Subject: Fostex 206 E drivers
Posted by jim denton on Mon, 16 Feb 2004 15:27:06 GMT
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Akhilesh---I am a little frustrated with the FE 206 E---and thinking about a horn box that I can build as the BR design isn't so hot--but let me run this line of thought by you---from what I am hearing from others one of the problems with the 206 is the low Qts rating---and that a series or parallel filter could be installed to raise this rating ???? I am about ready to break down and buy a pair of 208's and build Martin's (super simple) BR design as so many other people have made them and been quite happy with them---Some of those horn box designs look pretty complexed (especially for the wood shop impaired! Why didn't I pay more attention in that darn Shop Class ?)Please, feel free to call me as I'd like to have you hear the 206's--so we could figure out where to go---Jim 918-697-7955

Subject: Re: Fostex 206 E drivers
Posted by Martin on Mon, 16 Feb 2004 17:19:41 GMT
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Hi Jim,"I am about ready to break down and buy a pair of 208's and build Martin's (super simple) BR design as so many other people have made them and been quite happy with them."You will have the exact same problem with the 208 as you have now with the FE-206E. In my opinion they both require a filter to work well in a BR (or ML TL) enclosure. Before buying the 208's, why not try my Lowther ML TL with the FE-206E. You will need to increase the length of the port to six inches and add a correction circuit. The circuit that people are using is the same Zobel as my Lowther design with a 3 mH inductor in parallel with a 6-10 ohm resistor as a BSC circuit. The value of the resistor needs to be adjusted to mesh with the damping factor of your amp (lower for a tube, 10 ohm for a SS), your room, and your personal taste in bass response. Play with the value until things sound right. I have heard very positive feedback on this combination.Martin

Subject: Re: Fostex 206 E drivers: frequency extension is not everything
Posted by akhilesh on Mon, 16 Feb 2004 17:56:12 GMT
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HI Jim,Don't break down yet! Each driver has its own pluses and minuses (cost being one of them). Frequency response is ONLY ONE parameter, and there are so many others (like fidelity to tone) that are subjective. Martin is a great resource, and far more knowledgeable about these things than me. My 2 cents on what he suggested is as follows:increasing the port length to 6 inches will flatten the response below 250 HZ, but will attenuate it dramatically. The filter will basically then attentuate the response for the HZ over that. The result: a flatter response, but also MUCH reduced sensitivity. IF you are running tube amps, with low watts, this may not be a good

idea. If you are using solid state, and power is not an issue, then you can try it. However, to me, sensitivity means more than just low watts, it means greater dynamics and more presence as well. Also, I personally feel that adding electronics to the speaker is somewhat at odds with why we are sticking to a single driver design in the first place....i mean why not just go with a multi driver setup?Why don;t you wait till we heaar it, and then decide? Again, i think too many of us get caught up in the frequency extension game, and miss out on why we have single driver setups to begin with. I left you a message, with my number. Call me when you can. thanx-akhilesh

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Subject: Re: Fostex 206 E drivers: frequency extension is not everything
Posted by Wayne Parham on Mon, 16 Feb 2004 18:05:52 GMT
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What driver does Phil have? I know he's real busy with the new baby and all, and that's why he doesn't participate here much right now. But I may write to him and ask.Phil's little speakers sound great, and they're a single driver Fostex in a bass-reflex box. He purchased them from that fellow in St. Louis. Nothing to 'em - 8" driver in a simple ported box and no electronic components 'cept the driver.

Subject: Re: Fostex 206 E drivers
Posted by Wayne Parham on Mon, 16 Feb 2004 18:13:37 GMT
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Let me start by saying that I'm not opposed to compensation components at all. The cabinet forms an acoustic filter and the driver's mechanical properties form a mechanical filter. So combining some electronics with the voice coil of the driver to form an electrical filter isn't unattractive to me at all. It's more of the same.But aren't there some Fostex drivers that are commonly used without additional components in certain cabinets? I don't have any experience with Fostex drivers, but I could have sworn I'd seen some reputable implementers making systems with them that worked pretty well using only acoustic EQ from the cabinet.

Subject: Re: Fostex 206 E drivers
Posted by Martin on Mon, 16 Feb 2004 18:58:03 GMT
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Hi Wayne,There are many designs for Fostex drivers that don't use the additional filter that I use on all of my designs. But for BR type enclosures, and this includes TL's and TQWT's, I think that a little filtering really helps the SPL balance of the speaker and provides a great improvement. My personal opinion is that adding a filter corrects more problems then it creates. Yes, you loose

some efficiency but the improved integration of the bass with the mid and high end is well worth this small negative. Many people will argue and resist trying the filter. I have had many private e-mail discussions with skeptics, but when they try the filter (it is easily reversible) almost every response is positive and the filter stays. You can over do the filter by using too large of a resistor value and then the life will be sucked out of the music. It takes some tweaking and listening.The common arguement is that a minimalist system is the best and only way to true hifi. Very low wattage SET amp and a straight connection to the driver with no passive components. If it works for the individual that is great. My opinion is that people using these types of amps really paint themselves into a corner, there is no flexibility in the speaker design and the low power of the amp is dictating the entire system. I have played my Lowther ML TL's for a number of people using a solid state amp and have received very few real significant criticisms. Many were shocked at the clarity and range of the response.My advice to anyone with a full range driver is to try the filter and see if it improves the system. It will need to be tweaked to get it just right. It is a relatively cheap and easily reversible modification. If you run out of power with a SET amp, borrow a solid state unit and see what can be achieved. Then decide. If you don't try you will never know.MartinPS TNT-Audio has an interesting article this week that is relavent to this discussion.

Subject: Re: Fostex 206 E drivers: frequency extension is not everything
Posted by Phil Wilson on Mon, 16 Feb 2004 19:02:45 GMT
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Hey guys. Wayne called me out of my cave :-)I use the 206E in a 1.3L bass reflex cabinet made by David Dicks (single driver, no crossover or filter). More information at http://www.oldhifi.com/fostex.html (be forewarned, there are a lot of pretty bold claims made on the site - David loves these drivers, although he loves Lowthers more - I chose the Fostex drivers after a side-by-side comparison at David's house in St. Louis).You definitely lose some low-end with this configuration, and I'm not sure any cabinet or filter combination is really going to change this (David sells bigger cabinets to extend the bass marginally). At the same time, I am really pleased with the overall presentation. On small ensemble stuff (particularly acoustic, jazz, classical) these speakers really sing. If you want really extended bass you probably aren't going to be happy with any single driver (David says as much near the end of his site, recommending Hsu subwoofers for those who miss the really low frequencies). I don't know how low they measure flat, but they usually measure somewhere around "that sounds freaking awesome" using the only tools I own (ears), which is good enough for me. On a related note, you should hear "rub a dub dub, three men in the tub" on the tubes - it's like you are actually there making candlesticks...Someday (I'm figuring around 2025) I'm going to build some real speakers (7Pi horns) and really rock the Casbah.

Subject: MAke sure your port size is 2.25 inches
Posted by akhilesh on Mon, 16 Feb 2004 20:19:00 GMT
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Also, Jim, when we meet we can make sure the port measurements are right. Bass reflex enclosures are REAL sensitive to port size. -akhilesh

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Subject: Re: Fostex 206 E drivers
Posted by akhilesh on Mon, 16 Feb 2004 20:28:26 GMT
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Let me preface this by saying that both Martin & Wayne know FAR more about speaker design than I do, and indded both have been and continue to be EXTREMELY helpful to me as i learn more about speakers and reach my own personal "nirvana". My personal philosphy with single speaker design is to minimize electronics for the majority of the spectrum. While one can get drivers (like Lowthers or Fostexes) that are offer good frequency extension, ther eare other factors like tone. I am partial to the "tone" of older alnico drivers (from the 1960s & 1970-s). This means that in the higher ranges and the really low ranges, i have to play games like supertweeters, and (so far not tried but will soon) : subwoofers. Also, I use only tube amps (cheap tube amps with less than 10 watts per channel power). However, different people have different approaches: I know MArtin has done great work in actually building lots of enclosures for single drivers.. and trying different methods to compensate for their weaknesses. I thought about building a horn or long pipe, but decided I wanted coherence, and to me, as a layperson, if the bass is coming from behind the cabinet, it lacks that "single driver magic". Anyway, this is a deeply subjective & personal issue, and each of us has to find our own place!-akhilesh

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Subject: Re: Fostex 206 E drivers
Posted by Seeker on Mon, 16 Feb 2004 22:17:14 GMT
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Hello Jim, I've read your post and the following posts down to where Phil entered in. He is exactly correct, a single driver will leave you wanting more bass.So I ask myself, self, why does everyone worry so much about this? People love the presentation of single driver speakers, they love the high efficiency; they have a problem when using a crossover to another driver, but still long for something more, be it bass or high treble.... I use very inefficient speakers driven by 3.5 watt mono amps; I have a Richter Scale crossover that allows me to get away with this. I have dynamics; I get to listen to my favorite speakers and I have very refined bass. Get yourself a crossover that allows you to correct the low end, (it also has a frequency anlyzer and contouring ability). We can have our cake and eat it too.

Subject: Re: Fostex 206 E drivers

Posted by Seeker on Tue, 17 Feb 2004 20:30:55 GMT
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Hi Jim, did you see the new Fostex folded horn speaker kit at Madisound, the BK-16 I think. It's in the "what's new" section and looks like even I could build it. The price is definitely affordable.

Subject: Great link Seeker!
Posted by akhilesh on Wed, 18 Feb 2004 13:31:50 GMT
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Great link seeker. The price especially is really attractive. I'd be really temtped, if i had some cash & my wife allowed me to!-akhilesh

Subject: Re: Fostex 206 E drivers
Posted by jim denton on Wed, 18 Feb 2004 16:50:49 GMT
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Hey Seek!---I like the kit idea as I think I could at least assemble ---but am still in the "hunt" for a FE 206e---- I got a good reply back from a guy that says he really likes his 206's in Martin's Lowther box---is it all subjective or what ?

Subject: Re: Fostex 206 E drivers
Posted by jim denton on Wed, 18 Feb 2004 16:58:24 GMT
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That is exactly what Martin replied to me to do in his "Lowther design" (I think) and is exactly what others (Akhelish!) said would ruin the "magic" of the driver as a FRD ---I think it's still important to build and listen and thereby get the experience in what sounds like what---otherwise it tends to be a discussion with no conclusion-- These Martin "Lowther" Br box looks pretty easy and straightforward to build too----and it would allow me a good test --#1 build and run without the filter --test # 2--install the low end filter---might build it with a switch to be able to turn on and off the filter---Jim

Subject: Re: MAke sure your port size is 2.25 inches

Posted by jim denton on Wed, 18 Feb 2004 17:07:21 GMT
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That is the main reason why I want to build new front baffles--my experience with cutting a good port with a Roto Zip was terrible and I have a re-hab project to get that port exactly 2.25 inches---I plan to build a whole new set this weekend and carpet them as we discussed but now know I can glue all sides and install thur the speaker hole and think I will add some more braces also----this box has possiblities that are yet to be heard---Jim

Subject: Re: Fostex 206 E drivers: frequency extension is not everything
Posted by jim denton on Wed, 18 Feb 2004 17:14:38 GMT
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Wayne, there is only one guy in St Louis selling Fostex speakers and I bet ya they are FE 206 E's as that is his # 1 speaker ----Jim

Subject: Re: Fostex 206 E drivers: frequency extension is not everything
Posted by Wayne Parham on Wed, 18 Feb 2004 19:19:41 GMT
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I see. The lone seller in St. Louis must be David Dicks then. Phil responded on this thread and said his speakers were built by David Dicks in St. Louis. So I guess that must be him.

Subject: Re: Fostex 206 E drivers: not criticizing anyone;s philosophy
Posted by akhilesh on Wed, 18 Feb 2004 20:22:43 GMT
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Well, let me moderate the impression that I was criticizing Martin's approach. He knows WAYYY more than I do on this topic. I was merely having a philosophical disagreement...with absolutely no empirical evidence to back me up. The proof of the pudding is in the eating... I would suggest you listen or build a box with attentuation and listen.... to me: my main speakers are 3-ways...the full ranges are where I can give my philosophy free rein! To me, it is part of the ZEN of building a system (zen of course means only elegant, simple tweaks). I have never done a comparo between higher sensitivity single drivers and lower sensitivity ones, with a flatter curve. My suspicion (with no empirical evidence yet) is that the attenuated speaker with a flatter curve will sound better but will lose the immediacy, in your face presence that the more sensitive speaker will have, especially if the speaker/amp combination is considered. HUH??Let me elaborate on this proposition: The less sensitive speaker will need a far more expensive amp to provide the

same performance. This means more money for the amp to get the same performance. With the more sensitive speaker, a "budget" SET type amp like the ZEN will be able to provide performance that would cost much more dinero. PHIL...where are you? Back me up on this will ya ;-)SO, given the real world monetary constraints on most of us, the sensitive choice may be better. Refer to the JAn 2004 issue of stereophile for why sensitivity may be good. This is not to say that a less sensitive speaker will not have the same presence....it CAN...with a much more expensive amp. Also, it will have a flatter response, so it will provide more bass, etc. It really epends on how important the bass is to one, versus the midrange produce dby the speaker/amp combo. I would love to listen to someone who has built an attenuated speaker and then I can comment more knowledgeably. As of now, Martin is the one who has heard both, and he definitely likes the attenuated design better. I personally asked his advice a while back, and then chose another path, but his advice was excellent, and he is extremely helpful (not to mention knowledgeable). SO Jim, and others, if this confuses you, then all I can say is: Follow your own heart, grasshopper! -akhilesh

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Subject: Re: Fostex 206 E drivers
Posted by jim denton on Thu, 19 Feb 2004 14:11:21 GMT
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Yeah, I've looked at it ----and honestly I admit I have no idea of how to evaluate a horn as to great or bad or anything---can't say I 've heard one---need some experience in this area

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Subject: Re: Fostex 206 E drivers: not criticizing anyone;s philosophy
Posted by jim denton on Thu, 19 Feb 2004 14:20:01 GMT
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Well, I think you (and I) have a Speaker Pudding Project and it could be done with a speaker switched with the filters installed and could be played with the filters on or off---I think Mike Creek or somebody was doing this exact thing on a production 2 way ----I have 2 sheets of Baltic Birch and will look into to the design and report back as to what I would need help with---the filter construction doesn't look super hard but I am a novice too---more later Jim

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Subject: Re: Fostex 206 E drivers: not criticizing anyone;s philosophy
Posted by akhilesh on Thu, 19 Feb 2004 15:07:23 GMT
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Jim,What I would love to do is the following:1. Measure your box out to predict the performance, and tweak it (things like carpet, seal, etc)2. Listen to it without any correction3. Listen to it with

correction (as per Martin;s advice).This will be fun!-akhilesh

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Subject: Re: Fostex 206 E drivers: not criticizing anyone;s philosophy
Posted by Phil Wilson on Sun, 22 Feb 2004 04:10:03 GMT
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Interesting posts - the filter sounds like an interesting tweak. Generally I agree with Akhilesh - the route I took was to get a reasonably priced amp that produces a good pure couple of watts along with a very sensitive speaker to compensate for the lack of power in the amp. I spoke to Steve Deckert about speaker matching with his amp before I got the Zen and at that time (about a year ago) he told me the 206E was the best match he'd heard (he may have backed off that since then, I'm not sure); he also likes the Lowthers. On a related note, If memory serves, I think Steve built some kind of filter for Lowthers (I think he calls it the Lowther Gizmo) but more to reduce the mid-high "bloom" some complain of on the Lowthers. I don't think Martin is all alone out there on his branch, and to me the filter tweak is more "zen-like" than adding drivers. If there was a filter to "supplement" the bass on the Fostex I would definitely try it out.By the way, do you have to have a filter (or a crossover) if you use a driver that only produces a certain range of frequency? For example, it seems like if you use a super-tweeter that only goes down to 10K-15K it, or a sub that only gets up to 60Hz-80Hz, could you play all three drivers "full range" without a crossover? Would this require a separate amp for each driver? Would that still introduce phase inconsistency problems due to the drivers not firing at the same time (I guess it would)? I don't know much about this stuff, so if I am being an idiot just ignore me. Phil.

Subject: Re: Fostex 206 E drivers: not criticizing anyone;s philosophy
Posted by akhilesh on Sun, 22 Feb 2004 16:34:28 GMT
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Hi Phil,WE'll need crossovers, otherwise the drivers would get damaged. Crossovers would have phase issues. Could we hear the phase issues? I doubt it. I bought the line too that "phase inconsistencies are bad" and then I heard crossovers and for the life of me could not hear the "phase". Wayne & I had an interesting talk yesterday too where he said the same thing. BTW, A bass reflex box introduces phase inconsistencies as well. You will need a separate amp for each driver only for active crossovers, passive ones use the same amp. thanx-akhilesh

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Subject: Re: Fostex 206 E drivers: not criticizing anyone;s philosophy
Posted by Wayne Parham on Sun, 22 Feb 2004 17:18:57 GMT
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Actually, practically everything in the system introduces a phase shift. Both vented and sealed boxes shift phase in the resonance region. Horns shift phase too, and it vascillates quite a bit in the lower frequency region of a horn's operating band. Inductors and capacitors shift phase, not only in the loudspeaker crossover but also in the amplifier and associated electronics. Even the speaker driver itself introduces a phase shift, which is in one direction below resonance and in the other above it. So phase shifts are just a part of the physics of the matter.Good designs limit anomalous behavior that results from these phase shifts. A loudspeaker system having more than one radiator can be in situations where the two radiators are pressurizing certain places in the listening room out of phase. This causes nulls, and that is what people notice. So I don't believe people notice phase but rather interactions and the amplitude anomalies that result.

Subject: Re: Fostex 206 E drivers: not criticizing anyone;s philosophy
Posted by akhilesh on Mon, 23 Feb 2004 11:59:47 GMT
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Yeah....what he said...:-)-akhilesh
