

Some Nonconformist Comments on Magnets in Pickups

The wildest of rumors on that subject rattle around, sent on their way by the manufacturer's clever sales-managers, and naively and reverently believed by most guitarists. The least of what is propagated holds any truth, though.

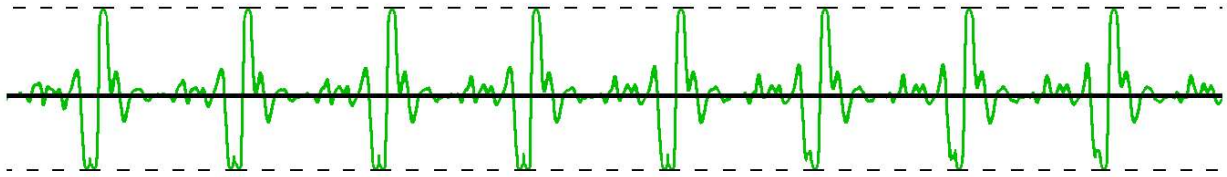
The individual variants are said to have different sound characters, e. g.: "Alnico 2 sounds *this way* but Alnico 5 conversely sounds *that way*", etc. It is noteworthy that many strong contradictions between such verdicts can be found. In short: these dictums are complete nonsense for the most part. Rather, the following holds: a pickup fitted with a stronger magnet will – with everything else in the pickup's build being equal – deliver a higher output voltage compared to a pickup with a weaker magnet. For example, the output signal of the "quieter" pickup may on the oscilloscope screen look like this:



Feeding this signal to an amplifier with a setting that could be characterized as "slight crunch" may just about result in what is considered an undistorted sound. However, a "loud" pickup that has – except for the magnet – the same properties (in particular the same transmission frequency response), will deliver this signal:



This latter curve is basically the same signal but shows double the amplitude. Fed to the same amplifier as above with the same settings, the high peaks will be cut off while the smaller signal components (the "undergrowth", in a manner of speaking) remain unchanged.



This may not yet be perceived as "distorted" ... but the tone, and the way the playing feels to the guitarist, is somehow different, it comes across as "compressed". The dynamics (i. e. by definition the ratio between loud and soft notes) is reduced, and the sustain seems to be longer. This is, in a nutshell, the "secret" of different magnets. How far it actually has an effect in practice depends a lot on the amplifier and the setting of its controls.

This is an excerpt from the book "**Inside Electric Guitars**" by **Helmuth Lemme**
Info: <https://www.inside-electric-guitars.com>

