

# HOW TO REPLACE GUITAR STRINGS

Guidelines for fitting and tuning new strings on your solid body electric guitar.

## OVERVIEW

Your guitar will sound and perform its best if you replace your strings regularly. Many professional guitarists restring their instruments before every performance – For most players, changing strings every few months is recommended.

These guidelines will show you how to choose the right strings for your playing style, remove and replace your strings safely and tune your instrument to the Standard (E-A-D-G-B-E) Tuning.

## ABOUT THESE INSTRUCTIONS

These steps are designed for the beginning to intermediate level player or guitar tech. It assumes a basic knowledge of music terminology and notation, i.e. octaves and scales.

## GUITAR BASICS

There are a wide variety of guitar styles, makes and models, but the basic types are:

- Acoustic vs. Electric
- Open vs. Solid Body
- Six-String vs. Twelve String

These instructions are demonstrated on a **six string, solid body electric guitars (Figure 1-2)** but are

Figure 1 – Solid Body Electric Guitar – Front



Figure 2 - Solid Body Electric Guitar - Back



generally applicable to any acoustic or electric guitar, and other types of stringed instruments as well.

## PARTS OF THE GUITAR

Before we begin, let us look over our guitar and explore the various parts and components to which we will be referring over the course of these steps.

The **BODY (Figure 3)** includes the

- Tailpiece
- Pickups
- Volume and Tone Control Knobs

The **NECK (Figure 4)** includes the

- Fret board
- Frets
- Nut (Truss board)

The **HEAD (Figure 5)** includes the

- Tuning Heads
  - Capstans (Pins)
  - Buttons
- Sting Guides (Some Models)

## TOOLS YOU WILL NEED

- **Phillips Head Screwdriver**
  - **Wire Cutter or Pliers**
  - **Stringwinder** (Optional)
  - **Guitar Tuner**, or alternative
- We will cover Tuners in a later section

Figure 3 – Electric Guitar Body (Detail)

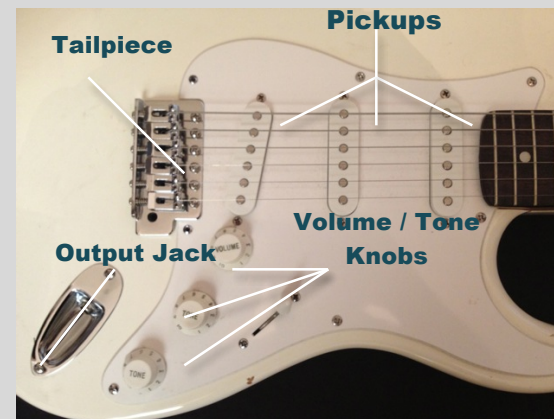


Figure 4 – Neck and Head

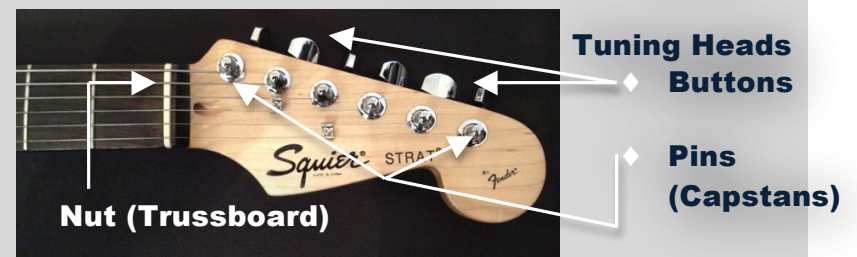
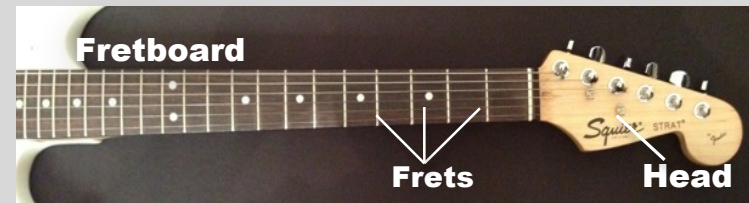


Figure 5 – Head (Detail)

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## STEPS:

### 1. REMOVE THE OLD STRINGS

- Note the direction in which each string is wound around the **Tuning Head Capstan, or Pin.**  
**Fig. 6**
- Loosen each string by cranking its Tuner Head in the opposite direction until it is slack but still connected.

It is ideal to loosen all the strings at the same time. Unwind each string several turns at a time, moving down the neck and repeat, maintaining a steady pace to release tension evenly across the neck.

A **Stringwinder (Fig. 7)** is a simple plastic device that makes winding strings faster and more efficient. Slip the slotted head over the Tuner Button and crank the handle around it.

- On some solid body guitar models the strings are set into a **Tailpiece** mounted on the guitar

Figure 6 – Tuning Head Capstans (Detail)



Figure 7 – Use of a STRINGWINDER



face. If you have this type, skip ahead to the next step.

If the strings on your guitar are threaded inside the body, you must first remove the rear panel.

- Flip your guitar over and lay it string side down
- Unscrew the rear access panel (**Fig. 8a-b**) and remove it.
- 
- Continue to loosen, or *De-Tune*, the string until you are able to remove it from the pin.

Hold the string near the end of the neck as you make the last few turns. You might need to bend the end of the string with your fingers to thread it through the hole.

- Carefully thread the string out through the body or tailpiece and discard it.
- Remove the remaining strings, one by one.

### **WARNING**

Guitar Strings, especially steel strings, have sharp edges and can break and snap back during installation, causing injury. The lighter, treble strings are especially susceptible to breakage if tightened too rapidly. Always exercise caution when handling guitar strings.

**Figure 8a – Rear access panel on Fender Stratocaster.**



**Figure 8b – Interior string fitting exposed.**



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## 2. PREPARE TO INSTALL THE NEW STRINGS

- Open the new string packet and remove the six individual sleeves.

Each sleeve is labeled with the diameter of the string. **(Fig. 9)**

- Arrange the string sleeves in diameter from the largest gage (this will be the Sixth, or Low-E string), to the smallest (First, or High-E string).

## 3. INSTALL THE STRINGS

Begin with the 6<sup>th</sup> String – this is the largest and heaviest gage.

- Remove the string from its sleeve.
- Uncoil the string and lay it flat, take care to avoid bends and kinks.
- Insert the bare end of the string through the Body or Tailpiece, at the top position (facing toward the player.) **(Fig. 10)**

Figure 9 – Steel Electric Strings, sold and labeled by GAGE, or DIAMETER.



Guitar strings come in Steel and Nylon and are sold by **gage**, or weight. The lighter the string, the easier it is to bend.

Acoustic guitars may use **Nylon** or **Steel** strings. Never use nylon acoustic strings on an electric guitar.



Figure 10 – Thread string through body end.

Most steel strings have a ball or knob on the end that is set into the head fitting. Nylon strings lack this end, and are looped and tied at the head.

- Thread the string through the hole until the knob or ball end sets into position.
- Lay the string across the pickups and the neck.

Note the narrow bar at the end of the Fret Board, called the Nut or Trussboard. It has six grooves, one for each string. **(Fig. 11)**

- Insert the end of the string into the hole in the Tuning Head capstan and pull it through, leaving some slack.
- Holding the string steady in your left hand, crank the Tuner Head until the string is taut (but not tight) and fits snugly in the groove.

It may take some practice to get this step right. The string should wrap two or three times around the pin. You should end up with a few inches of loose string sticking out of the end.

Great job. You have installed your first string. Your guitar should look like **[Figure 12]**

- Clip off the loose end of the string with wire cutters or pliers to make it neat.
- Repeat for the remaining strings. Go in order down the neck, from 5<sup>th</sup> to 1<sup>st</sup> string.

**Figure 11 – Attach the Sixth String and Tighten.**



**Figure 11 – Sixth String installed. Continue with strings 5 – 1.**



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Once again, always tighten new strings at a slow and steady pace, and allow them to stretch before attempting to tune. Guitar strings are sharp and over or too-rapid tightening can cause them to break and snap back.

**Great job. You have successfully restrung your guitar. Now we can get in tune.**

## 4. TUNING THE STRINGS

An **Electronic Guitar Tuner (Fig. 13)** is the most precise instrument for determining pitch. It analyses the frequency of a strummed note, via onboard microphone and/or direct input and displays the precise pitch, allowing the player to fine tune the string.

A wide variety of tuners are available with varying options and features. A growing number of Apps for mobile devices perform many of the same functions.

**Figure 13 – Electric Guitar Tuner**



There are also a number of alternate options and tools you can use to determining pitch, including:

- **Tuning Fork (Fig. 14)**
  - **Pitch Pipe**
  - **Another in-tune instrument, like a piano.**
- Tune the Sixth sting to (Low) E.
    - Use the tuner to determine correct "E" pitch
    - Slowly wind the tuner head to tighten the string, strumming the note intermittently until you are close to E.
    - Using the tuner (and your ear), fine-tune the string until the pitch is spot on.
  - Following the same steps, tune the Fifth string to an "A".
  - Go back and fine-tune the sixth string again if necessary. Repeat this step after you initially tune each subsequent string.
  - Tune the Fourth string to "D"
  - Tune the Third string to "G"
  - Tune the Second String to "B"

Figure 14 – Tuning Fork



When vibrated, a Tuning Fork rings out a pre-set, calibrated tone which can be used to tune a particular string (i.e. E or A) The remaining strings are then tuned to that one.



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- Tune the First string to "E" again. This is your High-E string, and is exactly two octaves above the Low E.

This configuration [ **E - A - D - G - B - E** ] is known as **STANDARD TUNING**.

Note that in Standard Tuning, each ascending string is Three **Full-Tones (notes)** higher than its predecessor, except for the interval between the Third and Second string, which is Two full tones (G-B).

- Go back and re-tune each string in sequence until all six strings are in perfect pitch.

New strings tend to fall out of tune frequently before they have a chance to 'stretch' and may require a fair amount of tweaking before remaining perfectly in tune. Feeling frustrated yet? **Don't give up now, for we are in the home stretch!**

## SINGLE STRING TUNING

Another way to tune your guitar.

It is possible to tune only one string (Using a Tuning Fork, for example), and then tune the remaining strings to that one.

You can **fret** each string to play a matching note to the Open (unfretted) string immediately below it.

Hold down the sixth string at the fifth fret to play an "A" note, then strum the Open fifth string and adjust until both notes sound alike. Obviously one of the strings must initially be in tune for this to work.

Continue down the neck according to the chart below.

| FRET | PLAY OPEN |
|------|-----------|
| (5)  | x-E       |
| (5)  | x-A       |
| (5)  | x-D       |
| (4)  | x-G       |
| (5)  | x-B       |
|      | x-E       |

## **ALTERNATIVE TUNINGS**

Experienced guitarists have developed an infinite variety of **alternative tunings** to suit their unique compositions, sounds and playing styles. As you grow in skills and confidence as a musician you may want to experiment with some of these established tunings and perhaps even devise a few of your own.

## **FINAL NOTES**

Congratulations! You have successfully installed your new strings, tuned your guitar to the STANDARD TUNING [ E-A-D-G-B-E ], and are ready to play.

There are a plethora of ways to customize, adjust and intone your instrument to your personal liking and playing style

Now plug in, turn it up to eleven, and...

# **ROCK AND ROLL.**