

## P1-1 Saddle Operation:

Brenner piezo-one™ gang guitar saddles are designed for simple, reversible installation that is non-destructive to the instrument. The design features string supports that are machined for maximum sonic engagement with the piezo elements. This electro-mechanical arrangement produces a stronger output, frequency response, and dynamic range in comparison to other piezoelectric transducer saddles. Machined-in compensation is optimized for both intonation and low action when using commonly incremented "unwound G" string sets. The saddles are compatible with all preamplifiers designed for piezo transducer use.

The P1-1 models are a direct replacement for "modern" saddles common to Stratocaster, and many Telecaster guitars. The P1-1A configuration features overall compensation adjustment screws located to fit bridge plates with 2-1/16 inch (52.5mm) string spacing. The P1-1B features screw locations spaced for plates having 2-1/8" (54mm) spacing. Caution: Fender has equipped some guitar models with "offset" modern saddle bridges. Offset saddles feature compensation screws that are off center with the saddle. A common centered style Fender or compatible aftermarket bridge plate is required for piezo-one installation on guitars equipped with offset bridges.

Piezo transducers have very high impedance, and produce very little current. Passive volume/tone controls degrade the signal with resistive losses and capacitance. It is for this reason that the best piezo transducer systems implement a preamplifier stage followed by volume/tone control. Some onboard preamps are capable of blending piezo and magnetic signals in both mono and stereo modes. Blended mono output combines magnetic and piezo sound into one signal. The best sounds will always be produced in stereo mode with magnetic pickups sent to a conventional guitar amp, and piezo signal routed to an acoustic amp or PA system having 2 or 3 way speakers. A stereo cable is typically used to output both signals from the instrument. The cable's plug tip and ring will carry the magnetic and piezo signals respectively. A stereo splitter optimally separates the signals into two mono outputs for guitar amp, and full range system.

Our outboard PIEZO-PRO-V preamp/splitter/vol-control unit combines piezo preamplifier, signal splitter, and post-preamp volume control into one stage friendly device. Blend signals much faster by using existing guitar control with PIEZO-PRO-V foot control. The PIEZO-PRO-V eliminates the need to install onboard piezo preamps in each guitar or alter existing pickup wiring.

It is possible to add passive volume control to the instrument, but some tone and signal loss will occur as mentioned previously. Signal degradation can be minimized by selecting components that best match the input impedance of the piezo preamplifier. A .0003 mf capacitor and 300K ohm resistor series wired across the input and output lugs of a 500K potentiometer work nicely with the PIEZO-PRO-V (volume treble bleed circuit). Components will vary for optimal sound with other preamps. Stacked or concentric potentiometers offer a great solution for adding piezo volume control without the need to drill additional holes into the instrument.

The following instruction describes piezo-one™ installation for magnetic/piezo hybrid guitar without passive control or onboard preamp. If choosing to install an onboard preamp, refer to the manufacturer's documentation for additional steps.

## Installation:

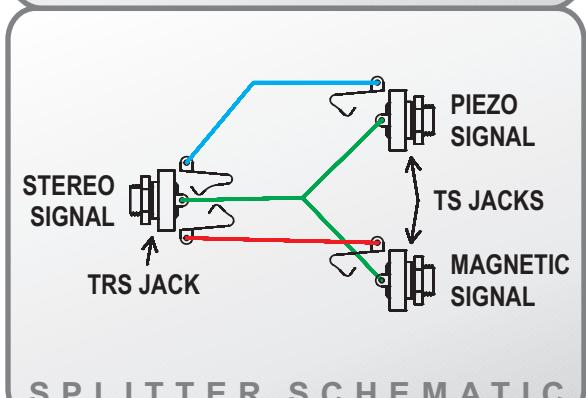
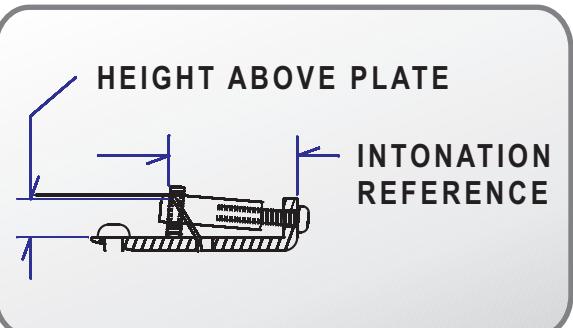
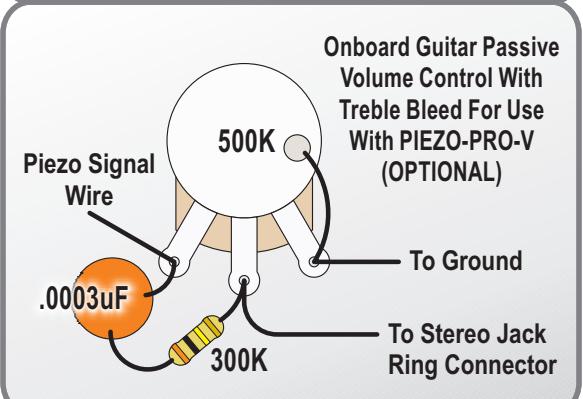
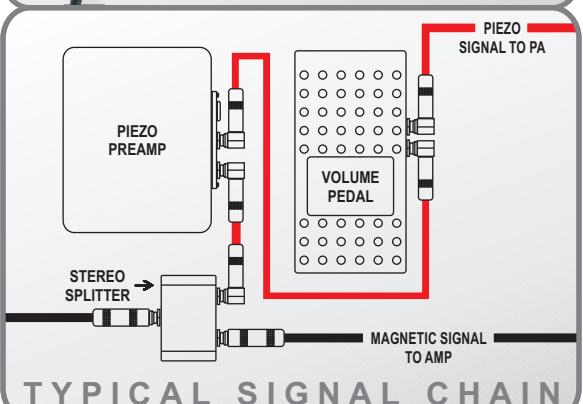
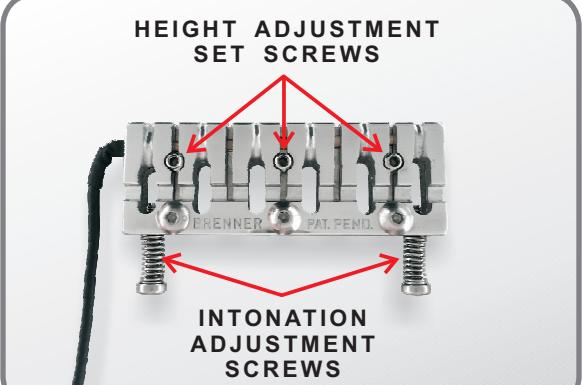
The BrennerUSA site includes a gallery of photos that may help in planning installation. Remove strings. Measure and note dimensions of outermost saddles (guitar high E, and low E string saddles) for height above the bridge plate.

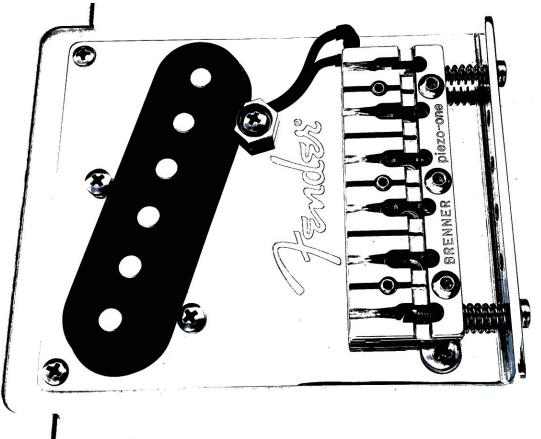
Measure and note the distance from the back of the bridge to the outer string intonation points (string /saddle contact point at the front of each saddle). Remove string saddles. See WIRE GUIDE FOR TELE BRIDGE/PICKUP ASSEMBLY on backside if applicable. Install P1-1 saddle using two intonation screws and springs provided. Piezo-one saddles are equipped with three height adjusting set screws. String height should be established using outer set screws while center screw is backed off. The center screw is provided for center support after height is established. Adjust intonation and height screws to properly position the piezo-one saddle to previously noted dimensions. Remove and notch the underside of pickguard or pickup ring to contain the piezo pickup wire between it and the guitar body (refer to pictures). You may prefer to save the integrity of original parts and purchase a replacement ring or pickguard for this purpose. Run the piezo wire to the location of the guitar output jack. Remove the jack in order to transfer wires to new jack as follows:

Identify and note colors of magnetic pickup signal wire (attached to the jack "tip" connector), and ground wire (attached to the jack "sleeve" connector) on existing TS jack. Connect these wires to corresponding "tip" and "sleeve" connectors on the new stereo TRS jack supplied. The piezo output wire is a coax type cable with a center signal wire separated from a surrounding braided shielding wire. The plug end is used in some onboard preamp installations, and factory testing. Cut the plug end off and strip the wire for solder connection. The piezo cable's outer shield wire automatically connects to ground when the saddle is mounted on a metal bridge plate that has been grounded (typical for operation of most electric guitars). Grounding can be tested between the bridge plate and jack sleeve (ground) tab with continuity tester or multimeter. The piezo pickup's shield wire may be combined with the guitar jack's ground connection, but this may result in noise or "hum" from a ground loop condition. The piezo pickup's shield wire must be connected to the jack's "sleeve" connection for installation on instruments with non-metallic bridges, or on instruments without magnetic pickups. The shield wire can be peeled back a bit, and covered with shrink tube or electrical tape in most cases. The piezo signal wire should be connected to the "ring" connector on the TRS jack\*. Install the jack (and plate) on the guitar. Insert an audio cable plug into the jack to insure that it is able to go in all the way. On some Strat style jack plates - the stereo jack may be slightly longer and cause the plug tip connector to hit the wood. If this happens, try rotating the jack to a new position. If this doesn't solve the problem, it may be necessary to carve some wood at the point of obstruction. Replace the pickguard and/or electronics cover. Install strings. Recheck noted dimensions and make sure center height screw is snug for support only.

The guitar will now function as before with a mono cable inserted - magnetic pickup(s) only. With a stereo cord inserted, the guitar outputs magnetic signal through the tip, and piezo signal through the ring of the stereo plug.

\* the piezo signal wire can be connected to the jack's "tip" connector for guitars with piezo only (including nylon string guitars).





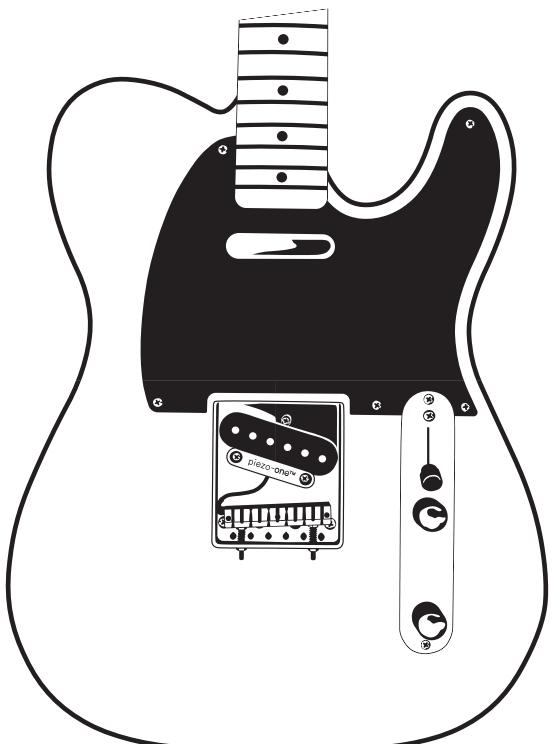
#### WIRE GUIDE FOR TELE BRIDGE/PICKUP ASSEMBLY

Identify magnetic bridge pickup height adjustment screw for wire guide installation. Place wire guide nearby. While holding the magnetic bridge pickup in position, remove the screw. This will keep spring in position under the plate. Put wire guide on screw and reinstall as pictured. Remove the bridge assembly. Pull up on the magnetic pickup to raise screw heads and wire guide for easy wire installation. Thread piezo wire through the slot underneath the wire guide and through the pickup hole along side the of the magnetic pickup. Pull the wire through leaving slack for proper saddle position and adjustment. Adjust magnetic pickup height adjustment screws and wire guide as desired.



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BRENNER®  
**piezo-one™**



P1-2 SADDLES FOR  
TELECASTER  
ASHTRAY BRIDGES  
ALSO AVAILABLE



PIEZO PREAMP-SIGNAL SPLITTER-VOLUME PEDAL  
all in one compact unit.

NO NEED TO PUT A PIEZO PREAMP IN EACH OF YOUR GUITARS

- Stereo Input Jack - magnetic pickup signal on "tip" - piezo pickup signal on "ring"
- Stereo Input Jack Switch - preamp powers up when a stereo cable is inserted
- Outputs (2) - mono magnetic pickup signal - mono piezo preamp out
- Four Band EQ / Volume Section
- Master Foot Dial Volume Control
- Battery Check Button
- Dimensions 3-3/8" W x 6-1/4" L x 2-3/16" H
- Switching 9VDC 2.1mm Barrel Jack - disconnects battery when using a power supply (standard "negative center" type)

*The Same Preamp Used In Our YouTube Video*

#### RECOMMENDED CONNECTIONS:

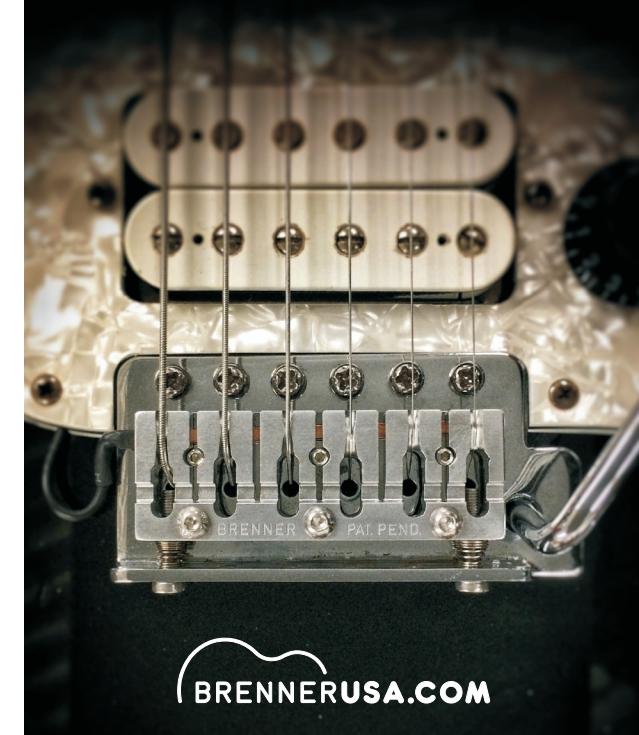
STEREO IN - Magnetic and Piezo pickups from guitar  
MAGNETIC OUT - Magnetic pickup signal to guitar amp  
PIEZO OUT - Piezo signal to acoustic amp or PA system

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• OPERATION AND INSTALLATION GUIDE •



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