Subject: 511B Update (#2)
Posted by AstroSonic on Sat, 14 Jun 2003 14:39:13 GMT
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With help from Wayne, Sam, Troy (from Iconic) and others, I have done some investigating and am moving forward with improvements to my Altec based 2-way speakers. Here is a summary of items that may be of interest.The peak in response between 4 and 7 kHz (mentioned in a previous post) was largely 'solved' by adding another layer of damping material (Dynamat Xtreme) on the 511B's, between the driver and where the horn rapidly expands horizontally. Damping this part of the horn was suggested by Troy Swan of Iconic Manufacturing, (makers of the Iconic Model 102-16 drivers I am using). Things like cymbals, sibilance and applause no longer jump out at you. Interestingly, a change to zip cord for the tweeter wiring also 'solved' this problem. It also took away much of the resolution and extended HF this combination is capable of.Some (Sam!?) had suggested that 500 Hz was a lower than optimal crossover frequency, because its too close to the horns cutoff. I made an impedance run on the 511B/102 and found a strong impedance peak centered on 400 Hz. I also measured the response (Stereophile test CD with warble tone sequence, and tripod mounted Radio Shack SLM) and found that the response was pretty level from 1.2 to 6.5 kHz. At the low end there was a gradual drop to -2.5 db at 800 Hz (Looks like Sam was right!), then a trough centered on 600 Hz, followed by a 400 Hz peak. So...I am redesigning the crossover for 800 Hz. Above 6.5 kHz there was a drop of a few db, then a shelf with a gentle downward slope of about 3 db/octave. EQ in the crossover nearly levels this out. Note that the SLM is only accurate out to 10 - 12 kHz. A few posters have suggested that the 515B did not have a very extended response, even suggesting that it took a nose-dive above 800 to 1 kHz. That would be good to know if one were designing an 800 Hz crossover! I made a response run in one of my 515B's: other than a few boundary (?) related dips, it had a very even response up to around 1.6 kHz, followed by a rapid rise to a broad peak of about 6 db between 1.8 and 2.2 kHz, then by a rapid drop off. This is very similar to a response graph from the Altec 515B spec sheet.I have found these response measurements useful in identifying some fairly audible problems. For example the 400 hz peak in the tweeter is rather obvious on music having sustained notes in that area, (male singers, piano and string quartets for example). Moving the crossover from 500 to 800 Hz should help, but may not be enough. Any suggestions on dealing with this would be appreciated. The peak in woofer response has shown up consistently through numerous crossover alterations, as a suckout in system response. Any ideas on how to deal with this? Please note, before any flame wars begin, that I do not think that these response measurements are anything other than a useful, semi-quantitative tool. They have been useful for identifying some fairly obvious audible colorations to the sound. Regards,AstroSonic