

Test Reports EL84 / 6BQ5 types OCTOBER 2005

INTRODUCTION:

Object of the test

To evaluate the sound quality and reliability of the new batch of EL84 types in both modern and vintage amplifiers and compare against the best new old stock types for both audio, guitar and bass applications.

Equipment used- guitar and bass

Fender Pro Junior fitted with Jensen C10Q, Fender Pro Junior fitted with Jensen P10R

Laney LC15 R fitted with Jensen C10Q

Vox AC30 fitted with Celestion Blue Alinco drivers.

T.A.D silencer power attenuator.

Pedals: Butler tube driver, Butler blues driver, Reissue Ibanez TS808 tube screamer. MXR Zakk Wylde overdrive.

1973 Fender Stratocaster. 1981 Yamaha SA 2000S, 1993 Gibson Les Paul Standard. 1990's Fender Telecaster with Texas specials. 1974 Fender Precision Bass, 1977 Musicman Stingray, 1982 Musicman cutlass 2, 1983 Zemaitas fretless custom.

Equipment used- Audio tests

Thorens TD 124 mk 2 SME 3009/Shure, Tascam CD 450 player, Croft Epos Elite pre amp with a Leak stereo 20 power amplifier into JBL 4430 studio monitors, Annoy DTM 12 studio monitors, Tannoy 12 inch monitor golds in Lancaster cabinets, Tannoy 10 inch monitor golds.

HOW WE TESTED:

All valves were put through a controlled burn in process at high working plate voltages at 500 volt plate and screen. The valves then were tested with 6 changes in grid bias, with each stage

monitored so that each valve tested had the same anode current and transconductance. We checked heater continuity both hot and cold and tested cathode heater insulation and gas. The valves that got through were then tested and matched at two different bias setting to ensure conformity on a digital tester on anode current and transconductance. The digital tester has an accuracy of plus or minus 1 m/a.

EL84 / 6BQ5SYL/ Black Plates:

The Sylvania is the same construction as the Philips with that round cylindrical anode plate. These are early production with that magical black plate coating.

The first and most major difference was that the treble was well balanced and not over bright. In the Fender amps they provided the ideal balance between picked notes and chords. Broken chords sounded full and in balance. Hit the stomp boxes and the creamy thick distortion with rich sustain was easily obtainable, regardless of which combination was used. Bass was lighter than the G.E or Mullards but power chords still packed a punch. The valve was also the warmest sounding out of any of the American valves.

The Sylvania balance and warmth made it possibly the best American valve for audio.

This valve is excellent for all applications. I am beginning to believe in that olde 'blackplate' magic.



EL84 / 6BQ5SYL/ Black Plates

EL84/6BQ5 G.E:

The G.E valves have always been a favourite of mine and I was keen to see how this NOS classic compared. The G.E EL84 has the ideal mix of balance and clarity which singled this valve out straight away. Top end was clear and crisp, bass was deep and punchy with well balanced mids. With the overdrive pedals the valves produced a thick creamy sustain. This was amazing with power chords and runs. No definition was lost, it just got thicker and the bass fatter, or should I say phatter. In the AC30 it gave all the classic sounds with correct focus. This was to prove a very hard valve to beat.



EL84/6BQ5 G.E

EL84/6BQ5/PHILIPS:

The Philips/ECG EL84 has always been my favourite EL84 so I was keen to try these after the G.E. The valve does have a deep bottom end but has a bright top. In normal operation the top end brightness does spice up the Vox AC30 but sounds a little over the top in the Fender making it a tad too bright. When pushed with a real tube driver or Ibanez tube screamer the valve performed excellently just enough cut. When I plugged in the MXR Zakk Wyle into the Fender I got a hard cutting treble. This was far too harsh for my ears. In Audio they performed really well, the top end giving music a real sparkle.

These valves proved to be excellent in the Vox, but showed that if the amp is

already bright sounding, then they would not be my first choice.



EL84/BRIMAR/RFT:

These were made in the East German RFT factory and were rebranded by Telefunken, Siemens Pinnacale and Z & I. These happen to have been rebadged by Brimar.

These really are rough and ready, and they do have one of the best distorted guitar sounds clipping very early. They do not have a lot of detail as the mids are bland and really get lost in the mix. Indeed as a clean valve they are pretty hopeless. In the Fenders at moderate volume playing at home these Rocks. Stick a tube screamer in the front of the amp and you have instant blues tone. In the overdrive tests they proved to be one dimensional, they just want to rock and do give a crude sound. This I really did like and if you want Mullards on steroids these are fantastic. The down side is that it is a lot to pay for a one trick pony.



EL84/BRIMAR/UK:

The Brimar EL84 became a formidable opposition to the famous Mullard EL84

for military contracts. These date from the late 1960's and were not in our first rounds of tests. These really are a close call to the Mullards. Indeed this comparison took the longest of the tests. The balance was perfect with deep bass and a real kick. In audio tests they were easily one of the most musical and neutral sounding of any of the valves.

The difference was very slight, and the Mullard has it over the Brimar on only two counts. Firstly, the Mullards distortion character was fatter and richer and secondly the Mullards sustain was considered better and the sound stage was a little bigger. These are only small points when drawing a direct comparison and if you can find the Brimar they are a truly great valve, so simply plug in, tune up and enjoy.



EL84/E84L HARMA:

The Harma EL84/E84L is electrically rated at having a plate dissipation of 14 watts. This is higher than the Mullards or the G.E and was highest of the all the EL84 under tests.

This maybe why it has the best record of lasting the longest in all applications.

They have a proven reliability record being used in the amps in the theatre productions of the musical 'WE WILL ROCK YOU'. Sound wise these had the best clean sound, single note runs have clarity with broken chords jumping out of the amp. These proved to be quite hard to get to distort so the amps had to be run a little louder than some others to get that break up. The bass was really deep and solid. This was deeper than most of

the others in the test. In normal operating conditions and in the audio test this valve was excellent. In the audio tests this valve did provide above average performance, but lacked some of the detail to be described as audiophile quality. In overdriven conditions this valve was ideal, it was easy to set all the amps at the point of break up and then push the valve over the edge. This resulted in a clear defined distortion that only lacked the cream of some of the NOS classics. When run very hard the valve looses some mid and top definition. Here it could be made to sound hard if you did not take care. Overall an excellent valve that can be recommended.



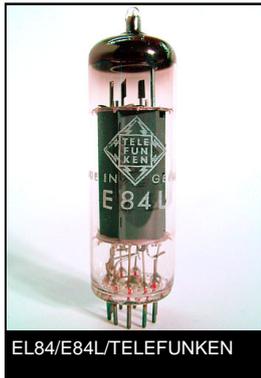
EL84/E84L/TELEFUNKEN:

EL84 Telefunken with diamond mark early 1970's production.

The Teles were the most neutral of all in the tests. This was great for audio, but not the best for guitar application. It was not a case of what this valve did, or did not do to the sound, this was possibly a text book performance, but it did everything too well.

The distortion is the X factor that we as guitar players want. Run the nuts off the valves and get it to crunch. This it did not do as well as the G.E Mullard or Brimar as it lacked character. It never lost control no matter how hard it was pushed, the performance was superb. The sustain was excellent, big and detailed, yet not as creamy as some of the others. This was the best high end audio EL84, but for guitar considering

the price, it lacked a little of the rawness that it needs to be the number one guitar valve.



EL84/EI GREY:

The current E.I EL84 is something of a great musical shame, as if you find a good set they can sound great. Reliability is really hampered by inconsistent materials and poor or non-existent quality control. They come in all forms, E.I elites, some of these have gold pins but this just looks pretty and makes no difference to electrical performance or alas reliability. A batch around 2003 had lovely silver anode plates. These do not have the anode coating to help heat dissipation so they suffer from red spots on the anode plates and are best avoided. When you finally find a good set, or a set that works then it is worth the wait. The valve has good gain with a thick even distortion. The bass is full and clear with plenty of crunch. This valve also has more top end detail than many others and performed well in the audio tests. When fully overdriven the valve remained in control with the treble being forward. Overall a good valve which if it were not for reliability problems would get a high recommendation.

EL84/JJ/TESLA:

The JJ EL84 takes a lot of its design from the Mullard/Philips EL84 of the sixties.

The thing that hits you immediately is the warmth. This has the rounded midrange sound of any current production EL84. The detail was laid back and a little coloured in the mid.

Bass was a lot lighter and less powerful than most other items. Top was full and clear with excellent balance. When overdriven the valve worked well and gave a very natural distortion. The downside was when overdrive pedals were introduced the valves bass and middle formed a confused wall of sound, lacking the detail and slam that you would have expected. This really let it down as a rock valve. In the audio tests it was perfect warm rich but lacking some of the detail to be considered a must for high end audio.



EL84/STR/HARMA:

This was the valve that was favoured by Greg Fryer and Brian May in the tests that were undertaken in Brian's home in 1997 and has been used by Brian ever since.

This is a very high gain valve with only the Mullard and Brimar U.K NOS Valves giving similar readings. In clean mode bass was clear and deep with the overall balance of the valve judged to be excellent. It was easy to get the valve to start clipping in normal operation. In overdriven mode is where this valve really comes into its own, the total

character of this valve changes. It provides a rich singing sustain which is like the Mullard. Power chords hit you in the chest, you really feel the music. The string clarity was also superb with every pull on the string, every bend beautifully reproduced.

Bass was not as big as the Mullard or the tone as fat, but I can see why Greg and Brian choose this valve. The only downside is that we cannot get anymore.



EL84/TUNGSRAM:

This is another excellent EL84 and has a very close sound to the Mullards and the Brimars. This is another valve that blows all the current production EL84 out of the water. It has better definition, smoother bass and a really fat warm rounded tone. The bass is not as deep or as defined as the Mullards, but it has the most wonderful clean top end sound. This valve excelled in the Fenders and really showed with the right valves, what these little amps can do. The overdrive conditions also saw the valve come through with flying colours. No loss of detail or definition with my only complaint being that I wanted a tad more bass as it did not sound as big as some of the others. This resulted in the distortion not being as thick or as extended as The Mullards or the G.E.

Excellent valve for all applications.

EL84/VIN/HARMA:

The Vintage Harma EL84 is a mid 1960's military valve made by the Czech Tesla Factory. This valve under normal

conditions has a nice pleasing sound. The midrange is very forward which gives the impression of less bass. This worked well in the Fender taking out some of the spikes in the sound. This mid forwardness did not result in this being a good choice for audio, too fluffy and laid back for me in this application. In overdriven conditions this did have its advantages. This need to push the midrange gave great blues tone. Was I using a Fender or Marshall, it was that good. The sound in the small Fenders was hug, really fat. This was great with the Les Paul. Roll the tone off the guitar, you get instant blues tone, it was superb, perfect with a bright Jensen P10R. Introduce the Butler tube driver and that 'summer breeze' tone was happening. These are a New Old stock valve so the downside is that we will not have a continuing supply.



EL84-C-STR/TAD:

This is the latest in a long line of Chinese EL84 that tries to recreate that Mullard EL84 sound. The bass is very warm and rounded and the valve does clip fairly easily and a little sooner than the Sovtek EL84-EH. The mid range is slightly veiled and not as clear as others in the test. The top end is not as sparkling as many of the other EL84, but was certainly a lot smoother and sweeter than on previous Chinese EL84. In normal amplifier applications the performance was good, well balanced with a sweet musical distortion that was easy on the ear. It performed well in the Fender amps, as it did smooth out some

of the hardness that can arise. When run hard the valve did lose the plot a little. The sound all seemed to go into a wash of distortion and a big overall blur. The midrange lost focus and the valve lost some of its punch on power chords. It also lacked some of the finesse of the JJ/Tesla or Sovtek EL84 EH. On the plus side it never sounded harsh and this valve shows how far the Chinese manufacturing process has come over the last 5 years.



EL84-EH/SOVTEK:

The new EL84 EH shows Sovteks continued commitment to improve on their existing designs. The major gains have been higher trans conductance with a more linear response. This has resulted in a smoother more even tone. The valve has plenty of clean bass and in normal operating conditions sounded good. It distorts quicker than other Russian valves which proved excellent in the small Fenders. Under overdriven conditions the valve shows a little more control and smoothness. The down side is that it can sound harsh so you have to take care of your settings. The best way is to use the pedal to kick the amp over the edge. By setting the amp clean, but on the edge of break up, you get the best out of this valve. Get it wrong and it can sound hard and over bright. This valve provided an excellent performance and is fully recommended.

CONCLUSION:

The EL84 really do mark the difference between new old Stock and current production items. There is a big gap in terms of sound quality as the current production items do not have the sonic capability of the old valves. The good news is that many companies are now starting to produce point to point. In these you will really be able to hear the difference good EL84 can make. So maybe we will see some more improvements in the sound quality of EL84 over the next few years.

The winners will depend on what you wish to get from your amp. The Audio tests were simple. The EL84 Telefunken was the clear winner. In Second place the Mullard EL84 with the Brimar U.K getting into the bronze position.

The guitar tests I decided to have two categories to split out the NOS and current production as there was such a gap.

The winner in the NOS category was the Mullard EL84 because of the way it distorts and its superb imaging.

Second place had to go to the Brimar UK EL84 because it is so close to the Mullard and at current pricing is a bargain.

Third place goes to the G.E EL84 as this valve put in a stunning performance especially on rock guitar.

Of the current production items it was quite difficult as the HARMA E84L, STR EL84 and EL84 vintage are all now no longer in production. We did include these along with the Sovtek, JJ/Tesla, Tad and E.I items.

The best for what most players would

want from their amps was the Harma EL84 STR It was creamier more dynamic under overdrive conditions and was just in your face. The amp sounded good at all volume levels.

The JJ Tesla was only let down by it performance under saturated conditions otherwise it would have taken the second spot. So the second place went to the Sovtek EL84 EH

For those of you who like a cleaner valve then the Harma E84L has no equal as this provided the best combination in terms of bass extension and top end clarity.

Watford valves c 2005