Subject: Motor strength
Posted by Wayne Parham on Tue, 03 Sep 2002 23:11:32 GMT
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This is a balancing act, and the parameters are set according to the intended application. But here is a generalized description of the interrelationships.Motor strength is set by magnetic flux, number of voice coil turns and amount of current passing through it. To make the motor stronger, you need the most amount of magnetic energy, the most number of turns, and the highest amount of current in the smallest space.Mass and stiffness of the moving assembly combines with motor strength to set the electro-mechanical parameters like resonant frequency and Q.Radiator size and excursion set displacement, which affect overall maximum power levels. Even if the motor is very powerful, if the Xmax is limited, then the total power output is limited. Making Xmax larger means making a longer coil and spreading the magnetic energy over a larger area. This tends to make the motor less efficient, but it allows it to move the diaphragm further.