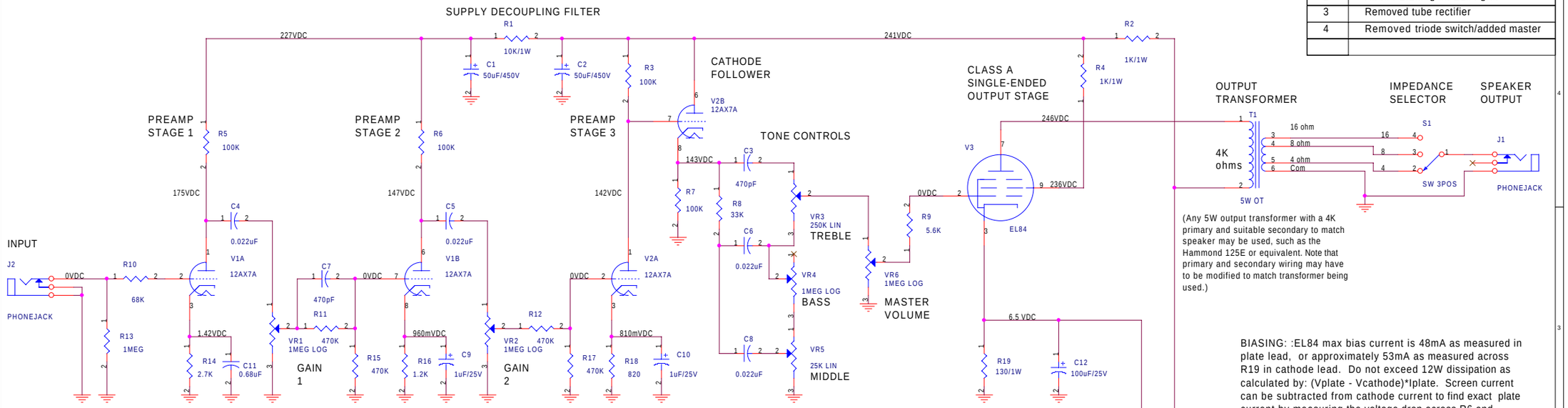
REV:	Initial design: R. Aiken
2	Added 2.2Meg on EL84 grid
3	Removed tube rectifier
4	Removed triode switch/added master

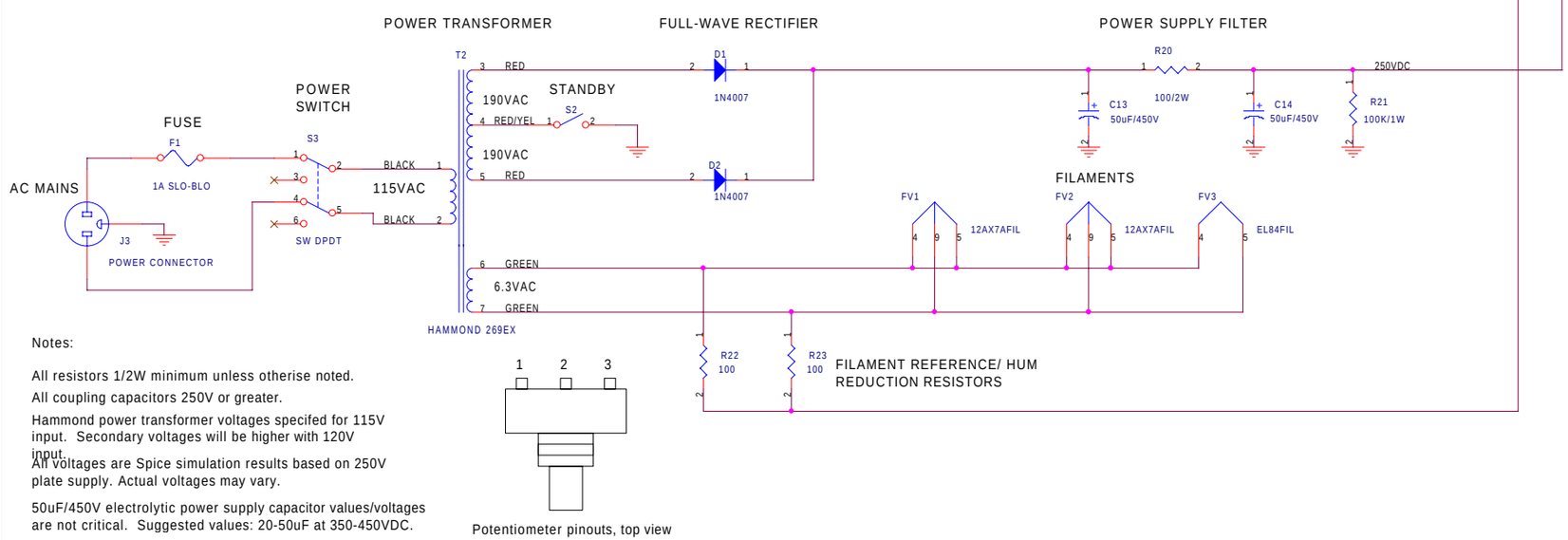


Note: A dual-ganged pot can be substituted in place of the two separate 1Meg gain pots.

Note: C10 may be removed for less distortion.

(Any 5W output transformer with a 4K primary and suitable secondary to match speaker may be used, such as the Hammond 125E or equivalent. Note that primary and secondary wiring may have to be modified to match transformer being used.)

BIASING: :EL84 max bias current is 48mA as measured in plate lead, or approximately 53mA as measured across R19 in cathode lead. Do not exceed 12W dissipation as calculated by: (Vplate - Vcathode)*Iplate. Screen current can be subtracted from cathode current to find exact plate current by measuring the voltage drop across R6 and dividing by its value (1000 ohms). Bias current can be adjusted by changing the value of R19. Lower values of resistance yield more bias current, and higher values yield less bias current. Cathode current is equal to cathode voltage divided by cathode resistance R19.



Notes:

All resistors 1/2W minimum unless otherise noted.

All coupling capacitors 250V or greater.

Hammond power transformer voltages specifed for 115V input. Secondary voltages will be higher with 120V input.

All voltages are Spice simulation results based on 250V plate supply. Actual voltages may vary.

50uF/450V electrolytic power supply capacitor values/voltages are not critical. Suggested values: 20-50uF at 350-450VDC.

Potentiometer pinouts, top view

AX84 http://www.ax84.com

The Cooperative Tube Guitar Amp Project

Title	High Octane	
Size	Document Number	Rev 4
Date: June 3, 2001	Sheet 1 of 1	

High Octane Revised: Sunday, June 03, 2001			
R. Aiken / Revision: 4			
AX84			
The Cooperative Tube Guitar Amp Project			
http://www.ax84.com			
Bill Of Materials		**June 3,2001 16:33:34**	
Item	**Quantity**	**Reference**	**Part**
1	4	C1,C2,C13,C14	50uF/450V
2	2	C7,C3	470pF
3	4	C4,C5,C6,C8	0.022uF
4	2	C9,C10	1uF/25V
5	1	C11	0.68uF
6	1	C12	100uF/25V
7	2	D2,D1	1N4007
8	1	F1	1A SLO-BLO Fuse
9	2	J2,J1	PHONEJACK
10	1	J3	POWER CONNECTOR
11	1	R1	10K/1W
12	2	R2,R4	1K/1W
13	4	R3,R5,R6,R7	100K
14	1	R8	33K
15	1	R9	5.6K
16	1	R10	68K
17	4	R11,R12,R15,R17	470K
18	1	R13	1MEG
19	1	R14	2.7K
20	1	R16	1.2K
21	1	R18	820
22	1	R19	130/1W
23	1	R20	100/2W
24	1	R21	100K/1W
25	2	R22,R23	100
26	1	S1	SW 3POS (Impedance)
27	1	S2	SW SPST (standby)
28	1	S3	SW DPDT (power)
29	1	T1	5W OT (Hammond 125E or equivalent)
30	1	T2	HAMMOND 269EX
31	4	VR1,VR2,VR4,VR6	1MEG LOG
32	1	VR3	250K LIN
33	1	VR5	25K LIN
34	2	V1,V2	12AX7A
35	1	V3	EL84