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Subject: High Voltage Supply Filtering

Posted by [moray james](#) on Sun, 15 May 2005 16:35:55 GMT

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Don't know how many of you out there will be interested but this may give cause for consideration. I just completed modifying a friends Acoustat one plus one's high voltage supplies. The mod that I did is documented on the Izzy Wizzy Audio site (<http://www.izzy-wizzy.com/audio/spkr.html>). This describes the addition of an extra high voltage filter cap on the HT supply multiplier section. This simple mod does everything stated and then some in my opinion. This mod can be applied to most similar multiplier supplies. An additional mod/diagnostic tool is the mod shared by Sheldon Stokes several years ago. This involves a neon bulb which is bypassed (paralleled) by a small value cap (to catch transients at lamp turn on). The combination lamp/cap is then placed in series with the output of the high voltage supply after the large megohm value load resistor. When the panel loses charge and draws upon the HT supply the lamp lights up to conduct the HT to the diaphragm. As soon as the diaphragm is fully charged the lamp goes out. The neon lamp presents infinite resistance to the supply under these conditions and so effectively decouples the diaphragm from the supply. It is as if you had unplugged the supply and the speaker operates in constant charge mode. As soon as the charge on the diaphragm starts to dissipate the lamp turns on and reconnects the supply to the diaphragm. In normal operation the neon lamp will flash on and off. The cool thing is if you should see the lamp on all the time then you know that there must be a steady drain on the diaphragm somewhere (probably dust or bugs between the resistive coating on the diaphragm and the stator on that side of the panel. A very cool diagnostic tool as well as a means to decouple as much as is possible from the supply while maintaining automatic charge management of the diaphragm. Thanks to Sheldon Stokes for that one. Best regards Moray James.

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Subject: Re: High Voltage Supply Filtering

Posted by [Wayne Parham](#) on Mon, 16 May 2005 01:25:29 GMT

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Very interesting tip, thanks!

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Subject: Re: High Voltage Supply Filtering

Posted by [moray james](#) on Tue, 17 May 2005 21:07:09 GMT

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Izzy Wizzy explanation Post #3 I\_Forgot has suggested that he thinks that the Izzy Wizzy mod does what it does not because of additional filtering of the bias supply but because the panel (older Acoustat One plus One) is probably a bit leaky as far as bias supply goes. So if that is the case the the additional 0.01 uf cap stiffens the supply and makes it better able to get more voltage

on to the panel. I think that this makes sense. So to find out I will remove the 0.01 uf cap and decrease the resistance value of the load resistor (500M) to say 250M. If voltage on the diaphragm is really the issue then this mod should have an identical result. Any thoughts or suggestions from the forum would be welcome. I\_Forgot has told me that 10 to 50M ohms is plenty to do the job and to keep the speaker working in constant charge mode. This just makes me want a variable supply all the more. Will keep you interested Acoustat owners advised of how this goes. It would be my guess that the reason Acoustat chose such a high value resistor for this job was probably a combination of reducing current in the event of a shock and a good price from some vendor. Best regards Moray James. \_\_\_\_\_ moray james

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Subject: Reduction of load resistor value on Acoustat supply  
Posted by [moray james](#) on Mon, 30 May 2005 16:25:44 GMT  
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Well I made it back to my buddies Acoustat One plus Ones. I wanted to undo the Izzy Wizzy cap mod in order to compare it to the effect of a lower value load resistor. For the present my buddy is so happy with the Izzy Wizzy cap mod he would not let me remove it. So I paralleled a second 500 M ohm resistor to the factory 500 ohm load resistor to chop the resistance value in half to 250 M ohms. The result was much the same again as found with the Izzy Wizzy mod. This was a nice improvement in detail resolution and overall control. I think that I\_Forgot was right about this from the start. I also think that 10 M ohms is all that is needed for safety sake as well as to keep the panel operating in constant charge mode. While a lower value load resistor might just result in some small loss in overall output as a result of leaky dielectric in older Acoustat panels I do not think anyone hearing the improvements would not care to trade a little level for the benefits this simple mod will yield. Thanks to I\_Forgot for his insight and willingness to share. Best regards Moray James.

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Subject: Further Acoustat Bias Supply Mod  
Posted by [moray james](#) on Fri, 03 Jun 2005 04:03:23 GMT  
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I got back over to my buddies place tonight . I snubberized the secondary side of the high voltage step up transformer on his Acoustat One plus One's. I used a 10 ohm resistor in series with a .01 uf cap. This turned out to be a very nice little mod. Easy inexpensive and sounds great. Give it a try. Best regards Moray James.

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