

SERVICE MANUAL

SANYO

SAP243RC

Nov. 1989

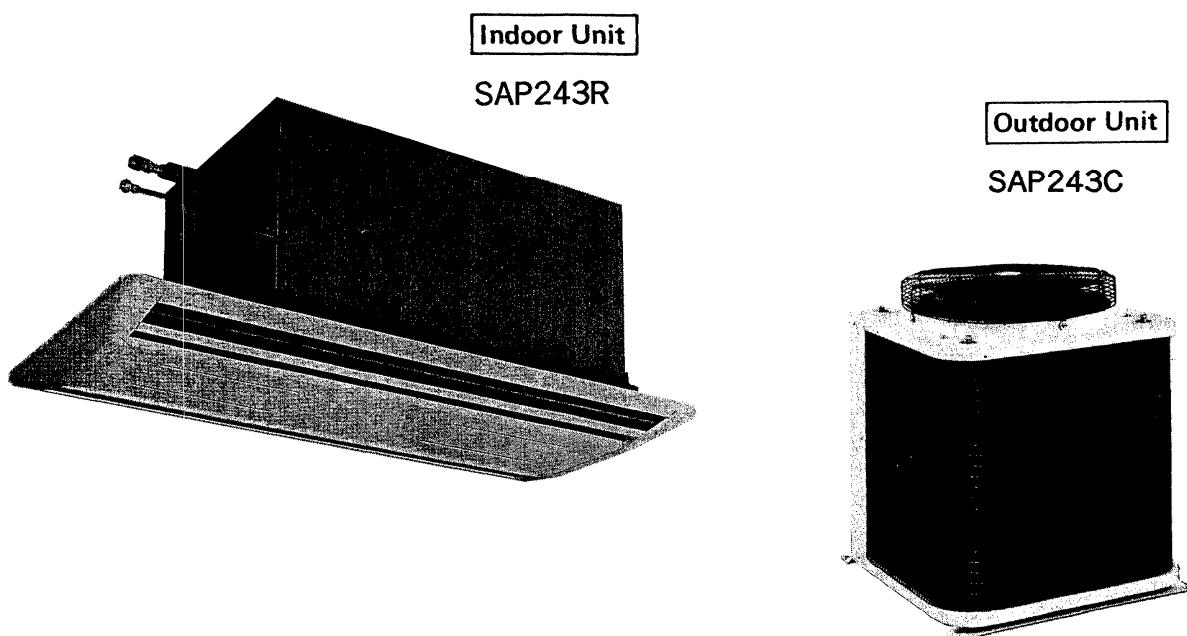
SPLIT SYSTEM AIR CONDITIONER

NOTE: The indoor unit model SAP243R is similar to model SAP241R except for:

1. The capillary tube is located in the indoor unit.
2. The electrical circuit has been changed slightly.

Refer to the service manual for the SAP241RC except for the changes listed above, which are included in this book.

For information on the outdoor unit, model SAP243C, refer to the SAP243KC or SAP243TC service manual.



1. SPECIFICATIONS

Unit Specifications

Model No.	SAP243RC	
Unit Model No.	Indoor unit	SAP243R
	Outdoor unit	SAP243C
PERFORMANCE & ELECTRICAL RATINGS		
Capacity	BTU/hr.	23,600/23,000
Air circulation (High)	Cu.ft/min.	565/530
Moisture removal (High)	Pints/hr.	7.0/6.8
SEER	BRU/Whr.	9.5/9.6
COP		—
Phase		Single
Frequency	Hz	60
Rated voltage	V	230/208
Running amperes	A	11.3/12.1
Power input	W	2,570/2,480
Back-up heater	kW	—
Fuse (or Circuit breaker) capacity	A	30
FEATURES		
Controls		1 C
Fan speeds	Indoor fan	2
	Outdoor fan	1
Timer		—
Ventilator		—
Air deflection	Horizontal	Manual
	Vertical	Manual
Air filter		Washable, easy access
Temperature control		1 C Thermostat
Compressor		Rotary
Refrigerant (R22)	lbs.(g)	6.8(3,100)
Compressor oil	cc	1,350
Refrigerant tubing connections		Flare type
Refrigerant control		Capillary tube
Max. refrigerant line length	ft.(m)	100(30)
Max. outdoor unit height	ft.(m)	50(15)
Refrigerant tube o.d.	Narrow tube	In.(mm)
	Wide tube	In.(mm)
Drain pipe o.d. (PVC pipe)		3/4(26.67)
Refrigerant tube kit		Optional
Accessories		Mounting bracket
DIMENSIONS & WEIGHT		
	Indoor unit	Outdoor unit
Height	In.(mm)	19-9/32(490)
Width	In.(mm)	51-3/16(1,300)
Depth	In.(mm)	24-13/32(620)
Net weight	lbs.(kg)	99.0(45.0)
Shipping size	Cu.ft.(Cu.m)	23.9(0.68)
Shipping weight	lbs.(kg)	154.0(70.0)

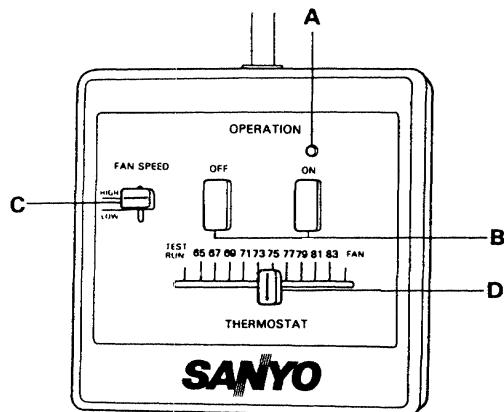
DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Remarks: Rating conditions are:

Outdoor unit entering air temperature 95°F DB/ 75°F WB
 Indoor unit entering air temperature 80°F DB/ 67°F WB

2. OPERATING INSTRUCTIONS

1. REMOTE CONTROL UNIT



Note: If the lamp goes out and the air conditioner stops operating, refer to the section entitled "REMEDIES."

THERMOSTAT

The thermostat maintains the room temperature automatically at the desired level and ensures economical air conditioner operation. Just set the thermostat lever for the temperature level you want.

TEST RUN: This position is to be used for test operation only after installation or during service. Normally it should be locked.

FAN: Set thermostat lever to this position when FAN only operation is needed.

Note: The numbers on the graduated scale are meant to serve as a guideline only. The actual room temperature may differ from the thermostat setting depending on room size and the cooling load.

A. INDICATOR LAMP (Green)

This lamp lights up during fan only and cooling operation.

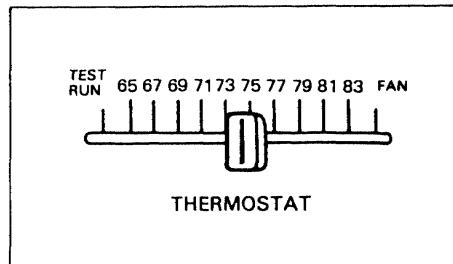
B. OPERATION SWITCH

OFF	Stops air conditioner.
ON	Starts air conditioner; bringing cooling, room air circulation and filtering dusts.

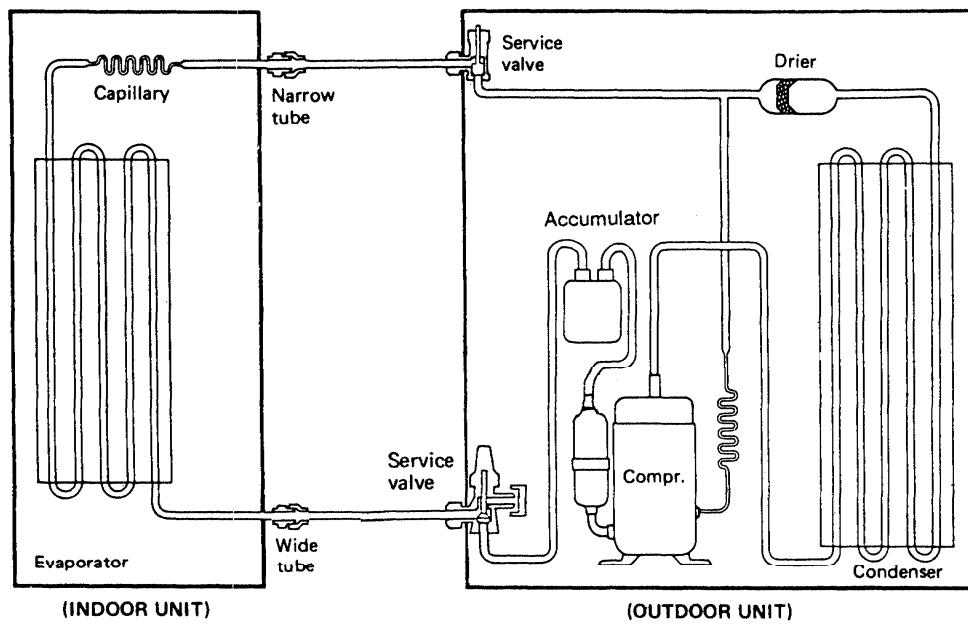
C. FAN SPEED SWITCH

HIGH	To operate the fan at high speed, set lever to HIGH position.
LOW	To operate the fan at low speed, set lever to LOW position.

D. THERMOSTAT, FAN AND TEST RUN SLIDE SWITCH

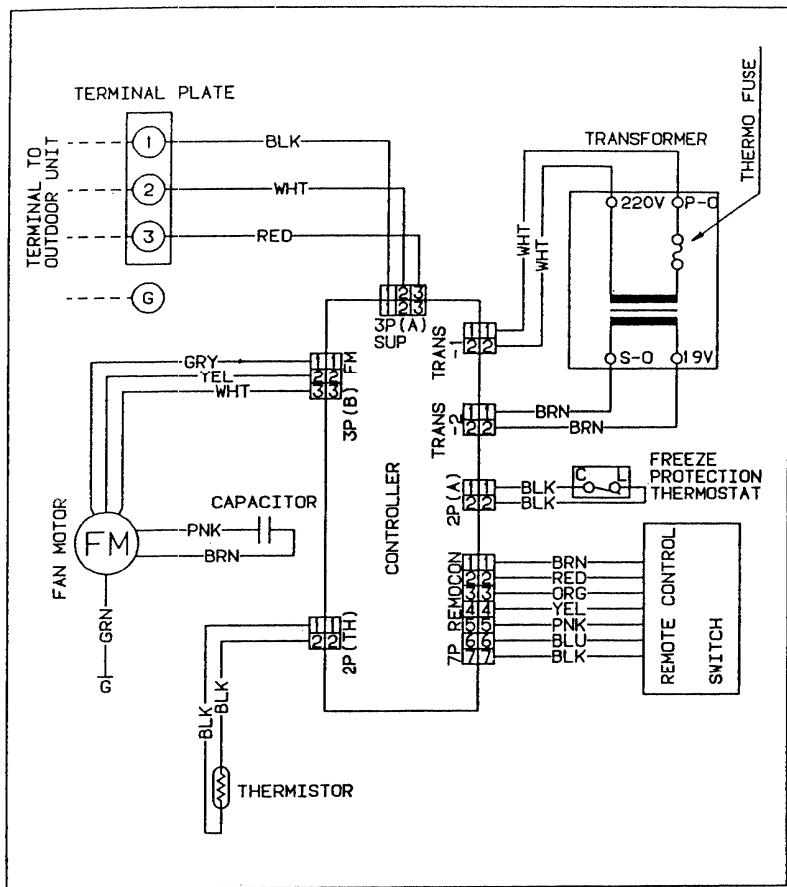


3. REFRIGERANT FLOW DIARGAM

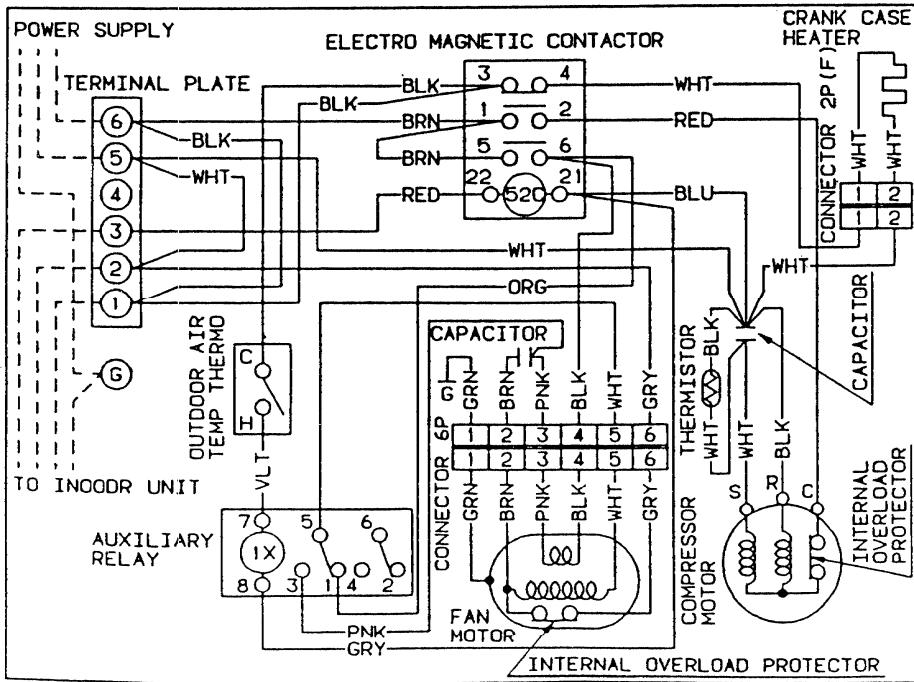


4. ELECTRIC WIRING DIAGRAM

SAP243R ELECTRIC WIRING DIAGRAM

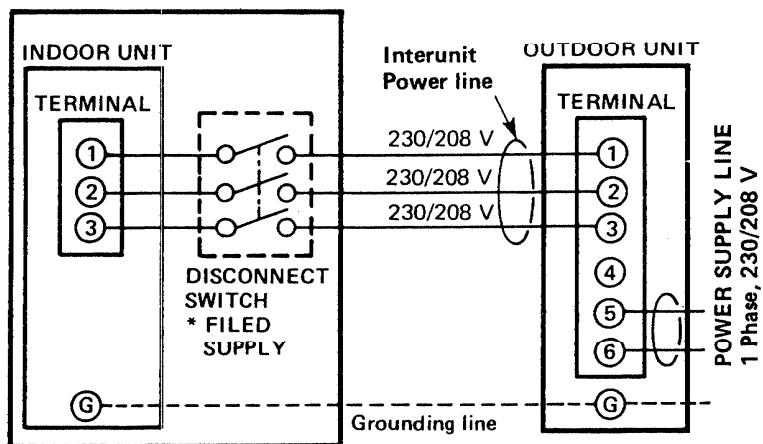


SAP243C ELECTRIC WIRING DIAGRAM



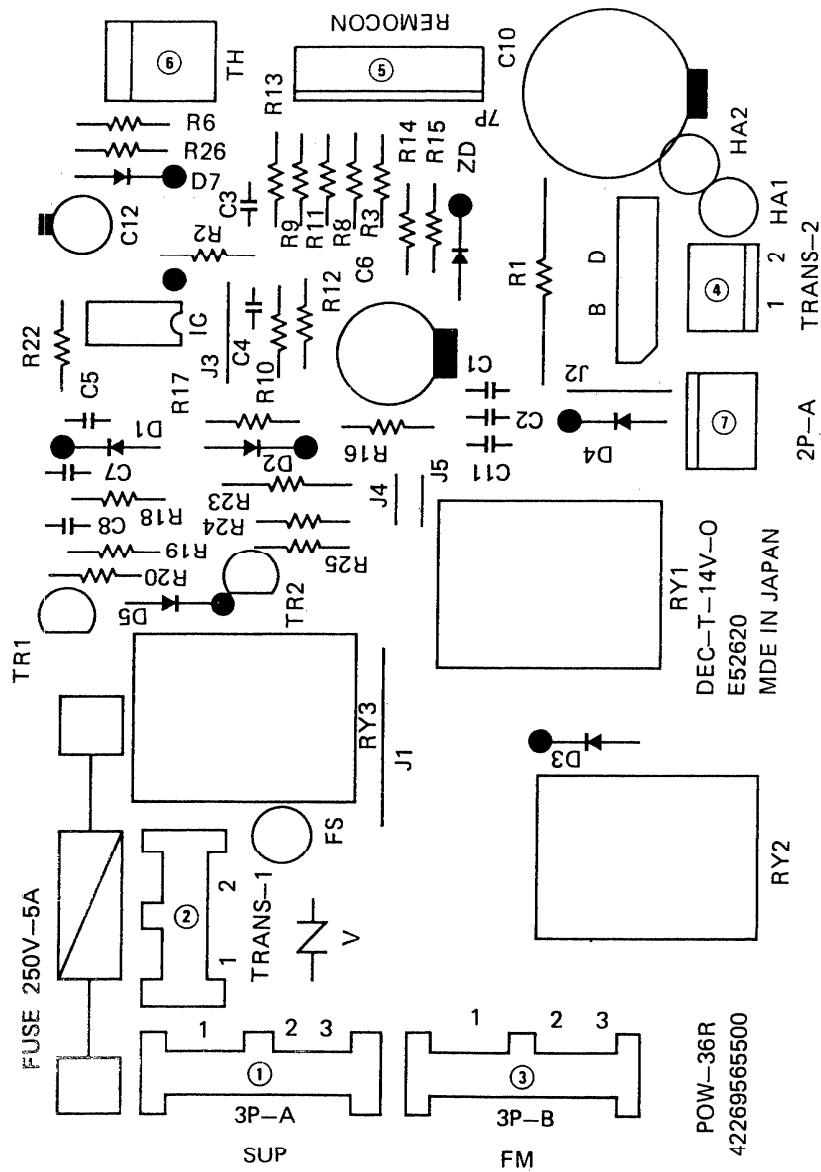
WIRING SYSTEM DIAGRAM

SAP243RC



CONTROLLER P.C.B. (Printed Pattern)

POW-36R

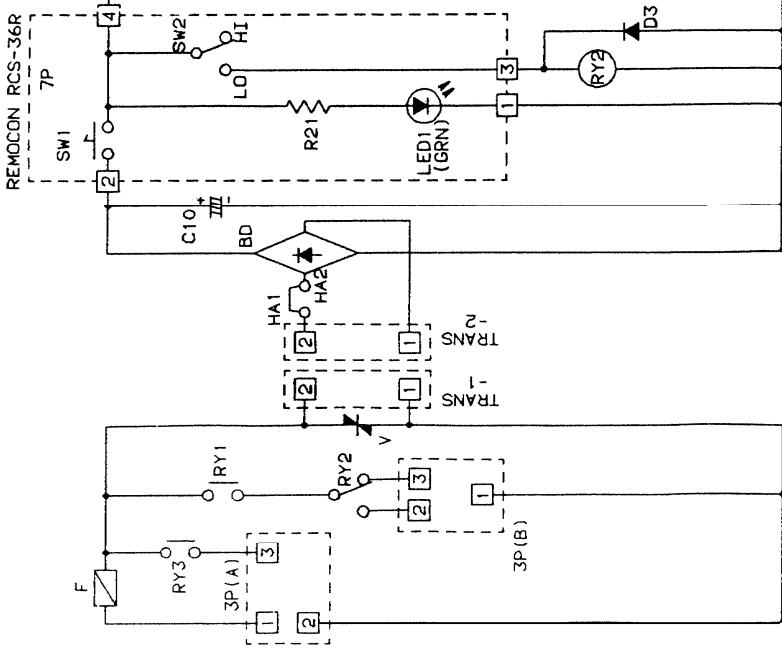
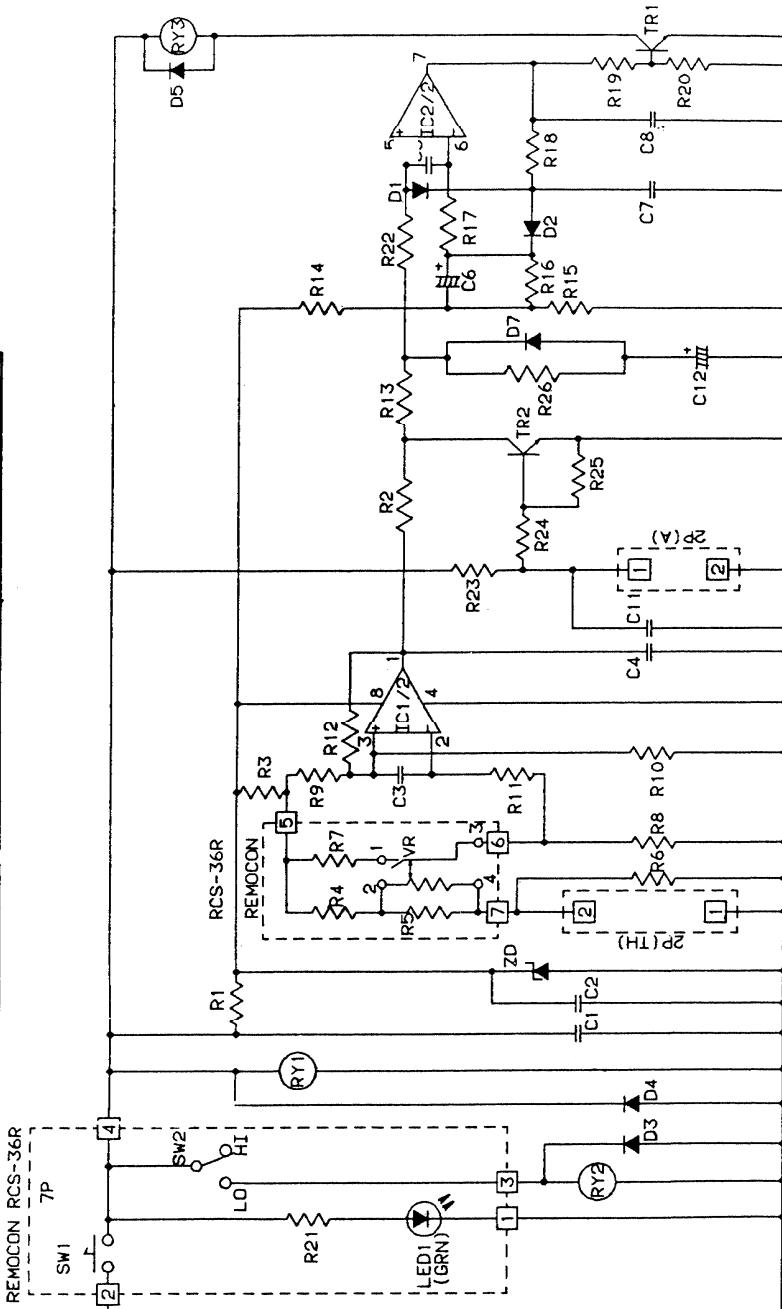


ELECTRIC WIRING DIAGRAM (CONTROLLER P.C.B.)

POW-36R

Mark	Material	Specifications	Mark	Material	Specifications	Mark	Material	Specifications
R1	Resistor	2W 680Ω	R22	Resistor	1.4W 2.2kΩ±5%	D7	Diode	DS-442X
R2	Resistor	1/4W 10kΩ±5%	R23	Resistor	1W 1.8kΩ	TR1	Transistor	2SC562KNP E OR F
R3	Resistor	1/4W 12kΩ±5%	R24	Resistor	1.4W 12kΩ±5%	TR2	Transistor	2SC562KNP E OR F
R4	-	-	R25	Resistor	1.4W 2kΩ±5%	HA1	Connector	AMP 170338-1
R5	-	-	R26	Resistor	1.4W 12kΩ±5%	HA2	Connector	AMP 170338-1
R6	Resistor	1/4W 18kΩ±1%	BD	Diode	DBA-10C	RY1	Relay	LZG-24HE DC24V
R7	-	-	C1	Capacitor	50V 0.022μF	RY2	Relay	LZG-24HE DC24V
R8	Resistor	1/4W 560kΩ±5%	C2	Capacitor	50V 0.022μF	RY3	Relay	LZG-24HE DC24V
R9	Resistor	1/4W 2.94kΩ±1%	C3	Capacitor	50V 0.022μF	V	Varistor	SNR-A420K
R10	Resistor	1/4W 3kΩ±1%	C4	Capacitor	50V 0.022μF	F	Fuse	250V 5A
R11	Resistor	1/4W 10kΩ±1%	C5	Capacitor	50V 0.022μF	TRANS-1	Connector	PLUG UL TLEX (BLK)
R12	Resistor	1/4W 910kΩ±1%	C6	Capacitor	10V 330μF	TRANS-2	Connector	PLUG SL156
R13	Resistor	1/4W 11kΩ±5%	C7	Capacitor	50V 0.22μF	3P (A)	Connector	PLUG UL TLEX (BLK)
R14	Resistor	1/4W 10kΩ±5%	C8	Capacitor	50V 0.022μF	3P (B)	Connector	PLUG UL TLEX (RED)
R15	Resistor	1/4W 2kΩ±5%	C10	Capacitor	50V 4.7μF	2P (A)	Connector	PLUG 5273-02ABL
R16	Resistor	1/4W 220kΩ±5%	C11	Capacitor	50V 0.022μF	2P (TH)	Connector	PLUG 5273-02A
R17	Resistor	1/4W 10kΩ±5%	C12	Capacitor	16V 4.7μF	7P	Connector	PLUG EI
R18	Resistor	1/4W 4.3kΩ±5%	ZD	Zener Diode	GZA-12L	IC	IC	LA6358
R19	Resistor	1/4W 6.8kΩ±5%	D1	Diode	DS-442X	D4	Diode	DS-442X
R20	Resistor	1/4W 2.2kΩ±5%	D2	Diode	DS-442X	D5	Diode	DS-442X
R21	-	-	D3	Diode	DS-442X			

Mark	Material	Specifications	Mark	Material	Specifications	Mark	Material	Specifications
R1	Resistor	2W 680Ω	R22	Resistor	1.4W 2.2kΩ±5%	D7	Diode	DS-442X
R2	Resistor	1/4W 10kΩ±5%	R23	Resistor	1W 1.8kΩ	TR1	Transistor	2SC562KNP E OR F
R3	Resistor	1/4W 12kΩ±5%	R24	Resistor	1.4W 12kΩ±5%	TR2	Transistor	2SC562KNP E OR F
R4	-	-	R25	Resistor	1.4W 2kΩ±5%	HA1	Connector	AMP 170338-1
R5	-	-	R26	Resistor	1.4W 12kΩ±5%	HA2	Connector	AMP 170338-1
R6	Resistor	1/4W 18kΩ±1%	BD	Diode	DBA-10C	RY1	Relay	LZG-24HE DC24V
R7	-	-	C1	Capacitor	50V 0.022μF	RY2	Relay	LZG-24HE DC24V
R8	Resistor	1/4W 560kΩ±5%	C2	Capacitor	50V 0.022μF	RY3	Relay	LZG-24HE DC24V
R9	Resistor	1/4W 2.94kΩ±1%	C3	Capacitor	50V 0.022μF	V	Varistor	SNR-A420K
R10	Resistor	1/4W 3kΩ±1%	C4	Capacitor	50V 0.022μF	F	Fuse	250V 5A
R11	Resistor	1/4W 10kΩ±1%	C5	Capacitor	50V 0.022μF	TRANS-1	Connector	PLUG UL TLEX (BLK)
R12	Resistor	1/4W 910kΩ±1%	C6	Capacitor	10V 330μF	TRANS-2	Connector	PLUG SL156
R13	Resistor	1/4W 11kΩ±5%	C7	Capacitor	50V 0.22μF	3P (A)	Connector	PLUG UL TLEX (BLK)
R14	Resistor	1/4W 10kΩ±5%	C8	Capacitor	50V 0.022μF	3P (B)	Connector	PLUG UL TLEX (RED)
R15	Resistor	1/4W 2kΩ±5%	C10	Capacitor	50V 4.7μF	2P (A)	Connector	PLUG 5273-02ABL
R16	Resistor	1/4W 220kΩ±5%	C11	Capacitor	50V 0.022μF	2P (TH)	Connector	PLUG 5273-02A
R17	Resistor	1/4W 10kΩ±5%	C12	Capacitor	16V 4.7μF	7P	Connector	PLUG EI
R18	Resistor	1/4W 4.3kΩ±5%	ZD	Zener Diode	GZA-12L	IC	IC	LA6358
R19	Resistor	1/4W 6.8kΩ±5%	D1	Diode	DS-442X	D4	Diode	DS-442X
R20	Resistor	1/4W 2.2kΩ±5%	D2	Diode	DS-442X	D5	Diode	DS-442X
R21	-	-	D3	Diode	DS-442X			

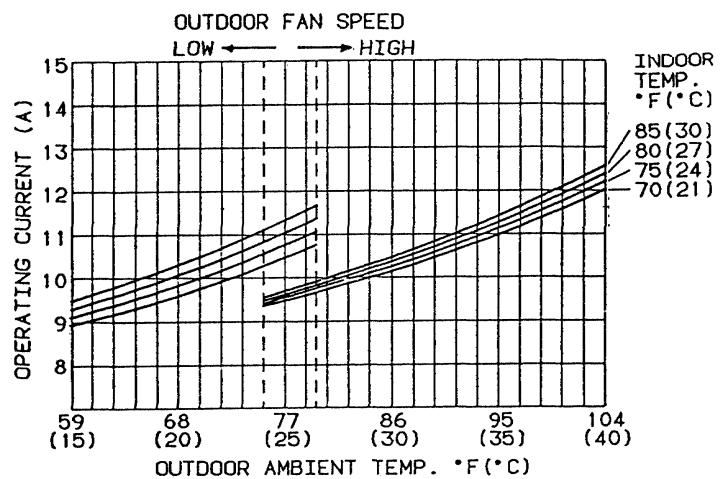


5. PERFORMANCE CHART

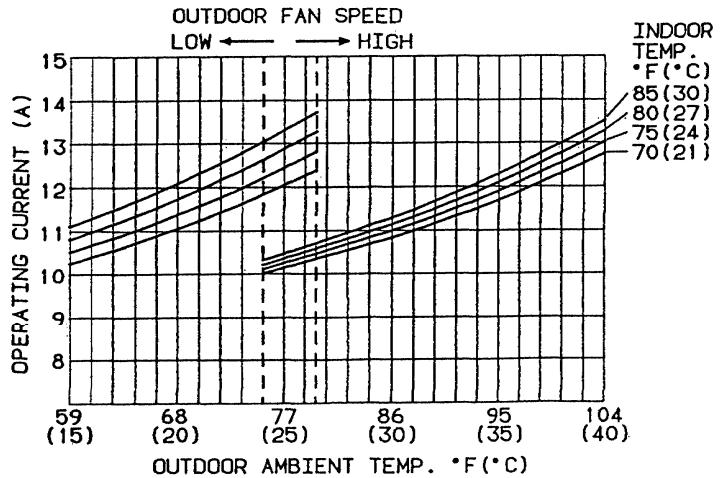
Cooling characteristics

Operating current characteristics versus outdoor ambient temperature and indoor temperature (Indoor relative humidity: 50%, indoor fan speed: High, overall value for indoor and outdoor shown.)

230 V (60 Hz)



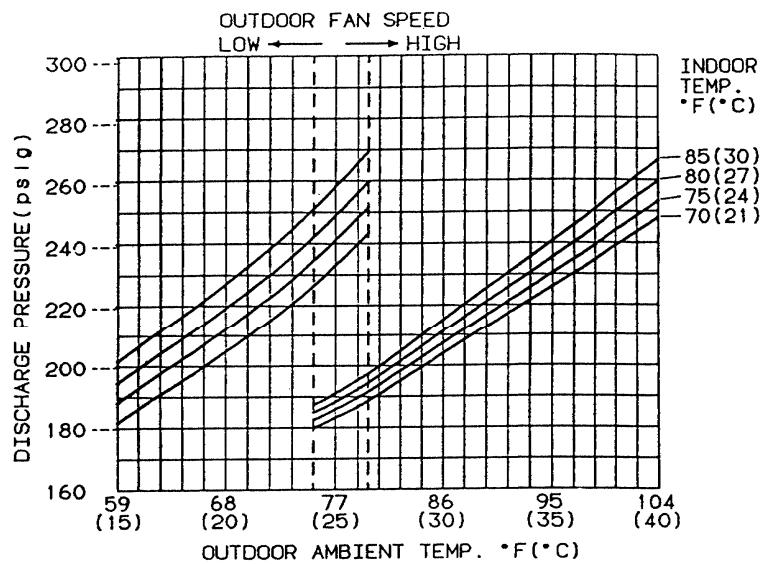
208 V (60 Hz)



230/208V (60 Hz)

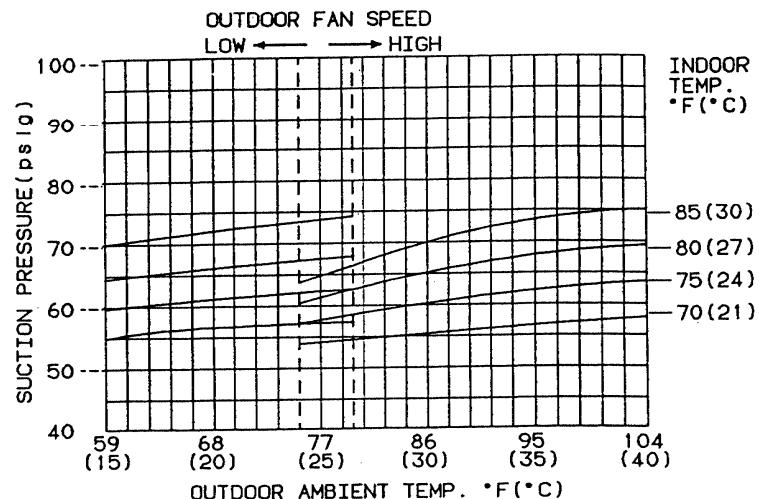
Cooling characteristics

High pressure characteristics versus outdoor ambient temperature and indoor temperature (Indoor relative humidity: 50%, indoor fan speed: High.)

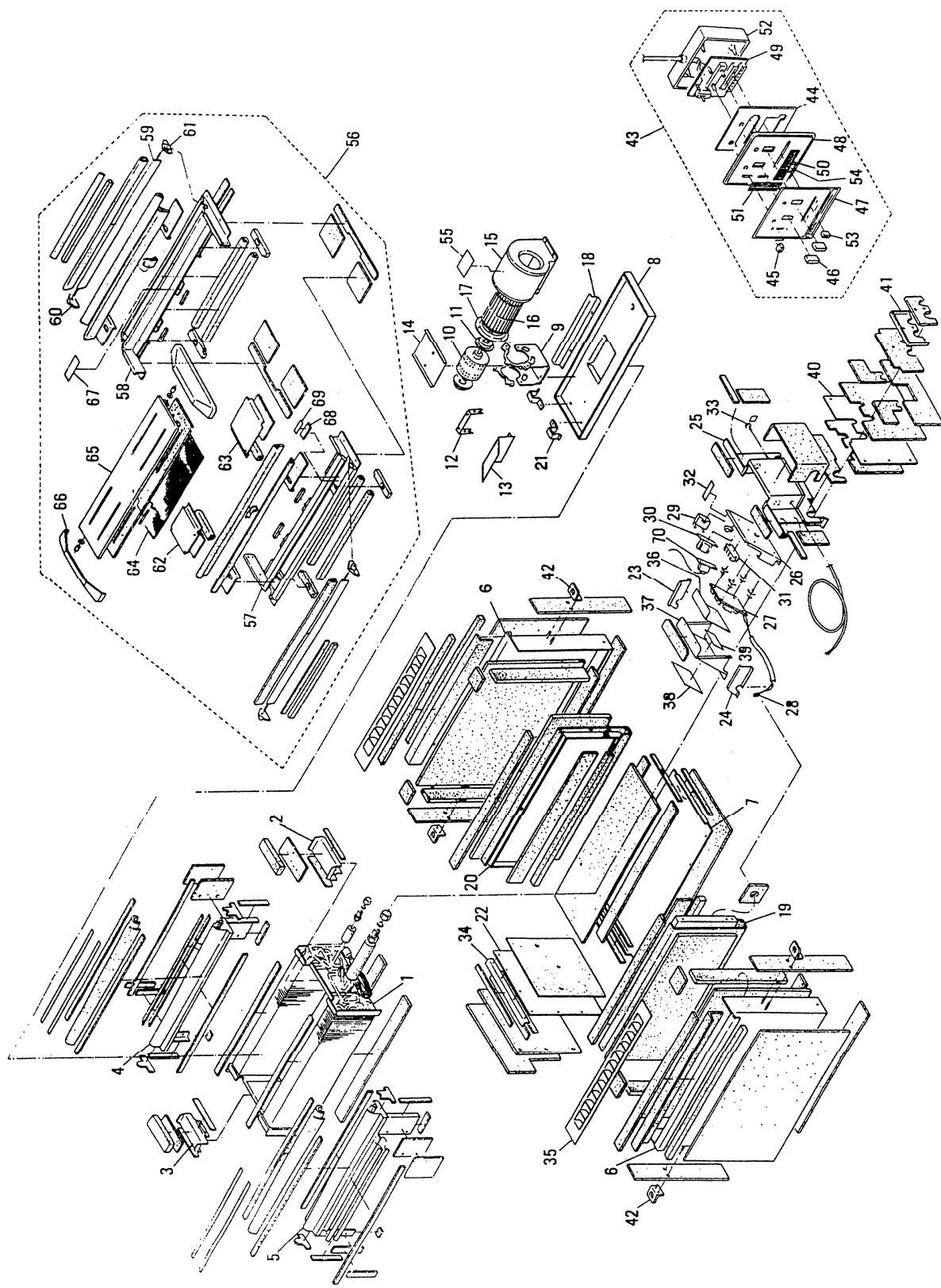


Cooling characteristics

Low pressure characteristics versus outdoor ambient temperature and indoor temperature (Indoor relative humidity: 50%, indoor fan speed: High.)



6. PARTS LIST



ATTENTION !

To ensure correct parts supply, please let us know followings,
when you make service parts order:

1. Part No. 2. Description 3. Q'ty 4. Volts-Hz-Ph 5. Product Model No.

Key No.	Part No.	Description	Q'ty
1	623 097 5330	Evaporator Ass'y	1
2	623 067 6329	Drain Pan Ass'y	1
3	623 067 6343	Drain Pan Ass'y	1
4	623 067 6381	Drain Pan Ass'y	1
5	623 067 6428	Drain Pan Ass'y	1
6	623 066 2322	Side Panel Ass'y	2
7	623 066 4258	Top Plate Ass'y	1
8	623 068 7226	Partition Plate Ass'y	1
9	623 068 6526	Support Motor Ass'y	1
10	623 097 5132	Fan Motor Ass'y KFG4S-81B6P	1
11	623 079 9950	Cushion Rubber	2
12	623 079 7064	Mounting Plate	1
13	623 077 1116	Cover Plate, Fan Motor	1
14	623 077 1055	Cover Plate, Fan Motor	1
15	623 068 4386	Fan Casing Ass'y	1
16	623 068 3065	Centrifugal Fan Ass'y	1
17	623 079 8038	Air Guide	1
18	623 078 6035	Mounting Plate	1
19	623 077 2007	Partition Plate	1
20	623 077 1970	Partition Plate	1
21	623 078 4673	Guide	2
22	623 071 5110	Side Panel	1
23	623 081 8453	Elec. Component Box	1
24	623 081 8460	Elec. Component Box	1
25	623 071 0795	Elec. Component Box Ass'y	1
26	623 071 0818	Elec. Component Box Ass'y	1
27	623 030 4857	Controller POW-36R	1
28	623 097 5163	Thermistor Ass'y OCS5K-UL	1
29	623 001 1830	Fixed Capacitor 440V 3MF	1
30	623 097 5149	Transformer Ass'y ATR-J122U	1
31	623 003 3030	Terminal Base JTU20-3	1
32	623 060 3561	Label	1
33	623 051 6977	Screw Special	1
34	623 067 0280	Mounting Plate Ass'y	1
35	623 071 9071	Blade Louver	2
36	623 081 9900	Cover Plate	1
37	623 081 9087	Cover Plate	1
38	623 074 1782	Label	1
39	623 097 4975	Elec. Wiring Diagram	1
40	623 071 3932	Front Panel	1
41	623 072 2880	Cover Plate	1
42	623 072 2095	Hook Plate	4
43	623 028 8737	Remote Control Switch Ass'y RCS-36R	1
44	623 071 1518	Mounting Plate Ass'y	1
45	623 072 6956	Knob	1
46	623 072 6826	Knob	2
47	623 074 2796	Indicator Plate	1
48	623 082 0005	Cover Plate	1
49	623 030 5144	Control Switch Ass'y	1
50	623 027 7700	Filter	1

NOTE: Metal and plastic parts will be supplied basically
with necessary heat insulation pads or packing.

ATTENTION !

To ensure correct parts supply, please let us know followings,
when you make service parts order:

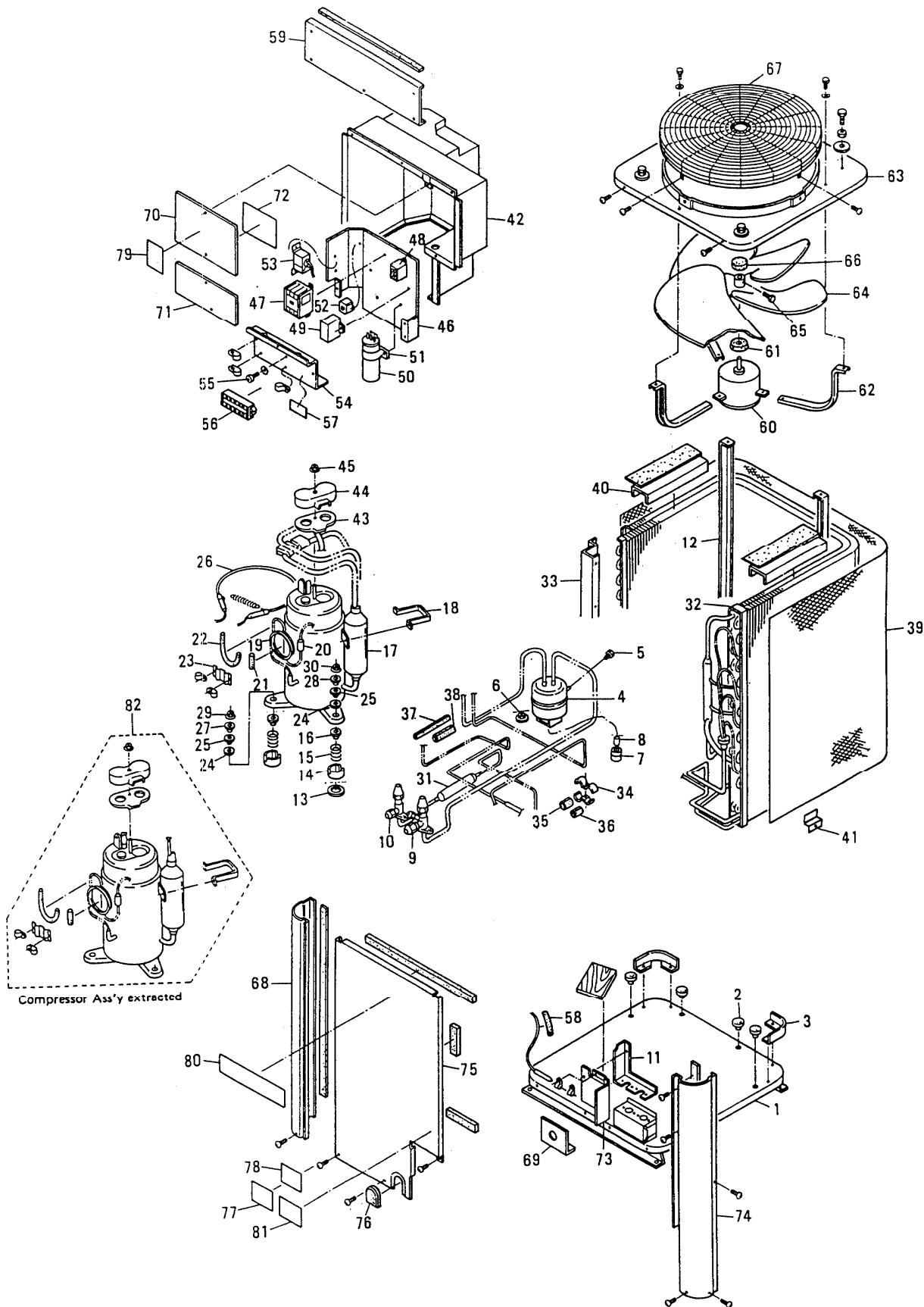
1. Part No. 2. Description 3. Q'ty 4. Volts-Hz-Ph 5. Product Model No.

SAP243R
INDCOR UNIT

Key No.	Part No.	Description	Q'ty
51	623 027 7724	Filter	1
52	623 081 8354	Elec. Component Box	1
53	623 072 7007	Knob	1
54	623 037 9589	Label	1
55	623 097 5507	Name Plate	1
56	623 087 6242	Panel Ass'y SAP-241RW	1
57	623 066 4722	Top Plate Ass'y	1
58	623 066 4463	Top Plate Ass'y	1
59	623 067 1386	Blade Louver Ass'y	2
60	623 076 6389	Fastener Blade	2
61	623 076 6396	Fastener Blade	2
62	623 072 2972	Cover Plate	1
63	623 072 3009	Cover Plate	1
64	623 067 9037	Case Ass'y, Filter	1
65	623 066 4678	Top Plate Ass'y	1
66	623 072 0138	Cap, Top Panel	2
67	623 084 8269	Label	1
68	623 047 9098	Badge, PL-ABS-00	1
69	623 090 7645	Badge	1
70	623 002 9477	Thermostat RTB-4U301	1
•	623 097 5057	Operation Manual	1
•	623 097 4982	Installation Instructions	1

NOTE: Metal and plastic parts will be supplied basically
with necessary heat insulation pads or packing.

SAP243C
OUTDOOR UNIT



ATTENTION !

To ensure correct parts supply, please let us know followings,
when you make service parts order:

1. Part No. 2. Description 3. Q'ty 4. Volts-Hz-Ph 5. Product Model No.

Key No.	Part No.	Description	Q'ty
1	623 067 4189	Bottom Plate Ass'y	1
2	623 073 3831	Sheet Rubber	4
3	623 078 5205	Mounting Plate	2
4	623 070 8495	Accumulator Ass'y	1
5	623 081 4554	Fusible Plug	1
6	623 029 6534	Nut Special Ass'y	1
7	623 077 2373	Cushion Rubber	1
8	624 081 8054	Sleeve	1
9	623 070 6156	Valve Ass'y 5/8 in.	1
10	623 070 9256	Valve Ass'y 1/4 in.	1
11	623 072 2798	Cover Plate	1
12	623 067 4936	Frame Ass'y	2
13	623 000 0209	Washer	1
14	623 035 0144	Cushion Rubber	3
15	623 034 5836	Spring	3
16	623 078 4819	Protection Rubber	3
17	623 070 8488	Accumulator Ass'y	1
18	623 034 9452	Band Mounting	1
19	623 080 9871	Capillary Tube	1
20	623 043 4059	Strainer Ass'y	1
21	623 051 0128	Packing	1
22	623 065 2422	Mounting Rubber, Capillary	1
23	623 050 5742	Mounting Plate	1
24	623 078 4826	Protection Rubber	3
25	623 078 4376	Spacer	3
26	623 031 0766	Heater Ass'y CH5700 230V 30W	1
27	623 078 4802	Protection Rubber	2
28	623 078 4833	Protection Rubber	1
29	623 068 1125	Nut Special Ass'y	2
30	623 029 6558	Nut Special Ass'y	1
31	623 043 3508	Dehydrater Ass'y	1
32	623 068 9848	Condenser Ass'y (incl. No. 33)	1
33	623 080 3435	Mounting Plate	1
34	623 081 5940	Mounting Plate, Tube	2
35	623 081 5034	Mounting Rubber, Tube	1
36	623 081 5605	Mounting Rubber, Tube	1
37	623 081 5582	Mounting Rubber, Tube	1
38	623 081 5810	Mounting Rubber, Tube	1
39	623 071 9910	Guard	1
40	623 078 5182	Mounting Plate Ass'y	2
41	623 078 5201	Mounting Plate	3
42	623 068 2771	Cover Ass'y	1
43	626 040 0388	Casket Terminal	1
44	626 040 0673	Cover Terminal	1
45	626 040 0956	Nut, Compressor	1
46	623 071 0733	Elec. Component Box Ass'y	1
47	623 002 4779	Relay CLK-16E3-21	1
48	623 002 4809	Relay MY2F-T1-USTS	1
49	623 001 1878	Fixed Capacitor 440V 5MFD	1
50	623 001 2530	Fixed Capacitor 400V 35MFD	1

NOTE: Metal and plastic parts will be supplied basically
with necessary heat insulation pads or packing.

SAP243C
OUTDOOR UNIT

ATTENTION !

To ensure correct parts supply, please let us know followings,
when you make service parts order:

1. Part No. 2. Description 3. Q'ty 4. Volts-Hz-Ph 5. Product Model No.

Key No.	Part No.	Description	Q'ty
51	623 054 7964	Clip, Capacitor	1
52	626 100 0049	Thermistor TDK 101YY	1
53	623 002 9231	Thermostat YTB-4U201F	1
54	623 071 0962	Elec. Component Box Ass'y	1
55	623 051 6977	Screw Special M5*12	1
56	623 003 3085	Terminal Base JTU30-6	1
57	623 060 3561	Label	1
58	623 081 4622	Mounting Rubber, Capillary	1
59	623 076 7928	Mounting Plate Ass'y	1
60	623 031 0773	Fan Motor Ass'y KFCBS-101A6P	1
61	623 053 2465	Cover Rubber	1
62	623 068 6410	Support Motor Ass'y	3
63	623 066 5682	Top Cover Ass'y	1
64	623 068 3631	Propeller Fan Ass'y	1
65	623 079 9431	Set Screw, Blower	1
66	623 078 3935	Cap	1
67	623 066 8997	Guard Ass'y	1
68	623 066 2612	Side Panel Ass'y	1
69	623 078 5519	Mounting Plate	1
70	623 081 9788	Cover Plate	1
71	623 081 9795	Cover Plate	1
72	623 037 7226	Elec. Wiring Diagram	1
73	623 072 3030	Cover Plate	1
74	623 066 2629	Side Panel Ass'y	1
75	623 066 1370	Front Panel Ass'y (incl. No. 76)	1
76	623 045 7690	Eyelet Rubber	1
77	623 084 8603	Label	1
78	623 084 8269	Label	1
79	623 074 1782	Label	1
80	623 089 0367	Mark	1
81	623 074 6060	Name Plate	1
82	623 043 7616	Compressor Ass'y C-R170H6S	1

NOTE: Metal and plastic parts will be supplied basically
with necessary heat insulation pads or packing.

For parts or service contact



SFS Corporation: 1200 West Artesia Blvd., Compton, California 90220
1990/Mar./TA/1000 Printed in Japan