

TOSHIBA

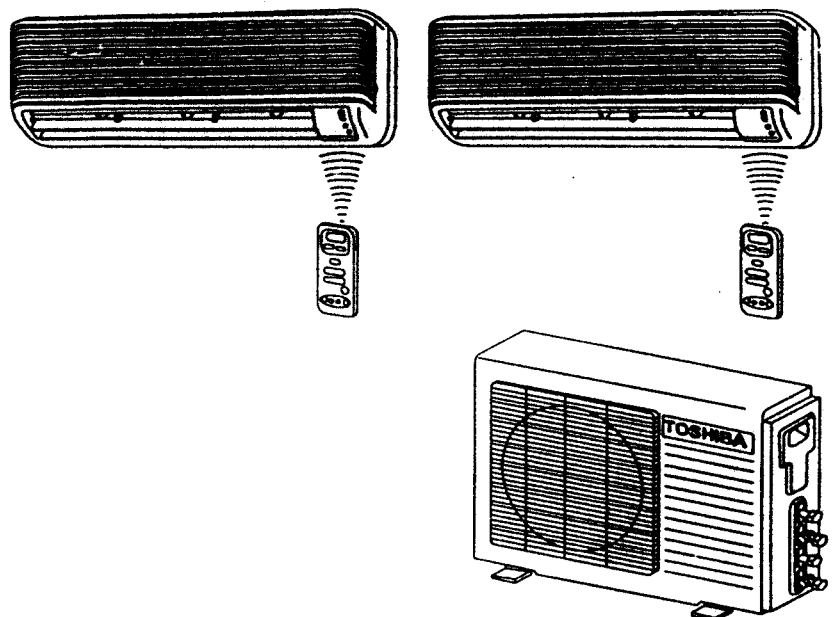
FILE NO. A03-9712
SUPPLEMENT

SERVICE MANUAL

AIR-CONDITIONER

MULTI SPLIT WALL TYPE

RAS-10SK-E x2/RAS-M18SA-E
RAS-10SK-E x2/RAS-M18SA-E-1
RAS-10SKX x2/RAS-M18SAX



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This supplement is prepared for similar model RAS-M18SA-E-1.

Be sure to refer to the service manual shown in the table below for other informations.

MODEL NAME	SERVICE MANUAL FILE No.
RAS - 10SK - E RAS - M18SA - E	A00 - 9704
RAS - 10SKX RAS - M18SAX	

SUMMARY

- Compressor of units are as follows :

COMPRESSOR :	2PS146D5AB02 (SN: 43T41405)
Model :	RAS-M18SA-E-1
ORIGINAL :	PH102T1-4C (SN: 43T41402)
Model :	RAS-M18SA-E/M18SAX

- Overload relay of units are as follows :

OVERLOAD RELAY :	J-MRA99285-9086 (SN: 43T54008)
Model :	RAS-M18SA-E-1
ORIGINAL :	J-MRA99285-9201 (SN: 43054408)
Model :	RAS-M18SA-E/M18SAX

- Reference pages ; 4, 9, 10 and 57

1. SPECIFICATIONS

Item		Model		RAS-10SK-E (2 units)/RAS-M18SA-E (RAS-M18SA-E-1)* ³ RAS-10SKX (2 units)/RAS-M18SAX					
		COOLING							
		1 Indoor unit (A or B)			2 Indoor units (A + B)				
Capacity	*1 kW	220V	230V	240V	220V	230V	240V		
		2.6	2.6	2.6	5.2	5.2	5.2		
Power source	Phase	Single							
	V	220/230/240							
	Hz	50							
Power consumption	kW	220V	230V	240V	220V	230V	240V		
		0.89	0.91	0.94	1.78	1.82	1.88		
Power factor	%	97	97	96	97	97	96		
Running current	A Indoor/Outdoor	0.15/4	0.15/3.95	0.15/3.95	0.3/8	0.3/7.9	0.3/7.9		
Starting current	A	16			32				
Moisture removal	lit/h	1.15			2.3				
Noise	Indoor (H/M/L)	dB		44/36/31					
	Outdoor	dB		52					
Refrigerant	Name of refrigerant	R-22							
	Rated volume	kg		1.3 (0.65 x 2)					
Refrigerant control	Capillary tube								
Interconnection pipe	Gas side size	mm		9.52					
	Connection type	Flare connection							
	Liquid side size	mm		6.35					
	Connection type	Flare connection							
	Maximum length (of one way)	m	*2		15				
	Maximum height difference	Indoor unit		5					
	Outdoor unit		m						
Condensate drain pipe	Outer diameter	mm		16					
INDOOR UNIT				RAS-10SK-E, RAS-10SKX					
Dimensions	Height	mm		265					
	Width	mm		790					
	Depth	mm		174					
Net weight	kg		8						
Evaporator type	Finned tube								
Indoor fan type	Cross flow fan								
Air volume	High fan	m ³ /h		650					
	Medium fan	m ³ /h		510					
	Low fan	m ³ /h		430					
Fan motor output	W		19						
Air filter	Polypropylene net filter (Washable)								
OUTDOOR UNIT				RAS-M18SA-E, RAS-M18SAX (RAS-M18SA-E-1)*³					
Dimensions	Height	mm		538					
	Width	mm		830					
	Depth	mm		300					
Net weight	kg		52						
Condenser type	Finned tube								
Outdoor fan type	Propeller								
Airflow volume	(220/230/240V)		m ³ /h		1830/1920/2010				
Fan motor output	W		28						
Compressor	Model	PH102T1-4C (2PS146D5AB02)* ³							
	Output	W		750					
Safety device	Fuse, Overload relay								
Auto louver	Yes								
Usable outdoor temperature range	21 - 43								

*³ Added on July 1997

Specifications are subject to change without notice.

4. SPECIFICATIONS OF ELECTRICAL PARTS

4-1. Indoor Unit

RAS-10SK-E

RAS-10SKX

No.	Parts name	Type	Specifications
1	Fan motor (for indoor)	ICF-35-19-3 or TICF-35-19-3	DC 35V, 19W
2	Thermo sensor (TA-sensor)	(microprocessor)	10k Ω at 25°C
3	DC-DC transformer (T01)	SWT-34	DC390V, Secondary DC35V, 12V, 7V
4	Microcomputer	TMP87CK40F	
5	Power relay (RY01), Common relay (RY02)	D11U	Coil : DC12V 75mA, Rated AC250V 20A
6	Heat exchanger sensor (TC-sensor)	(microprocessor)	10k Ω at 25°C
7	Line filter (L01)	RF-103YOR6	10mH, AC 0.6A
8	Diode (DB01)	RBV-406	4A, 600V
9	Capacitor (C02)	CEAUF2W101M20	100 μ F, 450V
10	Fuse (F01)	MT3	T3.15A, 250V
11	Power supply IC (IC01)	MA2830-FJ	4A, 600V
12	Varistor (R21, R109)	15G561K	560V
13	Resistor (R01)	ERF-5TK5R6	5.6 Ω , 5W
14	Louver motor	MP35EA7	Output (Rated) 2W, 10poles, 1phase DC 12V

4-2. Outdoor Unit

RAS-M18SA-E/RAS-M18SA-E-1/RAS-M18SAX

No.	Parts name	Type	Specifications			
1	Compressor	RAS-M18SAX RAS-M18SA-E	PH102T1-4C			
		RAS-M18SA-E-1	2PS146D5AB02	Output (Rated) 750W, 2pole, 1phase, 220/230/240V, 50Hz		
				Winding resistance (Ω) (at 20°C)	Red-Black 3.88	White-Black 5.06
2	Fan motor	AF-230-28P	Output (Rated) 28W, 6pole, 1phase, 220/230/240V, 50Hz			
				Winding resistance (Ω) (at 20°C)	Red-Black 162.1	White-Black 233.5
3	Running capacitor (for fan motor)	SK-45FMP	450V AC, 2 μ F			
4	Running capacitor (for compressor)	SK-40CMP25U1	400V AC, 25 μ F			
5	Overload relay (for RAS-M18SA-E-1)	J-MRA99285-9201	U/T 6.1A (80°C), OPEN 135 \pm 5°C, CLOSE 78 \pm 11°C			
		J-MRA99285-9086				
6	Magnetic relay	VC 20FA	220-240V, 50Hz			
7	Spark killer	RFM50S104KD2	AC 500V, 50/60Hz, 0.1 μ F, 120 Ω			

5. REFRIGERANT CYCLE DIAGRAM

RAS-10SK-E_{x2}/RAS-M18SA-E/RAS-M18SA-E-1
RAS-10SKX_{x2}/RAS-M18SAX

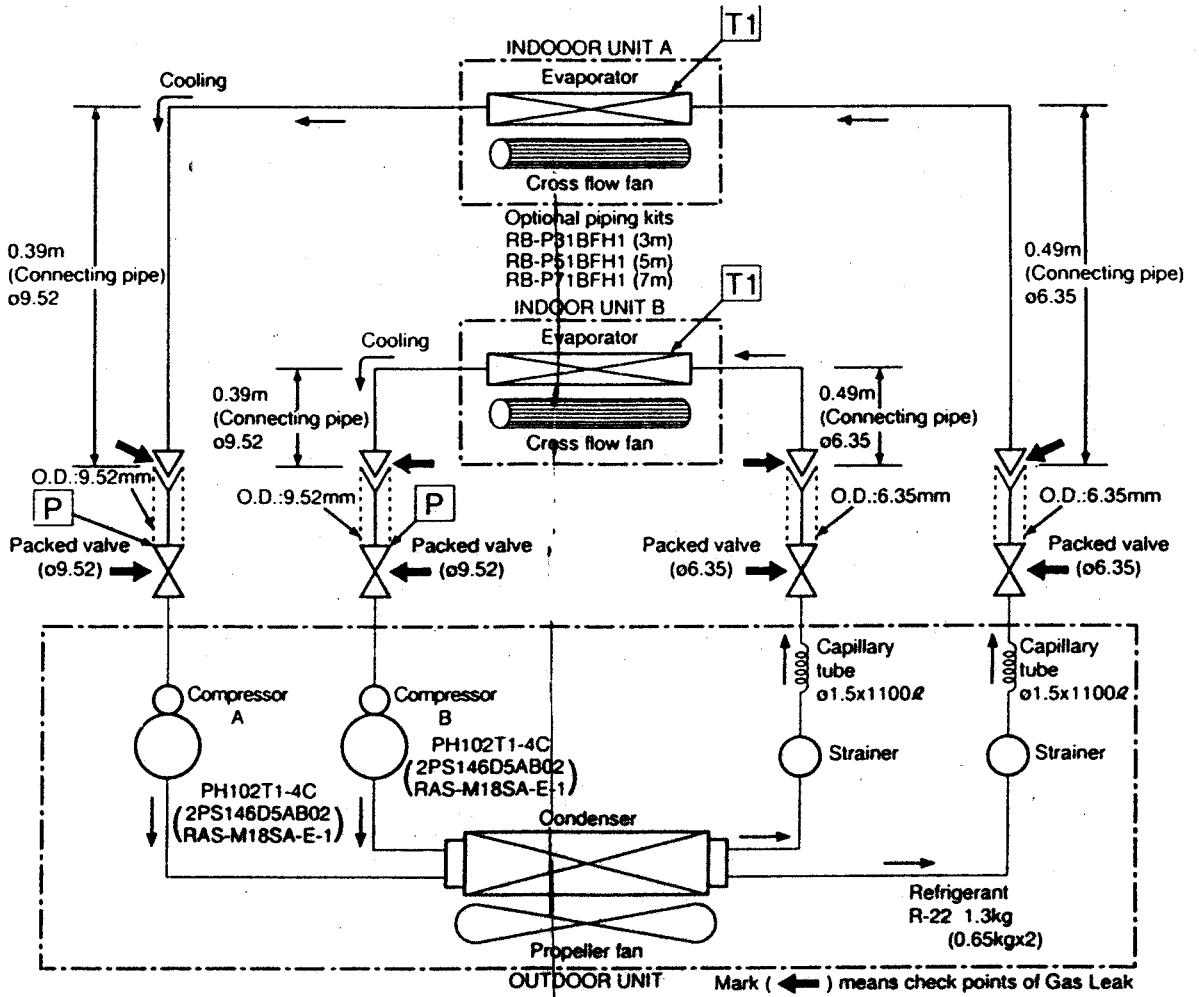


Fig. 5-1

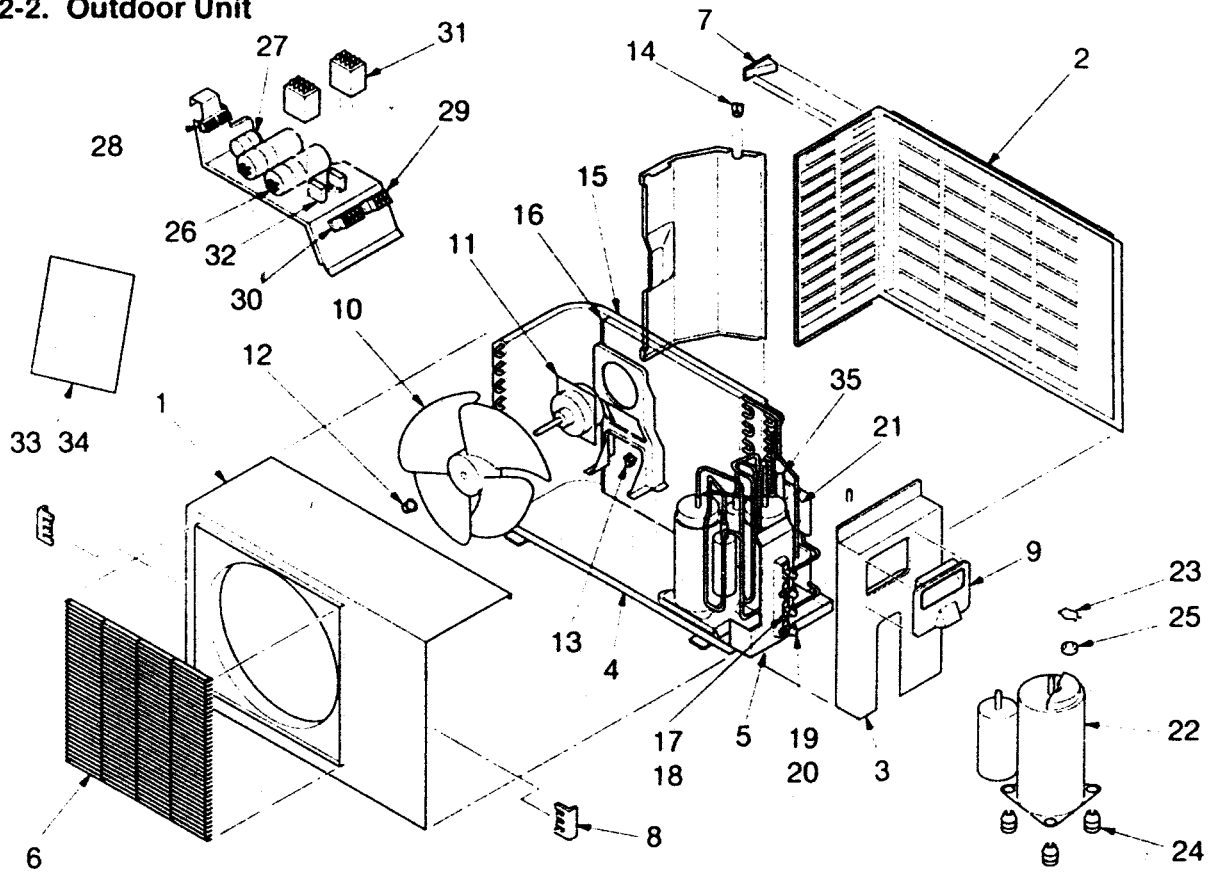
Table 5-1

50Hz		Standard pressure P (kg/cm ² G)	Surface temp. of heat exchanger interchanging pipe T1 (°C)	Fan speed (indoor)	Ambient temp. conditions DB/WB (°C)	
					Indoor	Outdoor
Cooling	Standard	5.0	13.0	High	27/19	35/24
	High temperature	6.5	18.0	High	32/23	43/26
	Low temperature	4.0	2.0	Low	21/15	21/15

Note :

- Measure the heat exchanger temperature at the center of U-bend. (By means of TC sensor.)

12-2. Outdoor Unit



Location No.	Part No.	Description
1	43005144	Front Cabinet
2	43T00035	Back Cabinet
3	43T00004	Side Cabinet
4	43T42001	Base
5	43T00006	Packed Valve Plate
6	43T19001	Fan Guard
7	43T19005	Handle
8	43T19002	Guard Stopper
9	43T62009	E-Parts Cover
10	43020302	Propeller-Fan Mix-Flow, 410 dia.
11	43021984	Fan Motor
12	43T47001	Nut Flange
13	43063289	Lead-Wire-Clamp
14	43T96001	Bushing
15	43T43006	Condenser
16	43T43007	Sub-Condenser
17	43T46002	Packed Valve, 6.35
18	43T47003	Bonnet, 6.35 dia.
19	43T46001	Packed Valve, 9.52
20	43T47002	Bonnet, 9.52 dia.
21	43T47008	Capillary Tube, 1.5 dia.
22	43T41402	Compressor, PH102T1-4C (RAS-M18SA-E, RAS-M18SAX)

Location No.	Part No.	Description
22	43T41405	Compressor, 2PS146D5AB02 (RAS-M18SA-E-1)
23	43T63001	Holder, OL-Relay
24	43T49001	Rubber-Cushion
25	43054408	Relay, Overload J-MRA99285-9201 (RAS-M18SA-E, RAS-M18SAX)
25	43T54008	Relay, Overload J-MRA99285-9086 (RAS-M18SA-E-1)
26	43055483	Capacitor, Plastic, Comp. 25 μ F, 400V
27	43T55007	Capacitor, Plastic-Film 2 μ FD, 450V
28	43T60013	Terminal Block 4P
29	43T60014	Terminal Block 3P
30	43T60015	Terminal Block 4P
31	43154139	Magnetic Switch
32	43133014	Spark Killer
33	43T85011	Owner's Manual, RAS-M18SAX
34	43T85012	Owner's Manual, RAS-M18SA-E, M18SA-E-1
35	43045073	Dryer

MEMO



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