Subject: Updated Theater 4s now in operation!
Posted by GarlandGarland on Thu, 09 Oct 2008 19:44:19 GMT
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Last night I hooked up the new B&C De250 drivers to the new crossovers in my 5 year old Theater 4s (with Eminence Delta 15s and H290 horns) and was treated to what I had hope for: a more refined sound. With no break in on the De 250s and little on the crossovers, the sound is more open, less compressed sounding.(-not that the PSD 2002 was bad sounding). The bass extension seems greater although I'm not sure why.(Probably due to some additional fiberfill added to the interior of the cabinets on the suggestion of one of the recent posters on this forum). Treble sounds are great; cymbals are brassier, piano overtones are richer(more textured) and more extended and sounds decay in a more natural way. Rim shots sound perfect. Also artificial sounds in the recordings are more evident: reverb, echo and edits are clearly audible. Bad recordings sound just as bad, but now you can hear why more easily. Oh well! Female voices sound more natural and emotive. The best part of such an improvement is that there is much more MUSIC to listen to within the confines of your current music library! This was well worth the $350 spent on the drivers and crossover parts. I look forward to living with these "new" speakers as they settle in over the next few months. With the Economy the way it is, I'll be spending more time at home settled into the easy chair with Wayne's great speakers providing all the entertainment I need. Oh, I forgot! -there's also my wife! -Sorry, honey!Garland

Subject: Re: Congrats!
Posted by Matts on Thu, 09 Oct 2008 22:19:50 GMT
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Sounds like a winner! Good work. I was also very happy after switching to the B&C DE250's. I wasn't unhappy with the Eminence drivers, but was surprised at how much better everything sounded with the B&C's. Now, for a long-term project, you'll have to be on the lookout for some 2226's on sale... Maybe when the Tent Sale re-opens...

Subject: That's definitely in the works
Posted by GarlandGarland on Thu, 09 Oct 2008 23:10:45 GMT
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...but will have to wait either for the next big raise, or for the next years bonus which is 11 mos away; neither of which is very likely, eh? The smaller cabinet size of the new 4 Pi's is attractive from the wife's POV, I just hope they are 2A3 tube friendly. G.

Subject: Re: That's definitely in the works
Posted by Wayne Parham on Thu, 09 Oct 2008 23:35:19 GMT
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They work very well on Bottlehead Paramours and on the Audio Note Kit 2. Are you still running Bottlehead gear? If so, you'll be pleased.

Subject: Re: Updated Theater 4s now in operation!
Posted by PPoli on Thu, 16 Oct 2008 14:45:26 GMT
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Which "new crossower" are you tolking about?I've been using B&C250 at least for 3 years, even befor Wayne suggested it.Is it somewhere a new cossover design, specific for B&C 250 drivers? Or some modify from the original project?After some guess I found RCF H100 horns (plastic 75*90°) much more well sounding than other.

Subject: New crossover
Posted by Wayne Parham on Thu, 16 Oct 2008 16:30:28 GMT
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Around the first of the year, I imported the Spice models of my crossover into Keith Larson's WTPro, using the ICD to do acoustical analysis of the crossovers. I made some small refinements that produced a smoother response curve. Here are measurements of the speaker

do is to define a crossover using a Spice model and it makes digital filters that are an exact representation of the crossover. You are then able to measure the loudspeaker with this digital crossover and make changes by simply changing the Spice model. I found that one of the caps in the tweeter circuit could be made slightly smaller, and this made a bit less ripple near the crossover frequency.I also found that reducing capacitance in the Zobel made response smoother, and that the forward axis was pointing upward enough that the lower vertical null was within 10° of the forward axis. Some designers find that satisfactory, but I opted to modify the frequency and slope of the woofer circuit to place the vertical nulls more symetrically.The null angles lie at approximately 20° up and 30° down, which I think is near perfect for this type of speaker. Of course, this depends largely on the horn chosen and the physical spacing of drivers

won't work on every speaker. A speaker with a CD horn of this approximate coverage pattern and having drivers of the right size for directivity matching will respond to this crossover, or one very nearly like it, but deviations in coverage pattern, driver size or baffle spacing will change the interactions and possibly have a detrimental effect. The new crossover is shown below:

Subject: Re: New crossover
Posted by PPoli on Sun, 21 Dec 2008 01:32:40 GMT
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Sorry for the late. I did something else in the lasto months.But now I have time to spend in some fine tuning.I use JBJ 2226H woofer (with B&C250). Should I made some change to the low pass section of the filter? In the original crossover C4, C5 and R3 where not used whith JBL. Is it the same in the new one (it isn't clear in the attacced document)?

Subject: Re: New crossover
Posted by Wayne Parham on Sun, 21 Dec 2008 05:20:51 GMT
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Use the new crossover exactly as shown in the schematic below. Pay attention to the values of R1 (a, b, c & d) and R2 (a, b, c & d) because they are different for the DE250 than for the PSD2002. You can re-use most of your components from the old crossover, but will need to get some new ones. Also notice I have blank printed circuit boards for this crossover available, if you're interested. It sure makes the crossover nice and clean.