

# Euro Audio Team KT88 Diamond valves

by Chris Binns

When twenty years ago, the MO valve company closed its doors for the last time at the Hammersmith plant and production of valves ceased, they could hardly have foreseen the way in which the market was to regenerate steadily to the apparently quite healthy state that it is in today. By 1984 the general world demand for valves was at an all time low, and most other companies had already stopped production; the MO Co. were I think the last people making valves in this country. Their last shot at the audio industry involved marketing the KT66, 77 and 88 under the Gold Lion banner (with a suitable increase in selling price), but there were not enough companies making thermionic equipment to make it viable, and demand from the military was dwindling fast as communication equipment became solid state. Since that time, the KT series of valves (which unlike valves such as the EL34 were at that time manufactured solely by MO) have reached iconic status while the KT88 in particular has become something of a legend, and ostensibly a benchmark for other manufacturers to aspire to. In more recent years numerous companies have been making product that is advertised as 'an exact copy' or 'built to the original MO specification', some allegedly using the original machinery from the English factory (which is possibly true) while one company advertises a British made KT88; to the best of my knowledge this is at the present time, fiction.

So, was the original KT88 all that

it was cracked up to be? Maybe it is worth putting a few things in perspective regarding the venerable status of the MO KT88. It was introduced in 1957 as a more powerful relative of the popular KT66, and at a time when 25 Watts was considered a lot, its



capabilities must have seemed formidable with outputs of up to a hundred Watts from a single pair, the only competition being the American made 6550 from companies such as RCA, Sylvania and GE (not to be confused with the British company GEC who were parent company of MO). See the side bar for more details of the differences and similarities between these two important audio valves.

While the general standard of manufacturing, and more importantly quality control of the KT88 was pretty good, performance did vary. Take for example the CV labelled military version(s) of the valve; it is rightly assumed that examples of these have a tighter specification as they were often used in demanding applications such as driver valves

in transmitters and radar. What is less well known is that rather than creaming off the best samples from a production run, the military version was manufactured in a different part of the factory to a higher tolerance. Sometimes part of the machinery of the main production line would break down, and a portion of the military specified valves would be diverted and labelled as commercial stock; these were significantly superior to the standard product. Either way, the KT88 maintained a reasonable standard throughout its production which left one hell of a void when it ended.

With interest in thermionic technology at an all time low, the available alternatives were either the aforementioned 6550's from GE, Philips or Sylvania, or Chinese bottles labelled KT88 which often behaved more like fire crackers than valves; using them in powerful amplifiers was a hazardous and frequently damaging experience. Even assuming that the new valves fired up okay, often they would prove unstable with time, and suffer a short life span, expiring in a fit of sparks and usually smoke as your treasured amp went up as well. (But I should mention companies such as Gold Aero, who fastidiously tested NOS (new old stock) and other such valves to provide a viable alternative for the thermionically inclined audiophile.)

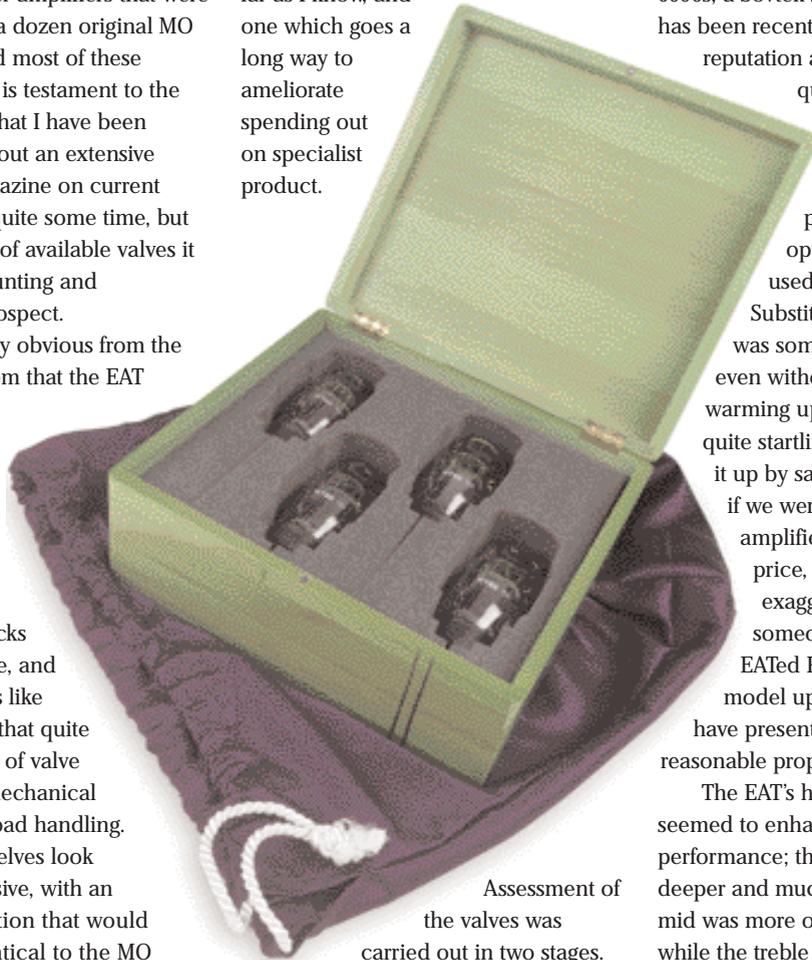
Two things happened to improve the situation to its current healthy status; there was a resurgence of interest in valves for audio use in the late eighties, and the change in the political situation in and around Russia

► meant access to stock that had hitherto remained hidden. While there was no direct Soviet replacement for the KT88, it was not long before the factories that had been producing valves for the military were persuaded that it would make good commercial sense to produce one, and there is now a wide selection available. As a (sometime) user of large power amplifiers that were designed around a dozen original MO KT88's, I have tried most of these different breeds. It is testament to the healthy situation that I have been meaning to carry out an extensive report for the magazine on current 6550 / KT88's for quite some time, but such is the extent of available valves it has become a daunting and unmanageable prospect.

But it was fairly obvious from the first time I saw them that the EAT valves were rather special. Everything from the packaging through to the individual certificate of performance smacks of quality and care, and if at times it seems like overkill, consider that quite a high percentage of valve failure is due to mechanical damage through bad handling. The bottles themselves look equally as impressive, with an internal construction that would appear to be identical to the MO original; externally, the glass envelope is slightly more elongated in shape while the base is one piece plastic rather than metal shrouded.

EAT stands for Euro Audio Team, and it is a cooperative effort from several countries, the mission being to produce the best possible valves. Parts are made in a division of the original Tesla factory in Prague, the assembly and detailed testing is carried out in Switzerland. The KT88 is a fairly

recent and welcome introduction as EAT have to date been specialising in large triodes for SE use such as the 52B and 32B, the result of recent development by Alesa Vaic, as well as the traditional 300B. The company is confident enough in their product to provide a full one year guarantee for each valve, an unprecedented step as far as I know, and one which goes a long way to ameliorate spending out on specialist product.



Assessment of the valves was carried out in two stages.

Doing any kind of direct A/B comparisons was always going to be difficult owing to the time involved in running in, settling and biasing issues, and almost impossible when using the twelve valves required by the big amplifiers. To enable comparisons to be carried out I opted to first try a quartet of the EAT's in a Rogue Audio Model 90, kindly loaned by Kevin Walker of Audiocraft. This amplifier runs a pair

of 6550 / KT88s in ultra linear to provide a nominal 90 Watts, and the straightforward biasing arrangement enabled a fairly swift substitution to gauge relative performance. Also present at these listening sessions were RG and Nigel Finn of the Chord Company. The Rogue comes supplied with good quality Electroharmonix 6550s, a Sovtek sourced valve which has been recently gaining a good reputation and is used by quite a few

manufacturers in their products. This particular set were probably at their optimum, having been used for 40 to 50 hours.

Substituting the EAT KT88's was something of a revelation; even without the luxury of warming up the difference was quite startling. I think Roy summed it up by saying that it sounded as if we were listening to an amplifier at three times the price, which was no exaggeration. Indeed, had someone told us that the EATed Rogue was the next model up the range it would have presented a perfectly reasonable proposition!

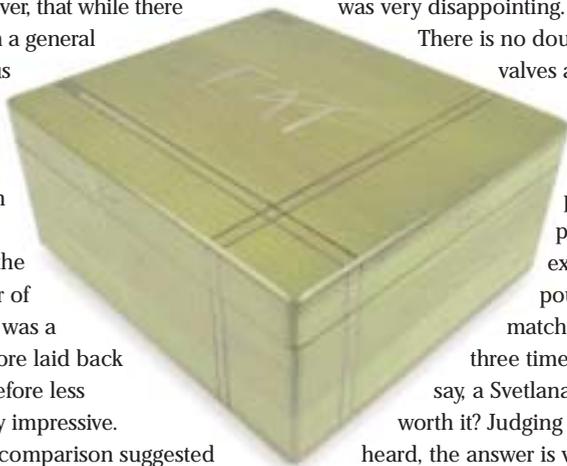
The EAT's had an authority that seemed to enhance every aspect of the performance; the bass was firmer, deeper and much more articulate, the mid was more open and spacious, while the treble had detail and clarity that had not been there before. The overall increase in focus and transparency was remarkable. Nigel suggested that it made the original tubes sound 'shagged' (which they weren't), and the disappointment was intense when we returned to them. To put things in perspective, I had a set of Svetlana KT88's that I have been recently using, and to date have been my choice of the readily available valves. Differences between them ►

▶ and the Electroharmonix were interesting but minor, while there was a similar leap in performance with the EAT's in situ. The acid test involved a set of original MO KT88's that I have clung on to for many years, really to use as a comparison in such circumstances as this, and as such, I would say that they are about half way through there life. While they sounded pretty good, superior to the Svetlana's and Electroharmonix, they could not manage the sheer exuberance and taughtness of the EAT's. It did occur to me however, that while there had been a general consensus

that the EAT's were just 'better' in every respect, the character of the MO's was a shade more laid back and therefore less obviously impressive.

Another comparison suggested that this was true, but they could not match the EAT's for colour, texture and in particular, definition.

The next evaluation took place over a longer period using twelve of the EAT valves in the big amplifiers described earlier. The demands here are a little different from the Rogue amp as the valves are potentially pushed a bit harder with 550 Volts on the anodes, while matching seems to be an important criteria when it comes to absolute sound quality, and not just under static conditions. Using the EAT KT88's in these proved to be every bit as dramatic as the previous session, perhaps even more so. While I have never been disappointed with the bottom end of these 250 Watt amplifiers, it has never been a match for something like the Bryston. The use of the EAT's was startling in this respect, and the grip



and bite exerted on the loudspeaker was much improved, to the extent that the amplifier would go considerably louder into difficult and inefficient loudspeakers; once again the result was a better amplifier. Musically, it felt as if several layers had been removed, and the slight sense of vagueness that has always been there diminished to imperceptible levels, with a real improvement in definition, a factor facilitated by what looked to be extremely close matching of the valves. Going back to the Svetlana's or Sovtek's was very disappointing.

There is no doubt that the EAT valves are extremely good. The big question is that at ninety pounds per piece (and an extra three pounds apiece for matching) – roughly three times the price of say, a Svetlana – are they worth it? Judging by what I have heard, the answer is very definitely, yes. On performance alone, I think the results speak for themselves, while the security of a full years warranty makes it a considerably safer investment. What I cannot tell you at this stage is how long they will last, and how well they will stay matched over that time period. But so far, the indications are good, and I will certainly be following this aspect up.

So, you are looking for the best? Original MO KT88's are still available – just – at highly elevated prices, and I reckon you might be able to get a supposedly unused pair on ebay for around £250.00. There will be no guarantee; they will almost certainly not be matched, and it's unlikely they will sound as good as the EAT's.

Truly a worthy successor to the esteemed British king. ▶

## KT88 versus 6550

While developed independently on both sides of the Atlantic, the KT88 and 6550 are broadly speaking, electrically (and pin out) compatible, although there are differences in the internal construction. The KT88 has slightly higher ratings in terms of absolute voltage (800 as opposed to 600 Volts on the anode) but the dissipation and electrical characteristics are similar. Although the 6550 is classed as a pentode, and the KT88 a tetrode (i.e. one less electrode) there is an explanation for this. During the time of development, Mullard were applying for a patent on the 'pentode', where the inclusion of a fifth electrode (sometimes called the suppressor grid) connected to the cathode was used to collect stray electrons and reflect them back to the source. The KT – standing for kinkless tetrode – incorporated a form of beam shaping that actually amounted to another electrode to achieve a similar result, but avoided infringement of the patent. As for the sonic differences, these days I suspect that there is more difference between different manufacturer's product than between the KT88 and 6550 per se. To confuse the issue further, some suppliers will produce an identical batch of valves and label them according to the market demand; I have had an example of each from the same manufacturer, and breaking them open revealed that they were absolutely identical.

Price:  
£90 ea. with matched pairs  
as standard  
Quartets and beyond - £3 extra/valve

Contacts:  
UK Distributor  
Art Audio (UK) Ltd.  
Tel. (44) (0)11 5963 7795

Manufacturer  
Euro Audio Team  
Net. [www.euroaudioteam.com](http://www.euroaudioteam.com)