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Subject: 8 years later  
Posted by [panduro](#) on Fri, 09 Apr 2021 17:07:19 GMT  
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Been a dream of mine to build pi7's for many years now, but life has gotten in my way of that until now...

Back in 2013, I got the build plans for them, so only question is, are the pi7 build plans the same or have they changed?

Crossover, gaskets and midhorn pack has been ordered from Wayne.

B&C DE250, Eminence Alpha 10, are in boxes on my desk. Regarding woofers, I have 4 JBL 2225h, I seem to remember reading at some point that Wayne wrote that they are a exchangeable with the 2226h driver? I am hoping to use 2 of Those if that's the case, if not I'll bite the bullet and purchase 2 2226h.

Best regards

Ben

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Subject: Re: 8 years later  
Posted by [compaddict](#) on Fri, 09 Apr 2021 17:24:49 GMT  
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Nice!!

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Subject: Re: 8 years later  
Posted by [Wayne Parham](#) on Fri, 09 Apr 2021 22:59:40 GMT  
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You can use 2225H in the seven Pi bass bin. Can't use 'em in the four Pi model though.

I'll send plans to make sure you have the latest. Check your email inbox.

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Subject: Re: 8 years later  
Posted by [panduro](#) on Mon, 12 Apr 2021 15:23:52 GMT  
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Awesome that my Old 2225h's are usable.

I havent recieved new pi7 plans.

Best regards Bent

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Subject: Re: 8 years later  
Posted by [Wayne Parham](#) on Tue, 13 Apr 2021 14:16:40 GMT  
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Resending the plans now.

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Subject: Re: 8 years later  
Posted by [panduro](#) on Tue, 13 Apr 2021 20:18:28 GMT  
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Thx Wayne, plans are received :)

I'll make a build post when I start making sawdust.

Bent

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Subject: Re: 8 years later  
Posted by [panduro](#) on Fri, 20 Aug 2021 17:27:45 GMT  
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Making sawdust and screwing up :blush: :blush: :blush:

I fucked up when I picked up wood and didn't figure it out til too late, really nice quality Finnish Birch ply... but accidently bought 0.8267" instead of 0.75" thickness. The only panel I haven't glued in is the speaker baffle.

Options:

1/ The baffle that I've already cut fits in between the sides. It will however make the enclosure 2.5L/0.09ft<sup>3</sup> smaller than in the plans. Should I change the port length so it get's back to the original 37Hz tuning or is that a pointless endeavour?

2/ Buy a bit more wood and cut a new one that will fit on the sides. That will make the cabinet 4.5L/0.16ft<sup>3</sup> bigger than in the plans. The extra volume I can use for extra bracing.

But does the extra 2.1cm/0.82 inch the woofer will be closer to the corner make a negative

difference?

Best regards

Ben

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Subject: Re: 8 years later

Posted by [Wayne Parham](#) on Fri, 20 Aug 2021 20:07:01 GMT

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I think you'll be OK on that one. Some changes in some speakers are more problematic than others. But in your case, the bass bin is already overdamped enough that slight shifts won't push the alignment into a peaky configuration. And the cabinet doesn't get any higher frequencies, so standing waves aren't an issue. This all makes me think that very small change in volume won't hurt you much if at all.

Carry on!

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Subject: A little progress...

Posted by [panduro](#) on Tue, 14 Sep 2021 20:22:44 GMT

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Thx Wayne, that wasn't the answer I was hoping for.

Been making sawdust when possible, this is current status... I've done most of the rough work on one speaker.

Attached a picture just for show.

Speaker baffle, vent, Bracing of bas enclosure, wiring, sanding still pending...

When I'm Done with that I'll build second speaker, external crossover cabinets with Speakon connectors.

Paint hasn't been decided yet.

I will be back when there's progress worth showing.

Panduro

## File Attachments

1) [Screenshot\\_20210914-222111.png](#), downloaded 1059 times

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Subject: Re: A little progress...

Posted by [Wayne Parham](#) on Wed, 15 Sep 2021 00:38:23 GMT

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Lookin' good!

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Subject: Re: 8 years later

Posted by [panduro](#) on Wed, 06 Oct 2021 16:09:06 GMT

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Hopefully I will have a bit of time making sawdust this weekend, plan is to build the second high horn cabinet, midhorn cabinet and hopefully vent's and bracing of a bottom.

But I'm unsure if the vent is supposed to be closer to the center of the room or closer to the sidewall of the room?

Bent

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Subject: Re: 8 years later

Posted by [Wayne Parham](#) on Wed, 06 Oct 2021 16:16:55 GMT

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There is no difference. Port can be on either side.

I tend to like mine setup with ports "outboard" - towards the side walls - but it really doesn't matter.

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Subject: Re: 8 years later

Posted by [panduro](#) on Wed, 26 Jan 2022 22:25:41 GMT

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I'm having a issue with my crossovers. Lows and highs outputs are playing, but nothing at all from mid. Midhorn makes sound if I Connect to low/high output. None of the drivers makes any sound at all if I Connect them to mid output.

Strangely enough it's the same with both crossovers.

What am I doing wrong? Can you guide me through finding the flaw? Shipping Price is insane so I would like avoiding sending them to you.

I have this version xover

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### File Attachments

1) [E9E3C4AC-E9BC-4AEE-9413-3E995920DABF.jpeg](#), downloaded 472 times

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Subject: Re: 8 years later

Posted by [Wayne Parham](#) on Wed, 26 Jan 2022 22:54:30 GMT

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It's definitely odd that both act the same way.

But regardless, let's just step through the troubleshooting procedure. Using an ohmmeter, measure across the following terminals and report back what you see:

1. Measure from IN- to 2- and find zero ohms.
  2. Measure from IN+ to 2+ and find 4.5 ohms.
  3. Measure from 2+ to 2- and find 8 ohms.
- 

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Subject: Re: 8 years later

Posted by [panduro](#) on Wed, 26 Jan 2022 23:06:23 GMT

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Thx, ill buy a ohmmeter tomorrow(its midnight now) and report back to you.  
Ben

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Subject: Re: 8 years later

Posted by [panduro](#) on Thu, 27 Jan 2022 12:08:03 GMT

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My measured ohm are

-in to -2 0.6ohm  
In+ +2 8.9 ohm  
+2 -2 8.8ohm

Those numbers are consistent on both boards.

Whats next?

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Subject: Re: 8 years later

Posted by [Wayne Parham](#) on Thu, 27 Jan 2022 15:22:36 GMT

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I hate to say it, but I may need to see those boards to troubleshoot them.

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Subject: Re: 8 years later

Posted by [panduro](#) on Thu, 27 Jan 2022 15:51:59 GMT

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Nothing I Can do, specific points to measure before sending back around the world ?

Ben

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Subject: Re: 8 years later

Posted by [Wayne Parham](#) on Thu, 27 Jan 2022 16:11:54 GMT

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I'll be honest, I expected to see IN+ to 2+ as open if there's no sound. The fact that it shows continuity makes me think you should hear the midhorn. But another thing that could kill output would be a short across C4. You might measure across that component and report back.

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Subject: Re: 8 years later

Posted by [OutOfSpace](#) on Thu, 27 Jan 2022 23:45:47 GMT

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Hey Ben,

Dumb question, but have you tried simply checking the wiring to the midhorns? My 'go-to' is a regular 1.5V battery. Pull the midhorn leads from the crossover and stick the wires on each end of a battery. It should make noise as you connect/disconnect. You can also check polarity by touching the cone.

The crossover electronics aren't all that complicated, so I expect you can resolve

this without shipping. It will just take some back and forth and maybe schematic reading verses physical layout training.

Chris

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Subject: Re: 8 years later  
Posted by [panduro](#) on Sun, 30 Jan 2022 15:54:55 GMT  
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Out of space, yes the midhorn driver and Wiring is fine, atm left speaker is running, low and high over the passive xover, midhorn wires directly to second Channel on amp and xovered through Minidsp shd.

Yeah would prob be a relatively simple job, but I'm completely clueless with crossovers, and I don't know what to look for especially since it looks like schematic of the xover is with a different layout than the pcb my crossover is made on.

I'll look into shipping during coming week.

Ben

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Subject: Re: 8 years later  
Posted by [Barryso](#) on Sun, 30 Jan 2022 22:42:23 GMT  
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Post some high resolution photos of the crossovers. Maybe one of us can spot something.

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Subject: Re: 8 years later  
Posted by [panduro](#) on Sat, 05 Feb 2022 21:45:15 GMT  
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Thx for the answers.

Hope following pics does the trick, if not let me know what part of pcs would help.

Suggestions on what to measure, what to do is most appreciated.

I'm looking for a "local" tech place, hopefully I Can find a good place within next week.

Ben

#### File Attachments

- 1) [4954E3DE-BCCB-43B3-97AB-9683A3577CA7.jpeg](#), downloaded 606 times
  - 2) [009AB81D-2108-439B-B396-17970AB45421.jpeg](#), downloaded 598 times
  - 3) [F785686C-D4D0-4AB1-8092-D0710C529D5F.jpeg](#), downloaded 534 times
  - 4) [E8C1F64E-9D47-4FE1-B116-12401ADD300C.jpeg](#), downloaded 578 times
- 

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Subject: Re: 8 years later

Posted by [Wayne Parham](#) on Sun, 06 Feb 2022 17:24:41 GMT

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I'm so sorry for this trouble! The problem is in the midrange circuit, which uses the components in the center of the board. Specifically, the ones to look at are L2, L3, C4 and R4(a-d) and R5(a-b). Could be a short across C4, but it's had to see in the photos. One way for C4 to get shorted is if something pushes down really hard on L3 causing its leads to come in contact with traces below it. The silicon adhesive is there to support the coil and prevent it from doing that, but it can happen. When that happens, it almost never happens on a fully cured and hardened silicon cushion - which is super-strong - but rather it usually happens while the adhesive is still curing and is still a semi-liquid gel.

For a test, measure across C4. Capacitor C4 is the 20uF part that sits right next to the red coil L4.

that's the case, I would carefully remove coil L3 - the one above the bank of R4 resistors - from the adhesive, leaving its electrical connection intact. If it has shorted into the circuit traces below it, then once you move it so it no longer touches the traces, the midrange circuit will begin to work. If this is the case, I would re-attach the coil with silicon adhesive, being careful not to let the leads touch the traces when positioning the coil. Then let it cure for a week or two without placing weight on it that would press it back onto the PCB traces below it.

When we assemble crossovers, the silicon adhesive curing time is the most lengthy part of the assembly process. It is built-up into a thick cushion which takes a long time to cure. Once cured, it is a very strong silicon rubber pad that can support the coil even if a lot of pressure or weight presses down on the coil. It is very durable. But if we don't allow enough time for the adhesive to cure - if we ship prematurely - then the silicon is still a semi-liquid gel inside. The silicon will film-over and appear to be cured, but it's still "squishy" inside. Weight placed upon it can shift it and sometimes - rarely but I've seen it happen - push the coil's leads down onto the traces below



it. So that's what I would look at first.

Again, so sorry this is happening! We test the crossovers before we ship them, and we wait a couple weeks to allow the silicon to cure. But sometimes we find coils that have shifted or lifted and it's always a result of the adhesive not fully curing so that impact loads during shipping make the heavy coils move.

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Subject: Re: 8 years later  
Posted by [panduro](#) on Mon, 07 Feb 2022 02:11:04 GMT  
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Measuring each lead (not on the pcb track) on C4 it says 12ohm. What should the rest say?

As Long as we get it fixed, its really not a big deal, Shit happens Wayne, win some loose some. I'm totally incapable at this stuff so I expect to resort to finding someone who Can do it for me without shipping it around the world to you.

Ben

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Subject: Re: 8 years later  
Posted by [Wayne Parham](#) on Mon, 07 Feb 2022 16:30:55 GMT  
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across C4 is exactly right. That tells me the coil didn't get pressed down onto the PCB traces, which is the most common culprit for symptoms like these.

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Subject: Re: 8 years later  
Posted by [panduro](#) on Mon, 07 Feb 2022 21:52:32 GMT  
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Hey Wayne, I don't in any way doubt that you are sorry that this has happened, I'm also pretty sure that if I asked that you would Pick up at least a part of the shipping cost so you could fix it. But because of the time aspect of shipping back and forth across the world I have chosen to let a local audio tech shop look at the xovers, it is in no way because I am not satisfied in my dealing and service from you.

Is there any info that Can help the tech shop in their quest of my audio satisfaction? I have just handed in the cross overs and schematics... Correct resistance, output voltage or something?

Best regards

Ben

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Subject: Re: 8 years later

Posted by [Wayne Parham](#) on Mon, 07 Feb 2022 22:44:09 GMT

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If you've given them a copy of the plans - with the schematic and PCB layout - they have everything they need.

Please give them my email address and/or direct them to this thread in case they have any other questions. But for an electrical technician, this kind of repair work is as easy as it gets.

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Subject: Re: 8 years later

Posted by [panduro](#) on Tue, 08 Feb 2022 01:13:28 GMT

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Everything is easy when you know what you are doing, just a fact of life lol. At the counter, he also replied that it would be very Strange if they couldn't fix it pretty fast and easy.

They have the 2 pages, pcb and schematic. I Will give them your email if they have further questions.

Ben

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Subject: Re: 8 years later

Posted by [Wayne Parham](#) on Tue, 08 Feb 2022 02:17:55 GMT

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Super groovy cool. Keep us posted. I'm curious to learn what happened.

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Subject: Re: 8 years later

Posted by [panduro](#) on Tue, 05 Apr 2022 22:24:04 GMT

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Been a while since I posted, life been hectic since my last post. Both good and bad, good would

be that I had a planned litter of 11 Broholmer puppies (Danish mastiffs) that has kept me very busy. Now Down to 2 puppies (and 4 adult dogs) so house is a lot more calm now.

Got my crossovers back from the tech long ago, and as he expected it was a simple fix. The black and white picture is the fixed crossover, and the picture with colors was before fix.

My pi7's is playing but is still awaiting finish, plan is satin black with turquoise midhorns.

My pups did however like the bass element of my right speaker a bit too much, they ate the dustcap of one 2225. When playing loud with heavy bass notes it does also make some scratching noises, so I guess I'm gonna upgrade to a 2226 soon.

My pi7 are in less than optimal environment, a damaged bas driver in one of the speakers, an acoustical nightmare of a room, 8 feet tall Windows surfaces everywhere(we Call it the aquarium).

Current gear is miniDSP SHD and an old Yamaha p2500 pro amp.

But the cornerhorns do make me listen to Music for hours and hours every day. Jazz, rock, metal, classical, pop, elektro, they do it all very Well. Its quickly clear if its a good recording or not.

I would call them neutral in sound, there's nothing that's missing in the sound picture, highs are good, and I don't think I would ever consider a super tweeter. Mids are clean and ermmm lush, bass is a little bit lean for my taste, but I don't feel like I'm missing much as all the notes are there, clean and well defined.

All in all, I'm extremely happy, they sound amazing in a shit room. I will make a longer review when they are fully finished and time permits.

So what's next other than finishing the speakers?

Actually using the miniDSP SHD for what its made for, so far I have only use it as a preamp and streamer, but DSP and Dirac live has been ignored.

So seeing what Dirac can do for my room and playing a bit with house curves. After that I Will build 3 inwall subs and see where that takes me.

Best regards and thanks so much for making the plan of these well developed speakers free to everybody, that's bloody amazing

Ben

## File Attachments

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- 1) [94663E98-B03C-45B6-BD43-EE79289535D9.png](#), downloaded 441 times
  - 2) [A7B38C54-018D-4F4F-AF11-154B69D0029E.jpeg](#), downloaded 451 times
  - 3) [B73B364C-9577-4069-8A62-9D08E833B554.jpeg](#), downloaded 360 times
- 

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Subject: Re: 8 years later

Posted by [Wayne Parham](#) on Tue, 05 Apr 2022 23:40:52 GMT

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So glad your technician was able to find the problem! I kind of thought it was that coil - Even though it is attached with silicon, it is the one most likely to shift and push a wire into a PCB trace. I don't see it as often in domestic shipments as I do international. And as much padding as I surround the crossovers with, sometimes they still take a hit I guess.

As for the dust cap, you might see if you can find a shop that recones drivers and can replace that dust cap. I know a shop here that will do it for next to nothing and the guy does great work. You can't even tell the dust cap has been replaced after he's done. That's not much help to you in Denmark, but if there's a shop there that can do it, it's well worth the time and money.

About bass, you're right that it's a little lean without subs. They're great at midbass and midrange but the deepest bass extension is best served with subs. Two subs at opposite corners setup as a Welti multisub configuration works great. You get deep bass extension and modal smoothing at the same time.

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