
Subject: Preamp schematic check

Posted by [Shane](#) on Fri, 31 Oct 2014 23:23:50 GMT

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I found a preamp that I'm thinking of building because I have a stack of 6SN7's and VR tubes. No better reason right?

Anyway, it's a BEZ Q4B preamp that comes from China, point to point wiring handbuilt by the designer, and has gotten some pretty good reviews from the people who have bought it over the last 10-12 years. It's simple, I can kinda follow a schematic, but I always layout a wiring diagram to help me visualize. Actual layout I can do, just the wiring bit helps me not screw up. So here's a few photos of one of the preamps, it's innards I could find, the schematic, and my little diagram. IF anybody has the time to check my wiring diagram I'd appreciate it.

File Attachments

- 1) [old_bez.JPG](#), downloaded 11590 times
 - 2) [PC310051.JPG](#), downloaded 11677 times
 - 3) [BEZ Q4B 6SN7 Preamp.gif](#), downloaded 13341 times
 - 4) [q4b layout.jpg](#), downloaded 12022 times
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Subject: Re: Preamp schematic check

Posted by [gofar99](#) on Sat, 01 Nov 2014 23:10:02 GMT

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Hi, I like SRPP designs and this one should work fine. I favor the ECC802S over the 6SN7, but in this type of circuit they both behave very much alike. My only concern is the VR tubes. My experience has been that they tend to introduce noise. I also prefer putting the volume control at the input side. Yes this will mean that there is a bit more noise at the output as the control doesn't attenuate it but it also means that the tube is operating in a very small signal mode and is likely to be both more linear and lower distortion. With careful attention to details I get S/N in the -90 to -95dbv range in similar preamps with a gain of 7. BTW you can reduce the gain of the one shown by omitting the cathode capacitor. It will cause some shift in the output impedance, but not enough to cause any issues. I figure one less non-linear part is a good thing.

EDIT: I notice that there is no provision to protect the tube from high heater to cathode voltage. my experience is that without it the tubes do fail....rather dramatically as well with major noise going toward the amps. I always raise the heaters off the ground by about 60-80 volts DC. There is a side benefit as well as the S/N is improved slightly. The way to do this is not ground the CT of the heater trannie and instead make a voltage divider with about a 220K and 100K from a clean

B+ source (only one is needed for all the tubes). At the tap attach a 2-5 us poly to the signal ground and the the tap goes to the CT of the heater circuit. If there is no CT then either leg seems to be nearly as good. I attached schematics of a similar design. There have been a few minor changes since the schematic was drawn, but they are not required for excellent performance.

File Attachments

- 1) [Preamp main Feb 26 2011.jpg](#), downloaded 11544 times
 - 2) [Preamp PS April 13 2011B.jpg](#), downloaded 11079 times
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Subject: Re: Preamp schematic check

Posted by [Shane](#) on Mon, 03 Nov 2014 23:12:09 GMT

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Thanks Bruce, as always.

I think the VR tubes can be a noise maker if not implemented properly. I've seen a nice, supposedly quiet VR implementation where a CCS was used before the VR tubes to give them the best mA. Decware uses them in their Torii amp, fwiw, so I'm thinking implementation (and good tubes) is key.

I'd love to build a Forewatt, but it's just out of my price range right now. I bought most of the compnents to build a Hagerman Clarinet, minus the iron, he discontinued the boards at the same time. Should have ordered the board first. Guess I could go p2p on it if I really wanted.

I don't really need a preamp, just want to build something that isn't going to cost as much as an amp I tend to cycle on my hobbies and I'm back to audio again.

I could build an Aikido and use it for a headphone amp as well.

So many possibilities.

Subject: Re: Preamp schematic check

Posted by [JazzHog](#) on Sat, 21 Jul 2018 12:38:10 GMT

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Wow, that looks impressive. So you get hold of a schematic and just build from it? A bit like having architectural plans and then building the house?

Do any of you design your own layouts, or do you always work from schematics?

Can I ask a question? What does a pre-amp do that an amp doesn't do?

Subject: Re: Preamp schematic check

Posted by [gofar99](#) on Sat, 21 Jul 2018 22:26:45 GMT

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Hi, I design all my schematics, layouts and final projects. A preamp raises the signal level from a source, like a CD player to a level sufficient for the power amps. It acts as a way to control the volume and selects the input source. Some include other features such as phonograph gain and equalization and headphone outputs. The one in the originally posted question has neither nor does the one I posted. There is a class of devices that incorporate the preamp and power amp functions in one unit. Usually called an integrated amplifier. It is convenient for the user, but not as flexible for enthusiasts.
