This is a ribbon that is twice the size and reaches a sensitivity of 93dB. Its range is 200Hz lower and is given a recommended crossover frequency at 2,500Hz with a 3rd-order roll off. At $30 more this could be a worthwhile choice. John used this same tweeter with great results. The vertical off-axis dispersion is going to be somewhat of an issue though, from what I have read about ribbon tweeters and heard in Johns. The horizontal off-axis response only has a drop of 10db at 30° making it ideal for dispersion in larger rooms.
This 5” ribbon tweeter is quite impressive with its 97dB sensitivity and a range from 1,200Hz-40,000Hz, but the price is a bit steep for doing a 3 way system and is also much too large in my opinion. I would have to use an L-pad attenuation circuit, and adding resistors don’t help a tweeters sound. The recommended crossover is the same as the NeoCd3.0, which I know to be a great place to crossover a 3-way system anyway.

After careful consideration of my budget and the SPL capabilities of these three ribbon tweeters, I have decided to choose the midsized Fountek: NeoCd3.0M 3” ribbon tweeter for my final design.
Midrange:

- SEAS Prestige CA15RLY 5.5" Coated Paper Cone  $65.75

This driver would be very ideal for my system because it has a flat response, a controlled roll-off near its break up frequency, and a sensitivity of 87dB SPL. If I were to cross over at the suggested point with my chosen tweeter, there wouldn’t me as much audible break up as with the next two midrange drivers.
• Seas Prestige L15RLY/P H1141 5” Aluminum woofer $74.55

As you can see, this woofer lacks the kind of flat frequency response and smooth break up that I would need to pull off a good-sounding crossover with my chosen tweeter. It is also more expensive. I do not like the sound of harder drivers as the rigidity can translate to harshness in my ears. The 86dB SPL is good though along with the claimed reduction of cone resonances.

• Morel CAW 538 Classic Advanced Woofer 5” 8 OHM $112.80

This is a very nice mid-bass woofer for use in a three-way or two-way system. It has a very flat response and rolls off very quickly around 4,000Hz, making it
quite desirable as a midrange driver matched with my chosen tweeter. The 86dB SPL is within the range I have given, but I will have to cut this one out based on its higher price.

After careful consideration, I have decided to choose the SEAS Prestige CA15RLY 5.5” paper coated midrange woofer. The great break-up frequency, combined with a reasonable price and a desirable 87db SPL make this the perfect fit for my system.

**Crossover Decision**

Using a crossover designer/calculator I found online\(^1\) I was able to figure out my crossover by using the high-end crossover at the suggest point of 3,000Hz. I picked my low frequency crossover point at 300Hz and I have a bandpass gain from a polarity switch in the midrange of 2.08dB. This makes up for its lower sensitivity. I used this table from Introduction to Loudspeaker Design\(^2\) to give me a good idea of what limits drivers should generally be given and how I should pick my points while also looking at the frequency responses of the given drivers. The Loudspeaker Cookbook also gives praise to a 3-Way system crossed over at 250 and 25kHz.


A picture with a complete parts list is included though it is very likely to change in the testing process. Some of the capacitors that were tested on the site[^3] web.humblehomemadehifi.com/Cap/html sound like they would do nicely with

my configuration, though the ones he likes are quite expensive.

2nd Order Reverse Polarity

3000 Hertz / 300 Hertz

5 Ohm Tweeter / 8 Ohm Mid / 8 Ohm Woofer
2.08 db Bandpass Gain, Spread = 10 : 3.4 octaves

Parts List

Capacitors
C1 = 5.27 uF
C2 = 42.64 uF
C3 = 2.99 uF
C4 = 32.96 uF

Inductors
L1 = 0.53 mH
L2 = 8.68 mH
L3 = 0.71 mH
L4 = 8.54 mH

Works Cited/Bibliography


