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Subject: cascodes

Posted by [Thrint](#) on Mon, 25 Jul 2005 23:44:20 GMT

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From a few cascode-able valves like 6BQ7 and 6DJ8, the schematic shows a pair of triodes stacked on top of each other and the upper grids attached to a voltage divider reference. The composite valve behaves like a pentode. So what happens if you sub the top triode for a pentode? Use the same voltage divider for the control grid, dropping R and bypass to its cathode for g2 and what does it do now? How to model this composite? I know how to generate the composite's plate curves for any pair of triodes, but the triode/pentode combo looks a bit more complex...thanks, Douglas

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Subject: Penscodes?

Posted by [Damir](#) on Tue, 26 Jul 2005 09:39:23 GMT

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Although I didn't try it, IMO - pentode can be implemented (little problem with g2 voltage, but some people use pentode for "upper" tube in mu-follower, or like active load). But, IME - gain of pentode depends very little of "upper" tube.  $A \sim gm_1 * R_i$ , where  $gm_1$  is gm of the "lower" tube. Composite model for "penscode" - I have no idea, maybe SPICE it first and see what PC says...

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Subject: Re: Penscodes?

Posted by [Damir](#) on Tue, 26 Jul 2005 11:38:02 GMT

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Little correction, above sentence is: IME - gain of cascode depends very little of "upper" tube. BTW - Doug, besides "penscode" - do you work on something?

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Subject: Re: Penscodes?

Posted by [Thrint](#) on Sun, 31 Jul 2005 22:26:50 GMT

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Hey-Hey!!!, I have a triode on the bottom, and have installed a pentode on top. Actually, I just turned the upper triode back into a pentode with a dropping R to its g2, and a cap between g2 and cathode. I have a feeling I have turned the composite circuit into something with good AC impedance, or horizontal plate lines. Even better than the traditional triode-on-a-triode cascode. The upper element of the cascode does do one important thing, it determines where the

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horizontal, pentode-ish plate characteristics start, relative to the  $E_{c2}$  voltage. I suspect that the pentode offers a lower voltage start, and more horizontal when they happen, set of plate characteristics. And I have a day job which gets in the way of serious experimentation. regards, Douglas

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