

TECHNICAL & SERVICE MANUAL



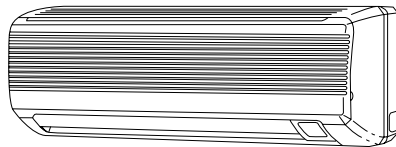
SAP-K92A + SAP-C92A
SAP-K122A + SAP-C122A
SAP-K182A + SAP-C182A
SAP-K252A + SAP-C252A

FILE NO.

SPLIT SYSTEM AIR CONDITIONER

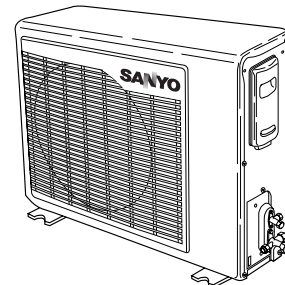
Indoor Model No.	Product Code No.	Destination	Outdoor Model No.	Product Code No.	Destination
SAP-K92A-S	1 852 083 68	Australia	SAP-C92A-S	1 852 084 09	Australia
SAP-K122A-S	1 852 083 69		SAP-C122A-S	1 852 084 10	
SAP-K182A-S	1 852 083 70		SAP-C182A-S	1 852 084 11	
SAP-K252A-S	1 852 083 72		SAP-C252A-S	1 852 084 13	

Indoor Unit

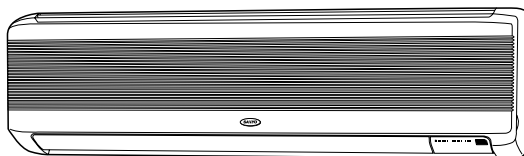


SAP-K92A
SAP-K122A

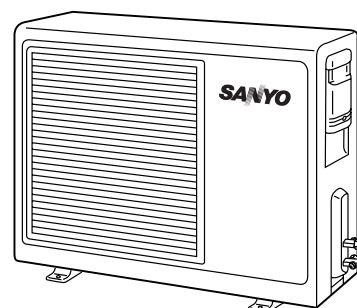
Outdoor Unit



SAP-C92A
SAP-C122A



SAP-K182A
SAP-K252A



SAP-C182A
SAP-C252A

REFERENCE NO. SM700569

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

	Page
1. OPERATING RANGE	1
2. SPECIFICATIONS	
2-1. Unit Specifications	2
2-2. Major Component Specifications.....	6
2-3. Other Component Specifications.....	14
3. DIMENSIONAL DATA	16
4. REFRIGERANT FLOW DIAGRAM	20
5. PERFORMANCE DATA	
5-1. Performance charts	22
5-2. Air Throw Distance Chart	24
5-3. Cooling Capacity	26
6. ELECTRICAL DATA	
6-1. Electrical Characteristics	30
6-2. Electric Wiring Diagrams	32
7. INSTALLATION INSTRUCTIONS	
7-1. Installation Site Selection	36
7-2. Remote Control Unit Installation Position.....	38
7-3. Recommended Wire Length and Diameter	39
8. FUNCTION	
8-1. Room Temperature Control	40
8-2. Dry Operation	41
8-3. Freeze Prevention	41
8-4. Outdoor Fan Speed Control	42
9. TROUBLESHOOTING	
9-1. Check before and after troubleshooting	43
9-2. Air conditioner does not operate	44
9-3. Some part of air conditioner does not operate	48
9-4. Air conditioner operates, but abnormalities are observed	50
10. CHECKING ELECTRICAL COMPONENTS	
10-1. Measurement of Insulation Resistance	51
10-2. Checking Continuity of Fuse on PCB Ass'y.....	52
10-3. Checking Motor Capacitor	52
11. MAINTENANCE	
11-1. Changing Address of Remote Control Unit in Indoor Unit	53
APPENDIX	54

1. OPERATING RANGE

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

2. SPECIFICATIONS

2-1. Unit Specifications

Indoor Unit **SAP-K92A**
 Outdoor Unit **SAP-C92A**

Power Source				220 – 240 V Single phase 50 Hz			
Voltage rating				V			
				220 / 230 / 240			
Performance				Cooling			
	Capacity			kW			
				BTU/h			
	Air circulation (High)		m3/h		430		
Moisture removal (High)		Liters/h		0.80			
Electrical Rating	Available voltage range			V			
	Running amperes			A			
	Power input			W			
	Power factor			%			
	C.O.P.			W/W			
	Compressor locked rotor amperes			A			
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			
	Refrigerant control			Capillary tube			
	Operation sound	Indoor – Hi / Me / Lo		dB-A		39 / 37 / 33	
		Outdoor – Hi		dB-A		44	
	Refrigerant tubing connections			Flare type			
	Max. allowable tubing length at shipment			m		7.5	
	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	Unit dimensions		Indoor Unit		Outdoor Unit		
	Height	mm		250		530	
		Width		mm		790	
		Depth		mm		174	
	Package dimensions	Height		mm		242	
		Width		mm		850	
		Depth		mm		312	
	Weight	Net		kg		7.0	
		Shipping		kg		10.0	
	Shipping volume			m3		0.06	
					0.15		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

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

Indoor Unit **SAP-K122A**
 Outdoor Unit **SAP-C122A**

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)		m3/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		%		97 / 94 / 91			
	C.O.P.		W/W		2.74 / 2.72 / 2.64			
	Compressor locked rotor amperes		A		32 / 33 / 35			
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 / Auto (Hi, Lo)			
	Airflow direction (Indoor)	Horizontal		Manual				
		Vertical		Auto				
	Air filter			Washable, Anti-Mold				
	Compressor			Rotary (Hermetic)				
	Refrigerant / Amount charged at shipment		g		R22 / 875			
	Refrigerant control			Capillary tube				
	Operation sound	Indoor – Hi / Me / Lo		dB-A		40 / 37 / 34		
		Outdoor – Hi		dB-A		46		
	Refrigerant tubing connections			Flare type				
	Max. allowable tubing length at shipment		m		7.5			
	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	Unit dimensions		Height	mm	Indoor Unit	250	Outdoor Unit	530
			Width	mm	790	680		
			Depth	mm	174	225		
	Package dimensions		Height	mm	242	580		
			Width	mm	850	812		
			Depth	mm	312	315		
	Weight		Net	kg	7.0	32.0		
			Shipping	kg	10.0	34.0		
	Shipping volume		m3		0.06	0.15		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

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

Indoor Unit **SAP-K182A**
 Outdoor Unit **SAP-C182A**

Power Source				220 – 240 V Single phase 50 Hz					
Voltage rating				V 220 / 230 / 240					
Performance	Cooling								
	Capacity	kW		5.15 / 5.15 / 5.00					
		BTU/h		17,600 / 17,600 / 17,100					
	Air circulation (High)		m3/h		760				
Moisture removal (High)		Liters/h		2.7					
Electrical Rating	Available voltage range		V		198 to 264				
	Running amperes		A		9.5 / 9.5 / 10.1				
	Power input		W		2,000 / 2,030 / 2,130				
	Power factor		%		96 / 93 / 88				
	C.O.P.		W/W		2.58 / 2.54 / 2.35				
	Compressor locked rotor amperes		A		50 / 53 / 55				
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 / Auto (Hi, Lo)				
	Airflow direction (Indoor)	Horizontal		Manual					
		Vertical		Auto					
	Air filter			Washable, Anti-Mold					
	Compressor			Rotary (Hermetic)					
	Refrigerant / Amount charged at shipment		g		R22 / 1,350				
	Refrigerant control			Capillary tube					
	Operation sound	Indoor – Hi / Me / Lo		dB-A		41 / 38 / 36			
		Outdoor – Hi		dB-A		53			
	Refrigerant tubing connections			Flare type					
	Max. allowable tubing length at shipment		m		7.5				
	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	Unit dimensions			Indoor Unit		Outdoor Unit			
				Height		mm		285 630	
				Width		mm		995 810	
	Package dimensions			Depth		mm		196 275	
				Height		mm		276 704	
				Width		mm		1,070 953	
	Weight			Depth		mm		363 396	
				Net		kg		12.0 49.0	
	Shipping		kg		15.0 53.5				
	Shipping volume			m3		0.11 0.25			

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

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

Indoor Unit **SAP-K252A**
 Outdoor Unit **SAP-C252A**

Power Source				220 – 240 V Single phase 50 Hz	
Voltage rating				V 220 / 230 / 240	
Performance	Cooling				
	Capacity	kW		7.00 / 7.00 / 7.00	
		BTU/h		23,900 / 23,900 / 23,900	
	Air circulation (High)		m ³ /h	840	
Moisture removal (High)		Liters/h	3.3		
Electrical Rating	Available voltage range		V	198 to 264	
	Running amperes		A	13.1 / 13.1 / 13.4	
	Power input		W	2,730 / 2,730 / 2,800	
	Power factor		%	95 / 91 / 87	
	C.O.P.		W/W	2.56 / 2.56 / 2.50	
	Compressor locked rotor amperes		A	67 / 70 / 73	
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 / Auto (Hi, Lo)	
	Airflow direction (Indoor)	Horizontal		Manual	
		Vertical		Auto	
	Air filter			Washable, Anti-Mold	
	Compressor			Rotary (Hermetic)	
	Refrigerant / Amount charged at shipment		g	R22 / 1,700	
	Refrigerant control			Capillary tube	
	Operation sound	Indoor – Hi / Me / Lo	dB-A	43 / 41 / 39	
		Outdoor – Hi	dB-A	55	
	Refrigerant tubing connections			Flare type	
	Max. allowable tubing length at shipment		m	10	
	Refrigerant tube diameter	Narrow tube	mm (in.)	6.35 (1/4)	
Wide tube		mm (in.)	15.88 (5/8)		
Refrigerant tube kit / Accessories			Optional / Hanging wall bracket		
Dimensions & Weight	Unit dimensions			Indoor Unit	Outdoor Unit
	Height	mm		285	630
		mm		995	810
		mm		196	275
	Package dimensions	mm		276	704
		mm		1,070	953
		mm		363	396
	Weight	Net	kg	12.0	59.0
		Shipping	kg	15.0	62.0
	Shipping volume		m ³	0.11	0.25

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

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

2-2. Major Component Specifications

2-2-1. Indoor Unit

Indoor Unit **SAP-K92A**

Controller PCB	Part No.		CB-K92GJ	
	Controls		Microprocessor	
	Control circuit fuse		250 V – 3.15 A	
Remote Control Unit			RCS-3S4E-G	
Fan & Fan Motor	Type		Cross-flow	
	Number ... Dia. and length		mm 1 ... ø97 / L578	
	Fan motor model ... Number		IBH-884-020 ... 1	
	No. of poles ... rpm (240 V, High)		2 ... 1,290	
	Nominal output		W 20	
	Coil resistance (Ambient temp. 20°C)		Ω WHT – BRN : 201 WHT – VLT : 261	
	Safety devices	Type		Thermal fuse
		Operating temp.	Open	°C 130
			Close	—
	Run capacitor		μF 1.5 VAC 440	
Flap Motor	Type		Stepping motor	
	Model		MP24GA3	
	Rating		DC 12 V	
	Coil resistance (Ambient temp. 25°C)		Ω A pair of each terminal: 380 ± 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-K122A**

Controller PCB	Part No.		CB-K122GJ		
	Controls		Microprocessor		
	Control circuit fuse		250 V – 3.15 A		
Remote Control Unit			RCS-3S4E-G		
Fan & Fan Motor	Type		Cross-flow		
	Number ... Dia. and length		mm	1 ... ø97 / L578	
	Fan motor model ... Number		IBH-884-020 ... 1		
	No. of poles ... rpm (240 V, High)		2 ... 1,350		
	Nominal output		W	20	
	Coil resistance (Ambient temp. 20°C)		Ω	WHT – BRN : 201 WHT – VLT : 261	
	Safety devices	Type		Thermal fuse	
		Operating temp.	Open	°C	130
	Close				—
	Run capacitor			μF	1.5
			VAC	440	
Flap Motor	Type		Stepping motor		
	Model		MP24GA3		
	Rating		DC 12 V		
	Coil resistance (Ambient temp. 25°C)		Ω	A pair of each terminal: 380 ± 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-K182A**

Controller PCB	Part No.		CB-K182GJ	
	Controls		Microprocessor	
	Control circuit fuse		250 V – 3.15 A	
Remote Control Unit			RCS-3S4E-G	
Fan & Fan Motor	Type		Cross-flow	
	Number ... Dia. and length		mm 1 ... ø88 / L746	
	Fan motor model ... Number		UF2-31A5P-S ... 1	
	No. of poles ... rpm (240 V, High)		2 ... 1,440	
	Nominal output		W 30	
	Coil resistance (Ambient temp. 20°C)		Ω WHT – BRN : 133.7 WHT – PNK : 168.4	
	Safety devices	Type		Internal protector
		Operating temp.	Open	°C 130 ± 8
			Close	Automatic reclosing
	Run capacitor		μF 2.0 VAC 440	
Flap Motor	Type		Stepping motor	
	Model		MP24GA2	
	Rating		DC 12 V	
	Coil resistance (Ambient temp. 25°C)		Ω Each terminals (1–2, 1–3, 1–4, 1–5) : 400 ± 7%	
Heat Exch. Coil	Coil		Aluminum plate fin / Copper tube	
	Rows		2	
	Fin pitch		mm 1.3	
	Face area		m ² 0.156	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Indoor Unit **SAP-K252A**

Controller PCB	Part No.		CB-K252G	
	Controls		Microprocessor	
	Control circuit fuse		250 V – 3.15 A	
Remote Control Unit			RCS-3S4E-G	
Fan & Fan Motor	Type		Cross-flow	
	Number ... Dia. and length		mm 1 ... ø88 / L746	
	Fan motor model ... Number		UF2-31A5P-S ... 1	
	No. of poles ... rpm (240 V, High)		2 ... 1,440	
	Nominal output		W 30	
	Coil resistance (Ambient temp. 20°C)		Ω WHT – BRN : 133.7 WHT – PNK : 168.4	
	Safety devices	Type		Internal protector
		Operating temp.	Open	°C 130 ± 8
			Close	Automatic reclosing
	Run capacitor		μF 2.0 VAC 440	
Flap Motor	Type		Stepping motor	
	Model		MP24GA2	
	Rating		DC 12 V	
	Coil resistance (Ambient temp. 25°C)		Ω Each terminals (1–2, 1–3, 1–4, 1–5) : 400 ± 7%	
Heat Exch. Coil	Coil		Aluminum plate fin / Copper tube	
	Rows		2	
	Fin pitch		mm 1.3	
	Face area		m ² 0.156	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

2-2-2. Outdoor Unit

Outdoor Unit **SAP-C92A**

Compressor	Type		Rotary (Hermetic)			
	Compressor model		C-R81H5Q 80682645-S			
	Nominal output		W	800		
	Compressor oil ... Amount		cc	4GSD-T or SAY-56T ... 500		
	Coil resistance (Ambient temp. 25°C)		Ω	C - R : 3.38 C - S : 7.49		
	Safety devices	Type		External (OLR A)	External (OLR T)	
		Overload relay		MRA99109-9201	CS-7C115	
		Operating temp.	Open	°C	150 ± 5	115 ± 3
			Close	°C	69 ± 11	95 ± 5
	Operating amp. (Ambient temp. 25°C)		Trip in 6 to 16 sec. at 16 A		—	
Run capacitor		μF	22.5			
		VAC	400			
Fan & Fan Motor	Type		Propeller			
	Number ... Dia.		mm	1 ... ø 370		
	Fan motor model ... Number		UE6-21AH5PB-S ... 1			
	No. of poles ... rpm (240 V, High)		6 ... 780			
	Nominal output		W	20		
	Coil resistance (Ambient temp. 20°C)		Ω	WHT - BRN : 338.3 WHT - PNK : 389.7		
	Safety devices	Type		Thermal fuse		
		Operating temp.	Open	°C	145 ± 2	
			Close			—
	Run capacitor		μF	1.5		
VAC			440			
Heat Exch. Coil	Coil		Aluminum plate fin / Copper tube			
	Rows		1			
	Fin pitch		mm	1.3		
	Face area		m ²	0.333		
External Finish		Acrylic baked-on enamel finish				

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit **SAP-C122A**

Compressor	Type		Rotary (Hermetic)		
	Compressor model		C-R112H5X 80616745-S		
	Nominal output		W	1,100	
	Compressor oil ... Amount		cc	4GSD-T or SAY-56T ... 550	
	Coil resistance (Ambient temp. 25°C)		Ω	C - R : 1.96 C - S : 5.38	
	Safety devices	Type		External (OLR A)	
		Overload relay		MRA99122-9201	
		Operating temp.	Open	°C	150 ± 5
			Close	°C	69 ± 11
	Operating amp. (Ambient temp. 25°C)		Trip in 6 to 16 sec. at 25 A		
Run capacitor		μF	25.0		
		VAC	400		
Fan & Fan Motor	Type		Propeller		
	Number ... Dia.		mm	1 ... ø 370	
	Fan motor model ... Number		UE6S-21AC5P-S ... 1		
	No. of poles ... rpm (240 V, High)		6 ... 780		
	Nominal output		W	20	
	Coil resistance (Ambient temp. 20°C)		Ω	BRN - WHT : 341.2 WHT - YEL : 212.7 YEL - PNK : 190.0	
	Safety devices	Type		Thermal fuse	
		Operating temp.	Open	°C	145 ± 2
			Close		—
	Run capacitor		μF	1.5	
		VAC	440		
Heat Exch. Coil	Coil		Aluminum plate fin / Copper tube		
	Rows		2		
	Fin pitch		mm	1.2	
	Face area		m ²	0.329	
External Finish		Acrylic baked-on enamel finish			

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit **SAP-C182A**

Compressor	Type		Rotary (Hermetic)		
	Compressor model		2JS350D5BC02 8520452625100		
	Nominal output		W	1,700	
	Compressor oil ... Amount		cc	4GSD-T or SAY-56T ... 1,130	
	Coil resistance (Ambient temp. 25°C)		Ω	C - R : 0.981 C - S : 2.845	
	Safety devices	Type		Internal protector	
		Overload relay		—	
		Operating temp.	Open	°C	Automatic opening
			Close	°C	Automatic reclosing
	Operating amp. (Ambient temp. 25°C)		—		
Run capacitor		μF	45.0		
		VAC	400		
Fan & Fan Motor	Type		Propeller		
	Number ... Dia.		mm	1 ... ø 420	
	Fan motor model ... Number		KFG6S-51A5P-S ... 1		
	No. of poles ... rpm (240 V, High)		6 ... 880		
	Nominal output		W	50	
	Coil resistance (Ambient temp. 20°C)		Ω	WHT - BRN : 67.09 WHT - YEL : 68.12 YEL - PNK : 15.66	
	Safety devices	Type		Thermal protector	
		Operating temp.	Open	°C	130 ± 8
			Close		Automatic reclosing
	Run capacitor		μF	4.0	
VAC			440		
Heat Exch. Coil	Coil		Aluminum plate fin / Copper tube		
	Rows		1		
	Fin pitch		mm	1.3	
	Face area		m ²	0.506	
External Finish			Acrylic baked-on enamel finish		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit **SAP-C252A**

Compressor	Type		Rotary (Hermetic)			
	Compressor model		C-R221H5S 80687145			
	Nominal output		W	2,200		
	Compressor oil ... Amount		cc	4GSD-T or SAY-56T ... 1,350		
	Coil resistance (Ambient temp. 25°C)		Ω	C - R : 0.777 C - S : 2.408		
	Safety devices	Type		Internal protector	External (OLR T)	
		Overload relay		—	OL-D24	
		Operating temp.	Open	°C	Automatic opening	150 ± 5
			Close	°C	Automatic reclosing	63 ± 11
	Operating amp. (Ambient temp. 25°C)			—	Trip in 6 to 16 sec. at 59 A	
Run capacitor		μF	40.0			
		VAC	400			
Fan & Fan Motor	Type		Propeller			
	Number ... Dia.		mm	1 ... ø 420		
	Fan motor model ... Number		KFG4S-51C5PA-S ... 1			
	No. of poles ... rpm (240 V, High)		4 ... 1,000			
	Nominal output		W	50		
	Coil resistance (Ambient temp. 20°C)		Ω	WHT - BRN : 55.1 WHT - YEL : 37.2 YEL - PNK : 15.5		
	Safety devices	Type		Thermal protector		
		Operating temp.	Open	°C	130 ± 8	
			Close		Automatic reclosing	
	Run capacitor		μF	5.0		
		VAC	440			
Heat Exch. Coil	Coil		Aluminum plate fin / Copper tube			
	Rows		2			
	Fin pitch		mm	1.2		
	Face area		m ²	0.499		
External Finish		Acrylic baked-on enamel finish				

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

2-3. Other Component Specifications

Indoor Unit **SAP-K92A**
SAP-K122A

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

Thermistor (Coil sensor)		DTN-TKS131B	
Resistance	k Ω	0°C	15.0 \pm 2%

Thermistor (Room sensor)		DTN-TKS128B	
Resistance	k Ω	25°C	5.0 \pm 3%

Outdoor Unit **SAP-C92A**
SAP-C122A

Power Relay (PR)		EL1U	
Coil rating		AC 200–240V, 50/60Hz	
Contact rating		AC 277V, 30A	

Thermostat (Fan Speed Control 23S)		MQT5S	
Switching temp.	°C	high \rightarrow LOW	28.5°C \pm 1.5
		low \rightarrow HIGH	31.5°C \pm 2
Contact rating		AC 220V, 3A	

<Except SAP-C92>

Indoor Unit **SAP-K182A**
SAP-K252A

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

Thermistor (Coil sensor)		DTN-TKS131B	
Resistance	k Ω	0°C	15.0 ± 2%

Thermistor (Room sensor)		DTN-TKS142B	
Resistance	k Ω	25°C	5.0 ± 3%

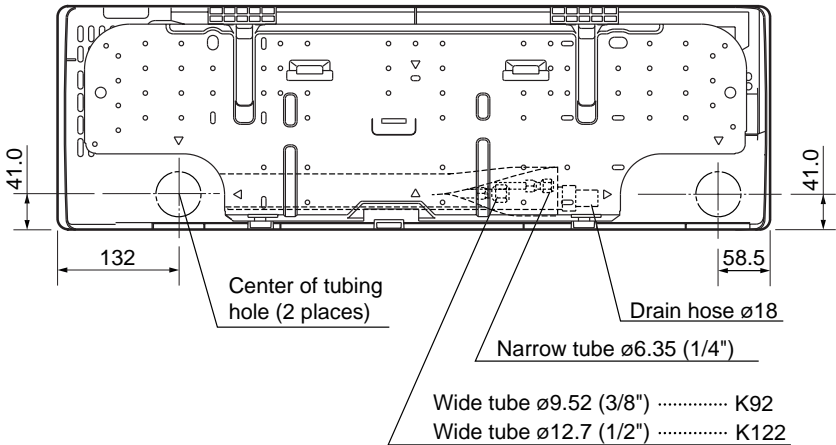
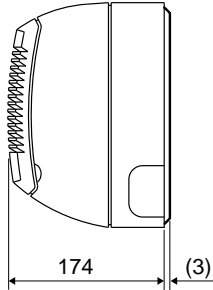
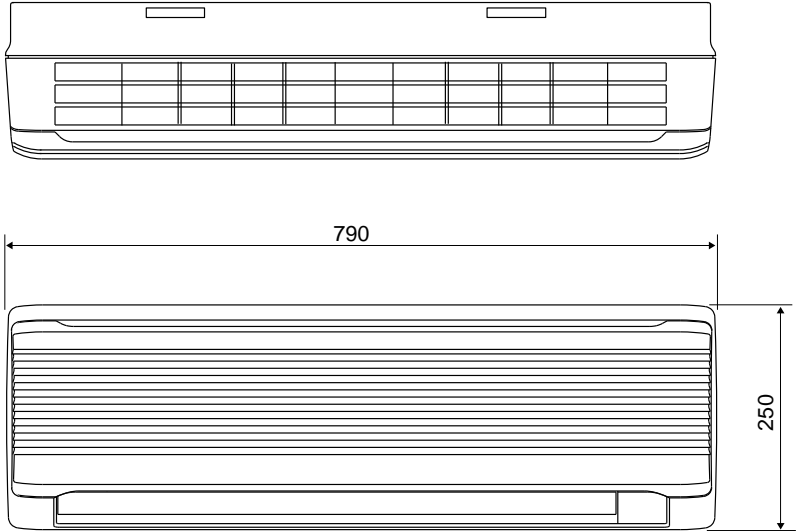
Outdoor Unit **SAP-C182A**
SAP-C252A

Power Relay (PR)		EL1U	
Coil rating		AC 200–240V, 50/60Hz	
Contact rating		AC 277V, 30A	

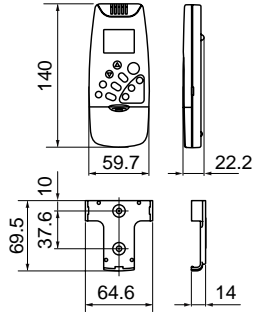
Thermostat (Fan Speed Control 23S)		MQT5S	
Switching temp.	°C	high → LOW	28.5°C ± 1.5
		low → HIGH	31.5°C ± 2
Contact rating		AC 220V, 3A	

3. DIMENSIONAL DATA

Indoor Unit **SAP-K92A**
 SAP-K122A

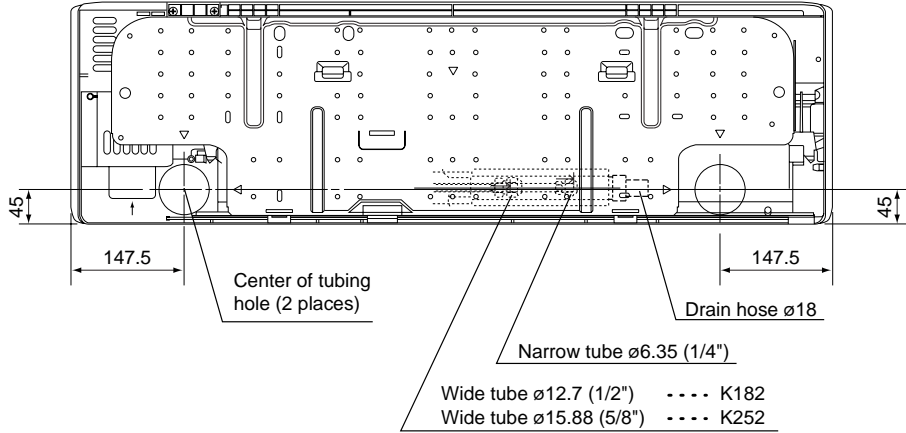
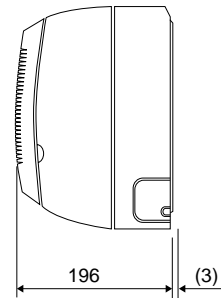
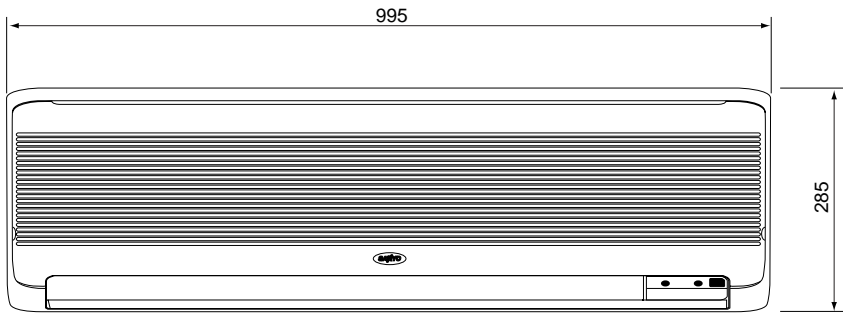
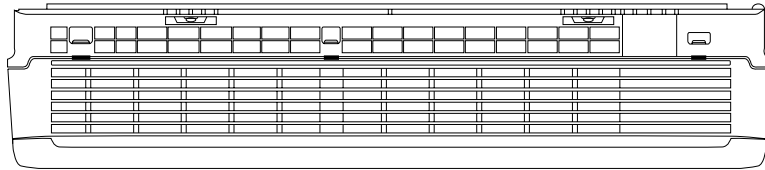


Remote control unit

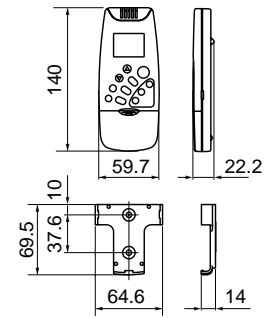


Unit : mm

Indoor Unit **SAP-K182A**
 SAP-K252A

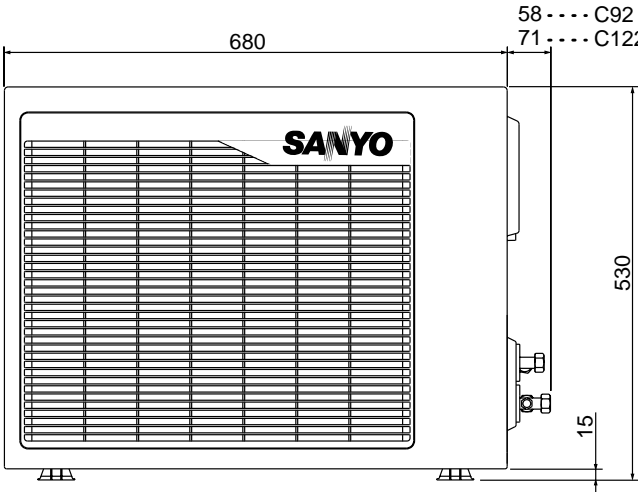
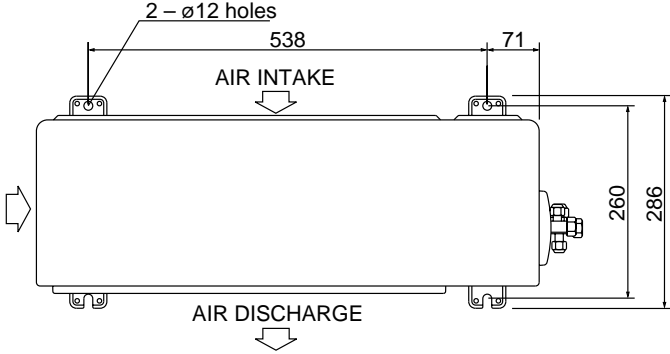


Remote control unit



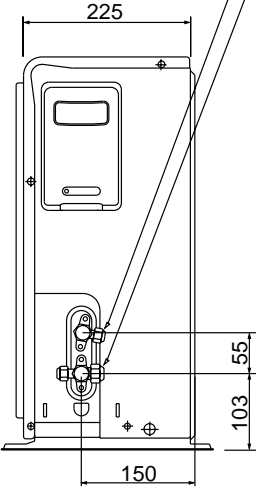
Unit : mm

Outdoor Unit **SAP-C92A**
SAP-C122A



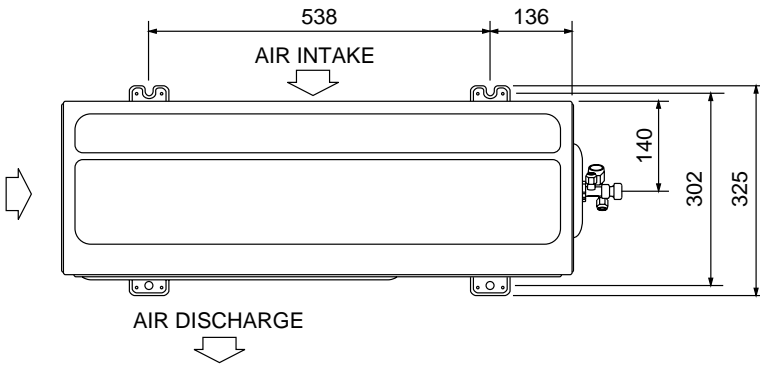
Wide tube service valve
 $\phi 9.52$ (3/8") C92
 $\phi 12.7$ (1/2") C122

Narrow tube service valve
 $\phi 6.35$ (1/4")



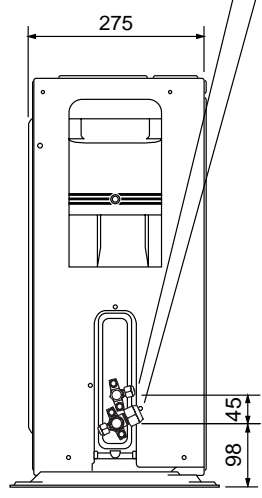
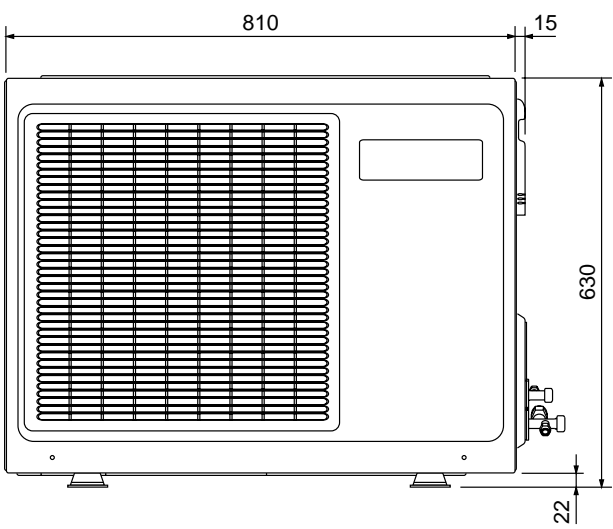
Unit : mm

Outdoor Unit **SAP-C182A**
SAP-C252A



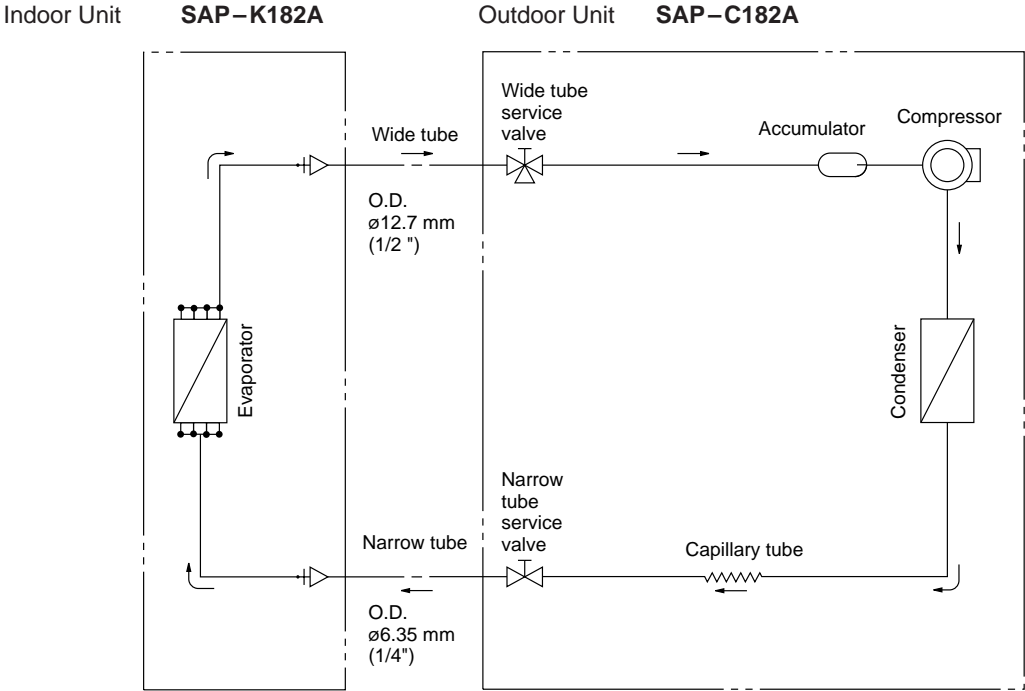
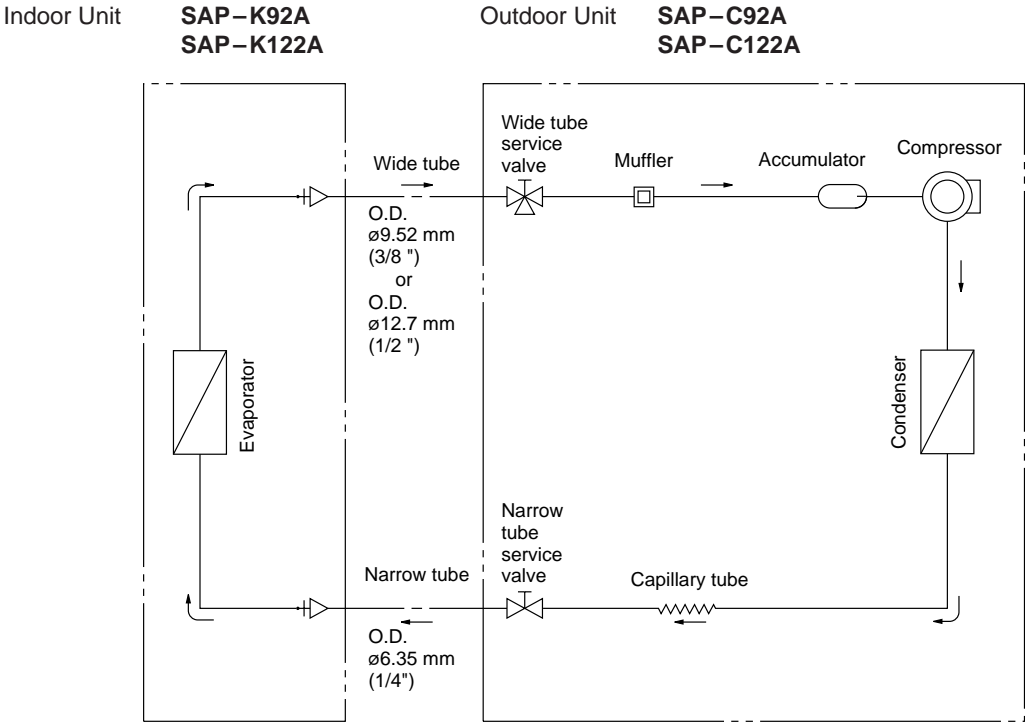
Wide tube service valve
 $\varnothing 12.7$ (1/2") - - - - C182
 $\varnothing 15.88$ (5/8") - - - - C252

Narrow tube service valve
 $\varnothing 6.35$ (1/4")



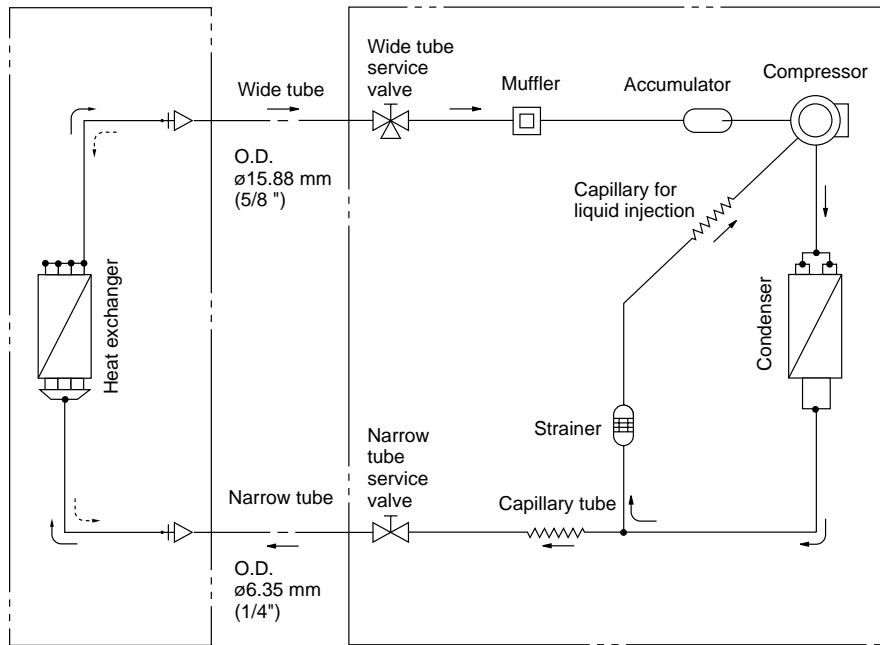
Unit : mm

4. REFRIGERANT FLOW DIAGRAM



Indoor Unit **SAP-K252A**

Outdoor Unit **SAP-C252A**



Insulation of Refrigerant Tubing

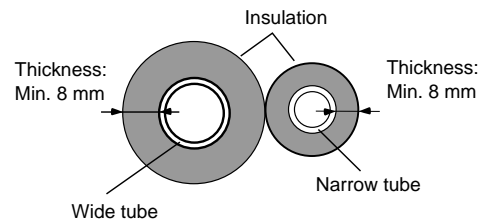
IMPORTANT

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.

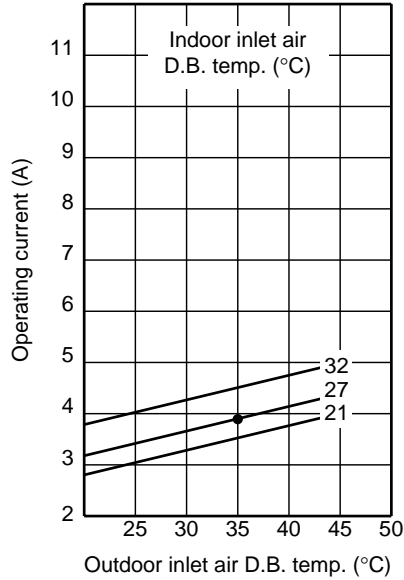


5. PERFORMANCE DATA

5-1. Performance charts

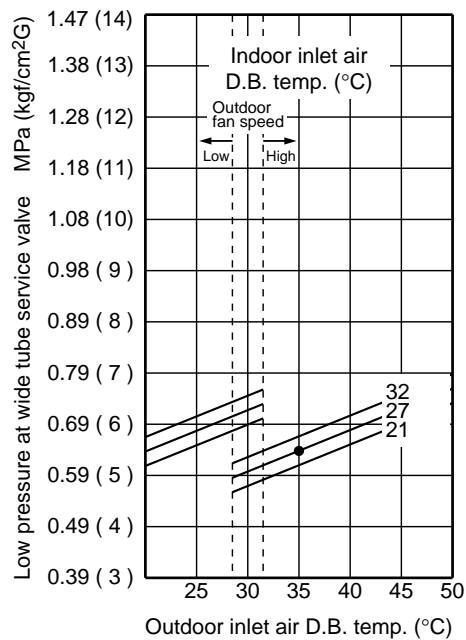
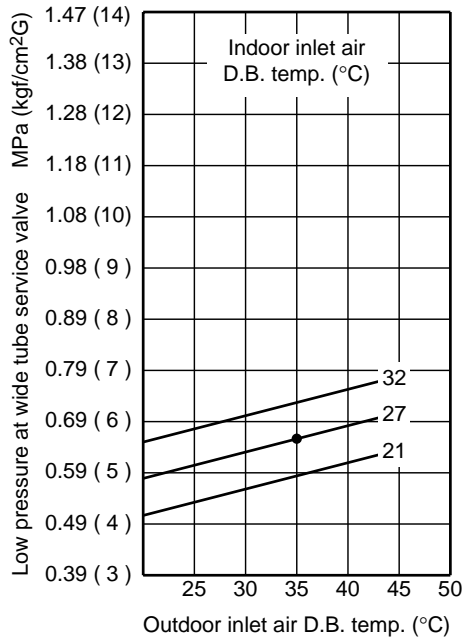
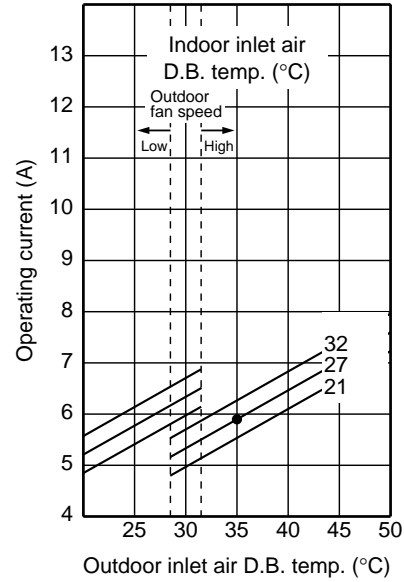
Indoor Unit **SAP-K92A**
Outdoor Unit **SAP-C92A**

■ Cooling Characteristics



Indoor Unit **SAP-K122A**
Outdoor Unit **SAP-C122A**

■ Cooling Characteristics



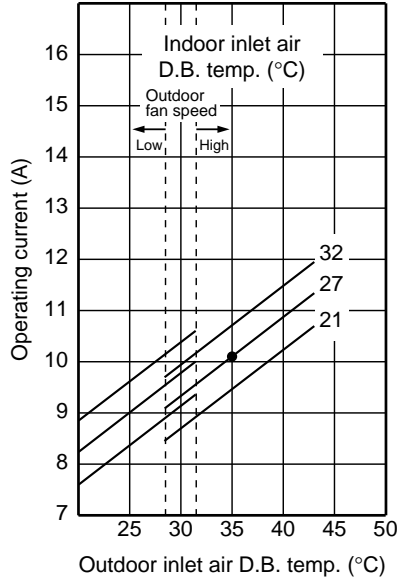
NOTE

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

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

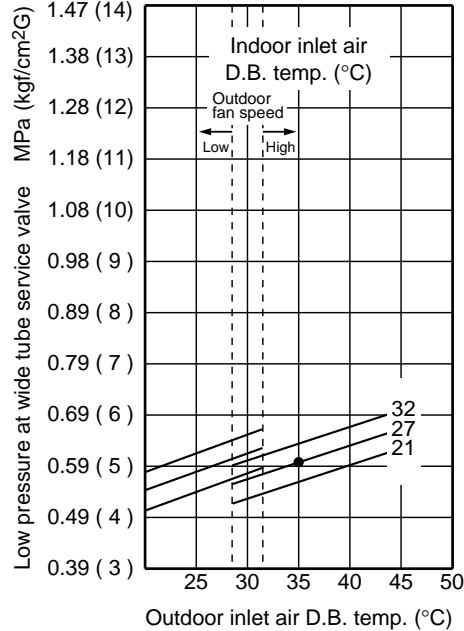
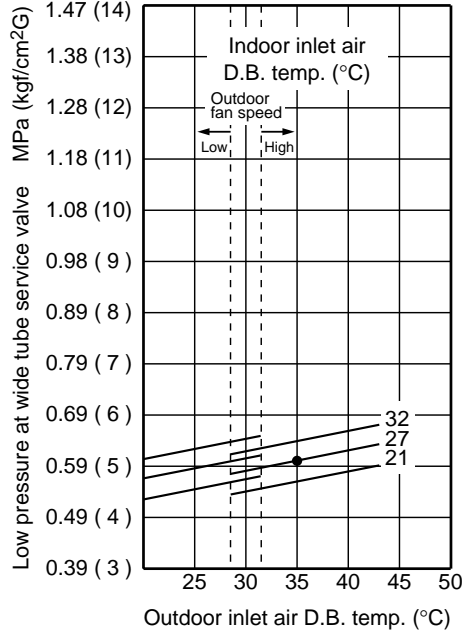
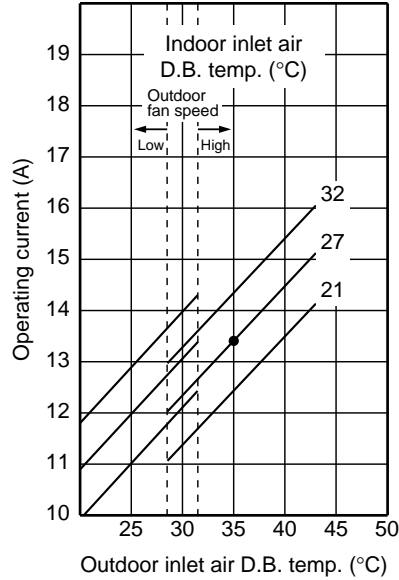
Indoor Unit **SAP-K182A**
 Outdoor Unit **SAP-C182A**

■ Cooling Characteristics



Indoor Unit **SAP-K252A**
 Outdoor Unit **SAP-C252A**

■ Cooling Characteristics



NOTE

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

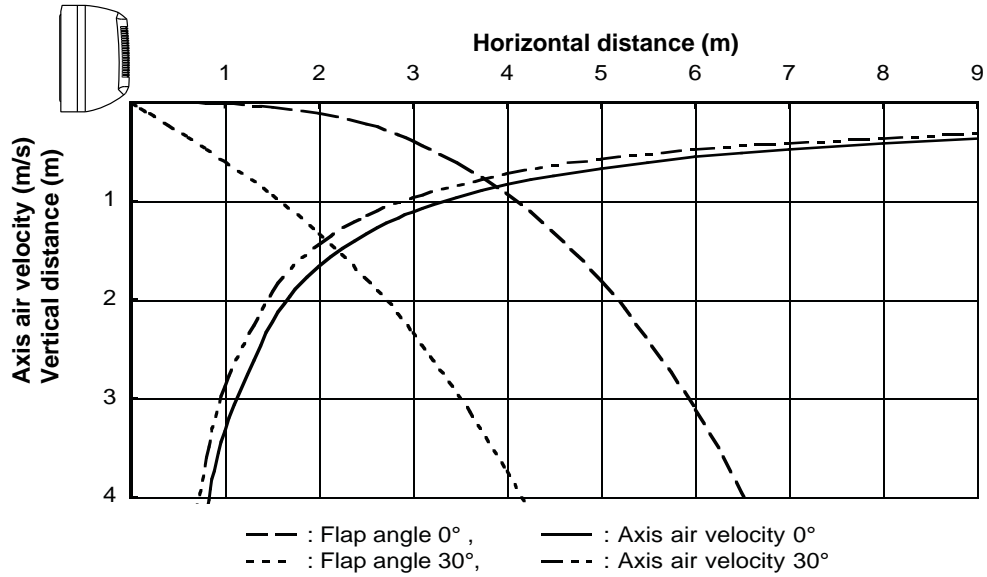
Cooling: Indoor air temperature 27°C D.B./19°C W.B.
 Outdoor air temperature 35°C D.B./24°C W.B.

5-2. Air Throw Distance Chart

Indoor Unit **SAP-K92A**

Room air temp. : 27°C

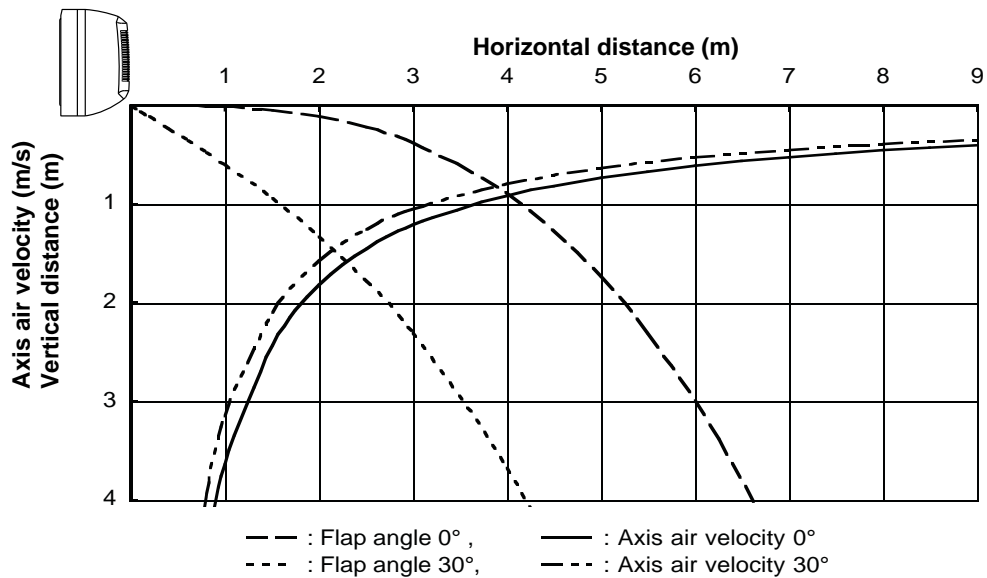
Fan speed : High



Indoor Unit **SAP-K122A**

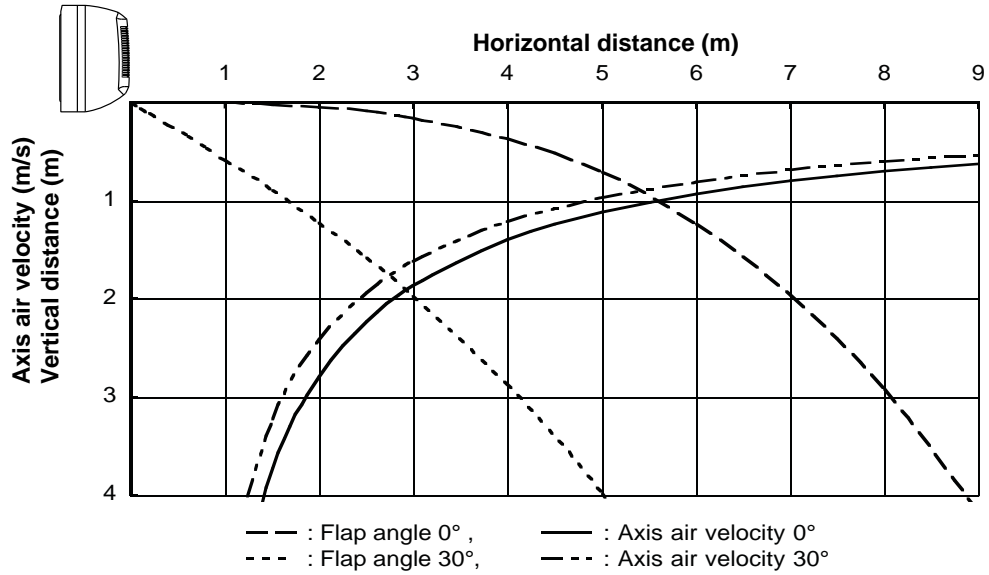
Room air temp. : 27°C

Fan speed : High



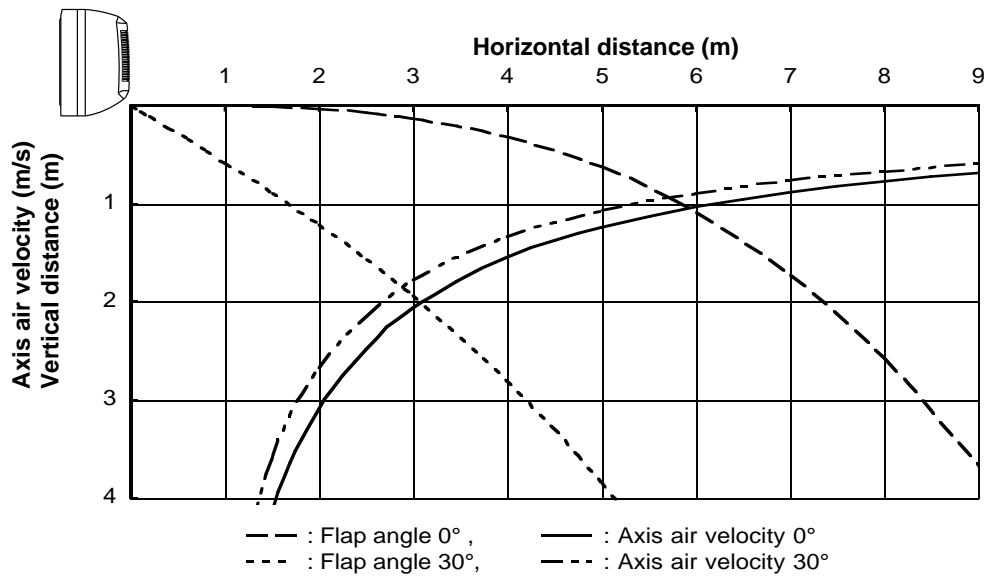
Indoor Unit **SAP-K182A**

Room air temp. : 27°C
Fan speed : High



Indoor Unit **SAP-K252A**

Room air temp. : 27°C
Fan speed : High



5-3. Cooling Capacity

Indoor Unit **SAP-K92A**
 Outdoor Unit **SAP-C92A**

240V Single Phase 50Hz

RATING CAPACITY		2.50 kW						
AIR FLOW RATE		430 m ³ /h						
EVAPORATOR		CONDENSER						
ENT. TEMP. °C		OUTDOOR AMBIENT TEMP. °C						
W.B.	D.B.		20	25	30	35	40	43
15		TC	2.52	2.41	2.30	2.19	2.06	1.89
		CM	0.63	0.68	0.73	0.78	0.83	0.89
	21	SHC	1.71	1.65	1.59	1.54	1.47	1.40
	23	SHC	1.92	1.86	1.80	1.75	1.68	1.61
	25	SHC	2.13	2.07	2.01	1.96	1.89	1.82
	27	SHC	2.34	2.28	2.22	2.17	2.06	1.89
	29	SHC	2.52	2.41	2.30	2.19	2.06	1.89
	31	SHC	2.52	2.41	2.30	2.19	2.06	1.89
17		TC	2.70	2.59	2.47	2.35	2.21	2.03
		CM	0.65	0.70	0.75	0.81	0.86	0.91
	21	SHC	1.49	1.43	1.38	1.32	1.26	1.18
	23	SHC	1.70	1.64	1.59	1.53	1.47	1.39
	25	SHC	1.91	1.85	1.80	1.74	1.68	1.60
	27	SHC	2.12	2.06	2.01	1.95	1.89	1.81
	29	SHC	2.33	2.27	2.22	2.16	2.10	2.02
	31	SHC	2.54	2.48	2.43	2.35	2.21	2.03
19		TC	2.88	2.75	2.63	# 2.50	2.35	2.16
		CM	0.67	0.72	0.77	0.83	0.88	0.94
	21	SHC	1.26	1.21	1.15	1.10	1.03	0.96
	23	SHC	1.47	1.42	1.36	1.31	1.24	1.17
	25	SHC	1.68	1.63	1.57	1.52	1.45	1.38
	27	SHC	1.89	1.84	1.78	1.73	1.66	1.59
	29	SHC	2.10	2.05	1.99	1.94	1.87	1.80
	31	SHC	2.31	2.26	2.20	2.15	2.08	2.01
21		TC	3.05	2.92	2.78	2.65	2.49	2.29
		CM	0.69	0.74	0.80	0.85	0.91	0.96
	23	SHC	1.24	1.19	1.13	1.08	1.02	0.94
	25	SHC	1.45	1.40	1.34	1.29	1.23	1.15
	27	SHC	1.66	1.61	1.55	1.50	1.44	1.36
	29	SHC	1.87	1.82	1.76	1.71	1.65	1.57
		31	SHC	2.08	2.03	1.97	1.92	1.86
23		TC	3.23	3.09	2.95	2.78	2.60	2.42
		CM	0.70	0.76	0.82	0.88	0.93	0.99
	25	SHC	1.21	1.16	1.10	1.04	0.98	0.91
	27	SHC	1.42	1.37	1.31	1.25	1.19	1.12
	29	SHC	1.63	1.58	1.52	1.46	1.40	1.33
	31	SHC	1.84	1.79	1.73	1.67	1.61	1.54

TC : Total Cooling Capacity (kW)

SHC : Sensible Heat Capacity (kW)

CM : Compressor Input (kW)

Rating conditions (#Mark) are

Outdoor Ambient Temp. 35°C D.B.

Indoor Unit Entering Air Temp. 27°C D.B. / 19°C W.B.

Indoor Unit **SAP-K122A**
 Outdoor Unit **SAP-C122A**

240V Single Phase 50Hz

RATING CAPACITY		3.40 kW				
AIR FLOW RATE		470 m ³ /h				
EVAPORATOR		CONDENSER				
ENT. TEMP. °C		OUTDOOR AMBIENT TEMP. °C				
W.B.	D.B.		30	35	40	43
15		TC	3.13	2.98	2.80	2.58
		CM	1.05	1.13	1.22	1.36
	21	SHC	2.06	1.98	1.88	1.77
	23	SHC	2.29	2.20	2.11	1.99
	25	SHC	2.51	2.43	2.33	2.22
	27	SHC	2.74	2.65	2.56	2.44
	29	SHC	2.96	2.88	2.78	2.58
17		TC	3.36	3.20	3.00	2.76
		CM	1.08	1.16	1.26	1.39
	21	SHC	1.83	1.75	1.65	1.54
	23	SHC	2.06	1.97	1.88	1.76
	25	SHC	2.28	2.20	2.10	1.99
	27	SHC	2.51	2.42	2.33	2.21
	29	SHC	2.73	2.65	2.55	2.44
19		TC	3.57	# 3.40	3.20	2.94
		CM	1.11	1.19	1.30	1.43
	21	SHC	1.59	1.50	1.41	1.29
	23	SHC	1.81	1.73	1.63	1.52
	25	SHC	2.04	1.95	1.86	1.74
	27	SHC	2.26	2.18	2.08	1.97
	29	SHC	2.49	2.41	2.31	2.19
21		TC	3.78	3.60	3.39	3.12
		CM	1.14	1.23	1.33	1.47
	23	SHC	1.56	1.48	1.39	1.27
	25	SHC	1.79	1.71	1.61	1.50
	27	SHC	2.01	1.93	1.84	1.72
	29	SHC	2.24	2.16	2.06	1.95
	31	SHC	2.46	2.38	2.29	2.17
23		TC	4.01	3.78	3.54	3.29
		CM	1.17	1.26	1.37	1.50
	25	SHC	1.52	1.43	1.33	1.23
	27	SHC	1.74	1.65	1.55	1.46
	29	SHC	1.97	1.88	1.78	1.68
	31	SHC	2.19	2.10	2.01	1.91

TC : Total Cooling Capacity (kW)

SHC : Sensible Heat Capacity (kW)

CM : Compressor Input (kW)

Rating conditions (#Mark) are

Outdoor Ambient Temp. 35°C D.B.

Indoor Unit Entering Air Temp. 27°C D.B. / 19°C W.B.

Indoor Unit **SAP-K182A**
 Outdoor Unit **SAP-C182A**

240V Single Phase 50Hz

RATING CAPACITY		5.00 kW				
AIR FLOW RATE		760 m ³ /h				
EVAPORATOR		CONDENSER				
ENT. TEMP. °C		OUTDOOR AMBIENT TEMP. °C				
W.B.	D.B.		30	35	40	43
15		TC	4.60	4.38	4.11	3.79
		CM	1.70	1.83	2.01	2.25
	21	SHC	3.06	2.95	2.81	2.64
	23	SHC	3.42	3.30	3.16	3.00
	25	SHC	3.77	3.66	3.52	3.35
	27	SHC	4.13	4.01	3.87	3.71
	29	SHC	4.48	4.37	4.11	3.79
17		TC	4.94	4.70	4.42	4.07
		CM	1.75	1.88	2.06	2.30
	21	SHC	2.70	2.58	2.45	2.28
	23	SHC	3.05	2.94	2.80	2.63
	25	SHC	3.41	3.29	3.16	2.99
	27	SHC	3.76	3.65	3.51	3.34
	29	SHC	4.12	4.00	3.87	3.70
19		TC	5.25	# 5.00	4.70	4.33
		CM	1.81	1.94	2.12	2.37
	21	SHC	2.31	2.20	2.06	1.90
	23	SHC	2.67	2.55	2.42	2.25
	25	SHC	3.02	2.91	2.77	2.61
	27	SHC	3.38	3.26	3.13	2.96
	29	SHC	3.73	3.62	3.48	3.32
21		TC	5.57	5.30	4.98	4.58
		CM	1.86	1.99	2.18	2.43
	23	SHC	2.28	2.16	2.03	1.87
	25	SHC	2.63	2.52	2.38	2.22
	27	SHC	2.99	2.87	2.74	2.58
	29	SHC	3.34	3.23	3.09	2.93
	31	SHC	3.70	3.58	3.45	3.29
23		TC	5.90	5.57	5.21	4.85
		CM	1.91	2.04	2.24	2.49
	25	SHC	2.21	2.08	1.95	1.81
	27	SHC	2.57	2.44	2.30	2.16
	29	SHC	2.92	2.79	2.65	2.52
	31	SHC	3.28	3.15	3.01	2.87

TC : Total Cooling Capacity (kW)

SHC : Sensible Heat Capacity (kW)

CM : Compressor Input (kW)

Rating conditions (#Mark) are

Outdoor Ambient Temp. 35°C D.B.

Indoor Unit Entering Air Temp. 27°C D.B. / 19°C W.B.

Indoor Unit **SAP-K252A**
 Outdoor Unit **SAP-C252A**

240V Single Phase 50Hz

RATING CAPACITY		7.00 kW				
AIR FLOW RATE		840 m ³ /h				
EVAPORATOR		CONDENSER				
ENT. TEMP. °C		OUTDOOR AMBIENT TEMP. °C				
W.B.	D.B.		30	35	40	43
15		TC	6.44	6.13	5.76	5.30
		CM	2.24	2.40	2.63	2.93
	21	SHC	4.15	3.96	3.75	3.49
	23	SHC	4.53	4.35	4.13	3.87
	25	SHC	4.92	4.73	4.51	4.26
	27	SHC	5.30	5.11	4.90	4.64
	29	SHC	5.68	5.50	5.28	5.03
17		TC	6.91	6.58	6.19	5.69
		CM	2.30	2.47	2.70	3.00
	21	SHC	3.76	3.58	3.36	3.10
	23	SHC	4.15	3.96	3.74	3.48
	25	SHC	4.53	4.34	4.13	3.87
	27	SHC	4.91	4.73	4.51	4.25
	29	SHC	5.30	5.11	4.90	4.63
19		TC	7.35	# 7.00	6.58	6.06
		CM	2.37	2.54	2.78	3.09
	21	SHC	3.34	3.16	2.94	2.68
	23	SHC	3.73	3.54	3.32	3.06
	25	SHC	4.11	3.92	3.71	3.45
	27	SHC	4.49	4.31	4.09	3.83
	29	SHC	4.88	4.69	4.48	4.22
21		TC	7.79	7.42	6.97	6.42
		CM	2.44	2.62	2.86	3.17
	23	SHC	3.29	3.11	2.89	2.64
	25	SHC	3.67	3.49	3.28	3.02
	27	SHC	4.06	3.87	3.66	3.41
	29	SHC	4.44	4.26	4.04	3.79
	31	SHC	4.82	4.64	4.43	4.17
23		TC	8.25	7.79	7.29	6.78
		CM	2.50	2.68	2.93	3.24
	25	SHC	3.20	2.99	2.77	2.56
	27	SHC	3.59	3.38	3.16	2.94
	29	SHC	3.97	3.76	3.54	3.33
	31	SHC	4.35	4.14	3.92	3.71

TC : Total Cooling Capacity (kW)

SHC : Sensible Heat Capacity (kW)

CM : Compressor Input (kW)

Rating conditions (#Mark) are

Outdoor Ambient Temp. 35°C D.B.

Indoor Unit Entering Air Temp. 27°C D.B. / 19°C W.B.

6. ELECTRICAL DATA

6-1. Electrical Characteristics

Indoor Unit **SAP-K92A**
 Outdoor Unit **SAP-C92A**

		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	3.49 / 3.47	3.9 / 3.9	
	Power Input kW	0.034 / 0.040	0.052 / 0.060	0.754 / 0.830	0.84 / 0.93	
Full Load Conditions	Running Amps. A	0.17 / 0.18	0.24 / 0.25	4.49 / 4.27	4.9 / 4.7	
	Power Input kW	0.034 / 0.040	0.052 / 0.060	0.964 / 0.990	1.05 / 1.09	

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

Indoor Unit **SAP-K122A**
 Outdoor Unit **SAP-C122A**

		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°C D.B. / 19°C W.B.
 Outdoor Air Temperature 35°C D.B.
 Full Load Conditions : Indoor Air Temperature 32°C D.B. / 23°C W.B.
 Outdoor Air Temperature 43°C D.B.

Indoor Unit **SAP-K182A**
 Outdoor Unit **SAP-C182A**

		Indoor Unit	Outdoor Unit		Complete Unit
		Fan Motor	Fan Motor	Compressor	
Performance at		220 – 240V Single phase 50Hz			
Rating Conditions	Running Amps. A	0.37 / 0.38	0.48 / 0.50	8.65 / 9.22	9.5 / 10.1
	Power Input kW	0.070 / 0.073	0.105 / 0.119	1.825 / 1.938	2.00 / 2.13
Full Load Conditions	Running Amps. A	0.37 / 0.38	0.48 / 0.50	11.15 / 11.02	12.0 / 11.9
	Power Input kW	0.070 / 0.073	0.105 / 0.119	2.415 / 2.488	2.59 / 2.68

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

Indoor Unit **SAP-K252A**
 Outdoor Unit **SAP-C252A**

		Indoor Unit	Outdoor Unit		Complete Unit
		Fan Motor	Fan Motor	Compressor	
Performance at		220 – 240V Single phase 50Hz			
Rating Conditions	Running Amps. A	0.37 / 0.38	0.70 / 0.73	12.03 / 12.29	13.1 / 13.4
	Power Input kW	0.078 / 0.083	0.151 / 0.173	2.501 / 2.544	2.73 / 2.80
Full Load Conditions	Running Amps. A	0.37 / 0.38	0.70 / 0.73	15.33 / 14.79	16.4 / 15.9
	Power Input kW	0.078 / 0.083	0.151 / 0.173	3.231 / 3.244	3.46 / 3.50

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

6-2. Electric Wiring Diagrams

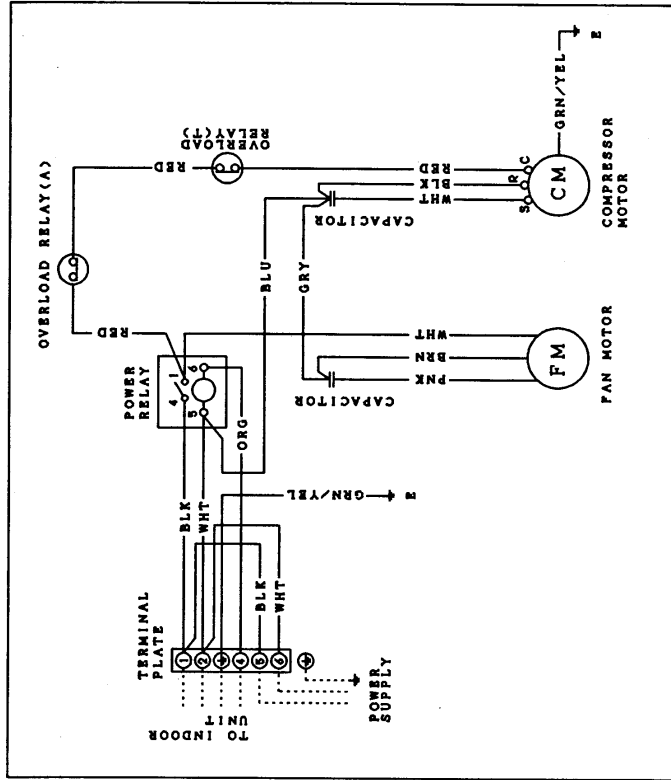
Indoor Unit **SAP-K92A**
 Outdoor Unit **SAP-C92A**



WARNING

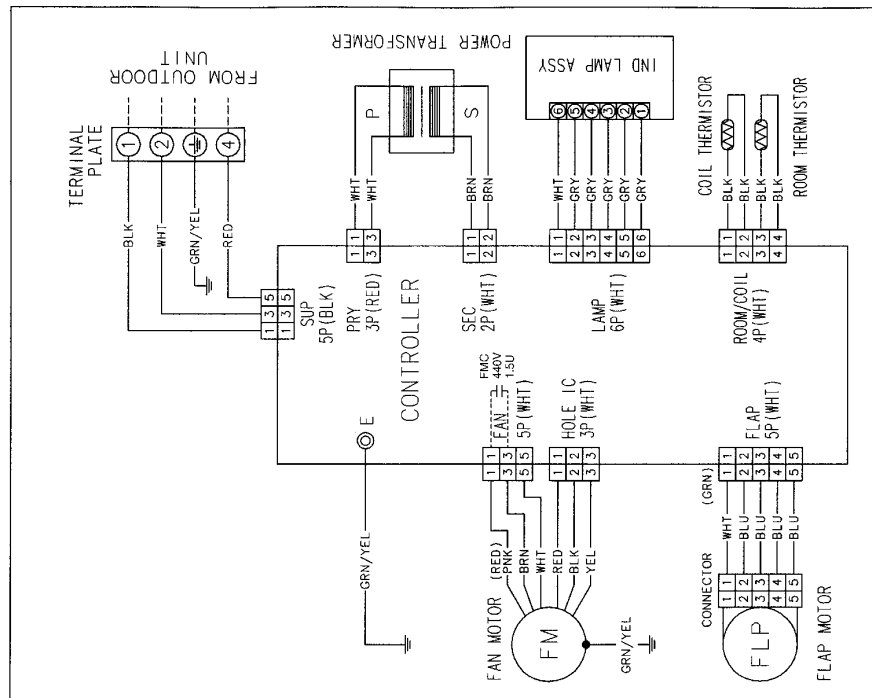
To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.

SAP-C92A



85S-2-5253-014XX-1

SAP-K92A



85S-2-5253-007-XX-1

Indoor Unit
Outdoor Unit

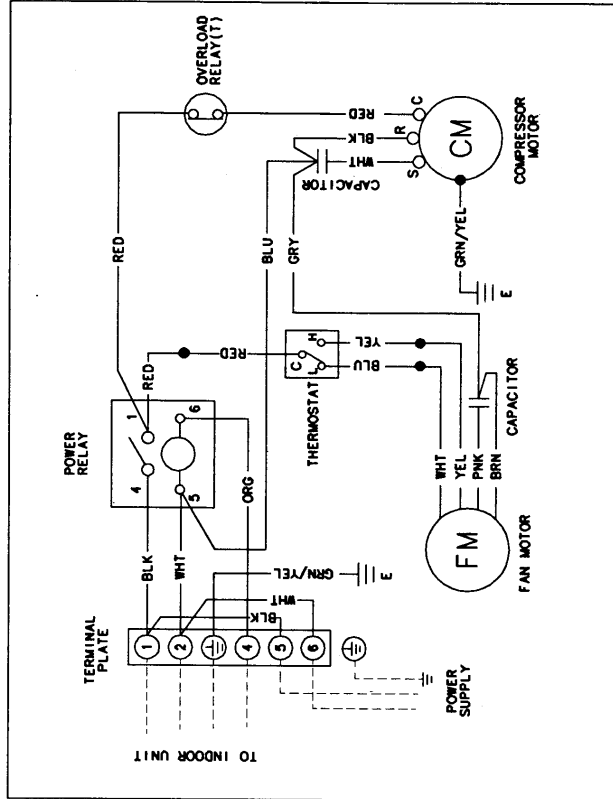
SAP-K122A
SAP-C122A



WARNING

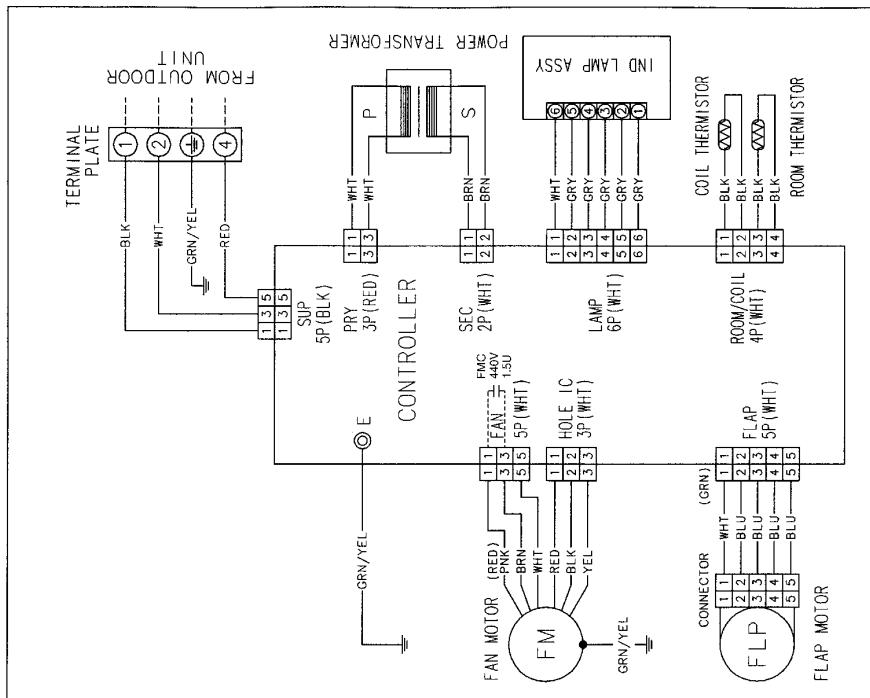
To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.

SAP-C122A



85S-2-5253-032-XX-0

SAP-K122A



85S-2-5253-007-XX-1

Indoor Unit
Outdoor Unit

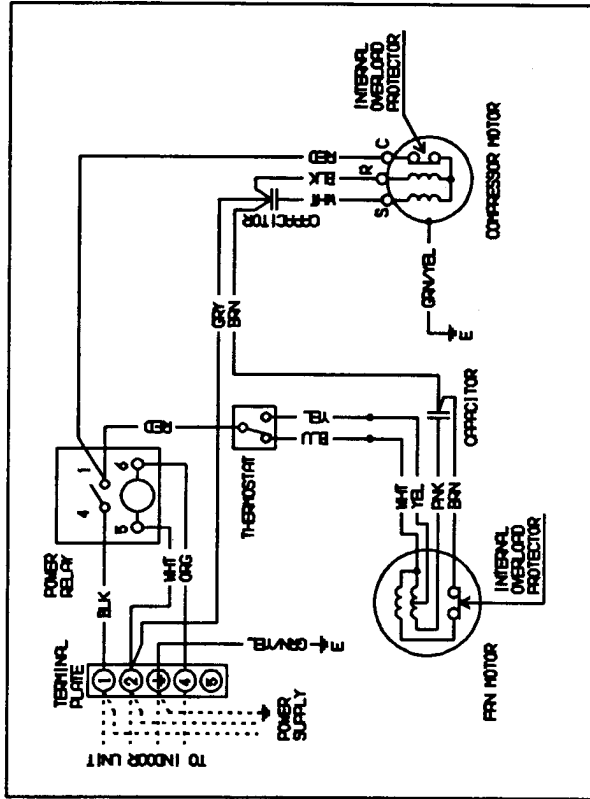
SAP-K182A
SAP-C182A



WARNING

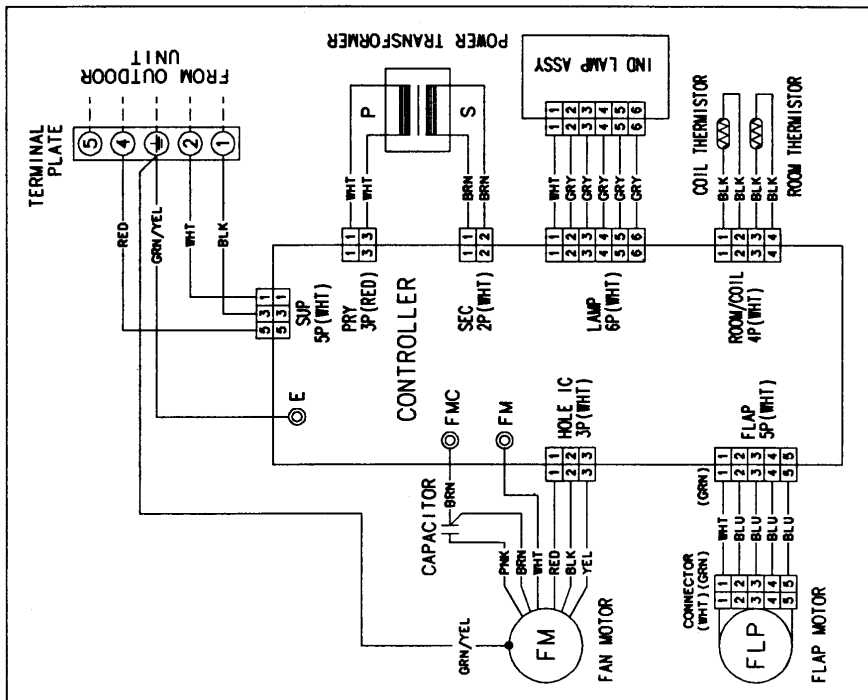
To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.

SAP-C182A



85S-2-5253-023-XX-1

SAP-K182A



85S-2-5253-006-xx-1D

Indoor Unit
Outdoor Unit

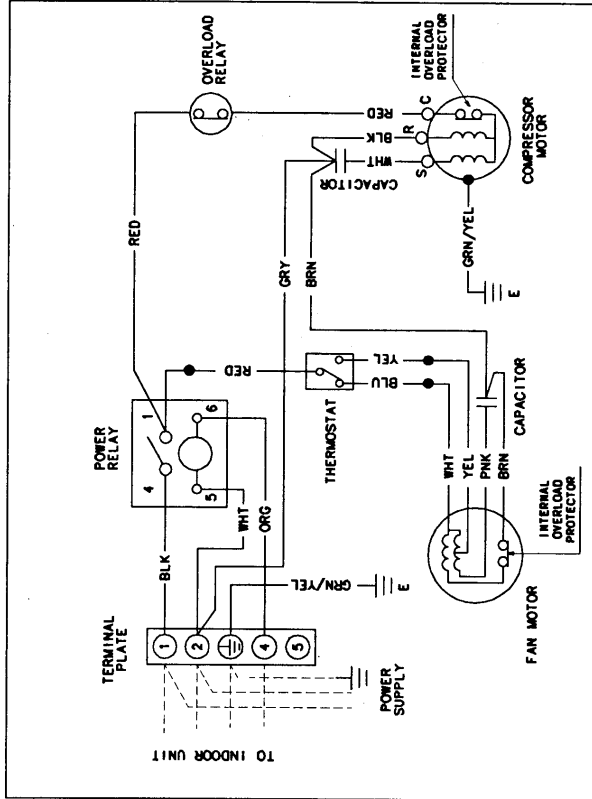
SAP-K252A
SAP-C252A



WARNING

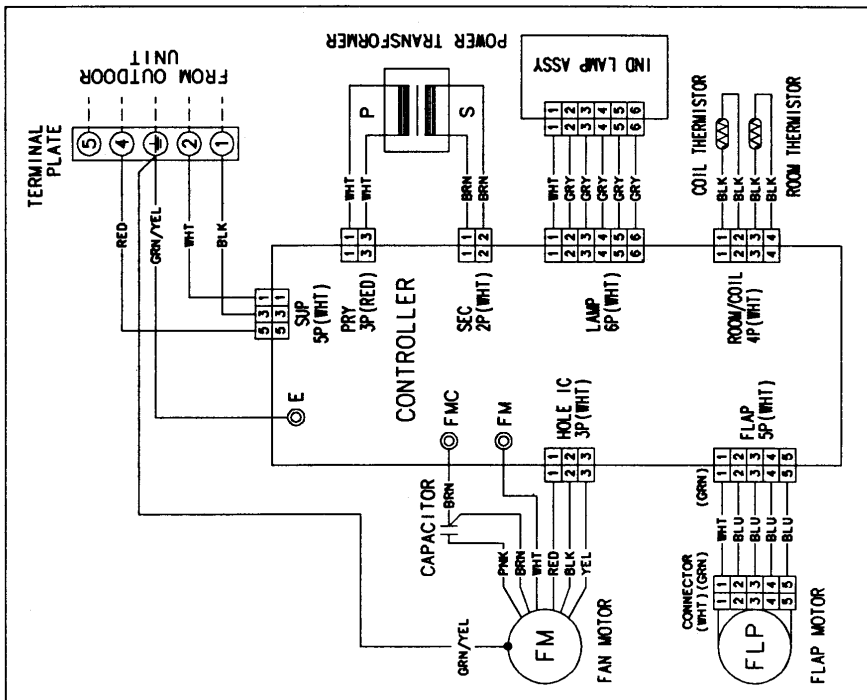
To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.

SAP-C252A



85S-2-5253-040-XX-0

SAP-K252A



85S-2-5253-006-xx-1D

7. INSTALLATION INSTRUCTIONS

7-1. Installation Site Selection

Indoor Unit



WARNING

To prevent abnormal heat generation and the possibility of fire, don't place obstacles, enclosures and grills in front of or surrounding the air conditioner in a way that may block air flow.

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.

DO:

- select an appropriate position from which every corner of the room can be uniformly air-conditioned. (High on a wall is best)
- select a location that will hold the weight of the unit.
- select a location where tubing and drain pipe have the shortest run to the outside.
- allow room for operation and maintenance as well as unrestricted air flow around the unit. (Fig. 1)
- 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 Table 1 and Fig. 2a.

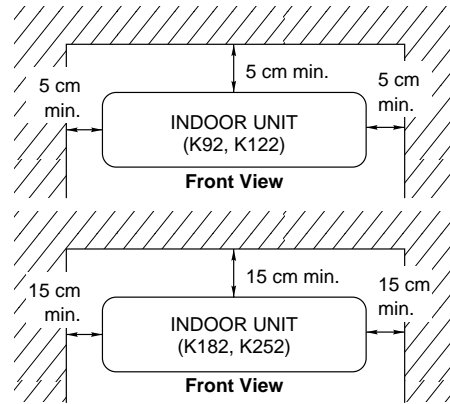


Fig.1

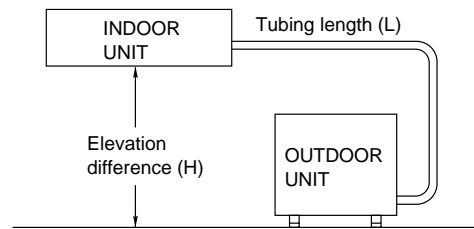


Fig. 2a



CAUTION

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

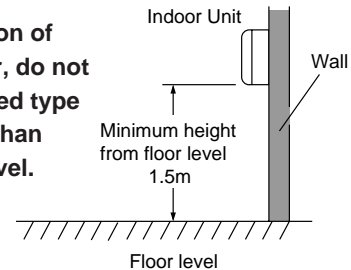


Fig. 2b

Table 1

Model	Max. Allowable Tubing Length at Shipment (m)	Limit of Tubing Length (L) (m)	Limit of Elevation Difference (H) (m)	Required Amount of Additional Refrigerant (g/m)*
C92	7.5	15	7	15
C122	7.5	20		25
C182	7.5	30		
C252	10			

* If total tubing length becomes 7.5 to 15 (max.) or 7.5 to 20 (max.) or 7.5 to 30 (max.) or 10 to 30 (max.), charge additional refrigerant (R22) by 15 g/m or 25 g/m. No additional charge of compressor oil is necessary.

Outdoor Unit

AVOID:

- heat sources, exhaust fans, etc. (Fig. 3)
- 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. (Figs. 4a and 4a)
- 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.5)
- use lug bolts or equal to bolt down unit, reducing vibration and noise.

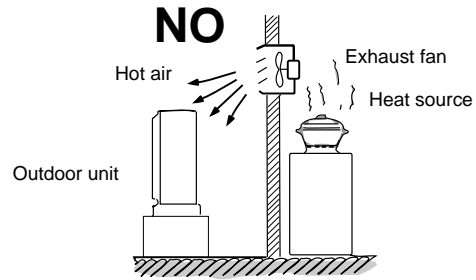
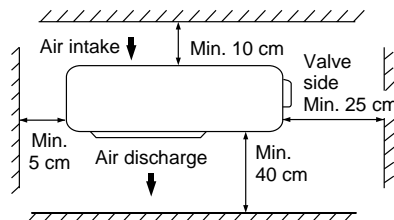


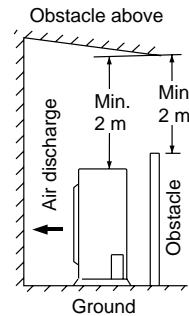
Fig. 3

Required space around the unit.



Top View

Fig. 4a



Side View

Fig. 4b

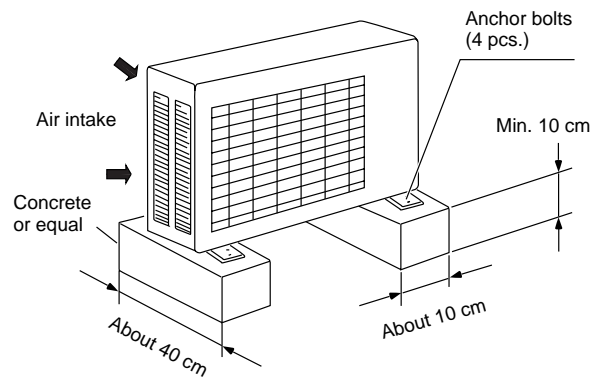


Fig. 5

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

6-1. When attaching to wall (Fig.6a)

- 1) Confirm the indoor unit beeps when the ON/OFF button is pressed at the wall location where the remote control unit is to be attached, then attach the holder to the wall.
- 2) When taking out the remote control unit, pull it from the holder.

When using the remote control unit

- Point the transmission portion of the remote control unit at the receiver area of the indoor unit when operating the remote control unit, and during operation of the air conditioner.
- Do not place objects which may block the transmitted signals between the receiver and the remote control unit.

When mounting the remote control unit to prevent theft (Fig.6b)

- 1) Attach the holder to the wall with one of the screws (using only the hole in the top of the holder).
- 2) Remove the cover of the remote control unit and take out the batteries. Next, place the remote control unit in the holder.
- 3) Fasten both the remote control unit and holder to the wall with the remaining screw (using the hole in the bottom of the holder).
- 4) Install the batteries in the remote control unit and close the cover.

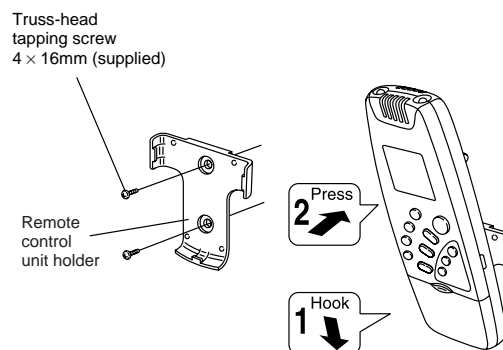


Fig.6a

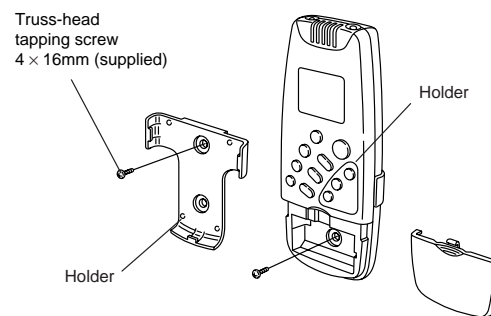


Fig.6b

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.

NOTE

Refer to the WIRING SYSTEM DIAGRAM for the meaning of "A" and "B" in Table 2 and 3.

Table 2 and 3 list recommended wire lengths and cross section area for power supply systems.

Table 2

Model	Cross Sectional Area (mm ²)	(A) + (B)	(A) Power Supply Wiring Length (m) (B) Power Line (m)	Fuse or Circuit Breaker Capacity
		2 mm ²	3.5 mm ²	
C92		33	51	10A
C122		27	41	

Table 3

Model	Cross Sectional Area (mm ²)	(A) Power Supply Wiring Length (m)				(B) Power Line (m)	Fuse or Circuit Breaker Capacity	
		2 mm ²	3.5 mm ²	5.5 mm ²	8 mm ²	1.4 mm ²		2 mm ²
C182		—	22	38	—	—	20	20A
C252		—	14	23	35	62	30	30A



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.

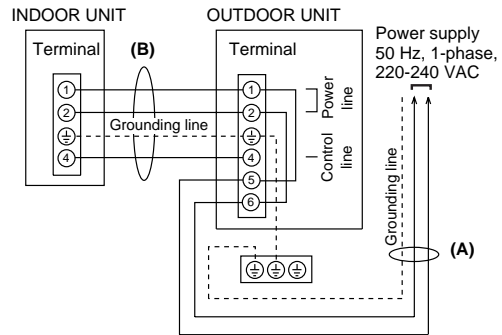


CAUTION

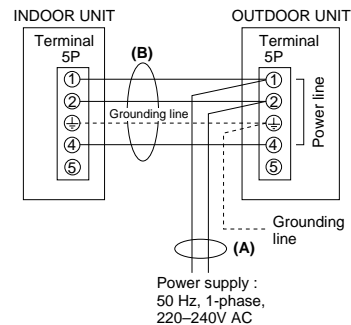
- Be sure to connect the power supply line to the outdoor unit as shown in the wiring diagram. The indoor unit draws its power from the outdoor unit.

WIRING SYSTEM DIAGRAM

- K92A + C92A
- K122A + C122A



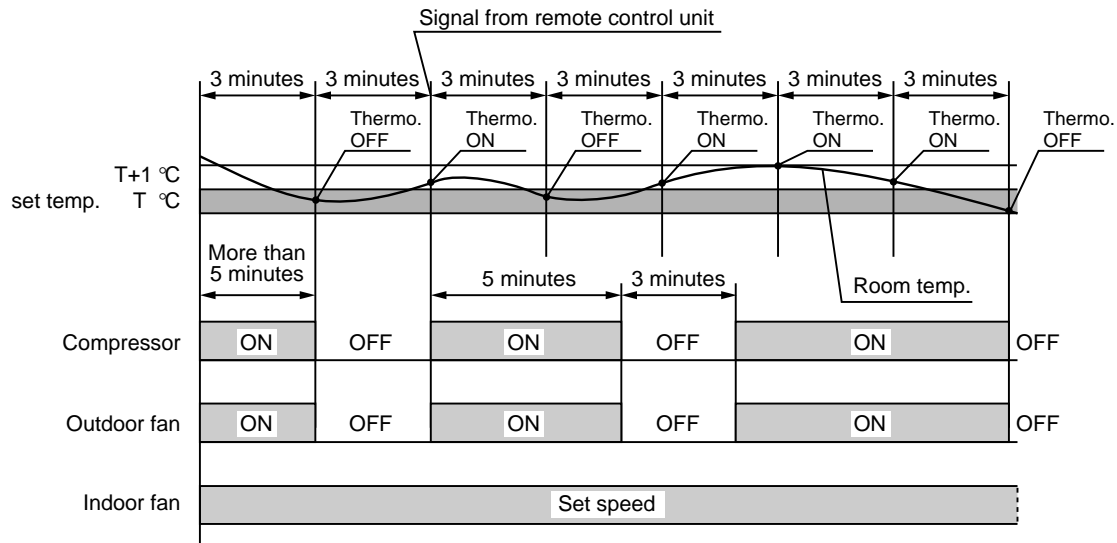
- K182A + C182A
- K252A + C252A



8. FUNCTION

8-1. Room Temperature Control

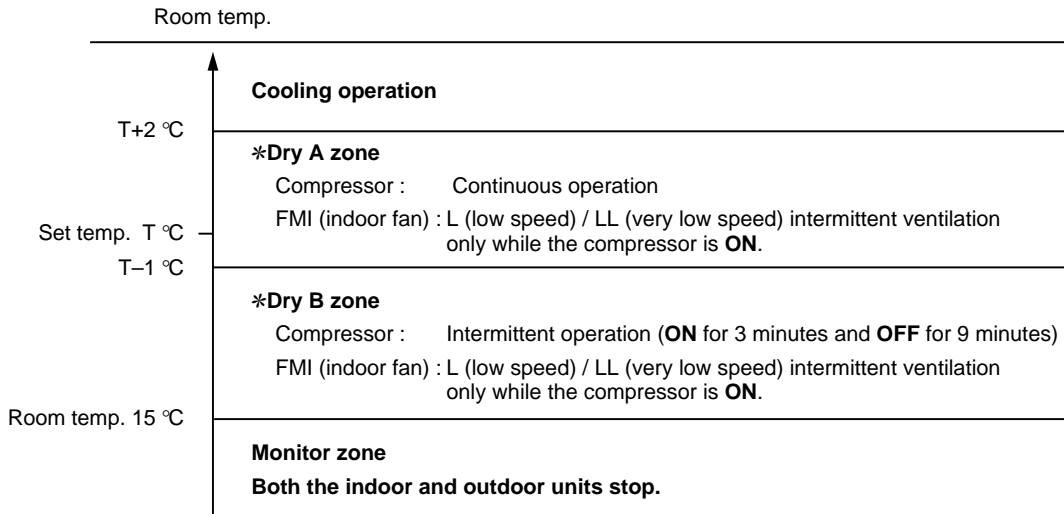
- Room temperature control is obtained by cycling the compressor ON and OFF under control of the room temperature sensor in the remote control unit.
- The room temperature (and other information) is transmitted every 3 minutes by the remote control unit to the controller in the indoor unit.



- 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 $T + 1^{\circ}\text{C}$ ($T^{\circ}\text{C}$ is set temperature).
Compressor → ON
- Thermo. OFF : When the room temperature is equal to or below set temperature $T^{\circ}\text{C}$.
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.

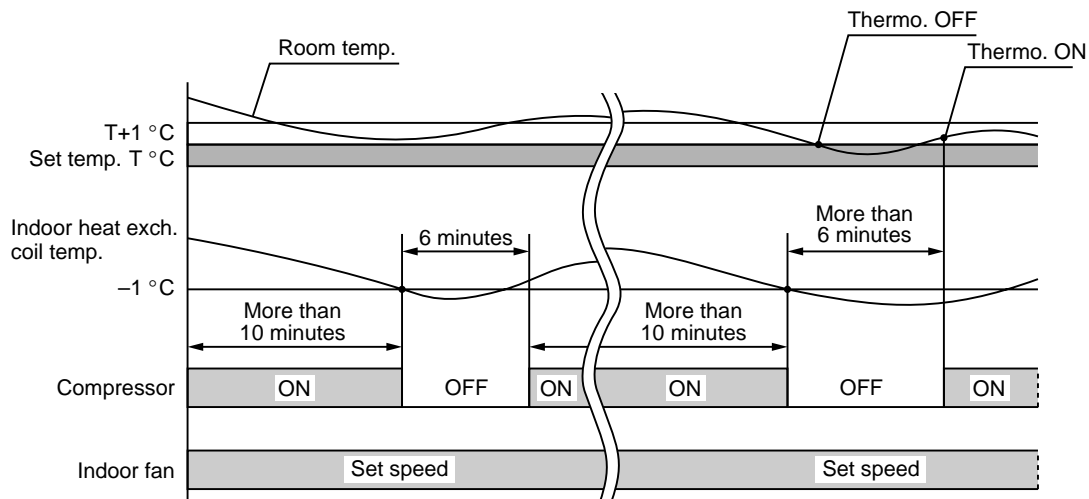


NOTE

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

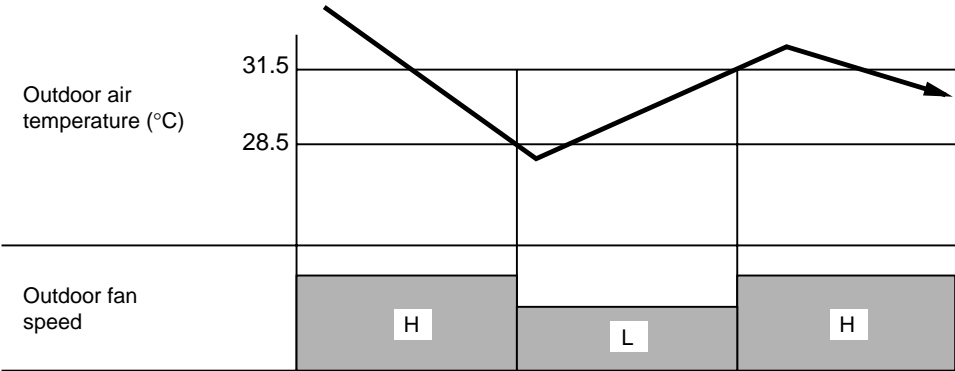
8-3. Freeze Prevention

- 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°C, 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.




8-4. Outdoor Fan Speed Control (Except SAP-C92)

- To optimize performance of the air conditioner, the outdoor fan speed is switched automatically according to the outdoor temperature.
- If the outdoor air temperature falls below 28.5°C, the fan speed switches to LOW.
- If the outdoor air temperature rises above 31.5°C, the fan speed switches to HIGH.
- This function does not become active in heating operation.



9. TROUBLESHOOTING

9-1. Check before and after troubleshooting

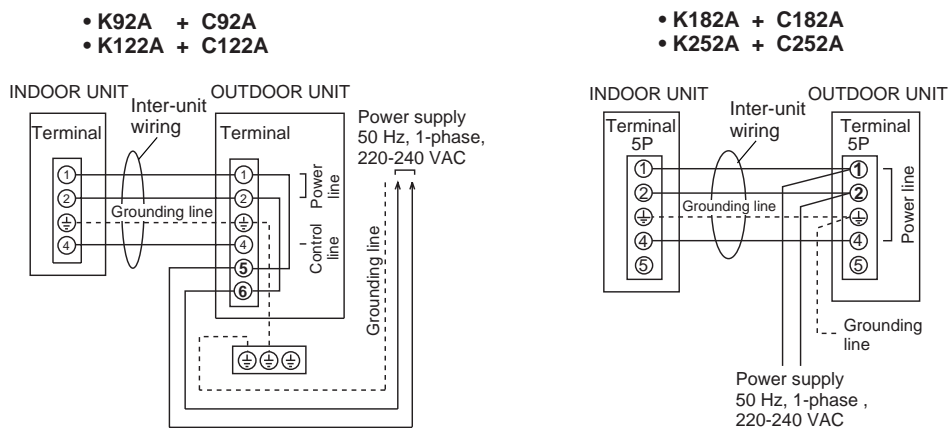


WARNING

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 power supply wiring.

- Check that power supply wires are connected to correct terminals 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 power supply.

- Check that voltage is in specified range ($\pm 10\%$ 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.

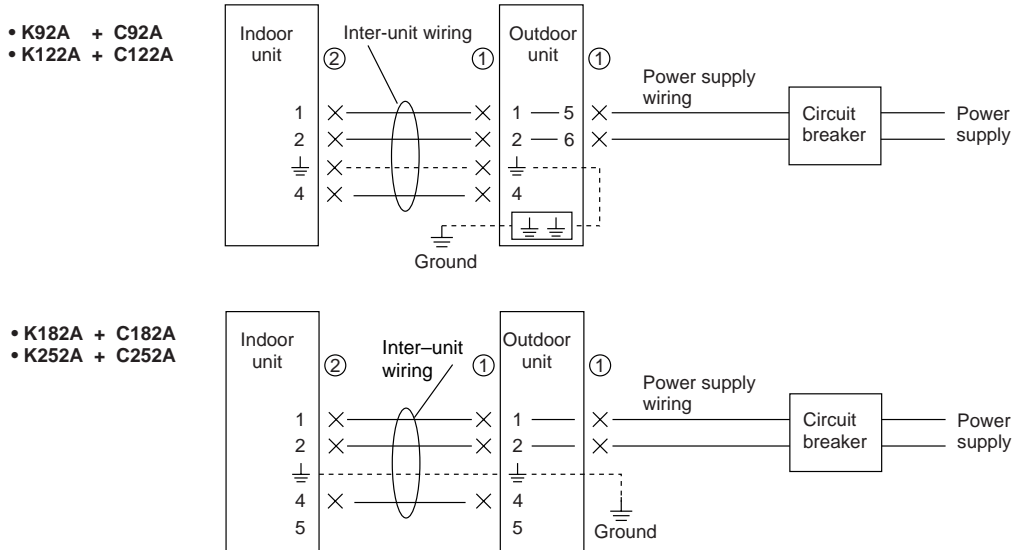
9-2. Air conditioner does not operate.

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.)

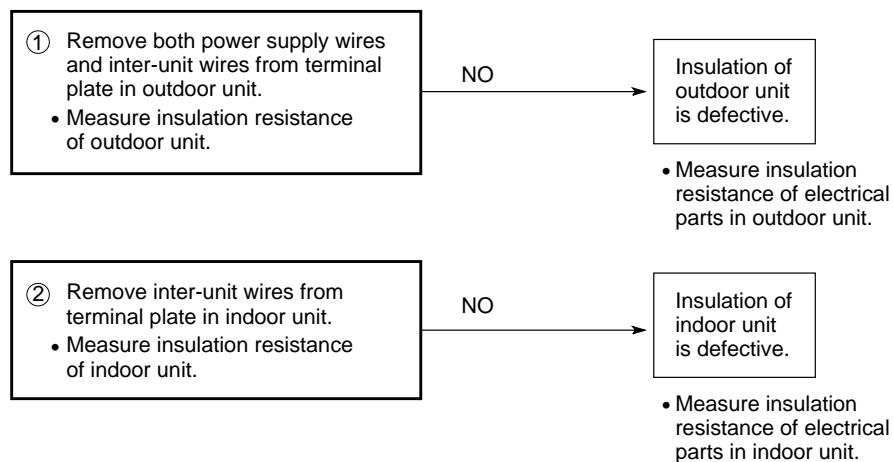
- There is a possibility of ground fault.
- Check insulation resistance.

If resistance value is $2M\Omega$ or less, insulation is defective ("NO").



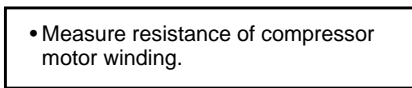
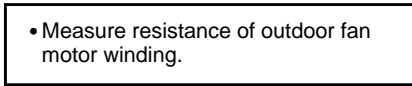
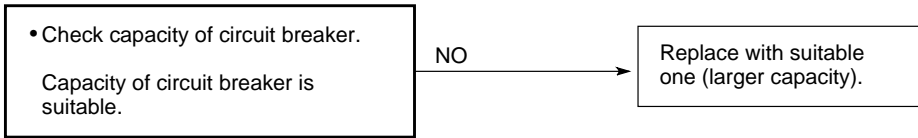
WARNING

*Set circuit breaker to OFF.



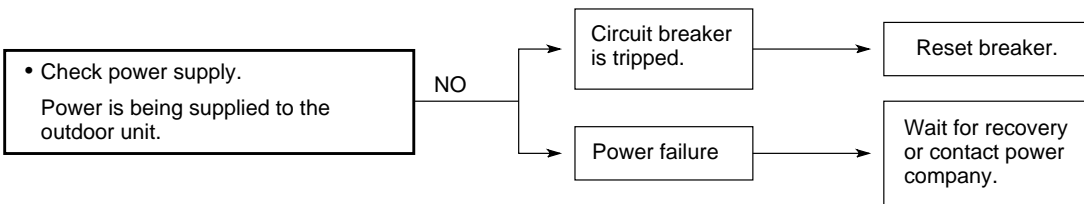
B. Circuit breaker trips in several minutes after turning the air conditioner on.

- There is a possibility of short circuit.

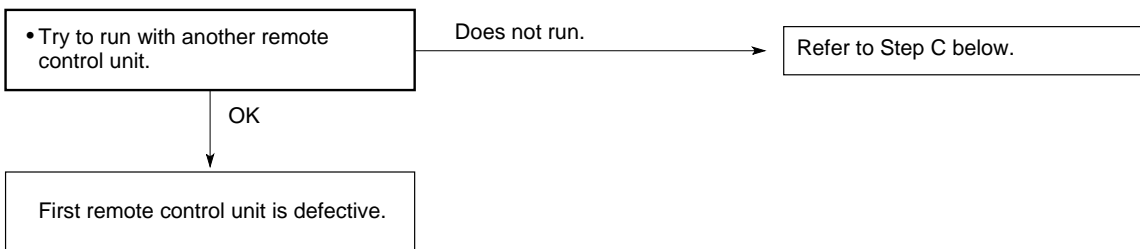


9-2-2. Neither indoor nor outdoor unit runs.

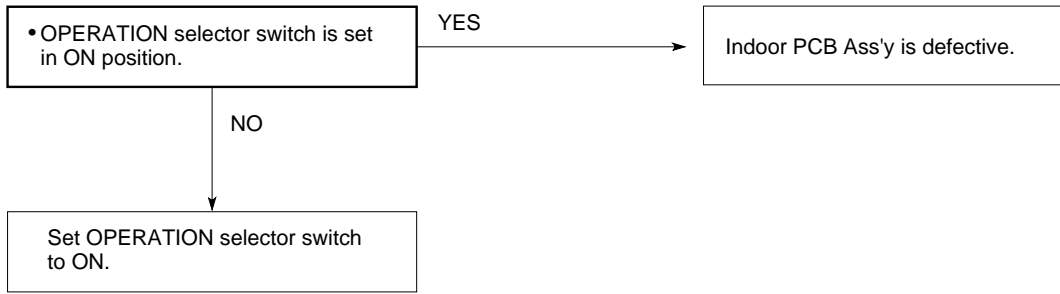
A. Power is not supplied.



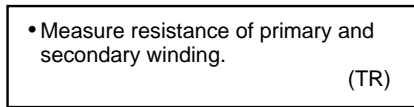
B. Check remote control unit.



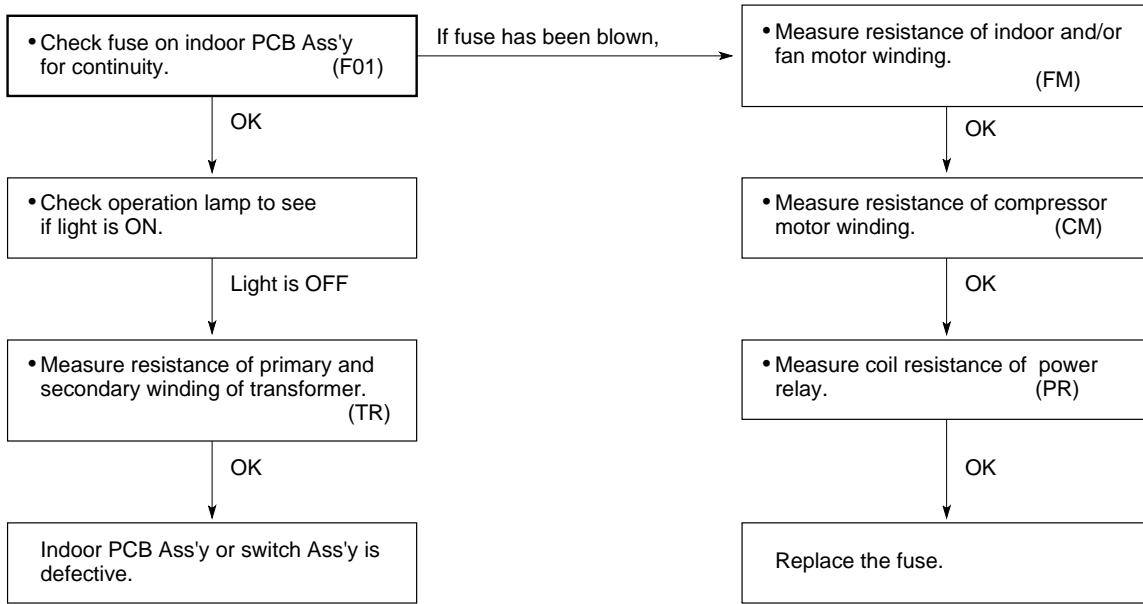
C. Check "OPERATION selector" switch in the indoor unit.



D. Check transformer in indoor unit.



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

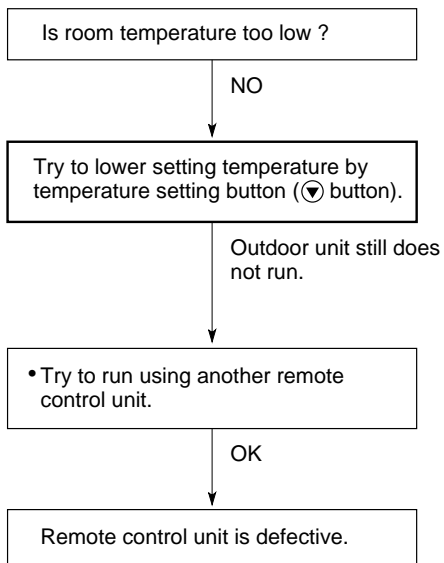


F. Check TIMER on the remote control unit.

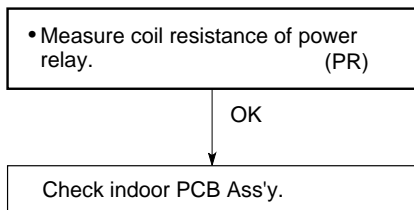


9-2-3. Only outdoor unit does not run.

A. Check setting temperature.

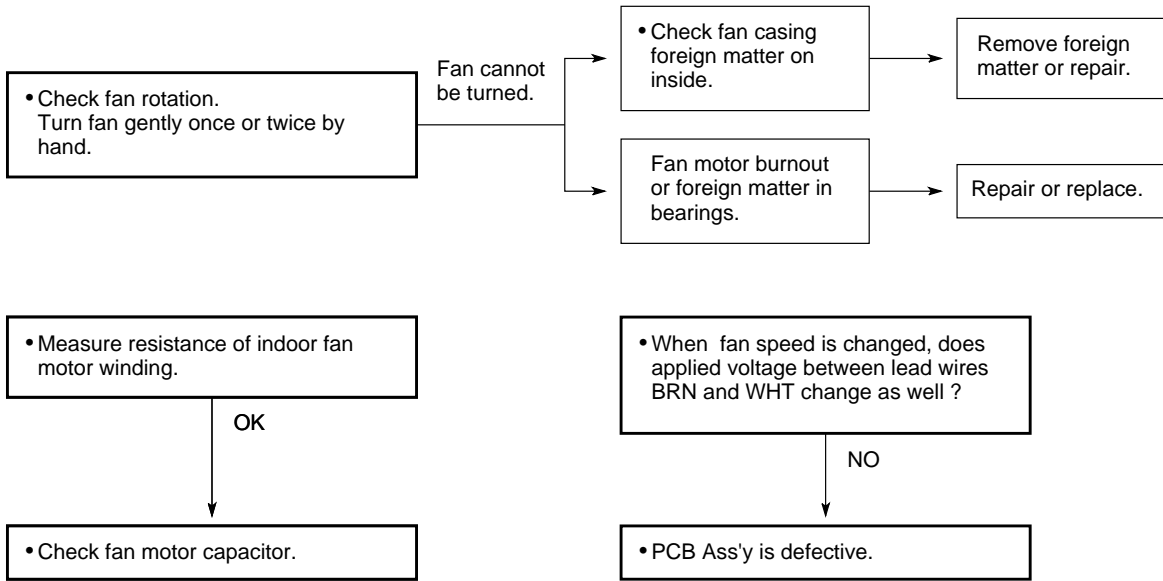


B. Check power relay in outdoor unit.

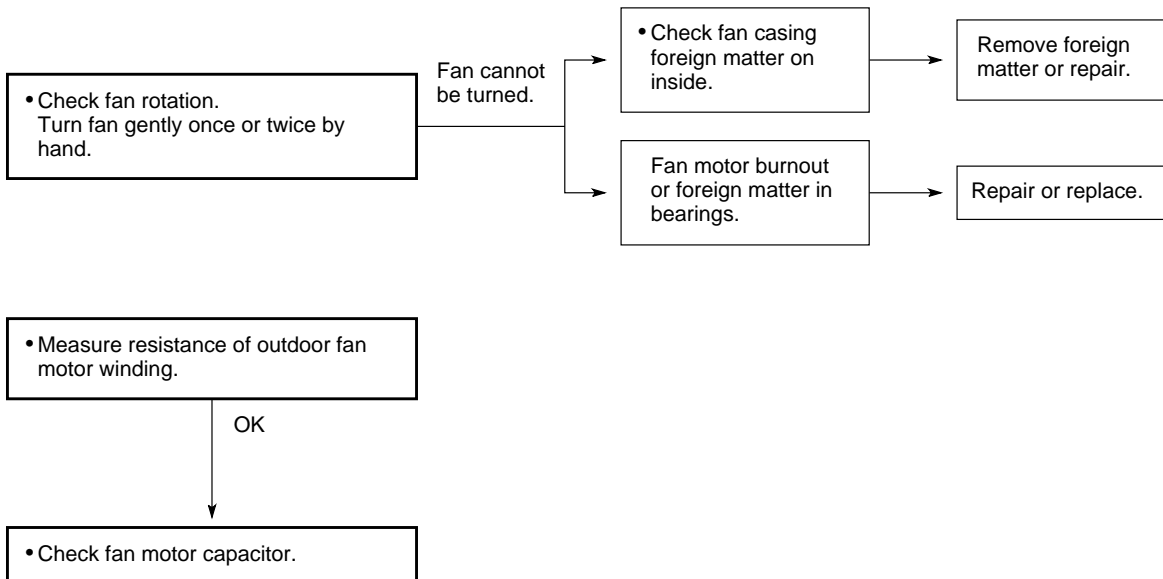


9-3. Some part of air conditioner does not operate.

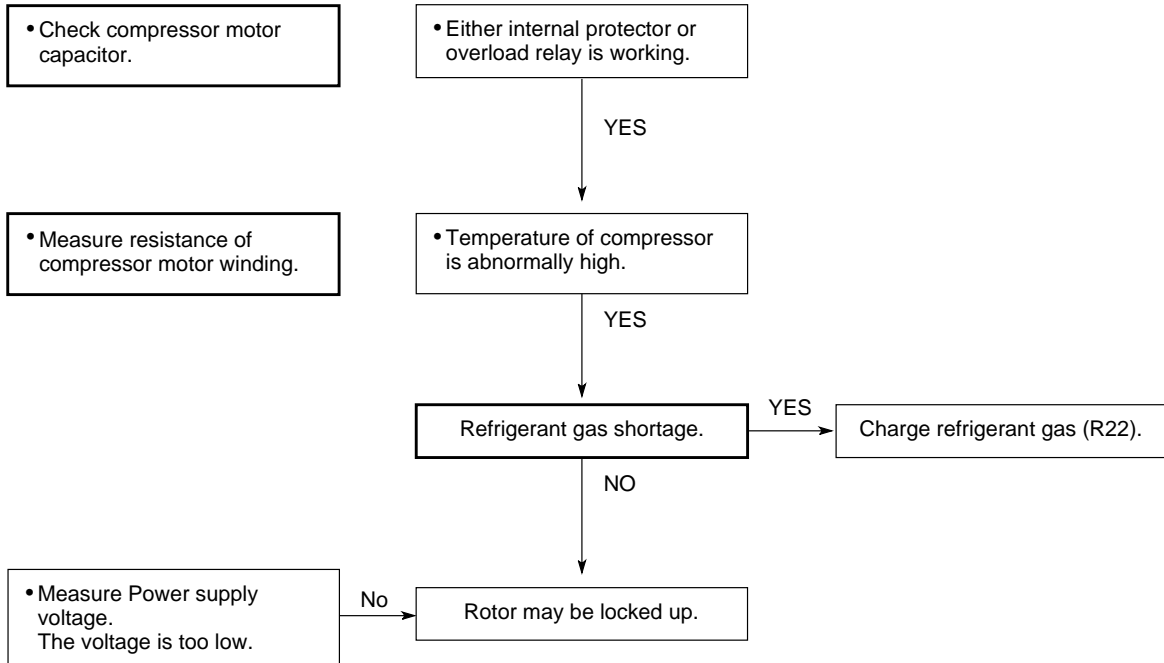
9-3-1. Only indoor fan does not run.



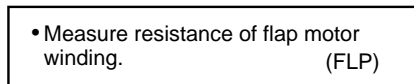
9-3-2. Only outdoor fan does not run.



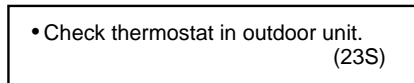
9-3-3. Only compressor does not run.



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



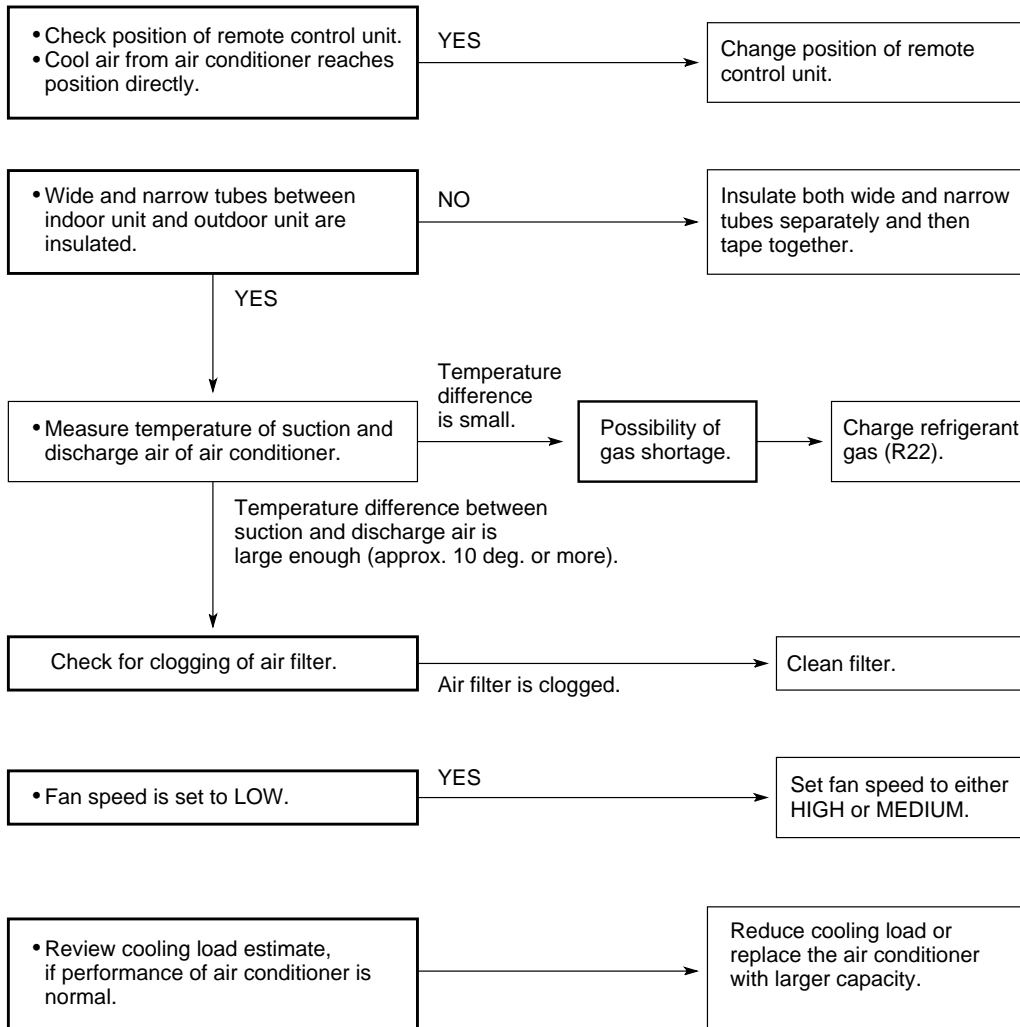
9-3-5. Function of outdoor fan speed control does not work properly. (Except C92)



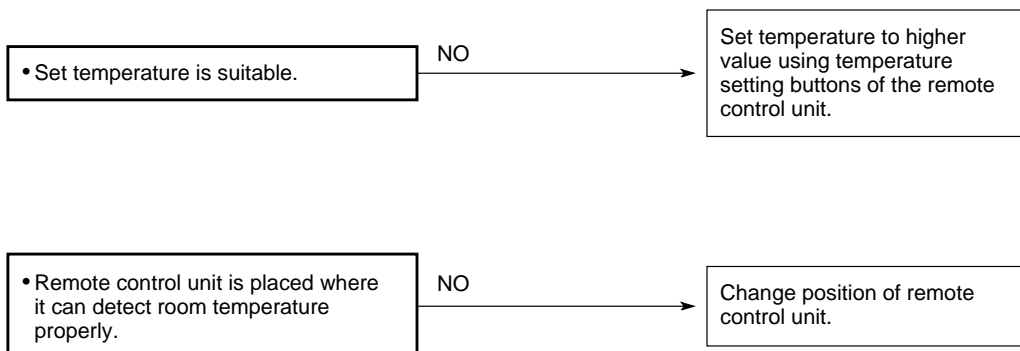
Refer to "8-4 Outdoor Fan Speed Control".

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

9-4-1. Poor cooling.



9-4-2. Excessive cooling.



10. CHECKING ELECTRICAL COMPONENTS

10-1. Measurement of Insulation Resistance

- The insulation is in good condition if the resistance exceeds $2M\Omega$.

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)

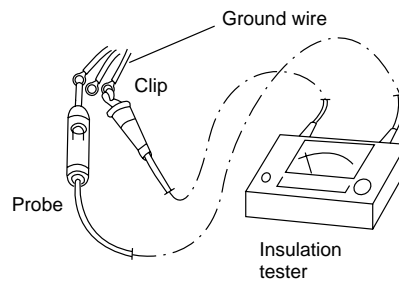


Fig. 1

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.

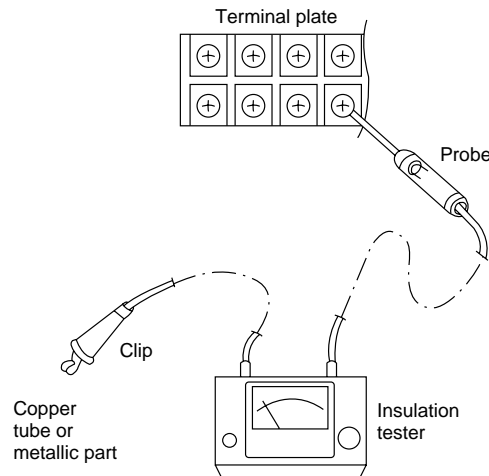


Fig. 2

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)

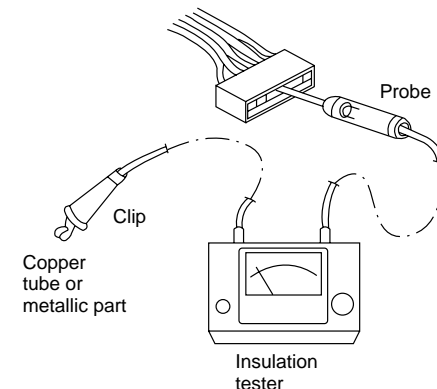


Fig. 3

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.

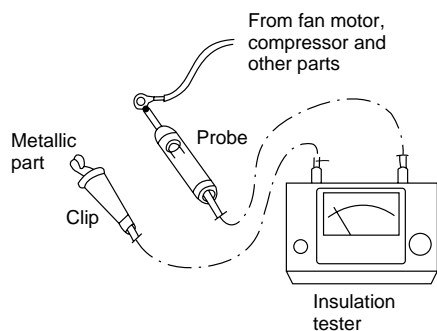


Fig. 4

10-2. Checking Continuity 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.

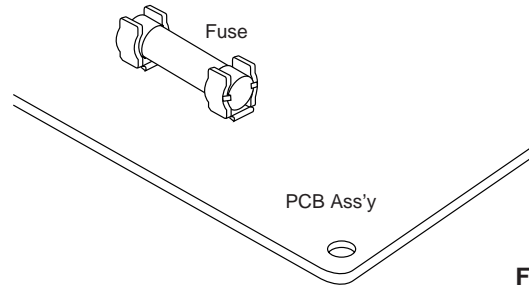


Fig. 5

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.

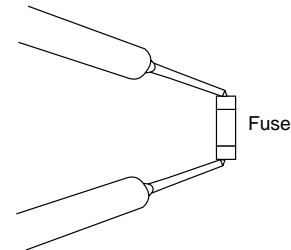


Fig. 6

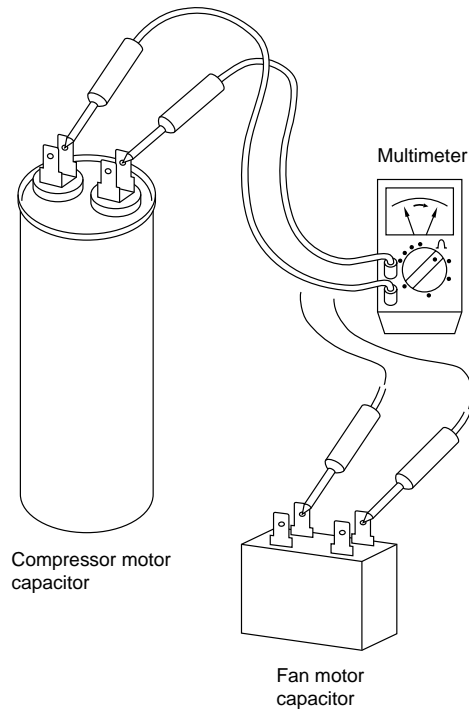


Fig. 7

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.

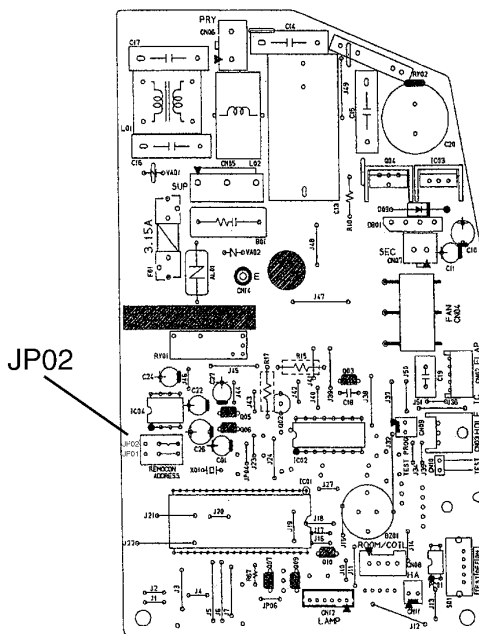
NOTE Once changed, you cannot restore the original address setting of the remote control unit.

To Change Address on PCB Ass'y

- (1) Cut jumper wire (JP02) or (JP11) depending on the indoor unit PCB.
Use cutting pliers to cut and disconnect the Jumper wire.

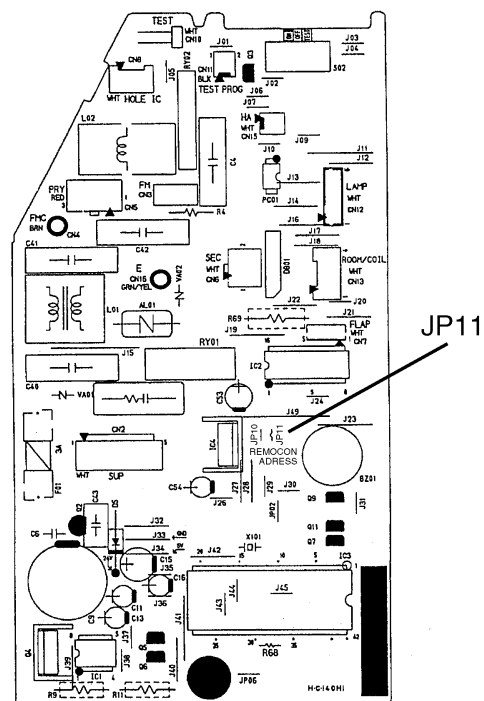
- SAP-K92A (CB-K92GJ)
- SAP-K122A (CB-K122GJ)

Control PCB on Indoor Unit



- SAP-K182A (CB-K182GJ)
- SAP-K252A (CB-K252GJ)

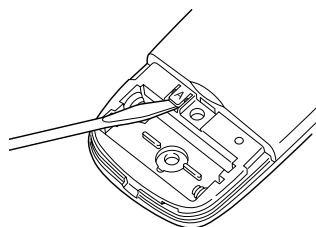
Control PCB on Indoor Unit



To Change Address on Remote Control Unit

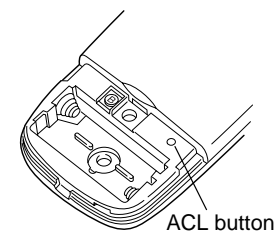
NOTE Remove the batteries before changing the address.

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



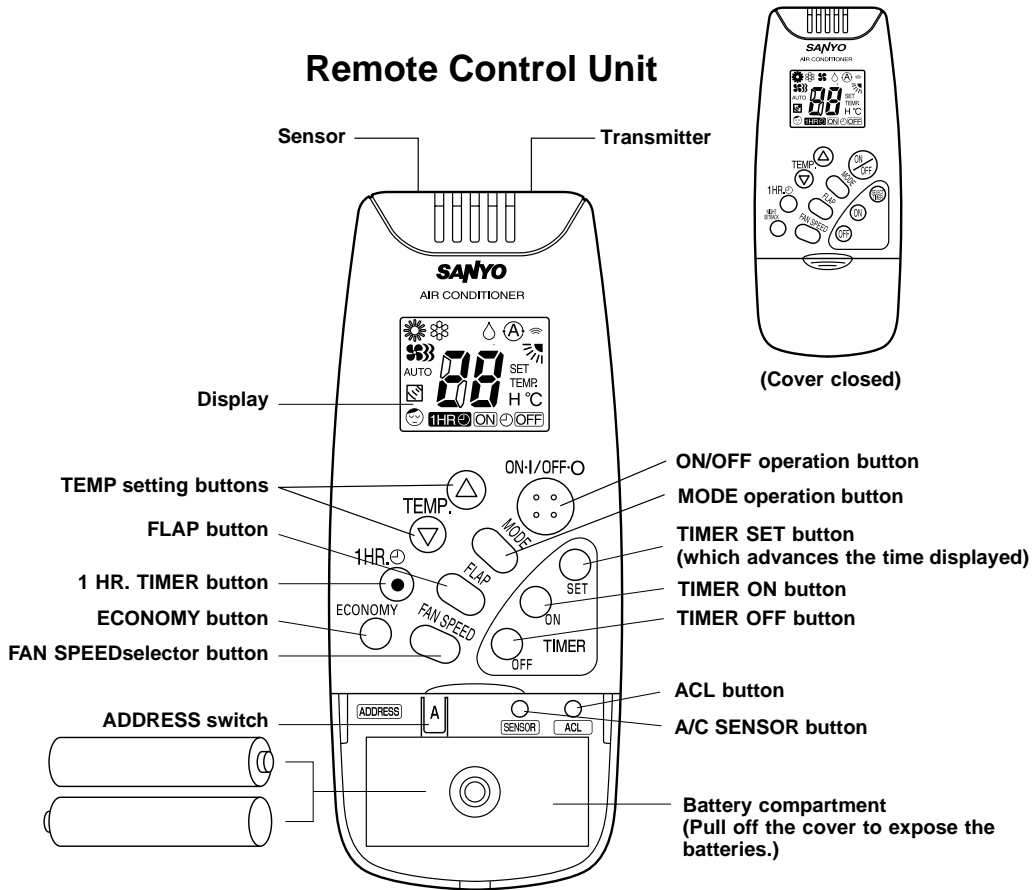
- (2) When it is removed, the address is automatically set to B.

- (3) After inserting the batteries, press ACL button.



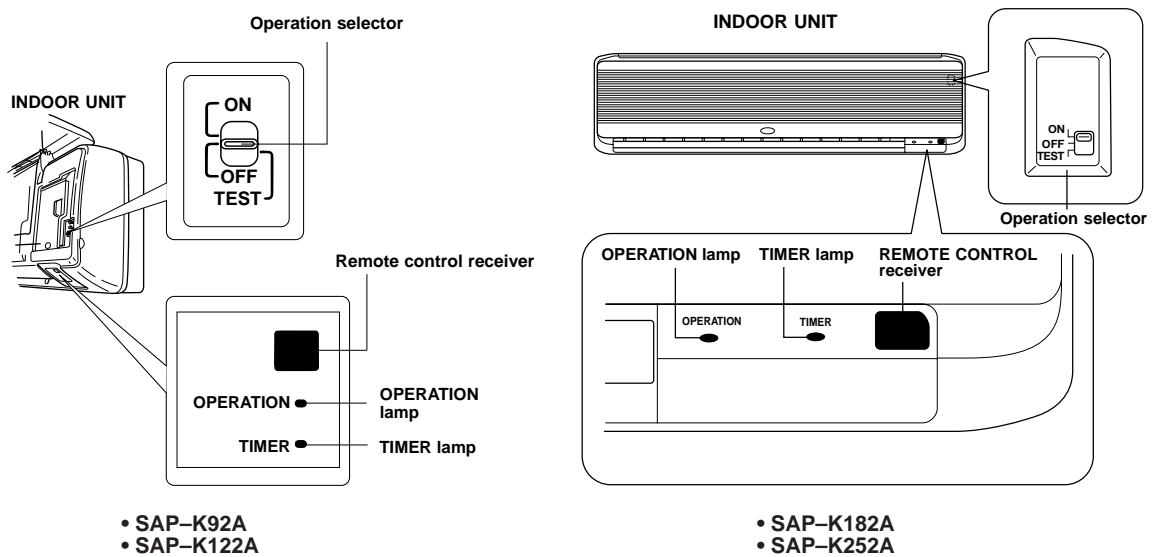
APPENDIX

Remote Control Unit



NOTE The illustration above pictures the remote control unit after the cover has been lowered and removed.

Unit Display and Operation Selector





SANYO Electric Co.,Ltd.

Osaka, Japan

SM700569 Sept/2003/50

Printed in Japan