

MC122

POWER AMPLIFIER



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McIntosh

SERVICE MANUAL

PERFORMANCE SPECIFICATIONS

POWER OUTPUT PER CHANNEL

120 watts into 4 ohm or 80 watts into 8 ohm loads is the minimum sine wave continuous average power output per channel both channels operating.

OUTPUT LOAD IMPEDANCE

4 or 8 ohms

RATED POWER BANDS

20Hz to 20,000Hz

DYNAMIC HEADROOM

1.6dB

FREQUENCY RESPONSE

+0, -0.25dB from 20Hz to 20,000Hz
+0, -3dB from 10Hz to 10,000Hz

TOTAL HARMONIC DISTORTION

0.005% maximum at any power level from 250 milliwatt to rated power per channel from 20Hz to 20,000Hz, both channels operating.

INTERMODULATION DISTORTION

0.005% maximum if instantaneous peak output per channel does not exceed twice the rated output with both channels operating for any combination of frequencies from 20Hz to 20,000Hz.

SIGNAL TO NOISE RATIO

110dB below rated output

SENSITIVITY

0.8 volts (2.5V at the marked position)

INPUT IMPEDANCE

10,000 ohms

DAMPING FACTOR

Greater than 100 at 4 ohms
Greater than 200 at 8 ohms

POWER REQUIREMENTS

100Volts, 50/60Hz at 3.4 amps
110Volts, 50/60Hz at 3.1 amps
120Volts, 50/60Hz at 2.8 amps
220Volts, 50/60Hz at 1.5 amps
230Volts, 50/60Hz at 1.5 amps
240Volts, 50/60Hz at 1.4 amps

Note: Refer to the rear panel of the MC122 for the correct voltage


DIMENSIONS

17-1/2 inches (44.5cm) wide, 3-5/8 inches (9.2cm) high, 17-1/2 inches (44.5cm) deep, including clearance for connectors. Allow 3/4 inches (1.9cm) in front of the mounting panel for clearance.

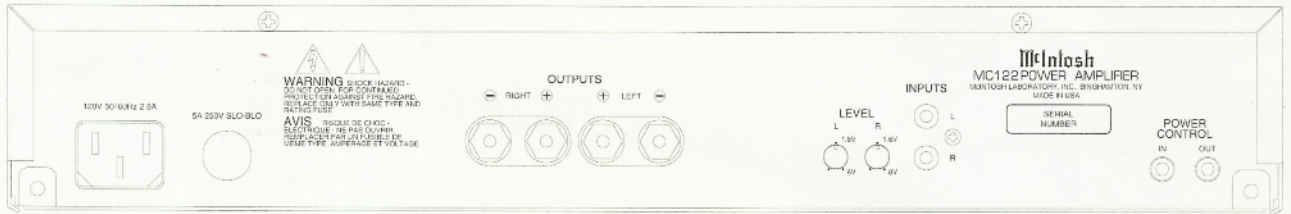
WEIGHT

24 pounds (10.9kg) net, 39 pounds (17.7kg) in shipping carton.

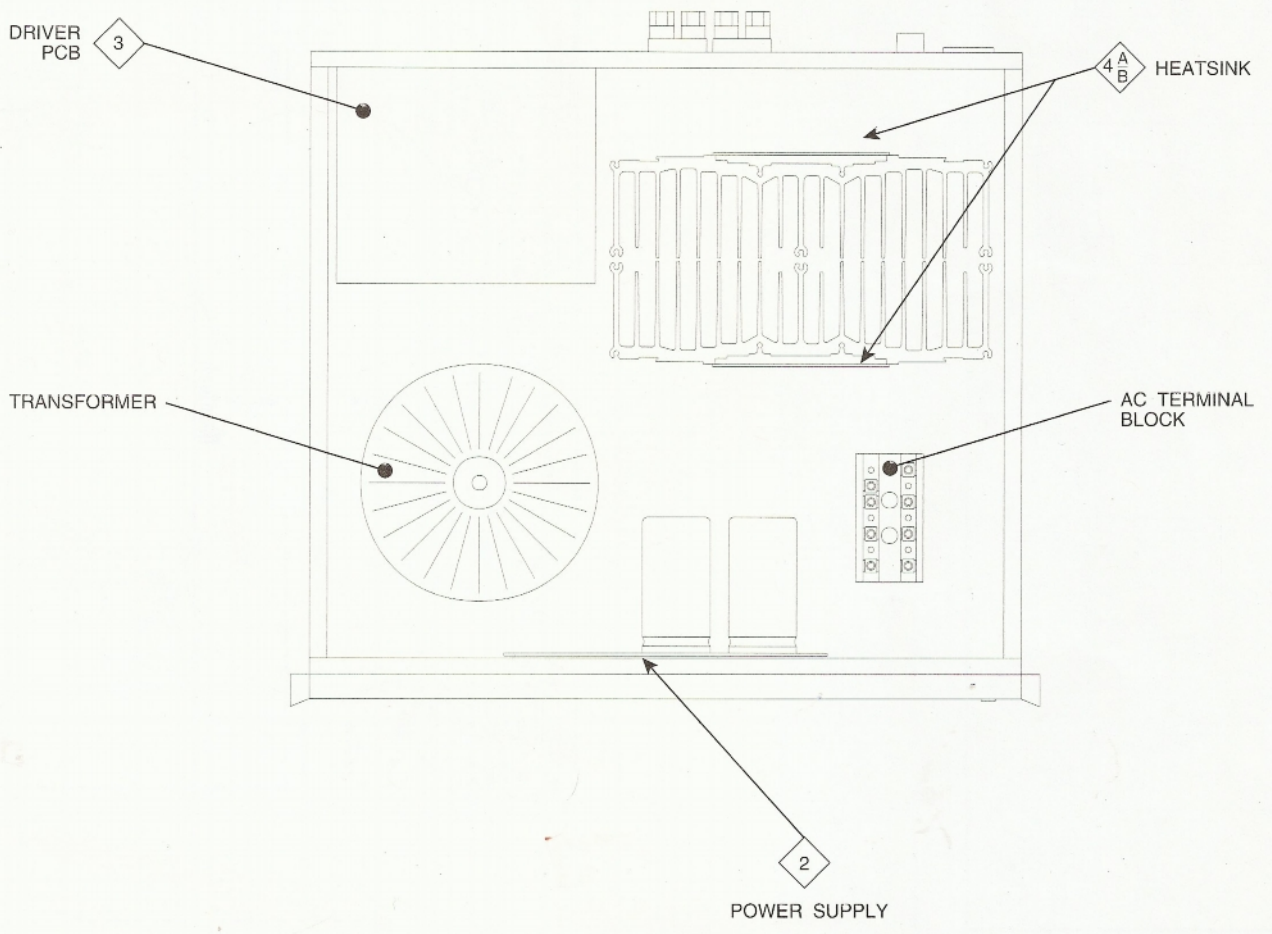
NOTES

1. The heavy notes on the schematic denote the primary signal path.
2. Unless otherwise noted, all voltages indicated on the schematics are measured under the following conditions:
 - a. AC input at 120 volts, 50/60Hz.
 - b. All voltages are +/-10% with respect to ground. A high impedance (10 megaohm) voltmeter must be used.
3. Unless otherwise specified:
 - a. Resistor values are in ohms.
 - b. Capacitor values are microfarads (uF).
 - c. Inductor values are in microhenries (uH).
4. On PC board drawings, Square pad indicates:
 - a. Polarized Capacitors — Positive
 - b. Diodes — Cathode
 - c. Others — Pin 1
5. **WARNING**
Parts marked with the symbol  have critical characteristics. Use only replacement parts recommended by the manufacturer.

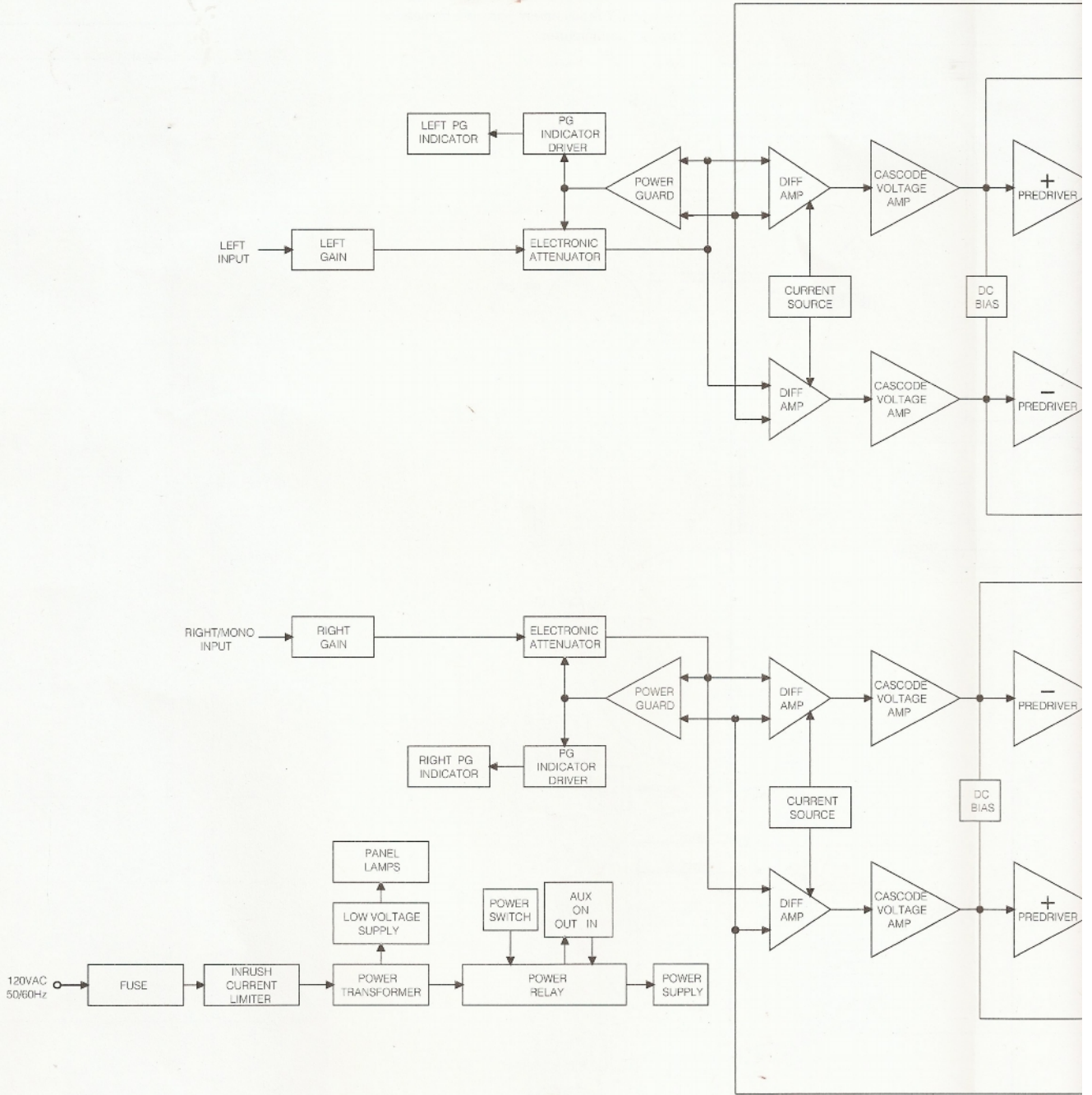
REAR PANEL

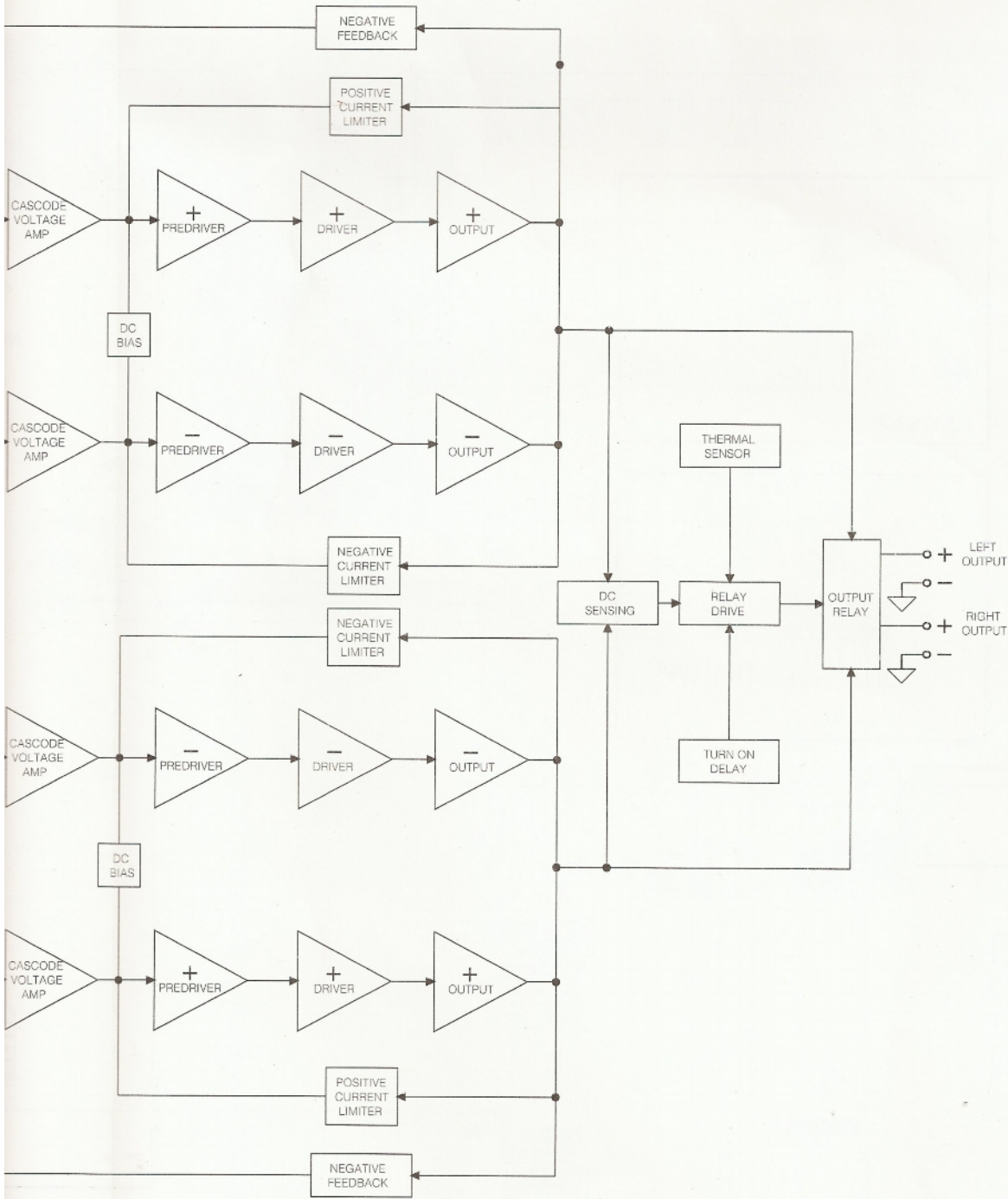


SECTION LOCATIONS

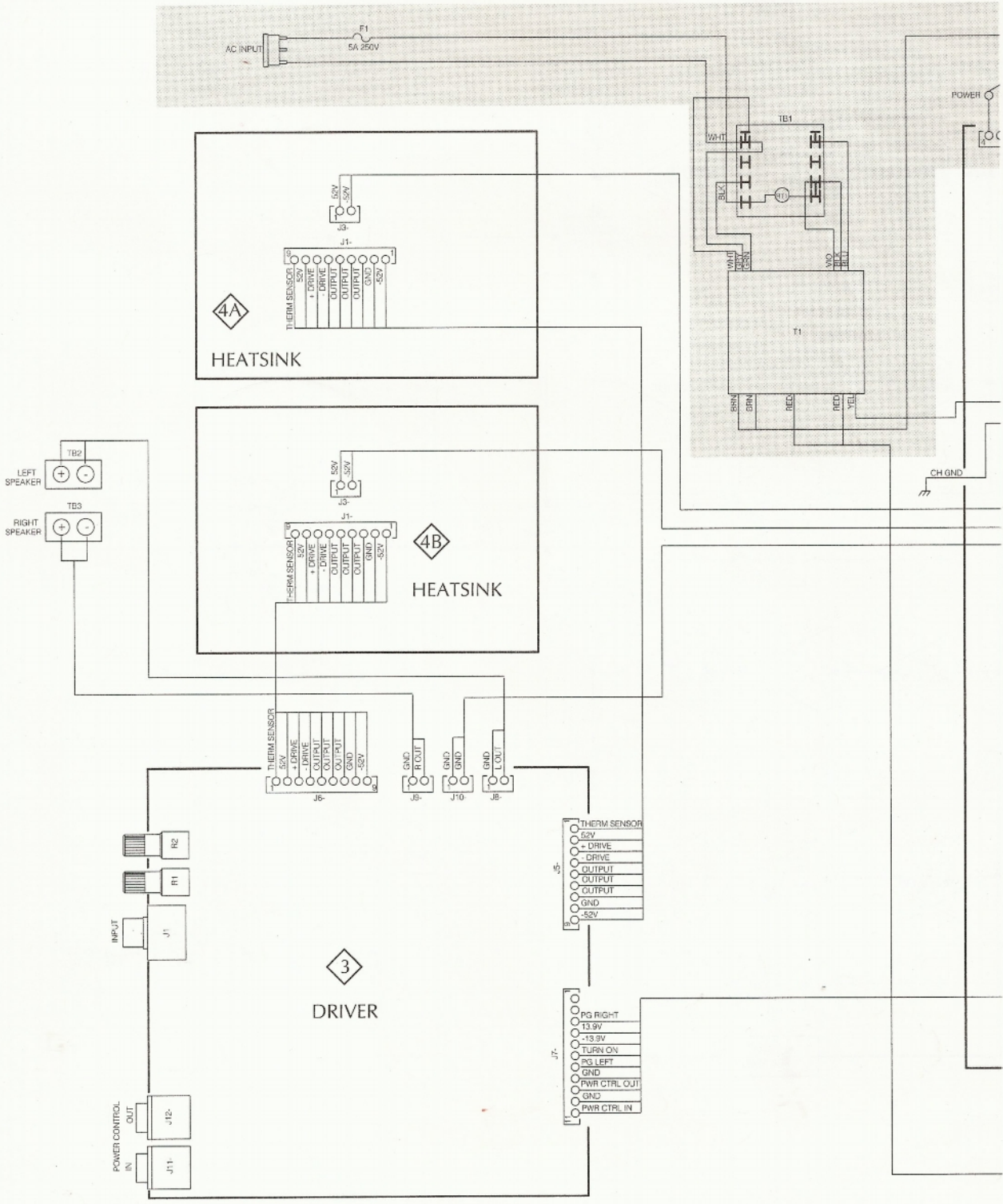


BLOCK DIAGRAM



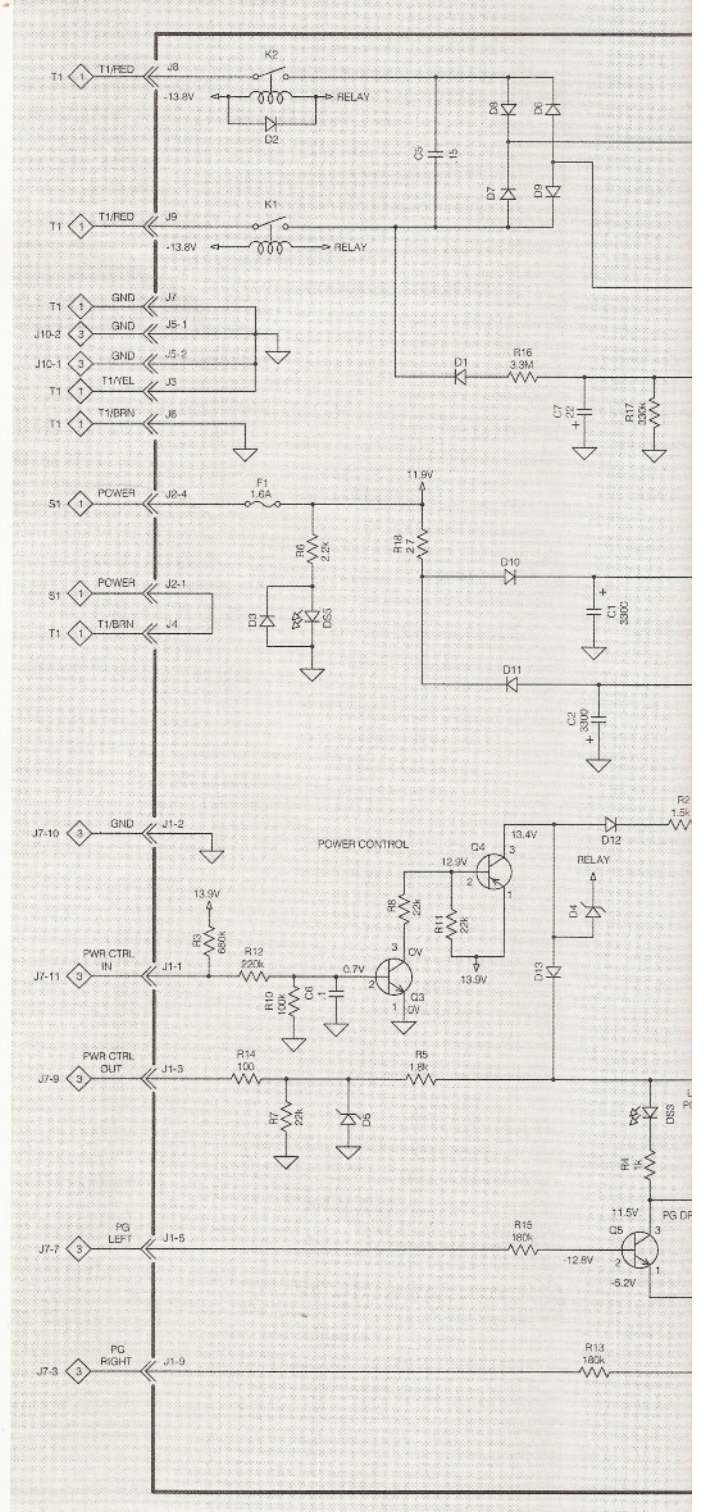
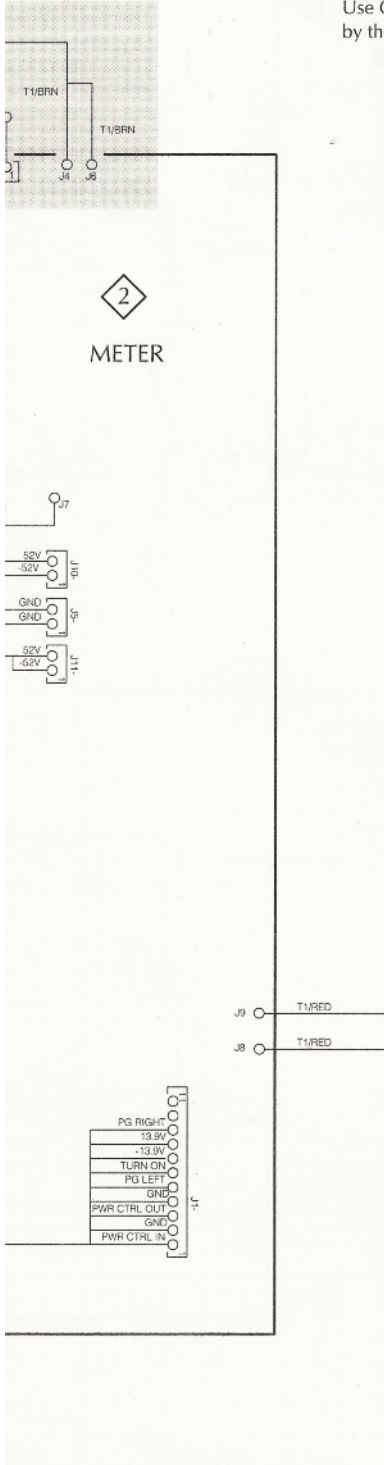


1 INTERCONNECTION DIAGRAM

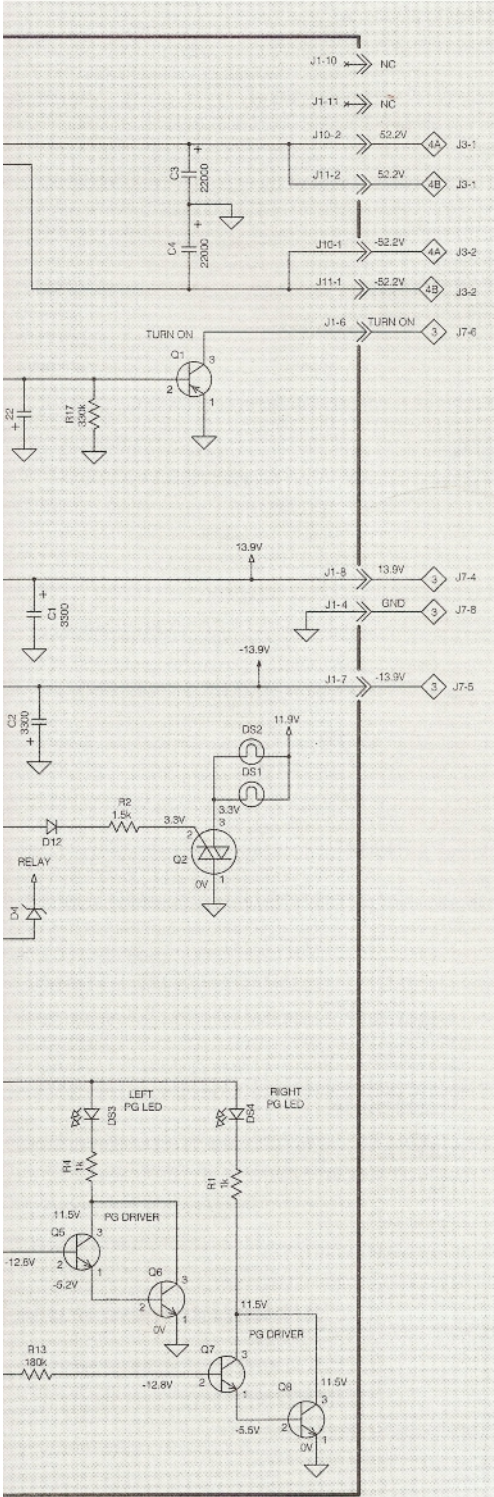


2 LAMP / CAPACITOR 049073

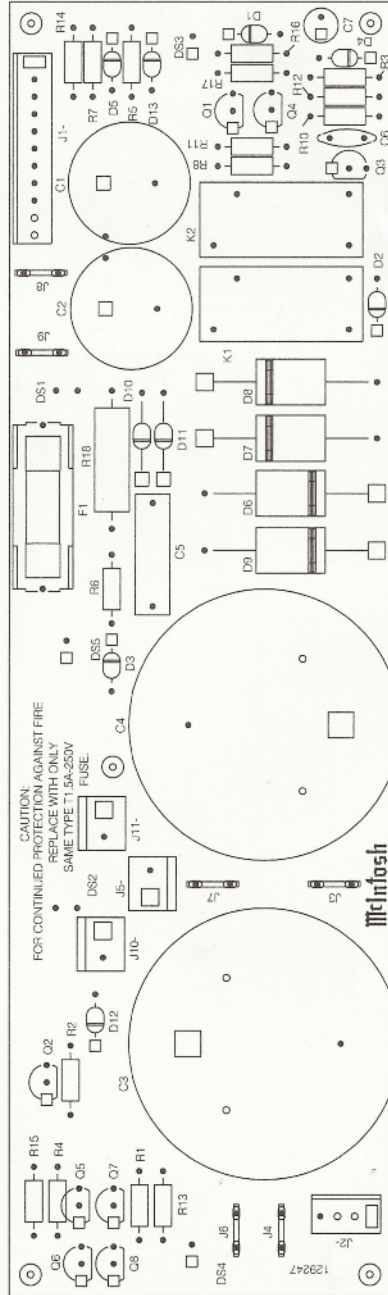
WARNING: Parts located in the shaded area have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.



049073



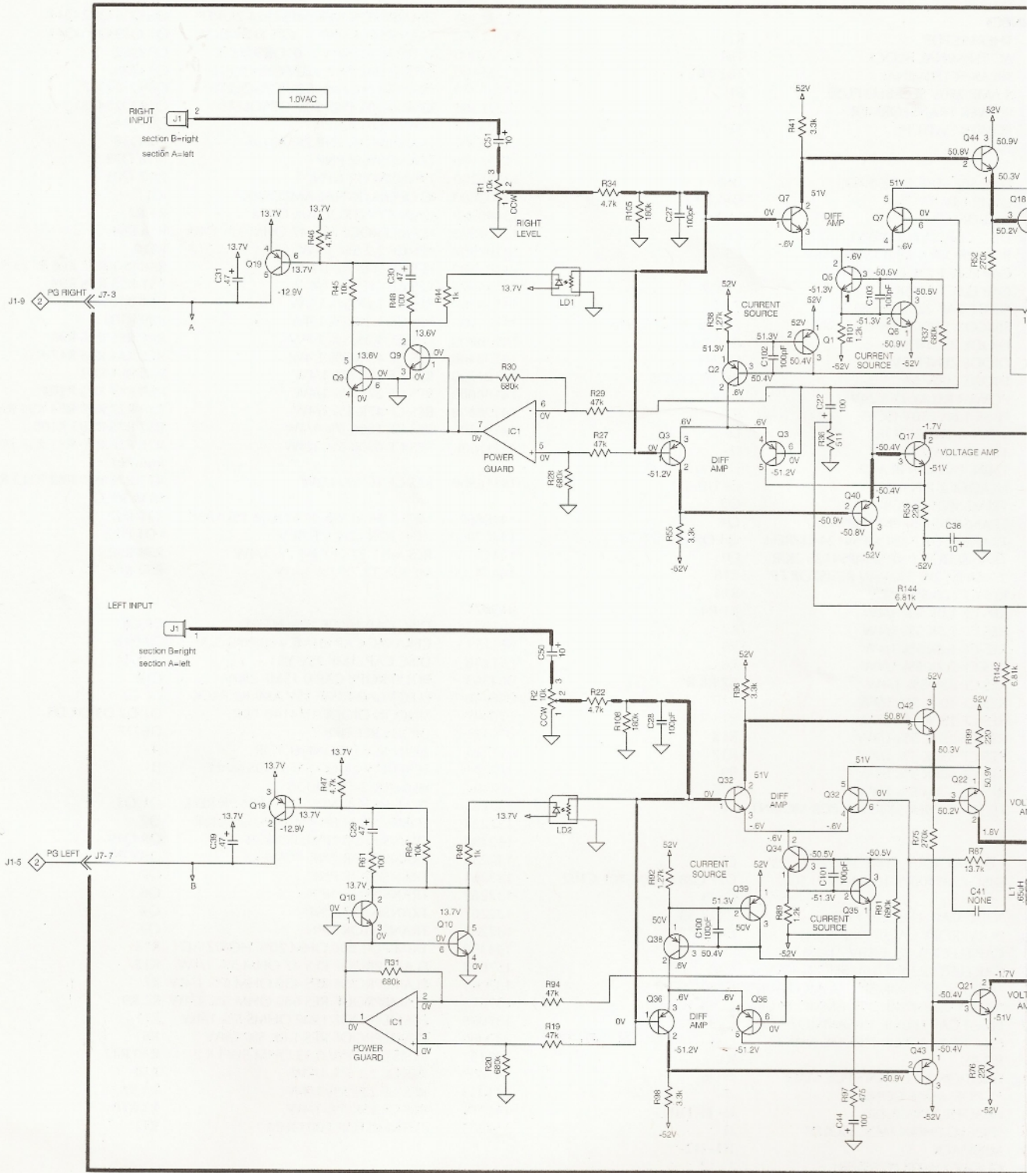
2 PCB 049073

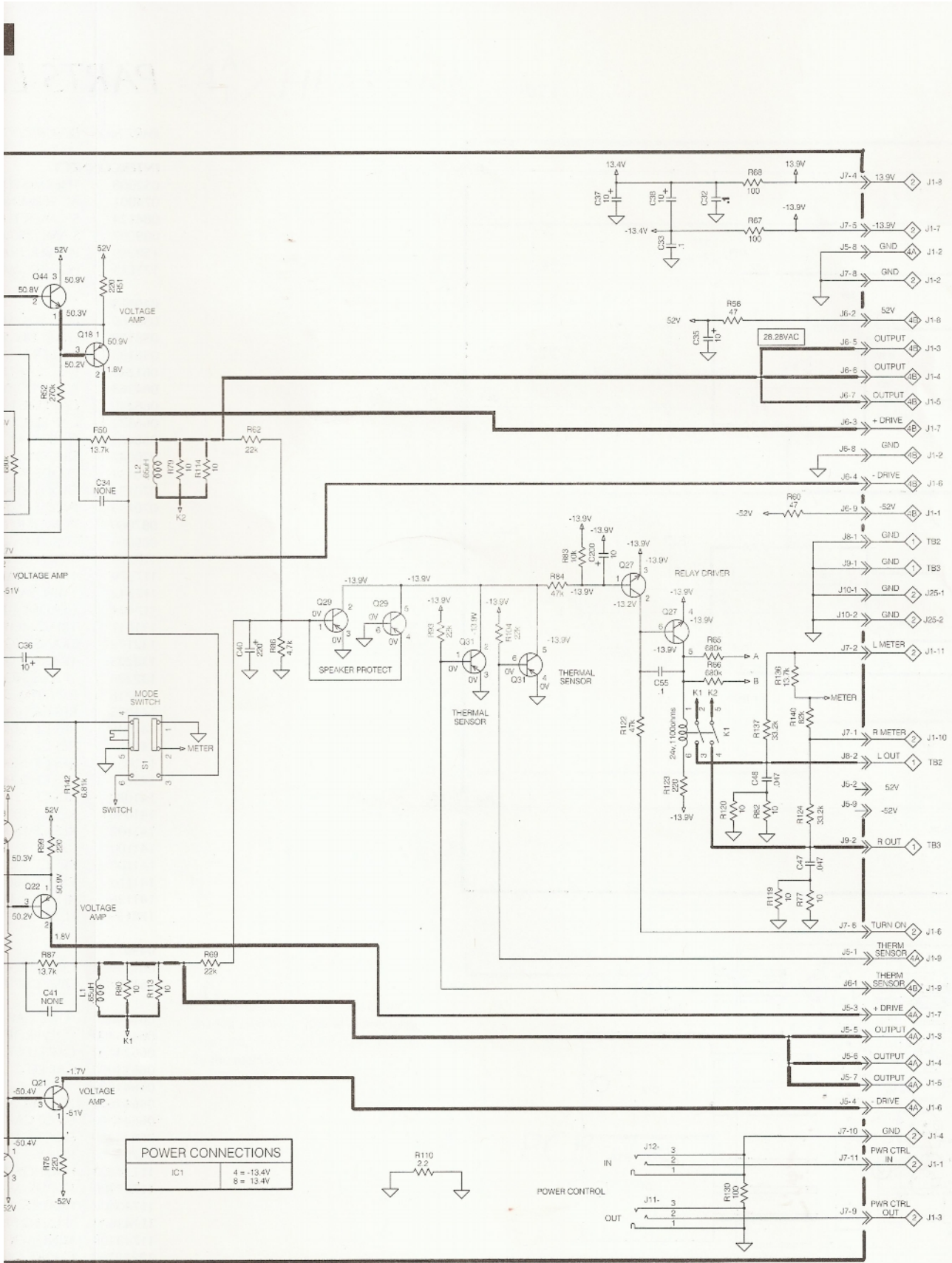


3

DRIVER 049072

MC122

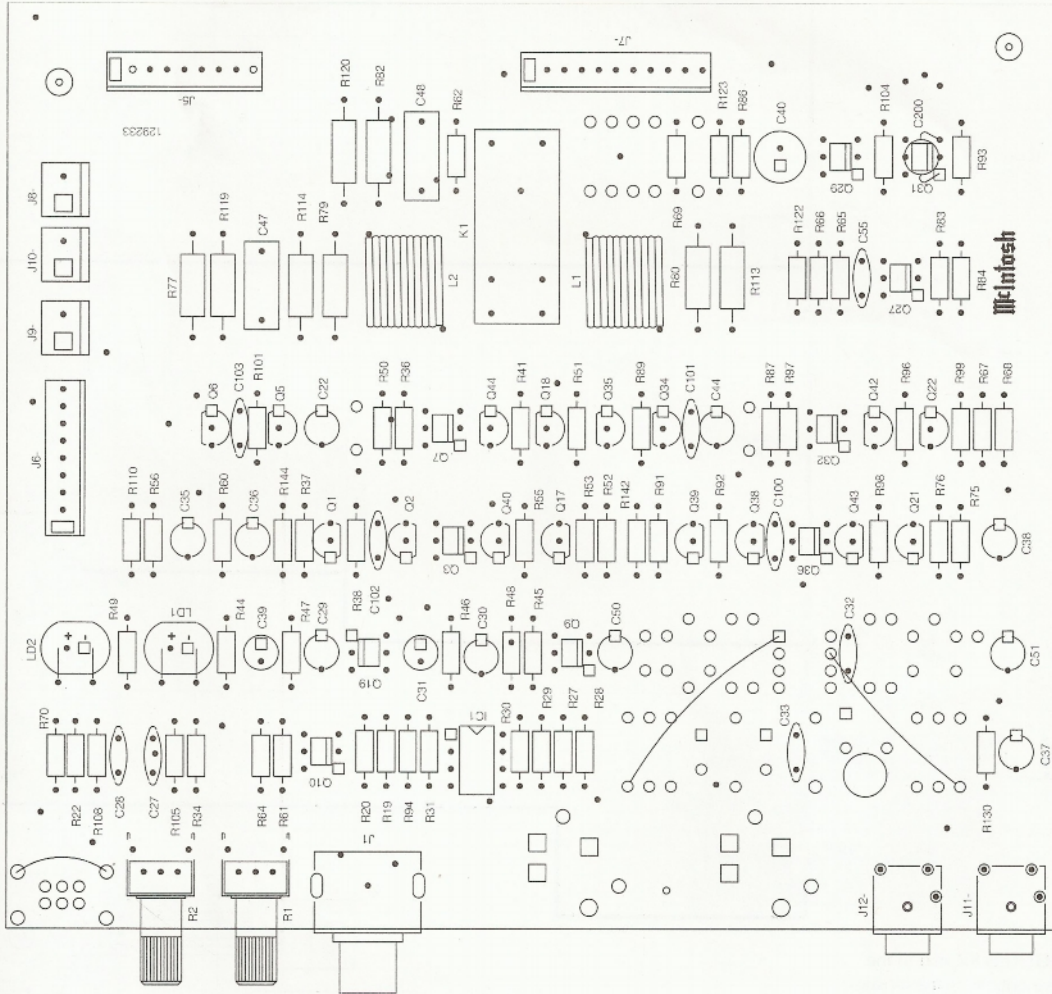




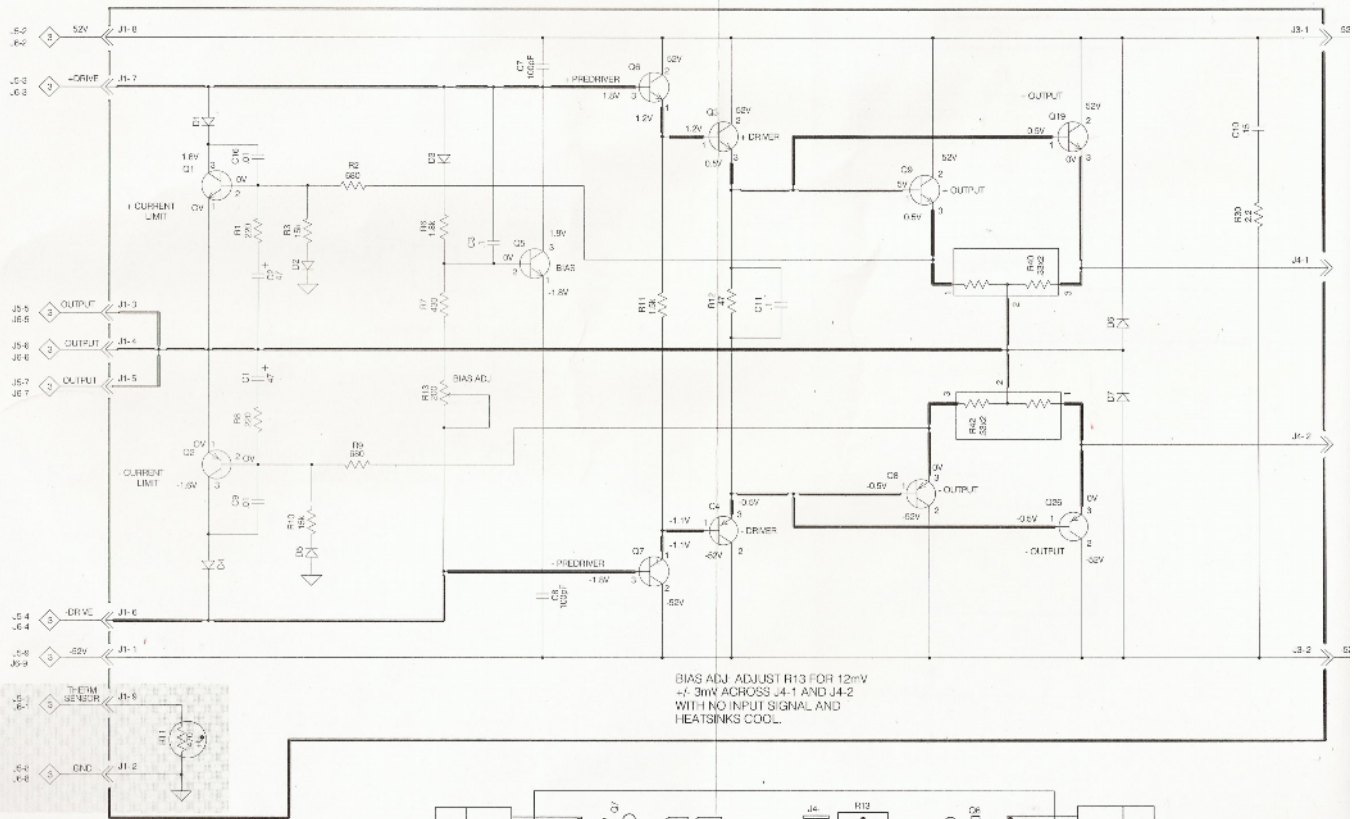
POWER CONNECTIONS	
IC1	4 = -13.4V
	8 = 13.4V

3

PCB 049072

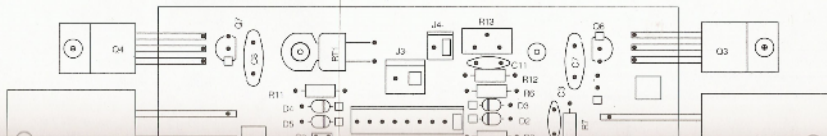


HEATSINK 049071



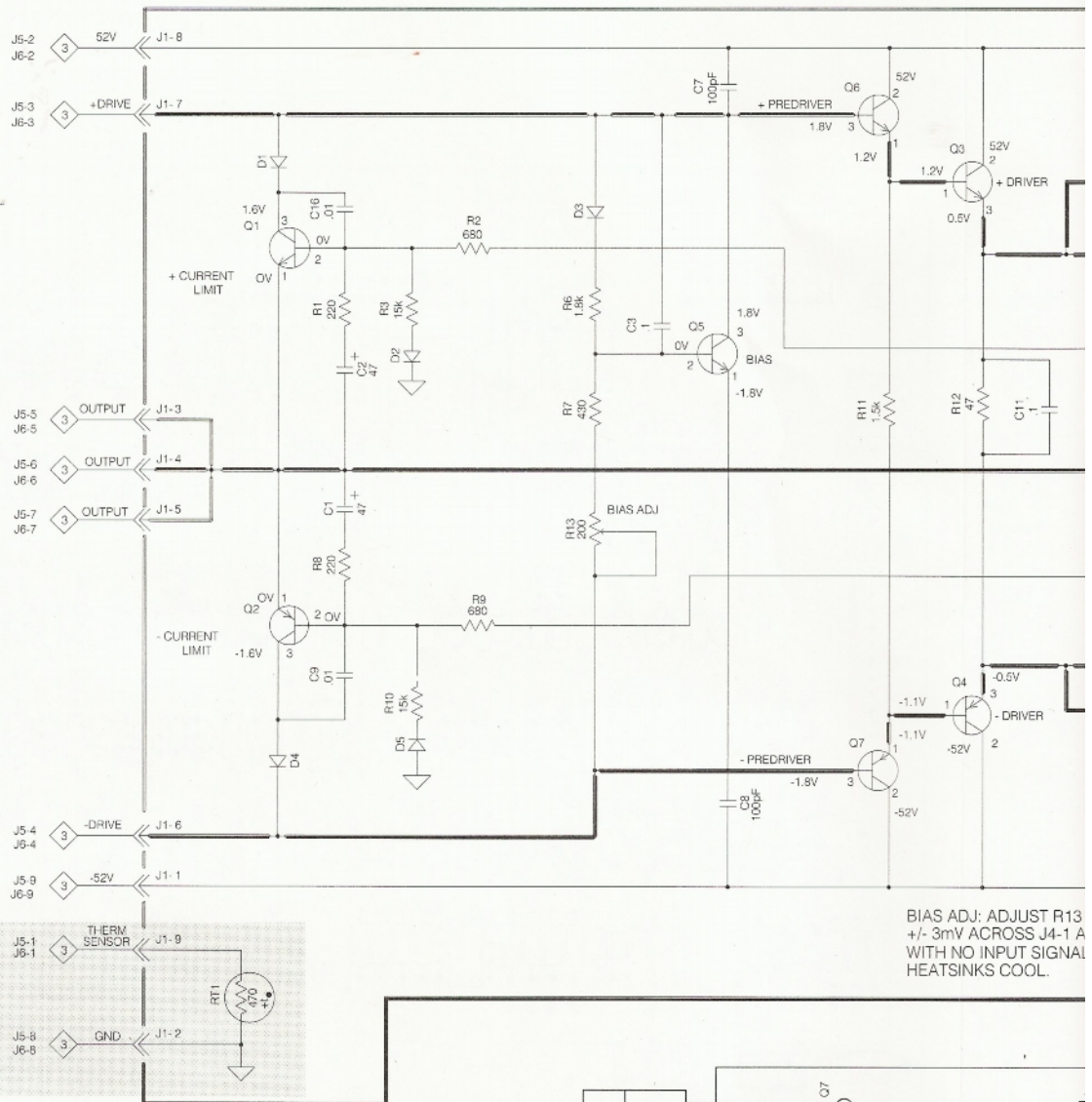
BIAS ADJ. ADJUST R13 FOR 12mV
 ±1.3mV ACROSS J4-1 AND J4-2
 WITH NO INPUT SIGNAL AND
 HEATSINKS COOL.

WARNING: Parts located in the
 have critical characteristics.
 replacement parts recommended
 manufacturer.



4 ^A/_B

HEATSINK 049071



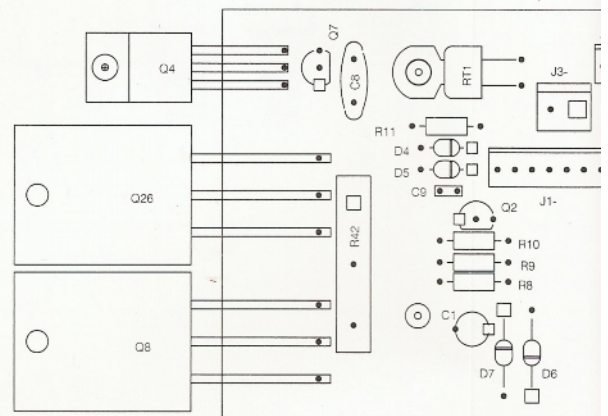
BIAS ADJ: ADJUST R13
+/- 3mV ACROSS J4-1 A
WITH NO INPUT SIGNAL
HEATSINKS COOL.



WARNING: Parts located in the shaded area have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

4 ^A/_B

PCB 049071



PARTS LIST

PART NO. DESCRIPTION

INTERCONNECT

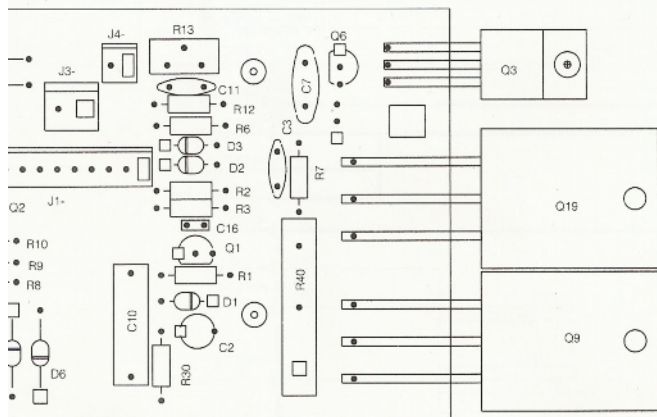
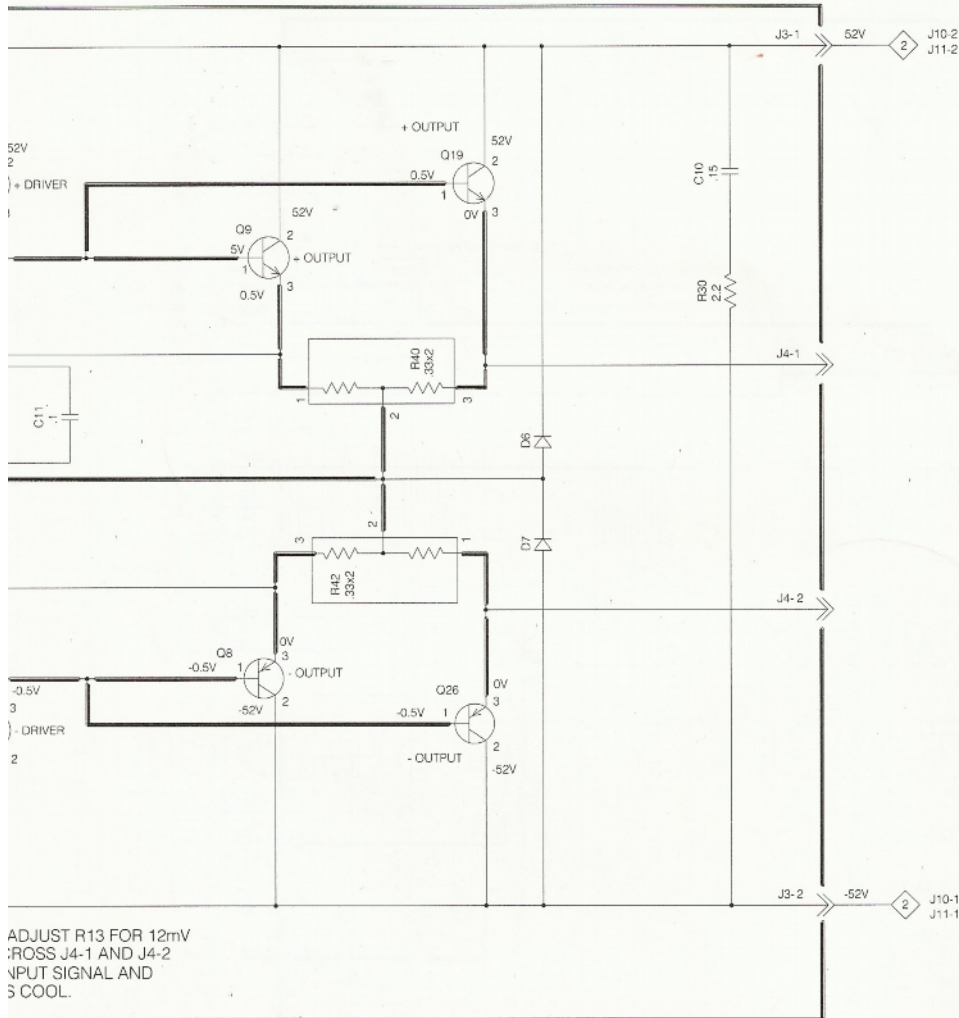
052008	THERMISTO
074091	AC TERMINA
084124	SPEAKER TEI
089097	5 AMP 250V
159299	POWER TRA
171133	POWER SWI

049073

058109	LED, SQUAR
058120	LAMP 14V #
058133	AMBER LED
061248	DISC CAP .1
064363	POLYPROPY
066240	CAP ELECT
066372	CAP ELECT
066483	ELECT CAP
070047	SILICON DIC
070131	DIODE RECT
070132	DIODE ZEN
070133	DIODE 200V
087069	POWER REL
089096	FUSE 1.6A 2
117215	4-PIN CONN
117279	11-POS MAL
117342	1/4IN. FAST
117404	HEADER 2-F
131011	TRIAC MOT
132172	TRANSISTO
132223	TRANSISTO
132224	TRANSISTO
139218	2.7 OHM 2V
141025	RES CF 100
141049	RES CF 1.0K
141053	RES CF 1.5K
141055	RES CF 1.8K
141057	RES CF 2.2K
141080	RES CF 22K
141096	RES CF 100K
141102	RES CF 180K
141104	RES CF 220K
141108	RES CF 330K
141116	RES CF 680K
141126	RES CF 3.3M
178159	FUSE HOLD

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06115900	CERAMIC C
06119900	DISC CAP 10
06124800	"DISC CAP .
06436400	POLYPROPY
06624400	CAP ELECT
06633000	CAP ELECT
06644500	"ELECT CAP
06644600	"ELECT CAP
06644700	ELECT CAP
06646200	ELECT CAP:
08705700	RELAY
11724400	FRICITION L
11727900	11-POS. MA
11740400	HEADER 2-F
11743600	"PJ261G PH
11749400	MINI JACK
12229700	CHOKE OU



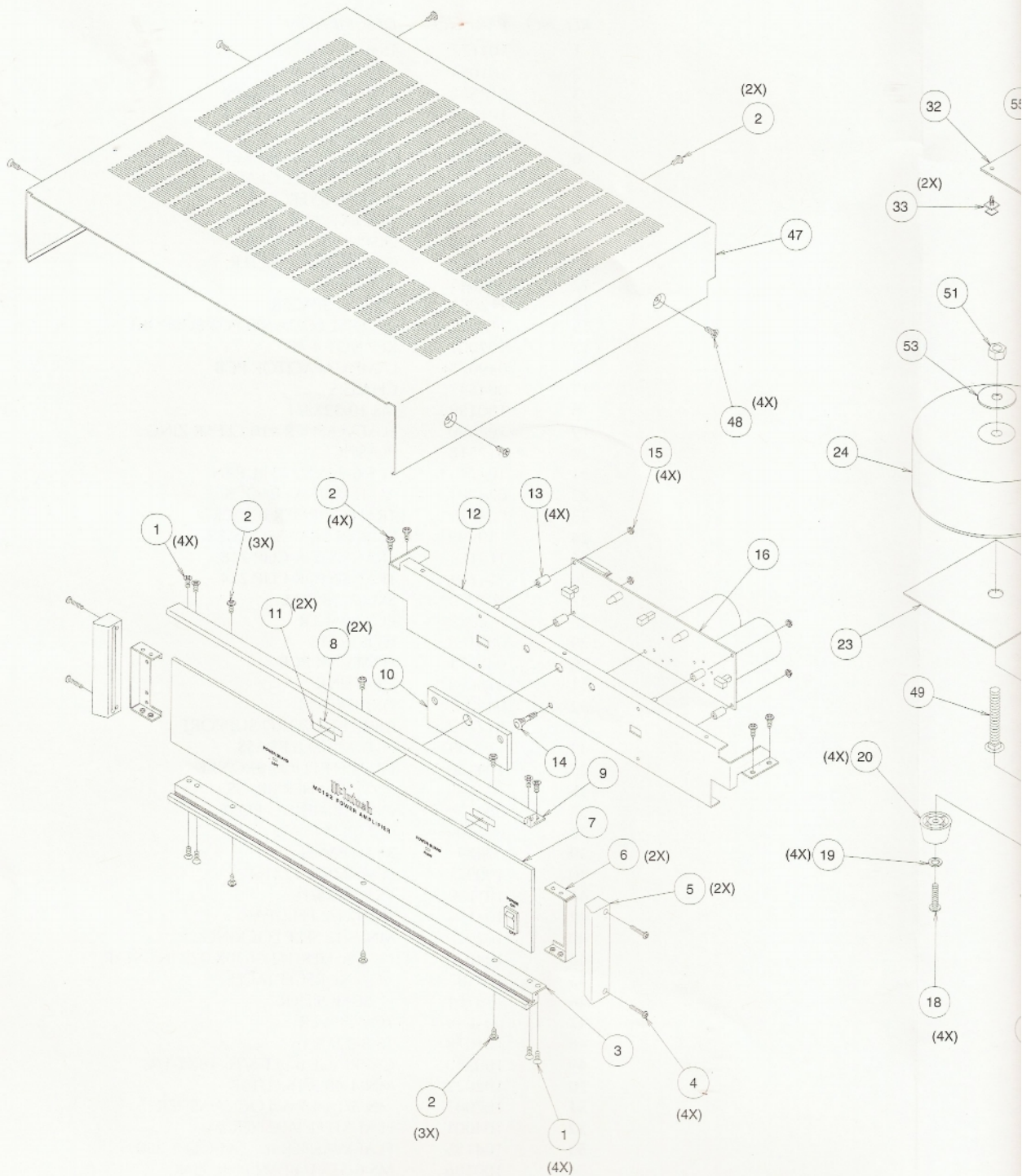
RTS LIST

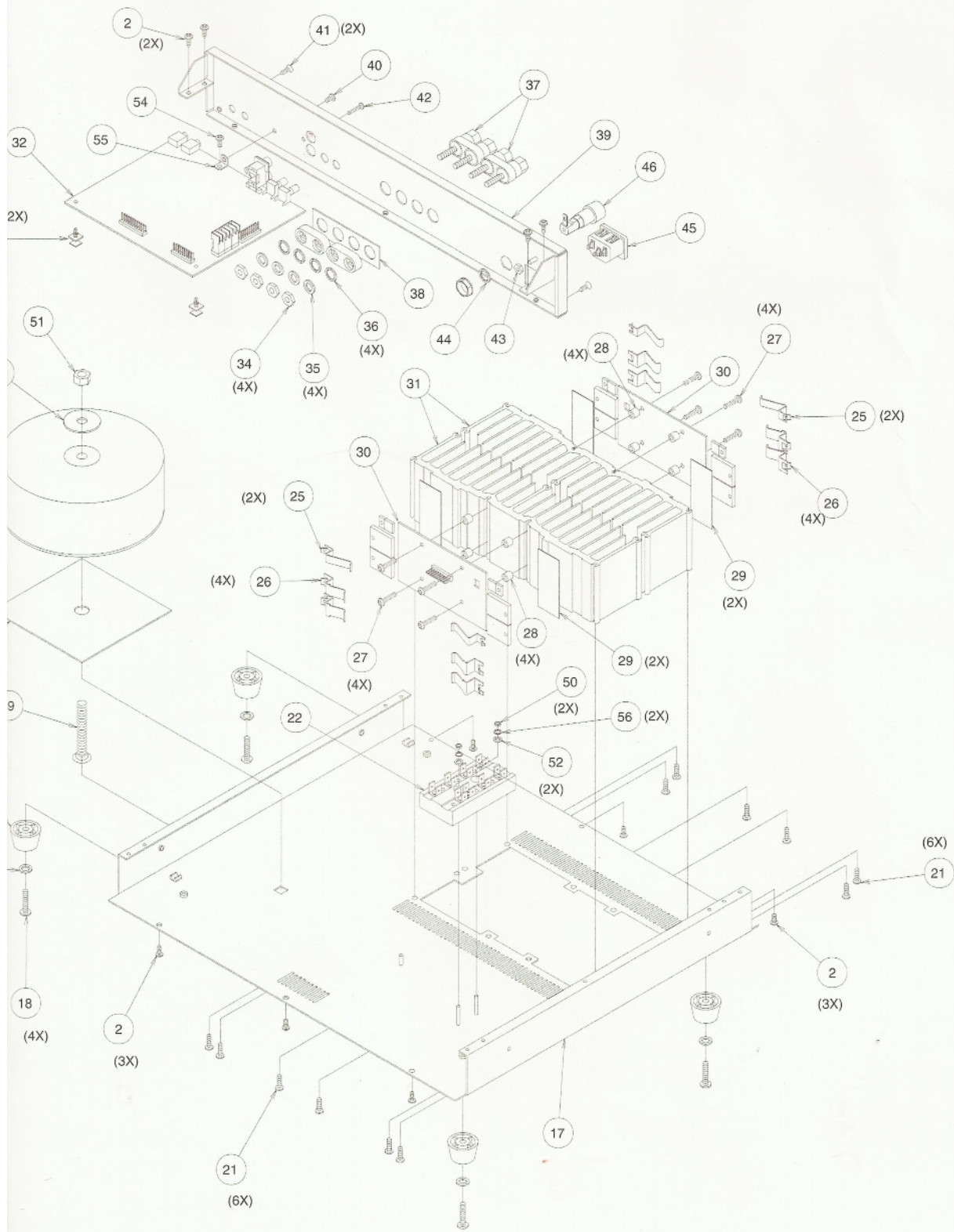
DESCRIPTION	REFERENCE NO	PART NO.	DESCRIPTION	REFERENCE NO.
CONNECT		13222300	TRANSISTOR NPN MPS4124 2K/REEL	Q6 Q35 Q42 Q44
THERMISTOR	RT1	13222400	TRANSISTOR PNP SI MPS4126 2K/R	Q1 Q39 Q40 Q43
AC TERMINAL BLOCK	TB1	13225000	XSTR DUAL NPN 120 OBSOLETE	Q7 Q32
SPEAKER TERMINAL	TB2 TB3	13225100	XSTR DUAL PNP 120V OBSOLETE	Q3 Q36
5 AMP 250V SLO-BLO FUSE	F1	13225200	TRAN DUAL NPN 50V OBSOLETE	Q9 Q10 Q27
POWER TRANSFORMER	T1	13225300	XSTR DUAL PNP 50V OBSOLETE	Q19 Q29 Q31
POWER SWITCH	S1	13225400	TRANSISTOR NPN	Q5 Q34
		13225500	TRANSISTOR PNP 2SA1016K	Q2 Q38
		13226100	TRANSISTOR PNP	Q18 Q22
		13226200	TRANSISTOR NPN	Q17 Q21
LED, SQUARE TYPE (RED)	DS5	13302800	IC OPERATIONAL AMPLIFIER	IC1
LAMP 14V #7373	DS1 DS2	13448600	GAIN CONTROL 10K OHM	R1 R2
AMBER LED	DS3 DS4	13704200	FLAMEPROOF RES 47 OHM 5% 1/4W	R56 R60
DISC CAP .1MF 25V Y5T	C6	14100900	RES CF 2.2 5% 1/4W	R110
POLYPROPY CAP 0.15MF 250V	C5	14102500	RES CF 100 5% 1/4W	R48 R61 R67 R68 R123 R130
CAP ELECT 22UF 25V ALUM	C7	14103300	RES CF 220 5% 1/4W	R51 R53 R76 R99
CAP ELECT 3300UF 25V	C1 C2	14104900	RES CF 1.0K 5% 1/4W	R44 R49 R70
ELECT CAP 2200UF 63V	C3 C4	14105100	RES CF 1.2K 5% 1/4W	R89 R101
SILICON DIODE 1N4148 T&R	D1 D2 D3 D12 D13	14106000	RES CF 3.3K 5% 1/4W	R41 R55 R96 R98
DIODE RECTIFIER	D10 D11	14106400	RES CF 4.7K 5% 1/4W	R22 R34 R46 R47 R86
DIODE ZENER 5V	D4 D5	14107200	RES CF 10K 5% 1/4W	R45 R64 R83
DIODE 200V 6A	D6 D7 D8 D9	14108000	RES CF 22K 5% 1/4W	R62 R69 R93 R104
POWER RELAY TV5 24V	K1 K2	14108800	RES CF 47K 5% 1/4W	R19 R27 R29 R84 R94 R122
FUSE 1.6A 250V IEC65	F1	14110200	RES CF 180K 5% 1/4W	R52 R75 R105 R108
4-PIN CONNECTOR	J2-	14111600	RES CF 680K 5% 1/4W	R20 R28 R30 R31 R37 R65
11-POS MALE CONN	J1-			R66 R91
1/4IN. FASTON BLADE	J3 J4 J6 J7 J8 J9	14116500	RES CF 10 5% 1/2W	R77 R79 R80 R82 R113 R114
HEADER 2-PIN 0.156	J5- J10- J11-			R119 R120
TRIAC MOT/MAC97A-1	Q2	14408600	METAL FILM RES 475 OHM 1% 1/4W	R36 R97
TRANSISTOR SI PNP MPSA55	Q4	14417900	RESISTOR LDR VTL5C9	LD1 LD2
TRANSISTOR NPN MPS4124 2K/REEL	Q3 Q5 Q6 Q7 Q8	14426100	RES MF 1.27K OHM 1% 1/4W	R38 R92
TRANSISTOR PNP SI MPS4126 2K/R	Q1	14434200	MF RES 13.7K 1% 1/4W	R50 R87
2.7 OHM 2W 5% WW RESISTOR FP	R18			
RES CF 100 5% 1/4W	R14	049071		
RES CF 1.0K 5% 1/4W	R1 R4	061023	DISC CAP 100PF 10% N1500	C7 C8
RES CF 1.5K 5% 1/4W	R2	061159	CERAMIC CAP .01MF +80 20% 50V	C9 C16
RES CF 1.8K 5% 1/4W	R5	061248	DISC CAP .1MF 25V Y5T	C3 C11
RES CF 2.2K 5% 1/4W	R6	064363	POLYPROPY CAP 0.15MF 250V	C10
RES CF 22K 5% 1/4W	R7 R8 R11	066446	ELECT CAP 47MF 35V AMMO PACK	C1 C2
RES CF 100K 5% 1/4W	R10	070047	SILICON DIODE 1N4148 T&R	D1 D2 D3 D4 D5
RES CF 180K 5% 1/4W	R13 R15	070131	DIODE RECTIFIER	D6 D7
RES CF 220K 5% 1/4W	R12	117213	2-PIN MALE CONNECTOR	J4-
RES CF 330K 5% 1/4W	R17	117244	FRICITION LK CONN 9 POS MALE	J1-
RES CF 680K 5% 1/4W	R3	117404	HEADER 2-PIN 0.156	J3-
RES CF 3.3M 5% 1/4W	R16	132223	TRANSISTOR NPN MPS4124 2K/REEL	Q1 Q5
FUSE HOLDER 5X20MM PCB MOUNT	F1	132224	TRANSISTOR PNP SI MPS4126 2K/R	Q2
		132238	TRANSISTOR NPN, POWER	Q9 Q19
		132239	TRANSISTOR PNP, POWER	Q8 Q26
CERAMIC CAP .01MF +80-20% 50V	C55	132261	TRANSISTOR PNP	Q7
DISC CAP 100PF 10% N1500 50V	C27 C28 C100 C101 C102	132262	TRANSISTOR NPN	Q6
	C103	132267	TRANSISTOR, PNP	Q4
"DISC CAP .1MF,25V,Y5T"	C32 C33	132268	TRANSISTOR NPN	Q3
POLYPROPY CAP.047MF 250V	C47 C48	134390	TRIM POT 200 OHM 20% HORIZ AD	R13
CAP ELECT 0.47UF 50V ALUM	C31 C39	137042	FLAMEPROOF RES 47 OHM 5% 1/4W	R12
CAP ELECT 220UF 16V SHORT CAN	C40	137065	FLAMEPROOF RES 430 OHM 5% 1/4W	R7
"ELECT CAP 10MF, 50V AMMO PACK"	C200	137070	FLAMEPROOF RES 680 OHM 5% 1/4W	R2 R9
"ELECT CAP 47MF, 35V AMMO PACK"	C29 C30	137078	FLAMEPROOF 1500 OHMS 5% 1/4W	R11
ELECT CAP 100MF 16V AMMO PACK	C22 C44	137080	FLAMEPROOF RES 1.8K 5% 1/4W	R6
ELECT CAP:10 UF 100VDC AMMO	C35 C36 C37 C38 C50 C51	139197	RESISTOR WW 0.33 OHM 5W J X 2	R40 R42
RELAY	K1	141009	RES CF 2.2 5% 1/4W	R30
FRICITION LK CONN 9POS MALE	J5- J6-	141033	RES CF 220 5% 1/4W	R1 R8
11-POS. MALE CONN.	J7-	141076	RES CF 15K 5% 1/4W	R3 R10
HEADER 2-PIN 0.156	J8- J9- J10-	144279	THERMISTOR 100 OHM	RT1
"PJ261G PHON JACK, GOLD"	J1			
MINI JACK	J11- J12-			
CHOKE OUTPUT .65UH	L1 L2			

EXPLODED VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	101172	TS 6-32X1/4 FH
2	101054	TS 6-32X1/4 PAN
3	018588	BOTTOM EXTRUSION
4	101042	TS 4-40X1/2 FIL
5	018610	END CAP
6	004882	EXTRUSION BRACKET
7	016387	FRONT PANEL GLASS
8	092062	WHITE FILTER
9	018587	TOP EXTRUSION
10	017730	DISPLAY PLEXIGLAS
11	092058	GOLD/AMBER FILTER
12	004845	SUBPANEL
13	112086	NYLON SPACER
14	112092	REVERSE LOCKING PCB SUPPORT
15	102001	KEP NUT 4-40
16	049073	LAMP/CAPACITOR PCB
17	004847	CHASSIS
18	100159	MS 10-32X3/4
19	104080	FLAT WASHER #10 CLEAR ZINC
20	017218	PLASTIC
21	101176	TCS 6-32X1/2 PHIL PAN
22	074091	AC TERMINAL BLOCK
23	004879	TRANSFORMER BLOCK
24	159299	POWER TRANSFORMER
25	114118	TRANSISTOR CLIP 218
26	114119	TRANSISTOR CLIP 214
27	101059	SM 6X5/8 PHIL
28	112087	PCB SPACER
29	084188	ISOSTRATE
30	049071	HEATSINK PCB
31	018604	HEATSINK
32	049072	DRIVER PCB
33	017712	CIRCUIT BOARD SUPPORT
34	110009	NUT M5X0.8 BRASS
35	104130	LW SPLIT PHOS/BRONZE
36	104148	FLAT WASHER BRASS
37	084124	DUAL BINDING POST
38	004800	OUTPUT PLATE
39	004844	REAR PANEL
40	100271	SEMS MS 6-32X1/4
41	101109	TS 6-32X5/16
42	101114	SM 4X1/2 PHIL PAN
43	102020	MN 6-32 SELF LOCKING
44	104016	LK WASHER 1/2X.630X.022 INT STAR
45	117487	AC LINE RECEPTACLE
46	178161	FUSE HOLDER
47	004849	TOP COVER
48	101078	TS 8-32X5/16
49	100280	CARRIAGE BOLT 5/16-18X2-1/4
50	102022	MN 4-40 3/16X1/167
51	102047	MN 5/16-18 W/LOCKWASHER
52	104001	FLAT STEEL WASHER #4
53	104155	FLAT WASHER ID .344 OD 1.250
54	100186	MS 6-32X1/4 PAN PHIL ZINC
55	003611	CARD MOUNTING BRACKET
56	104004	LK WASHER #5

EXPLODED VIEW





REPACKING INSTRUCTIONS

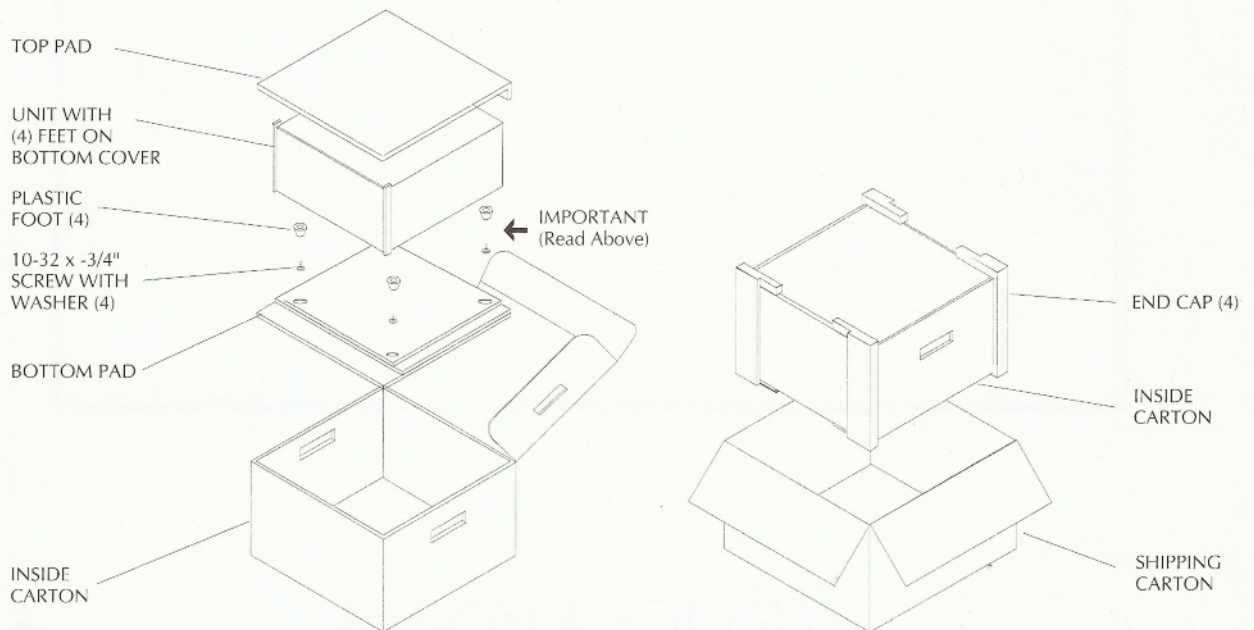
In the event it is necessary to repack the unit for shipment, the unit must be packed exactly as shown below.

IMPORTANT - The four plastic feet must be attached to the bottom of the unit so they will locate in the four holes of the bottom pad. Failure to do this will result in shipping damage.

If a shipping carton or any of the interior parts is needed, please call or write the Customer Service Department of McIntosh Laboratory. Order parts from the accompanying list by part number.

Use the original shipping carton and interior parts only if they are in good serviceable condition.

Qty.	Part No.	Description
1	034023/ 034047	Shipping carton only
4	034022	Foam end cap
1	033606	Inside carton only
1	033726	Toppad
1	033729/ 034036	Bottom pad
4	017218	Plastic foot
4	100159	#10-32 x 3/4" Machine screw
4	104083	#10 x 7/16" Flat washer
1	048095	Shipping carton complete with all the above parts.



MC122

POWER AMPLIFIER

SERVICE MANUAL

The continuous improvement of its products is the policy of McIntosh Laboratory Incorporated, who reserve the right to improve design without notice. Because of the constant upgrading of McIntosh products' circuitry and components, the Company cannot insure, and does not warrant, the accuracy of the within schematic material, which is intended for information only.

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