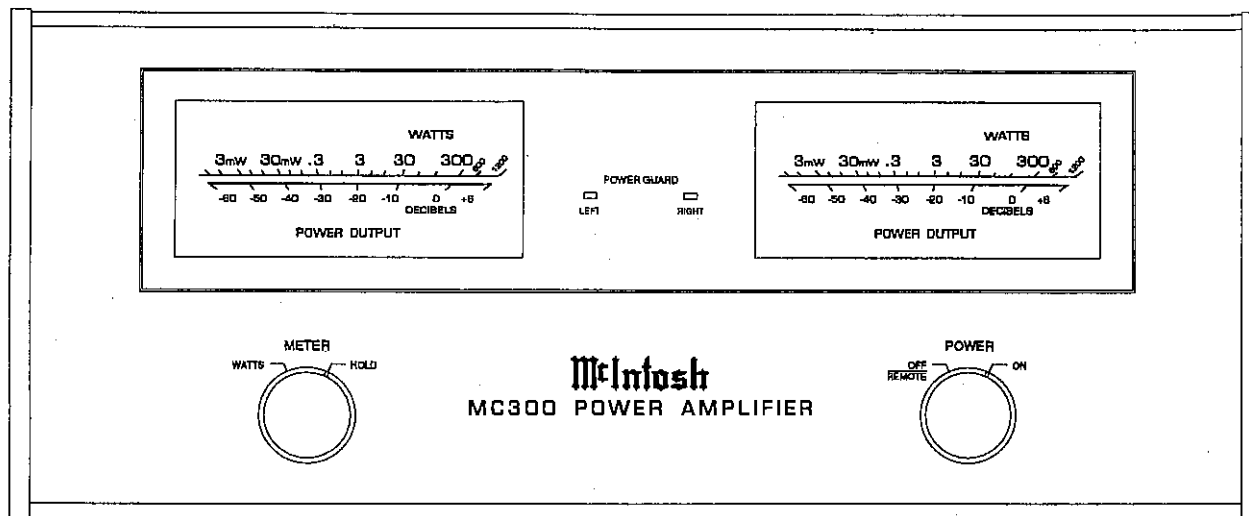


MC300

POWER AMPLIFIER



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McIntosh

Service Manual

Performance Specifications

STEREO POWER OUTPUT

300 watts into 8, 4, or 2 ohm loads is the minimum sinewave continuous average power output per channel from 20Hz to 20,000Hz with both channels operating. The output RMS voltage is:

49.0 across 8 ohms
34.6 across 4 ohms
24.5 across 2 ohms

MONO-BRIDGE POWER OUTPUT

600 watts into a 16, 8, or 4 ohm load is the minimum sinewave continuous average power output from 20Hz to 20,000Hz. The output RMS voltage is:

98.0 across 16 ohms
69.3 across 8 ohms
49.0 across 4 ohms

MONO-PARALLEL POWER OUTPUT

600 watts into a 4, 2 or 1 ohm load is the minimum sinewave continuous average power output from 20Hz to 20,000Hz. The output RMS voltage is:

49.0 across 4 ohms
34.6 across 2 ohms
24.5 across 1 ohm

OUTPUT LOAD IMPEDANCE

STEREO

8, 4 or 2 ohms by connecting to the proper output terminals.

MONO

16, 8, 4, 2 or 1 ohms by connecting to proper output terminals.

TOTAL HARMONIC DISTORTION

STEREO

0.005% minimum harmonic distortion at any power level from 250 milliwatts to rated power per channel from 20Hz to 20,000Hz, both channels operating.

MONO

0.005% maximum harmonic distortion at any power level from 250 milliwatts to rated power from 20Hz to 20,000Hz.

INTERMODULATION DISTORTION

STEREO

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

MONO

0.005% maximum if instantaneous peak power output does not exceed twice the output rating for any combination of frequencies from 20Hz to 20,000Hz.

FREQUENCY RESPONSE (at one watt output)

+0, -0.25dB from 20Hz to 20kHz
+0, -3.0dB from 10Hz to 100kHz

HUM AND NOISE (A-weighted)

105dB below rated output

IHF DYNAMIC HEADROOM

1.9dB

DAMPING FACTOR

Greater than 40

INPUT IMPEDANCE

20,000 ohms Unbalanced
40,000 ohms Balanced

INPUT SENSITIVITY

1.4 with LEVEL Controls at maximum;
2.5V sensitivity marked.

POWER REQUIREMENTS

120VAC, 50/60Hz, 3.3 Amperes UL/CSA
230VAC, 50/60Hz, 1.8 Amperes

MECHANICAL INFORMATION

Size: 17-1/2 inches wide (44.5cm) by 7-1/16 inches high (17.9cm). Depth is 19-3/4 inches (50.17cm) including connectors. Knob clearance required in front of the mounting panel is 1-1/8 inches (2.9cm).

Finish: The front panel is a combination of glass and black anodized aluminum. The chassis is black.

Weight: 79 pounds (35.8 kg) net, 97 pounds (44 kg) in shipping carton.

Rear Panel

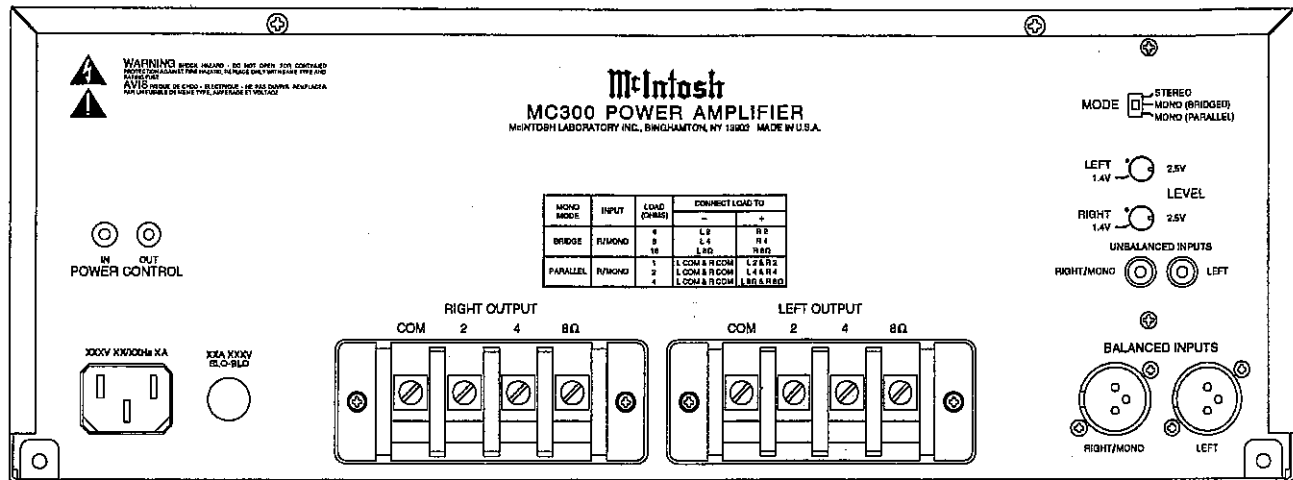


Fig. 1 - Rear view

FRONT PANEL and TRIM PARTS LIST

Part	Description
018345	End Caps
018451	Bottom Panel Extrusion
018453	Top Panel Extrusion
048704	Front Panel, Complete
090247	Control Knob Serial Nos. LN1001 thru LN1325
090246	Control Knob Serial Nos. LN1326 and Above
104017	Knob Felt Washer, 3/4" Dia

Notes

- The heavy lines on the schematics denote the primary signal path.
- Unless otherwise noted, all voltages indicated on the schematics are measured under the following conditions:
 - AC input at 120 volts, 50/60Hz.
 - All voltages are $\pm 10\%$ with respect to ground. A high impedance (10 megohm) voltmeter must be used.
- Unless otherwise specified:
 - Resistor values are in ohms.
 - Capacitor values are in microfarads (uF).
 - Inductor values are in microhenries (uH).
- On PC Board Drawings, Square Pad Indicates:
 - Polarized Capacitors - Positive
 - Diode - Cathode
 - Others - Pin 1
- WARNING:**
 Parts marked with the symbol have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

Front panel controls are set at:
 POWER ON
 METER WATTS

Section Locations

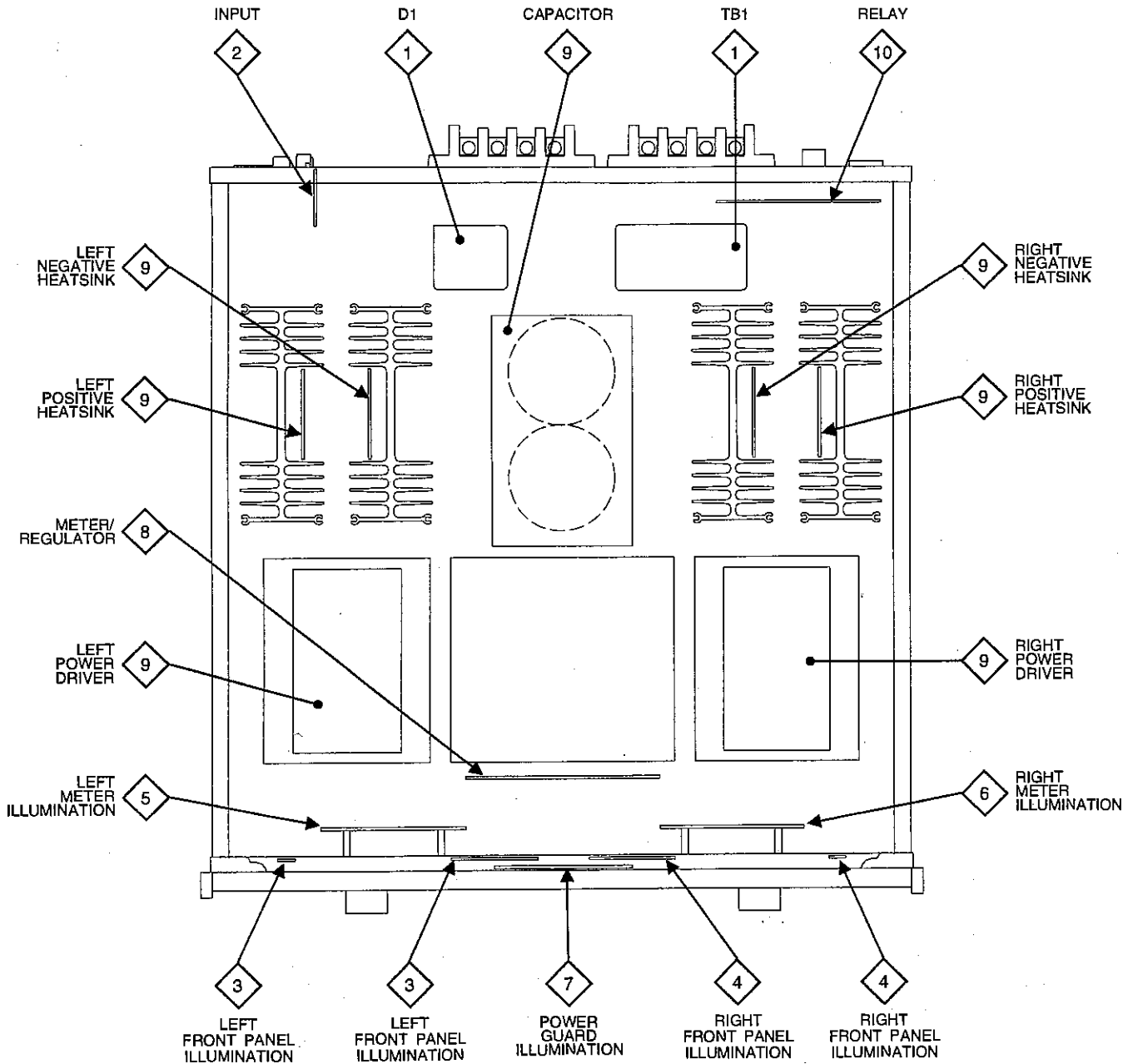
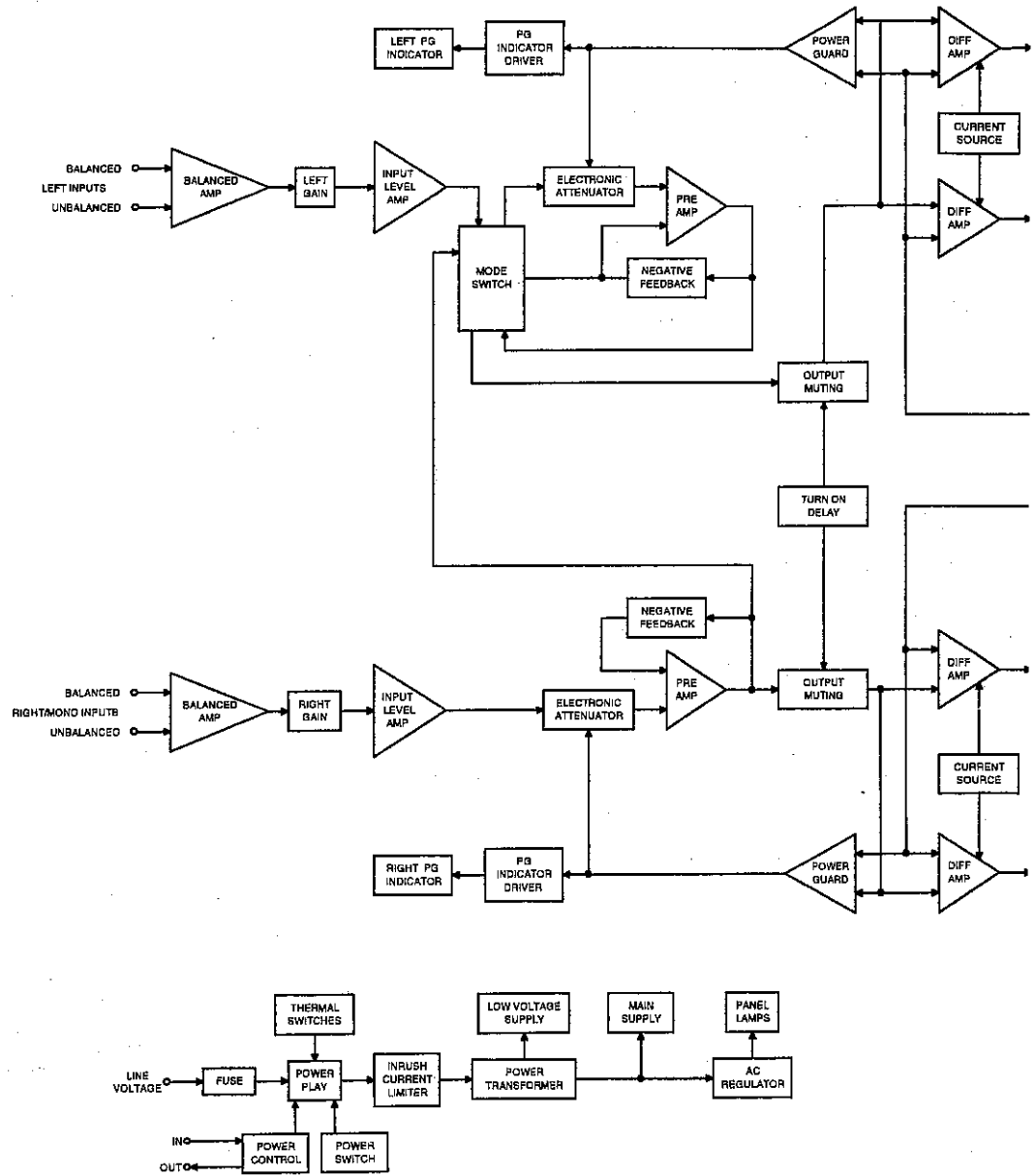
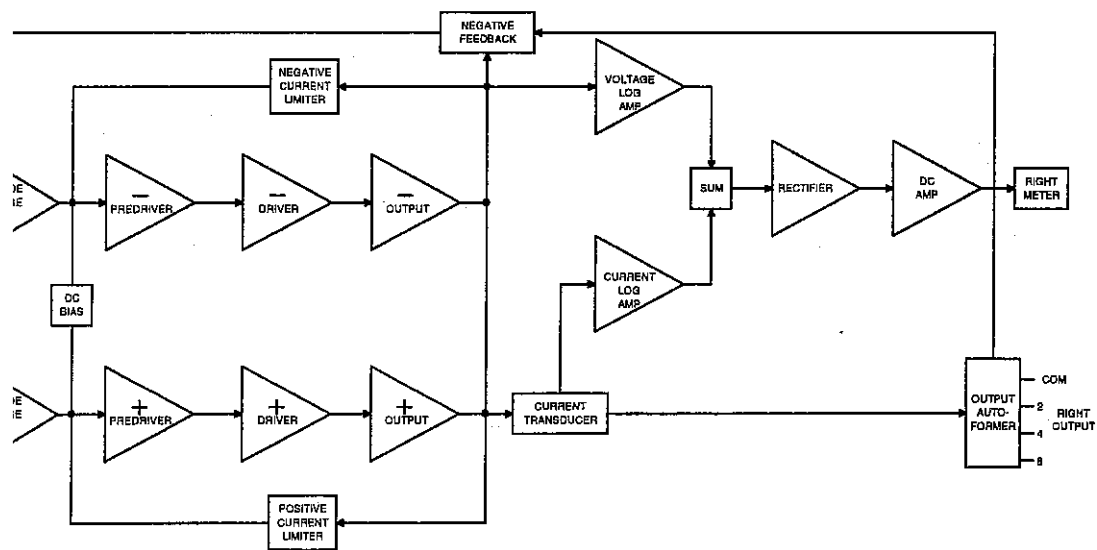
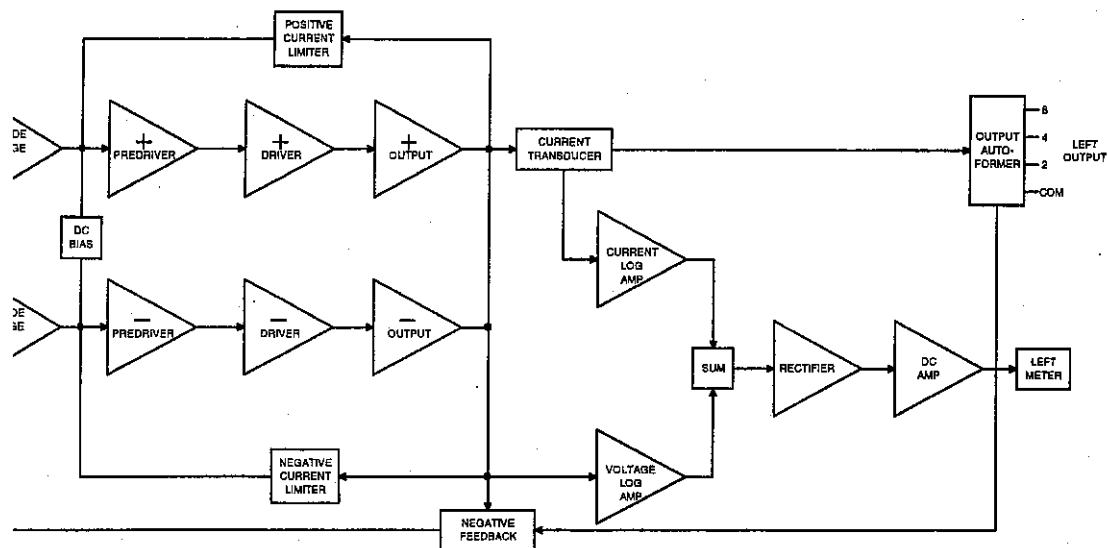


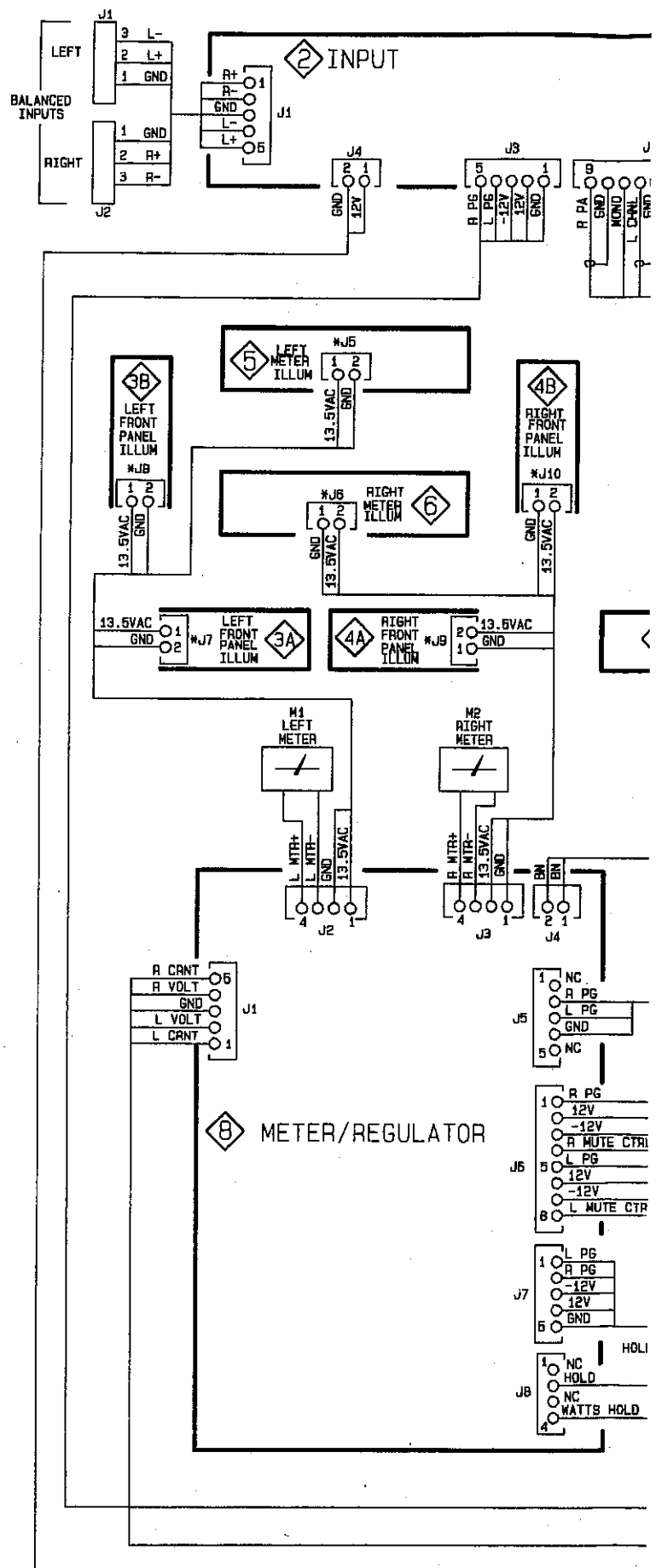
Fig. 2 - Top view with cover removed

Block Diagram





1 Interconnection Diagram

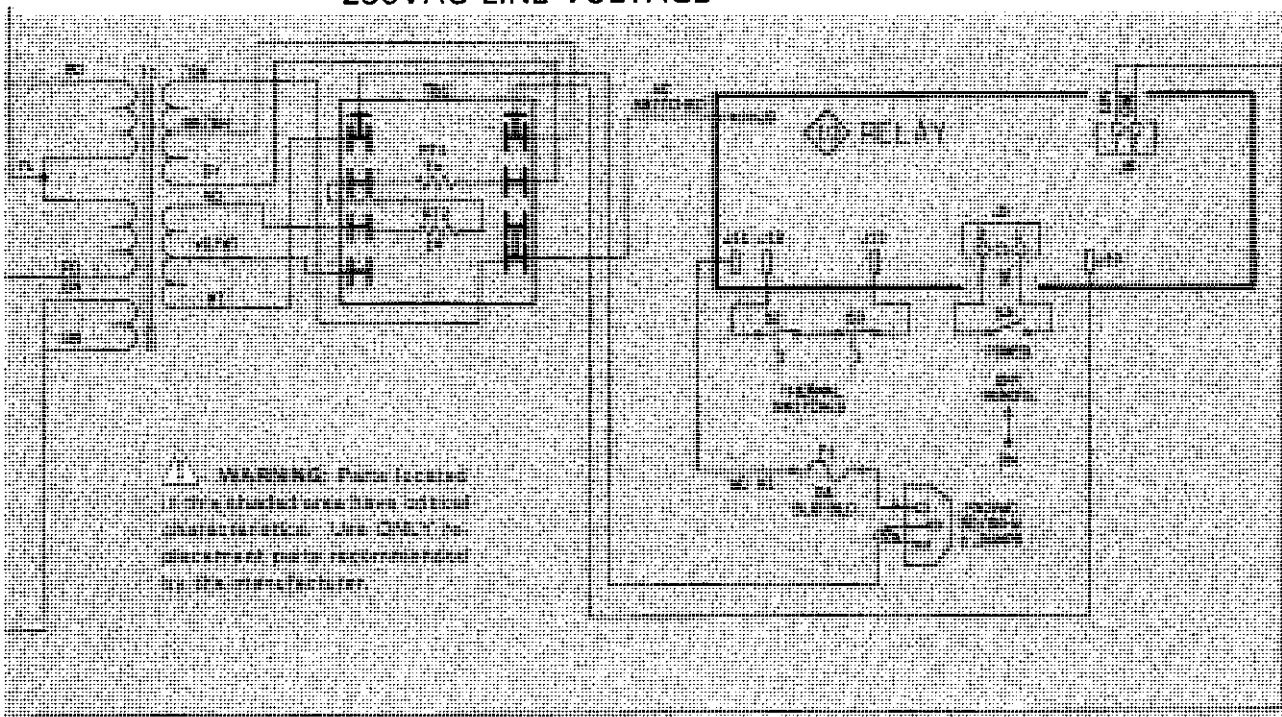


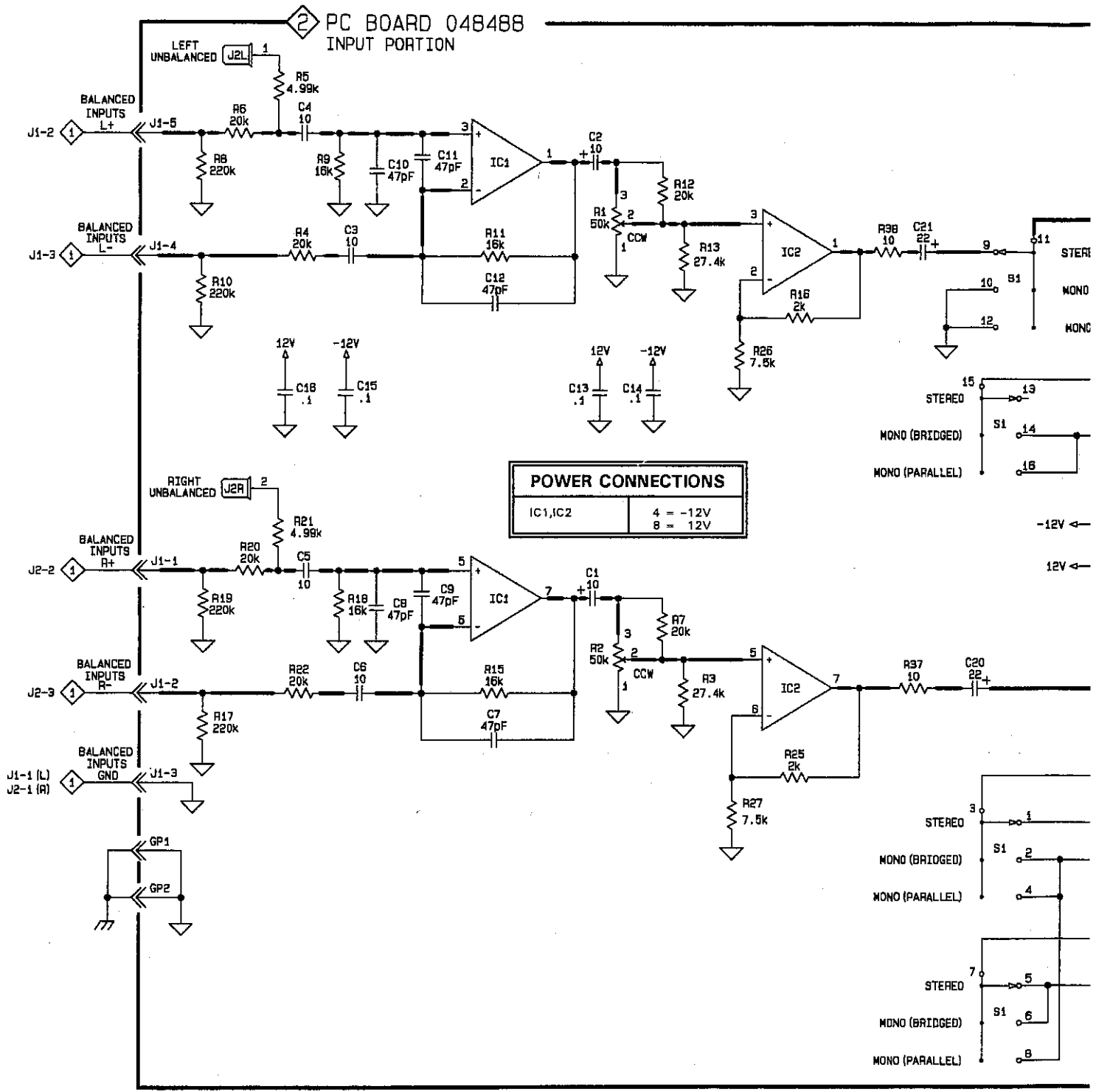


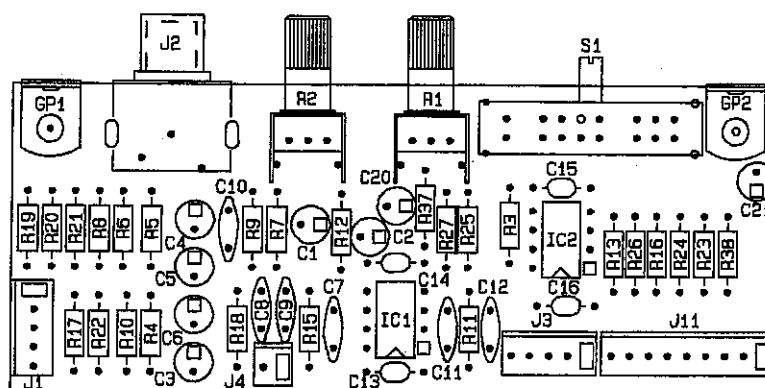
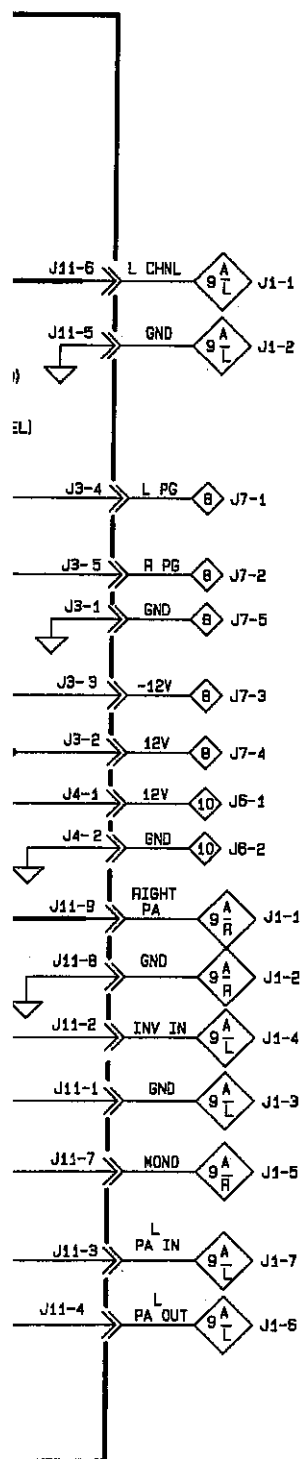
INTERCONNECTION PARTS LIST

Symbol	Part	Description
INTERCONNECTION		
C1	052005	Capacitor Assy
DIODES		
D1	070139	BRID, RECT, GBPC3504
FUSES		
F1	089065	FUSE, 10A, 250V, S.B.
F1 (EXPORT VERSION)	089076	FUSE, 5A, 250V, S.B.
SWITCHES		
S1,S4	146237	Power Switch
S2,S3	153017	Thermal Switch
THERMISTORS		
RT1,RT2	052008	Thermistor, 5 ohm
TRANSFORMER		
T1	048505	Power
T2(L&R)	047187	Audio

230VAC LINE VOLTAGE





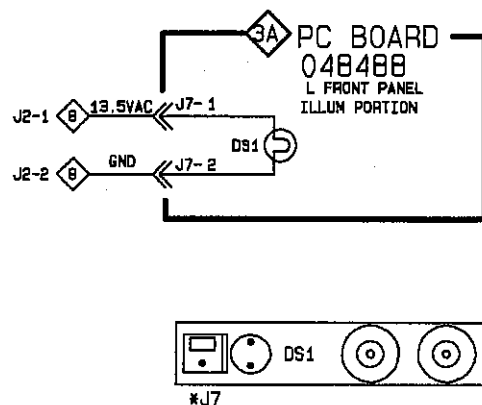


INPUT PORTION OF
PCB 048488

INPUT PARTS LIST

Symbol	Part	Description
INTEGRATED CIRCUITS		
IC1, IC2	133094	Dual Op Amp, NE5532N
SWITCHES		
S1	148069	MODE

3 Left Front Panel Illumination

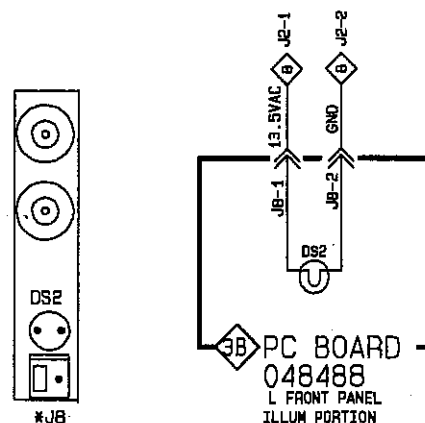


FRONT PANEL
ILLUMINATION PORTION OF
PCB 048488

COMPONENTS MARKED WITH
AN ASTERISK (*) ARE ON
REVERSE SIDE OF BOARD

LEFT FRONT PANEL ILLUMINATION PARTS LIST

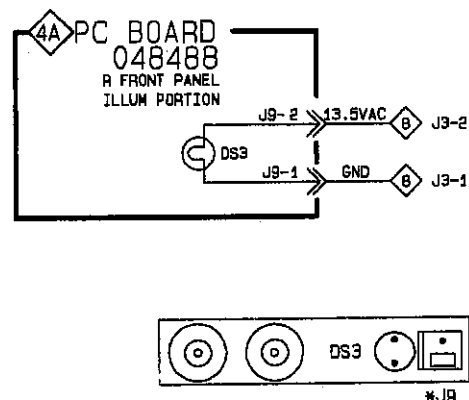
Symbol	Part	Description
LIGHTING DEVICES		
DS1	058120	INC, 14V, 7373



LEFT FRONT PANEL ILLUMINATION PARTS LIST

Symbol	Part	Description
LIGHTING DEVICES		
DS2	058120	INC, 14V, 7373

4 Right Front Panel Illumination

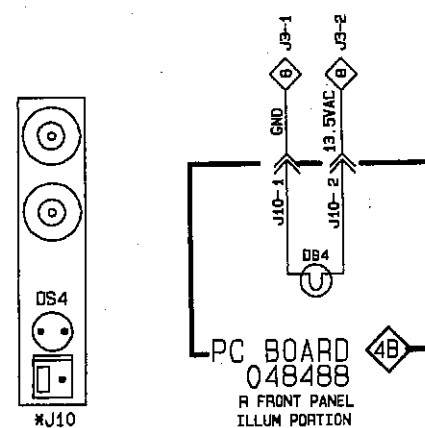


FRONT PANEL
ILLUMINATION PORTION OF
PCB 048488

COMPONENTS MARKED WITH
AN ASTERISK (*) ARE ON
REVERSE SIDE OF BOARD

RIGHT FRONT PANEL ILLUMINATION PARTS LIST

Symbol	Part	Description
LIGHTING DEVICES		
DS3	058120	INC, 14V, 7373

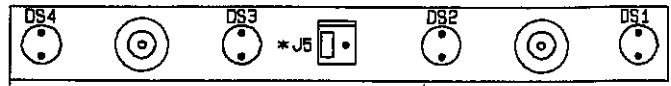
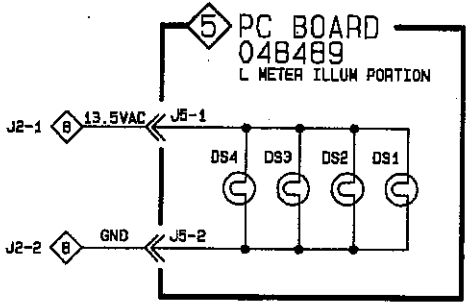


RIGHT FRONT PANEL ILLUMINATION PARTS LIST

Symbol	Part	Description
LIGHTING DEVICES		
DS4	058120	INC, 14V, 7373

5 Left Meter Illumination

COMPONENTS MARKED WITH AN ASTERISK (*) ARE ON REVERSE SIDE OF BOARD



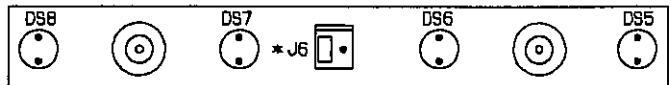
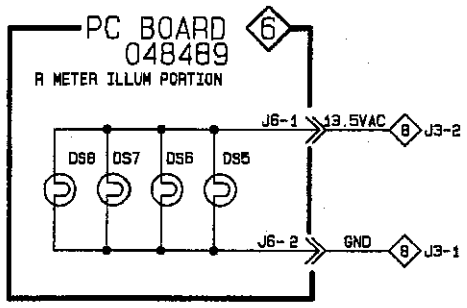
METER ILLUMINATION
PORTION OF PCB 048489

LEFT METER ILLUMINATION PARTS LIST

Symbol	Part	Description
LIGHTING DEVICES		
DS1-DS4	058120	INC, 14V, 7373

6 Right Meter Illumination

COMPONENTS MARKED WITH AN ASTERISK (*) ARE ON REVERSE SIDE OF BOARD



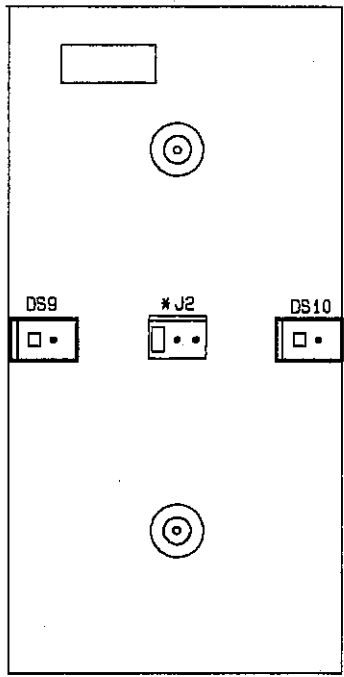
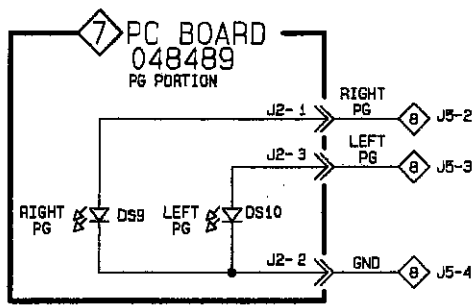
METER ILLUMINATION
PORTION OF PCB 048489

RIGHT METER ILLUMINATION PARTS LIST

Symbol	Part	Description
LIGHTING DEVICES		
DS5-DS8	058120	INC, 14V, 7373

7 Power Guard Illumination

COMPONENTS MARKED WITH AN ASTERISK (*) ARE ON REVERSE SIDE OF BOARD

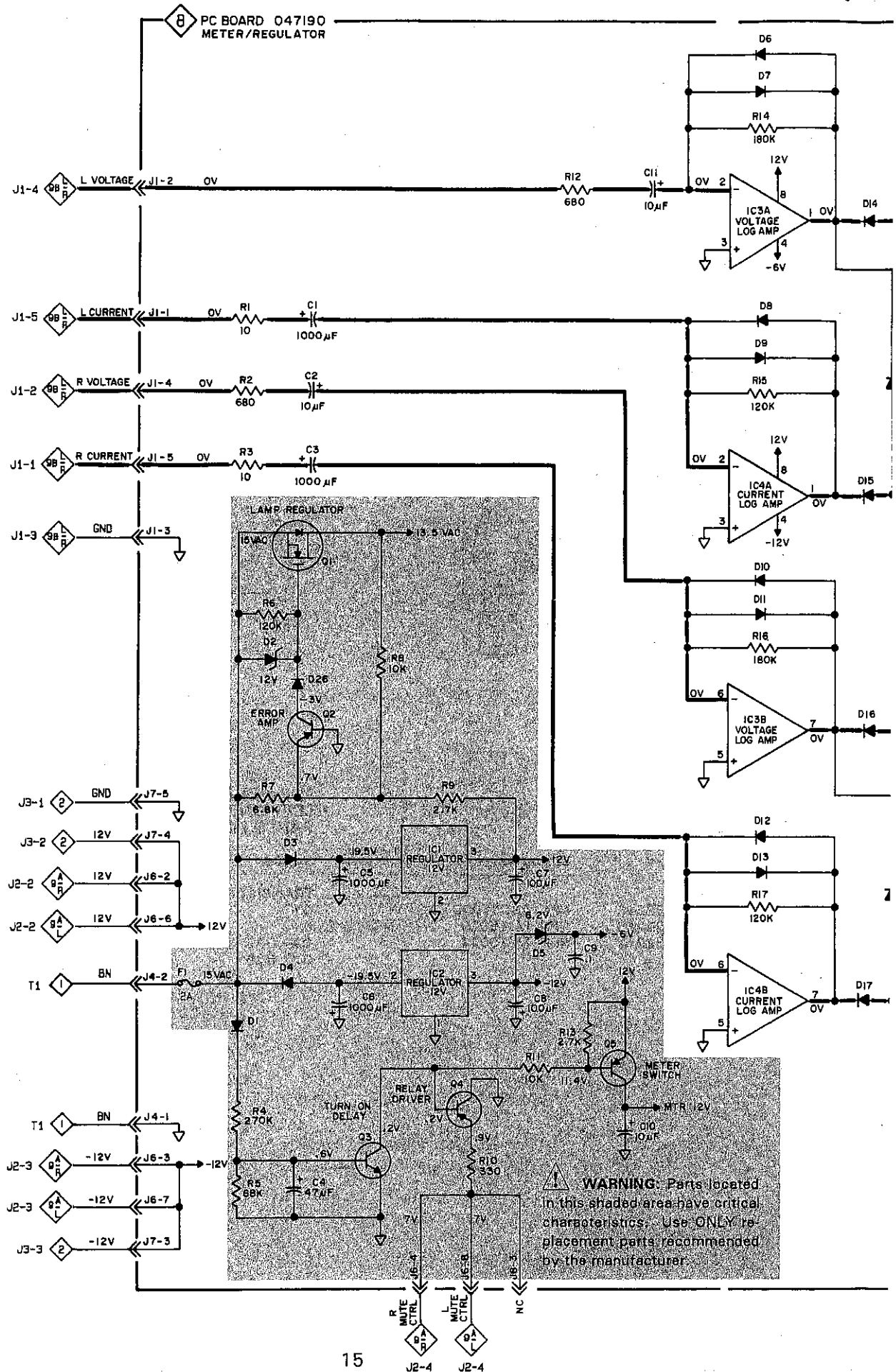


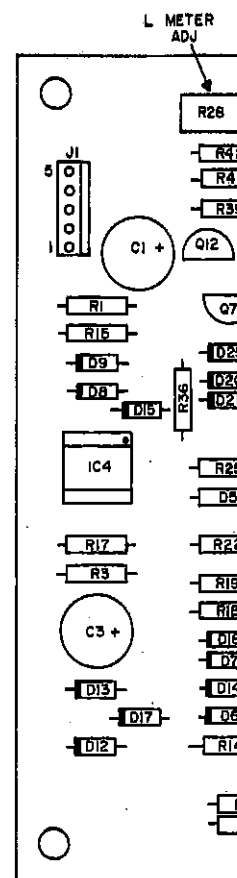
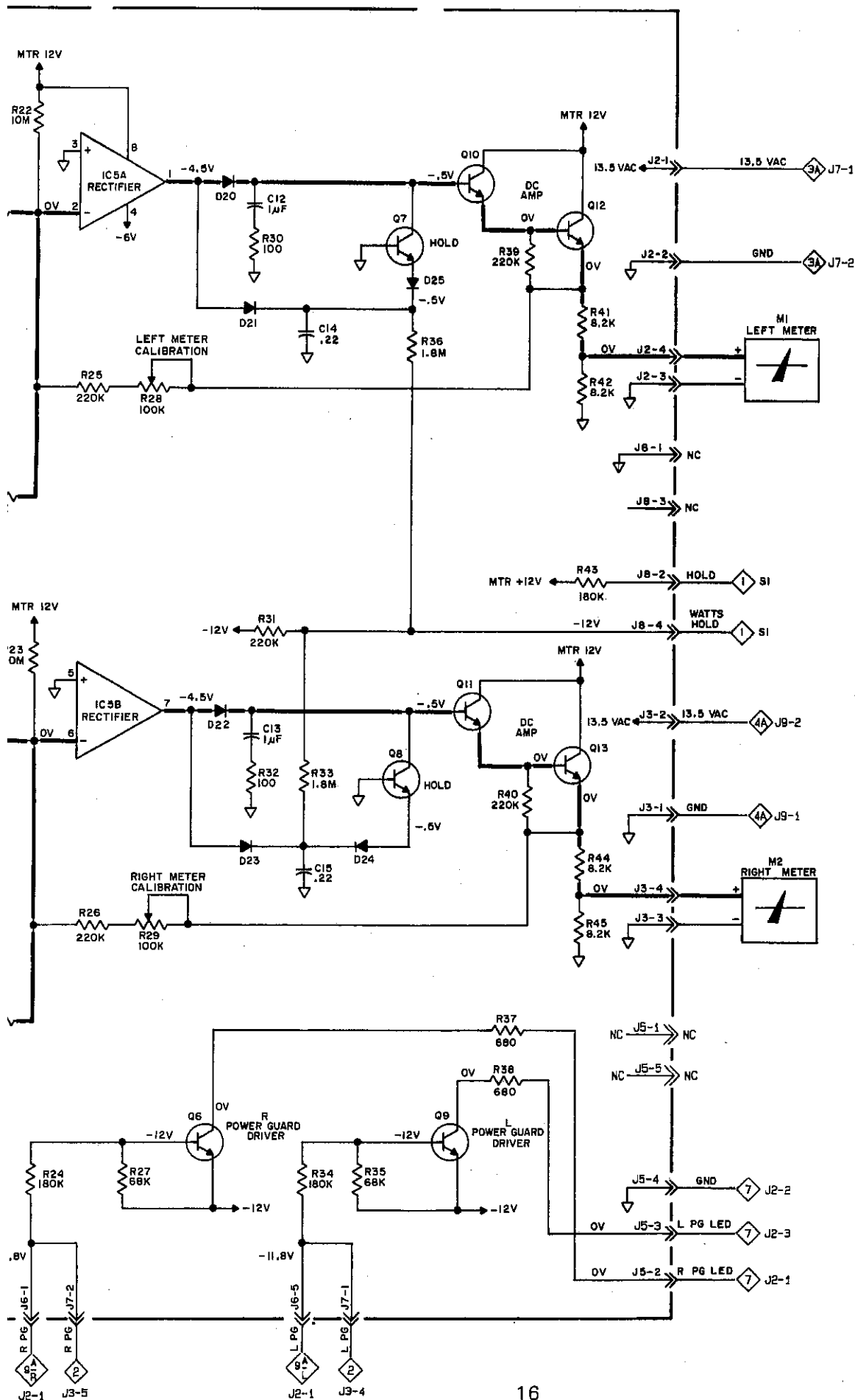
POWER GUARD ILLUMINATION PARTS LIST

Symbol	Part	Description
LIGHTING DEVICES		
DS9-DS10	058121	LED, Amber Bar, MV15-3101

POWER GUARD PORTION
OF PCB 048489

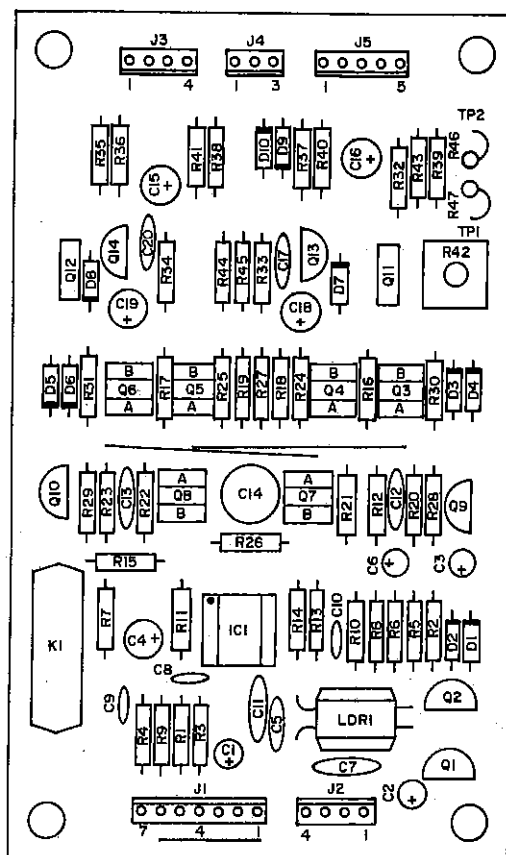
Meter/Regulator 8







Symbol	Part	Description
DIODES		
D1	070047	SIG, 75V, 100mA, 1N4148
D2	070099	ZN, 12V, 5%, 500mW, 1N5242B
D3,D4	070131	RECT, 400V, 1A, 1N4004
D5	070085	ZN, 6.2V, 5%, 500mW, 1N5234B
D6-D19	070047	SIG, 75V, 150mA, 1N4148
D20,D22	070136	SIG, Low Leakage, FDH300
D21	070047	SIG, 75V, 150mA, 1N4148
D23-D26	070047	SIG, 75V, 150mA, 1N4148
FUSES		
F1	089064	Fuse, SB, 2A, 250V, 2AG
INTEGRATED CIRCUITS		
IC1	133156	+ 12V Regulator, MC78M12CT
IC2	133155	-12V Regulator, MC79M12CT
IC3,IC4	133028	Dual Hi-speed Operational Amp, MC4558CP1
IC5	133094	Dual Operational Amp, NE5532N
METERS		
M1,M2	124047	METER
TRANSISTORS		
Q1	132242	N, FET, BUZ71A
Q2	132224	PNP, MPS4126
Q3	132223	NPN, MPS4124
Q4,Q5	132224	PNP, MPS4126
Q6	132090	NPN, DAR, MPSA25
Q7,Q8	132223	NPN, MPS4124
Q9	132090	NPN, DAR, MPSA25
Q10-Q13	132254	NPN, 2SC2362KG

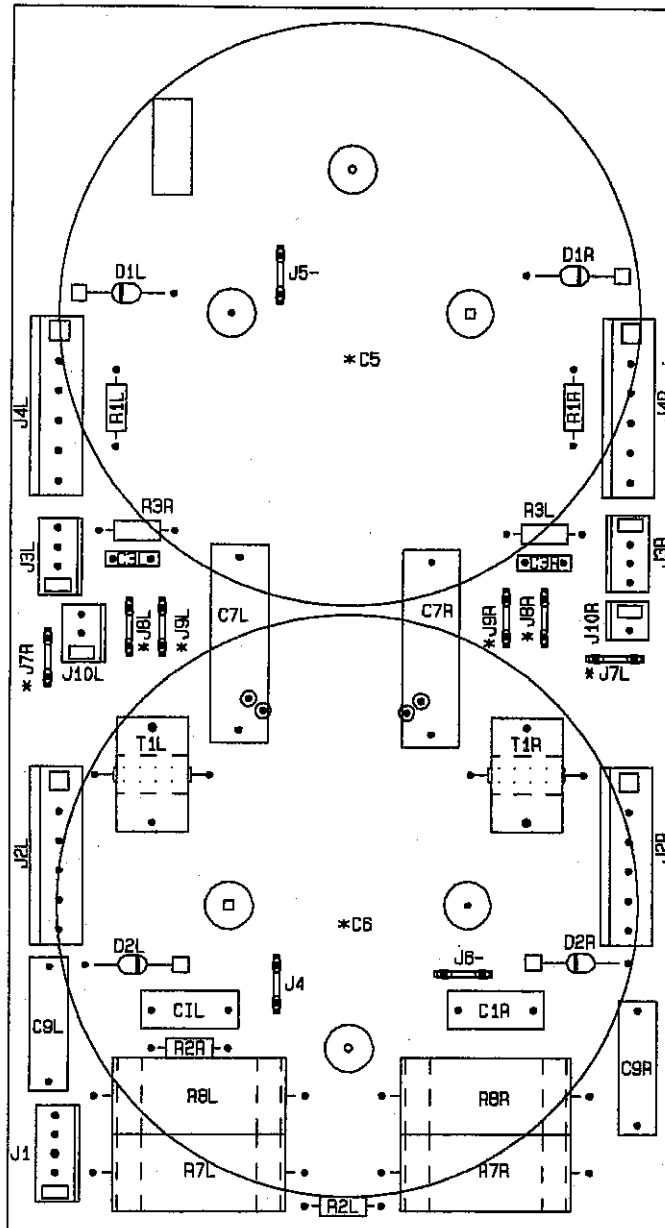


LEFT & RIGHT
POWER DRIVER
PCB 047360

POWER DRIVER PARTS LIST

Symbol	Part	Description
DIODES		
D1-D10	070047	SIG, 75V, 150mA, 1N4148
INTEGRATED CIRCUITS		
IC1	133094	Dual Op Amp, NE5532N
LIGHT DEPENDENT RESISTORS		
LDR1	144179	LDR, VTL5C9
RELAYS		
K1	087050	SPST, 5VDC, Reed, HE3321A0400
TRANSISTORS		
Q1, Q2	132224	PNP, MPS4126
Q3	132253	PNP, Dual, 2SA1237G
Q4	132250	NPN, Dual, 2SC3066G
Q5	132251	PNP, Dual, 2SA1239G
Q6	132252	NPN, Dual, 2SC3084G
Q7	132250	NPN, Dual, 2SC3066G
Q8	132251	PNP, Dual, 2SA1239G
Q9	132136	NPN, MPSA42
Q10	132147	PNP, MPSA92
Q11	132249	PNP, 2SA1480D or 2SA1480E
Q12	132248	NPN, 2SC3790D or 2SC3790E
Q13	132171	NPN, MPSA05
Q14	132172	PNP, MPSA55

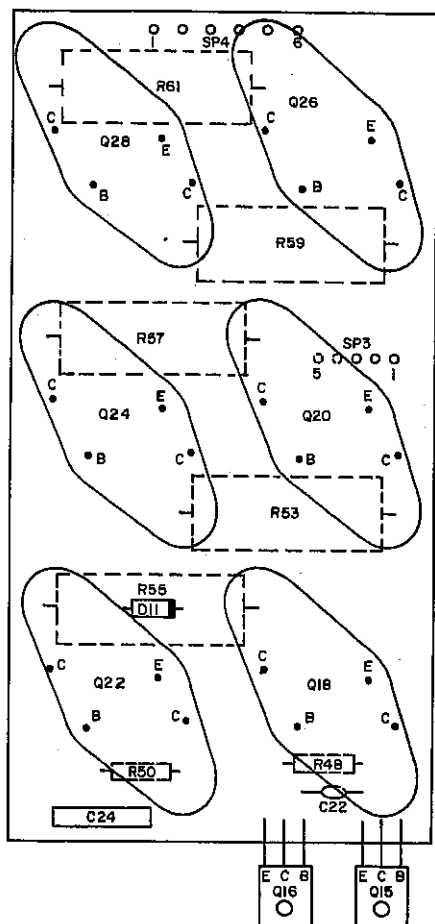
COMPONENTS MARKED WITH
AN ASTERISK (*) ARE ON
REVERSE SIDE OF BOARD



CAPACITOR PCB 048489

CAPACITOR PARTS LIST

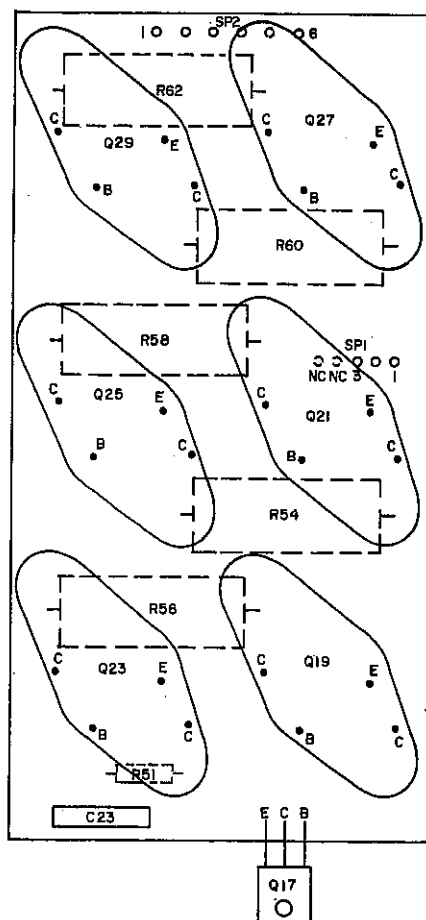
Symbol	Part	Description
CAPACITORS		
C5, C6	086401	ELECT, 30,000uF 100V
DIODES		
D1, D2	070031	RECT, 400V, 1.5A
TRANSFORMERS		
T1	159215	Current



LEFT & RIGHT
POSITIVE HEATSINK
PCB 047188

**POSITIVE HEATSINK
LEFT AND RIGHT
PARTS LIST**

Symbol	Part	Description
TRANSISTORS		
Q15, Q16	132248	NPN, 2SC3790D or E
Q18	132246	NPN, MJ15020
Q20, Q22, Q24, Q26, Q28	132212	NPN, MJ15024



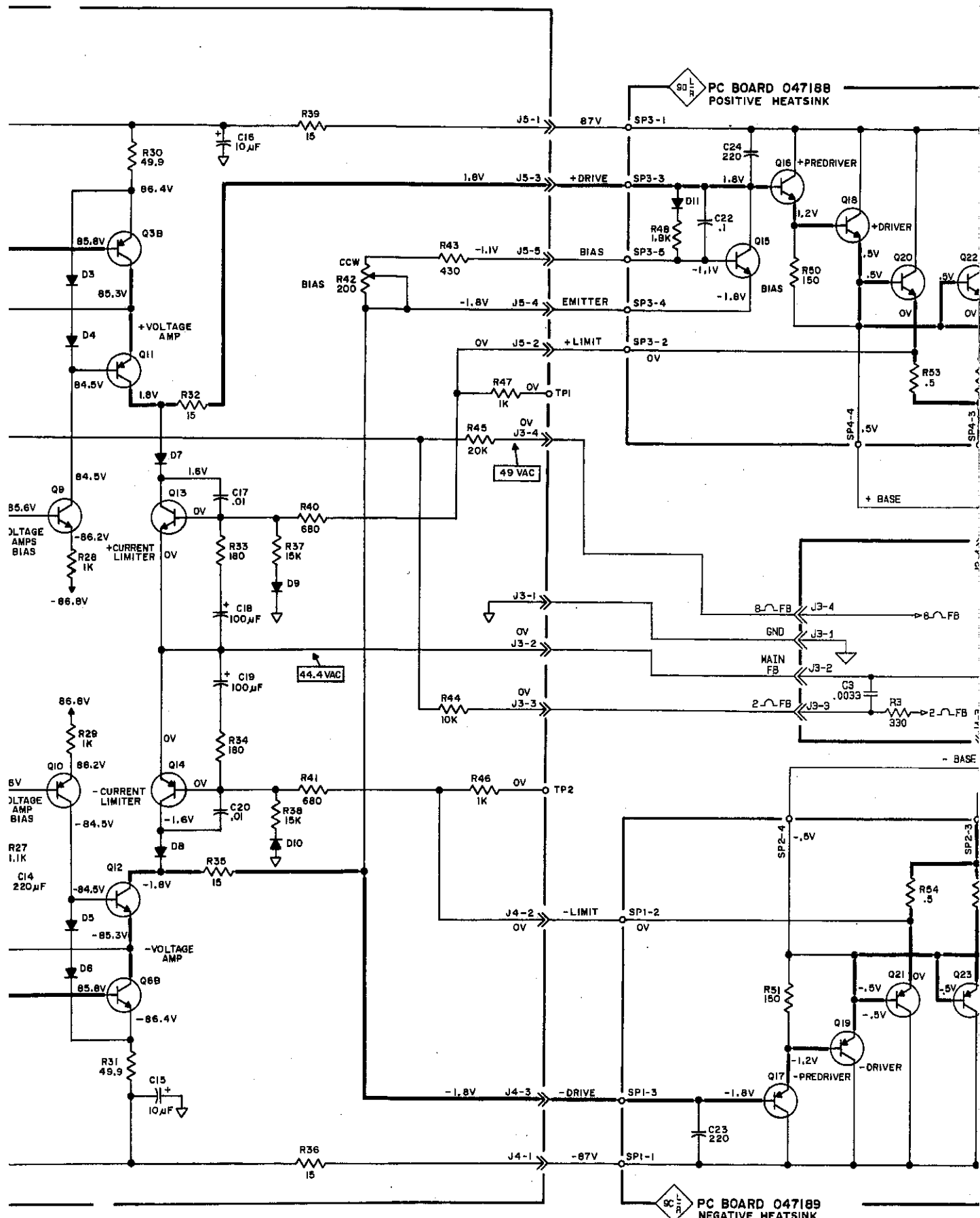
LEFT & RIGHT
NEGATIVE HEATSINK
PCB 047189

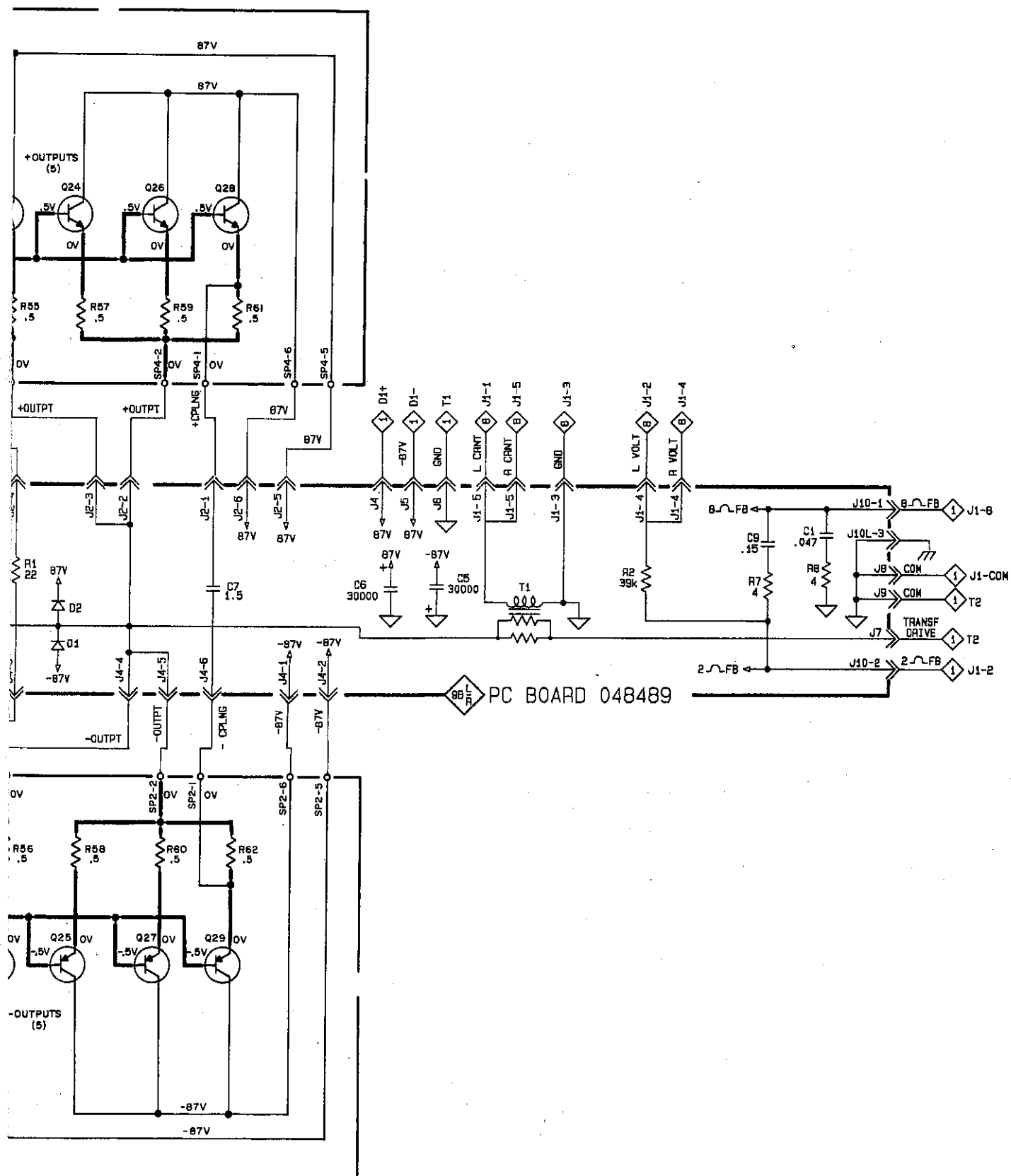
**NEGATIVE HEATSINK
LEFT AND RIGHT
PARTS LIST**

Symbol	Part	Description
TRANSISTORS		
Q17	132249	PNP, 2SA1480D OR E
Q19	132247	PNP, MJ15021
Q21, Q23, Q25, Q27, Q29	132213	PNP, MJ15025

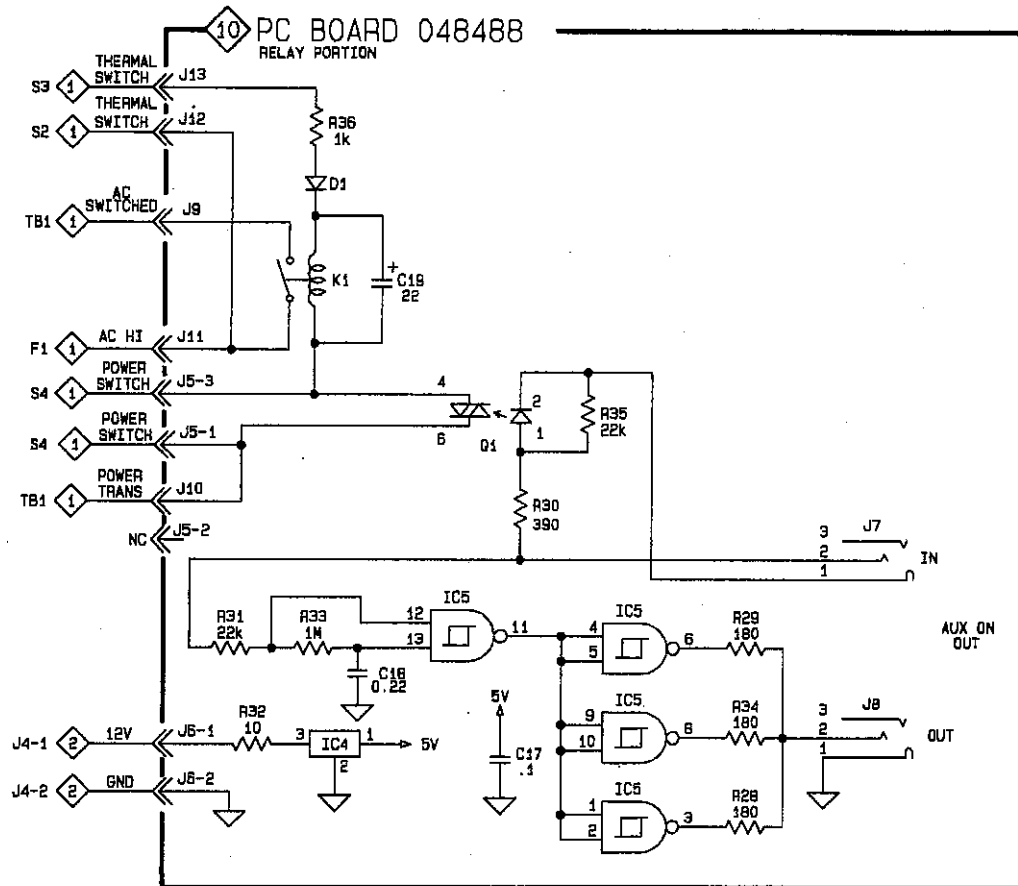
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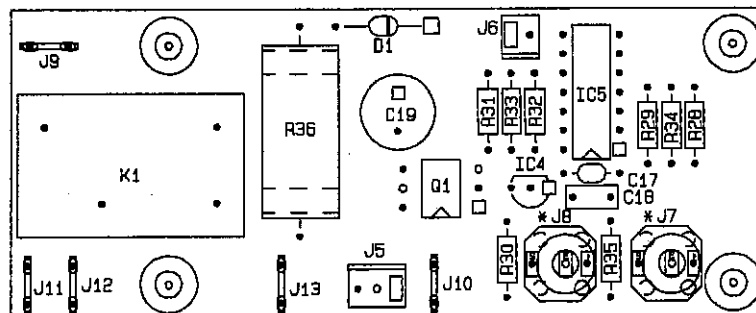




10 Relay



POWER CONNECTIONS	
IC5	7 = GND
	14 = 5V



COMPONENTS MARKED WITH
AN ASTERISK (*) ARE ON
REVERSE SIDE OF BOARD

RELAY PORTION OF
PCB 048488

**RELAY
PARTS LIST**

<i>Symbol</i>	<i>Part</i>	<i>Description</i>
DIODES		
D1	070131	RECT, 400V, 1A, 1N4004
INTEGRATED CIRCUITS		
IC4	133093	5V Regulator, MC78L05ACP
IC5	133192	CMOS, Quad 2-Input NAND Gate, MC74HC132
RELAYS		
K1	087052	SPST, TV-8, 48VDC, JC1A-DC48V-TV
TRANSISTORS		
Q1	131020	OPTO ISO, MOC3023

Repacking Instructions

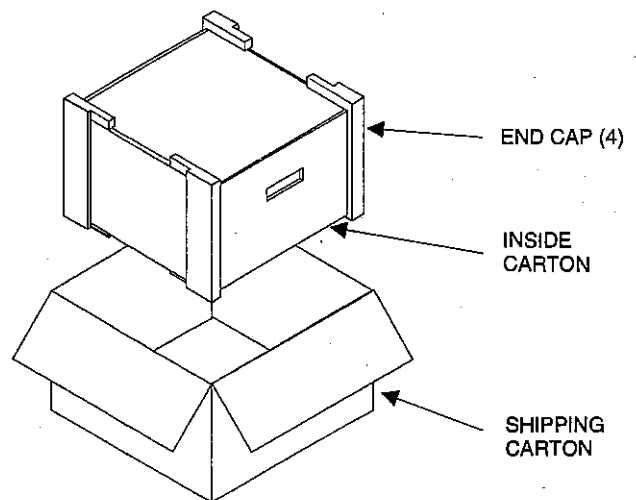
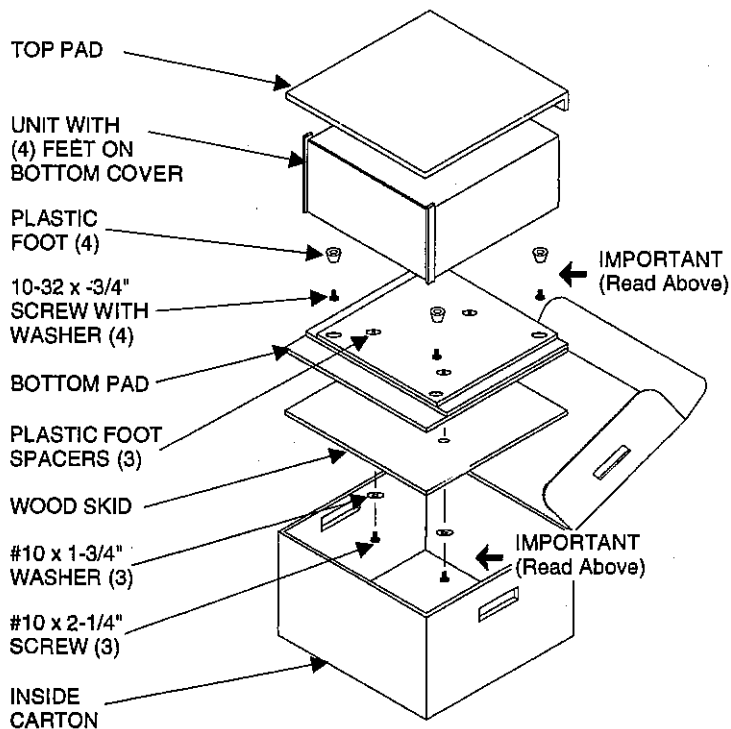
In the event it is necessary to repack the unit for shipment, the unit must be packed exactly as shown below.

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. Two #10 x 2-1/4" screws and washers must be used to fasten the unit securely to the bottom pad and 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	033888	Shipping carton only
4	033887	End cap (Foam pad)
1	033697	Inside carton only
1	033725	Top pad
1	033698	Bottom pad
3	017218	Plastic foot (spacer)
1	033699	Wood skid
3	101169	#10 x 2-1/4" Wood screw
3	104033	#10 x 1-3/4" Flat washer
4	017218	Plastic foot
4	100159	#10-32 x 3/4" Machine screw
4	104083	#10 x 7/16" Flat washer
1	048572	Shipping carton complete with all the above parts



McIntosh

MC300 POWER AMPLIFIER

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.

McIntosh Laboratory, Inc. 2 Chambers Street, Binghamton, NY 13903

Telephone (607) 723-3512

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Part No. 040389