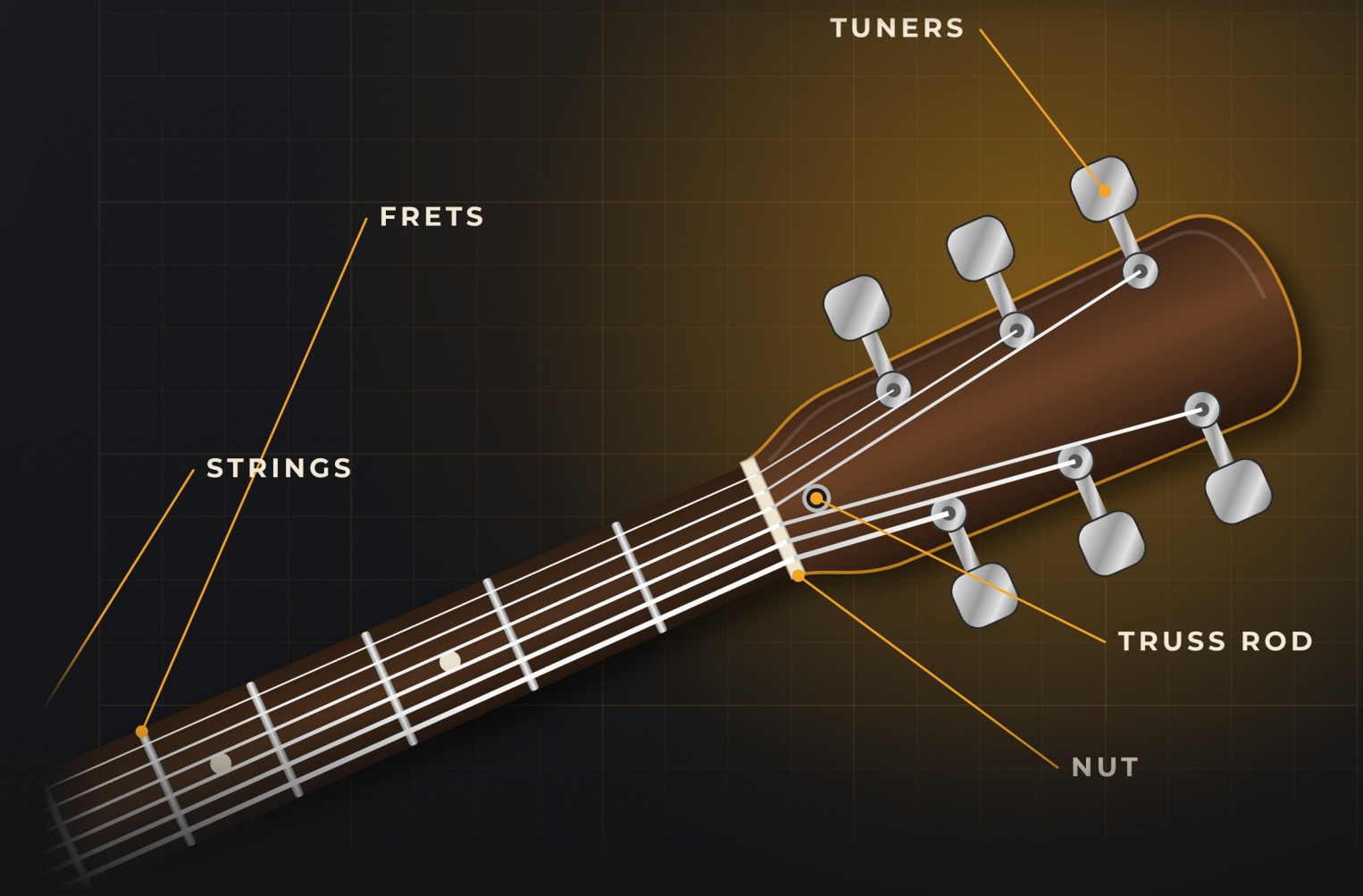
A COMPANION TO GUITAR CARE AND MAINTENANCE

A PLAIN-SPEAK GUIDE

QUICK GUITAR SETUP GUIDE

The Five Setup Steps, in Order, and the Tools You Need



RELIEF | ACTION | NUT | INTONATION | PICKUPS

ANDREW DOMINGUEZ

FROM THE BENCH AT TRINFINITY GUITARS

TRINFINITY Enterprises

Quick Guitar Setup Guide

The Five Setup Steps, in Order,
and the Tools You Need

A companion to Guitar Care and Maintenance

Andrew Dominguez

Quick Guitar Setup Guide: The Five Setup Steps, in Order, and the Tools You Need

First edition 2026.

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The care, setup and repair steps in this guide are general guidance. Every guitar is different. Follow the maker of your guitar and of any product you use, test any cleaner or polish on a hidden spot first, wear eye protection when you file, sand or solder, and take your guitar to a qualified repair technician when a job is beyond your comfort level. The author is not responsible for damage or injury that results from using the information in this guide.

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Guitar work notice. A soldering iron is hot enough to burn you and start a fire, solder and flux fumes should not be breathed, and lead solder is toxic. Work where there is good air flow, wear eye protection, wash your hands after, and keep tools and chemicals away from children. Never open or work inside an amplifier or anything that plugs into the wall. Amplifiers can hold a deadly charge even when unplugged. Take that work to a qualified technician. Changes to an instrument can affect its value and its warranty.

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Read This First

A setup is the handful of small adjustments that decide how a guitar feels and plays: how much the neck bows, how high the strings sit, how the nut is cut, whether notes play in tune up the neck, and how close the pickups sit to the strings. When those are right, the guitar is easy to play and stays in tune. When they drift, you get buzz, sore fingers, and chords that sound a little sour even when the open strings are perfect.

This guide is for the player who has never done a setup. It gives you the five steps in the order a tech does them, the tools for each one, and starting numbers from the guitar makers. If you can use a tuner, read a small ruler and turn a screwdriver, you can do most of it. Where a job belongs with a tech, I say so.

When to do a setup

- Twice a year, around September and March, when the seasons change the humidity.
- Any time you change string gauge (thicker or thinner strings pull on the neck differently).
- When a guitar starts to buzz, feels stiffer than it used to, or won't play in tune up the neck.
- When you bring home a new guitar. Many leave the factory with the strings set on the high side.

Five rules that keep you out of trouble

1. **Work in order.** Each step changes the ones after it. Set the neck first, then the string height, then the rest.
2. **Tune to pitch every time you measure.** Measure with the strings on and tuned, and with the guitar held the way you play it.
3. **Write it down before you change it.** Your notes are how you get back to where you started. There's a setup record at the back of this guide.
4. **Small steps.** No more than an eighth of a turn on the truss rod at a time. Small turns on the saddle screws, then retune and check.
5. **Never force anything.** If a screw or the truss rod nut won't turn with light, steady pressure, stop.

Know when to stop

> **Stop and see a tech if:** the truss rod nut is stuck, creaks, or has turned a full turn with no change in the neck; the action is still high on an acoustic with the saddle already low; an open string buzzes and the nut check says the slot is too low; an acoustic won't play in tune; or you see a crack, a lifting bridge or a fret coming up out of its slot.

These numbers are starting points. Your hands and the way you play set the final answer. If your guitar's maker publishes its own numbers, use theirs and measure the way they do. *Guitar Care and Maintenance* (Chapter 12) lists the Fender and PRS numbers side by side and goes deeper on every step.

The Tools You Need

You don't need a shop full of tools. Everything in the "must have" rows of this table fits in a small box, and most of it costs less than a professional setup.

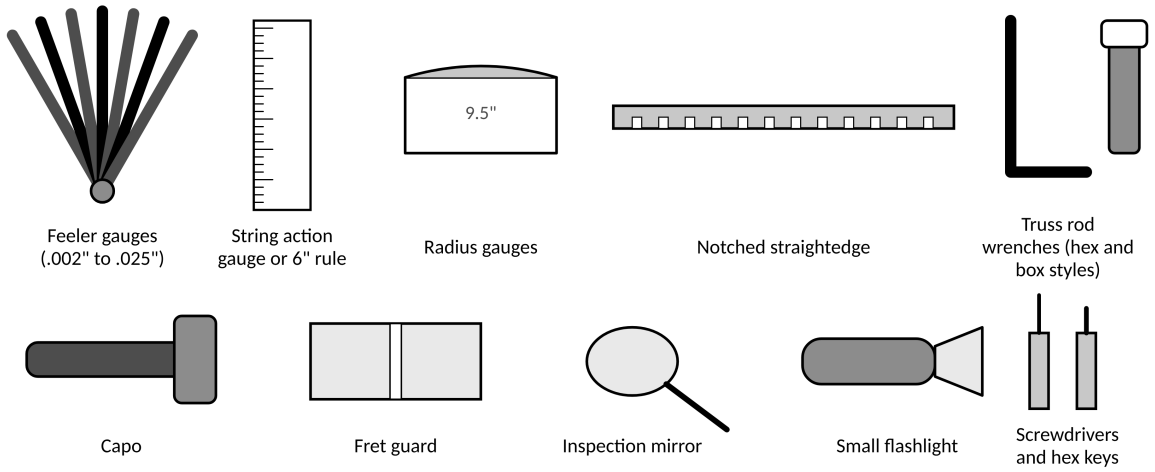


Figure 1. The full tool kit from Guitar Care and Maintenance. For a setup you need the feeler gauges, rule or action gauge, capo, truss rod wrench, screwdrivers and hex keys.

Tool	What it's for	Used in step	Need it?
Tuner (clip-on, pedal or app)	Tuning to pitch before every measurement, and checking intonation	All	Must have
Capo	Clamping the strings at the first fret so the nut doesn't throw off your readings	1, 2	Must have
Feeler gauges	Measuring tiny gaps: neck relief and nut height	1, 3	Must have
String action gauge or 6" steel rule	Measuring string height and pickup height	2, 5	Must have
Truss rod wrench that fits your guitar	Adjusting neck relief	1	Must have
Small screwdrivers and hex (Allen) keys, inch and metric	Saddle height, intonation screws and pickup screws	2, 4, 5	Must have
Pencil and paper (or the record at the back)	Writing down every reading before you change it	All	Must have
Fresh strings, winder and cutter	A setup done on old strings won't hold	Before you start	Must have
Work mat or folded towel, and a neck rest	Keeping the guitar steady and the finish safe	All	Nice to have
Radius gauges	Matching the curve of the saddles to the fretboard on electrics	2	Nice to have

Tool	What it's for	Used in step	Need it?
Notched straightedge	A second way to check neck relief	1	Nice to have
Strobe tuner	More precise intonation than a typical clip-on	4	Nice to have

Getting the right truss rod wrench

Truss rods take different wrenches depending on the maker and the model: a hex key, a socket or box wrench, or a long wrench that reaches in through the soundhole on many acoustics. If your guitar came with a wrench in the case, that's the one to use. If it didn't, check the maker's support pages for the size, or use MusicNomad's free online Truss Rod Wrench Finder.

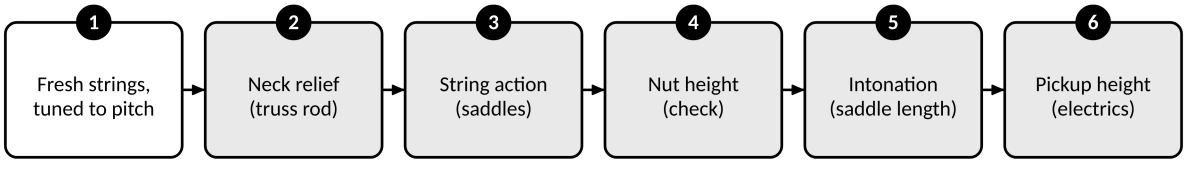
Caution: A wrench that doesn't fit snug will round off the truss rod nut, and a stripped nut is a real repair. Make sure the wrench seats all the way before you turn anything.

Feeler gauges and rulers

An automotive feeler gauge set from any parts store works fine, as long as the blades are clean and flat. For string height, a plain six-inch steel rule marked in 64ths of an inch or half millimeters does the job. A string action gauge is easier to read because the heights are printed right on it.

The Order, and Why It Matters

Every adjustment changes the ones after it. If you set the string height first and then adjust the neck, you've just changed the string height again. So every setup worth following starts with the neck and works toward the pickups.



Each step changes the ones after it, so work left to right and retune after every adjustment.

Figure 2. The five steps, in order.

1. **Neck relief.** How much the neck bows. Tool: capo, feeler gauges, truss rod wrench.
2. **String height (action).** How high the strings sit over the frets. Tool: action gauge or ruler, screwdriver or hex key.
3. **Nut height check.** How high the strings sit over the first fret. Tool: feeler gauges. This one is a check, not an adjustment.
4. **Intonation.** Whether notes play in tune up the neck. Tool: tuner, screwdriver.
5. **Pickup height.** How close the pickups sit to the strings, on electrics only. Tool: ruler, screwdriver.

Before step 1

Put on the strings you plan to play, tune them to pitch, and stretch them in. Gently pull each string up away from the fretboard along its length, retune, and repeat two or three times until it holds pitch. Then sit with the guitar in playing position, or lay it on a mat with the neck supported, and keep it tuned for every reading.

> **Tip:** If you're changing to a different gauge, change strings first and let them settle for a day before you measure. The heavier or lighter pull moves the neck.

Step 1: Neck Relief

What it is. Relief is the slight forward bow in the neck under string tension, a very shallow dip between the first fret and the body. That dip gives the strings room to swing without hitting the frets. Too much relief makes the strings sit high in the middle of the neck. Too little, or a neck bowed backward, makes the strings buzz on the open strings and low frets.

What you'll need: A tuner, a capo, feeler gauges, and the truss rod wrench that fits your guitar.

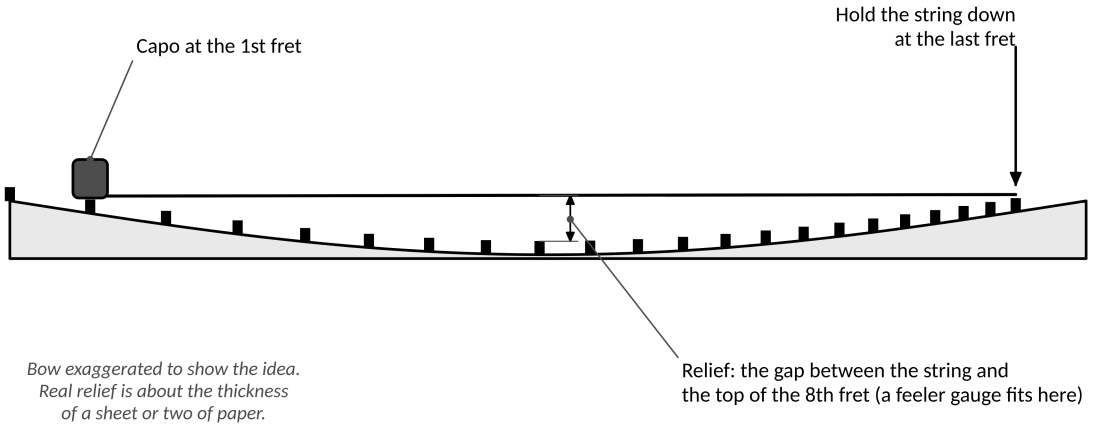


Figure 3. Checking relief: capo at the first fret, string held down at the far end, gap measured near the middle.

How to measure it

1. Tune to pitch and put a capo at the first fret.
2. Hold the low E string down at the 12th fret.
3. Slide the feeler gauge for your guitar type (table below) onto the 6th fret, under the low E.
4. Read it. If the gauge slides through without touching the string, there's too much relief. If it lifts the string or won't fit, there's too little. If it just kisses the string, you're there.

Guitar	Starting relief	Where it's measured
Electric	.006" (0.15 mm)	6th fret, capo at 1, held at 12
Acoustic	.008" (0.20 mm)	6th fret, capo at 1, held at 12
Bass (4, 5 or 6 string)	.008" (0.20 mm)	6th fret, capo at 1, held at 12
Classical	.010" (0.25 mm)	6th fret, capo at 1, held at 12

These are MusicNomad's numbers. Fender and PRS measure a different way (capo at 1, string held at the last fret, gap read at the 8th fret), so their numbers are a little bigger. Pick one method and stay with it.

How to adjust it

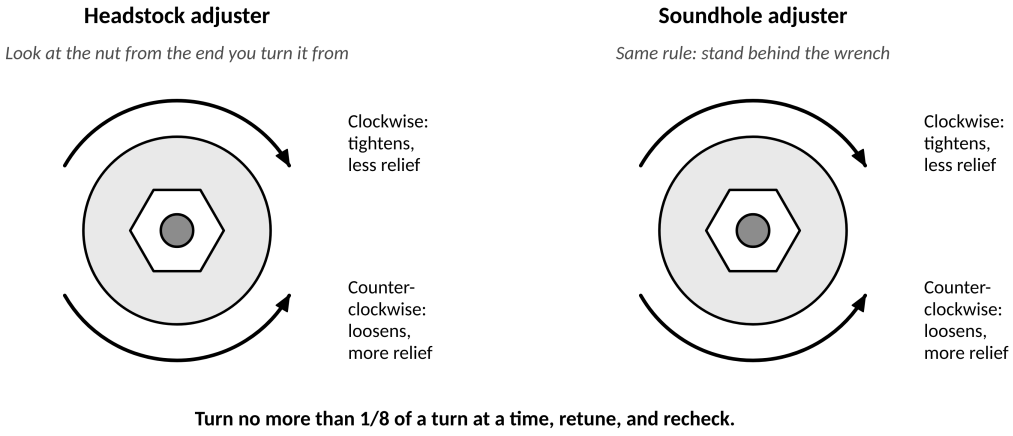


Figure 4. Truss rod direction, seen from the end you turn it from.

1. Find the truss rod nut. On most electrics it's at the headstock under a small cover. On many acoustics it's inside the soundhole. On some vintage-style Fenders it's at the heel of the neck, and reaching it means loosening or removing the neck. If you've never done that, let a tech make the adjustment.
2. Mark the nut's starting position with a dab of pencil or a bit of tape.
3. Stand behind the wrench. Clockwise tightens the rod and takes relief out. Counterclockwise loosens it and adds relief.
4. Turn no more than an eighth of a turn.
5. Retune, wait a few minutes, and measure again. Necks don't always move right away, so check again after a few hours.
6. Repeat until the gauge just kisses the string.

Caution: Never force a truss rod. If the nut won't turn with light, steady pressure, creaks, or you've gone a full turn with no change in the neck, stop and take the guitar to a tech. A stuck nut can shear off, and a broken rod is a major repair. Some makers, Martin among them, say truss rod adjustments belong with an authorized service center, so check your warranty first.

Step 2: String Height (Action)

What it is. Action is how high the strings sit above the frets. Low action is easier to play but buzzes sooner. High action is harder on your hands and can pull notes sharp. Many new guitars come with the action set high, so lowering it a little is often the biggest improvement you can make.

What you'll need: A tuner, a capo, a string action gauge or 6" steel rule, and the screwdriver or hex key that fits your saddles.

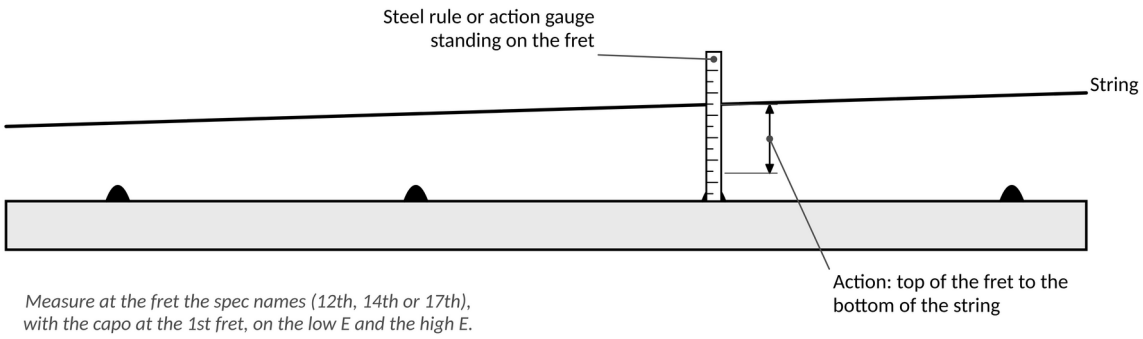


Figure 5. Action is the gap from the top of the fret to the bottom of the string.

How to measure it

1. With the relief set and the guitar tuned, put the capo at the first fret.
2. Stand the gauge or ruler on top of the 12th fret.
3. Read the gap from the top of the fret to the bottom of the low E string. Then do the high E.
4. Write both down.

Guitar	Bass side (low E)	Treble side (high E)	Measured at
Electric 6-string	.060" (1.5 mm)	.050" (1.25 mm)	12th fret, capo at 1
Acoustic	.090" (2.3 mm)	.075" (1.9 mm)	12th fret, capo at 1
Classical	.120" (3.0 mm)	.100" (2.5 mm)	12th fret, capo at 1
Bass 4-string	.085" (2.15 mm)	.075" (1.9 mm)	12th fret, capo at 1

These are MusicNomad's starting numbers. Fender measures electrics at the 17th fret and acoustics at the 14th, so a Fender number reads a little higher; compare like with like.

How to adjust it on an electric

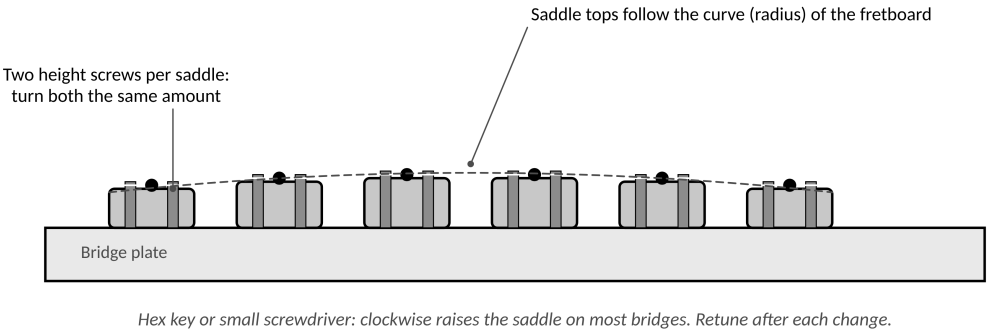


Figure 6. Each Strat-style saddle has two height screws; keep them even.

1. On a Strat or Tele style bridge, each saddle has two small height screws. Turn both screws the same amount so the saddle stays level.
2. Set the low E and high E first. Then set the four strings between them to follow the curve of the fretboard.
3. On a Gibson-style Tune-o-matic bridge, the whole bridge moves on two thumbwheels. Clockwise lowers it, counterclockwise raises it. If the wheels won't turn, slack the strings a little first.
4. Retune, measure, and play every string up the neck. If it buzzes, raise it a touch.

> **Tip:** Come down in small steps and play between each one. It's easier to find "just low enough" coming down slowly than to overshoot and climb back up.

Acoustic and classical guitars

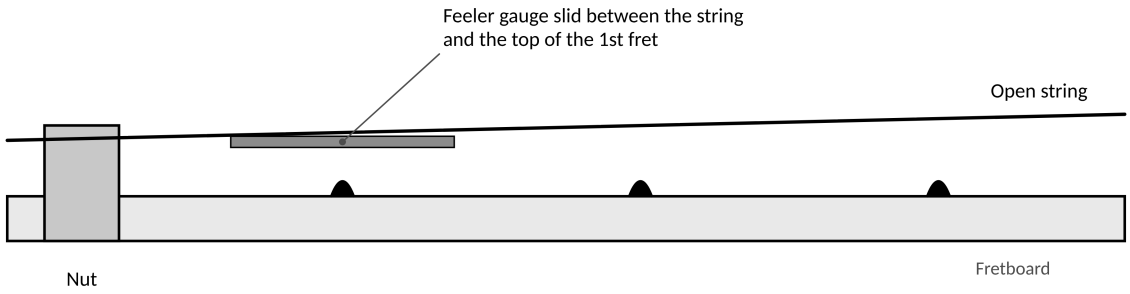
On most acoustics and classicals the saddle is a strip of bone or plastic in a slot, with no screws. Lowering the action means taking material off the bottom of the saddle, and the change at the 12th fret is only about half of what you take off. Take off too much and the only fix is a new saddle. If you've never done it, buy a spare saddle first or let a tech do it.

> **Caution:** Don't try to lower acoustic action by cranking the truss rod. The rod sets relief, not overall height. If an acoustic's action is very high and the saddle is already low in its slot, the guitar may need a neck reset. That's a job for a tech.

Step 3: Nut Height Check

What it is. The nut is the slotted strip at the headstock end of the fingerboard. Its slots set how high each string sits over the first fret. Slots cut too deep let the open strings buzz. Slots left too high make the first few frets hard to press and pull those notes sharp.

What you'll need: A tuner and feeler gauges.



Snug on both sides: about right. Loose: slot is high. Won't fit and the open string buzzes: slot is low.

Figure 7. Checking nut height with a feeler gauge over the first fret.

How to check it

1. Tune to pitch. No capo for this one.
2. Slide a feeler gauge between the top of the first fret and the bottom of each string.
3. Start with the number in the table for that string. The right gauge fits snug against both the fret and the string.
4. If it slides through loose, the slot is high. If it won't fit and the open string buzzes, the slot is too low.

Strings	Gap over the 1st fret
Low E and A	.020" (0.50 mm)
D and G	.018" (0.45 mm)
B and high E	.016" (0.40 mm)

These are MusicNomad's numbers for electric and acoustic guitars. StewMac's Fender-style numbers run lower on the plain strings, so treat these as a range, not one exact number.

Why this is a check only

Nut slots are filed with special gauged files, and the margin between right and too low is a few thousandths of an inch. One stroke too many and the fix is a new nut. If your check shows a problem, write it down and take it to a tech with your other numbers. If you want to learn the job yourself, *Guitar Care and Maintenance* (Chapter 18) shows how and where to stop.

Step 4: Intonation

What it is. Intonation is whether the notes you fret play in tune with the open string. Pressing a string down stretches it a tiny bit, and thick strings need a slightly longer working length than thin ones. That's why the saddles on an electric end up staggered instead of in a straight line.

What you'll need: Fresh strings, a good tuner, and the screwdriver or hex key that fits your intonation screws.

How to check it

1. Tune the open string exactly.
2. Play the harmonic at the 12th fret: touch the string lightly right over the fret wire and pick it. On an electric, use the middle pickup position with volume and tone all the way up.
3. Fret the same string at the 12th fret, pressing normally, and play it.
4. Compare the two on the tuner. If they match, that string is set. Move on to the next string.

Which way to move the saddle

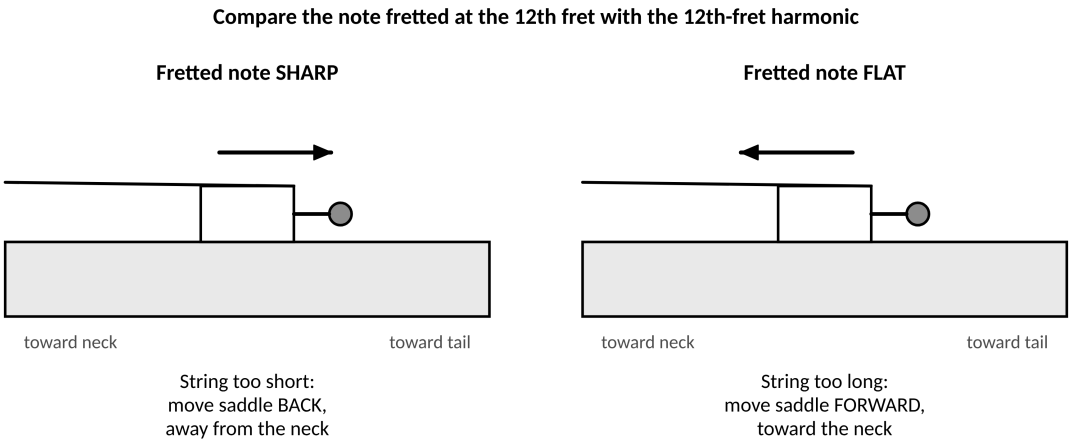


Figure 8. Which way to move an electric saddle for intonation.

Fretted note at the 12th is	The string is	Move the saddle
Sharp	Too short	Back, away from the neck
Flat	Too long	Forward, toward the neck

On most Fender-style bridges, turning the intonation screw clockwise pulls the saddle back. Slack the string a little before you move the saddle, then retune and check again. Repeat until the fretted note and the harmonic agree.

> **Tip:** Don't chase perfection. Every note on a guitar is a small compromise. Get it close on a good tuner and let your ears have the last word.

Acoustics are different

On most acoustics the saddle can't be moved. If an acoustic won't play in tune, rule out old strings, high action and a worn nut first. If it's still off, the fix is saddle or slot work by a tech.

Step 5: Pickup Height

What it is. Pickups are magnets, and how close they sit to the strings changes the sound. Closer gives more output and a brighter sound. Too close and the magnets pull on the strings, which makes notes warble and go out of tune high on the neck. Too far and the guitar sounds weak. This step is for electric guitars only.

What you'll need: A small steel ruler or action gauge and a screwdriver that fits the pickup screws.

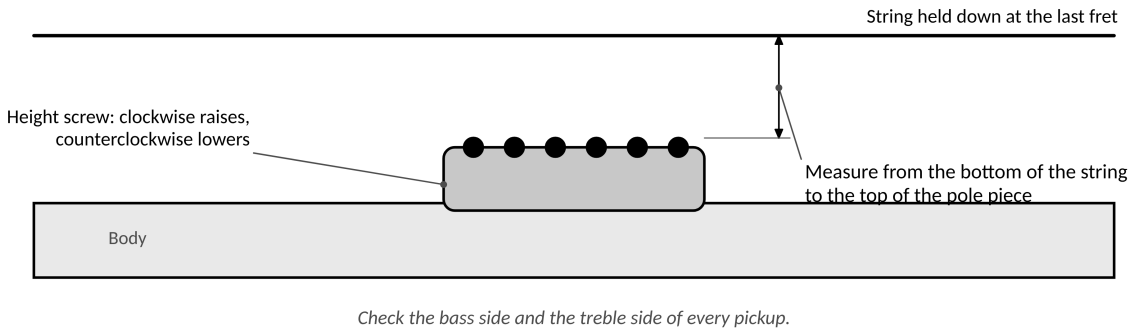


Figure 9. Pickup height is measured with the string held down at the last fret.

How to set it

1. Hold the low E and high E down at the last fret.
2. Measure from the bottom of the string to the top of the pole piece.
3. Do the bass side and the treble side of each pickup.
4. Turn the screws clockwise to raise the pickup and counterclockwise to lower it.
5. Plug in with volume and tone all the way up. Switch between pickups and balance them so they're about the same volume.

Pickup	Bass side	Treble side
Standard single-coil	5/64" (2 mm)	4/64" (1.6 mm)
Vintage-style single-coil	6/64" (2.4 mm)	5/64" (2 mm)
Humbucker	4/64" (1.6 mm)	4/64" (1.6 mm)

These are Fender's numbers. Heavier strings pull harder on the magnets, so they may need the pickups a little lower. If notes warble up near the 12th fret after you raise a pickup, it's too close. Lower it and recheck intonation.

Caution: On some Gibson-style pickups the height screws can pop out of their seat if you back them out too far, and the screwdriver can skid onto the top. Go slow and keep a hand on the tool.

Finish Up: Play Test and Cheat Sheet

Play test

Play every string at every fret, open chords, a few bends, and whatever you play most. Listen for buzz and feel for anything stiff. A little buzz you can only hear unplugged is normal on an electric. Buzz you hear through the amp means a step needs another look: usually the string height is a touch low, or the relief needs an eighth of a turn. Give the guitar a day, then check the relief and the tuning again.

Cheat sheet

Step	Tools	Starting number (electric)	Starting number (acoustic)	Turn which way
1. Relief	Capo, feeler gauges, truss rod wrench	.006" at the 6th fret	.008" at the 6th fret	Clockwise = less relief; 1/8 turn max
2. Action	Action gauge or ruler, screwdriver or hex key	.060" low E, .050" high E at the 12th	.090" low E, .075" high E at the 12th	Raise or lower saddles in small steps
3. Nut check	Feeler gauges	.020" / .018" / .016"	.020" / .018" / .016"	Check only; tech files
4. Intonation	Tuner, screwdriver	12th fret note = harmonic	Fixed saddle; tech if off	Sharp = saddle back; flat = saddle forward
5. Pickup height	Ruler, screwdriver	5/64" bass, 4/64" treble (standard single-coil)	Not used	Clockwise = up

Setup record

The next page is a setup record. Copy it for each guitar, or keep the same columns in a notebook.

Setup Record

Guitar: _____ Serial number: _____

Write the date and the strings every time, and the readings before and after.

Date	Strings	Relief	Action low E / high E	Nut OK?	Intonation done?	Pickups bass / treble	Notes

Tip: Write down the room humidity too if you have a hygrometer. Over a year it shows you how the seasons move your neck.

Glossary

Action. The height of the strings above the frets, usually measured at the 12th fret.

Feeler gauge. A thin metal blade of known thickness, used to measure small gaps such as neck relief and nut height.

Harmonic. A bell-like note made by touching a string lightly over a fret and picking it; the one at the 12th fret is an octave above the open string.

Intonation. How well a guitar plays in tune as you move up the neck.

Nut. The slotted strip at the headstock end of the fingerboard that holds the strings and sets their height over the first fret.

Pole piece. The magnet or steel slug under each string on a pickup.

Relief. The slight forward bow in a guitar neck under string tension.

Saddle. The part the strings rest on at the bridge end; it sets string height and intonation.

Setup. The group of adjustments that set how a guitar plays: neck relief, string height, nut height, intonation and pickup height.

String action gauge. A small metal ruler with string heights printed on it, used to measure action.

Truss rod. A steel rod inside the neck that is tightened or loosened to set relief.

Sources and Further Reading

These are the pages the numbers in this guide come from. Web addresses change, so if one stops working, search the site for the title. They are listed by section.

The Tools You Need

StewMac: eight tools for doing your own setups. https://www.stewmac.com/video-and-ideas/online-resources/learn-about-repair-tools-and-repair-techniques/do-your-own-setups-8-tools-you-need/

MusicNomad: guitar setup tools, including truss rod wrenches in several sizes, gauges and screwdrivers. https://musicnomadcare.com/product-category/guitar-setup-tools/

MusicNomad: a list of setup tools and a truss rod wrench finder covering over 75 brands. https://musicnomadcare.com/guides/the-complete-setup-guide-for-electric-acoustic-bass-and-classical-guitars/

Step 1: Neck Relief

MusicNomad: measuring neck relief, typical figures by guitar type, and adjusting the truss rod safely. https://musicnomadcare.com/guides/the-complete-guide-to-guitar-neck-relief/

Fender: factory specs for relief, string height and pickup height, given as minimums. https://support.fender.com/en-us/knowledgebase/article/KA-02007

PRS: relief of .005" to .010" at the 8th fret and 1/8 turn adjustments. https://support.prsguitars.com/hc/en-us/articles/51636464576411-How-to-Set-Up-a-PRS-Guitar-Step-by-Step

StewMac: truss rod adjustment in small turns, letting the neck settle. https://www.stewmac.com/video-and-ideas/online-resources/learn-about-truss-rod-installation-and-repair/dont-be-nervous-about-adjusting-that-truss-rod/

Step 2: String Height (Action)

MusicNomad: measuring and adjusting action at the 12th fret, with typical figures by guitar type. https://musicnomadcare.com/guides/the-complete-guide-to-string-action-height/

StewMac: adjusting acoustic action at the saddle. https://www.stewmac.com/video-and-ideas/online-resources/learn-about-string-action-and-setup/how-to-adjust-the-action-on-an-acoustic-guitar-/

Taylor (John LeVan): why setup order matters, and a warning against DIY neck resets. https://blog.taylorguitars.com/acoustic-guitar-setup-workshop-with-john-levan

Step 3: Nut Height Check

MusicNomad: measuring nut height at the first fret, signs it is wrong, and when to see a luthier. https://musicnomadcare.com/guides/the-complete-guide-to-guitar-nut-height/

StewMac: setup order and nut slot heights for wound and plain strings. https://www.stewmac.com/video-and-ideas/online-resources/learn-about-building-instruments-and-kits/electric-guitar-and-bass-assembly-guide-part-5-setup/

Step 4: Intonation

MusicNomad: checking and adjusting intonation, and why acoustic saddles can't move. https://musicnomadcare.com/guides/the-complete-guide-to-guitar-intonation/

Fender: check intonation after every string change. https://support.fender.com/hc/en-us/articles/42584627801243-How-do-I-intonate-my-instrument

Step 5: Pickup Height

MusicNomad: measuring and setting pickup height, with cautions. https://musicnomadcare.com/guides/the-complete-guide-to-guitar-pickup-height/

Fender: setting relief, truss rod direction, intonation and pickup heights.
https://support.fender.com/hc/en-us/articles/42584764005019-How-do-I-set-up-my-Stratocaster-guitar-properly

About This Book

This short guide takes you through a basic guitar setup in the order a tech does it: neck relief, string height, a nut check, intonation and pickup height. Each step tells you what it is, what tools you need, how to measure it, the starting numbers from the guitar makers, and how to adjust it safely. A cheat sheet and a setup record you can fill in are at the end.

It is written for players who have never set up a guitar before. The numbers match Chapter 12 of Guitar Care and Maintenance, which goes deeper on every step and covers fret buzz, nut work and the other jobs this guide leaves to a tech.