Subject: What solid filler for Theater 4 cabs...
Posted by GarlandGarland on Mon, 22 Dec 2008 19:55:52 GMT
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...to turn into new 4 Pis with Omega 15s. Since I won't be able to get to building the new cabinets for the Omegas until January, I thought I'd try filling the Theater 4 cabinets with something to reduce the volume. Any ideas of something cheap and easy like an old blanket or something solid but that can be inserted through the 15" speaker hole?

Thanks for any ideas!

Garland

Subject: Re: What solid filler for Theater 4 cabs...
Posted by Wayne Parham on Mon, 22 Dec 2008 21:11:09 GMT
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I wouldn't bother trying to fill the cabinets with anything. If you put an Omega 15 into an old

alignment but instead of a shelf you get a smooth flat diagonal line. Not bad, especially indoors where the room gain will boost the low end.That cabinet will give you very deep extension when the Omega 15 is in it, and without any real penalty. The boxes are large, that's about the only down side. But if you're used to that size cabinet anyway, it will sound fine.Later, when you get around to building the new cabinets, you might also consider adding subs. This will give you even deeper extension and more importantly, will smooth the bass throughout the room. It does this by averaging out the room modes. That's really the premier setup, very nice.But for now, what you're doing will sound great. Plenty of bass and smooooth midrange and treble. Toe them in like cornerhorns, forward axis crossed just in front of the listening poisition.

Subject: Re: What solid filler for Theater 4 cabs...
Posted by jeff p on Tue, 23 Dec 2008 17:20:00 GMT
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what many cubic ft. is the theatre cabinet?i've almost decided for sure i'm going to build some 4pi and might use the Omega...i was thinking about building a little larger than 3cubic ft. so i could have a little taller cabinet.obviously bass will be better with larger box but will midrange be changed at all?thanks,Jeff

Subject: Altering dimensions

Posted by Wayne Parham on Tue, 23 Dec 2008 17:51:54 GMT
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In most cases, dimensions of a bass-reflex box can be changed slightly with no ill-effects. As long as you don't significantly alter the Helmholtz frequency or go too large or too small, you can usually make some changes. The things to be careful of when doing this are as follows:1. If the box is large, it may develop internal standing waves in the passband. If high enough, they are attenuated with stuffing but if they're down near the Helmholtz frequency they can affect box tuning and/or modify the response curve. In that case, you might want to be careful about modifying driver and port placement or changing the dimensions because placement is important to the position of the internal nodes.2. The height of the midrange or midwoofer sets the frequency of floor bounce notch. If low to the ground, there is no notch because the self-interference reflection is high enough to be out of band. It may also be mitigated by radiator dimensions, which space out the path length differences. But in general, if the radiating diameter of the driver that generates midrange is smaller than its height from the ground, you might want to consider the effects of floor bounce. If it's a problem, you can use another overlapping driver to mitigate its effects.3. Do not modify the physical relationships between drivers. The crossover is designed with the positions of the drivers in mind. Acoustics are manifested in three dimensions, so position on the baffle, truly position in 3D space, is important. For summing to be right, the position and orientation of the drivers must be matched with the crossover filters. Changing the distance between drivers will alter the performance of a loudspeaker.While these are general design issues, the reason I mention them is sometimes people stretch designs to make tower speakers or otherwise alter their basic layout. When that is done, attention should be paid to internal standing waves and to self-interference from boundary reflections. The distance between drivers should never be altered, as this can cause improper summing and will modify the directional characteristics of the loudspeaker. Careful attention has been given during design, and lots of measurements made to ensure the pattern is right, so be careful when making changes.

Subject: Re: Altering dimensions
Posted by jeff p on Tue, 23 Dec 2008 18:16:18 GMT
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thanks, that helps. looks like the main concern is floor bounce then.i was thinking going close to 3.5 to 4 cubic ft. at 40hz...maybe 32"x17"x14" which i think would be approaching 3.5ft internal volume.at that height the drivers would probably be 5-6" higher but spaced the same distance apart.this is assuming the omega or the JBL would fit on a 17" baffle.do you think there would be any noticeable effects to the midrange going to a 4ft enclosure if the driver spacing is kept the same and the drivers are no more than 6" higher than your plans for the pro cabinet.

Subject: Swapped in the Omegas last night and...

Posted by GarlandGarland on Tue, 23 Dec 2008 23:04:50 GMT
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... they surely did sound nice. Indeed there was less total bass output but still a fairly balanced freq. responce. Nice midrange as you said and great macro dynamics/slam, especially with my Adcom 555. My Bottlehead stuff is temporarily put aside pending reworking the mess of wiring due to one too many modifications. I am using my home brew parafeed 76 tube preamp which, BTW, sounds great with the Adcom. Thanks for the help and I will report back when I have the new cabs up and running. Merry Christmas to all!Garland

Subject: Re: Altering dimensions
Posted by Wayne Parham on Tue, 23 Dec 2008 23:39:50 GMT
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I think that would probably be excellent. A few inches up is not a problem. Keeping the spacing between woofer and tweeter is the main thing, and really, the biggest issue is that they be close enough together to prevent the vertical null angles from being too close to the forward axis. You want a nice large forward lobe.