VALVE
PO BOX 2786
Poulsbo, WA 98370

Waiting for S.E.X.*

Waiting to partake in S.E.X.* can be a frustrating experience.

To those of you who have shown confidence in us and called, ready to order, we offer thanks and ask just a little more patience.

As I write this, I await delivery of the precision laser cut chassis plates that will accompany every kit of amplifier parts. These have mounting holes for the transformers, choke, tube sockets, jacks and power switch. They are being cut to .001" tolerance from .032" aircraft grade 6061-T6 aluminum, and can be put on an 'upside down' 10" x 6" Hammond chassis, or on your own custom wood base. You will get to drill your own mounting holes for the terminal strips included in the kit, so that you can arrange them to accommodate any custom underchassis components you may decide to substitute (Want to put $1600 hand made silver capacitors in your $275 a pair amp? Go for it!).

A new mu follower drive stage has been incorporated into the kit design as well. If you haven't heard the smooth, relaxed detail a mu follower gives, you're in for a treat. The mu follower has increased gain, and allows us to incorporate an improved feedback loop as well, extending the frequency response at both ends.

If you're bad like me, you're already thinking of how to modify this beast. After hearing how much the S.E.X amps sound like a copper wound Baby Ongaku, I have borrowed a pair of Magnequest 025 output transformers to eXperiment with, and will report the results in a future issue **VALVE**. I'm also scheming up a tube rectifier upgrade, and playing with strapped operation of two or more amps.

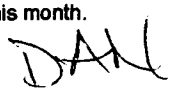
By the way, the S.E.X. amps sound great with the Superwhamodynes. Since the Whamos like a bit more than two watts, a couple sets of S.E.X.* amps (either biamped or strapped) would be a near perfect match. I may go for it all and triamp three strapped pairs in my own system (twelve PSE monoblocks for under $1500!).

Some folks have asked for availability of the S.E.X.* amps alone, without the aluminum drivers. We will make these "pair of PSE monoblocks only " kits available as well, for $245 plus tax, shipping and handling (we don't mark up the MCM aluminum drivers when we sell the amp and speaker kit). Keep in mind that the aluminum drivers included in the full kit can go into your Superwhamodynes when you decide to build them. Amp and driver inclusive kits will be $275, plus tax, shipping and handling.

By the way, these prices are special to **VALVE** subscribers. When these kits go out to the non **VALVE** member public, they will be priced at $350 plus tax, shipping and handling for the complete S.E.X.* kit, with drivers, and $320 plus tax, shipping and handling for the "amps alone" version.

Thanks again for your patience. In gratitude for your support, we'll be holding a drawing to give away a completed S.E.X. kit at their debut showing, later this month.

Call 360-697-1936 for more info.



ELECTRONIC TONALITIES

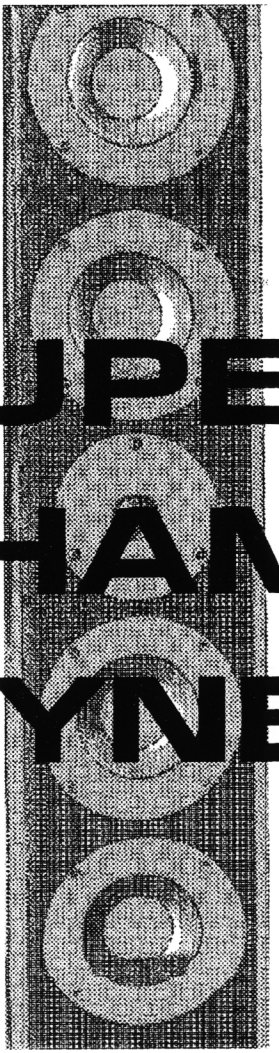
P.O. Box 2786, Poulsbo, WA 98370

* Single Ended eXperimentation

VALVE

VINTAGE AUDIO LISTENERS AND VALVE ENTHUSIASTS

in this issue:



SUPER WHAMO DYNE!

volume 3, number 5 May 1996

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editor's thing

This month's lesson: Try everything, even things you think won't work.

After most folks left the meeting last month, I tried something I should have done earlier, but really didn't think would work. Got one heluva surprise.

We had been running John Carrey's stunning new SE 2A3 monoblock, based on Gordon Rankin's "Baby Ongaku" circuit (using Magnequest copper 030, RCA 2A3, SRPP 12AT7WC driver, MITs, Black Gates, the good stuff) on one channel through the Whamodynes, with a Triophoni on the other channel. The 2A3 amp basically chewed up and spit out my PP 6CK4s. Better low level detail, better quiet, cleaner bass, cleaner highs, and smoother voice. Now the Triophonis are no slouches, sounding better to me than the World Audio 6080 SE, and outclassing a PP Cary amp last Saturday. I bowed to John and told him he had the best amp I had heard this year.

I mentally noted to finish breadboarding my 211 amp soon, so I could one up John. Then, just for fun, I put a S.E.X amp on instead of the Triophoni amp. I hadn't tried this since making some improvements to the driver circuit (mu follower) and feedback loop. Previous listening with the original parallel driver circuit was not very satisfying, which I had decided was because of the 16Ω output impedance of the S.E.X. amp, and the average 4Ω-8Ω impedance of the Whamos. I didn't expect very good results.

Woah, baby! We had trouble distinguishing between the 2A3 amp and the S.E.X. amp, as John and Gerry Conant are my witness. This was too much. Believe me, I was more surprised than anybody. I felt compelled to apologize to John, who had just spent twice as

much on his output transformers as I will sell the entire S.E.X. Kit for....

Honestly, John's amp had lower THD (0.7% @1W, vs. %1.9%@ 1W), better high frequency response (-3dB @ 19.3 kHz vs. -3dB @ 16.25 kHz) and put out better looking square waves (none of this being audible on the music we listened to), and about another watt of usable power (which was audible). It also had a hair better lower midrange with the biplate RCA 2A3, although with a Sylvania 2A3 the difference was almost nil. Smoothness, clarity, and low level detail were very similar.

We recompared when John finished the second monoblock. Slightly better Instrument location, slightly better HF extension, and a bit more low level info (that I could hear, but John said he couldn't, probably because I listen in this environment all the time) were the areas where the Baby was better. But they were still remarkably similar.

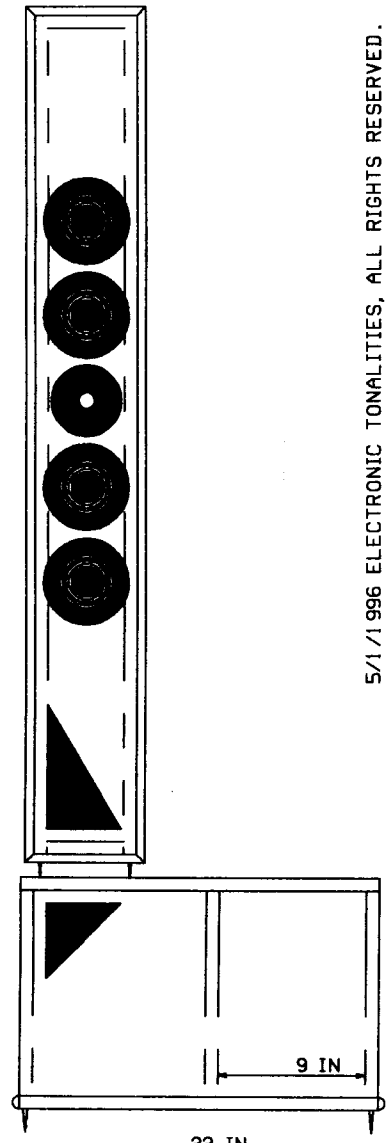
I have tried bi-amping one Superwhamodyne with good results, so my new system may be composed of three S.E.X. amps per side, since the Whamos can be tri-amped, for 6 watts per side

Surprisingly, bass response seems somehow cleaner than with the PP amp. I'm not so inclined to crank the volume, since lower level musical information is more easily heard at low gain settings. This in turn cuts down on room interaction, 'box talk', and 'flea power clipping', so it just gets better and better...

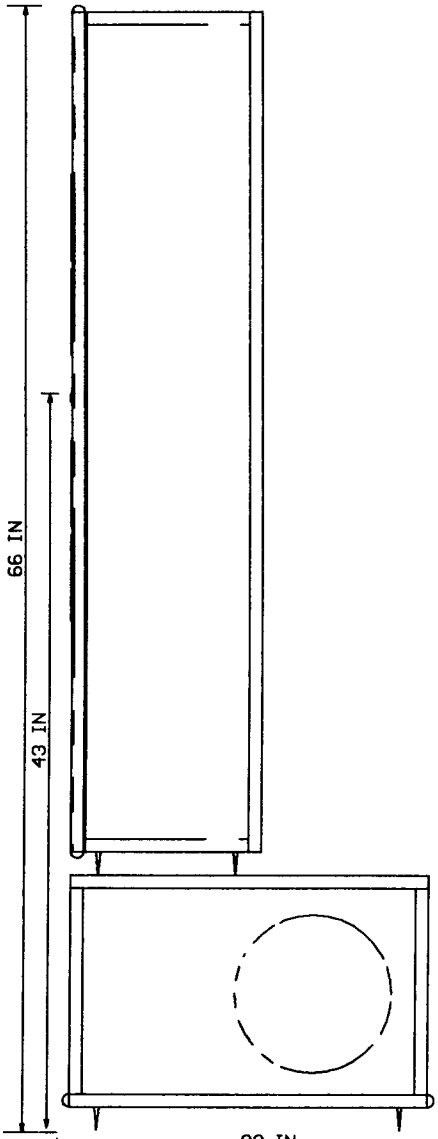
I can't figure why the amp works so well into what should be a big impedance mismatch. The paralleled 6DN7s have a plate resistance of about 1000Ω, so they should want a 3-5KΩ primary OPT. they have a 2500Ω OPT with a single 16Ω tap. Perhaps the fairly high NFB (about 10dB) and the low output impedance of the mu follower drive stage make them very tolerant of an impedance mismatch. At any rate, I'm not going to stop using this setup just because it doesn't figure on paper.

DAN

SUPERWHAMODYNE!



RIGHT SPEAKER - FRONT ELEVATION



SIDE ELEVATION

Superwhamodyne!

OK, here's the deal. I, Daniel Gholson Schmalle, am the sole owner of all rights to the Superwhamodyne, the loudspeaker design presented herein. I am offering the plans and construction data for this loudspeaker to the public for personal consumption ONLY. I hereby grant other audiophiles permission to construct ONE pair of loudspeakers, based on this design, for their personal use. I retain sole rights to the production and sales of any loudspeakers based on this design, and all proceeds derived from such sales. I also reserve the right to make any changes to this design when the whim strikes me. I assume absolutely no responsibility if someone builds them and they fall on them, their wife leaves them, or they decide that they just don't like those funny looking metal cones.

If anyone is caught building copies of the Superwhamodyne to sell (or selling copies of these plans) I will: A) sue their butt; B) devote an entire, heavily illustrated issue of VALVE to their poor personal hygiene; C) sue their butt again; and D) have the entire contents of my electronics trash pile, one broken garbage disposal, two old sinks, five very moldy rolled up carpets, and a very worn Lawrence Welk album, delivered to their front yard. Yes, this means that if you build one copy of the Superwhamodynes and decide that you don't like them and don't want to keep them, you may only GIVE THEM AWAY or destroy them.

But that won't be a problem.

You're gonna love 'em.

I'll preface this article with a little background on how the name Superwhamodyne came about.

Credit for the name goes to Crazy Eric, who calls the ultimate version of a piece of vintage gear the "superwamadyne" version.

I borrowed a slight misspelling of the word with the agreement to pay Eric one dollar for every copy I sell, if and when they go into production. I guess that you will owe Eric a buck if you build your own version. You can send your checks to him care of VALVE.

Use of the name was still up in the air until the day I tried to get a local dealer[1] to give them a listen. I showed him a picture first, to which he responded quite favorably. Before I could get the chance to suggest bringing them into the shop, he asked, "What do you call them?"

"SUPERWHAMODYNES".

"Oh my God, they'll never sell with a name like that, you'll have to change the name."

He then proceeded to demo a pair of mini speakers, branded Owie, to a customer who had been in the store when I came in. No kidding, OWIE.

When the dealer left the room to take a phone call, the customer whispered to me, "I think Superwhamodyne is *cool*."

Naturally, I agreed, and in that pivotal moment gave the name the stamp of permanence in my mind. I walked out.

1 I would like to clarify here that the dealer in question was NOT Bill Benson of Nuts About Hi Fi, who has been very supportive of my efforts, going so far as to offer the use of a Krell KPS 20i and an Ongaku for development of the Whamos. Thanks again, Bill, Jim and especially Gill, who put up with cheap beer and late hours during monthly listening to some pretty bizarre attempts at getting the Whamos to sound right. For a bunch of snake oil merchants, you guys are pretty dam cool.

alright, so what about the speaks?

This next section, with minor changes, is the body of an article commissioned by the Italian journal Audion, to be published later this year. Out of respect to the translator, I left the comedy out when I wrote this. Sorry if it's a bit dry:

Superwhamodyne is an inexpensive loudspeaker designed to bring out the best qualities of single ended and low power push pull amplifiers.

It is a three way design of approximately 96 dB@1M efficiency, with a range of about 40 Hz-22 kHz.

Each loudspeaker consists of a 49" tall, 1 cu.ft. vented tower and a 13.5" tall, 3.3 cu. ft. bandpass subwoofer.

the tower

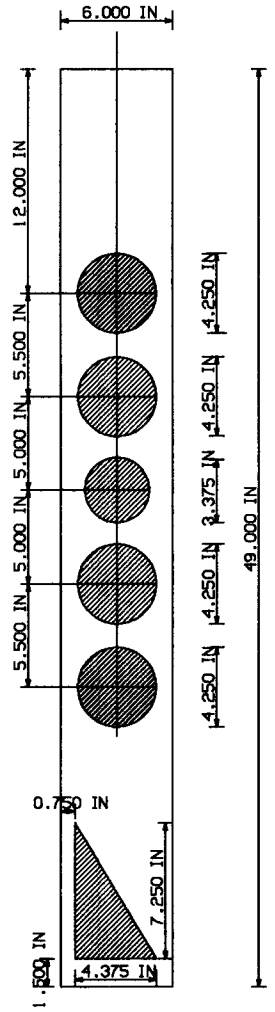
The key to the success of the design is the use of four full range 5" aluminum cone drivers to cover the most critical part of the frequency range. With careful application of cabinet venting to compensate for diffraction loss and a simple first order crossover, the aluminum drivers effectively cover the 100 Hz - 5.5 kHz range. A 1" titanium dome tweeter, rated 96 dBM, 2kHz-22kHz, is crossed over above this point with a single capacitor, projecting the upper frequencies with proper dispersion, yielding good soundstage width and presence.

The four 5" drivers, rated 91 dBM, 96 Hz-15kHz, are the same as those used in the S.E.X. kit speakers. They are wired in series-parallel to maintain an 8Ω load consistent with the subwoofer and tweeter impedances. While this wiring configuration theoretically yields an efficiency of 103 dBM, at normal listening distances (3-4M) efficiency is perceived to be around 96 dBM. The drivers are arrayed vertically, with the tweeter placed between the two center mid/woofers, in a 'quasi-D'Apolitto' configuration. This placement of the tweeter puts the acoustic center at ear level (about 43") when the tower sits on top of the subwoofer cabinet. This helps reduce the comb filter effect produced by beaming in large vertical speaker arrays, particularly since the mid/woofers cross over at a frequency just below the theoretical point where midrange beaming occurs, around 3-4 kHz.

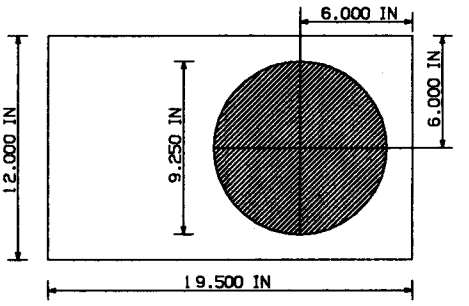
The 49" x 10-1/2" x 6" cabinet is constructed very simply of 3/4" MDF board. All joints are simple butt joints *(the only kind of joint a simple butt like me knows how to do)*, glued and screwed together with #6x1-1/2" woodscrews, countersunk and filled. A veneer of ash, finished with a clear polymer, was applied to the top, sides, and back. The front was covered with 1/8" cork sheet, which brought the cabinet surface flush to the tweeter mounting flange without having to route the speaker mounting holes in the front baffle. The front baffle edges were rounded by the application of 3/4" half round hemlock trim, finished in black lacquer.

The 7-1/4"tall x 4-3/8"wide x 3/4" long triangular vent is sized to avoid the need of a vent tube. The thickness of the MDF board is exactly the proper vent length. The vents are cut as mirror images on the left and right towers. This vent is designed to give up to a 6 dB boost in the 110 to 260 Hz+ range, compensating for the diffraction loss of the narrow 6" enclosure face, and giving a smooth second order transition to the bandpass subwoofer. Actually, the boost goes somewhat higher in frequency, apparently due to the reflected backwave of the mid/woofers exiting the large port. This works to our advantage, as the diffraction loss of a 6" wide baffle theoretically starts as high as 1100 Hz.

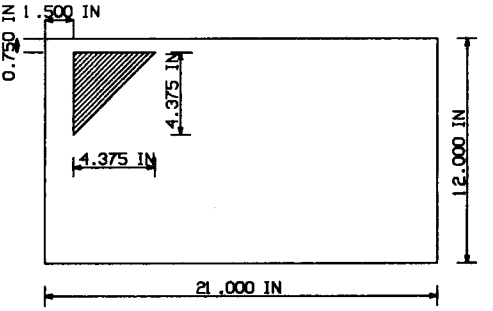
The cabinet is lined on the top, back and one side with 3/4" acoustic fiberglass, cut from inexpensive acoustic suspended ceiling tiles, to damp stand-



TOWER FRONT BAFFLE



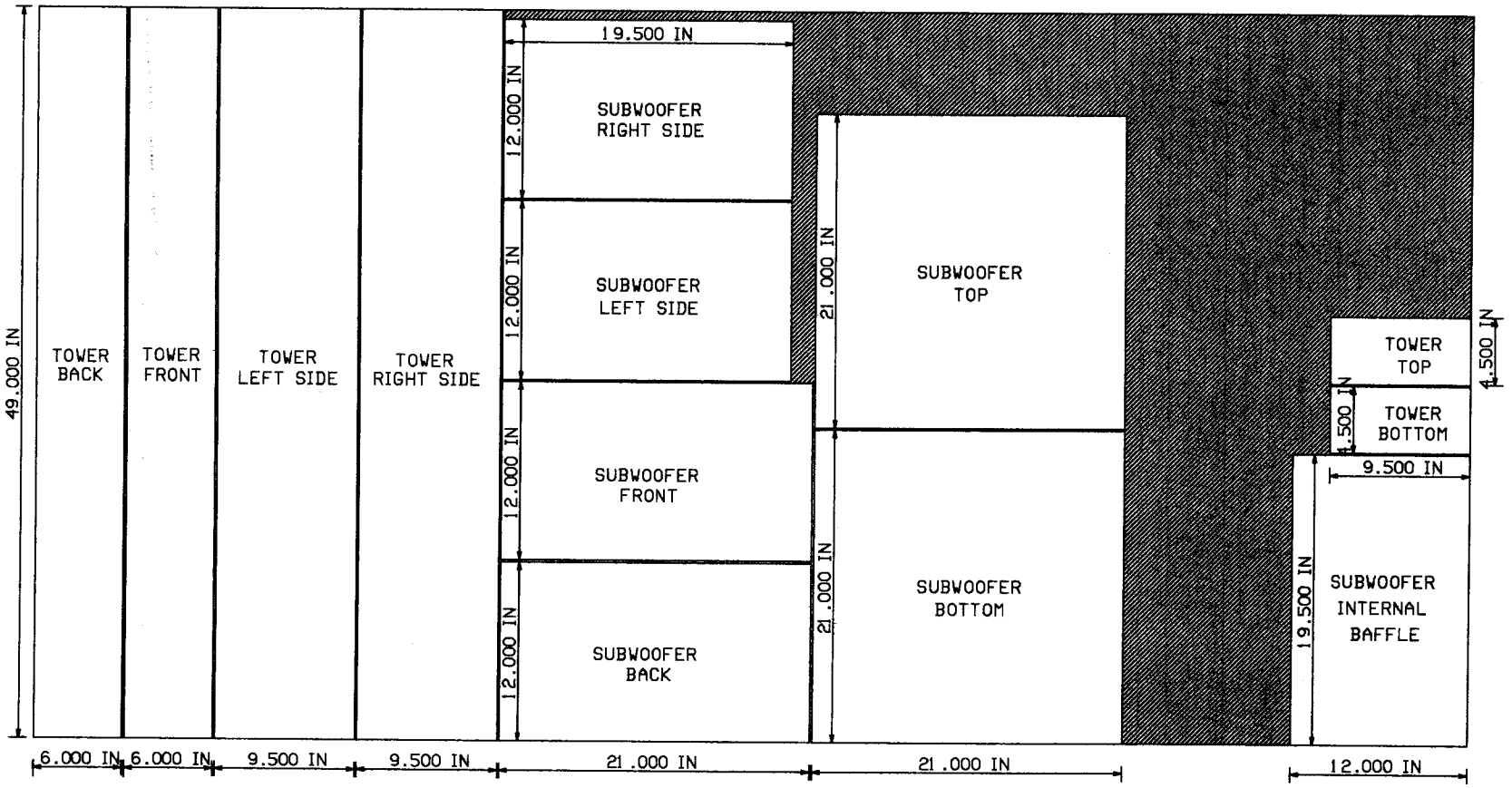
SUBWOOFER INTERNAL BAFFLE



SUBWOOFER FRONT BAFFLE

SUPERWHAMODYNE
HOLE CUTTING DIAGRAM
RIGHT SPEAKER

SUPERWHAMODYNE PANEL CUTTING PLAN - USE 49" X 97" X 3/4" MDF BOARD



ing waves.

In the prototype cabinet, no internal bracing is used. There appears to be a resonant point in the sides at about the height of the top of the vent, and another about the height of the tweeter. Future test will be made to see if bracing these points affects sound quality.

the crossover

The cabinet has been wired for bi-amping. A .36 mH air core choke is wired in series with the positive lead of the mid /woofers, which reduces their output in the range above which they beam, around 4 kHz. A 1.5 mF polypropylene capacitor is wired in series with the tweeter. It has been found that adjusting the tweeter capacitor in the 1.5 - 6 mF range can tune the speaker to fit a great many variations in listener taste. A higher rolloff point creates a slight depression above the gentle rolloff of the mid/woofers, giving a smooth, slightly more distant presentation, which can compensate for harsh sounding strings and edgy voices on less than perfect CD players and phono cartridges, while a lower crossover point gives a more present sound with an accentuated "bite" that brings up brass and voices in a system that is too "laid back". It also smooths a slight hump in the impedance curve around 5.6 kHz.

A note about wiring: I initially wired the cabinet with a well known OFC multistranded 12 gauge speaker wire. I received a few comments from fellow audio nuts that the sound was rather harsh. On a whim, I rewired the speakers with solid core 12 gauge house wire. The difference was not subtle! The highs were much smoother, without any loss of detail. The solid wire has stayed in. I found it is easiest to mount the tweeter and mid/woofer drivers to the front baffle and wire them together before installing the front baffle in the tower cabinet.

the subwoofer

While the tower is a good sounding loudspeaker by itself, producing bass down to around 70Hz, I felt that the quality of sound from the tower needed to be extended to the low bass region, as I listen to a great deal of large orchestral and organ music.

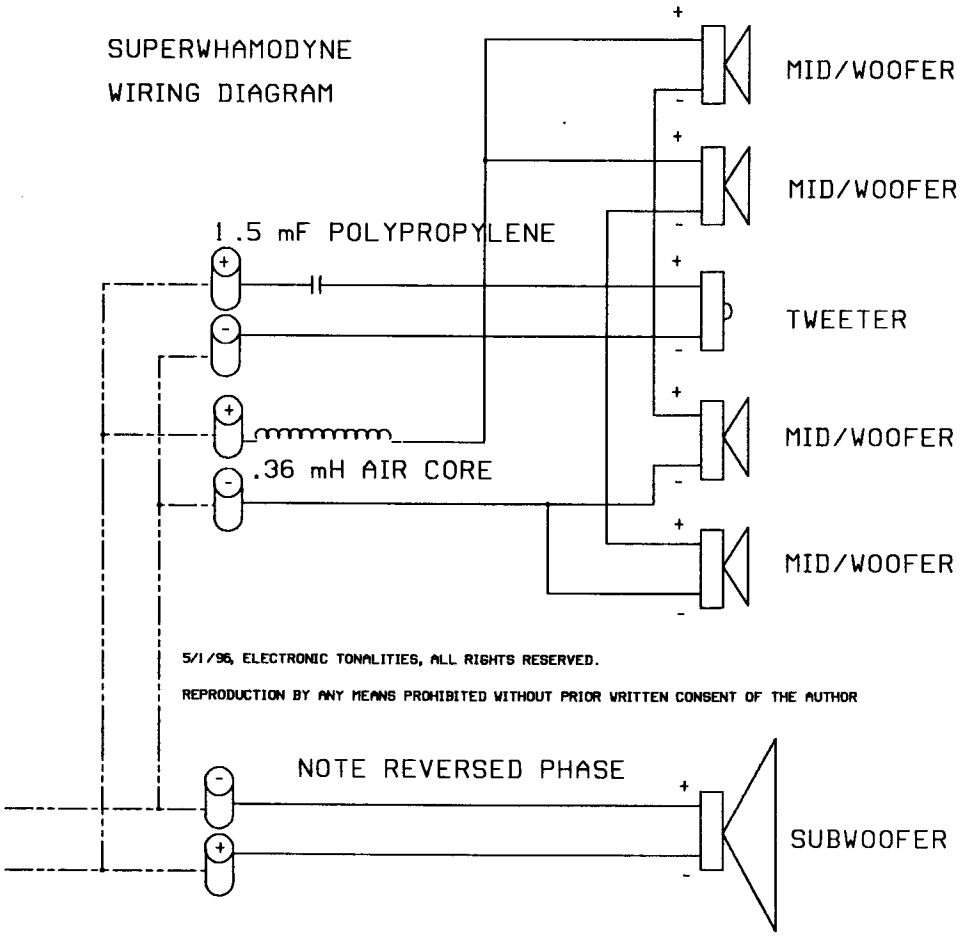
Producing an efficient, inexpensive subwoofer is a tall order. I wanted to keep my crossover scheme minimal, and I was trying to avoid using horns because of the large size needed for deep bass. This left one choice, a bandpass woofer. Luckily, I found a 10" driver, rated 96 dBM, 25 Hz-4.5 kHz, that would work in a bandpass configuration. I designed for a goal of 103 dB @ 1M with range of 55-110 Hz, in case the theoretical efficiency gain of the bandpass configuration I used was too optimistic. Happily this configuration, a 1 cu. ft. sealed rear enclosure, and a 2.3 cu. ft. vented front enclosure, yielded an actual response of about 40 Hz - 110 Hz at about 97 dB @1M, making a very good match to the tower.

The 21" x 21" x 13.5" subwoofer cabinet has an internal baffle which divides the sealed and vented chambers. The driver is mounted to this baffle toward the back, away from the vent. Both chambers are lined on three sides with 3/4" fiberglass.

As in the tower, the 4-3/8" x 4-3/8" x 3 /4" long triangular vent uses the thickness of the MDF board for its length, and vents in the left and right cabinets are mirror images of each other.

To retain access to the driver, the cabinet bottom was made removable by applying silicone sealer to the sides and inner baffle and allowing it to dry before screwing the bottom in place.

The cabinet was covered with the same ash veneer as the tower. Cork sheet was applied to the top to cut reflections from the tower drivers, and black lacquered


SUPERWHAMODYNE
WIRING DIAGRAM
MID/WOOFER
MID/WOOFER
1.5 mF POLYPROPYLENE
TWEETER
MID/WOOFER
.36 mH AIR CORE
MID/WOOFER
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NOTE REVERSED PHASE
SUBWOOFER

half round trim was applied to the bottom edge to hide the seam of the removable bottom panel.

The tower sits on top of the cabinet, on speaker spikes, in vertical alignment with the subwoofer vent and flush with the front of the subwoofer. Speaker spikes isolate the tower from potential subwoofer vibration. The subwoofer cabinet rests on spikes also.

Some may complain that the woofer I used has a very small magnet. Remember that the symmetric loading of the bandpass configuration helps to control excessive cone motion, allowing this use of an inexpensive driver for our purposes.

Also remember that the volumes and port sizes used in this subwoofer are designed specifically for the Thiel-Small parameters of this woofer. If you want to use another woofer, you must redesign the entire cabinet to fit its TS parameters. See Margerand, J., "The Third Dimension: Symmetrically Loaded," *Speaker Builder* 6/88, pp.29-36. Also, Augris, P. and D. Santens, "Optimisation des encientes a charge symetrique," *L'Audiophile*, No. 23, pp.47-54., for a very thorough exploration of this type of loading.

The second order rolloffs of the subwoofer and the mid/woofers of the tower require that the woofer be wired out of phase to the tower. Wiring both cabinets in phase severely reduces perceived bass output.

While the speaker baffle serves as an internal brace for two of the sides, the top and the bottom of the subwoofer cabinet, two sides remain unbraced. The effect of braces on these sides will be evaluated in the future.

amplification

Valve amplifiers from .75 watts single ended to 70 watts parallel push pull have been tried. For all but large symphonic pieces or other bass heavy

music, 4 watts per channel (World Audio SE Integrated) has generally been accepted as the minimum adequate power by my bottlehead friends.

I generally use 15 watt 6CK4 triode push pull monoblock amplifiers of my own design. They will play all but the most shattering musical passages loudly in my 30 ft. x 12.5 ft. x 7 ft. listening room. A pair of Dynaco Stereo 70's strapped for mono operation will play any loud passage without breakup at levels which would drive most listeners from the room.

The lack of a crossover between the parallel connected subwoofer and tower creates a lowest impedance of 3.4Ω at 20 Hz, so use of the 4Ω output tap will give the best results for most amplifiers. While this may not be considered the best load for an SE amplifier, the trade off is a very low impedance peak of 14.9Ω at 5.6 kHz.

The separate inputs for subwoofer, midwoofers and tweeter seem to beg for experimentation with bi- and even tri-amping.

Use of the tower alone, connected to the 8Ω output tap, yields an audible increase in efficiency. Users of "flea power" amplifiers below 3 watts output might want to try running just the towers with them, and using separate amplifiers for the subwoofers.

Another configuration might be a zero feedback single ended amp on the tweeter, a single ended amp with adjustable feedback (to aid in controlling the extended bass response of the vented tower) for the mid/woofers, and a push-pull amplifier for the subwoofer. Three S.E.X. amps, triamping each channel, work very well, despite their 16Ω output impedance.

Please consider multi-amping an opportunity for experimentation, not a necessity. The Superwhamodyne was designed to operate with a single ended amplifier, and does so very well!

how does it sound?

During the development of these speakers I was privileged to audition them with a Krell KPS 20*i* CD player and Audio Note Ongaku integrated amplifier. Present in the large listening room also were Wilson X-1's and Watt/Puppies. While I will not say that the Superwhamodynes were better than the $67,000US X-1's, I did not feel embarrassed by their performance.

The goal of full deep bass, even with single ended amplification, has been achieved.

The problems of diffraction loss and beaming associated with wide frequency range use of a 5" driver have also been greatly reduced. The lower midrange and upper bass is much fuller than a typical 5" mid/woofer satellite - subwoofer system.

The vertical array brings out soundstage depth, and the dome tweeter aids soundstage width, and vertical dispersion, allowing a listening position closer than one might think reasonable from such a large array. Listening is best when sitting down, 8-15 ft. from the speaker plane, with the speakers placed about 6-1/2 to 8 ft. apart and at least 1-1/2 ft. from the rear wall. Cabinets should be angled in so that one can just see the inside face of each tower.

Separate terminals to tweeters, midwoofers and subwoofers allow for much experimentation and fine tuning to one's system, while paralleling all terminals allows use of a single amplifier for very simple operation.

When listening to the Superwhamodynes, differences between amplifiers are obvious, as is front end quality. Bass response is perhaps a bit slow with underdamped low power amplifiers, which gives a pleasant, slightly 'larger than life' presentation, but it gets quicker and tighter as power and damping increase. *Dr. Bottlehead*

boy that was boring, how do they *really* sound?

OK, here's the purely subjective, overly proud designer's comments.

What I tried to get was the speed of planars, the depth and microdynamics of horns, and the bass and tonal balance of dynamics. Tall order.

The aluminum cones are quick little mothers. Their main flaw is a bit of 'megaphone' when run full range. Crossing the dome tweets in cuts beaming, removing the megaphoning of the cones, and adds all sorts of air. Cymbals are goosebumpy, you can easily pick out the different types in the drummer's kit.

I hate the upper midrange/lower treble peaky sound in voices that a lot of speakers produce, so I crossed the mids and tweets with a 1.5 Mfd cap and .36 mH choke, to create a slight dip in the upper voice range. It is much more 'in the room' natural sounding. When shooting for natural midrange, voices are where it's at, and I spent a heluvalot of hours trying to get them right. They are smooth, not dull.

The aluminum cones also have an ability to bring out stage depth like no other speakers I've heard, except maybe X-1s. You *will* hear what the studio or hall sounds like. Just keep from loading a small listening room too much so the effect doesn't get masked.

I tamed the slight zing of all the metal drivers with strips of PVC tape, as described in last month's issue. The tweeter got a tiny, 3/16" triangle of tape right in the middle. This toned down the ringing in the upper end, mentioned by Doug during the shootout, that comes from sopranos' voices and certain piano notes.

The low bass is plenty big and deep. An honest 40 Hz. Organ music is heaven. Some folks have mentioned a certain slowness to the bass. I think this was largely because the concrete basement listening room is pretty boomy. I have recently treated the walls with foam and carpeted the floor. This has cut the boom quite a bit. The problem is not bad when I run the Whamos in my 'normal' living room, with a 15" higher ceiling and wood frame, instead of concrete, walls and floor.

A factor which can hamper bass presentation is that a lot of small amps get pretty soft and lightweight on the bottom end with typical speaks. I purposely designed the subs to produce credible bass with small SE amps, and that is why I designed for a slightly higher efficiency in the subwoofer (than the tower has). Low power amps with little feedback give a nice (not slammin') natural feel with the Whamo subs. You may want to think about bracing the cabinet. One might also try stuffing the sealed chamber in the woofer a bit too, although I thought this hurt more than helped when I tried it.

With some new, superfine SE amps (Baby O and S.E.X. amp) phono cartridges really show their effect on bass too. My DL-103 now sounds a bit slow and tubby. And my AQ 404 now shows its great tempo with less of its old edge.

The Whamos will let you know, big time, if your front end sucks. Forget transistor stuff and edgy CD players. It all comes out. These babies luuuv smooth SE triodes.

You must sit down when listening to these speaks. They open up and put you in the performance room. Stand up and the illusion, along with the great midrange balance, fades. Come to think of it, why the hell would I want to listen to music for hours, standing up?

What can better decribe how these speaks work than the fact that, when offered the choice of listening to A7's, QUADs, Lowthers, and Superwhamodynes, a bunch of bottleheads chose the Whamos. 'Nuf said. *Dr. Bottlehead*

parts list:

8 - 5" Aluminum Cone Full Range Drivers	MCM part# 55-1290
2 - 1" Titanium Dome Tweeters	MCM part# 53-325
2 - 10" Paper Cone Woofers	MCM part# 55-945
2 - 1.5 mF Solen Polypropylene Capacitors	Parts Express# 027-528
2 - .4 mH Air Core Inductors	Parts Express# 260-721
2 - Gold Plated Terminal Panels - Subwoofer	MCM part# 50-1275
2 - Gold Plated Bi-Amp Terminal Panels - Tower	MCM part# 50-1280
4 - Sets Fowler Toe Speaker Spikes	Parts Express# 240-725

I got the following stuff at Eagle Hardware:
30 ft. - 12ga. Solid Copper Wire
2 - Sheets 49" x 97" x 3/4" MDF board (Eagle will rough cut the pieces for 25 cents a cut)
2 - Fiberglass Acoustic Suspended Ceiling Panels (the cheap ones - peel off the plastic)
1 - Box #6 x 1-1/2" Flat Head Wood Screws (for cabinet assembly)
1 - Bottle Carpenters Wood Glue
1 - Tube Silicone Sealer (for driver and baffle gaskets)
1 - Box #10 x 1/2" Square Drive Wood Screws (for mounting drivers)

And materials to finish - wood molding, paint, veneer, laminate, grill cloth, etc., to taste

MCM Electronics
650 Congress Park Dr.
Centerville, OH 45450-4072
1-800-543-4330 ask for Melody, ext. 371
513-434-0031
fax - 1-513-434-6959

Parts Express
340 E. First St.
Dayton, OH 45402-1257
1-800-338-0531
513-222-0173
fax - 513-222-4644

Substitute drivers at your own risk! Any change in specs constitutes making it your own design, i.e., **I won't have a clue** if you ask me why it won't work! BIG HINT: Your time will be better spent using the drivers I spec and fooling around with stiffening/ deadening the cabinet - dan

april

Our latest show and tell was an amp and speaker trial. Paul brought a d'Apollito style vented box with the 4.5" Pioneer woofers, Vifa horn loaded dome tweet, and series crossover. A little sorting on the crossover will result in a neat set of 95 dB or so 'cheap speaks'.

Jerry H. brought a meticulously built three channel PP 6AQ5 amp he built when a mere 15 years old. *Perfect* wiring.

Dave brought in his partly completed interstage coupled PP 6DN7 amp, with a very slick looking power supply chassis. Look for an article in the next couple months.

Jerry C. brought in the cables I fruitlessly suggested we volume buy (from Mouser) a year or two ago. We agreed that Skennythangs out 'clarity & detail'ed them.

The crowning item was John Carey's stunning Baby Ongaku, in copper. See my editorial this month for some info. I will lean heavily upon John to give us an article about these marvelous sounding 2A3 monoblocks.

may - heathfest!

We hope to have as many variants of the Heathkit W series amps as we can get together at the next meeting, Sunday May 5, 10 a.m., at Classic Audio, 7313 Greenwood, Seattle. We hope to compare the W 1,2,3,4,&5 and decide which sounds best! If you have any of these models, even modified, ***PLEASE*** bring them. Bring any other Heathkit audio stuff too, for to look at.

next issue:

Lazarus resurrects a QUAD! Doug restores a pair of vintage ESLs

cravings

For Sale:

QUAD ESLs, manufactured July 1969. Copper grills, restored frames and legs. EHT unit updated. Manuals included. $700/negotiable.

Doug, 206-448-5893.

I WILL PAY $3.00 EACH FOR GOOD 6DN7, 6DR7 TUBES!

Looking for the following obscure stuff:

-304TL sockets and plate and grid caps

-7.5V, 2A filament transformers - a pair

-Telefunken speakers - any kind, and other Telefunken gear. Yup, I really do collect something. Would like a 5350 Gavotte, and a Jubilee. Would particularly like the speaks that went with the Opus 5550 MX, and a trashed S 81 Stereo integrated amp, for its OPT.

Dan, 360-697-1936.

Wanted:

-Output transformer for RCA MI-38178 or MI-12182 amp (for PP 6146 tube)

-2-4 X 25-30 mfd 1,500+ V paper in oil caps

-2-4 X 100-200 mfd 800+ V caps

Jim Dowdy, 770-451-5684.

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7"X 4-1/2" (full page)	*$24*

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Any submittals of hardcopy will be scanned to PCX format for insertion in VALVE, with the usual degradation in quality. Call us if you need an ad layout, for an additional fee.