Subject: Using Single full range as a sub
Posted by lon on Mon, 14 Feb 2005 05:20:48 GMT
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I just got the yen to experiment with a subwoofer outon my Yamaha receiver. There's a couple 8 inchers I haven't built Voigt pipes for yet.I'm wondering if I can do a quick and dirty build with oneor both. I have the RP U100 book out in front of me, but sure can't seeanything about a cutoff frequency or what goes on inside the Yam. Oh yeah, no spec sheet on these 2 Roland 8 inchers either.They were sold as closeouts from Roland pianos on Ebay. Would it be a waste of time to mount these? Play withisobarik maybe? I'm on my way to do one of Fitz's Tuba 18's eventually.

Subject: Re: Using Single full range as a sub
Posted by Bill Wassilak on Mon, 14 Feb 2005 19:00:39 GMT
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One thing about fullrange speakers they don't have very much xmax. So it might be best to put them in the Voigt pipes and use them for mains and build Fitz's Tuba's for the subs.IMHOBill W.

Subject: Re: Using Single full range as a sub
Posted by lon on Mon, 14 Feb 2005 19:26:13 GMT
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I have a spare box that I can make a front baffle forjust to see what the sub output of the little Yamaha would do-- for grins, as we say. In my general ignoranceof things, I wanted to try the isobarik technique to getthat constant pressure volume mentioned in Ray Alden'sbook Speakerbuilding 201. But yes, I want to do the Tuba 18 and am enthused aboutit. I have never used a sub system before, so this is just daydreaming. The Roland 8 inchers have pretty small magnets too. I'm wondering what one of those cheap plate amp subswoudl so in such a rig? --> The thing I want to avoid at all costs is any sortof rumbling, wall shaking thud that may be a cause for gee-wiz, but sound like shite on music-- in other words,what most people experience as home theatre. :-/ I'm pretty happy with my single driver MLTL boxes usingFostex 127e from a design at Single Driver Forum. It is the best scratch build I've done, but still doing some tuningstuff on those.

Subject: Again, look at the response
Posted by Gazmo on Mon, 14 Feb 2005 21:38:28 GMT
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This is a comparison of a tuba 24 with EV 18 subs. The 18 inchers are shown in blue and the tuba is orange. If you listen to a bass note progression on the EV speaker, you'll hear every note about the same volume level.The tuba hits 40hz and 80hz real loud, but 50hz is 4 times lower than 40hz and about 50 times lower than 100hz(!) In terms of musical notes, this means D(37)and E(41) are blasting, but then F(44) and G(49) are much lower. Notes A(55) through C(65) grow gradually louder and when you hit D(70) again, the sound is getting pretty loud. E(80) is booming one note bass with F(87) and G(98) very loud too. Loudness falls off after that again. In the span of one octave, D(37) to D(70), loudness starts very high then drops to a low and rises to a huge 15dB peak again. I don't know about you, but two huge peaks in a single octave is unacceptable to me.I'm sorry, I just couldn't let this go unnoticed. I don't mean to be a nag but I couldn't remain silent any longer. I was told this site was choosy and quality oriented but then I see tubas with whatever woofer will fit and dr horns with 50 cent knock off piezos. They may be good for garage bands on the cheap but I don't think you can call them hi fidelity.
Frequencies of Musical Notes

Subject: Re: Again, look at the response
Posted by Wayne Parham on Mon, 14 Feb 2005 22:21:28 GMT
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Bill Fitzmaurice is popular with musicians, and musical instrument speakers are his specialty. His Tuba line of speakers provide good value because they are basshorns that are lightweight and relatively easy to carry and setup. They are also very inexpensive to build. The quality comes from a design that allows musicians to have a speaker that meets their needs at a low price point.All speakers have strengths and weaknesses. Single drivers, with and without subs, multi-way speakers, planars, horns - All have their strengths and weaknesses. Remember that the Tuba horns were designed for environments where EQ is generally available and response peaks can be smoothed out.

Subject: Re: Again, look at the response
Posted by Gazmo on Mon, 14 Feb 2005 22:32:04 GMT
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So you're saying their quality is they're cheap?

Subject: Re: Again, look at the response
Posted by Wayne Parham on Mon, 14 Feb 2005 23:00:04 GMT

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Bill doesn't sell loudspeakers, he sells plans for loudspeakers. Build quality is up to the people building the cabinets. They can make Brazilian Rosewood cabinets and put JBL Pro or Eminence Magnum woofers inside if they want.Bill's plans are illustrated and detailed. They are good quality plans. Bill is also a sponsor here, paying to support the website and helping to make it possible for us to have this discussion. He gives of his money and time to host his forum here, and to provide support to people building speakers using his plans.I wouldn't call that "cheap." What I think is cheap, is manufacturers of audio products that pop into discussion websites like these for free plugs or to bash their competitors. If an audio kit manufacturer or DIY company doesn't host a support forum, that's cheap. If manufacturers or dealers go into open discussion sites just to plug their products, that's cheap. And if they send in sockpuppets to attack competitors, that's not only cheap but also low. I see a lot of bottom feeders like that popping into various audio discussion forums.

Subject: Re: Using Single full range as a sub
Posted by GM on Tue, 15 Feb 2005 00:26:03 GMT
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Greets!Don't think they'll make it as subs. Courtesy of 'Zene':Fs = 78.76 hzVas = 24.5 L/0.8652 cu ftRe = 7.309 Le = .2462 mhQms = 5.772Qes = 1.977Qts = 1.473Sd = 21.4 sq cm/3.317 sq inBL = 0.4477 N/A (calc'd) Spl 89.65 1w/1mPe = 30WHere's an Alpha TL (end loaded straight pipe) I did for someone, but if they built it they didn't let me know how it performed. Looks good in a sim though:L = 39.25"SO/SL = 166"^2recommended stuffing density = 26 oz of polyfilGM

Subject: Re: Again, look at the response
Posted by lon on Tue, 15 Feb 2005 18:17:58 GMT
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Well, back on topic, and me being the cheapest of all withno test gear I'm going to start cutting holes in wood and make up a small isobarik.. maybe play it with no mains just see if it isdoing anything. Far as I know this will be plug and play and whatever cutoff willbe handled by the receiver. With a phono plug connection I'llprob'ly buy a phono plug one end and bare on the other ratherthan fooling with tinning and such.

Subject: Isobaric
Posted by Wayne Parham on Tue, 15 Feb 2005 21:20:28 GMT
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I think that's a good idea to try. The isobaric configuration will help increase extension and power handling. Might really work out well. Please let us know how it sounds!

Subject: Re: Isobaric
Posted by lon on Wed, 16 Feb 2005 03:37:46 GMT
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I started to cut wood today, but that wasn't the problem.I have not used the subwoofer out on the receiver before.Maybe someone in here can help with that. Is it true thatthe sub only kicks in at certain frequenmcies. Also, my setup instructions from the receiver showsan RCA connection out of the Yam and into some sort of Yam sub. My question is: even if the connection to the outboard amp is necessary for whatever add-ons Yamahasells, should I not hear something out of the speaks?No info in the documentation. I'm going to have a friendbring his meter over here and see if he can get a reading.But nothing came through given I just did an alligatorclip connection on thin wire. Could be the cheap plugI cut off was no good too. Lots of variables at that point.I did the battery test on the speaks and they are both okay.So maybe somebody can walk me through the troubleshooting.The plug is located just below all the input jacks anda tape out pair. The directions show a connection of RCA at both ends to connect the add-on Yamaha sub.

Subject: Re: Isobaric
Posted by Wayne Parham on Wed, 16 Feb 2005 03:49:07 GMT
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I expect that the subwoofer output on your receiver is a 0.775v preamp level output. It is probably limited to 80Hz or 100Hz. Try connecting another amplifier between the subwoofer output and your speakers and see if that works.

Subject: Re: Isobaric
Posted by lon on Wed, 16 Feb 2005 04:02:44 GMT
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Ok, I have the little Radio Shack SA155 amp out on the bench doing nothing. The SA155 uses RCA jacks for speakersas well, plus it has a 3 way switch for input selection including phono preamp. Are we saying that a small plate amp should be a part of the project? PE has those for $30 as does MCM. If I had a tuba 18 would these same issues apply? From the audioXpress writeup Fitz did on the build, there's not much mentionedabout hookup that I recall-- and no plate amp showing anywhere.

Subject: Re: Isobaric
Posted by Wayne Parham on Wed, 16 Feb 2005 04:09:15 GMT
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If your receiver's subwoofer output is at preamp level, then you'll need a power amp of some sort. A plate amp would work fine.

Subject: Re: Isobaric
Posted by lon on Wed, 16 Feb 2005 21:35:59 GMT
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I just made the hookup to the little RS amp. I would say there is a problem from connecting the Yamto the tuner in on the amp. I had to jack the amp up tofull volume to get any signal at the speakers. This cannotbe right. Maybe I'd need the phono preamp connection to getany juice. But I'm not going to procede until I know more. Your suggestion sounds right though and the RS shouldbe the ideal unit without buying a new piece of gear. Maybe a y-connect from the subwwoofer out on the Yam tothe left right connects on the RS? I haven't tried the phono in to check this. What kind of damage can I do?I've already spent some dough on a repair guy tofix the RS (amp chip replacement) once for about the costof what I paid for it. :-/

Subject: Re: Again, look at the response
Posted by Gazmo on Thu, 17 Feb 2005 00:56:11 GMT
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This is measured response of the autotuba. Notice peaks at 40hz, 80hz and 160hz which is the musical note D. There is more than 15dB (50x power) varience between D and A in the same octave.

Subject: IMPORTANT !!! PLEASE READ
Posted by Kim Schultz on Fri, 18 Feb 2005 03:49:10 GMT
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Gazmo: I´m the one that posted this RTA, and I really have to make it clear, this is an AutoTuba with another driver than what it was designed for.I used a high q and fs driver (ApexJr Super8), while the horn is designed with a low q and fs driver (MCM 55-2421) in mind.So please don´t use this as an example of how the AutoTuba response is.Kim

Subject: Re: IMPORTANT !!! PLEASE READ
Posted by Gazmo on Fri, 18 Feb 2005 04:04:25 GMT
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It looks much like other measurements of tubas but if you would like to post something else I'd be interested to see it. I think the basic design generates heavy emphasis on musical notes D & E because it is evident in every tuba measurement I've seen so far.

Subject: Re: Isobaric
Posted by lon on Fri, 18 Feb 2005 20:18:53 GMT
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Local audio guru sez a plate amp is needed and that it willgive a useable volume level, unlike patching through the Radio Shack. But I'm wondering what the difference is (?) Looking up the cheapie plate amp at PE.... Well it gives some detail but not what I was looking for.About the most efficient entry level product I can gatheris one of these and the MCM 6 in subwoofer driver w/16 mmXmax as shown with the Tuba 18. Interestingly, the tubas are getting a bit of discussionover at the Full Range Driver Forum.
PE compact subwoofer

Subject: Re: Isobaric
Posted by Wayne Parham on Fri, 18 Feb 2005 23:40:35 GMT
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Yes, I thought you'd need an amp between receiver sub output and speakers too.