

KELLY

STONE PROPHECY

Jim Kelly was a man before his time. His ideas about circuits, system configurations and treatments of traditional approaches are only now being accepted by the music amp business. He pioneered speaker load-boxes for amps. He used small power tubes to get big sound. He implemented design nuances that made larger ripples in the pond of tone thought. He saw things the way they should be in many cases, but was up against the MI world's wall of lethargy.

Probably the most well-known "Jim Kelly approach" techs and players are aware of is the use of small power tubes in high-powered amps; specifically, the use of 6V6s in high-voltage circuits. As far as most people's experience goes, 6V6s are used in amps with less than 400V or so, and produce adequate but not ample power. Unfortunately, the 6V6 amp models available before Kelly's amps appeared certainly did conform to that profile. In that day, you had to be fool-hardy if not actually crazy to operate 6V6s with 490V on both the plate and screen? Right?

Not at all.

6V6s and their related family of tubes are tough little beasts used in TV retrace circuits. In

this application they must withstand 1,200V pulses, and even on a 15% duty cycle this is significant voltage stress. These tubes also allowed the construction of fairly sensitive audio power stages, and could be operated in mobile equipment because of their low heater current. By comparison, the later 6BQ5/EL-84 is even more sensitive as a power amp, but has a much hungrier heater - 760mA compared the 6V6's 450mA.

All the data books list quite low DC voltages for the plate and screen, and these values are more typical of real-world audio circuits, right? Yes and no. Some of the data is from the older Design Centre system which allows for manufacturing variations *and* allows for variations in the application. They are second-guessing how one might use the tube. This system was abandoned in favour of a Design Maximum system, which only allowed for the manufacturer's own production variations. Most specs went up even though nothing happened to the physical tubes. However, not every tube was updated, particularly if it was an older design and the tube maker was trying to promote their newer offerings. RCA was notorious for this.

Fortunately, the TV application listed in the 6V6 spec sheet right from day one gave designers a clue as to the true capability of this tube. Not everyone paid attention, though, and the use of these tubes as "clean reproducers" was still the prevailing approach.