DAIKIN

SiBE01 - 503

Service Manual

SPLIT Pair
D-Series

[Applied Models]

●Non-Inverter Pair : Heat Pump

Non Inverter Pair
D-Series

●Heat Pump

Indoor Unit

FTYN25DV3B ATY20DV2
FTYN35DV3B ATY25DV2
ATY35DV2

Outdoor Unit

RYN25DV3B ARY20DV2
RYN35DV3B ARY25DV2
ARY35DV2

1. Introduction

1.1 Safety Cautions

Cautions and Warnings

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

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

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

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

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

1.1.1 Caution in Repair

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

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

1.1.2 Cautions Regarding Products after Repair

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

Warning	
Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections can cause excessive heat generation or fire.	
When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.	
Do not mix air or gas other than the specified refrigerant (R410A / 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 leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

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

1.1.3 Inspection after Repair

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

Warning	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it can cause an electrical shock, excessive heat generation or fire.	

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

1.1.4 Using Icons

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

1.1.5 Using Icons List

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

Part 1
List of Function

1. Functions

Category	Functions	FTYN25-35DV3B RYN25-35DV3B	Category	Functions	FTYN25-35DV3B RYN25-35DV3B
Basic Function	Inverter (with Inverter Power Control)	—	Health & Clean	Air Purifying Filter with Bacteriostatic, Virustatic Functions	—
	Operation Limit for Cooling (°CDB)	15 ~46		Photocatalytic Deodorizing Filter	—
	Operation Limit for Heating (°CWB)	–10 ~15		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	Count up-down 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	○ ★1
	Comfort Airflow Mode	—		Wiring Error Check	—
	3-Step Airflow (H/P Only)	—		Anticorrosion Treatment of Outdoor Heat Exchanger	○
Comfort Control	Auto Fan Speed	○			
	Indoor Unit Silent Operation	—	Flexibility	Multi-Split / Split Type Compatible Indoor Unit	—
	Night Quiet Mode (Automatic)	—			
	Outdoor Unit Silent Operation (Manual)	—		Flexible Voltage Correspondence	—
	Intelligent Eye	—		High Ceiling Application	—
	Quick Warming Function	—		Chargeless	★2
	Hot-Start Function	○		Either Side Drain (Right or Left)	○
	Automatic Defrosting	○		Power Selection	—
Operation	Automatic Operation	○	Remote Control	5-Rooms Centralized Controller (Option)	—
	Programme Dry Function	○		Remote Control Adaptor (Normal Open-Pulse Contact)(Option)	—
	Fan Only	○			
Lifestyle Convenience	New Powerful Operation (Non-Inverter)	○		Remote Control Adaptor (Normal Open Contact)(Option)	—
	Inverter Powerful Operation	—			
	Priority-Room Setting	—		DIII-NET Compatible (Adaptor)(Option)	—
	Cooling / Heating Mode Lock	—	Remote Controller	Wireless	○
	Home Leave Operation	—		Wired	—
	ECONO Mode	—			
	Indoor Unit On/Off Switch	○			
	Signal Reception Indicator	○			
	Temperature Display	—			
	Another Room Operation	—			

Note: ○ : Holding Functions
— : No Functions

★1 : Digital Only
★2 : 7.5m(25 class), 10m(35 class)

Category	Functions	ATY20-35DV2 ARY20-35DV2	Category	Functions	ATY20-35DV2 ARY20-35DV2
Basic Function	Inverter (with Inverter Power Control)	—	Health & Clean	Air Purifying Filter with Bacteriostatic, Virustatic Functions	—
	Operation Limit for Cooling (°CDB)	10 ~46		Photocatalytic Deodorizing Filter	—
	Operation Limit for Heating (°CWB)	–10 ~15		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	Count Up-down 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 Silent Operation	—		Flexible Voltage Correspondence	—
	Night Quiet Mode (Automatic)	—		High Ceiling Application	—
	Outdoor Unit Silent Operation (Manual)	—		Chargeless	5m
	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 ★ : Digital Only
— : No Functions

Part 2
Specifications

1. Specifications

50Hz 230V

Models	Indoor Units		FTYN25DV3B		FTYN35DV3B	
	Outdoor Units		RYN25DV3B		RYN35DV3B	
			Cooling	Heating	Cooling	Heating
Capacity Rated (Min.~Max.)		kW	2.5	3	3.15	3.85
		Btu/h	8,550	10,260	10,770	13,160
		kcal/h	2,150	2,580	2,710	3,310
Moisture Removal		L/h	1.2	—	1.9	—
Running Current (Rated)		A	4.0	4.0	5.4	5.8
Power Consumption Rated (Min.~Max.)		W	830	880	1,200	1,290
Power Factor		%	90	96	97	97
COP (Rated)		W/W	3.01	3.41	2.63	2.98
Piping Connections	Liquid	mm	ϕ6.4		ϕ6.4	
	Gas	mm	ϕ9.5		ϕ9.5	
	Drain	mm	ϕ18.0		ϕ18.0	
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Indoor Units			**FTYN25DV3B**		**FTYN35DV3B**	
Front Panel Color			White		White	
Air Flow Rate	m³/min (cfm)	H	7.5 (265)	7.8 (275)	7.5 (265)	7.8 (275)
		M	6.0 (212)	6.3 (222)	6.1 (215)	6.4 (226)
		L	4.6 (162)	4.8 (169)	4.9 (173)	5.2 (184)
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	18		18	
	Speed	Steps	3 Steps, Powerful, Auto		3 Steps, Powerful, 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	0.19	0.19	0.19	0.19
Power Consumption (Rated)		W	40	40	40	40
Power Factor		%	92	92	92	92
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H×W×D)		mm	273×784×195		273×784×195	
Packaged Dimensions (H×W×D)		mm	260×840×330		260×840×330	
Weight		kg	9		9	
Gross Weight		kg	11		11	
Operation Sound	H/M/L	dBA	39 / 33 / 27	39 / 33 / 27	39 / 34 / 29	39 / 34 / 29
Sound Power	H	dBA	57	57	57	57
Outdoor Units			**RYN25DV3B**		**RYN35DV3B**	
Casing Color			Ivory White		Ivory White	
Compressor	Type		Hermetically Sealed Rotary Type		Hermetically Sealed Rotary Type	
	Model		5PS112DAH21		5KS150DBK21	
	Motor Output	W	750		1,100	
Refrigerant Oil	Type		FV50S		FV50S	
	Charge	L	0.35		0.43	
Refrigerant	Type		R410A		R410A	
	Charge	kg	0.9		1.0	
Air Flow Rate	m³/min		28	25.2	28	25.2
	cfm		988	890	988	890
Fan	Type		Propeller		Propeller	
	Motor Output	W	23		23	
Running Current (Rated)		A	3.81	3.81	5.21	5.61
Power Consumption (Rated)		W	790	840	1,160	1,250
Power Factor		%	90	96	97	97
Starting Current		A	18.6		23.1	
Dimensions (H×W×D)		mm	560×695×265		560×695×265	
Packaged Dimensions (H×W×D)		mm	607×824×337		607×824×337	
Weight		kg	31		36	
Gross Weight		kg	35		40	
Operation Sound	H	dBA	47	49	48	49
Sound Power	H	dBA	62	64	63	64
Drawing No.			3D048831		3D048830	

Note:

- MAX. interunit piping length: 15m
- MAX. interunit height difference: 10m
- Amount of additional charge of refrigerant 20g/m for piping length exceeding 7.5m(25 class), 10m(35class)
- 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 220V

Models	Indoor Units		ATY20DV2		ATY25DV2	
	Outdoor Units		ARY20DV2		ARY25DV2	
			Cooling	Heating	Cooling	Heating
Capacity		kW	1.95	2.3	2.5	2.8
		Btu/h	6,700	7,900	8,500	9,600
		kcal/h	1,680	1,980	2,150	2,410
Moisture Removal		L/h	0.8	—	1.2	—
Running Current		A	3.6	3.2	4.0	3.6
Power Consumption		W	680	600	840	770
Power Factor		%	86	85	95	97
COP		W/W	2.87	3.83	2.98	3.64
Piping Connections	Liquid	mm	ϕ 6.4		ϕ 6.4	
	Gas	mm	ϕ 9.5		ϕ 9.5	
	Drain	mm	ϕ18.0		ϕ18.0	
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Indoor Units			**ATY20DV2**		**ATY25DV2**	
Front Panel Color			White		White	
Air Flow Rate	m³/min (cfm)	H	7.2 (254)	7.5 (265)	7.5 (265)	7.8 (275)
		M	5.9 (208)	6.2 (219)	6.0 (212)	6.3 (222)
		L	4.6 (162)	4.8 (169)	4.6 (162)	4.8 (169)
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	18		18	
	Speed	Steps	3 Steps, Powerful, Auto		3 Steps, Powerful, Auto	
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable / Washable / Mildew Proof		Removable / Washable / Mildew Proof	
Running Current		A	0.19	0.19	0.19	0.19
Power Consumption		W	40	40	40	40
Power Factor		%	96	96	96	96
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions (H×W×D)		mm	273×784×195		273×784×195	
Packaged Dimensions (H×W×D)		mm	260×840×330		260×840×330	
Weight		kg	9		9	
Gross Weight		kg	11		11	
Operation Sound	H/M/L	dBA	38 / 33 / 27	38 / 33 / 27	39 / 33 / 27	39 / 33 / 27
Outdoor Units			**ARY20DV2**		**ARY25DV2**	
Casing Color			Ivory White		Ivory White	
Compressor	Type		Hermetically Sealed Rotary Type		Hermetically Sealed Rotary Type	
	Model		2R13C225BSA		2P16C225ANF	
	Motor Output	W	600		750	
Refrigerant Oil	Type		ATMOS M60 or SUNISO 4GDID		ATMOS M60 or SUNISO 4GDID	
	Charge	L	0.3		0.35	
Refrigerant	Type		R22		R22	
	Charge	kg	0.75		0.75	
Air Flow Rate	m³/min		28	25.2	28	25.2
	cfm		988	890	988	890
Fan	Type		Propeller		Propeller	
	Motor Output	W	23		23	
Running Current		A	3.41	3.01	3.81	3.41
Power Consumption		W	640	560	800	730
Power Factor		%	85	85	95	97
Starting Current		A	14		15.6	
Dimensions (H×W×D)		mm	560×695×265		560×695×265	
Packaged Dimensions (H×W×D)		mm	607×824×337		607×824×337	
Weight		kg	26		28	
Gross Weight		kg	28		31	
Operation Sound		dBA	46	47	46	47
Drawing No.			3D048822		3D048821	

Note:

- MIN. interunit piping length: 3m
- MAX. interunit piping length: 12m
- MAX. interunit height difference: 10m
- Amount of additional charge of refrigerant 20g/m for piping length exceeding 5m
- 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	5m

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

50Hz 220V

Models	**Indoor Units**		**ATY35DV2**	
	Outdoor Units		**ARY35DV2**	
			Cooling	Heating
Capacity		kW	3.3	3.8
		Btu/h	11,300	13,000
		kcal/h	2,840	3,270
Moisture Removal		L/h	1.9	—
Running Current		A	5.4	5.6
Power Consumption		W	1,110	1,180
Power Factor		%	93	96
COP		W/W	2.97	3.22
Piping Connections	Liquid	mm	ϕ 6.4	
	Gas	mm	ϕ12.7	
	Drain	mm	ϕ18.0	
Heat Insulation			Both Liquid and Gas Pipes	
Indoor Units			**ATY35DV2**	
Front Panel Color			White	
Air Flow Rate	m³/min (cfm)	H	7.5 (265)	7.8 (275)
		M	6.1 (215)	6.4 (226)
		L	4.9 (173)	5.2 (184)
Fan	Type		Cross Flow Fan	
	Motor Output	W	18	
	Speed	Steps	3 Steps, Powerful, Auto	
Air Direction Control			Right, Left, Horizontal, Downward	
Air Filter			Removable / Washable / Mildew Proof	
Running Current		A	0.19	0.19
Power Consumption		W	40	40
Power Factor		%	96	96
Temperature Control			Microcomputer Control	
Dimensions (H×W×D)		mm	273×784×195	
Packaged Dimensions (H×W×D)		mm	260×840×330	
Weight		kg	9	
Gross Weight		kg	11	
Operation Sound	H/M/L	dBA	39 / 34 / 29	39 / 34 / 29
Outdoor Units			**ARY35DV2**	
Casing Color			Ivory White	
Compressor	Type		Hermetically Sealed Rotary Type	
	Model		2K22C225EUE	
	Motor Output	W	1,100	
Refrigerant Oil	Type		ATMOS M60 or SUNISO 4GDID	
	Charge	L	0.41	
Refrigerant	Type		R22	
	Charge	kg	0.95	
Air Flow Rate	m³/min		28	25.2
	cfm		988	890
Fan	Type		Propeller	
	Motor Output	W	23	
Running Current		A	5.21	5.41
Power Consumption		W	1,070	1,140
Power Factor		%	93	96
Starting Current		A	22.8	
Dimensions (H×W×D)		mm	560×695×265	
Packaged Dimensions (H×W×D)		mm	607×824×337	
Weight		kg	36	
Gross Weight		kg	40	
Operation Sound		dBA	47	48
Drawing No.			3D048820	

Note:

- MIN. interunit piping length: 3m
- MAX. interunit piping length: 12m
- MAX. interunit height difference: 10m
- Amount of additional charge of refrigerant 20g/m for piping length exceeding 5m
- 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	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 Unit

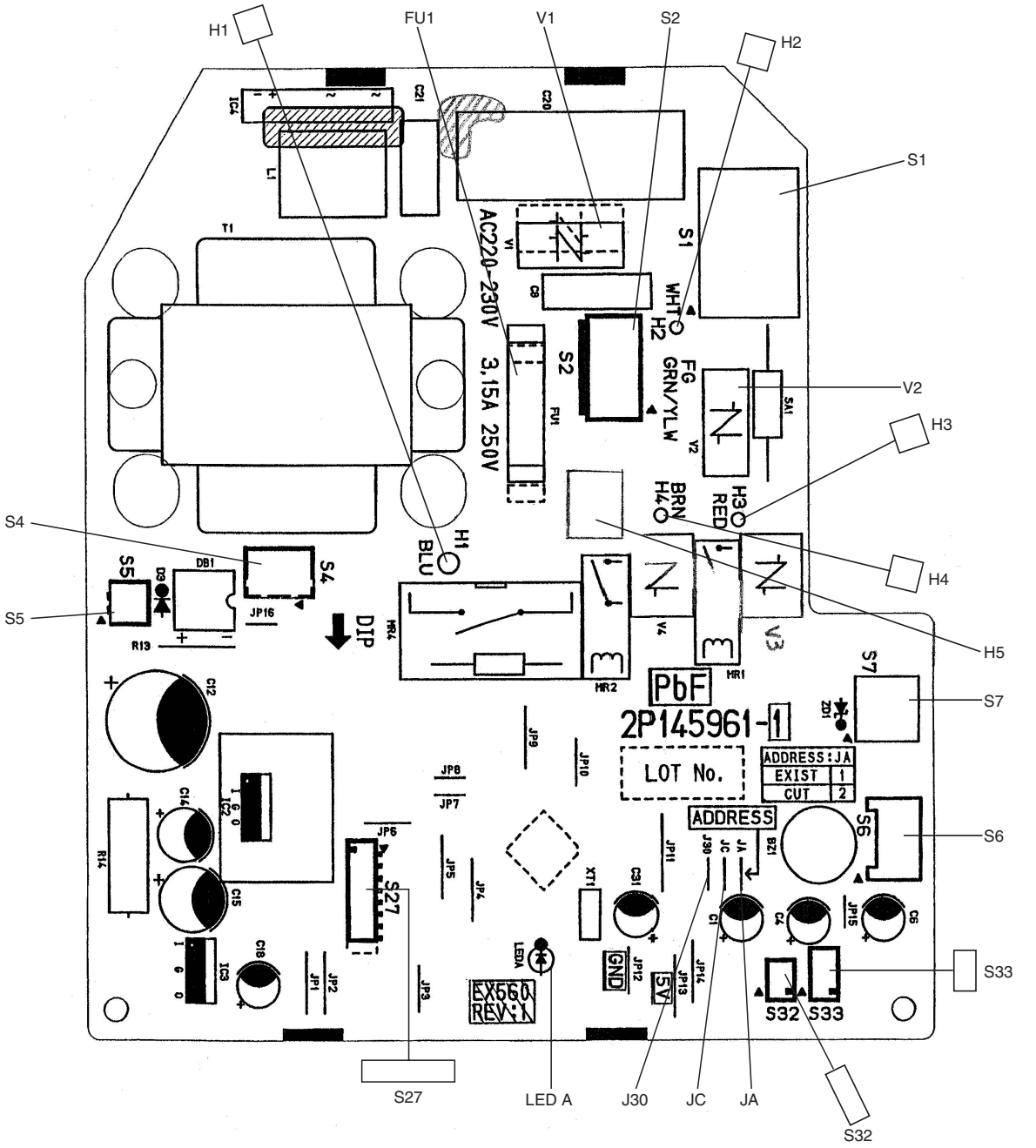
Connectors

1)	S1	Connector for fan motor
2)	S2, S4	Connector for transformer
3)	S5	Connector for thermal fuse
4)	S6	Connector for swing motor (horizontal blades)
5)	S7	Connector for fan motor (Hall IC)
6)	S26	Connector for control PCB
7)	S27	Connector for signal receiver PCB
8)	S32	Connector for indoor heat exchanger thermistor
9)	S33	Connector for outdoor heat exchanger thermistor
10)	H1	Connector for compressor (outdoor unit)
11)	H2, H4	Connector for four way valve (outdoor unit)
12)	H3	Connector for fan motor (outdoor unit)
13)	H5	Connector for power supply (outdoor unit)

Note: Other designations

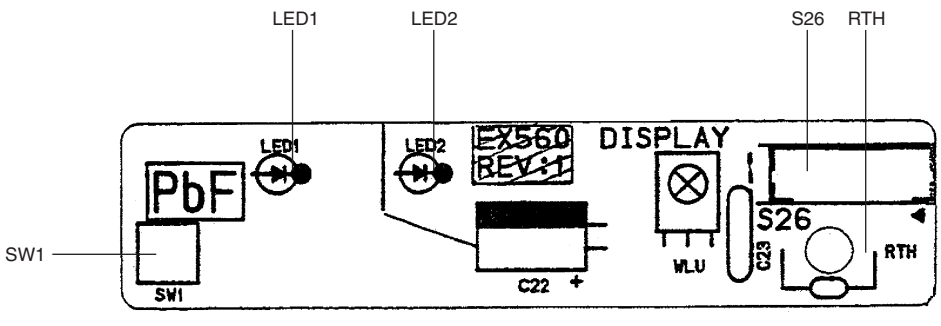
1)	V1, V2	Varistor
2)	JA	Address setting jumper
	JC	Power failure recovery function (auto restart)
		∗ Refer to page 107 for detail.
3)	SW1	Forced operation ON/OFF switch
4)	LED1	LED for operation (green)
5)	LED2	LED for timer (yellow)
6)	LED A	LED for service monitor (green)
7)	FU1	Fuse (3.15A)
8)	RTH	Room temperature thermistor

Control PCB



(R4670)

Signal Receiver PCB



(R4671)

Part 4
Functions and Control

1. Functions

1.1 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

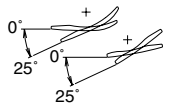
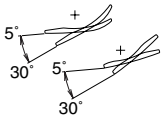
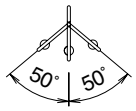
During cooling mode, the flap retracts into the indoor unit. Then, cool air can be blown far and pervaded all over the room.

Wide-Angle Louvres

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

Auto-Swing

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

Vertical Swing (up and down)		Horizontal Swing (right and left: manual)
Cooling, Dry	Heating, Fan	
 (R2946)	 (R4013)	 (R2817)

1.2 Fan Speed Control for Indoor Units

Control Mode

The air flow rate can be automatically controlled depending on the difference between the set temperature and the room temperature. This is done through phase control and Hall IC control.

For more information about Hall IC, refer to troubleshooting for fan motor on page 61.

Phase Steps

Phase control and fan speed control contains 7 steps:LL, L, LM, M, HM, H, and HH.
You can choose the airflow rate between L and HH with the remote controller

Step	Cooling	Heating	Dry
LL	—	Thermostat OFF	L tap only (900-1020rpm)
L	○	○	
LM	⋮	⋮	
M	○	○	
HM	⋮	⋮	
H	○	○	
HH (Powerful)	(R4721)	(R4722)	

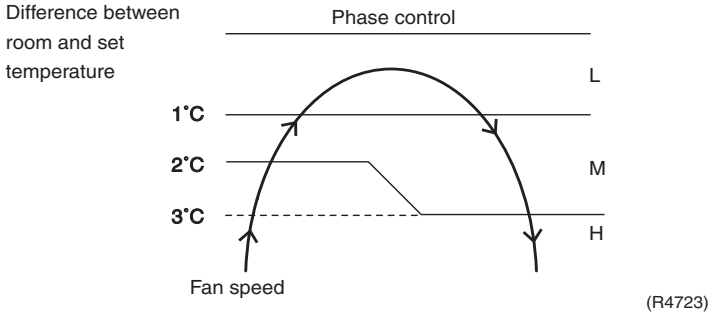
○= The airflow rate is chosen from L-M-H tap when the fan setting button is set to automatic.

Note:

1. During powerful operation, fan operates at 1340-1390rpm.
2. Fan stops during defrost operation.
3. In time of thermostat OFF, the fan rotates at following speed.
   Cooling : The fan keeps rotating at the set tap.
   Heating : The fan rotates at LL tap.

Air Flow Rate Control for Heating

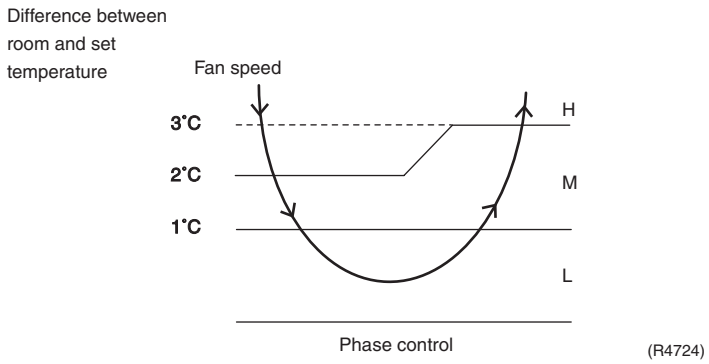
The following drawing explains the principle for fan speed control for heating:



(R4723)

Air Flow Rate Control for Cooling

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



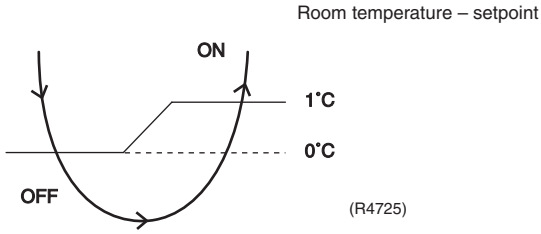
(R4724)

1.3 Thermostat Control

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

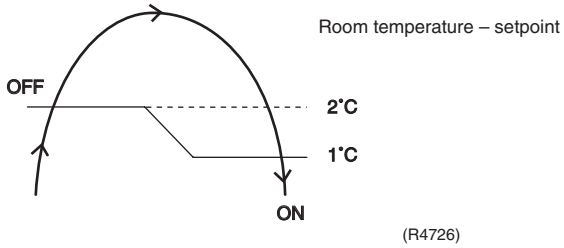
Cooling

Thermostat OFF: Room temperature – setpoint ≤ 0°C
Thermostat ON : Room temperature – setpoint ≥ 1°C



Heating

Thermostat OFF: Room temperature – setpoint ≥ 2°C
Thermostat ON : Room temperature – setpoint ≤ 1°C



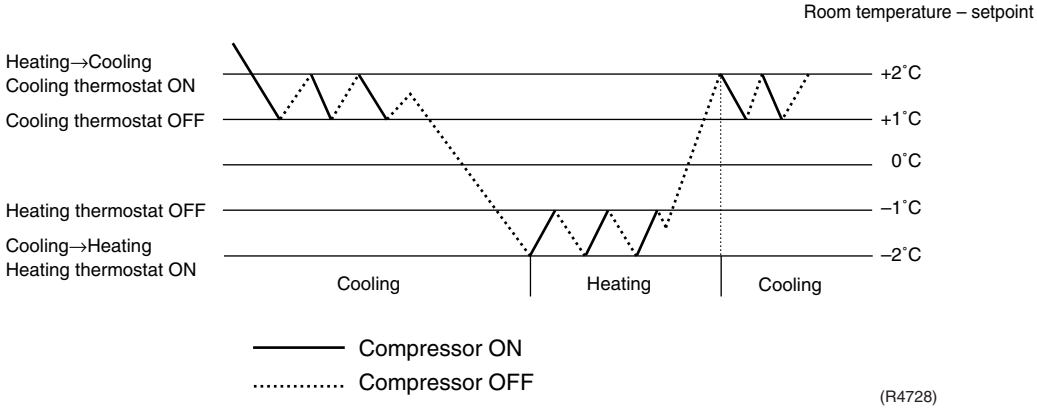
1.4 Automatic Operation

Outline

When the automatic mode is selected with the remote controller, the microcomputer determines the operation mode from cooling and heating according to the room temperature and the setpoint.
The unit automatically switches the operation mode to cooling or heating to maintain the room temperature.

Details of the Control

- Target temperature equals setpoint plus correction value (cooling:+1°C, heating: –1°C)
- Mode switching point and operation ON/OFF point are as follows.
  ① Cooling → Heating: Room temperature – setpoint ≤ – 2°C
  ② Heating → Cooling: Room temperature – setpoint ≥ + 2°C
  ③ Cooling thermostat ON : Room temperature – setpoint ≥ + 2°C
  Cooling thermostat OFF: Room temperature – setpoint ≤ + 1°C
  ④ Heating thermostat ON : Room temperature – setpoint ≤ – 2°C
  Heating thermostat OFF: Room temperature – setpoint ≥ – 1°C



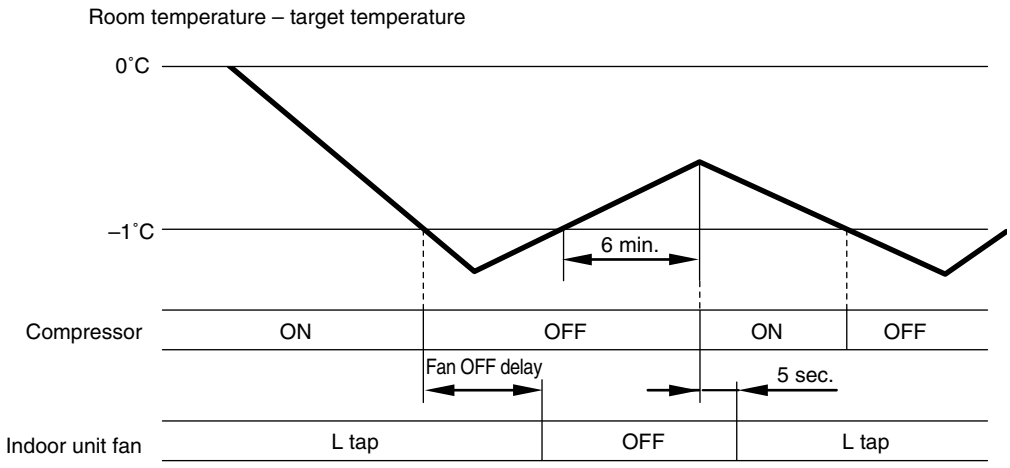
1.5 Programme Dry Function

Outline

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

Details of the Control

The microcomputer automatically sets the target temperature and fan setting (L tap).
Target temperature is determined as follows.
① Room temperature ≥ 18°C: Target temperature = room temperature at startup
② Room temperature < 18°C: Target temperature = 18°C



(R4727)

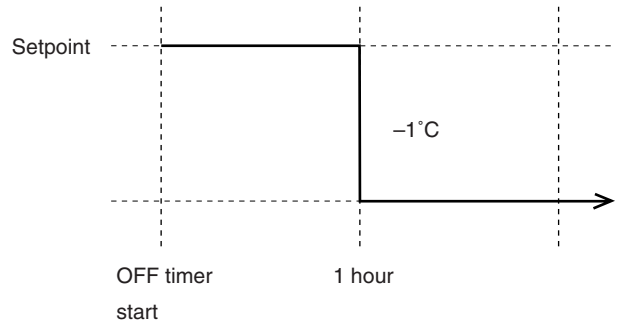
1.6 Night Set Mode

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

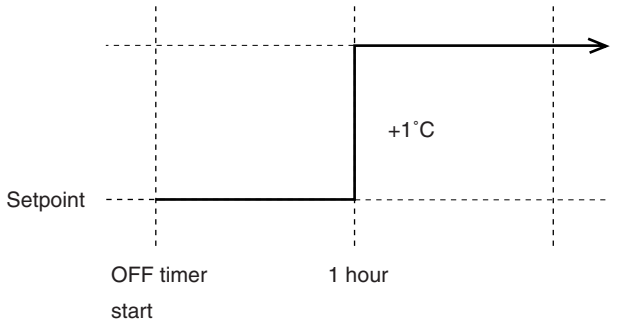
The Night Set circuit continues heating or cooling the room at the set temperature for the first one hour, then automatically lowers the temperature setting slightly in the case of heating, or raises it slightly in the case of cooling, for economical operations. This prevents excessive heating in winter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

Heating Operation



(R4730)

Cooling Operation



(R4729)

1.7 POWERFUL Operation

Outline

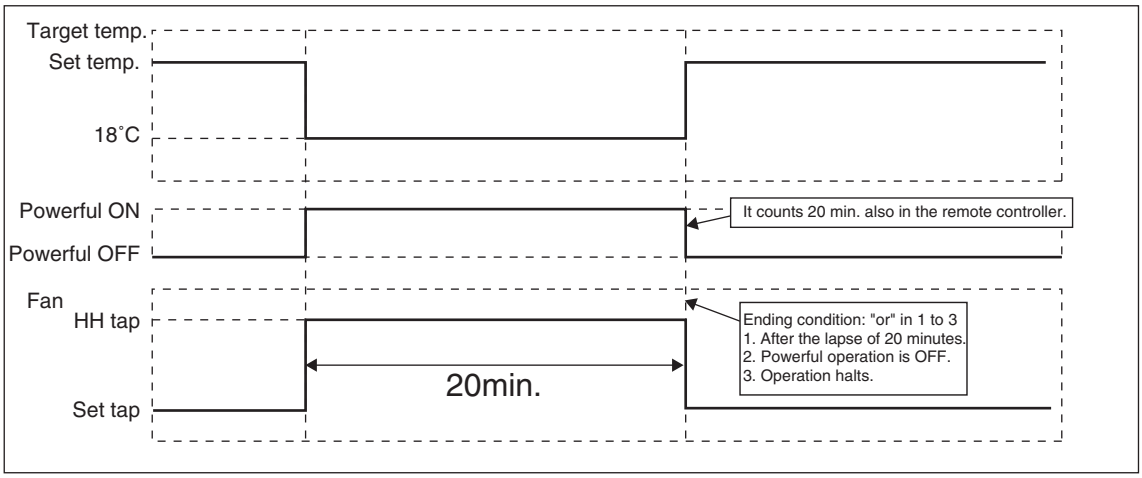
In order to exploit the cooling and heating capacity to full extent, operate the air conditioner by increasing the indoor fan rotating speed.

Details of the Control

When POWERFUL button is pushed, the fan speed and the target temperature will be converted to the following states for 20 minutes.

Operation mode	Fan speed	Target temperature
Cooling	HH tap	18°C
Heating	HH tap	30°C

Ex.) : POWERFUL operation in cooling mode.



(R4731)

1.8 Other Functions

1.8.1 Hot Start Function

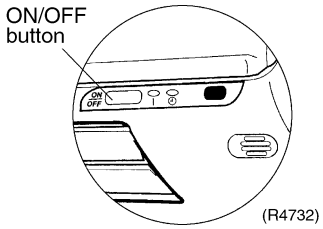
In order to prevent the cold draft that normally comes when heating operation starts, the temperature of the indoor heat exchanger is detected, and either the air flow is stopped or is made very weak thereby carrying out comfortable heating of the room.
*The cold draft is also prevented using a similar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

1.8.2 Signal Receiving Sign

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

1.8.3 ON/OFF Button on Indoor Unit

An ON/OFF button is provided on the front panel of the unit. Use this button when the remote controller is missing or if its battery has run out.



- Pressing the ON/OFF button cycles through the following operation modes: cooling → OFF → heating → OFF → cooling, etc. Since the operation mode is not displayed, you have to judge what mode the unit is in by feeling whether the air coming out of the vent is cold or hot.
- The operation mode refers to the following table.

Mode	Temperature setting	Air flow rate
COOL	22°C	AUTO
HEAT	26°C	AUTO

1.8.4 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.

1.8.5 Mold Proof Air Filter

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.

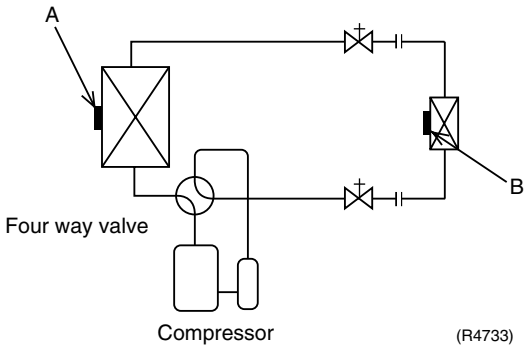
1.8.6 Self-Diagnosis Digital Display

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

1.8.7 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-minutes standby function is activated.

2. Function of Thermistor



A Outdoor Heat Exchanger Thermistor (DCB)

1. The outdoor heat exchanger thermistor is used for high pressure control during cooling operation.

B Indoor Heat Exchanger Thermistor (DCN)

1. The indoor heat exchanger thermistor is used to prevent freezing.
   During the cooling operation, if the temperature drops abnormally, the operating frequency becomes lower, then the operation must be halted.

3. Control Specification

3.1 Four Way Valve Switching

Outline

Current is conducted during heating operation, and current is not conducted during cooling or defrosting. 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 is carried out after the operation stopped.

Detail

The four way valve is switched 2 minutes after the compressor stops.

3.2 3-Minutes Standby

Prohibit to turn ON the compressor for 3 minutes after turning it off.
(except when defrosting)

3.3 Compressor Protection Function

When the compressor turns ON, it keeps running at least 120 seconds.
(except when defrosting)

3.4 Fan OFF Delay

The fan stops 30 seconds after the compressor stops.
(except when defrosting)

3.5 Freeze-up Protection Control

Outline

During cooling/dry operation, freeze-up protection control is activated according to the temperature of the indoor heat exchanger to prevent it freezing.

Detail

Conditions for starting

- Temperature of the indoor heat exchanger ≤ 0°C
- Compressor running time ≥ 10 minutes

While controlling

- The compressor halts.
- The indoor fan rotates at L tap.

Conditions for ending

- Temperature of the indoor heat exchanger ≥ 13°C

or

- The operation stops.

3.6 Heating Peak-cut Control

Outline

During heating operation, heating peak-cut control is activated according to the temperature of the indoor heat exchanger to prevent abnormal high pressure.

Detail

Conditions for starting

- Temperature of the indoor heat exchanger ≥ 63°C (FTYN models), 65°C (ATY models)

While controlling

- The compressor halts.
- The outdoor fan switches ON/OFF according to the temperature of the indoor heat exchanger.

Conditions for ending

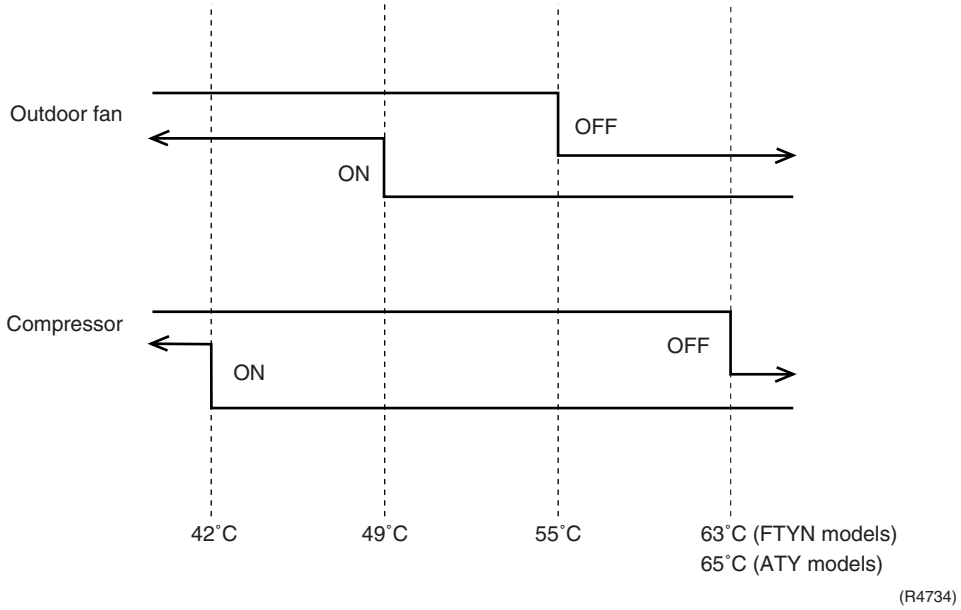
- Temperature of the indoor heat exchanger < 42°C

or

- Cooling or dry mode starts.

or

- The operation stops.



3.7 Liquid Compression Protection Function

In order to obtain the dependability of the compressor, the outdoor fan switches ON/OFF according to the temperature of the outdoor heat exchanger.
(The temperature differs by models.)

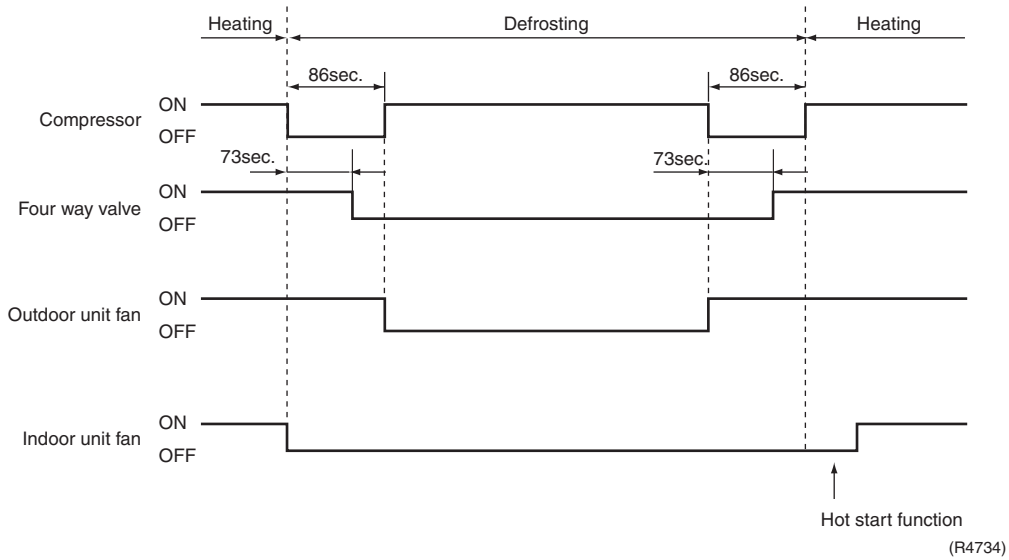
3.8 Defrost Control

Outline

In heating, defrosting is carried out by the cooling cycle (reverse cycle) to prevent the outdoor heat exchanger being frosted. The defrosting time or outdoor heat exchanger temperature must be more than its fixed value when finishing.

Detail

Time chart for 35 class



Part 5
System Configuration

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. Instructions

Note: This instruction is for FTYN models as representative.

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.

⚠ CAUTION

- 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.

- 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.
- 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.
- Depending on the environment, an earth leakage breaker must be installed. Lack of an earth leakage breaker may result in electric shocks.
- Arrange the drain hose to ensure smooth drainage. Incomplete draining may cause wetting of the building, furniture etc.

- 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.

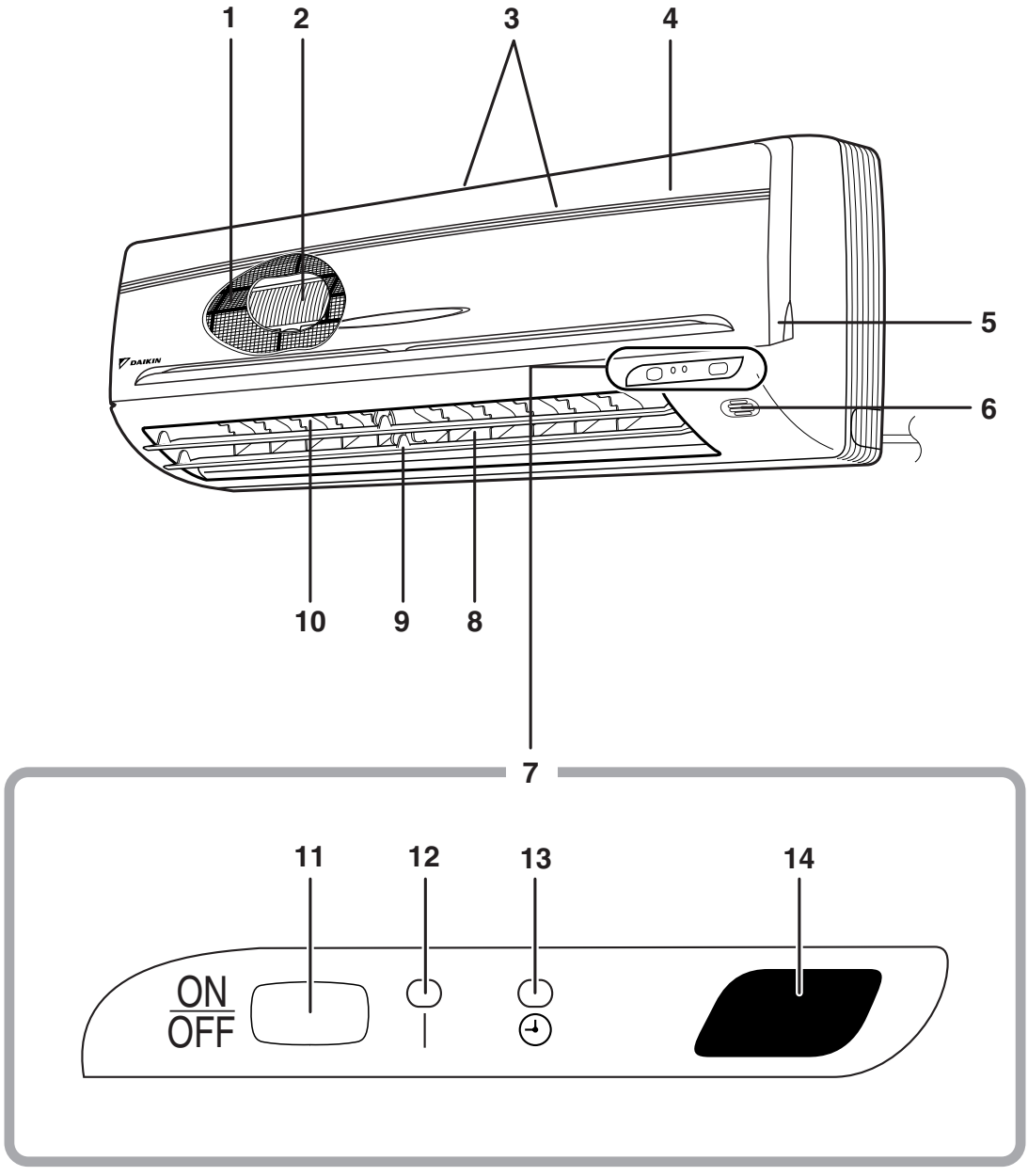
System relocation.

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

2.2 Names of Parts

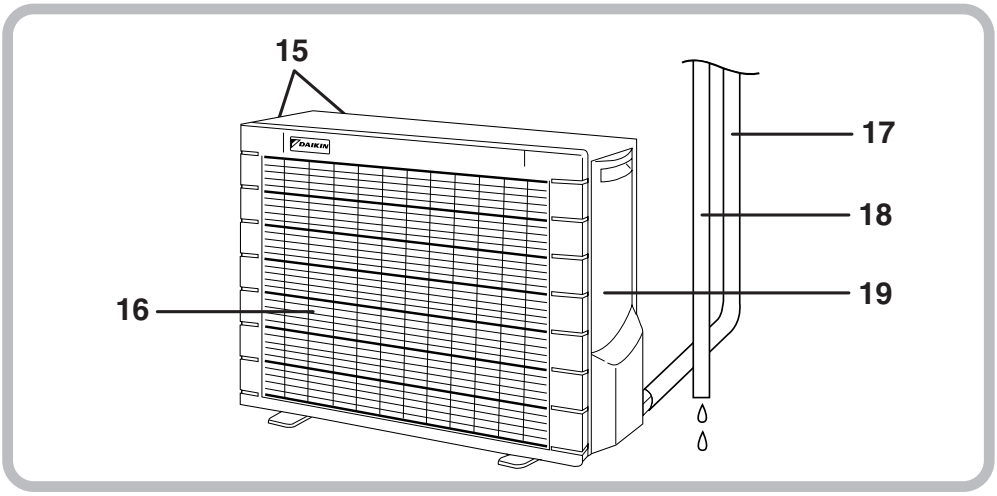
Names of parts

■ 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. **Display**
8. **Air outlet**
9. **Flaps (horizontal blades):** (page 12.)
10. **Louvres (vertical blades):**
    - The louvers are inside of the air outlet. (page 12.)
11. **Indoor Unit ON/OFF switch:**
    - Push this switch once to start operation. Push once again to stop it.
    - This switch is useful when the remote controller is missing.
    - Pressing the switch in an emergency allows you to select cooling or heating. (page 11.)
    - The operation mode refers to the following table.

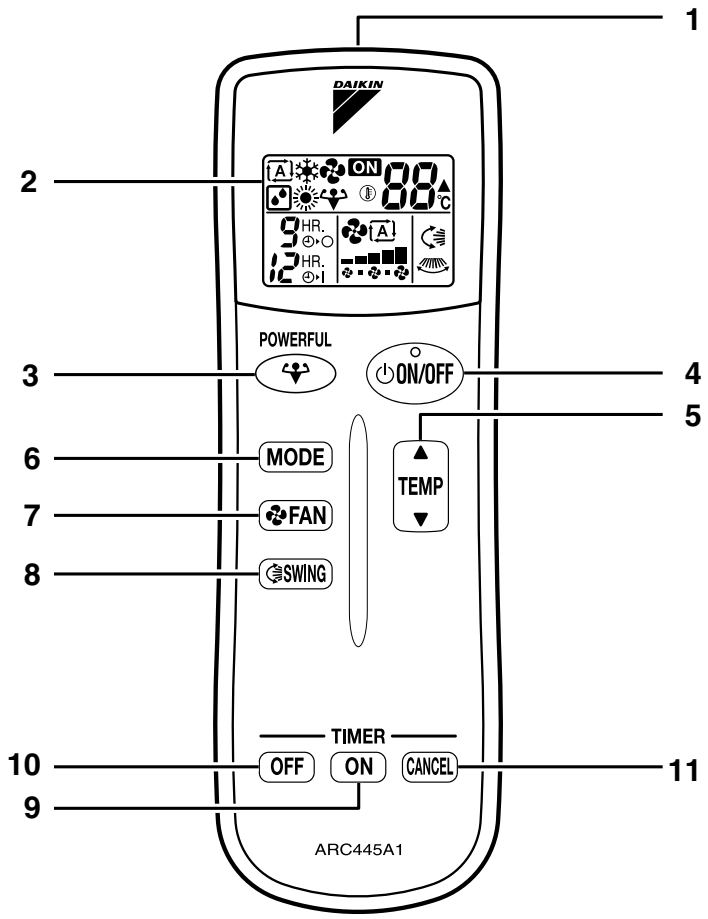
Mode	Temperature setting	Air flow rate
COOL	22°C	AUTO
HEAT	26°C	AUTO

12. **Operation lamp (green)**
13. **TIMER lamp (yellow):** (page 14.)
14. **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

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

■ Remote Controller



< ARC445A1 >

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. POWERFUL button:
POWERFUL operation (page 13.)

4. ON/OFF button:
- Press this button once to start operation. Press once again to stop it.
- The button glows even in dark rooms.

5. TEMPERATURE adjustment buttons:
- It changes the temperature setting.

6. MODE selector button:
- It selects the operation mode. (AUTO/DRY/COOL/HEAT/FAN) (page 10.)

7. FAN setting button:
- It selects the air flow rate setting.

8. SWING button: (page 12.)

9. ON TIMER button: (page 15.)

10. OFF TIMER button: (page 14.)

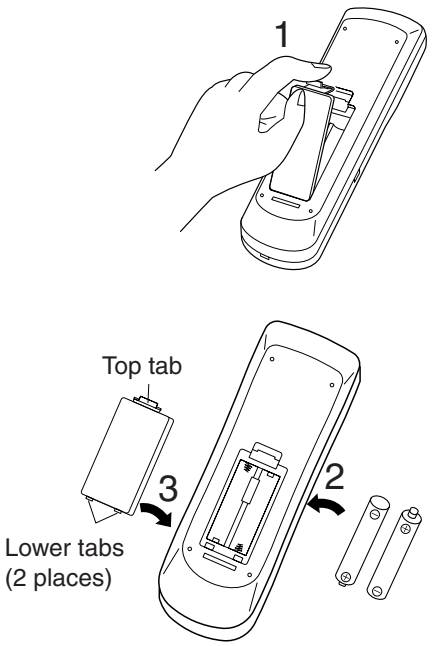
11. TIMER CANCEL button:
- It cancels the timer setting.

2.3 Preparation before Operation

Preparation Before Operation

■ To set the batteries

1. **Pull the tabs on top down and open the lid.**
2. **Set two dry batteries (AAA).**
3. **Insert the two tabs in the bottom of the lid and close the lid as it was before.**



ATTENTION

■ **About batteries**

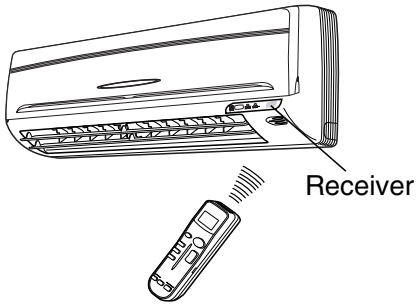
- When replacing the batteries, use batteries of the same type, and replace the two old batteries together.
- When the system is not used for a long time, take the batteries out.
- We recommend replacing once a year, although if the remote controller display begins to fade or if reception deteriorates, 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

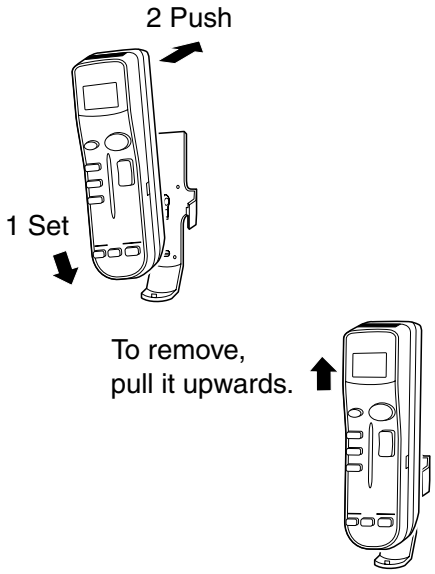
■ To operate the remote controller

- 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 7 m.



■ 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 on the bottom tabs of the remote controller holder and push.**



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.

■ 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.
- If the flap opens, turn on the breaker to close it.
- Use the air conditioner in the following conditions.

Mode	Operating conditions	If operation is continued out of this range
COOL	Outdoor temperature: 15 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.
HEAT	Outdoor temperature: –10 to 20 °C Indoor temperature: 14 to 28 °C	• A safety device may work to stop the operation.
DRY	Outdoor temperature: 15 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.

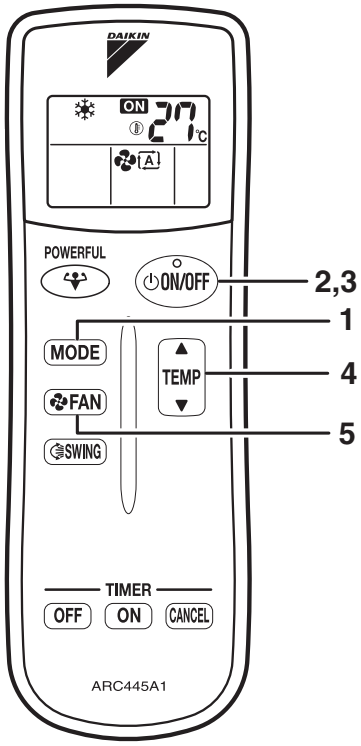
- Operation outside this humidity or temperature range may cause a safety device to disable the system.

9

2.4 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

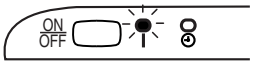
: COOL

: HEAT

: FAN

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.	Three levels of air flow rate setting from “ ” to “ ” plus “ A ” are available. 

■ Settings using the indoor unit operation switches

The main body operation switch should only be used in emergencies when the remote control is lost or broken, its battery has run out, or it is otherwise unusable.

Operation mode

- Pressing the main body operation switch cycles through the following operation modes: cooling → off → heating → off → cooling, etc. Since the operation mode is not displayed, you have to judge what mode the unit is in by feeling whether the air coming out of the vent is cold or hot.

Swing Setting

- The unit will operate with the previous setting.

NOTE

- If the settings were made with the operation switch, the ON/OFF TIMER operation and NIGHT SET MODE are cleared.

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 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.

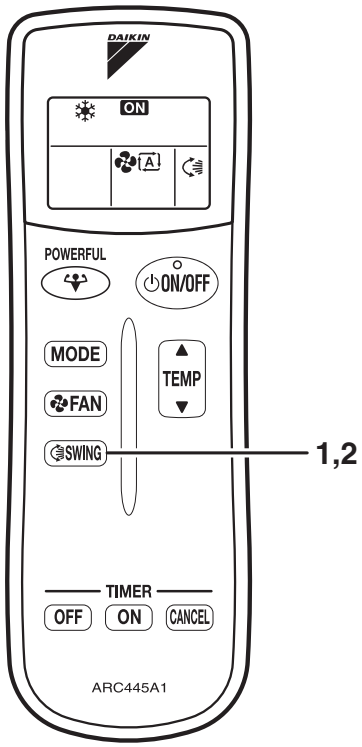
■ **Note on AUTO operation**
- In AUTO operation, the system selects an appropriate operation mode (COOL or HEAT) based on the room temperature at the start of the operation.
- The system automatically reselects setting at a regular interval to bring the room temperature to user-setting level.
- If you 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.

2.5 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".**

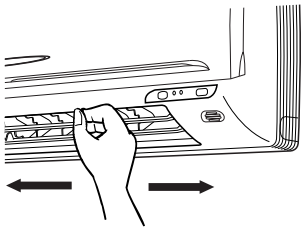
   The display will light up and the flaps will begin to swing.

2. **When the flaps have reached the desired position, press "SWING button" once more.**

   The display will go blank.
   The flaps will stop moving.

■ 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.)

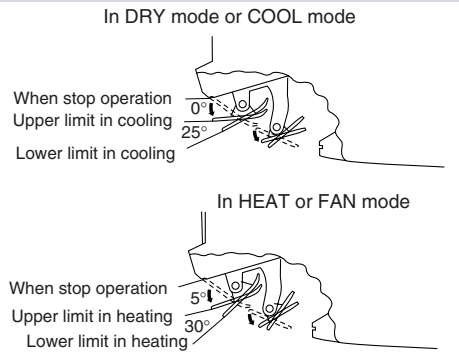


Notes on flaps and louvers angles

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

■ **ATTENTION**

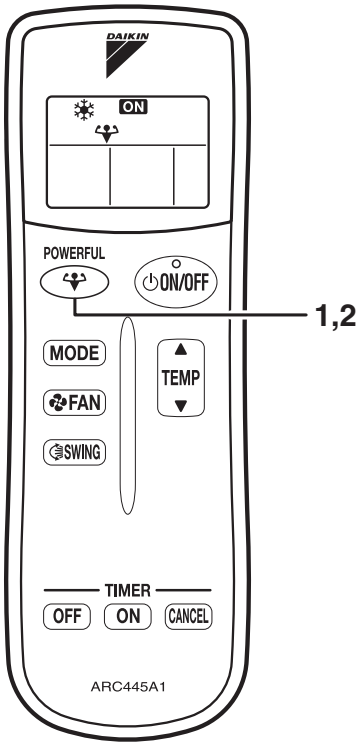
- Always use a remote controller to adjust the flaps angle. If you attempt to move it forcibly with hand when it is swinging, the mechanism may be broken.
- Be careful when adjusting the louvers. Inside the air outlet, a fan is rotating at a high speed.
- When changing the operation mode in automatic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



2.6 POWERFUL Operation

POWERFUL Operation

POWERFUL operation quickly maximizes the cooling (heating) effect. 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

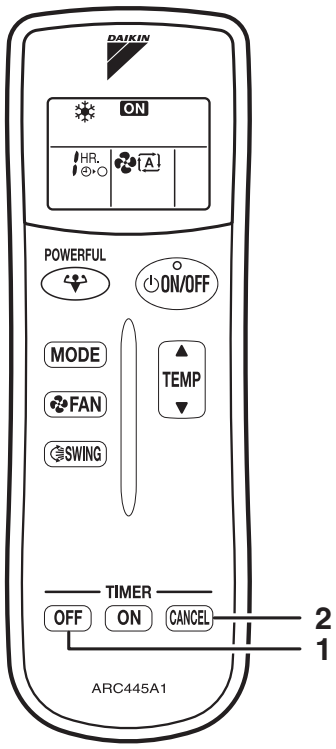
■ **Notes on POWERFUL operation**
- **POWERFUL operation is not available in modes other than cooling or heating.**
- **In COOL and HEAT mode**
  To maximize the cooling (heating) effect, the air flow rate be fixed to the maximum setting. The temperature and air flow settings are not variable.

13

2.7 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

1. Press “OFF TIMER button”.

The TIMER lamp lights up.

- The time changes in 1 hour increments every time the button is pushed, with a maximum of 9 hours.

■ To cancel the OFF TIMER operation

2. Press “CANCEL button”.

- The TIMER lamp goes off.

NOTE

■ NIGHT SET MODE

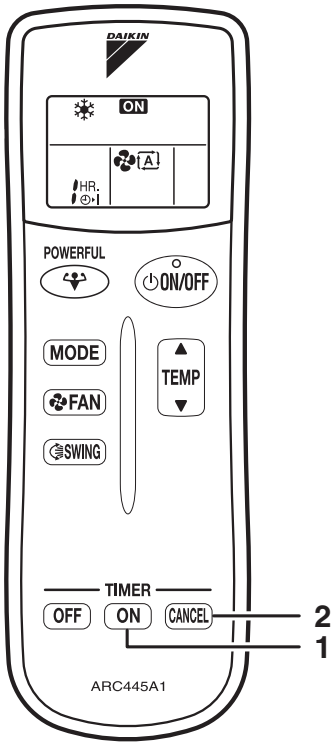
When the OFF TIMER is set, the air conditioner automatically adjusts the temperature setting (1.0˚C up in COOL, 1.0˚C down in HEAT) to prevent excessive cooling (heating) for your pleasant sleep.

■ To use ON TIMER operation

1. Press “ON TIMER button”.

The TIMER lamp lights up.

- The time changes in 1 hour increments every time the button is pushed, with a maximum of 12 hours.



■ To cancel ON TIMER operation

2. Press “CANCEL button”.

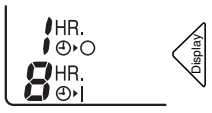
- The TIMER lamp goes off.

■ To combine ON TIMER and OFF TIMER

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

(Example)

The air conditioner is currently operating. You want to have it run for another hour, then stop for 7 hours, then start up again.



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.

2.8 Care and Cleaning

Care and Cleaning

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

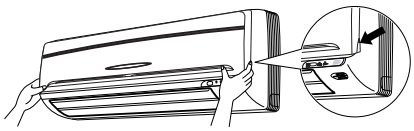
Units

■ Indoor unit, Outdoor unit and Remote controller

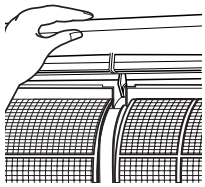
1. **Wipe them with dry soft cloth.**

■ Front panel

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

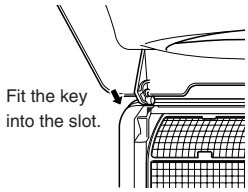


2. **Remove the front panel.**
   - Supporting the front panel with one hand, release the lock by sliding down the knob with the other hand.
   - To remove the front panel, pull it toward yourself with both hands.



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 3 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.)
   - Check to see if the rotating axis in the upper center section is moving.

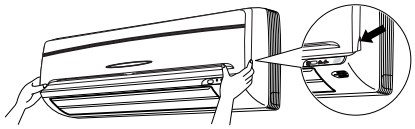


⚠ CAUTION

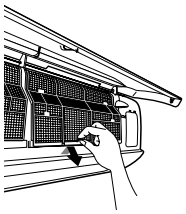
- Don't touch the metal parts of the indoor unit. If you touch those parts, this may cause an injury.
- When removing or attaching the front panel, use a robust and stable stool and watch your steps carefully.
- When removing or attaching the front panel, support the panel securely with hand to prevent 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.

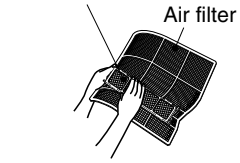
Filters

1. **Open the front panel. (page 16.)**
2. **Pull out the air filters.**
   - Push a little upwards the tab at the center of each air filter, then pull it down.

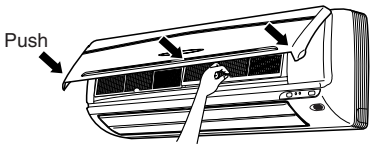


3. **Take off the Titanium Apatite Photocatalytic Air-Purifying Filter.**
   - Hold the recessed parts of the frame and unhook the four claws.
4. **Clean or replace each filter.**
   See below.



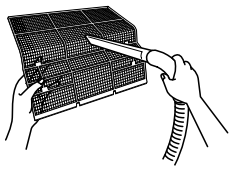


5. **Set the air filter and the Titanium Apatite Photocatalytic Air-Purifying Filter as they were and close the front panel.**
   - Insert claws of the filters into slots of the front panel. Close the front panel slowly and push the panel at the 3 points. (1 on each side and 1 in the middle.)

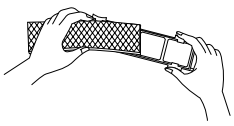


■ Air Filter

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.

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.**

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. (with frame) 1 set	KAF918A45
Titanium Apatite Photocatalytic Air-Purifying Filter. (without frame) 1 set	KAF918A46

2.9 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 to 4 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.
Mists come 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 to 4 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 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.

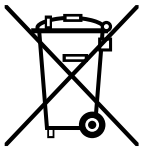
■ Do not attempt to repair or modify the air conditioner by yourself.
Incorrect work may result in electric shocks or fire.
Consult the service shop where you bought the air conditioner.

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 to 4minutes. 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.

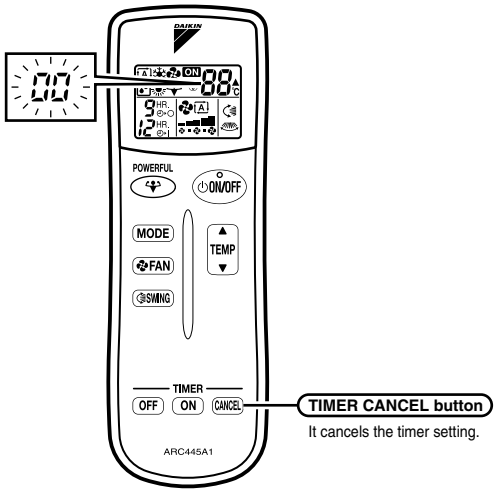
In certain operating conditions, the inside of the air conditioner may get foul after several seasons of use, resulting in poor performance. It is recommended to have periodical maintenance by a specialist aside from regular cleaning by the user. For specialist maintenance, contact the service shop where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

Fault diagnosis.

FAULT DIAGNOSIS BY REMOTE CONTROLLER

In the ARC445A 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
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	F6	HIGH PRESSURE CONTROL (IN COOLING)
	J6	FAULTY HEAT EXCHANGER 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.

3P147100-1D

Part 6
Service Diagnosis

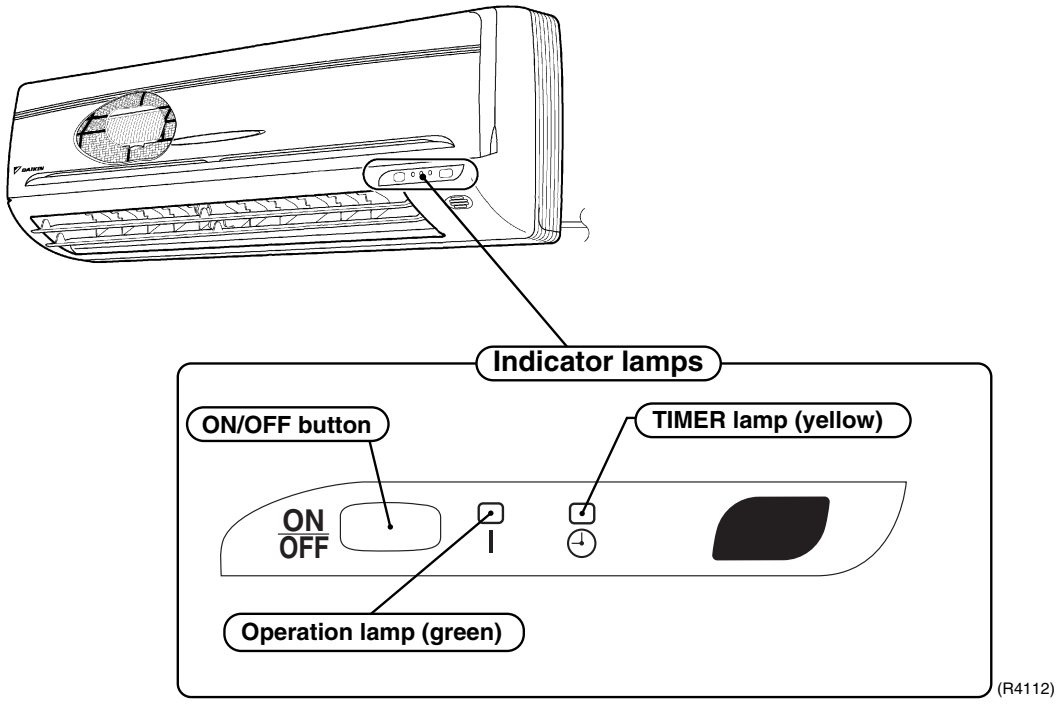
1. Caution for Diagnosis

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



2. Problem Symptoms and Measures

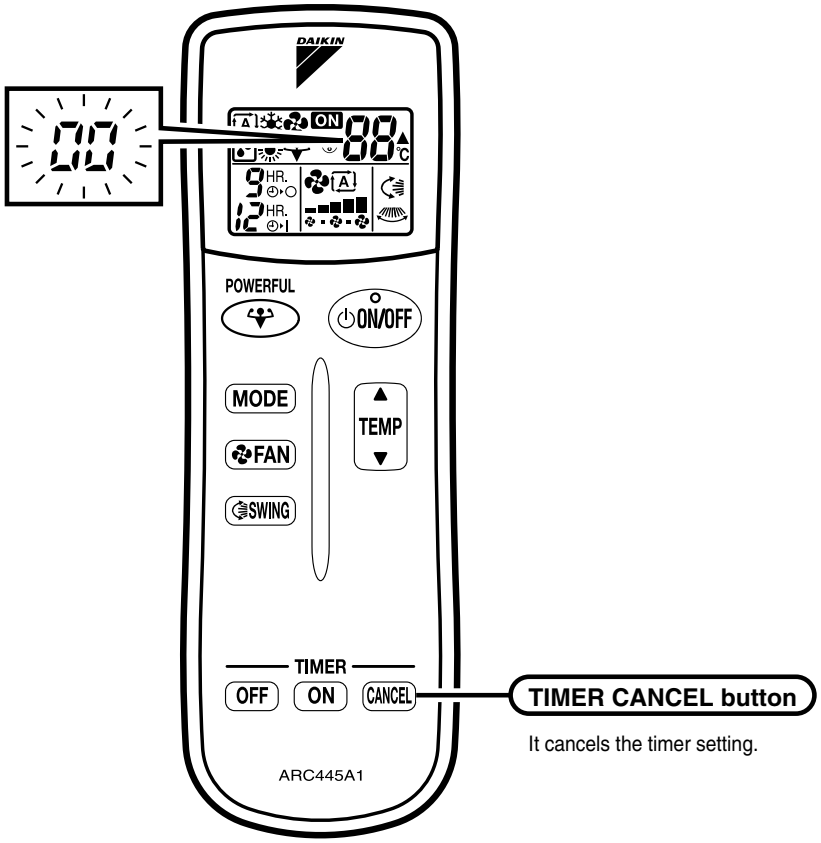
Problem	Check	Solution	Reference Page
None of the units operates.	Check the power supply.	Check to make sure that the rated voltage is supplied.	—
	Check the type of the indoor units.	Check to make sure that the indoor unit type is compatible with the outdoor unit.	—
	Check the outdoor air temperature.	Heating operation cannot be used when the outdoor air temperature is 20°C or higher, and cooling operation cannot be used when the outdoor air temperature is below 15°C (RYN models) or 10°C (ARY models).	—
	Diagnosis with remote controller indication	—	57
	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 20°C or higher, and cooling operation cannot be used when the outdoor air temperature is below 15°C (RYN models) or 10°C (ARY models).	—
	Diagnosis with remote controller indication	—	57
Equipment operates but does not cool, or does not heat.	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.	—
	Diagnosis with remote controller indication	—	57
Large operating noise and vibrations	Check the output voltage of the power transistor.	—	—
	Check the power transistor.	—	—
	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Technical Guide, etc.) are provided.	—

3. Service Check Function

The temperature display sections on the main unit indicate corresponding codes.

Check Method 1

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



(R4759)

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.

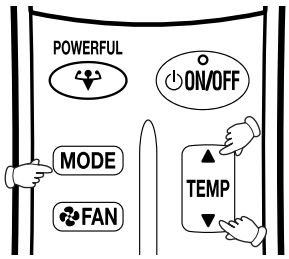
No.	Code	No.	Code	No.	Code
1	00	12	F6	23	A1
2	U4	13	C7	24	E1
3	L5	14	A3	25	UA
4	E6	15	H8	26	UH
5	H6	16	H9	27	P4
6	H0	17	C9	28	L3
7	A6	18	C4	29	L4
8	E7	19	C5	30	H7
9	U0	20	J3	31	U2
10	F3	21	J6	32	EA
11	A5	22	E5	33	AH

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.

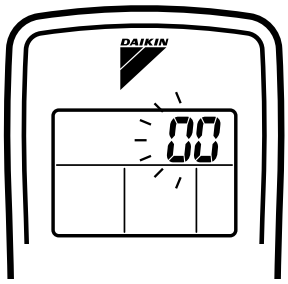
Check Method 2

1. Enter the diagnosis mode.
   Press the 3 buttons (TEMP▲,TEMP▼, MODE) simultaneously.



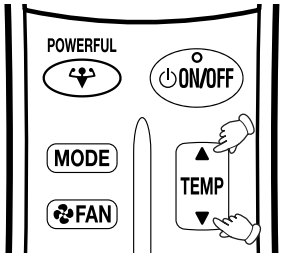
(R4735)

   The digit of the number of tens blinks.
   ★Try again from the start when the digit does not blink.



(R4736)

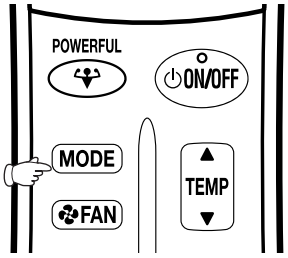
2. Press the TEMP button.
   Press TEMP▲ or TEMP▼ and change the digit until you hear the sound of “beep” or “pi pi”.



(R4737)

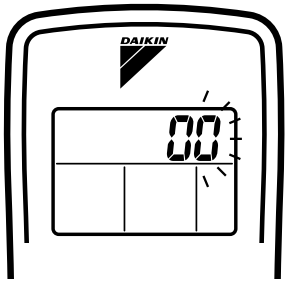
3. Diagnose by the sound.
   ★“ pi ” : The number of tens does not accord with the error code.
   ★“ pi pi ” : The number of tens accords with the error code.
   ★“ beep ” : The both numbers of tens and units accord with the error code. (→ See 7.)

4. Enter the diagnosis mode again.
   Press the MODE button.



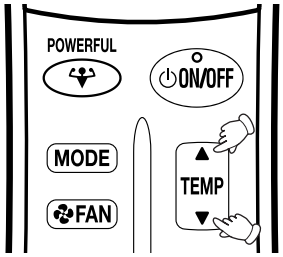
(R4738)

The digit of the number of units blinks.



(R4739)

5. Press the TEMP button.
   Press TEMP▲ or TEMP▼ and change the digit until you hear the sound of “beep”.

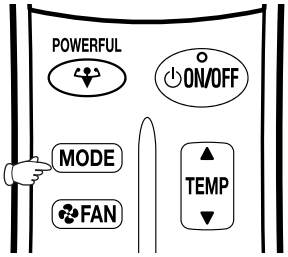


(R4737)

6. Diagnose by the sound.
   ★“ pi ” : The both numbers of tens and units do not accord with the error code.
   ★“ pi pi ” : The number of tens accords with the error code.
   ★“ beep ” : The both numbers of tens and units accord with the error code.

7. Determine the error code.
   The digits indicated when you hear the “beep” sound are error code.
   (Error codes and description → Refer to page 57.)

8. Exit from the diagnosis mode.
   Press the MODE button.



(R4738)

4. Troubleshooting

4.1 Error Codes and Description

	Code	Description	Reference Page
System	00	Normal	—
Indoor Unit	A1	Indoor unit PCB abnormality	58
	A5	Freeze-up protection control or high pressure control	59
	A6	Fan motor or related abnormality (AC motor)	61
	C4	Heat exchanger thermistor abnormality	62
	C9	Room temperature thermistor abnormality	62
Outdoor Unit	F6	High pressure control in cooling	63
	J6	Heat exchanger thermistor or related abnormality	65

★: 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

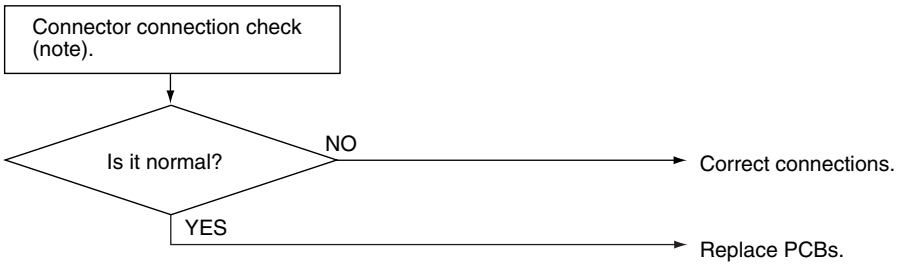
When there is no zero-cross detection in approximately 1.25 continuous seconds.

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.
All indoor units	Terminal strip~Control PCB

4.3 Freeze-up Protection Control or High Pressure Control

Remote Controller Display

A5

Method of Malfunction Detection

- High pressure control
  During heating operations, the temperature detected by the indoor heat exchanger thermistor is used for the high pressure control (stop, outdoor fan stop, etc.)
- 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 63°C (FTYN models) or 65°C (ATY models).
- Freeze-up protection
  When the indoor unit heat exchanger temperature is below 0°C during cooling operation.

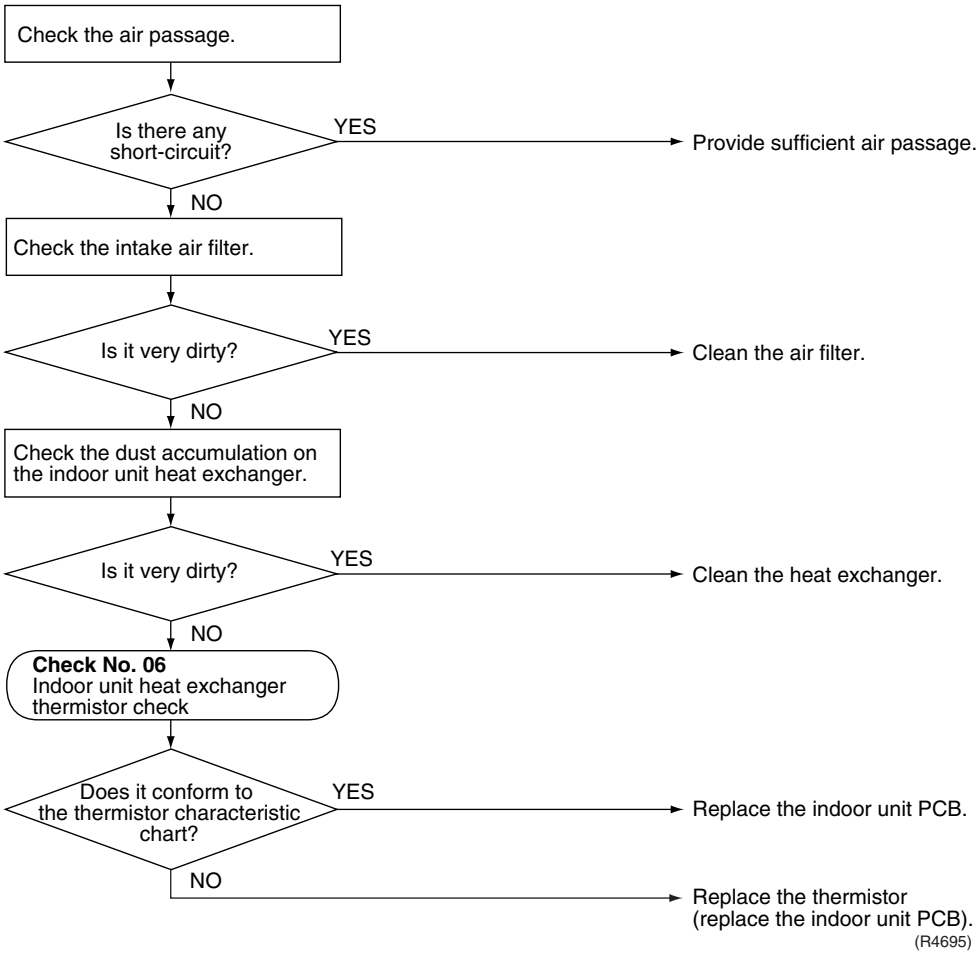
Supposed Causes

- 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.67

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



(R4695)

4.4 Fan Motor or Related Abnormality (AC motor)

Remote Controller Display

A6

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 is less than 50% of each tap under maximum fan motor rotation demand.

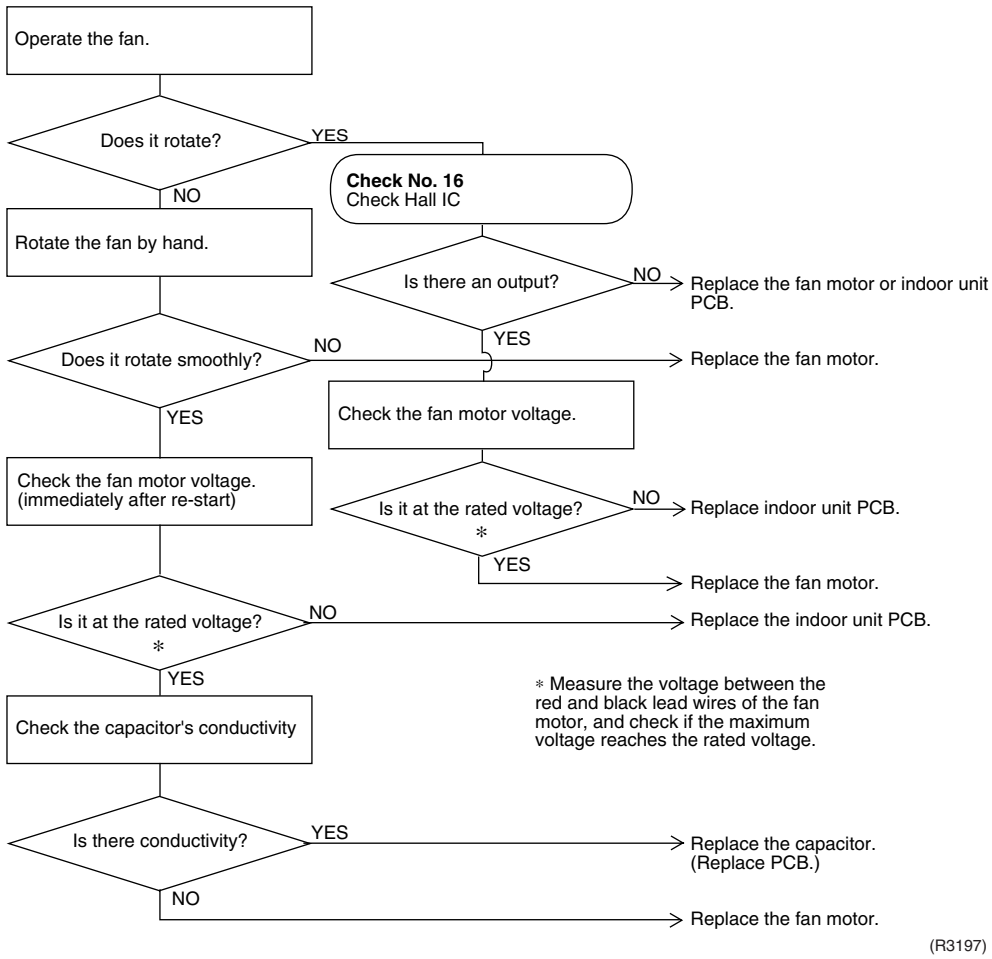
Supposed Causes

- 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.16
Refer to P.69

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



(R3197)

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*.

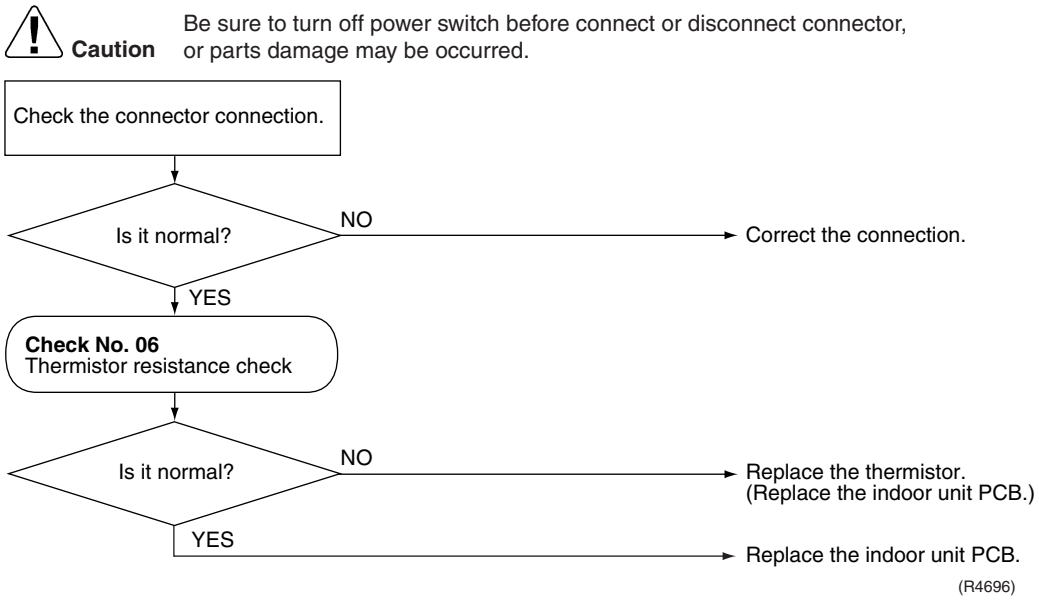
* (Reference)
Indoor heat exchanger thermistor: above about 100°C (less than 670Ω)
Room temperature thermistor: above about 70°C (less than 1.7kΩ)

Supposed Causes

- Faulty connector connection
- Faulty thermistor
- Faulty PCB

Troubleshooting

Check No.06
Refer to P.67



C4 : Indoor heat exchanger thermistor
C9 : Room temperature thermistor

4.6 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 63°C (RYN models) or 65°C (ARY models).
- Deactivated when the temperature drops below 48°C (RYN models) or 50°C (ARY models).

Supposed Causes

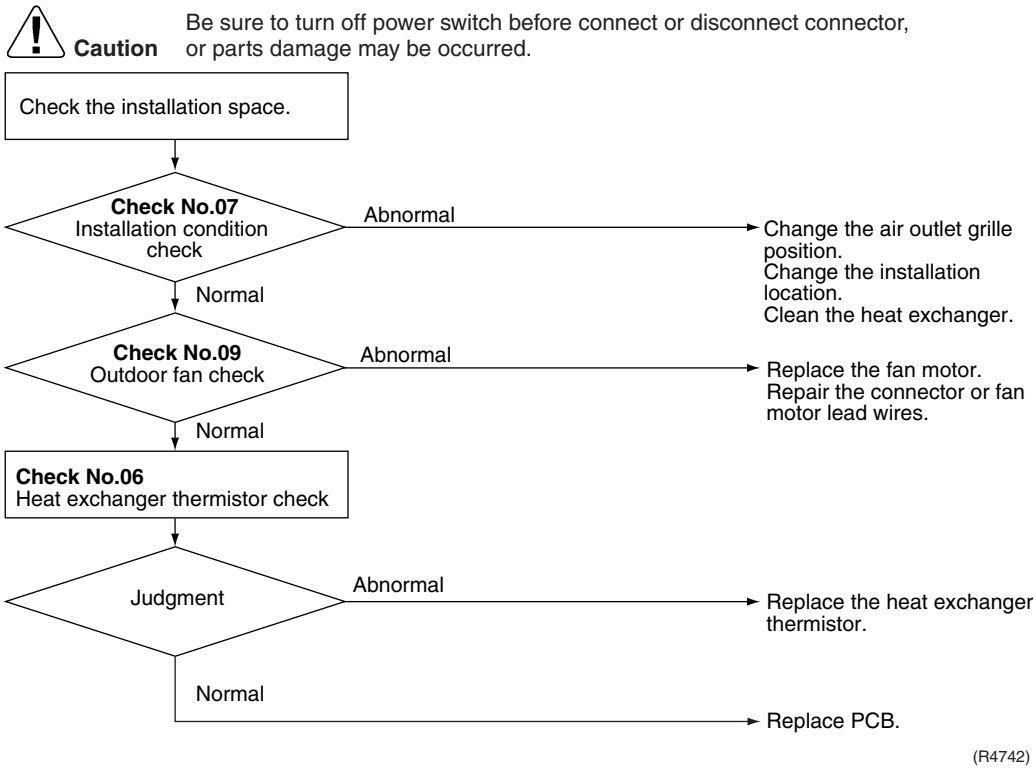
- The installation space is not large enough.
- Faulty outdoor unit fan
- Faulty heat exchanger thermistor
- Faulty stop valve
- Dirty heat exchanger

Troubleshooting

Check No.06
Refer to P.67

Check No.07
Refer to P.68

Check No.09
Refer to P.69



4.7 Thermistor or Related Abnormality (Outdoor Unit)

Remote Controller Display

J6

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

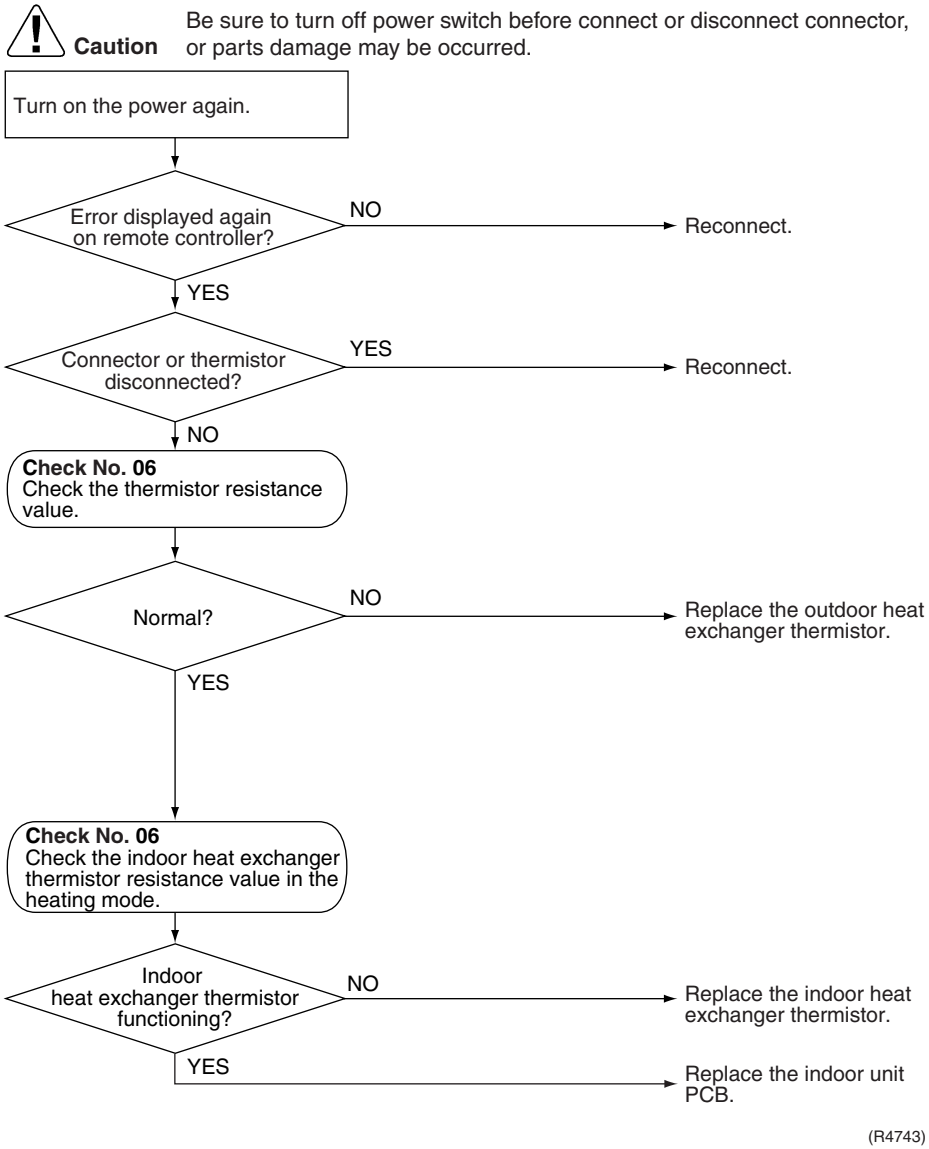
The thermistor input is above 4.96 V or below 0.04 V with the power on.
Outdoor heat exchanger thermistor: above about 100°C (less than 670Ω)

Supposed Causes

- Connector in poor contact
- Thermistor defective
- Indoor unit PCB defective

Troubleshooting

Check No.06
Refer to P.67



J5 : Outdoor heat exchanger thermistor

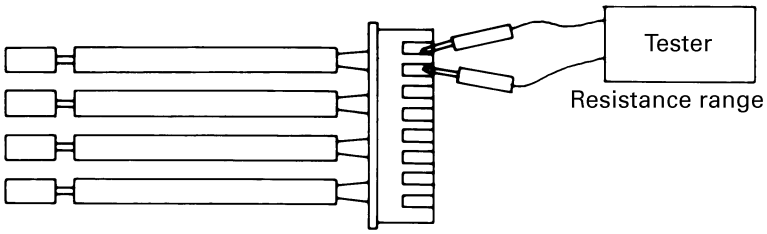
5. Check

5.1 Thermistor Resistance Check

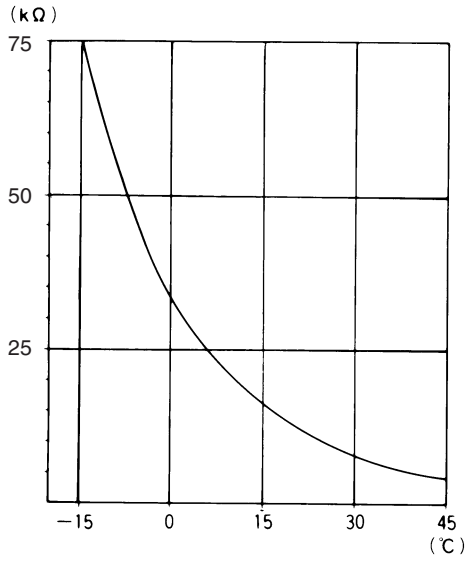
Check No.06

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=10kΩ B=3950
–20	99.0 (kΩ)
–15	74.0
–10	56.0
–5	42.0
0	32.0
5	25.0
10	20.0
15	16.0
20	13.0
25	10.0
30	8.0
35	7.0
40	5.3
45	4.0
50	3.5



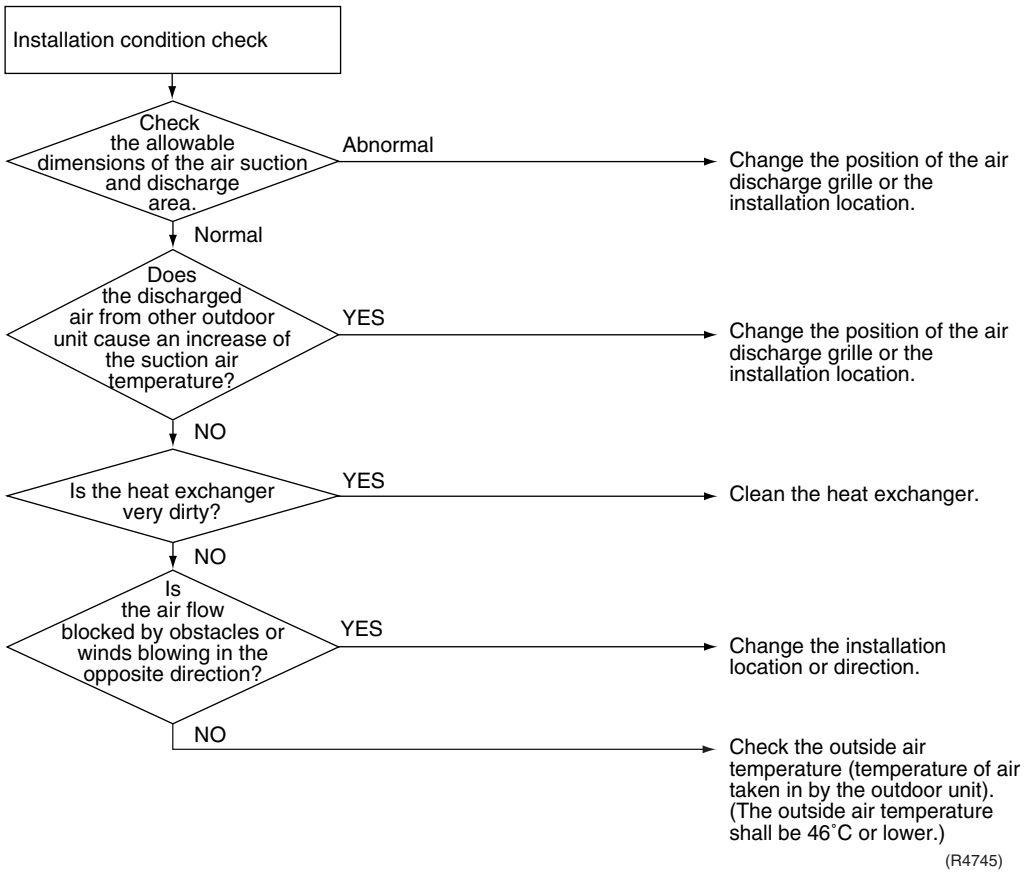
（R25＝10kΩ、B＝3950）



(R4744)

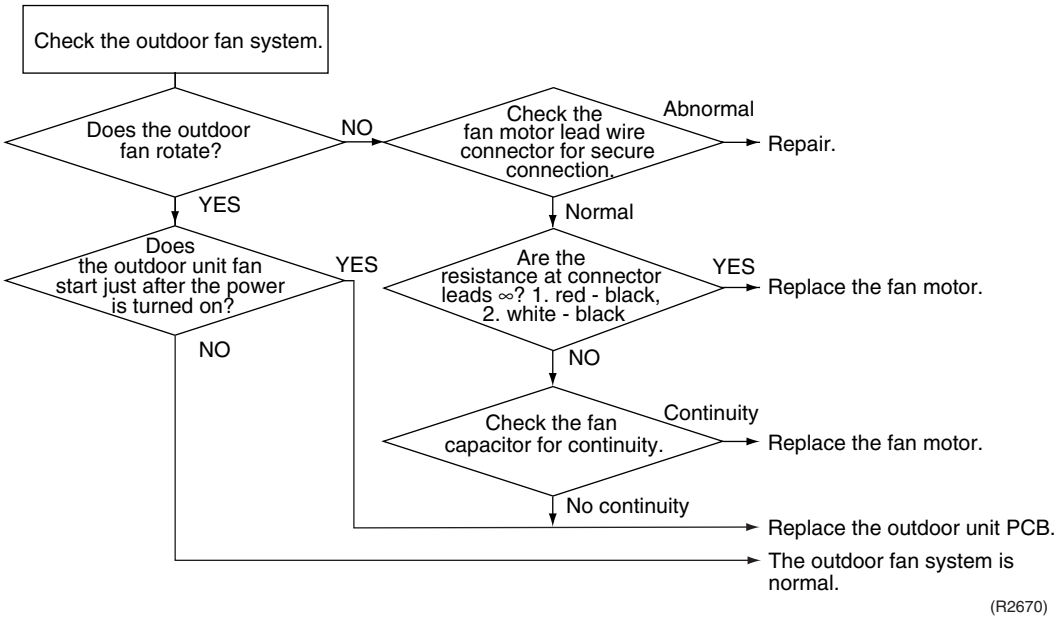
5.2 Installation Condition Check

Check No.07



5.3 Outdoor Unit Fan System Check

Check No.09



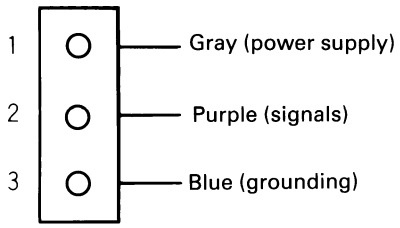
(R2670)

5.4 Hall IC Check

Check No.16

1. Check the connector connection.
2. With the power ON, operation OFF, and the connector connected, check the following.
   ∗Output voltage of about 5 V between pins 1 and 3.
   ∗Generation of 3 pulses between pins 2 and 3 when the fan motor is operating.

Failure of (1) → faulty PCB → Replace the PCB.
Failure of (2) → faulty Hall IC → Replace the fan motor.
Both (1) and (2) result → Replace the PCB.



(R1968)

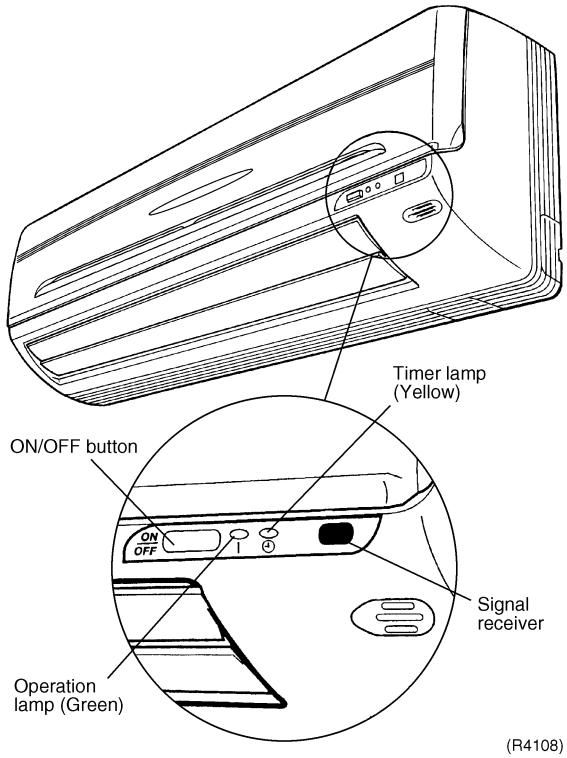
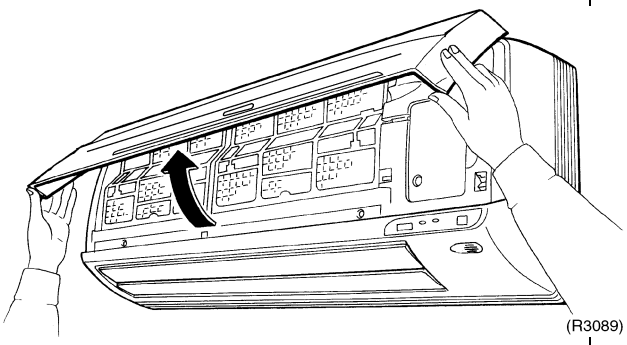
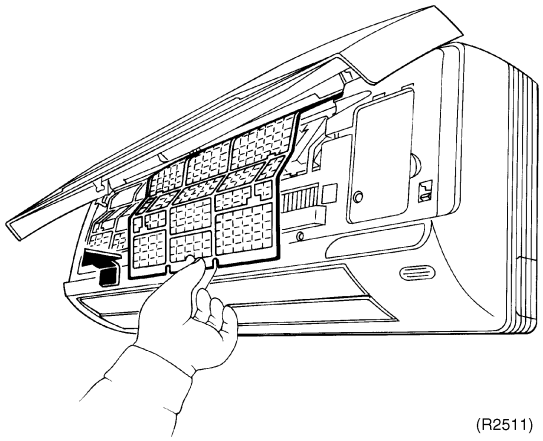
Part 7
Removal Procedure

1. Indoor Unit

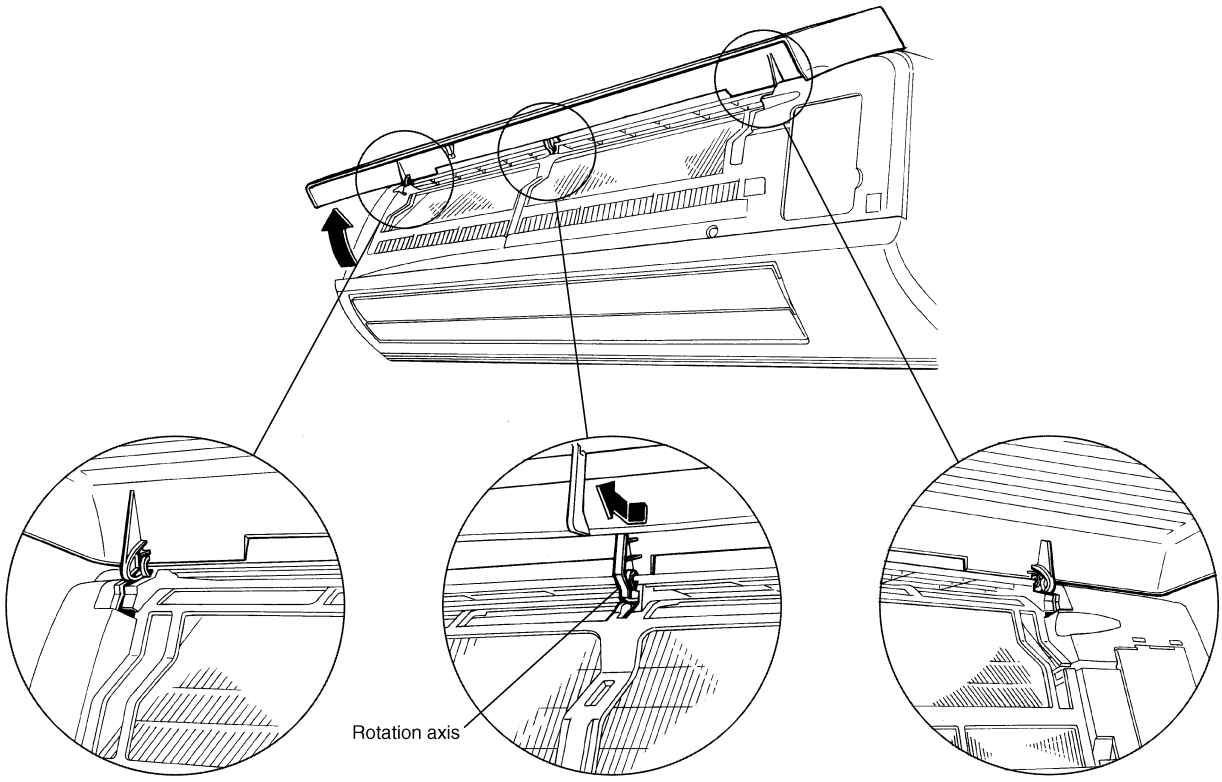
1.1 Removal of Air Filter

Procedure

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

Step	Procedure	Points
1. External features		■ If ON/OFF button is kept pushing for 5 seconds, a forced cooling operation will be carried out for approx. 15 minutes. ■ 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 Pull protrusions on left and right sides of panel with fingers and open front grille all the way.		
2 Lift center section of air filter and disengage hooks. Remove air filter by pulling forward.		■ Left and right filters are interchangeable. ■ To re-install, insert air filter along the guide.

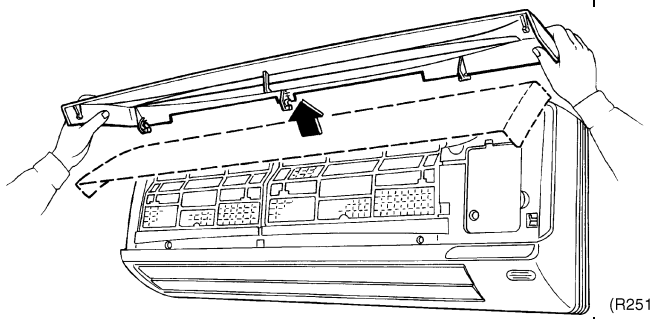
Step	Procedure	Points
3. Remove the front panel.		
1	Hook a finger onto the projection part provided on the both sides of the unit's panel and open up the panel to the position higher than it will stop.	Support the front panel by one hand, while remove the rotation axis at the upper center by the other hand. ■ And pull out the front panel forward to remove.



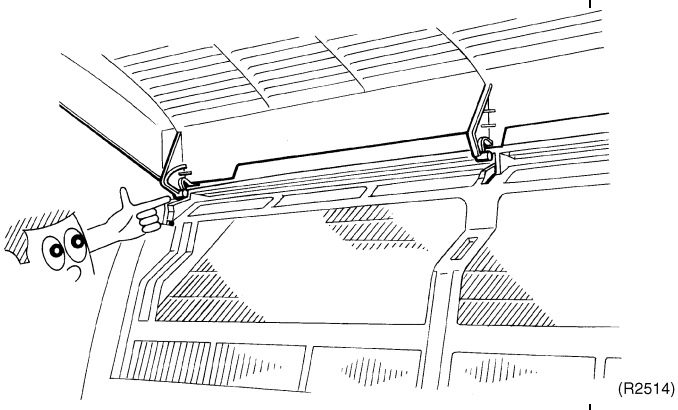
Slide the center rotary axis the left and remove it out.

(R2512)

2	Remove front panel from the unit.	



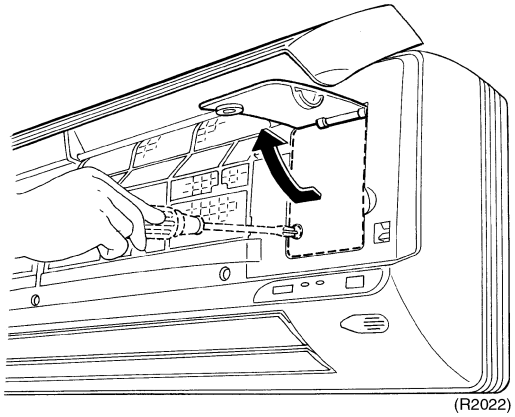
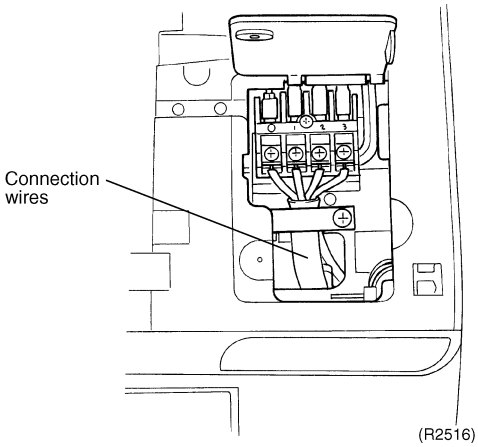
(R2513)

Step	Procedure		Points
3	When restoring the air filter, make sure that the projection parts on the panel are in the guide groove, and then shut the panel.	 (R2514)	

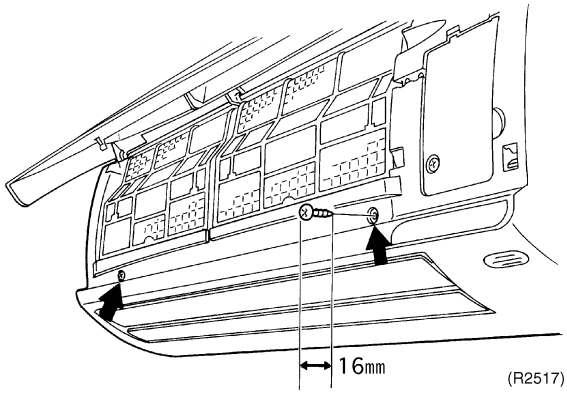
1.2 Removal of Front Grille

Procedure

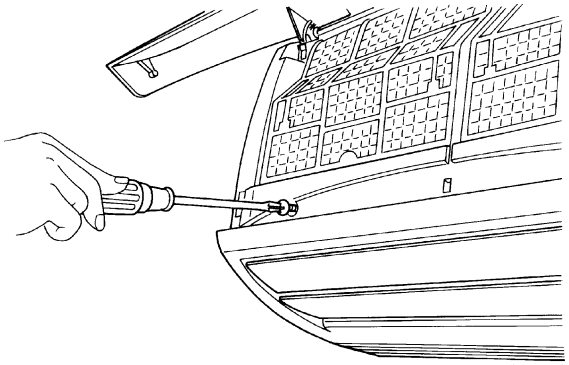
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

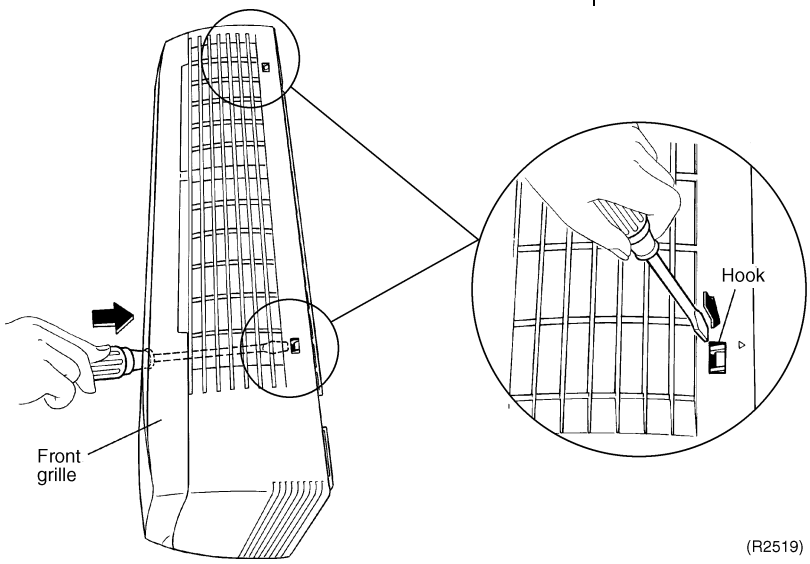
Step	Procedure	Points
1. Remove the service cover.	 (R2022)  (R2516)	■ A switch for field setting is not provided in particular.
1 Remove a service cover mounting screw. Open service cover upward.		

Step	Procedure	Points
2. Remove the front grille assembly.		
1	Remove the two screws, in the right and the left, which fix the main body with the front grille.	■ Screw stoppers inside the flap which were equipped in the existing models are not provided.
2	Disengage the two hooks on the upper part. In case that the hooks are not pressed from above, remove the front panel and then remove the grille while pushing the hook through a clearance between the front grille and the heat exchanger.	■ At the upper part there are two hooks in the left and the right. ■ Disengage the hooks by pressing knobs with a screwdriver.

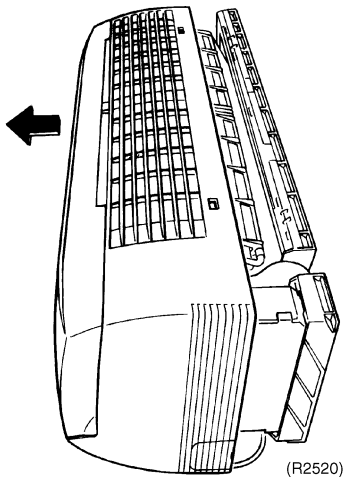
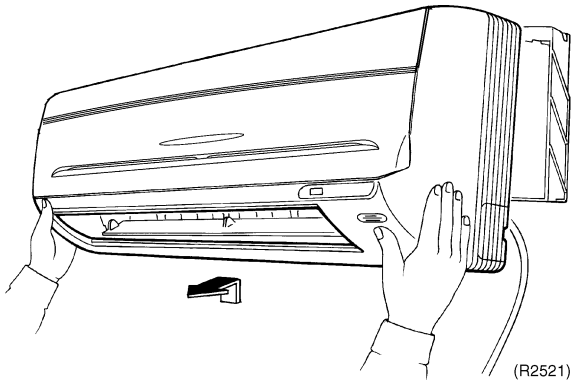


(R2517)


(R2518)



(R2519)

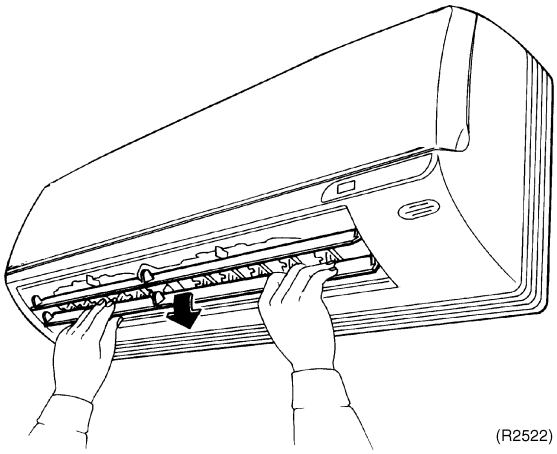
Step	Procedure		Points
3	The front grille can be removed in a manner to pull out the upper part forward and lift up the lower part.	 (R2520)  (R2521)	■ When restoring the grille, Make sure whether each hook is set as it was.

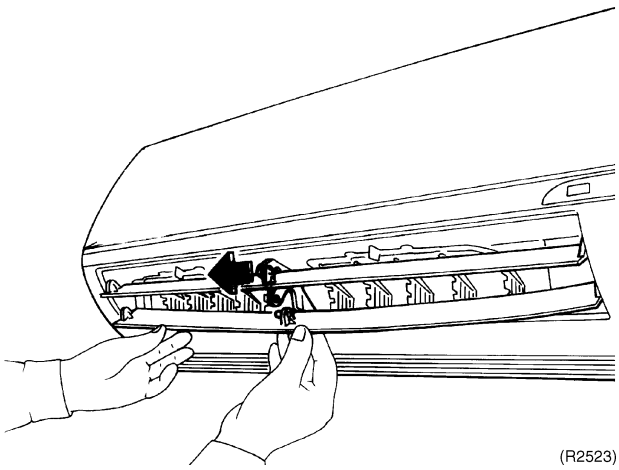
1.3 Removal of Horizontal Blades / Vertical Blades

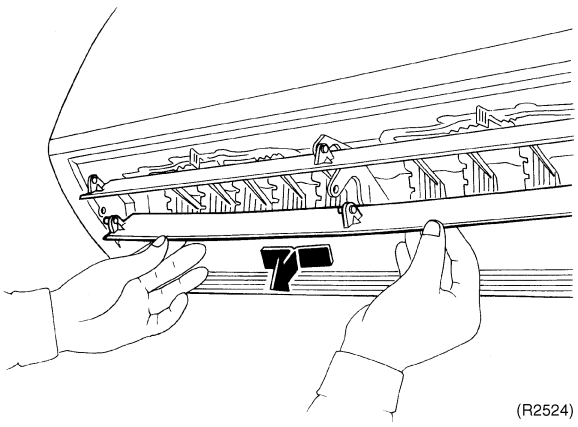
Procedure

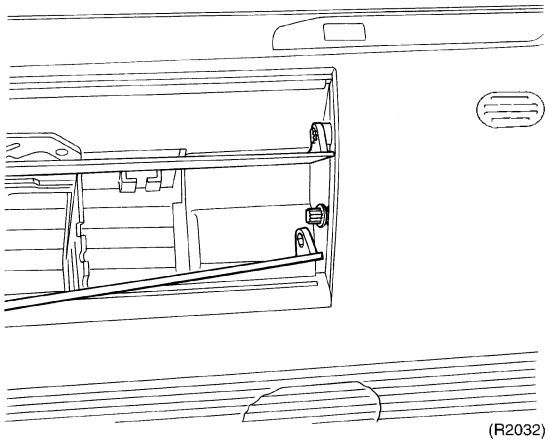
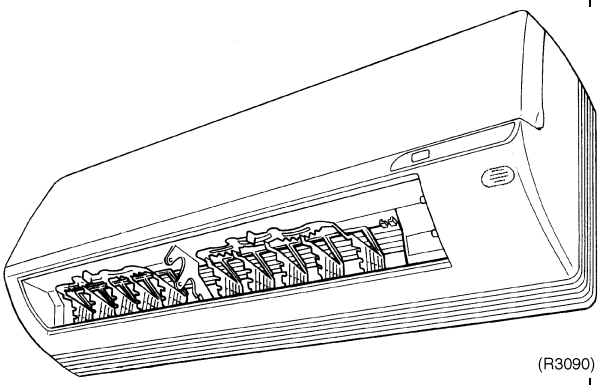
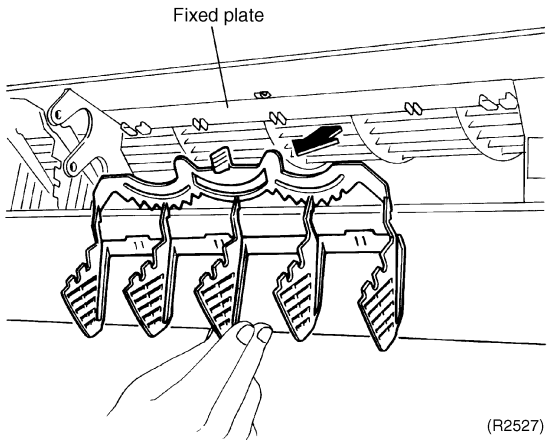
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
1. Remove the horizontal blades.		
1	Lift horizontal blade to open position.	■ Screw stoppers inside the flap which were equipped in the existing models are not provided.
2	Disengage horizontal blade from blade retaining section.	
3	Bend blade slightly and remove it from the unit.	


(R2522)


(R2523)

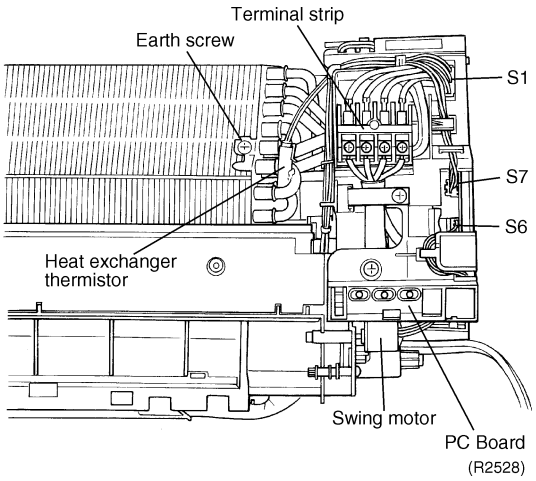
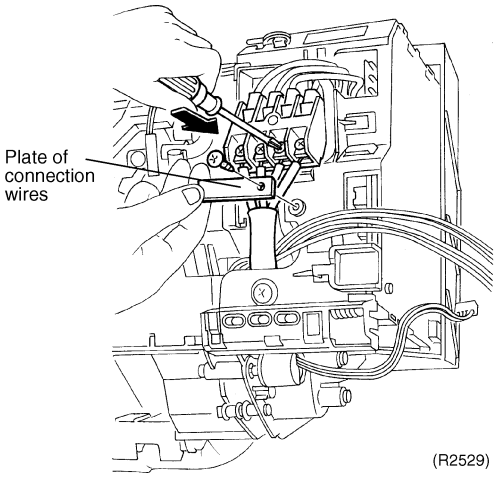
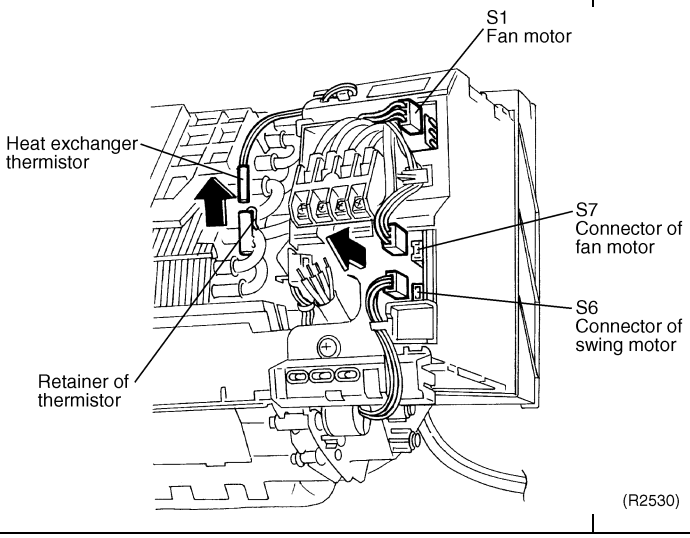

(R2524)

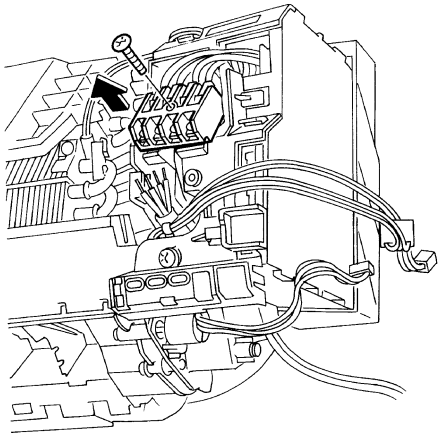
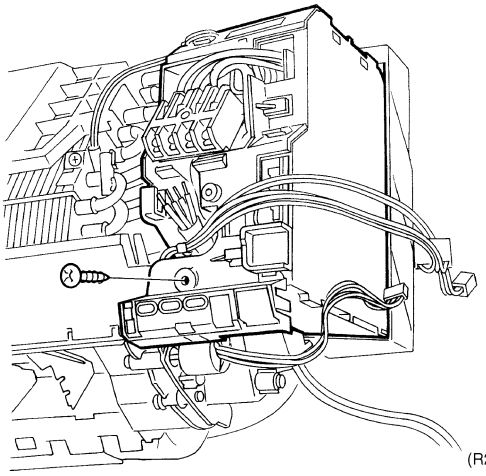
Step	Procedure		Points
		 (R2032)	■ For restoring. 1. Since the key pattern hook is provided on the left side, insert the edge of the blade to the tip while rotating it. 2. Restore the two fixed parts of the horizontal blade onto the hook.
2. Remove the vertical blades.			
1	Disengage the vertical blade's joint from the fixed plate.	 (R3090)	
2	Remove the blade forward.	 (R2527)	■ Five vertical blades are integrated with the joint rod. (so, only one blade can't be exchanged.)

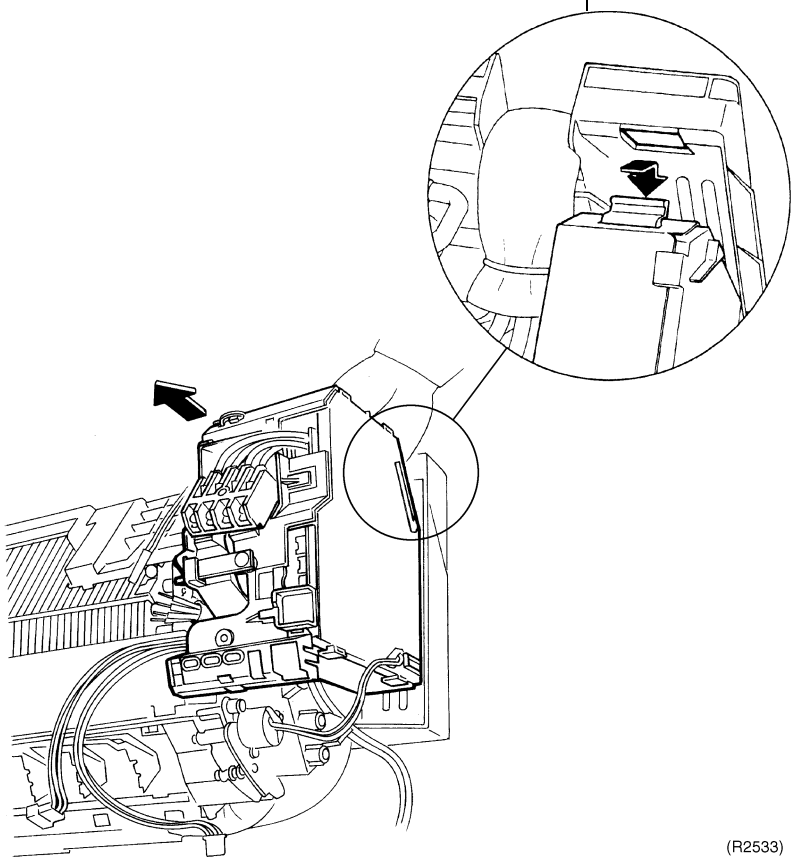
1.4 Removal of Electrical Parts Box / PCB / Swing Motor

Procedure

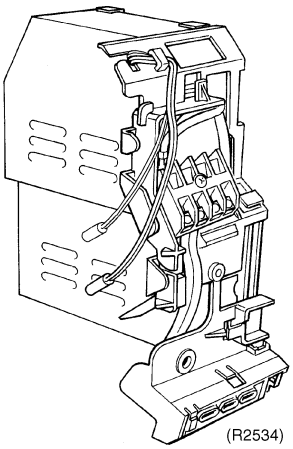
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

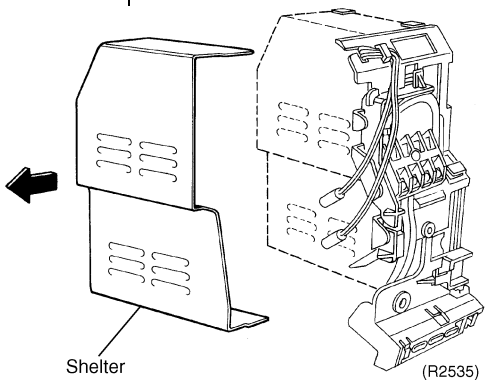
Step	Procedure	Points
■ Remove the front grill.		
1. Remove the electrical parts box. 1 Disconnect the connection wires. 2 Disconnect the connectors of fan motor (S1 and S7). 3 Disconnect the connector of swing motor (S6). 4 Remove heat exchanger thermistor.	 	■ Pay attention to the direction of the retainer of the thermistor so that the retainer will not touch the harness (same as the existing models.)

Step	Procedure		Points
5	Remove a screw on the terminal strip.	 (R2531)	■ The electrical parts box can be removed instead of disengaging the terminal strip.
6	Remove a screw on the electrical parts box.	 (R2532)	

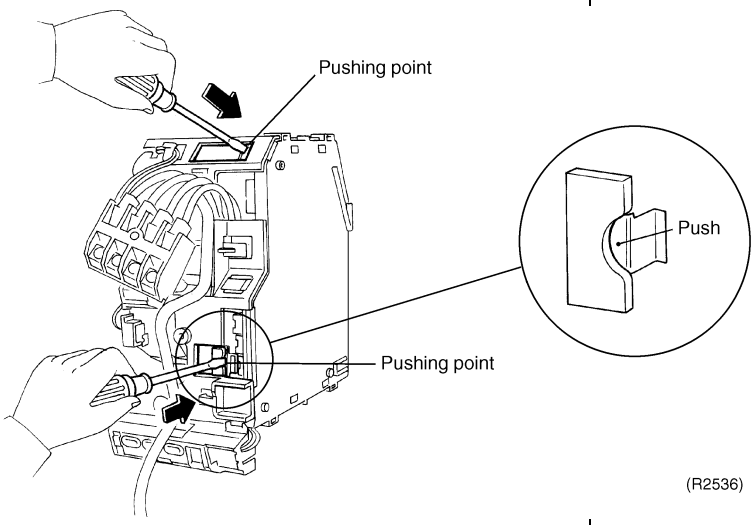
Step	Procedure		Points
7	Pull up the electrical parts box forward to remove.	 (R2533)	■ A hook is provided on the behind.

Step	Procedure	Points
2. Remove the printed circuit board (PCB).		
1	Remove the shelter.	
2	Disengage the front plate of the electrical parts box. Disengage the knobs by pushing the two hooks at the top and the bottom.	
3	Sliding to the left, the front part of the electrical parts box can be removed.	

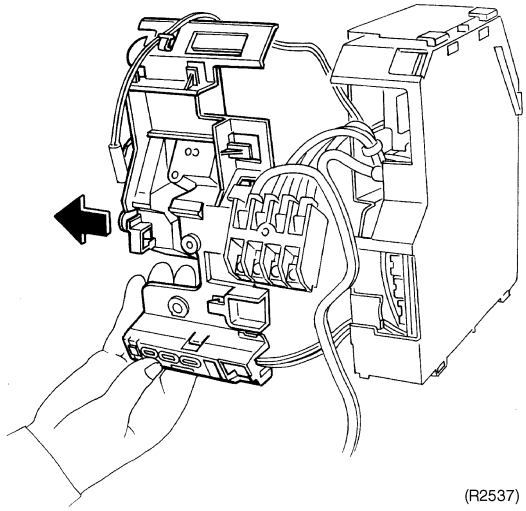

(R2534)

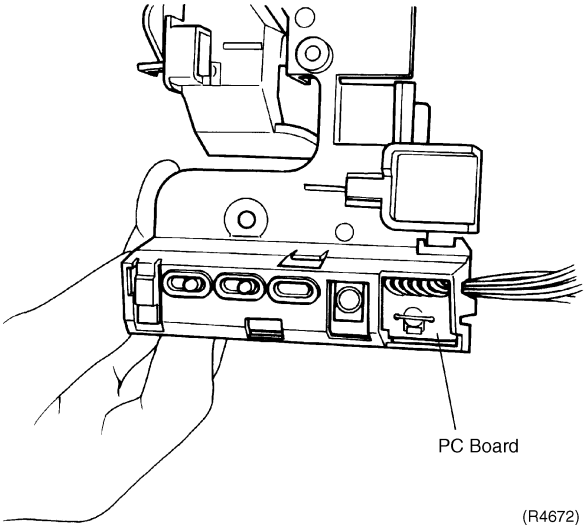
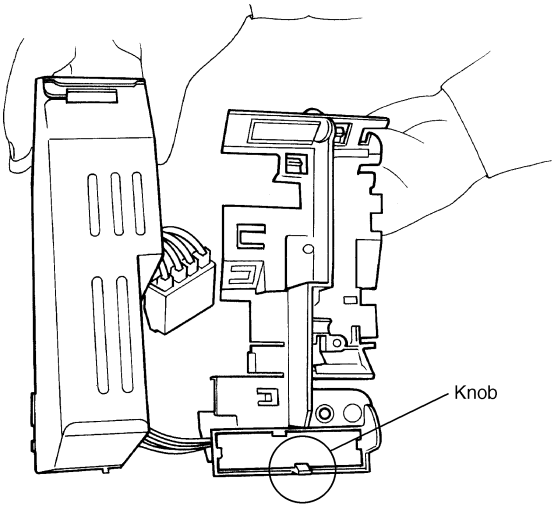
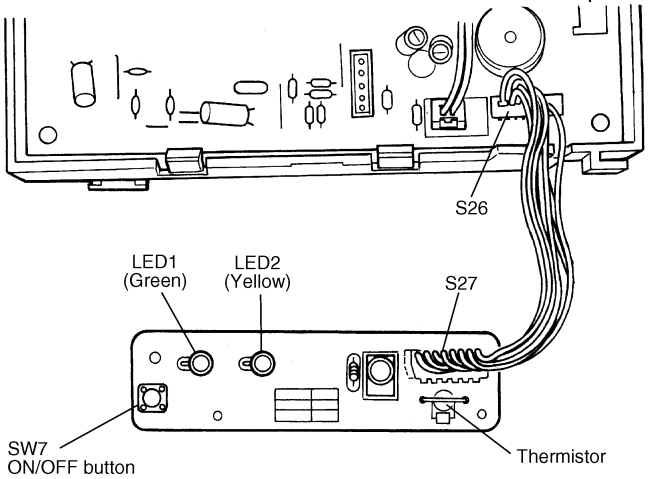


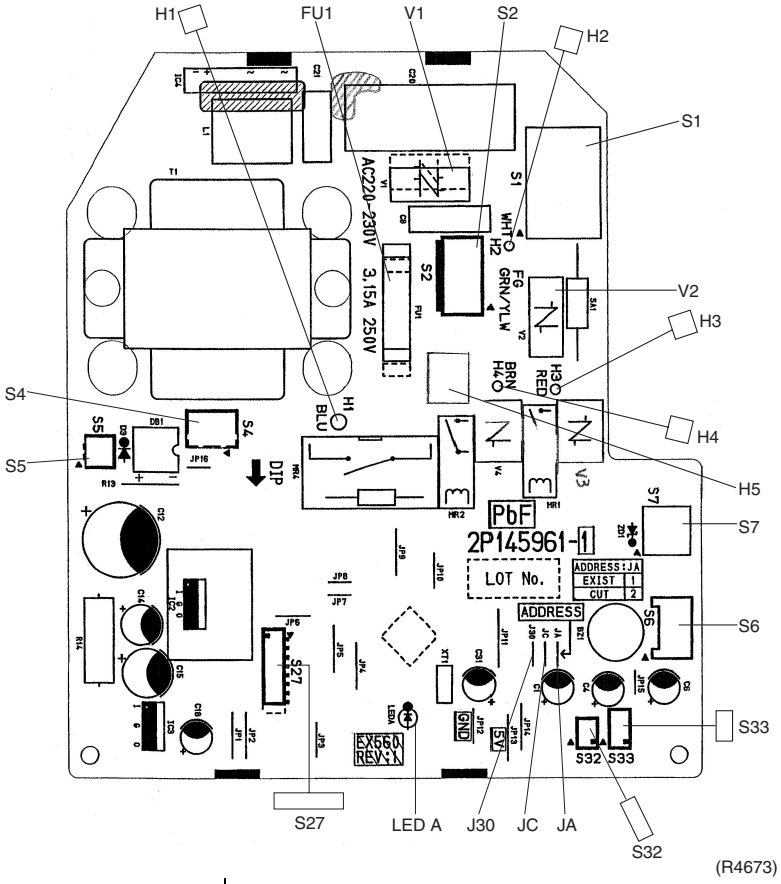
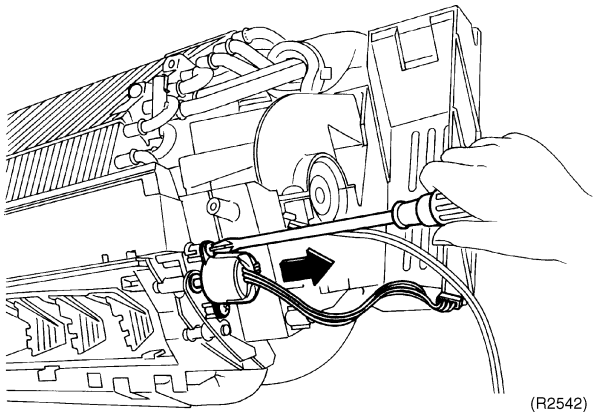
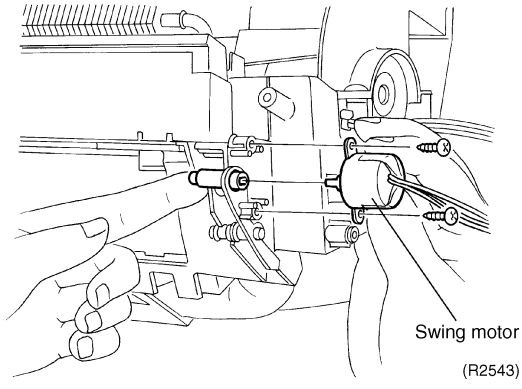
(R2535)



(R2536)


(R2537)

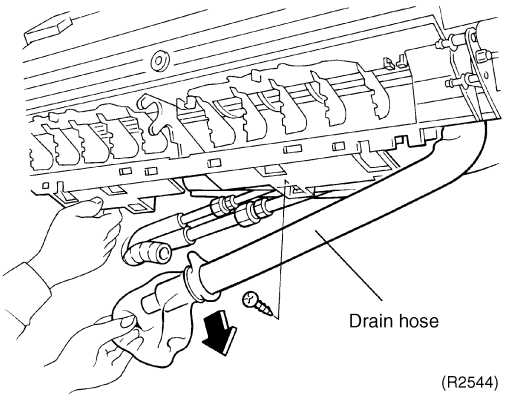
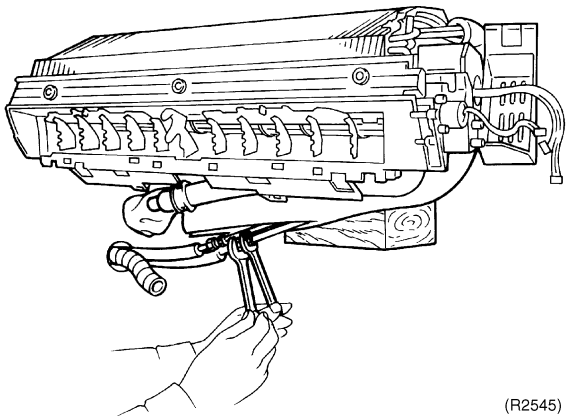
Step	Procedure		Points
		 (R4672)	
4	Disengage the four knobs on the back of the signal receiver PCB.	 (R2539)	
5	Signal receiver PCB	 (R2047)	

Step	Procedure	Points
6	Control PCB 	■ The control printed circuit board is integrated with the power supply printed circuit board.
3. Remove the swing motor assembly.		■ Provide a supporter so that the joint link will not drop off, in case the horizontal blade assembly is removed.
1 To remove swing motor assembly, remove two screws. (Manual adjusting for the vertical blades.)		

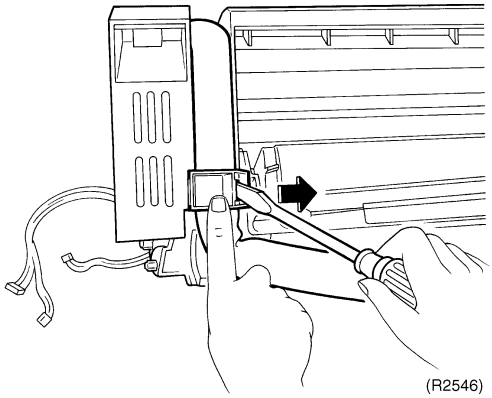
1.5 Removal of Heat Exchanger

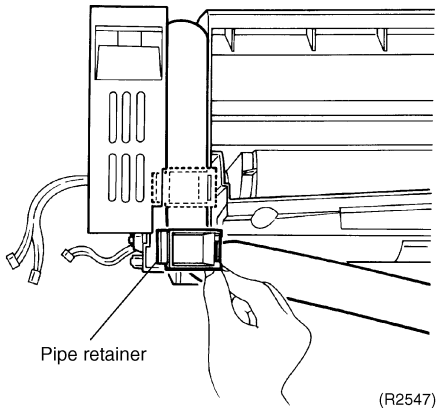
Procedure

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

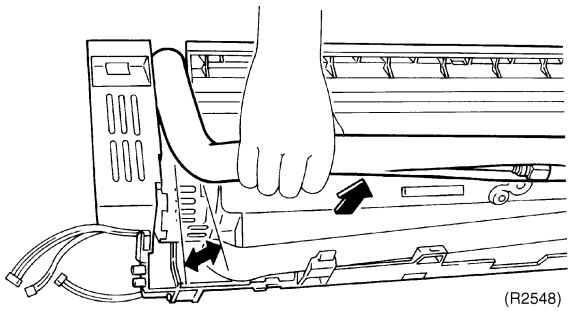
Step	Procedure		Points
	■ Conduct pump-down operation. ■ Remove the installation frame from the mounting plate.		**Warning** **If gas leaks, repair the leak location, then connect all refrigerant from the unit. Conduct vacuum drying, and charge proper amount of refrigerant.** **Warning** **Do not mix any gas (including air) other than the specified refrigerant (R22) into refrigerating cycle. (Mixing of air or other gas causes abnormal temperature rise in refrigerating cycle, and this results in pipe rupture or personal injuries.)**
1	Remove the drain hose. Make curing so that the residual drain water will not leak out.	 (R2544)	■ Pay attention so that the residual drain will not make a floor dirty. ■ In case that a drain hose is buried inside a wall, remove it after the drain hose in the wall is pulled out.
2	Disengage the insulation tube and disconnect the flare nuts for the gas piping and the liquid piping.	 (R2545)	■ Use two wrenches to disconnect pipe. ■ After pipes are disconnected, close all pipe openings with caps to prevent dust and moisture from entering pipes.
3	Disengage the indoor unit from the installation plate.		

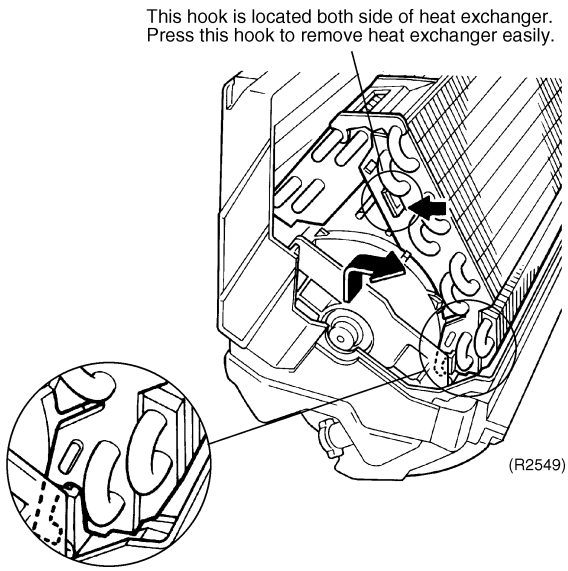
Step	Procedure	Points
4	Disengage the hooks of the pipe retainer on the back.	
5	Pull auxiliary pipe forward to an angle of 10 to 20 degrees.	■ Be careful to prevent pipe deformation.
6	Disengage hooks located right and left side, and pull heat exchanger forward. The hooks are symmetrically placed in the right and the left.	■ Lift the heat exchanger slightly upward to the right, and the left hook comes to be disengaged easily.


(R2546)

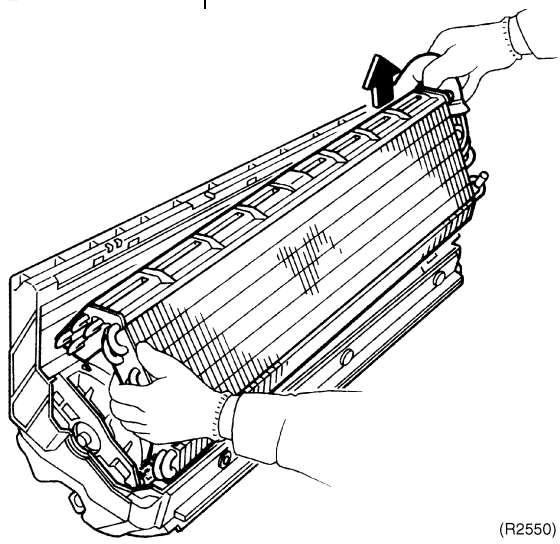


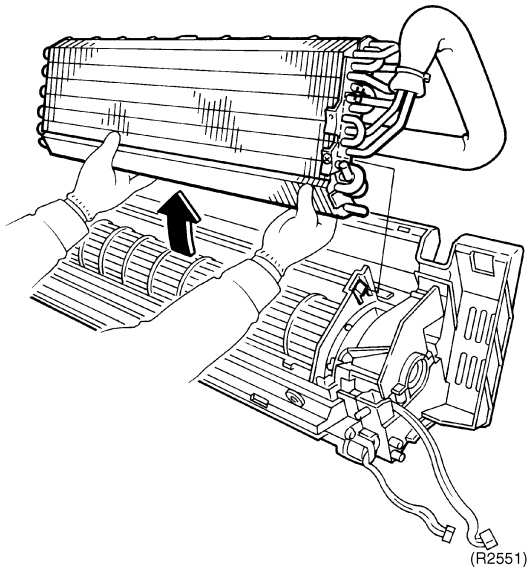
(R2547)


(R2548)



(R2549)

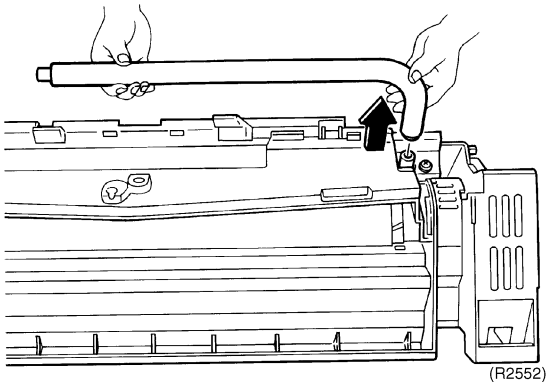
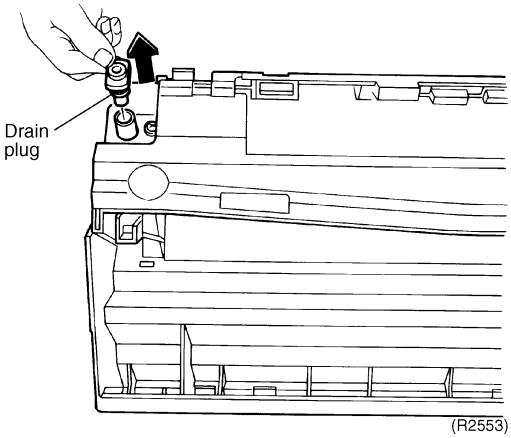
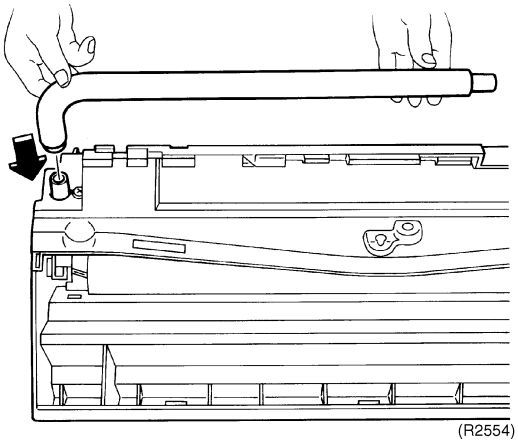
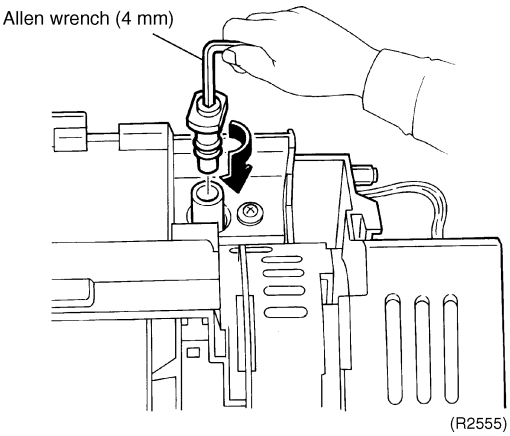

(R2550)

Step	Procedure		Points
7	Lift and remove heat exchanger.	 (R2551)	**Caution** **When removing or re-installing heat exchanger, be sure to wear protective gloves or wrap heat exchanger with cloths. (Fins can cut fingers.)**

1.6 Install of Drain Plug

Procedure

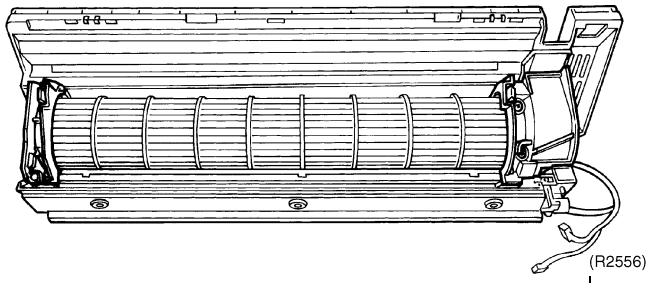
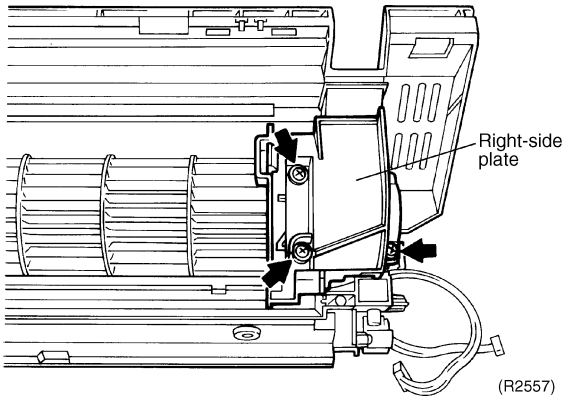
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

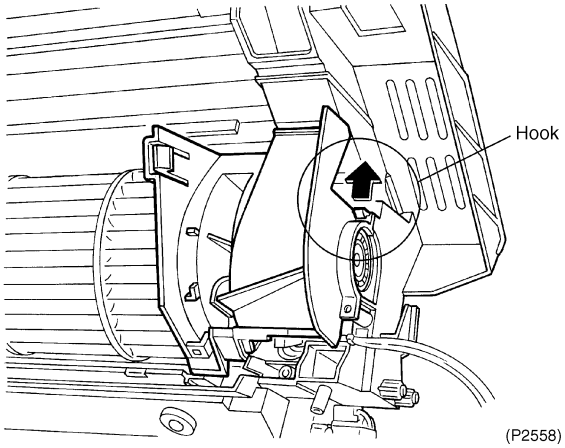
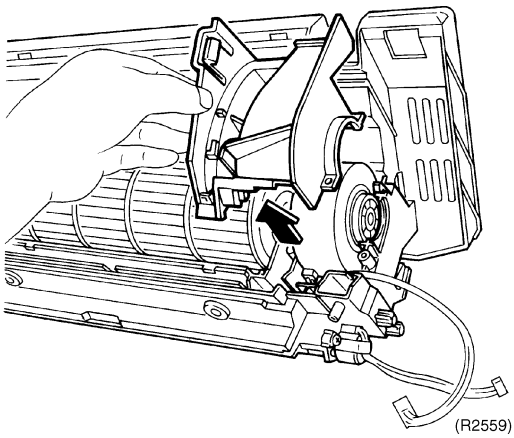
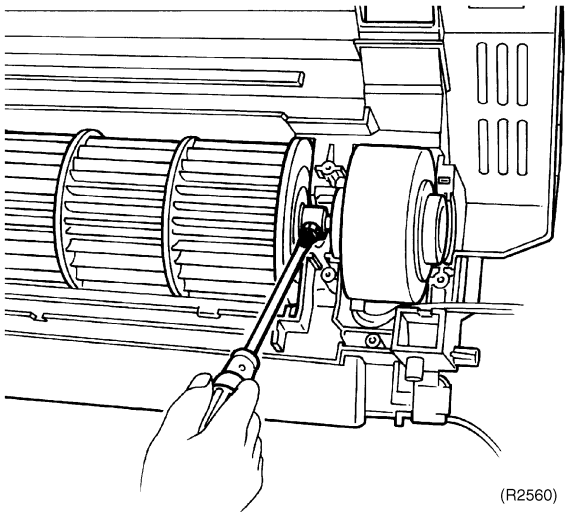
Step	Procedure		Points
1	Disconnect drain hose.	 (R2552)	■ The drain pan is integrated with the bottom plate.
2	Pull out the drain plug in the left on the drain pan by hand.	 (R2553)	
3	Insert the drain hose,	 (R2554)	■ Push it into the inner part firmly.
4	Push the drain plug into the right by Allen wrench.	 (R2555)	■ Push it into the inner part firmly.

1.7 Removal of Fan Rotor / Fan Motor

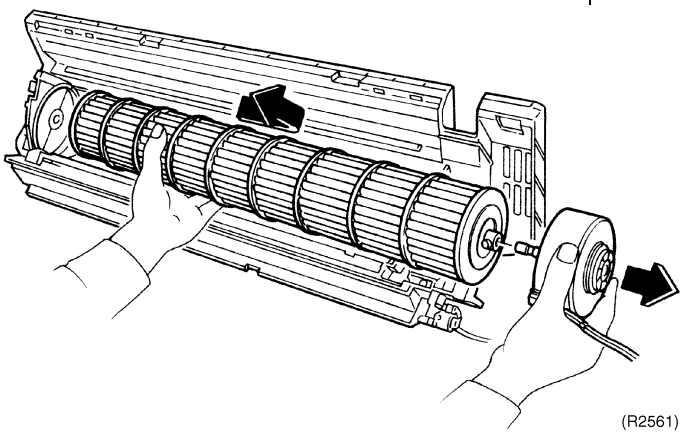
Procedure

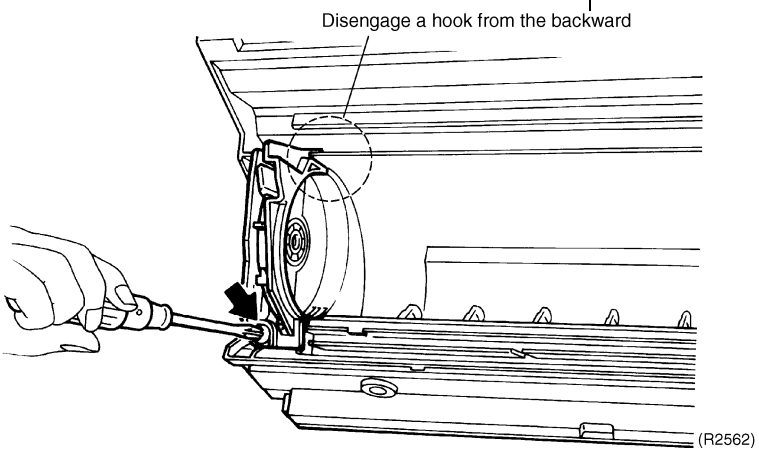
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
■ Remove the heat exchanger.	 (R2556)	
1 To remove right side panel, remove three screws.	 (R2557)	

Step	Procedure		Points
2	Disengage hook.	 (P2558)  (R2559)	
3	Loosen the hexagon head set screw on the fan rotor.	 (R2560)	

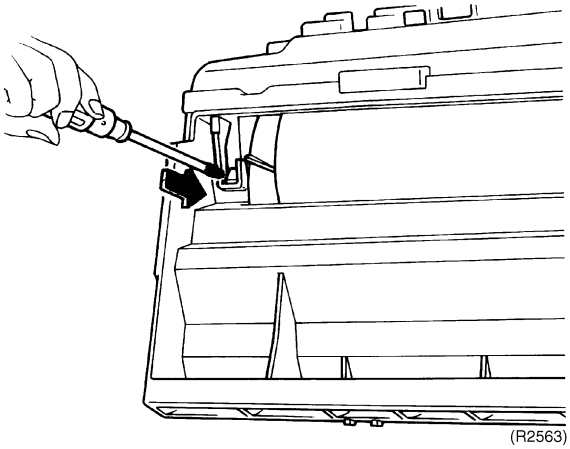
Step	Procedure	Points
4	Remove the motor and fan rotor.	
5	Remove a screw on the left side panel.	

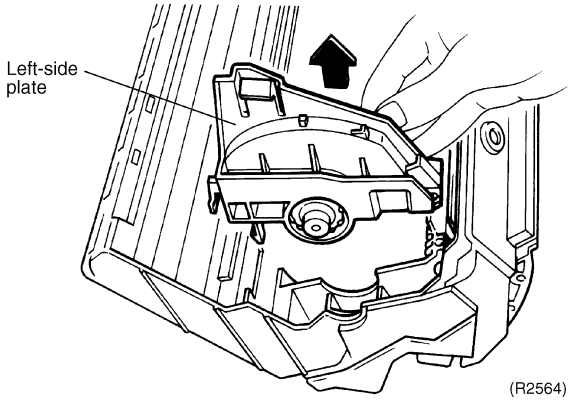

(R2561)



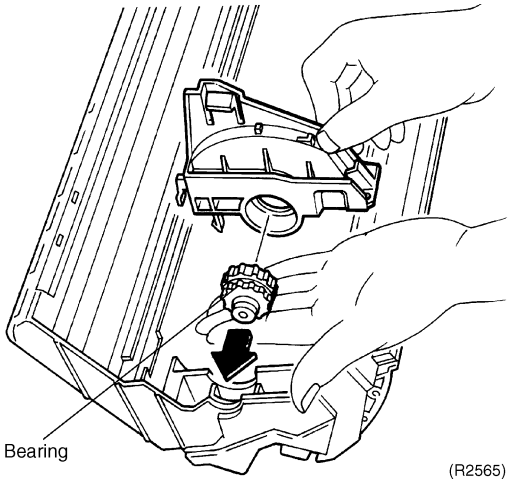
(R2562)

Step	Procedure	Points
6	Disengage a hook from the backward.	
7	Since the fan bearing is made of rubber, push it strongly off from the inside. The bearing can be removed just as the left-side plate is attached with.	


(R2563)



(R2564)



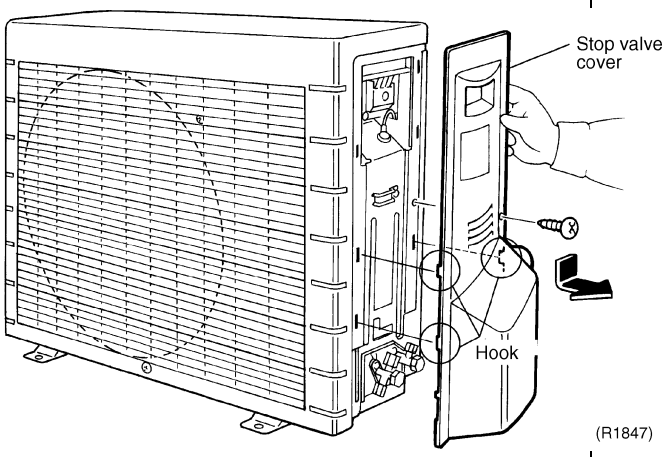
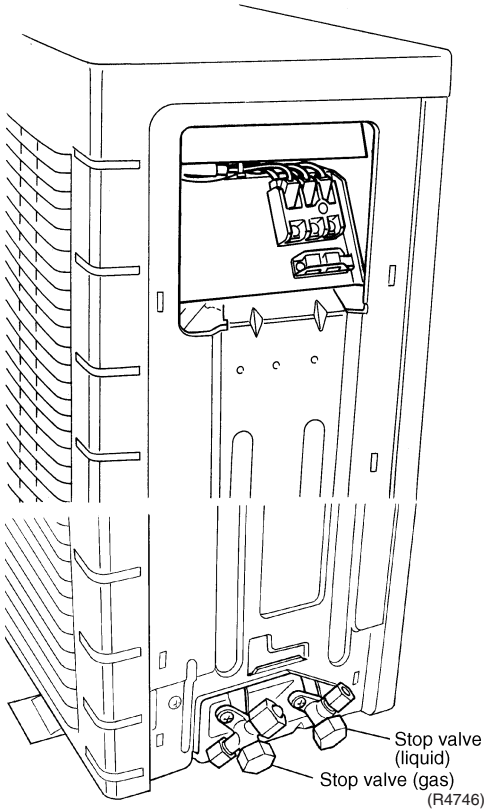
(R2565)

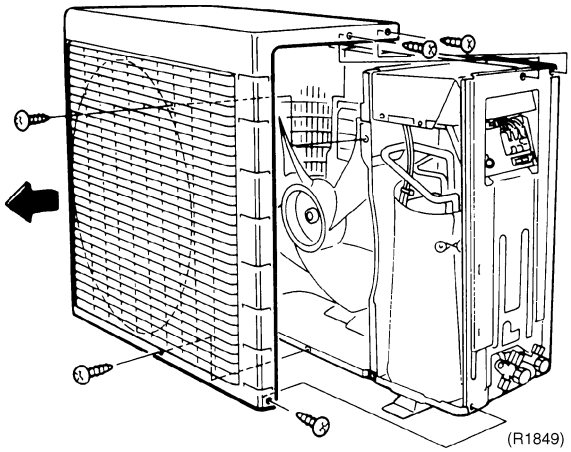
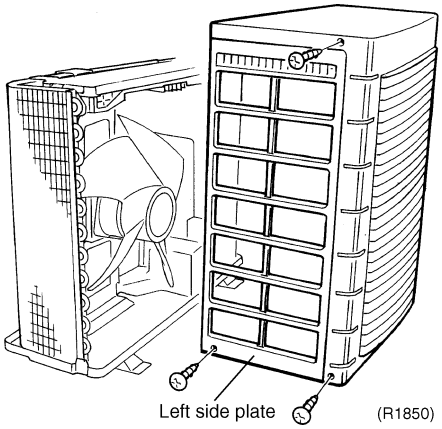
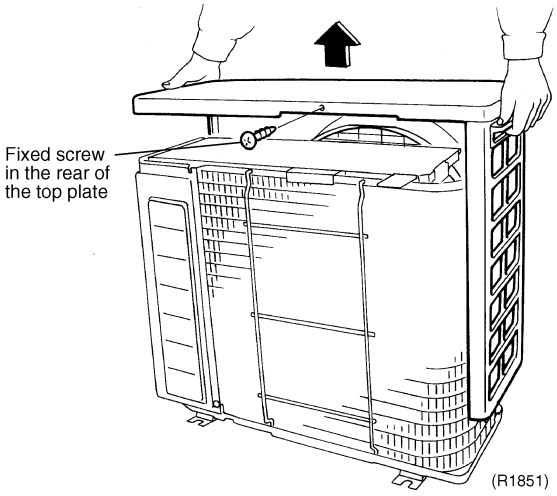
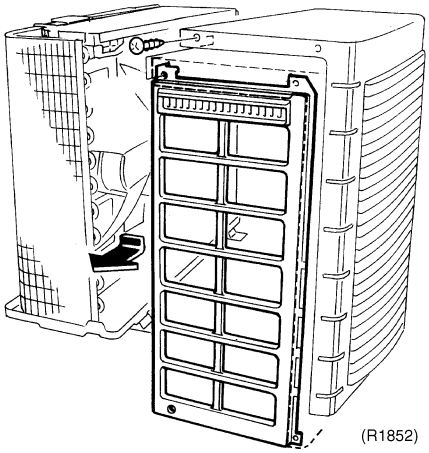
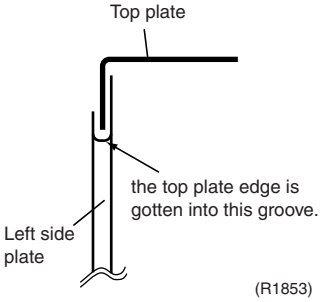
2. Outdoor Unit

2.1 Removal of Panels

Procedure

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

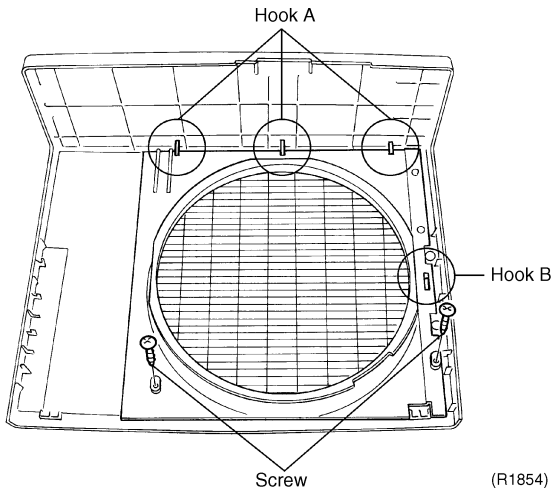
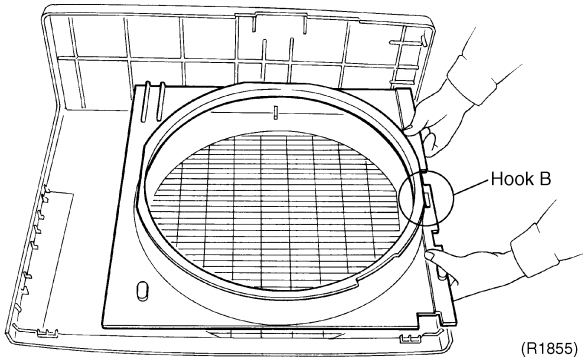
Step	Procedure		Points
1	The stop valve cover can be removed when the fixed screw is removed.	 	■ As three hooks are provided (at three portions), slide the cover downward to remove. ■ The forced cooling operation in the pumping down mode can be carried out by pushing the operation switch on the main unit for five seconds. (The existing models can do it through the switch on the PC board just as well.) ■ The layout of the connection ports for the flares has been changed to horizontal position from vertical position.

Step	Procedure		Points
2	The top plate and the front plate are constructed in a monoblock. Remove the three screws at the right side and the two screws at the front plate.	 (R1849)	
3	Remove the three screws at the left side.	 Left side plate (R1850)	
4	Remove the one fixed screw in the rear of the top plate. Once lift the top plate and then remove it forward.	 Fixed screw in the rear of the top plate (R1851)	■ The left side plate and the bellmouth can be removed all at once. ■ When restoring the top plate, move it horizontally and get it down for the easy work.
5	The front plate and the left side plate can be removed when the one fixed screw is removed.	 (R1852)	■ Sectional view at the front.  Top plate the top plate edge is gotten into this groove. Left side plate (R1853)

2.2 Removal of Bellmouth and Left Side Plate

Procedure

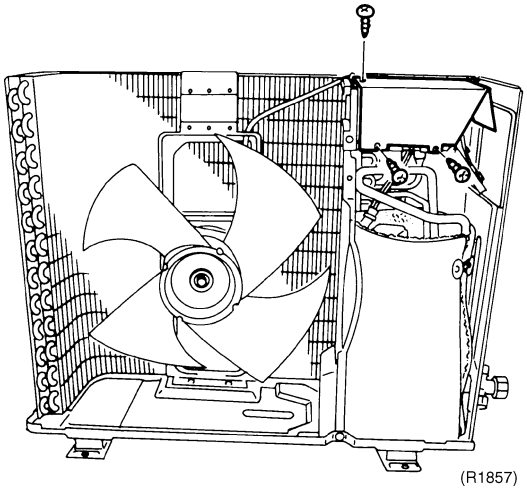
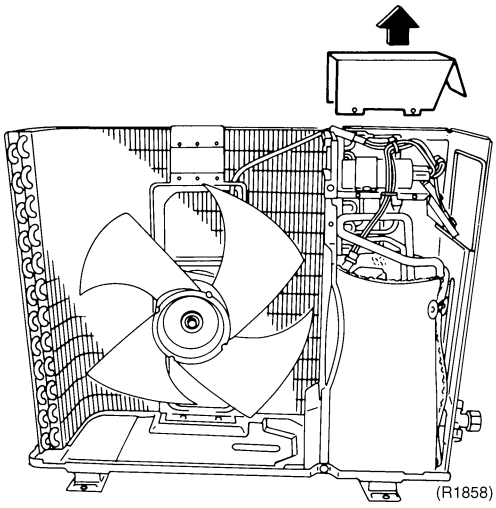
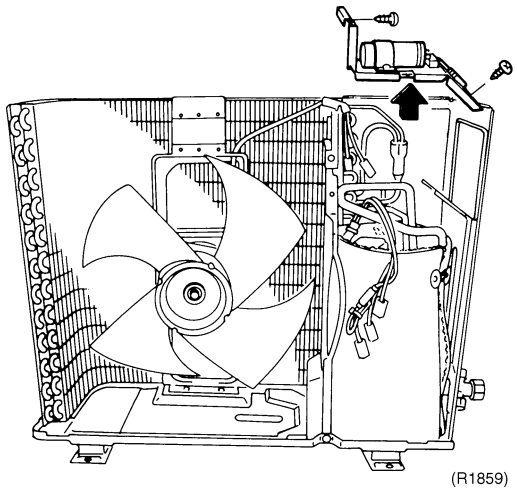
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure		Points
1	The bellmouth is attached with two screws and four hooks.		■ Remove the bellmouth, beginning the front plate after removing the two screws which are set below.
2	Remove the two screws and pull the bellmouth forward to remove, as the four hooks are provided.		■ Slide the bellmouth in the arrow direction to disengage the hook B.

2.3 Removal of Electrical Device Mounting Plate

Procedure

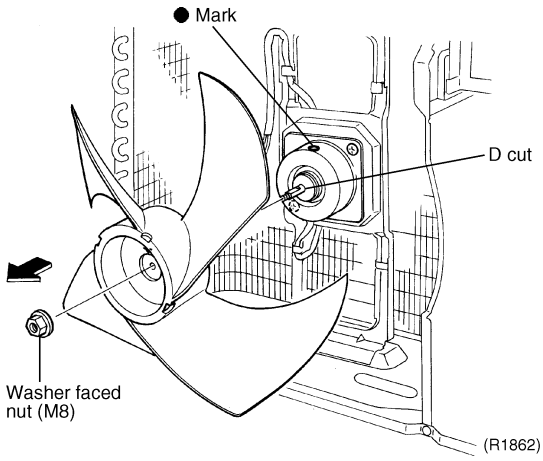
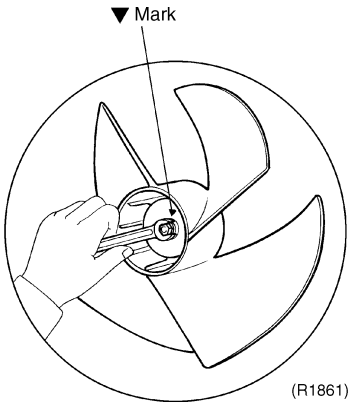
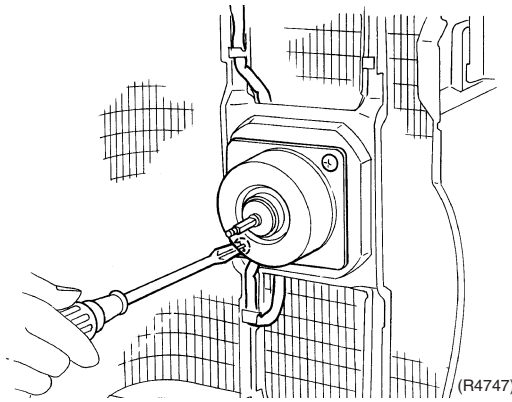
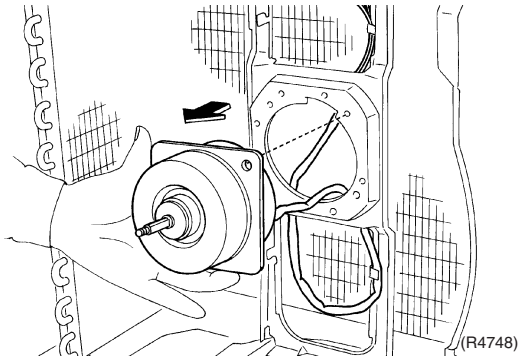
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
1. To remove the shelter.	 (R1857)  (R1858)	
1	Remove the three fixed screws for removing the shelter.	
2	Remove the shelter.	
2. To remove the switch box.	 (R1859)	
1	Remove all the harness.	
2	Remove two fixing screws of electrical device mounting plate.	
3	Remove the electrical device mounting plate.	

2.4 Removal of Propeller Fan and Fan Motor

Procedure

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

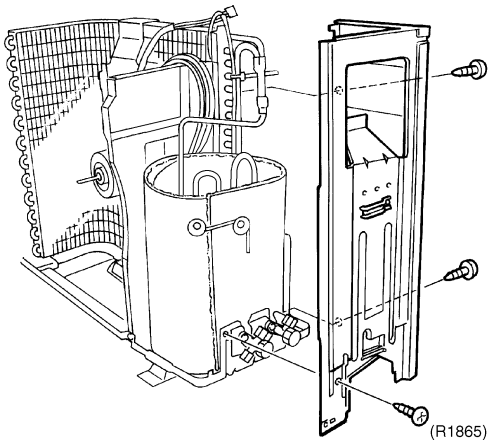
Step	Procedure		Points
1	The propeller fan can be removed when the washer faced nut (M8) is removed.		■ Be sure to avoid forgetting to restore the shelter and to avoid losing or damaging it. 
2	Remove two screws for removing the fan motor. The lead wires are disengaged by raising the hooks which fix the lead wires.		■ When restoring, match the ▼ mark of the propeller fan with the D-cut of the motor shaft. ■ The fan should be restored so that the mark ● will be at upper part of the fan motor.
3	Remove the fan motor.		

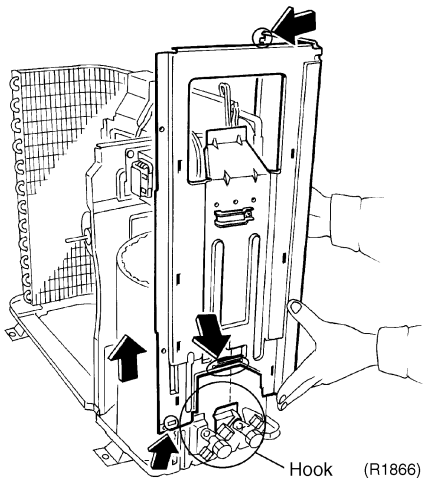
2.5 Removal of Sound Blanket

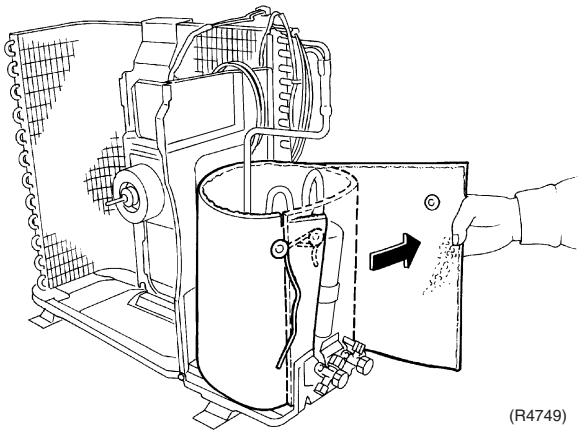
Procedure

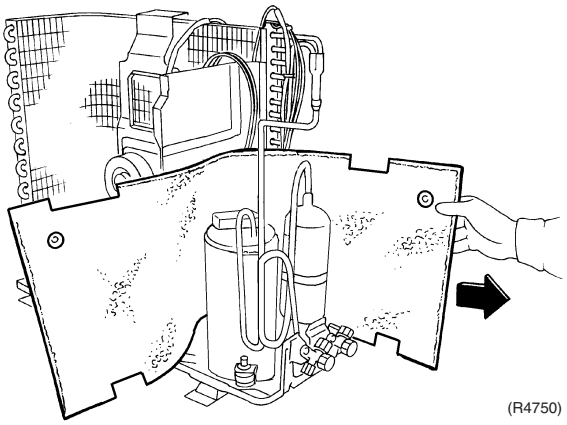
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
1. To remove the right side plate.		
1	Remove the three screws for removing the right side plate.	
2	Lift the right side plate to disengage the hooks.	■ Insert the three hooks for the restoration.
2. To remove the sound blanket		■ Since the sound blanket is torn easily, remove it carefully. ■ When restoring, the sound blanket should pass the internal side of the piping.
1	Untie the string of the sound blanket.	







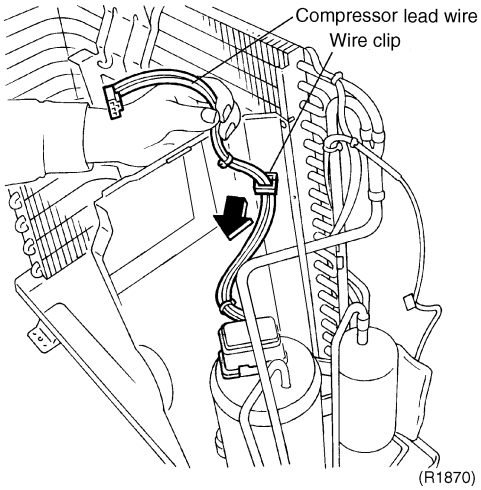
Step	Procedure		Points
2	Pull out the sound blanket.	 (R4750)	■ Since the sound blanket is torn easily, remove it carefully. ■ When restoring, sound blanket should pass the internal side of the piping.

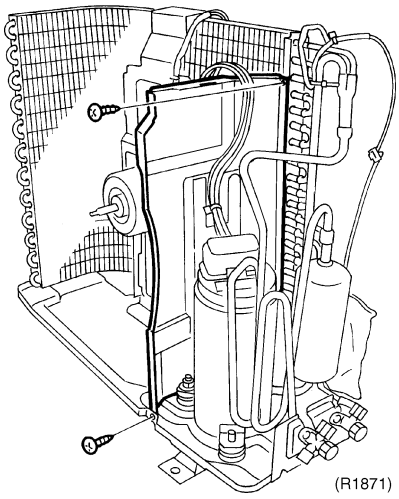
2.6 Removal of Partition Plate

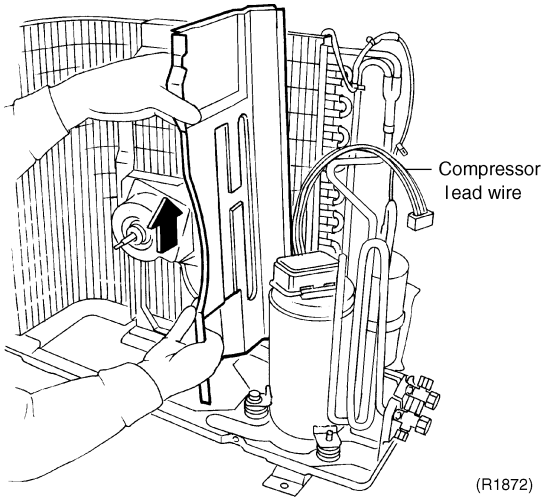
Procedure

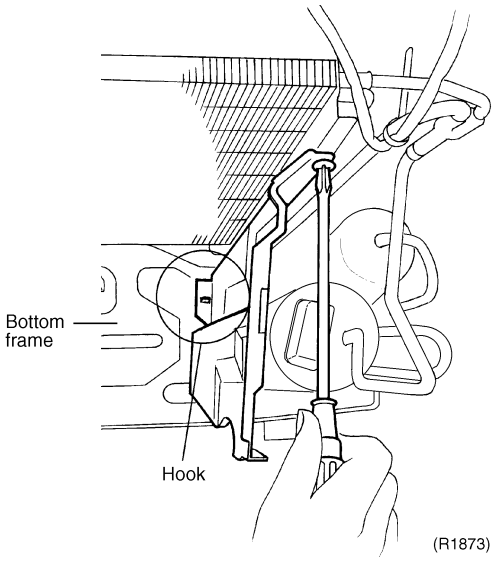
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
1. To remove the partition plate.		
1	Disengage the lead wires from the wire clip.	
2	Remove the two screws fixing the partition plate.	
3	Pull the partition plate upward to remove.	





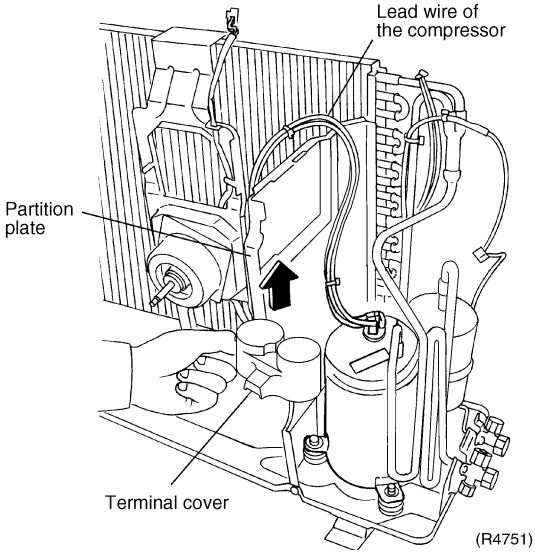
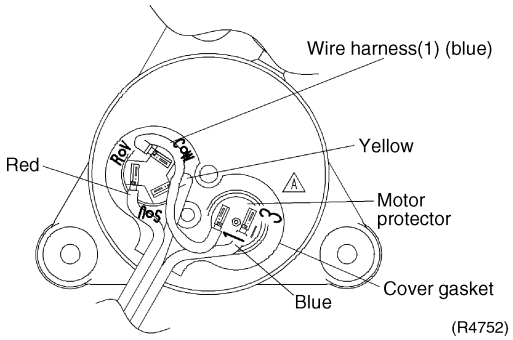
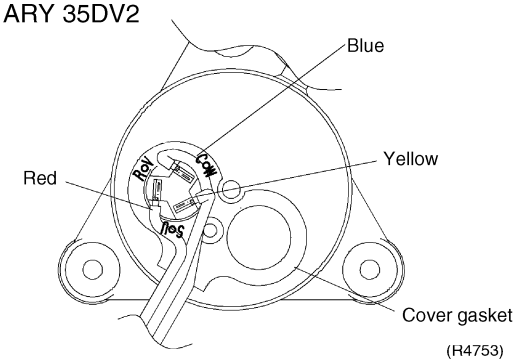
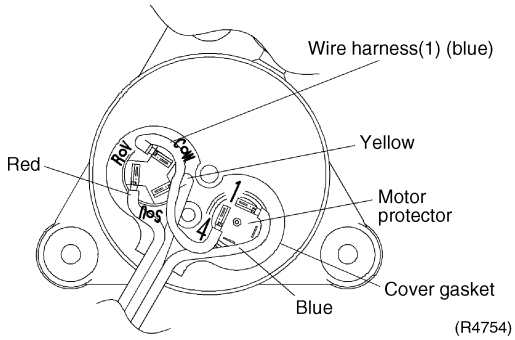


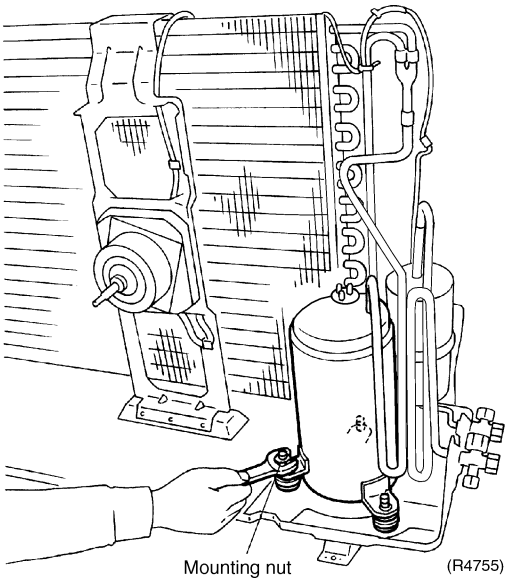
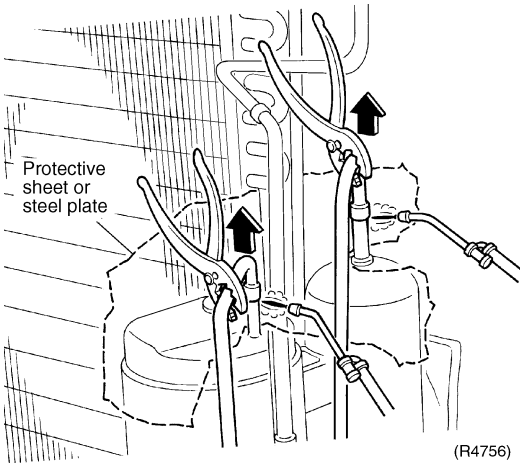
Step	Procedure		Points
4	When restoring the partition plate, put the hook into the bottom frame.		

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. To remove the parts around the compressor.		■ Be careful so as not to burn the compressor terminals or the name plate.
1 Remove the terminal cover, the lead wires of the compressor and the partition plate so as not to be burnt out by a gas brazing machine.		
	ARY 20/25DV2 	
	ARY 35DV2 	
	RYN 25/35DV3B 	

Step	Procedure		Points
2	The compressor's mounting nut to be removed is one piece.		⚠ **Warning** **Since it may happen that refrigeration oil in the compressor will catch fire, prepare wet cloth so as to extinguish fire quickly.**
3	Remove the nut by means of an open-end wrench.		
■ Begin your work after recognizing complete empty of refrigerant in the refrigerant circuit.			
■ Be sure to apply nitrogen's permutation when heating up the brazing part.			⚠ **Warning** **Ventilate when refrigerant leaks during the work.(If refrigerant contacts fire, it will cause to arise toxic gas).**
1	Remove the brazing part on the compressor discharge side.		⚠ **Caution** **Be careful about pipes and so on, which were heated up by a gas brazing machine, so as not to get burnt on your hands.**
2	Heat up the brazing part on the compressor suction part and then remove it.		
3	Lift the compressor and remove it.		■ Pay attention so that the heat exchanger's fins will not be burnt.

Part 8
Others

1. Others

1.1 Trial Operation and Testing

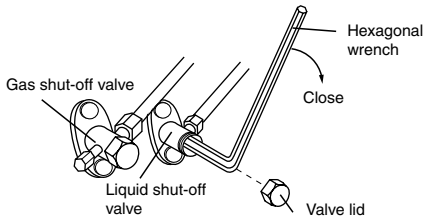
1. Measure the supply voltage and make sure that it falls in the specified range.
2. Trial operation should be carried out in either cooling or heating mode.
   In cooling mode, select the lowest programmable temperature; in heating mode, select the highest programmable temperature.
   - Trial operation 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 to 4 minutes after it is turned off.
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.

1.2 Pump Down Operation

In order to protect the environment, be sure to pump down when relocating or disposing of the unit

1. Remove the valve lid from liquid shut-off valve and gas shut-off valve.
2. Set the unit to the lowest programmable temperature and perform cooling operation.
   Cooling operation may be unavailable depending on the room temperature.
   If this is the case, warm the indoor room temperature sensor with a hair dryer or similar device and then perform cooling operation.
3. After five to ten minutes, close the liquid shut-off valve with a hexagonal wrench.
4. After two to three minutes, close the gas shut-off valve and stop cooling operation.



1.3 Jumper Settings

1.3.1 When Two Units are Installed in One Room

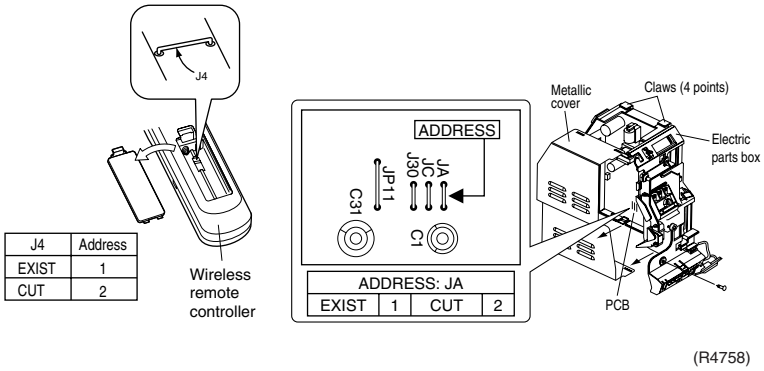
- **How to set the different addresses.**
- When two indoor units are installed in one room, the two wireless remote controllers can be set for different addresses.

PCB in the indoor unit

- Remove the front panel.
- Remove the electrical parts box (1-screw).
- Slide the metallic cover to remove it. (4-claws on the electrical parts box.)
- Cut the jumper JA on PCB.

Wireless remote controller

- Cut the jumper J4.



(R4758)

1.3.2 Jumper Setting

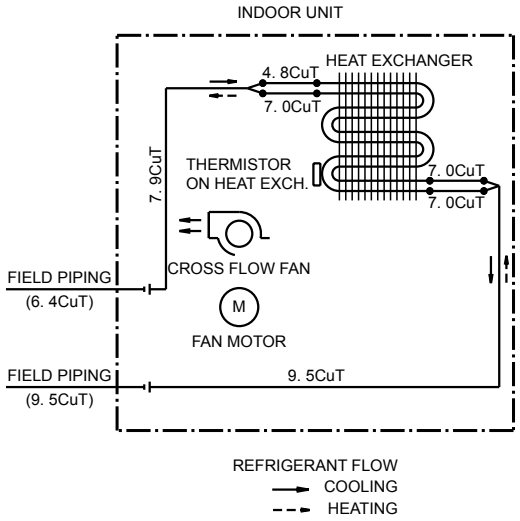
Jumper (On indoor control PCB)	Function	When connected (factory set)	When cut
JC	Power failure recovery function	Auto re-start	Unit does not resume operation after recovering from a power failure. Timer ON-OFF settings are cleared.

Part 9
Appendix

1. Piping Diagrams

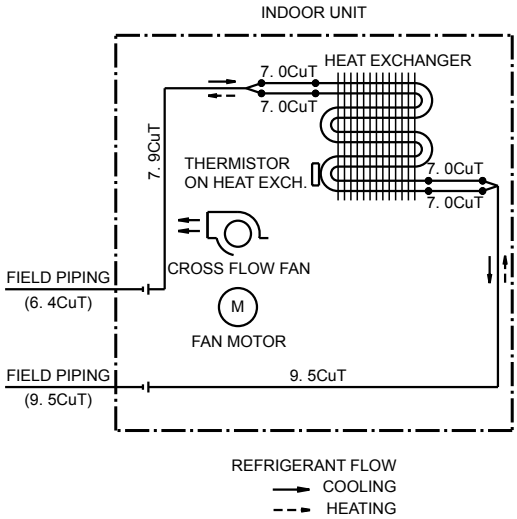
1.1 Indoor Units

FTYN25DV3B, FTYN35DV3B



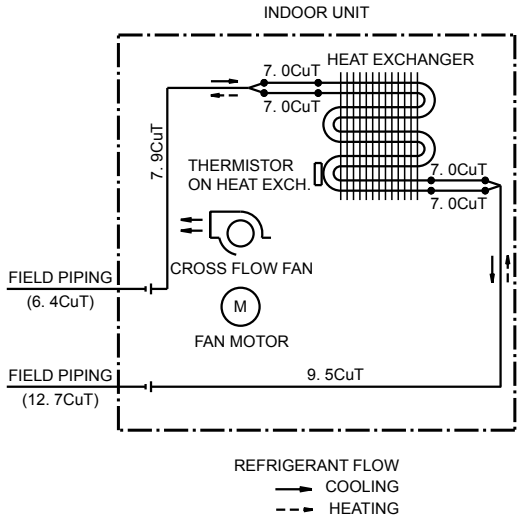
4D048781

ATY20DV2, ATY25DV2



4D048782

ATY35DV2



4D048783

Feb. 26, 2007

DAIKIN SERVICE MANUAL NEWS

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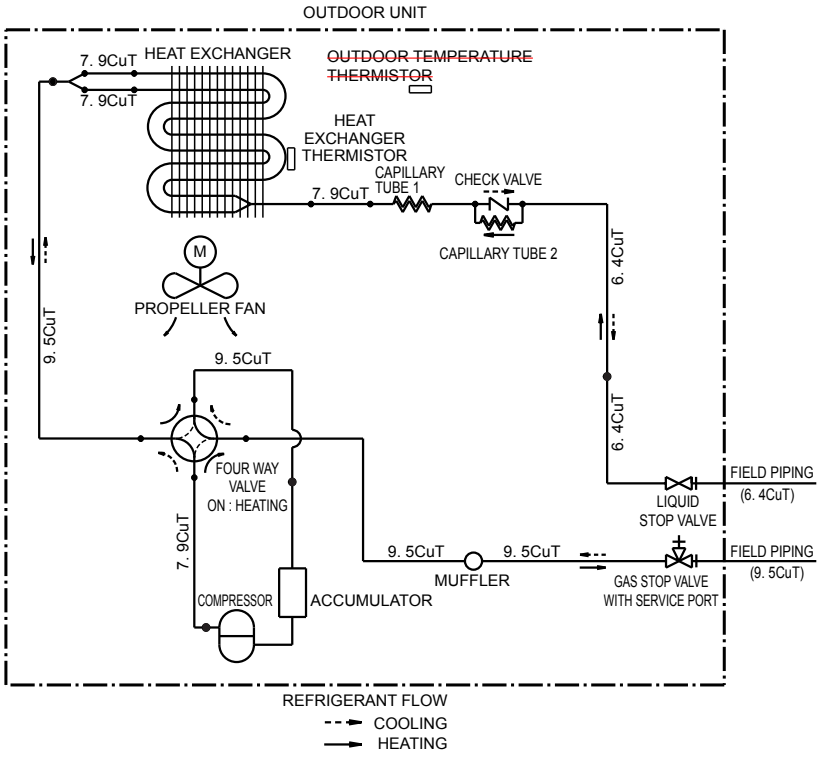
Case	Delete outdoor temperature thermistor from drawing – SiBE01-503
Model	RYN25DV3B, RYN35DV3B, ARY20DV2, ARY25DV2, ARY35DV2

Delete the outdoor temperature thermistor from the service manual SiBE01-503 on page 111 and 112.
Refer to the attached pages.

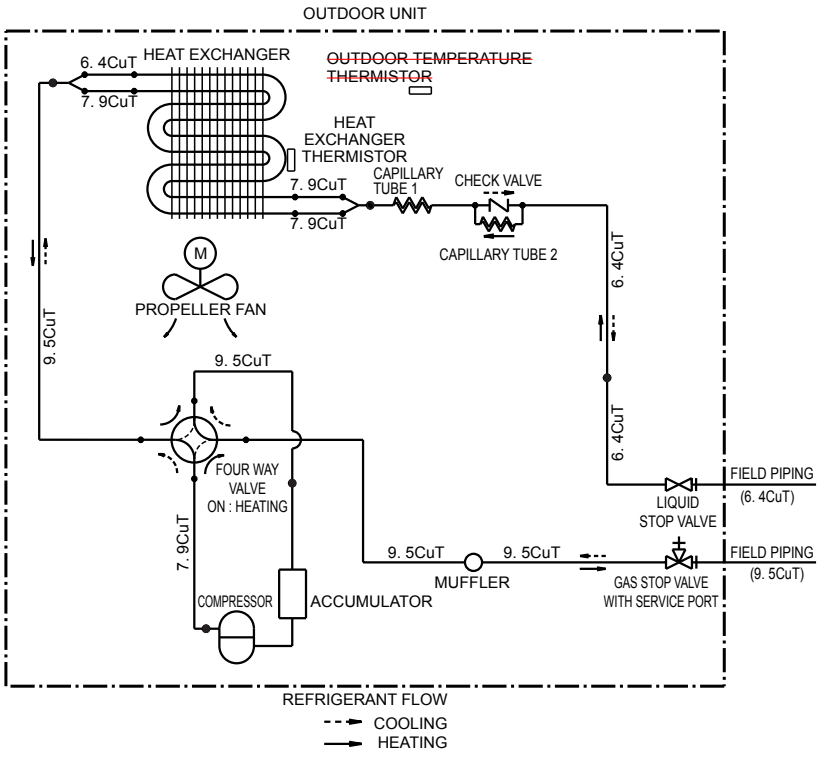
1.2 Outdoor Units

RYN25DV3B, RYN35DV3B



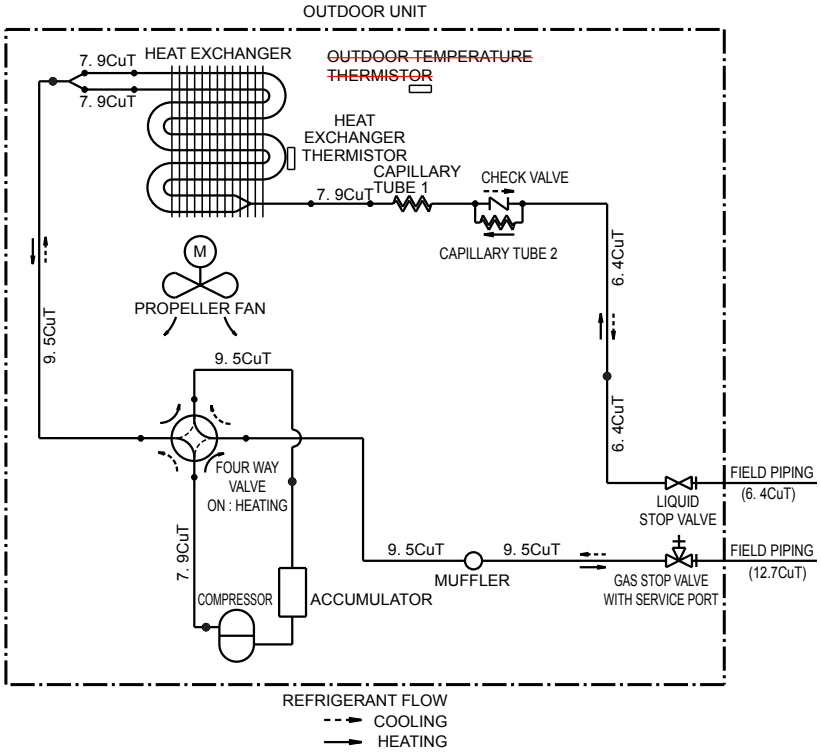
3D048804

ARY20DV2, ARY25DV2



3D048805

ARY35DV2

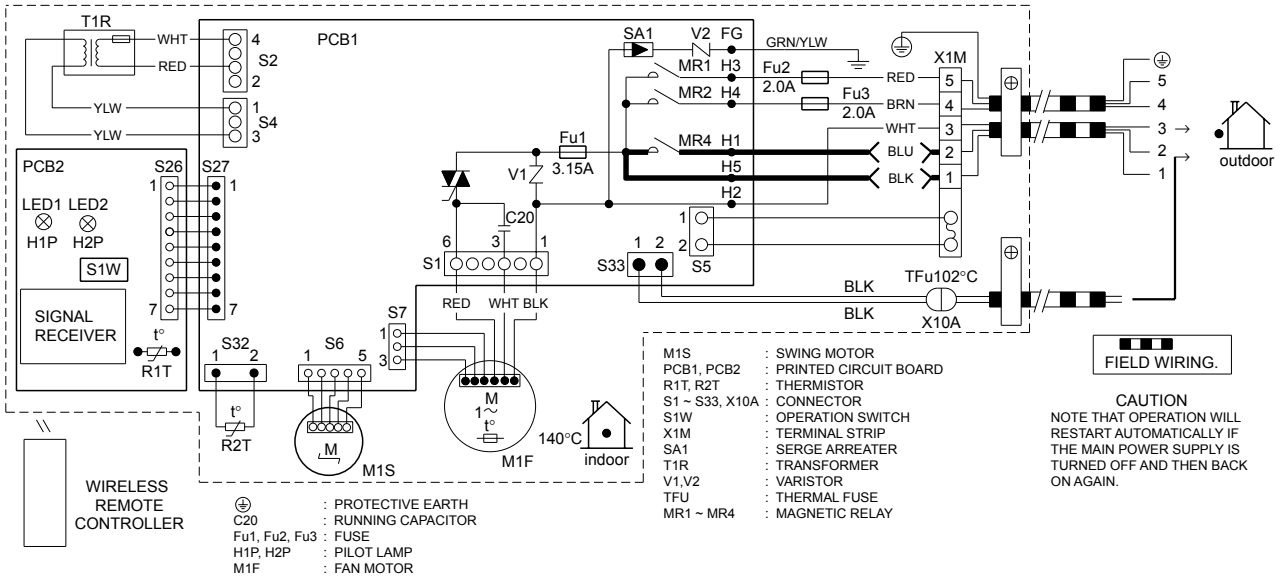


3D048806

2. Wiring Diagrams

2.1 Indoor Units

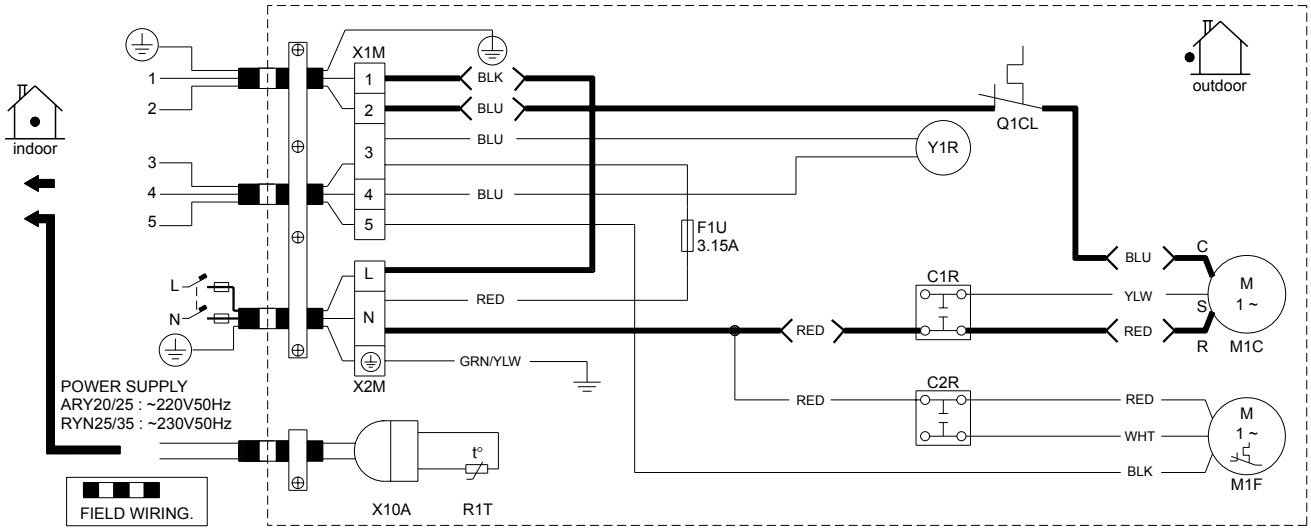
FTYN25DV3B, FTYN35DV3B, ATY20DV2, ATY25DV2, ATY35DV2



3D048079C

2.2 Outdoor Units

RYN25DV3B, RYN35DV3B, ARY20DV2, ARY25DV2

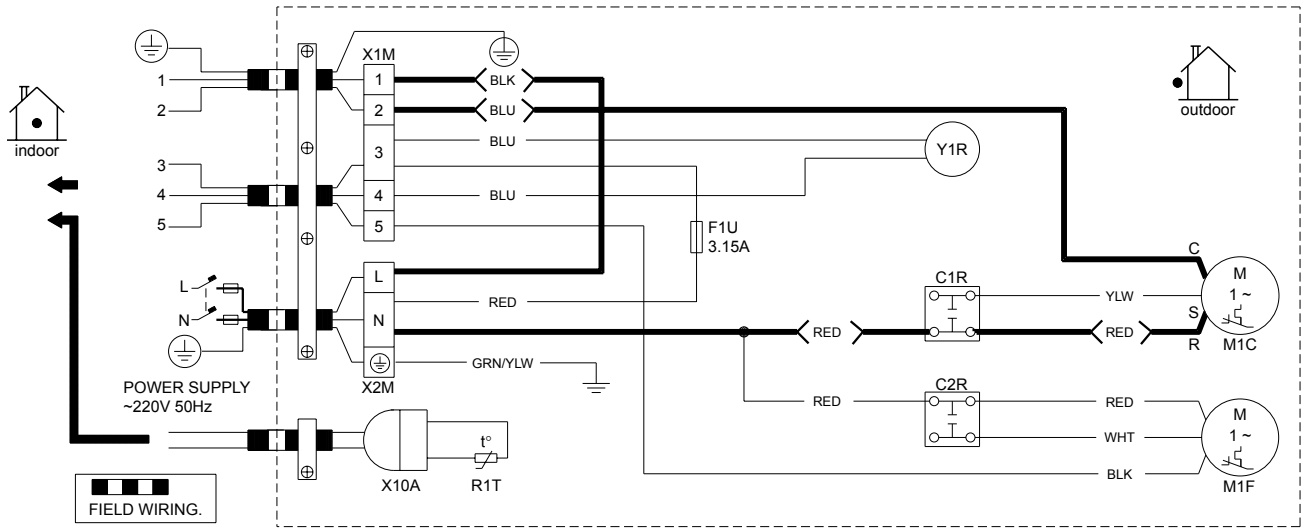


NOTE
1. REFER TO THE NAMEPLATE FOR THE POWER REQUIREMENTS.

C1R, C2R : RUNNING CAPACITOR
M1C : COMPRESSOR MOTOR
M1F : FAN MOTOR
Q1CL : OVER LOAD PROTECTOR
R1T : THERMISTOR
F1U : FUSE
X10A : CONNECTOR
X1M, X2M : TERMINAL STRIP
Y1R : REVERSING SOLENOIDE VALVE COIL
: PROTECTIVE EARTH

3D048404A

ARY35DV2



NOTE
1.REFER TO THE NAMEPLATE FOR THE POWER REQUIREMENTS.

C1R, C2R	: RUNNING CAPACITOR	X10A	: CONNECTOR
M1C	: COMPRESSOR MOTOR	X1M,X2M	: TERMINAL STRIP
M1F	: FAN MOTOR	Y1R	: REVERSING SOLENOIDE VALVE COIL
R1T	: THERMISTOR	⏚	: PROTECTIVE EARTH
F1U	: FUSE		

3D048126A

Index

Numerics

A

B

C

D

E

F

G

H

I

J

L

Drawings & Flow Charts

Warning

- 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 unauthorized 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.

For any inquiries, contact your local distributor.

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 and choose an outdoor unit with anti-corrosion treatment.

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

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

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

Daikin Industries, Ltd.
Domestic Group
Certificate Number. EC99J2044

About ISO 14001

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

Dealer

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SiBE01-503
Printed in Singapore 06/2005 B AK