

VALVE

VINTAGE AUDIO LISTENERS AND VALVE ENTHUSIASTS

in this issue -

Restoration 101 - a lecture

Rectifier shootout results

Fisher FM 1000 recap

Single Ended Romance

Cary Preamp - good as an oldie?

upcoming meetings

January 8, 1995
Vintage Equipment Restoration
at Classic Radio, Poulsbo
12 noon

February 5, 1995
FM Tuner Shootout
at Classic Radio, Poulsbo
12 Noon

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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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believe electrons flow from minus
to plus, and they can kill you along
the way if you're not careful.
Vintage audio equipment operates
at potentially lethal voltages.
Always treat it with respect.*

editor's thing

Well, here's my second attempt at putting out this month's edition. The first died a sudden death during a power outage in my shop. Yeah, yeah, I shoulda backed up my backup and all that. Thought I'd use a recent experience as an object lesson.

Last month the boys at PAS invited me for an audition of my triode amps. After a bit of a late and rocky start things got underway. The speakers they brought were untried Latvian models, Baltic 80's I think they were called. Remember the Lirpa systems Audio magazine used to spoof in their April fool's issues? After five minutes of listening I decided these speakers were designed by Lirpa himself. Luckily a very nice member brought in some other speakers after I looked about ready to run out crying, and I calmed down.

But the incredibly dumb thing was that I got too serious and upset at the way the audition was going up to then. The reality was that it was cool to get a chance to hear speakers from Eastern Europe, and the members of PAS were very kind to consider my interests and invite me. I forgot rule number one about audio in general and any audio stuff I associate with in particular. IT'S SUPPOSED TO BE FUN! We dabble in what's nowadays considered a kind of black art, and each of us is thrust along our path with a little bit different tempo. And we each have a responsibility to respect the other guy's priorities.

I see other people getting a little too serious about this audio hobby stuff lately, just like I did at the PAS meeting. We loose time, energy, and goodwill telling the other guy he's doing it wrong. Let's just have fun, learn, and enjoy each other's enthusiasm, huh?

Don't let the blue smoke out. Unless you want to.

DAN

letters from fred

*Great recollections from Fred Suffield,
P.E.*

17 Dec. 1994

Dear Dan,

Years ago, before 1940, the design engineers in a well known company who designed 25 and 50 KW broadcast transmitters, used water cooled tubes. Some of these tubes had copper envelopes covering the plate area that was five feet long.

At times during development and test a tube would go bad, either open filament or soft. The engineers removed the tube, put in another and went ahead in their work.

After a while, several years, they had about six of these large items in the lab, and they came up with a great idea. They took them home, polished the copper, put a base on them, and made very modern looking floor lamps, and table lamps!

About this time some spoil sport in Management found out that the Vacuum Tube division could rebuild tubes, and as the tubes cost up to about \$1000, said all the unaccounted for tubes should be shipped to the tube division for repair. Much searching and no one could find any!

Many lamps in engineer's homes went into the garage under cover immediately!

Just shows that management can spoil anything!

Fred, I hope to come visit your garage workshop soon. Might I assume that it is well lit? - dan

any requests?

The correspondence received lately has been very nice. Please see this month's letters for a sample.

Now I have some more specific requests to ask of you fine members (is this buttering up working?).

We need some articles by people who are totally gonzo about some particular piece of equipment, marque or type of circuitry. Surely you guys see how handsome and literate I've become since becoming an expert on nearly anything.

You can too. If you know all about Marantz 10B's, Living Presence recordings, the complete history of close'n'play phonographs, what kind of booze Saul Marantz drank, or anything else audio related, you must be an expert. Get all the pertinent stuff down on paper. Lots of graphs and pictures earn extra style points. Send it to me. You'll be famous inside of three months. Really.

I'm still planning out the listening room conversion of my garage and would love to hear from some folks willing to donate time and material.

Another request I'll repeat is for some help organizing the library. It's getting pretty piled and shoved around and needs a more organized mind than I have to tame it.

I would like to do one or two big, nationally advertised swaps this year. I think I'd need someone to work with me on this, getting out advertising and finding a place to do it. Think of all the cool stuff you'd get first crack at if you worked on this!

We should have a couple of meetings devoted to a single marque, with a guru to give a talk and members to supply as complete a collection as possible of that company's products, kinda like our QUAD meeting. Maybe Fisher, H.H. Scott, McIntosh, Heathkit, Dynaco, Eico, well, you get the picture.

Somebody remind me to mention all this stuff at the next meeting, OK?

restoration101

At our next meeting on January 8, I will be giving a talk on restoring vintage audio gear for folks who are just getting into vintage gear, as well as vintage veterans who want to start maintaining and improving gear they've had for a while.

I'll go over what to look for in a piece of equipment you are considering buying, simple tests to perform and what you need in the way of test gear, where to find schematics and test specs, how to prioritize parts replacement, what kind of parts to use, and where to get them.

Some of our members have a great deal of experience with restoration and modification, and I'll be counting on these folks to pitch in with sage advice as we go through these topics.

I've received a lot of enthusiastic response to this program when talking it up with the membership. I encourage everyone to ask specific questions at this talk, so the direction of the discussion includes your personal interests.

If we have a good crowd at this meeting, and people are interested, I'll take things a step further and develop a hands on restoration seminar. For a reasonable fee, members could come to my shop for a couple or three Saturday sessions and use the library and shop equipment there to perform a restoration on their amp, preamp, tuner, or whatever.

I would roam around the big table, answering questions, helping locate and interpret schematic data, setting up test rigs, suggesting parts and sources, making coffee and changing records.

Attendees might spend their first session outlining their project, checking condition of parts, and developing a parts order. The next session could be the cut and replace session, where the real fun work happens. The final session might be a time for final adjustment and debugging, followed by an audition of each member's project.

Fixing your own stuff is really satisfying. Please come to January's meeting and find out how easy it can be!

what's brewin'?

Word through the grapevine is that Rick is fiendishly modifying a pair of Altec A7 cabinets for use with 515 woofers and 311 horns, ala Sound Practices. Voids are being stuffed with foam and panels are being reinforced.

Myron has modified a pair of Heathkit W-4's to real triode operation, using 6B4's. He says they work great with the Chicago output iron.

Mike has a pair of 2A3/Magnequest SE amps going, using Red RCA 6SL7's for drivers. The circuit used is the one Fred Suffield sent us a few months ago. Mike agrees with Fred that the Magnequests are terrific, and he used Vitamin Q's after I preached of their virtues a little. His only complaint is a bit of hum. I told him to learn the words.

Mike's neighbor Roger is adding Eminence horns to a pair of Klipschorn woofers he recently purchased. That oughta play loud!

rectifier shootout

December's meeting was a champagne and cookie feast combined with a grueling, fascinating listening session, conceived by Rick.

Rick has been playing with power supplies for a long time, and his latest experiments have taken him to the realm of (don't faint you bottleheads) SOLID STATE RECTIFIERS!

He showed up with two pairs of Heathkit W-5 amplifiers, one pair bone stock and one pair recapped with film caps, with extra filtration and converted to run 807 output tubes.

For rectifiers he brought 5R4's, 5AR4's, some cheap plug in replacement solid state rectifiers, and some HEXFRED ultrafast, ultrasoft recovery solid state rectifiers, mounted on an old tube base.

We first listened to the stock W-5's with stock 5R4 rectifiers. A nice stock Williamsonish amp.

When Rick plugged in the el cheapo solid state rectifiers, and all others following, he adjusted the line voltage with a Variac to keep the same B+, which was monitored with the cool old Weston meter Radio Steve gave me.

This did vary filament voltages slightly as the tests progressed, but probably not much, and hey, you can't have it all.

The cheapos lived up to their title, imparting grundgy, rough edges to highs and generally 'transistorizing' the sound.

Switching to the HEXFREDs was impressive. The sound cleared up, lost the edge and grunge, and sounded a bit more detailed than the stock tube rectifier. All in all the best presentation.

The last rectifier tried was the some love it, some hate it, 5AR4. The 5AR4 was nice, but just not as clear and crisp as the HEXFREDs. It was however, an improvement over the 5R4, and blew away the El Cheapo. After switching back and

forth we went on to the modded amps.

As usual Rick's workmanship was superb, with great attention to detail in his wiring and component selection. New five pin sockets and plate wires and caps were added for the 807's, with the plate supply wire double insulated with teflon sleeving. Very neat.

Rick thought the differences might not be so apparent on these amps because he had added some high frequency filtering in the B+ supply, and solid state rectifiers are said to make their presence known by generating RF hash.

We went through a similar progression with the rectifiers, and the improvement from cheapo to HEXFRED was obvious once again.

Then the surprise came. When Rick plugged in the 5AR4, the sound seemed just a little smoother than with the HEXFREDs, and just as detailed. Hmmm.

Well, the best answer I have is that HEXFREDs took the recapped, super clean amps just past the threshold of brightness that makes my Magnepans bite. It seems that superdetailed amps that are also a bit bright are just too harsh for the Maggies. Harmon Kardon Citation II's, famous for super high end, do the same thing, while my Dyna MkIII's, with their big fat midrange, sound less bright and irritating.

Rick said the difference between HEXFREDs and tube rectifier was noticable on his system with dynamic speakers, and I believe he prefers the HEXFREDs. So the best sounding rectifier seems to be a matter of taste.

Unanimous agreement was reached that premium rectifiers are better than less expensive ones, particularly solid state models.

So there you are. Rectifiers do make a difference. Which kind to use may depend on your personal taste more than the results of anyone else's tests. As usual you just gotta cut and try til it's right. -dan

dinkin'around

tech tips and other unsolicited advice

Seeing as I'm the only guy around willing to stick his opinions out about tuner mods, I'll continue that thread this month with a recap of a recap of an FM-1000.

After two tries Rick got me to mark up schematics of his various Fisher tuners, indicating which caps to upgrade for improvements in the audio stages.

I started at the detector and marked every cap all the way to the outputs except those in tuned circuits and those associated with meters. I thought the meters sounded just fine. See letters this month for a discussion of Fisher meters.

Rick ordered parts from Michael Percy, Box 526, Inverness, CA, 94937, 415-669-7181, who carries a nice line of polypropylene and polystyrene caps in values and voltages befitting tube gear.

Please bear with me here. I have written this article four times in the last four days. One power failure erased the entire newsletter, new RAM chips took out this article twice, and a brown out just took out the last paragraph for the fourth time. If they come out with a gasoline powered computer, I'll probably buy it!

One thing to bear in mind when working on a tuner is the cramped conditions under the chassis, another is that component placement is critical because it can affect nearby tuned circuits. A big cap full of foil can act like a shield.

Because of this, replacement components need to be chosen with their size in mind. Rick approached selection of parts very thoughtfully, selecting polystyrene caps wherever possible and picking higher than stock voltage ratings.

Unfortunately some of the parts were on the big side, making installation a little tricky. Some caps were a lot bigger than the distance between tie points, and oth-

ers were too big to fit inside their designated shields. However everything went in OK, with no loss in performance.

I'd advise ordering parts from a source which lists component dimensions for tuner recaps, and stick with smaller polypropylene caps for values above the .001mfd range.

At this point I auditioned the tuner against Eric's stock FM-1000, which I thought sounded a tiny bit better than Rick's stock 1000, and my oil capped Citation III.

I got an impression of improved separation over the stock 1000, still not quite as good as the Citation III, and much smoother highs. The usual phasy highs associated with FM stereo signals were pretty much gone. As this phasiness tends to heighten the stereo effect, the apparent improvement in separation was a pleasant surprise. Since I am a nut for presence, this sound was to my liking. I might even admit it sounds better than my Citation III, even though the III gives a bit more detail.

The warmer tone of the 1000 may be due due the recap of the de emphasis network. Though the values were stock, tolerance differences between the old and the new caps may have affected the roll off a bit.

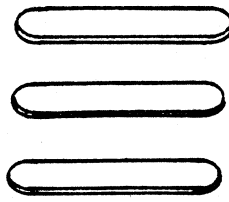
After establishing the types of sonic changes made, I employed the second half of the mod.

Rick had also ordered HEXFREDs for replacement of the stock rectifier, and new filter caps. The old rectifier, a Siemens bridge as I recall, came out and a bridge made from four HEXFREDs (Dave says Digi-Key carries them) was attached to a convenient terminal strip near the old rectifier's mounting point.

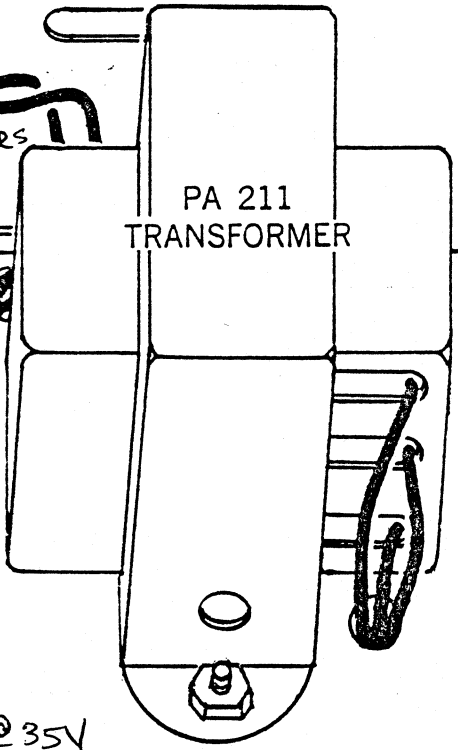
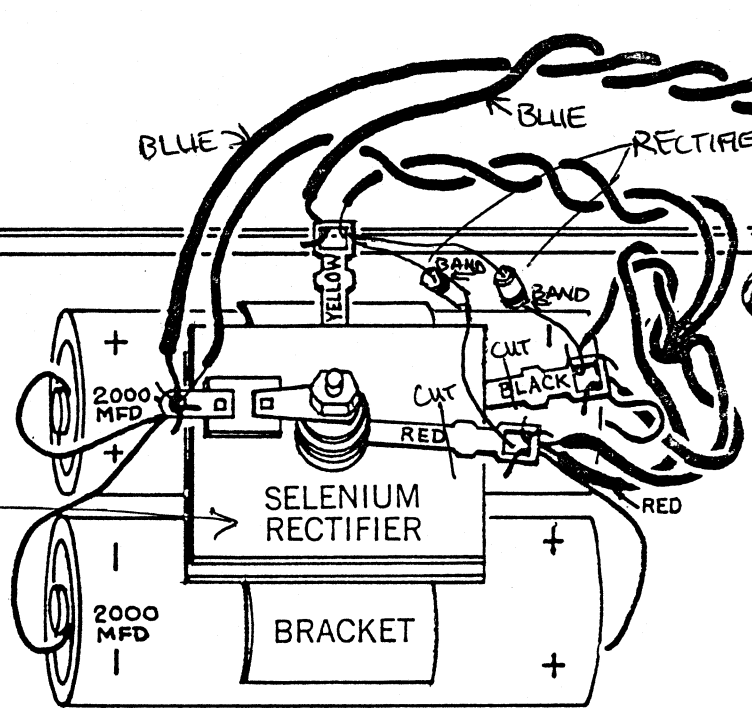
I wish I could give a definitive answer to the question of sonic improvement from this mod. But I didn't really hear any difference. Since the HEXFREDs are supposed to put out less RFI than stock rectifiers, it would be a good mod from the theoretical standpoint. *cont. p.12*

CUT TABS OFF OLD RECTIFIER - USE FOR ATTACHING DIODE RECTIFIERS
 I USED 3AMP 50PIV RADIO SHACK # 276-1141

LEFT OBSERVE POSITION OF BANDED ENDS IN
 DIAGRAM BELOW.



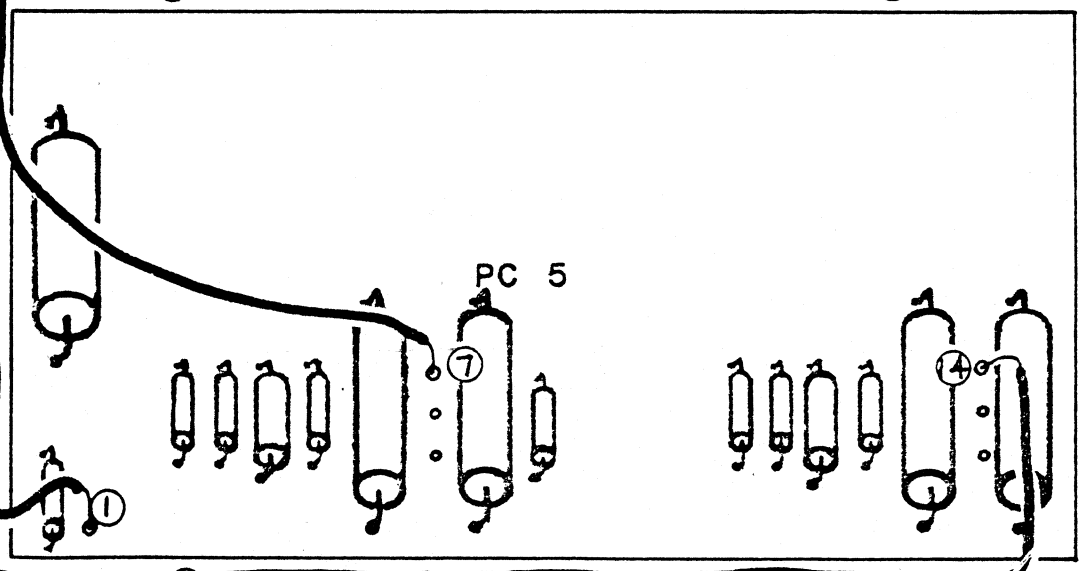
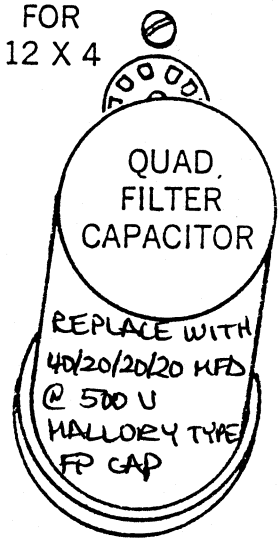
RIGHT



PA 211
 TRANSFORMER

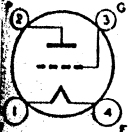
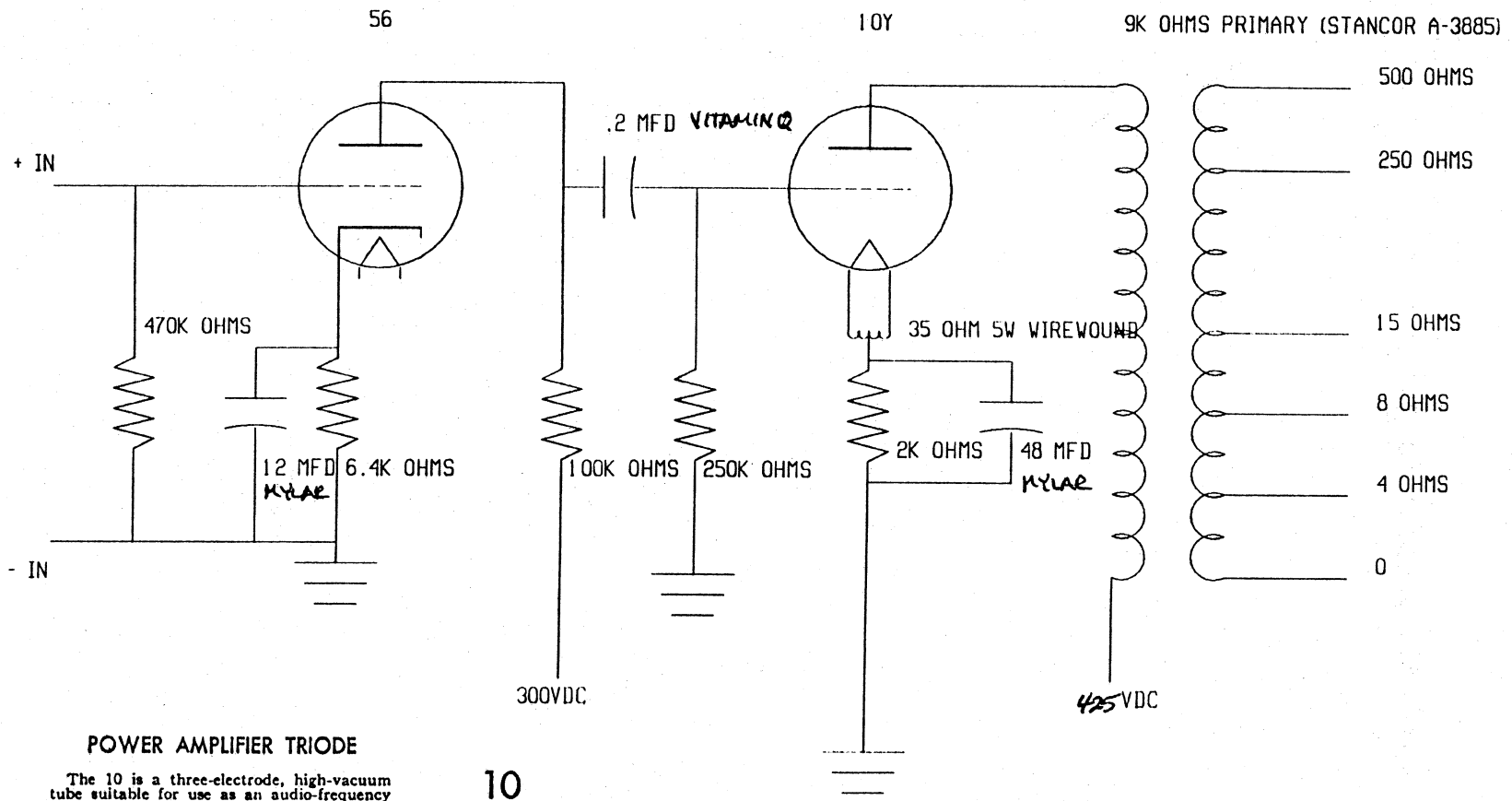
REPLACE CAPACITORS WITH RADIO SHACK 4700 MFD @ 35V
 # 272-1022. OBSERVE POLARITY, YOU CAN PARALLEL
 TWO FOR EACH LEG, BUT YOU WILL NEED TO EXTEND
 THE RECTIFIER LEADS TO FIT.

7 PIN
 SOCKET
 FOR
 12 X 4



PICTORIAL DIAGRAM - DYNALCO PAS PREAMP

SINGLE ENDED #10 TUBE AMPLIFIER



POWER AMPLIFIER TRIODE

The 10 is a three-electrode, high-vacuum tube suitable for use as an audio-frequency amplifier in equipment designed for its characteristics.

CHARACTERISTICS

FILAMENT VOLTAGE (A.C. or D.C.)	7.5	Volts
FILAMENT CURRENT	1.25	Amperes
PLATE VOLTAGE	250	350
GRID VOLTAGE*	-23.5	-32
CATHODE RESISTOR	2350	2000
PLATE CURRENT	10	16
PLATE RESISTANCE	6000	.5150
AMPLIFICATION FACTOR	8	8
TRANSCONDUCTANCE	1330	1550
LOAD RESISTANCE	13000	11000
UNDISTORTED POWER OUTPUT	0.4	0.9
		1.6
		Watts

* Grid voltages are given with respect to the mid-point of filament operated on a.c. If d.c. is used, each stated value of grid voltage should be decreased by 5.0 volts and should be referred to the negative end of the filament.

FEEDBACK - 0dB

COMPONENT COUNT - 12 PARTS PER CHANNEL

BUILD TIME - 45 MINUTES, TWO CHANNELS

joining the singles club

DHT, 60 years young, still full of life, tired of push-pull relationships, seeks single ended romance. Jazz and classical music lover who can rock in the right environment, particularly fond of female vocalists.

I believe in strong emotional involvement, attention to detail, and efficiency. I admit to favoring quiet play, but if you are slightly horny, amply loaded, and interested in coupling in oil, I am sure you would find me still quite hard. Won't someone transform this quiet type into an efficient speaker?

Thus began my newfound love affair with Single Ended amplifiers. Man, everything they say about 'em is true. Incredible voices, unbelievable low level detail, and a more 'real' sound than any other amp I've heard.

They also have no power, lots of hum, and you're still pretty much on your own when it comes to getting one. But those problems are minor compared to the level of realism these amps can put out, becoming minor irritations to live with rather than major flaws in the concept. They are quick and simple to build, allowing for much experimentation to tweak out the shortcomings.

I'd had in mind a SE project ever since Mike raved about a pair of Eico HF 20's he had modified to use a 6B5 in SE configuration, and Fred sent us his design for an amp using a 6SL7 driving a 45, with much enthusiasm for its realism with a JBL speaker.

I've collected a pretty good assortment of #10 Directly Heated Triodes over the last couple of years, and had my pair of old Stancor transformers, rated 35W PP and 9000 ohms primary impedance, that get used in all manner of projects. They aren't SE transformers. No airgap, probably wound less than optimal, but they weigh about 4 1/2 pounds, so I thought they might be OK for 1 watt. Besides they were free.

So I decided to read up in Sound Practices, the journal of artistic experimental audio, and my 1940 RCA tube manual. Put together a simple RC coupled amp circuit using a combination of opinions on tube sound quality, most notably by J.C. Morrison (try some of his ideas, they're good) in Sound Practices, and component values from the tube manual. See the centerfold for the current circuit.

I wanted to use a cool old triode for the driver and Fred mentioned a system using 56's a few months ago, so that was my first choice.

I have a funky bench top rack containing a Lambda regulated B+ power supply and a couple of AC/DC filament supplies, so power was as easy as adding a couple of 40,000 mfd @ 50V caps across the outputs of the filament supplies to cut hum.

My single channel prototype was literally nailed to the workbench in about 20 minutes. Even in this crude state it was obviously special sounding over my JBL LE175/Stretchorn, and it actually made one of Eric's A7's sound great for the first time!

Initially the driver was coupled to the output with two parallel Mouser .1mfd @ 630V polypropylenes. After a little play I remembered that I had a Vitamin Q of the same value. The difference between the virgin poly and the oil cap was obvious. If I hadn't heard the oil cap I would still be raving about the sound of the amp, but the oil cap made you Shut Up And Listen, my gauge for truth in reproduction.

Next step was to build a second channel so the whole magilla got screwed to a piece of 3/4" particle board. Breadboards live!

The Radiotron Designer's handbook suggested that the cathode resistor of the output tube might benefit from a bypass cap of about 50 mfd. I thought the sound a bit thin without it, so I tried it. Bingada bangada boom - there was the

bass!

I thought oil caps might be an improvement over the mylar bypasses, so I shunted the mylars with 10 mfd @ 660V oil filled caps. I couldn't hear a difference when AB'ing one channel with and one channel without, so I pulled them off.

The next experiment was subbing a 27 tube for the 56. The 27 is similar, but draws more filament current, a supposed way to better sound. I liked the 56 better. I thought maybe it sounded better because it had a little more gain than the 27, so the next step was subbing a high mu triode in for the driver. I had a 6SF5 around, so that went in the circuit. Not as good as the 56, so it came back out. The one tube I still want to try is the 26. It is a DHT, while the other tubes tried are all cathode/ heater types. Maybe it will make a difference.

I started the B+ at 350 VDC, but later boosted it to 425VDC. This forced me to put a dropping resistor in the driver plate supply leg, but boosted output from about .9W to a whopping 1.6W. Believe me, you take any scrap of power you can get at these levels!

My most recent mod has been the temporary addition of a pair of humongous Audionote SE transformers rated 10k primary impedance @ 50w, for 211's and 845's. Dave brought these over for some experimentation with higher power tubes. Actually, he brought 'em over because he thought I might get a 211 SE amp built before he would. If this damn computer will behave and I can get this newsletter done in one pass instead of three, he may get his wish.

The better transformers made their presence known in the high end, not the bass, as I had assumed they would. Higs were cleaner, plain and simple. The change sounded like the clarity improvement you get from a good recap, but more subtle. I don't know that it would be worth 450 bones to get a permanent pair for this whimpy amp, but

the difference is there for sure.

I tried a few different types of 10's. I have a couple of globe style, one of which has a mesh plate. It sounded very nice, but I only had one, so it was not a contender for the final stereo amp. A solid plate globe style sounded good too, but not quite as detailed as the mesh version. I have a really awesome looking pair of Sylvania type 210's, globe style, ceramic base, and graphite plates. They looked stunning in the amp, with super bright thoriated tungsten filaments glowing like light bulbs, but they sounded too soft. I finally settled on a pair of Sylvania 10Y's, heavy duty versions of the plain ol' 10, with shouldered envelopes, hot filaments, and solid metal plates.

When the amp only has 12 parts per channel, every component can make a difference. This is part of the intrigue of these fabulous amps. You can play for hours, making a five minute change and listening, again and again. Try that with a Citation III!

Of course you're wondering what speakers to use to get any buzz off 1.6 watts. Well seeing as I would like to come out with an inexpensive SE amp kit and a matching speaker, I've been experimenting a bit.

Firstly, you need 105dBm sensitivity for a watt and a half. I think the 10 is a great sounding tube, but it probably makes sense to go to 2A3's, at least. Besides you can't get a small SE transformer in the 10K impedance range. The 2A3 type transformers are available, and 2A3's give more like 3 watts, and you can find new Chinese 2A3's.

I'm scheming on a 3way system at 105 dB, even though I don't like three ways.

In the meantime I followed Sam Tellig's advice in November Stereophile and bought some Radio Shack Optimus 990's. They're not bad, slightly rolled off, at both ends, but decent, and about 90-95 dB. Working on an upgrade, but that's a whole nother story. - dan

letters

Letter to the Editor

Vintage Audio Listeners and Valve Enthusiasts

1127 N.W. Brite Star Lane
Poulsbo, WA 98370

Steven Schneider
(Address Withheld)
Seattle, WA

8 December 1994

Dear Dan:

I was a little disappointed with the December newsletter in that there was nothing mentioning the November club meeting. After all the build up for attending the November meeting in the November newsletter there was nothing mentioned of the meeting itself. I have always enjoyed your summations of the previous meetings whether you liked or disliked the equipment being auditioned. I request that you give a review of November's meeting and all other meetings from now on. Thank you.

Steven Schneider
Club Member

For those of you who have not seen the last two issues, seven pages of which dealt with Steve's marvelous collection of vintage high end gear, Steve is referring to a nice afternoon spent auditioning his many vintage high end systems. Attendance was six, just right for that kind of thing. The pastries were great. We listened to the JBL Hartsfield clone/Mac MI200/ Ampex 350-2/ Eico/ Dual system, discussed in both the November and December issues, first.

While my initial reaction was that the

highs were a bit soft, the system has a presence that is quite striking and leads one to feel that the highs are really 'right' with the proper recording. I see why Steve favors the old Living Presence recordings, with their Ampex/MI200 sound on this system.

The next system auditioned was the Pioneer Laserdisc/PAS3/Sonic Frontiers/EV tower system discussed at length in the December issue. Again, a nice sounding system. I found the Sonic Frontier's rather wiry with their stock Chinese 6550's. Steve asked me for a free checkup on the amps and I found the Chinese tubes were drawing too much current. I suggested he replace them with something Russian, or with GE's. The Svetlana's he bought seemed smoother, but they were not broken in, and the necessarily low volume levels at the audition precludes me from offering a more detailed opinion of this system.

My favorite system was the Laserdisc/PAS running an Eico HF-89 and Four KLH Nine electrostatic panels. Two on each side angled for more dispersion. Kinda big for the room they were in, but they got that just right feel to the highs. If someone would just make a 100dBm ESL!

Back in the living room Steve fired up a Mac C22 preamp, MR71 tuner, and Thorens TD 126 with Rabco Straight line tonearm, through the MI200's and Hartsfields. That turntable is cool.

There is a lot of really nice equipment to be seen and heard in Steve's system. As to whether my summations are very important, I thank Steve for his complement. I try to have fun with this newsletter, and would hope that folks would allow me some room for experimentation with its format. I would also hope that all members would offer articles of their own if they feel something lacking with the content of this rag. Please see this month's editorial on FUN.

letters cont.

In light of the coverage of Fisher FM-1000 mods in dinkin' around this month, I am reproducing parts of a letter Rick received from Al Pugliese, the Fisher Doctor:

Dear Rick,

The problematic meter in your FM-1000 is a common problem. I have seen both the signal and audio meters crap out. In fact one of my FM-1000's has a bad audio meter. The signal strength meter is obviously more important. A true solution to this problem is on my list of things to do, and I would strongly recommend that you do nothing to the original meter until I have an answer.

In the meantime, just about any Fisher signal strength will work. What I did in one customer's FM-1000 was to install a signal strength meter from a 500-C. It just about fills the window and can be calibrated with the adjustment pot on the chassis.

I then installed a #47 lamp behind the meter (again, using the lamp mounting parts from a 500-C) and it is illuminated nicely now. You can use the relay mounting screw to hold the lamp assembly, avoiding the horrible thought of making a hole! The 6.3 volts is obtainable under the set in several places. The meter can be held in place with a small piece of tape or something. This is a very workable solution until I find a way to PROPERLY rebuild/repair these meters.

As you know, Fisher always used premium components in their products. The meters from around 1960 on were Japanese. Mr. Fisher was so impressed with the Japanese being so industrious and eager that he gave them all of the meter contracts. This is not necessarily the cause for failure. In the 50's, the meters were American made (as found on mon-

oblocks such as the 90-A, 125-A, 55-A) yet were TERRIBLY unreliable, although the 55-A meters seem to hold up. Interestingly, I see that the Marantz 8B meters and the Harmon Kardon Citation II (some models) meters are obviously the very same manufacturer as the 50's Fisher meters. I have found that meter reliability has much to do with the exact design and function in the circuit. I have not yet studied this thoroughly enough to find out exactly why some types fail almost always, and some fail rarely. I had 4 meters go out within a few months. Yet I have never found a bad 55-A meter. There are definite circuit differences, and the meters are of a different value.

I have not studied the FM-1000 meter problem enough to exactly locate the problem area, although it seems kinda certain that the coil opens. I did start this project and have one of my FM-1000 audio meters completely taken apart for study. However between a brief illness, and having both hands full of work, I have not yet been able to find the time to dedicate to researching this very common problem. This is about what I have to offer for this problem. By the way, the audio meter and the signal meter have different values and are not interchangeable...

I would try any kind of signal meter that basically fits the cutout as most are of the same value.

Interestingly, the SA-1000 meter appears to be extremely similar to the FM-1000, yet I have never heard of one of these failing. You would think that someone would goof and flip the meter switch while the amp was playing music and ruin a meter, but lo & behold I have sold only 2 SA-1000 meters in the past 3 years, and the buyer wanted them for spares only!

Very Best Regards,
The Fisher Doctor

Cary'd away

a day with the Cary tube preamp

Gil Loring called Sunday to remind me that he wanted to come by Monday and audition his Cary preamp on my system, as he was writing a review for Audio Observatory.

Well that meant a day off for me, so I said sure! Busman's holiday, anyway.

First we picked an amp and speakers for our very subjective session.

We ran the SE 10 amp thru the Optimus 990's for a bit, but Gil felt the highs were a bit rolled off, so we switched to the Triophoni amps thru the Magnepans.

As a control we started with my modded Citation 1 in the system. I used a neat thrift find for software, an RCA RedSeal from the Prokofieff Series, Symphony No.3 and the Scythian Suite, by Erich Leinsdorf and the Boston. LSC-2934.

I got a new old Denon DL-103 moving coil with an AU-320 step up transformer from Jim Lissa, which made my DP-6000 Ttable and DA-307 tonearm all Denon. I love it, so the old Audioquest got moved to the Grace tonearm for a rest.

I particularly like the EQ of the phono stage in the Citation, and thought the album played well. The Citation has polypropylene caps in the gain stages, metal film plate and cathode resistors, extra filament supply capacitance, fast recovery rectifiers, smooth plate Telefunken 12AX7's, and Siemens 12AT7's (the Telefunken 12AT7's I have tried were noisy and had teeny Japanese looking plates).

After a good warm up we patched in the Cary preamp. The Cary comes with a line stage only, composed of one 12AU7 per channel.

An optional Phono stage is available, as an internal or external addition. Gil had opted for an internal phono stage, as he listens to a lot of vinyl. Gil is a cool guy. The phono stage was amped with

2 12AX7's. Coupling caps were polypro and a few oily or giant polystyrene looking types.

The four tubes are attached to a PC board as big as the whole CD player sized cabinet. This clearly weren't no PAS.

The sound of the Cary was a bit cleaner and leaner than the Citation. I think the obviously simpler circuit helped there. I know you guys are saying "What a doofus, using a Citation I." Let me just say that I sold my mint PAS after I redid the Citation. Nobody but me seems to have the patience to recap one. But then I only replaced 42 of 'em.

Well I thought the Cary was a little dry and sharp, so I coolly pulled out my Telefunken stash box and said, "would you like to try some other tubes?"

A pair of smooth plate Telefunken's went into the phono stage, and a pair of orange label Amperexes that I had loaned Gil went into the line stage. A little better, more tubey, but not as clean and linear sounding.

Then AH HAH! I found my only pair of T'funken 12AU7's. In they went and that little preamp sounded NICE. I wish I had some Bugle Boys to try, but I didn't have time to dig for some in the Chamber of Tubes Behind the Wall. I suppose we could have tried Mullards too. But I traded my Masters to Eric a while ago, and regular Mullards don't get me going.

Anyway, my opinion of Chicom tubes was reinforced. Real linear, real wiry, real detailed, real thin. Not my thing.

We also tried Gil's Parasound amp and my modded Stereo 150. The Cary had no trouble with the solid state amps. Man, the old $M_{6}G_{11}A$'s sound good with some power behind 'em. Gil said that he would have kept his old MG 1's if they had sounded like my 11a's. He was probably just being nice. Then again, maybe I should quit this tube thing and ---- Naah.

Now that we were pretty well confused

by listening to five different amp/pre-amp combinations, Gil said, "Want to go with me to Nuts about HiFi and try the Cary with the high price stuff?".

If you have heard the Wilson X1's, you know why I said yes.

The X1's are powered by Krell's biggest power amps. (let's see, \$64K for the speakers, \$32K for the amps, yeah, that should work for the rear channels).

The preamp is a Krell, of course. Gil said he thought the Cary might sound better, so in it went. We had gone back to the Chicom tubes, but it still had a little more tubey presentation than the Krell. Gil had a neat new CD called Requiem, done with that new pipe organ in Dallas, and a great choir. I think voices were a little more natural with the Cary, but in this league of equipment my ears meet their match.

One reassuring thing, even new tube amps make a little tube noise, which could be heard up close on the next speakers, Thiel CS-3.6's. These marvelous speakers sounded slightly rolled off with the Cary, and Gil said they were just right with the Krell preamp, so there may be something to the idea of current speakers being designed to compensate for the solid state sound.

At this point we went back to the Krell, as a customer was auditioning along with us, and Nuts' owner Bill wanted to play the Krell for him. This time the speakers were Wilson Watt/Puppies. God, those things sound almost as good as the X1! If I only win Quinto instead of Lotto I'll buy the Watt/Puppies instead of X1's.

By the way the CD players we used for these auditions were my cheapo, stock Onkyo DX-1400 at my shop, and a top of the line Theta Player and DAC at Nuts.

To sum up, the Cary is a nice preamp, equal to one vintage classic, today's tubes may not be as good as vintage stock, Wilson speakers are great, and the guys at Nuts about HiFi are super.

dlinkl' cont.

It may take an AB of a stock rectified 1000 vs. a HEXed 1000 to determine the differences.

The best part of the mod was that, by avoiding replacement of caps in tuned circuits, no realignment was necessary. Everything checked out perfect on the scope.

So get a schematic and plan out your tuner recap tonight!

PASsing out

Reader Ed asked for a little more detailed description of the PAS mod I described last month, preferably with some illustration. Please see this month's centerfold for such a drawing.

I took a copy of the "pictorial diagram" from the PAS Manual and scribbled some notes on it.

Cut the tabs off the old selenium rectifier, leaving them in the preamp as tie points for the new parts. This saves hooking all the wires back together at those points.

I listed Radio Shack part numbers, but of course you could use fancier parts.

You could also put a zener regulator across the output of the filament supply. Remember that the filaments are wired in series on each board and that the supply puts out approx. 24VDC. I used a couple 12V 1W zeners in series across the 'black' and 'red' tabs of the rectifier. Not much difference in sound however. Remembers that zeners go in 'backwards'.

I've heard that Mallory is moving their filter capacitor production to Mexico, and there will be a drought of filters in the mean time. I got Verne Tisdale's last 2 40/20/20/20 mfd at 500V, so try Antique Electronic Supply. Stock up! You may need some when you attend our Restoration Seminar this spring!