Subject: Re: Acoustic Suspension vs. Bass Reflex
Posted by Wayne_Parham on Sun, 08 Apr 2001 20:58:37 GMT
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My point can actually be summed up in one sentence: All speaker systems resonate. That includes sealed boxes and open baffle designs. So all speakers have a tendency to lack control at their resonant frequency which causes then to continue to produce sound after a signal is removed.What's more important is the amount of damping. If damping is sufficient, then the duration of output is short - maybe only an attenuated half cycle. But for systems that are poorly damped, the overring can be several cycles. Well damped speakers are able to generate a very short staccato bass note, like a bass drum impact, but poorly damped speakers cannot - Instead you head a note of much longer duration. One would expect a quick "whap" and instead, you hear "whooooooom." Sorry for the onomatopoeic words - "whap" and "whooooooom" - but I can't find a way to descibe the sounds any better.I've always been particular about this characteristic of speakers. I love deep and powerful bass, but I also want it to be clean. I expect bass drum strikes to have quick impact along with that thump in my chest. I want to hear the roar of a low frequency bass organ, but I want these to be two different and clearly distinguishable sounds. Systems that have great low frequency resonse and well damped resonance can provide this, but poorly damped systems cannot.One of my first, and easiest listening tests was to listen to the song "All good people" from the 70's British art rock band, "Yes." There are two bass notes that are repeatedly played as 16th notes, in rapid succession. If I can't hear two distinguishable notes in this song, then I think the speaker sucks. But it's truly amazing how many "reproduce" this passage as single bass tone. Elephant farts.What's happening on such a system is that the speaker is continuing to "ring" at this frequency so long that it "fills in" the cycles between the two bursts. What should have been two short bursts are made into one long one. And this is just as common on acoustic suspension speakers as it is on bass reflex. It's a symptom of an out of control woofer at resonance, and a cabinet that cannot effectively damp it.