Subject: Amp choices for multi-amp config
Posted by GarMan on Mon, 18 Oct 2004 19:54:20 GMT
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I've recent got to experience the benefits of active-crossover and biamping in my system. Even though I'm using unsophisticated equipment that's been tossed together (old Sony CDP with variable output level, a 20 year old crossover that's seen better days, my tube integrated, and Gainclone), I'm very impressed with the results. However, it got me thinking about how to best match differenct types of amplifiers to their intended frequency range. I've got a couple of questions here:If building a system from scratch, does it still make sense to select and use fullrange amps for the individual spectrum ranges. On one hand, fullrange amps would continue to be useful on its own if the system is ever dismantled. On the other hand, fullrange amps can add unnecessary costs if only a limited spectrum is required. For example, I found a SE tube design that can be built for a couple of hundred bucks but response is only 100Hz to 12KHz. However, to build it fullrange, it would double or triple its cost. Another way to look at it is for a given budget, I can either build a mediocre fullrange amp, or an excellent limited range amp.Second question is, what types of amps are best suited for each part of the frequency spectrum in a 3-way configuration. Obviously, matching driver efficiency and sensitivity is very important, but let's assume driver choice will fall into place. I'm a big tube fan but have to admit that a used pro-amp would probably provide the best performance/cost ratio for the lower bass region of 100Hz and below. Most seem to agree that SET is the best choice for midrange, but I haven't come across any "amp-of-choice" for HF and UHF.thanks,Gar.

Subject: Re: Amp choices for multi-amp config
Posted by grmngr on Mon, 18 Oct 2004 21:23:09 GMT
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most people use plate amps for subs even if they use tubes up top. be careful of amps or partsthat only go to 12k. compression drivers are one thing but all chips, tubes and transistors gomuch higher than that. transformers and capacitors should too unless they are very cheap.mediocre output transformers are usually the culprit.

Subject: Re: Amp choices for multi-amp config
Posted by Manualblock on Mon, 18 Oct 2004 22:33:49 GMT
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GarMan; We seem to be asking the same things. What I have heard is that the amps have critical parameters that must be similar in order to provide acceptable matching. Because there are so many variables it is best to use duplicate amps for each channel. Otherwise it is a crap shoot whether it will work. Why would the SE amp have such a narrow response band? The

transformers must be inadequate or the circuit is deliberately rolled off in order to prevent feedback runaway. Frank Van Alstine deals with this in his articles. That is why he rolls off the ST 70 Dyna in his mod circuit. It is easy reading and very informative. I am using two chip amps with pretty good results. What I would like to know is how to incorporate a EQ. feature in the crossover, like the one in Waynes xovers. J.R.

Subject: Re: Amp choices for multi-amp config
Posted by GarMan on Tue, 19 Oct 2004 00:44:35 GMT
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J.R. What are some of the variable that would make using different amps difficult in a multi-amp configuration? Once of the reasons I'm interested in active XO and multi-amps is being able to match amps to the frequencies that they perform best at. I know that different amps have different gain, but take can be adjusted for with attenuation at the XO stage.In terms of the SE example I gave, it was specifically designed as a low cost project and used Hammond's 125SE output transformer to save cost. I've never heard this transformer, but I'm sure it sounds perfectly fine within its specified range of 100Hz to 15KHz. A fullrange transformer would have cost more than double. The design does raise the good point of cost vs performance. If you know the amp's only going to be used in the midrange, is there a need to spend extra money for fullrange?Gar.

Subject: Re: Amp choices for multi-amp config
Posted by Manualblock on Tue, 19 Oct 2004 06:29:51 GMT
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GarMan; Did you happen to get a look at Joeseph Esmillas site where he tests those transformers in a SE 2a3 circuit/ He seems to think that they perform better than specs, forgive me if this is redundant; you may have read that already; there is a link on Angelas site. I cannot speak from experience as regards matching SE with SS or Push-pull, as I have not heard all of those combinations. I have heard pretty good SS on the bass and PP tube upstairs, it seemed to work well but in the end I percieved some fatigue. I just became bored with it and to me that is a sign of some problem.When you talk about using amps at the frequencies they have the best response at; do you mean whether they are specifically designed with response contours? Some kind of designed in filters? However; I see no reason not to roll off the response on the high frequency amp, lots of vintage tube amps are rolled off below 60/70 hz. naturally anyway. If we are dealing with differing topologies what I have read is the output impedance; damping factor and amount of global feedback all contribute to a naturally ocurring contouring of the sound as a result of changes due to frequency and phase shifts. and that is where you run into trouble. But as I say I have not heard everything so maybe the effects of these phenomena are minimal. What I would like to examine relates to your post on the Pi site; and that is pre-amplifier eq. What have you tried along those lines? J.R.

Subject: Re: Amp choices for multi-amp config
Posted by GarMan on Tue, 19 Oct 2004 13:16:19 GMT
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Hi JR.I haven't been to Joe's site. I've Googled his name but came up with nothing, so if you have the address, much appreciate it if you can forward it.I don't have any knowledge of the system where you experienced boredom with SS bass and PP highs. But most typical speakers are crossed at about 2.5KHz, therefore, virtually all midrange is coming from the woofer. In essence, most of the content you're listening to is produced by an SS system, which, for a tube guy like you, might explain the boredom. Using different amp types for different frequencies is actually more common than you think. Every time you connect a powered sub to a pair of main speakers, you're essentially bi-amping with different amp types.In terms of the "limited-range" amps that I brought up, I not suggesting building an amp and purposely rolling off unwanted frequency. Rather, I'm questioning if it's worth the extra effort and money to ensure fullrange performance if it's not used in that manner. For example, there are many "classic" tube amp designs that can be built very inexpensively. They give a wonderful lush midrange, but however, also have flabby bass and rolled off highs. If all you need is an amp to drive the midrange, intuitively, it makes sense to use one of these instead of doubling or tripling component costs for an amp that gives perfect square waves from 5Hz to 100KHz. Likewise, if an amp is only required to power a sub below 100Hz, a class D plate amp is acceptable. No need for a $5000 300w fullrange amp in that situation. But in the end, I don't really know. This is just an approach that feels right and any feedback is welcomed.Lastly, you've asked about the line-level passive crossover. It does look like a very simple and cost effective approach, doesn't it? There are a bunch of guys on the net that swears, between active line-level, passive speaker level, and passive line-level, that the passive line-level is by far the best option. Never tried it myself though. I like to take advantage of the warm season by cramming in all the speaker projects I can. Electronic projects are reserved for the winter, and this PLLXO approach is definitely something I want to try out. I'm also taking two university level photography courses this semester, so time is tight. If you know the basics of SPICE and the input impedance of your amps, a PLLXO is not hard to design. The only drawback I hear is that you're limited to 1st and 2nd orders, but it was never explained to me why?Sorry if I wasn't able to add much to your research, JR. However, from my side, I'm glad to hear there's someone else out there asking the same questions. We'll have to keep in touch to share progress.Gar.

Subject: Re: Amp choices for multi-amp config
Posted by Manualblock on Tue, 19 Oct 2004 14:23:11 GMT
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Thanks for the comprehensive reply this is very helpfull to me. You should be able to get to Esmillia's site by typing je labs into google. On my search it comes up as the first entry as an html. I have lots more thoughts and questions so will return to this in the future. Thanks J.R.