
Subject: Finish up a pair of 4pis

Posted by [Jensen](#) on Mon, 06 Apr 2020 16:17:16 GMT

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I'm the farthest thing from a wood worker and have never build a speaker before. But you buy the ticket, you take the ride... (buy a soldering iron for the crossover too)

I always found the visual proportions of the 4pi to be a little challenging. Also, the waveguide gives them a decidedly PA aesthetic. So I tried to church them up a bit. Hoping for a vintage hifi vibe.

Sunk the JBL 2226 about 3/8" to match the protrusion of the waveguide. Doubled up the motor board behind the woofer.

Took a lot of looking but found a cherry board that was figured similarly to the cherry veneer I'd selected. Trimmed out the cabs with a vintage feeling facet (sansui?).

Having never so much as held a piece of veneer before, it was a struggle. I'm really happy with how the book match came out on the backs, but I didn't dare try it on the sides. So the sides aren't as highly figured as they could have been. But whatever.

The sound is as amazing as everyone says. Being driven by a pair of 100w Ashlys, the vocals and mid range strings are particularly spectacular. Hoping to take them out side for a blast sometime this week.

So... fun project with a result that I'm happy with. Thanks Wayne.

File Attachments

- 1) [IMG_9671.jpg](#), downloaded 1452 times
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Subject: Re: Finish up a pair of 4pis
Posted by [Wayne Parham](#) on Mon, 06 Apr 2020 17:18:41 GMT
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Those look stunning! I love the wood sides and black baffle. Superb!

Subject: Re: Finish up a pair of 4pis
Posted by [Rusty](#) on Tue, 07 Apr 2020 13:59:43 GMT
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That's stretching humility a bit there. Cause if your the farthest thing from a woodworker then I'm gonna be careful walking under a tree. Because there may be a pig up there living in it. Beautiful job. Lets just say, your a natural. Butchering wood pleasingly. I've wondered if Pi speakers aren't more popular among'st the diy crowd because the aesthetic these days are skinny tower type speakers. And among high sensitivity types, those full range whizzer cone jobs that I've read screech at you over a limited bandwidth. Anyway, the Pi old school monkey coffin is fine with me. And a well crafted interpretation looks wonderful. Because like your experiencing now. The sound they make.

Subject: Re: Finish up a pair of 4pis
Posted by [Jensen](#) on Wed, 08 Apr 2020 13:24:00 GMT
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Thanks Rusty. Like I said, they sound amazing. I couldn't be happier.

Subject: Re: Finish up a pair of 4pis
Posted by [Symphonimind](#) on Sun, 17 May 2020 00:49:45 GMT
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That is the best looking 4Pi I have ever seen!
Did you go with DE250 & 2226H combo?

Subject: Re: Finish up a pair of 4pis
Posted by [Jensen](#) on Sun, 17 May 2020 13:59:24 GMT
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That's a bold and inaccurate statement, but thank you! They are loaded with the DE250 and JBL 2226H. I couldn't be happier with the sound. I don't believe there is a substitute for large drivers moving large amounts of air, regardless of the frequency.
Fun project too.

Subject: Re: Finish up a pair of 4pis
Posted by [Quattrofish](#) on Mon, 24 Aug 2020 16:35:41 GMT
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These are absolutely gorgeous, Jensen.

The facet that extends beyond the front baffle reminds me of a pair of vintage EV speakers I had for awhile. My only concern is that it might impact sound propagation in some way. Baffle step or the like? Does anyone (Wayne?) wish to speak to that, because if it is not detrimental to the sound I will shamelessly copy the idea.

Thanks!

Subject: Re: Finish up a pair of 4pis
Posted by [Wayne Parham](#) on Tue, 25 Aug 2020 00:24:59 GMT
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There is edge diffraction, and it is present in all loudspeaker cabinets of all shapes. Some prefer to round the edges of speakers to reduce it, but it still doesn't prevent it.

I used to build cabinets with rounded edges and my cabinetmakers hated that. At one time, they brought it to my attention that they couldn't hear the difference, and asked me to host a listening party to find out if anyone else could either. I had two similar speakers playing - the same model of Pi Speakers - one with rounded edges and the other without. Nobody could hear the difference.

It wasn't a blind test, but it was done with a bunch of college-age kids that had had no preconceived notions. They were all young enough to have great hearing but they had no reason to believe one way or the other. So I considered their subjective impressions to be good information. My take was that the edge diffraction reduction from the rounded cabinet edge was inaudible.

Subject: Re: Finish up a pair of 4pis
Posted by [Quattrofish](#) on Tue, 25 Aug 2020 14:32:17 GMT
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That is great news, as I love what Jensen did with those facets.

So many speaker designers tie themselves in knots over edge diffraction, and can provide page upon page of modeled or measured data to back up their claims. Very rarely do I see anything about an empirical test to see if actual humans can hear a difference. Thanks for confirming my suspicion that it is a measurable, but not often audible, issue.

Subject: Re: Finish up a pair of 4pis

Posted by [Wayne Parham](#) on Tue, 25 Aug 2020 17:19:31 GMT

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Yeah, I know. Many of those speaker designers are my friends. The ones that tend to be most interested in edge diffraction - beyond the baffle step - those that are concerned with the more subtle effects tend to be the same designers that are interested in directivity and power response smoothness, e.g. uniformity of the reverberant field. When they focus on edge diffraction, they are looking at high-order modes. So they're definitely my kindred spirits and I've tended to avoid the discussion of cabinet edge diffraction with them, but I have said this publicly several times so they know my position.

Sharp edges very near a sound source are audible. The edges in an old Manta Ray horn make it sound grungy, for example. I've often heard people describe the sound as "spitty" because of the smearing of sounds in the top octave. And you don't just see it in the time domain - You can even see spikes in amplitude response. So it's easy to see the consequence of sharp edges near a sound source in measurements, and most everyone can hear it too. It sounds harsh.

But the further away the sharp edge is, the less audible it becomes. The same folks that are concerned with cabinet edge diffraction also find the environment to be a difficult source of numerous ugly edges and reflectors of various sorts. That's all true, and some can be a problem, especially those nearest to the source or the listener, or those in the direct sound path.

So it becomes sort of a common sense thing, one that is easily confirmed by ear. You will naturally avoid placing a highly reflective or sharp edged object right by your speakers or near your listening position. That's because you can hear its effects and you won't want it there. But you may or may not have a problem with a television between the speakers or a table full of electronics with hard-edged equipment on it. And you probably won't have a problem with the edge diffraction from your loudspeaker cabinets unless someone tells you it's bad and that thought starts to bug you.