[i]JJ EL844 in Carvin Vintage 16

This is a technical review of the JJ EL844 tubes as installed into a Carvin Vintage 16 amp with hasserl mods.

I installed the tubes after performing the mods in the amp and testing the operation with the stock Sovtek EL84 power tubes. I did not measure the output power of the amp with the Sovtek tubes in place, but previous checks of other amps using those tubes show them to produce right about 18 watts clean, just as the data sheet for EL84 tubes shows. I did check all of the operating voltages and the quiescent current draw, as noted below:

With Sovtek EL84's:

Mains voltage – 116.5vac
B+ voltage – 356vdc
Plates – 353vdc
Screens – 350vdc
Bias voltage - -13.4vdc
Quiescent current draw – 48ma across the test points.
Watts dissipated – 16.9 watts total, or 8.47 watts per tube

Not making any changes to any setting I swapped the Sovtek EL84's for the JJ EL844's and retested all voltages and current draw, as noted below:

With JJ EL844's

B+ voltage – 375vdc
Plates – 374vdc
Screens – 373vdc
Bias voltage - -13.2vdc
Quiescent current draw – 15ma
Watts dissipated – 5.61 watts total, or 2.8 watts per tube.

I adjusted the bias voltage to increase the current draw, and found I had to turn the bias adjust pot fully to achieve minimal bias voltage that I could get with the stock bias circuit, and rechecked all voltages and current draw, as noted below:

JJ EL844 after bias adjust

B+ voltage – 366vdc
Plates – 365vdc
Screens – 364vdc
Bias voltage - -11.6vdc
Quiescent current draw – 26ma
Watts dissipated – 9.49 watts total, or 4.75 watts per tube.

With these results in hand, in my opinion the tubes could not be considered a drop in replacement item in this fixed bias amp; requiring adjustment of the bias voltage to warm the tubes up considerably. Had I not made the adjustment the tubes would have been exceptionally cold and likely would not have sounded very good at all, though to be honest I did not play a guitar through the amp until I had warmed up the bias, so that part is speculative. And to be fair about this, it is always best practice to check and adjust the bias when swapping tubes anyway, so this is not a problem in my opinion. The point is don't expect to just drop these tubes in, in place of EL84's, and not have to make a bias adjustment. There is also a concern that even with the bias adjustment set fully for minimal bias voltage the tubes really were up to just over 50% of max dissipation, which is typically a fairly cold setting. But to be fair once more, there was no crossover distortion at that setting, so is it really a problem? I leave that up to individual perspective.

Next I checked the power produced with the EL844s into a non-inductive 8 ohm resistive load with the impedance switch set to the 8 ohm position and I found the amp to produce just about 14 watts before the sine wave started to clip. With the bias set as noted above I saw no indication of crossover distortion with the amp at max clean output. Full output saw the amp produce just about 21.8 watts (the last Vintage 16 I checked with Sovtek EL84's produced about 18 watts clean, and 28.7 watts max)

After this I plugged the amp into my test cabinet and plugged in a Gibson Les Paul Special with P90 pickups and tested for tone, volume and playability. In my opinion the tubes sounded very nice, with smooth creamy distortion, nicer in my opinion than with the Sovtek tubes. The breakup was very nice. However, I really couldn't say that the amp was much, if any quieter. I did not set up a decibel meter to check the actual volume, but my perception was it is still a loud amp.

In summary, though not a "plug and play" replacement, the EL844's do reduce the output of the amp, and they do sound very nice. With the reduced output they will allow a player to get the amp cranked up into the sweet spot a little earlier than with EL84's, which is what they are advertised to do. They might also end up giving a player less headroom, which may be a problem for some, and if an 18 watt amp is marginal in certain applications (i.e. with a loud rhythm section) the reduced power may complicate things. But for the person who is looking for slightly less output power and an earlier breakup these might be just the ticket.

[i] Richard Hassebrock 3-25-2012