

## The Buzz Feiten Tuning System

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Some think it's a singular invention by Buzz. And some say it's just a collection of luthier tips that were already widely known. "Buzz just happened to think about registering them under a patent first". In either case, it's something that many of us hear about, and few of us actually know the mechanics of how it's done. The following is "general" guide:

The Buzz Feiten system basically consists of two modifications:

First is relocating the nut by approximately 2mm towards the first fret. The idea here is that the nut is in the wrong place because the rule of Pythagoras used to intonate guitars is flawed in its basic assumption that a string is under constant tension. If you press down on a string, you'll find that it's easier to push down the string in the middle of its length than at the 1st fret or near the bridge. However, the Pythagorean rule used to intonate guitars assumes that it's equally easy to push down at all lengths of the string! The fact that you need to push the string harder near the nut translates directly into the fact that these notes at the first few frets generally result in notes that sound slightly SHARP. Relocating the nut closer to the 1st fret, solves this problem. This can NOT be compensated for JUST at the bridge saddle without compromising the intonation of the rest of the frets.

The second part involves tempering the intonation on the bridge saddles with what is commonly known as "Stretch Tuning". (NOTE the bridge slot actually has to be moved for acoustic guitars). Guitars have traditionally been intonated in what is known as "equal temperament". The problem with equal temperament is that, while it is mathematically correct, it only achieves an intonation that's "close" to being correct. Basically, in equal temperament you end up intonating every E note to every other E note on the neck and across strings EQUALLY, and so on for the others. However, this doesn't produce accurate intonation throughout the length of the guitar neck. Piano tuners have known for 400 years that in order for a piano to sound pleasant, the tuning must be "tempered" by adjusting it slightly out of tune to a very precise formula. Instead of equal temperament, piano tuners intonate the piano just slightly flat from concert A down and just slightly sharp from concert A upward. So at this point you basically take the same approach for intonating the guitar. You intonate each saddle and string, EXCEPT the HIGH E string, either slightly sharp or slightly flat via the following method.

EXAMPLE for the B string:

Tune the fifth fret of the B to the open high E (which you've already tuned and intonated like you normally would) and then play the 17th fret of the B with the open E. If the 17th is sharp, then you need to lengthen the string(via the saddle), or shorten it if it's flat. Repeat until both the 5th and the 17th are in tune with the open E. Then repeat the same method with the rest of the string pairs.

The results of the system are chords that never sounded in tune before sound very in tune now, and gone are the low-register sharp notes that haunt even the best guitars. The difference is VERY noticeable!

The following method is how you can tune your Feiten tuned guitar with a standard boss TU-12 tuner. Buzz recommends using expensive strobe tuners for this, but you really don't need one.

1. tune open high E string to E on the tuner.
2. tune 5th fret of B string to E on the tuner.

3. tune 7th-fret harmonic of G string to D on the tuner.
4. tune 7th-fret harmonic of D string to A on the tuner.
5. tune 7th-fret harmonic of A string to E on the tuner.
6. tune 7th-fret harmonic of E string to B on the tuner.

And now you know...