Subject: 4 Pi crossover questions
Posted by jimbop on Fri, 15 Aug 2008 17:10:31 GMT
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In the 4 Pi crossovers, which caps have the greatest effect on the quality of the high frequencies? What brands of caps are people using in these positions?Wayne, can you explain the function of the various caps, and which caps will benefit most from upgrading from the stock components?Thanks,JD

Subject: Re: 4 Pi crossover questions
Posted by Wayne Parham on Fri, 15 Aug 2008 21:14:27 GMT
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Importance from most to least:C2, C3, C4, C1, C5C2 and C3 are actually equal importance, being series capacitors. These pass the signal to the tweeter. C4 is a shunt filter cap, and it's important because it ultimately affects midwoofer response. C1 is a bypass capacitor, and only provides a tiny bit of signal at the extreme HF. C5 is part of the Zobel, which sets the load for the midwoofer crossover. This part has a very large tolerance, but if it's way off, upper midrange response is adversely affected.

Subject: Re: 4 Pi crossover questions
Posted by jimbop on Fri, 15 Aug 2008 21:51:09 GMT
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Ideally, should C2 and C3 be the same brand of capacitor?

Subject: Re: 4 Pi crossover questions
Posted by Wayne Parham on Sat, 16 Aug 2008 03:56:15 GMT
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I suppose that would be a matter of preference, but I would use the same type and brand.

Subject: Re: 4 Pi crossover questions
Posted by jimbop on Sat, 16 Aug 2008 06:56:55 GMT

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After posting my question, I did some searching and had a hard time finding many 22uF caps, especially in higher quality brands. Do you have any suggestions? I know you don't like to recommend specific parts, but perhaps you know of a couple of lines that others have used.

Subject: Re: 4 Pi crossover questions
Posted by Wayne Parham on Sat, 16 Aug 2008 07:07:00 GMT
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I use polypropylene capacitors from Solen, Erse, Jantzen and/or Audience (Auricap). Capacitor C1 is 0.47uF, C2 is 6.8uF, C4 is 10uF and C3 and C5 are 20uF or 22uF, depending on the manufacturer.

Subject: Re: 4 Pi crossover questions
Posted by jimbop on Sat, 16 Aug 2008 20:30:26 GMT
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Is this crossover universal for all models. I think mine is the Theater 4 - it has the Eminence 15 woofer. The original caps are 8 uF and 22 uF.

Subject: Re: 4 Pi crossover questions
Posted by Matts on Sat, 16 Aug 2008 23:12:20 GMT
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an excellent bargain in a quality cap is the Obligato from diyhifi in Hong Kong. They ship 'em here very fast and reasonably. I used them for 22uF's, and Auricaps for the 8uF (now 6.8), although I wouldn't hesitate to use them for all. Very nice caps for the $$.

Subject: Re: 4 Pi crossover questions
Posted by Wayne Parham on Sun, 17 Aug 2008 04:46:12 GMT
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them. But it has been tested with the Eminence Omega 15 and Delta 12LFA woofers and it works well with those. The main difference is matching sensitivity, which you do with the proper selection of components R1 and R2. So I expect this crossover would work pretty well in a

Subject: Re: 4 Pi crossover questions
Posted by Norbert on Tue, 19 Aug 2008 17:54:23 GMT
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I'm trying to source 20uF film caps but don't see much selection out there that don't cost an arm and leg.Aside from Dayton (PartExpress), Clarity (E-Speakers), Solen, or motor run is there any other ones I should be looking?Thanks,Norbert

Subject: Re: 4 Pi crossover questions
Posted by Wayne Parham on Wed, 20 Aug 2008 01:16:19 GMT
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The poly caps from those manufacturers all sound very good, as do Erse. As you say, there are some high end caps that sound nice also, but at 10x the price. The Daytons, Solens and Erse caps are great sounding for the money.

Subject: Re: 4 Pi crossover questions
Posted by Wayne-o on Wed, 29 Oct 2008 17:45:50 GMT
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I have not heard any difference in capacitors. Is there someone out there that can ? My Ears may not be as sensitive ,but I can tune a guitar sometimes. Reliability may be better on some. Ok I am just some Yaahoo in Indiana. Cheers !!!

Subject: Re: 4 Pi crossover questions
Posted by feket663 on Tue, 15 Sep 2009 20:21:03 GMT
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Hello everyone! I have a stupid question:
I'm sorry, i'm not familiar with electronic and crossover building. Can i replace R1 resistors with 2 piece of 50 ohm 15W and R2 resistors with 2 piece of 33 ohm 15w Caddock MP915 resistors.
I don't need drive this speakers with 600W power station, I have a simple 2a3SE amp with 3,5W.

Thanks, and sorry for bad english...

Subject: Re: 4 Pi crossover questions
Posted by Wayne Parham on Wed, 16 Sep 2009 00:25:27 GMT
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If you'll only drive the speakers with low power, you can derate the max dissipation levels of the

right places, jumpering unused positions if needed.

Subject: Re: 4 Pi crossover questions
Posted by Wayne-o on Wed, 16 Sep 2009 16:30:06 GMT
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Has the 4-Pi 20 uf C-4 capacitor in the low pass been changed to 10uf like the schematic shows here ? thanks

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Subject: Re: 4 Pi crossover questions
Posted by Wayne Parham on Thu, 17 Sep 2009 02:24:21 GMT
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about 5° going from 10uF to 20uF in this position. I didn't discover that immediately, but found it after some experimentation. The difference is very subtle, inaudible really, but measurements show it to be the better choice, if vertical symmetry is desired.

You actually could steer the pattern by choosing the proper value for C4, if you wanted. Speakers mounted high on walls would probably be better with a 20uF capacitor in that position, speakers nearer to the ground would be better with a 10uF cap. Both are pretty good choices, actually, since the nulls are separated pretty widely but for most cases, I think the 10uF value is probably better.

Subject: Re: 4 Pi crossover questions
Posted by feket663 on Thu, 17 Sep 2009 06:10:33 GMT
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Thank you very much Mr. Parham!

Subject: Re: 4 Pi crossover questions
Posted by feket663 on Fri, 18 Sep 2009 10:24:53 GMT
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Hello! There is another problem: what happens if I place to the C1 value a 0,68 microFarad cap, because I can't found good capacitor this 0,47uF value, but I have a 0,68 uF Auricap. Wrong idea?
Or can I use an old(1975) soviet paper in oil 0,47 uF/250V cap?
THX. Istvan

Subject: Re: 4 Pi crossover questions
Posted by Wayne-o on Fri, 18 Sep 2009 14:06:21 GMT
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Some other people have used a .68 bypass cap. they sound a little brighter , I prefer the .47 cap myself. You can hear a difference.