



ACTIVE MAGNETIC SOUNDHOLE PICKUP

# Permanent Installation Guide

**Important!** Permanent installation of the Rare Earth™ requires some degree of woodworking/electronics soldering skill and should be performed only by a qualified repair-person. Fishman Transducers will not be held responsible for damages to the pickup or your instrument that result from improper installation.

The goal of this procedure is to mount the Rare Earth™ pickup and endpin jack securely in the guitar. Please follow these guidelines carefully; a pickup that is not properly mounted may slip out of the soundhole and may damage a guitar that is shipped or checked as baggage.

## Install the Endpin Jack

### Tools

- Soldering iron (30 watt max)
- Wire strippers
- 1/2" open end wrench
- 2.4mm (3/32") slot head screwdriver
- 15/32" (11.9 mm) reamer or:
- Rosin core solder
- #1 Phillips screwdriver
- 3/32" Allen wrench
- #4 washers (#3metric)
- Variable speed drill
- Center punch
- 1/8" (3.2 mm) twist drill
- 15/32" (11.9 mm) Spade bit drill
- X-Acto miniature saw

### Procedure

- Widen the endpin hole to accept the endpin jack. There are two methods to widen the endpin hole ...

### Slow and Safe

If you have the time, this is the preferred method. Remove the endpin and widen the hole to size with a 15/32" (11.9 mm) reamer (available in the US & Canada through Stewart Macdonald, 800-848-2273 part #4323).

OR ...

### Quick & Clean

The objective here is to quickly drill out the endpin jack hole, with the endpin or other suitable plug in place. You may remove a loose endpin and refasten it in the endblock with cyanoacrylate glue before starting the procedure.

**Note:** We do not recommend this method for instruments with brittle ornamental veneers (ex: abalone) around the endblock

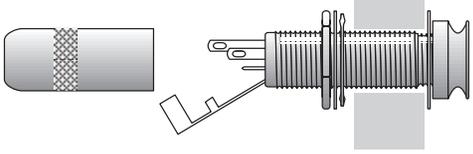
1. Apply masking tape around the endblock area to protect the instrument.
2. Locate an X-Acto saw 1/16" (1.6 mm) away from the body and saw off the endpin, nearly flush to the instrument.
3. Centerpunch a guide hole in the trimmed endpin.
4. Drill a 1/8" (3.2 mm) pilot hole through the endpin and endblock.
5. Line up 15/32" (11.9 mm) Spade bit in the pilot hole and begin drilling. Maintain a perpendicular plunge in relation to the instrument. Use steady (but not heavy) pressure, especially as the drill exits inside the guitar.
6. To avoid damage to the instrument, let the drill come to a complete stop before removing it from the hole.

## Wiring Options

Cut the pickup wire (or coil it up and secure with a tie wrap) to a length suitable to reach between the soundhole and the endpin. Leave extra length to move the pickup out of the sound hole for battery replacement.

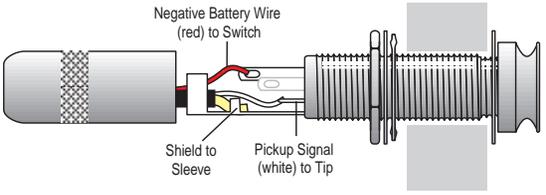
### Preliminary

1. Strip 3/8" off the outside jacket of the pickup wire.
2. Tin the red and white wires, as well as the ground wire. With the Blend and Custom Blend models, clip the blue, yellow and green wires short, as they are unused. The black wire on the Blend model carries an additional microphone signal for wiring the pickup/mic in stereo.
3. Gently bend back the ground/strain relief to gain access to the three other terminals.



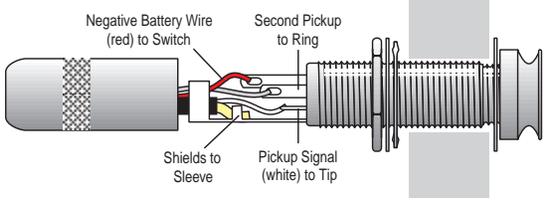
### Standard Mono Wiring for all Models

1. Solder the white wire (signal) to the shortest terminal on the jack (Tip).
2. Solder the red wire (Neg. battery) to the longest terminal on the jack (Switch).
3. Solder the pickup shield wire to the Sleeve tab on the jack (Ground).



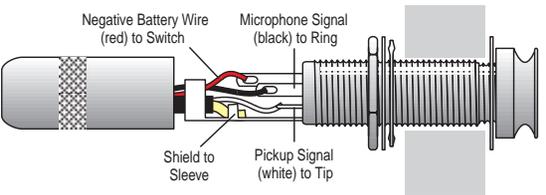
### To add a second pickup in stereo

Solder the signal wire from the second pickup to the Ring terminal (middle length) of the jack. Solder the shield from the second pickup to the Sleeve terminal of the jack.

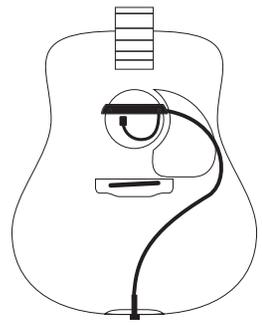


### To wire the Rare Earth™ Blend in stereo

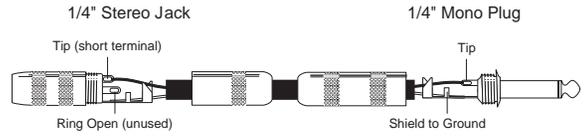
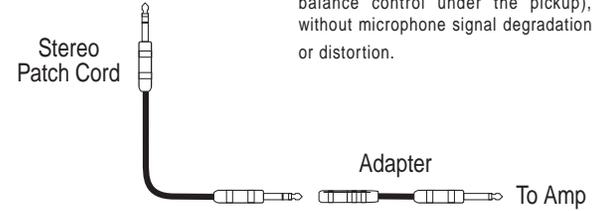
To split the pickup and microphone signals to separate destinations: Solder the black wire (microphone signal) to the middle length terminal (Ring).



## To send pickup and microphone signals to a mono destination with a Rare Earth™ Blend that is wired for stereo



If you wish to go back to a mono output for a stereo wired Rare Earth Blend, you may do so without removing and rewiring the endpin jack. Instead, make a special adapter with a mono male plug at one end and a female stereo jack open. Plug the stereo cord from the Rare Earth Blend into this adapter. You may now combine microphone and pickup signals in mono (using the balance control under the pickup), without microphone signal degradation or distortion.

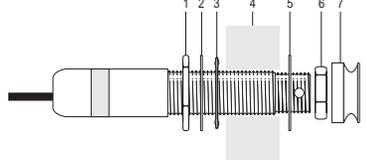


STEREO TO MONO ADAPTER

## Fasten the Jack in the Endpin Hole

Follow this sequence when installing the endpin jack:

1. Large Hex Nut
2. Large Dress Washer
3. Star Washer
4. Guitar Endblock
5. Small Dress Washer
6. Small Dress Nut
7. Strap Button



The jack should protrude at least 5/16" (7.9 mm) and no more than 11/32" (8.7 mm) outside the guitar's body for proper fit.

Fit the small dress washer and nut over the end of the jack, then insert a 3/32" Allen wrench through the small hole on the end of the jack. Tighten the nut with a 1/2" open-end wrench while holding the jack in place with the Allen wrench. Thread and hand tighten the strap button.

**Note:** With the strap button in place, the end of the jack should protrude slightly, so that when a plug is inserted, it will snap securely in place.

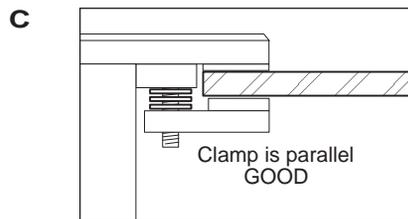
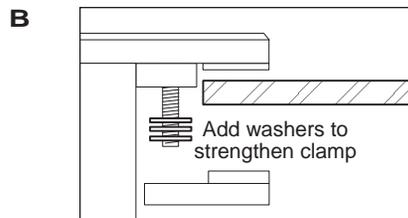
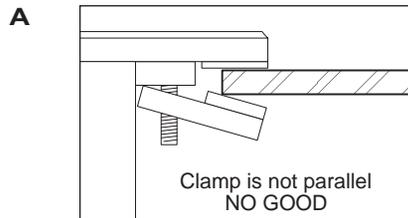


A set of adhesive backed clips has been provided to secure the pickup cable inside of the guitar once the endpin jack has been installed. Remove the plastic film from the back of each clip to expose the adhesive. Secure the cable/clips to the kerfed lining of the guitar.

# Permanent Pickup Installation

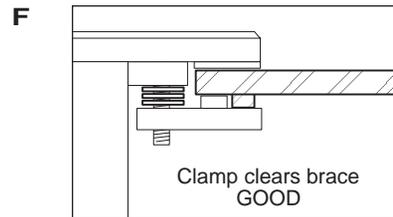
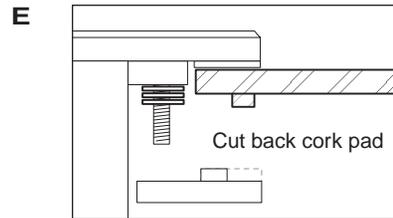
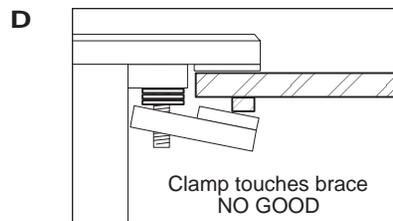
1. Loosen the pickup clamps.
2. Position the pickup as close to the fingerboard as possible. The pickup should be parallel to the fingerboard and centered between the outside strings.
3. Lightly tighten the clamps with a #1 Phillips screwdriver until they start to grab. Do not over tighten.

With an inspection mirror, check the clamps inside the guitar. When properly seated, the moveable jaws will be parallel to the soundboard. We recommend that you shim the clamps with #4 washers (#3 metric) - see Figure C. This will strengthen the clamping power of the jaws and prevent damage from overtightening. Use as many washers as needed to keep the jaws parallel to the soundboard, while still maintaining a good, firm grip.



4. With the inspection mirror, check to see if the moveable jaws touch the support braces that run close to the edge of the soundhole. If the clamps do not touch these braces, you may tighten the screws until the clamps are fully seated. Make sure the pickup is secure; try to slide it out of the soundhole. If you can't move the pickup, you are done.

If after tightening, you can move the pickup with little effort, the jaws are probably hung up on the interior soundhole braces. If so, go to step 5.



5. If the tips of the clamps inside the guitar make contact with the soundhole braces - see Figure D - then the pickup can not firmly grip the guitar and may slip out of the soundhole over a period of time.

Try mounting the pickup slightly back toward the center of the soundhole. Doing so will often clear the clamps from the soundhole braces. After you move the pickup, re-check with the inspection mirror. If everything lines up, retighten the clamps and check the pickup for tightness in the soundhole.

If the clamps are still hung up on the soundhole braces, go to step 6.

6. Cut back the cork pads on the tips of the moveable jaws - see Figure E - just enough to keep the pads from touching the soundhole braces. If the soundhole braces are taller than the cork pads, shim up the existing pads with a similar material. A shim kit, consisting of four adhesive-backed cork pads (in the shape of the clamps), is available through your Fishman dealer. (Fishman Part # ACC-SHM-KIT).

After you have cut down the pads and replaced the pickup in the sound hole, retighten the screws and check the pickup for tightness.

**Rare Earth**™

ACTIVE MAGNETIC SOUNDHOLE PICKUP



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*Acoustic Power*