

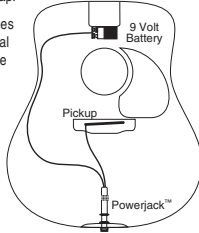
Important!

Installation of the Powerjack™ requires fine woodworking & soldering skills and should be performed only by a qualified repairman. Fishman Transducers will not be responsible for any damages that may result from improper installation.

Please read these instructions carefully. For technical assistance, contact Fishman Customer Support at 978-988-9665 or tech@fishman.com

Thank you for choosing this Fishman product. The Powerjack® is designed so that you can enjoy the benefits of "active" pickup performance from your passive piezo or magnetic pickup. The Powerjack® is an active preamp, built into a 1/4" endpin jack. At its heart is a unique miniaturized circuit, housed in its elongated shielding cap.

- A battery life of 12,000 hours eliminates frequent battery changes. Under normal use, the system will run for years on the same battery!
- Sophisticated discrete electronics improve and enhance the performance of both passive piezo and magnetic pickups.
- An integral Fishman Switchjack™ endpin jack offers new stereo wiring options.

**LIMITED WARRANTY**

INSTALLATION BY A QUALIFIED PROFESSIONAL REPAIRMAN IS STRONGLY RECOMMENDED. FISHMAN TRANSDUCERS WILL NOT BE RESPONSIBLE FOR ANY DAMAGES THAT MAY RESULT FROM IMPROPER INSTALLATION.

The FISHMAN POWERJACK™ is warranted to function for a period of One (1) Year from the date of purchase. If the unit fails to function properly within the warranty period, free repair and the option of replacement or refund in the event that FISHMAN is unable to make repair are FISHMAN's only obligations. This warranty does not cover any consequential damages or damage to the unit due to misuse, accident, or neglect. FISHMAN retains the right to make such determination on the basis of factory inspection. Products returned to FISHMAN for repair or replacement must be shipped in accordance with the Return Policy, as follows. This warranty remains valid only if repairs are performed by FISHMAN. This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

RETURN POLICY

To return products to FISHMAN TRANSDUCERS, you must follow these steps...

- Call FISHMAN TRANSDUCERS at 978-988-9199 for a Return Authorization Number ("RAN").
- Enclose a copy of the original Bill of Sale as evidence of the date of purchase, with the product in its original packaging and a protective carton or mailer.
- FISHMAN TRANSDUCERS' technicians will determine whether the item is covered by warranty or if it instead has been damaged by improper customer installation or other causes not related to defects in material or workmanship.
- Warranty repairs or replacements will be sent automatically free of charge.
- If FISHMAN TRANSDUCERS determines the item is not covered by warranty, we will notify you of the repair or replacement cost and wait for your authorization to proceed.



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009-063-001 2-01

Pickup Dimensions

NOTE: For the pickup to fit lengthwise, we recommend a saddle slot length of at least 2.875" (73mm).

AG-125

E to E string spacing = 2.125" (53.97 mm)
Wire hole location = .234" (5.94 mm) from closest outside string

The AG-125 is suitable for most instruments with string spacings from 2.075" (52.7 mm) to 2.175" (55.24 mm)

AGX-125

E to E string spacing = 2.3125" (58.73 mm).
Wire hole location is .234" (5.94 mm) from closest outside string

The AGX-125 is suitable for most 6 and 12-string instruments with E to E string spacings from 2.262" (57.45 mm) to 2.362" (59.99 mm)

NOTE: Custom string spacings are available upon request.

WIDTH: .125" (3.17 mm)
HEIGHT: .048" (1.22 mm)
LENGTH: AG-125: 2.625" (66.67 mm)
AGX-125: 2.725" (69.21 mm)

AG-094

E to E string spacing = 2.125" (53.99 mm)
Wire hole location = .234" (5.94 mm) from closest outside string

The AG-094 is suitable for most instruments with string spacings from 2.075" (52.7 mm) to 2.175" (55.24 mm)

AGX-094

E to E string spacing = 2.3125" (58.73 mm).
Wire hole location is .234" (5.94 mm) from closest outside string

The AGX-094 is suitable for most 6 and 12-string instruments with E to E string spacings from 2.262" (57.45 mm) to 2.362" (59.99 mm)

NOTE: Custom string spacings are available upon request.

WIDTH: .094" (2.3 mm)
HEIGHT: .048" (1.22 mm)
LENGTH: AG-094: 2.625" (66.67 mm)
AGX-094: 2.725" (69.21 mm)

Installation Guide**Powerjack
Miniature Endpin Preamp**

Includes Installation Instructions for Fishman 125 & 094 Series Acoustic Guitar Pickups

AG-125: 2.125" String Spacing
AGX-125: 2.3125" String Spacing
.125" (3.2 mm) Width

AG-094: 2.125" String Spacing
AGX-094: 2.3125" String Spacing
.094" (2.3 mm) Width

**Tools**

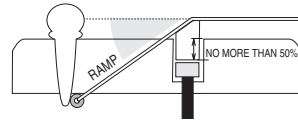
- Caliper
- Soldering iron (30 watt max)
- Wire strippers
- 3/32" (2mm) Allen wrench
- 400 grit sandpaper
- Rosin core solder
- 1/2" open end wrench
- Plunge router with 1/8" (3.2mm) X cutter for AG-125
OR 3/32" (2.3mm) cutter for AG-094
- 15/32" (11.9mm) tapered reamer or variable speed drill
center punch
1/8" 3mm twist drill
15/32" spade bit drill
X-Acto® miniature saw

**Mechanical Factors Affecting
Undersaddle Pickup Performance**

Before you install the pickup, make sure the bridge and saddle are within our recommended "safe zone" of usable parameters.

Break Angle

For the pickup to perform optimally, there should be a 20° (minimum) string break angle across the back of the saddle. An adequate break angle can often be realized by "ramping" the string slots. In extreme cases, where the break angle is much less than 20° and the saddle is so low that it is nearly flush to the top of the bridge, the instrument probably requires a neck re-set. In these cases, resetting the neck to a higher angle will restore the saddle height and the string break angle required for good pickup performance.

**50/50 Rule**

We have found that there is a critical relationship between the overall saddle height and the bridge slot depth. For adequate mechanical

coupling and pickup balance, we recommend that the saddle slot depth (with pickup installed) measures no more than 50% of the total height of the saddle. If the slot measures more than 50% of the total height of the saddle, balance and/or output level of the pickup may suffer. In these cases, add a hardwood shim under the pickup. To determine the shim's thickness, subtract 1/2 of the total saddle height from the slot depth. Then remove an equal amount of material from the bottom of the saddle.

Exception to the 50/50 rule: Pickups in bridges (especially Martin® style, 3/32" width) with exceptionally steep string break angle will generally perform very well, even if the saddle slot depth measures more than 50% of the total saddle height.

Prepare the Saddle Slot

A large percentage of string balance problems with undersaddle pickups can be traced to an unevenly cut or warped saddle slot. Irregularities on the bottom or sides of the slot can often prevent the saddle from uniformly pressurizing the pickup.

For this reason, we strongly recommend that before you install any undersaddle pickup, re-mill an existing slot with a plunge router, jiggged up in an appropriate slot cutting fixture.

1. Rout a .125" (3.17 mm) wide saddle slot for the AG-125 pickup.

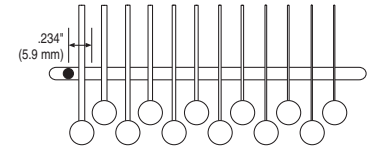
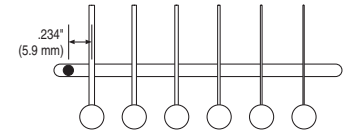
OR

1. Rout a .094" (2.38 mm) wide slot for the AG-094 pickup.

2. Be certain that the bottom of the slot is flat. Deepen an existing slot only enough to obtain a clean, flat surface.

Locate the Wire Hole

1. Confirm the E to E string spacing. The AG-125 and AG-094 pickups are suitable for instruments with outside string spacings (at the saddle) ranging from 2.075" (52.70mm) to 2.175" (55.24mm).
2. Locate the center of the wire hole .234" from the center of the closest string or (for twelve string) the center of the closest pair of strings.



3. Mark the location where the wire will enter the saddle slot. Center the mark between the walls (width) of the slot.
4. Drill a .094" hole.
5. Clear wood chips and foreign materials from the saddle slot.
6. Carefully insert (do not bend) the pickup. The fit must be loose in the slot, without binding on the sides or the ends of the pickup. If the ends of the pickup come in contact with the saddle slot, pickup failure could result.

Prepare the Saddle

We highly recommend the Fishman Clearstone™ saddle for enhancing the performance of an under-the-saddle pickup. We also suggest synthetic materials such as Micarta™ or Corian™ as adequate substitutes. Organic saddles such as bone or ivory can not be recommended since they are not structurally as consistent as synthetic materials and can produce poor pickup balance.

1. Prepare a .125" or 3.17mm wide saddle (.094" or 2.38mm for Narrow Format). For adequate pickup performance, the bottom and sides of the saddle must be absolutely FLAT.
2. Remove only enough material from the width of the saddle to provide a sliding fit in the slot. To test the fit, the saddle should slide easily in the slot, but should not fall out when overturned. To maintain your current action, the new saddle must be .048" (1.22 mm) shorter in height than your current saddle.

Prepare the Endpin Jack Hole

There are two ways to widen the endpin hole to accept the Powerjack™.

Slow and Safe

If you have the time, this is the preferred method. Remove the endpin and widen the hole to size with a 15/32" (11.9 mm) reamer (available in the US & Canada through Stewart MacDonald, 800-848-2273 part #4323).

OR**Quick & Clean**

The objective here is to quickly drill out the endpin jack hole, with the endpin or other suitable plug in place. You may remove a loose endpin and refasten it in the endblock with cyanoacrylate glue before starting the procedure.

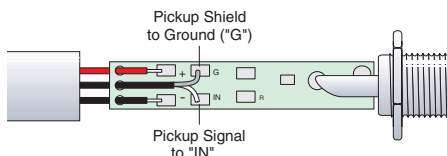
Note: We do not recommend this method for instruments with brittle ornamental veneers (ex: abalone) around the endblock

1. Apply masking tape around the endblock area to protect the instrument.
2. Locate an X-Acto® saw blade 1/16" (1.6mm) away from the body and saw off the endpin.
3. Centerpunch a guide hole in the center of the trimmed endpin.
4. Drill a 1/8" (3.2mm) pilot hole through the endblock.
5. Line up a 15/32" (11.9mm) Spade bit in the pilot hole and begin drilling. Maintain a perpendicular plunge in relation to the instrument. Use steady (but not heavy) pressure, especially as the drill exits inside the guitar.
6. To avoid damage to the instrument, let the drill come to a complete stop before removing it from the hole.

Solder the Wire Connections

1. Unscrew the shielding cap to access the preamp circuit board.
2. Strip 1/4" off the outside jacket of the pickup wire. Tin both the inner conductor and the ground wire.
3. Thread the pickup wire through the shielding cap.
4. Thread the pickup wire through the largest of the three strain relief holes, then solder the signal wire from the pickup (hot wire) to the pad marked "IN" on the preamp circuit board. Solder the ground wire from the pickup (shield) to the adjacent pad marked "G" on the preamp circuit board. (See Fig 1) Do not over heat the solder pads! Doing so may lift the pads from the circuit board.
5. Fasten the shielding cap to the jack. Be careful not to allow the shielding cap to come in contact with the end of the circuit board.
6. Lock the shielding cap to the first large hex nut.

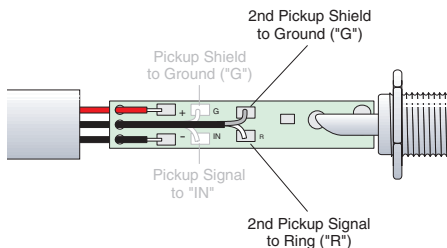
Figure 1



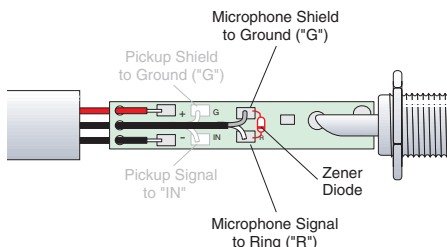
Optional Stereo Wiring

The Fishman Switchjack™ switching endpin jack is integrated into the Powerjack™. A variety of stereo wiring options are available for pickup+microphone or pickup+pickup:

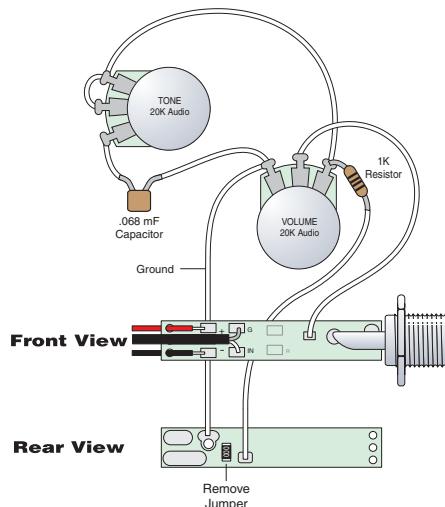
Two Pickups



Pickup & Microphone (use with Fishman Blender System)



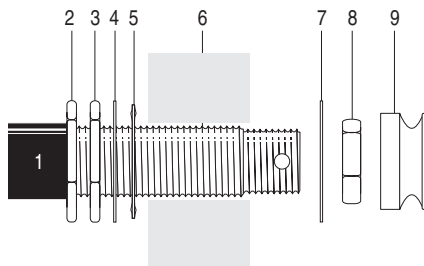
Additional Volume & Tone Controls



Fasten the Powerjack™ in the Endpin Jack Hole

Follow this sequence when installing the endpin jack:

- 1 - Preamp / Shielding Cap
- 2 - 1st Large Hex nut
- 3 - 2nd Large Hex Nut
- 4 - Large Dress Washer
- 5 - Star Washer
- 6 - Guitar End Block
- 7 - Small Dress Washer
- 8 - Small Dress Nut
- 9 - Strap Button



The jack should protrude at least 5/16" (7.9 mm) and no more than 11/32" (8.7mm) outside the guitar's body for proper fit.

Fit the small dress washer and nut over the end of the jack, then insert a 3/32" Allen wrench through the small hole on the end of the jack. Tighten the nut with a 1/2" open-end wrench while holding the jack in place with a 3/32" (2 mm) Allen wrench. Thread and hand tighten the strap button.

Note: With the strap button in place, the end of the jack should protrude slightly, so that when a plug is inserted, it will snap securely in place.



Attach the Battery Clip

We recommend that you attach the battery clip to a small piece of hardwood approximately 1 1/2" x 1 1/2" x 1/2" (4cm x 4cm x 1.1cm) thick. Mark the screw hole locations on the block using the battery holder as a template. Drill the screw holes using the 5/64" (2mm) drill. Attach the battery holder using the two supplied 1/4" screws. Attach this assembly to the inside front block (neck block) using either wood glue or a gap filling cyanoacrylate such as Loctite Black Max™.

Important! Although the supplied battery holder should provide adequate capacity to grip the battery at all times, we strongly recommend that you remove the battery when shipping your instrument. FAILURE TO REMOVE BATTERY COULD RESULT IN DAMAGE TO YOUR INSTRUMENT. Fishman will not be held responsible for any damage incurred to instruments from a loose battery.

A set of adhesive backed clips has been provided to secure the pickup cable and battery leads inside the guitar once the endpin jack has been installed. Remove the plastic film from the back of each clip to expose the adhesive. Secure the cable/clips to the kerfed lining of the guitar.

Specifications

Power Supply:	9 Volt Alkaline battery
Battery Life:	12,000 hours
Maximum Output Voltage:	4V peak to peak
Input Overload	-.7dBV
Input Impedance	10 Mega Ohms
Output Impedance:	Less than 5kOhm
System Gain	3dB
Signal-to-Noise Ratio:	94 dB
Discrete Component Design:	FET low noise class A input stage, bipolar class AB output stage

AG-125 / AG-094 Troubleshooting

Symptom	Cause	Solution
Weak string or strings	Saddle is not completely seated.	Push the saddle down over the weak strings.
	Bottom of saddle is uneven or out of square with its sides.	Check bottom of saddle for flatness and squareness.
	Debris in the saddle slot.	Remove debris from the saddle slot.
	Improper saddle fit (too tight or loose).	Make sure that the saddle has a sliding fit in the slot.
	Saddle material.	Do not use bone, ivory or other organic materials for the saddle material.
	Not enough downbearing pressure on saddle.	Follow the 50/50 rule.
Hum	Uneven or belly up saddle slot.	Sculpt the bottom of the saddle to compensate for depth differences in the saddle slot or re-rout the saddle slot.
	Wire hole too tight.	The wire hole must be .094" diameter.
	Pickup binding in saddle slot.	The saddle slot must be .125" wide for the AG-125 and .094" for the AG-094. Rout the slot to the correct width.
Thin or weak signal	Improper saddle fit (too tight, resulting in poor s/n ratio).	Check saddle for sliding fit in the slot.
	Torn pickup shield.	Examine the pickup. Replace pickup if the material is torn.
	Unshielded jack.	Fasten the Shielding Cap to the jack.
Pickup intermittent or dead	Weak downbearing pressure due to low string break angle.	Observe the 50/50 rule. Ramp the string slots if necessary.
	Pickup binding in wire hole (wire hole too small or misaligned.)	Align or widen pickup wire hole.
	Pickup binding in saddle slot.	Widen or lengthen pickup saddle slot to accommodate the pickup.

FISHMAN®
Acoustic Power

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