Subject: My Oris/10Pi system
Posted by Shanko on Sat, 04 May 2002 21:17:46 GMT
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Seems to be quite some interest in combining Oris horns with Pi bass reflex or horn cabinets. This is a big write up, but bottom line is, I can tell you, this works.Last year, I heard the Oris 150 system at a friends place. The Oris was loaded with PM4/AERs, the bass units were the onkens with 10 inch drivers. There has been a lot written about how great these horns are and yes, I will add to the chorus, I thought they were fantastic. All the clarity and shock of the real that can be achieved with the finest lowther systems, but without the typical downsides, like a tendency to shout - treating digital material particularly unkindly-, and the lack of real low bass. Ive been living with lowther horns for the last 6 or 7 years by the way, and I like them a lot. No speaker is perfect. Indeed, from listening, I thought I could see a way for the Oris/onken system to be improved. The onken bass unit, while extremely good by most standards (another listener compared it with his B&W 801 set up) didnt fully gel for me. Good as it was, I found myself speculating about what the Oris would sound like in a system combined with a big bass horn filling in the low end. - Pretty damn amazing-, thought I. Others have been thinking along similar lines. But the idea of constructing the typically complex and convoluted folded bass horn -think Klipsch, or GRF- didn't hold much attraction. About this time I became aware of Pi speakers - in particular, the 10Pi bass horn. I started out contemplating loading this cabinet with vintage 18 inch theatre woofers, but these didnt eventuate and I ended up with a mint pair of JBL 130As instead. Actually, I was pretty happy about this. These are obsolete, alnico magnet models. Wayne seemed to think they would work OK, and at 101 dB efficiency -JBL's figure-, I guessed that a 5-6 dB lift from the horn in the main operating range below the 150hz Oris would lift the bass horn right into line, output wise. I had some big mutha triode monobloc amps under construction and I was hoping to be able to run the horns together off these with just a high pass on the bass horns as a crossover.In deciding to run the 130As in 10Pis I also remembered what Wayne had said in reply to a speculative post about using the -later but similarly specified- K130 drivers in the 10Pi and combining the result with valve amps – he said this would result in lunatic -110 db/w- efficiency and asked …any takers? Yep, me. I always intended to run the 10Pis on their side with the Oris on top, but when the plans turned up (with a retuned port for the 130's) it occurred to me that I could also get away with chopping the design down. As the photo shows, the Pis sit in shallow corners, and I figured I could lose a lot of speaker volume by just leaving out the parts of the horn usually filled with expanding foam. I figured I could damp the panels that would normally be supported by the foam by screwing extra sheets of MDF onto them, effectively doubling cabinet thickness.I was planning to get an expert cabinet maker to make the cabs. Until he had an accident and put himself out of cabinet making for a few months. I had another look at the plans, and thought what the hell, Ill do them myself. Pretty big call for someone whose last major woodwork project was making a wooden pencil case at school more than twenty years ago, but I got there. And Im glad I did. Took me three weekends and a couple of extra very late nights. If I can do this, you can too.Apart from the chopped aspect, the 10Pis are basically made to spec. with ¾ inch MDF. I thought about making them out of 1 inch stock. That would have been a mistake. Due to the size of the cabinets, I had to bring them up from the bottom path of our place, about a 250 yard lift, uphill. With steps. This was very hard, even with the bracing panels removed, and a pretty fit guy helping me. With 1 inch stock, I doubt we could have done it.The veneer inside the horn is maple. I cut the panels to size and had a local shop veneer them. It may have been smarter to just use pre-veneered panels. Nice effect, though. I originally had the rest of the horn finished in a Plasticote granite effect -you can see this on the stands I made

up for the Oris-. This really didnt work visually, so I painted them black. This left a pleasing -IMHO- textured finish. The bass horns sit on paving stones, damped with blu-tack. The Oris have been painted an Audi metallic burgundy.The moment of truth for me was the first hook up. I just wired the horns together with some Vampire magnet wire, no crossover at all, and listened. What I was hoping for was to hear two horns playing together, with no marked prominence in either the top or bottom horns indicating a level mismatch. What I got was music. Clearly, I had lucked out. Before the great efficiency debate gets going after my rough and ready comments above, I would note that the AERs measure at 12 ohm at 150 hz, whereas the 130As measure 7 ohms at the same freq -despite being marked '16 ohm' on the magnets-. Bert has recently posted findings indicating that my DX4/AER/Oris combo clocks in at 110 dB/W. So I guess while the 10Pis have the same output when strapped to the same amp as the Oris, technically they are not quite as efficient. Practically, all this means is no need to attenuate either horn – great! With the set up sounding so good with no crossover at all, I was worried about what installing the recommended 150hz crossover components on the 10Pi would do – would this screw up the sound, I wondered? Well, I got an 18 ga coil from North Creek Audio, and a friend donated some 100 uf caps -cheap electrolytics- for a comparo. Well, the whole thing just got better. Much cleaner, clearer through the 150 -800hz band, where the two horns had been overlapping. The bass, far from being choked by the crossover, improved – probably because it wasn't overshadowed by an overblown upper bass/lower midrange. Im looking forward to installing a big gauge coil and trying some decent caps. Playing around with a good quality SPL meter after installation of the crossover confirmed that the output levels between the two horns were in effect perfectly matched. The –6dB point in room is below 50hz. The bass has an unforced, undistorted, real sound that I have only ever heard from really good, big horns. Fast, clean, dynamic. Look, just build a pair, OK? I also had a chance to -briefly- try active operation with a Welborne Labs crossover and a 100 watt AKSA. This resulted in a combined 150 watts/channel into the most efficient -full range- speaker set up I for one have ever seen. When I first hooked it up actively, the bass was clearly up in level, but the SPL meter had gone…so, instead of messing around trying to match levels by ear, I just grabbed a serious drum & bass CD and let rip… My ordinarily stereo-oblivious cat was sitting in my lap at the time, and he flattened his ears and dug his claws into my knee as he prepared to bolt out of the way of the 10 ton boulder that was obviously bouncing towards us as the opening track cranked up…This was bass as a feature as in --holy hell, check out that bass..-- but, after a while, when I went back to the passive set up running off just the valve amps, my toes started tapping again, and I just found myself relaxing into the music rather than marvelling at the mega-slam factor. At the end of the day, the comparison was pretty much void because the bass levels were boosted in the active set up. Some day Ill try this again with properly matched levels. My hunch is that 150 hz is a little high to cross over from a triode SE to a solid state amp. Quite willing to try a 250 or 500 watt plate amp on a 2245 in a Pi aligned cab operating under 40hz though -no hurry on this one-.
Let's see…I also compared the DX3 (original cone) and the AER's on DX4M magnets in the Oris. The DX3s sounded superb. Beautiful, clean, clear, natural. If you can only stretch to DX3s in the Oris, then go for it because they sound great. But….The AERs on bigger magnets sound even better. Smoother, more natural – as well as more extended in frequency. Pretty neat trick. Frankly, the AERs on the bigger magnets made the DX3s sound a little crude in comparison, which will be hard to believe if you have only heard the DX3 set up.And yes, as you would expect, this set up works great with low powered amps. A friend brought around his beautiful, transformer coupled 417a/2A3 amp, and it worked very well. If you are dedicated to exploring the sonic qualities of 2A3s, 10Ys, 45s or even 205Ds playing full range, I dont know of any other set up that will offer more per milliwatt.So, Kudos to Bert and to Wayne. Two great guys

– Wayne is someone who will post plans half way across the world just for the pleasure of having someone build one of his designs. And I well know from experience that Bert stands 100% behind his product. These two designers have created superb horn designs that can be combined to make a minimalist, wide range and ultra efficient horn set up. It's a hybrid, with European horns and cones, British magnets, and American bass horns and drivers. But it works. If you are into car analogies, think De Tomaso Pantera. Or AC Cobra. Thanks, guys. Other Stuff Used:Naim CDi CDP and Garrard 301/SME/V15MxrVarious Phono Stages (Creek, Plinius, Naim)My 2-Box DIY ECC82 line stage (nice, but recently wasted by a Bent Audio TVC)Leak Stereo 20, above mentioned 2A3 and AKSA, my ECC33/KT66/805 45 watt SE monoblocs,Various DIY and commercial cables.