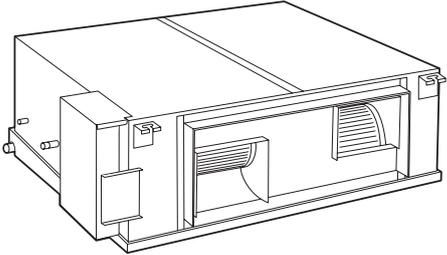


## TECHNICAL DATA & SERVICE MANUAL

# R410A

# DC Inverter

Indoor Unit	Outdoor Unit
 <p>Type E2 S-200PE2E5, S-250PE2E5 Type E1 S-200PE1E8A, S-200PE1E8, S-250PE1E8</p>	 <p>U-200PE1E8, U-250PE1E8</p>

## IMPORTANT!

### Please Read Before Starting

This air conditioner must be installed by the sales dealer or installer.

This information is provided for use only by authorized persons.

#### For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- This air conditioner shall be installed in accordance with National Wiring Regulations.
- Pay close attention to all warning and caution notices given in this manual.



#### WARNING

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



#### CAUTION

This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

#### If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

#### In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

## SPECIAL PRECAUTIONS



### WARNING When Wiring



**ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.**

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause **accidental injury or death**.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

- Provide a power outlet to be used exclusively for each unit.
- Provide a power outlet exclusively for each unit, and full disconnection means having a contact separation in all poles must be incorporated in the fixed wiring in accordance with the wiring rules.
- To prevent possible hazards from insulation failure, the unit must be grounded. 
- This equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). Otherwise, it may cause electrical shock and fire in case of equipment breakdown or insulation breakdown.

### When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

### When Installing...

Select an installation location which is rigid and strong enough to support or hold the unit, and select a location for easy maintenance.

#### ...In a Room

Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.



#### CAUTION

Keep the fire alarm and the air outlet at least 1.5 m away from the unit.

#### ...In Moist or Uneven Locations

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

#### ...In an Area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

### ...In a Snowy Area (for Heat Pump-type Systems)

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

### ...At least 2.5 m

Indoor unit of this air conditioner shall be installed in a height of at least 2.5 m.

### ...In laundry rooms

Do not install in laundry rooms. Indoor unit is not drip proof.

## When Connecting Refrigerant Tubing

### WARNING

- When performing piping work do not mix air except for specified refrigerant (R410A) in refrigeration cycle. It causes capacity down, and risk of explosion and injury due to high tension inside the refrigerant cycle.
- Refrigerant gas leakage may cause fire.
- Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury, etc.
- Ventilate the room well, in the event that is refrigerant gas leaks during the installation. Be careful not to allow contact of the refrigerant gas with a flame as this will cause the generation of poisonous gas.
- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.
- Do not leak refrigerant while piping work for an installation or re-installation, and while repairing refrigeration parts. Handle liquid refrigerant carefully as it may cause frostbite.

## When Servicing

- Turn the power OFF at the main power box (mains) before opening the unit to check or repair electrical parts and wiring. 

- Keep your fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.

### WARNING

- This product must not be modified or disassembled under any circumstances. Modified or disassembled unit may cause fire, electric shock or injury.
- Do not clean inside the indoor and outdoor units by users. Engage authorized dealer or specialist for cleaning.
- In case of malfunction of this appliance, do not repair by yourself. Contact the sales dealer or service dealer for repair.

### CAUTION

- Do not touch the air inlet or the sharp aluminum fins of the outdoor unit. You may get injured. 
- Ventilate any enclosed areas when installing or testing the refrigeration system. Escaped refrigerant gas, on contact with fire or heat, can produce dangerously toxic gas.
- Confirm after installation that no refrigerant gas is leaking. If the gas comes in contact with a burning stove, gas water heater, electric room heater or other heat source, it can cause the generation of poisonous gas.

## Others

### CAUTION

- Do not sit or step on the unit, you may fall down accidentally. 
- Do not touch the air inlet or the sharp aluminum fins of the outdoor unit. You may get injured. 
- Do not stick any object into the FAN CASE. You may be injured and the unit may be damaged.  

# Check of Density Limit

The room in which the air conditioner is to be installed requires a design that in the event of refrigerant gas leaking out, its density will not exceed a set limit.

The refrigerant (R410A), which is used in the air conditioner, is safe, without the toxicity or combustibility of ammonia, and is not restricted by laws imposed to protect the ozone layer. However, since it contains more than air, it poses the risk of suffocation if its density should rise excessively. Suffocation from leakage of refrigerant is almost non-existent. With the recent increase in the number of high density buildings, however, the installation of multi air conditioner systems is on the increase because of the need for effective use of floor space, individual control, and energy conservation by curtailing heat and carrying power, etc.

Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared to conventional individual air conditioners. If a single unit of the multi air conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its density does not reach the limit (and in the event of an emergency, measures can be made before injury can occur).

In a room where the density may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device. The density is as given below.

### Total amount of refrigerant (kg)

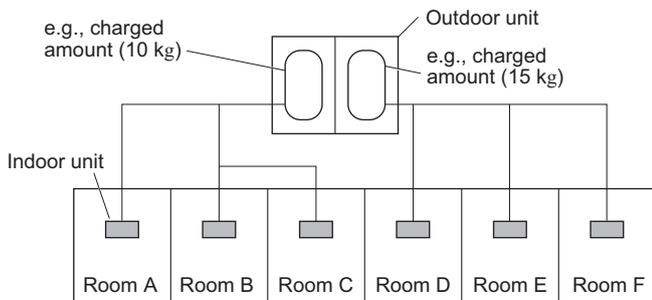
$$\text{Min. volume of the indoor unit installed room (m}^3\text{)} < \text{Density limit (kg/m}^3\text{)}$$

The density limit of refrigerant which is used in multi air conditioners is 0.3 kg/m<sup>3</sup> (ISO 5149).

### NOTE

- If there are 2 or more refrigerating systems in a single refrigerating device, the amount of refrigerant should be as charged in each independent device.

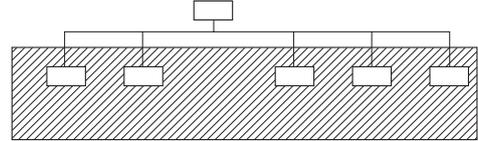
For the amount of charge in this example:



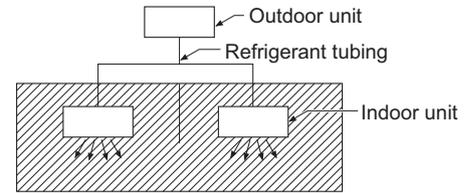
The possible amount of leaked refrigerant gas in rooms A, B and C is 10 kg.  
The possible amount of leaked refrigerant gas in rooms D, E and F is 15 kg.

- The standards for minimum room volume are as follows.

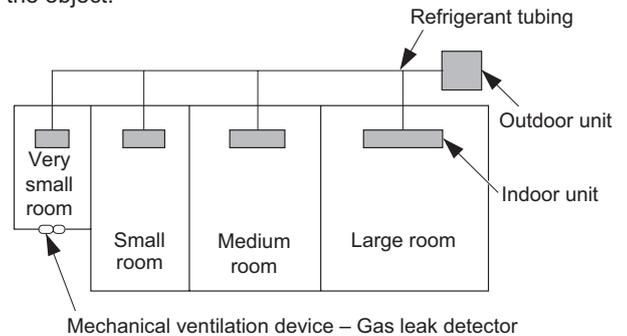
- (1) No partition (shaded portion)



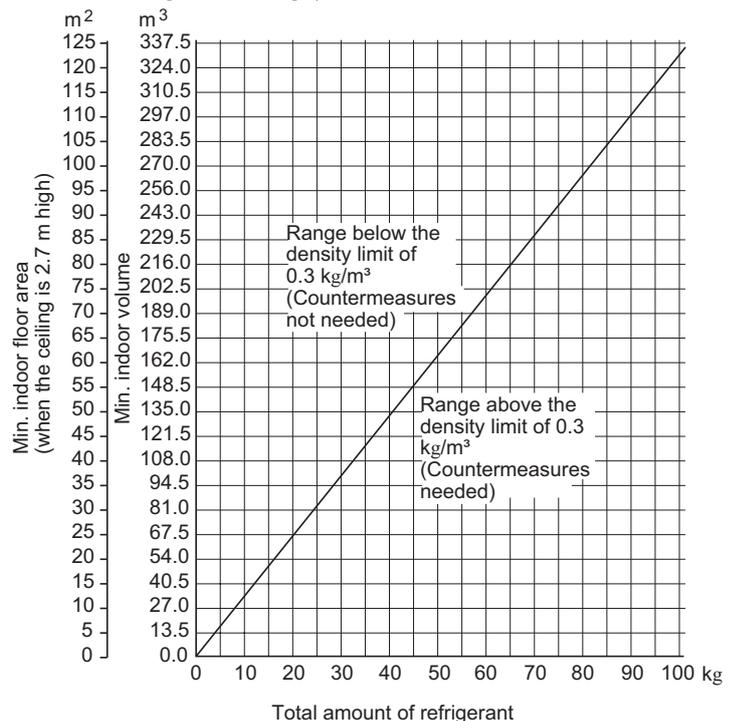
- (2) When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening without a door, or an opening 0.15% or larger than the respective floor spaces at the top or bottom of the door).



- (3) If an indoor unit is installed in each partitioned room and the refrigerant tubing is interconnected, the smallest room of course becomes the object. But when mechanical ventilation is installed interlocked with a gas leakage detector in the smallest room where the density limit is exceeded, the volume of the next smallest room becomes the object.



3. The minimum indoor floor space compared with the amount of refrigerant is roughly as follows: (When the ceiling is 2.7 m high)



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# Single-Type

## 1-1. Unit Specifications

### High Static Pressure Ducted Type S-200PE2E5 / U-200PE1E8

INDOOR		MODEL	S-200PE2E5								
PANEL		MODEL	-								
OUTDOOR		MODEL				U-200PE1E8					
Branch pipe		MODEL				-					
PERFORMANCE TEST CONDITION					ISO13253 / EN14511 / EN12102						
POWER SUPPLY		φ, Hz	1φ 50Hz			3φ 50Hz			Min	Max	
C O O L I N G	CAPACITY	V	220	230	240	380	400	415			
		kW	19.5	19.5	19.5				6.0	22.4	
	CURRENT	BTU/h	66500	66500	66500				20500	76400	
		A	1.95	1.90	1.85	9.90	9.50	9.15	-	-	
	INPUT POWER	W	305	305	305	6.115K	6.115K	6.115K	-	-	
		TOTAL W				6.420K	6.420K	6.420K	-	-	
	ANNUAL CONSUMPTION	TOTAL kWh *4					3210				
	EER/EER CLASS	TOTAL(W/W)*5/("A"-G)	-	-	-	3.04	3.04/B	3.04			
	Erp *6	Pdesign	kW	-	-	-	-	-	-		
		SEER	(W/W)	-	-	-	-	-	-		
		Annual consumption	kWh	-	-	-	-	-	-		
		Class		-	-	-	-	-	-		
	POWER FACTOR	%				94	93	93			
	NOISE INDOOR (H/M/L)	dB-A		43/41/38							
Power Level dB			75/73/70								
NOISE OUTDOOR (H/L)	dB-A				57/-						
	Power Level dB				72/-						
CAPACITY	kW	22.4	22.4	22.4				6.0	25.0		
	BTU/h	76400	76400	76400				20500	85300		
CURRENT	A	1.95	1.90	1.85	9.70	9.35	9.05	-	-		
INPUT POWER	W	305	305	305	6.015k	6.015k	6.015k	-	-		
	TOTAL W				6.320k	6.320k	6.320k	-	-		
COP/COP CLASS	TOTAL(W/W)*5/("A"-G)	-	-	-	3.54	3.54/B	3.54	-	-		
Erp *6	Pdesign	kW	-	-	-	-	-	-			
	Tbivalent	°C	-	-	-	-	-	-			
	SCOP	(W/W)	-	-	-	-	-	-			
	Annual consumption	kWh	-	-	-	-	-	-			
POWER FACTOR	%				94	93	92				
NOISE INDOOR (H/M/L)	dB-A		43/41/38					/	/		
	Power Level dB		75/73/70								
NOISE OUTDOOR (H/L)	dB-A				57/-			/	/		
	Power Level dB				72/-						
EXTRA LOW TEMP	Total CAPACITY(kW)/INPUT POWER(W)/COP										
MAX CURRENT(A)/MAX INPUT POWER(W)			6.90/1.27k	6.60/1.27k	6.30/1.27k	12.5/7.60k	12.5/7.60k	12.5/7.60k	/		
STARTING CURRENT(A)/COMP OUTPUT(W)			-	-	-	9.90/4.2k	9.50/4.2k	9.15/4.2k	/		
NETWORK IMPEDANCE (ΩMAX.) *3											
FM OUTPUT(ID/OD) (W)			560			120×2			/		
MOISTURE REMOVAL VOLUME		L/h(Pt/h)	11.1 (23.3)								
External static pressure		Pa	60 (MAX 270)								
I/D AIR FLOW	COOL	m³/min (m³/h) (H/M/L)	56/51/44 (3360/3060/2640)								
	HEAT	m³/min (m³/h) (H/M/L)	56/51/44 (3360/3060/2640)								
O/D AIR FLOW	COOL	m³/min (m³/h)				129 (7740)					
	HEAT	m³/min (m³/h)				129 (7740)					
REFRIGERANT TYPE, AMOUNT g(oz)						R410A	5.30k (187.0)	/			
P R O M	HEIGHT : H mm(inch)	ID/OD	479 (18-27/32)			1526 (60-3/32)			/		
	WIDTH : W mm(inch)	ID/OD	1453 (57-7/32)			940 (37-1/32)			/		
	DEPTH : D mm(inch)	ID/OD	1205 (47-7/16)			340 (13-3/8)			/		
P A C M	HEIGHT : H mm	ID/OD	614 (24-3/16)			1676 (65-31/32)			/		
	WIDTH : W mm	ID/OD	1536 (60-15/32)			1076 (42-3/8)			/		
	DEPTH : D mm	ID/OD	1339 (52-23/32)			420 (16-17/32)			/		
MASS	(NET) kg(lb)	ID/OD	100 (221)			118 (260)			/		
	(GROSS) kg(lb)	ID/OD	132 (291)			128 (282)			/		
LAYERS LIMIT ID/OD (actually)			4 (5)			2 (3)					
Operation Condition	Cool (DBT)		18°C ~ 32°C			-15°C ~ 43°C					
	Heat (DBT)		16°C ~ 30°C			-20°C ~ 24°C					
P I P E	PIPE DIAMETER mm (inch)		(Liquid)ø9.52(3/8) (Gas)ø25.4(1)			(Liquid)ø9.52(3/8) (Gas)ø25.4(1)					
	CONNECT METHOD, STD LENGTH m (ft)		(Liquid)&(Gas)brazing connection. 7.5(24.6)			(Liquid)flared type.(Gas)brazing connection. 7.5(24.6)					
I N G	PIPE LENGTH RANGE	m (ft)	5~100m (16.4~328.0)			~			~		
	I/D&O/D HEIGHT DIFFERENCE	m (ft)	30 (OD located lower) / 30 (OD located higher)			(98.4/98.4)					
P I P E	ADD GAS AMOUNT	g/m (oz/ft)	(Liquid)ø9.52(3/8) : 40 (0.430)								
	PIPE LENGTH FOR ADDITIONAL GAS	m (ft)	30 (98.4)								

\*1: In case it is necessary to indicate the air flow volume in (l/s), the value in (m³/min.) shall be multiplied by 16.7 and rounded down the decimal point.

\*2: If the EUROVENT Certified models can be operated under the "extra-low" temperature condition, -7°C dry bulb and -8°C wet-bulb temperatures with rated voltage 230 V shall be used.

\*3: Network Impedance shall be applicable for EUROPE and CHINA models.

\*4: The annual consumption is calculated by multiplying the input power at 230 V (400 V) by an average of 500 hours per year in cooling mode.

\*5: EER and COP classification is at 230 V (400 V) only in accordance with EU directive 2002/31/EC.

\*6: SEER and SCOP classification is at 230V(400V) only in accordance with EN-14825. For heating, SCOP indicates the value of only Average heating season, Other fiche data indicates in an attached sheet.

# Single-Type

## High Static Pressure Ducted Type S-250PE2E5 / U-250PE1E8

INDOOR		MODEL	S-250PE2E5							
PANEL		MODEL	-							
OUTDOOR		MODEL				U-250PE1E8				
Branch pipe		MODEL				-				
PERFORMANCE TEST CONDITION			ISO13253 / EN14511 / EN12102							
POWER SUPPLY		ø, Hz	1ø 50Hz			3ø 50Hz				
		V	220	230	240	380	400	415	Min	Max
CAPACITY		kW	25.0	25.0	25.0				6.0	28.0
		BTU/h	85300	85300	85300				20500	95500
CURRENT		A	3.30	3.20	3.10	12.3	11.8	11.4	-	-
INPUT POWER		W	560	560	560	7.620K	7.620K	7.620K	-	-
		TOTAL W				8.180K	8.180K	8.180K	-	-
ANNUAL CONSUMPTION		TOTAL kWh *4				-	4090	-	-	-
EER/EER CLASS		TOTAL(W/W)*5/(A*~G)	-	-	-	3.06	3.06/B	3.06	-	-
COOLING	Erp *6	Pdesign				-	-	-	-	-
		SEER				-	-	-	-	-
		Annual consumption				-	-	-	-	-
		Class				-	-	-	-	-
POWER FACTOR		%				94	93	93	-	-
NOISE INDOOR (H/M/L)		dB-A	47/45/42						-	-
		Power Level dB	79/77/74						-	-
NOISE OUTDOOR (H/L)		dB-A				57/-			-	-
		Power Level dB				72/-			-	-
CAPACITY		kW	28.0	28.0	28.0				6.0	31.5
		BTU/h	95500	95500	95500				20500	107500
CURRENT		A	3.30	3.20	3.10	10.8	10.4	10.0	-	-
INPUT POWER		W	560	560	560	6.700k	6.700k	6.700k	-	-
		TOTAL W				7.260k	7.260k	7.260k	-	-
COP/COP CLASS		TOTAL(W/W)*5/(A*~G)	-	-	-	3.86	3.86/A	3.86	-	-
HEATING	Erp *6	Pdesign				-	-	-	-	-
		Tbivalent				-	-	-	-	-
		SCOP				-	-	-	-	-
		Annual consumption				-	-	-	-	-
POWER FACTOR		%				94	93	93	-	-
NOISE INDOOR (H/M/L)		dB-A	47/45/42						/	/
		Power Level dB	79/77/74						-	-
NOISE OUTDOOR (H/L)		dB-A				58/-			/	/
		Power Level dB				73/-			-	-
EXTRA LOW TEMP		Total CAPACITY(kW)/INPUT POWER(W)/COP							-	-
MAX CURRENT(A)/MAX INPUT POWER(W)			7.30/1.66k	7.30/1.74k	7.30/1.81k	15.0/9.17k	15.0/9.17k	15.0/9.17k	-	/
STARTING CURRENT(A)/COMP OUTPUT(W)			-	-	-	12.3/5.5k	11.8/5.5k	11.4/5.5k	-	/
NETWORK IMPEDANCE (ΩMAX.) *3									-	-
FM OUTPUT (ID/OD) W			750			120×2			-	/
MOISTURE REMOVAL VOLUME		L/h(Pt/h)	13.9 (29.2)						-	-
External static pressure		Pa	72 (MAX 270)						-	-
I/D AIR FLOW	COOL	m³/min (m³/h) (H/M/L)	72/63/53 (4320/3780/3180)						-	-
	HEAT	m³/min (m³/h) (H/M/L)	72/63/53 (4320/3780/3180)						-	-
O/D AIR FLOW	COOL	m³/min (m³/h)				118 (7080)			-	-
	HEAT	m³/min (m³/h)				118 (7080)			-	-
REFRIGERANT TYPE, AMOUNT g(oz)						R410A	6.50k	(229.3)	-	/
P R O M	P D	HEIGHT : H mm(inch) ID/OD	479 (18-27/32)			1526 (60-3/32)			-	/
	R I	WIDTH : W mm(inch) ID/OD	1453 (57-7/32)			940 (37-1/32)			-	/
	O M	DEPTH : D mm(inch) ID/OD	1205 (47-7/16)			340 (13-3/8)			-	/
P A C M	P D	HEIGHT : H mm ID/OD	614 (24-3/16)			1676 (65-31/32)			-	/
	R I	WIDTH : W mm ID/OD	1536 (60-15/32)			1076 (42-3/8)			-	/
	O M	DEPTH : D mm ID/OD	1339 (52-23/32)			420 (16-17/32)			-	/
MASS	(NET) kg(lb) ID/OD		104 (230)			128 (282)			-	/
	(GROSS) kg(lb) ID/OD		136 (300)			138 (304)			-	/
LAYERS LIMIT ID/OD (actually)			4 (5)			2 (3)			-	-
Operation Condition		Cool (DBT)	18°C ~ 32°C			-15°C ~ 43°C			-	-
		Heat (DBT)	16°C ~ 30°C			-20°C ~ 24°C			-	-
P I P E	PIPE DIAMETER mm (inch)		(Liquid)ø12.7(1/2) (Gas)ø25.4(1)			(Liquid)ø12.7(1/2) (Gas)ø25.4(1)			-	-
	CONNECT METHOD, STD LENGTH m (ft)		(Liquid)flared type,(Gas)brazing connection, 7.5(24.6)			(Liquid)flared type,(Gas)brazing connection, 7.5(24.6)			-	-
I N G	PIPE LENGTH RANGE m (ft)		5~100m (16.4~328.0)						~	~
	I/D&O/D HEIGHT DIFFERENCE m (ft)		30 (OD located lower) / 30 (OD located higher)			98.4/98.4			-	-
ADD GAS AMOUNT g/m (oz/ft)			(Liquid)ø12.7(1/2) : 80 (0.860)						-	-
PIPE LENGTH FOR ADDITIONAL GAS m (ft)			30 (98.4)						-	-

\*1: In case it is necessary to indicate the air flow volume in (l/s), the value in (m³/min.) shall be multiplied by 16.7 and rounded down the decimal point.  
 \*2: If the EUROVENT Certified models can be operated under the "extra-low" temperature condition, -7°C dry bulb and -8°C wet-bulb temperatures with rated voltage 230 V shall be used.  
 \*3: Network Impedance shall be applicable for EUROPE and CHINA models.  
 \*4: The annual consumption is calculated by multiplying the input power at 230 V (400 V) by an average of 500 hours per year in cooling mode.  
 \*5: EER and COP classification is at 230 V (400 V) only in accordance with EU directive 2002/31/EC.  
 \*6: SEER and SCOP classification is at 230V(400V) only in accordance with EN-14825. For heating, SCOP indicates the value of only Average heating season, Other fiche data indicates in an attached sheet.

# Single-Type

## High Static Pressure Ducted Type S-200PE1E8A / U-200PE1E8

MODEL No.	Indoor Unit		S-200PE1E8A					
	Outdoor Unit		U-200PE1E8					
POWER SOURCE	Indoor Unit		220-230-240V, 50Hz, single-phase					
	Outdoor Unit		380-400-415V, 50/60Hz, 3-phase					
PERFORMANCE			Cooling			Heating		
Capacity [min~max]	kW		20.0 [6.0~22.4]			21.8 [6.0~22.4]		
	BTU / h		68,200 [20,500~76,400]			74,400 [20,500~76,400]		
Air circulation (Hi / Me / Lo)	m <sup>3</sup> / h		4,320 / 4,200 / 3,960					
Moisture removal (High)	Liters / h		11.1			-		
External static pressure (High)	Pa (mmAq)		216 (22): at shipment 235 (24): using the booster cable					
ELECTRICAL RATINGS								
Voltage ratings	V		380	400	415	380	400	415
Available voltage range	V		342~456(Outdoor) 198~264(Indoor)					
Running amperes*	A		12.2	11.8	11.5	9.8	9.5	9.3
Max-Running amperes**	A		-	-	-	-	-	-
Power input	kW		7.58	7.64	7.70	6.09	6.15	6.21
C.O.P	W / W		2.64	2.62D	2.60	3.58	3.54B	3.51
Max.Starting amperes	A		-	-	-	-	-	-
FEATURES								
Controls / Thermostat control			Microprocessor / I.C.thermostat					
Timer			ON / OFF 72-hours					
Fan speeds Indoor / Outdoor			3 and Automatic control / Variable					
Airflow direction (Indoor)			-					
Air filter			Field supply					
Remote controller (Option)			Wired: CZ-RTC2 / Wireless: CZ-RWSC2					
Refrigerant control			-					
Drain pump (Drain connection)			25A Male screw (No Drain Pump)					
Compressor			Rotary					
Operation sound	Indoor - Hi / Me / Lo	dB-A	51 / 50 / 49					
	Outdoor - Hi	dB-A	57			57		
Color (Approximate value)	Indoor		-					
	Outdoor		Munsell 1Y 8.5 / 0.5					
REFRIGERANT TUBING			Indoor unit			Outdoor unit		
Limit of tubing length		m (ft.)	100 (328)					
Limit of tubing length at shipment		m (ft.)	5~30(16~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit: 30 (98) Outdoor unit is lower than indoor unit: 30 (98)					
Refrigerant tube outer diameter	Liquid tube	mm (in.)	9.52 (3 / 8)			9.52 (3 / 8)		
	Gas tube	mm (in.)	25.4 (1)*1			25.4 (1)*1		
Refrigerant amount at shipment		kg	-			R410A - 5.3		
DIMENSIONS & WEIGHT			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	479 (18-55 / 64)			1526 (60-5 / 64)		
	Width	mm (in.)	1,428 (56-7 / 32)			940 (37-1 / 64)		
	Depth	mm (in.)	1,230 (48-27 / 64)			340 (13-25 / 64)		
Package dimensions	Height	mm (in.)	619 (24-3 / 8)			1676 (65-63 / 64)		
	Width	mm (in.)	1,536 (60-15 / 32)			1076 (42-23 / 64)		
	Depth	mm (in.)	1,339 (52-23 / 32)			420 (16-17 / 32)		
Net weight		kg (lb.)	120 (265)			118 (260)		
Shipping weight		kg (lb.)	144 (317)			128 (282)		
Shipping volume		m <sup>3</sup> (cu.ft)	1.273 (44.9)			0.757 (26.7)		

### NOTE

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

\*1 There are two types of supplied tubings. The one tubing port  $\phi$ 19.05 (flare process) is connected to the flared connection of the gas port side's service valve. The other "L" shaped tubing port is brazed in connection after cutting the tube at the proper length. Then make a brazing connection to the main tubing ( $\phi$ 25.4).

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB  
Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

# Single-Type

## High Static Pressure Ducted Type S-200PE1E8 / U-200PE1E8

MODEL No.	Indoor Unit		S-200PE1E8					
	Outdoor Unit		U-200PE1E8					
POWER SOURCE	Indoor Unit		220-230-240V, 50/60Hz, single-phase					
	Outdoor Unit		380-400-415V, 50/60Hz, 3-phase					
PERFORMANCE			Cooling			Heating		
Capacity [min~max]	kW		20.0 [6.0~22.4]			22.4 [6.0~25.0]		
	BTU / h		68,200 [20,500~76,400]			76,400 [20,500~85,300]		
Air circulation (Hi / Me / Lo)	m <sup>3</sup> / h		3,360 / 3,190 / 2,980					
Moisture removal (High)	Liters / h		11.1			-		
External static pressure (High)	Pa (mmAq)		176 (18)					
ELECTRICAL RATINGS								
Voltage ratings	V		380	400	415	380	400	415
Available voltage range	V		342~456(Outdoor) 198~264(Indoor)					
Running amperes*	A		11.4	11.0	10.7	10.4	10.1	9.8
Max-Running amperes**	A		-	-	-	-	-	-
Power input	kW		7.09	7.12	7.15	6.47	6.50	6.53
C.O.P	W / W		2.82	2.81	2.80	3.46	3.45	3.43
Max.Starting amperes	A		-	-	-	-	-	-
FEATURES								
Controls / Thermostat control			Microprocessor / I.C.thermostat					
Timer			ON / OFF 72-hours					
Fan speeds Indoor / Outdoor			3 and Automatic control / Variable					
Airflow direction (Indoor)			-					
Air filter			Field supply					
Remote controller (Option)			Wired: CZ-RTC2 / Wireless: CZ-RWSC2					
Refrigerant control			-					
Drain pump (Drain connection)			25A Male screw (No Drain Pump)					
Compressor			Rotary					
Operation sound	Indoor - Hi / Me / Lo	dB-A	48 / 47 / 46					
	Outdoor - Hi	dB-A	57			57		
Color (Approximate value)	Indoor		-					
	Outdoor		Munsell 1Y 8.5 / 0.5					
REFRIGERANT TUBING			Indoor unit			Outdoor unit		
Limit of tubing length		m (ft.)	100 (328)					
Limit of tubing length at shipment		m (ft.)	5~30(16~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit: 30 (98) Outdoor unit is lower than indoor unit: 30 (98)					
Refrigerant tube outer diameter	Liquid tube	mm (in.)	9.52 (3 / 8)			9.52 (3 / 8)		
	Gas tube	mm (in.)	25.4 (1)*1			25.4 (1)*1		
Refrigerant amount at shipment		kg	-			R410A - 5.3		
DIMENSIONS & WEIGHT			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	467 (18-12 / 32)			1526 (60-5 / 64)		
	Width	mm (in.)	1,428 (56-7 / 32)			940 (37-1 / 64)		
	Depth	mm (in.)	1,230 (48-14 / 32)			340 (13-25 / 64)		
Package dimensions	Height	mm (in.)	614 (24-11 / 64)			1676 (65-63 / 64)		
	Width	mm (in.)	1,536 (60-15 / 32)			1076 (42-23 / 64)		
	Depth	mm (in.)	1,339 (52-23 / 32)			420 (16-17 / 32)		
Net weight		kg (lb.)	110 (243)			118 (260)		
Shipping weight		kg (lb.)	134 (295)			128 (282)		
Shipping volume		m <sup>3</sup> (cu.ft)	1.268 (44.8)			0.757 (26.7)		

### NOTE

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

\*1 There are two types of supplied tubings. The one tubing port  $\phi$ 19.05 (flare process) is connected to the flared connection of the gas port side's service valve. The other "L" shaped tubing port is brazed in connection after cutting the tube at the proper length. Then make a brazing connection to the main tubing ( $\phi$ 25.4).

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB  
Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

# Single-Type

## High Static Pressure Ducted Type S-250PE1E8 / U-250PE1E8

MODEL No.	Indoor Unit		S-250PE1E8					
	Outdoor Unit		U-250PE1E8					
POWER SOURCE	Indoor Unit		220-230-240V, 50/60Hz, single-phase					
	Outdoor Unit		380-400-415V, 50/60Hz, 3-phase					
PERFORMANCE			Cooling			Heating		
Capacity [min~max]	kW		25.0 [6.0~28.0]			28.0 [6.0~31.5]		
	BTU / h		85,300 [20,500~95,500]			95,500 [20,500~107,500]		
Air circulation (Hi / Me / Lo)	m <sup>3</sup> / h		4,320 / 4,200 / 3,960					
Moisture removal (High)	Liters / h		13.9			-		
External static pressure (High)	Pa (mmAq)		216 (22): at shipment 235 (24): using the booster cable					
ELECTRICAL RATINGS								
Voltage ratings	V		380	400	415	380	400	415
Available voltage range	V		342~456(Outdoor) 198~264(Indoor)					
Running amperes*	A		15.3	14.8	14.3	13.1	12.6	12.3
Max-Running amperes**	A		-	-	-	-	-	-
Power input	kW		9.49	9.55	9.61	8.14	8.20	8.26
C.O.P	W / W		2.63	2.62	2.60	3.44	3.41	3.39
Max.Starting amperes	A		-	-	-	-	-	-
FEATURES								
Controls / Thermostat control			Microprocessor / I.C.thermostat					
Timer			ON / OFF 72-hours					
Fan speeds Indoor / Outdoor			3 and Automatic control / Variable					
Airflow direction (Indoor)			-					
Air filter			Field supply					
Remote controller (Option)			Wired: CZ-RTC2 / Wireless: CZ-RWSC2					
Refrigerant control			-					
Drain pump (Drain connection)			25A Male screw (No Drain Pump)					
Compressor			Rotary					
Operation sound	Indoor - Hi / Me / Lo	dB-A	51 / 50 / 49					
	Outdoor - Hi	dB-A	57			58		
Color (Approximate value)	Indoor		-					
	Outdoor		Munsell 1Y 8.5 / 0.5					
REFRIGERANT TUBING			Indoor unit			Outdoor unit		
Limit of tubing length		m (ft.)	100 (328)					
Limit of tubing length at shipment		m (ft.)	5~30(16~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit: 30 (98) Outdoor unit is lower than indoor unit: 30 (98)					
Refrigerant tube outer diameter	Liquid tube	mm (in.)	12.7 (1 / 2)			12.7 (1 / 2)		
	Gas tube	mm (in.)	25.4 (1)			25.4 (1)*1		
Refrigerant amount at shipment		kg	-			R410A - 6.5		
DIMENSIONS & WEIGHT			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	467 (18-12 / 32)			1526 (60-5 / 64)		
	Width	mm (in.)	1,428 (56-7 / 32)			940 (37-1 / 64)		
	Depth	mm (in.)	1,230 (48-14 / 32)			340 (13-25 / 64)		
Package dimensions	Height	mm (in.)	614 (24-11 / 64)			1676 (65-63 / 64)		
	Width	mm (in.)	1,536 (60-15 / 32)			1076 (42-23 / 64)		
	Depth	mm (in.)	1,339 (52-23 / 32)			420 (16-17 / 32)		
Net weight		kg (lb.)	120 (256)			128 (282)		
Shipping weight		kg (lb.)	144 (317)			138 (304)		
Shipping volume		m <sup>3</sup> (cu.ft)	1.268 (44.8)			0.757 (26.7)		

### NOTE

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

\*1 There are two types of supplied tubings. The one tubing port  $\phi$ 19.05 (flare process) is connected to the flared connection of the gas port side's service valve. The other "L" shaped tubing port is brazed in connection after cutting the tube at the proper length. Then make a brazing connection to the main tubing ( $\phi$ 25.4).

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB  
Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-2. Major Component Specifications

### (A) Indoor Units

#### High Static Pressure Ducted Type S-200PE2E5

MODEL No.		S-200PE2E5
Source		220 - 230 - 240V, single-phase, 50Hz
Controller P.C.B. Ass'y		CR-280ME2E5
Fan (Number...diameter)	mm	SIROCCO (2...ø250)
Fan motor		
Model...Nominal output	W	DMUB6D1AC...560W DMUB6D2AC...560W
Power source		100 - 391 VDC
No. of pole...r.p.m. (230V, High)	rpm	8P...860
Coil resistance (Ambient temperature 20°C)	Ω	—
Run capacitor	VAC, μF	—
Electronic expansion valve		
Coil		—
Coil resistance (at 20°C)	Ω	—
Valve body		—
Heat exchanger		
Coil		Aluminium plate fin / Copper tube
Rows...fin pitch	mm	3...1.8
Face area	m <sup>2</sup>	0.648

**(A) Indoor Units****High Static Pressure Ducted Type S-250PE2E5**

<b>MODEL No.</b>		<b>S-250PE2E5</b>
<b>Source</b>		220 - 230 - 240V, single-phase, 50Hz
<b>Controller P.C.B. Ass'y</b>		CR-280ME2E5
<b>Fan (Number...diameter)</b>	mm	SIROCCO (2...ø250)
<b>Fan motor</b>		
Model...Nominal output	W	DMUB8D1AC...560W DMUB8D2AC...560W
Power source		100 - 391 VDC
No. of pole...r.p.m. (230V, High)	rpm	8P...1020
Coil resistance (Ambient temperature 20°C)	Ω	—
Run capacitor	VAC, μF	—
<b>Electronic expansion valve</b>		
Coil		—
Coil resistance (at 20°C)	Ω	—
Valve body		—
<b>Heat exchanger</b>		
Coil		Aluminium plate fin / Copper tube
Rows...fin pitch	mm	4...1.8
Face area	m <sup>2</sup>	0.648

**(A) Indoor Units****High Static Pressure Ducted Type S-200PE1E8A**

MODEL No.		S-200PE1E8A	
Source		220 - 230 - 240V, single-phase, 50Hz	
Controller P.C.B. Ass'y		CR-UXRP71B-P (Microprocessor)	
Fan (Number...diameter)	mm	Centrifugal (2...ø250)	
<b>Fan motor</b>			
Model...Nominal output	W	KFC4X-401B3P...400W	
Power source		220 - 230 - 240V, single-phase, 50Hz	
No. of pole...r.p.m. (230V, High)	rpm	4P...1,211	
Coil resistance (Ambient temperature 20°C)	Ω	BRN – WHT : 6.159 WHT – VLT : 1.08 VLT – ORG : 0.77	ORG – YEL : 0.87 YEL – BLK : 2.87 BLK – PNK : 5.98
Safety device			
Operating temperature	Open °C	130 ± 5	
	Close °C	(115 ± 5)	
Run capacitor	VAC, μF	450 VAC, 5.0 μF	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)	Ω	-	
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminium plate fin / Copper tube	
Rows...fin pitch	mm	3...2.0	
Face area	m <sup>2</sup>	0.655	

**(A) Indoor Units****High Static Pressure Ducted Type S-200PE1E8**

<b>MODEL No.</b>		<b>S-200PE1E8</b>	
<b>Source</b>		220 - 230 - 240V, single-phase, 50/60Hz	
<b>Controller P.C.B. Ass'y</b>		CR-UXRP71B-P (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Centrifugal (2...ø220)	
<b>Fan motor</b>			
Model...Nominal output	W	KFC4X-201B5P...180W	
Power source		220 - 230 - 240V, single-phase, 50Hz	
No. of pole...r.p.m. (230V, High)	rpm	4P...1,012	
Coil resistance (Ambient temperature 20°C)	Ω	BRN – WHT : 13.75 WHT – VLT : 4.47 VLT – ORG : 1.20	ORG – YEL : 2.21 YEL – BLK : 10.33 BLK – PNK : 12.90
<b>Safety device</b>			
Operating temperature	Open °C	130 ± 5	
	Close °C	(115 ± 5)	
Run capacitor	VAC, μF	450 VAC, 7.0 μF	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)	Ω	-	
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminium plate fin / Copper tube	
Rows...fin pitch	mm	3...2.0	
Face area	m <sup>2</sup>	0.540	

**(A) Indoor Units****High Static Pressure Ducted Type S-250PE1E8**

<b>MODEL No.</b>		<b>S-250PE1E8</b>	
<b>Source</b>		220 - 230 - 240V, single-phase, 50Hz	
<b>Controller P.C.B. Ass'y</b>		CR-UXRP71B-P (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Centrifugal (2...ø250)	
<b>Fan motor</b>			
Model...Nominal output	W	KFC4X-401B3P...400W	
Power source		220 - 230 - 240V, single-phase, 50Hz	
No. of pole...r.p.m. (230V, High)	rpm	4P...1,211	
Coil resistance (Ambient temperature 20°C)	Ω	BRN – WHT : 6.159 WHT – VLT : 1.08 VLT – ORG : 0.77	ORG – YEL : 0.87 YEL – BLK : 2.87 BLK – PNK : 5.98
<b>Safety device</b>			
Operating temperature	Open °C	130 ± 5	
	Close °C	(115 ± 5)	
Run capacitor	VAC, μF	450 VAC, 5.0 μF	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)	Ω	-	
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminium plate fin / Copper tube	
Rows...fin pitch	mm	3...2.0	
Face area	m <sup>2</sup>	0.655	

## (B) Outdoor Units

## U-200PE1E8

<b>MODEL No.</b>		U-200PE1E8	
<b>Source</b>		380-400-415V, 3-phase, 50/60Hz	
<b>Controller P.C.B. Ass'y</b>		CR-C906VH8P (Microprocessor)	
Control circuit fuse		20A	
<b>Compressor</b>			
Model....number		C-9RVN273H0K	
Source		246V (DC) / 3-phase / 60Hz (Inverter drive)	
Nominal output	W	4,200	
Compressor oil	cc	1,400	
Coil resistance (Ambient temperature 25°C)	Ω	C – R : 0.552	R – S : 0.552
Safety control		Discharge temperature control	
Overload relay models		Discharge temperature control	
Operation temperature	Open °C	-	
	Close °C	-	
Crank case heater	W	25	
<b>Refrigerant amount at shipment</b>		R410A - 5.3	
<b>High pressure switch</b>			
Set pressure	OFF	MPa	4.15 <sup>0</sup> <sub>-0.15</sub>
	ON	MPa	3.15 ± 0.3
<b>Fan</b>			
Number...diameter	mm	2...ø490	
Air circulation	m <sup>3</sup> / h	7,740	
<b>Fan speeds (Max.)</b>		~860 rpm (Inverter drive control)	
<b>Fan motor</b>			
Model No.		SIC-71FW-D8120	
Source		~280V / 3-phase	
No. of pole		8	
Nominal output	W	120	
Safety device		-	
Operating temperature	Open °C	-	
	Close °C	-	
Run capacitor	VAC, μF	-	
<b>Heat exchanger</b>			
Coil		Aluminium plate fin / Copper tube	
Rows...fin pitch	mm	2...1.4	
Face area	m <sup>2</sup>	1.27	

**(B) Outdoor Units****U-250PE1E8**

<b>MODEL No.</b>		U-250PE1E8	
<b>Source</b>		380-400-415V, 3-phase, 50/60Hz	
<b>Controller P.C.B. Ass'y</b>		CR-C906VH8P (Microprocessor)	
Control circuit fuse		20A	
<b>Compressor</b>			
Model....number		C-9RVN393H0U	
Source		282V (DC) / 3-phase / 60Hz (Inverter drive)	
Nominal output	W	5,500	
Compressor oil	cc	1,900	
Coil resistance (Ambient temperature 25°C)	Ω	C – R : 0.608	R – S : 0.608
		C – S : 0.608	
Safety control		Discharge temperature control	
Overload relay models			
Operation temperature	Open °C	-	
	Close °C	-	
Crank case heater	W	25	
<b>Refrigerant amount at shipment</b>		R410A - 6.5	
<b>High pressure switch</b>			
Set pressure	OFF	MPa	4.15 <sup>0</sup> <sub>-0.15</sub>
	ON	MPa	3.15 ± 0.3
<b>Fan</b>			
Number...diameter	mm	2...ø490	
Air circulation	m <sup>3</sup> / h	7,080	
<b>Fan speeds (Max.)</b>		~860 rpm (Inverter drive control)	
<b>Fan motor</b>			
Model No.		SIC-71FW-D8120	
Source		~280V / 3-phase	
No. of pole		8	
Nominal output	W	120	
Safety device		-	
Operating temperature	Open °C	-	
	Close °C	-	
Run capacitor	VAC, μF	-	
<b>Heat exchanger</b>			
Coil		Aluminium plate fin / Copper tube	
Rows...fin pitch	mm	3...1.4	
Face area	m <sup>2</sup>	1.27	

## 1-3. Other Component Specifications

## Outdoor Units U-200PE1E8

MODEL No.	Outdoor Unit	U-200PE1E8
<b>Power Transformer</b>		–
Rated	Source	VAC, Hz
	Secondary	
Coil resistance		Ω
Thermal cut off temperature		
<b>Thermistor (Coil / Air sensor): TH1, TH2, TH3, TH4</b>		KTM-35D-S1, DTN-C532G3H
Resistance	kΩ	–10°C: 23.7±5%
		–5°C: 18.8±5%
		0°C: 15.0±5%
		5°C: 12.1±5%
		10°C: 9.7±5%
<b>Thermistor (Discharge gas sensor): TH5</b>		CM-12
Resistance	kΩ	60°C: 12.4±5%
		70°C: 8.7±5%
		75°C: 7.4±5%
		80°C: 6.3±5%
		85°C: 5.3±5%
<b>Relay (Comp. Magnetic Contactor)</b>		
Coil rated	VAC	–
Contact rating	VAC, A	–
Coil resistance (at 20°C)	Ω	–
<b>Sol-Control-Valve</b>		
Sol-control-valve		UKV-25D18
Magnetic coil		UKV-A053 (062), DC 12V
<b>4 way valve</b>		
4 way valve		STF-0401G
Electro magnetic coil		STF-01AI518A1, AC 220-240 V, 50Hz / 60Hz

## Outdoor Units U-250PE1E8

MODEL No.	Outdoor Unit	U-250PE1E8
<b>Power Transformer</b>		–
Rated	Source	VAC, Hz
	Secondary	
Coil resistance		Ω
Thermal cut off temperature		
<b>Thermistor (Coil / Air sensor): TH1, TH2, TH3, TH4</b>		KTM-35D-S1, DTN-C532G3H
Resistance	kΩ	–10°C: 23.7±5%
		–5°C: 18.8±5%
		0°C: 15.0±5%
		5°C: 12.1±5%
		10°C: 9.7±5%
<b>Thermistor (Discharge gas sensor): TH5</b>		CM-12
Resistance	kΩ	60°C: 12.4±5%
		70°C: 8.7±5%
		75°C: 7.4±5%
		80°C: 6.3±5%
		85°C: 5.3±5%
<b>Relay (Comp. Magnetic Contactor)</b>		
Coil rated	VAC	–
Contact rating	VAC, A	–
Coil resistance (at 20°C)	Ω	–
<b>Sol-Control-Valve</b>		
Sol-control-valve		UKV-25D18
Magnetic coil		UKV-U030E, DC 12 V
<b>4 way valve</b>		
4 way valve		STF-0712G
Electro magnetic coil		STF-01AI518A1, AC 220-240 V, 50Hz / 60Hz

# 1-4. Dimensional Data

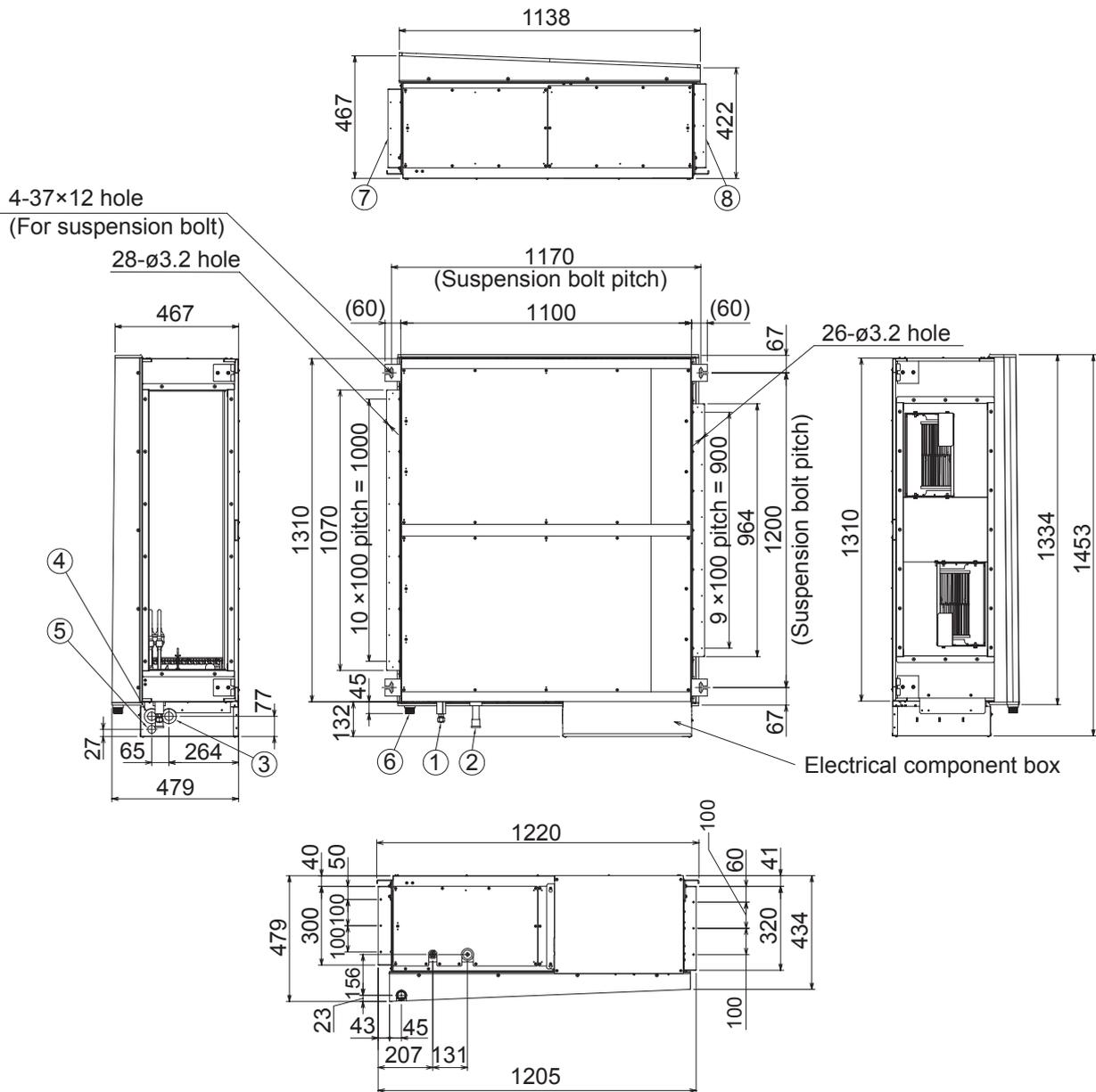
## (A) Indoor Units: High Static Pressure Ducted Type

S-200PE2E5

S-250PE2E5

Unit : mm

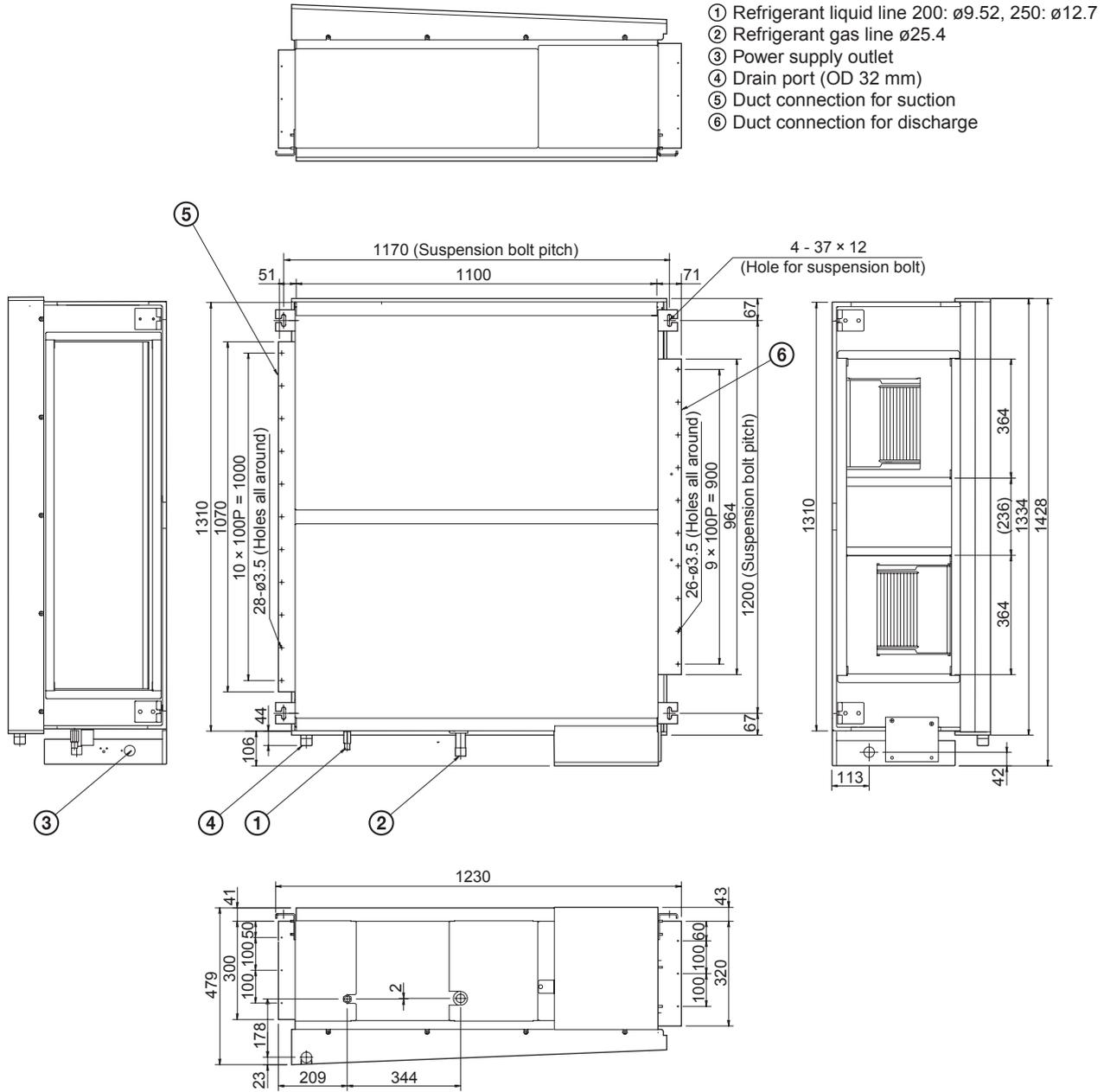
- ① Refrigerant liquid tubing (Flare) Type 200:  $\phi 9.52$   
Type 250:  $\phi 12.7$
- ② Refrigerant gas tubing (Brazing)  $\phi 25.4$  mm
- ③ Power supply port
- ④ Communication wiring port
- ⑤ Port for optional wiring part
- ⑥ Drain port 25A
- ⑦ Air intake duct connecting side flange
- ⑧ Air discharge duct connecting side flange



(A) Indoor Units: High Static Pressure Ducted Type

S-200PE1E8A

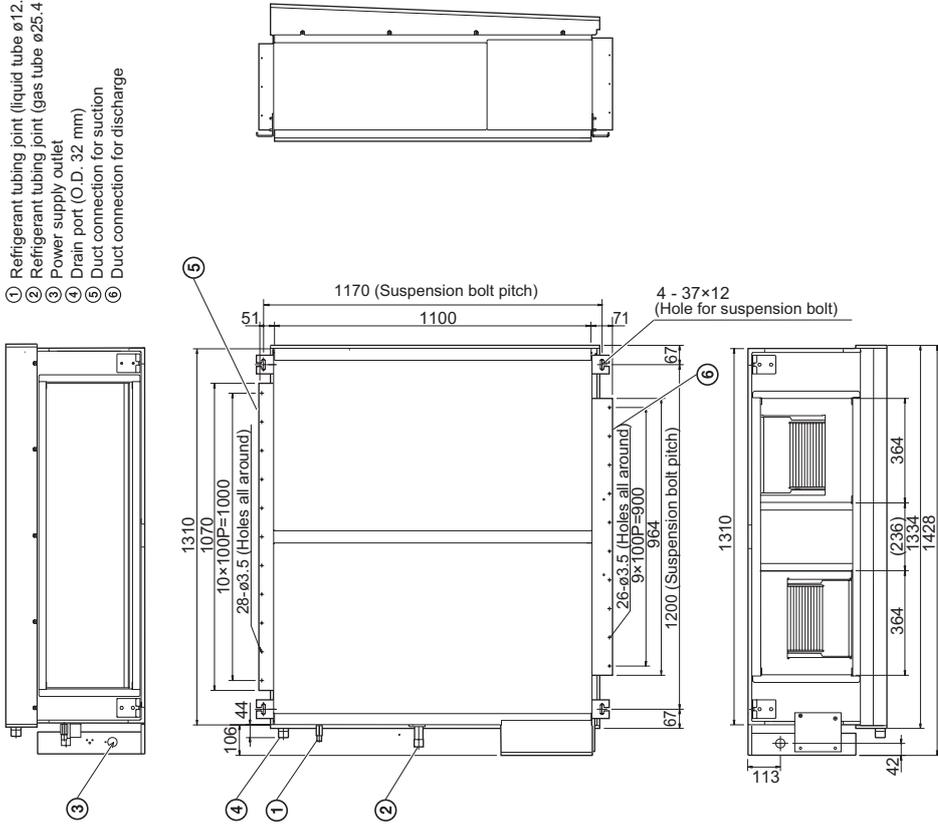
unit: mm



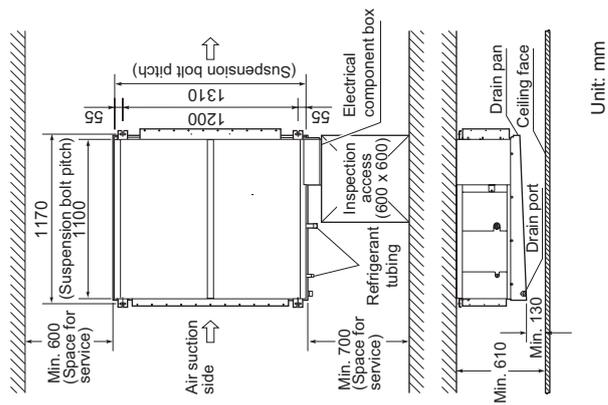
(A) Indoor Units: High Static Pressure Ducted Type

S-200PE1E8  
S-250PE1E8

- ① Refrigerant tubing joint (liquid tube  $\phi 12.7$  mm) (Flare nut)
- ② Refrigerant tubing joint (gas tube  $\phi 25.4$  mm) (Brazing)
- ③ Power supply outlet
- ④ Drain port (O.D. 32 mm)
- ⑤ Duct connection for suction
- ⑥ Duct connection for discharge



Unit: mm

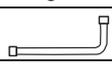


Unit: mm

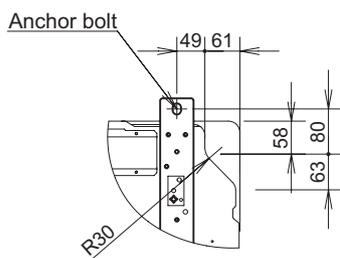
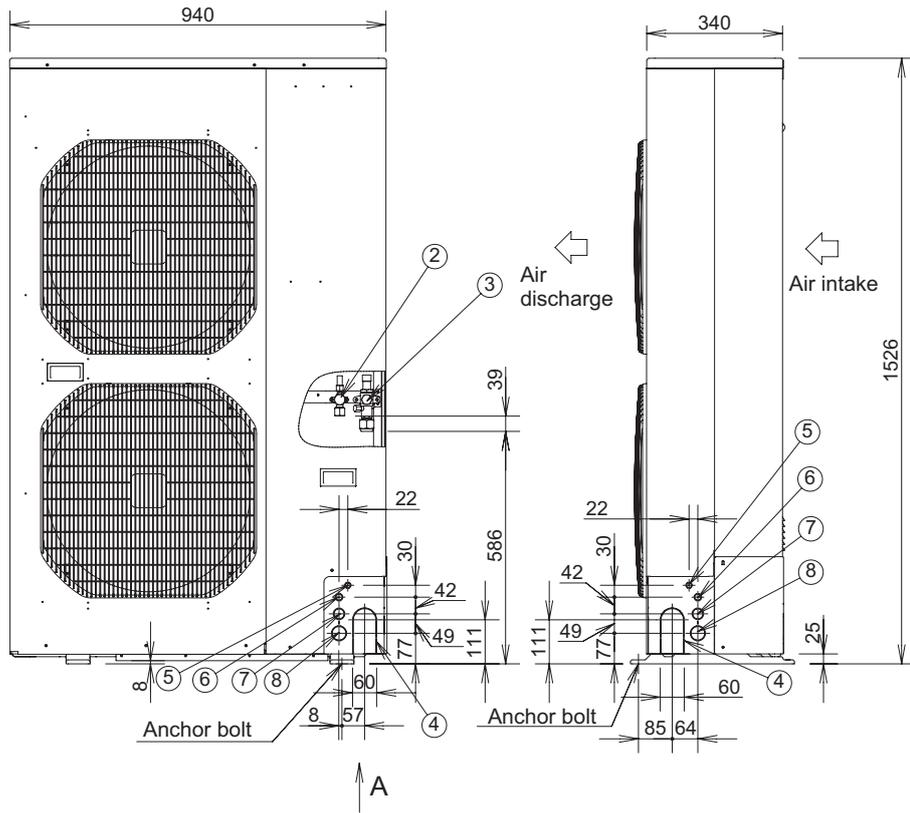
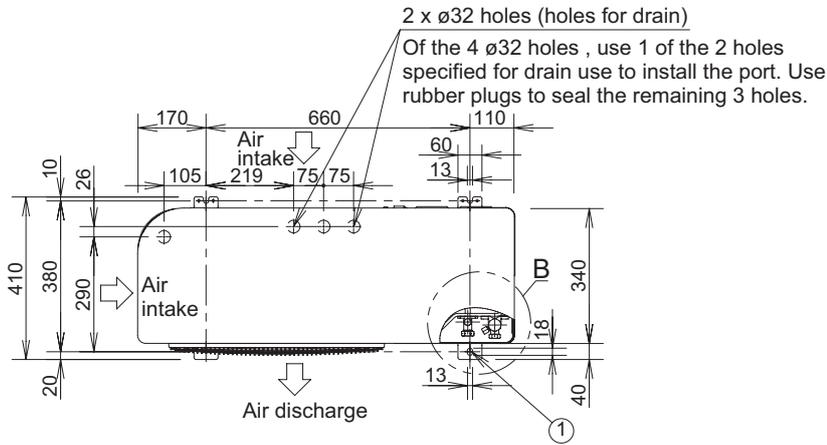
(B) Outdoor Unit: U-200PE1E8

Unit: mm

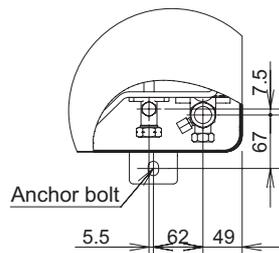
①	Mounting hole (4-R6.5), anchor bolt : M10
②	Refrigerant tubing (liquid tube), flared connection (ø9.52)
③	Refrigerant tubing (gas tube), flared connection (ø19.05)
④	Refrigerant tubing port
⑤	Electrical wiring port (ø16)
⑥	Electrical wiring port (ø19)
⑦	Electrical wiring port (ø29)
⑧	Electrical wiring port (ø38)

Name	Figure	Q'ty
Reducing Joint Tube (ø19.05 → ø25.4)		1
Joint Tube (ø19.05)		1

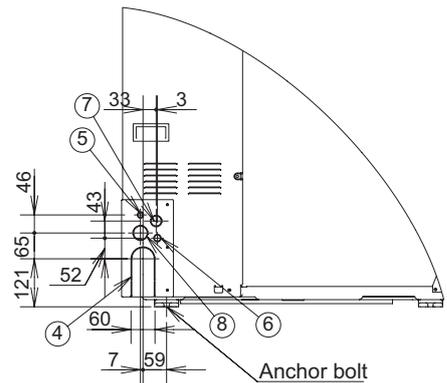
Remark:  
There are two types of supplied tubings. The one tubing port ø19.05 (flare process) is connected to the flared connection of the gas port side's service valve. The other "L" shaped tubing port is brazed in connection after cutting the tube at the proper length. Then make a brazing connection to the main tubing (ø25.4).



VIEW A  
Bottom removable connection port



VIEW B  
Refrigerant tubing connection port



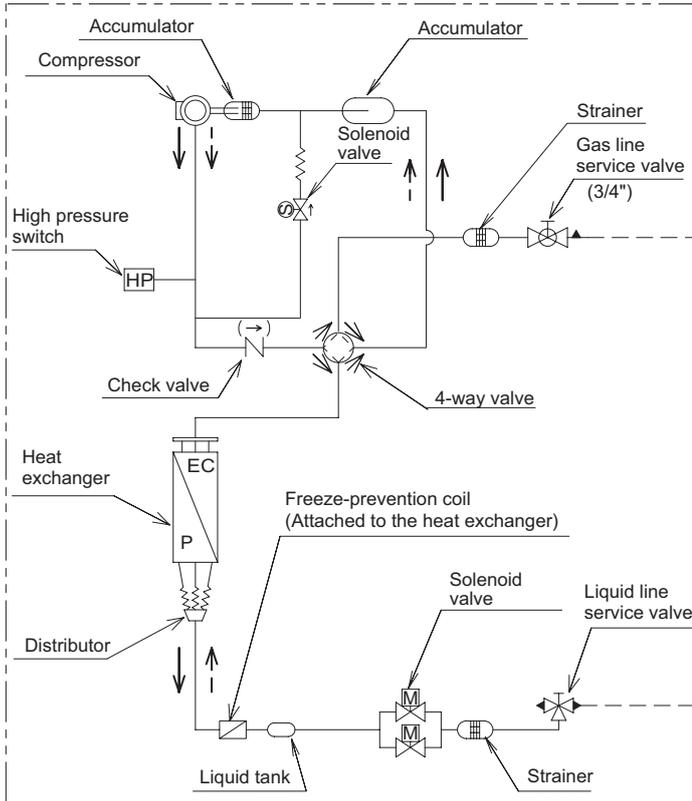


# 1-5. Refrigerant Flow Diagram

← Cooling cycle  
← - - Heating cycle

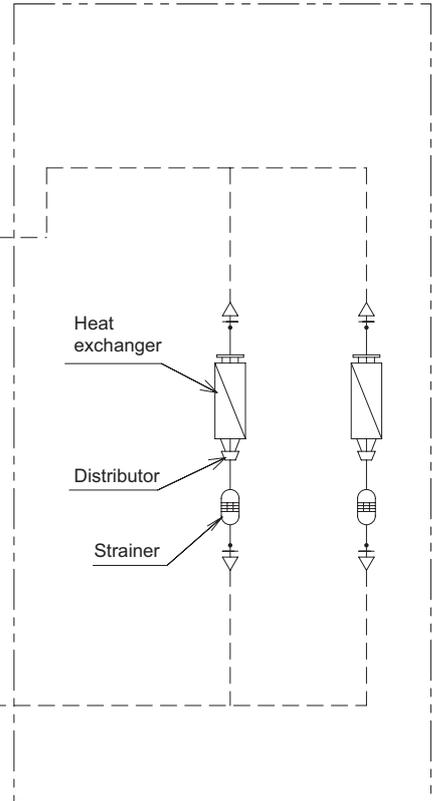
### Outdoor Unit : U-200PE1E8

### Indoor Unit : S-200PE2E5



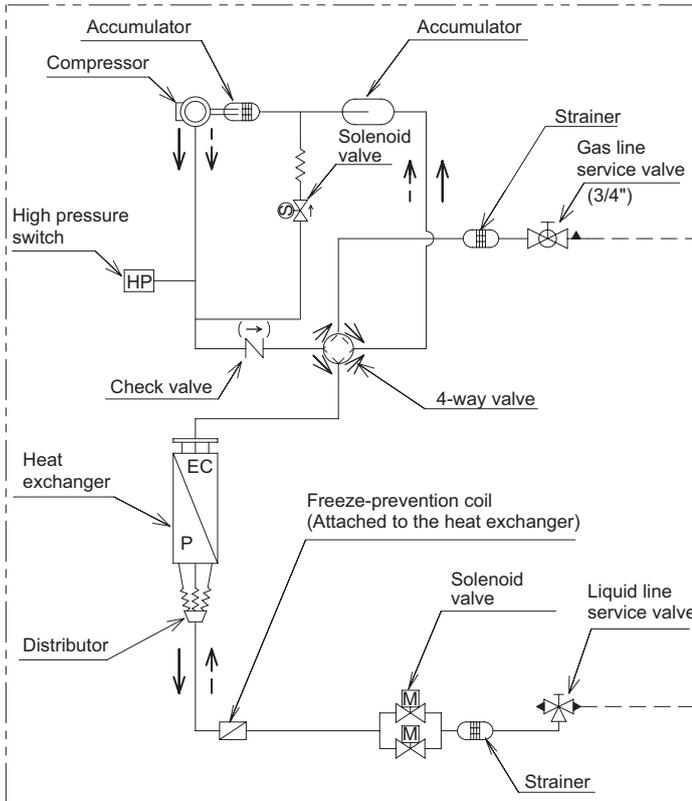
ø25.4 (brazing)

ø9.52



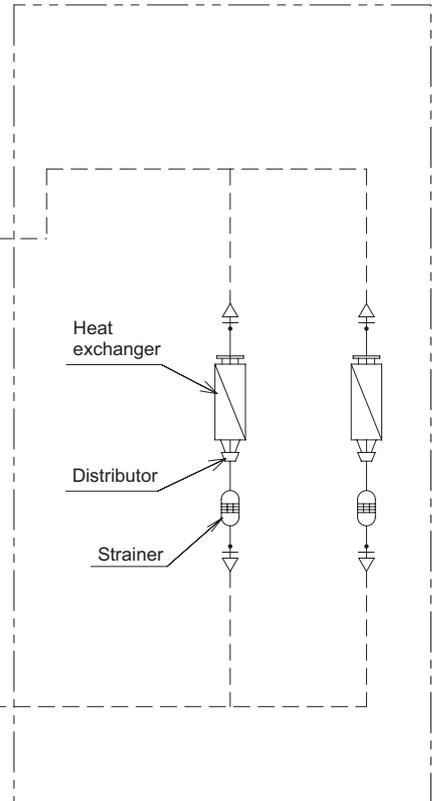
### Outdoor Unit : U-250PE1E8

### Indoor Unit : S-250PE2E5



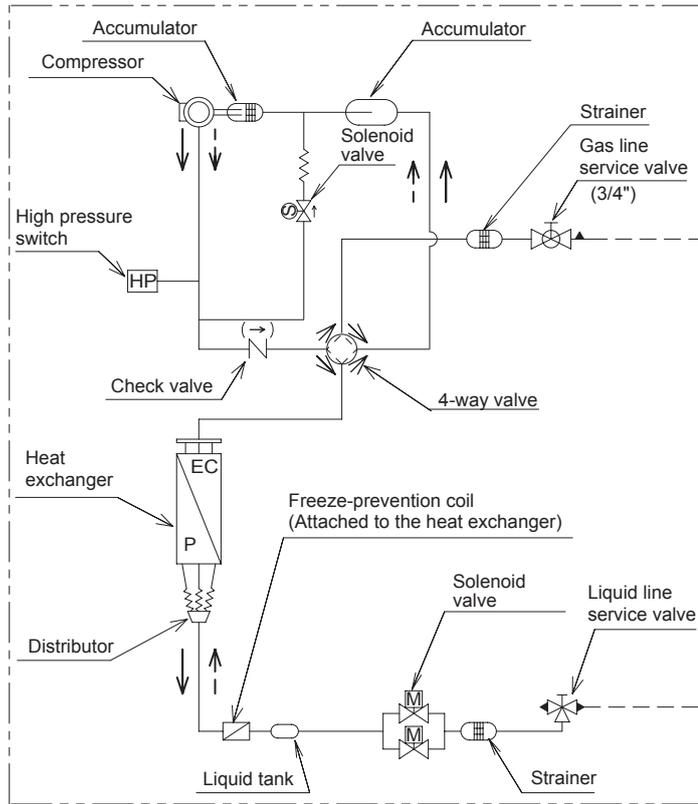
ø25.4 (brazing)

ø12.7

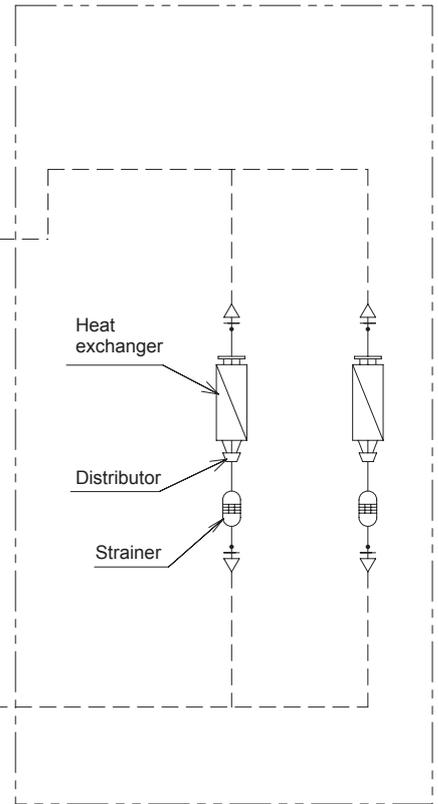


← Cooling cycle  
 ← - - Heating cycle

**Outdoor Unit : U-200PE1E8**



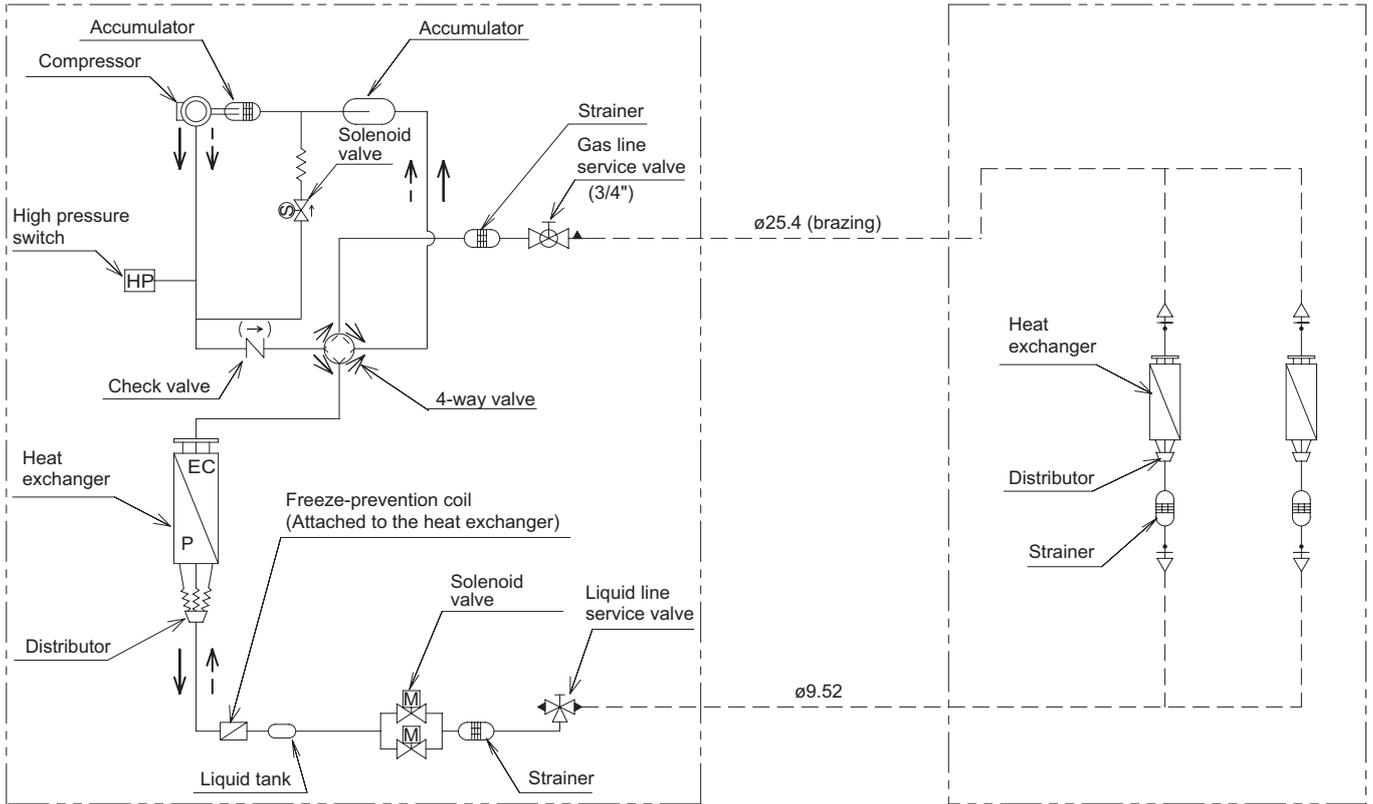
**Indoor Unit : S-200PE1E8A**



← Cooling cycle  
← - - Heating cycle

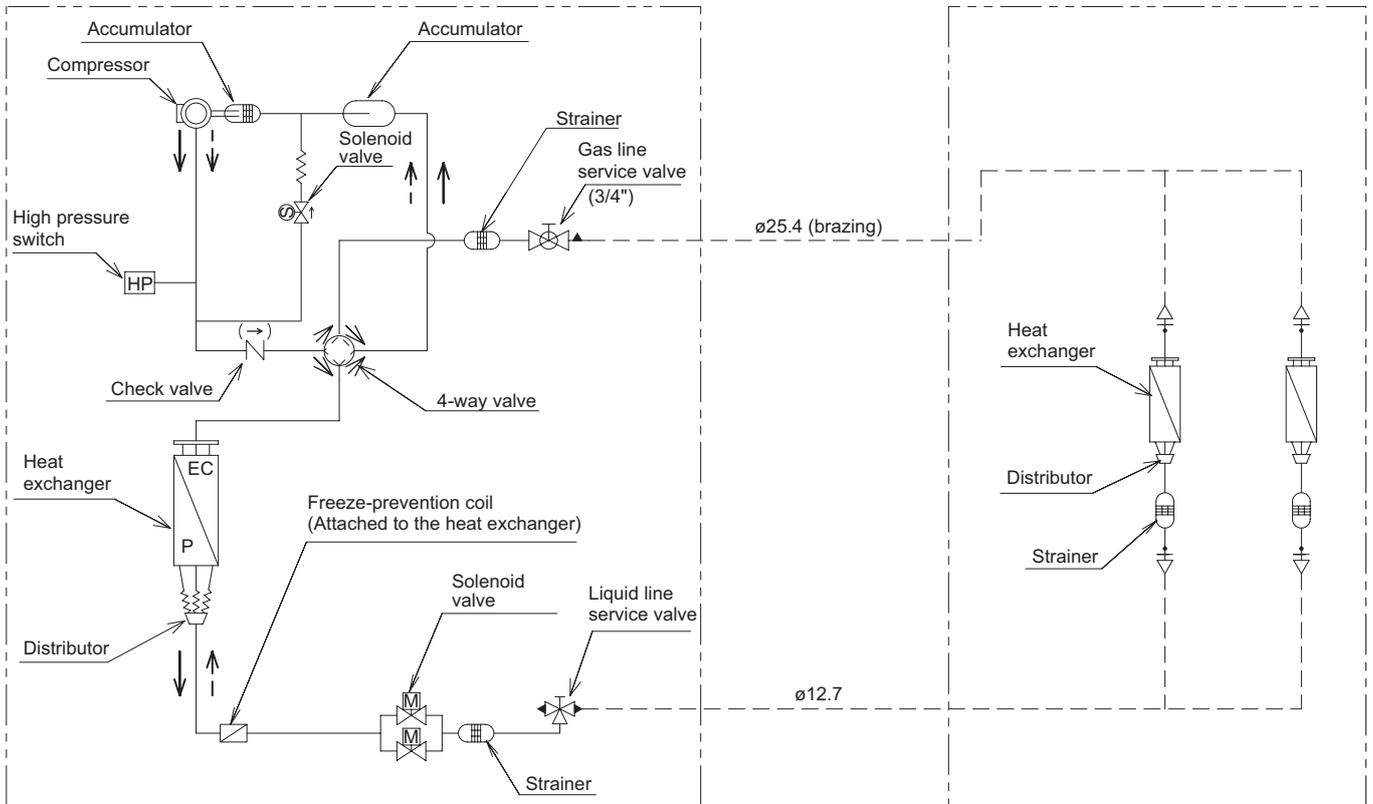
**Outdoor Unit : U-200PE1E8**

**Indoor Unit : S-200PE1E8**



**Outdoor Unit : U-250PE1E8**

**Indoor Unit : S-250PE1E8**



## 1-6. Operating Range

**S-200PE2E5 – U-200PE1E8**

**S-250PE2E5 – U-250PE1E8**

**S-200PE1E8A – U-200PE1E8**

	Temperature	Indoor air intake temp.	Outdoor air intake temp.
Cooling	Maximum	32°C DB	43°C DB
	Minimum	18°C DB	-15°C DB
Heating	Maximum	30°C DB	24°C DB
	Minimum	16°C DB	-20°C DB

**S-200PE1E8 – U-200PE1E8**

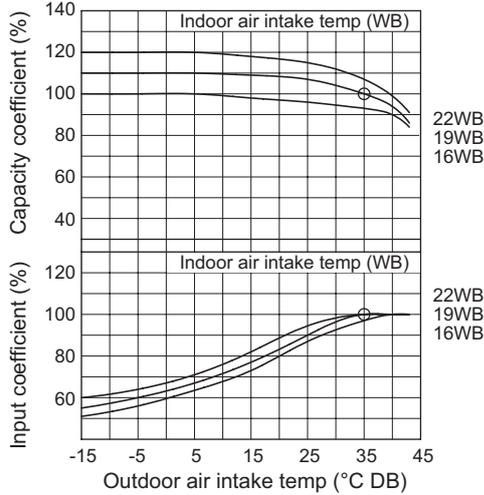
**S-250PE1E8 – U-250PE1E8**

	Temperature	Indoor air intake temp.	Outdoor air intake temp.
Cooling	Maximum	32°C DB / 23°C WB	43°C DB
	Minimum	18°C DB / 14°C WB	-15°C DB
Heating	Maximum	30°C DB / – WB	15°C WB
	Minimum	-	-20°C WB

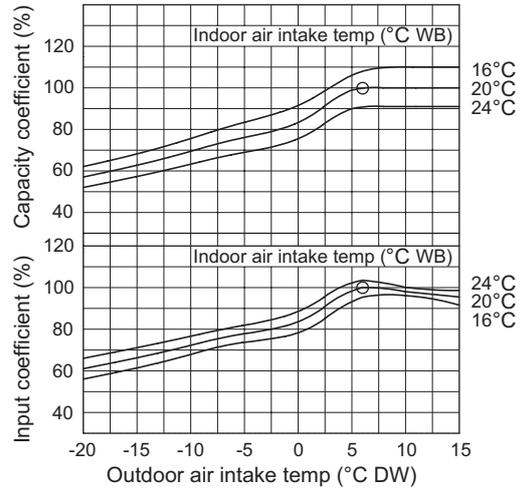
# 1-7. Capacity Correction Graph According to Temperature Condition

## U-200PE1E8 / U-250PE1E8 (For 50 Hz and 60 Hz)

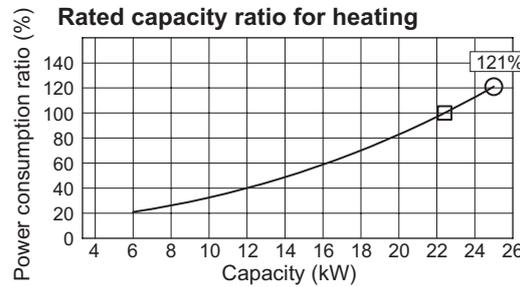
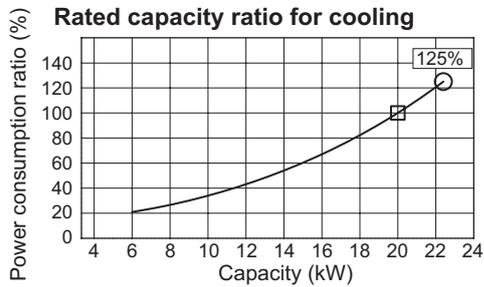
### ① Cooling capacity ratio (maximum capacity)



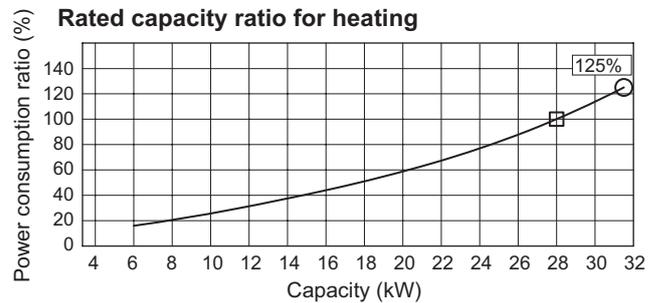
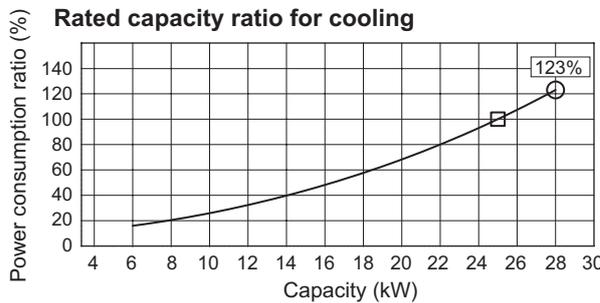
### Heating capacity ratio (maximum capacity)



### ② U-200PE1E8



### ② U-250PE1E8



#### NOTE 1

- The graphs "①" of the characteristics show the value under the following conditions.  
 Equivalent tubing length : 7.5m  
 Difference of elevation : 0m  
 Wind speed : High
- "○" marking indicates the maximum capacity / maximum power consumption under the JIS condition.  
 Maximum capacity indicates the maximum value in the parentheses of the specifications (cooling and heating capacity).
- The characteristic of heating capacity excludes the decline of capacity when frosting (including defrost drive).

#### NOTE 2

- The graphs "②" of the characteristics show the value under the following conditions.  
 Equivalent tubing length : 7.5m  
 Difference of elevation : 0m  
 Wind speed : High
- "□" marking indicates the rated capacity / rated power consumption under the JIS condition.  
 "○" marking indicates the maximum capacity / maximum power consumption under the JIS condition.
- The characteristic of heating capacity excludes the decline of capacity when frosting (including defrost drive).

Outdoor unit heating capacity correction coefficient during of frosting / defrosting (RH approximately 85%)

Outdoor intake air temperature °C WB	-20	-15	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Correction coefficient	1.0	1.0	0.97	0.96	0.96	0.95	0.94	0.91	0.89	0.88	0.87	0.87	0.87	0.88	0.89	0.91	0.92	0.95	1.0

To calculate the heating capacity with consideration for frosting / defrosting operation, multiply the heating capacity found from the capacity graph by the correction coefficient from the table above.

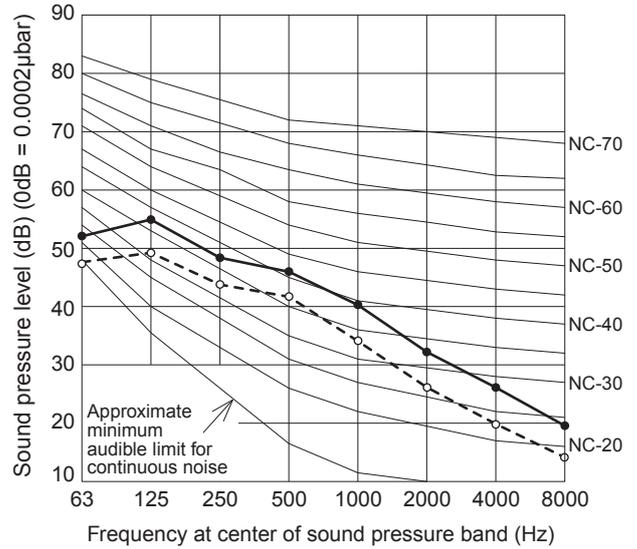
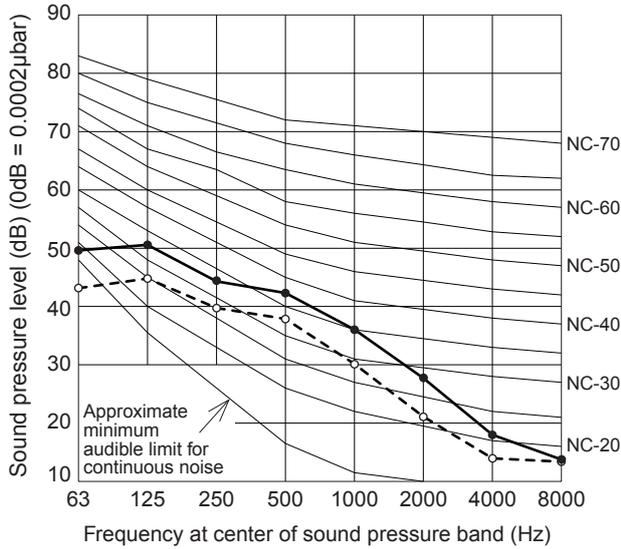
# 1-8. Noise Criterion Curves

High Static Pressure Ducted Type

—●— HIGH  
 - -○- - LOW

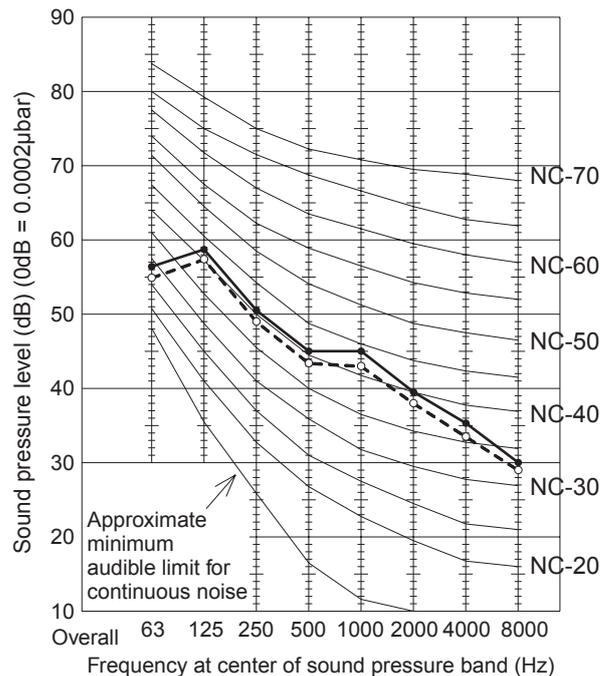
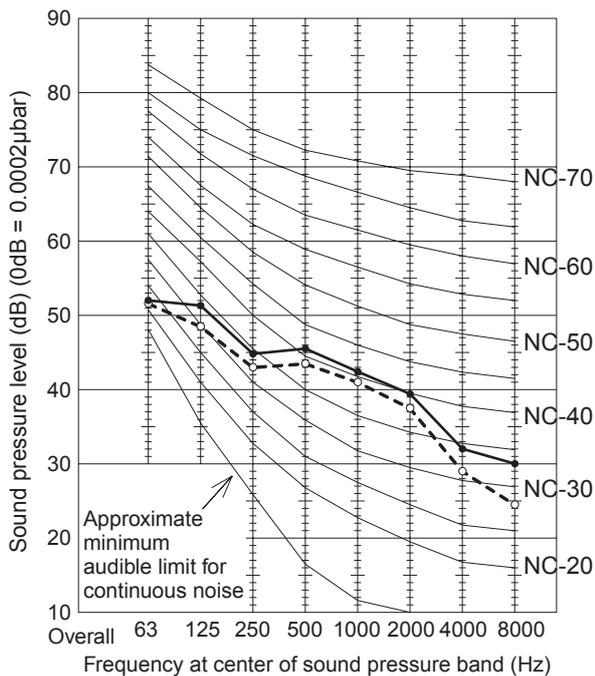
MODEL	: S-200PE2E5
SOUND LEVEL : HIGH	43 dB(A)
LOW	38 dB(A)
CONDITION	: Under the unit 1.5 m

MODEL	: S-250PE2E5
SOUND LEVEL : HIGH	47 dB(A)
LOW	42 dB(A)
CONDITION	: Under the unit 1.5 m



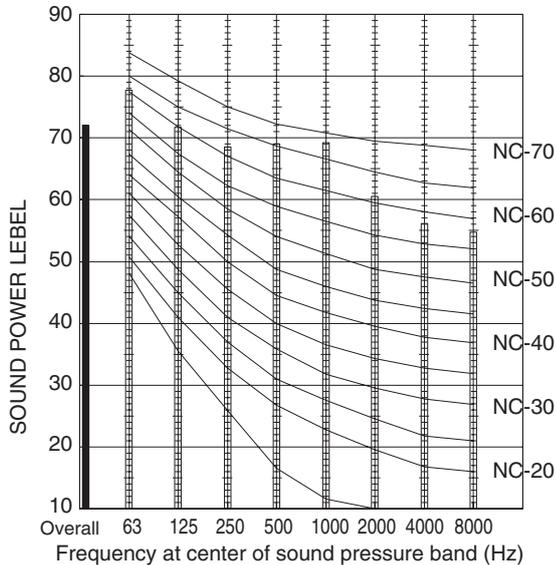
MODEL	: S-200PE1E8
SOUND LEVEL : HIGH	48 dB(A)
LOW	45 dB(A)
CONDITION	: Under the unit 1.5 m

MODEL	: S-200PE1E8A , 250PE1E8
SOUND LEVEL : HIGH	50 dB(A)
LOW	48 dB(A)
CONDITION	: Under the unit 1.5 m



**(B) Outdoor Unit**

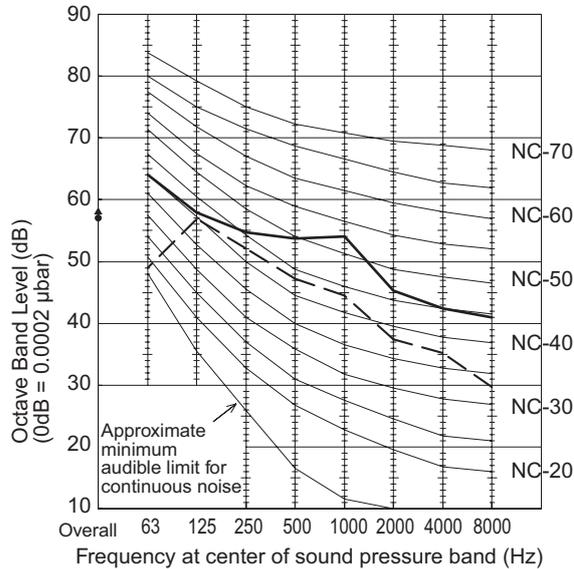
MODEL	: U-200PE1E8
SOUND	: 72 dB(A)
POWER LEVEL	: Cooling



**COOLING**

MODEL	: U-200PE1E8
SOUND LEVEL	: STANDARD 57 dB(A) : QUIET MODE 50 dB(A)

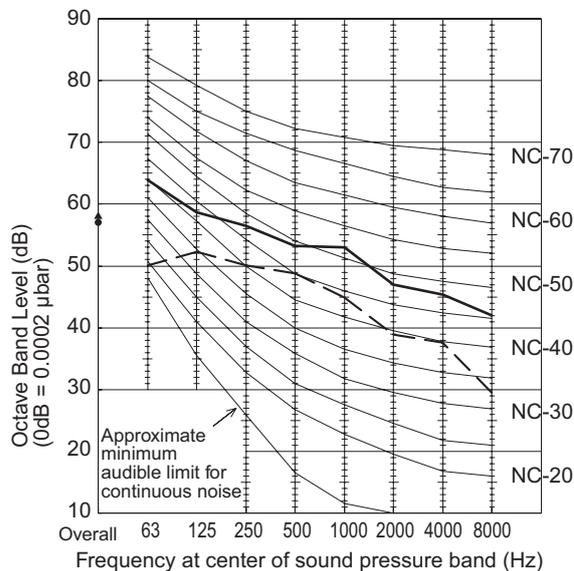
CONDITION : 1 m in front at height of 1.5 m



**HEATING**

MODEL	: U-200PE1E8
SOUND LEVEL	: STANDARD 57 dB(A) : QUIET MODE 50 dB(A)

CONDITION : 1 m in front at height of 1.5 m



**REMARKS:**

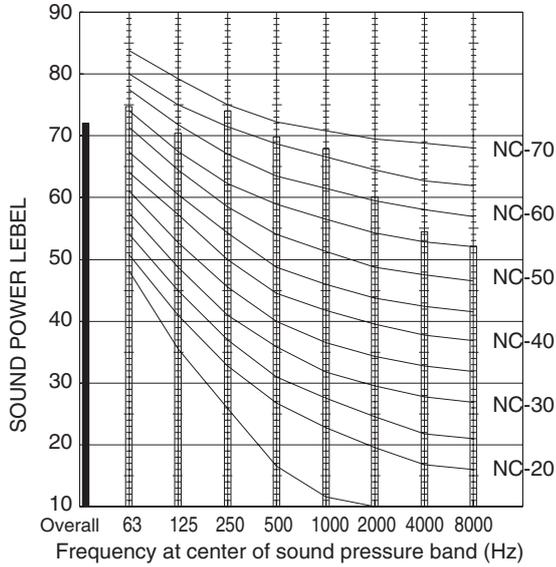
1. Value obtained in the actual place where the unit is installed may be slightly higher than the values shown in this graph because of the conditions of operation, the structure of the building, the background noise and other factors.
2. The test results were obtained from an anechoic room.

**NOTE**

To evaluate "Noise level" the maximum number of the measured OCTAVE BAND SOUND PRESSURE LEVEL is used. Read the number on each BAND CENTER FREQUENCIES (horizontal axis) ranging from 63 Hz to 8000 Hz and select the maximum value (vertical axis) among them.

**(B) Outdoor Unit**

MODEL	: U-250PE1E8
SOUND	: 72 dB(A)
POWER LEVEL	: Cooling

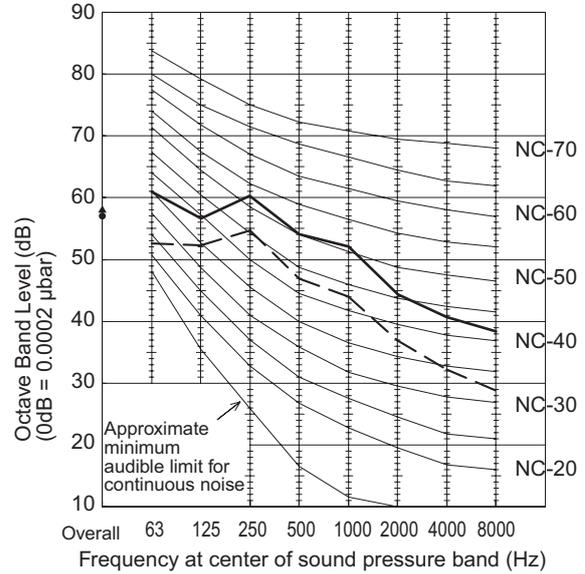


**COOLING**

— Standard  
 - - - Quiet mode

MODEL	: U-250PE1E8
SOUND LEVEL	: STANDARD 57 dB(A)
	: QUIET MODE 50 dB(A)

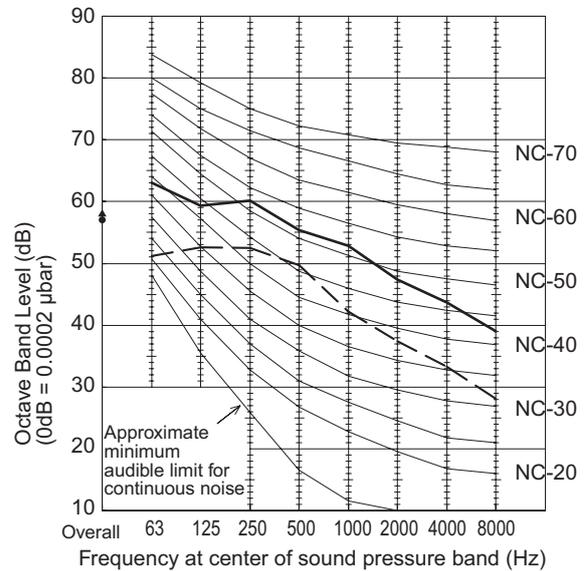
CONDITION : 1 m in front at height of 1.5 m



**HEATING**

MODEL	: U-250PE1E8
SOUND LEVEL	: STANDARD 58 dB(A)
	: QUIET MODE 50 dB(A)

CONDITION : 1 m in front at height of 1.5 m



**REMARKS:**

1. Value obtained in the actual place where the unit is installed may be slightly higher than the values shown in this graph because of the conditions of operation, the structure of the building, the background noise and other factors.
2. The test results were obtained from an anechoic room.

**NOTE**

To evaluate "Noise level" the maximum number of the measured OCTAVE BAND SOUND PRESSURE LEVEL is used. Read the number on each BAND CENTER FREQUENCIES (horizontal axis) ranging from 63 Hz to 8000 Hz and select the maximum value (vertical axis) among them.

## 1-9. ELECTRICAL WIRING

### ● General Precautions on Wiring

- (1) Before wiring, confirm the rated voltage of the unit as shown on its nameplate, then carry out the wiring closely following the wiring diagram.



#### WARNING

- (2) This equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). Otherwise, it may cause electrical shock and fire in case of equipment breakdown or insulation breakdown. Earth Leakage Circuit Breaker (ELCB) must be incorporated in the fixed wiring in accordance with the wiring regulations. The Earth Leakage Circuit Breaker (ELCB) must be an approved 10-16 A, having a contact separation in all poles.
- (3) To prevent possible hazards from insulation failure, the unit must be grounded.
- (4) Each wiring connection must be done in accordance with the wiring system diagram. Wrong wiring may cause the unit to misoperate or become damaged.
- (5) Do not allow wiring to touch the refrigerant tubing, compressor, or any moving parts of the fan.
- (6) Unauthorized changes in the internal wiring can be very dangerous. The manufacturer will accept no responsibility for any damage or misoperation that occurs as a result of such unauthorized changes.
- (7) Regulations on wire diameters differ from locality to locality. For field wiring rules, please refer to your LOCAL ELECTRICAL CODES before beginning.  
You must ensure that installation complies with all relevant rules and regulations.
- (8) To prevent malfunction of the air conditioner caused by electrical noise, care must be taken when wiring as follows:
- The remote control wiring and the inter-unit control wiring should be wired apart from the inter-unit power wiring.
  - Use shielded wires for inter-unit control wiring between units and ground the shield on both sides.
- (9) If the power supply cord of this appliance is damaged, it must be replaced by a repair shop designated by the manufacturer, because special-purpose tools are required.

### Recommended Wire Length and Wire Diameter for Power Supply System

#### Outdoor unit (3-Phase)

	(A) Power supply		Time delay fuse or circuit capacity
	Wire size	Max. length	
U-200PE1E8	14 mm <sup>2</sup>	116 m	15 A
U-250PE1E8	14 mm <sup>2</sup>	96 m	20 A

#### Indoor unit

		(B) Power supply	Time delay fuse or circuit capacity
		2.5 mm <sup>2</sup>	
E2	S-200PE2E5	Max. 30 m	10-16 A
	S-250PE2E5		
E1	S-200PE1E8A	Max. 50/30 m	10/16 A
	S-200PE1E8	Max. 50/30 m	10/16 A
	S-250PE1E8		

#### Control wiring

(C) Inter-unit control wiring (between outdoor and indoor units)	(D) Remote control wiring
0.75 mm <sup>2</sup> (AWG #18) Use shielded wiring*1	0.75 mm <sup>2</sup> (AWG #18)
Max. 1,000 m	Max. 500 m*2

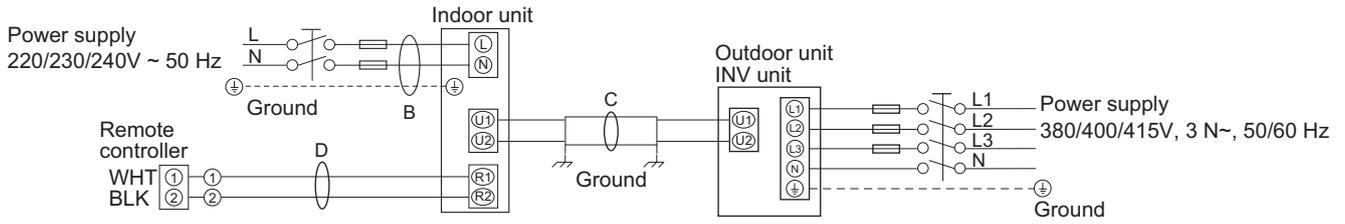
#### NOTE

\*1 With ring-type wire terminal.

\*2 When the type "E1" is used with maximum length of 500 m for group control, and if the remote controller for the group control is wireless, the maximum length will be 400 m.

■ Wiring System Diagrams

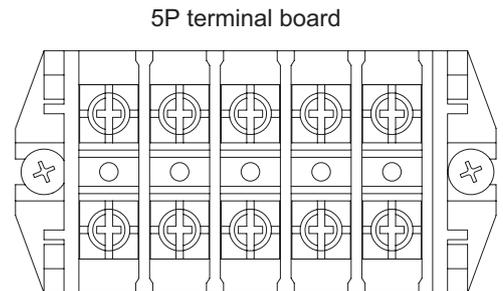
<Type E2>



**NOTE**

- (1) Refer to “Recommended Wire Length and Wire Diameter for Power Supply System” for the explanation of “B”, “C” and “D” in the above diagram.
- (2) The basic connection diagram of the indoor unit shows the terminal boards, so the terminal boards in your equipment may differ from the diagram.
- (3) Refrigerant Circuit (R.C.) address should be set before turning the power on.
- (4) Regarding R.C. address setting, refer to the installation instructions supplied with the outdoor unit. Auto address setting can be executed by remote controller automatically. Refer to the installation instructions supplied with the remote controller (optional).

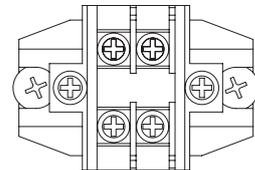
**Outdoor Unit**



L1 L2 L3 N

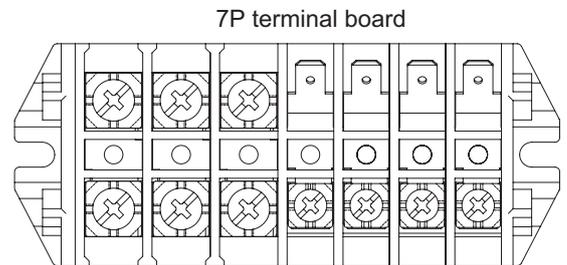
Power supply

**2P terminal board**



Inter-unit control wiring

**Indoor Unit**



L N U1 U2 R1 R2

Power supply Inter-unit control wiring Remote control wiring

**Type E2**



**CAUTION**

- (1) When linking the outdoor units in a network, disconnect the terminal extended from the short plug from all outdoor units except any one of the outdoor units. (When shipping: In shorted condition.)  
For a system without link (no wiring connection between outdoor units), do not remove the short plug.

- (2) Do not install the inter-unit control wiring in a way that forms a loop. (Fig. 1-1)

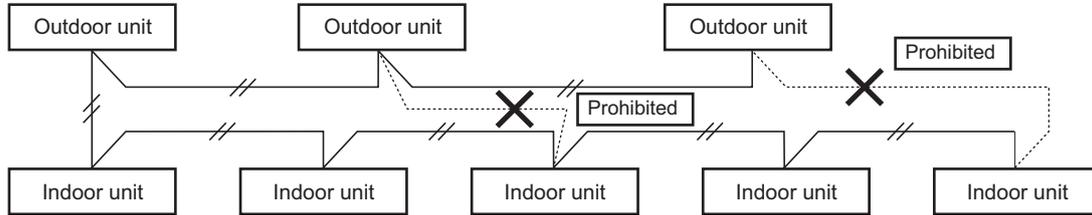


Fig. 1-1

- (3) Do not install inter-unit control wiring such as star branch wiring. Star branch wiring causes mis-address setting. (Fig. 1-2)

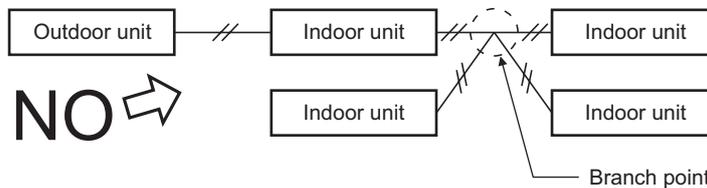


Fig. 1-2

- (4) If branching the inter-unit control wiring, the number of branch points should be 16 or fewer.

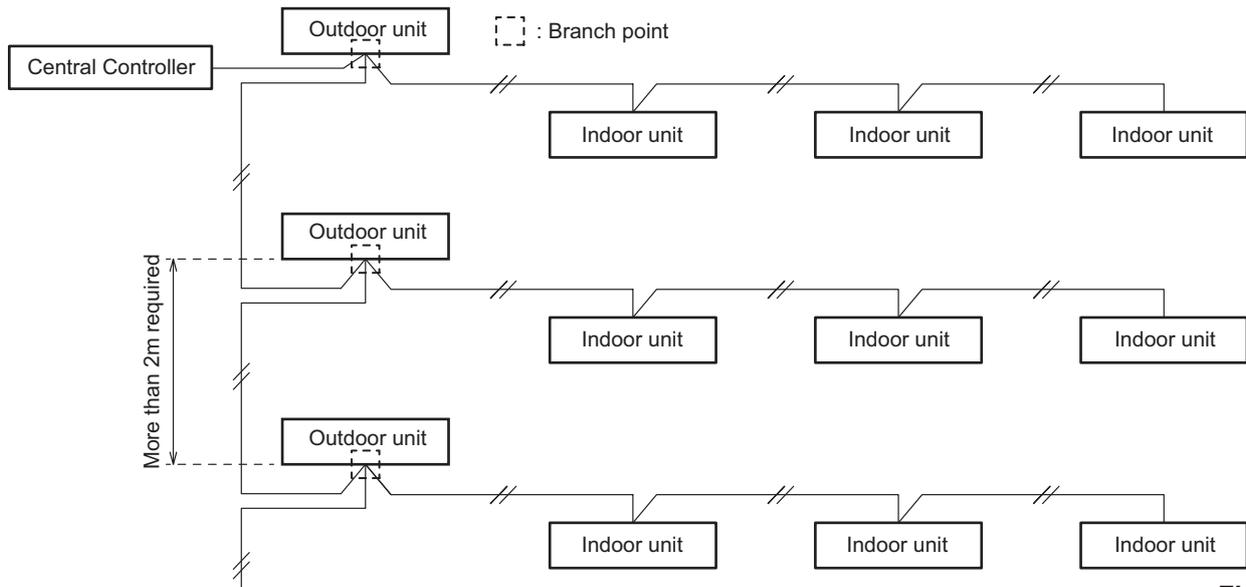


Fig. 1-3

- (5) Use shielded wires for inter-unit control wiring (c) and ground the shield on both sides, otherwise misoperation from noise may occur. (Fig. 1-4)

Connect wiring as shown in Section "Wiring System Diagrams".

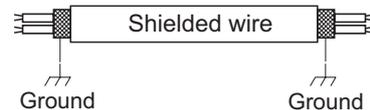


Fig. 1-4

- (6) • Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 5 or 3 \*1.5 mm<sup>2</sup> flexible cord. Type designation 60245 IEC 57 (H05RN-F, GP85PCP etc.) or heavier cord.
- Use the standard power supply cables for Europe (such as H05RN-F or H07RN-F which conform to CENELEC (HAR) rating specifications) or use the cables based on IEC standard. (60245 IEC57, 60245 IEC66)

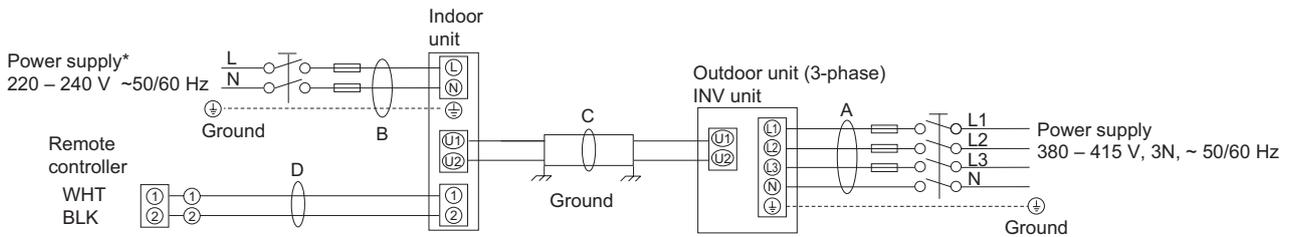


**WARNING**

Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also occur. Therefore, ensure that all wiring is tightly connected.

When connecting each power wire to the terminal, follow the instructions on "How to connect wiring to the terminal" and fasten the wire securely with the terminal screw.

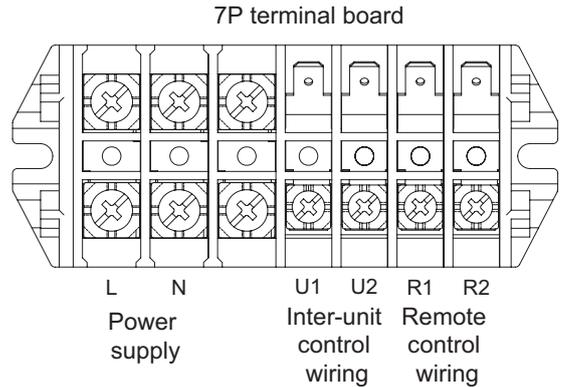
<Type E1>



\* Regarding S-250PE1E8, the power supply is 220-240V, 50Hz only.

**NOTE**

- (1) Refer to “Recommended Wire Length and Wire Diameter for Power Supply System” for the explanation of “A”, “B”, “C” and “D” in the above diagrams.
- (2) The basic connection diagram of the indoor unit shows the 7P terminal board, so the terminal boards in your equipment may differ from the diagram.
- (3) Refrigerant Circuit (R.C.) address should be set before turning the power on.
- (4) Regarding R.C. address setting, refer to the installation instructions supplied with the outdoor unit. Auto address setting can be executed by remote controller automatically. Refer to the installation instructions supplied with the remote controller (optional).

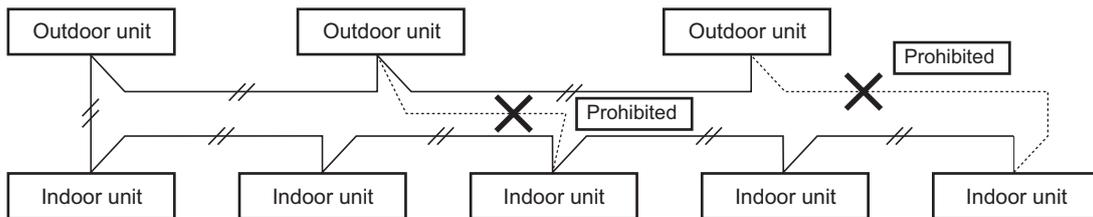


**Type E1**



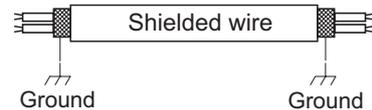
**CAUTION**

- (1) When linking the outdoor units in a network, disconnect the terminal extended from the short plug (CN003, 2P Black, location: right bottom on the outdoor main control PCB) from all outdoor units except any one of the outdoor units. (When shipping: In shorted condition.)
- (2) Do not install the inter-unit control wiring in a way that forms a loop. (Fig. 1-5)



**Fig. 1-5**

- (3) Use shielded wires for inter-unit control wiring (c) and ground the shield on both sides, otherwise misoperation from noise may occur. (Fig. 1-6) Connect wiring as shown in Wiring System Diagram.”



**Fig. 1-6**

- (4) • Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 5 or 3 \*1.5 mm<sup>2</sup> flexible cord. Type designation 60245 IEC 57 (H05RN-F, GP85PCP etc.) or heavier cord.  
• Use the standard power supply cables for Europe (such as H05RN-F or H07RN-F which conform to CENELEC (HAR) rating specifications) or use the cables based on IEC standard. (60245 IEC57, 60245 IEC66)



**WARNING**

Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also exist. Therefore, ensure that all wiring is tightly connected.

When connecting each power wire to the terminal, follow the instructions on “How to connect wiring to the terminal” and fasten the wire securely with the fixing screw of the terminal plate.

## How to connect wiring to the terminal

### ■ For stranded wiring

- (1) Cut the wire end with cutting pliers, then strip the insulation to expose the stranded wiring about 10 mm and tightly twist the wire ends. (Fig. 1-7)
- (2) Using a Phillips head screwdriver, remove the terminal screw(s) on the terminal plate.
- (3) Using a ring connector fastener or pliers, securely clamp each stripped wire end with a ring pressure terminal.
- (4) Place the ring pressure terminal, and replace and tighten the removed terminal screw using a screwdriver. (Fig. 1-8)

### Stranded wire

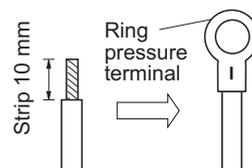


Fig. 1-7

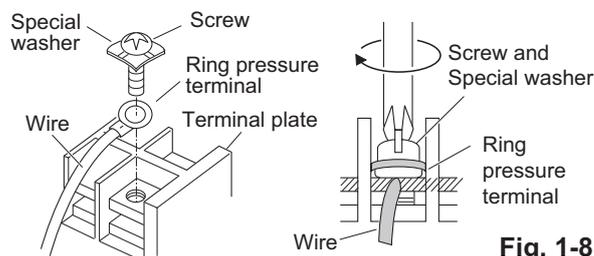


Fig. 1-8

### ■ Examples of shield wires

- (1) Remove cable coat not to scratch braided shield. (Fig. 1-9)
- (2) Unbraid the braided shield carefully and twist the unbraided shield wires tightly together. Insulate the shield wires by covering them with an insulation tube or wrapping insulation tape around them. (Fig. 1-10)
- (3) Remove coat of signal wire. (Fig. 1-11)
- (4) Attach ring pressure terminals to the signal wires and the shield wires insulated in Step (2). (Fig. 1-12)

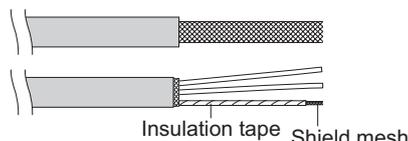


Fig. 1-9

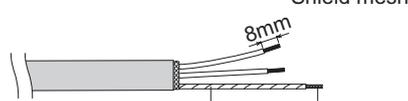


Fig. 1-10

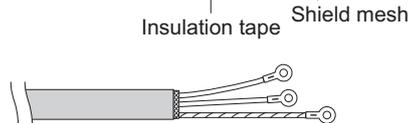


Fig. 1-11

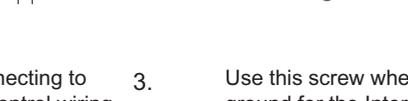
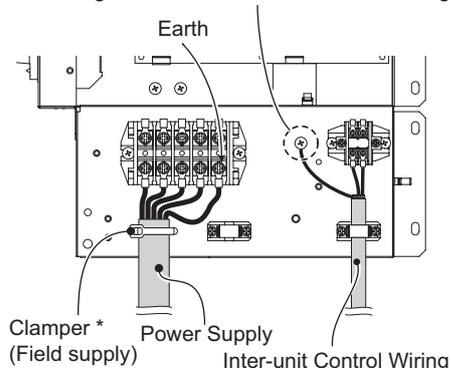
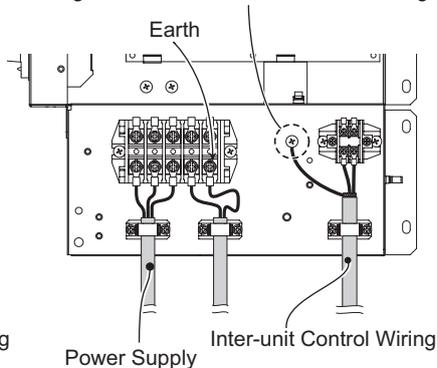
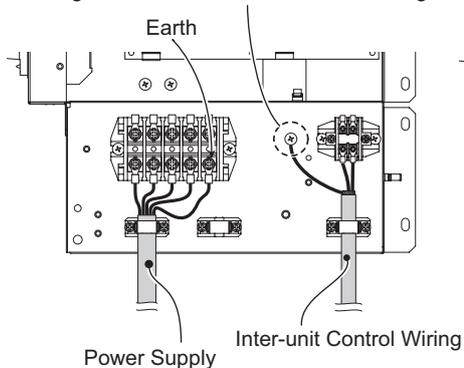


Fig. 1-12

### ■ Wiring sample

#### Outdoor Unit

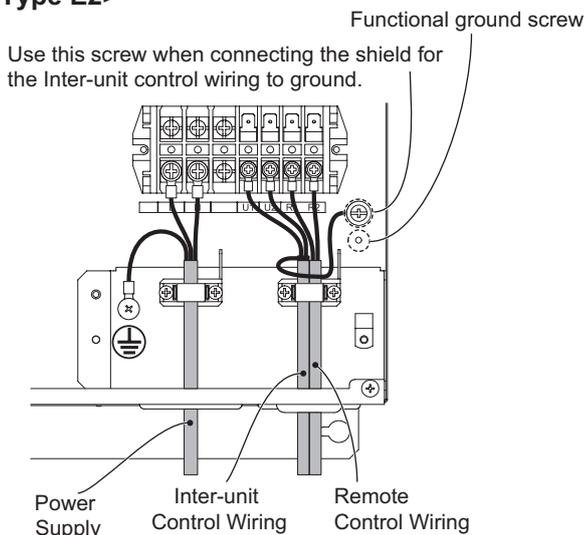
1. Use this screw when connecting to ground for the Inter-unit control wiring.
2. Use this screw when connecting to ground for the Inter-unit control wiring.
3. Use this screw when connecting to ground for the Inter-unit control wiring.



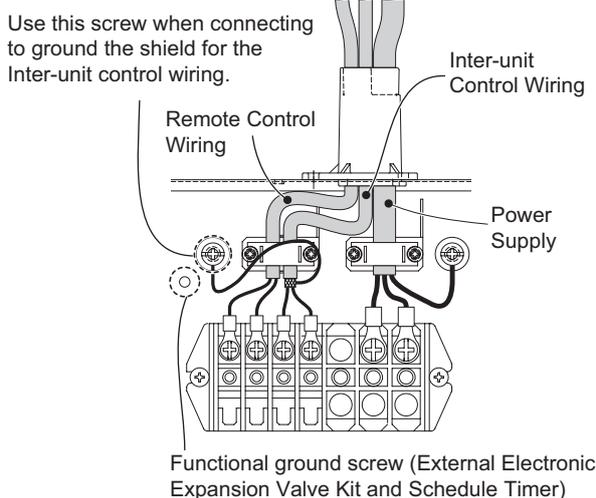
\* First remove the attached resin fixture. Then lead the clamper (field supply) through the screw hole and fix the power supply wire.

#### Indoor Unit

##### <Type E2>



##### <Type E1>



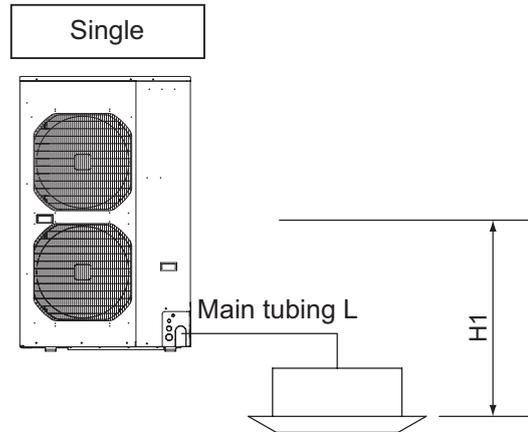
## 1-10. Installation Instructions

### ■ Outdoor Unit

#### 1. Tubing Length

##### (A) Single type

- During tubing work, try to make both the tubing length (L) and the difference in elevation (H1) as short as possible. Refer to Table 1-1.



**Table 1-1 Tubing Data for Models (Single)**

Tubing Data		Models	U-200PE1E8	U-250PE1E8
Tubing size outer diameter	Liquid tube mm (in.)		9.52 (3/8)	12.7 (1/2)
	Gas tube mm (in.)		25.4	
Limit of tubing length (L)		(m)	100	
Height Differential of Indoor / Outdoor Units (H1)	Outdoor unit is placed higher	(m)	30	
	Outdoor unit is placed lower	(m)	30	
Max. allowable tubing length at shipment		(m)	5 - 30	
Required additional refrigerant		(g/m)	40*	80*
Refrigerant charged at shipment		(kg)	5.3	6.5

No additional charge of compressor oil is necessary.

\* If the total tubing length exceeds 30 m, charge the amount of refrigerant as shown above in "Required additional refrigerant" for every 1 m in excess of 30 m for outdoor units.

(B) Simultaneous operation multi (Twin, Triple, Double-Twin)

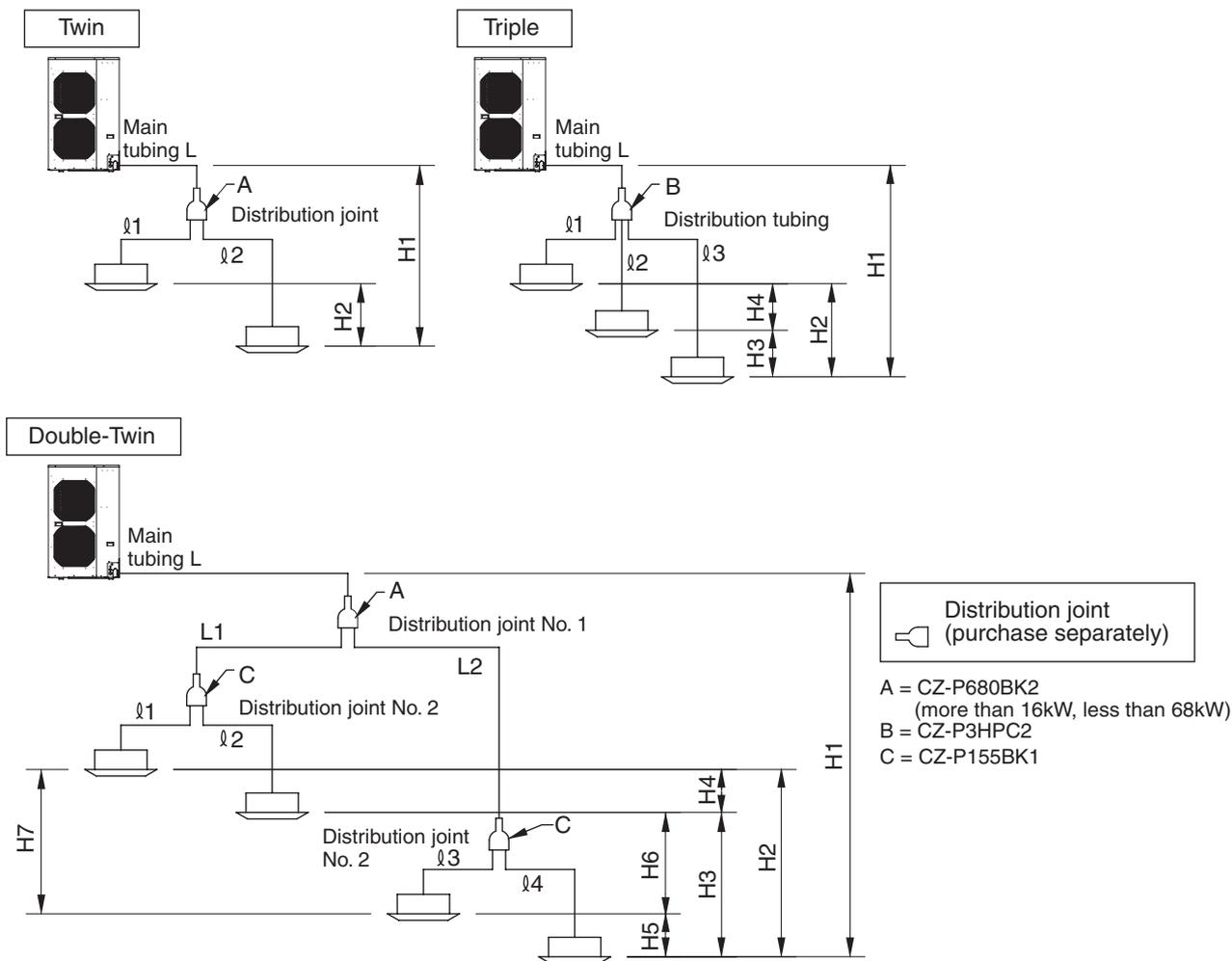
**NOTE**

Because the indoor units run simultaneously, install them within the same room.

Table 1-2 Table for Managing Tubing Length and Height Differential

Item	Contents	Symbol				Actual length (m)	
		Single	Twin	Triple	Double-Twin		
Allowable tubing lengths	Maximum allowable tubing length	L	L + $\varrho_1$ L + $\varrho_2$	L + $\varrho_1$ , L + $\varrho_2$ L + $\varrho_3$	L + L1 + $\varrho_1$ , L + L1 + $\varrho_2$ L + L2 + $\varrho_3$ , L + L2 + $\varrho_4$	≤ 100	
	Maximum distribution tubing length	Maximum length following the first branch point (No. 1 distribution)	-	$\varrho_1$ , $\varrho_2$	$\varrho_1$ , $\varrho_2$ , $\varrho_3$	L1 + $\varrho_1$ , L1 + $\varrho_2$ L2 + $\varrho_3$ , L2 + $\varrho_4$	≤ 20
		Maximum length following the second branch point (double twin)	-	-	-	$\varrho_1$ , $\varrho_2$ , $\varrho_3$ , $\varrho_4$	≤ 15
	Sum Total Length	-	-	L + $\varrho_1$ + $\varrho_2$ + $\varrho_3$	L + L1 + L2 + $\varrho_1$ + $\varrho_2$ + $\varrho_3$ + $\varrho_4$	≤ 120	
Maximum branch tubing length		-	$\varrho_1 > \varrho_2$ $\varrho_1 - \varrho_2$	$\varrho_1 > \varrho_2 > \varrho_3$ $\varrho_1 - \varrho_3$	Max.: L2 + $\varrho_2$ Min.: L1 + $\varrho_1$ (L2 + $\varrho_4$ ) - (L1 + $\varrho_1$ )	≤ 10	
Maximum difference between lengths of No. 1 distribution tubing (double twin)		-	-	-	L2 > L1 L2 - L1	≤ 10	
Maximum allowable height difference	Maximum indoor-outdoor height difference	If outdoor unit is higher	H1			≤ 30	
		If outdoor unit is lower					
	Maximum height difference between indoor units	-	H2	H2, H3, H4	H2, H3, H4, H5, H6, H7	≤ 0.5	

\* For connection tubing sizes, refer to Table 1-3.



**NOTE**

- For refrigerant tube branches, use the optional distribution joints.
- For cautions on the use of the optional distribution joints, be sure to refer to the provided instruction sheet. Also, be careful to install them in the correct direction (orientation).





**CAUTION**

1. This unit requires no additional refrigerant charge up to tubing length 30 m. In case of more than 30 m, additional refrigerant charge is required. Refer to Tables 1-1 and 1-3.
2. In case of multi type installation, indoor units should be installed within the same room. If multi type indoor units are installed in different rooms, temperature control may develop problems because thermostat operation must follow the thermostat condition of 1 indoor unit only (the main unit).



**WARNING**

**Always check the gas density for the room in which the unit is installed.**

## 2. Check of limit density

When installing an air conditioner in a room, it is necessary to ensure that even if the refrigerant gas accidentally escapes, its density does not exceed the limit level.

If the density might exceed the limit level, it is necessary to set up an opening between it and the adjacent room, or to install mechanical ventilation which is interlocked with a leak detector.

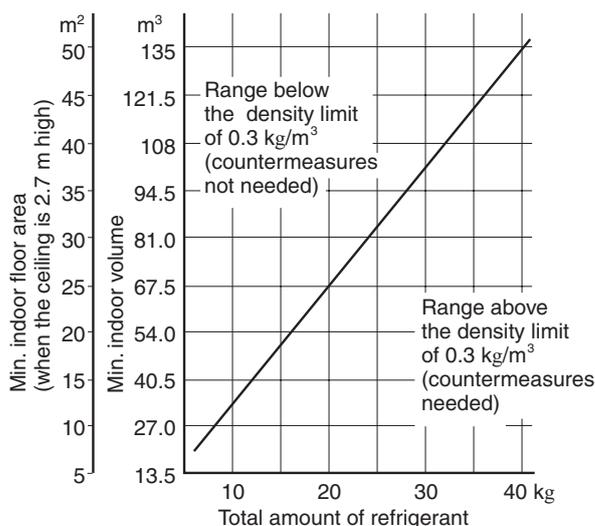
**(Total refrigerant charged amount: kg)**

**(Min. indoor volume where the indoor unit is installed: m<sup>3</sup>)**  
 $\leq$  **Limit density 0.3 (kg/m<sup>3</sup>)**

The limit density of refrigerant which is used in this unit is 0.3 kg/m<sup>3</sup> (ISO 5149).

The shipped outdoor unit comes charged with the amount of refrigerant fixed for each type, so add it to the amount that is charged at the field. (For the refrigerant charge amount at shipment, refer to the unit's nameplate.)

**Minimum indoor volume & floor area relative to the amount of refrigerant are roughly as given in the following table.**



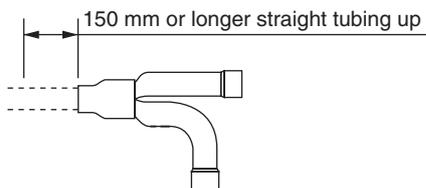
**CAUTION**

**Pay special attention to any location, such as a basement or recessed area, etc. where leaked refrigerant can collect, since refrigerant gas is heavier than air.**



## ■ Installing Distribution Joint Kit (for Twin & Double-Twin) (CZ-P155BK1 & CZ-P680BK2)

- For branching tubes, install 150 mm or longer (including reducer) straight tubing up to the point where the tube branches (or after the point where the tubes join together).



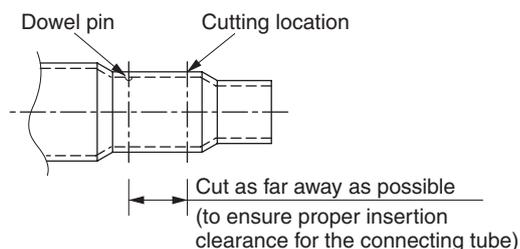
- Use a tube cutter and cut at the size position that corresponds to the field-supply tube size selected based on the total indoor unit capacity. (If the size is the same as the tube end size, cutting is not necessary.)
- If the reducer that was supplied in the package is used, perform brazing on-site.

### NOTE

Do not cut in such a way that applies excessive force and causes deformation of the tube. (This will prevent insertion of the connecting tube.)

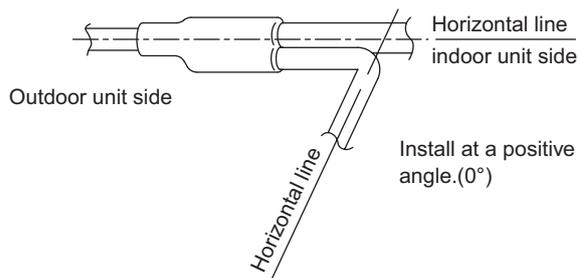
- Cut at a position that is as far away as possible from the dowel pin.

If the distribution joint will be cut before use, cut on the line marked "cutting point" in the figure below.

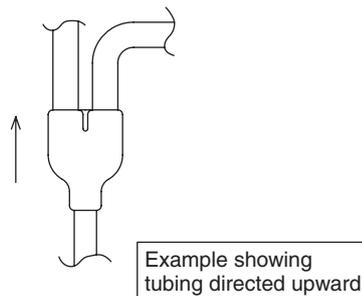


- After cutting the tube, be sure to remove any burrs and to finish the end surface correctly. (If there is excessive crushing or indentation of the tube, use a tube expander to expand it.)
- Check that there is no dirt or other foreign substance inside the distribution tubing.
- Install the distribution tubing so that it is either horizontal or vertical.
- Use the supplied thermal insulation to insulate the distribution tubing. (If other insulation is used, be sure to use insulation that can withstand temperatures of at least 120°C.)

### Horizontal installation



### Vertical installation (directed upward or downward)



### Nitrogen gas replacement required for tube brazing

If nitrogen replacement is not done when brazing is performed on the indoor and outdoor unit refrigerant tubing, oxide scale will occur. This scale will clog the solenoid valves, strainers, and other parts, leading to malfunction.

Therefore be sure to replace the air in the tubing with nitrogen when performing brazing in order to prevent problems from oxide scale.

**■ Installing Distribution Joint Kit (for Triple) (CZ-P3HPC2)**

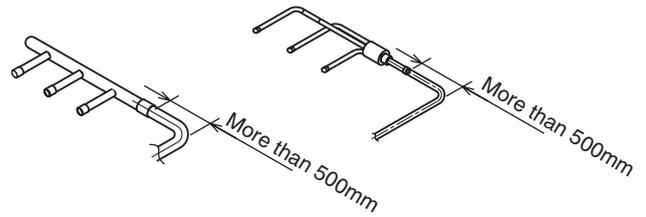
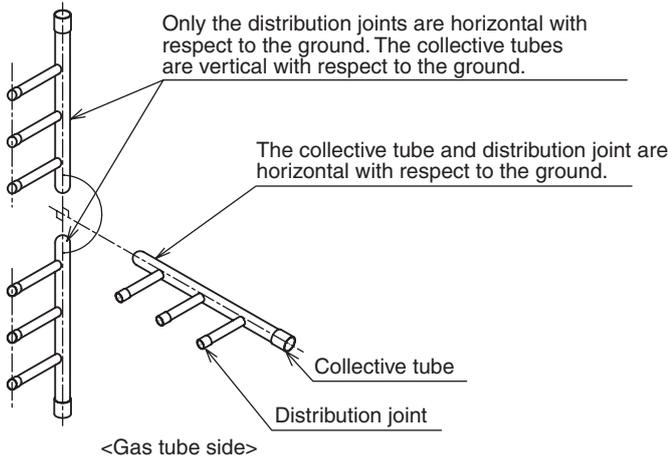
- Check the system combination before installing the distribution joints.
- Three indoor units must be installed within the same room.
- Use the supplied tube connectors to adjust the tube sizes of the distribution joints.

**How to Install Distribution Joints**

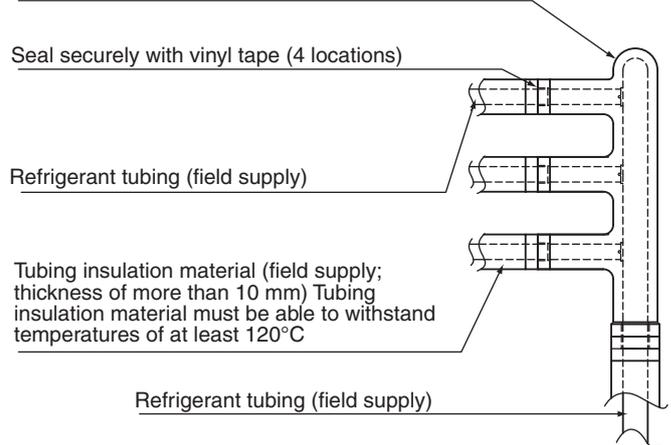
Use the supplied distribution joints to complete refrigerant tubing work.

Install distribution joints so that the tubes are horizontal after the branch point.

**Orientation of distribution joints**



- Distribution joint insulation material (supplied)
- Use the supplied insulation material.
  - The supplied insulation material include only a tape for temporarily fastening.
  - Use insulation material or other material to seal the joining lines so that there are no gaps.
  - Use vinyl tape or similar means to seal and fasten the insulation materials in place.



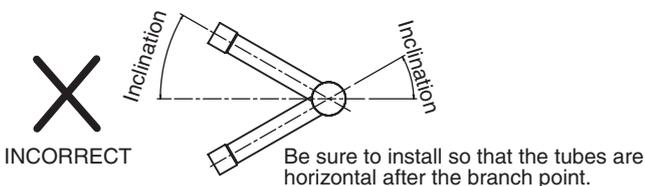
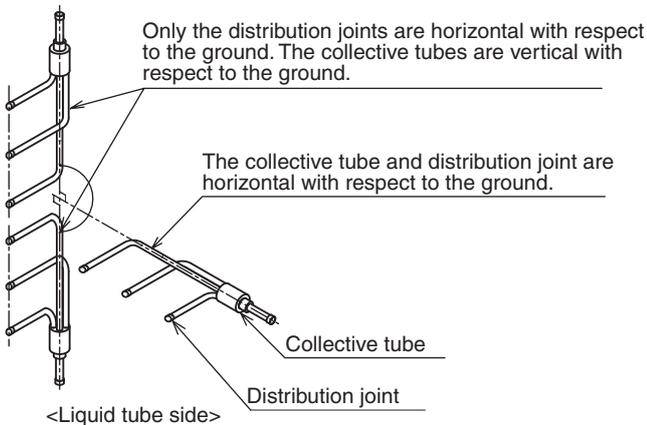
**Length requirement for strainer on main distribution tube side**

Attach a straight tube 500 mm or longer to the main tubing side of the distribution joint (for both liquid and gas tubing).

**Tubing insulation**

Be sure to apply thermal insulation to both the liquid and gas tubing.

Depending on the conditions inside the ceiling, condensation may form on the insulation material. If high temperatures and high humidity are expected to occur inside the ceiling, add glass wool (16 – 20 kg/m<sup>3</sup>, with a thickness of 10 mm or more) to the below insulation materials and apply sufficient thermal insulation.



### 3. SELECTING THE INSTALLATION SITE



CAUTION

- When moving the unit during or after unpacking, make sure to lift it by holding its lifting lugs. Do not exert any pressure on other parts, especially the refrigerant piping, drain piping and flange parts.
- If you think the humidity inside the ceiling might exceed 30°C and RH 80%, reinforce the insulation on the unit body. Use glass wool or polyethylene foam as insulation so that it is no thicker than 10 mm and fits inside the ceiling opening.

#### Outdoor Unit

##### AVOID :

- Heat sources and exhaust fans, etc. (Fig. 1-13)
- Damp, humid or uneven locations.

##### DO :

- Choose a place as cool as possible.
- Choose a place that is well ventilated and outside air temperature does not exceed maximum 45°C constantly.
- Allow enough room around the unit for air intake/exhaust and possible maintenance. (Fig. 1-14)
- Use lug bolts or equal to bolt down unit, reducing vibration and noise.
- If cooling operation is to be used when the outdoor air temperature is  $-5^{\circ}\text{C}$  or below, install a duct on the outdoor unit.

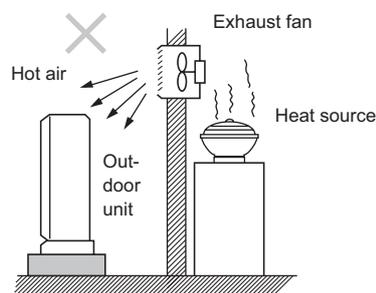
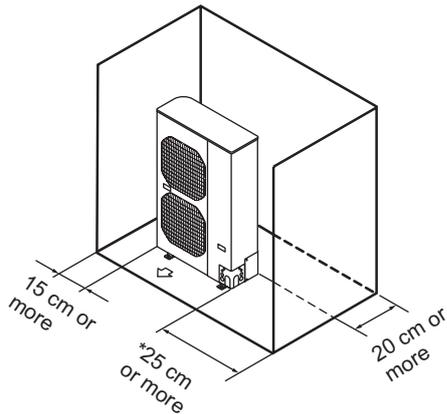


Fig. 1-13

## Installation space

Install the outdoor unit with a sufficient space around the outdoor unit for operation and maintenance.

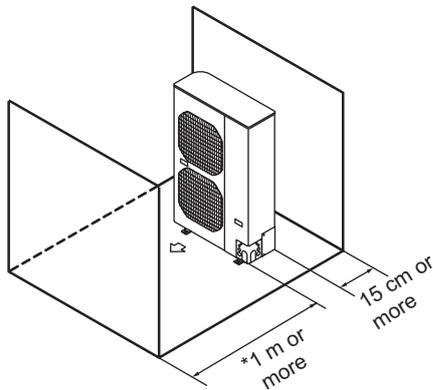
(1) Obstructions on the left side, right side and rear side (Front side and above the unit are opened). (Fig. 1-14)



\* Necessary space is required to unscrew on the rear side for maintenance and if a sufficient maintenance space is provided on the rear side (40 cm), the space of over 15 cm is enough at the right side.

**Fig. 1-14**

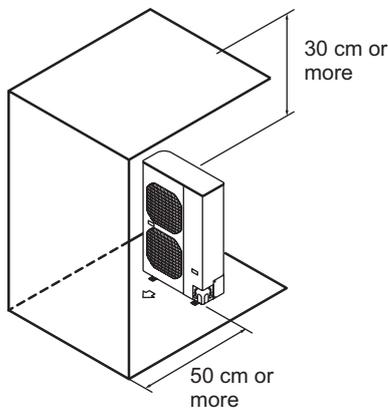
(2) Obstructions on the front side and rear side (Left side, right side and above the unit are opened). (Fig. 1-15)



\* For compressor replacement, 50 cm or more is required on the front side even when using the air discharge chamber.

**Fig. 1-15**

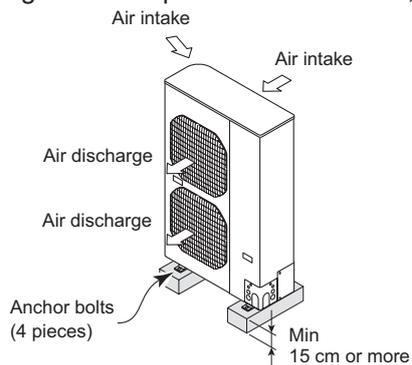
(3) Obstructions on the front side and above the unit (Left side, right side and rear side are opened). (Fig. 1-16)



**Fig. 1-16**

### In case of multiple installations

- Provide a solid base (concrete block, 10 × 40 cm beams or equal), a minimum of 15 cm above ground level to reduce humidity and protect the unit against possible water damage and decreased service life. (Fig. 1-17)
- Use lug bolts or equal to bolt down unit, reducing vibration and noise.



**Fig. 1-17**

### Air Discharge Chamber for Top Discharge

Be sure to install the air discharge chamber in the field when:

- It is difficult to keep a space of min. 1 m between the air discharge outlet and an obstacle.
- The air discharge outlet is facing to the sidewalk and discharged hot air annoys the passers-by. (Fig. 1-18)

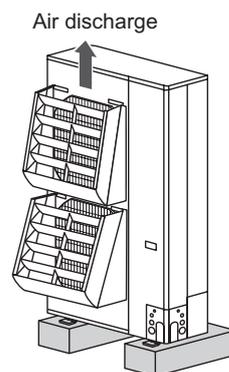


Fig. 1-18

### Installing the Unit in Heavy Snow Areas

In locations with strong wind, snow-proof ducting should likewise be fitted and direct exposure to the wind should be avoided as much as possible.

#### Countermeasures against snow and wind

In regions with snow and strong wind, the following problems may occur when the outdoor unit is not provided with a platform and snow-proof ducting (Fig. 1-19):

- The outdoor fan may not run and damage of the unit may be caused.
- There may be no air flow.
- The tubing may freeze and burst.
- The condenser pressure may drop because of strong wind, and the indoor unit may freeze.

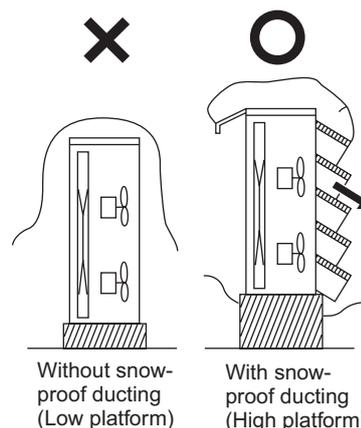


Fig. 1-19

In regions with significant snowfall, the outdoor unit should be provided with a platform and snow-proof duct.

### Precautions for Installation in Heavy Snow Areas

- (1) The platform should be higher than the max. snow depth. (Fig. 1-19)
- (2) The 2 anchoring feet of the outdoor unit should be used for the platform, and the platform should be installed beneath the air intake side of outdoor unit.
- (3) The platform foundation must be firm and the unit must be secured with anchor bolts.
- (4) In case of installation on a roof subject to strong wind, countermeasures must be taken to prevent the unit from being blown over.

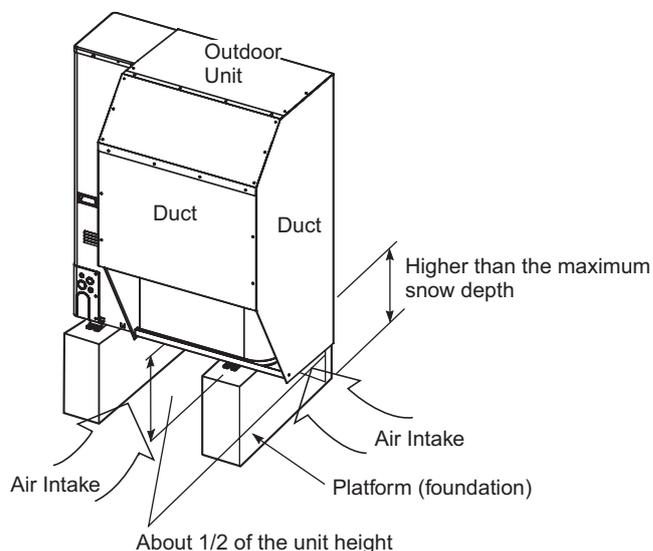
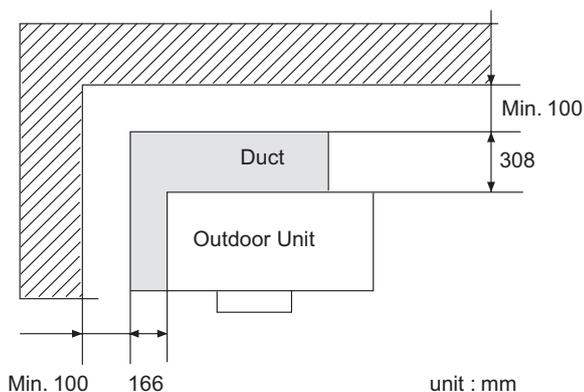


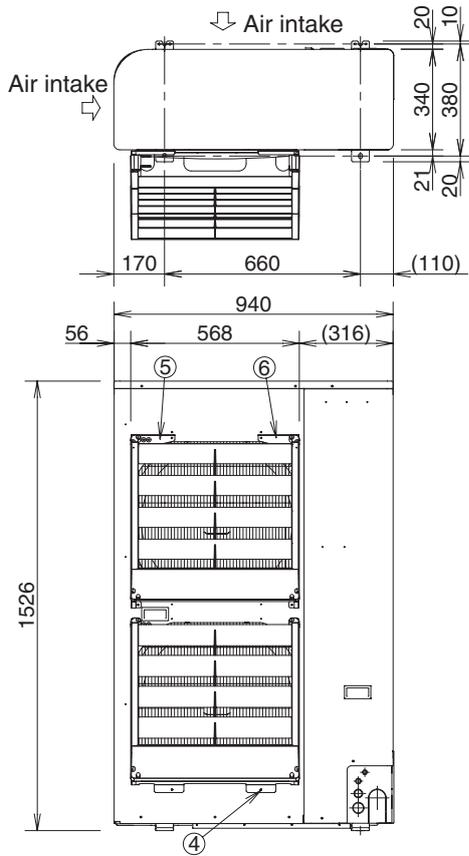
Fig. 1-20

**4. Dimensions of Air-Discharge Chamber :**

In snowy regions, if there is concern that snow may enter the air discharge chamber, remove the base of the chamber before using.

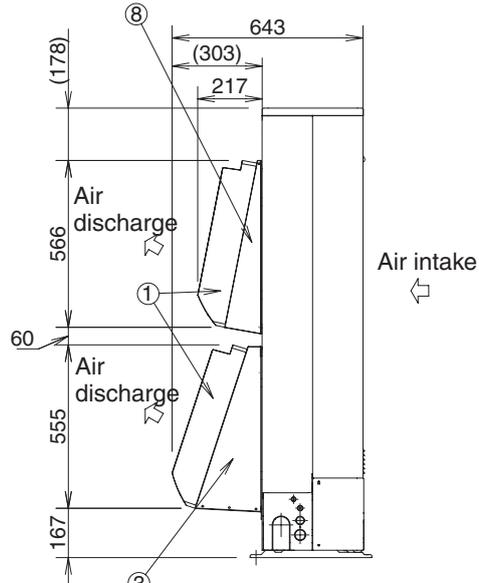
**Reference diagram for U-200PE1E8 / U-250PE1E8**

Unit: mm



①	Air discharge support	
②	Downward, Left side installation fixture	T1.0
③	Downward, Right side installation fixture	T1.0
④	Downward, Center side installation fixture	T1.0
⑤	Upward, Left side installation fixture	T1.0
⑥	Upward, Right side installation fixture	T1.0
⑦	Upward, Left side installation fixture	T1.0
⑧	Upward, Right side installation fixture	T1.0

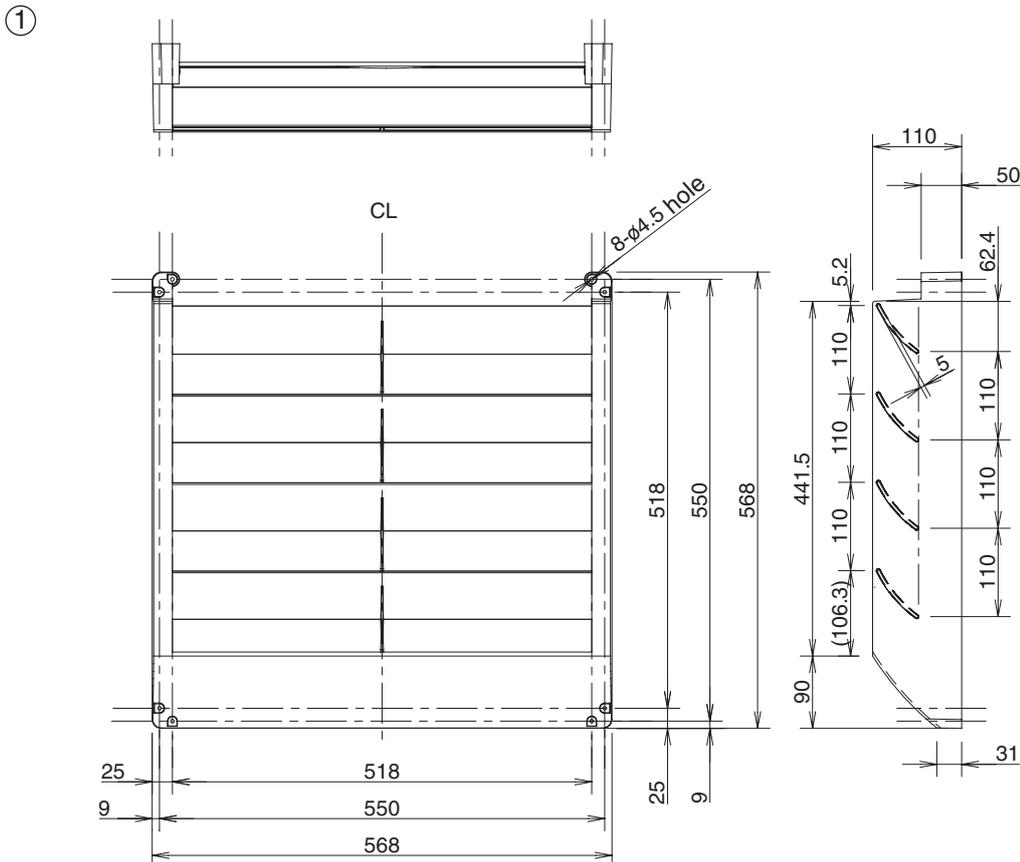
(Reverse side ⑦ )



(Reverse side ② )

**Reference diagram for air-discharge support (field supply) :**

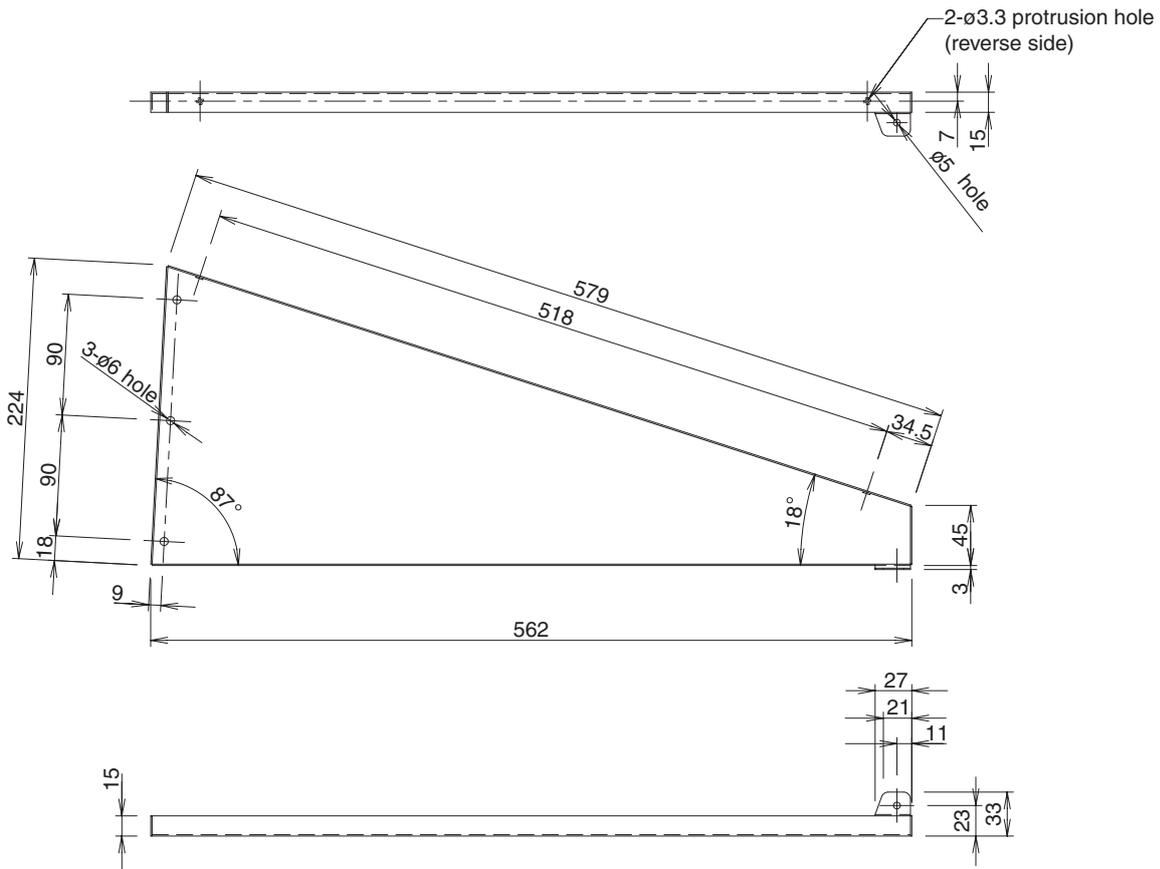
Unit: mm



Reference diagram for downward left side installation fixture (field supply) :

Unit: mm

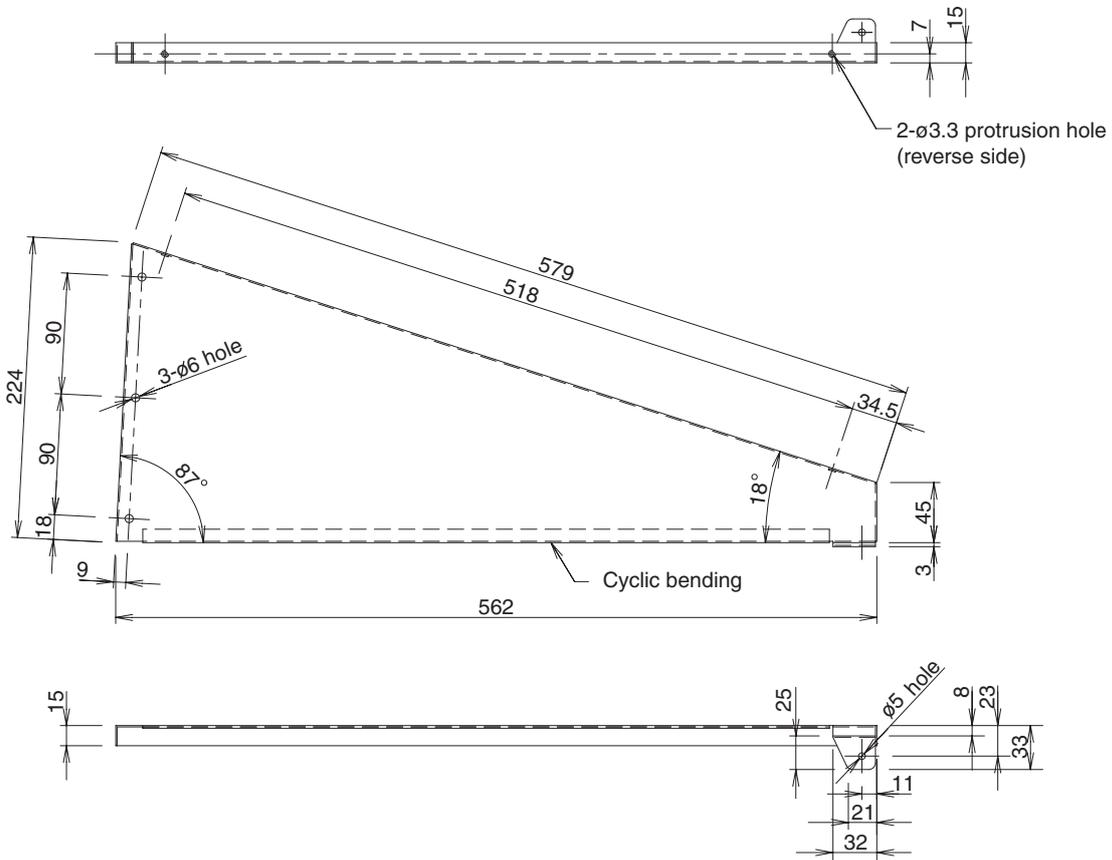
②



Reference diagram for downward right side installation fixture (field supply) :

Unit: mm

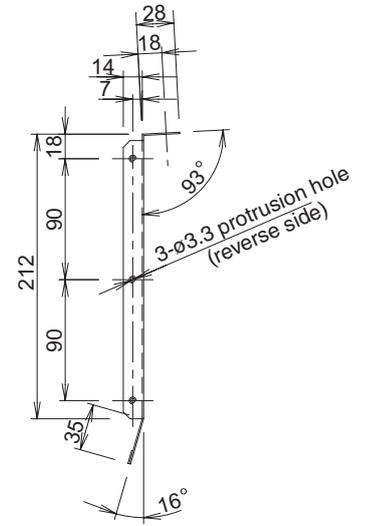
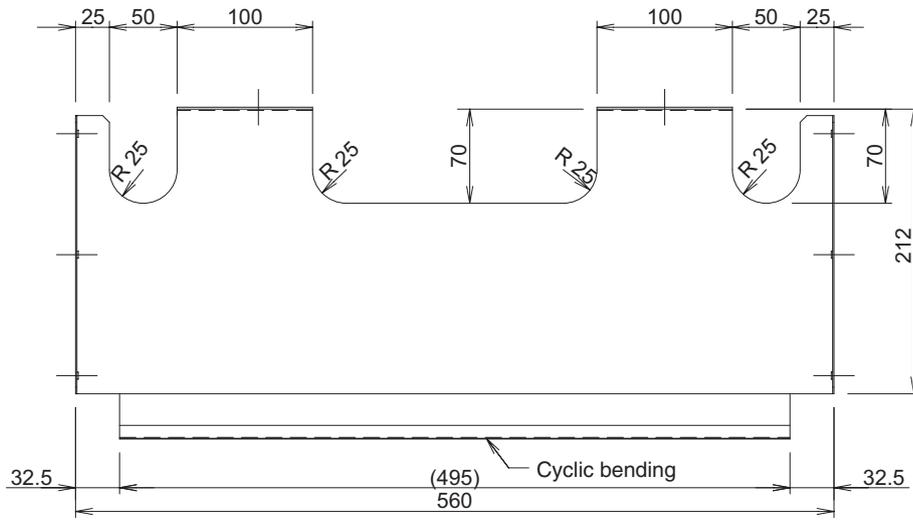
③



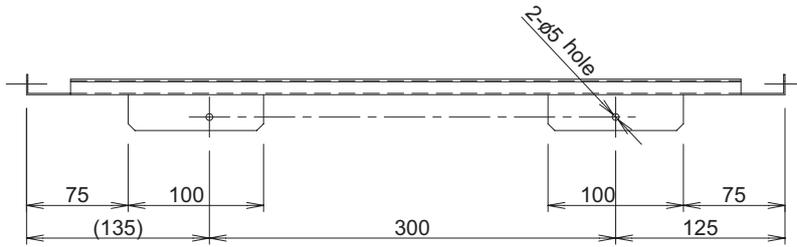
Reference diagram for downward center side installation fixture (field supply) :

Unit: mm

④



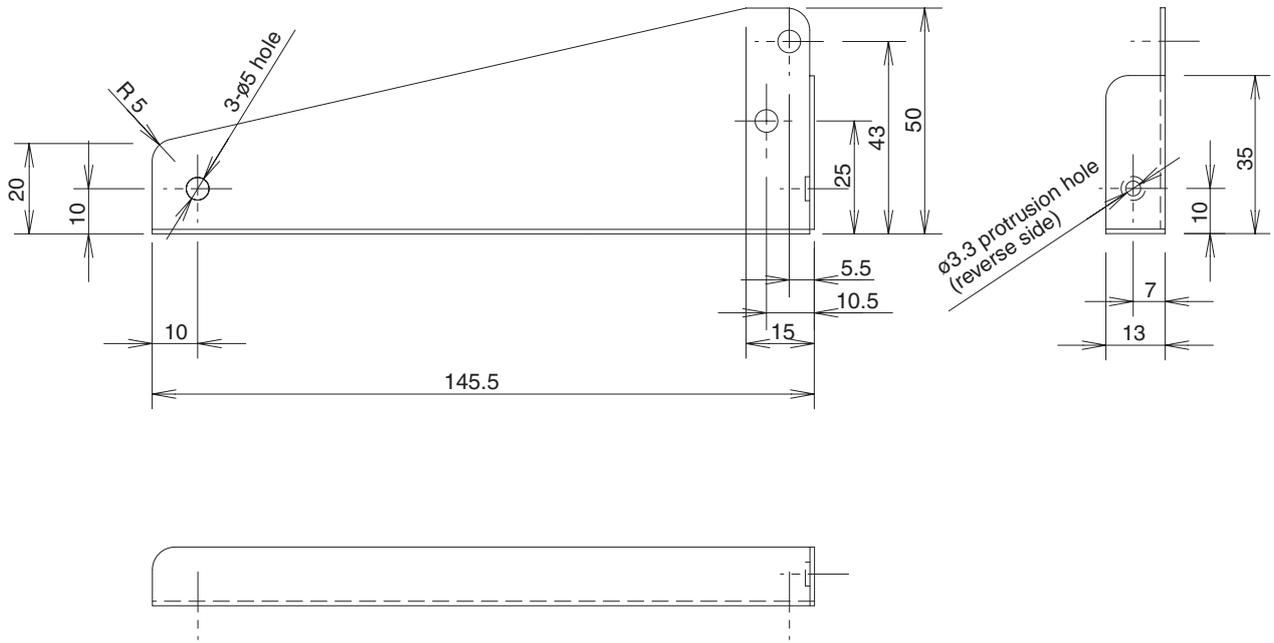
Same on reverse side



Reference diagram for upward left side installation fixture (field supply) :

Unit: mm

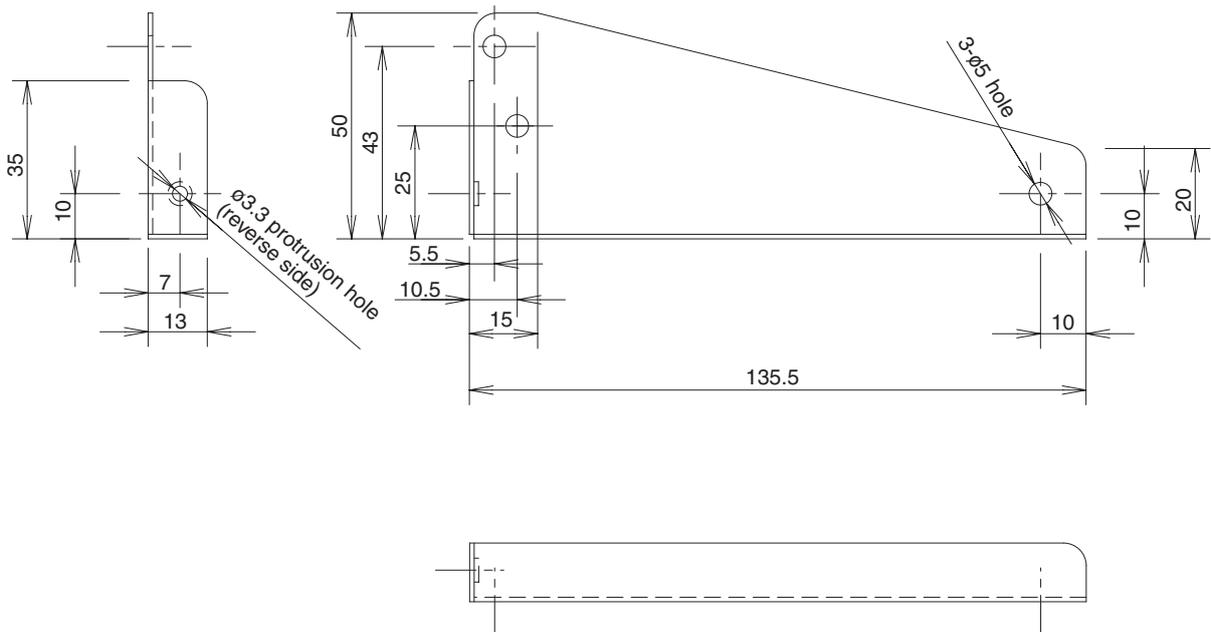
⑤



Reference diagram for upward right side installation fixture (field supply) :

Unit: mm

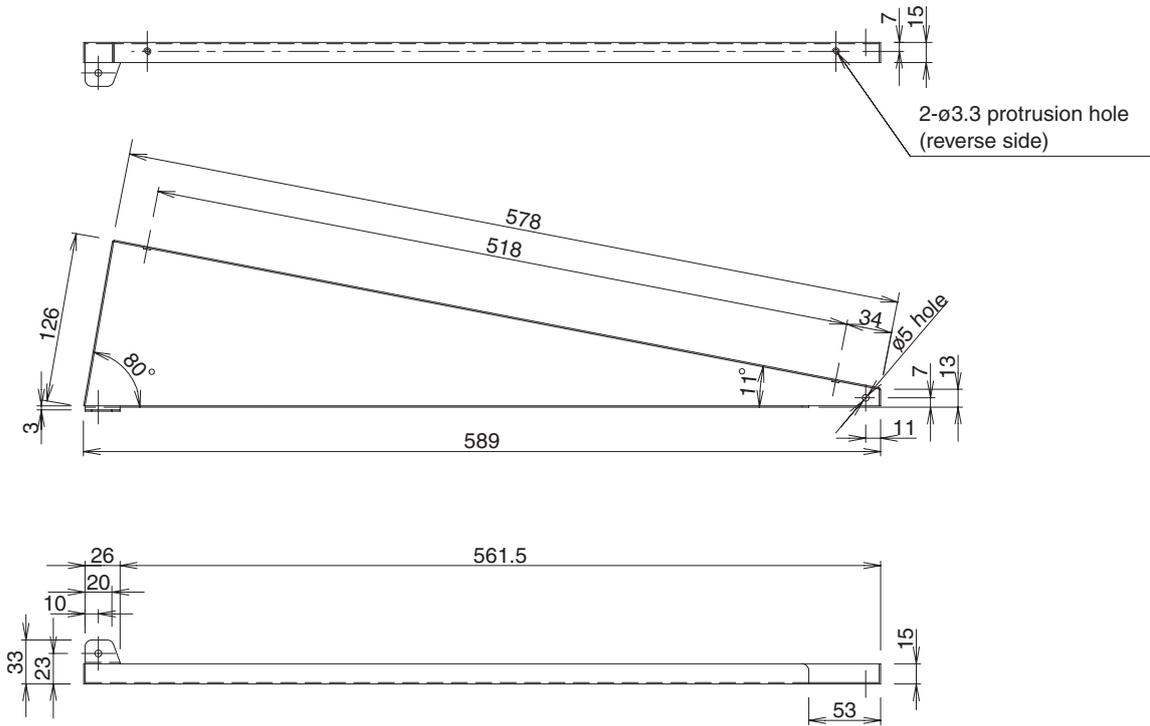
⑥



Reference diagram for upward left side installation fixture (field supply) :

Unit: mm

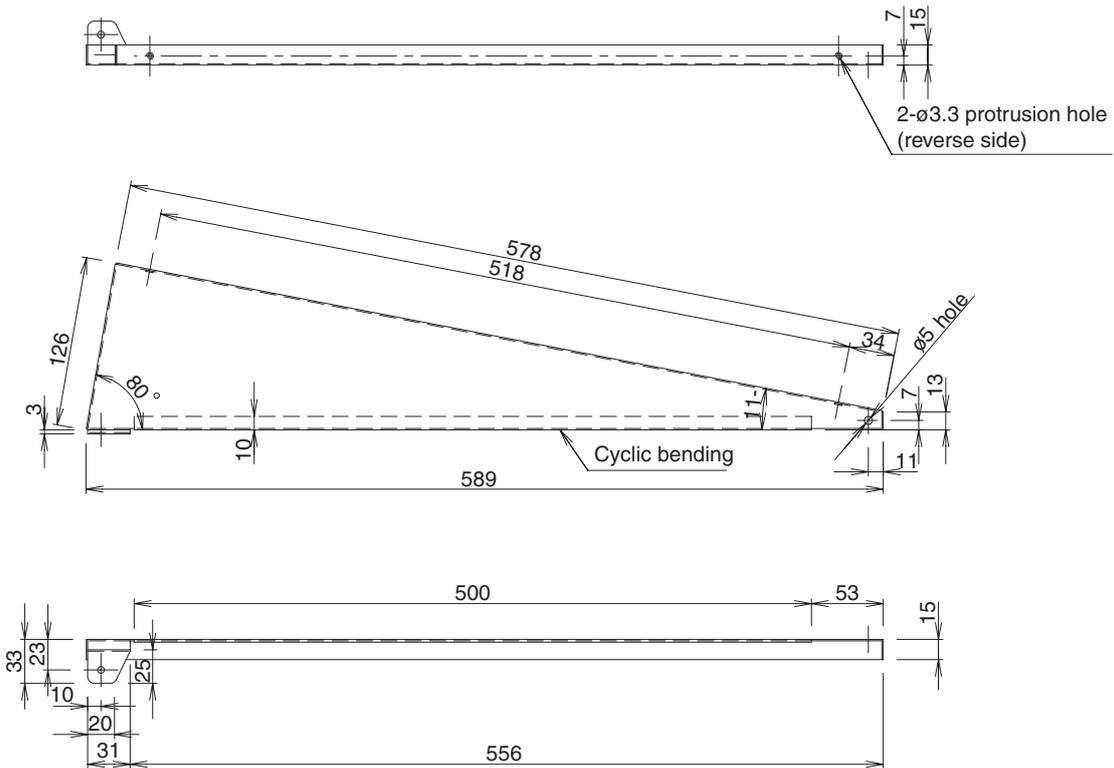
⑦



Reference diagram for upward right side installation fixture (field supply) :

Unit: mm

⑧



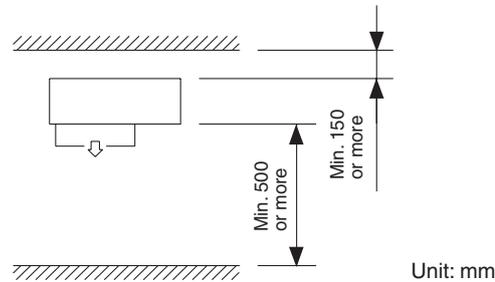
**Reference diagram for air-discharge chamber (field supply)**

**The models of U-200PE1E8 / U-250PE1E8 with Air-Discharge Chamber**

**Required space around outdoor unit**

If the air discharge chamber is used, the space shown below must be secured around the outdoor unit.  
 If the unit is used without the required space, a protective device may activate, preventing the unit from operating.

(1) Single-unit installation

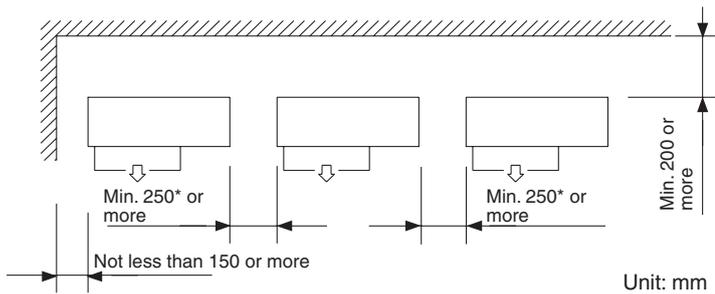


**CAUTION**

The top and both sides must remain open.  
 If there are obstacles to the front and rear of the outdoor unit, the obstacle at either the front or rear must be no taller than the height of the outdoor unit.

(2) Multiple-unit installation

Installation in lateral rows



**NOTE**

- The amount of space required for removing the screws on the rear of the unit.  
 If in case the sufficient space for maintenance is ensured on the rear of the outdoor unit, installation is possible with the space of both sides of not less than 150mm where marked with \* mark.

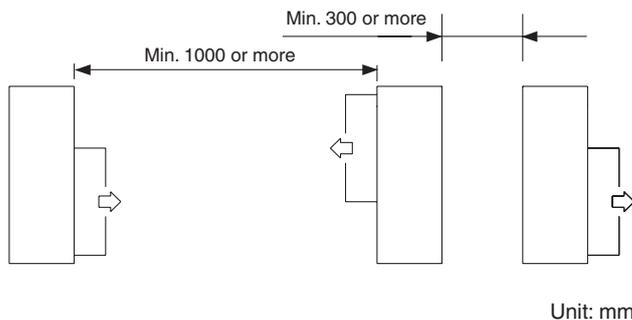


**CAUTION**

The front and top must remain open.  
 The obstacles must be no taller than the height of the outdoor unit.

Installation in front-rear rows

Installation with intakes facing intakes or outlets facing outlets



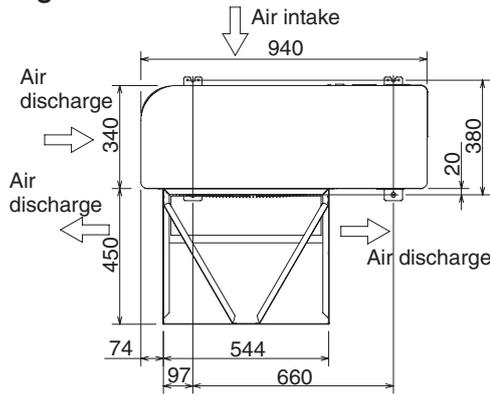
**CAUTION**

The front and both sides must remain open.

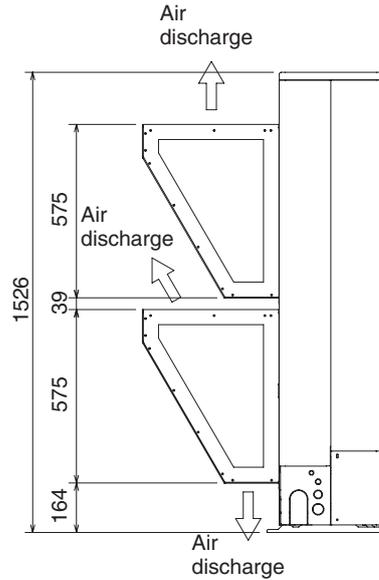
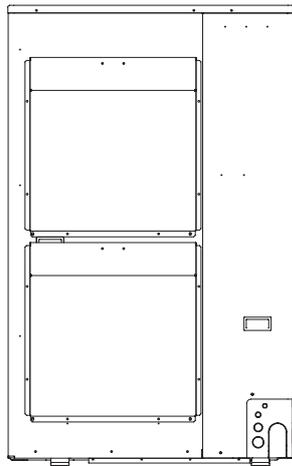
**5. Dimensions of Wind-proof Duct :**

In snowy regions, if there is concern that snow may enter the wind-proof duct, remove the base of the chamber before using.

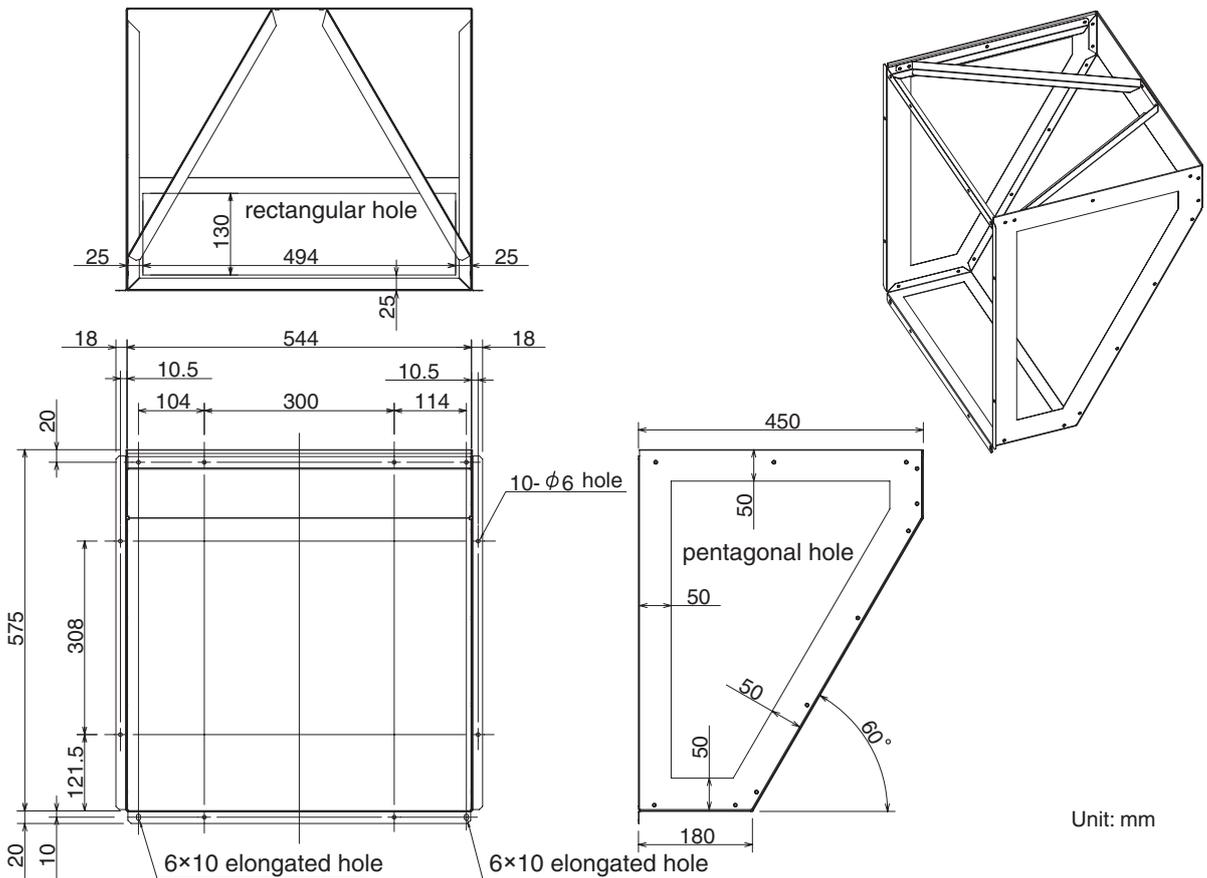
**Reference diagram for U-200PE1E8 / U-250PE1E8**



Unit: mm



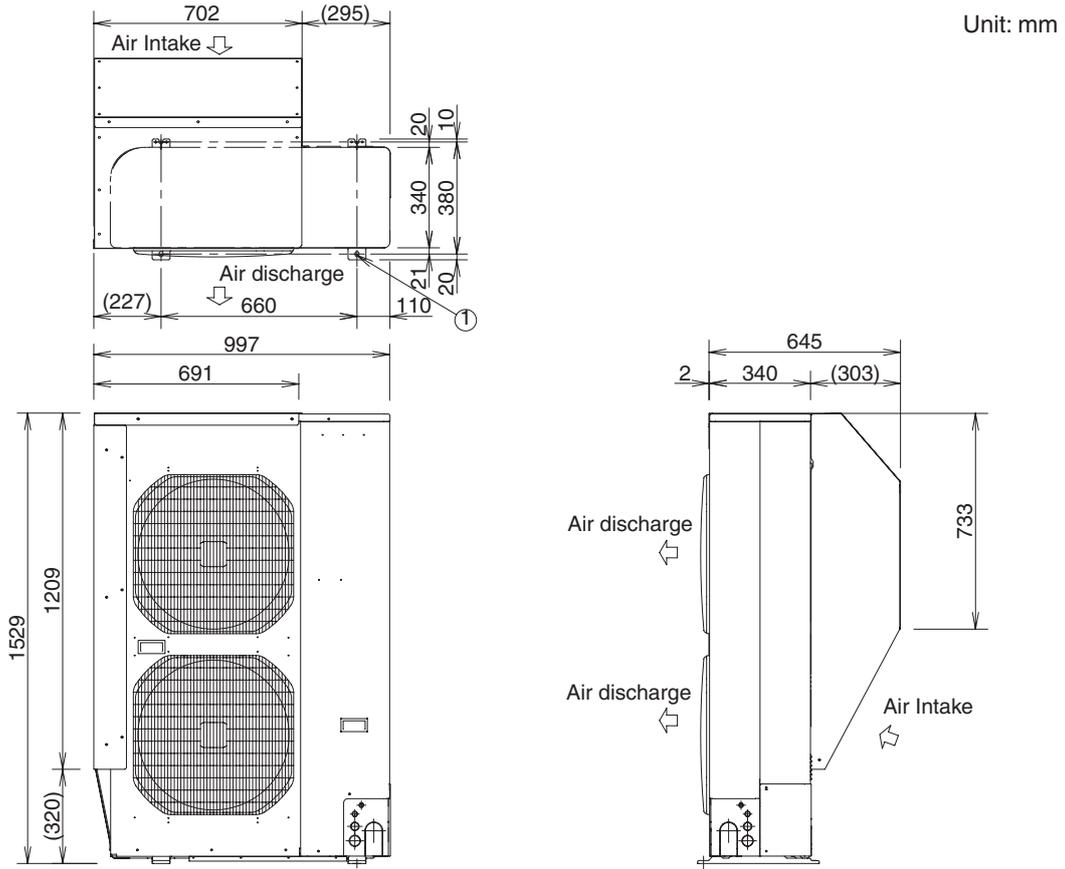
**Reference diagram for wind-proof duct (field supply) :**



Unit: mm

6. Dimensions of Snow-proof Duct :

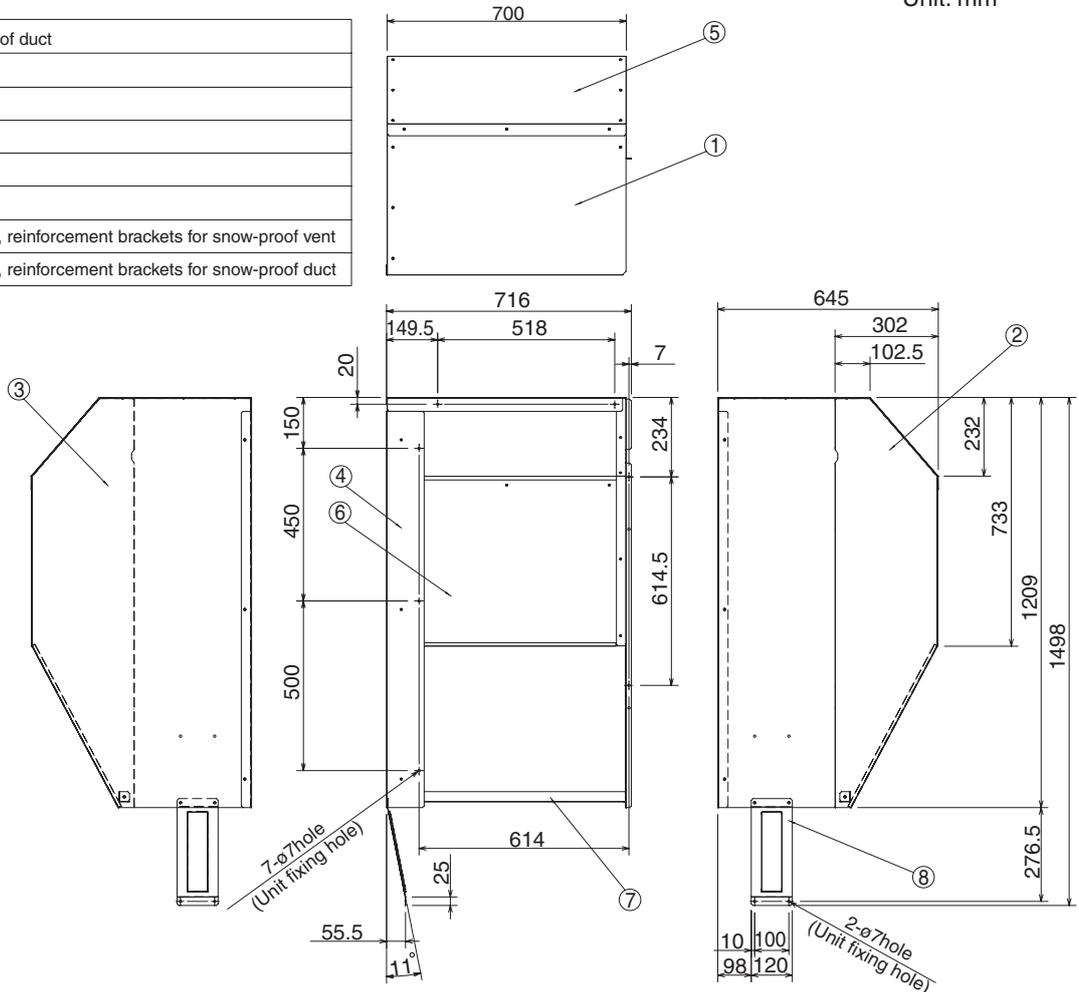
Reference diagram for U-200PE1E8 / U-250PE1E8



Reference diagram for snow-proof duct (field supply) :

Unit: mm

①	Unit top, snow-proof duct
②	Unit right side
③	Unit left side
④	Unit front side
⑤	Unit reverse side
⑥	Unit reverse side
⑦	Unit reverse sides, reinforcement brackets for snow-proof vent
⑧	Unit reverse sides, reinforcement brackets for snow-proof duct



Reference diagram for snow-proof duct - 1

Space requirements for setting - (1)

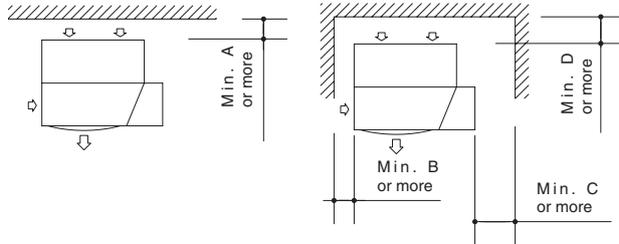
The models of U-200PE1E8 / U-250PE1E8 with snow-proof duct

Unit: mm

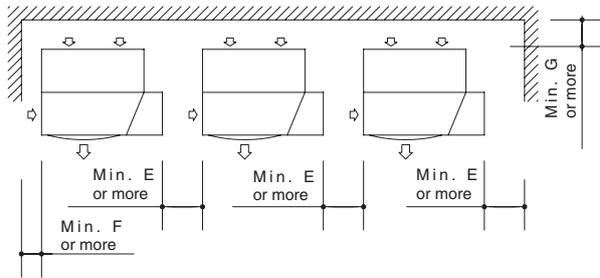
[Obstacle to the rear of unit]

● Top is open:

(1) Single-unit installation (2) Obstacles on both sides



(3) Multiple-unit installation (2 or more units)

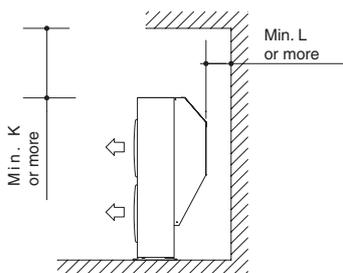


Unit : mm

Outdoor unit	A	B	C	D	E	F	G
U-200PE1E8 / U-250PE1E8	150	150	250*	200	250*	150	200

- Notes:** 1. In cases 2 and 3 the height of the obstacle must be no taller than the height of the outdoor unit.  
 2. The amount of space required for removing the screw on the rear of the unit. If in case the sufficient space for maintenance is ensured on the rear of the outdoor unit, installation is possible with the space of both sides of not less than 150mm where marked with \* mark.

● Top is blocked by an obstacle: (Both sides are open)



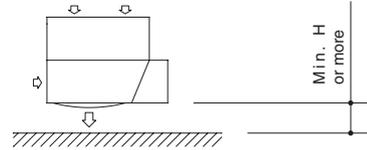
Unit : mm

Outdoor unit	K	L
U-200PE1E8 / U-250PE1E8	500	150

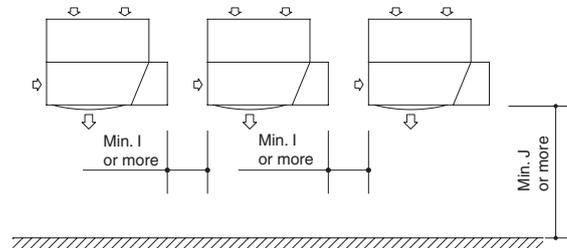
[Obstacle to the front of unit]

● Top is open:

(1) Single-unit installation



(2) Multiple-unit installation (2 or more units)

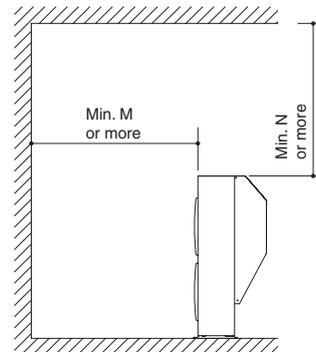


Unit : mm

Outdoor unit	H	I	J
U-200PE1E8 / U-250PE1E8	500	250*	1000

**Note:** The amount of space required for removing the screw on the rear of the unit.  
 If in case the sufficient space for maintenance is ensured on the rear of the outdoor unit, installation is possible with the space of both sides of not less than 150mm where marked with \* mark.

● Top is blocked by an obstacle: (Both sides are open)



Unit : mm

Outdoor unit	M	N
U-200PE1E8 / U-250PE1E8	500	300

Reference diagram for snow-proof duct - 2

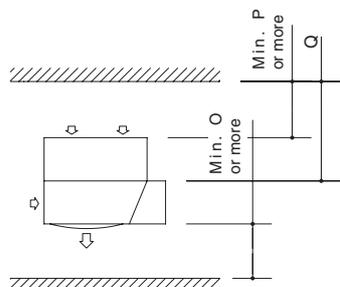
Space requirements for setting - (2)

The models of U-200PE1E8 / U-250PE1E8 with snow-proof duct

[Obstacles to the front and rear of unit]

- The top and both sides must remain open. Either the obstacle to the front or the obstacle to the rear must be no taller than the height of the outdoor unit.

(1) Single-unit installation



Dimension Q

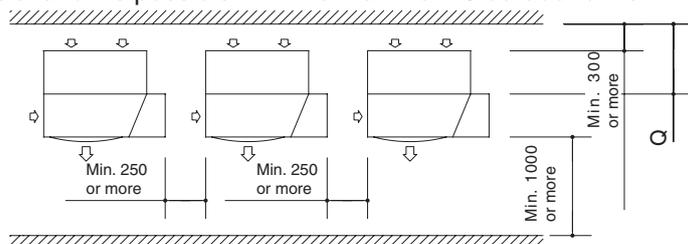
If a snow protection duct is attached after the unit is installed, verify that dimension Q is 500 mm or more.

Outdoor unit	O	P
U-200PE1E8 / U-250PE1E8	1000	150

Unit : mm

(2) Obstacles on both sides

Installation is possible with the maximum 3 outdoor units.

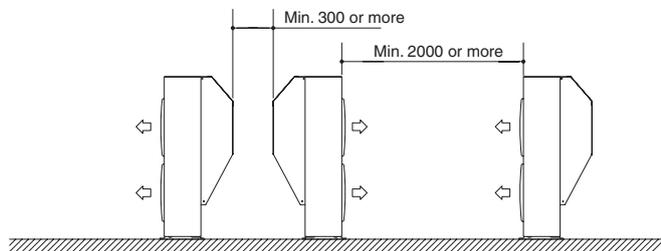


Unit : mm

**Note :** The amount of space required for removing the screw on the rear of the unit.  
If in case the sufficient space for maintenance is ensured on the rear of the outdoor unit, installation is possible with the space of both sides of not less than 150mm where marked with \* mark.

[Installation in front-rear rows]

- The top and both sides must remain open. Either the obstacle to the front or the obstacle to the rear must be no taller than the height of the outdoor unit.



Unit : mm

## 7. HOW TO INSTALL THE OUTDOOR UNIT

### 1. Installing the Outdoor Unit

- Use concrete or a similar material to make the base, and ensure good drainage.
- Ordinarily, ensure a base height of 5 cm or more. If a drain pipe is used, or for use in cold-weather regions, ensure a height of 15 cm or more at the feet on both sides of the unit. (In this case, leave clearance below the unit for the drain pipe, and to prevent freezing of drainage water in cold-weather regions.)
- Refer to Fig. 1-21 for the anchor bolt dimensions.
- Be sure to anchor the feet with anchor bolts (M10). In addition, use anchoring washers on the top side. (Use large square 32 × 32 SUS washers with JIS nominal diameter of 10.) (Field supply)

### 2. Drainage Work

Follow the procedure below to ensure adequate draining for the outdoor unit.

- For the drain port dimensions, refer to Fig. 1-21.
- Ensure a base height of 15 cm or more at the feet on both sides of the unit.

### 3. Routing the Tubing and Wiring

- The tubing and wiring can be extended out in 4 directions: front, rear, right, and down.
  - The service valves are housed inside the unit. To access them, remove the inspection panel. (To remove the inspection panel, remove the 3 screws, then slide the panel downward and pull it toward you.)
- (1) If the routing direction is through the front, rear, or right, use a nipper or similar tool to cut out the knockout holes for the inter-unit control wiring outlet, power wiring outlet, and tubing outlet from the appropriate covers A and B.
  - (2) If the routing direction is down, use a nipper or similar tool to cut out the lower flange from cover A. (Fig. 1-22)

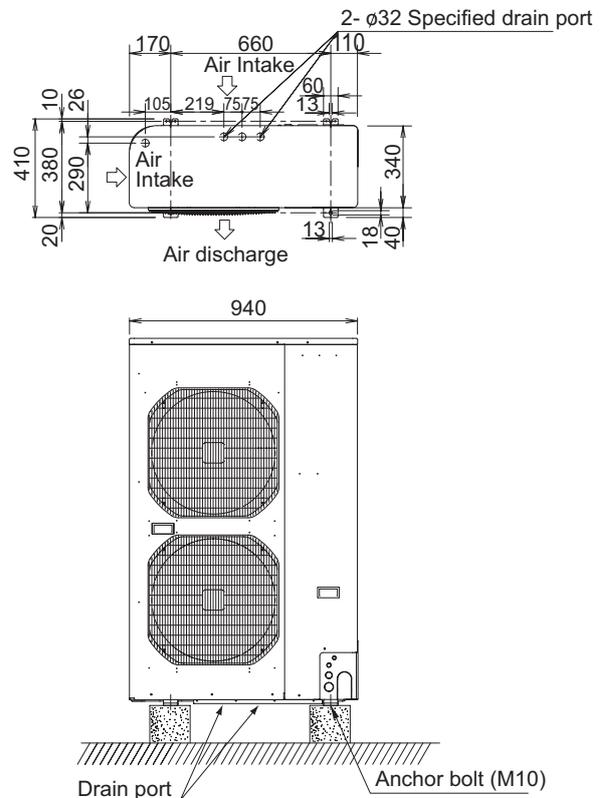


**CAUTION**

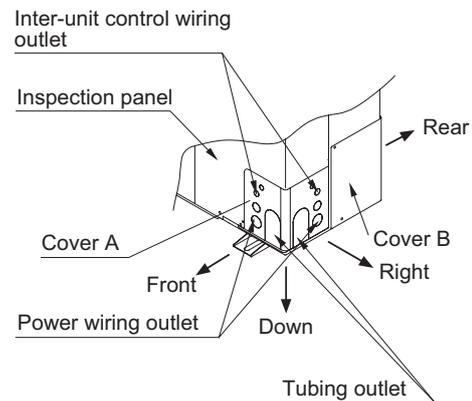
1. Route the tubing so that it does not contact the compressor, panel, or other parts inside the unit. Increased noise will result if the tubing contacts these parts.
2. When routing the tubing, use a tube bender to bend the tubes.
3. In cold-weather regions, in order to prevent drainage water from freezing, do not install the drain socket cap. Also take steps to prevent water from accumulating around the unit.

For 8 and 10 HP unit

Unit: mm



**Fig. 1-21**



**Fig. 1-22**

## ■ Indoor Unit

### 8. SELECTING THE INSTALLATION SITE



CAUTION

- When moving the unit during or after unpacking, make sure to lift it by holding its lifting lugs. Do not exert any pressure on other parts, especially the refrigerant piping, drain piping and flange parts.
- If you think the humidity inside the ceiling might exceed 30°C and RH 80%, reinforce the insulation on the unit body. Use glass wool or polyethylene foam as insulation so that it is no thicker than 10 mm and fits inside the ceiling opening.

#### Indoor Unit

##### AVOID:

- Areas where leakage of flammable gas may be expected.
- Places where large amounts of oil mist exist.
- Direct sunlight.
- Locations near heat sources which may affect the performance of the unit.
- Locations where external air may enter the room directly. This may cause “condensation” on the air discharge ports, causing them to spray or drip water.
- Locations where the remote controller will be splashed with water or affected by dampness or humidity.
- Installing the remote controller behind curtains or furniture.
- Locations where high-frequency emissions are generated.
- Places where blocks air passages.
- Places where the false ceiling is not noticeably on an incline.

##### DO:

- Select an appropriate position from which every corner of the room can be uniformly cooled.
- Select a location where the ceiling is strong enough to support the weight of the unit.
- Select a location where tubing and drain pipe have the shortest run to the outdoor unit.
- Allow room for operation and maintenance as well as unrestricted airflow around the unit.
- Install the unit within the maximum elevation difference above or below the outdoor unit and within a total tubing length (L) from the outdoor unit as detailed in Table 1-1.
- Allow room for mounting the remote controller about 1m off the floor, in an area that is not in direct sunlight or in the flow of cool air from the indoor unit.
- Places where optimum air distribution can be ensured.
- Places where sufficient clearance for maintenance and service can be ensured.

9. HOW TO INSTALL THE INDOOR UNIT

<Type E2>

9-1. Required Minimum Space for Installation and Service

(1) Dimensions of suspension bolt pitch and unit

Unit: mm

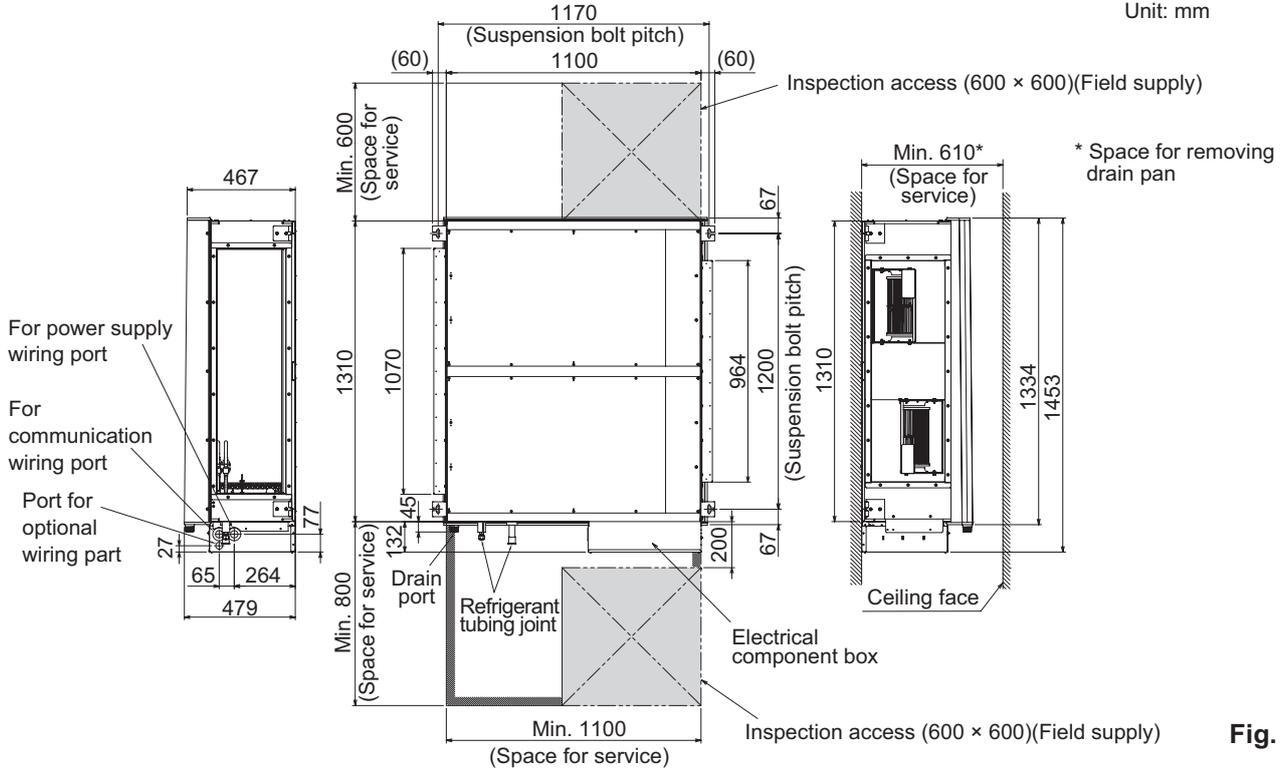


Fig. 1-23

(2) Dimensions of Indoor unit

Type 200 / 250

Unit : mm

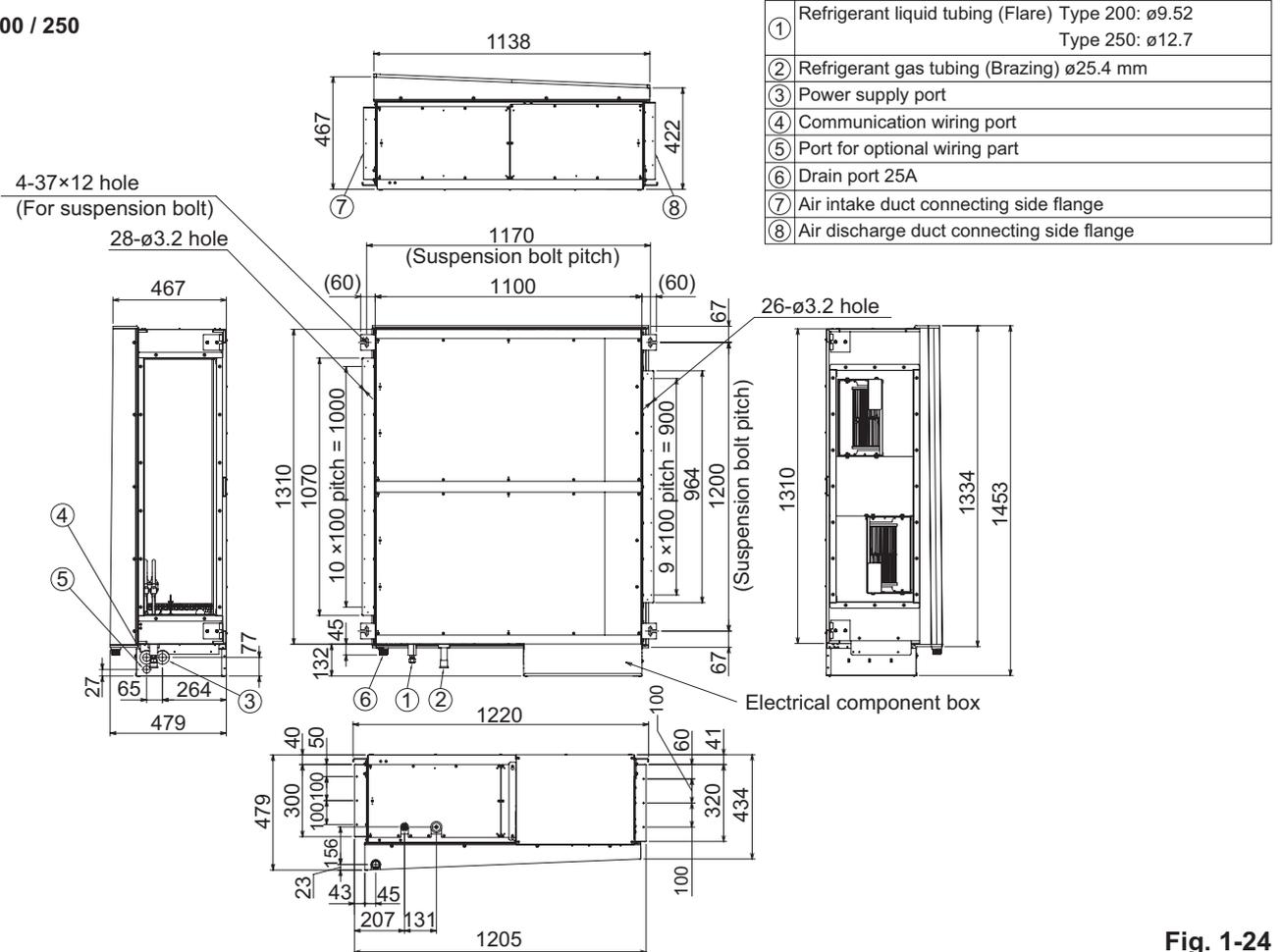


Fig. 1-24

### 9-2. Suspending the Indoor Unit

Depending on the ceiling type:

1. Check the suspension bolt pitch.
2. Ensure that the ceiling is strong enough to support the weight of the unit.
3. To prevent the unit from dropping, firmly fasten the suspension bolts as shown in the figure below.

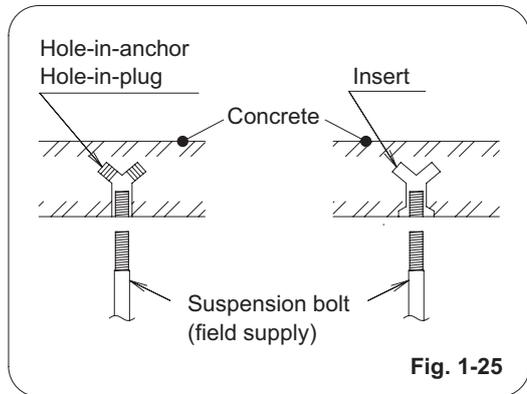


Fig. 1-25

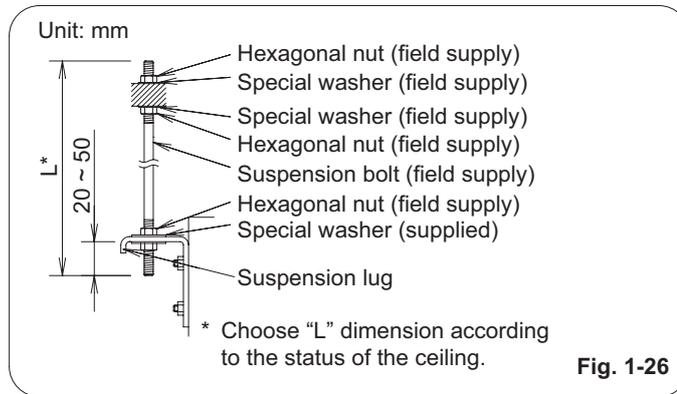


Fig. 1-26

**NOTE**

Type	200	250
Suspension bolt (field supply)	M10 or 3/8"	M10 or 3/8"



**WARNING**

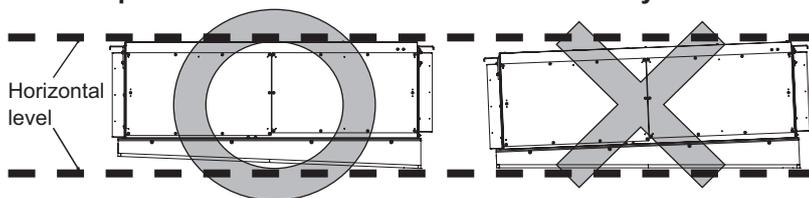
It is important that you use extreme care in supporting the indoor unit inside the ceiling. Ensure that the ceiling is strong enough to support the weight of the unit. Before suspending the unit, test the strength of each attached suspension bolt.

- (1) When placing the unit inside the ceiling, determine the pitch of the suspension bolts referring to the dimensional data given previously. Tubing must be laid and connected inside the ceiling when suspending the unit. If the ceiling is already constructed, lay the tubing into position for connection to the unit before placing the unit inside the ceiling.
- (2) Screw in the suspension bolts allowing them to protrude from the ceiling as shown in Fig. 1-25. (Cut the ceiling material, if necessary.)
- (3) Suspend and fix the indoor unit using the 2 hexagonal nuts (field supply) and special washers (supplied with the unit) as shown in Fig. 1-26.



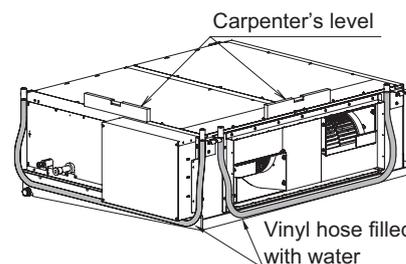
**CAUTION**

- The top of the unit must be installed horizontally.

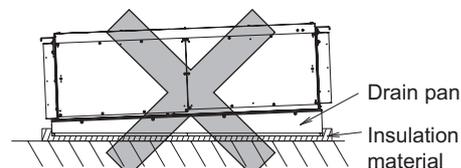
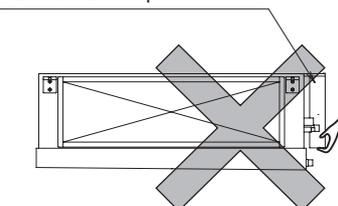


- Check the unit is placed horizontally. Make sure the unit is installed level using a level or a vinyl hose filled with water. In using a vinyl hose instead of a level, adjust the top surface of the unit to the surface of the water at both ends of the vinyl hose and make horizontal adjustment on all 4 corners of the unit. If the air discharge side of the unit is installed downward, splashing water or water leak may occur. Also, the dust may accumulate inside the drain pan caused by draining residual water.
- When lifting the unit, do not attempt to hold the electrical component box in hand.
- Do not leave the drain pan of the unit downward for long hours. If doing so, the insulation material can be crushed. Crushed insulation can lead to condensation.

Vinyl hose filled with water



Electrical component box



### 9-3. Installing the Refrigerant Tubing

The size of the refrigerant tubing is as shown in the table below.

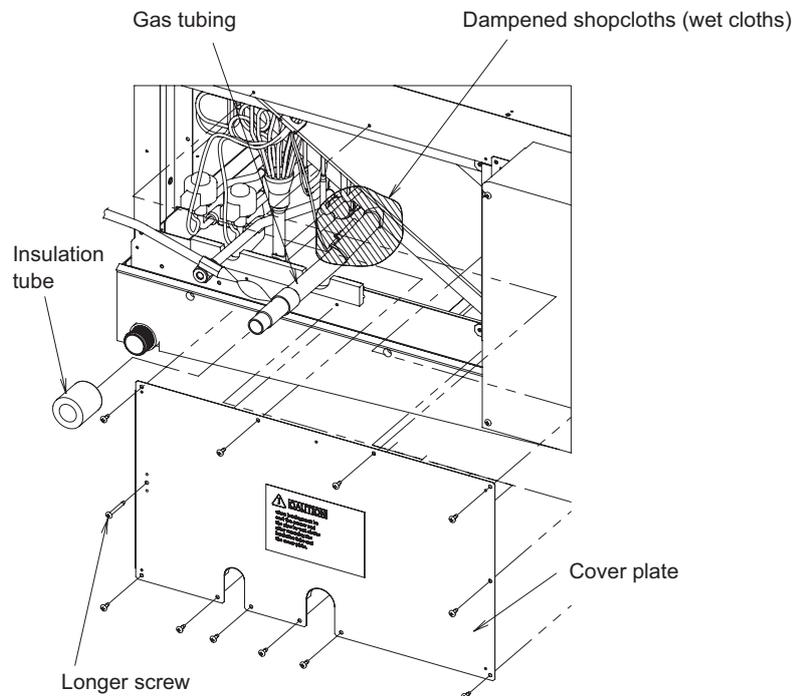
Table 1-6

Type	200	250
Gas tube	ø25.4 (Braze connection)	ø25.4 (Braze connection)
Liquid tube	ø9.52 (Flare connection) Tightening torque (approximate) : 34 ~ 42 N · m Thickness of connecting tube : 0.8 mm	ø12.7 (Flare connection) Tightening torque (approximate) : 34 ~ 42 N · m Thickness of connecting tube : 0.8 mm

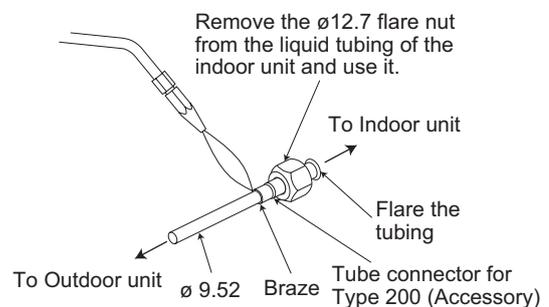
#### NOTE

To fasten the flare nuts, apply specified torque.

- When brazing, must be cool the pipe by wet cloths after removing the insulation tube and the cover plate.
- When brazing the gas tubing, cool the tubing with dampened shopcloths as you work, as shown in the figure below, to protect the unit's thermistor from the heat generated by brazing.



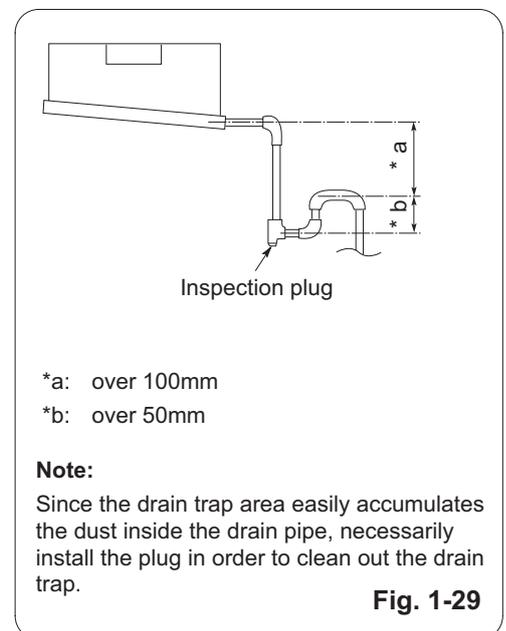
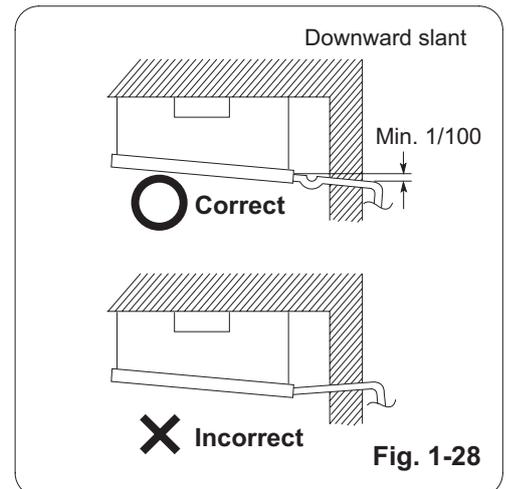
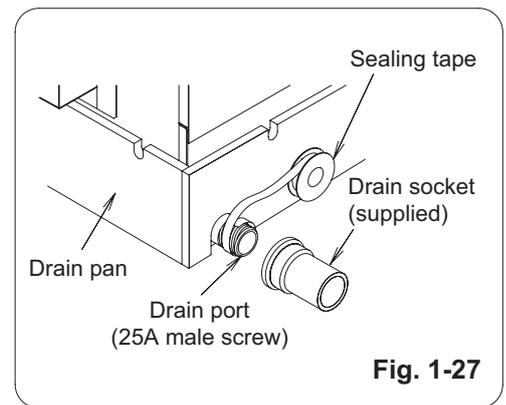
- The Type 200 indoor unit comes with a tube connector that is for liquid tubing. Configure as shown in the illustration and connect it. When flaring the tube, put the flare nut onto it first and then flare it.



- Pipe insulation must be made after leak detection for tubing connection area was performed.
- Be sure to insulate both the gas tubing and liquid tubing. In addition, wrap the supplied insulation material around the tubing joints, and fasten in place with vinyl tape or other means. Failure to insulate the tubing may result in water leakage from condensation.
- Plug all gaps at tube through-holes in the unit with insulation or a similar substance to prevent air leakage.

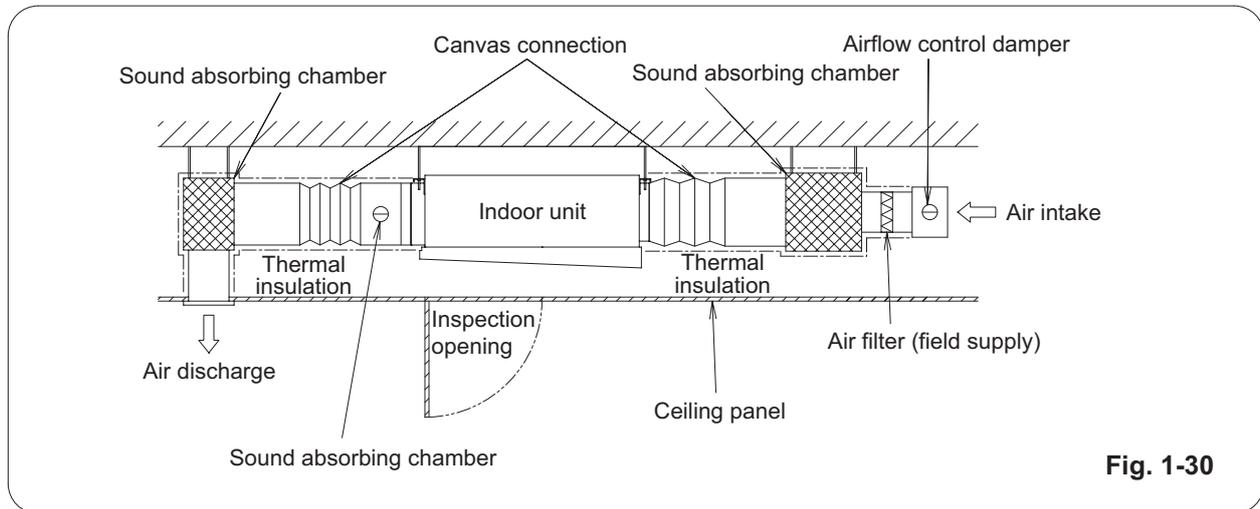
#### 9-4. Installing the Drain Piping

- (1) Prepare standard hard PVC pipe (O.D. 32 mm) for the drain and use the supplied drain socket to prevent water leaks. The PVC pipe must be purchased separately. When doing this, apply adhesive for the PVC pipe at the connection point.
- (2) If connecting a drain socket (supplied) to the threaded drain port, first wrap the drain port threads with sealing tape, then connect the joint. (Fig. 1-27)
- (3) Ensure the drain pipe has a downward slant (1/100 or more). (See the Fig. 1-28)
- (4) The drain pipe with a trap should be installed away from the indoor unit.
- (5) Do not forcibly install the drain pipe to the indoor unit tubing. If forcibly installed, it may result in water leakage.
- (6) The drain pipe should be fixed at the nearest of the indoor unit. Failure to do so may result in water leakage.
- (7) Do not attach any air purge equipment. If attached, drain water may result in splashing out of the drain pipe.
- (8) When the drain piping is completed, perform the water leak test and check for a water leak. If detected, it may result in water leakage or condensation.
- (9) When the drain piping is completed, perform the drainage test if the water drains smoothly. If not draining smoothly, it may result in water leakage or condensation.
- (10) When the drain piping work is finished securely, wrap the insulation material around the indoor side drain pipe. At this time, do not wrap together with the refrigerant tubing. If wrapped together, the drain pipe is lifted and water drainage will not be operated. Coincidentally, the water comes out of the drain pan and it can lead to water leakage.



### 9-5. Caution for Ducting Work

- This unit has high static pressure.  
In case of small pressure resistance (for instance, a short duct), install an airflow control damper (field supply) for adjusting airflow volume as airflow volume / airflow noise increases.
- If the air conditioner is to be installed in a room such as an office or meeting room which needs a low sound level, provide a supply and return sound absorption chamber with an acoustic liner.
- Use a flexible canvas connection or vibration isolation hanger (field supply) to break transmission of mechanical vibration of the unit.



#### CAUTION

- Use incombustible duct materials.
- Use thermal insulation to prevent duct condensation.
- An air filter (field supply) must be installed at the air intake side.  
If not installed, the heat exchanger will get dirty and the unit will reduce the quality.
- Obtain and install an air filter (field supply) which can easily wash away the dust by lukewarm, soapy water or suck up with a vacuum cleaner.
- Clean the air filter periodically to collect dust and other particles from the air.
- Use duct static pressure within a range of specification value.

## 9-6. External Static Pressure Setting

Choose one of the methods (selection of “a”, “b”, “c” within the range of dotted line as shown in the flowchart below) and make settings.

### a. No setting changes:

When using as it is factory preset at shipment.

(If resetting after external static pressure setting once, it might be different from factory preset.)

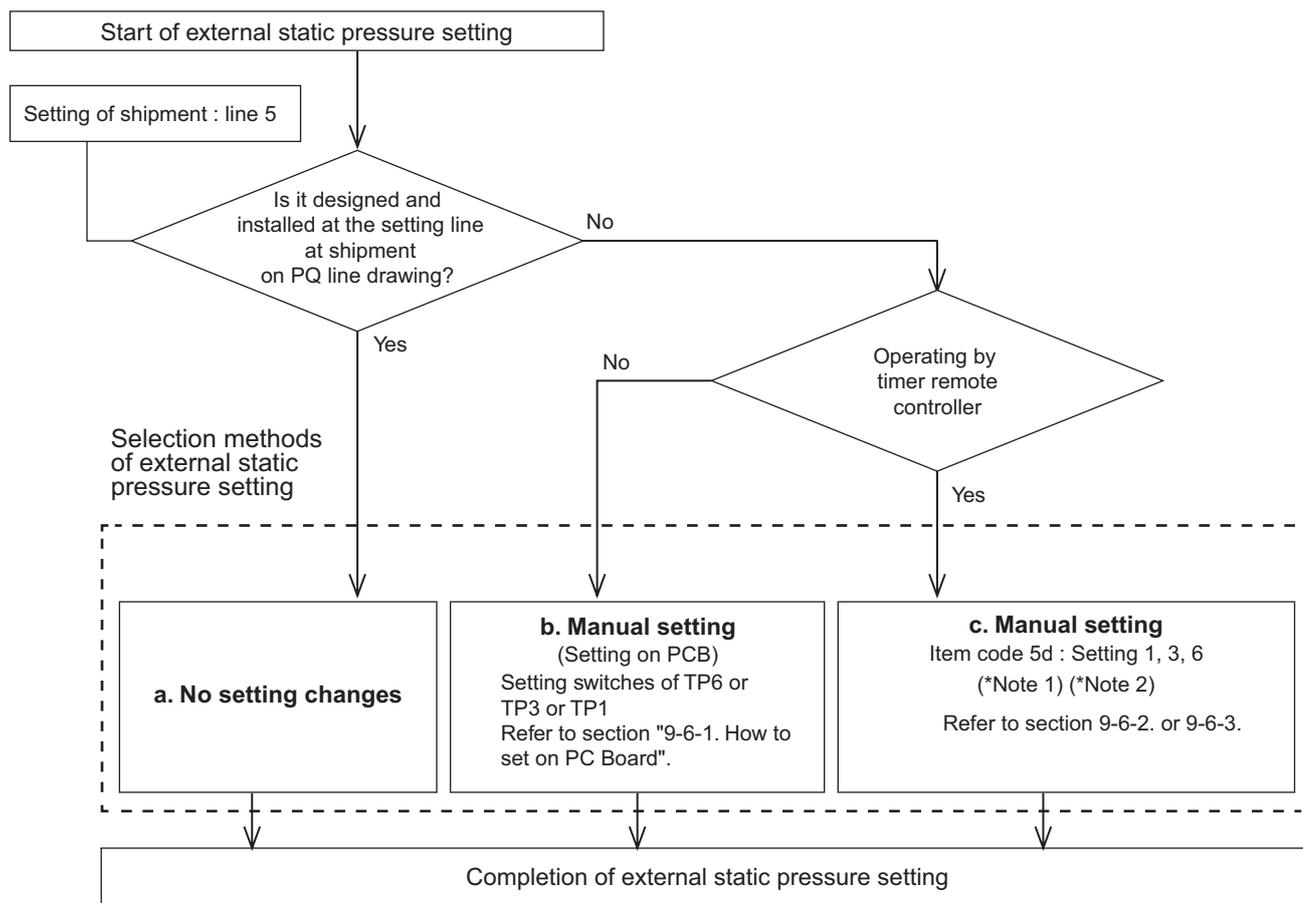
### b. Manual setting (on PCB):

This is static pressure setting excepting factory preset at shipment. Dip switch select method.

### c. Manual setting (by timer remote controller):

Static pressure setting excepting factory preset at shipment.

## Flow of External Static Pressure



### NOTE

(1) Refer to Table 1-8 and Fig. 1-32 for details on the relationship between the value of item code “5d” and the external static pressure.

(2) When set in group control (connecting multiple indoor units with one timer remote controller), set each indoor unit to item code “5d”.

When amending the setting after selecting [ b. Manual setting ] (due to airflow path changes, etc.), it is necessary to cancel [ b. Manual setting ] (switching OFF positions).

When [ b. Manual setting ] has not been cancelled, [ c. Manual setting ] will be activated if selected, but [ b. Manual setting ] takes precedence when the power is switched back on after power outages, etc.

- **Make sure the external static pressure is in a range of specifications.**

**Then proceed the external static pressure setting.**

**Improper settings can cause noise, a shortage of airflow volume and water leakage.**

**Refer to Fig. 1-32 for the external static pressure setting range.**

- **Be sure to set the [External Static Pressure Setting] once again after amending the airflow path for the duct or air outlet after setting the external static pressure.**



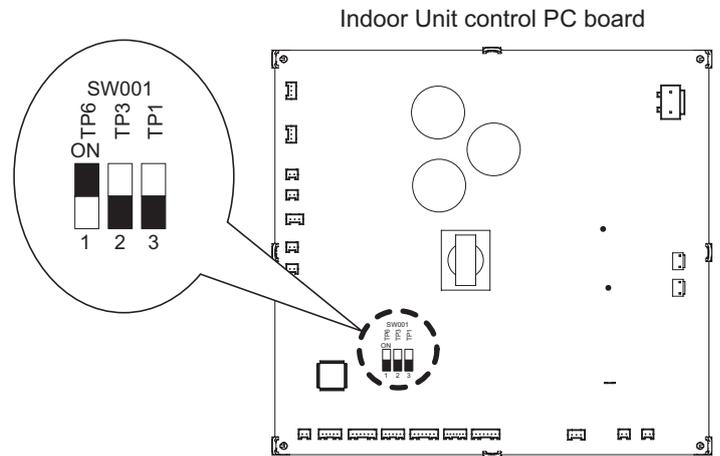
CAUTION

### 9-6-1. How to Set on PC Board

1. Turn off the power breaker to halt the supply of electricity to the PC board.
2. Open the lid of the electrical component box and confirm the location where the Select switch on the indoor unit control PCB is placed. (Fig. 1-31)
3. Set the On/Off switches in the Off position which are now set in the On position.  
Select the positions of the Select SW001 switches respectively to make the desired external static pressure settings referring to the Table 1-7.

**Table 1-7 External static pressure SW setting**

External static pressure at the time of rated airflow volume		SW001		
200	250	TP6	TP3	TP1
270Pa	270Pa	ON 1	2	3
140Pa	140Pa	1	ON 2	3
60Pa	72Pa	1	2	ON 3



**Fig. 1-31**

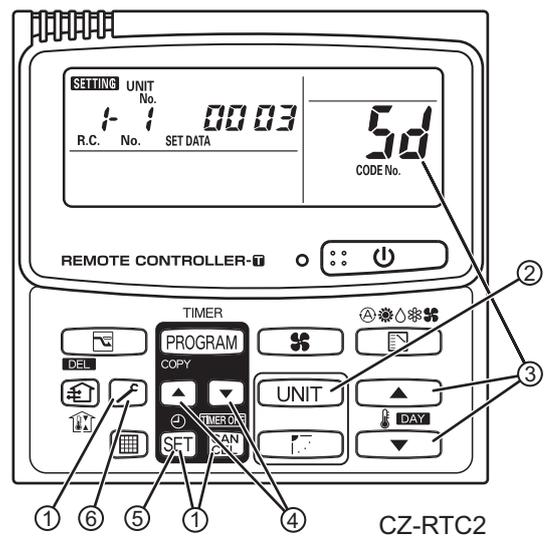
### 9-6-2. Operating the Timer Remote Controller (CZ-RTC2)

#### ● How to set the external static pressure

1. Press and hold down the (CAN/CEL) and buttons simultaneously for 4 or more seconds.  
(**SETTING**, the Unit No., Item Code and Detailed Data will blink on the LCD display.)
2. The indoor unit numbers in the group control will be sequentially displayed whenever the Unit Select button is pressed .  
Only the fan motor for the selected indoor unit will operate during this time.
3. Specify the "5d" item code by pressing the / buttons for the temperature setting buttons and confirm the values.  
(**"0001"** set at shipment)
4. Press the / buttons for the time to amend the values for the set data.  
Refer to Table 1-8 and Fig. 1-32 and select a value **"0006"**, **"0003"** or **"0001"**.
5. Press the button.  
The display will stop blinking and remain illuminated.
6. Press the button. The fan motor will stop operating and the LCD display will return to the normal stop mode.

**Table 1-8 Setting the external static pressure**

Indoor unit		Item code
200	250	
External static pressure of the rated air flow volume		<b>5d</b>
270 Pa	270 Pa	<b>0006</b>
140 Pa	140 Pa	<b>0003</b>
60 Pa	72 Pa	<b>0001</b>



#### NOTE:

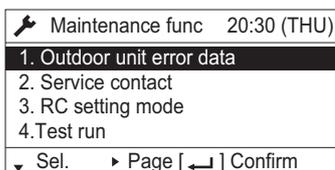
Failure to set this parameter may result in decreased airflow and condensation.

### 9-6-3. Operating the High-spec Wired Remote Controller (CZ-RTC3)

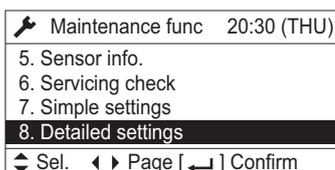


#### How to set the external static pressure

1. Keep pressing the , and buttons simultaneously for 4 or more seconds. The "Maintenance func" screen appears on the LCD display.

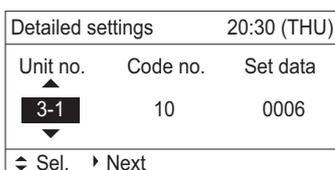


2. Press the or button to see each menu. If you wish to see the next screen instantly, press the or button. Select "8. Detailed settings" on the LCD display and press the button.

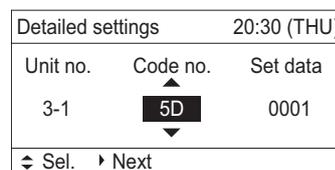


The "Detailed settings" screen appears on the LCD display.

Select the "Unit no." by pressing the or button for changes.



3. Select the "Code no." by pressing the or button. Change the "Code no." to "5D" by pressing the or button (or keeping it pressed).

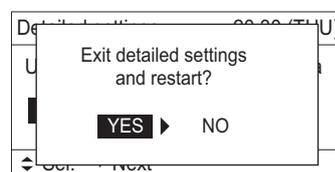


4. Select the "Set data" by pressing the or button. Select one of the "Set data" among "0006", "0003" or "0001" according to the desired external static pressure setting by pressing the or button. Then press the button. (See the table below.)

Then press the button.

Indoor unit		Item code
200	250	5D
External static pressure of the rated air flow volume (Pa)		
270 Pa	270 Pa	0006
140 Pa	140 Pa	0003
60 Pa	72 Pa	0001

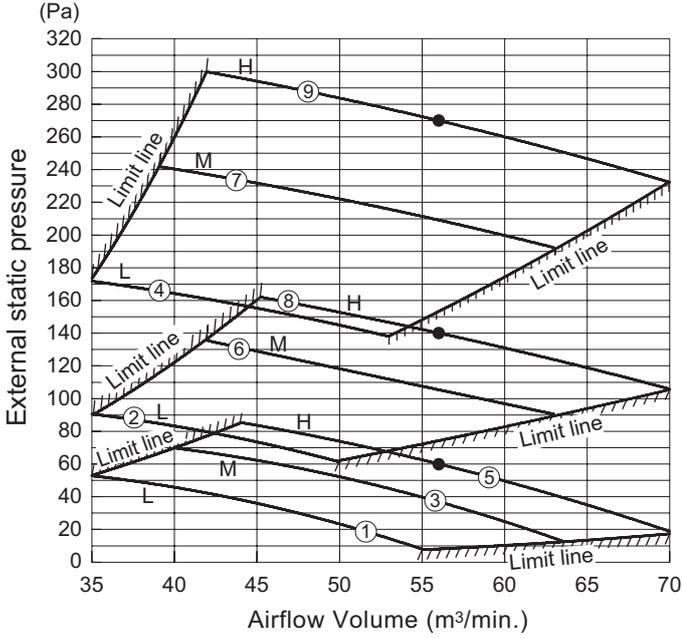
5. Select the "Unit no." by pressing the or button and press the button. The "Exit detailed settings and restart?" (Detailed setting-end) screen appears on the LCD display. Select "YES" and press the button. When the setting is completed, perform the test run for the external static pressure setting described in "Auto External Static Pressure Setting Operation".



Indoor Fan Performance

			Tap								
			①	②	③	④	⑤	⑥	⑦	⑧	⑨
Item code "5d"	0006	Cooling				L			M	H	
		Heating				L			M	H	
	0003	Cooling		L					M	H	
		Heating		L					M	H	
	0001	Cooling	L		M	H					
	Setting at shipment	Heating	L		M	H					

Type 200



Type 250

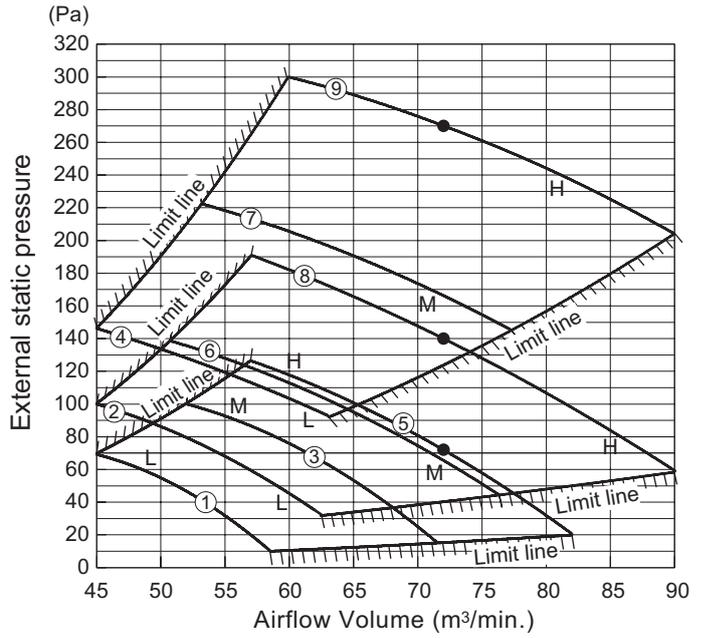


Fig. 1-32

<Type E1>

9-7. Required Minimum Space for Installation and Service

The installation instructions that come with the indoor unit describe how to use it in combination with the U-200PE1E8 and U-250PE1E8 outdoor units.

Please refer to the following when using it in combination with the U-200PE1E8 and U-250PE1E8 outdoor units.

- This air conditioner is usually installed above the ceiling so that the indoor unit and ducts are not visible. Only the air intake and air outlet ports are visible from below.
- The minimum space for installation and service is shown in Fig. 1-33.

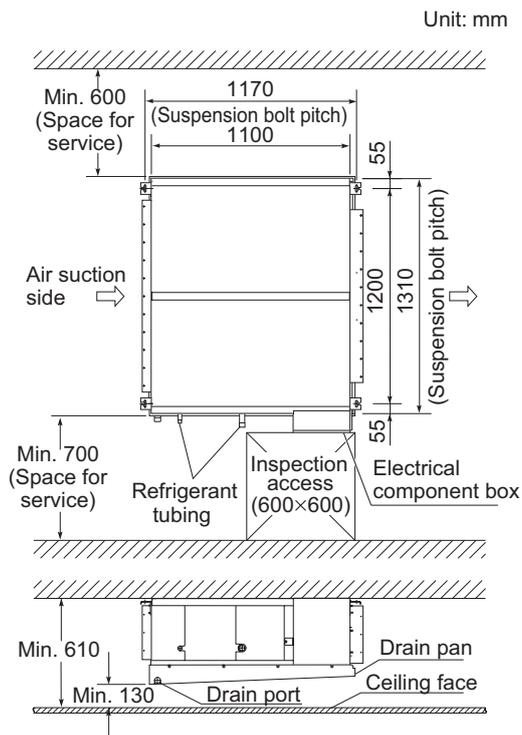
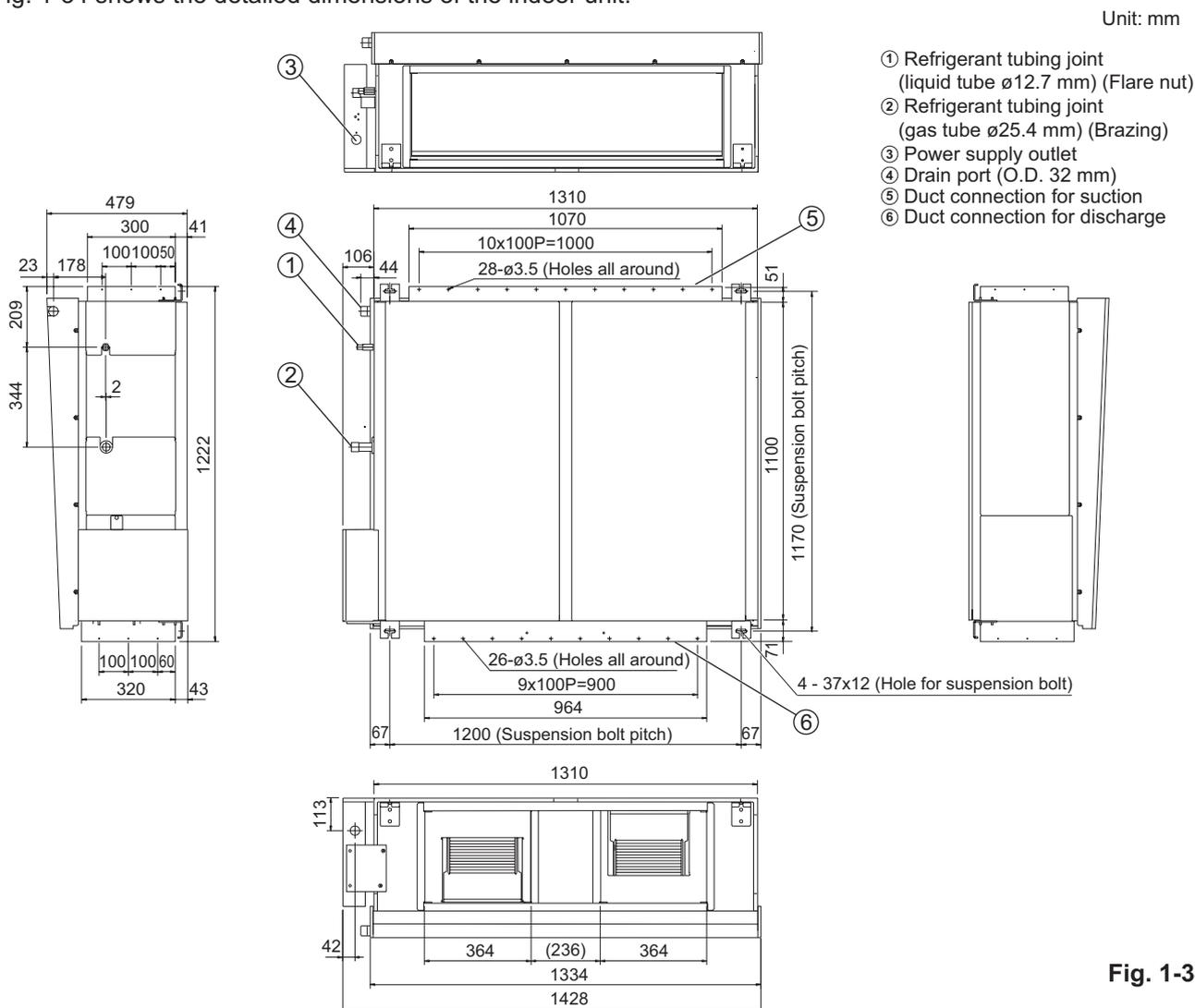


Fig. 1-33

- It is recommended that space be provided (600 × 600 mm) for checking and servicing the electrical system.
- Fig. 1-34 shows the detailed dimensions of the indoor unit.



Unit: mm

- ① Refrigerant tubing joint (liquid tube ø12.7 mm) (Flare nut)
- ② Refrigerant tubing joint (gas tube ø25.4 mm) (Brazing)
- ③ Power supply outlet
- ④ Drain port (O.D. 32 mm)
- ⑤ Duct connection for suction
- ⑥ Duct connection for discharge

Fig. 1-34

## 9-8. Suspending the Indoor Unit

Depending on the ceiling type:

- Insert suspension bolts as shown in Fig. 1-35

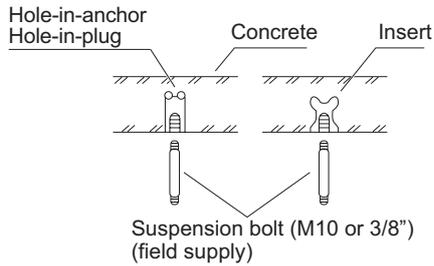


Fig. 1-35

- Use existing ceiling supports or construct a suitable support as shown in Fig. 1-36.

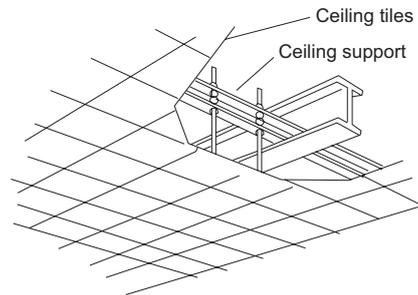


Fig. 1-36

or



### WARNING

**It is important that you use extreme care in supporting the indoor unit inside the ceiling. Ensure that the ceiling is strong enough to support the weight of the unit. Before hanging the unit, test the strength of each attached suspension bolt.**

- (1) When placing the unit inside the ceiling, determine the pitch of the suspension bolts referring to the dimensional data given previously. (Figs. 1-33 and 1-34)  
Tubing must be laid and connected inside the ceiling when suspending the unit. If the ceiling is already constructed, lay the tubing into position for connection to the unit before placing the unit inside the ceiling.
- (2) Screw in the suspension bolts allowing them to protrude from the ceiling as shown in Fig. 1-35.  
(Cut the ceiling material, if necessary.)
- (3) Suspend and fix the indoor unit using the 2 hexagonal nuts (field supply) and special washers (supplied with the unit) as shown in Fig. 1-37.

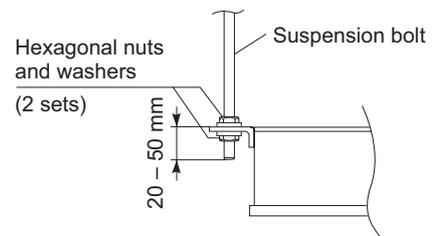


Fig. 1-37

## 3. Installing the Refrigerant Tubing

The size of the refrigerant tubing is as shown in Table 1-5.

Table 1-9

	Type 200	Type 250
Gas tube (mm)	ø25.4 (Braze connection)	ø25.4 (Braze connection)
Liquid tube (mm)	ø9.52 (Flare connection)	ø12.7 (Flare connection)

- When brazing the gas tubing, cool the tubing with dampened shopcloths as you work, as shown in Fig. 1-38, to protect the unit's thermistor from the heat generated by brazing.

The tube connector that comes with the Type 250 indoor unit cannot be used in combination with this outdoor unit. Use in combination with the U-250PE1E8.

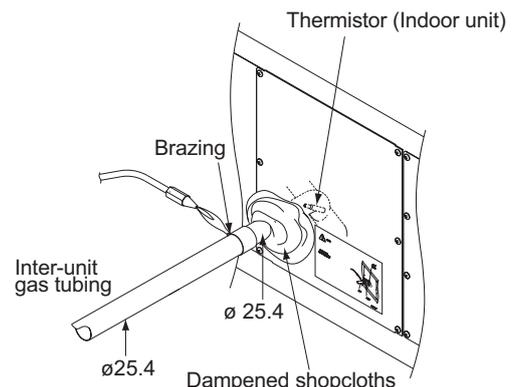
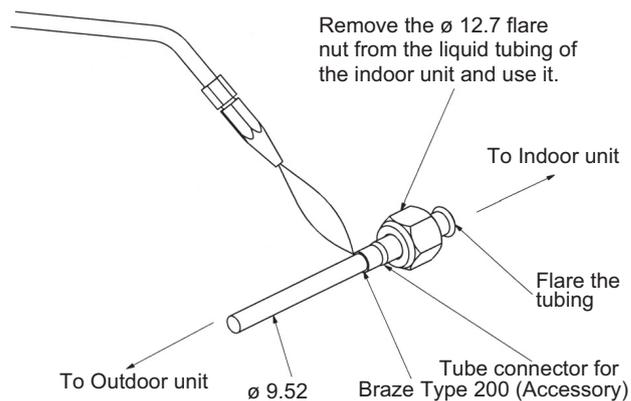


Fig. 1-38

- The Type 200 indoor unit comes with a tube connector that is for liquid tubing. Configure as shown in the illustration and connect it.  
When flaring the tube, put the flare nut onto it first and then flare it.



- Be sure to insulate both the gas tubing and liquid tubing. In addition, wrap the supplied insulation material around the tubing joints, and fasten in place with vinyl tape or other means. Failure to insulate the tubing may result in water leakage from condensation.
- Plug all gaps at tube through-holes in the unit with insulation or a similar substance to prevent air leakage. (Fig. 1-39)

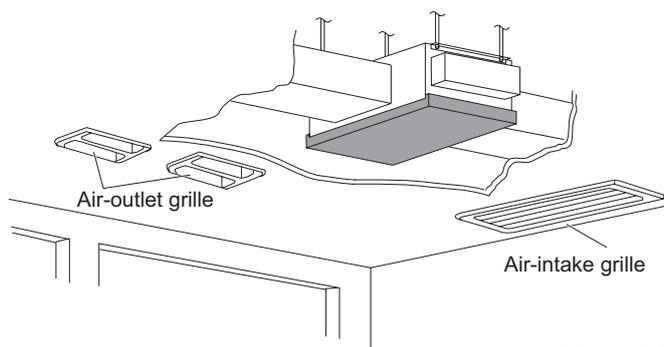


Fig. 1-39

#### 4. Installing the Drain Pipe

- (1) Prepare standard hard PVC pipe (O.D. 32 mm) for the drain and use the supplied drain socket to prevent water leaks.

The PVC pipe must be purchased separately.

When doing this, apply adhesive for the PVC pipe at the connection point.

# 1-11. HOW TO PROCESS TUBING

<Type E2>

The liquid tubing side is connected by a flare nut, and the gas tubing side is connected by brazing.

## 1. Connecting the Refrigerant Tubing

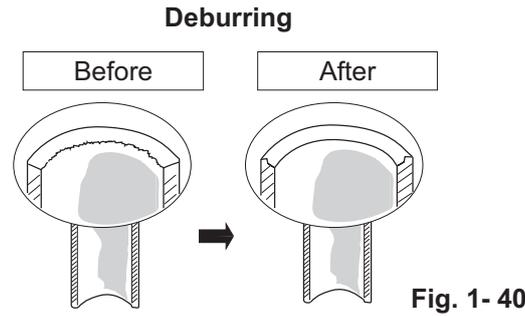
### Use of the Flaring Method

Many of conventional split system air conditioners employ the flaring method to connect refrigerant tubes that run between indoor and outdoor units.

In this method, the copper tubes are flared at each end and connected with flare nuts.

### Flaring Procedure with a Flare Tool

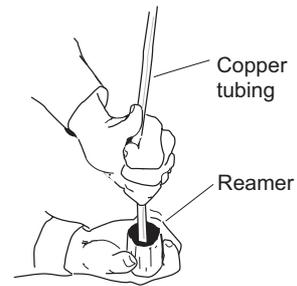
- (1) Cut the copper tube to the required length with a tube cutter. It is recommended to cut approx. 30 – 50 cm longer than the tubing length you estimate.
- (2) Remove burrs at each end of the copper tubing with a tube reamer or file. This process is important and should be done carefully to make a good flare. Be sure to keep any contaminants (moisture, dirt, metal filings, etc.) from entering the tubing. (Figs. 1- 40 and 1- 41)



**NOTE**

When reaming, hold the tube end downward and be sure that no copper scraps fall into the tube. (Fig. 1- 41)

- (3) Remove the flare nut from the unit and be sure to mount it on the copper tube.

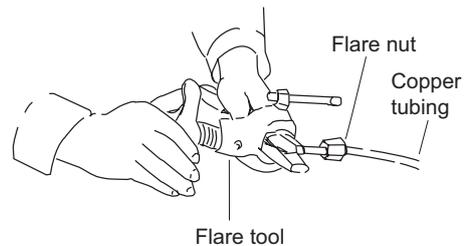


- (4) Make a flare at the end of the copper tube with a flare tool. (Fig. 1- 42)

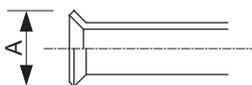
**NOTE**

A good flare should have the following characteristics:

- inside surface is glossy and smooth
- edge is smooth
- tapered sides are of uniform length



Flare size: A (mm)



Copper tubing (Outer dia.)	A $\begin{smallmatrix} 0 \\ -0.4 \end{smallmatrix}$
ø6.35	9.1
ø9.52	13.2
ø12.7	16.6
ø15.88	19.7
ø19.05	24.0

### Caution Before Connecting Tubes Tightly

- (1) Apply a sealing cap or water-proof tape to prevent dust or water from entering the tubes before they are used.
  - (2) Be sure to apply refrigerant lubricant (ether oil) to the inside of the flare nut before making piping connections. This is effective for reducing gas leaks. (Fig. 1- 43)
  - (3) For proper connection, align the union tube and flare tube straight with each other, then screw on the flare nut lightly at first to obtain a smooth match. (Fig. 1- 44)
- Adjust the shape of the liquid tube using a tube bender at the installation site and connect it to the liquid tubing side valve using a flare.

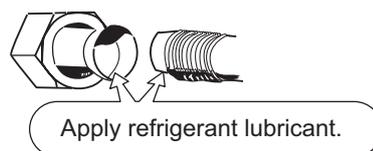


Fig. 1- 43

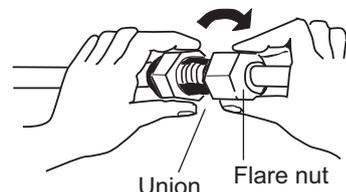


Fig. 1- 44

### Cautions During Brazing

- Replace air inside the tube with nitrogen gas to prevent copper oxide film from forming during the brazing process. (Oxygen, carbon dioxide and Freon are not acceptable.)
- Do not allow the tubing to get too hot during brazing. The nitrogen gas inside the tubing may overheat, causing refrigerant system valves to become damaged. Therefore allow the tubing to cool when brazing.
- Use a reducing valve for the nitrogen cylinder.
- Do not use agents intended to prevent the formation of oxide film. These agents adversely affect the refrigerant and refrigerant oil, and may cause damage or malfunctions.

## 2. Connecting Tubing Between Indoor and Outdoor Units

- (1) Tightly connect the indoor-side refrigerant tubing extended from the wall with the outdoor-side tubing.
  - (2) To fasten the flare nuts, apply specified torque.
    - When removing the flare nuts from the tubing connections, or when tightening them after connecting the tubing, be sure to use 2 adjustable wrenches or spanners. (Fig. 1- 45) If the flare nuts are over-tightened, the flare may be damaged, which could result in refrigerant leakage and cause injury or asphyxiation to room occupants.
    - For the flare nuts at tubing connections, be sure to use the flare nuts that were supplied with the unit, or else flare nuts for R410A (Type 2). The refrigerant tubing that is used must be of the correct wall thickness as shown in the table.
- Because the pressure is approximately 1.6 times higher than conventional refrigerant pressure, the use of ordinary flare nuts (Type 1) or thin-walled tubes may result in tube rupture, injury, or asphyxiation caused by refrigerant leakage.
- In order to prevent damage to the flare caused by overtightening of the flare nuts, use the table as a guide when tightening.
  - When tightening the flare nut on the liquid tube, use an adjustable wrench with a nominal handle length of 200 mm.

### Indoor Unit Tubing Connection ( $\ell_1, \ell_2 \dots \ell_{n-1}$ )

Indoor unit type	200	250
Gas tubing (mm)	ø25.4	ø25.4
Liquid tubing (mm)	ø9.52	ø12.7

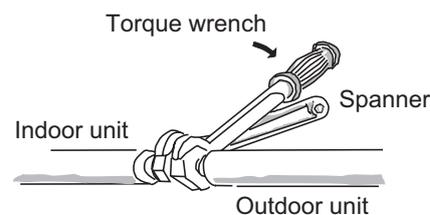


Fig. 1- 45

Tube diameter	Tightening torque (approximate)	Tube thickness
ø6.35 (1/4")	14 – 18 N · m {140 – 180 kgf · cm}	0.8 mm
ø9.52 (3/8")	34 – 42 N · m {340 – 420 kgf · cm}	0.8 mm
ø12.7 (1/2")	49 – 61 N · m {490 – 610 kgf · cm}	0.8 mm
ø15.88 (5/8")	68 – 82 N · m {680 – 820 kgf · cm}	1.0 mm
ø19.05 (3/4")	100 – 120 N · m {1000 – 1200 kgf · cm}	1.0 mm

### 3. Insulating the Refrigerant Tubing

#### Tubing Insulation

- Thermal insulation must be applied to all units tubing, including distribution joint (field supply).
  - \* For gas tubing, the insulation material must be heat resistant to 120°C or above.
  - For other tubing, it must be resistant to 120°C or above.
  - For other tubing, it must be heat resistant to 80°C or above.

Insulation material thickness must be 10 mm or greater. If the conditions inside the ceiling exceed DB 30°C and RH 70%, increase the thickness of the gas tubing insulation material by 1 step.



#### WARNING

If the exterior of the outdoor unit valves has been finished with a square duct covering, make sure you allow sufficient space to access the valves and to allow the panels to be attached and removed.

#### Taping the flare nuts

Wind the white insulation tape around the flare nuts at the gas tube connections. Then cover up the tubing connections with the flare insulator, and fill the gap at the union with the supplied black insulation tape. Finally, fasten the insulator at both ends with the supplied vinyl clamps. (Fig. 1- 47)

#### Insulation material

The material used for insulation must have good insulation characteristics, be easy to use, be age resistant, and must not easily absorb moisture.



#### WARNING

After a tube has been insulated, never try to bend it into a narrow curve because it can cause the tube to break or crack. Never grasp the drain or refrigerant connecting outlets when moving the unit.

### 4. Taping the Tubes

- (1) At this time, the refrigerant tubes (and electrical wiring if local codes permit) should be taped together with armoring tape in 1 bundle. To prevent condensation from overflowing the drain pan, keep the drain hose separate from the refrigerant tubing.
- (2) Wrap the armoring tape from the bottom of the outdoor unit to the top of the tubing where it enters the wall. As you wrap the tubing, overlap half of each previous tape turn.
- (3) Clamp the tubing bundle to the wall, using 1 clamp approx. each meter. (Fig. 1- 48)

#### NOTE

Do not wind the armoring tape too tightly since this will decrease the heat insulation effect. Also ensure that the condensation drain hose splits away from the bundle and drips clear of the unit and the tubing.

### 5. Finishing the Installation

After finishing insulating and taping over the tubing, use sealing putty to seal off the hole in the wall to prevent rain and draft from entering. (Fig. 1- 49)

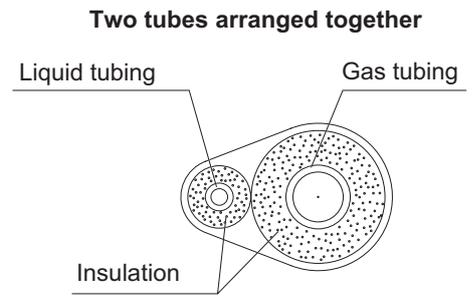


Fig. 1- 46

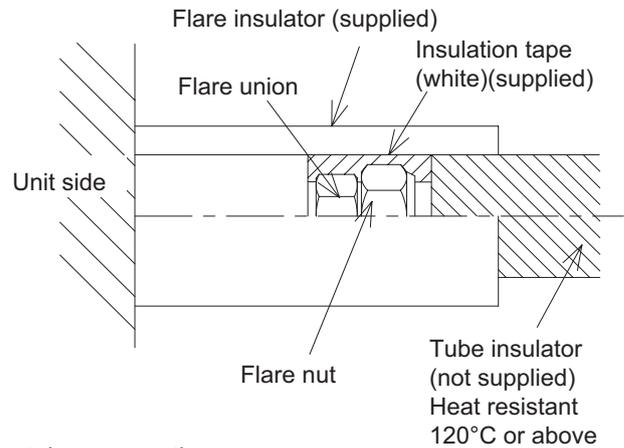


Fig. 1- 47

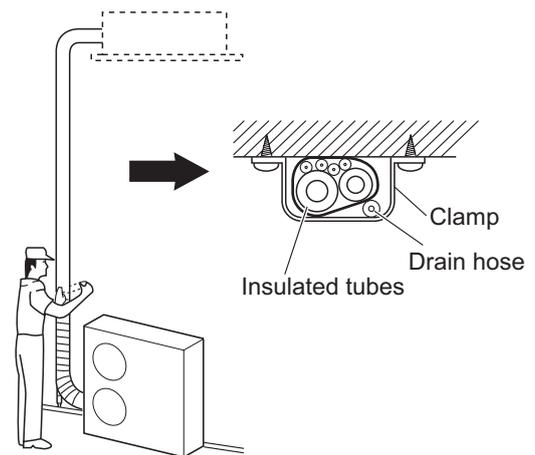


Fig. 1- 48

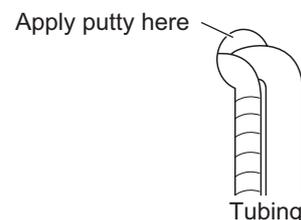


Fig. 1- 49

<Type E1>

The liquid tubing side is connected by a flare nut, and the gas tubing side is connected by brazing.

1. Connecting the Refrigerant Tubing

Use of the Flaring Method

Many of conventional split system air conditioners employ the flaring method to connect refrigerant tubes that run between indoor and outdoor units.

In this method, the copper tubes are flared at each end and connected with flare nuts.

Flaring Procedure with a Flare Tool

- (1) Cut the copper tube to the required length with a tube cutter. It is recommended to cut approx. 30 – 50 cm longer than the tubing length you estimate.
- (2) Remove burrs at each end of the copper tubing with a tube reamer or file. This process is important and should be done carefully to make a good flare. Be sure to keep any contaminants (moisture, dirt, metal filings, etc.) from entering the tubing. (Figs. 1- 50 and 1- 51)

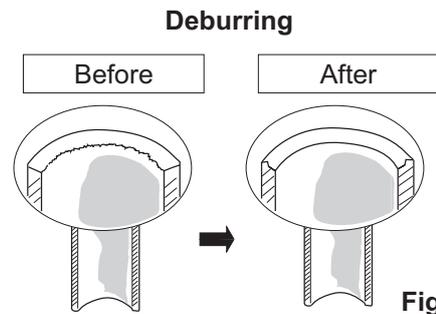


Fig. 1- 50

**NOTE**

When reaming, hold the tube end downward and be sure that no copper scraps fall into the tube. (Fig. 1- 51)

- (3) Remove the flare nut from the unit and be sure to mount it on the copper tube.

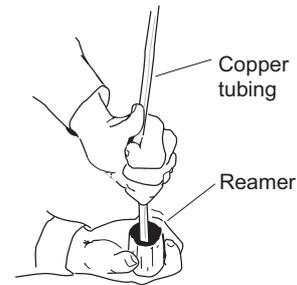


Fig. 1- 51

- (4) Make a flare at the end of the copper tube with a flare tool. (Fig. 1- 52)

**NOTE**

A good flare should have the following characteristics:

- inside surface is glossy and smooth
- edge is smooth
- tapered sides are of uniform length

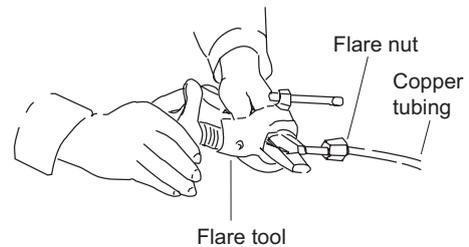
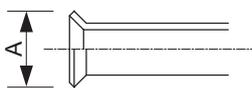


Fig. 1- 52

Flare size: A (mm)



Copper tubing (Outer dia.)	A <sub>-0.4</sub> <sup>0</sup>
ø6.35	9.1
ø9.52	13.2
ø12.7	16.6
ø15.88	19.7
ø19.05	24.0

### Caution Before Connecting Tubes Tightly

- (1) Apply a sealing cap or water-proof tape to prevent dust or water from entering the tubes before they are used.
  - (2) Be sure to apply refrigerant lubricant (ether oil) to the inside of the flare nut before making piping connections. This is effective for reducing gas leaks. (Fig. 1- 53)
  - (3) For proper connection, align the union tube and flare tube straight with each other, then screw on the flare nut lightly at first to obtain a smooth match. (Fig. 1- 54)
- Adjust the shape of the liquid tube using a tube bender at the installation site and connect it to the liquid tubing side valve using a flare.

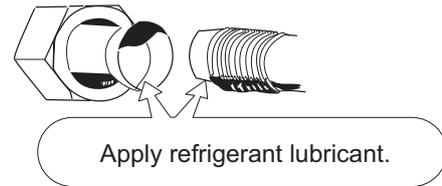


Fig. 1- 53

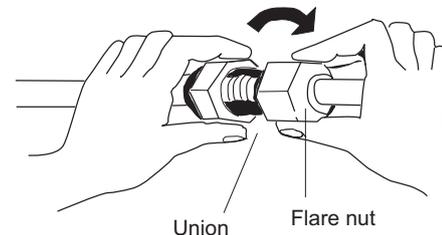


Fig. 1- 54

### Cautions During Brazing

- Replace air inside the tube with nitrogen gas to prevent copper oxide film from forming during the brazing process. (Oxygen, carbon dioxide and Freon are not acceptable.)
- Do not allow the tubing to get too hot during brazing. The nitrogen gas inside the tubing may overheat, causing refrigerant system valves to become damaged. Therefore allow the tubing to cool when brazing.
- Use a reducing valve for the nitrogen cylinder.
- Do not use agents intended to prevent the formation of oxide film. These agents adversely affect the refrigerant and refrigerant oil, and may cause damage or malfunctions.

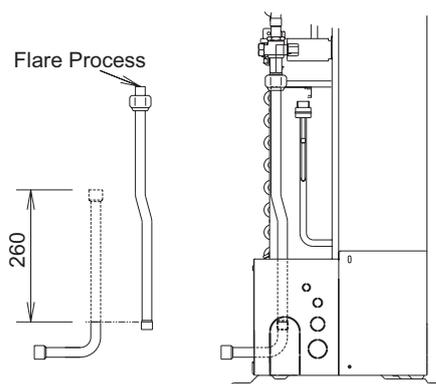
## 2. Connecting Tubing Between Indoor and Outdoor Units

### (1) Preparing the Tubing.

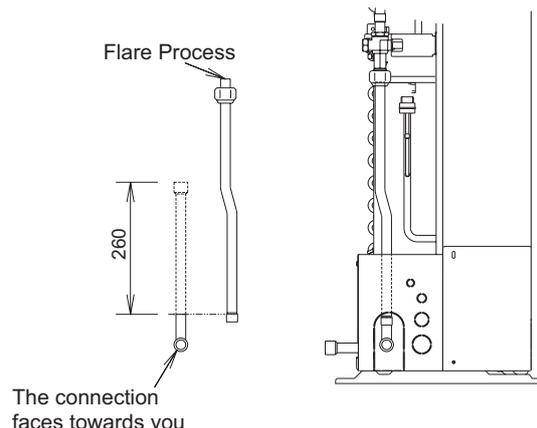
- The tubing of the gas main has a diameter of  $\varnothing 25.4$ , but the connection to the service valve of the outdoor unit has a diameter of  $\varnothing 19.05$ , so a flare has to be used. Consequently, be sure to use the enclosed joint tube and reducing joint tube in making connections (brazed).
- Align the joint tube in the direction the tubing comes out and refer to the following references "Examples of Making Tube Connections" 1 to 4 in cutting it to the required length and then braze it.
- To protect the wiring and parts inside the unit, perform the brazing outside the unit. Also, take note that each of the joint tubes in 1 to 3 have to be installed in a specific direction, so make sure they are as depicted in the figure when you braze them.

### Examples of Making Tube Connections

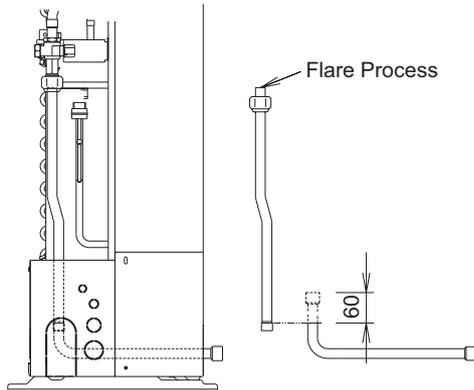
#### 1. Out Front



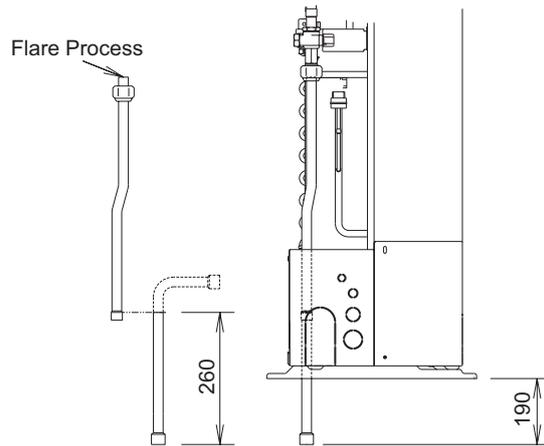
#### 2. Out Right



3. Out Rear



4. Out Bottom



- The  $\varnothing 25.4$  gas main will not pass easily into the opening for coolant pipes in the pipe cover, so make sure you connect the  $\varnothing 25.4$  pipe with the  $\varnothing 19.05$  pipe outside of the outdoor unit.

(2) Tightly connect the indoor-side refrigerant tubing extended from the wall with the outdoor-side tubing.

(3) To fasten the flare nuts, apply specified torque.

- When removing the flare nuts from the tubing connections, or when tightening them after connecting the tubing, be sure to use 2 adjustable wrenches or spanners. (Fig. 1- 55) If the flare nuts are over-tightened, the flare may be damaged, which could result in refrigerant leakage and cause injury or asphyxiation to room occupants.
- When removing or tightening the gas tube flare nut, use 2 adjustable wrenches together: one at the gas tube flare nut, and the other at part A. (Fig. 1- 56)
- For the flare nuts at tubing connections, be sure to use the flare nuts that were supplied with the unit, or else flare nuts for R410A (Type 2). The refrigerant tubing that is used must be of the correct wall thickness as shown in the table below.

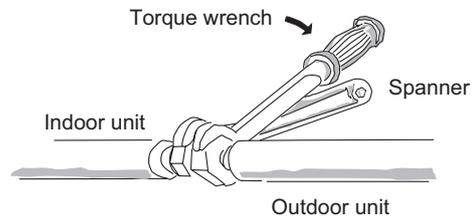


Fig. 1- 55

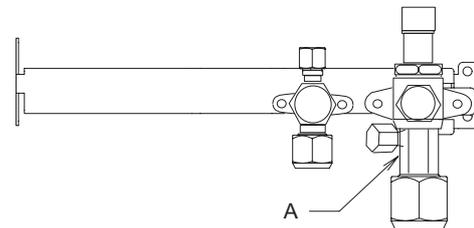


Fig. 1- 56

Tube diameter	Tightening torque (approximate)	Tube thickness
$\varnothing 6.35$ (1/4")	14 – 18 N · m {140 – 180 kgf · cm}	0.8 mm
$\varnothing 9.52$ (3/8")	34 – 42 N · m {340 – 420 kgf · cm}	0.8 mm
$\varnothing 12.7$ (1/2")	49 – 55 N · m {490 – 550 kgf · cm}	0.8 mm
$\varnothing 15.88$ (5/8")	68 – 82 N · m {680 – 820 kgf · cm}	1.0 mm
$\varnothing 19.05$ (3/4")	100 – 120 N · m {1000 – 1200 kgf · cm}	1.2 mm

Because the pressure is approximately 1.6 times higher than conventional refrigerant pressure, the use of ordinary flare nuts (Type 1) or thin-walled tubes may result in tube rupture, injury, or asphyxiation caused by refrigerant leakage.

- In order to prevent damage to the flare caused by over-tightening of the flare nuts, use the table above as a guide when tightening.
- When tightening the flare nut on the liquid tube, use an adjustable wrench with a nominal handle length of 200 mm.
- Do not use a spanner to tighten the valve stem caps. Doing so may damage the valves.
- Depending on the installation conditions, applying excessive torque may cause the nuts to crack.

### Precautions for Packed Valve Operation

- If the packed valve is left for a long time with the valve stem cap removed, refrigerant will leak from the valve. Therefore, do not leave the valve stem cap removed. (Fig. 1- 57)
- Use a torque wrench to securely tighten the valve stem cap.
- Valve stem cap tightening torque:

Charging port	8 – 10 N·m {80 – 100 kgf·cm}	
Valve stem cap	ø9.52	19 – 21 N·m {190 – 210 kgf·cm}
	ø12.7	25 – 30 N·m {250 – 300 kgf·cm}
	ø19.05	13 – 14 N·m {130 – 140 kgf·cm}

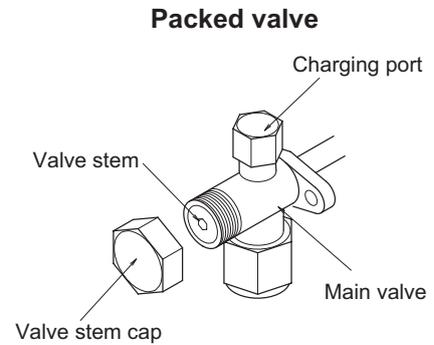


Fig. 1- 57

## 3. Insulating the Refrigerant Tubing

### Tubing Insulation

- Thermal insulation must be applied to all units tubing, including distribution joint (purchased separately).
- \* For gas tubing, the insulation material must be heat resistant to 120°C or above. For other tubing, it must be heat resistant to 80°C or above.

Insulation material thickness must be 10 mm or greater. If the conditions inside the ceiling exceed DB 30°C and RH 70%, increase the thickness of the gas tubing insulation material by 1 step.

### Two tubes arranged together

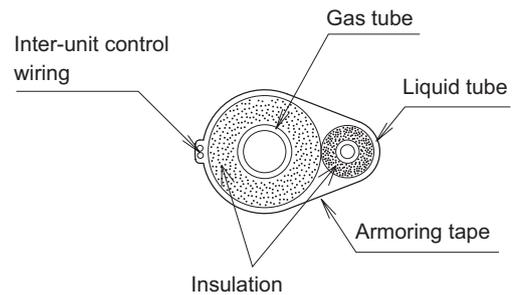


Fig. 1- 58



**CAUTION**

If the exterior of the outdoor unit valves has been finished with a square duct covering, make sure you allow sufficient space to access the valves and to allow the panels to be attached and removed.

### Taping the flare nuts

Wind the white insulation tape around the flare nuts at the gas tube connections. Then cover up the tubing connections with the flare insulator, and fill the gap at the union with the supplied black insulation tape. Finally, fasten the insulator at both ends with the supplied vinyl clamps. (Fig. 1- 59)

### Insulation material

The material used for insulation must have good insulation characteristics, be easy to use, be age resistant, and must not easily absorb moisture.

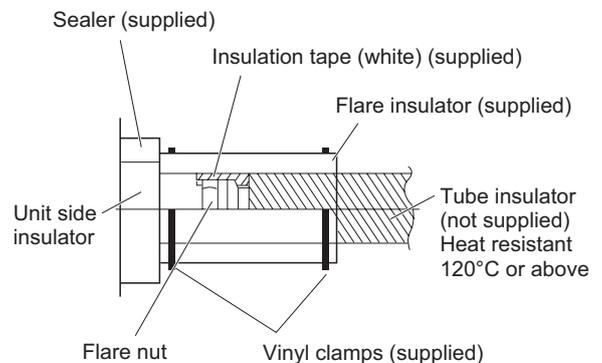


Fig. 1- 59



**CAUTION**

After a tube has been insulated, never try to bend it into a narrow curve because it can cause the tube to break or crack.  
Never grasp the drain or refrigerant connecting outlets when moving the unit.

#### 4. Taping the Tubes

- (1) At this time, the refrigerant tubes (and electrical wiring if local codes permit) should be taped together in 1 bundle. To prevent condensation from overflowing the drain pan, keep the drain hose separate from the refrigerant tubing.
- (2) Wrap the armoring tape from the bottom of the outdoor unit to the top of the tubing where it enters the wall. As you wrap the tubing, overlap half of each previous tape turn.
- (3) Clamp the tubing bundle to the wall, using 1 clamp approx. each meter. (Fig. 1- 60)

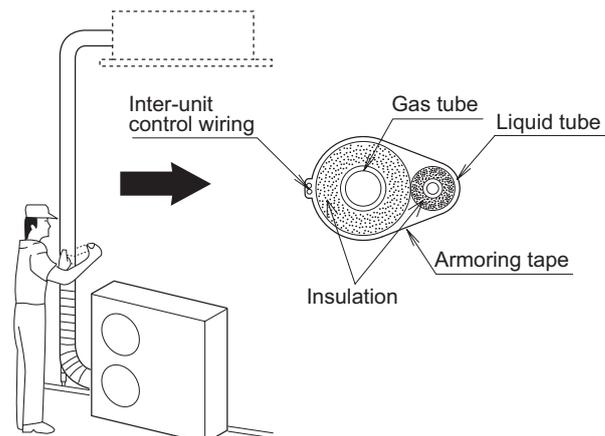


Fig.1- 60

#### NOTE

Do not wind the armoring tape too tightly since this will decrease the heat insulation effect. Also ensure that the condensation drain hose splits away from the bundle and drips clear of the unit and the tubing.

#### 5. Finishing the Installation

After finishing insulating and taping over the tubing, use sealing putty to seal off the hole in the wall to prevent rain and draft from entering. (Fig. 1- 61)

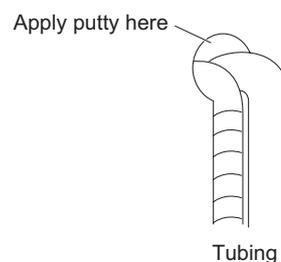


Fig.1- 61

## 1-12. LEAK TEST, EVACUATION AND ADDITIONAL REFRIGERANT CHARGE

Perform an air-tightness test for this package A/C. Check that there is no leakage from any of the connections.

Air and moisture in the refrigerant system may have undesirable effects as indicated below.

- pressure in the system rises
- operating current rises
- cooling (or heating) efficiency drops
- moisture in the refrigerant circuit may freeze and block capillary tubing
- water may lead to corrosion of parts in the refrigerant system

Therefore, the indoor unit and tubing between the indoor and outdoor unit must be leak tested and evacuated to remove any noncondensables and moisture from the system. (Figs. 1- 62 and 1- 63)

### ■ Air Purging with a Vacuum Pump (for Test Run) Preparation

Check that each tube (both liquid and gas tubes) between the indoor and outdoor units has been properly connected and all wiring for the test run has been completed. Remove the valve caps from both the gas and liquid service valves on the outdoor unit. Note that both liquid and gas tube service valves on the outdoor unit are kept closed at this stage. (Fig. 1- 64)

- The refrigerant charge at the time of shipment is only guaranteed sufficient for a tubing length of up to 30 m. The tubing may exceed this length, up to the maximum permitted length; however, an additional charge is necessary for the amount that the tubing exceeds 30 m. (No additional refrigerating machine oil is needed.)

Manifold gauge

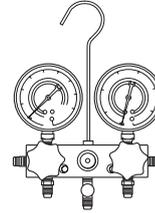


Fig. 1- 62

Vacuum pump

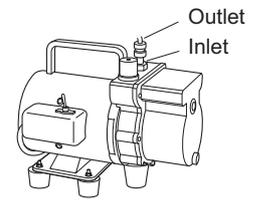


Fig. 1- 63

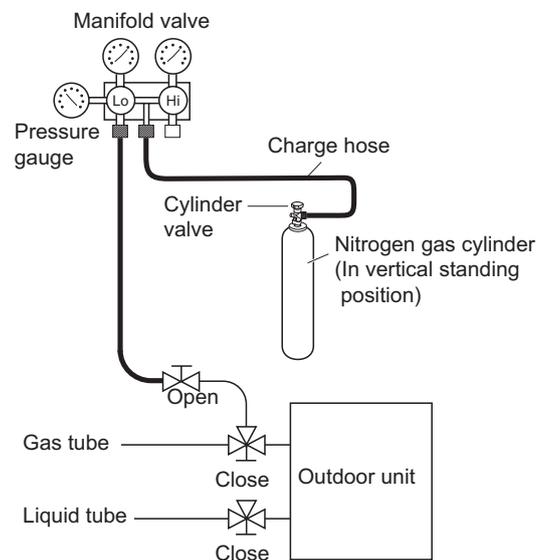


Fig. 1- 64

### 1. Leak Test

- (1) With the service valves on the outdoor unit closed, remove the 7.94 mm flare nut and its bonnet on the gas tube service valve. (Save for reuse.)
- (2) Attach a manifold valve (with pressure gauges) and dry nitrogen gas cylinder to this service port with charge hoses.



CAUTION

**Use a manifold valve for air purging. If it is not available, use a stop valve for this purpose. The “Hi” knob of the manifold valve must always be kept closed.**

- (3) Pressurize the system up to 4.15 MPa {42 kgf/cm<sup>2</sup>G} with dry nitrogen gas and close the cylinder valve when the gauge reading reaches 4.15 MPa {42 kgf/cm<sup>2</sup>G}. Then, test for leaks with liquid soap.



CAUTION

**To avoid nitrogen entering the refrigerant system in a liquid state, the top of the cylinder must be higher than the bottom when you pressurize the system. Usually, the cylinder is used in a vertical standing position.**

- (4) Do a leak test of all joints of the tubing (both indoor and outdoor) and both gas and liquid service valves. Bubbles indicate a leak. Wipe off the soap with a clean cloth after a leak test.
- (5) After the system is found to be free of leaks, relieve the nitrogen pressure by loosening the charge hose connector at the nitrogen cylinder. When the system pressure is reduced to normal, disconnect the hose from the cylinder.

## 2. Evacuation

Be sure to use a vacuum pump that includes a function for prevention of back-flow, in order to prevent back-flow of pump oil into the unit tubing when the pump is stopped.

- Perform vacuuming of the indoor unit and tubing.
 

Connect the vacuum pump to the gas tube valve and apply vacuum at a pressure of  $-101\text{kPa}$   $\{-755\text{ mmHg}, 5\text{ Torr}\}$  or below.

Continue vacuum application for a minimum of 1 hour after the pressure reaches  $-101\text{kPa}$   $\{-755\text{ mmHg}, 5\text{ Torr}\}$ .
- (1) Attach the charge hose end described in the preceding steps to the vacuum pump to evacuate the tubing and indoor unit. Confirm that the “Lo” knob of the manifold valve is open. Then, run the vacuum pump.
- (2) When the desired vacuum is reached, close the “Lo” knob of the manifold valve and turn off the vacuum pump. Confirm that the gauge pressure is under  $-101\text{ kPa}$   $\{-755\text{ mmHg}, 5\text{ Torr}\}$  after 4 to 5 minutes of vacuum pump operation. (Fig. 1- 65)

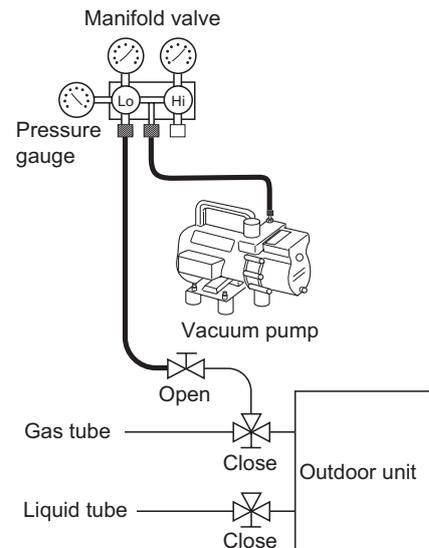


Fig. 1- 65



**CAUTION** Use a cylinder specifically designed for use with R410A.

## 3. Charging Additional Refrigerant

- Charging additional refrigerant (calculated from the liquid tube length as shown in “Amount of additional refrigerant charge”) using the liquid tube service valve. (Fig. 1- 66)
  - Use a balance to measure the refrigerant accurately.
  - If the additional refrigerant charge amount cannot be charged at once, charge the remaining refrigerant in liquid form by using the gas tube service valve with the system in Cooling mode at the time of test run. (Fig. 1- 67)
- \* If an additional refrigerant charge has been performed, list the refrigerant tubing length and amount of additional refrigerant charge on the product label (inside the panel).

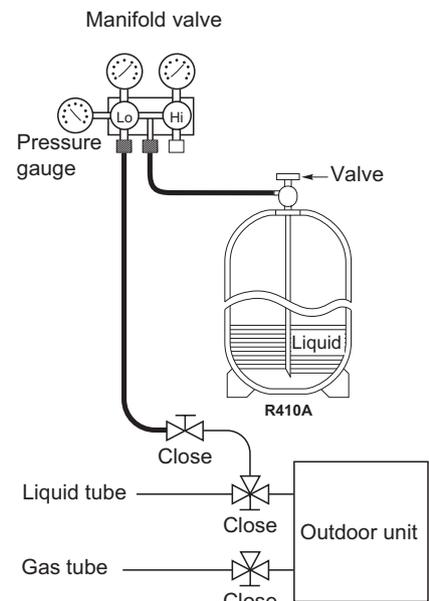


Fig. 1- 66

## 4. Finishing the Job

- (1) With a hex wrench, turn the liquid tube service valve stem counterclockwise to fully open the valve.
- (2) Turn the gas tube service valve stem counterclockwise to fully open the valve.



**CAUTION** To avoid gas from leaking when removing the charge hose, make sure the stem of the gas tube is turned all the way out (“BACK SEAT”) position.

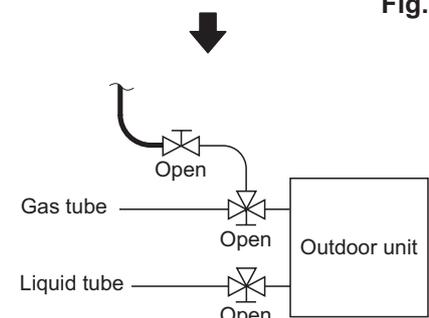


Fig. 1- 67

- (3) Loosen the charge hose connected to the gas tube service port (7.94 mm) slightly to release the pressure, and then remove the hose.
- (4) Replace the 7.94 mm flare nut and its bonnet on the gas tube service port and fasten the flare nut securely with an adjustable wrench or box wrench.
 

This process is very important to prevent gas from leaking from the system.
- (5) Replace the valve caps at both gas and liquid service valves and fasten them securely.

## 1-13. How to select AHU system

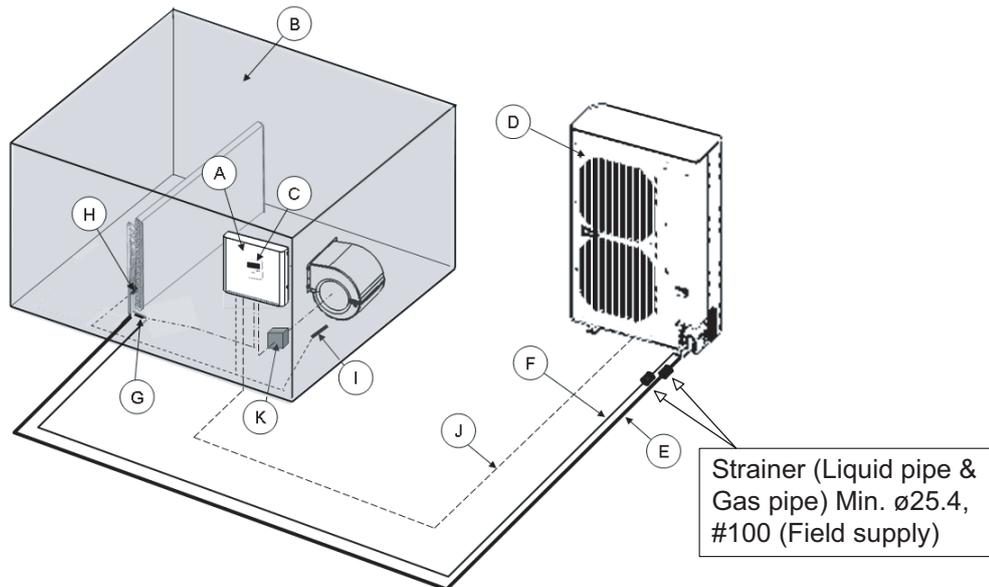
### AHU system selection guideline

#### ● System lineup

Capacity	Outdoor combination	Connectable AHU-kit combination
20 kW	U-200PE1E8	CZ-280PAH1
25 kW	U-250PE1E8	CZ-280PAH1

- \* Single connection type only
- \* Mix connection with standard indoor units is not allowed.
- \* The system is applicable to the above models.

#### ● System Overview



A: AHU kit controller box (with control PCB)  
 B: AHU equipment (Field supplied)  
 C: AHU kit controller (Option parts)  
 D: Outdoor unit  
 E: Gas piping (Field supplied)  
 F: Liquid piping (Field supplied)

G: Thermistor for Liquid pipe (E1)  
 H: Thermistor for Heat exchanger pipe middle (E2)  
 I: Thermistor for Suction air (TA)  
 J: Inter-unit wiring  
 K: Magnetic relay for operating the blower (Field supplied)

#### ● Piping design regulation

- Connecting pipe dimension to heat exchanger of AHU

Capacity	Model name	Liquid pipe	Gas pipe
20kW	CZ-280PAH1	ø9.52mm	ø25.4mm
25kW	CZ-280PAH1	ø12.7mm	ø25.4mm

- System piping length (Charging with refrigerant)

At the time of shipment from the factory, the outdoor unit is charged with enough refrigerant for an equivalent pipe length of 30m.

If the equivalent piping length used is 30m or less, no additional charge will be necessary.

If the equivalent piping length is between 30 and 70m, charge with additional refrigerant according to the equivalent length given in the following table.

Capacity	Additional charge amount	Equivalent length	Minimum length
20kW	40g/m	70m	5m
25kW	80g/m	70m	5m

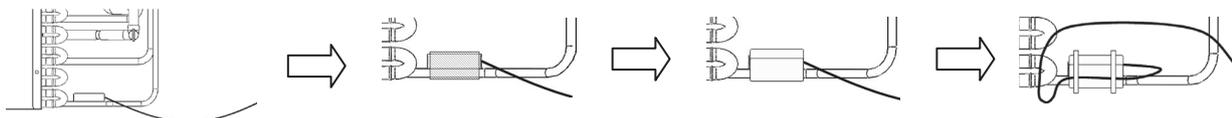
● Installation

▪ Installation of Strainer (Field supplied)

Attach the strainer to the side of the outdoor unit for Gas & Liquid piping.  
(See the "System Overview" on previous page.)

▪ Thermistor for Liquid pipe and Heat exchanger pipe middle

Liquid pipe thermistor



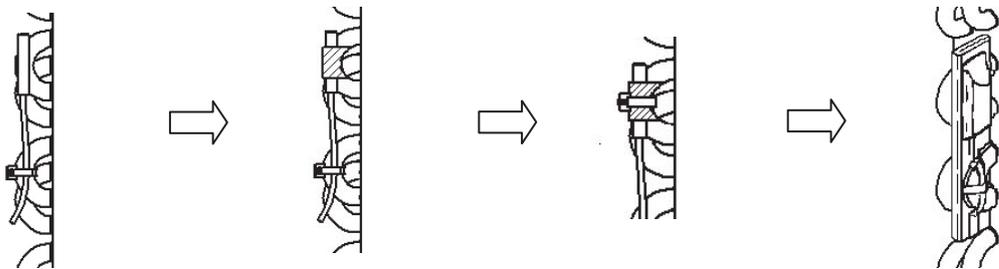
Attach the liquid pipe thermistor to the liquid pipe located in the lowest position after distributor in heat exchanger.

Cover the thermistor and pipe with aluminum tape.

Cover the aluminum tape with thermal insulation.

Thermal insulation and wiring are fixed in two bands.

Heat exchanger pipe thermistor



Attach the heat exchanger pipe thermistor in the middle of each pass-line (pipe) in the heat exchanger.

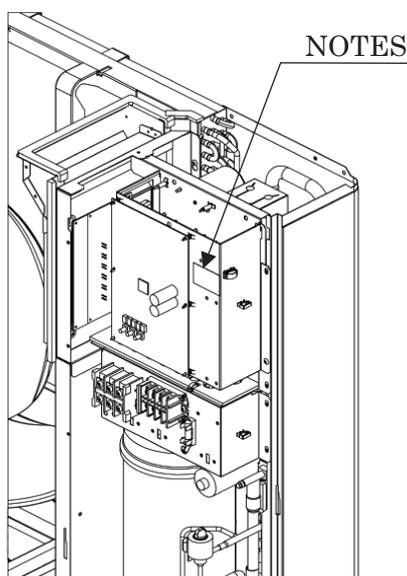
Cover the thermistor and pipe with aluminum tape.

The thermistor is fixed in band. Then, it must not make tension to the wire.

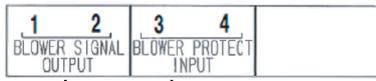
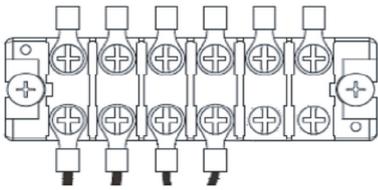
Cover the aluminum tape with thermal insulation. And also cover sensor (copper portion) with thermal insulation completely.

▪ Attachment of NOTES Label (Supplied parts)

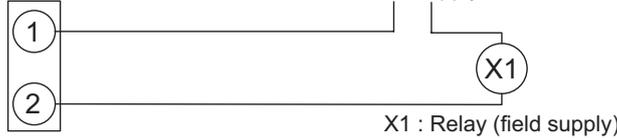
Please be sure to apply the NOTES label at the designated area of the outdoor unit when cutting a jumper wire on the circuit board.



• Blower operation signal and protection signal



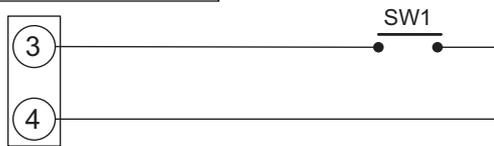
Blower signal output



Minimum applicable load  
DC 5 V, 1 mA

Maximum applicable load  
AC 230 V, 2 A

Blower protect input



SW 1 : operation command (field supply)  
AC 220 ~240 V, 0.1 A

● Limitation of AHU

When the AHU is selected, there are some limitations.

- The limitation of temperature range is shown below.

		Cooling	Heating
Outdoor temperature	Min.	-10 °C (DB)	-20 °C (WB)
	Max.	43 °C (DB)	15 °C (WB)
Inlet air temperature (to the heat exchanger)	Min.	18 °C (DB)	16 °C (DB)
	Max.	32 °C (DB) / 23 °C (WB)	30 °C (DB)

- The limitation of Heat exchanger volume, Air volume and Front area is shown in the following Table 1-10, 1-11 & 1-12.

**Table 1-10 : Inside volume of heat exchanger**

Cooling Capacity		20 kW	25 kW
Heat exchanger volume	Max.	4.3 dm <sup>3</sup>	4.3 dm <sup>3</sup>
	Min.	2.3 dm <sup>3</sup>	2.7 dm <sup>3</sup>

**Table 1-11 : Air volume of heat exchanger**

Cooling Capacity		20 kW	25 kW
Air volume	Max.	3960 m <sup>3</sup> /h	4440 m <sup>3</sup> /h
	Min.	1680 m <sup>3</sup> /h	2280 m <sup>3</sup> /h

**Table 1-12 : Front area of heat exchanger**

Cooling Capacity		20 kW	25 kW
Front area	Max.	1.0 m <sup>2</sup>	1.0 m <sup>2</sup>
	Min.	0.54 m <sup>2</sup>	0.66 m <sup>2</sup>

● Restriction on the number of passes of the heat exchanger hairpin

Minimum number of passes

$$= \text{Number of steps} \times \text{Distance between tube sheets} \times \text{Number of rows} \times 1.5 \times 10^{-4}$$

<For example>

Number of steps : 12

Distance between tube sheets : 1000 [mm]

Number of rows : 3

$$\therefore \text{Minimum number of passes} = 12 \times 1000 \times 3 \times 1.5 \times 10^{-4} = 5.4 < 6 \text{ passes}$$

– MEMO –

## 2. TEST RUN

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## 2-1. Preparing for Test Run

• Before attempting to start the air conditioner, check the following:

- (1) All loose matter is removed from the cabinet especially steel filings, bits of wire, and clips.
- (2) The control wiring is correctly connected and all electrical connections are tight.
- (3) The protective spacers for the compressor used for transportation have been removed. If not, remove them now.
- (4) The transportation pads for the indoor fan have been removed. If not, remove them now.
- (5) The power has been supplied to the unit for at least 5 hours before starting the compressor. The bottom of the compressor should be warm to the touch and the crankcase heater around the feet of the compressor should be hot to the touch. (Fig. 2-1)
- (6) Both the gas and liquid tube service valves are open. If not, open them now. (Fig. 2-2)
- (7) Request that the customer be present for the test run. Explain the contents of the instruction manual, and then have the customer actually operate the system.
- (8) Be sure to give the instruction manual and warranty certificate to the customer.
- (9) When replacing the control PCB, be sure to make all the same settings on the new PCB as were in use before replacement. The existing EEPROM is not changed, and is connected to the new control PCB.

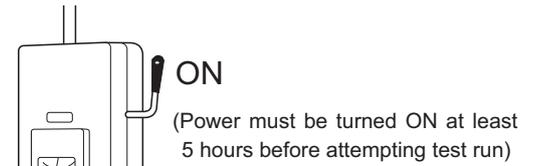


Fig. 2-1

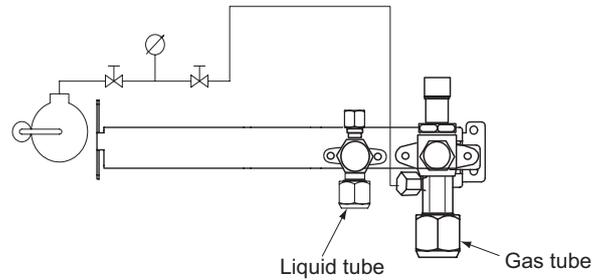


Fig. 2-2

### ■ Indoor Units (Type E2, E1)

## 2-2. Caution

- This unit may be used in a single-type refrigerant system where 1 outdoor unit is connected to 1 indoor unit.
- The indoor and outdoor unit control PCB utilizes a semiconductor memory element (EEPROM). The settings required for operation were made at the time of shipment. Only the correct combinations of indoor and outdoor units can be used.
- This test run section describes primarily the procedure when using the wired remote controller.

## 2-3. Test Run Procedure

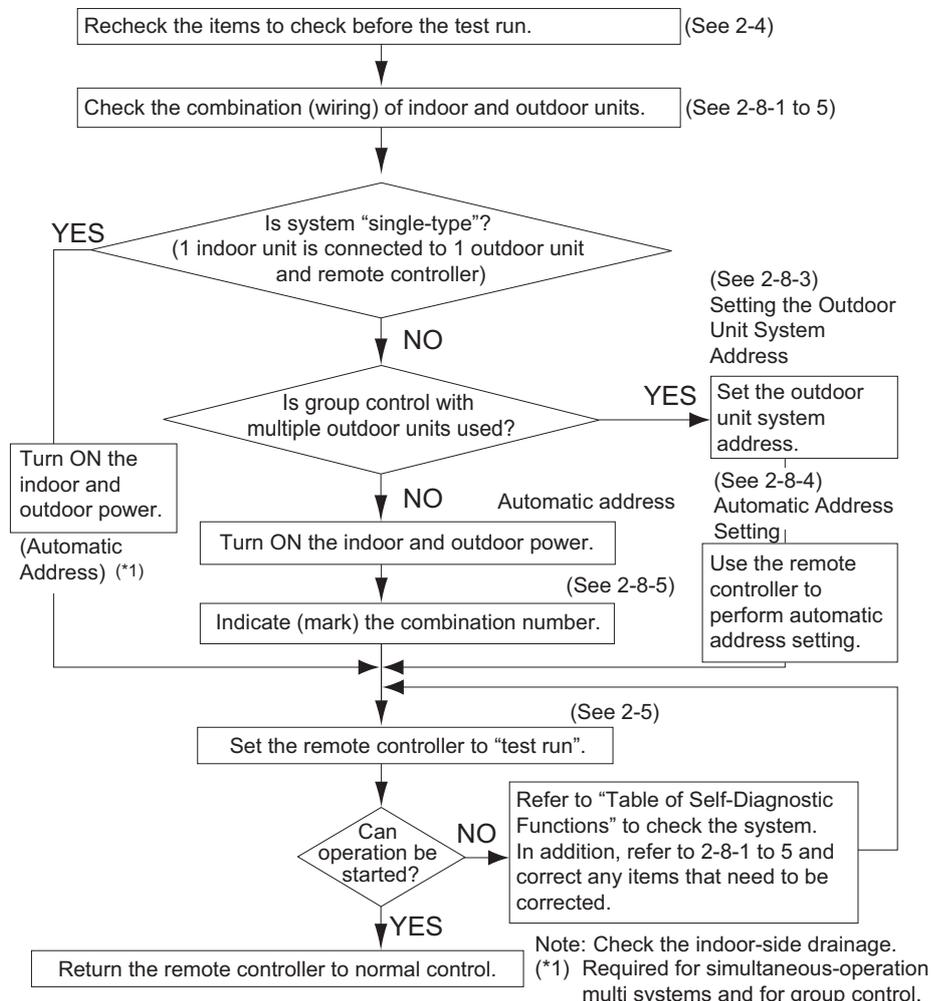


Fig. 2-3

## 2-4. Items to Check Before the Test Run

- (1) Turn the remote power switch ON at least 12 hours in advance in order to energize the crankcase heater.
- (2) Fully open the closed valves on the liquid-tube and gas-tube sides.

## 2-5. Test Run Using the Remote Controller

- (1) Press and hold the remote controller  button for 4 seconds or longer. Then press the  button.
  - “TEST” appears in the LCD display during the test run.
  - Temperature control is not possible when test run mode is engaged. (This mode places a large load on the devices. Use it only when performing the test run.)
- (2) Use either Heating or Cooling mode to perform the test run.

**NOTE** The outdoor unit will not operate for approximately 3 minutes after the power is turned ON or after it stops operating.

- (3) If normal operation is not possible, a code appears on the remote controller LCD display. Refer to “2-7. Table of Self-Diagnostic Functions and Corrections”, and correct the problem.
- (4) After the test run is completed, press the  button again. Check that “TEST” disappears from the LCD display. (This remote controller includes a function that cancels test run mode after a 60-minute timer has elapsed, in order to prevent continuous test run operation.)
- (5) For the test run of an inverter outdoor unit, operate the compressors for a minimum of 10 minutes (in order to check for open phase).
  - \* When performing a test run using a wired remote controller, operation is possible without attaching the cassette-type ceiling panel. (“P09” will not be displayed.)

## 2-6. Precautions

- Request that the customer be present when the test run is performed. At this time, explain the operation manual and have the customer perform the actual steps.
  - Be sure to pass the manuals and warranty certificate to the customer.
  - Check that the 220 – 240 V AC power is not connected to the inter-unit control wiring connector terminal.
- \* If 220 – 240 V AC is accidentally applied, the indoor or outdoor unit control PCB fuse will blow in order to protect the PCB. Correct the wiring connections, then disconnect the 2P connectors that are connected to the PCB, and replace them with 2P connectors. If operation is still not possible after changing the brown connectors, try cutting the varistor. (Be sure to turn the power OFF before performing this work.)

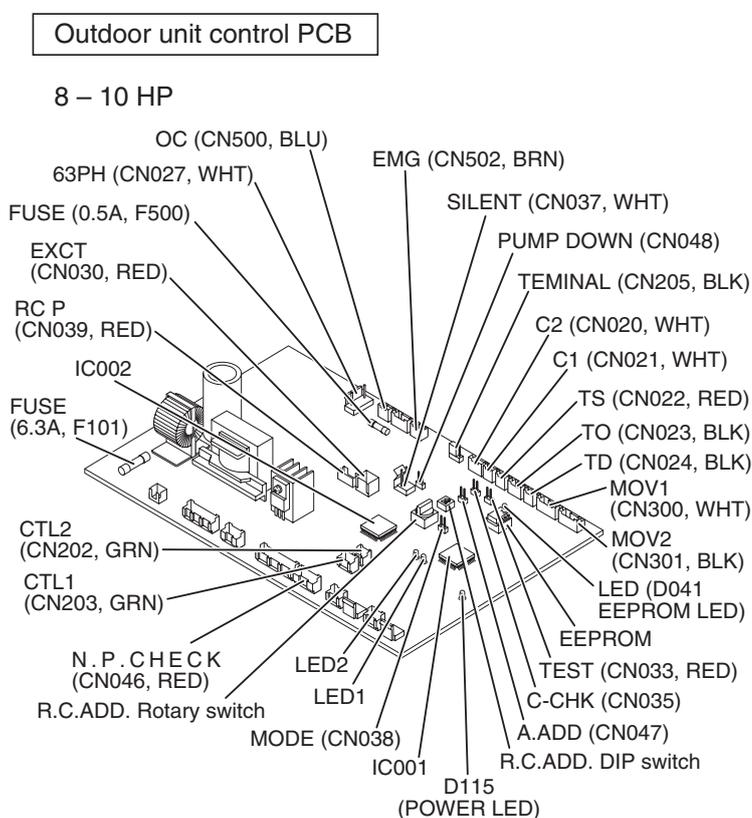


Fig. 2-4

2-7. Table of Self-Diagnostic Functions and Corrections

Wired remote controller display	Indoor unit receiver lamp	Cause				Correction
		1:1 connection (single type)	Group connection	Simultaneous-operation multi system (flexible combination)	Control by main-sub remote controllers	
Nothing is displayed	Nothing is displayed	<ul style="list-style-type: none"> <li>Remote controller is not connected correctly.</li> <li>Indoor unit power is not ON.</li> </ul>	<ul style="list-style-type: none"> <li>Remote controller is not connected with indoor unit correctly.</li> <li>Indoor unit power is not ON.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Connect the remote controller correctly. Turn ON the indoor unit power.
E01 displayed		<ul style="list-style-type: none"> <li>Automatic address setting has not been completed.</li> <li>Inter-unit control wiring is cut or is not connected correctly.</li> <li>Remote controller is not connected correctly (remote controller receiving failure).</li> </ul>	<ul style="list-style-type: none"> <li>Automatic address setting has not been completed.</li> <li>Inter-unit control wiring is cut or is not connected correctly.</li> <li>Remote controller is not connected with indoor unit correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Check the remote controller and inter-unit control wiring. Perform automatic address setting (See 2-8-4).
E02 displayed	Operating lamp is blinking.	<ul style="list-style-type: none"> <li>Remote controller is not connected correctly (failure in transmission from remote controller to indoor unit).</li> </ul>	<ul style="list-style-type: none"> <li>Remote controller is not connected with indoor unit correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Connect the remote controller correctly.
E09 displayed				<ul style="list-style-type: none"> <li>2 remote controllers are set as the main remote controller.</li> </ul>	<ul style="list-style-type: none"> <li>2 remote controllers are set as the main remote controller.</li> </ul>	Refer to 2-8-5 Main-sub remote Control, and make the correct settings.
E14 displayed				<ul style="list-style-type: none"> <li>Remote controller communication wiring is cut or is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Remote controller communication wiring is cut or is not connected correctly.</li> </ul>	Check the remote controller communication wiring. Perform automatic address setting again.
E04 displayed		<ul style="list-style-type: none"> <li>Indoor-outdoor inter-unit wiring is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Connect the wiring correctly.
E06 displayed			<ul style="list-style-type: none"> <li>Indoor-outdoor inter-unit wiring is cut or is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Refer to 2-8 System Control, and make the correct settings.
E15 displayed	Standby lamp is blinking.	<ul style="list-style-type: none"> <li>Indoor unit capacity is too low.</li> </ul>	<ul style="list-style-type: none"> <li>Indoor-outdoor inter-unit wiring is cut or is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Check that the total capacities of the indoor and outdoor units are appropriate.
E16 displayed		<ul style="list-style-type: none"> <li>Indoor unit capacity is too high.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Check that the indoor and outdoor units are connected correctly.
E20 displayed		<ul style="list-style-type: none"> <li>No serial signal is being received at all from the indoor units.</li> </ul>	<ul style="list-style-type: none"> <li>Indoor-outdoor inter-unit wiring is cut or is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Check that the indoor unit power is ON, and that the inter-unit control wiring is connected correctly.
P05 displayed	Operation lamp and Standby lamp are blinking alternately.	<ul style="list-style-type: none"> <li>Reversed phase in the outdoor unit single-phase or open phase in the outdoor unit 3-phase power.</li> <li>Insufficient gas</li> </ul>	<ul style="list-style-type: none"> <li>Reversed phase in the outdoor unit single-phase or open phase in the 3-phase power at one of the outdoor units in the group.</li> </ul>	<ul style="list-style-type: none"> <li>Reversed phase in the outdoor unit single-phase or open phase in the outdoor unit 3-phase power.</li> <li>CT sensor is disconnected or there is a problem with the circuit.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Reverse 2 phases of the outdoor unit 3-phase power and connect them correctly. Check that the CT sensor is not disconnected, and make sure it is inserted. Fill up the gas appropriately.
L02 displayed	Both the Operation lamp and Standby lamp are blinking together.	<ul style="list-style-type: none"> <li>Indoor-outdoor unit type mismatch.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Check that the indoor and outdoor unit types are correct.
L07 displayed				<ul style="list-style-type: none"> <li>Remote controller communication wiring is connected to the indoor unit, however it is set for individual operation.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Perform automatic address setting (See 2-8).
P09 displayed	Timer lamp and Standby lamp are blinking alternately.	<ul style="list-style-type: none"> <li>The indoor unit ceiling panel connector is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Ceiling panel connector at one of the indoor units in the group is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Indoor unit ceiling panel connector is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Connect the indoor unit ceiling panel connector correctly.
P12 displayed		<ul style="list-style-type: none"> <li>Indoor unit DC fan trouble.</li> </ul>	<ul style="list-style-type: none"> <li>DC fan trouble at one of the indoor units in the group.</li> </ul>	<ul style="list-style-type: none"> <li>Indoor unit fan trouble.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Check whether the fan holder is loose. Check the wiring between the DC fan and the PCB.
P15 displayed	Operation lamp and Standby lamp are blinking alternately.	<ul style="list-style-type: none"> <li>No gas</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	Check the refrigerant cycle (for gas leaks).

## 2-8. System Control

System control refers to the link wiring connection for control of simultaneous-operation multi systems, group control, and main-sub remote controller control.

### 2-8-1. Basic wiring diagram

Single type

- Be careful to avoid miswiring when connecting the wires. (Miswiring will damage the units.)

(for 3-phase Outdoor unit)

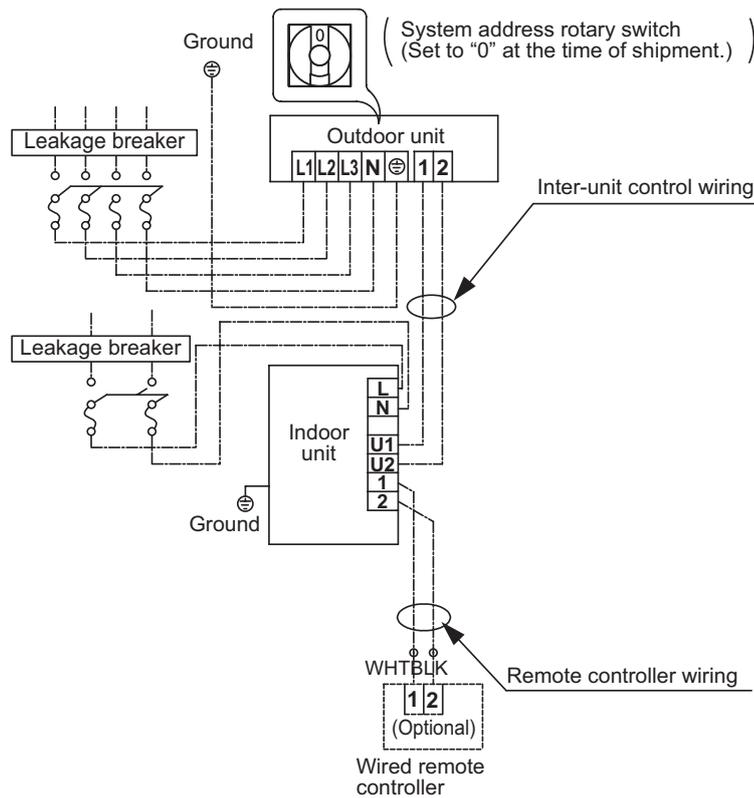


Fig. 2-5

#### (Wiring procedure)

- (1) Connect the remote controller to the indoor unit remote controller wiring terminal plate (1, 2). (Remote controller wiring)
- (2) Connect the indoor units (U1, U2) and the outdoor units (1, 2). Connect the other outdoor units and indoor units (with different refrigerant systems) in the same way. (Inter-unit control wiring)  
Connect the remote controller communication wiring to the indoor units (U1, U2) for each refrigerant system. (Inter-unit control wiring)
- (3) Connect the remote controller communication wiring (2 wires) from the remote controller wiring terminal plate (1, 2) on the indoor unit (unit where the remote controller is connected) to the remote controller terminal plates (1, 2) on the other indoor units. (Remote controller communication wiring)
- (4) Turn ON both the indoor and outdoor unit power and perform automatic address setting from the remote controller. (For the automatic address setting procedure, refer to 2-8-4.)

#### NOTE

- \* Models with auxiliary heaters cannot be used for communication wiring of the indoor unit power wires. (Use a pull box to divide the wiring.)  
Be sure to use the indoor unit temperature sensor (body sensor) when using this control. (Status at shipment.)

### 2-8-2. Setting the Outdoor unit system addresses

For basic wiring diagram (Set the system address: 1)

Outdoor unit control PCB 8 – 10 HP

System address rotary switch  
(Set to "0" at time of shipment)

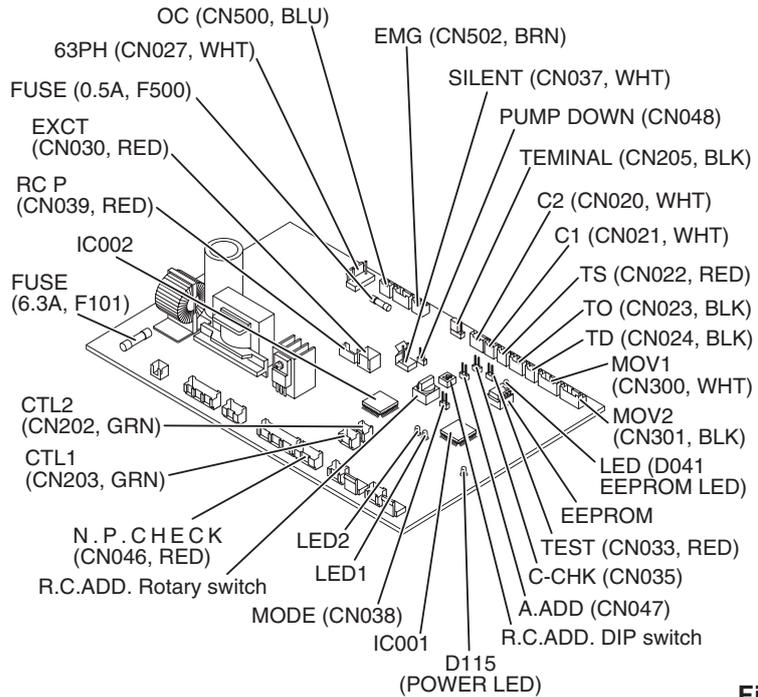
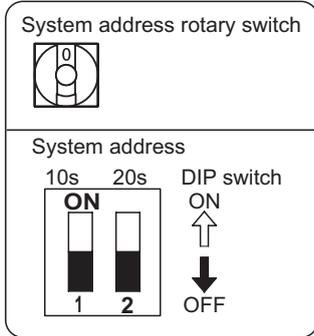


Fig. 2-6

System address No.	System address 10s digit (2P DIP switch)	System address 1s place (Rotary switch)
0 Automatic address (Setting at shipment = "0")	Both OFF 	"0" setting 
1 (If outdoor unit is No. 1)	Both OFF 	"1" setting 

### 2-8-3. Automatic address setting using the remote controller

When the outdoor unit shown in "2-8-1. Basic wiring diagram" is used for group control of multiple units, use the remote controller to perform automatic address setting.

(During automatic address setting, "SETTING" blinks on the remote controller display.)

- Press the remote controller timer time button and button simultaneously. (Hold for 4 seconds or longer.) Then press the button. (Item code "AA" appears: All systems automatic address setting.) (Automatic address setting is performed in sequence for all outdoor units from No. 1 to No. 30. When automatic address setting is completed, the units return to normal stopped status.)
- To select each refrigerant system individually and perform automatic address setting, press the remote controller timer time button and button simultaneously. (Hold for 4 seconds or longer.) Then press either of the temperature setting / buttons. (Item code "A1" appears: Individual system automatic address setting) Use either the or button to select the outdoor unit to perform automatic address setting for. (R.C.1 is displayed.) Then press the button. (Automatic address setting is performed for refrigerant system 1.) When automatic address setting for system 1 is completed, the system returns to normal stopped status. Again press the remote controller timer time button and the button simultaneously. Then in the same way as above (use the button to display "R.C.2"), select the next system and perform automatic address setting.

**2-8-4. Indicating (marking) the Indoor and Outdoor unit combination number**

Indicate (mark) the number after automatic address setting is completed.

- (1) So that the combination of each indoor unit can be easily checked when multiple units are installed, ensure that the indoor and outdoor unit numbers correspond to the system address number on the outdoor unit control PCB, and use a magic marker or similar means which cannot be easily erased to indicate the numbers in an easily visible location on the indoor units (near the indoor unit nameplates).

Example: (Outdoor) 1 - (Indoor) 1  
(Outdoor) 2 - (Indoor) 1

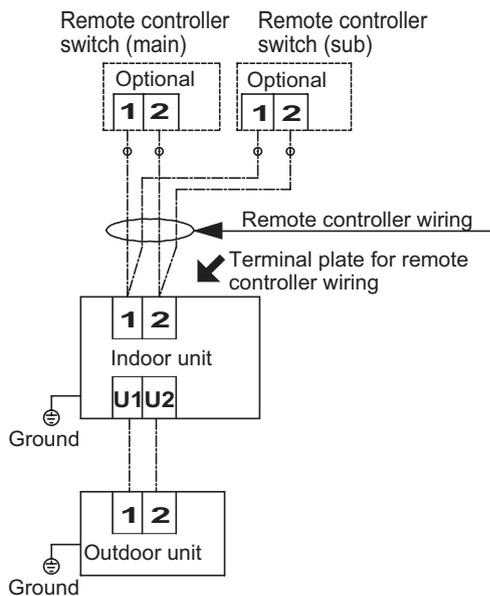
- (2) These numbers will be needed for maintenance. Be sure to indicate them.

- \* Use the remote controller to check the addresses of the indoor units. Press and hold the button and button for 4 seconds or longer (simple settings mode). Then press the button and select the indoor address. (Each time the button is pressed, the address changes as follows: 1-1, 1-2, ... 2-1, 2-2, ...) The indoor unit fan operates only at the selected indoor unit. Confirm that correct fan is operating, and indicate the address on the indoor unit. Press the button again to return to the normal remote controller mode. For details, refer to the separate manual.

**2-8-5. Main-sub remote controller control**

Control using 2 remote controller switches Main-sub remote controller control refers to the use of 2 remote controllers to control 1 or multiple indoor units. (A maximum of 2 remote controllers can be connected.)

**● Connecting 2 remote controllers to control 1 Indoor unit**



**● Remote controller setting mode**

To set the remote controller main/sub setting or change the sensor, follow the steps below.

- (1) Press both and buttons on the remote controller for more than 4 seconds together.
- (2) Select CODE No. with / () buttons.
- (3) Change DATA with / (TIMER) buttons.
- (4) Press . Finally, press .

DATA is memorized in the RCU. (DATA setting will not be changed even when the power is turned off.) Make sure to set [Normal] for RCU. CK.

CODE ITEM	ITEM	DATA	
		00 00	00 0 1
01	RCU. Main/Sub	Sub	Main
02	Clock display	24 hours	12 hours (AM/PM)
08	RCU. CK	RCU. CK	Normal
0A	Room temperature sensor	Main unit	RCU

## 2-9. Test Run Procedure

2

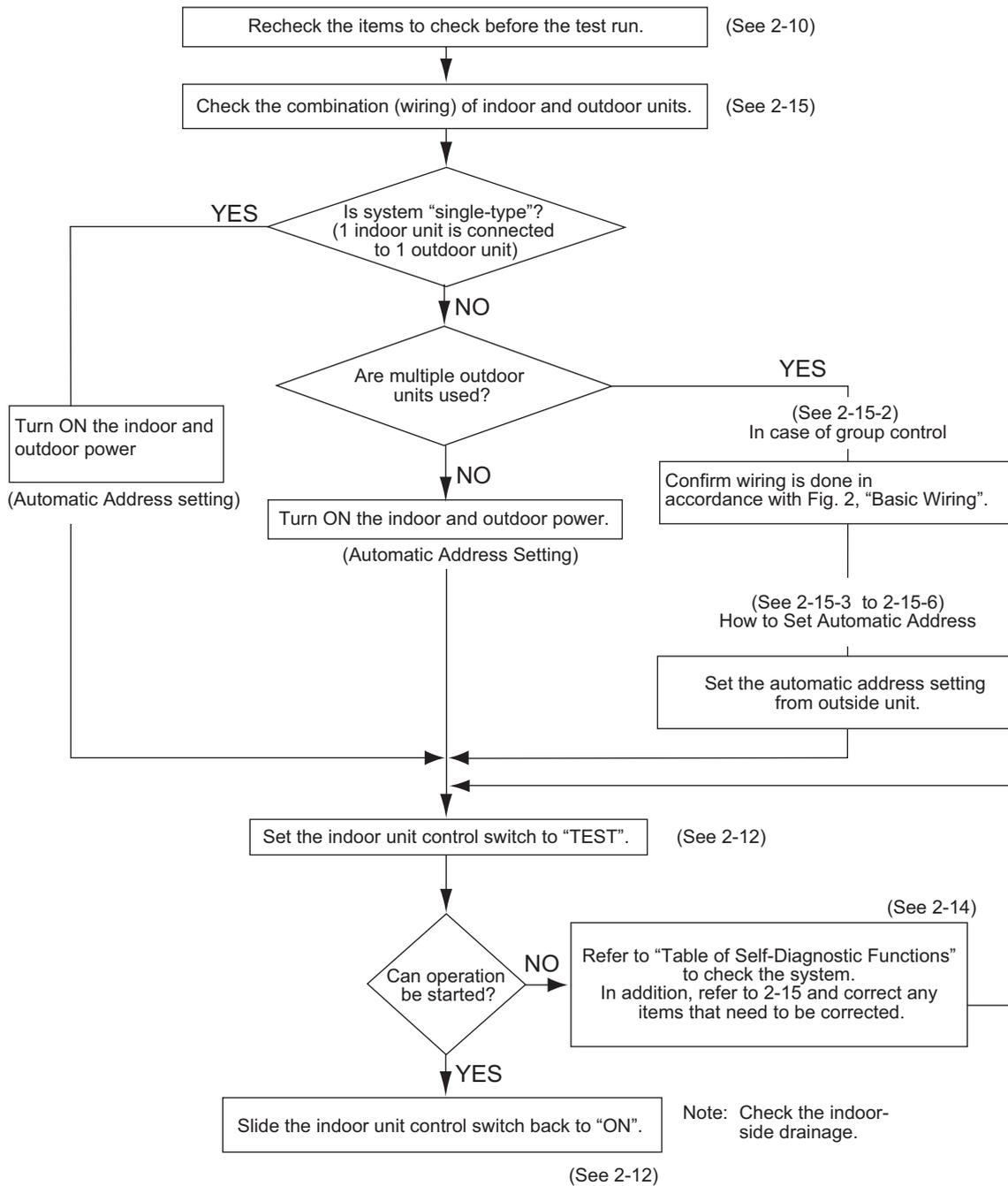


Fig. 2-7

## 2-10. Items to Check Before the Test Run

- (1) Turn the remote power switch ON at least 12 hours in advance in order to energize the crankcase heater.
- (2) Fully open the closed valves on the liquid-tube and gas-tube sides.

## 2-11. Preparation for Test Run

### 2-11-1. Switching the temperature sensor

- Temperature sensors are contained in the indoor unit and wireless remote controller. One or the other of the temperature sensors is used for operation.
- If  (body sensor) appears on the LCD display of the wireless remote controller, then the indoor unit body sensor is used for operation.  
To switch to the remote controller sensor, open the remote controller cover and press the SENSOR button once. The  (body sensor) display disappears and the remote control sensor is used for operation.

#### NOTE

- Even if the remote controller sensor is selected, the sensor will be automatically switched to the indoor unit body sensor if no temperature signal has been received from the remote controller for 10 minutes. Install the remote controller in a position where the signal can be reliably received by the unit.
- When group control is engaged, be sure to use the body sensor.

### 2-11-2. Using the remote controller

- Face the remote controller toward the receiver (on the main unit). (Fig. 2-8)
- The signal can be received up to a distance of approximately 8 m.  
Use this distance as a guide.  
This distance may vary somewhat depending on the battery capacity and other factors.
- Be sure that there are no objects between the remote controller and the receiver which may block the signal.
- The unit beeps when a signal is received correctly. (For operation start only, the unit beeps twice.)
- Do not drop, throw, or wash the remote controller.
- Do not place the remote controller in locations exposed to direct sunlight or nearby a stove.

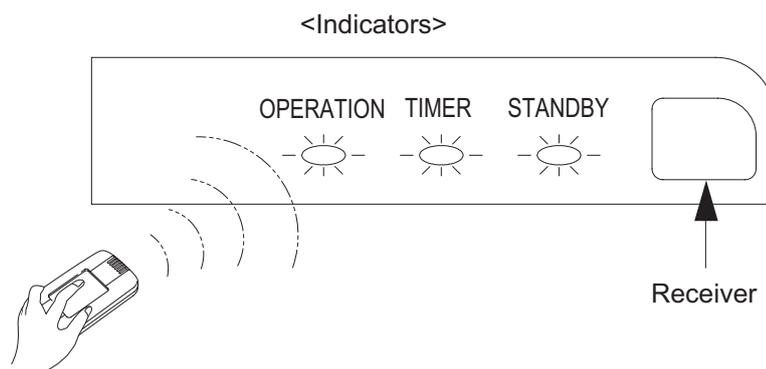
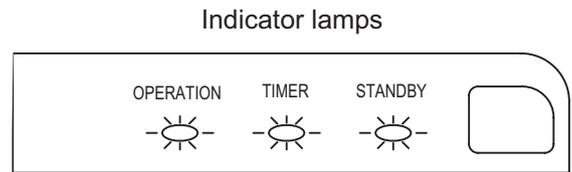
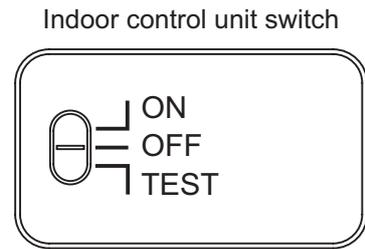


Fig. 2-8

## 2-12. Test Run

### Using the control unit

- (1) Change the indoor control unit switch from "ON" → "TEST".  
(The outdoor unit will not operate for 3 minutes after the power is turned ON and after operation is stopped.)
- (2) All the indicator lamps blink while the test run is in progress.
- (3) Temperature control is not possible during the test run.
- (4) If correct operation is not possible, the trouble will be indicated by the indicator lamps. Refer to "Table of Self Diagnostic Functions and Corrections" and correct the problem.
- (5) After the test is completed, change the control unit switch from "TEST" → "ON". Confirm that the indicator lamps have stopped blinking. (A function is included which cancels the test run after a 60-minute timer has elapsed, in order to prevent continuous test run operation.)



#### NOTE

- This mode places a large load on the devices. Use it only for performing test runs.
- A test run is not possible if the power is turned ON with the switch in the TEST position. After the power has been turned ON, change the switch once to ON or OFF, then switch it back to the TEST position.

## 2-13. Precautions

- Request that the customer be present when the test run is performed. At this time, explain the operation manual and have the customer perform the actual steps. Be sure to pass the manuals and warranty certificate to the customer.

- Check that the 220 – 240 V AC wiring is not connected to the inter-unit control wiring connector terminal.

\* If 220 – 240 V AC is accidentally applied, the indoor or outdoor unit control PCB fuse (0.5 A for both indoor and outdoor units) will blow in order to protect the PCB. Correct the wiring connections, then disconnect the 2P connectors (indoor: blue) (outdoor: blue, serial 1) that are connected to the PCB, and replace them with 2P connectors (indoor: brown) (outdoor: brown, serial 2). If operation is still not possible after changing the brown connectors, try cutting the varistor (black) (both indoor and outdoor). (Be sure to turn the power OFF before performing this work.) (Fig. 2-9)

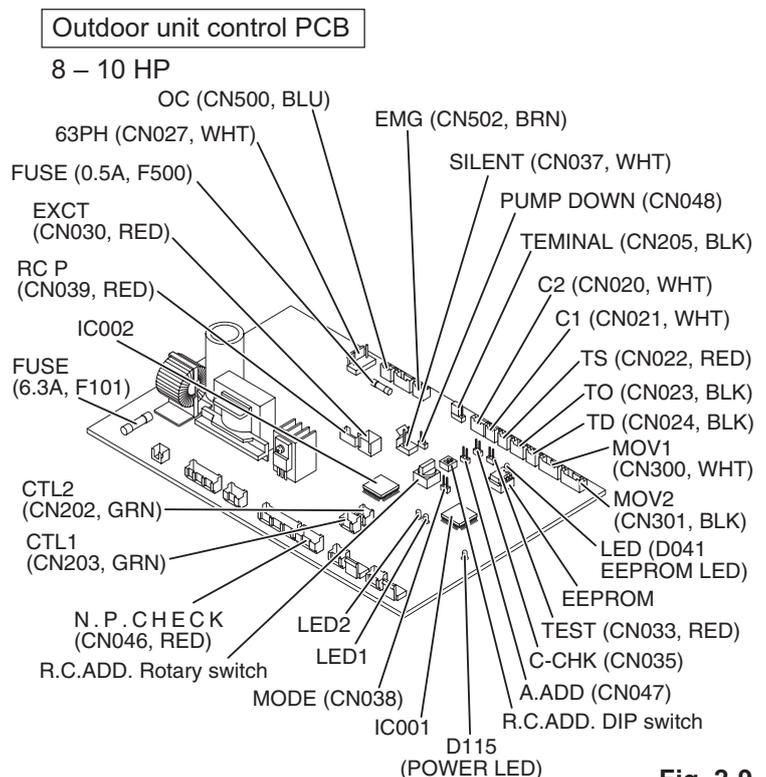


Fig. 2-9

## 2-14. Table of Self-Diagnostic Functions and Corrections

Wired remote controller display (Field supply)	Indoor unit receiver lamp	Cause		Correction
		1:1 connection (Single type)	Group connection (Simultaneous multi system)	
Nothing is displayed	Nothing is displayed	<ul style="list-style-type: none"> <li>Indoor operation switch is OFF.</li> <li>Indoor unit power is not ON.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left.</li> </ul>	<ul style="list-style-type: none"> <li>Set the indoor operation switch ON.</li> <li>Turn ON the indoor unit power.</li> </ul>
E01 displayed	Operating lamp is blinking.	<ul style="list-style-type: none"> <li>Automatic address setting has not been completed.</li> <li>Inter-unit control wiring is cut or is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left.</li> </ul>	<ul style="list-style-type: none"> <li>Check the inter-unit control wiring.</li> <li>Perform automatic address setting (See 2-15).</li> </ul>
E14 displayed		<ul style="list-style-type: none"> <li>Remote controller communication wiring is cut or is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check the remote controller communication wiring.</li> <li>Perform automatic address setting again.</li> </ul>	
E04 displayed	Standby lamp is blinking.	<ul style="list-style-type: none"> <li>Indoor-outdoor inter-unit wiring is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left.</li> </ul>	<ul style="list-style-type: none"> <li>Connect the wiring correctly.</li> </ul>
E06 displayed		<ul style="list-style-type: none"> <li>Inter-unit control wiring is cut or is not connected correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to 2-15 System Control, and make the correct settings.</li> </ul>	
E15 displayed		<ul style="list-style-type: none"> <li>Indoor unit capacity is too low.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left.</li> </ul>	<ul style="list-style-type: none"> <li>Check that the total capacities of the indoor and outdoor units are appropriate.</li> </ul>
E16 displayed		<ul style="list-style-type: none"> <li>Indoor unit capacity is too high.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left.</li> </ul>	<ul style="list-style-type: none"> <li>Reverse 2 phases of the outdoor unit 3-phase power and connect them correctly.</li> </ul>
P05 displayed	Operation lamp and Standby lamp are blinking alternately.	<ul style="list-style-type: none"> <li>Reversed phase in the outdoor unit single-phase or open phase in the outdoor unit 3-phase power.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left.</li> </ul>	<ul style="list-style-type: none"> <li>Connect the units correctly.</li> </ul>
L02 displayed	Both the Operation lamp and Standby lamp are blinking together.	<ul style="list-style-type: none"> <li>Indoor-outdoor unit type mismatch.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left.</li> </ul>	<ul style="list-style-type: none"> <li>Connect the units correctly.</li> </ul>
L13 displayed		<ul style="list-style-type: none"> <li>Indoor-outdoor units are not setting correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Same at left.</li> </ul>	<ul style="list-style-type: none"> <li>Connect the units correctly.</li> </ul>
L04 displayed		<ul style="list-style-type: none"> <li>Outdoor unit address is duplicated.</li> </ul>	<ul style="list-style-type: none"> <li>Connect the units correctly.</li> </ul>	
L07 displayed		<ul style="list-style-type: none"> <li>Remote controller communication wiring is connected to the indoor unit, however, it is set for individual operation.</li> </ul>	<ul style="list-style-type: none"> <li>Perform automatic address setting (See 2-15).</li> </ul>	
P15 displayed	Operation lamp and Standby lamp are blinking alternately.	<ul style="list-style-type: none"> <li>No gas</li> </ul>	<ul style="list-style-type: none"> <li>Same at left</li> </ul>	<ul style="list-style-type: none"> <li>Check the refrigerant cycle (for gas leaks).</li> </ul>

## 2-15. System Control

System control refers to the link wiring connection for control of simultaneous-operation multi systems, group control, and main-sub remote controller control.

### 2-15-1. Basic wiring diagram 1

Single type

- Be careful to avoid miswiring when connecting the wires. (Miswiring will damage the units.)

(for 3-phase Outdoor unit)

Example: Using a wireless remote controller with a system

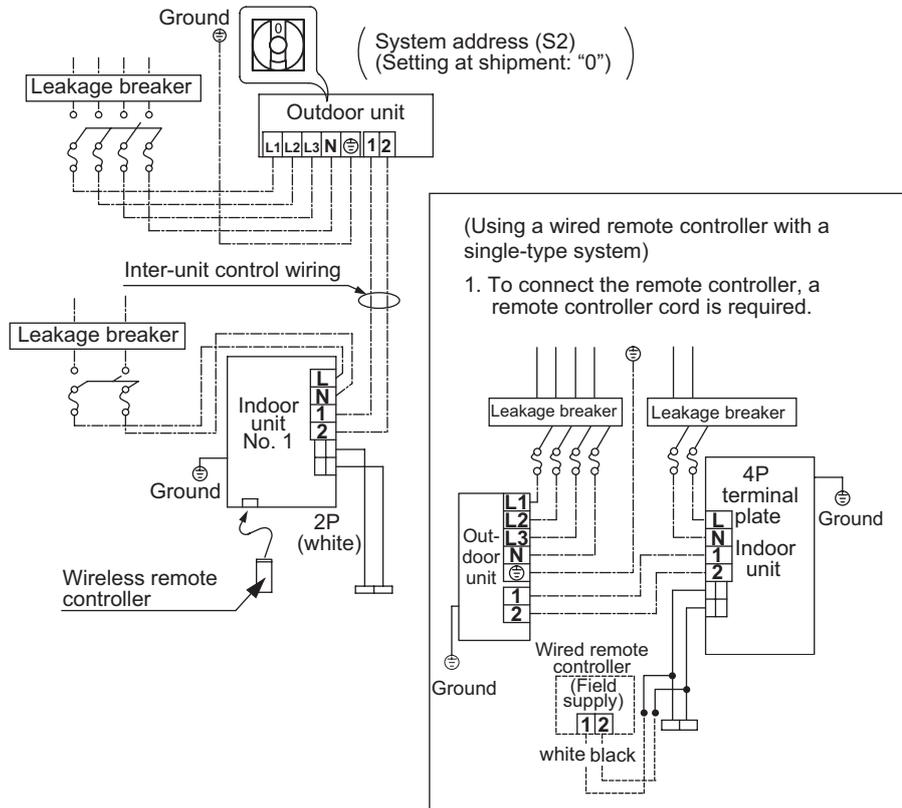


Fig. 2-10

#### (Wiring procedure)

- (1) Connect the communication wiring to 1 and 2 on the remote controller wiring terminal plate for units.
- (2) Connect the inter-unit control wiring to 1 and 2 on the No.1 indoor unit terminal plate, and to 1 and 2 on the outdoor unit terminal plate. Also connect the inter-unit control wiring between the indoor units.
- (3) When the indoor and outdoor unit power is turned ON, automatic address setting is performed (when there is only 1 outdoor unit or when the system address is "0").

#### NOTE

\* If the system address is "0", automatic address setting is performed when the power is turned ON (in the case shown in Basic wiring diagram 1).

This requires approximately 4 – 5 minutes (when the outdoor / indoor unit ratio is 1:1 as shown in Basic wiring diagram 1).

During automatic address setting, LED 1 and 2 on the outdoor unit control PCB blink alternately. These LED turn OFF when automatic address setting is completed.

## 2-15-2. Setting the Outdoor unit system address

For basic wiring diagram (Set the system address: 1)

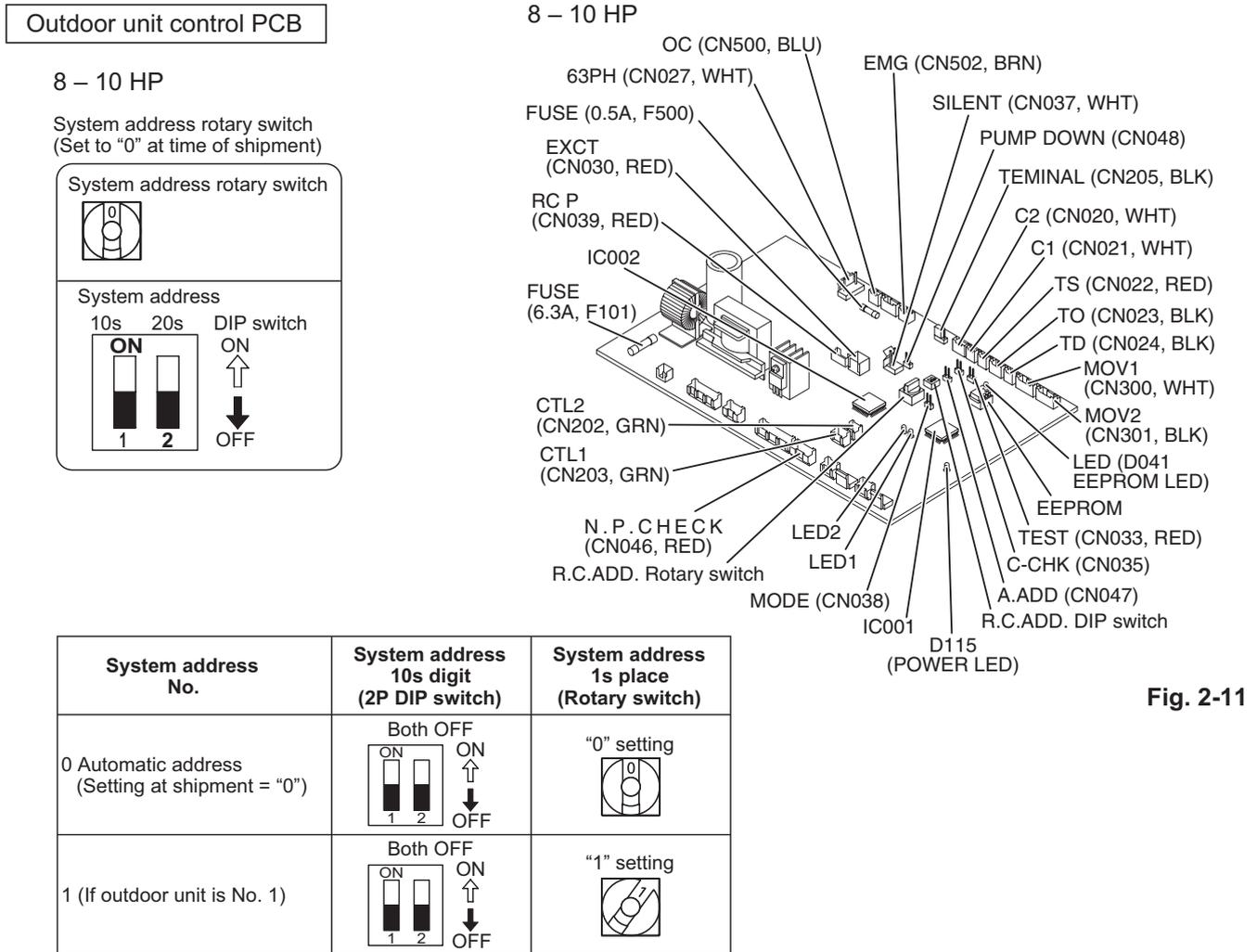


Fig. 2-11

## 2-15-3. Automatic address setting from the Outdoor unit

- If the power can be turned ON separately for the indoor and outdoor units in the system (indoor unit addresses can be set without operating the compressor):
  - (1) Turn ON the indoor and outdoor unit power for refrigerant system 1.  
Press and hold the automatic address setting button (black) for 1 second or longer at the outdoor unit where the power was turned ON.  

↓

 Communication for automatic address setting begins. LED 1 and 2 on the outdoor unit control PCB blink alternately, and turn OFF when address setting is completed.  

↓ <Approximately 4 – 5 minutes are required.>
  - (2) Next, turn ON the power only at the indoor and outdoor units in a different system.  
Press the automatic address setting button (black) on the outdoor unit.  

↓

 LED 1 and 2 on the outdoor unit control PCB blink alternately, and turn OFF when address setting is completed. Repeat the same procedure for each system and complete automatic address setting.  

↓
  - (3) Operation using the remote controller is now possible.

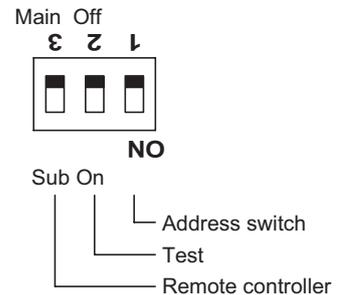
**2-15-4. Indoor unit remote controller main-sub setting**

- If a wired remote controller is used, set the wired remote controller to “Sub”. If 2 wireless remote controllers are used, set the wireless PCB (DIP switch) on the second remote controller to “Sub”.

**2-15-5. Indoor unit address setting**

- If multiple single-type units are installed in the same room, the addresses can be set to prevent signal interference. By coordinating the numbers of the indoor unit (wireless PCB) and remote controller addresses, up to 6 indoor units can be controlled independently by their respective remote controllers. Independent control is not possible when a simultaneous-operation multi system is used.
- Checking the addresses  
 Press the remote controller address button to display the current address on the remote controller display. If this address matches the indoor unit (wireless PCB) address, the buzzer will sound. (If ALL is set, the buzzer will always sound.)  
 If ALL is set, operation is possible regardless of the indoor unit address.  
 Point the remote controller toward the receiver (indoor unit) that you wish to operate, and send the operation signal.
- Remote controller address setting  
 Press and hold the address button for 4 seconds or longer to display the address on the remote controller display. The current address starts blinking. The address changes each time the remote controller address button is pressed : ALL → 1 → 2 → 3 → ... → 6.  
 Set the address to match the remote controller you wish to operate.  
 When the SET button is pressed, the address stops blinking and displays for 5 seconds. The buzzer sounds if the address matches the indoor unit.

Remote controller address display	Address ALL	Address 1	Address 2	Address 3
Indoor unit PCB address, DIP switch				



For address switches 1, 2, and 3, turn DIP switch 1 to OFF.  
 For address switches 4, 5, and 6, turn DIP switch 1 to ON.

**Fig. 2-12**

■ Indoor Units (Type E2, E1) (for Link Wiring)

2-16. Caution

This unit may be used in a single-type refrigerant system where 1 outdoor unit is connected to 1 indoor unit.

- This test run explanation describes primarily the procedure when using the wired remote controller.
- If link wiring is used, set the outdoor unit system address to allow the combination of indoor and outdoor units to be identified. At the same time, indicate the indoor-outdoor unit combination number in a location where it can be checked easily (near the indoor unit nameplates). (This number will be required for subsequent maintenance. Refer to 2-21-2, 3, 4.)
- Request that the customer be present when the test run is performed. At this time, explain the operation manual and have the customer perform the actual steps.
- Be sure to pass the manuals and warranty certificate to the customer.
- Check that the 220 – 240 V AC wiring is not connected to the inter-unit control wiring connector terminal. If 220 – 240 V AC is accidentally applied, the indoor or outdoor unit control PCB fuse will blow in order to protect the PCB. Correct the wiring connections, then disconnect the 2P connectors (indoor: blue, OC) (outdoor: blue, serial 1) that are connected to the PCB, and replace them with 2P connectors (indoor: brown, EMG) (outdoor: brown, serial 2). If operation is still not possible after changing the brown connectors, try cutting the varistor (black). (Be sure to turn the power OFF before performing this work.)

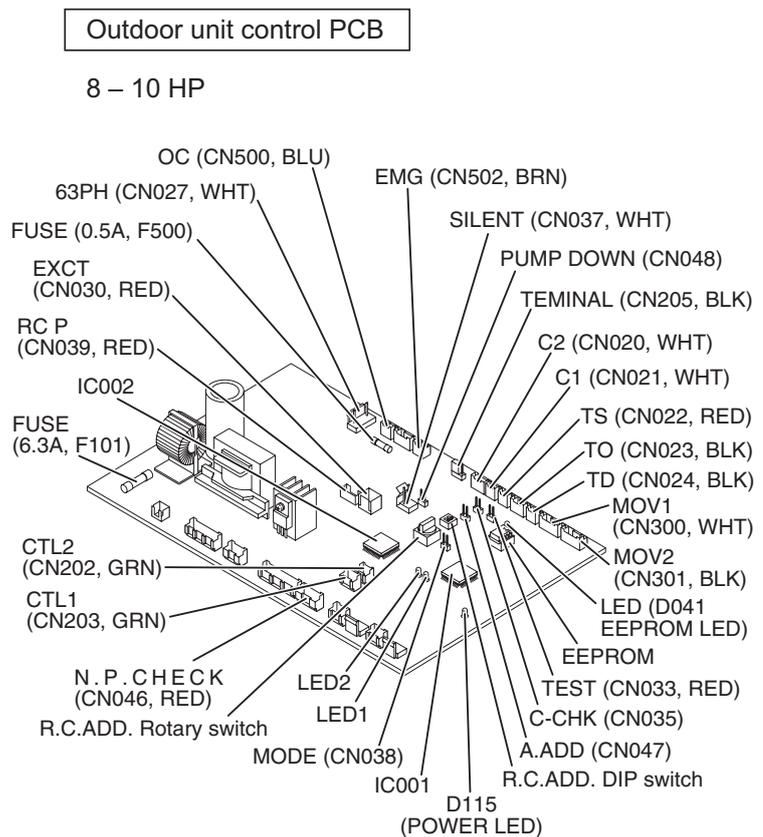


Fig. 2-13

## 2-17. Test Run Procedure

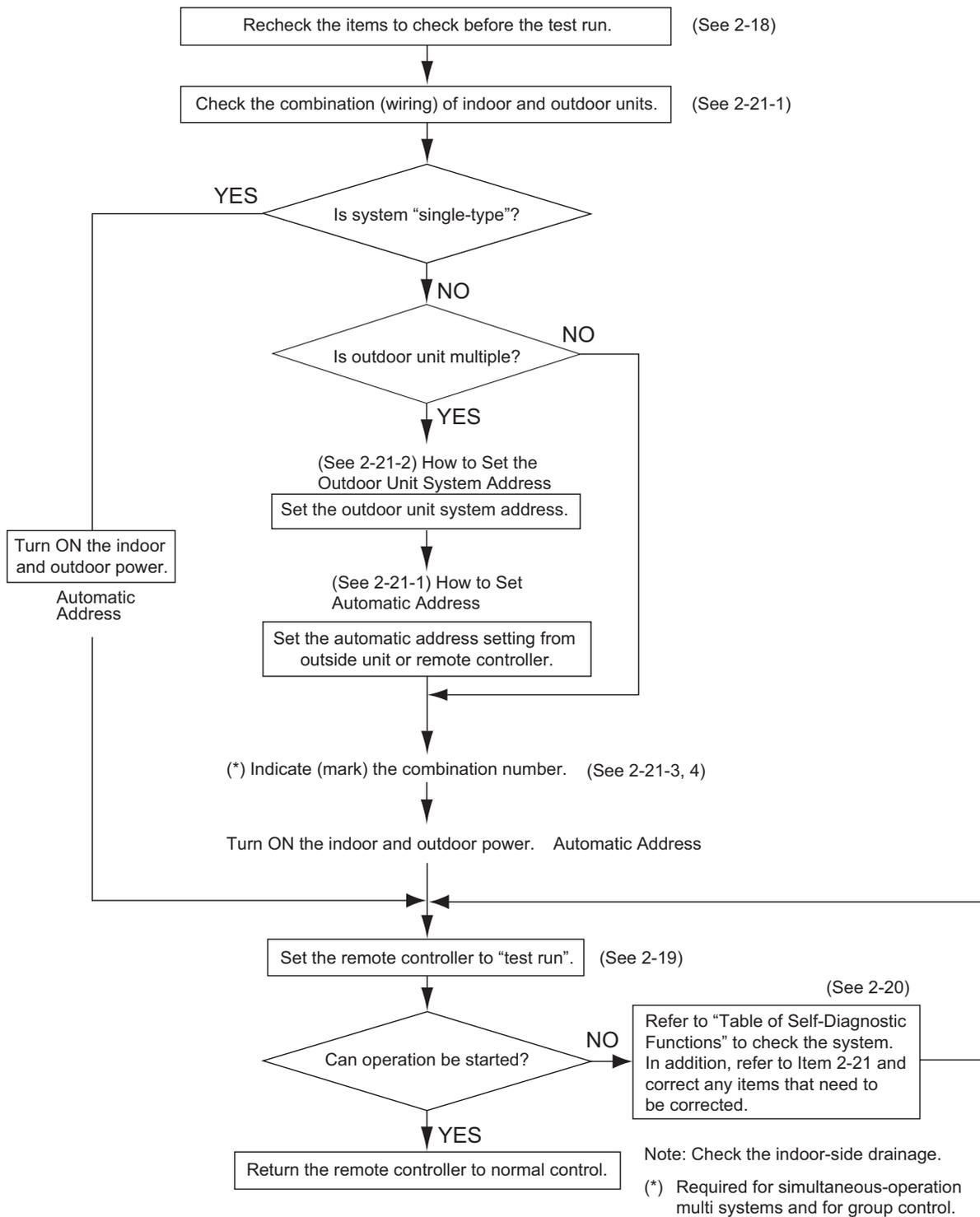


Fig. 2-14

## 2-18. Items to Check Before the Test Run

- (1) Turn the remote power switch ON at least 12 hours in advance in order to energize the crank case heater.
- (2) Fully open the closed valves on the liquid-tube and gas-tube sides.

## 2-19. Test Run Using the Remote Controller

- (1) Press and hold the remote controller  button for 4 seconds or longer. Then press the  button.
  - “TEST” appears in the LCD display during the test run.
  - Temperature control is not possible when test run mode is engaged.  
(This mode places a large load on the devices. Use it only when performing the test run.)

- (2) Use either Heating or Cooling mode to perform the test run.

### NOTE

The outdoor unit will not operate for approximately 3 minutes after the power is turned ON or after it stops operating.

- (3) If normal operation is not possible, a code appears on the remote controller LCD display. Refer to “2-20. Table of Self-Diagnostic Functions and Corrections” and correct the problem.
- (4) After the test run is completed, press the  button again. Check that “TEST” disappears from the LCD display.  
(This remote controller includes a function that cancels test run mode after a 60-minute timer has elapsed, in order to prevent continuous test run operation.)
- (5) For the test run of an inverter outdoor unit, operate the compressors for a minimum of 10 minutes (in order to check for open phase).
  - \* When performing a test run using a wired remote controller, operation is possible without attaching the cassette-type ceiling panel. (“P09” will not be displayed.)

## 2-20. Table of Self-Diagnostic Functions and Corrections

Wired remote controller display	Indoor unit receiver lamp	Cause	Correction
		Group connection and simultaneous-operation multi system	
Nothing is displayed	Nothing is displayed.	<ul style="list-style-type: none"> <li>• Remote controller is not connected with indoor unit correctly.</li> <li>• Indoor unit power is not ON.</li> </ul>	Connect the remote controller correctly. Turn ON the indoor unit power.
E01 displayed	Operation lamp is blinking.	<ul style="list-style-type: none"> <li>• Automatic address setting has not been completed.</li> <li>• Inter-unit control wiring is cut or is not connected correctly.</li> <li>• Remote controller is not connected with indoor unit correctly.</li> </ul>	Check the remote controller and inter-unit control wiring. Perform automatic address setting (2-21).
E02 displayed		<ul style="list-style-type: none"> <li>• Remote controller is not connected with indoor unit correctly.</li> </ul>	Connect the remote controller correctly.
E14 displayed		<ul style="list-style-type: none"> <li>• Remote controller communication wiring is cut or is not connected correctly.</li> </ul>	Check the remote controller communication wiring. Perform automatic address setting again.
E04 displayed	Standby lamp is blinking.	<ul style="list-style-type: none"> <li>• Indoor-outdoor inter-unit wiring is not connected correctly.</li> </ul>	Connect the wiring correctly.
E06 displayed		<ul style="list-style-type: none"> <li>• Inter-unit control wiring is cut or is not connected correctly.</li> </ul>	Refer to 2-21-1. Basic wiring diagram, and make the correct setting.
E15 displayed		<ul style="list-style-type: none"> <li>• Indoor unit capacity is too low.</li> </ul>	Check that the total capacities of the indoor and outdoor units are appropriate.
E16 displayed		<ul style="list-style-type: none"> <li>• Indoor unit capacity is too high.</li> </ul>	
P05 displayed	Operation lamp and Standby lamp are blinking alternately.	<ul style="list-style-type: none"> <li>• Reversed phase at one of the outdoor units in the group.</li> <li>• Insufficient gas</li> </ul>	Reverse 2 phases of the outdoor unit 3-phase power and connect them correctly. Fill up the gas appropriately.
P09 displayed	Timer lamp and Standby lamp are blinking alternately.	<ul style="list-style-type: none"> <li>• Ceiling panel connector at one of the indoor units in the group is not connected correctly.</li> </ul>	Connect the indoor unit ceiling panel connector correctly.
P12 displayed		<ul style="list-style-type: none"> <li>• DC fan trouble at one of the indoor units in the group.</li> </ul>	Check whether the fan holder is loose. Check the wiring between the DC fan and the PCB.
L02 displayed	Both the Operation lamp and Standby lamp are blinking together.	<ul style="list-style-type: none"> <li>• Indoor-outdoor unit type mismatch.</li> </ul>	Check that the indoor and outdoor unit types are correct.
L07 displayed		<ul style="list-style-type: none"> <li>• Remote controller communication wiring is connected to the indoor unit, however it is set for individual operation.</li> </ul>	Perform automatic address setting (2-21).
L10 displayed		<ul style="list-style-type: none"> <li>• Check outdoor operation with separate maintenance-use remote controller.</li> </ul>	

## 2-21. Automatic Address Setting

### 2-21-1. Basic wiring diagram

#### ● Link wiring

##### NOTE

- A terminal plug (black) is attached to each of the outdoor unit control PCBs.  
At only one outdoor unit, leave the terminal plug short-circuit socket on the “Yes” side.  
At all the other outdoor units, change the socket (from “Yes” to “No”).
- A maximum of 8 indoor units can be connected to 1 remote controller for group control.

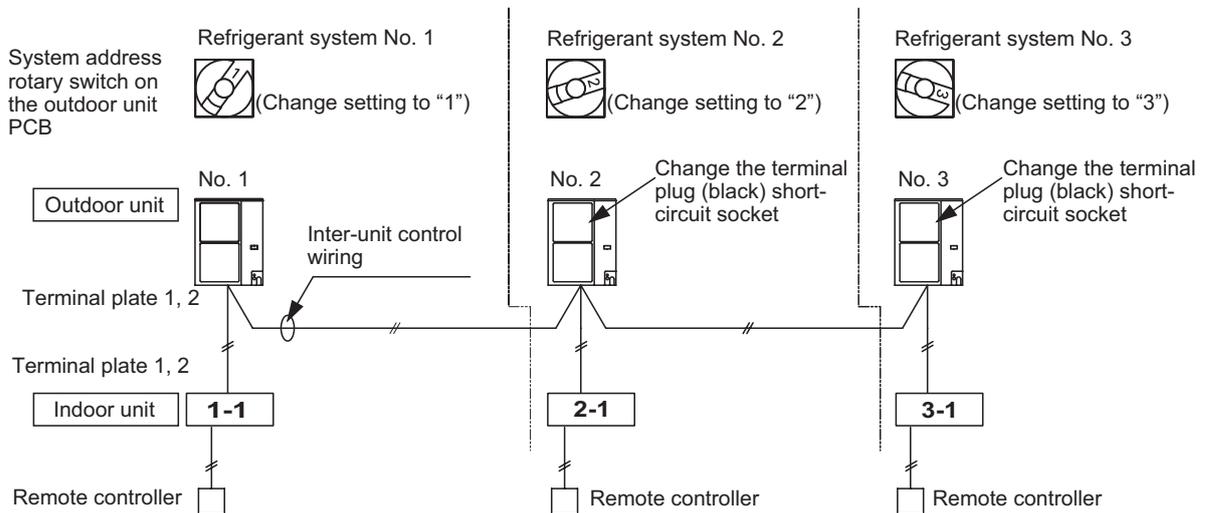


Fig. 2-15

### Automatic address setting from the outdoor unit

#### Case 1

- If the power can be turned ON separately for the indoor and outdoor units in the system, the indoor unit addresses can be set without running the compressor.

(1) Turn on the indoor and outdoor unit power for refrigerant system 1.

Press and hold the automatic address setting button (black) for 1 second or longer at the outdoor unit where the power was turned ON.



Communication for automatic address setting begins.



LED 1 and 2 on the outdoor unit control PCB blink alternately, and turn OFF when address setting is completed.

↓ <Approximately 4 – 5 minutes are required.>

(2) Next, turn ON the power only at the indoor and outdoor units in a different system.

Press the automatic address setting button (black) on the outdoor unit.



LED 1 and 2 on the outdoor unit control PCB blink alternately, and turn OFF when address setting is completed.



Repeat the same procedure for each system and complete automatic address setting.



(3) Operation using the remote controller is now possible.

## Case 2

- If the power cannot be turned ON separately for the indoor and outdoor units in the system:  
The compressors must be run in order to automatically set the indoor unit addresses.  
Therefore perform this step after completing the refrigerant tubing work.

(1) Turn ON the power to the indoor and outdoor units in all refrigerant systems.



When setting addresses in cooling mode

(2) Short-circuit the mode-change pin at the outdoor unit where automatic address setting will be performed.  
Then press the automatic address setting button (black).



When setting addresses in heating mode

(2) Press the automatic address setting button (black) at the outdoor unit where automatic address setting will be performed.



(3) LED 1 and 2 blink alternately. The compressors begin running in Cooling (or Heating) mode.  
Communication for automatic address setting begins, using the temperature changes at the indoor units.

<All indoor units are in operating status.>



Address setting is completed when the compressors stop and the LED indicators turn OFF.

<Approximately 15 minutes is required for 1 system.>

If address setting fails, LED 1 and 2 blink simultaneously and the alarm contents are displayed at the remote controller.

(4) After 1 system is completed, be sure to press the automatic address setting button (black) at the other outdoor units to complete automatic address setting in the same way for each system.

(5) Operation using the remote controller is now possible.

## Automatic address setting using the remote controller

### Case 3

- If the power can be turned ON separately for the indoor and outdoor units in each system  
(indoor unit addresses can be set without running the compressor):

Individual system automatic address setting : Display item code "A1".

(1) Press the remote controller timer time  button and  button simultaneously.  
(Hold for 4 seconds or longer.)



(2) Then press either the temperature setting  or  button.  
(Confirm that the item code is "A1".)



(3) Use either the  or  button to select the outdoor unit to perform automatic address setting for.  
Then press the  button.

("R.C.1" is displayed, and automatic address setting is performed for refrigerant system 1.)

When automatic address setting for system 1 is completed, the units return to normal stopped status.

<Approximately 4 – 5 minutes are required.>

During automatic address setting, "SETTING" blinks on the remote controller display.

This display disappears when address setting is completed.

## Case 4

- If the power cannot be turned ON separately for the indoor and outdoor units in each system:  
(The compressors must be run in order to automatically set the indoor unit addresses.  
Therefore perform this step after completing the refrigerant tubing work.)

All-systems automatic address setting: Display item code "AA".

- (1) Press the remote controller timer time  button and  button simultaneously. (Hold for 4 seconds or longer.)  
↓
- (2) Next press the  button.  
(Automatic address setting is performed in sequence for all outdoor units from No. 1 to No. 30.  
When automatic address setting is completed, the units return to normal stopped status.)  
<Approximately 15 minutes is required for each system.>

During automatic address setting, "SETTING" blinks on the remote controller display.

This display disappears when address setting is completed.



Fig. 2-16

### 2-21-2. Setting Outdoor unit system addresses

For the basic wiring diagram (Set the system addresses: 1, 2, 3...)

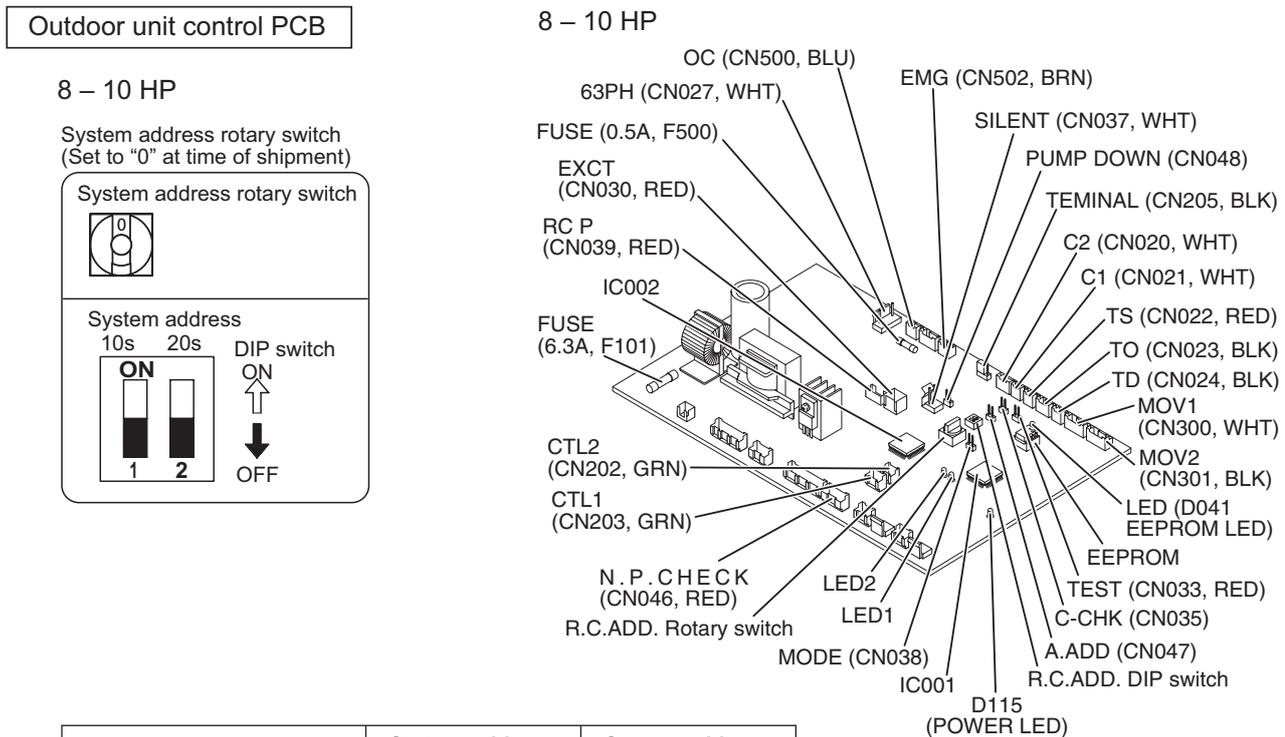
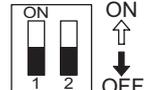


Fig. 2-17

System address No.	System address 10s digit (2P DIP switch)	System address 1s place (Rotary switch)
0 Automatic address (Setting at shipment = "0")	Both OFF 	"0" setting 
1 (If outdoor unit is No. 1)	Both OFF 	"1" setting 

### 2-21-3. Checking Indoor unit addresses

Use the remote controller to check the addresses of the indoor units. Press and hold the  button and  button for 4 seconds or longer (simple settings mode, "ALL" appears on the remote controller). Then press the  button and select the indoor address.

(For the system addresses of the No. 1 outdoor unit, each time the button is pressed, the address changes as follows: 1-1, 1-2, ...)  
The indoor unit fan operates only at the selected indoor unit.  
Confirm the indoor unit address. (For the system addresses of the No. 2 outdoor unit, the displayed addresses are 2-1, 2-2, ...)  
Press the  button again to return to the normal remote controller mode.

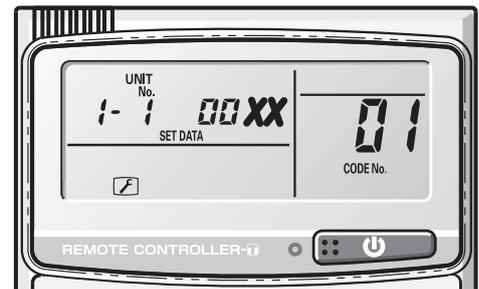


Fig. 2-18

### 2-21-4. Indicating (marking) the Indoor and Outdoor unit combination number

Indicate (mark) the number after automatic address setting is completed.

- (1) So that the combination of each indoor unit can be easily checked when multiple units are installed, ensure that the indoor and outdoor unit numbers correspond to the system address number on the outdoor unit control PCB, and use a magic marker or similar means which cannot be easily removed to indicate the numbers in an easily visible location on the indoor units (near the indoor unit nameplates).

Example : (Outdoor) 1 – (Indoor) 1  
(Outdoor) 2 – (Indoor) 1

- (2) These numbers will be needed for maintenance. Be sure to indicate them.

### Installing the Remote Controller

Refer to Instruction Manual attached to the optional Wireless Remote Controller.

## 2-22. Caution for Pump Down

Pump down means refrigerant gas in the system is returned to the outdoor unit.

Pump down is used when the unit is to be moved, or before servicing the refrigerant circuit.



### CAUTION

- This outdoor unit cannot collect more than the rated refrigerant amount as shown by the nameplate on the back.
- If the amount of refrigerant is more than that recommended, do not conduct a pump down. In this case use another refrigerant collecting system.

### Caution on Pump Down (Refrigerant Recovery)

#### NOTE

Pump down cannot be performed when the tubing length exceeds 30m.

(There is a possibility of generating the actuation of the excessive load protection system.)

In this case, collect the refrigerant by the refrigerant collecting system.

- (1) Stop the unit operation (cooling heating wind direction, etc.).
- (2) Connect the manifold gauge to the service port of the gas tube service valve.
- (3) Short-circuit the PUMP pin on the outdoor unit control PCB for over 1 second.

- Refrigerant recovery will start and the unit starts driving.
- During the refrigerant recovery, LED1 blinks and LED2 lights up on the outdoor unit control PCB.
- Remote control display shows  blinks.

- (4) Fully close the liquid tube service valve after 2 or 3 minutes. Pump down will start.

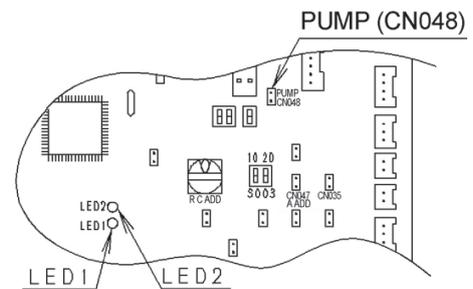
- (5) When the manifold gauge reduces to 0.2 - 0.1MPa, fully close the gas tube service valve.

Then again short-circuit the PUMP pin (CN048).

Refrigerant recovery is finished.

- If operation is continued for over 10 minutes, the unit stops even if the refrigerant recovery is not completed. Check the liquid tube service valve closed.
- When the PUMP pin (CN048) is shorted again during refrigerant recovery the unit stops.

\* For protection of the compressor do not drive until the unit tubing side becomes negative pressure.



PUMP pin (CN048) is located on the outdoor PCB as shown.



### CAUTION

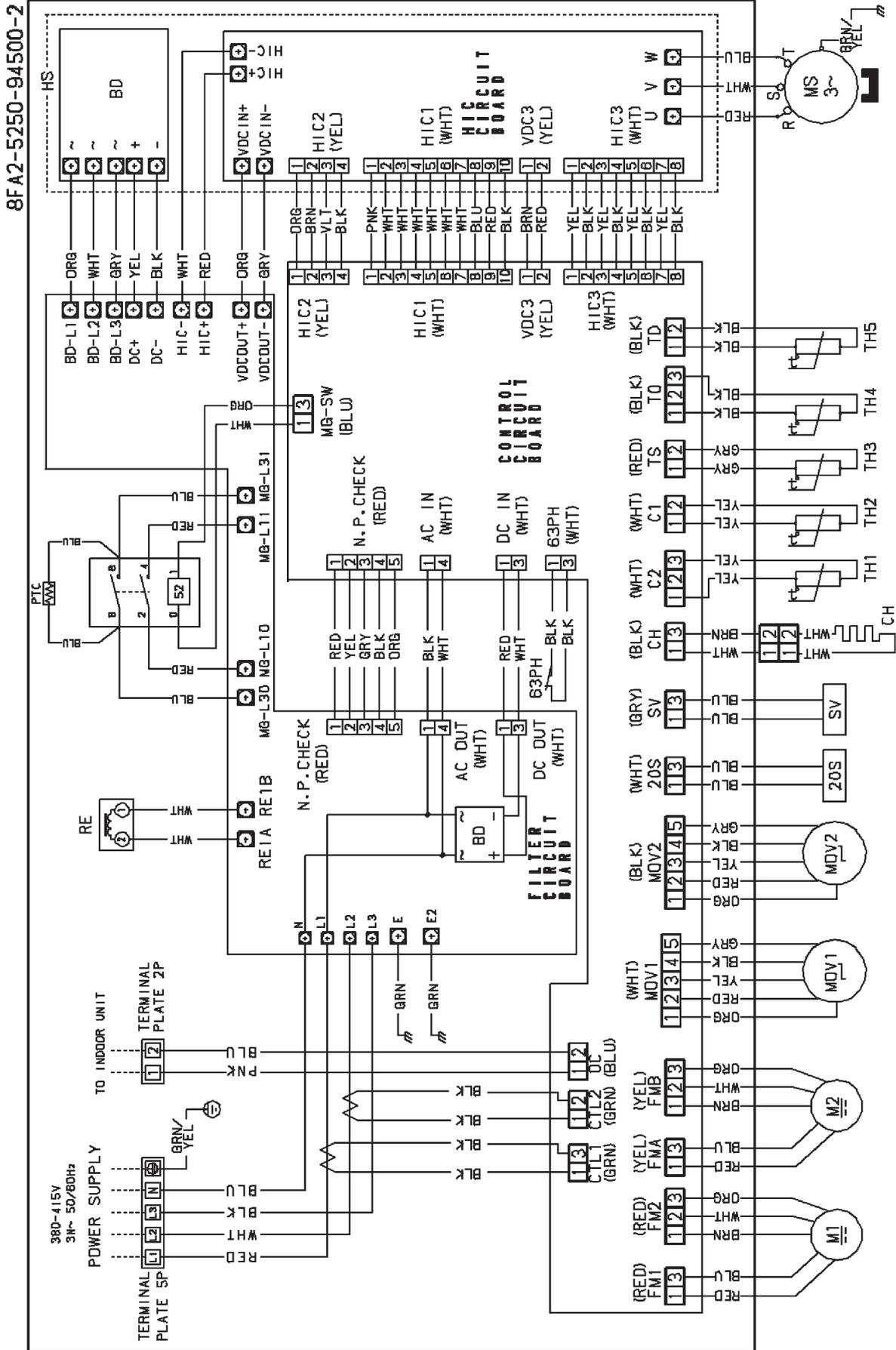
Pay much attention to the fan of the Outdoor unit as there is danger of injury during operation.

## 3. ELECTRICAL DATA

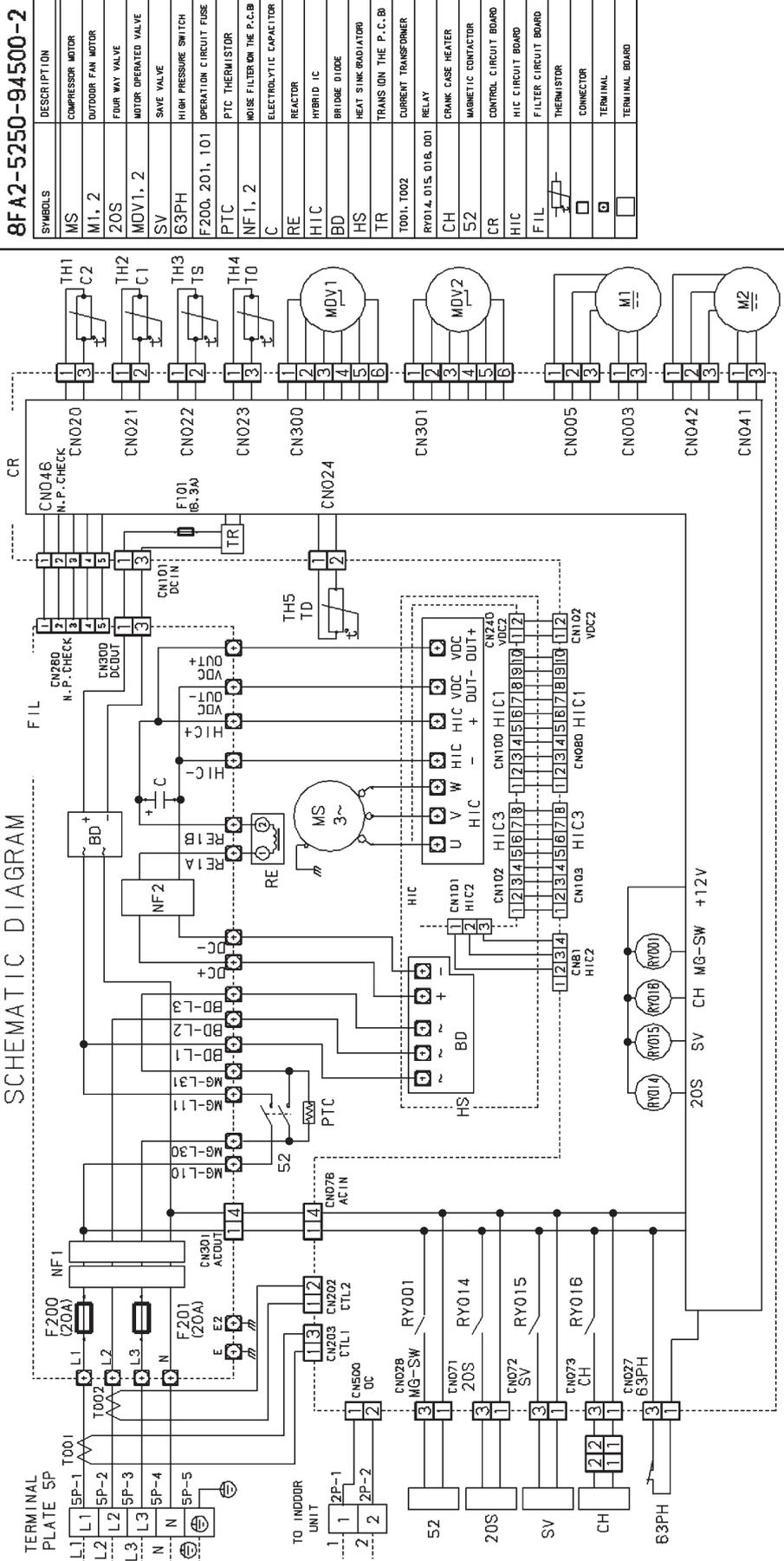
3-1.	Outdoor Units (Electric Wiring Diagram, Schematic Diagram).....	3-2
3-2.	Indoor Units (Electric Wiring Diagram, Schematic Diagram).....	3-4
	High Static Pressure Ducted Type	

### 3-1. Outdoor Units

#### Electric Wiring Diagram U-200PE1E8 / U-250PE1E8



Schematic Diagram U-200PE1E8 / U-250PE1E8



**8FA2-5250-94500-2**

SYMBOLS	DESCRIPTION
MS	COMPRESSOR MOTOR
M1, 2	OUTDOOR FAN MOTOR
ZOS	FOUR WAY VALVE
MDV1, 2	MOTOR OPERATED VALVE
SV	SAVE VALVE
63PH	HIGH PRESSURE SWITCH
F200, 201, 101	OPERATION CIRCUIT FUSE
PTC	PTC THERMISTOR
NF1, 2	NOISE FILTER ON THE P.C.B
C	ELECTROLYTIC CAPACITOR
RE	REACTOR
HIC	HYBRID IC
BD	BRIDGE DIODE
HS	HEAT SINK RADIATOR
TR	TRANS ON THE P.C.B
T001, T002	CURRENT TRANSFORMER
RY014, 015, 016, 001	RELAY
CH	CRANK CASE HEATER
52	MAGNETIC CONTACTOR
CR	CONTROL CIRCUIT BOARD
HIC	HIC CIRCUIT BOARD
FIL	FILTER CIRCUIT BOARD
	THERMISTOR
	CONNECTOR
	TERMINAL
	TERMINAL BOARD

OUTDOOR UNIT HEATING & COOLING

**WARNING**  
 TURN OFF THE MAIN POWER SUPPLY SWITCH WHEN CHANGING P.C.B. CONFIRM ALL THE L.E.D.S ON THE P.C.B. ARE OFF AND START TO REWORK. OTHERWISE YOU MAY BE KILLED BY AN ELECTRIC SHOCK.

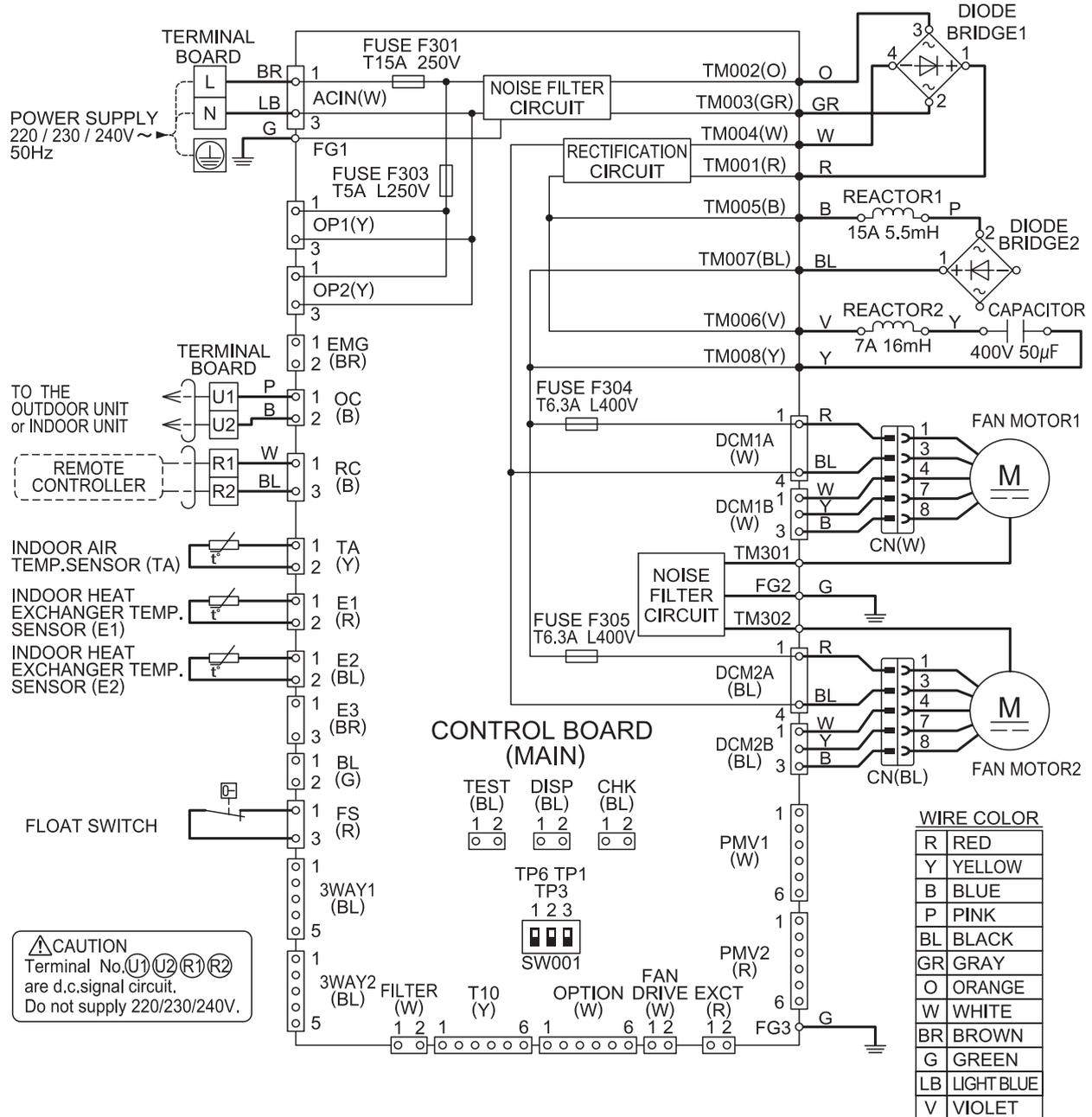
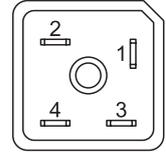
### 3-2. Indoor Units

#### High Static Pressure Ducted Type S-200PE2E5, S-250PE2E5 Electric Wiring Diagram

### ELECTRIC CIRCUIT DIAGRAM

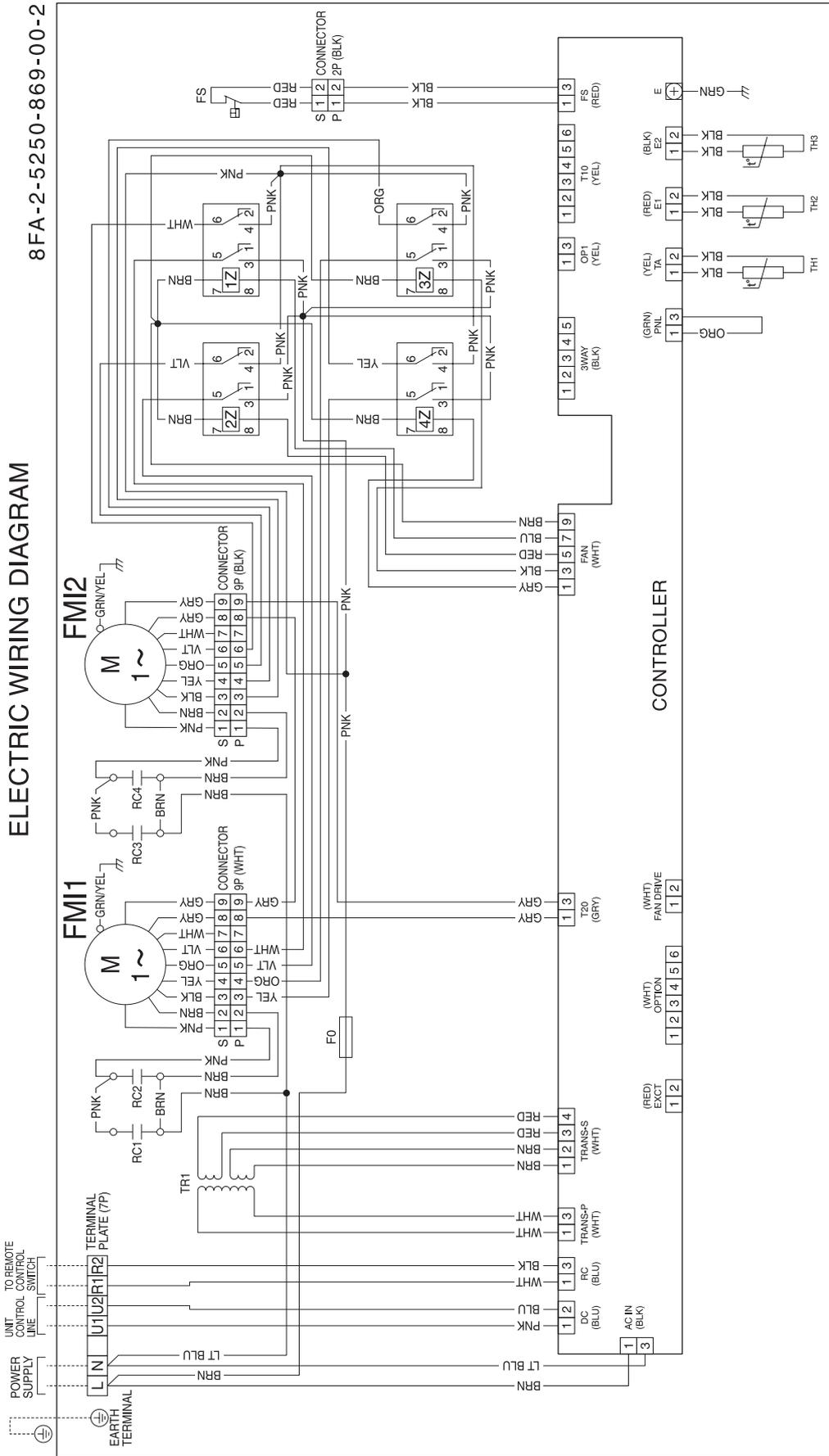
#### NOTE

When connecting wires to the diode bridge, match the terminal numbers shown in the drawing below to the connecting numbers of the wiring.



8FA2525130800 0

**High Static Pressure Ducted Type S-200PE1E8A**  
**Electric Wiring Diagram**

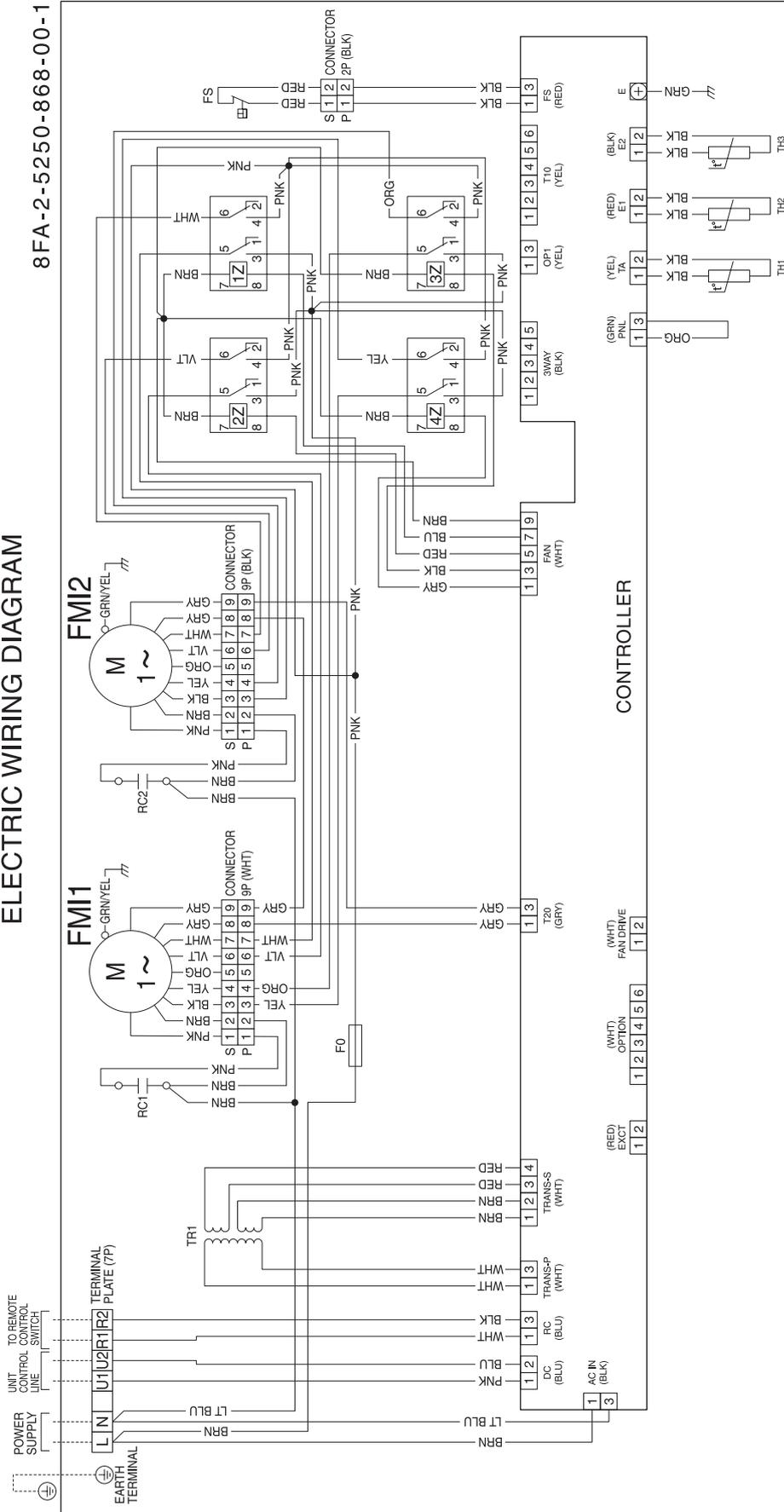


SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
FMI 1,2	INDOOR FAN MOTOR	F0, 1	FUSE
49FT 1,2	INDOOR MOTOR THERMAL PROTECTOR	CR	INDOOR CONTROLLER
RC1-4	RUNNING CAPACITOR	1X-3X	AUXILIARY RELAY
TR1	POWER TRANSFORMER	1Z-4Z	CONNECTOR, TERMINAL PLATE
FS	FLOAT SWITCH	+	TERMINAL
TH1	ROOM THERMISTOR	(RCS)	REMOTE CONTROL SWITCH (OPTION)
TH2	THERMISTOR (INDOOR COIL E1)		TH-ROOM THERMISTOR
TH3	THERMISTOR (INDOOR COIL E2)		



**High Static Pressure Ducted Type S-200PE1E8**  
**Electric Wiring Diagram**

**ELECTRIC WIRING DIAGRAM**

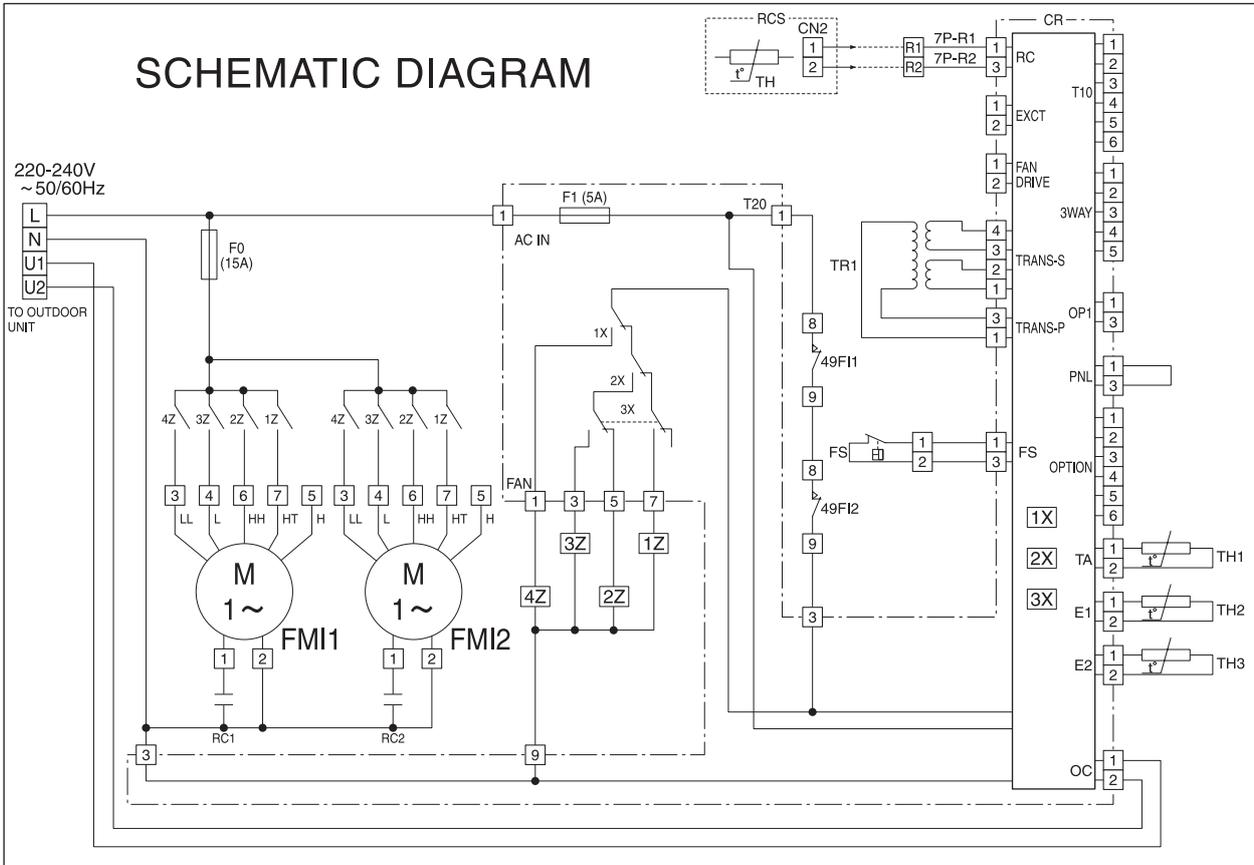


SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
FMI1,2	INDOOR FAN MOTOR	F0, 1	FUSE
49FI1,2	INDOOR MOTOR THERMAL PROTECTOR	CR	INDOOR CONTROLLER
RC1,2	RUNNING CAPACITOR	1X-3X	AUXILIARY RELAY
TR1	POWER TRANSFORMER	1Z-4Z	CONNECTOR, TERMINAL PLATE
FS	FLOAT SWITCH	[ ]	TERMINAL
TH1	ROOM THERMISTOR	[ ]	REMOTE CONTROL SWITCH (OPTION)
TH2	THERMISTOR (INDOOR COIL E1)	(RCS)	TH-ROOM THERMISTOR
TH3	THERMISTOR (INDOOR COIL E2)		

■ High Static Pressure Ducted Type S-200PE1E8  
Schematic Diagram

8FA-2-5250-868-00-1

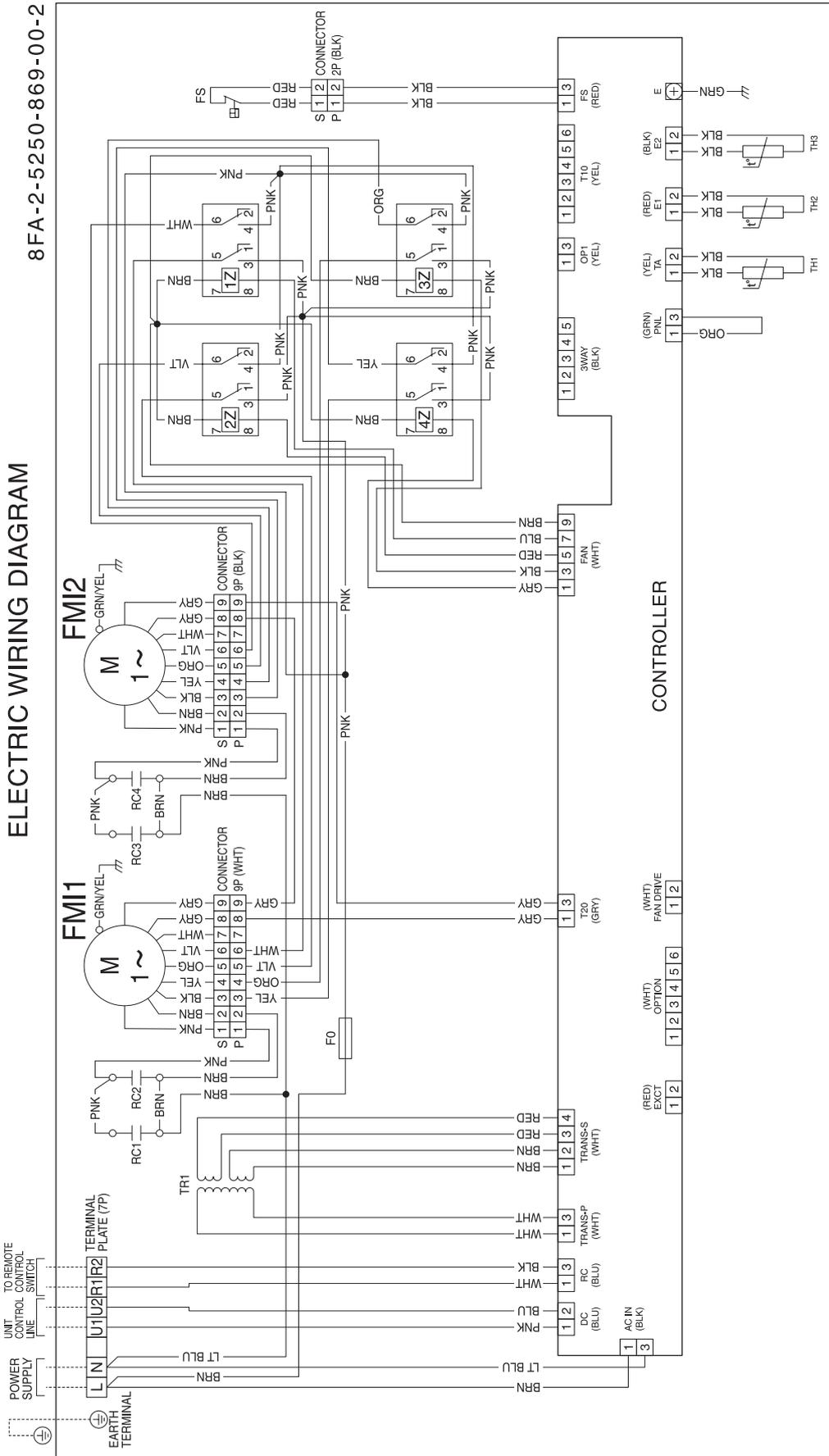
3



INDOOR UNIT

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
FMI 1,2	INDOOR FAN MOTOR	F0, 1	FUSE
49FI 1,2	INDOOR MOTOR THERMAL PROTECTOR	CR	INDOOR CONTROLLER
RC1,2	RUNNING CAPACITOR	1X-3X	AUXILIARY RELAY
TR1	POWER TRANSFORMER	1Z-4Z	CONNECTOR, TERMINAL PLATE
FS	FLOAT SWITCH	⊕	TERMINAL
TH1	ROOM THERMISTOR	(RCS)	REMOTE CONTROL SWITCH (OPTION)
TH2	THERMISTOR (INDOOR COIL E1)	TH:	ROOM THERMISTOR
TH3	THERMISTOR (INDOOR COIL E2)		

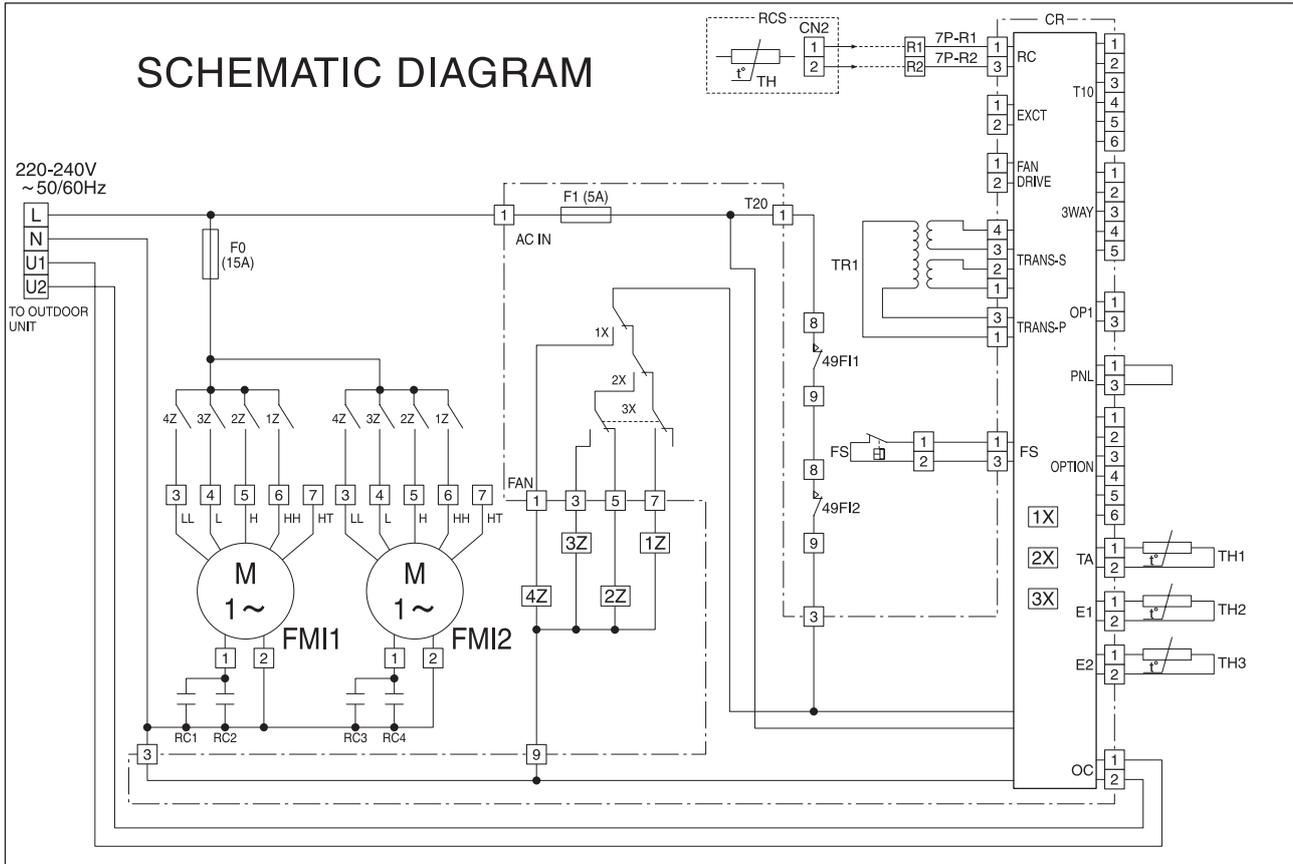
**High Static Pressure Ducted Type S-250PE1E8**  
**Electric Wiring Diagram**



SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
FMI 1,2	INDOOR FAN MOTOR	F0, 1	FUSE
49FI 1,2	INDOOR MOTOR THERMAL PROTECTOR	CR	INDOOR CONTROLLER
RC1-4	RUNNING CAPACITOR	1X-3X	AUXILIARY RELAY
TR1	POWER TRANSFORMER	1Z-4Z	CONNECTOR, TERMINAL PLATE
FS	FLOAT SWITCH	+	TERMINAL
TH1	ROOM THERMISTOR	(RCS)	REMOTE CONTROL SWITCH (OPTION)
TH2	THERMISTOR (INDOOR COIL E1)		TH:ROOM THERMISTOR
TH3	THERMISTOR (INDOOR COIL E2)		

■ High Static Pressure Ducted Type S-250PE1E8  
Schematic Diagram

8FA-2-5250-869-00-2



INDOOR UNIT

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
FMI 1,2	INDOOR FAN MOTOR	F0. 1	FUSE
49FI 1,2	INDOOR MOTOR THERMAL PROTECTOR	CR	INDOOR CONTROLLER
RC1-4	RUNNING CAPACITOR	1X-3X	AUXILIARY RELAY
TR1	POWER TRANSFORMER	1Z-4Z	AUXILIARY RELAY
FS	FLOAT SWITCH	□	CONNECTOR, TERMINAL PLATE
TH1	ROOM THERMISTOR	⊕	TERMINAL
TH2	THERMISTOR (INDOOR COIL E1)	(RCS)	REMOTE CONTROL SWITCH (OPTION)
TH3	THERMISTOR (INDOOR COIL E2)	TH:	ROOM THERMISTOR

## 4. PROCESS AND FUNCTIONS

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## 4-1. Control Functions

### 1. Indoor Air Temperature Control

The thermostat is switched on and off in accordance with  $\Delta T$  shown below.

$\Delta T = (\text{Indoor air temperature}) - (\text{Temperature set with the remote controller})$	
In the body thermostat mode (setting at factory shipment)	Indoor air temperature = (Body sensor) - (Shift temperature *)
In the remote controller thermostat mode	Indoor air temperature = (Remote controller sensor)

\* Shift Temperature

Only valid during heating operation. Set at 0 °C during cooling operation.

The settings at factory shipment during heating operation are as follows:

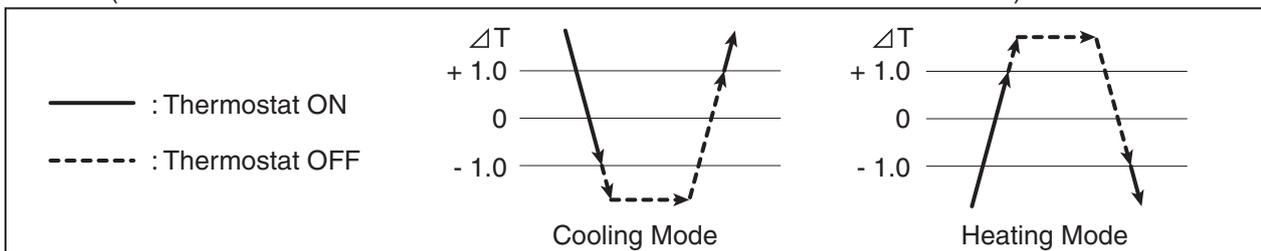
Wall-Mounted Type : 2°C

Floor Standing Type : 0°C

All other Types (4-Way Types, Concealed Types, etc.) : 4°C

This function acts as the coefficient for adjusting differences in temperature caused by the height of the living space from the floor to the ceiling (the temperature at ceiling height is higher) during heating operation.

The setting can be modified between 0 °C and 6 °C with mode [06] (Simple Settings Function) on the remote controller. (Refer to the section " 7. REMOTE CONTROLLER FUNCTIONS SECTION ")



- (1) Once the thermostat has been switched on, it cannot be switched off again by indoor air temperature control for a period of 10 minutes.
- (2) Once the thermostat has been switched off, it cannot be switched on again for a period of 3 minutes.
- (3) The thermostat will not be switched off by indoor air temperature control and operations will continue during the test operation mode.

### 2. Compressor Frequency Control

The frequency of the compressor's inverter is limited by either of the following controls depending on whether the cooling or heating mode is in operation.

#### Cooling Mode :

- Indoor air temperature control
- Maximum and minimum frequency control
- Current release control
- Cooling high-load prevention control
- Cooling freeze prevention control
- Discharge temperature control

#### Heating Mode :

- Indoor air temperature control
- Maximum and minimum frequency control
- Current release control
- Heating high-load prevention control
- Discharge temperature control

#### 1) Indoor Air Temperature Control

By the control method, not only the thermostat is switched on and off, as explained above section " 1.

Indoor air Temperature Control ", but also the frequency of the compressor's inverter is controlled in accordance with  $\Delta T$  and fluctuations in indoor air temperature. Inverter frequency is controlled as follows:

When $\Delta T$ is high (not yet reached the temperature set with the remote controller).	Controlled so that the inverter frequency is increased.
When $\Delta T$ is low (approximately +1.0 or less in the cooling mode or approximately -1.0 or more in the heating mode).	Controlled so that the inverter frequency is decreased or kept.
When the indoor air temperature is rising in the cooling mode and dropping in the heating mode.	Controlled so that the inverter frequency is increased.
When the indoor air temperature is dropping in the cooling mode and rising in the heating mode.	Controlled so that the inverter frequency is decreased.

\* The fluctuations of the compressor inverter frequency adjustments are calculated taking into account not only  $\Delta T$ , but also-fluctuations in indoor air temperature.

## 2) Maximum and Minimum Frequency Control

The compressor's inverter frequency is controlled in accordance with the model and operation mode. The maximum and minimum frequencies for each model are shown in the chart below.

\* There are cases in which frequency is limited with other control functions depending on operational conditions, so operations are not always carried out in accordance with the maximum frequencies listed below.

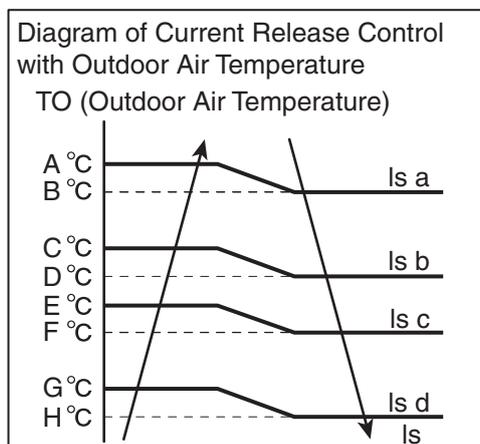
		U-200PE1E8	U-250PE1E8
Maximum Frequency	Cooling	91.2 Hz	80.0 Hz
	Heating	96.0 Hz	85.0 Hz
Minimum Frequency	Cooling	25.0*Hz	25.0*Hz
	Heating	25.0*Hz	25.0*Hz

\* There are cases in which the frequency is set at 33.0Hz to protect the compressor in accordance with outdoor air temperature and indoor loads.

## 3) Current Release Control

The inverter frequency is controlled so that the current value for the inverter compressor is less than the figure listed in the chart below only in the cooling mode in order to prevent abnormal increases in the inverter circuit located within the outdoor unit's electrical box.

(1) Current release control with primary current : The limited values are modified in accordance with outdoor air temperature.



Cooling Mode

TO	U-200/250PE1E8
A	48
B	47
C	45
D	44
E	43
F	42
G	40
H	39

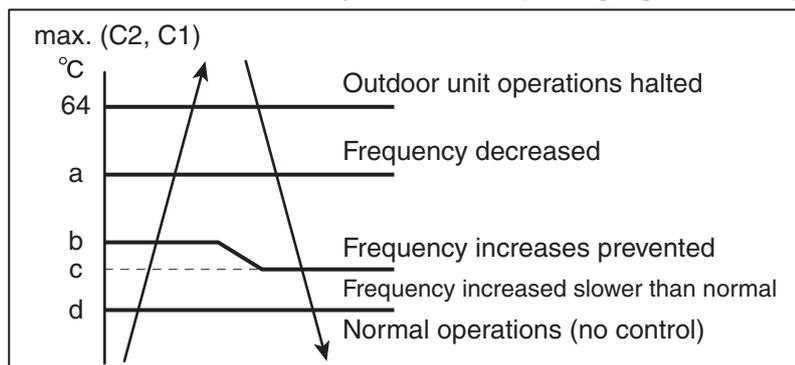
	U-200PE1E8	U-250PE1E8
Is	12.5	15.0
	Current value	Current value
Is A	6.3	7.5
Is B	7.5	9.0
Is C	8.8	10.5
Is D	10.6	12.8

(2) Current release control with secondary current : Values are fixed regardless of outdoor air temperature.

	U-200PE1E8	U-250PE1E8
I(A)	14.5	15.5

## 4) Cooling High-Load Prevention Control

This control is performed to limit the inverter frequency in order to restrict abnormal increases in pressure and high-load operations in the cooling mode. In accordance with the temperature of the outdoor heat exchanger temperature sensors (C1, C2), such controls are performed as halting the operations of the indoor unit, decreasing the inverter frequency and restricting its increase, etc. If the temperature max (C1, C2) exceeds 64°C, operations of the indoor unit are halted and then restarted 3 minutes later. If this start/stop activity is repeated four times consecutively, alarm "P20" (cooling high-load error) occurs.

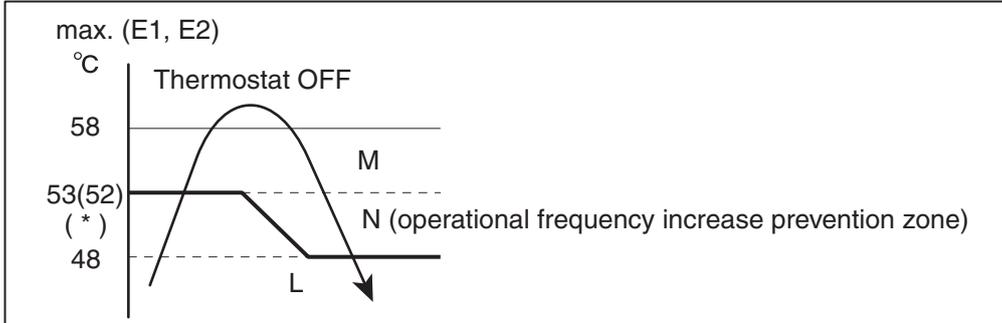


	U-200PE1E8	U-250PE1E8
a	55	53
b	54	52
c	52	50
d	48	47

### 5) Heating High-Load Prevention Control

The following control is performed in the heating mode in accordance with the indoor heat exchanger temperature max (E1, E2). (See the chart below.)

- (1) The operational frequency of the compressor is decreased when the temperature enters the "M" zone. The operation frequency is modified every 30 seconds while the temperature remains in this zone (the thermostat is switched off if it continues for 2 minutes).
- (2) The "N" zone is the area in which operation frequency increases are prevented.
- (3) The operational frequency returns to normal control when the detected temperature enters the "L" zone.



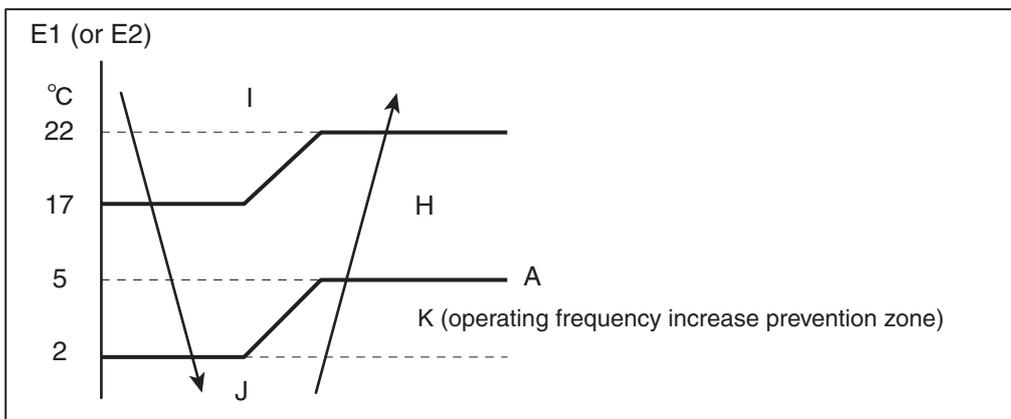
\* During the increase of temperature max (E1, E2) after the compressor is switched on, the temperature for entering the "M" zone for the first time is set at 52°C . The temperature for entering the "M" zone is reset to 52°C after the temperature max (E1, E2) dropped less than 30°C .

4

### 6) Cooling Freeze Prevention Control

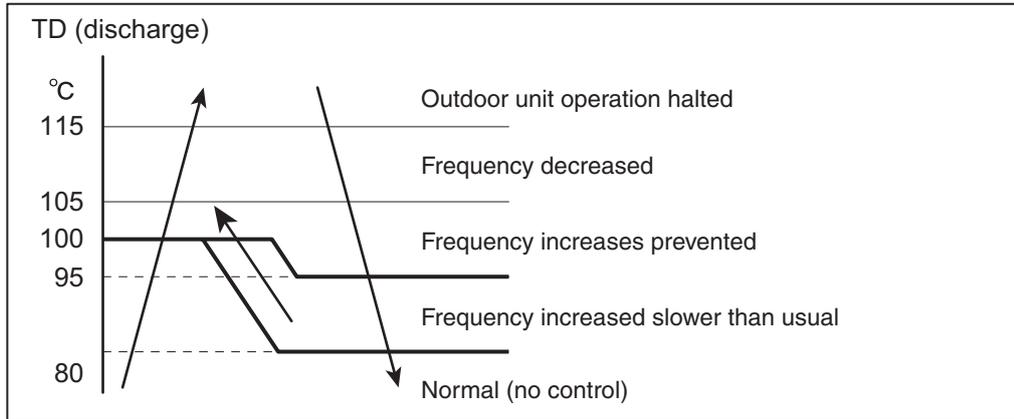
The following control is performed during cooling operations (including dehumidifying operation), in accordance with whichever of the indoor heat exchanger temperatures (E1 or E2) is lower. (See the chart below.)

- (1) If the temperature remains in the "J" zone (decreasing operation frequency and thermostat OFF zone) for 6 minutes, the operating frequency of the compressor is decreased. The operation frequency is amended every 30 seconds as long as the temperature is in this zone.
- (2) If the temperature is in the "K" zone (operating frequency increase prevention zone), the operating frequency of the compressor is maintained.
- (3) If the temperature is in the "H" zone (operating frequency restriction zone) and the outdoor air temperature is less than 32°C , the maximum operating frequency of the compressor is limited in accordance with the indoor unit fan speed.
- (4) If the temperature is in the "I" zone (normal operation zone), normal operations are performed.
- (5) If the temperature is continuously in the "J" zone with the compressor's operating frequency reaches "0", then temperature A, which is temperature for changing from the "J" zone to the "H" zone, is raised from 5°C to 8°C, and operation continues with the thermostat off until the temperature enters the "H" zone.



### 7) Discharge Temperature Control

The following control is performed to prevent the discharge temperature from rising abnormally in order to protect the inverter compressor. In accordance with the temperature of the discharge sensor TD, such controls are performed as to limiting the increase of inverter frequency, decreasing it or halting operation of the compressor.



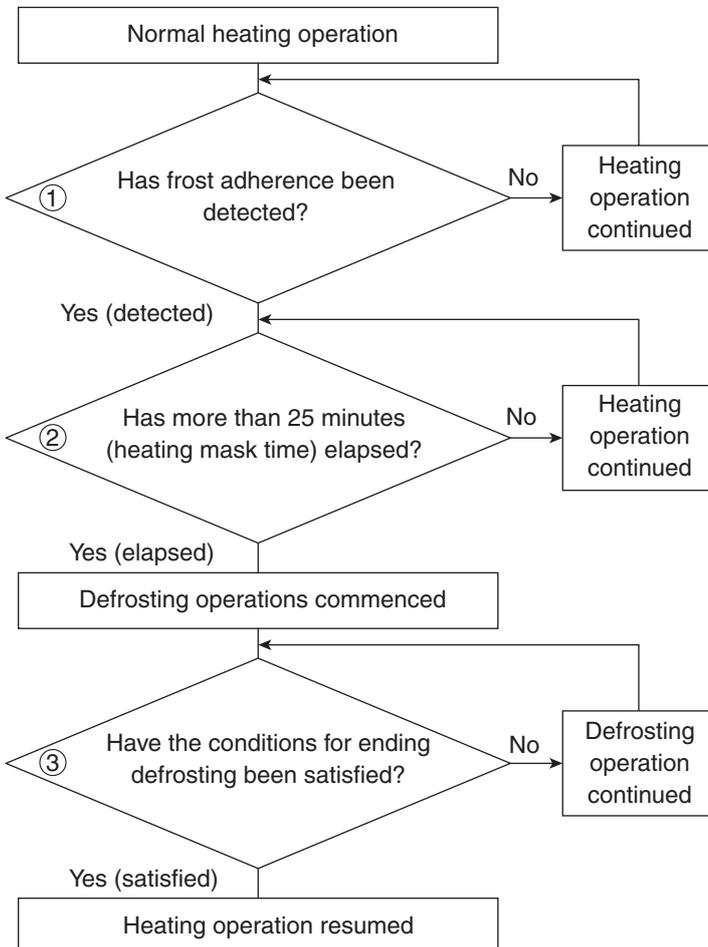
\* If the discharge temperature exceeds 115°C , operations of the compressor are halted and then restarted 3 minutes later.  
 If this start/stop activity is repeated 4 times consecutively, the alarm "P03" (abnormal discharge temperature) occurs.

### 8) Defrosting Control

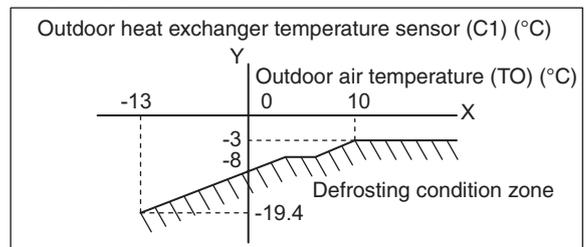
This control function removes frost that has adhered to the outdoor heat exchanger during the heating operation. The control is performed to prevent the deterioration of the heating capabilities attributed to the adherence of frost, and to prevent the crack or crush of pipes attributed to the accretion of ice.

The following control is performed in accordance with the external temperature and the outdoor heat exchanger temperature sensor (C1).

#### Overall Flow Chart of Defrosting Control



- ① Frost adherence detection
  - If the following conditions are satisfied during heating operations, it is regarded as "frost adherence is detected".
  - Frost adherence detection is performed in accordance with the outdoor air temperature (TO) and the outdoor heat exchanger temperature sensor (C1).
  - \* However, frost adherence detection is not performed for the first 15 minutes of compressor operations in the normal heating mode.
  - Frost adherence detection conditions
    - (a) With the outdoor air temperature (TO) being -13 °C or above, the frost adherence condition shown below are satisfied for whether 3 consecutive minutes or a total of 60 intermittent minutes, or the outdoor heat exchanger temperature sensor (C1) remains -18 °C or below for 20 consecutive seconds.



- (b) With the outdoor air temperature (TO) being less than -13 °C , the outdoor heat exchanger temperature sensor (C1) remains less than or equal to outdoor air temperature (TO) - 5 °C for 20 consecutive seconds.
- (c) With the outdoor heat exchanger temperature sensor (C1) being less than - 3°C , a total of 90 minutes has elapsed (defrosting carried out periodically in accordance with the time).

## ② Heating Mask Time

This refers to the shortest time that heating operations must be performed without defrosting operations being executed. The mask time for this model is 25 minutes.

\* Defrosting operations will not be commenced until the defrosting mask time has elapsed, even if frost adherence has been detected.

## ③ Ending Defrosting

Defrosting operations are ended when the following conditions are aligned.

- Ending defrosting conditions
  - (a) When the temperature of the outdoor heat exchanger temperature sensor (C1) is 12°C or higher.
  - (b) When the temperature of the outdoor heat exchanger temperature sensor (C1) is 7 °C or higher for 60 consecutive seconds.
  - (c) When defrosting has been initiated for 10 minutes.

## 9) Outdoor Unit Fan Control

### (1) Cooling Mode

The appropriate rotations per minute for the outdoor unit fan are determined in accordance with the outdoor air temperature and the frequency of the compressor inverter.

The outdoor unit fan step is controlled between a range of W1 (Step 1) and WD (Step 14).

### (2) Heating Mode

The appropriate rotations per minute for the outdoor unit fan are determined in accordance with the outdoor air temperature and the frequency of the compressor inverter.

The outdoor unit fan step is controlled between a range of W1 (Step 1) and WE (Step 15).

\* However, the outdoor unit fan is halted (Step 0) when defrosting is being carried out.

## 10) Outdoor Unit's Electrical Expansion Valve Control

The electrical expansion valve controls the amount of refrigerant that is allowed to flow in accordance with the operation status.

The valve is adjusted in accordance with the discharge temperature (TD), the outdoor heat exchanger temperature sensor (C1), the suction temperature sensor (TS), and the indoor unit's heat exchanger temperature sensors (E1 and E2).

### (1) Cooling Mode

Controlled so that the section temperature (TS) - indoor heat exchange temperature minimum (E1 and E2) is between 1°C and 5 °C under normal conditions.

There are cases where the aperture opens wider than usual if the discharge temperature increases.

### (2) Heating Mode

Controlled so that the section temperature (TS) - outdoor heat exchange temperature (C1) is between 1 °C and 5°C under normal conditions.

There are cases where the aperture opens wider than usual if the discharge temperature increases.

## 11) Solenoid valve Control

The solenoid valve is switched on when normal operations have been halted and before and after defrosting operations in order to stabilize differences between refrigerant pressure (reduced pressure).

There are also cases in which it is switched on at the start of operations when the outdoor air temperature is low in order to stabilize the behavior of the oil.

### (1) Normal Operations Mode

It is basically kept off, but there are cases when it is switched on for brief periods at the start of operations when the outdoor air temperature is low.

### (2) Defrosting (Heating) Operations

It is switched on for approximately 1 minute before and after defrosting operations.

### (3) When Operations are Halted

Switched on for a maximum of 30 minutes in order to stabilize pressure before and after compressor operations.

## 12) Demand Control

There are two styles of demand operations available as methods of restraining power consumption.

### (1) Demand via External Input

Demand input from an external source is carried out from the outdoor unit EXCT (CN030) PCB or the outdoor unit's serial/parallel I/O (optional).

- Demand control with EXCT input

Short-circuit		Control (range of operations)
2P and 3P	1P and 3P	
0	0	No control
0	1	Rated current restricted to A% (A% = 100% at factory shipment)
1	0	Rated current restricted to B% (B% = 70% at factory shipment)
1	1	Control OFF

\* The operational current is restricted to either A% or B% as a general indicator during demand input.

- A% and B% can be amended in calibrations of 5% between 70% and 100% with the outdoor unit's maintenance remote controller.

For details on how to amend the parameters, see the chapter on the outdoor maintenance remote controller, (Refer to the section "6-6. Settings Modes : Setting the Outdoor Unit EEPROM").

- A% value amendments: Parameters are amended with item code "50" (demand 1).
- B% value amendments: Parameters are amended with item code "51" (demand 2).

### (2) Demand Control with No External Input

Demand control is carried out proportionally with the normal settings from the outdoor unit without any external input.

- Amendments can be made in calibrations of 5% between 70% and 100%.

Refer to the section "6-6. Settings Modes : Setting the Outdoor Unit EEPROM" for the outdoor maintenance remote controller for details on how to amend the parameters.

Parameters are amended with item code "52" (current control level).

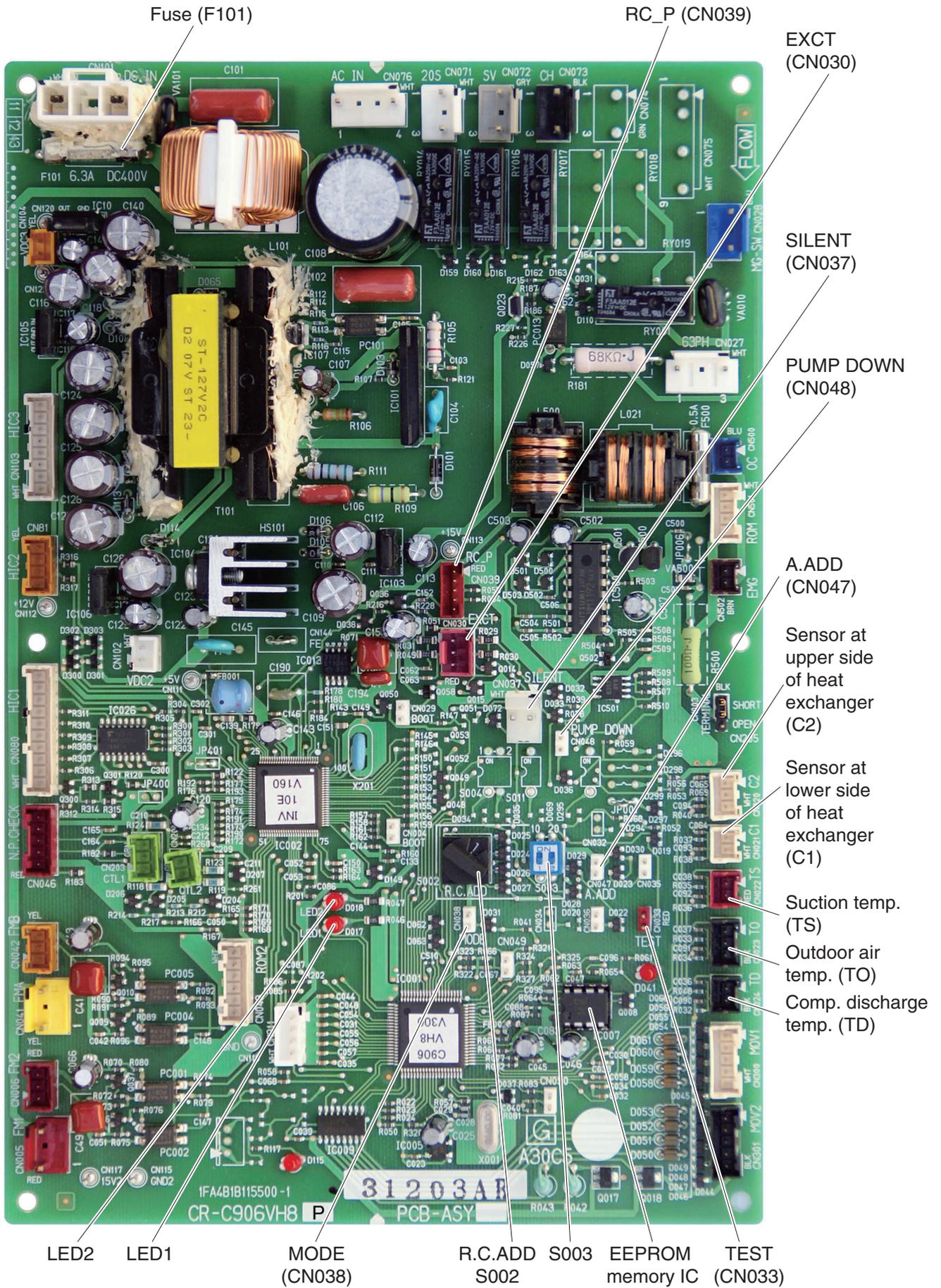
## 13) Switching to Silent Mode Setup

Two silent mode settings are available: 50dB (A) and 45dB (A).

This setting can be amended with the detailed settings on the outdoor maintenance remote controller.

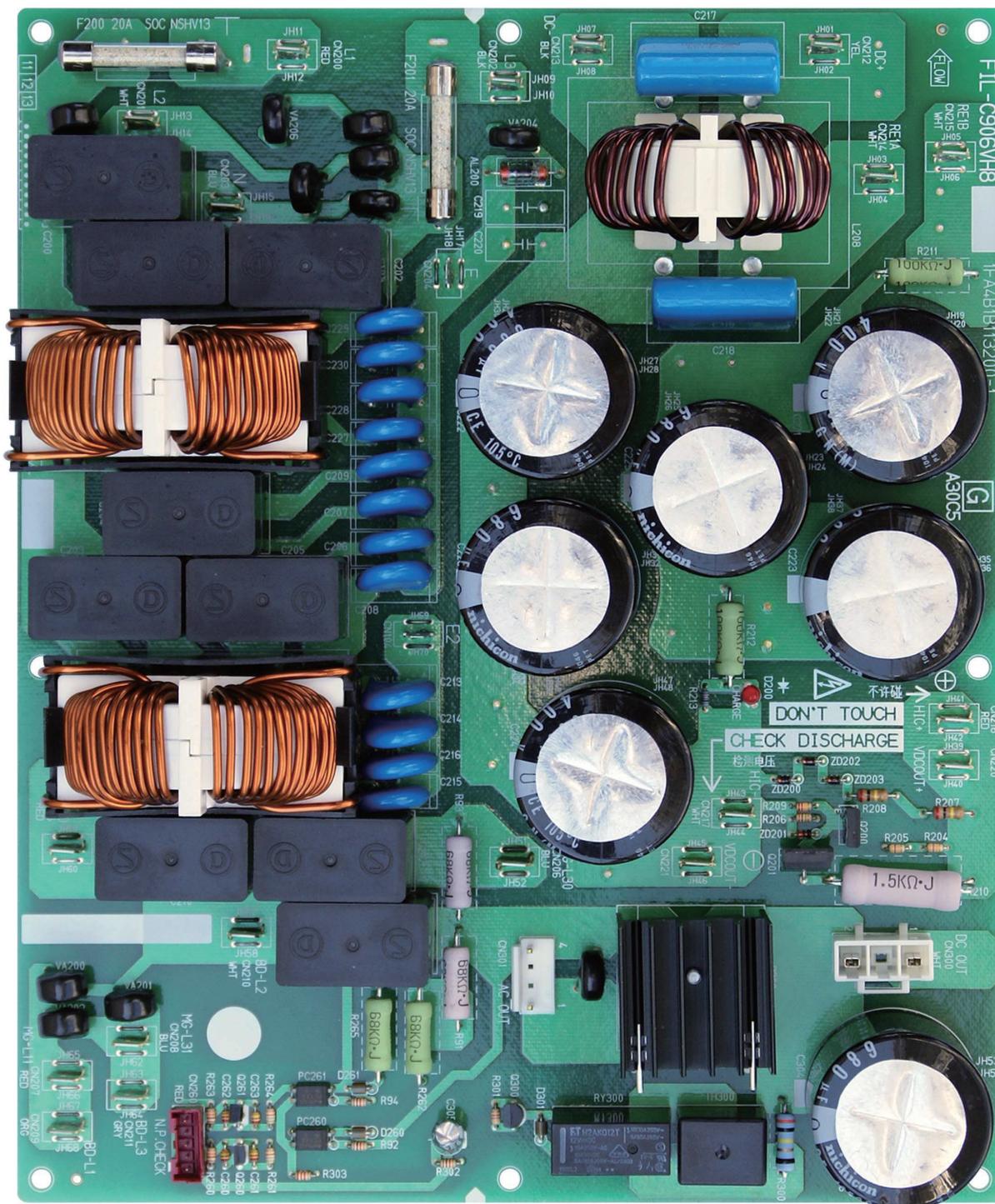
- Item code "21" : 0 (Setting at shipment) Sets silent mode 50dB (A).
- Item code "21" : 1 Sets silent mode 45dB (A)

## 4-2. Outdoor Unit Control PCB Layout Diagram (CR-C906VH8P)



4

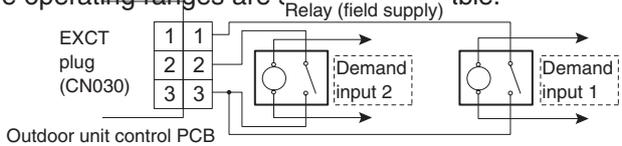
### 4-3. Outdoor Unit Filter PCB FIL-C906VH8





## 4-5. Outdoor Unit Control PCB (CR-C906VH8P)

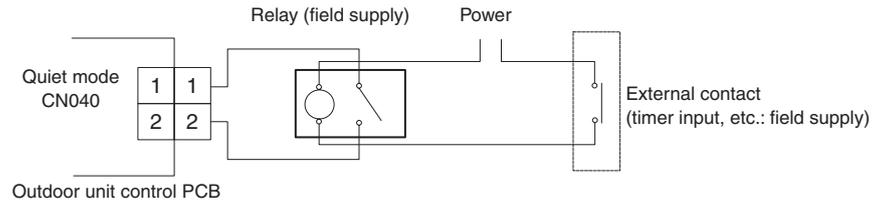
### Explanation of Functions

<p>Auto Address pin (CN047)</p>	<p>2P (white): Automatic address setting switch</p> <ul style="list-style-type: none"> <li>If the system address switch (S002: set to 0 at time of shipment) setting is other than “0”(central control), press this switch once to automatically set the addresses at all indoor units which are in the same system, and are connected to that outdoor unit. During automatic address setting, the 2 LEDs (red) on the outdoor unit control PCB blink alternately. (Pressing this switch again stops automatic address setting.)</li> <li>If automatic address setting is currently in progress at another system that is subject to central control, only LED 1 on the outdoor unit control PCB blinks to indicate that automatic address setting is in progress at another unit. If automatic address setting is in progress at another unit, automatic address setting cannot be made at this unit, even if S001 is pressed.</li> </ul> <p>* After the power is turned ON, automatic address setting will not be functioned for over 1 minute and 30 seconds.</p>																	
<p>S002</p>	<p>Rotary switch (10 positions, black): System address setting switch</p> <ul style="list-style-type: none"> <li>This switch is set to 0 (1 system control) at the time of shipment. However the address for each system must be set when multiple systems are controlled or when central control is used. (Figure 1)</li> <li>If the system address is set to 0, automatic address setting is started when the power is turned ON. Therefore it is not necessary to use switch SW01 and perform automatic address setting in the case of single or simultaneous-operation multi control of a single system.</li> <li>When using central control for multiple systems, a maximum of 30 systems (maximum 64 units) can be connected. In the case of group control or central control, set the system address to a setting other than 0 (1 or above).</li> <li>If the number of systems is greater than 9, this switch can be used in combination with DIP switch S003 to set up to 30 systems. The setting can be made as high as 39, however all settings above 30 are handled as 30 for control. (For details, refer to Table 4-1.)</li> <li>If system addresses are duplicated (the same address exists more than once), LED 1 on the outdoor unit control PCB lights up, and alarm “L04” is displayed on the remote controller.</li> </ul>																	
<p>S003</p>	<p>DIP switch (2P, blue): System address 10s-digit and 20s-digit place setting switch</p> <ul style="list-style-type: none"> <li>When setting 10 systems or more, set this switch in combination with S002.</li> <li>For 10 – 19 systems, set 1P (10s-digit place) to ON.</li> <li>For 20 – 29 systems, set 2P (20s-digit place) to ON, and set 1P (10s-digit place) to OFF.</li> <li>For 30 systems, set both 1P (10s-digit place) and 2P (20s-digit place) to ON. (For details, refer to Table 4-1.)</li> </ul>																	
<p>PUMP DOWN Pin (CN048)</p>	<p>PUMP DOWN Pin (2P, white)</p> <ul style="list-style-type: none"> <li>Press this switch to perform refrigerant recovery control using cooling operation. The indoor unit fan will operate at HIGH and 55 Hz for a maximum of 10 minutes. When refrigerant recovery is completed, close the valves and press this switch to stop the operation.</li> </ul>																	
<p>Test (CN033)</p>	<p>2P plug (red): Pin used for PCB inspection at the factory</p>																	
<p>EXCT (CN030)</p>	<p>3P plug (red): Can be used for demand control</p> <ul style="list-style-type: none"> <li>The operating ranges are shown in the table.</li> </ul> <div style="display: flex; align-items: center;">  <table border="1" style="margin-left: 20px;"> <thead> <tr> <th colspan="2">Short-circuited</th> <th rowspan="2">Operating range</th> </tr> <tr> <th>2P and 3P</th> <th>1P and 3P</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>No limit</td> </tr> <tr> <td>0</td> <td>1</td> <td>100% at shipment</td> </tr> <tr> <td>1</td> <td>0</td> <td>70% at shipment</td> </tr> <tr> <td>1</td> <td>1</td> <td>OFF</td> </tr> </tbody> </table> </div> <p>Note 1: The maximum length of the wiring between the outdoor unit PCB and the relay is 2 m.</p> <ul style="list-style-type: none"> <li>Lead wire with 3P plug (special-order part : CV6231820530)</li> <li>Relay (field supply) contact input specifications : minimum compatible load 0.1mA</li> </ul>	Short-circuited		Operating range	2P and 3P	1P and 3P	0	0	No limit	0	1	100% at shipment	1	0	70% at shipment	1	1	OFF
Short-circuited		Operating range																
2P and 3P	1P and 3P																	
0	0	No limit																
0	1	100% at shipment																
1	0	70% at shipment																
1	1	OFF																

Quiet mode plug (CN037)

2P plug (white): Enables operation in quiet mode.

- The outdoor unit fan and compressor frequencies are subject to limits during operation.
- Low-noise operation is enabled when the relay is turned ON. (Non-voltage contact "a" )
- Example of wiring



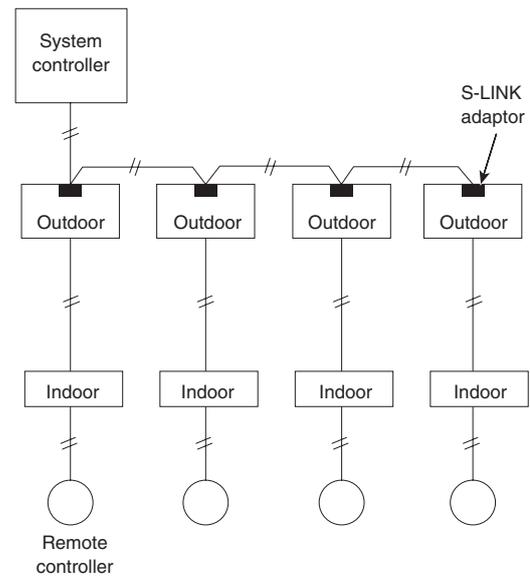
Note 2: The maximum length of the wiring between the outdoor unit PCB and the relay is 2 m.

- Lead wire with 2P plug (special-order part: CV6231612098)
- Relay, (field supply) contact input specifications: DC 5 V, 0.5 mA  
(Recommended relay: Fuji Electric HH62SW, compatible with micro contacts)
- Use a commercially available timer (such as the Omron H5 daily time switch).

**Table 4-1. Method of System Address Setting**

[S002 (rotary, black), S003 (2P DIP switch, blue)]

	Outdoor system address No.	S002 setting (system address switch)	S003 setting	
			1P (10s-digit place)	2P (20s-digit place)
1 system only	1	0	OFF	OFF
Central control	1	1	OFF	OFF
	2	2	OFF	OFF
	3	3	OFF	OFF
	4	4	OFF	OFF
	5	5	OFF	OFF
	6	6	OFF	OFF
	7	7	OFF	OFF
	8	8	OFF	OFF
	9	9	OFF	OFF
	10	0	ON	OFF
	11	1	ON	OFF
	12	2	ON	OFF
	13	3	ON	OFF
	14	4	ON	OFF
	15	5	ON	OFF
	16	6	ON	OFF
	17	7	ON	OFF
	18	8	ON	OFF
	19	9	ON	OFF
	20	0	OFF	ON
	21	1	OFF	ON
	22	2	OFF	ON
	23	3	OFF	ON
	24	4	OFF	ON
	25	5	OFF	ON
	26	6	OFF	ON
	27	7	OFF	ON
	28	8	OFF	ON
	29	9	OFF	ON
	30	0	ON	ON

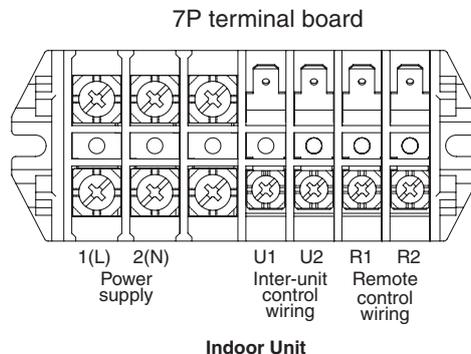


**Fig. 1**

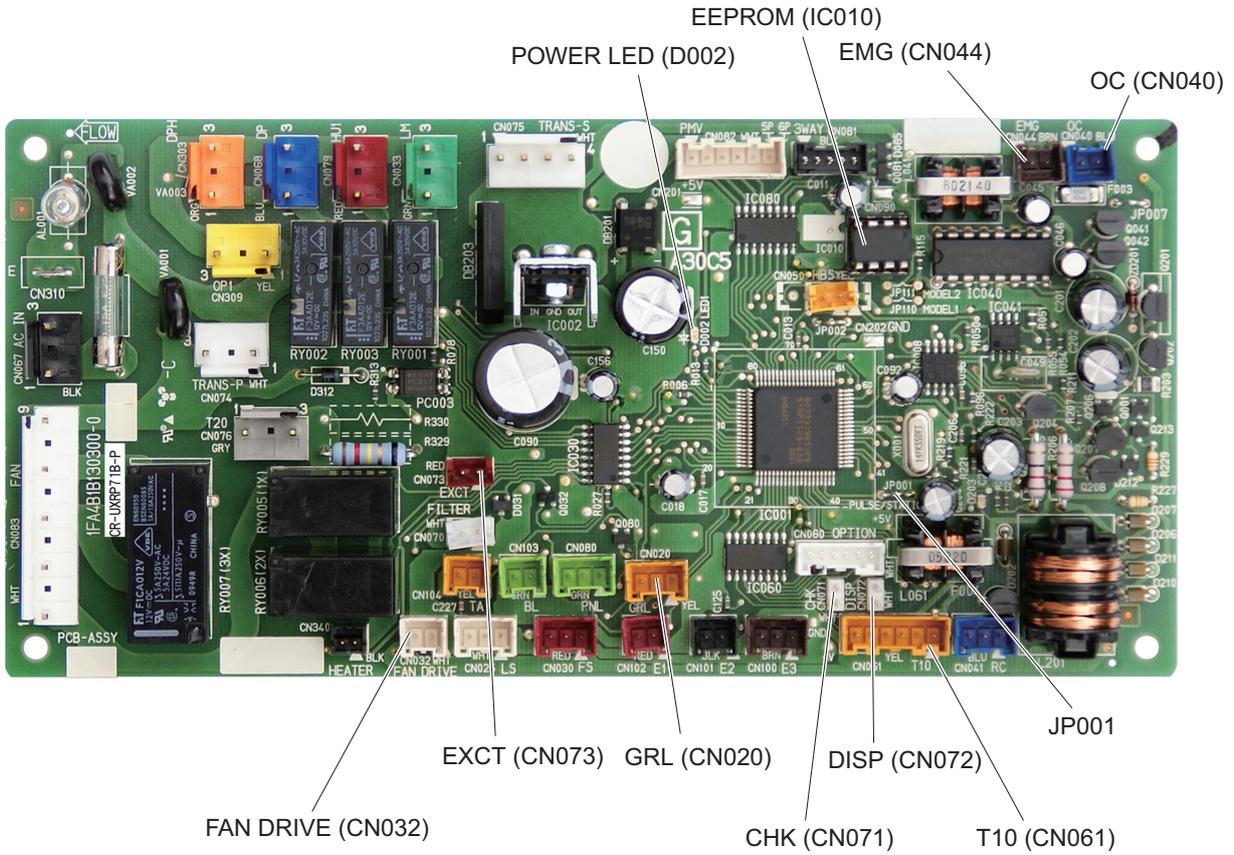
## 4-6. Indoor Unit Control PCB Switches and Functions

### [Indoor unit control PCB]

- T10 (CN061):** **6P plug (YEL)** / Used for remote control operation. (Refer to the Remote Control Section.)  
Control items: (1) Start/stop input (2) Remote controller prohibit input  
(3) Start signal output (4) Alarm signal output
- EXCT (CN073):** **2P plug (RED)** / Can be used for demand control. When input is present, forces the unit to operate with the thermostat OFF.
- DISP (CN072):** **2P plug (WHT)** / Short-circuiting this plug allows operation to be controlled by the remote controller even when an outdoor unit is not connected. (In this case, alarm “E04,” which indicates trouble in the serial communication between the indoor and outdoor unit, does not occur.)  
**(CN063)**
- CHK:** **2P plug (WHT)** / Test pin. Short-circuiting this pin allows the indoor FM (H fan speed), drain pump, flap motor (F1 position), and electronic expansion valve full-open position to be checked.  
However this function turns OFF if the indoor unit protection mechanism is activated. The components will operate even if the remote controller and outdoor unit are not connected, however the remote control cannot be used for control even if it is connected. This plug can be used for short-term tests.
- JP1 (JP001):** **Jumper wire** / Allows selection of the T10 terminal start/stop signal. (Refer to the Remote Control Section.)  
Setting at time of shipment: Pulse signal  
Jumper wire cut: Static signal (continuous signal)
- Fan drive:** **2P plug (WHT)** / This terminal sends the signal to the ventilation fan when a commercially available ventilation fan is operated by the FAN button on the wired remote controller. (Refer to the Remote Control Section.)  
Use a ventilation fan which can accept the no-voltage contact A signal as the external input signal.
- Filter:** **2P (WHT)** / This terminal is used to connect contact input from the differential-pressure switch, used to detect filter clogging. When the contact is ON, “FILTER” appears on the display of the wired remote controller.
- Power LED:** **LED (RED)** / Illuminates when the power is ON. Flashes when there is trouble with the EEPROM (IC10, IC010: nonvolatile memory).
- EEPROM (IC010):** **Nonvolatile memory** / Used to store model information and other data. When replacing the PCB, remove the EEPROM from the old PCB and install it onto the new PCB. If there is IC trouble, replace with a new IC (provided with the servicing PCB), and set the necessary information using the wired remote controller. (For the setting procedure, refer to the servicing technical materials.)
- GRL (CN020):**
- **For AC fan motor (CR-UXRP71B-P) – 3P (YEL)**

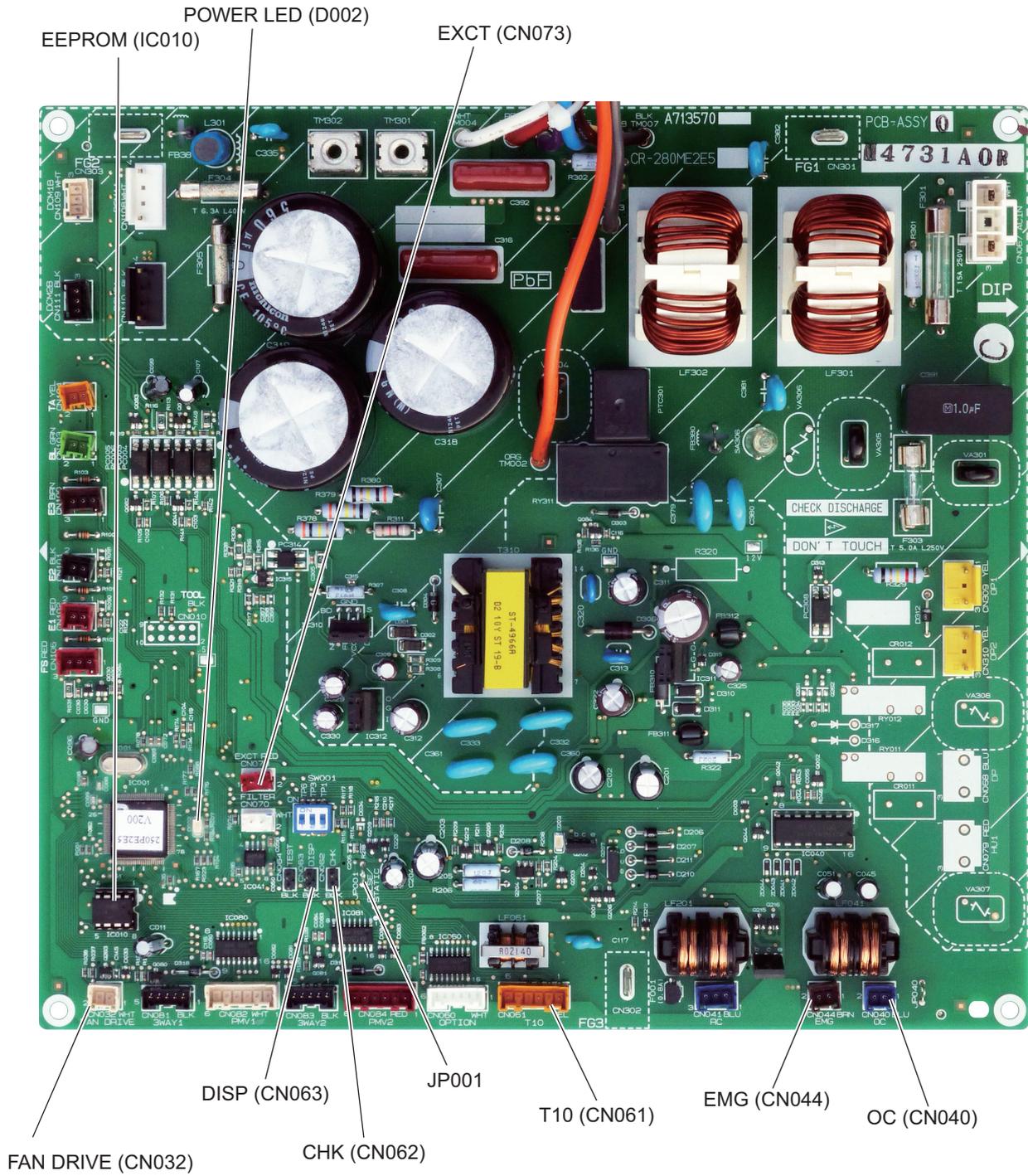


■ For AC Fan Motor (CR-UXRP71B-P)



4

■ Indoor Unit Control PCB (CR-280ME2E5) : S-200PE2E5, S-250PE2E5



– MEMO –

## 5. SERVICE PROCEDURES

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# 5-1. Meaning of Alarm Messages

## 1. Contents of the alarm display on the remote controller

ON:○ Blinking:☀ OFF:●

Possible cause of malfunction			Display	Wireless remote controller Lamp display		
				Operation	Timer	Preparing
Serial communication errors Mis-setting	Remote controller is detecting error signal from indoor unit	Error in receiving serial communication signal(Signal from main indoor unit in case of group control)Outdoor system address, indoor system address, or indoor unit individual/main/sub setting is not set (Automatic address setting is not completed)Auto address is not completed	E01			
		Error in transmitting serial communication signal	E02	☀	●	●
	Indoor unit is detecting error signal from remote controller (and system controller)		E03	☀	●	●
	Setting error	Indoor unit address setting is duplicated	E08			
		Remote controller setting is duplicated	E09			
	Indoor unit is detecting error signaled from signal option	Communications error between the DC fan and the driver.	E10			
		Error in receiving serial communications signal	E11			
	Setting error	Main unit duplication in simultaneous-operation multi control (detected by outdoor unit)	E14			
	Indoor unit is detecting error signaled from outdoor unit	Error in receiving serial communications signal	E04			
		Error in transmitting serial communications signal	E05			
	Outdoor unit is detecting error signaled from indoor unit	Error in receiving serial communications signal (including unit quantity verification failure)	E06	●	●	☀
		Error in transmitting serial communications signal	E07	●	●	☀
	Automatic address setting failed	Indoor unit capacity too low	E15			
		Indoor unit capacity too high	E16			
		No indoor units connected	E20			
Miswiring	Faulty connection between indoor and outdoor units or missing phase in the outdoor unit power supply.	E22				
An indoor unit detected trouble in the signal from another indoor unit	Error in transmitting serial communications signal	E17	☀	●	●	
	Error in receiving serial communications signal	E18	☀	●	●	
	Communications failure with MDC	E31	●	●	☀	
Mis-setting	Setting error	Indoor unit group settings error	L01			
		Indoor/outdoor unit type mismatch	L02	☀	●	☀
		Main unit duplication in group control (detected by indoor unit)	L03	☀ Simultaneously ☀		
		Outdoor unit address duplication (system address)	L04	☀	○	☀
		Group wiring connected for independent indoor unit	L07	☀ Simultaneously ☀		
		Address not set or group not set	L08	☀	●	☀
		Indoor unit capacity not set	L09	☀ Simultaneously ☀		
		Outdoor unit capacity not set or setting error	L10			
		Miswiring in group control wiring	L11	☀	○	☀
Indoor unit type setting error (capacity)	L13	☀ Simultaneously ☀				

Continued

5

Possible cause of malfunction			Display	Wireless remote controller Lamp display		
				Operation	Timer	Preparing
Ceiling panel connection failure			P09			
Activation of protective device	Indoor protection	Fan protective thermostat	P01			
		Float switch	P10	●	☀	☀
		Faulty drain pump. Drain pump locked.	P11		☀	☀
		DC fan error.	P12		☀	☀
	Outdoor protection	Discharge temperature trouble	P03			
		Open phase detected, AC power trouble	P05			
		No gas	P15			
		4-way valve locked	P19			
		High cooling load	P20	☀	●	☀
		Outdoor fan trouble	P22		☀	☀
		Inverter compressor trouble (HIC PCB)	P26			
		Inverter compressor trouble (MDC)	P29			
		Simultaneous-operation multi control trouble	P31			
		Compressor current failure (overload)	H01	●	☀	●
Thermistor fault	Thermistor open circuit ●Short circuit (indoor)	Indoor heat exchanger temperature sensor (E1)	F01			
		Indoor heat exchanger temperature sensor (E2)	F02	☀	☀	●
		Indoor temperature sensor	F10		☀	
	Thermistor open circuit ●Short circuit (outdoor)	Discharge temperature (TD)	F04			
		Outdoor heat exchanger temperature (C1)	F06			
		Outdoor heat exchanger temperature (C2)	F07	☀	☀	○
		Outdoor air temperature (TO)	F08		☀	
		Intake temperature (TS)	F12			
		Indoor EEPROM error	F29	☀	☀	●
		Outdoor EEPROM error	F31	☀	☀	○

## 5-2. Contents of LED Display on the Outdoor Unit Control PCB

	LED 1	LED 2	Remarks
<b>Power ON sequence</b> 1. No communication from indoor units in system 2. Communication received from 1 or more indoor units in system 3. Regular communication OK (Capacity and unit quantity match)	○ ● ●	○ ○ ●	If it is not possible to advance to 3, repeats 1 → 2. At 3, changes to normal control.
<b>Normal operation</b> EEPROM error (F31) Pre-trip (insufficient gas) Pre-trip (P20) Pre-trip (other)	○ ☀(0.25/0.75) ☀(0.25/0.75) ☀	☀ ● ● ●	Displayed during automatic address setting 1 and initial communication. After these are completed, alarm F31 is displayed. <b>P03</b>
<b>Alarm</b>	<b>Alternate blinking during alarms</b> LED 1 blinks M times, and then LED 2 blinks N times. The cycle then repeats. M = 2: P alarm 3: H alarm 4: E alarm 5: F alarm 6: L alarm N = Alarm No. * Refer to "Examples of alarm display" below.		
<b>Insufficient gas indicator</b>	☀	●	
<b>Refrigerant recovery mode</b>	☀	●	
<b>Automatic address setting</b> Automatic address setting in progress Automatic address setting alarm (E15) Automatic address setting alarm (E20) Automatic address setting alarm (Other than E15 and E20)	☀ ☀(0.25/0.75) ☀(0.75/0.25) ☀	☀ ☀(0.25/0.75) ☀(0.75/0.25) ☀	Blinking alternately Blinking simultaneously Blinking simultaneously Blinking simultaneously

○ :ON

☀:Blinking (0.25/0.75) indicates that the lamp illuminates for 0.25 seconds, and then is OFF for 0.75 seconds. Unless otherwise indicated, the blinking is (0.5/0.5).

● :OFF

Examples of alarm display (other than E15, E16, and E20)

Alarm / Display	LED 1 ← Alternately → LED 2
P02	☀ (Blinks 2 times)   ☀ (Blinks 2 times)
P03	☀ ( " )   ☀ (Blinks 3 times)
P04	☀ ( " )   ☀ (Blinks 4 times)
P05	☀ ( " )   ☀ (Blinks 5 times)
P31	☀ ( " )   ☀ (Blinks 31 times)
H01	☀ (Blinks 3 times)   ☀ (Blinks 1 times)
H02	☀ ( " )   ☀ (Blinks 2 times)
H03	☀ ( " )   ☀ (Blinks 3 times)
•	•
E04	☀ (Blinks 4 times)   ☀ (Blinks 4 times)
•	•
F07	☀ (Blinks 5 times)   ☀ (Blinks 7 times)
•	•
L13	☀ (Blinks 6 times)   ☀ (Blinks 13 times)
•	•

Note:

This table shows examples of alarms. Other type of alarms may also be displayed.

### 5-3. Symptoms and Parts to Inspect

Remote controller alarm display	Alarm contents	Judgement conditions	Eliminating condition of alarm	Judgement and correction
P03	Abnormal discharge temperature error. •Discharge temp. detected at or above the specified value.	Stops when temp. exceeds 115 °C. Alarm output on 4 pre-trips.	Recovery at restart	1. Check refrigerant cycle (gas leak). 2. Trouble with electronic expansion valve. 3. Check discharge temperature sensor (TD).
P05	Missing phase detected. (CT disconnected or AC power supply error)	The current value transmitted from the microcomputer on the outdoor unit control substrate is low. When no AC power input for more than 3 minutes: Pre-trip 5 times.	Recovery at restart	1. Check R/S/T power supply. 2. Check HIC circuit. 3. Check outdoor unit control PCB.
P15	Insufficient gas level detected.	•Discharge temperature is 100 °C or higher. •Electronic expansion valve is at Step 960. •The current value from the MDC is 6.0A (three-phase) / 3.5A (single-phase) or less. When the above has continued for 1 minute.	Recovery at restart	1. Check refrigerant cycle (gas leak). 2. Trouble with electronic expansion valve. 3. Check outdoor unit valve opening.
P19	4-way valve locked trouble. •Judged after 5 minutes had elapsed since the compressor was switched on.	The indoor unit heat exchanger temperature drops even though the compressor is switched on during the heating mode. [min(E1,E2)] is 10°C or lower. The indoor unit heat exchanger temperature rises even though the compressor is switched on during the cooling mode. E2 is 50°C or higher Pre-trip 2 times	Recovery at restart	1. Check 4-way valve. 2. Check 4-way valve wiring. 3. Check outdoor unit control PCB.
P20	High-pressure protection error caused by cooling high-load max (C1, C2) temperature.	Halted if the temperature exceeds 64 °C . Error output on 4 consecutive pre-trips.	Recovery at restart	1. Overload operation of refrigerant cycle. 2. Check outdoor unit heat exchanger temperature sensor C1 and C2.
P22	Outdoor unit fan motor trouble. •Inverter protection circuit was activated, or lock was detected at outdoor unit fan motor.	Inverter stops after alarm is detected. Pre-trip 4 times	Recovery at restart	1. Position detection trouble. 2. Outdoor unit fan motor over-current Protection circuit is activated. •Check outdoor unit control PCB. •Refer to outdoor unit fan judgement methods.
P26	Inverter protector circuit was activated. G-Tr short-circuit within the HIC circuit. (Short time / 0.8 seconds or less) HIC temperature protection	Inverter stops after alarm is detected. Alarm is output when inverter stops (pre-trip) consecutively 4 times.	Recovery at restart  Temperature dropped	1. Stops immediately even when operations restarted. •Layer short on the compressor 2. Check HIC circuit. •Wiring trouble 3. Heat sink and PCB (HIC) •Contact trouble

Remote controller alarm display	Alarm contents	Judgement conditions	Eliminating condition of alarm	Judgement and correction
P29	Error in current detection circuit. •AC current value is high, even while compressor is halted.	Inverter halted after alarm detected. Alarm output on 4 consecutive (pre-trips.)	Recovery at restart	1.Stops immediately even when operations restarted. •Layer short on the compressor 2.Check HIC circuit •Wiring trouble
F04	Disconnection, open circuit or short circuit in discharge temperature sensor (TD)	Sensor detection error (90 °C or more after 60 minutes has elapsed since the compressor was halted.)(Open circuit)	Automatic recovery	1.Check discharge temp. sensor (TD). 2.Check outdoor unit control PCB.
F06	Disconnection, open circuit or short circuit in outdoor unit heat exchanger temp. sensor (C1)	Open circuit or short circuit.	Automatic recovery	1.Check outdoor unit heat exchanger temperature sensor (C1). 2.Check outdoor unit control PCB.
F07	Disconnection, open circuit or short circuit in outdoor unit heat exchanger temp. sensor (C2)	Open circuit or short circuit	Automatic recovery	1.Check outdoor unit heat exchanger temp. sensor (C2). 2.Check outdoor unit control PCB.
F08	Disconnection, open circuit or short circuit in outdoor air temp. sensor (TO)	Open circuit or short circuit	Automatic recovery	1.Check outdoor air temp. sensor (TO). 2.Check outdoor unit control PCB.
F12	Disconnection, open circuit or short circuit in suction temp. sensor (TS)	Open circuit or short circuit	Automatic recovery	1.Check suction temp. sensor (TS). 2.Check outdoor unit control PCB.
F31	EEPROM trouble	Reading/writing failure	Power reset recovery	1.Check EEPROM (IC007). 2.Check outdoor unit control PCB.
L02	Indoor and outdoor units incompatible	Indoor unit judged incompatible with the outdoor unit type.	Power reset recovery	1.Check indoor unit EEPROM. 2.Check indoor unit control PCB.
L04	Settings failure	Duplicated outdoor unit address (system address)	Automatic recovery	1.Check outdoor unit system address. 2.Check inter-unit control wiring.
L07	Settings failure	Group control wiring exists in an individually-controlled indoor unit.	Power reset recovery	1.Check inter-unit control wiring. 2.Check indoor unit EEPROM.
L10	Settings failure	Outdoor unit capacity not set.	Power reset recovery	Check outdoor unit EEPROM.
L13	Indoor and outdoor unit types	Outdoor unit judged incompatible with the outdoor unit type.	Automatic recovery	1.Check indoor unit EEPROM. 2.Check outdoor unit control PCB.
E06	Outdoor unit detected a signal error from the indoor unit	Serial signals receiving failure (including faulty unit quantity confirmation)	Automatic recovery	1.Check inter-unit control wiring. 2.Check indoor and outdoor unit control PCB.
E07	Outdoor unit sending failure to indoor unit	Serial signal sending failure	Automatic recovery	1.Check inter-unit control wiring. 2.Check outdoor unit control PCB.

Remote controller alarm display	Alarm contents	Judgement conditions	Eliminating condition of alarm	Judgement and correction
E14	Settings failure	Main unit in simultaneous operation multi control duplicated. (Outdoor unit detected)	Power reset recovery	1.Check inter-unit control wiring. 2.Check indoor unit combination.
E15	Automatic address setting failure	Insufficient indoor unit capacity.	Power reset recovery	1.Check inter-unit control wiring. 2.Check indoor and outdoor unit control PCB.
E16	Automatic address setting failure	Excessive indoor unit capacity.	Power reset recovery	1.Check inter-unit control wiring. 2.Check indoor and outdoor unit control PCB.
E20	Automatic address setting failure	Outdoor unit cannot receive any serial signals from indoor units.	Power reset recovery	1.Check inter-unit control wiring. 2.Check indoor and outdoor unit control PCB.
E22	Miswiring error	Inter-unit connection are miswiring error. Missing phase for the outdoor unit power supply.	Power reset recovery	Check wiring.
E31	Communications trouble within unit	No communication possible with MDC for 3 minutes or longer.	Automatic recovery	Check outdoor unit control PCB.
H01	Over-current error	Inverter stops after alarm is detected.	Recovery at restart	1.Refrigerant cycle abnormal overload operations. 2.Screws connecting the HIC circuit between the heat sink are loose. 3.Faulty cooling of heat sink. 4.Check outdoor unit control PCB wiring.

## 5-4. Details of Alarm Messages

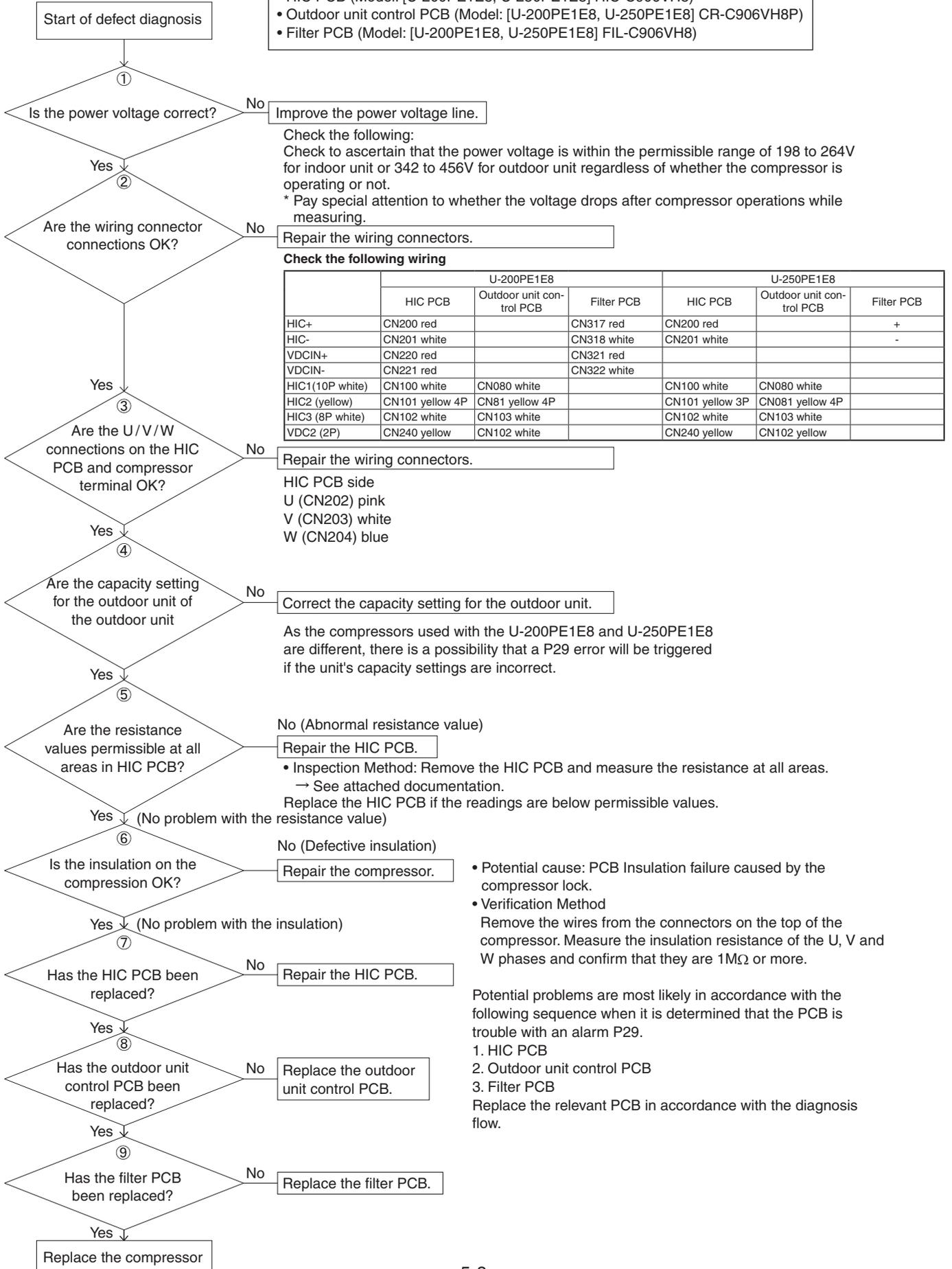
### Alarm Details

#### (1) [Alarm "P29"]

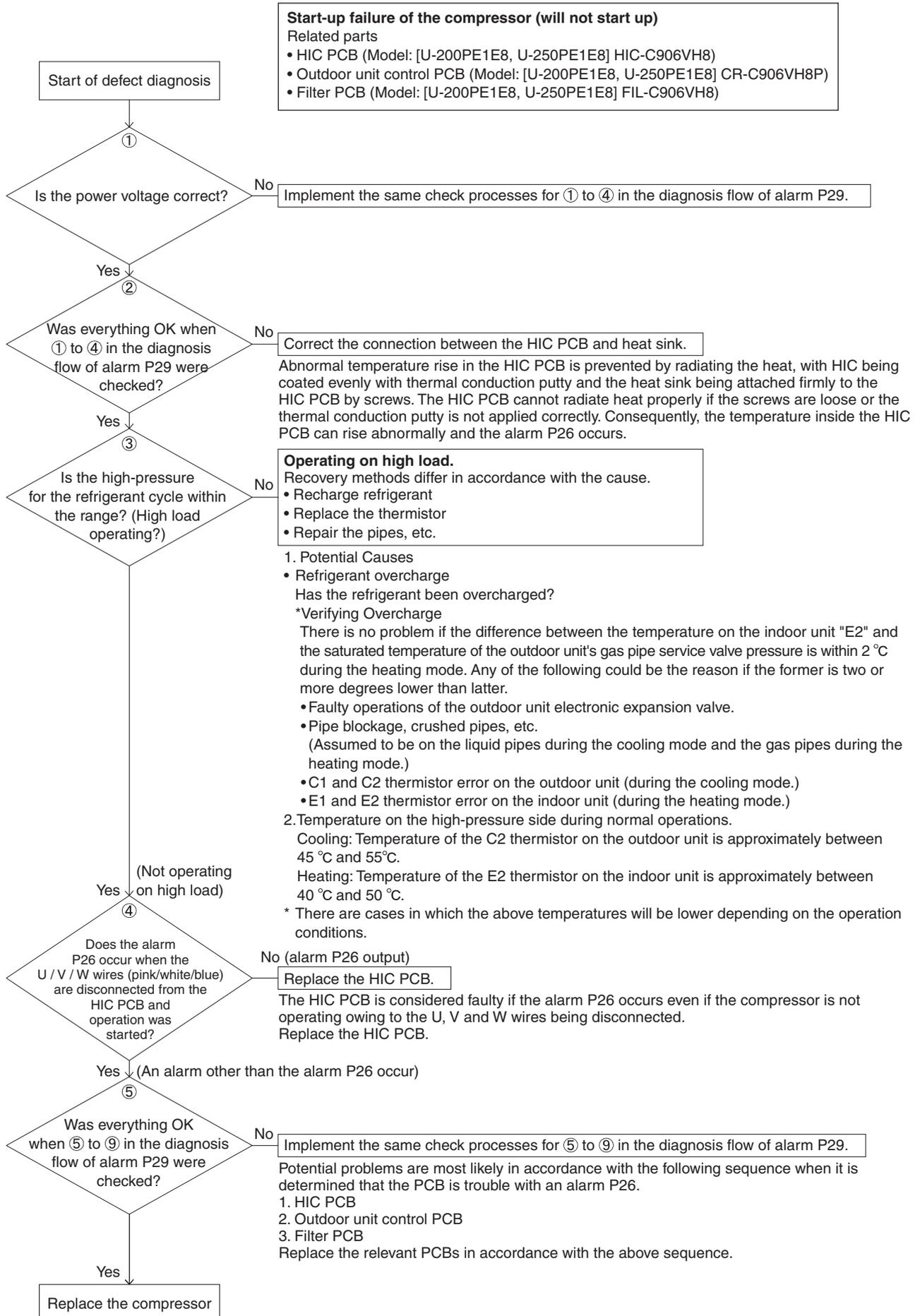
#### Start-up failure of the compressor (will not start up)

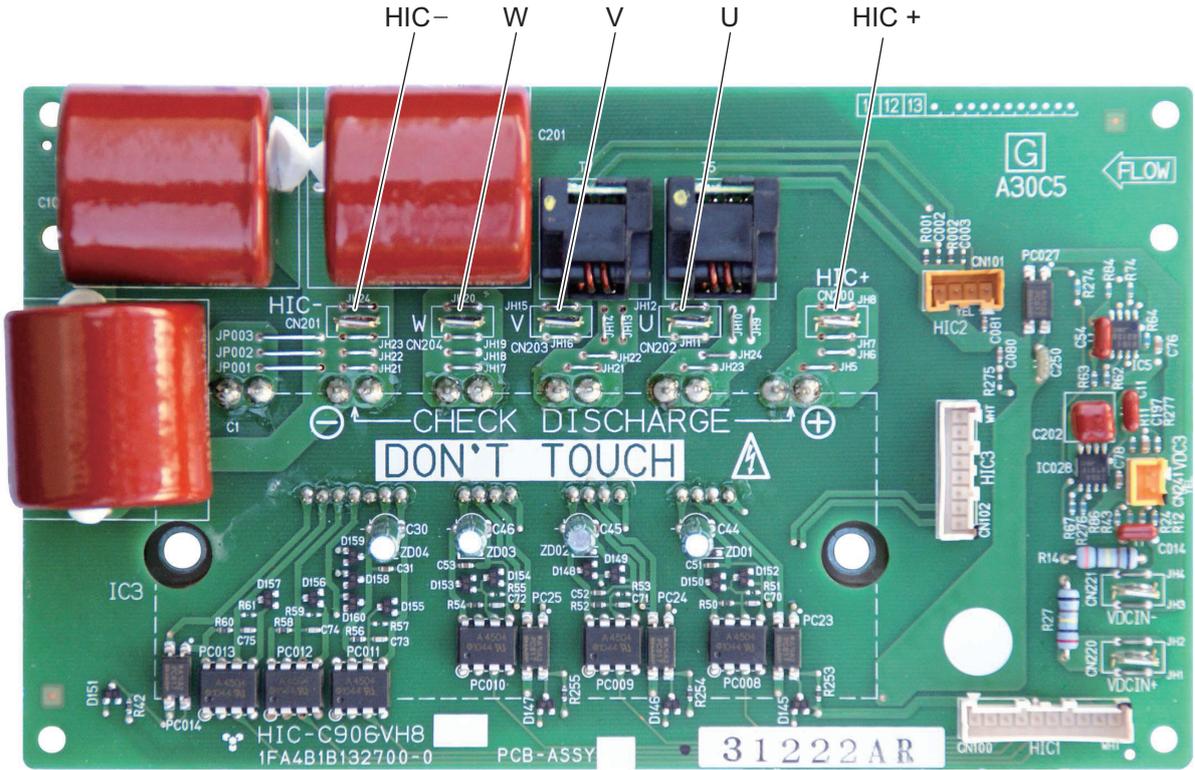
Related parts

- HIC PCB (Model: [U-200PE1E8, U-250PE1E8] HIC-C906VH8)
- Outdoor unit control PCB (Model: [U-200PE1E8, U-250PE1E8] CR-C906VH8P)
- Filter PCB (Model: [U-200PE1E8, U-250PE1E8] FIL-C906VH8)



(2) [Alarm “P26”]





Resistance

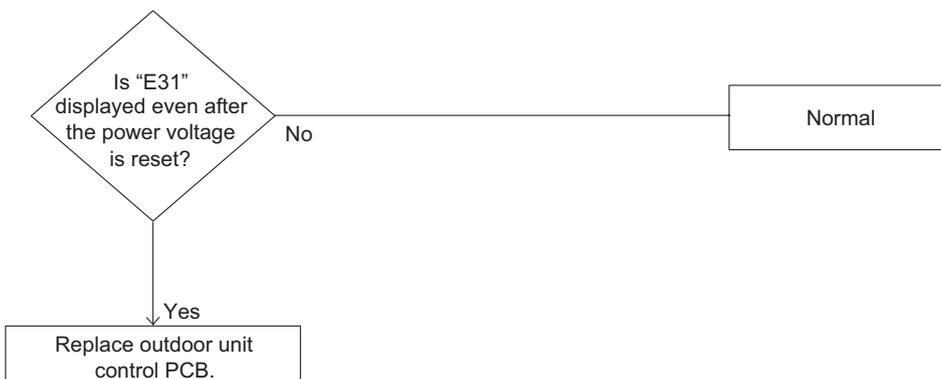
Between terminals		Resistance	Between terminals		Resistance
Tester terminal (+)	Tester terminal (-)		Tester terminal (+)	Tester terminal (-)	
HIC +	HIC -	5 k Ω ~ 10 k Ω	HIC -	HIC +	100 k Ω ~ ∞ Ω
HIC +	U	1 k Ω ~ 5 k Ω	HIC -	U	100 k Ω ~ ∞ Ω
HIC +	V	1 k Ω ~ 5 k Ω	HIC -	V	100 k Ω ~ ∞ Ω
HIC +	W	1 k Ω ~ 5 k Ω	HIC -	W	100 k Ω ~ ∞ Ω

Resistance (Common use in reversed tester measuring terminal)

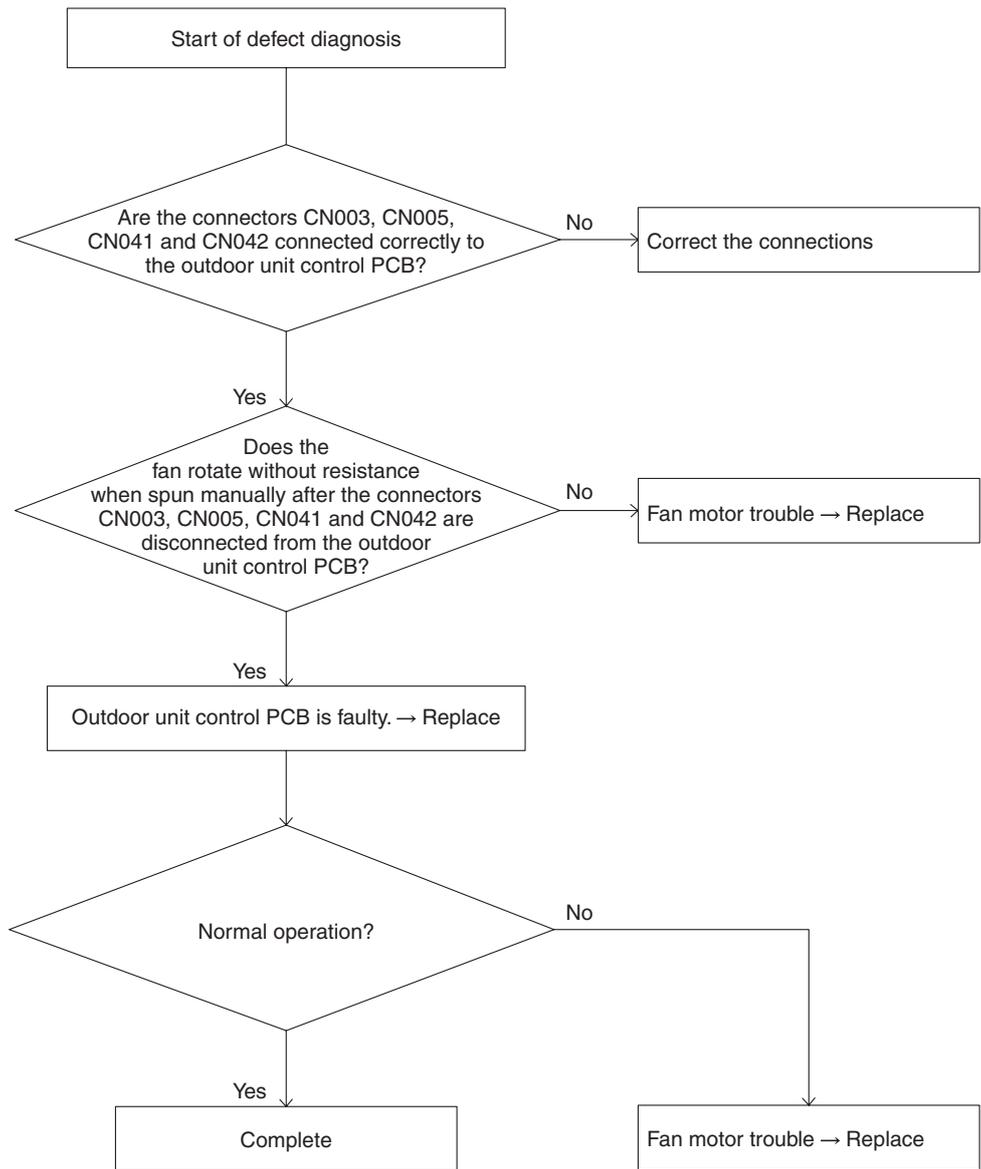
Between terminals		Resistance	Between terminals		Resistance
Tester terminal (-)	Tester terminal (+)		Tester terminal (-)	Tester terminal (+)	
HIC +	HIC -	100 k Ω ~ ∞ Ω	HIC -	HIC +	100 k Ω ~ ∞ Ω
HIC +	U	100 k Ω ~ ∞ Ω	HIC -	U	1 k Ω ~ 5 k Ω
HIC +	V	100 k Ω ~ ∞ Ω	HIC -	V	1 k Ω ~ 5 k Ω
HIC +	W	100 k Ω ~ ∞ Ω	HIC -	W	1 k Ω ~ 5 k Ω

- \* Be sure to measure by an analog tester.
- \* The table shows the value measured in k Ω.

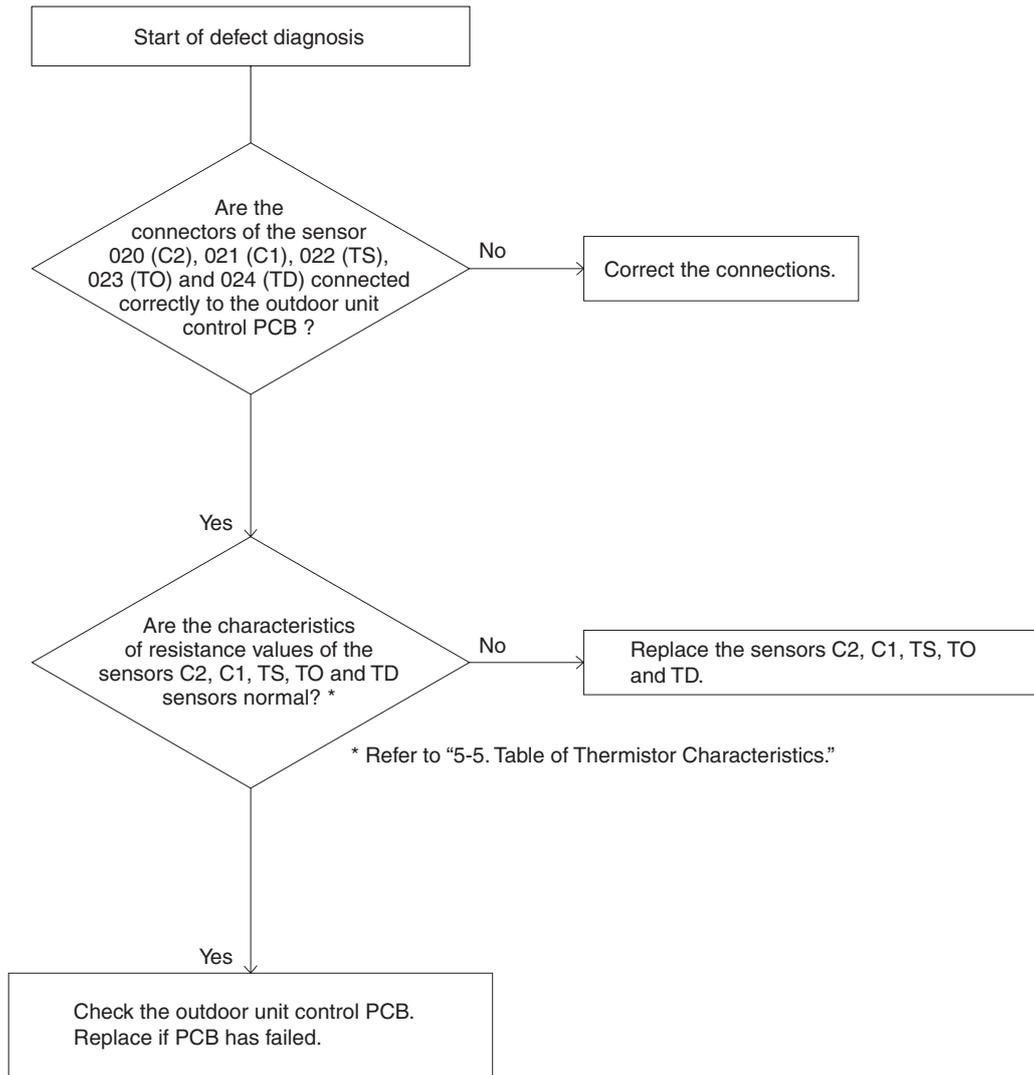
(3) [Alarm “E31”]  
(communications trouble at unit)



(4) [Alarm "P22"] — Outdoor unit fan motor drive circuit trouble



(5) [Alarms “F04,” “F06,” “F07,” “F08,” “F12”] ——— Sensor trouble



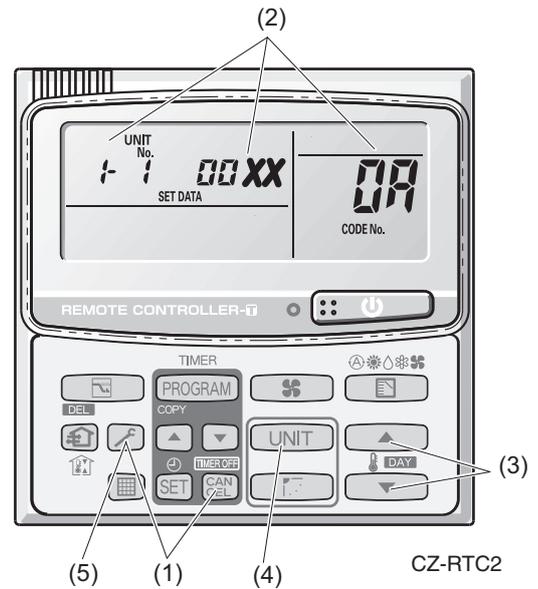
5

**Sensor Temperature Display Function (Displayed regardless of operation and stop)**

The below check procedure can be used to display all remote controller, indoor unit, and outdoor unit sensor temperatures.

<Check procedure>

- (1) Press and hold the **CAN CEL** button and **EDIT** button simultaneously for 4 seconds or longer.
- (2) Unit No. X-X (main unit No.), item code XX (sensor address), and service monitor 00XX (sensor temperature) appear on the remote controller LCD. (See figure.)
- (3) Press the temperature setting **▲** and **▼** buttons and change the item code to the sensor address of the sensor that you want to monitor.  
(For the relationship between the sensor address and the sensor type, refer to the below Sensor Temperature Correlation Table.)
- (4) During group control and simultaneous-operation multi control, press the **UNIT** button and change to the unit that you want to monitor.
- (5) Press the **EDIT** button to return to normal remote controller operation.



**Fig.2**

Example

- 1-1 : Unit No.
- 0A : Item code (sensor address)
- 00XX : Discharge temp. (TD)

**NOTE**

The temperature display reads "- - -" for units that are not connected.

\* If monitor mode is selected during normal operation, the only parts of the LCD that change are those shown in the figure 2.

All other displays do not change, and remain as they were during normal operation.

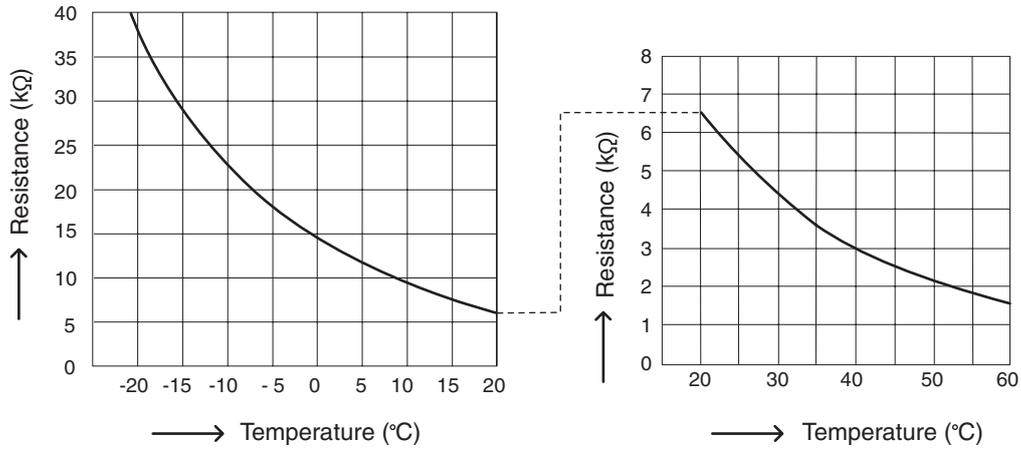
**Sensor Temperature Correlation Table**

Sensor installation location	Sensor address	Sensor type	Sensor address	Sensor type
Indoor unit	00	Room temp. (temp. used for control)*	05	-
	01	Remote controller temp.	06	Discharge temp.
	02	Indoor intake temp.	07	-
	03	Indoor heat exchanger temp. (E1)	08	-
	04	Indoor heat exchanger temp. (E2)	09	-
Outdoor unit	0A	Discharge temp. (TD)	12	-
	0b	-	13	-
	0C	Outdoor heat exchanger temp. (C2)	14	Current (AC current or CT 10 times value)
	0d	Intake temp. (TS)	15	Outdoor electronic control valve position (PMV1)
	0E	Outdoor heat exchanger temp. (C1)	16	Outdoor electronic control valve position (PMV2)
	0F	-	17	-
	10	-	18	-
	11	Outdoor air temp.(TO)	19	Compressor frequency

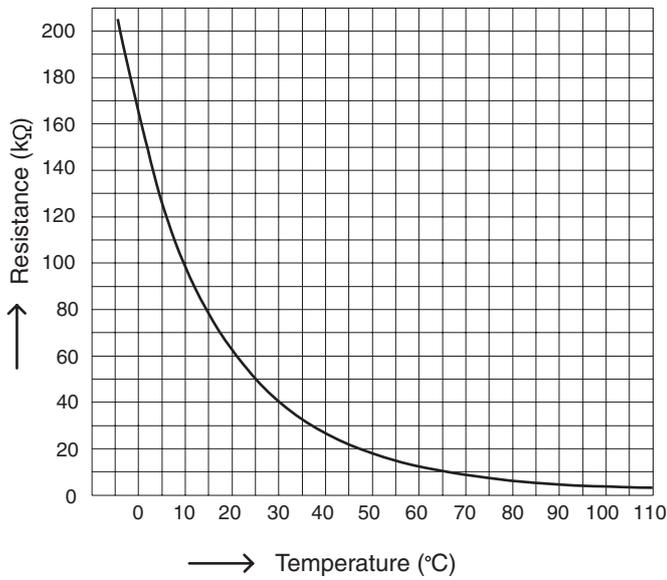
\* Main unit only when group control is enabled.

## 5-5. Table of Thermistor Characteristics

- (1) Outdoor Air Temp. (TO) Sensor,  
 Intake Temp. (TS) Sensor,  
 Heat Exchanger Temp. (C1) Sensor,  
 Heat Exchanger Temp. (C2) Sensor



- (2) Discharge Temp. (TD) Sensor

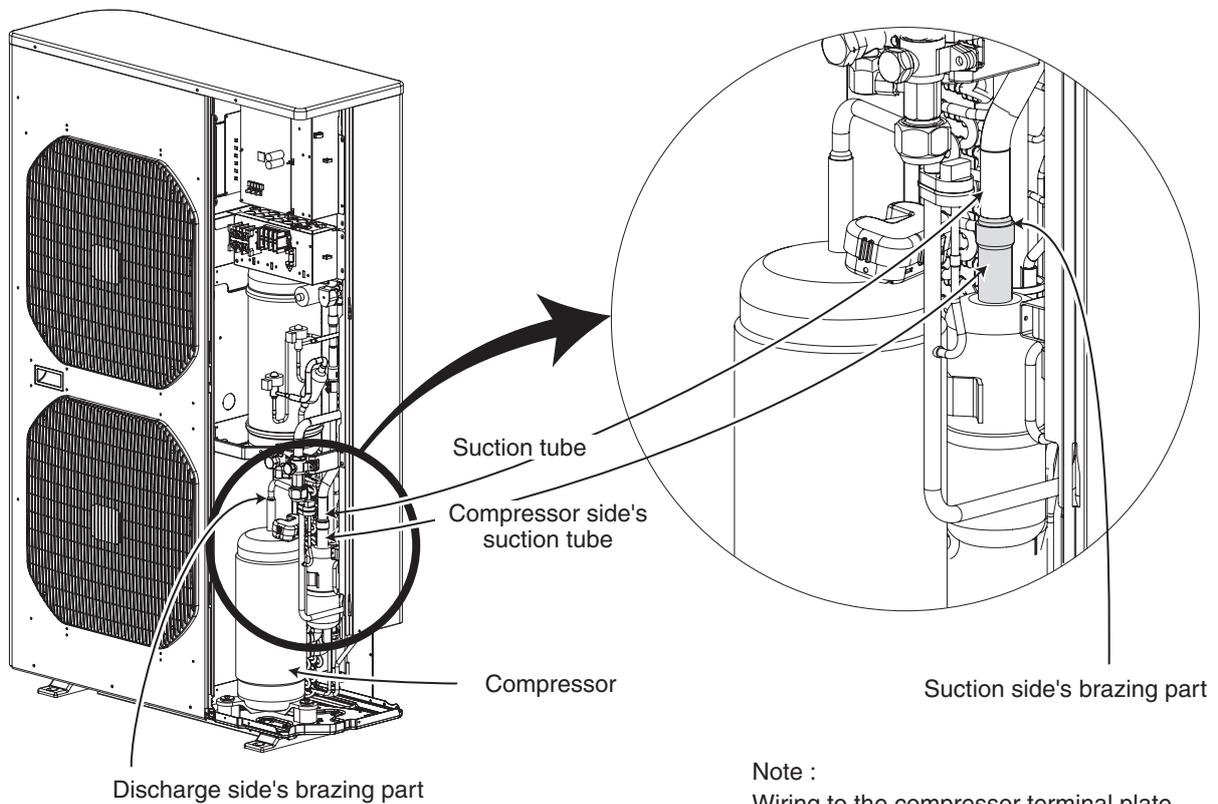


## 5-6. How to Remove the Compressor

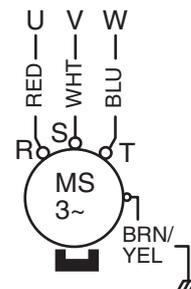
Pay careful attention to prevent water or foreign objects from entering into the refrigerant tubing when removing or installing the compressor.

### Removing

1. After collecting the refrigerant in the system, replace nitrogen gas from the service port of the gas tubing valve.
2. Remove the sound absorbing material protecting the compressor.
3. Remove the cap of the compressor's terminal and then remove the power source terminal and TD sensor.
4. Remove the crank case heater.
5. Remove the bolts (×3) and then remove the washer and rubber spacer.
6. Cut off the compressor side's suction tube because the suction tube is solid and unmovable. See the diagram below.
7. Remove the discharge side's brazing part (×1). See the diagram below.  
NOTE: Protect the sensor part, sheet metal, rubber, lead wire and clamber.
8. Pull the compressor toward you.
9. Remove the suction side's brazing part (×1) of the cut-off compressor side's suction tube connected to the suction tube.



Note :  
Wiring to the compressor terminal plate should be made without failure.



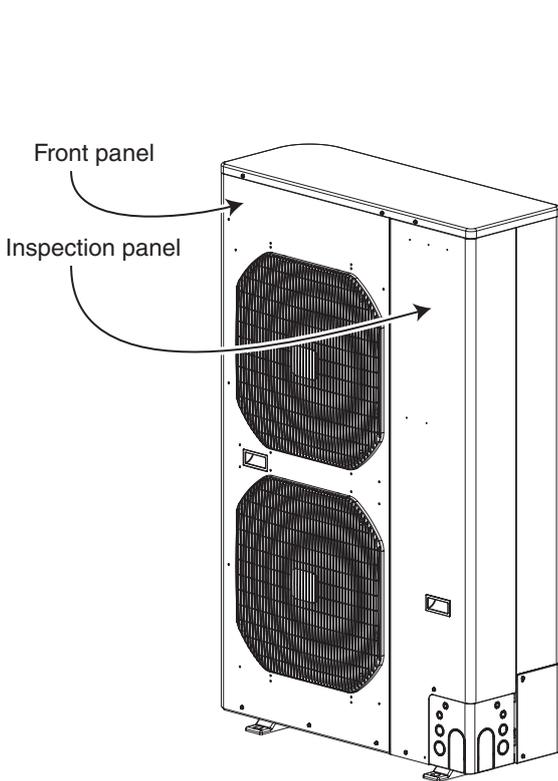
## 5-7. How to Remove the Electrical Component Box

### Removing

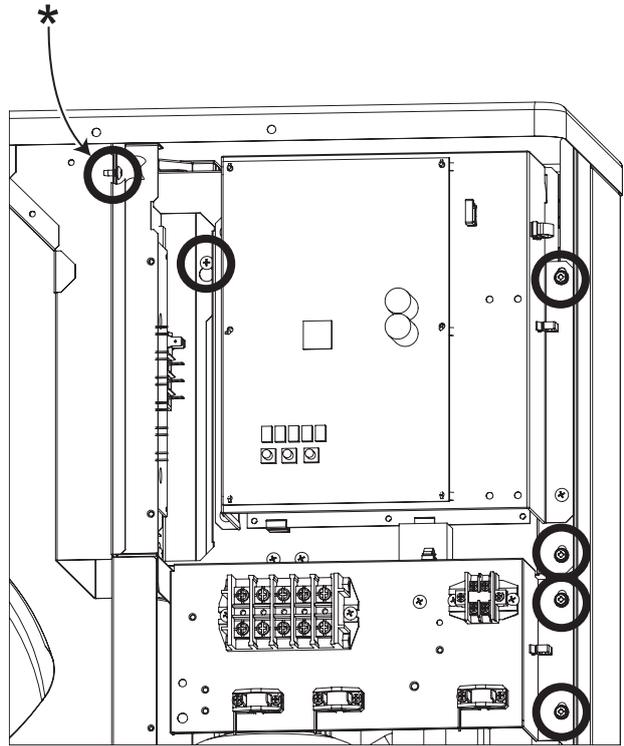
1. Remove the front panel and inspection panel from the outdoor unit.
2. Remove all local wires connected to the electrical component box.
3. Remove the wires (temperature sensor, coils of every sort of valve, pressure switch, fan motor and wires for connecting compressor) connected to the electrical component box in the unit.
4. Remove the fixture screws (×6) as shown in the diagram and remove the electrical component box.

#### NOTE:

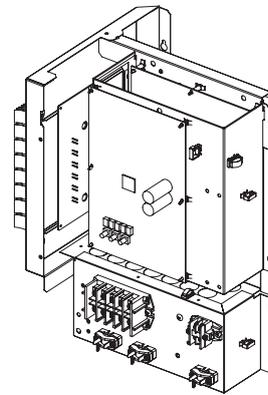
Be sure to remove the upper left side screw marked by \* in the diagram because that screw cannot be seen from the front side.



Outdoor unit before removal of front panel



Fixture screws (×6) for electrical component box



Electrical component box after removal

## 5-8. Symptom: Thermostat in OFF continues or cycles OFF & ON too frequently

### 1. How to detect abnormality

- Abnormality does not occur. Protective function can be checked when the outdoor maintenance remote controller is connected.

### 2. Error Diagnosis

1 Indoor control PC board	1-1	Setting temperature reaches the level set ON thermostat. Setting temperature is too low in heating mode and too high in cooling and dry mode.	Yes	Adjust setting temperature
			No	1-2
	1-2	Check if the sensors are connected correctly. Are all connection made properly? Room temp. (TA) in yellow, heat exchanger (E1) in red, heat exchanger (E2) in black, heat exchanger (E3) in brown, air outlet (BL) in green	Yes	Connect correctly
			No	1-3
	1-3	DISP (display mode) is applied.	Yes	Turn OFF(OPEN)
			No	1-4
	1-4	With a thermostat OFF in heating mode, wind speed (item code 05) is out of range 0 - 6. (Use Simple Setting Function on standard timer remote controller.)	Yes	Choose one of 0 to 6
			No	1-5
	1-5	EXCT(demand control) is applied.	Yes	Turn OFF(OPEN)
			No	2-1
2 Outdoor control PC board	2-1	Outdoor unit and protective function of a system are operating. (Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	See operational status
			No	2-2
	2-2	Discharge temperature is over 80°C in stop mode and does not decrease. (Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	Replace discharge temperature sensor
			No	2-3
	2-3	Demand value always stays low. (The value is lower than 70. Excluding -1 (unlimited))(Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	Increase values (over 70)
			No	2-4
2-4	DEMAND or EXCT(demand control) is applied.	Yes	Turn OFF(OPEN)	
3 Control equipment	3-1	Demand setting is made by control units (P-AIMS, Seri-Para I/O unit for outdoor unit, Seri-Para I/O each indoor unit.)	Yes	Turn OFF
			No	4-1
4 System	4-1	When operating in cooling (including auto cooling & heating) and dry mode, lowest temp. of indoor E1, E2 and E3 sensor is less than 2°C (under anti-freeze control).	Yes	Wait until more than 2°C reaches
			No	4-2
	4-2	During defrosting operation	Yes	Wait for a few minutes to 10 minutes or so
			No	4-3
	4-3	Outdoor unit PC board failure → Replacement		

- According to the type of models, the indoor sensors will not be supplied in some cases.
- According to the type of models, the outdoor DEMAND or EXCT will not be supplied in some cases.
- When LINE Checker is used, the temperature sensors can be observed (display, record) simultaneously.
- According to some areas, some of the models are unreleased.

– MEMO –

## 6. OUTDOOR UNIT MAINTENANCE REMOTE CONTROL

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## 6-1. Overview

### What is the outdoor unit maintenance remote controller?

Beginning with the DC-INV series of outdoor units, nonvolatile memory (EEPROM) is used in the outdoor unit PCB. In this way, the setting switches that were located on earlier PCBs have been converted to EEPROM data. This remote controller is an outdoor unit maintenance tool that is used to make and change the EEPROM settings.

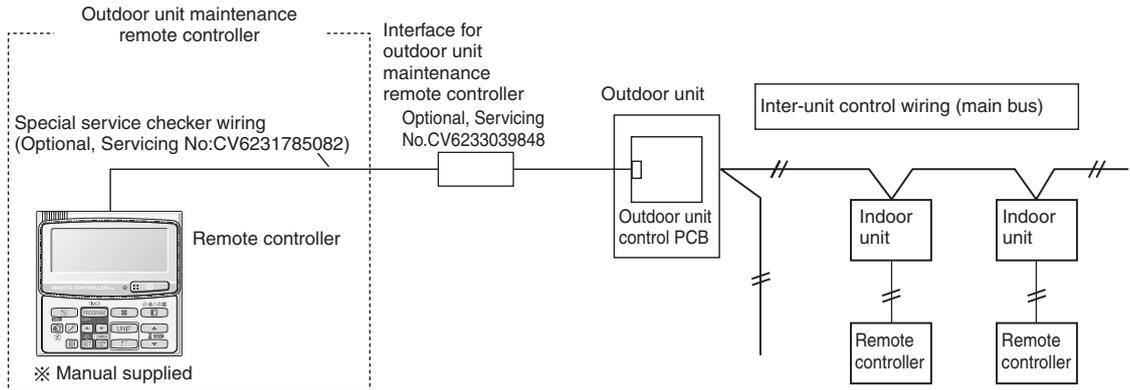
This remote controller can be used for checking the outdoor unit EEPROM settings and contents, and also can be used to monitor the outdoor unit alarm history and indoor/outdoor unit temperatures, and to check the status of the indoor unit connections (No. of units, operating status, etc.).

**Note:** Because this tool does not function as a remote controller, it is used only during test runs and servicing.



CZ-RTC2

### System diagram



- \* The special service checker wiring is required in order to connect the outdoor unit maintenance remote controller to the outdoor unit PCB.
- \* Even when the outdoor unit maintenance remote controller is connected, a separate remote controller or other control device must be connected to the indoor unit.

## 6-2. Functions

### ■ Normal display functions

(1) Functions: Button operations can be used to perform the following functions.

- Start/stop of all indoor units
- Switching between cooling and heating
- Test run of all indoor units
- High-speed operation of indoor units (Do not use with actual units. This may damage the devices.)

(2) Display: The following can be displayed.

- Alarm details display
- No. of indoor/outdoor units
- Unit Nos. of connected indoor/outdoor units
- Indoor/outdoor unit operating status (blinks when an alarm occurs)
- Indoor unit thermostat ON
- Individual display of outdoor unit alarms
- Outdoor unit compressor total operating time
- Outdoor unit oil sensor oil level
- Outdoor unit total power ON time
- Outdoor unit microcomputer version
- Other

### ■ Temperature monitor

- Displays the indoor/outdoor unit sensor temperatures.

### ■ Outdoor unit alarm history monitor

- Displays the outdoor unit alarm history.

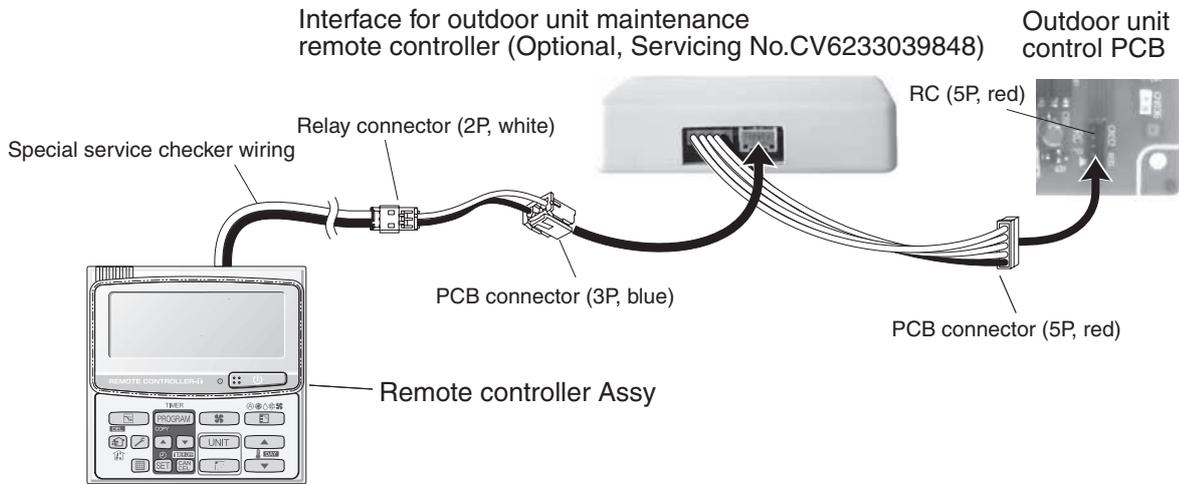
### ■ Setting modes

- Setting mode 1 and setting mode 2 are used to make the outdoor EEPROM setting.

## 6-3. Normal Display Operations and Functions

### ■ Normal display functions

- Connect the special service checker wiring to the outdoor unit PCB. The connection is shown in the figure below.



- \* It is not necessary to disconnect the communications line in the inter-unit control wiring if it has already been connected at this time.
- \* Setting modes 1 and 2 can be used even when the outdoor unit is independent (when 1 maintenance remote controller is connected to 1 outdoor unit and automatic address setting for the indoor units has not been completed).
- \* Displays the overall system status for that refrigerant system.

### ● All units start/stop (Fig. 6-1)

<Operation>

The  button can be used to start and stop all the indoor units.

- The LED turns ON when 1 or more indoor units is operating.
- The LED blinks when an alarm has occurred at 1 or more indoor units during operation.

### ● Switching between cooling/heating (Fig. 6-1)

<Operation>

The  button switches between heating and cooling modes.

- The specifications are equivalent to the heating/cooling input that was present on earlier outdoor unit PCBs.
- The display shows the operating mode of the indoor unit with the lowest number.

### ● All units test run (Fig. 6-2)

<Operation>

The  button switches test run ON/OFF for all indoor units.

- Press and hold for 4 seconds to turn ON. "Test run" is displayed while the test run is in progress.
- Conditions of test runs that are started from the unit remote controller are not displayed on the outdoor unit maintenance remote controller.

Fig. 6-1

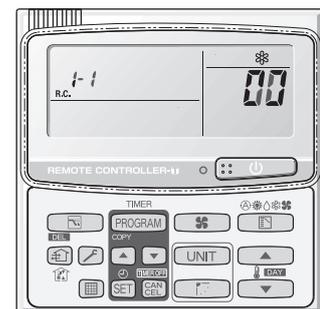
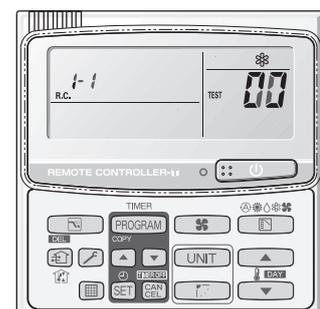


Fig. 6-2



## ■ Display (functions)

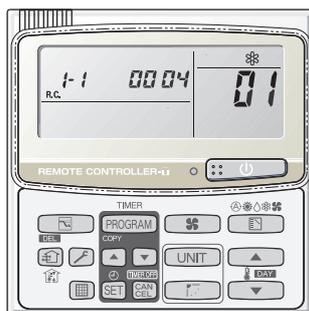
- Use the temperature setting  and  buttons to change the item code.

Item code	Display contents	Remarks
00 (1)	Outdoor unit alarm contents (code): OFF when normal Blinking 8-alarm code display at pre-trip, LED (2)	At initial status
01	No. of indoor units connected in that refrigerant system	
02	Unit Nos. of connected indoor units in that refrigerant system *2	
03	Operating status of indoor units in that refrigerant system (blinks when alarms occur) *2	
04	Unit Nos. of indoor units in that refrigerant system where the thermostats are ON *2	
05	No. of outdoor units connected in that refrigerant system	No. of connected units: 1
06	Unit Nos. of connected outdoor units in that refrigerant system *2	
07	Operating status of outdoor units in that refrigerant system (blinks when alarms occur) *2	
08		
09		
0A		
0b		
0C		
0d		
0E		
0F		
10	Total compressor operating time (in 1-hr. units) *3	
11		
12		
13		
14		
15		
16	Total power ON time of outdoor unit (in 1-hr. units)	
17	Compressor start count	
18		
19		
FE	Outdoor unit microcomputer firmware version	
FF	Outdoor unit microcomputer software version	

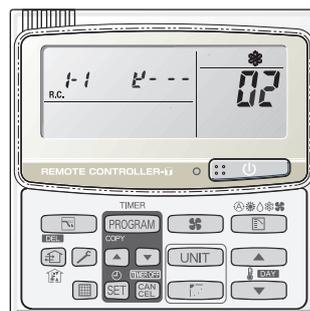
- XX-YY R.C.  
Displays the outdoor unit address of the selected outdoor sub-bus.  
XX = Main bus line outdoor system address (1 – 30)  
YY = Outdoor unit address in outdoor sub-bus (1 – 8). This is “1” when there is only 1 outdoor unit.

\* See following page for \*2 and \*3.

### <Sample displays>

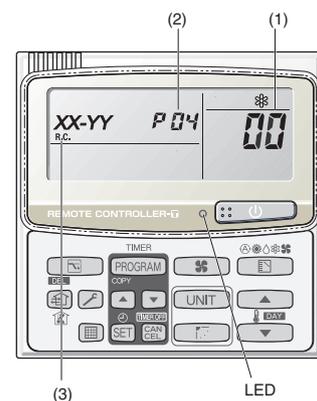


01: <No. of connected indoor units>  
4 units connected



02: <Unit Nos. 1, 2, 3, and 4 are connected>

Locations where (1), (2), and (3) are displayed as shown below.



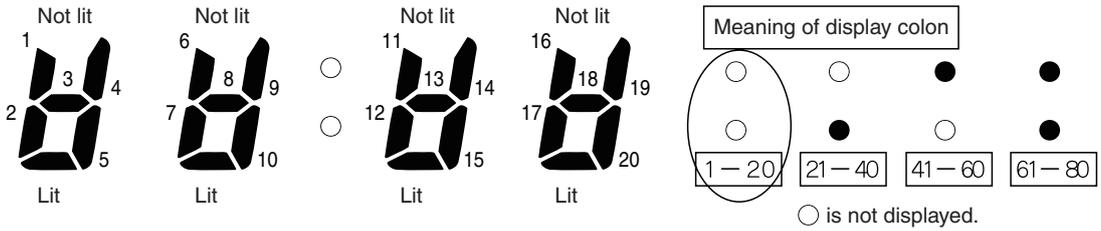
(3)

LED

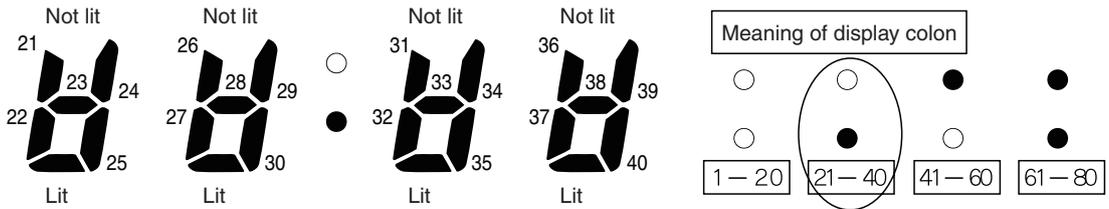
**\*2:** 7-segment, 4-digit display for remote controller timer display

The connected unit Nos. are displayed as shown below, using the 7-segment 4-digit (00:00) display and the colon.

● Display for unit Nos. 1 – 20

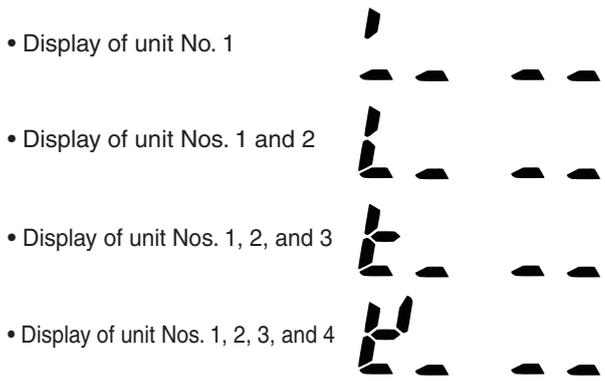


● Display for unit Nos. 21 – 40



● The meaning of the colon display changes in the same way, allowing unit Nos. up to 80 to be displayed.

● Sample displays of the unit Nos. of connected indoor units



**NOTE**

The colon display (Unit Nos. 1 – 20, 21 – 40) changes automatically every 10 seconds.

(The display does not change if higher unit numbers do not exist.)

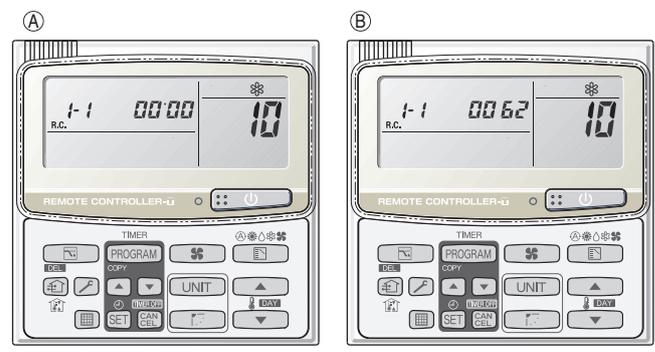
Pressing the button switches the display immediately to the next higher level, even if 10 seconds have not passed.

**\*3:** The total compressor operating time is displayed (in 1-hour units) using 8 digits.

- When the first 4 digits are displayed, the top point of the colon is lit.
- When the last 4 digits are displayed, the colon points are not lit.
- The display of the first 4 and last 4 digits changes automatically every 10 seconds. It can also be changed by pressing the button.

**NOTE**

With the outdoor unit maintenance remote controller (when connected to the outdoor unit), the unit remote controller check functions will not operate.



10: <Total compressor operating time> (A) and (B) are displayed alternately.

## 6-4. Monitoring Operations: Display of Indoor Unit and Outdoor Unit Sensor Temperatures

<Operating procedure>

- (1) Press and hold the  button and  button simultaneously for 4 seconds or longer to switch to temperature monitor mode.  
During temperature monitoring, “Service Monitor” is lit.  
(The display and operations are the same as when monitor mode is started from the unit remote controller.)

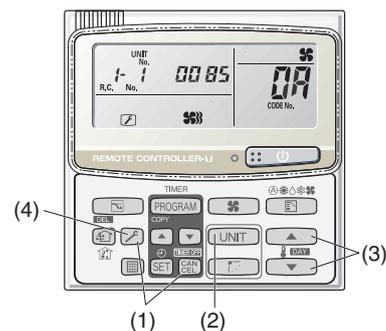
- (2) Press  the button and select the indoor unit to monitor.

- (3) Use the temperature setting  and  buttons to select the item code of the temperature to monitor.

The selected indoor unit No. and the temperature data are displayed.

- (4) To end monitoring, press the  button. The display returns to the normal display.

\* The display does not blink.



	Item code	Meaning of Code
Indoor unit data	02	Indoor unit intake temp.
	03	Indoor unit heat exchanger temp. (E1)
	04	Indoor unit heat exchanger temp. (E2)
	05	—
	06	—
	07	—
	08	—
	09	
	Outdoor unit data	0A
0b		—
0C		Outdoor unit heat exchanger temp. (C2)
0d		Intake temp. (TS)
0E		Outdoor unit heat exchanger temp. (C1)
0F		—
10		—
11		Outdoor air temp. ( TO )
12		—
13		—
14		Current value
15		Outdoor MV value (1)
16		Outdoor MV value (2)
19	Frequency	

\* Depending on the model, some items may not be displayed.

## 6-5. Monitoring the Outdoor Unit Alarm History: Display of Outdoor Unit Alarm History

\* Displays outdoor unit alarms only. Does not display indoor unit alarms.

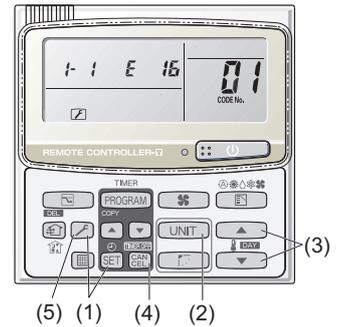
\* Check the indoor unit alarm histories separately using the indoor unit remote controllers or other control device.

<Operating procedure>

- (1) Press and hold the  button and  button simultaneously for 4 seconds or longer to change to outdoor unit alarm history mode.

During the alarm history display, “Service Check” is lit.

The display and operations are the same as the monitoring of the alarm device history that is performed using the unit remote controller. However, the outdoor unit address appears instead of the unit No.



- (2) Press the  button and select the outdoor unit for alarm history monitoring.

- (3) Use the temperature setting  and  buttons to select the item code for the alarm history.

The display shows the address of the selected outdoor unit, the item code, and the alarm history (alarm data).

The outdoor unit address is displayed as system XX-YY.

System XX = Outdoor unit system address



YY = Outdoor unit sub-bus address

The item code is displayed as 01 – 08. 01 indicates the most recent alarm.

The alarm history is indicated by the alarm code. (If there have been no alarm codes, “---” is displayed.)

- (4) To clear the alarm history, press the  button. (The outdoor unit alarm history will be cleared.)



- (5) To end, press the  button. The display returns to the normal remote controller display.

## 6-6. Settings Modes: Setting the Outdoor Unit EEPROM

- Setting mode 1

<Operating procedure>

- (1) Press and hold the  button and  button simultaneously for 4 seconds or longer.

- (2) Use the temperature setting  and  buttons to change the item code. The item codes and setting data are shown in the table of “List of Item Codes” on the next page.

- (3) Use the timer time  and  buttons to change the setting data.

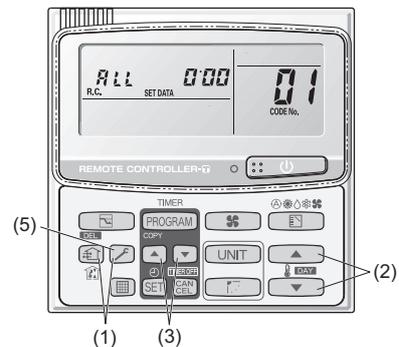
To confirm the changed setting data, press the  button.

(At this time, “Setting” stops blinking and remains lit.)

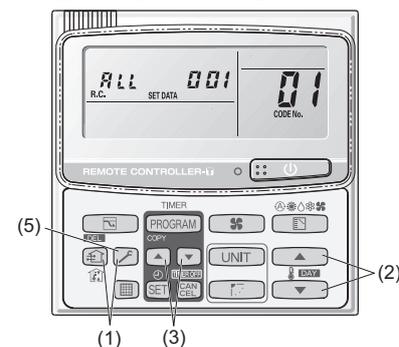
- (4) During this mode, “Setting” is displayed, blinking. The outdoor unit address display section displays “ALL,” the item code and number (DN value in the table), and the setting data (6 digits). (The setting data is displayed in 6 digits. The display changes between the first 3 digits (Fig.Ⓐ) ) and the last 3 digits (Fig.Ⓑ) ). When the first 3 digits are displayed, the top point of the colon is lit.)

- (5) To end the setting mode, press the  button.

Ⓐ Display of first 3 digits



Ⓑ Display of last 3 digits



Ⓐ and Ⓑ are displayed alternately. (Example shows display of 000 001.)

**List of Item Codes (Some item codes cannot be set due to the type of models.)**

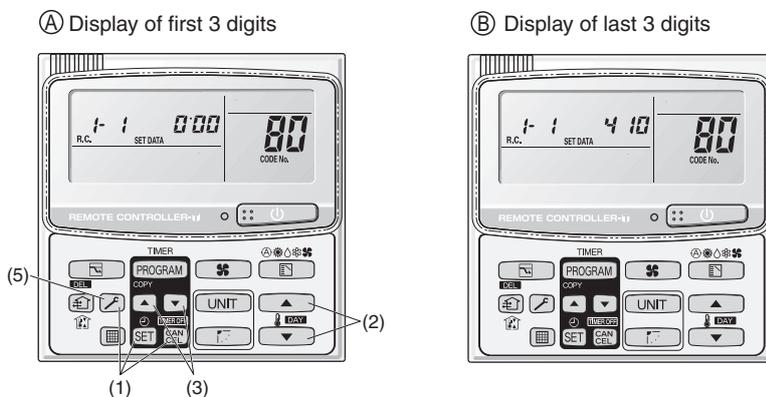
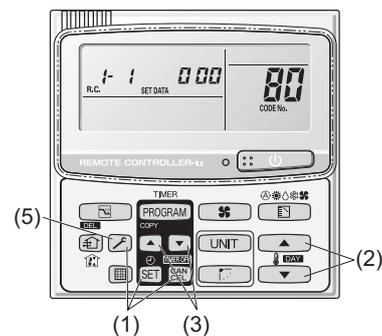
Item code	Parameter	
01	Control system schedule	Do not set
02	Control system schedule	Do not set
03	Control system schedule	Do not set
04	Snowfall sensor operation	0 = No sensor, control performed 1 = No sensor, control not performed 2 = Sensor present, control performed 3 = Sensor present, control not performed
05	Control system schedule	Do not set
06	Control system schedule	Do not set
07	Ignore capacity	0 = Disabled      1 = Ignores capacity ratio
08	Control system schedule	Do not set
09	Control system schedule	Do not set
0A	Control system schedule	Do not set
0b	Control system schedule	Do not set
0C	Forced operation of indoor unit drain pump	0 = Disabled 1 = During cooling only, 2 hours stopped + 20 minutes operating (regardless of whether the unit is running or stopped) 2 = During cooling only, 4 hours stopped + 20 minutes operating (regardless of whether the unit is running or stopped) 3 = At all times, 4 hours stopped + 20 minutes operating 4 = At all times, 2 hours stopped + 20 minutes operating
0d	Control system schedule	Do not set
0E	Cooling only	0 = Heat pump      1 = Cooling only
0F	Control system schedule	Do not set
10	Control system schedule	Do not set
11	Multi-floor installation	0 = Non              1 = Available
12	Control system schedule	Do not set
13	Control system schedule	Do not set
20	Cool OL control	Do not set
21	Silent mode	0 = 50dB(A) mode , 1 = 45dB(A) mode
50	Demand 1	70% ~ 100% (40% ~ 160% setting capable)
51	Demand 2	70% ~ 100% (40% ~ 160% setting capable)
52	Current control level	70% ~ 100% , -1 (No control) (40% ~ 160% setting capable)
57	Silent mode	0 = Normal (at shipment)    1 = Auto silent    2 = Capacity priority
58	Silent mode starting time (hour)	22 = 22 o'clock (at shipment)
59	Silent mode starting time (minute)	00 = 00 minute (at shipment)
5A	Silent mode finishing time (hour)	08 = 8 o'clock (at shipment)
5B	Silent mode finishing time (minute)	00 = 00 minute (at shipment)

\* Figures in parentheses indicate the data at the time of shipment from the factory.

● Setting mode 2

<Operating procedure>

- (1) Press and hold the  button,  button, and  button simultaneously for 4 seconds or longer.
- (2) Use the temperature setting  and  buttons to change the item code. The item codes and setting data are shown in the table below.
- (3) Use the timer time  and  buttons to change the setting data. To confirm the changed setting data, press the  button.  
(At this time, "Setting" stops blinking and remains lit.)
- (4) During this mode, "Setting" is displayed, blinking. The display shows the set outdoor unit address "System XX-YY" (System XX = System address, YY = Address at outdoor unit sub-bus), item code number (DN value in the table below), and the setting data (6 digits).  
(The setting data is displayed in 6 digits. The display changes between the first 3 digits (Fig. ㉔) and the last 3 digits (Fig. ㉕). When the first 3 digits are displayed, the top point of the colon is lit.)
- (5) To end the setting mode, press the  button. The display returns to the normal display mode.



80: <Refrigerant type> ㉔ and ㉕ are displayed alternately. (Example shows 000 410 (R410A).)

**List of Item Codes**

Item code	Parameter	
80	Refrigerant type	407 = R407C 22 = R22 410 = R410A
81	Outdoor unit capacity*	0 = Disabled 22 25 28 32 36 40 45 50 56 63 71 80 90 100 112 125 140 160 180 200 224 250 280 340 355 400 450 500 560 600 630 670 710 800 840
82	Control system schedule	Do not set
83	Control system schedule	Do not set
84	3-phase or single-phase	0 = 3-phase 1 = single-phase
85	Power frequency	0 = Disabled 1 = 50Hz
86	Control system schedule	Do not set
87	Control system schedule	Do not set
88	Control system schedule	Do not set
89	Control system schedule	Do not set
8A	Control system schedule	Do not set
8b	Control system schedule	Do not set
8E Upward fan model only available	Control temp. for outdoor fan's crack prevention	Setting temperature range : -125°C ~ +125°C Crack prevention of outdoor fan actuates when the outdoor temp. reaches lower than the setting values.

(\*) Figures represent the capacity data for each model.

– MEMO –

## 7. REMOTE CONTROLLER FUNCTIONS SECTION

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## 7-1. Simple Settings Function

- This allows the filter lifetime, operating mode priority change, central control address, and other settings to be made for an individual or group-control indoor unit to which the remote controller used for simple settings is connected.

When simple settings mode is engaged, operation stops at the individual or group-control indoor unit to which the remote controller for simple settings is connected.

### <Procedure>

- Press and hold the  and  buttons simultaneously for 4 seconds or longer.
- "SETTING," unit No. "1-1" (or "ALL" in the case of group control), item code "01," and settings data "00XX" are displayed blinking on the remote controller LCD display (Fig. 7-1). At this time, the indoor unit fan (or all indoor unit fans in the case of group control) begins operating.
- If group control is in effect, press the  button and select the address (unit No.) of the indoor unit to set. At this time, the fan at the indoor unit begins operating.  
\* If unit No. "ALL" is displayed, the same setting will be made for all indoor units.
- Press the temperature setting  /  buttons to select the item code to change.
- Press the timer time  /  buttons to select the desired setting data.  
\* For item codes and setting data, refer to the following page.
- Press the  button. (The display stops blinking and remains lit, and setting is completed.)
- Press the  button to return to normal remote controller display.

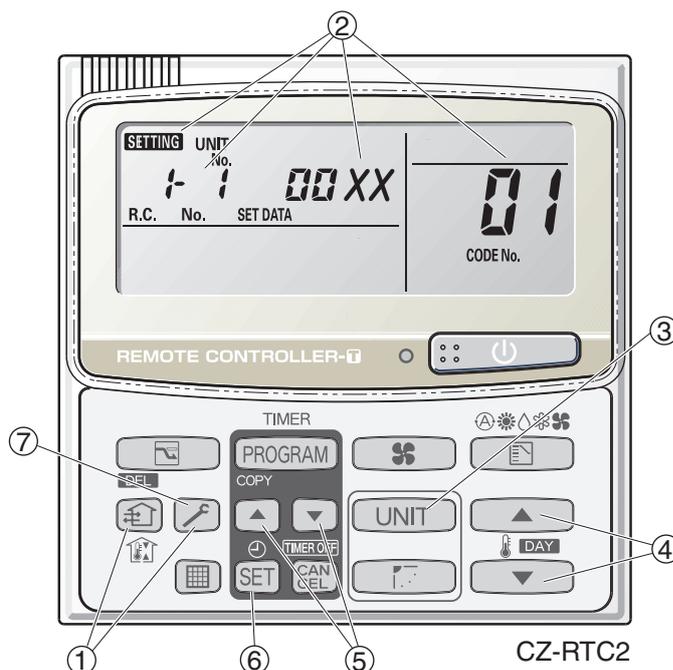


Fig. 7-1

## 7-2. List of Simple Setting Items

Item code	Item	Setting data		
		No.	Description	
01	Filter sign ON time (filter life time)	0000	Not displayed	
		0001	150 hours	
		0002	2,500 hours	
		0003	5,000 hours	
		0004	10,000 hours	
		0005	Use the filter clogging sensor.	
02	Degree of filter fouling	0000	Standard (setting at time of shipping)	
		0001	Highly fouled (Filter sign ON time is reduced to one-half the set time.)	
03	Central control address	0001	Central control address 1	
		0002	Central control address 2	
		0003	Central control address 3	
		}	}	
		0064	Central control address 64	
		0099	No central control address set (setting at time of shipping)	
04	Operating mode priority change	0000	Normal ( setting at time of shipping)	
		0001	Priority	
05	Fan speed when heating thermostat is OFF		Compressor ON	Compressor OFF
		0000	Lo 1 min., LL 3 min.	LL
		0001	Lo	LL
		0002	LL	LL
		0004	Lo 1 min., LL 3 min.	Lo
		0005	Lo	Lo
		0006	LL	Lo
06	Heating intake temperature shift	0000	No shift	
		0001	Shifts intake temperature 1 °C down.	
		0002	Shifts intake temperature 2 °C down.	
		0003	Shifts intake temperature 3 °C down.	
		0004	Shifts intake temperature 4 °C down.	
		0005	Shifts intake temperature 5 °C down.	
		0006	Shifts intake temperature 6 °C down.	
07	Electric heater installation	0000	No heater	
		0001	Heater installed	
08	Humidifying when heater thermostat is OFF	0000	No (setting at time of shipping)	
		0001	Yes	
0d	Permit/prohibit automatic heating/cooling	0000	Permit	
		0001	Prohibit	
0F	Cool-only	0000	Normal	
		0001	Cool only (Set "1" for item code OD.)	

### NOTE

- In order to avoid water leakage and damage to the fan, do not set for humidifying when the thermostat is OFF unless a vaporizing humidifier is used.
- Consider the device purpose and type when changing the settings. Incorrect settings may result in malfunction.
- Do not change any setting data that does not appear in this list.

### 7-3. Detailed Settings Function

- This allows the system address, indoor unit address, and other settings to be made for the individual or group-control indoor unit to which the remote controller used for detailed settings is connected.

When detailed settings mode is engaged, operation stops at the individual or group-control indoor unit where the remote controller used for detailed settings is connected. Simple settings items can also be set at this time.

#### <Procedure>

- ① Press and hold the , **SET** and **CAN CXL** buttons simultaneously for 4 seconds or longer.
- ② "**SETTING**," unit No. "**1-1**" (or "**ALL**" in the case of group control), item code "**10**," and settings data "**00XX**" are displayed blinking on the remote controller LCD display (Fig. 7-2).

At this time, the indoor unit fan (or all indoor unit fans in the case of group control) begins operating.

- ③ If group control is in effect, press the **UNIT** button and select the address (unit No.) of the indoor unit to set. At this time, the fan at the indoor unit begins operating.
- ④ Press the temperature setting  /  buttons to select the item code to change.
- ⑤ Press the timer time  /  buttons to select the desired setting data.

\* For item codes and setting data, refer to the following page.

- ⑥ Press the **SET** button. (The display stops blinking and remains lit, and setting is completed.)
- ⑦ Press the  button to return to normal remote controller display.

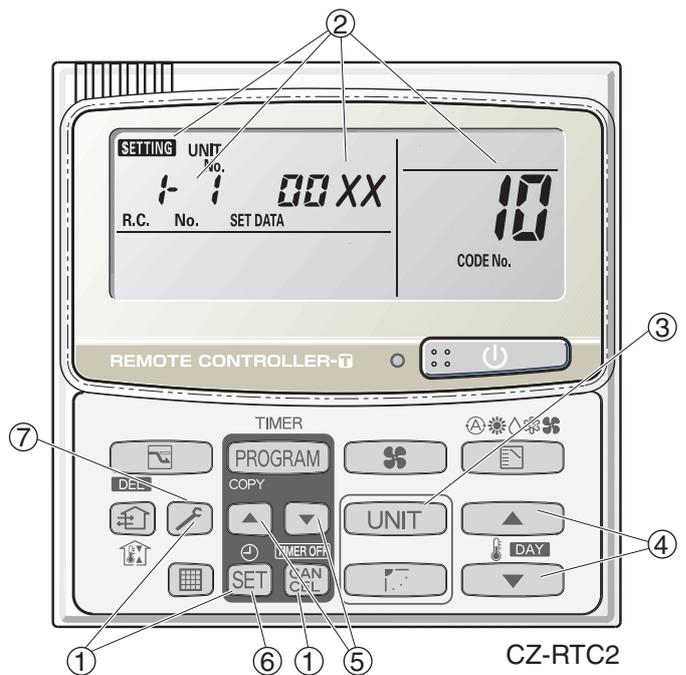


Fig. 7-2

## 7-4. List of Detailed Setting Items

Item code	Item	Setting data					
		No.	Description	No.	Description	No.	Description
10	Type	0000	—	0001	—	0002	—
		0003	—	0005	—	0006	High Static Pressure Ducted (E2, E1)
		0007	—	0008	—	0010	—
		0011	—		—		—
11	Indoor unit capacity	0001	—	0003	—	0005	—
		0007	—	0009	—	0011	—
		0012	—	0015	—	0017	—
		0018	—	0021	224 (Type 200)	0023	280 (Type 250)
12	System address	0001	Unit No. 1				
		0002	Unit No. 2				
		0003	Unit No. 3				
		}	}				
		0030	Unit No. 30				
		0099	Not set				
13	Indoor unit address	0001	Unit No. 1				
		0002	Unit No. 2				
		0003	Unit No. 3				
		}	}				
		0064	Unit No. 64				
		0099	Not set				
14	Group control address	0000	Individual (1:1 = Indoor unit with no group wiring)				
		0001	Main unit (One of the group-control indoor units)				
		0002	Sub unit (All group-control indoor units except for main unit)				
		0099	Not set				
17	Cooling intake temperature shift	-010	Shifts intake temperature 10°C down.				
		-009	Shifts intake temperature 9°C down.				
		}	}				
		-001	Shifts intake temperature 1°C down.				
		0000	No intake temperature shift				
		0001	Shifts intake temperature 1°C up.				
		}	}				
		0009	Shifts intake temperature 9°C up.				
0010	Shifts intake temperature 10°C up.						
18	Automatic stop time after operation start  * Can be set in 5-minute units.	0000	Function disabled				
		0001	Stops automatically 5 minutes after operation starts.				
		0002	Stops automatically 10 minutes after operation starts.				
		}	}				
		0123	Stops automatically 615 minutes after operation starts.				
		0124	Stops automatically 620 minutes after operation starts.				
		0125	Stops automatically 625 minutes after operation starts.				

Item code	Item	Setting data		
		No.	Description	
<b>1b</b> (1B)	Forced thermostat ON	0000	5 minutes	
		0001	4 minutes	
<b>1c</b>	Cooling discharge temperature shift	-010	-10°C	
		-009	-9°C	
		-008	-8°C	
		}	}	
		0010	10°C	
<b>1d</b>	Heating discharge temperature shift	-010	-10°C	
		-009	-9°C	
		-008	-8°C	
		}	}	
		0010	10°C	
<b>1e</b>	Temperature shift for cooling/heating change in auto heat/cool mode	0001	± 1°C	
		0002	± 2°C	
		0003	± 3°C	
		}	}	
		0007	± 7°C	
<b>1f</b> (Upper limit) <b>20</b> (Lower limit)	Change to remote control temperature setting range	Cooling	0018	18°C (Lower limit at shipment)
			0019	19°C
			}	}
			0029	29°C
			0030	30°C (Upper limit at shipment)
<b>21</b> (Upper limit) <b>22</b> (Lower limit)		Heating	0016	16°C (Lower limit at shipment)
			0017	17°C
			}	}
			0029	29°C
			0030	30°C (Upper limit at shipment)
<b>23</b> (Upper limit) <b>24</b> (Lower limit)		Drying	0018	18°C (Lower limit at shipment)
			0019	19°C
			}	}
			0029	29°C
			0030	30°C (Upper limit at shipment)
<b>25</b> (Upper limit) <b>26</b> (Lower limit)		Auto heat/cool	0017	17°C (Lower limit at shipment)
			0018	18°C
			}	}
			0026	26°C
			0027	27°C (Upper limit at shipment)
<b>29</b>	Humidifier operation	0000	Normal	
		0001	Ignore heat exchanger temperature conditions.	
<b>2A</b>	Filter (CN70) input switching	0000	Filter input (differential pressure switch input)	
		0001	Alarm input (for trouble input about air cleaner or similar device)	
		0002	Humidifier input (Operates linked with drain pump when humidifier is ON.)	
<b>2c</b>	Indoor unit electronic control valve	0000	Present (Setting at shipment)	
		0002	None	
<b>2E</b>	T10 terminal switching	0000	Normal (Used as optional relay PCB or JEMA standard HA terminal.)	
		0001	Used for OFF reminder	
		0002	Fire prevention input	

Item code	Item	Setting data				
		No.	Description			
2F	Automatic drain pump operation	0000	No forced operation			
		0001	Forced operation for 1 minute			
		}	{			
		0060	Continuous operation			
31	Ventilation fan operation	0000	None			
		0001	Ventilation fan operated by remote controller.			
32	Wired remote controller sensor	0000	Not used. (Body sensor is used.)			
		0001	Remote control sensor is used.			
34	"Operation change control in progress" display	0000	Normal (displayed)			
		0001	Not displayed			
35	OFF reminder function for when weekly timer is used	0000	None			
		0001	Only stop time setting is enabled.			
3C	Heat exchanger temperature for cold air discharge (Heat exchanger control point for control to prevent cold air)	0013	Control temperature 13°C			
		0014	Control temperature 14°C			
		}	{			
		0025	Control temperature 25°C			
		0026	Control temperature 26°C			
3d	Fan output switching	0000	Output linked with fan. (ON when indoor unit fan is operating.)			
		0001	Fan mode operation output			
3E	Drain pump delayed start time	0000	No delayed start			
		0001	1 sec. delayed start	Indoor unit Type E1	1 min. delayed start	Indoor unit Type E2
		0002	2 sec. delayed start		2 min. delayed start	
		}	}		}	
		0058	58 sec. delayed start		58 min. delayed start	
		0059	59 sec. delayed start		59 min. delayed start	
		0060	60 sec. delayed start		60 min. delayed start	
40	Humidifier setting	0000	Humidifier output OFF. Drain pump stopped.			
		0001	Humidifier output ON. Drain pump operates.			
		0002	Humidifier output ON. Drain pump operates for 1 minute when total humidifier operating time reaches 60 minutes.			
		0003	Humidifier output ON. Drain pump stopped.			
45	Flap operation mode	0000	Standard setting			
		0001	Draft reduction mode (Flap lower-limit position is shifted upwards.)			
46	Flap swing mode	0000	Smudging reduction mode (Flap swing upper-limit position is shifted downwards.)			
		0001	Normal mode			
		0002	Draft reduction mode (Flap swing lower-limit position is shifted upwards.)			

Item code	Item	Setting data		
		No.	Description	
5d	Fan tap setting (Fan tap change in order to prevent drop in air discharge caused by filter installation)		DC fan tap operating mode	Purpose
		0000	Standard	Standard (setting at shipment)
		0001	High ceiling use	High ceiling setting 1 (with standard panel)
			For low static-pressure filter	Ultra long-life filter, oil guard panel, ammonia deodorizing filter, optical regenerative deodorizing filter
		0003	High ceiling use	High ceiling setting 2 (with standard panel)
			For low static-pressure filter	(Antibacterial) high-performance filter (90%) (Antibacterial) high-performance filter (65%) Air-cleaning unit, air-cleaning unit + optical regenerative deodorizing filter, deodorant (activated charcoal) filter
			For air-blocking material	For 3-Way discharge, when discharge duct is connected
0006	For air-blocking material	For 2-Way discharge		
5E	Humidifier ON time (ON time per 60 seconds)	0000	No humidifier output	
		0001	1 second.	
		0002	2 seconds.	
		}	}	
		0058	58 seconds.	
		0059	59 seconds.	
		0060	Continuously ON	
5F	Repeat timer switching	0000	Function disabled	
		0001	Function enabled	
60	Timer function change prohibit	0000	Function disabled	
		0001	Function enabled	
62	Smudging control	0000	No smudging control	

## 7-5. Simple Setting Items

Item code	Item	Description
01	Filter sign ON time setting (filter lifetime)	Changes the indoor unit filter lifetime when a high-performance filter or other optional product is installed.
02	Degree of filter fouling	Reduces the filter sign ON time to 1/2 of the standard time (setting at the time of shipping) for cases when filter fouling is more severe than normal.

### Filter sign ON times for each model

Model data	Model	Filter sign ON time			
		Standard		Long-life	
		Standard	High fouling	Standard	High fouling
0006	High Static Pressure Ducted (E2, E1)	x	x	x	x

#### NOTE

- x indicates that there is no corresponding filter.

Item code	Item	Description
03	Central control address	Set when using a central control device. Used when setting the central control address manually from the remote controller.

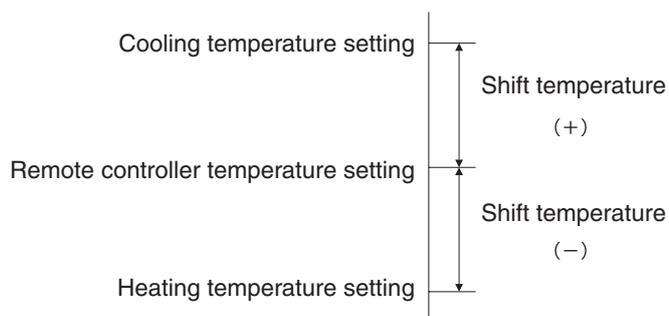
When the operating mode at the priority remote controller is changed, the operating modes of other remote controllers change as shown below.

Mode change at priority remote controller		Operating modes at other remote controllers	
Current mode	New mode	Current mode	New mode
Cooling or dry	Heating	Cooling or dry	Heating
		Fan	Fan (not changed)
Heating	Cooling	Heating	Cooling
		Fan	Fan (not changed)
Cooling	Dry	Cooling	Cooling (not changed)
		Dry	Dry (not changed)
Heating	Dry	Heating	Cooling
		Fan	Fan (not changed)
Cooling or dry	Fan	Cooling	Cooling (not changed)
		Dry	Dry (not changed)
		Fan	Fan (not changed)
Heating	Fan	Heating	Heating (not changed)
		Fan	Fan (not changed)

Item code	Item	Description
05	Fan speed setting when heating thermostat is OFF	Changes the fan speed setting when the heating thermostat is OFF.
06	Heating intake temperature shift	Shifts the intake temperature during heating. Can be set when the body thermostat is used.
07	Electric heater installation	Set when cost distribution is performed using an AMY central control system or similar system, and when an optional electric heater is installed. (This is unrelated to control of the electric heater.)
08	Humidifying when heater thermostat is OFF	Normally humidifying does not occur when the thermostat is OFF during heating operation. However, this setting can be changed in order to increase the amount of humidifying. Caution: In order to avoid water leakage and damage to the fan, do not use this setting unless a vaporizing humidifier is used.
0D	Permit/prohibit automatic heating/cooling	This setting can be used to prevent the automatic heating/cooling display on the remote control if the unit configuration permits automatic heating/cooling operation.
0F	Cooling-only	This setting allows a heat pump indoor unit to be operated as a cooling-only unit.

## 7-6. Detailed Setting Items

Item code	Item	Description
10	Unit type	Set when the indoor unit EEPROM memory is replaced during servicing.
11	Indoor unit capacity	
12	System (outdoor unit) address	These are not set at the time of shipping from the factory. These must be set after installation if automatic address setting is not performed.
13	Indoor unit address	
14	Group address	
17	Cooling intake temperature shift	Shifts the intake temperature during cooling and dry operation. (Enabled only when the body thermostat is used.) Increase this value when it is difficult to turn the thermostat ON.
18	Automatic stop time after operation start	The time at which an indoor unit is automatically stopped after operation starts can be set in increments of 5 minutes.
1b	Forced thermostat ON time	Use this setting to change the time for forced operation at installation or servicing from 5 minutes to 4 minutes.
1E	Temperature shift for cooling / heating change in "auto heat / cool" mode	"Auto heat / cool" selects the operating mode automatically based on the difference between the room temperature and the temperature set on the remote controller. This setting establishes a shift temperature for the heating / cooling temperature setting relative to the remote controller temperature setting.



Item code	Item	Description
1F (Upper limit) 20 (Lower limit)	Change to the remote control temperature setting range	Cooling Heating Drying Auto heat/cool This setting changes the temperature range (upper limit and lower limit) which is set from the remote controller or central control device. The set upper limit must be greater than or equal to the lower limit. If the temperature setting is to be a single point, set the upper limit and lower limit to the same temperature.
21 (Upper limit) 22 (Lower limit)		
23 (Upper limit) 24 (Lower limit)		
25 (Upper limit) 26 (Lower limit)		
29	Humidifier operation which ignores the heat exchanger temperature	During heating operation, the humidifier operates when the heat exchanger temperature is suitable for humidifying. This setting is used to ignore this condition for humidifier operation and operate the humidifier more.
2A	Filter input switching	This setting switches the filter input according to the purpose of use.
2C	Indoor unit electronic control valve	This setting indicates whether or not an indoor unit electronic control valve is present. At the time of shipping, this setting is set according to the conditions of the indoor unit.
2E	T10 terminal input switching	Ordinarily, the T10 terminal is used as the HA terminal at the time of shipping. However, this setting is used when the T10 terminal is used for OFF reminder or for fire prevention input.
31	Ventilation fan operation from remote controller	It is possible to install a ventilation fan in the system, which can be started and stopped by the wired remote controller. The ventilation fan can operate linked with the start and stop of the indoor unit, or can be operated even when the indoor unit is stopped. Use a ventilation fan that can accept the no-voltage A contact as the external input signal. In the case of group control, the fans are operated together. They cannot be operated individually.
32	Switching to remote controller sensor	This setting is used to switch from the body sensor to the remote controller sensor. Check that "remote controller sensor" is displayed. Do not use this setting with models that do not include a remote controller sensor. Do not use this setting if both the body sensor and remote sensor are used.
34	ON/OFF of "Operation change control in progress" display	In a MULTI system with multiple remote controllers, switching between heating and cooling is restricted, and "Operation change control in progress" is displayed. This setting is used to prevent this display from appearing. Refer to the item concerned with operating mode priorities.
35	OFF reminder function for weekly timer	This setting switches the operation when the weekly timer is connected to the remote controller. This can be used to prevent cases in which the unit is accidentally left ON. There is no change when this setting is ON, however it is necessary to set the weekly timer ON time.

(Continued)

(Continued from previous page)

<b>Item code</b>	<b>Item</b>	<b>Description</b>
<b>3C</b>	Heat exchanger temperature for cold air discharge	The heat exchanger temperature control point for prevention of cold air discharge during heating operation can be changed.
<b>3d</b>	Fan output switching	The indoor unit PCB optional output for the fan can be switched according to the purpose of use.
<b>3E</b>	Drain pump delayed start time	The drain pump starts after the set time delay after cooling operation stops.
<b>40</b>	Humidifier drain pump setting	This specifies the humidifier and drain pump setting.
<b>45</b>	DC flap operation mode	Changes flap operation to draft reduction mode.
<b>46</b>	DC flap swing mode	Selects the swing operation mode for the flap.
<b>5d</b>	DC fan tap setting	Sets the DC fan tap according to the purpose of use. Change the settings data at the same time.
<b>5E</b>	Humidifier ON time	Sets the humidifier output ON time for when the humidifier is operating. ON/OFF control is performed during humidifier operation. This setting therefore sets the ON time per 60-second interval.
<b>5F</b>	Stop at time set for OFF timer after operation starts	This setting enables a function that stops operation when the amount of time set for the OFF timer has passed after remote controller operation was started.
<b>60</b>	Timer function change prohibit	This function prohibits changes from being made to the remote controller time setting.
<b>62</b>	Smudging control	Smudging control is disabled when 0000 is set.

## 7-7. Remote Controller Servicing Functions

- The remote controller includes a number of servicing functions. Use these as needed for test runs and inspections.

### List of Servicing Functions

Functions	Description	Button operation	Reset operation	Unit status
Test run	Operation with forced thermostat ON	Press and hold the  button for 4 seconds or longer.	Press the  button.	Current operation is maintained.
Sensor temperature display	Temperature display from each sensor	Press and hold the  and  buttons for 4 seconds or longer.		
Servicing check display	Alarm history display	Press and hold the  and  buttons for 4 seconds or longer.		
Simple settings	Filter lifetime, operating mode priority, central control address, and other settings	Press and hold the  and  buttons for 4 seconds or longer.	Automatic reset	When settings are made from a remote controller, the indoor unit where that remote controller is connected stops.
Detailed settings	System address, indoor unit address, central control address, and other settings	Press and hold the  ,  and  buttons for 4 seconds or longer.		
Automatic address	Automatic address setting based on command from the wired remote controller	Press and hold the  and the timer operation  buttons for 4 seconds or longer.	Press the  button.	Entire system stops.
Address change	Change of indoor unit address	Press and hold the  and the timer operation  buttons for 4 seconds or longer.		

## 7-8. Test Run Function

Operates the unit with the thermostat forced ON.

### <Procedure>

- Press and hold the  button for 4 seconds or longer.
- "TEST" appears on the remote controller LCD display (Fig. 7-3).
- Start operation.
- Press the  button to return to normal remote controller display.

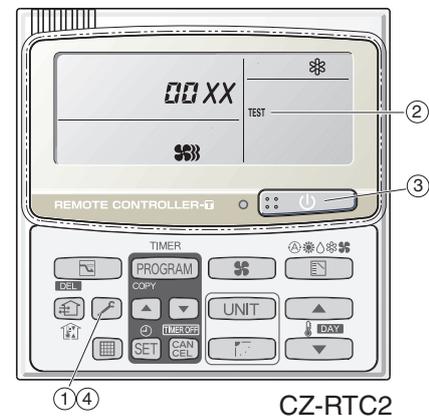


Fig. 7-3

## ■ Sensor Temperature Display Function (displayed regardless of whether unit is operating or stopped)

The procedure below displays the sensor temperatures from the remote controller, indoor unit, and outdoor unit on the remote controller.

### <Procedure>

- ① Press and hold the  and  buttons simultaneously for 4 seconds or longer.
- ② The unit No. "X-X" (main unit No.), item code "XX" (sensor address), and servicing monitor "00XX" (sensor temperature) are displayed on the remote controller LCD display. (See Fig. 7-4 at right.)
- ③ Press the temperature setting   buttons and select the item code to the address of the sensor to monitor.  
(For the relationships between the sensor addresses and sensor types, refer to the table of temperature sensors and addresses at below.)
- ④ If group control is in effect, press the  button to select the unit to monitor.  
Press the temperature setting buttons to select the item code to change.
- ⑤ Press the  button to return to normal remote controller display.

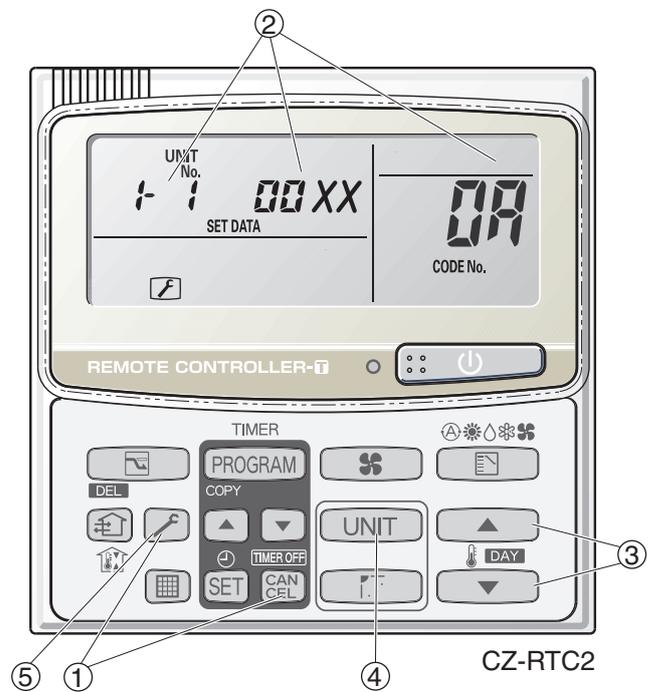


Fig. 7-4

### Note:

The temperature display appears as "- - -" for units that are not connected.

- \* If monitor mode is engaged while normal operation is in progress, only the parts of the LCD display shown in the figure will change. Other parts continue to display the same information as during normal operation.

Indoor unit sensors	
02	Intake temp.
03	E1
04	E2
05	E3
06	Discharge temp.
07	Discharge temp. setting
08	Position of indoor unit electronic control valve

Outdoor unit sensors				
Unit No.1	Unit No.2	Unit No.3	Unit No.4	
0A	2A	4A	6A	Discharge temp. 1
0B	2B	4B	6B	Discharge temp. 2
0C	2C	4C	6C	High-pressure sensor temp.
0D	2D	4D	6D	Heat exchanger gas 1
0E	2E	4E	6E	Heat exchanger liquid 1
0F	2F	4F	6F	Heat exchanger gas 2
10	30	50	70	Heat exchanger liquid 2
11	31	51	71	Outdoor air temp.
12	32	52	72	-
13	33	53	73	For inspection
14	34	54	74	CT2
15	35	55	75	For inspection
16	36	56	76	For inspection
17	37	57	77	Discharge temp. 3
18	38	58	78	CT3
19	39	59	79	For inspection
1A	3A	5A	7A	For inspection
1B	3B	5B	7B	Heat exchanger gas 3
1C	3C	5C	7C	Heat exchanger liquid 3
1D	3D	5D	7D	Low-pressure sensor temp.
1E	3E	5E	7E	Receiver temp.
1F	3F	5F	7F	Oil 1
20	40	60	80	Oil 2
21	41	61	81	Oil 3
22	42	62	82	For inspection

– MEMO –

# 8. HOW TO INSTALL THE WIRELESS REMOTE CONTROLLER RECEIVER

## ■ Warning

- 8-1. Warning about Installation of Receivers ..... 8-2
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## ■ Warning

### 8-1. Warning about Installation of Receivers

The wireless remote uses a very weak infrared light for its signal, which can result in the signal not being received because of the following influences, so take care in where the unit is installed.

- Inverter or rapid-start type fluorescent lights. (Models without glow lamps)
- Plasma display or LCD televisions.
- Direct sunlight or other sources of bright light.

### 8-2. Warning about Installing Remote Controls

- (1) If a remote control is to be operated from a remote control holder that is hung on a wall, turn on the lights in the room as well as any electrical appliances and then check to make sure the air conditioner works with the remote control in the location where it will be installed. If it works, continue with installation.
- (2) If the air conditioner is to be switched from the main sensor to a remote control sensor, pay attention to the following when installing.
  - Locate where no warm or cold drafts will affect it.
  - Locate in a place free from direct sunlight.
  - Locate where it will not be affected by any other heat/cold source.

## ■ Optional Controller (Remote Controller)

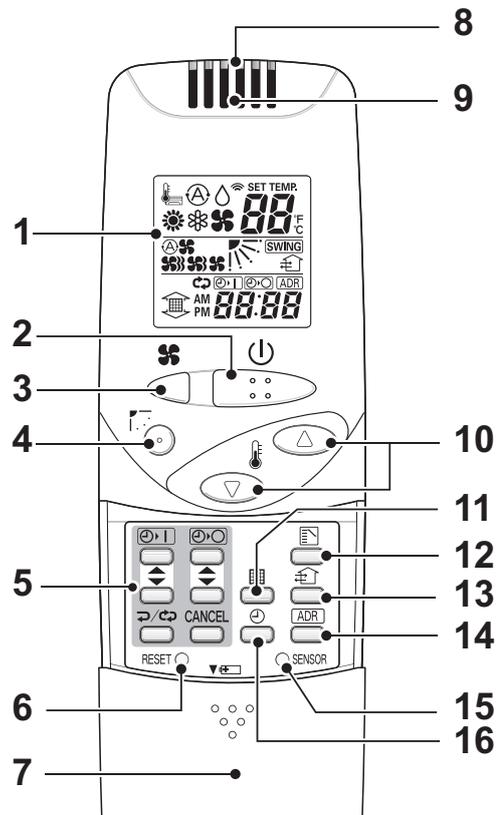
### Wireless Remote Controller / CZ-RWSC2

One remote control can control a group of up to eight indoor units.

### 8-3. Names and Functions

#### REMOTE CONTROLLER

<b>1. Operation Display</b>	Displays the operation status. (The figure shows all the statuses.)	<b>15. Sensor button</b>	Use this when switching to detect the temperature at the remote control. At shipping the default setting is set to detect the temperature at the unit. At this time  is shown on the display.
<b>2. Start/Stop button</b> 	Pressing this button once starts and pressing again stops the operation. The auto-flap display may be different, depending on the installed unit.	<b>16. Clock button</b> 	Use this when setting the clock.
<b>3. Fan speed button</b> 			
<b>4. Swing/Wind Direction button</b> 			
<b>5. Timer setting button</b>  	Use for operating with a timer.		
<b>6. Reset button</b>	Use this button after changing the batteries.		
<b>7. Cover</b>	Press at the top center and then slide down.		
<b>8. Transmitter</b>			
<b>9. Remote control sensor</b>	Detects the temperature at the remote controller when detection has been switched to the remote control by the sensor button.		
<b>10. Temperature setting buttons</b>	 raises the temperature setting 1 °C at a time.  lowers the temperature setting 1 °C at a time.		
<b>11. Filter button</b> 	Press to turn off the filter lamp on the receiver.		
<b>12. Mode Select button</b> 	Press to switch the operation mode.		
<b>13. Ventilation button</b> 	Use this when connected to an aftermarket fan. Pressing this button starts and stops the fan. When the air conditioner is started or stopped, the fan starts or stops at the same time. (  appears on the display of the remote control when the fan is operating.)		
<b>14. Address button</b> 			

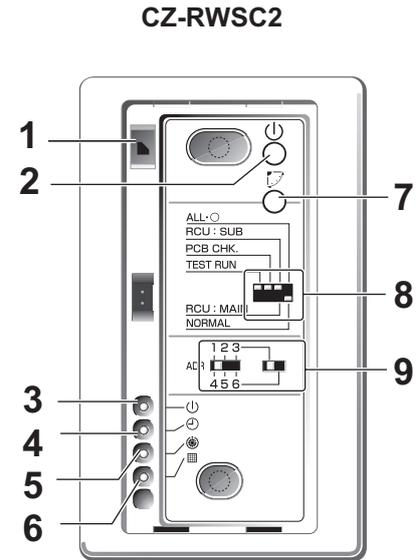


From this page on the names of remote control buttons will be abbreviated as the illustration of the "button".

E.g.: Start/Stop button → 

## RECEIVER

<b>1. Receiver</b>	Receives the signal sent from the remote control.
<b>2. Emergency operation button</b>	<b>Display lamps</b> When an error occurs, one of the lamps flashes. When a display lamp is blinking, refer to " Before Requesting Service ".
<b>3. Operating lamp</b>	This lamp is lit when the unit is operating.
<b>4. Timer lamp</b>	This lamp is lit when the timer is set.
<b>5. Standby lamp</b>	<ul style="list-style-type: none"> <li>• When the heater is working, the lamp lights at the following times. When the thermostat has operated during defrosting at the time of the startup.</li> <li>• The lamp flashes when an error occurs.</li> </ul>
<b>6. Filter lamp</b>	This lamp is for notifying you when the filter needs to be cleaned.
<b>7. Swing button</b>	
<b>8. Normal/Stop All switch</b>	<p>Use in the <b>Normal</b> position. It does not operate in the <b>Stop All</b> position.</p> <p><b>Remote control, main / remote control, secondary, switch</b> In normal use this should be on remote control, main. It is also possible to use both in conjunction with a wired remote control (sold separately). (Consult with the dealer where the product was purchased about making the settings.)</p> <p><b>Test/On switch</b> This is used during service. It is not for normal use.</p> <p><b>Test Run/On switch</b> This is used during service. It is not for normal use.</p>
<b>9. Address switch</b>	Differentiate between incoming and outgoing signals.

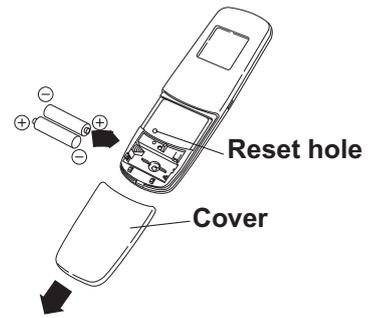


### NOTE

- If a heat pump model is being used, it will beep twice and the operating lamp will light up on the display; if the timer and standby lamps blink alternately, a conflict between the heating and cooling exists, so the unit cannot operate in the desired mode.  
(On models that do not have an Auto function, even if Auto is selected, it works in the same way.)
- When the local operation is disabled by such as the centralized control, and if the Start, Stop, Mode or Temperature setting buttons are pressed, the unit will beep five times and the change will not be made.

## 8-4. Installing Batteries

1. Remove the cover.
2. Insert two AAA alkaline batteries.  
Put the batteries in with the polarity [+/-] as shown in the figure.
3. Gently insert one end of an unfolded paper clip (or a similar object that can fit) into the Reset hole and press the Reset button inside the hole and then put the cover back on.



### NOTE

- Change the batteries when the display of the remote control gets weak or if it will not work unless close to the receiver. (Alkaline batteries generally last about one year.)
- When changing batteries, always use two fresh batteries of the same make.
- If the remote control will not be used for a long period of time, remove the batteries.
- Please dispose of batteries appropriately.
- After changing the batteries, follow the procedures described below to reset the current time.

## 8-5. Setting the Current Time

After changing the batteries and pressing reset, be sure to reset the current time.  
(When reset is pressed, the current time reverts to [ 0:00 ])

1. Press for two seconds or more.  
Once the clock displays starts blinking, the clock can be set.
  2. Set the hour with / of the .  
If you press and hold the button, the time changes quickly.
  3. Set the minutes with / of the .  
If you press and hold the button, the time changes quickly.
  4. Pressing completes the time setting.
- While you are setting the current time, the time display flashes but the colon does not.
  - If the buttons are not pressed for three minutes while setting the current time, it is set to the displayed time.



### NOTE

- When reset is pressed, the timer settings are deleted.

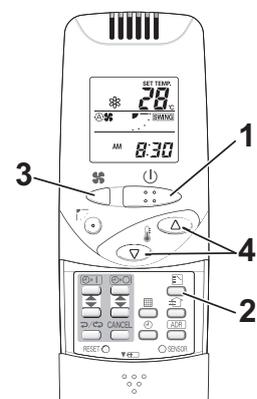
## 8-6. Operation

Auto , Heat , Dry , Cool , Fan

Models that only provide the cooling function cannot operate in the auto or heating modes.

**Power : Turn on the power of the indoor unit at least 14 hours before operation.**

1. Press .
2. Press and select from among Auto , Heat , Dry , Cool and Fan .
3. Press and select the desired speed.  
If set to Auto , the fan speed switches automatically.  
(Auto does not work when in the Fan mode.)
4. Press one of the buttons and set the desired temperature.  
Temperature settings cannot be made when in the Fan mode.



	Auto	Heat	Dry  / Cool
MAX	27	30	30
MIN	17	16	18

## Stop: Press

When the unit is stopped with the remote control, even though the compressor of the outdoor unit stops, the fan on the outdoor unit may continue to run for a while.

**If the unit is not heating very effectively with a Low fan speed  , switch the fan speed to High  or  Medium.**

Depending on the indoor unit being used, it may indicate a function that it does not have. (The fan speed is set.)

**If you cannot turn the air conditioner off in the normal way.**

Disconnect the power to the indoor unit and contact the dealer where the product was purchased.

### <Auto Operation>

If all the indoor units are identical in a cooling system and are under control as one group, it heats or cools automatically via the differences between the set temperature and the room temperature.

### <Dry Operation>

- Depending on the indoor unit used, the remote control may have a [Dry ] indicator on its display even though the unit does not have the Dry function. (Same as cooler operation)
- When the room temperature approaches the temperature setting, the unit continues to start up or stop automatically.
- When the drying mode stops operating, the indoor unit's fan blows a gentle breeze in order to keep the moisture from returning to the room at a minimum.
- Depending on the indoor unit used, and/or the temperature in the room, the fan speed may not be adjustable.
- Depending on the unit used, when the outside air temperature is 15 °C or less, the dry function will not operate.

## 8-7. Timer Operation

- When setting the timer, make sure the current time on the remote control is accurate.
- The timer's clock can only be set when the display of the remote control is ON.
- After setting the timer, put the remote control in a place where its signal will reach the receiver of the indoor unit. (When the time set for the timer is reached, a signal is sent from the remote control to Start/Stop the unit.)

### Using the Timer

1. Press either  /  of the  or  , and while the time is being displayed, if you press  /  again, a scheduled time can be set.

The time last set on the timer is displayed.

“--:--” indicates time to change the batteries.

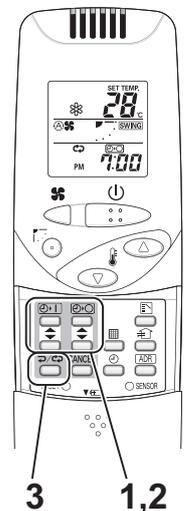
2. Press either  /  of the  or  and set the timer to the desired time.

Every time you press  /  , the time changes in 10 minutes increments.

If you press and hold the button, the time changes quickly.

3. After setting the timer, if you press  /  , the time you set changes to a steady display, indicating settings are complete.

After the timer setting is displayed for three seconds, the display reverts to the current time.



### Combining ON and OFF Timers

- Setting the ON and OFF timers, respectively.

### Checking the timer setting

- If you press either  /  for the  or the  , the scheduled time is displayed for four seconds.
- When no timer setting has been made, it displays --:-- (Initial Setting)

### Changing a timer setting

- Press ▲ / ▼ for the ☰ | or the ☰ ○ , and then when the timer setting is displayed, press ▲ / ▼ for the timer again.

### Canceling a timer setting

- If you press [CANCEL], the timer setting is canceled.
- If you wish to cancel the setting for either the ☰ | or the ☰ ○ timer, press ▲ / ▼ or the desired timer and when the scheduled time is displayed, press [CANCEL].

### Using the same timer setting every day

- If you press ↻ / ↻ for 2 or more seconds, “ ↻ ” is displayed and the **ON timer** or the **OFF timer** will operate the unit at the same time every day.
- If you press ↻ / ↻ again for two seconds or more, “ ↻ ” goes off and the timer operates just once.

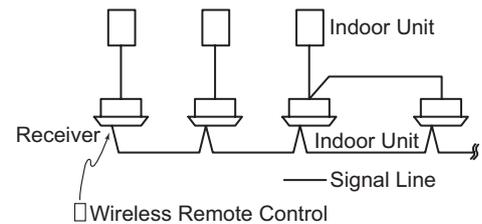
## 8-8. Adjusting the Wind Direction

- Never try to manually move the flap (up-down wind direction plate) that is operated by the remote control.
- When the unit stops, the flap (up-down wind direction plate) automatically faces downwards.
- When the unit is in heating standby, the flap (up-down wind direction plate) faces upward.  
Also, bear in mind that the flap starts swinging after the heating standby mode is released, but the display on the remote control indicates Auto Flap during standby heating as well.

## 8-9. Operating Multiple In/Outdoor Units Simultaneously (Group Control)

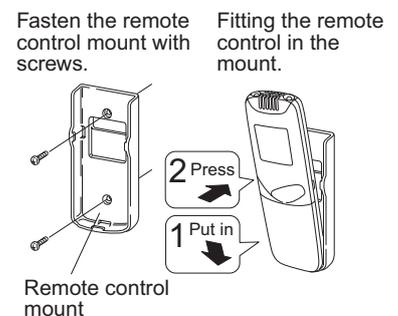
Group control works well for providing air conditioning to one, large room with more than one air conditioning units.

- One remote control can operate up to eight indoor units.
- All the indoor units have identical settings.
- Set temperature sensing to the indoor unit (Main Sensor).



## 8-10. Using the Remote Control

- Point the transmitter of the remote control at the receiver. When the signal is received correctly it will beep once. (It beeps twice only when the unit starts operating.)
- The signal can be received at a distance of about 6 meters. This distance should be used only as a guide. It depends on battery strength.
- Make sure nothing is between the remote control and the receiver that could block the signal.
- Do not leave the remote in direct sunlight, where the wind from the air conditioner can blow directly on it, or near any other heat source.
- Take care not to drop, throw or wash the remote control with water.
- The signal from the remote control may not be received in rooms with rapid start fluorescent lighting, inverter lights, plasma displays, LCD televisions (monitor), etc. For more information, please contact the dealer where the product was purchased.



### Wall Mount Use

- Press ( ) from the location you wish to mount the remote and make sure the signal is received correctly.
- Pull the remote control forward to remove it.

## 8-11. For Best Results

**Don't get the remote control too far away from the receiver.**

This may cause a malfunction. Be sure to keep the remote control in the same room as the receiver.

**Point the remote control at the receiver.**

When the signal is received correctly it will beep one time.

**Avoid locating the remote control where it is covered, such as behind a curtain.**

Keep it out in the open.

## 8-12. Addresses

**In both multi and single unit installations**, when more than one indoor unit is installed in the same room with a compatible remote control, addresses can be set up to avoid crosstalk. By setting the address switches on the receivers and matching them with the number of addresses on the remote control, up to six indoor units can be controlled separately with the remote control. (When using units in a flexible combination or operating multiple units simultaneously, as they are operated at the same time, they cannot be controlled individually.)

- These settings are saved in nonvolatile memory in the remote control, so even when its batteries are changed, the settings do not have to be made again.

### Checking Addresses

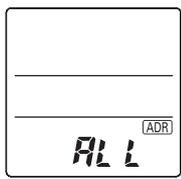
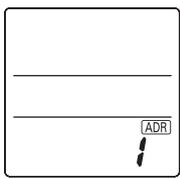
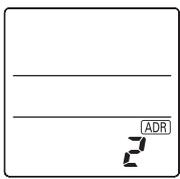
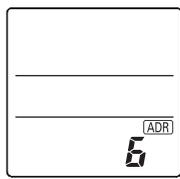
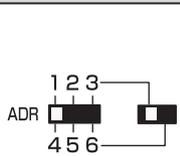
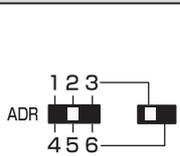
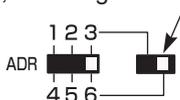
When you press **[ADR]** on the remote control, its current address is shown in the display. If this address corresponds to the address of a receiver, the buzzer sounds. (If it is on ALL, the buzzer will always sound.)

If it is on ALL, it can be operated regardless of receiver addresses. Point the remote control at the receiver you wish to operate and transmit.

### Matching up Addresses

#### Setting Remote Control Addresses

1. If you press **[ADR]** and **↔/↻** at the same time, "**SET**" will blink.
2. While holding **[ADR]** down, every time you press **↔/↻**, it cycles from **ALL** → **1** → **2** → **3...6** → **ALL**.  
Set it to the receiver address switch of the indoor unit you wish to operate.
3. When you release **[ADR]**, the address that was displayed is set.  
When you do this, if it corresponds to the receiver's address setting, the buzzer sounds.

Address Display on the Remote Control				•••••	
<b>CZ-RWSC.2</b>					
Position of the Receiver's Address Switch	The position of the receiver's address switch does not matter.			•••••	For 1, 2 and 3, set the switch on the left and for 4, 5 and 6, to the right. 

#### NOTE

- Please do not hold the [Emergency Operation]  button of the indoor unit down while the indoor unit's display lamps are blinking one after another.
- Make sure to operate while the indoor unit is stopped.
- The address of indoor unit is set to "ALL" at the time of the shipment.

### 8-13. Emergency Operation

Use [Emergency Operation]  in the following situations when there is an urgent need.

- When the remote control's batteries have failed.
- When the remote control is broken.
- When the remote control is lost.

**1. Press [Emergency Operation]  of the receiver**

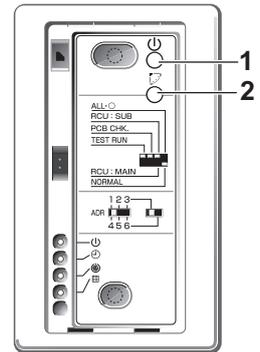
If the indoor temperature is 24°C or greater when the unit starts running, it will act as a cooler.

If the indoor temperature is less than 24°C when the unit starts running, it will act as a heater.

**2. If you press , the wind direction automatically oscillates up and down.**

**Stop: press [Emergency Operation]  of the receiver again.**

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**NOTE**

- The Test Run/On and Test/On switches are for use when the unit is installed and test run. It is not for normal use.
- If the [Normal/Stop ALL] switch is on **Stop ALL**, the unit cannot receive signals from the remote control.

### 8-14. Miscellaneous Settings

A variety of changes can be made to settings, depending on the indoor unit being used.

**Wind direction (flap) indicator, operation mode indicator, time display (24 hour, AM/PM), heat max temp**

- For information about the flap function, refer to the users' manual of the unit being used.
- (These settings are saved in nonvolatile memory in the remote control, so even when its batteries are changed, the settings do not have to be made again.)
- First check the display of the remote control when the unit is stopped and then make any desired settings.

**How to Operate**

- While holding down the buttons below, every time  is pressed the remote control's display changes.
- Whatever is being displayed when you release  is set.

Setting Item	Operation Button	Setting Content	Remote Control Display
Remote control flap display setting for when  is pressed	Press  while pressing 	Models with movable flaps	 SWING
		Swing only models	SWING
		Models w/o lamps	None
Remote control operation mode display setting when  is pressed	Press  while pressing 	Heat Pump (with Auto)	
		Heat Pump (without Auto)	
		Dedicated air conditioner	
Clock display setting	Press  while pressing 	24 Hour	23:59
		AM/PM	PM 11:59
Max possible temperature setting in the Heat mode	Press  while pressing 	Maximum heating temperature range is 26°C – 30°C	26→27→28 ↑ 30←29 ↓

## 8-15. Before Requesting Service

Before requesting service, please check the followings.

Problem	Cause	Solution
The unit doesn't work even when $\odot$ is pressed on the remote control.	The power to the indoor unit is not ON.	Make sure the power to the indoor unit is ON.
	Is the Normal/Stop All switch in the Stop All (See Page 8-4) position?	Switch it to the Normal position and cancel operation.
	Are the remote control's batteries dead?	Change the batteries.
	Is there a mismatch between the display lamp and cooling/heating or is it set to something other than Auto? (The operating lamp stays lit, while the timer lamp and the standby lamp blink alternately.)	Change the operating mode.
	Do the addresses match one another?	Check the addresses of the receiver and the remote control. (See Page 8-8)
The air conditioner starts and stops on its own.	Has the timer been set to repeat?	Check the timer settings. (See Page 8-6)
"EP" is displayed on the remote control when the unit is stopped.	An error has occurred in the non-volatile memory.	Please contact your sales outlet.
Although the unit is for air conditioning only, either Auto or Heat is indicated in the display.		Make settings to the remote control's operation mode display. (See the previous page.)
After putting the batteries in the remote control, even when it is operated, the display does not change.		Press the Reset button on the remote control. (See Page 8-5)
The timer cannot be set.		Make the settings when the remote control is in Operation Display. (See Page 8-6)

If the problem persists even after you check the foregoing items, stop the unit, disconnect the power to the indoor unit and contact the dealer where the product was purchased with the model number and problem you are having. As it is dangerous, under no circumstances should you undertake repairs yourself. Further, when the receiver's lamps are blinking; please contact your retailer with that information.

## 8-16. How to Install the Wireless Remote Controller Receiver

### 1. Warning about Installation of Receivers

The wireless remote uses a very weak infrared light for its signal, which can result in the signal not being received because of the following influences, so take care in where the unit is installed.

- Inverter or rapid-start type fluorescent lights. (Models without glow lamps)
- Plasma display or LCD televisions.
- Direct sunlight or other sources of bright light.

### 2. Warning about Installing Remote Controls

- (1) If a remote control is to be operated from a remote control holder that is hung on a wall, turn on the lights in the room as well as any electrical appliances and then check to make sure the air conditioner works with the remote control in the location where it will be installed. If it works, continue with installation.
- (2) If the air conditioner is to be switched from the main sensor to a remote control sensor, pay attention to the following when installing.
  - Locate where no warm or cold drafts will affect it.
  - Locate in a place free from direct sunlight.
  - Locate where it will not be affected by any other heat/cold source.

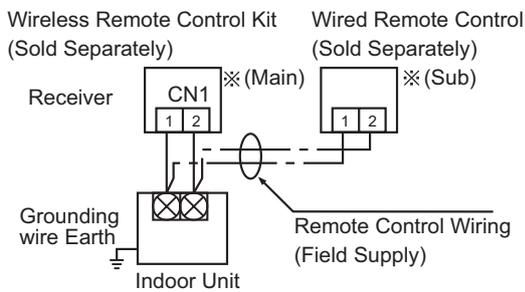
### 3. Things to remember when wired and wireless remotes are installed at the same time

Two remote controls can be used to control the unit if the wireless remote control kit is installed at the same time as the wired remote control. (Up to 2 remotes [a wireless remote kit and the wired remote control] can be installed.)  
When using 2 remotes, one or more units can be operated by the remotes.

**NOTE**

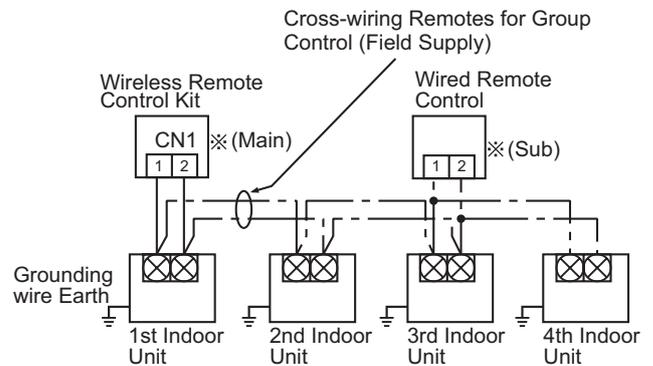
1. When wiring remote controls, be sure to double-check the terminal numbers of the indoor unit before connecting them so there are no mistakes in the wiring. (Damage will occur if high voltage [e.g. supply voltage] is applied.)
2. It is not possible to use more than one wireless remote control kit with one indoor unit. (A receiver located separately can be used at the same time.)
3. If both a wireless and a wired remote control are to be installed and used at the same time, one of them must be set up as the sub remote control.
  - If the wired remote control is to be the sub remote, change the wired remote control to the sub remote.
  - If the wireless remote control is to be the secondary, turn the #3 switch on the wireless receiver (operation panel) from OFF to ON.

When 1 indoor unit is operated by 2 remote controls:  
 ※ Either of the remotes can be set to main/sub.



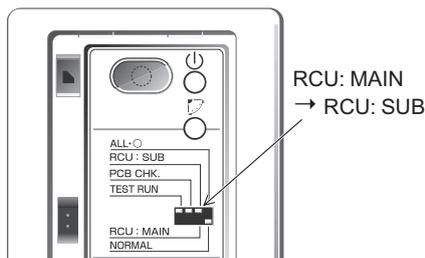
- Use wiring of 0.5 mm<sup>2</sup> to 2 mm<sup>2</sup> for field supply.
- Use a total wire length of no more than 400 m.

If a group of units are to be controlled by 2 remote controls;  
 ※ Main/sub remote controls will work regardless of which indoor unit they are installed to.

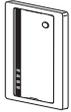
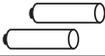


- Use wiring of 0.5 mm<sup>2</sup> to 2 mm<sup>2</sup> for field supply.
- Make the total wire length when cross-wiring a group no more than 200 m.

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#### 4. Accessories

No.	Accessories	Quantity
1	Receiver (Enclosed 200 mm wiring) 	1
2	Remote controller 	1
3	Remote controller's holder 	1
4	AAA alkaline batteries 	2

No.	Accessories	Quantity
5	Users Manual 	1
6	Truss self-tapping screws 4 × 16 	2
7	Machine screws 	2
8	Wood screws 	2
9	Cable tie 	1

#### 5. Installing the Receiver Unit

**When using a separately installed receiver as a built-in model, install it to the JIS switch box (field supply) shown in the diagram on the right, which has been built into the wall on site in advance.**

- (1) Remove the face plate of the receiver by slipping a flathead screwdriver or the like into the cutout on the bottom.
- (2) Install the receiver with the 2 enclosed machine screws (M4).
- (3) Connect the receiver's wiring (2 cores) with the wiring from the indoor unit. (Refer to the chapter on wiring the receiver) When wiring receivers, be sure to double-check the terminal numbers of the indoor unit before connecting them so there are no mistakes in the wiring. (Damage will occur if high volt-age [e.g. supply voltage] is applied.)
- (4) Attach the face plate.

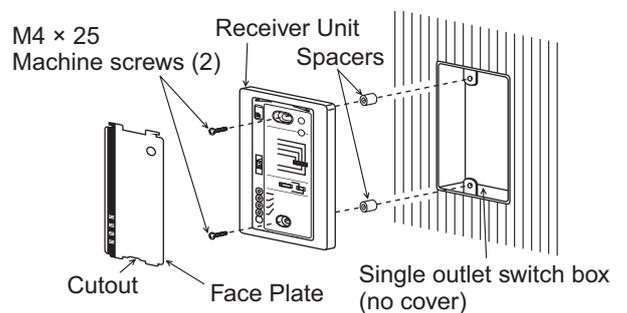


Fig. 8-1

- **When using a separately installed receiver as an exposed model, attach it to a wall where the receiver can be affixed.**

- (1) Put a flathead screwdriver or the like into the groove on the bottom of the receiver unit and twist it to remove the bottom of the case. (Fig. 8-2)
- (2) To enable the receiver's wiring to stick out from the upper part of the case (thin part at center-top), use side-cutters or the like to cut a hole in the case big enough for the remote control cord (sold separately). (Fig. 8-3)
- (3) Disconnect the wires that were connected at shipment from the connector.
- (4) After installing the remote control cord (sold separately) at the position in Fig. 8-4 with the enclosed cable tie, connect it to the connector on the receiver.
- (5) Shape the remote control cord at the top of the PCB so it fits inside the receiver and after configuring the wiring like it is in Fig. 8-5, attach the lower case. When doing this, arrange the head of the cable tie so it faces side-ways.
- (6) Remove the face plate and use the wood screws (2) to install the receiver unit.
- (7) Use the cord clip that comes enclosed with the remote control cord to fasten it to the wall.
- (8) Attach the face plate.

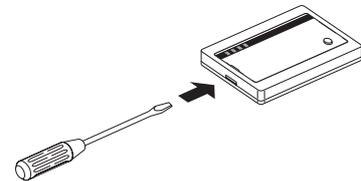


Fig. 8-2

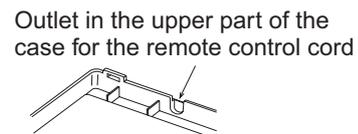


Fig. 8-3

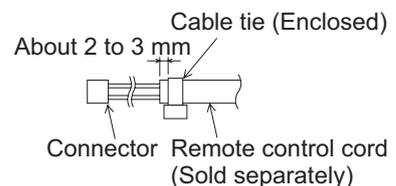


Fig. 8-4

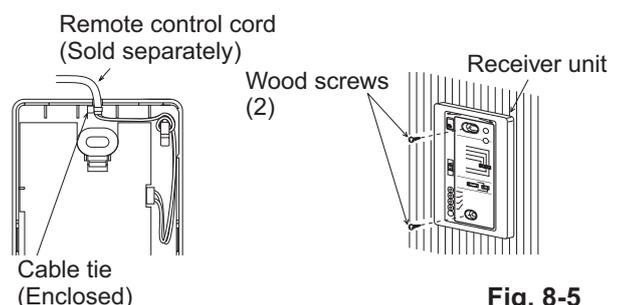
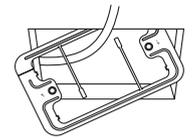


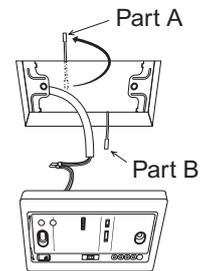
Fig. 8-5

**When using a receiver that has been installed separately into the ceiling, use the enclosed fittings for installing to a ceiling.**

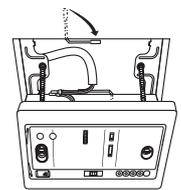
- (1) Remove the metal plate of the receiver by slipping a flathead screwdriver or the like into the cut-out on the bottom.
- (2) Cut out a hole in the ceiling to match the dimensions of the enclosed template. (95 × 51 mm)
- (3) Pass the wiring through the enclosed installation metal fitting and put it into the hole. (Fig. 8-6)
- (4) Bend parts A and B of the metal fitting so they hold onto the ceiling firmly. (Fig. 8-7)
- (5) Connect the receiver's wiring (2 cores) with the wiring from the indoor unit. (Refer to the chapter on wiring the receiver.) When wiring receivers, be sure to double-check the terminal numbers of the indoor unit before connecting them so there are no mistakes in the wiring. (Damage will occur if high voltage [e.g. supply voltage] is applied.)
- (6) Adjust the enclosed spacers so they are several millimeters thicker than the ceiling material and hold the receiver in place temporarily with the 2 enclosed machine screws. (M4 × 40)
- (7) Bend parts A and B back so they fit in the opening and are in the gap between the surface of the ceiling and the receiver; then tighten the screws. Do not use too much force when tightening the screws. Doing so may warp or damage the case. Move the receiver by hand and check that it can move just a little. (Fig. 8-8)
- (8) Attach the face plate.



**Fig. 8-6**



**Fig. 8-7**



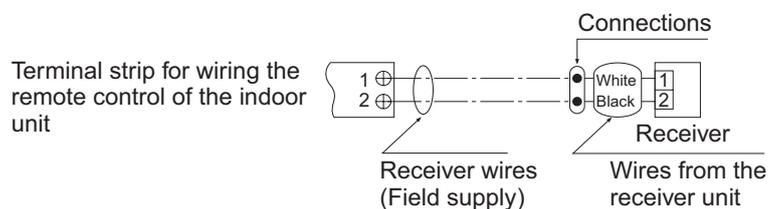
**Fig. 8-8**

## 6. Wiring the Receiver

- Use wiring of 0.5 mm<sup>2</sup> to 2 mm<sup>2</sup> for field supply.
- Use a total wire length of no more than 400 m.  
Polarity does not matter.

**If it is to be used as an embedded model ;**

### Wiring Diagram



Enclosed wire joints (2, white)

Receiver wires  
(Field supply)

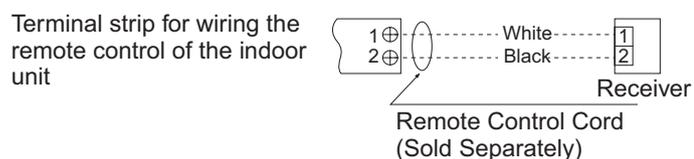
Receiver wires  
(Field supply)

Wire joint CE-1  
(Enclosed)

1. Strip the wire to be connected of its sheathing for 14 mm.
2. Twist the two wires together and crimp the enclosed wire joint.
3. If a special crimping tool is not used, or if the connection is made using solder, wrap the joint with insulating tape.

**If it is to be used as an exposed model :**

### Wiring Diagram



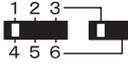
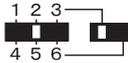
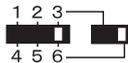
- Use remote control cord (sold separately) for wiring a separately installed receiver.
- (1) For instructions on how to install a remote control cord (sold separately), refer to the chapter on Using as an Embedded Model in Installing Separate Receivers.
  - (2) If a remote control cord (sold separately) is to be used, refer to the Mounting Instructions attached to the remote control cord.

**NOTE**

1. When wiring remote controls, be sure to double-check the terminal numbers of the indoor unit connecting them so there are no mistakes in the wiring. (Damage will occur if high voltage [e.g. supply voltage] is applied.)
2. If the wiring to the operation panel is bundled together with other wiring, such as the incoming line from the power source, it can cause a malfunction, avoid doing so.
3. If something causes the unit's power source to make noise, it will be necessary to resolve the problem, such as by installing a noise filter.

**7. Setting Address Switches**

- When more than one receiver and remote control are installed in the same room, setting up addresses allows them to avoid interfering with each other.
- Refer to the Users Manual for information on how to change the addresses of the remote controls.
- Changing the address of a receiver can be done after removing the screw to the receiver's PCB cover. Once the change is complete, put the cover back in place; while holding the wiring with the cable clamp, tighten its screw.

Address Display on the Remote Control	<b>ALL</b>	<b>1</b>	<b>2</b>	••••	<b>6</b>
Position of the Receiver's Address Switch	It doesn't matter where the Receiver's Address Switch is.			••••	

**8. Test Operation**

- (1) Remove the face plate of the receiver's PCB and turn the DIP switch to RUN/On (Down → Up) and operate the wireless remote control with its Start/Stop button.
- (2) During a test run, all display lamps on the display will light up.
- (3) During a test run, it is not possible to adjust the temperature.
- (4) After completing a test run, be absolutely sure to return the Test Run switch to OFF (Up → Down) and make sure none of the display lamps are blinking. Also, put the face plate back in place.

**NOTE**

1. This is hard on the device, so only use this for the test run.
2. After turning on the power, the unit will not receive any commands from the remote control for about 1 minute. This is not an error. (In fact it does receive signals, but they are cancelled.)
3. Make sure to operate while the indoor unit is stopped.
4. The address of indoor unit is set to "ALL" at the time of the shipment.

## 9. The Self-Diagnosis Function Display and What is Detected

Alarm Display in the table below indicates the content of alarms that are displayed when a wired remote control is connected. For information on how to deal with the alarms, refer to the Mounting Instructions for the indoor unit or to Test Run or servicing materials.

Error Detected	Alarm Display	WL Remote Control LED Display			
		Run	Timer	Standby	Blinking
Communication error in the remote control circuit	E01–E03, E08–E14, E17, E18	○	●	●	
Communication error either in the in/outdoor operation line or the sub-bus of the outdoor unit	E04–E07, E15, E16, E19–E31	●	●	○	
Operation of indoor protection device	P01, P09–P14	●	○	○	Alternately
Operation of outdoor protection device	P02–P08, P15–P31	○	●	○	Alternately
Error in the indoor thermistor	F01–F03, F10–F11	○	○	●	Alternately
Error in the outdoor thermistor	F04–F09, F12–F28	○	○	○	Alternately
Error in the indoor EEPROM	F29	○	○	●	Simultaneously
Error in the outdoor EEPROM	F30, F31	○	○	○	Simultaneously
Error related to the compressor	H01–H31	●	○	●	
Error in indoor settings	L01–L03 L05–L09	○	●	○	Simultaneously
Error in outdoor settings	L04, L10–L31	○	○	○	Simultaneously
Inconsistency in Air/Heat (Including an auto-temp setting for a model without auto-temp settings)		○	○	○	Alternately
Oil Alarm (Same as operation of outdoor protection device)		○	●	○	Alternately
Test Run		○	○	○	Simultaneously

● : Off / ○ : On / ◎ : Blinking (0.5 sec. intervals)

### When using CZ-RWSC2

If you have either an outdoor maintenance remote control or a wired remote control and a service checker special wiring (CV6231785082 : for service use) at hand, you can get more detailed information about an alarm by connecting one to the service connector as in the diagram. For information such as how to connect to receivers, etc., refer to the Users Manual that came attached with the service checker special wiring.

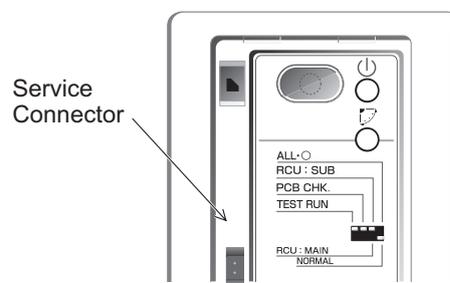


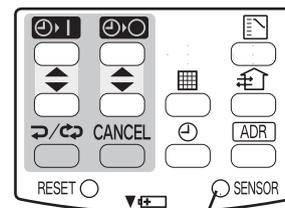
Fig. 8-9

## 10. Room Temperature Sensor Settings

- The indoor unit and the wireless remote control are equipped with indoor temperature sensors. The sensing of indoor temperature works via one of them.
- When the unit is shipped, it is set to the indoor unit, but to switch to the remote control, press the Sensor button (diagram at right) inside the remote control's cover and then check to make sure that Main Sensor on the LCD screen goes off.

### NOTE

Even when the Sensor switch has been set to the remote control, if the unit does not receive any room temperature data from the remote control for ten minutes, it automatically switches back to the indoor unit sensor, so be sure to install the remote control facing the receiver.



Sensor Button

Fig. 8-10

## 11. Setting Up Remote Control Functions

The functions of the wireless remote can be set on site.

(These settings are saved in nonvolatile memory in the remote control, so even when its batteries are changed, the settings do not revert to the defaults.)

### NOTE

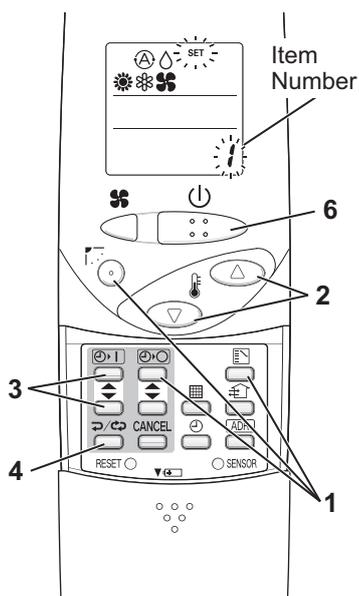
The operation of the air conditioner can be impacted, depending on the settings made, so only service personnel should make the settings.

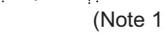
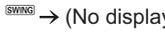
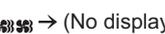
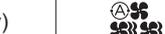
Furthermore, making changes to these settings may cause actual operation to deviate from what is printed in the Users Manual, so be sure to explain this to the customer fully.

### Making Settings (Do with unit stopped)

- (1) Holding down the Swing/Wind Direction + OFF Timer  + Mode Select buttons at the same time for 4 or more seconds makes the Display switch to the setting screen. (See diagram below.)
- (2) Use the Temperature setting buttons,  / , to select the number of the item to be set.
- (3) Use the ON Timer buttons,  / , to change settings.
- (4) The settings are saved with the Once/Every Day button. When this is done, the settings display of the LCD changes from blinking to light.
- (5) If other settings are to be changed as well, repeat steps 2 to 4.
- (6) When all settings have been made, press the Start/Stop button.

### Example: Operation mode setting screen



Item Number & Setting Item	Setting Content	Setting when Shipped
1 Operation Mode	 →  →  → 	
2 Flap Display	 →  →  → (No display) (Note 1)	
3 Select Fan Speed	 →  →  → (No display)	
4 Display of Set Temperature	°C → °F → Setting Off (Note 2)	°C
5 Time Display	24 Hour (No Display) → AM/PM	24 Hour
6 Ventilation Fan ON/OFF	Off (No Display) → On	OFF (Note 3)
7 Cool temp Max	18 – 30°C	30
8 Cool temp Min	18 – 30°C	18
9 Heat temp Max	16 – 30°C	30 (Note 4)
10 Heat temp Min	16 – 30°C	16
11 Dry temp Max	18 – 30°C	30
12 Dry temp Min	18 – 30°C	18
13 Auto temp Max	17 – 27°C	27
14 Auto temp Min	17 – 27°C	17
16 Address Setting Max Value	00 (ALL only) → 01 – 31	06 (Note 5)
17 Heat temp Max ON/OFF	JP (Heater Max Temp Change Off) → EP (On)	JP

### NOTE

- (1) While the unit is in the swinging mode (Swing/Wind Direction), the flap cannot be stopped in a desired position.
- (2) When Setting OFF is selected, "°C" is displayed on the LCD screen.
- (3) You can toggle between ON and OFF by pressing Ventilation for 4 seconds or more.
- (4) If the Heater Max ON/OFF setting is not changed to EP (ON), the setting change will not be reflected.
- (5) This is the number of addresses that can be set in the address change mode. Do not set it to 07 or above.

