

DOUBLE BARREL

INSTALLATION MANUAL & USER'S GUIDE

L.R. Baggs

483 N. FRONTAGE RD.
NIPOMO, CA 93444
WWW.LRBAGGS.COM

TABLE OF CONTENTS

1. Package Contents
2. Overview and Cautions
3. Strapjack Installation
4. Pickup Installation
5. Battery Bag Installation
6. Microphone Installation
7. User's Guide

1. PACKAGE CONTENTS

- One (1) Double Barrel system assembly
- One (1) Battery Bag
- Two (2) self-stick wire clips

2. OVERVIEW AND CAUTIONS

The Double Barrel system is an all-discrete, class A, dual-channel pickup/microphone system that is built right onto a four-pin strapjack. It pairs the Ribbon Transducer with our own FET condenser mini-mic and features independent buffered outputs for the pickup and mic channels. The preamp powers the mic, making phantom power from an outside source unnecessary.

Caution: If you are running the outputs of the Double Barrel into a preamp that provides phantom power for an onboard microphone, be sure to turn phantom power off.

The Double Barrel circuitry is specifically tuned for the L.R. Baggs mini-mic, but an alternate non-tuned mic input is also provided to allow the Double Barrel to be used with most other popular mini-microphones. Connections for alternative microphones are discussed in section 6.

We recommend that this system be installed by a professional dealer/installer. We do not provide installation advice or support for home or hobbyist installations. Installers: please read the instructions carefully before proceeding. We will not be responsible for any product or instrument damage, or personal injury resulting from installation, improper installation, use or misuse of the product.

3. STRAPJACK INSTALLATION

1. For proper installation, this jack requires a clean 1/2" hole in the tail block of the instrument. If the guitar has this hole, proceed to step 2. If not, start by placing a piece of masking tape on the outside of the instrument over the drilling area (to avoid chipping the finish), drill a small pilot hole in the tail block and then follow with a step drill.

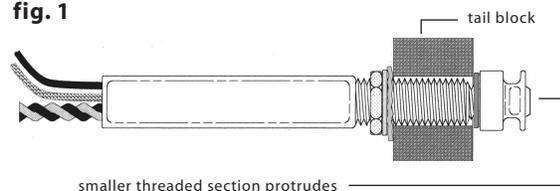
2. Remove the strap ring, retaining nut and one washer from the end of the jack. There should still be one star locking washer, one flat washer and a nut remaining on the mid section of the jack. Bring the jack down into the sound hole and through your pre-drilled hole in the tail block. Using the internal nut (be sure to include the flat and star washers), set the proper depth that will allow the smaller threaded section at the end of the jack to protrude out of the end of the guitar. When the jack is fully seated in the tailblock, there should be about 2 threads of the small threaded section remaining inside the hole.

4. PICKUP INSTALLATION

Notes:

1. For optimum performance of this pickup, the saddle slot must have a clean, flat surface free of any debris or over-spray from the finish. The slot must be a minimum of .125" (1/8") deep but we suggest a depth of .187" (3/16") to avoid excessive saddle tilt (see figure 5, which illustrates excessive tilt).
2. Installing a .090" pickup in a .120" slot is not recommended.
3. Do not remove the black material that is affixed to the bottom of the pickup.
4. Avoid unnecessary hard bending of the pickup. Repeated removal and replacement of the pickup during the course of the installation is not

fig. 1



advised.

5. Do not use shims under the saddle or pickup as a remedy for string balance problems or to adjust the action.

6. Failure to secure the loose end of the pickup under the bridge will produce bizarre audio consequences and eventually ruin the pickup.

7. The quality of sound, output level, balance and feedback resistance are all determined by how well the pickup mates with the saddle and the bridge. Uneven or partial contact between the saddle and the pickup will cause a boomy sound with low output, excessive body sensitivity and poor string balance.

Installation:

1. Remove the strings from the guitar. To duplicate the string height exactly, scribe a line along the front edge of the saddle where it extends above the bridge. The line will later be used as a guide when removing material from the bottom of the saddle to compensate for the thickness of the pickup (.025" total).

2. Remove the saddle to drill the hole for the pickup. The drill bit needs to be as large as the saddle slot will allow. Inspect the inside of the guitar and note the position of the braces in relation to the saddle slot. Drill at either end of the slot on the side that will enable you to avoid all braces as you penetrate the top, as shown in figures 2 and 3.

3. Feed the pickup into the slot from inside the guitar with the yellow side up. Inserting a toothpick or similar object through the hole from the outside is helpful in finding the location of the hole on the inside of the guitar. Sand the bottom surface of the saddle on a belt sander until the scribe line (from step 1) is just slightly above the bridge top. Finish sanding the bottom by hand. It is best to do this against a machined flat surface with fine sand paper. Use a straight edge with a strong light source to inspect the flatness of your saddle.

Important: The fit of the saddle in the slot is the single most important factor in this installation. It is crucial that the bottom of the slot and the lower surface of the saddle be flat to make even contact with the pickup. The saddle should fit in the slot loose enough to be able to be just pulled out with your fingertips. If it is too tight or binds at all, this will have a negative effect on the string balance. Likewise, if the saddle is too loose, it will have a substantial forward tilt when under string pressure, causing it to make poor contact with the pickup (see figure 5).

A saddle that fits correctly in the slot will have a slight forward tilt under string pressure (see figure 4). It is necessary to compensate for this angle by intentionally sanding a slight tilt in the bottom of the saddle so that when it leans forward it sits flat on the pickup (see figure 3). The saddle material can be a key element in curing string balance problems. This pickup responds most favorably to a rigid saddle material such as Micarta or bone. Using softer, more flexible materials may cause the outside strings to be lower in volume than the other strings.

If you are replacing the saddle, prepare the bottom of the new one as explained above (see step 3). Place it in the slot and scribe the same line on the front of it like the original saddle. To duplicate the action, lay the old saddle on the new one, match up the scribe lines, and trace the shape of the old saddle onto the new one. We recommend either bone or Micarta for your saddle. Softer materials tend to sound overly boomy.

4. Insert the pickup all the way into the slot, place the saddle on top of it and temporarily secure it with a piece of tape. Remove the backing from the adhesive on the end of the pickup hanging inside the guitar and attach it to the bridge plate or the underside of the top as shown in figures 6 or 7. Be careful not to place the adhesive over the bridge pin holes.

5. Choose a location for the wire clip and secure the pickup wire.

5. BATTERY BAG INSTALLATION

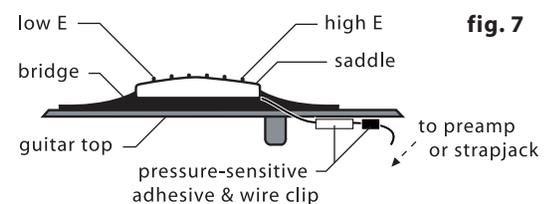
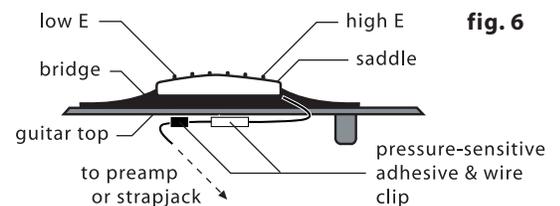
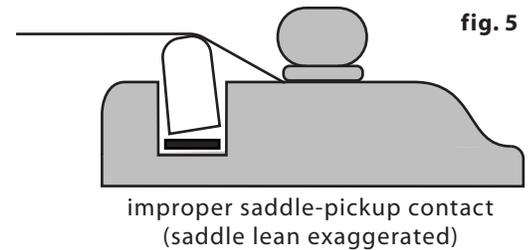
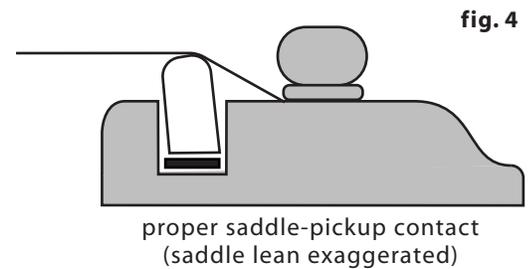
Stick the double-sided adhesive to an easily-accessible spot inside of the guitar. The battery can then be removed by opening the flap on the bag and pulling out the battery.

A wire clip has been provided to secure the battery bag wire to the inside of the guitar.

6. MICROPHONE INSTALLATION

The L.R. Baggs mini-microphone is designed to be positioned on the inside of the guitar, against the back and generally in the lower half of the guitar. Figure 8 shows a recommended mic placement; use this as a starting point.

1. To position the mic, fashion a simple placement tool out of a wire coat hanger or a measure of 12- to 14-gauge copper wire. The tool should be approximately 1 1/2 feet long and have a U shape at one end for lightly gripping the small foam block that houses the mic.



2. Attach the U-shaped portion of the tool to the foam and position the mic on the back of the inside of the guitar. If you haven't attached a battery yet, do so now.

3. Plug the guitar into a sound system with a stereo Y cable. The mic signal is on the ring contact of the stereo plug. To find the best location for the mic, it is best to have the pickup volume completely off, and listen to the mic signal through headphones. Lay the guitar on its back and strum the open strings while you move the mic around inside the guitar with the wire tool.

A quicker way to determine the best mic placement is to run the mic signal through an EQ such as our Para Acoustic D.I., boosting the midrange around 700 Hz by approximately 9dB before listening to the mic. Boosting the midrange frequencies will highlight the tones that are responsible for the midrange "honk" that internal mics can produce.

Increasing the midrange frequencies will likely result in an unsatisfactory tone, but this temporary EQ setting is only for testing purposes. As you move the mic around the the inside of the guitar, you will discover that there are small midrange nulls where the honk is minimized. The best placement will have the greatest minimizing effect on this sound.

4. Once the best position has been selected, look inside the guitar, carefully note the position of the microphone, and unstring the guitar. Remove the microphone from the guitar and stick the microphone to the velcro piece. Clean the area of any dust or debris, peel the backing from the velcro, and carefully adhere the mic precisely on the sweet spot. On some guitars, this area will be very small, and a half-inch movement in any direction can make a significant difference.

Alternative microphones:

The preamp in the Double Barrel will work well with and power most popular mini-mic capsules that use two-wire connections. When using an alternative microphone, use the manufacturer's recommendations for wiring and placement. To connect an alternative mic to the preamp, unscrew the shielding cap from the preamp and carefully de-solder the microphone. Solder the positive wire from the new mic across both mic input pads. Bridging these two solder pads as shown in figure 9 will defeat the contour for the L.R. Baggs mini-mic and provide a flat input for the alternative mic.

Caution: Use a pencil type soldering iron only. Do not use a soldering gun. Be careful when soldering -- excessive heat can permanently damage the solder pads.

Be sure to thread the mic wire through the shielding cap before soldering. Make sure all of the wires are secured with the wire clips provided, restraining the guitar, and the installation is complete.

Be sure to test the Double Barrel in both mono and stereo modes. Plug in a standard mono cable and you should hear the pickup signal only. Then use a stereo Y cable to test the split stereo function. The pickup signal will be on the tip contact and the mic signal will be on the ring contact.

7. USER'S GUIDE

The Double Barrel is a two-channel microphone/pickup system that pairs our Ribbon Transducer with our proprietary internal FET condenser mini-mic. It has independent buffered outputs for both the pickup and the microphone, which preserve these components' fidelity and eliminates crosstalk. The preamp powers the mic, making phantom power unnecessary. The preamp is built into our Strapjack Plus, making it possible to have mono, stereo and on/off switching all in one jack.

Battery Life: The Double Barrel provides roughly 500 hours of use between battery changes. Alternative microphones can affect battery life. The jack acts as the switch for the preamp, so whenever the system is plugged in, the battery is in use. Change the battery when you begin to notice distortion in your signal during hard strumming. The weaker the battery becomes, the more noticeable this distortion will be.

The system can be used in either mono or stereo mode:

Mono: By plugging in a standard mono cable, you will automatically have the pickup signal by itself. This is ideal for live situations when you don't have the time or resources to set up a stereo blend, or when you simply want to plug and play. The Double Barrel is engineered to get the best performance out of the Ribbon Transducer, and should not require additional outboard equalization when used with a high-quality PA. The EQ available at the mixing board should be adequate to fine tune your guitar to the room's acoustics.

Stereo: Access the stereo feature simply by plugging in a stereo Y cable. The pickup signal will be found on the tip contact and the mic signal on the ring. This mode provides pristine, all-discrete class A buffered outputs for both the microphone and the pickup. It is useful for quality recording and for achieving the optimum live sound. You can use individual outboard EQ and effects for each channel. For live work, this will allow you to send just the pickup signal to the feedback-prone stage monitors and allow more of the microphone in the main speakers for the ideal house mix.

Summed to mono: This is an exclusive Double Barrel feature that will mix the pickup and mic together into a mono signal. When used with our mini-mic, the summed mix will be approximately 2/3 pickup and 1/3 mic. When using alternative mics, the blend ratio and phase relationship between the two will change, possibly causing the mix to be unusable.

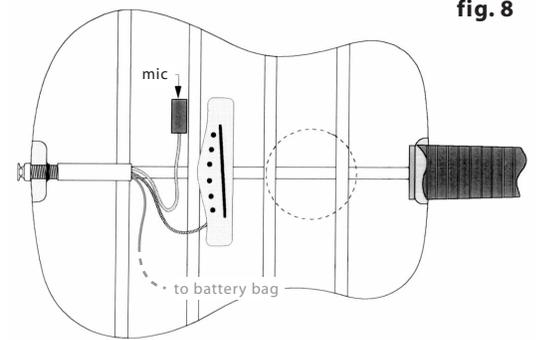


fig. 8

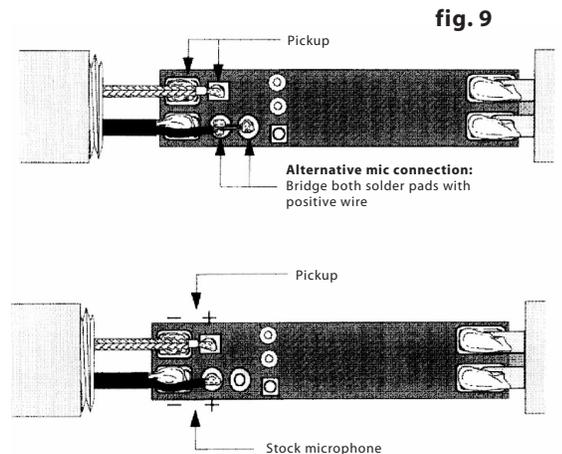


fig. 9