

SERVICE MANUAL

SANYO

SAP-FT126QS5 + SAP-C126Q5
SAP-FT126QS5 + SAP-C126QL5
SAP-FT165QS5 + SAP-C165Q5
SAP-FT185QS5 + SAP-C185Q5
SAP-FT185QS5 + SAP-C185QL5
SAP-FT225QS5 + SAP-C225Q5

FILE NO.

SPLIT SYSTEM AIR CONDITIONER

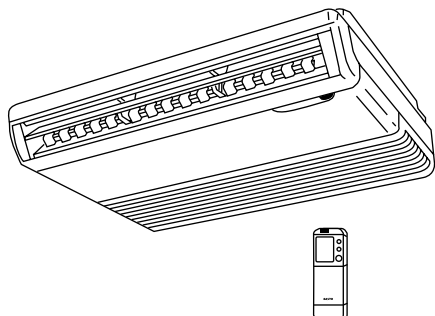
Indoor Model No	Product Code No.
SAP-FT126QS5-E	1 852 658 78
SAP-FT165QS5-E	1 852 658 79
SAP-FT185QS5-E	1 852 658 80
SAP-FT225QS5-E	1 852 658 81

Outdoor Model No.	Product Code No.
SAP-C126Q5-E	1 852 752 48
SAP-C126QL5-E	1 852 752 49
SAP-C165Q5-E	1 852 752 41
SAP-C185Q5-E	1 852 752 42
SAP-C185QL5-E	1 852 752 43
SAP-C225Q5-E	1 852 753 58

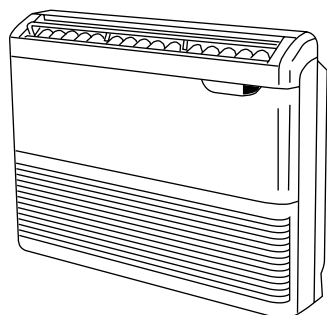
Indoor Unit

Outdoor Unit

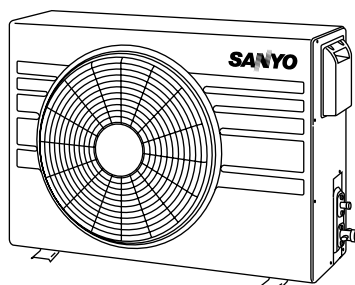
● Ceiling-Mounted



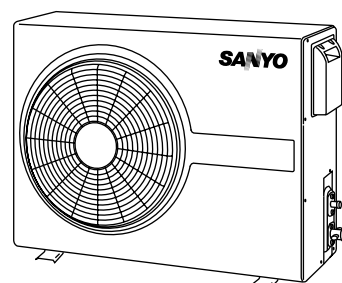
● Floor-Mounted



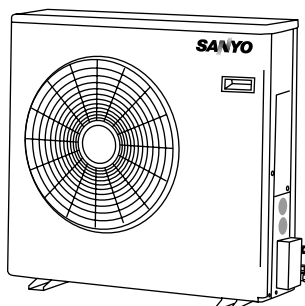
SAP-FT126QS5
SAP-FT165QS5
SAP-FT185QS5
SAP-FT225QS5



SAP-C126Q5
SAP-C126QL5



SAP-C165Q5
SAP-C185Q5
SAP-C185QL5



SAP-C225Q5

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 unit's 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.

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1. OPERATING RANGE

For Cooling Only Models : SAP–CxxxQ5

	Temperature	Indoor Air Intake Temp.	Outdoor Air Intake Temp.
Cooling	Maximum	35°C DB / 22.5°C WB	52°C DB
	Minimum	19°C DB / 14°C WB	19°C DB

For Low Ambient Cooling Models : SAP–CxxxQL5

	Temperature	Indoor Air Intake Temp.	Outdoor Air Intake Temp.
Cooling	Maximum	35°C DB / 22°C WB	50°C DB
	Minimum	19°C DB / 14°C WB	–15°C DB

2. SPECIFICATIONS

2-1. Unit Specifications

Indoor Unit **SAP-FT126QS5**
Outdoor Unit **SAP-C126Q5**

Power Source				220 – 240 V ~ 50 Hz			
Voltage rating				V			
				220 / 230 / 240			
Performance					Cooling		
	Capacity			kW		3.45 / 3.45 / 3.50	
				BTU/h		11,800 / 11,800 / 11,900	
	Air circulation (High)		m³/h		700		
	Moisture removal (High)		Liters/h		1.5		
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		2.8 / 2.8 / 2.7		
	Compressor locked rotor amperes		A		32 / 33 / 35		
Features	Controls / Temperature control			Microprocessor / I.C. thermostat			
	Control unit			Wireless remote control unit			
	Timer			ON / OFF 24-hours & Daily Program			
	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 / 860			
	Refrigerant control			Capillary tube			
	Operation sound	Indoor – Hi / Me / Lo	dB-A	44 / 40 / 35			
		Outdoor – Hi	dB-A	48			
	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.)	12.7 (1/2)			
	Refrigerant tube kit			Optional			
Dimensions & Weight				Indoor Unit		Outdoor Unit	
	Unit dimensions	Height	mm	680		530	
		Width	mm	900		750	
		Depth	mm	190		270	
	Package dimensions	Height	mm	296		593	
		Width	mm	1,011		895	
		Depth	mm	813		348	
	Weight	Net	kg	23.5		35.5	
		Shipping	kg	30.0		38.0	
	Shipping volume		m³	0.24		0.18	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Remarks: Rating conditions are:

Cooling: Indoor air temperature 27°C DB / 19°C WB

Outdoor air temperature 35°C DB / 24°C WB

Indoor Unit **SAP-FT126QS5**
Outdoor Unit **SAP-C126QL5**

Power Source				220 – 240 V ~ 50 Hz				
Voltage rating				V		220 / 230 / 240		
Performance					Cooling			
	Capacity			kW		3.45 / 3.45 / 3.50		
				BTU/h		11,800 / 11,800 / 11,900		
	Air circulation (High)		m³/h		700			
	Moisture removal (High)		Liters/h		1.5			
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		2.8 / 2.8 / 2.7			
	Compressor locked rotor amperes		A		32 / 33 / 35			
Features	Controls / Temperature control				Microprocessor / I.C. thermostat			
	Control unit				Wireless remote control unit			
	Timer				ON / OFF 24-hours & Daily Program			
	Fan speeds		Indoor / Outdoor		3 and Auto / Auto (Hi, Lo, Variable)			
	Airflow direction (Indoor)		Horizontal		Manual			
			Vertical		Auto			
	Air filter				Washable, Anti-Mold			
	Compressor				Rotary (Hermetic)			
	Refrigerant / Amount charged at shipment		g		R22 / 860			
	Refrigerant control				Capillary tube			
	Operation sound		Indoor – Hi / Me / Lo	dB-A	44 / 40 / 35			
			Outdoor – Hi	dB-A	48			
	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.)	12.7 (1/2)			
	Refrigerant tube kit				Optional			
Dimensions & Weight					Indoor Unit		Outdoor Unit	
	Unit dimensions	Height	mm	680		530		
		Width	mm	900		750		
		Depth	mm	190		270		
	Package dimensions	Height	mm	296		593		
		Width	mm	1,011		895		
		Depth	mm	813		348		
	Weight	Net	kg	23.5		35.5		
		Shipping	kg	30.0		38.0		
	Shipping volume		m³		0.24		0.18	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

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

Indoor Unit **SAP-FT165QS5**
Outdoor Unit **SAP-C165Q5**

Power Source				220 – 240 V ~ 50 Hz	
Voltage rating				V	
				220 / 230 / 240	
Performance				Cooling	
	Capacity	kW		4.60 / 4.60 / 4.60	
		BTU/h		15,700 / 15,700 / 15,700	
	Air circulation (High)		m³/h	800	
	Moisture removal (High)		Liters/h	2.3	
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			ON / OFF 24-hours & Daily Program	
	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 / 1,760
	Refrigerant control			Capillary tube	
	Operation sound	Indoor – Hi / Me / Lo	dB-A	48 / 44 / 39	
		Outdoor – Hi	dB-A	50	
	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.)	12.7 (1/2)	
	Refrigerant tube kit			Optional	
Dimensions & Weight				Indoor Unit	Outdoor Unit
	Unit dimensions	Height	mm	680	630
		Width	mm	900	830
		Depth	mm	190	305
	Package dimensions	Height	mm	296	713
		Width	mm	1,011	994
		Depth	mm	813	413
	Weight	Net	kg	23.5	51.5
		Shipping	kg	30.0	56.5
	Shipping volume			m³	0.24
				0.29	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

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

Indoor Unit **SAP-FT185QS5**
Outdoor Unit **SAP-C185Q5**

Power Source				220 – 240 V ~ 50 Hz	
Voltage rating				V	
				220 / 230 / 240	
Performance				Cooling	
	Capacity	kW		5.15 / 5.15 / 5.15	
		BTU/h		17,600 / 17,600 / 17,600	
	Air circulation (High)		m³/h	800	
	Moisture removal (High)		Liters/h	2.7	
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			ON / OFF 24-hours & Daily Program	
	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 / 1,750
	Refrigerant control			Capillary tube	
	Operation sound	Indoor – Hi / Me / Lo	dB-A	48 / 44 / 39	
		Outdoor – Hi	dB-A	51	
	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.)	12.7 (1/2)	
	Refrigerant tube kit			Optional	
Dimensions & Weight				Indoor Unit	Outdoor Unit
	Unit dimensions	Height	mm	680	630
		Width	mm	900	830
		Depth	mm	190	305
	Package dimensions	Height	mm	296	713
		Width	mm	1,011	994
		Depth	mm	813	413
	Weight	Net	kg	23.5	52.0
		Shipping	kg	30.0	57.0
	Shipping volume			m³	0.24
				0.29	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

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

Indoor Unit **SAP-FT185QS5**
Outdoor Unit **SAP-C185QL5**

Power Source				220 – 240 V ~ 50 Hz					
Voltage rating				V					
				220 / 230 / 240					
Performance				Cooling					
	Capacity		kW		5.15 / 5.15 / 5.15				
			BTU/h		17,600 / 17,600 / 17,600				
	Air circulation (High)		m³/h		800				
	Moisture removal (High)		Liters/h		2.7				
Electrical Rating	Available voltage range			V		198 to 264			
	Running amperes			A		9.6 / 9.5 / 9.5			
	Power input			W		2,030 / 2,060 / 2,110			
	Power factor			%		96 / 94 / 93			
	C.O.P.			W/W		2.5 / 2.5 / 2.4			
	Compressor locked rotor amperes			A		45 / 46 / 48			
Features	Controls / Temperature control			Microprocessor / I.C. thermostat					
	Control unit			Wireless remote control unit					
	Timer			ON / OFF 24-hours & Daily Program					
	Fan speeds		Indoor / Outdoor		3 and Auto / Auto (Hi, Variable)				
	Airflow direction (Indoor)		Horizontal		Manual				
			Vertical		Auto				
	Air filter			Washable, Anti-Mold					
	Compressor			Rotary (Hermetic)					
	Refrigerant / Amount charged at shipment			g		R22 / 1,750			
	Refrigerant control			Capillary tube					
	Operation sound		Indoor – Hi / Me / Lo		dB-A		48 / 44 / 39		
			Outdoor – Hi		dB-A		51		
	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.)		12.7 (1/2)		
	Refrigerant tube kit			Optional					
Dimensions & Weight				Indoor Unit		Outdoor Unit			
	Unit dimensions		Height	mm	680		630		
			Width	mm	900		830		
			Depth	mm	190		305		
	Package dimensions		Height	mm	296		713		
			Width	mm	1,011		994		
			Depth	mm	813		413		
	Weight		Net	kg	23.5		52.0		
			Shipping	kg	30.0		57.0		
	Shipping volume			m³		0.24		0.29	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

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

Indoor Unit **SAP-FT225QS5**
Outdoor Unit **SAP-C225Q5**

Power Source				220 – 240 V ~ 50 Hz					
Voltage rating				V					
				220 / 230 / 240					
Performance				Cooling					
	Capacity		kW		6.40 / 6.45 / 6.45				
			BTU/h		21,800 / 22,000 / 22,000				
	Air circulation (High)		m³/h		900				
	Moisture removal (High)		Liters/h		3.3				
Electrical Rating	Available voltage range			V		198 to 264			
	Running amperes			A		12.5 / 12.5 / 12.7			
	Power input			W		2,600 / 2,630 / 2,700			
	Power factor			%		95 / 91 / 89			
	C.O.P.			W/W		2.5 / 2.5 / 2.4			
	Compressor locked rotor amperes			A		67 / 70 / 73			
Features	Controls / Temperature control			Microprocessor / I.C. thermostat					
	Control unit			Wireless remote control unit					
	Timer			ON / OFF 24-hours & Daily program					
	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 / 2,090			
	Refrigerant control			Capillary tube					
	Operation sound		Indoor – Hi / Me / Lo		dB-A		50 / 47 / 44		
			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			Optional					
Dimensions & Weight				Indoor Unit		Outdoor Unit			
	Unit dimensions		Height	mm	680		835		
			Width	mm	900		850		
			Depth	mm	190		305		
	Package dimensions		Height	mm	296		913		
			Width	mm	1,011		1,000		
			Depth	mm	813		400		
	Weight		Net	kg	23.5		67.0		
			Shipping	kg	30.0		76.0		
	Shipping volume			m³		0.24		0.37	

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

2-1. Major Component Specifications

2-2-1. Indoor Unit

Indoor Unit

SAP-FT126QS5

Controller PCB	Part No.				POW-K185GS-N	
	Controls				Microprocessor	
	Control circuit fuse				250 V – 3 A	
Remote Control Unit					RCS – 2S1	
Fan & Fan Motor	Type				Centrifugal	
	Number ... Dia. and length					

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Indoor Unit

SAP-FT165QS5**SAP-FT185QS5**

Controller PCB	Part No.				POW-K185GS-N	
	Controls				Microprocessor	
	Control circuit fuse				250 V – 3 A	
Remote Control Unit					RCS – 2S1	
Fan & Fan Motor	Type				Centrifugal	
	Number ... Dia. and lengthmm				2 ... ø 130 / L 180	
	Fan motor model ... Number				K48410-M01417 ... 1	
	No. of poles ... rpm (230 V, High)				4 ... 1,140	
	Nominal outputW				27	
	Coil resistance (Ambient temp. 20°C) Ω				GRY – WHT : 215 ± 7% WHT – VLT : 87 ± 7% VLT – YEL : 87 ± 7% WHT – PNK : 273 ± 7%	
	Safety devices	Type			Internal thermal fuse	
		Operating temp.	Open	°C	145 ± 5	
			Close		Automatic reclosing	
	Run capacitor			μ F	2.0	
			VAC	440		
Flap Motor	Model				M2LJ24ZE31	
	Rating				AC 208 / 230 V, 50 / 60 Hz	
	No. of poles ... rpm				8 ... 2.5 / 3.0	
	Nominal outputW				3 / 2.5	
	Coil resistance (Ambient temp. 20°C) $k\Omega$				16.45 ± 15%	
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube	
	Rows				2	
	Fin pitchmm				1.8	
	Face aream ²				0.192	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Indoor Unit

SAP-FT225QS5

Controller PCB	Part No.				POW-K185GS-N	
	Controls				Microprocessor	
	Control circuit fuse				250 V – 3 A	
Remote Control Unit					RCS – 2S1	
Fan & Fan Motor	Type				Centrifugal	
	Number ... Dia. and lengthmm				2 ... ø 130 / L 180	
	Fan motor model ... Number				K48410-M01418 ... 1	
	No. of poles ... rpm (230 V, High)				4 ... 1,280	
	Nominal outputW				41	
	Coil resistance (Ambient temp. 20°C) Ω				GRY – WHT : 95 ± 7% WHT – VLT : 73 ± 7% VLT – YEL : 73 ± 7% WHT – PNK : 207 ± 7%	
	Safety devices	Type			Internal thermal fuse	
		Operating temp.	Open	°C	145 ± 5	
				Close	Automatic reclosing	
	Run capacitor			μ F	2.0	
VAC				440		
Flap Motor	Model				M2LJ24ZE31	
	Rating				AC 208 / 230 V, 50 / 60 Hz	
	No. of poles ... rpm				8 ... 2.5 / 3.0	
	Nominal outputW				3 / 2.5	
	Coil resistance (Ambient temp. 20°C) $k\Omega$				16.45 ± 15%	
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube	
	Rows				2	
	Fin pitchmm				1.8	
	Face aream ²				0.192	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

2-2-2. Outdoor Unit

Outdoor Unit

SAP-C126Q5

Compressor	Type				Rotary (Hermetic)				
	Compressor model				C–R112H5V 80614445–S				
	Nominal output				W	1,075			
	Compressor oil ... Amount				cc	4GSD–T ... 550			
	Coil resistance (Ambient temp. 25°C)				Ω	C – R : 1.96 C – S : 5.38			
	Safety devices	Type				External (OLR A)		External (OLR T)	
		Overload relay				MRA98596–9201		CS–7C115	
		Operating temp.	Open	°C	145 ± 5		115 ± 3		
			Close	°C	69 ± 11		95 ± 5		
	Operating amp.(Ambient temp. 25°C)				Trip in 6 to 16 sec. at 21 A		—		
Run capacitor				μF		25.0			
				VAC		400			
Fan & Fan Motor	Type				Propeller				
	Number ... Dia.				mm	1 ... ø 400			
	Fan motor model ... Number				K35610–M01402 ... 1				
	No. of poles ... rpm (230 V, High)				6 ... 760				
	Nominal output				W	25			
	Coil resistance (Ambient temp. 20°C)				Ω	BRN – WHT : 256 ± 7% YEL – WHT : 227 ± 7% PNK – YEL : 103 ± 7%			
	Safety devices	Type				Internal thermal fuse			
		Operating temp.	Open	°C	150 ± 10				
			Close	Automatic reclosing					
	Run capacitor				μF		2.0		
			VAC		440				
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube				
	Rows				1				
	Fin pitch				mm	1.3			
	Face area				m²	0.379			
External Finish					Acrylic baked-on enamel finish				

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit

SAP-C126QL5

Controller PCB		Part No.				POW-C126GL			
		Control circuit fuse				250 V – 5 A			
Compressor	Type					Rotary (Hermetic)			
	Compressor model					C-R112H5V 80614445-S			
	Nominal output W					1,075			
	Compressor oil ... Amount cc					4GSD-T ... 550			
	Coil resistance (Ambient temp. 25°C) Ω					C – R : 1.96 C – S : 5.38			
	Safety devices	Type				External (OLR A)		External (OLR T)	
		Overload relay				MRA98596-9201		CS-7C115	
		Operating temp.		Open	°C	145 ± 5		115 ± 3	
				Close	°C	69 ± 11		95 ± 5	
		Operating amp.(Ambient temp. 25°C)				Trip in 6 to 16 sec. at 21A		—	
	Run capacitor					μF		25.0	
						VAC		400	
Crank case heater					240V 20W				
Fan & Fan Motor	Type					Propeller			
	Number ... Dia. mm					1 ... ø400			
	Fan motor model ... Number					K35610-M01402 ... 1			
	No. of poles ... rpm (230 V, High)					6 ... 760			
	Nominal output W					25			
	Coil resistance (Ambient temp. 20°C) Ω					BRN – WHT : 256 ± 7% YEL – WHT : 227 ± 7% PNK – YEL : 103 ± 7%			
	Safety devices	Type				Internal thermal fuse			
		Operating temp.		Open	°C	150 ± 10			
				Close	Automatic reclosing				
	Run capacitor					μF		2.0	
						VAC		440	
	Heat Exch. Coil	Coil					Aluminum plate fin / Copper tube		
Rows					1				
Fin pitch mm					1.3				
Face area m²					0.379				
External Finish						Acrylic baked-on enamel finish			

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit

SAP-C165Q5

Compressor	Type			Rotary (Hermetic)	
	Compressor model			C-2R150H5T 80815845	
	Nominal output			W	1,500
	Compressor oil ... Amount			cc	4GSD-T ... 800
	Coil resistance (Ambient temp. 25°C)			Ω	C - R : 1.43 C - S : 4.12
	Safety devices	Type		Internal type	
		Overload relay		—	
		Operating temp.	Open	°C	160 ± 5
			Close	°C	100 ± 11
	Operating amp.(Ambient temp. 25°C)			—	
Run capacitor		μF		35.0	
		VAC		400	
Fan & Fan Motor	Type			Propeller	
	Number ... Dia.			mm	1 ... ø 400
	Fan motor model ... Number			SG6-51B5P ... 1	
	No. of poles ... rpm (230 V, High)			6 ... 910	
	Nominal output			W	50
	Coil resistance (Ambient temp. 20°C)			Ω	WHT - BRN : 92.1 WHT - PNK : 196.4
	Safety devices	Type		Internal thermal fuse	
		Operating temp.	Open	°C	130 ± 8
			Close	Automatic reclosing	
	Run capacitor		μF		2.0
VAC			440		
Heat Exch. Coil	Coil			Aluminum plate fin / Copper tube	
	Rows			2	
	Fin pitch			mm	1.8
	Face area			m²	0.508
External Finish				Acrylic baked-on enamel finish	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit

SAP-C185Q5

Compressor	Type			Rotary (Hermetic)	
	Compressor model			C-2R170H5V 80817545	
	Nominal output			W	1,700
	Compressor oil ... Amount			cc	4GSD-T ... 800
	Coil resistance (Ambient temp. 25°C)			Ω	C - R : 1.35 C - S : 3.42
	Safety devices	Type		Internal type	
		Overload relay		—	
		Operating temp.	Open	°C	170 ± 5
			Close	°C	105 ± 11
	Operating amp.(Ambient temp. 25°C)			—	
Run capacitor		μF		40.0	
		VAC		400	
Fan & Fan Motor	Type			Propeller	
	Number ... Dia.			mm	1 ... ø 400
	Fan motor model ... Number			SG6S-51B5P ... 1	
	No. of poles ... rpm (230 V, High)			6 ... 910	
	Nominal output			W	50
	Coil resistance (Ambient temp. 20°C)			Ω	WHT - BRN : 89.1 WHT - YEL : 111.8 YEL - PNK : 55.9
	Safety devices	Type		Internal thermal fuse	
		Operating temp.	Open	°C	130 ± 8
			Close	Automatic reclosing	
	Run capacitor		μF		2.0
VAC			440		
Heat Exch. Coil	Coil			Aluminum plate fin / Copper tube	
	Rows			2	
	Fin pitch			mm	1.8
	Face area			m²	0.508
External Finish				Acrylic baked-on enamel finish	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit

SAP-C185QL5

Controller PCB		Part No.			POW-C181BL		
		Control circuit fuse			250V – 5 A		
Compressor	Type				Rotary (Hermetic)		
	Compressor model				C-2R170H5V 80817545		
	Nominal output				W	1,700	
	Compressor oil ... Amount				cc	4GSD-T ... 800	
	Coil resistance (Ambient temp. 25°C)				Ω	C – R : 1.35 C – S : 3.42	
	Safety devices	Type			Internal type		
		Overload relay			—		
		Operating temp.	Open	°C	170 ± 5		
			Close	°C	105 ± 11		
	Operating amp.(Ambient temp. 25°C)			—			
	Run capacitor				μF	40.0	
					VAC	400	
Crank case heater				240V 30W			
Fan & Fan Motor	Type				Propeller		
	Number ... Dia.				mm	1 ... ø400	
	Fan motor model ... Number				SG6-51B5P ... 1		
	No. of poles ... rpm (230 V, High)				6 ... 910		
	Nominal output				W	50	
	Coil resistance (Ambient temp. 20°C)				Ω	WHT – BRN : 92.1 WHT – PNK : 196.4	
	Safety devices	Type			Internal thermal fuse		
		Operating temp.	Open	°C	130 ± 8		
	Close			Automatic reclosing			
	Run capacitor				μF	2.0	
					VAC	440	
	Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube	
Rows				2			
Fin pitch				mm	1.8		
Face area				m ²	0.508		
External Finish					Acrylic baked-on enamel finish		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit

SAP-C225Q5

Compressor	Type			Rotary (Hermetic)		
	Compressor model			C-R221H5S 80687145		
	Nominal output			W	2,200	
	Compressor oil ... Amount			cc	4GSD-T ... 1,350	
	Coil resistance (Ambient temp. 25°C)			Ω	C – R : 0.78 C – S : 2.41	
	Safety devices	Type			External (OLR)	
		Overload relay			OL-D24	
		Operating temp.	Open	°C	150 ± 5	
			Close	°C	63 ± 10	
	Operating amp. (Ambient temp. 25°C)			Trip in 6 to 16 sec. at 59A		
Run capacitor				μF	40.0	
				VAC	400	
Crank case heater				240V 30W		
Fan & Fan Motor	Type			Propeller		
	Number ... Dia.			mm	1 ... ø 460	
	Fan motor model ... Number			KFC6S-51B5P ... 1		
	No. of poles ... rpm (230 V, High)			6... 860		
	Nominal output			W	50	
	Coil resistance (Ambient temp. 20°C)			Ω	WHT – BRN : 95.9 WHT – YEL : 55.4 YEL – PNK : 7.2	
	Safety devices	Type			Internal thermal fuse	
		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	1.9	
	Face area			m²	0.610	
External Finish				Acrylic baked-on enamel finish		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

2-3. Other Component Specifications

Indoor Unit **SAP-FT126QS5** **SAP-FT165QS5**
 SAP-FT185QS5 **SAP-FT225QS5**

Thermistor (Room sensor TH2)		KTEC-35-S6			
Resistance	kΩ	10°C	10.0 ± 4%	30°C	4.0 ± 4%
		15°C	7.9 ± 4%	35°C	3.3 ± 4%
		20°C	6.3 ± 4%	40°C	2.7 ± 4%
		25°C	5.0 ± 4%	50°C	1.8 ± 4%

Thermistor (Coil sensor TH1)		PBC-41E-S14			
Resistance	kΩ	-20°C	40.1 ± 5%	20°C	6.5 ± 5%
		-10°C	24.4 ± 5%	30°C	4.4 ± 5%
		0°C	15.3 ± 5%	40°C	3.0 ± 5%
		10°C	9.9 ± 5%	50°C	2.1 ± 5%

Transformer (TR)		ATR-H85	
Rating	Primary	AC 230V, 50/60Hz	
	Secondary	11V, 0.727A	
	Capacity	8VA	
Coil resistance	Ω (at 21°C)	Primary (WHT – WHT):	214 ± 10%
		Secondary (BRN – BRN):	1.58 ± 10%
Thermal cut-off temp.		145°C, 2A, 250V	

Outdoor Unit **SAP-C126Q5** **SAP-C165Q5** **SAP-C185Q5**

Power Relay (PR)		G7L-2A-TUB			
Coil rating		AC 200–240V, 50/60Hz			
Coil resistance		21 ± 15%			
Contact rating		AC 220V, 25A			

Thermostat (Fan Speed Control 23S)		MQT5S-27YZJ		
Switching temp.	°C	high	LOW	23.5°C ± 1.5
		low	HIGH	27.0°C ⁺⁰ ₋₃
Contact rating		AC 220V, 3A		

< Only for SAP-C126Q5 and C185Q5 >

Outdoor Unit **SAP–C126QL5** **SAP–C185QL5**

Solid State Relay (SSR)		G3L-205TL-TS1
Input		
	Rated voltage	DC 12V
	Control voltage range	DC 0V to 6.4V
	Load voltage range	AC 75V to 264V, 50Hz

Relay (1X)		MY2F-T1-USTS
Coil rating		DC 24V
Coil resistance	Ω (at 25°C)	650 ± 15%
Contact rating		AC 240V, 5A

Thermistor (Coil sensor TH3 / Air sensor TH4)		PBC-41E-S4 / PBC-41E-S8	
Resistance	kΩ		
		–20°C 40.1 ± 5%	20°C 6.5 ± 5%
		–10°C 24.4 ± 5%	30°C 4.4 ± 5%
		0°C 15.3 ± 5%	40°C 3.0 ± 5%
		10°C 9.9 ± 5%	50°C 2.1 ± 5%

Transformer (TR2)		ATR-J65	
Rating	Primary	AC 230V, 50Hz	
	Secondary	19V, 0.315A	
	Capacity	6VA	
Coil resistance	Ω (at 22°C)	Primary (WHT – WHT):	455 ± 10%
		Secondary (BRN – BRN):	2.85 ± 10%
Thermal cut-off temp.		145°C	

Power Relay (PR)		G7L-2A-TUB
Coil rating		AC 200–240V, 50/60Hz
Coil resistance	Ω (at 23°C)	21 ± 15%
Contact rating		AC 220V, 25A

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	

< Only for SAP–C126QL5 >

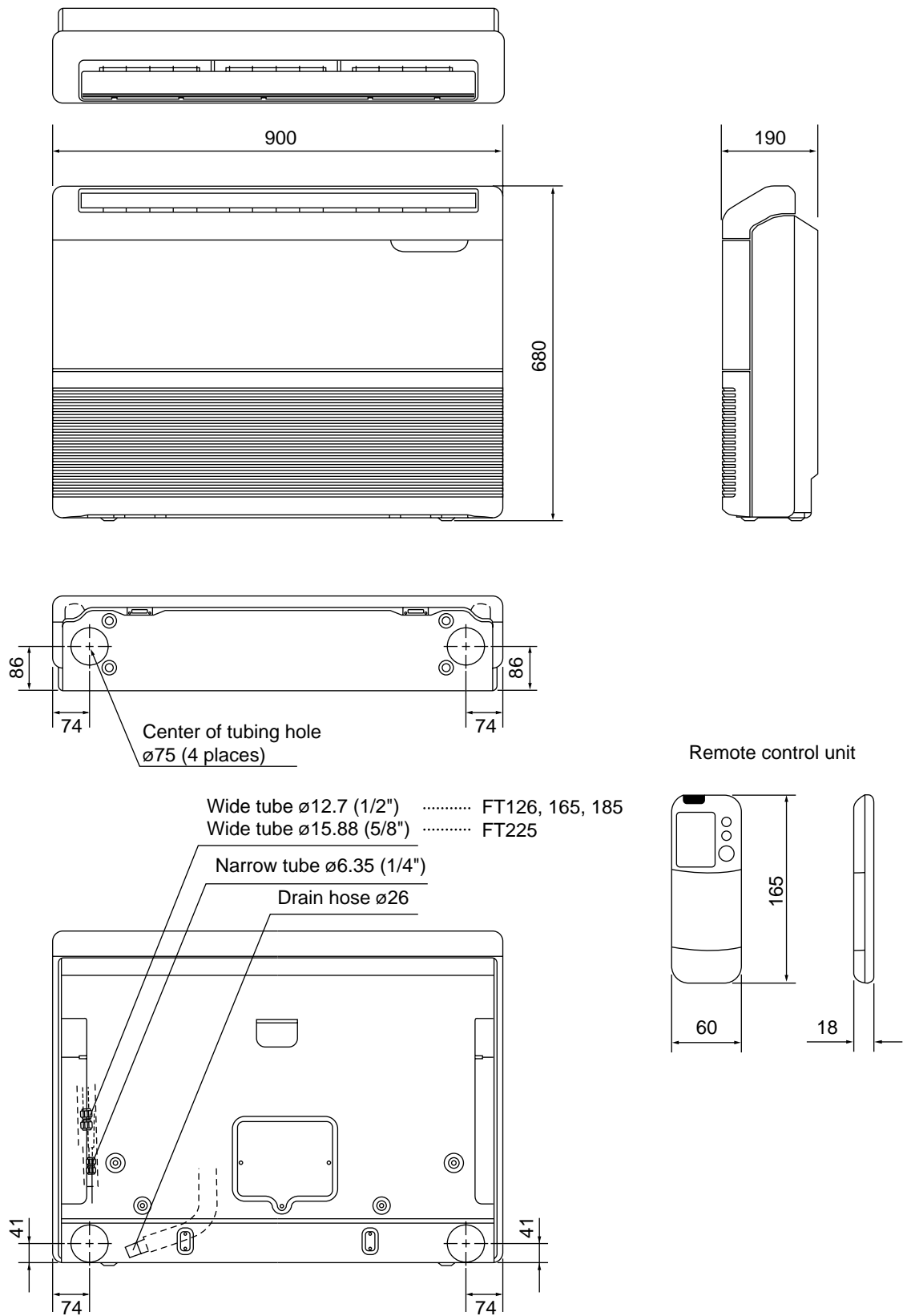
Outdoor Unit **SAP–C225Q5**

Thermostat (Fan Speed Control 23S)		YTB-S383	
Switching temp.	°C	high	LOW 28.5°C ± 1
		low	HIGH 31°C ± 1

Magnetic Contactor (MG)		HE-20FT31B
Coil rating		AC 220/240V, 50Hz
Coil resistance	Ω (at 25°C)	1,050 ± 15%
Contact rating (Main)		AC 220V, 20A

3. DIMENSIONAL DATA

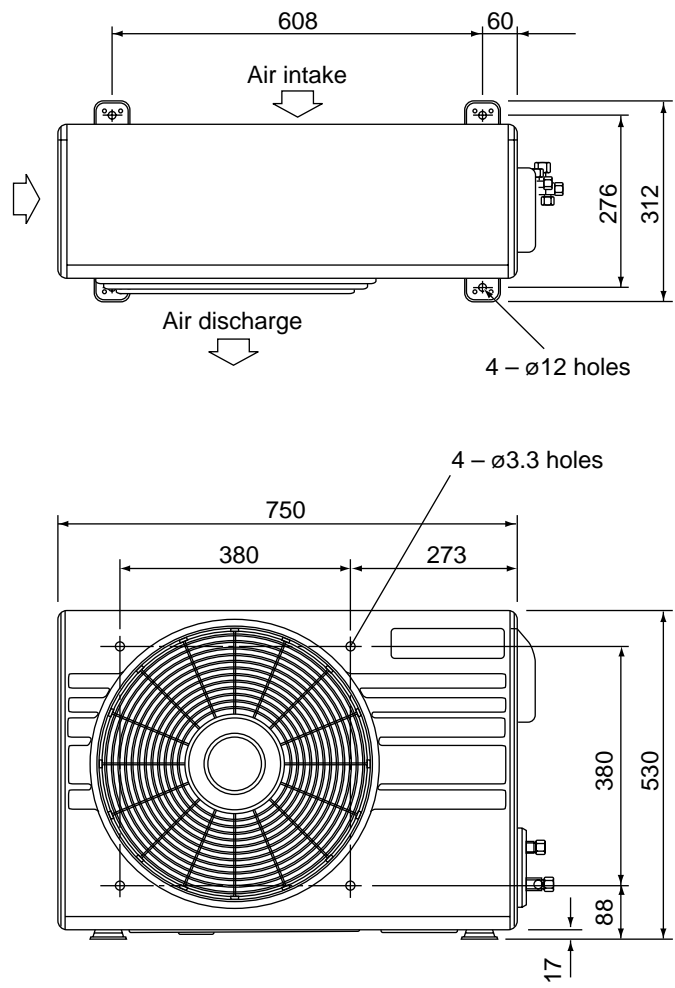
Indoor Unit	SAP-FT126QS5	SAP-FT165QS5
	SAP-FT185QS5	SAP-FT225QS5



Dimensions : mm

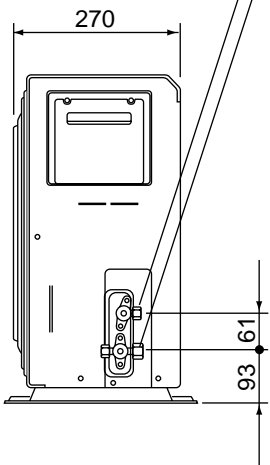
Outdoor Unit

SAP-C126Q5



Wide tube service valve
 $\phi 12.7$ (1/2")

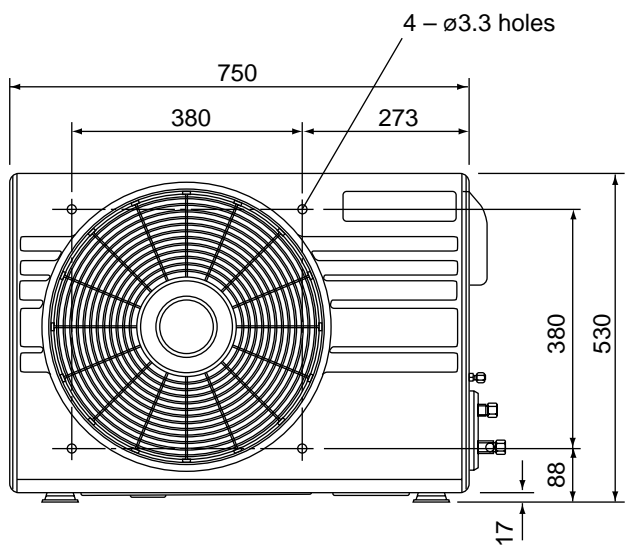
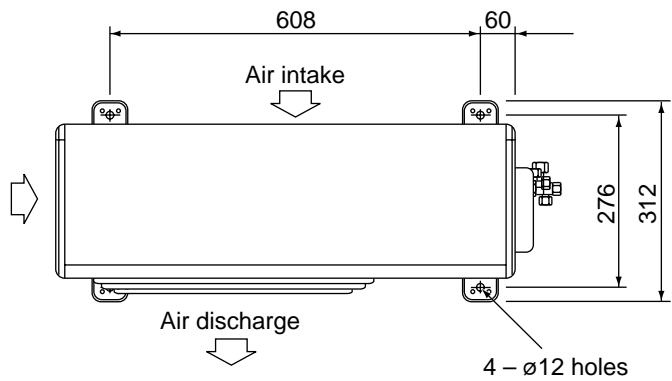
Narrow tube service valve
 $\phi 6.35$ (1/4")



Dimensions : mm

Outdoor Unit

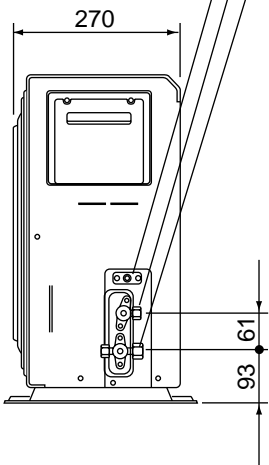
SAP-C126QL5



Wide tube service valve
 $\phi 12.7$ (1/2")

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

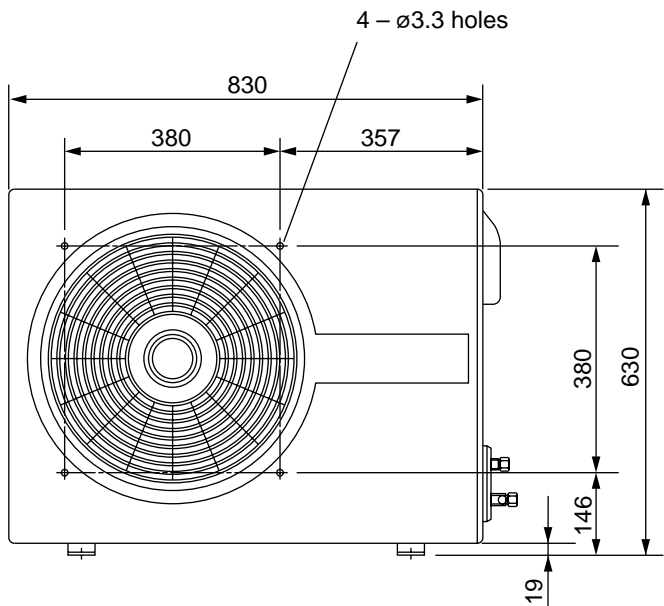
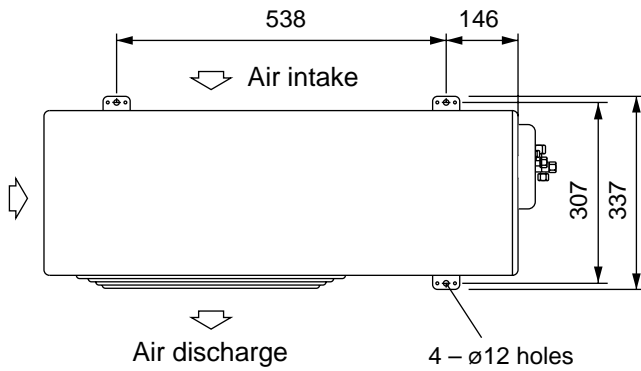
Check port $\phi 6.35$ (1/4")



Dimensions : mm

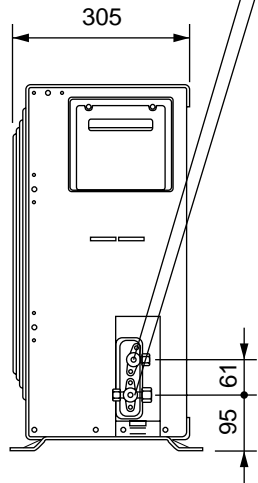
Outdoor Unit

SAP-C165Q5
SAP-C185Q5



Wide tube service valve
 $\varnothing 12.7$ (1/2")

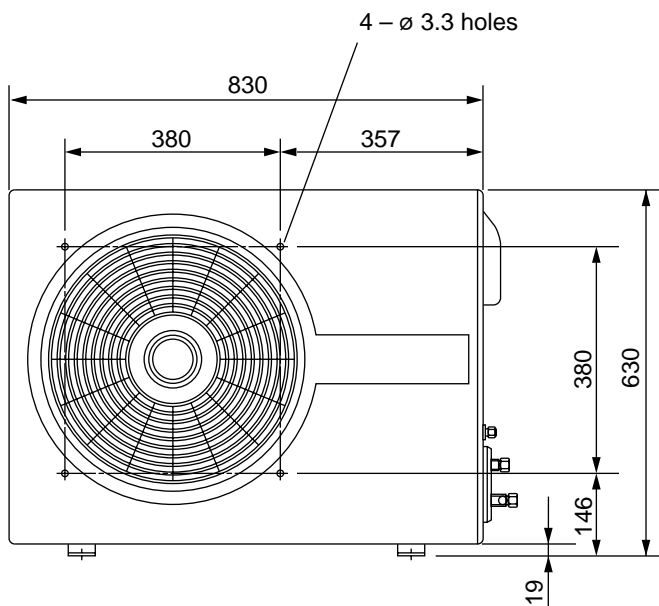
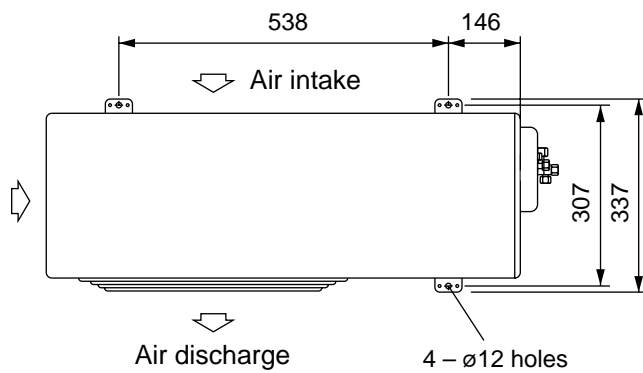
Narrow tube service valve
 $\varnothing 6.35$ (1/4")



Dimensions : mm

Outdoor Unit

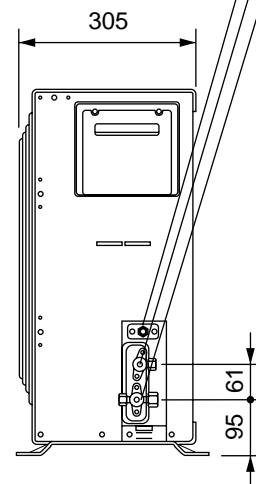
SAP-C185QL5



Wide tube service valve
 $\varnothing 12.7$ (1/2")

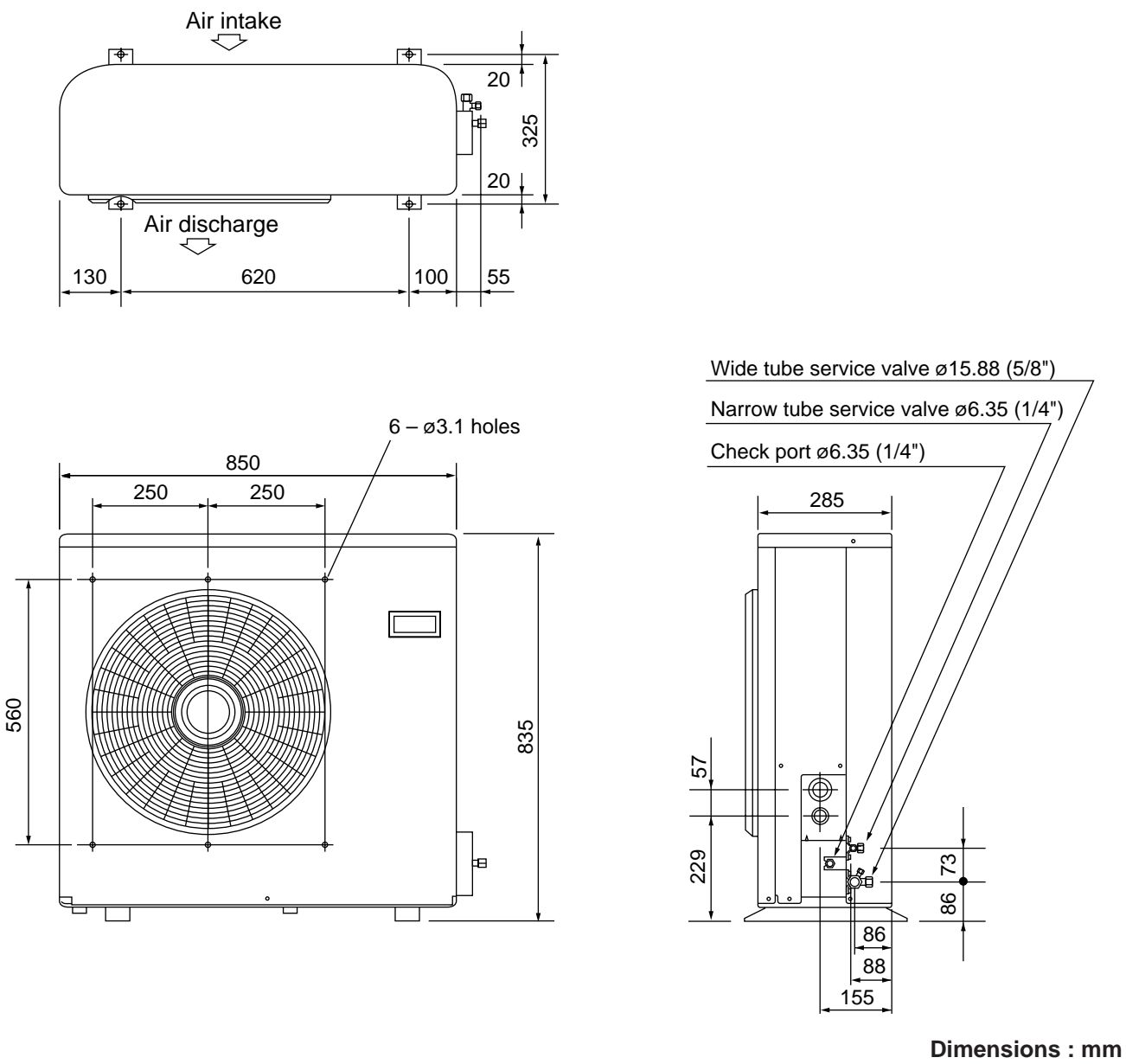
Narrow tube service valve
 $\varnothing 6.35$ (1/4")

Check port $\varnothing 6.35$ (1/4")



Dimensions : mm

Outdoor Unit **SAP-C225Q5**



4. PERFORMANCE CHARTS

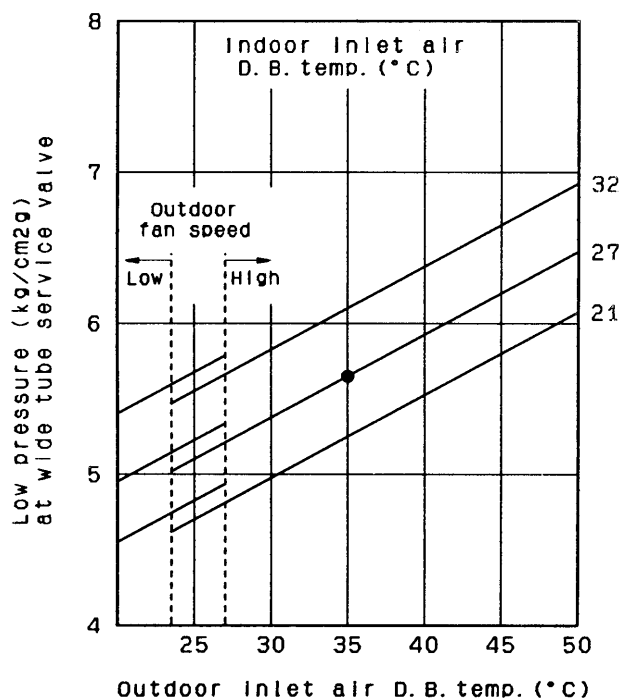
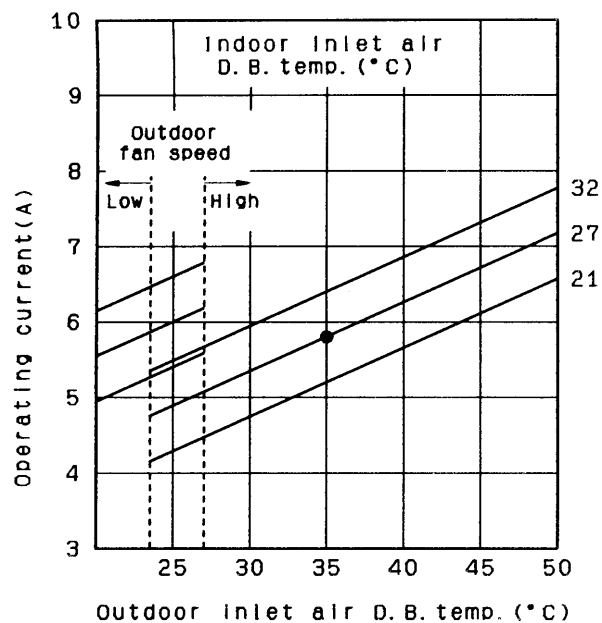
Indoor Unit

SAP-FT126QS5

Outdoor Unit

SAP-C126Q5

● Cooling characteristics



NOTE

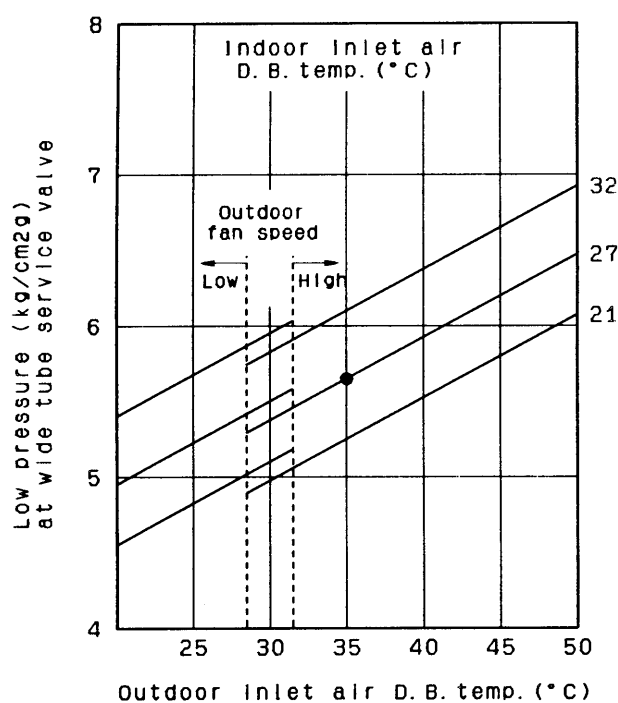
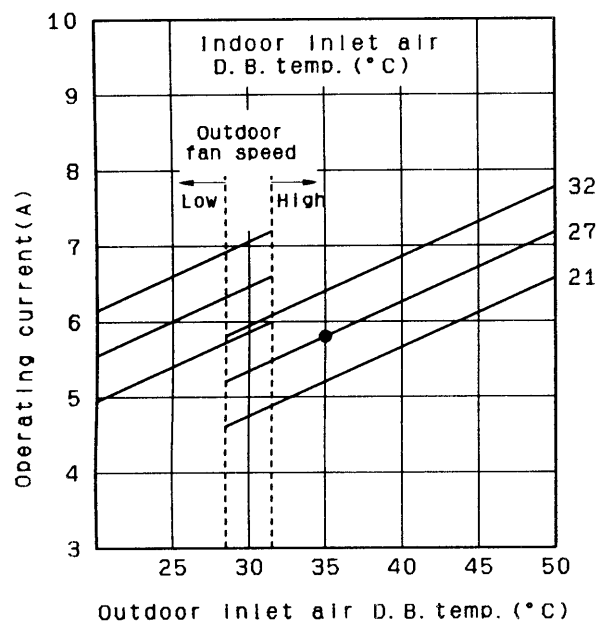
-Points of Rating condition

Black dots in above charts indicate the following rating conditions.

Indoor air temperature 27°C DB/19°C WB

Outdoor air temperature 35°C DB/24°C WB

● Cooling characteristics



NOTE

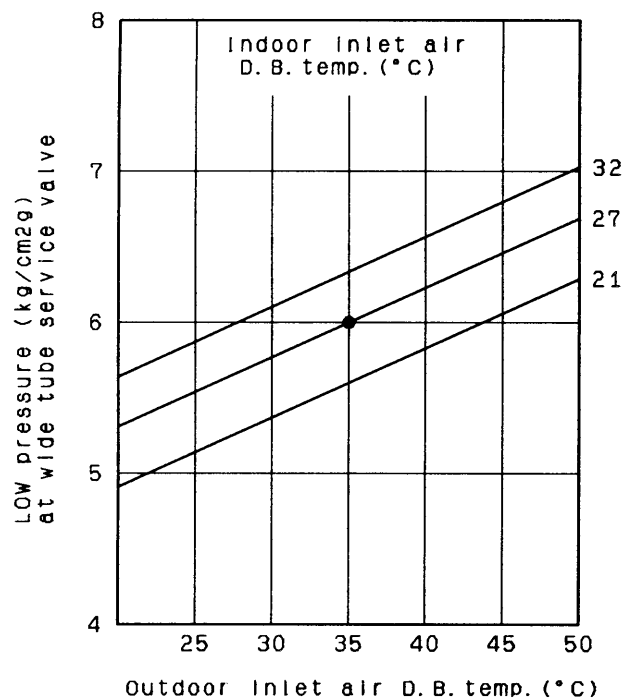
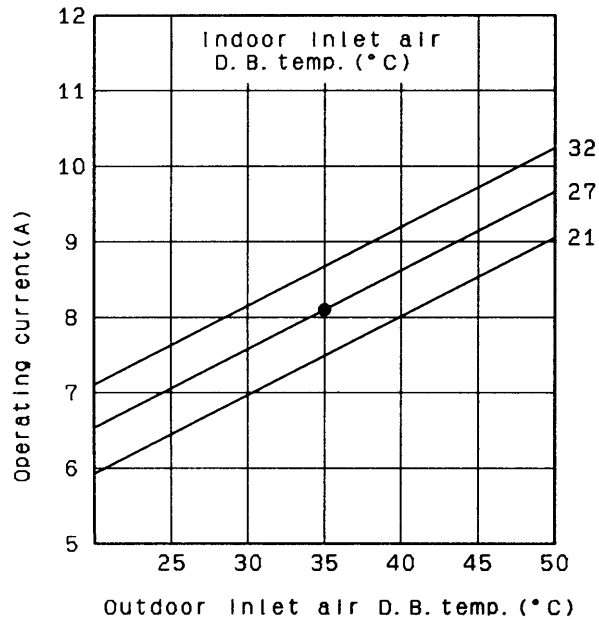
-Points of Rating condition

Black dots in above charts indicate the following rating conditions.

Indoor air temperature 27°C DB/19°C WB

Outdoor air temperature 35°C DB/24°C WB

● Cooling characteristics



NOTE

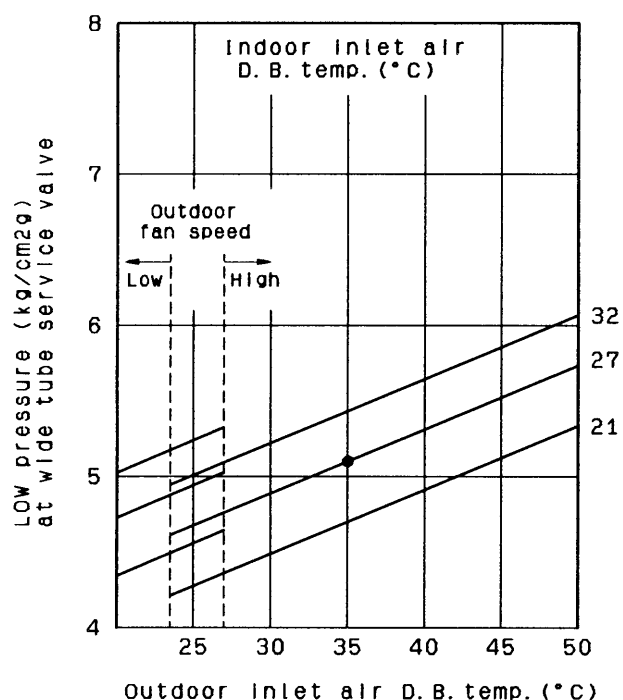
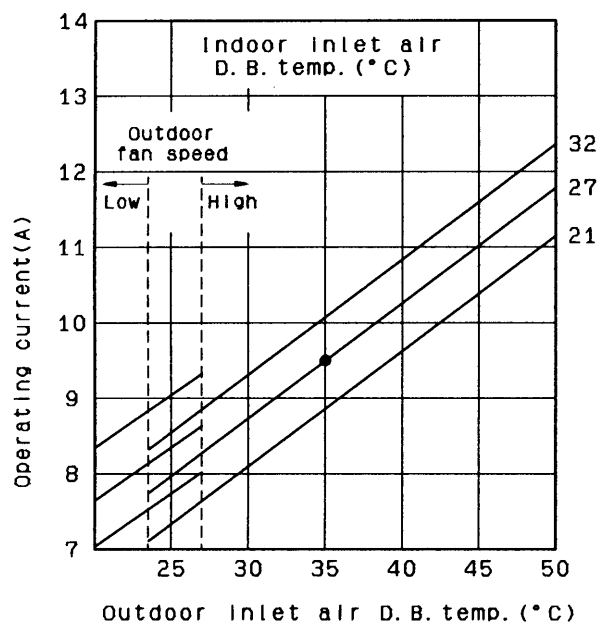
-Points of Rating condition

Black dots in above charts indicate the following rating conditions.

Indoor air temperature 27°C DB/19°C WB

Outdoor air temperature 35°C DB/24°C WB

● Cooling characteristics



NOTE

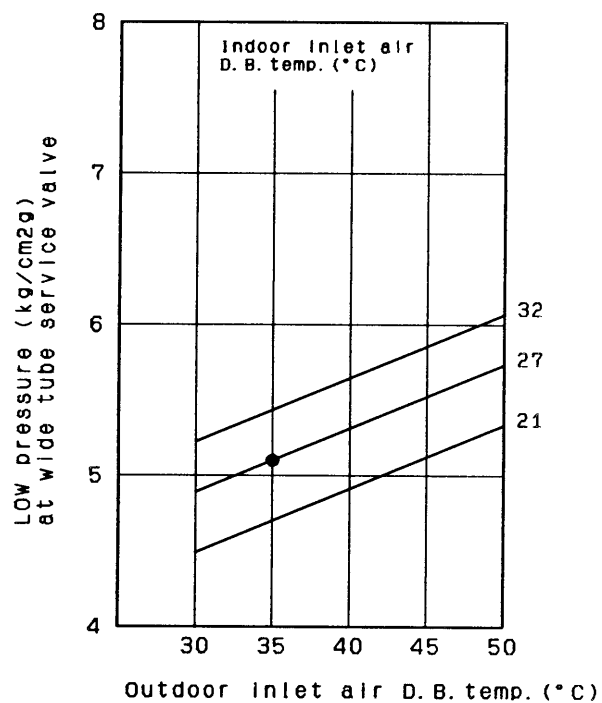
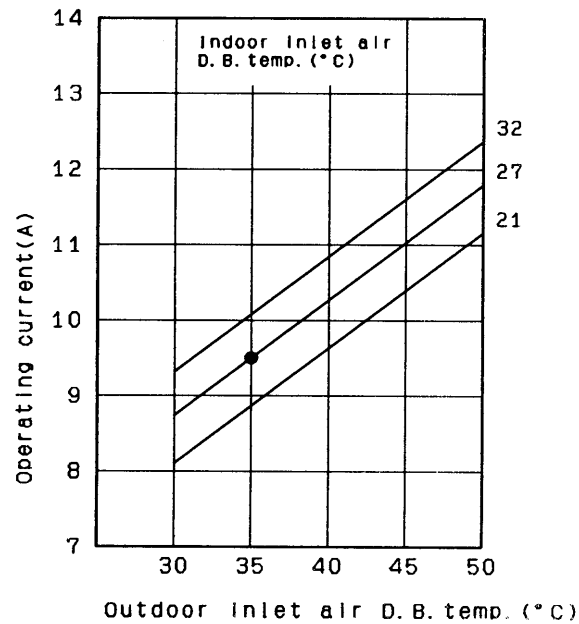
-Points of Rating condition

Black dots in above charts indicate the following rating conditions.

Indoor air temperature 27°C DB/19°C WB

Outdoor air temperature 35°C DB/24°C WB

● Cooling characteristics



NOTE

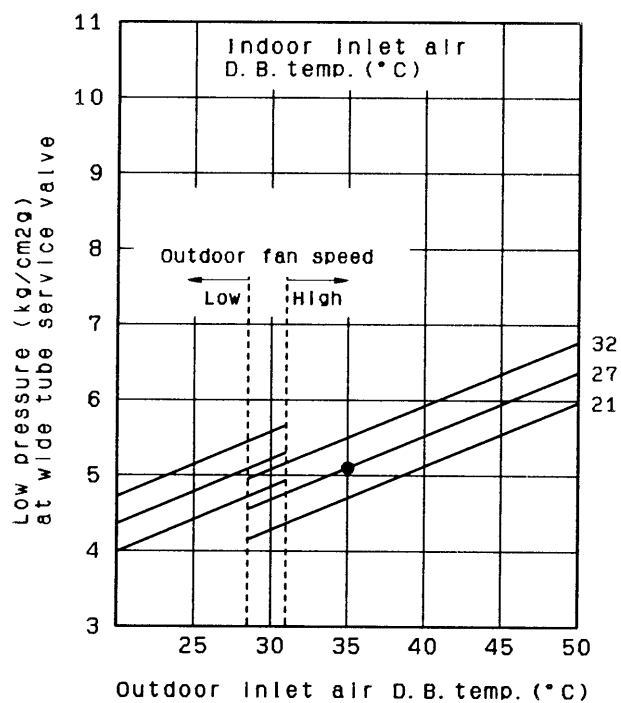
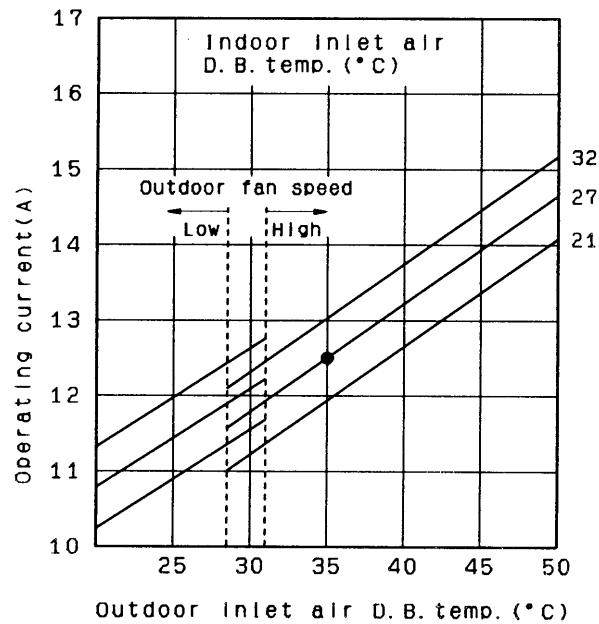
-Points of Rating condition

Black dots in above charts indicate the following rating conditions.

Indoor air temperature 27°C DB/19°C WB

Outdoor air temperature 35°C DB/24°C WB

● Cooling characteristics



NOTE

●Points of Rating condition

Black dots in above charts indicate the following rating conditions.

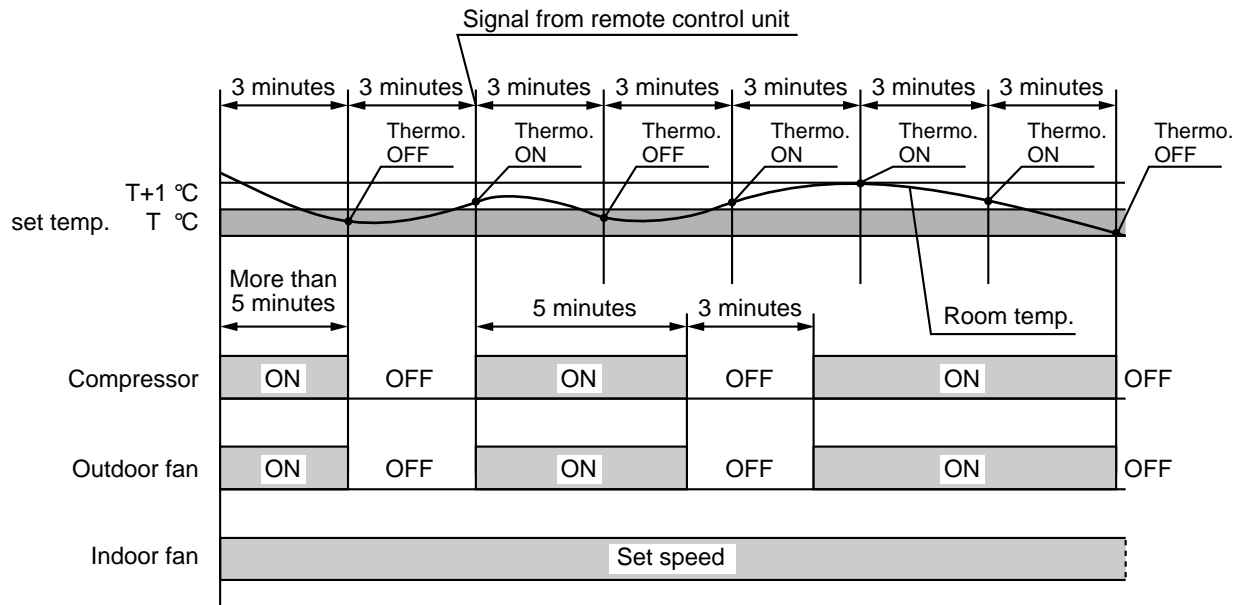
Indoor air temperature 27°C DB/19°C WB

Outdoor air temperature 35°C DB/24°C WB

5. FUNCTION

5-1. Room Temperature Control

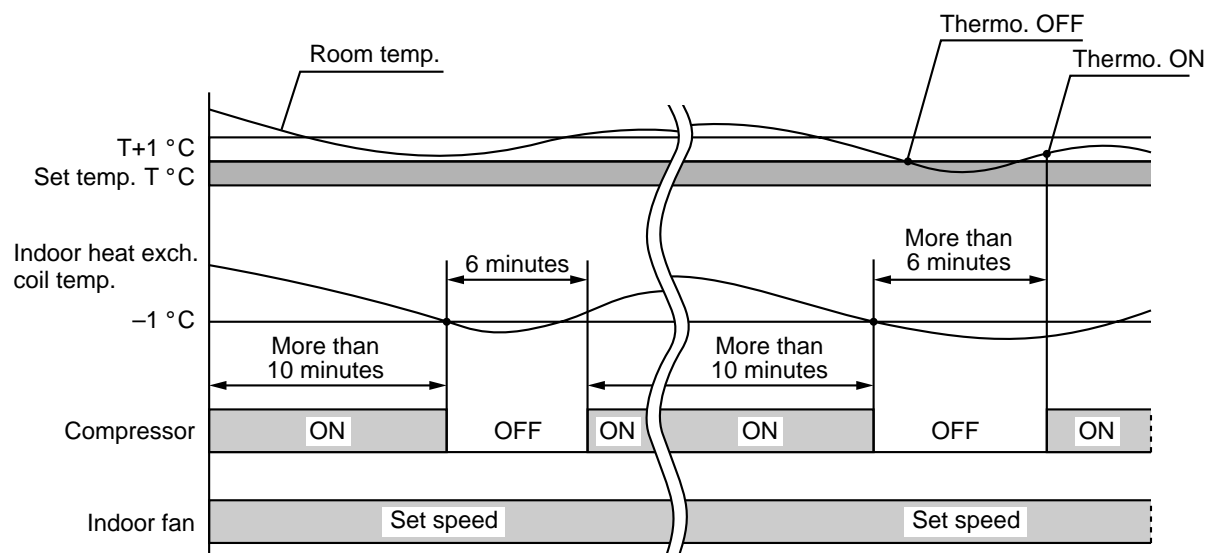
- Room temperature control is obtained by cycling the compressor ON and OFF under control of the room temperature sensor in the remote control unit.
- The room temperature (and other information) is transmitted every 3 minutes by the remote control unit to the controller in the indoor unit.



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

5-2. Freeze Prevention

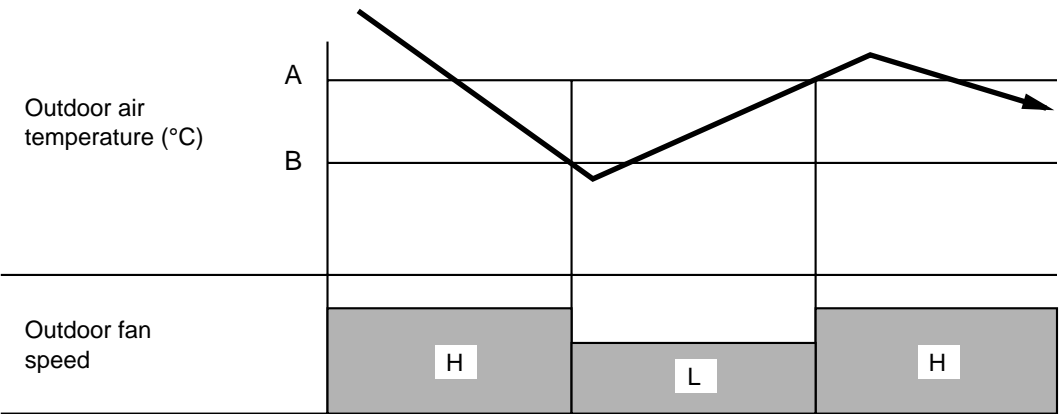
- This function prevents freezing of the indoor heat exchange coil.
- When the compressor has been running for 10 minutes or more and the temperature of the indoor heat exchange coil falls below -1°C , the control circuit stops the compressor for at least 6 minutes. The compressor does not start again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



5-3. Outdoor Fan Speed Control

5-3-1. Switching to either HIGH or LOW speed (Except SAP–C165Q5 and C185QL5)

- To optimize performance of the air conditioner, the outdoor fan speed is switched automatically either to HIGH or LOW speed according to the outdoor temperature detected by the thermostat (23S).
- If the outdoor air temperature falls below **B**°C, the fan speed switches to LOW.
- If the outdoor air temperature rises above **A**°C, the fan speed switches to HIGH.



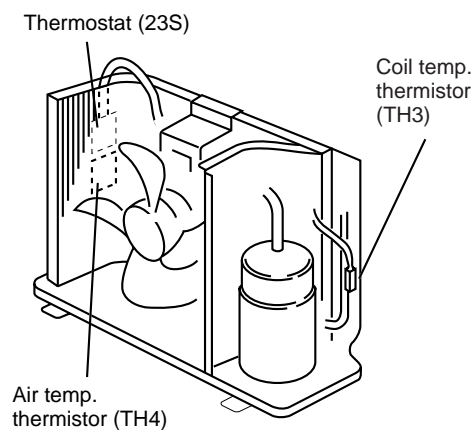
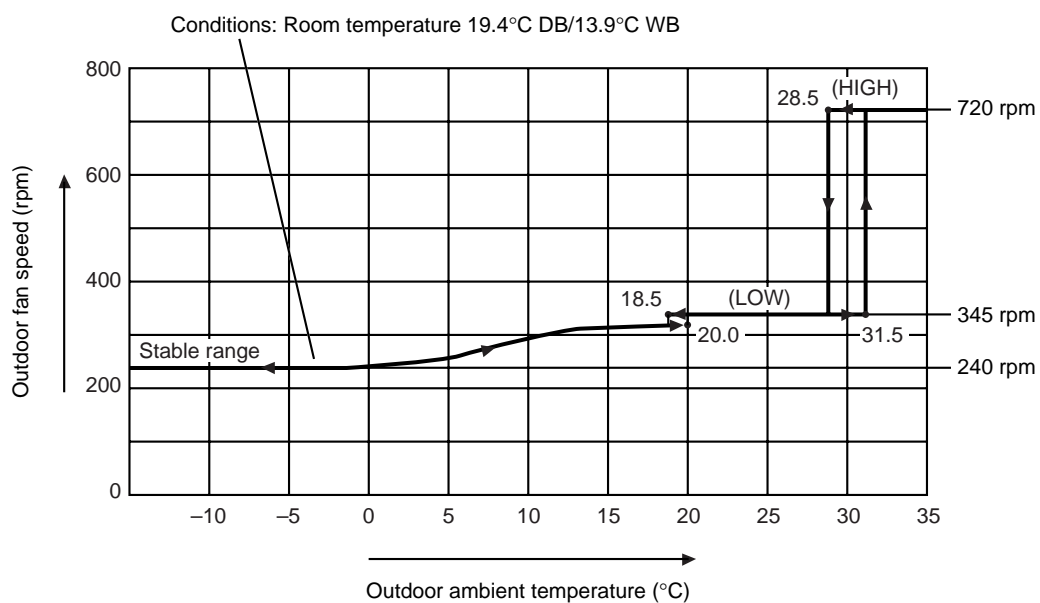
NOTE The operating temperature shown as **A** and **B** in the chart differ by models.

Models	A	B
SAP–C126Q5, C185Q5,	27.0°C	23.5°C
SAP–C126QL5	31.5°C	28.5°C
SAP–C225Q5	31.0°C	28.5°C

5-3-2. Low ambient fan speed control

< For SAP-C126QL5 >

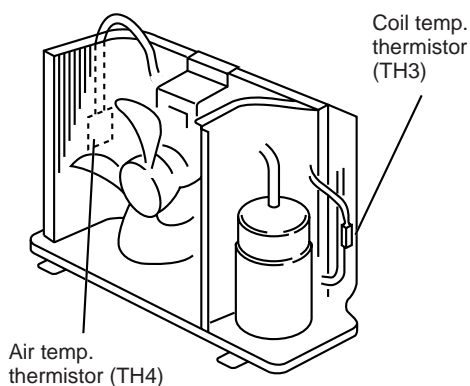
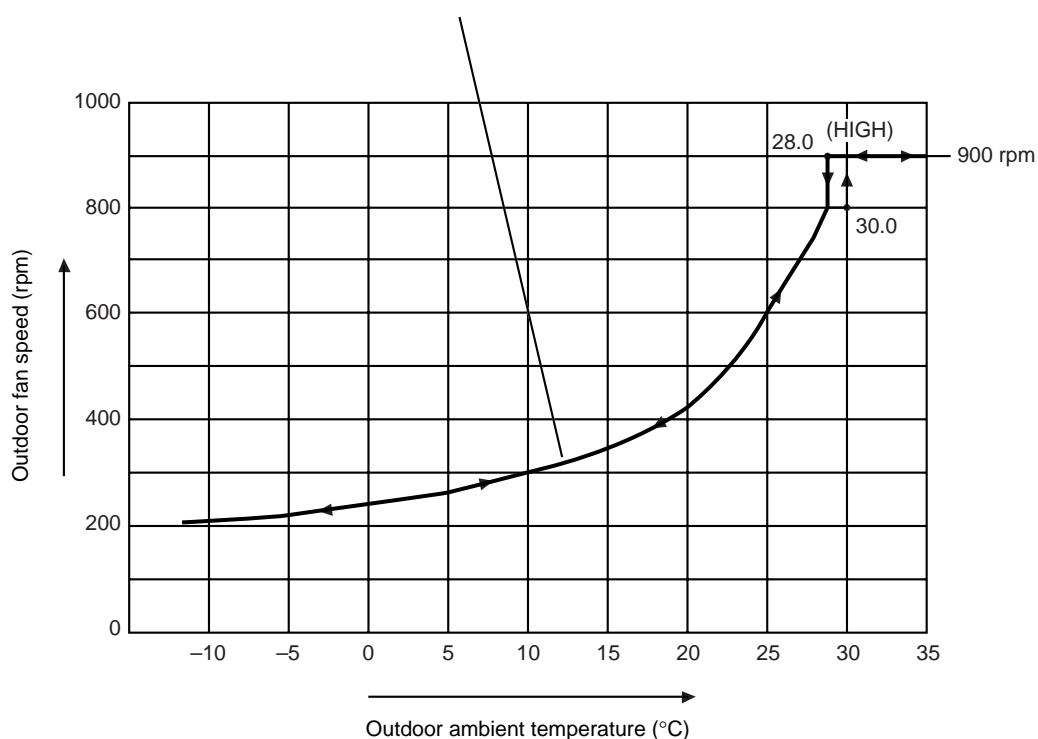
- This function protects the compressor from being damaged due to flowback of the liquid refrigerant to the compressor when the outdoor temperature is very low.
- When the air temp. thermistor (TH4) on the outdoor units detects a change in temperature, the solid state relay (SSR) inside the electrical component box activates to control the fan speed accordingly.
- As the outdoor temperature decreases and drops below 18.5°C, the outdoor fan speed starts to gradually slow down following an oblique line as in the diagram below.
- Outdoor fan speed changes more or less according to the room temperature.
- When the outdoor temperature goes above 20°C, the outdoor fan speed changes to LOW and will maintain the LOW condition until 31.5°C is reached.



< For SAP-C185QL5 >

- This function protects the compressor from being damaged due to flowback of the liquid refrigerant to the compressor when the outdoor temperature is very low.
- When the air temp. thermistor (TH4) on the outdoor units detects a change in temperature, the solid state relay (SSR) inside the electrical component box activates to control the fan speed accordingly.
- As the outdoor temperature decreases and drops below 28.0°C, the outdoor fan speed starts to gradually slow down following an oblique line as in the diagram below.
- Outdoor fan speed changes more or less according to the room temperature.
- When the outdoor temperature goes above 30.0°C, this fan speed control does not work.

Conditions: Room temperature 19.4°C DB/13.9°C WB



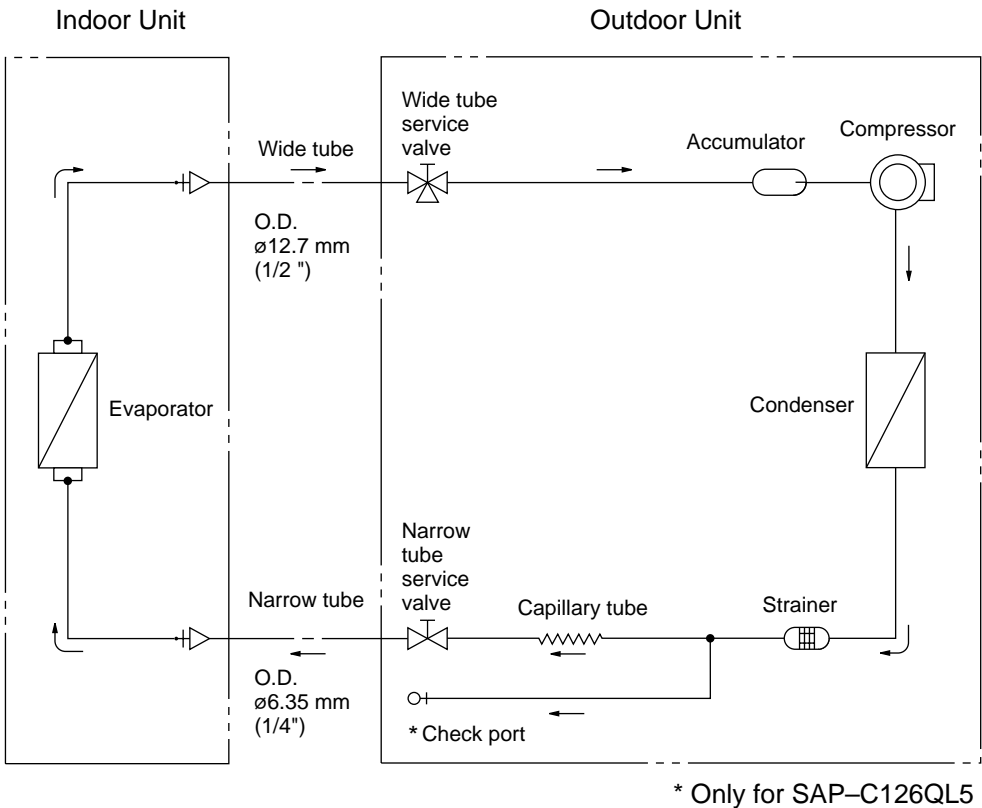
6. REFRIGERANT FROW DIAGRAM

Indoor Unit

SAP-FT126QS5

Outdoor Unit

SAP-C126Q5
SAP-C126QL5

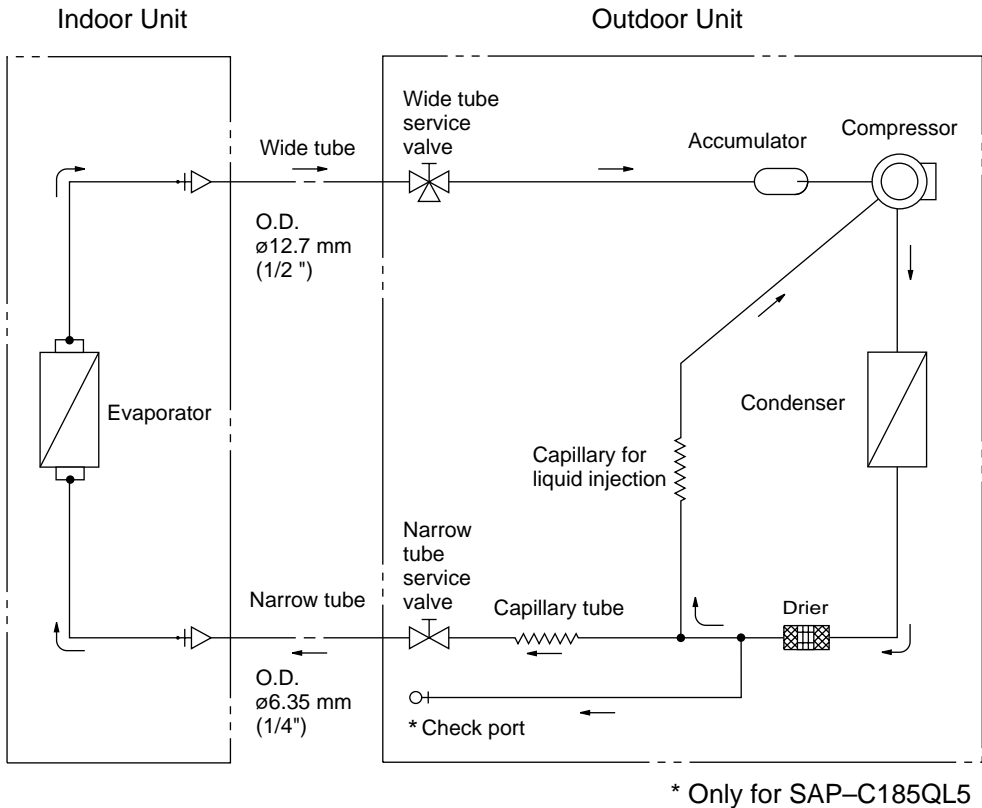


Indoor Unit

SAP-FT165QS5
SAP-FT185QS5

Outdoor Unit

SAP-C165Q5
SAP-C185Q5
SAP-C185QL5

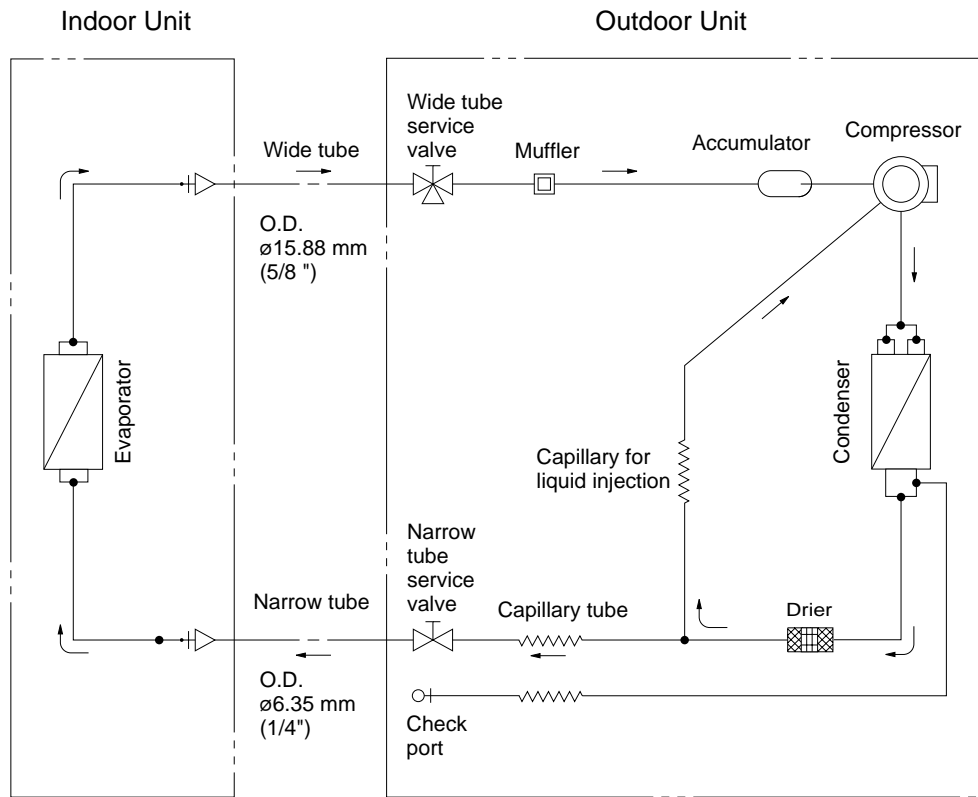


Indoor Unit

SAP-FT225QS5

Outdoor Unit

SAP-C225Q5



7. ELECTRIC WIRING DIAGRAMS

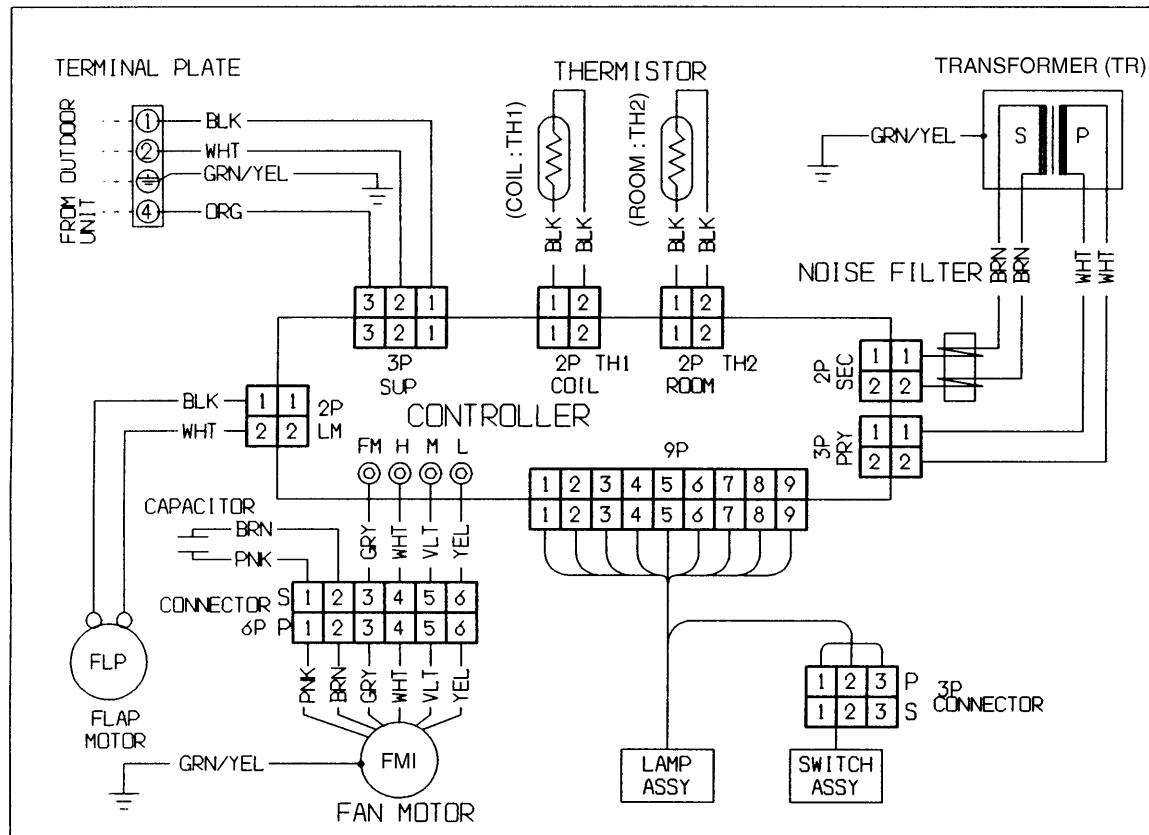
Indoor unit

SAP-FT126QS5
SAP-FT165QS5
SAP-FT185QS5
SAP-FT225QS5



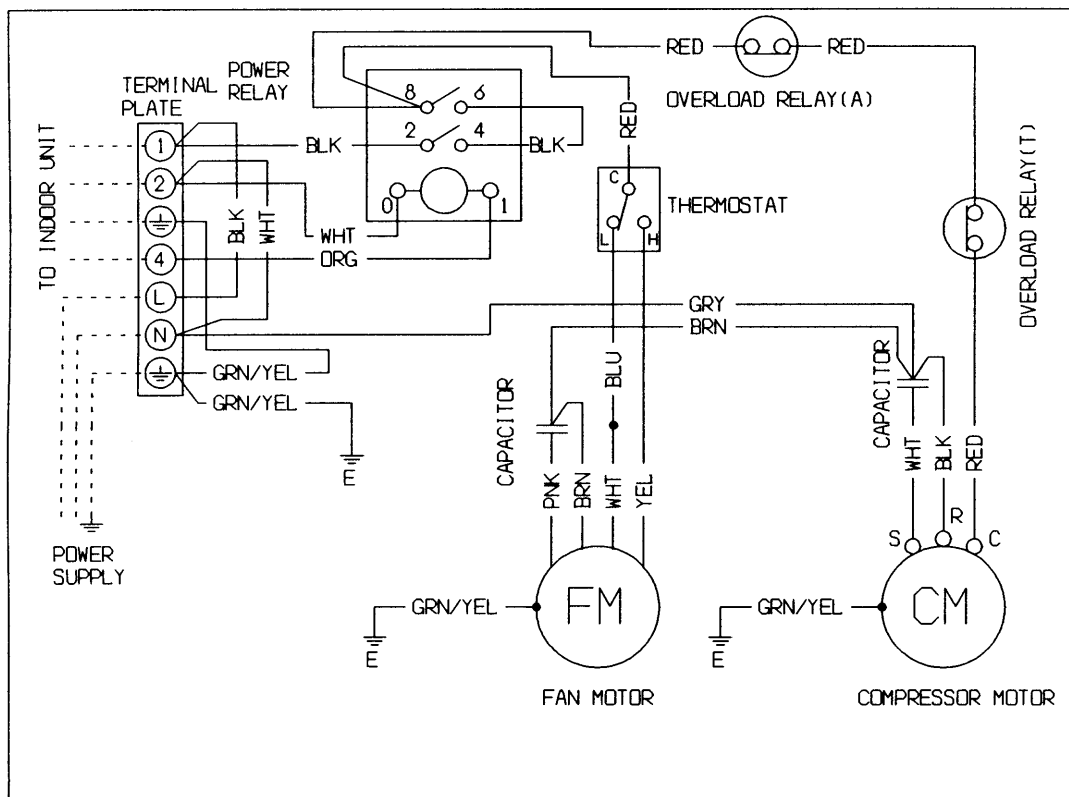
WARNING

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



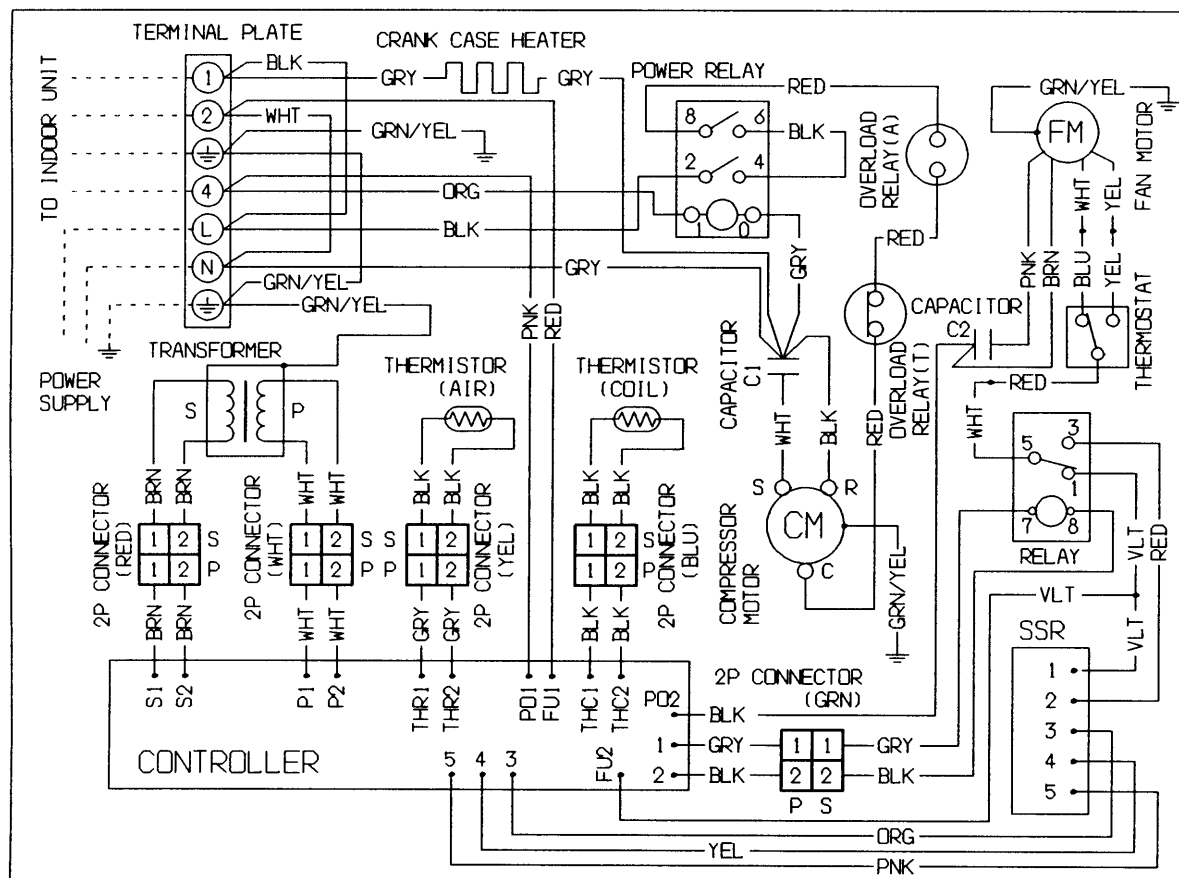
**WARNING**

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



**WARNING**

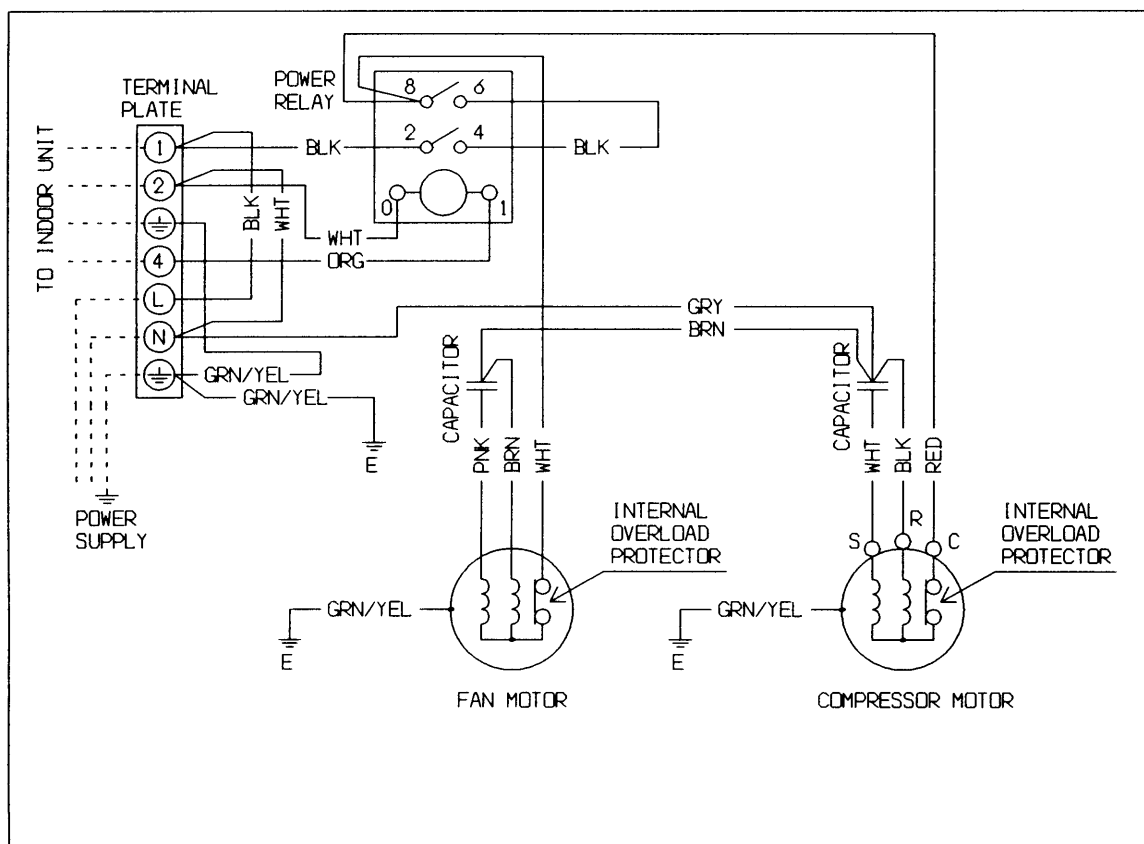
To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.





WARNING

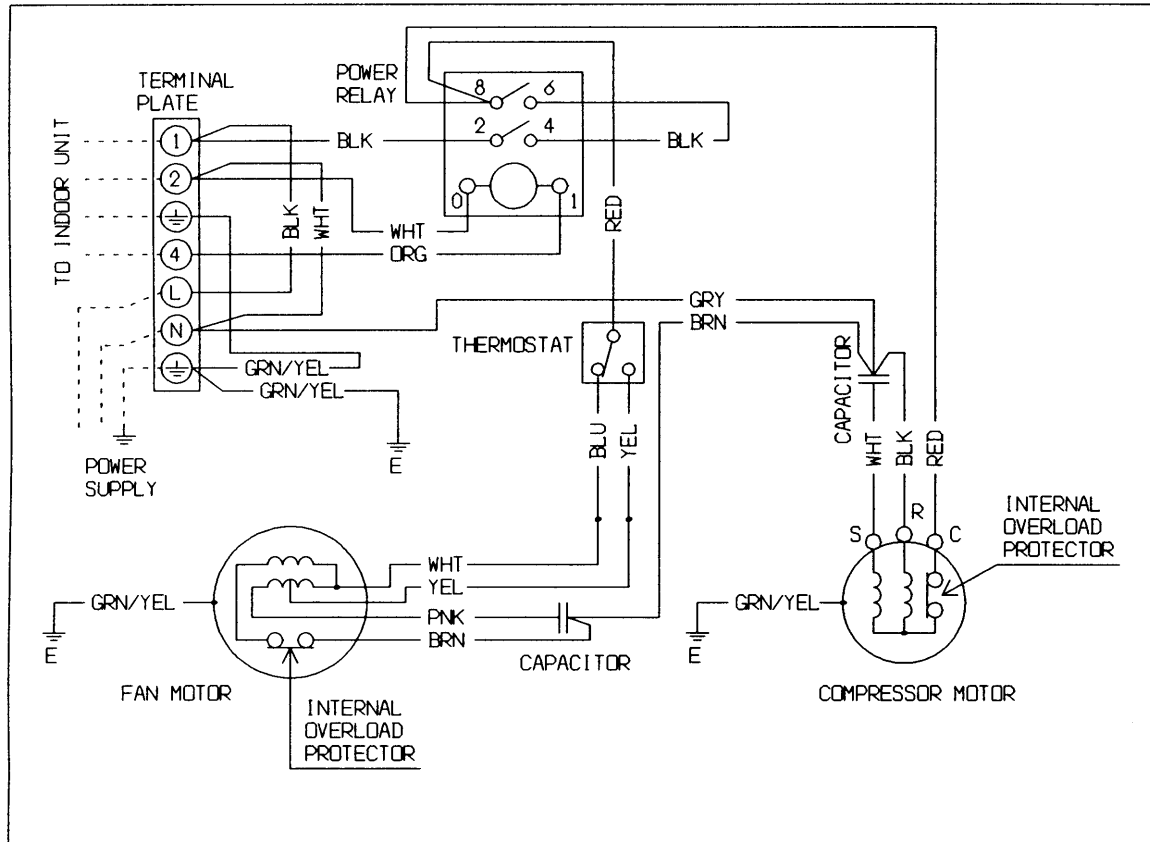
To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.





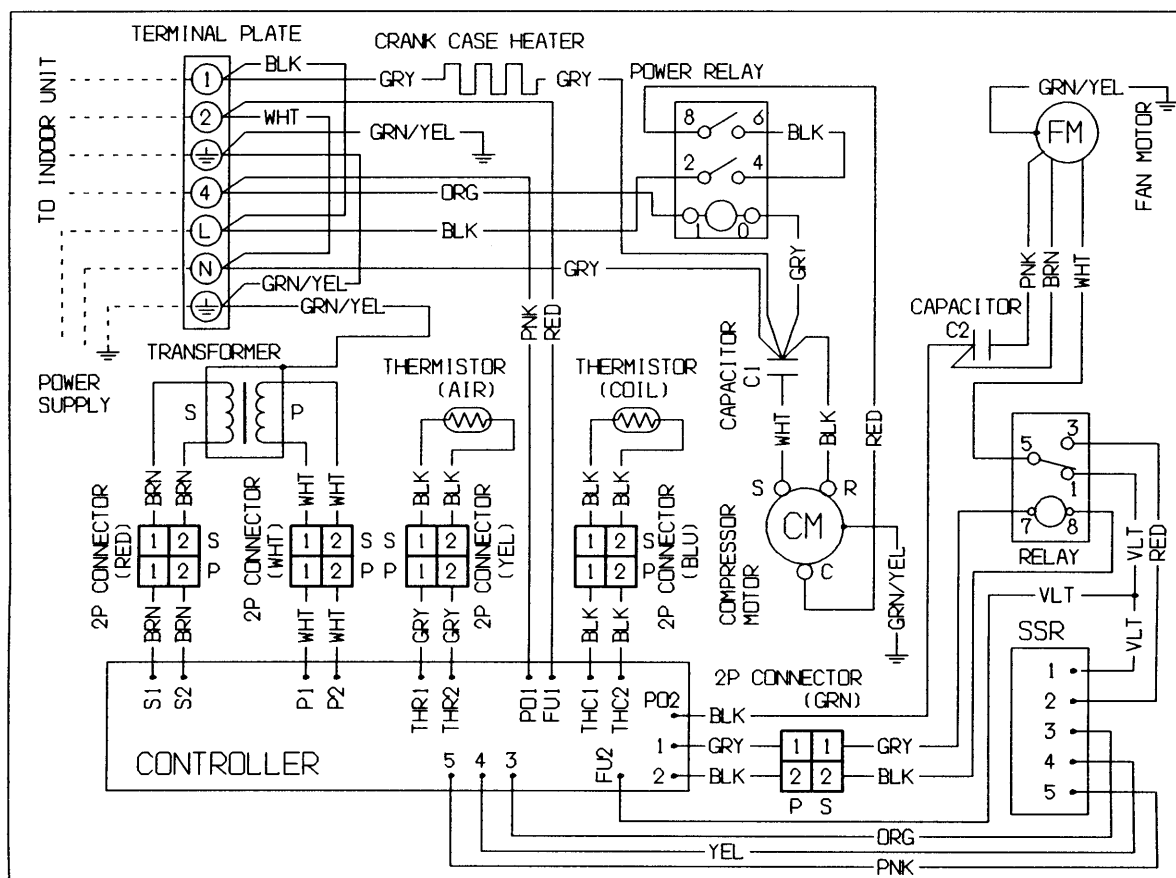
WARNING

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



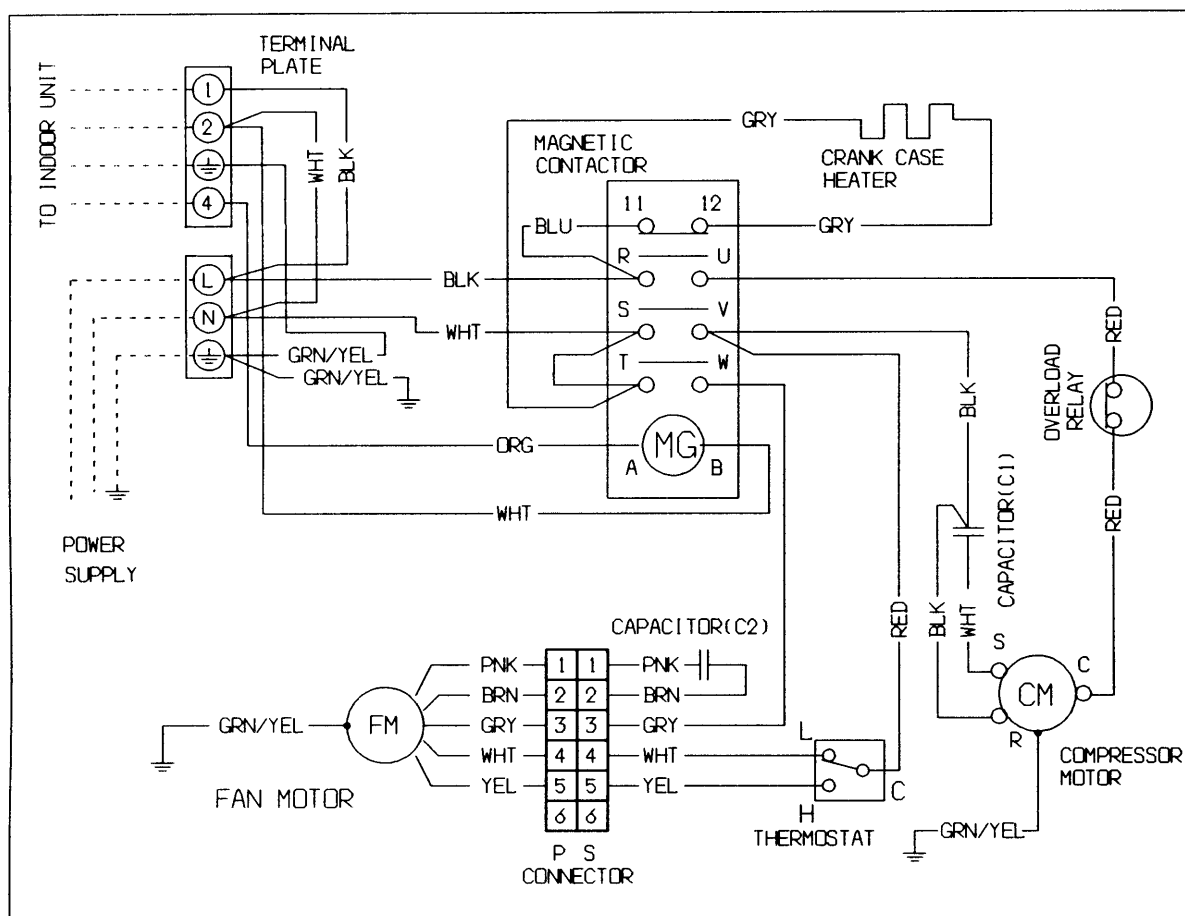
**WARNING**

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



**WARNING**

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



8. TROUBLESHOOTING

8-1. Check before and after troubleshooting



WARNING

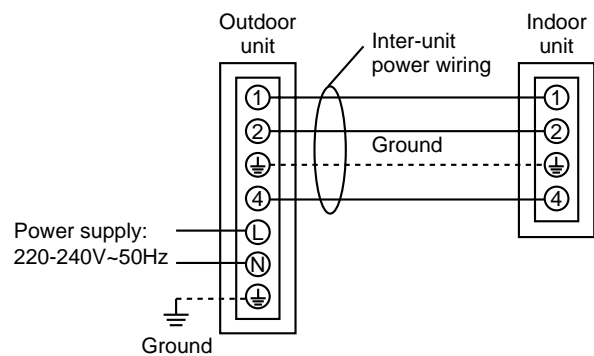
Hazardous voltage can cause **ELECTRIC SHOCK** or **DEATH**. Disconnect power or turn off circuit breaker before you start checking or servicing.

SAP-C126Q5, QL5
SAP-C165Q5
SAP-C185Q5, QL5

SAP-FT126QS5
SAP-FT165QS5
SAP-FT185QS5

8-1-1. Check power supply wiring.

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



8-1-2. Check inter-unit wiring.

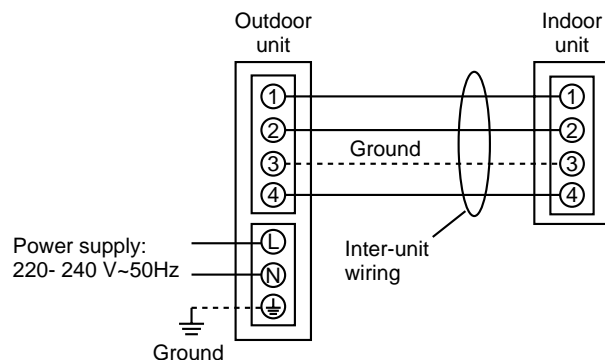
- Check that inter-unit wiring is correctly connected to the indoor unit from the outdoor unit.

SAP-C225Q5

SAP-FT225QS5

8-1-3. Check power supply.

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



8-1-4. 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.

8-2. Air conditioner does not operate.

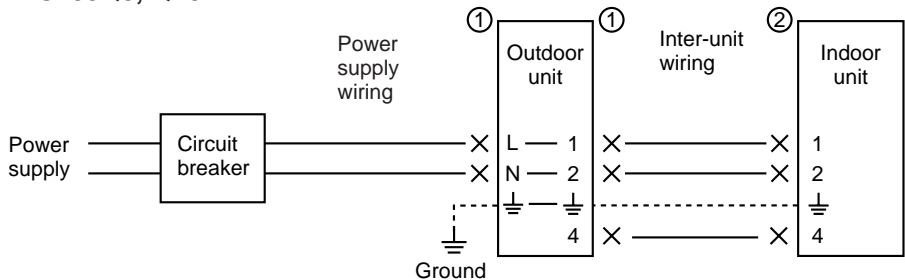
8-2-1. Circuit breaker trips (or fuse blows).

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

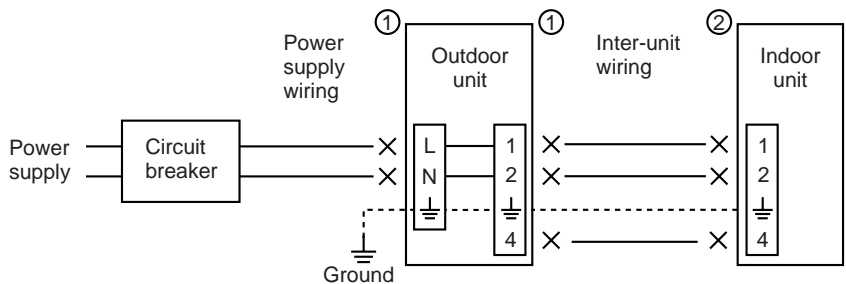
- There is a possibility of ground fault.
- Check insulation resistance.

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

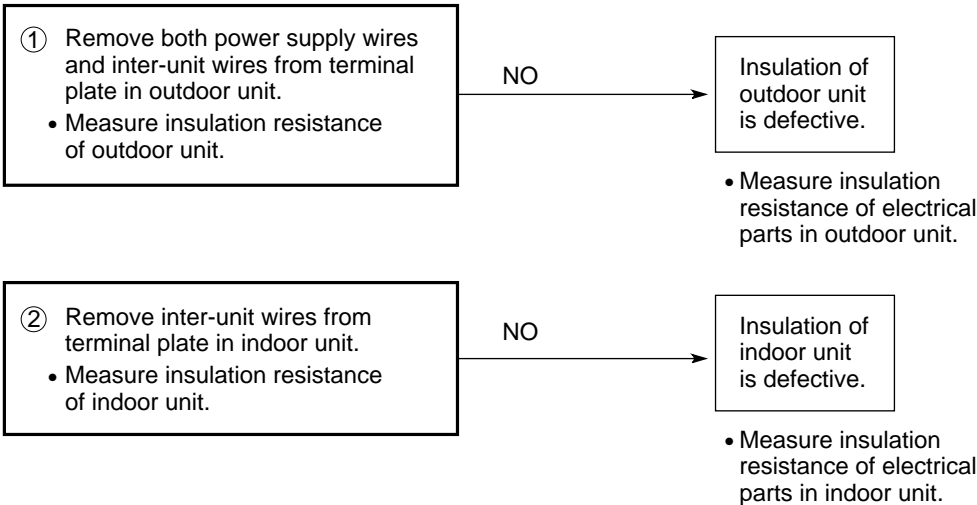
SAP–C126Q5, QL5
SAP–C165Q5
SAP–C185Q5, QL5



SAP–C225Q5

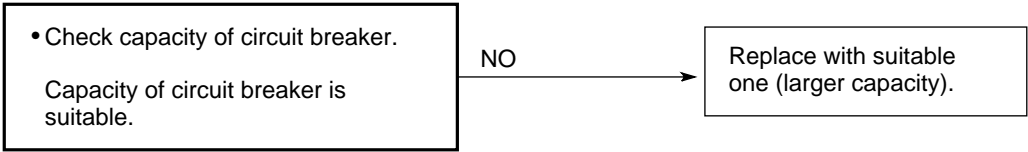


*Set circuit breaker to OFF.

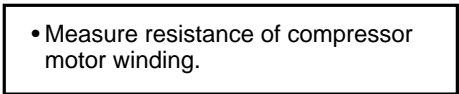
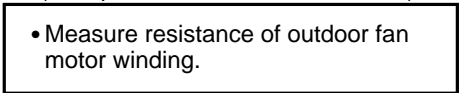


B. Circuit breaker trips in several minutes after turning the air conditioner on.

- There is a possibility of short circuit.

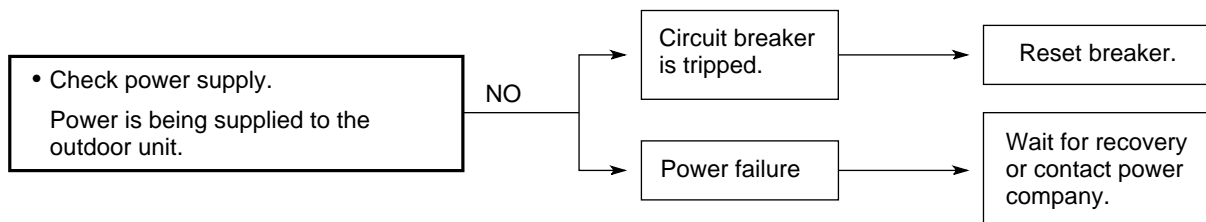


(Except for models SAP–CxxxQL5)

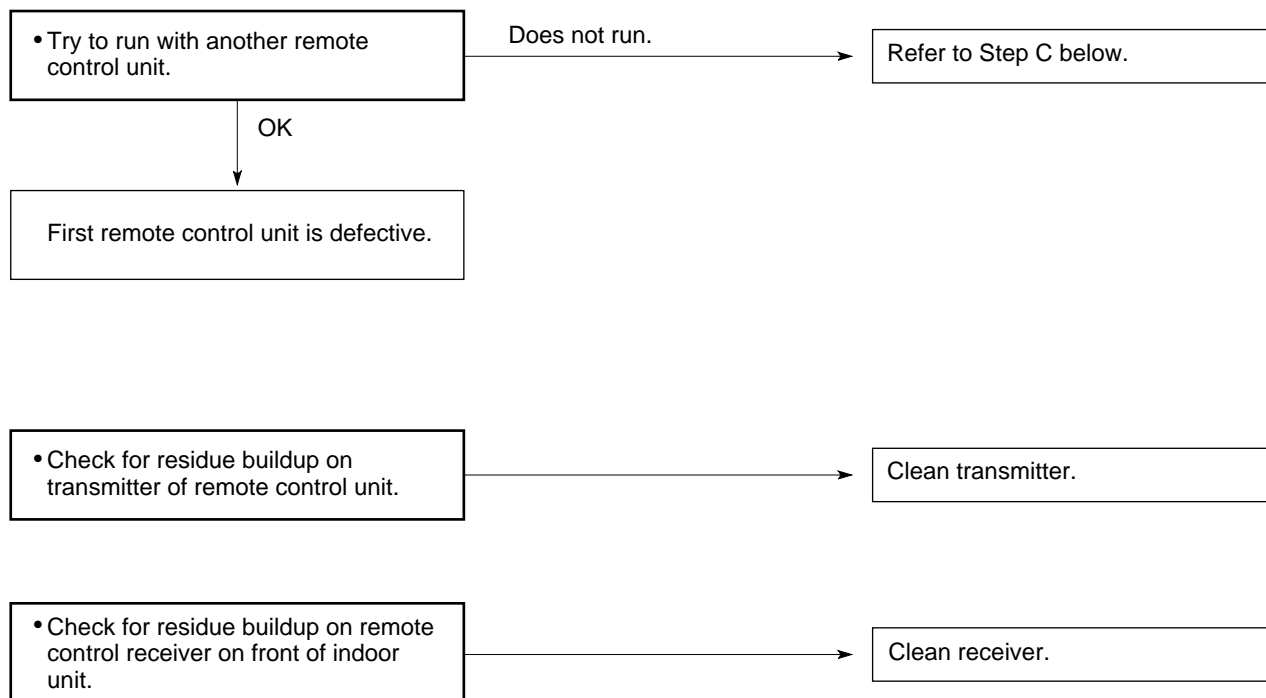


8-2-2. Neither indoor nor outdoor unit runs.

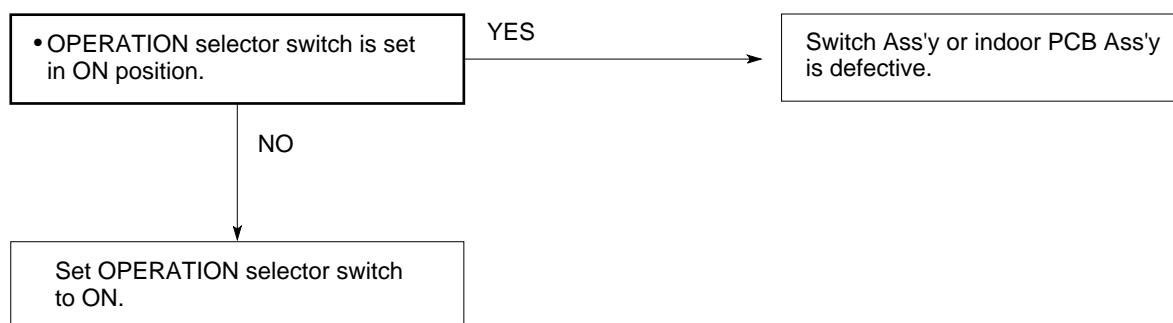
A. Power is not supplied.



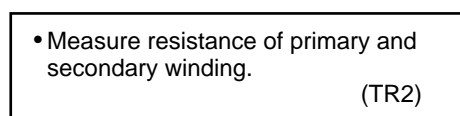
B. Check remote control unit.



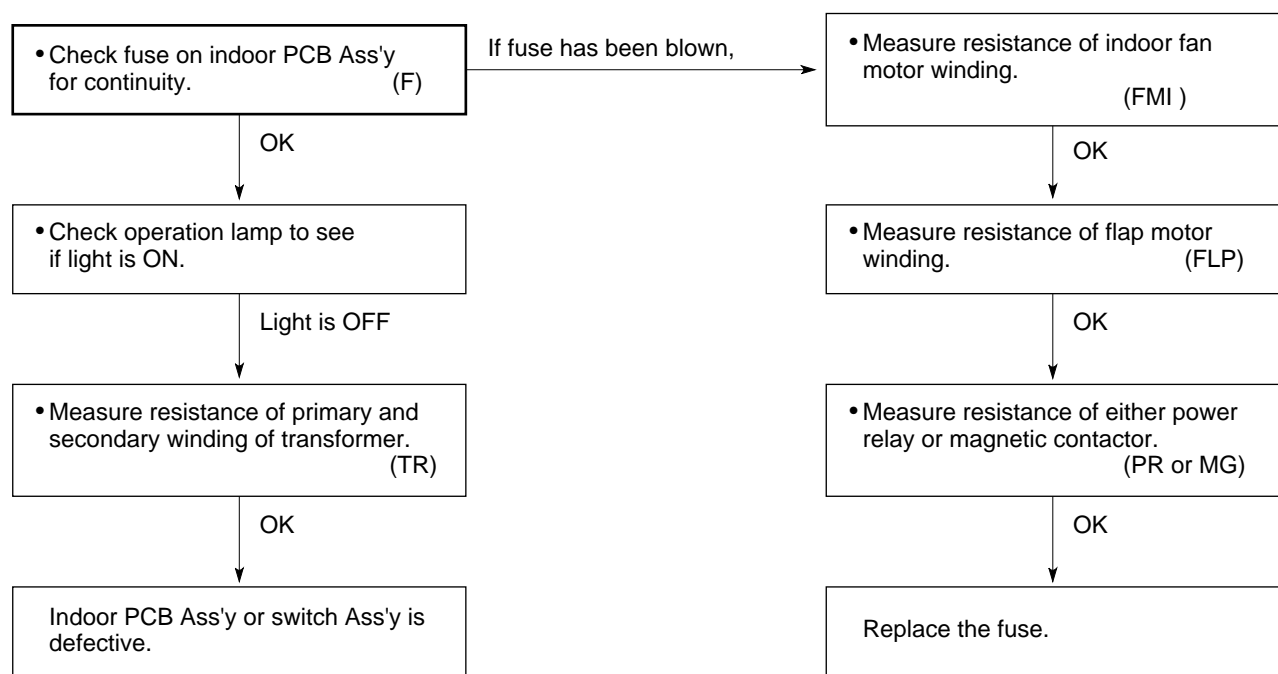
C. Check "OPERATION selector" switch in the indoor unit.



D. Check transformer in indoor unit.



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

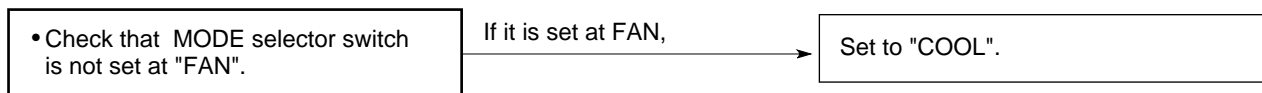


F. Check TIMER on the remote control unit.



8-2-3. Only outdoor unit does not run.

A. Check MODE selector switch of remote control unit.

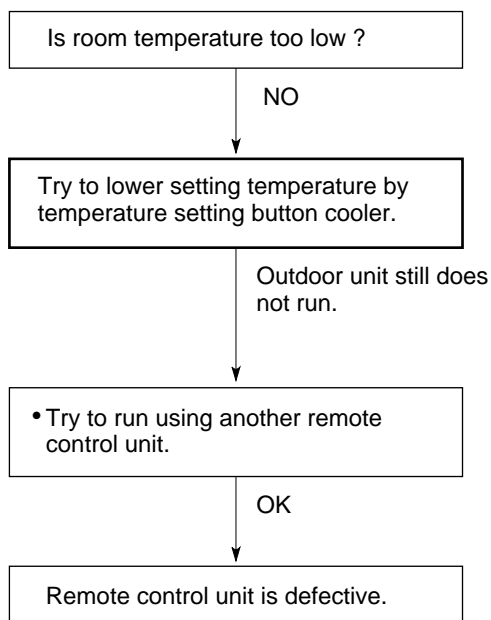


NOTE

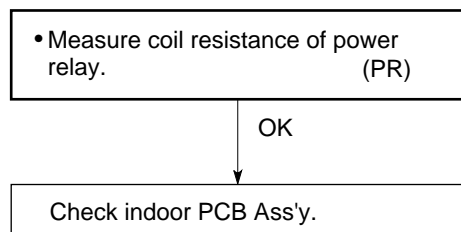
Outdoor unit does not run when air conditioner is in following conditions.

- During thermo OFF (when the room temperature is below the set temperature).
- During freeze prevention (for at least 6 minutes).

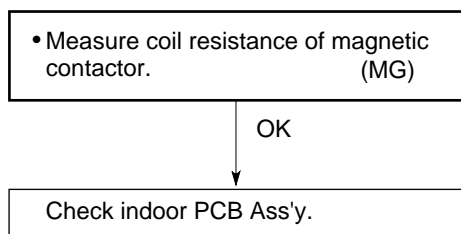
B. Check setting temperature.



C. Check power relay in outdoor unit. (For SAP–C126, C165 and C185)

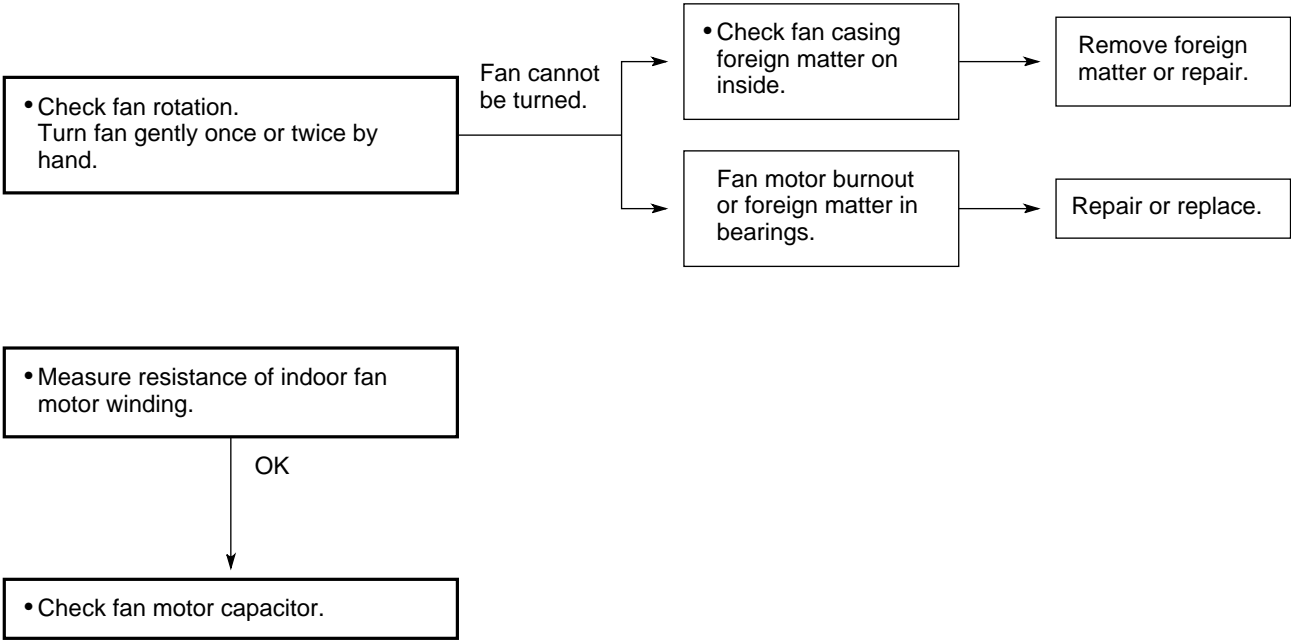


D. Check magnetic contactor in outdoor unit. (For SAP–C225)

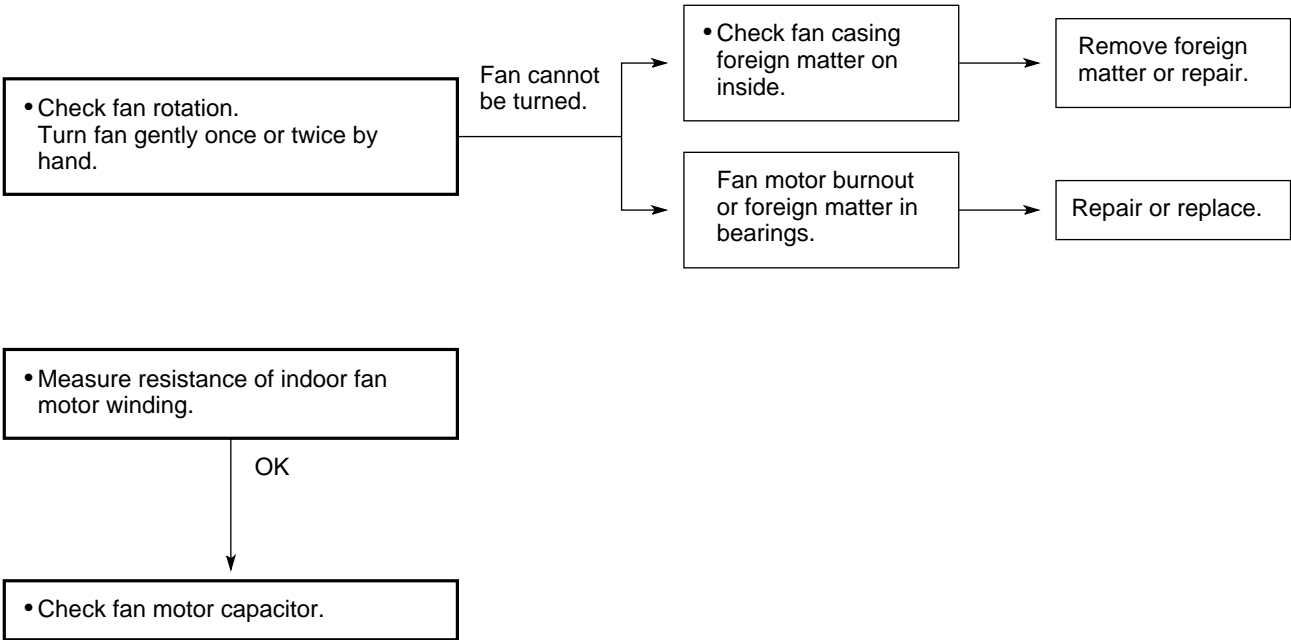


8-3. Some part of air conditioner does not operate.

8-3-1. Only indoor fan does not run.



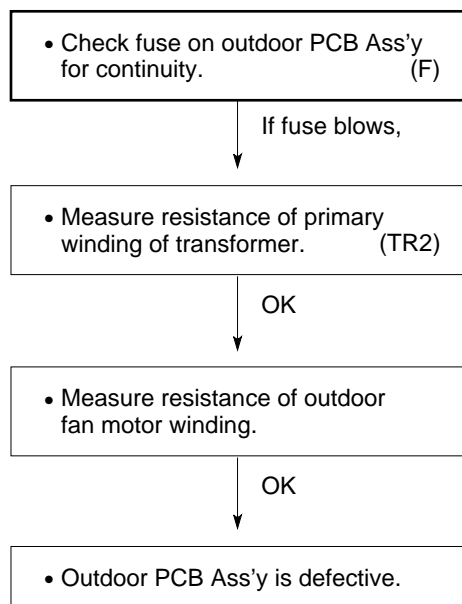
8-3-2. Only outdoor fan does not run.



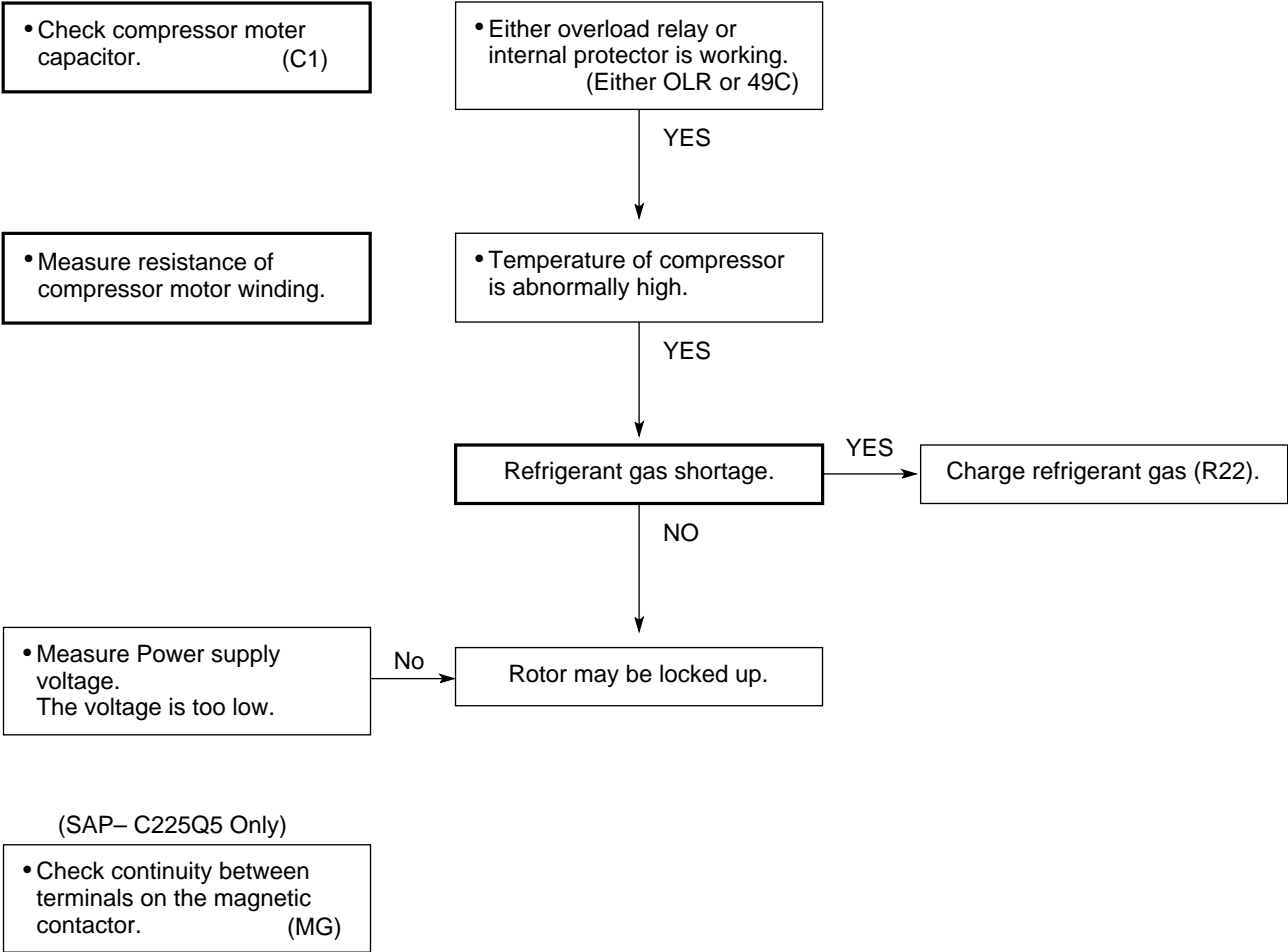
● **Check transformer in outdoor unit.** (SAP–CxxxQL5 Only)

- Measure resistance of primary and secondary winding. (TR2)

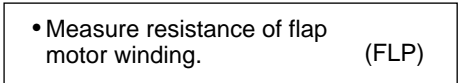
● **Check fuse on outdoor PCB Ass'y.** (SAP–CxxxQL5 Only)



8-3-3. Only compressor does not run.

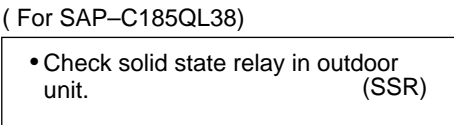
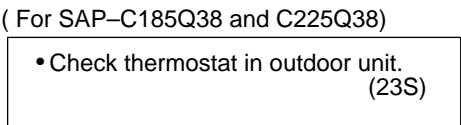


8-3-4. Only flap motor does not run.



8-3-5. Function of outdoor fan speed control does not work properly.

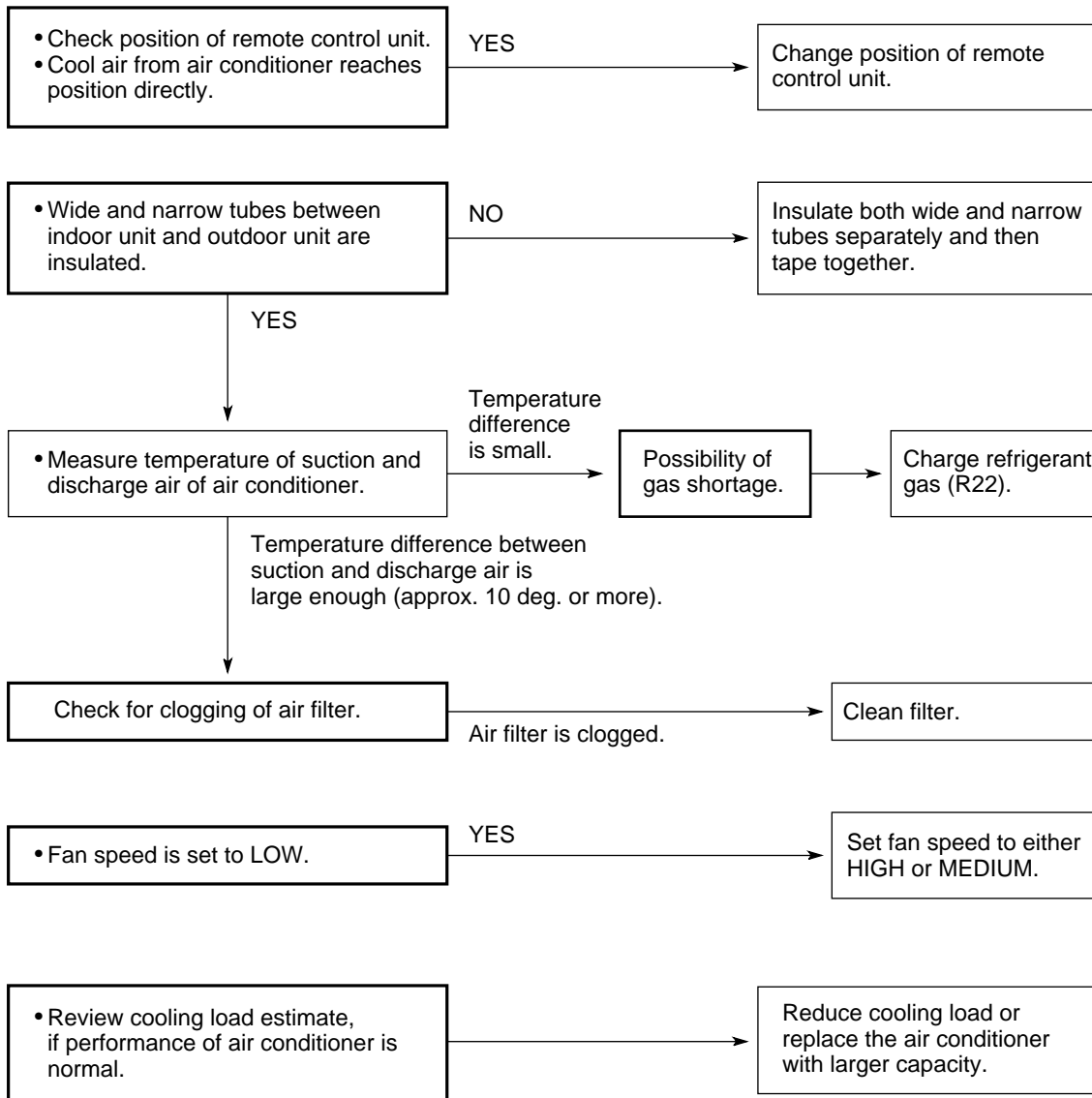
(Except SAP-C165Q5)



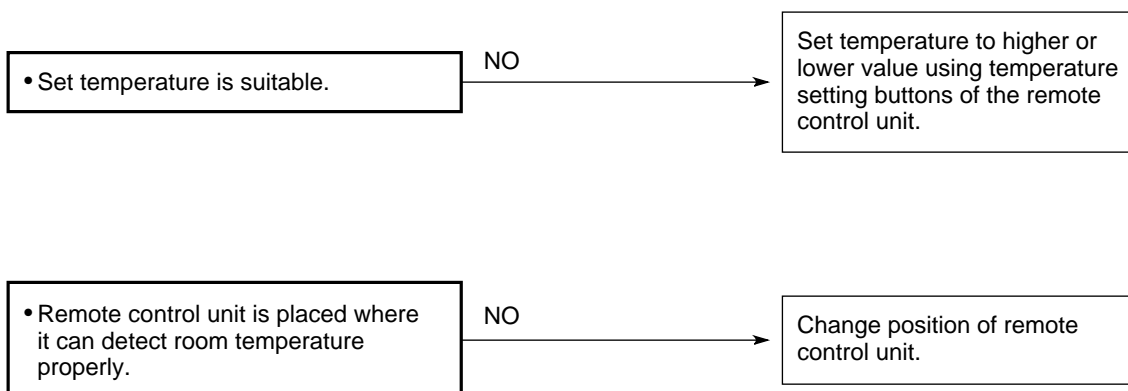
Refer to "5-3 outdoor Fan Speed Control."

8-4. Air conditioner operates, but abnormalities are observed.

8-4-1. Poor cooling.



8-4-2. Excessive cooling.



8-5. If a sensor is defective.

8-5-1. Indoor coil temp. thermistor (TH1) is defective.

A. Open

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

In Cooling mode: Function of freeze prevention continues to work. That is, the controller turns both compressor and outdoor fan motor periodically ON and OFF for several minutes.
(Refer to "5-2. Freeze Prevention")

B. Short

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

In Cooling mode: Function of freeze prevention will not work even when the frost builds up on indoor heat exchanger coil

8-5-2. Room temp. thermistor (TH2) is defective.

A. Open

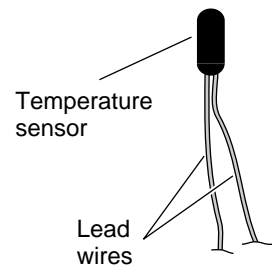
When thermistor opens, the air conditioner will be in the following conditions as the controller tries to detect extremely low room temperature.

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.

9. CHECKING ELECTRICAL COMPONENTS

9-1. Measurement of Insulation Resistance

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

9-1-1. 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)

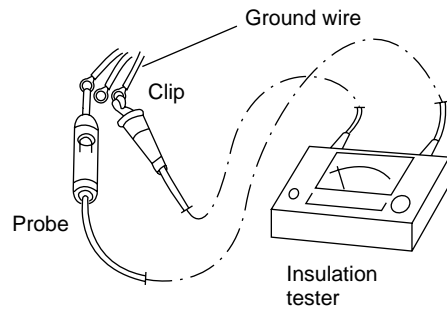


Fig. 1

9-1-2. 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 except where the ground line is connected on the terminal plate. (Fig. 2)

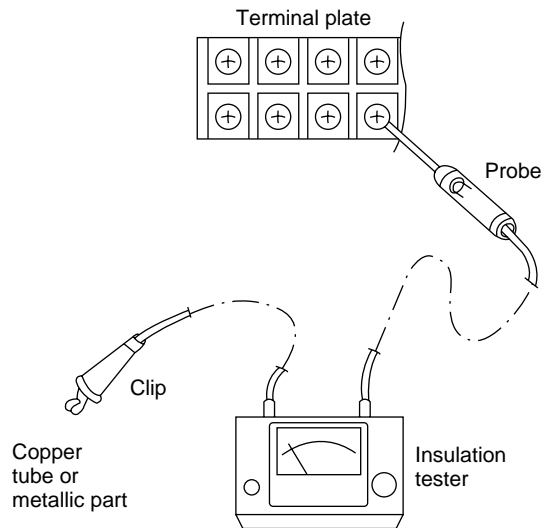


Fig. 2

9-1-3. Outdoor Unit

Clamp a metallic part of the unit 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)

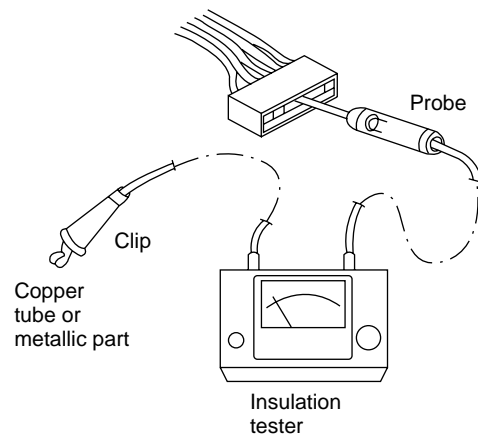


Fig. 3

9-1-4. 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. 1 to 4)

Refer to Electric Wiring Diagram.

NOTE

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

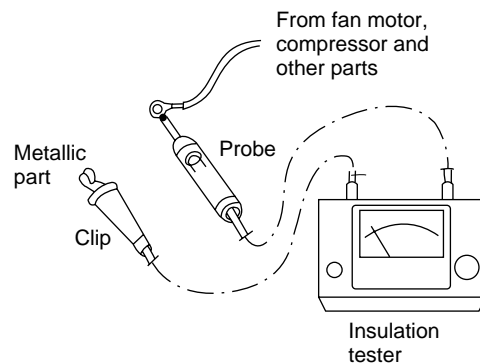


Fig. 4

9-2. Checking continuity of Fuse on PCB Assy

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

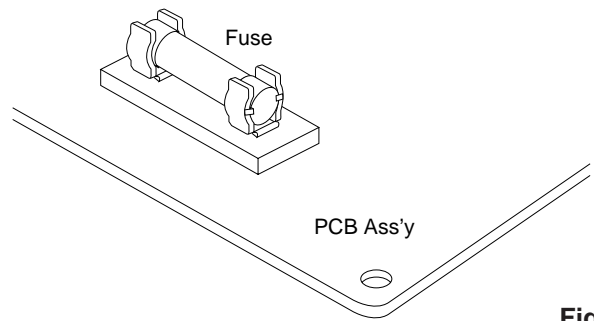


Fig. 5

9-3. 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.

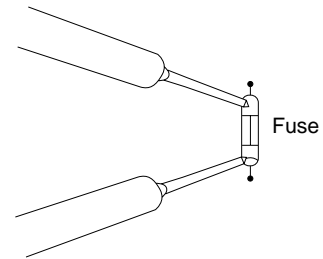


Fig. 6

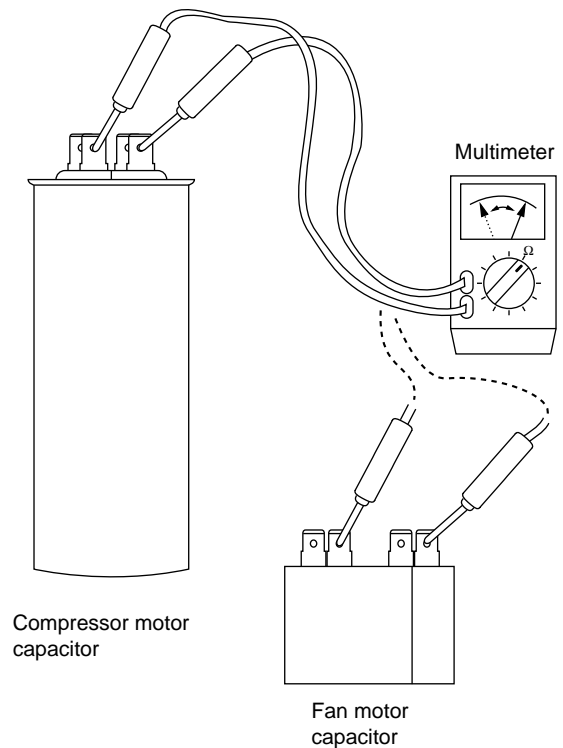


Fig. 7

10. DISASSEMBLY PROCEDURE FOR INDOOR UNIT



IMPORTANT! Please Read Before Starting

Safety precautions for servicing the CEILING-MOUNTED indoor unit

- Before attempting to replace heavy and bulky parts such as the evaporator and fan motor, disconnect the indoor unit from the system and place it on the floor. Refer to the steps given below.
- When checking or servicing the air intake grille, side panels, or electrical component box, first check that power is completely disconnected. Pay utmost care that your working platform is stable enough. Also, do not drop any replaced parts and tools on the floor.

For Floor Installation

10-1. Removing Air Intake Grille

- (1) Hold both ends and pull forward to open the air intake grille. (Fig. 1)
- (2) Remove the metal clips connecting the unit and the grille. First, with a screwdriver, loosen the * marked screw a little at the right side clip (DO NOT loosen it too much, otherwise, the screw and small metal parts will fall off inside.), then press on the stopper and pull off. (Fig. 2)
- (3) Do the same procedure for the left metal clip.
- (4) Unlatch the 2 tabs on the lower part of the grille to take it off completely.

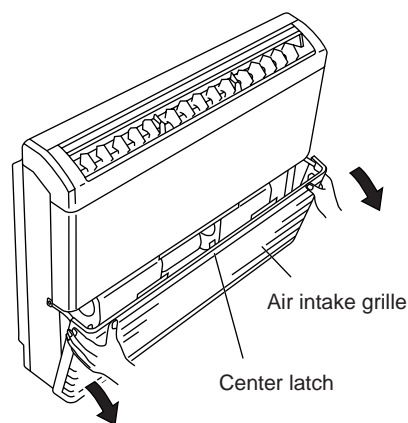


Fig.1

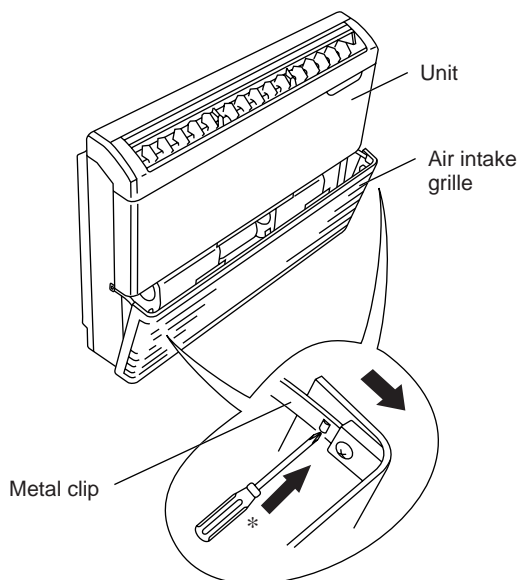


Fig.2

10-2. Removing Side Panels

- (1) Remove the 3 screws attaching the left side panel. (Fig. 3)
- (2) Note the position of the hook on the inside of the left side panel. To disengage the hook from the slot, slide down the panel for removal. (Fig. 3)
- (3) Do the same procedure for the right side panel.

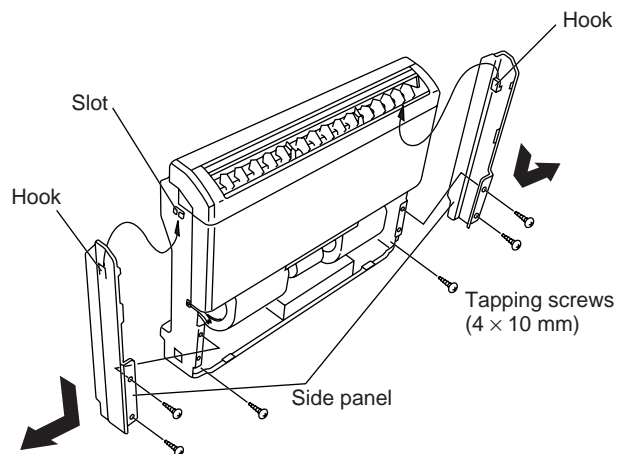


Fig.3

10-3. Access and Removal of Electrical Component Box



WARNING

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

- (1) Remove the front screw with a screwdriver. (Fig. 4)
- (2) Slide the lid out and up. (Fig. 4)
- (3) Disconnect the wiring as necessary.
- (4) Remove the 4 screws, then pull out the electrical component box. (Fig. 5)

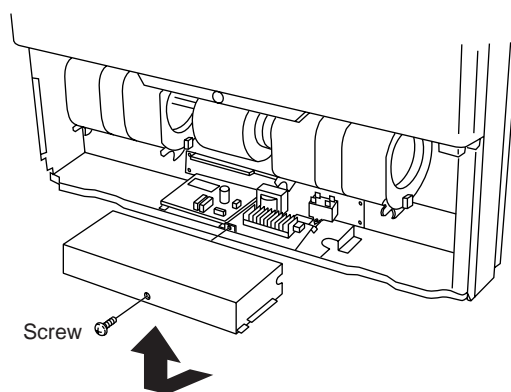


Fig.4

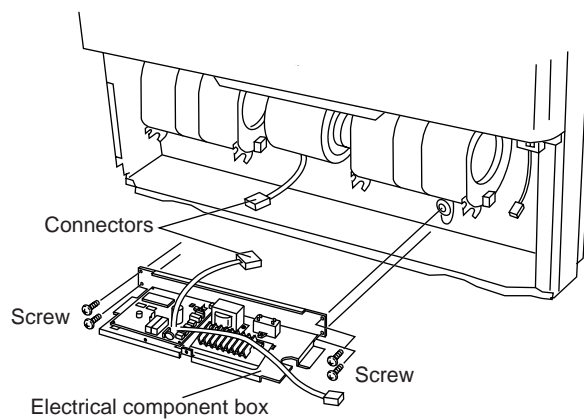


Fig.5

10-4. Removing Flap Motor

- (1) Remove the 3 screws used to mount the top panel.
(Fig. 6)
- (2) While unlatching the 2 tabs inside the back of the top panel, lift the top panel diagonally in the direction of the arrow.(Fig. 6)
- (3) Remove the 2 screws to pull off the flap motor.
The arm and cam come off together with the motor.
(Fig. 7)

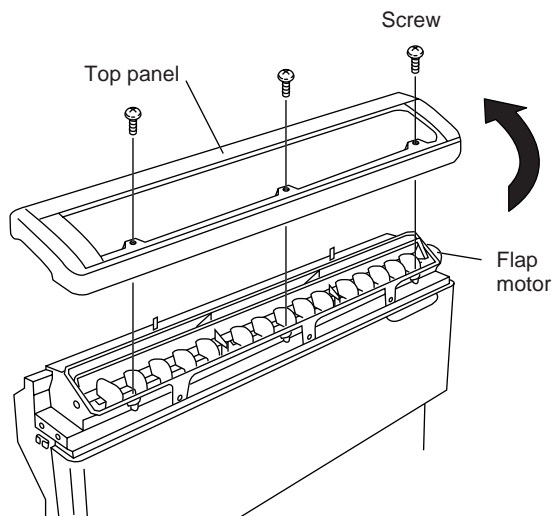


Fig.6

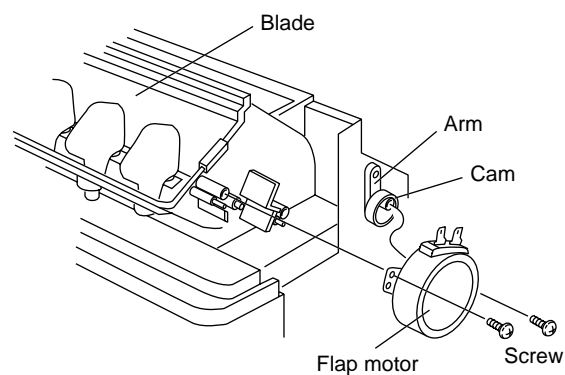


Fig.7

10-5. Removing Evaporator (=Indoor Heat Exchange Coil)

- (1) Remove the 7 screws used to mount the blades.
(Fig. 8)
- (2) Lift the blades in the direction of the arrow.(Fig. 8)

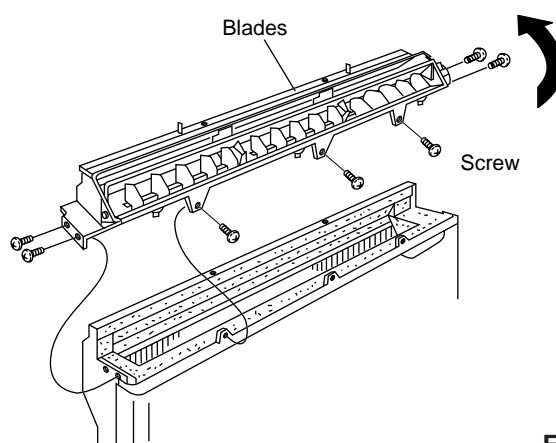


Fig.8

(3) Remove the 6 screws of the front panel and pull it toward you. (Fig. 9)

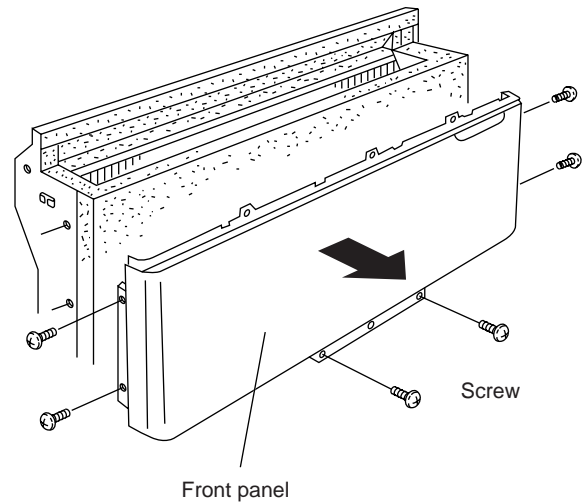


Fig.9

(4) Remove the 2 screws used to mount the evaporator. (Fig. 10)

(5) Remove the rubber cap to pull the thermistor out of the evaporator. (Fig. 10)

(6) Cut the plastic clamp securing the drain hose to the front fan casing. (Fig. 10)

(7) The evaporator is built into the drain pan. Pull out the drain pan together with the evaporator in the direction of the arrow. (Fig. 10)

IMPORTANT

The foamed polystyrene drain pan is fragile: DO NOT apply excessive force when removing it.

(8) The evaporator can be removed by sliding it out from the drain pan in the direction of the arrow. (Fig. 11)

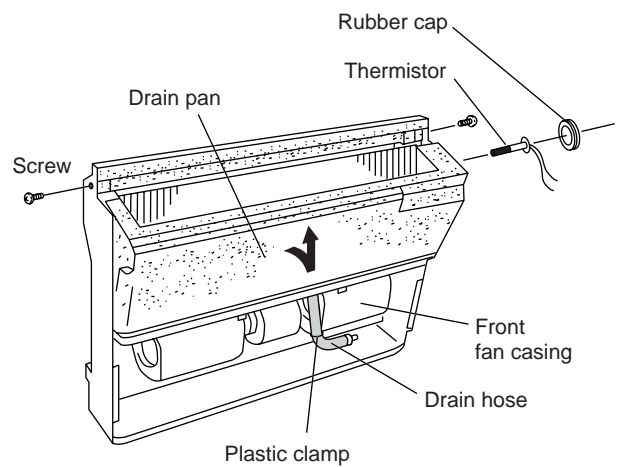


Fig.10

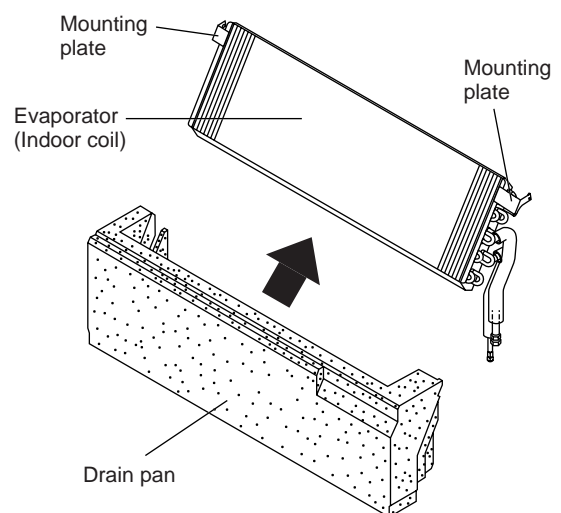


Fig.11

10-6. Removing Fan and Fan Motor

- (1) Unlatch the 2 hooks on each side to take off the front fan casing. (Fig. 12)

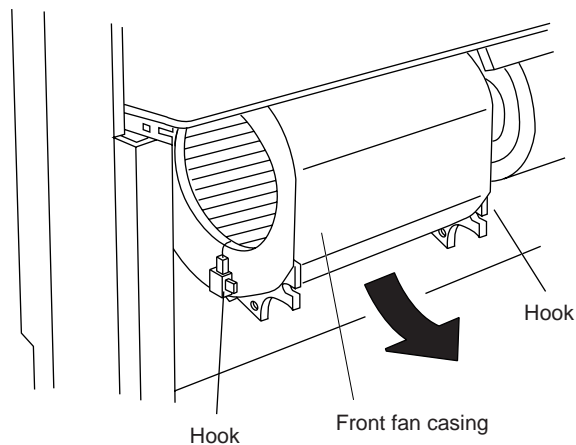


Fig.12

- (2) Remove the 2 screws attaching the rear fan casing and then pull the fan casing out.

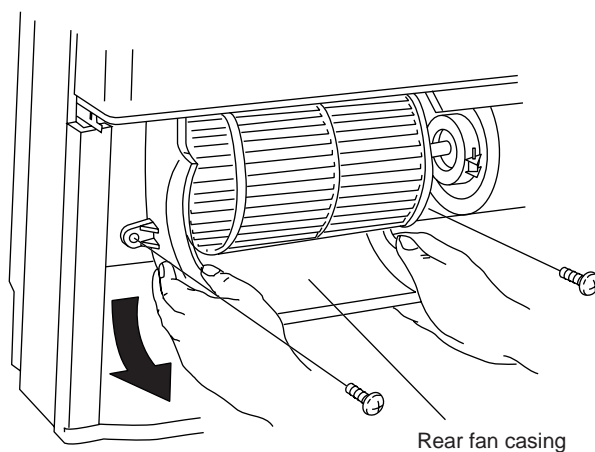


Fig.13

- (3) Insert a hex wrench in the fan boss and turn it counterclockwise to loosen the centrifugal fan. The fan can be removed by sliding it to the left. (Fig. 14)

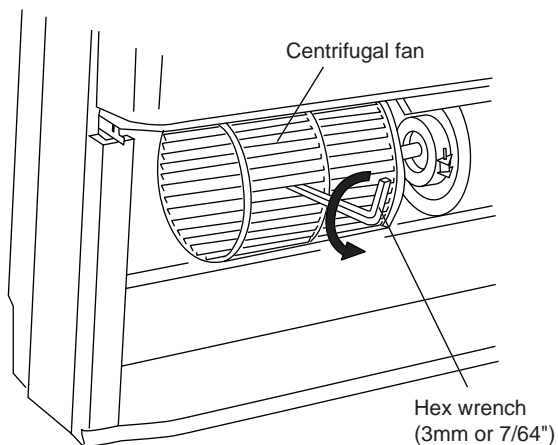


Fig.14

- (4) Remove the 4 bolts to remove the fan motor from the frame. (Fig. 15)

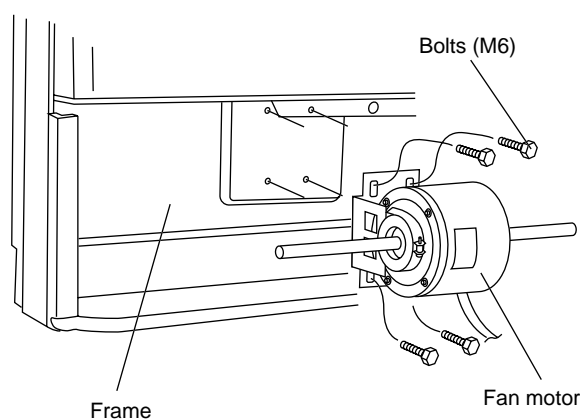


Fig.15

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