

SEPTEMBER 2003 WEB EXCLUSIVE

**The EuroAudioTeam KT-88 and 300B Tubes: All Bottled Up**  
By Scot Markwell





It's a funny world. How many of us, 20 years ago, would have predicted that the Second Coming of vacuum tubes would be upon us in 2003? Yet the sheer number of tubed products that exist in today's marketplace is staggering. While in terms of circuit design, much of the equipment you can buy these days is simply rehashed from yesteryear, there are also quite a number of original and innovative derivative offerings from talented designers. It would seem to follow that there should be some new tubes out there, as well. After all, what is the point of having advanced technology, materials, and parts if we do not take advantage of them and forge ahead with new thinking, rather than simply spinning in place?

In point of fact, development of new tubes has, for the most part, been virtually non-existent in the last few decades. However, a shining example of original and innovative thought in triodes has been growing and expanding in Central Europe since 1993, evolving in ever-increasing odd jumps and lateral shifts, to finally emerge as EuroAudioTeam (EAT), an international/European cooperation between Austria, Germany, Switzerland, the Czech Republic/Tesla, and the UK. Their stated goal is to be a manufacturer and distributor for the highest quality vacuum tubes and analog high-fidelity products. The first products from this new concern were versions of some big new triode

tubes (52B and 32B) that Alesa Vaic invented almost a decade ago. They now manufacture several others, including the KT-88s and 300Bs that are the focus of this report. The factory (a portion of the old Tesla tube factory in Prague, Czech Republic) cranks out the parts and materials, and then final assembly and listening sessions with reference source materials take place in Switzerland.



***Jozefina Krahulcova, EuroAudioTeam's founder and chief consultant***

Jozefina Krahulcova, an MBA student, a passionate devotee of opera and live concerts, is EuroAudioTeam's founder and chief consultant. Since the company's beginning, Krahulcova and her German importer, Joe Farkas have been handling all aspects of the project. EAT, with Krahulcova and Farkas, is now a fixture at many international audio shows and events.

Broadly analogous (albeit on a much smaller scale) to a concern like the Airbus Consortium, another European venture that has, in the last several years, cooperated to build some of the world's most advanced aircraft, EAT believes that its combination of like-minded people from several countries can virtually guarantee a satisfying musical/technical solution, one close to its ultimate reference: live acoustic concerts and hence the absolute sound. For a few years before EAT's launch, members of the team visited numerous international audio shows to get up to speed on what was happening with tubes and analog in the High End, as well as researching new materials and manufacturing techniques. Though Krahulcova and others never forgot the old factory workers who knew so many tricks of the trade from years of making tubes on the line, they wanted to combine that expertise with modern materials and manufacturing technology to develop a way to build tubes that had a natural, non-fatiguing, and non-euphonic sound, their laudable goal being to return lost emotion and realistic excitement to music. Slowly, the team has built up momentum. Currently they have obtained a number of distributors around the world: Austria, Germany, the UK, Scandinavia, the USA, and, most recently, Japan.

So now I am sitting here listening to the fruits of all of this work. Although EAT's biggest focus has been on manufacturing high-quality SET tubes, they have recently begun making KT-88s that, they say, are tailored as closely as possible to the original specs of the old (and almost impossible to find) British Gold Lion models, which many folks still say are the best. To test these, I wanted to make sure I had amplification that I knew well and that was of high enough quality to allow me to ascertain differences between the stock tubes and the EATs. To that goal, I have a set of four of the current production EAT/Tesla KT-88s that I am using in a VAC PA-100/100 basic push-pull stereo amplifier,

and a set of two 300Bs in a Viva 300B SET (Single-Ended Triode) integrated amp, both extremely clean and wide-bandwidth amplifiers.

I also have listened extensively to a full set of 16 KT-88s in the Antique Sound Labs Hurricane push-pull, monoblock amplifiers in Harry Pearson's main reference system. I will spare you a boring lecture on the individual specs on the tubes; this information is available on the EAT website. <http://www.euroaudioteam.com>

Normally I would not spend so much time on background, but in this case it is important for you to understand the gestation of this project. That so much time, expense, and energy should go into spinning up an independent mini-industry that surely will have a difficult time just surviving for the first few years is a testament to the dedication of this crew and their seriousness about music and home reproduction.

So how do they stack up? The first EAT tubes I heard were the 300Bs, installed, as I mentioned above, in the Viva 300B (<http://www.artigianinet.com/vivaaudio/vivaaudio1.html>). This amp is a gorgeous device with tube rectification that makes all of 8 wpc, about the norm for such amplifiers. I used it with a set of Tommy Horning's Agathon speakers (<http://www.horninghybrid.com/agathon.htm>), a sonically stunning, super-low-coloration, modified corner horn design built around the Lowther DX-3. Unlike most Lowther designs, this one utilizes a notch filter to tame the most nasty resonance of the driver, making the speakers sound quite conventional tonally, yet with the Lowther's famous dynamics and low-level resolution. Truly full range, with a sensitivity of 98 dB/watt and a 6-to-8-ohm impedance, this speaker is perfect to analyze any differences in the system.

Supplied with (extremely good-sounding) JJ brand 300Bs and Sovtek 5U4 rectifiers, the Viva amplifier sounded excellent, with reasonably taut bass and a well-defined, sweet, and smooth, if slightly rolled, top end. Male and female vocals (and midband information in general) were, as one would expect from a 300B amp, exceptionally well reproduced. This amplifier, by the way, is designed to sound extremely linear, fast, and dynamic. The custom transformers are, as is the case with all SET amps, the real key to making the amplifier great instead of merely good. But the tubes also make a big difference. Given a superior circuit like the Viva's, one can more easily discern the differences between output devices. From the beginning, the superiority of the EAT 300Bs was easily evident.

With these tubes in the circuit, the amplifier's performance at the frequency extremes improved pretty drastically. Bass guitar (especially an unamplified acoustic bass) gained in transient impact, definition, tautness, and harmonic structure. Drums of all kinds, especially big kits in jazz or rock recordings, sounded crisper, more powerful, and more alive and present, all without added hardness or glare. High-frequency percussion, such as triangles, cymbals, castanets, and bells, all sounded cleaner, with more air around the notes and a longer decay. The higher harmonics of all instruments were better delineated, and it was easier to separate instrumental timbres than before. The only thing that troubled me was that the midrange did not seem to be able to keep up with the rest of the frequency spectrum. For the first several hours with the EATs, the soundstage was rather flat, and vocals seemed dynamically soft and lacking in expressiveness. However, as and the tubes ran in a bit, things improved and that old midrange magic came through in full and became seamlessly integrated with the rest of the spectrum. The Viva's ability to convincingly render dynamic contrasts and sound powerfully has always been one of its strong suits. Interestingly, although the amplifier was putting out no more power than before, with the EATs installed it seemed to; it became considerably more dynamically alive, while at the same time more relaxed and in control.

The one fly in the ointment is that, for some people, these tubes will not sound the way they expect a 300B type to sound. The classic sonic signature of a 300B tube/amplifier is one of a voluptuous midrange, slightly plummy midbass (with not much, if any, real bass below 40Hz), and sweet, gently rolling highs that start to fade out at about 12kHz. The result is a warm, inviting sound that is rich in harmonics and velvety smooth, with really good dynamic contrasts at the soft end of the scale and up to about a double forte. With the EAT devices, however, the overall presentation is somewhat leaner, more transparent, better balanced, considerably more extended, and not as overtly warm as most other 300Bs. The closest thing I have heard to these, as matter of fact, is a Russian 572 triode tube, another modern (recently invented) somewhat more powerful SET-type tube that has similar virtues and the same burden of not sounding like a "conventional" SET device. In contrast, the justly famous Western Electric 300Bs (the only real competition to the EAT 300Bs that I have heard) cost at least \$150 more per pair (and are currently no longer available) than the EATs and sound like the best possible "regular" 300B that you will ever hear; some traditionalists may well feel, in comparison, that the EAT design is not a "proper"-sounding 300B. At the end of the day, however, with these tubes, music is not artificially lovely or truncated in frequency response, and the EATs certainly do not pull any punches in terms of dynamic expansion. The EAT tubes sound, to my ear, more like music than any other 300Bs I have heard, and that is what swayed me in the end. I love 300B amplifiers that can play with the push-pull big boys in terms of low coloration, frequency extension, and dynamic expressiveness, but they are few and far between. Same goes for their tubes. There are a number of brands on the market today, and they vary widely in cost and quality. But

none that I have heard play music as convincingly as these EATs. So, prospective buyers need to make the choice between real music and a somewhat ersatz representation thereof. I choose the former.

I first used the EAT KT-88s with a VAC PA 100/100 amplifier (<http://www.vac-amps.com>; out of production but many are still around). This tube is a bit of a different critter than the 300B in that it is destined, for the most part, to be used in larger push-pull designs rather than smaller SET amps. In the case of the VAC, two per channel are good for 100 watts a side. With conventional ECC 82 tubes for input and drive duties and solid-state rectification, this baby is already a lean, mean, amplifying machine. Equipped from the factory with selected Chinese KT-88s, it is a solid performer, with a better bandwidth than most other tube amps, no matter what persuasion. I was quite impressed with the sound of the thing "standard." But with the EAT KT-88s, their sound became much more involving, with, again, even greater extension at the frequency extremes, and a greater sense of refinement in the whole presentation. Wide, wide dynamics were the order of the day, along with a finesse not usually associated with push-pull designs. Most of my live orchestral listening for the last 11 years has been in New York's Carnegie Hall (up close, say, rows four to ten), where the sound is pristine and clear, but a bit on the lean side, with taut, hard-hitting bass that is rich in transient impact, but with no added warmth such as can be heard at, say, Boston Symphony Hall or (on recordings at least) like the Sofiensall in Vienna (sadly now burned down). I have become quite familiar with and enamored of the sound of instruments played both solo and *en masse* in Carnegie, and I have admittedly (and somewhat unconsciously) tailored the sound of my home system to simulate that signature. Well the EAT KT-88s (as well as the 300Bs) have that same quality, and that, to me, makes them the most realistic-sounding of the competition.



Some time after I began listening to these tubes in my home system, I managed to get a full set of KT-88s for the Antique Sound Labs Hurricanes that are currently Harry Pearson's reference amplifiers. These each take eight output tubes for 200 watts per monoblock. The difference in these amps with the EAT tubes over the Chinese "stockers" was *dramatic*. The original KT-88s were sweet and grainless with an excellent midbass foundation, but a bit soft in the extreme highs and just a little veiled-sounding. When we went to the EATs and got them broken in, the amplifiers still sounded like themselves, but now they had an extra measure of transparency, high-frequency extension, and a much tighter and well-defined midbass, with much more extended and controlled lower bass. Enough almost to defy logic. These tubes rule the Hurricane amps like nobody's business. Stay tuned to *The Absolute Sound* for a report from HP on the selfsame amps outfitted with these EAT KT-88s.

I am most impressed with these tubes. They sound, in the systems and with the equipment I have detailed, as I have described. This sound will not be to everyone's liking, I predict, especially not with those who favor the "classic" warmer 300B sound. But for people who want music reproduction that is closer both to what is actually on the recording and to what real music sounds like, these tubes are a must-hear. Although they are expensive, they give the

listener exceptional sonic performance, and that goes a long way toward justifying their cost. I look at them not as a good short-term value but as a long-term musical investment.

My only real concern here is with extended reliability. I have experienced a couple of (dead-out-of-the-box) failures that seemed to stem more from rough handling in shipping than any manufacturing defect, but that is the nature of fragile physical devices (just in before press time: I confirmed with the manufacturer during a recent visit that these two tubes had in fact been broken internally, probably from shipping damage. They would not accept bias). Many years ago, when the world still ran on tubes, the rate and density of manufacturing of these things was so great that any breakage generally was compensated for by volume. These days, however, premium vacuum tubes are just too expensive to take undo risks with packaging. Over time, I have watched EAT's packing improve to the point where the new boxes would have to get completely physically crushed to hurt the tubes inside, even if handled roughly. And the boxes, especially the hand-painted ones that occasionally pop up, look classy, too. I have experienced only one outright catastrophic failure during use, something that would be covered by warranty.

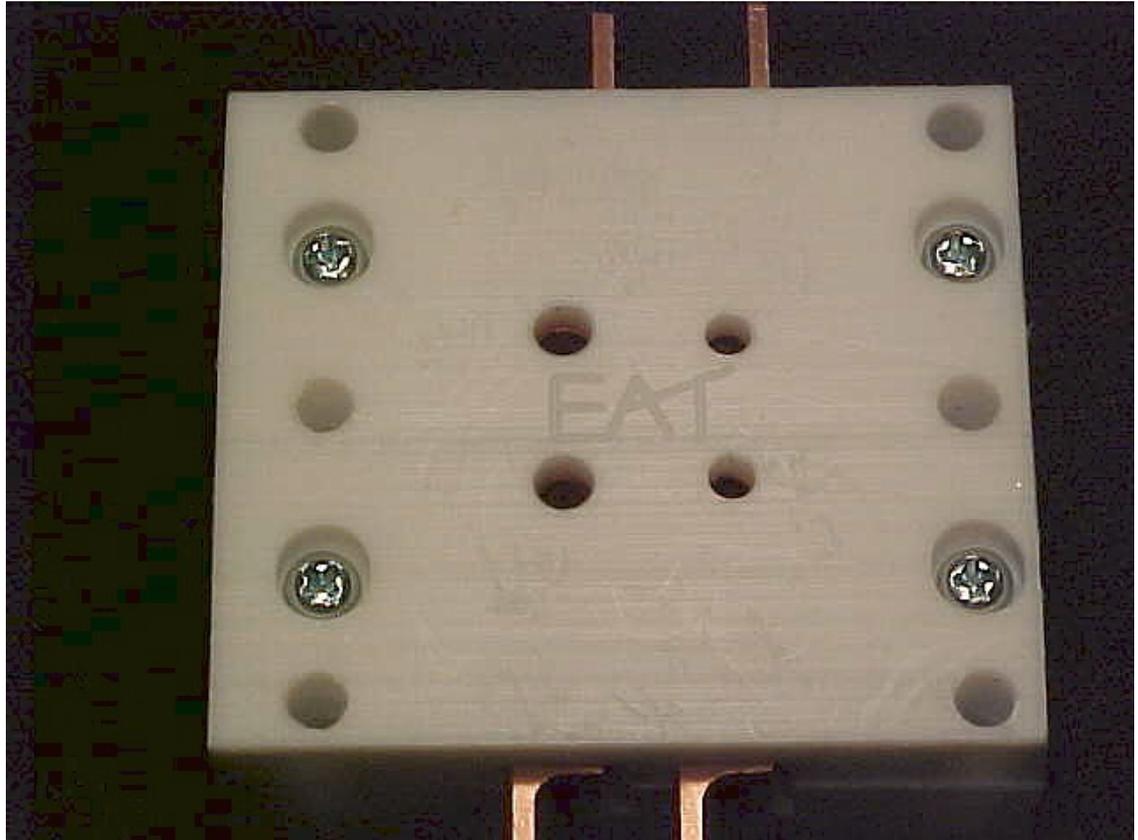


That being said, *every* amplifier that I tried with these tubes improved *dramatically* with their use (including, by the way, the fabulous Tom Evans Soul 30 wpc hybrid Single Ended Tetrode stereo amplifier). I will watch this carefully, and report any undue occurrences, but it would seem that the teething pains are now worked out. As of this writing, a full set of 16 EAT KT-88s are playing in Harry Pearson's Hurricane amps every day for several hours, and I have been running another set of four at home in a VAC Super Avatar 80 wpc integrated amp with excellent results. I also routinely play my Viva 300B integrated and those tubes are running strong and sounding excellent. Since my initial tube failure problems I described above I have experienced nothing else at all except correct performance; I have also noted the fact that the tubes, once set, hold their bias well.

I shall continue to play the heck out these fire bottles and report any further refinements. Meanwhile, assuming you like your music straight up, honest and alive, I will bet my bottom dollar that you will fall hard for these babies.

Just arrived news from EuroAudioTeam:

**The announcement of EAT 300B Audio grade Teflon Sockets**



Distributor Information:

TheMusic.com  
1027 N Orange Drive  
Los Angeles, CA 90038-2317

Ph: 1-800-457-2577  
Fax: 323-466-1437  
[info@classicrecords.com](mailto:info@classicrecords.com)  
[www.TheMusic.com](http://www.TheMusic.com)

**Tube Retail prices:**

KT88 Standard Series (I used these for the review):

KT88 (matched pair): \$235/ea (\$470 per pair)  
KT88 (matched quad): \$250/ea (\$500 per pair)

Diamond Series

KT88 (matched pair) \$250/ea (\$500 per pair)  
KT88 (matched quad) \$275/ea (\$550 per pair)

300B \$440/ea

### **Associated Equipment**

VPI HW-19 MK IV turntable w/VPI JMW Memorial 10.5 arm; Clearaudio Harmony Wood and Insider Master Reference Wood, Madrigal Carnegie 1 MC cartridges; Plinius M-14 (SS) and Hagerman Technologies (tubed) phono sections; Plinius M-16 (SS) and Emotive Audio Sira (tubed) line stages; Ayon Audio Classic 32B, Viva 300B, Vaic VV52 B SET amplifiers, VAC PA 100/100 and Super Avatar, ASL Hurricane push-pull tube amplifiers; Forsell Air-Bearing CD Transport and EAD Theatermaster DAC; Reference 3A Royal Virtuoso, Alon Lotus Elite, Horning Agathon, and Living Voice Avatar OBX loudspeakers; Chase Technologies CH-1 passive surround decoder with a pair of small Radio Shack Minimus speakers for surround sound, SLM/Janis subwoofer with Crown Macro Reference amplifier; Siltech Gen III, Audio Magic, and Stealth Technologies cables, Arcic Suspense Rack.