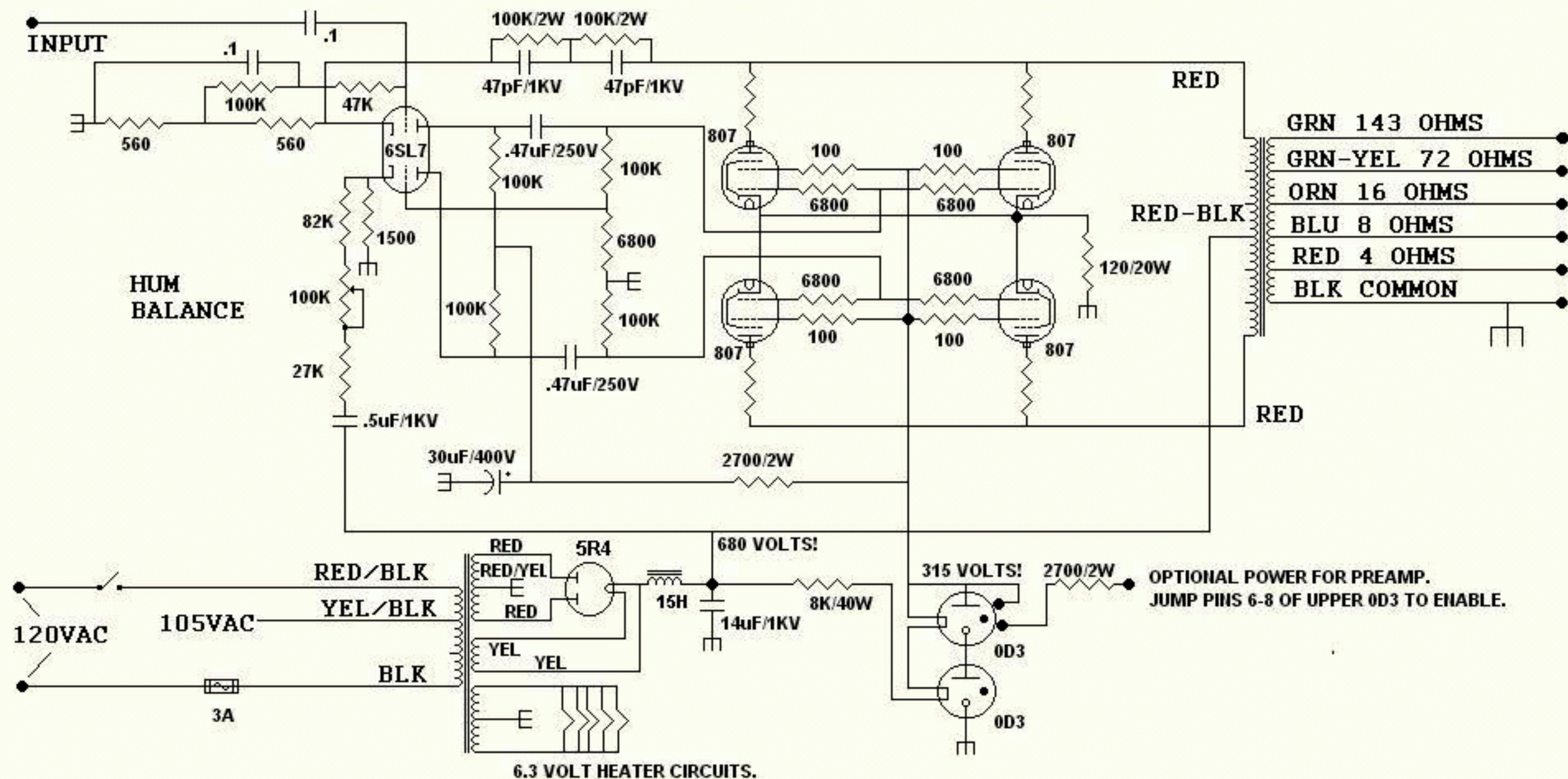


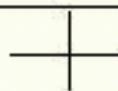
RCA Tube Type Amplifier: Model M1-12188A, schematic drawn from serial #6721



connection:



no connection:

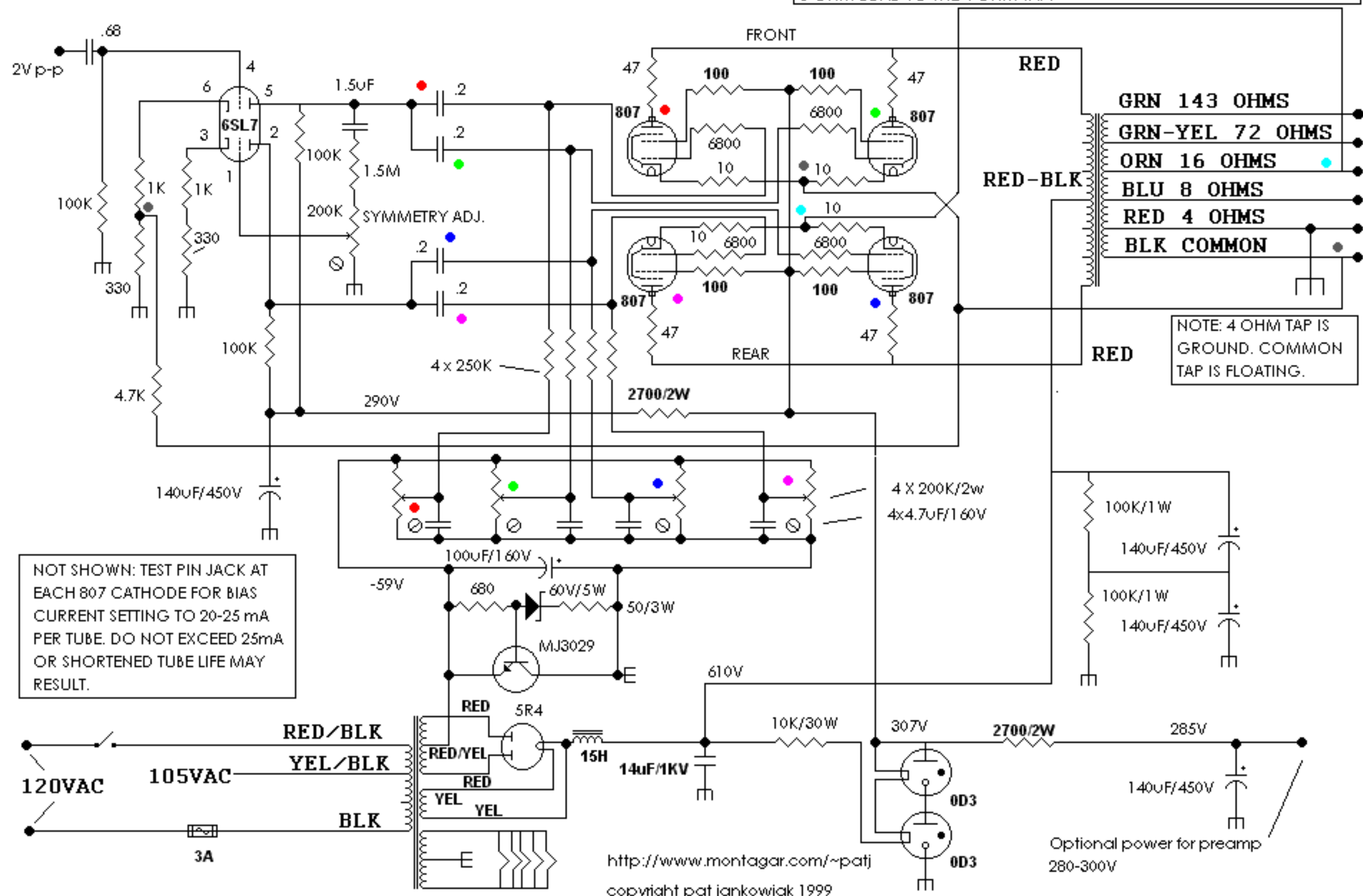


The signal enters the top grid of the 6SL7. The amplified signal flows from the upper 6SL7 plate to the grids of the top pair of 807's. A small part of the signal is picked off by the 6800 ohm resistor in the grid circuit of the top pair of 807's, and fed to the lower grid of the 6SL7. This signal is (theoretically) out of phase by 180 degrees with the signal presented to the top 6SL7 grid, and (theoretically) of the same magnitude. This out of phase signal drives the grids of the lower pair of 807's. The 4 807's thus in push-pull, drive the output load through the output transformer. Some reduction in hum can be made by adjusting the "hum balance" pot. As-is, the amp sounds atrocious, but is fine for public address work. Do not place an additional filter cap before the power supply choke, as this will raise the B+ to about 900 volts, and cause danger to the 50-year old output transformer! This amp is dangerous, and due to the cathode bias, consumes 807 tubes quickly. For all the negative comments, however, it can be tamed and made to sound quite nice if one is willing to take the long road and make several modifications, such as fixed bias, redesign the feedback system, a few mods to the power supply, and possibly negative cathode feedback by use of the common-4-16 ohms taps.

<http://www.montagar.com/~patj/>

RCA Tube Type Amplifier: Model MI-12188A, Modified

NOTE: FOR BEST RESULTS, LOAD AT HALF IMPEDANCE, i.e., CONNECT AN 8 OHM LOAD TO THE 4 OHM TAP.



INPUT

.1 .1

560 100K 47K

6SL7

100K 100K 100K

.47uF/250V .47uF/250V .47uF/250V

100K 6800 100K 6800 100K 6800

82K 1500 100K 27K .5uF/1KV

HUM BALANCE

RED

BIAS TEST 0.8 VOLT

RED-BLK 10 OHMS 2 WATTS

GRN	143 OHMS
GRN-YEL	72 OHMS
ORN	16 OHMS
BLU	8 OHMS
RED	4 OHMS
BLK	COMMON

RED

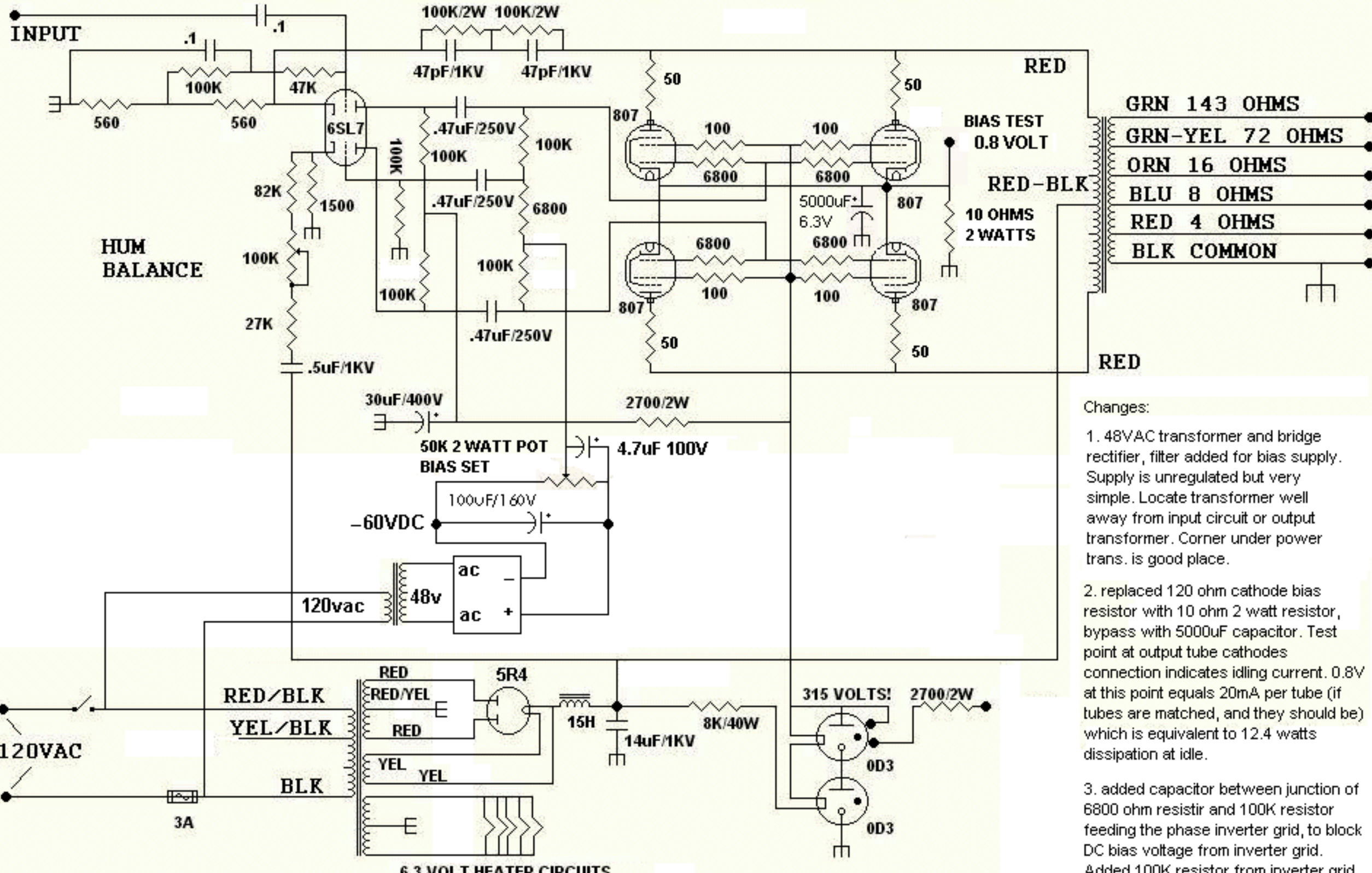
Changes:

1. bias supply inserted in center tap lead of power transformer. Added MJ3029 (TO-3 case) transistor, 680 ohm resistor, 60V 5 watt zener diode, 50 ohm 3w resistor, 50K 2 watt pot for setting bias. 100uF cap protects regulator from spikes.
2. replaced 120 ohm cathode bias resistor with 10 ohm 2 watt resistor, bypass with 5000uF capacitor. Test point at output tube cathodes connection indicates idling current. 0.8V at this point equals 20mA per tube (if tubes are matched, and they should be) which is equivalent to 12.4 watts dissipation at idle.
3. added capacitor between junction of 6800 ohm resistor and 100K resistor feeding the phase inverter grid, to block DC bias voltage from inverter grid. Added 100K resistor from inverter grid

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3. added capacitor between junction of 6800 ohm resistor and 100K resistor feeding the phase inverter grid, to block DC bias voltage from inverter grid. Added 100K resistor from inverter grid to provide return DC path to ground.

RCA Tube Type Amplifier: Model MI-12188A, MINIMUM MODIFICATION FOR FIXED BIAS FROM SEPARATE POWER SUPPLY



Changes:

1. 48VAC transformer and bridge rectifier, filter added for bias supply. Supply is unregulated but very simple. Locate transformer well away from input circuit or output transformer. Corner under power trans. is good place.

2. replaced 120 ohm cathode bias resistor with 10 ohm 2 watt resistor, bypass with 5000uF capacitor. Test point at output tube cathodes connection indicates idling current. 0.8V at this point equals 20mA per tube (if tubes are matched, and they should be) which is equivalent to 12.4 watts dissipation at idle.

3. added capacitor between junction of 6800 ohm resistor and 100K resistor feeding the phase inverter grid, to block DC bias voltage from inverter grid. Added 100K resistor from inverter grid to provide return DC path to ground.