Subject: Bracing, cabinet volume, and crossover questions
Posted by Mike Borzcik on Thu, 19 Jul 2001 07:25:49 GMT
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Alright, I'm about to build a pair of four Pi's, and I have a few questions before I go ahead and order all the parts.First of all, the given cabinet dimensions are the external dimensions, right? I assume that the given dimensions account for the volume of the drivers inside the cabinet, but do they also account for the volume of the crossover components and any bracing that may be used? I know that differences in bracing probably won't make a big enough difference in volume to be noticeable, but I'm a bit of a perfectionist and would like to be able to adjust the volume of my cabinets depending on the volume of the bracing I use.Second, I realize the Zobel is connected directly across the woofer and doesn't need to go on the circuit board but what about the 16 ohm resistors and the 0.47uF capacitor? According to the schematic, I need to add these to the crossover. What's the best way to accomplish this?Finally, if I build my own crossover from scratch, do I need to worry about heat dissipation? Ideally, I'd like to just stick all the parts together in a big block with a zip tie or something instead of putting them on a breadboard. The only problem I can think of is that they'd get too hot. Will this be a problem?Thanks a lot.Mike Borzcik

Subject: Bracing, cabinet volume, and crossover answers
Posted by Wayne Parham on Thu, 19 Jul 2001 10:07:40 GMT
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Displacement of all parts inside the cabinet has been accounted for. The volume offsets from the drivers, crossover and braces are all part of the design. Also, the alignment is slightly overdamped so that minor changes in tuning, electro-mechanical parameters or environmental conditions have little impact. It was done this way on purpose, to make sure that the speaker will sound good in all conditions and power levels.I put the compensation components in the tweeter cable assembly. By using several 10 watt parts, you build-in a better thermal margin. As such, the components are able to handle high power levels and don't even get hot at moderate power levels. I group them as two blocks of four and wire tie them all together. It's the most compact way to build them into cable assemblies like that.If you build the crossover using a breadboard, you can put the compensation components on the board. When doing so, I would elevate them off the board 1/8 inch or so. The leads are strong enough to support their weight, and this will prevent them from heating the board at high power levels or vibrating against it and buzzing. Likewise, I'd cushion the large coils and caps with silicon adhesive to prevent vibration.