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Subject: Re: 12pi sub simmed on akabak

Posted by [Wayne Parham](#) on Thu, 19 Nov 2009 15:15:57 GMT

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You are right to calculate the volume of the cone or "dish" made by the speakers cone, because this volume increases the volume in front of the driver and reduces the volume behind it. You also should remove area displaced by the magnet and basket from the area behind the cone. Since one driver "faces" the throat and the other faces the rear chamber, one driver has the volume added to the front chamber and the other driver has volume subtracted. You can see this in the shapes and sizes of the chambers - they're not in the same position, and this is to account for volume displaced by the cones and motor assemblies.

These front chamber and rear chamber values were pretty critical to me - even more so perhaps than other speakers - because I wanted front chambers of left and right drivers to be exactly the same volume, and also rear chambers of each side needed to be exactly the same. The push-pull design is intended to reduce distortion from asymmetrical forces, so I wanted to make sure the pneumatic forces were as symmetrical as possible, and this requires chamber sizes be equal between left and right drivers.