Subject: fullrange single driver help please!!
Posted by djm on Wed, 08 Jun 2005 19:50:34 GMT
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Hi I just sold my fostex fe 206e speakers. They had to much treblefor me. I loved the sound stage and the bass and the clearest microdetails I have ever heard. I love the way they made me feel likethe singer was in the room just the treble ripped my head off.I am looking to use a diffrent fostex or any other driver that isfullrange. Maybe the fostex fe 108 ez a 4 inch dirver. I have heard alot of go things for this driver. If you can help me or give someadvise please do. I want to build my own speakers. Buying is notfun. You can say I built them my self. Also do any other companyhave at it factor or the speakers just vanish and it sounds likethey are singing in front of you. Wow I can not get that sound outof my head. I love the single drive sound just not the brite treblebeaming sound in your face. Please let me know thanks jm

Subject: Re: fullrange single driver help please!!
Posted by Peter Swartz on Wed, 08 Jun 2005 23:12:56 GMT
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Hi, I just hooked up my new 206's and also am concerned about the high freq. boost. I'm currently considering a high quality tone controls or eq to boost the low end and hold back the highend. I thought about getting the 207 but I let the sales guy talk me into the 206's for their clairity. I too may consider a new 8" single drivers. I would like to know in your search for a new one what you find. Please let me know. Thanks, Petepeterswartz@earthlink.net Do you know of a good sounding eq? Thanks!

Subject: Re: fullrange single driver help please!!
Posted by Martin on Thu, 09 Jun 2005 00:59:41 GMT
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Did either of you try a BSC circuit to tame the high end of the FE-206E? From your description is sounds like you did not.I think this driver with the BSC would still be much better then the FE-207E version, you would not loose any of the powerful magnet dynamics only a little high end efficiency by rebalancing the SPL response. People who have built my ML TL design with the FE-206E have been very pleased, the feedback has been extremely positive.Martin
 Quarter Wavelength Loudspeaker Design

Subject: Re: fullrange single driver help please!!

Posted by zincman on Thu, 09 Jun 2005 12:35:14 GMT
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Technics makes some fabulous 4 and 8 inch full range drivers that are only sold in Japan. I have a pair of 4 inch that the model number escapes me, but really sound great in backloaded horns. I also have used, and are my absolute favorite, are Telefunken 8 inch full range. I have used many Fostex and Altecs but for my taste the Tele's kick serious butt.Tim

Subject: Re: fullrange single driver help please!!
Posted by Peter Swartz on Thu, 09 Jun 2005 16:03:35 GMT
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I'm very interested in trying your BSC circuit. Please tell me more.Thanks, Pete

Subject: Re: fullrange single driver help please!!
Posted by Martin on Thu, 09 Jun 2005 17:23:37 GMT
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Go to my site and look under Project #5. There are links to a schematic, pictures, and a link to enclosureplans. Project #4 has some before and after measurements for Lowther drivers which have similar issues.Also look under the General Speaker Related Articles link for some info on BSC circuits, in particular the variable BSC article.Hope that helps,Martin
Quarter Wavelength Loudspeaker Design

Subject: Re: fullrange single driver help please!!
Posted by Peter Swartz on Thu, 09 Jun 2005 20:46:11 GMT
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Hi Martin, It sounds like you are just the person I need for advice.Unfortunatly I am unable to open the links associated with your project articles. Perhaps you could email them separatly for me concerning the 206. I have been looking into graphic and parametricEQ's. Any suggestion as to which sounds better? Active vrs. passive?Looking at your correction circuits, it looks like there is no avoiding adding to my signal path. I would like to give your circuit a listen. I'm using consonance SET M500 9 watt mono blocks and a passive/pre. I would greatly appreciate it if would please list for me specifically which components you would recommend for me with maybe three different resistor values I could swap out. Schematic also of course.Please be specific with value, brand, tolerance etc.. so I may simply goto the electronics store or pick up the phone to

parts express.My cabinets are approx. 45 liters volume with a 3" Dia. x 3"long port.The cabinet is an odd shape though.Perhaps I could call you? My number is 310-202-1862 LA, California.After reading the June Stereophile article on the fine quality and sound of the old C-500 Fisher recievers tone controls, etc...I'm considering sending my Dad's old Fisher CX2-400 their top pre-amp to Fisher Radio for rebuilding primarily so I could us the tone controls, sound crazy?Thanks again for you expertise!Sincerely, Peter

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Subject: Re: fullrange single driver help please!!
Posted by Martin on Fri, 10 Jun 2005 00:00:35 GMT
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Hi Peter,"Unfortunatly I am unable to open the links associated with your project articles. Perhaps you could email them separatly for me concerning the 206. I have been looking into graphic and parametricEQ's. Any suggestion as to which sounds better? Active vrs. passive?Looking at your correction circuits, it looks like there is no avoiding adding to my signal path."I don't know anything about equilizers. I tend to design my own circuits for each speaker I build. This process is based on calculations, measurements, and finally listening. The circuits always need a little tweaking to get everything just right."I would like to give your circuit a listen. I'm using consonance SET M500 9 watt mono blocks and a passive/pre. I would greatly appreciate it if would please list for me specifically which components you would recommend for me with maybe three different resistor values I could swap out. Schematic also of course.Please be specific with value, brand, tolerance etc.. so I may simply goto the electronics store or pick up the phone to parts express."Your amp should be fine with the circuit, you have plenty of power. The circuit I recommend for my Fostex FE-206E design is virtually the same as the one I use with my Lowther ML TL. That is because the enclosure is the same. The Lowther schematic and parts list can be found at :http://www.quarter-wave.com/Project04/Parts_List_DX3.pdfThe circuit adapted for the FE-206E can be found at :http://www.quarter-wave.com/Project05/BSC_Circuit.pdfBoth circuits are designed for this enclosure :http://www.quarter-wave.com/Project05/ML_TL_Enclosure.pdfIf you enclosure looks different from the one I built you will need to redesign the circuit. An excellent design tool for BSC design can be found at :http://www.tolvan.com/edge/Input your geometry and driver dimensions and it will plot the baffle step response. My MathCad version produces almost identical results so I am very comfortable recommending it for others to use."My cabinets are approx. 45 liters volume with a 3" Dia. x 3"long port. The cabinet is an odd shape though."The Edge progam is your best bet for sizing the circuit. Worst case you try a couple of different inductors and resistors until you get a combination that works with your speakers in your room/set-up."Perhaps I could call you? My number is 310-202-1862 LA, California."I really prefer forums and e-mails, it allows me to think about the question and then write the best possible answer that I can provide."After reading the June Stereophile article on the fine quality and sound of the old C-500 Fisher recievers tone controls, etc...I'm considering sending my Dad's old Fisher CX2-400 their top pre-amp to Fisher Radio for rebuilding primarily so I could us the tone controls, sound crazy?"Afraid I stopped reading Stereophile years ago and don't know anything about tube equipment. Sorry, not much help with those questions.Martin
Quarter Wavelength Loudspeaker Design

Subject: Re: fullrange single driver help please!!
Posted by akhilesh on Fri, 10 Jun 2005 16:33:37 GMT
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HI Peter,While I don;t have anywhere near the level of experience or Knowledge MArtin has, I'll trow in some things. 1. I would deifnitely recommend you try MArtin's design for the 206. This is totally passive.As some one who has tried active & passive crossovers, I would say I prefer active, but that's only for my setup. In the right setup, passive can be as good. PArametric equalizers are WAYY better than graphic ones for almost any application. For your applications, a prametric equalizer would work, but not a graphic one. I wold recommned that you try the passive eq that MArtin does, and keep your signal path simple to start with. If you are just using one driverm, then there is no choice but to use passive components or a parametric EQ. -akhilesh

Subject: Re: fullrange single driver help please!!
Posted by Peter Swartz on Mon, 13 Jun 2005 16:01:45 GMT
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Thanks Martin for all your expertise, I ordered the components you suggested from Parts express and am looking forward to finally being able to enjoy my new 206's. Thanks again, Pete

Subject: Re: fullrange single driver help please!!
Posted by Martin on Mon, 13 Jun 2005 20:38:15 GMT
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Pete,Let us know how you make out and what adjustments you made to the basic circuit design.Martin

Subject: Re: fullrange single driver help please!!
Posted by robertG on Mon, 13 Jun 2005 22:17:06 GMT
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The rising response in full-range (larger) drivers is a necessary evil. The cone needs a very powerfull motor system, meaning large magnet, very light cone and tight tolerances. A high power to weight ratio. That's the only way a driver can hope to deliver both bass and treble at the same time. The resulting very low Q value driver needs to be mated to an enclosure that will enhance the bass and mids to match the treble output. Welcome the back horn.But all drivers are not that bad! First of all, allow for proper break-in. The use the right enclosure. And the right amplifier

(such as a low damping factor tube amp).If using a SS amp (as I do on my FE168EZ), try a (series) 4 to 10 ohms non-inductive resistor. In my case, I noticed what seemed like a 6dB boost in bass, and a "magic" drop in low treb output, while retaining vry HF sound.

Subject: Re: fullrange single driver help please!!
Posted by Martin on Tue, 14 Jun 2005 10:09:34 GMT
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"If using a SS amp (as I do on my FE168EZ), try a (series) 4 to 10 ohms non-inductive resistor. In my case, I noticed what seemed like a 6dB boost in bass, and a "magic" drop in low treb output, while retaining vry HF sound."At the very low frequencies where the electrical impedance at the driver terminals is high due to the system resonance(s) and at the high end where the electrical impedance is rising due to the voice coil inductance, the series resistor has almost no effect on SPL. In the middle frequencies, a voltage division occurs between the series resistor and the driver impedance to shelve down the SPL output. So at the top and bottom end the SPL is not really changed, only in the midrange is there a reduction in SPL. The speakers efficiency is changed different amounts at different frequencies depending on the electrical impedance of the speaker. There is never an increase in SPL output.You are depending on the drivers impedance curve to rebalance the SPL output. If you use a Zobel across the terminals and a BSC circuit (with parallel cap) in series you have a bit more control over when the SPL is reduced and then allowed to rise. This is the next level of refinement to just adding a series resistor and you should be able to make another improvement in performance.Martin
Quarter Wavelength Loudspeaker Design

Subject: Re: fullrange single driver please help, saved!!!!
Posted by Peter Swartz on Sat, 18 Jun 2005 17:57:17 GMT
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Dear Martin, I received my bafel setup correction components from parts-express yesterday and began to instahl them right away.I was so pleased by the results. The overall balance was greatly improved with no noticable sacrifices. I would like to thank you soo much for your time, expertise and willingness to share your wisdom.My Meridian 508 CD player through my reference line passive attenuator, to my 9 watt Consonance M500 mono block SET amps (using MJ Mesh 300B's) seem to be a good match now with the custom Fostex 206's cabinets mounted at the foot of my king size water bed. What a relaxing, enjoyable listening experience. I think that people would get a real kick out of my design of these cabinets. If you would recommend an appropriate place to post pictures of them. Thanks again, Peter

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Subject: Re: fullrange single driver please help, saved!!!!
Posted by Martin on Sat, 18 Jun 2005 23:43:01 GMT
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Hi Peter,Glad things worked out so well. The BSC circuit is such a simple method for adjusting the relative volume produce by the speaker at different frequencies. It rebalances the SPL curve. I agree with your comment that nothing is lost, nothing is added either, and as an additional benefit it helps smooth the slight phase shifts around the baffle step frequency. Unfortunately, the BSC circuit has a bad reputation and purists constantly criticize its use in full range speaker systems. They must like that very forward midrange sound.Thanks for the feedback,Martin

Subject: Re: fullrange single driver please help, saved!!!!
Posted by akhilesh on Mon, 20 Jun 2005 13:47:19 GMT
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Congrats, MArtin! ANother person saved!I would like to take this opportunity to heartily recommned (once again) correction circuits like martin recommends. IMHO, they are a must for a single driver setup. -akhilesh

Subject: Re: fullrange single driver please help, saved!!!!
Posted by Martin on Mon, 20 Jun 2005 15:29:30 GMT
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Hi akhilesh,"ANother person saved!"A new member of the super secret full range driver cult of the BSC filter. I hope the purists don't catch and subject him to a shouty piercing full range system running straight off the amp until he is reprogrammed.Martin

Subject: Re: fullrange single driver please help, saved!!!!
Posted by akhilesh on Mon, 20 Jun 2005 17:04:23 GMT
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HI Martin,Once you get used to that loud midrange, everything else sounds "lifeless", and you know it!JK-akhilesh

Subject: Re: fullrange single driver please help, saved!!!!
Posted by Martin on Mon, 20 Jun 2005 18:27:53 GMT
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akhilesh,There is some real truth in what you say, that loud midrange can really lure you into thinking the speaker is more revealing and dynamic. It can sound great, it sounds way different then anything else you have ever heard, unfortunately it is also not realistic.Martin

Subject: Re: fullrange single driver please help, saved!!!!
Posted by akhilesh on Mon, 20 Jun 2005 18:34:06 GMT
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Martin,I know. I was only half joking. I personally prefer an exaggerated midrange myself...the question is HOW exaggerated. After listening to my home setup which is reasonably balanced with a RS analog meter, most FR jobs sound unbearably harsh to me, though their proud owners listen unconcernedly!-akhilesh

Subject: Re: fullrange single driver please help, saved!!!!
Posted by Kane on Sat, 09 Jul 2005 11:28:01 GMT
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I added the BSC circuit after reccomandation and great help from M.K. It cured the tiring boost in the mid range. My amp(poor Chineese tube)did not handle this to good. I think i lost too much of dynamics and without an ss or bigger amp i desoldered the circuit and broke the drivers in for about 400 hours almost constantly playing. After that the midrange fell to place with the rest of the picture and i even removed all of the damping and stuffing in the compressionchamber(horns). Now my humble setup provides very realistic and dynamic performance. I still have some problems especially when playing loud. This may force me to try the filter again and some damping in the chamber. I then have the chance to try the filter with an vintage mcintosh amp that i have purchased and remove some of the tweaks to start at scratch again.

Subject: Re: fullrange single driver please help, saved!!!!
Posted by akhilesh on Tue, 12 Jul 2005 11:21:54 GMT
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HI Espen,If the midrange is still too loud, then try increasing the resitir value in the BSC circuit a little bit. THat would help!-akhilesh

Subject: Re: fullrange single driver please help, saved!!!!
Posted by Kane on Tue, 12 Jul 2005 11:32:39 GMT
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Thanks Akhilesh, i´m shure this will help me making progress(like all the other times....) and solve my little problem.Espen