Subject: SE 300B Project, Part 11 - The Amplifier Schematic
Posted by Damir on Thu, 30 Mar 2006 11:38:07 GMT
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Finally, here`s a complete schematic of SE 300B amplifier, one channel shown:The driver is described in part 9, and active, CCS load in various «chapters», and «Guinevere» preamp project. Again, links for PCB and current settings (10-11mA) are here:http://audioroundtable.com/GroupBuild/messages/1079.htmlhttp://audioroundtable.com/Tubes/messages/929.htmlThe output stage is known from parts 1, 2 and 4 – there`re some little changes, for example, cathode resistor R12 is enlarged to 910 Ohms. We can use 820 R / 25W resistor, and 91 Ohms / 1W resistor in series. It can «work» like slow-blow fuse – in normal operation, 80mA cathode current produces 0,08^2*91 = 0,58W dissipation. If for some reason current through the output tube rises more then 105 mA, this, 91R resistor would overheat and burn out, (hopefully) protecting other (expensive) amplifier`s parts.Negative secondary / speaker terminal can be grounded (for safety reasons), but I left it to «float». We can use the «star ground» variant, where all the driver grounds are put together in one point near the tube socket, and then grounded to the one and only «star ground» point on the chasis. The same is with output tube, see the schematic. The «minus» pole of PS decoupling capacitors can be grounded to the same «common» points, C3 (and C7 other channel) to the power amp`s common ground point, and C4 (and C8 other channel) to the driver`s common ground point.And here`re the wiring details of E180F driver:Wiring details for the output stage are in Part 4 – there`re some little changes (Ci, Rk and Rgs – their values are changed a bit), but the main change is a grid choke in the place of grid resistor, Rg.In the next, (probably) last chapter, I`ll have photos of the finished amp, and some more construction details.

Subject: Bravo, great work!
Posted by Norris Wilson on Thu, 30 Mar 2006 16:13:37 GMT
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Thanks Damir for your amplifier design information.Obviously, you have put in allot of time and hard work to bring this to us. It looks great, and is very much appreciated.I was wondering if I over looked the power supply information?I am looking forward to your completed information on this design.And I hope you will have time in the future to include substituting a 2A3 for the 300B? And also, will be so kind as to share this information as you have the detailed information on this 300B project.BravoNorris Wilson

Subject: Excellent!
Posted by Wayne Parham on Thu, 30 Mar 2006 16:28:28 GMT
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Thanks for your hard work!

Subject: Re: Bravo, great work!
Posted by Damir on Thu, 30 Mar 2006 16:41:24 GMT
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Thank you for your kind words. Power supply schematic is in the Part 10. The easiest way to implement 2A3 is to use the same PS schematic, and not use C1 and C5 (first PS caps). Then you`d have a choke input PS, with about B+=312V we need (depends of the rectifiers). `Cos of that I specified "larger" chokes then we really need (250mA and 150mA) - cost difference is negligible.The only problem is filament voltage - probably it is the best to ask for "modified Centurion" trafo with two 5Vct/2,5A (2,5-0-2,5V) filaments windings. The original has two 5V/1,5A windings, and one 14V/1A we`re not using and it can be ommited (we`d have two ct terminals needed that way).Cathode resistor of output tube can be lowered with switch across 91R resistor, leaving only 820R or so by shorting 91R.Driver Ia must be lowered to 10mA, we`d lowered Ua that way, maybe Rk must be changed also (`cos of lower B1+).Huh, it isn`t too easy to build "universal" 2A3/300B amp, but it is possible...

Subject: Re: Excellent!
Posted by Damir on Thu, 30 Mar 2006 18:25:34 GMT
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Thank you - I hope that the final part will be soon, then we can put amp and PS schematics into "Projects" section... Maybe someone would be interested to actually build it ?

Subject: Re: Excellent!
Posted by 2wo on Fri, 31 Mar 2006 03:17:19 GMT
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Hi Damir, I have been following this series with great interest And as it happens a wile back I acquitted a few D3a’s for another project. Bas Horneman is working with them in his LD 91 and I see your positive reports. I am going to give them a go in my WE91’s. The question remains weather to load them with anode chokes or CCS. This amp need a kick in the ass. It sounds good, very good, but they don’t have the dynamic drive of my puny little DRD 45’s on my 97db speakers.I have more to say but out of time…John

Subject: Re: Excellent!
Posted by Damir on Fri, 31 Mar 2006 10:54:55 GMT
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Hi, I tried D3a only triode connected, with resistive and CCS loads. Good sound and high amplification, but large input capacitance (Part 9).I planned pentode connection too, basically P. Millett`s OP (in his large pentodes test) - Ua=Ug2 = 150V, Ia/Ig2 = 20/6mA. Then Ra=8k2/10W and Rg2=27k/2W, bypassed with 4µ7/450V and referenced to cathode, Rk=51R, unbypassed; B+ around 310V. But, I found trioded E180F/CCS combination and stopped with experiments... Especially, IMO - high impedance out drivers and grid choke load aren`t that reccomendable.Hey, you can always "borrow" CCS from "Guinevere" and try it...

Subject: Re: Excellent!
Posted by red on Wed, 01 Aug 2007 08:06:02 GMT
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Hi Damir - I have built the Legacy amp and I am tempted to convert to your schematic as I have all the parts (also have a few C3g's).A quick question - do you think that the grid stopper are essential in this amp design - I currently have grid stopper at 39ohms - and am experiencing some courseness at higher frequencies - do you think that this may be the issue?Red