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Subject: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [geaugafletcher](#) on Tue, 12 Sep 2006 14:18:30 GMT

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Hello folks, I'm looking for some advice...I bought a pair of Heathkit AS-101 speakers (Altec Valencia 846A clones) with blown tweeters for \$20. Bill at Great Plains fixed me up with new diaphragms, etc. and now the AS-101s sound terrific with a modest Tripath-based amp I put together. These things are big and have a very low WAF indeed. Should I continue to campaign to get these things out of the garage and into the living room? or Should I eBay the drivers and use those funds to buy a kit from Northcreek or Pi? (Or another supplier...) I'd appreciate any advice you guys can offer about bang-for-the-buck and such things.

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [Manualblock](#) on Tue, 12 Sep 2006 14:40:33 GMT

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Well; I use Valencias and Theater 4 pi's. Do you have any specific questions; I would be glad to offer my 2c. I also have a GC and Tripath amp. I have tried both speakers on both amps.

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [gumby1](#) on Wed, 13 Sep 2006 00:19:03 GMT

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I have built speakers from both North Creek and Pi and can say that both companies and speakers are great. Most highly recommended!

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [geaugafletcher](#) on Wed, 13 Sep 2006 06:46:12 GMT

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The Heathkits do some amazing things - fantastic 'throw' (or what as a musician I'd call 'projection'), good soundstage, nice detail, very life-like sound. However, they're bass-shy, very large and fairly ugly. They're in my garage presently...leaving the big door closed and listening to some Brahms piano pieces from behind the speakers, the reflection off the door has the amazing effect of the piano really being right there in the room. I've never had that experience before. Rumor has it that the 846B (with two round ports) has stronger bass than the 846A (where the horn sits back from the baffle and that opening serves as the port). However, the bass that is

present has a great rolling, effortless quality. I've also considered building new cabinets from the old Altec plans...If I can get similar or better sound from a Pi or NorthCreek kit, that seems like the way to go. Certainly your Valencias and Theater 4s sound different; do you prefer one over the other? Do the Theater 4s work better in an average-size living room? My tripath amp has great detail (to my ears) but it seems that a higher powered amp would bring more richness or body to the sound...totally conjecture on my part. What differences did you find using the GC? How do Pi speakers sound with these kind of DIY amps?(by the way, sorry for the rambling response, it's late. And thanks!)

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [Manualblock](#) on Wed, 13 Sep 2006 20:14:59 GMT

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Good description of the Valencias. To answer your question the Pi 4's and the Altecs do sound quite a bit different. The Pi's go a little deeper and have more detail and punch; they very much like SS amps. If I had to call it I would say they; at least to my ears sound better with more power. The Altecs have a very musical sound; call it colored if you will but I love it. The best sound out of both speakers was the SE Tube amp on the Altecs; and rightfully so since the drivers are much more expensive than what is in the Pi's. That combo did Jazz and pop so good it is like you are there. If you like classical? Maybe the Pi's are more your taste since they are better on the frequency extremes. The tripath amp sounds nice on the Pi's; not so great on the Altecs. I agree with the small room issue; the Altecs like bigger rooms while the Pi's can do fine in a smaller space. I get a phenomenal sound in my den with the A's but it suffers in my smaller room. For Jazz; I think you might be a little surprised at what a simple vintage tube integrated amp on the Altecs can do. I have on hand a couple common integrations and what a nice sound from that combo for a small piece of change. The Pi's will also surprise you with a good 50 watt SS amp on Rock and Classical. Remember the Theater 4's are pretty big in themselves; 6 cu ft; larger than the Altecs. To sum up; all depends on your music. Also bear in mind the Valencias have always suffered from weak cabinet issues. They really need a heavily braced stocky cabinet and that will make a difference in the perceived bass output.

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [SteveBrown](#) on Thu, 14 Sep 2006 14:18:27 GMT

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FWIW, I have had Thermionic 3pi, and now I use a Pi kind of speaker - a JBL 2226 on the bottom and an Altec 806 + 811 horn on top. I've experimented with dozens of different speakers over the years (just ask my wife...). I tend to use lower power amps (tubes) but also some mid power (push pull, 12 to 30 watts). Here are some of my general observations: 1. The best bass comes from big drivers. 15" is not over kill, but it does kill WAF. 2. More power is often more fun, less power is often more revealing. 3. Single drivers are an interesting concept, but I keep going back to

2-ways. 4. Higher efficiency is better than lower (for me at any rate). I think one of the best all time compromises is a simple 2-way with a reasonable size woofer. The 2-pi fits this category. I think if you visit the PI site you'll see loads of positive comments.

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [geaugafletcher](#) on Thu, 14 Sep 2006 14:41:49 GMT

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Funny that your Altecs didn't do well with the Tripath. The Autocostruire (Tripath 2020) and Heathkits make the best-sounding combo I've ever owned. Just for grins, I powered the Heathkits with my garage amp, an old MCS integrated. It had the sort of sound that makes a person say, "So this is why hi-fi guys don't like SS..." I didn't realize Theater 4s were even bigger than the Valencia cabinet. That puts them out of the running, unfortunately... Of course, my biggest audio surprise so far is the very high indeed WAF of the Pioneer CS-99a. They match our sixties-era wood furniture that once belonged to Mrs. Geauga's grandmother. For home theater and CSI in 5.1, they do pretty well. However, I'd like to have a nice pair of front channel speakers to use for serious listening as well as gunshots and explosions. Thanks for your comments, manualblock. Anybody have comments on NorthCreek or have other suggestions for a comparable kit?

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [GM](#) on Fri, 15 Sep 2006 16:01:16 GMT

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Greetings! Is DIYing taller MLTL cabs to get a smaller footprint an option? This would allow a minimum o.d. width/depth of the horn's 18.75"/16.75" with the added benefits of getting the drivers up around your face/chest and more net Vb for greater gain BW. GM

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [Manualblock](#) on Fri, 15 Sep 2006 17:35:21 GMT

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Say GM; is that for the Altec drivers you speak?

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [GM](#) on Fri, 15 Sep 2006 19:04:45 GMT

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Greetings! Right, store the OEM cabs if practical since they may have some vintage worth and use the components in new ones since he apparently likes them except for their lack of low end, which the larger Vb addresses to some extent. Once optimized, they can be finished off to more closely blend with the decor, or at least not 'stick out like a sore thumb' if kept close to a wall or corners. GM

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?  
Posted by [geaugafletcher](#) on Fri, 15 Sep 2006 19:28:28 GMT

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So from "MLTL" I assume ML stands for "Marriage-lengthening" but you'll have to help me out on the other two letters. Yes, DIYing a new cabinet is definitely an option. Could you tell me in more detail what you mean? The original Heathkit cabs don't seem to have any vintage value to speak of.

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?  
Posted by [GM](#) on Fri, 15 Sep 2006 21:18:37 GMT

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Oh well.....LOL! No, it stands for Mass Loaded Transmission Line, a more technically correct way to describe vented pipe designs that historically were usually referred to as a 'tower' or 'column' style speaker. Nothing fancy, just a fairly simple design that can be either two isolated compartments or a single compartment if either the depth can be increased to 17.5 - 18" or a small cap is added to the rear to cover the end of the horn driver since it will require a clearance hole in the cab's rear panel. The basic layout of the components would be per pg. 20's '800 Hz VOTT' layout except with the vent down near/at the bottom of the much taller ~42" high cab. I don't do drawings, but if you decide to go one of these routes I can fluff out the rest of the details. GM  
p.20

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?  
Posted by [Manualblock](#) on Sat, 16 Sep 2006 00:12:52 GMT

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Would the enclosure have the same internal volume?

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [GM](#) on Sat, 16 Sep 2006 01:46:38 GMT

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Greetings!No, like I said, it will have more net Vb AFAIK, but I admit it's based on a very dim memory of the AS-101 being ~the same cab as the 846A Valencia except for cosmetics. GM

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [Manualblock](#) on Sat, 16 Sep 2006 02:13:47 GMT

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Yes; they were pretty much the same Vb. Like a 846B.

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [geaugafletcher](#) on Sat, 16 Sep 2006 14:38:12 GMT

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According to my research the AS-101 is just like the 846A - the horn flange is set back from the front baffle, creating a 'port' for the woofer. The 846B is a more standard ported design. DIYing cabinets is definitely an option...I've talked over some ideas with The Redhead and she's amenable to a wider range of ideas than I thought. Little did I know that when she and her mom listened to a little Ray Charles through the AS-101s, she started to come around. I found this cabinet design over at AK:<http://audiokarma.org/forums/showthread.php?t=76361> and also checked out the plans at [lansingheritage.com](http://lansingheritage.com). GM, if I give you rough dimensions of what will fit in my living room, can you tell me if your cabinet would work? From your description, it sounds like you'd take one design from pg. 22, but make it almost a foot taller and add a port. This may be the start of something big... (so to speak)

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [GM](#) on Sat, 16 Sep 2006 19:47:35 GMT

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Greetings!Thanks, nice to know my memory's not completely shot!Yeah, I didn't have a clue what SAF/WAF/SO/whatever alluded to when I first got on the early DIY speaker BBs since it was never an issue with the various wives/S.O.s I was exposed to during my building 'career' no matter how big the cabs got (up to 30 ft^3 and one 300 ft^3 false wall IB). I guess it was due to asking them to be proactive over how they were 'voiced' since females typically hear better than

males (especially in the extreme HF), and due to their reproductive system they are more sensitive to the lower frequencies to boot. I guess there's a design in that thread, but in a quick scan I missed it. Sure can. Yeah, Altec has already measured the phase alignment offset in both planes, so why re-invent the wheel, so to speak? GM

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [geaugafletcher](#) on Tue, 19 Sep 2006 04:35:18 GMT

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GM, If you're interested, check out post #6 in <http://audiokarma.org/forums/showthread.php?t=76361> to find the .jpg files of the plans I mentioned. I took some measurements tonight, it looks like cabinets would have to be no wider than 21" to share space with the TV cabinet. Height is more or less up for grabs and depth should probably be no more than 21" as well.

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [GM](#) on Wed, 20 Sep 2006 02:11:12 GMT

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Greetings! OK, generic backloaded horns (BLH, aka scoop bins) designed for midbass 'slam' and not much else. Makes visceral kickdrum hits though. Anyway, not really suitable in your app as I understand it. 21" square x 42" high o.d. makes enough Vb to even go sealed if you prefer, which considering they will be ~up against the wall may work best, though tuning them to ~Fs or a little lower is worth trying. Anyway, it gives you some tuning flexibility. GM

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [geaugafletcher](#) on Wed, 20 Sep 2006 15:29:35 GMT

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Ok, let's go with 21" square by 42" high. Still pretty big, but I think it's now more a matter of physically fitting in the room - aesthetically fitting will happen later. For home theater purposes, the quality of sound isn't as critical, but for two-channel listening, it'll be classical and I'd like them to work well in that setting. Accuracy, smooth response, etc. are very important, more so than power (although that'd be nice, too). In my experience so far, sealed systems sound better than ported, but I'm open minded. The Valencia cabinets are ported and sound better than anything else I've owned... Isn't classical music the most demanding? Dynamic range, frequency range, soundstage, fine detail and power all together... I'm pretty sure the LF drivers are 416-8A. 8B and 8C have an Fs around 25hz, so I assume the 8A is somewhere around there.

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [GM](#) on Wed, 20 Sep 2006 19:13:38 GMT

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Greetings! Actually, with the caveat that they are limited to +20 dB transients, some of the best produced music today are movie soundtracks. Yes, good classical is pretty awesome, but organ symphonies will test the mettle of all but extreme sound systems and find them wanting, especially if you want to go ~ 'live'. Accuracy/smooth are 'floating targets' since folks don't all hear exactly alike, have different frames of reference, etc., and if you fall back on measured 'perfection' to level the playing field, most folks find them too 'sterile' sounding. For instance, all expo horns are 'colored' (distorted), so anything but accurate and the 511/811 conical/expo CD horns are much more so no matter how much you tweak them, yet many folks consider them 'accurate/smooth' enough without any tweaks. Then there's the woofer and XO to consider..... So the good news is that you can technically improve what you have and the bad news is that you can't make them 'right' and might not like them once you're done. Still, as you know you're starting at a high enough level that few do much tweaking, so major leaps will require mass quantities of \$\$ and ultimately, space. Note that unless you have room to toe them in, a horn super tweeter will be required to get enough off axis HF power response. This, or make horizontally slanted front baffles like the late NHT 3.3 tower system:

<http://www.stereophile.com/loudspeakerreviews/1293nht/GM>

NHT 3.3

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [geaugafletcher](#) on Thu, 21 Sep 2006 15:07:03 GMT

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I see. Better just to build something and find out than to endlessly ruminate, especially with my limited understanding. So let's assume 21" wide and 42" tall for a mass loaded transmission line. I've done some reading on design and used the calculators here: <http://diyaudiocorner.tripod.com/formula.htm> to try to get a feel for dimensions of ported and sealed enclosures, but TL design looks quite a bit more complicated. Would you give me a starting point/idea? The living room arrangement won't have enough room to toe in, and slanted baffles are beyond my woodworking skills for now. I'll look into supertweeters. As it is, I've found the Heathkits mostly satisfying to listen to; maybe the supertweeters can wait.

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [GM](#) on Thu, 21 Sep 2006 19:45:05 GMT

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Greetings! OK, build this, preferably using either 19 mm 13 ply Baltic Birch, Appleply, or marine grade (only if you can find guaranteed no-void though) plywood (all dims inside): H = 40.5", W/D =

19.5", add a full width 811 horn mounting recess similar to the link's 800 Hz VoTT except just make its height big enough to fit the horn flange (~8.75"), and due to the narrow cab it will be necessary to notch out the sides; driver cutout down 17.88" from the top, and for initial tuning, a 5" dia. plastic pipe x 4" long ~5" from the bottom. Assuming a low output impedance amp, this should tune it down in the high 20s and perform similar to sealed except with a bit of extra gain. Shortening the tube to the 0.75" minimum should yield a ~T/S max flat alignment (max BW half space gain) once the horn is properly shelved, so none of this takes into account the LF wall/room gain. If the 4" pipe is too 'boomy', then either add more internal damping as required or just seal it off. For proper vent action, a good seal is essential, so I recommend using high grade neoprene gasket material in lieu of the typical cheap foam weatherstripping. WRT general construction, I recommend mounting the driver to a separate removable baffle like the 846B has rather than a rear access cover/removable back, then run top and bottom front to back braces. Since most of the cab's pressure is vertical, brace the panels using ~1.5" wide plywood strips glued on edge and vertically offset in a golden ratio, so centered at  $\sim 19.5 \times 0.618 = \sim 12.06$ ", just don't extend the braces all the way to the top and bottom of the panel since this causes a vibration 'hot spot'. Just to make sure there's no horizontal modes of note, randomly add some strips tying the vertical strips together. Install a HF driver support cross brace and line the notch (no need to contour it to the driver's diameter) with neoprene or similar. For gluing, FWIW I prefer caulk tube loaded construction adhesive, adding a few scrap wood glue blocks along its length, then when it sets I add a second bead along the joint just in case there's any pinholes, though many folks are satisfied with cheap caulk's sealing attributes. WRT damping, Altec's recommendation of covering the top, one side, and back should work fine for sealed or vented, though I recommend adding a second full depth 'panel' louped around the horn to create a damping chamber. FWIW I normally used 1" thick acoustic fiberglass. Bottom line, it's a very room/personal preference dependent since some folks like more or less depending on how 'lively' they like their box sound. The space between the top/bottom of the horn 'lips' and the recess's walls along with the horn flange/baffle sides will need to be lined with either 1" acoustic fiberglass or similar. ....and if you're interested enough to delve into TL/MLTL design, then start here: <http://www.quarter-wave.com/> <http://www.geocities.com/rbrines1/> .....though some of his conclusions are a bit too narrow minded IMO since like most things it's not what you have, but how you use it that usually counts most. Anyway, looking forward to your thoughts on its performance/final tuning choice and whether you think it was worth the extra \$\$/effort. GM

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [geaugafletcher](#) on Sun, 24 Sep 2006 04:57:27 GMT

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Alright, the gears are turning... The Redhead has expressed an interest in the project, so WAF is no longer a factor. I'd like to get these built before the weather gets questionable. The Heathkits presently live in the garage and I'm sure the drivers wouldn't enjoy having the cold and damp creep in from outdoors. I hope you don't mind more questions, GM...When you list placements of woofer and port, do you mean XYZ inches from the edge of the cabinet to the middle of the circle? For the stiffening strips, this is how I read it: Each panel (two sides, front and back) has a single 1.5" wide strip glued at ~12.06" (.06"? ) from the edge. The strip does not extend all the



way from top to bottom (any suggestions on how far or is it cook's choice?). There are several randomly placed horizontal 'rings' that tie all four vertical strips to each other. The top and bottom each have a brace or two extending from front to back. This one sentence still puzzles me after many readings: "Shortening the tube to the 0.75" minimum should yield a ~T/S max flat alignment (max BW half space gain) once the horn is properly shelved, so none of this takes into account the LF wall/room gain." I understand that the room will affect the LF, but how does that relate to the first part of the sentence? I plan to build three cabinets - the first from rough plywood to get a better idea of how to do it twice properly with nice the 13 ply Birch stuff. If you have patience for more questions, I have a number of woodworking posers for you. As to whether I will "think it was worth the extra \$\$/effort," it damn well will be after I go through the palaver of building the cabinets! Just these will be quite a challenge for me, I'll save TL for another time. GM, thank you for your many posts and patience. I'm looking forward to enjoying building these and doing some listening.

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Subject: Re: part out Valencias & build NorthCreek or Pi? or keep Valencias?

Posted by [GM](#) on Tue, 26 Sep 2006 04:25:20 GMT

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Greetings! You're welcome! Right, inside dims.  $0.06" = \sim 1/16"$ , but the (~) means more or less, so if you're not a perfectionist, then round it off. 'Cook's choice'. I'm sure there's some math to calc an ideal distance, but I'm no structural engineer. I forgot to add that as long as the brace spans at least ~70.7 % of the distance it works for me. Horizontal 'rings'? The top/bottom front to rear braces are above/below the driver. What you're trying to accomplish is to provide the driver with a rigid 'platform' to allow it to work as mechanically efficiently as practical. The 'tie' braces between the vertical bracing can be more of the plywood scrap strips. For these to work their best they should intersect, creating an 'X' brace. A T/S max flat alignment means that the system's half space F3 is as low as it can go. Since the horn is much more efficient than the woofer, it must be shelved (attenuated) to sound tonally balanced. When placed near a wall or corner it can sound too 'boomy' to some due to the extra acoustic gain, while others prefer it since it means less HF shelving. I just gave you a vent size and length range of adjustment that I think is flexible enough for you to find one that works for ya'll. GM

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