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Subject: Re: In over my head! Fostex 206 cabinet

Posted by [GM](#) on Fri, 15 Apr 2005 15:00:02 GMT

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Greetings! In the good ol' days it was called a tower bass reflex (BR) design, but recently Martin King 'did the math' to better define it as more a 1/4WL mass loaded pipe (MLTL, AKA ML-TQWT) than BR. There's no defined point between the two, just a BR morphs into a MLTL as one dimension becomes long enough to support some 1/4WL pipe action in the cab's passband. His PORTED WS also shows to some extent how the vent's position and harmonics affects the driver/cab summed response. Assuming an alignment that yields a flat response in a golden or acoustic ratio BR (AKA T/S max flat alignment), the vent position in a MLTL is critical to how flat the response is. As it moves closer to the driver it 'tilts' up the response, shifting Fp upwards, reducing system damping, so if you want to maintain a flat response requires either the vent be longer or critically damped. The 'restriction' is a 'window' brace and has no impact on the vent's output as long as it's not too intrusive. Plugging the Fostex design into MJK's PORTED WS yields some peaking at Fp (underdamped, AKA 'ringing') response around 45Hz so moving the vent up near the driver just makes it worse. Increasing its length to 5" (127mm) negates it for the most part and lowers Fp to ~the driver's Fs. All that's left then is to 'dial in' the amount of baffle step correction (BSC) and stuffing to flatten/smooth it out. Note that this driver's rising response will either require them being severely toe'd in or some form of EQ to flatten their mids/lower HF if listened to on-axis. Obviously, since your design is different you will have to sim it to find out what dims, etc. works best. GM

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