

Why do many old electric solid body guitars sound mellower than new ones?

After some research, of the trial, error and comparison kind, I have come to the following conclusion:

As the guitar ages, the neck, which is the weakest part of the instrument, suffers progressive wood changes and causes the neck to absorb increasingly more energy from the strings the older it gets. This results in a less bright and dynamic tonality electrically. As the guitar ages more, so does the treble roll off increase. Some players like it, others don't. Which is best is not the purpose of this article... I am just pointing out that it does occur and that players should expect changes of this kind over time.

Ageing affects guitars differently though, from one to another. Not all guitars deteriorate by the same amount over time and it appears that the quality of the neck's wood determines this. But I have to say that it appears far more noticeable with Fender guitars. This is probably down to the simple fact that they are particularly bright twangy guitars and not that they are inferior, so any small change would be more easily noticed. There is no yardstick by which one can predict the effects of ageing. And, some guitars can become pretty unusable eventually, because they have little punch and dynamism.

Surprisingly, many of these old guitars become very bright and resonant when played acoustically. This is because, as the neck absorbs more energy from the strings, this energy is dissipated through the guitar's whole body... particularly from the neck. You can feel that the neck tends to vibrate more in your hand as you play it. This is fine for an acoustic instrument, but detrimental for an electric solid body style guitar. Because the neck is soaking up this string energy, the vibrations slow down much quicker, so the pickups cannot 'hear' such a bright 'spanky' tone any more. Sustain tends to reduce too.

To help explain why this is so... players may have observed that many electric guitars these days tend to have 'stop-bar' string anchors immediately after the bridge which increases sustain and gives the instrument a brighter tone... yes, players do have an obsession with sustain! But not always best for 'tone'. Anyway, this happens because the string length after the bridge is very short. On the other hand, guitars that have the traditional 'trapeze' type of tailpiece, like electric jazz guitars, will exhibit a shorter sustain and a mellower tone. In fact the Fender Jazzmaster has this exact tonality and shorter sustain characteristics. Leo Fender designed it this way because the increased string length post bridge acts as a fulcrum and allows the strings at this point to swing in the opposite direction to the string on the pickup side of the bridge. Thus, absorbing string energy and slowing down the string vibrations more quickly, mellowing the tone and shortening sustain. So from this, we can deduce that a neck that absorbs energy will have a similar affect on the guitar's general tone to the Trapeze tailpiece... and often more so, as the instrument reaches very old age.

Theory backup

I have three Telecaster type guitars. A 1950s Broadcaster, a 1963 Telecaster and a 2010 Telecaster with which I have experimented by swapping their necks around.

The Broadcaster is very bright acoustically, but dull sounding electrically. The 1963 Tele is reasonably bright electrically and acoustically. But the 2010 Telecaster is very bright electrically and quite dark sounding acoustically. So you can see a pattern emerging here. However, it's only three instruments, so it will not be viewed as a reliable experiment. Therefore, to help the theory along, I have swapped the necks around to see what affects would take place. Replacing the neck of the 2010 Tele with the neck of the 1963 Tele made a very noticeable difference! The 2010 Tele became darker toned electrically... as if it were still on the 1963 body and electrics.

This theory needs some additional support, so here's another observation that helps to underpin my thinking. Pedal steel guitar bodies are constructed from a solid mass of

aluminium, which also incorporates the neck. They have incredible brightness and sustain thanks to the low energy absorption of the aluminium body. In fact, they are so bright, that the pickups have to be wound with huge amounts of extra wire turns on the pickup coil to bring up the bass output to match that of the treble!

Travis Bean guitars from the 1970s had aluminium necks and were incredibly bright too. They were sold as having ultimate sustain! So, here's another snippet in support.

It is possible to hear these affects in Gibson style guitars too. A friend has a lovely old 1963ish ES125 (a true semi-acoustic) with P90s. The acoustic tone is to die for, but the electric tone is not so nice... it has a deep throaty bark. I have a very nice 1964 ES335, which when put up against a newish ES335, also sounds rather dark by comparison. The 1964 has a nice tone, but it's not the same as a new one. Its acoustic tone is much more dynamic and brighter than a recent ES335, which is in line with my other findings with the Telies.

So, from my point of view, there is little point in taking my experiments any further. From this, I don't really need to put the Broadcaster neck on the 2010 Tele, as I'm pretty certain what the outcome will be.

The guitar neck is the main cause.

These observations are in direct conflict with what many players believe. They tend to apply this thinking, entirely appropriate for acoustic guitars, to the electric variety. But it does not seem to hold true. If asked, my advice would be NOT to buy an old electric guitar on the basis that it sounds beautiful acoustically!

Conversely, if you rely on an amp and effects to produce 'your sound', then much of these findings will not be applicable to you, as the guitar is being used merely to provide note, timing and vibrato information for your amp and effects to respond to.

Old guitars DO often look cool and feel wonderful... but not always the best sounders after all this time. Some are probably best used as music room decoration for collectors, as their 'best before' date has long expired!

Hope you find this interesting.

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Guitar amp designer since 1967.