

Tuning

THE STANDARDS

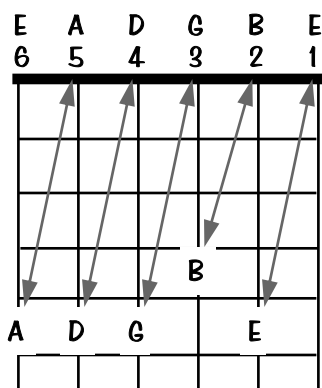
STANDARD PITCH: "A 440"

Guitars are designed to yield optimal performance (manufacturer's specs) when tuned relative to the "**international standard**" reference pitch of "A 440". This standard for pitch corresponds to the note "A" above "middle C" vibrating at the frequency 440 Hz which is cycles per second on the "Hertz" scale. String manufacturers create the different gauges of strings assuming they will be tuned to standard pitch ("**A 440**").

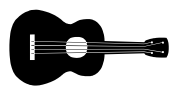
Pitch affects the tension on the neck and strings as well as action. Within those constraints of tension and action, however, a guitar can be tuned relative to any reference pitch that is low enough so that the strings don't break and is high enough so the strings don't buzz too much to produce audible noise.

STANDARD TUNING

The term "**standard tuning**" as opposed to standard pitch for guitar defines the relationship for each string relative to each other being "E, A, D, G, B, E" from sixth to first. To avoid confusion, guitarists may wish to refer to "A 440" when referring to relative pitch and "standard" for the relationship of the strings.



The pitch of the tone at the sixth string, fifth fret should sound the same as the pitch of the open fifth string. The same relationship applies for the fifth to fourth, fourth to third and second to first. The third string at the fourth fret is tuned to the open second string.



It should be noted that the musical notation of the guitar is an octave above the standard notation. In other words, the tone at the third fret fifth string is notated on guitar music as middle "C" but is actually an octave below in pitch.

TUNING OPTIONS

ELECTRONIC TUNER

There are several ways to tune your guitar. The easiest and most reliable way is with an “**electronic tuner**”. There are many models ranging in price but the main variation comes with those designed for a standard tuned six string guitar or those designed to tune chromatically, i.e. for tuning any instrument in any key.

The “**chromatic**” tuner, although more expensive, is the by far the better choice for long term usage. A beginner may find the basic tuner for “**standard**” guitar the easiest to use.

The electronic tuner uses a high/low pointer for each string. Although the tuners have slight variations, you basically select which string to tune and strike the string. The pointer should show high or low at which time you either tighten the string (low) or loosen the string (high).



There may be some fluttering of the indicator, so be sure to let it settle somewhat. Also be sure that no other strings are vibrating. The “sympathetic” harmonic vibrations of an out of tune adjacent string, may cause an incorrect reading. If possible, try to dampen all other strings except the one you are tuning.

PITCH PIPES

Pitch pipes have all but been replaced by electronic tuners, but still can provide a very inexpensive way to supply a good reference pitch and help in the tuning process. The main difference between the pipe and the electronic tuner is that with a pipe, you must depend on your ear to determine the high or low pitch of the string. This is not easy for the untrained ear since determining pitch can be affected by many things, especially those related to the timbre of the strings. Recognizing pitch differences by ear can pretty much be assumed to be a learned process except for the gifted.

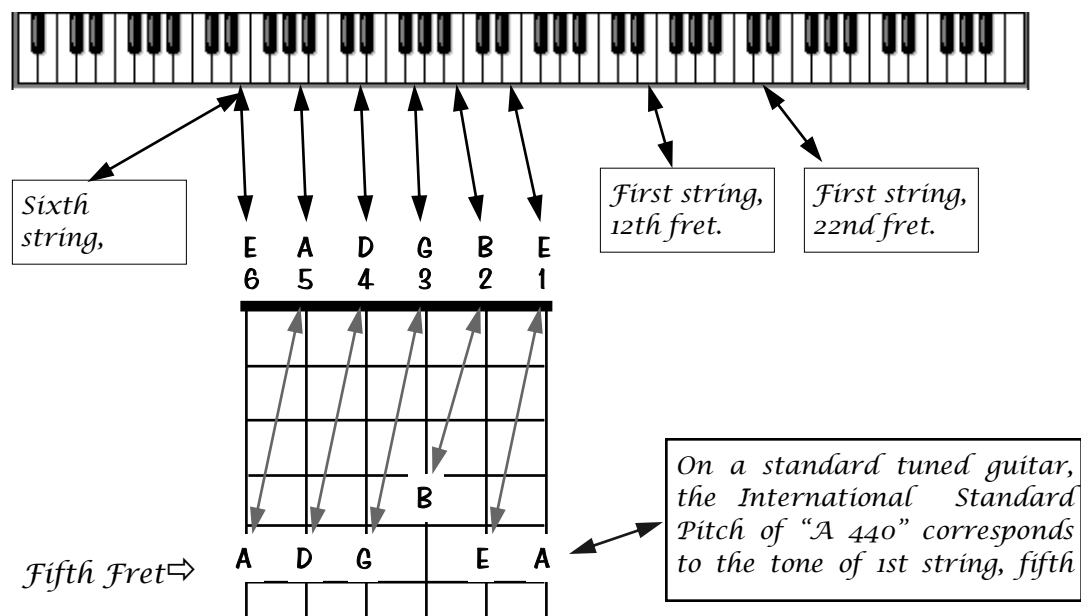
TUNING FORK

A tuning fork can be used to tune one string to a beginning reference pitch and then proceed to tune the others relative to it. Because its the standard, you will mostly find ones producing the pitch “A 440”. “A 440” on a standard tuned guitar is the tone produced at the first string, fifth fret.

PIANO AND RELATIVE TUNING

The pitch range of a standard tuned guitar relative to a piano is illustrated below. The chart shows the relative standard tuning of the open strings as well as the lowest note and highest notes. Unless you have a cutaway, the highest practical note on the acoustic guitar is around the twelfth to fifteenth fret. Electric guitars vary but usually go as high as the twenty second fret.

Tune the guitar to standard tuning relative to itself or a piano, using the following chart:



RELATIVE TUNING

Begin by checking each pair and decide if just one or two strings are out of tune or if you need to start all over with a reference pitch from a pitch pipe, tuning fork, tuner or other instrument.

When fine tuning, be careful not to turn the tuning gear too quickly. Listen for the "harmonic beats". These are waverings in pitch between the strings that change from faster to slower when approaching being in tune and stop when the pitches are matched.

Tune the strings in sequence backwards and forwards from the string you know is in tune. For example: if you know your fifth string is in tune, then tune the sixth string to the fifth string and then the fourth to fifth, third to fourth, etc.

ALTERNATE TUNINGS

HIGHER OR LOWER STANDARD

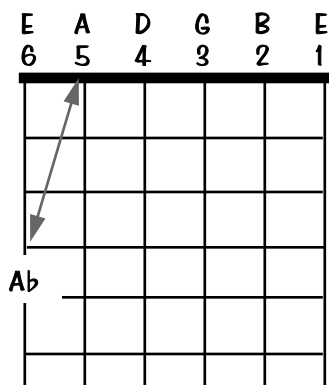
At times the situation may call for you to tune to another reference pitch or instrument. Many songs by alternative bands are recorded and performed with the guitar in a relative pitch one half step lower than "A 440". An "E" chord form thus produces the sound of an "E♭" on another instrument tuned normally. The lower tuning reduces string tension, can lower the action and tends to give the sound a certain unmistakable "grunginess". Jimi Hendrix also used a half step higher tuning as well as the half step lower.

For tuning a half step lower, tune the fifth string to the sixth string at the fourth fret and then use relative standard tuning to tune the sixth, fourth, third, second and first strings to the fifth string. To raise back up, use the sixth fret, six string for the "A" string.

The new reference pitch "A" is tuned down one half step to "A♭".

The new reference pitch "A" is tuned up one half step to "B♭".

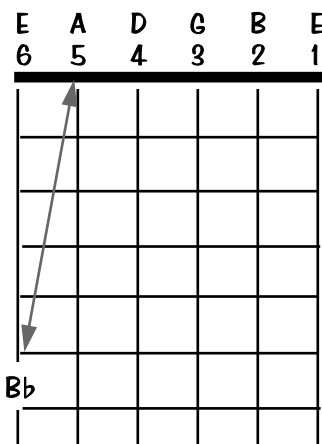
Down



⇐ Fourth Fret

Sixth Fret ⇐

Up



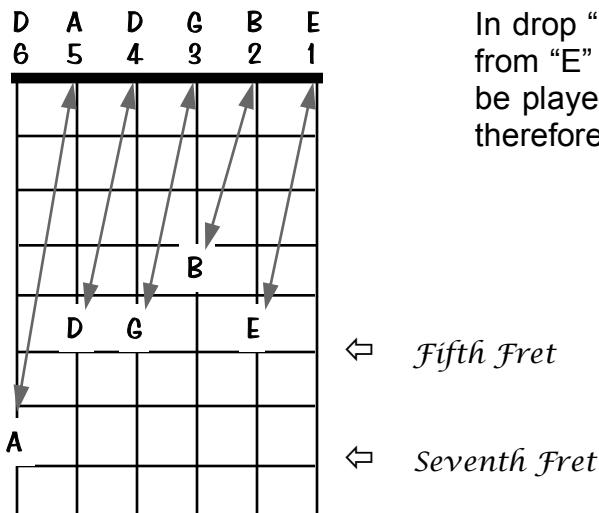
The above procedure can also be used to lower the tuning a whole step ("A" is tuned to "G" on the third fret) or more.



Twelve string guitars can be tuned down as much as a whole step (sixth string relative D) or even a whole step and a half (sixth string relative C#). This is mainly due to the tension of the twelve strings but recent guitar manufacturing techniques have improved so that some twelve strings can perform at standard pitch. In the lower tunings, a capo can be used to bring the pitch up to standard.

DROP D

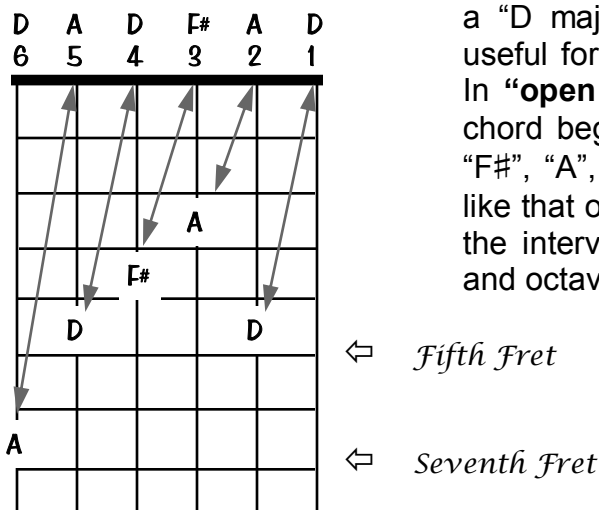
“Drop D” tuning is the most common altered tuning from standard.



In drop “D” the sixth string is lowered a whole step from “E” to “D”. This allows the open “D” chord to be played with the low sixth string root note and is therefore quite nice for songs in the key of “D”.

OPEN “D” (E PATTERN)

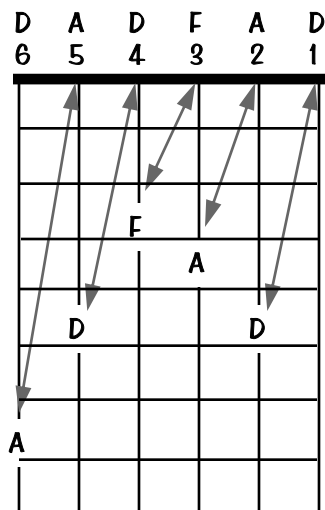
“Open D tuning” refers to an alternate tuning method where the open strings form



a “D major” chord. Open tunings are especially useful for solo fingerpicking and slide guitar styles. In “open D” tuning the strings are tuned to a “D” chord beginning with the sixth string: “D”, “A”, “D”, “F#”, “A”, “D”. The structure of the chord is more like that of an open “E” chord since the strings have the intervals of root, fifth, octave, major third, fifth and octave.

“D” MINOR (E MINOR PATTERN)

In “**D minor**” tuning, the third string of open “D” tuning is lowered to an “F”. Minor tunings play well not only in harmonic or melodic minor keys, but also in the Aeolian, Dorian and Phrygian modes as well as combinations.



⇐ *Fifth Fret*

⇐ *Seventh Fret*

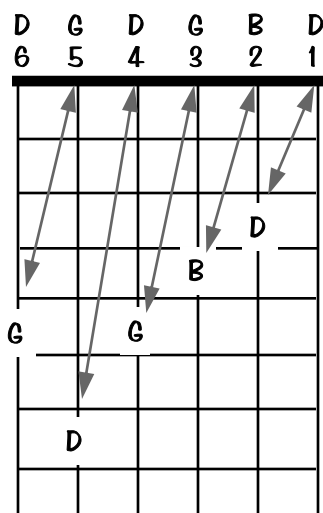
In modal playing, the guitarist usually thinks relative to the associated major key. Since all the notes are relative anyway, the guitarist can actually “think” in any key. For example, although tuned to “D” minor, it may be easier to think in “E minor” Dorian or diatonic “G” or “E minor” Phrygian or diatonic “C”.

Phrygian minor mode played in open “D minor” has a nice Spanish flavor.

OPEN “G” (A PATTERN)

“**Open G**” is a tuning where the sixth, fifth and first string are each lowered a whole step to make an open “G” chord. The pitches are “D”, “G”, “D”, “G”, “B”, “D”.

Like the open “D” tuning, however, the intervallic structure is similar to an open “A” chord.



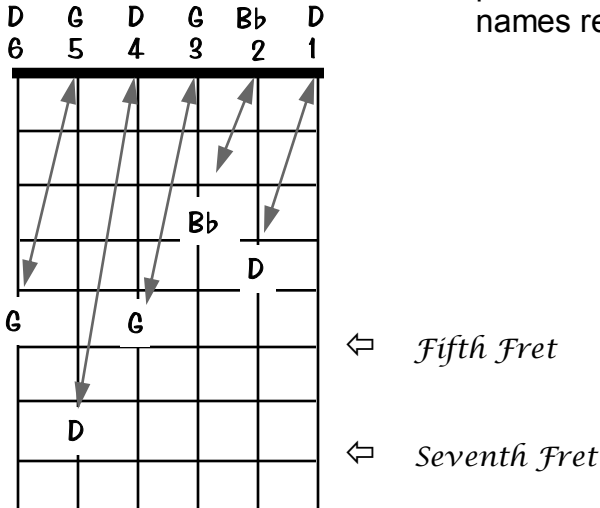
⇐ *Fifth Fret*

⇐ *Seventh Fret*

"G" MINOR (A MINOR PATTERN)

Similar to changing "D" major to minor, the open "G minor" tuning has the second string of open "G" lowered a half step to "B \flat ". Because of the intervals, it is somewhat

easier to "think" in terms of "A" minor. The fret positions of the fourth and third strings are the same names relative to standard.



DADGAD AND OTHERS

Of the many other tunings possible, "DADGAD" (pronounced dad-gad) is probably the most popular. This and other tunings like it that don't form a basic open chord are called "altered tunings".



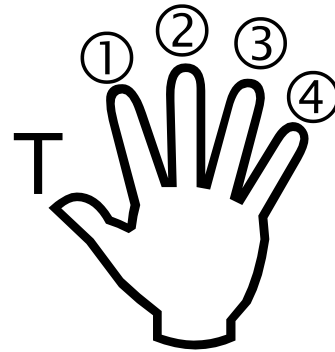
When working up a song from a recording, it is crucial to figure out what tuning and capo setting the artist is using if not standard. The best way to do this is listen for open strings and combinations of strings. If used, harmonics can also be used to "break the code" and determine tuning. Often times, a song may be quite difficult or near impossible if played in standard tuning but much easier in the corresponding altered or open tuning.

Finger Basics

FRET HAND

The fretting fingers are numbered from one to four beginning with the index:

Thumb = T
Index = one
Middle = two
Ring = three
Pinky = four



PICKING HAND

FLATPICKING

For general usage a medium “rounded V” is the choice.

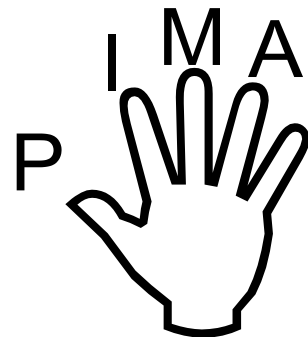


Hold the pick with the thumb and index fingers in a firm but relaxed manner. Pick directly across the strings in an up and down motion.

FINGERPICKING

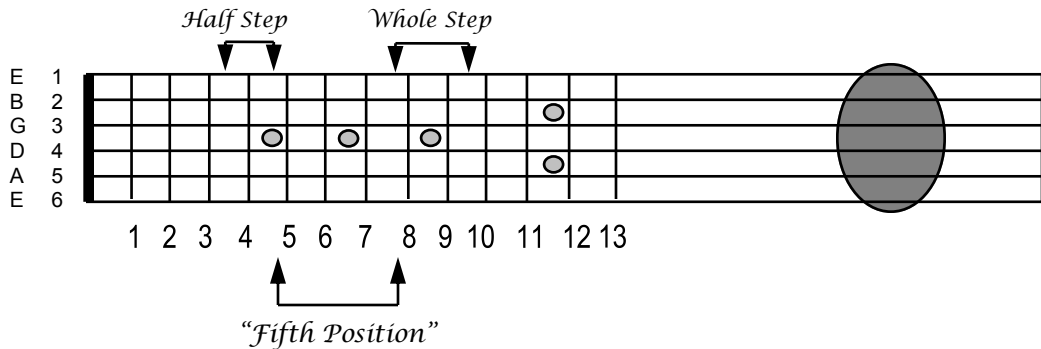
The picking fingers are represented by their “Spanish” or classical names:

Thumb = P for Pulgar or T for Thumb
Index = Indicio
Middle = Medio
Ring = Anular



Fretboard Basics

Pressing the string to the fret shortens its length and increases its frequency of vibration producing a higher pitched tone. Each next fret is musically a “half step” higher than the previous. The distance of two frets is a “whole” step.



A “**position**” is defined by the first finger’s location at a particular fret number and the four fingers playing each adjacent fret. For example, in fifth position, the first finger plays the fifth fret, the second finger plays the sixth fret, the third finger plays the seventh fret, and the fourth finger plays the eighth fret. If necessary, the first finger can play a fret below and the fourth finger can play a fret above.

Fretting Rules

1. Press the finger as close as possible to the fret without touching the fret.
2. Press the string perpendicular to the fretboard with the tip of the finger.

In general, the thumb should be in the center of the back of the neck. This is especially true for playing “bar” chords. There are exceptions however. Sometimes contemporary guitarists use the thumb to dampen the sixth string or play the bass note of a chord.

MECHANICS AND TECHNIQUE PRACTICE

Memorize the numbers of the strings. *This is critical to everything you will learn.*

Memorize the names of the strings.

Memorize the fret numbers of the dotted frets, especially the fifth fret. These indicators will act as a guide post to help quickly position your hand and locate notes by name across the entire fretboard.

Practice positioning your first finger to a string and a fret. For example: *string two - fret one, string six - fret five, string four - fret four, etc.*

Tablature Notation

STANDARD TAB

Tablature is an easy way to notate music for guitar. Numbers are placed on the strings in order of occurrence. Some forms of TAB may have a timing reference but most TAB is designed to show where you play the notes and you must get the timing by other means. This is usually not a problem since you will be familiar with most songs that you want to pick up from TAB.

Time →

E 1
B 2
G 3
D 4
A 5
E 6

0
0 2 0 1
0 2
0 2 3
3 0 2 3
5 2

The numbers indicate which fret to play.
The zero (o) indicates the open string.

Numbers on top of each other are played at the same time.

Play the notes from left to right just as you would read them.

Most tablature does not indicate which finger to use. In first position, however the finger corresponds to the fret. In other positions, plan to spend some time figuring out which position is best for each group of notes. Changing positions is often required and sometimes makes playing a passage easier.

There are many other options for advanced tablature notation which are included in various sections of the gospel as other technique and riffs are presented.

POSITIONAL TAB

One "Nortune" approach to TAB uses numbers for the four fingers and a position indicator to note which frets to play. This works well in tabbing out scales, riffs and patterns that work in all positions.

Fifth position

1
2
3
4
5
6

1 3 1 3 | 5 7 5 7

Positional Tab *Standard Tab*

Two notations of the same riff.