out the air filter downwards and remove it.	 (R4308)	

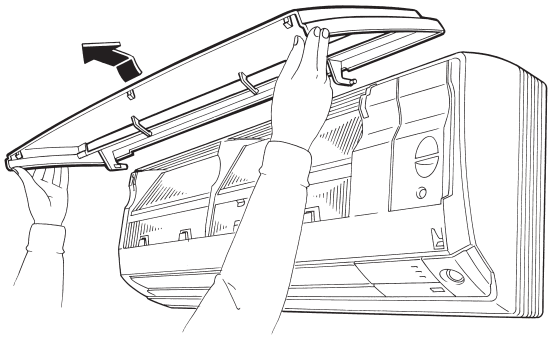
Step	Procedure	Points
3. Removing the titanium apatite photocatalytic air-purifying filter		
1 The titanium apatite photocatalytic air-purifying filter is attached to the back of the air filter.	 (R4309)	■ The titanium apatite photocatalytic air-purifying filter is not marked for difference between the right and left sides.
2 Remove the titanium apatite photocatalytic air-purifying filter frame by bending the air filter and unfastening the projections from the air filter frame.	 (R4310)	
3 Remove the titanium apatite photocatalytic air-purifying filter from its frame (at 5 positions) by bending it.	 (R4311)	

1.1.2 Removal of Front Panel

Procedure

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

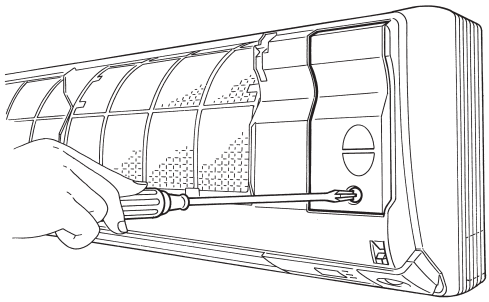
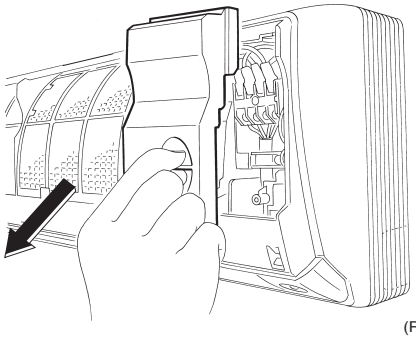
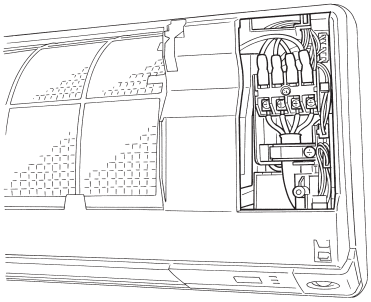
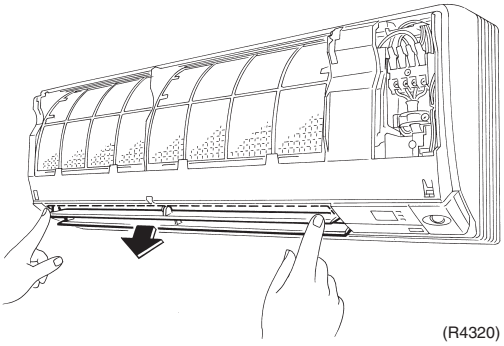
Step	Procedure	Points
1. Removing the front panel		
1	Put your fingers on the right and left projections of the front panel, and open the panel over the position where it will stop.  (R4312)	
2	Slide the left rotary shaft to the right and release it.  (R4313)	
3	When mounting the front panel, make sure that the projection is fitted in the guide before closing the panel.  (R4314)	
4	Slide the right rotary shaft to the left and release it.  (R4315)	

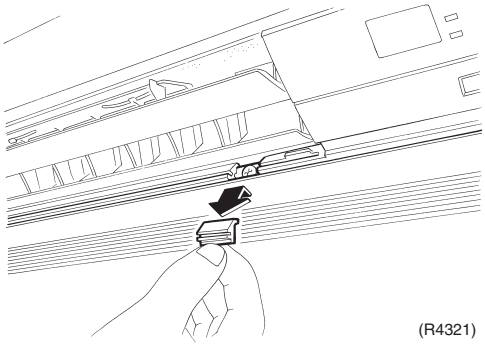
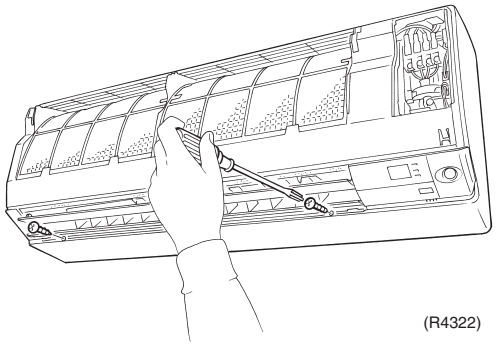
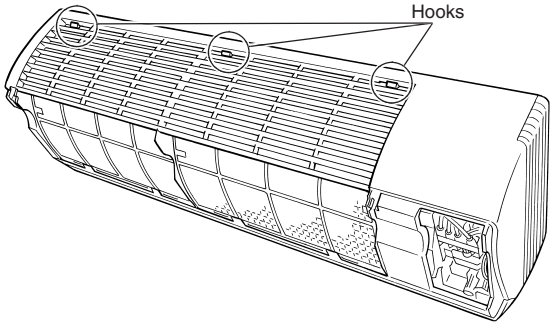
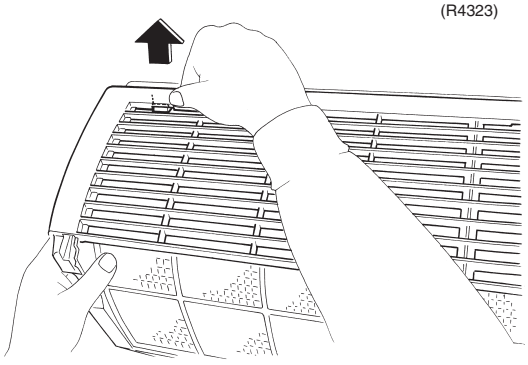
Step	Procedure		Points
5	Remove the front panel.	 (R4316)	**Caution on Mounting** ■ When mounting the front panel, fit the right and left rotary shafts one by one into the grooves and fully push them in position.

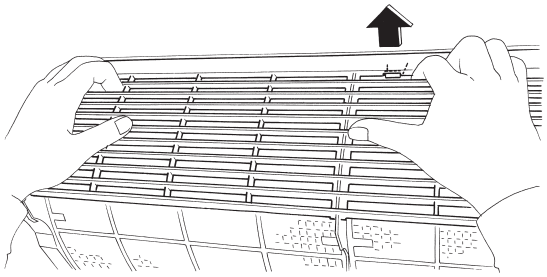
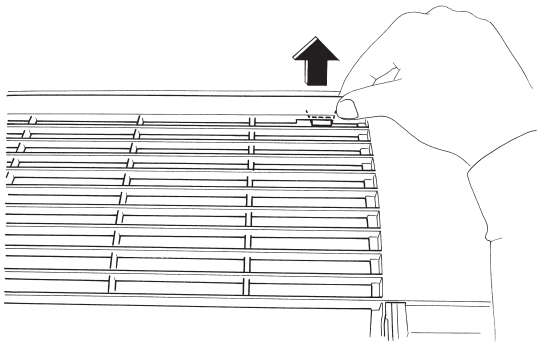
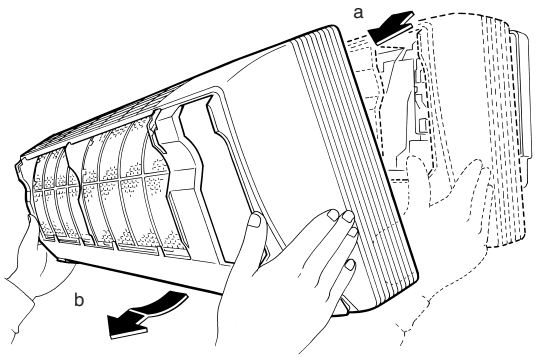
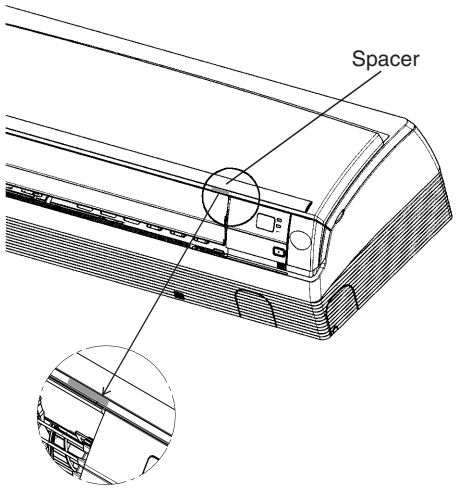
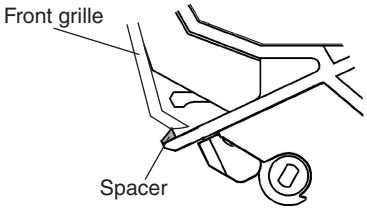
1.1.3 Removal of Front Grille

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 service cover		
1 Remove the screw of the service cover.	 (R4317)	**Preparation** ■ Remove the front panel according to the “Removal of Front Panel.”
2 Pull out the service cover diagonally down in the direction of the arrow.	 (R4318)	
3 The figure shows the appearance of the inside.	 (R4319)	■ There are no switches to be set in the field.
2. Removing the front grille		
1 Open the horizontal blades.	 (R4320)	

Step	Procedure		Points
2	Remove the screw covers (one each at the right and left).	 (R4321)	
3	Remove the screws (one each at the right and left).	 (R4322)	■ When installing the indoor unit, drive the screws with the horizontal blades open or removed.
4	Release the 3 hooks at the top.	 (R4323)	
5	Put your fingers into the front grille to the depth and lift the grille up to unhook.	 (R4324)	

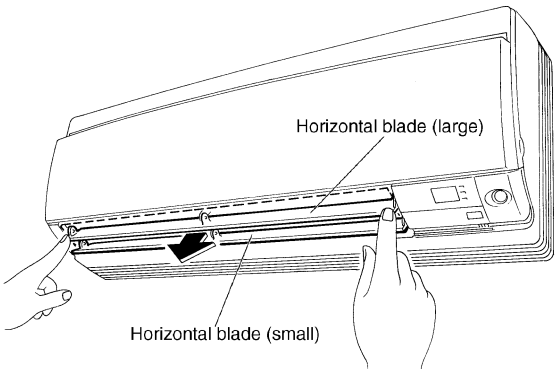
Step	Procedure		Points
6	Put your fingers into the front grille and lift the grille up to unfasten the centre hook.	 (R4325)	
7	Unfasten the right hook also by putting your fingers into the grille and lifting it.	 (R4326)	
8	Remove the front grille by tilting the upper part to the front (a) and lifting and pulling the lower part toward yourself (b).	 (R4327)	**Caution on Mounting** ■ When mounting the front grille, make sure that the hooks are fastened as they were.
		 (R4565)	■ When mounting the front grille, be sure not to get it stuck on the spacer of the drain pan.  **Section View** (R4590)

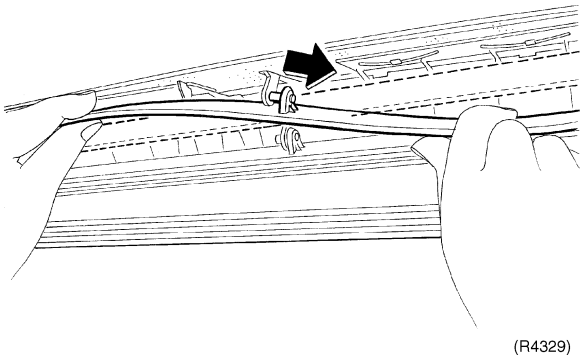
1.1.4 Removal of Horizontal Blades and Vertical Blades

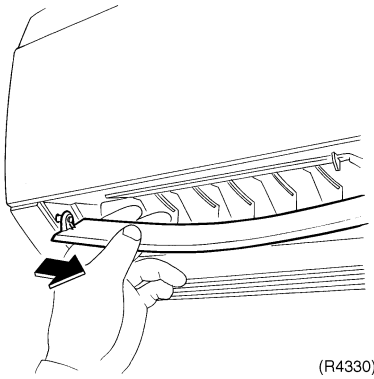
Procedure

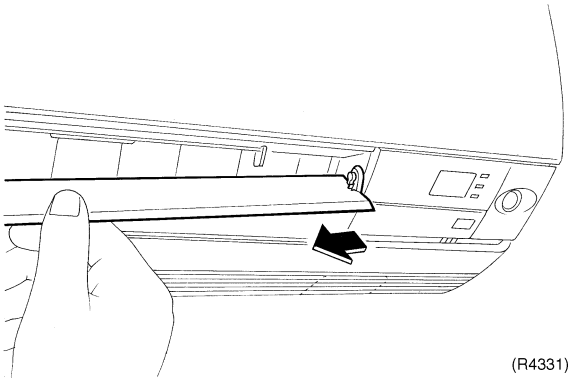
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

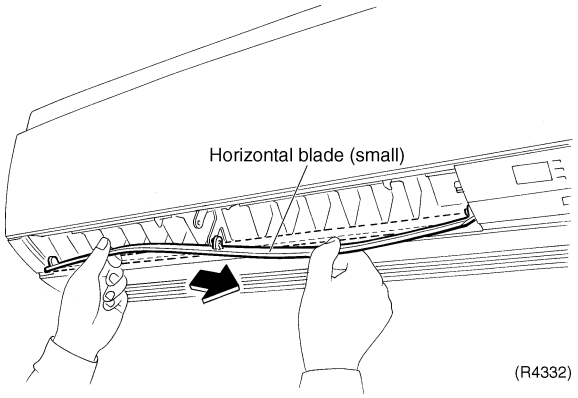
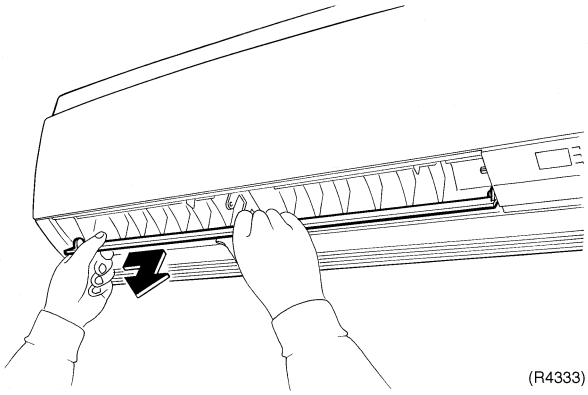
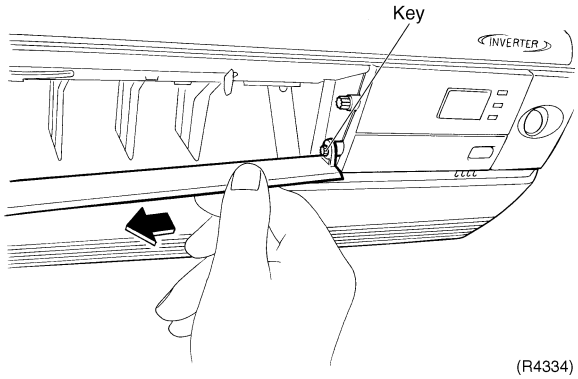
Step	Procedure	Points
1. Removing the horizontal blade (large)		
1	Open the horizontal blade (large).	**Cautions on Mounting** ■ Mount the large horizontal blade to the upper side and the small horizontal blade to the lower side. Do not put them in the wrong place.
2	Unfasten the centre fixing shaft while bending the horizontal blade slightly.	■ There is a key alignment mark at the right side. Insert the key first while turning.
3	Unfasten the left fixing shaft of the horizontal blade (large).	■ After key alignment at the right side, mount the flap first to the center fixing shaft and then to the left fixing shaft.
4	Unfasten the right fixing shaft of the horizontal blade (large).	



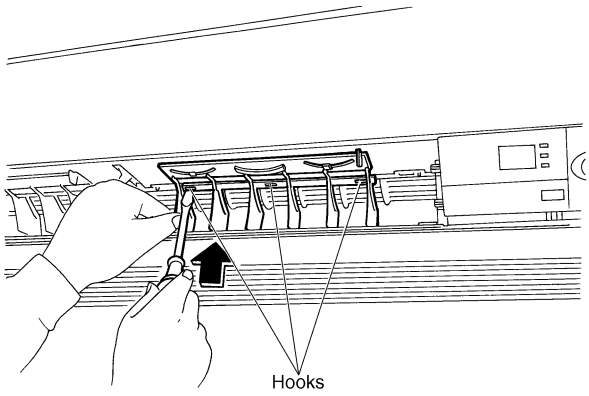




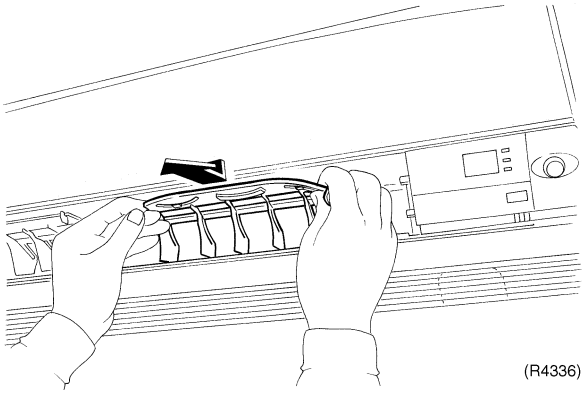


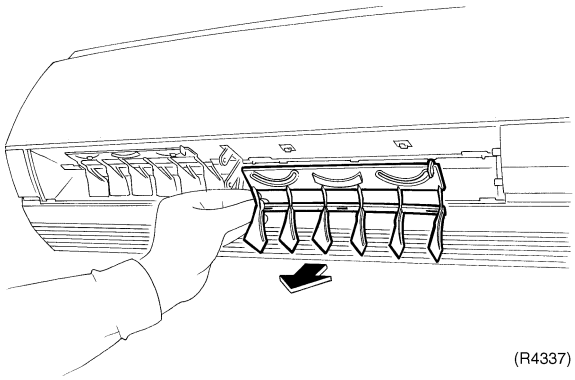
Step	Procedure		Points
2. Removing the horizontal blade (small)			
1	Remove the horizontal blade (small) while bending the fixed part at the center slightly.		
2	Unfasten the left side.		
3	Unfasten the key type fixing shaft at the right side.		

Step	Procedure	Points
3. Removing the vertical blade		
1	Unfasten the hooks at the shaft mounting part by pressing them with a flat screwdriver.	
2	Unfasten the hooks at the upper 2 positions.	
3	Remove the vertical blade toward yourself.	■ 6 vertical blades are united as a set. (It is impossible to replace only one blade.) ■ The set of blades is not marked for difference between right and left.



(R4335)

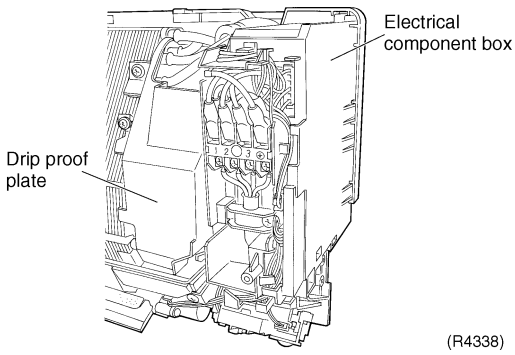
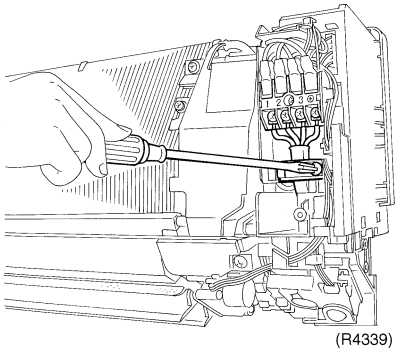
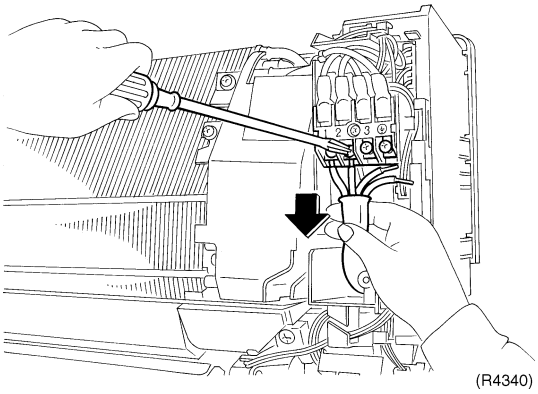
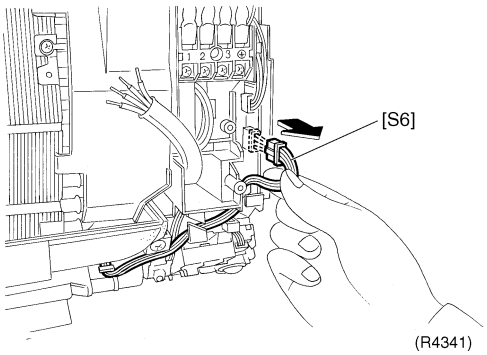

(R4336)

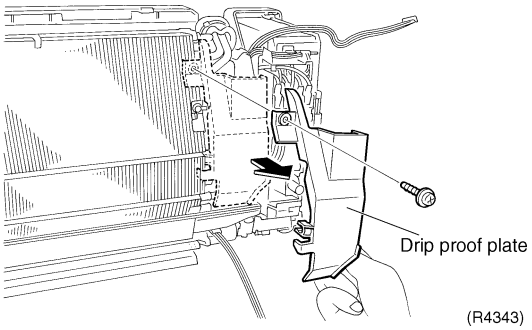
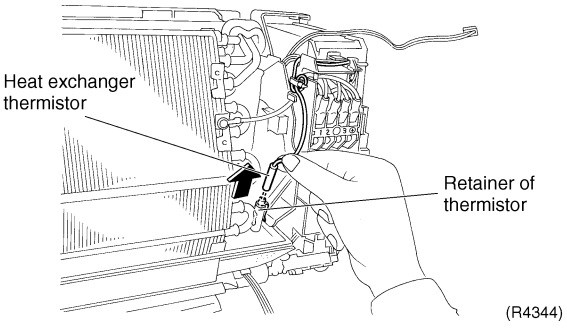
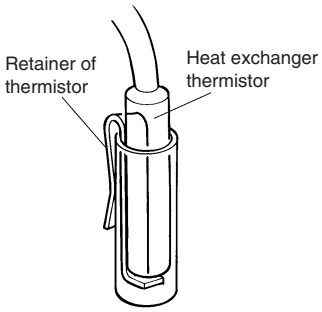
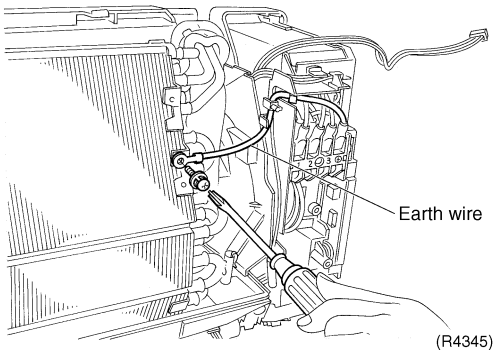
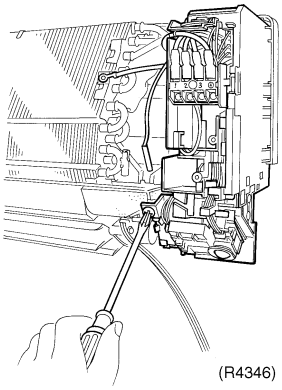

(R4337)

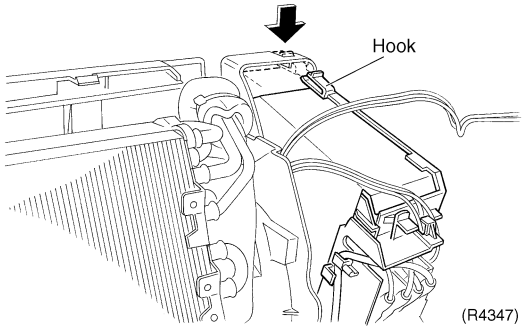
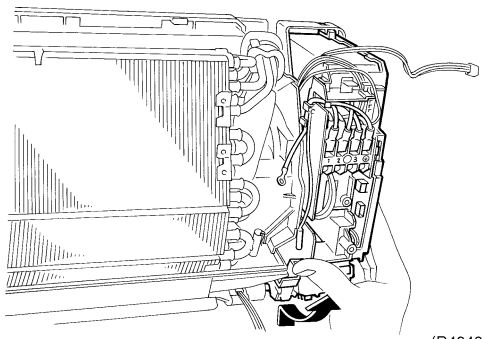
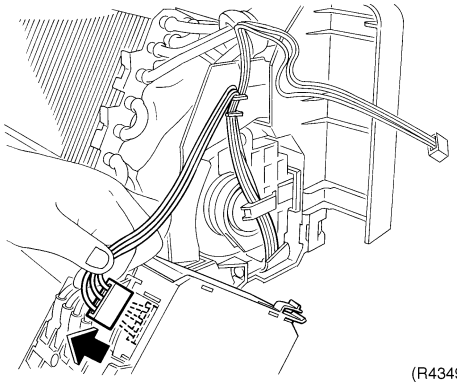
1.1.5 Removal of Electrical Box

Procedure

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

Step	Procedure		Points
1	The figure shows the connections of wire harnesses.		**Preparation** ■ Remove the front grille according to the “Removal of Front Grille.”
2	Remove the screw of the electric wire retaining plate.		
3	Loosen the screws of the terminal board and disconnect the connecting wires.		
4	Remove the connector of the swing motor [S6].		

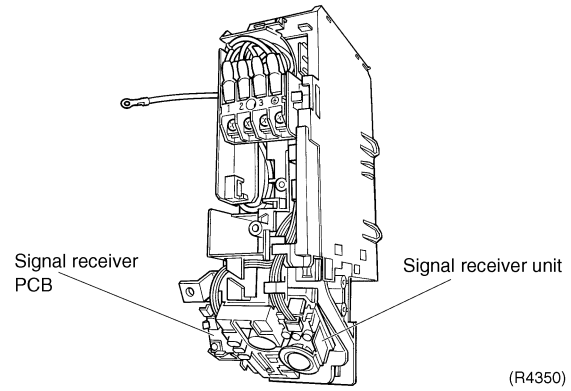
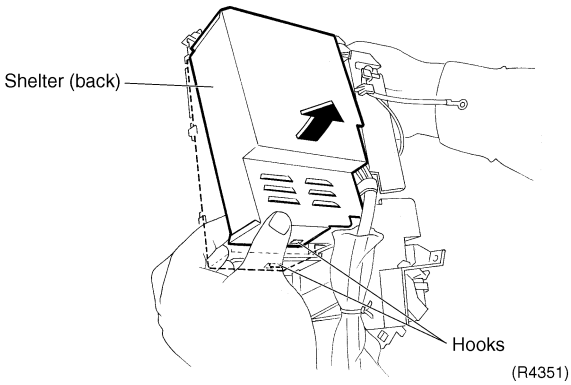
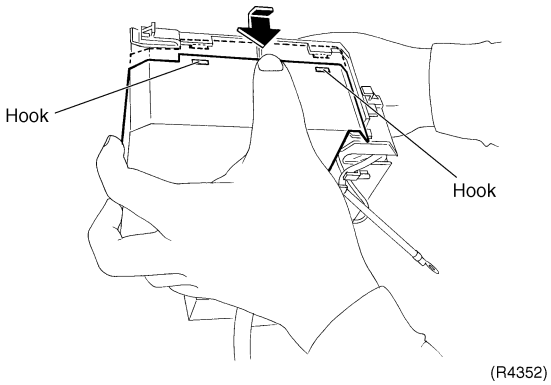
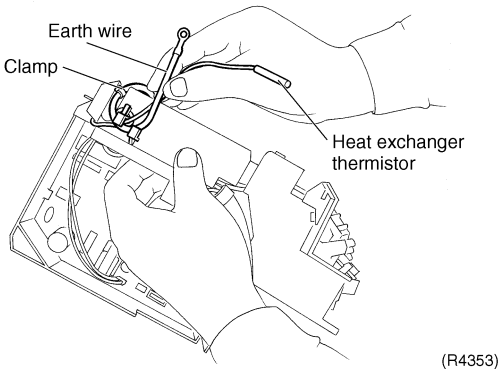
Step	Procedure		Points
5	Remove the drip proof plate by removing the screw.		■ Put any excess wires behind the power supply lead wire.
6	Replace the heat exchanger thermistor.		■ Use care not to lose the retainer of thermistor. 
7	Disconnect the earth wire by removing the screw.		
8	Remove the screw of the electrical box.		

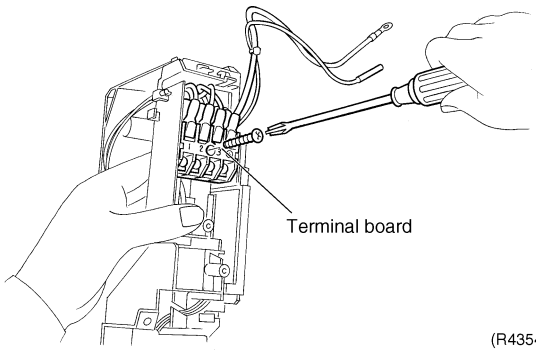
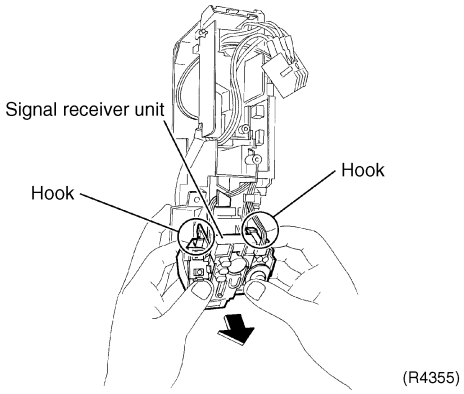
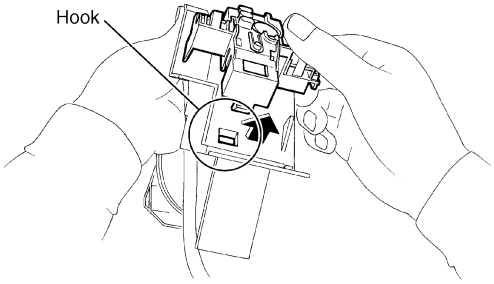
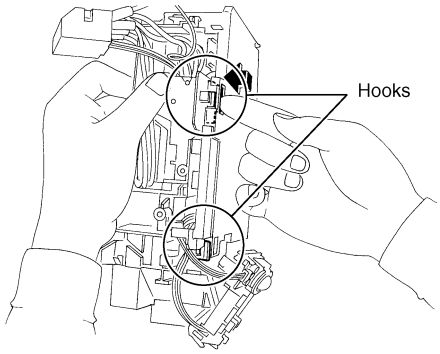
Step	Procedure		Points
9	Release the hook at the upper far side by pressing it from above and pulling the box toward yourself.	 (R4347)	
10	Lift up the electrical box and pull it toward yourself.	 (R4348)	■ There is a hook also at the lower part of the back. When mounting the box, make sure that it is securely fastened.
11	When the connector of the fan motor [S1] is removed, the electrical box can be dismounted.	 (R4349)	

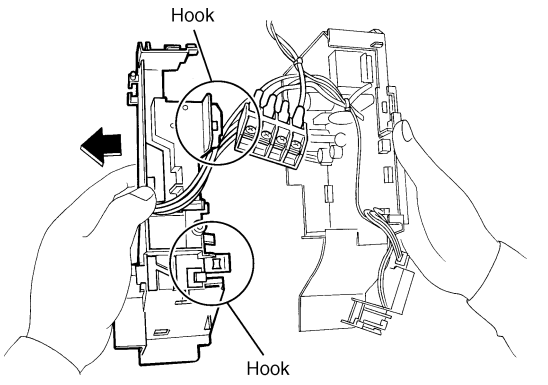
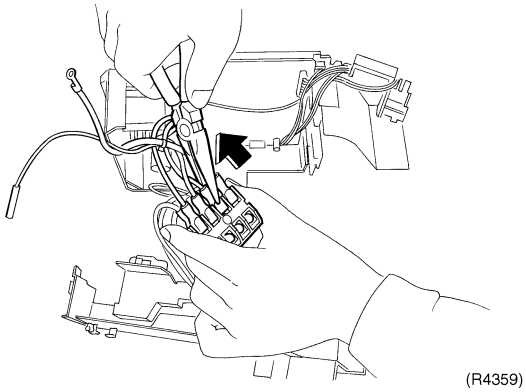
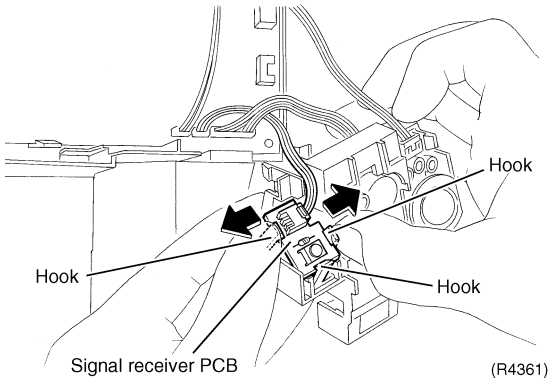
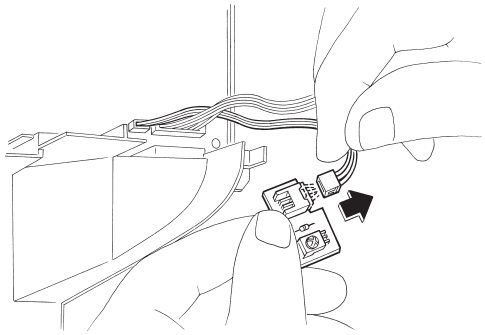
1.1.6 Removal of PCB

Procedure

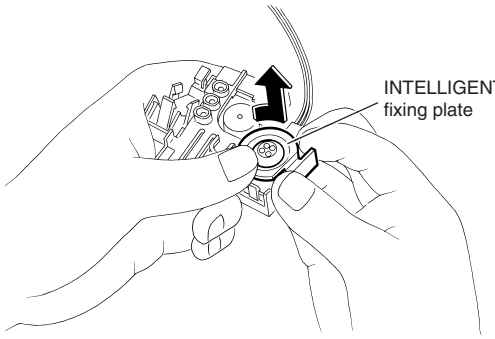
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
1. Removing the shelter		**Preparation** ■ Remove the electrical box according to the “Removal of Electrical Box.”
1 The figure shows the appearance of the electrical box.		
2 Open the shelter (at the back).		
3 Push the upper centre of the shelter and unfasten the hooks at the upper 2 positions of the shelter.		
2. Removing the heat exchanger thermistor		
1 Remove the heat exchanger thermistor and disconnect the earth wire.		

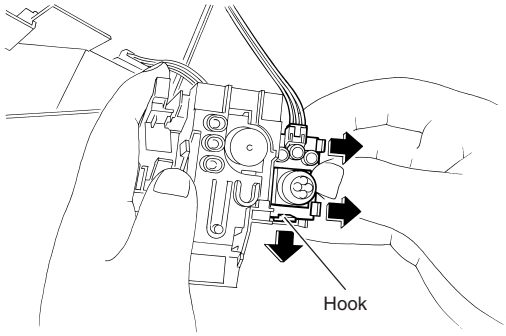
Step	Procedure	Points
3. Removing the terminal board	 (R4354)	
1 Dismount the terminal board by removing the screw.		
4. Removing the signal receiver unit	 (R4355)	
1 Remove the signal receiver unit by unfastening the hooks (one each at the right and left).	 (R4356)	
2 Remove the electrical box (cover) by unfastening the hooks at 2 positions.	 (R4357)	

Step	Procedure		Points
3	Remove the electrical box by sliding it to the left.	 (R4358)	
4	Disconnect the wire harness.	 (R4359)	
5. Removing the signal receiver PCB			
1	Remove the signal receiver PCB by opening the hooks at 3 positions.	 (R4361)	
2	Disconnect the connector from the signal receiver PCB.	 (R4362)	

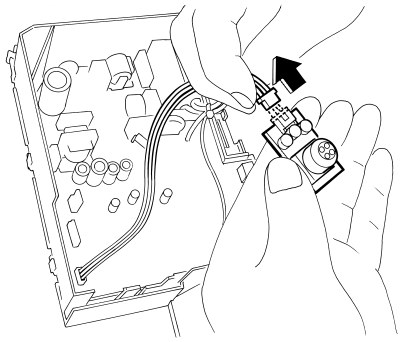
Step	Procedure	Points
6. Removing the INTELLIGENT EYE PCB		
1	Remove the INTELLIGENT EYE fixing plate by twisting it clockwise.	
2	Remove the INTELLIGENT EYE PCB by unfastening the hook.	
3	Disconnect the connector from the INTELLIGENT EYE PCB.	



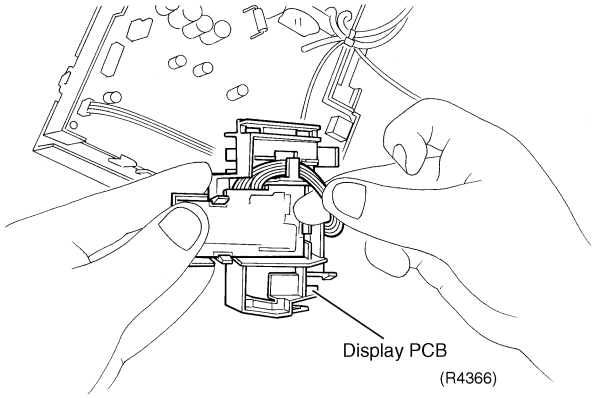
(R4363)

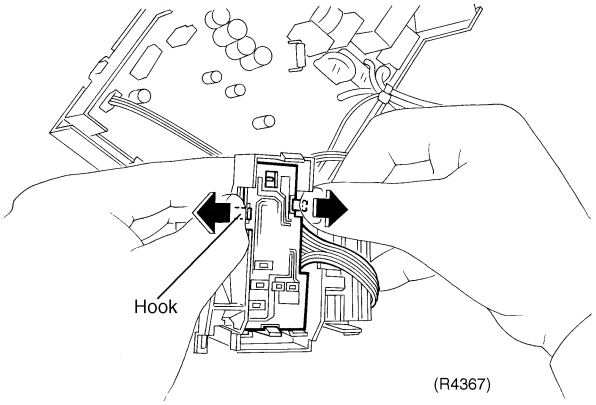


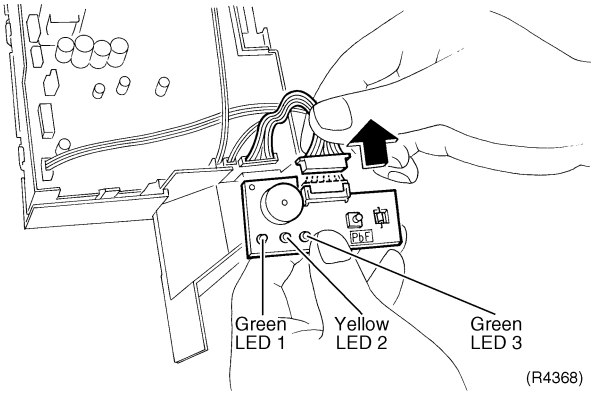
(R4364)

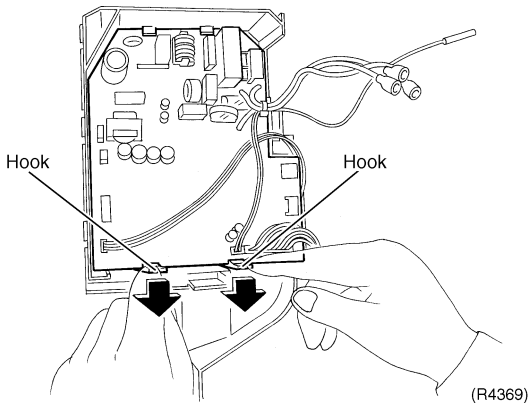

(R4365)

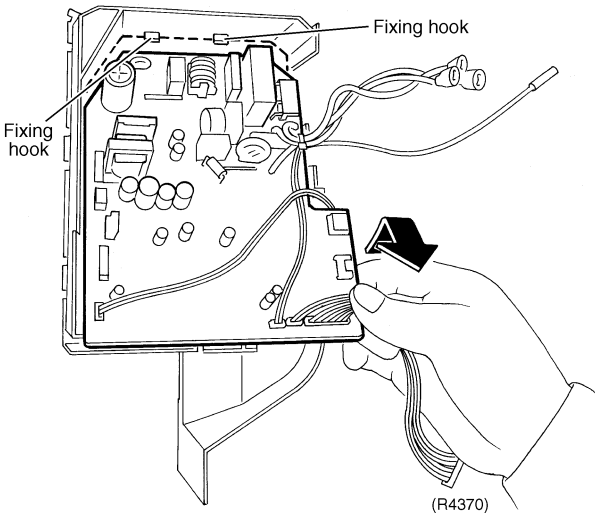
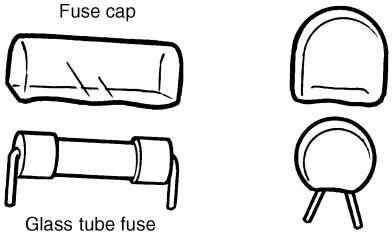
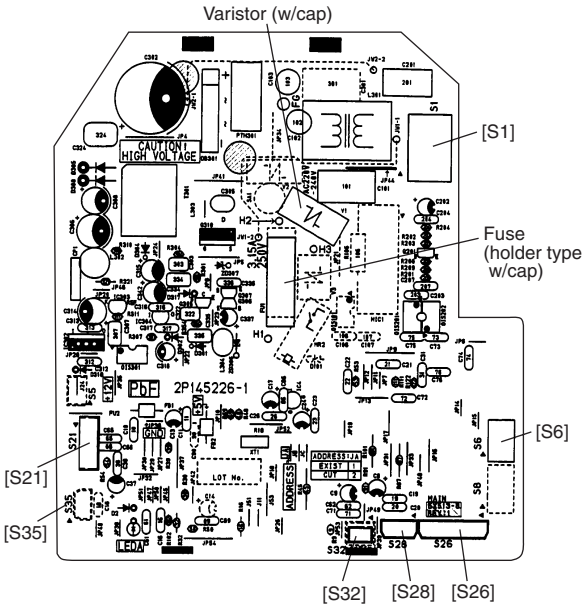
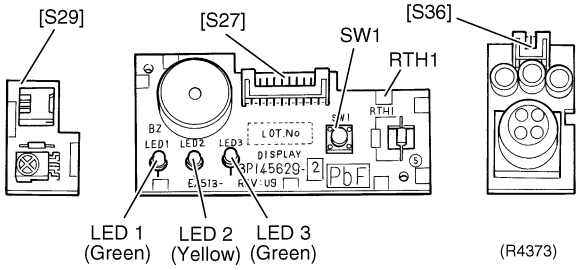
Step	Procedure	Points
7. Removing the display PCB		
1	The figure shows the connection of wire harness for the display PCB.	
2	Remove the display PCB by unfastening the 2 hooks.	
3	Disconnect the connector from the display PCB.	
8. Removing the control PCB		
1	Dismount the control PCB by removing the 2 hooks.	







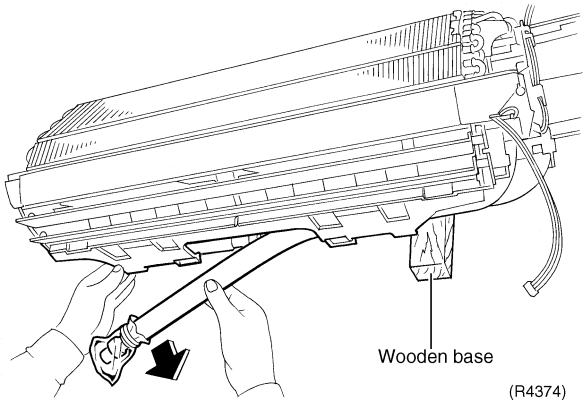
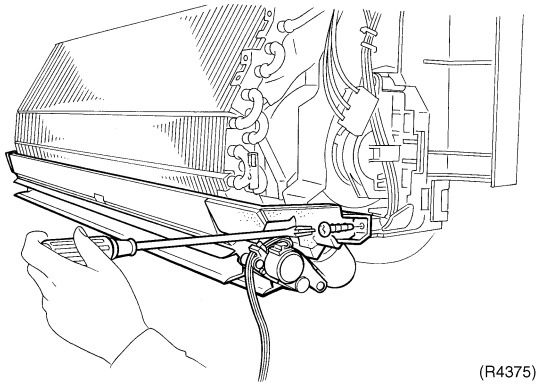
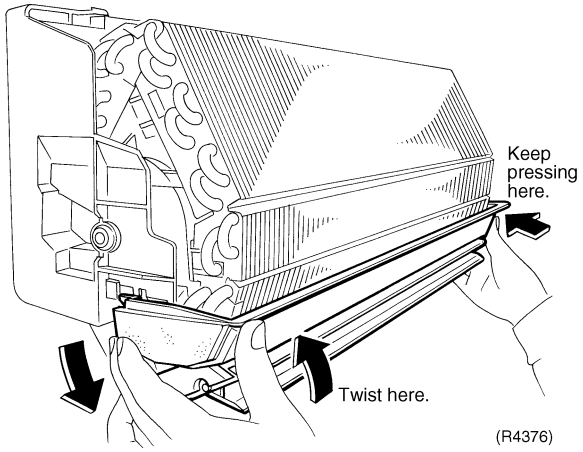
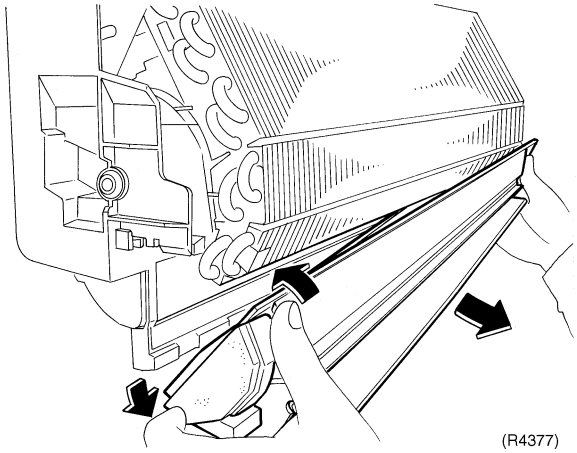


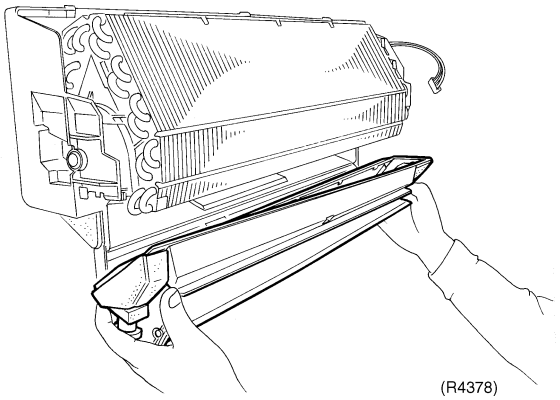
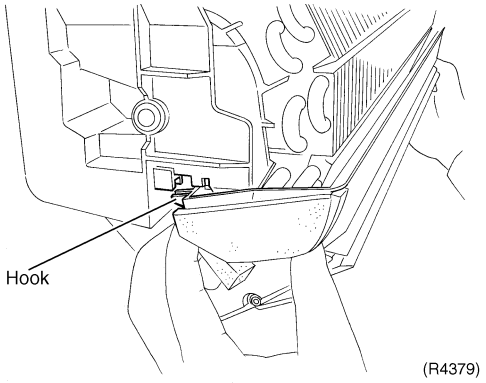
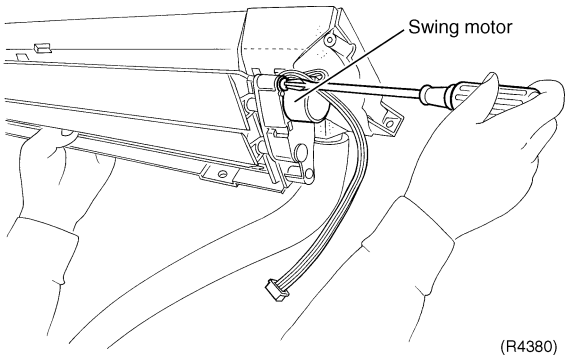
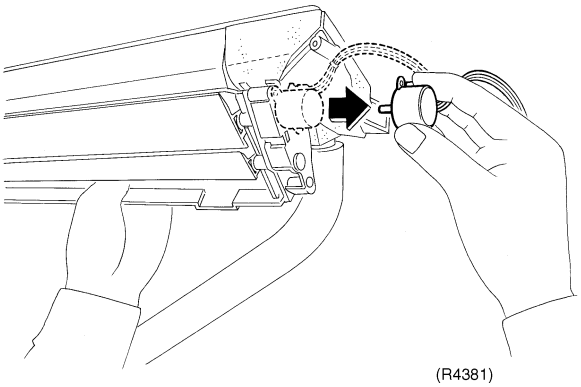
Step	Procedure		Points
2	Lift up the bottom of the control PCB and pull it out.		■ When mounting the control PCB, make sure that it is fixed by upper hooks.
3	The figures show the names of the PCB component parts.	  	■ Lead-free solder (PbF) is used for the PCB. When replacing the PCB, use the specific solder and soldering iron. [S1] To DC fan motor [S6] To swing motor [S21] HA connector [S26] To display PCB [S28] To signal receiver PCB [S32] To heat exchanger thermistor [S35] To INTELLIGENT EYE PCB

1.1.7 Removal of Drain Pan Unit

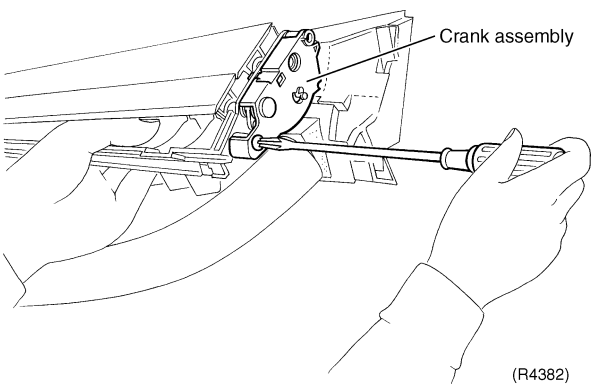
Procedure

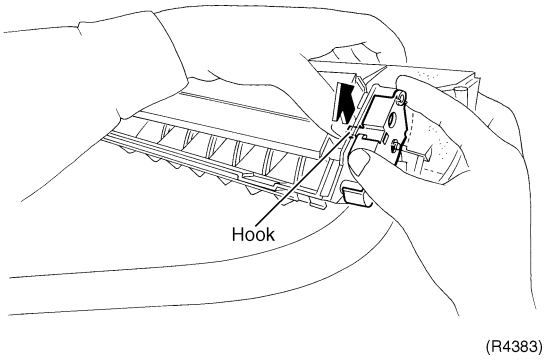
Warning **Be sure to turn off all power supplies at least 10 min. before disassembling work.**

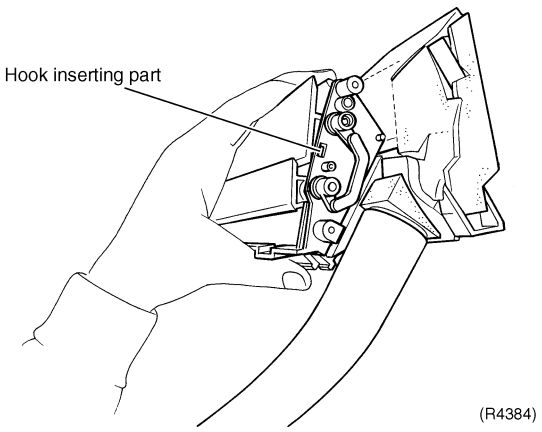
Step	Procedure	Points
1. Removing the drain pan unit		**Preparation** ■ Remove the electrical box according to the “Removal of Electrical Box.” ■ Inserting of the wooden base facilitates the removing work. ■ Place a plastic bag under the drain pan to prevent from wetting the floor with remaining drain.
1	Lift up the indoor unit body slightly and pull out the drain hose. (In the case of left piping)	 (R4374)
2	Remove the screw at the left side of the drain pan.	 (R4375)
3	Remove the drain pan from the heat exchanger by pressing its right side and twisting its left side.	 (R4376)  (R4377)

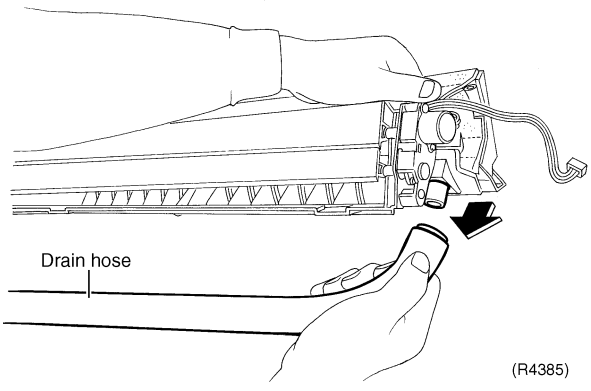
Step	Procedure		Points
4	Remove the drain pan toward yourself from the indoor unit body.	 	**Caution on Mounting** ■ Make sure that the hook at the left side is fitted in the groove.
2. Removing the swing motor			
1	Remove the screw of the swing motor.		
2	Pull out the swing motor.		

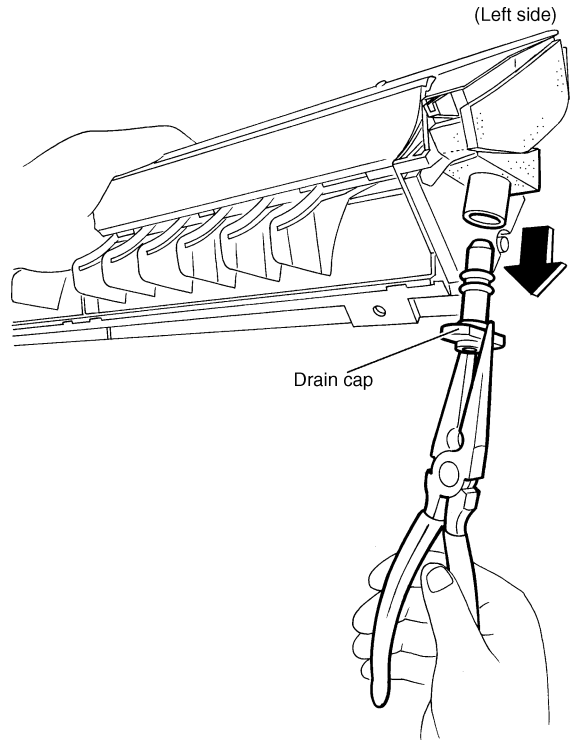
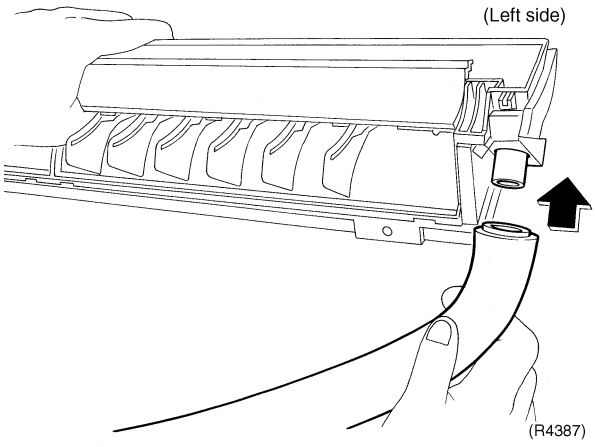
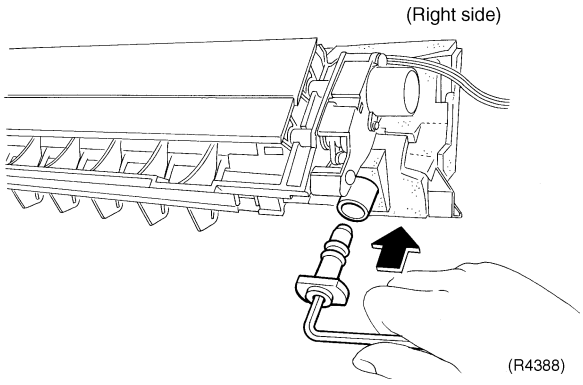
Step	Procedure	Points
3. Removing the crank assembly		
1	Remove the screw of the crank assembly.	
2	Remove the crank assembly by unfastening the hook.	
3	The figure shows the position of the hook when the crank assembly has been removed.	
4. How to connect the drain hose in right piping		
1	Pull out the drain hose from its right side connection.	







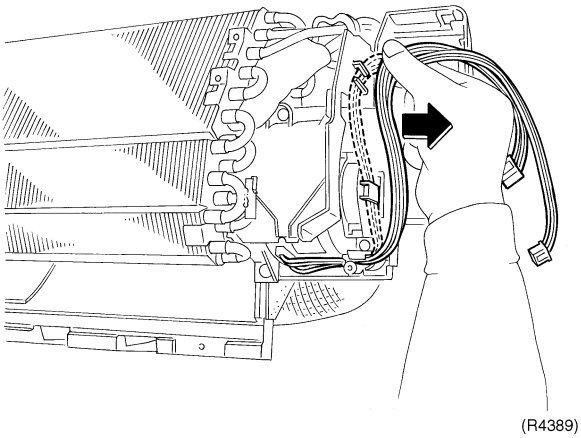
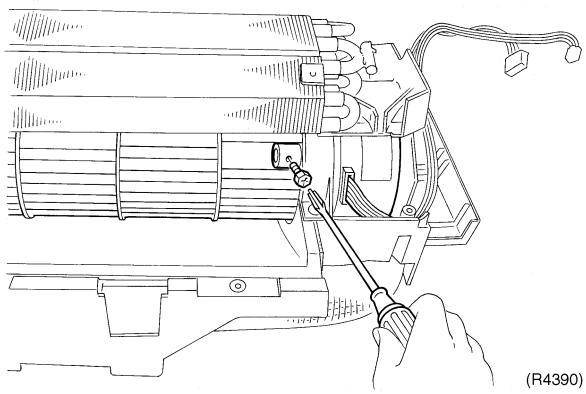
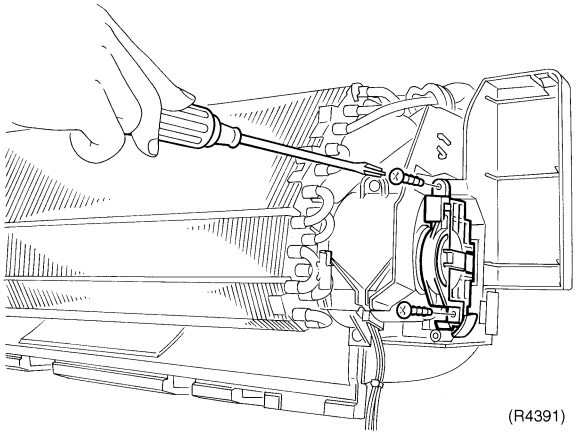


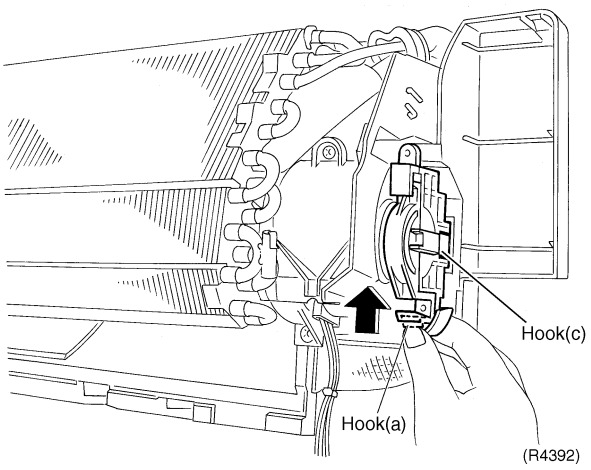
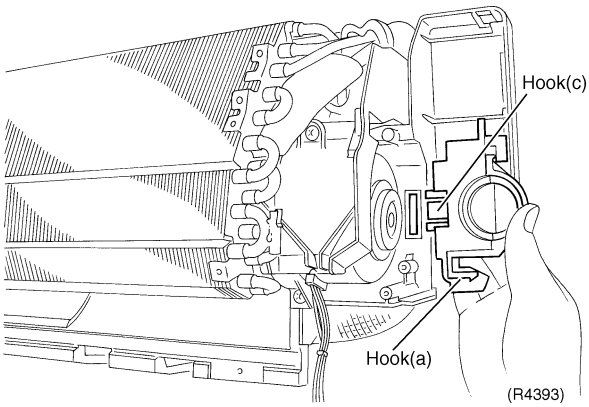
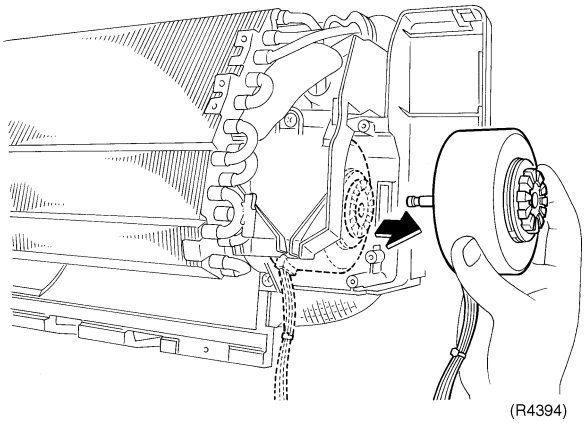
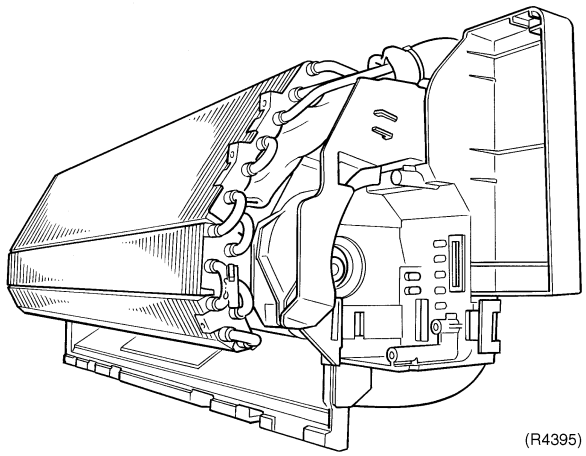
Step	Procedure		Points
2	Remove the drain cap located at the left side of the drain pan unit.		
3	Insert the drain hose to the left side.		
4	Press the removed drain plug into the right side with an Allen wrench (4mm).		■ Use a 4mm Allen wrench. **Caution** **Do not thrust in the drain plug with a sharp-pointed tool like a screwdriver. (The drain plug may be broken, resulting in water leakage.)**

1.1.8 Removal of Fan Motor

Procedure

Warning **Be sure to turn off all power supplies at least 10 min. before disassembling work.**

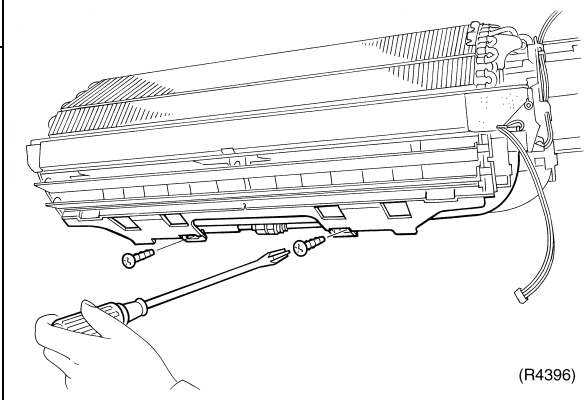
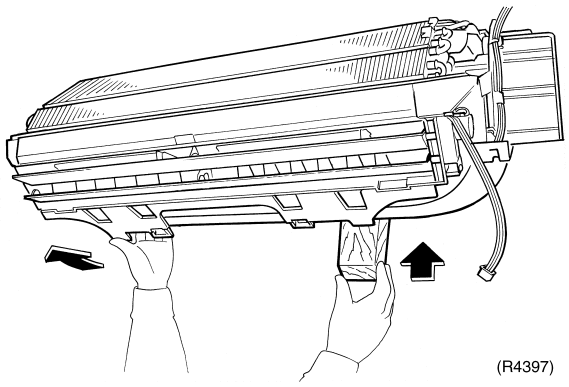
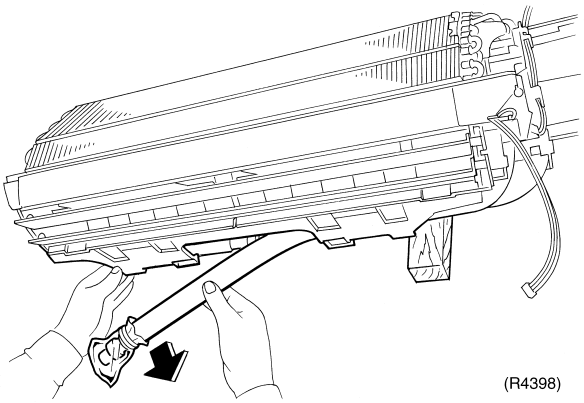
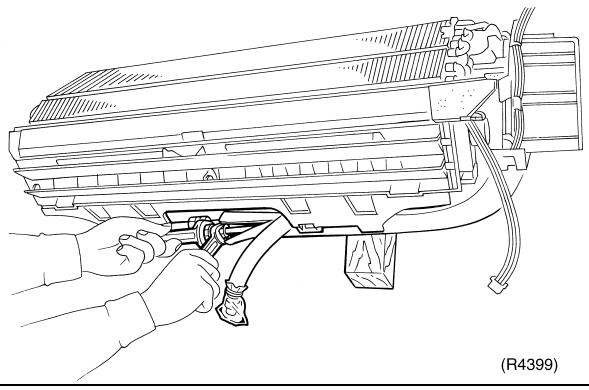
Step	Procedure		Points
1	Undo the fan motor lead wires from the hooks.	 (R4389)	**Preparation** ■ Remove the drain pan unit according to the “Removal of Drain Pan Unit.” ■ You can remove the fan motor with the heat exchanger left. It is easy to clean up the heat exchanger.
2	Loosen and remove the fan rotor lock screw.	 (R4390)	
3	Remove the 2 screws of the fan motor fixing plate.	 (R4391)	

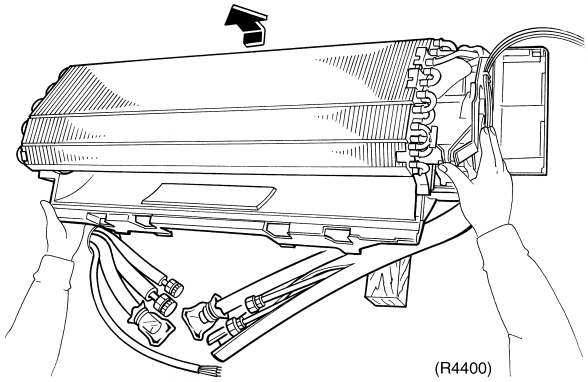
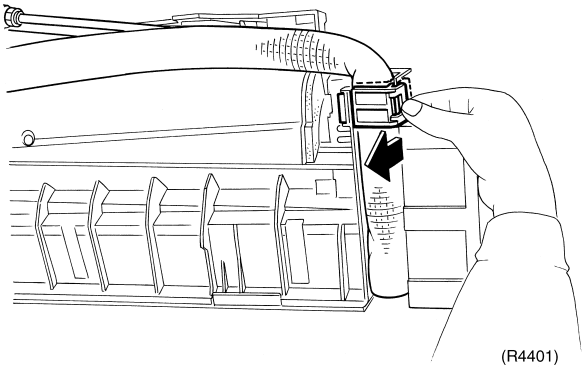
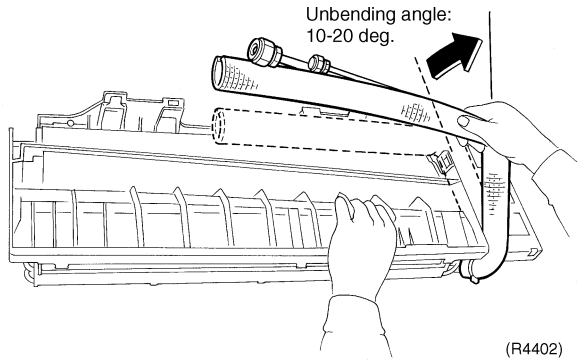
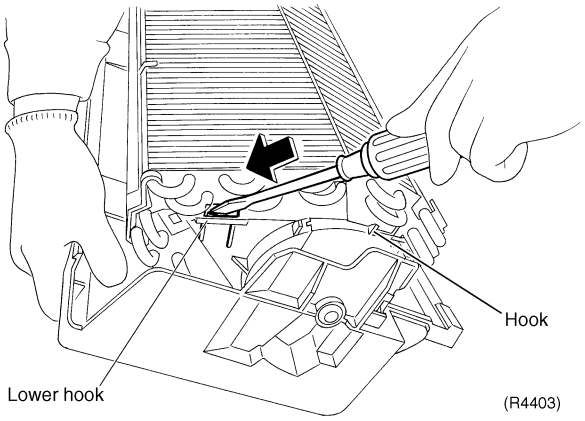
Step	Procedure		Points
4	Unfasten the hook (a) of the fan motor fixing plate with your thumb.		
5	Unfasten the hook (c).		
6	Remove the fan motor.	 	

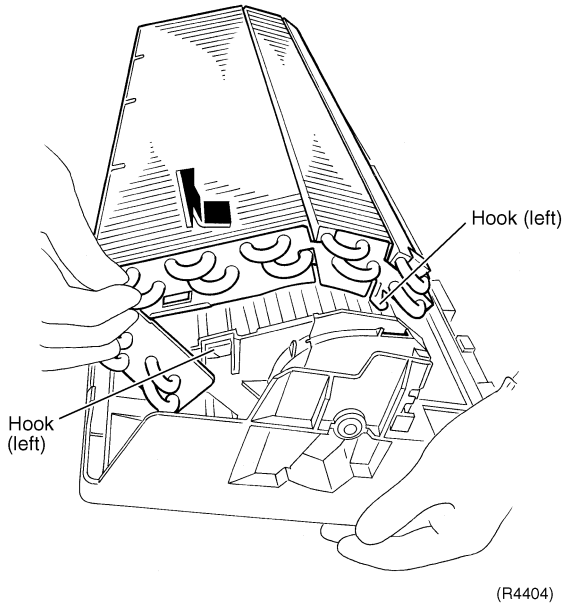
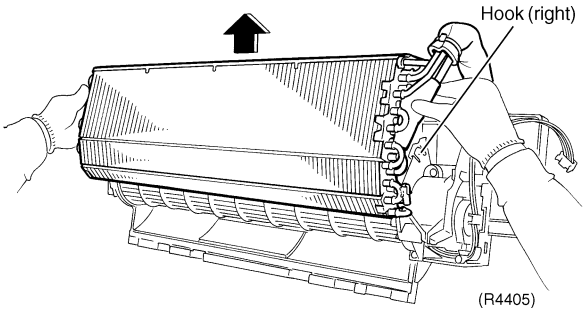
1.1.9 Removal of Heat Exchanger

Procedure

Warning **Be sure to turn off all power supplies at least 10 min. before disassembling work.**

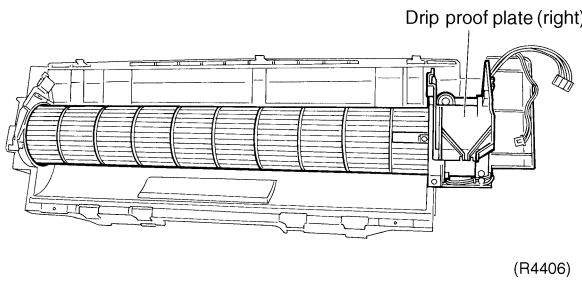
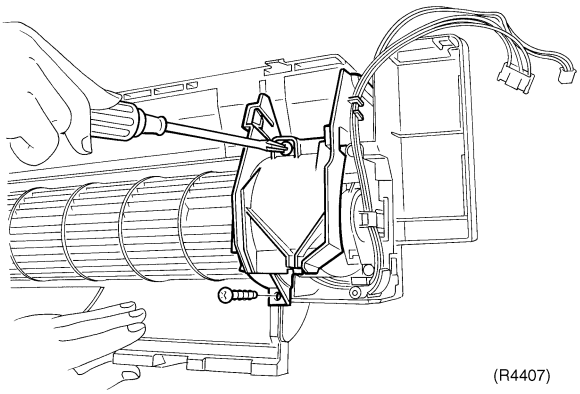
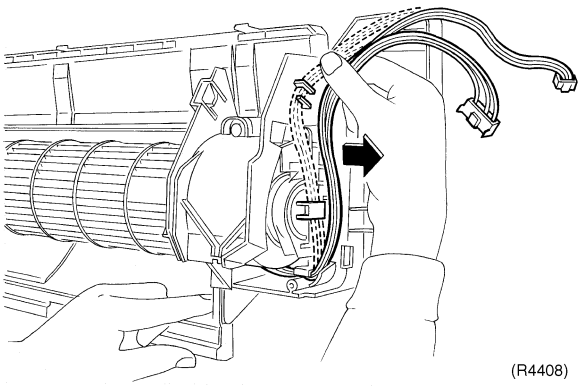
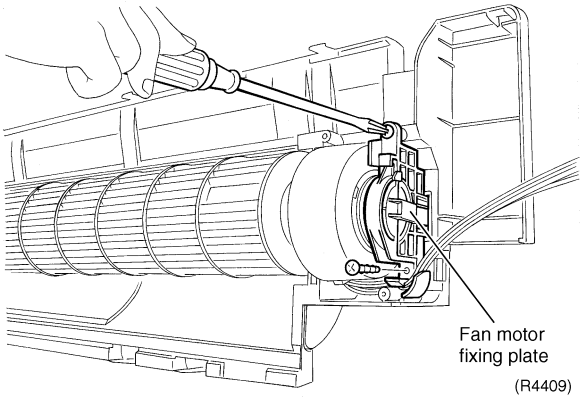
Step	Procedure		Points
1. Disconnecting the refrigerant pipe		 (R4396)	**Preparation** ■ Remove the drain pan unit according to the “Removal of Drain Pan Unit.”
1	Remove the screws which fix the heat exchanger to the installation plate.		
2	Lift the indoor unit by a wooden base.	 (R4397)	**Caution** **In pump-down work, be sure to stop the compressor before disconnecting the refrigerant pipe. If the refrigerant pipe is disconnected with the compressor being operated and the stop valve being open, air may be sucked in to generate an over-pressure in refrigeration cycle, thus resulting in pipe rupture or accidental injury.**
3	Lift up the indoor unit body slightly and pull out the drain hose. (In the case of left piping)	 (R4398)	■ Place a plastic bag under the drain pan to prevent from wetting the floor with remaining drain. ■ If the drain hose is embedded in the wall, disconnect the drain hose beforehand.
4	Disconnect the pipe connection with 2 pair of spanners. **Caution** **From the point of view of environmental protection, be sure to use a vacuum pump for air purging.**	 (R4399)	■ Carry out the removal works with 2 pair of spanners. ■ When the pipes are disconnected, protect the both openings of pipe side and unit side from entering of moisture.

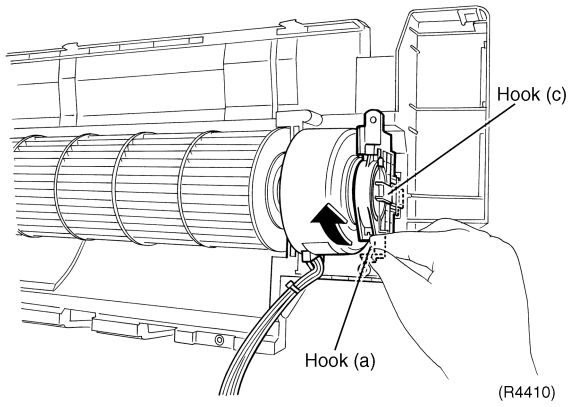
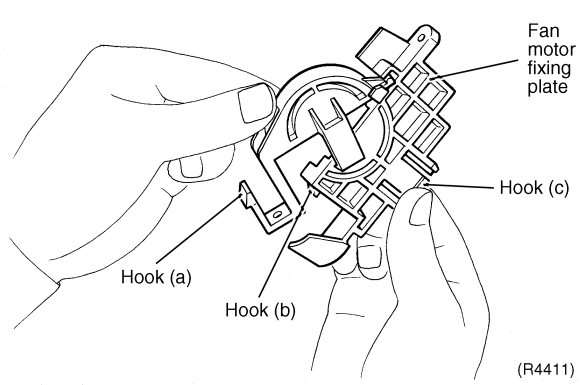
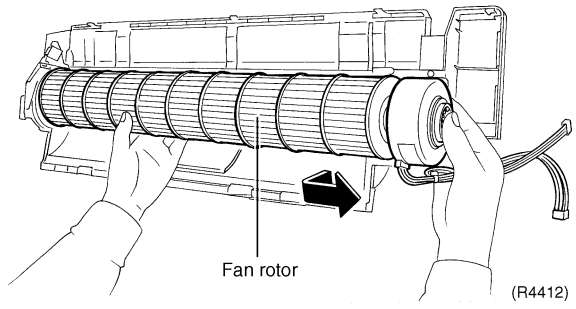
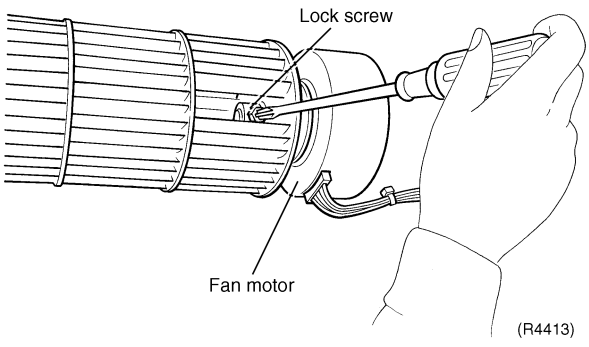
Step	Procedure		Points
2. Removing the indoor unit			
1	Remove the indoor unit from the installation plate.	 (R4400)	
3. Removing the heat exchanger			
1	Unfasten the hook of the pipe fixing plate at the back of the unit and pull out the pipe.	 (R4401)	
2	Widen the auxiliary pipe by about 10-20 degrees.	 (R4402)	
3	Unfasten the lower hook with a flat screwdriver.	 (R4403)	**Caution** **When dismounting or mounting the heat exchanger, be sure to wear gloves or wrap it with cloth before proceeding to the work. (You may be injured by the fins.)**

Step	Procedure		Points
4	After unfastening the lower hooks, hold up the heat exchanger by its left side and lift it up toward yourself.		■ When mounting the heat exchanger, make sure that the hook (left) is fastened.
5	When the left side is lifted, the hook at the right side comes off position.		
6	Remove the heat exchanger.		

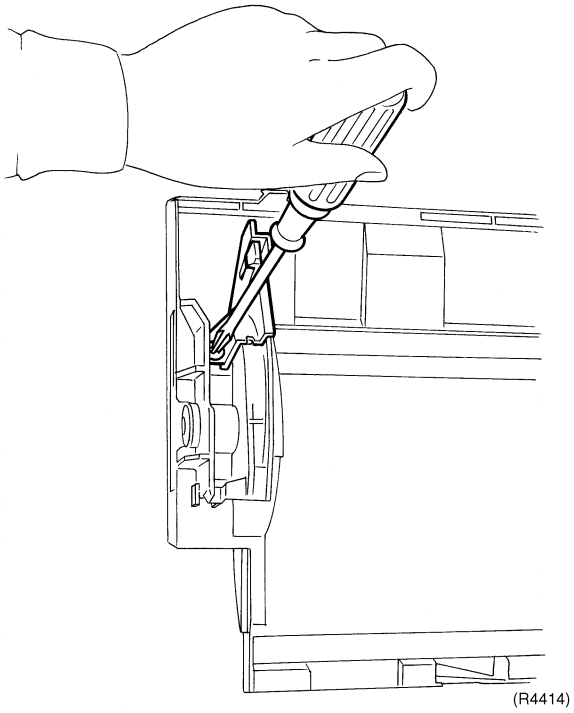
1.1.10 Removal of Fan Rotor

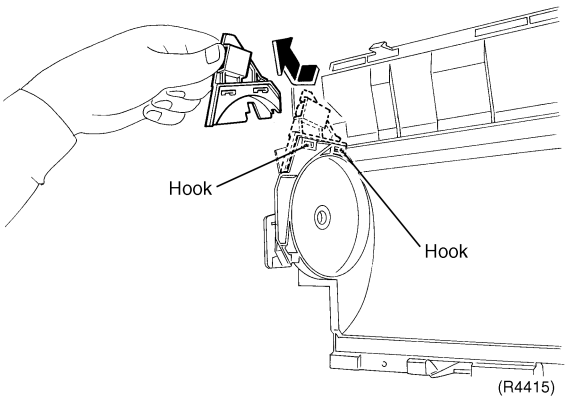
Procedure **Warning** **Be sure to turn off all power supplies at least 10 min. before disassembling work.**

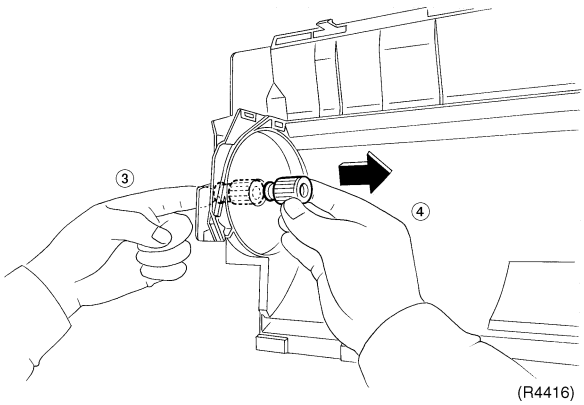
Step	Procedure	Points
1. Removing the drip proof plate		**Preparation** ■ Remove the heat exchanger according to the “Removal of Heat Exchanger.”
1 Dismount the drip proof plate (right) by removing the 2 screws.		
2 Unhook the fan motor wire harness.		
3 Remove the 2 screws of the fan motor fixing plate.		

Step	Procedure		Points
4	Unfasten the hook (a) of the fan motor fixing plate with your thumb and unfasten the hook (b).		
5	The fan motor fixing plate can be removed from the unit when the hook (c) is unfastened.		
2. Removing the fan rotor			
1	Dislocate the fan rotor by sliding it to the right.		
2	Remove the fan rotor by loosening the lock screw.		

Step	Procedure	Points
3. Removing the bearing		
1	Remove the screw of the drip proof plate (left).	
2	The drip proof plate can be removed when the hooks at 2 positions are unfastened.	
3	Press the rubber-made bearing with force from outside.	
4	Remove the bearing.	





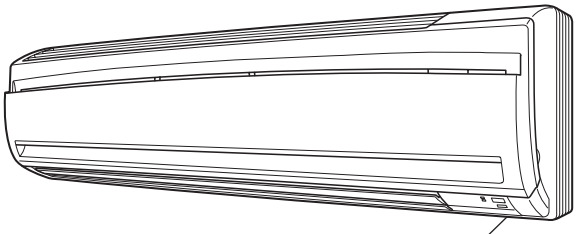
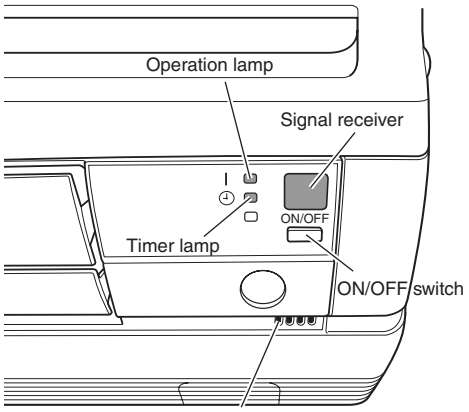
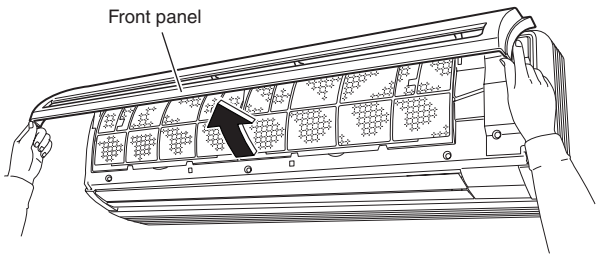
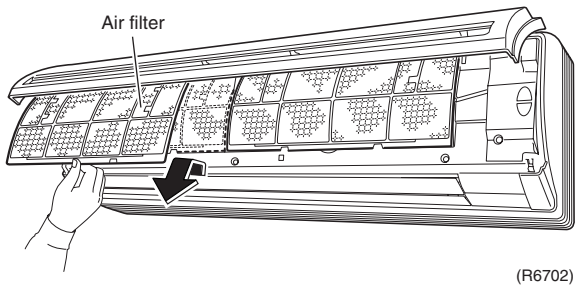


1.2 FTK(X)S 50/60/71 F, FT(Y)N 50/60 F

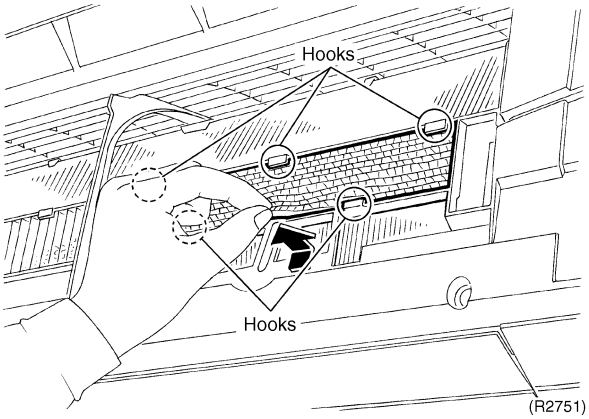
1.2.1 Removal of Air Filter / Front Panel

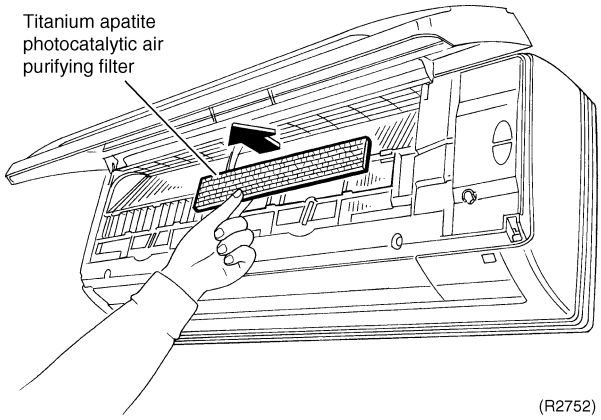
Procedure

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

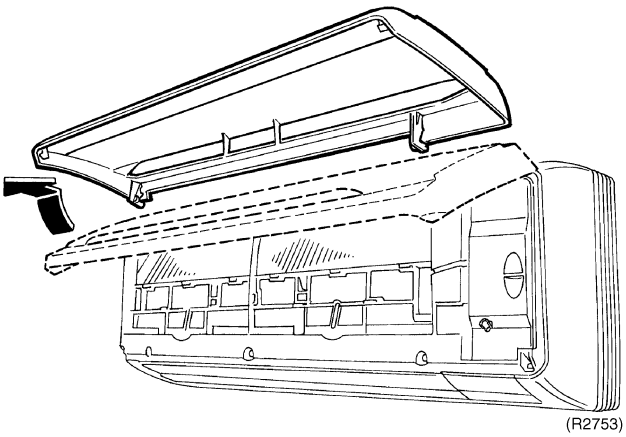
Step	Procedure	Points
1. Features	 (R6699)  (R6981)	■ When the signal receiver catches a signal from the remote controller, it produces beep sound and the operation lamp blinks.
2. Remove the air filters.		
1 Hold the front panel by the tabs on the both sides and lift it until it stops with a click.	 (R6701)	
2 Lift an air filter upwards slightly by the center knob, and then pull it out downwards.	 (R6702)	■ The right and left filters are interchangeable. ■ Insert the air filters along grooves when installing. ■ Set the air filters with displaying “FRONT” on the front side. ■ Insert 2 hooks of the air filter completely.

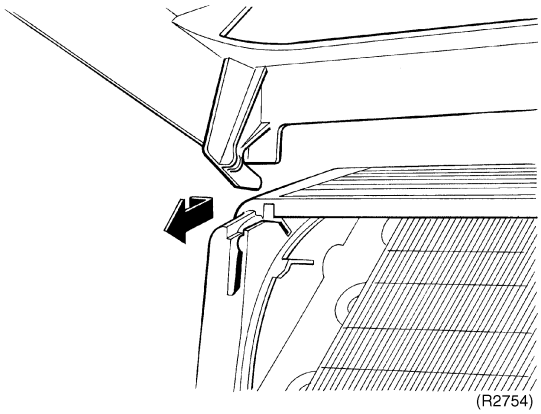
Step	Procedure	Points
3. Remove an “titanium apatite photocatalytic air purifying filter”.		
1	Push up the bottom of an air purifying filter to undo the hooks (2 on lower, 3 on upper) and take the filter out.	■ The right and left filters are interchangeable.

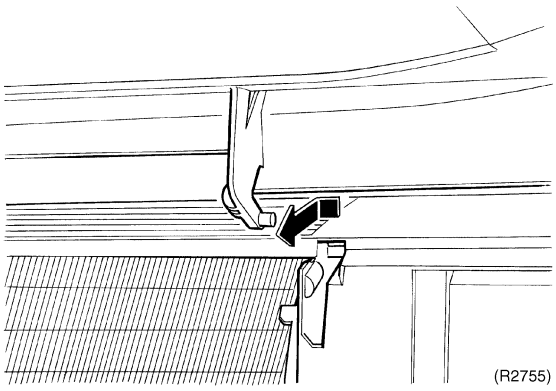




Step	Procedure	Points
4. Remove the front panel.		
1	While opening the front panel further than it stops, release both axes and remove the front panel.	■ Slide the front panel side to side to release each axis. ■ Align the right and left axes with grooves in turn and insert them to the end when installing.


(R2753)

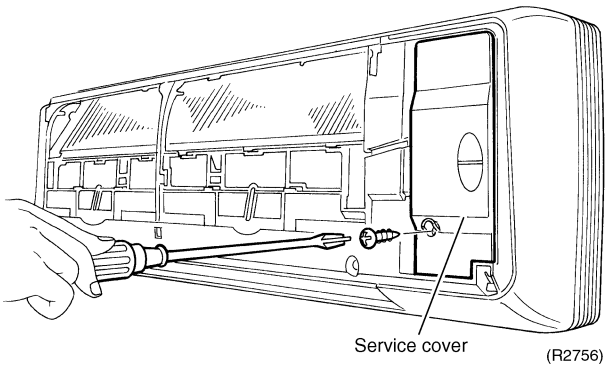
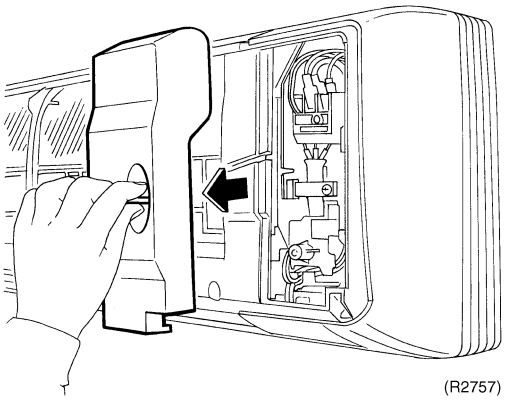
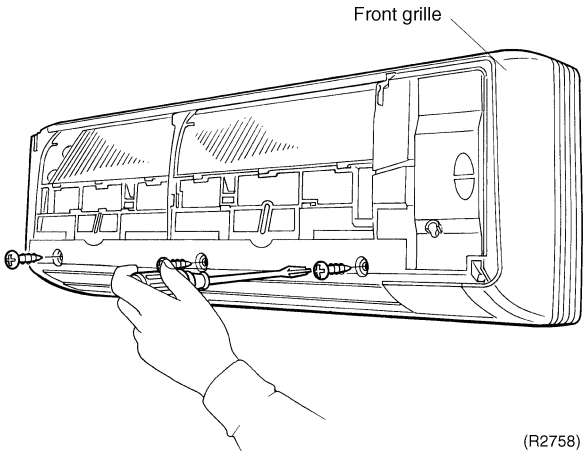

(R2754)

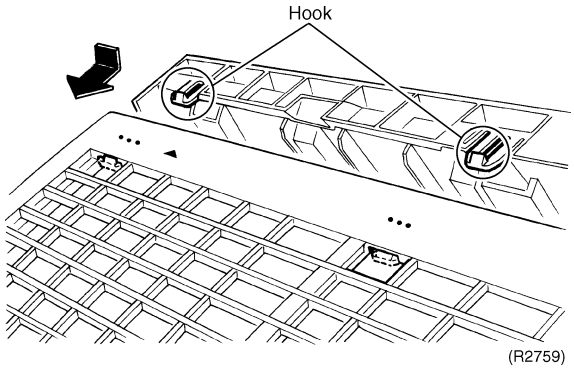
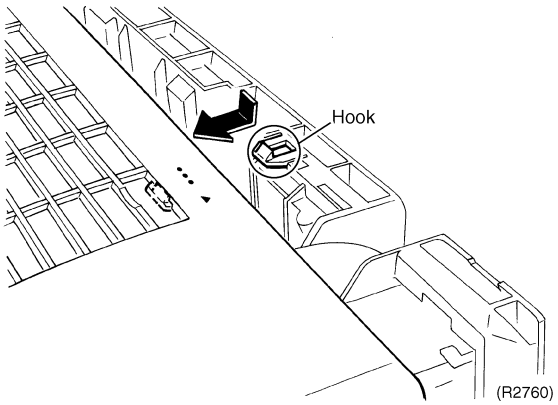
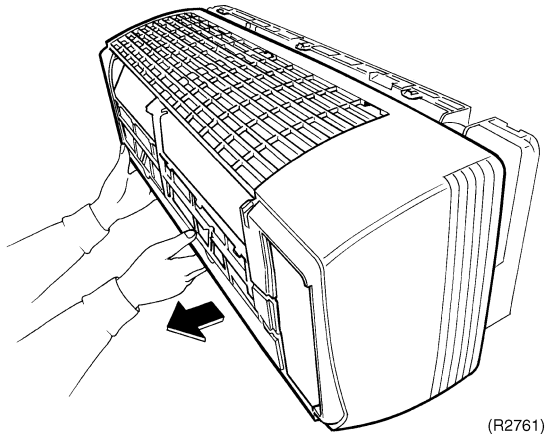
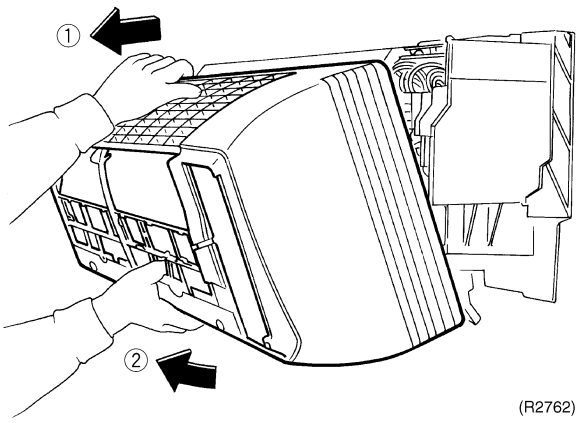

(R2755)

1.2.2 Removal of Front Grille

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 service cover.		
1	Loosen the screw and remove the service cover by the knob.	
		
		■ No field setting switch is inside it. ■ You can remove the front grille without detaching the service cover.
2. Remove the front grille.		
1	Loosen the 3 fixing screws of the front grille.	
		■ It has no fixing screws inside blades, though previous models had.

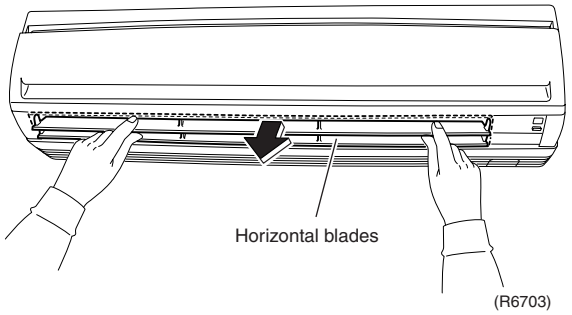
Step	Procedure		Points
2	Undo the 3 hooks on the top of the front grille.	 (R2759)  (R2760)  (R2761)	■ The front grille has 3 hooks on the center and the both sides of the upper part. ■ Refer to the removal procedure in a reverse way when reassembling.
3	Pull the upper part of the front grille out and lift the lower part up, and then remove the front grille.	 (R2762)	■ Make sure that all the hooks are placed securely when reassembling.

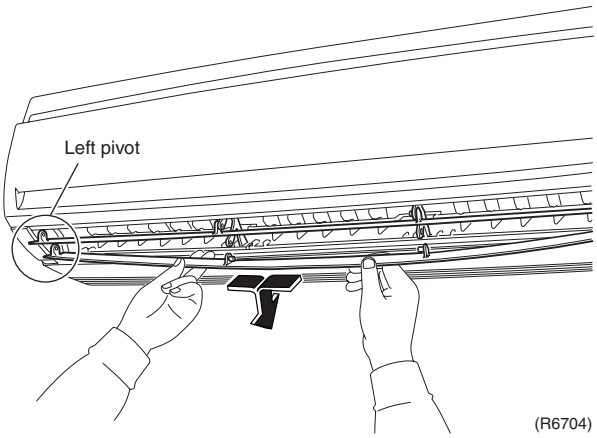
1.2.3 Removal of Horizontal Blades / Vertical Blades

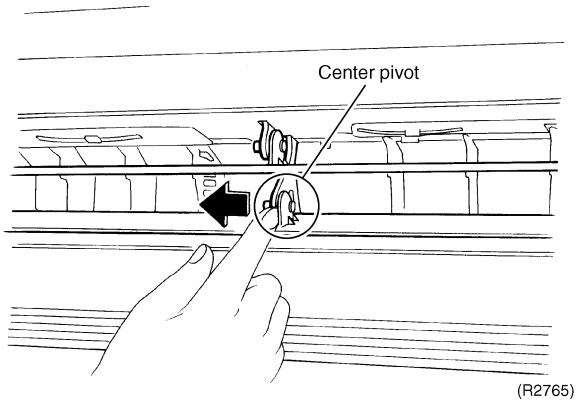
Procedure

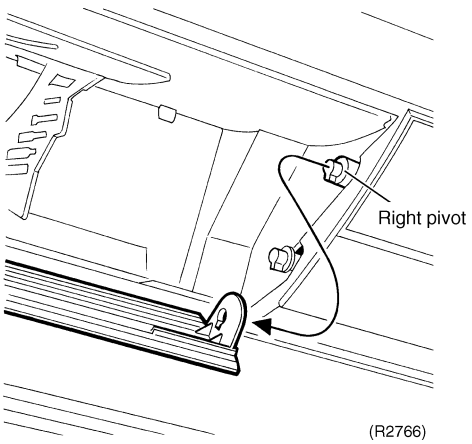
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
1. Remove the horizontal blades.		
1	Open the horizontal blades.	■ It has no fixing screws inside blades, though previous models had.
2	Undo the left pivot of the horizontal blades.	
3	Bend the horizontal blades slightly and release the center pivots. Slide the horizontal blades to the left and release the right pivot.	■ Installation procedure 1. Since key pattern hook is provided, rotate the blades and fit it to the right pivot first. 2. Fit the blades to the center and left pivots.

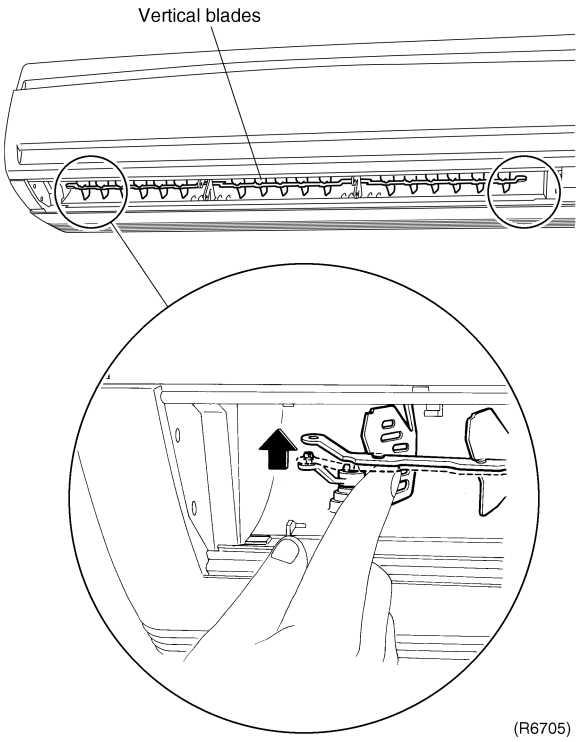


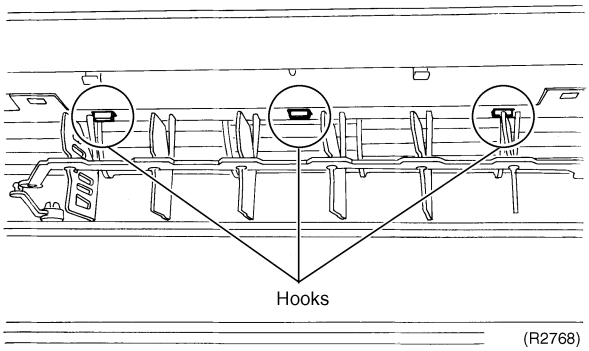


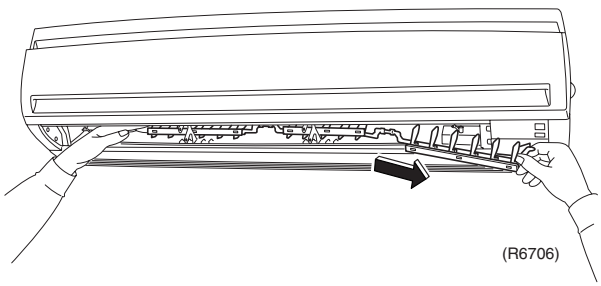




Step	Procedure	Points
2. Remove the vertical blades.		
1	Undo the right and left pivots.	
2	Undo the 3 hooks.	
3	Pull the vertical blades rightwards and remove it.	



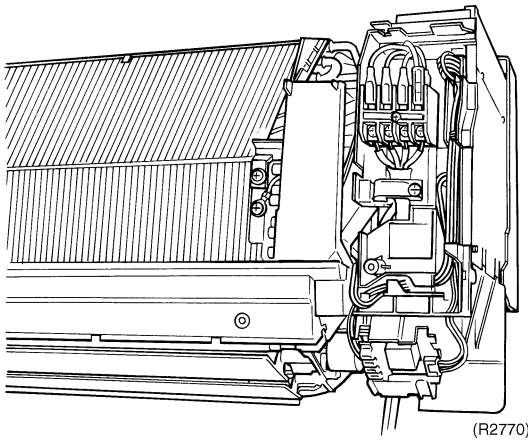
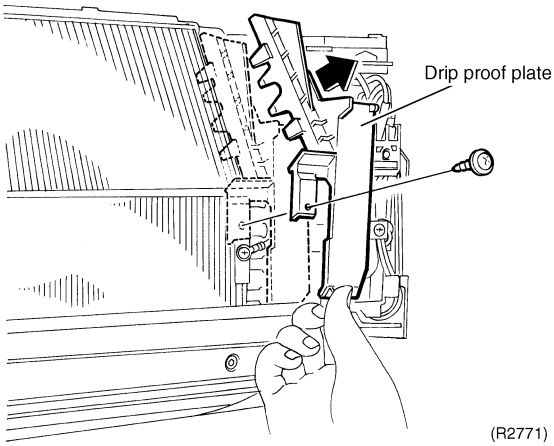
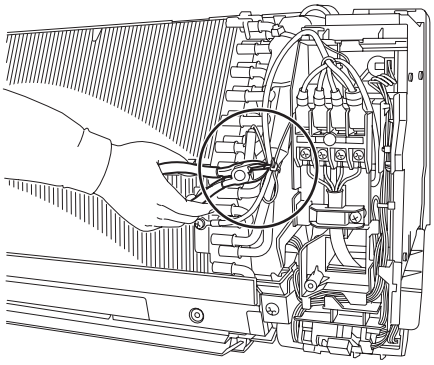
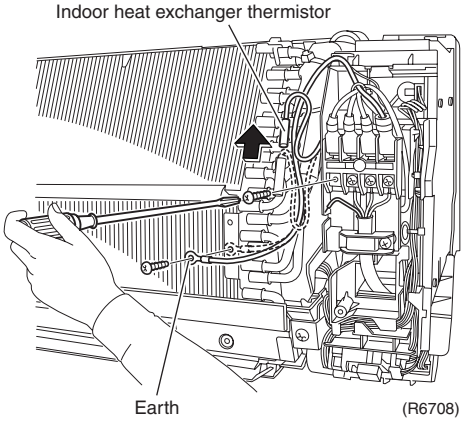




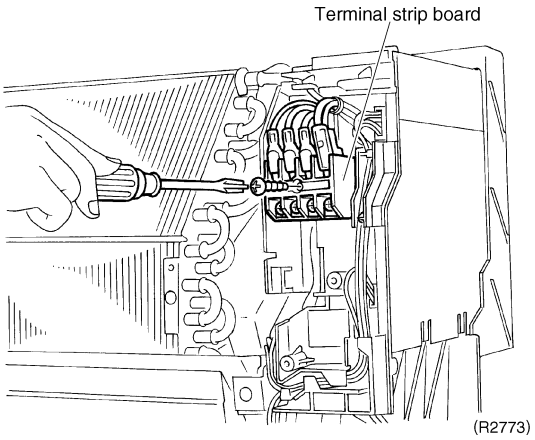
1.2.4 Removal of Electrical Box / PCB / Swing Motor

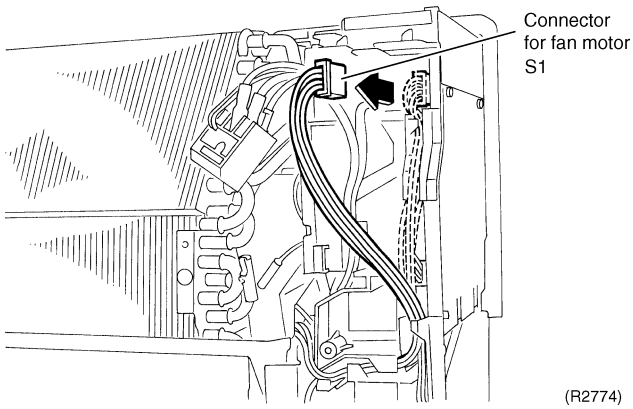
Procedure

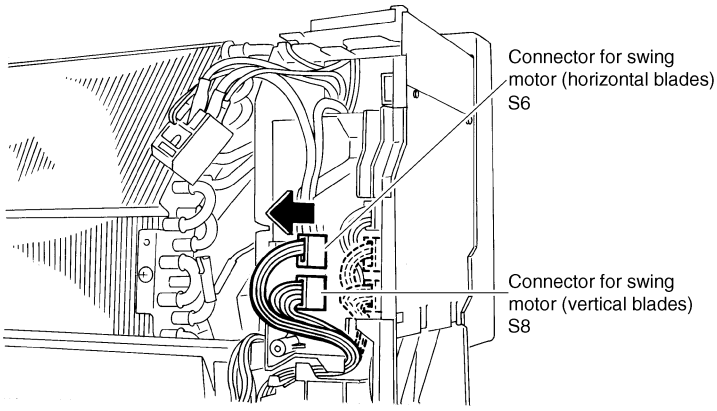
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

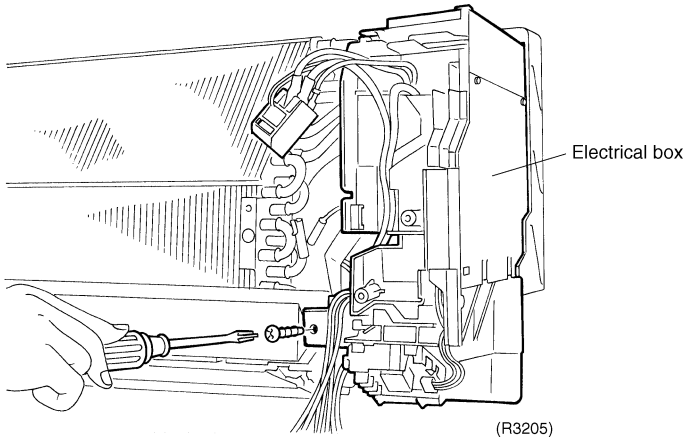
Step	Procedure	Points
1. Remove the front grille.	 (R2770)	■ Parts layout
2. Remove the drip proof plate.		
1 Loosen the screw.	 (R2771)	
2 Cut the clamp.	 (R6707)	
3. Disconnect the indoor heat exchanger thermistor and the earth.	 (R6708)	■ Mind that not to lose the clip for the thermistor.

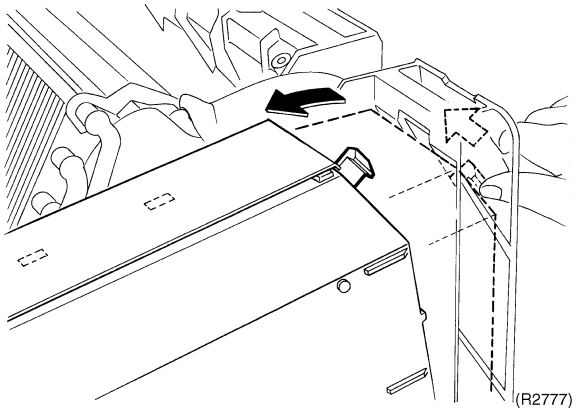
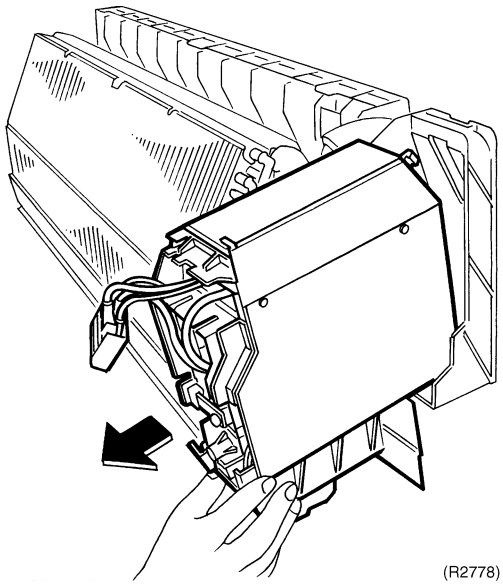
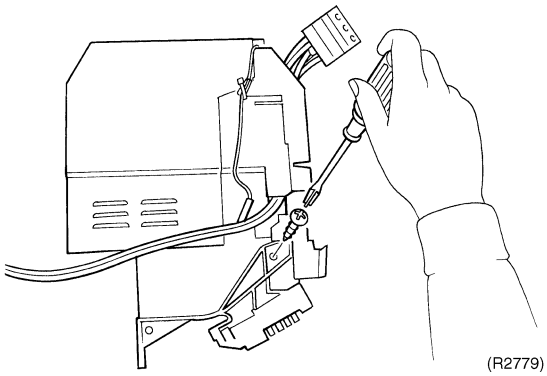
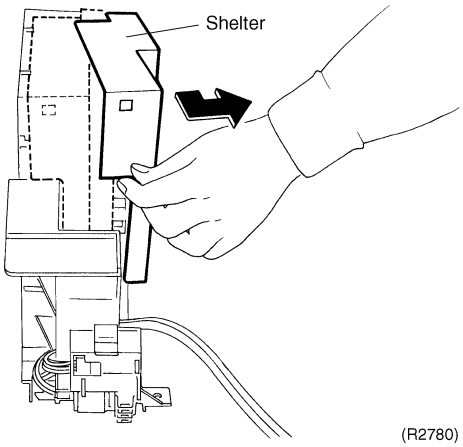
Step	Procedure	Points
4. Remove the electrical box.		
1	Disconnect the 4 connection wirings. Loosen the screw and remove the terminal strip board.	■ You can remove the electrical box without detaching the terminal strip board. ■ Screw: M4×25
2	Disconnect the connectors for fan motor (S1).	
3	Disconnect the connectors for swing motor (S6, S8).	
4	Loosen the fixing screw of the electrical box.	

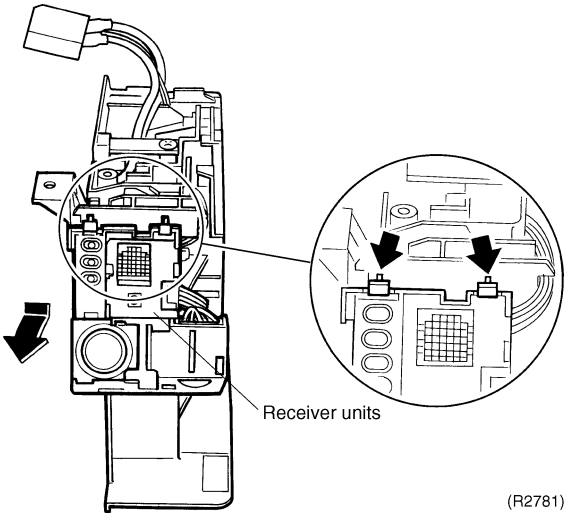
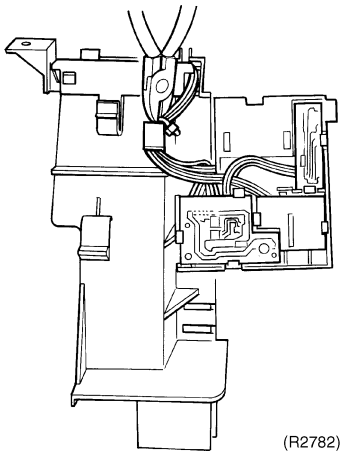
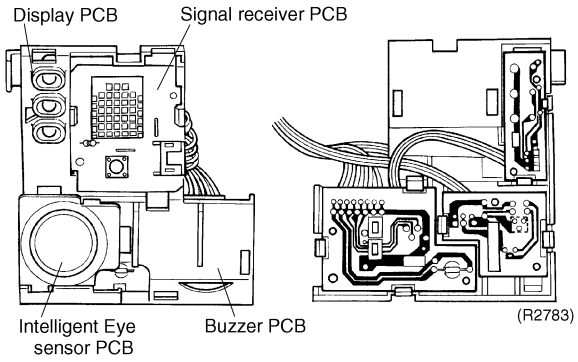
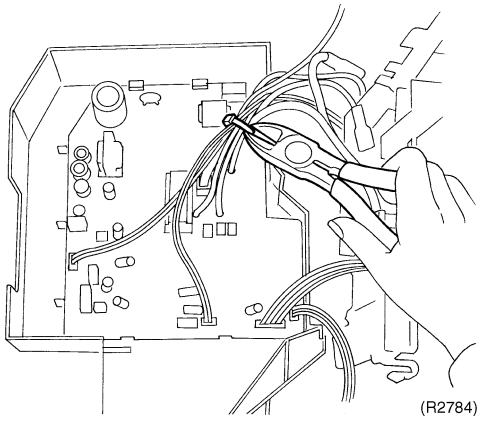




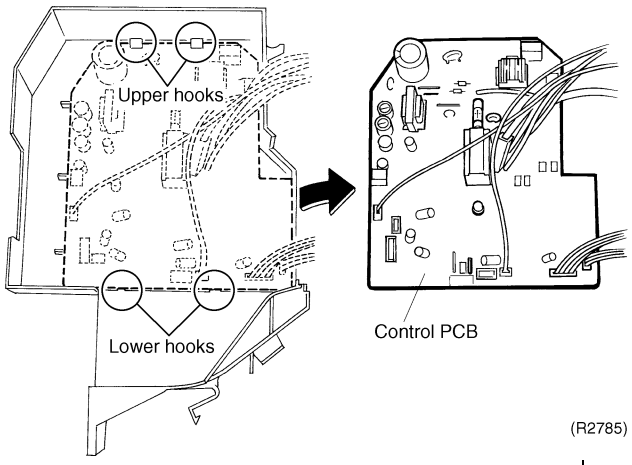


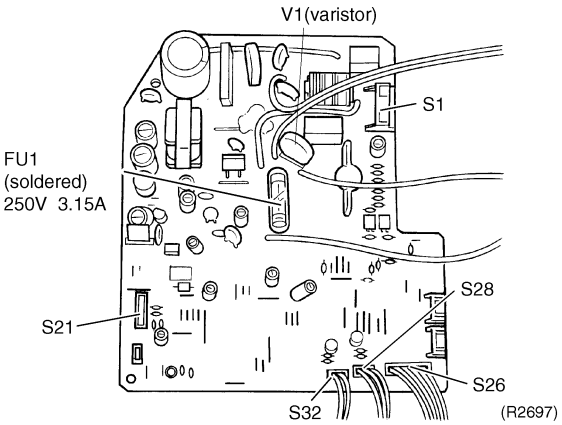


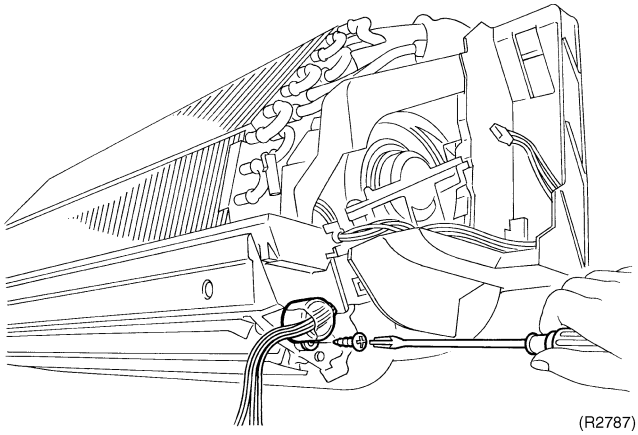
Step	Procedure		Points
5	Dislocate the electrical box to the left and undo the back hook.	 (R2777)	■ The electrical box has a hook on its back.
6	Pull the electrical box out towards you.	 (R2778)	■ Catch the back hook of the electrical box when reassembling.
7	Loosen the screw on the electrical box.	 (R2779)	■ Screw: M4×16
8	Push the shelter up and undo the hook.	 (R2780)	

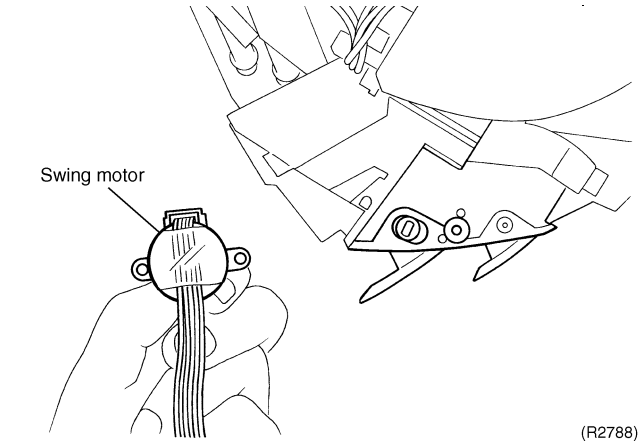
Step	Procedure		Points
9	Press the receiver units down and undo the hooks on the upper side, and then undo the hooks on the lower side.		■ Release the hooks on the upper side.
10	Cut the clamp.		
11	The receiver units contain 4 PCBs. Remove each PCB with releasing hooks. Disconnect every connector from each PCB.		■ Remove the receiver units while pushing the hooks of connectors. ★ The models FT(Y)N50/60E do not have the Intelligent Eye sensor PCB.
12	Cut the clamp.		■ Clamps should be always available. Fix it as it was before.

Step	Procedure	Points
5. Remove the control PCB.		
1	Undo the 2 hooks on the lower side, and then the 2 hooks on the upper side. Remove the control PCB.	
2	Control PCB (indoor unit) S1: connector for the fan motor S21: HA S26: connector for buzzer PCB thermistor S28: connector for signal receiver PCB S32: connector for the heat exchanger thermistor	
6. Remove the swing motor for horizontal blades.		
1	Remove the screw of the swing motor.	

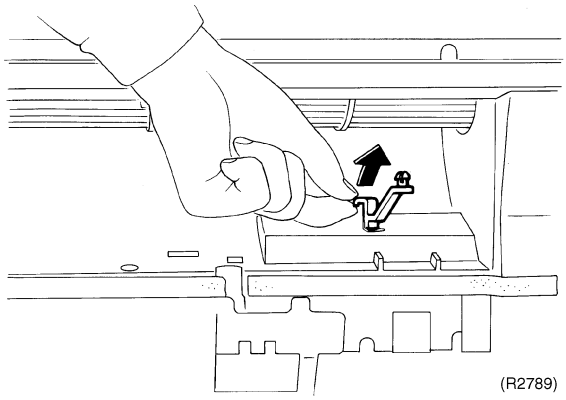


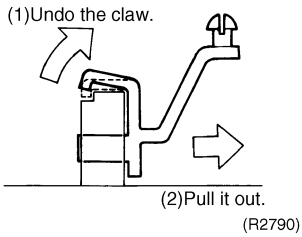




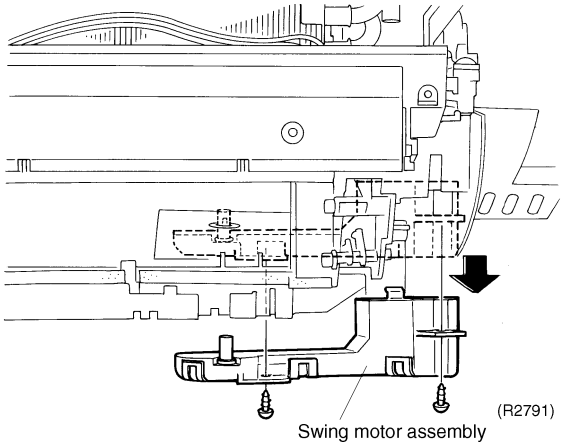


Step	Procedure	Points
7. Remove the swing motor for vertical blades.		
1	Release the swing axis on the right side.	■ Releasing the swing axis
2	Loosen the 2 screws and detach the swing motor assembly.	
3	Loosen the 2 screws and remove the swing motor.	■ 6 hooks hold the assembly.

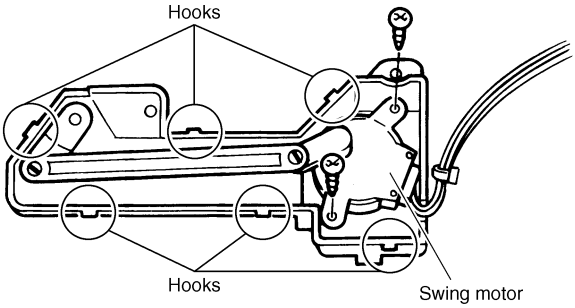

(R2789)

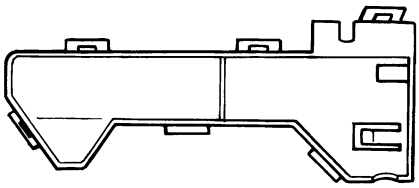


(R2790)



(R2791)

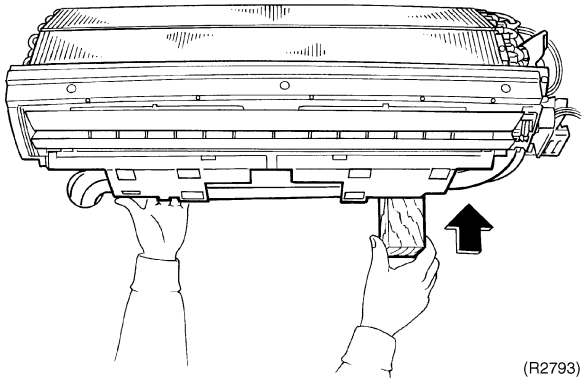
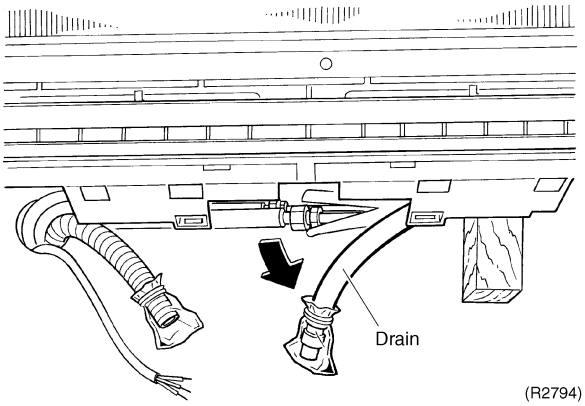
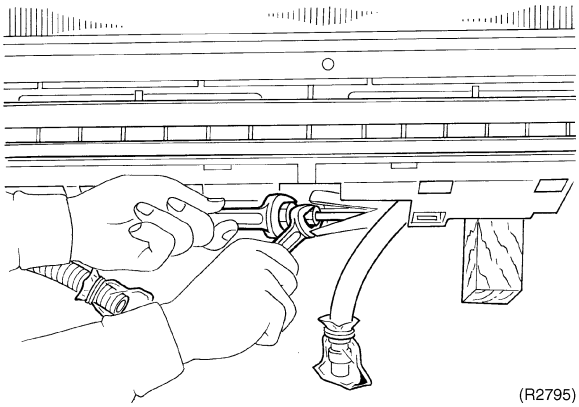
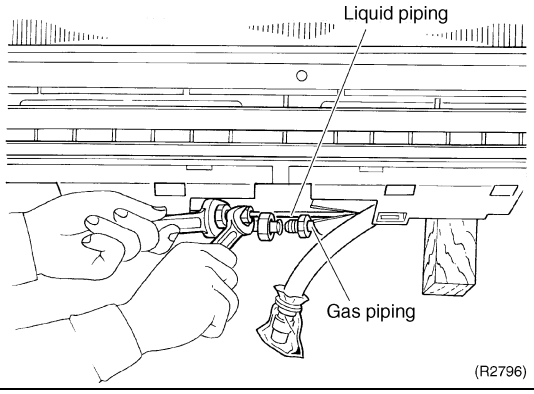


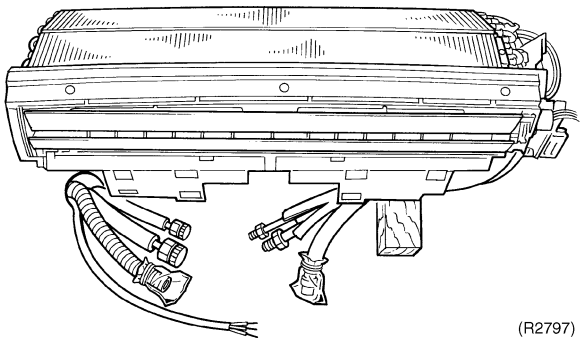
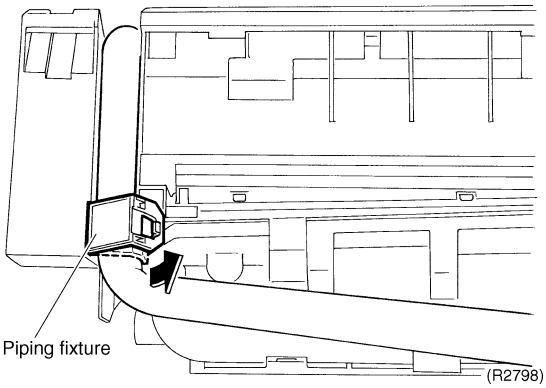
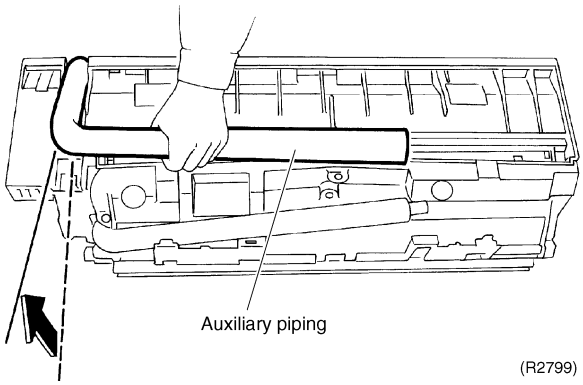

(R2792)

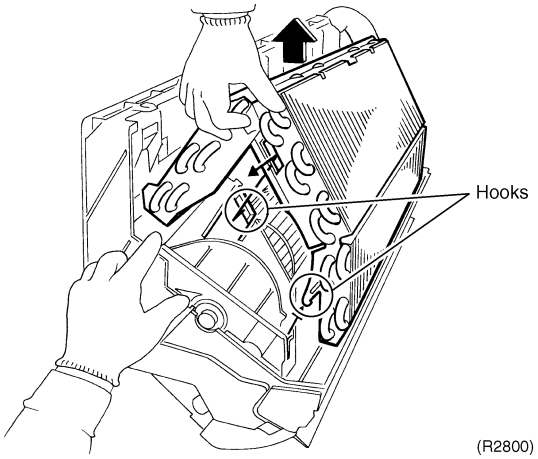
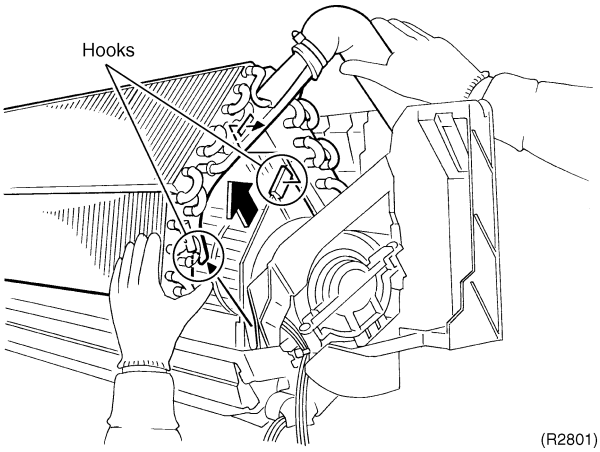
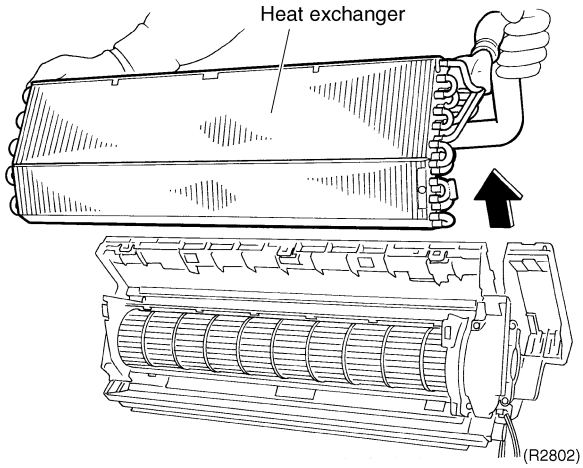
1.2.5 Removal of Heat Exchanger

Procedure

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

Step	Procedure	Points
■ Remove the electrical box.	 (R2793)	**Caution** **If gas leaks, repair the spot of leaking, then collect all refrigerant from the unit. After conducting vacuum drying, recharge proper amount of refrigerant.**
1. Disconnect the refrigerant piping.		**Caution** **Do not contaminate any gas (including air) other than the specified refrigerant (R-22 or R-410A, depending on the model) into refrigerant cycle. (Contaminating of air or other gas causes abnormal high pressure in refrigerating cycle, and this results in pipe breakage or personal injuries.)**
1 Hold the indoor unit up by a piece of wood etc.	 (R2794)	■ Pay attention so that the residual water in the drain will not make the floor wet. ■ In case that a drain hose is buried inside a wall, remove it after the drain hose in the wall is pulled out.
2 Unscrew the flare nut for gas piping by 2 wrenches.	 (R2795)	■ Use 2 wrenches to disconnected pipes. ■ When disconnecting pipes, cover every nozzle with caps so as not to let dust and moisture in.
3 Unscrew the flare nut for liquid piping by 2 wrenches.	 (R2796)	

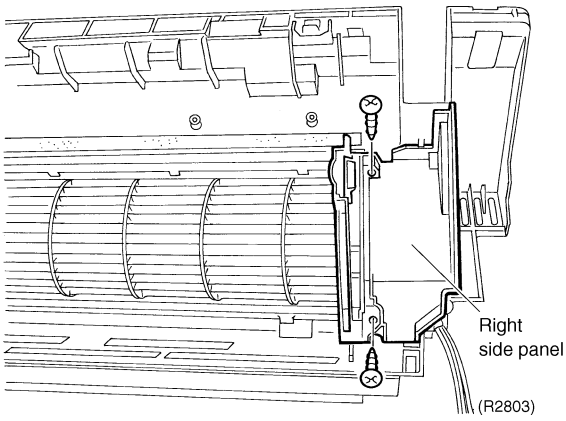
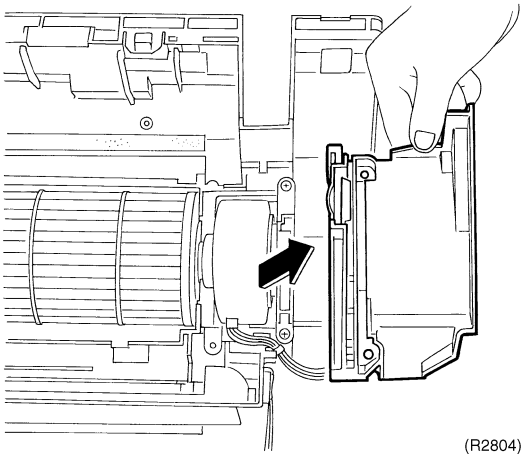
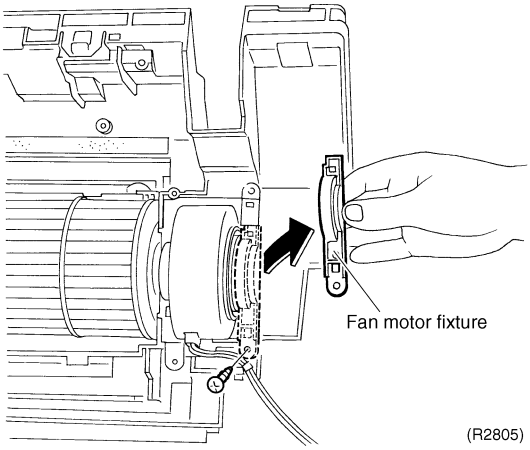
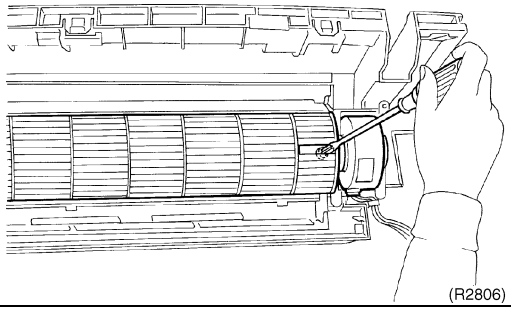
Step	Procedure	Points
2. Remove the indoor unit.	 (R2797)	
1 Detach the indoor unit from the installation plate.		
3. Remove the piping fixture.	 Piping fixture (R2798)	
1 Release the hook on the upper side of the piping fixture on the back of the unit.		
4. Remove the heat exchanger.	 Auxiliary piping (R2799)	■ At an angle of 10°~20°
1 Widen the auxiliary piping to the extent of 10°~20°.		

Step	Procedure		Points
2	Release the hooks on the left side.		
3	Push the fixing hooks on the right side and release.		
4	Pull the heat exchanger to the front side and undo the hooks completely, and then lift it.		**Caution** **When removing or reinstalling heat exchanger, be sure to wear protective gloves or wrap the heat exchanger with cloths. (Fins can cut fingers.)**

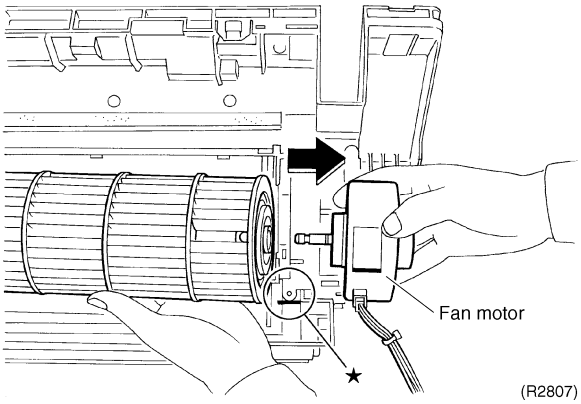
1.2.6 Removal of Fan Rotor / Fan Motor

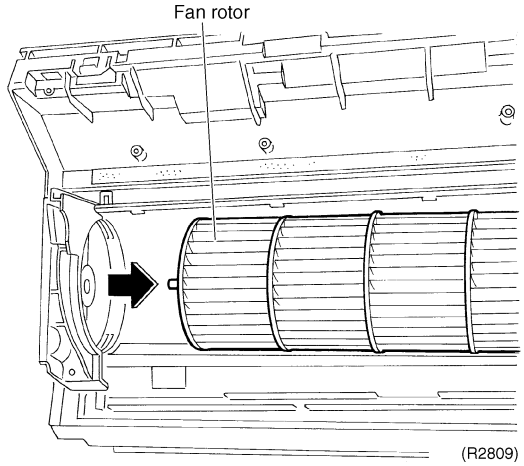
Procedure

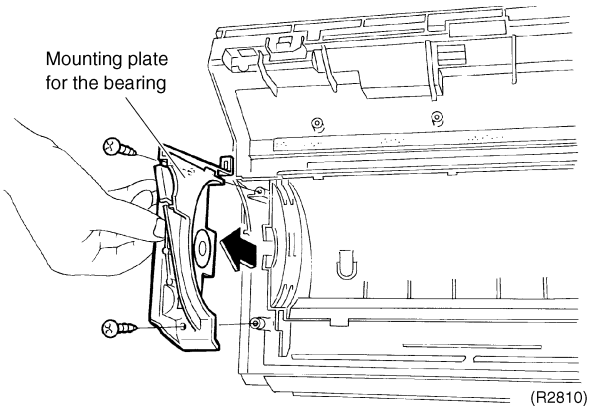
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

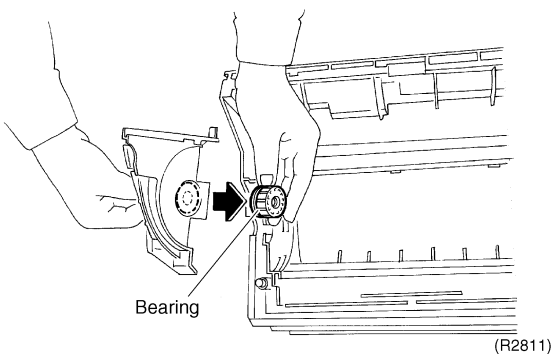
Step	Procedure	Points
1. Remove the right side panel.		■ You can remove the fan rotor without detaching the right side panel.
1 Loosen the 2 screws.	 (R2803)	
2 Lift the right side panel and remove it.	 (R2804)	
2. Remove the fan rotor.		
1 Loosen the screw and remove the fan motor fixture.	 (R2805)	
2 Loosen the fixing screw of the fan rotor.	 (R2806)	

Step	Procedure	Points
3. Remove the fan motor.		
1	Remove the fan rotor.	
4. Remove the bearing.		
1	Remove the fan rotor. The bearing is on the left side.	
2	Loosen the 2 screws and remove the mounting plate for the bearing.	
3	The bearing is made of rubber. Push it inwards firmly and remove it.	



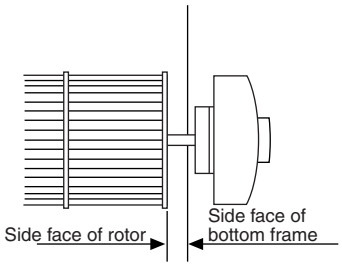






■ Reassembling the fan motor

(1) When reassembling the fan rotor, provide as much as 5mm of play between the side face of the rotor and the bottom frame.



(2) When reassembling the fan motor, align the end of the connector with the height of ★ for play.

2. Outdoor Unit

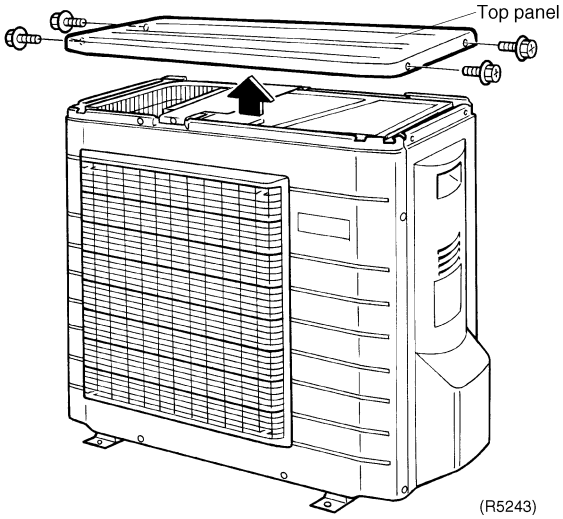
2.1 RK(X)S 50/60 F, R(Y)N 50/60 E

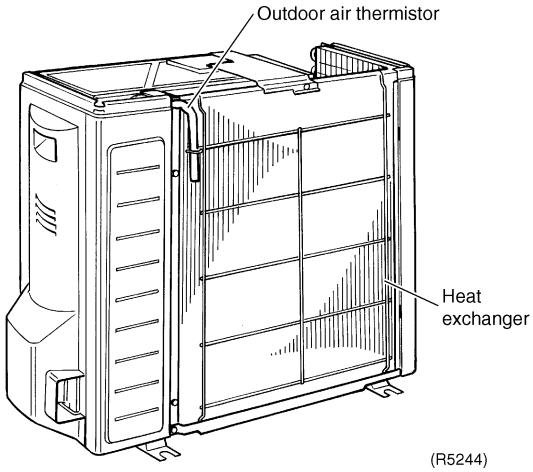
2.1.1 Removal of the Panels and Plates

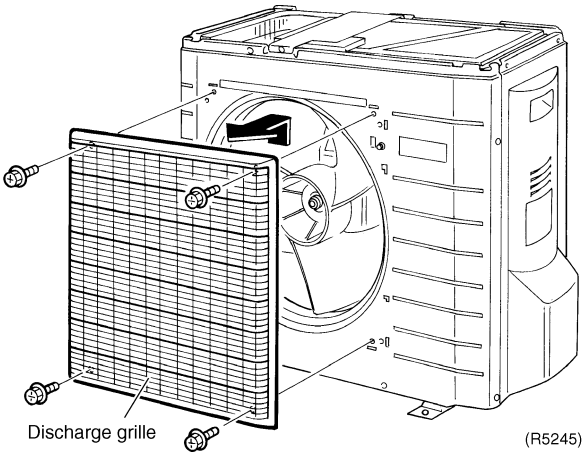
Procedure

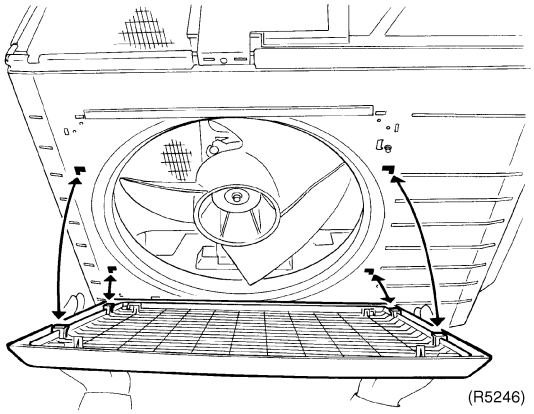
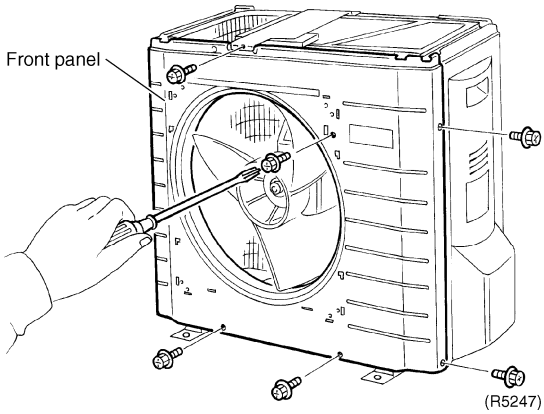
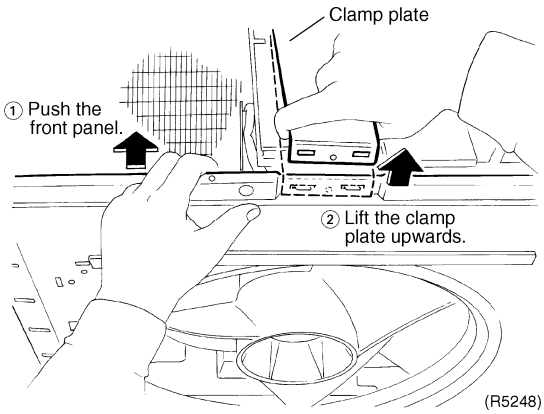
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

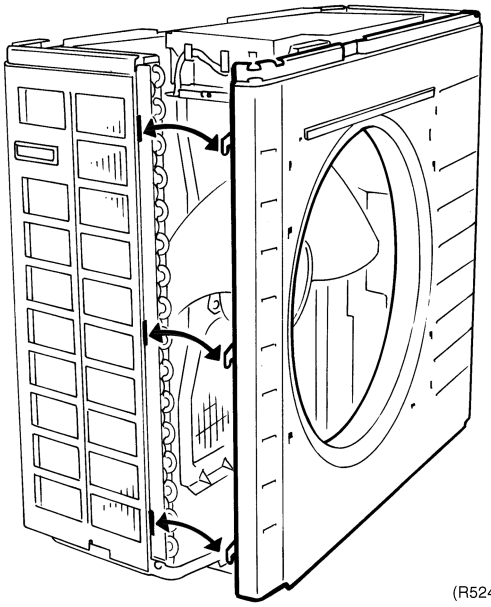
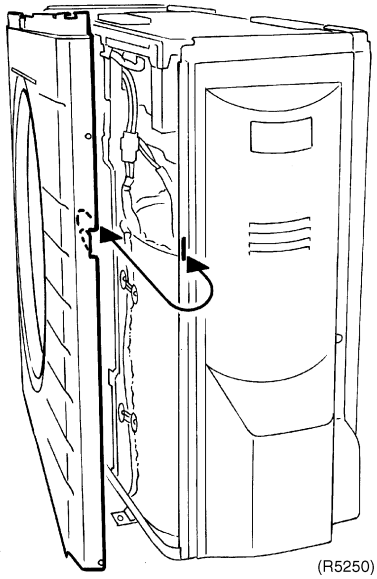
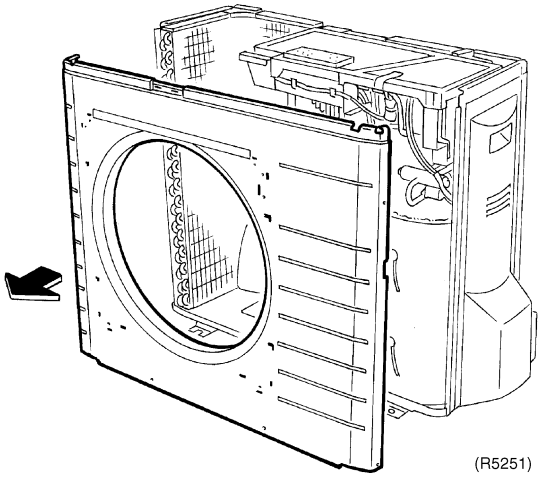
Step	Procedure	Points
1. Remove the panels and plates.		
1	Loosen the 4 screws and lift the top panel.	■ Take care not to cut your finger by the fins of the heat exchanger.
2	Loosen the 4 screws and remove the discharge grille.	



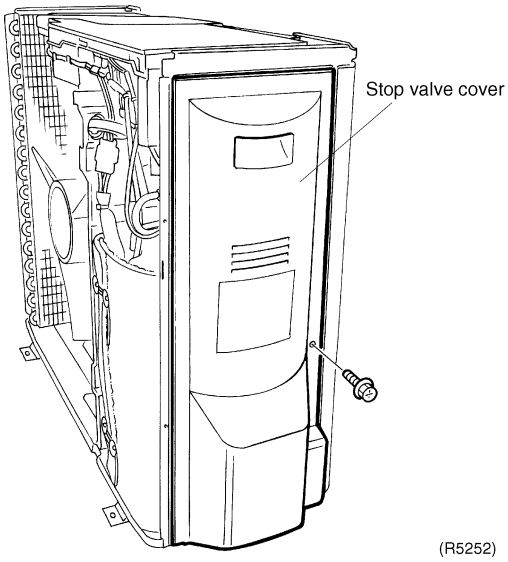




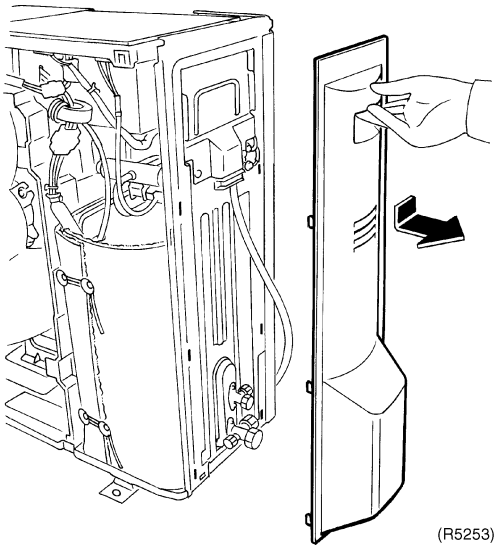
Step	Procedure		Points
		 (R5246)	■ The front grille has 4 hooks. Slide the discharge grille upwards and remove it.
3	Loosen the 6 screws of the front panel.	 (R5247)	
4	Push the front panel and undo the hooks. Lift the clamp plate and remove it.	 (R5248)	

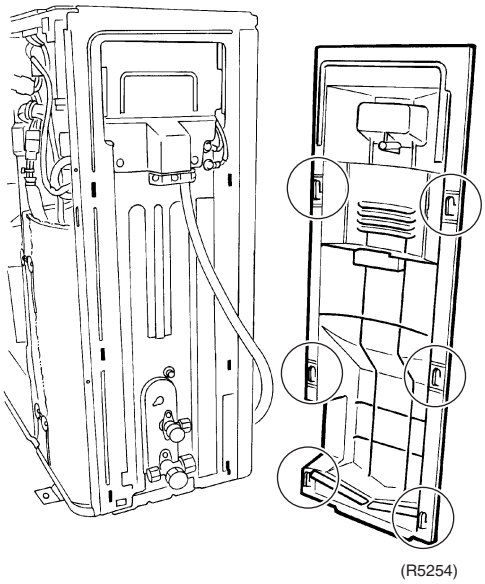
Step	Procedure		Points
5	Undo the left side hooks, and then the right side hook. Remove the front panel.	 (R5249)  (R5250)  (R5251)	■ Lift the front panel and remove it while pushing the left side panel inwards. ■ Lift the front panel and undo the right side hook. ■ Fit the right side of the front panel first when installing.

Step	Procedure	Points
2. Remove the stop valve cover.		
1	Loosen the screw of the stop valve cover.	
2	Pull down the stop valve cover to undo the hooks and remove it.	■ The stop valve cover has 6 hooks.



(R5252)

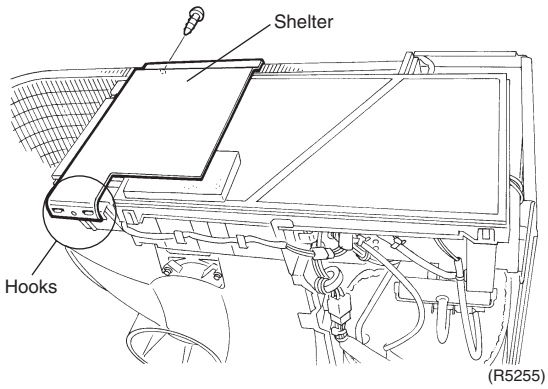
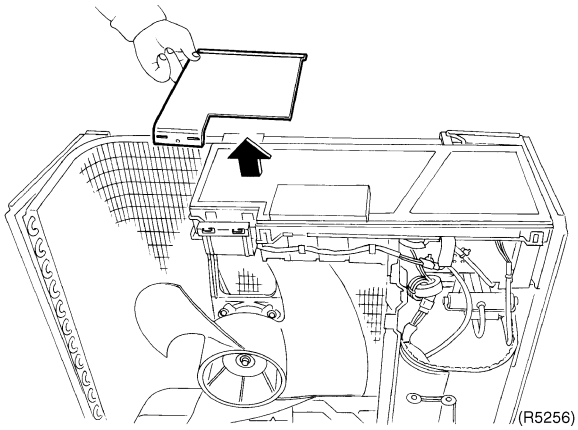
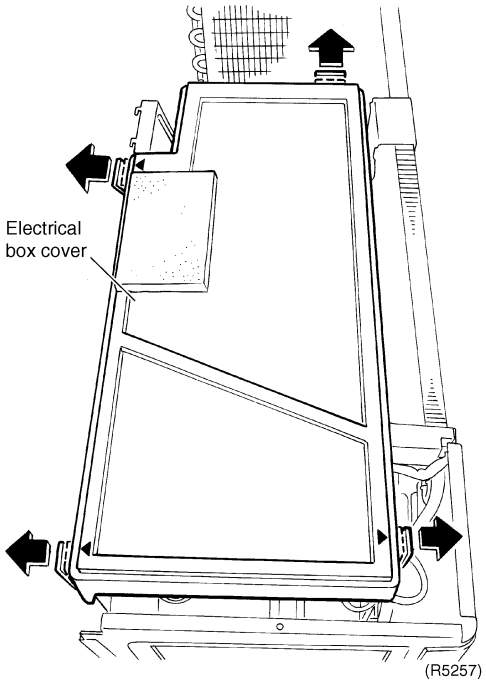

(R5253)

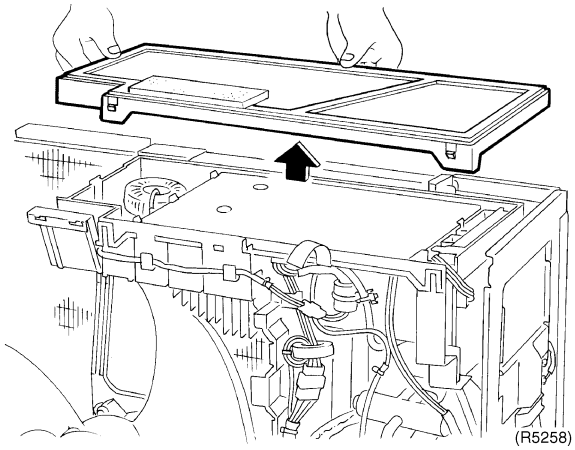
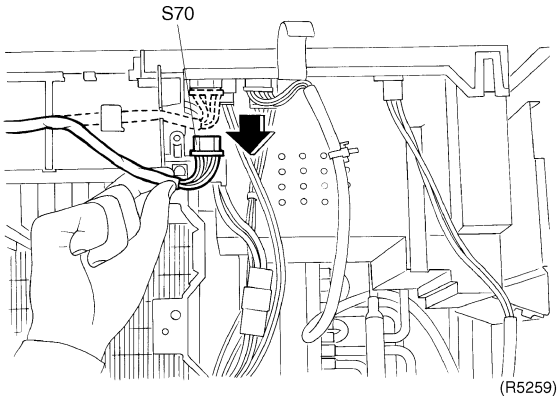
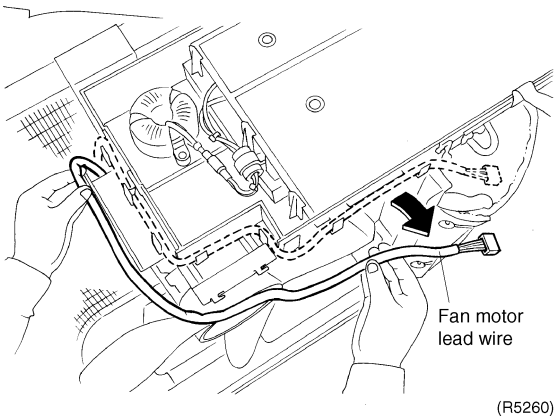

(R5254)

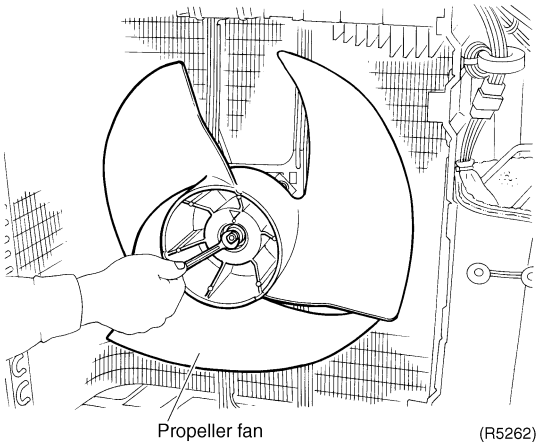
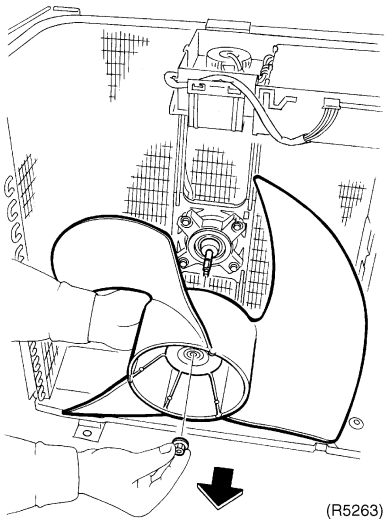
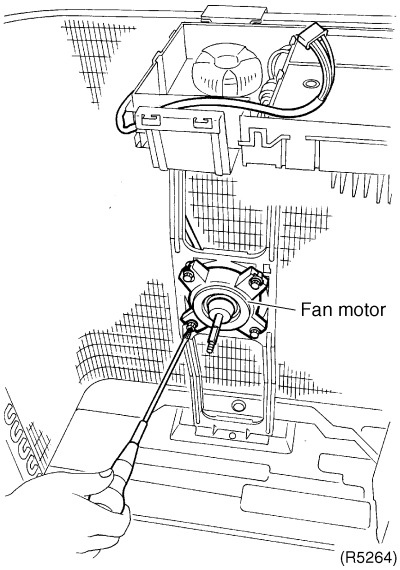
2.1.2 Removal of the Fan Motor / Propeller Fan

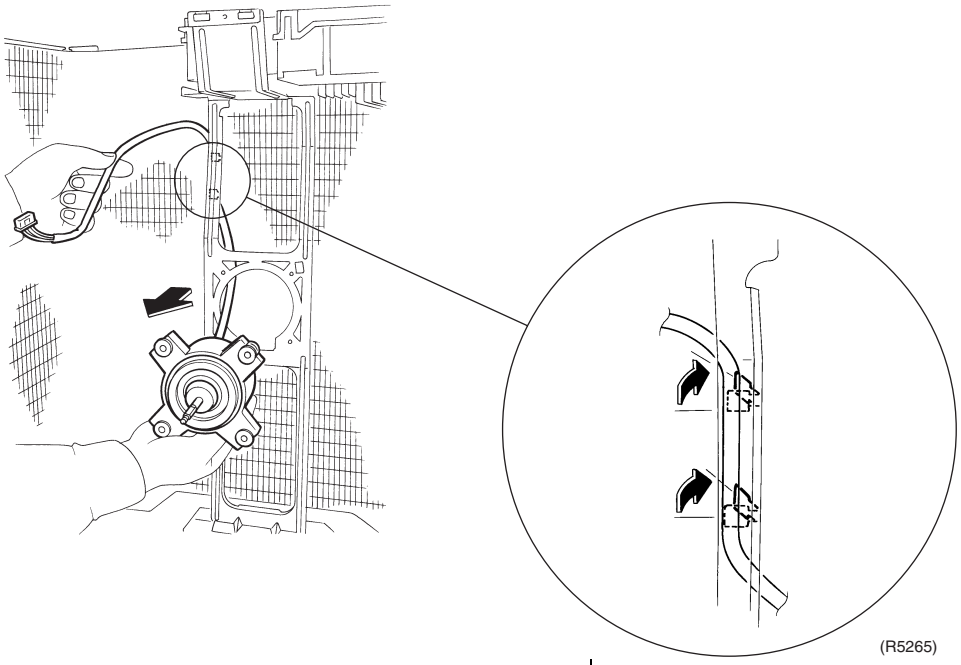
Procedure

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 and the front panel.		
1. Remove the electrical box cover.		■ This procedure is not necessary to remove the propeller fan only.
1 Loosen the screw on the back of the shelter.		
2 Undo the 2 hooks and remove it.		■ The hooks have been released since the front panel was removed.
3 Release the 4 hooks of the electrical box cover and remove it.		

Step	Procedure		Points
		 (R5258)	
2. Remove the fan motor.			
1	Disconnect the connector for fan motor (S70).	 (R5259)	
2	The illustration shows arrangement of the fan motor lead wire.	 (R5260)	

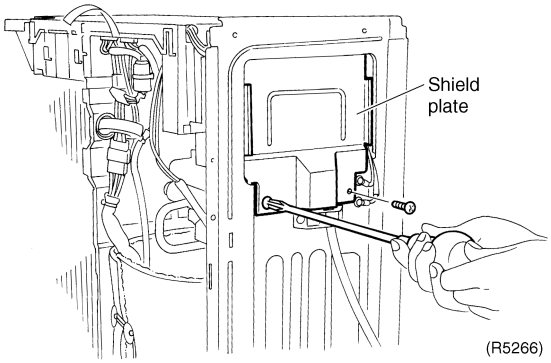
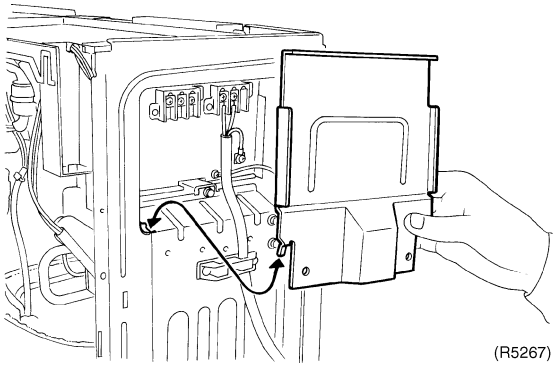
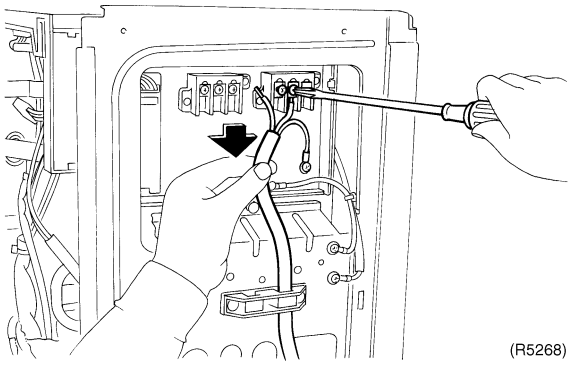
Step	Procedure		Points
3	Unscrew the washer-fitted nut (M10) of the propeller fan with a spanner.		■ Align ▼ mark of the propeller fan with D-cut section of the motor shaft when reassembling.
			
4	Remove the 4 screws from the fan motor.		

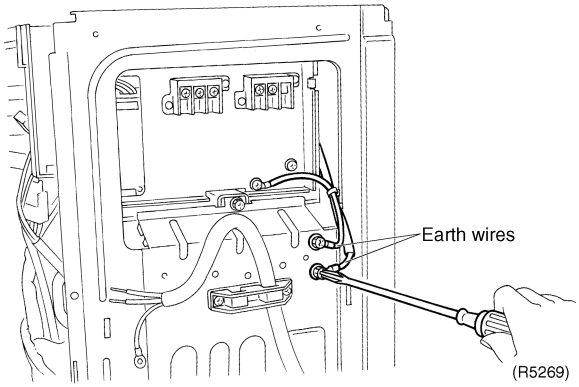
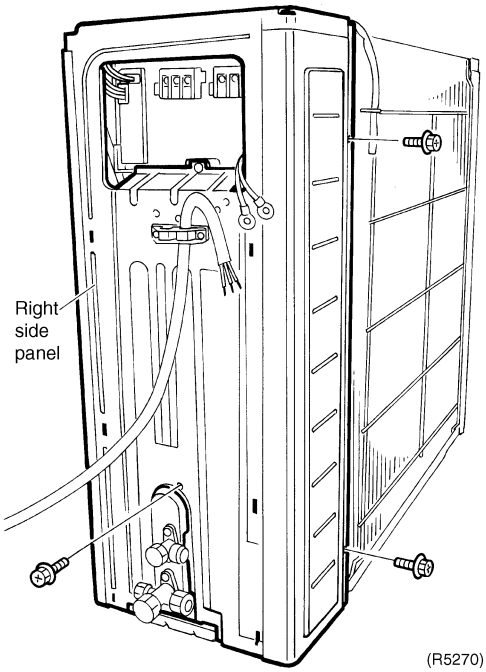
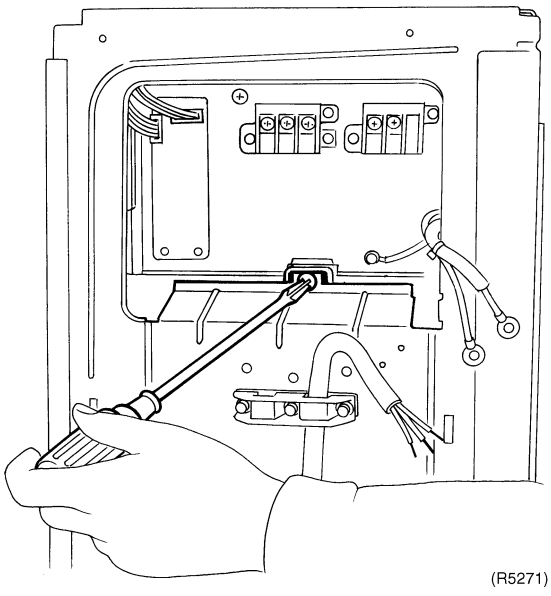
Step	Procedure		Points
5	Pull the fan motor out.	 (R5265)	■ Put the lead wire through the back of the motor when reassembling (so as not to be entangled with the propeller fan).

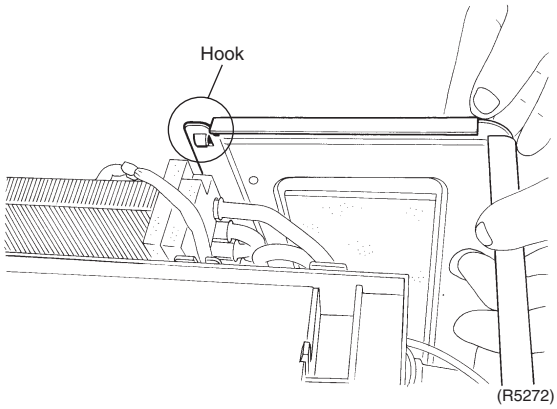
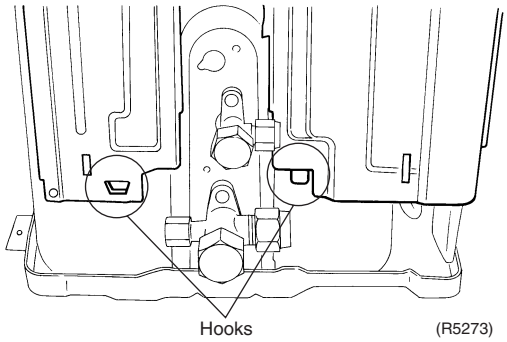
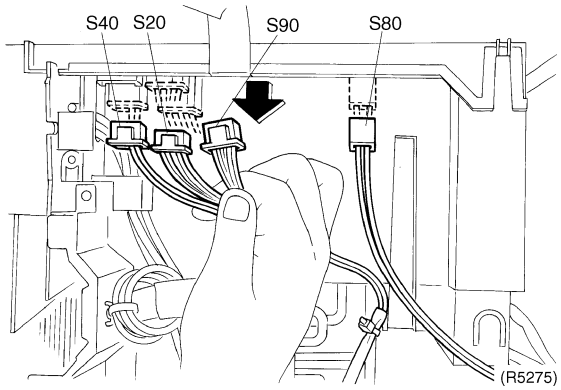
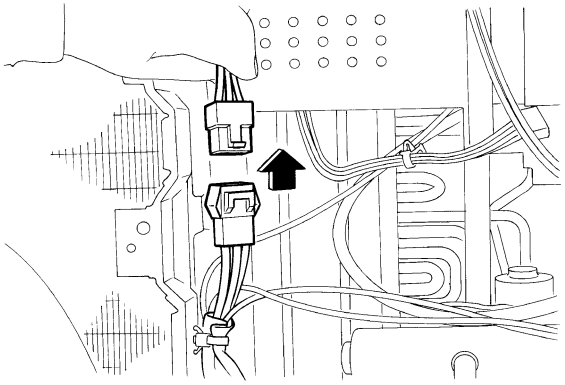
2.1.3 Removal of the Electrical Box

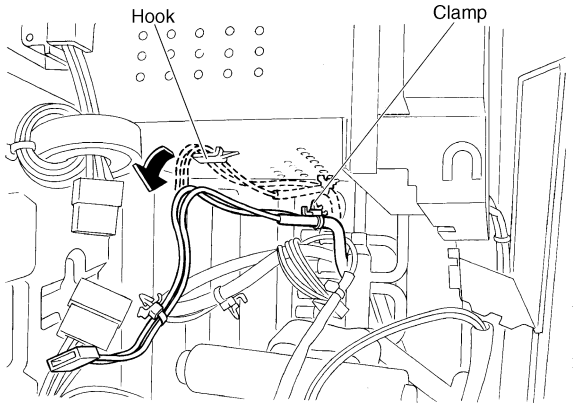
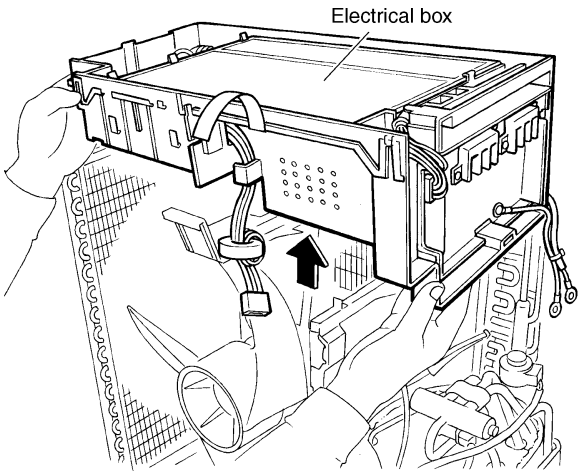
Procedure

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 and the front panel.		
1. Remove the shield plate.		
1	Loosen the 2 screws.  (R5266)	
2	Slide the cover upward to undo the one hook on the bottom left, and then remove the plate.  (R5267)	
3	Disconnect the 2 power supply cables and the 1 earth wire.  (R5268)	

Step	Procedure		Points
4	Disconnect the 2 earth wires.		
5	Loosen the 3 screws of the right side panel.		
6	Loosen the fixing screw of the electrical box.		

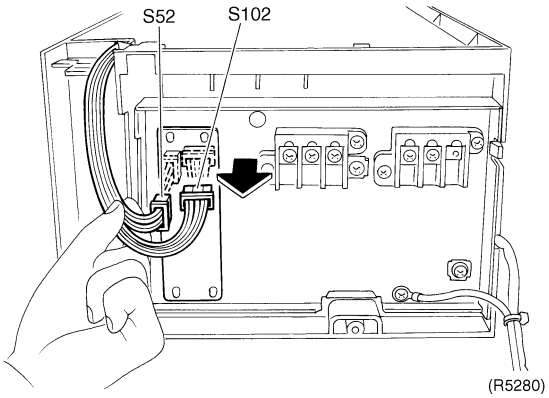
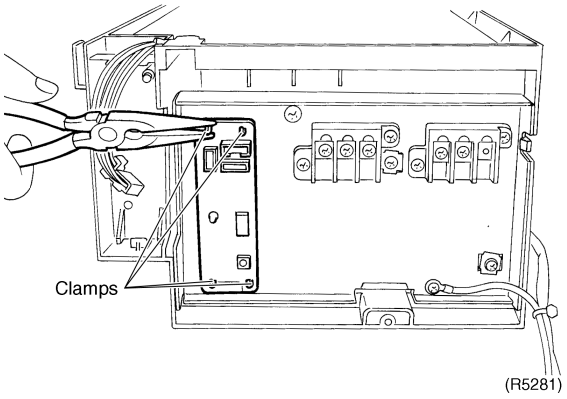
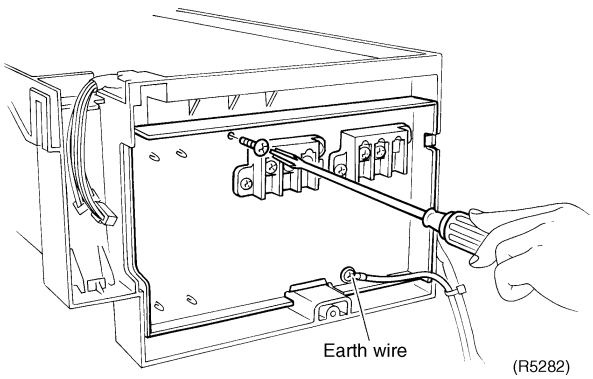
Step	Procedure		Points
		 (R5272)  (R5273)	■ Insert the 2 hooks of the lower part and the 1 hook of the upper back when reassembling.
7	Disconnect the connectors of the front side. S20: electronic expansion valve S40: overload protector S80: four way valve S90: thermistors (discharge pipe, outdoor air, heat exchanger)	 (R5275)	
8	Disconnect the relaying wire connector for the compressor.	 (R5276)	

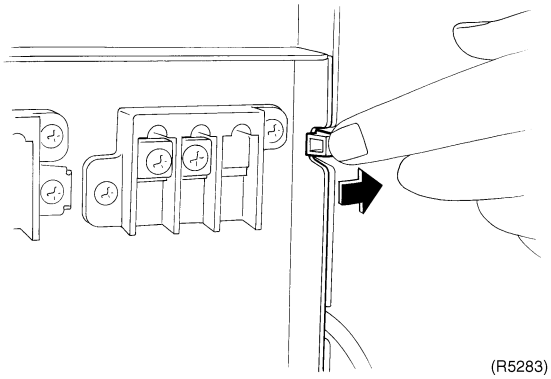
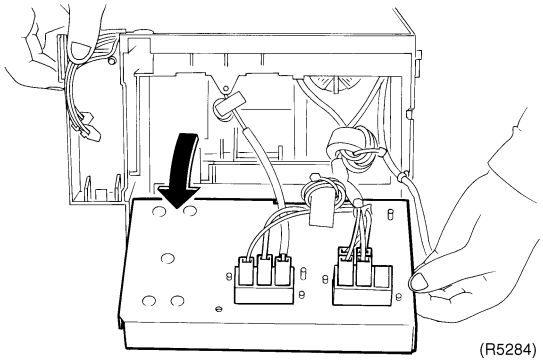
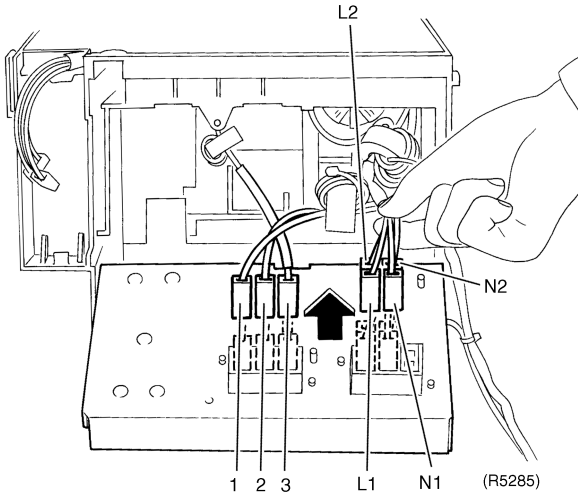
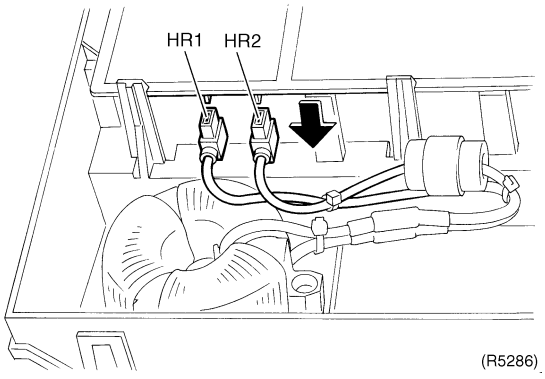
Step	Procedure		Points
9	Release the clamp and undo the wire from the hook.	 (R5278)	
10	Lift the electrical box and remove it.	 (R5279)	

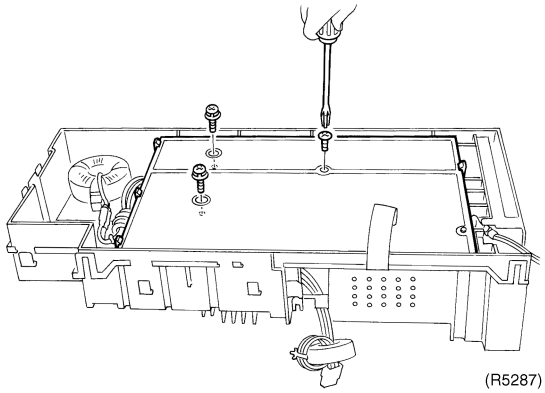
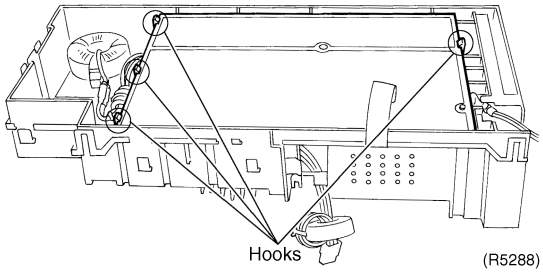
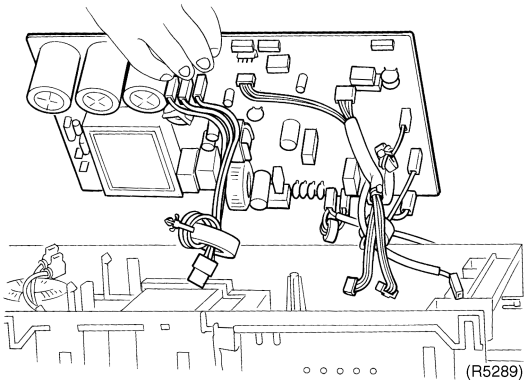
2.1.4 Removal of the PCB

Procedure

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

Step	Procedure	Points
■ Remove the electrical box.		
1. Remove the PCB.		
1	Disconnect the connectors for the control PCB (S52, S102). 	
2	Undo the 4 clamps by pliers. 	
3	Loosen the fixing screw of the cable way board and disconnect the earth wire. 	

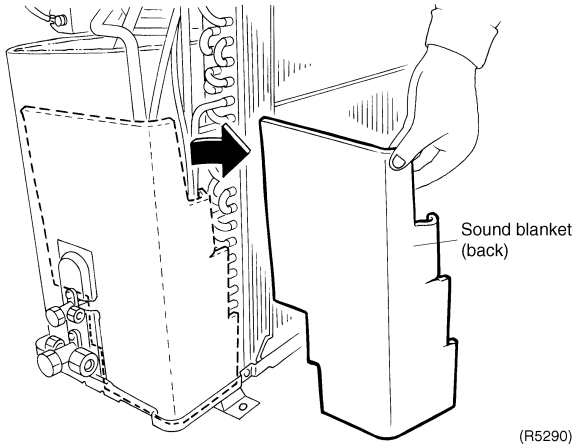
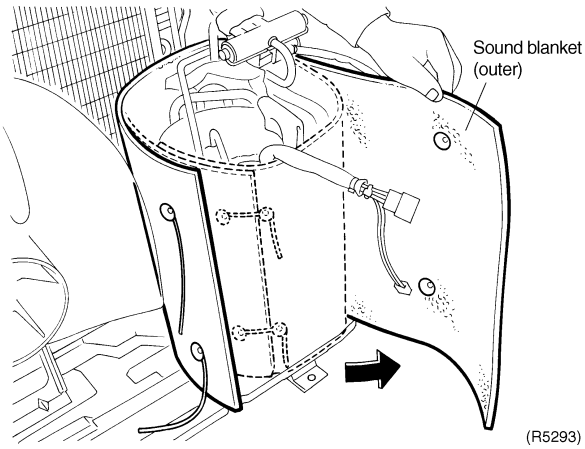
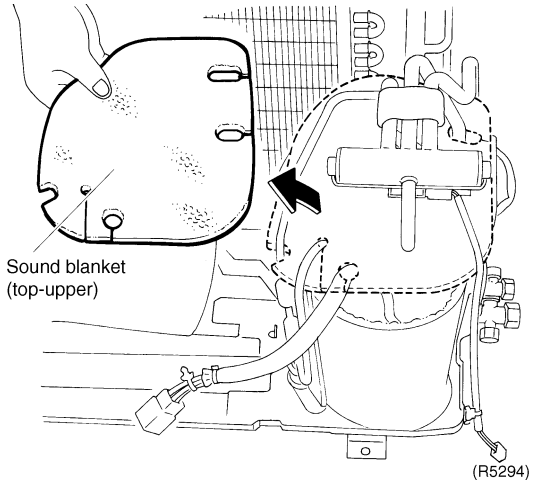
Step	Procedure		Points
4	Undo the hook on the right.		
5	Open the cable way board.		
6	Disconnect the harnesses.		1: Black 2: White 3: Red L1: Black L2: Brown N1: White N2: Blue
7	Disconnect the 2 harnesses for the reactor (HR1, HR2).		

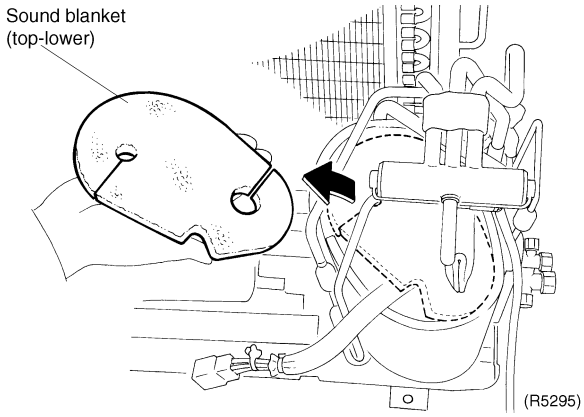
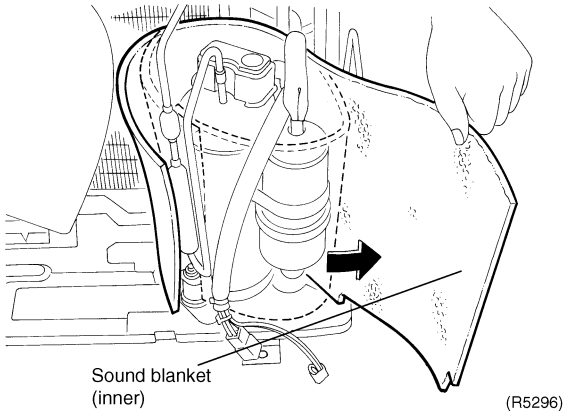
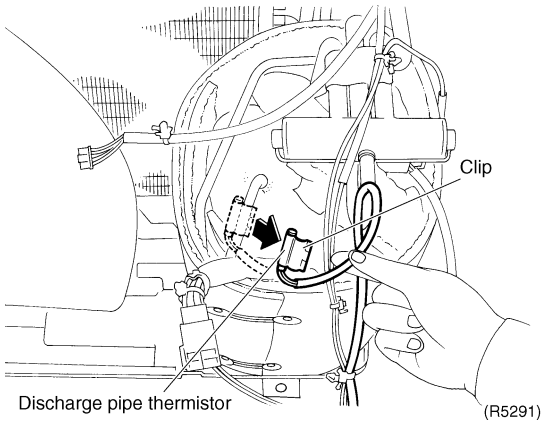
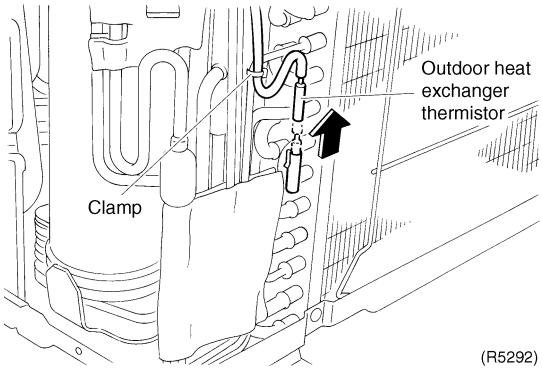
Step	Procedure		Points
8	Loosen the 3 fixing screws for the main PCB.	 (R5287)	
9	Undo the 4 hooks.	 Hooks (R5288)	
10	Lift up and remove the PCB.	 (R5289)	

2.1.5 Removal of the Sound Blanket

Procedure

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

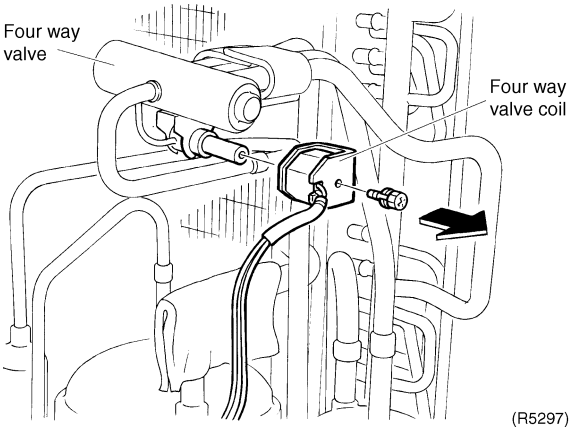
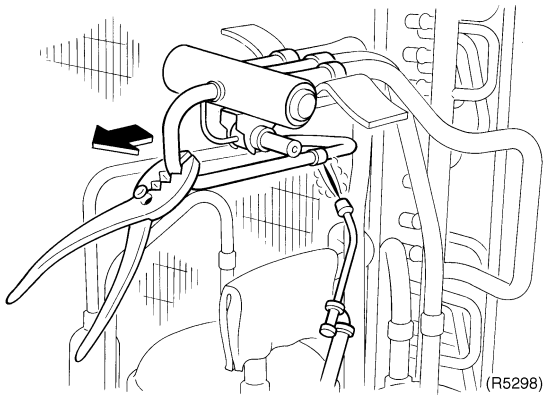
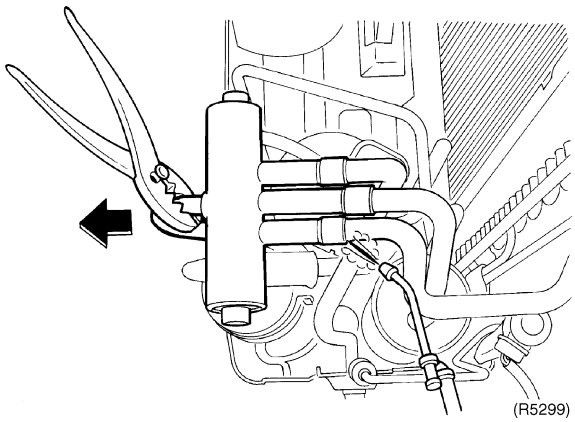
Step	Procedure		Points
1	Remove the sound blanket (back).		
2	Remove the sound blanket (outer).		■ Since the piping ports on the sound blanket (outer) are torn easily, remove the blanket carefully.
3	Remove the sound blanket (top-upper).		

Step	Procedure		Points
4	Remove the sound blanket (top-lower).		
5	Remove the sound blanket (inner).		■ Since the piping ports on the sound blanket (inner) are torn easily, remove the blanket carefully.
6	Release the discharge pipe thermistor.		■ Pay attention to the direction of the clip so as not to touch the lead wire of the thermistor when reassembling.
7	Cut the clamp by nippers. Disconnect the outdoor heat exchanger thermistor.		■ Clamps should be always available. Fix it as it was before.

2.1.6 Removal of the Four Way Valve

Procedure

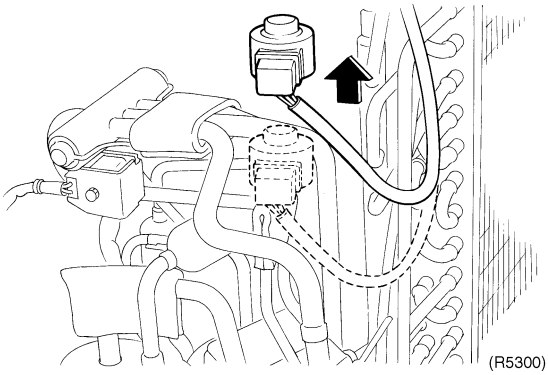
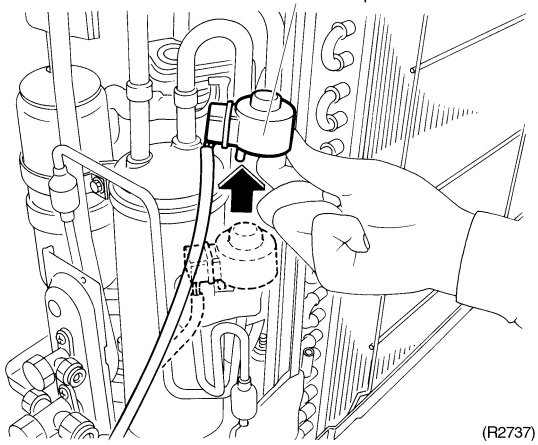
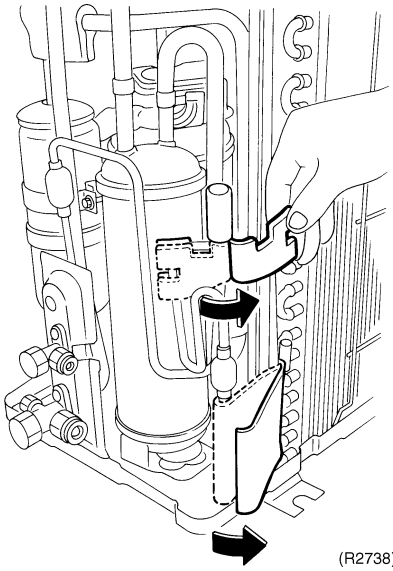
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

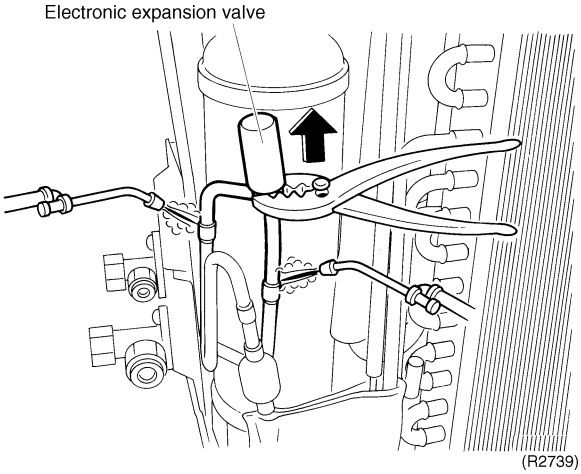
Step	Procedure		Points
1	Loosen the screw of the four way valve coil.		■ Provide a protective sheet or a steel plate so that the brazing flame cannot influence peripheries. ■ Be careful so as not to break the pipes by pressing it excessively by pliers when withdrawing it. **Caution** **Be careful about the four way valve, pipes and so on, which were heated up by a gas brazing machine, so as not to get burnt your hands.**
2	Heat up the brazed part of the four way valve and disconnect. ■ Be sure to apply nitrogen replacement when heating up the brazed part.		**Cautions for restoration** 1. Restore the piping by non-oxidation brazing. Braze it quickly when no nitrogen gas can be used. 2. It is required to prevent the carbonization of the oil inside the four way valve and the deterioration of the gaskets affected by heat. For the sake of this, wrap the four way valve with wet cloth and provide water so that the cloth will not be dried and avoid excessive heating. (Keep below 120°C) **In case of the difficulty with gas brazing machine** 1. Disconnect the brazed part where is easy to disconnect and restore. 2. Cut pipes on the main unit by a miniature copper tube cutter in order to make it easy to disconnect. **Note:** Do not use a metal saw for cutting pipes by all means because the sawdust come into the circuit.
3	Heat up every brazed part in turn and disconnect.		

2.1.7 Removal of the Electronic Expansion Valve

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 electronic expansion valve coil.	 (R5300)	■ In case of 50/60 class heat pump models.
		Electronic expansion valve coil  (R2737)	■ In case of 50/60 class cooling only models.
2	Remove the sheets of putty.	 (R2738)	■ The illustration is different depending on the models.

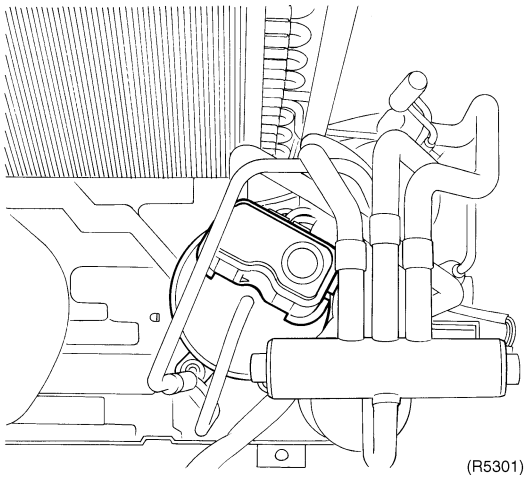
Step	Procedure		Points
	■ Before working, make sure that the refrigerant is empty in the circuit.		■ The illustration is different depending on the models.
3	Heat up the 2 brazed parts of the electronic expansion valve and disconnect.	 (R2739)	**Caution** **Be careful about the electronic expansion valve, pipes and so on, which were heated up by a gas brazing machine, so as not to get burnt your hands.**
	■ Be sure to apply nitrogen replacement when heating up the brazed part.		**Warning** **Ventilate when refrigerant leaks during the work.** **(If refrigerant contacts fire, it will cause to arise toxic gas.)**

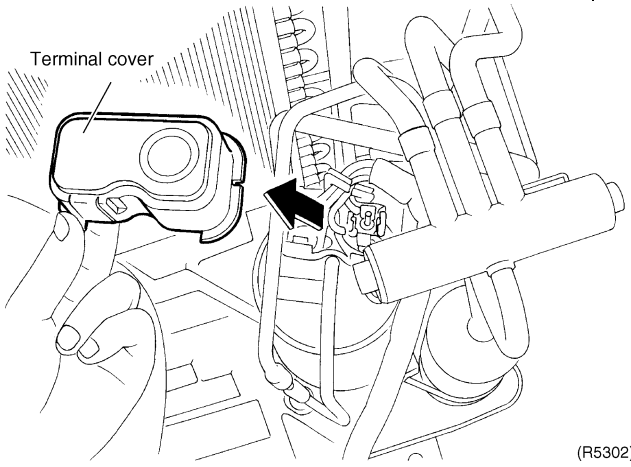
2.1.8 Removal of the Compressor

Procedure

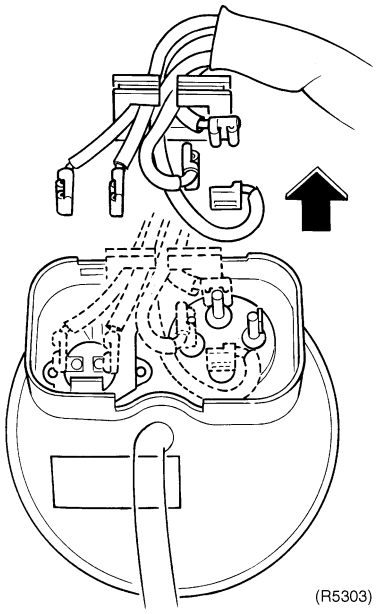
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

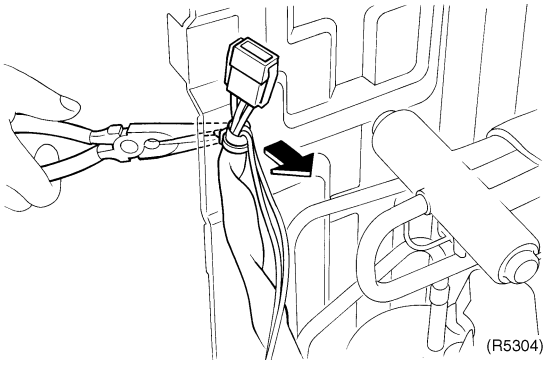
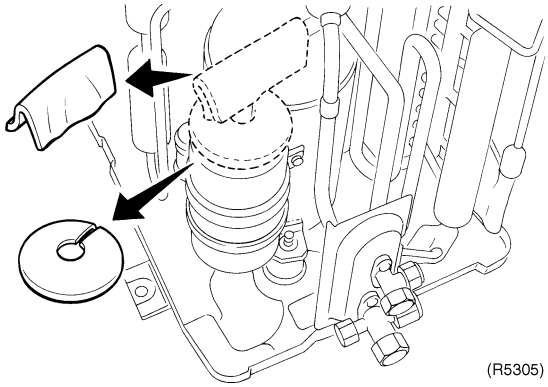
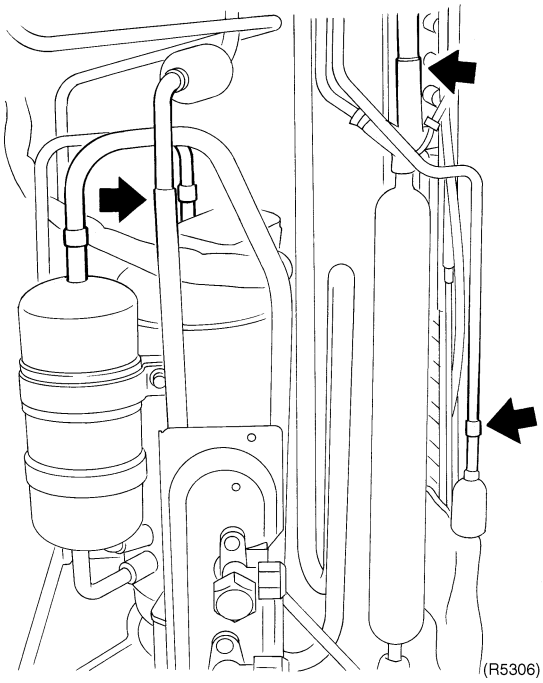
Step	Procedure	Points
1	Remove the terminal cover.	
2	Disconnect the lead wires of the compressor.	■ Be careful so as not to burn the compressor terminals or the name plate. Make a note. U V W U : red V : yellow W: blue

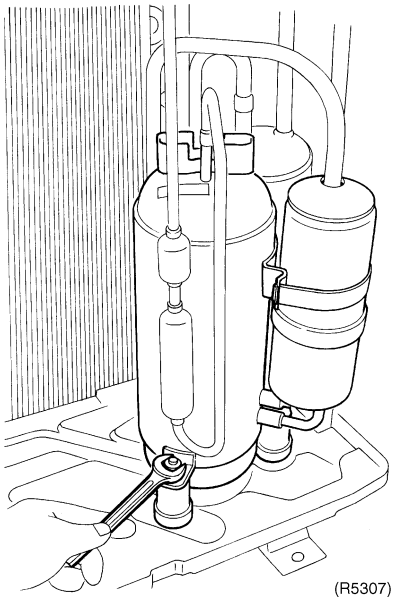
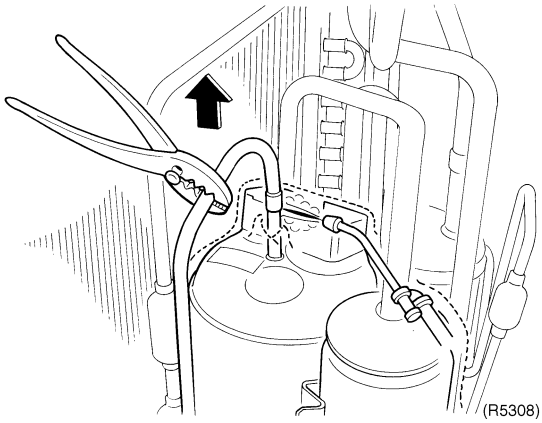
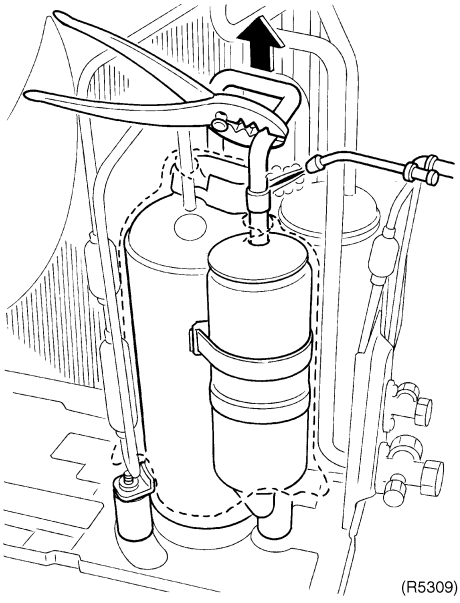

(R5301)



(R5302)


(R5303)

Step	Procedure		Points
3	Release the clamp by pliers to detach the wire harness for the compressor.	 (R5304)	
4	Remove the putty. ■ Before working, make sure that the refrigerant is empty in the circuit. ■ Be sure to apply nitrogen replacement when heating up the brazed part.	 (R5305)	■ The illustration is for 50/60 class heat pump models as representative.
5	Heat up the brazed parts indicated by the arrows.	 (R5306)	■ The illustration is for 50/60 class heat pump models as representative. **⚠ Warning** **Ventilate when refrigerant leaks during the work.** **(If refrigerant contacts fire, it will cause to arise toxic gas.)** ■ Provide a protective sheet or a steel plate so that the brazing flame cannot influence peripheries. ■ Be careful so as not to burn the compressor terminals or the name plate. ■ Be careful so as not to burn the heat exchanger fin. **⚠ Warning** **Since it may happen that refrigeration oil in the compressor will catch fire, prepare wet cloth so as to extinguish fire immediately.**

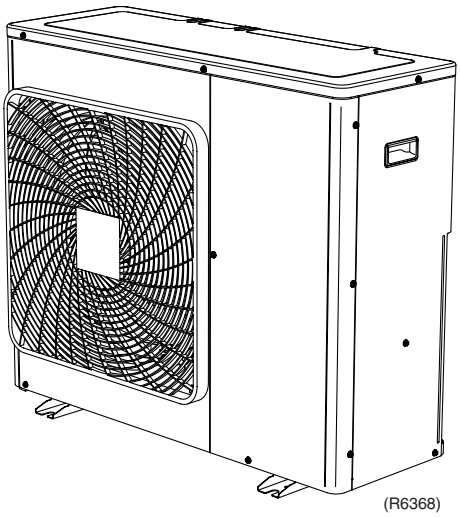
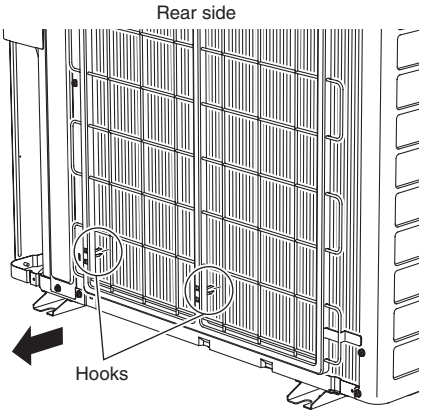
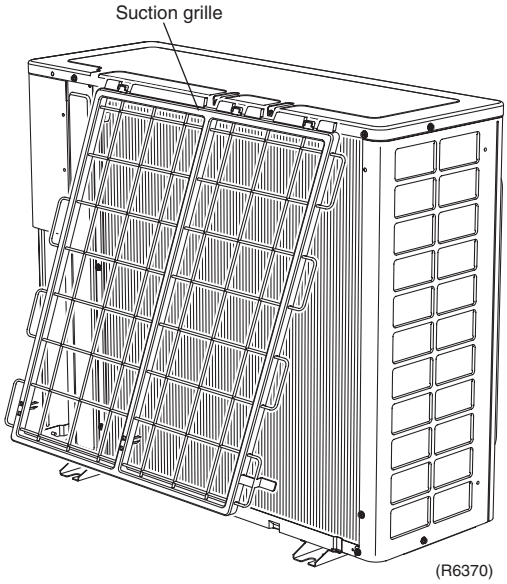
Step	Procedure		Points
6	Unscrew the nut of the compressor.	 (R5307)	
	■ Before working, make sure that the refrigerant is empty in the circuit. ■ Be sure to apply nitrogen replacement when heating up the brazed part.		⚠ **Warning** **Ventilate when refrigerant leaks during the work.** **(If refrigerant contacts fire, it will cause to arise toxic gas.)**
7	Heat up the brazed part of the discharge side and disconnect.	 (R5308)	■ Provide a protective sheet or a steel plate so that the brazing flame cannot influence peripheries. ■ Be careful so as not to burn the compressor terminals or the name plate.
8	Heat up the brazed part of the suction side and disconnect.	 (R5309)	■ Be careful so as not to burn the heat exchanger fin.
9	Lift the compressor up and remove it.		⚠ **Warning** **Since it may happen that refrigeration oil in the compressor will catch fire, prepare wet cloth so as to extinguish fire immediately.**

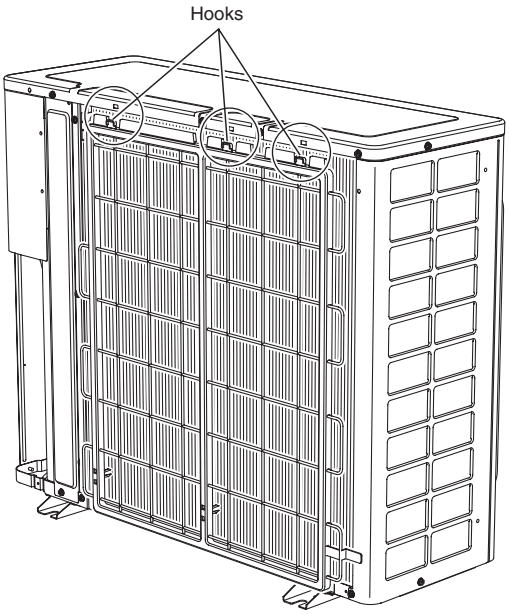
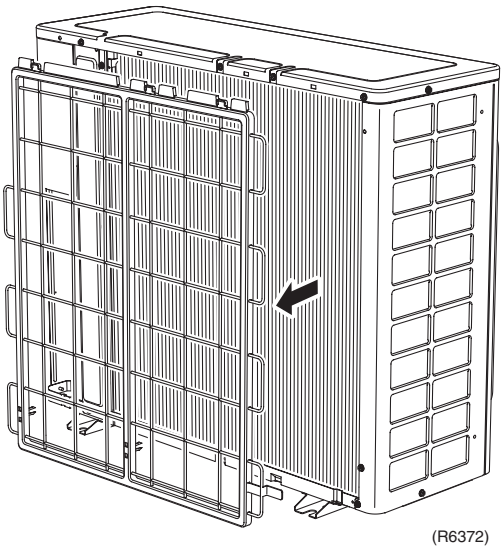
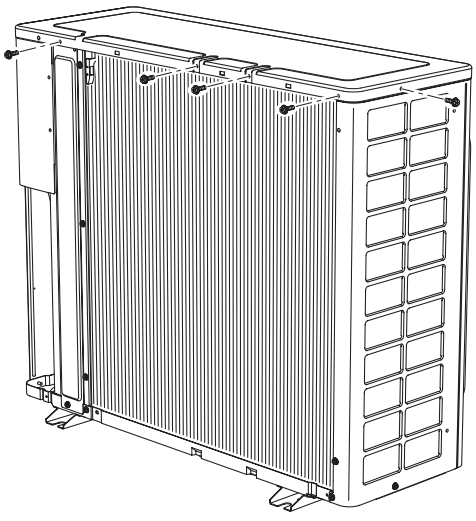
2.2 RK(X)S 71 F

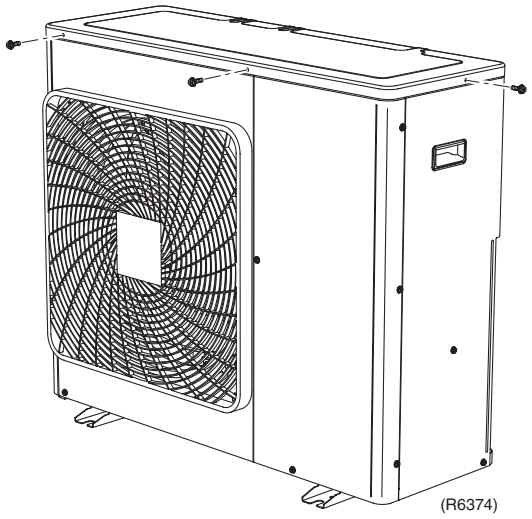
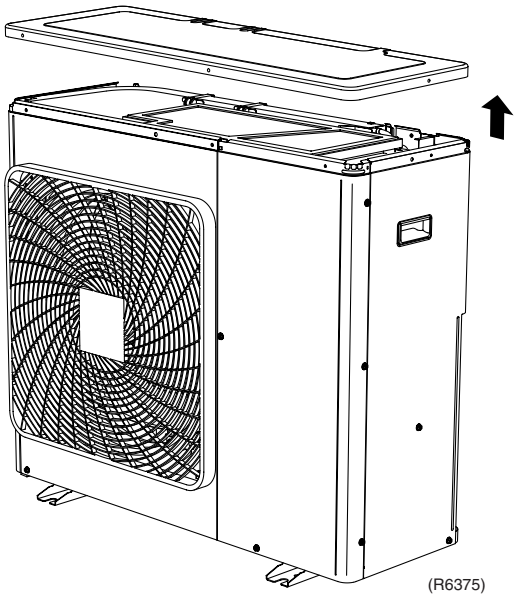
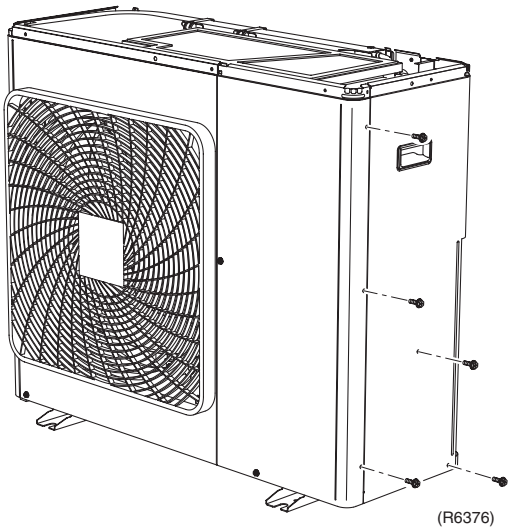
2.2.1 Removal of Outer Panels

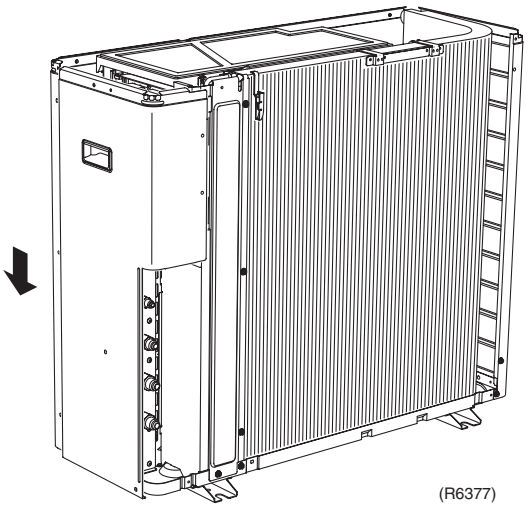
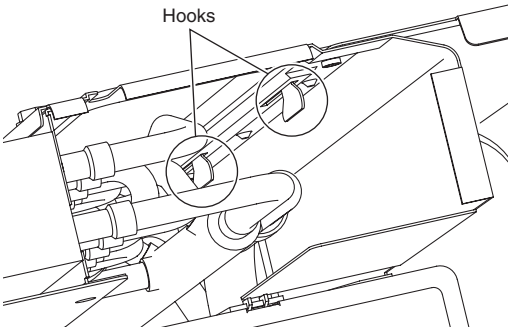
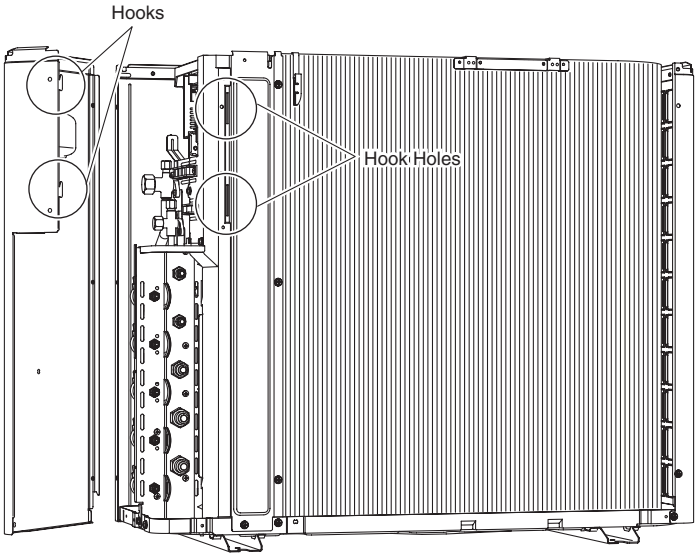
Procedure

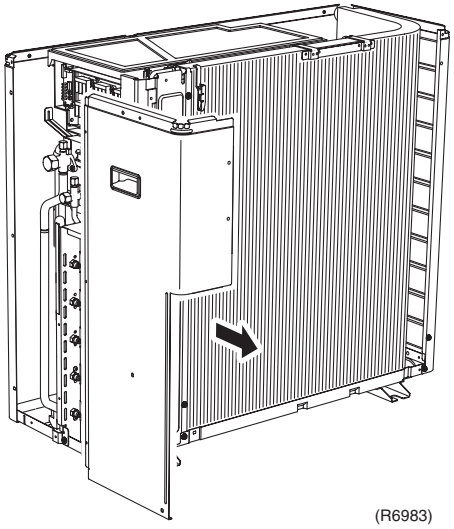
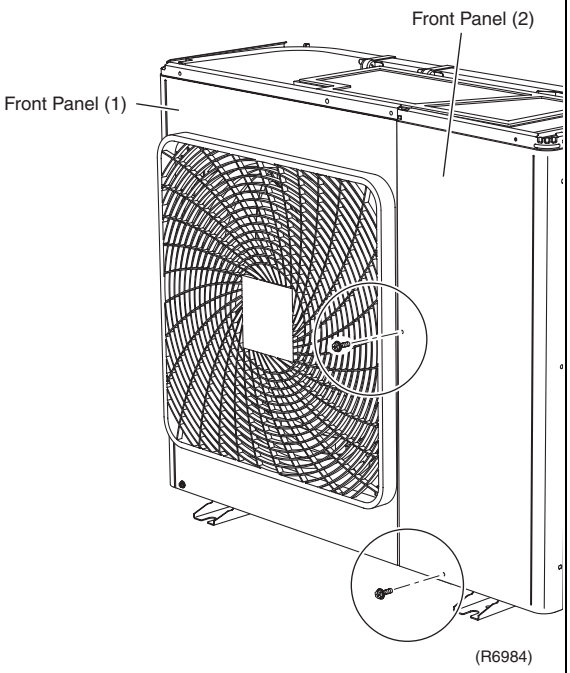
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

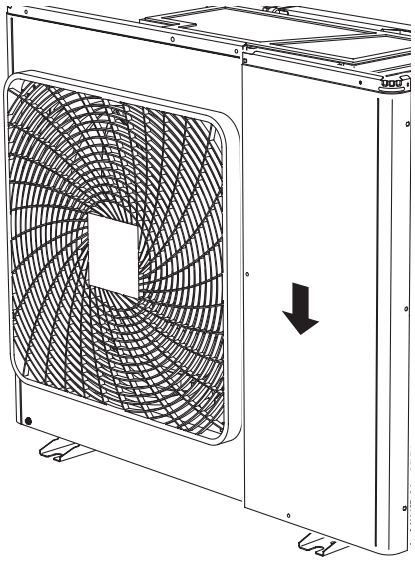
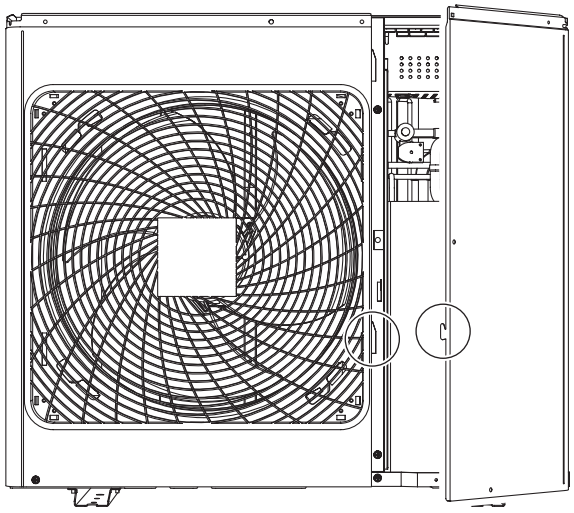
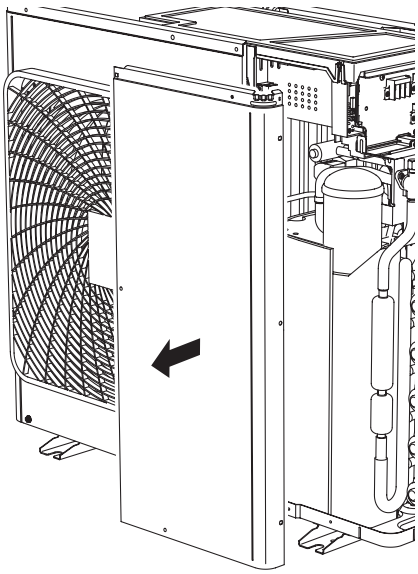
Step	Procedure		Points
	External appearance from front side.	 (R6368)	
1.	Removing the suction grille.	 (R6369)	■ The hooks are secured in the clearances of the heat exchanger fins.
1	Undo the 2 hooks at the bottom first.	 (R6370)	

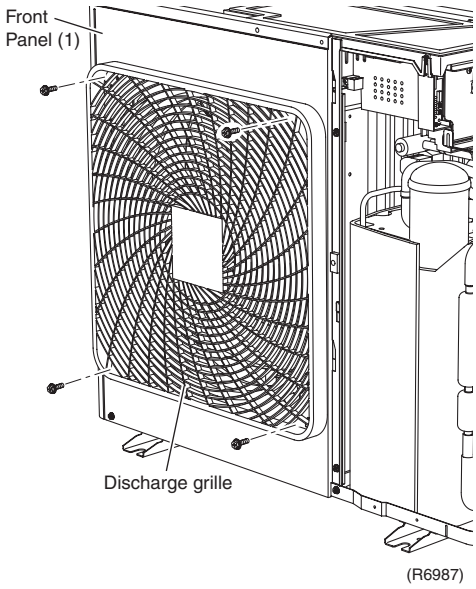
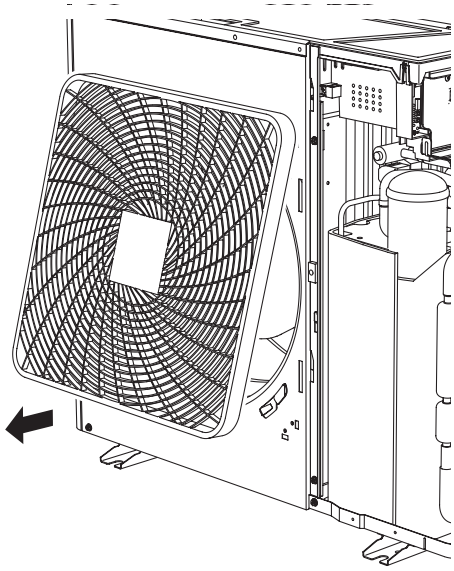
Step	Procedure		Points
2	Next, slide the grille downward to undo the 3 top hooks.	 (R6371)	
3	Remove the suction grille.	 (R6372)	
2. Removing the top panel.			
1	Remove the 4 screws on the back and 1 screw on the left side panel.	 (R6373)	

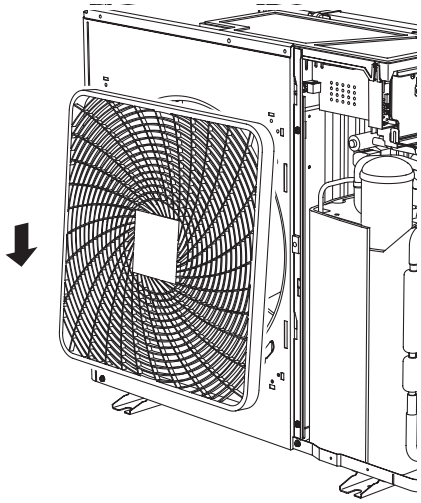
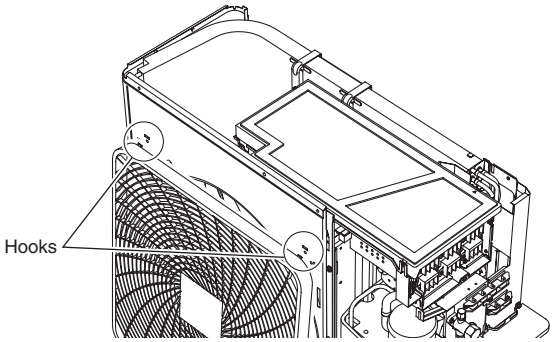
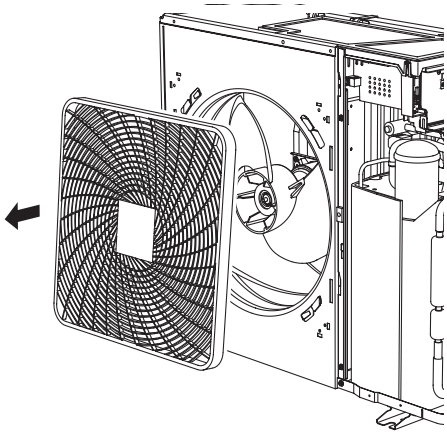
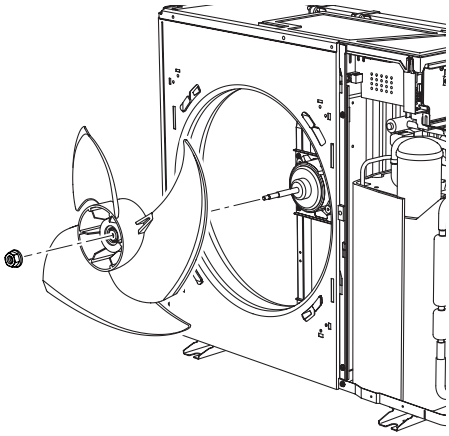
Step	Procedure		Points
2	Remove the 2 screws on the front and 1 screw on the right side panel.	 (R6374)	
3	Lift the top panel and remove it.	 (R6375)	
3. Removing the right side panel.			
1	Remove the 5 screws.	 (R6376)	

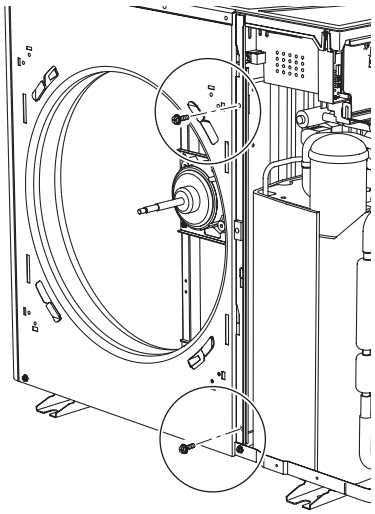
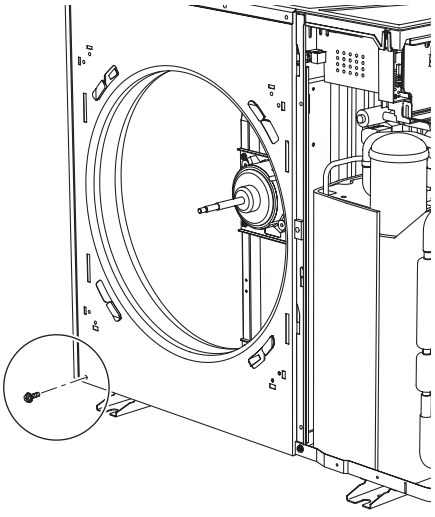
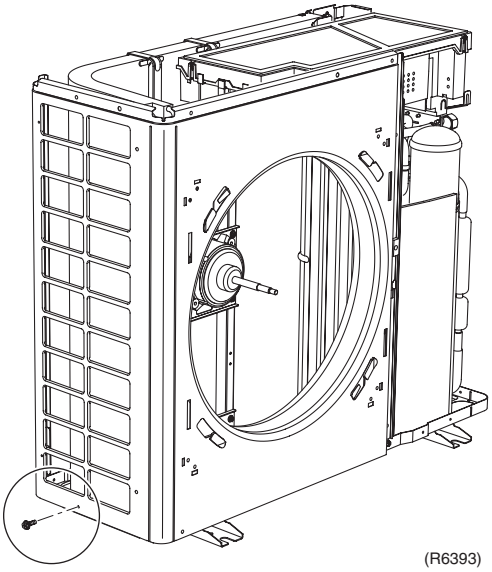
Step	Procedure		Points
2	Slide the panel downward to undo 2 hooks on the back side.	 (R6377)  (R6378)  (R6379)	

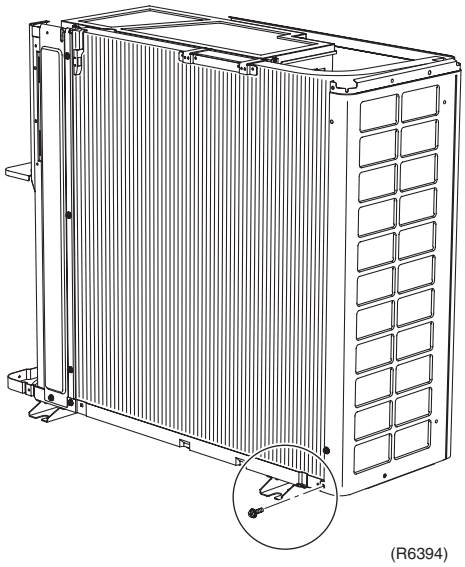
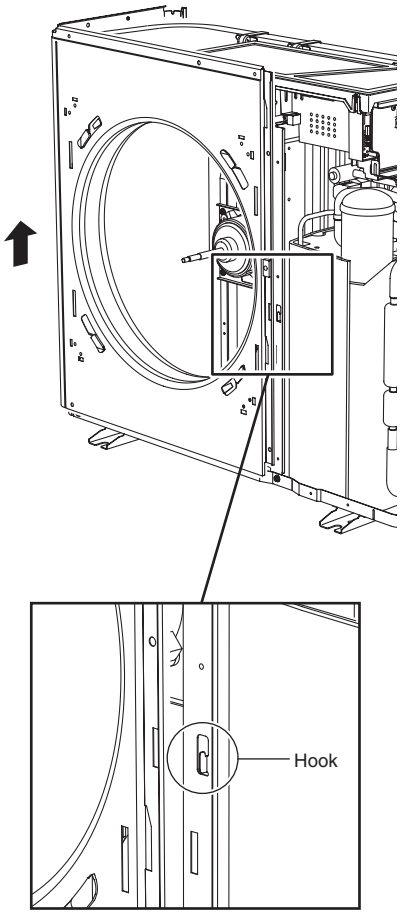
Step	Procedure		Points
3	Remove the right side panel.	 (R6983)	
4. Removing the front panel (2)		 (R6984)	
1	Remove the 2 screws.		

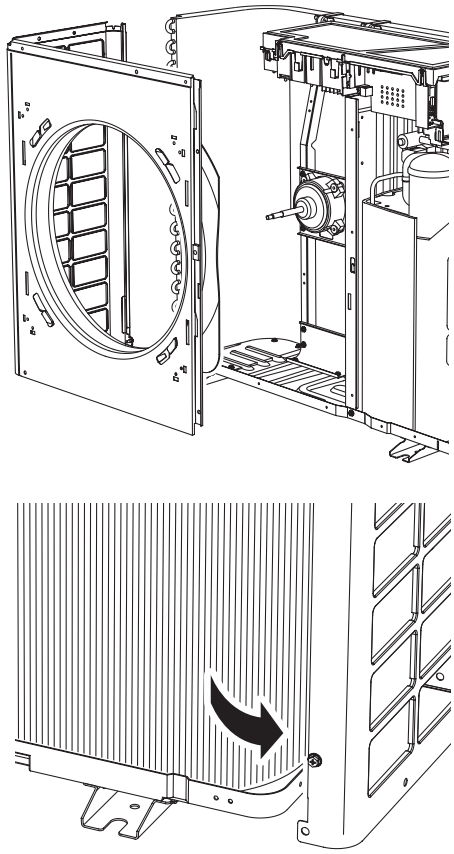
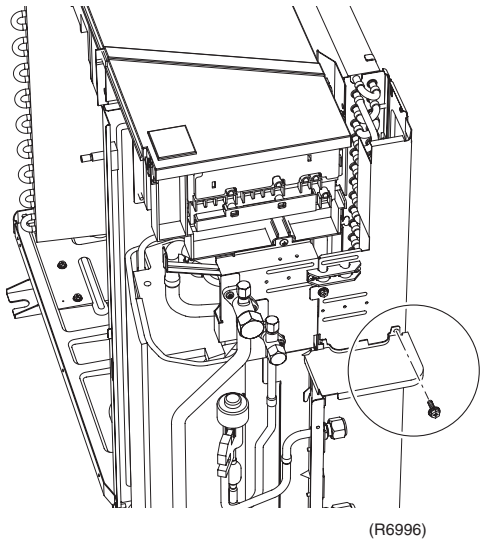
Step	Procedure		Points
2	Slide the panel downward to undo the hook.	 (R6985)	
		 (R6383)	
3	Remove the front panel (2).	 (R6986)	

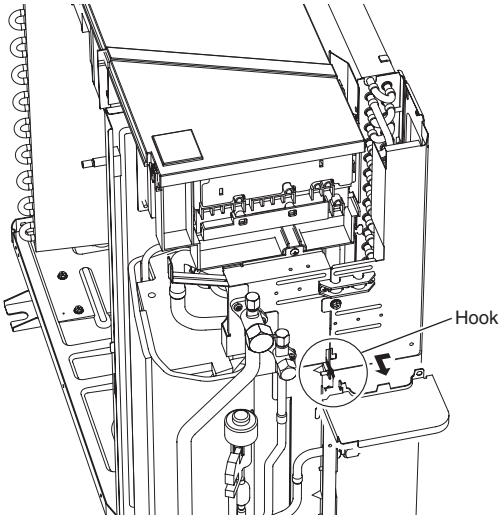
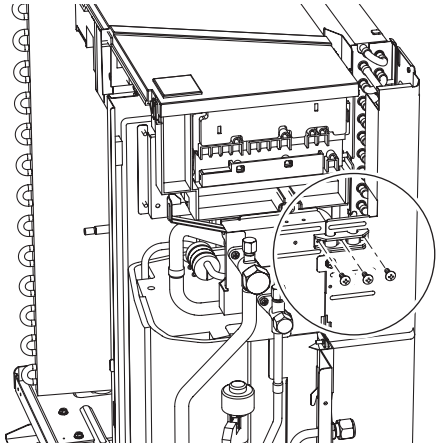
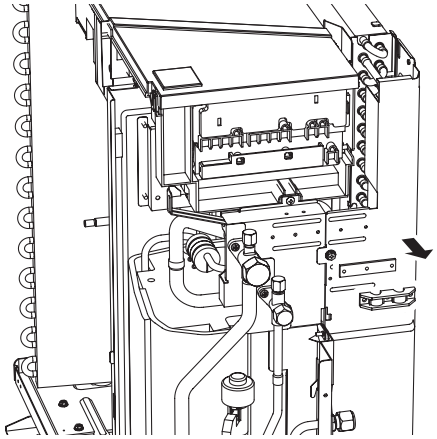
Step	Procedure	Points
5. Removing the front panel (1)	 (R6987)	Remove the discharge grille and propeller fan first to remove the front panel (1).
1 Remove the 4 screws on the discharge grille.		
2 Pull the bottom of the discharge grille toward yourself.	 (R6988)	

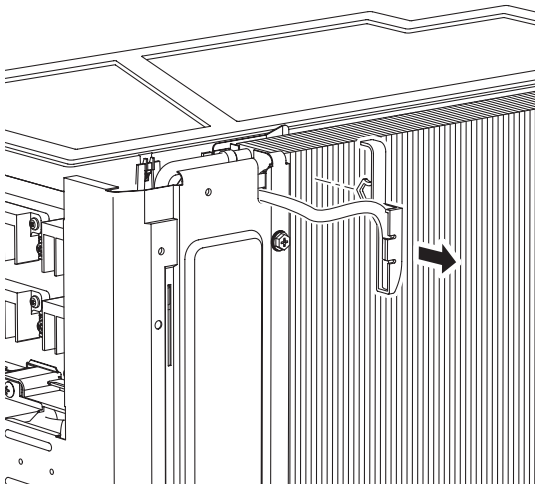
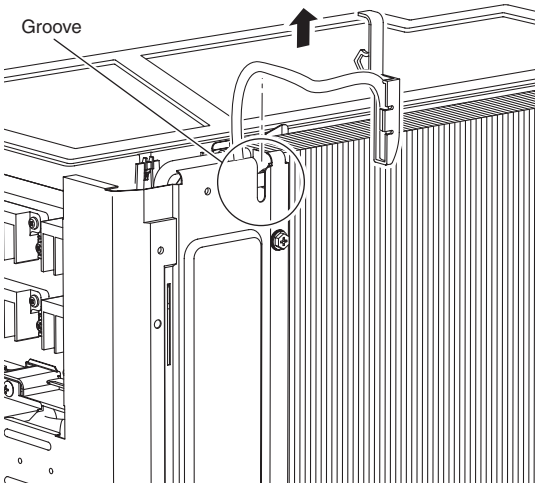
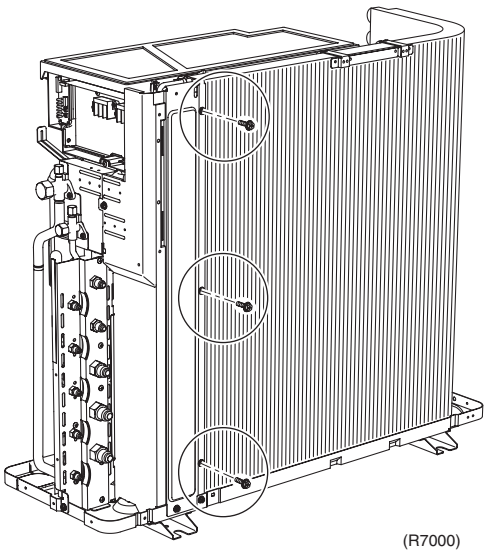
Step	Procedure		Points
3	Next, slide the grille downward to undo the 2 hooks at the top.	 (R6989)  (R6388)	
4	Remove the discharge grille.	 (R6990)	
5	Remove the propeller fan fixing nut.	 (R6991)	Fan fixing nut : M8

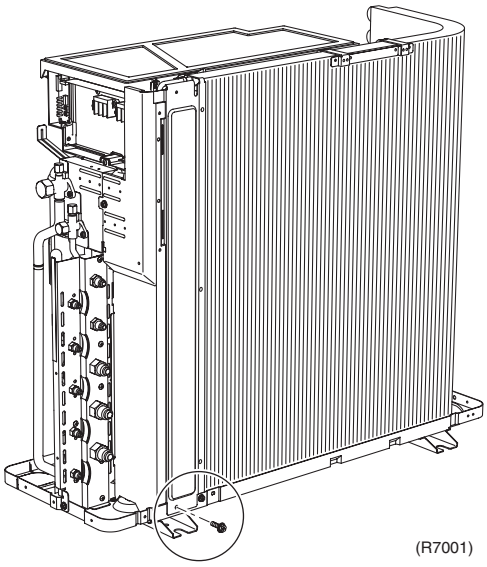
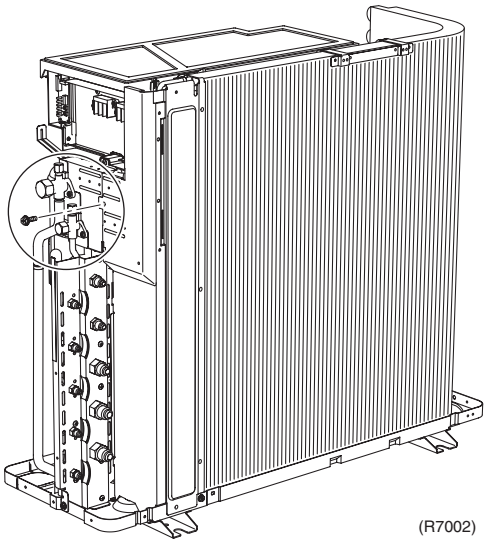
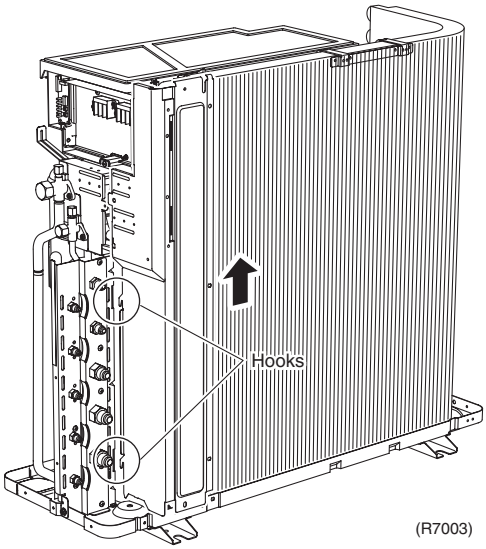
Step	Procedure		Points
6	Remove the 2 fixing screws on the partition plate.	 (R6992)	
7	Remove the screw at bottom left of the front.	 (R6993)	
8	Remove the screw at bottom of the left side.	 (R6393)	

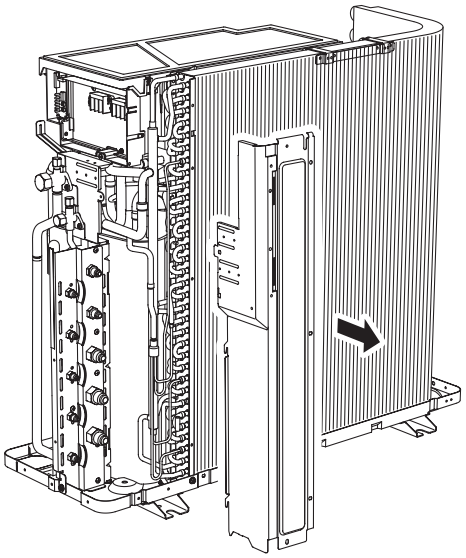
Step	Procedure		Points
9	Remove the screw at bottom of the back side.	 (R6394)	
10	The front panel (1) is provided with a hook on its front. Lift the front panel off position to remove it.	 (R6994)	

Step	Procedure		Points
11	Remove the front panel (1).	 (R6995)	■ The back is a little complicated in shape. Be sure to detach carefully.
6. Removing the rear panel			■ Illustrations are different depending on the models.
1	Remove the fixing screw on the partition plate.	 (R6996)	

Step	Procedure		Points
2	Slide the panel leftward to undo the hook, and remove the partition plate.	 (R6997)	
3	Remove the 3 screws.	 (R6998)	
4	Remove the wire fixing plate.	 (R6999)	

Step	Procedure		Points
5	Undo the holder of the thermistor.	 (R6403)	■ The holder is secured in the clearances of the heat exchanger fins.
		 (R6404)	
6	Remove the 3 fixing screws on the partition plate.	 (R7000)	

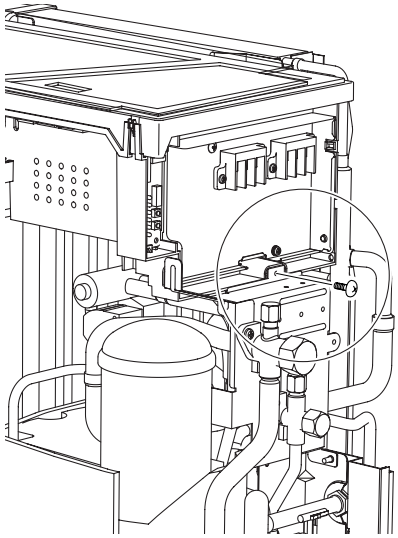
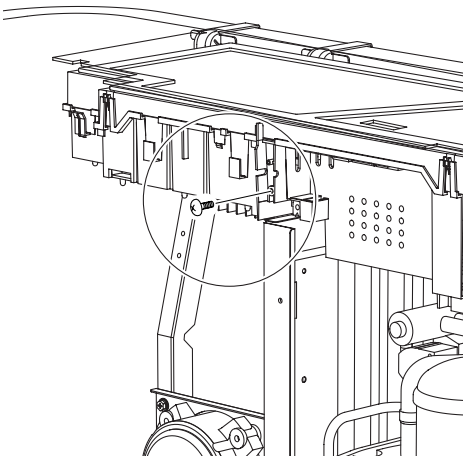
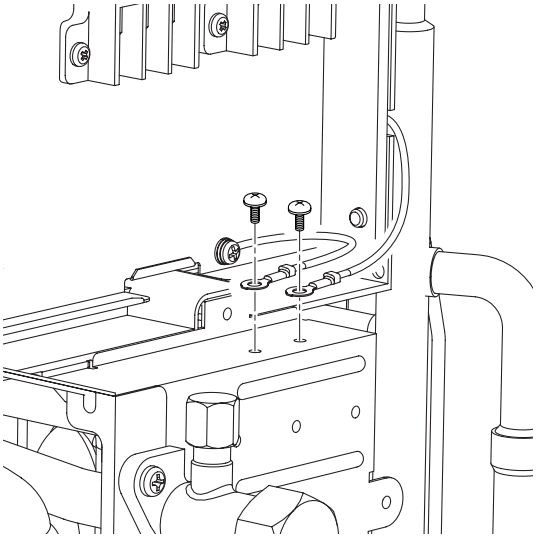
Step	Procedure		Points
7	Remove the fixing screw from the bottom frame.	 (R7001)	
8	Remove the fixing screw from the shut-off valve mounting plate.	 (R7002)	
9	Lift the panel upward to undo the 2 hooks and remove it.	 (R7003)	

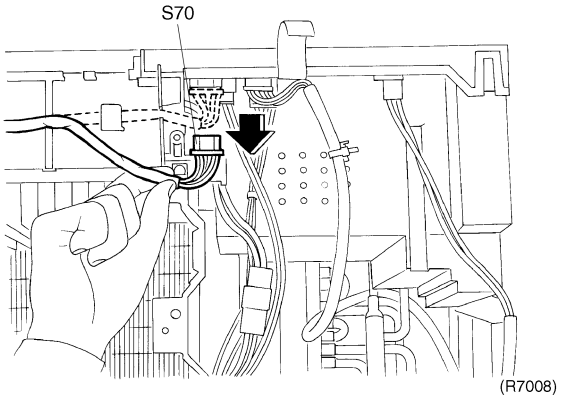
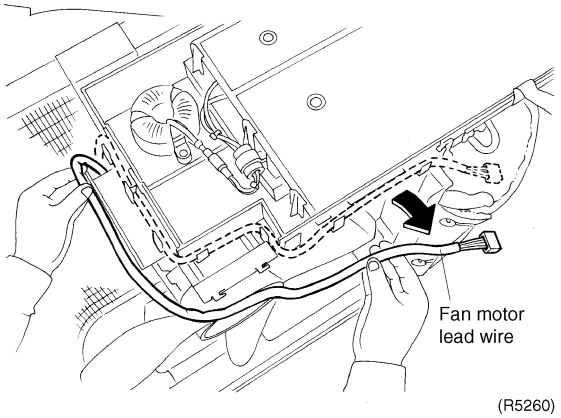
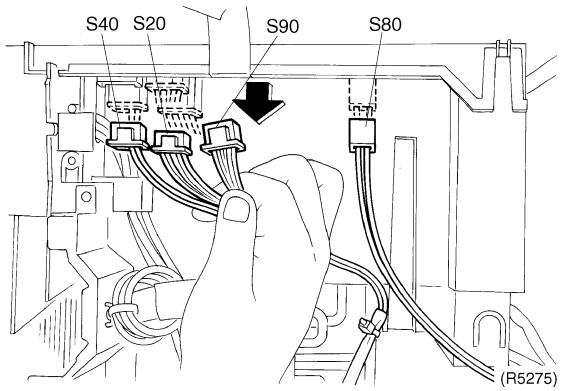
Step	Procedure		Points
10	Remove the rear panel.	 (R7004)	

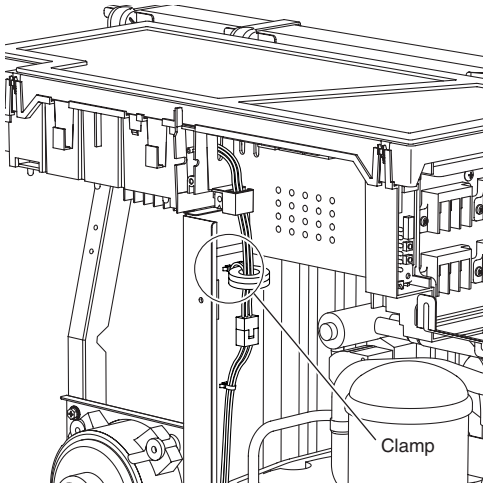
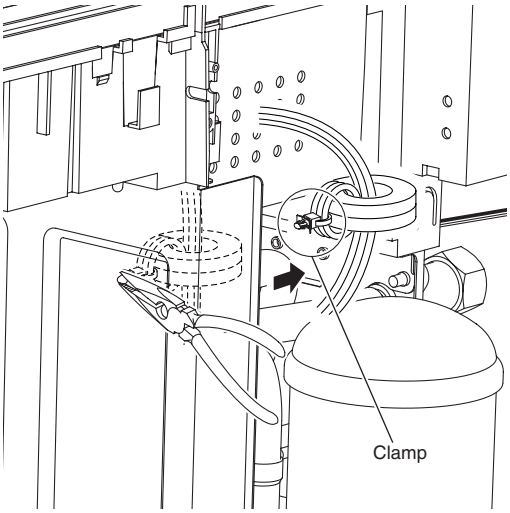
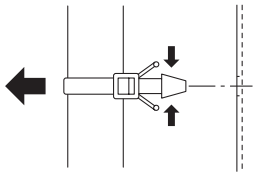
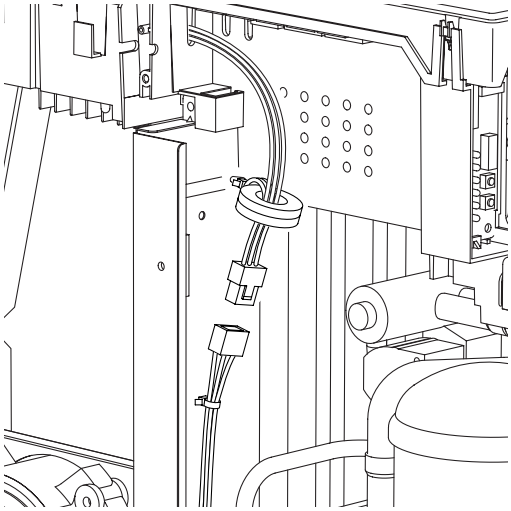
2.2.2 Removal of the Electrical Box

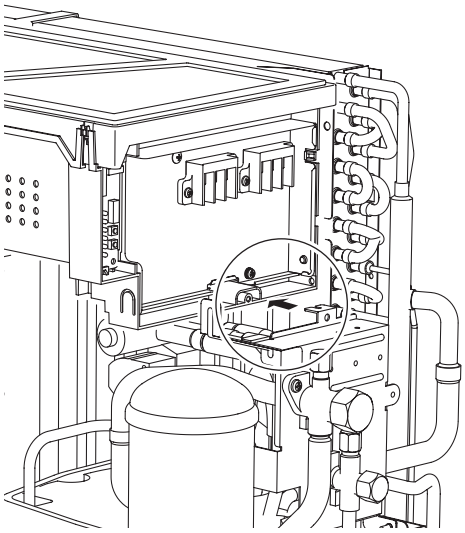
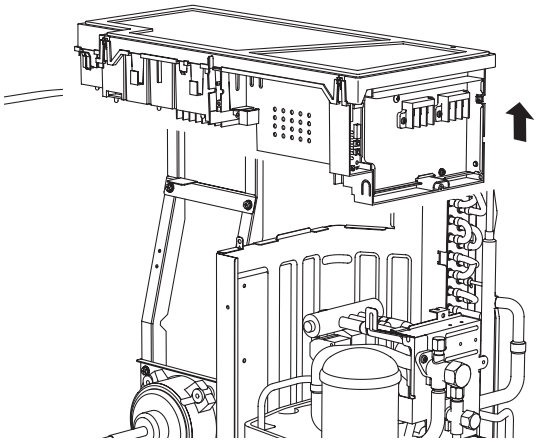
Procedure

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

Step	Procedure		Points
1	Remove the fixing screw from the shut-off valve mounting plate.	 (R7005)	
2	Remove the fixing screw on the partition plate.	 (R7006)	
3	Remove the 2 screws to detach the earth wires.	 (R7007)	

Step	Procedure		Points
4	Disconnect the connector for fan motor (S70).		
5	The illustration shows arrangement of the fan motor lead wire.		
6	Disconnect the connectors of the front side. S20: electronic expansion valve S40: overload protector S80: four way valve S90: thermistors (discharge pipe, outdoor air, heat exchanger)		

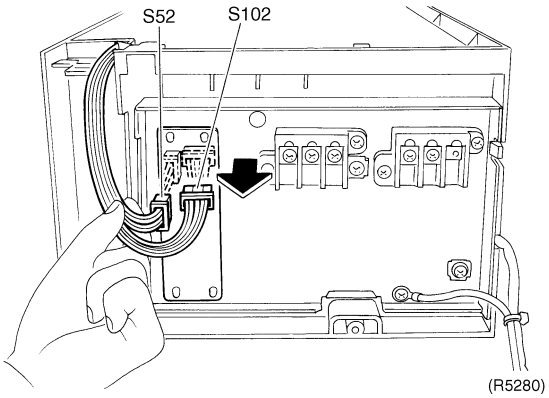
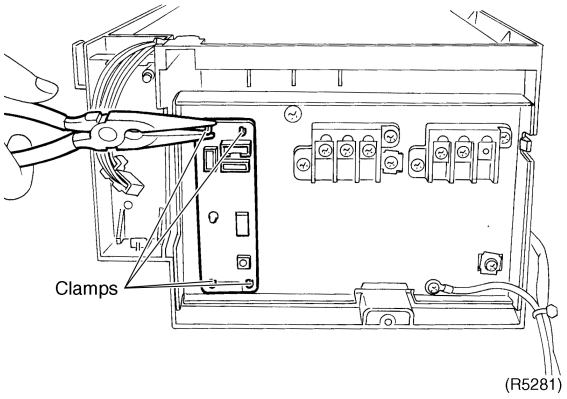
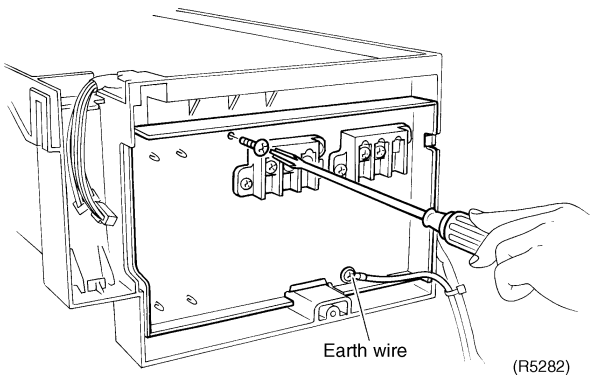
Step	Procedure		Points
7	Remove the OL wire harness and the compressor wire harness together from the partition.	 (R6422)	
8	Use long-nose pliers or the like to pull out the clamp.	 (R6423)	■ Detach the clamp. ■ Just pull the push-mount type out of position. 
9	Disconnect the relay connector of the compressor.	 (R6469)	

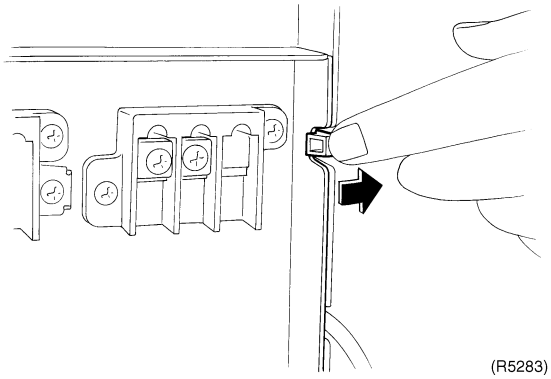
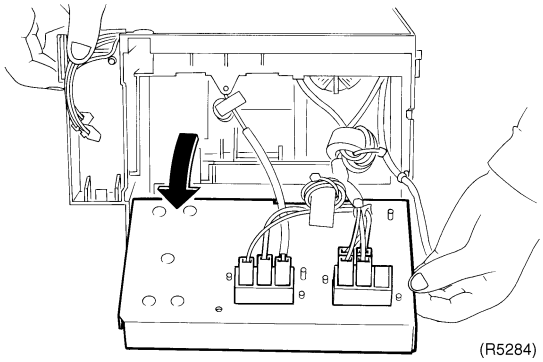
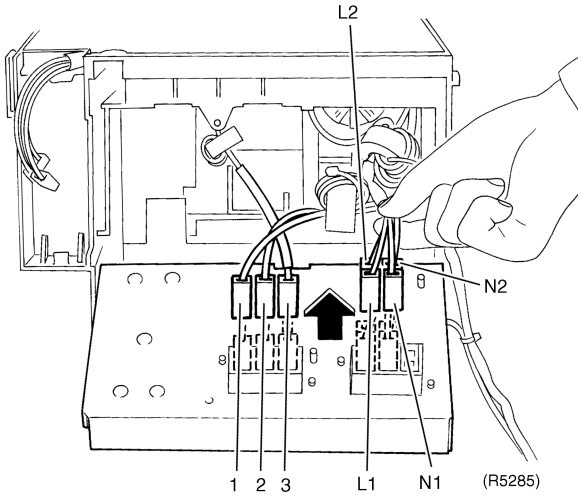
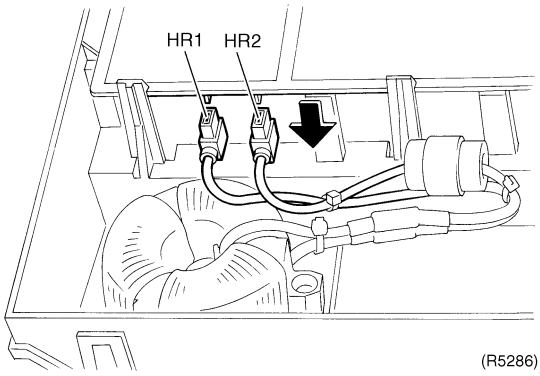
Step	Procedure		Points
10	First, slide the box leftward to undo the hook on the right side of the box.	 (R7009)	
11	Lift up the electrical box to remove it.	 (R7010)	

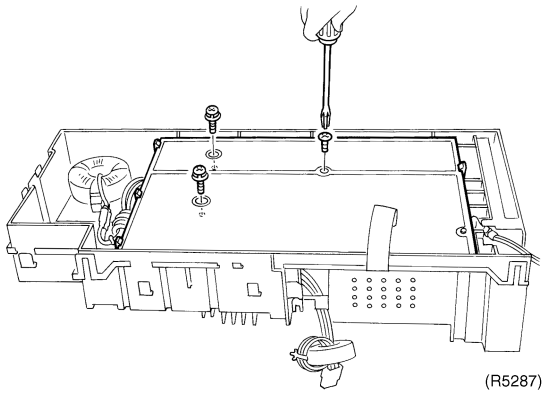
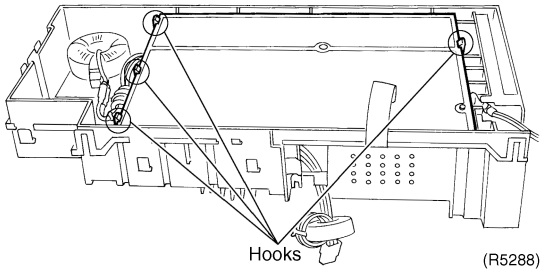
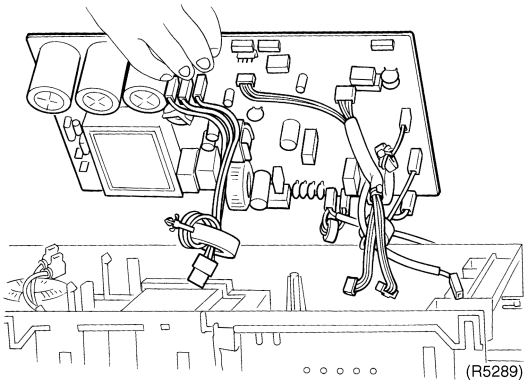
2.2.3 Removal of the PCB

Procedure

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

Step	Procedure	Points
■ Remove the electrical box.		
1. Remove the PCB.		
1	Disconnect the connectors for the control PCB (S52, S102). 	
2	Undo the 4 clamps by pliers. 	
3	Loosen the fixing screw of the cable way board and disconnect the earth wire. 	

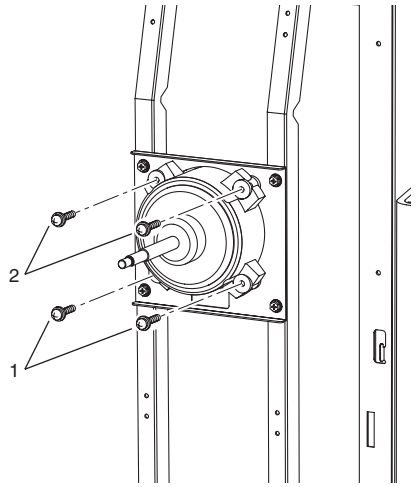
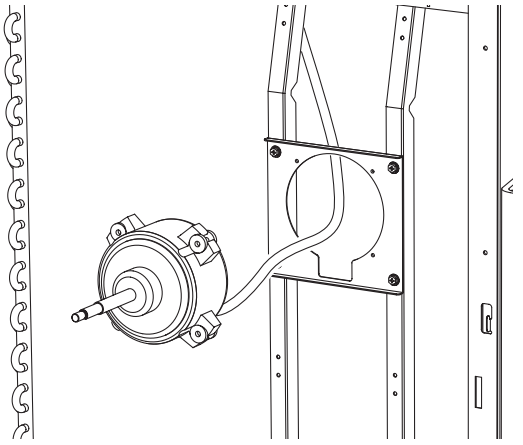
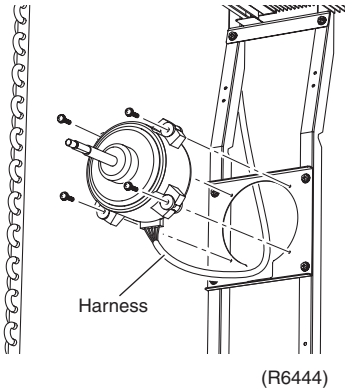
Step	Procedure		Points
4	Undo the hook on the right.	 (R5283)	
5	Open the cable way board.	 (R5284)	
6	Disconnect the harnesses.	 (R5285)	1: Black 2: White 3: Red L1: Black L2: Brown N1: White N2: Blue
7	Disconnect the 2 harnesses for the reactor (HR1, HR2).	 (R5286)	

Step	Procedure		Points
8	Loosen the 3 fixing screws for the main PCB.	 (R5287)	
9	Undo the 4 hooks.	 Hooks (R5288)	
10	Lift up and remove the PCB.	 (R5289)	

2.2.4 Removal of Fan Motor

Procedure

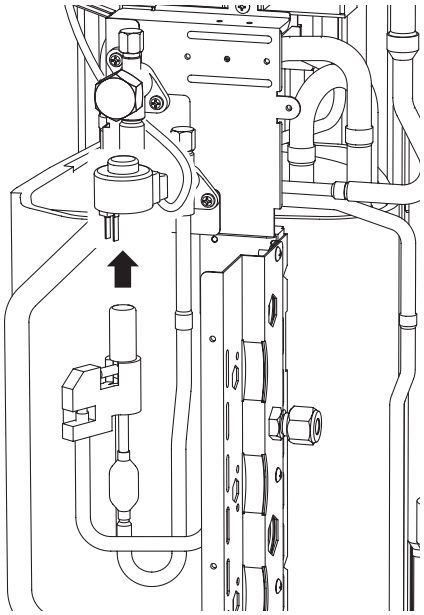
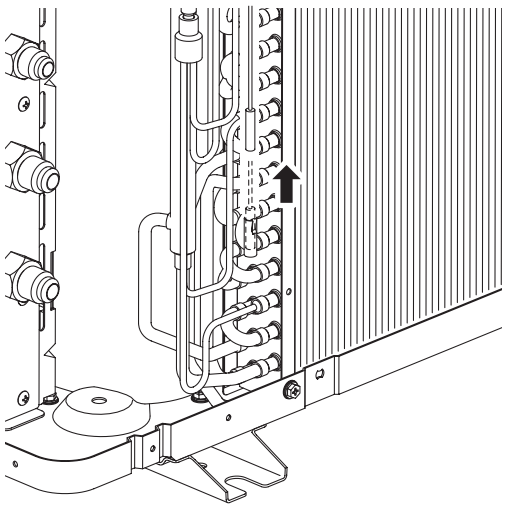
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

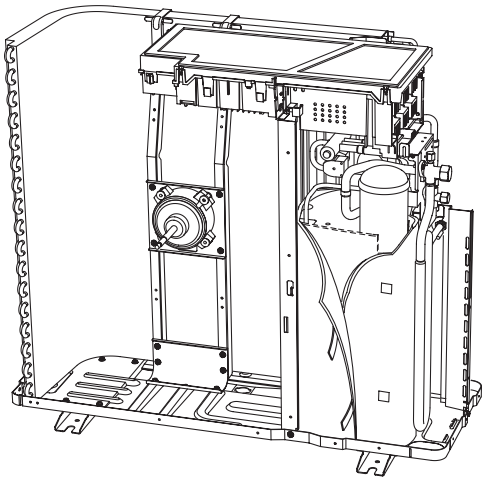
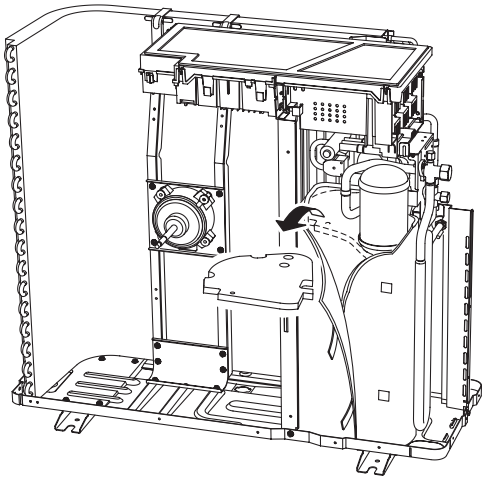
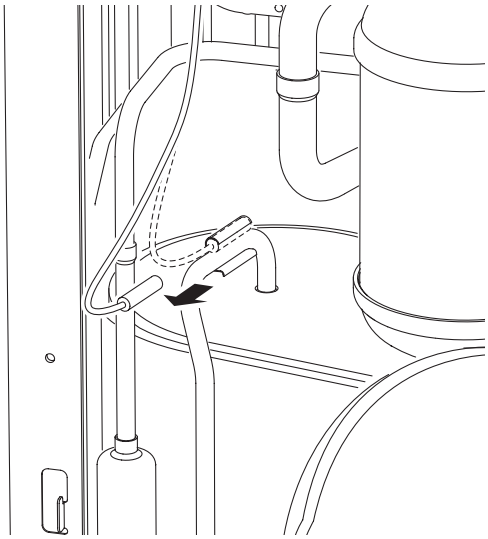
Step	Procedure		Points
1	Remove the 2 screws at the bottom first.	 (R6442)	Be sure to remove the bottom screws first. If the top screws are removed first, the fan motor, the center of gravity of which is toward the front, may tilt down or fall, getting you injured.
2	Next, remove the 2 top screws.		
3	Remove the fan motor.	 (R6443)	When reassembling, be sure to place the wire harness lower.  (R6444)

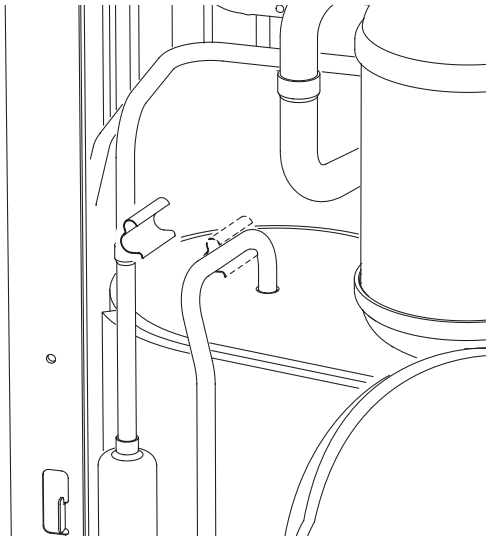
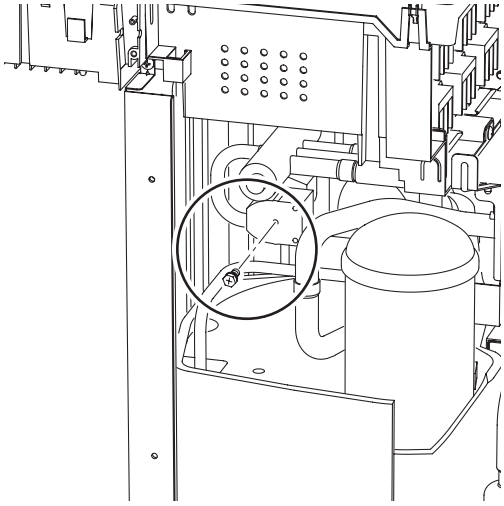
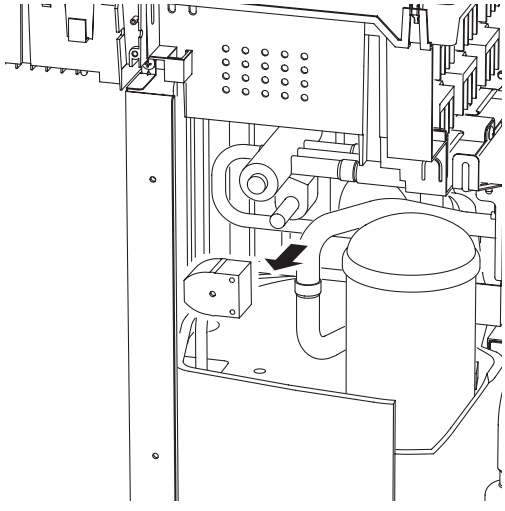
2.2.5 Removal of Coils / Thermistors

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 motorized valve coil	 (R6242)	■ Illustrations are different depending on the models.
1 Pull the motorized valve coil out of position.		
2. Removal of Thermistors	 (R6451)	
1 Pull out the heat exchanger thermistor.		

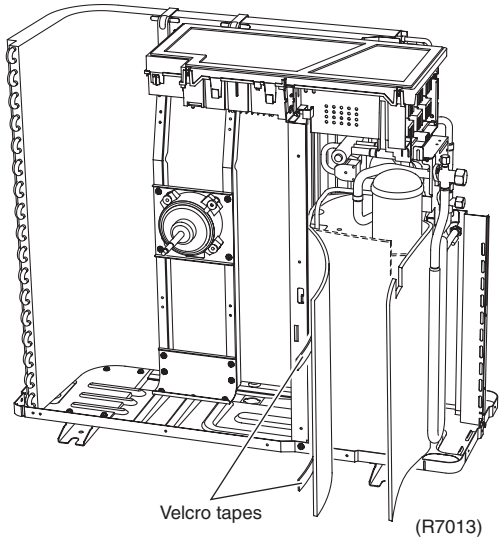
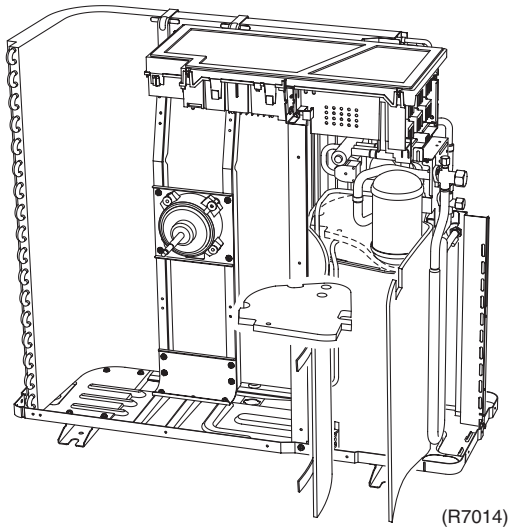
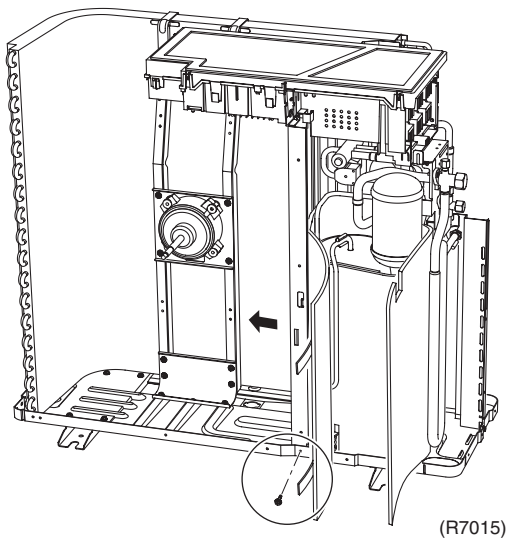
Step	Procedure		Points
2	Slightly open the sound blanket.	 (R7011)	
3	Remove the sound blanket (top upper).	 (R7012)	
4	Remove the discharge pipe thermistor.	 (R6455)	

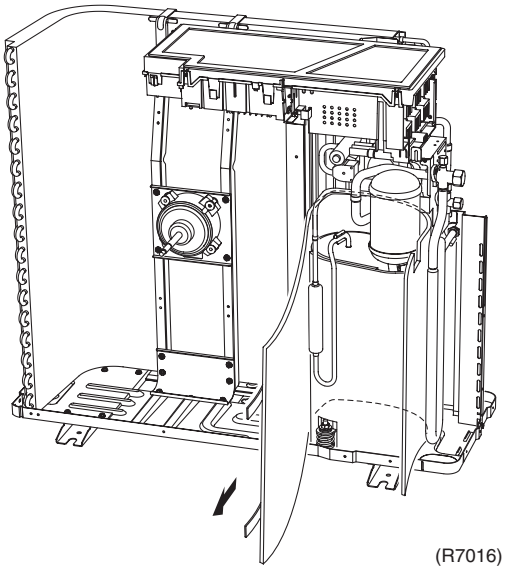
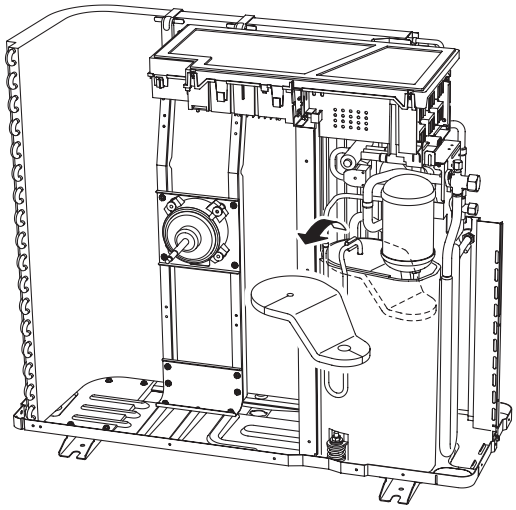
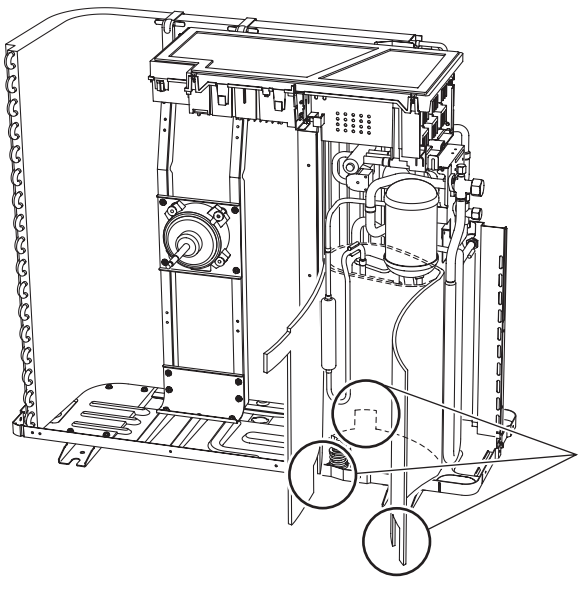
Step	Procedure		Points
5	Remove the fixture.	 (R6456)	
3. Removing the Four way valve coil and motorized valve coil			
1	Remove the screw.	 (R6457)	
2	Remove the Four way valve coil.	 (R6458)	

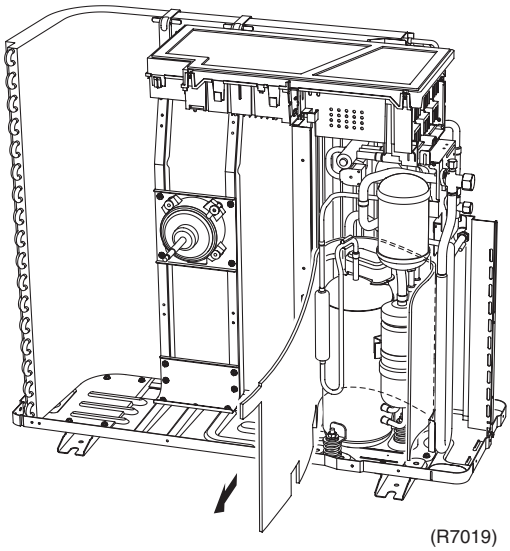
2.2.6 Removal of Sound Blanket

Procedure

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

Step	Procedure		Points
1	Undo the 2 Velcro tapes off the sound blanket, and open the sound blanket (outer sleeve).	 (R7013)	
2	Remove the sound blanket (top upper).	 (R7014)	■ The sound blanket is fragile. Carefully pass the discharge pipe through it.
3	Remove the screw from the partition plate and open the plate slightly to the left for easy work.	 (R7015)	

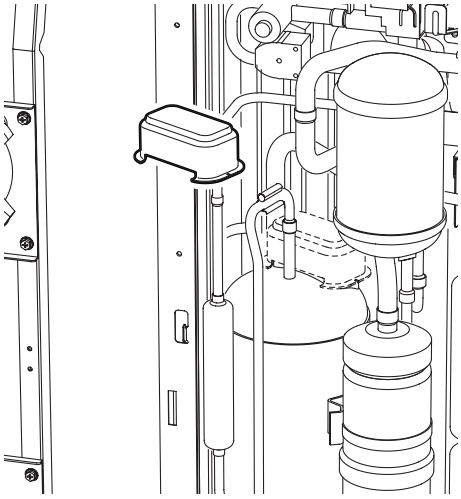
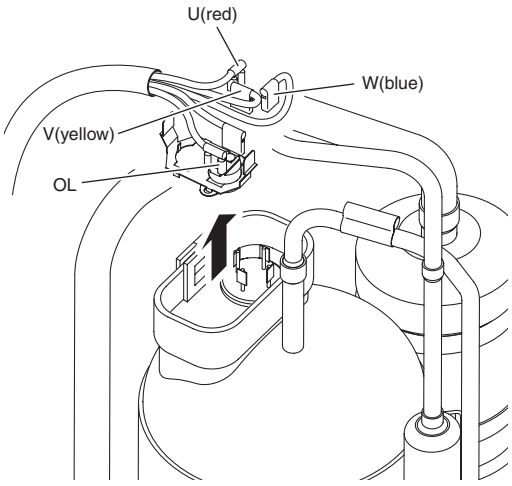
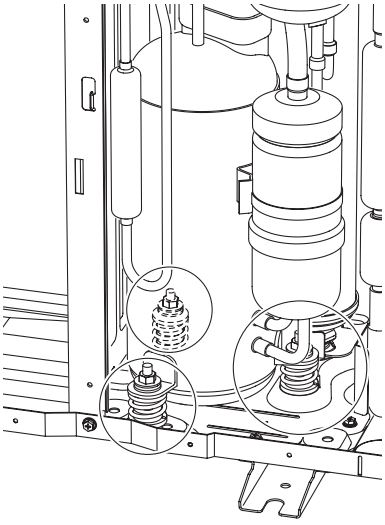
Step	Procedure		Points
4	Remove the sound blanket (outer sleeve).	 (R7016)	■ The sound blanket is fragile. Be careful of the notches of the compressor mount (3 locations).
5	Remove the sound blanket (top lower).	 (R7017)	■ The sound blanket is fragile. Carefully pass the discharge pipe through it.
6	Open the sound blanket (inner sleeve) and remove part of the muffler.	 (R7018)	■ The sound blanket is fragile. Be careful of the notches of the compressor mount (3 locations).

Step	Procedure		Points
7	Remove the sound blanket (outer sleeve).	 (R7019)	

2.2.7 Removal of Compressor

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 terminal cover.	 (R7020)	
2	Pull out the 3 leads using long-nose pliers.		■ U:red, V:yellow, W:blue
3	Remove the OL.	 (R6467)	
4	Remove the 3 screws.	 (R7021)	

Part 8
Others

1. Others

1.1 Test Run from the Remote Controller

For Heat pump

In cooling mode, select the lowest programmable temperature; in heating mode, select the highest programmable temperature.

- Trial operation may be disabled in either mode depending on the room temperature.
- After trial operation is complete, set the temperature to a normal level. (26°C to 28°C in cooling mode, 20°C to 24°C in heating mode)
- For protection, the system disables restart operation for 3 minutes after it is turned off.

For Cooling Only

Select the lowest programmable temperature.

- Trial operation in cooling mode may be disabled depending on the room temperature. Use the remote control for trial operation as described below.
- After trial operation is complete, set the temperature to a normal level (26°C to 28°C).
- For protection, the machine disables restart operation for 3 minutes after it is turned off.

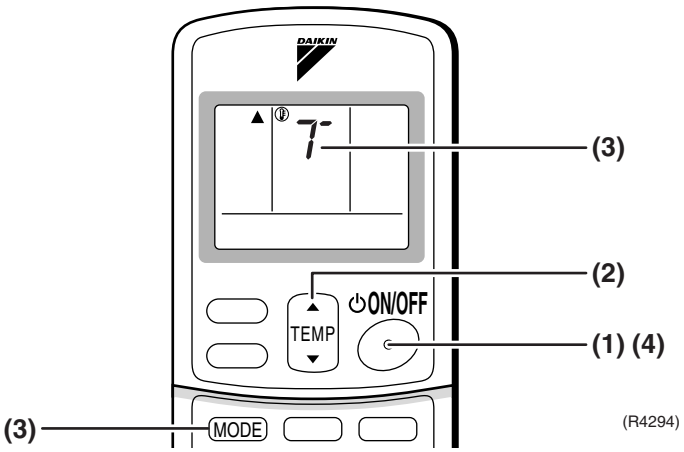
Trial Operation and Testing

1. Measure the supply voltage and make sure that it falls in the specified range.
2. Trial operation should be carried out in either cooling or heating mode.
3. Carry out the test operation in accordance with the Operation Manual to ensure that all functions and parts, such as louver movement, are working properly.

- The air conditioner requires a small amount of power in its standby mode. If the system is not to be used for some time after installation, shut off the circuit breaker to eliminate unnecessary power consumption.
- If the circuit breaker trips to shut off the power to the air conditioner, the system will restore the original operation mode when the circuit breaker is opened again.

Trial operation from Remote Controller

(1) Press ON/OFF button to turn on the system.
(2) Simultaneously press center of TEMP button and MODE buttons.
(3) Press MODE button twice.
("T" will appear on the display to indicate that Trial Operation mode is selected.)
(4) Trial run mode terminates in approx. 30 minutes and switches into normal mode. To quit a trial operation, press ON/OFF button.



1.2 Jumper Settings

1.2.1 When Two Units are Installed in One Room

When two indoor units are installed in one room, the two wireless remote controllers can be set for different addresses.

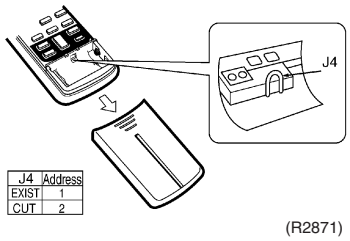
How to set the different addresses

■ Control PCB of the indoor unit

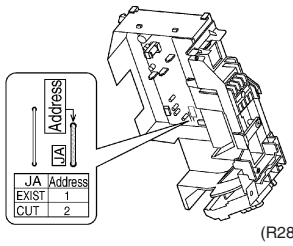
(1) Remove the front grille. (3 screws)
(2) Remove the electrical box (1-screw).
(3) Remove the drip proof plate. (4 tabs)
(4) Cut the address jumper JA on the control PCB.

■ Wireless remote controller

(1) Slide the front cover and take it off.
(2) Cut the address jumper J4.



(R2871)



(R2872)

1.2.2 Jumper Setting

Jumper (On indoor control PCB)	Function	When connected (factory set)	When cut
JC	Power failure recovery function	Auto start	Unit does not resume operation after recovering from a power failure. Timer ON-OFF settings are cleared.
JB	Fan speed setting when compressor is OFF on thermostat. (effective only at cooling operation)	Fan speed setting ; Remote controller setting	Fan rpm is set to “0” <Fan stop>

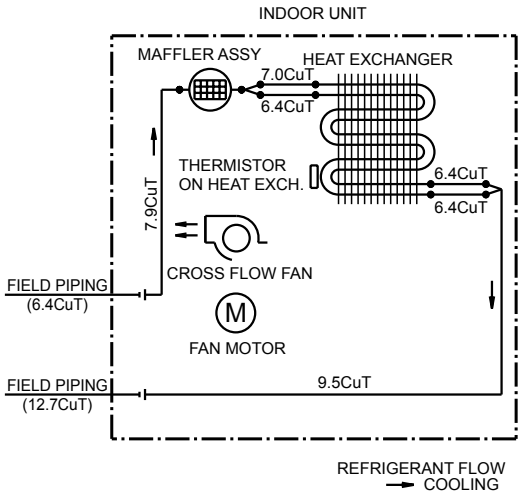
Part 9
Appendix

1. Piping Diagrams

1.1 Indoor Units

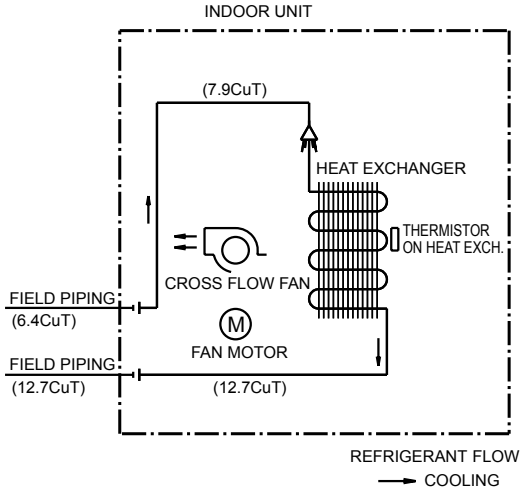
1.1.1 Cooling Only

FTKS50D2V1W(L)



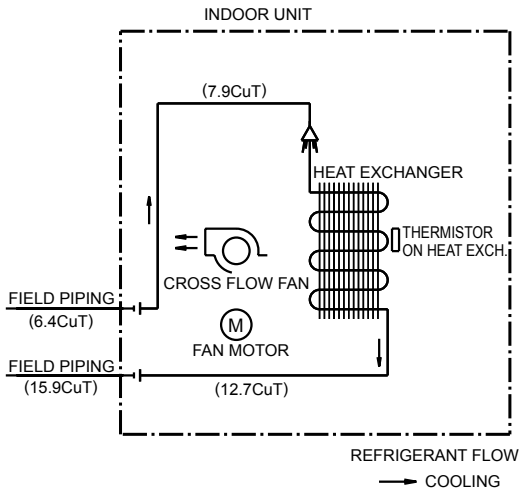
4D051577

FTKS50FV1B, FTKS60FV1B
FTN50FV1B, FTN60FV1B



4D054932A

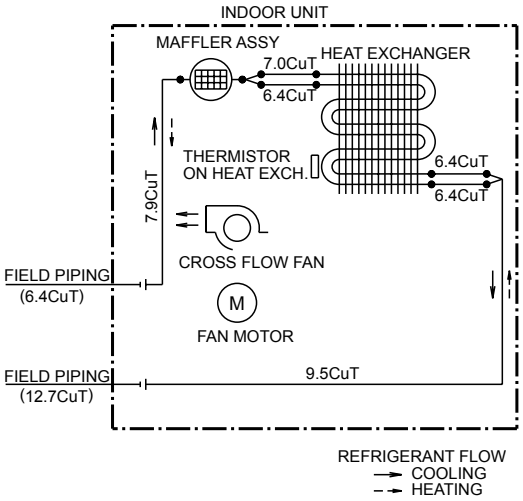
FTKS71FV1B



4D050919E

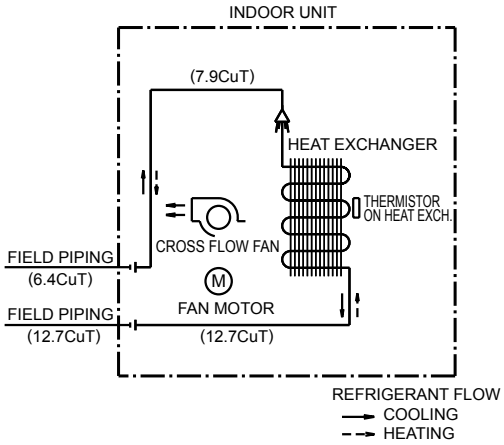
1.1.2 Heat Pump

FTXS50D2V1W(L)



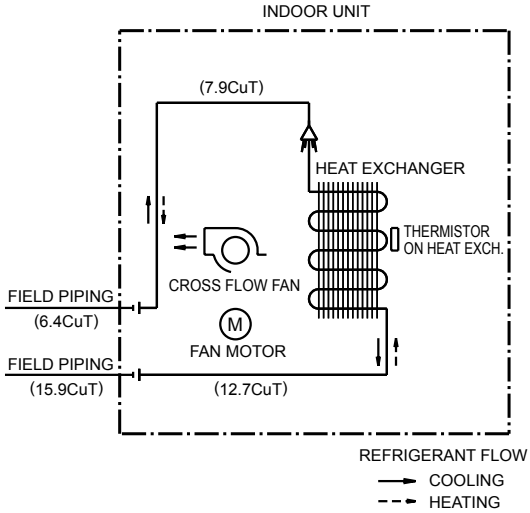
4D047913D

FTXS50FV1B, FTXS60FV1B
FTYN50FV1B, FTYN60FV1B



4D040081Q

FTXS71FV1B

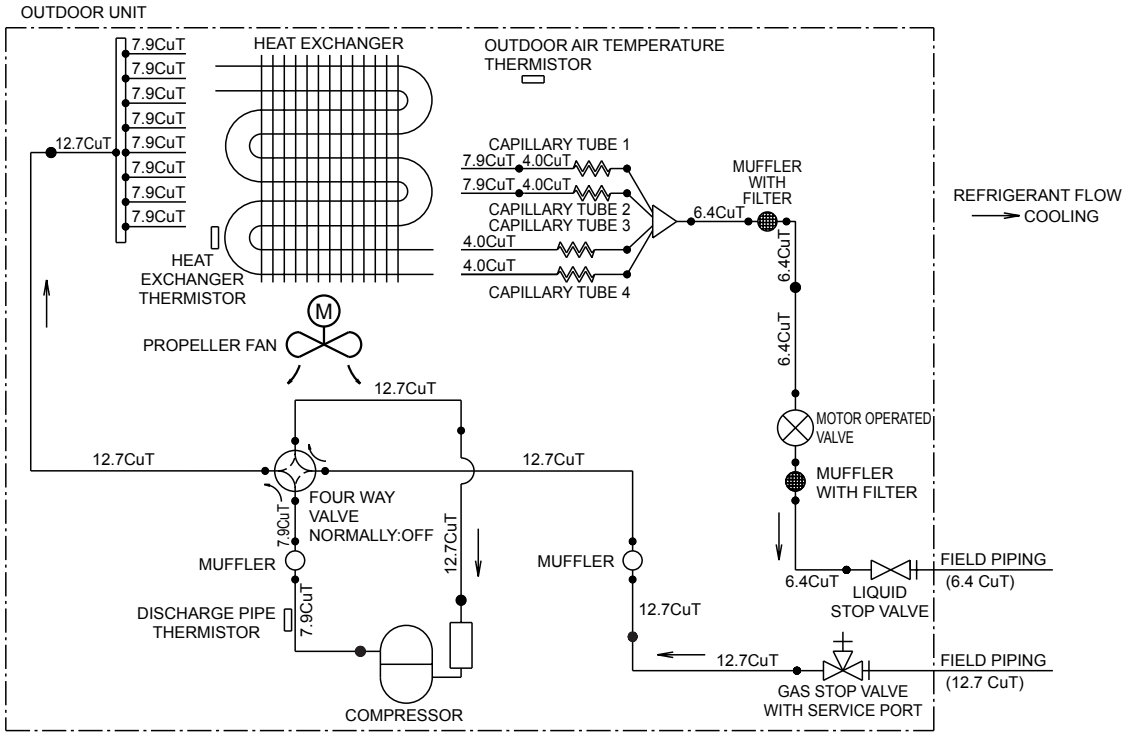


4D040082P

1.2 Outdoor Units

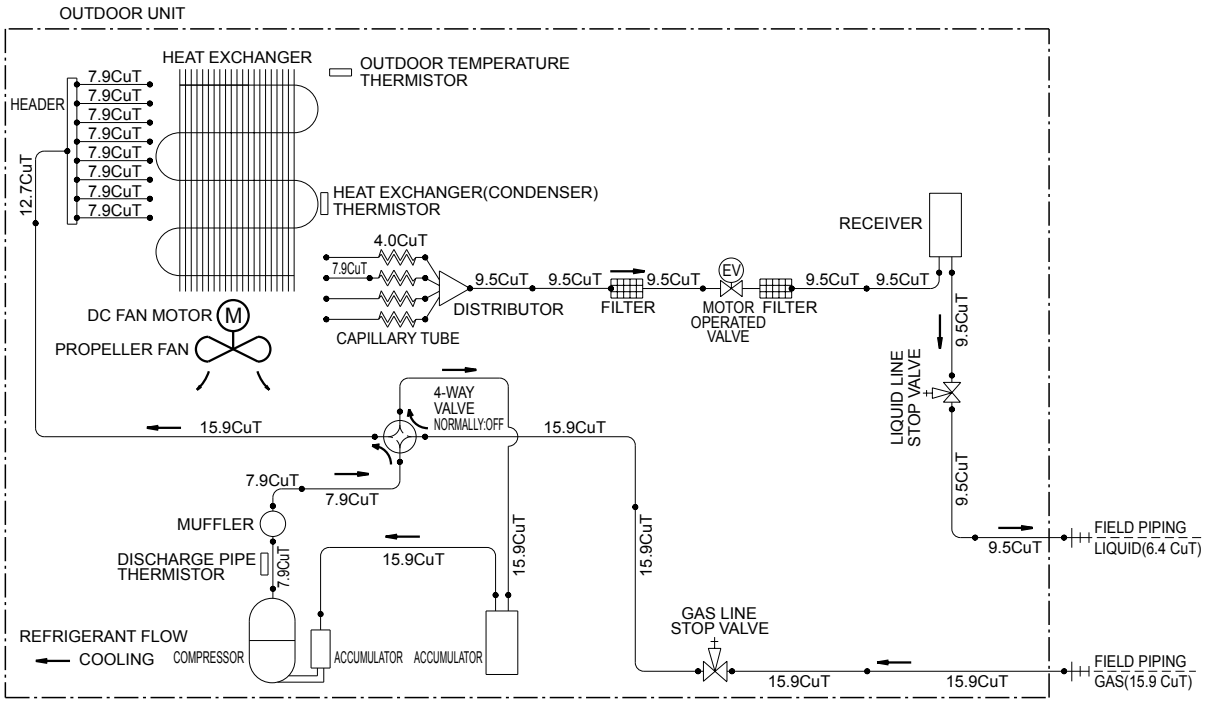
1.2.1 Cooling Only

RKS50F2V1B, RKS60F2V1B, RN50E3V1B, RN60E3V1B



3D051636E

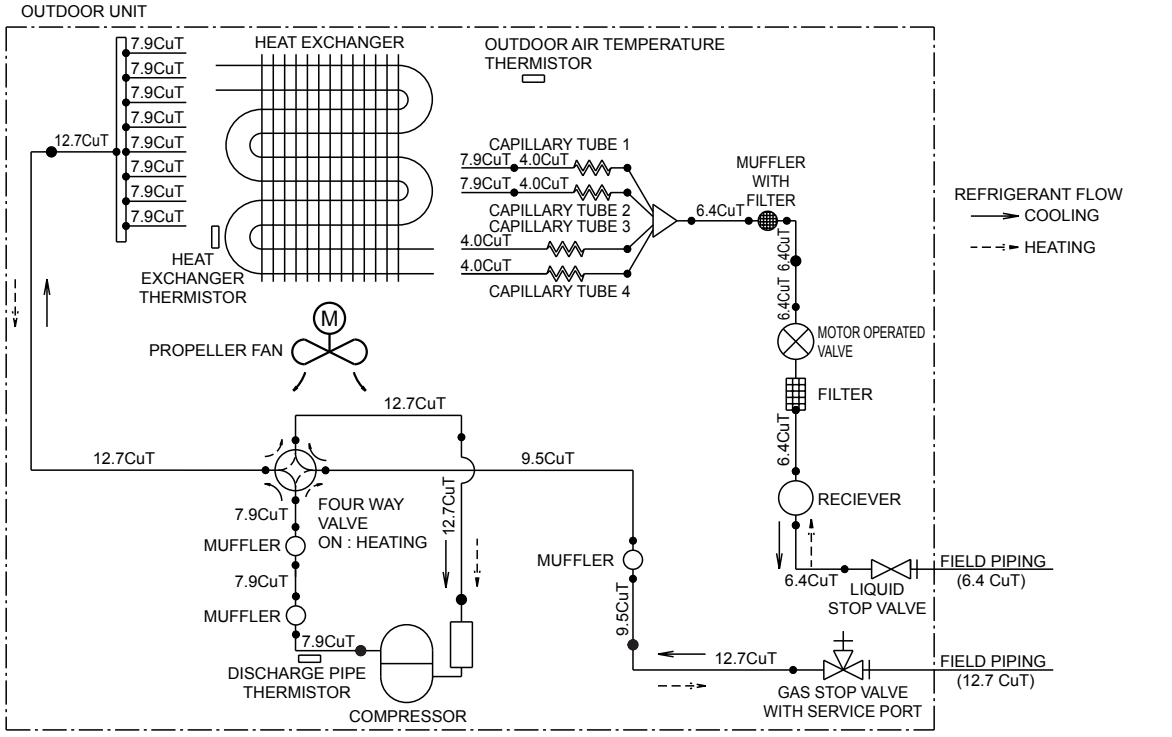
RKS71FV1B



3D054596A

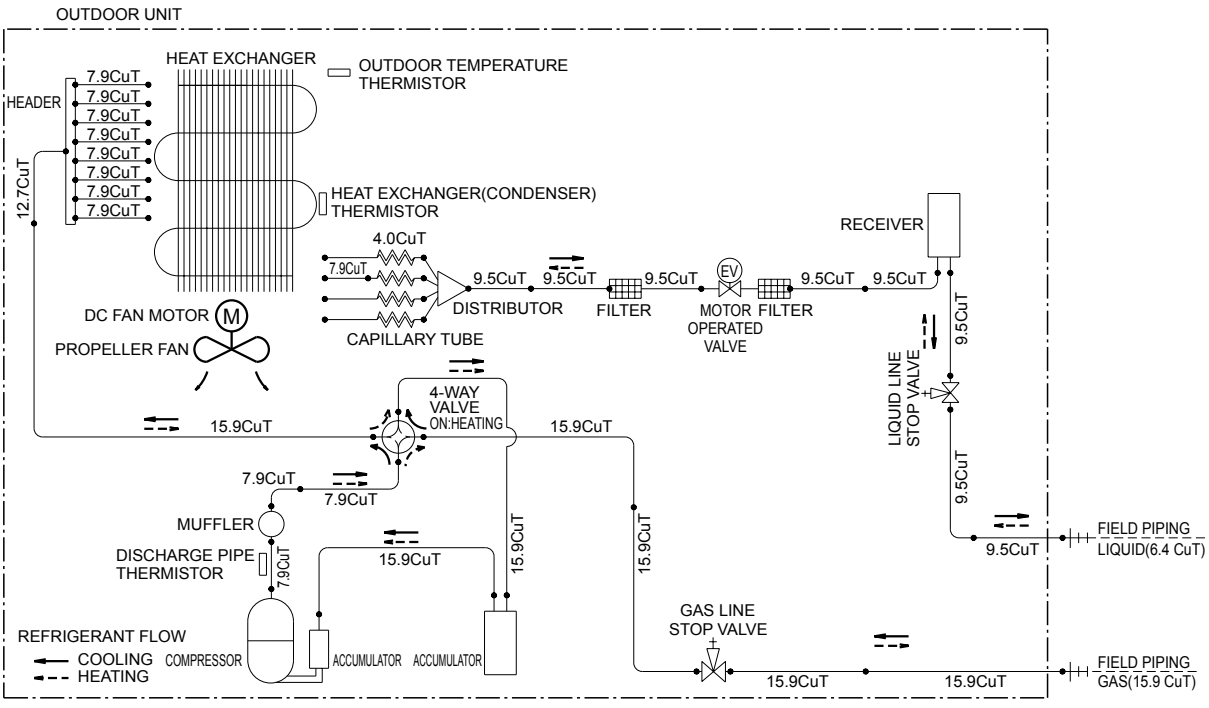
1.2.2 Heat Pump

RXS50F2V1B, RXS60F2V1B, RYN50E3V1B, RYN60E3V1B



3D051637E

RXS71FV1B

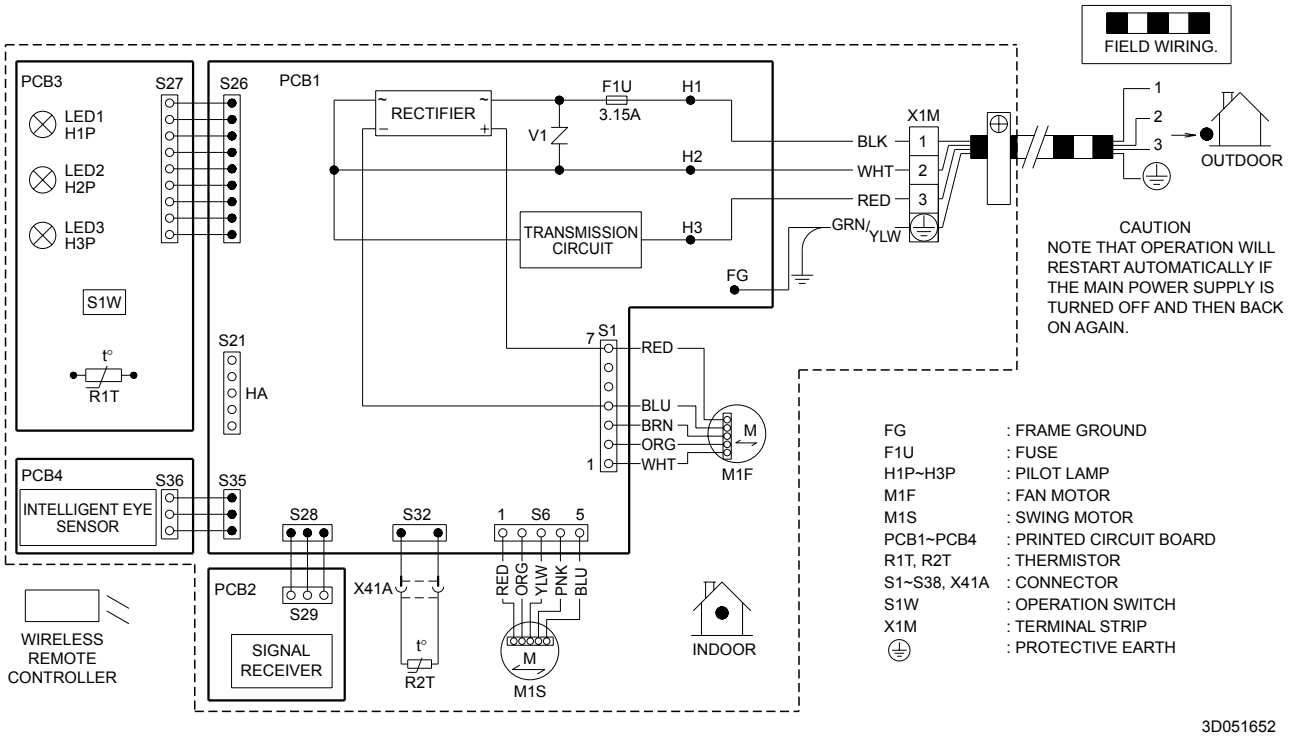


3D054593A

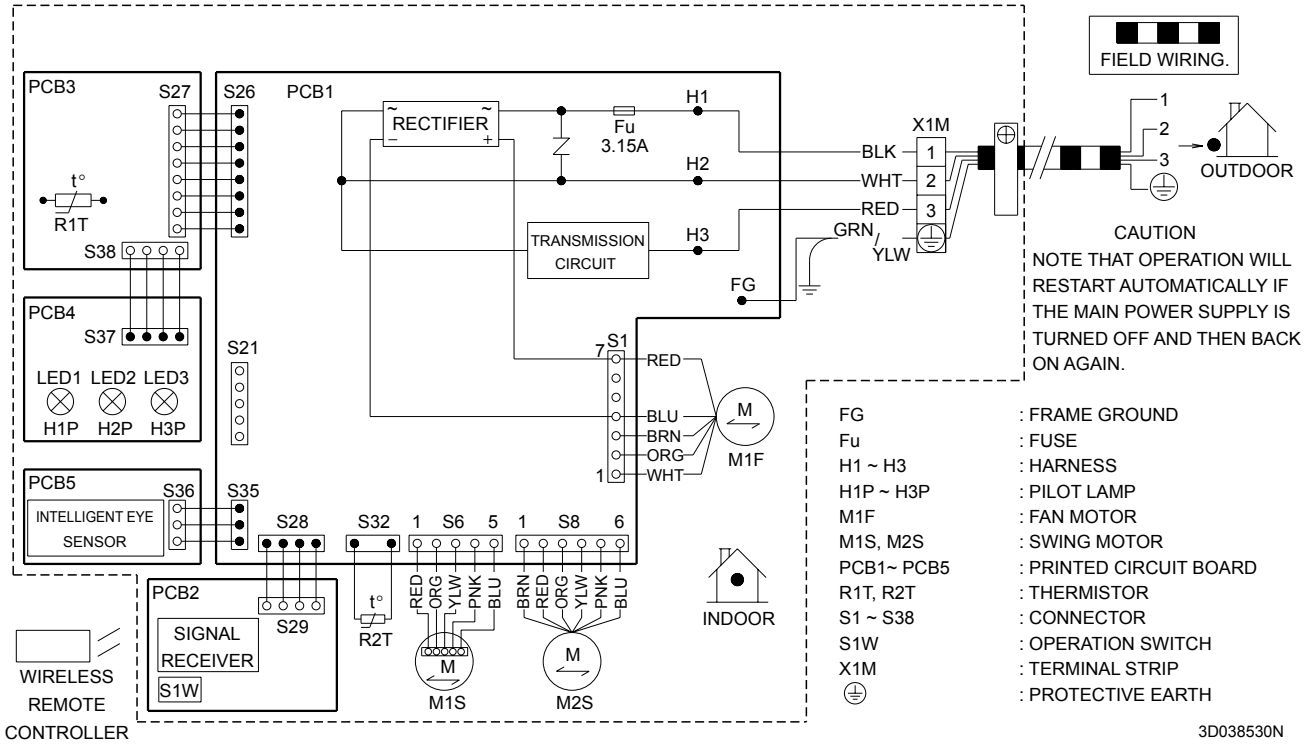
2. Wiring Diagrams

2.1 Indoor Units

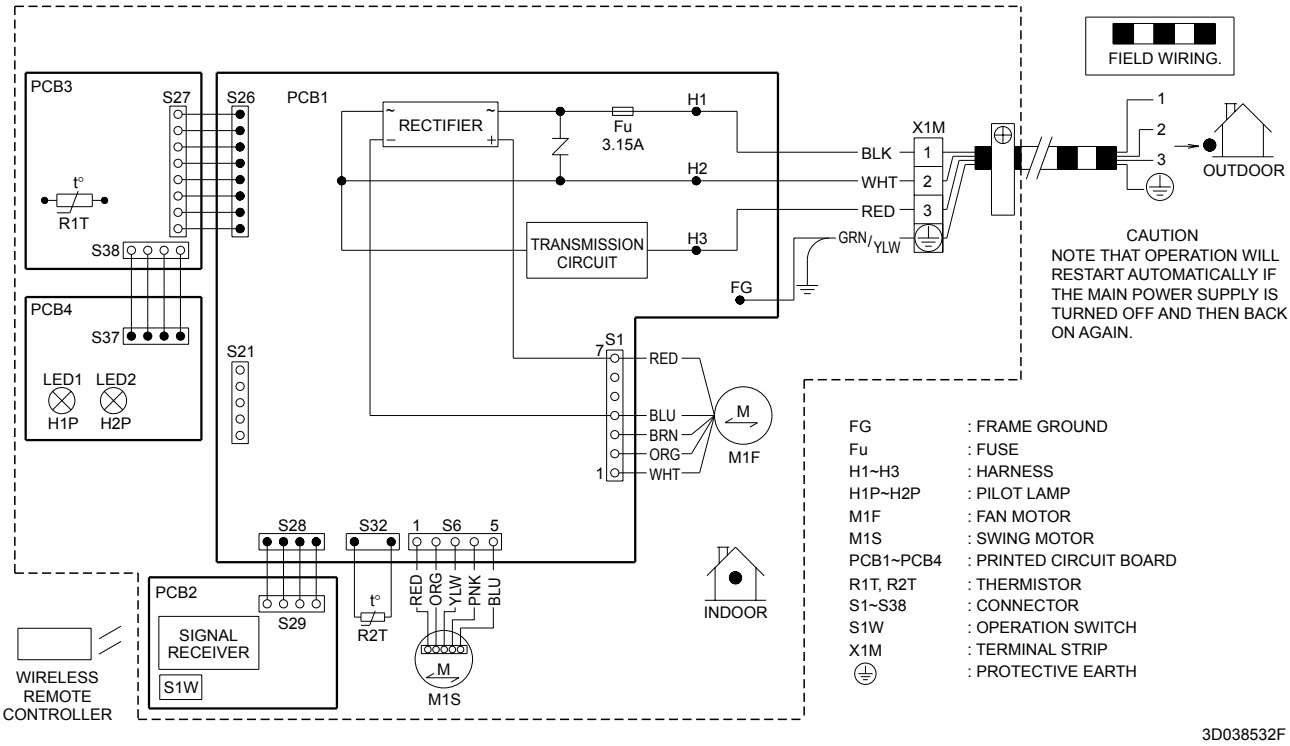
FTKS50D2V1W(L), FTXS50D2V1W(L)



FTKS50FV1B, FTKS60FV1B, FTKS71FV1B
FTXS50FV1B, FTXS60FV1B, FTXS71FV1B



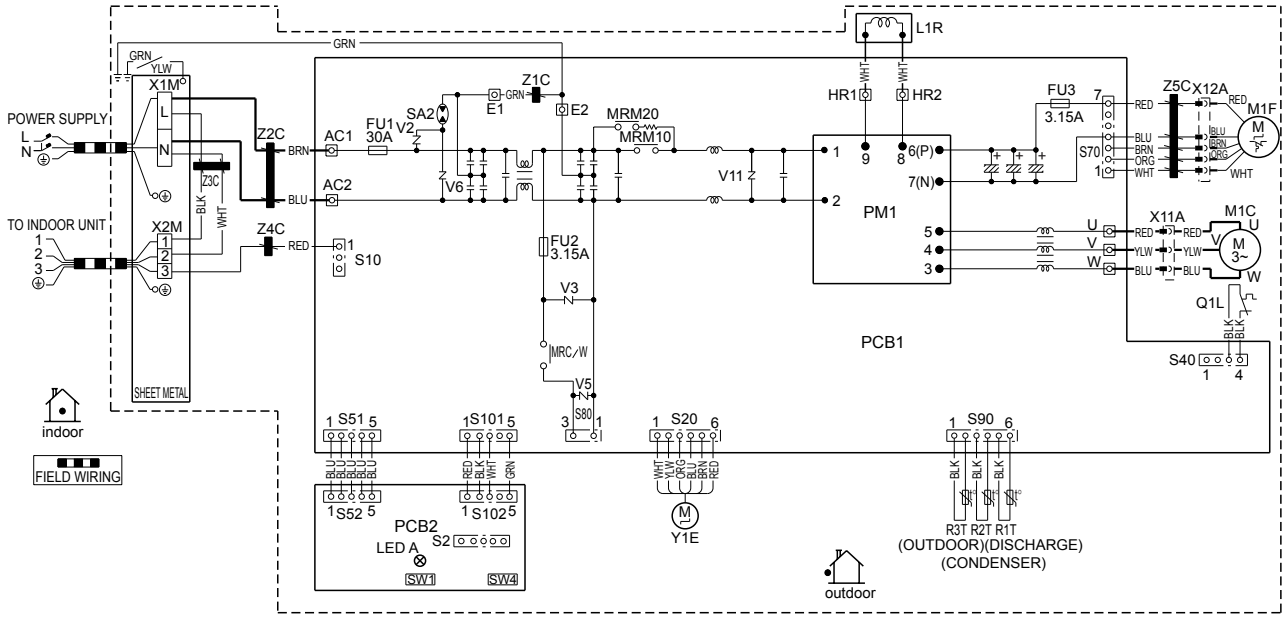
FTN50FV1B, FTN60FV1B
FTYN50FV1B, FTYN60FV1B



2.2 Outdoor Units

2.2.1 Cooling Only

RKS50F2V1B



Z1C~Z5C	: FERRITE CORE	MRM10, MRM20		L	: LIVE	M1C	: COMPRESSOR MOTOR
X1M, X2M	: TERMINAL STRIP	MRC/W	: MAGNETIC RELAY	N	: NEUTRAL	M1F	: FAN MOTOR
Y1E	: ELECTRONIC EXPANSION VALVE COIL	R1T~R3T	: THERMISTOR	SW1	: FORCED OPERATION ON/OFF SW (SW1)	L1R	: REACTOR
V2, V3, V5, V6, V11	: VARISTOR	S2~S102	: CONNECTOR	SW4	: LOCALSETTING SW (SW4)	Q1L	: OVERLOAD PROTECTOR
SA2	: SURGE ARRESTER	LEDA	: PILOT LAMP			PM1	: POWER MODULE
FU1, FU2, FU3	: FUSE					PCB1,2	: PRINTED CIRCUIT BOARD
AC1, AC2						STEEL METAL	: TERMINAL STRIP FIXED PLATE
U, V, W, X11A, X12A							
E1, E2							
HR1, HR2	: CONNECTOR						

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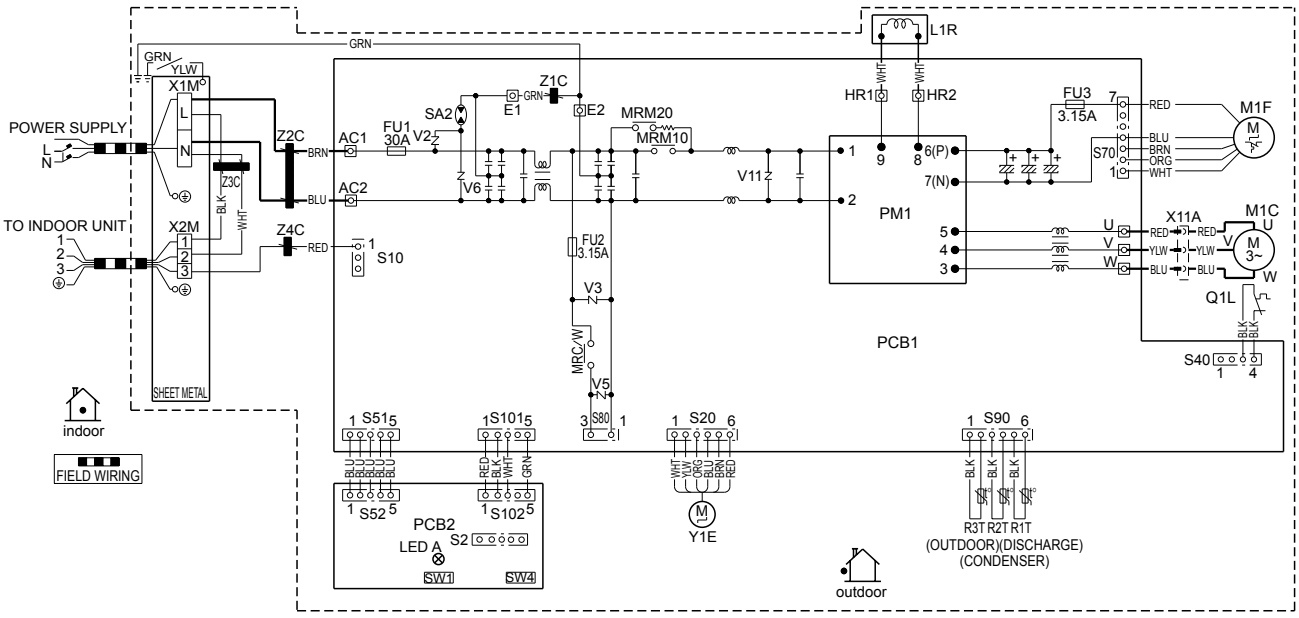
RKS60F2V1B, RN50E3V1B, RN60E3V1B



Z1C ~ Z4C	: FERRITE CORE	MRM10, MRM20		L	: LIVE	M1C	: COMPRESSOR MOTOR
X1M, X2M	: TERMINAL STRIP	MRC/W	: MAGNETIC RELAY	N	: NEUTRAL	M1F	: FAN MOTOR
Y1E	: ELECTRONIC EXPANSION VALVE COIL	R1T ~ R3T	: THERMISTOR	SW1	: FORCED OPERATION ON/OFF SW(SW1)	L1R	: REACTOR
V2, V3, V5, V6, V11	: VARISTOR	S2 ~ S102	: CONNECTOR	SW4	: LOCALSETTING SW (SW4)	Q1L	: OVERLOAD PROTECTOR
SA2	: SURGE ARRESTER	LEDA	: PILOT LAMP			PM1	: POWER MODULE
FU1, FU2, FU3	: FUSE					PCB1, 2	: PRINTED CIRCUIT BOARD
AC1, AC2						STEEL METAL	: TERMINAL STRIP FIXED PLATE
U, V, W, X11A							
E1, E2							
HR1, HR2	: CONNECTOR						

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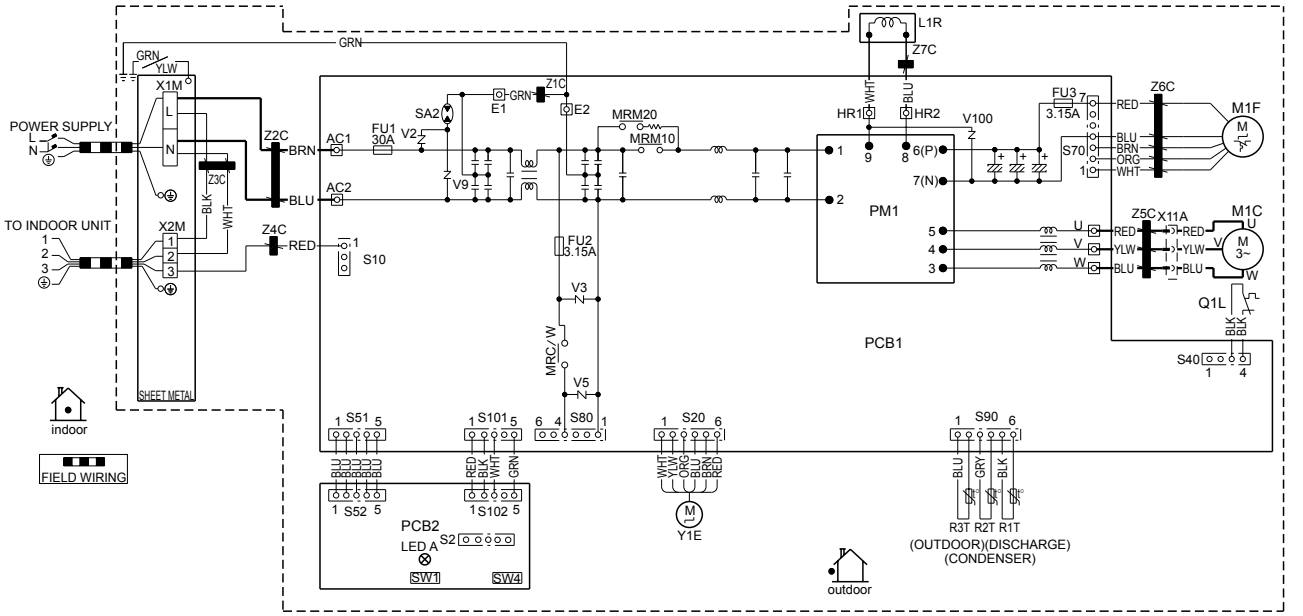
RKS71FV1B



Z1C~Z7C	: FERRITE CORE	MRM10,MRM20					
X1M,X2M	: TERMINAL STRIP	MRC/W	: MAGNETIC RELAY	L	: LIVE	M1C	: COMPRESSOR MOTOR
Y1E	: ELECTRONIC EXPANSION VALVE COIL	R1T~R3T	: THERMISTOR	N	: NEUTRAL	M1F	: FAN MOTOR
V2,V3,V5,V9,V100	: VARISTOR	S2~S102	: CONNECTOR	SW1	: FORCED OPERATION ON/OFF SW (SW1)	L1R	: REACTOR
SA2	: SURGE ARRESTER	LEDA	: PILOT LAMP	SW4	: LOCAL SETTING SW (SW4)	Q1L	: OVERLOAD PROTECTOR
FU1,FU2,FU3	: FUSE					PM1	: POWER MODULE
AC1,AC2						PCB1,2	: PRINTED CIRCUIT BOARD
U,V,W,X11A,X12A						SHEET METAL	: TERMINAL STRIP FIXED PLATE
E1,E2							
HR1,HR2	: CONNECTOR						

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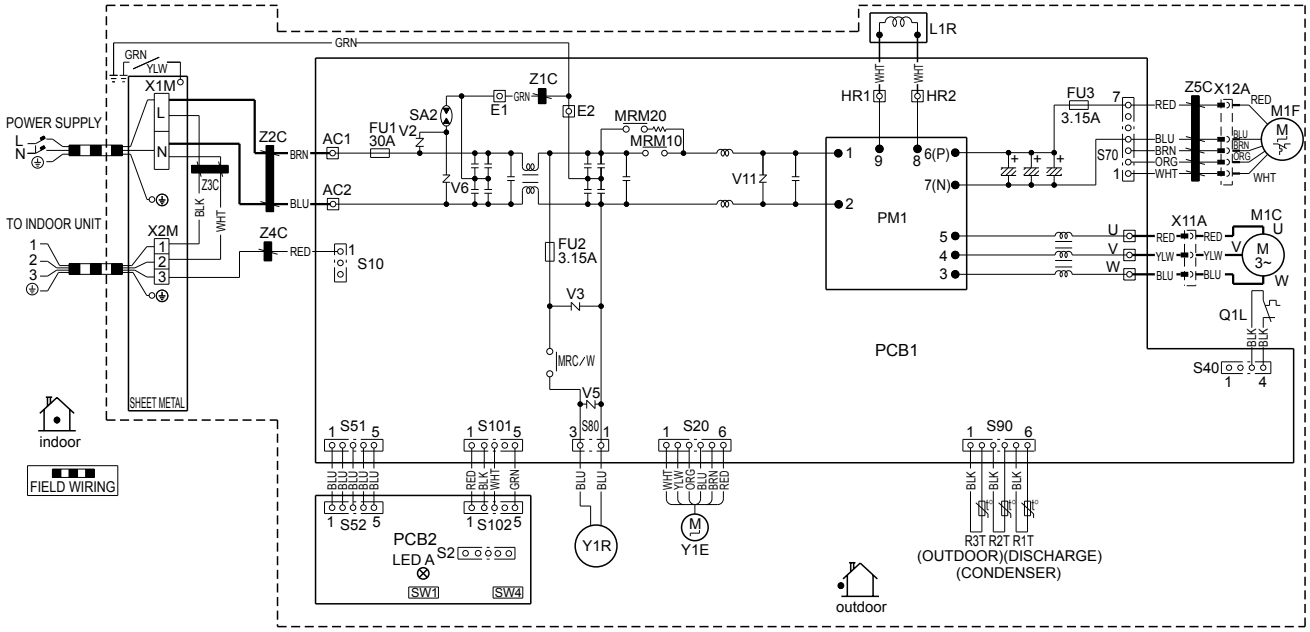
2.2.2 Heat Pump

RXS50F2V1B



Z1C~Z5C	: FERRITE CORE	MRM10, MRM20		L	: LIVE	M1C	: COMPRESSOR MOTOR
X1M, X2M	: TERMINAL STRIP	MRC/W	: MAGNETIC RELAY	N	: NEUTRAL	M1F	: FAN MOTOR
Y1E	: ELECTRONIC EXPANSION VALVE COIL	R1T~R3T	: THERMISTOR	SW1	: FORCED OPERATION ON/OFF SW (SW1)	L1R	: REACTOR
V2, V3, V5, V6, V11	: VARISTOR	S2~S102	: CONNECTOR	SW4	: LOCAL SETTING SW (SW4)	Q1L	: OVERLOAD PROTECTOR
SA2	: SURGE ARRESTER	LEDA	: PILOT LAMP			PM1	: POWER MODULE
FU1, FU2, FU3	: FUSE					PCB1,2	: PRINTED CIRCUIT BOARD
AC1, AC2						Y1R	: REVERSING SORENOID VALVE COIL
U, V, W, X11A, X12A						STEELMETAL	: TERMINAL STRIP FIXED PLATE
E1, E2							
HR1, HR2	: CONNECTOR						

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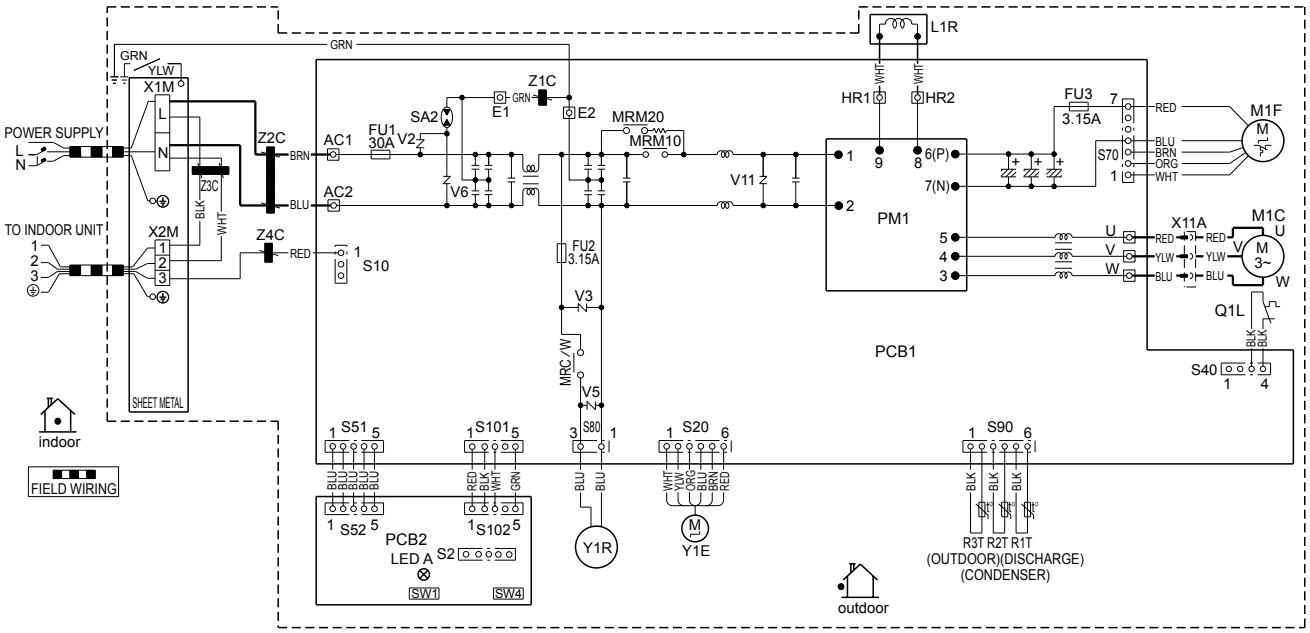
RXS60F2V1B, RYN50E3V1B, RYN60E3V1B



Z1C ~ Z4C	: FERRITE CORE	MRM10, MRM20		L	: LIVE	M1C	: COMPRESSOR MOTOR
X1M, X2M	: TERMINAL STRIP	MRC/W	: MAGNETIC RELAY	N	: NEUTRAL	M1F	: FAN MOTOR
Y1E	: ELECTRONIC EXPANSION VALVE COIL	R1T ~ R3T	: THERMISTOR	SW1	: FORCED OPERATION ON/OFF SW(SW1)	L1R	: REACTOR
V2, V3, V5, V6, V11	: VARISTOR	S2 ~ S102	: CONNECTOR	SW4	: LOCAL SETTING SW (SW4)	Q1L	: OVERLOAD PROTECTOR
SA2	: SURGE ARRESTER	LEDA	: PILOT LAMP			PM1	: POWER MODULE
FU1, FU2, FU3	: FUSE					PCB1, 2	: PRINTED CIRCUIT BOARD
AC1, AC2						Y1R	: REVERSING SORENOID VALVE COIL
U, V, W, X11A						SHEET METAL	: TERMINAL STRIP FIXED PLATE
E1, E2							
HR1, HR2	: CONNECTOR						

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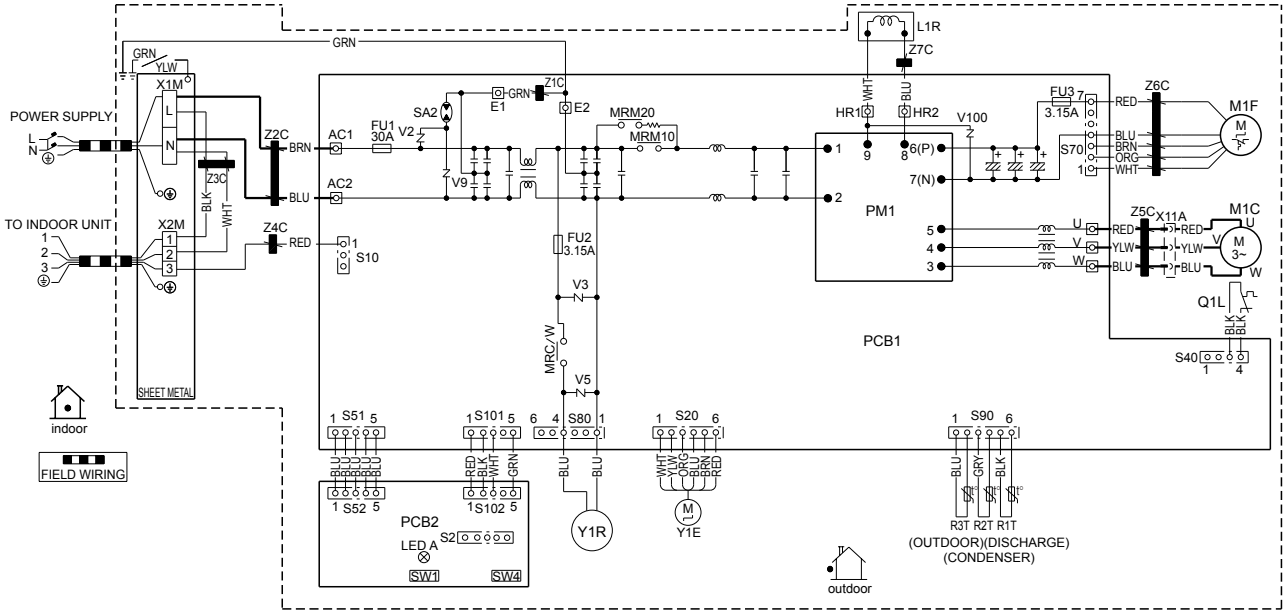
RXS71FV1B



Z1C~Z7C	: FERRITE CORE	MRM10,MRM20							
X1M,X2M	: TERMINAL STRIP	MRC/W	: MAGNETIC RELAY	L	: LIVE			M1C	: COMPRESSOR MOTOR
Y1E	: ELECTRONIC EXPANSION VALVE COIL	R1T~R3T	: THERMISTOR	N	: NEUTRAL			M1F	: FAN MOTOR
V2,V3,V5,V9,V100	: VARISTOR	S2~S102	: CONNECTOR	SW1	: FORCED OPERATION ON/OFF SW (SW1)			L1R	: REACTOR
SA2	: SURGE ARRESTER	LEDA	: PILOT LAMP	SW4	: LOCAL SETTING SW (SW4)			Q1L	: OVERLOAD PROTECTOR
FU1,FU2,FU3	: FUSE							PM1	: POWER MODULE
AC1,AC2								PCB1,2	: PRINTED CIRCUIT BOARD
U,V,W,X11A,X12A								Y1R	: REVERSING SOLENOID VALVE COIL
E1,E2								SHEET METAL	: TERMINAL STRIP FIXED PLATE
HR1,HR2	: CONNECTOR								

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Warning

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

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

Cautions on product corrosion

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

JMI-0107

JQA-1452

About ISO 9001

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

EC99J2044

About ISO 14001

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

Dealer

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