THANKS!
...for purchasing your new ToneShaper product. We hope this unit will provide many years of useful service. It has been built with the finest-quality, industry-standard components.

INSTALLATION
Installation of the unit couldn’t be simpler. It comes with a 4-way switch, a jack, a volume control, and a tone control. Our illustrations show the unit installed in a Tele, but of course you can install it into any guitar that uses 2 controls and a lever-style pickup selector switch.

The first step is to connect the components to each other using the supplied connector cables. The short cable will connect the two pots to each other. The cable ends are polarized, meaning they can only be inserted into their mating connectors one way. They should easily push together when properly aligned, so if you find that they are not pushing together easily, try flipping them around 180°.

The switch connector attaches between the underside of the volume pot, and the switch. The white end is polarized like the other cable’s ends, but the black end is not, so you must orient it correctly. You’ll find that the black end has a small black arrow on one side, and this side of the connector must face away from the switch, with the arrow to the left. It will align with a similar white arrow that’s printed on the switch, as shown in the illustration at right above.

Once the three components are connected together, you can mount them to the control plate or the guitar. We’ve provided the necessary hardware to secure the components, though if your guitar originally came with metric components, then you may need to enlarge the holes where the components mount. The holes for the pots and jack will need to be 3/8” (9.5 mm), while the holes for the switch screws will need to be .138” (3.5 mm).

CONNECTS
The pickup/jack wires and grounds simply insert into the terminal blocks (the green things), and then you’ll tighten the screws using the included screwdriver. Use the diagrams on the first few pages of these instructions as a guide.

Not too tight on those little screws though, you don’t want to strip them. Once you’ve tightened the screws, you can gently tug on the wires to make sure they’re held fast. If you cannot easily pull the wires out, then the screws are tight enough. Each slot will accommodate two pieces of 22 AWG wire (the gauge that’s typically used in guitars), plus another piece of thinner wire, such as a humbucker drain wire.

We’ve used conventional colors for single-coils (black = ground and white = hot), but your pickups might be different, and if so you’ll need to adjust. If you have single-coils with three wires (Lace Sensors, Fender Noiseless), then two wires will attach to the pickup’s coil and one will be a chassis ground (Lace, for instance uses orange/white for the coil, and green for the chassis ground). With these 3-wire pickups, the two coil wires will connect to the ToneShaper using that pickup’s + and - slots, while the chassis ground will go to either the GD (ground) or J- (jack ground) slots.

We’ve used Duncan’s colors for humbuckers. Some other pickup makers also use Duncan’s colors (Suhr, Lollar), but most do not. If you have another brand of pickups, you’ll need to determine how their colors map to Duncan’s.

NECK PICKUP COVER
It’s important to note that if you’re using a Tele neck pickup with a metal cover, the cover must be connected to ground independent of the pickup’s black wire. You’ll see in our diagrams that we show three wires going to the neck pickup, one of which is yellow. Certain pickups will come with this third wire, such as Fender Texas Specials, though the color may not be yellow. But if not - if your pickup has a metal cover and only two wires - you must modify the pickup. This is easy to do, takes about a minute if you’ve done it a bunch of times like we have, but you will need to do a little soldering.

The cover is there to protect the coil from damage, but also to provide shielding against extraneous noise. To accomplish this latter goal, it must be connected to ground, so most manufacturers simply connect the cover to the pickup’s black wire, assuming the black wire will always be connected to ground. It normally is. But not in series wiring!

So you must disconnect the cover from the black wire, and solder a new piece of wire to the cover that goes straight to ground (illustration on the following page). Usually, the cover is held onto the pickup with three metal tabs: two at the front edge that are folded under the front edge of the pickup, and one
that passes through a hole in the base of the pickup and is then folded over. Most likely, you’ll find that the black wire is just bent over and soldered to this last metal tab. It’s easiest to snip this where it exits from the base of the pickup, remove it from the tab, and solder a length of wire in its place. We’ve included a length of black wire that you can use for this purpose.

**DEFINITIONS**

**Reversed Controls**

Teles were originally designed with the switch closest to the neck, followed by the volume, then the tone. Many players grew up with this control configuration and wouldn’t change it.

But there is a growing contingent of players who like the controls reversed: volume, tone, switch. This moves the volume control closer to the picking hand.

Whatever your preference, your NextGen ToneShaper will accommodate either control configuration, so you can easily try one and then the other.

**Modern/Vintage Wiring**

“Modern” & “vintage” wiring are terms that commonly define from where in the circuit a tone control receives its signal. Both are probably misnomers, but we use the terms because they are commonly used on forum sites and so forth. Essentially, guitars with “modern” wiring send signal to the tone control from the input lug of the volume control. That is, the tone control receives the full output of the pickup(s), regardless of the volume control’s position.

“Vintage” wiring delivers signal to the tone control via the volume control’s output lug, making the tone control somewhat interactive with the volume control.

With modern wiring, you will lose treble as you lower the volume control. So as you lower the volume to 5 or 6, a tonal change comes along for the ride. Some players don’t have a problem with the tonal change, while others hate it. It can be pretty effectively dealt with by engaging a treble-bleed network (next section).

Vintage wiring seeks to minimize this tonal shift without the need for treble-bleed networks. The jury is out, so we give you both options, and you can determine which one best fits your needs.

**Treble-Bleed Networks**

Treble-bleed networks are simple resistor/capacitor (RC) networks that are engaged - when configured for modern wiring - to address the treble roll-off. We’ve built one of these into the unit, and you can try it and see if you like it.

**Auto-Ranging Pots**

Pots in guitars with passive pickups are usually either 250k or 500k. 250k is the value traditionally used by Fender, and 500k is the value traditionally used by Gibson.

It might surprise you to learn that the value of the pot affects the overall tonality of the guitar, even when the pot is turned all the way up. It does. A higher value pot in the volume position will give the guitar an inherently (and subtly) brighter tone than a pot with a lower value.

In a guitar that mixes single-coils and humbuckers - or in a guitar where you will be splitting humbuckers - a choice between 250k and 500k would normally need to be made, with some possible negative tonal consequences as a result. **Auto-Ranging** (our term) means that in certain switch positions, the pot value will change automatically in order to tonally optimize it for a given pickup selection.

Your new ToneShaper provides auto-ranging for the volume pot in NHB and BHB scenarios. SS and HH scenarios give you the option to manually select between 500k and 250k for the volume pot.

**FOUR CONTROL OPTIONS**

There are four control options that can be configured with your ToneShaper, as shown in the connection diagrams on pages 1-4. Note that your ToneShaper can also be paired with optional 3-way or 5-way switches, in which case additional switching options become available.
DIP SWITCH SETTINGS

Let's have a look at the DIP switches. There are two: a 9-position switch on the volume control, and a 6-position switch on the tone control.

To make it easier for you to understand the DIP switch settings needed to achieve the three control options listed above, we'll use a color-code system for the switches. Use the following color key:

- **ON** This must be on
- **OFF** This must be off
- **ONE OR MORE** Turn on at least one of these
- **OPTIONAL** Turn this on if desired

Here's an example:

Per the color key, you'll see that on the volume control, you would turn on switches 5/6/8. 3/4 would be optional, while 1/2/7/9 must be off. Likewise, on the tone control, you would optionally turn on switch 1, but the yellow on the four middle switches would indicate that you must turn on at least one of these yellow switches, or your tone control would not function properly.

At this point you're probably wondering what the switches on the volume and tone controls actually do, so before we go further, here are the relevant switch mappings for both controls, so you can determine which you might want to turn on, and which you might not want to:

Because we give you four caps ranging in value from .010µF to .047µF, you can approximate pretty much any capacitance value throughout this range, by turning on more than one cap. You must turn on at least one, but you can turn on 2, 3, or all 4 if you choose, their values will simply add together. For example, turning on all four will give you .094µF (.047 + .022 + .015 + .010), which is very close to the .1µF values Fender used in the 1950s.

**MODERN WIRING**

Manual-Select Volume Pot Value

SS

HH

**VINTAGE WIRING**

Manual-Select Volume Pot Value

SS

HH

**MODERN WIRING**

Auto-Ranging Volume Pot Value

NHB

BHB

**VINTAGE WIRING**

Auto-Ranging Volume Pot Value

NHB

BHB

The pink switches are at your discretion. The treble-bleed network is appropriate if you have the unit setup for modern wiring, but not if you have it set up for vintage wiring, as the point of vintage wiring is to address the treble roll-off without using treble-bleed networks.

As for the capacitors on the tone control, you need at least one to be on, or else the control won’t do anything. The capacitor is the thing that determines how much of the treble frequencies go away (are shunted to ground - out of the signal path entirely) as you turn the tone knob counter-clockwise. Different capacitor values will roll off more or less of the treble frequencies. A higher cap value will have a more pronounced effect, while a lower value will have a subtler effect.

Fender has used .1µF, .05µF, and .022µF over the years. Gibson has used .022µF with few exceptions.