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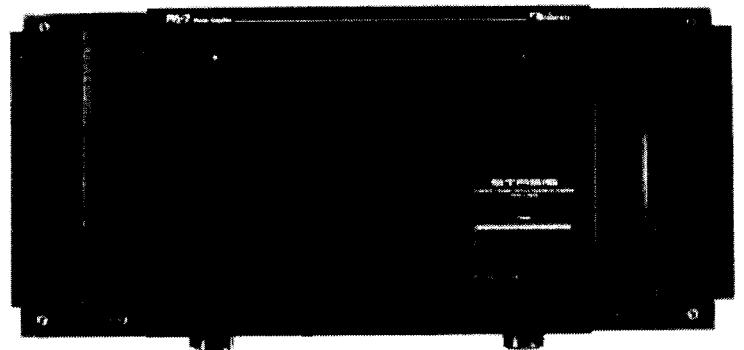
Service Manual

Nakamichi

PA-7

PA-7E

Power Amplifier



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1. GENERAL

1.1. Voltage Selector

Voltage selector is installed on the rear panel for Other version of the Nakamichi PA-7.
This voltage selector can select 110 V, 120 V, 220 V or 240 V at customer's disposal.

1.2. Packing Materials, Owner's Manual and Power Cord

<u>Part No.</u>	<u>Description</u>	<u>Q'ty</u>
0F03875B	Outer Carton PA-7	1
0F03876C	Outer Carton PA-7E	1
0F03869B	Inner Carton PA-7	1
0F03870B	Inner Carton PA-7E	1
0F03877B	Packing	2
0D04531A	Owner's Manual English	1
0D04530A	Owner's Manual English/German/French	1
0B90137A	Power Cord PA-7 (U.S.A. & Others)	1
0B90139A	Power Cord PA-7 (Australia)	1
0B90138A	Power Cord PA-7E (220V Class 2)	1
0B90154A	Power Cord PA-7E (Switzerland)	1
0B90140A	Power Cord PA-7E (UK)	1
0F03887A	Power Cord Band	1

2. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

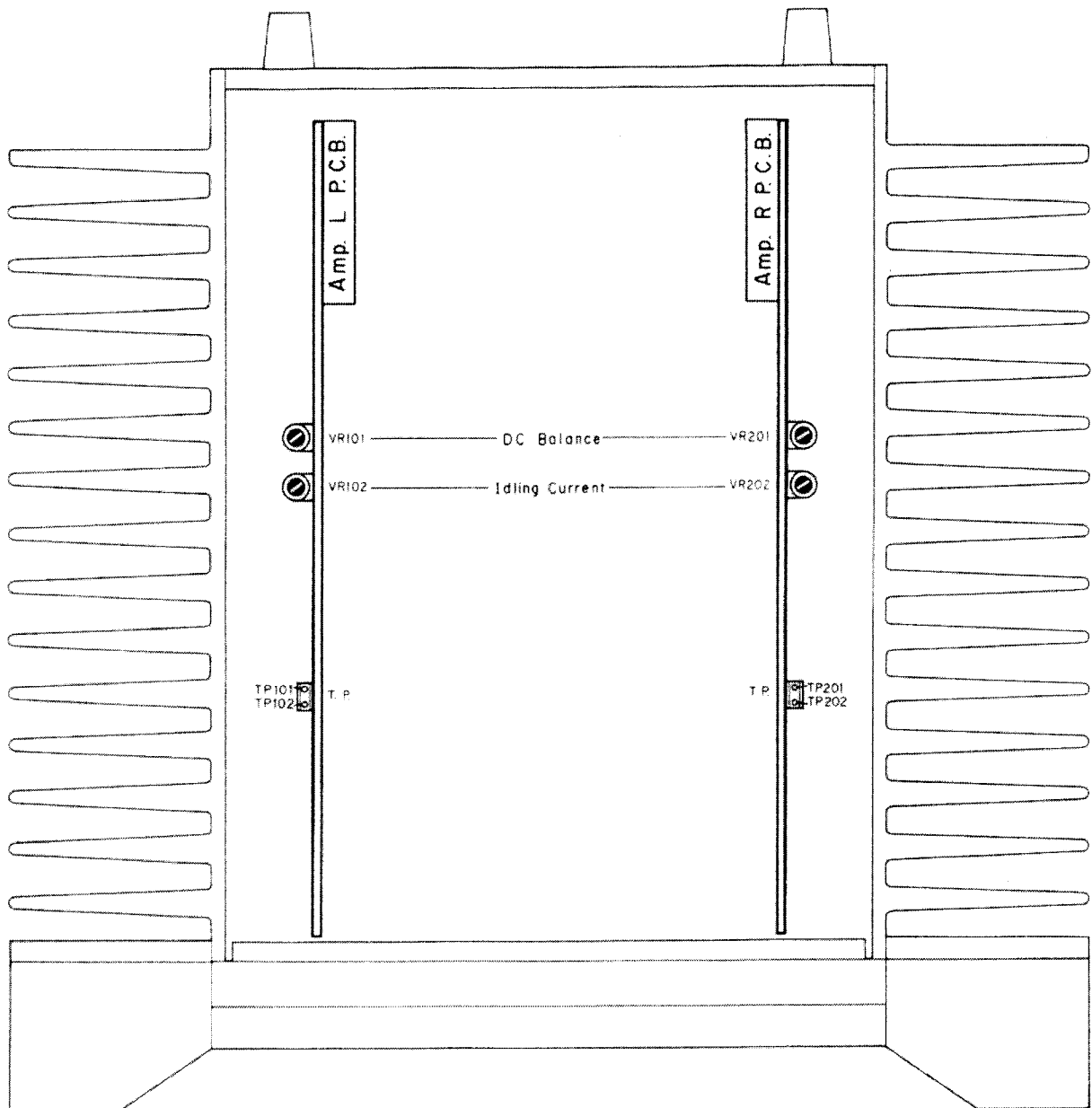


Fig. 2

3. ELECTRICAL ADJUSTMENTS

3.1. Preparation for Adjustment

- (1) Insert shorting pins into the Input Jacks.
- (2) Remove loads of the speaker terminals.
- (3) Before starting adjustment, allow twenty minutes or more after the power is turned ON.

3.2. DC Balance Adjustment

- (1) Connect a DC voltmeter to the L (R) channel speaker terminal.
- (2) Adjust VR101 (VR201) to obtain 0 ± 100 mV on the DC voltmeter.

3.3. Idling Current Adjustment

- (1) Connect a DC voltmeter between TP101 and TP102 (TP201 and TP202) on the Amp. L (R) P.C.B. Ass'y.
- (2) Adjust VR102 (VR202) to obtain 40 mV on the DC voltmeter (idling current: 40 mA).
- (3) Repeat 3.2 and 3.3 one or two times.
- (4) Remove shorting pins from the Input Jacks.

4. MECHANISM ASS'Y AND PARTS LIST

Schematic Ref. No.	Part No.	Description	Qty	Schematic Ref. No.	Part No.	Description	Qty
		Synthesis Serial No.: B20601001 —		A01	HA04832A	Handle L Ass'y Serial No.: B20601001 —	1
01	HA04832A	Handle L Ass'y	1	01	0H04631A	Handle L	1
02	HA04846A	Front Panel Ass'y PA-7	1	02	0J05006A	Vinyl Chloride Plate A	2
	HA04847A	Front Panel Ass'y PA-7E	1	03	0H04655A	Vinyl Chloride Plate B	1
03	BA05688A	Clipping LED P.C.B. Ass'y	2	L01	0E03310A	M4x6 ⊕ Binding (Black Chromate)	2
04	BA05687A	Power LED P.C.B. Ass'y	1				
05	HA04833A	Handle R Ass'y	1	A02	HA04833A	Handle R Ass'y Serial No.: B20601001 —	1
06	0J04989B	Front Chassis	1				
07	0B71003A	Power Switch	1	01	0H04632A	Handle R	1
08	0J05048A	P.C.B. Spacer	4	02	0J05006A	Vinyl Chloride Plate A	2
09	BA05754B	Limiting P.C.B. Ass'y PA-7 (U.S.A.)	1	03	0H04655A	Vinyl Chloride Plate B	1
	BA05755B	Limiting P.C.B. Ass'y PA-7 (Australia & Others) & PA-7E	1	L01	0E03310A	M4x6 ⊕ Binding (Black Chromate)	2
10	0H04634D	Heat Sink B	1	A03	HA04846A	Front Panel Ass'y PA-7	1
11	0H04633D	Heat Sink A	1		HA04847A	Front Panel Ass'y PA-7E Serial No.: B20601001 —	1
12	0J04990A	Side Chassis	2				
13	0J05025A	Stud	2	01	0H04618B	Front Panel PA-7	1
14	BA05684B	Amp. L P.C.B. Ass'y	1		0H04619B	Front Panel PA-7E	1
15	0M04377B	Caution Label	1	02	HA04849A	Power Switch Button Ass'y	1
16	0H04629B	Top Cover	1	03	0J05000B	Spring	1
17	0J05011A	Cushion A	6	04	0H04652B	Guide	1
18	0J05055A	Cushion B	1	05	0H04653B	Illuminator	1
19	0B12253A	Diode Bridge 15G4B41	2	06	0H04651A	Lens	2
20	0J05047B	Ground Plate Collar	1	07	0J05005A	P.C.B. Cushion	2
21	0J04992C	Ground Plate	1				
22	0J05003A	Center Stud	1				
23	0B40328A	Electrolytic Capacitor 33000µF 100V	4				
24	0B50046B	Power Transformer 120V PA-7 (U.S.A.)	1				
	0B50048B	Power Transformer 220/240V PA-7 (Australia) & PA-7E	1				
	0B50049A	Power Transformer 120/220-240V PA-7 (Others)	1				
25	0H04650A	Bottom Chassis	1				
26	0J05009A	Leg T-D	4				
27	HA04845A	Rear Panel Ass'y PA-7 (U.S.A.)	1				
	HA04843A	Rear Panel Ass'y PA-7 (Australia)	1				
	HA04842A	Rear Panel Ass'y PA-7 (Others)	1				
	HA04844A	Rear Panel Ass'y PA-7E	1				
28	BA05685B	Amp. R P.C.B. Ass'y	1				
29	0H04671C	Heat Sink D	1				
30	0H04635D	Heat Sink C	1				
31	0B08515A	Insu-Lock	20				
32	BA05980A	Protector L P.C.B. Ass'y	1				
33	BA05981A	Protector R P.C.B. Ass'y	1				
L01	0E00745A	Bolt M4x10 Hex. Socket Head (Black Chromate)	8				
L02	0E00985A	M3x6 ⊕ Binding (Black Chromate)	16				
L03	0E03283A	ST 3x6 ⊕ Binding (Black Chromate)	7				
L04	0E03220A	ST 3x5 ⊕ Countersunk	2				
L05	0E00857A	BT 3x6 ⊕ Binding	2				
L06	0E03298A	ST 4x14 ⊕ Binding (Black Chromate)	18				
L07	0E03289A	M4x12 ⊕ Binding (Bronze)	8				
L08	0E03030A	M3x6 ⊕ Binding (Nickel)	2				
L09	0E00713A	M3x6 ⊕ Truss (Bronze)	9				
L10	0E03290A	M4x15 ⊕ Binding (Bronze)	2				
L11	0E03299A	Nut Hex. M4	1				
L12	0E03287A	M4x6 ⊕ Binding (Gold)	8				
L13	0E03296A	M4x4 ⊕ Binding (Black Chromate)	12				
L14	0E00907A	ST 4x8 ⊕ Binding (Black Chromate)	8				
L15	0E03286B	Washer 6mm (Black Chromate)	4				
L16	0E03291A	Nut Hex. M6 (Black Chromate)	4				
L17	0E00972A	Nut Hex. M3 (Nickel)	2				
L18	0E00594A	M3x8 ⊕ Binding (Bronze)	2				
L19	0E03034A	M4x8 ⊕ Binding (Nickel)	3				
L20	0J05063A	Fiber Washer 0.5T	8				

4.5. Rear Panel Ass'y (A04)

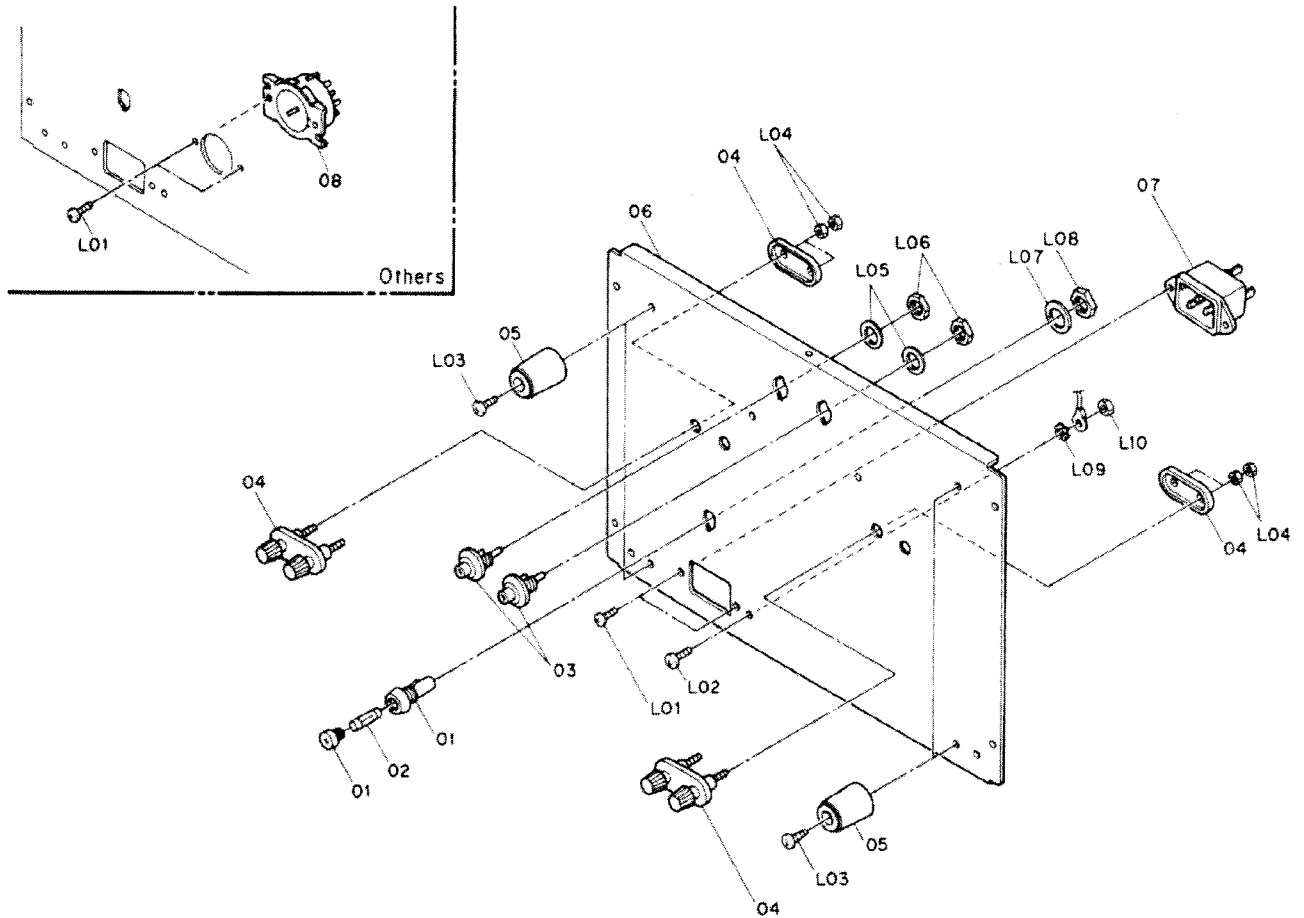


Fig. 4.5

Schematic Ref. No.	Part No.	Description	Qty
A04	HA04845A	Rear Panel Ass'y PA-7 (U.S.A.)	1
	HA04843A	Rear Panel Ass'y PA-7 (Australia)	1
	HA04842A	Rear Panel Ass'y PA-7 (Others)	1
	HA04844A	Rear Panel Ass'y PA-7E Serial No.: B20601001 -	1
01	OB90093A	Fuse Holder PA-7 (U.S.A. & Others)	1
	OB90094A	Fuse Holder PA-7 (Australia) & PA-7E	1
02	OB90118A	Fuse 10A PA-7 (U.S.A. & Others)	1
	OB90120A	Fuse T5A PA-7 (Australia) & PA-7E	1
03	OB81364A	Pin Jack	2
04	OB81365A	Speaker Terminal	2
05	OJ05029A	Leg T-A	4
06	OH04624D	Rear Panel PA-7 (U.S.A. & Australia)	1
	OH04660D	Rear Panel PA-7 (Others)	1
	OH04625D	Rear Panel PA-7E	1
07	OB90092A	AC Inlet PA-7 (U.S.A.)	1
	OB90087A	AC Inlet PA-7 (Australia & Others) & PA-7E	1
08	OB70049A	Voltage Selector PA-7 (Others)	1
L01	OE00818A	M3x8 \oplus Binding (Black Chromate)	2
L02	OE03058A	M4x8 \oplus Binding (Black Chromate)	1
L03	OE03313A	BT 4x8 \oplus Pan (Black Chromate)	4
L04	-	Speaker Terminal Nut	8
L05	-	Pin Jack Washer	2
L06	-	Pin Jack Nut	2
L07	-	Fuse Holder Washer	1
L08	-	Fuse Holder Nut	1
L09	OE00078A	Washer 4mm Toothed Lock	1
L10	OE00506A	Nut Hex. M4	1

4.1. Synthesis

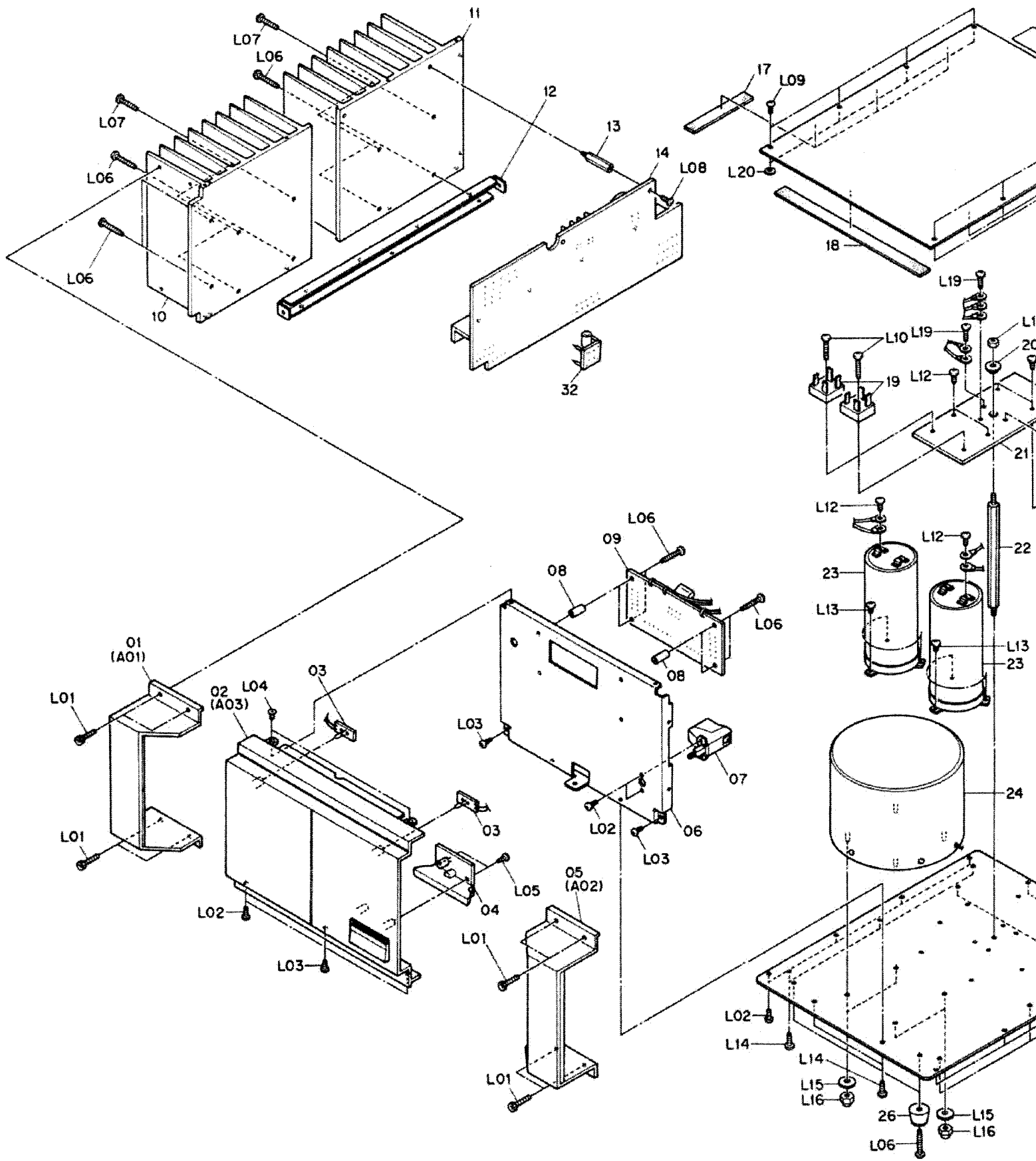


Fig. 4.1

5. MOUNTING DIAGRAMS AND PARTS LIST

Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.

2. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.

3. Abbreviation for part name:

TR — Transistor, SiD — Silicon Diode, ZD — Zener Diode

RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor, RC — Cement Resistor

CE — Electrolytic Capacitor, CM — Mylar Capacitor, CC — Ceramic Capacitor, CP — PP Capacitor,

CT — Tantalum Capacitor, CF — Film Capacitor, C — Mica Capacitor

5.1. Clipping LED P.C.B. Ass'y

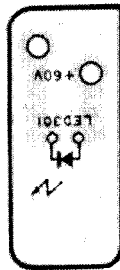


Fig. 5.1

5.2. Power LED P.C.B. Ass'y

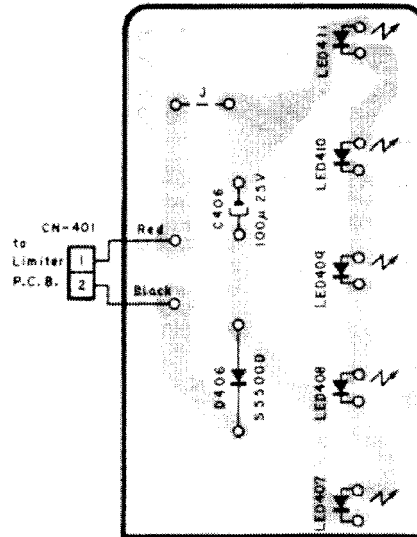


Fig. 5.2

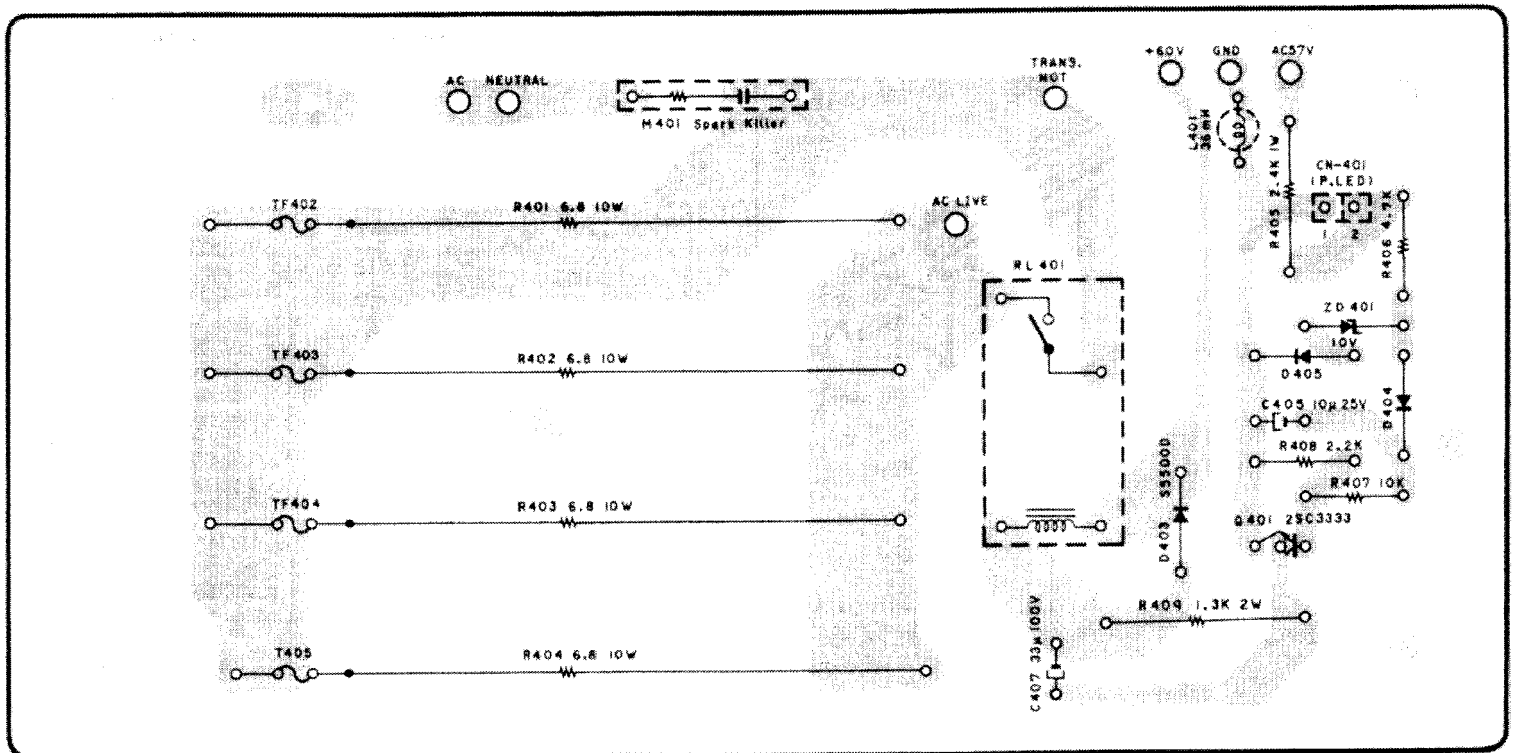


Fig. 5.3

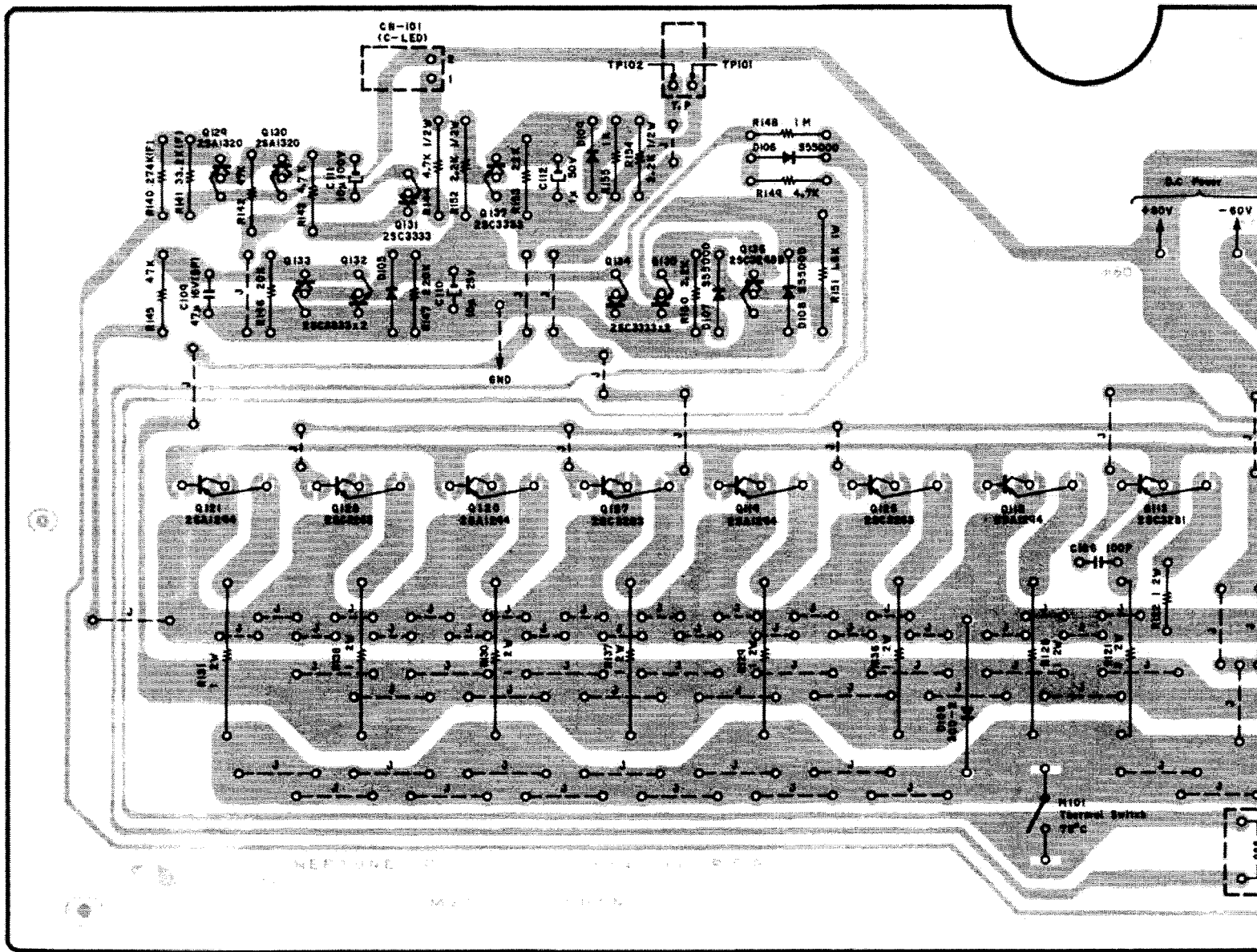


Fig.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
LED301	BA05688A	Clipping LED P.C.B. Ass'y		BA05754B	Limiter P.C.B. Ass'y FA-7 (U.S.A. & Canada)		BA05684B	Amp. L.P.C.B.
	OB60214A	Clipping LED P.C.B.		BA05755B	Limiter P.C.B. Ass'y FA-7 (Australia & Others) & PA-7E	Q101	OB60215A	Amp. L.P.C.B.
	OB12260B	LED Red				Q102-105	OB6257A	FET 2SK240
	OB82418A	LED Cord (1)			112,131	OB10103A	TR 2SC3333	
LED407 408,409 410,411 D406 C406	BA05687A	Power LED P.C.B. Ass'y	Q401	OB60217A	Limiter P.C.B.	132,133		
	OB60213A	Power LED P.C.B.	ZD401	OB10103A	TR 2SC3333	134,135		
	OB12251A	LED Green	D403	OB12233A	ZD 10V RD10EB3	137	OB10143A	TR 2SC3334
			D404,405	OB12252A	SID S5500D	Q106,109	OB10102A	TR 2SA1320
			L401	OB06181A	SID 1SS53	Q107,129		
			R401-404	OB03919C	Inductor 36mH	130	OB10142A	TR 2SC1321
			R405	OB24065A	RF 6.8 10W	Q108	OB10101A	TR 2SC2238B
			R406	OB24074A	RF 2.4K 1W J	Q110	OB10100A	TR 2SA968B
			R407	OB01846A	RK 4.7K 1/4W J	Q111	OB10130A	TR 2SC3281
			R408	OB01888A	RK 10K 1/4W J	Q113	OB10129A	TR 2SA1302
			R409	OB05622A	RK 2.2K 1/4W J	Q114	OB10098A	TR 2SA129A
			C405	OB24072A	RF 1.3K 2W J	Q115-121	OB10099A	TR 2SC3263
			C407	OB01674A	CE 10μ 25V	Q122-128	OB10145A	TR 2SC3298B
			RL401	OB40341A	CE 33μ 100V	Q136	OB06181A	SID 1SS53
			M401	OB90088A	Limiter Relay (1)	D101,102	OB06458A	SID 30D-2
			OB08342A	Spark Killer PA-7 (U.S.A. & Canada) (1)	105,109	OB12252A	SID S5500D	
			M401	OB08445A	Spark Killer PA-7 (Australia & Others) & PA-7E (1)	D103,104		
			TF402-405	OB08715A	Thermal Fuse 129	D106,107		
				OB81366A	2P-S Post (1)	108		
				OB82423B	Limiter Cord (1)	VR101	OB32043A	Semi-fixed VR
						VR102	OB32052A	Semi-fixed VR
						R101,108	OB09547A	RM 2.21K 1/4
						R102	OB09562A	RM 75K 1/4
						R103	OB22672A	RM 22.1K 1/2
						R104	OB22671A	RM 15K 1/2

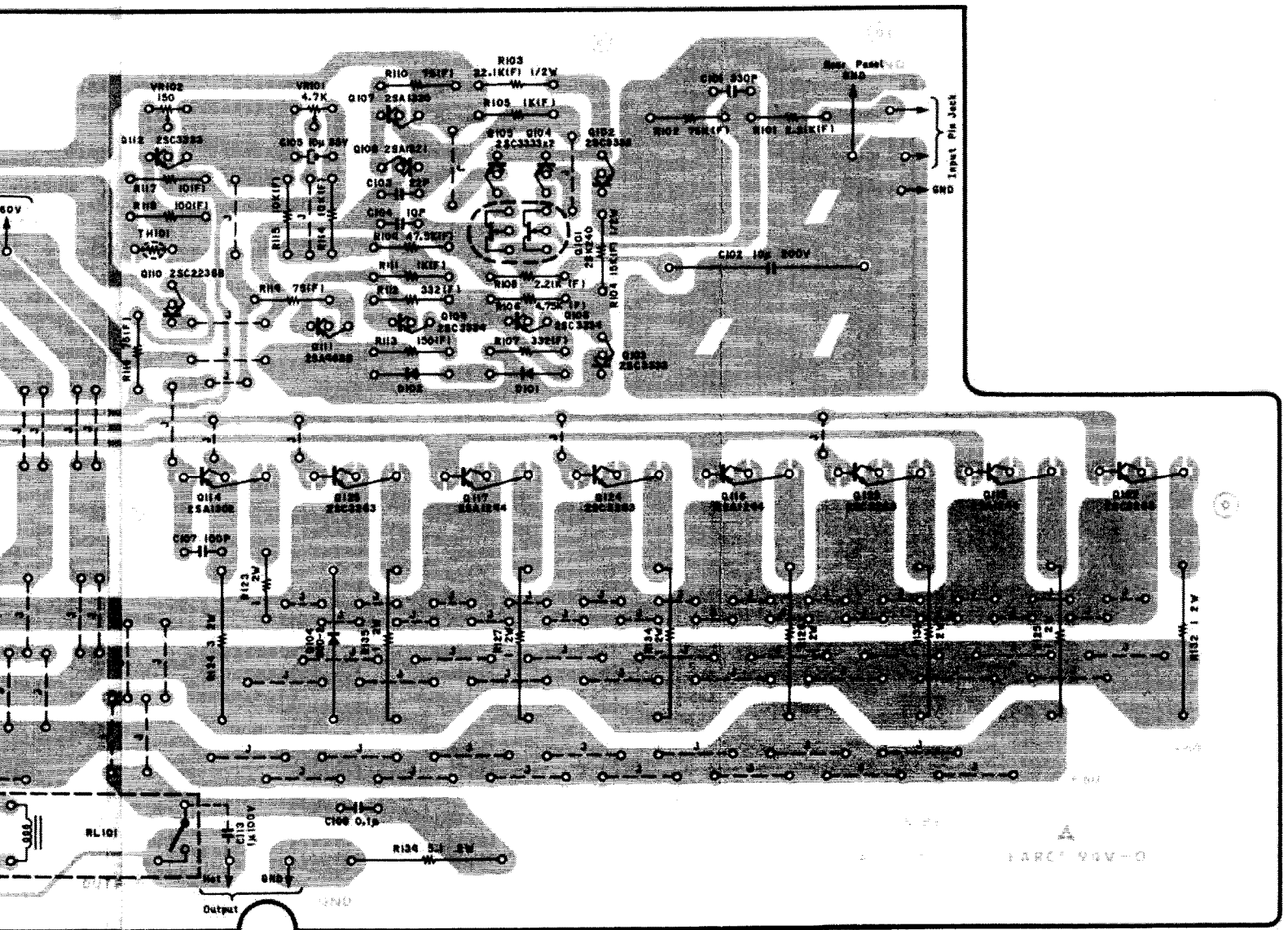


Fig. 5.4

Location	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
B. Assy	R105,111	OB09491A	RM 1K 1/4W F	C103	OB41539A	C 22P 50V J
	R106	OB09424A	RM 4.75K 1/4W F	C104	OB41538A	C 10P 50V J
B.	R107,112	OB09760A	RM 332 1/4W F	C105	OB40336A	CE 10μ 35V
D	R109	OB22638A	RM 47.5K 1/4W F	C106,107	OB41540A	C 100P 100V J
33 (11)	R110,116	OB22632A	RM 75 1/4W F	C108	OB41537A	CM 0.1μ 100V J
	R119			C109	OB40331A	CE 47μ 16V (BP)
	R113	OB22633A	RM 150 1/4W F	C110	OB01674A	CE 10μ 25V
	R114,115	OB09203A	RM 10K 1/4W F	C111	OB40330A	CE 10μ 100V
	R117	OB22666A	RM 10 1/4W F	C112	OB01405A	CE 1μ 50V
	R118	OB22567A	RM 100 1/4W F	C113	OB41619A	CE 1μ 100V
4	R121,124	OB24058A	RF 3 2W J	TH101	OB19003A	Thermistor 102F
20	R122,123	OB24064A	RC 1 2W	M101	OB90084A	Thermal Switch 75°C
21	R125-138	OB24057A	RF 1 2W J	RL101	OB90083A	Relay 10A 250V AC
38B			(14)	OB81366A		2P-S Post (2)
3B	R139	OB24058A	RF 5.1 2W J	OB82412C		DC Cord (R) (1)
11	R140	OB09752A	RM 274K 1/4W F	OB82413C		DC Cord (BL) (1)
2	R141	OB09446A	RM 33.2K 1/4W F	OB82414A		G-Prot. Cord (1)
4 (7)	R142,145	OB05641A	RK 47K 1/4W J	OB82415C		G-Input Cord (1)
3 (7)	R143,149	OB01846A	RK 4.7K 1/4W J	OB82419C		SP Out R Cord (1)
38B	R144	OB24062A	RF 4.7K 1/2W J	OB82420D		SP Out B Cord (1)
	R146	OB09509A	RK 20K 1/4W J	OB82480B		Input Cord (1)
	R147	OB05625A	RK 220K 1/4W J	OE00754A		M3x8 ♂ Pan (20)
	R148	OB05776A	RK 1M 1/4W J	OE00966A		M3x5 ♂ Binding (2)
	R150	OB05622A	RK 2.2K 1/4W J	OB08680B		Heat Sink A (2)
	R151	OB24060A	RF 1.8K 1W J	OE00972A		Nut Hex. M3 (2)
R 4.7K	R152	OB24073A	RF 2.2K 1/2W J	OB90082A		TR Mica (2)
R 150	R153	OB05615A	RK 22K 1/4W J	OB90075B		P.C.B. Stand (1)
1/4W F	R154	OB24073A	RF 2.2K 1/2W J			
1/4W F	R155	OB01857A	RK 1K 1/4W J			
1/2W F	C101	OB41541A	C 330P 100V J			
1/2W F	C102	OB41536A	CM 10μ 200V K			

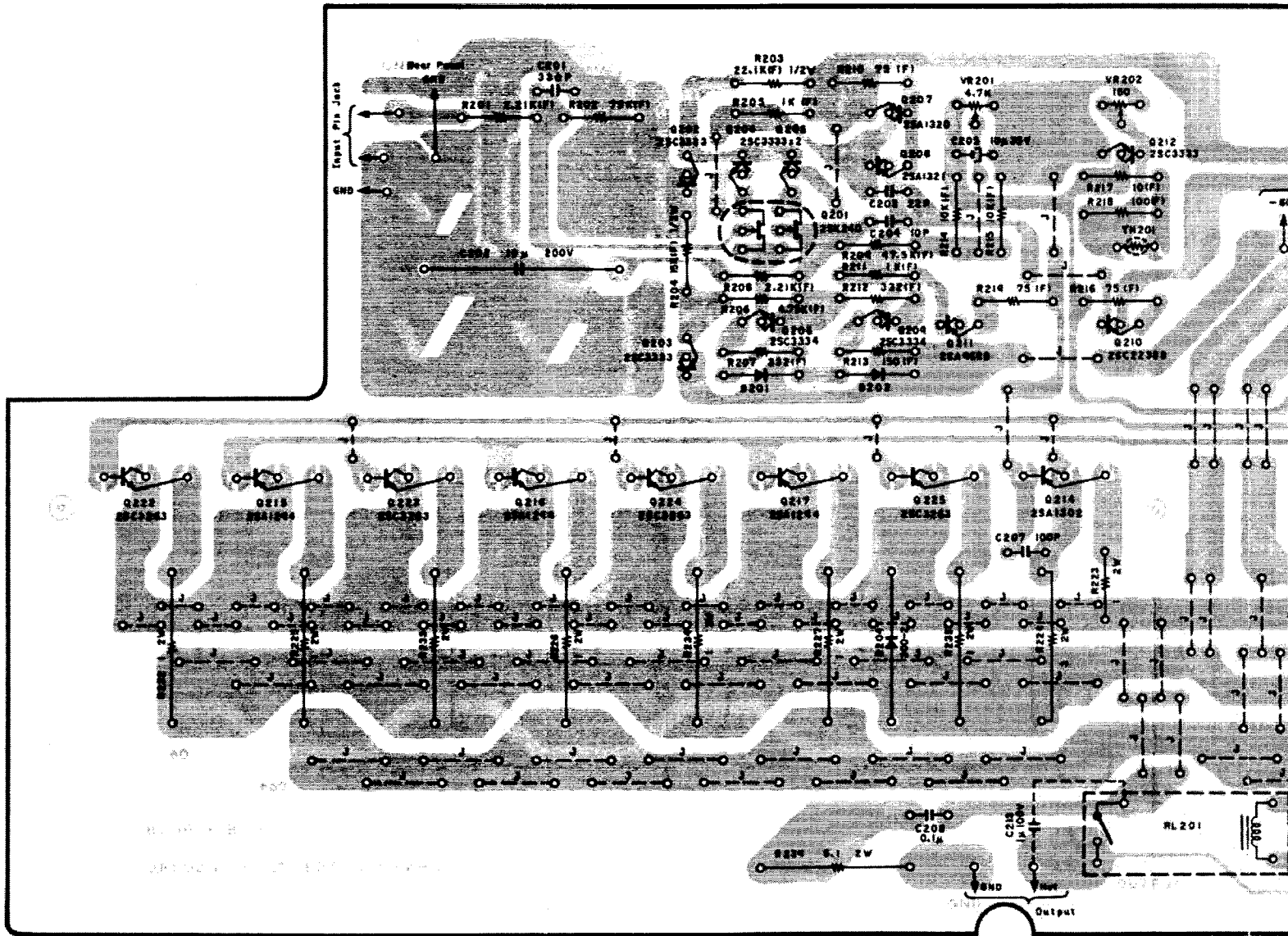
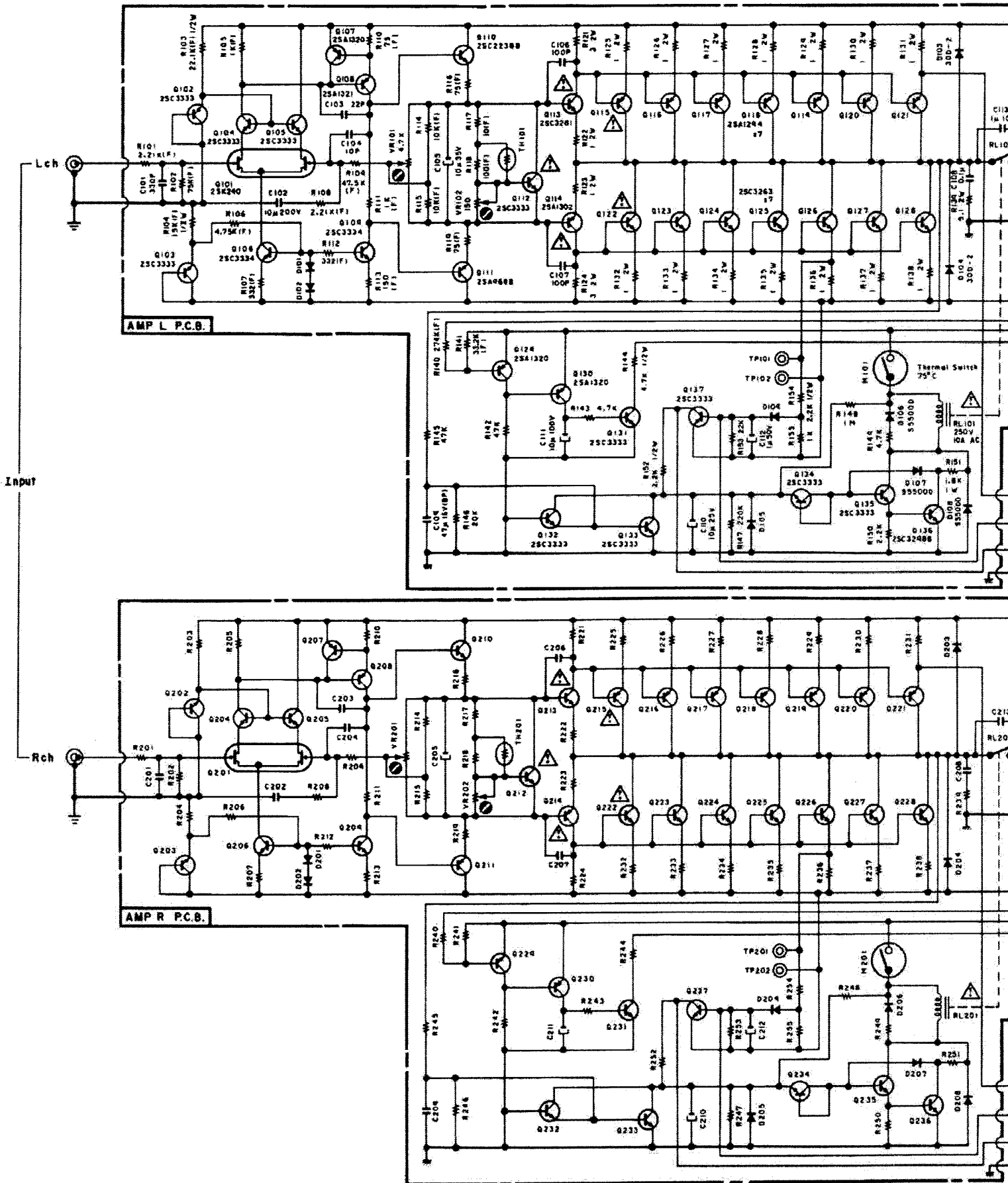


Fig. 5.5

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA05685B	Amp. R P.C.B. Ass'y	R205,211	OB09491A	RM 1K 1/4W F	C203	OB41539A	C 22P 50V J
			R206	OB09424A	RM 4.75K 1/4W F	C204	OB41538A	C 10P 50V J
Q201	OB60216A	Amp. R P.C.B.	R207,212	OB09760A	RM 332 1/4W F	C205	OB40336A	CE 10µ 35V
Q202-205	OB06257A	FET 2SK240	R209	OB22638A	RM 47.5K 1/4W F	C206,207	OB41540A	C 100P 100V J
212,231	OB10103A	TR 2SC3333 (11)	R210,216	OB22632A	RM 75 1/4W F	C208	OB41537A	CM 0.1µ 100V J
232,233			219			C209	OB40331A	CE 47µ 16V (BP)
234,235			R213	OB22638A	RM 150 1/4W F	C210	OB01674A	CE 10µ 25V
237			R214,215	OB09203A	RM 10K 1/4W F	C211	OB40330A	CE 10µ 100V
Q206,209	OB10143A	TR 2SC3334	R217	OB22666A	RM 10 1/4W F	C212	OB01405A	CE 1µ 50V
Q207,229	OB10102A	TR 2SA1320	R218	OB22567A	RM 100 1/4W F	C213	OB41619A	CE 1µ 100V
230			R221,224	OB24058A	RF 3 2W J	TH201	OB19003A	Thermistor 102F
Q208	OB10142A	TR 2SC1321	R222,223	OB24064A	RC 1 2W	M201	OB90084A	Thermal Switch 75°
Q210	OB10101A	TR 2SC2238B	R225-238	OB24057A	RF 1 2W J	RL201	OB90083A	Relay 10A 250V AC
Q211	OB10100A	TR 2SA968B	R239	OB24059A	RF 5.1 2W J		OB81366A	2P-S Post (2)
Q213	OB10130A	TR 2SC3281	R240	OB09752A	RM 274K 1/4W F		OB82412C	DC Cord (R) (1)
Q214	OB10129A	TR 2SA1302	R241	OB09446A	RM 33.2K 1/4W F		OB82413C	DC Cord (BL) (1)
Q215-221	OB10098A	TR 2SA1294 (7)	R242,245	OB05641A	RK 47K 1/4W J		OB82414A	G-Prot. Cord (1)
Q222-228	OB10099A	TR 2SC3263 (7)	R243,249	OB01846A	RK 4.7K 1/4W J		OB82415C	G-Input Cord (1)
Q236	OB10145A	TR 2SC3298B	R244	OB24062A	RF 4.7K 1/2W J		OB82419C	SP Out R Cord (1)
D201,202	OB06181A	SiD 1S553	R246	OB09509A	RK 20K 1/4W J		OB82420D	SP Out B Cord (1)
205,209			R247	OB05625A	RK 220K 1/4W J		OB82480B	Input Cord (1)
D203,204	OB06458A	SiD 30D-2	R248	OB05776A	RK 1M 1/4W J		OE00754A	M3x8 @ Pan (20)
D206,207	OB12252A	SiD S5500D	R250	OB05622A	RK 2.2K 1/4W J		OE00866A	M3x5 @ Binding (2)
208			R251	OB24060A	RF 1.8K 1W J		OB08680B	Heat Sink A (2)
VR201	OB32043A	Semi-fixed VR 4.7K	R252	OB24073A	RF 2.2K 1/2W J		OE00972A	Nut Hex. M3 (2)
VR202	OB32052A	Semi-fixed VR 150	R253	OB05615A	RK 22K 1/4W J		OB90082A	TR Mica (2)
R201,208	OB09547A	RM 2.21K 1/4W F	R254	OB24073A	RF 2.2K 1/2W J		OB90075B	P.C.B. Stand (1)
R202	OB09562A	RM 75K 1/4W F	R255	OB01857A	RK 1K 1/4W J			
R203	OB22672A	RM 22.1K 1/2W F	C201	OB41541A	C 330P 100V J			
R204	OB22671A	RM 15K 1/2W F	C202	OB41536A	CM 10µ 200V K			

6. SCHEMATIC DIAGRAM



Note: Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.

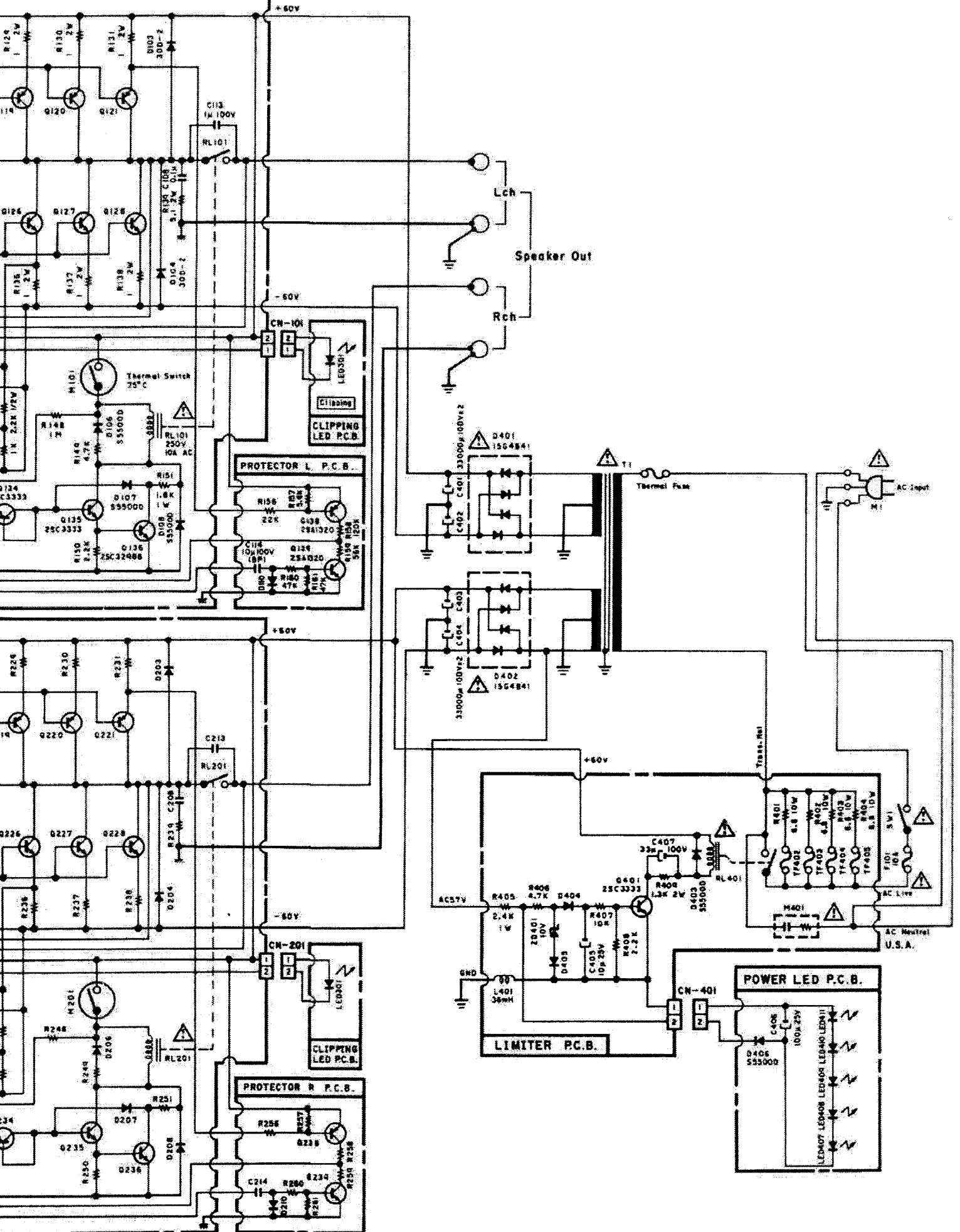
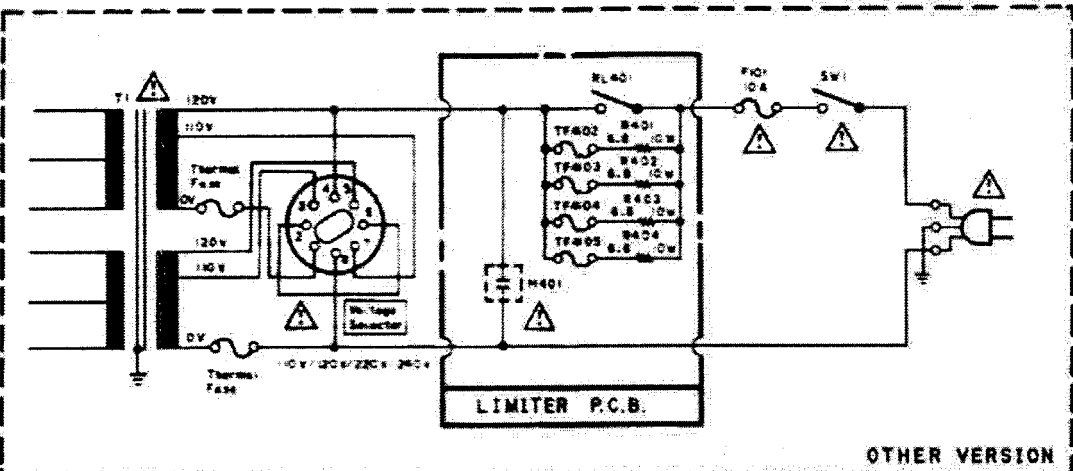
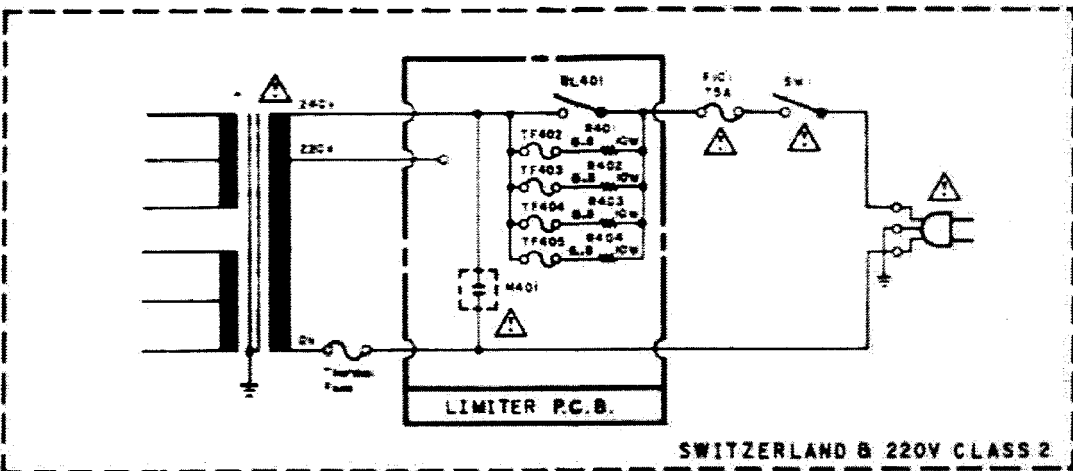
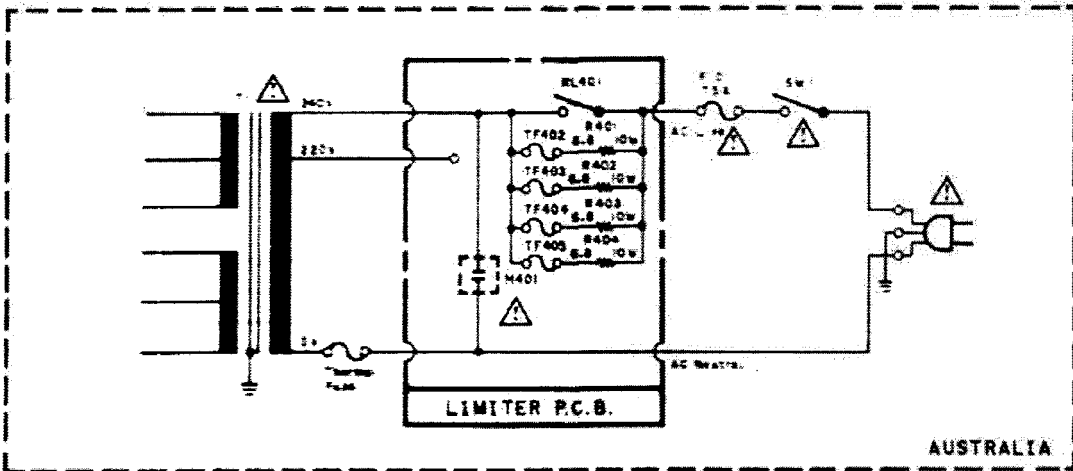
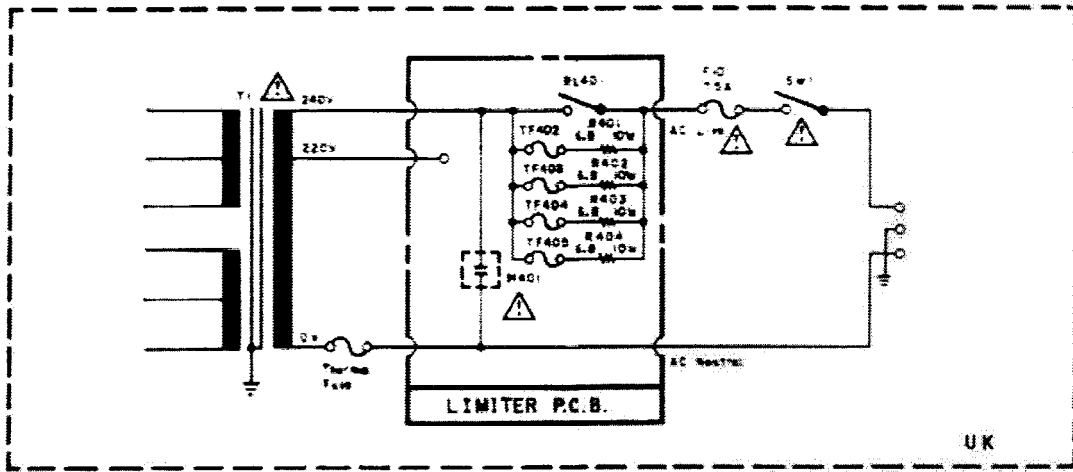


Fig. 6



WARNING:

Parts marked with the symbol  have critical characteristics.

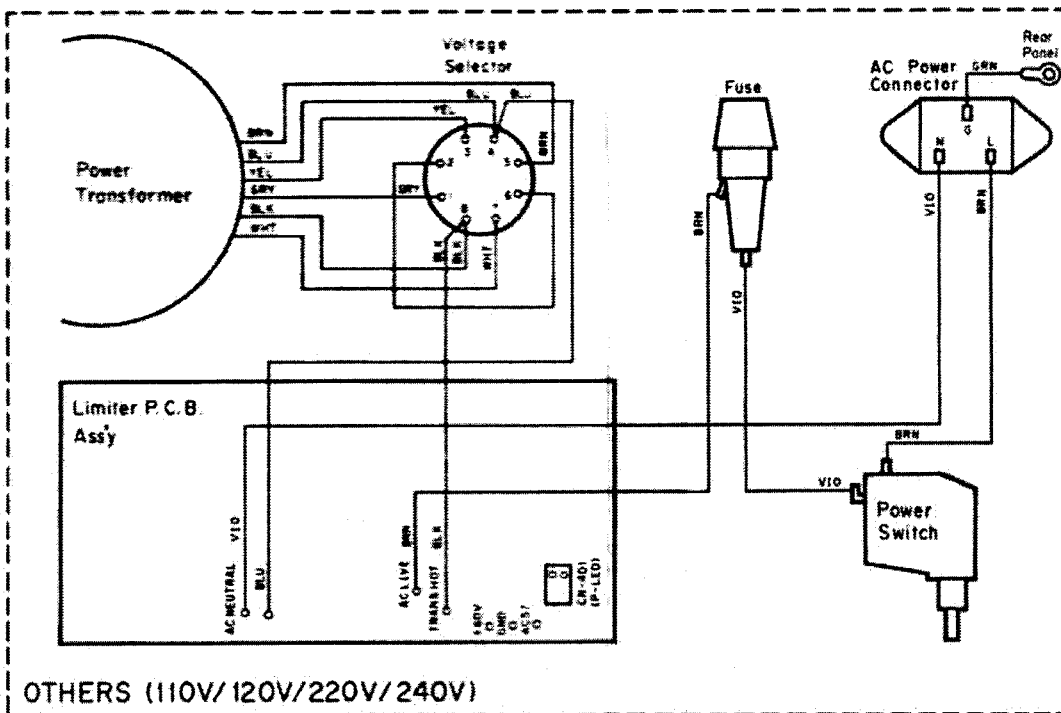
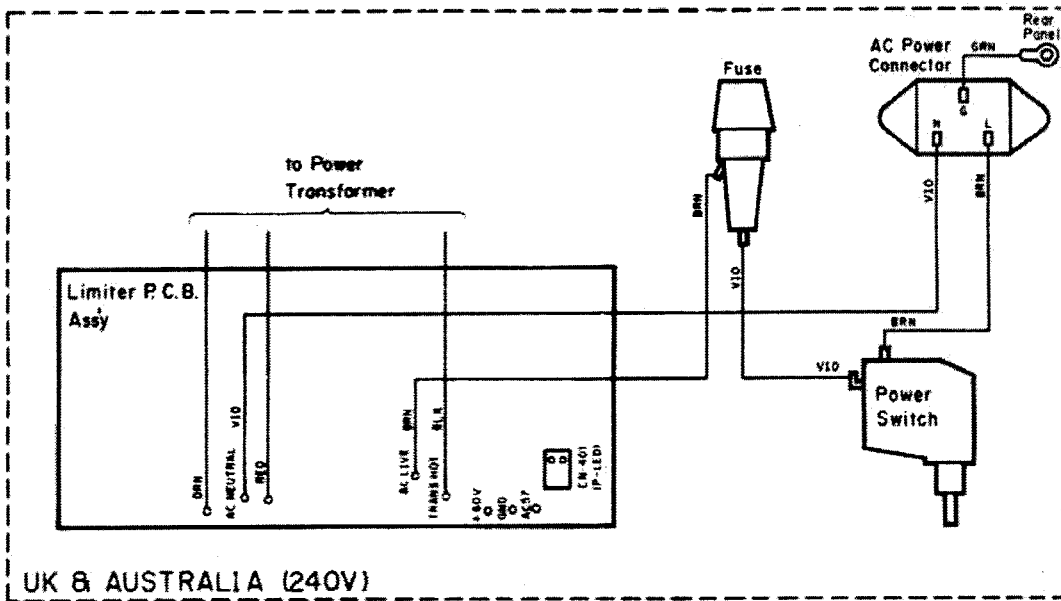
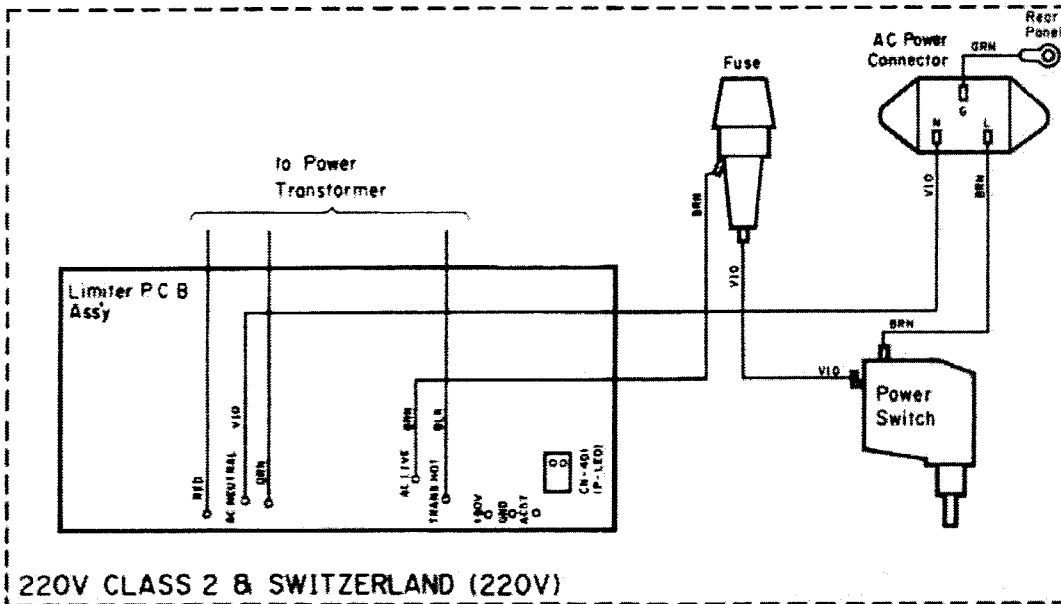
Use **ONLY** replacement parts recommended by the manufacturer.

It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamper, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective.

WARNING — DO NOT return the unit to the customer until the problem is located and corrected.



- Notes: 1. Tal
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8. BLOCK DIAGRAM

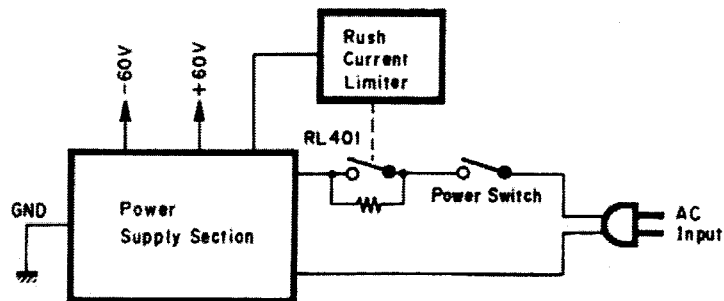
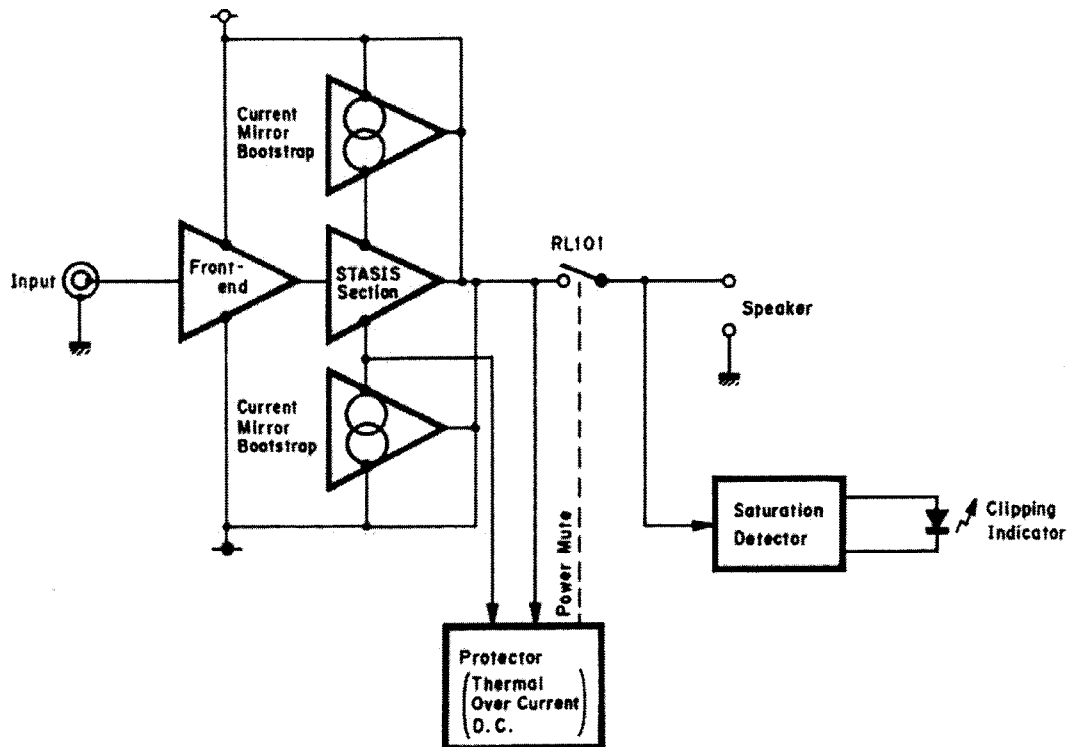


Fig. 8

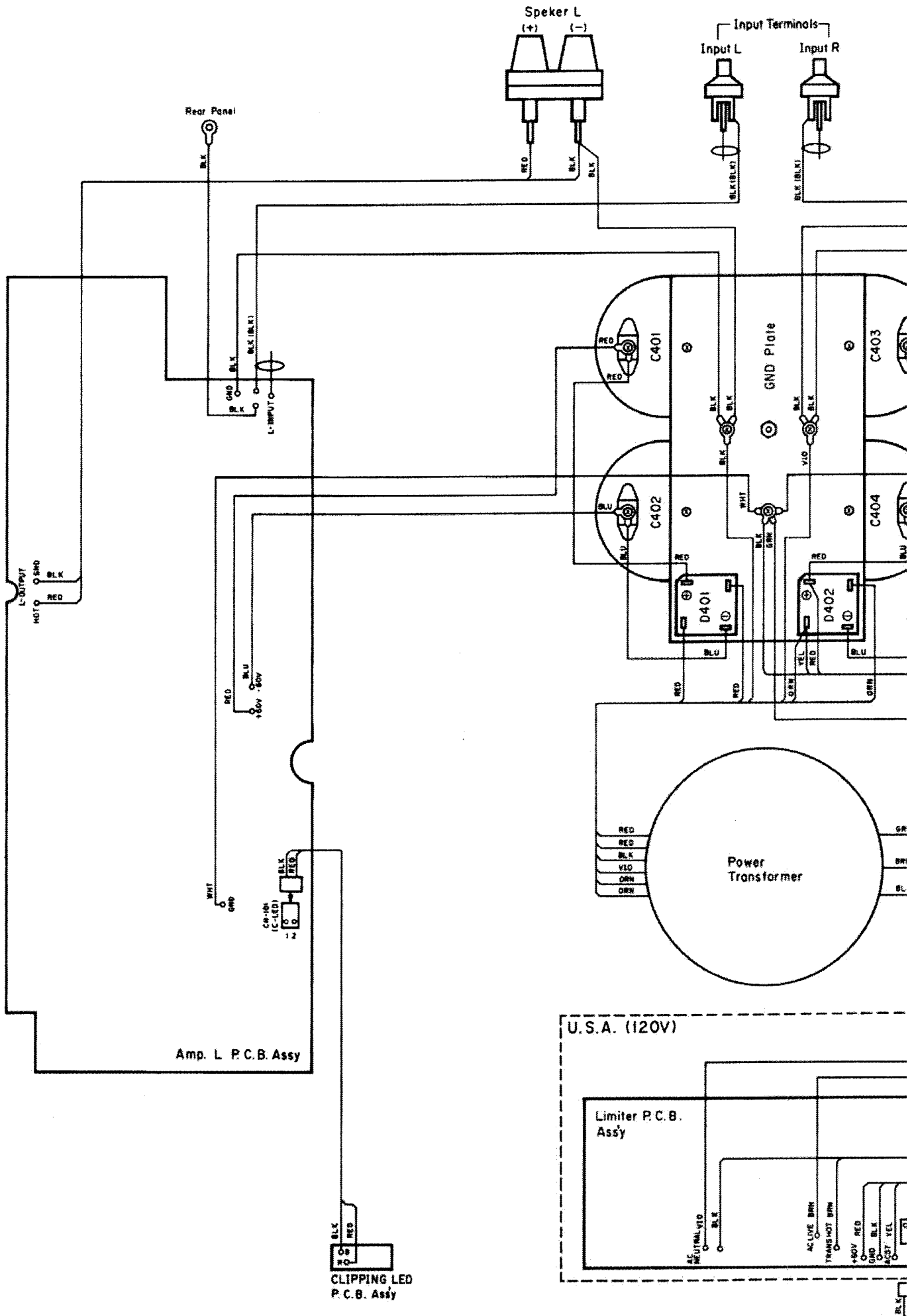
Notes: 1 Table of wire colors

BRN - Brown	BLU - Blue
RED - Red	VIO - Violet
ORN - Orange	GRY - Gray
YEL - Yellow	WHT - White
GRN - Green	BLK - Black

2. Component side view of the P.C.B. is illustrated unless otherwise specified.

3. Wire tube color is shown in ().

7. WIRING DIAGRAM



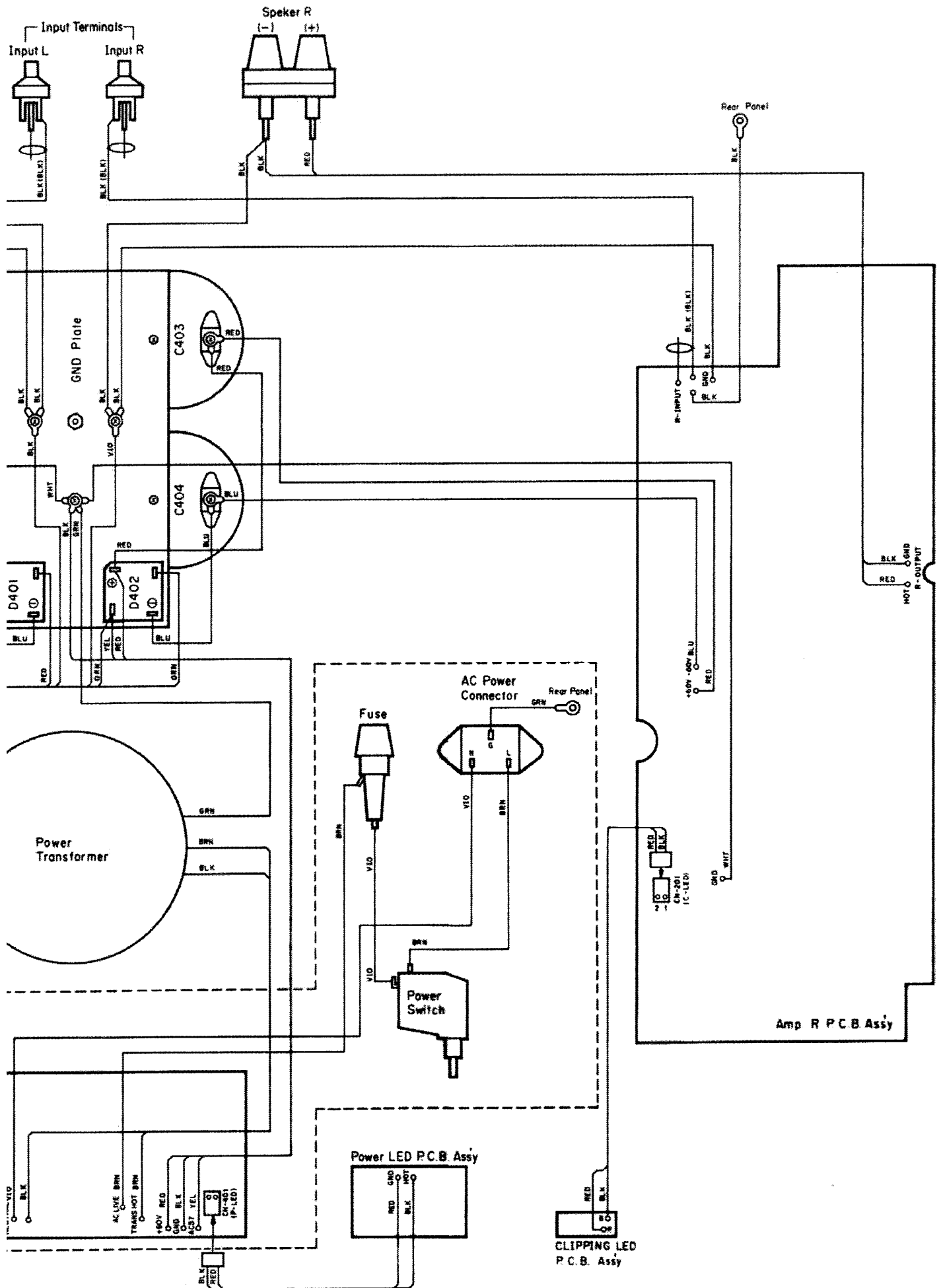


Fig. 7

9. SPECIFICATIONS

Continuous Average Power	200 W x 2 (8 ohms, both channels driven, 20—20,000 Hz, 0.1% THD)
Output (NEW IHF)	
Dynamic Power per Channel	300 W (8 ohms)
Dynamic Head Room	1.7 dB (8 ohms)
(New IHF)	
Power Bandwidth (Half	5 Hz — 50 kHz
Rated Power, 0.1% THD)	
Damping Factor (NEW IHF)	Greater than 60/60/60
20 Hz/1 kHz/20 kHz	
Input Sensitivity/Impedance	2.0 V/75 k ohms (rated power)
(New IHF)	140 mV (1 W output)
Frequency Response	20—20,000 Hz +0, —0.5 dB
(1 W, NEW IHF)	7—150,000 Hz +0, —3 dB
Signal to Noise Ratio	Better than 120 dB
(Input Shorted, Rated Power, IHF-A-WTD)	
Residual Noise Level	Less than 25 μ V
(IHF-A-WTD)	
Total Harmonic Distortion	Less than 0.1%
(Rated Power, 20—20,000 Hz)	
Intermodulation Distortion	Less than 0.1%
(Rated Power, 60 Hz: 7 kHz, 4:1)	
Stereo Separation	110/100/80 dB
(Input Shorted)	
100 Hz/1 kHz/10 kHz	
Output Complement	16 transistors per channel
Output Current Capability	14 A continuous, 50 A peak (per channel)
Power Supply	700 W toroidal transformer, 132,000 μ F total filter capacitance
Power Source	120,220, 240, 110-120/220-240 V AC; 50/60 Hz (According to country of sale)
Power Consumption	700 W max.
Dimensions	435 (W) x 200 (H) x 421 (D) mm 17-1/8 (W) x 7-7/8 (H) x 16-9/16 (D) inches
Approximate Weight	27 kg; 59 lbs., 8 oz.

- Specifications and design are subject to change for further improvement without notice.
- STASIS manufactured under license from Threshold Corporation.
- STASIS is a trademark of Threshold Corporation.

Service Information



Model Nakamichi PA-7/7E
(Power Amplifier)
Serial No. from -
Subject Troubleshooting

No. OOD-SI-3080 (1/3)
Date 29 August 1985

1. Note

- (1) Troubles indicated in this troubleshooting guide may not happen actually.
- (2) Check to insure that the outputs +60 V and -60 V of the Power Supply are correct.
- (3) Check that the Fuse F1 is not blown.
- (4) Check that R401, R402, R403, R404, TF402, TF403, TF404 and/or TF405 on the Limiter P.C.B. Ass'y are not broken.
- (5) Defect (cut or short) of lead wire(s) includes defective soldering (cold soldering or bridging).

2. Troubleshooting

2.1. No output appears at Speaker Output Terminals:

- (1) Defective Input Jack(s).
- (2) Defective Q101 (Q201) on Amp. L (R) P.C.B. Ass'y.
- (3) Defective Q102 (Q202) on Amp. L (R) P.C.B. Ass'y.
- (4) Defective Q103 (Q203) on Amp. L (R) P.C.B. Ass'y.
- (5) Defective Q104 (Q204) on Amp. L (R) P.C.B. Ass'y.
- (6) Defective Q105 (Q205) on Amp. L (R) P.C.B. Ass'y.
- (7) Defective Q106 (Q206) on Amp. L (R) P.C.B. Ass'y.
- (8) Defective Q107 (Q207) on Amp. L (R) P.C.B. Ass'y.
- (9) Defective Q108 (Q208) on Amp. L (R) P.C.B. Ass'y.
- (10) Defective Q109 (Q209) on Amp. L (R) P.C.B. Ass'y.
- (11) Defective Q110 (Q210) on Amp. L (R) P.C.B. Ass'y.
- (12) Defective Q111 (Q211) on Amp. L (R) P.C.B. Ass'y.
- (13) Defective Q112 (Q212) on Amp. L (R) P.C.B. Ass'y.
- (14) Defective Q113 (Q213) on Amp. L (R) P.C.B. Ass'y.
- (15) Defective Q114 (Q214) on Amp. L (R) P.C.B. Ass'y.
- (16) Defective Q115 (Q215) on Amp. L (R) P.C.B. Ass'y.
- (17) Defective Q116 (Q216) on Amp. L (R) P.C.B. Ass'y.
- (18) Defective Q117 (Q217) on Amp. L (R) P.C.B. Ass'y.
- (19) Defective Q118 (Q218) on Amp. L (R) P.C.B. Ass'y.
- (20) Defective Q119 (Q219) on Amp. L (R) P.C.B. Ass'y.
- (21) Defective Q120 (Q220) on Amp. L (R) P.C.B. Ass'y.
- (22) Defective Q121 (Q221) on Amp. L (R) P.C.B. Ass'y.
- (23) Defective Q122 (Q222) on Amp. L (R) P.C.B. Ass'y.
- (24) Defective Q123 (Q223) on Amp. L (R) P.C.B. Ass'y.
- (25) Defective Q124 (Q224) on Amp. L (R) P.C.B. Ass'y.
- (26) Defective Q125 (Q225) on Amp. L (R) P.C.B. Ass'y.
- (27) Defective Q126 (Q226) on Amp. L (R) P.C.B. Ass'y.
- (28) Defective Q127 (Q227) on Amp. L (R) P.C.B. Ass'y.
- (29) Defective Q128 (Q228) on Amp. L (R) P.C.B. Ass'y.
- (30) Defective D101 (D201) on Amp. L (R) P.C.B. Ass'y.
- (31) Defective D102 (D202) on Amp. L (R) P.C.B. Ass'y.
- (32) Protector circuit always functions.
- (33) Defective Speaker Output Terminal(s).
- (34) Lead wire(s) is (are) cut or shorted.

2.2. Clipping Indicator does not light:

- (1) Defective Q129 (Q229) on Amp. L (R) P.C.B. Ass'y.
- (2) Defective Q130 (Q230) on Amp. L (R) P.C.B. Ass'y.
- (3) Defective Q131 (Q231) on Amp. L (R) P.C.B. Ass'y.
- (4) Defective LED301 on Clipping LED P.C.B. Ass'y.
- (5) Inaccurate contact of connector(s) CN-101 on Amp. L P.C.B. Ass'y and/or CN-201 on Amp. R P.C.B. Ass'y.
- (6) Lead wire(s) is (are) cut or shorted.

2.3. Protector does not work:

- (1) Defective Q132 (Q232) on Amp. L (R) P.C.B. Ass'y.
- (2) Defective Q133 (Q233) on Amp. L (R) P.C.B. Ass'y.
- (3) Defective Q137 (Q237) on Amp. L (R) P.C.B. Ass'y.
- (4) Defective Q135 (Q235) on Amp. L (R) P.C.B. Ass'y.
- (5) Defective Q134 (Q234) on Amp. L (R) P.C.B. Ass'y.
- (6) Defective Q136 (Q236) on Amp. L (R) P.C.B. Ass'y.
- (7) Defective M101 (M201) on Amp. L (R) P.C.B. Ass'y.
- (8) Defective RL101 (RL201) on Amp. L (R) P.C.B. Ass'y.
- (9) Defective Q138 (Q238) on Protector L (R) P.C.B. Ass'y.
- (10) Defective Q139 (Q239) on Protector L (R) P.C.B. Ass'y.
- (11) Lead wire(s) is (are) cut or shorted.

2.4. Power Indicator does not light:

- (1) Defective D406 on Power LED P.C.B. Ass'y.
- (2) Defective LED407 on Power LED P.C.B. Ass'y.
- (3) Defective LED408 on Power LED P.C.B. Ass'y.
- (4) Defective LED409 on Power LED P.C.B. Ass'y.
- (5) Defective LED410 on Power LED P.C.B. Ass'y.
- (6) Defective LED411 on Power LED P.C.B. Ass'y.
- (7) Defective L401 on Limiter P.C.B. Ass'y.
- (8) Inaccurate contact of connector CN-401 on Limiter P.C.B. Ass'y.
- (9) Lead wire(s) is (are) cut or shorted.

2.5. Power Limiter circuit does not work:

- (1) Defective Q401 on Limiter P.C.B. Ass'y.
- (2) Defective RL401 on Limiter P.C.B. Ass'y.
- (3) Defective L401 on Limiter P.C.B. Ass'y.
- (4) Lead wire(s) is (are) cut or shorted.

2.6. Output DC component is not detected:

- (1) Defective Q132 (Q232) on Amp. L (R) P.C.B. Ass'y.
- (2) Defective Q133 (Q233) on Amp. L (R) P.C.B. Ass'y.
- (3) Lead wire(s) is (are) cut or shorted.

2.7. Overcurrent is not detected:

- (1) Defective Q126 (Q226) on Amp. L (R) P.C.B. Ass'y.
- (2) Defective R136 (R236) on Amp. L (R) P.C.B. Ass'y.
- (3) Defective Q137 (Q237) on Amp. L (R) P.C.B. Ass'y.
- (4) Defective Q138 (Q238) on Protector L (R) P.C.B. Ass'y.
- (5) Defective Q139 (Q239) on Protector L (R) P.C.B. Ass'y.
- (6) Lead wire(s) is (are) cut or shorted.

2.8. Temperature detection is not made:

- (1) Defective M101 (M201) on Amp. L (R) P.C.B. Ass'y.
- (2) Lead wire(s) is (are) cut or shorted.

2.9. Sound is distorted:

- (1) Defective Q101 (Q201) on Amp. L (R) P.C.B. Ass'y.
- (2) Defective Q102 (Q202) on Amp. L (R) P.C.B. Ass'y.
- (3) Defective Q103 (Q203) on Amp. L (R) P.C.B. Ass'y.
- (4) Defective Q104 (Q204) on Amp. L (R) P.C.B. Ass'y.
- (5) Defective Q105 (Q205) on Amp. L (R) P.C.B. Ass'y.
- (6) Defective Q106 (Q206) on Amp. L (R) P.C.B. Ass'y.
- (7) Defective Q107 (Q207) on Amp. L (R) P.C.B. Ass'y.
- (8) Defective Q108 (Q208) on Amp. L (R) P.C.B. Ass'y.
- (9) Defective Q109 (Q209) on Amp. L (R) P.C.B. Ass'y.
- (10) Defective Q110 (Q210) on Amp. L (R) P.C.B. Ass'y.
- (11) Defective Q111 (Q211) on Amp. L (R) P.C.B. Ass'y.
- (12) Defective Q112 (Q212) on Amp. L (R) P.C.B. Ass'y.
- (13) Defective Q113 (Q213) on Amp. L (R) P.C.B. Ass'y.
- (14) Defective Q114 (Q214) on Amp. L (R) P.C.B. Ass'y.
- (15) Inaccurate adjustment of VR101 (VR201) on Amp. L (R) P.C.B. Ass'y.
- (16) Inaccurate adjustment of VR102 (VR202) on Amp. L (R) P.C.B. Ass'y.
- (17) Lead wire(s) is (are) cut or shorted.

Service Manual

Nakamichi PA-7, PA-7E

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