

## a couple of ideas

In playing with integrating the new Whampipes with the existing Whamo subwoofers, I came across a couple of interesting results.

The first step was to build another pair of S.E.X. amps so I could biamp the system.

The main pair of amps was left in the configuration described last month, to run the towers, with only a change of value of the driver to output .47 mfd coupling cap to create a 100 Hz high pass filter. Calculations showed the value ought to be .05 mfd for 100 Hz rolloff, but reality stepped in, and sweeps run on the HP signal analyzer showed .01 mfd to be the closest match (-3dB@103Hz). Surprisingly, a Vitamin Q gave the best sound.

The amps for the subs were built with no feedback and the stock output transformers, which gave a gain of approx. 18 db, like the tower amps. To get the 16 ohm trannies to be happier with the 8 ohm subs, the 1K wire wound dropping resistor after the second filter cap was moved to a position between the rectifier diodes and the first filter cap, to lower power supply impedance.

A 500 mfd cap was paralleled with the second (after the choke) filter cap.

The amp also received the LED cathode CCS treatment, and a wirewound 200 ohm output stage cathode resistor, with a 1000 mfd Black Gate cathode bypass cap.

I did not incorporate a low pass filter into this amp, as I had the gain matched to that of the tower amps. Instead I put some effort into rolling off the subwoofer's response as hard as possible by mechanical means.

The fiberglass lining the sub was ripped out, and the 3/8"-1/2" thick carpet felt that was used to line the Whampipes was applied to every interior surface of the subs, except the bottom panel.

The difference in top end rolloff was very obvious, much less HF info now comes out of the subwoofer ports. This matches very nicely with the "beefed" upper bass of the Whampipes.

An interesting final observation:

I found the response of one sub was +10 dB @ 42 Hz and -10 dB @ 57 Hz!. Sounded boomy, as we have noticed the last few club meetings at my house.

The system now sits one foot forward from its old position, and woofer response is 37- 110 Hz +/- 5 dB (there is still a slight peak at 100 Hz). The bass is rich and smooth.

This Whampipe/Whamosub biamped system makes me quite content! *Doc B.*

Allan Rosenthal has been using the two way setup, biamped with a Kit One on the bass and a S.E.X. amp on the tweet, and says he likes the midrange image of this setup better than the Superwhamos. He also says he doesn't notice that much loss of bass relative to the Whamos in a small room, and that the bass is more homogenous than it is in the Whamos.

My experiences have been the reverse, with my pipe sounding a bit boomy and one noteish, and definitely not going as deep as the Superwhamo, but I am using a large, tight room and a fatter pipe.

My (John Carey built) pipe is big enough that it will barely accommodate the full Whamo tower speaker complement. The position of the drivers in their vertical array leave only one woofer in the optimal position near the center of the pipe, but I think it sounds pretty close to the full Superwhamodyne, but a bit too thick in the midrange.

I have used the fiberglass as Marc suggested using the carpet pad, blocking the upper midrange from escaping out the back. I have also tried removing it down to the top of the internal divider, and find little difference in the sound. The full on Superwhamodyne system holds an advantage in the 'realism' factor and clarity, as well as the deep bass. By comparison, this new Whampipe has a nice full lower mid sound that many folks might lust after.

One interesting observation during a lot of speaker play last month is how different these MCM driver configurations sound in different rooms.

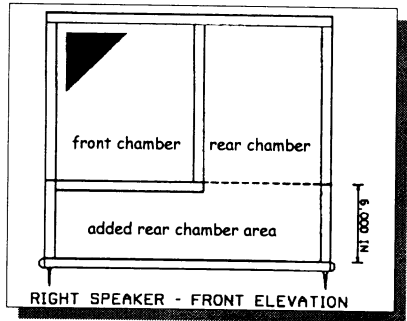
The Superwhamos are very tight, with balanced, solid bass, and crisp presence in my treated, concrete basement listening room, and they sound even better at the concrete floored, carpeted, double layer sheet rock walled and tube trap treated 12 x 20 room at Nuts About Hi Fi. Upstairs in my wood frame, flexy bare wood floor and partially curtained 14x20 living room, they get "home theatre" in the bass and quite laid back on top. To me they sound like very different speakers.

I suspect the subs may be a bit more efficient than the towers., with a small peak around 110 Hz, a slight depression around 75 Hz, and a larger peak around 50Hz. Who else but yours truly could have ended up with an ass backwards combination like that? I would like to hear from anyone who has tried building the Superwhamo subs with a bit larger back chamber, which would lower efficiency and shift the passband down to boot. You might get away with this lowered pass band in the woofer, and hear even deeper bass.

Cool.

I will be working up a chamber that could be added on to the bottom of the existing subwoofer to increase the rear chamber size.

The chamber could be a 19.5" x 19.5" x 6" (internal dimensions) extension of the bottom of the subwoofer. The bottom of the back chamber would be cut open to combine with this added volume. This would raise the tweeter above the ideal seated listening height. Response might be from 32-86 Hz, with potential peaks in the sub's response equalizing with the rolloff of the tower.



NOTE:

This is a purely speculative idea. This kind of mod may reduce sensitivity too much, and it may take some patience to optimize the back chamber volume.

The two way pipes sounded better in the upstairs room. The difficulty I had with the hollow bass and tough integration of the tweet crossover in the two driver, two way version doesn't seem to matter as much in such a lively room.

One more intriguing possibility with this tapered pipe business came to me after reading David Weems' article on tapered pipes from Speaker Builder a few years back. His rules of thumb for designing a pipe indicate that the pipe could be much smaller in cross section. The pipe's cross sectional area at the bottom needs to be only about 2.5 times the piston area of the driver, and the area behind the driver should be about equal to the piston area of the driver, plus or minus 20%.

The effective area of the driver is roughly 12 square inches, so the pipe's cross sectional dimensions could be roughly 5 inches by 6 inches, plus a bit to allow for the thickness of the inner baffle.

If you wanted to experiment with a full range speaker for a smaller room, this minimalist design would be a pretty cool starting point. Try removing the dust cover if you go full range.... - Doc B.