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Subject: Ah, I figured most of it out

Posted by [Adrian Mack](#) on Mon, 15 Sep 2003 06:40:04 GMT

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Hi Wayne, I just re-read your Electrical, mechanical and pneumatic properties post. The sealed box modifies the speaker's mechanical properties and it raises  $F_s$  and changes its  $Q_t$ s. It does that by changing its spring stiffness and resistance because of the air pressure in the box. Therefore we can say that  $F_s = F_o$ , right? So the question is: All motors are more uncontrolled near  $F_s$ . Because the sealed system shifts  $F_s$  upward by modifying its spring stiffness, does that mean it's now uncontrolled at the shifted frequency instead of the lower free-air  $F_s$ . I think it might not, because the motor strength is not changed and is helping damp the driver. I would think the new boxed- $F_s$  is more controlled than free-air  $F_s$  because the box would lower the driver's  $Q_m$ s. That seems like the reason it's different, but doesn't make it worse, only better which I guess is how sealed system damping works, in a basic way. The vented box has a port, so I'd assume it does not modify its spring stiffness/resistance and therefore a driver in a vented box won't change  $F_s$ . The Helmholtz resonator tunes the system instead. Does it change any of the driver's  $Q$  parameters like the sealed box does? I guess not either. Thanks! Adrian

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