- Ebony Case, Robust Design
- Two Rows of Polepieces
- Enhanced Single Coil (ESC)
- True 3-Position PU Switching

DESCRIPTION

Welcome to the next generation of guitar customization! The Jaén Central Series 2-Pickup kit is designed for discerning musicians and guitar makers who demand exceptional tone and unparalleled flexibility. This comprehensive package includes two high-performance guitar pickups, meticulously crafted to deliver rich, articulate sound across all genres. Whether you're chasing vintage warmth, modern tone, or something entirely unique, this kit provides the foundation for you to perfectly sculpt your sound. The kit contains the following components; please check that they are all inside the box:

- A pair of complementary humbucking pickups with a clever eye-catching solid wood design. Both are designed to fit in most pickup rings (if only they were standardized). The dimensions are as follows:

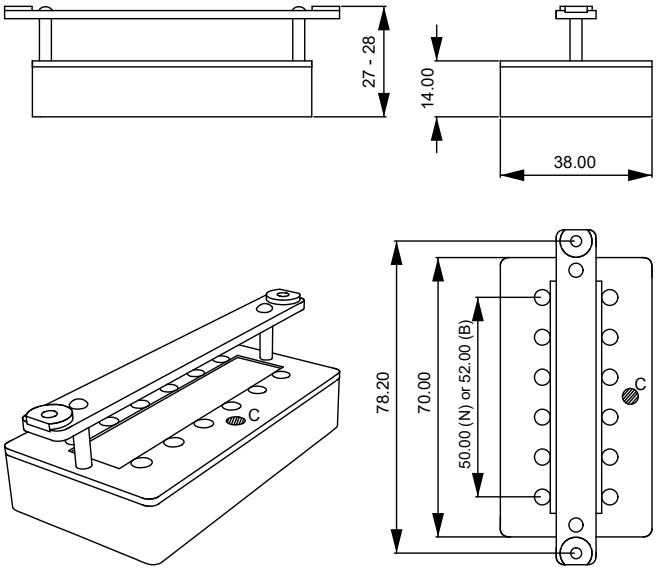

Figure 1 - Case Dimensions (mm)

The pickups have a cable, not represented in the drawing, that comes out from the area labeled ‘C’. It is different for each one: the Neck pickup (50 mm between 1st and 6th string polepieces, type starting by letter ‘J’) has a shielded cable with three individual cores (red, white and yellow), while the Bridge pickup (52 mm between 1st and 6th string polepieces, type starting by letter ‘K’) has four (red, white, yellow and black). The length of these cables is around 40 cm (16”). The polepieces can be chrome, gold (titanium nitride) or black, slotted or grub head, depending on what you specified with your order. When they have a slotted head, the threads will protrude a few millimeters from the back of the pickup case; grubs do not protrude at all.

There is also a small bag with suspension screws (4 units, #3-48 UNC thread), springs (4 units) and a few nylon ties.

- A PCB (Printed Circuit Board) with a rotary switch and some cables already soldered. Without them, it looks like this:

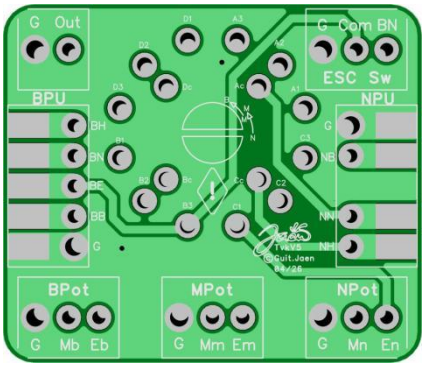

Figure 2 - The PCB. The switch and cables will be installed later at the other side

The cables (five) that come out from the PCB are all around 40 cm (16”) long, and they do it from the back of what you see on Figure 2; this saves space for guitars with narrow bodies. The pickups will be connected to the pads at both sides (labeled BPU and NPU).

The labels in the PCB are NPot, MPot and BPot for the cables that will be connected to Neck, Mid and Bridge pickup controls (volume and perhaps tone), respectively:

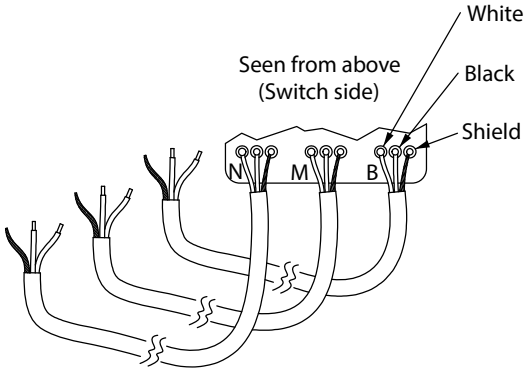

Figure 3 - The cables that will go to the volume (and perhaps tone) pots

There are two additional cables coming out from the PCB. One of them, with just one central conductor, is for the output; the other, with two central conductors, is for the ESC feature:

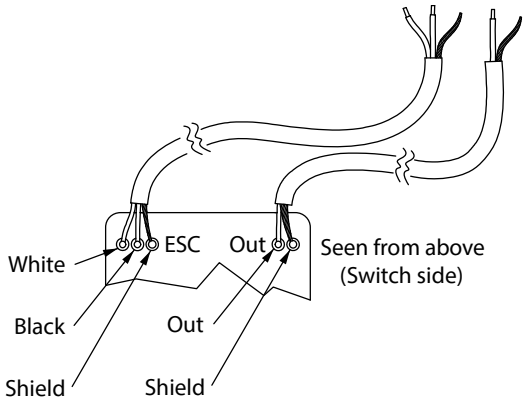

Figure 4 - The cables that will go to the ESC switch and the output jack

How the kit works:

The pickups in this kit are crafted from finely carved and carefully hand polished wood. They showcase a distinctive and unconventional design, where every detail is intentionally crafted with a purpose that goes far beyond visual appeal. I always take the guitarist as the true recipient of my work, rather than the collector or the guitar maker, so tone is my main priority—together with coherence, clarity and intuitive operation:

- The pickups in this set are built so that their coils can be connected independently. The rotary switch, when moved to the Neck position, takes the two coils of the Neck pickup and puts them in series, which is the usual way that they are wired in most guitars (Figure 5(a)). It does the same thing for the Bridge position, constructing another series humbucker with the two coils of the Bridge pickup (Figure 5(c)). Again, this is the way that most guitars with humbuckers work for the pickup switch in the Bridge position. The difference comes with the Mid position (Figure 5(b)), because *in this case it takes a coil from the Neck pickup and a coil from the Bridge pickup and connects them in series*. The chosen coils are the ones farther apart, so that the resulting pickup is **another series humbucker**, so it has the same nature as the other two. An additional improvement is that **each one of the three positions of the switch has its own independent volume control (and independent tone if you want)**. This is completely different from the most usual two-humbucker wiring, where the mid position means that the two series humbuckers, Neck and Bridge, are connected in parallel, departing from the configuration of the other two positions. A derived problem is that all the volume and tone controls are connected in parallel also, which means that all of them interact, quite unimpressively.
- Additionally, there is a ESC (*Enhanced Single Coil*) circuit. It is activated by a switch (that you must supply) that permits to select either a Humbucker or a ESC for the bridge pickup. When in Humbucker mode, you'll have a full tone, almost free of hum (Figure 5(c)). In the ESC position (Figure 5(d)), the tone of the bridge pickup will be more clear and bright, although more prone to being affected by electromagnetic interference. Single coil pickups obtained by canceling one of the coils of a humbucker (as done here) are usually set aside, as they tend to be much weaker than real single coils. Nonetheless, if you look at the diagram below you'll notice that the ESC mode adds more turns on top of the active coil, **giving you the tone and punch that you expect from a *real* single coil**.

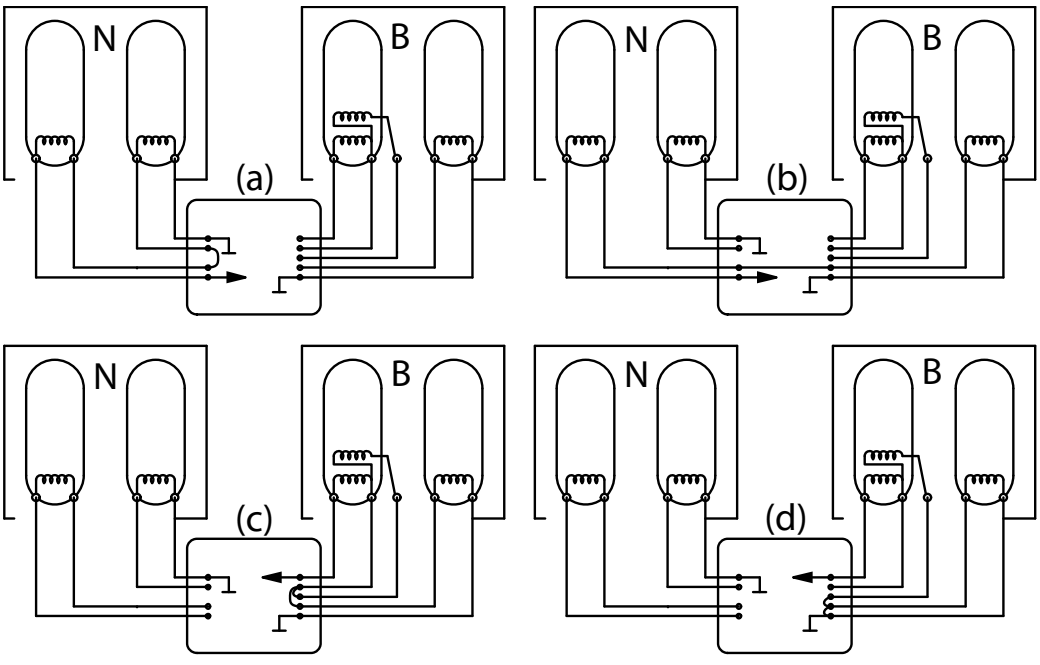

Figure 5 - Switching inside the PCB

INSTALLATION

Important: Only a reputable technician should install this kit

Previous checks (<u>please read this section thoroughly before you start the installation</u>):

- The dimensions of the pickups (see Figure 1) must be compatible with the instrument and the available pickup rings. Check the string spread also at the neck and bridge positions: it should be around the polepiece spread of the pickups, give or take 3 mm.

Installation Guidelines (<u>please read this section thoroughly before you start the installation</u>):

1. These are the dimensions of the ALPS switch:

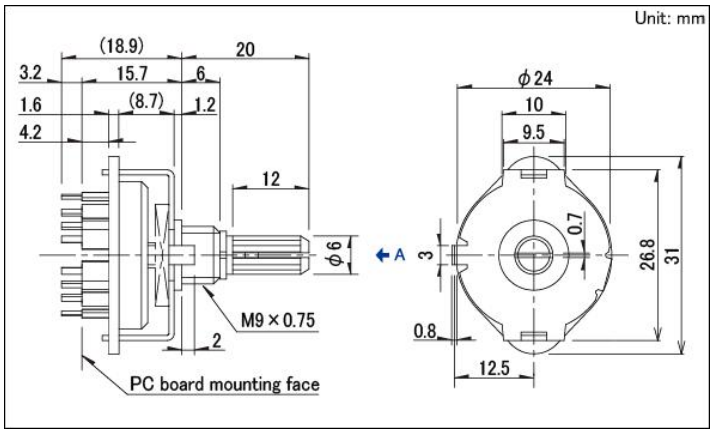

Figure 6 - The ALPS SRRM433700 switch dimensions. Beware of the short threaded portion of the shaft!

Notice that the threaded portion of the shaft is only 6 mm long, so the thickness of the wall at its location must be less than 4 mm. The slotted portion is 12 mm long, and it should be filed in most cases. If this is the case, **<u>protect all the components from any metal shavings, especially the inner parts of the switch</u>**. We recommend to wrap all the assembly in a plastic bag, and then, when the filing is finished, pick up the residue with a magnet.

2. The pickup position (Neck or Bridge) can be identified in at last three different ways:

   - By the type information at the back of the pickup: if it starts with 'J', it is a Neck pickup; if it starts with 'K' it is a Bridge pickup.
   - By the polepiece spread (52 mm Bridge / 50 mm Neck).
   - By the cables: the cable of the Neck pickup has three cores (wires); the cable of the Bridge pickup has four.

3. <u>Both pickups</u> must <u>be positioned so that their cables come out from the side closest to the neck (see Figure 7, following page).</u> The silkscreen at the back of the pickup can be used also, because it identifies which polepieces must go below the 1st and 6th strings.

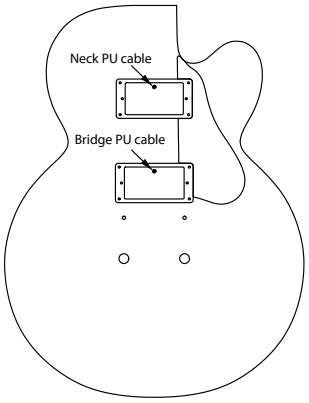

Figure 7 - How to position the pickups in the guitar

4. The cables that come from the pickups are connected to the PCB as shown:

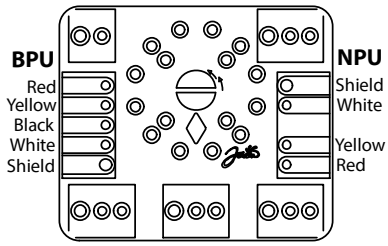

Figure 8 - Connecting the pickups to the PCB: colors of wires

The easiest way to identify what cable corresponds to which pickup here is the number of cores (wires): three for the Neck pickup, four for the Bridge pickup. If you find it convenient, you can also connect the ground wire (coming from the metallic bridge or tailpiece) to any of the pads labeled “Shield”.

5. A guitarist needs at least two fingers to move a rotary switch, but there are ways to modify it so that it can be moved with just one. For example, installing the rotary switch with a lever below the pickguard:

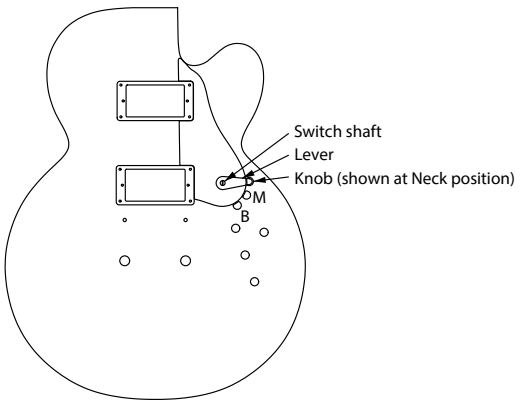

Figure 9 - A way to transform a rotary switch into a lever switch

In the position of the knob shown, it’s the Neck pickup that is selected. M and B are the other two positions, separated by 30º.

I do that for my own guitars, which are archtops; if you like the idea, these photos may help you design your own version:

6. Similarly, a guitarist needs at least two fingers for pulling a push-pull switch. Push-push switches look exactly the same, but they are more easily actuated.
7. If you don't want to use the ESC feature, there are two terminals in the PCB that should be connected:

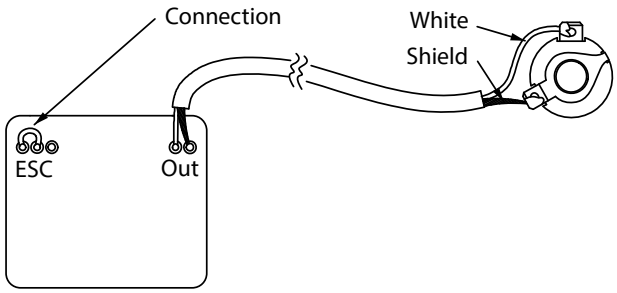

Figure 10 - Disabling the ESC feature (making a permanent humbucker)

Equivalently, you may short circuit the white and black wires in the cable connected to the ESC terminal in the PCB.

8. The wiring examples below do not mention the grounding of the strings, but you must always do it. There are many places to solder the ground wire: any of the two pickup grounds at the PCB (see point #4 above), the pot cases or the output jack, for example.
9. The kit comes with some nylon ties. Use them to secure the cables, avoiding rattling noises.

Following are three wiring examples, ordered from simple to complicated. This grading is not for the player, which will probably see the three similarly intuitive and easy to learn and use, but for the guitar maker or technician that will build them.

Wiring Example #1:

The guitarist will see the following controls:

- Rotary pickup selector (which can be actuated with a lever, see Installation Guidelines, point #5).
- Three independent volume knobs for the Neck, Mid and Bridge pickups.
- Tone knob, common to all the pickups. This will also have a push-push switch for the ESC feature.

For each volume pot, the connections will be as shown:

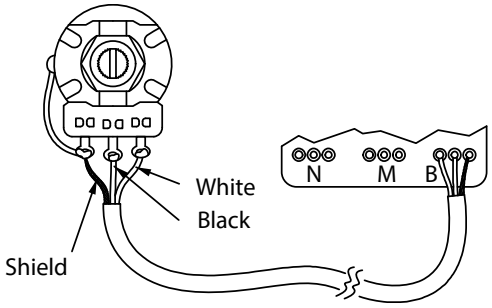

Figure 11 - Wiring of the Bridge PU volume pot - Example #1

Notice there is a wire from the shield terminal of the pot to its case. It's good practice to avoid noise.

The pot shown is a CTS or similar (Bourns, Alpha...). It should be the Audio type ("A" taper), 250KOhm to 1MOhm (the guitarist should have the last word).

The drawing is just for the Bridge pickup; you'll have to repeat the same for the other two volume pots (Mid and Neck).

After this, connect the other side of the PCB, using the ESC and Output cables. For that, use a push-push switch/pot (better than a push-pull unit, see point #6 in the Installation Guidelines section above):

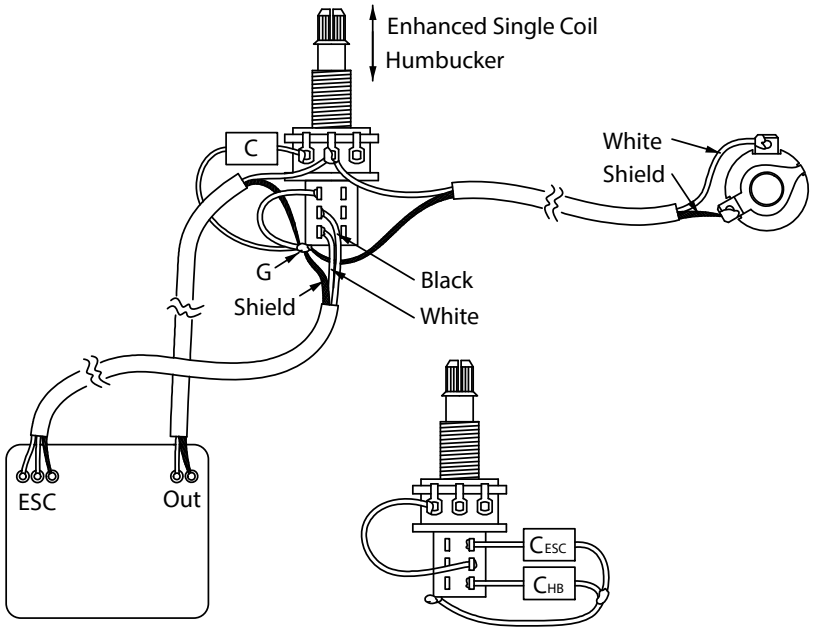

Figure 12 - Wiring of the ESC switch, tone control and output - Example #1

The recommended value for the pot in the push-push unit is 500KOhm with audio ("A") taper (the guitarist should have the last word).

All the ground terminals are connected at a dedicated terminal ("G" in the drawing) that pot/switch units usually have at their lower corner. It looks very crowded there, and it will be in reality, so, if you prefer, use

some other parts of the metal casing to ground the different shields and the tone capacitor. If there is good electrical connection between all the grounding points, everything will be OK. There is no such thing as "ground loops" in circuits like this.

The circuit, as shown in Figure 12, has just a tone capacitor, C. Push-push pots usually have a DPDT switch, so you still have a free unused section. You may use it to switch also the capacitor; for this, replace C with the wiring shown at the lower right corner of Figure 12. C_{ESC} will be the capacitor for the Enhanced Single Coil position of the switch, and should be around 47 nF (you may also remove C_{ESC}, making this a treble pickup without tone control). C_{HB} will be for the Humbucker, around 22 nF.

Wiring Example #2:

The guitarist will see the following controls:

- Rotary pickup selector (which can be actuated with a lever, see Installation Guidelines, point #5).
- Three independent volume knobs for the Neck, Mid and Bridge pickups.
- Three independent tone knobs for the Neck, Mid and Bridge pickups.
- Toggle switch for the ESC feature.

For each volume/tone set of pots, the connections will be as shown:

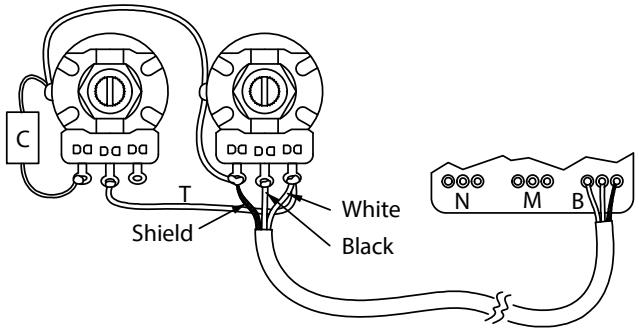

Figure 13 - Wiring of the Bridge PU volume and tone pots - Example #2

Notice there is a wire from the shield terminal of the volume pot to its case, and then another from there to the case of the tone pot. Grounding the cases is good practice to avoid noise but, if you wire this exactly as shown, the tone control will **need** the ground connection between both cases or it won't work. Also, notice that the wire that carries the signal to the tone pot ("T" in the drawing) doesn't have a shield. This is acceptable if it is short (say less than 50 mm). It is possible to make it shorter if you arrange the pots facing each other, but sometimes they really are far away. In this case, use a shielded cable instead, with the shield conveniently grounded at least on one side.

The pots shown are CTS or similar (Bourns, Alpha...). They should be the Audio type ("A" taper), 250KOhm to 1MOhm, not necessarily the same value (the guitarist should have the last word).

The drawing is just for the Bridge pickup; you'll have to repeat the same for the other two volume pots (Mid and Neck).

After this, connect the other side of the PCB, using the ESC and Output cables. For the ESC feature, use a toggle switch:

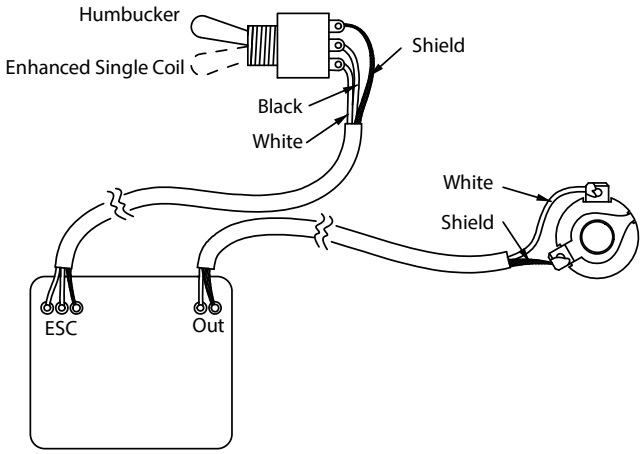

Figure 14 - Wiring of the ESC switch and output - Example #2

Wiring Example #3:

The guitarist will see the following controls:

- Rotary pickup selector (which can be actuated with a lever, see Installation Guidelines, point #5).
- Three independent volume knobs for the Neck, Mid and Bridge pickups.
- Three independent tone knobs for the Neck, Mid and Bridge pickups.
- Push-push control at the tone pot of the Bridge PU for the ESC feature.

For the Mid and Neck volume/tone sets, the connections will be as follows (only Mid is shown):

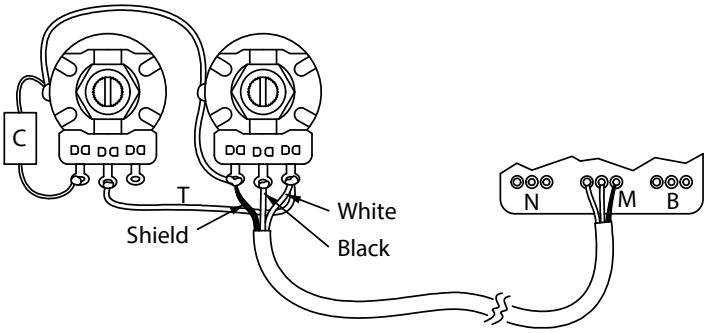

Figure 15 - Wiring of the Mid PU volume and tone pots - Example #3

Notice that there is a wire from the shield terminal of the volume pot to its case, and then another from there to the case of the tone pot. Grounding the cases is good practice to avoid noise but, if you wire this exactly as shown, the tone control will **need** the ground connection between both cases or it won't work. Also, notice that the wire that carries the signal to the tone pot ("T" in the drawing) doesn't have a shield. This is acceptable if it is short (say less than 50 mm). It is possible to make it shorter if you arrange the pots facing each other, but sometimes they really are far away. In this case, use a shielded cable instead, with the shield conveniently grounded.

The pots shown are CTS or similar (Bourns, Alpha...). They should be the Audio type ("A" taper), 250KOhm to 1MOhm, not necessarily the same value (the guitarist should have the last word).

The wiring of Figure 15 is just for the Mid pickup; you'll have to repeat the same for the Neck pickup. For the Bridge pickup, the wiring will be different, because the tone pot uses a push-push switch/pot (better than a push-pull unit, see point #6 in the Installation Guidelines section above) instead of a simple pot:

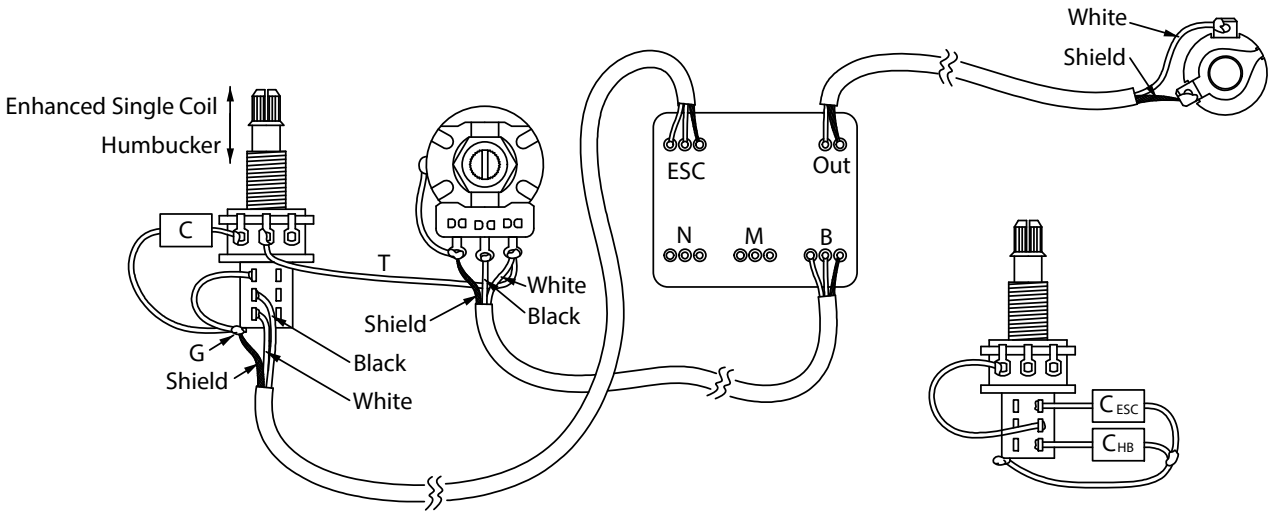

Figure 16 - Wiring of the ESC switch, volume and tone controls for the Bridge PU and output - Example #3

The tone pot here should have similar taper and value as the other tone pots, but the guitarist should have the last word.

All the ground terminals are connected at a dedicated terminal ("G" in the drawing) that pot/switch units usually have at their lower corner. It looks very crowded there, and it will be in reality, so, if you prefer, use some other parts of the metal casing to ground the different shields and the tone capacitor. If there is good electrical connection between all the grounding points, everything will be OK. There is no such thing as "ground loops" in circuits like this. Also, notice that there is not a wire connecting the cases of the volume and tone pots; this is because the ESC cable already has a ground at its shield. Finally, notice that the wire that carries the signal to the mid terminal of the tone pot ("T" in the drawing) doesn't have a shield. This is acceptable if it is short (say less than 50 mm). It is possible to make it shorter if you arrange the pots facing each other, but sometimes they really are far away. In this case, use a shielded cable instead, with the shield conveniently grounded at least on one side.

The circuit, as shown in Figure 16, has just a tone capacitor, C. Push-push pots usually have a DPDT switch, so you still have a free unused section. You may use it to switch also the capacitor; for this, replace C with the wiring shown at the lower right corner of Figure 16. C_{ESC} will be the capacitor for the Enhanced Single Coil position of the switch, and should be around 47 nF (you may also remove C_{ESC}, making this a treble pickup without tone control). C_{HB} will be for the Humbucker, around 22 nF.

CONTACT

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