Subject: 7 Pi treble edge!
Posted by PaulW on Tue, 02 Jun 2009 00:13:54 GMT
View Forum Message <> Reply to Message

Having built the 7's and enjoyed the results enormously but (there's always a 'but' isn't there?) for one issue, those in room bass modes causing poor, indistinct and boomy bass at certain frequencies. I tried Wayne's multi-sub approach by borrowing a few subs (3) to go with mine and I have to say it was very good. However, I really couldn't stand the extra cable runs and number of cabinets, plus the owners wanted their sub's back. So I then went down the passive route with a box resonator, followed by foam traps in all the corners against the ceiling. Then added one behind each mid unit, sitting on top of the bass cabs. The result was very good, delivering fast, articulate, integrated and musical bass, unfortunately (yes, another one of those 'buts'!) over the last few weeks I become more dissatisfied with the treble performance. This is mostly seems to show up in the upper vocal region, alto sax and plucked strings (though not on bowed violins strangely).

So, the question is, is this a room reflection problem that has been unmasked by the eradication of the previous bass issue? The room is small for these speakers at just under 200 square foot. I'm seated about (head position) 11 feet from the front of the speakers & their corner placement gives them a crossover point about 3 feet in front of me. The surfaces in the room which do not have anything to break-up/absorb treble are the ceiling and wall between the speakers. It's always difficult to describe the quality of a sound, but words like edgy, hard, beaming and resonant all seem to apply here.

Now I did mention this in an earlier post, where I stated that as the bass was improved, the treble seemed to worsen and pointed the finger at the B&C DE250, but as Wayne considers this to be

"..... one of the smoothest compression drivers I've ever heard or measured. For that matter, it's one of the smoothest tweeters of any type I've measured. It doesn't reach beyond 18kHz, but up

my opinion...."

I feel I either have to look at the room or perhaps some of the amplification, which is all basic Bottlehead stuff (Seduction, Foreplay and Paramours) but this is also not know for treble problems, based on what I've read on their forum, usually the opposite. Front end? Well I mostly listen to LP's and the turntable is set-up correctly and the cartridge used is a newish Denon DL304 which is considered very 'sweet' in the treble region, so I feel I'm back to looking at the room!

Any thoughts would be most welcome.

PaulW

Subject: Re: 7 Pi treble edge!
Posted by Wayne Parham on Tue, 02 Jun 2009 05:27:50 GMT

I think multisub is the way to go, in spite of the extra complexity. If you're looking for the best bass, the multisub approach is the way to get it.

Beyond that, there may be some issues in the upper modal range, which is actually fairly low in frequency. If voices sound kind of throaty or peaky, that's the upper modal range. It's hard to say from just a description, but from what you say about your sound sources and where they are located, I think that may be a possibility.

If it is higher, in the overtone region, it may be excessive reflections in the midrange or treble. Again, it's hard to say from a description, but in a small room, I'd look at those things. Small rooms can sound like echo chambers, sort of like singing in the shower. You might want to try hanging some thick material a few inches from the wall to see what extra acoustic damping at MF and HF would do. If it helps, it might be worth it to install acoustic wedges on the walls.

I have used a half dozen DE250 drivers and they all sounded smooth to me, right out of the box. However, I have noticed that some got beaten up pretty badly in transit. I've seen chips of magnet material in the bags they come in. They're not protected very well from damage, in my opinion. I suppose it might be possible that a driver could be damaged. Doubtful that you wouldn't have noticed it before now though.

Check your tubes too. I recently noticed that one channel of my amp was sounding not quite right, so today I got into the amp and found a cathode resistor was hot enough to melt solder. It would act intermittently like it was in and out of the circuit. Two are in parallel, so when one disconnects, the cathode voltage rises. The grid voltage was high, so there was excessive quiescent current flowing through the cathode to anode.

I've seen this before with bad coupling caps, so my first thought was it happened again. I lifted the input coupling cap and measured voltage on the grid. To my surprise, the voltage stayed high. It actually was normal from a cold start through several minutes of warm up. But then the tube started acting like it was in thermal runaway. I know that's not tube terminology, but that's what was happening. As the tube warmed up, it mysteriously biased itself on harder and harder.

No problem, I have several tubes in stock. Put a new one in and it was golden. I had made the problem harder than it had to be, going through all that before swapping tubes. But it was getting hot enough to melt solder, so I needed to flow some clean solder in anyway.

The point of all this - sorry for the long winded chatter - is that the amplifier sounded a little grungy, and had been for several days. It creeps in slowly, so you don't notice it at first. Seems like something else is wrong, bad source, bad speakers maybe. But in fact, it was a bad tube. Not totally, it still played music. Sort of a sleeper problem.

So don't stop looking. Swap things around until you're sure you've found it. I've never heard a DE250 on the H290 or my wood horn sound any way other than very smooth. The measurements say so too. But that doesn't necessarily mean this is always true, surely there are some lemons out there. Same thing for the midhorn with the Delta 10. It sounds silky smooth to me. But get one with a rubbing voice coil and it would sound terrible. Or if the room is too lively or the amplifier getting a little old, you just never know what is causing your harshness until you find it,

then hindsight is 20/20.

Subject: Re: 7 Pi treble edge!
Posted by PaulW on Thu, 04 Jun 2009 08:40:39 GMT
View Forum Message <> Reply to Message

Well I did check the valves (tubes) both on a tester & by substitution and they are all fine. I also just put music through the DE250 in isolation as I can unplug each element of the crossover and it sounded fine, with no distress at all (though I'm only using a 2A3 amp so didn't run it too hot). You mentioned the poor packing before and I popped out the diaphragms for a look-see then, there was no damage/debris. The only thing I'm now a bit concerned about is that all the pictures I've seen of the DE250 show it with some kind of colour coded screw terminals - mine have push fit spade terminals. In all other respect they look identical and they were sourced from a reputable dealer - perhaps I'll ask the UK distributor.

So I'm once again coming down to the room needing a little work. I have some wall panel acoustic foam tiles and some wall hung rugs. So over the next few weeks I'll try putting together some ceiling treatment as the only 'blank' reflective area left. Probably acoustic foam (wedge) tiles mounted on a lightweight panel and suspended on chains so the gap between panel, ceiling and its angle can be varied thank goodness I have a dedicated listening room.

Also, I should add that the 7's are still the best sounding speakers I've owned and quite a few other people have been very impressed with them. I do tend to find ALL new speakers I've listened to (in the last 20 years) too bright or hard in the treble region, so there is of course the element that is 'me' to consider perhaps I just like old speakers with recessed treble!

One day I'd really like to hear them in a large room as I suspect that it's this element that is really holding them back.

Subject: Acoustic wedges
Posted by Wayne Parham on Thu, 04 Jun 2009 15:36:45 GMT
View Forum Message <> Reply to Message

I think the acoustic wedges will really work out nicely for you. You can put them on the side walls and behind, the walls adjacent to the installed corners. That will help decrease early reflections and soften the room.

Most times, the opposite wall is allowed to be reflective, although sometimes diffused. That reduces early reflections but leaves some late reflections for spaciousness.

In a very small room, however, everything is an early reflection, and high amplitude too, so it may make sense to add some wedges to the opposite wall as well. Diffusion doesn't really work either,

if the room is too small, because the reflections are too loud and early. It just makes the sound field a jumbled mess. So in the case of a small, live room, I think the generous application of acoustic wedges probably makes the most sense.

Sound Absorbent Foam (wedges, pyramids and corners)

Subject: Re: 7 Pi treble edge!
Posted by PaulW on Thu, 04 Jun 2009 23:09:56 GMT
View Forum Message <> Reply to Message

Here's a quick look round the room - Should have tidied up!
Front with small bass traps in top corners and behind mid horn. I was going to get a taller pair as these worked really well.

To the right, with rugs and foam damping panel

To the Rear, with foam cubes in top corners and rear panel.

From your earlier response I should get the bookcase out from behind my seat?
And to the left with large glass sliding door and window

I have some wedge foam tiles which I was going to make two 45 inch, square panels for the ceiling.

Subject: Re: 7 Pi treble edge!
Posted by Wayne Parham on Fri, 05 Jun 2009 01:27:37 GMT
View Forum Message <> Reply to Message

A very busy room, makes me feel right at home!

office/workroom and it's a lot like yours. I probably should get some foam wedges too. My room doesn't sound too bright, but I'll bet anything it would be improved with absorbent wedges on the walls adjacent to the corners where the speakers are.

If you can, try first lining the walls beside and behind the speakers. Make those as dead as possible first. Line the whole front wall, if possible, the one you're facing when you listen to the speakers.

The curtains help the left speaker, but since you say it's bright, it probably would sound better if you covered the right wall with something. The decorative cloth I see hanging near the right speaker won't do much of anything in terms of absorption.

If you want to do a test run of these ideas first, hang a few thick blankets. Space them out away from the wall a few inches. This spacing is important - it sort of catches the sound. It puts the

absorbent material where it can do the most good. For starters, I'd cover the whole front wall this way, from the ceiling to the floor, wall to wall. I'd also hang a curtain on the right wall. Start there.

You can use the same method to try absorbent material on other boundaries. Since your room is small, the rear walls may be slapping you with a nasty early reflection. Might hang a blanket out a foot or so from that wall, wherever is convenient, just to see how it sounds.

These kinds of sound checks will let you know where you want wedges without having to buy them first. Once you know where you want absorbent material, you can decide how to arrange your room, your equipment, media, furniture and decorations.

Might be cool to put the equipment in the recess on the rear wall, and hang a curtain as a partition. This might double as an absorber and decoration. There are a lot of cool things you can do that will keep the treatments from being too intrusive.

Subject: Re: 7 Pi treble edge!
Posted by PaulW on Fri, 05 Jun 2009 12:44:58 GMT
View Forum Message <> Reply to Message

Hi Wayne,

the 'front' wall is my projector screen, so I dont really want to tile that, though the plan was always for getting some screen material and mounting it on a frame with accoustic foam behind.

The "...decorative cloth..." to the right are small rugs and I'll have a go at getting some space behind them - again perhaps with foam.?

I'd like to keep my 'media' stored in the the alcove - there are a further two CD/DVD racks to one side you can't see, so don't really want al those in the room.

Perhaps I over emphasised the issue, which has just become more apparent with the introduction of the bass treatment and is only. Indeed I lined some foam tiles over the rear bookcase and was rewarded with an obvious improvement. I'm going to get a further two bass corner traps, so will add some tiles to the order as well.

Subject: Re: 7 Pi treble edge!
Posted by Russellc on Thu, 09 Jul 2009 18:29:21 GMT
View Forum Message <> Reply to Message

PaulW wrote on Mon, 01 June 2009 19:13Having built the 7's and enjoyed the results enormously but (there's always a 'but' isn't there?) for one issue, those in room bass modes causing poor, indistinct and boomy bass at certain frequencies. I tried Wayne's multi-sub approach by borrowing a few subs (3) to go with mine and I have to say it was very good. However, I really couldn't stand the extra cable runs and number of cabinets, plus the owners wanted their sub's back. So I then went down the passive route with a box resonator, followed by foam traps in all the corners

against the ceiling. Then added one behind each mid unit, sitting on top of the bass cabs. The result was very good, delivering fast, articulate, integrated and musical bass, unfortunately (yes, another one of those 'buts'!) over the last few weeks I become more dissatisfied with the treble performance. This is mostly seems to show up in the upper vocal region, alto sax and plucked strings (though not on bowed violins strangely).

So, the question is, is this a room reflection problem that has been unmasked by the eradication of the previous bass issue? The room is small for these speakers at just under 200 square foot. I'm seated about (head position) 11 feet from the front of the speakers & their corner placement gives them a crossover point about 3 feet in front of me. The surfaces in the room which do not have anything to break-up/absorb treble are the ceiling and wall between the speakers. It's always difficult to describe the quality of a sound, but words like edgy, hard, beaming and resonant all seem to apply here.

Now I did mention this in an earlier post, where I stated that as the bass was improved, the treble seemed to worsen and pointed the finger at the B&C DE250, but as Wayne considers this to be

"..... one of the smoothest compression drivers I've ever heard or measured. For that matter, it's one of the smoothest tweeters of any type I've measured. It doesn't reach beyond 18kHz, but up

my opinion...."

I feel I either have to look at the room or perhaps some of the amplification, which is all basic Bottlehead stuff (Seduction, Foreplay and Paramours) but this is also not know for treble problems, based on what I've read on their forum, usually the opposite. Front end? Well I mostly listen to LP's and the turntable is set-up correctly and the cartridge used is a newish Denon DL304 which is considered very 'sweet' in the treble region, so I feel I'm back to looking at the room!

Any thoughts would be most welcome.

PaulW

I will agree on the "Smoothest part" but disagree as to the right out of the box part. Right out of the box, mine sounded like a cutting torch was going through your head unless I used an L-pad to severly reduce the output.

After a few weeks of play, I noticed I was slowly turning them up, until I was basically at the same place I was when the Selenium 220 Ti was installed. The Selenium sounds dry and fuzzy in comparison. Its a great driver, you can read of mine and others exploits with it over on AK with the E'wave thread.

I'm using the B&C DE 250 on top of a JBL 4507 box tuned to either 34 hz or about 30 hz depending on mood. The 5 cu ft 4507 box is currently loaded with JBL 2235H, and have also tried a pair of 2225H as well.

The B&C DE250 sounds way more clear and revealing than the Selenium 220 ti. Not to take

anything away from this inexpensive driver, its amazing for the price, but the B&C DE 250 sounds a whole lot better, no small improvement. The selenium is very enjoyable in that project, the crossovers compensation is spot on. But with the B&C, another level is achieved. Clarity is much improved, truely an impressive driver, I would suggest run in time will cure your problem.

russellc

Subject: Re: 7 Pi treble edge!
Posted by PaulW on Thu, 09 Jul 2009 18:56:26 GMT
View Forum Message <> Reply to Message

Suspect this is not the issue as I've been running them for a year. Would also re-iterate that this is not that bigger deal as they do sound great and its perhaps more of a fine tuning issue. Someone even suggested that they sounded a bit 'dull' to them, so there is perhaps an element of my own liking for a very tame treble balance.

PaulW

Subject: Re: 7 Pi treble edge!
Posted by Matts on Thu, 09 Jul 2009 21:11:50 GMT
View Forum Message <> Reply to Message

What type of capacitors are you using in your amps? Stock or have you upgraded to boutique caps? I'm wondering, because the trebles you're describing can be affected by them- also, what about xovers?

Subject: Re: 7 Pi treble edge!
Posted by PaulW on Thu, 09 Jul 2009 22:56:28 GMT
View Forum Message <> Reply to Message

All as supplied as standard on the crossover, phonostage has some dubliners(?) which were supplied with the Seduction, Foreplay didn't build myself but look standard. As for the Paramours, just doubled up on the power supply caps and replaced one of the Panasonics - not at all technically minded, so don't even know what it does really. Also swapped out the standard choke for a higher value Hammond and re-used the old one on the mains transformer in place of the standard resistor (all suggested by PJ). How about a picture?

PaulW

Subject: Re: 7 Pi treble edge!

Posted by Matts on Fri, 10 Jul 2009 00:33:26 GMT
View Forum Message <> Reply to Message

While the stock caps supplied with the std Pi and Bottlehead stuff are fine, when you have very high quality drivers and/or finicky ears, then upgrading the caps can make quite a difference, especially in the trebles you're discussing. I suspect this is a large part of what you're trying to achieve. I noticed large difference in my Bottlehead stuff with better caps, and I'm using P4's with JBL woofer and B&C DE250. I also used Auricaps in my xovers, except for the big one, I used an Obligato film that sounds very good and was much cheaper. When I just replaced one small Auricap in the high-freq compensation part of the xover, the highs smoothed out (to my ears) quite a bit.
I have a soviet teflon as coupling cap in Seduction, with an Auricap output cap, and all Auricaps in the Foreplay and Paramours. Others like different caps better, but the Auricaps are a safe buy.
The Paramours also improve substantially with the better output xfmr, most notably in the quality of the bass. I think your speakers may be revealing some of the other limits in your gear and may not be all room issues. Most of these changes in the Bottlehead gear are quite ez to do and give a large bang for the buck. As with all this, it's subjective, but you're way up on the speaker food chain, and could upgrade some other parts to get all the benefits.

Subject: Re: 7 Pi treble edge!
Posted by PaulW on Fri, 10 Jul 2009 13:51:33 GMT
View Forum Message <> Reply to Message

Well MagneQuest transformers are going to have to wait until the exchange rate gets a bit better - but it will be done. I have to say, I usually steer clear of capacitor/resistor upgrades(?) as usually there are too many opinions of whats good/bad and the likely effects - life's too short to continually swap this stuff around fine tuning, I'd sooner spend my time listening. So Soniqs caps and Mills resistors are probably where it will start and end.

PaulW

Subject: Re: 7 Pi treble edge!
Posted by Matts on Fri, 10 Jul 2009 18:35:31 GMT
View Forum Message <> Reply to Message

yes, there are too many opinions, one for each person! And the only one that matters is your opinion of your system. If you're happy with what you hear in your room then nothing else matters.