Subject: Back EMF; Good or bad thing?
Posted by Adrian Mack on Sun, 29 Jun 2003 11:16:13 GMT
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Hey Wayne,Just letting you know I've done heaps more research and found answers to a lot of my questions in my previous post. I have only questions on Back EMF/Damping Factor now, and I have two different views I've found on them, and I am unsure of which is correct. The first view, is from a document on a Crown amplifier, it actually states more Back EMF as being a good thing. It states that Back EMF is generated from the voice coil itself, which I think its right. It then says it travels through the speaker cable back to the amplifiers ouput, then returns back to the speaker. Because Back EMF is opposite in polarity with the speakers cone motion, it stops/suppresses the speakers ringing. I dont think this is completely right. It then later says the smaller the amps output impedance, it will not stop the Back EMF, instead it will let it through which damps/stops ringing in the speaker, because as the speaker cone moves out, the back EMF makes it move back in, and vice versa. My understanding is that Back EMF is a voltage generated by the loudspeaker itself, and bigger motors/drivers and/or heavier cones produce more Back EMF. Thats because the heavier cones are less controlled and more kinetic energy is needed to move them, hence more Back EMF. Because the cone is less controlled, Qms will be rather high, which also means higher Zmax. Back EMF is bad, because it means the cone will keep ringing after the signal is stopped. So that means that amplifiers with high damping factors are needed as they stop the Back EMF from going back to the speaker hence stopping the ringing, especially with high Zmax speakers which have poorer cone control. So you can see I have a problem, and I cant solve it! Which is right?! Can you offer any advice?Thanks!Adrian