



Thank you for purchasing the Highlander iP-2 Integrated Pickup System.

At Highlander we appreciate that it takes years of practice, dedication and personal growth for an acoustic musician to develop the skills and spirit necessary to express themselves fully through their music. Through years of practice, dedication and personal growth our highly skilled team is crafting amplification equipment for these musicians that is so pure, we can all fully appreciate and be moved by the true spirit of their music.

Built to take the rigors of the road, you can rely on a Highlander.

For more information please visit our web site.

email: hmap@highlanderpickups.com

Contact us at:

USA & Canada Toll Free: 888.658.1819, Phone: 805.547.1410, Fax: 805.547.1228
870 Capitolio Way, Unit 3, San Luis Obispo, CA 93401

iP-2 INSTALLATION

For optimum pickup performance and ease of installation, please take a moment to read through this Installation Guide before beginning. Thank You.

THIS INSTALLATION SHOULD ONLY BE UNDERTAKEN BY AN EXPERIENCED LUTHIER OR A GOOD WOODWORKER WITH EXPERIENCE WORKING ON ACOUSTIC STRINGED INSTRUMENTS.

Using the wrong techniques or tools could result in permanent damage to your guitar. Highlander is not responsible for any damage resulting from the installation of this pickup system.

Parts Included:

- | Qty. | Description |
|------|---|
| 1 | Pre-wired iP-2 Pickup/Preamp Assembly with an Access Jack For connecting a 2nd source |
| 2 | Battery Holder Clips for 9 Volt Battery |
| 3 | Pieces of Self Adhesive Velcro® for cable strain relief |
| 1 | Stereo Mini-Plug for connecting a second transducer to the iP-2 |

Tools Required:

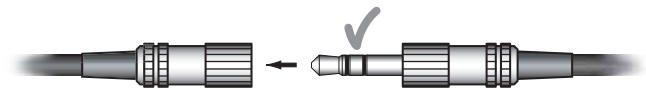
- HAND DRILL or ELECTRIC DRILL (cordless preferred)
- MILLING MACHINE or ROUTER AND SADDLE SLOTTING JIG Used for routing the groove
- * 17/32" (13.5mm) DRILL BIT, RELIEVED ON RAKE EDGES Used for drilling guitar end block for the strap jack
- * 9/16"-12 TPI NC TAP & MACHINIST'S TAP HANDLE Used for threading end block to accept the strap jack
- * 1/16" (1.6mm) DIAMETER BALL ENDED END MILL Used for routing the groove in the bottom of the saddle slot
- 3/32" (2.5mm) TWIST DRILL BIT Used for drilling both holes in the saddle slot for the pickup
- MILLING MACHINE or DISC / BELT SANDER or MACHINIST'S VISE AND FILE, STRAIGHT EDGE Used for reducing saddle height to compensate for the pickup thickness

*The following installation tools are available from Highlander:
 17/32" drill bit
 9/16"-12TPI tap bit
 1/16" router bit
 These tools are available individually or as the 'iP-installation kit'

About the Access Jack

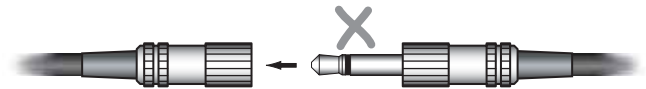
The Access Jack (AJ) is a 3.5mm Stereo Female Jack that enables a 2nd Source to be used with the iP-2 including a magnetic sound hole pickup or an electret microphone such as our 'Internal Mic'. Power for active pickups or electret microphones is provided on the ring of the AJ.

The power at the AJ is 'on' only when the guitar is plugged in. Both signals are available separately at the output Jack, enabling both sources to be connected to separate sound systems or amplifiers. Both signals can be combined using a good quality mixer such as our 'Pro Acoustic Mix DI'.



Always Use a Stereo Male to connect to the Access Jack.

When connecting a mono source, the stereo plug must still be used with the ring left unconnected.



Never use a Mono Male to connect to the Access Jack.

+9 Volt power on the ring will be shorted out causing the battery to seriously overheat.

If this inadvertently happens during installation, the battery has been compromised and must be changed.

A High Quality 3.5mm Stereo Male is provided with every iP-2.

About the Output Jack

The iP-2 is turned on when a guitar cord is plugged in and turned off when it is unplugged, saving the battery.

Tip: Pickup and Preamp Out
 Ring: 2nd Source Out
 Shield: Ground

The 2nd source is hard wired from the Tip of the Access Jack to the Ring on the Output Jack.

The iP-2 does not include a 2nd preamplifier for the 2nd source.



Output Jack

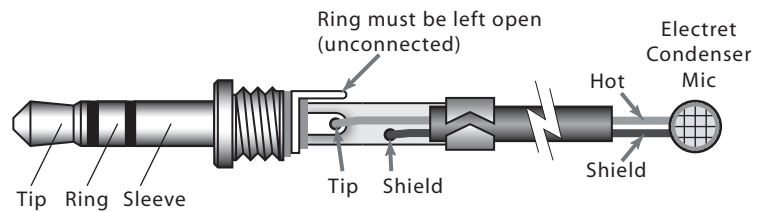
This innovative screw thread is designed to stay in place regardless of variations in the end block as it expands and contracts due to humidity and temperature changes.

By eliminating the typical machine thread and nut, our preamp will never come loose and require the awkward task of tightening a nut at the end pin block inside the guitar.

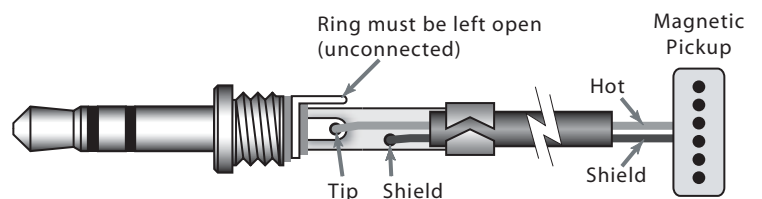
The elegant strap button holds the strap securely and will never untwist or loosen.

Typical wiring for the 3.5mm Stereo Mini Jack

Wiring for a Phantom Powered, Electret Microphone.



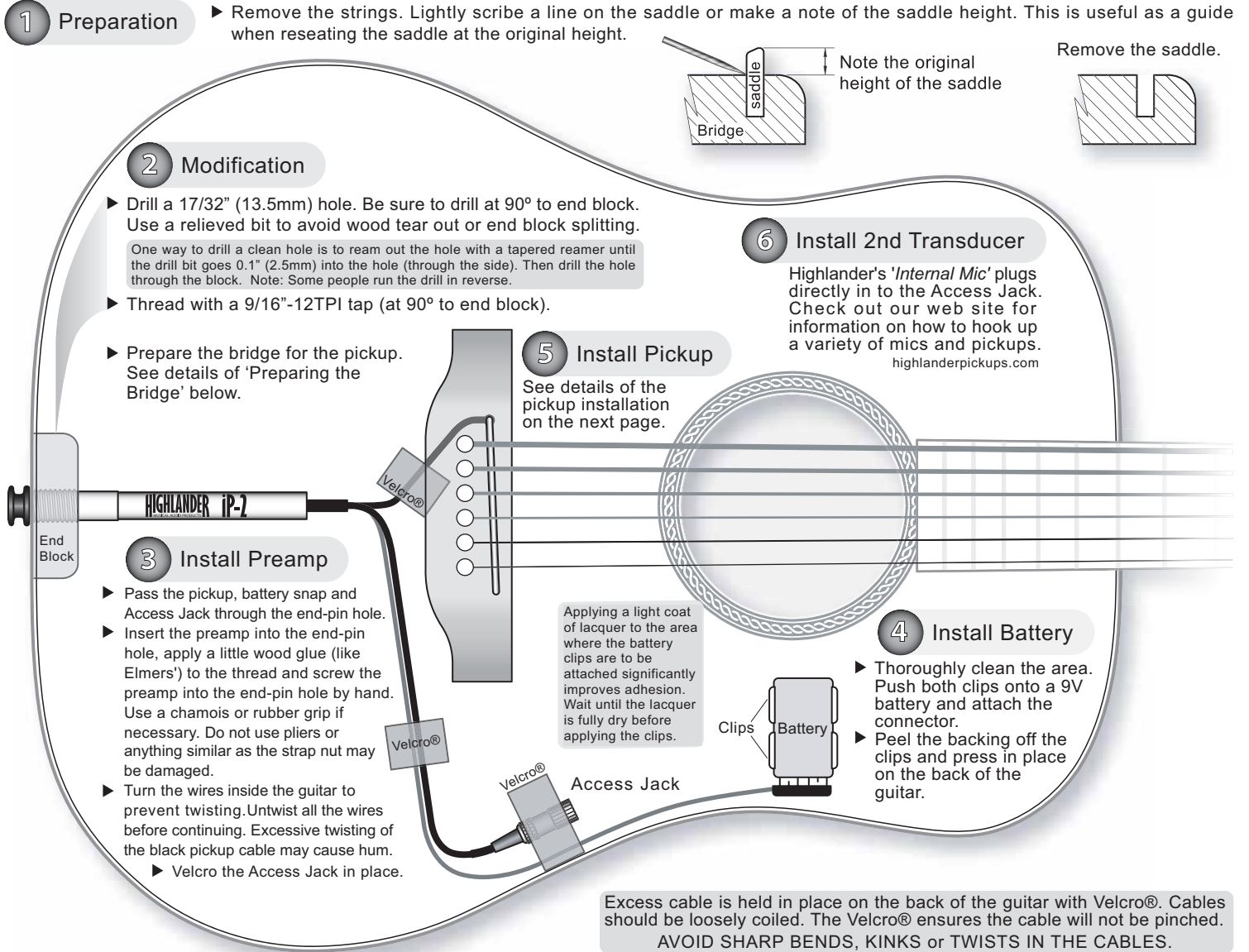
Wiring for a Passive Magnetic, Sound Hole Pickup.



For more information check out our web site: highlanderpickups.com

iP-2 INSTALLATION

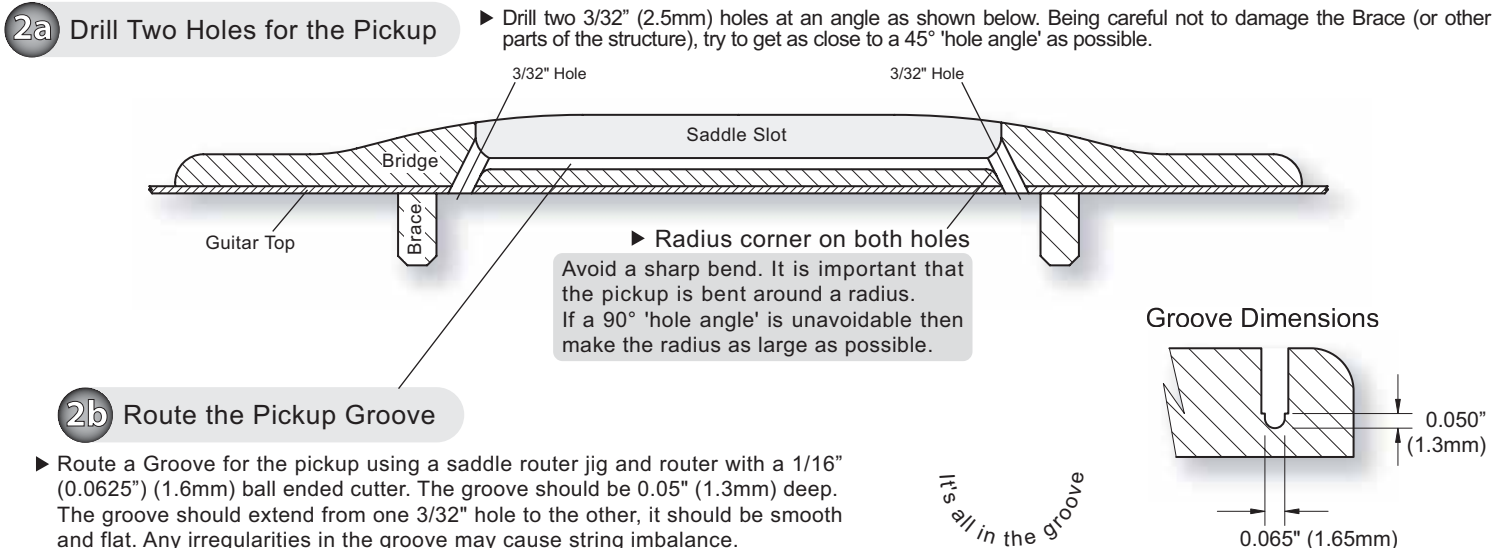
The information presented here has been greatly enhanced over the years by listening to the craftsmen who have installed countless numbers of these pickups. Thank you.



The battery position shown in this diagram is one possible placement option. The battery can also be mounted on the neck block. The actual position will depend on the type of instrument involved, and the needs of the musician using it.

Preparing the Bridge

The performance of the Highlander Pickup is optimized by embedding it in a groove in the bridge. This 'couples' the pickup to the sound board of the guitar capturing all of its energy, vitality and nuances.



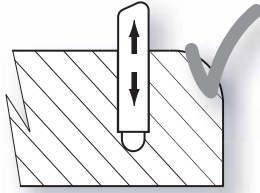
Installing the Pickup

Consistent String Balance is achieved with this 'Two Hole' installation.

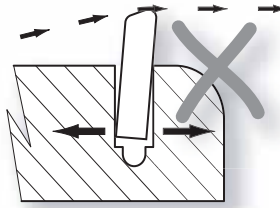
The consistent string balance achieved with this 'two hole' installation technique is due to the mechanical symmetry of having the same type of bend at each end the pickup. This causes the mechanical forces such as sound vibrations that are acting on the pickup to be well balanced throughout the pickup.

5 Check the 'Saddle Fit': This is important information for the correct operation of all under saddle pickups.

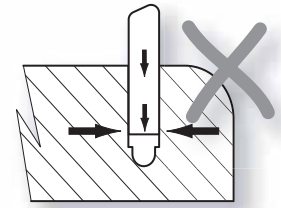
- The saddle should move freely up and down in the saddle slot.



- **Too loose** and the saddle can bind under string tension.



- **Too tight** and the saddle may not be fully seated.

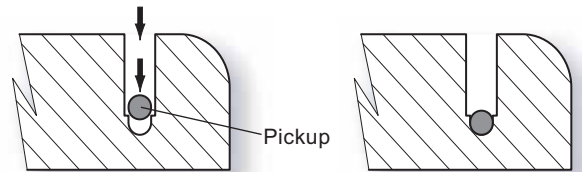
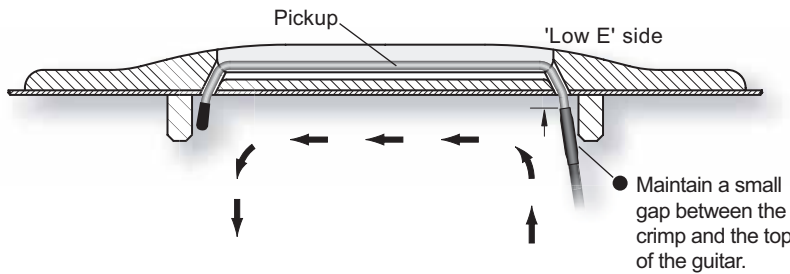


- To help maintain the 'Saddle Fit' during variations in humidity and temperature, lightly wax the bridge and the inside of the saddle slot. Be sure to remove any excess wax from the slot and especially the groove.
- Polishing the sides of the saddle helps create a smooth, sliding fit.

Note: These types of 'Saddle Fits' may sound o.k. acoustically, however, the saddle needs to be in full contact with the pickup for a good amplified sound and to insure the best acoustic tone and sustain.

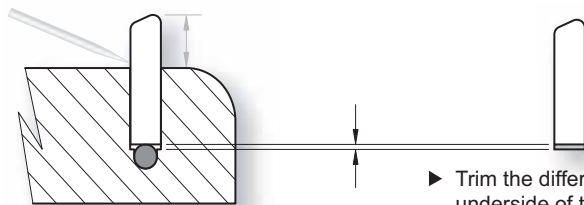
5a Install the Pickup in the Groove

- ▶ Pass the pickup up through the hole at the 'Low E' side of the bridge and then down through the hole at the 'High E' side of the bridge.

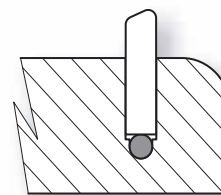


- ▶ Using the saddle or a piece of wood, apply just enough pressure to seat the pickup in the groove.

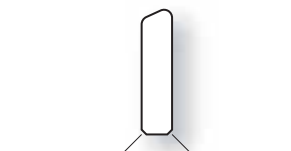
5b Trim and Install the Saddle



- ▶ Trim the difference from the underside of the saddle. The underside of the saddle must be really flat. Check with a straight edge.



- ▶ Check the saddle height.

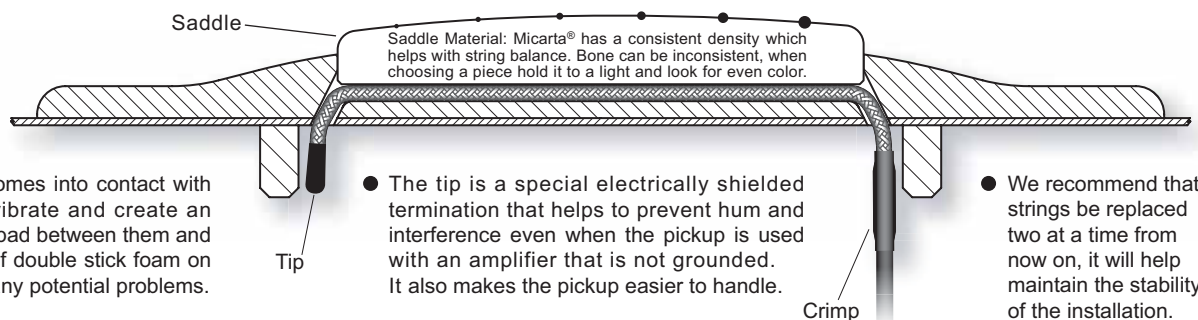


- ▶ Once the original saddle height is achieved, chamfer and deburr the bottom edges of saddle to help prevent binding.

- ▶ Measure the difference in saddle height using either the line scribed or the height measured in step 1.

5c Restringing

- ▶ Press the saddle down firmly on to the pickup and replace the strings. Start with the 'D' String. While tensioning it, press the saddle back (away from the sound hole) and down to prevent the saddle from binding in the saddle slot. Next, replace the 'G' String then the rest of the strings. Plug in and check the string balance and sound quality of the installation.



- If the tip or the crimp comes into contact with the brace they could vibrate and create an unwanted sound. A soft pad between them and the brace (like a piece of double stick foam on the brace) can prevent any potential problems.

- The tip is a special electrically shielded termination that helps to prevent hum and interference even when the pickup is used with an amplifier that is not grounded. It also makes the pickup easier to handle.

- We recommend that strings be replaced two at a time from now on, it will help maintain the stability of the installation.

The pickup will not function correctly if the tip is placed under the saddle, the tip must be inserted in the hole as illustrated above. Removing the tip of the pickup or the use of solvents, super glue or lacquer on the pickup will compromise its operation and will void the warranty.