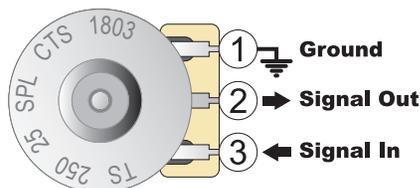


**P**ush/pull pots should be viewed as two separate devices - a pot plus a switch - that share a common architecture. You treat the two elements separately, so the pot portion does one thing, and the switch portion does something else.

And it should be familiar if you've done any guitar wiring: You're used to guitar pots having three lugs, and so does a push/pull. And you're used to a DPDT switch having six lugs, and so does a push/pull.

We make two versions of our push/pull pots - PP01 & PP02 - and either one can be used as a volume pot or a tone pot depending on your needs. Our PP01 provides the pot & switch only, while the PP02 adds some enhancements that we'll discuss later.



**Volume Pot Connections**

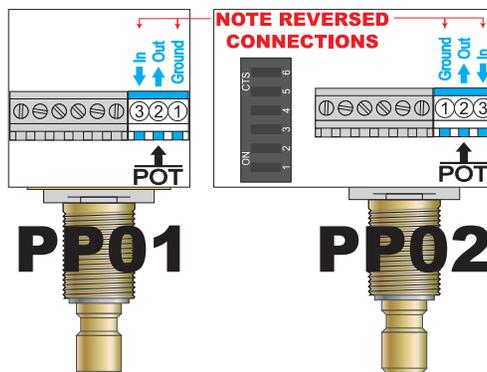
In the interest of consistency and simplicity, we're labeling pot connections in all our illustrations with the numbers 1-3. This should make things easy.

The illustration above shows the typical connections

to a volume pot. There are exceptions - such as a Jazz Bass - where the **2** and **3** lugs are reversed, but the example shown is the general rule.

Our push/pull pots have two green terminal blocks attached, one with three screws and one with six. In the illustration below, the one with three (shown in blue) is the one for the pot connections. You'll attach your wires in the same locations that you would with any other pot.

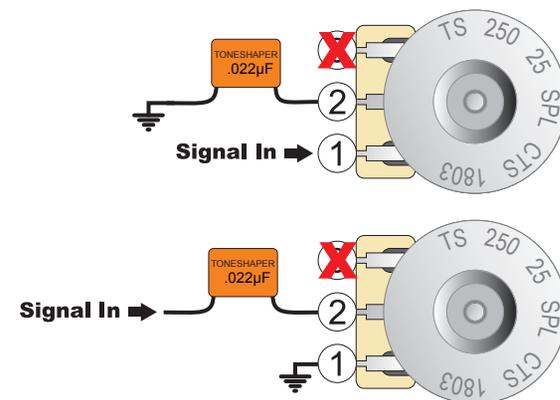
You can see in the following illustration that the pot connections for PP01 & PP02 are reversed (only the pot connections - the switch connections are not reversed). This was done to meet the requirements of a specific application, and while it has no effect on operation, you need to be sure to make your connections accordingly. Of course the pots used for PP01 & PP02 are identical, it's only the mapping of the terminal block to the three pot lugs that's different.



Insert the wires and tighten the screw terminals with the provided screwdriver. Not too tight! Snug is fine, you don't want to strip the screw. Give the wires a little tug with your fingers to make sure they're secured; if not, then tighten a little more.

**Tone Pot Connections**

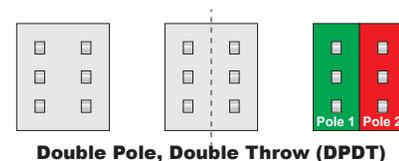
There are several common ways that tone pots are connected, and we've illustrated a couple.



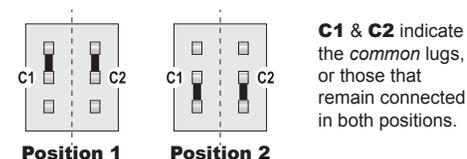
The two scenarios in our illustration are essentially identical from an electrical perspective - signal through a pot and cap goes to ground - but notice that in either scenario lug **3** is not used at all. Your wiring diagram will almost surely use lugs **1** & **2** for the tone control, so first apply our **1/2/3** numbering to your wiring diagram, then connect our push/pull pot just as your diagram shows.

**Switch Connections**

The illustration below shows the layout of a typical DPDT switch. **DP** tells us this is a double pole switch, or essentially two switches in one, as shown.



**DT** tells us there are two switch throws. Position 1 makes connections as shown below left, and position 2 makes connections as shown below right.

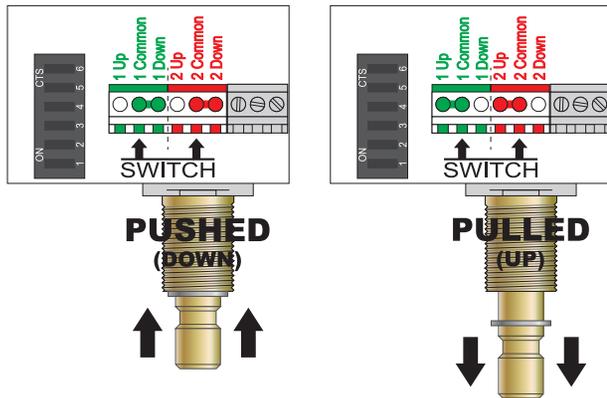


**C1 & C2** indicate the common lugs, or those that remain connected in both positions.

Our push/pull pots connect and operate in exactly the same way as a regular DPDT switch, as shown below. The left illustration shows the pot pushed in, while the right one shows it pulled out.

Note that the **UP** and **DOWN** monikers refer to the view you'll have of the pot when you look at the face of the guitar. The guitar's knob is pulled up or pushed down.

The illustration, however, is drawn upside down, showing the orientation of the pot during installation. Also, while PP02 is shown below, PP01 is identical.

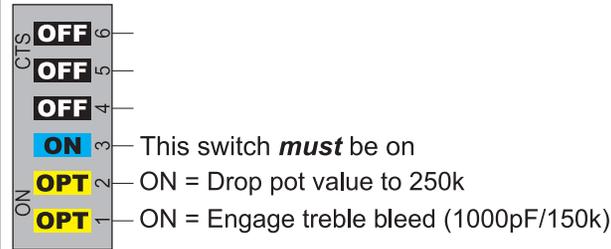


As you can see, *pushing* the pot connects these:  
 1/common to 1/down  
 2/common to 2/down

And *pulling* the pot connects these:  
 1/common to 1/up  
 2/common to 2/up

### PP02 Configuration As Volume Control

Now that you've made your wire connections, you need to set up the 6-position mini-DIP switch. The unit will not function if you haven't set up the switch.



Note that in order to function properly as a volume pot, switch 3 (SW3) **must** be on. And be sure to turn off switches 4/5/6. Switches 1 and 2 are optional.

### Treble Bleed (SW1)

Turning on SW1 engages the treble bleed, which is designed to keep your tone consistent as you roll down the volume control.

You may have noticed that on some guitars, rolling the volume control down doesn't just drop the volume, it also produces a tonal shift, with the highs going away and the guitar sounding duller. Engaging the treble bleed addresses this treble roll-off pretty effectively, but you can quickly try it both ways and see which you prefer. When the pot is fully clockwise (on 11!), the treble bleed has no effect.

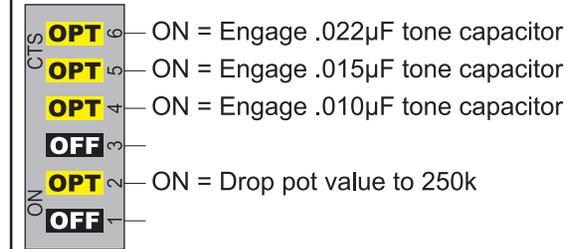
### 500k / 250k Pot (SW2)

Some wiring schemes call for a 500k pot and others for a 250k pot. There's really no wrong or right where pot values are concerned, but there is a subtle tonal change when you move from one value to another, since even with the pot turned all the way up, there's still a big resistor visible to the circuit.

The push/pull comes with a 500k pot installed. Turning on SW2 engages a resistor, dropping the pot value (actually, the load that the pickup sees) from 500k to 250k. Again, no wrong or right here, try it both ways and see which you prefer!

### PP02 Configuration As Tone Control

Now that you've made your wire connections, you need to set up the 6-position mini-DIP switch. The unit will not function if you haven't set up the switch.



When using the pot as a tone pot, make sure to disengage switches 1 and 3.

### Tone Cap Selection (SW4/5/6)

You must have a capacitor in a guitar's passive tone control circuit, or else it won't work - you won't hear any difference when you turn the control. We've built three caps into your push/pull pot that will give you a wide range of tone control functionality.

Understand that the circuit just sees capacitance - it doesn't know whether there is one cap or ten, it just sees the overall capacitance value. So you can turn on any one of the caps (switches 4/5/6), or you can turn on **more than one**. But again, **you must have at least one cap on or the tone control will not work**.

Turning on more than one cap just adds their values together. So turning on the .022µF (microFarad) cap plus the .010µF cap yields an overall capacitance of .032µF. Turning on switches 4/5/6 in various combinations yields the following values:

- .010µF (SW4)
- .015µF (SW5)
- .022µF (SW6)
- .025µF (SW4 + SW5)
- .032µF (SW4 + SW6)
- .037µF (SW5 + SW6)
- .047µF (SW4 + SW5 + SW6)



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