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Subject: 4 Pi and 3 pi subwoofer  
Posted by [Heathkit](#) on Fri, 12 Aug 2016 19:56:27 GMT  
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4 Pi and 3 pi subwoofer plans please.  
Thanks!

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Subject: Re: 4 Pi and 3 pi subwoofer  
Posted by [Wayne Parham](#) on Fri, 12 Aug 2016 21:03:45 GMT  
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Subject: Re: 4 Pi and 3 pi subwoofer  
Posted by [Heathkit](#) on Fri, 12 Aug 2016 22:12:41 GMT  
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Thank you!

I apologize if these have been asked before, the search function is not very smart.

1. Will the design be compromised if the port is moved to the rear and the horn is centered above the woofer? Is having the horn off-center actually facilitating this design? It's just not so aesthetically pleasing to me.
2. Is the box volume a compromise for WAF? Can it be made bigger for better low end response?
3. I prefer the HF driver to be at ear level when listening, so about 40" for me. This would mean placing the speaker on stands or redesigning it to be a taller floor-standing cabinet. Would this terribly upset the balance (requiring a crossover tweak), because of changing the floor bounce cancellation?
4. Is the Acoustic Elegance TD15M another good woofer choice for this design? I understand the crossover would need some adjustment.

Thank you very much in advance.

Richard

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Subject: Re: 4 Pi and 3 pi subwoofer

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Posted by [Wayne Parham](#) on Fri, 12 Aug 2016 22:58:11 GMT

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Answers by numbers:

1. Will the design be compromised if the port is moved to the rear and the horn is centered above the woofer? Is having the horn off-center actually facilitating this design? It's just not so aesthetically pleasing to me.

I spent a lot of time in development of both these designs, and they've been tested extensively. They also have matured for many years, having several units in the field. That gives confidence in the designs.

So while some changes are pretty trivial and there are certainly lots of ways to skin a cat, you do have to consider that any changes are unproven until you test them. It is the design and test time and the years of maturity that you throw away when making mods.

If you still want to consider moving the port, let me say that there have been a few mods that have been tested. I'd be pretty comfortable with those. None move the port to the back though. If you want to do that, the thing to watch for when testing is internal standing wave modes. Watch for response ripple and "blips" in the midbass and lower midrange.

2. Is the box volume a compromise for WAF? Can it be made bigger for better low end response?

Beyond the things discussed above, also remember that we're using flanking subs to provide deeper extension while simultaneously smoothing room modes and self-interference notches from nearest boundaries.

3. I prefer the HF driver to be at ear level when listening, so about 40" for me. This would mean placing the speaker on stands or redesigning it to be a taller floor-standing cabinet. Would this terribly upset the balance (requiring a crossover tweak), because of changing the floor bounce cancellation?

I would suggest stand-mounting the mains and setting two of the subs in a flanking configuration, slightly behind, below and beside the mains they're flanking.

4. Is the Acoustic Elegance TD15M another good woofer choice for this design? I understand the crossover would need some adjustment.

TD12S. However, we did have some problems with those units in the past, so please be sure to verify driver response between 500Hz and 1kHz when using that driver.

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Subject: Re: 4 Pi and 3 pi subwoofer  
Posted by [Heathkit](#) on Sun, 14 Aug 2016 18:46:47 GMT  
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Thank you very much for taking the time to answer everything. I will keep the design as is, use stands and flanking subs as recommended.

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