### 10.5.15 … and the current flows on while you are long dead

Suggestions regarding modifying a tube power-stage will entice to do just that. Swap your power tubes, install different filter caps, modify that negative feedback. To cite myself: The fact that not everybody who removes an amp chassis from a cabinet instantly keels over dead must not lead to the conclusion that this will never happen [Chapter. 10.5.8]. A tube amp operates on the basis of life-endangering voltages, any musician screwing (sic!) with it, as well. Therefore, let me repeat: working on a tube amp requires a specialist education. And even if the courageous/experienced/lucky customizer is left unharmed: it is bad enough if the power transformer gets fried. Or if the loudspeaker expires right in the midst of the most important solo of ones life … because it could withstand the original 40 W, but decided to succumb to those after-mod-80 W.

Books, magazines, and fora on the world-wide-web, are filled with recommendations how to customize your amp. More crunch, more bass, more treble, more oomph, more of everything. Swapping the output transformer can lead to additional strain on the mains transformer and it can overload the rectifier tube (if one is in the game). The expert can size up all this but the layperson can't. 6L6-GC and KT-66 may be swapped for each other, as long as the bias-current is correctly adjusted afterwards. A change from the 6L6-GC to the EL34 represents already a potential power increase, and needs to be carefully considered and implemented. The socked-connections need to be checked when doing this because there are differences here. Power stages with the 6V6 are particularly dangerous candidates: whoever – hoping for the triple output power – plugs in two 6L6-GC (or even EL34's) instead of the 6V6-GT acts negligently. If the object of experimentation were a tweed Deluxe, we would first need to have a look at the rectifier tube: the 5Y3-GT is a good partner for the 6V6-GT, but not for the EL34. So that needs to be changed, too: instead of the 5Y3-GT, the 5U4G gets to be plugged in – or should the GZ34 be used, yielding limitless current? But then there's the cathode resistor: 270 Ω. The EL34 easily exceeds a cathode-current of 300 mA, so that's 24 W dissipated in the cathode resistor. Which actually is a power increase of some kind – but probably not the desired one. For the Deluxe Reverb, this problem disappears: there is no cathode resistor. Still, the mains transformer needs to be watched: it not only needs to supply an additional 2 A of filament-heating current, but also the desired additional output power. Likely to be forgotten is the increased power dissipation in the tubes: it's about 15 W for the 6V6-GT but double that for the EL34. The EL34 is a true pentode but the 6V6-GT is not.

Those who are "in the know" can do such conversions. But then you read in a forum: *my new transformer has a wire more than the old one … what should I do?* Or: *the big resistor is shot. Where can I get a new one? Or can I just leave it out*[♣]*?* Simple answer: HANDS OFF!! You don't get a kidney transplant done in your auto-shop, either, now do you?

[♣] In fact, what we read is: *That biggie resister is in ashees where do i get anew 1. Or cann I jus leave it of?*

 