
Subject: 4 Pi crossover questions

Posted by [jimbop](#) on Fri, 15 Aug 2008 17:10:31 GMT

[View Forum Message](#) <> [Reply to Message](#)

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

[View Forum Message](#) <> [Reply to Message](#)

Importance from most to least: C2, C3, C4, C1, C5. C2 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

[View Forum Message](#) <> [Reply to Message](#)

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

[View Forum Message](#) <> [Reply to Message](#)

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

[View Forum Message](#) <> [Reply to Message](#)

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

[View Forum Message](#) <> [Reply to Message](#)

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

[View Forum Message](#) <> [Reply to Message](#)

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

[View Forum Message](#) <> [Reply to Message](#)

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

[View Forum Message](#) <> [Reply to Message](#)

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
[View Forum Message](#) <> [Reply to Message](#)

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
[View Forum Message](#) <> [Reply to Message](#)

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
[View Forum Message](#) <> [Reply to Message](#)

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
[View Forum Message](#) <> [Reply to Message](#)

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

[View Forum Message](#) <> [Reply to Message](#)

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

[View Forum Message](#) <> [Reply to Message](#)

Has the 4-Pi 20 uf C-4 capacitor in the low pass been changed to 10uf like the schematic shows here ? thanks

Subject: Re: 4 Pi crossover questions

Posted by [Wayne Parham](#) on Thu, 17 Sep 2009 02:24:21 GMT

[View Forum Message](#) <> [Reply to Message](#)

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
[View Forum Message](#) <> [Reply to Message](#)

Thank you very much Mr. Parham!

Subject: Re: 4 Pi crossover questions
Posted by [feket663](#) on Fri, 18 Sep 2009 10:24:53 GMT
[View Forum Message](#) <> [Reply to Message](#)

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
[View Forum Message](#) <> [Reply to Message](#)

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.
