

# Rare Earth™

## BASS



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ACTIVE MAGNETIC SOUNDHOLE PICKUP

**FISHMAN®**  
*Acoustic Power*

## THANK YOU FOR PURCHASING THE FISHMAN RARE EARTH™ BASS !

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We are pleased to offer you the finest magnetic soundhole pickup available for acoustic bass guitars. If you have any questions or comments, you may reach our Customer Service Department at 978-988-9665 or E-mail us at tech@fishman.com.

The Rare Earth™ Bass is a compact active magnetic soundhole pickup, designed for 4-string acoustic bass guitars. Its low profile design ensures that both your playing style and the guitar's acoustic tone will not be affected.

The natural sound of your acoustic bass guitar is reproduced by the Rare Earth™ thanks to state-of-the-art magnetic field/coil structure and advanced active electronics. A unique arrangement of neodymium magnets provides excellent string balance. Neodymium (a rare earth element, hence the name) has 10 times the magnetic strength of ceramic magnets, which makes the Rare Earth™ smaller and lighter than many traditional soundhole pickups.

*Please note that the Rare Earth™ Bass is designed for use with **bronze** or **phosphor bronze** acoustic bass guitar strings and will not balance as well with standard electric strings.*

## START UP

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If you are like most people, you will probably want to plug in the Rare Earth™ right out of the box. Be our guest! To temporarily install the pickup, loosen the clamps with a #1 Phillips screwdriver. Position the pickup in the soundhole, parallel to and as close to the end of the fingerboard as possible. Gently re-tighten the clamps. You can run the output cable through the soundhole.

If you plan to travel with your guitar or store it in its case for long periods with the pickup in place, we strongly recommend that you have the endpin jack and pickup professionally installed in your instrument (see Permanent Installation on page 5).

There are a few good reasons to do so:

1. If you store the guitar with the pickup cable outside the instrument and the cable comes to rest on the guitar, the rubber jacket may interact with the finish and leave a permanent mark.

2. A loose endpin jack stored inside the instrument may damage the guitar when travelling.
3. A pickup that has not been securely mounted in the soundhole may become dislodged and could damage the instrument during transit.

## FEATURES

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### Mounting Clamps

The Rare Earth™ pickup mounts quickly and securely with these padded clamps. The jaws of the clamps are lined with natural cork, which will not interact with the guitar's finish. A #1 Phillips screwdriver works best to tighten the mounting clamps.

*Be careful not to over tighten the clamps!* Doing so may, in some cases, perforate the finish under the clamps (see Permanent Installation on page 5).

### Endpin Jack

The Rare Earth™ runs on two little watch batteries that switch on when you plug in the endpin jack. To conserve battery life, unplug the endpin jack when not in use.

It is a good idea to plug the pickup in before turning on your amp to protect your speakers (and your ears) from "turn-on-transient-thump".

You may choose to keep the endpin jack outside the instrument for temporary use or permanently mount it in the endblock of the guitar (see Permanent Installation on page 5).

### Battery Power

The batteries for the Rare Earth™ are conveniently mounted to the underside of the pickup. You can expect over 300 hours of battery life between battery changes. When you begin to hear distortion from the pickup, it's time to change the batteries.

## Battery Replacement

Remove the pickup from the instrument and carefully pry out the batteries with a small flat-head jeweler's screwdriver. When you replace the batteries, be sure to observe the correct polarity. Note that plus (+) and minus (-) polarity marks are molded into the shell of the battery clip.



Two 1.5 Volt silver oxide EverReady #357

One 3 Volt Duracell DL1/3N

## THE PICKUP

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The Rare Earth™ has been carefully voiced to reproduce a balanced string to string response. If your guitar has very high action on the bass side or very low action on the treble side, you may hear a slight imbalance between the outside strings. To attain a balanced response in these cases, raise the bass side of the pickup with a shim.

The Rare Earth™ Bass pickup is voiced specifically for **bronze** or **phosphor bronze** strings.

## THE PREAMP

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The preamp is housed within the pickup. The low-noise circuit design preserves pickup performance in any audio environment. The preamp allows you to plug the Rare Earth™ into a full range instrument amplifier, an unbalanced input of a PA system, a recording console or direct box, without signal loss or degradation. You may run cables up to 80' (25m) in length without any audible loss of fidelity.

## PERMANENT INSTALLATION

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**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

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### Tools

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

### 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 method is preferred. 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 a 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.

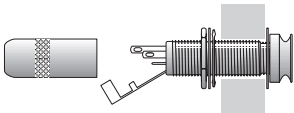
## WIRING OPTIONS

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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.

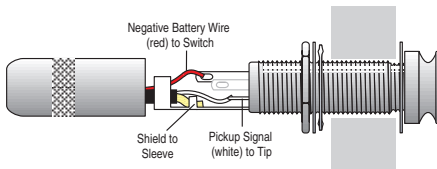
### Preliminary

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.
3. Gently bend back the ground/strain relief to gain access to the three other terminals.



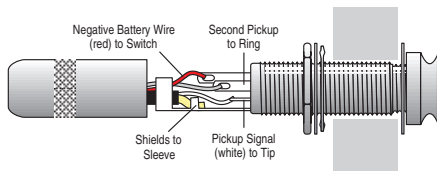
## Standard Mono Wiring

1. Solder the white wire (Signal) to the shortest terminal on the jack (Tip).
2. Solder the red wire (Negative 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

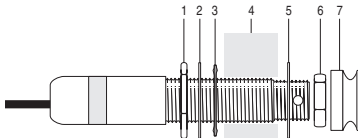
Solder the signal wire from the second pickup to the Ring terminal (middle length) of the jack. Solder the shield from the second pickup to the Sleeve terminal of the jack.



## 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



### Fasten the Jack - Continued

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.



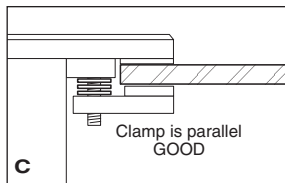
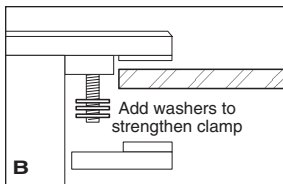
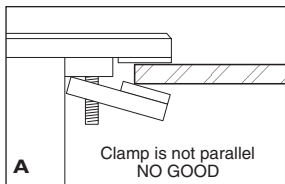
A set of adhesive-backed clips has been provided to secure the pickup cable inside the guitar once the endpin jack has been installed. Remove the plastic film from the back of each clip to expose the adhesive. Secure the cable/clips to the kerfed lining of the guitar.

## **PERMANENT PICKUP INSTALLATION**

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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.

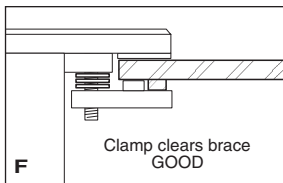
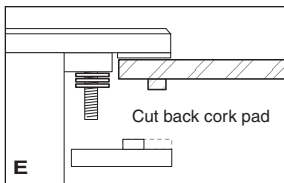
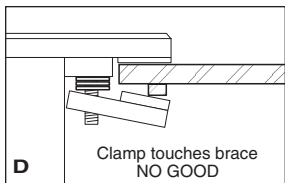
With an inspection mirror, check the clamps inside the guitar. When properly seated, the moveable jaws will be parallel to the soundboard. We recommend that you shim the clamps with #4 washers (#3 metric) - see Figure C. This will strengthen the clamping power of the jaws and prevent damage from overtightening.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



- 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.

Permanent Pickup Installation - Contiued



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 B - 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.

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

## SPECIFICATIONS

Maximum Output Level	-6 dBu RMS
Output Impedance	200 Ohms
Output Noise Level	<-98dBu RMS, A weighted
Recommended Minimum Load Impedance	2k Ohms
Supply Voltage	3.0-3.6V
Current Consumption	.4 mA
Battery Life	>300 hours

### Battery Requirements

Two 1.5 Volt silver oxide:

Eveready #357

ANSI-WS15

1EC-SR44

Will also accept one 3-Volt lithium battery:

Duracell DL1/3N

EverReady 2L76

Varta CR 1/3N 6132

Union Carbide 2L76

Others:

Sanyo CR 1/3N

K58L

*All specifications subject to change without notice.*

# L I M I T E D   W A R R A N T Y

The FISHMAN Rare Earth™BASS Active Magnetic Soundhole Pickup is warranted to function for a period of One (1) Year from the date of purchase. If the unit fails to function properly within the warranty period, free repair and the option of replacement or refund in the event that FISHMAN is unable to make repair are FISHMAN's only obligations. This warranty does not cover any consequential damages or damage to the unit due to misuse, accident, or neglect. FISHMAN retains the right to make such determination on the basis of factory inspection. Products returned to FISHMAN for repair or replacement must be shipped in accordance with the Return Policy, as follows. This warranty remains valid only if repairs are performed by FISHMAN. This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

## Return Policy

To return products to FISHMAN TRANSDUCERS, you must follow these steps...

1. Call FISHMAN TRANSDUCERS at 978-988-9199 for a Return Authorization Number ("RAN").
2. Enclose a copy of the original Bill of Sale as evidence of the date of purchase, with the product in its original packaging and a protective carton or mailer.
3. FISHMAN TRANSDUCERS' technicians will determine whether the item is covered by warranty or if it instead has been damaged by improper customer installation or other causes not related to defects in material or workmanship.
4. Warranty repairs or replacements will be sent automatically free of charge.
5. If FISHMAN TRANSDUCERS determines the item is not covered by warranty, we will notify you of the repair or replacement cost and wait for your authorization to proceed.



### **FISHMAN TRANSDUCERS**

340-D Fordham Road Wilmington MA 01887 USA

Phone 978-988-9199 • Fax 978-988-0770

[www.fishman.com](http://www.fishman.com)