

Mains DC Filter (DC Blocker) from

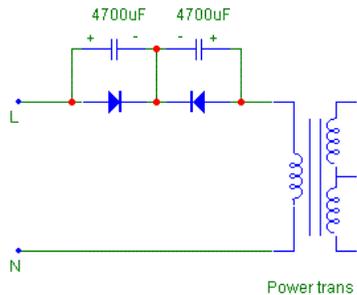
<http://web.archive.org/web/20030821171409/http://www.diyparadise.com/dablok.html>

Does your power trans run hot? Is your amp BIG, HEAVY and BULKY because of your big power trans? I know it's macho to have a big trans but it's not macho to have a hot trans right? Hot tubes yes, but say no to hot trans. If you go to a transformer winder and complain that your trans run hot, they'll tell you to specify a bigger VA rating. But even if you specify a bigger VA rating, sometimes (most of the time), the trans is still hot. So you specify an even bigger rating. And as the trans gets bigger, your chances of developing hernia while lifting up your amp increases, WAF of your amp goes way down, your wife frowns at you... A Lose-lose situation.

But have you ever wondered why does our power trans run so hot? Even when we have over-specified its power rating? How macho need we be? Now I read somewhere (I believe it's Thorsten Loesch) that our incoming VAC contains some DC voltage. Now if this is true, since our power trans aren't wound with air-gap, surely it can't handle this DC. Hmm... Now Thorsten lives in UK, so what about OUR incoming VAC?

I didn't bother to try to measure but figured that since our incoming VAC is 240V, what's the probability of it 120V on the plus side and 120V on the minus side, sitting nicely around 0V?

OK. I thus installed this DC blocker - DaBlok - into my amp. (This isn't my design, it's a variation from Thorsten's.) It consists of a pair of back to back diodes and electrolytic caps. Using diode here to "block" DC of up to 0.7V. Of course, it's probably better to use 4 pcs of back to back diode for blocking more DC but I got lazy... The electrolytics are specified as 4700uF but you could use 3300uF as well. Main aim is to provide a short impedance path for the AC to flow through. Remember, we are trying to block DC, and not AC. Voltage rating of the caps? Anything above 6.3V will do as the diode will clamp the voltage to no more than 6V (whether you use 1 or 2 diodes). Oh yeah, observe cap/diode polarity please.



I built DaBlok with some "general purpose" 1A 1000V diodes and generic 4700uF/16V caps. These parts were idling lazily in my parts bin so might as well put them to some use. Please be careful when you install this guy. Note that the outer sleeves of the caps are at mains potential so if possible, try to shield them away from other components, chassis as well. If possible, use some shielding tape to properly insulate them. If you are uncomfortable with this tweak, since we are dealing with mains voltage here, get someone more experienced to do this. Oh yeah, before power up, make sure you have a fuse installed. Safety first.

Well? As I did a couple of tweaks along the way, I can't attribute the sonic improvement to DaBlok but a fellow DIYer noticed that his sound became more dynamic! However, one thing I really noticed is that, the power trans now run cool! No, not "cool as a cucumber" (that's me!). Instead of "hot enough to fry an egg", it's now only "hot enough to hatch an egg". Wow! All this heat because of DC in our incoming VAC! And we were foolish enough to wind BIGGER trans! Damn!

So go ahead. Try this tweak and let me know. Tube or sand amp, all should work wonders. I bet you can even install this in your CDP! If you use toroidal trans, I'll wager a MUCH bigger improvement! Toroidals hate DC so please help it do it's work.

Err... why use generic parts? Why can't we use boutique caps and diodes? OK. This is my reasoning here. I really believe cheap caps will do. I believe cheap caps have lousier bandwidth than quality caps. Now in our circuitries, we will want to use quality caps to filter out a wide bandwidth of noise right? But here, since we only want our 50Hz VAC to go through, I believe that

using cheap caps with narrower bandwidth, we could "limit" the incoming noise, hash, garbage, WHATEVER. Sound reasoning? I don't know. Try it and let me know.

Point to ponder: Could it be our richer brethrens who hear improvement in using isolation trans is because of DC "blocking"? If so, they may be more macho but you sure are smarter.