Subject: 12pi sub simmed on akabak
Posted by bitzo on Sun, 15 Nov 2009 18:35:51 GMT
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Hi all,
thanks to Wayne for sending me the 12pi plan.
I'm trying to sim this cab in akabak. But I have some question.
One driver fire in the throat chamber the other one in the rear chamber, but both driver are connected in parallel.
So I substract all the driver volume from the throat chamber and I add the cone volume to the rear chamber.
For the other driver I added the cone volume to the throat chamber and substract all the driver volume from the rear chamber.
Am I right?

cheers, bitzo

Subject: Re: 12pi sub simmed on akabak
Posted by Wayne Parham on Sun, 15 Nov 2009 22:22:30 GMT
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area and motor, and having twice the front chamber volume and rear chamber volumes as each individual driver has. You can model it that way too.

Here are some documents that show the models and development process:

Subject: Re: 12pi sub simmed on akabak
Posted by bitzo on Thu, 19 Nov 2009 09:30:37 GMT
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ok but I want to use all the akabak feature so...
I calculated the driver volume and only the cone volume, approxymated to trunc of a cone.
So I substract the driver volume to vtc and add the cone volume to vrc for the first driver...so I modelled a duct with surface of an half of S1 with a depth equal to wood thickness.

For the second one I substract the driver volume to vrc and added the cone volume to vrc and modelled the same duct.
The 2 duct fire into the horn. The throat's width is the internal cabs width, the height is the ducts height.
In your opinion is this a correct way to model this sub?

many thanks for your help.

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.

Subject: Re: 12pi sub simmed on akabak
Posted by bitzo on Thu, 19 Nov 2009 21:56:13 GMT
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Wayne Parham wrote on Thu, 19 November 2009 09:15
.....
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.

Hard work at all, thanks for your tips.
