Subject: Passive Active Midrange Blah Blah (long)
Posted by ToFo on Fri, 19 Jul 2002 07:51:12 GMT
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Stuff I learned, and want to shareI just built a new set of crossovers. after I hooked them up I knew immediately there had been something wrong. My old x-over was perahps poorly built and my active x-over sounded gritty to me. I had enough materials in old speakers to build another set of x-overs. (except coils) I cant see why they could be so different. Maybe there is a bad joint somewhere in the old ones. Maybe haste and pack rat component selection are to blame. For the latest I salvaged parts. When I first got into diy audio I got the idea better caps would fix things.(anybody been there? yeah!) Caps aren't magic, and they didn't fix my junk. so I ended up with a stash of pretty caps I paid too much for. They do what they are supposed to. Caps are all North Creek & Kimber. Sound is more contrasty, mids are so real and I can hear details at surprisingly low volumes. Bad part is, now I need to rebuild the old x-over with known good parts, so I can see if the caps make a difference that justifies cost. I will post any findings. Bottom line, do it right, or get it from Wayne!I must mention that the Pi x-over slaughters the Rane AC23 active crossover in sound quality. The Rane seems to impart its own texture and has a thin midrange by comparison. It seems to flatten attack and truncate decay, especially cymbals. This add a hint of that "beer can being hit with a nine iron" sound.(I checked, I wasn't overloading input) Rane is one of the better units around. I did use passive compensation (between amp & tweet). The comp circuit did not function as intended without the rest of the network (even my rat shack meter showed it), it must be in the active network. this is difficult. I think you would have to build your own network from scratch to really get it. I am not the guy for that(yet). I thought it was great untill I heard the difference. Unless I had a big rig in a club I would avoid the active solution. Two Adcom amps and a Rane aint cheap, you know I would use if it was near as good. I think you would pay more for a great active x-over than the price of many Pi speakers. Maybe Bryston would do. Some pro series ten Pi's, big subs and three big amps. Yeah, you would need a club for that. NevermindI have seen Theater 4 midrange issues mentioned here, maybe its a bum x-over like mine. Now I can't believe what's coming out of these. I thought they were great before, but WOW! If you don't love your mids, look for a mistake on your part. I know this is subjective territory, but it is blatant. It is really all there! You put on a cd and it's there, you will not need to consider it. What a great speaker!A lot of this has already been alluded to or said outright by Wayne. I thought It might be good however, to hear how it panned out in my house, far from ideal, and smack in the middle of real life daily use.

Subject: Re: Passive Active Midrange Blah Blah (long)
Posted by Sam P. on Fri, 19 Jul 2002 11:01:47 GMT
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What exactly did you install between the amp and HF driver as "comp" that did not work right? I would think that putting the correct R1/R2 values in there with the bypass cap would give you the same HF response Wayne designed into his system. With your meter, you could adjust the bypass cap value as needed for "your real world living room", but the resistive padding MUST be there also. Which defeats part of the reason to go "active" in the first place, I guess. Sambtw,

you are not the first using a balanced line Rane with unbalanced amp inputs who has reported less than satisfactory results. also, the adcom inputs are "direct coupled", and will not "like" seeing any dc offset from the source...

Subject: Filter Q
Posted by Wayne Parham on Fri, 19 Jul 2002 13:13:22 GMT
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I think a lot of guys have run active and been pleased with their results. The thing that is most important is using a crossover that has CD compensation. This provides 6dB/octave boost.The

up to about 4kHz. Only after that point does 6dB/octave augmentation start. This is important because the goal is to conjugate the driver's power response, which is flat up to 4kHz mass rolloff, where it begins to droop by 6dB/octave.The way it works is this: The (R1/R2/C1) compensation circuit acts as a damper for the tweeter's (L1/C2/C3) crossover filter, and sets filter Q. Without those components - as if the load were purely resistive - the output of the compensation circuit would be a nearly straight diagonal line of rising response.Resistor R1 sets the Q of the L1/C2/C3 filter to be just slightly peaked, enough to raise output at the crossover frequency so that the response curve isn't a diagonal line there. It is lifted so that the first couple of octaves are flat, and

crossover document, and the resulting response curves are shown.Certainly this can be implemented in an active filter too. I'm sure some of them already do this, but I know some don't. When in question, it might be good to check and see.

Subject: oops, now I am on "the right page":)
Posted by Sam P. on Fri, 19 Jul 2002 14:12:36 GMT
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"But the (R1/R2/C1) compensation circuit acts as a damper for the tweeter's Butterworth (L1/C2/C3) crossover filter, and sets filter Q. Without those components - as if the load were purely resistive - the output of the compensation circuit would be a nearly straight diagonal line of rising response." themaninblacknow I get it. so what he used WAS just R1/R2 and the cap? a rising slope response! no good. something like electronic "CD" eq is needed...Wayne, get back to work on that active xover design you teased us about a while back...Samha, in your spare time:)

Subject: to be fair...
Posted by ToFo on Fri, 19 Jul 2002 14:46:15 GMT
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After reading Wayne's Filter Q post I think I should add this. The nearly diagonal rising response caused by the orphaned comp circuit, is seen by the listener as a dip in the mids around the crossover region. Since I ragged on the Rane's midrange, I should recant. I cannot say anything about that in light of the compensation curve being off. I think for a person better prepared to create and measure active compensation, or with a good parametric EQ, active x-overs could be great. To Wayne's credit he is honest about his design. A lot of guys with stuff that sounds 1/2 as good blow superlative smoke every time they opened their mouth. It is simple, elegant and unintimidating. I think that very fact makes it easy to underestimate how vital each part is to the great sound I'm finally getting. I will bet others have underestimated this too.

Subject: Re: Passive Active Midrange Blah Blah (long)
Posted by ToFo on Fri, 19 Jul 2002 17:27:28 GMT
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Hi Sam,I did use the proper compensation, with padding. You are right about "something like electronic "CD" eq is needed" in your other post. Rane lists the cap values needed for this & the unit is simple to modify. I understand that "CD" compensation is different that what Wayne uses. The jumper is just for a cap, and I am not able to tell what else is in the circuit. I assume there is some padding or slope to it. It may be possible to add another item to this circuit in the Rane to get Pi friendly compensation. Any ideas? I am still interested in making this work for a PA I am building for my brother.Interresting stuff about Adcom vs. Rane. I have the older unit with unbalanced outs to the amps, but the inputs say bal./unbal. (tip ring sleeve) I suspect It is really balanced with unbalanced being less than optimal. So you may have a point on the input side. I was not aware of DC offset issues with rane gear, I guess that is good to know. (even if It's bad news) Thanks for the input.Thomas

Subject: many opamps are "self-centering"
Posted by Sam P. on Fri, 19 Jul 2002 18:18:27 GMT
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to the p/s rails, and not a problem. I don't know about Rane, just mentioned it as "a no-no" w/ the adcom input circuit. They put a cap into the input of some later amps(5235), to prevent the level adjustment pots from buggering the input bias as well. I had looked hard into buying the AC-23, but balked at the opamp count, and the need to convert an unbalanced source to balanced for the input. Speakers are DONE! JBL 4648a-8 bass bins, 511 Altec/909 drivers, and jbl 2404H tweets. Amps are in the rack! 200wpc for bass, 100wpc for mid, and 60wpc for the highs. Just

waiting for "the MIB" to park his Viagro m/c and get back to work on the electronic crossover:)
Sam

Subject: Is there a cover charge to get in? :)
Posted by ToFo on Fri, 19 Jul 2002 19:36:07 GMT
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All good info, thanksCool! You setup seems pretty strong. Will there be pictures online somewhere? It sounds like you do not have the x-over yet. Waiting for the Pi, huh?I take it this is in home, Yeow!
