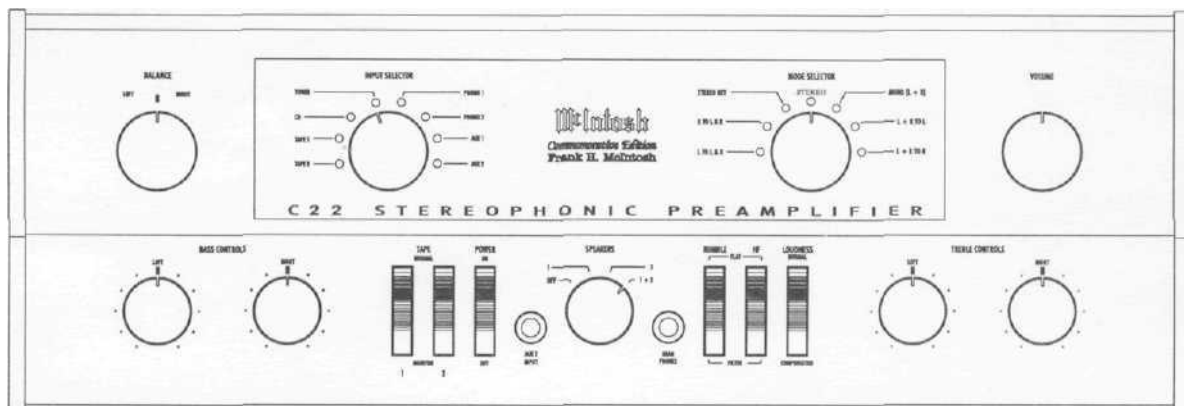


C22

PREAMPLIFIER



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McIntosh

Service Manual

Performance Specifications

FREQUENCY RESPONSE

+0, -0.5dB from 20Hz to 20,000Hz

RATED OUTPUT

2.5V at MAIN and SWITCHED 1 and 2, and
BALANCED OUTPUTS

MAXIMUM VOLTAGE OUTPUT

More than 8V at all outputs

TOTAL HARMONIC DISTORTION

0.002% maximum IHF, 0.2% maximum from 20Hz
to 20,000Hz at rated output

SENSITIVITY

Phono: 2.2mV for 2.5V rated output, (0.45mV IHF)
High Level: 250mV for 2.5V rated output, (50mV
IHF)

SIGNAL-TO-NOISE RATIO, A-WEIGHTED

Phono: 80dB below 10mV input
High Level: 90dB below rated output

VOLTAGE GAIN

Phono To Tape: 41 dB at 1000Hz
Phono To Main: 61 dB at 1000Hz
High Level To Tape: 0dB
High Level To Main: 20dB

INPUT IMPEDANCE

Phono: 47K ohms and 65pF Capacitance
High Level: 22K ohms

TONE CONTROLS

Bass and Treble stepped, 20dB boost to 20dB cut

AC POWER OUTLETS

4 switched and 1 unswitched, Total capacity 1400
watts

POWER REQUIREMENTS

120V, 50/60Hz, 37 watts

DIMENSIONS

Front Panel: 16 inches (40.6cm) wide by 5-7/16
inches (13.8cm) high. Chassis depth behind mount-
ing panel, including clearance for connectors: 14
inches (35.6cm). Knob clearance required in front of
mounting panel: 1-1/2 inches (3.8cm).

FINISH





Anodized gold and black front panel, chassis is black.

WEIGHT

16 pounds (7.3Kg) net, 25 pounds (11.4Kg) in
shipping carton

Notes


1. The four types of heavy lines on the schematics denote the primary signal path in the following manner:

	= LEFT CHANNEL
	= RIGHT CHANNEL
	= LEFT BALANCED
	= RIGHT BALANCED

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 $\pm 10\%$ with respect to ground. A high impedance (10 megohm) voltmeter must be used.
3. Unless otherwise specified:
 - a. Resistor values are in ohms.
 - b. Capacitor values are in microfarads (μF).
4. The voltages enclosed in a box are signal voltages that are measured with a 2.2mV, 1kHz signal connected to both channels at the PHONO 1 INPUT JACKS.

FRONT PANEL CONTROLS are set at:

BALANCE	CENTER DETENT
BASS and TREBLE	CENTER DETENT
INPUT SELECTOR	PHONO 1
LOUDNESS	NORMAL
MODE	STEREO
POWER	ON
VOLUME	CLOCKWISE
TAPE MONITOR 1 and 2	NORMAL
RUMBLE and HF FILTERS	FLAT
SPEAKERS	1&2

5. On PC Board Drawings, Square Pad Indicates:
 - a. Polarized Capacitors - Positive
 - b. Diode - Cathode
 - c. Others - Pin 1
6. WARNING:
Parts marked with the symbol  have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

Rear Panel

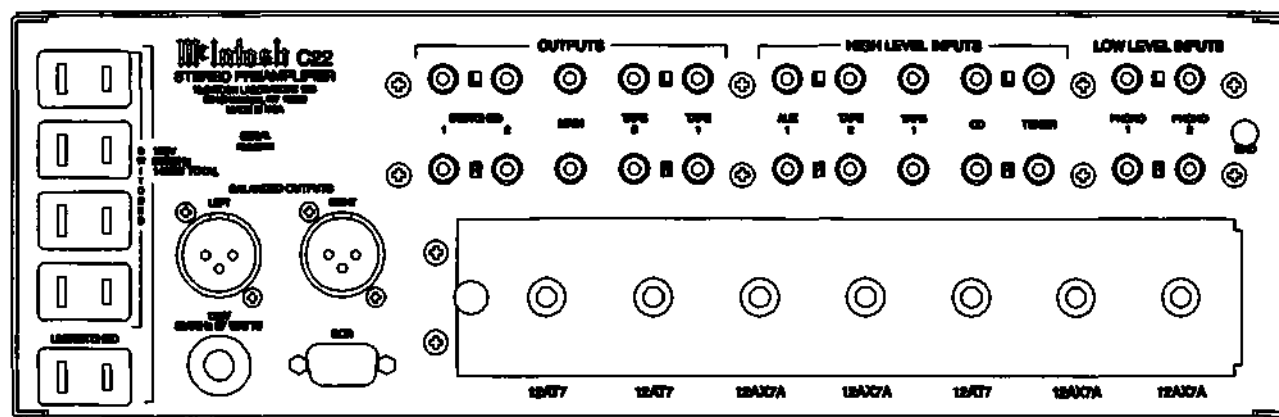


Fig. 1 Rear view

FRONT PANEL and TRIM PARTS LIST

Symbol	Description
016340	Indicator Glass
016334	Front Panel Glass
018511	Top Panel Extrusion
018512	Lower Panel Extrusion
018520	End Cap Left
018521	End Cap Right
C22-FrontPanel	Front Panel Complete W/Glass
090242	Input/Mode Knob
090243	Balance/Volume Knob
090244	Bass/Speaker/Treble Knob
101035	Screw, 4-40 x 5/16 Fill Head
104143	Felt Washer 3/4" Dia
104144	Felt Washer 5/8" Dia

Section Locations

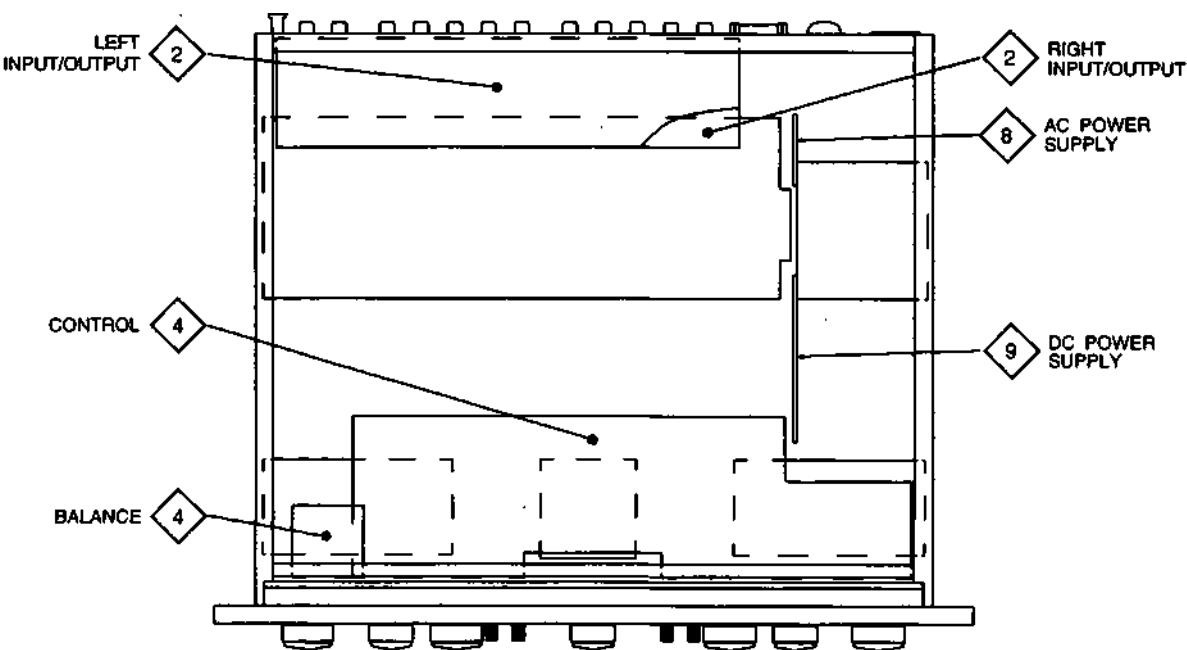


Fig. 2 Top view with cover removed

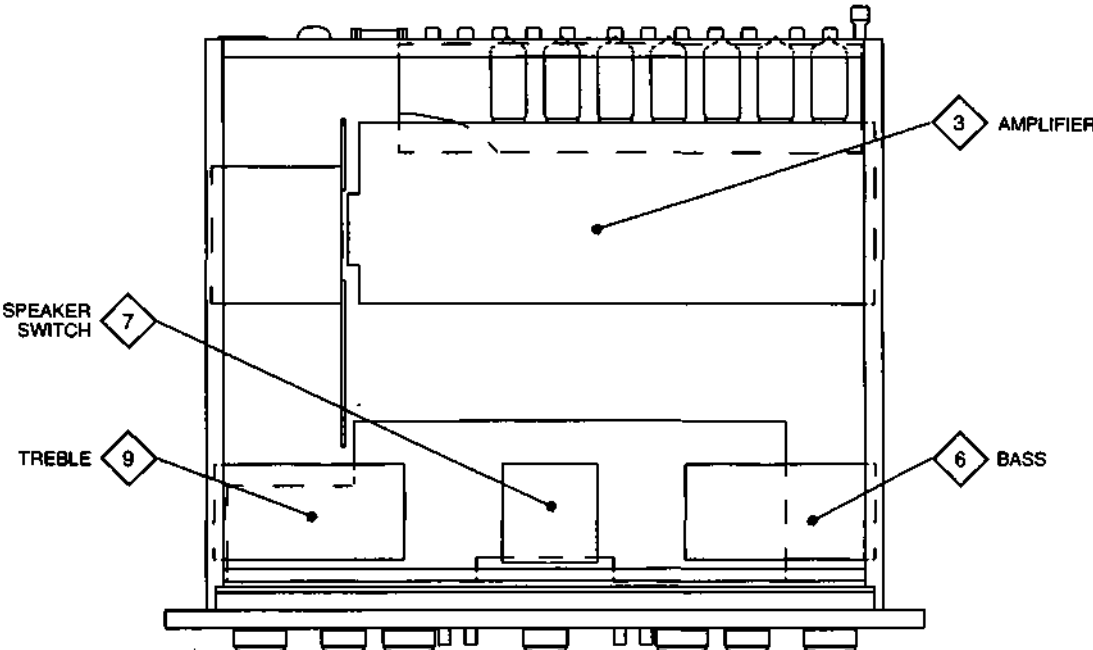
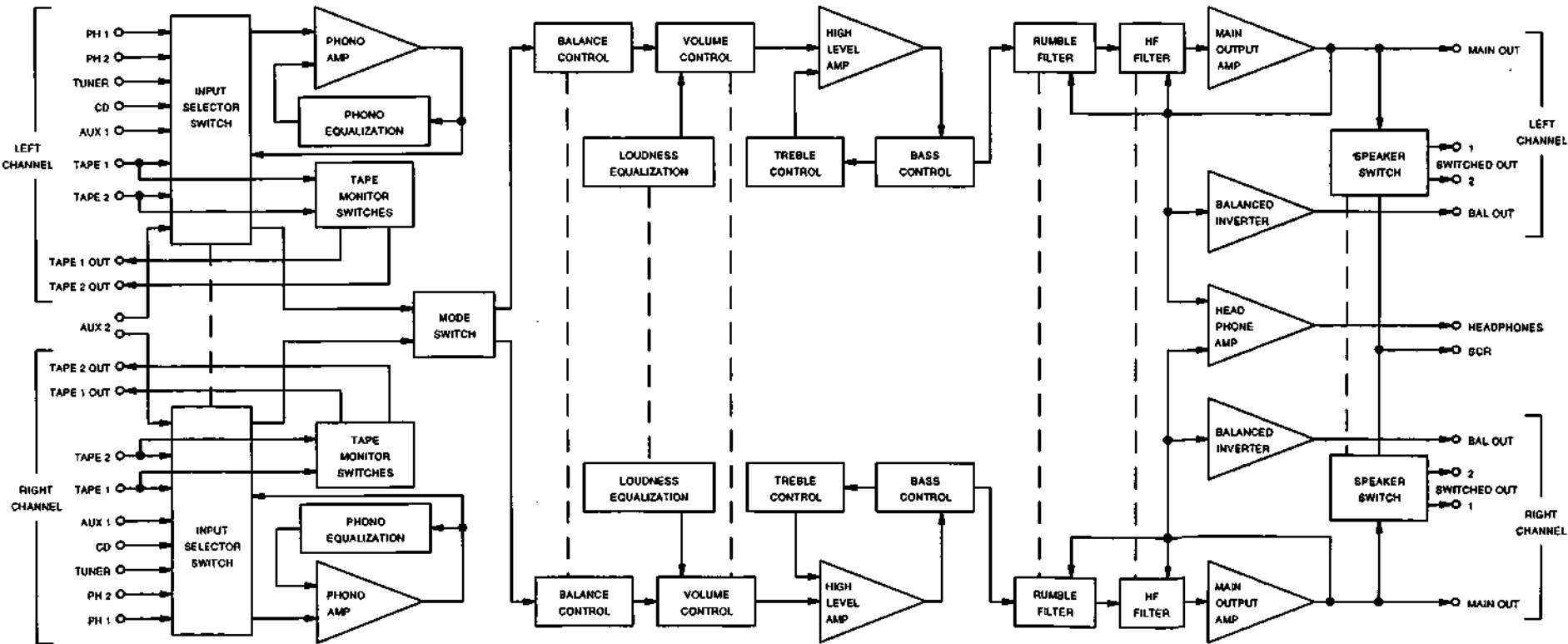


Fig. 3 Bottom view with cover removed

Block Diagram

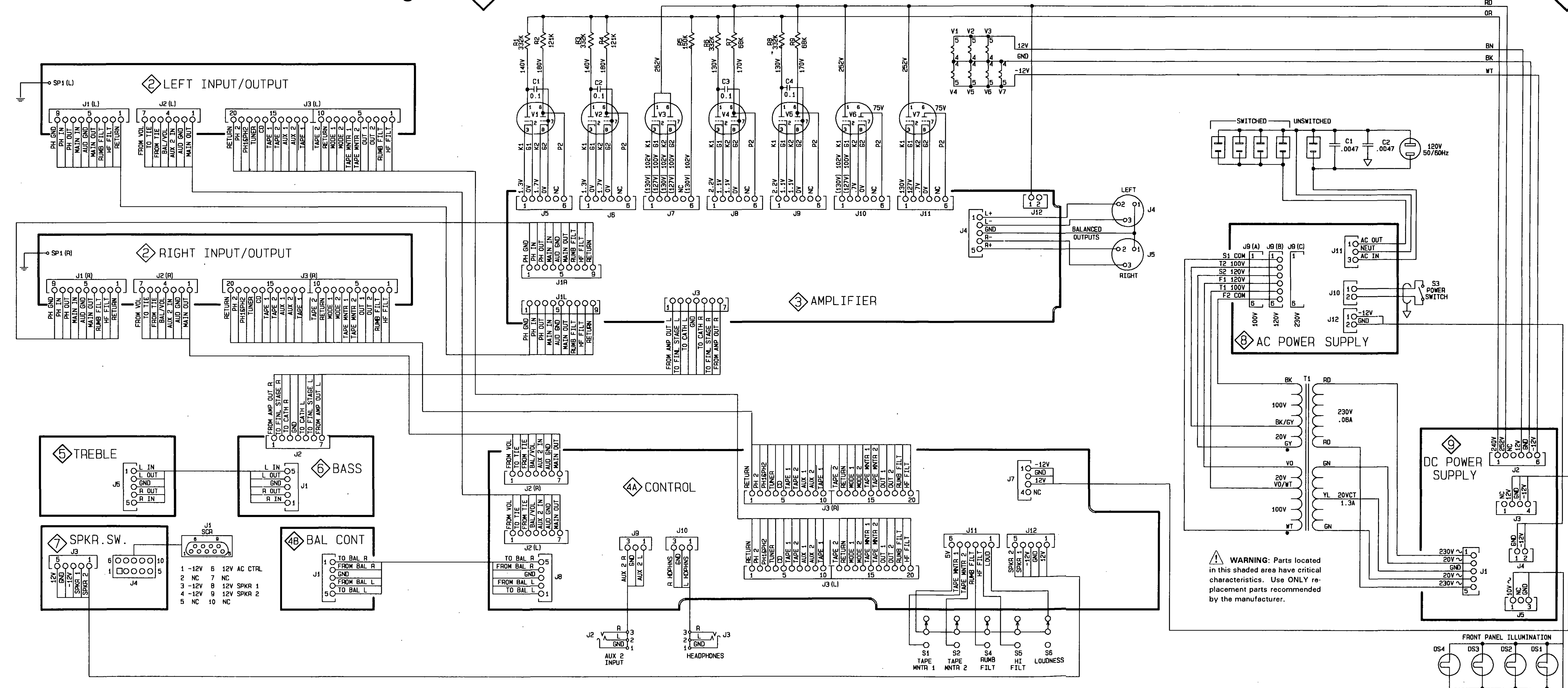


INTERCONNECTION PARTS LIST

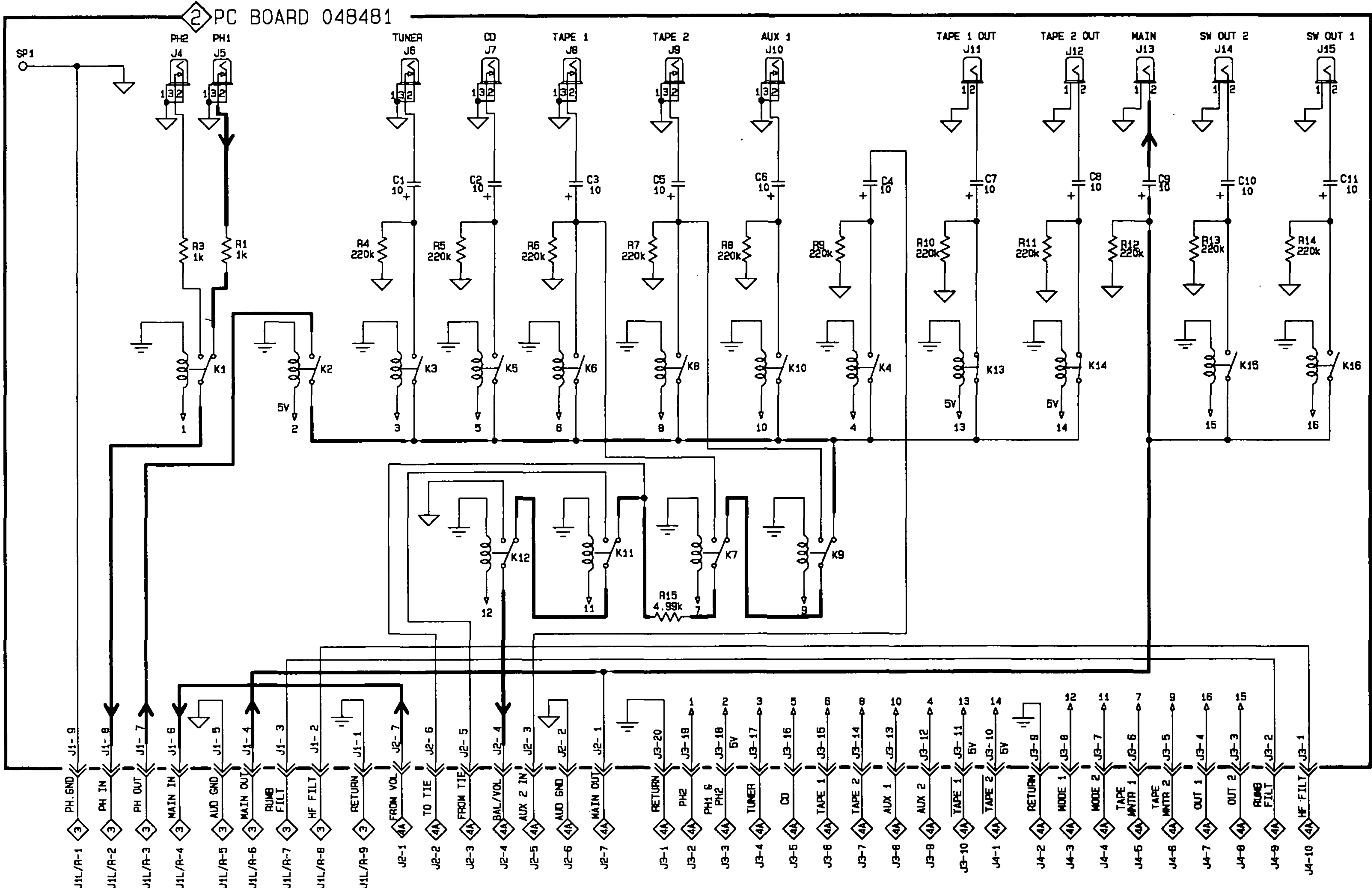
Symbol	Part	Description
CAPACITORS		
C1,C2	061276	DISC CAP, .0047uF, 400VAC
JACKS		
J2,J3	117563	Phone Jack
J4,J5	117437	XLR Connector, Male
LIGHTING DEVICES		
DS1,DS2	058138	Lamp Fuse Style
DS3,DS4	058137	Lamp Disc Indicator
SWITCHES		
S1-S6	148068	Slide Switch (SPDT)
TRANSFORMERS		
T1	159248	Power Transformer

Interconnection Diagram 1

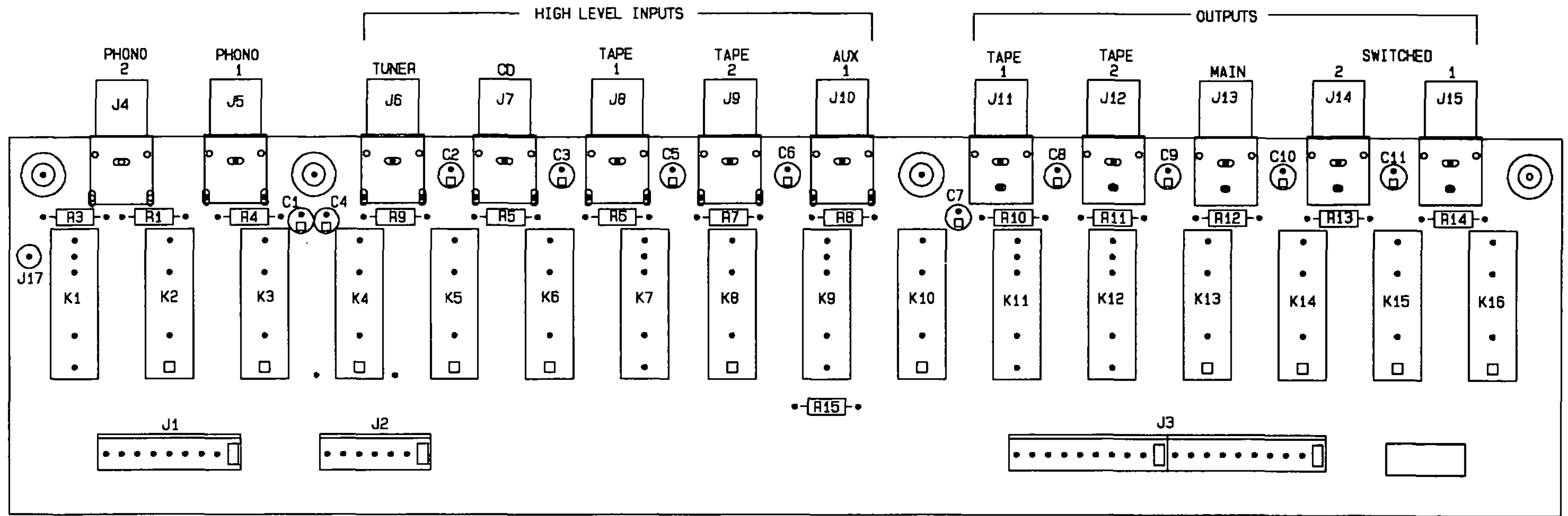
1



2 Input/Output, Left and Right



2



INPUT/OUTPUT PARTS LIST

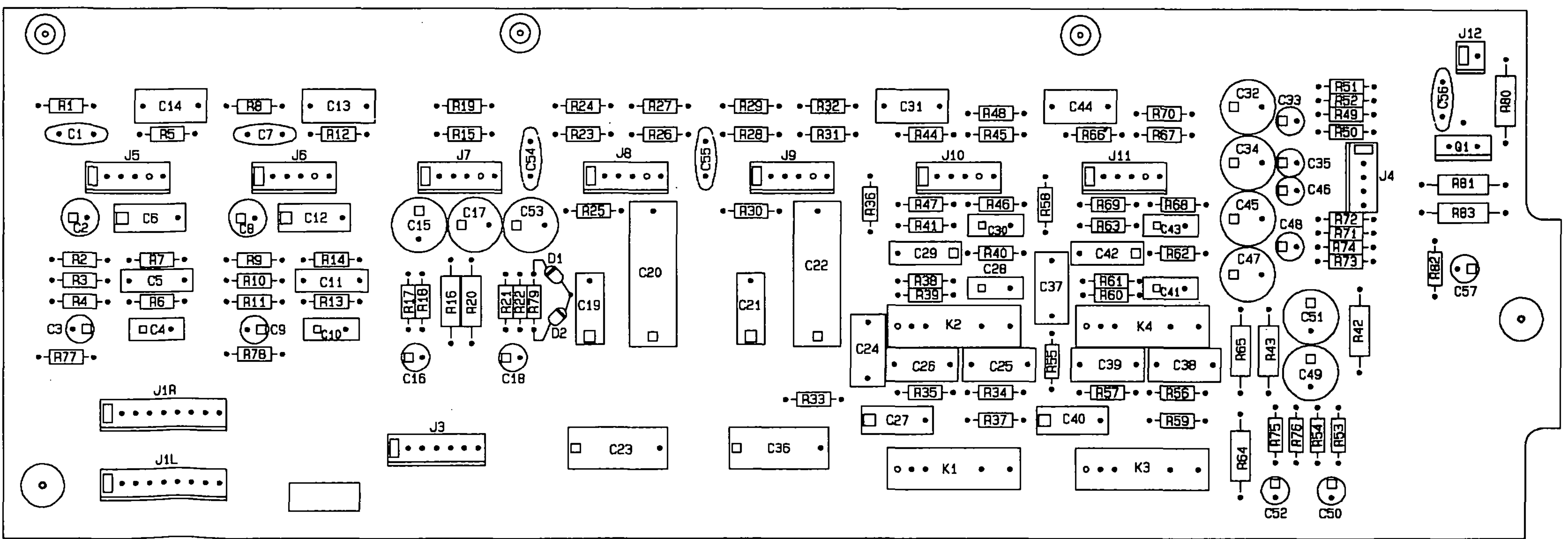
Symbol	Part	Description
RELAYS K1,K7,K9, K11,K12	087056	Form 1C, 5VDC, Reed, HE3321C0500
K2-K6,K8, K10,K13-K16	087050	SPST, 5VDC, Reed, HE3321A0400

LEFT INPUTS/OUTPUTS PCB 048481 AND RIGHT INPUTS/OUTPUTS PCB 048476

AMPLIFIER PARTS LIST

Symbol	Part	Description
RELAYS K1-K4	087056	Form 1C, 5VDC, Reed, HE3321C0500
DIODES D1,D2	070102	Zener: 51V, 5%, 400mW
TRANSISTORS Q1	132248	NPN, 300V, 2SC3790D or E

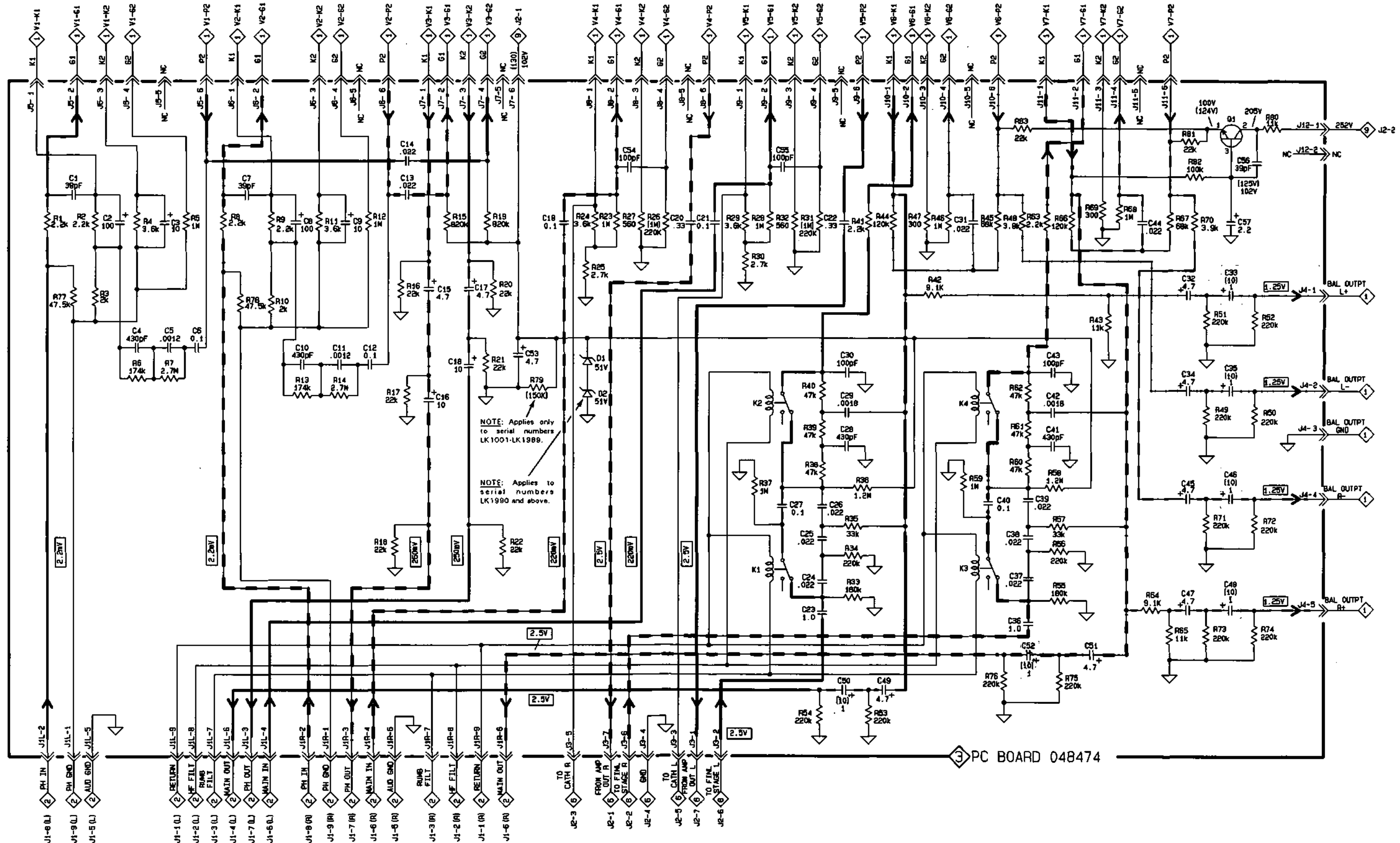
3



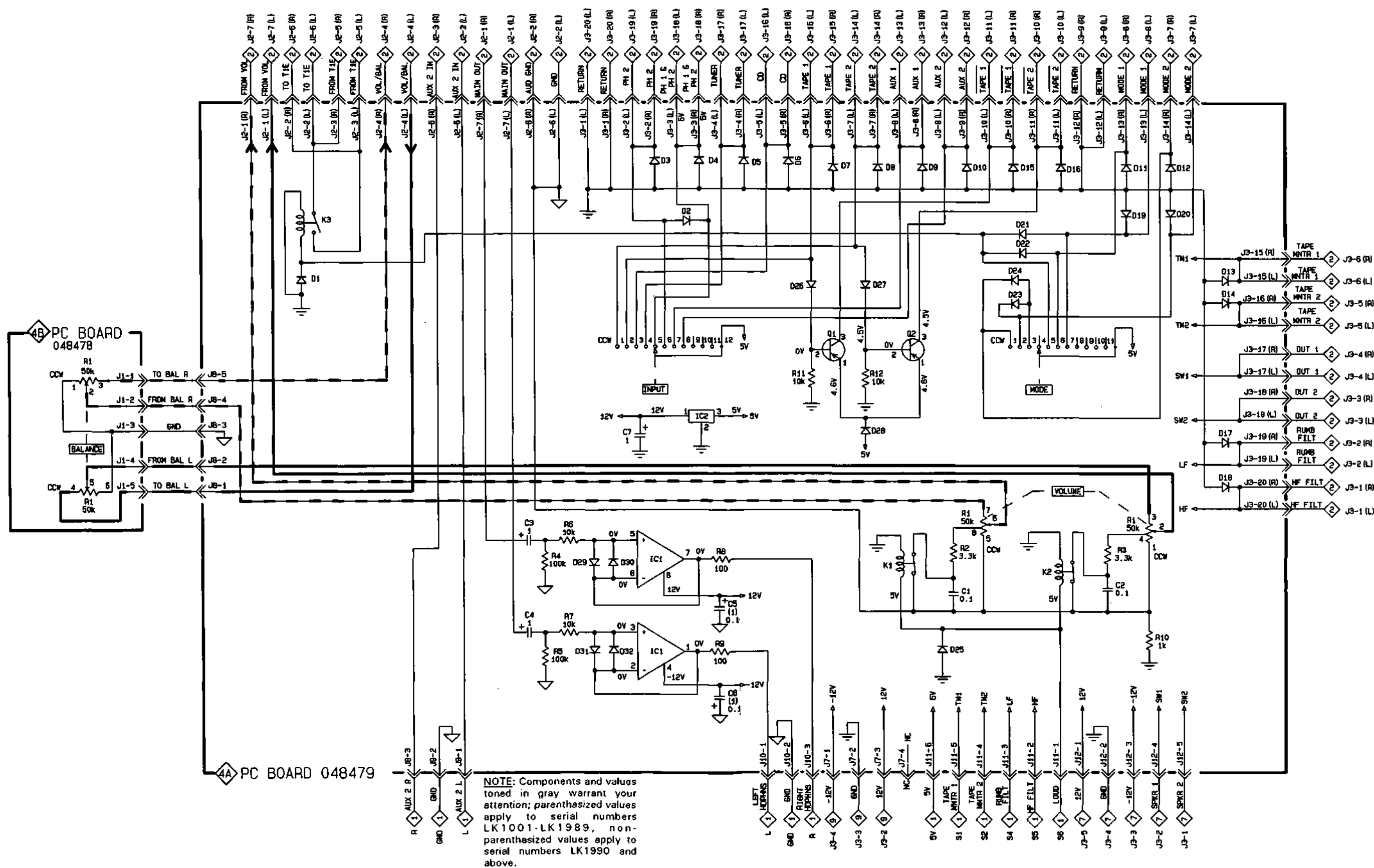
AMPLIFIER PCB 048474

NOTE: Components and values
toned in gray warrant your
attention; parenthesized values
apply to serial numbers
LK1001-LK1989. non-
parenthesized values apply to
serial numbers LK1990 and
above.

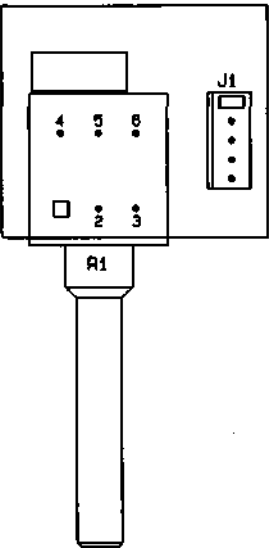
Amplifier



4 Control and Balance Control



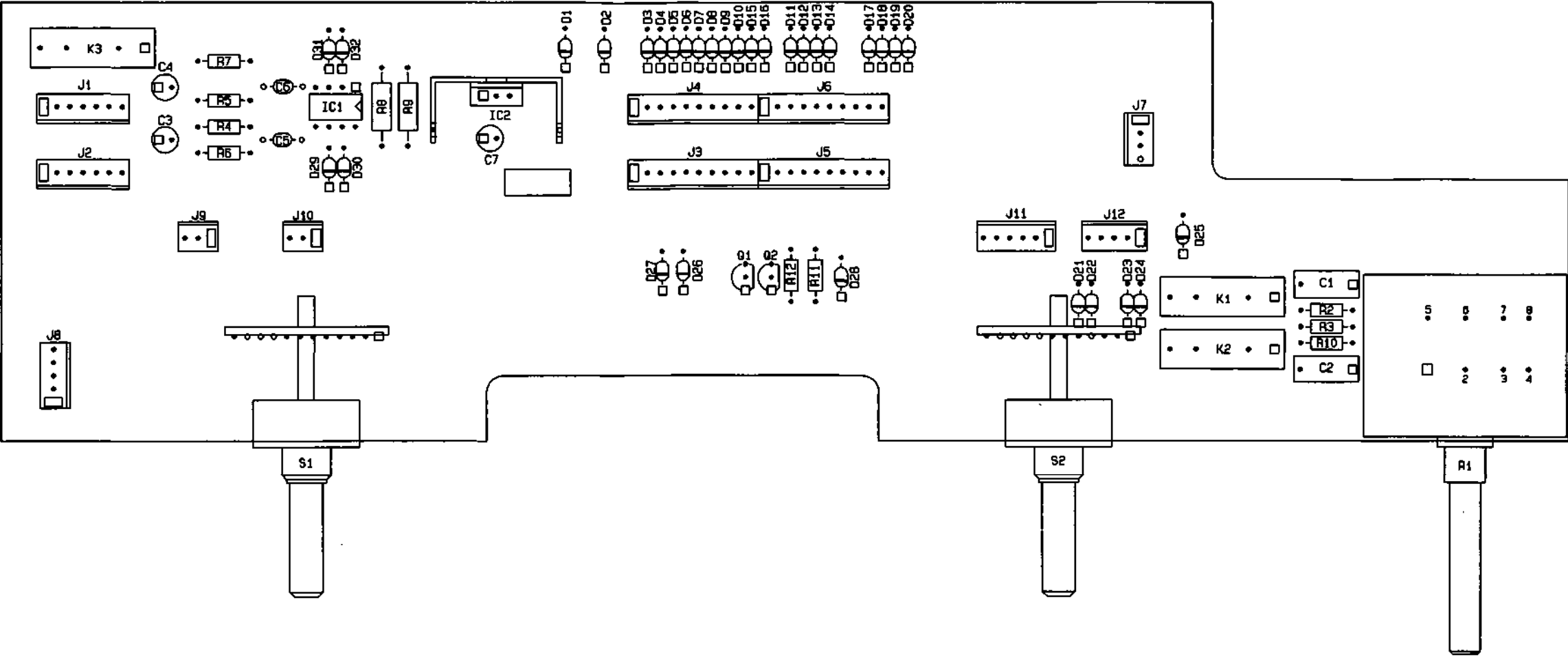
Control and Balance Control 4



BALANCE CONTROL
PCB 048478

BALANCE CONTROL
PARTS LIST

Symbol	Part	Description
RESISTORS and POTENTIOMETERS		
R1	134475	Balance Control

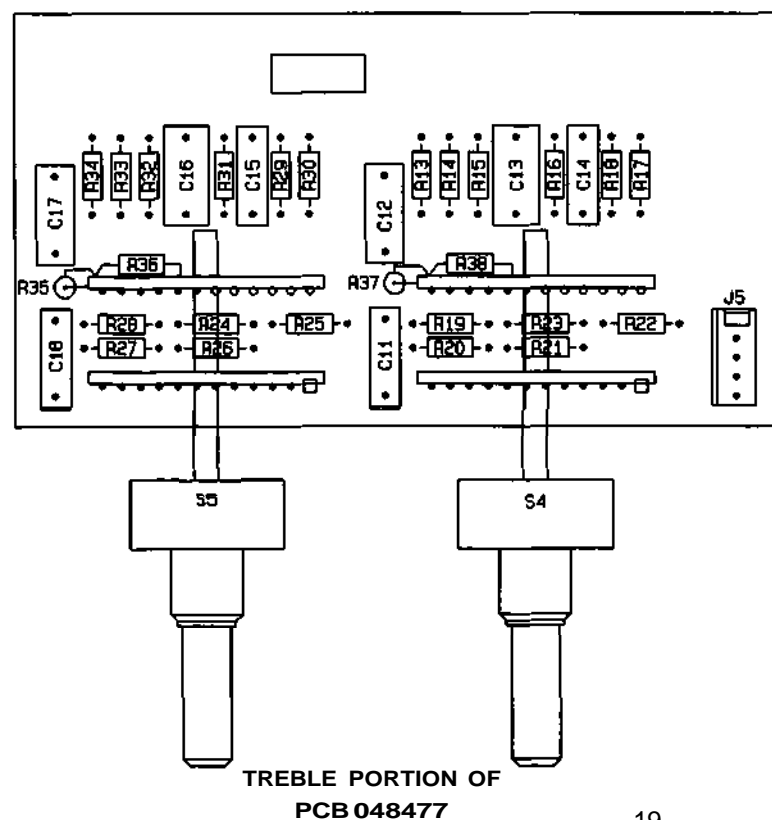
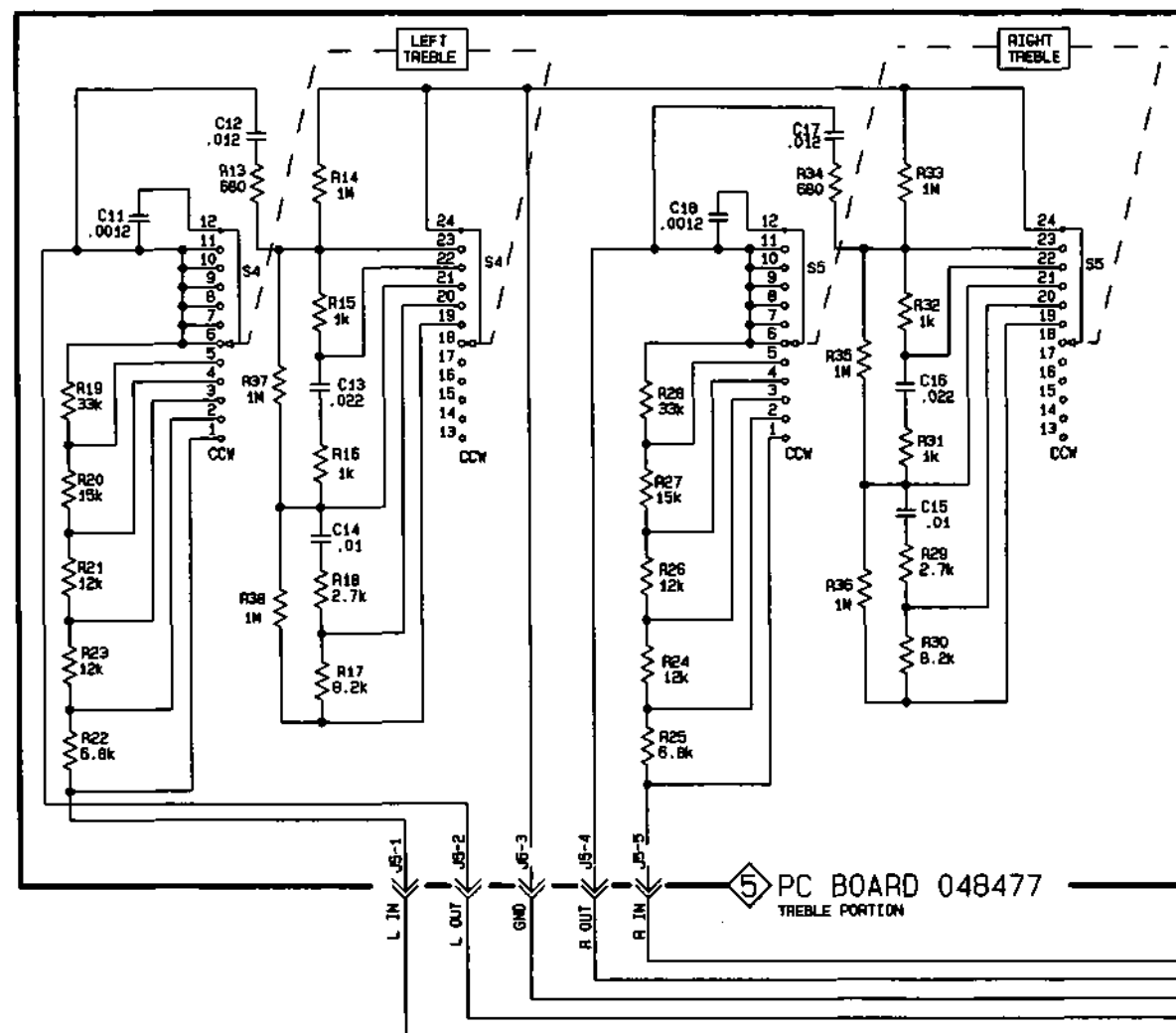


CONTROL PCB 048479

CONTROL
PARTS LIST

Symbol	Part	Description
DIODES		
D1-D32	070047	SIG, 75V, 150mA, 1N4148
INTEGRATED CIRCUITS		
IC1	133189	Dual Op-Amp. MC33178P
IC2	133108	5V Regulator MC7805CT
RELAYS		
K1-K3	087050	SPST, 5VDC, Reed, HE3321A0400
RESISTORS		
R1	134476	Volume Control
SWITCHES		
S1	146238	Input Switch
S2	146239	Mode Switch
TRANSISTORS		
Q1,Q2	132224	PNP, MPS4126

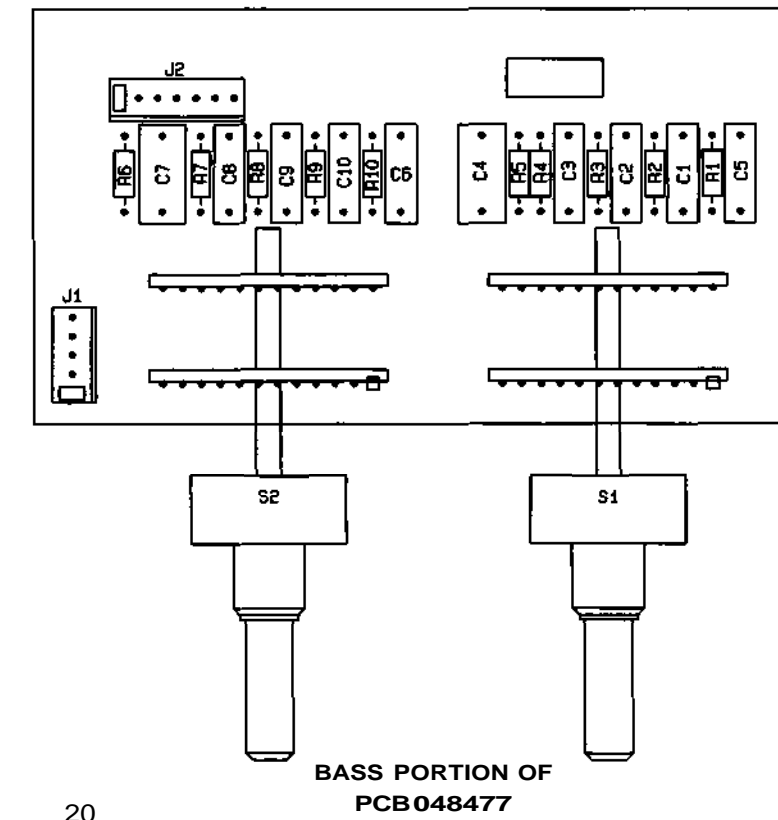
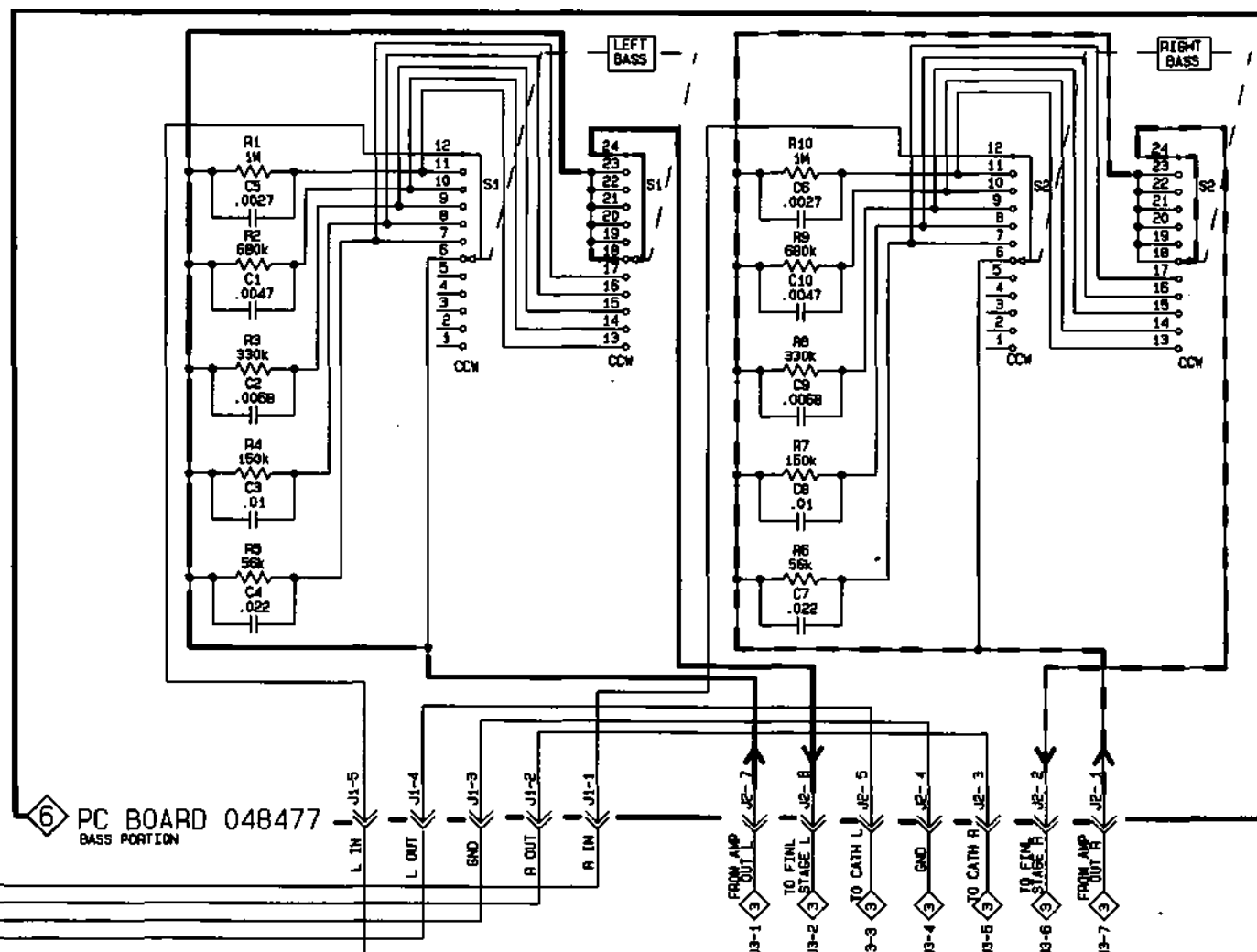
5 Treble



TREBLE PARTS LIST

Symbol	Part	Description
SWITCHES S4,S5	146240	Bass/Treble Switch

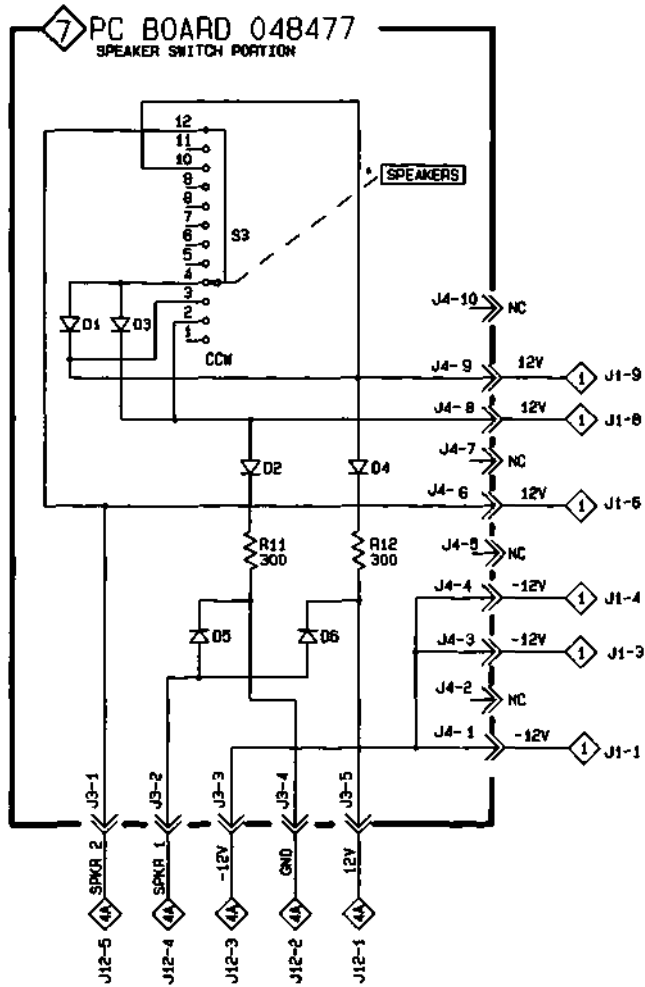
6 Bass



BASS PARTS LIST

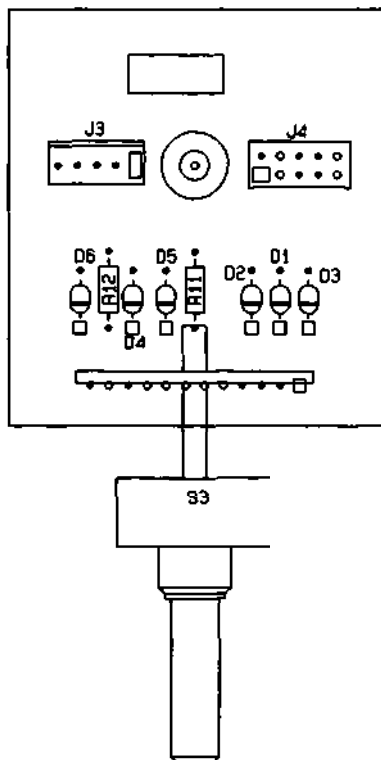
Symbol	Part	Description
SWITCHES S1,S2	146240	Bass/Treble Switch

Speaker Switch 7



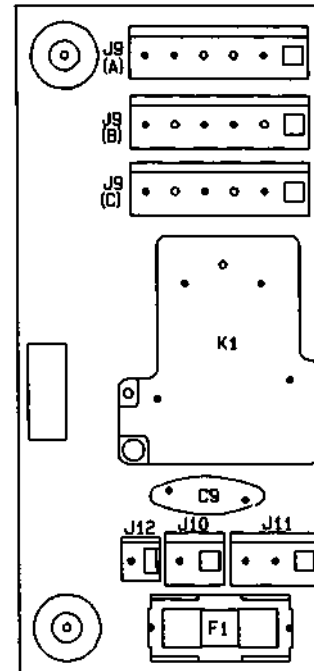
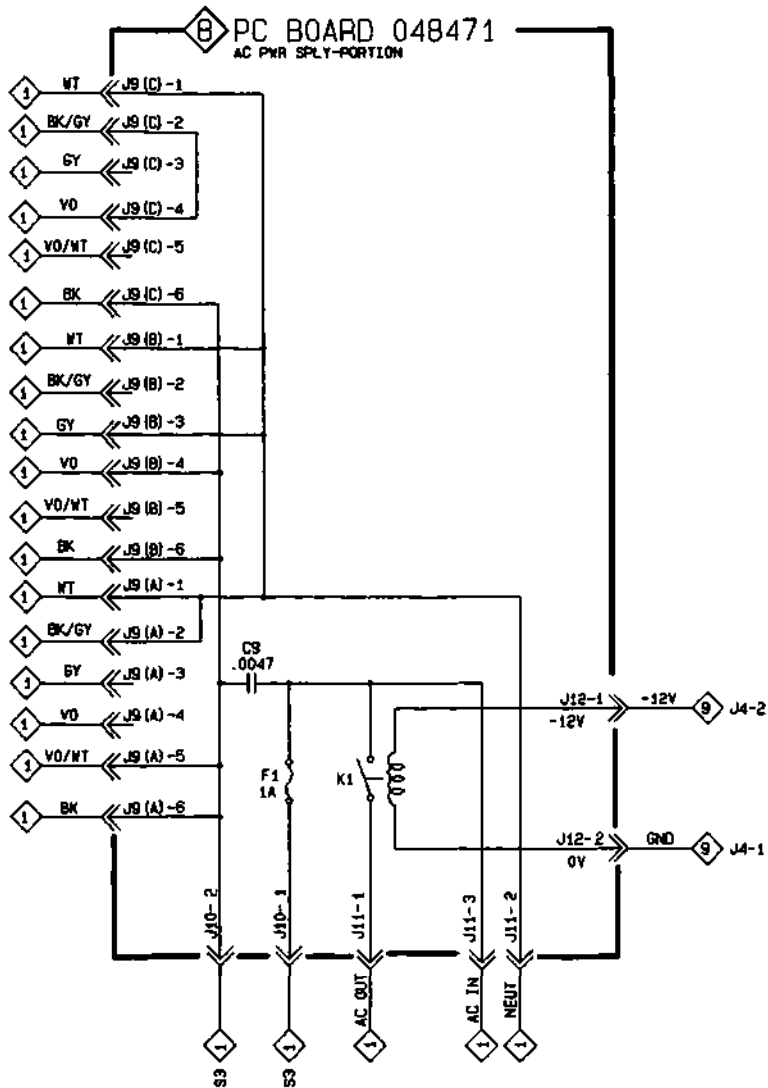
SPEAKER SWITCH PARTS LIST

Symbol	Part	Description
DIODES D1-D6	070047	SIG DIODE 1N4148
SWITCHES S3	146241	Speaker Switch



SPEAKER SWITCH
PORTION OF
PCB 048477

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

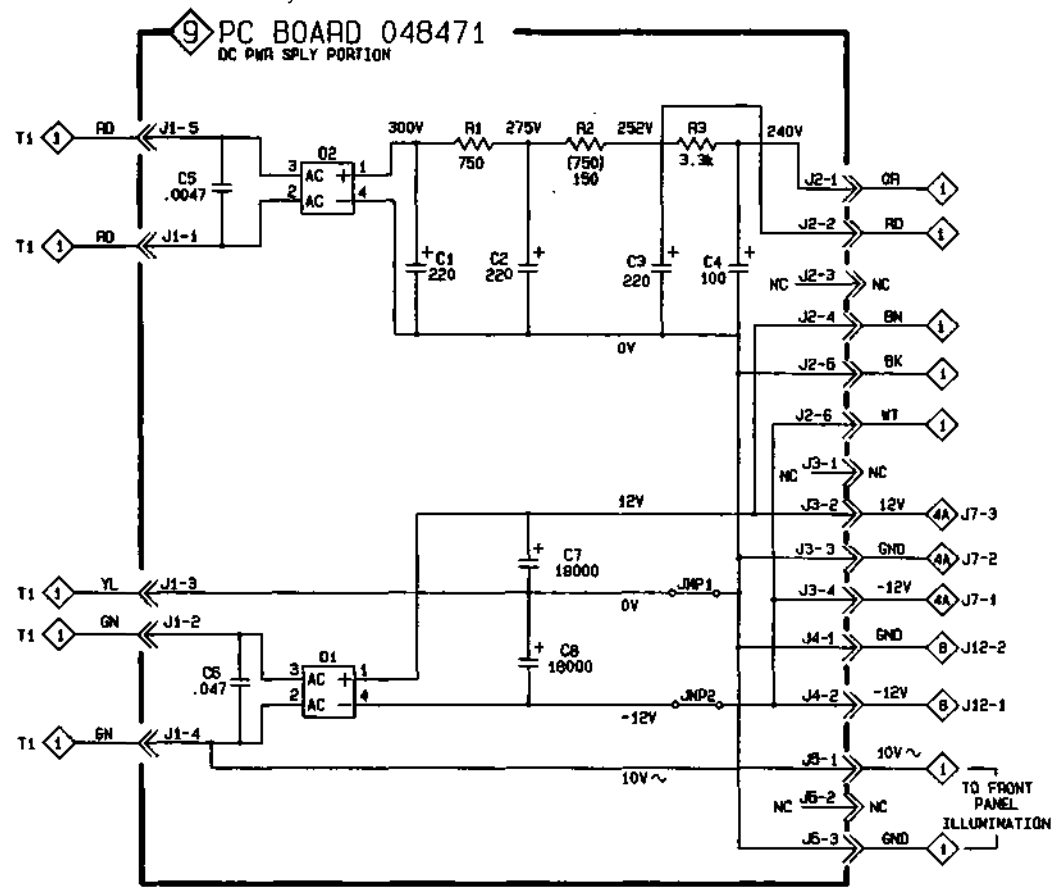


**AC POWER SUPPLY
PORTION OF PCB 048471**

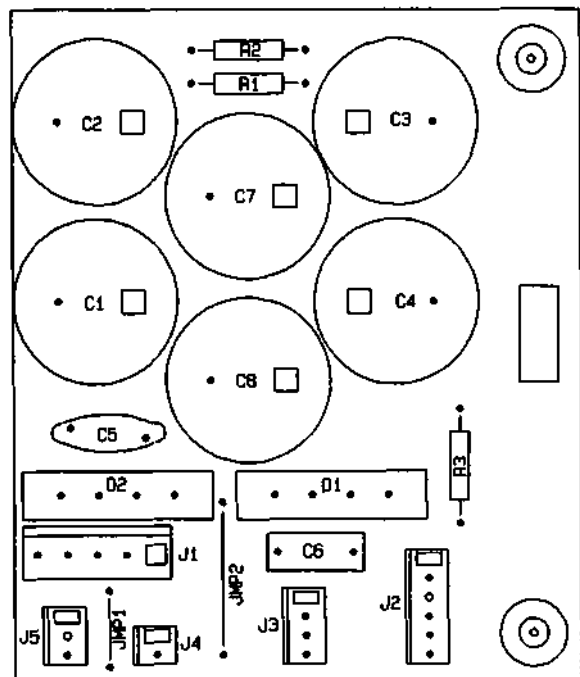
AC POWER SUPPLY PARTSLIST

Symbol	Part	Description
CAPACITOR		
C9	061276	Disc Cap, .0047uF, 400VAC
FUSES		
F1	089081	Fuse 1A, 2AG
RELAYS		
K1	087054	SPST, 12VDC

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



NOTE: Components and values toned in gray warrant your attention; parenthasized values apply to serial numbers LK1001-LK1989, non-parenthasized values apply to serial numbers LK1990 and above.



**DC POWER SUPPLY
PORTION OF PCB 048471**

DC POWER SUPPLY PARTS LIST

Symbol	Part	Description
DIODES		
D1.D2	070044	BRIDGE, 400V, 2A

Repacking Instructions

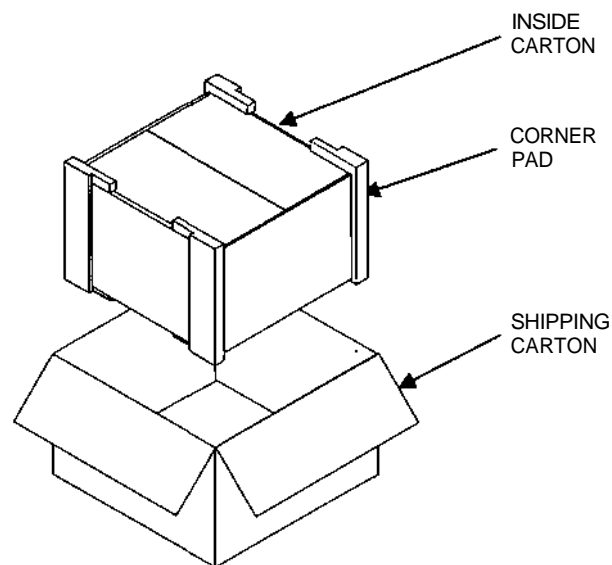
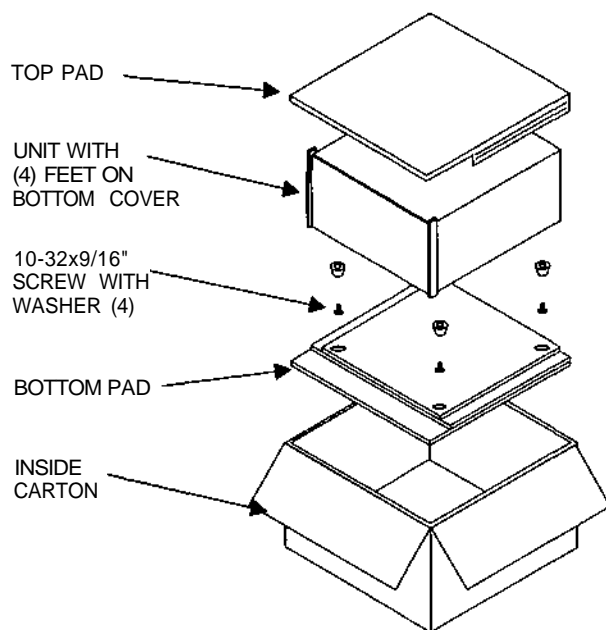
In the event it is necessary to repack the unit for shipment, the unit must be packed exactly as shown below.

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	033870	Shipping carton only
2	033884	Corner pad
1	033883	Inside carton only
1	033885	Top pad
1	033886	Bottom pad
4	017156	Plastic foot
4	100160	#10-32 x 9/16" Screw
4	104080	#10 Flat washer
1	033915	Shipping carton complete with all the above parts



McIntosh
C22 PREAMPLIFIER