Subject: subwoofer use for old cabinets
Posted by GarlandB on Wed, 21 Sep 2011 17:57:24 GMT
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A question for you guys: Would it be worthwhile to hook up my old Theater 4s without the horn and low passed to augment the bass from my JBL 4 pis? I'm mostly interested in managing room anomalies much in the way Wayne suggests using multiple subs. Any suggestions would be appreciated. I have the original Eminence Deltas and also Omega Pros for the large cabinets. The room is 16ft x 20ft x 8.5ft. Wood framed.

Thanks!

Garland

Subject: Re: subwoofer use for old cabinets
Posted by Wayne Parham on Wed, 21 Sep 2011 18:58:44 GMT
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Oh, yes, definitely. That box is perfect for a sub. You can use the Omega 15A or Omega 18A, or you can use the JBL 2235 or 2245. All are tuned pretty well in in that box. The Eminence woofers have an EBS alignment, the JBLs are pretty much max-flat.

If you are going to push it hard, you might go to a larger diameter port and cut the length to tune it to 30Hz. But the (Theater 4) port it has now will work just fine as it is, and will provide a lot of oomph without chuffing. Unless you're just trying to pull the drywall off the studs, it will sound great just plugging the tweeter hole and dropping the woofer in.

Subject: Re: subwoofer use for old cabinets
Posted by GarlandB on Wed, 21 Sep 2011 20:28:56 GMT
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Thanks Wayne! So, just one or two more question. How should I cross over to the JBL 4 Pis? Should I high pass the 4 Pis? Can I modify the Theater 4 crossover and eliminate the tweeter section? Any suggestions would be great!

Thanks!

Subject: Re: subwoofer use for old cabinets
Posted by Wayne Parham on Wed, 21 Sep 2011 20:49:06 GMT
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Don't high-pass the mains, let them run wide open. Low-pass the subs depending on their distance from the mains. If you only have a couple subs, make them flanking subs and low-pass them around 90Hz. Put the mains on stands, and put the subs on the floor just beside and behind the mains. One sub beside each main, run in stereo as left main/flank and right main/flank. Each sub should be a couple feet away from the main it is flanking in each dimension, e.g. behind, below and to the side. Make them symmetrical with the mains, mirror images of each other, with the subs just inside or outside. I generally like them to the outside, but I've measured a few rooms that were better with them inside. Either way is better than none, waaaay better.

If you have another sub or two, put them further away, on the other side of the room, and low-pass them around 50Hz. These more distant subs can be put just about anywhere you have room and they'll help. If you have your druthers, put them at side wall midpoints. Another good configuration is four corners, so if your flanking subs are near the front two corners, put a pair of distant subs in the back corners. But like I said, pretty much any location will work. Once you get this many subwoofers in the room, it almost doesn't matter where you put them as long as they're not all grouped together. Spread them around.

You can't re-purpose components from the Theater four Ï€ crossovers for subs, although they are still pretty much the same crossover we use today in the mains. The tweeter circuit capacitor that used to be 8.2uF is now 6.8uF, but that's the only difference. Woofer circuits were always unique to the woofer you had, Zobel values changed and sometimes the core splitter components did too. I think the woofer values in your crossover are pretty much the same as what is used in the current model three Ï€ model with the Delta 12LFA woofer. So but the point is, your old Theater four Ï€ crossover is pretty much the same as the current crossover, but that's no help to you for a sub.

What I would suggest for a sub crossover is an active crossover and separate amp. This can also be implemented as a plate amp. I've used the Rekkhorn F1 sub crossover, and it worked pretty well. It allows variable adjustment of the (24dB/octave) low-pass frequency and amplitude. But honestly, I kind of like this modded Pyle crossover better. It has a gentle 12dB/octave slope, which works very nicely for multisubs which are supposed to be blended with the mains. It's definitely not as cool looking though.

Subject: Re: subwoofer use for old cabinets
Posted by gofar99 on Wed, 21 Sep 2011 22:59:08 GMT
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Hi Wayne, Funny thing, I have a pair of the Pyles. I was considering making some upgrades but haven't gotten around to it. Another alternative that is not costly is to get a pair of XM1 kits from Marchand (on the web. These are 24 db/oct active crossovers and you will need a +/- 12 volt supply. You select the frequency and they send the parts for it. It is a high and low pass in phase crossover. I only use the low pass part and run the mains full range. he frequency is programmed by resistors on a dip plug in. Super clean and well made. Nice boards, premium parts, Burr Brown Ops and such. Last time I checked each kit was about $25. I use a pair of them feeding a Amp 100 and separate 7 cubic foot subs. The best placement I found is quite like your suggestions. Just behind and off to the sides of the mains (Martin Logan Vistas). The room is not completely symmetrical 11.5 wide, 9.5 tall and partially open at the far end at 17 feet away. I used a 50HZ setting on the subs as the mains start to fall off there and are down about 3db at 40HZ.

Subject: Re: subwoofer use for old cabinets
Posted by Wayne Parham on Thu, 22 Sep 2011 01:01:18 GMT
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I thought about those Marchand crossovers, and may still give them a try. They certainly have a good reputation. The thing is, I prefer a gentle 12dB/octave slope for multisubs, especially the flanking subs. That's what attracted me to that Pyle crossover - I searched for 12dB/octave units and found very few. Most are 24dB/octave, a few are 18dB. For multisubs, we want blending, so a gradual slope is better.

Subject: Re: subwoofer use for old cabinets
Posted by gofar99 on Thu, 22 Sep 2011 04:01:02 GMT
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Hi Good points. There is a low noise, fast replacement for the NJM4558. Mouser part number 513-NJM2043L it is a direct replacement and a lot better it is $.74 each. I attached the data sheet. I may mod mine with some and see what happens. The caps though probably did the deal for improving the sound.

File Attachments
1) NJM2043_E.pdf, downloaded 53 times

Subject: Re: subwoofer use for old cabinets
Posted by Wayne Parham on Thu, 22 Sep 2011 13:00:35 GMT
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That's definitely worth looking at, since that chip is about 75Â¢. I use a $25.00 Burr Brown part (OPA627) that requires two plus a daughterboard to complete the swap - and you need two of each to complete the upgrade, a total of four OPA627 chips. The Burr Brown parts are pricey, but they sure sound good.

Subject: Re: subwoofer use for old cabinets
Posted by Shane on Thu, 22 Sep 2011 15:47:16 GMT
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Thanks for the heads up on that opamp. I've got one of the pyle xovers and a pair of subs I've never messed with yet. Course I have a set of Two Towers that I've never gone farther than unfinished boxes so it's not surprising. I need more motivation :)