

# HIGHLANDER MAGNOPHONIC

MUSICAL AUDIO PRODUCTS

Pickup and Preamp for the Tricone Resophonic Guitar

[highlanderpickups.com](http://highlanderpickups.com)

Thank you for purchasing  
the Magnophonic Pickup  
for Tricone Resonator  
Guitars.

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

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.

For more information please visit our web site.  
email: [hmap@highlanderpickups.com](mailto: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

# Magnophonic 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 A LUTHIER WITH EXPERIENCE WORKING ON RESO-PHONIC STRINGED INSTRUMENTS.

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

### About External Power

This unique pickup is designed to work in conjunction with a matching preamplifier. For optimum performance it is important to have the preamplifier mounted as close to the pickup as possible.

The preamp requires a 9V battery. While Highlander systems can run for 1000 hours on one 9V battery, this battery will have to be replaced from time to time. In an acoustic flat top guitar this is easily accomplished through the sound hole; however, it is not so easy to access the inside of a resonator guitar. That is why the External Power Accessory is highly recommended by Highlander and the National Reso-Phonic Guitar Company. The cover plate on these guitars was not designed to be removed and replaced regularly. Apart from the hassle, there is a possibility that over time this could cause problems. The External Power Option is easy to use, eliminating the hassle and potential problems.

Power is delivered to the guitar on the 'ring' of a stereo cable. If a mono cable is inadvertently plugged into the guitar jack on the External Power Box, the battery will be shorted out. This will cause the battery to run down very quickly, and there is also the possibility that the battery could get quite warm. If this happens the battery should be replaced.

Please note the External Power Box is used to power the preamp that is in the guitar -- there is no preamplifier in the External Power Box.

### Parts Included:

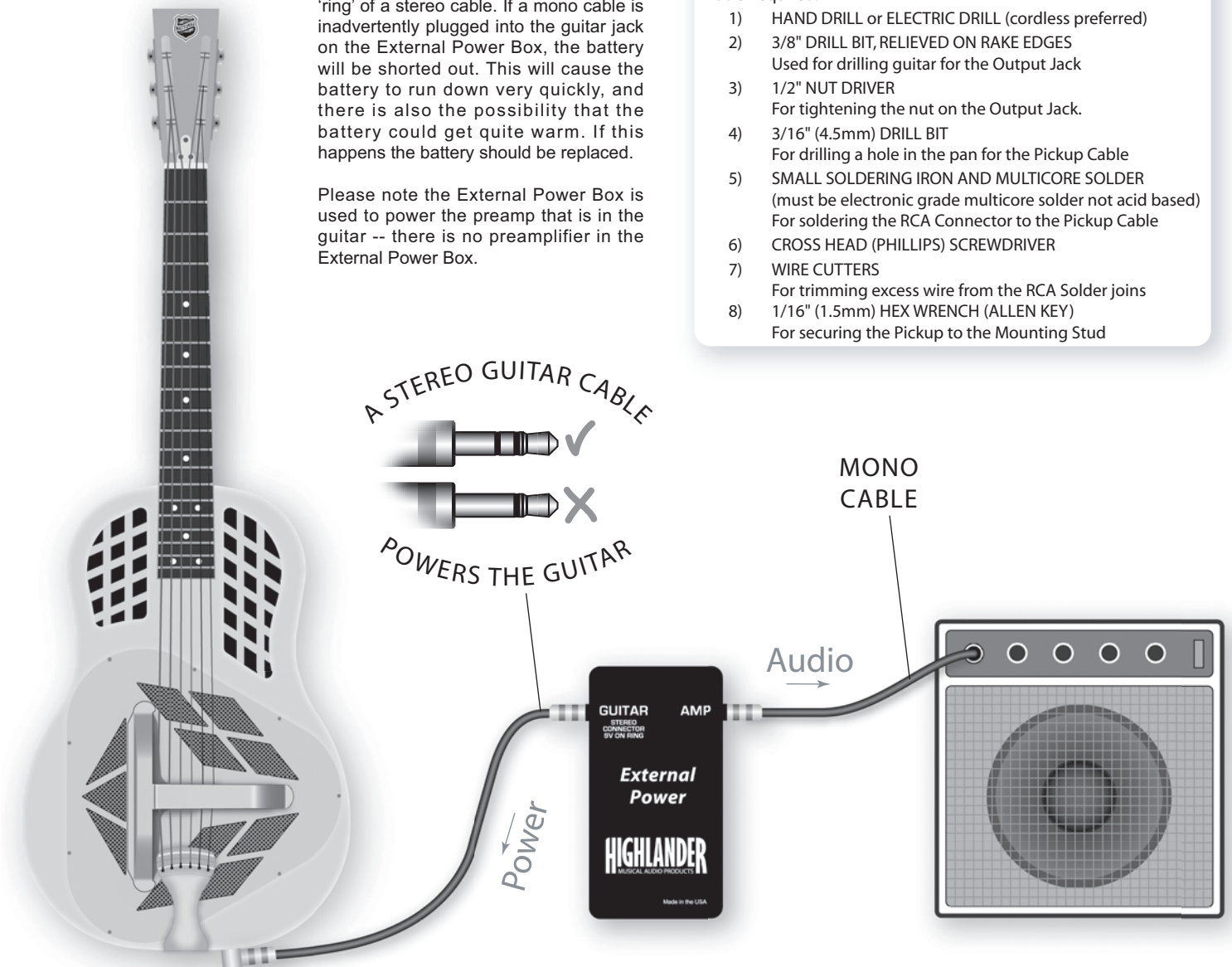
Qty.	Description
1	Magnophonic Pickup
1	Magnophonic (Matching) Preamplifier
1	Magnophonic T-Clip (mounts on the T-Bridge)
1	Hardware Mounting Kit comprising of:
1	Replacement Pan Screw (stainless steel)
1	Pickup Mounting Stud (stainless steel)
2	Screws
2	Washers
2	Preamp Clamps
1	Male RCA Connector
4	Pieces of Self Adhesive Velcro® for cable strain relief
1	External Power Adapter comprising of:
1	External Power Box (battery not included)
1	15 foot Stereo Cable

### Tools Required:

- 1) HAND DRILL or ELECTRIC DRILL (cordless preferred)
- 2) 3/8" DRILL BIT, RELIEVED ON RAKE EDGES  
Used for drilling guitar for the Output Jack
- 3) 1/2" NUT DRIVER  
For tightening the nut on the Output Jack.
- 4) 3/16" (4.5mm) DRILL BIT  
For drilling a hole in the pan for the Pickup Cable
- 5) SMALL SOLDERING IRON AND MULTICORE SOLDER  
(must be electronic grade multicore solder not acid based)  
For soldering the RCA Connector to the Pickup Cable
- 6) CROSS HEAD (PHILLIPS) SCREWDRIVER
- 7) WIRE CUTTERS  
For trimming excess wire from the RCA Solder joins
- 8) 1/16" (1.5mm) HEX WRENCH (ALLEN KEY)  
For securing the Pickup to the Mounting Stud

A STEREO GUITAR CABLE  
✓  
POWERS THE GUITAR

✗  
MONO CABLE



For more information check out our web site: [highlanderpickups.com](http://highlanderpickups.com)

# Magnophonic INSTALLATION

This Unique, Magnophonic Pickup and Preamp System was designed specifically for the National Resophonic Tricone Guitar.

## 1 Preparation

- ▶ Listen to the instrument. If there are no apparent problems continue with the installation. In the event of a string buzz or other problem, deal with this first then continue with the installation.
- ▶ Remove the strings and cover plate. Remove the cones and 'T' bridge, carefully place them out of harm's way.

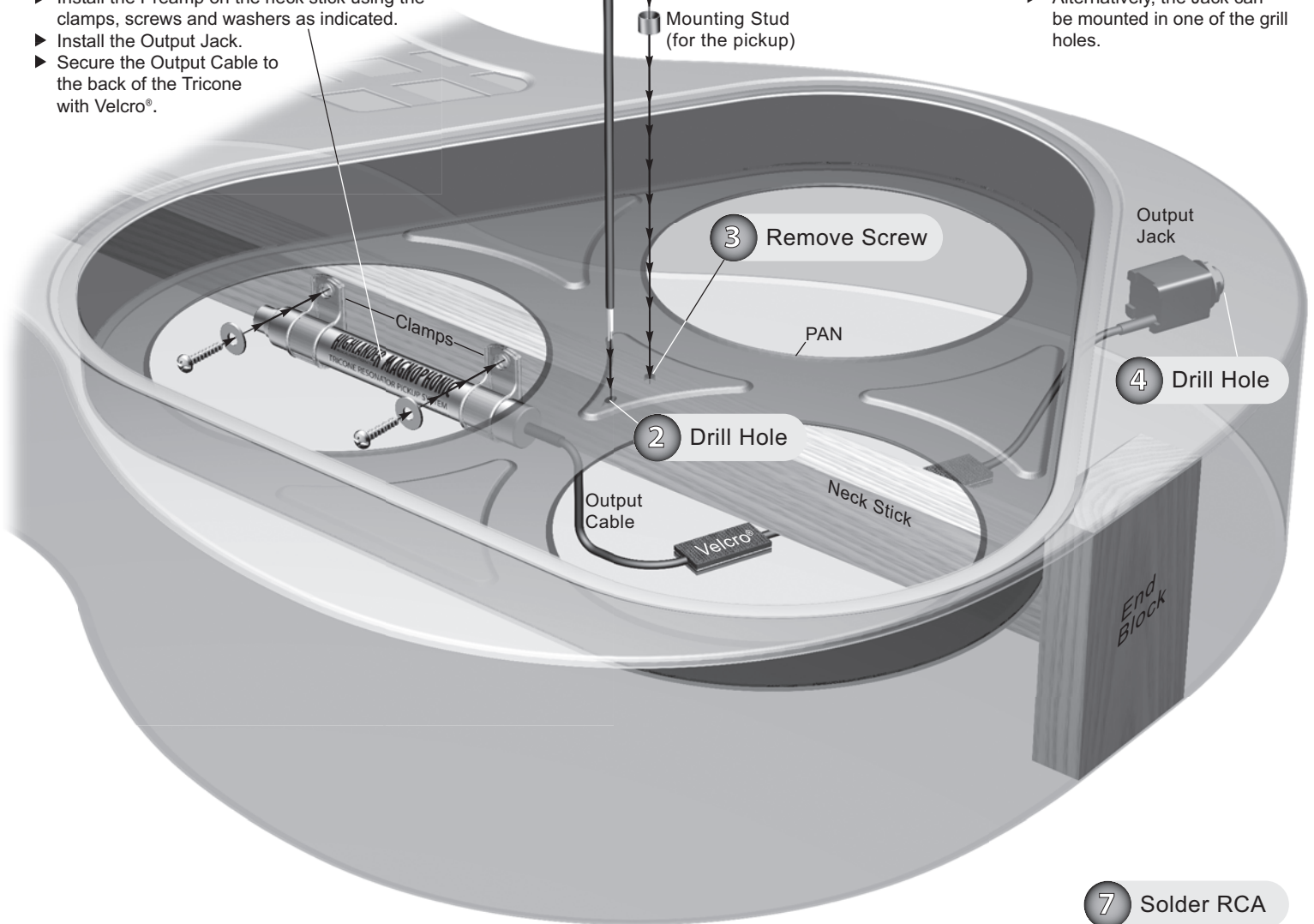
An easy method of removing and replacing the strings and cover plate:

- Release the tension on all the strings.
- Place a piece of masking tape over the nut and the string retaining holes in the tail piece.
- Carefully remove the screws holding the cover plate.
- Unscrew the strap nut and remove the tailpiece, cover plate and strings, carefully placing them to one side of the guitar while leaving the strings on the tuning pegs.

## 5 Install Preamp

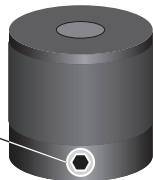
- ▶ Install the Preamp on the neck stick using the clamps, screws and washers as indicated.
- ▶ Install the Output Jack.
- ▶ Secure the Output Cable to the back of the Tricone with Velcro®.

- 2 ▶ Drill a 3/16" (4.5mm) hole for the pickup cable. Remove sharp edges.
- 3 ▶ Remove the existing 'Pan Screw'.
- 4 ▶ Drill a 3/8" (9.5mm) hole for the Output Jack. Alternatively, the Jack can be mounted in one of the grill holes.

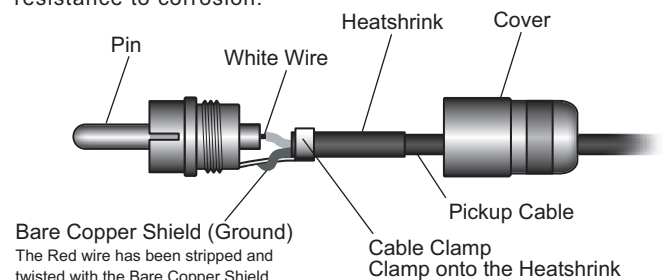


## 6 Mount Pickup

- ▶ Secure the Mounting Stud to the pan using the replacement screw.
- ▶ Thread the pickup cable through the 3/16" hole and slip the Pickup onto the mounting stud, pushing it down onto the pan.
- ▶ Secure the Pickup in place by tightening the 'set screw' in the base of the Pickup. Please don't over-tighten the 'set screw'.

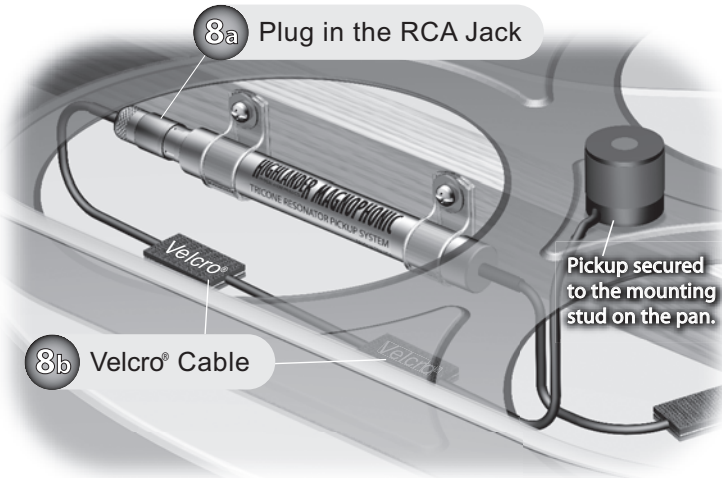


An RCA Connector is used to connect the pickup to the preamp. This connector was chosen for its 100% shielding, large contact area (providing a very low noise connection) and long term resistance to corrosion.

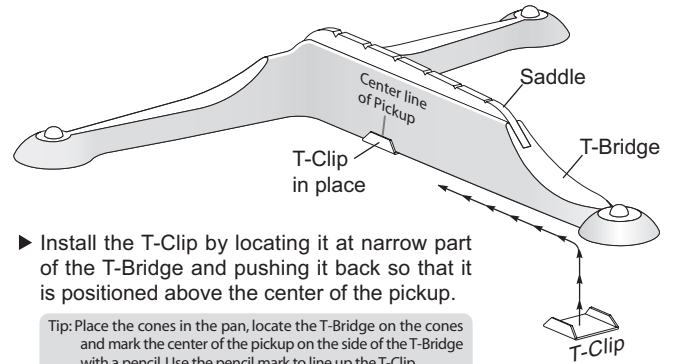


## Plug in the Pickup and Slip on the Clip

The T-Clip and Pickup use magnetic principles that are similar to dynamic microphones, using the structure of the Tricone to create a virtual microphone



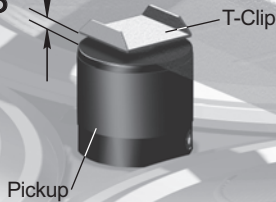
## 9 Install the T-Clip



## CHECK THE GAP

There must be a gap between the T-Clip and the Pickup for the system to operate correctly

UNDER STRING TENSION  
MEASURE  
THE GAP



### ★ UNDER STRING TENSION:

- Measure the Gap between the bottom of the T-Clip and the top of the Pickup.
- The Gap must be between 1/16" and 3/32" (1.5mm / 2.4mm).
- The T-Clip must not rest on or touch the Pickup.

If the GAP is too Small:

- Check between the pan and the neck stick for any wooden shims. Removing or reducing the thickness of any shims will lower the pan and increase the GAP.
- It may also help to remove a small amount of material from the underside of the T-Bridge at the point where the T-Clip is located. This should be limited to 1/32" (0.8mm).

### Last but not Least:

If the portion of strings between the tailpiece and the saddle is free to resonate, harmonics that normally cannot be heard are amplified and made audible. This can be prevented by damping the area with a piece of dense felt or leather, woven through the strings.

For clarity the tailpiece and strings are not shown