Subject: Re: JBL 2035HPL T/S parameters
Posted by Wayne Parham on Sun, 31 May 2009 16:50:06 GMT
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It's hard to say exactly without setting up a measurement to see. But I suspect it will shift the forward lobe, and modify the on-axis response (as well as the response through the pattern).

I did exactly this kind of thing when I first optimized the crossover. I found small shifts of certain values made a difference. An example is the values of L1 and C2, which were originally 0.6mH and 8.2uF. A small shift made almost no difference in the tweeter's response alone, but when compbined with the woofer, it was noticable.

If you take the new crossover and start fudging values, you'll definitely change it for the worse. I tinkered with each value, finding optimum results with standard value parts. I knew the topolgy was right simply because it put me in the ballpark, so tuning values was just an exercise of manipulating phase, setting the interaction between drivers and ultimately the position of the forward lobe.

There were a few parts I remember moving back and forth in value, looking at the difference it caused. Increasing C2 to 7.5uF is OK, as it hasn't shifted too far. I think 8.2uF is better, but 7.5uF isn't too bad. Going to the original value of 6.8uF is too far though. It degrades the quality of response in the pattern, making it less smooth.

I tried this because I had hoped to retain as many of the old values as possible, for the sake of DIY'ers having an easy and inexpensive upgrade path. I only remember that one because it was one that I worked with a while, thinking I could keep the tweeter circuit exactly the same. I could have, but there was a definite improvement by changing both L1 and C2.

The reason for the shifts is completely due to the phase of the tweeter and the way it interacted with the woofer. It slightly shifted the forward lobe. The difference in the tweeter response alone was very, very small but the difference in the response of the loudspeaker system was a little more noticable.

It isn't night and day, more like dusk and day. The old crossover was pretty good but the new is better. You could tell a difference, subtle but noticable.

So that brings me to your question. I don't know exactly what the results of changing coil L3 would be, I don't know how much shift will result or how audible it will be. I do know that I set that value for its optimum though. I'd say it's probably not huge, maybe not even audible (if you're lucky). But I do kknow that the stock value is better because I spent so much time moving each value in the circuit back and forth and seeing what values worked best.