

FUJII ELECTRIC

**SPLIT TYPE
AIR CONDITIONER (50Hz)**

DUCT type

SERVICE MANUAL

Models	Indoor unit	Outdoor unit
	RD-12RA	ROD-12HB ROD-12HA
	RD-14RA	ROD-14HA

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S P E C I F I C A T I O N S

INDOOR UNIT		RD-12RA	RD-14RA
OUTDOOR UNIT		ROD-12HB	ROD-12HA
COOLING CAPACITY	(kW)	3.4 - 3.5	3.9 - 4.0
HEATING CAPACITY	(kW)	4.0 - 4.1	4.7 - 4.8

ELECTRICAL DATA

POWER SOURCE	(V)	220 - 240	
FREQUENCY	(Hz)	50	
RUNNING CURRENT	(A)	5.5 - 5.3	7.1 - 7.2
		5.7 - 5.5	6.9 - 7.0
INPUT WATTS	(kW)	1.20 - 1.25	1.50 - 1.60
		1.25 - 1.30	1.47 - 1.54
E.E.R.	(kW/kW)	2.83 - 2.80	2.60 - 2.50
		3.20 - 3.15	3.20 - 3.10
MOISTURE REMOVAL	(ℓ/hr)	1.3	1.1
AIR CIRCULATION-Hi	(m ³ /hr)	460	640

COMPRESSOR

TYPE	Hermetic type, Permanent split condenser, 2 pole, Single phase, Induction motor		
CODE	GRG133CA	GRG163C	
REFRIGERANT	R-22 (g)	1,020	

FAN MOTOR

POWER SOURCE	(V)	220 - 240	
INDOOR UNIT	TYPE	MFA-12FTT	MFA-14FTT
	HI-SPEED (r.p.m.)	640	840
	MED-SPEED (r.p.m.)	610	740
	LO-SPEED (r.p.m.)	580	650
OUTDOOR UNIT	TYPE	MFB-09FTT	
	HI-SPEED (r.p.m.)	740	
	LO-SPEED (r.p.m.)	440	

DIMENSIONS

INDOOR UNIT	H x W x D (mm)	217 x 953 x 595
OUTDOOR UNIT		530 x 750 x 250

WEIGHT

INDOOR UNIT	GROSS / NET (kg)	29 / 25
OUTDOOR UNIT		39 / 37

REFRIGERANT CHARGE

PIPE LENGTH	15 m or less	
FULL CHARGE AMOUNT	1,020 g (36.0 oz.)	1,000 g (35.3 oz.)

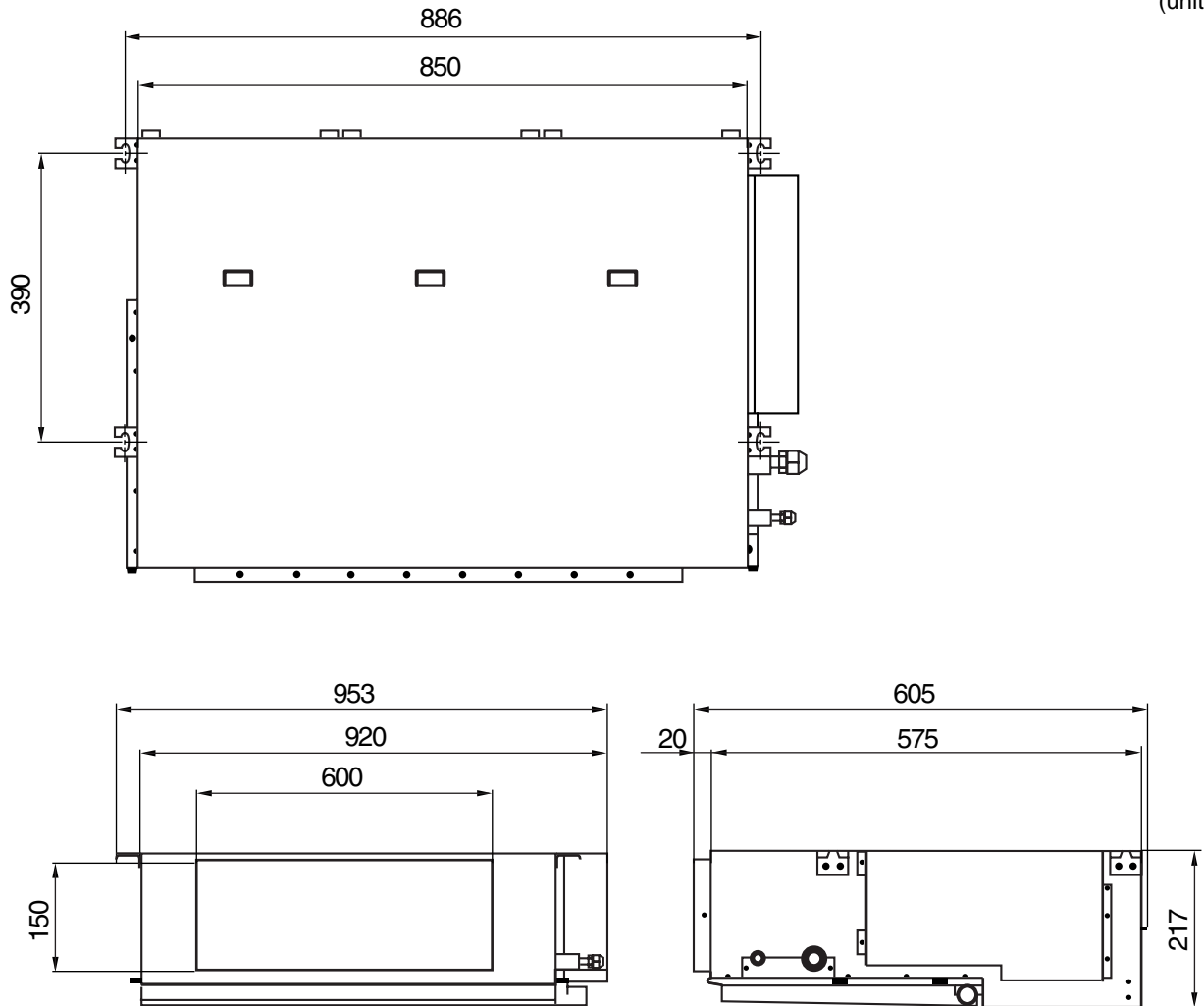
Notes : • Since this is a chargeless air conditioner, if the piping length is 15 m (49 ft) or less, additional charging is unnecessary.

• The above list shows values at the external static pressure of 0 mmAq (0 Pa).

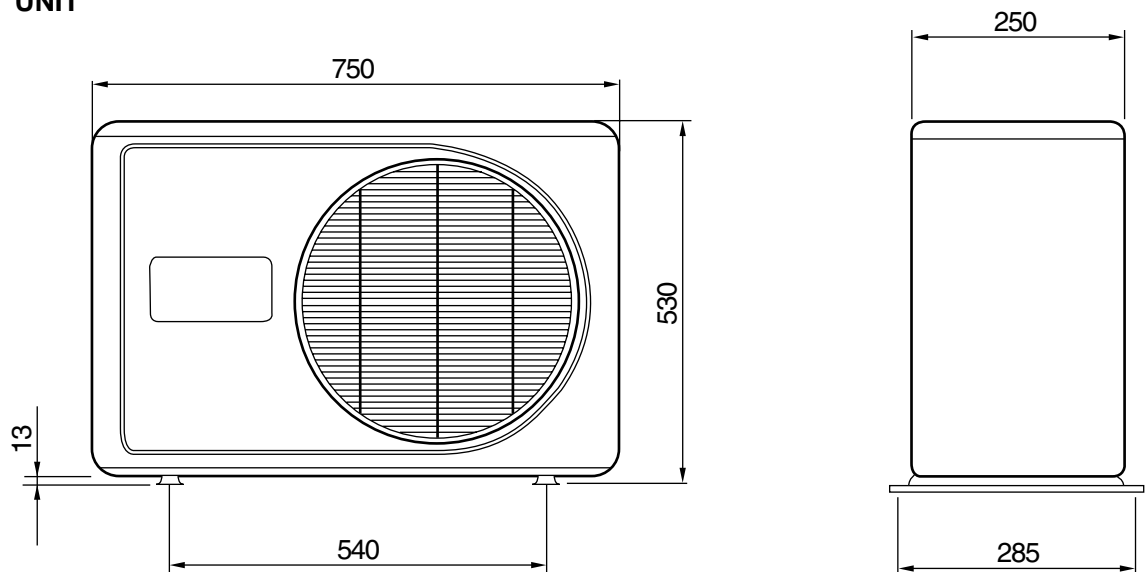
OUTLINE AND DIMENSIONS

INDOOR UNIT

(unit : mm)

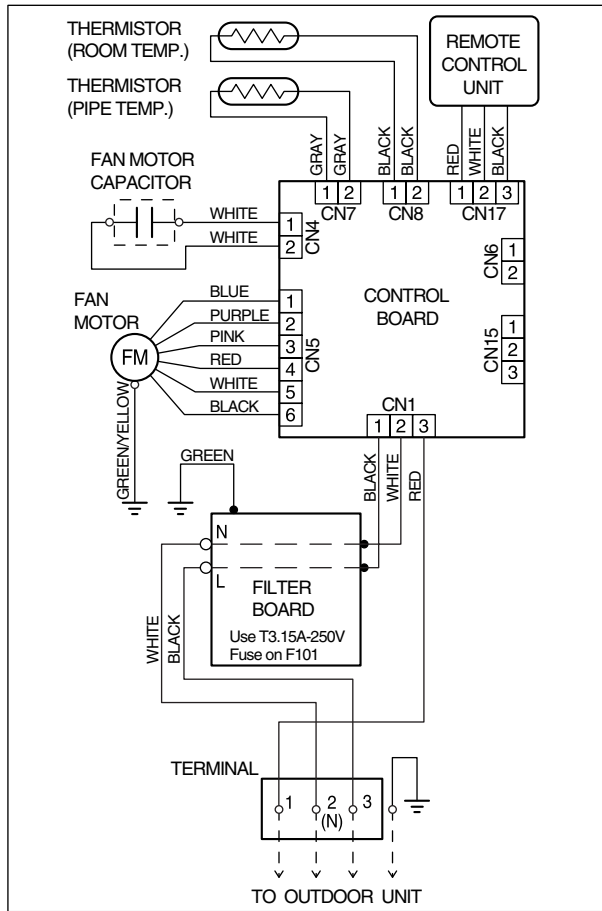


OUTDOOR UNIT

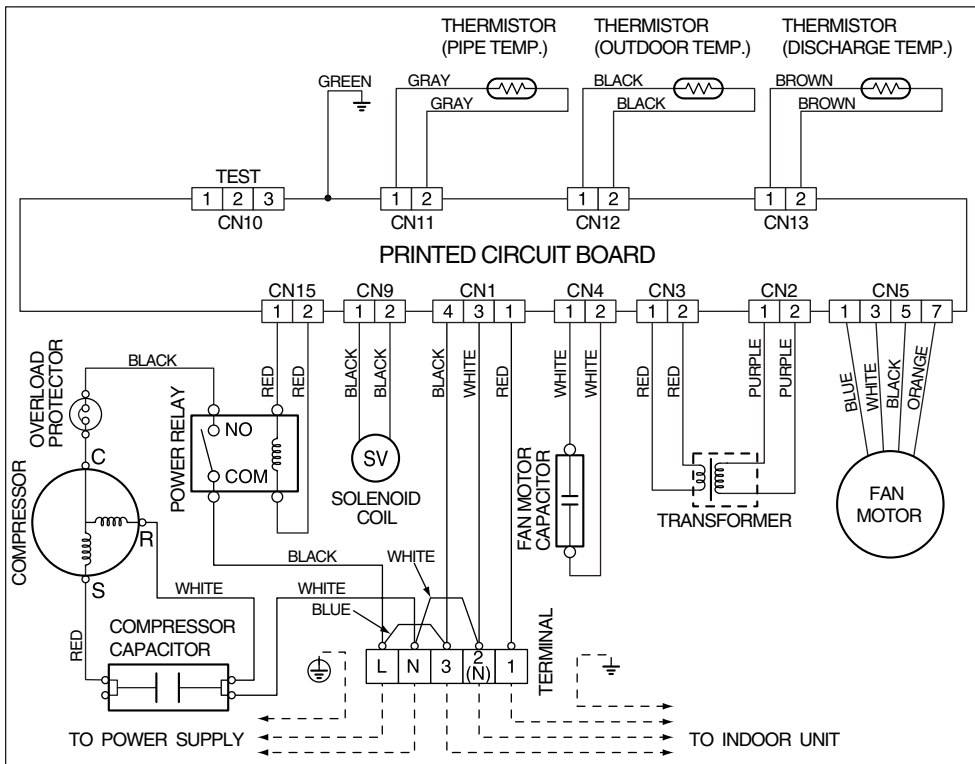


CIRCUIT DIAGRAM

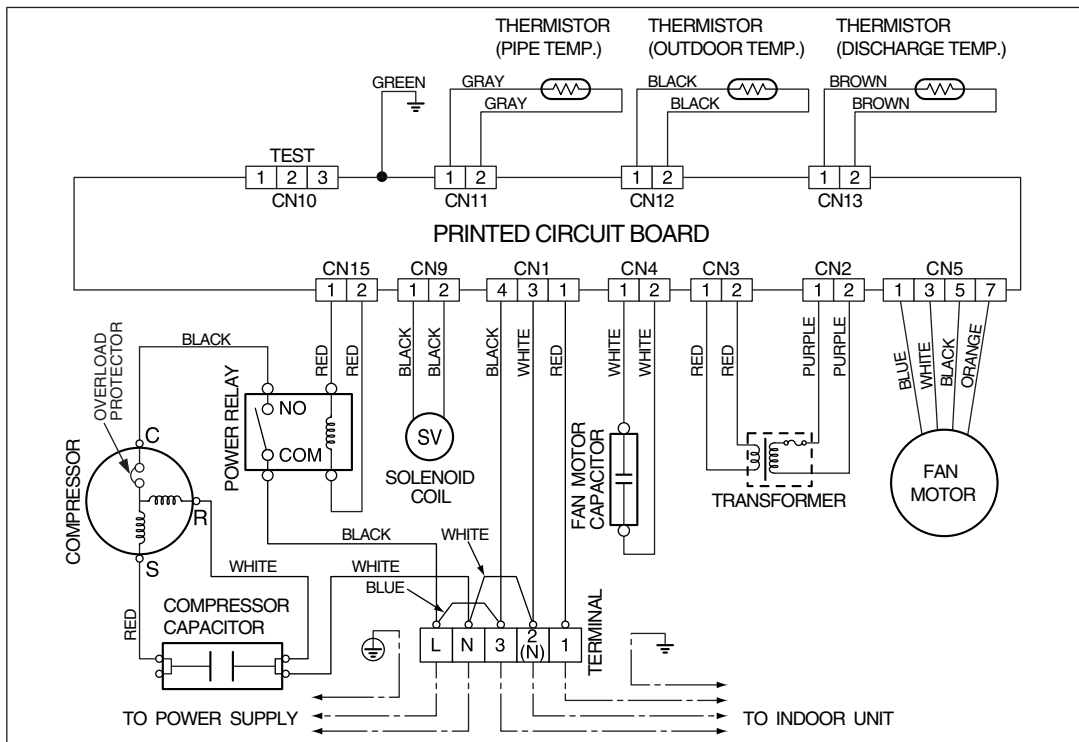
**Models : RD-12RA
RD-14RA**



**Models : ROD-12HB
ROD-12HA**



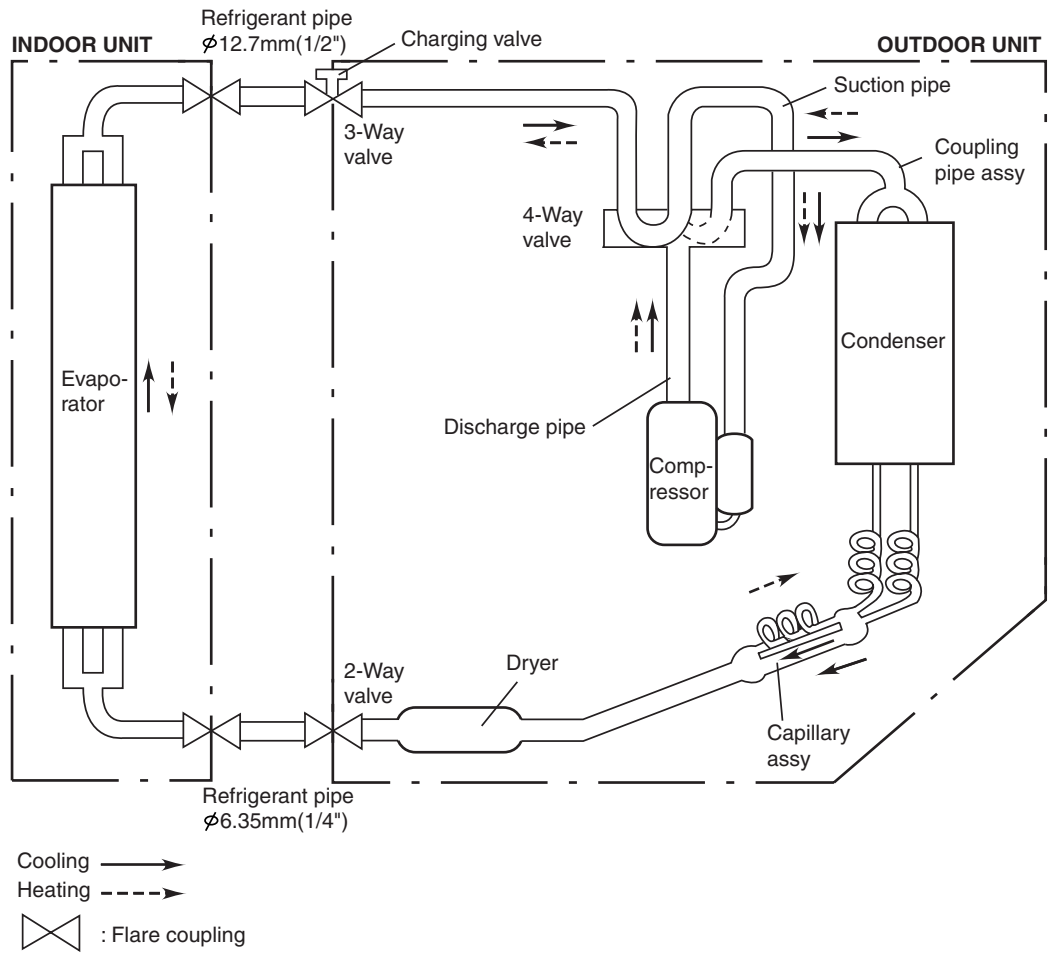
Model : ROD-14HA



COMPRESSOR CAPACITOR	35 μF
FAN MOTOR CAPACITOR	1.6 μF

REFRIGERANT SYSTEM DIAGRAM

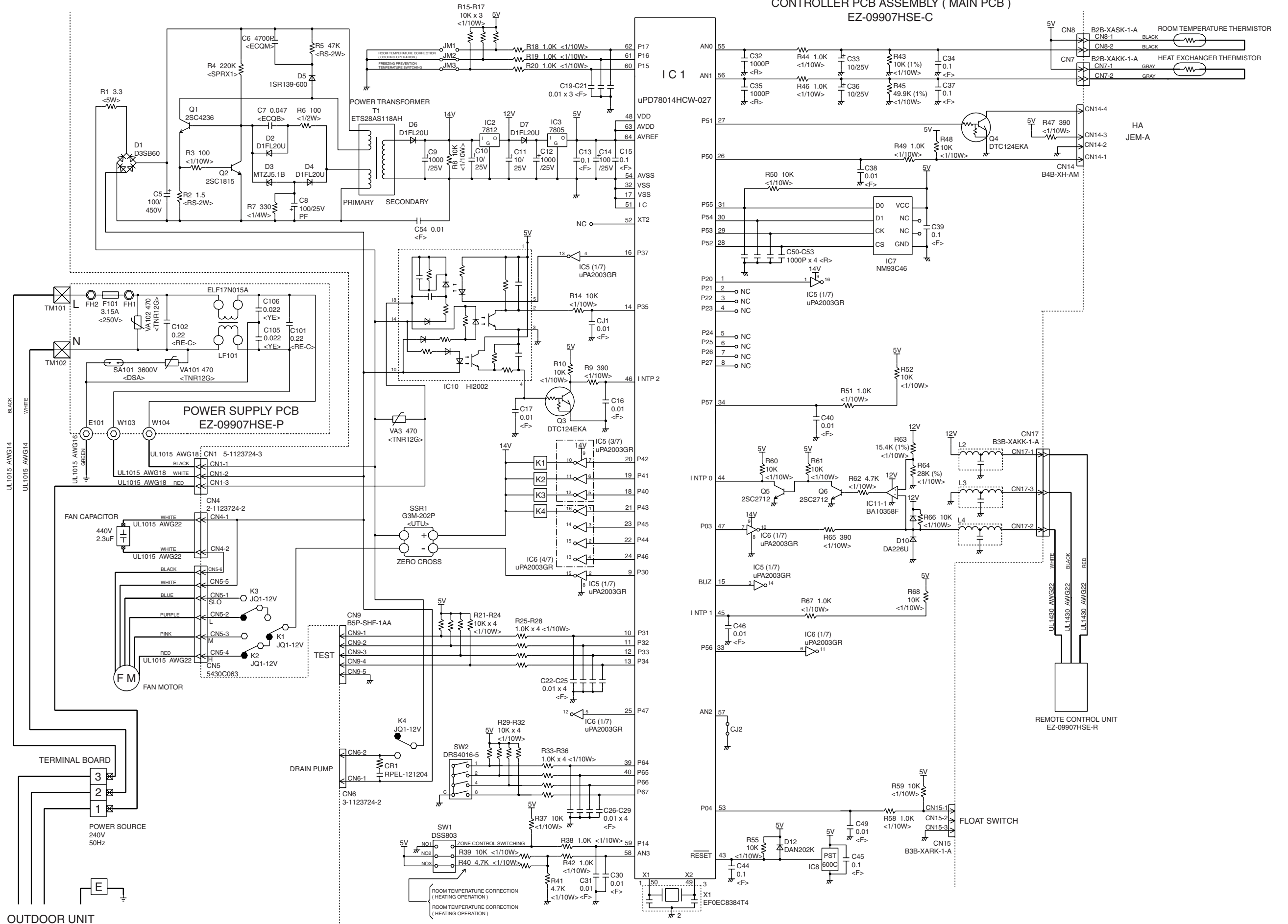
Models : RD-12RA / ROD-12HB
 / ROD-12HA
 RD-14RA / ROD-14HA



INDOOR PRINTED CIRCUIT BOARD CIRCUIT DIAGRAM

Models : RD-12RA
RD-14RA

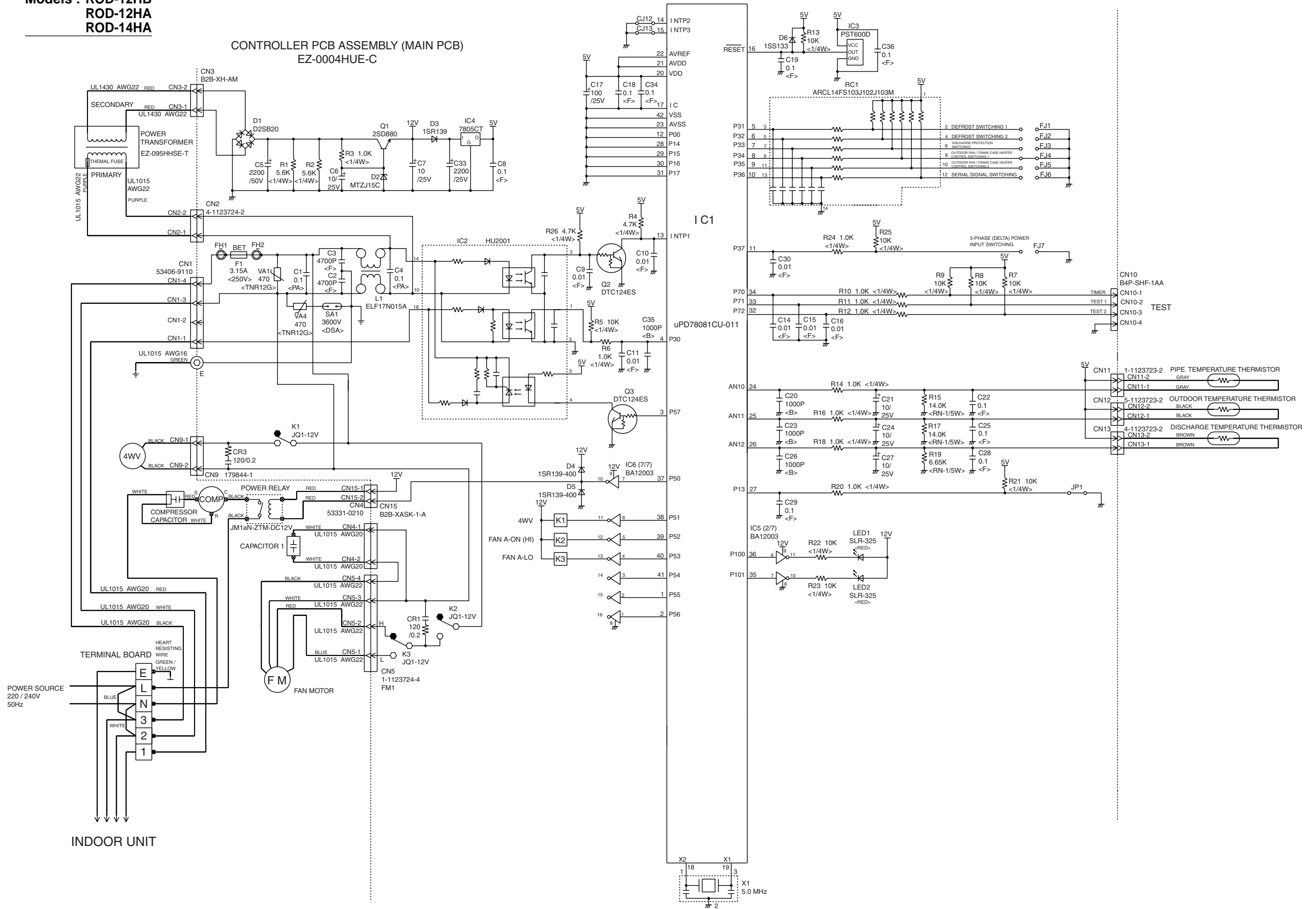
CONTROLLER PCB ASSEMBLY (MAIN PCB) EZ-09907HSE-C



OUTDOOR PRINTED CIRCUIT BOARD CIRCUIT DIAGRAM

**Models : ROD-12HB
ROD-12HA
ROD-14HA**

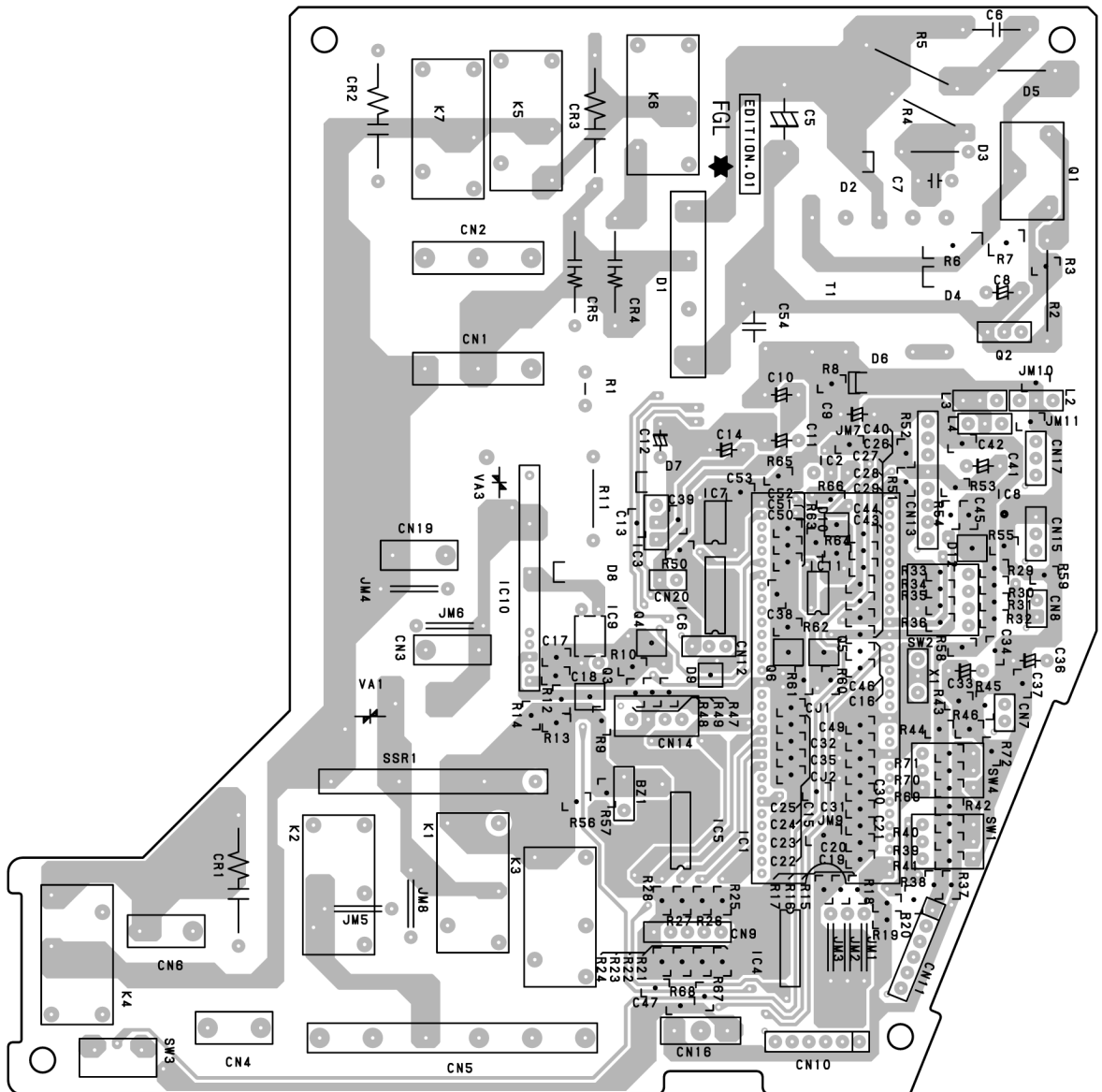
**CONTROLLER PCB ASSEMBLY (MAIN PCB)
EZ-0004HUE-C**



INDOOR P.C. BOARD LAYOUTS

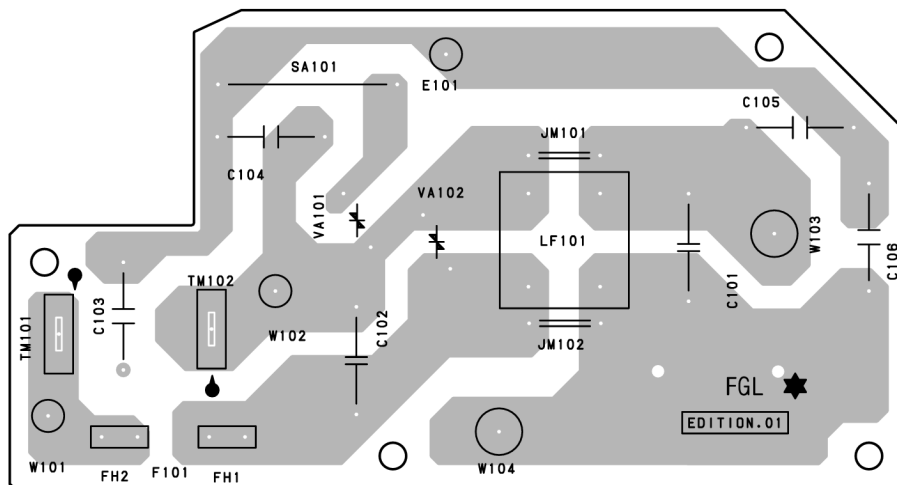
CONTROLLER PCB ASSEMBLY (MAIN PCB)

(Viewed from the solder side)



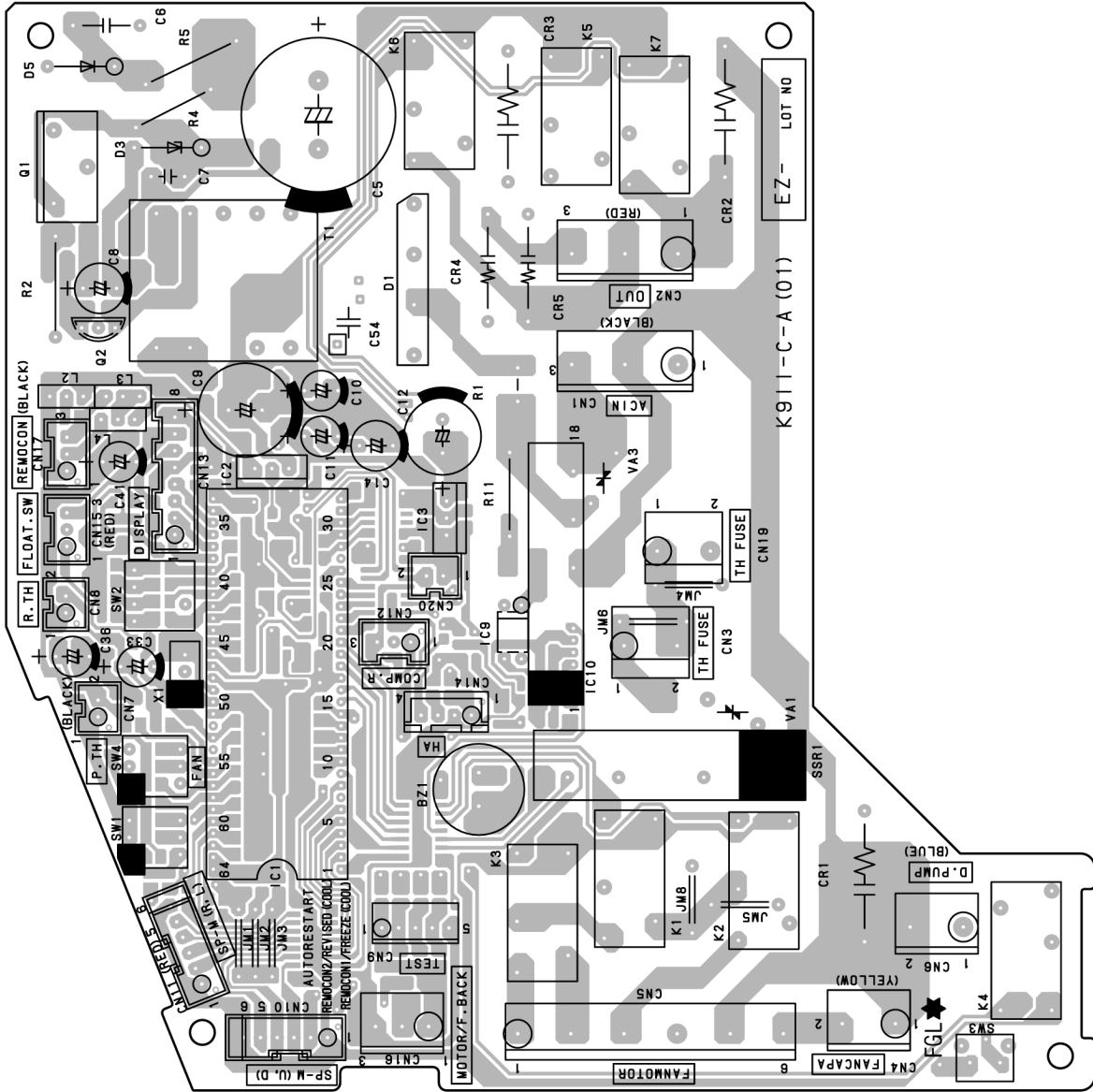
FILTER PCB ASSEMBLY

(Viewed from the solder side)



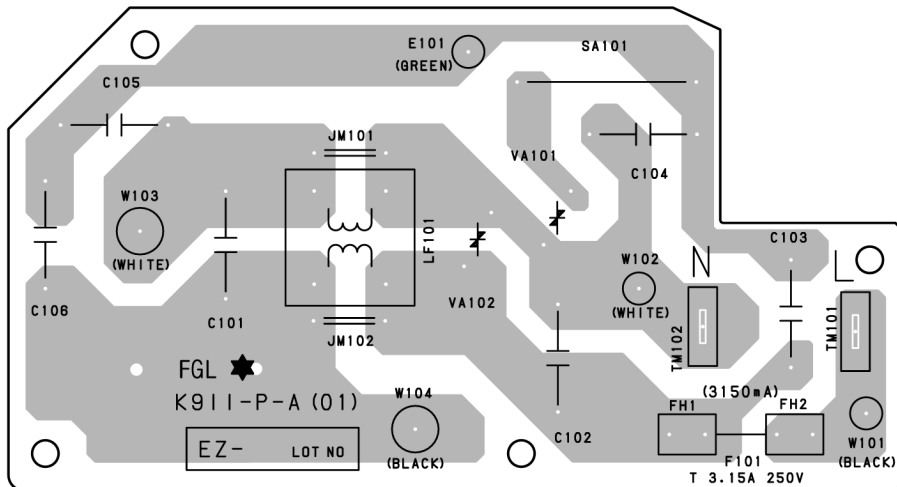
CONTROLLER PCB ASSEMBLY (MAIN PCB)

(Viewed from the component side)



FILTER PCB ASSEMBLY

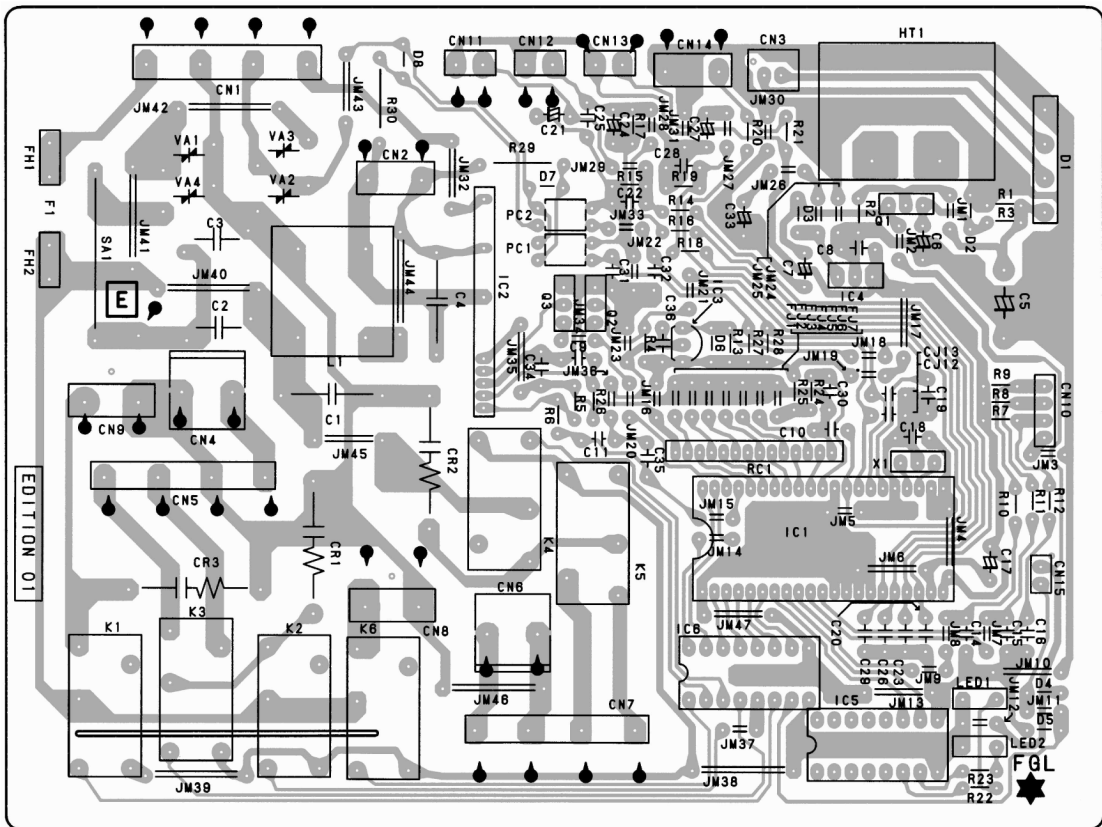
(Viewed from the component side)



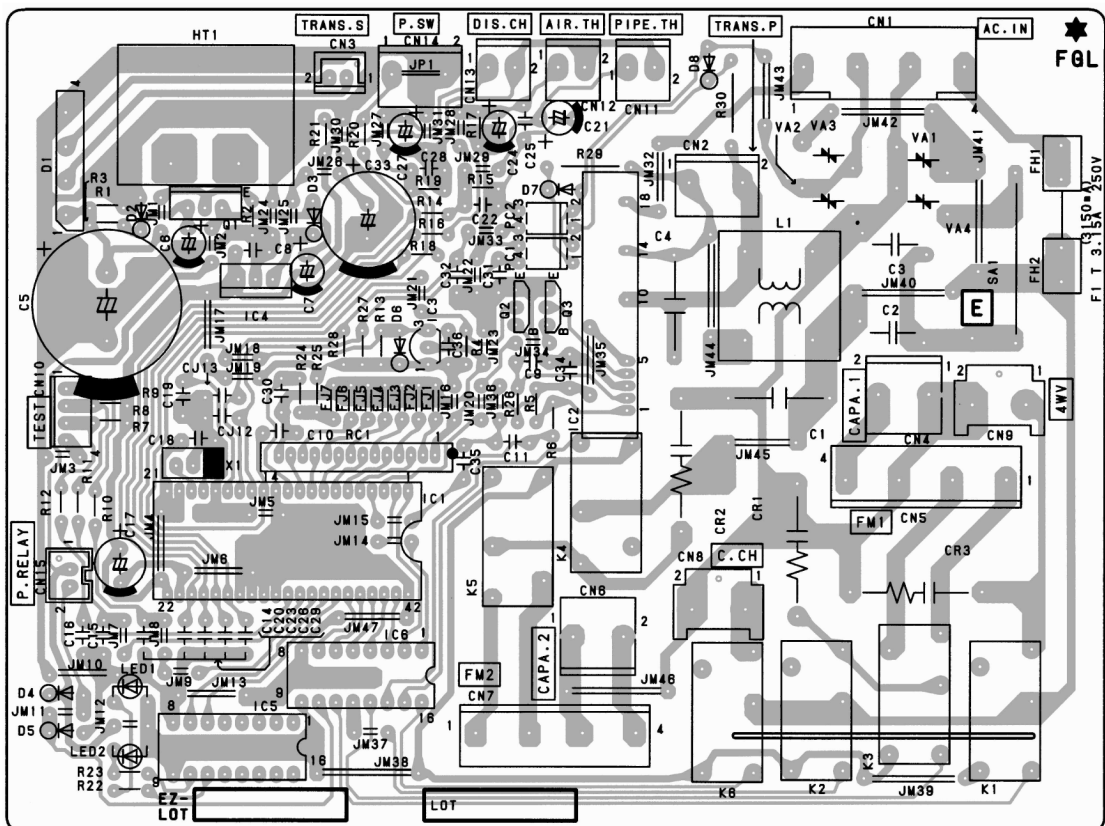
OUTDOOR P.C. BOARD LAYOUTS

CONTROLLER PCB ASSEMBLY (MAIN PCB)

(Viewed from the solder side)

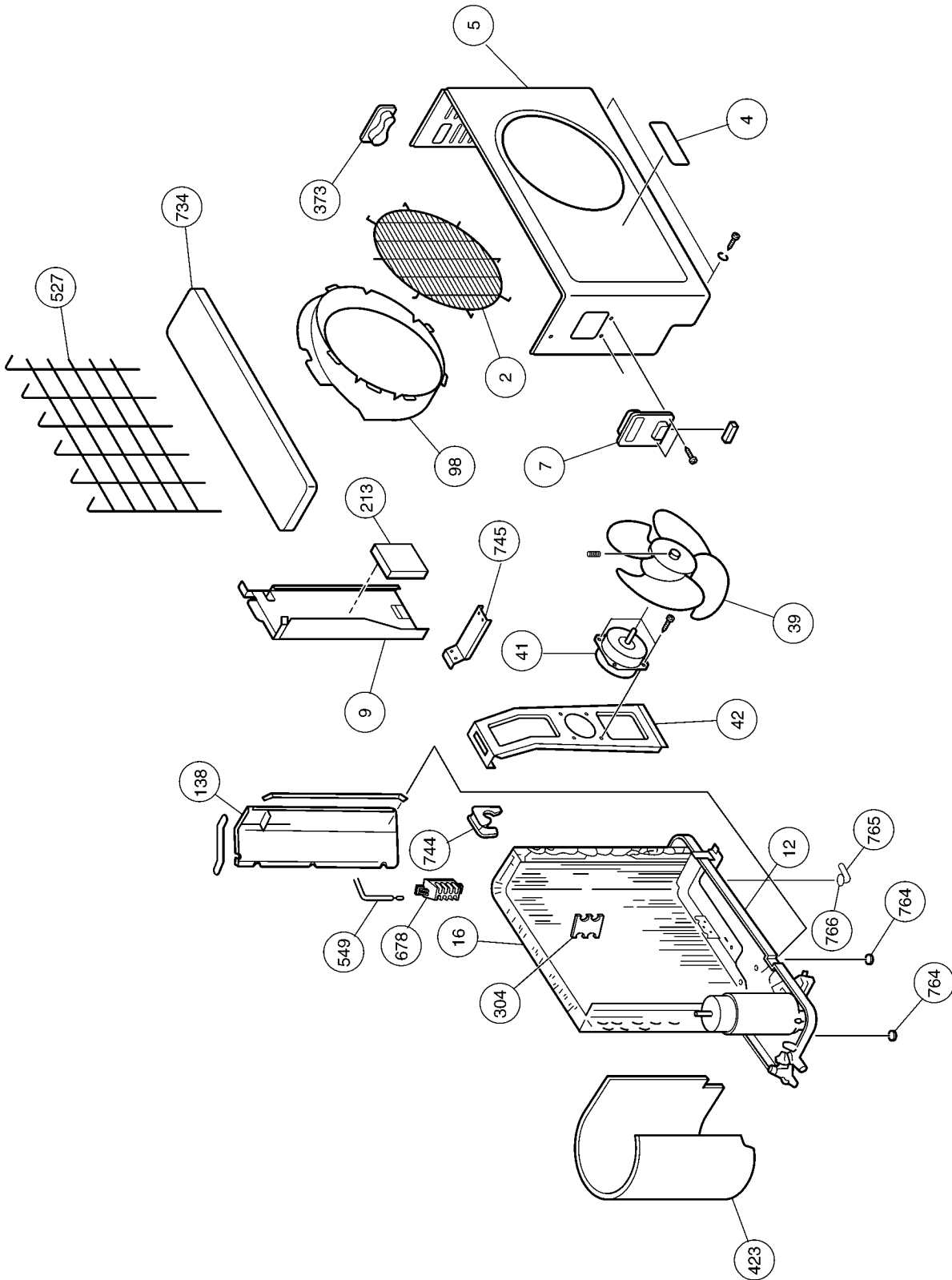


(Viewed from the component side)

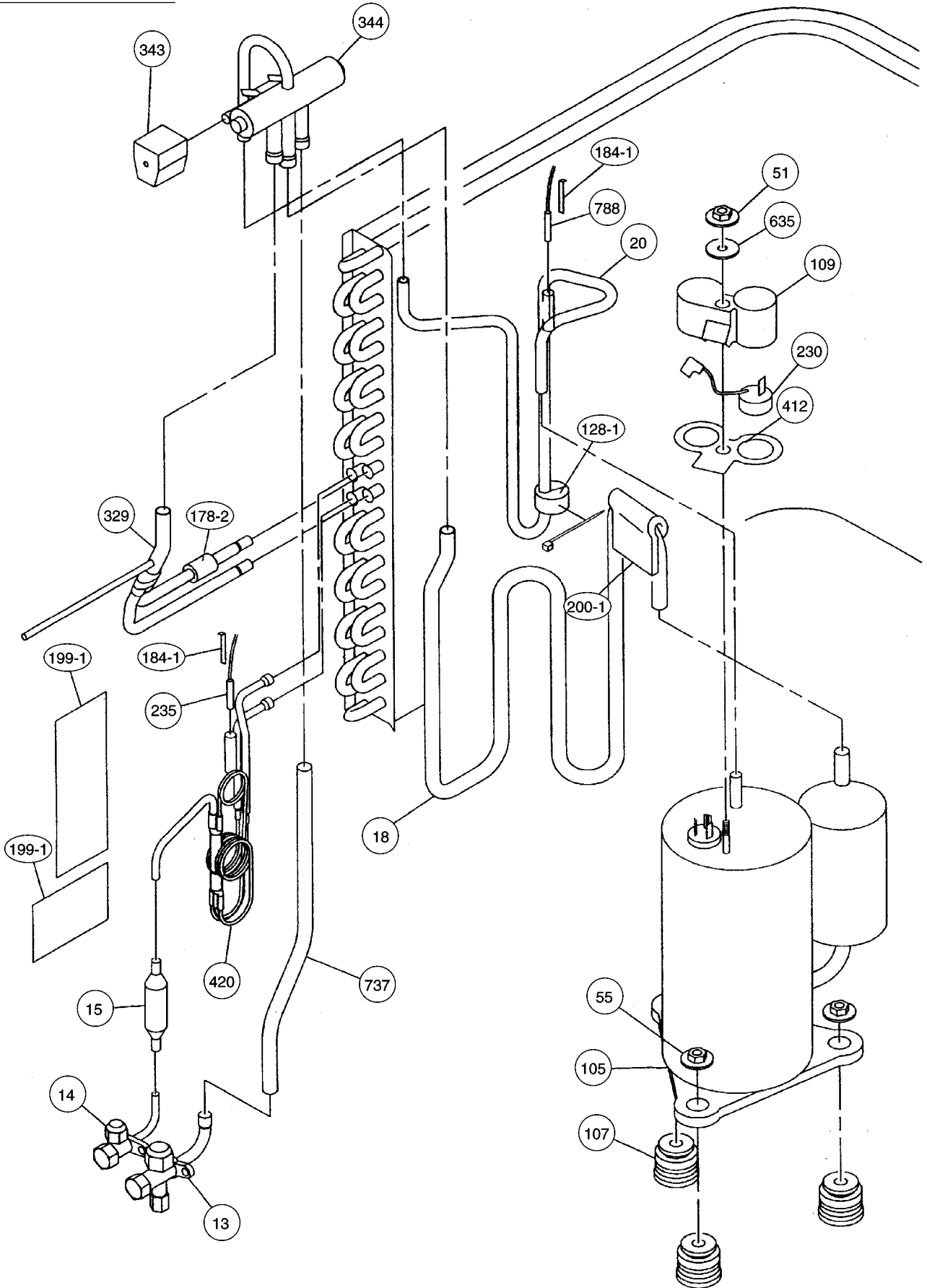


DISASSEMBLY ILLUSTRATION

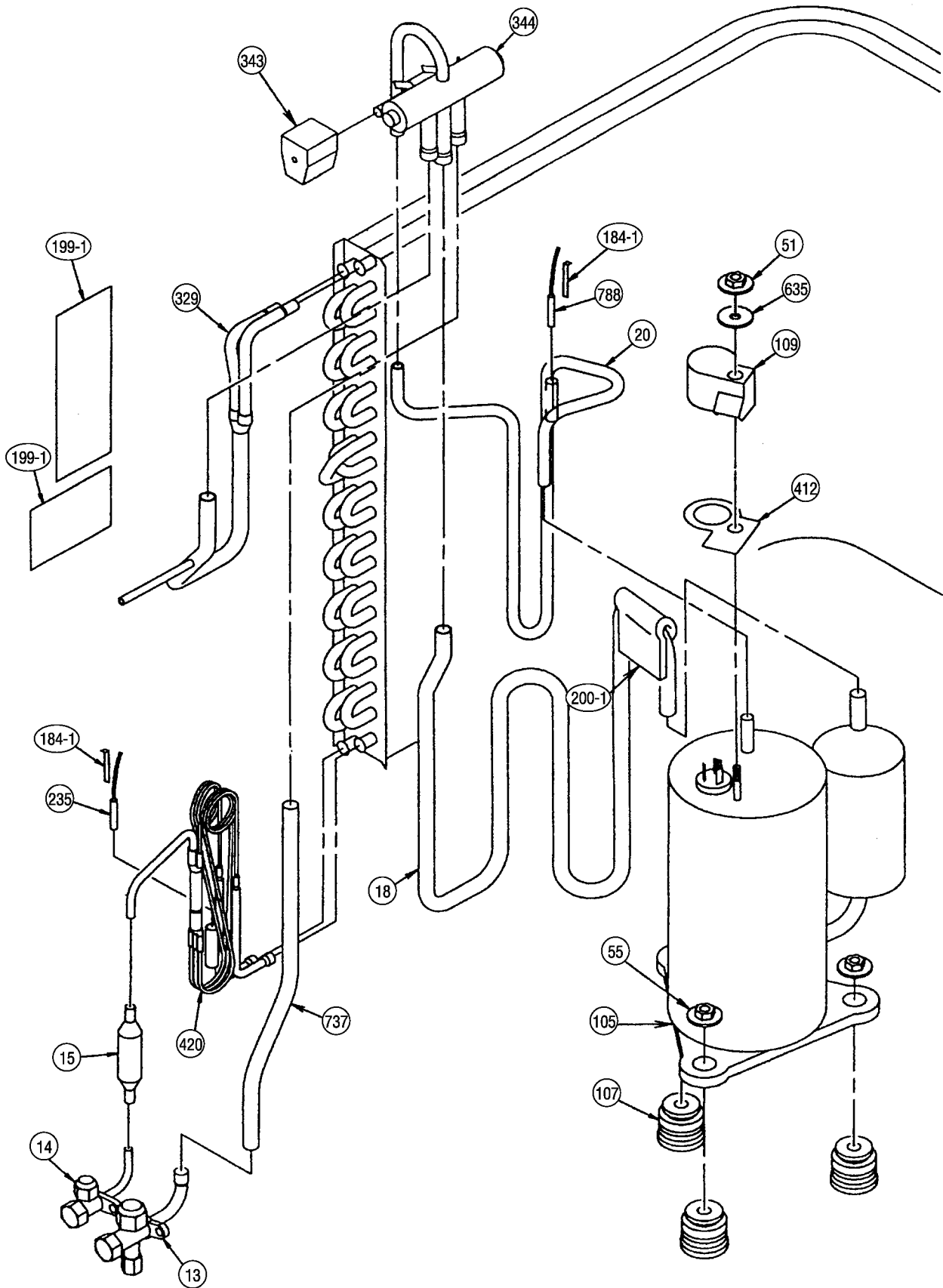
Models : ROD-12HB
ROD-12HA
ROD-14HA



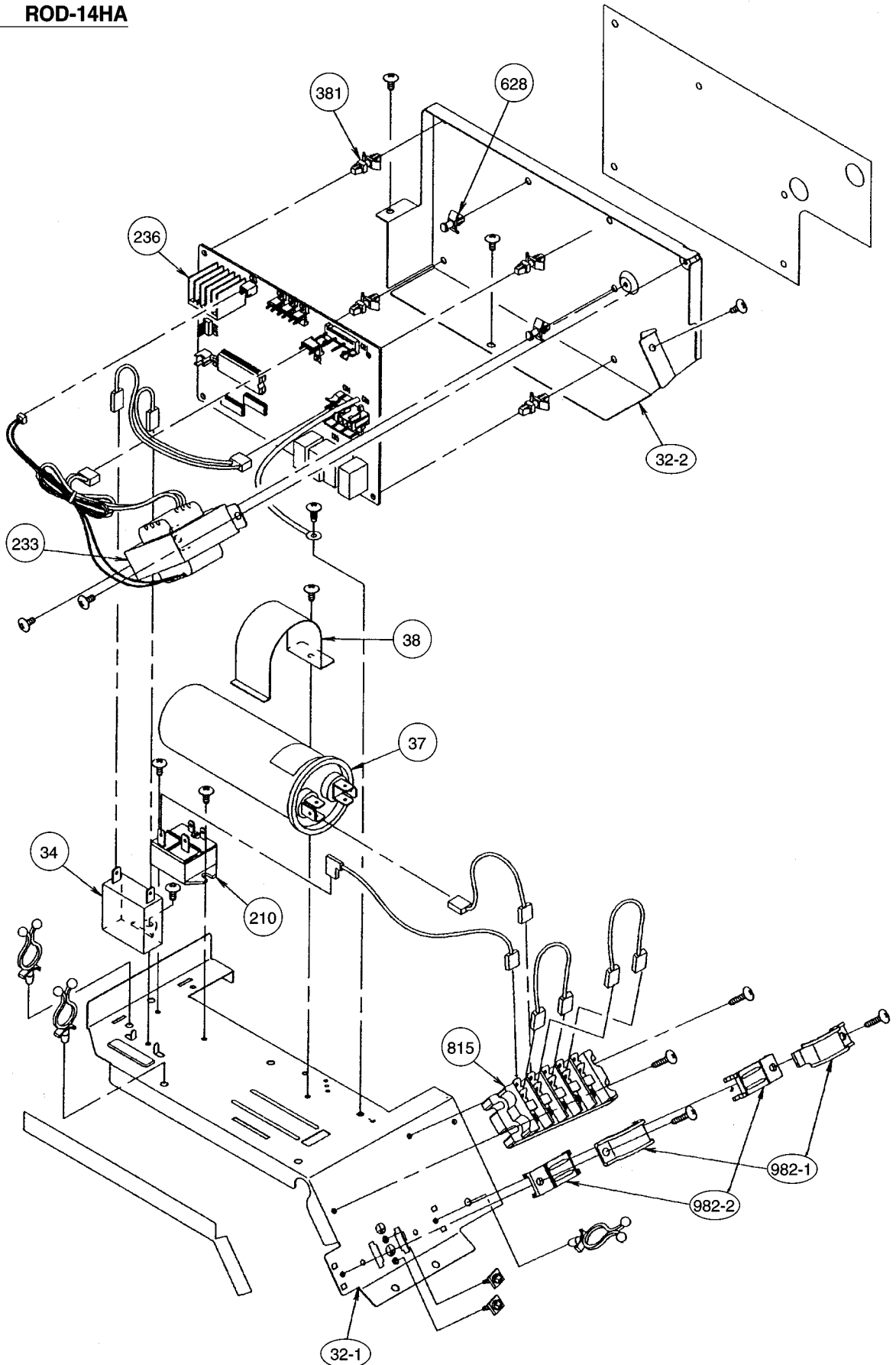
Models : ROD-12HB
ROD-12HA



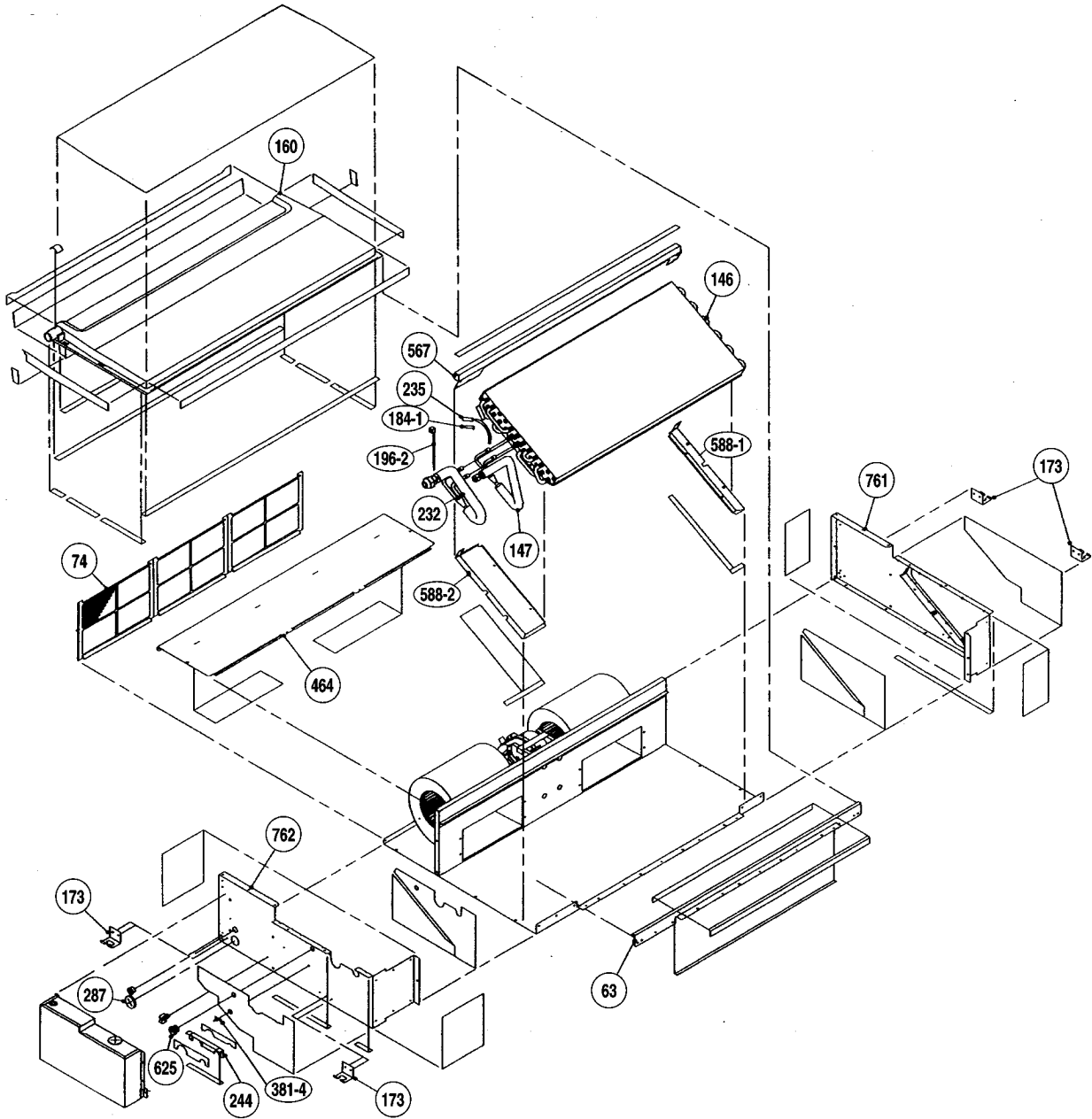
Model : ROD-14HA



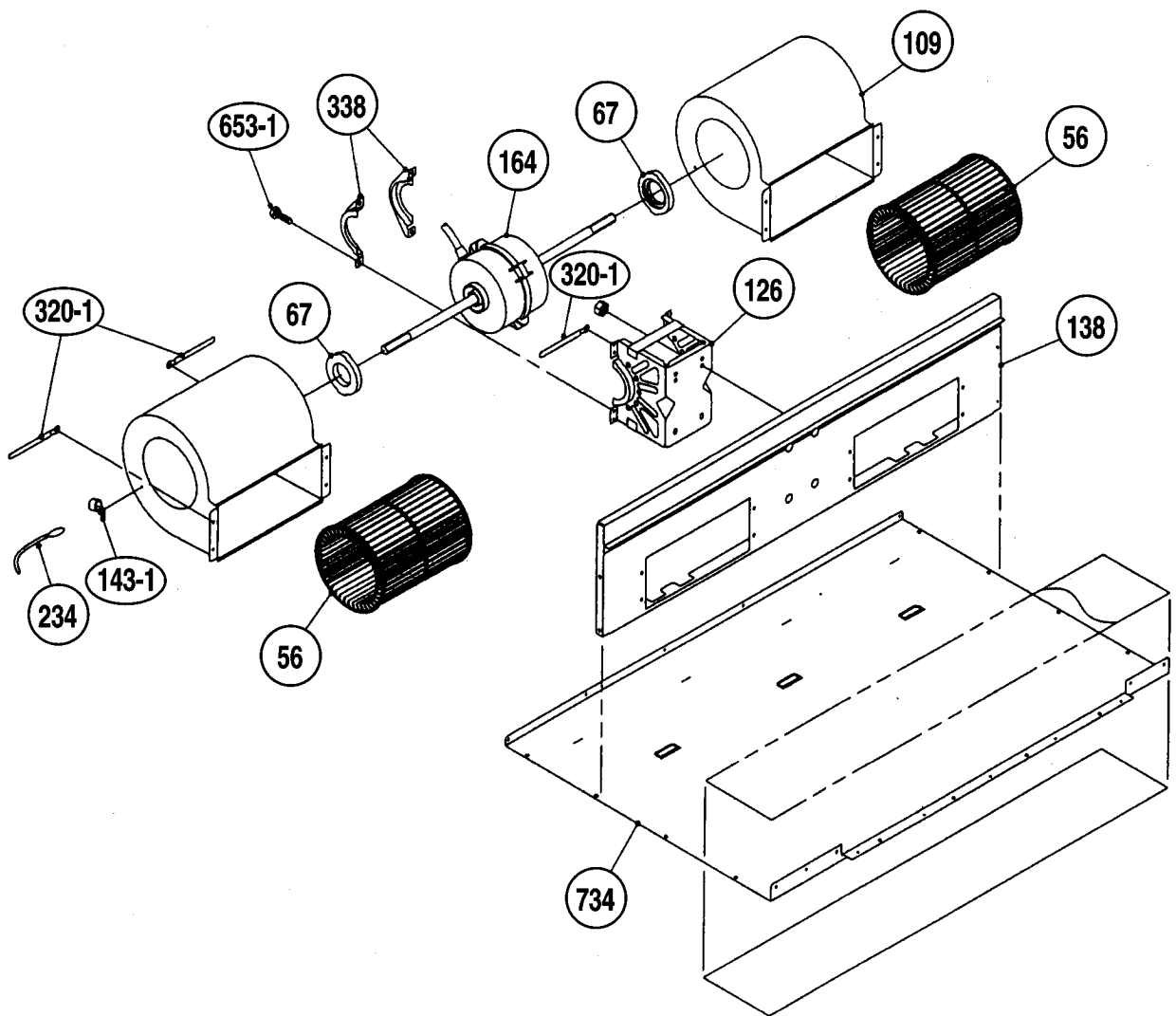
Models : ROD-12HB
ROD-12HA
ROD-14HA



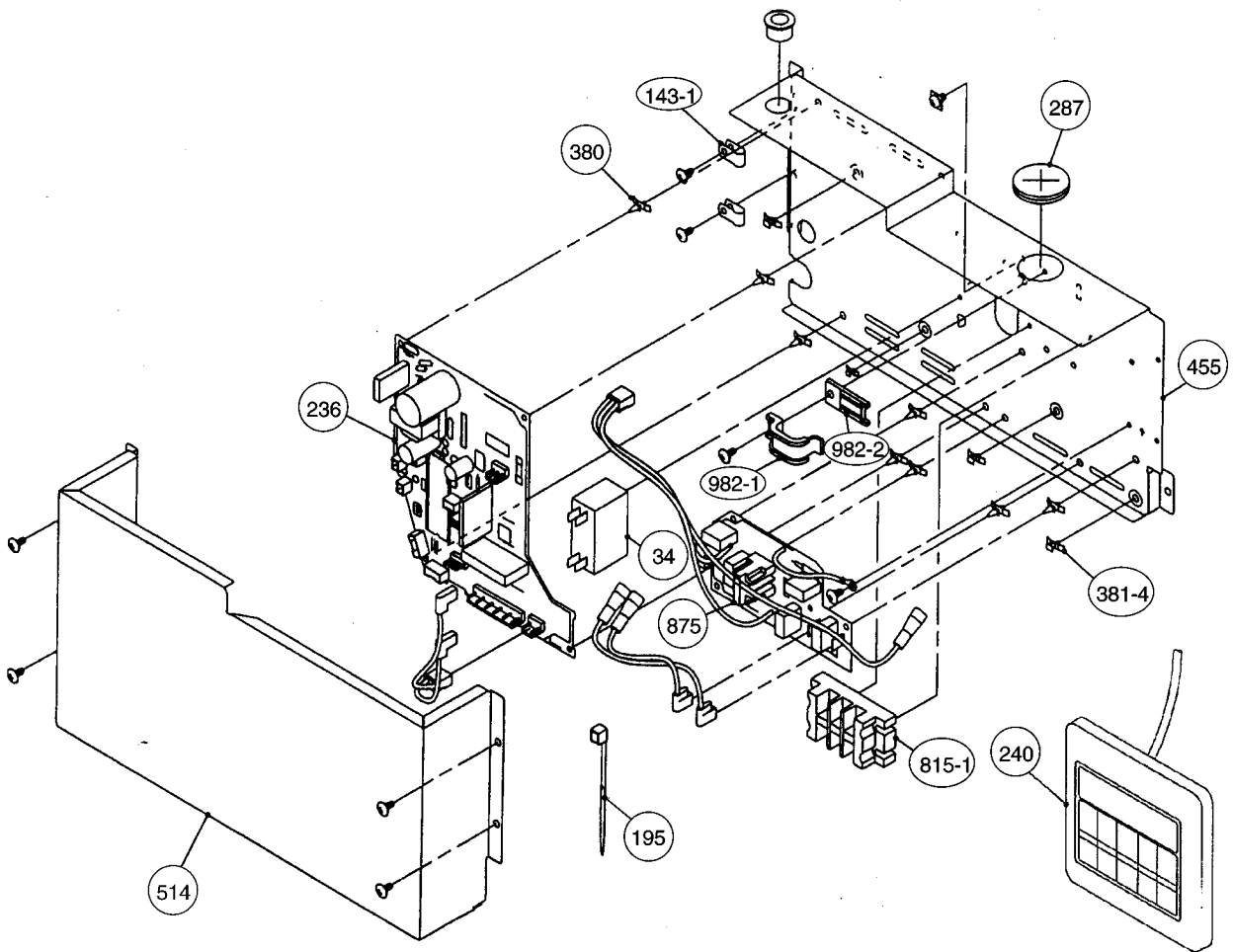
Models : RD-12RA
RD-14RA



Models : RD-12RA
RD-14RA



Models : RD-12RA
RD-14RA



PARTS LIST

When you order parts, please make a photocopy of this page and fill the number of the parts in the "Order" column.

INDOOR UNIT

Ref. No.	Description	Part No.		Ord. Q'ty	Ref. No.	Description	Part No.		Ord. Q'ty
		RD-12RA	RD-14RA				RD-12RA	RD-14RA	
34	Capacitor (Fan Motor)	9357965017	9357965017		244	Cover (Piping)	9363327007	9363327007	
56	Sirocco Fan Assy	9358621004	9358621004		287	Cap (Power)	9352173011	9352173011	
63	Front Panel Assy	9363723007	9363723007		320-1	Wire Clamp Metal	313483219905	313483219905	
67	Rubber (Vibration-proof)	313659068604	313659068604		338	Motor Fixture	9358594001	9358594001	
74	Filter	9366833017	9366833017		380	Locking Spacer	313209391403	313209391403	
109	Casing Assy	9363322002	9363322002		381-4	Spacer	0600118075	0600118075	
126	Motor Fixing Table Assy	9358591000	9358591000		455	Control Box	9363200003	9363200003	
138	Panel Assy (Motor)	9363401004	9363401004		464	Cover (Cabinet)	9363400007	9363400007	
143-1	Clamp NK-3N	313361274700	313361274700		514	Control Box Cover	9363201000	9363201000	
146	Evaporator Assy	9364456034	9364456034		567	Support Plate (Eva.)	9363404005	9363404005	
147	Inlet Pipe (Eva.) Assy	9363373004	9363373004		588-1	Bracket Eva. R	9363199000	9363199000	
160	Drain Pan	9363405002	9363405002		588-2	Bracket Eva. L	9363198003	9363198003	
164	Fan Motor Assy	9600778111	9600778098		625	Cord Bushing	9359240006	9359240006	
173	Hanger Bracket	9363195002	9363195002		653-1	Bolt (Fan Motor Fixing)	0700156014	0700156014	
184-1	Thermo. Spring-A	313728262708	313728262708		734	Panel Top	9363504002	9363504002	
195	Clamp SKB-100	313361275805	313361275805		761	Side Panel-R Assy	9363507003	9363507003	
196-2	Clamp SKB-150	313035356905	313035356905		762	Side Panel-L Assy	9363505009	9363505009	
232	Outlet Pipe (Eva.) Assy	9363377002	9363377002		815-1	Terminal-3P	9356488005	9356488005	
234	Thermistor Assy-Room	9703299018	9703299018		875	Filter PCB Assy	9703583018	9703583018	
235	Thermistor Assy-Pipe	9703297052	9703297052		982-1	Cord Clamp	9356857009	9356857009	
236	Controller PCB Assy	9703582028	9703582028		982-2	Cord Clamp-B	9356858006	9356858006	
240	Remote Control Unit	9701673049	9701673049						

OUTDOOR UNIT

Ref. No.	Description	Part No.			Ord. Q'ty
		ROD-12HA	ROD-12HB	ROD-14HA	
2	Fan Cover	9304109006	9304109006	9304109006	
4	Emblem-Rear	9361328006	9361328006	9361328006	
5	Cabinet-A, Painted	9302936017	9302936017	9302936017	
7	Connector Cover	9357970004	9357970004	9357970004	
9	Cabinet-B, Painted	9303744017	9303744017	9303744017	
12	Base Assy, Painted	9354493032	9354493032	9354493032	
13	3-Way Valve	9368971007	9364616001	9364616001	
14	2-Way Valve	9368970000	9364615004	9364615004	
15	Dryer	313523082505	313523082505	313523082505	
16	Condenser Assy	9369721021	9357055008	9365325001	
20	Discharge Pipe Assy	9365666005	9365666005	9365666005	
32-1	Control Box Metal-A	9363406009	9363406009	9363406009	
34	Capacitor (Fan Motor)	9700468080	9704305039	9704305039	
37	Running Capacitor	9306512026	9356386059	9356386066	
38	Capacitor Clamp	313468061808	313468061808	313468061808	
39	Propeller Fan Assy	9351589011	9351589011	9351589011	
42	Bracket (Motor)	313166243804	313166243804	313166243804	
51	Special Nut	9359430018	9359430018	9359430018	
55	Special Nut M8 (For Comp.)	9355091008	9355091008	9355091008	
98	Fan Ring	313166296109	313166296109	313166296109	
105	Compressor Assy	9365866009	9365866009	9364723006	
107	Rubber Seat-A (For Comp.)	9359425014	9359425014	9359425014	
109	Terminal Cover (For Comp.)	9363263008	9363263008	9364724003	
128-1	Rubber (Discharge Pipe)	313155086308	313155086308	313155086308	
138	Separate Wall Assy	9303729014	9303729014	9303729014	
164	Fan Motor Assy-Out	9601113089	9601113089	9601113089	
178-2	Capillary Holder Rubber	313394274808	313394274808	313394274808	
184-1	Thermo. Spring-A	313728262708	313728262708	313728262708	
199-1	BR Sheet	313612108209	313612108209	313612108209	
200-1	BR Sheet-B	9351990022	9351990022	9351990022	

When you order parts, please make a photocopy of this page and fill the number of the parts in the "Order" column.

OUTDOOR UNIT

Ref. No.	Description	Part No.			Ord.
		ROD-12HA	ROD-12HB	ROD-14HA	Q'ty
210	Main Relay	9356781007	9356781007	9356781007	
213	Noise Insulation-B	313584258005	313584258005	313584258005	
220	Control Box Metal-B	9363407006	9363407006	9363407006	
230	Overload Relay	9363765007	9363765007	—	
233	Power Transformer	9701549016	9701549016	9701549016	
235	Thermistor Assy	9701330034	9900043018	9900043018	
236	Controller PCB Assy	9703572012	9703572012	9703572012	
304	Thermostat Fixture-B	313349051500	313349051500	313349051500	
324	Cabinet Top Plate	9302937014	9302937014	9302937014	
327	Suction Pipe	9357048000	9357048000	9357048000	
329	Joint Pipe Assy	9357044002	9357044002	9352375002	
343	Solenoid Coil	9704061065	9704061065	9704061065	
344	4-Way Valve	9307556012	9307556012	9307556012	
373	Grip	313166178700	313166178700	313166178700	
381	Locking Spacer	313209391506	313209391506	313209391506	
412	Terminal Gasket	9362004008	9362004008	9364725000	
420	Capillary Assy	9370140033	9370140033	9370140040	
423	Noise Insulation-F	9350944019	9350944019	9350944019	
527	Protection Net	9355444002	9355444002	9355444002	
549	Thermistor Assy-Out	9357328027	9357328027	9357328027	
628	Locking Spacer-B	313005446558	313005446558	313005446558	
635	Terminal Washer	9359428015	9359428015	9359428015	
678	Bracket (Thermistor)	313557406106	313557406106	313557406106	
737	Suction Pipe	9365665008	9365665008	9365665008	
744	Clamp (Condenser)	313166374106	313166374106	313166374106	
745	Motor Support	313166036308	313166036308	313166036308	
764	Drain Cap	313166024302	313166024302	313166024302	
765	Drain Pipe (L-type)	9301102000	9301102000	9301102000	
766	Drain Pipe Packing	9301143003	9301143003	9301143003	
788	Thermistor-Discharge	9358337011	9358337011	9358337011	
815	Terminal-5P	9356497021	9356497021	9356497021	
982-1	Cord Clamp	9356857009	9356857009	9356857009	
982-2	Cord Clamp-C	9359677000	9359677000	9359677000	

[INDOOR UNIT]

CONTROLLER PCB ASSEMBLY (Ref. No.236)

When you order parts, please make a photocopy of this page and fill the number of the parts in the "Order" column.

Ref. No.	Description	Part No.	Ord. Q'ty	Ref. No.	Description	Part No.	Ord. Q'ty
IC1	IC uPD78014HCW-027	9703514012		R63	Res. 1/10W 15.4kohm+-1%	0200279565	
IC2	IC NJM7812FA	0100462104		R64	Res. 1/10W 28kohm+-1%	0201114445	
IC3	IC NJM7805FA	0100462081		C5	Cap. Elec. 450V 100uF	0300256060	
IC5,6	IC uPA2003GR	0100028041		C6	Cap. Plastic 4700pF	0300269091	
IC7	IC BR93LC46RF-E2	0100295016		C7	Cap. Plastic 50V 0.047uF	0300169339	
IC8	IC PST600CMTR	0101461120		C8	Cap. Elec. 25V 100uF	0301197560	
IC10	IC HI2002	9701384020		C9	Cap. Elec. 25V 100uF	0301196495	
IC11	IC BA10358F	0101846071		C10,11,33,36	Cap. Elec. 25V 10uF	0301192312	
Q1	Xstr 2SC4236	0000164047		C12	Cap. Elec. 25V 1000uF	0301158264	
Q2	Xstr 2SC1815	0000002011		C13,15,34,37, 39,44,45,47	Cap. Ceramic 50V 0.1uF	0300311752	
Q3,4	Xstr DTC124EKA	0000936033		C14	Cap. Elec. 25V 100uF	0301192350	
Q5,6	Xstr 2SC2712	0000781053		C16,17,19-31,38, 40,46,49,CJ1,2	Cap. Ceramic 50V 0.01uF	0300311738	
D1	Diode D3SB60	0000689045		C32,35,50-53	Cap. Ceramic 50V 1000pF	0300308509	
D2,4,7	Diode D1FL20	0000746519		C54	Cap. Ceramic 0.01uF	0300209127	
D3	Diode MTZJ5.1B	0000852166		VA3	Varistor TNR10V471K	0000361224	
D5	Diode 1SR139-600	0000353120		SSR1	Relay G3M-202P-UTU	9701829019	
D6	Diode D2FL20U	0000906500		K1-4	Relay JQ1-12V	9701316014	
D10	Diode DA226U	0000625036		CR1	Network RPEL-121204-C	9701125012	
D12	Diode DAN202K	0000684019		SW1	Switch, Slide DSS803	9701392018	
R1	Res. 5W 3.3ohm+-10%	0200153148		SW2	Switch, Rotary DRS4016-5	9701694013	
R2	Res. Metal 2W 1.5ohm+-5%	0201107119		T1	Power Transformer ETS28AS118AH	9702727017	
R3	Res. 1/10W 100ohm+-5%	0200212500		X1	Ceramic Resonator EF0EC8384T4	9701261017	
R4	Res. Carbon 220kohm+-5%	0200111353		L2-4	EMI Filter EXCEMT103DT	0400406396	
R5	Res. 2W 47kohm+-5%	0201107652		JM2-4,6	Wire 0.6dia. L=10mm	9700025016	
R6	Res. 1/2W 100ohm+-5%	0200731506		JM9	Res. 0 ohm	0200230016	
R7	Res. 1/4W 330ohm+-5%	0200708621		CN1	Plug, PCB 5-1123724-3	0501321635	
R8,10,14-17,21- 24,29-32,37,39, 48,50,52,55,59- 61,66,68,70	Res. 1/10W 10kohm+-5%	0200213019		CN4	Plug, PCB 2-1123724-2	0501321529	
R9,47,65	Res. 1/10W 390ohm+-5%	0200212647		CN5	Plug, PCB 5430C063	0500957026	
R18-20,25-28,33- 36,38,42,44,46, 49,51,58,67,69	Res. 1/10W 1kohm+-5%	0200212746		CN6	Plug, PCB 3-1123724-2	0501321536	
R40,41,62,71	Res. 1/10W 4.7kohm+-5%	0200212906		CN7	Plug, PCB B2B-XAKK-1-A	0501045227	
R43	Res. 1/10W 10kohm+-1%	0200279497		CN8	Plug, PCB B2B-XASK-1-A	0501045012	
R45	Res. 1/10W 49.9kohm+-1%	0200279824		CN9	Plug, PCB B5P-SHF-1AA	0500006069	
				CN14	Plug, PCB B4B-XH-AM	0500005314	
				CN15	Plug, PCB B3B-XARK-1-A	0501045319	
				CN17	Plug, PCB B3B-XAKK-1-A	0501045357	

FILTER PCB ASSEMBLY (Ref. No.875)

Ref. No.	Description	Part No.	Ord. Q'ty	Ref. No.	Description	Part No.	Ord. Q'ty
C101,102	Cap. Plastic 0.22uF	0300304099		LF101	EMI Filter ELF17N015A	0400197119	
C105,106	Cap. Plastic 0.022uF	0301052098		F101	Fuse 2183.15	0600285210	
SA101	Arrester DSA-362MA-05	0600168032		FH1,2	Fuse Holder PFC5000-0502	0500158072	
VA101,102	Varistor TNR10V471L	0000361224		E101	Wire w/Terminal L=100mm GRN	9702313012	
TM101,102	Plug Contact 86028	0500536016		W103,104	Wire #18 3P AWG18 3P	9702310059	

[OUTDOOR UNIT]














CONTROLLER PCB ASSEMBLY (Ref. No.236)

When you order parts, please make a photocopy of this page and fill the number of the parts in the "Order" column.



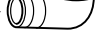

Ref. No.	Description	Part No.	Ord. Q'ty	Ref. No.	Description	Part No.	Ord. Q'ty
IC1	IC uPD78081CU-071	9701721023		C9-11,14-16,30	Cap. Ceramic 50V 0.01uF	0300013113	
IC2	IC HU2001	9701651016		C17	Cap. Elec. 25V 100uF	0300051375	
IC3	IC PST600D-2	0101461113		C20,23,26,35	Cap. Ceramic 50V 1000pF	0300011096	
IC4	IC NJM7805FA	0100462081		C33	Cap. Elec. 25V 2200uF	0300915417	
IC5,6	IC BA12003	0101650012		X1	Ceramic Resonator EF0EC5004T4Z	9701261024	
Q1	Xstr 2SD880	0000001014		L1	EMI Filter ELF17N015A	0400197119	
Q2,3	Xstr DTC124ES	0000517010		F1	Fuse BET 3.15A-250V	0600222512	
D1	Diode D2SB20	0000599023		FH1,2	Fuse Holder PFC5000-0502	0500158072	
D2	Diode MTZJ15C	0000852203		VA1,4	Varistor TNR10V471K	0000361224	
D3-5	Diode 1SR139-400	0000353137		K1-3	Relay JQ1-12V	9701316014	
D6	Diode 1SS133	0000572019		GR1,3	GR Absorber RPEL-121204-C	9701125012	
LED1,2	Diode SLR-325VC RED	0000813259		RC1	RC Module ARCL14FS103J102J103M	0200301020	
R1,2	Res. Carbon 1/4W 5.6kohm+-5%	0200994192		SA1	Arrester DSA-362MA-05	0600168032	
R3,6,10-12,14, 16,18,20,24	Res. Carbon 1/4W 1kohm+-5%	0200994017		HT1	Heat Sink PUG-26-25	9701428014	
R4,26	Res. Carbon 1/4W 4.7kohm+-5%	0200994178		CN1	Plug, PCB 53406-9110	0500951086	
R5,7-9,13,21- 23,25	Res. Carbon 1/4W 10kohm+-5%	0200994253		CN2	Plug, PCB B2P3-VH-B-R	0500011766	
R15,17	Res. Metal 14kohm	0201028612		CN3	Plug, PCB B2B-XH-AM	0500005321	
R19	Res. Metal 6.65kohm	0201028766		CN4	Plug, PCB 53331-0210	0501033019	
C1,4	Cap. Plastic 275V 0.1uF	0300894835		CN5	Plug, PCB B4P7-VH-B	0500011742	
C2,3	Cap. Ceramic 250V 4700pF	0300209141		CN9	Plug, PCB 179844-1	0501121013	
C5	Cap. Elec. 50V 2200uF	0301206026		CN10	Plug, PCB B4P-SHF-1AA	0500006038	
C6,7,21,24,27	Cap. Elec. 25V 10uF	0300004258		CN11	Plug, PCB B2P-VH-B	0500011124	
C8,18,19,22,25, 28,29,34,36	Cap. Ceramic 50V 0.1uF	0300988251		CN12	Plug, PCB B2P-VH-B-C	0500011568	
				CN13	Plug, PCB B2P-VH-B-R	0500011148	
				CN15	Plug, PCB B2B-XASK-1-A	0501045012	
				E	Wire w/Terminal GRN L=210	9701325016	

STANDARD ACCESSORIES

INDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application	Part No.
Installation template 	1	For positioning the indoor unit	9364225005
Hook metal 	4	For suspending the indoor unit from ceiling	9363195002
Tapping screw (φ 4 x 10) 	8	For installing the hanger	301171164104
Special nut A (large flange) 	4	For suspending the indoor unit from ceiling	313005446653
Special nut B (small flange) 	4		313005446759
Coupler heat insulation (large) 	1	For indoor side pipe joint (large pipe)	9350716029
Coupler heat insulation (small) 	1	For indoor side pipe joint (small pipe)	9352766015
Binder 	1 (Small)	For remote control unit and remote control unit cord binding	313361275805
	4 (Large)	For fixing the coupler heat insulation	312300787605
Remote control unit 	1		9701673049
Remote control unit cord clamp 	10	For installing the remote control unit cord	313714181904
Tapping screw (flush heads) 	10	For installing the remote control unit cord clamp	301141153027
Filter 	3		9363326000
Drain hose insulation 	1	Insulates the drain hose and vinyl hose connection	313806217708

OUTDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application	Part No.
Hexagon wrench 	1	For vacuum	301980005800
Drain pipe packing 	1	For outdoor unit drain piping work (May not be supplied, depending on the model)	9301143003
Drain pipe 	1		9301102000
Cap (drain) 	2		313166024302



MANUFACTURER :

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