Subject: Re: New Production Tung Sol 6550, Penta KT88s
Posted by positron on Mon, 08 Jul 2024 01:26:00 GMT
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gofar99 wrote on Wed, 03 July 2024 11:09Hi, I suspect that there are a number of other factors involved as well. Class of operation (A,AB,U/L etc) actual load impedance and any possible output load side anomalies, stability of the B+ from no load to full load. Regardless there is considerable room for all of us to find tubes that sound and perform well in our gear. Good discussion.
Yes, there are some other possibilities. However, my designs are superior designs, and well within parameters. For instance, my line voltage only varies 1 volt, 2 volts maximum during all conditions.

Concerning Class of operation, for newbies.

Class A has maximum plate dissipation at idle (some add a few ma. at Max signal output). How close to maximum plate dissipation will affect gas release by the heated plate. As the output wattage increases (louder volume), that output wattage goes to the speaker, not in the form of heat on the plate. Thus the output power is subtracted from the maximum plate dissipation.

UL operation is similar to triode, unless the screen dissipation is exceeded, then possible catastrophic consequences.

Class AB normally has higher peak cathode current vs idle current, thus higher peak plate dissipation vs idle dissipation. The average cathode current, and plate dissipation is a consideration.

I would think the main worries are space charge depletion at peak cathode current and a higher average cathode current, which shortens life in general. The peak, and thus average is often determined by the output transformer. A 2k ohm to secondary X output transformer will have a higher peak and average cathode current vs a 5k ohm to secondary X transformer.

A poorly designed amplifier design could have oscillation problems, low frequency and/or high frequency. This can cause high peak and average cathode currents, which would shorten tube life vs lighter running of the tube(s).

An oscillation often causes a rectangular waveform, thus extended high cathode currents. Of course rectangular waveforms have very high distortion characteristics. Guitar amps often use distortion in expression of their music. But it can occur in high fidelity amplifiers if a designer is not careful.

Stability of the high voltage usually results from two areas, line voltage variations and inferior DC filter section designs.

Anyway, I shall see if I can determine, via experiments, what is the main limitation of the JJ E88CC small signal tubes, and the new Tung Sol output

Tubes under excellent operating conditions.

One last consideration is the lack of plate dissipation. It takes a quite hot temperature for getters to work. I have noticed over the decades that the top getters are not as efficient as side getters, which are near the hotter plate structure. That tells me that tubes without side getters could easily have more internal gas than tubes with side getters, thus faster poisoning of the cathode oxides.

Cheers

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