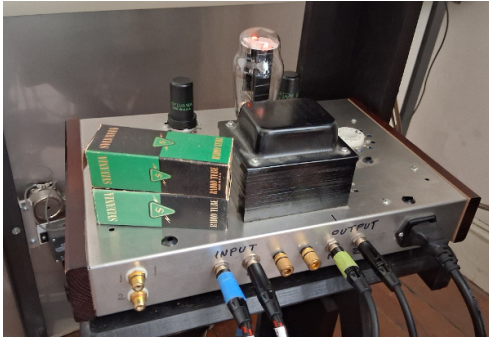


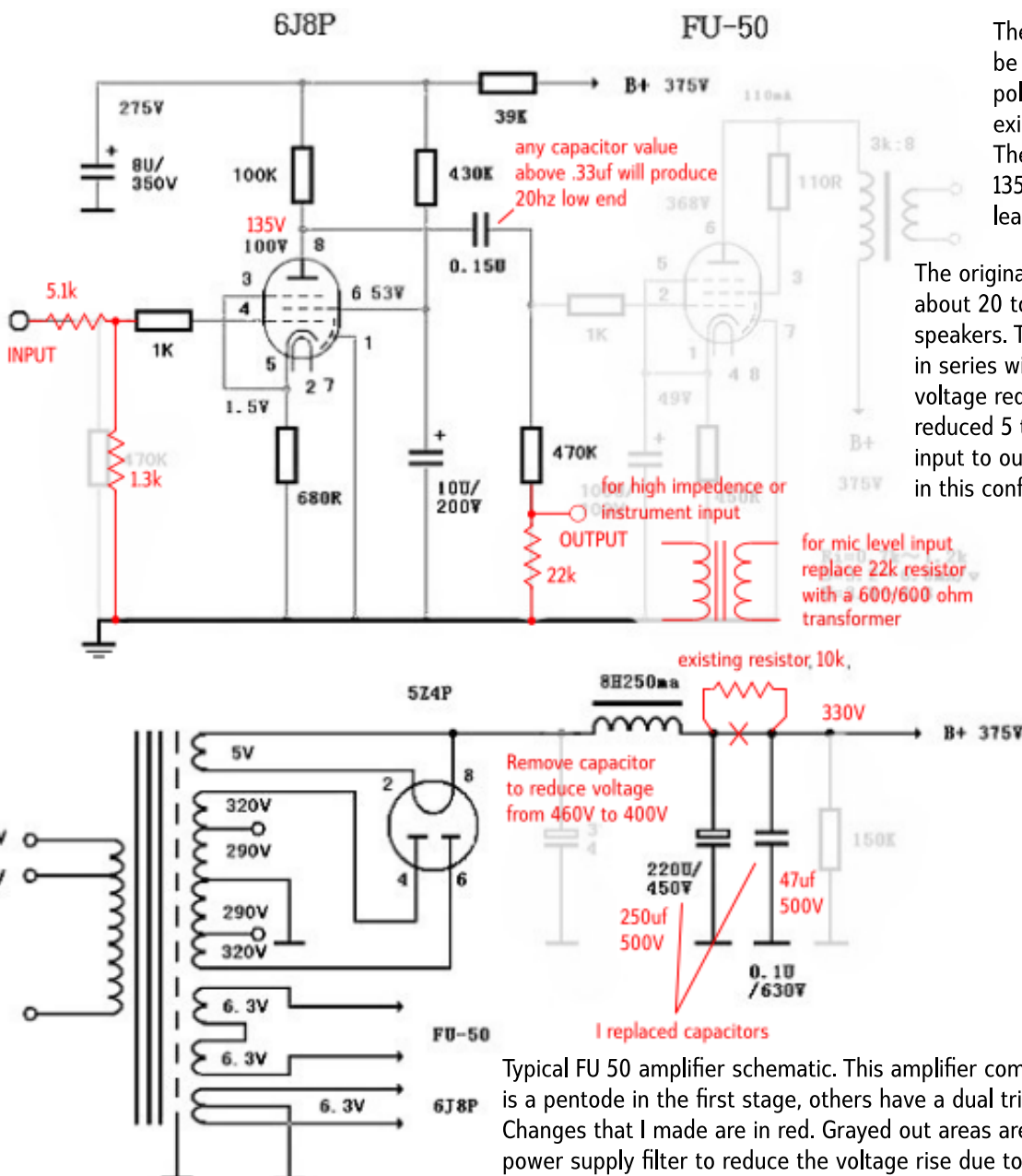
Converting an inexpensive 10 watt Chinese amplifier into a, high quality, single tube, unity gain, output stage



A few years ago I acquired a FU 50 10 watt class A amplifier that I used as an output stage for my analog compressor when mastering. It served me well to add tube warmth to my masters. However it developed a strange problem of not passing frequencies below 1khz in both channels. After going through both tube stages I discovered that both output transformers were the problem. So I decided that all I needed was a unity gain stage that I could do with one tube per channel and did this conversion that works very well.

I replaced the Chinese tubes with equivalent NOS pentodes, 6SJ7, that I got from Amplified Parts.com, a great source for all things audio.

The schematic below is a typical example. My unit had some differences but generally it was wired the same way. A direct coupled or transformer output will probably sound better than the inexpensive transformers in the original unit.



The DC blocking capacitor should be a good quality high voltage non-polarized type of at least .33uf. The existing capacitor may work fine. The pentode plate voltage sits at 135 volts and you do not want DC leakage into your DAW interface.

The original output transformer turns ratio is about 20 to 1 voltage step down for 8 ohm speakers. The existing 470k resistor was wired in series with a 22k resistor producing a 22 to 1 voltage reduction. The input signal was reduced 5 to 1 to produce a near unity gain input to output. The actual gain of the pentode in this configuration is about 41 db or 111.

The resistor divider output requires a high impedance or instrument input. A lower impedance input will reduce the voltage output but will still work. Using a 600/600 ohm transformer, like a Hammond studio grade, would give you a mic level signal of about -58 to -60db and a balanced output with great noise immunity.

Typical FU 50 amplifier schematic. This amplifier comes in two versions. The one I have is a pentode in the first stage, others have a dual triode. Either type can be converted. Changes that I made are in red. Grayed out areas are not needed. I had to change the power supply filter to reduce the voltage rise due to eliminating the power pentodes.