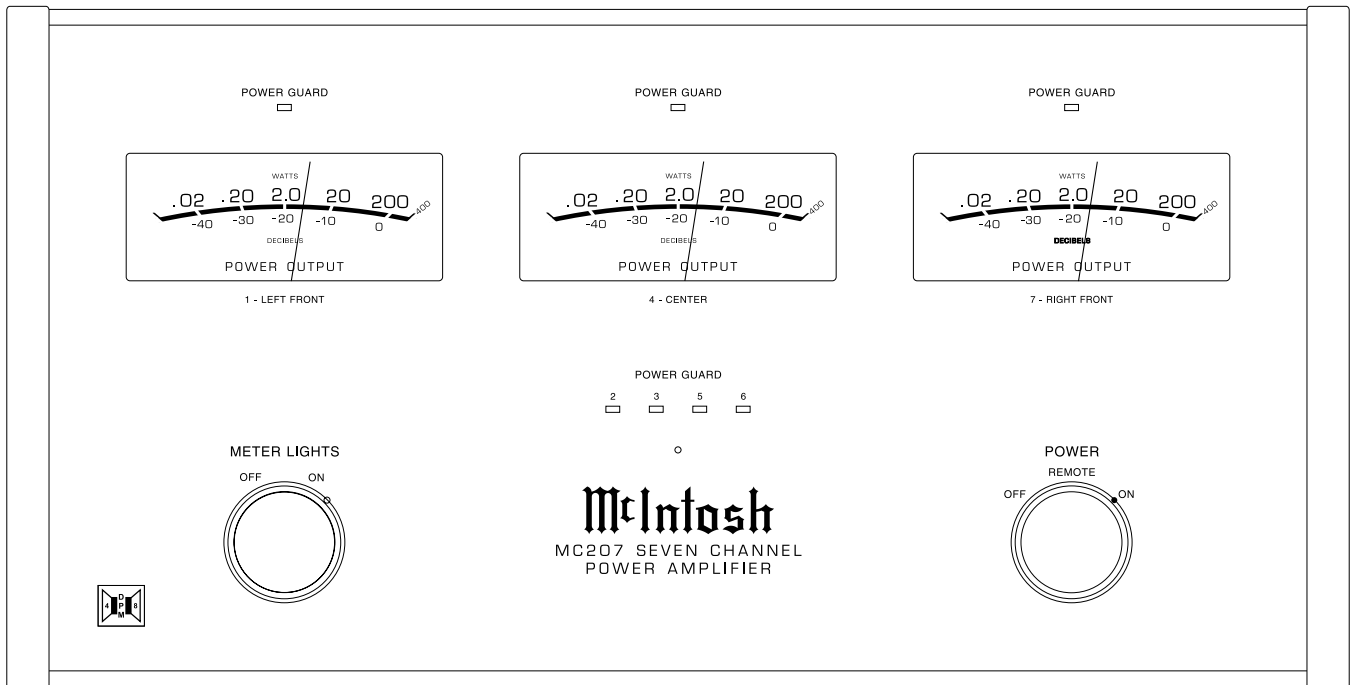




# MC207

## POWER AMPLIFIER



### CONTENTS

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# SERVICE MANUAL

# PERFORMANCE SPECIFICATIONS

## Power Output

Minimum sine wave continuous average power output per channel, all channels operating is: 200 watts into 4 ohm or 8 ohm load

## Rated Power Band

20Hz to 20,000Hz

## Total Harmonic Distortion

Maximum Total Harmonic Distortion at any power level from 250 milliwatts to rated power output is: 0.005% for 4 or 8 ohm loads

## Dynamic Headroom

1.7dB

## Frequency Response

+0, -0.25dB from 20Hz to 20,000Hz  
+0, -3dB from 10Hz to 100,000Hz

## Sensitivity

1.0 Volt Unbalanced with a 4 ohm Loudspeaker  
2.0 Volt Balanced with a 4 ohm Loudspeaker  
1.4 Volt Unbalanced with a 8 ohm Loudspeaker  
2.8 Volt Balanced with a 8 ohm Loudspeaker

## A-Weighted Signal To Noise Ratio

89dB (112dB below rated output)

## Intermodulation Distortion

Maximum Intermodulation Distortion if instantaneous peak output per channel does not exceed twice the rated output, for any combination of frequencies from 20Hz to 20,000Hz, with all channels operating is: 0.005% for 4 or 8 ohm loads

## Input Impedance

20,000 ohms Balanced  
10,000 ohms Unbalanced

## Wide Band Damping Factor

Greater than 60 at 4 ohms  
Greater than 140 at 8 ohms

## Power Requirements

100 Volts, 50/60Hz at 1440 watts  
110 Volts, 50/60Hz at 13.0 amps  
120 Volts, 50/60Hz at 12.0 amps  
220 Volts, 50/60Hz at 6.0 amps  
230 Volts, 50/60Hz at 6.0 amps  
240 Volts, 50/60Hz at 6.0 amps

*Note: Refer to the rear panel of the MC207 for the correct voltage.*


## Dimensions

Front Panel: 17-1/2 inches (44.45cm) wide, 9-7/16 inches (23.97cm) high. Depth behind front mounting panel is 18-3/4 inches (47.63cm), including clearance for connectors.

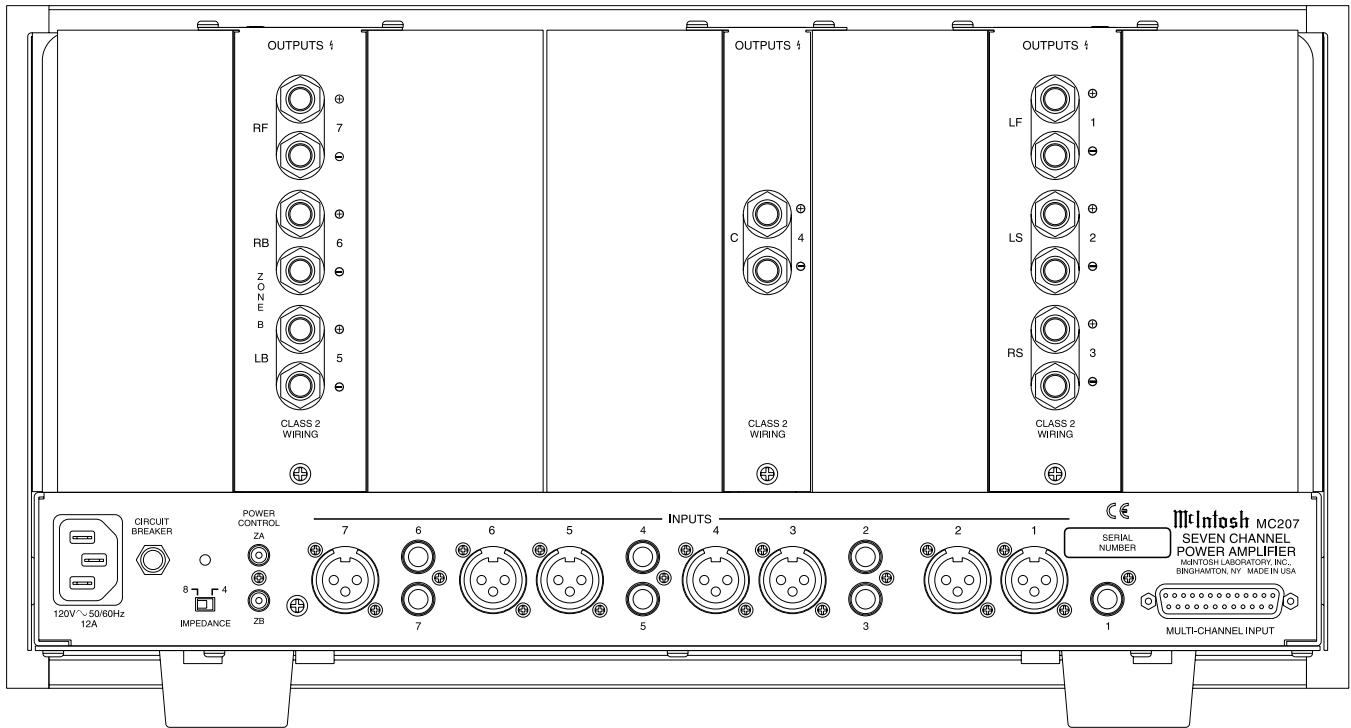
## Weight

83 pounds (37.6kg) net, 116 pounds (52.6kg) in shipping carton

# NOTES

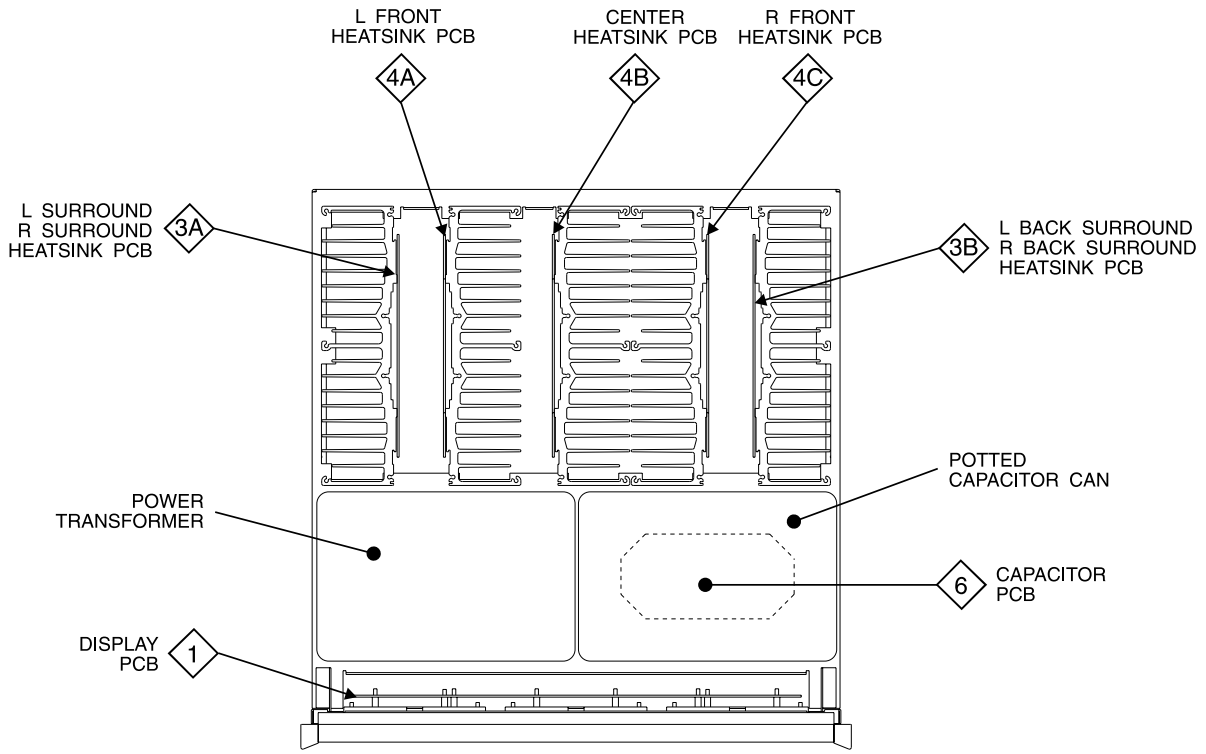
1. The heavy lines on the schematic denote the primary signal path.
2. Unless otherwise noted, all voltages indicated on the schematics are measured under the following conditions:
  - a. AC input at 120 volts, 50/60Hz.
  - b. All voltages are +/-10% with respect to ground. A high impedance (10 megaohm) 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

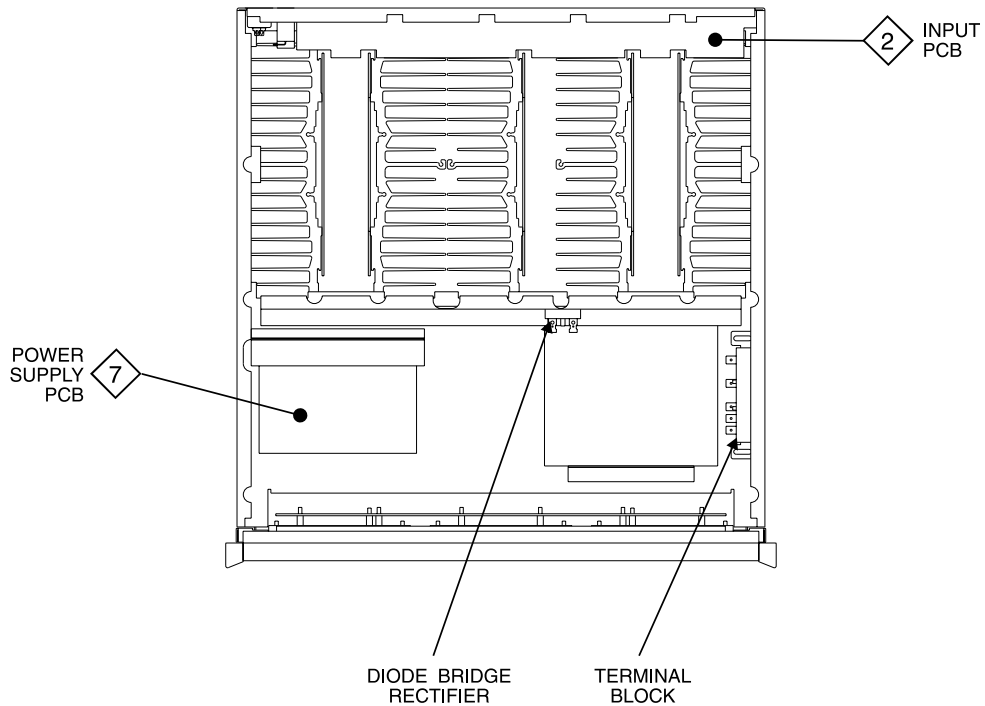


# *NOTES*

# SECTION LOCATIONS



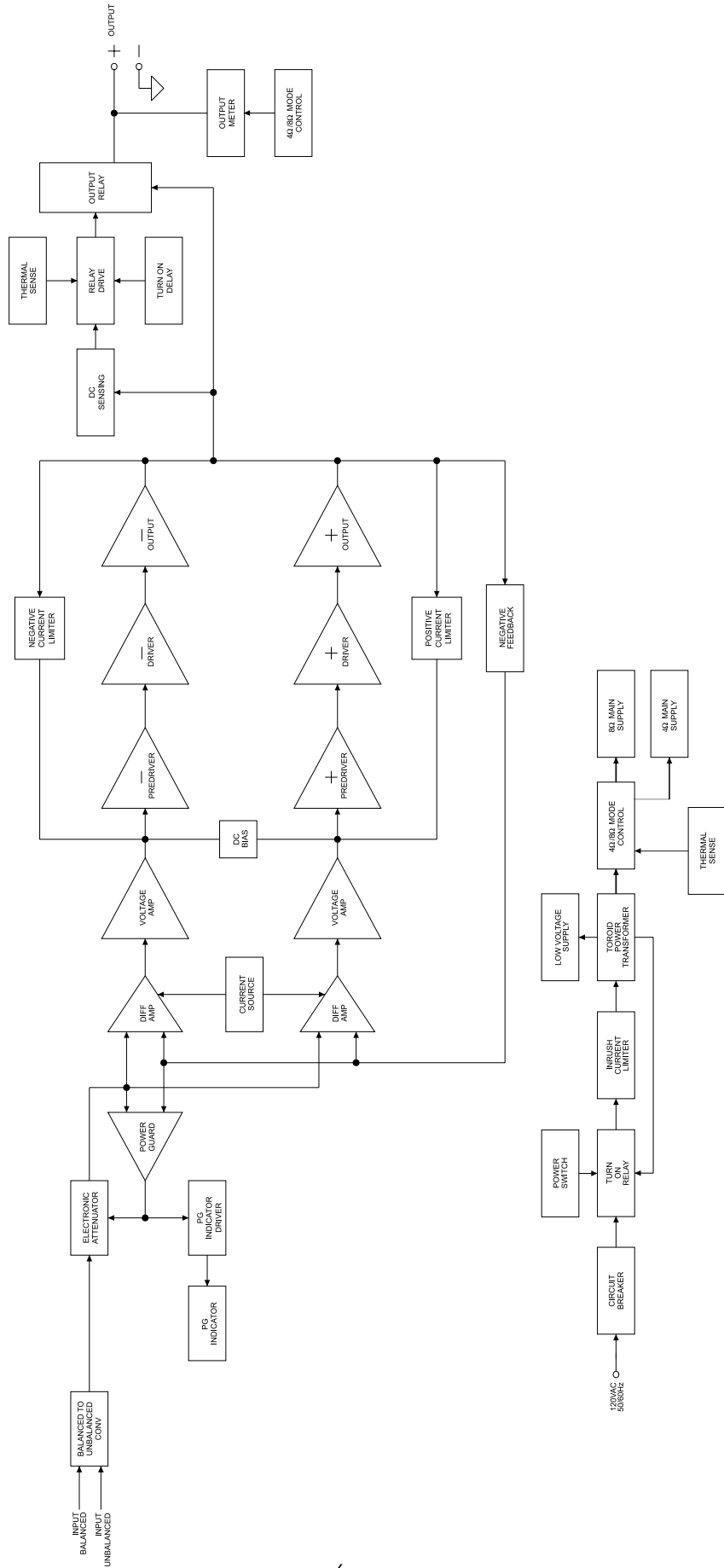
TOP VIEW



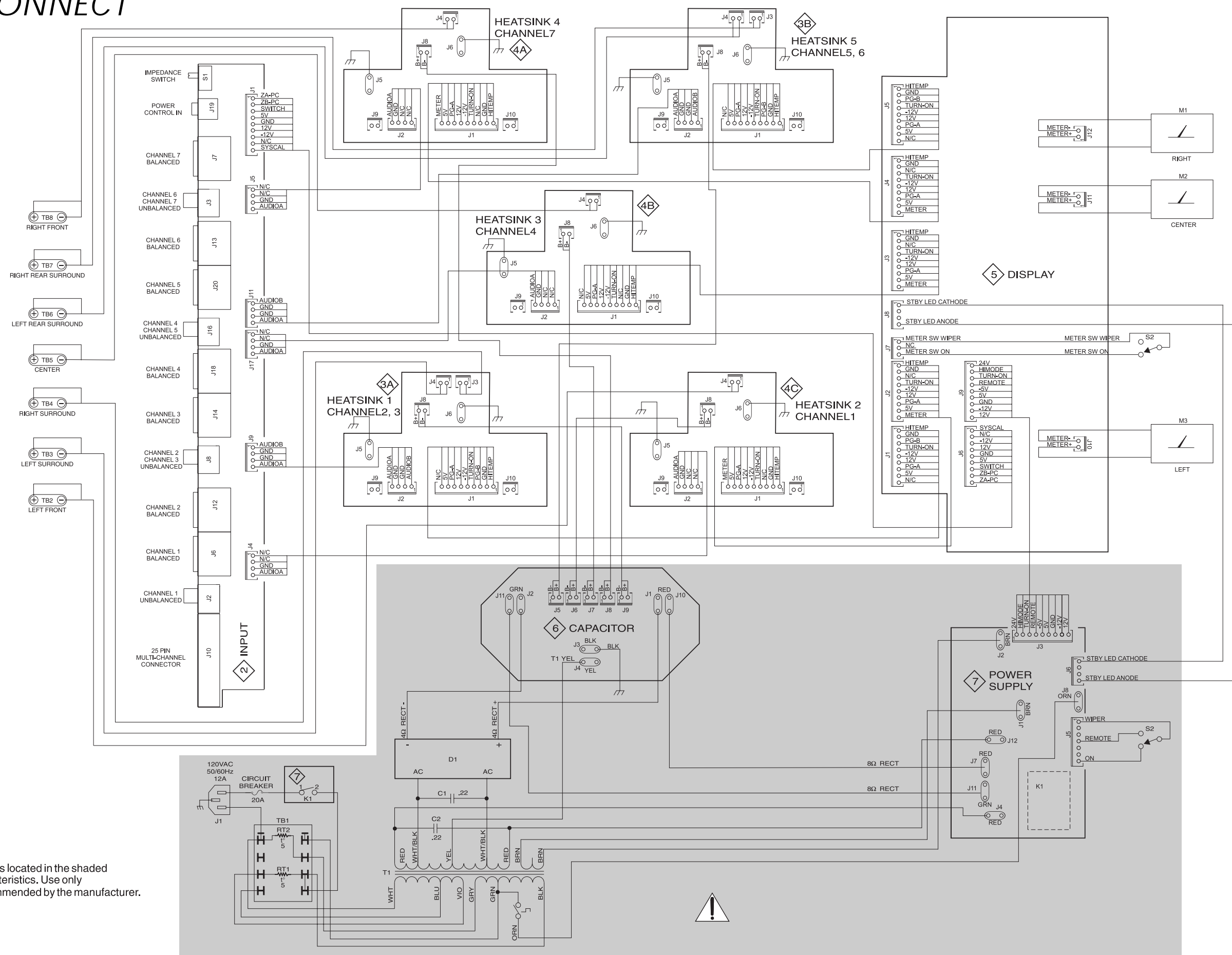
TOP VIEW WITH COVER REMOVED

# BLOCK DIAGRAM

One Channel Shown



# 1 INTERCONNECT

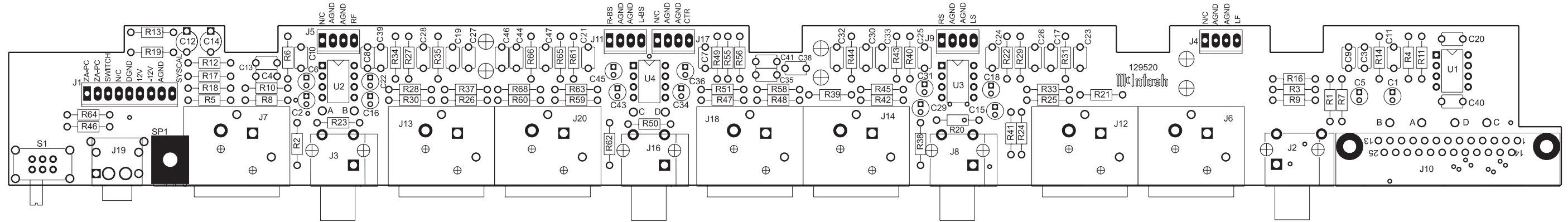


**! WARNING** Parts located in the shaded area have critical characteristics. Use only replacement parts recommended by the manufacturer.



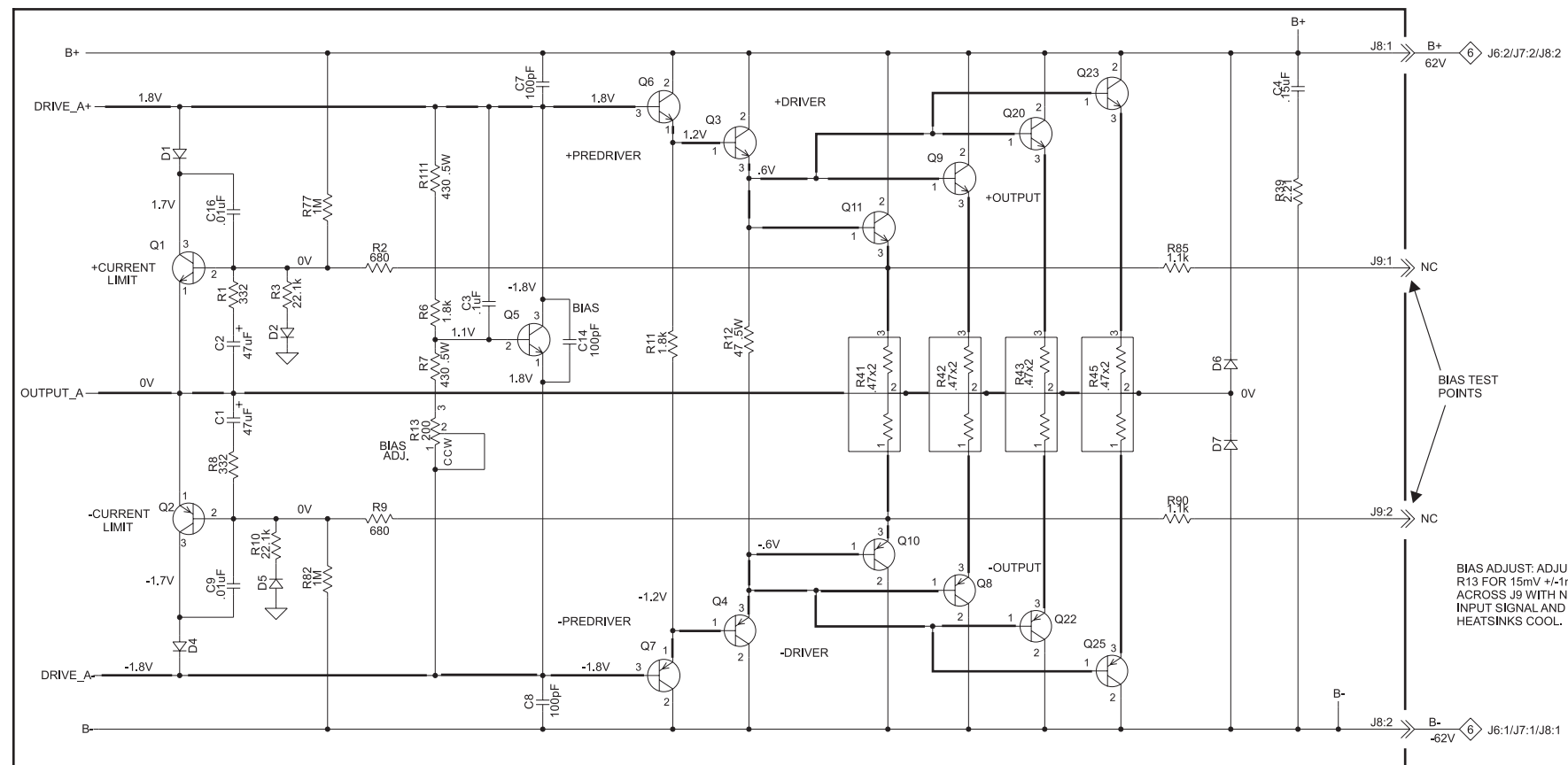


2 INPUT 050065



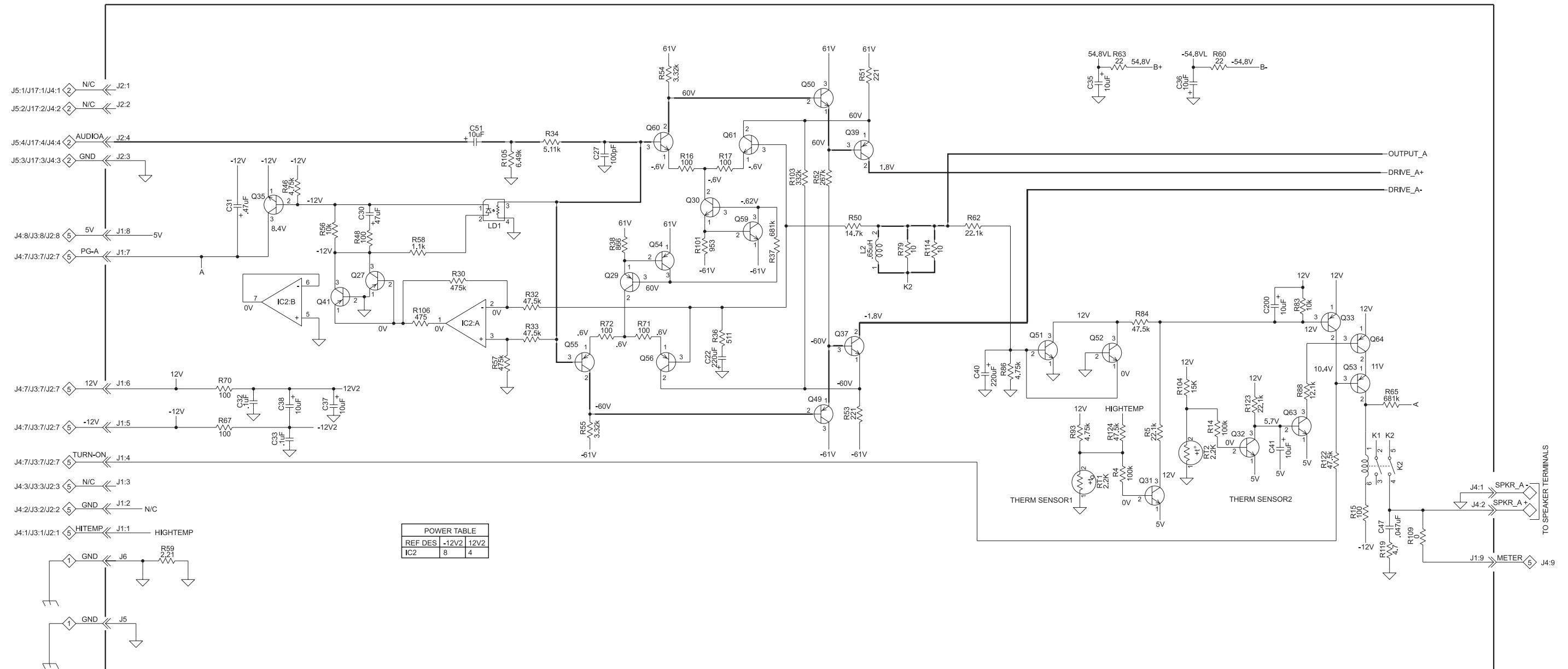


# HEATSINK 1-CHANNEL 050070



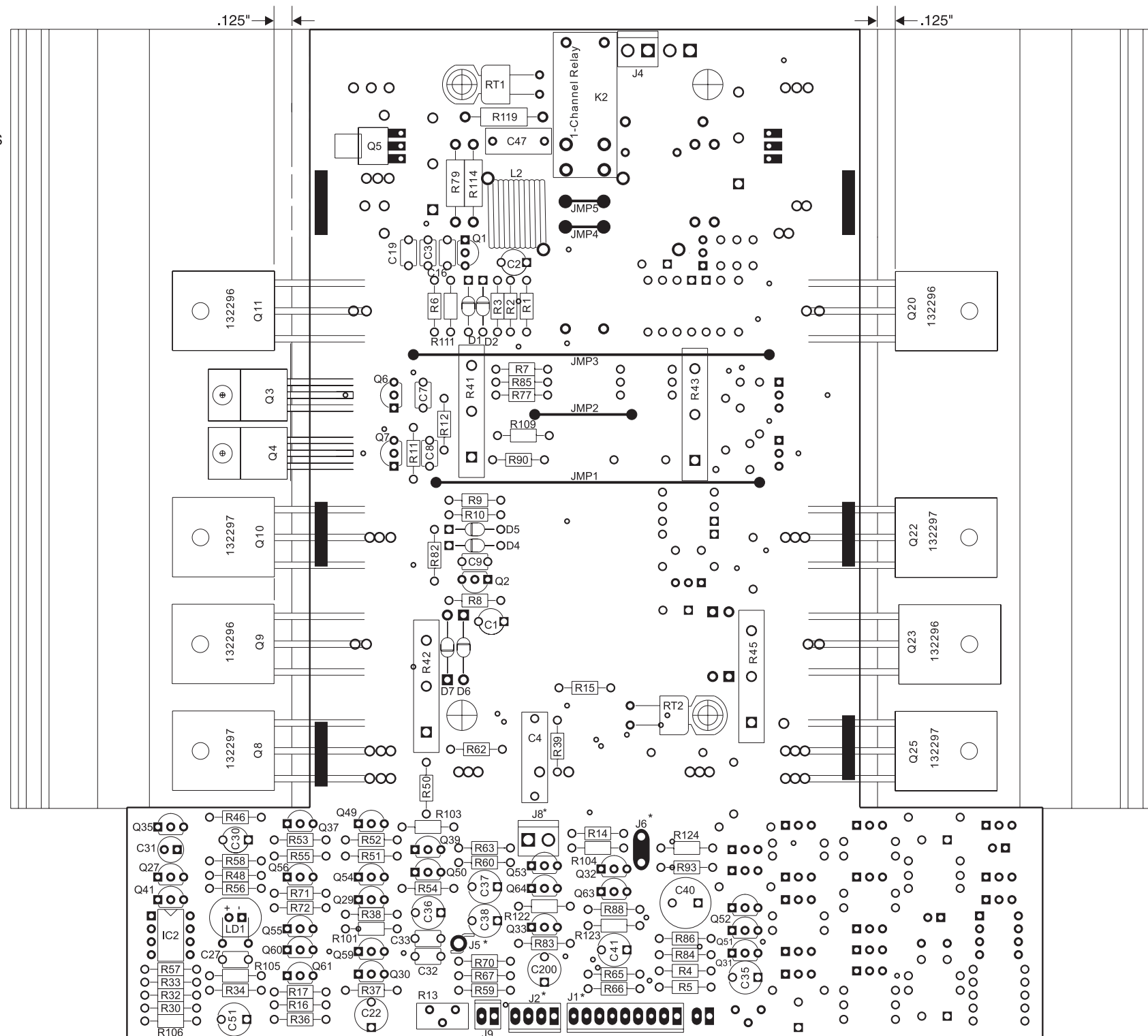


# HEATSINK 1-CHANNEL DRIVER SECTION 050070



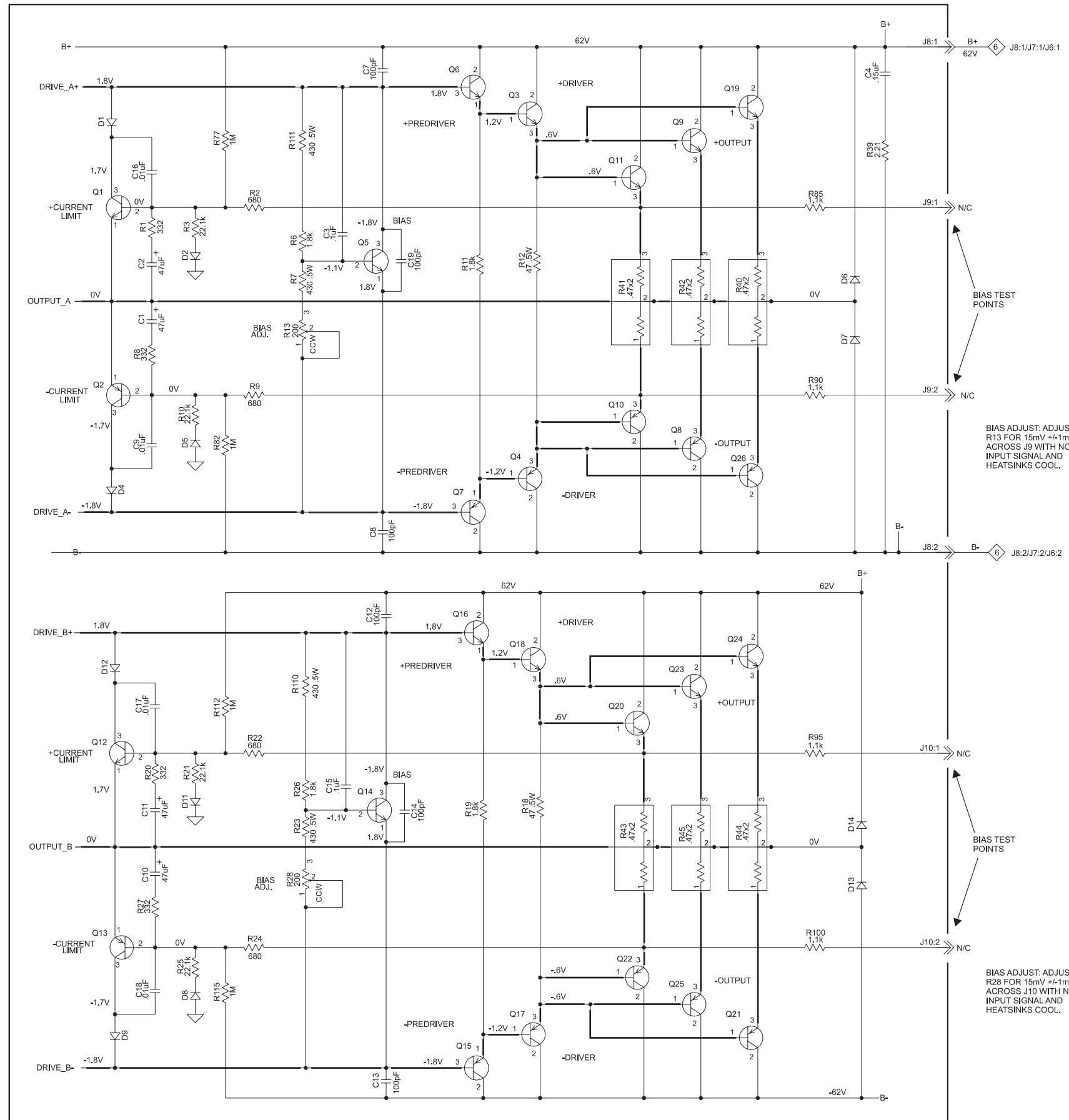
POWER TABLE		
REF DES	-12V2	12V2
IC2	8	4

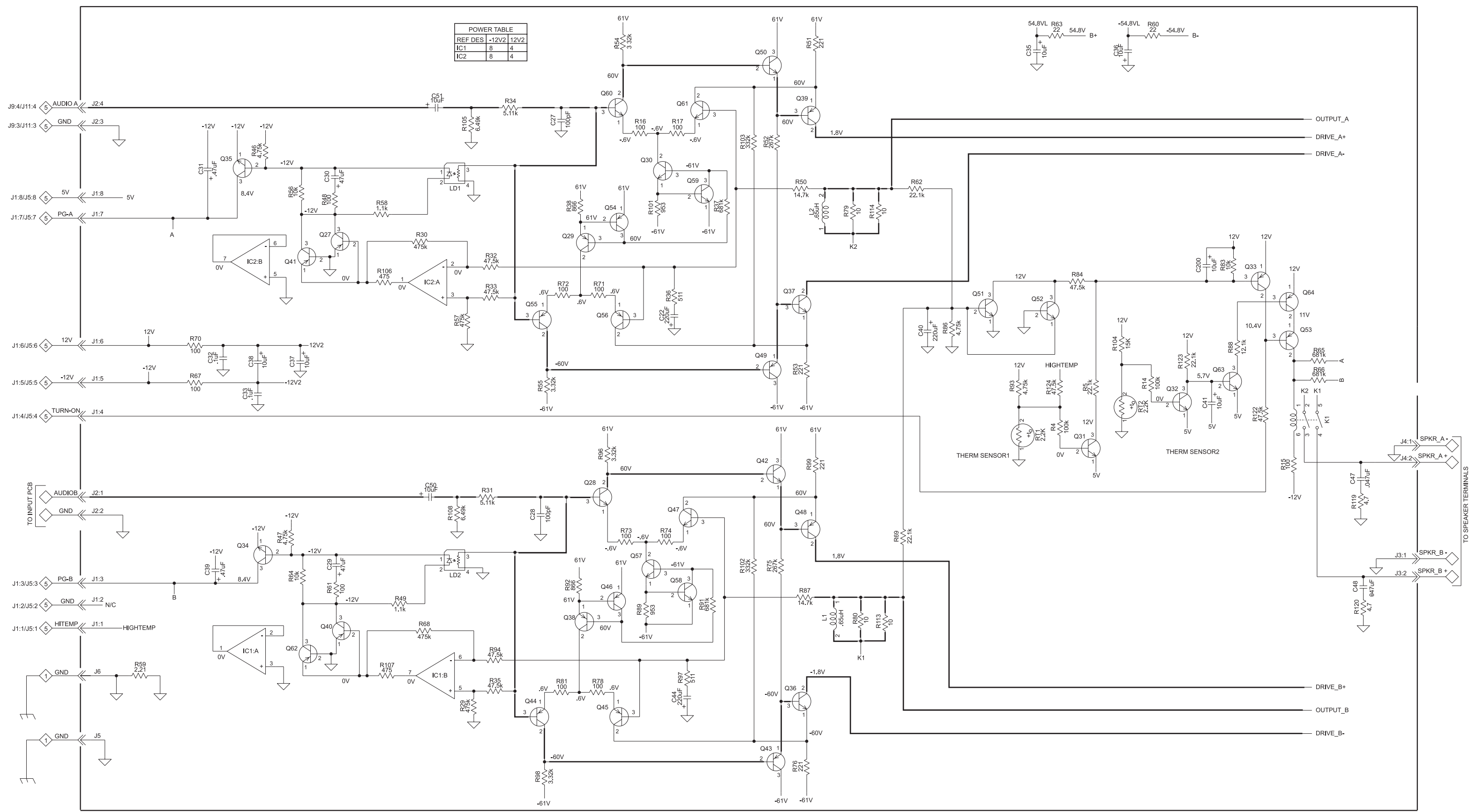
**NOTE:**  
 .125" SPACING IS  
 CRITICAL WHEN  
 REPLACING  
 TRANSISTORS.



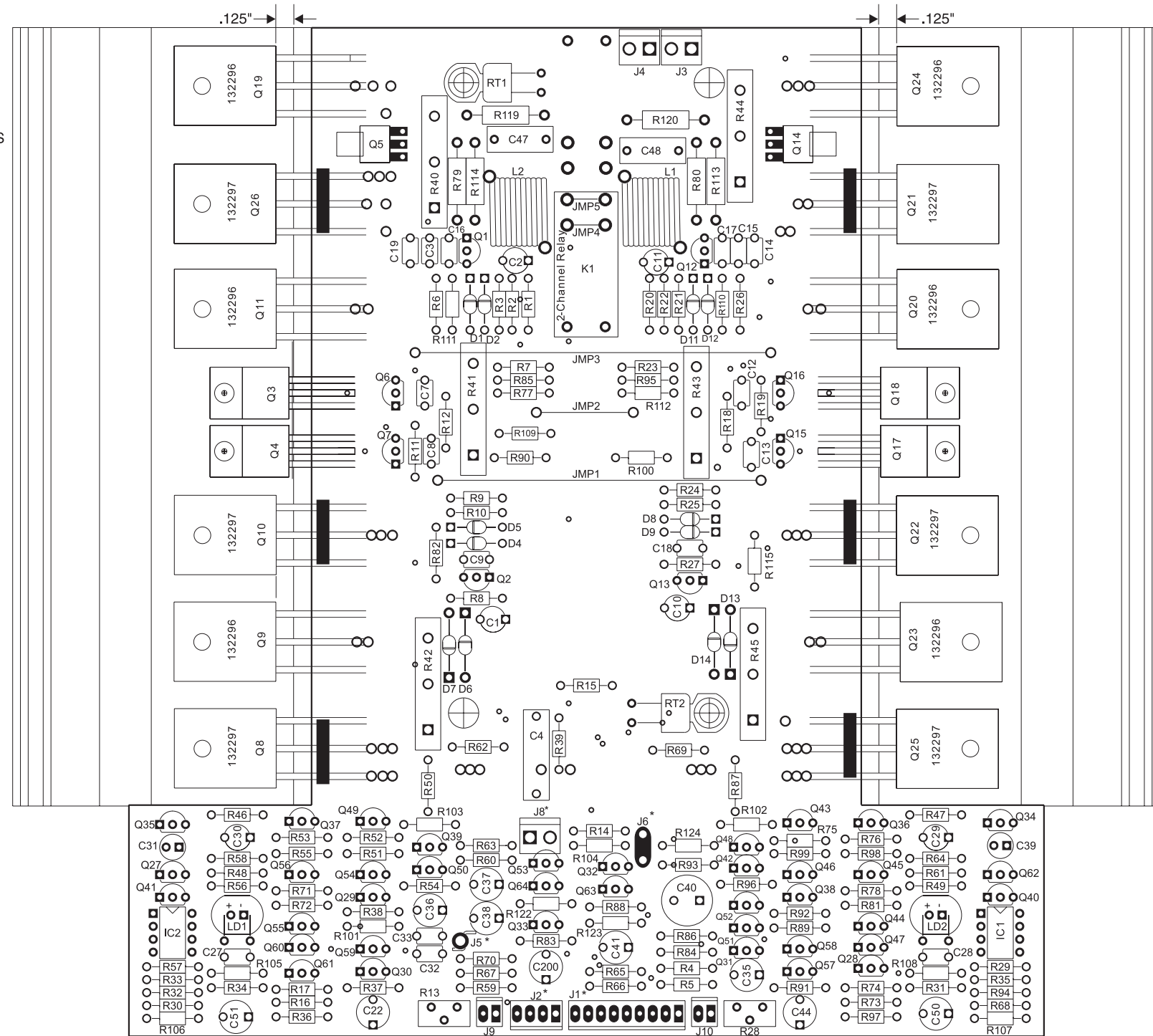
\* Denotes components on reverse or backside of PC Board.

*NOTES*

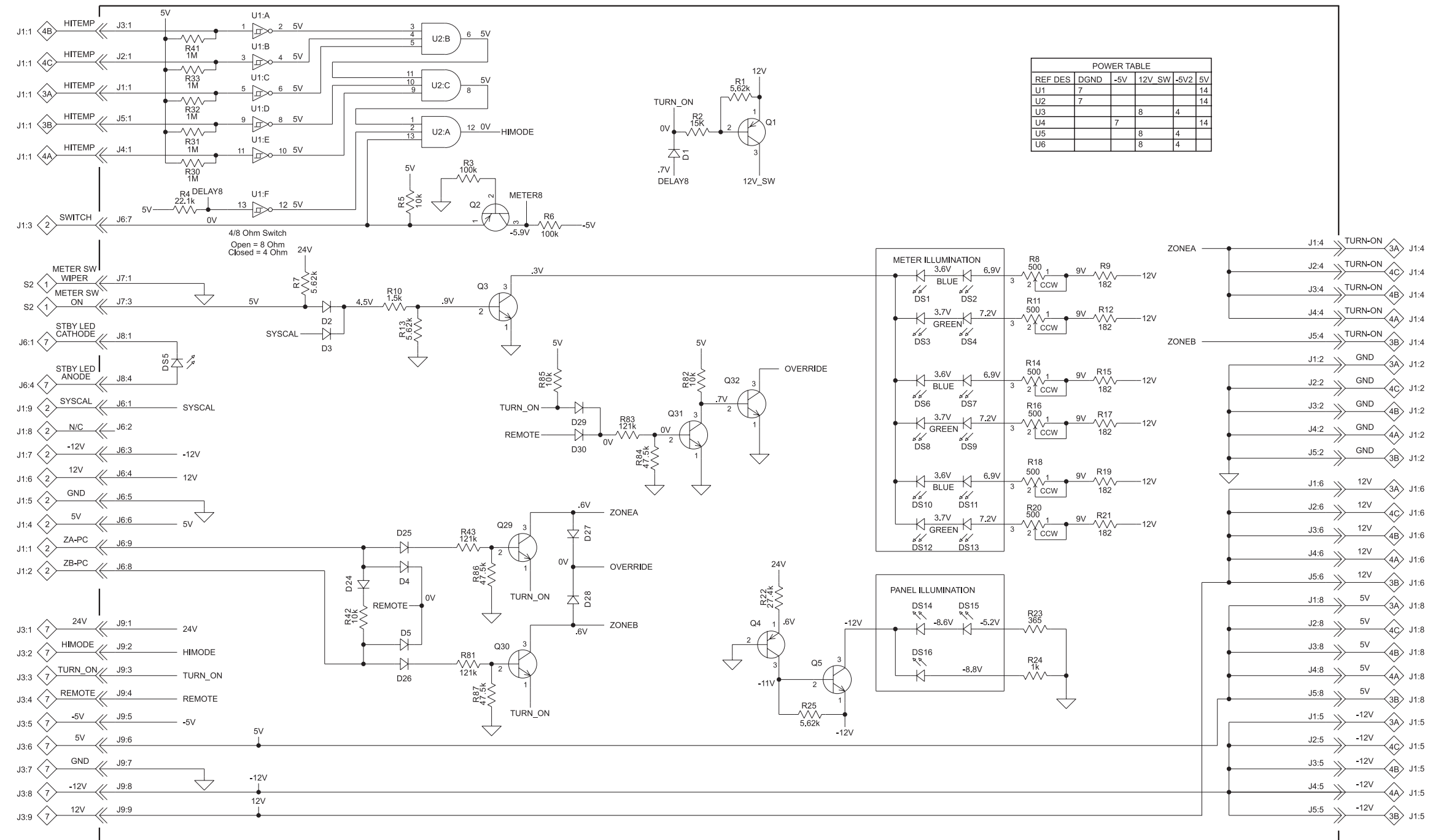




NOTE:  
.125" SPACING IS  
CRITICAL WHEN  
REPLACING  
TRANSISTORS.

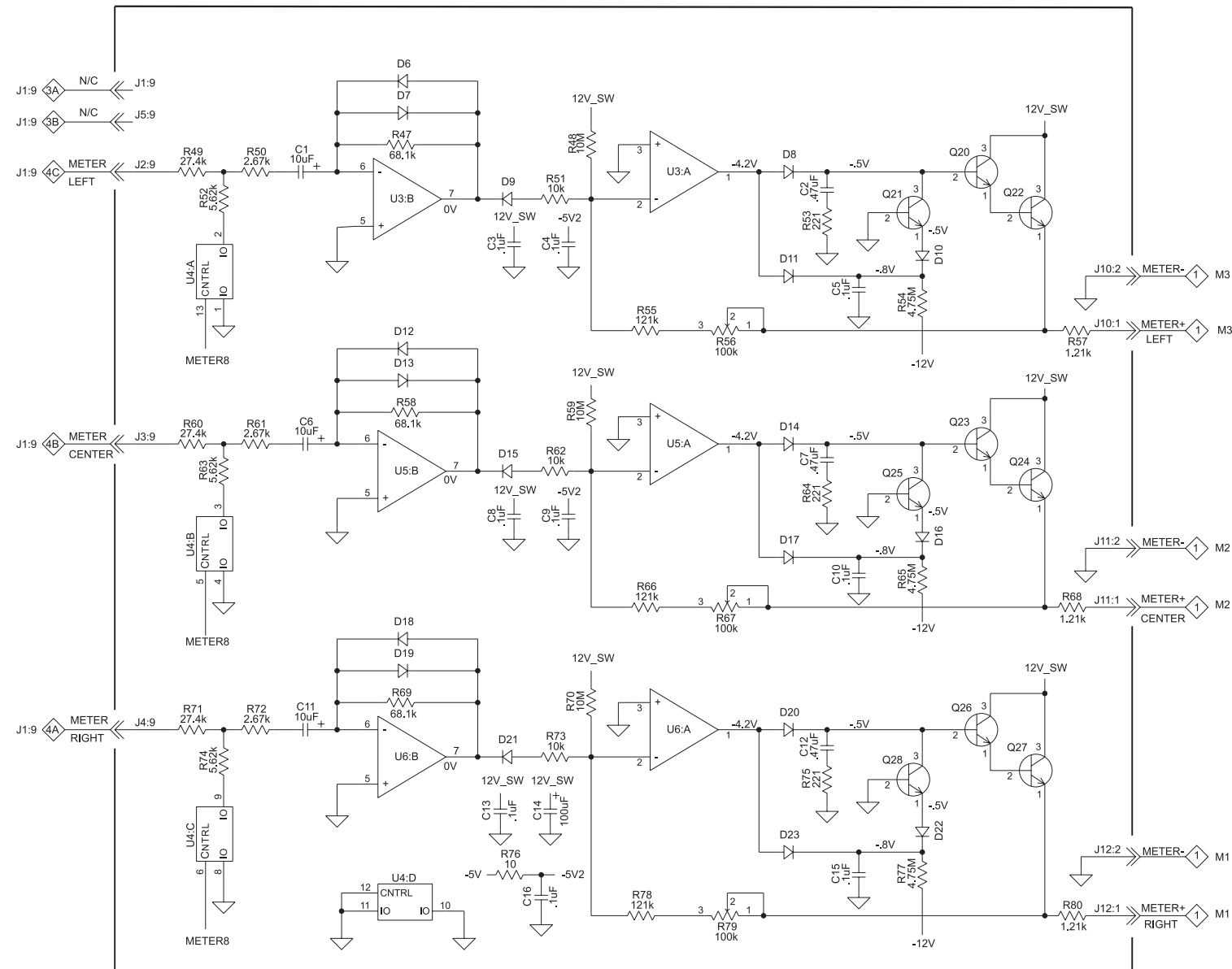


\* Denotes components on reverse or backside of PC Board.

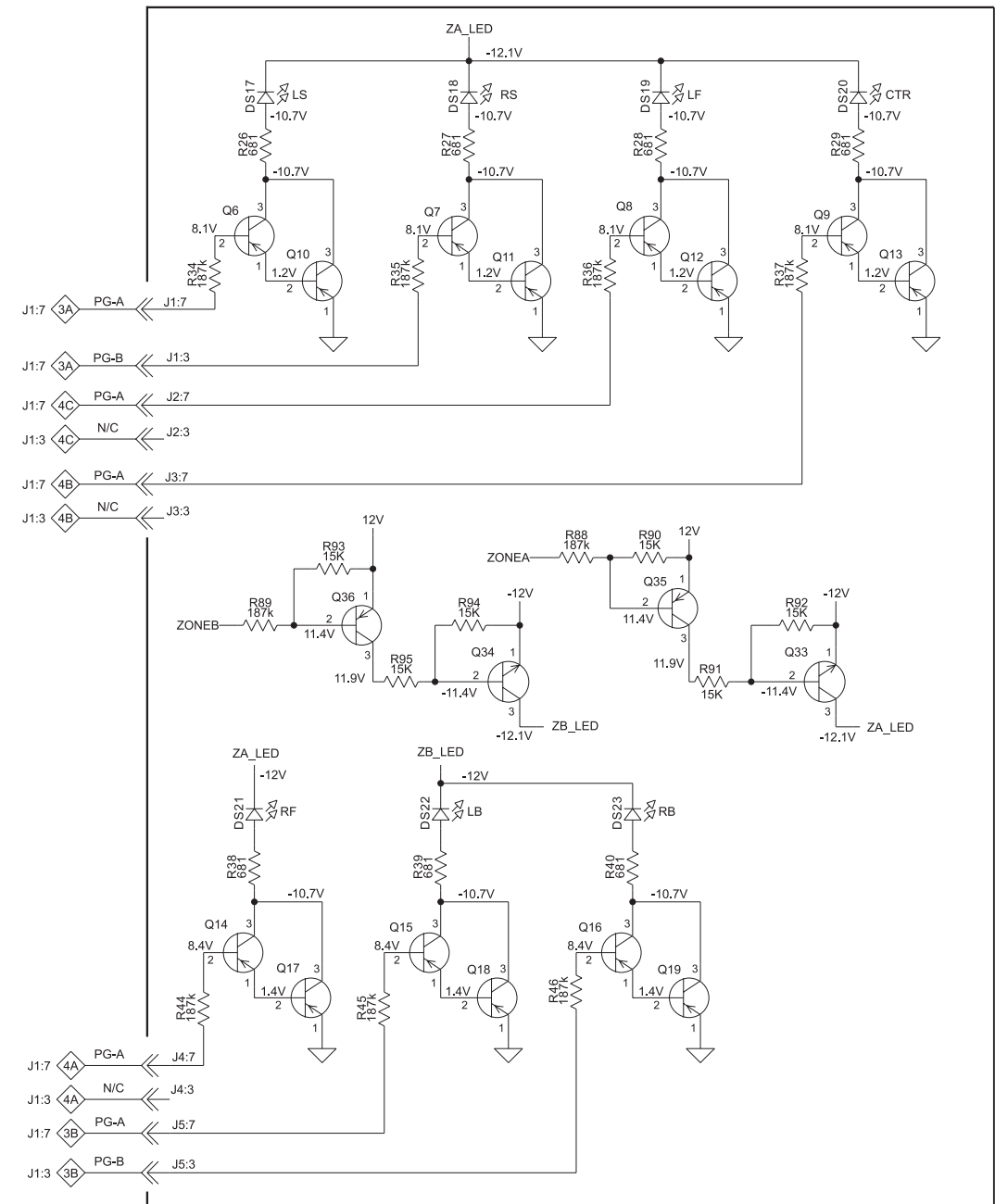




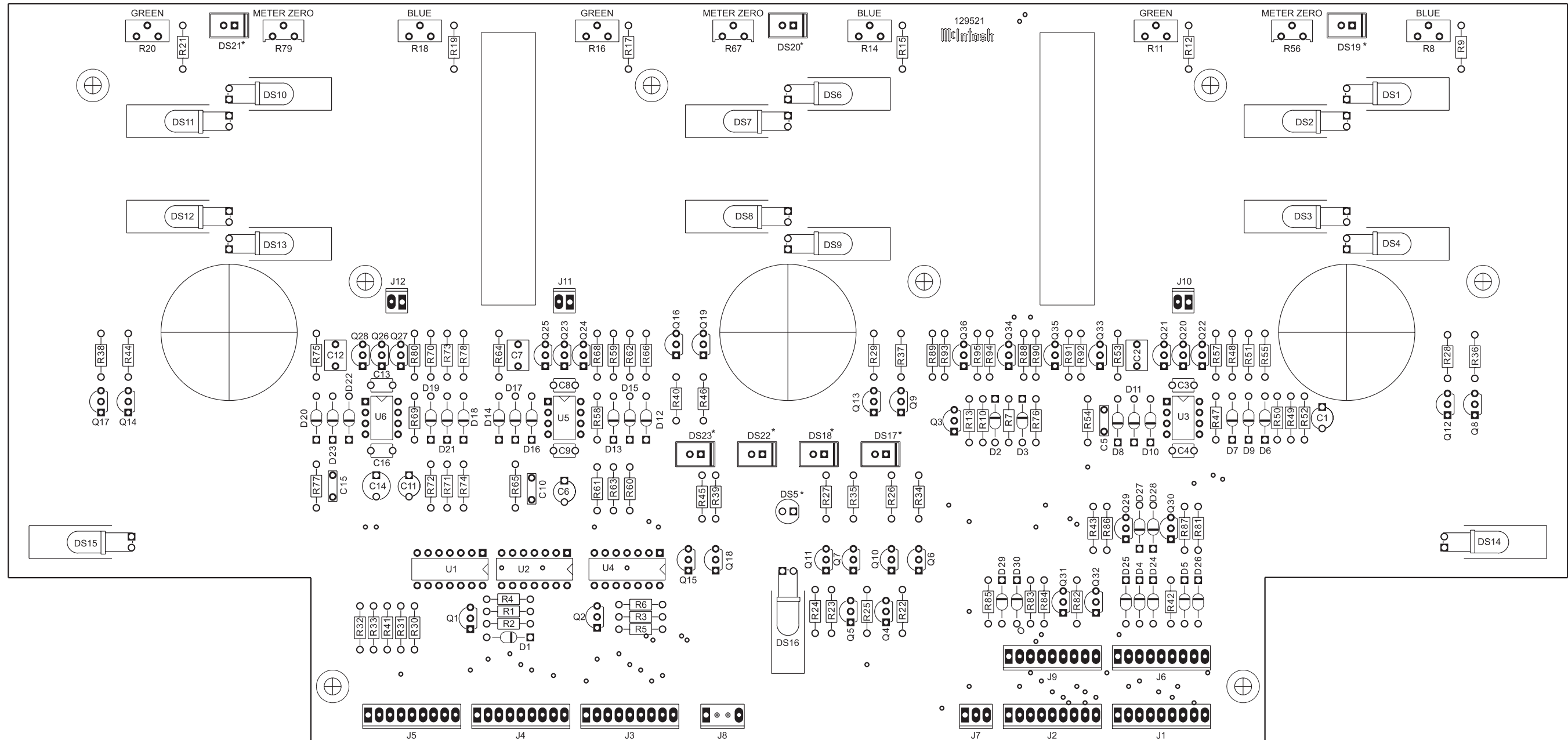
**5** DISPLAY METER SECTION 050066



**5** DISPLAY POWER GUARD SECTION 050066



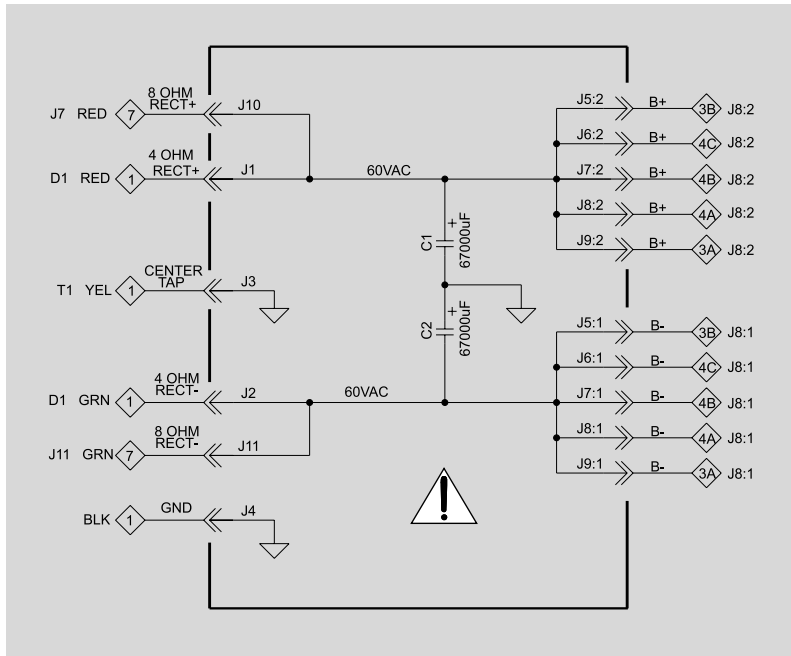
**5** DISPLAY 050066



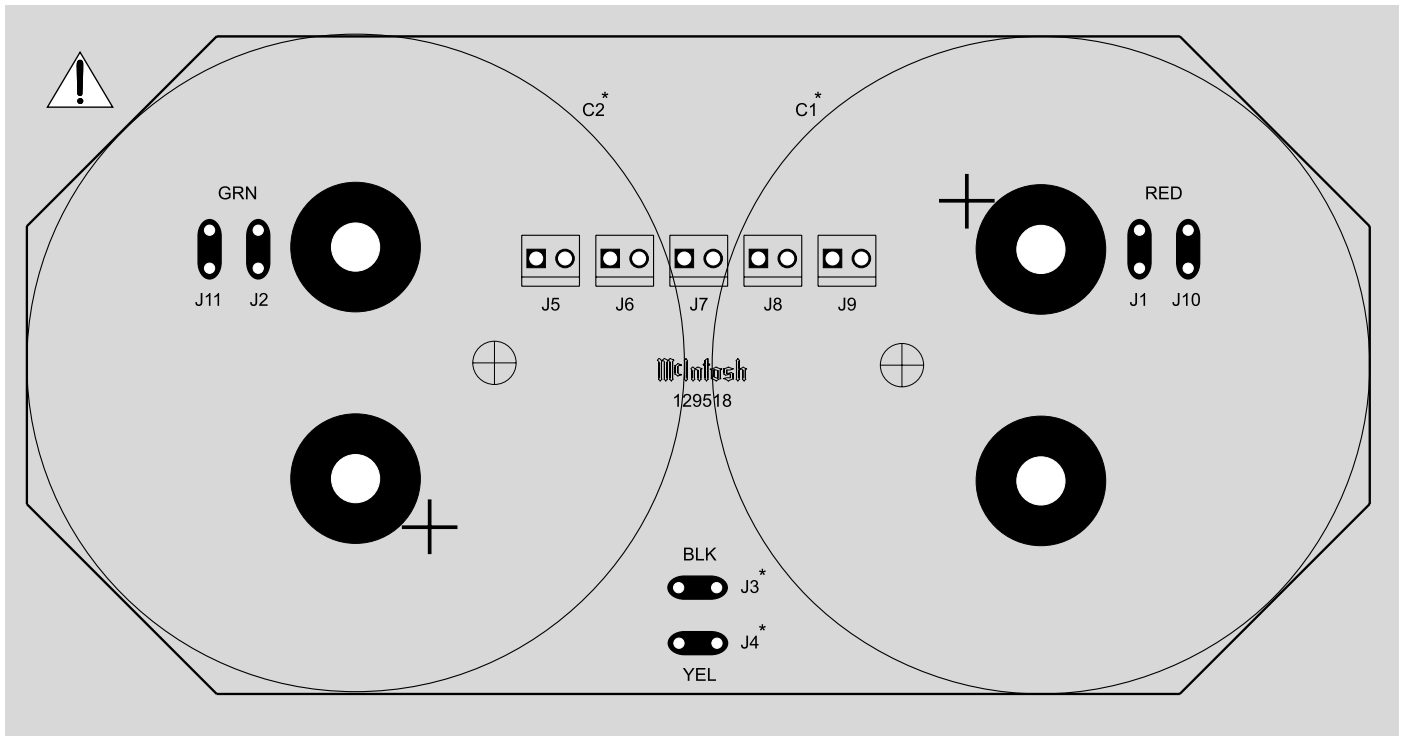
\* Denotes components on reverse or backside of PC Board.

6

CAPACITOR 050063



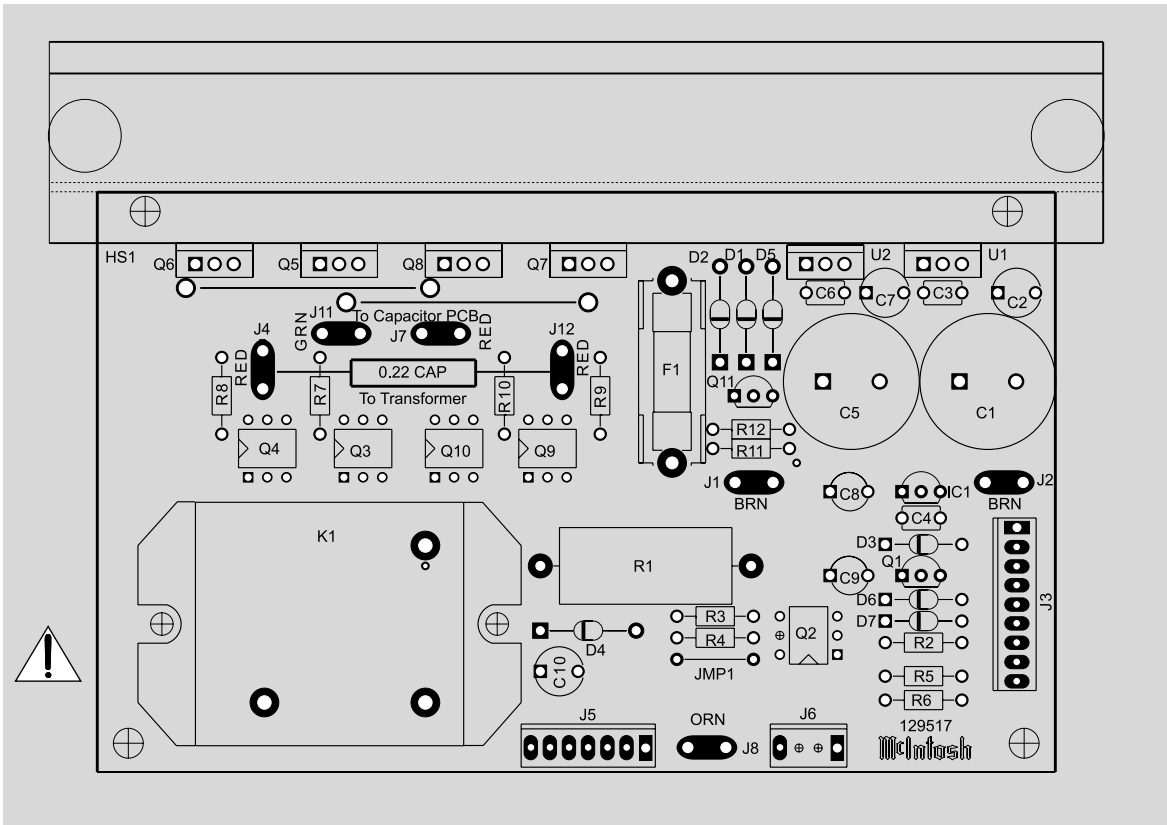
**!** WARNING Parts located in the shaded area have critical characteristics. Use only replacement parts recommended by the manufacturer.



\* Denotes components on reverse or backside of PC Board.



**7** POWER SUPPLY 050062



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

# PARTS LIST

Ref No.	Part No.	Description
①	050065	INPUT PCB
	C1	CAP ELECT 10UF 16V 4X5 CASE 066382
	C2	CAP ELECT 10UF 16V 4X5 CASE 066382
	C3	CAP MONO 47PF 200V 10% NPO 061299
	C4	CAP MONO 47PF 200V 10% NPO 061299
	C5	CAP ELECT 10UF 16V 4X5 CASE 066382
	C6	CAP ELECT 10UF 16V 4X5 CASE 066382
	C7	CAP MONO .1uF 50V 20% Z5U 061305
	C8	CAP MONO .1uF 50V 20% Z5U 061305
	C9	CAP MONO 22PF 200V 10% NPO 061298
②	C10	CAP MONO 22PF 200V 10% NPO 061298
	C11	CAP MONO 47PF 200V 10% NPO 061299
	C12	CAP ELECT 10UF 50V 066445
	C13	CAP MONO 47PF 200V 10% NPO 061299
	C14	CAP ELECT 10UF 50V 066445
	C15	CAP ELECT 10UF 16V 4X5 CASE 066382
	C16	CAP ELECT 10UF 16V 4X5 CASE 066382
	C17	CAP MONO 47PF 200V 10% NPO 061299
	C18	CAP ELECT 10UF 16V 4X5 CASE 066382
	C19	CAP MONO 47PF 200V 10% NPO 061299
	C20	CAP MONO .1uF 50V 20% Z5U 061305
	C21	CAP MONO .1uF 50V 20% Z5U 061305
	C22	CAP ELECT 10UF 16V 4X5 CASE 066382
	C23	CAP MONO 22PF 200V 10% NPO 061298
	C24	CAP MONO .1uF 50V 20% Z5U 061305
	C25	CAP MONO .1uF 50V 20% Z5U 061305
	C26	CAP MONO 47PF 200V 10% NPO 061299
	C27	CAP MONO 22PF 200V 10% NPO 061298
	C28	CAP MONO 47PF 200V 10% NPO 061299
	C29	CAP ELECT 10UF 16V 4X5 CASE 066382
	C30	CAP MONO 47PF 200V 10% NPO 061299
	C31	CAP ELECT 10UF 16V 4X5 CASE 066382
	C32	CAP MONO 22PF 200V 10% NPO 061298
	C33	CAP MONO 47PF 200V 10% NPO 061299
	C34	CAP ELECT 10UF 16V 4X5 CASE 066382
	C35	CAP MONO 47PF 200V 10% NPO 061299
	C36	CAP ELECT 10UF 16V 4X5 CASE 066382
	C38	CAP MONO 22PF 200V 10% NPO 061298
	C39	CAP MONO .1uF 50V 20% Z5U 061305
	C40	CAP MONO .1uF 50V 20% Z5U 061305
	C41	CAP MONO 47PF 200V 10% NPO 061299
	C43	CAP ELECT 10UF 16V 4X5 CASE 066382
	C44	CAP MONO 47PF 200V 10% NPO 061299
	C45	CAP ELECT 10UF 16V 4X5 CASE 066382
	C46	CAP MONO 22PF 200V 10% NPO 061298
	C47	CAP MONO 22PF 200V 10% NPO 061298
	J1	CONN MALE 9 POS FRICTION LOCK 117244
	J2	JACK RCA BLK 117847
	J3	JACK RCA 1X2 BLK/BLK 14MM 117848
	J4	CONN 4 PIN 117215
	J5	CONN 4 PIN 117215
	J6	RECEPTACLE XLR FEMALE 117685
	J7	RECEPTACLE XLR FEMALE 117685
	J8	JACK RCA 1X2 BLK/BLK 14MM 117848
	J9	CONN 4 PIN 117215
	J10	CONN D 25-PIN 117501
	J11	CONN 4 PIN 11721
	J12	RECEPTACLE XLR FEMALE 117685
	J13	RECEPTACLE XLR FEMALE 117685

## PARTS LIST con't

J14	RECEPTACLE XLR FEMALE	117685	R49	RES MF 221 OHM 1% 1/4W	144172
J16	JACK RCA 1X2 BLK/BLK 14MM		R50	RES MF 100K 1% 1/4W	144113
	117848		R51	RES MF 20K 1% 1/4W	144104
J17	CONN 4 PIN	117215	R55	RES MF 10K 1% 1/4W	144053
J18	RECEPTACLE XLR FEMALE	117685	R56	RES MF 10K 1% 1/4W	144053
J19	"JACK HEADPHONE DUAL BLACK 1/8"" ,117825"""		R58	RES MF 100K 1% 1/4W	144113
J20	RECEPTACLE XLR FEMALE	117685	R59	RES MF 1K 1% 1/4W	144090
R1	RES MF 1K 1% 1/4W	144090	R60	RES MF 20K 1% 1/4W	144104
R2	RES MF 1K 1% 1/4W	144090	R61	RES MF 221 OHM 1% 1/4W	144172
R3	RES MF 20K 1% 1/4W	144104	R62	RES MF 100K 1% 1/4W	144113
R4	RES MF 221 OHM 1% 1/4W	144172	R63	RES MF 20K 1% 1/4W	144104
R5	RES MF 20K 1% 1/4W	144104	R64	RES MF 100 OHM 1% 1/4W	144196
R6	RES MF 221 OHM 1% 1/4W	144172	R65	RES MF 10K 1% 1/4W	144053
R7	RES MF 100K 1% 1/4W	144113	R66	RES MF 10K 1% 1/4W	144053
R8	RES MF 100K 1% 1/4W	144113	R68	RES MF 100K 1% 1/4W	144113
R9	RES MF 20K 1% 1/4W	144104	S1	SWITCH SLIDE	148059
R10	RES MF 20K 1% 1/4W	144104	SP1	BRACKET PCB CARD MOUNTING	
R11	RES MF 10K 1% 1/4W	144053		003611	
R12	RES MF 10K 1% 1/4W	144053	U1	IC DUAL OPERATIONAL AMPLIFIER	
R13	RES MF 10 OHM 1% 1/4W	144157		133260	
R14	RES MF 10K 1% 1/4W	144053	U2	IC DUAL OPERATIONAL AMPLIFIER	
R16	RES MF 100K 1% 1/4W	144113		133260	
R17	RES MF 10K 1% 1/4W	144053	U3	IC DUAL OPERATIONAL AMPLIFIER	
R18	RES MF 100K 1% 1/4W	144113		133260	
R19	RES MF 10 OHM 1% 1/4W	144157	U4	IC DUAL OPERATIONAL AMPLIFIER	
R20	RES MF 1K 1% 1/4W	144090		133260	
R21	RES MF 20K 1% 1/4W	144104		050064 HEATSINK1 PCB	
R22	RES MF 221 OHM 1% 1/4W	144172	C1	CAP ELECT 47UF 35V	066446
R23	RES MF 1K 1% 1/4W	144090	C2	CAP ELECT 47UF 35V	066446
R24	RES MF 100K 1% 1/4W	144113	C3	CAP MONO .1uF 50V 20% Z5U	
R25	RES MF 20K 1% 1/4W	144104		061305	
R26	RES MF 20K 1% 1/4W	144104	C4	CAP POLYPROP 0.15UF 10% 250VDC	
R27	RES MF 221 OHM 1% 1/4W	144172		064363	
R28	RES MF 100K 1% 1/4W	144113	C7	CAP MONO 100PF 100V 10% NPO	
R29	RES MF 10K 1% 1/4W	144053		061300	
R30	RES MF 20K 1% 1/4W	144104	C8	CAP MONO 100PF 100V 10% NPO	
R31	RES MF 10K 1% 1/4W	144053		061300	
R33	RES MF 100K 1% 1/4W	144113	C9	CAP MONO .01UF 50V 20% X7R	
R34	RES MF 10K 1% 1/4W	144053		061304	
R35	RES MF 10K 1% 1/4W	144053	C14	CAP MONO 100PF 100V 10% NPO	
R37	RES MF 100K 1% 1/4W	144113		061300	
R38	RES MF 1K 1% 1/4W	144090	C16	CAP MONO .01UF 50V 20% X7R	
R39	RES MF 20K 1% 1/4W	144104		061304	
R40	RES MF 221 OHM 1% 1/4W	144172	C22	CAP ELECT 220UF 25V	066507
R41	RES MF 100K 1% 1/4W	144113	C27	CAP MONO 100PF 100V 10% NPO	
R42	RES MF 20K 1% 1/4W	144104		061300	
R43	RES MF 10K 1% 1/4W	144053	C30	CAP ELECT 47UF 35V	066446
R44	RES MF 10K 1% 1/4W	144053	C31	CAP ELECT .47UF 50V	066244
R45	RES MF 100K 1% 1/4W	144113	C32	CAP MONO .1uF 50V 20% Z5U	
R46	RES MF 100 OHM 1% 1/4W	144196		061305	
R47	RES MF 1K 1% 1/4W	144090	C33	CAP MONO .1uF 50V 20% Z5U	
R48	RES MF 20K 1% 1/4W	144104		061305	

3A  
3B

# PARTS LIST con't

C35	CAP ELECT 10UF 100VDC	066462	Q41	TRANSISTOR PNP	132224
C36	CAP ELECT 10UF 100VDC	066462	Q49	TRANSISTOR PNP	132224
C37	CAP ELECT 10UF 100VDC	066462	Q50	TRANSISTOR NPN	132223
C38	CAP ELECT 10UF 100VDC	066462	Q51	TRANSISTOR NPN	132223
C40	CAP ELECT 220UF 50V 20%	066254	Q52	TRANSISTOR NPN	132223
C41	CAP ELECT 10UF 100VDC	066462	Q53	TRANSISTOR PNP POWER	132255
C47	CAP POLYPROP .047UF 10% 250VDC	064364	Q54	TRANSISTOR PNP	132224
C51	CAP ELECT 10UF 100VDC	066462	Q55	TRANSISTOR PNP POWER	132255
C200	CAP ELECT 10UF 100VDC	066462	Q56	TRANSISTOR PNP POWER	132255
D1	DIODE SILICON	070047	Q59	TRANSISTOR NPN	132223
D2	DIODE SILICON	070047	Q60	TRANSISTOR SI NPN 25V	132254
D4	DIODE SILICON	070047	Q61	TRANSISTOR SI NPN 25V	132254
D5	DIODE SILICON	070047	Q63	TRANSISTOR NPN	132223
D6	DIODE RECTIFIER	070131	Q64	TRANSISTOR PNP POWER	132255
D7	DIODE RECTIFIER	070131	R1	RES MF 332 OHM 1% 1/4W	144446
IC2	IC DUAL AMP 133259		R2	RES MET OX 680 OHM 5% .5W	137093
J1	CONN MALE 9 POS FRICTION LOCK	117244	R3	RES MF 22.1K 1% 1/4W	144187
J2	CONN 4 PIN	117215	R4	RES MF 100K 1% 1/4W	144113
J4	CONN HEADER 2 PIN 0.156	117404	R5	RES MF 22.1K 1% 1/4W	144187
J5	BLADE FASTON .110	117712	R6	RES MET OX 1.8k 5% .5W	137094
J6	BLADE FASTON W/FEET	117708	R7	RES MET OX 430 OHM 5% .5W	137095
J8	CONN HEADER 2 PIN 0.156	117404	R8	RES MF 332 OHM 1% 1/4W	144446
J9	CONN 2 PIN MALE	117213	R9	RES MET OX 680 OHM 5% .5W	137093
K1	RELAY 24VDC 5A 277VAC	087057	R10	RES MF 22.1K 1% 1/4W	144187
K2	RELAY 24VDC 5A 277VAC	087057	R11	RES MET OX 1.8k 5% .5W	137094
L2	CHOKE 0.65UH OUTPUT	122297	R12	RES MET OX 47 OHM 5% .5W	137096
LD1	LDR NETWORK VTL5C9	144179	R13	POT TRIM 200 OHM 20% HORIZ AD	134390
Q1	TRANSISTOR NPN	132223	R14	RES MF 100K 1% 1/4W	144113
Q2	TRANSISTOR PNP	132224	R15	RES MF 100 OHM 1% 1/4W	144196
Q3	TRANSISTOR NPN	132268	R16	RES MF 100 OHM 1% 1/4W	144196
Q4	TRANSISTOR PNP	132267	R17	RES MF 100 OHM 1% 1/4W	144196
Q5	TRANSISTOR NPN	132223	R30	RES MF 475K 1% 1/4W	144364
Q6	TRANSISTOR NPN 25C3334C	132285	R32	RES MF 47.5K 1% 1/4W	144108
Q7	TRANSISTOR PNP 2SA32IC	132286	R33	RES MF 47.5K 1% 1/4W	144108
Q8	TRANSISTOR PNP POWER	132297	R34	RES MF 5.11K 1% 1/4W	144083
Q9	TRANSISTOR NPN POWER	132296	R36	RES 511 OHM 1% 1/4W	144123
Q10	TRANSISTOR PNP POWER	132297	R37	RES MF 681K 1% 1/4W	144443
Q11	TRANSISTOR NPN POWER	132296	R38	RES MF 866 OHM 1% 1/4W	144028
Q20	TRANSISTOR NPN POWER	132296	R39	RES MF 2.21 OHM 1/4W 1%	144378
Q22	TRANSISTOR PNP POWER	132297	R41	RES WW DUAL .47 OHM 5% 3W	139244
Q23	TRANSISTOR NPN POWER	132296	R42	RES WW DUAL .47 OHM 5% 3W	139244
Q25	TRANSISTOR PNP POWER	132297	R43	RES WW DUAL .47 OHM 5% 3W	139244
Q27	TRANSISTOR PNP	132224	R45	RES WW DUAL .47 OHM 5% 3W	139244
Q29	TRANSISTOR PNP POWER	132255	R46	RES MF 4.75K 1% 1/4W	144097
Q30	TRANSISTOR SI NPN 25V	132254			
Q31	TRANSISTOR NPN	132223			
Q32	TRANSISTOR NPN	132223			
Q33	TRANSISTOR PNP POWER	132255			
Q35	TRANSISTOR NPN	132223			
Q37	TRANSISTOR NPN 25C3334C	132285			
Q39	TRANSISTOR PNP 2SA32IC	132286			

4A  
4B  
4B



## PARTS LIST con't

R48	RES MF 100 OHM 1% 1/4W	144196	C7	CAP MONO 100PF 100V 10% NPO	
R50	RES MF 14.7K 1% 1/4W	144149	061300		
R51	RES MF 221 OHM 1% 1/4W	144172	C8	CAP MONO 100PF 100V 10% NPO	
R52	RES MF 267K 1% 1/4W	144118	061300		
R53	RES MF 221 OHM 1% 1/4W	144172	C9	CAP MONO .01UF 50V 20% X7R	
R54	RES MF 3.32K 1% 1/4W	144095	061304		
R55	RES MF 3.32K 1% 1/4W	144095	C10	CAP ELECT 47UF 35V	066446
R56	RES MF 10K 1% 1/4W	144053	C11	CAP ELECT 47UF 35V	066446
R57	RES MF 475K 1% 1/4W	144364	C12	CAP MONO 100PF 100V 10% NPO	
R58	RES MF 1.1K 1% 1/4W	144091	061300		
R59	RES MF 2.21 OHM 1/4W 1%	144378	C13	CAP MONO 100PF 100V 10% NPO	
R60	RES FP 22 OHM 1/4W 5%	137033	061300		
R62	RES MF 22.1K 1% 1/4W	144187	C14	CAP MONO 100PF 100V 10% NPO	
R63	RES FP 22 OHM 1/4W 5%	137033	061300		
R65	RES MF 681K 1% 1/4W	144443	C15	CAP MONO .1uF 50V 20% Z5U	
R67	RES MF 100 OHM 1% 1/4W	144196	061305		
R70	RES MF 100 OHM 1% 1/4W	144196	C16	CAP MONO .01UF 50V 20% X7R	
R71	RES MF 100 OHM 1% 1/4W	144196	061304		
R72	RES MF 100 OHM 1% 1/4W	144196	C17	CAP MONO .01UF 50V 20% X7R	
R77	RES MF 1M 1/4W	144269	061304		
R79	RES CF 10 OHM 5% 1/2W	141165	C18	CAP MONO .01UF 50V 20% X7R	
R82	RES MF 1M 1/4W	144269	061304		
R83	RES MF 10K 1% 1/4W	144053	C19	CAP MONO 100PF 100V 10% NPO	
R84	RES MF 47.5K 1% 1/4W	144108	061300		
R85	RES MF 1.1K 1% 1/4W	144091	C22	CAP ELECT 220UF 25V	066507
R86	RES MF 4.75K 1% 1/4W	144097	C27	CAP MONO 100PF 100V 10% NPO	
R88	RES MF 12.1K 1% 1/4W	144154	061300		
R90	RES MF 1.1K 1% 1/4W	144091	C28	CAP MONO 100PF 100V 10% NPO	
R93	RES MF 4.75K 1% 1/4W	144097	061300		
R101	RES MF 953 OHM 1/4W 1%	144473	C29	CAP ELECT 47UF 35V	066446
R103	RES MF 332K 1% 1/4W	144119	C30	CAP ELECT 47UF 35V	066446
R104	RES MF 15K 1% 1/4W	144412	C31	CAP ELECT .47UF 50V	066244
R105	RES MF 6.49K 1% 1/4W	144140	C32	CAP MONO .1uF 50V 20% Z5U	
R106	RES MF 475 OHM 1% 1/4W	144086	061305		
R109	RES CF 0 ohm	141389	C33	CAP MONO .1uF 50V 20% Z5U	
R111	RES MET OX 430 OHM 5% .5W	137095	061305		
R114	RES CF 10 OHM 5% 1/2W	141165	C35	CAP ELECT 10UF 100VDC	066462
R119	RES MO 4.7 OHM 1W 5%	144464	C36	CAP ELECT 10UF 100VDC	066462
R122	RES MF 47.5K 1% 1/4W	144108	C37	CAP ELECT 10UF 100VDC	066462
R123	RES MF 22.1K 1% 1/4W	144187	C38	CAP ELECT 10UF 100VDC	066462
R124	RES MF 47.5K 1% 1/4W	144108	C39	CAP ELECT .47UF 50V	066244
RT1	THERMAL	144249	C40	CAP ELECT 220UF 50V 20%	066254
RT2	THERMAL	144249	C41	CAP ELECT 10UF 100VDC	066462
			C44	CAP ELECT 220UF 25V	066507
			C47	CAP POLYPROP .047UF 10% 250VDC	064364
			064364		
050064	HEATSINK2 PCB		C48	CAP POLYPROP .047UF 10% 250VDC	064364
C1	CAP ELECT 47UF 35V	066446	064364		
C2	CAP ELECT 47UF 35V	066446	C50	CAP ELECT 10UF 100VDC	066462
C3	CAP MONO .1uF 50V 20% Z5U	061305	C51	CAP ELECT 10UF 100VDC	066462
C4	CAP POLYPROP 0.15UF 10% 250VDC	064363	C200	CAP ELECT 10UF 100VDC	066462
			D1	DIODE SILICON	070047
			D2	DIODE SILICON	070047

# PARTS LIST con't

D4	DIODE SILICON	070047		Q26	TRANSISTOR PNP POWER	132297
D5	DIODE SILICON	070047		Q27	TRANSISTOR PNP	132224
D6	DIODE RECTIFIER	070131		Q28	TRANSISTOR SI NPN 25V	132254
D7	DIODE RECTIFIER	070131		Q29	TRANSISTOR PNP POWER	132255
D8	DIODE SILICON	070047		Q30	TRANSISTOR SI NPN 25V	132254
D9	DIODE SILICON	070047		Q31	TRANSISTOR NPN	132223
D11	DIODE SILICON	070047		Q32	TRANSISTOR NPN	132223
D12	DIODE SILICON	070047		Q33	TRANSISTOR PNP POWER	132255
D13	DIODE RECTIFIER	070131		Q34	TRANSISTOR NPN	132223
D14	DIODE RECTIFIER	070131		Q35	TRANSISTOR NPN	132223
IC1	IC DUAL AMP	133259		Q36	TRANSISTOR NPN 25C3334C	132285
IC2	IC DUAL AMP	133259		Q37	TRANSISTOR NPN 25C3334C	132285
J1	CONN MALE 9 POS FRICTION LOCK			Q38	TRANSISTOR PNP POWER	132255
	117244			Q39	TRANSISTOR PNP 2SA32IC	132286
J2	CONN 4 PIN	117215		Q40	TRANSISTOR PNP	132224
J3	CONN HEADER 2 PIN 0.156	117404		Q41	TRANSISTOR PNP	132224
J4	CONN HEADER 2 PIN 0.156	117404		Q42	TRANSISTOR NPN	132223
J5	BLADE FASTON .110	117712		Q43	TRANSISTOR PNP	132224
J6	BLADE FASTON W/FEET	117708		Q44	TRANSISTOR PNP POWER	132255
J8	CONN HEADER 2 PIN 0.156	117404		Q45	TRANSISTOR PNP POWER	132255
J9	CONN 2 PIN MALE	117213		Q46	TRANSISTOR PNP	132224
J10	CONN 2 PIN MALE	117213		Q47	TRANSISTOR SI NPN 25V	132254
K1	RELAY 24VDC 5A 277VAC	087057		Q48	TRANSISTOR PNP 2SA32IC	132286
K2	RELAY 24VDC 5A 277VAC	087057		Q49	TRANSISTOR PNP	132224
L1	CHOKE 0.65UH OUTPUT	122297		Q50	TRANSISTOR NPN	132223
L2	CHOKE 0.65UH OUTPUT	122297		Q51	TRANSISTOR NPN	132223
LD1	LDR NETWORK VTL5C9	144179		Q52	TRANSISTOR NPN	132223
LD2	LDR NETWORK VTL5C9	144179		Q53	TRANSISTOR PNP POWER	132255
Q1	TRANSISTOR NPN	132223		Q54	TRANSISTOR PNP	132224
Q2	TRANSISTOR PNP	132224		Q55	TRANSISTOR PNP POWER	132255
Q3	TRANSISTOR NPN	132268		Q56	TRANSISTOR PNP POWER	132255
Q4	TRANSISTOR PNP	132267		Q57	TRANSISTOR SI NPN 25V	132254
Q5	TRANSISTOR NPN	132223		Q58	TRANSISTOR NPN	132223
Q6	TRANSISTOR NPN 25C3334C	132285		Q59	TRANSISTOR NPN	132223
Q7	TRANSISTOR PNP 2SA32IC	132286		Q60	TRANSISTOR SI NPN 25V	132254
Q8	TRANSISTOR PNP POWER	132297		Q61	TRANSISTOR SI NPN 25V	132254
Q9	TRANSISTOR NPN POWER	132296		Q62	TRANSISTOR PNP	132224
Q10	TRANSISTOR PNP POWER	132297		Q63	TRANSISTOR NPN	132223
Q11	TRANSISTOR NPN POWER	132296		Q64	TRANSISTOR PNP POWER	132255
Q12	TRANSISTOR NPN	132223		R1	RES MF 332 OHM 1% 1/4W	144446
Q13	TRANSISTOR PNP	132224		R2	RES MET OX 680 OHM 5% .5W	
Q14	TRANSISTOR NPN	132223			137093	
Q15	TRANSISTOR PNP 2SA32IC	132286		R3	RES MF 22.1K 1% 1/4W	144187
Q16	TRANSISTOR NPN 25C3334C	132285		R4	RES MF 100K 1% 1/4W	144113
Q17	TRANSISTOR PNP	132267		R5	RES MF 22.1K 1% 1/4W	144187
Q18	TRANSISTOR NPN	132268		R6	RES MET OX 1.8k 5% .5W	137094
Q19	TRANSISTOR NPN POWER	132296		R7	RES MET OX 430 OHM 5% .5W	
Q20	TRANSISTOR NPN POWER	132296			137095	
Q21	TRANSISTOR PNP POWER	132297		R8	RES MF 332 OHM 1% 1/4W	144446
Q22	TRANSISTOR PNP POWER	132297		R9	RES MET OX 680 OHM 5% .5W	
Q23	TRANSISTOR NPN POWER	132296			137093	
Q24	TRANSISTOR NPN POWER	132296		R10	RES MF 22.1K 1% 1/4W	144187
Q25	TRANSISTOR PNP POWER	132297		R11	RES MET OX 1.8k 5% .5W	137094

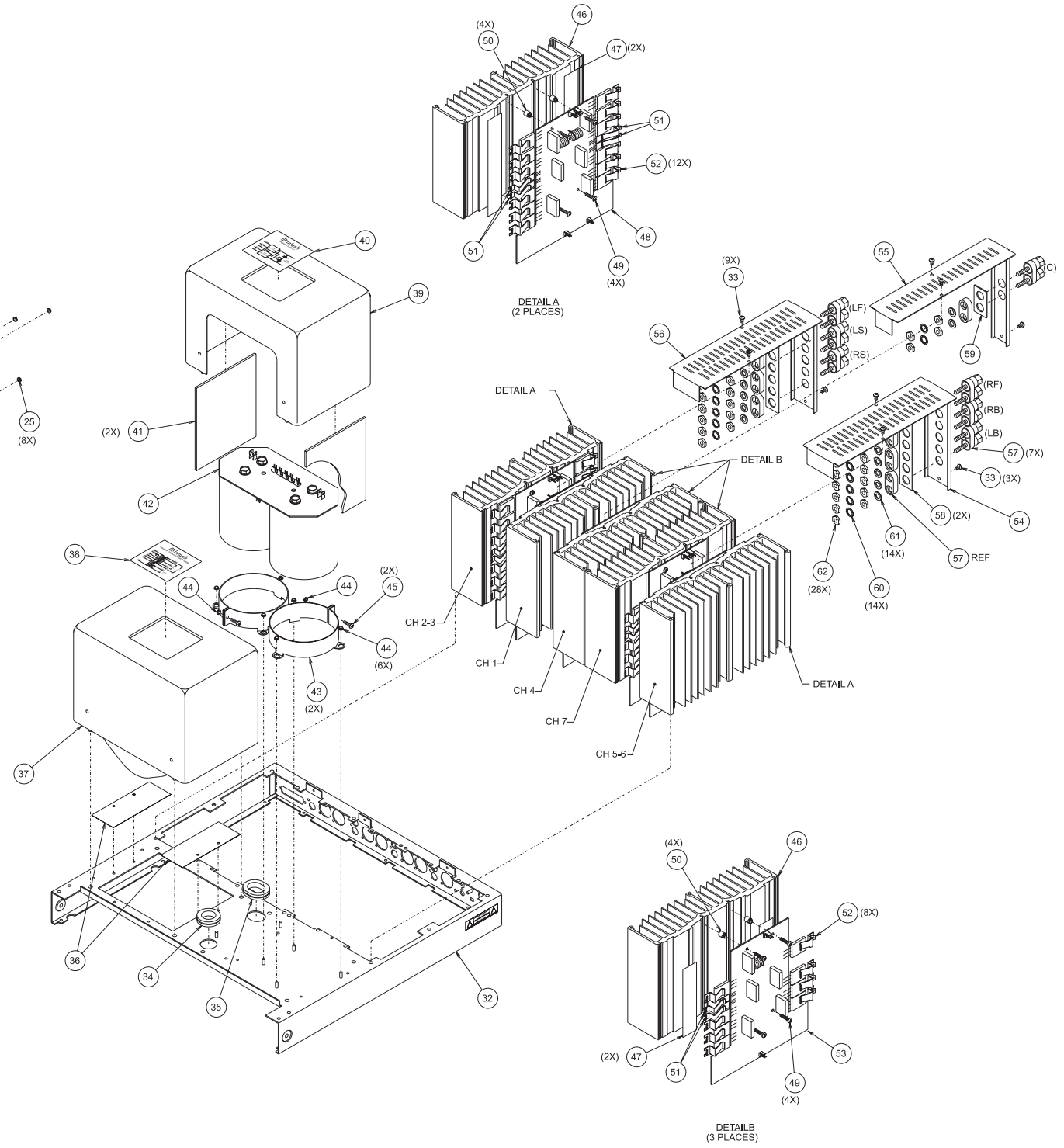
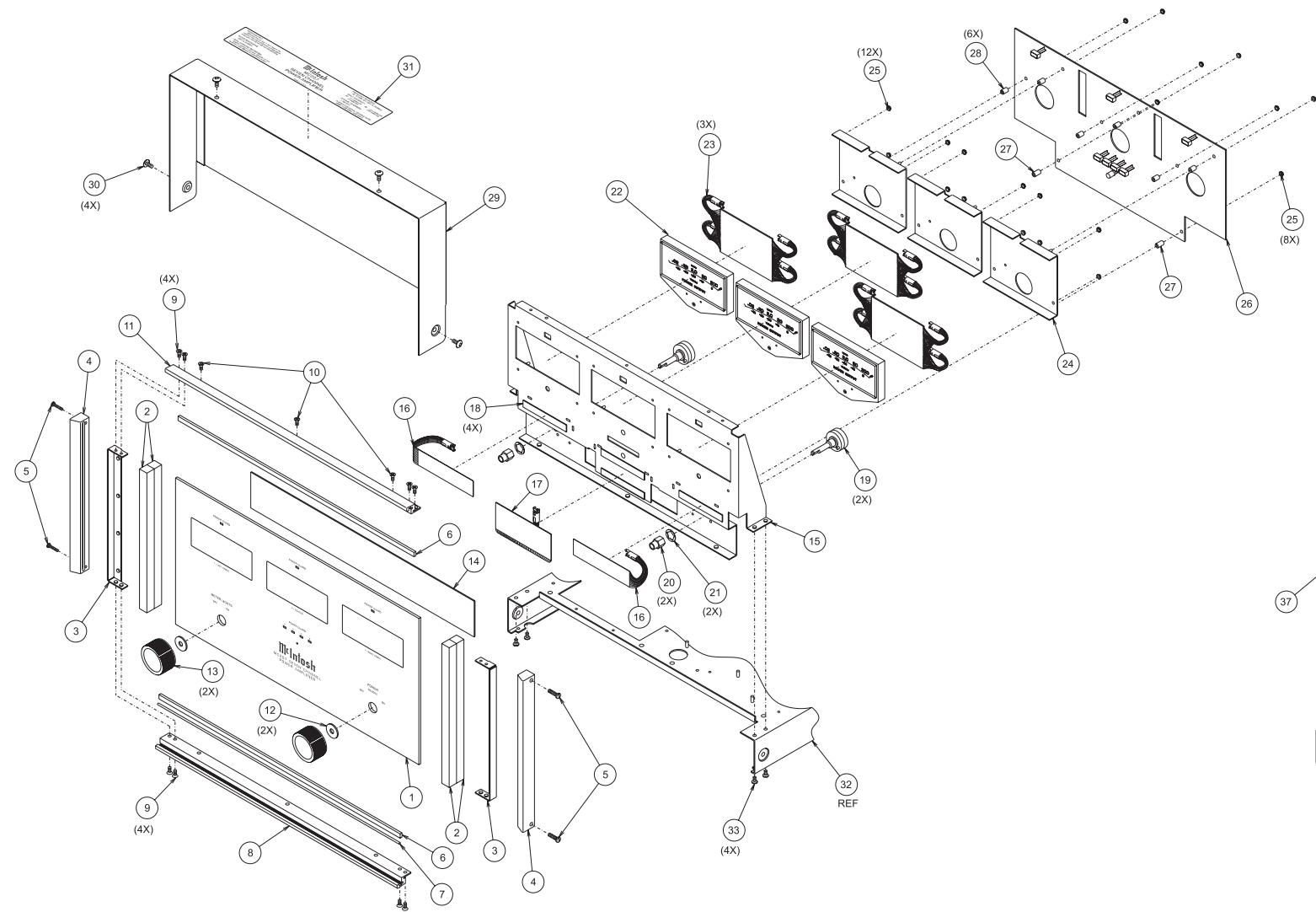
## PARTS LIST con't

R12	RES MET OX 47 OHM 5% .5W		R52	RES MF 267K 1% 1/4W	144118
137096			R53	RES MF 221 OHM 1% 1/4W	144172
R13	POT TRIM 200 OHM 20% HORIZ AD		R54	RES MF 3.32K 1% 1/4W	144095
134390			R55	RES MF 3.32K 1% 1/4W	144095
R14	RES MF 100K 1% 1/4W	144113	R56	RES MF 10K 1% 1/4W	144053
R15	RES MF 100 OHM 1% 1/4W	144196	R57	RES MF 475K 1% 1/4W	144364
R16	RES MF 100 OHM 1% 1/4W	144196	R58	RES MF 1.1K 1% 1/4W	144091
R17	RES MF 100 OHM 1% 1/4W	144196	R59	RES MF 2.21 OHM 1/4W 1%	144378
R18	RES MET OX 47 OHM 5% .5W		R60	RES FP 22 OHM 1/4W 5%	137033
137096			R61	RES MF 100 OHM 1% 1/4W	144196
R19	RES MET OX 1.8k 5% .5W	137094	R62	RES MF 22.1K 1% 1/4W	144187
R20	RES MF 332 OHM 1% 1/4W	144446	R63	RES FP 22 OHM 1/4W 5%	137033
R21	RES MF 22.1K 1% 1/4W	144187	R64	RES MF 10K 1% 1/4W	144053
R22	RES MET OX 680 OHM 5% .5W		R65	RES MF 681K 1% 1/4W	144443
137093			R66	RES MF 681K 1% 1/4W	144443
R23	RES MET OX 430 OHM 5% .5W		R67	RES MF 100 OHM 1% 1/4W	144196
137095			R68	RES MF 475K 1% 1/4W	144364
R24	RES MET OX 680 OHM 5% .5W		R69	RES MF 22.1K 1% 1/4W	144187
137093			R70	RES MF 100 OHM 1% 1/4W	144196
R25	RES MF 22.1K 1% 1/4W	144187	R71	RES MF 100 OHM 1% 1/4W	144196
R26	RES MET OX 1.8k 5% .5W	137094	R72	RES MF 100 OHM 1% 1/4W	144196
R27	RES MF 332 OHM 1% 1/4W	144446	R73	RES MF 100 OHM 1% 1/4W	144196
R28	POT TRIM 200 OHM 20% HORIZ AD		R74	RES MF 100 OHM 1% 1/4W	144196
134390			R75	RES MF 267K 1% 1/4W	144118
R29	RES MF 475K 1% 1/4W	144364	R76	RES MF 221 OHM 1% 1/4W	144172
R30	RES MF 475K 1% 1/4W	144364	R77	RES MF 1M 1/4W	144269
R31	RES MF 5.11K 1% 1/4W	144083	R78	RES MF 100 OHM 1% 1/4W	144196
R32	RES MF 47.5K 1% 1/4W	144108	R79	RES CF 10 OHM 5% 1/2W	141165
R33	RES MF 47.5K 1% 1/4W	144108	R80	RES CF 10 OHM 5% 1/2W	141165
R34	RES MF 5.11K 1% 1/4W	144083	R81	RES MF 100 OHM 1% 1/4W	144196
R35	RES MF 47.5K 1% 1/4W	144108	R82	RES MF 1M 1/4W	144269
R36	RES 511 OHM 1% 1/4W	144123	R83	RES MF 10K 1% 1/4W	144053
R37	RES MF 681K 1% 1/4W	144443	R84	RES MF 47.5K 1% 1/4W	144108
R38	RES MF 866 OHM 1% 1/4W	144028	R85	RES MF 1.1K 1% 1/4W	144091
R39	RES MF 2.21 OHM 1/4W 1%	144378	R86	RES MF 4.75K 1% 1/4W	144097
R40	RES WW DUAL .47 OHM 5% 3W		R87	RES MF 14.7K 1% 1/4W	144149
139244			R88	RES MF 12.1K 1% 1/4W	144154
R41	RES WW DUAL .47 OHM 5% 3W		R89	RES MF 953 OHM 1/4W 1%	144473
139244			R90	RES MF 1.1K 1% 1/4W	144091
R42	RES WW DUAL .47 OHM 5% 3W		R91	RES MF 681K 1% 1/4W	144443
139244			R92	RES MF 866 OHM 1% 1/4W	144028
R43	RES WW DUAL .47 OHM 5% 3W		R93	RES MF 4.75K 1% 1/4W	144097
139244			R94	RES MF 47.5K 1% 1/4W	144108
R44	RES WW DUAL .47 OHM 5% 3W		R95	RES MF 1.1K 1% 1/4W	144091
139244			R96	RES MF 3.32K 1% 1/4W	144095
R45	RES WW DUAL .47 OHM 5% 3W		R97	RES 511 OHM 1% 1/4W	144123
139244			R98	RES MF 3.32K 1% 1/4W	144095
R46	RES MF 4.75K 1% 1/4W	144097	R99	RES MF 221 OHM 1% 1/4W	144172
R47	RES MF 4.75K 1% 1/4W	144097	R100	RES MF 1.1K 1% 1/4W	144091
R48	RES MF 100 OHM 1% 1/4W	144196	R101	RES MF 953 OHM 1/4W 1%	144473
R49	RES MF 1.1K 1% 1/4W	144091	R102	RES MF 332K 1% 1/4W	144119
R50	RES MF 14.7K 1% 1/4W	144149	R103	RES MF 332K 1% 1/4W	144119
R51	RES MF 221 OHM 1% 1/4W	144172	R104	RES MF 15K 1% 1/4W	144412

# PARTS LIST con't

R105	RES MF 6.49K 1% 1/4W	144140	D5	DIODE SILICON	070047						
R106	RES MF 475 OHM 1% 1/4W	144086	D6	DIODE SILICON	070047						
R107	RES MF 475 OHM 1% 1/4W	144086	D7	DIODE SILICON	070047						
R108	RES MF 6.49K 1% 1/4W	144140	D8	DIODE SILICON	070047						
R109	RES CF 0 ohm	141389	D9	DIODE SILICON	070047						
R110	RES MET OX 430 OHM 5% .5W	137095	D10	DIODE SILICON	070047						
R111	RES MET OX 430 OHM 5% .5W	137095	D11	DIODE SILICON	070047						
R112	RES MF 1M 1/4W	144269	D12	DIODE SILICON	070047						
R113	RES CF 10 OHM 5% 1/2W	141165	D13	DIODE SILICON	070047						
R114	RES CF 10 OHM 5% 1/2W	141165	D14	DIODE SILICON	070047						
R115	RES MF 1M 1/4W	144269	D15	DIODE SILICON	070047						
R119	RES MO 4.7 OHM 1W 5%	144464	D16	DIODE SILICON	070047						
R120	RES MO 4.7 OHM 1W 5%	144464	D17	DIODE SILICON	070047						
R122	RES MF 47.5K 1% 1/4W	144108	D18	DIODE SILICON	070047						
R123	RES MF 22.1K 1% 1/4W	144187	D19	DIODE SILICON	070047						
R124	RES MF 47.5K 1% 1/4W	144108	D20	DIODE SILICON	070047						
RT1	THERMAL	144249	D21	DIODE SILICON	070047						
RT2	THERMAL	144249	D22	DIODE SILICON	070047						
050066 DISPLAY PCB			D23	DIODE SILICON	070047						
C1	CAP ELECT 10UF 50V	066445	D24	DIODE SILICON	070047						
C2	CAP MPF 0.47UF 5% 50/63VDC	064333	D25	DIODE SILICON	070047						
6	C3	CAP MONO .1uF 50V 20% Z5U	D26	DIODE SILICON	070047						
	061305		D27	DIODE SILICON	070047						
	C4	CAP MONO .1uF 50V 20% Z5U	D28	DIODE SILICON	070047						
	061305		D29	DIODE SILICON	070047						
	C5	CAP MPF 0.1UF 5% 63VDC	064325	D30	DIODE SILICON	070047					
	C6	CAP ELECT 10UF 50V	066445	DS1	LED BLUE 5MM HI-INTENSITY						
	C7	CAP MPF 0.47UF 5% 50/63VDC	064333	"VF[V] 3.6"""	058166(1)112108(1)						
	C8	CAP MONO .1uF 50V 20% Z5U	061305	DS2	LED BLUE 5MM HI-INTENSITY						
	061305		C9	CAP MONO .1uF 50V 20% Z5U	061305	"VF[V] 3.6"""	058166(1)112108(1)				
	061305		C10	CAP MPF 0.1UF 5% 63VDC	064325	DS3	LED GREEN 5MM HI-INTENSITY				
	C11	CAP ELECT 10UF 50V	066445	C11	CAP ELECT 10UF 50V	066445	"VF[V] 3.5"""	058165(1)112108(1)			
	7	C12	CAP MPF 0.47UF 5% 50/63VDC	064333	C12	CAP MPF 0.47UF 5% 50/63VDC	064333	DS4	LED GREEN 5MM HI-INTENSITY		
			C13	CAP MONO .1uF 50V 20% Z5U	061305	C13	CAP MONO .1uF 50V 20% Z5U	061305	DS5	LED RED HIGH EFFICIENCY	058148
			C14	CAP ELECT 100UF 16V OR 25V	066447	C14	CAP ELECT 100UF 16V OR 25V	066447	DS6	LED BLUE 5MM HI-INTENSITY	
			C15	CAP MPF 0.1UF 5% 63VDC	064325	C15	CAP MPF 0.1UF 5% 63VDC	064325	"VF[V] 3.6"""	058166(1)112108(1)	
			C16	CAP MONO .1uF 50V 20% Z5U	061305	C16	CAP MONO .1uF 50V 20% Z5U	061305	DS7	LED BLUE 5MM HI-INTENSITY	
			D1	DIODE SILICON	070047	D1	DIODE SILICON	070047	"VF[V] 3.6"""	058166(1)112108(1)	
			D2	DIODE SILICON	070047	D2	DIODE SILICON	070047	DS8	LED GREEN 5MM HI-INTENSITY	
			D3	DIODE SILICON	070047	D3	DIODE SILICON	070047	"VF[V] 3.5"""	058165(1)112108(1)	
			D4	DIODE SILICON	070047	D4	DIODE SILICON	070047	DS9	LED GREEN 5MM HI-INTENSITY	

# MC207 EXPLODED VIEW





# REPACKING INSTRUCTION

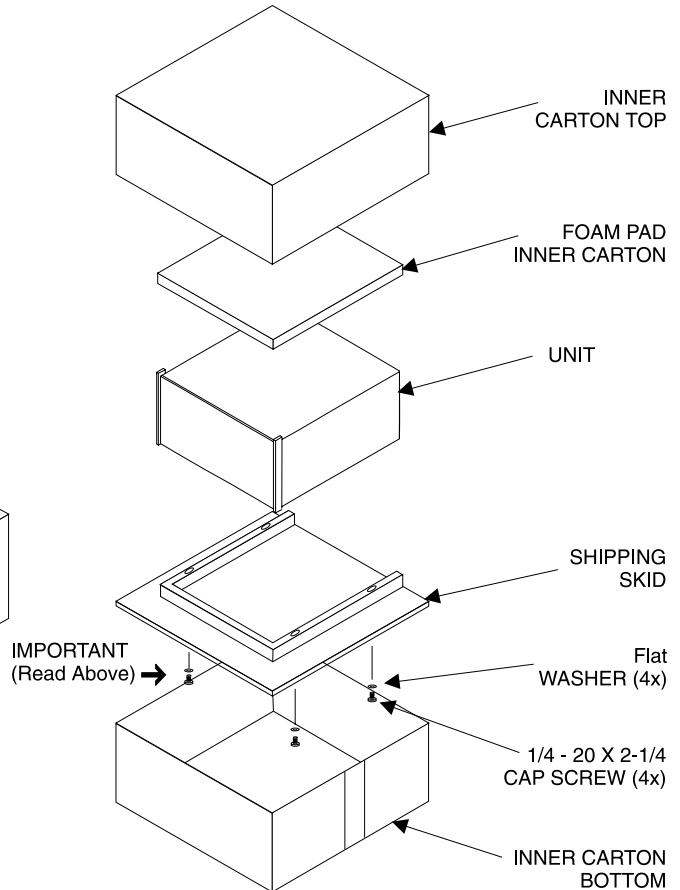
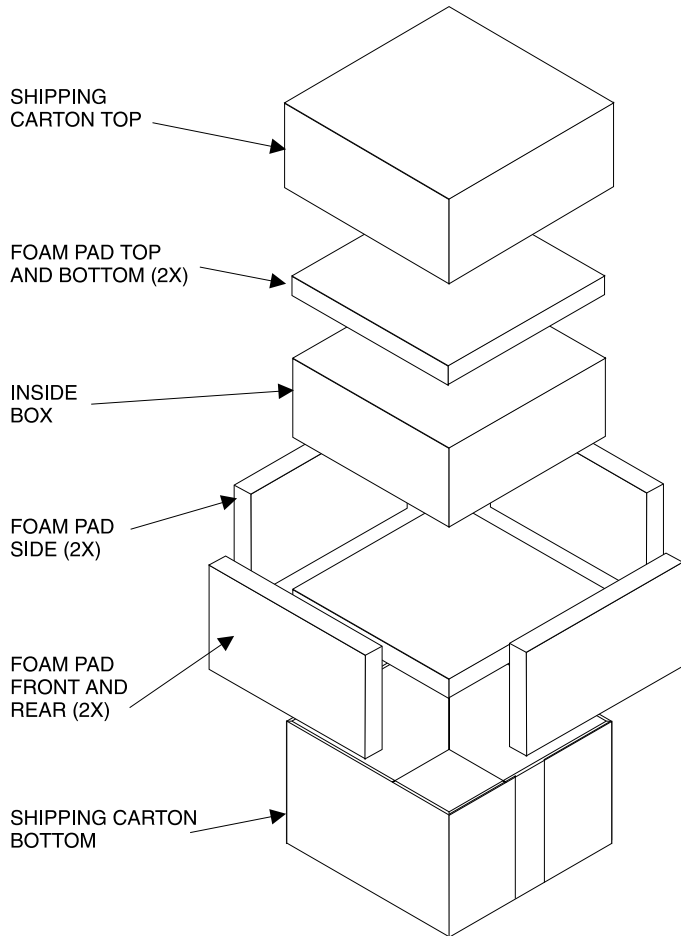
In the event it is necessary to repack the unit for shipment, the unit must be packed exactly as shown below.

**IMPORTANT** - For ease of shipment, attach the four feet to the bottom of the unit. Four, 1/4 - 20 x 2-1/4 bolts with washers must be used to fasten the unit securely to the wood skid. 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	034051	Shipping carton bottom
2	034186	Foam pad (front and rear)
2	034187	Foam Pad (side)
2	034054	Foam pad (top and bottom)
1	034052	Shipping carton (top)
1	034137	Inner carton (bottom)
1	034264	Shipping skid
1	034188	Foam pad (inner carton)
1	034136	Inner carton (top)
4	101212	1/4 - 20 x 2-1/4 cap screw
4	104058	Flat washer



# MC207

## 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.





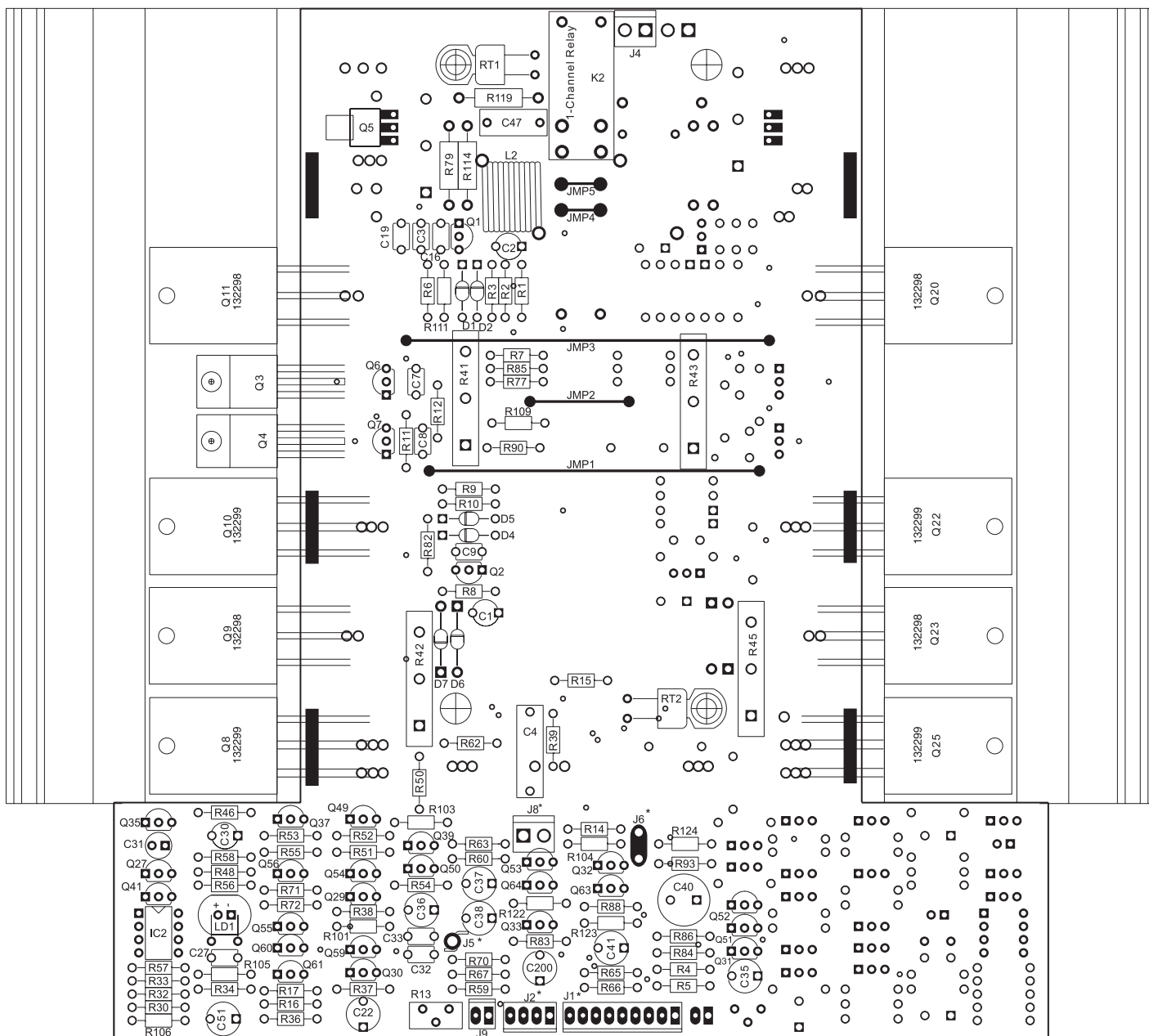
# MC207

## POWER AMPLIFIER

### SERVICE MANUAL ADDENDUM

3A  
3B

#### HEATSINK 1-CHANNEL 050070 HEATSINK ASSEMBLY 050187



\* Denotes components on reverse or backside of PC Board.

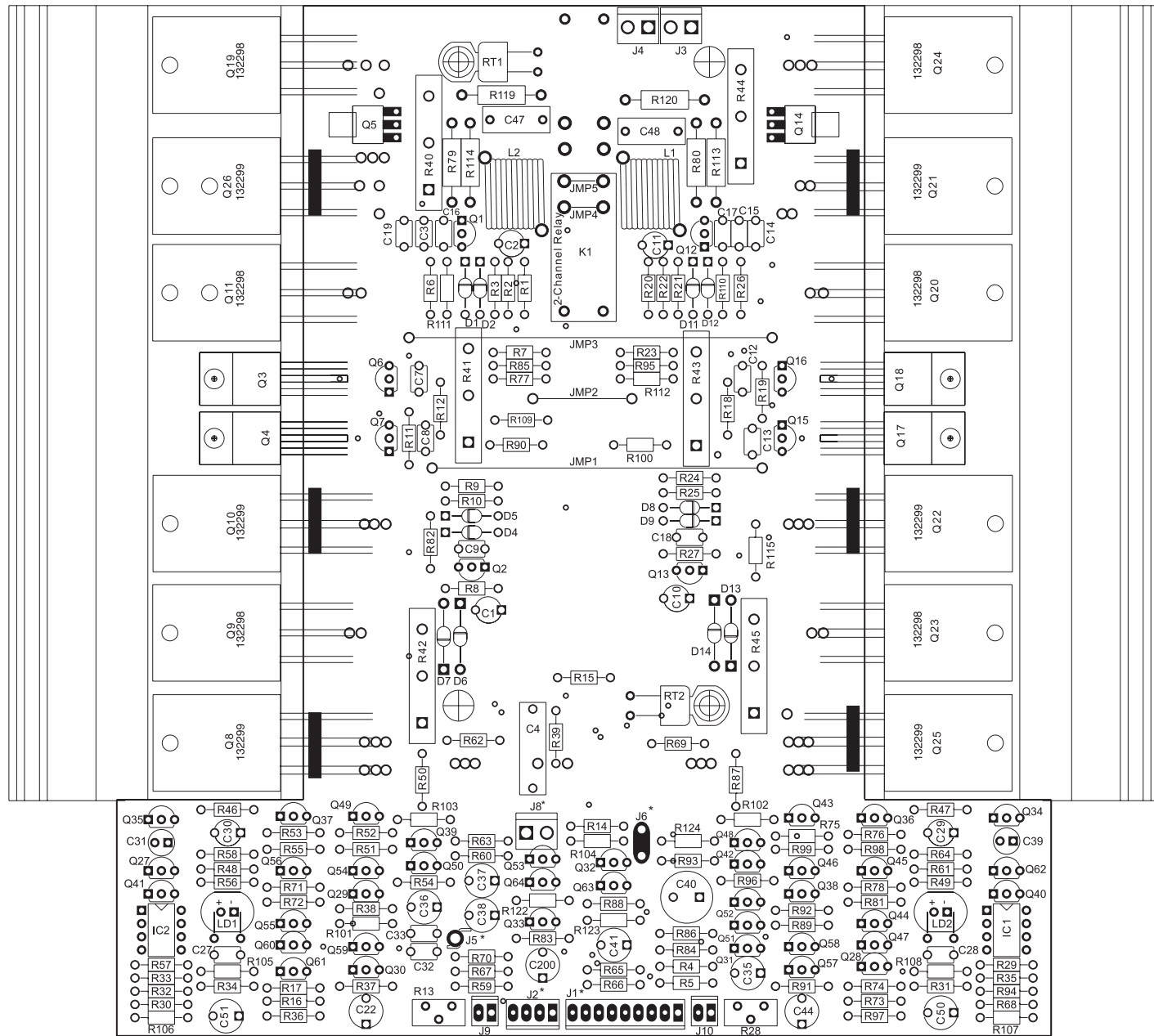
Q2	TRANSISTOR PNP	132224
Q3	TRANSISTOR NPN	132268
Q4	TRANSISTOR PNP	132267
Q5	TRANSISTOR NPN	132223
Q7	TRANSISTOR PNP	132286
Q8	TRANSISTOR PNP POWER	132299
Q9	TRANSISTOR NPN POWER	132298
Q10	TRANSISTOR PNP POWER	132299
Q11	TRANSISTOR NPN POWER	132298
Q12	TRANSISTOR NPN	132223
Q13	TRANSISTOR PNP	132224
Q14	TRANSISTOR NPN	132223
Q15	TRANSISTOR PNP	132286
Q16	TRANSISTOR NPN	132285
Q17	TRANSISTOR PNP	132267
Q18	TRANSISTOR NPN	132268
Q19	TRANSISTOR NPN POWER	132298
Q20	TRANSISTOR PNP POWER	132298
Q21	TRANSISTOR PNP POWER	132299
Q22	TRANSISTOR PNP POWER	132299
Q23	TRANSISTOR NPN POWER	132298
Q24	TRANSISTOR NPN POWER	132298
Q25	TRANSISTOR PNP POWER	132299
Q26	TRANSISTOR PNP POWER	132299
Q27	TRANSISTOR PNP	132224
Q28	TRANSISTOR SI NPN 25V	132254
Q29	TRANSISTOR PNP POWER	132255
Q30	TRANSISTOR SI NPN 25V	132254
Q31	TRANSISTOR NPN	132223
Q32	TRANSISTOR NPN	132223
Q33	TRANSISTOR PNP POWER	132255
Q34	TRANSISTOR NPN	132223
Q35	TRANSISTOR NPN	132223
Q36	TRANSISTOR NPN	132285
Q37	TRANSISTOR NPN	132285
Q38	TRANSISTOR PNP POWER	132255
Q39	TRANSISTOR PNP	132286
Q40	TRANSISTOR PNP	132224
Q41	TRANSISTOR PNP	132224
Q42	TRANSISTOR NPN	132223
Q43	TRANSISTOR PNP	132224
Q44	TRANSISTOR PNP POWER	132255
Q45	TRANSISTOR PNP POWER	132255
Q46	TRANSISTOR PNP	132224
Q47	TRANSISTOR SI NPN 25V	132254
Q48	TRANSISTOR PNP	132286
Q49	TRANSISTOR PNP	132224
Q50	TRANSISTOR NPN	132223
Q51	TRANSISTOR NPN	132223
Q52	TRANSISTOR NPN	132223
Q53	TRANSISTOR PNP POWER	132255
Q54	TRANSISTOR PNP	132224
Q55	TRANSISTOR PNP POWER	132255
Q56	TRANSISTOR PNP POWER	132255
Q57	TRANSISTOR SI NPN 25V	132254
Q58	TRANSISTOR NPN	132223
Q59	TRANSISTOR NPN	132223
Q60	TRANSISTOR SI NPN 25V	132254
Q61	TRANSISTOR SI NPN 25V	132254
Q62	TRANSISTOR PNP	132224
Q63	TRANSISTOR NPN	132223
Q64	TRANSISTOR PNP POWER	132255
R1	RES MF 332 OHM 1% 1/4W	144446
R2	RES MET OX 680 OHM 5% .5W	137093
R3	RES MF 22.1K 1% 1/4W	144187
R4	RES MF 100K 1% 1/4W	144113
R5	RES MF 22.1K 1% 1/4W	144187
R6	RES MET OX 1.8k 5% .5W	137094
R7	RES MET OX 430 OHM 5% .5W	137095
R8	RES MF 332 OHM 1% 1/4W	144446
R9	RES MET OX 680 OHM 5% .5W	137093
R10	RES MF 22.1K 1% 1/4W	144187
R11	RES MET OX 1.8k 5% .5W	137094
R12	RES MET OX 47 OHM 5% .5W	137096
R13	POT TRIM 200 OHM 20% HORIZ AD	134390
R14	RES MF 100K 1% 1/4W	144113
R15	RES MF 100 OHM 1% 1/4W	144196
R16	RES MF 100 OHM 1% 1/4W	144196
R17	RES MF 100 OHM 1% 1/4W	144196
R18	RES MET OX 47 OHM 5% .5W	137096
R19	RES MET OX 1.8k 5% .5W	137094
R20	RES MF 332 OHM 1% 1/4W	144446
R21	RES MF 22.1K 1% 1/4W	144187
R22	RES MET OX 680 OHM 5% .5W	137093
R23	RES MET OX 430 OHM 5% .5W	137095
R24	RES MET OX 680 OHM 5% .5W	137093
R25	RES MF 22.1K 1% 1/4W	144187
R26	RES MET OX 1.8k 5% .5W	137094
R27	RES MF 332 OHM 1% 1/4W	144446
R28	POT TRIM 200 OHM 20% HORIZ AD	134390
R29	RES MF 475K 1% 1/4W	144364
R30	RES MF 475K 1% 1/4W	144364

R31	RES MF 5.11K 1% 1/4W	144083
R32	RES MF 47.5K 1% 1/4W	144108
R33	RES MF 47.5K 1% 1/4W	144108
R34	RES MF 5.11K 1% 1/4W	144083
R35	RES MF 47.5K 1% 1/4W	144108
R36	RES 511 OHM 1% 1/4W	144123
R37	RES MF 681K 1% 1/4W	144443
R38	RES MF 866 OHM 1% 1/4W	144028
R39	RES MF 2.21 OHM 1/4W 1%	144378
R40	RES WW DUAL .47 OHM 5% 3W	139244
R41	RES WW DUAL .47 OHM 5% 3W	139244
R42	RES WW DUAL .47 OHM 5% 3W	139244
R43	RES WW DUAL .47 OHM 5% 3W	139244
R44	RES WW DUAL .47 OHM 5% 3W	139244
R45	RES WW DUAL .47 OHM 5% 3W	139244
R46	RES MF 4.75K 1% 1/4W	144097
R47	RES MF 4.75K 1% 1/4W	144097
R48	RES MF 100 OHM 1% 1/4W	144196
R49	RES MF 1.1K 1% 1/4W	144091
R50	RES MF 14.7K 1% 1/4W	144149
R51	RES MF 221 OHM 1% 1/4W	144172
R52	RES MF 267K 1% 1/4W	144118
R53	RES MF 221 OHM 1% 1/4W	144172
R54	RES MF 3.32K 1% 1/4W	144095
R55	RES MF 3.32K 1% 1/4W	144095
R56	RES MF 10K 1% 1/4W	144053
R57	RES MF 475K 1% 1/4W	144364
R58	RES MF 1.1K 1% 1/4W	144091
R59	RES MF 2.21 OHM 1/4W 1%	144378
R60	RES FP 22 OHM 1/4W 5%	137033
R61	RES MF 100 OHM 1% 1/4W	144196
R62	RES MF 22.1K 1% 1/4W	144187
R63	RES FP 22 OHM 1/4W 5%	137033
R64	RES MF 10K 1% 1/4W	144053
R65	RES MF 681K 1% 1/4W	144443
R66	RES MF 681K 1% 1/4W	144443
R67	RES MF 100 OHM 1% 1/4W	144196
R68	RES MF 475K 1% 1/4W	144364
R69	RES MF 22.1K 1% 1/4W	144187
R70	RES MF 100 OHM 1% 1/4W	144196
R71	RES MF 100 OHM 1% 1/4W	144196
R72	RES MF 100 OHM 1% 1/4W	144196
R73	RES MF 100 OHM 1% 1/4W	144196
R74	RES MF 100 OHM 1% 1/4W	144196
R75	RES MF 267K 1% 1/4W	144118
R76	RES MF 221 OHM 1% 1/4W	144172
R77	RES MF 1M 1/4W	144269
R78	RES MF 100 OHM 1% 1/4W	144196
R79	RES CF 10 OHM 5% 1/2W	141165
R80	RES CF 10 OHM 5% 1/2W	141165
R81	RES MF 100 OHM 1% 1/4W	144196
R82	RES MF 1M 1/4W	144269
R83	RES MF 10K 1% 1/4W	144053
R84	RES MF 47.5K 1% 1/4W	144108
R85	RES MF 1.1K 1% 1/4W	144091
R86	RES MF 4.75K 1% 1/4W	144097
R87	RES MF 14.7K 1% 1/4W	144149
R88	RES MF 12.1K 1% 1/4W	144154
R89	RES MF 953 OHM 1/4W 1%	144473
R90	RES MF 1.1K 1% 1/4W	144091
R91	RES MF 681K 1% 1/4W	144443
R92	RES MF 866 OHM 1% 1/4W	144028
R93	RES MF 4.75K 1% 1/4W	144097
R94	RES MF 47.5K 1% 1/4W	144108
R95	RES MF 1.1K 1% 1/4W	144091
R96	RES MF 3.32K 1% 1/4W	144095
R97	RES 511 OHM 1% 1/4W	144123
R98	RES MF 3.32K 1% 1/4W	144095
R99	RES MF 221 OHM 1% 1/4W	144172
R100	RES MF 1.1K 1% 1/4W	144091
R101	RES MF 953 OHM 1/4W 1%	144473
R102	RES MF 332K 1% 1/4W	144119
R103	RES MF 332K 1% 1/4W	144119
R104	RES MF 15K 1% 1/4W	144412
R105	RES MF 6.49K 1% 1/4W	144140
R106	RES MF 475 OHM 1% 1/4W	144086
R107	RES MF 475 OHM 1% 1/4W	144086
R108	RES MF 6.49K 1% 1/4W	144140
R109	RES CF 0 OHM 5% 1/4W	141389
R110	RES MET OX 430 OHM 5% .5W	137095
R111	RES MET OX 430 OHM 5% .5W	137095
R112	RES MF 1M 1/4W	144269
R113	RES CF 10 OHM 5% 1/2W	141165
R114	RES CF 10 OHM 5% 1/2W	141165
R115	RES MF 1M 1/4W	144269
R119	RES MO 4.7 OHM 1W 5%	144464
R120	RES MO 4.7 OHM 1W 5%	144464
R122	RES MF 47.5K 1% 1/4W	144108
R123	RES MF 22.1K 1% 1/4W	144187
R124	RES MF 47.5K 1% 1/4W	144108
RT1	SENSOR THERMAL	144249
RT2	SENSOR THERMAL	144249

144083		
144108		
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144123		
144443		
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144187		
144108		
144249		
144249		



# HEATSINK 2-CHANNEL 050064 HEATSINK ASSEMBLY 050188



\* Denotes components on reverse or backside of PC Board.

## PARTS LIST

Ref No.	Description	Part No.
<b>3A</b> 050070	<b>HEATSINK 1-CHANNEL PCB</b>	
C1	CAP ELECT 47UF 35V	066446
C2	CAP ELECT 47UF 35V	066446
C3	CAP MONO .1uF 50V 20% Z5U	061305
C4	CAP POLYPROP 0.15UF 10% 250VDC	064363
C7	CAP MONO 100PF 100V 10% NPO	061300
C8	CAP MONO 100PF 100V 10% NPO	061300
C9	CAP MONO .01UF 50V 20% X7R	061304
C14	CAP MONO 100PF 100V 10% NPO	061300
C16	CAP MONO .01UF 50V 20% X7R	061304
C22	CAP ELECT 220UF 25V	066507
C27	CAP MONO 100PF 100V 10% NPO	061300
C30	CAP ELECT 47UF 35V	066446
C31	CAP ELECT .47UF 50V	066244
C32	CAP MONO .1uF 50V 20% Z5U	061305
C33	CAP MONO .1uF 50V 20% Z5U	061305
C35	CAP ELECT 10UF 100VDC	066462
C36	CAP ELECT 10UF 100VDC	066462
C37	CAP ELECT 10UF 100VDC	066462
C38	CAP ELECT 10UF 100VDC	066462
C40	CAP ELECT 220UF 50V 20%	066254
C41	CAP ELECT 10UF 100VDC	066462
C47	CAP POLYPROP .047UF 10% 250VDC	064364
C51	CAP ELECT 10UF 100VDC	066462
C200	CAP ELECT 10UF 100VDC	066462
D1	DIODE SILICON	070047
D2	DIODE SILICON	070047
D4	DIODE SILICON	070047
D5	DIODE SILICON	070047
D6	DIODE RECTIFIER	070131
D7	DIODE RECTIFIER	070131
D8	DIODE SILICON	070047
D9	DIODE SILICON	070047
D11	DIODE SILICON	070047
D12	DIODE SILICON	070047
D13	DIODE RECTIFIER	070131
D14	DIODE RECTIFIER	070131
IC2	IC DUAL AMP	133259
J1	CONN MALE 9 POS FRICTION LOCK	117244
J2	CONN 4 PIN	117215
J4	CONN HEADER 2 PIN 0.156	117404
J5	BLADE FASTON .110	117712
J6	BLADE FASTON W/FEET	117708
J8	CONN HEADER 2 PIN 0.156	117404
J9	CONN 2 PIN MALE	117213
K1	RELAY 24VDC 5A 277VAC	087057
K2	RELAY 24VDC 5A 277VAC	087057
L2	CHOKE 0.65UH OUTPUT	122297

LD1	LDR NETWORK	144179	R83	RES MF 10K 1% 1/4W	144053
Q1	TRANSISTOR NPN	132223	R84	RES MF 47.5K 1% 1/4W	144108
Q2	TRANSISTOR PNP	132224	R85	RES MF 1.1K 1% 1/4W	144091
Q3	TRANSISTOR NPN	132268	R86	RES MF 4.75K 1% 1/4W	144097
Q4	TRANSISTOR PNP	132267	R88	RES MF 12.1K 1% 1/4W	144154
Q5	TRANSISTOR NPN	132223	R90	RES MF 1.1K 1% 1/4W	144091
Q6	TRANSISTOR NPN	132285	R93	RES MF 4.75K 1% 1/4W	144097
Q7	TRANSISTOR PNP	132286	R101	RES MF 953 OHM 1/4W 1%	144473
Q8	TRANSISTOR PNP POWER	132299	R103	RES MF 332K 1% 1/4W	144119
Q9	TRANSISTOR NPN POWER	132298	R104	RES MF 15K 1% 1/4W	144412
Q10	TRANSISTOR PNP POWER	132299	R105	RES MF 6.49K 1% 1/4W	144140
Q11	TRANSISTOR NPN POWER	132298	R106	RES MF 475 OHM 1% 1/4W	144086
Q20	TRANSISTOR NPN POWER	132298	R109	RES CF 0 OHM 5% 1/4W	141389
Q22	TRANSISTOR PNP POWER	132299	R111	RES MET OX 430 OHM 5% .5W	137095
Q23	TRANSISTOR NPN POWER	132298	R114	RES CF 10 OHM 5% 1/2W	141165
Q25	TRANSISTOR PNP POWER	132299	R119	RES MO 4.7 OHM 1W 5%	144464
Q27	TRANSISTOR PNP	132224	R122	RES MF 47.5K 1% 1/4W	144108
Q29	TRANSISTOR PNP POWER	132255	R123	RES MF 22.1K 1% 1/4W	144187
Q30	TRANSISTOR SI NPN 25V	132254	R124	RES MF 47.5K 1% 1/4W	144108
Q31	TRANSISTOR NPN	132223	RT1	SENSOR THERMAL	144249
Q32	TRANSISTOR NPN	132223	RT2	SENSOR THERMAL	144249
Q33	TRANSISTOR PNP POWER	132255			
Q35	TRANSISTOR NPN	132223			
Q37	TRANSISTOR NPN	132285			
Q39	TRANSISTOR PNP	132286			
Q41	TRANSISTOR NPN	132224			
Q49	TRANSISTOR PNP	132224			
Q50	TRANSISTOR NPN	132223			
Q51	TRANSISTOR NPN	132223			
Q52	TRANSISTOR NPN	132223			
Q53	TRANSISTOR PNP POWER	132255			
Q54	TRANSISTOR NPN	132224			
Q55	TRANSISTOR PNP POWER	132255			
Q56	TRANSISTOR PNP POWER	132255			
Q59	TRANSISTOR NPN	132223			
Q60	TRANSISTOR SI NPN 25V	132254			
Q61	TRANSISTOR SI NPN 25V	132254			
Q63	TRANSISTOR NPN	132223			
Q64	TRANSISTOR PNP POWER	132255			
R1	RES MF 332 OHM 1% 1/4W	144446			
R2	RES MET OX 680 OHM 5% .5W	137093			
R3	RES MF 22.1K 1% 1/4W	144187			
R4	RES MF 100K 1% 1/4W	144113			
R5	RES MF 22.1K 1% 1/4W	144187			
R6	RES MET OX 1.8k 5% .5W	137094			
R7	RES MET OX 430 OHM 5% .5W	137095			
R8	RES MF 332 OHM 1% 1/4W	144446			
R9	RES MET OX 680 OHM 5% .5W	137093			
R10	RES MF 22.1K 1% 1/4W	144187			
R11	RES MET OX 1.8k 5% .5W	137094			
R12	RES MET OX 47 OHM 5% .5W	137096			
R13	POT TRIM 200 OHM 20% HORIZ AD	134390			
R14	RES MF 100K 1% 1/4W	144113			
R15	RES MF 100 OHM 1% 1/4W	144196			
R16	RES MF 100 OHM 1% 1/4W	144196			
R17	RES MF 100 OHM 1% 1/4W	144196			
R30	RES MF 475K 1% 1/4W	144364			
R32	RES MF 47.5K 1% 1/4W	144108			
R33	RES MF 47.5K 1% 1/4W	144108			
R34	RES MF 5.11K 1% 1/4W	144083			
R36	RES 511 OHM 1% 1/4W	144123			
R37	RES MF 681K 1% 1/4W	144443			
R38	RES MF 866 OHM 1% 1/4W	144028			
R39	RES MF 2.21 OHM 1/4W 1%	144378			
R41	RES WW DUAL .47 OHM 5% 3W	139244			
R42	RES WW DUAL .47 OHM 5% 3W	139244			
R43	RES WW DUAL .47 OHM 5% 3W	139244			
R45	RES WW DUAL .47 OHM 5% 3W	139244			
R46	RES MF 4.75K 1% 1/4W	144097			
R48	RES MF 100 OHM 1% 1/4W	144196			
R50	RES MF 14.7K 1% 1/4W	144149			
R51	RES MF 221 OHM 1% 1/4W	144172			
R52	RES MF 267K 1% 1/4W	144118			
R53	RES MF 221 OHM 1% 1/4W	144172			
R54	RES MF 3.32K 1% 1/4W	144095			
R55	RES MF 3.32K 1% 1/4W	144095			
R56	RES MF 10K 1% 1/4W	144053			
R57	RES MF 475K 1% 1/4W	144364			
R58	RES MF 1.1K 1% 1/4W	144091			
R59	RES MF 2.21 OHM 1/4W 1%	144378			
R60	RES FP 22 OHM 1/4W 5%	137033			
R62	RES MF 22.1K 1% 1/4W	144187			
R63	RES FP 22 OHM 1/4W 5%	137033			
R65	RES MF 681K 1% 1/4W	144443			
R67	RES MF 100 OHM 1% 1/4W	144196			
R70	RES MF 100 OHM 1% 1/4W	144196			
R71	RES MF 100 OHM 1% 1/4W	144196			
R72	RES MF 100 OHM 1% 1/4W	144196			
R77	RES MF 1M 1/4W	144269			
R79	RES CF 10 OHM 5% 1/2W	141165			
R82	RES MF 1M 1/4W	144269			

Ref No.	Description	Part No.
<b>3A</b> 050064	<b>HEATSINK 2-CHANNEL PCB</b>	
C1	CAP ELECT 47UF 35V	066446
C2	CAP ELECT 47UF 35V	066446
C3	CAP MONO .1uF 50V 20% Z5U	061305
C4	CAP POLYPROP 0.15UF 10% 250VDC	064363
C7	CAP MONO 100PF 100V 10% NPO	061300
C8	CAP MONO 100PF 100V 10% NPO	061300
C9	CAP MONO .01UF 50V 20% X7R	061304
C10	CAP ELECT 47UF 35V	066446
C11	CAP ELECT 47UF 35V	066446
C12	CAP MONO 100PF 100V 10% NPO	061300
C13	CAP MONO 100PF 100V 10% NPO	061300
C14	CAP MONO 100PF 100V 10% NPO	061300
C15	CAP MONO .1uF 50V 20% Z5U	061305
C16	CAP MONO .01UF 50V 20% X7R	061304
C17	CAP MONO .01UF 50V 20% X7R	061304
C18	CAP MONO .01UF 50V 20% X7R	061304
C19	CAP MONO 100PF 100V 10% NPO	061300
C22	CAP ELECT 220UF 25V	066507
C27	CAP MONO 100PF 100V 10% NPO	061300
C28	CAP MONO 100PF 100V 10% NPO	061300
C29	CAP ELECT 47UF 35V	066446
C30	CAP ELECT 47UF 35V	066446
C31	CAP ELECT .47UF 50V	066244
C32	CAP MONO .1uF 50V 20% Z5U	061305
C33	CAP MONO .1uF 50V 20% Z5U	061305
C35	CAP ELECT 10UF 100VDC	066462
C36	CAP ELECT 10UF 100VDC	066462
C37	CAP ELECT 10UF 100VDC	066462
C38	CAP ELECT 10UF 100VDC	066462
C39	CAP ELECT .47UF 50V	066244
C40	CAP ELECT 220UF 50V 20%	066254
C41	CAP ELECT 10UF 100VDC	066462
C44	CAP ELECT 220UF 25V	066507
C47	CAP POLYPROP .047UF 10% 250VDC	064364
C48	CAP POLYPROP .047UF 10% 250VDC	064364
C50	CAP ELECT 10UF 100VDC	066462
C51	CAP ELECT 10UF 100VDC	066462
C200	CAP ELECT 10UF 100VDC	066462
D1	DIODE SILICON	070047
D2	DIODE SILICON	070047
D4	DIODE SILICON	070047
D5	DIODE SILICON	070047
D6	DIODE RECTIFIER	070131
D7	DIODE RECTIFIER	070131
D8	DIODE SILICON	070047
D9	DIODE SILICON	070047
D11	DIODE SILICON	070047
D12	DIODE SILICON	070047
D13	DIODE RECTIFIER	070131
D14	DIODE RECTIFIER	070131
IC1	IC DUAL AMP	133259
IC2	IC DUAL AMP	133259
J1	CONN MALE 9 POS FRICTION LOCK	117244
J2	CONN 4 PIN	117215
J3	CONN HEADER 2 PIN 0.156	117404
J4	CONN HEADER 2 PIN 0.156	117404
J5	BLADE FASTON .110	117712
J6	BLADE FASTON W/FEET	117708
J8	CONN HEADER 2 PIN 0.156	117404
J9	CONN 2 PIN MALE	117213
J10	CONN 2 PIN MALE	117213
K1	RELAY 24VDC 5A 277VAC	087057
K2	RELAY 24VDC 5A 277VAC	087057
L1	CHOKE 0.65UH OUTPUT	122297
L2	CHOKE 0.65UH OUTPUT	122297
LD1	LDR NETWORK	144179
LD2	LDR NETWORK	144179
Q1	TRANSISTOR NPN	132223