

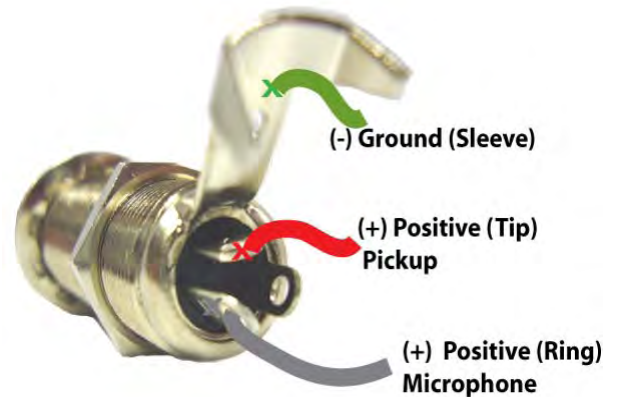
## Banjo M-Kit Jack Change Instructions

M-Kits include everything required to convert an existing BJ-02 to a BJ-02M System, except for some basic hand tools and a soldering iron and solder. Please read these instructions through before beginning the conversion.

### BJ-02

The BJ-02 was supplied with a PBJA jack assembly that utilized an endpin jack. Adding the M microphone to the second channel of the output is quite straight forward.

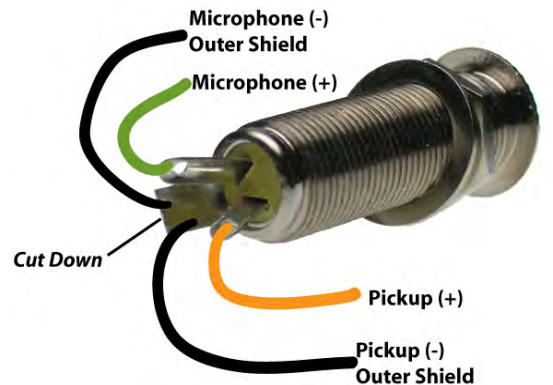
- 1) Remove the jack from the jack assembly bracket.
- 2) Unscrew the jack cover and insert the bare end of the mic cable through the hole in the cover.
- 3) The mic cable is a shielded 2 conductor cable. One end has a micro plug for connecting to the microphone. It is necessary to strip the outer black insulation from the other end of the cable.
- 4) Strip about 3/4" of the black insulation, exposing the ground (-) shield wrap. Twist the wrap to form a single lead and tin it.
- 5) The inner insulated (+) wire is now exposed. Strip it back about one-quarter inch and tin it.
- 6) Pry open the two teeth on the cable clamp that are holding the pickup lead wire in place.
- 7) Solder the mic cable (+) to the lug as shown.
- 8) Solder the ground (-) to the cable clamp as shown.
- 9) Bend the teeth of the cable clamp back down around the 2 lead wires and screw the jack cover back in place.
- 10) Reinstall the jack on the jack assembly bracket.
- 11) Continue the installation as detailed in the BJ-02M installation instructions.



### BJ-02 Std

The BJ-02 Std was supplied with a rosewood bodied jack assembly with a panel jack threaded into it.

- 1) Remove the jack assembly from the banjo.
- 2) Loosen the nut on the panel jack.
- 3) Rotate the rosewood jack assembly to unscrew the panel jack.
- 4) Clip the lead wiring from the pickup at the jack.
- 5) To prepare the new jack, clip the cable clamp so that it is about 3/4" long. Remove the nut and washer from the jack. Tin the solder lugs and the end of the cut down cable clamp.
- 6) Both the pickup cable and the mic cable are shielded cables.
- 7) For the pickup cable: Insert the cable through the hole in the end of the rosewood jack body and strip about 3/4" of the black insulation, exposing the ground (-) shield wrap. Twist the wrap to form a single lead and tin it.
- 8) The inner insulated (+) wire is now exposed. Strip it back about one-quarter inch and tin it. Solder the (+) and (-) from the pickup to the jack as shown.
- 9) For the mic cable: Insert the cable through the hole in the end of the rosewood jack body and strip about 3/4" of the black insulation, exposing the ground (-) shield wrap. Twist the wrap to form a single lead and tin it.
- 10) The inner insulated (+) wire is now exposed. Strip it back about one-quarter inch and tin it. Solder the (+) and (-) from the mic to the jack as shown.
- 11) Put the nut back on the jack first, followed by the washer. Make sure that the cut down cable clamp does not extend above the threaded barrel of the jack. Rotate the rosewood jack body to re-thread the jack. Re-install the jack assembly on the banjo.
- 12) Continue the installation as detailed in the BJ-02M installation instructions.



## BJ-02 Pro

The BJ-02 Pro was supplied with a black ABS jack body with a volume control and black 1/4" jack.

*Note: The Mini Pre 2 has volume controls for the microphone as well as for the pickup. You have a choice as to whether you want to continue to use the volume control on the jack assembly or not. If you want to use it, it will continue to work but it will affect only the pickup. Diagrams for both iterations are shown below*

- 1) Remove the jack assembly from the banjo.
- 2) Remove the two screws holding the cover on the jack body.
- 3) Remove the nut and washers that are holding the black jack in place. Note that the contact closest to the bottom of the jack box is bent upwards slightly so that it won't come into contact with the ground shield coating of the box.
- 4) Wiring for leaving the volume control functional for the pickup:

- a) Remove the jack from the jack assembly box and clip the wires soldered to jack as close to the jack as possible. Slide the pickup lead wire out of the jack assembly box and remove the small rubber grommet from the box. Insert the pickup lead wire back into the box.

- b) Tin the lugs on the new jack. Solder the ground lead from the back of the pot to the new jack as shown.

- c) Solder the ground shield from the pickup to the new jack as shown.

- d) The mic cable is a shielded 2 conductor cable. Insert the mic cable through the same hole in the box wall that the pickup goes through. It is necessary to strip the outer black insulation from the bare end of the cable. Strip about 3/4" of the black insulation, exposing the ground (-) shield wrap. Twist the wrap to form a single lead and tin it.

- e) The inner insulated (+) wire is now exposed. Strip it back about one-quarter inch and tin it.

- f) Solder the (+) mic lead to the jack as shown. Solder the mic outer shield (-) ground to the jack as shown.

- g) Reinstall the jack back into the box with the lug for the pickup closest to the bottom of the box. Make sure that the solder lug is bent up slightly so that it cannot come into contact with the ground shield coating of the box.

- h) Put the cover back on the jack assembly and reinstall it on the banjo.

- i) Continue installation as detailed in the BJ-02M installation instructions.

- 5) Wiring for disconnecting the volume control:

- a) Remove the jack from the jack assembly box and clip the wires soldered to jack as close to the jack as possible. Slide the pickup lead wire out of the jack assembly box and remove the small rubber grommet from the box. Insert the pickup lead wire back into the box.

- b) Strip about 3/4" of the black insulation, exposing the ground (-) shield wrap. Twist the wrap to form a single lead and tin it.

- c) The inner insulated (+) wire is now exposed. Strip it back about one-quarter inch and tin it. Solder the inner lead (+) from the pickup to the new jack as shown.

- d) Solder the ground shield from the pickup to the new jack as shown.

- d) The mic cable is a shielded 2 conductor cable. Insert the mic cable through the same hole in the box wall that the pickup goes through. It is necessary to strip the outer black insulation from the bare end of the cable. Strip about 3/4" of the black insulation, exposing the ground (-) shield wrap. Twist the wrap to form a single lead and tin it.

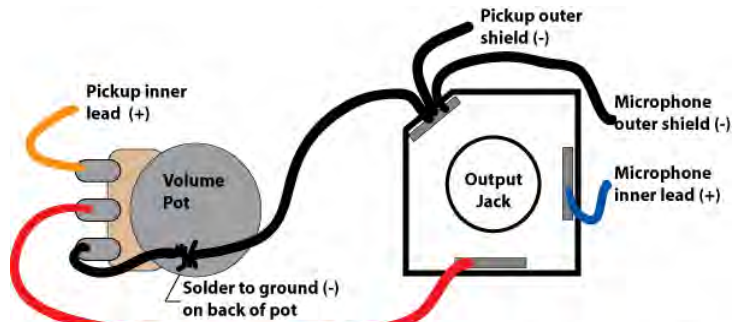
- e) The inner insulated (+) wire is now exposed. Strip it back about one-quarter inch and tin it.

- f) Solder the (+) mic lead to the jack as shown. Solder the mic outer shield (-) ground to the jack as shown.

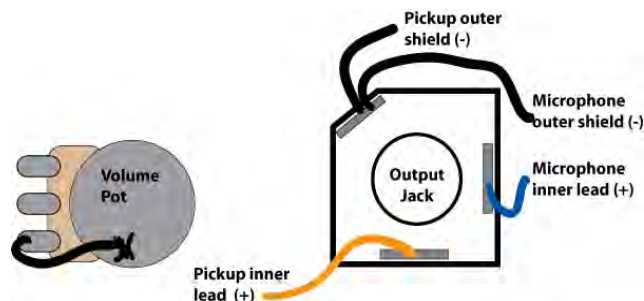
- g) Reinstall the jack back into the box with the lug for the pickup closest to the bottom of the box. Make sure that the solder lug is bent up slightly so that it cannot come into contact with the ground shield coating of the box.

- h) Put the cover back on the jack assembly and reinstall it on the banjo.

- i) Continue installation as detailed in the BJ-02M installation instructions.



Wiring diagram with the volume control remaining functional for the pickup

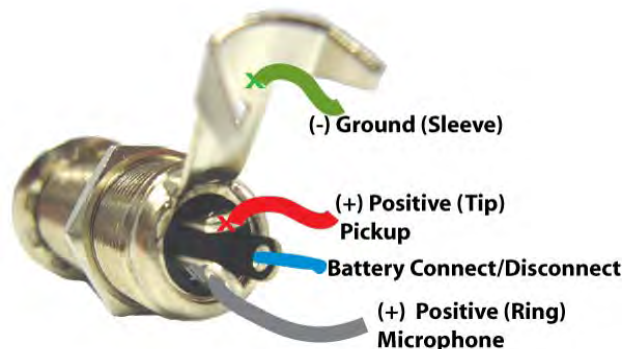


Wiring diagram with the volume control disconnected from the output jack

## For Use With Other Brands Of Pickups

- 1) For other piezo pickups and non-preamped magnetic pickups - see the wiring illustration for the BJ-02. The wiring will be the same.

- 2) For preamped magnetic pickups, follow this illustration:



## **BJ-02M Banjo Pickup & Condenser Microphone System**

The M microphone in the BJ-02M system was designed to add air, clarity and sound quality to the normal attributes of the BJ-02 pickup sensor. The M microphone was not designed to be, nor is it intended to be used as a stand-alone microphone.

*Important: Please read these instruction through first before installing this system.*

### **Jack Assembly Installation**

Note: If you are holding the banjo in front of you with the strings facing you and the head straight up at 12 o'clock, the normal position for the jack assembly would be at approximately 4 o'clock around the circumference of the head.

- 1) Remove the output jack from the bracket.
- 2) Position the bracket where it is to be mounted.
- 3) Slide the long metal clamp bar behind the tensioning hooks and secure the bracket in place with the two supplied screws.
- 4) Reinstall the output jack and tighten the nut.



### **Pickup Installation:**

- 1) With the resonator removed, and the banjo laying upside down so that you can look at the coordinator rods and the underside of the head, you should be able to see the imprints of the bridge feet on the head. The proper placement of the pickup sensor is on the inside surface of the head directly under the center foot of the bridge. The length of the pickup is approximately the same as the length of that center foot.
- 2) The pickup is prewired to the jack assembly. Before gluing the pickup into place you must thread the pickup through a hole in the resonator flange at the point where you want to mount the jack assembly.
- 3) The suggested method of attaching the pickup to the underside of the head is by using a little bit of the supplied 5 minute epoxy. After mixing the glue, apply a small amount sparingly to the brass surface of the pickup and press it into contact with the head.
- 4) Making sure that you have the pickup in the correct position under the center foot of the bridge, hold the pickup in place until the glue sets (about 4 minutes).
- 5) After the glue is set, it is suggested that you take a bit of tape and tape the wire to the coordinator rods. This is to eliminate the possibility of the wire rattling.



### **M Condenser Microphone Installation:**

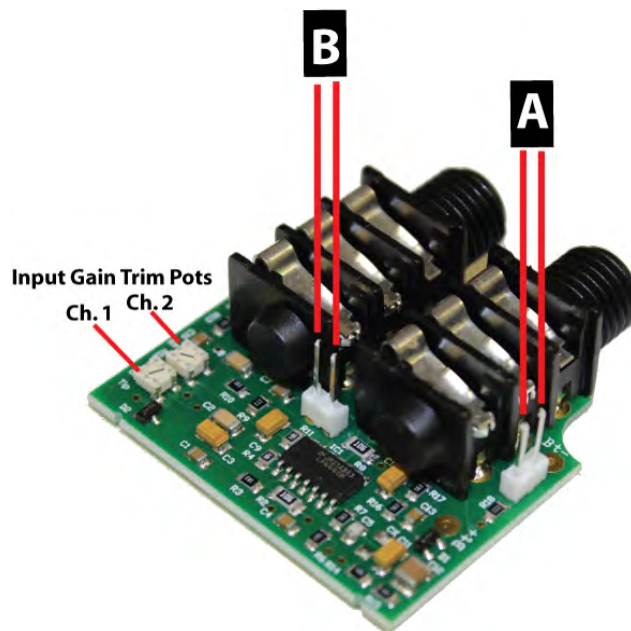
- 1) Insert the micro plug lead wire for the microphone through the same hole in the resonator flange that the pickup sensor was inserted through.
- 2) Plug the micro plug into the micro jack at the back end of the microphone.
- 3) Both putty and 3M VHB mounting tape is supplied for installing the microphone. The suggested method of mounting the mic is to use the supplied putty. The VHB may be used later for a more permanent mounting if desired.
- 4) The suggested mounting position for the microphone is as shown, just below and pointing at the tailpiece. The mic will be generally be placed 1/2" to 1" from the surface of the head.
- 5) Roll up a small ball of the putty (about a half inch in diameter) and place it on the bottom of the microphone. Press the microphone down firmly into the putty at the position on the rim where you want to mount the microphone.



## Mini Pre 2 Preamp

Preamp Configuration: as shipped, channel one will preamp the pickup sensor, while channel two will power the condenser microphone and preamp the mic signal. A black jumper is fitted over the pins at 'A' for this configuration.

Should you ever need to use the preamp with an instrument that has two pickups, the second channel can be reset for that second pickup by moving the black jumper from 'A' and fitting it over the pins at 'B'. With the jumper set at 'B', power is no longer supplied to the second channel.



## 1/4" Input Jack

The input jack is set up to receive a stereo TRS plug. Tip will transmit (+) from the pickup sensor to channel one. Ring will transmit (+) from the mic to channel two. Sleeve is the common ground. If you plug a mono plug into the input, the tip will transmit the (+) from the pickup sensor to channel one. Channel two will not function with a mono plug. Using a mono plug into the input will not harm the preamp but it will bring the battery down fractionally quicker than normal.

## 1/4" Output Jack

The output jack feeds out a mono signal only. The signal is not a balanced signal.

## Input Gain Trim Pots

As shipped, channel one gain is set to approximately 15% and channel two gain is set to approximately 25%. These settings are about what the input gains might be set at for most installations. You may very well have to change these settings to suit your instrument. Important: The trim pots must be adjusted using a very small jewellers slotted screwdriver.

## Setting Up

- 1) Remove the back cover and attach a 9 volt alkaline or lithium battery (not included).
- 2) Turn the 2 external volume controls fully off, plug in the supplied stereo TRS cable to both the banjo jack assembly and the input of the Mini Pre 2.
- 3) Run a normal 1/4" cord from the Mini Pre 2 output to the input of your amp. Set the amp at a low setting.
- 4) Turn the volume control for channel one to a comfortable sound level.
- 5) Turn the volume control for channel two to a comfortable sound level.
- 6) You should now assess the relative sound levels of the pickup sensor and the microphone and adjust the input gain trim pots on the preamp circuit board as necessary.
- 7) Install the belt clip to the back cover of the preamp using the two supplied screws. Reinstall back cover.
- 8) Note that the battery within the preamp is turned on only when a plug is inserted into the output jack.

## Preamp Specifications:

Input Impedance: each channel, up to 10 MOhm

Output Impedance: less than 3.5 kOhm

Input Gain: each channel 0 to 20 db via trim pots on circuit board

Battery Life: 9 volt alkaline - 1300 hours for pickup/mic configuration *Do Not Use Rechargeable Batteries*

## Pickup Sensor Removal Instructions:

The pickup is glued to the underside of the head with 5 minute epoxy. This glue bond may be broken as follows:

- 1) Remove the strings and bridge, remove the resonator from the back of the instrument.
- 2) From the outside of the banjo, warm up the area of the head covering the pickup using a hair dryer.
- 3) Work a small thin object such as a pallette knife or thin feeler gauge into the joint between the pickup and the banjo head.
- 4) The pickup should come away from the head with little effort.
- 5) Clean up any epoxy residue left on the brass underside and edges of the pickup with a small file.
- 6) For re-installation, make sure to use only a 5 minute epoxy.

## 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.