Subject: By-passing Caps: What Did I Do? Wayne?
Posted by Garland on Sun, 28 Jul 2002 14:57:33 GMT
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I've spent a few hours bypassing the various caps in the Theater 4's X-over with generally good results. One combination seemed to have a greater effect on the sound and not knowing really how the circuit behaves, I was wondering if someone could explain it to me. What I did was add a .15uF vitamin Q cap in parallel with the .47uF cap. The resulting sonic effect was to seemingly tighten the bass and add more texture to the midrange and bass. I think this is good but I may back off a bit to adding a .1uF or even smaller as the bass is a bit too damped seeming. Any comments anyone?Thanks!G.

Subject: Compensation networks
Posted by Wayne Parham on Sun, 28 Jul 2002 19:12:33 GMT
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Some report feeling that bass sounds different when changes are made exclusively to treble or midrange performance, so this is really not surprising.What you did was to increase bypass capacitance from about 0.50uF to 0.65uF. This increases the amount of energy your speakers generate at the highest frequencies and lowers the frequency point where augmentation begins. This means what you've done brings up the midrange overtone range slightly, and keeps it up through the top octave.I suspect another thing you might find pleasant is to substitute a 12dB

The 10dB assembly is closest to being flat, and the 12dB assembly will dip the midrange a bit and bring up the top octave by contrast. So this goes a little in the other direction and you might try that and see how you like it too.

Subject: Re: Compensation networks
Posted by Garland on Sun, 28 Jul 2002 19:56:45 GMT
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Thanks for the info. I'm not sure about the resulting sound yet. It does seem a bit on the hifi side, but just for kicks, how do I make a 12dB cable as opposed to the 10dB?Thanks again,Garland

Subject: Stop the presses....
Posted by Garland on Sun, 28 Jul 2002 22:52:02 GMT
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I'm terribly sorry but I jumped the gun in reporting my findings re the bypassing. I erred in specifying the .47uF in the tweeter compensation network as being the cap bypassed. I had indeed bypassed it but removed the bypass cap before I bypassed the 20uF in the zobel network. So I assume adding the extra .15uF here in the zobel additionally damps the woofer and I'm thinking now it's a bit to much. I may try a .1uF or even a .033uF. Am I correct in assuming that with tube amps the woofer can use a bit of extra damping as long as the impedance remains as low as possible?I still am curious about the effects of tweaking the high freq. compensation, though. Any advice is appreciated!Garland

Subject: Capacitor internal resistance - bypass
Posted by Wayne Parham on Mon, 29 Jul 2002 03:47:27 GMT
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In this case, you haven't increased capacitance as much as you've lowered the internal resistance of the existing capacitor. You've bypassed the large value polypropylene cap used in the conjugate filter. This won't appreciably change the change the impedance of the speaker "seen" by the amplifier, nor will it change the Zobel very much. But it might subtly change the way the higher frequencies react with the woofer that aren't fully removed by the crossover. My experience has been that Zobels are very forgiving of capacitance values and I'm not sure that bypass is as effecive in this circuit as it is in other situations. But you sure can't hurt it by adding a bypass cap.

Subject: Re: Compensation networks
Posted by Wayne Parham on Mon, 29 Jul 2002 03:56:13 GMT
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A 12dB cable assembly has 25 ohms R1 instead of 16 ohms. All the values for various cable assemblies are shown in the "where used" charts in the crossover schematic documentation. I can send you a copy of these documents if you don't have them already.

Subject: Re: Capacitor internal resistance - bypass

Posted by Garland on Mon, 29 Jul 2002 08:38:36 GMT
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You're right that there is not much difference. The only noticeable effects I've heard in this experiment were a smoothing of the high freq when the tweeter's caps were bypassed and a seemingly large difference with the cap in parallel with the 20uF- less bass boom and seemingly more high end extension. I hope that maybe someone else will try this and report back. I am going to try a smaller cap (.02uF) tonight as the .15uF seemed to tame the warmth a bit too much. I quess this seems odd but I swear there is a difference.Thanks for your input!Garland

Subject: Thanks!(nt)
Posted by Garland on Mon, 29 Jul 2002 10:35:05 GMT
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Subject: Re: Capacitor internal resistance - bypass
Posted by Wayne Parham on Mon, 29 Jul 2002 16:41:49 GMT
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I would expect you to hear a subtle difference when adding 0.1-0.2uF across C1 in the tweeter circuit but not when installing 0.1-0.2uF across C3 in the woofer circuit.