

# VALVE

VINTAGE AUDIO LISTENERS AND VALVE ENTHUSIASTS

**in this issue -**

**Triode amp recap**

**Brook 12A schematic**

**letters, letters, letters:**

**Heathkit power transformers**

**6C33 vs. 3C33 vs. 6AS7**

**SE speaker saga - part II**

## **upcoming events**

April 2, 1995

SE speaker sneak preview 9:30  
Commercial amps - Mac MI 200, Altec 1569, RCA theater amp 12 noon  
at Electronic Tonalities, Poulsbo

May 7, 1995

Altec A7 mods -  
Rick's "home theatre".  
at Rick Graves', Seattle

**volume 2**  
**number 4**  
**april**  
**1995**

# VALVE

*is the newsletter of  
Vintage Audio Listeners and Valve  
Enthusiasts  
dedicated to the preservation and  
dissemination of vintage audio  
knowledge.*

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Vintage audio equipment operates  
at potentially lethal voltages.  
Always treat it with respect.*

## editor's thing

Last month brought us some new members and subscribers, partly due to our mention in Sound Practices. Our worldliness is growing, as we picked up our first Taiwanese subscription. The word continues to spread about us bottleheads, and I receive calls from all over anymore.

Most interesting call was from Mike LeFevre of Magnequest fame. This came the day we listened to Mike Hayes' awesome 6B4 SE amps with Mr. LeFevre's Discovery 025 trannies. It was very easy to start a conversation with the memory of those clean, crisp highs still in my memory banks.

Mike L. is a really nice guy, very candid and impassioned. We talked all about how he grew his business, where he gets his ideas, and new products he's considering. He might put out a transformer for 10 tubes. I better save my pennies!

I have invited Mike to give us an article about using his products for replacements in vintage amps. I bet he has some good insights.

Mike talked at length about how he started and built to his current level of production. He really inspired me as I consider once again taking risks and starting a new business.

Yup, that's right. I'm shifting gears.

As you know, I stopped taking radio restoration commissions the first of this year. I may continue to take a few serious (\$!) long term restos, but the Airlines and Silvertones were not paying the bills! I will continue to work on vintage audio gear, even though the guys at Vacuum Tube Valley are quite sure that they are the only guys on the West Coast restoring vintage audio gear. Seen their flyer? C'mon Charlie, Seattle is on the West Coast too.

Why am I doing this?

Man, I got some awesome SE oriented gear coming out in the next couple

months. First will be a speaker specifically designed to complement single ended power levels and sonic qualities. See a report on early results with my prototype in this issue.

Other equipment will follow. I'm working up a stereo SE amp design. Have a couple good ideas, but they need a bit of refinement. The best tubes just aren't available anymore, so you have to get real creative to get a good sound.

Along with these new developments I will be changing the name of my business from Classic Radio of Liberty Bay, which people confuse with friend Jim's Classic Audio, to ELECTRONIC TONALITIES.

By the way, don't worry about VALVE. I still love vintage gear and will attempt to keep a balanced format based on the interests of the membership.

When I started this rag, I guessed that their would be much more interest in the historical aspect of our beloved old iron. What I find is that most people are mixing the vintage stuff with newer gear. Sorry you vintage tube/vinyl/loud-speaker only guys. I love your commitment, respect your opinion highly, and now realize that you are a very specialized minority. Perhaps some editorial input from your ranks is in order.

Anyway, I shall attempt to keep the content of this letter balanced between straight vintage info and new tube ideas, even though my business gravitates toward new technologies.

Remember, I love getting letters. Send me a note to give me a reality check once in a while. This club needs more than one voice in order to flourish.

Don't let the blue smoke out,



## letters from fred

Dear Dan,

A few thoughts that may be worth throwing away!

Everyone has their own opinions, and generally are well capable of passing them along. Why not start a survey of Members as to:

Best Speaker: Under \$300  
300-600  
600-1200

Best speakers for efficiency  
Worst speakers

Similar for Receivers, Preamps and Amplifiers....

Single Ended  
Push Pull

Best Sounding Tubes

Best CD for testing a system

Best means of convincing one's wife that it has to be loud

How to sneak new parts and equipment into the shop

Location for best prices of components

Location for highest prices of equipment (Tucker for example!)

The input on items that are universally judged to be bad, overpriced, or just plain junk, could help some of those who are contemplating an investment.

Best publications for: the kit builder

the scratch builder  
Parts  
Items  
blonds

Just knew you needed more mail

Very Best Regards,



## how about a new column?

You guys are putting together some really impressive systems these days. What do you think about a new section of the newsletter devoted to reader's systems? You send me a description of your system, maybe with some nice photos, and we all get to ogle it. If you like the idea, send me some info. You don't need to write a whole article, just describe the stuff in your own words. It doesn't have to be an entirely vintage system, I mean vintage CD players are pretty bad. THAT'S A JOKE, folks.

## what's brewin'?

Roger's Welborne Lab's mod Stereo 70 came by the shop for some minor debugging last week. Man, that amp is stunning. The polished brass reflects the glow of the tubes, and the walnut base is very precisely fitted. Will get a picture in a future issue.

Paul is working up a pair of single ended 2A3 amps using Magnequest Discover 025 trannies and a 6922 SRPP driver. He flatters me by saying that he'll use my 'short-buss-quasi-star ground'.

Rick has completed construction of his modded Voice of the Theatres and is now working on his Luxman tube active crossover, which will run into his cool W-5's and something else. He tells me he doesn't have any other amps to use. Hello?

Dave has ordered some 6CK4 triodes, like I used in the Triophoni amps, for conversion of a pair of Ampex 30 watt EL34 powered monoblocks. They should drop in with a little socket rewiring and new bias. Should be great with his QUADs.

Eric scored a bunch of raw drivers a while back, including some WE 755's and JBL LE8T's. We will construct some cabinets soon and give them an audition.

Doug has had so much fun reworking a pair of Dyna MkIII's for a friend that he's looking for a pair to mod for himself. His work is beautiful, so these will be must see items when complete.

New subscriber Mike reports good results from doing my triode input mod to a pair of Dyna MkIII's. He built a huge energy storage bank on a separate chassis. He says high end smoothness is the most notable change.

Think I have a tube output mod schemed up for my Onkyo CD player. I opened it up and it seems to have pretty decent DAC's (Burr Brown PCM61P's) and 8X oversampling digital filter (Yamaha YM3433). Looks like you just hack in a resistor at the DAC outputs for IV conversion and your tubes of choice for output. Bet it's really harder than that, but I'm naive enough to try.

## dinkin' around

*tech tips and other unsolicited advice*

### firin' up

Roger brought his new Welborne Labs /Stereo 70 by for a smoke check this month. The amp is his first scratchbuilt project, and he asked me to check his work and bring the beast up on a Variac for him.

There were a couple of minor wiring mistakes which were due to slightly misleading drawings in the Welborne manual. We found these through the check-out procedure I'll list here. If you're doing a first construction project, having someone with experience check your wiring can save you quite a few hours of tail chasing if something's wrong. A person who hasn't been staring at the project for three days and nights can pick out the obvious flub easier than the builder whose eyes are crossing from hours of concentrated wiring. Roger's wiring looked pretty good, but there were a lot of differences in the layout from a stock Stereo 70, and some wiring was hidden under PC boards, so a cautious approach to smoke testing was taken.

It was time to check things with an ohm meter. I checked across the filter caps from pos to neg and checked for shorts or very low resistance. Everything was nice and high, so I went on to the ground buss, making sure all connections were reading near zero, indicating good solder joints.

With the visuals and general disaster avoidance checks done, it was time to fire up. We placed 20W 8 ohm resistors on the output posts and shorting plugs in the inputs. a lot of people think this is overly cautious, but an amp with a problem can go into oscillation, and this can take out an unloaded output transformer if it's bad enough. Better safe

than sorry, particularly if it's your amp I'm working on.

I plugged the amp into a 5 amp Vari-trans and connected a 1200VDC meter to the B+, and a pair of digital VOMs to the bias circuit test points, one for each channel.

Then we brought the juice up slow, to about 60VAC, and let things sit for a couple minutes. Everything was cool, so I went for 90VAC.

At this point some B+ started to show on the meter, and filaments showed a faint glow. Everything continued to look OK, so we hooked up speakers and a source.

I brought the B+ up slowly to full tilt, but nothing happened.

Turned out the filament voltage on the output tubes was about 2 volts instead of 6.3. The two 6.3V filament windings from the power trannie had been joined out of phase because it looked like they should be on the wiring diagram.

Once this was corrected, we got the bias adjusted and things sounded good. All was well.

For a week anyway.

Roger called and said the amp just stopped playing after about three days.

I took the amp back. Everything checked out fine with an ohmmeter, no damage done. Again I fired up slowly.

This time the B+ came up fast, not like a 5AR4 does, and slowly dropped to about 40V lower than last time. It seemed to be slowly dropping as it got warmer.

Eric had told me that Russian 5AR4's, which this was, are really 5Y3's, and seldom hold up when put under a big load.

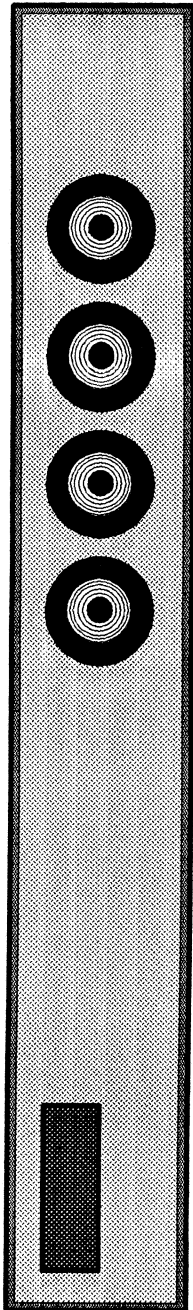
I put two and two together and replaced the Russian rectifier with a good ol' GE NOS 5AR4.

B+ was right where it belonged after a nice slow ramp up. I monitored things for an hour or so and all seemed well.

Watch those Russian tubes!

S  
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both ways



a high tech loudspeaker designed for single ended amplifiers- 103 dB@1W- 8 Ohms  
no horns - no crossovers - cork/foam/carbon foam composite cabinet - \$t.b.a.  
ELECTRONIC TONALITIES - 1127 nw brite star lane, poulsbo, wa 98370-8241 (360) 697-1936

## The continuing saga of a search for a loudspeaker for single ended amps

By Dan Schmale,  
ELECTRONIC TONALITIES

Without a doubt, the single most revolutionary change to take place in audio in this decade is the widening acceptance of single ended topology as the most musically accurate form of signal amplification.

The term revolutionary may be a bit mild. So much audio angst has been stirred up by the idea of going 'backwards' to 1920's technology that a new audio subculture has grown up around the concept, sharing information when the mainstream audio press turned a deaf ear to the topic.

By now of course, the mainstream is listening. We see reviews of single ended amps in recent issues of every large publication. And the reviewers aren't saying "Gee this is cute" anymore. They're calling some examples of this 'old fashioned' technology the best there is.

Part of what makes the best of these single ended amps sound so good is the high tech materials employed in their construction. From high tech capacitors made from polypropylene and oil to tantalum film resistors and, at the extreme, pure silver transformer windings, new technology abounds in Single Ended design.

A logical development would be someone producing comparably up to date loudspeakers of high efficiency, by which one could fully appreciate the exceptional clarity and detail of the Single Ended.

Up to now little new technology has been employed in the type of loudspeakers used by most SE enthusiasts.

Favored types vary with the weather, but often include vintage coaxial drivers such as the Altec 604, theater behemoths like the Altec 'Voice of the Theatre' A7, or exquisite sounding but inefficient QUAD electrostatics.

As the do it yourself speaker types moved into the SE realm, large horn systems of high efficiency, high complexity (often bi- or tri- amp), and high price became the system of choice.

Few audiophiles are satisfied with the sound they get from their favorite standby loudspeaker when hooking up a SE amp. But for the majority of enthusiasts dying to jump into SE, designing a whole new, complicated speaker system is not feasible, nor is paying current collector prices for the latest vintage fantasy, which usually comes sans cabinet.

What's a mother to do?

If you read the last couple issues of any audio magazine, the void needing to be filled is screaming out at you.

So I did something about it.

I made Both Ways.

Both Ways, in its current guise, is a two way tower loudspeaker of high efficiency. It uses four aluminum cone 5.25" full range drivers in a vertical array, a 10" paper cone band pass subwoofer, no power draining, phase shifting cross-overs, and an extremeley high tech carbon foam/foil/cork composite cabinet. It weighs about 25 pounds and has a frequency response of about 55-15,500Hz, similar to many horn/coax and discrete two way horn systems. But they don't honk or boom.

The original iteration of this speaker was code named One Way. It consisted of the four full range 5.25" drivers in a vented tower enclosure. Unfortunately, I didn't like the slight megaphone effect I perceived in voices due to a hump in the 120-250Hz range. This was caused by a slightly less than optimal alignment which was necessary to smooth bass response in the 50-80Hz region. The

bass, although present down to 35Hz, was rolled off from about 110 Hz down. At this point I decided to relax my demand for a full range speaker. I first calculated that the bass hump would be smoothed if the full range drivers were placed in a closed box with fairly dense stuffing.

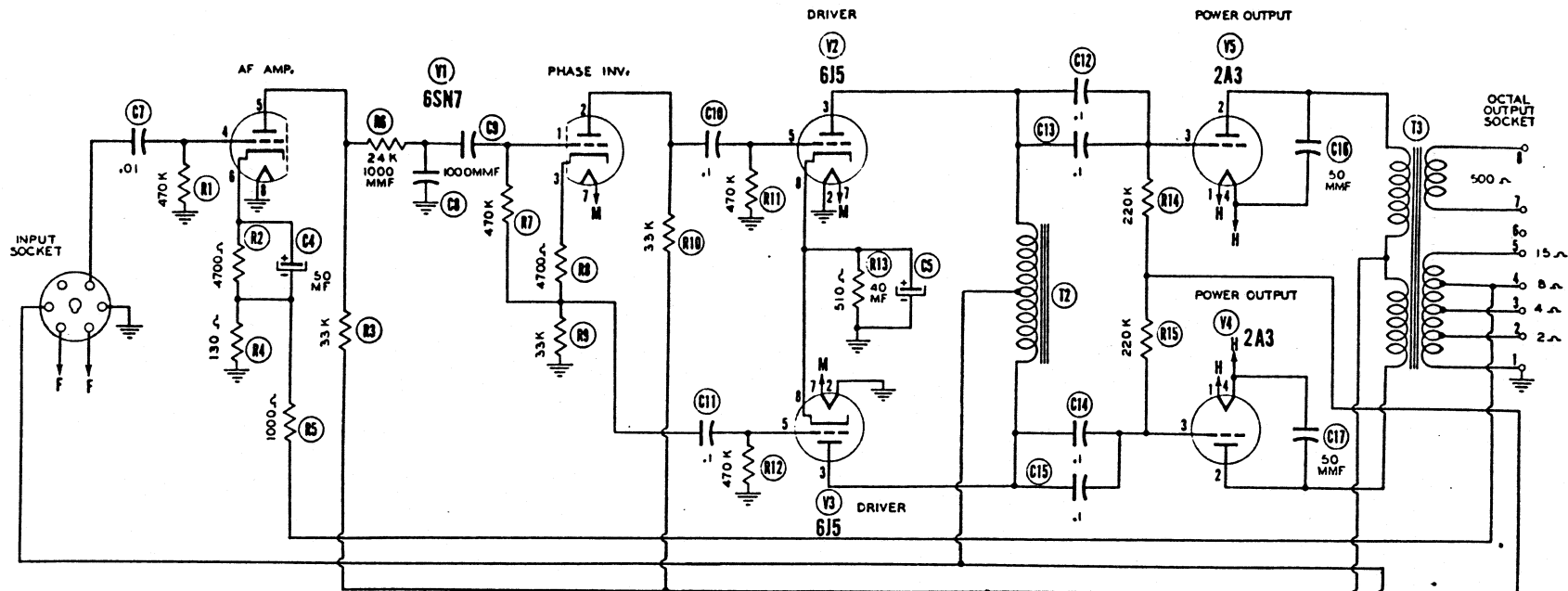
I then dug into my speaker catalogs and found a woofer that might generate an efficiency near that of the full range drivers and an upper -3dB point near 110 Hz when placed in a symetrically loaded bandpass enclosure. Miraculously, the closed box and bandpass enclosure volumes added up to the same volume as that of the existing full range vented tower.

The modification to two way fit very neatly, greatly strengthening the super-lightweight cabinet in the process.

I tamed "cone cry" resonances in the metal drivers with small strips of paper tape attached to the cone. This removes a 'zing' that became apparent on loud horn and string passages, a problem encountered with many metal dome and horn tweeters.

The cabinet material is 1-5/8" thick carbon filled polyisocyanurate foam with foil on both sides. The material is easy to cut, and assembly is "stitch and glue", similar to high tech boat building methods. Cabinets will be covered with cork sheets to add some damping.

I won't try to kid you into thinking that these speakers are as efficient as my JBL LE175 horns, but I measure around 83-86 dB at 1 watt at 2.8 meters. This is with the four 5.25" drivers padded down about 3dB to better match the single subwoofer driver. Near field (1M) sensitivity readings are a bit difficult due to the long vertical array. The drivers are rated 91 dB each (103dB total), so maybe they are 100dB. I do know that my 1W SE amp will play them loud at a listening position of 8 ft. from the speakers, and my 15W Triophoni will drive you out of the room. Come hear 'em.



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SN7GT	35VDC	210VDC	55VDC	0V.	200VDC	9VDC	6.5VAC	0V.
V 2	6J5	0V.	0V.	275VDC	0V.	0V.	0V.	6.5VAC	10VDC
V 3	6J5	0V.	0V.	275VDC	0V.	0V.	0V.	6.5VAC	10VDC
V 4	2A3	#1.2VAC	330VDC	-67VDC	#1.2VAC				
V 5	2A3	#1.2VAC	330VDC	-67VDC	#1.2VAC				
V 6	5U4G	0V.	340VDC	0V.	370VAC	0V.	370VAC	0V.	340VDC

‡ 2.5VAC MEASURED ACROSS FILAMENTS.

RESISTANCE READINGS

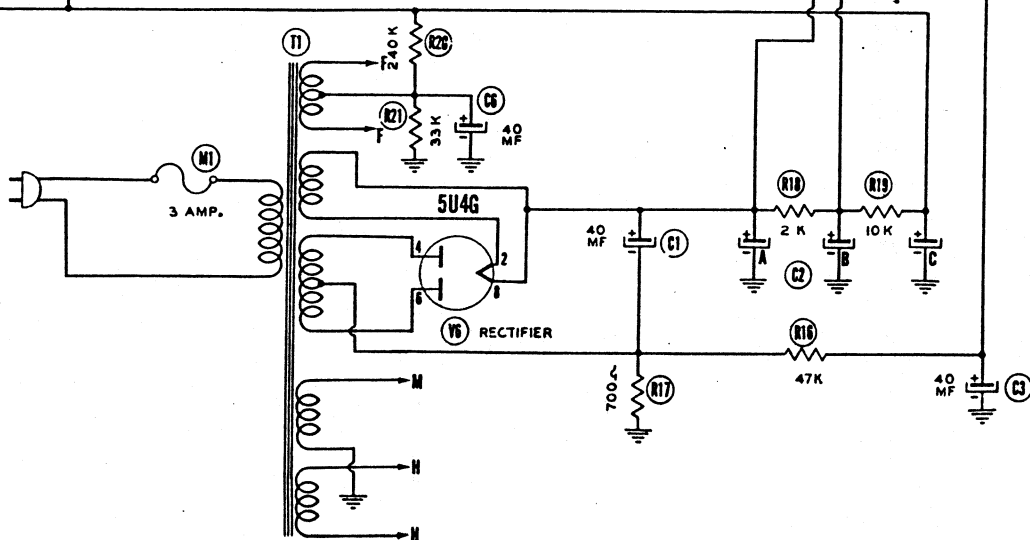
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SN7GT	500KΩ	145KΩ	38KΩ	470KΩ	145KΩ	4.8KΩ	.1Ω	0Ω
V 2	6J5	0Ω	0Ω	13.8KΩ	Inf.	470KΩ	Inf.	.1Ω	500Ω
V 3	6J5	0Ω	0Ω	13.8KΩ	Inf.	470KΩ	Inf.	.1Ω	500Ω
V 4	2A3	.1Ω	1160Ω	270KΩ	.1Ω				
V 5	2A3	.1Ω	1165Ω	270KΩ	.1Ω				
V 6	5U4G	Inf.	70KΩ	Inf.	750Ω	Inf.	750Ω	Inf.	70KΩ

† MEASURED FROM PIN 8 OF V6.

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFAC STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1950



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Proper output load connected.

THANKS TO RADIO STEVE FOR THIS OUT OF PRINT SAM'S



## triode heaven

Look, I'll just cut to the chase. This was one of the best listening sessions we've had.

March's meeting was a sonic feast. Yeah, the speakers were only OK, and the room isn't the greatest, but man those triodes sang.

We lined up the following amps for our 'way too much to listen to in one sitting' audition:

Roger's HF20's, converted to SE 6B5 operation

Mike's SE 6B4 monoblocks, using Magnequest Discover 025 output transformers and Fred's 6SL7 driver circuit

Myron's Loesch-designed Heathkit W-4's, using 6B4's PP and SRPP driver circuit, featured in the February issue

My World Audio SE integrated amp, designed by Tim di Paravicini, using a 6080 output tube

My Triophoni amps, featured in the August 94 issue, using 6CK4 PP outputs and a gaseous regulated Mullard input circuit

Radio Steve's Williamson Hallmark amp, a Williamson KT66 in triode mode amp built to D.T.N. Williamson's exact specs

Radio Steve's Brook 12A, Paul Klipsch's favorite amp, using 2A3's PP

We used Mike's NAD CD player as transport and his new french DAC. My HK Citation I was preamp for the occasion. Jim supplied Dahlquist M 909s for speaks.

I used two tracks for comparisons. First was Tuck & Patti, Love Warriors, Win-

dam Hill WD-0116, track 8, and second, Jongen - Symphonie Concertante for Organ and Orchestra, Jean Guillou, organ, Eduardo Mata and the Dallas Symphony Orchestra, Dorian DOR-90200, track 4.

I used the Tuck & Patti because they recorded her voice really hot, and any sibilant distortion added by an amp slaps you in the face.

The Jongen is one of the whoppingest organ recordings I've heard, and a single ended amp is gonna have to prove itself on loud, low passages.

We checked out so many amps that I can't even begin to give a blow by blow of each amp. I think everybody at the meeting was overloaded by about amp number five.

What I can do is give my impressions of the highlights.

Mike's 6B4 SE amp was my favorite for clarity and detail. Some may have thought it a bit bright, but I liked it a lot. My guess is the Magnequest transformers were responsible for the clean sound. Lots of dynamics, and very smooth. We will hear more about this amp in the future.

Myrons amps kicked butt on the bass. Let's face it. Low power SE amps just don't kick butt. But PP triodes can really push a woofer around.

I'll reserve comment on my amps, except to say that Triophoni was a lot louder than the rest, and probably didn't really fit in to the program because of its higher power. Most of these amps were in the 3-8 watt range and Triophoni runs about 15.

The big surprise for me was how great the Brook 12A is. We heard this amp last September on a crappy Hamlin speaker and I wasn't impressed, but in this heady company it sounded good. I bet a pair of these would be awesome with stacked QUAD's. That could be a definitive vintage reference system. Maybe we could arrange an audition like this some day! dan

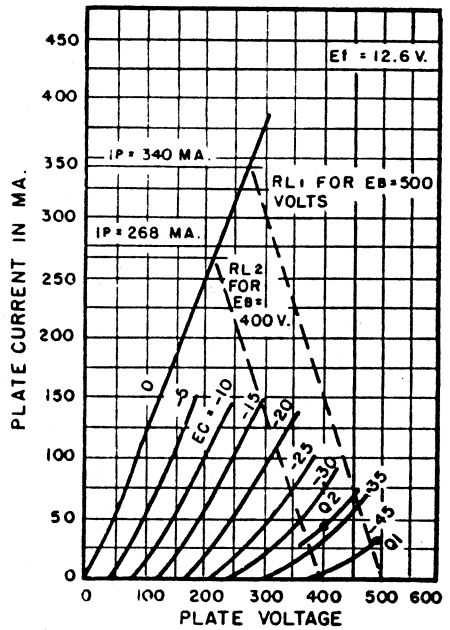
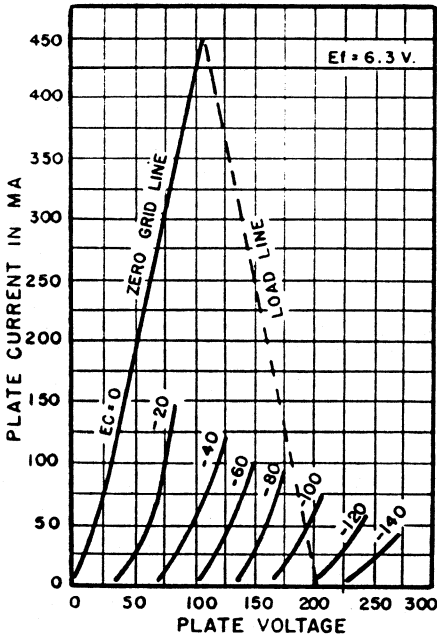
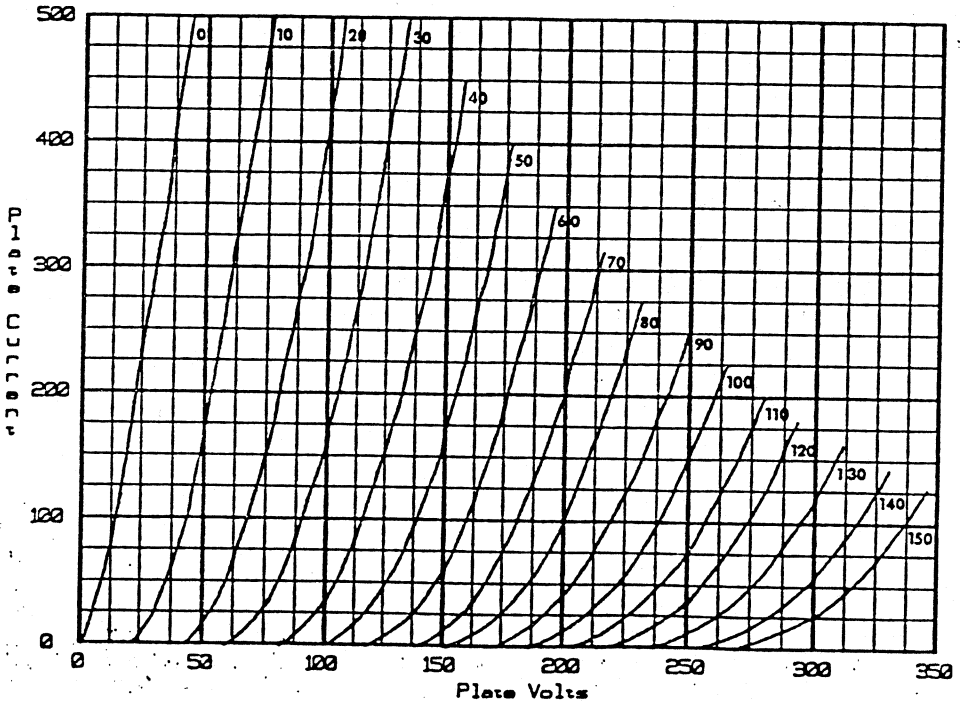


Fig. 3. Simplified graphical solutions for power amplifiers applied to the 6AS7 (left) and 3C33 (right).



6C33C-B plate characteristics. FROM JIM DOWDY

## letters

*more pictures!*

Hi Dan! Enclosed is my \$20 to cover a newsletter subscription.

I received my sample copy (vol.2 #3), and here's my input:

1) There were no schematics of any kind! I hope this was just an oversight of some sort.

2) I was most intrigued by your review of the World Audio SE Integrated Amp, but would have loved to see an address or telephone number for them, along with a price of the kit. While of less significance, operating parameters of the tubes and output Z are also items that we do-it-yourselfers are always curious about. (And where's that schematic?)

3) the post office managed to severely mangle my copy: I had the same problem with my Audiomarts until they changed from using one little sealing tab to two. Perhaps you could give consideration to such a change?

I've photocopied on the back of this letter all of the data I have on the 6C33-B tubes. About the only other rumor I can provide is "do not attempt to use fixed bias". I bought some 6C33-Bs a couple of years ago, but have never done anything with them. I am very curious about your project. Finally, I am looking for one each of the following:

UTC S-61 7.5 volt filament transformer

original Michaelson & Austin TVA-10 output transformer (or a junker TVA-10 for parts, with at least one good output transformer).

Very best regards,

James M. Dowdy,  
Atlanta, GA

*Thanks for your subscription, Jim. I apologize for the lack of graphics in the last issue. I usually put something in, either schematics or photos or data. Please see the stuff I included in this issue.*

*The World Audio SE amp is available through Hi-Fi World magazine. The address is WORLD AUDIO DESIGN, 64 Castellain Rd., Maida Vale, London W9 1EX. Telephone 071 289 3533, Fax 071 289 5620. The invoice in the box with the kit I picked up (partially cannibalized) was for L375. Apparently you can buy just the output transformers for L150 plus shipping. I am including some data in this issue about the 6AS7/6080 from May 1951 Radio & TV News. I would like to print the schematic, but this would not be appropriate, as Hi-Fi World printed an article with schematic when they released the kit, and the kit is still in production. I have a copy of the article, but the issue date was cut off. I believe it was in one of last year's issues.*

*The suggested cure for mangled newsletters is being used this issue. Thanks!*

*Ah, the 6C33-B. Apparently the Russians copied the RCA 3C33, a very rare dual triode "control amplifier", but strapped the dual plates and grids to increase its current capacity. I read specs on the 3C33 which matched it extremely well with John Atwood's new UBT-1 SE output transformer (One Electron, 65 Washington St., Santa Clara, CA 95050). Looks like it would be good for almost 10W, with one tube doing both channels for stereo. I have printed 3C33 data from the same Radio & TV News article cited above. Unfortunately the changes in the 6C33 make it a completely different tube. Check out the current issue of Positive Feedback for an interesting 6C33-B based OTL amp. If anybody has a 3C33, I will trade something cool for it!*

*We need to get a tube manufacturer to bring the 3C33 and the 6CK4 back into production. Both of these tubes can take over 500V, are easy to match to a load, and apparently sound very good.*

Dan-

Just a note in response to some newsletter items:

1) For what's brewin'? - I'm working on a pair of 2A3 single ended amps: the cheap Maqnequests with a 6922 SRPP to drive them. And yes, I will use your short-buss-quasi-star ground (thanks!).

2) You asked for 6C33 data- the only data I've seen is in Glass Audio. The 1/93 issue, p.33 has some plate characteristics. this puppy is not very linear - at 200mA,  $\mu$  is about 2.4 at 40V, but 1.6 at 250V. It also wants a lot of drive! My analysis suggests an operating point of 150 to 200V on the plate at 400 or 300 mA respectively, and a load impedance of 200-400 ohms at 150V or 400-600 ohms at 200V. This might give 11 or 12 watts, but distortion is over 10%. Drive levels of 80 to 130 V peak to peak are needed. You might push it to 250V at 240mA, raising power to 20 watts into 700 ohms, but the distortion will also rise to at least 15% and it will want 180V drive. GA 4/94 had some more notes on p.10 about not exceeding 300V and avoiding fixed bias due to grid-current problems.

3) I've been working on finding good operating points for triodes, both as power amps and as voltage amps. Would you be interested in an article for the newsletter?

4) How about back issues? My first one is vol 1 #7, so I don't have the 6B4 single ended amp circuit that Mike brought last Sunday (the March meeting - dan). I think someone said it's Fred's circuit? Since that amp sounded the best to me (and since I have the same output transformers!) I'd sure like to see the circuit.

Paul Joppa  
Seattle

*Thanks for the letter, Paul. Your analysis of the 6C33 seems to correspond to the types of distortion problems Scott Dorsey says he has encountered with his OTL described in Positive Feedback. He says it is an open sounding amp, but sounds really bad when it clips. Why didn't those Rooskies just copy the 3C33 and save us all a lot of grief?*

*I would be more than interested in an article on operating points for triodes, I would be ecstatic! A description not only of the best points, but also how to calculate them, would be a valuable lesson for us budding genius types.*

*I am still working on a best approach for back issues. Frankly I never expected the interest we have gotten this year in the club, and never printed extra copies of a given issue. Perhaps I can supply article reprints on request (a bit of a pain, but doable, given enough time) or maybe we should make a full year's set of issues available for a set price, like the big mags. Can somebody help with this?*

*I carry a binder with all the past issues to most meetings. Feel free to look through and pick out items of interest you've missed in the past. More specifically, Fred's circuit was a quick sketch without values that used a 45 tube. I will twist Mike's arm about publishing a complete schematic and notes on his amp, upon which Fred did most generously advise him. I agree that it was the best sounding amp. It may have been a bit bright, but it was so clean sounding. Rumor has it that Mike LeFevre has asked Fred to publish some data regarding both the 025 and 030 model transformers. This could be very interesting...*

## letters, continued

*Typo time*

Dear Dan:

Good job on the latest (Feb) Valve newsletter. I couldn't help but notice that Myron's schematic carried the title "Loesh Audio Design". That would seem to imply that Myron built, but did not design, the circuit. I skimmed the article again briefly to see if any reference was made to a "Loesh" person, but did not see any. I have dealt with, and seen reference to in Sound Practices, Art Loesch in the New York area. He has me collaborated, as I recall, with Jon Baier, who has some notoriety in Sound Practices, on some innovative triode and SE projects. Maybe it is he who created the W4 mod? Does the Classic Radio tuner alignment discount price to VALVE members apply to non-resident types like me? I have scads of old tube tuners, at least a few of which would seem worth refurbing. What is your opinion of the LT110 and the older Sherwood types? I have several Sherwoods (well, maybe two...)

Really sorry to hear about the equipment ripoffs. What a sad, even despicable, act and indictment of our perverse society. I've been there, and, short of rape (I guess), there's nothing that makes one feel more violated (*you never met my ex-wife - dan*). Please express my condolences to Jim. We are all probably vulnerable to that to too great a degree, although I deal very little any more with classics - mostly junkers or little-knowns that few people outside of the DIY community would care for.

Keep up the good work. Maybe, even despite being a non-resident, I can get my act together enough soon to contribute an article.

Regards,

Neil Shattles  
Lilburn, GA

*Thanks for the good words Neil.*

*I verified that Myron's amp is based on the circuit designed by Art Loesch and published in Sound Practices. Myron's building another pair with really premium parts. The amp has that great PP triode bass, and after listening to three 3-4W SE amps at our last meeting, the W4's 8 watts of bass sounded like about 50!*

*As for the alignment deal, I'm sorry, but it's not really fair to our full members who paid full dues in our early months of existence, even though non-residents. I guess I could bend the rules for someone who wrote an article or two though! I have found your name associated with a club for ESL builders, Neil. How about an article on wringing efficiency out of ESL's for our puny SE amps?*

*In general, I don't particularly like Scott tuners. Some of our members think they are great, though. The one Scott I was really impressed with was a mint, one owner LT-110 built and owned by member Jerry. It hadn't been messed with like most have, and sounded very nice. I haven't done any extended listening to Sherwoods, but hear they are real sleepers.*

*The saga of Mr. French, aka Mr. Bishop, aka the Crossover Doctor, who mysteriously disappeared the day after Jim was ripped off, continues. He is wanted in Beaverton, Oregon in connection with audio ripoffs, and was rumored to be in a Sacramento hotel room for a while trying to sell tube audio gear of a description similar to that taken from Classic Audio.*

*A large number of ripoff stories concerning a person with similar physical characteristics and modus operandi continue to pop up all along the West Coast. He seems to drive a different car almost monthly, and constantly moves from city to city. If you meet this guy, consider him vermin. Remember to save some for the rest of us.*

*Heath power transformers*

*This is a copy of a letter from Rick, W-5 modifier supreme, to Myron, noblest crafter of W-4's:*

Dear Myron,

I seem to recall we talked about power transformers for the Heath W-1, W-2, W-3 and W-4. If I am mistaken, please disregard this letter.

I built a power transformers test rig which loads the 6.3V windings at 5A and the 5V windings at 3A. There are four large 4.5K ohm resistors which I hook to the high voltage leads either in series (18Kohms), or in series parallel (4.5Kohms). I used my test rig on power transformers for Heath W-3, W-4, and A9-C amps. My purpose is finding replacements for W-2s and W-3s. Here is what I found.

The W-4 typically has a 54-29 transformer, and some fraction (maybe 20% in my experience) have 54-13s. I should test more W-2 and W-3 54-13s to get a better sense of their variability, but taking off the bottom covers is a practical obstacle which I have not yet overcome (the W-3 I tested does not have a bottom cover).

Obviously, the 54-13 packs more punch than the 54-29s more commonly found on W-4s. Nonetheless, from one extreme to the other is a difference of only about 5%.

Sincerely,

Rick Graves  
Seattle

*Rumor has it that Rick is negotiating for a pair of W-1s. We'll have a demo of these rare birds when he gets them up and running. Come see Rick's neat Heathkit stuff at the May meeting.*

Transformer	Amp	Voltage No Load	Voltage 18Kohms	Voltage mA	Voltage 4.5Kohms	mA
54-13	W-3	835	832	46	775	172
54-13	W-4grey	865	829	46	777	173
54-13	W-4grey	859	811	45	757	168
54-13	A9-C	835	804	45	754	168
54-29	W-4gold	817	793	44	749	166
54-29	W-4grey	826	793	44	748	166

Grey and gold designations refer to chassis colors. The W-4 came in both flavors.

## april

April's meeting will be held at Electronic Tonalities, formerly Classic Radio of Liberty Bay (Dan's house!), Poulsbo, Sunday April 2nd.

The theme is commercial power amps. We will try to have a pair of Steve S.'s McIntosh M1 200's, a pair of Altec 1569A's, and a pair of RCA theatre amps. Since these are all big guns (200W, 80W and 70W) I will haul the Magnepans down from their new home in my living room to the shop for the meeting.

We will start the frivolities at noon, but I will set up my experimental super efficient, hornless, crossoverless speakers for single ended amps in the morning. I will have them running so that you might help me with your opinions about their performance. Please come by as early as 9:30 to give them an audition. If you'd like to bring a single ended amp to try with them, please do, along with your favorite software.

## may

Rick is finishing up the details of his new system, composed of heavily modified Altec Voice of the Theatres, modded Heathkit W-5's, Luxman tube crossover, etc. He may even have a Thorens TD124 /Shure SME ready for vinyl. I saw the stuff last Saturday. This is going to be a very interesting system! He'll even have a subwoofer, eventually.

If you've seen and heard Rick's work, you know this will be a must see event. Sorry, but this will be a MEMBERS ONLY deal. You gotta pay if you want to play with the big boys.

The meeting will take place Sunday May 7th at 10 a.m. Call Dan at 360-697-1936 for directions and membership information. If you are a subscriber and would like to attend, you may upgrade to full membership for \$15.00.

By the way, Rick has offered to put together info on his W-5 mods for a future article.

## thanks guys

Thanks to Bill for all the 1994 issues of The Audio Amateur, and for all the magazines, manuals, and service data you've made available to the club.

Thanks all you other guys like Dave, Eric, Rick, Mike, Jerry and Radio Steve, who've donated and loaned material for copying.

Thanks to Jim for use of Classic Audio, 7313 Greenwood, Seattle for our March meeting, as well as others in the past.

Thanks to Stan for our new Tektronix 531 O'scope, and  $V_{\text{peak to peak}} = 2.8V_{\text{RMS}}$

Thanks to you guys who are writing articles and letters.

Thanks Fred for your columns, the loan of the Eimac data, the 417's, and your Vast Wisdom.

Thanks Dave for the frequent loan of your HP 35665A, and all the other stuff you do.

Thanks Eric for the long term loan of the A7's, for buying the junk I find, and for your coffee break calls.

Thanks to all my customers who help pay the bills.

Thanks Gil and Bill at Nuts About Hi-Fi, Silverdale, WA for always letting me try stuff on your incredible reference system

Thanks especially to you guys who offer equipment to audition.

Thanks Steve S. for the gracious audition of your awesome gear at your place.

Thanks to Paul and Jim for the 6C33 info.

Thanks again to Ed Dell and Joe Roberts for plugs in your mags.

A huge thanks to Eileen (You Still Make Me Wild) Schmale for putting up with such a lunatic for a husband.

Thanks to you subscribers from around the world who show interest in what's happening over here in Latte Land.

Thanks to everyone else who has helped through this first year of VALVE. I apologize if I didn't mention your name here.

I'm having a blast. I hope you guys are having fun too. Dan