Subject: Futzing with vibration control
Posted by Barryso on Sun, 25 Oct 2020 21:12:16 GMT
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Another interesting tweak. Did something similar with the 2 pi towers a while back but now it's with the 4 pi's.

Used cheap rubber isolation feet under the subs and speakers. These are the feet that will prevent washers and dryers from walking around the floor and are available at hardware stores. They are somewhat like large vibrapods but tend to only cost a dollar or two each.

The living room has a suspended wood floor with some parts of it being worse than others. Long story, just know that the floor is the biggest sonic issue in the room.

Added a set of these rubber footers to a sub and listened. The footers removed some interaction with the floor, some sort of smearing, and made a very nice improvement. Added footers to another sub and it got even better so it continued until all three subs were isolated. Even the subs that are on the "good" part of the floor sound a lot better.

The 4 pi's are also on the floor and have felt on their feet for some modest vibration control. More rubber footers were ordered. The results were pretty similar to what happened with the subs, it cleaned up bass smearing and resonances.

It is not a subtle improvement. There's more clarity, cleaner tone and a whole lot of wow moments.

It changed things enough that some mediocre recordings are now sounding pretty good. That floored me as they just seemed to be bad recordings rather than something going on with the system. Who knew? Good recordings are better than ever.

If you have a wood floor it's worth a try. In my room it's equal to, or greater than, a big ticket gear upgrade.

Subject: Re: Futzing with vibration control
Posted by Wayne Parham on Mon, 26 Oct 2020 17:21:31 GMT
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You know, Barry, I've always found the same to be true. I prefer isolation to coupling for loudspeakers.

Carpeted floors are what I'm most familiar with, since all of the houses I've ever lived it were carpeted. In that case, the carpeting and pad provide isolation. But I've also had a bunch of installations at customer sites - both home and commercial - on hardwood, tiled or concrete floors. In every case, I prefer to isolate the speaker with rubber or fabric (carpet) padding.

I know there are a ton of people that prefer "spikes" or other mechanisms to couple the speaker to the floor. But I've always had better success decoupling them, isolating the speaker cabinet from the floor.

Subject: Re: Futzing with vibration control
Posted by Barryso on Fri, 13 Nov 2020 18:24:09 GMT
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Isolating the speakers and subs from the floor has been a great improvement. Decided to try an amp that hadn't been in the system for a while

It's been interesting. The class d amp, which usually is hooked to the front flanking subs, puts out between 100 and 150 watts. Hooked it up to the 4 pi's and it's not sterile sounding but it's also not what you'd call a delicate sound. Yet it's got a firm grip on the 2226's and produces a heft and weight to the bass that's impressive.

The drum solo in Dave Brubeck Quartet's Take 5 is spot on. The rest of the quartet sounds reasonable but the drums are just outstanding. It's what a real drum kit sounds like. It's rare to hear that kind of dynamic drive from a stereo.

Going back to the 8 watt single ended Amp Camp Amp returns much delicacy and beauty to the sound and deepens the sound stage considerably. A far prettier presentation and a much more livable presentation for long term listening enjoyment. Yet the woofers are no longer in a vice like grip.

Take 5 is prettier and more palpable on the small amp yet when the drum solo starts it doesn't have the driving force it had with the other amp.

So ...

The class d has a big damping factor and the single ended amp is as low (or lower) than some tube amps. Is this difference mostly driven by the shear power difference in the two amps or is it likely the difference in the damping factor? Or both?

Subject: Re: Futzing with vibration control
Posted by Wayne Parham on Fri, 13 Nov 2020 22:36:46 GMT
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It's an interesting observation, isn't it Barry?

You know, in the 1980s and 1990s, I used only solid-state amps. I was quality conscious, so I

used good equipment but none of it was tube gear. So I was familiar with these speakers on amps that could deliver 100 watts easily. Some of my gear went as high as several thousand watts - and the speakers could handle it - but it was silly power for home hifi or even home theater. It literally damages the house. Drywall shakes loose, exposing the fasteners and built-in cabinetry becomes loose too. It's just nuts.

Still, a good 100 watt amplifier sounds great on these speakers. It's more than enough, so dynamic range is great. And as you said, the woofers really "wake up" when you give 'em a little juice.

Now you're seeing something about the 2226 that we've talked about, but not lately. You may remember a few discussions that we've had over the years. The 2226 actually changes its electro-mechanical characteristics when it's used at power levels over a few watts. All speakers do this, but the 2226 is noticeably so. It was made to be used at several hundred watts, after all.

So it's not just the damping factor here. In fact, in this case, it's mostly not the damping factor but the electro-mechanical parameter shift. The loudspeaker system was designed with this in mind, and it uses an alignment that prevents the thermal shift from going into an underdamped condition at extended full-power periods. It is slightly overdamped at moderate power levels, and a little more overdamped at low power levels. It doesn't shift far enough to be underdamped even at full power, so you can throw hundreds of watts at it and it won't get a peaky underdamped curve. But it is much more overdamped under a watt than it is over a watt.

This is one of the handful of reasons why flanking subs are so nice for these speakers. Even with moderate to high power levels, flanking subs provide extension and baffle step correction and mitigation of SBIR and higher-frequency room modes. But when low-power tube amps are used, it is even more helpful because we're not just facing baffle step but also the overdamped alignment.

Anyway, all that to say I can understand your impressions here. I'm really familiar with these speakers at higher-power levels and the effortless impact and punch they give. You don't ever get there on just a watt or even ten watts. They're much more polite with SET power. Hit 'em with fifty or a hundred watts though and they show their other side. They remind you of all the best and most powerful concerts you ever heard. I kinda like to give the knob a twist every so often to get 'em back there. :)

Subject: Re: Futzing with vibration control
Posted by johnnycamp5 on Sat, 14 Nov 2020 20:35:38 GMT
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I agree with Barry on the ACA's being awfully polite sounding. The most joy I got out of them was building them lol.
To my ears, and in my system, they just have no guts down low, and even into the mid-range.
I used a pair as mono-blocks (16 watts each -8 Ohm) for a good while but to very little satisfaction.

I'm not sure its strictly a single ended or low power thing. Ive got an ANK kit-1 (300b tubes) that's

only 8 watts per channel.....
and it thumps pretty good comparatively, more than the ACA's did,
but as you say not compared to a class d (Crown amp).

I also agree with wayne, it doesn't much matter with flanking subs in the system.
I've used flanking subs with my 4pi's and even now with my 7pi's.
In the later case they are strictly for deeper extension in the bottom octave or two (20-40, 40-80 Hz.)

Last night we enjoyed "Jurassic World fallen kingdom"..... I was reminded of the theater like sound and dynamics of a high sensitivity system like this...
it never fails to bring a smile.

Subject: Re: Futzing with vibration control
Posted by Barryso on Mon, 16 Nov 2020 23:24:20 GMT
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Johnnycamp, haven't seen anything about your 7's lately. Did you get the doghouses done? Are you still running the Oddwatt amps?

Wayne, I have to apologize, we've been through this problem before but it's been a few years and it completely slipped my mind. It's likely the small amplifiers low input impedance isn't doing well with the front sub crossover and cables.

Did some experiments. When the amp camp amp is driven by just the preamp it sounds OK. It doesn't have as much bass as the class d amp but the bass sounds detailed and pretty quick. Add the y connector and cables for the flanking sub crossover and the sound shifts and loses some clarity. Turn on the crossover and the sound really shifts - bass and mids lose detail. It doesn't sound horrible, but it gets way too polite.

Goosed the volume control with the crossover on just to see if it was just a volume related issue. But the sound was still polite.

A solid state preamp seems to lessen the effect a bit but it's still there. So the flanking subs are off for now and I'll start borrowing amps until I find something suitable that gets along with the crossover.

Evidently there was so much bass smearing before using the rubber isolators under the speakers that it likely just masked the issue. Or over time I'd gotten used to the sound.

Back to the 2226's. I understand the low volume characteristics of the 2226's and how they change as the volume gets louder. You've mentioned it a number of times and it's a unique enough characteristic that it's easy to remember. Turn up the volume and the alignment shifts.

But is there any difference between a powerful amp and a less powerful amp at normal listening levels? If you've got jazz going at about 90db (which is actually kind of loud) you're likely averaging something like 1/4 watt.

A 10 watt amp would still have about 17 or 18db of headroom available. What would a more powerful amp do in that situation that the little amp could not?

Squonk at full tilt? Yeah, that's going to need some juice...

Subject: Re: Futzing with vibration control
Posted by Wayne Parham on Tue, 17 Nov 2020 17:25:57 GMT
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There are definitely differences between amps, and one of the things to watch for is low-level behavior. Amps that are designed to run higher-power levels sometimes aren't as clean at very low power levels. That's what the headphone amp guys watch out for in their amps. Tube amp guys often do too.

Some artifacts aren't as noticeable at higher levels as they are at low levels, because the anomaly is proportionally lower at higher power levels. An example is crossover distortion, and by "crossover" here I don't mean the filters used to distribute various frequency bands to appropriate subsystems, but rather the circuit behavior as the input signal waveform passes from positive to negative and back again.

The zero-crossing region is a potential place for error, because active device characteristics shift as the signal level goes lower than their turn-on bias level. They go from linearly conducting with an output signal that's proportional to the input signal to simply shutting off. This effectively loses the lowest level signal, that which is below the turn-on bias level. That's why push-pull amps are never purely (Class B) push-pull when used for audio - each section is biased so it stays conductive through the zero crossing line, which is called class AB.

As for the line splitter for your subs, I've seen this before. Pretty often, actually, and if we've discussed it before forgive me for talking about it again now.

You're definitely right that the output impedance of the preamp or source - whatever is driving the line being split - has an influence on the signal when the load is shifted. If the output impedance is really low and the drive level strong, then the load can be shifted pretty drastically without much effect. But if the output impedance isn't all that low, then the drive signal isn't strong and the load can swamp it. Sometimes a higher load (from splitting or whatever else) just causes a drop in amplitude but sometimes it even changes the response. If the load or the source aren't purely resistive, then a changing load will alter the response.

And resistive attenuators can cause fits too. Most have an input and an output, with the input being across a fixed resistance and the output being across the potentiometer wiper and a common lead. If the resistive attenuator is connected backwards, then the source output has a changing load which is dependent on the position of the attenuator. If the attenuator is set for high attenuation, then the source is pretty much shorted. So if a preamp output is split, and a passive attenuator is placed on the mains line - to match SPL with the subs, for example - then there is a possibility of this occurring. If the attenuator is installed backwards, it will give the

source equipment an increasingly excessive load as attenuation is increased. It will be very difficult to get the levels matched and often times sounds will just plain sound weird.

Subject: Re: Futzing with vibration control
Posted by johnnycamp5 on Wed, 18 Nov 2020 12:15:03 GMT
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Hi Barry, yes, I did build the proper bass bins for the 7pi's.

For amps, I often switch back and forth from the Oddwatt mono blocks to an ANK 300b stereo amp, and even to my Crown amps sometimes....I like to futz around :p
Actually, I do the same between the doghouse bass bins and the front firing corner wedges under the 7's
In this case I can really hear no difference in overall sound presentation.....certainly not like swapping amps.

Im still working on the floor to ceiling line arrays, they are definitely a bit more involved than building a bass enclosure.

Ive also thrown a new DIY preamp in the mix that I'm quite pleased with.

Always something going on lol.

Subject: Re: Futzing with vibration control
Posted by Barryso on Mon, 30 Nov 2020 16:02:22 GMT
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Hi Johnnycamp,

Curious about the preamp. What did you build?

Glad you got the doghouses finished and am somewhat surprised there isn't more of a sonic change. Looking forward to hearing about the line arrays. There have been a number of line arrays at the Texas show over the years and they tend to be very enjoyable.

The single amp camp is an odd critter. By itself it's rather clean and clear sounding. No, it doesn't have the low end grunt of some other amps but the clear mids and 2nd harmonic magic are rather interesting and pleasant. I've not heard the amp run as monoblocks.

When the crossover got added to the mix the amp camp got really polite. Very, very laid back. It's pretty but not what I want most of the time. Nice for late night listening, though.

The class d amp has a lot more bass but less depth in the sound stage and no 2nd harmonic magic. Needs a tube preamp to shine but it sounds nice with the tubes.

Which amp sounds right? It's a question that's beyond my pay scale ...

Subject: Re: Futzing with vibration control
Posted by Barryso on Mon, 30 Nov 2020 16:07:06 GMT
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Hi Wayne,

Thanks for yet another detailed explanation.

What I was trying to get at in the last post, but doing a rather poor job of describing it, was sort of a theoretical comparison of two amps that were equivalent except in power output. Sure, realistically, no two amps sound exactly the same but would the bigger amp have any advantage when the extra power wasn't being used? Common sense would suggest it wouldn't but this is audio. Weird things happen.

Liked the explanation of crossover distortion in amps. Dr. Geddes went on about how sensitive our ears are to the crossover distortion in amps at the 1st Tulsa show ... it was the first time I'd ever been introduced to the concept. It also made some sense of the bruhaha that surrounds many SET amp since they don't (can't) suffer from it. Light bulb moment for me.

Your explanation of how it becomes a problem at lower volumes was also a light bulb moment. Never thought about how it can rear it's head as the volume goes down. It explains a lot.

As for the sub crossover weirdness, I was leaning towards the low input impedance of the amp (10k) as the issue but after more futzing around your call on the preamp seems right.

The solid state preamp is actually a headphone amp and has low output impedance and can drive the snot out of most headphones. It seems to suffer less than the tube preamps when driving the amp and the crossover. Still audible but not as much.

Thing is, I like the two tube preamps more than the solid state pre. Of course. So for now it's a tube pre with the rear sub and no front subs.

But there are still some experiments to try. It's a long pandemic and you have to do something ... expect things to change at any moment.

Subject: Re: Futzing with vibration control

Posted by johnnycamp5 on Sun, 06 Dec 2020 15:07:20 GMT
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Hi Barry.

The preamp I built is an VTA sp-14.

I'm surprised at the lack of sonic difference between the bass bins too.
Probably one of the reasons (aside from being an audio maniac!) I've swapped them back and forth so many times!
I suppose my ears just aren't that sensitive to the changes.

Honestly, almost a suddel, was going from the 4pi's to the 7's. I did have the 4's positioned in the corners as well. Overall they are extremely similar that way to my ears.
When really rocking out loudly the 7's do seem to have a clearer midrange though. Again all just my ears...

Subject: Re: Futzing with vibration control
Posted by Barryso on Sat, 12 Dec 2020 14:52:04 GMT
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Hi Johnnycamp,

Googled the preamp and found it's homepage and some photos. It's a nice looking piece. Seems to have hundreds of build options, too. Do you like it's sound?

My experiences with the 3, 4 and 7 pi's are different from yours. I've only heard the 7's at the Texas show where Wayne features a different pi model each year. So no direct, side by side comparisons with the 3 or 4's.

In the years he shows the 3 or 4 pi's it's with 2 flanking subs in the front. It's really helps tame the room modes in the cement hotel room.

The 7 pi's were in a much larger suite and the two subs were used in the rear because the 7's don't need flanking subs. So the speaker, room, sub setup were different and as I recall there was an amp from Found Music in the mix that year. That's a lot of differences. The midrange was very smooth and present and the kick drum was uncanny. It's what a kick drum sounds like at a concert and getting it right is very hard to do, especially in a cement hotel room.

There was also a live dvd of Yes played in the pi room that year. The members of the band are starting to get up there in age but man could they play the snot out of their music. Nothing worse than seeing a band that can't do justice to their own legacy but this was NOT one of those cases. They kicked ass. I sat there through most of it in spite of the other rooms having more goodies to discover.

Subject: Re: Futzing with vibration control
Posted by johnnycamp5 on Sun, 13 Dec 2020 00:41:16 GMT
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Hi Barry.

I do like the sound of this preamp, it seems to get better with use. I know its controversial to say....but I swear its broken in some. Ive had the break in effect with most of my new diy gear, some more than others...

As far as the speaker comparison, I don't think your view is all that much different than mine.
With the 7pi corner horns, the kick drum DOES sound more realistic than the 4 pi's.
To my ears in my room, the 4pi's with flanking subs are not way off...second closest to a live sound or "band in the room" to the 7pi's.
I'm guessing the corner horns have the 4pi's beat in the 200-2000 Hz range.

Have you ever heard the difference between a kick drum low passed at 150-200 Hz. vs. 1000-1200Hz?
I'll tell you that the degree of realism and PUNCH from the 1000Hz sample is massive compared to the other.
To my ears, mid range clarity and accuracy have a huge impact on the realism of a recorded event, it sounds more "live".
I don't doubt the mid horn is better at that.

As far as the subs, my room may have a lot to do with it.
The entire ceiling is an 8" thick x 14.5' wide x 28' long bass trap. Ive had the subs distant and it makes absolutely no difference.
Walking around the room with test tones (or music), there are no discernible nulls or modes that can be heard. The room is generally flat no matter where the subs are located.
I put them front and center for practical reasons,
and for the use of low frequency extension alone. They just happen to be flanking the corner horns (towards the inside not outside) Also they are in an alcove so the front baffles are flush with the front wall.
Ill try to post a pic.

When I had the system upstairs (exact same dimensions but no bass trapping) it was a totally different story, and the distant (and flanking) subs made all the difference. Really evened out the bass response in the room.
To my ears the flanking subs still helped the most. But then the distant subs helped really even it out the rest of the way.

Subject: Re: Futzing with vibration control

Posted by johnnycamp5 on Mon, 14 Dec 2020 21:00:20 GMT
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I had mentioned posting some pictures showing the subs front baffle flush with the front wall.
When my system was upstairs these four subs were spread around the room, with two of them flanking my four pi's.
The last pic show the ultra touch (cotton) insulation in the ceiling.
The dimensions of this room are14-1/2 feet wide x 28 feet long x 9 feet high.

File Attachments
1) EFE624D3-4700-433F-8BC2-003BA899A9E8.jpeg, downloaded 204 times
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Subject: Re: Futzing with vibration control
Posted by Barryso on Sun, 20 Dec 2020 12:37:08 GMT
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Your room sound like it's great. In the 4 rooms (in 4 different houses) we've tried multiple/flanking subs it's improved the sound each time. I'd begun to believe it would work in every room. Obviously that's wrong.

Maybe your room is why the front firing bass bins and the 7 pi doghouses sound similar. It's my only guess, and it's only a guess.

Nice equipment rack. ANK amp on top, a couple of Oddwatt monoblocks to the side, your new VTA preamp in the middle and two crowns on the bottom. The only one that's hard to figure out is the box on top of the Crowns. And no idea what drivers are in the subs.

A lot of audio gear breaks in, some more than others. And it's not just your ears getting used to it as I've listened to fresh gear, left it running and wandered back after several days to hear the shift.

Capacitors are the weirdest of the lot. Some sound about as good as they ever will in less than an hour, some require 100 or more hours to settle, and some go back and forth between good and dreadful for days at a time. The ones that shift around are the biggest pain because you're wondering the whole time if you made a big mistake getting that piece of gear. Even more reason

to set it up, turn it on, then walk away for 4 or 5 days. Hope your new preamp continues to excel and sound better.

Subject: Re: Futzing with vibration control
Posted by Wayne Parham on Sun, 20 Dec 2020 18:36:34 GMT
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I think John was saying that four Pi mains with flanking subs were close to seven Pi's, but that he preferred the cornerhorns. That squares with my experiences too.

Where I can use constant directivity cornerhorns, I do. They don't need flanking subs. They sound better with subs, but they can be put elsewhere in the room. There is no need for SBIR mitigation from flanking 'cause there is no SBIR.

But when the mains are spaced a few feet from the wall, the flanking subs definitely help the massive SBIR that results. They can fill in that 15dB low-midrange hole and make it about half as deep. So it becomes almost inaudible at that point.

Still, constant directivity cornerhorns do better that making SBIR "almost inaudible" - they make it non-existent.

Subject: Re: Futzing with vibration control
Posted by johnnycamp5 on Sun, 20 Dec 2020 19:06:23 GMT
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Yeah.... what Wayne said.

The silver component on top of the Crown amps is the DAC,
and the thin, low profile black box on top of that is the 4K player.

I use a cheap, little Optical Audio Cable switch box (3 source) selector,
to choose from either the TV or the 4K player.....to feed the DAC.

This way I can use the sound system for any purpose- steaming, 4K Blu-ray,
or live broadcast cable, which I'm about to 86...

Subject: Re: Futzing with vibration control
Posted by Barryso on Mon, 28 Dec 2020 13:23:00 GMT
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Hi Wayne,

I think we're both on the same page. If I didn't express it quite right in the previous posts it's likely just from being an early morning. Not enough caffeine yet.

Johnnycamp,

Keep doing what your doing. It looks great and must sound great, too.

:)

Subject: Re: Futzing with vibration control
Posted by Wayne Parham on Mon, 28 Dec 2020 15:43:45 GMT
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:p I stay caffeined up and since I work from home, I drive Kelly crazy. LOL!