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THE ELECTRIC BASS WORKSHOP



**EVERYTHING YOU NEED TO KNOW TO EASILY
ASSEMBLE, REPAIR, MODIFY AND ADJUST YOUR
INSTRUMENT**

WITH ATTACHED VIDEOS

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The Electric Bass Workshop

All you need to know about assembling, choosing, modifying and repairing a bass guitar.

Preface:

I'm not a luthier! I just have a lot (really a lot!) of experience in this field, and the huge passion for "do-it-yourself" has also contributed on my knowledge of the basics to make a good setup, and for several modifications and "adaptations" of my instrument! So, I want to be honest, if someone decides or will decide to take a cue from this "personal guide" for the maintenance and customization of the bass, please note that I am not Fender, nor Yamaha, Ibanez and not even a real luthier with thirty years experience! I'm only a 36 year old musician, who has been playing bass for 22 years and disassembling and reassembling for as many!!!

I apologize for some probable translation errors, I am Italian

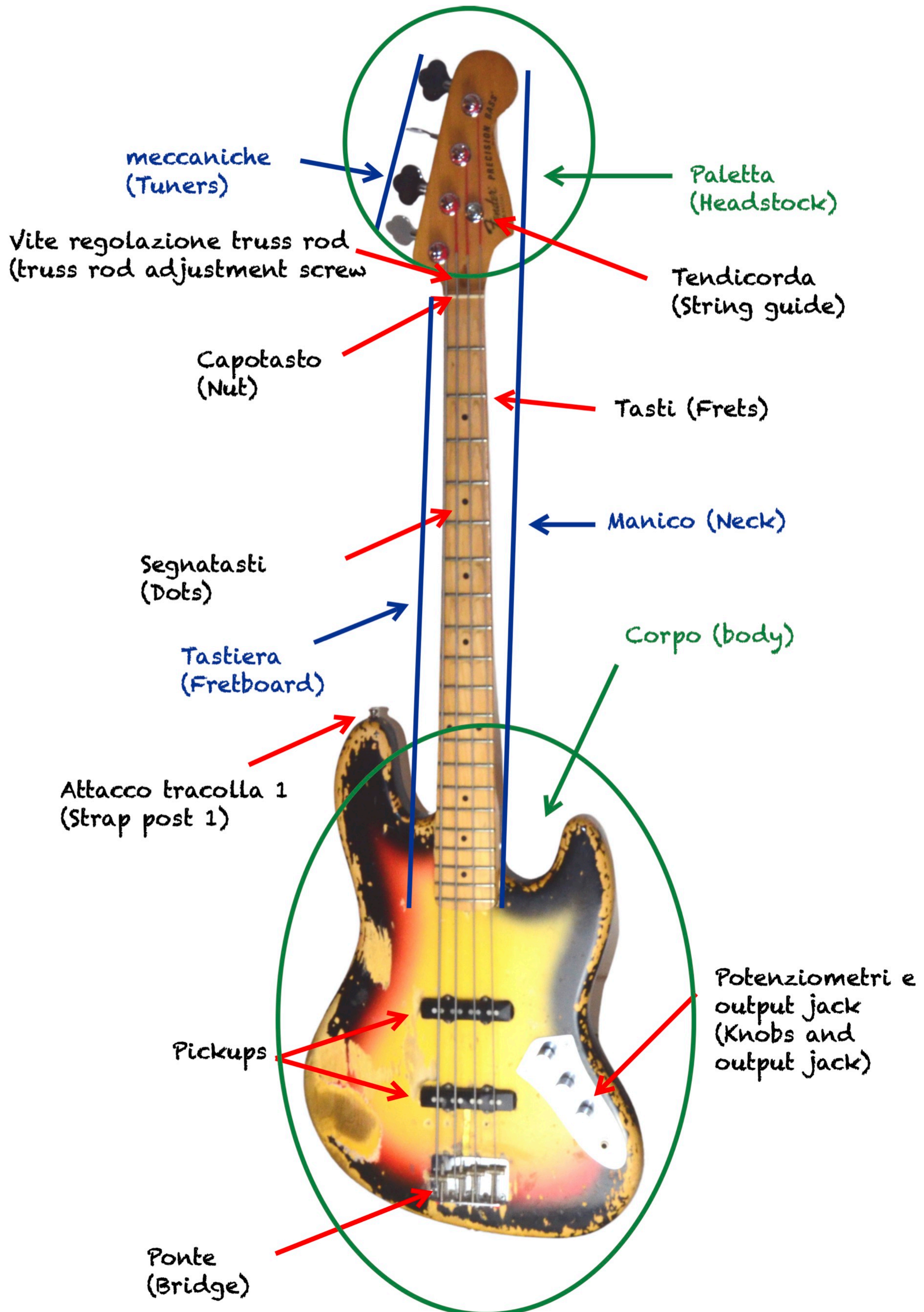
First advice!:

The first piece of advice is not to follow my advice!!! Joking aside, the most valuable one I can give you is to "experiment" on cheap stuff if you have the chance, before doing any damage on valuable and expensive stuff (obviously I did a lot of that as a kid!). If I were 15 again, I'd buy a used bass for 100 euros and use it as a "guinea pig" for my cravings to take apart everything in the world 😄.

Unfortunately I'm more than twice as old, and by now the damage has been done, but at least by making mistakes I've learned (thank goodness!) a lot of useful things, which allow me not to go to the luthier anymore (except for very difficult interventions).

- All videos attached to this [Link](#)

"Anatomy of the bass:





- Humbucker pickups

Because of the noise of single coils, humbuckers were invented (the name comes from the expression "buck the hum" which translated means "to reverse the hum"). These are the classic pickups that we find on Music Man basses, for example. Unlike single coils, the humbucker pickup is characterised by two coils working together. The polarity of the magnets and the direction of the winding are opposite to each other, and it is this characteristic that eliminates noise. In practice, signals induced in both coils of the same amplitude but opposite phase, typically noise, hum, etc., are added together and tend to cancel each other out. Using two coils instead of one not only solves the noise problem, but also doubles the signal strength. However, the resulting sound is fuller and less bright than a single coil pickup. This is also due to the fact that the sound is picked up in a larger portion of the string with a detection of more harmonics.

By connecting the two coils in series we will have a sound characterised by few high frequencies and many medium and low frequencies.

Connecting the coils in parallel we will have a sound characterized by many high and low frequencies and few middles.

Here are two pictures of humbucker pickups (Seymour Duncan SMB-5A model to be precise).

Potentiometers:

Potentiometers can generally be of two types, logarithmic or linear. There is a lot of confusion about this, but in general we can say that the linear potentiometer increases values (take volume for example) in a constant way. To wit. If we turn the potentiometer by a certain amount, this decreases or increases the volume by a certain decibel. And this always. Regardless of the starting point of the potentiometer. For the logarithmic potentiometer, let's say we have the volume at maximum. If we try to decrease the volume, it drops a little. But from a certain value onwards (more or less halfway) the volume drops to zero very quickly. Generally the abbreviation A = LOGARITHIC and B = LINEAR. They can also be of different values, 250 - 500 kOhm etc. I have always used the 250 potentiometers.

Linears



Logarithmic



Shielding the Bass

(See attached video)

If you own basses with humbucker, split coil etc. pickups, you shouldn't have problems with "noise" and interference with the instrument. If, however, among your equipment there are also basses with single coil (the classic pickups of Fender Jazz or similar), these problems are very common, (see the chapter on the electrical part of the bass) and, on certain occasions, can become a serious problem (concerts, recording studios, etc.). In this case I can speak from direct experience, as my main basses are Fender Jazz. Although I am not a bass player with a career let's say "important", I have been fortunate enough to play a lot over the years, and to perform on virtually every type of stage, from the smallest in the world, where if you turn you give a shovel to the singer (happened several times!), to very large situations (stage of Ariston for example).

And I assure you that being on soundcheck in Sanremo with a bass that also picks up Radio Maria (a famous Italian radio!) is not a good thing (even if you are a fan of that radio!). I'm obviously exaggerating a bit, but the noisy bass for many years has been a big problem for me that, as mentioned, I was always playing around. How did I solve it? I took my Jazz and lit a fire with it! Joking aside, one day I tried so-called shielding, and, believe it or not, in the last 6/7 years that I can remember, I have never had any kind of problem again. Obviously shielding does not turn single coil pickups into split coils, the "natural" noise of this type of coils, as explained in the dedicated chapter, is just a "physical" matter of the coils in question, but all the "external" signals, and various disturbances, with a good shielding are reduced incredibly (I repeat, I speak from personal experience).

What is shielding?

As we have seen previously, the functioning of the bass (and guitars) is based on electromagnetic induction (Faraday's law). In a nutshell, pickups, which are nothing more than a coil of wire on a magnet (magnetic core), work in this way. When we make the strings vibrate, a voltage is produced in the coil by induction, amplifying this voltage will produce the signal of our instrument. This wonderful invention, however, is extremely sensitive, and very often the coils also capture hum, noise and anything else. The great and ever increasing diffusion of electrical equipment in recent decades (computers, lights, phones, iPads, etc.. etc..) is the cause of considerable increase of these disturbances. Another thing to note is that if you find yourself playing in any place with an electrical system without a good grounding, even a shielding done properly will be completely (or almost) useless. Having made this unpleasant but necessary premise (one day I'll write a book listing the places with the most absurd electrical systems in the world!), it's time to get down to the point. The shielding is a kind of Faraday cage (write this term on the internet and you will find much more detailed explanations and professional than I can do), which allows precisely the reduction (or total elimination) of various hums and disturbances explained above (especially useful the hums around 50 Hz,

those of the network in practice). I'll go straight to the point then, premising that even in this case my advice is only advice.

- If you don't have a minimum of manual dexterity, contact a luthier
- If you are afraid of messing up, contact a luthier
- If you have no idea how to solder, contact a luthier.
- If you make a mess, don't ask me, because I won't take any responsibility!

What is needed?

- *Calm and patience*
- *A good tin soldering iron*
- *Coils of adhesive copper (or aluminum)*
- *Scissors*
- *Glue (in case you use aluminum)*
- *Multimeter*

How do you proceed? (See attached video)

Take your bass and place it on a table (with a cardboard underneath, to avoid possible damage to the table and consequent arguments with your mother and / or wife). Disassemble strings, pickguard (if you have one), bridge (only in some cases that we will see later), electronics compartment (the control plate of the Jazz to understand) and disconnect the pickups from the potentiometers.

At this point the goal is to cover all the various parts (the "compartments" of the pickups, the "compartment" of the potentiometers and the pickguard (often already provided with aluminum). For years I have been using adhesive copper, I find it better than simple aluminum, because I have less difficulty in making it adhere to the walls of the various compartments. To be precise I use [this](#).



Now, using a little bit of cunning and dexterity, you need to cut out layers of copper so that they cover the entire compartment in question, always remaining in