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Subject: Re: since you mentioned Qes and R

Posted by [Wayne Parham](#) on Thu, 19 Sep 2002 01:07:14 GMT

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Adding series resistance to the output circuit makes the amp less able to short the motor's back EMF. That, in turn, makes it less able to provide electrical damping, which acts sort of like an electric brake for the speaker. To put this in perspective, solid state amps usually have output impedance less than 0.1 ohm but many tube amps have output impedance of more than an ohm and some have several ohms.