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Subject: 12Pi v2

Posted by [Roland Gama](#) on Mon, 18 Feb 2008 13:10:08 GMT

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Hello Wayne, There seems to be an error with the external panels measurement. The plans show that the 45 degree cut on the external panels begin at 38-7/32 from the edge of the mouth opening while all other panel cuts makes this one to be 36-3/8 (ie a difference of about 2 inches.) for things to click in place. Am I right? Roland.

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Subject: Re: 12Pi v2

Posted by [Wayne Parham](#) on Mon, 18 Feb 2008 17:40:09 GMT

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Are you sure you're not looking at the v1 drawings? We used to make the top bevel shorter than the bottom one, and it was 38-7/32" from the front. But the v2 drawing has both bevels cut the same, 36-3/8" from the front on each one. The dimension is only shown along the top edge, but you can see that it lines up with the bottom. This is a non-critical feature and you could use either style, but the new one has bevels cut the same on top and bottom.

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Subject: Re: 12Pi v2

Posted by [Roland Gama](#) on Thu, 21 Feb 2008 13:16:00 GMT

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Subject: Re: 12Pi v2

Posted by [Roland Gama](#) on Thu, 21 Feb 2008 13:17:19 GMT

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Subject: Re: 12Pi v2  
Posted by [Roland Gama](#) on Thu, 21 Feb 2008 13:19:48 GMT  
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Subject: Re: 12Pi v2  
Posted by [Wayne Parham](#) on Thu, 21 Feb 2008 17:21:29 GMT  
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Excellent! Looking great. Your hornsub will be thunderous.

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Subject: Re: 12Pi v2  
Posted by [Chris R](#) on Thu, 21 Feb 2008 18:30:39 GMT  
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Wayne, Would you be so kind as to describe the various parts of the horn from the perspective of HornResp? I have a little trouble with knowing what the front chamber is, throat, mouth, etc. From the last picture (motor structure), it looks like your 12Pi has a ~1cu ft. front chamber and a fairly small (square hole) throat, which opens to the beginning of the horn in a very big jump in volume (compared to the square holes). I expected a smoother transition. Is the small throat where this "compression" comes from? Thx, Chris

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Subject: Re: 12Pi v2  
Posted by [Wayne Parham](#) on Thu, 21 Feb 2008 19:53:35 GMT  
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I had originally thought about making the throat be a long slit, spanning the width of the horn. But the truth is the wavelengths involved are from 10 feet to 40 feet long. So having two 27 sq. inch holes that are 5 inches tall and spaced a foot apart is acoustically the same as one long thin 54 sq. inch hole. It was easier to do and just as good. It's a matter of scale. Since the wavelengths of sound passing through bass horns are large, small features don't matter. That's why you don't need curved flares, exponential/hyperbolic flares can be approximated with a few straight segments. Same thing with mid/tweeter horns, but at a smaller scale. Ever notice the grains in ABS plastic tweeter flares? They're acoustically small compared to the wavelengths passing

through the horn. Small features are like grains in film, which are too small to see. If you enlarge a photo enough, you'll see it has grains like pixels of a computer screen. They're just not visible at the scale the photo is used at. This is kind of the same thing with acoustics, if features are small

measurements. Both are available at the link below. The model describes a perfect horn with a curved flare and a throat at the apex, just like the Hornresp schematic shows. The actual physical horn has four segments and the throat begins with a long thin apex and two square holes cut near

to the sections on development, construction and test results)

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