Subject: 2023 4pi build
Posted by 00schteven on Mon, 06 Mar 2023 23:50:44 GMT
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Hello,

I am in the process of building a set of 4pi speakers. I bought a pair of JBL 4530 scoops loaded with 2226H woofers off of Marketplace. They could be in better condition, but should be well broken in. I found new B&C de250s and some other things like grill cloth from Q-components. The crossover parts I found from Solen. Except the 100w 8ohm resistor, I had to order that from Parts Express. I ordered the wave guides from Wayne. Shipping and the broker fees were expensive to Canada.

I have been making slow but steady progress. The crossovers are assembled and soldered. I ran out of black zip ties and had to use white ones for the second crossover, my OCD might take over and I will probably change the first crossover to match. The cabinets are mostly put together. My little router did not have fun cutting out the 1½" baffle, it definitely payed for itself so far on this project. I need to make the port tubes and cut some braces. Seal the boxes. Figure out grills. Pick out some venner, and get them completed.

File Attachments
1) IMG_20230305_160914753_HDR.jpg, downloaded 726 times
2) IMG_20230215_101758166.jpg, downloaded 773 times

Subject: Re: 2023 4pi build
Posted by Wayne Parham on Tue, 07 Mar 2023 03:14:40 GMT
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Looks great so far!

Subject: Re: 2023 4pi build
Posted by grindstone on Tue, 07 Mar 2023 22:03:04 GMT
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Nice first post :)

Subject: Re: 2023 4pi build
Posted by rvsixer on Wed, 08 Mar 2023 01:51:08 GMT
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Great looking build. Is that some kind of prototyping board you used for the crossovers? Certainly nicer than the 1/8" luan ply I usually use :) .

Subject: Re: 2023 4pi build
Posted by Rusty on Wed, 08 Mar 2023 11:44:43 GMT
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Very nice job. Keep the pics coming. That's a new one, seeing a tv in a garage. Do you do the wood butchering elsewhere? Or just dust off the tv.

Subject: Re: 2023 4pi build
Posted by blvdre on Mon, 27 Mar 2023 01:53:27 GMT
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You may want to modify your inductor layout. This pic is a decent rule of thumb:

File Attachments
1) C339F25B-8B3A-4386-9D31-38850C879A9D.png, downloaded 585 times

Subject: Re: 2023 4pi build
Posted by Wayne Parham on Mon, 27 Mar 2023 16:25:33 GMT
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I suggest measurements to examine the circuit.

Look for two things:

1. Overall response curve
2. Low-frequency content presented to the tweeter

As an academic study, you can measure the inductance of two coils placed in various positions and you can measure the amount of mutual inductance from the coils and signal coupling as a transformer effect.

But if you just want to see how your crossover layout effects the performance of your loudspeaker, focus on the two things I described above. We just want to know the basic transfer functions of the filters, and the things we're most concerned with are making sure the tweeter doesn't get too much low-frequency energy and that the overall response curve is right.

I say this because I had similar worries when laying out my crossover board. I could put the coils at opposite ends of the board, but then the traces were longer and not as organized. Or I could layout the physical circuit similarly to the schematic, making a clean and organized board but putting the coils closer together.

So I used measurements to drive my decision, and I tried various combinations of positions and orientations that kept the transfer functions right.
