Subject: Anyone use 6S45P with 12B4A concertina for PP 7591A or 6L6?
Posted by Norris Wilson on Tue, 28 Feb 2006 18:20:00 GMT
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Does anyone here have any experience with this front end for a PP amplifier?I have copied and pasted a few post by Scott Scholl from another forum about his experience with this front end combination as he has progressed so far.I hope he will not mind borrowing this as an example."I built a front end using two of my favorite tubes. A 6C45 with 68 ohm cathode and 10K plate resistor and about 400V B+ 125ohm grid stopper. A 12B4A is direct coupled with 6800 ohm cathode and plate resistors 425 B+, 5K maybe better but I didn't have any. The output tubes are EH 7591 run UL on an Eico HF20 chassis. Cap coupled with .1uf tinfoil and 120K grid resistors.Without NFB the cathode driven grid has perfect square wave, the plate driven grid has some light ringing. Adding NFB of a 2500 Ohm resistor from the 8 Ohm tap to the top of the 68 ohm 6C45 cathode resistor causes a sharp overshoot the square wave and increases ringing. Either the output transformer absorbs the overshoot or CMRR cancels it out because it doesn't show on the output.With or without NFB balance is excellent at low frequencies and slowly but slightly deteriorates as frequency increases and starts to get a small phase issue at 50Khz but holds out to over 100Khz. Total bandwidth of the amp is… a visibly clear signal at 25 hz, deteriorating below that, to over 50Khz but holds out well to over 100Khz.The concertina drive is 90Vp-p, this is for pentodes only. The 7591s are biased at 22V.I've not listened to the amp yet.""The power supply is the stock HF20 power transformer with 5U4G and 4 ASC 50uf poly in oil caps in various locations. One for the power tubes, one for the driver after a 6H choke 150 ohm (I know I know) then a 500 ohm decoupleing resistor and the other two caps for the driver. I may rewire them later.""I'm drawing about 25ma at both stages and I'm expecting a little more if\when going to 5K maybe 30ma. I won't know untill I try. ""The parts came in yesterday. I replaced the 6800 ohm resistors in one amp and get 31ma but Vp-k is only 100v or so. The bias on the 6C45 maybe adjusted to get more voltage. I'm still working on it."This front looks as if it may be an excellent combination.I would appreciate any comments about this tube compliment for possible use with 7591A, 6L6, and PPP 6V6?ThanksNorris Wilson

Subject: Re: Anyone use 6S45P with 12B4A concertina for PP 7591A or 6L6?
Posted by Damir on Tue, 28 Feb 2006 19:31:39 GMT
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No, I didn`t, but if you don`t need the NFB than you can use something like this - 5687 concertina, works with E182CC, too. 50k resistors (R7,R8) are actually grid-leak resistors of the output tubes. With them, and 5687 you can get about 2x27Vrms out with 2Vrms input, it`s about 2x38Vp, or about 5dB of "headroom" for -22V (needs max. 22Vp) biased 7591. With E182CC you can get about 2x32Vrms out(2x45Vp) - enough even for 6L6.The current through 1st and 2nd stage is 10,5+10,5mA. I used something like this in my PPP monoblocs, and when I find some time I`ll put the CCS in the place of 27k resistor, stay tuned...

Subject: Re: Anyone use 6S45P with 12B4A concertina for PP 7591A or 6L6?
Posted by PakProtector on Tue, 28 Feb 2006 21:38:59 GMT
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Hey-Hey!!!,The split load PI, or concertina circuit is a bit wasteful of B+ with respect to its output capability. The absolute max swing possible is 25% of B+, and in practice it is more like 20% of B+, per phase, peak to peak.For a Class A amp, with its required lower B+, this can be an issue. The 7591 does make the best of this, requiring more like 10% of Class A B+ input to its grid. Even less if a lower g2/full pentode circuit with a large load a-a is employed(large numeric that is).Since my current choice of circuits requires a slightly different set of performances from its components, the split load doesn't get much playing time. Low plate and cathode loads would make it a bit less sensitive to load imbalance. Since my linestage 12B4 seems quite happy with 10k plate loads, 5k + 5K ought to be quite a good operating point. With enough B+ to make 30 mA of idle, it's too far from Class A for my current preferences.I suspect that plate-to-grid NFB will be hard to implement around the finals with a concertina PI if you wish to keep things balanced.Anyway, that's my take on it, remember that your amps are for your ears, so building to somebody else's opinion may not be the thing to do. There are reasons to do it, and there are reasons not to...I do hope to listen to Scott's amp, so that I can hear what he's been talking about.cheers,Douglas

Subject: Thanks Damir and Douglas (nt)
Posted by Norris Wilson on Wed, 01 Mar 2006 01:21:23 GMT
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NT

Subject: 12B4 sub
Posted by PakProtector on Sat, 18 Mar 2006 20:56:58 GMT
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Hey-hey!!!,One could try the 6C19Pi in place of the 12B4. Mu is about 2.5, and R_p is ~500R. So try the 6C45>6C19 and use a 3-4k resistor on the 6C19. Either way, the limit is still a quarter of B+ for swing. We just get a bit closer to that limit with the lower plate Z of the 6C19. cheers,Douglas

Subject: Re: 12B4 sub
Posted by Scholl on Fri, 24 Mar 2006 16:26:44 GMT
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I looked at both the 6C19 and 12B4 and just judging by the published curves find the 12B4 more linear in the 20-30ma range. I have 6C19s but never used them.This circuit is good for driving pentodes only.

Subject: Re: Anyone use 6S45P with 12B4A concertina for PP 7591A or 6L6?
Posted by Scholl on Fri, 24 Mar 2006 16:31:10 GMT
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The amp is working but I have some powersupply\ground issues to solve. Maybe I'll have it together for the May tasting

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Subject: Re: Anyone use 6S45P with 12B4A concertina for PP 7591A or 6L6?
Posted by PakProtector on Fri, 24 Mar 2006 17:37:27 GMT
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Hey Scott,Looking forward to seeing you at the Mill...I am going to bring all-tube active loaded 12B4 linestage. I have heard good things about the one you built for Jonathan, and I look forward to hearing it.Thanks for the insight on the 6C19. I am considering a few uses for the tube, among them as the lower part of a hybrid cascode. When hunting maximum swing from a given B+, a low plate Z triode is just what the Doctor ordered. The ability to set the upper grid line of the faux pentode circuit *ANYWHERE* by moving the MOSFET's gate voltage is a very useful property. It keeps the load line out of the sub-Ec2 knee very well. The additional demands of the E-Linear circuit on the drivers stage set-up require a very flexible front end. See Merlin v2 in the projects folder. Or the buffer linestage...it is all sorts of handy.That these 6C19's are available for less than $1 each delivered and can stand the idle current a 10k plate load offers with a 500V B+ can deliver is another 'Plus'. A proper radiator for the MOSFET is not as easy.I have seen the plate curves from the Klausmobile site, and find that they look at least as linear as a 12B4. The 500R plate R when resistively loaded for 6-7 dB of gain is quite good too. Forget the need for a second buffer stage. 5k and 300V and you're 'Off to the Races'...:)cheers,Douglas

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Subject: Re: Anyone use 6S45P with 12B4A concertina for PP 7591A or 6L6?
Posted by Scholl on Sat, 25 Mar 2006 12:22:53 GMT
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The circuit I did up is dirt simple, 10K Rp 1K Rk about 25ma. It's just very neutral but powerful sounding, it doesn't add any tone. Makes one think they just doubled thier power. It did take a little trial and error to find the proper position in Johnan's system. One of the problems with these get

togethers is there isn'r enought time to find the right synergy between gear.Later

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Subject: yep...
Posted by PakProtector on Sat, 25 Mar 2006 12:42:34 GMT
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hey-Hey!!!,10k is a very nice line across the 12B4 curves. The time thing is a major shortcoming at the Tasting for sure.I like the 12B4 for the same reason as you: it is transperant, just makes things bigger.cheers,Douglas

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