TECHNICAL & SERVICE MANUAL

SANYO

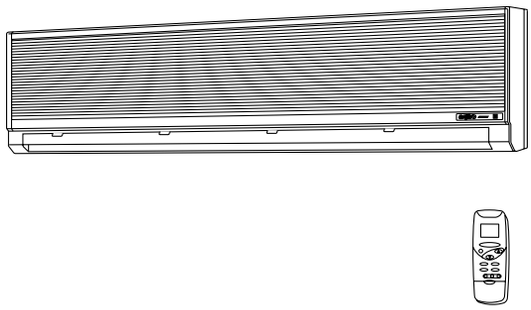
SAP–K363GS5B + SAP–C363G5A
SAP–K363GS6B + SAP–C363G6

FILE NO.

SPLIT SYSTEM AIR CONDITIONER

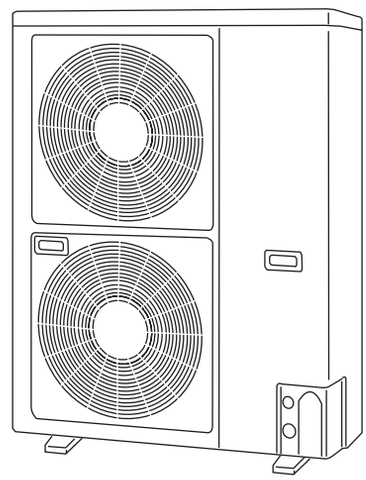
Indoor Model No.	Product Code No.	Outdoor Model No.	Product Code No.	Destination
SAP–K363GS5B	1 852 078 66	SAP–C363G5A	1 854 015 71	General (50Hz) & Middle east (50Hz)
SAP–K363GS6B	1 852 078 67	SAP–C363G6	1 852 742 20	General (60Hz) & Saudi arabia (60Hz)

Indoor Unit

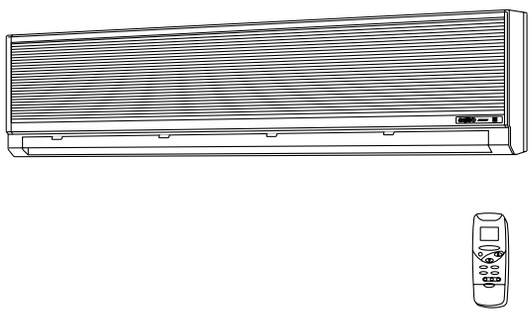


SAP–K363GS5B

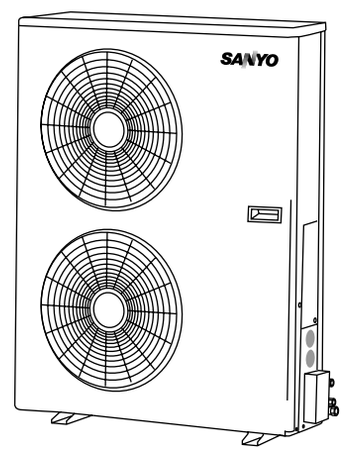
Outdoor Unit



SAP–C363G5A



SAP–K363GS6B



SAP–C363G6

REFERENCE NO. SM700498

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.

Table of Contents

1. OPERATING RANGE

50Hz Models
Indoor Unit **SAP–K363GS5B**
Outdoor Unit **SAP–C363G5A**

	Temperature	Indoor Air Intake Temp.	Outdoor Air Intake Temp.
Cooling	Maximum	32°C D.B. / 23°C W.B.	52°C D.B.
	Minimum	19°C D.B. / 14°C W.B.	19°C D.B.

60Hz Models
Indoor Unit **SAP–K363GS6B**
Outdoor Unit **SAP–C363G6**

	Temperature	Indoor Air Intake Temp.	Outdoor Air Intake Temp.
Cooling	Maximum	29°C D.B. / 19°C W.B.	54°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–K363GS5B**
Outdoor Unit **SAP–C363G5A**

Power Source				220 / 230 / 240 V Single phase **50 Hz**	
Voltage rating			V	220 / 230 / 240	
Performance				Cooling	
	Capacity		kW	10.00	
			BTU/h	34,100	
	Air circulation (High)		m^3/h	1,500	
	Moisture removal (High)		Liters/h	6.0	
Electrical Rating	Available voltage range		V	198 to 264	
	Running amperes		A	15.3 / 16.0 / 17.3	
	Power input		W	3,000 / 3,070 / 3,220	
	Power factor		%	89 / 83 / 78	
	C.O.P.		W/W	3.33 / 3.26 / 3.11	
	Compressor locked rotor amperes		A	102 / 107 / 111	
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 / 4,200	
	Refrigerant control			Capillary tube	
	Operation sound	Indoor – Hi / Me / Lo	dB-A	48 / 45 / 42	
		Outdoor – Hi	dB-A	54	
	Refrigerant tubing connections			Flare type	
	Max. allowable tubing length at shipment		m	15	
	Refrigerant tube	Narrow tube	mm (in.)	9.52 (3/8)	
	diameter	Wide tube	mm (in.)	19.05 (3/4)	
	Refrigerant tube kit / Accessories			Optional / Hanging wall bracket	
Dimensions & Weight				Indoor Unit	Outdoor Unit
	Unit dimensions	Height	mm	370	1,235
		Width	mm	1,500	940
		Depth	mm	240	340
	Package dimensions	Height	mm	352	1,326
		Width	mm	1,604	1,016
		Depth	mm	463	416
	Weight	Net	kg	31.0	94
		Shipping	kg	38.5	101
	Shipping volume		m^3	0.26	0.56

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–K363GS6B**
Outdoor Unit **SAP–C363G6**

Power Source				220 V Single phase **60 Hz**	
Voltage rating			V	220	
Performance				Cooling	
	Capacity		kW	10.00	9.23 (SASO)
			BTU/h	34,100	31,500 (SASO)
	Air circulation (High)		m^3/h	1,500	
	Moisture removal (High)		Liters/h	6.0	
Electrical Rating	Available voltage range		V	198 to 242	
	Running amperes		A	20.1	22.7 (SASO)
	Power input		W	4,150	4,700 (SASO)
	Power factor		%	94	94 (SASO)
	C.O.P.		W/W	2.41	1.96 (SASO)
	Compressor locked rotor amperes		A	100	
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 / 3,600	
	Refrigerant control			Capillary tube	
	Operation sound	Indoor – Hi / Me / Lo	dB-A	48 / 45 / 42	
		Outdoor – Hi	dB-A	54	
	Refrigerant tubing connections			Flare type	
	Max. allowable tubing length at shipment		m	15	
	Refrigerant tube diameter	Narrow tube	mm (in.)	9.52 (3/8)	
		Wide tube	mm (in.)	19.05 (3/4)	
	Refrigerant tube kit			Optional / Hanging wall bracket	
Dimensions & Weight				Indoor Unit	Outdoor Unit
	Unit dimensions	Height	mm	370	1,085
		Width	mm	1,500	890
		Depth	mm	240	365
	Package dimensions	Height	mm	352	1,041
		Width	mm	1,604	1,201
		Depth	mm	463	440
	Weight	Net	kg	31.0	90.0
		Shipping	kg	38.5	99.0
	Shipping volume		m^3	0.26	0.55

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.

• Conditions by SSA 385, 386 (Saudi standard) are:
Cooling: Indoor air temperature 29°C D.B. / 19°C W.B.
Outdoor air temperature 46°C D.B. / 24°C W.B.

2-2. Major Component Specifications

2-2-1. Indoor Unit

Indoor Unit **SAP–K363GS5B**

Controller PCB	Part No.				POW–KS2412B
	Controls				Microprocessor
	Control circuit fuse				250 V – 3 A
Remote Control Unit					RCS–5S2E–G
Fan & Fan Motor	Type				Cross-flow
	Q'ty ... Dia. and length			mm	1 ... ø120 / L1,170
	Fan motor model ... Q'ty				SFG4Q–41B5P ... 1
	No. of poles ... rpm (230 V, High)				4 ... 1,298
	Nominal output			W	40
	Coil resistance (Ambient temp. 20°C)			Ω	WHT – GRY : 143.9 WHT – VLT : 34.0 VLT – ORG : 23.1 ORG – YEL : 42.6 YEL – PNK : 44.1
	Safety devices	Type			Thermal protector
		Operating temp.	Open	°C	130 ± 8
			Close		Automatic reclosing
	Run capacitor			µF	3.0
				VAC	440
Louver Motor	Model				M2LJ24ZE31
	Rating				AC 208 / 230 V, 50 / 60 Hz
	No. of poles ... rpm				8 ... 2.5 / 3.0
	Nominal output			W	3 / 2.5
	Coil resistance (Ambient temp. 20°C)			kΩ	16.45 ± 15%
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube
	Rows				3
	Fin pitch			mm	2.0
	Face area			m^2	0.309

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Indoor Unit **SAP–K363GS6B**

Controller PCB	Part No.				POW–KS2412B
	Controls				Microprocessor
	Control circuit fuse				250 V – 3 A
Remote Control Unit					RCS–5S2E–G
Fan & Fan Motor	Type				Cross-flow
	Number ... Dia. and length			mm	1 ... ø120 / L1,170
	Fan motor model ... Number				SFG4Q–41B6P ... 1
	No. of poles ... rpm (220 V, High)				4 ... 1,280
	Nominal output			W	40
	Coil resistance (Ambient temp. 20°C)			Ω	WHT – GRY : 122.3 WHT – VLT : 16.0 VLT – ORG : 11.9 ORG – YEL : 23.0 YEL – PNK : 9.3
	Safety devices	Type			Thermal protector
		Operating temp.	Open	°C	130 ± 8
			Close		Automatic reclosing
	Run capacitor			μF	4.0
				VAC	440
Louver Motor	Model				M2LJ24ZE31
	Rating				AC 208 / 230 V, 50 / 60 Hz
	No. of poles ... rpm				8 ... 2.5 / 3.0
	Nominal output			W	3 / 2.5
	Coil resistance (Ambient temp. 20°C)			kΩ	16.45 ± 15%
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube
	Rows				3
	Fin pitch			mm	2.0
	Face area			m^2	0.309

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

2-2-2. Outdoor Unit

Outdoor Unit **SAP–C363G5A**

Compressor	Type				Rotary (Hermetic)
	Compressor				C–R240H5W 80669045
	Nominal output			W	2,400
	Compressor oil ... Amount			cc	SUNISO 4GSD–T ... 1,350
	Coil resistance (Ambient temp. 25°C)			Ω	C – R : 0.69 C – S : 2.66 R – S : 3.34
	Safety devices	Type			Internal protector
		Overload relay			—
		Operating temp.	Open	°C	175 ± 5
			Close	°C	105 ± 9
		Operating amp.(Ambient temp. 25°C)			—
	Run capacitor			µF	40
				VAC	400
	Crank case heater				—
Fan & Fan Motor	Type				Propeller
	Q'ty ... Dia.			mm	2 ... ø460
	Fan motor model ... Q'ty				KFC6S–91C5P... 2
	No. of poles ... rpm (230 V, High)				6 ... 871
	Nominal output			W	100W x 2
	Coil resistance (Ambient temp. 20°C)			Ω	WHT – BRN: 61.0 WHT – YEL : 64.3 YEL – PNK : 17.7
	Safety devices	Type			Thermal protector
		Operating temp.	Open	°C	130 ± 8
			Close	°C	79 ± 15
	Run capacitor ... Q'ty			µF	5.0... 2
				VAC	440
Heat Exch. Coil	Coil				Aluminum plate fin / Copper tube
	Rows				2
	Fin pitch			mm	2.0
	Face area			m^2	1.08
External Finish					Acrylic baked-on enamel finish

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit **SAP–C363G6**

Compressor	Type			Rotary (Hermetic)	
	Compressor	Model		C–R240H6W	
		Code number		80669046	
	Nominal output		W	2,400	
	Compressor oil ... Amount		cc	SUNISO 4GSD–T ... 1,350	
	Coil resistance (Ambient temp. 25°C)		Ω	C – R : 0.48 C – S : 2.19	
	Safety devices	Type		Internal protector	
		Overload relay		—	
		Operating temp.	Open °C	160 ± 5	
			Close °C	102 ± 11	
		Operating amp.(Ambient temp. 25°C)		—	
	Run capacitor		μF	40	
			VAC	400	
	Crank case heater			240V 30W	
Fan & Fan Motor	Type			Propeller	Propeller
	Number ... Dia.		mm	1 ... ø400	1 ... ø400
	Fan motor model ... Number			SFG6S–61A6P... 1	SFG6S–61A6P... 1
	Source			—	—
	No. of poles ... rpm (220 V, High)			6 ... 890	6 ... 980
	Nominal output		W	60	60
	Coil resistance (Ambient temp. 20°C)		Ω	WHT – GRY: 119.4 WHT – YEL : 54.1 YEL – PNK : 65.5	WHT – GRY: 119.4 WHT – YEL : 54.1 YEL – PNK : 65.5
	Safety devices	Type		Thermal protector	Thermal protector
		Operating temp.	Open °C	130 ± 8	130 ± 8
			Close	Automatic reclosing	Automatic reclosing
	Run capacitor		μF	2.5	3.0
			VAC	440	440
Heat Exch. Coil	Coil			Aluminum plate fin / Copper tube	
	Rows			2	
	Fin pitch		mm	1.6	
	Face area		m^2	0.860	
External Finish				Acrylic baked-on enamel finish	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

2-3. Other Component Specifications

Indoor Unit **SAP–K363GS5B**
SAP–K363GS6B

Transformer (TR)		**ATR-I125**
Rating	Primary	AC 230V, 50Hz
	Secondary	10V
	Capacity	12VA
Coil resistance	Ω (at 19°C)	Primary (WHT – WHT): 164.1
		Secondary (BRN – BRN): 0.7
Thermal fuse		145°C

Thermistor (Coil sensor TH1)		**PBC–41E–S4**			
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%

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%

Outdoor Unit **SAP–C363G5A**

High Pressure Switch		**ACB–1TB07**
Operating pressure	kg / cm^2	OFF : 30 + 2.0, –0.5 ON : 24 ± 2.0

Auxiliary Relay		**HH62S / 085**
Coil rating		AC 240V, 50Hz
Coil resistance	kΩ (at 20°C)	17.2
Contact rating		AC 220V, 5A

Compressor Motor Magnetic Contactor		**FC–1SZ607**
Coil rating		50Hz 220 ~ 240V
Coil resistance	Ω (at 20°C)	828 ± 15%
Contact rating		AC 440V, 13A

PTC Thermistor (TH)		**TDK 101YV**
Resistance	Ω (at 25°C)	100 ± 20%

Thermostat (for Fan Speed Control)		**YTB-S377**
Operating temperature.	°C	high → LOW 25.5 + 1.5, –0.5 low → HIGH 27.5 ± 1.5
Contact rating		AC 250V, 1A

Outdoor Unit **SAP–C363G6**

PTC Thermistor (TH)		**TDK 101YV**
Resistance	Ω (at 25°C)	100 ± 20%

High Pressure Switch		**ACB-JB63**
Operating pressure	kg. f. /cm²	OFF : 30 + 2.0, –0.5
		ON : 24 ± 2.0
Contact rating		AC 250V, 4A

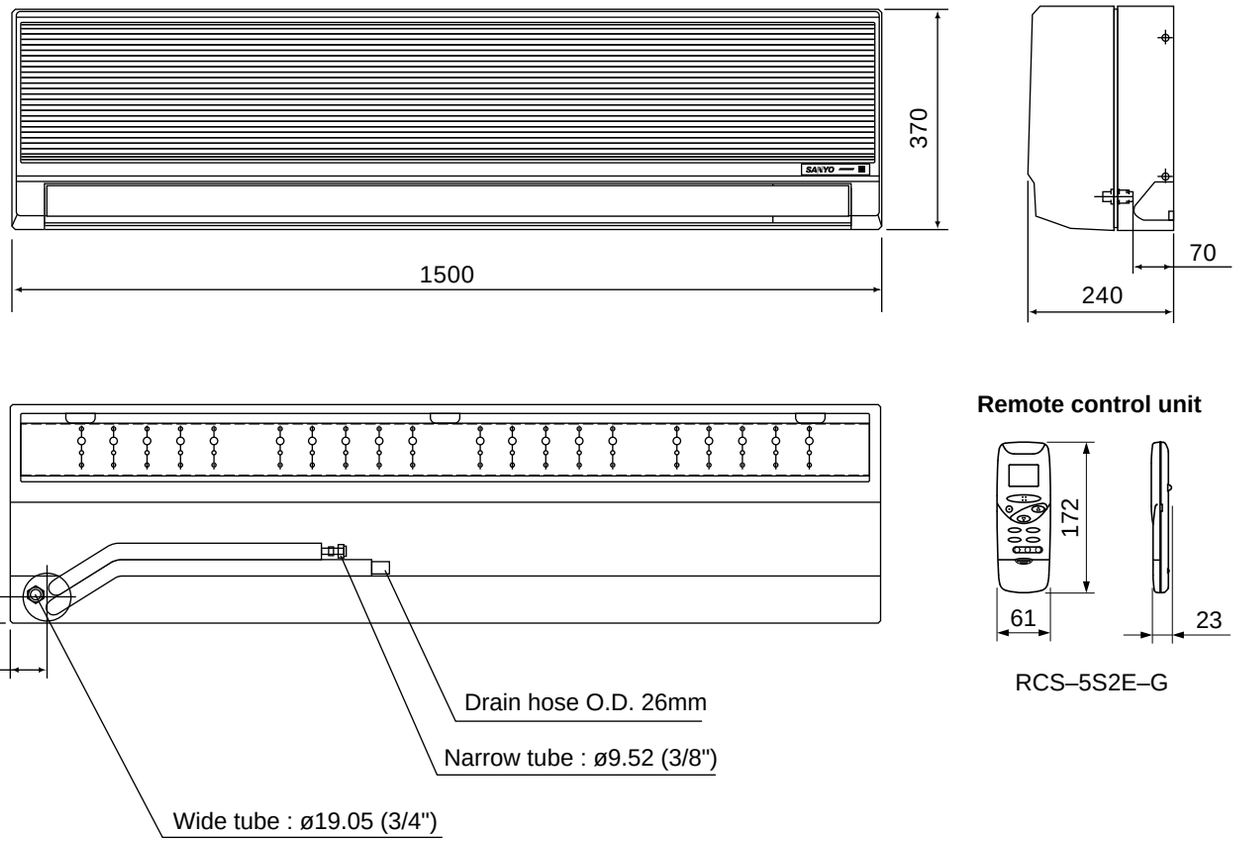
Relay (for fan motor)		**MCS240A2F**
Coil rating		50 / 60 Hz AC 220 / 240V
Coil resistance	kΩ (at 20°C)	15.5 ± 15%
Contact rating		AC 200, 250V, 5A

Magnetic Contactor		**FMCA–1SZ607**
Coil rating		60Hz AC 200 / 220V
Coil resistance	kΩ (at 25°C)	662 ± 15%
Contact rating Main		AC 200–220V, 28A
Auxiliary		AC 200–220V, 8A

Thermostat (for Fan Speed Control)		**YTB-S377**
Operating temperature. °C		high → LOW 25.5 + 1.5, –0.5
		low → HIGH 27.5 ± 1.5
Contact rating		AC 250V, 1A

3. DIMENSIONAL DATA

Indoor Unit **SAP–K363GS5B**
SAP–K363GS6B

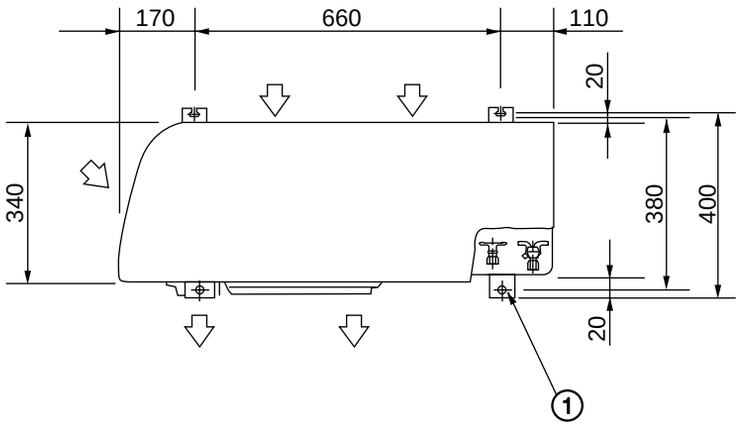


Remote control unit

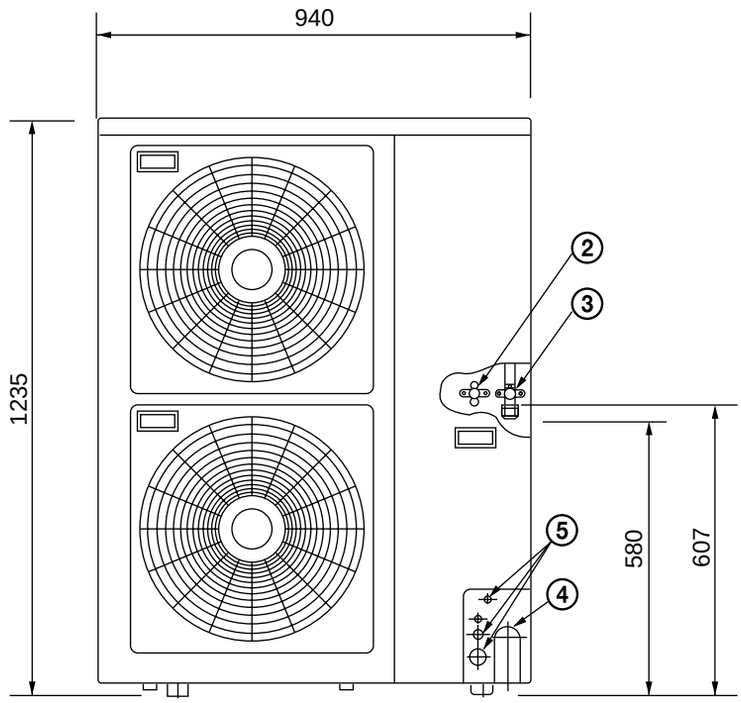
RCS–5S2E–G

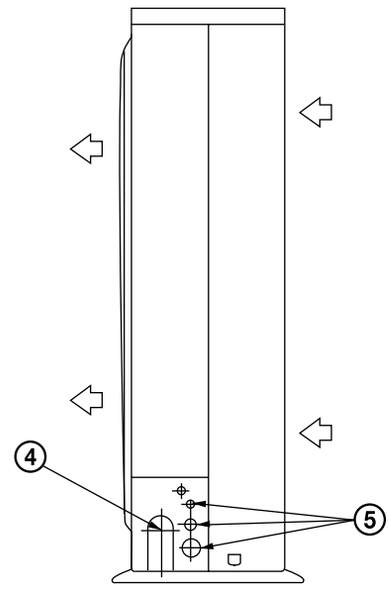
Unit : mm

Outdoor Unit **SAP–C363G5A**



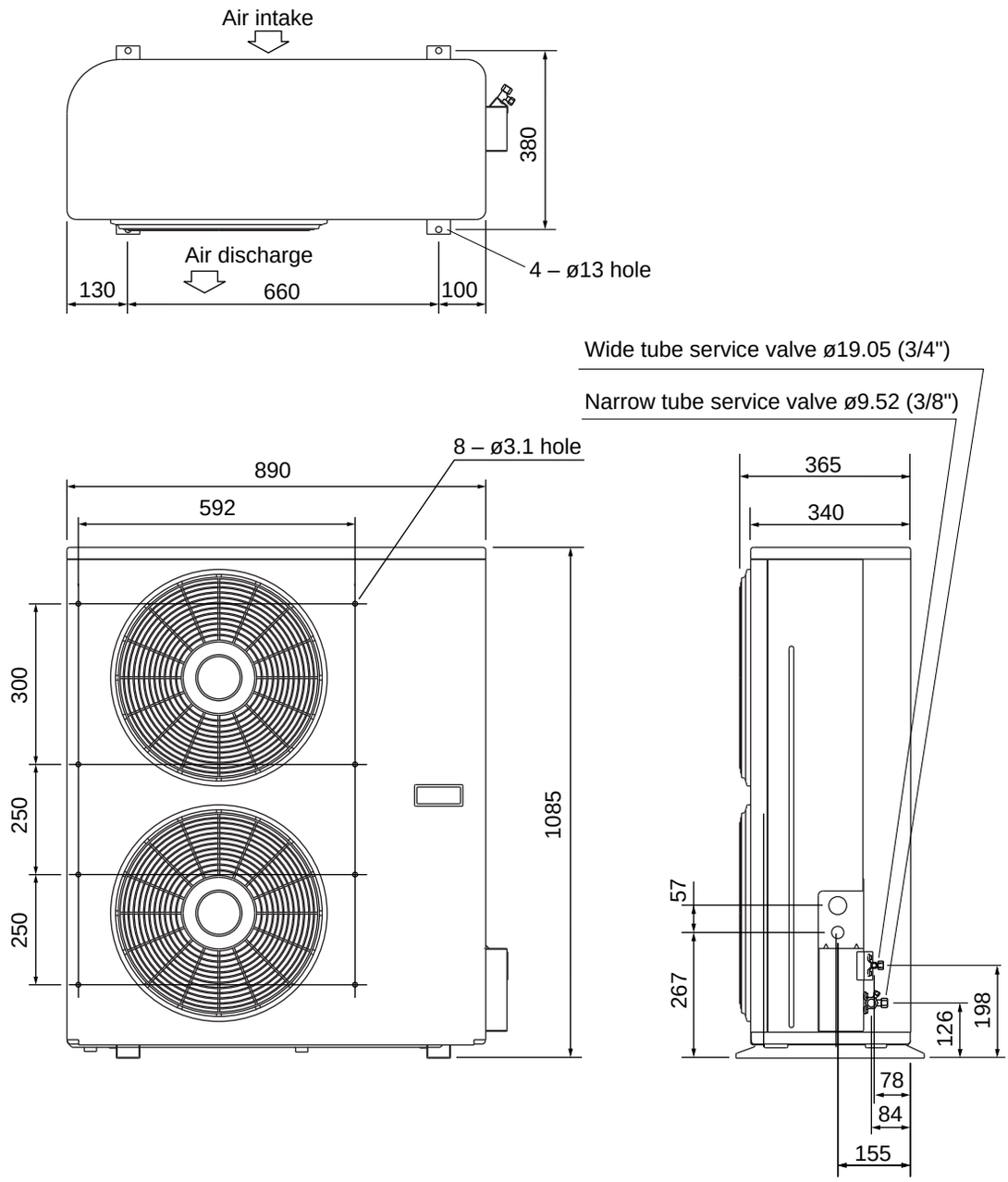
① Hole for anchor bolt 4–ø13
② Refrigerant tube joint (narrow tube)
Flare connection ø9.52 (3/8")
③ Refrigerant tube joint (wide tube)
Flare connection ø19.05 (3/4")
④ Refrigerant tubing inlet
⑤ Power supply inlet





Unit : mm

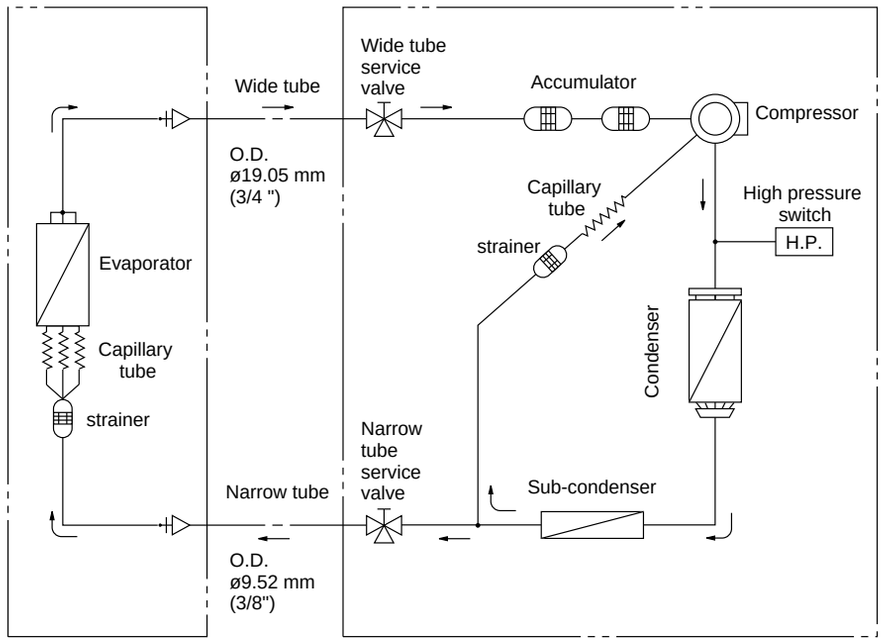
Outdoor Unit **SAP–C363G6**



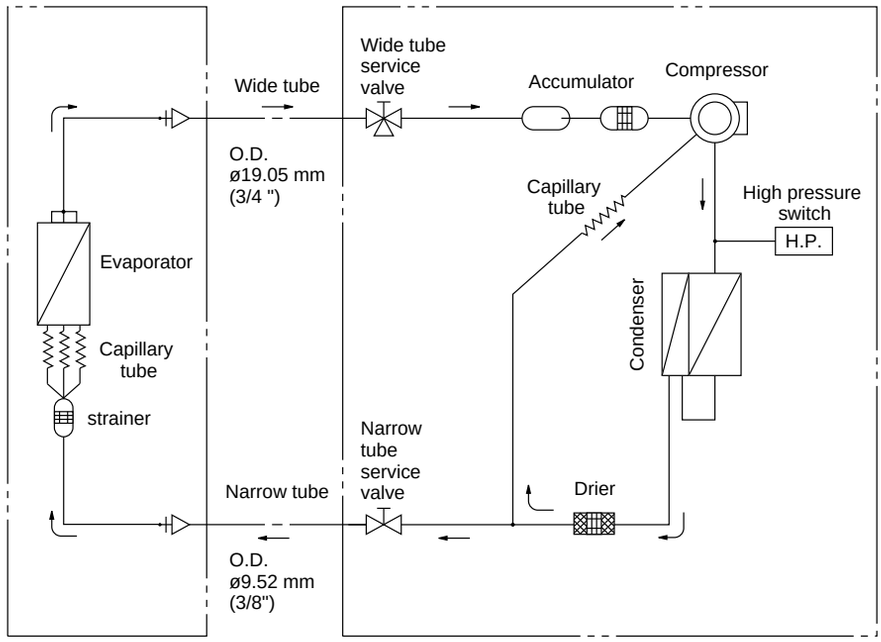
Unit : mm

4. REFRIGERANT FLOW DIAGRAM

Indoor Unit **SAP–K363GS5B** Outdoor Unit **SAP–C363G5A**



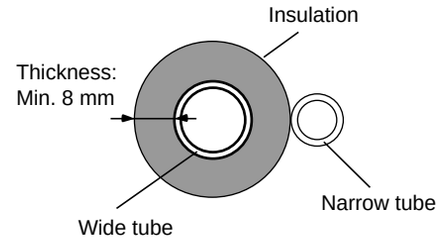
Indoor Unit **SAP–K363GS6B** Outdoor Unit **SAP–C363G6**



Insulation of Refrigerant Tubing

IMPORTANT

To conserve energy and prevent wet floors due to condensation, the wide tube must be well insulated with a proper insulation material. The thickness of the insulation should be a minimum of 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.

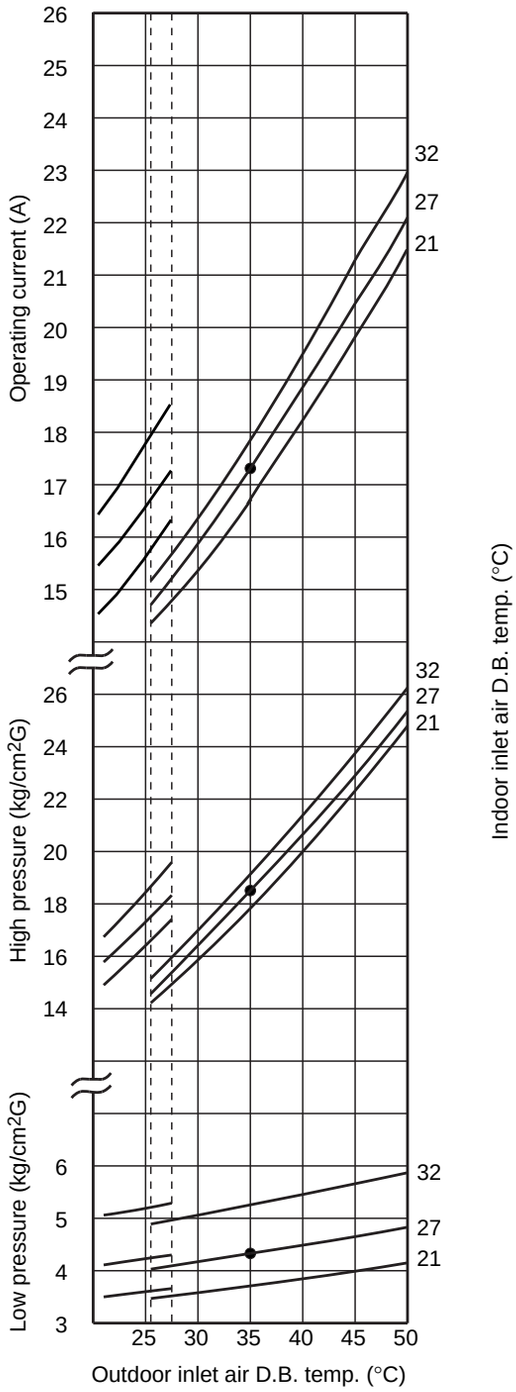
5. PERFORMANCE DATA

5-1. Performance charts

Indoor Unit **SAP–K363GS5B**
Outdoor Unit **SAP–C363G5A**

■ Cooling Characteristics

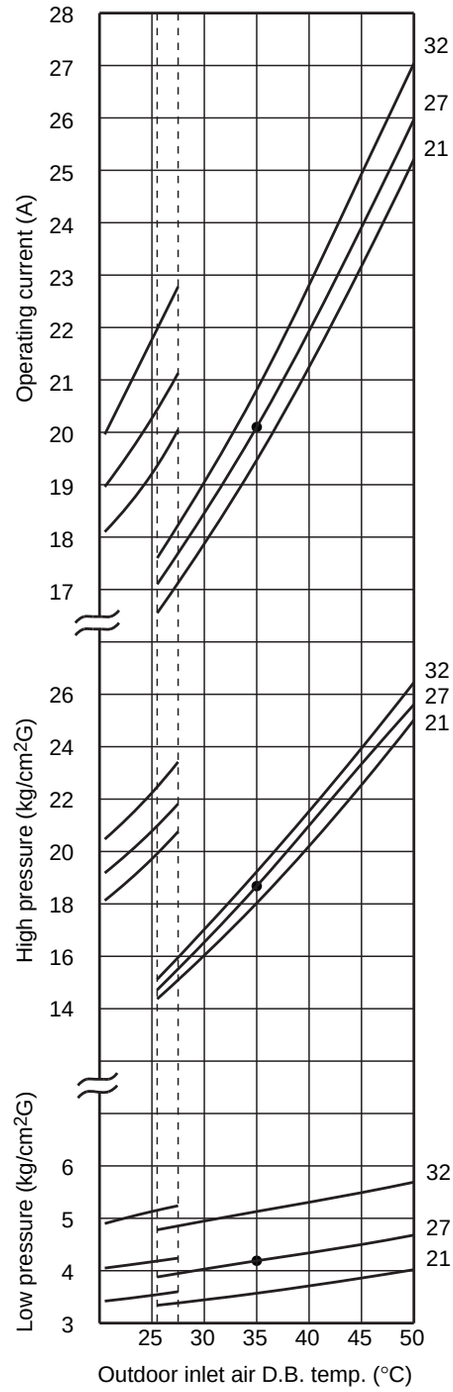
240V Single Phase 50Hz



Indoor Unit **SAP–K363GS5B**
Outdoor Unit **SAP–C363G6**

■ Cooling Characteristics

220V Single Phase 60Hz



NOTE

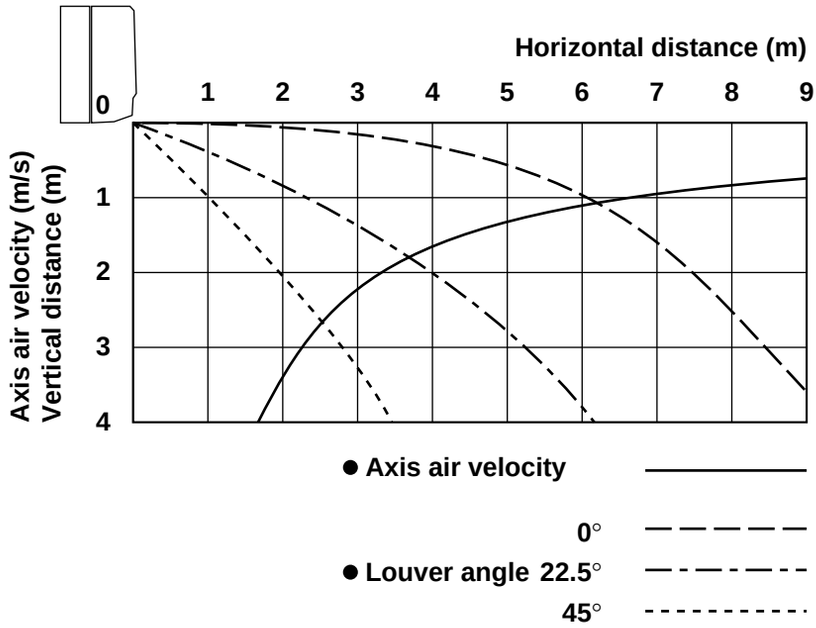
● ..... Points of Rating condition
Black dots in above charts indicate the following rating conditions.

Cooling: Indoor air temperature 27°C DB/19°C WB
Outdoor air temperature 35°C DB/24°C WB

5-2. Air Throw Distance Chart

Indoor Unit **SAP–K363GS5B**
SAP–K363GS6B

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



● Axis air velocity ——————

● Louver angle 0° — — — — —
22.5° — - — - — - -
45° - - - - - - - - - - -

5-3. Cooling Capacity

Indoor Unit **SAP–K363GS5B**
Outdoor Unit **SAP–C363G5A**

240V Single Phase **50Hz**

RATING CAPACITY 10.00 kW AIR FLOW RATE 1500 m^3/h							
EVAPORATOR		CONDENSER					
ENT. TEMP. ℃		OUTDOOR AMBIENT TEMP. ℃					
W.B.	D.B.		30	35	40	45	50
		TC	9.20	8.76	8.23	7.58	6.83
		CM	2.42	2.60	2.91	3.23	3.53
	21	SHC	6.38	6.16	5.90	5.59	5.23
15	23	SHC	7.20	6.98	6.72	6.41	6.06
	25	SHC	8.03	7.81	7.55	7.23	6.83
	27	SHC	8.85	8.63	8.23	7.58	6.83
	29	SHC	9.20	8.76	8.23	7.58	6.83
	31	SHC	9.20	8.76	8.23	7.58	6.83
		TC	9.87	9.40	8.84	8.13	7.33
		CM	2.49	2.67	2.99	3.30	3.61
	21	SHC	5.53	5.31	5.05	4.74	4.39
17	23	SHC	6.36	6.14	5.88	5.56	5.21
	25	SHC	7.18	6.96	6.70	6.39	6.04
	27	SHC	8.01	7.79	7.53	7.21	6.86
	29	SHC	8.83	8.61	8.35	8.03	7.33
	31	SHC	9.65	9.40	8.84	8.13	7.33
		TC	10.50	# 10.00	9.40	8.65	7.80
		CM	2.57	2.76	3.07	3.39	3.71
	21	SHC	4.65	4.43	4.17	3.86	3.51
19	23	SHC	5.47	5.25	5.00	4.68	4.34
	25	SHC	6.30	6.08	5.82	5.51	5.16
	27	SHC	7.12	6.90	6.65	6.33	5.99
	29	SHC	7.94	7.73	7.47	7.16	6.81
	31	SHC	8.77	8.55	8.29	7.98	7.64
		TC	11.13	10.60	9.96	9.17	8.27
		CM	2.64	2.83	3.16	3.48	3.81
	23	SHC	4.57	4.36	4.11	3.80	3.46
21	25	SHC	5.40	5.18	4.93	4.62	4.29
	27	SHC	6.22	6.01	5.76	5.45	5.11
	29	SHC	7.05	6.83	6.58	6.27	5.93
	31	SHC	7.87	7.66	7.41	7.10	6.76
		TC	11.79	11.13	10.42	9.69	8.78
		CM	2.71	2.91	3.24	3.57	3.90
23	25	SHC	4.45	4.20	3.94	3.68	3.37
	27	SHC	5.27	5.03	4.77	4.51	4.19
	29	SHC	6.10	5.85	5.59	5.33	5.02
	31	SHC	6.92	6.68	6.42	6.16	5.84

TC : Total Cooling Capacity (kW)
SHC : Sensible Heat Capacity (kW)
CM : Compressor Input (kW)

Rating conditions (#Mark) are
Outdoor Ambient Temp. 35℃ D.B.
Indoor Unit Entering Air Temp. 27℃ D.B. / 19℃ W.B.

Indoor Unit **SAP–K363GS5B**
Outdoor Unit **SAP–C363G6**

240V Single Phase **60Hz**

RATING CAPACITY 10.0 kW AIR FLOW RATE 1500 m^3/h							
EVAPORATOR		CONDENSER					
ENT. TEMP. ℃		OUTDOOR AMBIENT TEMP. ℃					
W.B.	D.B.		30	35	40	45	50
		TC	9.20	8.76	8.23	7.58	6.83
		CM	3.36	3.60	3.94	4.28	4.62
	21	SHC	6.38	6.16	5.89	5.58	5.23
15	23	SHC	7.20	6.98	6.72	6.41	6.06
	25	SHC	8.02	7.80	7.54	7.23	6.83
	27	SHC	8.85	8.63	8.23	7.58	6.83
	29	SHC	9.20	8.76	8.23	7.58	6.83
	31	SHC	9.20	8.76	8.23	7.58	6.83
		TC	9.87	9.40	8.84	8.13	7.33
		CM	3.45	3.70	4.05	4.39	4.73
	21	SHC	5.53	5.31	5.05	4.73	4.39
17	23	SHC	6.35	6.13	5.88	5.56	5.21
	25	SHC	7.18	6.96	6.70	6.38	6.03
	27	SHC	8.00	7.78	7.52	7.21	6.86
	29	SHC	8.83	8.61	8.35	8.03	7.33
	31	SHC	9.65	9.40	8.84	8.13	7.33
		TC	10.50	# 10.00	9.40	8.65	7.80
		CM	3.56	3.82	4.17	4.52	4.87
	21	SHC	4.64	4.43	4.17	3.86	3.51
19	23	SHC	5.47	5.25	4.99	4.68	4.34
	25	SHC	6.29	6.07	5.82	5.50	5.16
	27	SHC	7.12	6.90	6.64	6.33	5.98
	29	SHC	7.94	7.72	7.47	7.15	6.81
	31	SHC	8.77	8.55	8.29	7.98	7.63
		TC	11.13	10.60	9.96	9.17	8.27
		CM	3.66	3.92	4.28	4.64	5.00
	23	SHC	4.57	4.36	4.10	3.80	3.46
21	25	SHC	5.40	5.18	4.93	4.62	4.28
	27	SHC	6.22	6.01	5.75	5.45	5.11
	29	SHC	7.04	6.83	6.58	6.27	5.93
	31	SHC	7.87	7.65	7.40	7.09	6.76
		TC	11.79	11.13	10.42	9.69	8.78
		CM	3.75	4.03	4.39	4.75	5.12
23	25	SHC	4.44	4.20	3.94	3.68	3.36
	27	SHC	5.27	5.02	4.76	4.51	4.19
	29	SHC	6.09	5.85	5.59	5.33	5.01
	31	SHC	6.92	6.67	6.41	6.15	5.84

TC : Total Cooling Capacity (kW)
SHC : Sensible Heat Capacity (kW)
CM : Compressor Input (kW)

Rating conditions (#Mark) are
Outdoor Ambient Temp. 35℃ D.B.
Indoor Unit Entering Air Temp. 27℃ D.B. / 19℃ W.B.

6. ELECTRICAL DATA

6-1. Electrical Characteristics

Indoor Unit **SAP–K363GS5B**
Outdoor Unit **SAP–C363G5A**

			Indoor Unit	Outdoor Unit		Complete Unit
			Fan Motor	Fan Motor	Compressor	
Performance at			220 / 240V Single phase **50Hz**			
Rating Conditions	Running Amps.	A	0.39 / 0.40	1.51 / 1.56	13.40 / 15.34	15.3 / 17.3
	Power Input	kW	0.085 / 0.095	0.330 / 0.370	2.585 / 2.755	3.00 / 3.22
Full Load Conditions	Running Amps.	A	0.39 / 0.40	1.51 / 1.56	18.40 / 19.24	20.3 / 21.2
	Power Input	kW	0.085 / 0.095	0.330 / 0.370	3.715 / 3.895	4.13 / 4.36

Rating Conditions : Indoor Air Temperature 27℃ D.B. / 19℃ W.B.
Outdoor Air Temperature 35℃ D.B.
Full Load Conditions : Indoor Air Temperature 32℃ D.B. / 23℃ W.B.
Outdoor Air Temperature 52℃ D.B.

Indoor Unit **SAP–K363GS6B**
Outdoor Unit **SAP–C363G6**

			Indoor Unit	Outdoor Unit		Complete Unit
			Fan Motor	Fan Motor	Compressor	
Performance at			220V Single phase **60Hz**			
Rating Conditions	Running Amps.	A	0.50	1.03	18.57	20.1
	Power Input	kW	0.100	0.232	3.818	4.15
SSA 385, 386	Running Amps.		0.50	1.03	21.17	22.7
Conditions	Power Input		0.100	0.232	4.368	4.70
Full Load Conditions	Running Amps.	A	0.50	1.03	24.57	26.1
	Power Input	kW	0.100	0.232	5.118	5.45

Rating Conditions : Indoor Air Temperature 27℃ D.B. / 19℃ W.B.
Outdoor Air Temperature 35℃ D.B.

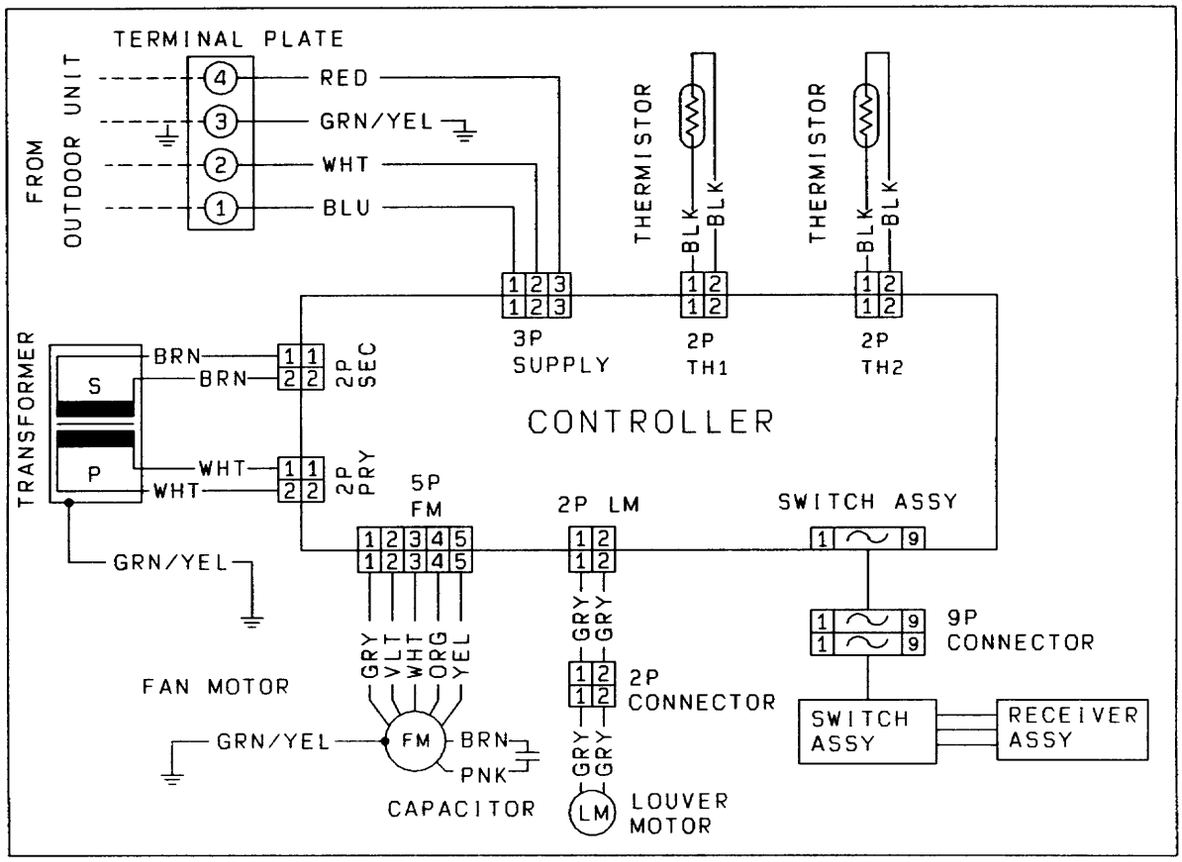
SSA 385, 386 Conditions (Saudi standard)
: Indoor Air Temperature 29℃ D.B. / 19℃ W.B.
Outdoor Air Temperature 46℃ D.B. / 24℃ W.B.

Full Load Conditions : Indoor Air Temperature 35℃ D.B. / 25℃ W.B.
Outdoor Air Temperature 50℃ D.B.

6-2. ELECTRIC WIRING DIAGRAMS

Indoor Unit **SAP–K363GS5B**
SAP–K363GS6B

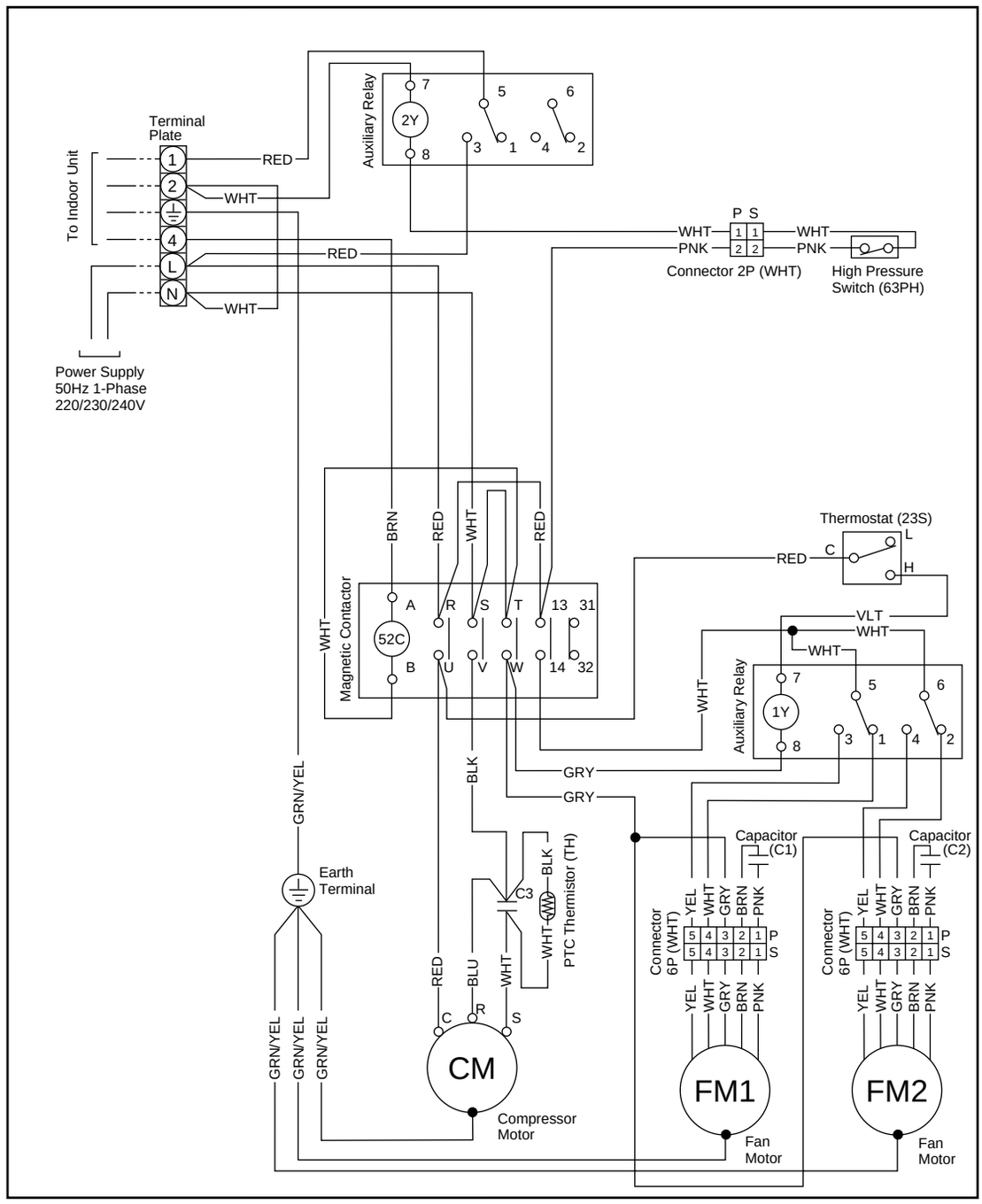
WARNING ***To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.***



851-2-5252-128-XX-1

Outdoor Unit **SAP–C363G5A**

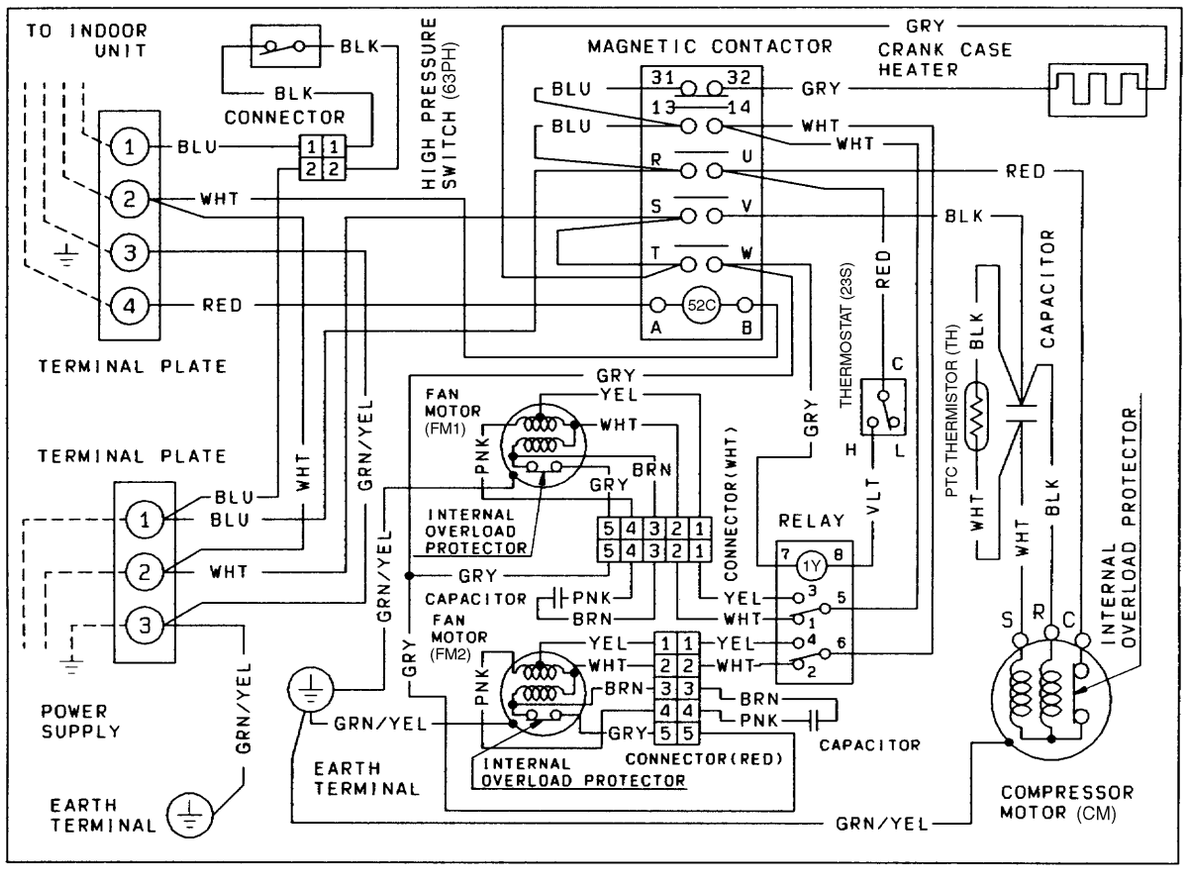
WARNING ***To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.***



854-2-5268-463-00-3

Outdoor Unit **SAP–C363G6**

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



851-2-5251-548-XX-2

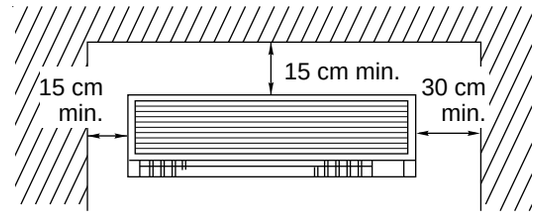
7. INSTALLATION INSTRUCTIONS

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.



Front View

Fig.1

AVOID:

- areas where leakage of flammable gas may be expected.
- places where large amounts of oil mist exist.
- direct sunlight.
- nearby heat sources that may affect performance of the unit.

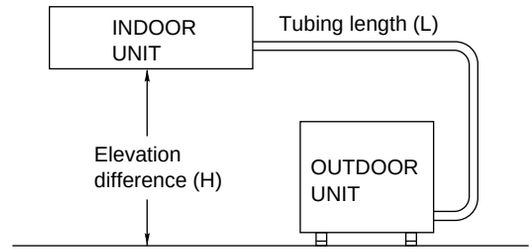
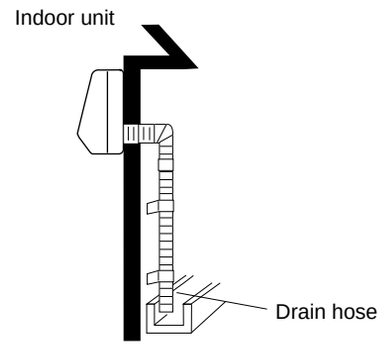


Fig. 2a

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. (Fig. 2b)
- 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.



Outside drainage

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)*
C363	15	40	15	75

* If total tubing length becomes 15 to 40m(max.), charge additional refrigerant (R22) by 75 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 4b)
- 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. (Figs. 5)
- use lug bolts or equal to bolt down unit, reducing vibration and noise.

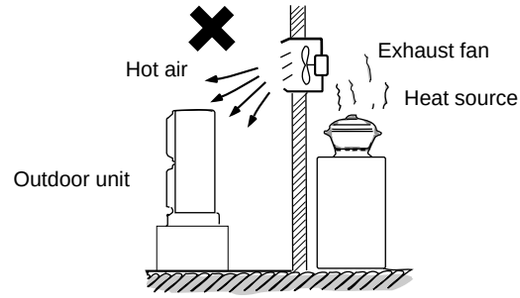
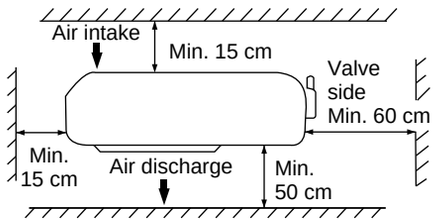


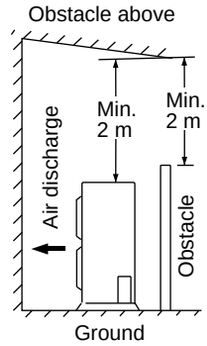
Fig. 3

Required space around the unit.



Top View

Fig. 4a



Side View

Fig. 4b

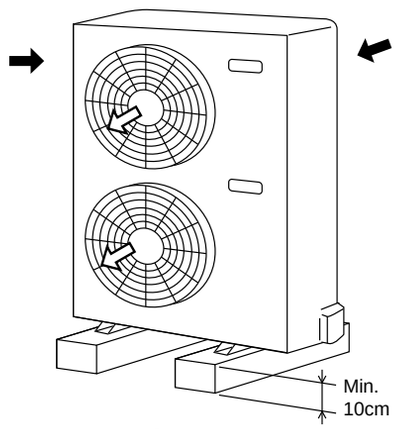


Fig. 5

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.

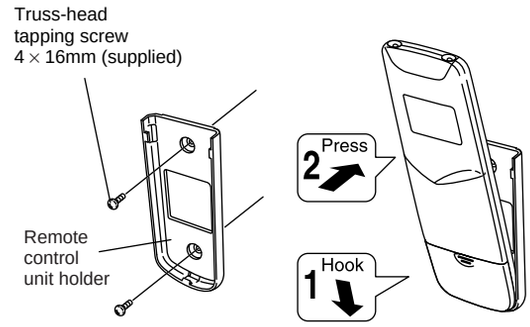


Fig.6a

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.

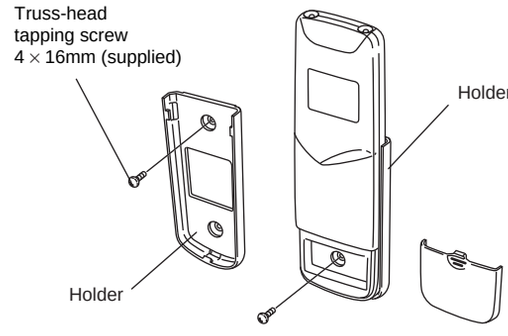


Fig.6b

7-3. Recommended Wire Length and Size

Regulations on wiring diameter differ from locality to locality. For field wiring requirements, please refer to your local electrical codes. Carefully observe these regulations when carrying out the installation.

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

NOTE

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

Table 2

Cross Sectional Area (mm^2) / Model	(A) Power Supply Wiring Length (m)			(B) Power Line (m)	Fuse or Circuit Capacity
	5.5 (#10)	8 (#8)	14 (#6)	2 (#14)	
C363G5A	20	31	54	15	40A
C363G6	22	33	57	15	30A

····· AWG (American Wire Gauge)

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

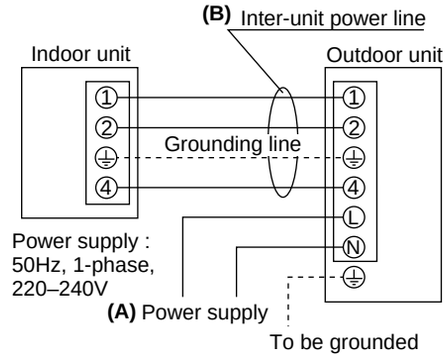
To avoid the risk of electric shock, each air conditioner unit must be grounded.

CAUTION

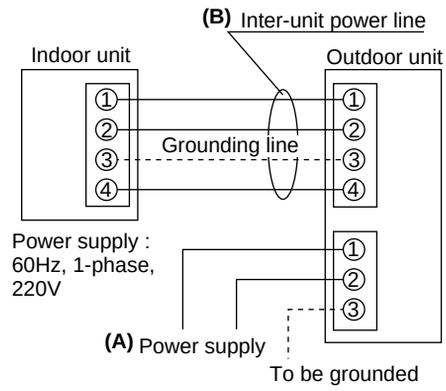
- **Be sure to connect the power supply line to the outdoor unit as shown in the wiring diagram. The indoor unit draws its power from the outdoor unit.**

Wiring System Diagram

Model: SAP-C363G5A



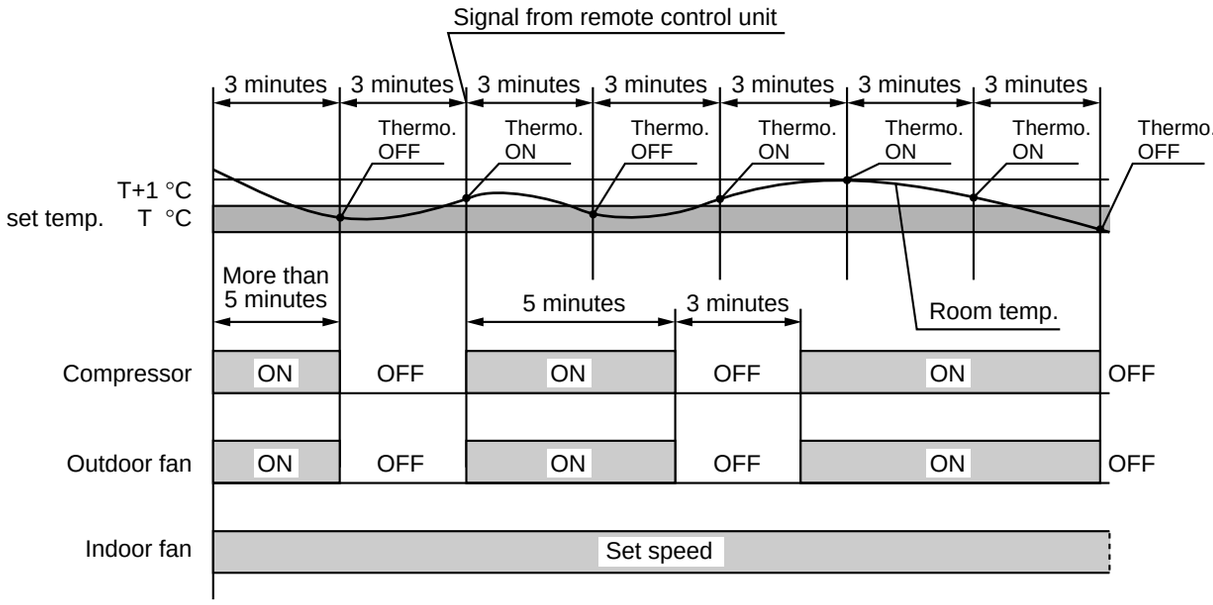
Model: SAP-C363G6



8. FUNCTION

8-1. Room Temperature Control

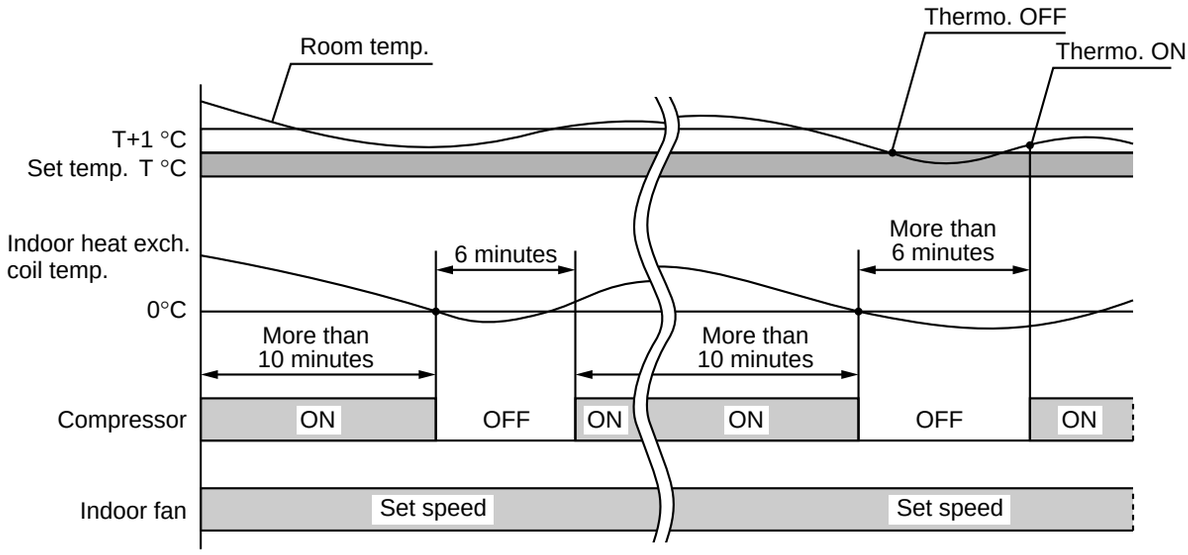
- Room temperature control is obtained by cycling the compressor ON and OFF under control of the room temperature sensor in the remote control unit.
- The room temperature (and other information) is transmitted every 3 minutes by the remote control unit to the controller in the indoor unit.



- 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°C (T°C is set temperature).
  Compressor → ON
- Thermo. OFF : When the room temperature is equal to or below set temperature T°C.
  Compressor → OFF

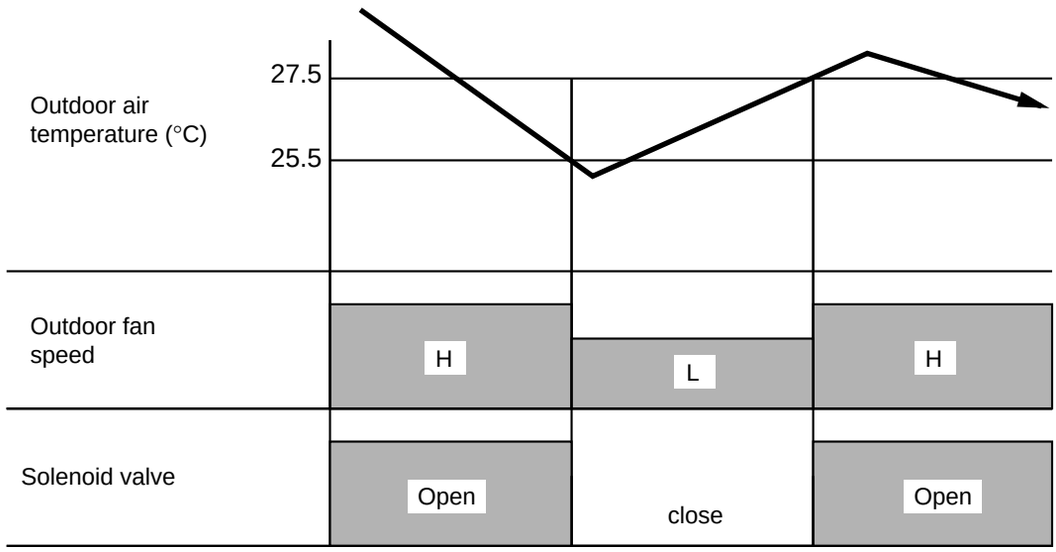
8-2. Freeze Prevention

- 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.



8-3. Outdoor Fan Speed Control

- 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 25.5°C, the fan speed switches to LOW.
- If the outdoor air temperature rises above 27.5°C, the fan speed switches to HIGH.



9. TROUBLESHOOTING

9-1. Check before and after troubleshooting

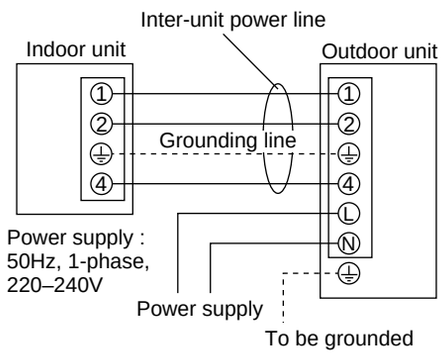
WARNING

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

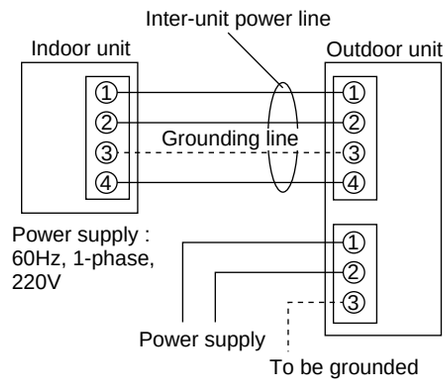
9-1-1. Check power supply wiring.

● Check that power supply wires are connected to correct terminals on the terminal plate in the outdoor unit.

• K363GS5B + C363G5A



• K363GS6B + C363G6



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 (±10% of the rating).

● Check that power is being supplied.

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

● Check that coating of lead wires is not damaged.

● Check that lead wires and connectors are firmly connected.

● Check that wiring is correct.

9-2. Air conditioner does not operate.

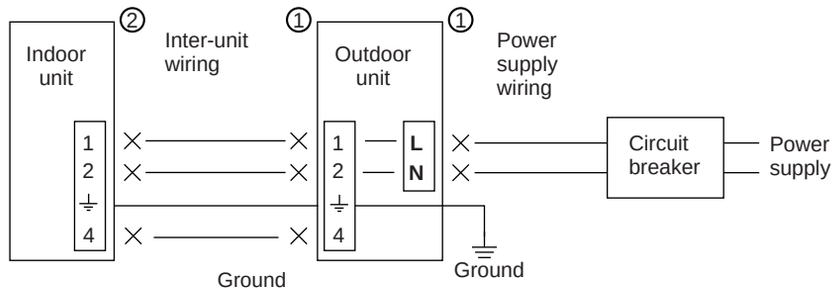
9-2-1. Circuit breaker trips (or fuse blows).

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

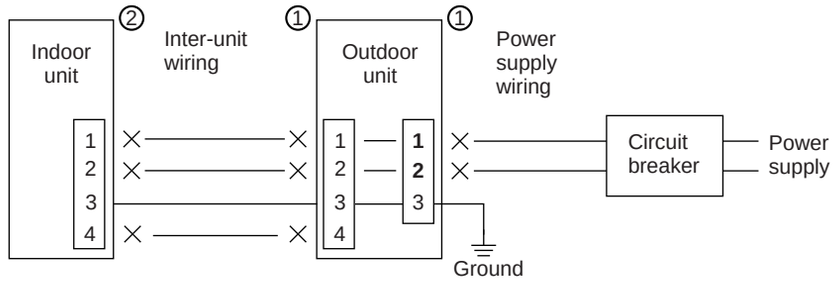
- There is a possibility of ground fault.
- Check insulation resistance.

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

• K363GS5B + C363G5A



• K363GS6B + C363G6



WARNING

* **Set circuit breaker to OFF.**

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

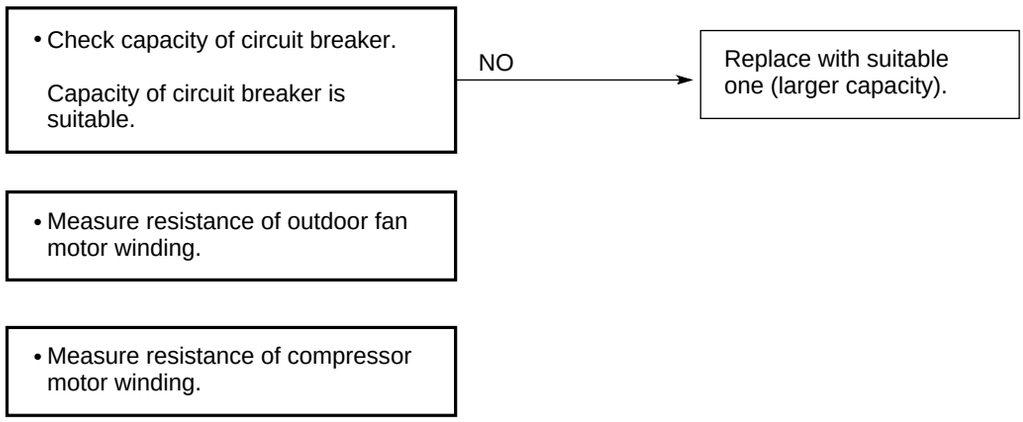
NO → Insulation of outdoor unit is defective.
- Measure insulation resistance of electrical parts in outdoor unit.

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

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

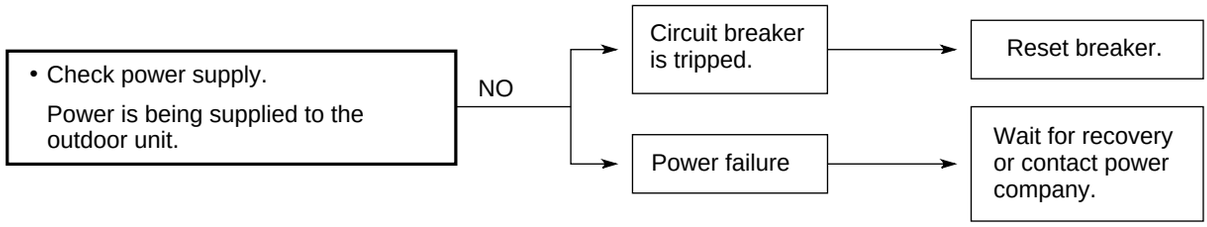
B. Circuit breaker trips in several minutes after turning the air conditioner on.

● There is a possibility of short circuit.

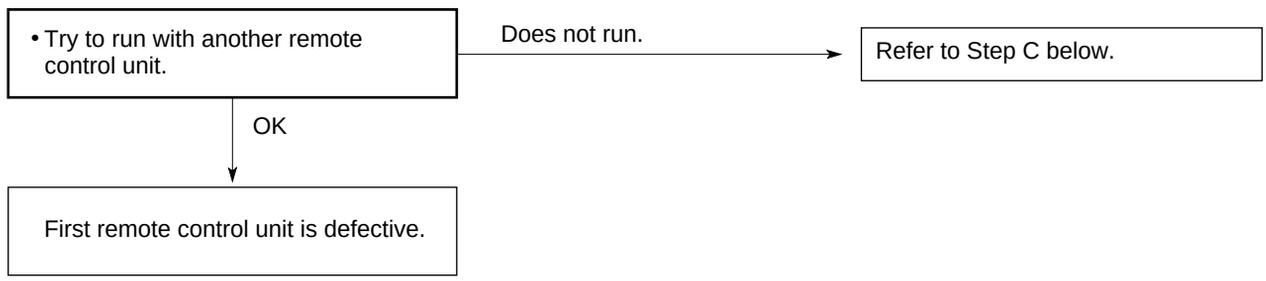


9-2-2. Neither indoor nor outdoor unit runs.

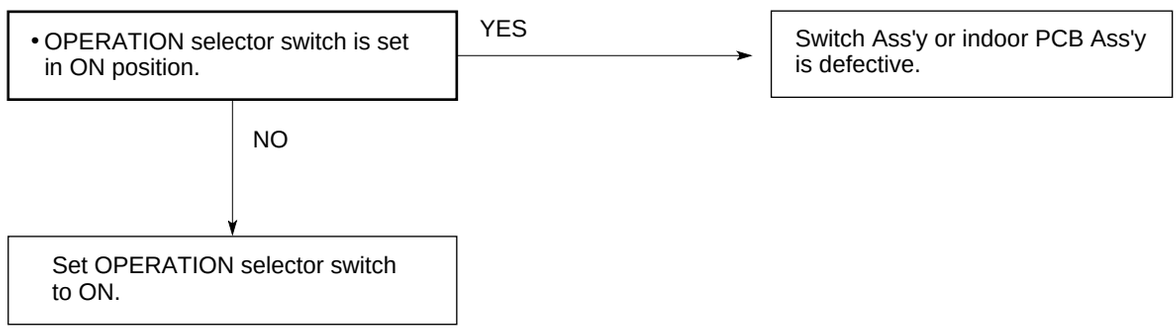
A. Power is not supplied.



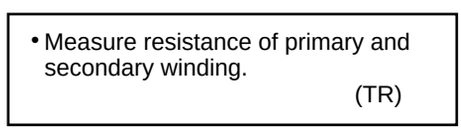
B. Check remote control unit.



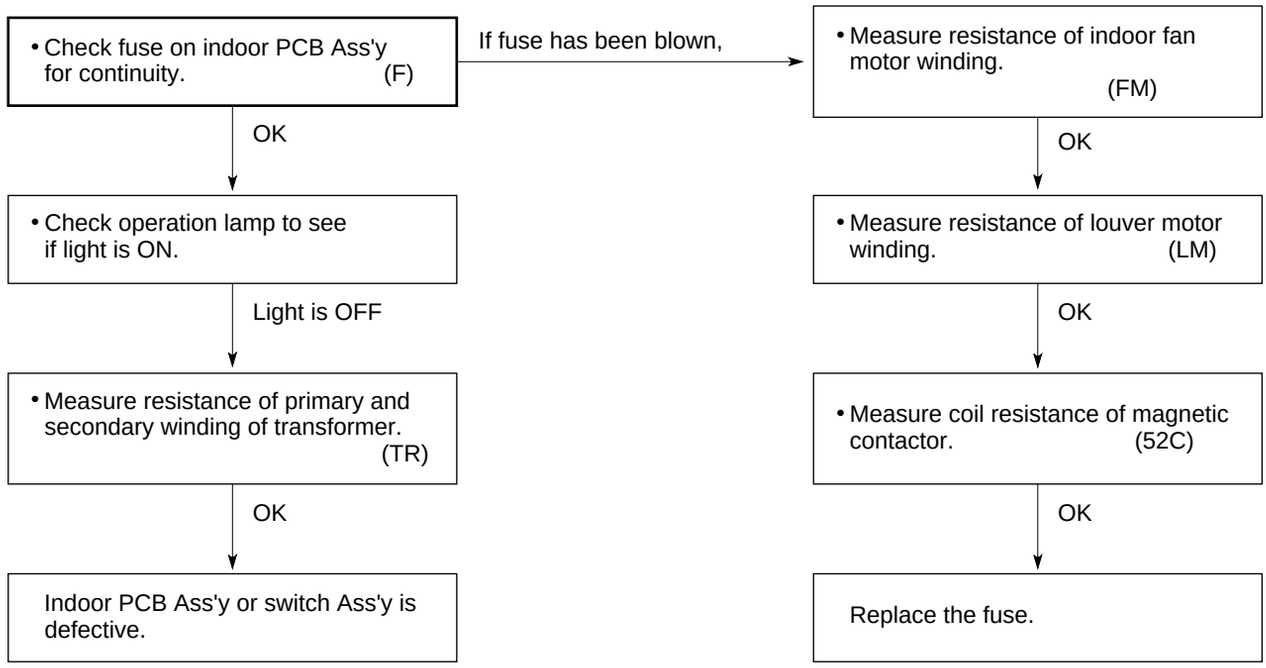
C. Check "OPERATION selector" switch in the indoor unit.



D. Check transformer in indoor unit.

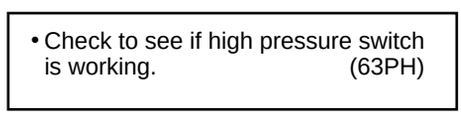


E. Check fuse on the indoor PCB Ass'y.

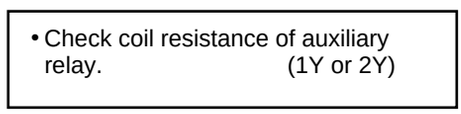


F. Check TIMER on the remote control unit.

G. Check high pressure switch in outdoor unit.

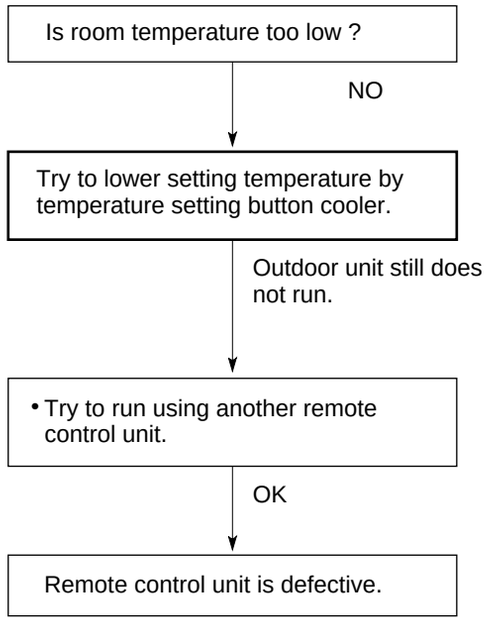


H. Check auxiliary relay in outdoor unit.

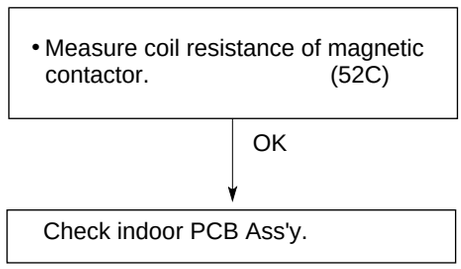


9-2-3. Only outdoor unit does not run.

A. Check setting temperature.

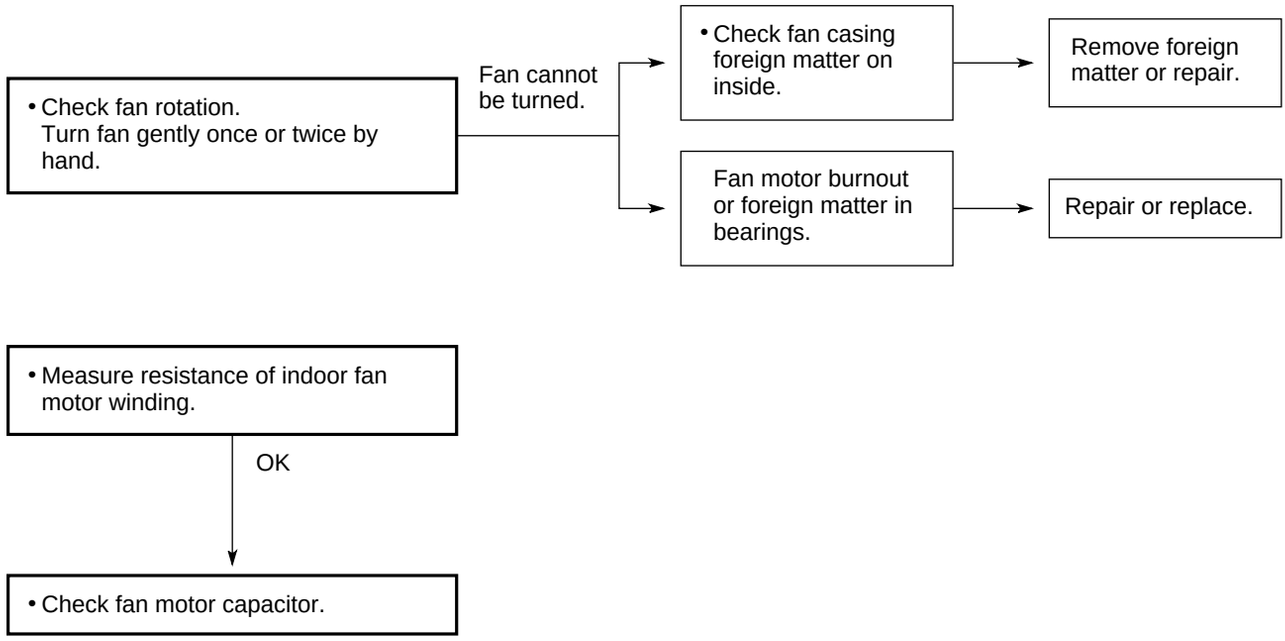


B. Check magnetic contactor in outdoor unit.

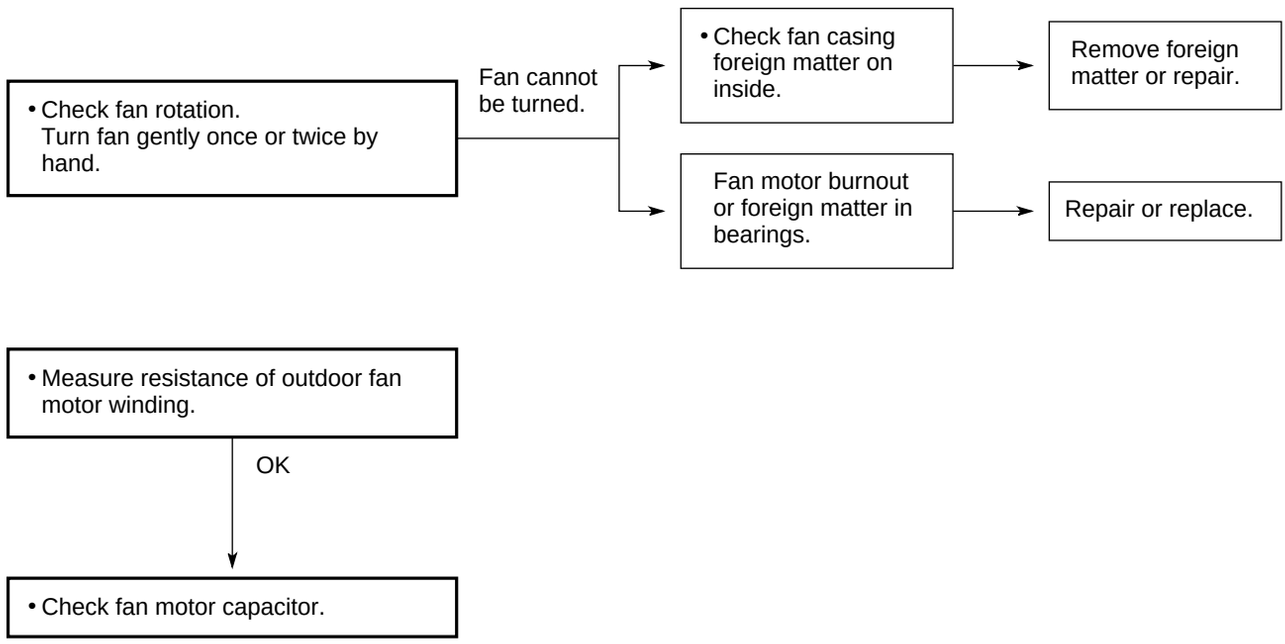


9-3. Some part of air conditioner does not operate.

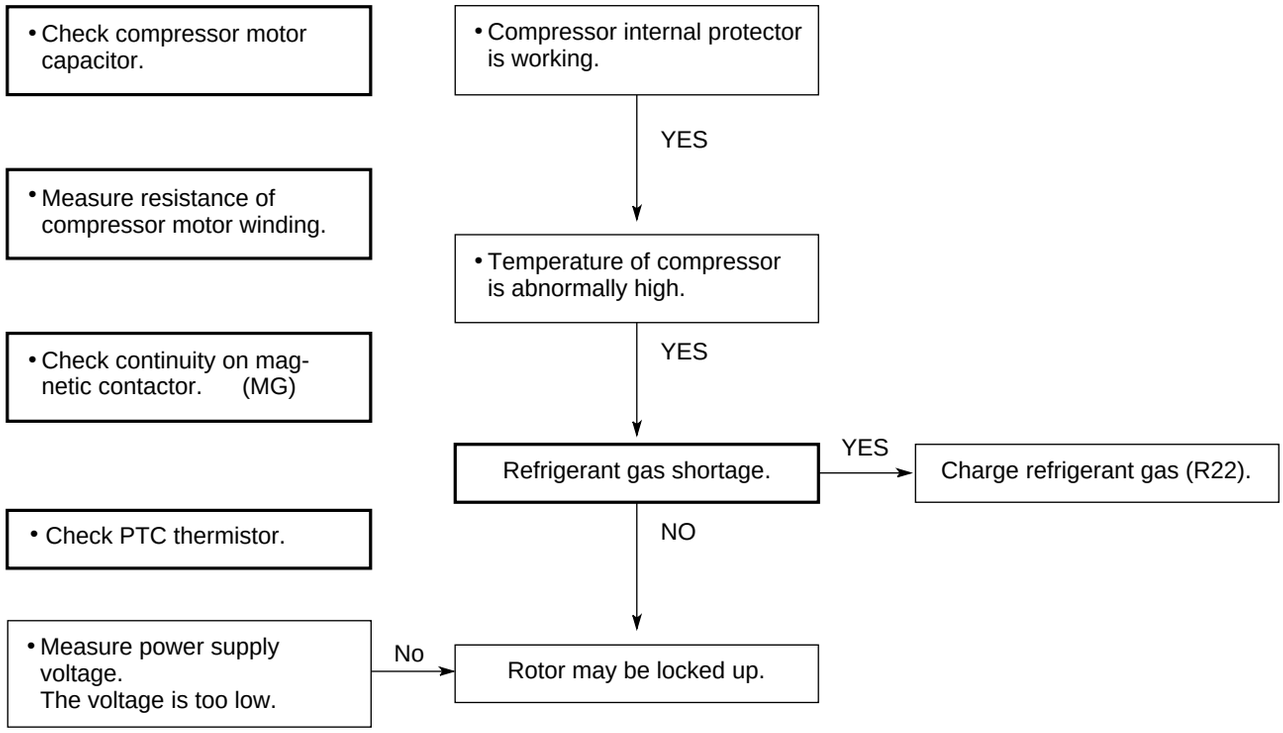
9-3-1. Only indoor fan does not run.



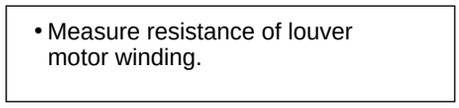
9-3-2. Only outdoor fan does not run.



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



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

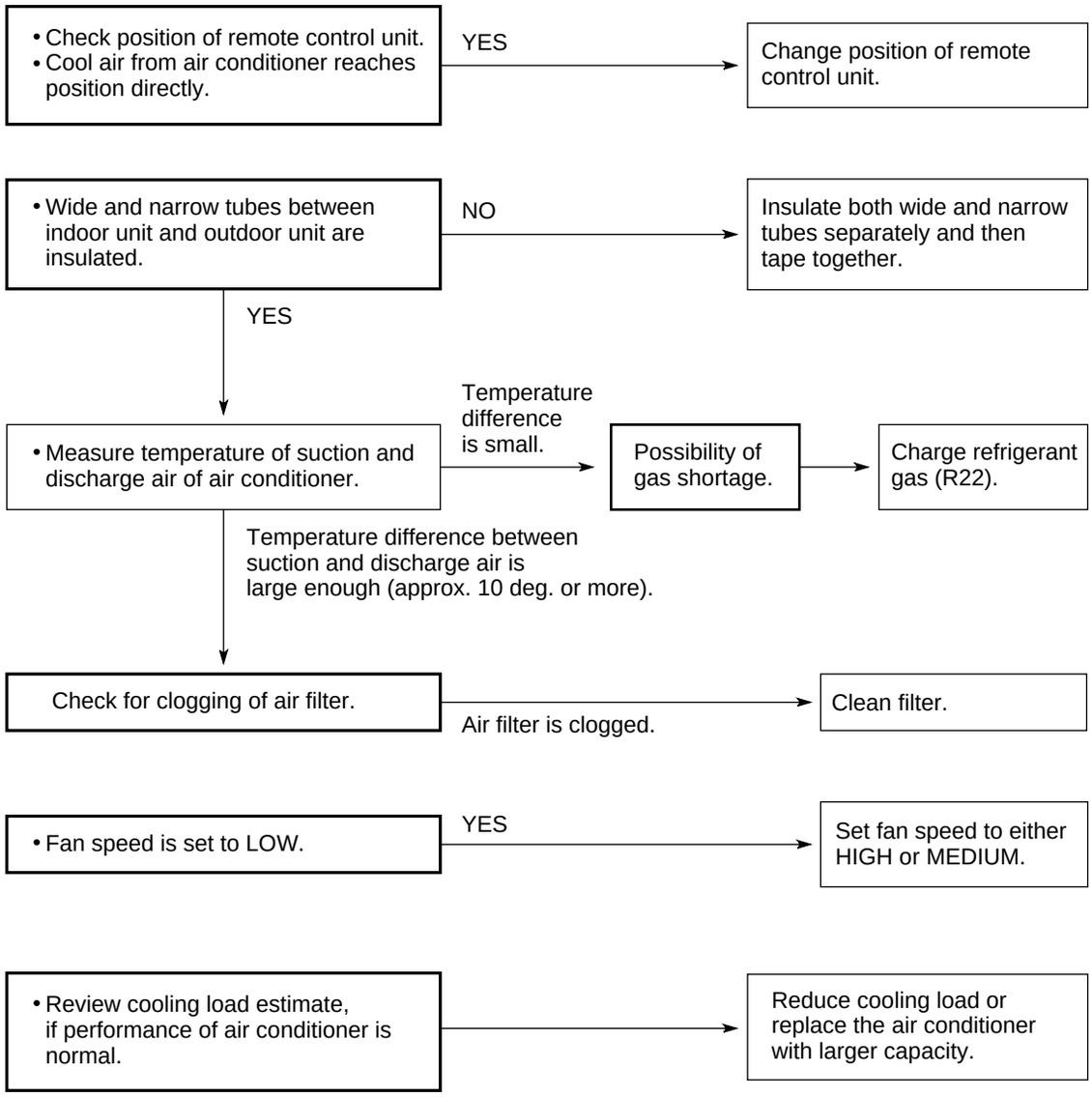


9-3-5. Function of outdoor fan speed control does not work properly.

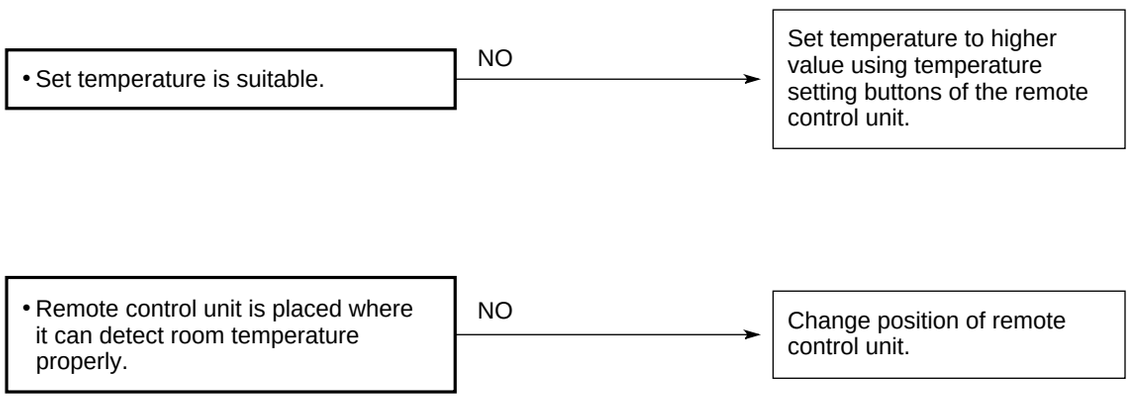
Refer to "8-3. Outdoor Fan Speed Control ".

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

9-4-1. Poor cooling.



9-4-2. Excessive cooling.



9-5. If a sensor is defective.

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

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 "8-3. 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

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

A. Open

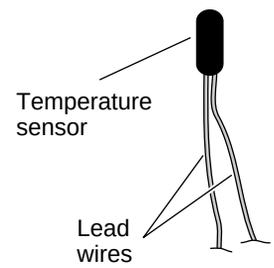
When thermistor opens, the air conditioner will be in the following conditions as the controller tries to detect extremely low room temperature.

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

B. Short

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

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



Thermistor Structure

NOTE

Definition of Open or Short Circuit of Sensor (Thermistor)

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

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

10. CHECKING ELECTRICAL COMPONENTS

10-1. Measurement of Insulation Resistance

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

10-1-1. Power Supply Wires

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

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

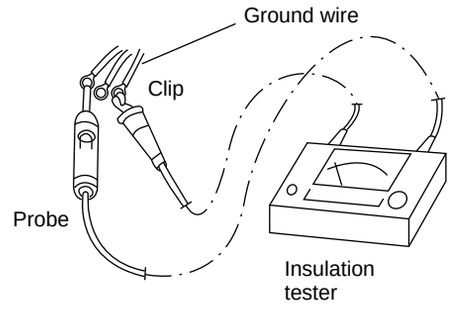


Fig. 1

10-1-2. Indoor Unit

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

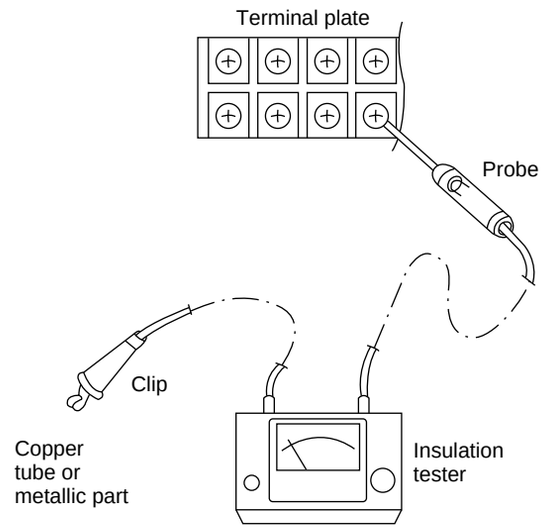


Fig. 2

10-1-3. 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)

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 to 4)

Refer to Electric Wiring Diagram.

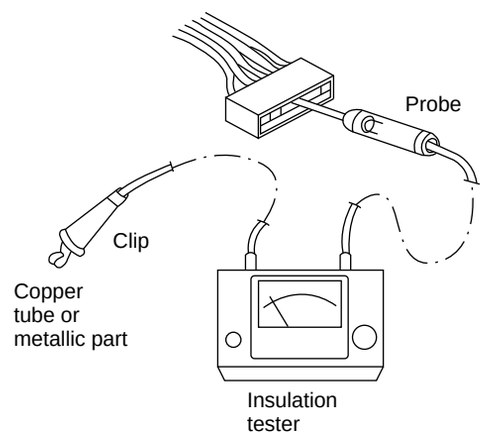


Fig. 3

NOTE

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

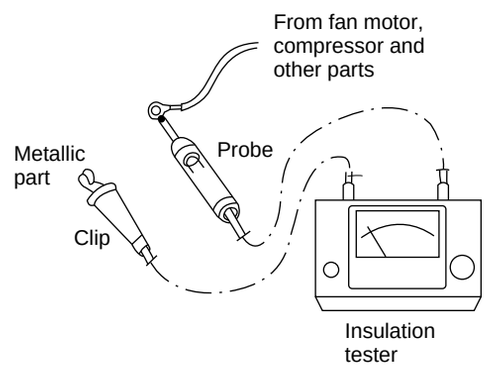


Fig. 4

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

● Check for continuity using a multimeter as shown in Fig. 5.

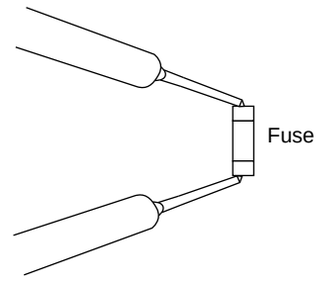


Fig. 5

NOTE

Method Used to Replace Fuse on PCB Ass'y

1. Remove the PCB Ass'y from the electrical component box.
2. Pull the fuse from the metal clasp using pliers while heating the soldered leads on the back side of the PCB Ass'y with a soldering iron (30W or 60W). (Fig. 6)
3. Remove the fuse ends one at a time. For replacement, insert a fuse of the same rating and solder it.
   (Allow time to radiate heat during soldering so that the fuse does not melt.)

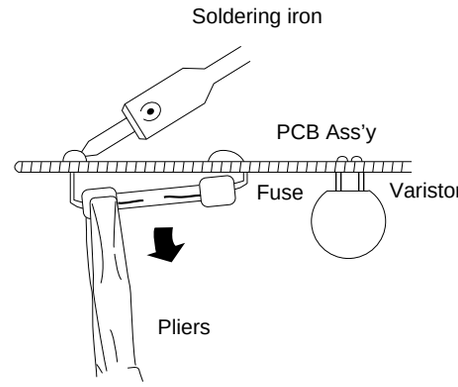


Fig. 6

CAUTION **When replacing the fuse, be sure not to break down the varistor.**

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.

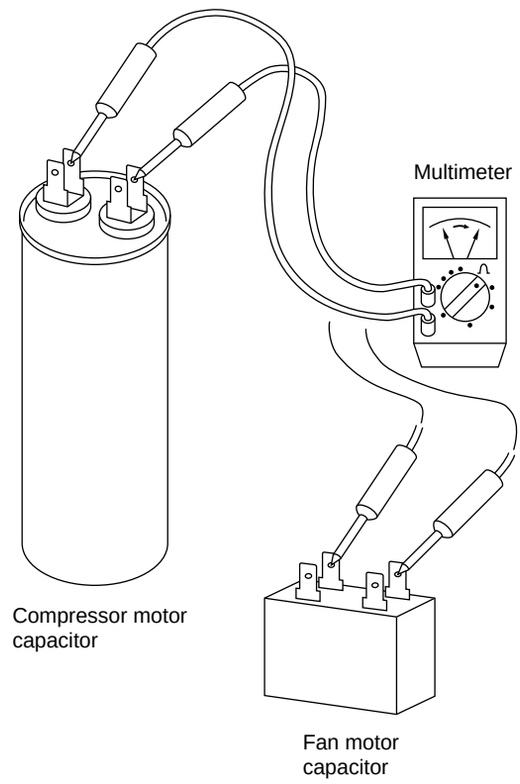


Fig. 7

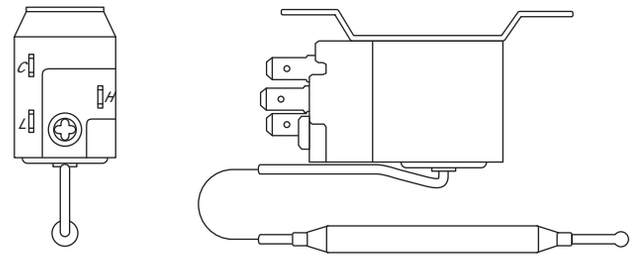
10-4. Checking Thermostat (for outdoor fan speed control)

Check continuity between terminals on the Thermostat

Temperature	Pair of terminals	
	C–H	C–L
above 27.5°C	NO	YES
below 25.5°C	YES	NO

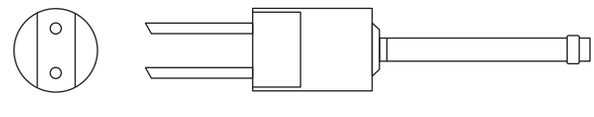
NOTE

YES .... Continuity
NO ..... Discontinuity



YTB-S377

Fig. 8



ACB-1TB07

Fig. 9

10-5. Checking High Pressure Switch

Check continuity between poles of the connector.
When the high pressure is lower than 24kg/cm, there should be continuity.
When the high pressure is exceeds 30kg/cm, there should be no continuity.

10-6. Checking Thermistor

Unplug the 2P connector connected to PCB Ass´y and measure the resistance of the thermistor with a tester, which is set in the X1 kΩ range.

● Indoor coil sensor

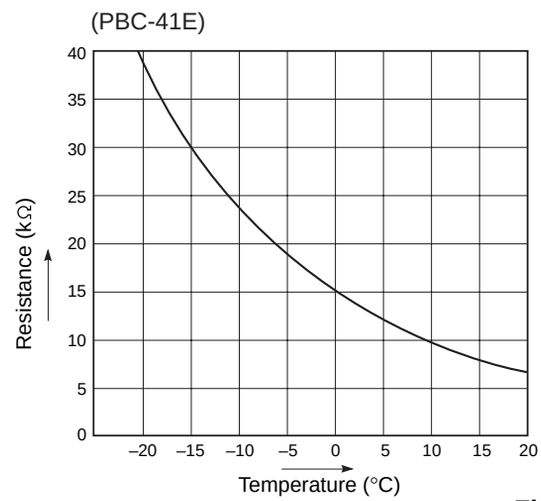


Fig. 10

● Room sensor

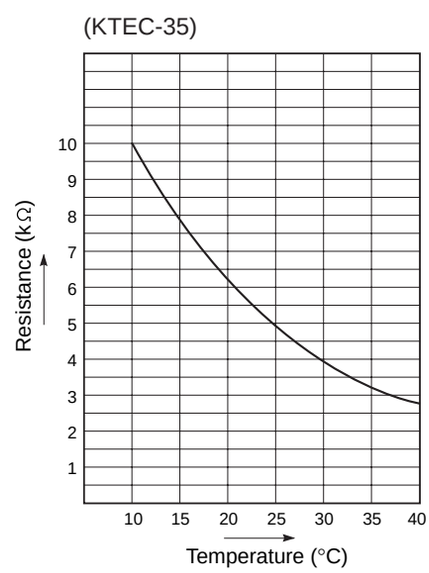


Fig. 11

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 switch positions of each indoor unit with the switch positions of its remote control unit.
Following table shows the position you can use up to 2 indoor units installed in the same room.

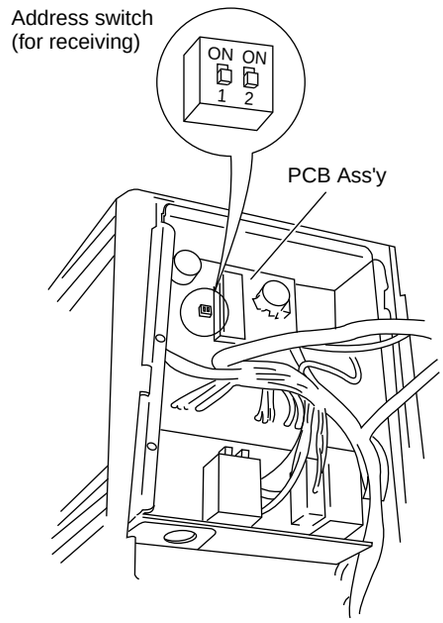
Unit No.	Indoor Unit Address		Remote Control Address
	1	2	
1	OFF	OFF	A
2	**ON**	**ON**	**B**

To Change Address on PCB Ass'y

(1) Remove 2 screws and take off the right side cover of indoor unit.

(2) Locate the address switches on the control PCB Ass´y.

(3) Change the switches to "ON – ON" position.



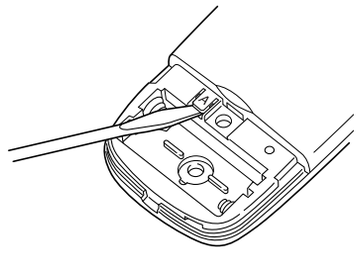
NOTE

Address switches 1 and 2 on the PCB Ass´y are both in the "OFF – OFF" position at time of shipment.

To Change Address on Remote Control Unit

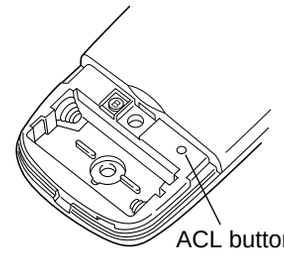
(1) Remove the batteries before changing the address.

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



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

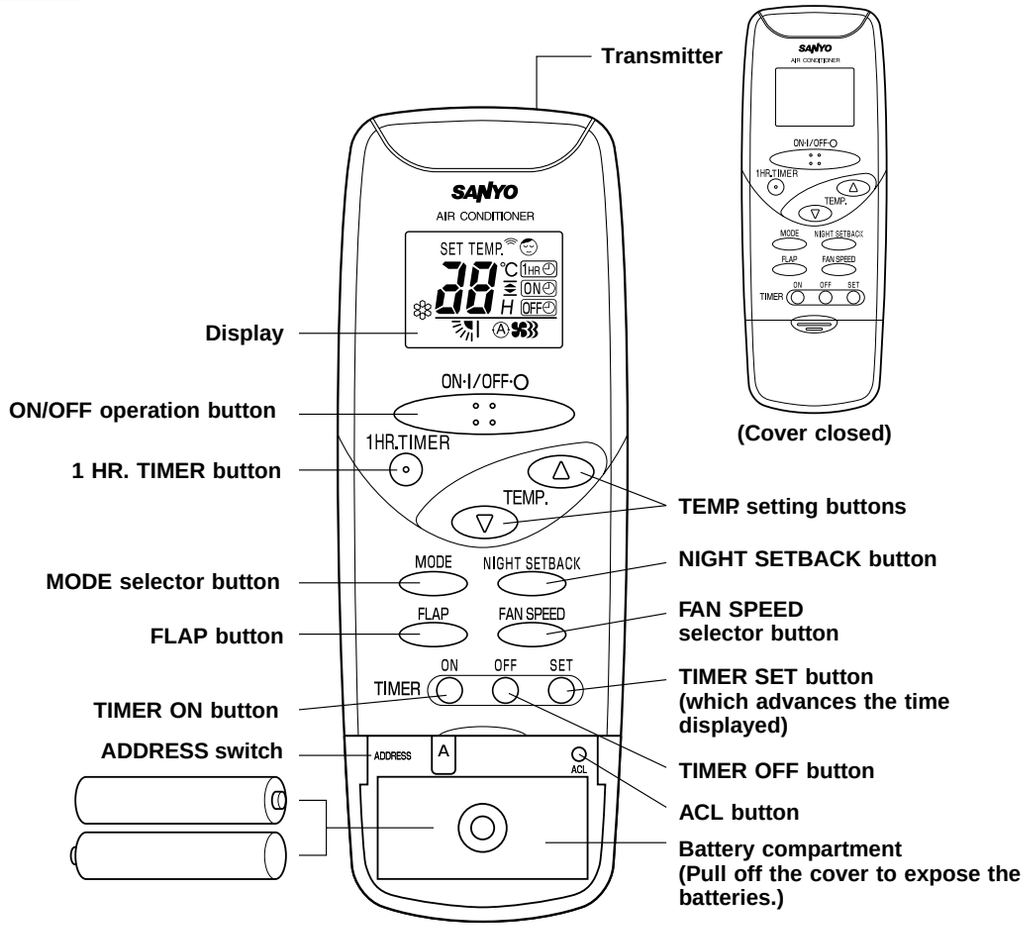
(4) After inserting the batteries, press ACL button.



NOTE Address switch on the remote control unit is in "A" position at time of shipment.

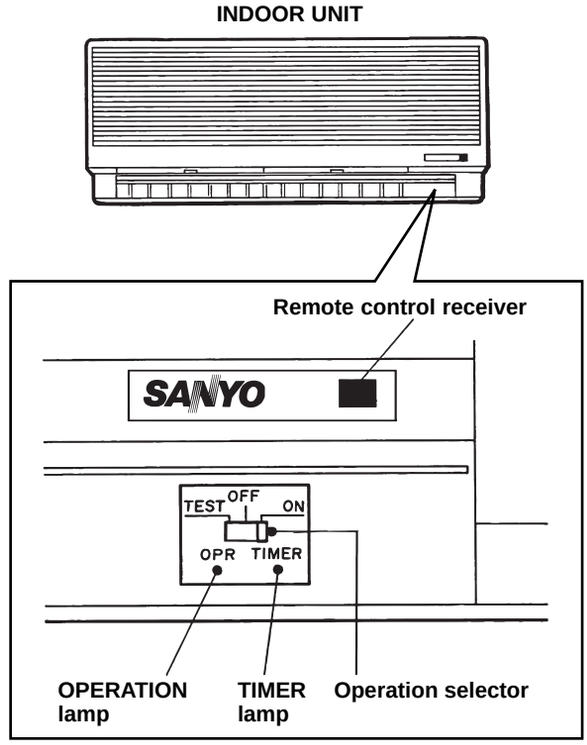
APPENDIX

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



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