Subject: fostex design search results
Posted by jim denton on Tue, 21 Sep 2004 17:17:08 GMT
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Manuel--I'd really like to hear more on those mods---I think I have found a good "advanced" fostex cabinet designer---BD designs at www.diy-systems.com---on that site under speakers there are pics of the singular model---and he has several fostex driversto use and advice on the filters needed or not---I am thinking I can bulid singular boxes for the 206's I have and then save up for some of those 200's they mention---but sure want to know how to install that phase plug ---doesn't those guys at Horne Shoppe "dope" the drivers?? Driver experiments!!!! I need to hit a lottery!!!! Jim

Subject: Re: fostex design search results
Posted by Manualblock on Tue, 21 Sep 2004 17:40:38 GMT
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Actually Jim they run pretty cheap. The completely doped/phase-plugged/whizzer cone trimmed/ rewired version sells for under 300$ a pair. He just glues the phase plug onto the former. For 20$ he will e-mail complete set of plans and for another 60or 80$ you get all the other stuff like spikes and the top diffuser plate etc. 60$ for marine grade plywood and you are set, and they require no eq. I liked them better than the Lowther systems I have heard because they are the first true full-range in my experience.I mean if you need a filter, then whats the point? Just build a good two-way.I would recommend them to anyone who doesn't have the room for Pi Theater 4's in their home.

Subject: Re: fostex design search results
Posted by Martin on Tue, 21 Sep 2004 23:54:02 GMT
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"I mean if you need a filter, then whats the point?"Why would you make such a strong statement? If a filter improves the overall performance of the system, why not use it? Would you rather listen to an unbalanced overly bright shouting full range speaker system and be happy knowing it is still "pure" due to the lack of any filter while it continues to hurts your ears? Not me, I'll take the filter. A filtered full range is still much better then a two way in my opinion, and also better then an unfiltered full range in most cases. I have successfully designed and built both multi-way and single driver systems and really prefer the filtered full range Lowthers.Martin

Subject: Re: fostex design search results
Posted by Manualblock on Wed, 22 Sep 2004 00:40:31 GMT
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Your right; upon further reflection that post did come off as somewhat arrogant. You have a better understanding of this aspect of driver use and I defer to your judgement. Understand from where my position comes; that in fact I have always understood the purpose of a full range driver to be an attempt to avoid the deleterious effects of passive components on the speed and ability to resolve complex passages in the signal. As well as to represent a point source radiator. If it sounds better; it is better. Thanks for pointing that out; J.R.

Subject: Re: fostex design search results, (long, tedious, boring and insignificant)
Posted by TC on Wed, 22 Sep 2004 03:03:10 GMT
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>>Understand from where my position comes; that in fact I have always understood the purpose of a full range driver to be an attempt to avoid the deleterious effects of passive components on the speed and ability to resolve complex passages in the signal. ==cookie for manualblock! Studying systems, *anthropologically* one arrives at this logical approach above. Crossovers, passive elements made the Ar3a the flattest measuring speaker since Hirsch Houck Labs rocked to the Tijuana Brass in 1964. I listened to the 3a alot with Cat Stevens, early Eagles and flat was good. Not very dynamic but flat nonetheless.If your system sounds imbalanced? Got news, it IS. Adding passives at the last step in the chain is like giving up, tossing in the towel because the rest of the system has failed to do it's job properly.Why not tune the rest of the system actively? Keep that bloody speed and tonality only obtainable by directly connecting one voice coil to one output circuit. By using amps and sources with characteristics "cheeuned"(tuned)for optimum (overall)performance, you mitigate response anaomalie where it won't be passed on down the line. If you are using low "refined" power, even a small xtra coil results in sonic wavy gravy and compresion because now you have 2 inductors in a row (voice coil + comp coil)which is always avoided in any circuit, except seemingly, speakers. Why do amp builders obsess over coupling caps types brands flavors? Have a nice transformer coupled amp with no caps n resistors in the signal path? Gonna spoil everything the amp builder did to bring you gobs of dynamics and tonal complexity by using a gob of parts at the end of the amp loop (spkr cirkut)?It's really all about *expectations*. How much dynamics do you expect? How much dynamics will your wife allow in her living room. Do you mind some power compression at moderate volumes? How do you know what your hearing is right? Instruments? Do you know the pain of a violin? TC

Subject: Re: fostex design search results
Posted by Martin on Wed, 22 Sep 2004 11:02:23 GMT
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Hi J.R."Understand from where my position comes; that in fact I have always understood the purpose of a full range driver to be an attempt to avoid the deleterious effects of passive components on the speed and ability to resolve complex passages in the signal. As well as to represent a point source radiator."I agree. The only thing I would add is the increased efficiency that seems to be a property of most full range drivers. Low Qts (0.2 - 0.3) and high efficiency (94 - 98 dB) come with the large magnet. If you can design the enclosure to compensate and balance the SPL response this is no doubt the best solution. If your enclosure is unable to do this then a filter can help. The enclosure is not necessarily a bad design just a different set of compromises (typically smaller size and less complex). I personally believe that the benefits of a filter are much larger then any claimed potential degradation introduced and can improve the design (including correcting phase shift associated with baffle step losses). I don't hear any loss of speed or detail with the filters I have used in my designs. If you apply too much filtering then I would agree that the advantages of full range drivers start to disappear quickly. Everything is a balancing act and a set of compromises.Martin

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Subject: Methinks you miss the point
Posted by Oberon on Thu, 23 Sep 2004 11:27:35 GMT
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The speaker in its cabinet is a tuned circuit, and a passive one at that. It may be overdamped or underdamped and the whole amp/speaker circuit is a part of it. Bloody speed and tonality takes more than just blindly hoping that a single voice coil and a single output circuit are married into sonic bliss.

Subject: Re: Methinks you miss the point
Posted by Manualblock on Thu, 23 Sep 2004 11:40:35 GMT
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If you know all of the drivers parameters don't you get a pretty good idea of the electrical behaviour of the driver under most conditions. Consequently the amplifiers bahaviour could be tailored to a great degree to the speaker, ie. damping and output impedance etc. If you are using a single driver and it exhibits a defined behaviour in the box; you create a model of the driver/box that synergizes with the amp, that should be possible right. Made much more difficult as you ratchet up the complexity with the addition of more components. Am very interested in your's and others opinions on this. Thanks J.R.

Subject: Right on
Posted by Oberon on Thu, 23 Sep 2004 13:03:03 GMT

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That's the point; Rather, it's several good points. Mainly, the speaker/box/amp are a complex circuit already. The voice coil should not be considered some kind of "pure" load by any stretch of the imagination. It is the least pure part of the circuit.

Subject: Re: Right on
Posted by TC on Thu, 23 Sep 2004 13:26:14 GMT
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>> The voice coil should not be considered some kind of "pure" load by any stretch of the imagination. == In fact a voice coil physically connected to a cone is an load, changing with freq. A load that will introduce distortions into the final circuit of and amp. Never said it was pure. Quite the opposite. I simply maintain that ideally, you want this load to remain as pure as possible, especially when using amps that are sensitive to loads which are usually lower powered.Why Biamp, triamp and quad amp? And why does dynamics suffer except when an amp is connected to only one voice coil no matter the strength of the amp? It's a load alright, just depends on what you expect that single load to do.It's well established that individual amplifiers connected to a single coil modulate that coil better than trying to modulate several coils or elements. Look at all the spkrs like 4-ways that have individual amps on each driver, Meridian, Rushmore, Paradigm. Why all the fuss for connecting one amp to one coil?? Because it has lower distortion and greater dynamic contrast that's easily heard>>It is the least pure part of the circuit.==Right. So you have a simple circuit ie: the output circuit of an amplifier. You can trim and adjust with passive elements all you want. All I am saying is that it always results in non optimal dynamic behaviour, limiting the ability of the amp/spkr to swing dynamics. TC

Subject: Adding some passive components to a speaker
Posted by akhilesh on Thu, 23 Sep 2004 13:54:38 GMT
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HI John & Others,I can offer my insights, based on personal epxerience, as well as some reading. IMHO, adding a few passive components makes no difference audibly. Also, from a mental experiemnt standpoint, adding one resistor and an inductor to a circuit should not really make it less predictable. In fact, the way I do it is: start with the amp, then build a speaker using T/S params, and a passive netwoork, so that the speaker mates well with the amp. I have personally followed MArtin;s advice and used a passive network, and it improved my speakers considerably, with no sonic deteriorations that I could hear. You may want to try and find scientific studies that investigate if phase shifts (without frequency shifts) are audible. My own experience tells me: no. IMHO the major determinants of speaker AUDIBLE performance are frequency curve, distortion and efficiency (with efficiency being a distant third, provided reasonable amplification is used).
-akhilesh

Subject: Re: Right on
Posted by Oberon on Thu, 23 Sep 2004 22:52:39 GMT
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===> "I simply maintain that ideally, you want this load to remain as pure as possible, especially when using amps that are sensitive to loads which are usually lower powered."What you just said advocates the use of impedance compensating networks with loudspeakers because they make the load more pure.===> "Why all the fuss for connecting one amp to one coil??"There are several benefits for biamping and triamping, and most don't have anything to do with load impedance, response shaping or speaker voicing. Those are separate issues, and they shouldn't be confused as being related.Biamping and triamping are great ideas so don't misunderstand my meaning. It isn't because the voice coil is pure though; It isn't about that. What it IS about is using rhetorical comments about "purity" where the description doesn't fit.IMHO, YMMV and all the other usual disclaimers apply.

Subject: Re: Right on
Posted by TC on Fri, 24 Sep 2004 00:42:51 GMT
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>>> "Why all the fuss for connecting one amp to one coil??"==Every passive element adds a sonic signature period. Measurable and audible. Coil, resitor, etc.. The difference is easily heard provided the system has sufficient resolution from start to finish. >>>There are several benefits for biamping and triamping, and most don't have anything to do with load impedance, response shaping or speaker voicing.==Well you can look at it that way. In fact multi amping serves to mitigate the detrimental effects of all the items youv'e accumulated above. >>>Those are separate issues, and they shouldn't be confused as being related.==Impedance and response shaping issues and back EMF, oh my. Power compression and electric phase accuracy and arrival time. All represent the final load and circuit issues. What comes out of the cone is the culmination of all of these and more. Of course they are all interrelated. You cannot seperate the amp circuit from the speaker in cause/effect scenarios. Amps do not sound the same, and change their sound with different loads.I apply no desclaimers or apologies in advance for metiocre sound, my results are predictable. TC==

Subject: Re: Right on
Posted by TC on Fri, 24 Sep 2004 00:52:45 GMT
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>>What you just said advocates the use of impedance compensating networks with loudspeakers because they make the load more pure.==More pure eh? Well tell me how a load becomes _more_pure_ by adding things to the circuit. I have many 1-3 watt amps, some killowatt amps, some 15 watt amps. They all sound better with no passive elements between them and the single

voice coils. I also have a shelf with dozens of mini chassis with BSC's, notcho filters (adjustable), gizmo's of all kinds tranny based and RLC based, various single driver circuitry tweaks. And on the shelf they stay. They all impede on the music.TC

Subject: Re: Right on
Posted by Oberon on Fri, 24 Sep 2004 01:56:43 GMT
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===>"Well tell me how a load becomes _more_pure_ by adding things to the circuit."Look up conjugates.===>"Every passive element adds a sonic signature period."Why stop at the electronics? That's the point here. You have mechanical and acoustical elements also, and they are just as much a part of the deal.===>"You cannot seperate the amp circuit from the speaker in cause/effect scenarios."That's also the point. Nor can you separate the cabinet size, type, shape, horns if used, ports if used, speaker suspension, cone mass, breakup modes, etc.===>"I have many 1-3 watt amps, some killowatt amps, some 15 watt amps. They all sound better with no passive elements between them and the single voice coils."You think _everything_ sounds better that way? Well, you have a right to like what you like.Lets agree to disagree on that. Our preferences may not be the same. It is not my highest goal to have the voice coil of a fullrange speaker connected directly to the output of an amplifier. It is _my_ highest goal to have a good sounding speaker system.Take for example a high efficiency fullrange speaker with Qts=.2 on an infinite baffle. Most people will probably find it shrill. You will have to use EQ in one form or another to bring up the bass. You can use electronics or you can put the speaker in a cabinet that boosts bass. Another way to do it is with a subwoofer, and that will keep bass off the fullranger. Any of these are better than the fullranger by itself IMO.Maybe you would be happier adding mass to the cone or removing magnet material. You might like using a back horn. You and I might agree on one of those things. I see them as possibilities but the difference between us is I don't see them as being the _only_ possibilities.===>"I apply no desclaimers or apologies in advance for metiocre sound, my results are predictable."That's the problem, you have made no concrete predictions. To make the general statement that any amplifier sounds better connected directly to an unspecified fullrange speaker is vague and doesn't pass muster IMHO.

Subject: Re: Right on
Posted by TC on Fri, 24 Sep 2004 13:34:15 GMT
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>>I see them as possibilities but the difference between us is I don't see them as being the _only_ possibilities== "only" possibilities is limiting. I am only interested in -optimum- solutions. You have presented only basic non ideal scenarios, "what if's". Keep up the good work.TC

Subject: Good points Oberon
Posted by akhilesh on Sat, 25 Sep 2004 04:14:20 GMT
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My own experiences bear out what you have said. -akhilesh

Subject: not much you can do to save fe206
Posted by kloss on Sun, 26 Sep 2004 16:11:36 GMT
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I used them in a few projects have a pair in oris 200 they do need some correction or use in front horn with none.I do not like this driver to me it sounds about what it costs.Maybe Iam jaded but why not use a better fostex in a proper cabinet and no filter? just a thought the fe206 is ok for entry level but thats about it.I do understand some folks only have cash for these but they only offer a small taste of what a proper fostex system can deliver[even when filtered],I have owned or messed with most fullrange or wide range drivers so many are better than fe206,also Bert D cabinet is designed for fx200 and f200a fe206 would be just ok in singular.Iam not the only speaker builder who thinks this.:)Hate to say it but I agree with Terry on this .lol.Just my 2 cents worth your milage may very
http://www.audiocraftersguild.com/Xtreme/xtreme.htm