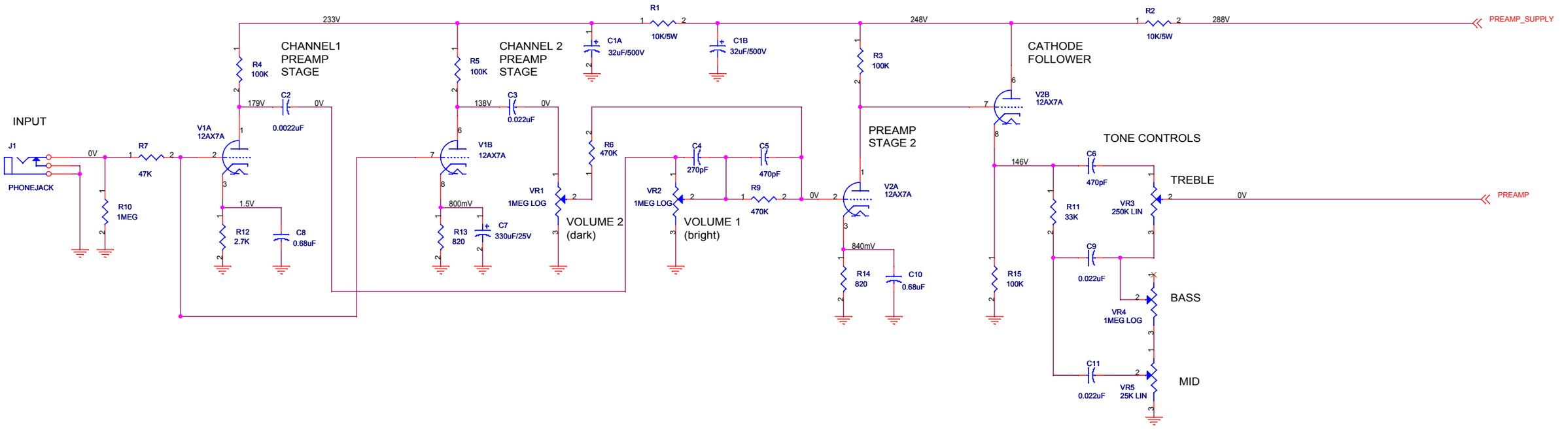
REV:	Initial design: Randall Aiken
2	Updated bias supply/transformers
3	Fixed pot reference designators
4	Fixed presence/feedback/atten values
5	Added filament wiring for V5
6	Added missing 10K decoupling resistor
7	Changed decoupling resistors to 5K
8	Input jacks were incorrectly labled
9	Added PI input attenuator
10	Redesigned for 12AT7 PI, 5AR4, back-bias
11	Changed to 12AX7 PI, removed back-bias

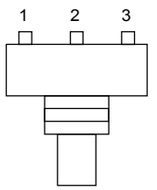


Modifications:

(1) If the amp is too bright at lower settings of volume 1, remove C4, or substitute a lower value. If the amp is too bright in general at all volume levels, remove C5 or substitute a lower value.

(2) For a cleaner tone with less distortion, remove C10.

(3) To configure the preamp for plexi style, make the following changes:
(a) Change C2 from 0.0022uF to 0.022uF
(b) Remove R12 and C8, and connect the pin 3 of V1A to pin 8 of V1B
(c) Remove C10



Potentiometer pinouts, top view

AX84 http://www.ax84.com

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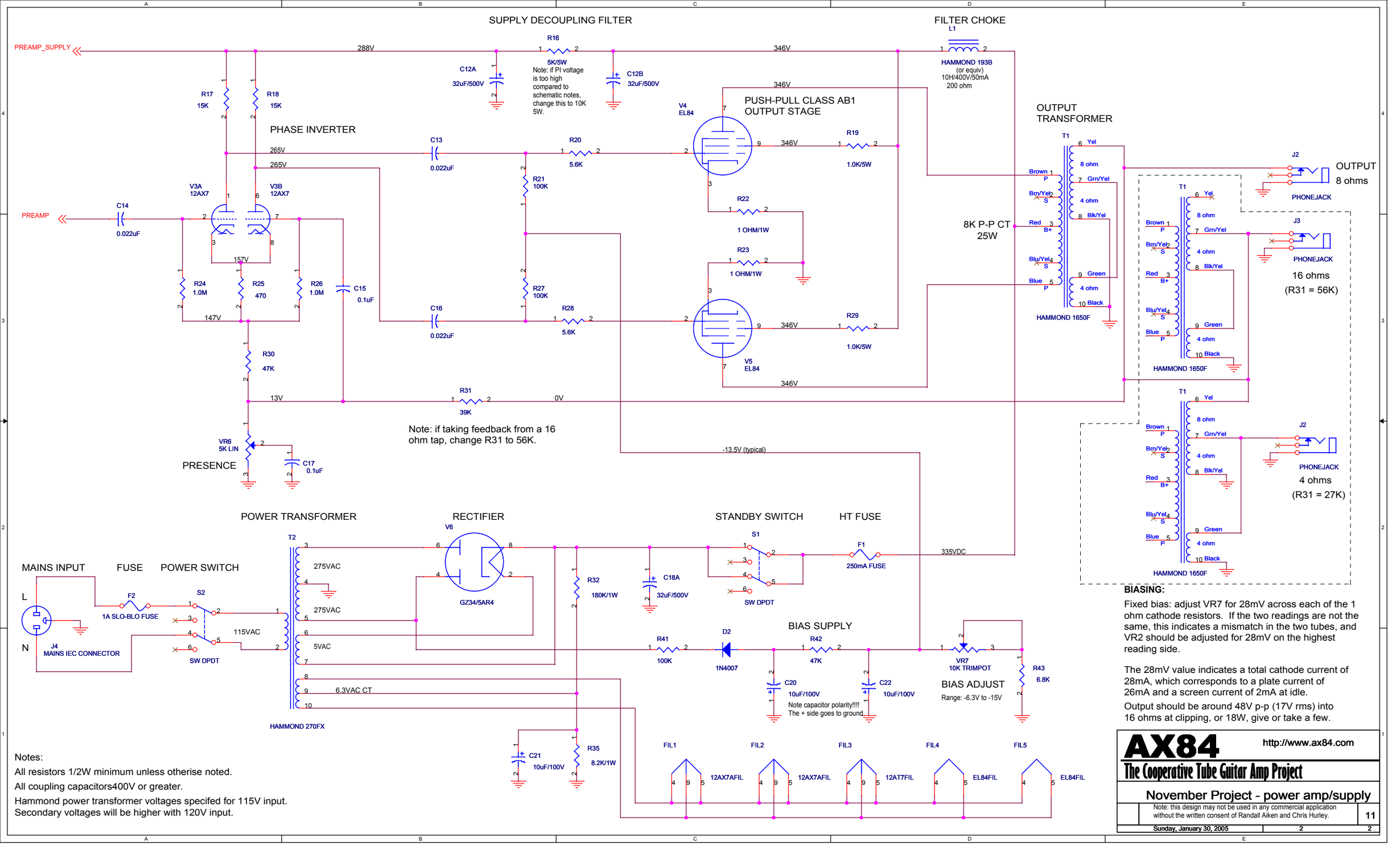

BIASING:

Fixed bias: adjust VR7 for 28mV across each of the 1 ohm cathode resistors. If the two readings are not the same, this indicates a mismatch in the two tubes, and VR2 should be adjusted for 28mV on the highest reading side.

The 28mV value indicates a total cathode current of 28mA, which corresponds to a plate current of 26mA and a screen current of 2mA at idle.

Output should be around 48V p-p (17V rms) into 16 ohms at clipping, or 18W, give or take a few.

Notes:

All resistors 1/2W minimum unless otherise noted.

All coupling capacitors400V or greater.

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

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