

# A "Wide-Range!?"-Teaser

While we are waiting to get to the third part of the article of this series on the FENDER WIDE-RANGE HUMBUCKER, here's a little pre-view of what will be coming!!

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## Part not-quite-yet-3: The (other) sliding pickup guitar



### The problem

While we were doing measurements and investigations into the history of the **Fender Wide-Range Humbucking pickup**, the question: "how can we practically and quickly compare the various version of that pickup?" came up numerous times.

The fundamental issue is that the human hearing system is in many respects a marvelous analyzer of sound, but .....

..... the associated memory is not a very good one, as the science of Psychoacoustics knows all too well. We may be quite able to remember the formant structure of a voice, and of course we can recognize an instrument because we know (from our memory) the overall sound structure (both spectral and temporal) - but with regard to memorizing small differences, we not doing really that well ... especially if there is more than more than a few seconds of time separating the two sounds that are to be compared. It indeed shows that is difficult to RELIABLY distinguish between e.g. a Gibson 490T and its brethren 490R (both mounted on the same guitar in the same position), if we first have to loosen the strings, disassemble the pickup mount, de-solder the pickup, re-solder the other pickup and screw it into place, and retune the guitar. Even for a skilled techie team, that procedure will take in the order of least least 5 minutes, and by that time the auditory system will at most be able to take an educated guess about how the two sound compare ... let alone the issue of differences in playing that might creep in with the passing of such a time (possibly including the intake of caffeine or other substances that might alter the playing style ...). The danger that psychological effects (e.g. knowing which pickup is installed) rule over actual auditory perception is quite high.

It is of course always possible to make recordings and compare those in rapid sequence. However, we found it extremely important to get as close as possible to a normal playing experience rather than just listening.

### **Some history**

The above problem is in fact well known and acknowledged. At some point, Gibson has set up a special Les Paul where it was possible to insert pickups with a special mount from the rear of the guitar, with contact surfaces providing an automatic connection between Pickups and Circuitry. This is a very purposeful step towards a pickup comparison with little delay but we gathered this is still too cumbersome a process.

### **The idea**

In a number of discussions between GITEC board members Kurt Haertl and Wolfgang Hoenlein and myself, we felt that pickups should be changed within at the most 2 seconds, and that only an arrangement with pickups sliding along the top of a guitar could work.

Sliding pickups are of course well known. In the 1970's Dan Armstrong had such contraptions on his guitars, and so did Gibson on their Grabber Bass. These were single pickups, however, sliding along the direction of the strings to change the point where the sting vibration was sampled and thus the sound.

Our approach was fundamentally different: two pickups were to be mounted side by side in the direction perpendicular to the strings so that they could in turn be slid under the strings.

## The solution

Wolfgang went to work to actually design such a system. He used a Telecaster-type guitar kit as a basis and had to overcome many difficulties in various directions until now this one-of-a-kind guitar is nearing completion. First tests have been carried out and the results are most promising. The figures show Wolfgang's approach: four pickups can be mounted on the guitar, two each in bridge and neck position, with a normal pickup selector and a volume control. Two pickups each mounted on a special frame that is set onto a "sled". The sleds can be moved (in slots routed into the guitar body) between two end positions (the upper ones magnetically fixed) where either pickup sits in a correct position under the strings. Micro-switches underneath the frames take care of synchronous switching. The electrical connections are made via screw terminals enabling rapid frame change.



Fig. 1: Body of the "sliding pickup guitar". Both sleds are in the down position

The two pickup frames in the pictures hold two reissue Wide-Range-Humbuckers in the bridge position and two Barfuss Firebird Mini-Humbuckers in the neck position. Both pairs of pickups include a bridge-version with more windings and a neck-version with less windings, i.e. comparisons can be readily made to find out how much of a difference in sound the difference in the windings make.



Fig. 2: Body of the "sliding pickup guitar". The sled carrying the Wide-Range Humbuckers is in the "down" position; the sled with the Firebird Mini-Humbuckers is in the "up" position

The "sliding pickup guitar" is quite comfortable to play: in either position, the "sleds" do not extend much over the rim of the guitar body, and with the Telecaster-design being quite compact to begin with, playability should not be a big issue. PU-Changes can be performed in playing position within 1 s quite easily.

Wolfgang is in the process to manufacture more of the special pickup frames so that we can include – in the comparison tests – also Gibson humbuckers, Fender single coils, and even mix it all up.

We are now also in the planning phase for structured listening and playing experiments, and for corresponding recordings.



Wolfgang with his "sliding pickup guitar"

So much for our teaser - the objective is to bridge the rather long time since we posted the 2nd article on the Wide Range Humbucker, and the announcement that there would be a 3rd article. That is to come, since first of all we will concentrate, with the new "sliding pickup guitar" on comparing the various versions of the Wide Range Humbucker.

So: stay tuned!!!