

TOSHIBA

FILE NO. A12-011

SERVICE MANUAL

AIR-CONDITIONER SPLIT TYPE

These models are special-purpose models for the Australia and New Zealand.
These outdoor units are changed only the model name to the European model.
Please refer to the service manual of the following base European model for details of the content of service.

Outdoor Unit

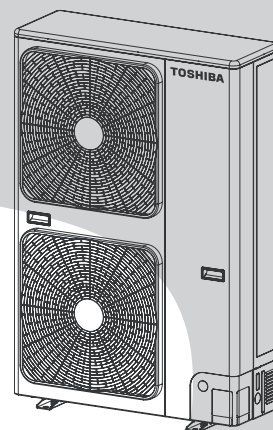
Model name:

<SUPER DIGITAL INVERTER>

RAV-SP1404AT8-A,

RAV-SP1604AT8-A

.....A10-002-1



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1. SPECIFICATIONS

1-1. Indoor Unit

1-1-1. 4-Way Cassette Type <Single type>

Model	Indoor unit		RAV-SM	1404UT-E	1604UT-E	
	Outdoor unit		RAV-SP	1404AT8-A	1604AT8-A	
Cooling Capacity			(kW)	12.5 (2.6 – 14.0)	14.0 (2.6 – 16.0)	
Heating Capacity			(kW)	14.0 (2.4 – 18.0)	16.0 (2.4 – 19.0)	
Power Supply			3 phase 4 wired (3N – 4 pole) 380 – 415V, 50Hz			
Electrical Characteristics	Cooling	Running current (A)		6.03 – 5.52	7.55 – 6.91	
		Power consumption (kW)		3.46	4.49	
		Power factor (%)		87	90	
		EER		3.61	3.12	
		Energy rating *		—	—	
	Heating	Running current (A)		5.97 – 5.47	7.26 – 6.65	
		Power consumption (kW)		3.42	4.30	
		Power factor (%)		87	90	
		COP		4.09	3.72	
		Energy rating *		—	—	
Maximum current		(A)	14.7	14.7		
Appearance	Main unit		zinc hot dipping steel plate			
	Ceiling panel (sold separately)	Model		RBC-U31PG(W,WS)-E, RBC-U31PGS(W,WS)-E		
		Panel color		W: Moon-white(2.5GY9.0/0.5), WS: Stripe white(2.5GY9.0/0.5,(Gray:8B 3/0.3))		
Outer dimension	Main unit	Height (mm)		319	319	
		Width (mm)		840	840	
		Depth (mm)		840	840	
	Ceiling panel (sold separately)	Height (mm)		30	30	
		Width (mm)		950	950	
		Depth (mm)		950	950	
Total weight	Main unit (kg)		24	24		
	Ceiling panel (sold separately) (kg)		4.2	4.2		
Heat exchanger			Finned tube		Finned tube	
Fan unit	Fan		Turbo fan		Turbo fan	
	Standard air flow	H/M/L (m³/min.)	35.0/24.0/20.5		35.5/25.0/21.0	
	Motor (W)		72		72	
Air filter			Standard filter attached (Long life filter)			
Controller (sold separately)			RBC-AMT32E, AX32U(W)(WS)-E, AMS51E			
Sound pressure level		H/M/L (dB•A)	44/38/34		45/40/36	
Sound power level		H/M/L (dB•A)	59/53/49		60/55/51	
Connecting pipe	Gas side (mm)		15.9		15.9	
	Liquid side (mm)		9.5		9.5	
	Drain port (mm)		VP25		VP25	

* AS Standard

1-1-2. Concealed Duct Standard Type

<Single type>

Model	Indoor unit		RAV-SM	1406BT-E
	Outdoor unit		RAV-SP	1404AT8-A
Cooling Capacity			(kW)	12.5 (2.6 – 14.0)
Heating Capacity			(kW)	14.0 (2.4 – 18.0)
Power Supply				3 phase 4 wired (3N – 4 pole) 380 – 415V, 50Hz
Electrical Characteristics	Cooling	Running current	(A)	6.74 – 6.17
		Power consumption	(kW)	3.86
		Power factor	(%)	87
		EER		3.24
		Energy rating *		—
	Heating	Running current	(A)	6.40 – 5.86
		Power consumption	(kW)	3.67
		Power factor	(%)	87
		COP		3.81
		Energy rating *		—
	Maximum current		(A)	16.5
Appearance	Main unit		zinc hot dipping steel plate	
Outer dimension	Main unit	Height	(mm)	275
		Width	(mm)	1400
		Depth	(mm)	750
Total weight	Main unit		(kg)	40
Heat exchanger				Finned tube
Fan unit	Fan			Centrifugal fan
	Standard air flow	H/M/L	(m ³ /min.)	35.0/27.5/21.0
	Motor		(W)	250
	External static pressure	Standard (at shipment)	(Pa)	50
		Set up for tap exchange	(Pa)	30/40/50/65/80/100/120
Air filter				Standard filter attached (Long life filter)
Controller (sold separately)				RBC-AMT32E, AMS51E, TCB-AX32E2
Sound pressure level		H/M/L	(dB•A)	40/36/33
Sound power level		H/M/L	(dB•A)	63/58/54
Connecting pipe	Gas side		(mm)	15.9
	Liquid side		(mm)	9.5
	Drain port		(mm)	VP25

* AS Standard

1-1-3. Ceiling Type <Single type>

Model	Indoor unit		RAV-SM	1404CT-E
	Outdoor unit		RAV-SP	1404AT8-A
Cooling Capacity			(kW)	12.5 (2.6 – 14.0)
Heating Capacity			(kW)	14.0 (2.4 – 18.0)
Power Supply				3 phase 4 wired (3N – 4 pole) 380 – 415V, 50Hz
Electrical Characteristics	Cooling	Running current (A)		6.67 – 6.11
		Power consumption (kW)		3.83
		Power factor (%)		87
		EER		3.26
		Energy rating *		—
	Heating	Running current (A)		6.46 – 5.92
		Power consumption (kW)		3.70
		Power factor (%)		87
		COP		3.78
		Energy rating *		—
Maximum current		(A)	15.2	
Appearance	Main unit			Shine white
Outer dimension	Main unit	Height (mm)		210
		Width (mm)		1595
		Depth (mm)		680
Total weight	Main unit (kg)			33
Heat exchanger				Finned tube
Fan unit	Fan			Centrifugal fan
	Standard air flow	H/M/L (m ³ /min.)		30.0/26.0/23.1
	Motor (W)			120
Air filter				Standard filter attached (Long life filter)
Controller (sold separately)				RBC-AMT32E, AX32CE2, AMS51E
Sound pressure level		H/M/L (dB•A)		43/40/37
Sound power level		H/M/L (dB•A)		58/55/52
Connecting pipe		Gas side (mm)		15.9
		Liquid side (mm)		9.5
		Drain port (mm)		VP20

* AS Standard

1-1-4. Concealed Duct High Static Pressure Type <Single type>

Model	Indoor unit		RAV-SM	1603DT-A
	Outdoor unit		RAV-SP	1604AT8-A
Cooling Capacity			(kW)	13.6 (3.3 – 16.0)
Heating Capacity			(kW)	16.0 (4.2 – 19.0)
Power Supply				3 phase 4 wired (3N – 4 pole) 380 – 415V, 50Hz
Electrical Characteristics	Cooling	Running current (A)		7.03 – 6.44
		Power consumption (kW)		4.12
		Power factor (%)		89
		EER		3.30
		Energy rating *		—
	Heating	Running current (A)		7.48 – 6.85
		Power consumption (kW)		4.43
		Power factor (%)		90
		COP		3.61
		Energy rating *		—
Maximum current		(A)	16.3	
Appearance	Main unit			zinc hot dipping steel plate
Outer dimension	Main unit	Height (mm)		380
		Width (mm)		1050
		Depth (mm)		600
Total weight	Main unit (kg)			57
Heat exchanger				Finned tube
Fan unit	Fan			Centrifugal fan
	Standard air flow	at 100pa/HH tap (m ³ /min.)		58
	Motor (W)			600
	External static pressure	Standard (at HH tap)	(Pa)	100
		Set up for HH tap	(Pa)	50 – 250
Controller (sold separately)				RBC-AMT32E, AMS51E, TCB-AX32E2
Sound pressure level		H tap	(dB•A)	50
Sound power level		H tap	(dB•A)	65
Connecting pipe	Gas side		(mm)	15.9
	Liquid side		(mm)	9.5
	Drain port		(mm)	VP25

* AS Standard

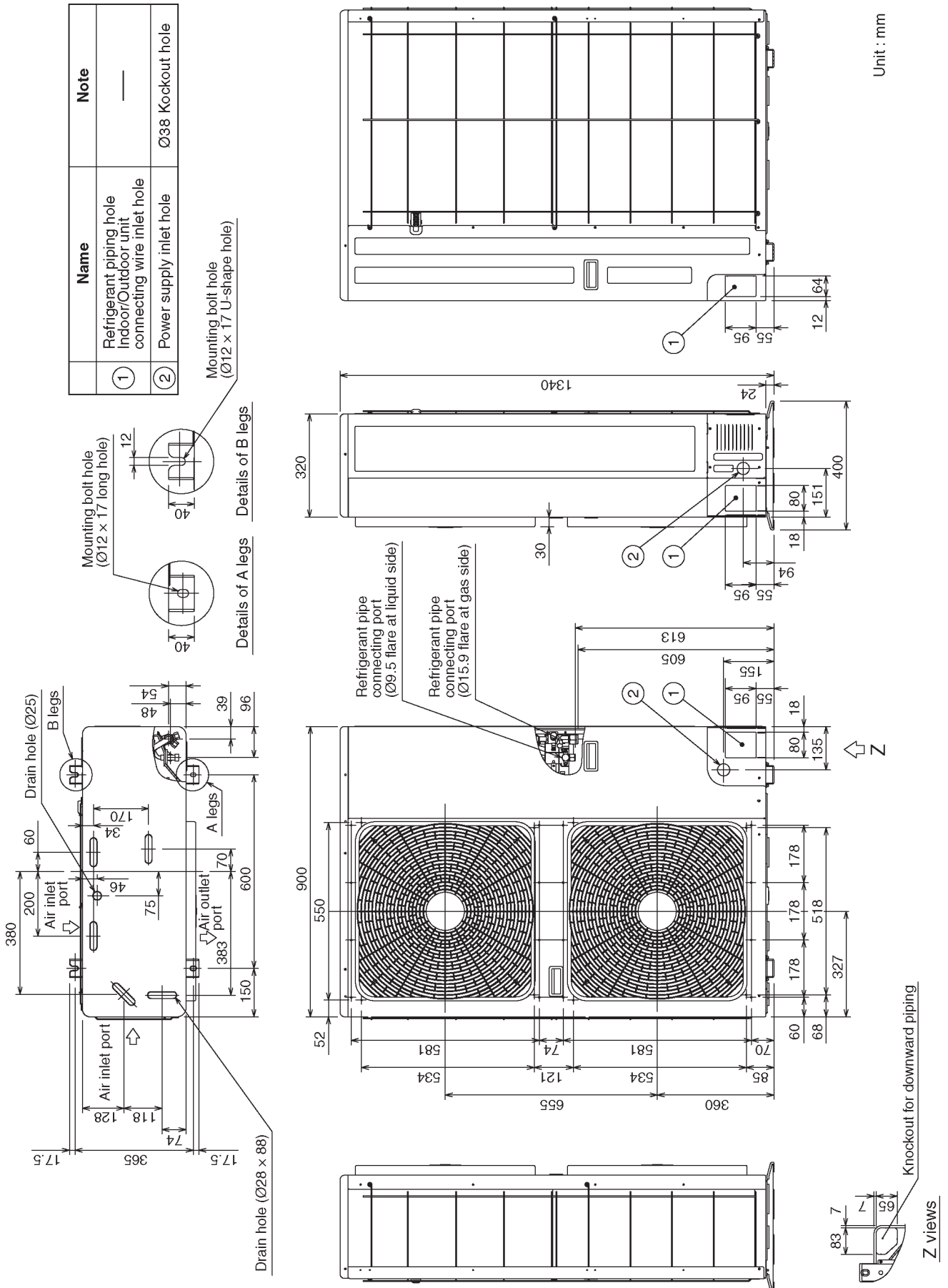
1-2. Outdoor Unit

<Super Digital Inverter>

Model			RAV-SP	1404AT8-A	1604AT8-A
Power supply				3 phase 4 wired (3N – 4 pole) 380 – 415V, 50Hz (Power exclusive to outdoor is required.)	
Compressor	Type			DC Twin Rotary	
	Motor (kW)			3.75	3.75
	Pole			4	4
Refrigerant charged (kg)			3.1	3.1	
Refrigerant control				Pulse motor valve	
Inter connecting pipe	Standard length (mm)			7.5	7.5
	Min. length (mm)			3	3
	Max.total length (mm)			75	75
	Additional refrigerant charge under long piping connector			40g/m (31m to 75m)	40g/m (31m to 75m)
	Height difference	Outdoor lower (m)		30	30
		Outdoor higher (m)		30	30
Outer dimension	Height (mm)			1340	1340
	Width (mm)			900	900
	Depth (mm)			320	320
Appearance				Silky shade (Muncel 1Y 8.5/0.5)	
Total weight (kg)			95	95	
Heat exchanger				Finned tube	
Fan unit	Fan			Propeller fan	
	Standard air flow (m³/h)			6180	6180
	Motor (W)			100 + 100	100 + 100
Connecting pipe	Gas side (mm)			15.9	15.9
	Liquid side (mm)			9.5	9.5
Sound pressure level		Cooling/Heating (dB•A)	51/52	51/53	
Sound power level		Cooling/Heating (dB•A)	68/69	68/70	
Outside air temperature, Cooling (°C)			46 to –15		
Outside air temperature, Heating (°C)			15 to –20		

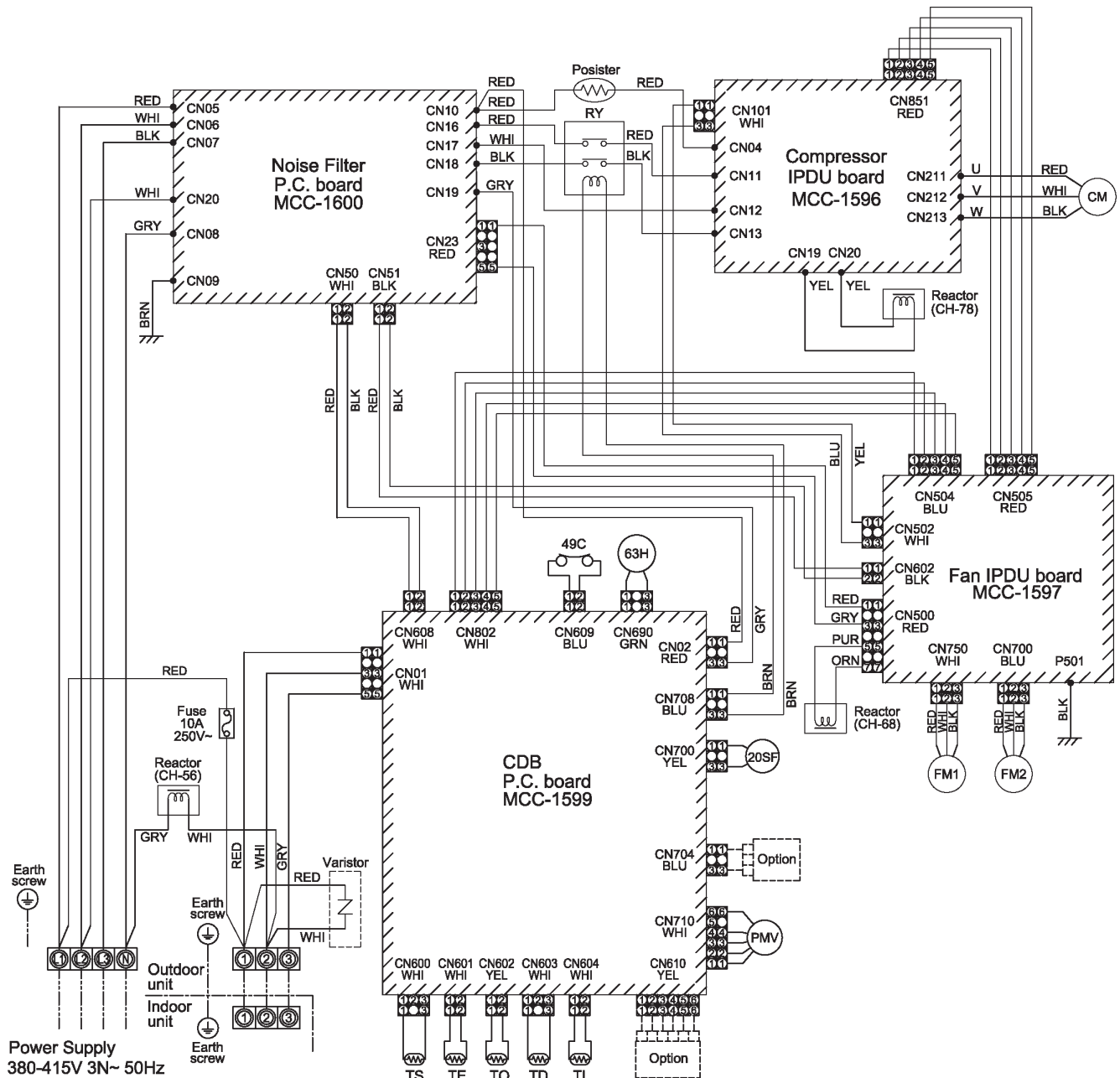
2. CONSTRUCTION VIEWS (EXTERNAL VIEWS)

RAV-SP1404AT8-A, SP1604AT8-A



3. WIRING DIAGRAM

RAV-SP1404AT8-A, SP1604AT8-A

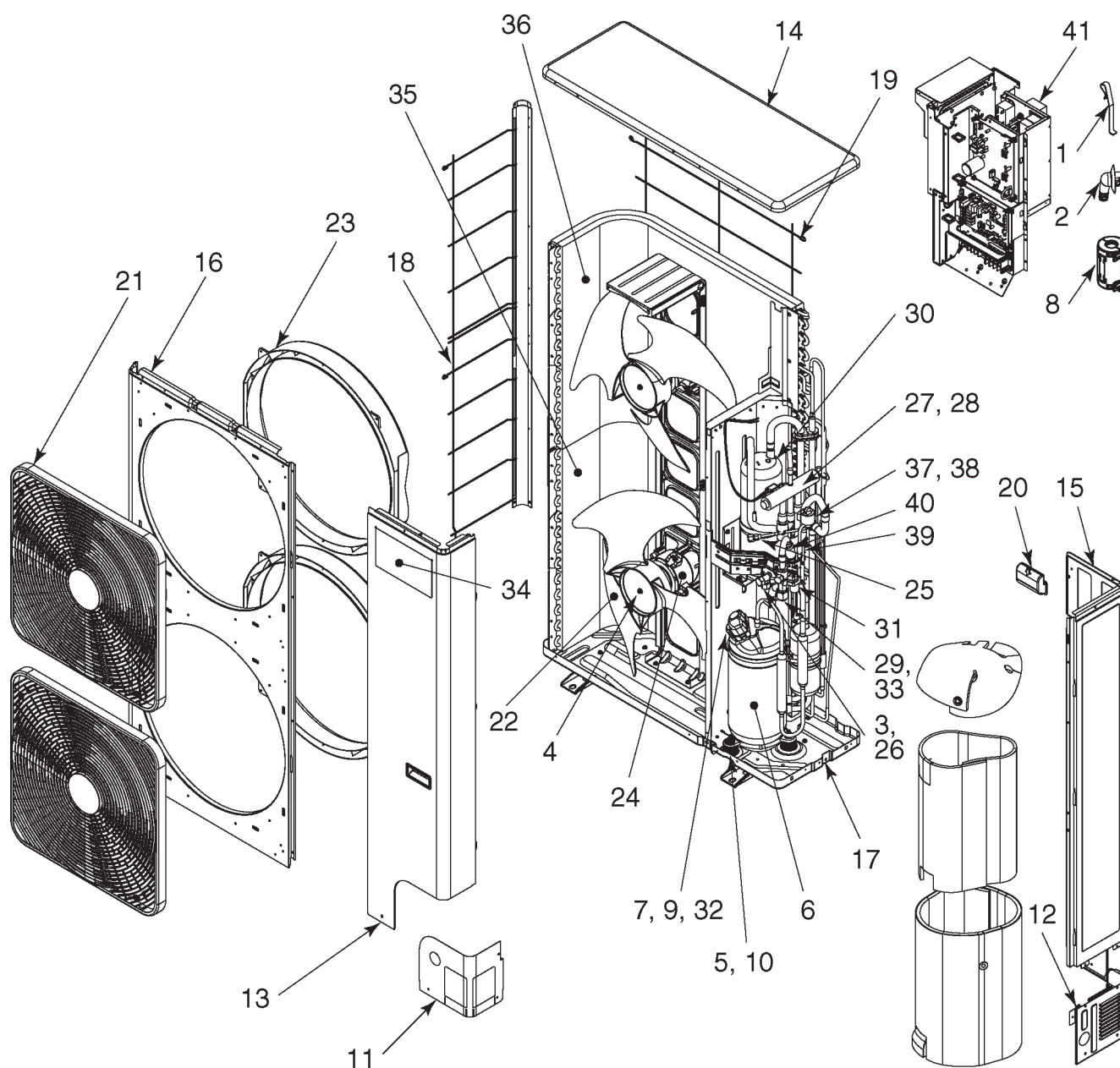


1. © indicates the terminal block. Alphanumeric characters in the cycle indicate the terminal No.
2. The two-dot chain line indicates the wiring procured locally.
3. [Hatched box] indicates the P.C. board.
4. For the indoor unit circuit, refer to the wiring diagram of the indoor unit.

4. EXPLODED VIEWS AND PARTS LIST

Outdoor Unit

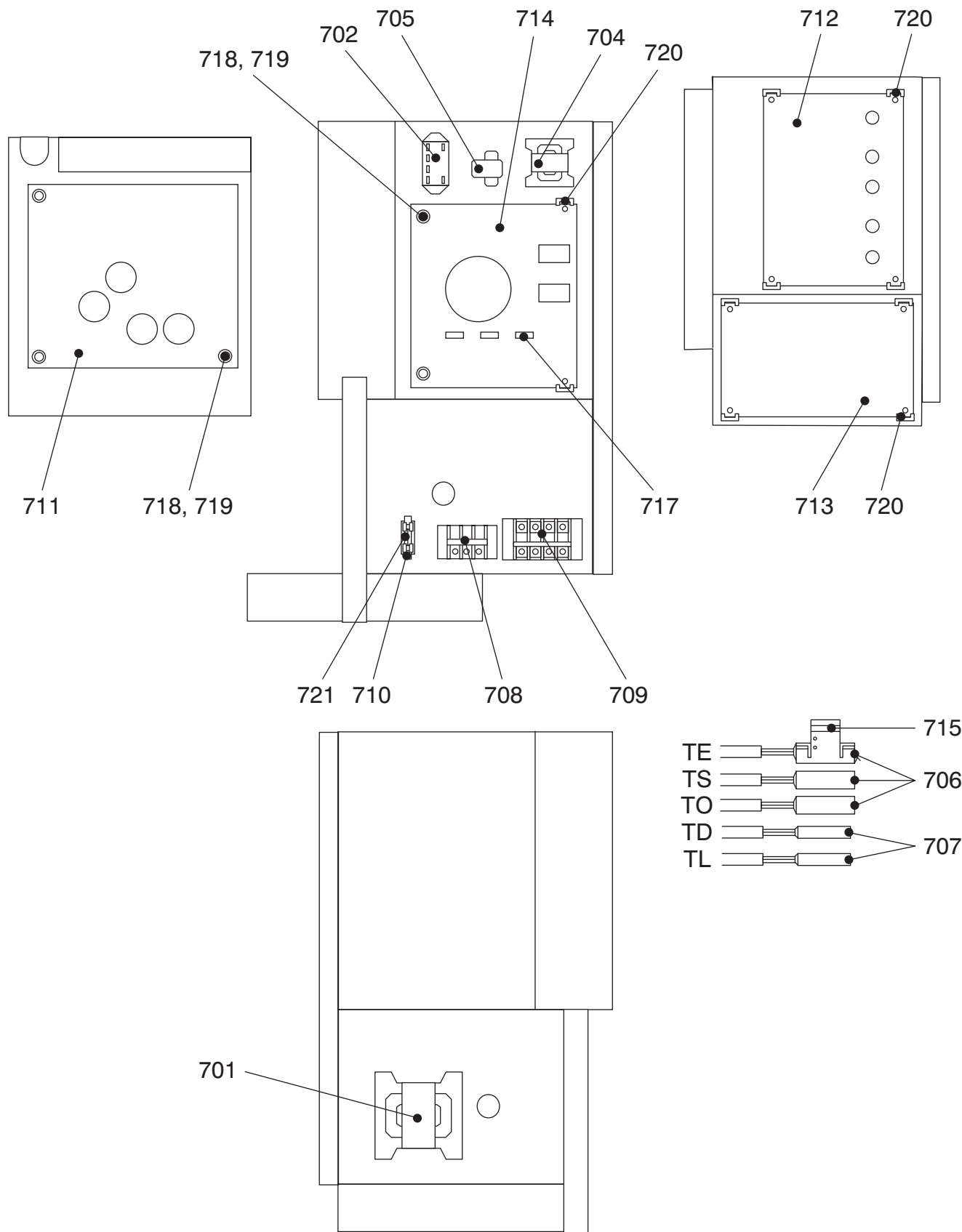
RAV-SP1404AT8-A, SP1604AT8-A



Location No.	Part No.	Description	Model name RAV-SP	
			1404AT8-A	1604AT8-A
1	43F19904	Holder, Sensor	3	3
2	43F32441	Nipple, Drain	1	1
3	43F47401	Bonnet, 3/8 IN	1	1
4	43F47669	Nut, Flange	2	2
5	43049739	Cushion, Rubber	3	3
6	4304C703	Compressor, DA422A3F-27M	1	1
7	43F50407	Thermostat, Bimetal	1	1
8	43F60029	Filter, Noise	1	1
9	43F63317	Holder, Thermostat	1	1
10	43F97212	Nut, Comp.	3	3
11	43100437	Panel, Front, Piping	1	1
12	43100438	Panel, Back, Piping	1	1
13	43100439	Panel, Front	1	1
14	43100440	Plate, Roof	1	1
15	43100470	Panel, Side	1	1
16	43100442	Panel, Air Outlet	1	1
17	43100443	Base Ass'y	1	1
18	43107274	Guard, Fin, Side	1	1
19	43107275	Guard, Fin, Back	1	1
20	43107276	Hanger	3	3
21	43109422	Guard, Fan	2	2
22	43120244	Fan, Propeller, PB521	2	2
23	43122113	Bell Mouth	2	2
24	4312C100	Motor, Fan, ICF-280-A100-1 (A)	2	2
25	43146676	Joint, Check	1	1
26	43146686	Valve, Packed, 9.52	1	1
27	43146687	Valve, 4-Way, STF-0401G	1	1
28	43146722	Coil, Solenoid, STF-01AJ502E1	1	1
29	43146724	Valve, Ball, SBV-JA5GTC-1, RoHs	1	1
30	43148170	Accumulator, 2.5L	1	1
31	43151301	Switch, Pressure	1	1
32	43160612	Lead Ass'y, Compressor	1	1
33	43147194	Bonnet, 5/8 IN	1	1
34	4311M659	Mark, TOSHIBA	1	1
35	4314G266	Condenser Ass'y, Down	1	1
36	4314G269	Condenser Ass'y, Up	1	1
37	4314N023	Valve, Plus, Modulaing, UKV-25D100	1	1
38	4314N025	Coil, PMV, UKV-A038	1	1
39	4314Q031	Strainer, 9.52	1	1
40	4314Q032	Strainer	1	1
41	43158227	Reactor, CH-78-FC	1	1

Inverter Unit

RAV-SP1404AT8-A, SP1604AT8-A



Location No.	Part No.	Description	Model name RAV-SP	
			1404AT8-A	1604AT8-A
701	43F58288	Reactor, CH-56-4Z	1	1
702	43154177	Relay, 480V, 20A	1	1
704	43158207	Reactor, CH-68	1	1
705	43153006	PTC-Thermistor, ZPROYCE101A500	1	1
706	43050425	Sensor Ass'y, TC (F6)	3	3
707	43150319	Sensor Ass'y, TD (F4)	2	2
708	43160565	Terminal Block, 3P, 20A, AC250A	1	1
709	43160579	Terminal, 30A, 4P	1	1
710	43F60859	Fuse Block, 30A, 250V, FH153-PB	1	1
711	4316V416	P.C. Board Ass'y, MCC-1596, Comp.-IPDU	1	1
712	4316V391	P.C. Board Ass'y, MCC-1597, Fan-IPDU	1	1
713	4316V417	P.C. Board Ass'y, MCC-1599, CDB	1	1
714	4316V398	P.C. Board Ass'y, MCC-1600, N/F	1	1
715	43F63325	Holder, Sensor	1	1
717	43160590	Fuse, 6.3A, AC250V	3	3
718	43282001	Bushing	5	5
719	43183020	Collar	5	5
720	43F63248	Supporter Ass'y	2	2
721	43060700	Fuse, 10A, 250V	1	1

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