From Ted's Toolbox — Systematic Inversions

By Steve Brodie, 10/7/2006

When I first met Ted I really didn't know who he was. I did hear little rumors at the high school I was attending, Taft High. Because of what I wanted to learn, I was referred to Ted by another teacher who taught guitar at the same music store that Ted did. I took guitar lessons for several years with Ted throughout the 70's and 80's. Other than seeing and hearing Ted play some examples of what he was showing me in the course of a lesson, I really didn't hear Ted play anything until he played at Wilshire Pres. There, for the first time, I heard how all these things could come together. I heard Ted play for the last time in May 2005. During one of his breaks I complimented him, and he told me, "I'm just laying out the neck."

What did Ted mean when he told me he was "just laying out the neck"? For Ted, that meant many, many things. However, I am certain that the concept of "systematic inversions" is one of the vehicles that Ted would consider in "laying out the neck."

"Systematic Inversions" is something Ted showed me during my first lesson, and we spent several months on the topic. This is a way of organizing, learning, memorizing, and grouping chords. In general, inversions of chords are determined by what is in the bass (lowest note) of the chord. For example, an A major chord contains the notes A, C#, and E. If you play the chord with A being the lowest note, that would be the root in the bass. If C# is the lowest note, the 3rd is in the bass, and is often called 1st inversion. If the E is the lowest note, the 5th is in the bass, often called 2nd inversion.

The rule for systematic inversions, as Ted taught me is: "start with a dominant 7th chord form, and raise (or lower) each note of the chord to the next note of the chord *on the same string set*."

Ted started me on the concept of systematic inversions with dominant 7th chords. The notes of a dominant 7th chord are found by finding the 1st, 3rd, 5th, and flatted 7th notes of a major scale. Ted started me with "A" dominant 7th chords. Because the key of A contains an F#, C#, and G#, the flatted 7th would be G. Thus, the notes of A7 are: 1 = A, 3rd = C#, 5th = E, and b7th = G. Now, for the systematic inversions of an A7 chord, wherever the A is in the chord, that note would be raised to a C#. The C# would be raised to an E. The E would go to G, and the G to an A.

Ted showed me some "starting chords" and told me to work out the inversions for each one, and to learn them in various keys. I was then sent on my way for the week. It was sort of like the Karate Kid, you know, "wax on, wax off." The staring chords Ted diagramed for me were:
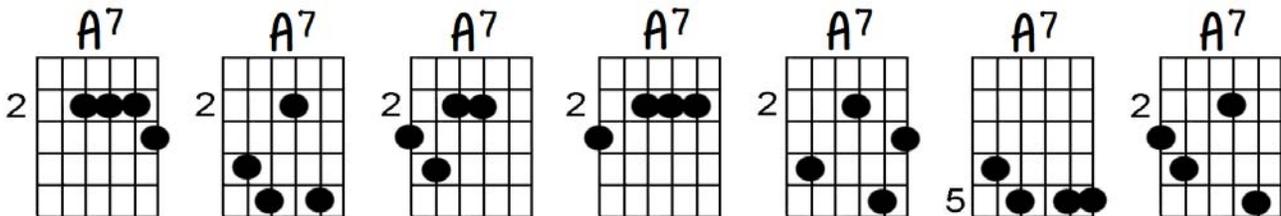

So, using the first "starting chord," and using the rule of systematic inversions that Ted gave me, I arrived at:
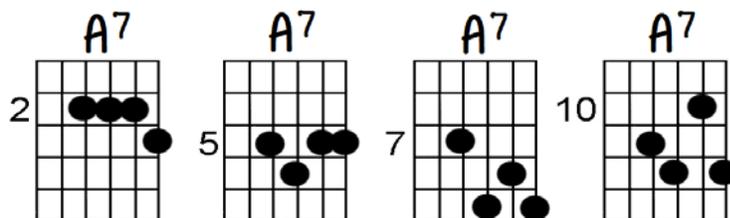
Then I did the same for each of the "starting chords"

Next, Ted gave me the assignment over the next several weeks (or months) of doing the same thing with minor 7th chords, 9th chords, etc. I already knew most of the chord formulas, but Ted gave me a chart showing the chord formulas. One problem that comes up is how to systematically invert a chord with 5 notes in the formula, when the "staring chord" has only 4 notes (i.e. dominant 9th, minor 9th, major 9th, etc.). The answer is to eliminate the root of the chord (or less commonly, the 5th). For example, if you start with one of the A7 chord forms, and raise the root two frets (a whole step), you have a dominant 9th chord without the root.

Here are a few examples starting from the same chord form:
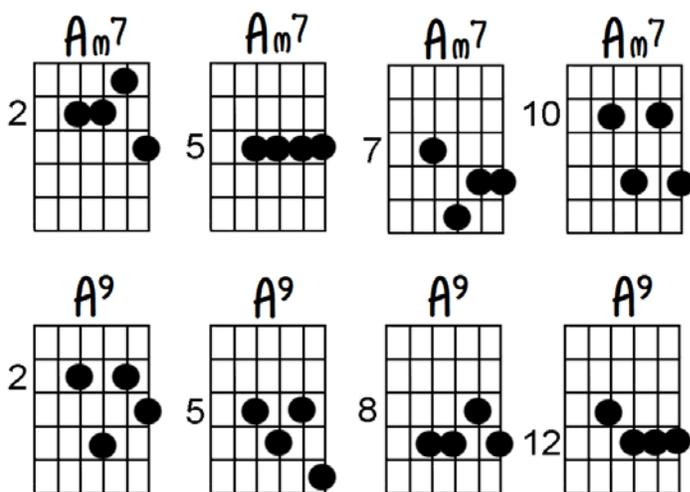
Using this system, you should be able to make rows of systematic inversions of minor 7th, minor 9th, minor 7b5, minor 6th, major 9th, major 6th, dominant 9th, 7#5, 7#9, 7b9, and probably others.
Note: any chord with any type of 9th will not have a root in this system.