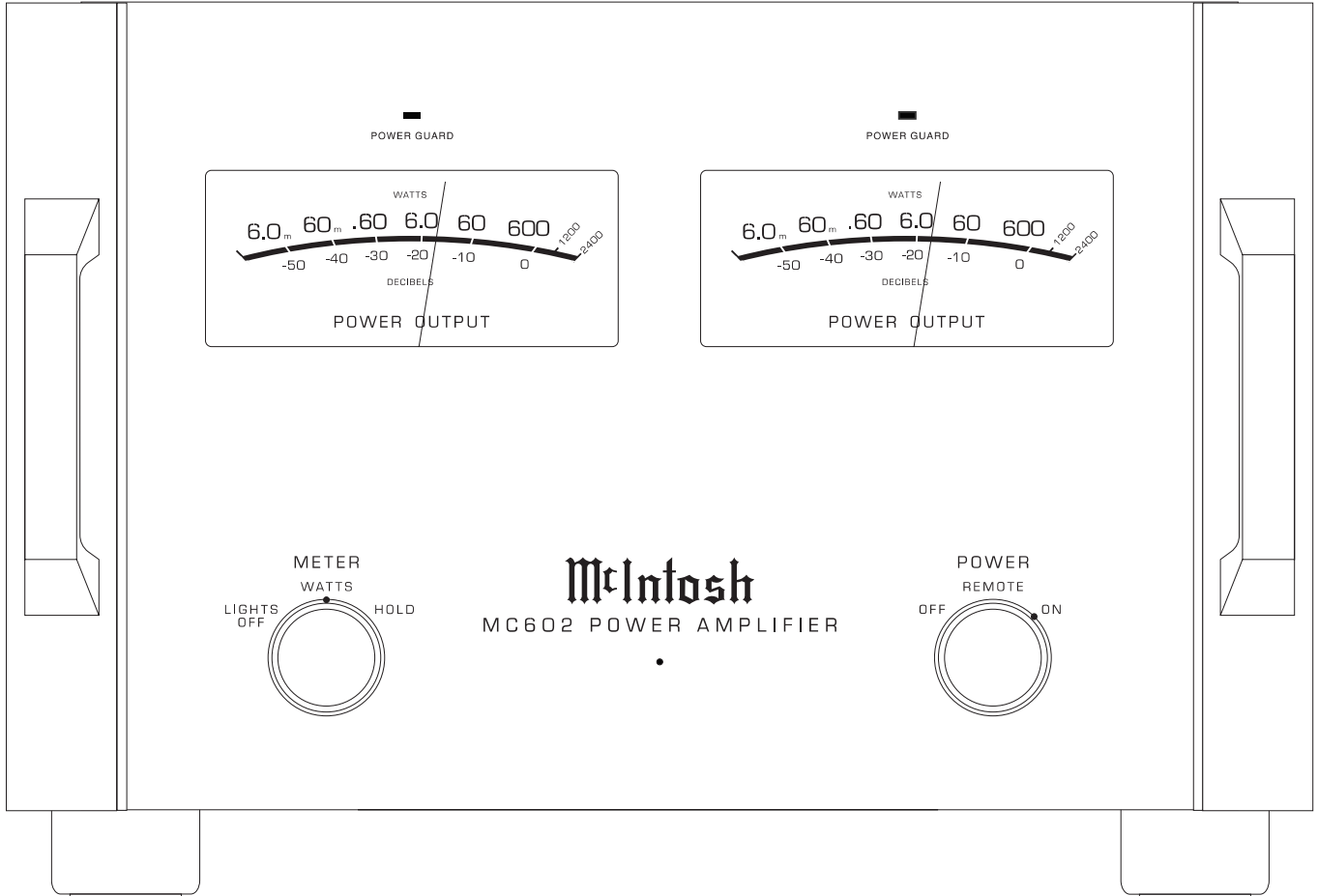


# MC602

## POWER AMPLIFIER



### CONTENTS

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# McIntosh

## SERVICE MANUAL

# PERFORMANCE SPECIFICATIONS

## POWER OUTPUT STEREO

600 watts into 2, 4 or 8 ohm loads is the minimum sine wave continuous average power output per channel with both channels operating.

## OUTPUT LOAD IMPEDANCE

2, 4 or 8 ohms

## RATED POWER BAND

20Hz to 20,000Hz

## DYNAMIC HEADROOM

2.1dB

## FREQUENCY RESPONSE

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

+0, -3dB from 10Hz to 100,000Hz

## TOTAL HARMONIC DISTORTION

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

## INTERMODULATION DISTORTION

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

## SIGNAL TO NOISE RATIO (A WEIGHTED)

93dB Unbalanced (120dB below rated output)

97dB Balanced (124dB below rated output)

## SENSITIVITY

2.45 Volts Unbalanced Input

4.9 Volts Balanced Input

## INPUT IMPEDANCE

10,000 ohms Unbalanced and Balanced

## WIDE BAND DAMPING FACTOR

100 @ 8 ohms

## POWER REQUIREMENTS

100 Volts, 50/60Hz at 18 amps

110 Volts, 50/60Hz at 16.5 amps

120 Volts, 50/60Hz at 15 amps

220 Volts, 50/60Hz at 8.2 amps

230 Volts, 50/60Hz at 7.8 amps

240 Volts, 50/60Hz at 7.5 amps

*NOTE: Refer to the rear panel of the MC602 for the correct voltage.*

## DIMENSIONS


Front Panel: 17-3/4 inches (46cm) wide, 11 inches (28cm) high. Depth behind front mounting panel is 19-5/8 inches (49.83cm). Clearance required in front of front panel is 1-3/4 inches (4.5cm).

## WEIGHT

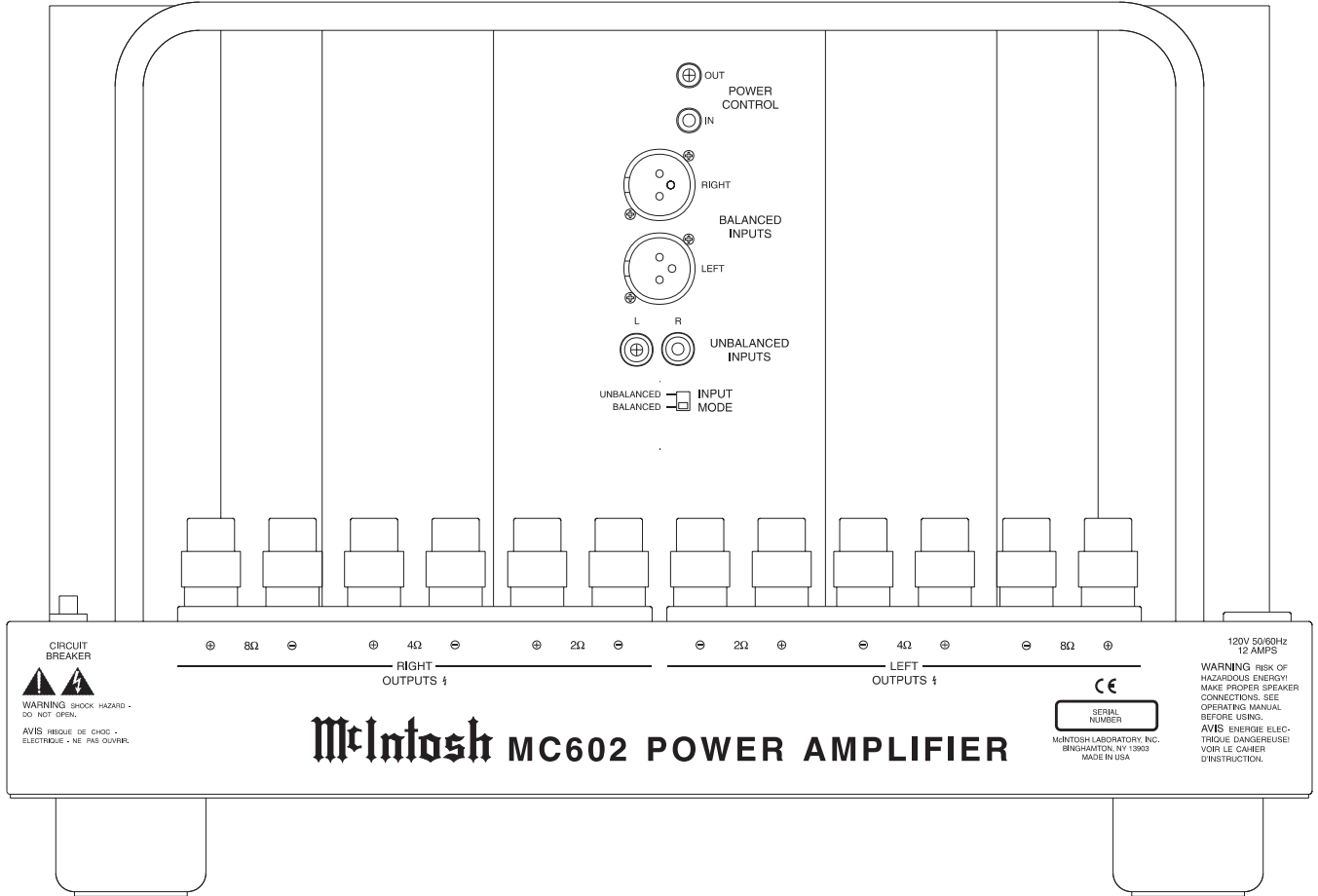
155lbs. (70.3kg) Net

180lbs. (81.6kg) Shipped

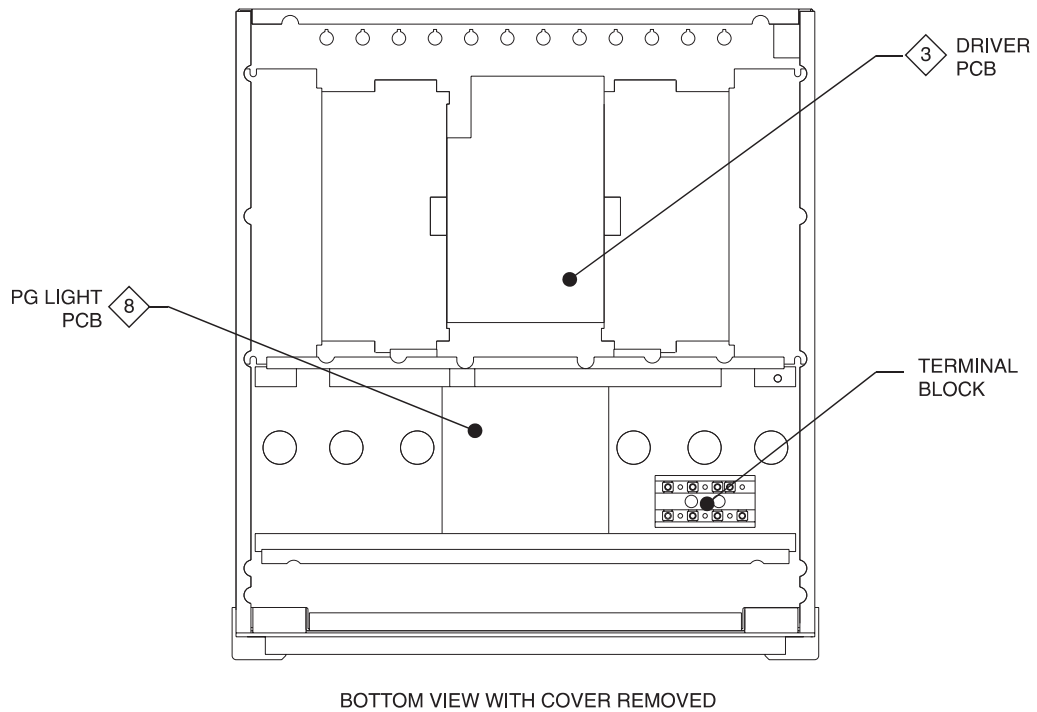
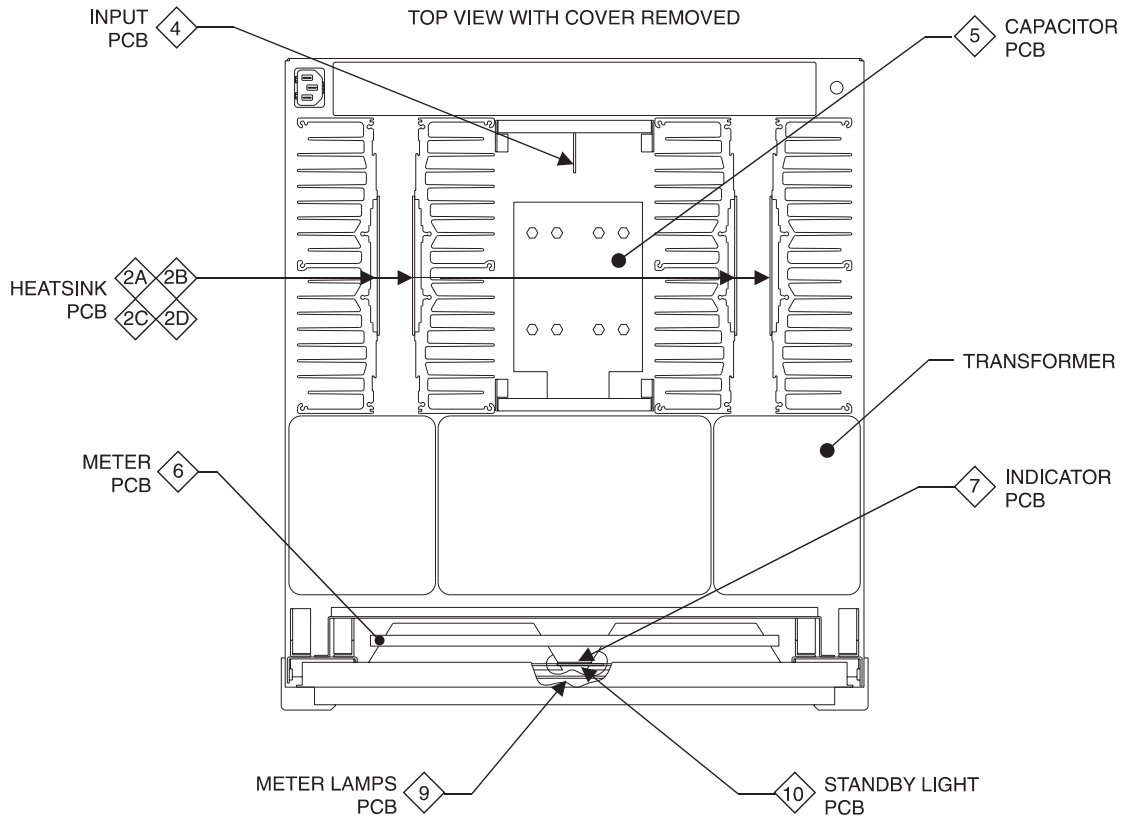
# NOTES

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.

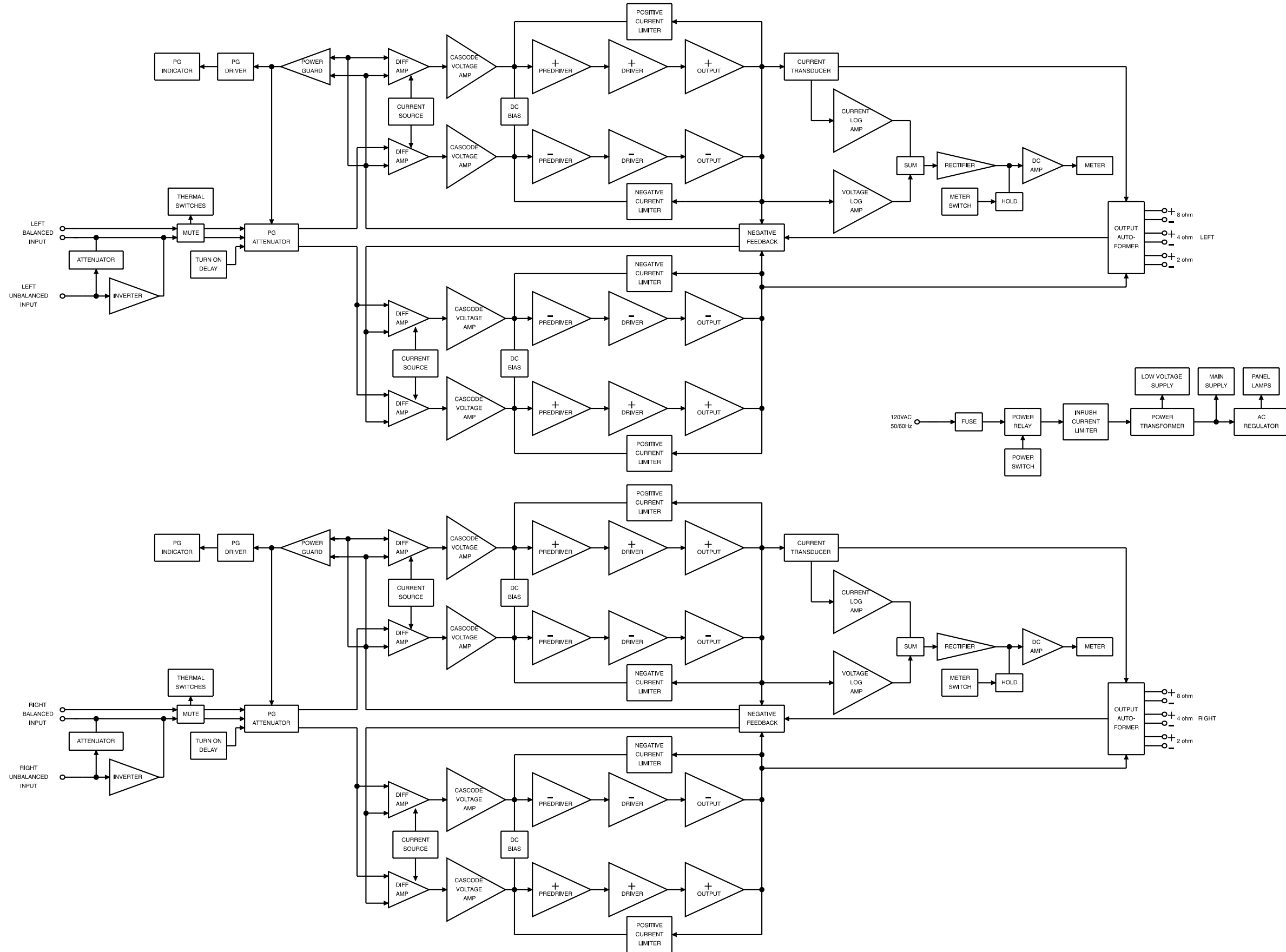
# REAR PANEL



# SECTION LOCATIONS

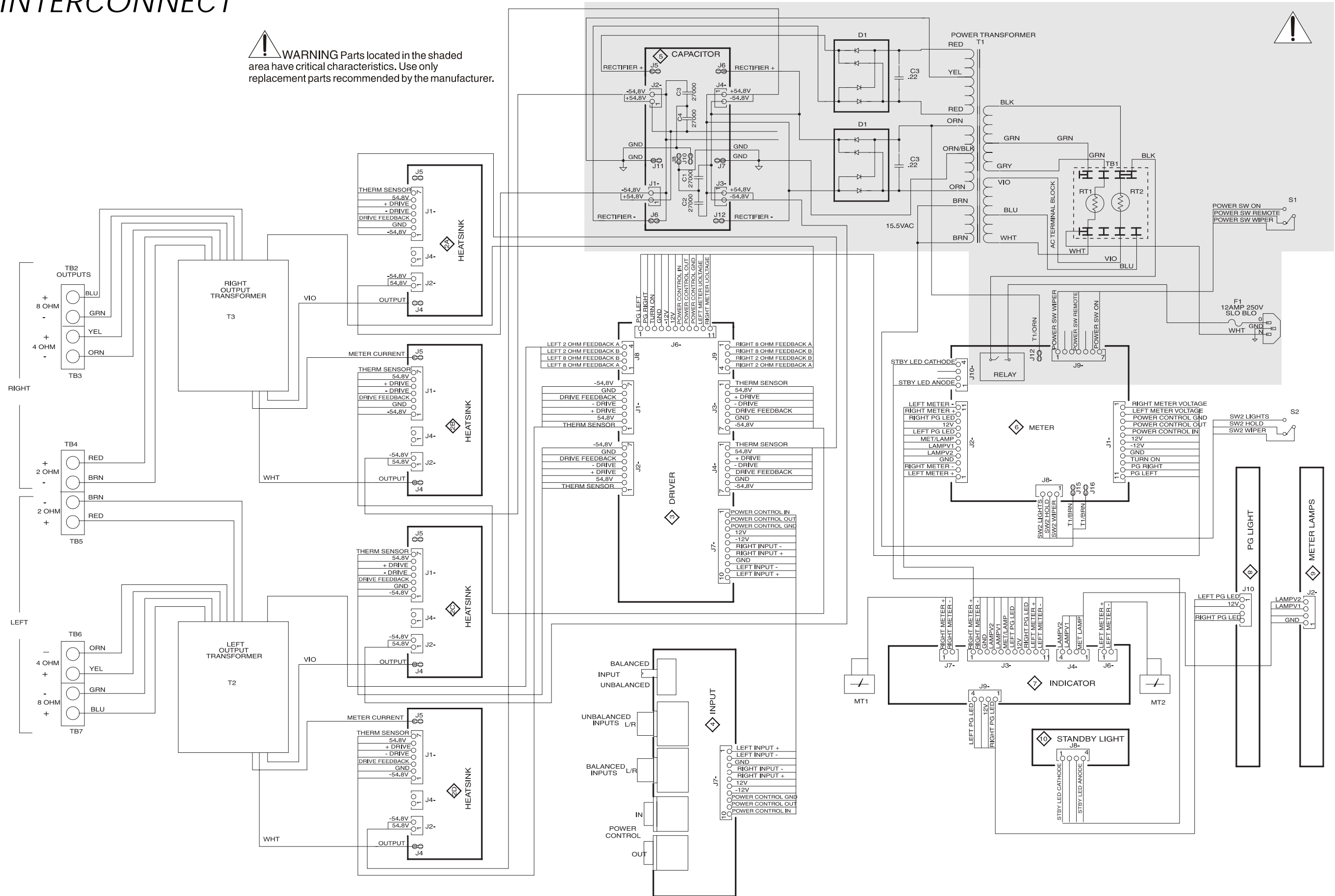


# BLOCK DIAGRAM



# INTERCONNECT

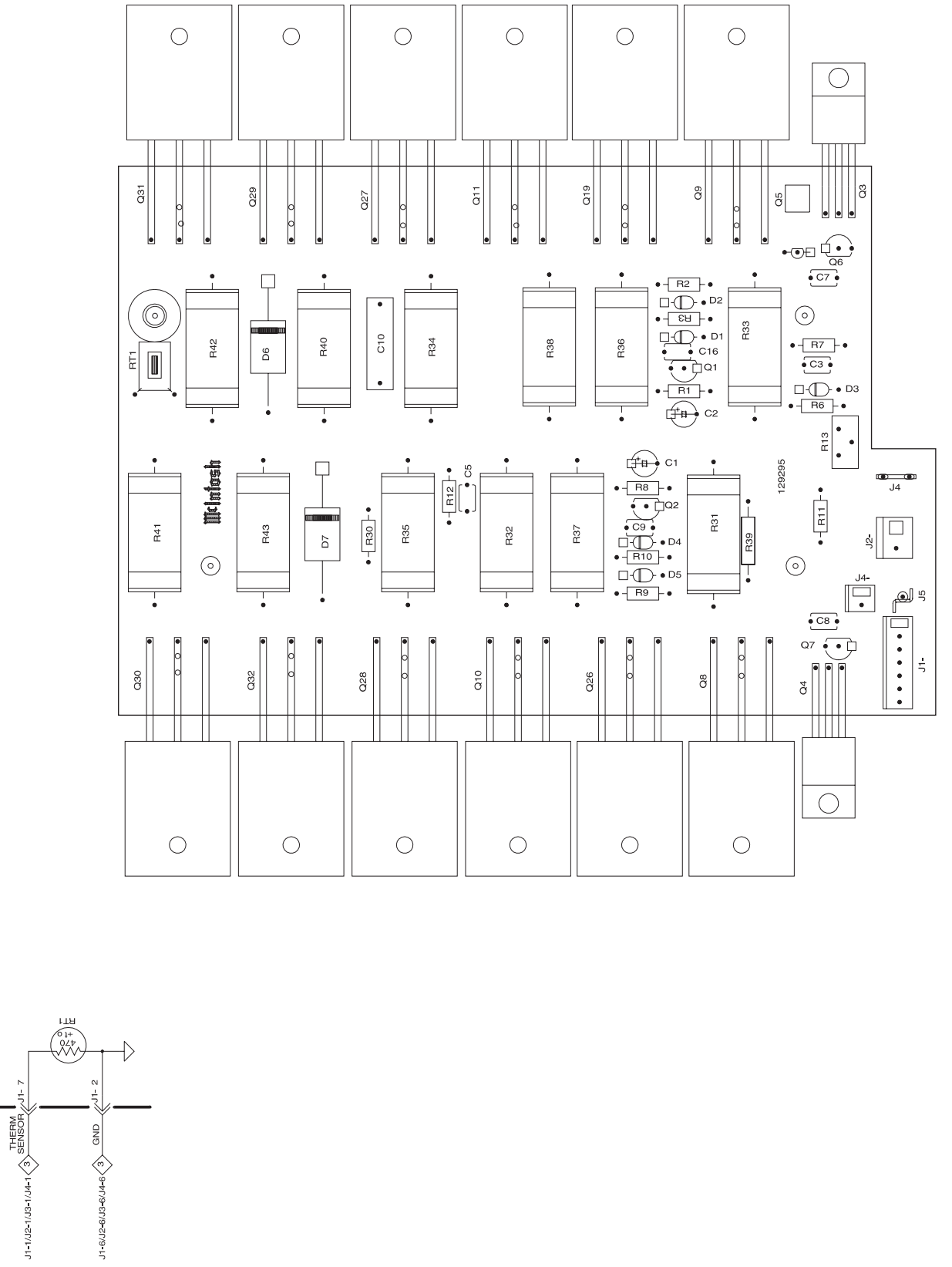
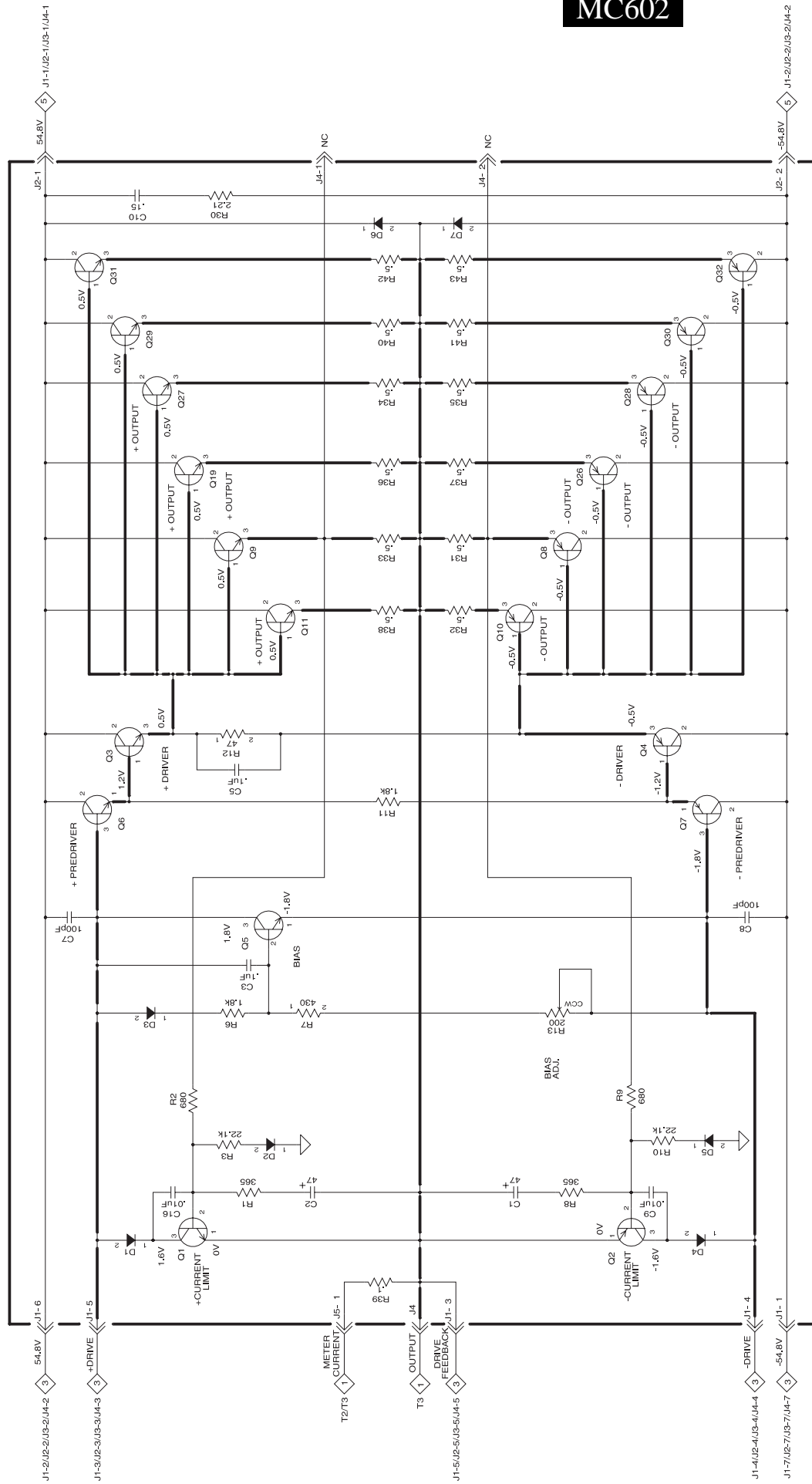
**WARNING** Parts located in the shaded area have critical characteristics. Use only replacement parts recommended by the manufacturer.



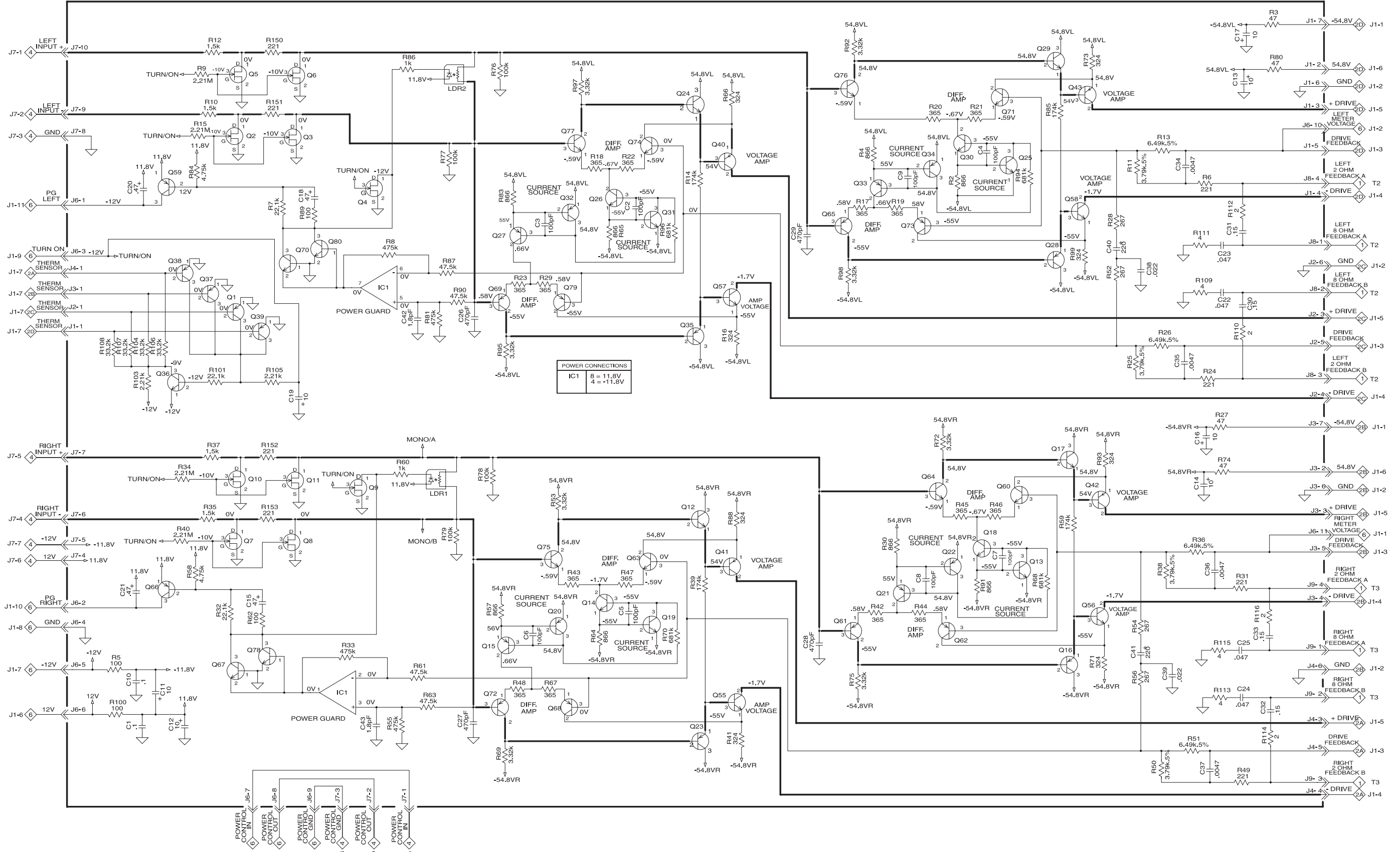
2A 2B 2C 2D

HEATSINK 049368

MC602

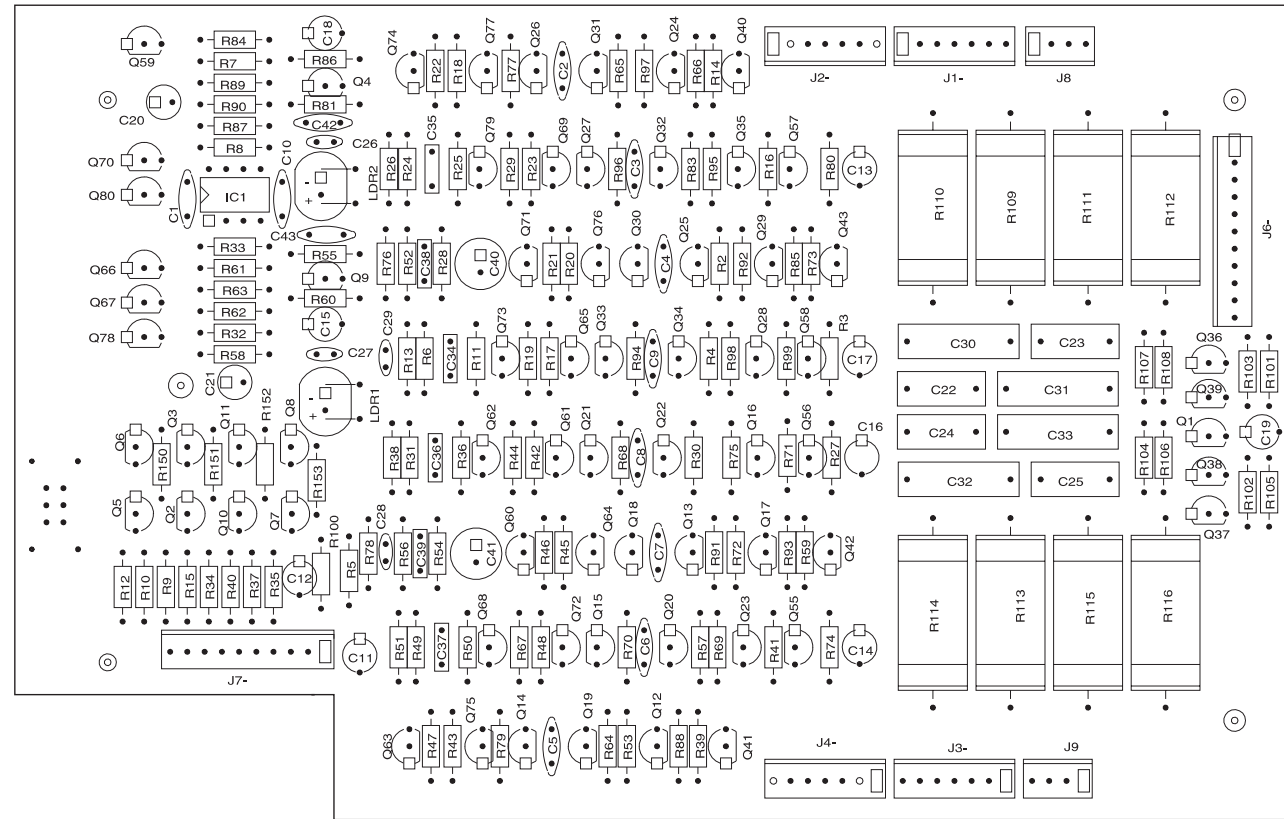


# 3 DRIVER 049369

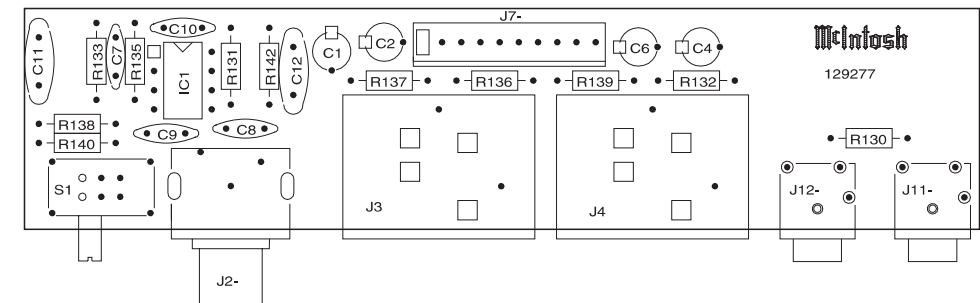
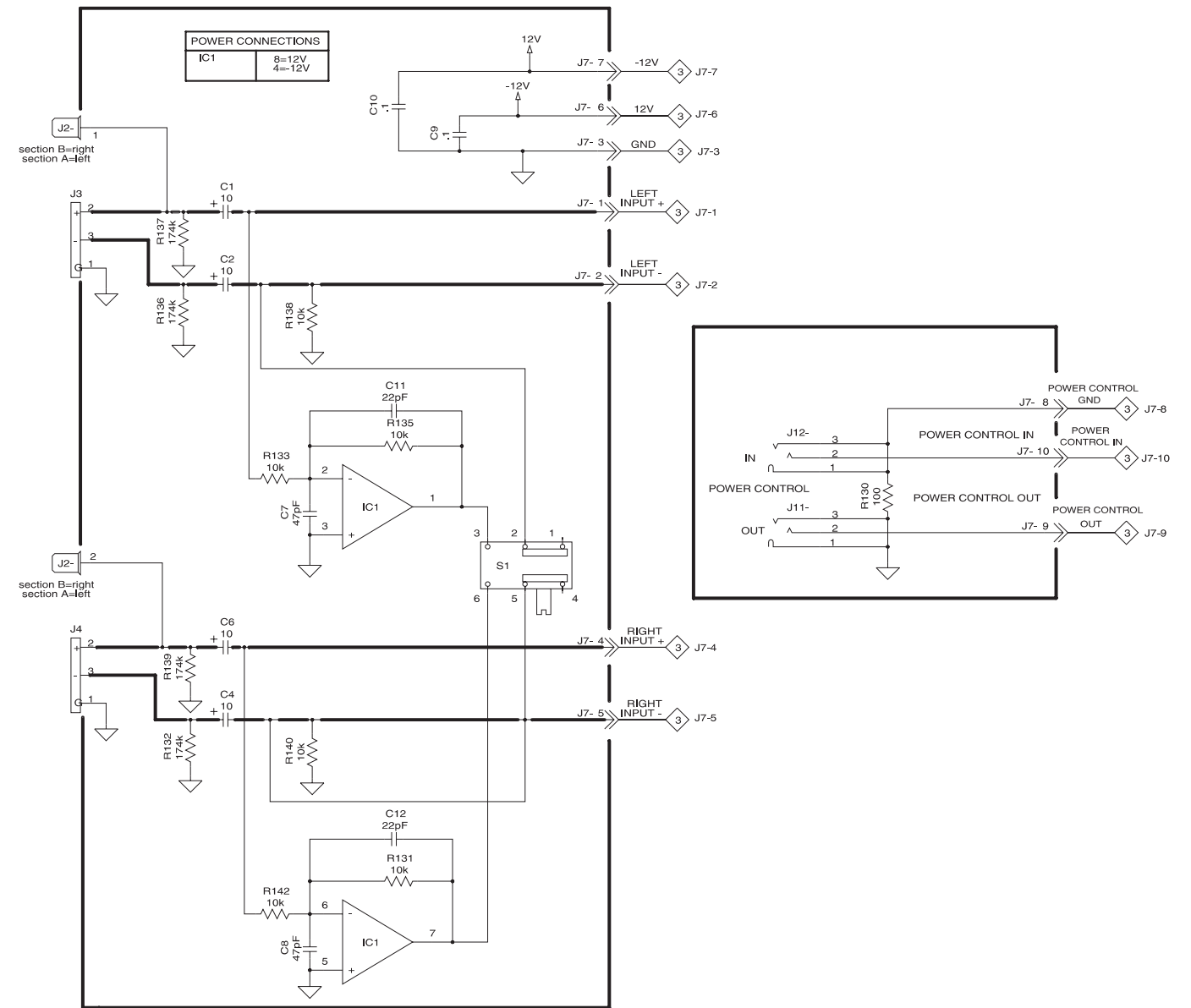




### 3 DRIVER 049369



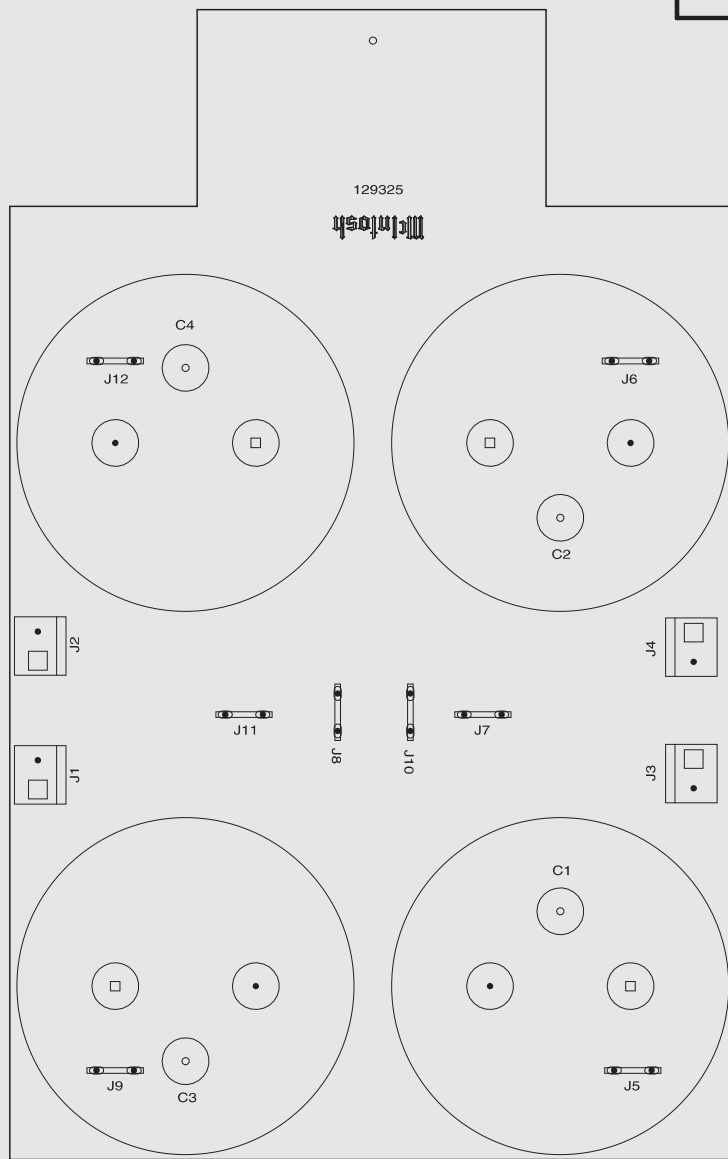
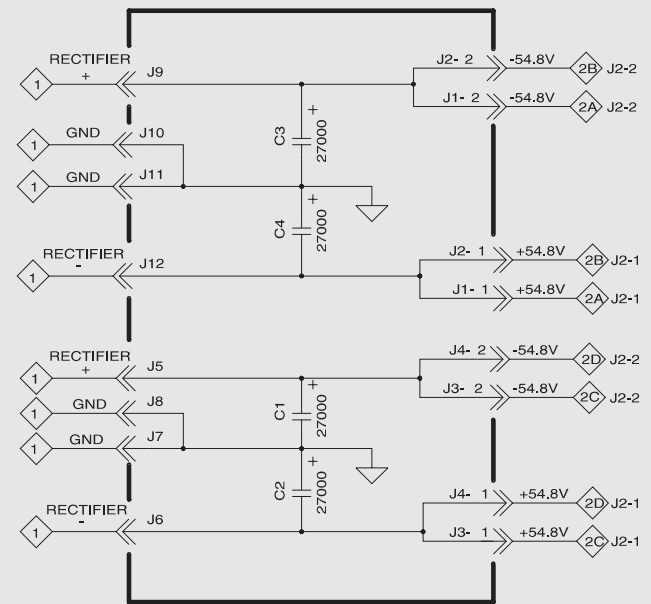
### 4 INPUT 049222



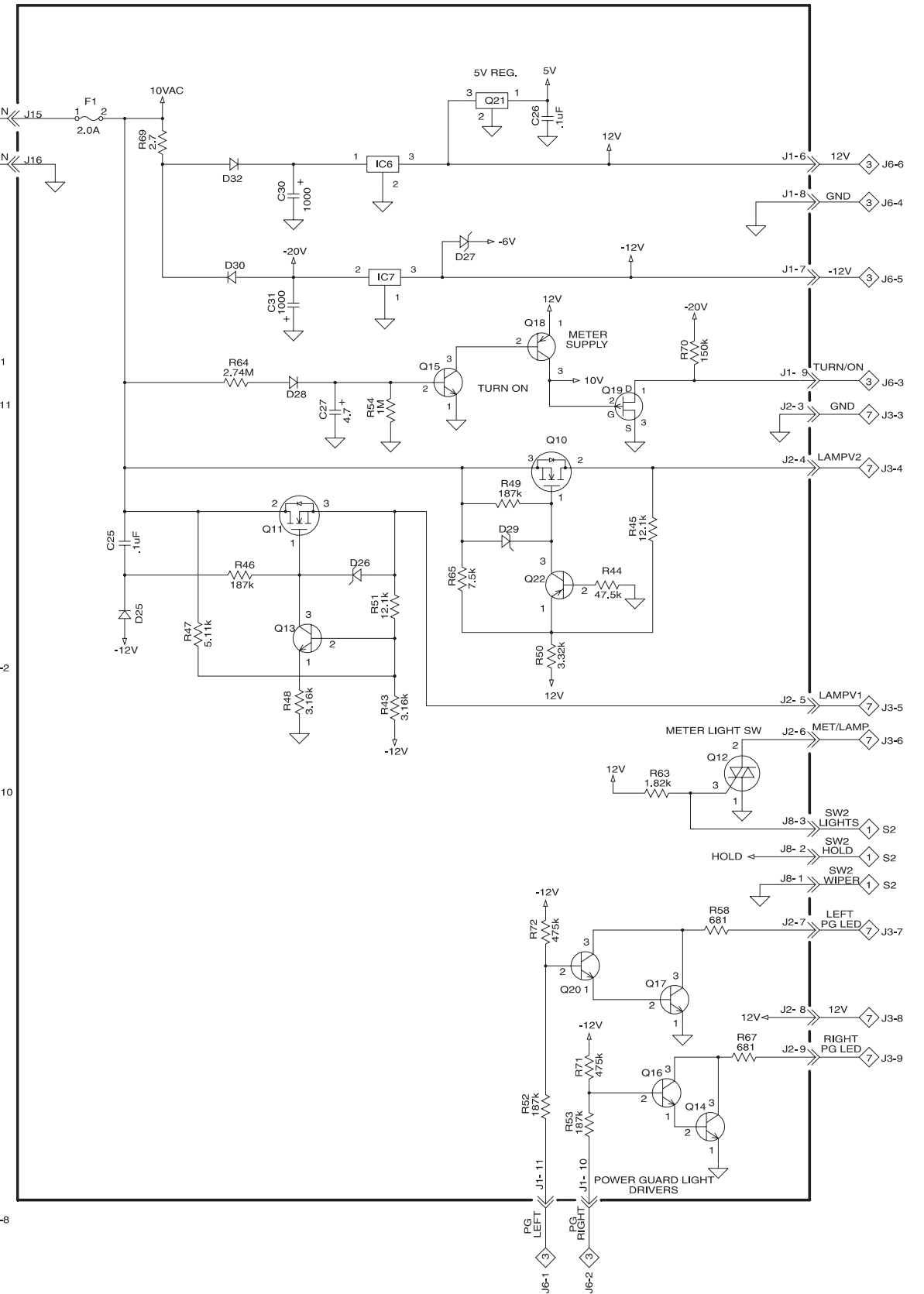
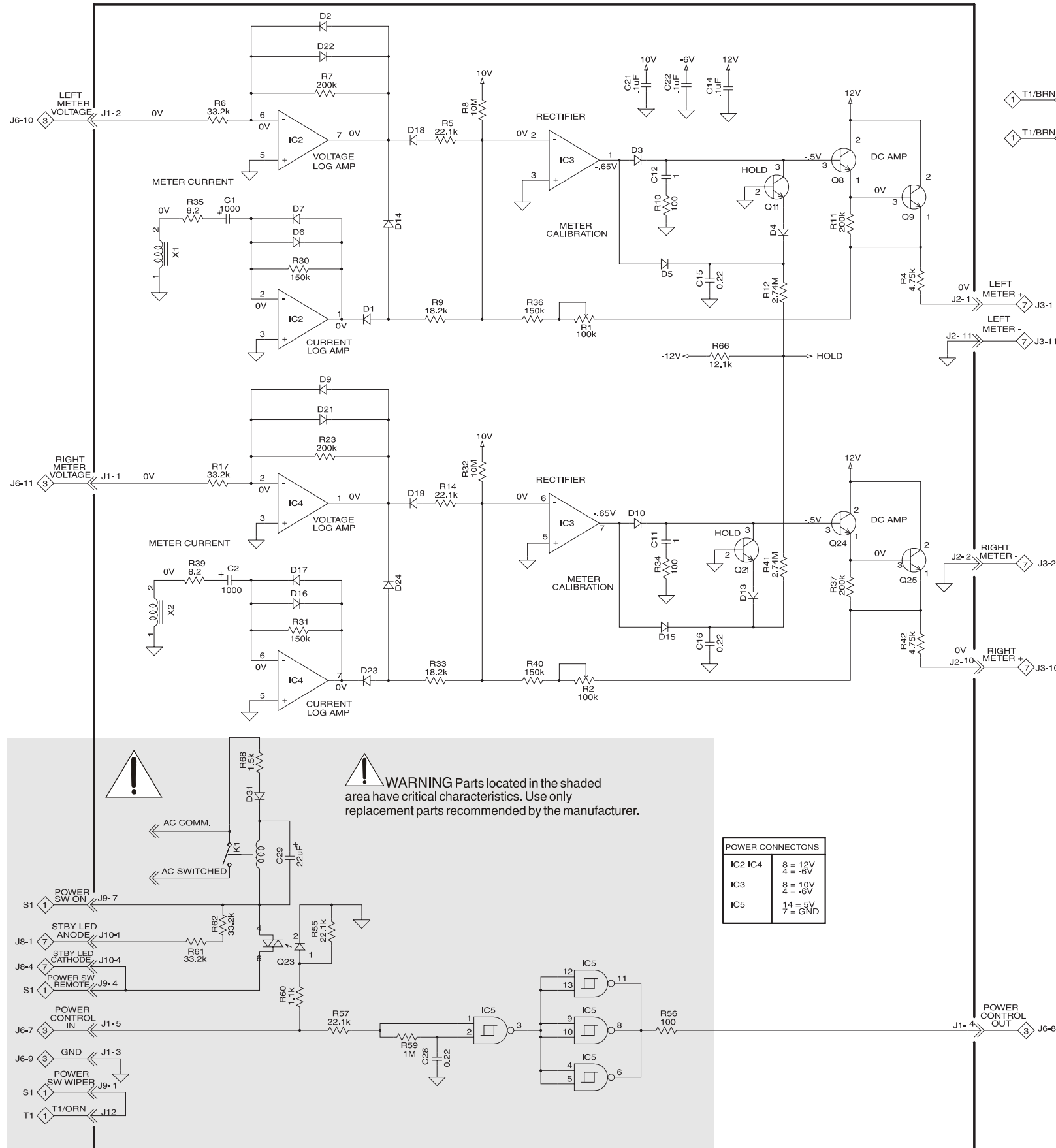
# 5 CAPACITOR 049367

# NOTES

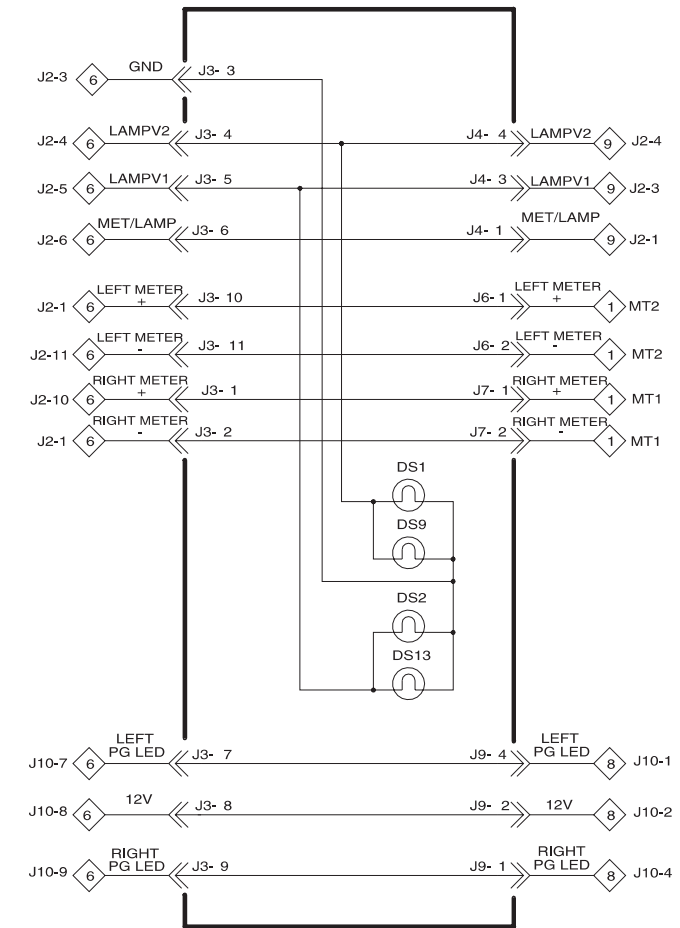
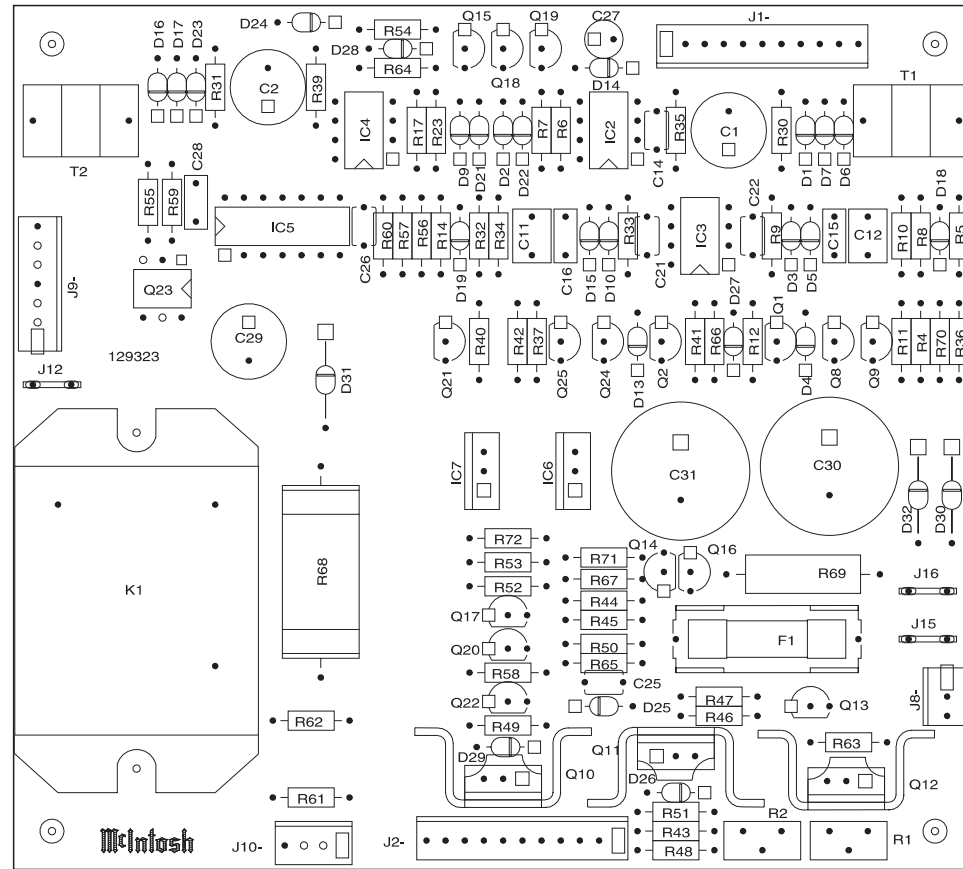
**!** WARNING Parts located in the shaded area have critical characteristics. Use only replacement parts recommended by the manufacturer.



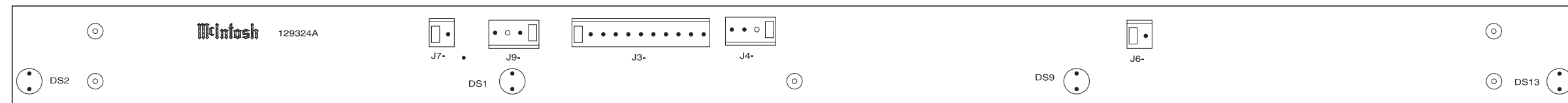
# 6 METER 049384



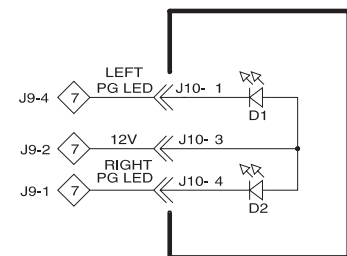
# 6 METER 049384



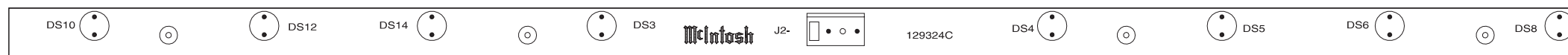
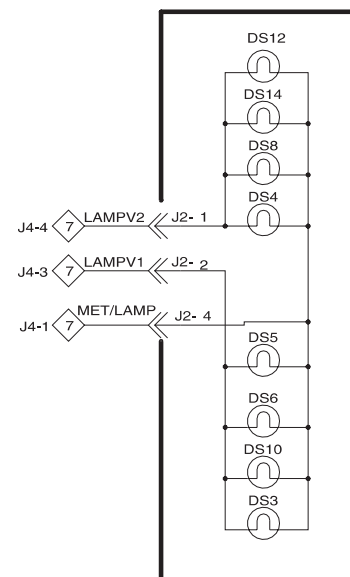
# 7 INDICATOR 049371



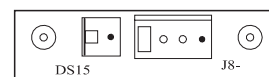
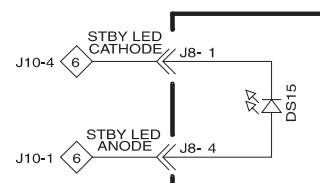
**8** PG LIGHT 049370



**9** METER LAMPS 049373



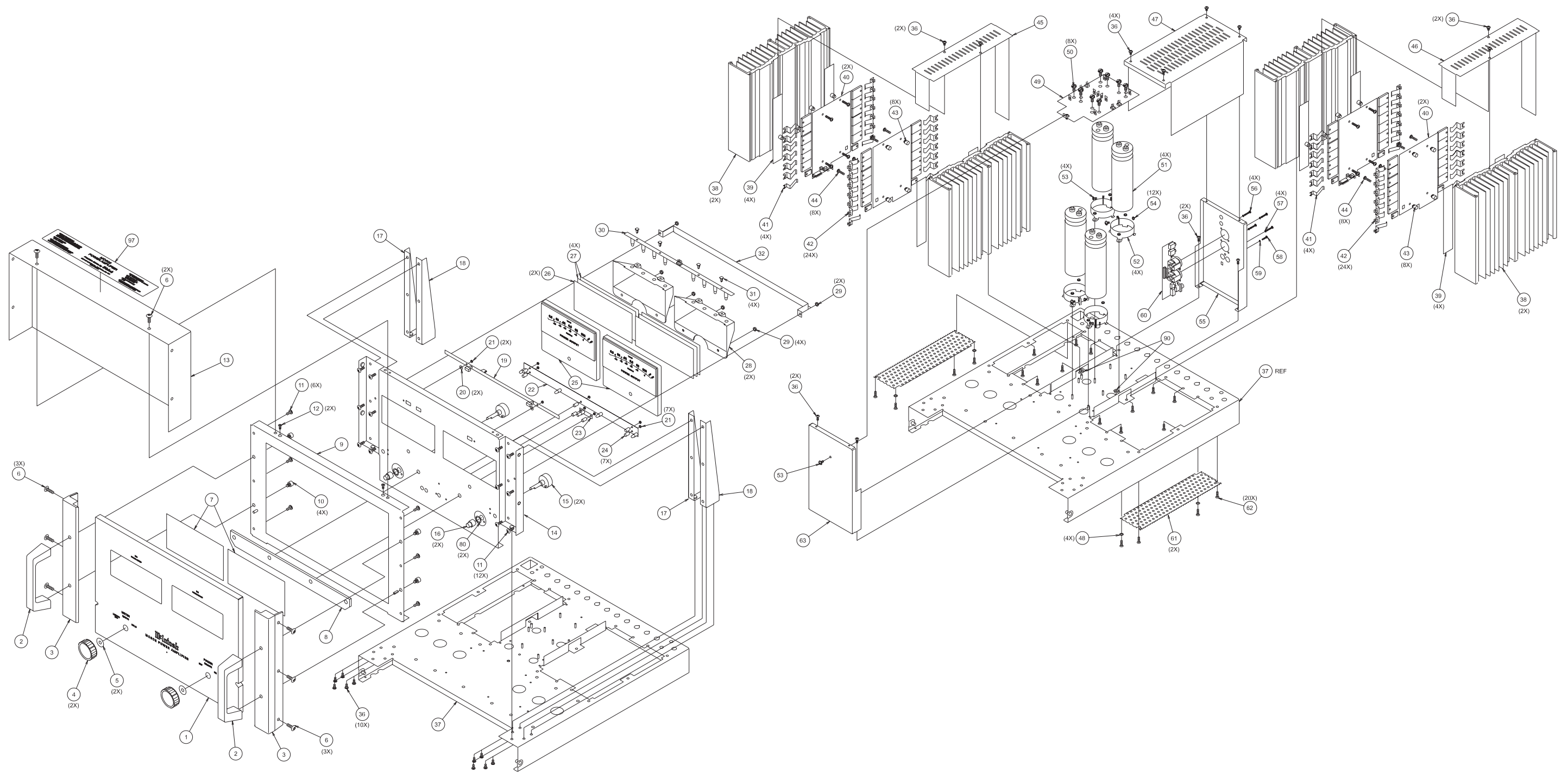
**10** STANDBY LIGHT 049395



# PARTS LIST

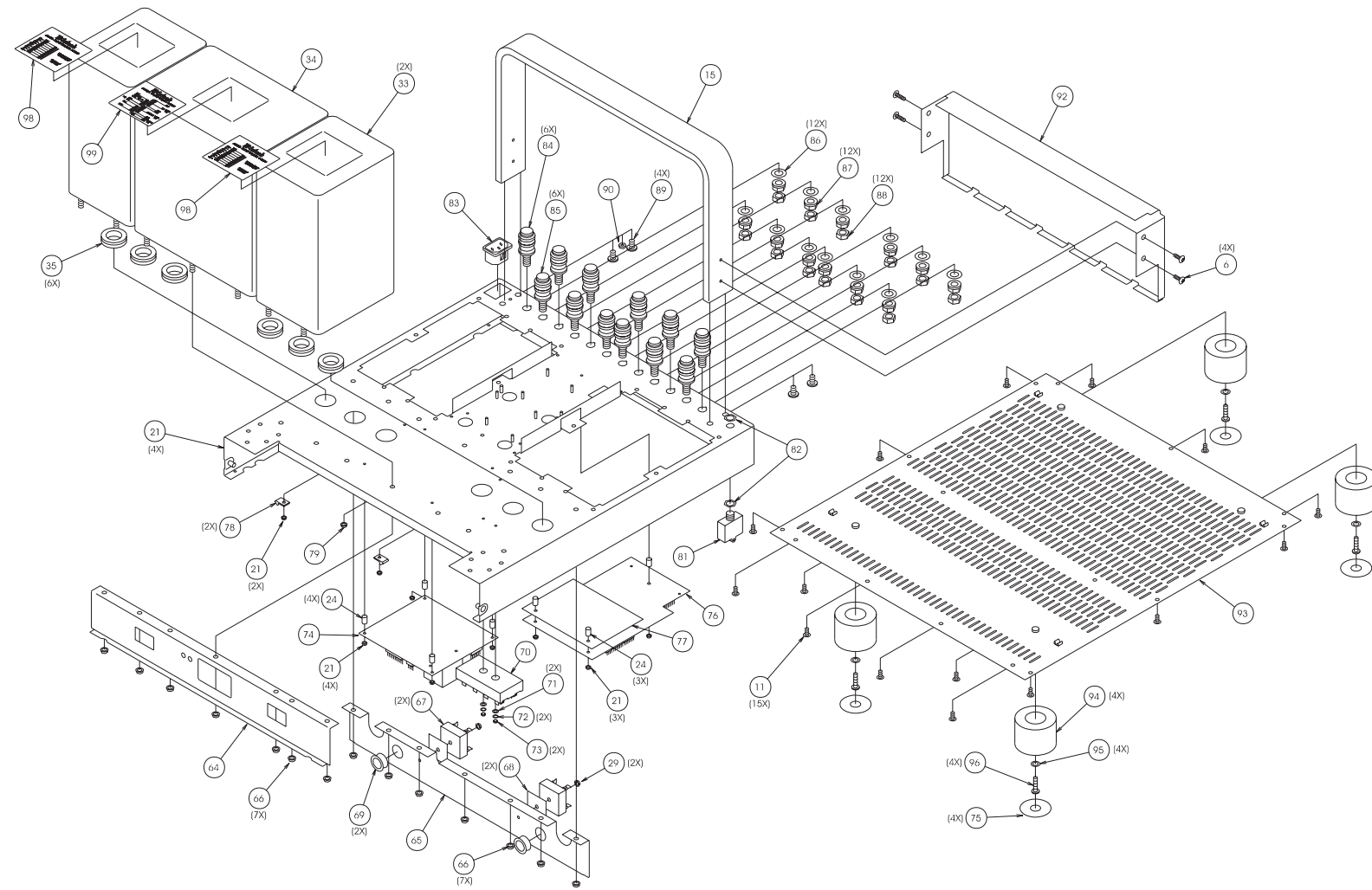
Part No.	Description	Reference No.			
<b>049368 HEATSINK</b>					
061300	MONO CAP 100PF 100V 5% NPO T&R	C7 C8	144028	RES MF 866 1% 1/4W	R2 R4 R30 R57 R64 R65 R83 R91
061304	MONO CAP .01UF 50V 5% X 7R T&R	C9 C16	144071	RES MF 365 1% 1/4W	R17 R18 R19 R20 R21 R22 R23 R29
061305	MONO CAP .1UF 50V 5% Z50 T&R	C3 C5			R42 R43 R44 R45 R46 R47 R48 R67
064363	CAP POLYPROP 0.15MF 10% 250VDC	C10	144090	RES MF 1K 1% 1/4W	R60 R86
066446	CAP ELECT 47MF 35V	C1 C2	144095	RES MF 3.32K 1% 1/4W	R53 R69 R72 R75 R92 R95 R97 R98
070047	SILICON DIODE 1N4148 T&R	D1 D2 D3 D4 D5	144097	RES MF 4.75K 1% 1/4W	R58 R84
070133	DIODE 200V,6A	D6 D7	144108	RES MF 47.5K 1% 1/4W	R61 R63 R87 R90
117213	2-PIN MALE CONNECTOR	J4-	144113	RES MF 100K 1% 1/4W	R76 R77 R78 R79
117217	MALE CONN 7 PIN	J1-	144128	RES MF 1.5K 1% 1/4W	R10 R12 R35 R37
117404	HEADER 2-PIN 0.156	J2-	144172	RES MF 221 1% 1/4W	R6 R24 R31 R49 R150 R151 R152
117708	FASTON BLADE W/FEET	J4			R153
117712	FASTON BLADE .110	J5	144179	LDR NETWORK VTL5C9	LDR1 LDR2
132171	TRANSISTOR NPN	Q1	144187	RES MF 22.1K 1% 1/4W	R7 R32 R101
132172	TRANSISTOR SI PNP MPSA55	Q2	144196	RES MF 100 1% 1/4W	R5 R62 R89 R100
132285	TRANSISTOR NPN 25C3334C	Q6	144265	RES MF 2.21M 1/4W	R9 R15 R34 R40
132286	TRANSISTOR PNP 2SA32IC	Q7	144298	RES MF 2.21K 1% 1/4W	R103 R105
134390	TRIM POT 200 OHM 20% HORIZ AD	R13	144338	RES MF 324 OHM 1% 1/4W	R16 R41 R66 R71 R73 R88 R93 R99
137093	MET OX 680 5% .5W	R2 R9	144352	RES MF 174K 1% 1/4W	R14 R39 R59 R85
137094	MET OX 1.8K 5% .5W	R6 R11	144364	RES MF 475K 1% 1/4W	R8 R33 R55 R81
137095	MET OX 430 5% .5W	R7	144398	METAL FILM RES 3.79K .5% 1/4W	R11 R25 R38 R50
137096	MET OX 47 5% .5W	R12	144401	RES MF 6.49K .5% 1/4W	R13 R26 R36 R51
139177	WIREWOUND RES 0.5 OHM 5W 5%	R31 R32 R33 R34 R35 R36 R37 R38 R40 R41 R42 R43	144443	METAL FILM RES 681K 1% 1/4W	R68 R70 R94 R96
144071	RES MF 365 1% 1/4W	R1 R8	<b>049222 INPUT</b>		
144187	RES MF 22.1K 1% 1/4W	R3 R10	061191	DISC CAP 22PF,10%,NPO .50V	C11 C12
144243	RES WW 0.1 5% 1W	R39	061196	DISC CAP 47PF,20%,N470 50V	C7 C8
144249	THERMAL SENSOR	RT1	061248	DISC CAP .1MF,25V,Y5T	C9 C10
144378	RES MF 2.21 OHM 1/4W 1%	R30	066445	ELECT CAP 10MF, 50V AMMO PACK	C1 C2 C4 C6
<b>049369 DRIVER</b>					
061002	DISC CAP 1.8PF+/- .25PF NPO	C42 C43	117219	MALE CONN 10 POS	J7-
061199	DISC CAP 100PF 10% N1500 50V	C2 C3 C4 C5 C6 C7 C8 C9	117436	PJ261G PHON JACK, GOLD	J2-
061248	DISC CAP .1MF,25V,Y5T	C1 C10	117494	MINI JACK	J11- J12-
061256	M.CAP 470PF,5%,100V	C26 C27 C28 C29	117685	XLR RECEPTACLE FEMALE	J3 J4
064308	CAP MPOLY .0047UF 5% 63-250VDC	C34 C35 C36 C37	133260	DUAL OPERATIONAL AMPLIFIER	IC1
064316	CAP M POLY .022UF 5% 63VDC	C38 C39	141025	RES CF 100 5% 1/4W	R130
064363	CAP POLYPROP 0.15MF 10% 250VDC	C30 C31 C32 C33	144053	RES MF 10K 1% 1/4W	R131 R133 R135 R138 R140 R142
064364	CAP POLYPROP .047MF 10% 250V	C22 C23 C24 C25	144352	RES MF 174K 1% 1/4W	R132 R136 R137 R139
066244	CAP ELECT 0.47UF 50V 20%	C20 C21	148059	SLIDE SWITCH	S1
066327	CAP ELECT 470UF 10V	C40 C41	<b>049367 CAPACITOR</b>		
066446	CAP ELECT 47MF 35V	C15 C18	117404	HEADER 2-PIN 0.156	J1 J2 J3 J4
066462	CAP ELECT 10UF 100VDC	C11 C12 C13 C14 C16 C17 C19	117708	FASTON BLADE W/FEET	J5 J6 J7 J8 J9 J10 J11 J12
117215	4-PIN CONNECTOR	J8 J9	<b>049384 METER</b>		
117217	MALE CONN 7 PIN	J1- J2- J3- J4-	061305	MONO CAP .1UF 50V 5% Z50 T&R	C14 C21 C22 C25 C26
117219	MALE CONN 10 POS	J7-	064329	CAP M POLY .22UF 5% 63VDC	C15 C16 C28
117279	11-POS. MALE CONN.	J6-	064337	CAP M POLY 1MF 5% 63VDC	C11 C12
132222	N. CHANNEL FET	Q2 Q3 Q5 Q6 Q7 Q8 Q10 Q11	066289	CAP ELECT 4.7UF 10% 35V	C27
132223	TRANSISTOR NPN MPS4124 2K/REEL	Q12 Q13 Q17 Q19 Q24 Q25 Q29 Q31 Q36 Q67 Q70 Q78 Q80	066309	CAP ELECT 1000UF 10V	C1 C2
132224	TRANSISTOR PNP	Q1 Q16 Q20 Q22 Q23 Q28 Q32 Q34 Q35 Q37 Q38 Q39 Q59 Q66	066361	CAP ELECT 1000UF 20% 35V	C30 C31
132254	TRANSISTOR NPN	Q14 Q18 Q26 Q30 Q60 Q63 Q64 Q71 Q74 Q75 Q76 Q77	066506	CAP ELECT 22UF 100V	C29
132255	TRANSISTOR PNP	Q15 Q21 Q27 Q33 Q61 Q62 Q65 Q68 Q69 Q72 Q73 Q79	070047	SILICON DIODE 1N4148 T&R	D1 D2 D3 D4 D5 D6 D7 D9 D10 D13 D14 D15 D16 D17 D18 D19 D21 D22 D23 D24 D25 D28 D27
132285	TRANSISTOR NPN 25C3334C	Q55 Q56 Q57 Q58	070085	ZENER DIODE 6.2V 5% 500MW	D26 D29
132286	TRANSISTOR PNP 2SA32IC	Q40 Q41 Q42 Q43	070114	ZENER DIODE 16V 5% 500MW	D30 D31 D32
133260	DUAL OPERATIONAL AMPLIFIER	IC1	070131	DIODE RECTIFIER	D30 D31 D32
137042	FLAMEPROOF RES 47 OHM 5% 1/4W	R3 R27 R74 R80	080014	HEATSINK T0220	ATTACH TO Q10 Q11 Q12
139005	WIRE RES 2 OHMS 10% 5W	R110 R112 R114 R116	087049	RELAY 48VDC VFB48HU ITT TAKAMI	K1
139119	WIRE RES 4 OHMS 5% 5W	R109 R111 R113 R115	089089	FUSE 2A SLO-BLO 5X20	F1
144015	RES MF 33.2K 1% 1/4W	R104 R106 R107 R108	117214	MALE CONN 3-POS MTS100 NORMAL	J8-
			117215	4-PIN CONNECTOR	J10-
			117217	MALE CONN 7 PIN	J9-
					117279
					117708
					131021
					131022
					132223
					132224
					132226
					132242
					132254
					133093
					133155
					133156
					133189
					133192
					133260
					134383
					139079
					139218
					141023
					144015
					144083
					144091
					144095
					144097
					144108
					144117
					144154
					144181
					144187
					144195
					144196
					144199
					144210
					144264
					144269
					144271
					144296
					144364
					144406
					144419
					159215
					178159
					11-POS. MALE CONN
					FASTON BLADE W/FEET
					TRIAC 8A 200V
					600V TRIAC DRIVER OPTOCOUPLER
					TRANSISTOR NPN MPS4124 2K/REEL
					TRANSISTOR PNP
					TRANSISTOR P.CHANNEL JUNC.FET
					TRANSISTOR POWER N-CHN
					TRANSISTOR NPN
					IC REGULATOR +5 VOLT
					IC REGULATOR -12V
					IC REGULATOR 12V
					IC OPERATIONAL AMPLIFIER
					IC NAND SCHMIT 2-IN X 4
					DUAL OPERATIONAL AMPLIFIER
					TRIM POT 100K OHM 20%
					WIRE RES 1.5K 10% 5W
					2.7 OHM 2W 5% WW RESISTOR FP
					RES CF 8.2 5% 1/4W
					RES MF 33.2K 1% 1/4W
					RES MF 5.11K 1% 1/4W
					RES MF 1.1K 1% 1/4W
					RES MF 3.32K 1% 1/4W
					RES MF 4.75K 1% 1/4W
					RES MF 47.5K 1% 1/4W
					RES MF 200K 1% 1/4W
					RES MF 12.1K 1% 1/4W
					RES MF 18.2K 1% 1/4W
					RES MF 22.1K 1% 1/4W
					RES MF 681 1% 1/4W
					RES MF 100 1% 1/4W
					RES MF 3.16K 1% 1/4W
					RES MF 7.5K 1% 1/4W
					RES MF 10M 1% 1/4W
					RES MF 1M 1/4W
					RES MF 2.74M 1/4W
					RES MF 1.82K 1% 1/4W
					RES MF 475K 1% 1/4W
					METAL FILM RES 187K 1% 1/4W
					MF RES 150K 1% 1/4W
					CURRENT TRANSFORMER
					FUSE HOLDER 5X20MM PCB MOUNT
					J1- J2-
					J12 J15 J16
					Q12
					Q23
					Q1 Q2 Q13 Q14 Q15 Q16 Q17 Q20
					Q18 Q22
					Q19
					Q10 Q11
					Q8 Q9 Q24 Q25
					Q21
					IC7
					IC6
					IC2 IC4
					IC5
					IC3
					R1 R2
					R68
					R69
					R35 R39
					R6 R17 (R61 & R62 ARE FOR CONVERSION)
					R47
					R60
					R50
					R4 R42
					R44
					R7 R11 R23 R37
					R45 R51 R66
					R9 R33
					R5 R14 R55 R57
					R58 R67
					R10 R34 R56
					R43 R48
					R65
					R8 R32
					R54 R59
					R12 R41 R64
					R63
					R71 R72
					R46 R49 R52 R53
					R30 R31 R36 R40 R70
					T1 T2
					F1
					<b>049371 INDICATOR</b>
					058120 LAMP 14V #7373
					117213 2-PIN MALE CONNECTOR
					117215 4-PIN CONNECTOR
					117279 11-POS. MALE CONN.
					<b>049370 PG LIGHT</b>
					058133 AMBER LED
					117215 4-PIN CONNECTOR
					<b>049373 METER LAMPS</b>
					058120 LAMP 14V #7373
					117215 4-PIN CONNECTOR
					<b>049395 STANDBY LIGHT</b>
					058148 RED LED HIGH EFFICIENCY
					117215 4-PIN CONNECTOR

EXPLODED VIEW 1 OF 2





# EXPLODED VIEW 2 OF 2 AND PARTS LIST



Ref No.	Part No.	Description
1	016416	FRONT GLASS FAB
2	018631	HANDLE FRONT
3	018633	PANEL SIDE
4	049321	KNOB ASSEMBLY MC352
5	104017	BLK FELT WASH: 3/4 X 1/4 X 1/16
6	100200	MS 10-32 X 1/2 PH TRUSS BLK
7	092418	DISPLAY FILTER BLUE
8	017798	DISPLAY PLEXIGLAS
9	005049	PANEL PLATE
10	101142	SOCKET HEAD CAP SCREW ALLEN
11	101078	TS 8-32 X 5/16 PHIL PAN BLK
12	101172	TS 6-32 X 1/4 PHIL FLAT U/C
13	005052	DUST COVER
14	005044	SUBPANEL
15	146243	POWER SWITCH
16	021159	BUSHING SWITCH
17	005054	GUSSET BRACKET LEFT
18	005060	RIGHT GUSSET BRACKET
19	049373	LAMP PCB ASSY
20	104137	FIBRE WSHR .125ID X .312OD X.062
21	102001	KEP NUT 4-40 CADMIUM PLATE
22	049371	LIGHT PCB ASSY
23	049395	STANDBY LIGHT PCB ASSY
24	112038	STL SPACER 4 X 3/8L NICKEL PLT
25	124073	PANEL METER MC552
26	092400	BLUE FILTER AZURE
27	092401	BLUE FILTER PALE
28	017749	METER LIGHT BOX
29	102003	MACH NUT 6-32 W/LOCK
30	049384	METER PCB
31	114072	PLASTIC RIVET: NYLON (POP-IN)
32	005059	METER SUPPORT BRACKET
33	049365	OUTPUT TRANSFORMER POT
34	049366	POWER TRANSFORMER POT
35	078025	RUBBER GROMMET 3/4
36	101054	TS 6-32 X 1/4 PH PAN TAPTITE BLK
37	005048	STAINLESS CHASSIS W/PEMS
38	018627	HEATSINK COMPLETE
39	084180	ISOSTRATE
40	049368	HEATSINK PCB ASSY
41	114118	TRANSISTOR CLIP 218
42	114119	TRANSISTOR CLIP 214
43	112087	PCB SPACER 1/4"
44	101059	SM 6 X 5/8 PHIL PAN TYPE A
45	005058	HEATSINK COVER LEFT
46	005055	HEATSINK COVER RIGHT
47	005050	CAPACITOR COVER
48	104007	LK WASHER 6 X .288 INT STAR
49	049367	CAP PCB ASSY
50	100188	SEMS MS 10-32 X 3/8 INDENTED
51	066489	27000uf 100V ELECTROLYTIC
52	005061	CAPACITOR CLAMP
53	100250	SEMS MS 6-32 X 1/4 PHIL PAN
54	102045	KEP NUT 6-32 SPECIAL
55	005042	REAR PANEL
56	101197	HI/LO 4-24 X 3/8 PH ROUND BLK
57	104142	LOCKWASHER 2.5mm INT STAR ZINC
58	101114	SM 4-24 X 1/2 PHIL PAN TYPE A
59	104095	LK WASH: #4 INT STAR
60	049222	INPUT PCB ASSY
61	004954	HEATSINK VENT COMPLETE
62	101176	TCS 6-32 X 1/2 PH PAN BLK TYPE F
63	005043	SUBREAR PANEL
64	005057	FRONT SUPPORT BRACKET
65	005041	CHASSIS SUPPORT BRACKET
66	102006	MACH NUT: 10-32 W/LOCK
67	070139	RECTIFIER BRIDGE MC1000
68	084135	THERMAL PAD MC7150
69	078034	GROMMET
70	074091	AC TERMINAL BLOCK
71	104001	FLAT STEEL WASH #4 X 9/32 X .025
72	104004	LK WASH 5 X .255 INT STAR
73	102022	MN 4-40 X 3/16
74	049370	PG PCB ASSY
75	024010	FOOT PAD
76	049369	DRIVER PCB ASSY
77	017770	PCB SHEILD
78	017160	MOUNTING TAB W/.140 DIA MTG
79	102005	MACH NUT: 8-32 W/LOCK
80	104014	LK WASHER 3/8 X .507 INT STAR
81	088022	CIRCUIT BREAKER 20AMP 250VAC
82	102032	HEX NUT 3/8-32 X 1/16 THK-HEX
83	117487	MC1000 AC LINE RECEPT
84	117740	BINDING POST RED
85	117741	BINDING POST BLACK
86	104162	LOCKWASHER INTERNAL TOOTH
87	102052	NUT GOLD SUPPLIED W/117758
88	102051	HEX NUT M9 X .75 GOLD PLATED
89	100102	1/4 - 20 X 3/8 PAN PH BLK ZINC
90	102020	MCH NUT: 6-32 SLF-LOCK
91	018632	HANDLE BACK
92	017797	TERMINAL BLOCK COVER
93	005045	BOTTOM COVER
94	018445	FOOT MC1000
95	104080	FLAT WASHER #10 CLEAR ZINC
96	100159	MS 10-32 X 3/4 PH PAN BLK ZINC
97	126666	TOP COVER DECAL
98	126592	OUTPUT TRANSFORMER DECAL
99	126593	POWER TRANSFORMER DECAL



# REPACKING INSTRUCTIONS

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

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

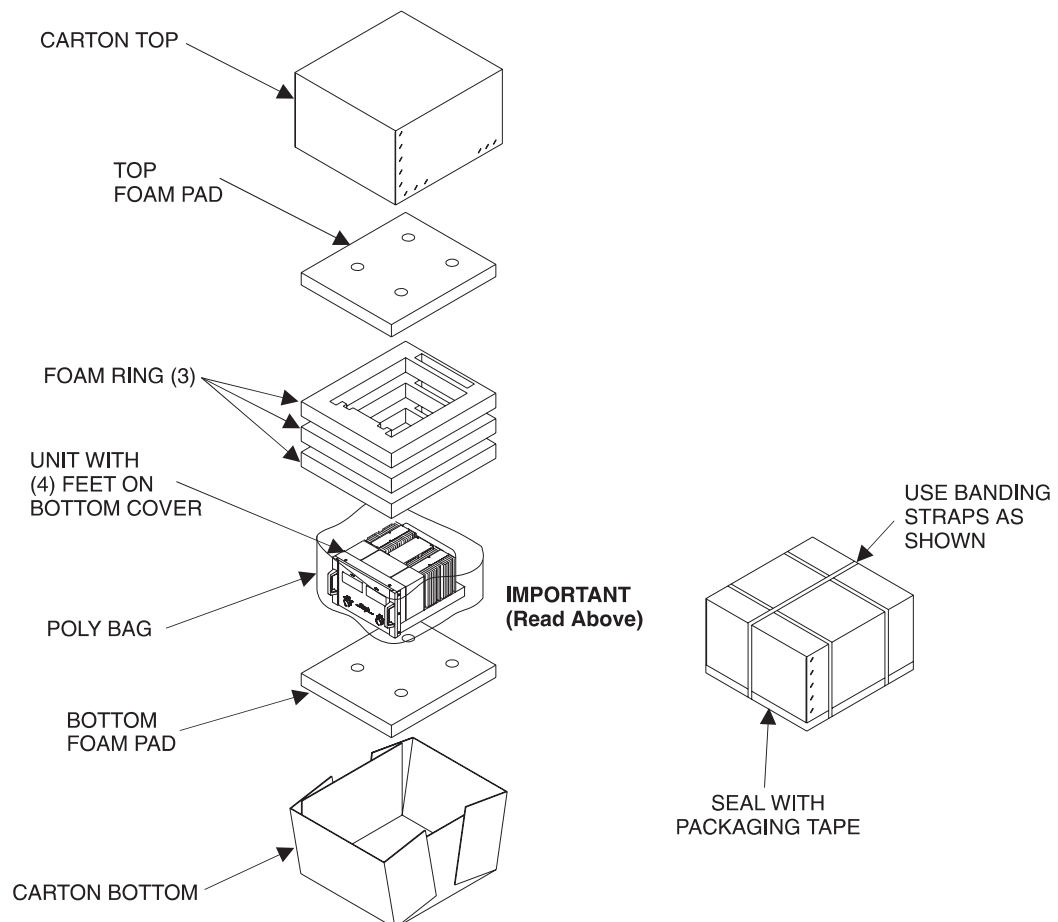
**Tape top and bottom cartons together along four edges with 3 inch packaging tape.**

**Use banding straps to make sure box is held together securely.**

If a shipping carton or any of the interior parts are 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	033739	Poly bag
1	034104	Carton bottom
1	034105	Carton top
3	034106	Foam ring
2	034107	Top/bottom foam pad



# MC602

## 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.