



Selsted & Snyder, 211 PP , 1949

This is a wonderful design carried out by the two gentlemen Walter T. Selsted and Ross H. Snyder. The 211/VT-4C is a tremendous triode with outstanding sonic qualities. Here the 211's are driven in pure class A and the most crucial elements in securing the excellent merits from the 211 is the quality of the OPT, the driver and the PSU. (More or less in that order) Selsted and Snyder chose a universal/multi tapped transformer from UTC , possible not the best choice, but never the less the freq response of this amplifiers is only 1dB down at 20kHz and 3dB down at 20 Hz at 30 Watts output. Keep in mind that this is a non feedback amplifier and 6J5's are possibly not the best drivers at a 600V supply. Intermodulation at 10W is less than 1% and 5% at 25 W, not impressive – but nice.

Although that 6J5's are single triode versions of the 6SN7's, I would not recommend using 6SN7's due to the high Voltage supply. A better solution today would possible be 6CG7 as the first triode and 12BH7, 5687 or the new ECC99 as the driver. This would have the additional advantage that the Voltage supply may be increased by 100 to 200 Volts. The four 6J5's only need an input Voltage of about 100 mV to drive the amplifier to full rated power. (Total gain of ca. 85 dB) Thats a little close to the edge for modern signal sources, in my opinion. I would prefer 1 to 2 V RMS input for full rated power.

The resistor marked R6 may be found by trial and error. Try with values between 1-2 M Ohms. The input series resistor of 200k and the parallel capacitor, should be omitted as modern signal sources have no problems driving a 100k Ohm load.

A little word on the power supply. 5R4G's are cheap and capable of very high peak inverse Voltages. But the Voltage losses are high in particular when bridged. This results in a rather soft Voltage supply meaning less good Voltage regulation. It is vital to use a good smoothing choke and if possible do increase the values of the PSU capacitors. If maintaining the use of 5R4G's, consider to increase the second capacitor to 30-50uF. (Min. 1500 VDC) The 100k 200 W slider (potentiometer) is a silly solution , although I understand why it was picked. (High wattage sliders were rather common as WW2 surplus back then) I would suggest a Voltage divider made of a 10-12k 50W alu-clad resistor connected to +1250V then a 10-15k Ohm 30-40W pot. and finally a 68k 15W to ground. This will also allow further smoothing by means of capacitors at the connections.

The output transformer must present a load of 8000 Ohms or more. The higher the impedance, the lower the distortion, but sadly also lower available power. This is a compromise at your choice. The open circuit induction must be min. 80 Henry. The isolation should be very good (Toroids not recommended) and it must be capable of min. 120mA DC continuously.

The B+ and heater Voltages may be taken from one or more main transformer – whatever you may have at hand. But do take care that the 5 VAC transformers are well isolated. (Min. 2500 V guaranteed between windings and core)
