

PICKUP BENDER™

Phase Reverse

User Guide

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Patent Pending.

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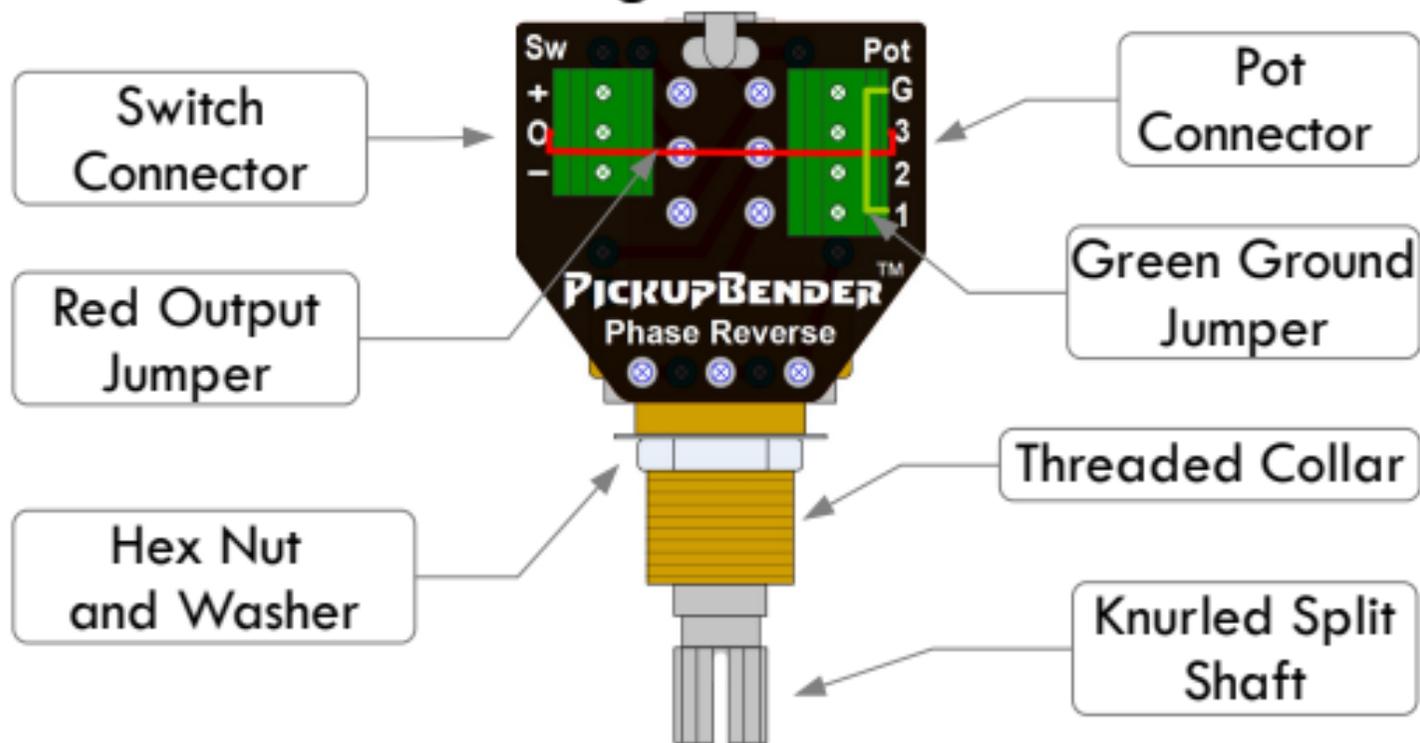
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What's In The Box?

- ◆ PickupBender™ control switch
- ◆ Jumper wires (ground & output)
- ◆ Install kit (mini screwdriver, hex nut, flat washer, lock washers, hookup wire, B connectors)
- ◆ User guide (this booklet)

Big Picture



Before You Install

The PickupBender™ Phase Reverse can be used on guitars with at least 2 pickups (humbucker, single-coil, or both) and instantly reverses the phase of the connected pickup.

Phase Reverse can be installed as a volume or tone control. If the connected pickup has its own volume control, it's best to install Phase Reverse as that pickup's volume control.

PickupBender™ control switches are passive (non-powered) devices that combine an integrated switchable wiring mod with a volume/tone control. They replace existing volume or tone controls without the need to drill new holes. They are easily installed without soldering in most solid and hollow

body guitars with passive pickups.

Mounting Clearances

- ◆ Mounting hole diameter: $\frac{3}{8}$ (0.375) inch.
- ◆ Threaded collar length: $\frac{3}{8}$ (0.375) inch.
- ◆ Body cavity depth inside guitar: $1\frac{1}{4}$ (1.25) inches.
- ◆ Mounting surface thickness: $\frac{1}{4}$ (0.25) inch maximum.

If mounting PickupBender™ in the guitar body (instead of the pickguard) and the body thickness between the bottom of the control cavity and outside of the body is too thick, you will need to lower the area around the mounting hole

on the inside of the cavity until the threaded collar extends through the body just enough to thread the hex nut on the collar (about $\frac{1}{8}$ inch). You can use a rotary tool or other tools for this purpose.

⚠ Lowering the body cavity requires significant skill. If you are not comfortable with doing this yourself, have a qualified guitar technician perform this alteration.

Any damage caused during installation is not covered by the product warranty.

Control Knob

The PickupBender™ split shaft fits a course knurled 18-tooth push-on knob. This is the most common type of push-on knob. A fine 24-tooth push-on knob (usually found on vintage guitars) will fit too tight on the split shaft and may damage the switch when the knob is removed.

You can also use a a set-screw type knob on the split shaft. If you do, be careful to avoid damaging the teeth on the split shaft when tightening the set screw.

⚠ Damage caused by using a control knob other than a coarse knurled 18-tooth split shaft is not covered by the product warranty.

How To Install

Tools Needed

- ◆ Mini screwdriver (included)
- ◆ Wire cutters and strippers, or scissors and knife
- ◆ Pliers or wrench
- ◆ Crimping tool for B connectors (optional)
- ◆ Masking or cellophane tape
- ◆ Permanent marker, pen, or pencil

Using B Connectors

The included B connectors and hookup wire can be used to extend your guitar wiring if necessary. B connectors are easy to use and provide a strong dependable connection for splicing wires together.

Strip $\frac{1}{4}$ inch off the end of the wires, fully insert the wires into the wide opening of the B connector, and flatten the middle section of the connector with pliers, crimper, or similar tool.



Figure A: **B Connector**

Remove Old Control

- [1] Remove the control knob. For a push-on knob, slowly pull up with a gentle rocking motion. For a set-screw knob, loosen the set screw to remove the knob.
- [2] Loosen control mounting nut. Remove nut and washer(s).
- [3] For a solid body guitar, remove control cover or pickguard to expose pickup wiring.
- [4] For a hollow body guitar, push old control into body and pull the control out through an access hole to expose pickup wiring.

[5] Note which pot lug is grounded, usually 1 or 2 but can be none. The ground lug may be soldered to the pot case or to a ground wire.

[6] Label each wire and component soldered to the pot lugs using tape with the lug number (**1, 2, 3**) written on it. Label ground wires soldered to the pot case with **G**.

[7] Cut wires and components connected to the pot as close to the lugs as possible, and set pot aside for now.



Figure B: Pot Lug Numbers

Install PickupBender™

NOTE: *For hollow body guitars, go to step 2.*

- [1] For solid body guitars, insert the PickupBender™ threaded collar into mounting hole from the inside and fasten with hex nut and flat washer on the outside.

If the collar extends too high above the mounting surface, use one or more lock washers on the inside of the collar to adjust height.

If the collar is too short to attach the hex nut and flat washer, lower the area around the mounting hole on the inside of guitar cavity (see page 7).

- [2] Insert pot wires labeled **1**, **2**, **3**, or **G** into matching pot connector slots (figure C next page) and tighten screws. **If replacing a tone control, remove and save the output jumper wire.**

***TIP:** Loosen connector screw to open connector clamp so wires will fit in the slot. Tighten the connector screw to close the clamp and hold the wires in place. Use the included mini screwdriver to loosen/tighten the screws.*

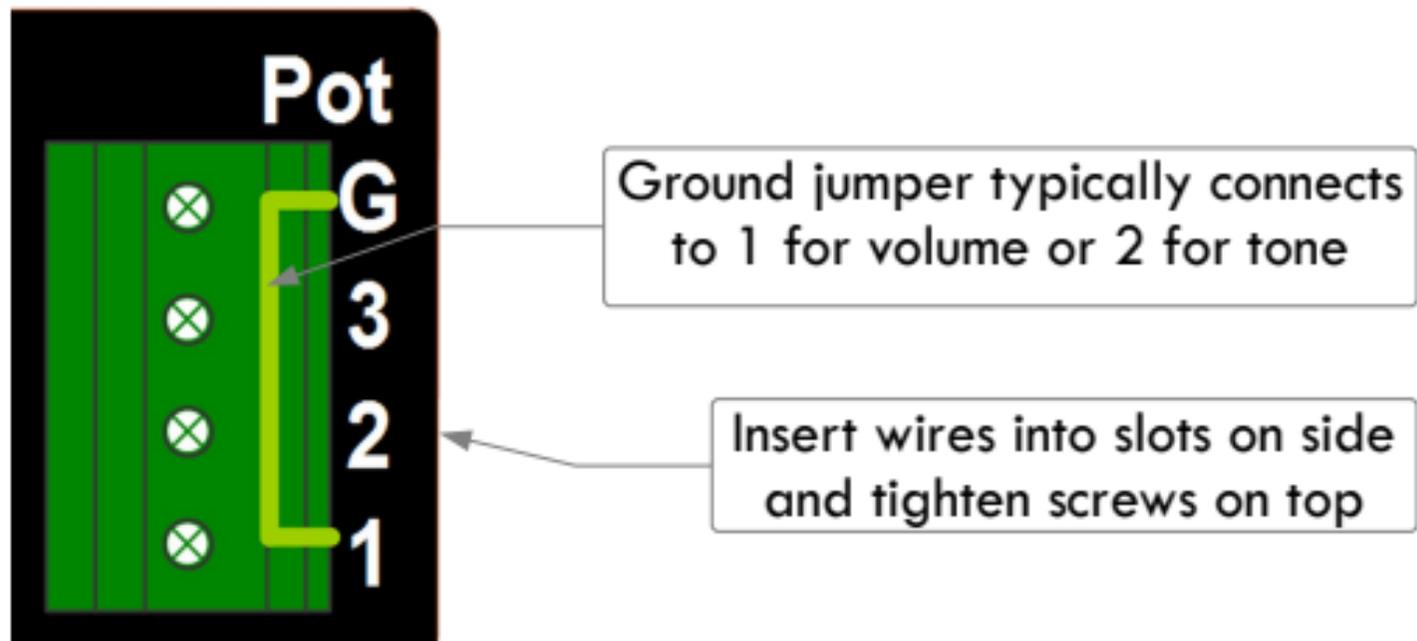


Figure C: **Pot Connector**

- [3] The ground jumper is installed in pot connector slots **G** and **1** for a typical volume pot. If necessary, move the jumper from slot **1** to the slot with the same number as the grounded lug of the original pot and tighten screw.

TIP: *If there are more ground wires than can fit into the **G** slot, connect the multiple ground wires to a short length of hookup wire using a B connector (both included) and insert the single wire into the **G** slot.*

- [4] Identify your pickup wires. Pickups can have from 1 to 4 wires plus a ground wire or braided shielding.

The hot (positive) wire is typically connected to the volume control or selector switch and ultimately goes to the output jack tip.

The negative wire is connected to ground or the output jack sleeve. If the pickup only has 1 wire with a ground wire or braided shielding, the ground wire or shielding is the negative wire.

- [5] If the pickup hot wire **WAS** attached to the pot connector in step [2]:
- [a] Remove pickup hot wire from the pot connector slot and install one end of the output jumper into this pot connector slot and tighten screw.
 - [b] Install the pickup hot wire into the **+** switch connector slot and tighten screw.
 - [c] Install the other end of the output jumper into the **○** switch connector slot (figure D next page) and tighten screw. Skip to step [7].

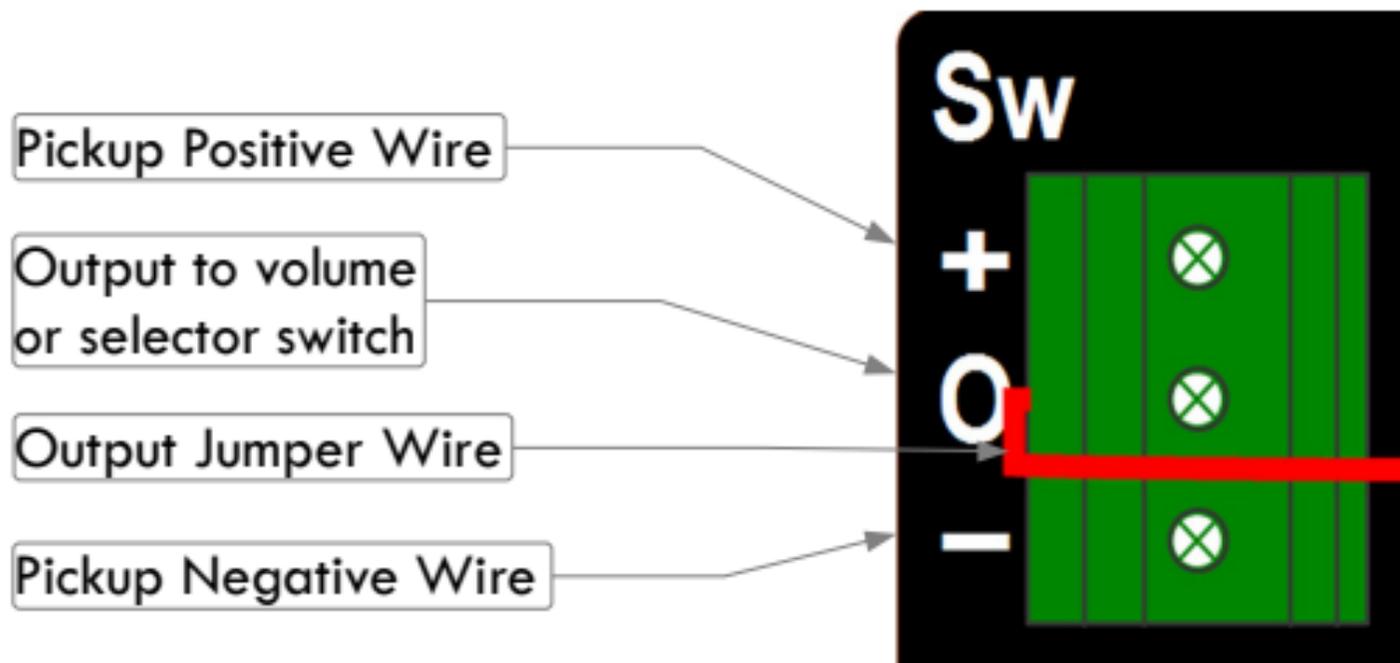


Figure D: Switch Connector

- [6] If pickup hot wire was **NOT** attached to the pot connector in step [2]:
- [a] Cut the hot wire so each cut end will reach the switch connector when PickupBender™ is mounted in the guitar. Strip 1/4 inch from end of each wire.
 - [b] Insert end of cut hot wire attached to pickup into the + switch connector slot (figure D page 21). Tighten screw.
 - [c] Insert other end of cut hot wire into the ○ switch connector slot (figure D page 21) and remove output jumper if installed. Tighten screw.

- [7] Cut the negative pickup wire from current ground point and strip $\frac{1}{4}$ inch from end of wire. Insert the negative pickup wire into the – switch connector slot (figure D page 21). Tighten screw.
- [8] Check wires attached to the connectors by **gently** tugging on each wire. If a wire pulls out, loosen screw, reinsert wire fully into slot, and firmly tighten screw.
- [9] For hollow body guitars, feed the PickupBender™ back through access hole, insert threaded collar into mounting hole, and fasten with nut and flat washer.

TIP: Feed length of string or wire into body through mounting hole and attach it to the split shaft. Then pull the string to guide the PickupBender™ through the mounting hole from inside of guitar.

[10] For a push-on knob, align knob with knurling and carefully push knob onto the knurled split shaft. For a set-screw knob, place knob on knurled split shaft and tighten set screw to hold it in place (be careful to avoid damaging knurled split shaft).

Using Phase Reverse

Pull the PickupBender™ Phase Reverse control knob out to switch to the alternative out-of-phase mode. This mode puts the connected pickup out of phase with the other pickup(s).

Push in on the control knob to switch back to the standard in-phase mode. This mode puts the connected pickup in phase with other pickup(s).

The out-of-phase mode produces a thin, bright, hollow sound that varies based on the pickups used. At least one other pickup must be selected on with the connected pickup to hear the effect.

Phase Reverse works with any combination of two pickups (humbucker and/or single-coil) and does not disable the noise canceling function of a humbucker pickup.

TIP: *If the guitar sounds out of phase with knob pushed in, swap the wires connected to the + and - slots of switch connector (connect the + wire to the - slot, and the - wire to the + slot).*

Product Warranty

Manufacturer warrants product to be free from defects in materials and workmanship under normal use and service for a period of one (1) year from date of purchase. Manufacturer, at their discretion, will either repair or replace defective product.

Modifying product in any way will void this warranty. Damage caused by improper installation or misuse of product are not covered under this warranty.

Manufacturer is not be liable for any consequential damage as a result of the product's use in any circuit or assembly including damage caused by installation, use or

misuse of product, or from any delay in the performance of this warranty due to causes beyond their control.

The foregoing warranty is in lieu of all other warranties, expressed or implied. Manufacturer neither assumes nor authorizes any person to assume any obligation or liability in connection with the sale of this product.

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