



## Bass Setup Instructions from Roger Sadowsky

"I'd like to take this opportunity to share with you my approach to setting up a bass. I've always felt that bass players should be able to do basic maintenance on their own instruments. It's not rocket science! I'm going to go over the basic tools, and the basic order in which to approach things with the goal of you being able to maintain your basses for routine maintenance."

### Basic Tools Needed for Setup:

- Soft, level, clean work surface with a towel, mat, or any other soft layer that won't scratch the instrument's finish.
- Some sort of neck support to hold the neck steady and protect the instrument and surface when the instrument is face down.
- Phillips head screwdriver.
- Tuner: any tuner is fine for regular tuning. To adjust intonation, it's best to use a strobe tuner. There are many options available including an Peterson strobe tuner app for your phone.
- Action gauge or 6-inch ruler.
- Allen wrenches for the bridge (and for the truss rod if you have a headstock truss rod).

### Basic Setup Steps and the Order in Which to Do Them

**Step One: tightening the neck bolts/strap buttons:** "If you have a bolt-on instrument, you need to tighten the neck bolts. This is one step that everybody overlooks, including myself. But it is the first thing that you should do. They come loose over time and it's important to stability and sound that they be tight."

- Rest the instrument face down and use your phillips screwdriver to tighten the bolts.
- Tip: whenever you are using a screwdriver on an instrument, put your fingers around the head of the screwdriver to hold it in place. That way, if the screwdriver slips out of the top of the screw, you won't scratch the finish or dent the wood.
- Tighten the neck bolts to "finger tightness." Don't use an electric drill or screwdriver as that much force can lead to over tightening and damage the wood.
- While you are at it, tighten the strap buttons. They tend to come loose over time as well.

**Step Two: tune up:** “It’s important that the instrument be at pitch when you adjust the truss rod. Currently, I use a Peterson clip-on strobe tuner for basic tuning, but you can use whatever tuner you have. For regular tuning, any tuner is fine, I’m just fussy about a strobe tuner for adjusting intonation.”

**Step Three: adjusting the truss rod:** “I know from experience that a lot of you are terrified of adjusting truss rods. Relax! It’s very difficult to break a truss rod. The hardest thing to learn is when to know that your neck is properly adjusted.”

**Why you need to adjust the truss rod 1-2 times a year:** “The neck moves as a function, primarily, of humidity changes. It’s less about temperature and more about humidity. In temperate climates, when the heat goes on towards the end of the year, the neck has a tendency to move one way or another. Likewise, when the heat and humidity of the summer occurs, your neck may move. So, it’s totally normal to adjust your neck at least twice a year as a result of seasonal changes.”

**How you know that you need to loosen your truss rod:** “One of the ways you’ll know that you need to adjust your truss rod: you’ll get buzzing in the first position/first few frets and not further up the neck. This indicates that the neck is backbowed a bit (upside down U shape) and needs to be loosened.”

**How you know that you need to tighten your truss rod:** “If your intonation is really off in the first position/first few frets, that may mean that it is upbowed (regular U shape) and there’s too much relief/curve which is raising the height of the strings above the first fret too much. Also, if you start getting buzzing in the 7-12th fret range, it’s an indication that you have developed a high spot relative to the 12-15th fret area and there’s too much curve in the neck. The solution for both issues is to tighten the truss rod.”

**Overall goal:** “While some instruments play better when the neck is slightly back bowed, I have had the best success with the neck essentially dead flat.”

#### **How to check and adjust the truss rod:**

- Rest the bottom end of the instrument on your padded workspace and put the headstock over your shoulder so that you can clearly see down the neck from nut to bridge via the lower outer string (B or E).
- Use this outer string as your straightedge to see the current curvature of the neck and judge if it’s back bowed (upside down U shape), upbowed (regular U shape), or flat (even along the length of the string) so that you can determine a course of action.
- To use the string as a straightedge, you’ll “create” a straight line along the neck by holding the string down at the 1st and 12th fret. This creates a straight edge relative to the neck that allows you to see curve in the neck.
- When doing this, focus your eye to see the curve/gap right around the 7th fret (around the middle point of the curve of the neck). You can see the curve, but you can also “feel” and better see it by lightly tapping on the 7th fret (with the same hand that is holding down 12th fret) to see how much the string moves.
- You’ll be able to tell what kind of curve you’re working with and how big it is by tapping at the 7th fret. You just want a touch of light to come through—you really don’t need a big gap there at all. If you can slip a thick business card in this space, you probably have a little too much relief.
- Depending on brightness and position of the light in your workspace, shadows, and the physical awkwardness of holding the bass in this position, it can be hard to see the curve. We often have to move the neck around to manipulate the light/look at the string from different angles to actually see the space there.

- A lot of space will indicate a back bow, no space is likely an upbow, and an even amount across the string straight edge will indicate a flat neck.
- Now, you'll want to tighten or loosen the truss rod depending on your findings. All truss rods work in the same direction: If you have too much bow and need to tighten the truss rod, you'll want to turn the truss rod clockwise, towards the G string/bottom horn of the instrument. If your neck is back bowed and you want to loosen the truss rod, you'll want to turn the truss rod counterclockwise, towards the lower E or B strings/top horn of the instrument.
- Sadowsky basses have a spoke wheel for adjustments at the base of the fretboard. Use our truss rod adjustment tool, or any similar, smooth metal object. Insert it through both ends of the spoke wheel and then turn it either clockwise or counterclockwise.
- Other basses may have a truss rod at the headstock. You'll need to find the appropriate hex wrench that fits, but otherwise, the steps are the same.
- Only turn the truss rod  $\frac{1}{8}$ "- $\frac{1}{4}$ " of an inch at a time before retuning and looking back down the neck to assess movement. You may have to do this a few times to get things where you want them.
- If, after you have adjusted the neck, you find that you get buzzing on the first, second, or third fret, that is a sign that you may have overtightened the rod and you just want to loosen it up a little bit—just to the point where it clears up the buzzing. If you have buzzing in the 7-12th fret area, the truss rod may be too loose and need tightening.
- Remember that the wood in your neck will need time to adjust to the new adjustments. After a day or so, you'll want to check the neck curve again to see how the wood has settled and may need to make further adjustments. This is completely normal. Be patient with the process.

**Step Four: adjusting the action:** “Whenever I measure action, I always hold down the string at the first fret and then measure the distance between the top of the fret and the bottom of the string at the 12th fret. I hold it down at the 1st fret to eliminate any effect the nut has on the height of the string.”

- Note: See full setup specs below.
- Most basses have a different height adjustment for each saddle. Some basses are more like a tune o'matic style with one adjustment for the bass and treble side with a fixed curve. But most bridges allow you to adjust each string individually, not only for height but to maintain a curvature that matches the curve of the fingerboard.
- I generally start by setting the G to  $2/32$ " and B or E to  $3/32$ ". I do this by raising or lowering the allen screws in the bridge. Use your ruler to measure the gap under the 12th fret while still holding down the first fret. Just as with adjusting the truss rod, you may need to move the bass around to get the right light to see the measurement on the ruler.
- When you adjust the saddles, keep the bottom of the saddle parallel to the bottom of the bridge. You don't need to try to adjust the saddle to the curve of the fingerboard. Just keep it straight and don't have one side high and the other low. They should be even.
- Once you dial in those two measurements on the outer strings, you want to make each string a little higher than the last. You want the D string to be just a little bit higher than the G, the A string to be just a little higher than the D, the E string to be just a little higher than the A, and the B string just a little bit higher than the E.
- The only time I've seen players have action as high as  $4/32$ " to  $3/32$ " was back in the 80's when the instruments weren't as high quality or were in need of fretwork and restringing. The action was very high to compensate so that they would be able to play cleanly.
- The only players that I've found can go lower than 2-3 have been some of the latin and funk players who play with a very very light right hand touch. For players who need to articulate and play cleanly, I'd say 2-3 at the lowest and the highest you'd go is 3-4.

**Step Five: adjusting the intonation:** “This is an area where I really like to use strobe tuners. You can approximate the intonation with a needle or digital type tuner, but nothing is as accurate as a strobe tuner. It’s a good investment and you can also get a Peterson Strobe Tuner app for your phone which is about \$10 and just as good.”

- The first thing you want to do is get a reference note, the note that you tune to. You can use the open string or the 12th fret harmonic, whatever gives you the clearest reading on your tuner. Play that note and make sure that the string is properly tuned.
- Then, compare that reference note to the note at the 12th fret on your neck. Pluck the string at a normal amount of playing pressure, the same as you would use if you were playing the instrument.
- To ensure accuracy, you want to hold the instrument as if you are playing it. If you try to compare the two notes and adjust them while the instrument is laying down on your work surface, it won’t be as accurate.
- If your 12th fret note is flat relative to your reference note, bring the saddle front closer to the neck.
- If your 12th fret note is sharp compared to your reference note, you’ll want to pull your saddle back from the neck.
- To adjust the intonation, most bridges will use a phillips head screwdriver. Loosen or tighten the screw depending on if you need to move the saddle closer or further away from the front of the bass.
- Also, push the screw a bit forward with the screwdriver after the first adjustment as it tends to develop some slack. This should alleviate that. Overall, visually assess the adjustment screw to make sure that it’s not sticking out from the base of the bridge in any way or hung up on the ball end of your string. You want the screw to lay as flush as the bridge design allows.
- Afterwards, retune your reference note and play the octave again to see if the note is sharp or flat. You may have to repeat this process a few times to get the intonation set correctly. This is normal.
- Repeat this process for each string.

**Once you’re done with intonation, you are all done with your setup. Go ahead and make some music!**

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## Roger's Full Setup Specs

### SADOWSKY RECOMMENDED SETUP SPECIFICATIONS

#### Pickup height

Hold string down at last fret

Measure from bottom of string to top of pole piece

#### **NYC Custom Built and Satin 5 strings:**

G string:

3/32" (2.38mm)

E or B strings

4/32" (3.17mm)

#### **MetroLine/MetroExpress/Satin 4 strings**

2/32" (1.59mm)

3/32" (2.38mm)

**For P-J basses:**

Set the bridge pickup to the suggested height. Then adjust the P until you are happy with the balance between the two. The P pickup will always have more output than the J pickup.

**Action Specs**

Hold string down at first fret

Measure from bottom of string to top of 12th fret

**LOW:**

G 2/32" (1.59mm)

B 3/32" (2.38mm)

**MED:**

G 5/64" (1.98mm)

B 7/64" (2.78mm)

**HIGH:**

G 3/32" (2.38mm)

B 4/32" (3.17mm)

**Note:**

"The Dimarzio HC pickups I used in early NYCs and all MetroLine and MetroExpress basses have lower magnetic pull and can be closer to the strings."

The NYC Satin Series 5 string pickups as well as NYC basses over the last 10+ years have full strength magnets (single coil and hc) and should be a bit farther away from the strings."

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