Subject: Re: voice coil heat dissipation device
Posted by Wayne Parham on Sun, 11 Mar 2007 19:56:49 GMT
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You can certainly mount the cooling plug in such a way as to protrude out the front of the cone and mount a radiator/heatsink there. The thing is, that will change the characteristics of the speaker somewhat because the voice coil cap won't be there. In a typical wide-range speaker, that will change the sound at higher frequencies, since the cap is the center of the radiator, a place where path length differences won't cause cancellation at high frequencies. In a subwoofer, the cap is sometimes made very rigid to make it stronger and possibly to add mass. So those are things that will change if you run the cooling plug out through the front of the speaker.When I designed the cooling plug, my first instinct was to duct heat out of the cooling vents, rather than allowing heat to build up in the rear chamber. I expected air temperature would normally rise in a speaker with a small rear chamber used at high power levels, which would make the cooling vents less effective. My plan was to use a heat exchanger to cool the air ducted into the vents. What I found was that air temperature wasn't a big problem. The biggest problem is the heat that is retained in the magnet structure. It's like a thermos bottle, a large chunk of steel surrounded by ceramic. That's where the heat buildup is.Loudspeaker motor cooling methods