Subject: Proper Guitar Spkr Design
Posted by Paul C. on Sat, 06 Jul 2002 12:45:20 GMT
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I just received this from my brother, and lifelong sideman, a guitarist himself.He asked me to post this:Perhaps there is an easier way to avoid the chirping, by avoiding or turning off the tweeters! Is the purpose of the stereo guitar amp and cabs is to amplify guitar, especially electric guitar? If so, the basic audiophile rules of speaker design need to be ingored. For guitar cabs, the cabs themselves are part of the sound--they need to be live, not dead, as with audio and PA cabs--so you don't want to stuff the boxes at all. I have some decent, but rather old Epicure stereo speakers and have run my Les Paul through them--Yuck! It is the driest, deadest sound imaginable. You want the sound to be colored by the cabinet because the straight sound is uninteresting. Craig Anderton. John Simonton along with PAiA have a tube pre-amp for guitar called stack-in-a-box (http://www.paia.com/tubestuf.htm#siab) with "two switchable filters simulate the timbre of speaker cabinet resonances." You want to minimize bracing, until you get up to 4x12 cabs and then a single front to rear brace is fine. You want limited low end response and so forget porting and you want nothing over about 7.5 k, so forget piezos (or any kind of tweeter) altogether. Anything over 7.5 k you get an unpleasant harshness that even a heavy metal guitarist would want to avoid. There is a good discussion of this at the Celestion site. Go to http://www.celestion.com/pro/pro.htm and since this site is in frames, you need then to go to "guitar", and then "system upgrading and technical information" and then "guidelines for cabinet design." You want neither ports nor tweeters nor damping material in a guitar amp. Bass guitar, keyboard, other instruments, PA, etc. will have different designs, but these will usually follow the guidelines of standard hi-fi speaker design more closely than guitar cabs. Electric-acoustic guitar speaker design is different still, using more of the upper mid range and less of the lows. It is noted elsewhere in the Forum that DJ PAs will often be a bit heavier in the bass guitar range to pound out the beat for dancing. Just as with other things, "Form follows function." The guitar amp probably does no damping of highs as Wayne mentioned. The reason for this is that guitar amps are designed to run with guitar speaker cabs, which do not reproduce frequencies above about 5 or 6 k. No need to worry about those highs if the speakers are not going to reproduce above 5or 6 k. If you want the amp/speaker setup to do several things, it might be a good idea to put an L-pad in the crossover and turn the tweeters way down. An on-off toggle to the tweeters would probably work just as well. But this still doesn't get to the chirping problem at all. (A different amp might fix it.) It is just that if the speakers are for guitar amplification, you do not want tweeters at all in the sound, and so with tweeters gone, the chirp goes away. Morris