
GUITAR CARE

TUNING

Precise tuning is essential to good music and for your development. Tuning is accomplished by comparing a note suspected to be out of tune to a “reliable” tuning source such as a tuning fork, an electronic guitar tuner, or a musical instrument which is in tune and can produce a steady, sustained pitch.

Tuning with a tuning fork. Hold the handle without touching the “u-shaped” portion and tap the fork with a snap of the wrist on something hard (careful not to bend the fork). Without touching the fork to the guitar, position the “u-shaped” portion parallel to, and close to, the guitar pickup to amplify it. If you are using an acoustic guitar or can’t amplify the tuning fork with the guitar pickup, touch the base of the handle to a resonating object such as a wooden guitar top, a table, or to the bone where your cheek meets your ear. It is preferable to hear the tuning fork and the string being tuned at the same time.

Tuning with electronic tuner. If you have a choice, use a tuner with a stable sweep meter. Tune each string exactly to the “0” mark. An electronic tuner is the most accurate method available to you, so take advantage of it. Remember to double check all of the strings once you have tuned them.

Tuning to another musical instrument. It is preferable to tune to a musical instrument which has a pure tone (without complex harmonics), such as a flute, or to a harmonic on a string instrument. If you are tuning to a synthesizer, select a “voice” or “patch” on the synthesizer that is similar to a flute in sound. Carefully balance the volume between your guitar and the other instrument.

Tune to the fifth string (“A”) first. Larger strings are less likely to go out of tune. The sixth string tends to be less stable than the fifth because (1) being lower in pitch, it doesn’t produce as steady a tone and (2) being on the edge of the fretboard, it is more subject to change caused by twisting of the neck.

Tune up to the note. This prevents the string from slipping on the tuning machine post.

Listen to the “beating.” Bring the string’s pitch up gradually, but continuously. When it gets close to the correct pitch, you should be able to hear a rapid pulsing or beating sound (if not, perhaps you’ve heard too much loud music!). This sound is the difference in speed of vibrations between the string and the tuning source.

Once you are in close proximity to the correct pitch, the beating sound will slow down as you approach the pitch of the tuning source and speed up as you move away from it. Turn the key on the tuning machine slower as you approach the desired pitch. You may pass the pitch if you don’t pay close and continuous attention to the decreasing speed of the beating, in which case the beating will gradually start to speed up again. Once you grow accustomed to this tuning method, you will be able to bring the pitch up more rapidly. Try to tune close enough so that the beating is slowed to less than one beat per second.

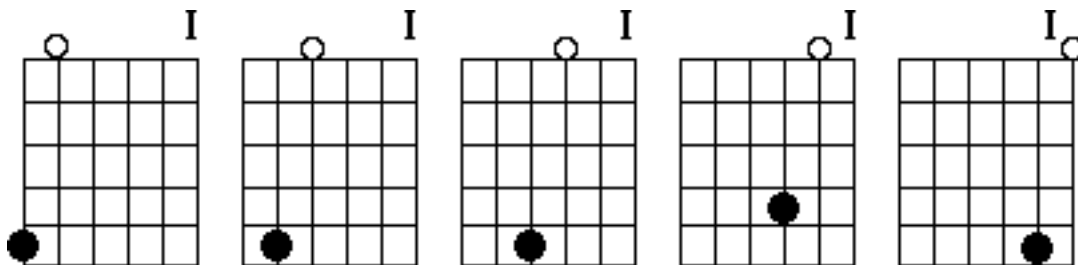
Tune all of the strings, then check all of them again. On most guitars, the neck actually bends as you tune the strings which tends to put other strings out of tune as you tune a single string. You will often need to “triple check” your tuning.

Tuning With Fretted Notes and Open Strings.

This traditional tuning method is easiest to memorize. It is fairly accurate, but error can accumulate by the time you tune all six strings.

Pressing too hard can sharpen the note out of tune. Press the string down just to your left of the fret, just hard enough that the string doesn't buzz on the fret you are fingering. Part of the fingertip may lay over the fret, but not so much as to mute the string. Turn the tuning machine keys with the right hand, so the left hand can sustain the note (or notes) it is fretting.

Tuning with fretted notes and open strings. The top fret on each diagram is the first fret.



The top horizontal line in first position fretboard diagrams represents the nut. The top horizontal space is the first fret. In fretboard diagrams, the fret is the line at the bottom of each horizontal space, as noted earlier in *Fretboard Diagrams*.

Stretch out new strings well during the first time you tune them, to lessen the number of times you'll have to tune all of the strings

Tuning All Strings Relative To the Fifth String (illustrated on the next page)

The fifth string is usually least prone to going out of tune. It is a large string, less likely to stretch. The fifth string is less likely to be affected by twisting of the neck, as are the first and sixth strings. This tuning method is quite accurate, since it continually references the fifth string.

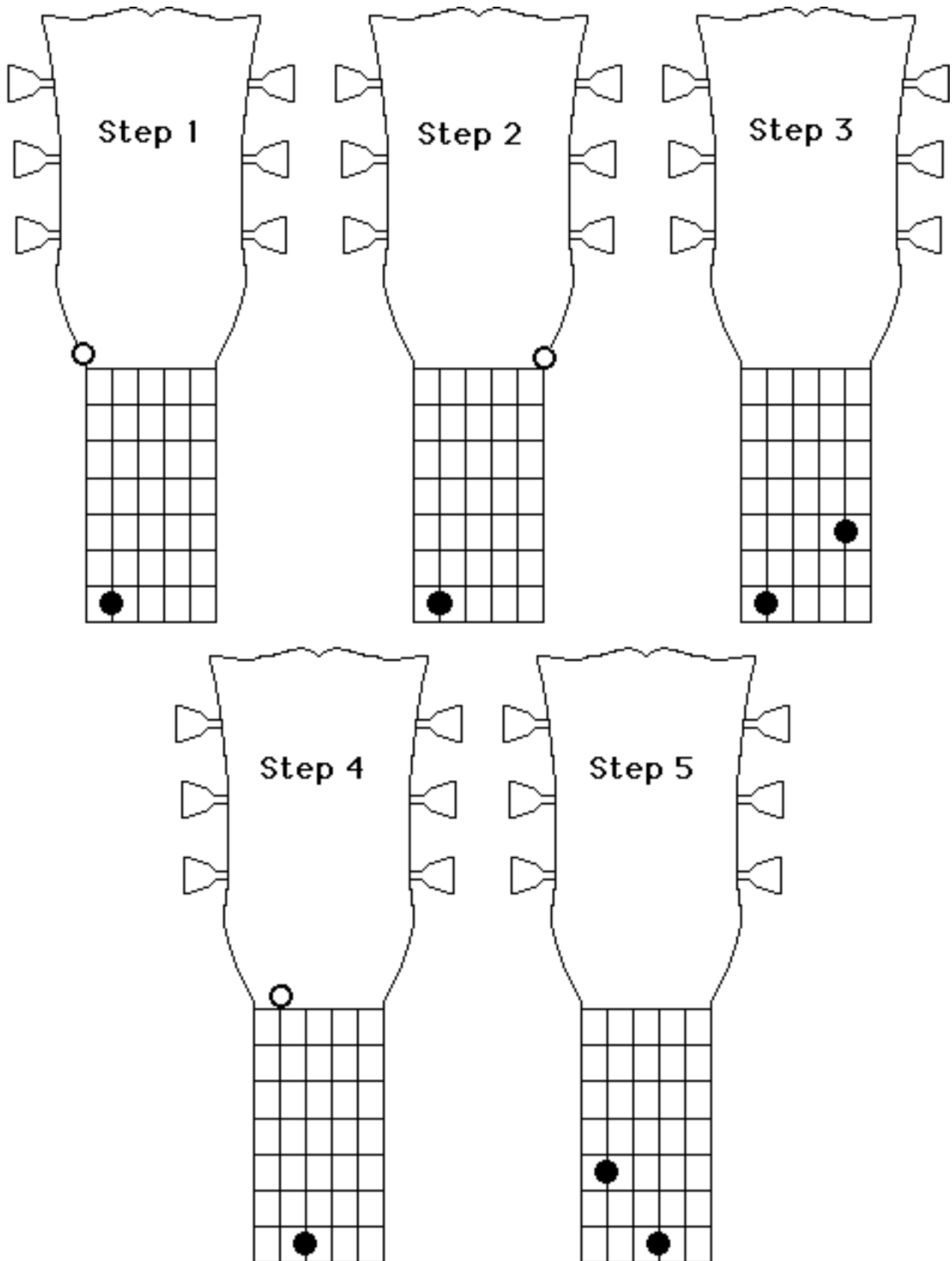
Before proceeding, tune your fifth string to a reliable source, as described earlier.

- Step 1 tunes the sixth string open "E" to a fretted "E" on the fifth string.
- Step 2 tunes the first string open "E" to a fretted "E" on the fifth string.
- Step 3 tunes a fretted "E" on the second string to a fretted "E" on the fifth string.
- Step 4 tunes a fretted "A" on the fourth string to the fifth string open, "A".
- Step 5 tunes a fretted "D" on the third string to a fretted "D" on the fifth string.

Steps 3 and 5 require fretting notes with the left hand while reaching across to the tuning pegs with the right hand. This can be a little awkward, but is well worth the effort.

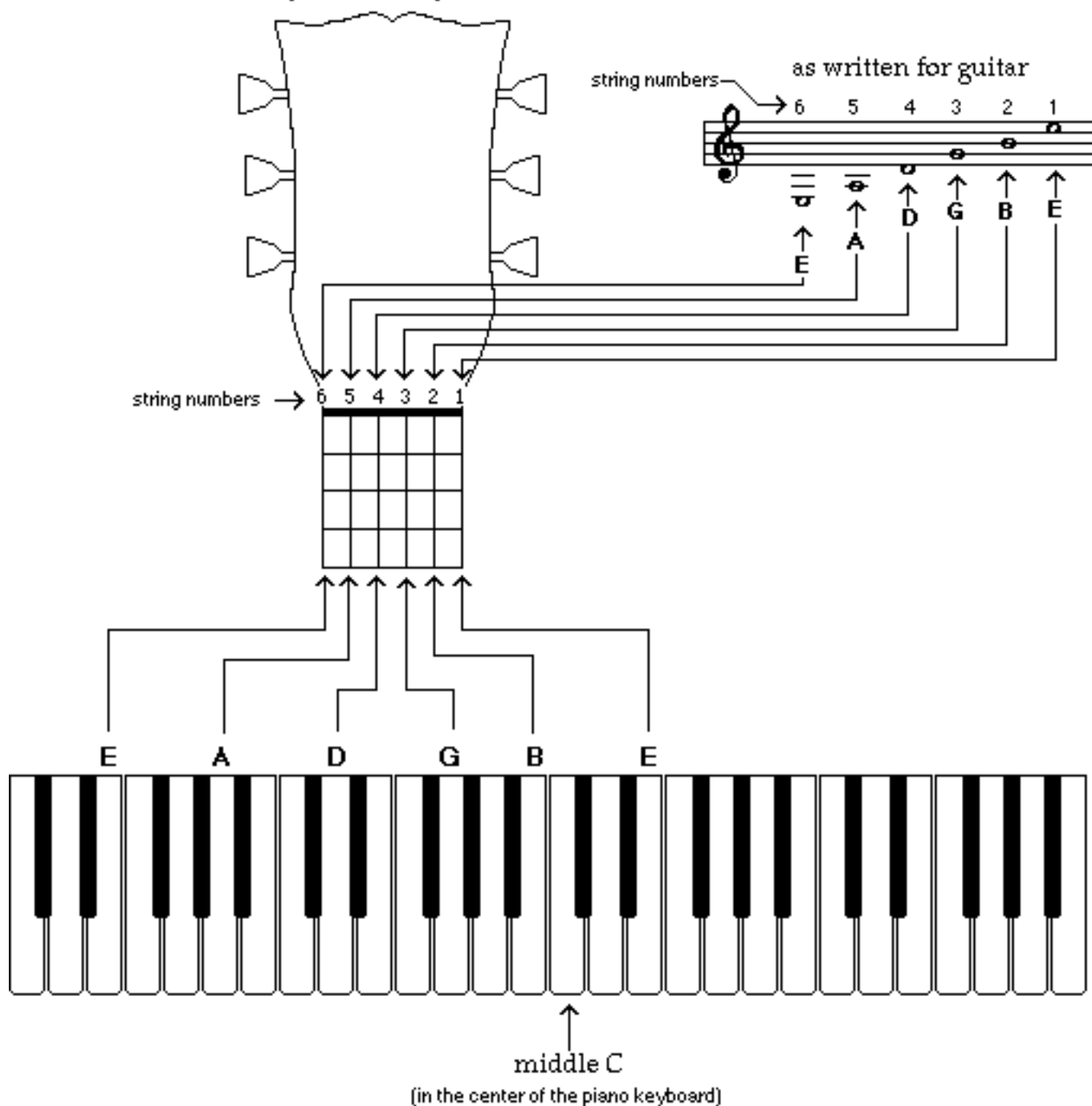
As you proceed from *Step 1* through *Step 5*, it is likely that the strings will loosen and drop in pitch. Tune your fifth string to the source again and retune all of the strings. If your guitar has a floating tremolo system, you may have to tune a few times.

Tuning All Strings Relative To the Fifth String



TUNING THE GUITAR TO THE PIANO

OPEN (not fretted) STRINGS



INTONATING THE BRIDGE

(adjusting your guitar's bridge to correct the string lengths in relation to the fretboard)

Use a guitar tuner equipped with a meter. Tune the guitar fairly well. Play the twelfth fret harmonic on one string and note the exact reading on the meter (the needle doesn't have to be exactly on the "0" mark). Next play the fretted note on the twelfth fret on the same string. *If the fretted note was flat, adjust the individual bridge piece to make the string shorter. If the fretted note was sharp, adjust the individual bridge piece to make the string longer.* Repeat the process until the fretted note and harmonic at the twelfth fret are exactly the same. This may take a few minutes for each string, but it is well worth the time. Before adjusting another string, always check the tuning of all the strings. Adjust your bridge every month if you can. Re-check the bridge if you change string gauge or if the trussrod or tilt of the neck is readjusted.

CHANGING STRINGS

Change your strings at least once every six weeks or as often as once a week if the strings get very oxidized (watch for "crud" and discoloration of the strings). Never remove more than three strings at a time and never remove more than two of the larger strings (fourth, fifth and sixth) at a time. The change in tension may affect the neck adversely.

Slip the end of each new string through the slots or holes in the bridge and/or tailpiece, except with a Floyd Rose™ Tremolo system, where you would cut off the end of the string and insert in the vice slot (some strings now come with pre-cut soldered ends, making this step unnecessary). Slip the end of the string through the hole or slot on the tuning machine post.

Measure about five to five and one half inches slack (one hand width) in the string at the twelfth fret. Once you have measured the slack, bend the end of the string ninety degrees (an "L" shape) at the point where it passed through the tuning machine post, bending it opposite the way the string will wind around the post as it is tuned. Keeping the slack pulled up so that the bent part of the string is taut against the post, grab the loose end of the string and pull it tightly around the post opposite the direction the string winds around it. Keep each winding underneath the portion of string running from the neck to the tuning machine.

It is preferable to have two or three windings around the string post of the sixth string, progressing to five or six windings around the first string's post. Windings should not overlap. Once the post is full of windings, more turns will tend to strip the gear inside the tuning machine. Get accustomed to the proper length of slack for each string on a particular guitar.

Pulling the string tightly against the post, bend it over the portion of the same string running from the neck to the tuning machine. Taking up the slack so the string winds below itself on the post, tighten the string. Once the string is not flopping around, start tuning it. Stretch the string with both hands every six inches to remove excess elasticity. Pull only an inch or two away from the fretboard on the first two strings to avoid breaking them.

Once you've installed all six strings, stretch them all again, tune, stretch again, until the strings stay in tune. The new strings should sound great and stay in tune now!