
Subject: 3Pi front soundstage build

Posted by [JakeAlmighty](#) on Fri, 04 Feb 2022 18:41:14 GMT

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Hey all,

Recently began building the cabinets for my 3Pi speakers while I wait for Wayne to get the upgraded B&C drivers back in stock.

I have attached some pics of where I've gotten to so far.

My main question is - is the current bracing I have in place sufficient? or should I also be placing a brace in the lower part of the cabinet. The pine I've placed towards the rear (for attaching the inset back panel onto) is sufficiently pre-loaded to act as bracing between the side panels, and from top to bottom. But the only bracing from front to back is the main brace to hang insulation on between the woofer and the compression driver.

Just wanted to check on this before I got going on sanding/finishing, and the insulation and gaskets. The back panels have been custom fit to each box so it is *tight*, but I allowed for speaker gasket to go round the perimeter and across the middle. Planning on sealing the rest of the interior perimeters with a silicone bead just in case.

thank you!

File Attachments

- 1) [20220201_152917.jpg](#), downloaded 808 times
 - 2) [20220201_132314.jpg](#), downloaded 872 times
 - 3) [20220204_122749.jpg](#), downloaded 885 times
 - 4) [20220204_122720.jpg](#), downloaded 885 times
 - 5) [20220204_122643.jpg](#), downloaded 871 times
 - 6) [20220204_122623.jpg](#), downloaded 853 times
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Subject: Re: 3Pi front soundstage build
Posted by [compaddict](#) on Fri, 04 Feb 2022 19:22:08 GMT
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Nice work!

Subject: Re: 3Pi front soundstage build
Posted by [Wayne Parham](#) on Fri, 04 Feb 2022 20:18:00 GMT
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Your bracing between the woofer and tweeter looks great. It has the two purposes you rightly mentioned in your post - One is to preload and stiffen the panels and secondly and equally importantly is to serve as a place to put a sheet of insulation that spans the cross-section of the cabinet interior.

Subject: Re: 3Pi front soundstage build
Posted by [rvsixer](#) on Sat, 05 Feb 2022 13:59:24 GMT
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The woofer is recessed, but it appears the horn is not? I was under the impression the mounting surface for each needs to be in the same plane for time alignment, or does it not shift the lobe that much....

Subject: Re: 3Pi front soundstage build
Posted by [Wayne Parham](#) on Sat, 05 Feb 2022 16:46:09 GMT
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That would shift the forward lobe downward a couple degrees, but not all that much really. I tend to put my speakers on stands which tilt the forward lobe up three to five degrees. In any case, the forward lobe is tall - with vertical nulls spaced outside +/-20 degrees - so there's a lot of clean "vertical strata."

Subject: Re: 3Pi front soundstage build
Posted by [rvsixer](#) on Sat, 05 Feb 2022 21:31:58 GMT
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:thumbup:

Subject: Re: 3Pi front soundstage build
Posted by [JakeAlmighty](#) on Wed, 08 Feb 2023 20:30:47 GMT
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hey all,

Finally back to finishing these things - got delayed in the spring as the basement flooded (including the theater) and then had a long drawn out fight with insurance over how much money they had to send us. All good now! Going to put the new floors/bottom 2ft of drywall etc in in a few months once the 2023 spring melt is done. (see if it floods again or not)

Speaker cabinets are finished sanding, painted black etc. re: the comments above I did recess the woofer but not the waveguide, this makes them line up nicely visually. (aka they stick out of the front baffle roughly the same amount) Luckily it sounds like the impact on the vertical alignment is minimal so should be ok.

couple questions that probably don't even matter but figured I'd ask before assembling the internals -

- I have screws on hand that should work for mounting the woofer - they're just very short to not penetrate through the reduced thickness of the recessed area of the baffle - #10 panhead 1/2" long. It seems somewhat ridiculous mounting a heavy driver with such tiny screws, will this be sufficient? Or should I instead reinforce the baffle on the interior with another layer of MDF and can then use longer screws.

- Where is the circuit board (and resistor, off board I suppose) typically mounted? Does it matter if they are on the exposed interior side of the cabinet vs under the insulation on the other side or bottom?

- the insulation I have on hand is R14 rockwool - it's fairly thick. 2" if I recall? Is this fine or should I go buy a thinner R11 or R13 as per the recommendation? (or cut down the rockwool somewhat)

- "official" speaker gasket tape/foam is surprisingly elusive in Canada - I have tons of random weather sealing, sill gasket, etc options on hand that might work though, does it matter if the foam is open cell vs closed cell?

thanks guys!

Looking forward to hearing these things in action *very* soon. Finished pics to come.

Subject: Re: 3Pi front soundstage build
Posted by [Wayne Parham](#) on Thu, 09 Feb 2023 15:36:07 GMT
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I like to use 10-32 T-Nuts or threaded inserts. Double the baffle in the area where the mounting screws are. I like to cut a ring of baffle material and glue it on the back of the baffle, which tends to compensate for the material removed when routing for flush mounting.

The crossover circuit board can be mounted anywhere, but I like to mount it to the bottom. Make gaskets from cardboard or 0.040" PVC sheet material, which is available at most hardware stores. Put a gasket under the crossover and the Zobel resistor, and also behind the waveguide and midwoofer. See the link below for an example:

Gaskets

Not sure about the Rockwool product, but it's not fiberglass. It's a different material, so while it might work great, it might not.

Subject: Re: 3Pi front soundstage build
Posted by [JakeAlmighty](#) on Fri, 10 Feb 2023 21:27:48 GMT
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Hey Wayne, thanks for all the info.

I will reinforce the baffle cutout, I'll sleep better without the woofer hanging there off a 1/4" of mdf.

Online search seemed to indicate that the main difference rockwool vs fibreglass for speaker applications is that the rockwool is quite a bit denser - likely blocks air/soundwaves more than expected in the design. In your opinion would you expect that to be neutral or a negative overall? (I don't have a proper near-field mic to build it and test it properly unfortunately)

I don't mind going and buying fibreglass if you think using the rockwool is a bad idea. It would be R12 pink fibreglass at 3.5" thick.

cheers,
Jake

Subject: Re: 3Pi front soundstage build
Posted by [Wayne Parham](#) on Fri, 10 Feb 2023 23:41:45 GMT
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Honestly, I'd stick with fiberglass unless I had measured the system with the Rockwool product to see how it fared.

If you choose to do that, what you want to look for is response in the 100-400Hz range. Compare the response between a speaker with fiberglass to a speaker with Rockwall. The one with smoothest response wins, of course. If it's a tie, that's cool too.

Measurement at this frequency range should be measured outdoors. Best to do it with the speaker on its back in a pit, so the baffle is flush with the ground. Instead of a pit, you can also make a "false ground" with sheets of wood sitting flush with the baffle on the side nearest the speaker and touching the ground on the side furthest away.

Indoor measurements aren't good at this frequency because of reflections. You're measuring the room more than you are the speakers.

While we're on the subject of damping material, be sure to include the sheet that sits on the cross-brace, spanning the cross-section of the cabinet. Some people forget that but it is vitally important.