Subject: Impedance at resonance
Posted by Wayne Parham on Tue, 12 Nov 2002 20:42:47 GMT
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Definitely, that's true. Bi-amping and connecting the drivers directly improves motor damping from the amp, and also provides other benefits.But then again, the reactive components in a passive crossover and the reactive nature of the driver itself interact in a manner that is taken advantage

interaction between the driver and the crossover isn't wanted, and that's why conjugate filters are used. That's what a Zobel does and it's required in many cases.One thing about connecting the amp directly to the driver is that the amp is better able to provide electrical damping for the motor. But that depends on the amp having high damping factor. If it doesn't, as is the case with many tube amps, then the driver's impedance curve interacts with the amp's output circuit. Large impedance fluxuations can cause peaks and dips in response. Small signal tube amps are often coupled through output transformers with relatively high output impedance, and so even if the woofer is connected directly, its impedance at resonance forms a divider with the amplifier's output. Sadly, this is what causes the biggest problem.But that's not the case for tweeters or midrange drivers, only for woofers. This is because there isn't usually such high back-EMF from midrange and tweeters, and their crossovers almost never increase peaking to the levels of deep bass woofers at resonance. So particularly for midrange and tweeters, the issue doesn't become a problem.