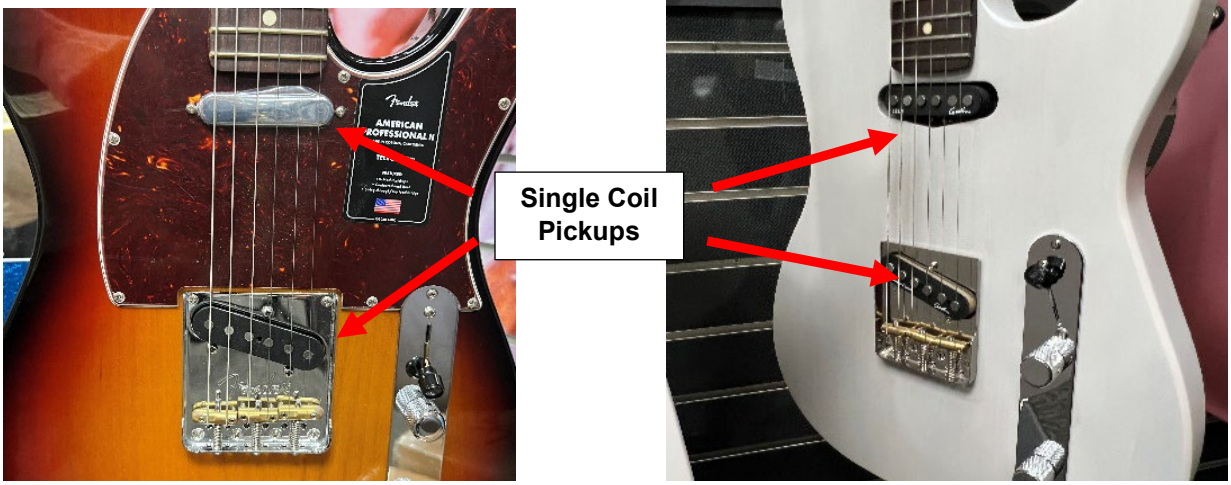
Guitar Pickups – The Basics

Most pickups used in Electric Guitar and Bass Guitars are magnetic and use electromagnetic induction. This is a process that converts mechanical vibrations of the guitar / bass strings (which are metal strings) into electrical signals. There are basically two categories of guitar pickups: Single Coil and Humbucker (dual-coil) pickups. These are the most common pickups used with Electric Guitars and Bass Guitars.

Single Coil Pickups

This type of pickup produces "brighter" tones. Many Single Coil pickups have a "natural" 60Hz hum about them. There most current designs on Single Coil pickups eventually solved the "hum and buzz" issues that were inherent in these pickups.

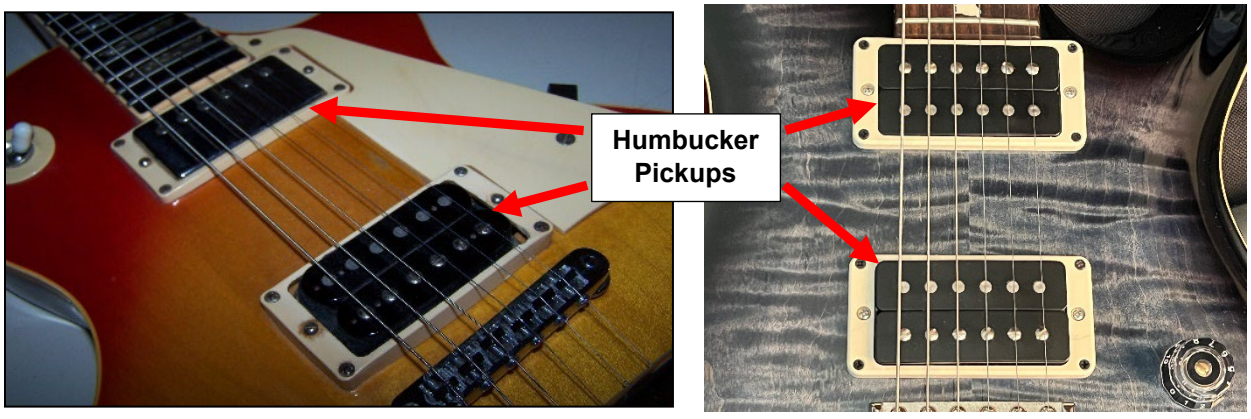
Fender Stratocasters / Telecasters / PRS are some of the most famous guitars that use Single Coil Pickups.



Humbucker Dual-Coil Pickups

Humbucker pickups are basically built with two Single Coil pickups. They are wound in "reverse" polarity which helps "cancel out" the 60Hz hum created by Single Coil pickups. Humbuckers have a higher output capacity than Single Coil pickups, and can produce stronger frequencies when used on Bass Guitars.

Gibson Les Paul's / SG / PRS guitars are some of the most famous guitars that use Humbucker Dual-Coil Pickups.



Active and Passive Pickups

The majority of the guitar pickups that we have discussed up to this point are "Passive" types. The Fender Stratocaster (Single Coil) and the Gibson Les Paul (Humbuckers) do not require any power to operate. The majority of Guitars and Bass Guitars sound best using Passive pickups.

Active pickups have higher-output properties, and can be Single Coil or Humbucker Dual-Coil types. The most popular company that manufactures Active Pickups is EMG.

Other Notes:

- **There are some guitar manufacturers that build guitars with both "Single Coil" and "Humbucker" pickups.**
- **Most guitar manufacturers make their own pickups, but there are companies that solely build pickup with the most popular being Seymour Duncan.**

Standard Acoustic Guitars

Standard Acoustic guitars that do not have pickups can easily be heard in smaller rooms, but for larger spaces they will need some sort of amplification. These "Non-Electric" Acoustic guitars are usually "amplified" in a few different ways:

1. **Using a microphone that's plugged into the PA Systems Mixing Board (Microphone Input).**
2. **Using a Direct Box (DI) with a built-in Pre-Amp and plugging into a "Line" input on the Mixing Board.**

Acoustic-Electric Guitar Pickups

There are a few categories of Acoustic-Electric Guitar Pickups – Magnetic, Piezo, and Microphone.

- **Magnetic Pickups are similar to the pickups on Electric Guitars – they sense the vibrations of the guitar strings and converts them into electrical signals.**
- **Piezo Pickups are mounted under the Bridge of the guitar or attached to the body of the guitar, and detects the changes in pressure that is created by the string vibrations. Piezo Pickups are said to have a more "natural" sound than Magnetic Pickups.**
- **Microphone type Pickups are actually a type of Condenser Microphone mounted inside the Guitar. Condenser Microphones provide Rich, Warm tones that sound very close to the Guitars natural tones.**

Typical Acoustic-Electric "Control" panel. Acoustic-Electric guitars use "Active" pickups and will need the battery (AA or 9V) replaced periodically. The battery is usually "housed" inside (behind) the control panel.

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