Subject: Re: 3 Way Seven Pi crossover, with JBL CS3115 Parts
Posted by Wayne Parham on Thu, 15 Nov 2001 07:09:22 GMT

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Nice parts, I think you can make very nice sounding seven Pi speakers with them!Of course, building a crossover isn't entirely trivial, but some generalities are in order. The lower the midrange to woofer crossover point is made, the more distance can be between them without causing summing problems. That makes the lower crossover point somewhat more forgiving than the upper one. I would probably keep the tweeter crossover as it is, but the upper crossover of the midrange needs to be determined. There are several factors that will come into play, the midrange's acoustic rolloff at HF, it's position, it's breakup behavior, etc. These are going to be the things to look at.My gut feeling is to start off with lower crossover between 200Hz and 400Hz and keep upper crossover around 1.6kHz. The lower crossover can allow lots of overlap if the drivers are within 1/4 wavelength, so first-order is fine. For a 16 ohm woofer, that means you'll want a 6-12mH coil in series. The midhorn may work just fine without a high-pass capacitor if you aren't hitting it with a lot of power, otherwise put in a series cap. Obviously, attenuate the tweeter and midhorn to match the bass bin. For the tweeter, that means using the same 1.6kHz circuit as in many of my other designs with R1/R2/C1 padding/EQ. For the midrange, use a standard L-Pad arrangement that attenuates 10-12dB. Try different low-pass crossover slopes on the midrange and see which one integrates best. You may find the midrange horn has the right acoustic rolloff no electrical low-pass filter is necessary. You may only need to add a series coil. Or maybe you'll need a second or third order slope somewhere between 1.2kHz and 1.6kHz to get summing right. It all depends on the characteristics of the midrange horn, it's acoustic rolloff, length, etc.