
Subject: Cure for brightness

Posted by [notben](#) on Wed, 24 Nov 2010 19:05:20 GMT

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Hello gentlemen.

I have been living with a pair of 2pi monitor speakers that I built with birch ply for about six months now. Overall, they have at least a couple hundred hours or more on them.

I absolutely love their detail and resolution. The response is quick, the bass is clean, the midrange is extremely detailed with excellent definition in what I call the transition zones (around 250, 2k & 6K hz respectively). Overall I am very pleased. I especially love tube rolling with these speakers because I can instantly hear the dominant characteristics of different tubes. Very revealing for a monitor speaker.

However I still find them to be a tad bright and even a little fatiguing. Here is how I have tested the speakers to see if it is actually the speaker. I have tested them with two tube amps and two SS amp, two different tube preamps and one SS tuner. I have run them in three different rooms: my music room which is lightly treated with bass traps and some ceiling treatment (this is also my guitar room), my study (which is a very flat and dead room), and my living room (which is tolerable at best).

I have also cycled through different speaker cables -- mogami, anti-cable, tributaries; and different RCA's -- anti-cable, monster, radio shack.

The brightness follows the speaker.

So now I want to try a few things to see if I can find the culprit or maybe tame it a little bit.

1. I am thinking about trying a different cap on the tweeter. It currently has the 10uf Solen that shipped with it. I may try an Obbligato Gold Premium, a Mundorf Supreme (if I feel like spending \$90), or maybe a motor run if I can mount it in the speaker.

2. Could I have damaged one of the tweeters? I can't hear any difference between the two speakers. One of my preamps, a Bottlehead Foreplay, has separate volume controls and I can't hear any real difference between the two, but I don't want to rule out anything.

So, I could try a new or different set of tweeters.

3. The most drastic and time consuming thing would be to build some MDF cabinets to compare.

Any ideas or opinions of what I could try or test please share them. Thanks.

- Benton

Subject: Re: Cure for brightness

Posted by [steve f](#) on Wed, 24 Nov 2010 19:58:09 GMT

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Hi Benton,

My best guess is to try to pad the tweeter volume down slightly. Very slightly; you will be surprised what a difference a decibel or two makes. I see no advantage in changing caps as the type of cap is more important than the brand. Don't rebuild the cabinet.

Steve

Posted by [Wayne Parham](#) on Wed, 24 Nov 2010 20:25:28 GMT

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The tweeter is actually just a smidge lower than the woofer in this speaker. One can surely attenuate it more with padding, to voice the speaker for personal taste. But I think it is probably worthwhile to point out it is already shelved down from the woofer by a slight amount.

Subject: Re: Cure for brightness

Posted by [notben](#) on Wed, 24 Nov 2010 20:29:25 GMT

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steve f wrote on Wed, 24 November 2010 14:58

I see no advantage in changing caps as the type of cap is more important than the brand. Which is why I am thinking about those different caps, all of which are different types. Motor run being oil, Obbligato a gold and oil and the Mundorf a polypropylene and film.

Subject: Re: Cure for brightness

Posted by [Wayne Parham](#) on Wed, 24 Nov 2010 20:58:35 GMT

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Some oil-filled motor runs are pretty good, reasonably priced and tend to warm up the sound. I'd be interested to hear what you think of them. Be sure to get an oil-filled can, because there are other kinds of motor run caps these days, most of them using some kind of plastic dielectric. Some of them are pretty cheap and nasty. So when searching for oil-filled motor-run caps, don't just look for "motor run", also look for "oil" or "dielectric fluid".

I don't think you'll hear a difference with a Mundorf M-Series because it is basically the same as the stock cap. But the price isn't too bad either, about the same as the Solen that came with the kit. The Supreme and some of their other series are more expensive, and I'm not sure it makes sense to use in this speaker. Guess you could if you wanted to.

The Obbligato might sound different to you, but my guess is it will sound the same, or at least too close to call. It's like the Auricaps in price and, I suspect, in sonic character.

I've used Audio Note capacitors, Mundorf Supremes, Jantzen Superior caps and Auricaps and find each of them to be nice, but then again at those prices, you would expect them to be. I tend to reserve these higher-priced caps for the speakers with premium driver options. The JBL and AE drivers are pretty expensive, and justify using capacitors in the \$20 to \$200 range, at least in my mind. The speaker drivers cost several hundred bucks, so a hundred or two hundred dollars spent in the crossover parts is probably well-deserved. But to be honest, I can't see spending more on the passive components than the drivers cost.

That said, none of the capacitors you've mentioned cost more than the drivers, and I wouldn't wince at their price tags. I think that Obbligato is the most expensive of the three you've mentioned, at about \$25.00. The Mundorf MKP is about the same as the Solen, about \$7.50. Motor runs can be bought for just about any price, from less than ten bucks to who knows what. But none of these is really outrageously priced. Might be worthwhile to try them all, especially if you already have them on hand.

Subject: Re: Cure for brightness
Posted by [notben](#) on Wed, 24 Nov 2010 22:06:47 GMT
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Thank you Wayne. I think I am going to start with the motor run. I rarely hear of anyone hating them in crossovers, and for the money, it is one of the most economical places to start.

The trick will be deciding how to mount it, since the stock wiring is inside the box. I guess I could clamp it to the side of the speaker not insulated or maybe use some zip ties to keep it upright. I will report back.

Subject: Re: Cure for brightness
Posted by [Bill Epstein](#) on Thu, 25 Nov 2010 04:22:00 GMT
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Your complaint reminds me of the Piezo tweeter days. I'd look at the room.

The Vifa XT 25 tweeter is 2 dB less efficient than the Alpha 8 as Wayne said and, compared to other domes, is in the less-fatiguing/detailed camp. The Zaphaudio test called it "the smoothest and most extended response curve....".

<http://www.zaphaudio.com/tweetermishmash/>

Get some good room treatment advice at the Rives Forum; for instance, 1" thick stiff fiberglass

(Owens-Corning 604) panels offset from the wall 2" will attenuate frequencies from 1500 Hz up. Add drapes, try live-end, dead-end, move reflective surfaces like glass-covered paintings and mirrors, etc.

If you must re-cap, I'm a big fan of the copper Obligatos as well as old Aerovox motor runs in the oval cans. Use'm in all my stuff.

Subject: Re: Cure for brightness
Posted by [steve f](#) on Thu, 25 Nov 2010 10:15:34 GMT
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The fact that the speakers sound bright in any room you put them in is intriguing. I agree with Bill that room treatments bring significant changes. Motor run caps (oil filled) will make the tweeters sound a bit warmer. I wonder if anyone has measured them vs. film types in a PI 1 or 2. Please keep us updated.

Subject: Re: Cure for brightness
Posted by [AudioFred](#) on Thu, 25 Nov 2010 12:57:13 GMT
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The tweeter in my One Pi's sounded bright to my ears. Installing a one ohm resistor in the tweeter signal path solved the problem. It can be inserted before or after the cap.

Subject: Re: Cure for brightness
Posted by [GarlandB](#) on Thu, 25 Nov 2010 17:32:56 GMT
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Hi Benton and happy Thanksgiving to all,

Just a couple of ideas came to mind: You didn't mention your source? If your using digital gear then often a graininess can sneak through into the music from there. Many times we result to measures that depress or blurr the top octaves in a quest to tame "digititus". I have always had to deal with lesser quality CD source in my systems and only was able to really open up the upper frequencies by upgrading and modding my CD players. Now my somewhat tuned Cambridge Audio 640C vII {PS caps,Coupling caps, Opamps,etc) is nicely smooth but dynamic at the same time. This has allowed me to really hear what improvements in the following compnents actually sound like{ie. more musical}. See my post below on "more fun with caps". I really do agree with those who feel that there is a high freq. tizzieness with Solens and recommend film and foil caps over metalized film. Oil can sound good too. But if the signal coming from the source is distorted all you'll get more exposure of that from the clearer, truer performing caps.

Oops! I was going to write more but I have to get going on the Thanksgiving dinner!

So try better caps in your 2Pis but take a look at your sources too.

Garland

Subject: Re: Cure for brightness

Posted by [Matts](#) on Fri, 26 Nov 2010 00:36:48 GMT

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I just finished my turkey dinner- very good & lots to be thankful for. I agree with Garland that you might want to check your source- it might benefit from better caps or whatever more than the speakers. Many basic cdp's have the sound you describe. I use a Njoe Tjoeb with a lot of mods to it for cd's, and it sounds smooth, and I listen to vinyl a lot, all through 2A3's, so it's all very smoooooth. haha. Sometimes a good speaker just reveals things from on down the line. Still, whatever gets you to the total sound you enjoy is good. Happy Holidays to everyone!!

Subject: Re: Cure for brightness

Posted by [Adveser](#) on Fri, 26 Nov 2010 05:40:28 GMT

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My two cents: The resistor idea sounds like the most logical idea and actually directly addresses the problem expressed. Now I'm not entirely sure what this does to impedance, but it raises it. My Technics have a 10ohm Woofer and 8ohm mids and tweeters, and they are still rated at 8ohm. I don't see a big deal with going from 8 ohms to 9 on one driver.

I'd also like to add that this is a "company" supported sub-forum and I really don't like to chime in when the designers would have so much more detailed info and expertise than me, so anything I say should be taken with a grain of salt and is generalized.

Subject: Re: Cure for brightness

Posted by [AudioFred](#) on Fri, 26 Nov 2010 12:04:06 GMT

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Adveser wrote on Thu, 25 November 2010 23:40My two cents: The resistor idea sounds like the most logical idea and actually directly addresses the problem expressed.

It's also the least expensive solution, because a 10 watt resistor costs about \$1.25. Get a couple of one ohm resistors and a couple of 1.5 ohms and try both.

Subject: Re: Cure for brightness

Posted by [notben](#) on Fri, 26 Nov 2010 17:08:29 GMT

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Thanks everyone for the discussion. Just want to reiterate how wonderful I think the speakers perform.

My sources are the following: AR XA turntable with Jico SAS stylus on a M91ed cartridge, several Sony' cd players from the 80's and 90's, ipod, iphone, air tunes etc. and I also have a small home recording studio and I use Apogee DAC's and ADC's, which are some of the industry's best.

One of the reasons I am most suspicious of the Solen caps is that I have tried them before. I have recapped some other speakers with them and gave them hundreds and hundreds of hours. One pair of Sansui SP1700's that sound pretty darn good, I eventually changed one of them back to electrolytics (new of course) and compared them directly to the Solen, and Dayton I might add, for months and ended up taking the Solens out for the tweeters and 4" mid drivers and used the electrolytics.

I still think I am going to just try a pair of motor runs first before altering anything else.

By the way, one of my favorite new pressings to compare left and right channels is the new Beatles Mono Box Set. Since you are getting the exact same mix in left and right, you can get an excellent comparison of sonics and performance between channels.

Subject: UPDATED Re: Cure for brightness
Posted by [notben](#) on Sat, 22 Jan 2011 21:02:49 GMT
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UPDATE WITH CURE

I cured my problem of high end harshness. I also had a couple of other audio nuts come over to listen and see if they heard it too.

An oil filled motor run cap was exactly what was needed.

When I was trying caps I would try just a single different one in a single cabinet, put on something from my Beatles Mono box set and listen back and forth for any change.

I heard a distinct change when I put in the oil filled motor run. I then installed the other and I could definitely hear a difference.

I have now lived with it for almost two months and I am so happy. All the detail is there with none of the ear fatigue. My friends who came over again to listen to the change were adamant that there was a definite improvement. One said he could hear a big difference on all types of cymbals.

I am very happy. Thanks for the suggestions. I Can't wait to build some 4pi and maybe some type of towers.

Subject: Re: UPDATED Re: Cure for brightness
Posted by [biglaz](#) on Sun, 23 Jan 2011 01:40:50 GMT
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What size motor run cap are you using and were did you purchase them. I would like to try the same thing.

Thanks,
Robert

Subject: Re: UPDATED Re: Cure for brightness
Posted by [notben](#) on Sun, 23 Jan 2011 02:58:57 GMT
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10uf, 370vAC just picked some up from a local electronics store that has tons of older stuff and new stuff.

Subject: Re: UPDATED Re: Cure for brightness
Posted by [biglaz](#) on Mon, 24 Jan 2011 23:09:13 GMT
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Thanks for the info.
