

**Instructions For The RG-03 -A - Pickup For Spider Bridged Instruments with Artist II Endpin Jack Preamp**

**Before You Start, A Word About Amplification:**

RG-03 passive pickups have been designed to operate properly and sound good without the use of a preamp when plugged into any normal electric guitar amp. As a non-preamped piezo pickup the RG-03 has an impedance of approximately 2 mega ohms which most electric guitar amps will handle. As with any passive pickup, the sound can be further enhanced and EQ'd with an outboard preamp.

**PA systems:** If you require the added ability to be able to plug directly into a P.A. or mixer then a preamp designed for pickups will be necessary. The preamps that are built into PA systems are microphone preamps and generally will not work properly with a passive pickup.

**Acoustic Amps:** If you are plugging into an acoustic amp a preamp may be required depending upon the design of that acoustic amp. Acoustic amps may or may not require the use of a preamp with a passive pickup and that will depend upon whether or not there is a special built in preamp section within that amp that specifically allows for the choice of plugging in either a passive (non-preamped) or active (preamped) pickup. This choice is quite often a second channel or a pushbutton on the amp's control panel. Many acoustic amps show a selection that may indicate the choice of 'high impedance' and 'low impedance'. Low impedance in these instances usually indicates that in this range the amp will handle an impedance of 1000 ohms or less - which will allow active pickups with preamps to be used.

High impedance in these instances may indicate an allowable impedance in the 2 or 3 mega ohm range - which will allow passive pickups to be used. Or it may indicate a maximum input impedance allowed of 20,000 ohms or less - which will handle magnetic electric guitar pickups but not passive pickups. You should carefully read the technical specifications of your acoustic amp in order to see what it will do.

This pickup is designed to work on "Dobro" type guitars with a spider bridge. Tools that you will need are: electric hand drill, assorted drill bits, assorted screw drivers, wire cutters / strippers, an old guitar string, a bit of masking tape, and a low wattage soldering iron and a bit of solder.

**Starting Installation**

- 1) Slack off the strings, remove them from the tailpiece and tape them away from the cover plate. Remove the cover plate screws and set the cover plate aside. Remove the tailpiece and resonator cone complete with the spider bridge and set the rest of the guitar aside.
- 2) Remove the screw that connects the spider bridge to the resonator cone. There are two replacement screws provided, one is a 3 mm. metric, the other is a 4-40. Check to see which of the two screws fits your resonator cone properly. The correct screw should thread in very easily, do not force it. Also, make sure that the head of the replacement screw fits into the saddle slot properly. If the screw head is too large to fit in the slot, grind off or file away whatever small amount of the head diameter is necessary to make it fit in the slot properly. Once the screw is properly fitted, use it to snugly attach the spider to the cone.
- 3) It is suggested that at this point you reinstall the cone with the spider and saddles into the dobro (leave the cover plate off), reinstall the strings, tune the instrument and tighten the machine screw that connects the spider to the cone so that the sound and response is set to original levels. When this is done, remove the strings, set the cone and spider assembly on your workbench and set the rest of the instrument aside.

**Installing the Pickup Element**

The RG-03 sensor is not meant to come into direct contact with any part of the cone. The putty that is supplied with the pickup acts as both a means of attachment and as an isolator; there always has to be a bead of putty between the contacting surface of the sensor and the wall of the resonator cone. The sensor is meant to contact the sidewall of the cone only.

- 1) Place the pickup on your workbench with the brass side facing up. From the supply of putty provided, run a single bead around the outside of the diameter of the brass so that the putty covers only the colored potting material outboard of the brass. This bead should be about 1/4" in diameter. If possible, no putty should be on the brass surface. See fig 1  
 Note: On some cones, such as a Quarterman, the cone has a much steeper slope than is normal. In order for the pickup to not come into direct contact with the cone, the putty must be moved further outboard than normal so that it is partly on the edge of the pickup and partly on the underside. See illustrations at right:

- 2) Place the small length of rubber tubing over the already installed cone mounting screw. Slide the tubing down as close to the cone as you can. The tubing has two functions: it acts as a damper and it isolates the pickup from coming into contact with the mounting screw.

- 3) With the putty and brass side towards the cone, install the pickup by centering the pickup over the mounting screw and sliding the pickup over the rubber tubing and just allowing the putty to come into contact with the underside of the cone.

- 4) The rubber tubing is supplied longer than is necessary so that it will fit all installations. We want the tubing to stick up above the pickup by about 1/8". Take a pen and draw a line on the tubing at a point 1/8" above the top of the pickup. Remove the tubing and cut on that line. Reinstall the tubing on the mounting screw making sure to get it down as close to the bottom of the mounting screw as before. Reinstall the pickup. See fig 2

- 5) Place the small washer, and then the appropriate nut on the cone mounting screw. Tighten the nut down until the putty starts to compress. Then tighten the nut down another 2 or 3 turns. Over compression of the putty or allowing the pickup itself to come into contact with the cone surface will make the pickup trebly and extremely harsh.

**The Artist II Endpin Jack Preamp**

The preamp for the RG-03-A model may be run from a 9 volt battery or from an outside power source (such as the phantom power from a PA or amp - up to 48 v d.c.). The Artist II is a 2 channel unit, one channel being used for the RG sensor and the second channel reserved for another type of sound source such as a magnetic pickup. If you are adding a magnetic pickup to the second channel you must add a 10k resistor across the (+) and (-) inputs of that channel.

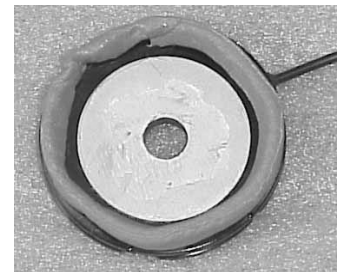


fig 1

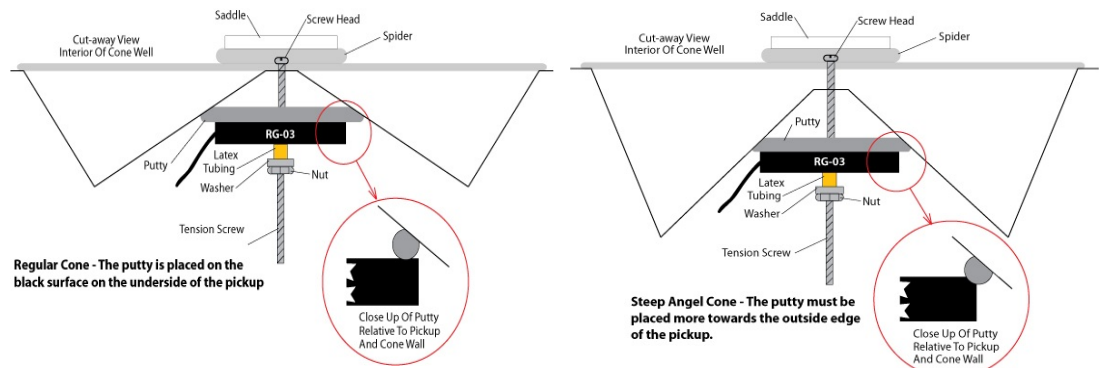


fig 2

1) The trim pot 'Gain Set Input 2' will control the amount of gain allowed through the input pads marked 'Input 2'. The other trim pot will control the input gain of the other set of input pads.

2) If a channel is not being used, that trim pot must be turned completely counter-clockwise to turn off that channel or a lot of noise will result.

3) As it leaves the shop, the channel that the RG is connected to is preset generally to around 20% gain, the unused channel being turned completely off.

**Installing the Endpin Jack Preamp on an RG-03A Active**

1) Remove the existing strap button. If the strap button screw also functioned to hold the tailpiece in place, then reinstall the screw without the strap button.

2) Measure the actual depth of your resonator cone (it is generally in the range of 2"). Allowing for the amount that the resonator cone is recessed into the top (usually about 1/8" to 1/4"), add that to the depth figure for the cone (usual total 2 1/4"). Add extra 1/2" for clearance and measure down from the top of the instrument about 2 3/4".

3) Drill a pilot hole through the end block approximately 3/16" in diameter in the area you wish to place the end pin jack.

4) Using a fluted burr, chamfer the edges of the hole so that you will not damage the finish of the instrument when you use the larger sizes of bits required.

5) Drill through the guitar end block using a 3/8" bit and re-chamfer the hole. Repeat drilling with a 31/64" bit to complete the drilling operations.

6) Remove the Outer strap button, and the small nut and washer from the endpin jack or preamp. Reach inside the instrument and poke the endpin jack part through the drilled hole in the end block. The jack should protrude approximately 5/16" outside the guitar. Reinstall the flat washer and small nut.

7) Insert a small allen wrench or other small round (like a drill bit) through the 2 holes in the end of the endpin jack to keep the jack assembly from rotating; tighten the small nut.

**Installing the Battery Bag - If you are using an internal battery.**

1) In order to make sure that the battery wires will reach to where you want to position the bag, install a battery in the bag and attach the battery connector to it.

2) Choose a spot on the inside of your instrument where you would like to place the battery bag. Make certain that it is out of the way of the resonator and the jack.

3) Make sure that the spot you choose is relatively flat and that it is clean and dry.

4) Once you have confirmed the location, peel the backing to expose the sticky back of the velcro pad and press it into place.

**Finishing Up**

1) Prior to reinstalling the resonator assembly, the supplied wire clips should be installed in the well area to hold down any excess wire.

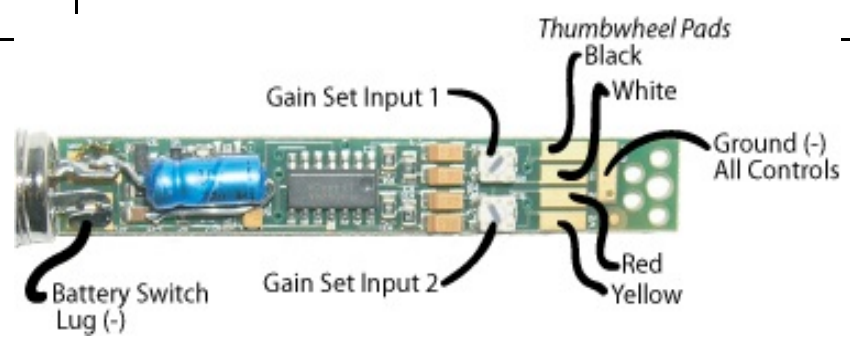
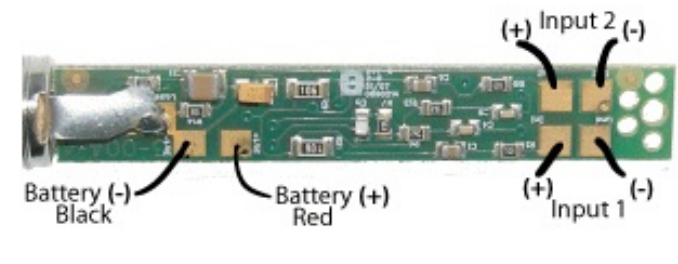
2) At this point it is suggested that you reinstall the resonator into the instrument (without the cover plate). Reinstall the highest treble string and lowest bass string and tune to pitch. For the RG-03A with preamp, install a 9 volt battery and then plug the system into your amp. Check that the quality of the sound is good and that string output is balanced and that the sound is not distorted. If everything is fine, take off the strings and remove the resonator from the instrument. Put a small bit of masking tape or scotch tape or a drop of glue on the exposed part of the mounting screw so that the nut cannot back off or rattle.

3) Reinstall the resonator assembly and the cover plate.

4) Restring, tune, and check.

**Information For Use With Phantom or Outboard Power**

<p><b>CAB-1 Cable Specs:</b> <i>Optional</i> Ten foot, 3 conductor cable, XLR male to TRS 1/4" stereo male.</p> <table> <tr> <td>XLR Pin</td> <td></td> <td>1/4" Stereo</td> </tr> <tr> <td>Pin 1</td> <td>= Ground =</td> <td>Sleeve</td> </tr> <tr> <td>Pin 2</td> <td>= Signal =</td> <td>Tip</td> </tr> <tr> <td>Pin 3</td> <td>= Power =</td> <td>Ring</td> </tr> </table>	XLR Pin		1/4" Stereo	Pin 1	= Ground =	Sleeve	Pin 2	= Signal =	Tip	Pin 3	= Power =	Ring	<p><b>RP-1 Battery Box Specs:</b> <i>Optional</i> remote 18 volt battery box, XLR female jack to 1/4" mono female jack, holds 2 x 9 volt d.c. batteries. Requires CAB-1 cable from instrument to RP-1. A standard guitar cord is used to connect from the 1/4" mono jack to a guitar amp</p>
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Pin 1	= Ground =	Sleeve											
Pin 2	= Signal =	Tip											
Pin 3	= Power =	Ring											



**Information For Adding Volume Controls**

- 1) Volume controls may be wired to the circuit board, tone controls cannot.
- 2) For each channel that you wish to have a volume control, a trace must be cut on the circuit board. The trace cut is shown in fig 4.
- 3) Pots used should be 500k audio taper.
- 4) Fig 3 shows wire color assignments where the wires coming from volume pots are to be attached.
- 5) There are three lugs on a pot, labeled as 'T', 'W', and 'G' in fig 5.
- 6) On one pot, black lead from the circuit board goes to lug W, white lead goes to lug G.
- 7) On a second pot, red lead goes to lug W, yellow lead goes to lug T, ground goes to lug G.

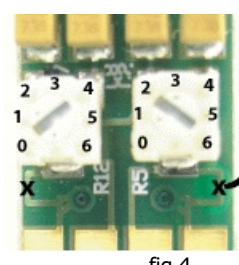


fig 4

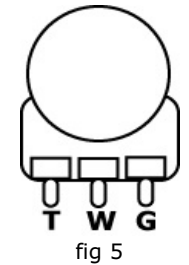


fig 5

**Warranty**

We warrant to the original purchaser that our pickups are free from defects in materials and workmanship for a period of 2 (two) years. Should a product fail to perform properly within the specified warranty period you may contact your dealer or Schatten Design for instructions. No product will be accepted for warranty return by Schatten Design without a Return Authorization number.