Subject: Thermio Seven Pi Pro (16 ohm x-over values)
Posted by jlharden on Tue, 11 Nov 2003 16:19:21 GMT
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Anyone built speakers using JBL 2226J woofers and 2426J comp. drivers? I'm looking for reworked crossover networks appropriate for the 16 ohm parts. Will be building corner horn cabinets and using JBL 2370A's so correct attenuation should be 10 db. Thanks! Jerrod

Subject: 16 ohm tweeter crossover values
Posted by Wayne Parham on Tue, 11 Nov 2003 17:40:32 GMT
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We've discussed this issue several times before, and I thought maybe there was a specific set of values for a 16 ohm compression driver in the archives. Most 8 ohm tweeters have Re ~ 6 ohms and Le ~ 0.1mH to 0.2mH. Most 16 ohm tweeters are about double this, with Re ~ 12 ohms and Le ~0.3mH or so. I thought maybe there was a post in the archives that described a crossover optimized for a sixteen ohm driver, but I couldn't find one that showed specific component values.

I found a few posts that describe the process, but none that had specific values. So I made a few quick swipes at it in Spice, and from what I found, I think I'd probably use the same values of L1, C2 and C3, and just change R1, R2 and C1. That's nice, because it only involves changing the tweeter cable assembly. So try R1=50, R2=16 and C1=0.33uF. This looks great for tweeters having Re=12 and Le=0.3mH, which is probably just about right for most 16 ohm, 1" exit compression drivers.

Here are three posts that describe the process:
Spice distribution
16 ohm L-pad information
16 ohm md2001

Subject: Re: 16 ohm tweeter crossover values
Posted by jlharden on Tue, 11 Nov 2003 17:54:33 GMT
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Hi Wayne, I couldn't find any info in the archives either. I thought maybe you'd done it off forum and would ask around. Thanks for running the numbers for me. I don't trust myself when it comes down to component values. Take care! Jerrod

Subject: Re: 16 ohm tweeter crossover values
Posted by BillEpstein on Tue, 11 Nov 2003 21:08:50 GMT
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My crossover is taken right from a calculator that used to be online:woofer 4.5L then 8.2C, tweeter 8.2C and then 4.5L. Never did find the Re and Le of the 806A but 16Ohm shunt with 32Ohm parallel with .47 cap goes to the tweet. Simple!18 gauge aircores and Solens from PE but the att cap is Auricap. Creating is more like performing than listening

Subject: My results with 4 Pi Pro using 16 ohm drivers
Posted by spkrman57 on Wed, 12 Nov 2003 00:53:42 GMT
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Jerrod, My system uses 2mh air coil in series to my JBL 2226J, and 1.6Khz Pi crossover for either 8 ohm or 16 ohm, the difference in sensitivity between the two is really not much in my experience at low wattage and smallish living room. For 806A (16ohm) Altec drivers, I like the R1=30 ohms and R2=15 with .47 ufd cap on Martinelli horn and Altec 811B horn. For the 802/902 with Edgar horns, I want to use different R1(40ohms) and R2(12.5 "2 25 ohm in parallel") and change the cap to .33 ufd to reflect the difference in efficiency between the 802/902 and the 806 is 2 db and the 902's I am playing now are 8 ohm, I want to try 16 ohm 902's next, as I like the more relaxed sound. I am running a Norh SE-9 amp and the different horns/drivers I have tried out, the 806A is least capable in the HF response catagory whereas the 902's shine with the best HF response, but at times, I think the old alnico 806's are more mellow. The jury is still out on preferences, but I will keep trying different combinations to see is the most transparent in the long run. But that is my setup and my speaker voicing may be different than yours, I just wanted to put some values for you to start with. Good luck in this venture, I have found you have a lot of leeway with this crossover due to R1 and R2 doing some loading, takes that problem away from the horn driver. That same situation allows me to change horns/drivers without disconnecting the amp or powering down, as long as you don't short the HF drivers wires, the crossover sees R2 as a minimum load resistance, "JUST DON'T SHORT THE WIRES TOGETHER" and this is the easiest way to quick change horns in realtime. I have swapped many different combinations out and thought some of them sounded good only to change my mind the next day when listening to the system again. Have fun and try a attenuation to try and change if you don't like the sound, sometimes trial and error brings better results than just textbook alone. Even Wayne will tell you that with audio drivers there is not a exact formula that will work with each and every system. That is why a DIY'r can do better than a engineer who has a "bean counter" running his dept. And the other thing is that I have more fun just trying different ideas in speaker projects than the rule book say can't be done. Just the rebel in me I guess. Just check out the forums, that is the reason we have them. Enough of my $0.02 worth!!! Ron

Subject: Re: Thermio Seven Pi Pro (16 ohm x-over values)
Posted by jlharden on Thu, 13 Nov 2003 14:52:16 GMT
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Thanks to Wayne, Bill, and Ron....in no particular order! I've got a pretty good starting point on appropriate values and am figuring spice out enough to make reasonable choices regarding appropriate parts. Looking forward to getting the speakers setup. Not sure when I'll be able to build enclosures. Thanks again! Jerrod