Subject: Acoustat 1+1 bias voltage idea
Posted by morricab on Wed, 28 Sep 2005 13:34:58 GMT
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Hi,I am a scientist that is used to working with commercial high voltage power supplies (up to 30KV). I have found several manufacurers who sell power supplies in that are variable between 0-5KV to 0-10KV. What is interesting about them is the stability specifications like very low ripple and tight voltage regulation. Since the amount of actual current placed on the panels is minimal (I calculated about 10 microamps with the 500Mohm resistor at 5KV) then the lowest cost supplies are an option. I would think that this should outperform any of the mods to the conventional power supply but they are kind of expensive if I remember correctly (a pair might run $1000). Interested in your feedback.

Subject: Re: Acoustat 1+1 bias voltage idea
Posted by Wayne Parham on Thu, 29 Sep 2005 05:22:29 GMT
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Sounds like a great way to do it. Please keep us posted on your progress, if you should decide to build some panels this way.

Subject: Re: Acoustat 1+1 bias voltage idea
Posted by moray james on Tue, 04 Oct 2005 01:13:51 GMT
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Morricab: this sounds very interesting wonder about ebay prices on such equipment used. Only one supply is necessary. Still it is a stiff touch for most of the diy crowd, all the same I would would be most interested to try one of these kinds of supplies out and do a comparrison. I-Forgot over at diyaudio did an in depth analysis on the acoustat type supply and found it to be both well regulated and ripple free. That said I have found much improvement with the mods that I have performed on this supply. The choke mod is a very good one. I found surplus one Henry chokes for about $1.25 each and made up a series ten chamber choke with each choke spaced and at right angles to each other. These chokes are 3/8's thick and one inch in diametre. You might want to try one of these composite chokes out connected right at the contact point of the diaphragm and see what happens. Would enjoy hearing back from you if you try this especially if you try it out on a lab quality regulated supply. Best regards Moray James.

Subject: Re: Acoustat 1+1 bias voltage idea

Posted by morricab on Tue, 04 Oct 2005 08:18:34 GMT
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I may be able to get a laboratory supply for free to test the idea out. The lab I used to do my postdoc uses these kinds of supplies routinely so I just have to see if they happen to have a free one. I am not so sure about the regulation of the Acoustat supply. The schematic doesn't show any real active regulation and I hear a bit of 50hz hum (I am in Switzerland) from the panels with everything off (so only the speakers plugged in). Maybe there are some failing capacitors in my supplies? I have found a small high voltage DC/DC converter that will produce up to 6000V with a peak of 160mA current. The beauty of this is that the thing will run off of a 12V battery. My idea is to run two of these modules (one for each speaker) off of one small lead/acid battery connected to a trickle charger. I can then play a bit with the bias voltage (have you ever tried to go above 5Kv to gain sensitivity?) as well as current (saw advice to reduce the current limiting resistor to increase current and thought that sounded like a pretty good idea). The supply is regulated to something like 0.1% or better with extremely low ripple. I am not sure yet about the module costs (I asked for a quote) but the battery/charger would be in the $80 range. I am guessing at about $150 per DC/DC module. So say $400 total. Not that much really and it should work better and no connection to AC! I will let you know what comes out of it.

Subject: Re: Acoustat 1+1 bias voltage idea
Posted by moray james on Tue, 04 Oct 2005 20:30:20 GMT
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Morricab: that would be great if you can borrow a supply and so some comparitive tests. You are probably right in your suspecting the is afaulty cap in your Acoustat supply. Have a look at the Izzy Wizzy mods at this site http://www.izzy-wizzy.com/audio/spkr.html. More voltage will help but your limiting factor will be the condition of your PVC dielectric, same gors for a little extra current on the diaphram. The choke mod is a very good one and worth the twenty or so dollars it will cost you. Emco have switching supplies in the $60-80.00 range and you can have a look at this address http://www.emcohighvoltage.com/emcoindex.htm. Also (and you may have a hard time with this) you should try listening to your supplies with some top quality power cords as they too have a significant impact. I am biased toward the ones that I design but I am sure that a local high end shop can loan you a pair to try for a weekend. Please keep posting. Thanks and best regards. Moray James.

Subject: Re: Acoustat 1+1 bias voltage idea
Posted by moray james on Mon, 21 Nov 2005 22:24:52 GMT
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Morricab: interested to know if you have had a chance to try out one of these supplies yet? Keep us posted. Regards Moray James.