TECHNICAL & SERVICE MANUAL

SANYO

SAP-K76GL + SAP-C76GL
SAP-K96GL + SAP-C96GL
SAP-K126GL + SAP-C126GL

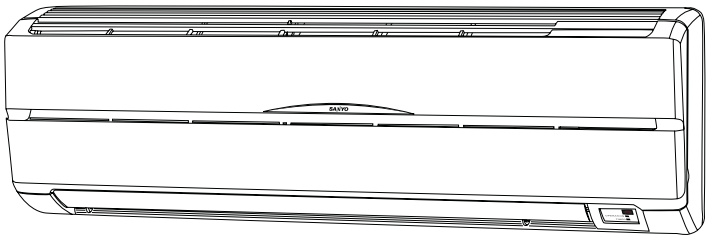
FILE NO.

SPLIT SYSTEM AIR CONDITIONER

Indoor Model No.	Product Code No.	Destination
SAP-K76GL	1 852 343 88	General (50Hz)
SAP-K96GL	1 852 343 89	General (50Hz)
SAP-K126GL	1 852 343 90	General (50Hz)

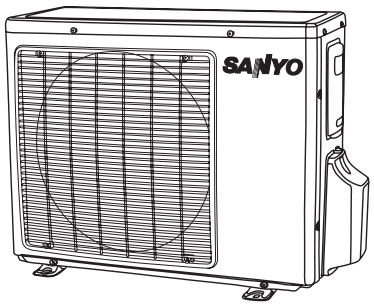
Outdoor Model No.	Product Code No.	Destination
SAP-C76GL	1 852 343 91	General (50Hz)
SAP-C96GL	1 852 343 92	General (50Hz)
SAP-C126GL	1 852 343 93	General (50Hz)

Indoor Unit

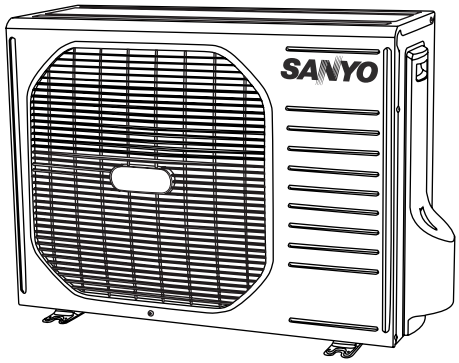


SAP-K76GL
SAP-K96GL
SAP-K126GL

Outdoor Unit



SAP-C76GL
SAP-C96GL



SAP-C126GL

REFERENCE NO.SM700726

Important!

Please Read Before Starting

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

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.
- Observe all local, state, and national electrical codes.
- 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.
- Ground the unit following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

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…

…In a Ceiling or Wall

Make sure the ceiling/wall is strong enough to hold the units weight. It may be necessary to construct a strong wood or metal frame to provide added support.

…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.

…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.

When Connecting Refrigerant Tubing

- 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.

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.

Others

CAUTION

- 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 upon completing installation that no refrigerant gas is leaking. If escaped gas comes in contact with a stove, gas water heater, electric room heater or other heat source, it can produce dangerously toxic gas.

Table of Contents

1. OPERATING RANGE

	Temperature	Indoor Air Intake Temp.	Outdoor Air Intake Temp.
Cooling	Maximum	32℃ D.B. / 23℃ W.B.	43℃ D.B.
	Minimum	19℃ D.B. / 14℃ W.B.	19℃ D.B.

2. SPECIFICATIONS

2-1. Unit Specifications

Indoor Unit **SAP-K76GL**
Outdoor Unit **SAP-C76GL**

Power Source				220 ~ 240 V Single phase **50 Hz**	
Voltage rating			V	220 / 230 / 240	
Performance				Cooling	
	Capacity		kW	2.2 / 2.2 / 2.2	
			BTU/h	7500	
	Air circulation (High)		m^3/h	430	
	Moisture removal (High)		Liters/h	0.55	
Electrical Rating	Available voltage range		V	198 to 264	
	Running amperes		A	3.8/ 3.9 / 3.9	
	Power input		W	810 / 830 / 850	
	Power factor		%	97/ 93 / 91	
	C.O.P.		W/W	2.72 / 2.65 / 2.59	
	Compressor locked rotor amperes		A	18.5 / 18.5 / 18.5	
Features	Controls / Temperature control			Microprocessor / I.C. thermostat	
	Control unit			Wireless remote control unit	
	Timer			1-hour OFF / 12-hour ON or OFF	
	Fan speeds		Indoor / Outdoor	3 and Auto / 1 (Hi)	
	Airflow direction (Indoor)		Horizontal	Manual	
			Vertical	Auto	
	Air filter			Washable, Anti-Mold	
	Compressor			Rotary (Hermetic)	
	Refrigerant / Amount charged at shipment		g	R22 / 500	
	Refrigerant control			Capillary tube	
	Operation sound	Indoor ~ Hi / Me / Lo	dB-A	39 / 34 / 31	
		Outdoor ~ Hi	dB-A	48	
	Refrigerant tubing connections			Flare type	
	Max. allowable tubing length at shipment		m	5	
	Refrigerant tube diameter	Narrow tube	mm (in.)	6.35 (1/4)	
		Wide tube	mm (in.)	9.52 (3/8)	
	Refrigerant tube kit / Accessories			Optional / Hanging wall bracket	
Dimensions & Weight				Indoor Unit	Outdoor Unit
	Unit dimensions	Height	mm	250	488
		Width	mm	790	665
		Depth	mm	189.6	320
	Package dimensions	Height	mm	246	531
		Width	mm	858	743
		Depth	mm	307	358
	Weight	Net	kg	8.0	23.0
		Shipping	kg	9.4	26.8
	Shipping volume		m^3	0.06	0.15

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Remarks: Rating conditions are:
Cooling: Indoor air temperature 27℃ DB / 19℃ WB
Outdoor air temperature 35℃ DB / 24℃ WB

Indoor Unit **SAP-K96GL**
Outdoor Unit **SAP-C96GL**

Power Source				220 ~ 240 V Single phase **50 Hz**	
Voltage rating			V	220 / 230 / 240	
Performance				Cooling	
	Capacity		kW	2.55 /2.55 / 2.55	
			BTU/h	8,700 / 8,700 / 8,700	
	Air circulation (High)		m^3/h	430	
	Moisture removal (High)		Liters/h	0.80	
Electrical Rating	Available voltage range		V	198 to 264	
	Running amperes		A	4.5 / 4.5 / 4.6	
	Power input		W	930 / 960 / 1000	
	Power factor		%	94/ 93 / 91	
	C.O.P.		W/W	2.74 / 2.66 / 2.55	
	Compressor locked rotor amperes		A	21.5 / 22.5 / 23.5	
Features	Controls / Temperature control			Microprocessor / I.C. thermostat	
	Control unit			Wireless remote control unit	
	Timer			1-hour OFF / 12-hour ON or OFF	
	Fan speeds		Indoor / Outdoor	3 and Auto / 1 (Hi)	
	Airflow direction (Indoor)		Horizontal	Manual	
			Vertical	Auto	
	Air filter			Washable, Anti-Mold	
	Compressor			Rotary (Hermetic)	
	Refrigerant / Amount charged at shipment		g	R22 / 550	
	Refrigerant control			Capillary tube	
	Operation sound	Indoor ~Hi / Me / Lo	dB-A	39 / 34 / 31	
		Outdoor ~ Hi	dB-A	49	
	Refrigerant tubing connections			Flare type	
	Max. allowable tubing length at shipment		m	5	
	Refrigerant tube diameter	Narrow tube	mm (in.)	6.35 (1/4)	
		Wide tube	mm (in.)	9.52 (3/8)	
	Refrigerant tube kit / Accessories			Optional / Hanging wall bracket	
Dimensions & Weight				Indoor Unit	Outdoor Unit
	Unit dimensions	Height	mm	250	488
		Width	mm	790	665
		Depth	mm	189.6	320
	Package dimensions	Height	mm	246	531
		Width	mm	858	743
		Depth	mm	307	358
	Weight	Net	kg	8.0	23.0
		Shipping	kg	9.4	26.8
	Shipping volume		m^3	0.06	0.15

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Remarks: Rating conditions are:
Cooling: Indoor air temperature 27℃ DB / 19℃ WB
Outdoor air temperature 35℃ DB / 24℃ WB

Indoor Unit **SAP-K126GL**
Outdoor Unit **SAP-C126GL**

Power Source				220 ~ 240 V Single phase **50 Hz**	
Voltage rating			V	220 / 230 / 240	
Performance				Cooling	
	Capacity		kW	3.40 / 3.40 / 3.40	
			BTU/h	11,600 / 11,600 / 11,600	
	Air circulation (High)		m^3/h	470	
	Moisture removal (High)		Liters/h	1.1	
Electrical Rating	Available voltage range		V	198 to 264	
	Running amperes		A	5.8 / 5.8 / 5.9	
	Power input		W	1,240 / 1,250 / 1,290	
	Power factor		%	98 / 98 / 98	
	C.O.P.		W/W	2.74 / 2.72 / 2.64	
	Compressor locked rotor amperes		A	31.0 / 32.5 / 34.0	
Features	Controls / Temperature control			Microprocessor / I.C. thermostat	
	Control unit			Wireless remote control unit	
	Timer			1-hour OFF / 12-hour ON or OFF	
	Fan speeds		Indoor / Outdoor	3 and Auto / 1(Hi)	
	Airflow direction (Indoor)		Horizontal	Manual	
			Vertical	Auto	
	Air filter			Washable, Anti-Mold	
	Compressor			Rotary (Hermetic)	
	Refrigerant / Amount charged at shipment		g	R22 / 630	
	Refrigerant control			Capillary tube	
	Operation sound	Indoor ~ Hi / Me / Lo	dB-A	40 / 37 / 35	
		Outdoor ~ Hi	dB-A	49	
	Refrigerant tubing connections			Flare type	
	Max. allowable tubing length at shipment		m	5	
	Refrigerant tube diameter	Narrow tube	mm (in.)	6.35 (1/4)	
		Wide tube	mm (in.)	12.7 (1/2)	
	Refrigerant tube kit / Accessories			Optional / Hanging wall bracket	
Dimensions & Weight				Indoor Unit	Outdoor Unit
	Unit dimensions	Height	mm	250	548
		Width	mm	790	792
		Depth	mm	189.6	316
	Package dimensions	Height	mm	246	585
		Width	mm	858	853
		Depth	mm	307	362
	Weight	Net	kg	8.0	31.0
		Shipping	kg	9.1	35.5
	Shipping volume		m^3	0.06	0.20

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Remarks: Rating conditions are:
Cooling: Indoor air temperature 27℃ D.B. / 19℃ W.B.
Outdoor air temperature 35℃ D.B. / 24℃ W.B.

2-2. Major Component Specifications

2-2-1. Indoor Unit

Indoor Unit **SAP-K76GL**

Controller PCB	Part No.				POW－K96GL
	Controls				Microprocessor
	Control circuit fuse				250 V － 3.15 A
Remote Control Unit					RCS-4S4E-G
Fan & Fan Motor	Type				Cross－flow
	Number ... Dia. and length			mm	1 ... Φ97 / L578
	Fan motor model ... Number				IBH-884-020B... 1
	No. of poles ...50Hz rpm (High)				4 ... 1,340
	Nominal output			W	10
	Coil resistance (Ambient temp. 20℃)			Ω	WHT－BRN : 240 WHT－RED : 257
	Safety devices	Type			Thermal fuse
		Operating temp.	Open	℃	130
			Close		—
	Run capacitor			μF	1.5
				VAC	450
Flap Motor	Type				Stepping motor
	Model				MSBPC20Z01
	Rating				DC 12 V
	Coil resistance (Ambient temp. 25℃)			Ω	A pair of each terminal: 350 ± 7%
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube
	Rows				2
	Fin pitch			mm	1.4
	Face area			m^2	0.110

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Indoor Unit **SAP-K96GL**

Controller PCB	Part No.				POW－K96GL
	Controls				Microprocessor
	Control circuit fuse				250 V －3.15 A
Remote Control Unit					RCS-4S4E-G
Fan & Fan Motor	Type				Cross－flow
	Number ... Dia. and length			mm	1 ... Φ97 / L578
	Fan motor model ... Number				IB4-884-020B... 1
	No. of poles ...50Hz rpm (High)				4 ... 1,300
	Nominal output			W	10
	Coil resistance (Ambient temp. 20℃)			Ω	WHT － BRN: 240 WHT － RED: 257
	Safety devices	Type			Thermal fuse
		Operating temp.	Open	℃	130
			Close		—
	Run capacitor			μF	1.5
				VAC	450
Flap Motor	Type				Stepping motor
	Model				MSBPC20Z01
	Rating				DC 12 V
	Coil resistance (Ambient temp. 25℃)			Ω	A pair of each terminal: 350 ± 7%
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube
	Rows				2
	Fin pitch			mm	1.4
	Face area			m^2	0.110

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Indoor Unit **SAP－K126GL**

Controller PCB	Part No.				POW－K96GL
	Controls				Microprocessor
	Control circuit fuse				250 V －3.15 A
Remote Control Unit					RCS-4S4E-G
Fan & Fan Motor	Type				Cross－flow
	Number ... Dia. and length			mm	1 ... Φ97 / L578
	Fan motor model ... Number				IBH-884-020B ... 1
	No. of poles ...50Hz rpm (High)				4 ... 1,340
	Nominal output			W	10
	Coil resistance (Ambient temp. 20℃)			Ω	WHT － BRN: 240 WHT － RED: 257
	Safety devices	Type			Thermal fuse
		Operating temp.	Open	℃	130
			Close		—
	Run capacitor			μF	1.5
				VAC	450
Flap Motor	Type				Stepping motor
	Model				MSBPC20Z01
	Rating				DC 12 V
	Coil resistance (Ambient temp. 25℃)			Ω	A pair of each terminal: 350 ± 7%
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube
	Rows				2
	Fin pitch			mm	1.4
	Face area			m^2	0.110

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

2-2-2. Outdoor Unit

Outdoor Unit **SAP-C76GL**

Compressor	Type				Rotary (Hermetic)
	Compressor model				C-1RV142H31AA
	Nominal output			W	750
	Compressor oil ... Amount			cc	SAY-56T ... 350
	Coil resistance (Ambient temp. 25℃)			Ω	C — R : 3.96 C — S : 6.44
	Safety devices	Type			External (OLR A)
		Overload relay			B170-150-241E
		Operating temp.	Open	℃	150 ± 5
			Close	℃	69 ± 11
		Operating amp.(Ambient temp. 25℃)			Trip in 6 to 16 sec. at 16.5 A
	Run capacitor			μF	25.0
				VAC	400
Fan & Fan Motor	Type				Propeller
	Number ... Dia.			mm	1 ... Φ 355
	Fan motor model ... Number				IB-976-501B ... 1
	No. of poles ... rpm (230 V, High)				6 ... 830
	Nominal output			W	25
	Coil resistance (Ambient temp. 20℃)			Ω	YEL — BLU : 218 YEL — RED :175
	Safety devices	Type			Thermal fuse
		Operating temp.	Open	℃	110
			Close		—
	Run capacitor			μF	2.0
				VAC	440
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube
	Rows				1
	Fin pitch			mm	1.4
	Face area			m^2	0.288
External Finish					Acrylic baked-on enamel finish

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit **SAP-C96GL**

Compressor	Type				Rotary (Hermetic)
	Compressor model				C-1RV162H51AA
	Nominal output			W	800
	Compressor oil ... Amount			cc	SAY-56T ... 280
	Coil resistance (Ambient temp. 25℃)			Ω	C － R : 3.65 C － S : 5.38
	Safety devices	Type			External (OLR A)
		Overload relay			MRA99134－9201
		Operating temp.	Open	℃	145 ± 5
			Close	℃	69 ± 11
		Operating amp.(Ambient temp. 25℃)			Trip in 6 to 16 sec. at 16.5 A
	Run capacitor			μF	25.0
				VAC	400
Fan & Fan Motor	Type				Propeller
	Number ... Dia.			mm	1 ... Φ 355
	Fan motor model ... Number				IB-976-501B ... 1
	No. of poles ... rpm (230 V, High)				6 ... 850
	Nominal output			W	25
	Coil resistance (Ambient temp. 20℃)			Ω	YEL － BLU : 218 YEL － RED : 175
	Safety devices	Type			Thermal fuse
		Operating temp.	Open	℃	110
			Close		—
	Run capacitor			μF	2.5
				VAC	440
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube
	Rows				1
	Fin pitch			mm	1.4
	Face area			m^2	0.288
External Finish					Acrylic baked-on enamel finish

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Outdoor Unit **SAP-C126GL**

Compressor	Type				Rotary (Hermetic)
	Compressor model				C-RV232H51AA
	Nominal output			W	1,100
	Compressor oil ... Amount			cc	SAY-56T ... 550
	Coil resistance (Ambient temp. 25℃)			Ω	C － R : 1.96 C － S : 4.46
	Safety devices	Type			External (OLR A)
		Overload relay			MRA99122－9201
		Operating temp.	Open	℃	150 ± 5
			Close	℃	69 ± 11
		Operating amp.(Ambient temp. 25℃)			Trip in 6 to 16 sec. at 25 A
	Run capacitor			μF	30.0
				VAC	400
Fan & Fan Motor	Type				Propeller
	Number ... Dia.			mm	1 ... Φ 400
	Fan motor model ... Number				IB-976-501B ... 1
	No. of poles ... rpm (230 V, High)				6 ... 797
	Nominal output			W	25
	Coil resistance (Ambient temp. 20℃)			Ω	YEL － BLU : 218 YEL － RED : 175
	Safety devices	Type			Thermal fuse
		Operating temp.	Open	℃	110
			Close		—
	Run capacitor			μF	2.5
				VAC	440
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube
	Rows				1
	Fin pitch			mm	1.4
	Face area			m^2	0.390
External Finish					Acrylic baked-on enamel finish

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2-3. Other Component Specifications

Indoor Unit **SAP-K76GL**
SAP-K96GL
SAP-K126GL

Transformer (TR)		**ATR-J105**
Rating	Primary	AC 230V, 50 / 60 Hz
	Secondary	19V, 0.526A
	Capacity	10VA
Coil resistance	Ω(at 21℃)	Primary (WHT — WHT): 205 ± 10%
		Secondary (BRN — BRN): 2.0 ± 10%
Thermal cut-off temp.		150℃

Thermistor (Coil sensor)		**DTN-TKS131B**
Resistance	kΩ	0℃ 15.0 ± 2%

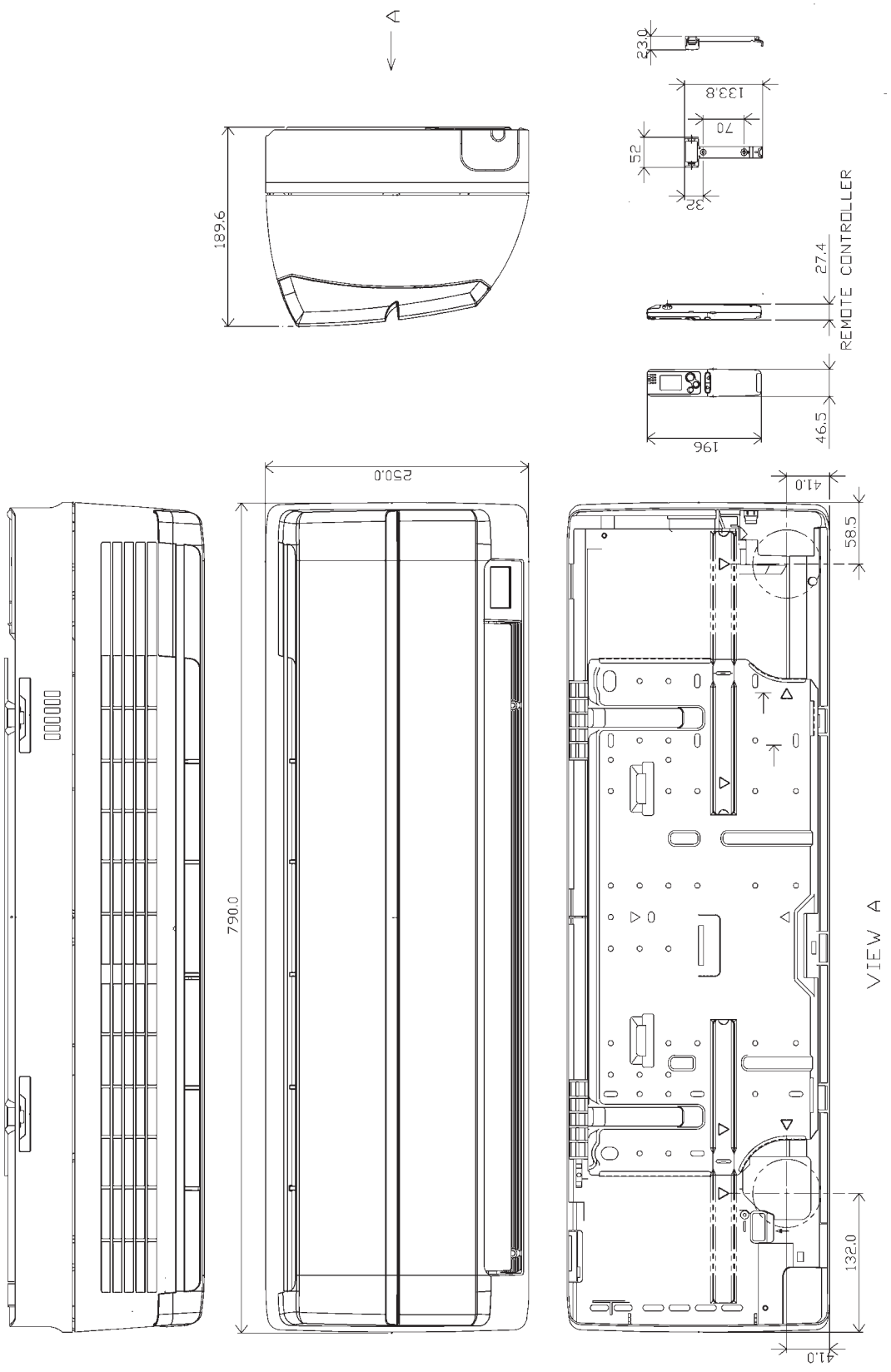
Thermistor (Room sensor)		**DTN-TKS128B**
Resistance	kΩ	25℃ 5.0 ± 3%

Outdoor Unit **SAP-C76GL**
SAP-C96GL
SAP-C126GL

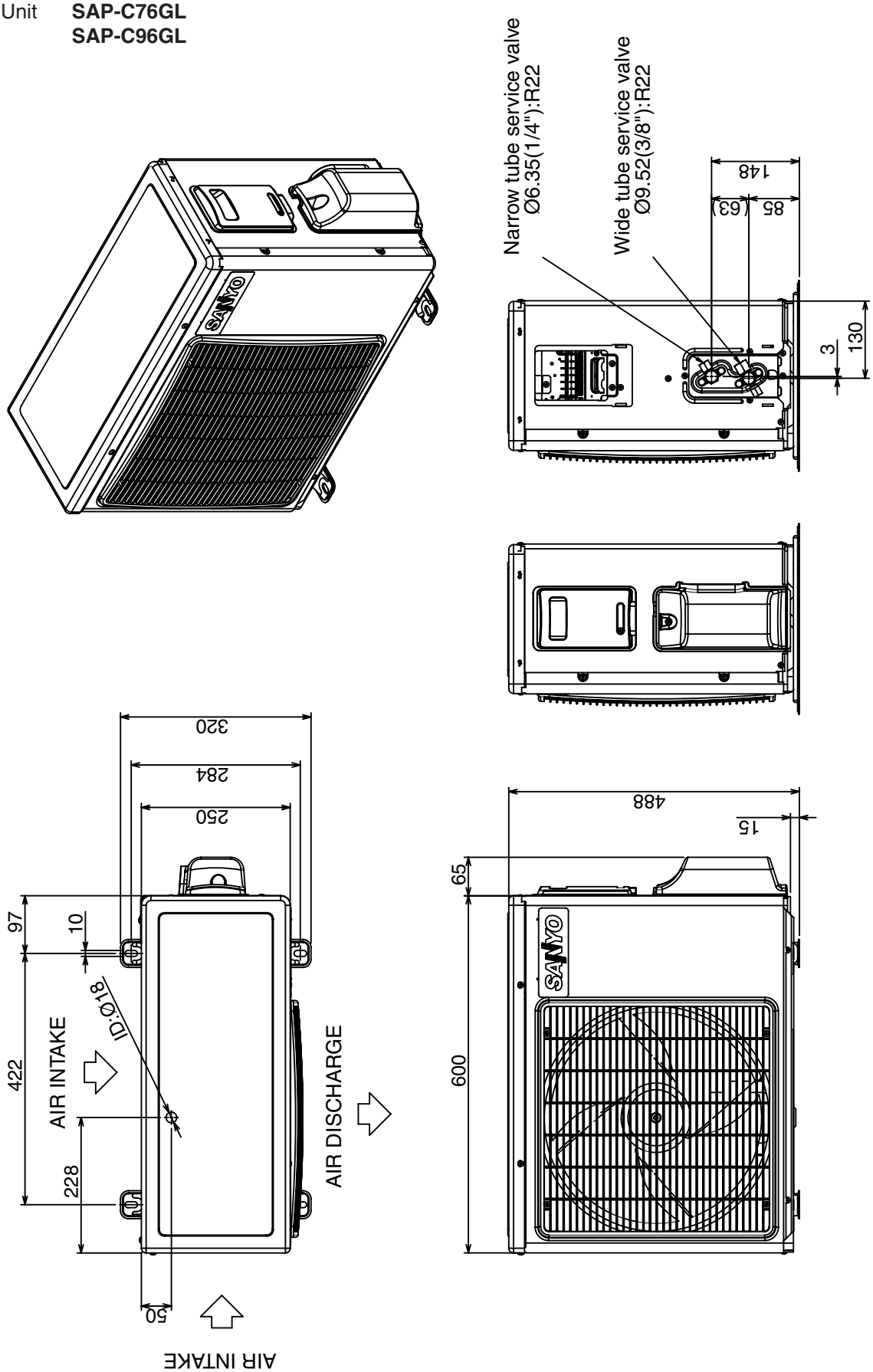
Power Relay (PR)	**EL1U**
Coil rating	AC 200 — 240V, 50
Contact rating	AC 277V, 30A

3. DIMENSIONAL DATA

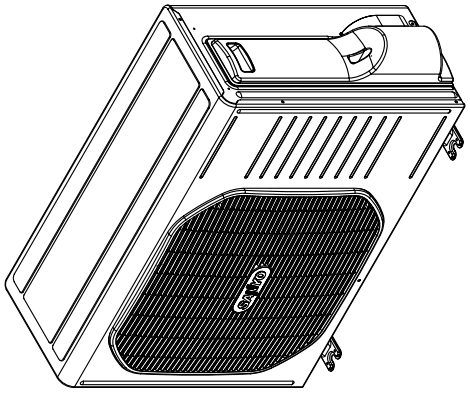
Indoor Unit **SAP-K76GL**
SAP-K96GL
SAP-K126GL

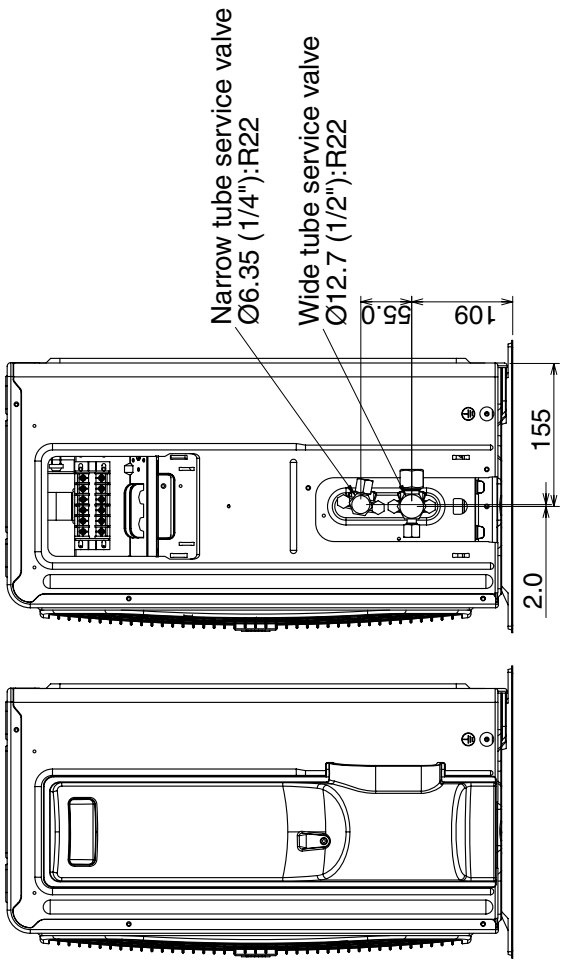


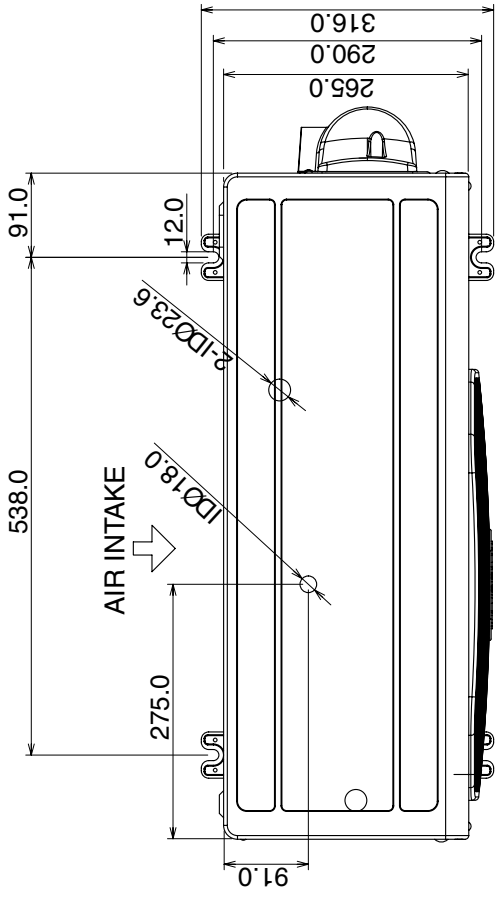
Outdoor Unit **SAP-C76GL**
SAP-C96GL

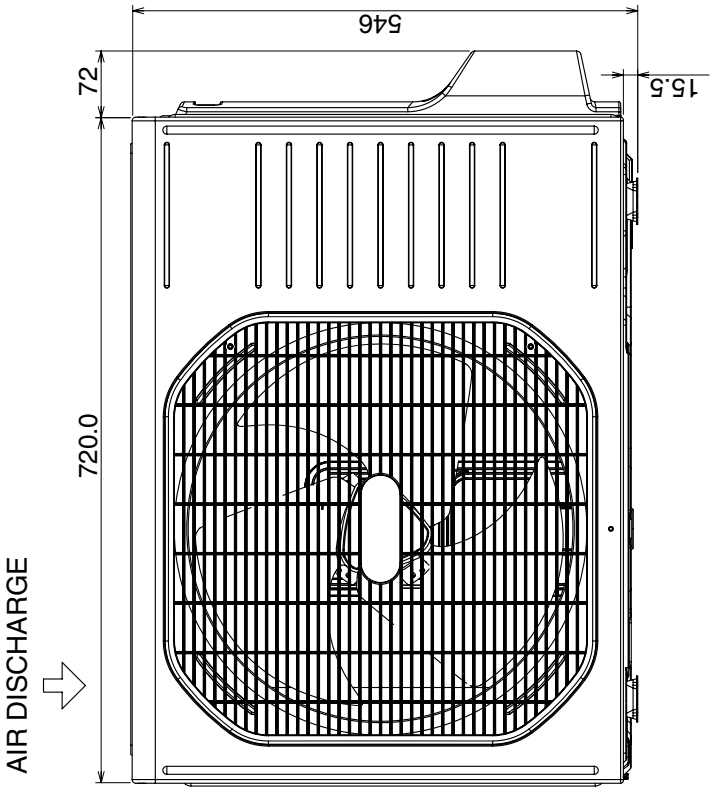


Outdoor Unit **SAP-C126GL**







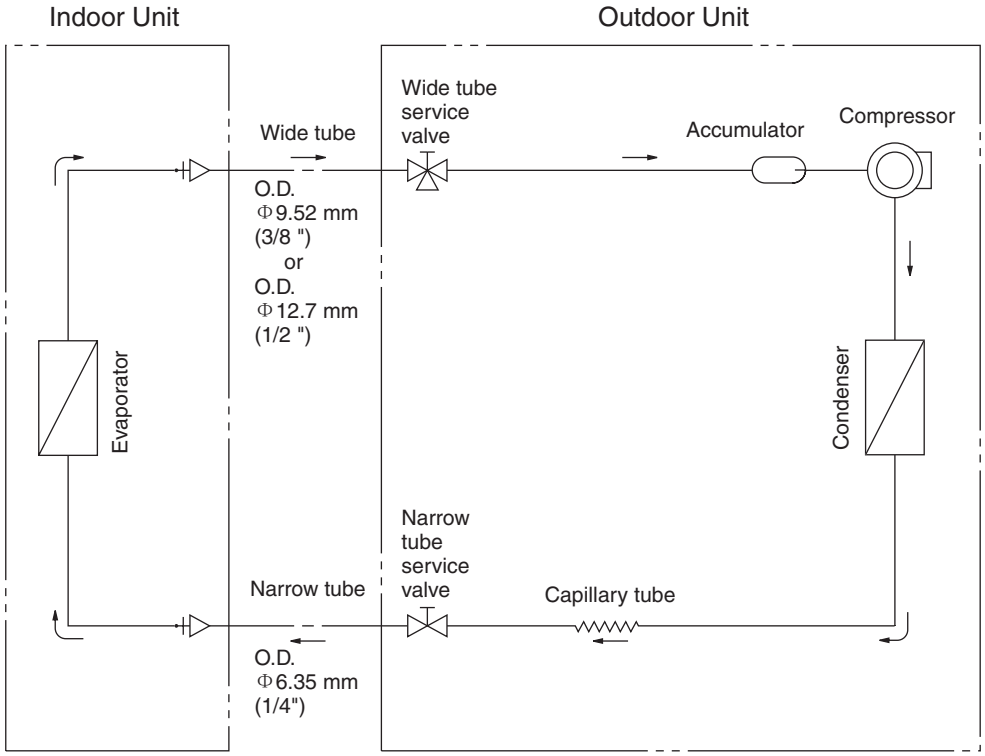


AIR INTAKE

4. REFRIGERANT FLOW DIAGRAM

Indoor Unit **SAP-K76GL**
SAP-K96GL
SAP-K126GL

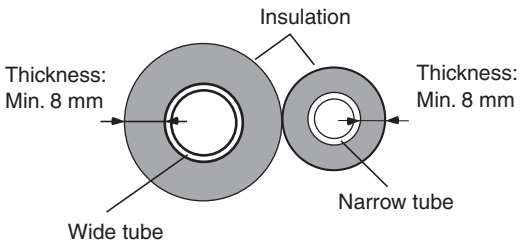
Outdoor Unit **SAP-C76GL**
SAP-C96GL
SAP-C126GL



Insulation of Refrigerant Tubing

IMPORTANT

Because capillary tubing is used in the outdoor unit, both the wide and narrow tubes of this air conditioner become cold. To prevent heat loss and wet floors due to dripping of condensation, **both tubes must be well insulated** with a proper insulation material. The thickness of the insulation should be a min. 8 mm.



CAUTION

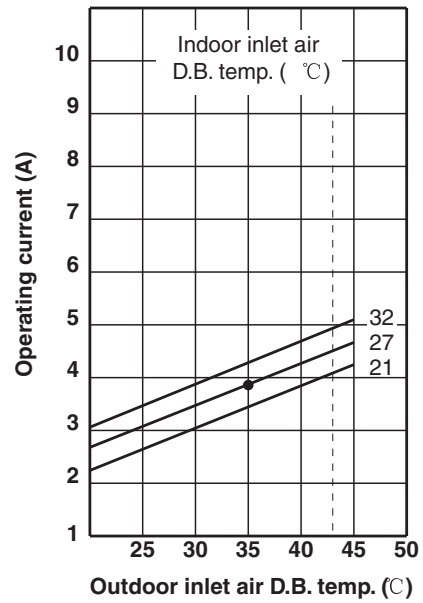
After a tube has been insulated, never try to bend it into a narrow curve because it can cause the tube to break or crack.

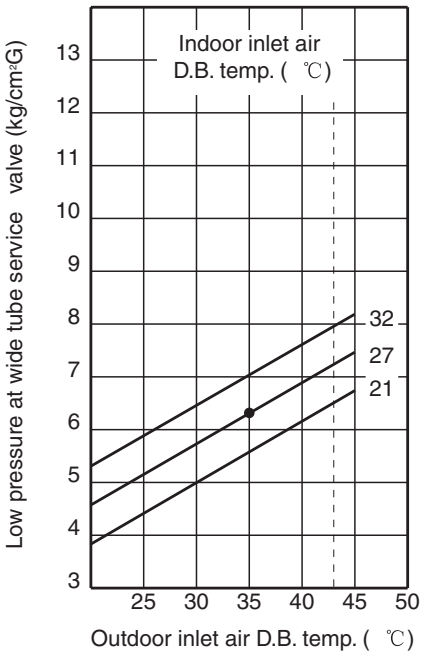
5. PERFORMANCE DATA

5-1. Performance charts

Indoor Unit **SAP-K76GL**
Outdoor Unit **SAP-C76GL**

■ **Cooling Characteristics**





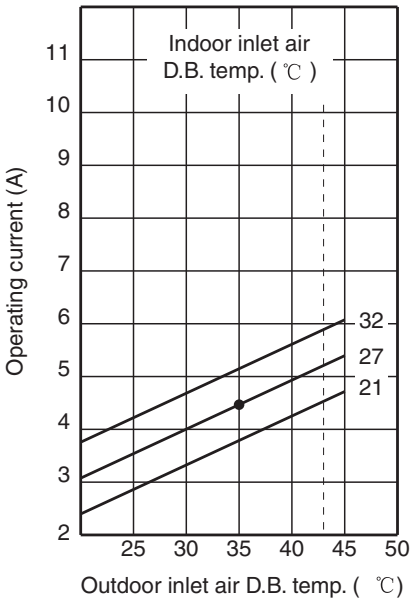
NOTE

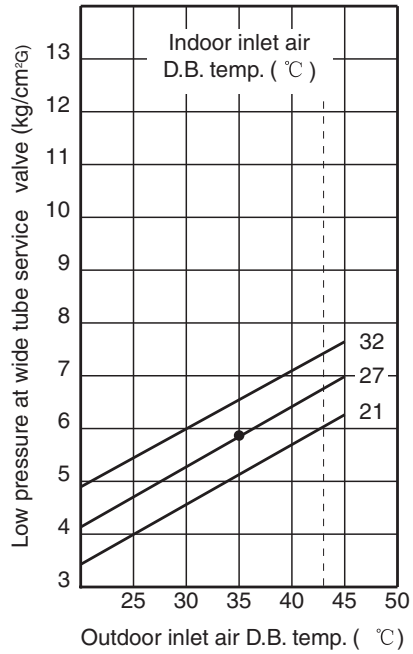
● ..... Points of Rating condition
Black dots in above charts indicate the following rating conditions.

Cooling: Indoor air temperature 27℃ D.B ./19℃ W.B.
Outdoor air temperature 35℃ D.B ./24℃ W.B.

Indoor Unit **SAP-K96GL**
Outdoor Unit **SAP-C96GL**

■ Cooling Characteristics





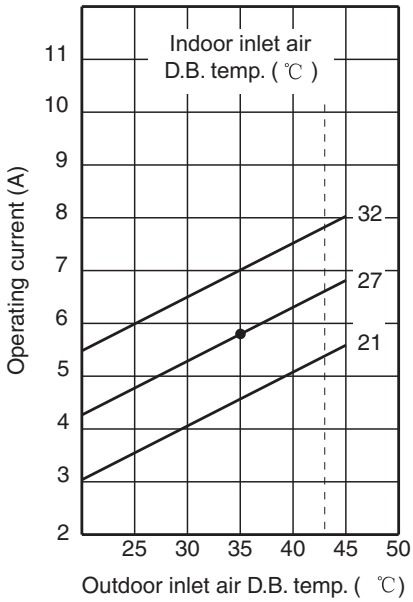
NOTE

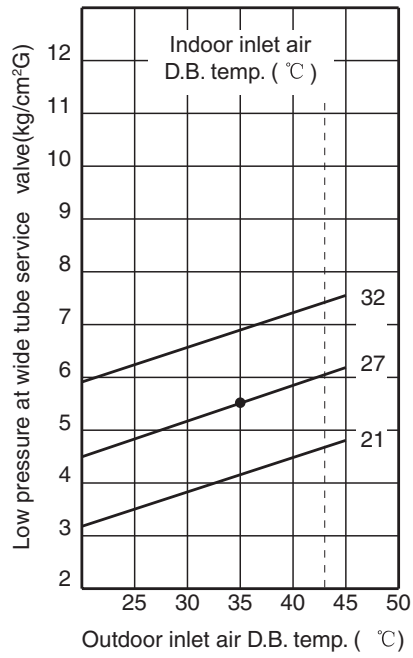
● ..... Points of Rating condition
Black dots in above charts indicate the following rating conditions.

Cooling: Indoor air temperature 27℃ D.B ./19℃ W.B.
Outdoor air temperature 35℃ D.B ./24℃ W.B.

Indoor Unit **SAP-K126GL**
Outdoor Unit **SAP-C126GL**

■ Cooling Characteristics





NOTE

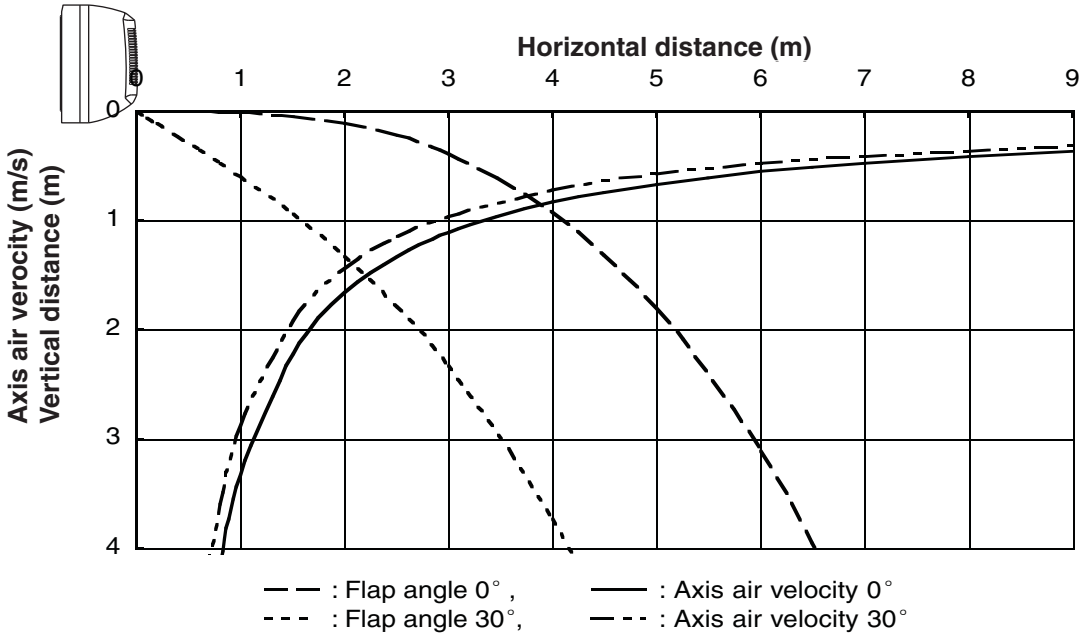
● ..... Points of Rating condition
Black dots in above charts indicate the following rating conditions.

Cooling: Indoor air temperature 27℃ D.B ./19℃ W.B.
Outdoor air temperature 35℃ D.B ./24℃ W.B.

5-2. Air Throw Distance Chart

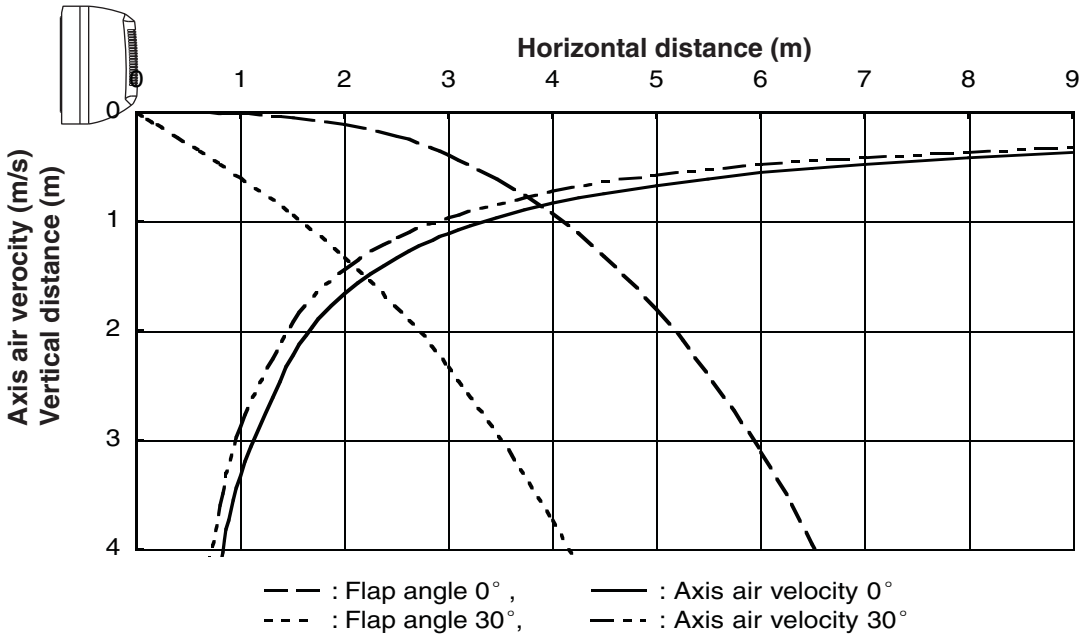
Indoor Unit **SAP-K76GL**

Room air temp. : 27℃
Fan speed : High



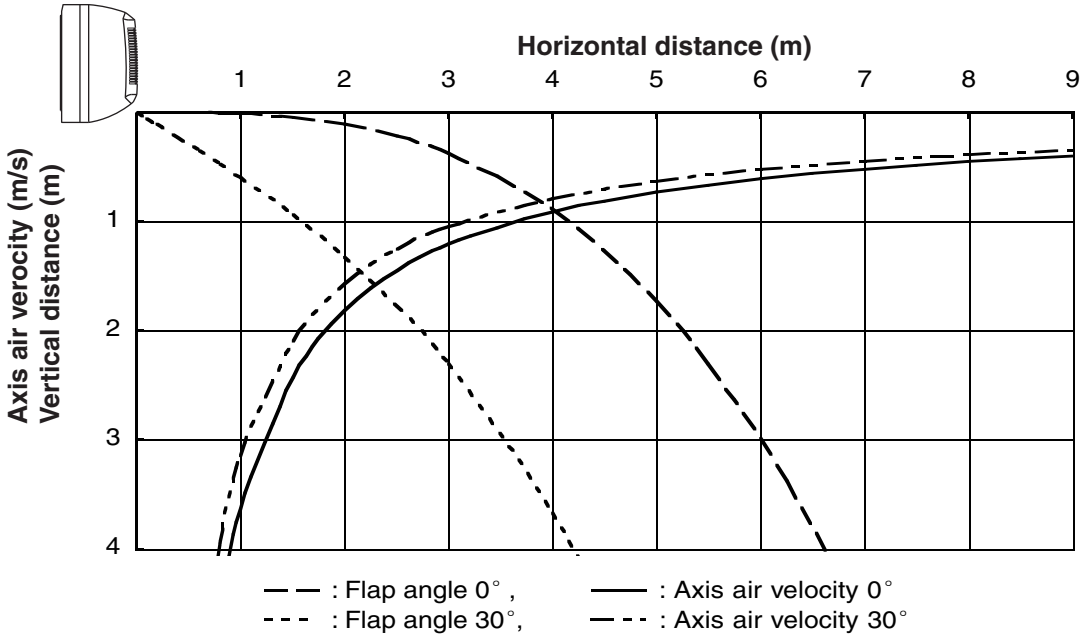
Indoor Unit **SAP-K96GL**

Room air temp. : 27℃
Fan speed : High



Indoor Unit **SAP-K126GL**

Room air temp. : 27℃
Fan speed : High



6. ELECTRICAL DATA

6-1. Electrical Characteristics

Indoor Unit **SAP-K76GL**
Outdoor Unit **SAP-C76GL**

			Indoor Unit	Outdoor Unit		Complete Unit
			Fan Motor	Fan Motor	Compressor	
Performance at			220 ~ 240V Single phase 50Hz			
Rating Conditions	Running Amps.	A	0.17 / 0.18	0.24 / 0.25	3.39 / 3.47	3.8 / 3.9
	Power Input	kW	0.034 / 0.040	0.052 / 0.060	0.724 / 0.56	0.81 / 0.85
Full Load Conditions	Running Amps.	A	0.17 / 0.18	0.24 / 0.25	4.39 / 4.37	4.8 / 4.8
	Power Input	kW	0.034 / 0.040	0.052 / 0.060	0.914 / 0.96	1.00 / 1.06

Rating Conditions : Indoor Air Temperature 27℃ D.B. / 19℃ W.B.
Outdoor Air Temperature 35℃ D.B.
Full Load Conditions : Indoor Air Temperature 32 ℃D.B. / 23℃ W.B.
Outdoor Air Temperature 43℃ D.B.

Indoor Unit **SAP-K96GL**
Outdoor Unit **SAP-C96GL**

			Indoor Unit	Outdoor Unit		Complete Unit
			Fan Motor	Fan Motor	Compressor	
Performance at			220 / 240V Single phase 50Hz			
Rating Conditions	Running Amps.	A	0.17 / 0.18	0.24 / 0.25	4.09 / 4.17	4.5 / 4.6
	Power Input	kW	0.034 / 0.040	0.052 / 0.060	0.844 / 0.9	0.93 / 1.00
Full Load Conditions	Running Amps.	A	0.17 / 0.18	0.24 / 0.25	5.39 / 5.37	5.8 / 5.8
	Power Input	kW	0.034 / 0.040	0.052 / 0.060	1.094 / 1.14	1.18 / 1.24

Rating Conditions : Indoor Air Temperature 27 ℃D.B. / 19℃ W.B.
Outdoor Air Temperature 35℃ D.B.
Full Load Conditions : Indoor Air Temperature 32℃ D.B. / 23℃ W.B.
Outdoor Air Temperature 43℃ D.B.

Indoor Unit **SAP-K126GL**
Outdoor Unit **SAP-C126GL**

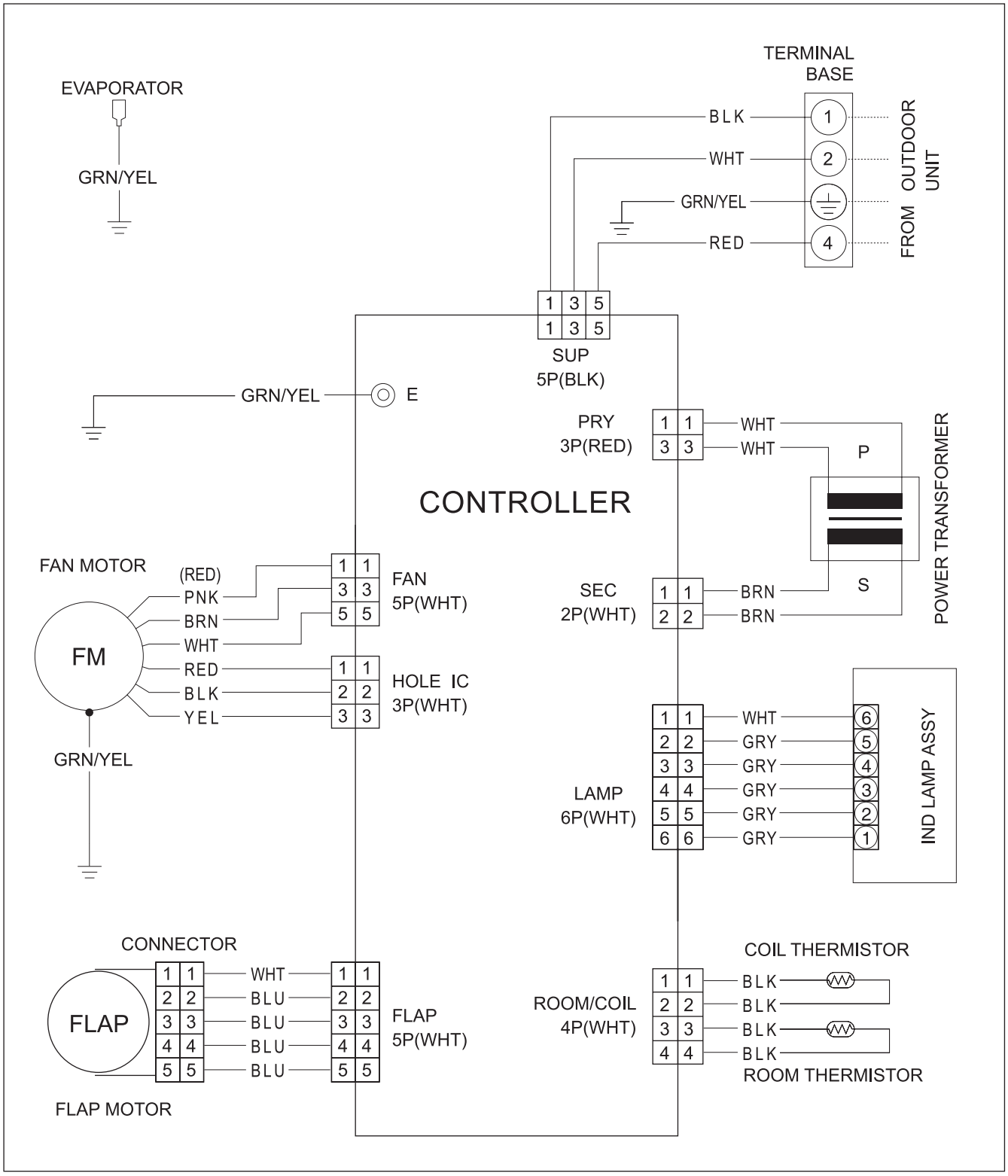
			Indoor Unit	Outdoor Unit		Complete Unit
			Fan Motor	Fan Motor	Compressor	
Performance at			220 / 240V Single phase 50Hz			
Rating Conditions	Running Amps.	A	0.17 / 0.18	0.23 / 0.24	5.40 / 5.48	5.8 / 5.9
	Power Input	kW	0.034 / 0.040	0.050 / 0.058	1.156 / 1.192	1.24 / 1.29
Full Load Conditions	Running Amps.	A	0.17 / 0.18	0.23 / 0.24	6.80 / 6.78	7.2 / 7.2
	Power Input	kW	0.034 / 0.040	0.050 / 0.058	1.476 / 1.502	1.56 / 1.60

Rating Conditions : Indoor Air Temperature 27 ℃D.B. / 19℃ W.B.
Outdoor Air Temperature 35℃ D.B.
Full Load Conditions : Indoor Air Temperature 32℃ D.B. / 23℃ W.B.
Outdoor Air Temperature 43℃ D.B.

6-2. Electric Wiring Diagrams

Indoor Unit **SAP-K76GL**
SAP-K96GL
SAP-K126GL

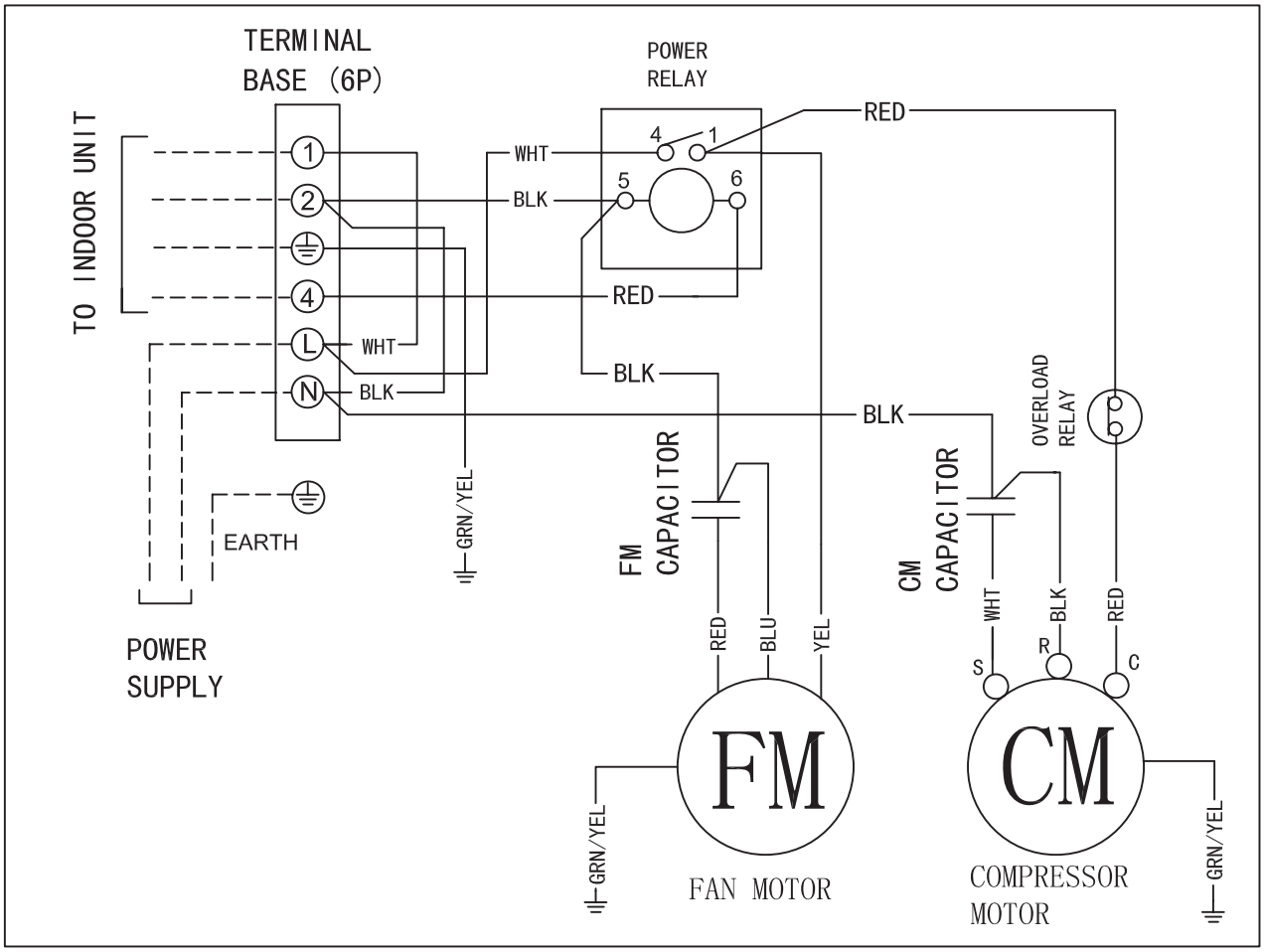
WARNING ***To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.***



8FA-2-5250-14900-0

Outdoor Unit **SAP-C76GL**
SAP-C96GL
SAP-C126GL

WARNING ***To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.***



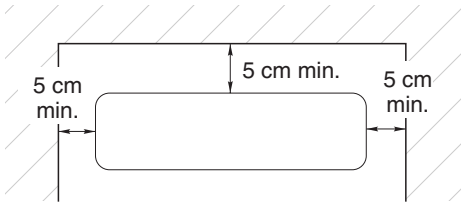
8FA2-5250-15000-0

7. INSTALLATION INSTRUCTIONS

7-1. Installation Site Selection

Indoor Unit

WARNING **To prevent abnormal heat generation and the possibility of fire, do not place obstacles, enclosures and grilles in front of or surrounding the air conditioner in a way that may block air flow.**



Front View

Fig. 2

AVOID:

direct sunlight.

nearby heat sources that may affect performance of the unit.

areas where leakage of flammable gas may be expected.

places where large amounts of oil mist exist.

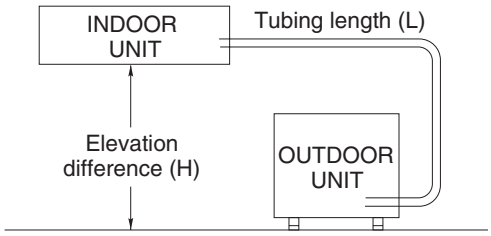


Fig. 3a

DO:

select an appropriate position from which every corner of the room can be uniformly cooled. (High on a wall is best.)

select a location that will hold the weight of the unit.

select a location where tubing and drain hose have the shortest run to the outside. (Fig. 1)

allow room for operation and maintenance as well as unrestricted air flow around the unit. (Fig. 2)

install the unit within the maximum elevation difference (H) above or below the outdoor unit and within a total tubing length (L) from the outdoor unit as detailed in Table 3 and Fig. 3a.

CAUTION

For stable operation of the air conditioner, do not install wall-mounted type indoor units less than 1.5 m from floor level.

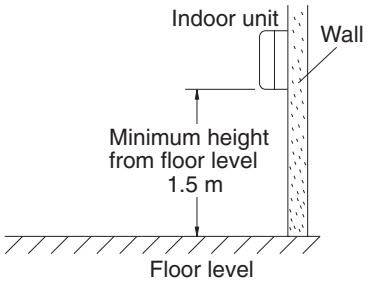


Fig. 3b

Table 3

Model	Max. Allowable Tubing Length at Shipment (m)	Limit of Tubing Length (L) (m)	Limit of Elevation Difference (H) (m)	(g/m)*
C76,C96	5	15	5	15
C126	5	20	5	20

* If total tubing length becomes 5 to 15 m (max.), or 5 to 20m (max.), charge additional refrigerant (R22) by 15g/m or 20 g/m. No additional charge of compressor oil is necessary.

Outdoor Unit

AVOID:

- heat sources, exhaust fans, etc. (Fig. 4)
- damp, humid or uneven locations.

DO:

- choose a place as cool as possible.
- choose a place that is well ventilated.
- allow enough room around the unit for air intake/ exhaust and possible maintenance. (Fig. 5)
- provide a solid base (concrete block, 10 x 40 cm beams or equal), a minimum of 10 cm above ground level to reduce humidity and protect the unit against possible water damage and decreased service life. (Fig. 6)
- use lug bolts or equal to bolt down unit, reducing vibration and noise.

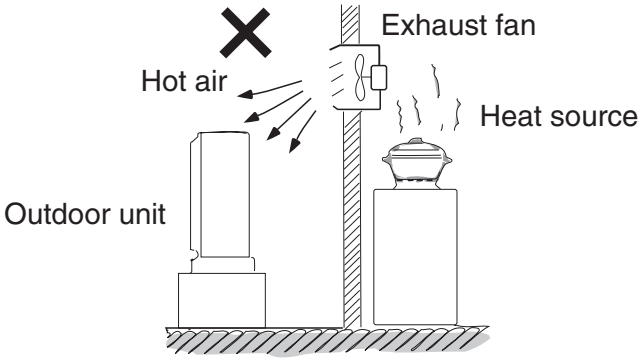


Fig. 3

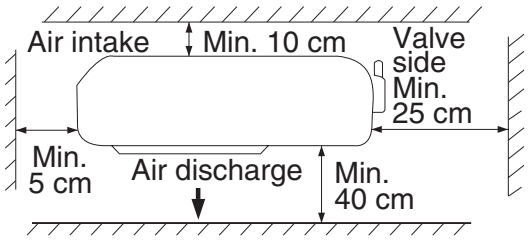


Fig. 4a

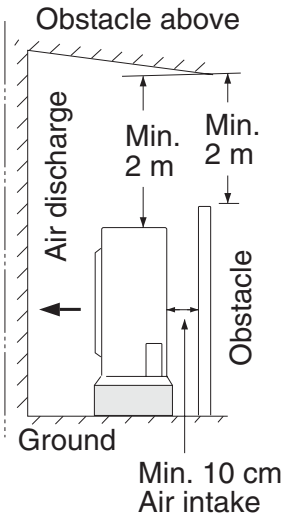


Fig. 4b

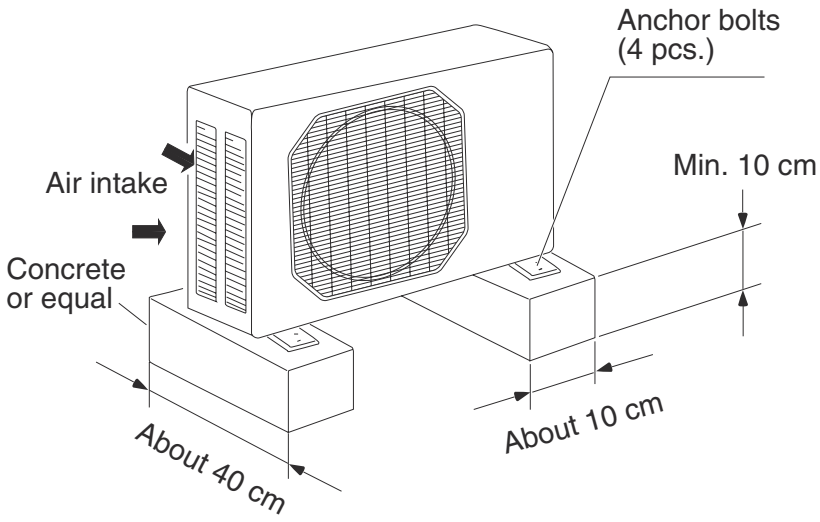


Fig. 5

7-2. Remote Control Unit Installation Position

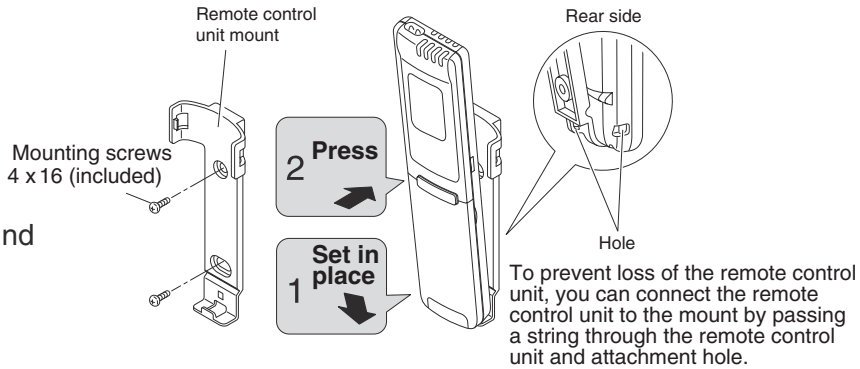
The remote control unit can be operated from either a non-fixed position or a wall-mounted position.

To ensure that the air conditioner operates correctly, do not install the remote control unit in the following places:

- In direct sunlight
- Behind a curtain or other place where it is covered.
- More than 8 m away from the air conditioner
- In the path of the air conditioner's airstream
- Where it may become extremely hot or cold
- Where it may be subject to electrical or magnetic interference
- Where there is an obstacle between the remote control unit and the air conditioner (since a check signal is sent from the remote control unit every 5 minutes)

7-1. Mounting on Wall

Before mounting the remote control unit, press the ON/OFF operation button at the mounting location to make sure that the air conditioner operates from that location. The indoor unit should make a beeping sound to indicate that it has received the signal.



To take out the remote control unit, pull it forward.

Fig. 56

8. Address Switch

8-1. Address Setting of the Remote Control Unit

The address can be set in order to prevent interference between remote controllers when two indoor units are installed near each other. The address is normally set to "A" . To set a different address, it is necessary to change the address on the second remote controller.

NOTE

Once changed, you cannot restore the original address setting of the air conditioner.

(1) Switch on the power source.

(2) Break the address-setting tab marked "A" on the second remote controller to change the address (Fig.57). When the tab is removed, the address is automatically set to B(Fig.58).

(3) Press the ACL(reset) button.Use a thin object such as the tip of a pen to press the ACL button.

(4) After the power cut off, for safety please cut Jumper (JP02) on Printed Circuit Board (PCB) in the indoor unit.

Changing of the second remote controller address is now completed.

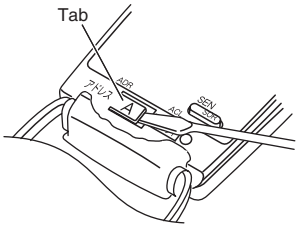


Fig.57

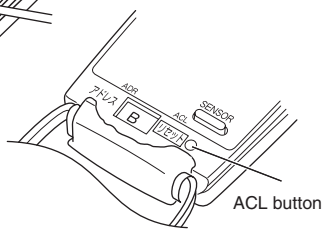


Fig.58

7-3. Recommended Wire Length and Diameter

Regulations on wiring diameter differ from locality to locality. For field wiring requirements, please refer to your local electrical codes. Carefully observe these regulations when carrying out the installation.
Table 2 lists recommended wire lengths and diameters for power supply systems.
Refer to the wiring system diagram for the meaning of “A” and “B” in Table 2.

Table 2

Cross-Sectional Area (mm^2) / Model	(A)+(B) (A) Power Supply Wiring Length (m) (B) Power Line Length (m)		Fuse or Circuit Capacity
	2	3.5	
K76	70	100	10A
K96	33	51	
K126	27	41	

WARNING

Be sure to comply with local codes on running the wire from the indoor unit to the outdoor unit (size of wire and wiring method, etc.). Each wire must be firmly connected.
No wire should be allowed to touch refrigerant tubing, the compressor, or any moving part.

WARNING

To avoid the risk of electric shock, each air conditioner unit must be grounded.

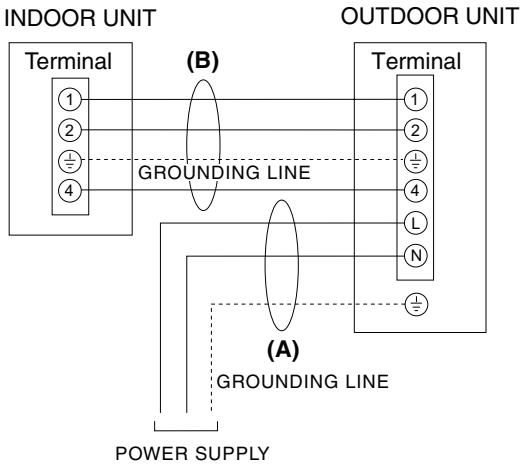
CAUTION

Be sure to connect the power supply line to the outdoor unit as shown in the wiring diagram. The indoor unit draws its power from the outdoor unit.

WIRING SYSTEM DIAGRAM

Power supply :

50 Hz, Single phase
220 - 240V

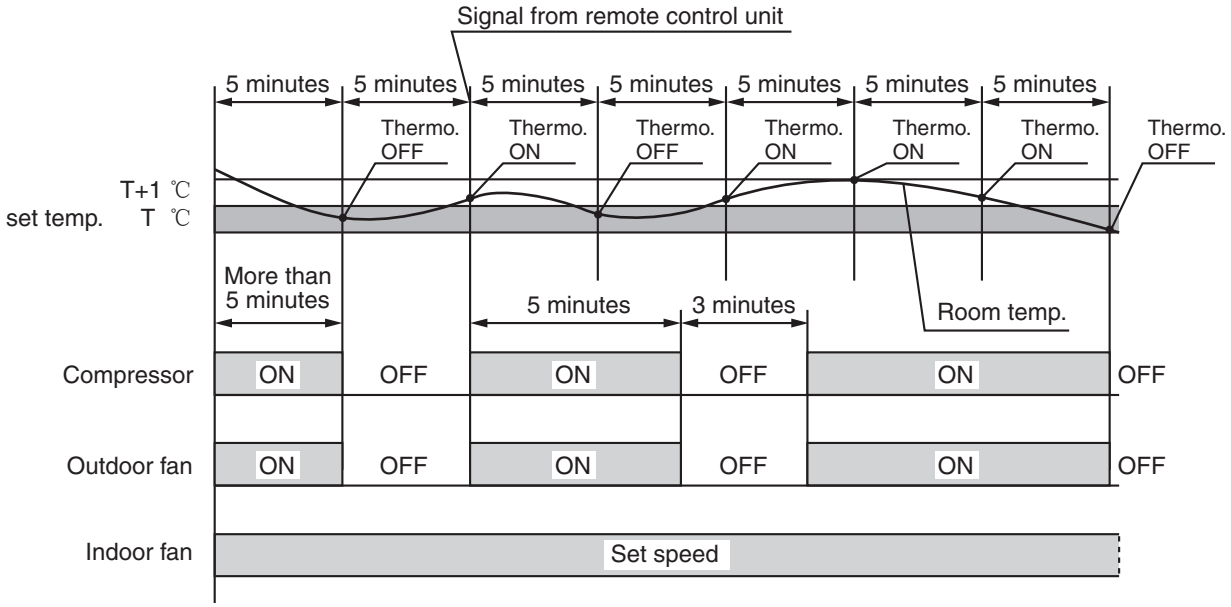


8. FUNCTION

8-1. Room Temperature Control

✯ Room temperature control is obtained by cycling the compressor ON and OFF under control of the room temperature sensor in the remote control unit.

✯ The room temperature (and other information) is transmitted every 5 minutes by the remote control unit to the controller in the indoor unit.



✯ The control circuit will not attempt to turn the compressor ON until the compressor has been OFF for at least 3 minutes. To protect the compressor from stalling out when trying to start against the high side refrigerant pressure, the control circuit has a built-in automatic time delay to allow the internal pressure to equalize.

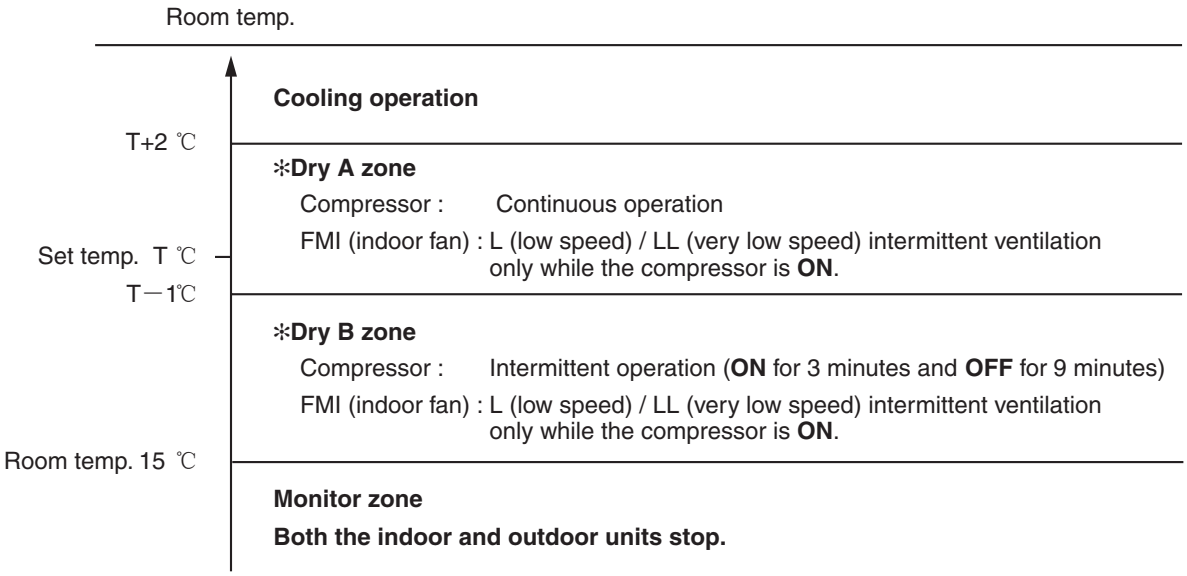
✯ As a protective measure, the control circuit switches the compressor OFF after 5 minutes or more of compressor operation.

✯ Thermo. ON : When the room temperature is above T + 1℃(T℃ is set temperature).
Compressor ON

✯ Thermo. OFF : When the room temperature is equal to or below set temperature T℃.
Compressor OFF

8-2. Dry Operation (Dehumidification)

- Dry operation uses the ability of the cooling cycle to remove moisture from the air, but by running at low level to dehumidify without greatly reducing the room temperature. The air conditioner repeats the cycle of turning ON and OFF automatically as shown in the chart below according to the room temperature.

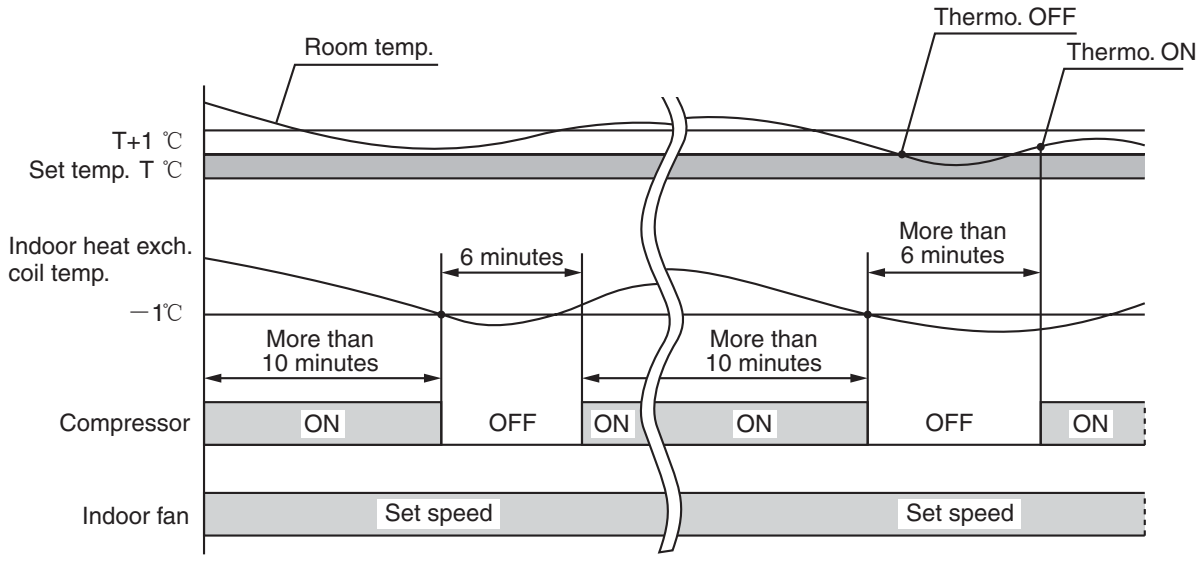


NOTE

- Intermittent ventilation occurs by switching the indoor fan speed between L ↔ LL.
- Dry operation does not occur when the room temperature is under 15℃, which is the monitor zone.
- When the compressor stops, the indoor fan stops as well.

8-3. Freeze Pre vention

- This function prevents freezing of the indoor heat exchange coil.
- When the compressor has been running for 10 minutes or more and the temperature of the indoor heat exchange coil falls below −1℃, the control circuit stops the compressor for at least 6 minutes. The compressor does not start again until the temperature rises above 8¡C or 6 minutes has elapsed.



9. TROUBLESHOOTING

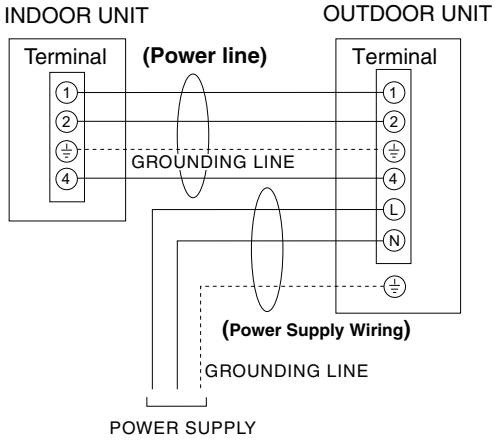
9-1. Check before and after troubleshooting

WARNING

Hazardous voltage can cause ELECTRIC SHOCK or DEATH. Disconnect power or turn off circuit breaker before you start checking or servicing.

9-1-1. Check po wer supply wiring.

- Check that power supply wires are correctly connected to terminals **L** and **N** on the terminal plate in the outdoor unit.



9-1-2. Check inter-unit wiring.

- Check that inter-unit wiring is correctly connected to the indoor unit from the outdoor unit.

9-1-3. Check po wer supply .

- Check that voltage is in specified range (±10% of the rating).
- Check that power is being supplied.

9-1-4. Check lead wires and connectors in indoor and outdoor units.

- Check that coating of lead wires is not damaged.
- Check that lead wires and connectors are firmly connected.
- Check that wiring is correct.

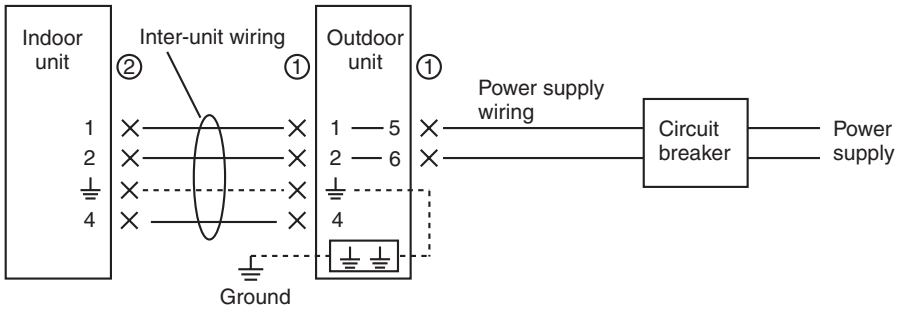
9-2. Air conditioner does not operate .

9-2-1. Circuit breaker trips (or fuse blows).

A. When the circuit breaker is set to ON, it is tripped soon. (Resetting is not possible.)

- There is a possibility of ground fault.
- Check insulation resistance.

If resistance value is 2MΩ or less, insulation is defective ("NO").



WARNING

*Set circuit breaker to OFF.

① Remove both power supply wires and inter-unit wires from terminal plate in outdoor unit.
- Measure insulation resistance of outdoor unit.

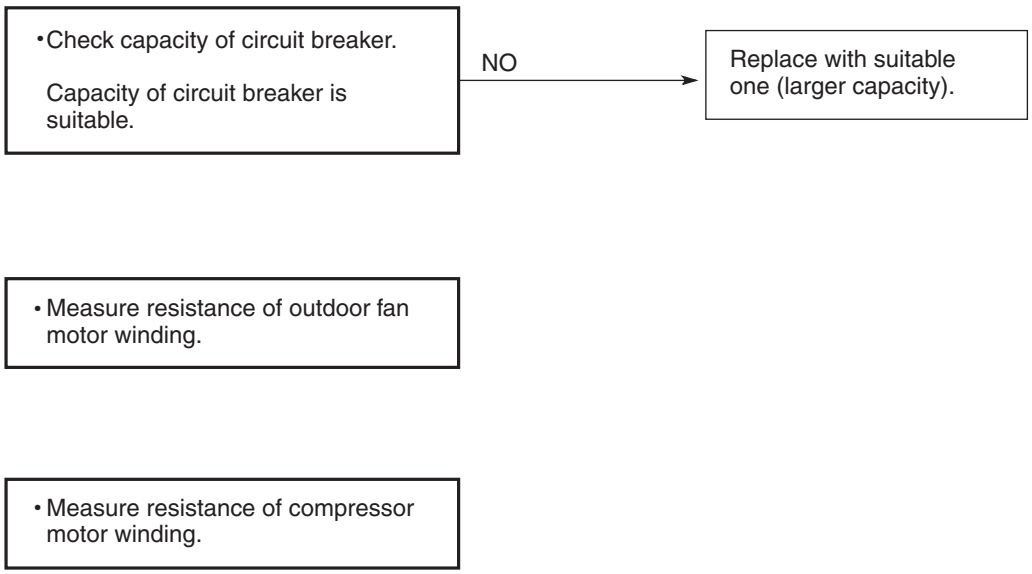
NO → Insulation of outdoor unit is defective.
- Measure insulation resistance of electrical parts in outdoor unit.

② Remove inter-unit wires from terminal plate in indoor unit.
- Measure insulation resistance of indoor unit.

NO → Insulation of indoor unit is defective.
- Measure insulation resistance of electrical parts in indoor unit.

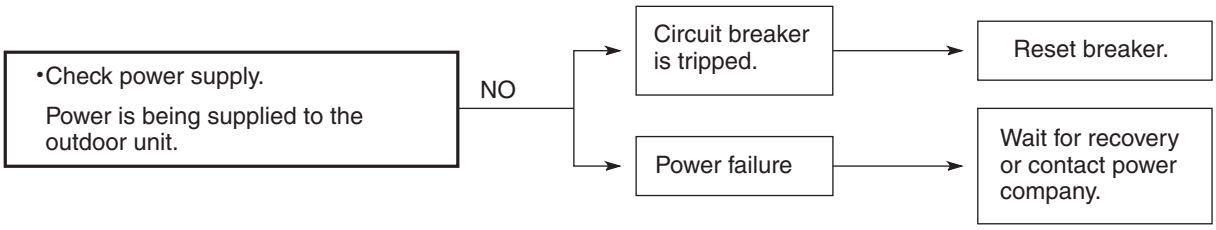
B. Circuit breaker trips in several minutes after turning the air conditioner on.

● There is a possibility of short circuit.

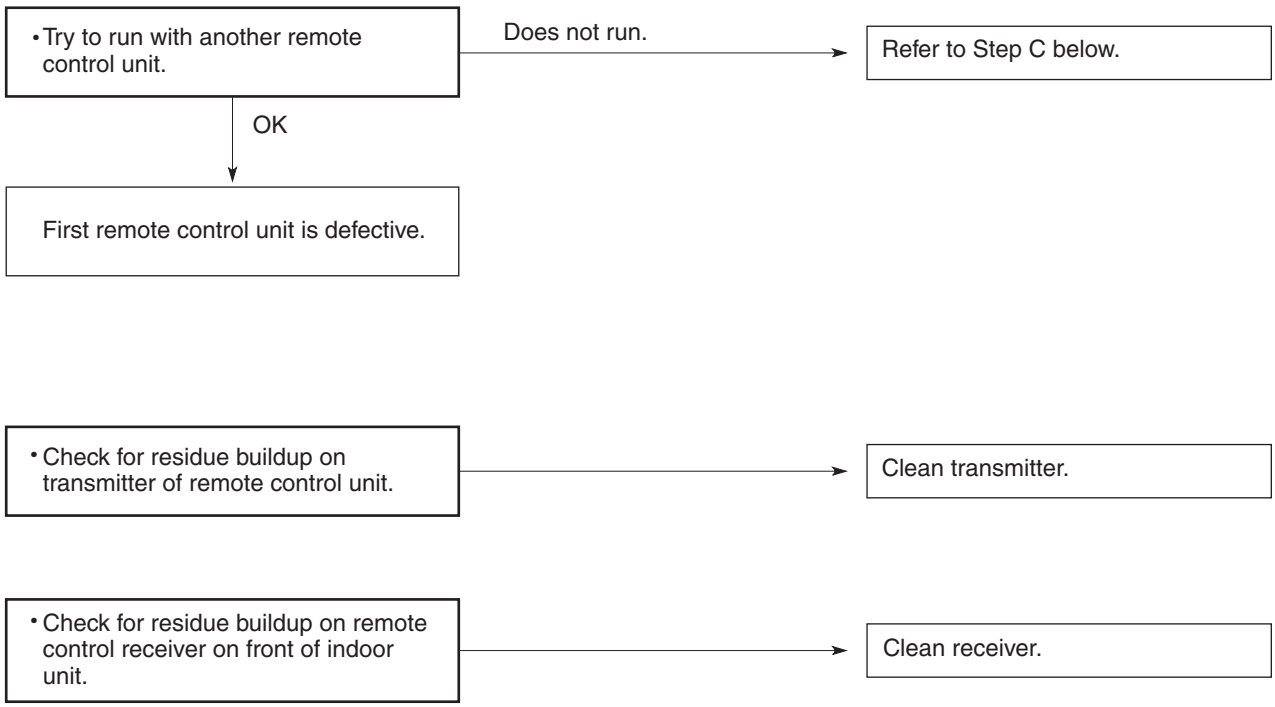


9-2-2. Neither indoor nor outdoor unit runs.

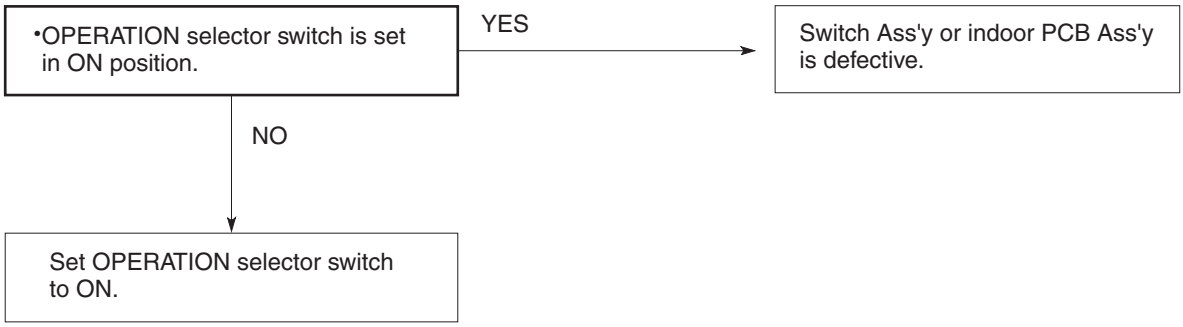
A. Power is not supplied.



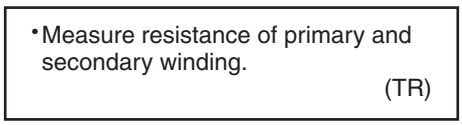
B. Check remote control unit.



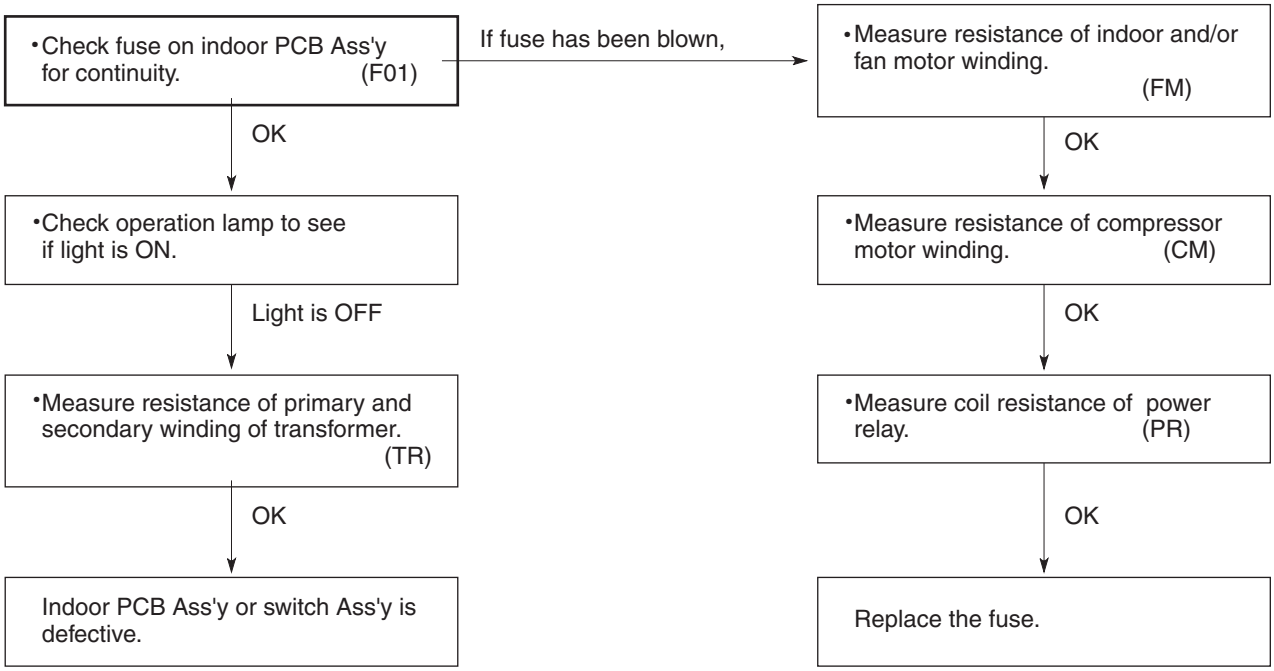
C. Check " OPERATION selector " switch in the indoor unit.



D. Check transformer in indoor unit.



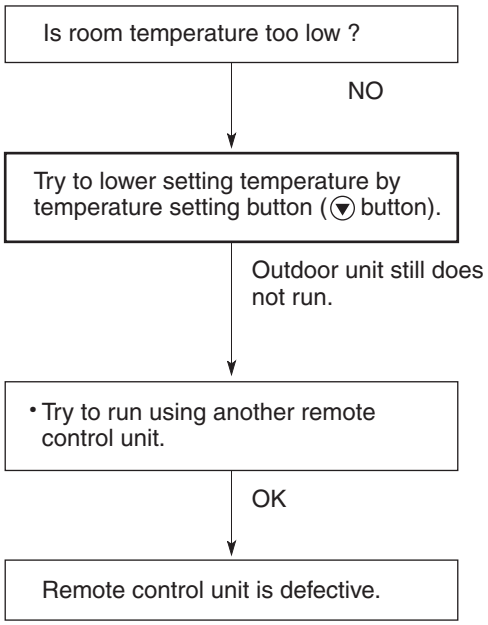
E. Check fuse on the indoor PCB Ass'y.



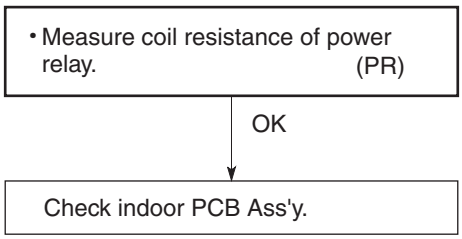
F. Check TIMER on the remote control unit.

9-2-3. Only outdoor unit does not run.

A. Check setting temperature.

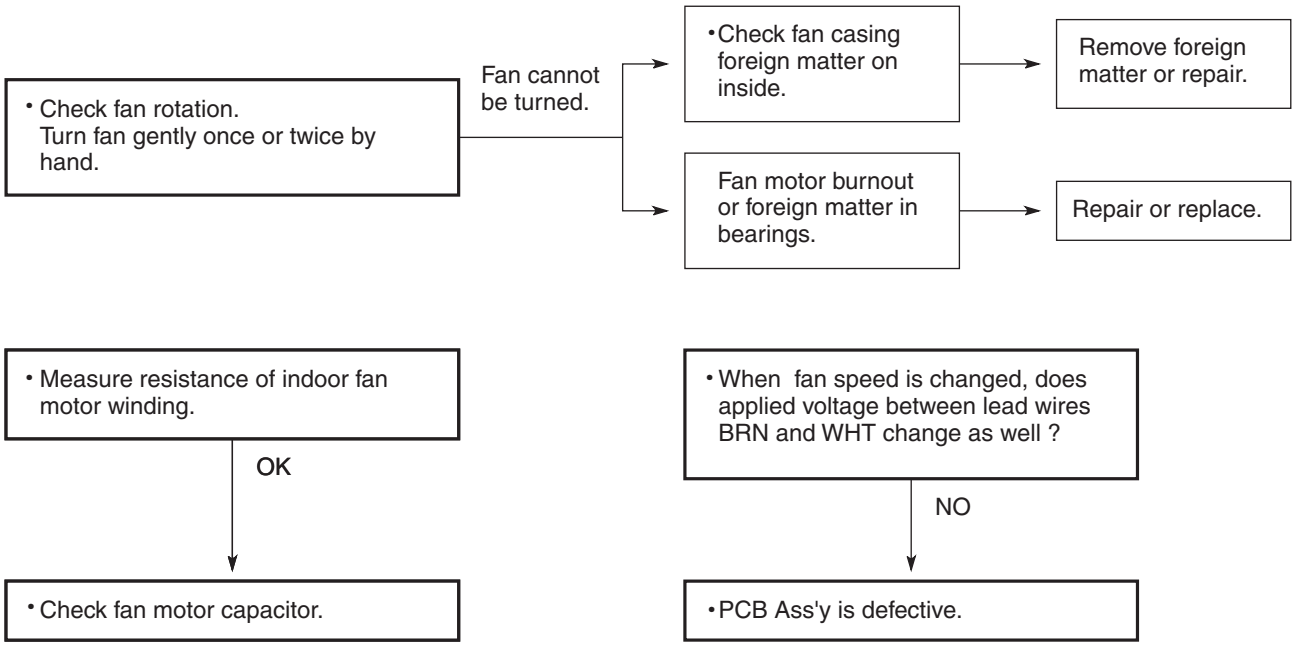


B. Check power relay in outdoor unit.

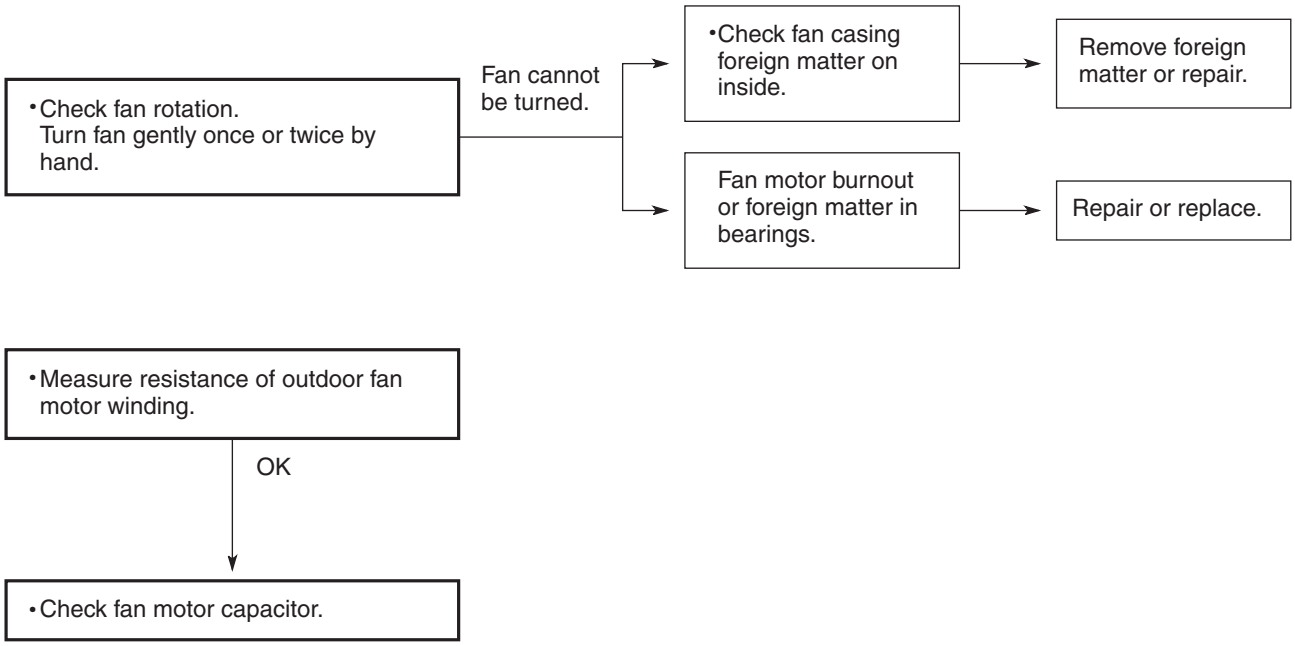


9-3. Some part of air conditioner does not operate.

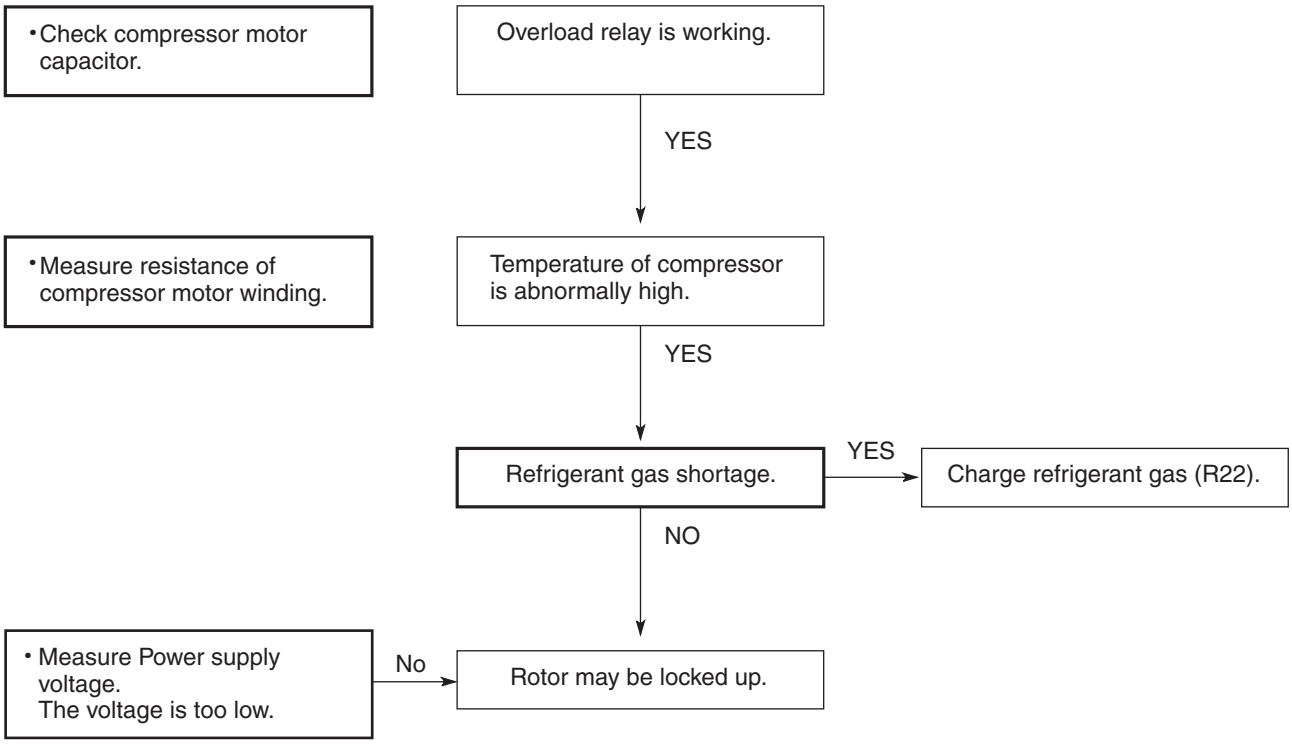
9-3-1. Only indoor fan does not run.



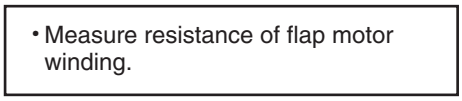
9-3-2. Only outdoor fan does not run.



9-3-3. Only compressor does not run.

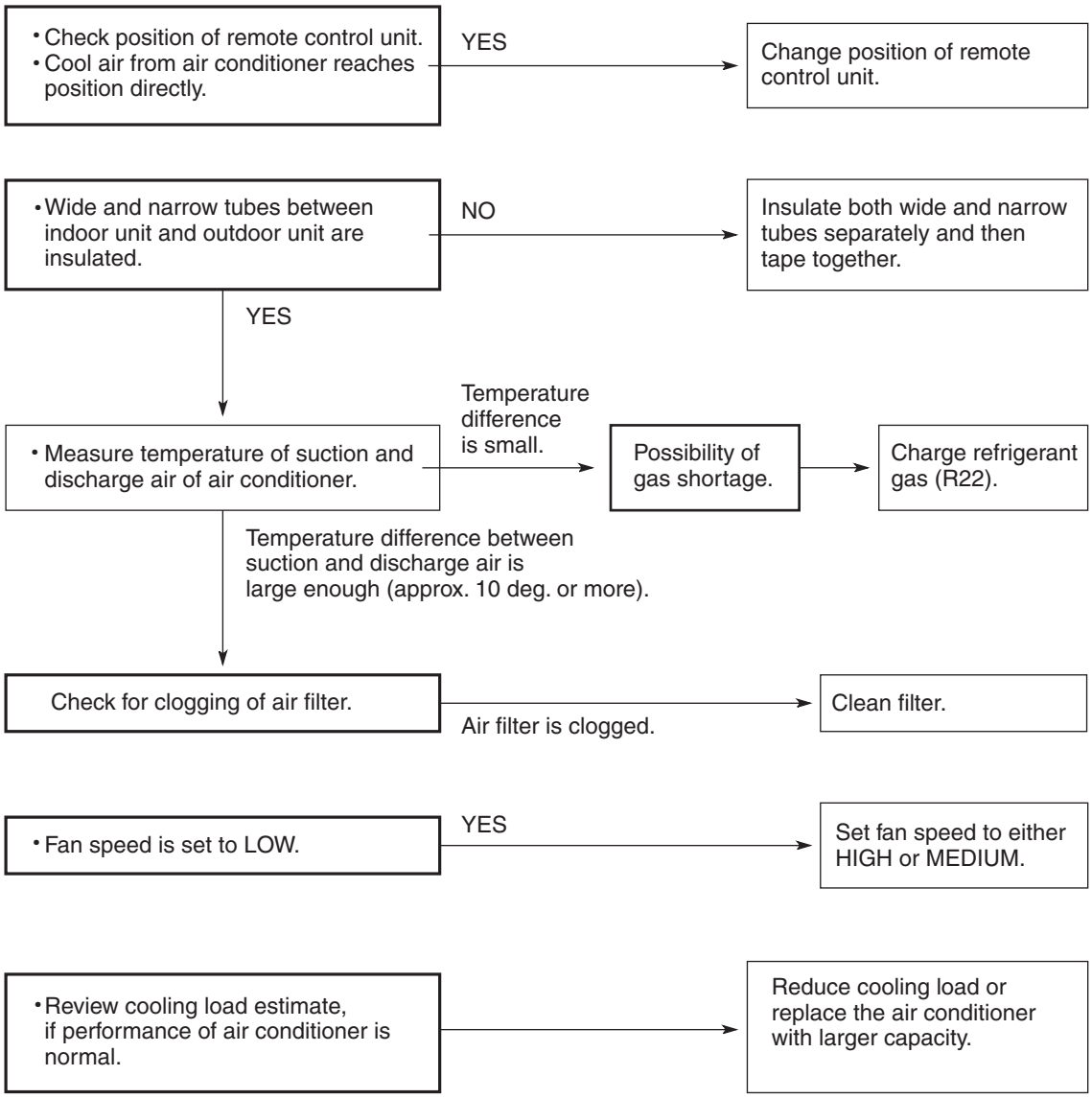


9-3-4. Only flap motor does not run.

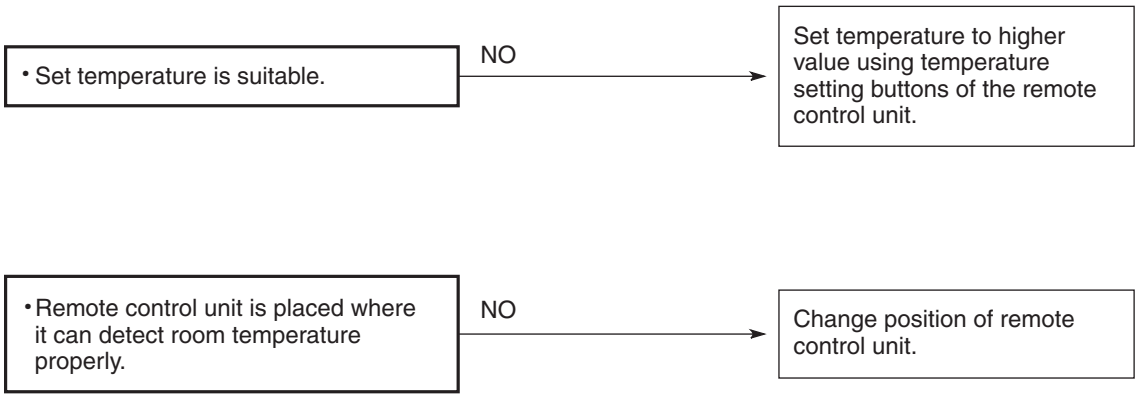


9-4. Air conditioner operates, but abnormalities are observed.

9-4-1. Poor cooling.



9-4-2. Excessive cooling.



9-5. If a sensor is defective.

9-5-1. Indoor coil temp. thermistor (TH1) is defective.

NOTE **Alarm Signal (*)**

Operation lamp on the front side of the indoor unit will flash on and off when the indoor coil thermistor is defective. At the same time the outdoor unit will stop. Indoor unit will operate only for ventilation.

9-5-2. Room temp. thermistor (TH2) is defective.

A. Open

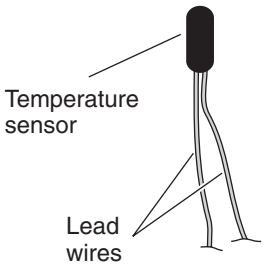
When thermistor opens, the air conditioner will be in the following conditions as the controller tries to detect extremely low room temperature.

In Cooling mode: The air conditioner soon stops and will not start again. (Thermo.OFF) Neither outdoor fan nor compressor runs.

B. Short

When thermistor is short, the air conditioner will be in the following conditions as the controller tries to detect extremely high room temperature.

In Cooling mode: The air conditioner continues to operate (Thermo.ON). Both the outdoor fan and compressor do not stop. As a result, the room becomes too cold.



Thermistor Structure

NOTE

Definition of Open or Short Circuit of Sensor (Thermistor)

Open ... A lead wire is broken or disconnected or the circuit inside the temperature sensor is open .

Short ... The protective cover of a lead wire has been damaged, and the exposed wire is touching another metal part, or both lead wires have become exposed and are touching each other. Alternatively, the circuit inside the temperature sensor is closed.

10. CHECKING ELECTRICAL COMPONENTS

10-1. Measurement of Insulation Resistance

- The insulation is in good condition if the resistance exceeds 2MΩ .

10-1-1. Power Supply Wires

Clamp the ground wire of the power supply wires with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on either of the power wires. (Fig. 1)

Then measure the resistance between the ground wire and the other power wire. (Fig. 1)

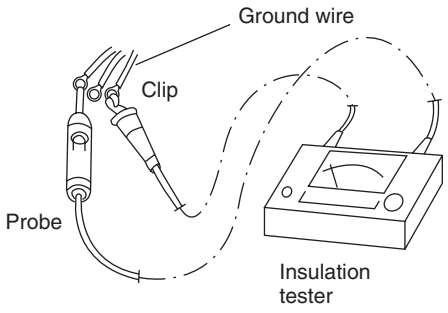


Fig. 1

10-1-2. Indoor Unit

Clamp an aluminum plate fin or copper tube with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on each terminal screw on the terminal plate. (Fig. 2)
Note that the ground line terminal should be skipped for the check.

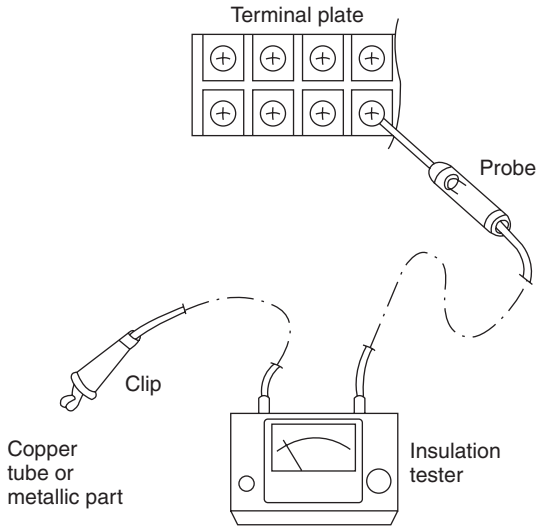


Fig. 2

10-1-3. Outdoor Unit

Clamp an aluminum plate fin or copper tube with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on each terminal screw where power supply lines are connected on the terminal plate. (Fig. 2)

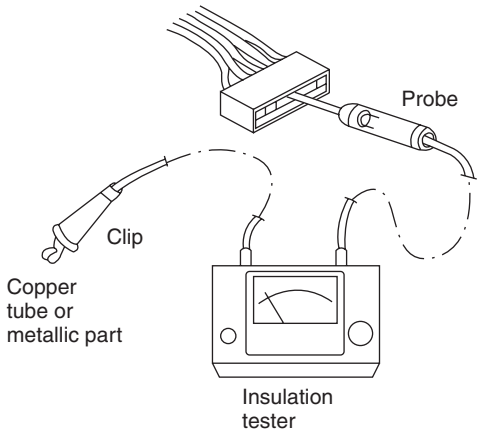


Fig. 3

10-1-4. Measurement of Insulation Resistance for Electrical Parts

Disconnect the lead wires of the desired electric part from terminal plate, capacitor, etc. Similarly disconnect the connector. Then measure the insulation resistance. (Figs. 3 and 4)

NOTE

Refer to Electric Wiring Diagram.

If the probe cannot enter the poles because the hole is too narrow then use a probe with a thinner pin.

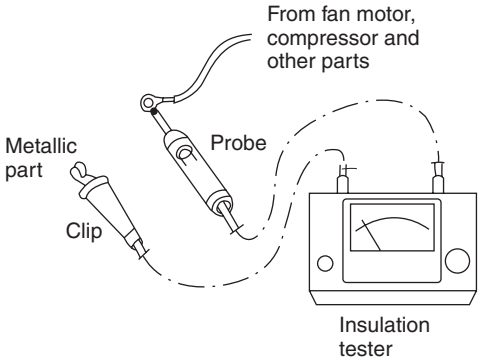


Fig. 4

10-2. Checking Contin uity of Fuse on PCB Ass'y

- Remove the PCB Ass'y from the electrical component box. Then pull out the fuse from the PCB Ass'y. (Fig. 5)
- Check for continuity using a multimeter as shown in Fig. 6.

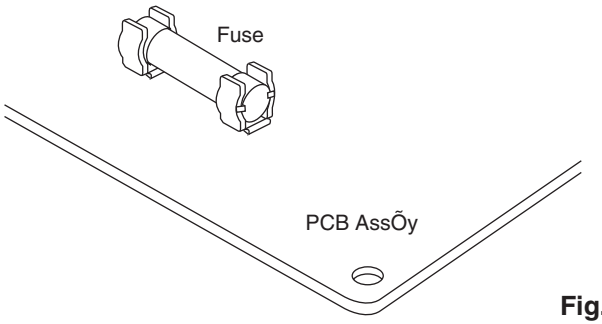


Fig. 5

10-3. Checking Motor Capacitor

Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in Fig. 7. Observe the deflection of the pointer, setting the resistance measuring range of the multimeter to the maximum value.

The capacitor is "good" if the pointer bounces to a great extent and then gradually returns to its original position.

The range of deflection and deflection time differ according to the capacity of the capacitor.

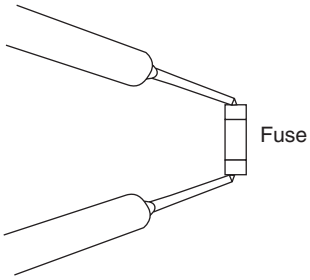


Fig. 6

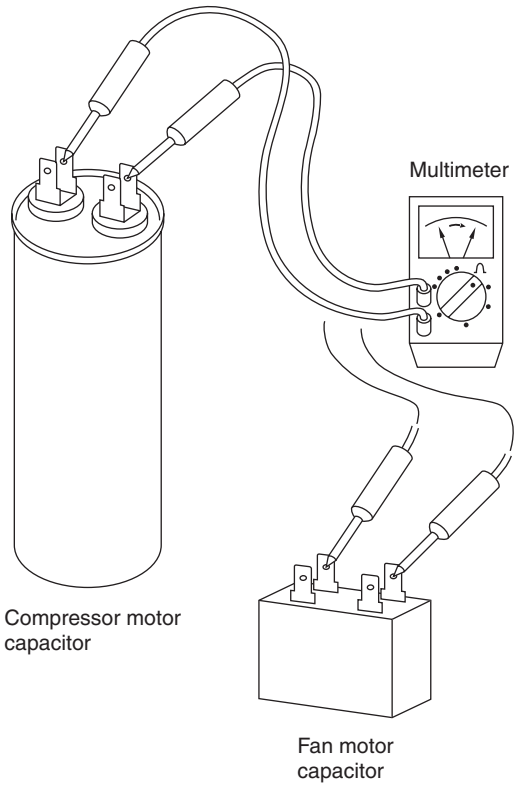


Fig. 7

11. MAINTENANCE

11-1. Changing Address of Remote Control Unit in Indoor Unit

If you are installing more than 1 indoor unit (up to 2) in the same room, it is necessary for you to assign each unit its own address, so each can be operated by its own separate remote control unit. You assign the addresses by matching the remocon address on the PCB of each indoor unit with the switch positions of its remote control unit.

NOTE Once changed, you cannot restore the original address setting of the remote control unit.

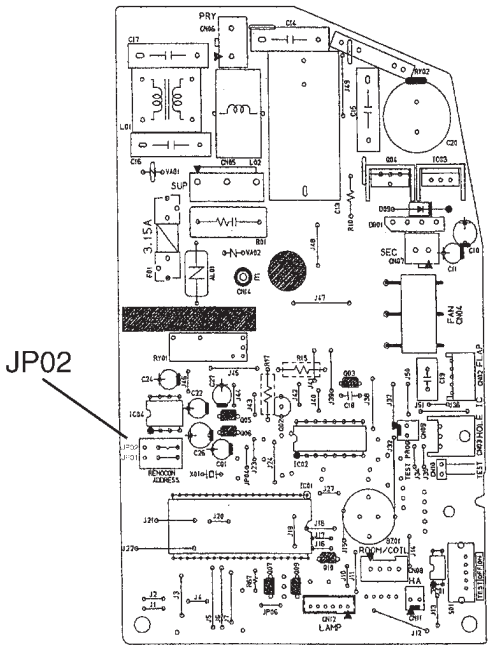
To Change Address on PCB

(1) Cut jumper wire (JP02) on the indoor unit PCB.
Use cutting pliers to cut and disconnect the Jumper wire.

(2) Switch the address switch on the remote control unit to "B" position.

(3) After inserting the batteries, press reset button.

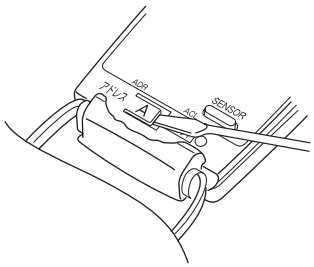
Control PCB on Indoor Unit



To Change Address on Remote Control Unit

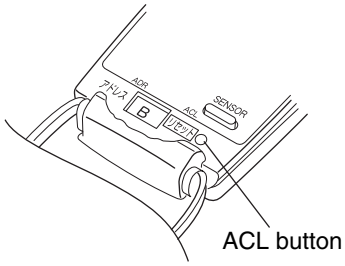
(1) Remove the batteries before changing the address.

(2) Remove tab marked A to change the address of the remote control unit.



(3) When it is removed, the address is automatically set to B.

(4) After inserting the batteries, press ACL button.



SANYO Electric Co.,Ltd.
R&D center Jun/2007