Subject: Re: 4pi: Cabinetmaker's build
Posted by Wayne Parham on Thu, 04 Jun 2026 13:54:40 GMT
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Those look fantastic! I love 'em!

Mine are always on foot-tall stands, so I'm with you on the height.

I am more than surprised with your comments about muddy bass and unclear vocals though. The four Pi model loudspeaker with JBL 2226H is my reference standard for crisp, clear bass and vocals. I don't think any other loudspeaker performs as well in that regard - If one did, I'd either be back to work redesigning or I'd drop them from the line.

My thoughts for suspects are these, in no particular order:

1. Is the cone genuine JBL? Was it purchased brand-new? If not, confirm response and distortion are as published using acoustic measurements.

2. Amplifier performance. How is it doing at 1/10th-watt levels? Most of the time, your speakers will be running under a watt. Then also check the amplifier in the 1-10 watt range. See how it reacts when pushed a little bit.

3. Check your internal wiring. Having one of the midwoofer drivers connected backwards will make some odd nulls in the midbass and midrange, especially when you're centrally seated. It will be off everywhere in the room, to tell the truth. The 2226H is to be connected black to positive, so that's often mistaken. So check the wiring against the plans. Tweeters out of phase with midwoofers won't affect the midbass, but that will affect the overtone region a great deal.

4. Where did you place your insulation? Did you add the sheet spanning the cross-section, between woofer and tweeter? Did you cover the top, side nearest the port and the rear? The rear sheet should almost contact the port. If the sheet spanning the cross-section isn't there, the vocal range will be adversely affected. Actually, missing any of the damping sheets will have an adverse effect, but the cross-section sheet is particularly important.

5. Have you checked the bell modes of the port? Your part looks really cool but since I haven't seen it, I'm inclined to want to check it out. It's probably awesome, but it's an unknown quantity for me. I know the MDF ports are acoustically neutral. But I am worried the plastic ports might have a bell mode in the midrange. Check 'em out, and maybe damp them with putty if needed.

6. Room acoustics. Your speakers are pretty tolerant of bad environments, but nothing can help the sound if there are highly resonant structures nearby. Those can sometimes really muddy midbass and vocals. An example I've encountered is hardwood floors over crawlspaces. Sometimes those make a hollow, resonant sound. But you probably would have already noticed something like that.

While I won't add this to the list of likely suspects, I will say that adding flanking subs will greatly

improve the performance of the midbass and midrange. That's what the flanking subs really address: They're not just for extension, but more importantly, they reduce baffle step and mitigate SBIR.

But not having flanking subs isn't a deal-breaker for four Pi loudspeakers. They sound fantastic without 'em. It's an Nth degree thing. Flanking subs are definitely worth doing, and you'll notice the improvement. But it's not like they fix something bad, it's more like going from really good to great.
