Subject: Questions for Douglas
Posted by fitz on Wed, 14 Dec 2005 16:20:45 GMT
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Douglas a couple of questions for you. Someone on the Asylum mentioned your name for questions about E-Linear amps. I was wondering if you could explain the benefits of driving driver tube the with the ultralinear tap of the transformer. (http://www.pmillett.com/elinear.htm)Also in general, can you or is there any benefit to placing a constant current source or a plate choke on the grid of the output tube instead of a resistor when running a tube in pentode mode ? I've never seen this done, so this may be a really stupid question. Thanks for the help.

Subject: E-Linear intro
Posted by PakProtector on Thu, 15 Dec 2005 20:25:19 GMT
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Hey-Hey!!!,Let's take a look at what is happening at an instant in time: The input grid of the input pentode goes up; its plate goes downAt the power tube, g1(cap coupled to the anode of the input) goes down; and its plate goes up. Its g2 goes up by tap %.**g2 is the other end of the pate load. The input pentode is a gm amp, and the delta-V across the plate load is gm*delta-g1. This assumes an infinite plate resistance.So, the input pentode calls for a lower plate voltage, and lowering the plate votlage lowers g1 of the power stage and raises the source voltage of the input stage. Since the input stage does not care about voltage, and causes only a gnange in current, the increase in supply(at the power stage's g2) reduces the magnitude of the lowering of its own g1.It is short path plate-to-grid, as the plate signal is fed back to its own grid through the plate winding and input pentode's voltage source.The grid choke is a substitute for a grid resistor. the TX valves I like call for a low grid circuit resistance. For example the 813 maximum g1 resistance is only 30kOhm. The low DCR/high AC impedance of the choke seems to deal with small grid current production far better than an ohmic device.If this missed something, please ask a follow-up.cheers,Douglas

Subject: Re: E-Linear intro
Posted by fitz on Thu, 15 Dec 2005 20:57:45 GMT
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>I don't think I worded my post right. What I meant was putting a plate choke or a ccs on g2. Thereby replacing the 470ohm resistor in the above schematic. Thanks for your help Doug.

Subject: Re: E-Linear intro
Posted by PakProtector on Thu, 15 Dec 2005 22:14:47 GMT
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Hey Fitz,That circuit is rigged with its SE final in pentode. You traditionally have a low impedance source for g2. The goal is to have g2 voltage (between cathode and itself) as invariant as is possible.Ultra-Linear feeds g2 a fraction of the plate voltage, also at comparatively low impedance.A choke or CCS would be the opposite, and offer a high impedance source to the g2. The CCS would be tricky, but the choke would be an interesting idea. No experience, but I'd be curious as to how it could sound. Possibly excellent.cheers,Douglas

Subject: Re: E-Linear intro
Posted by fitz on Fri, 16 Dec 2005 02:34:32 GMT
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Thanks for the explaination Doug. Someday when I get around to building this circuit, I'll try a pair of plate chokes out and see how it does.

Subject: Re: E-Linear intro
Posted by PakProtector on Sat, 17 Dec 2005 02:00:49 GMT
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Hey-Hey!!!,For g2 of an EL84, you shouldn't need a very big choke. I'd try an inexpensive piece first, and make it one I could use again, if it turns out you don't like the results.cheers,Douglas