



FITTING GUIDE

HE4 SERIES



SNAKE 3 SERIES



SA2 SERIES



THE BRITISH ACOUSTIC SPECIALISTS



TABLE OF CONTENTS.

This booklet is divided into three main sections:

Fitting pickups into guitars.

Notes on fitting into other instruments/problem areas.

String balancing.

This guide has been put together for YOUR benefit and will help you fit HEADWAY Pickups successfully.

Please also refer to the USER GUIDE for trouble shooting, fault finding problems and returns procedure.



THE BRITISH ACOUSTIC SPECIALISTS



**PLEASE READ FITTING INSTRUCTIONS BEFORE
STARTING INSTALLATION .**

Fitting should only be undertaken by experienced guitar makers/repairers with routing facilities.
Headway Music Audio Ltd is not responsible for damages resulting from pick-up installation or related instrument work.

Product components for **HE4 SERIES**

(e.g. HE4/G.FEQ – Acoustic Guitar/Steel Strung).

Pre-wired assembly of flexible Piezo Co-Axial Cable.

Pick-up attached to Black/Brown Co-axial cable attached to: Class "A" pre-amplifier in extended end pin jack tube.

Pre-amplifier is pre-wired to PP3/6F22 battery lead.

Leather 9V battery bag with Velcro fixings.

Self adhesive aluminium cable clips x 3.

Product components for Snake3 SERIES.

e.g. Snake3NY – Acoustic Guitar/NylonStrung.

Pre-wired assembly of flexible Piezo Co-Axial Cable.

Pick-up attached directly to Class "A" Input stage.

Pre-amplifier in Black Plastic outer with Grey Output cable to End Pin Jack Socket.

Velcro Cable Fixings. *In other respects see HE4.*

Product components for SA2 SERIES

e.g. SA2 – Acoustic Guitar/Steel Strung.

Flexible Piezo Co-Axial Cable Pick-up attached to Black/Brown Co-axial cable with 2.5mm Mini-Jack Plug.

Pre-amplifier with 4 Band EQ Sliders and Volume Pot and pop up Battery Holder.

Output Lead with 3.5mm Mini Jack Plug and End Pin Jack Socket.

Wood Screws (12mm) in black x 4.

Self adhesive aluminium cable clips x 3.

FOR FRETTED INSTRUMENT DESIGN & BUILD.

If building a new instrument we recommend:

- a) Bridge should of sufficient height to allow maximum saddle slot depth i.e. 8mm where possible and provide a steep break angle.
- b) Saddle slot length should allow saddle to be significantly longer than combined string course width, around 8mm additional length either side of top & bottom strings.
- c) Bridge material should be dense, fine, straight grained hardwood, ideally Ebony to provide rigid support and a smooth even surface. Ensure bridge is not too light and is sufficiently rigid to provide support for pickup under indirect string pressure.
- d) End block + side thickness should be no thicker than 21mm / 0.82" - 13/16" to easily accommodate end pin jack / preamp.
- e) SA2 Pre-amp profile is designed to fit on the upper bout corner curve but will NOT match profile of shallow curved body shapes.

HEADWAY PIEZO CABLE PRINCIPLES.

DO'S & DON'T'S.

- * Pickup is consistent in sensitivity along entire length & can be bent up to 90 degrees and can be refitted into additional guitars.
- * Pickup converts vibration into signal strength subject to snug, even, pressure between saddle, pickup and slot base.
- * Saddle must move freely in slot to drive pickup as if a tiny piston.
- * Pickup must NOT be subject to glue, abrasives, moisture or be forced into an over tight slot.
- Piezo and connecting cables must NOT be cut or modified!
- Surplus piezo remains inside body and could optionally be tagged to brace.
- * Do NOT pull on, force through holes, or knot / kink pickup or other cables.
- * Do NOT bend black joint of pickup to connecting co-axial cable.

TOOLS / MATERIALS.

- a) Drilling Machine. (Hand drill may be safer).
- b) Bridge Saddle Routing Jig. www.stewmac.com item #4043.
- c) Precision Routing Base. www.stewmac.com item #5260.
- d) Routers: ie Bosch Colt, Black & Decker Wizard, Dremel Multi-Pro.
- e) End Pin Jack Reamer. www.stewmac.com item #4323 9/16" (14.28mm).
- f) Router Bit (Flat or Ball End). Recommended: 2.5mm (0.094") Acceptable: 3/32" (2.38mm).
- g) Drill Bit: 2.5mm (0.098") or use 3/32" and enlarge slightly.
- h) Disc/Belt Sander, Milling Machine or vice and straight Edge File.
- i) Spanner, Ring or Box (off-set 45 Degrees) 15/32" (12mm).
- j) Jack Fishing Tool. www.lmii.com item # EEJ1 1.5
- k) Machinists "Steel" or Float Glass Mirror.

- l) Adhesive Tape / White spirit for cleaning surfaces, re. Velcro.
- m) Loctite 243 nut lock. www.farnell.com part: 1370152 or super glue (Cyanoacrylate).
- n) Cowhide leather for tightening endpin button without marking.
- o) Fine and medium grade Glass Paper.
- p) Adhesive Copper Tape.
www.farnell.com #121-8480 / Chomerics CHO-FOIL
- q) Pencil – Soft i.e. 5B (Saddle lubricant).
- r) Saddle preferences: Dense Bone / Fossil Ivory. Alternatively Tusq / Micarta. We do NOT recommend Corean or Non-Specific Plastics.
- s) PVA glue or similar for sealing surfaces, re.Velcro & cable clips.
- t) Acoustic Amplifier (Headway SA or SK Series) or P.A. to test pickup.
- u) G Clamp (Large) – Optional overnight clamping of saddle down onto installed Pickup (from back of guitar).
- v) SA2 Only - keyhole saw for side hole.

HE4/SNAKE 3/SA2 SERIES INSTALLATION.

- 1) Note or mark original height of saddle & depth of saddle slot.
- 2) Rout saddle slot to accommodate Piezo cable (2.1mm/ 0.082") pickup (P/U).
- 3) ***IMPORTANT*** Ensure slot base is smooth (either flat or half round) , free of debris and NOT tight on P/U.

NOTE: HEADWAY pickups do NOT require a half round slot.

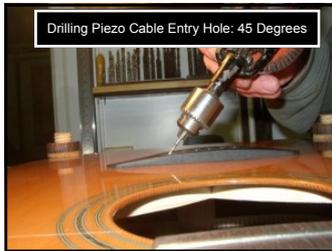


- 4) Alternatively, saddle MAY have sufficient depth to accommodate pick-up thickness by saddle height reduction alone, however, we do not recommend this.
- 5) There should be AT LEAST 4mm (5/32") of saddle material in the slot above the Piezo cable. Aim for maximum available slot depth.

NOTE

Routing is needed on MOST guitars to ensure an even surface for good string balance.

- 6) Routing: Cleaner routing is achieved by increasing depth a little at a time.
- 7) Optional: Additional routing of saddle slot edges with finest cutter to ensure edges are free of burrs (Depth: 0.5mm / 1/64").
- 8) Chamfer saddle base edges to encourage free vertical movement.
- 9) Drill Piezo cable entry hole from treble side at shallowest possible angle while avoiding braces. 45 degrees *should* be possible.



10) Recommended: Drill anchor hole at bass side to locate Piezo cable tip with GENTLE bend, e.g. Not more than 45 degrees to improve string balance.



- 11) **Wide Saddle Notes** e.g. 5mm (3/16"). Ensure Piezo cable is anchored in the middle of the saddle slot.
- 12) Ream hole for endpin jack.
- 13) Fit endpin jack / preamp from inside of body with large jack Hex nuts & lock washer arranged to allow only smaller threaded section to protrude from endpin hole. Find distance between Hex nut and endpin by inserting & marking a rod inserted into hole. Apply Loctite to nuts.
- 14) Take care that jack is not set too far into end block to prevent full contact of jack plug inside socket terminals.
- 15) Tighten small Hex nut over washer outside instrument, then tighten endpin.



16) Battery installation: Recommended 9v PP3/6F22.
Lithium =280 hours / Alkali = 75 hrs / Zinc Chloride =
30 hrs (approx)

17) Insert PP3 battery into leather bag and connect
terminals / On SA2 pull battery holder clip on
pre-amp, pull up holder , insert PP3 correct way
around so it goes in easily and push down gently until
it clicks.

18) Recommended battery bag position: Inside
instrument on back of upper bout, adjacent to side
wall, i.e. cutaway area (NOT SA2).

19) Prepare bag Velcro surface with white spirit /
adhesive tape to remove all traces of dust / oil and
seal area with PVA glue.

20) Peel off Velcro's backing, smooth down to avoid
air bubbles and press firmly for 10 seconds (not
SA2). When attaching Velcro to Velcro, press &
wiggle for maximum bonding.

21) Anchor wires using supplied self-adhesive clips /
adhesive Velcro.

22) Insert saddle and restring instrument tuning to concert pitch.

23) Press down firmly with thumb at all points along saddle.

24) Plug into HEADWAY acoustic amp / PA, turn up any volume control, or use Bass Amp/Full Range PA for Bass Instruments. Then check string balance.

Note: Bass / electric guitar amps may give a false impression of Instrument tonal or string balance due to distortion or excessive bass.

TWIN/SPLIT SADDLE PICKUPS

HE4/G.FEQ.TS. Offers two Piezo cable pickups wired in parallel working electronically as if one for each of the saddle slots. Principles are the same as for fitting a single pickup excepting that an angled entry hole would have to be drilled for each pickup. Alternatively, a single standard Piezo cable pickup can be made to fit the two saddles by cutting a channel between the two slots, radiusing the two corners and bending pickup between them.

SA2 FITTING

1) To find the ideal position for the SA2 Pre-Amp, firstly cover the area of the guitar (Upper bout) where the pre-amp is to be fitted with masking tape. Hold the unit against the front of the guitar with the outer flange resting against the top bout and move back and forth to a point where the curvature of the pre-amp flange most matches the curvature of the guitar.

Place a square against the right hand side of the pre-amp and draw a line at 90 degrees to the guitar table across the side of the guitar. Draw another line parallel to this line 4mm to the left, this is your reference line. See fig 1.

2) Transfer the template to the guitar aligning the right hand edge to the reference line, make sure that the template sits in the middle of the bout to minimise the risk of interference with any internal braces and kerfing.

3) Drill pilot holes in the corners to minimise the risk of cracking then carefully cut round the template using an appropriate saw.

4) Place the unit into the cut-out and push in to the point where the metal casing is inside the guitar and the plastic casting is approximately 10mm (3/8") proud of the guitar.

When viewed from the long side push the unit as far as possible to the left (Battery end) and push the right hand side of the unit (Volume control end) flush to the guitar. See fig 2.

5) When the right hand side of the unit is flush, push the unit as far as possible to the right, then push the left hand side of the unit flush to the guitar.
Movement should be NO more than 1 or 2 mm (1/8").

6) With the unit sitting in position, drill the four mounting holes using a 1.5 mm (1/16") drill bit. The holes must be drilled in the same vertical plane as the sliders in the unit and NOT vertical to the face of the unit. See fig 3.

7) Fix unit in place and connect Piezo pickup and endpin jack to unit.

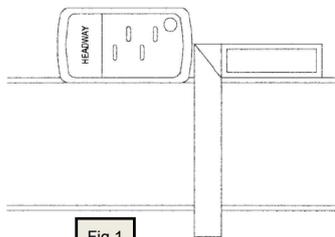


Fig 1

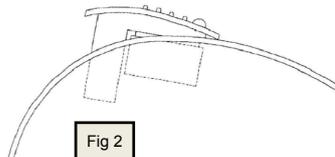


Fig 2

Drill 1.5mm (1/16") pilot holes in vertical plane.

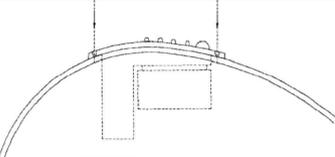
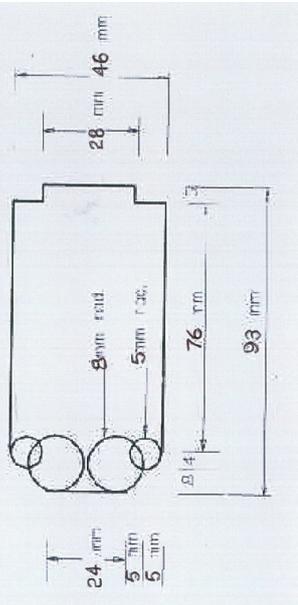


Fig 3

HEADWAY SA 2 TEMPLATE (Not actual size)



PANEL JACK SOCKETS:

Jack sockets can be fitted to the side of the instrument instead of using end pin arrangements. However, an external mounting plate, metal washer and/ or internal wooden block must be used. The Plates can be found in Guitar/ Electronics suppliers.

RE-WIRING JACKS SOCKETS: Snake3 & SA2.

Put covers, grommets, shrinks & strain relief over cable, twist up wires and tin solder all contacts points *before solder jointing*. When changing a socket, *carefully note the contacts before removal* to help in replacing them.

To wire a socket for an Active On Board Battery powered pickup systems, solder connect the red insulated signal wire to the tip of Stereo Jack (small central position), blue wire to ring (larger outer position) and non-insulated earth wire to the large earth outer terminal.

On HE4 Active Systems, jack must be replaced by Headway Music Audio Ltd or it's authorised service agents, due to Surface Mount PCB connections. Non-authorised replacement of jack on HE4 active systems e.g. HE4/G.FEQ will result in cancellation of guarantees. WIRE LOCATION & FIXING: Wires should normally be attached to the least resonant parts of the inside of the body, such as blocks, struts, ribs, or back/sides, by the small remaining strips of Velcro or cable clips provided.

PICKUP FITTING ON MOVEABLE BRIDGES.

The pickup and its wire can be routed through a hole in the top of the instrument, or through a hole in the side of the bridge in order to run the wire through the sound hole, under any raised scratch plate or along a tail piece, but take care to anchor exposed wires against accidental tugging or abrasion. It may also be possible to bury the black pickup joint in a moveable bridge by marking out carefully where this hole is to line up with the hole in the underside of the bridge on the treble end. *After* determining accurate intonation position, then allow for movement, intonation and any slight inaccuracies by making the hole in the top of at least 4mm (0.16") in diameter.

The sides of the hole should be reinforced with wood glue. Whatever people may *think* of a top hole, we do not hear of problems as a result. See notes on P/Us fitted to raisable bridges.

FITTING WITH RESTRICTED ACCESS. If there is a problem in getting a hand inside an instrument, use "Jack Fishing Tool" or thread a fine cord (e.g. Nylon Braid) through the end pin hole and out through the sound hole. The end of the cord is then tied to the small hole on the narrow diameter part of the end pin jack which is then pulled into place through the sound hole in the instrument. Use a fine rod through the jack socket location hole while you screw on the washer/small hex nut & end pin button from outside.

If this small additional fitting hole is not in place, a pull through may be achieved by using a special jack plug inner/Probe which has had its cover removed and metal body turned/ground down to less than 15/32 (11.9mm). Also, ensure that jack is not set too far into end block so as to prevent jack plug from being inserted full length. Ensure that the fit is tight and that the external thread is fully home otherwise adjustments will have to be made to the nut, inside of the instrument.

Take care not to allow the wires inside the instrument to get twisted or to rattle.

On standard 2 piece end pin jacks provided, if tightening internal hex nut is difficult while jack is inside Instrument you may super glue (Cyanoacrylate) the hex nut to the large thread after you have determined it's correct position before pushing the jack into the end block.

One piece end pin jacks may be inserted from outside the instrument to be held by glue/friction but must be soldered to the cable while it is protruding from the end pin hole.

GUITAR & MANDOLIN ADJUSTABLE BRIDGE

PICKUP FITTING The pickup is best fitted under indirect string pressure close to the strings, which can be done with a saddle or with a wood sandwich structure similar to the traditional Lloyd Loar design.

Lloyd Loar Style Wood Bridge Pickup Version:

This method retains a more traditional look and the sound of string against wood.

i) The top half of the **raisable bridge** requires lengthening to allow at least 1cm (0.4") of straight pickup either side of the string courses and the bend of the pickup out of the slot, which would involve modifications to lengthen bridge base and widen thumb wheel positions.

ii) The top half of the bridge is cut length ways, about half way down, comfortably allowing sufficient room in lower bridge half, to make a routed pickup slot, along middle of lower half length, where there is 0.5mm-1mm protrusion of the piezo cable. This is sufficient to allow the top half to pressurise and compress the pickup, while under string pressure. The depth of the routed pickup slot should be around 1.2mm-1.5mm

iii) The end of the pickup slot is drilled, preferably at 45-60 degrees, but a 90 degrees angle may work under mandolin string pressure, subject to rounding off entry area.





Saddle Method: This method may be easier to implement than the above and offers a brighter, punchier sound acoustically and electrically, although clearly that is not the sound many players want.

An ebony, or black plastic piece, rather than bone may be used for saddle, which is let into slot in top half of bridge. See Pickup fitting notes on moveable bridges 15).

The raiseable function may be retained, by deepening the shallow hole for the bush/bolt to the base and allowing just the tip of the daisy wheel into a reduced depth hole in the top half. In addition, you must try to ensure that the top half has at least 1 cm either side of the string courses. A longer top half will balance string outputs better.

The revised bush & top half arrangement allows more space in the top half to account for the depth of a saddle and the bend in the pickup. The pickup bend takes signal down through the leg of the bridge via joint to co-axial connecting cable.

SIMPLE SOLID FLOATING BRIDGE PICKUP

As an alternative, with no saddle, merely rout a P/U slot into a continuous, even bridge base with no feet, to insert fractionally protruding pickup, under indirect string pressure, but in contact with body. This would be easier with a flat top instrument, but a rounded bridge base, shaped to a top, may be used as a guide for a router, when making a pickup slot.

A refined variation on this is to seat the pickup under indirect string pressure in the routed bridge base from a wood tongue, the bottom of which rests against the instrument top. The tone from these simple methods, with pickup further from strings, should be balanced, but mellower and woodier than an under saddle, less defined, more prone to body noise and feedback and with less treble. In other words, half way between a contact pickup and an under saddle pickup.

Then either take black/brown co-axial connecting cable, or thicker piezo cable:

- i) through the top, under the leg of the bridge;
- ii) out of the front or back, via a bridge base notch.

**NATIONAL RESOPHONIC & DOBRO PICKUP
FITTING.**

Offer a choice of powering via Phantom from EDB-1, fitting an HE4 Passive and using a short Jack Lead (1m-3m), or Lithium long life PP3 battery (typically up to 4 years) with access via cone.

i) **National's** pickups are best fitted with the piezo cable pickup placed in a semi-circular routed slot arrangement, allowing the pickup to be laid close to and parallel to the round edge of the wooden Biscuit. The pickup should protrude fractionally from it's slot, by approximately 0.5mm- 0.8mm (0.32") sufficient to place pressure onto it, between the Biscuit and the resonator cone. Use: HE4/ NAT.FEQ or HE4 Passive + 3m Jack Lead + EDB-1 Pre-amp.

ii) **Dobros** may be fitted with single, standard length pickups which can be made to bend around the centre saddle screw, with the pickup under indirect string pressure either side of the screw HE4 Passive Twin + EDB-1 Pre-amp. Alternatively, use an active twin pickup system. HE4/DoB.FEQ offers separate pickups, either side of the screw.

**HARP, HAMMER DULCIMER & UD (OUD)
CUSTOM PICKUP FITTING.**

Please note that the notes below supplement the general fitting.

i) HARP pickups are best laid alongside the entire length of the sound board (approximately 0.5m-1.4m), but under indirect, even string pressure via a hardwood tongue or free strut routed for the 2.5mm diameter pickup slot, where the string ends are fastened to this tensioned free strut. HE4/H.FEQ Custom would be required where lengths are worked out from where the starting point position of Jack/pre-amp is mounted:

I) Length of cable to battery bag position.

II) Length of connecting co-axial cable to pickup joint.

III) Length of bridge to contain Piezo Co-axial cable pickup.

ii) HAMMER DULCIMER pickups (2 wired in parallel to one pre-amp) are best fitted along the entire length of both bridges, preferably where continuous bridges are used rather than individual Chessmen. In this latter case, we could not be certain that an acceptable or consistent string balance could be achieved. See Harp cable length notes for specifying custom pickup system as above.

iii) Ud (Oud)/ Lute Pickups can get excellent results using a custom length version of "The Snake" with external exposure of all components. The Nylon strings go directly over the plastic covered steel braid of the Pickup, which usually sits in a shallow slant angled slot in the bridge, the positioning of which is chosen according to where there is the most even and heavy string wrap pressure. See Non-intrusive jack socket mounting notes.

CUSTOM ADDITIONS: These changes are not covered under Guarantee. Should damage and faults occur due to modifications, Headway Music Audio Ltd would determine itself, whether fault is covered under guarantee.

SOLDERING NOTES: Always use experienced operatives and good quality solder, which should be lead free according to European Union reg's. Twist tight all stranded cable ends and tin these ends and all terminals with solder, without melting insulation. Make good mechanical connection before soldering each side together using additional solder.

Controls on SNAKE3: Passive tone and volume controls may be added by connecting pots to the grey, lap screened output cable, and ensuring there is sufficient cable length to reach i) controls, and ii) from controls to end pin jack.

These controls work in a similar way to those on most electric guitars. We suggest making these pots fit 1.2" apart, centre to centre, to keep them in line with other standards.

If a third control is used for passive bass, the tone controls may be set 1.2" apart on a plane at right angles to top, with the Volume pot set 1.2" apart from either, or centred away from both.

Use braided screened cable, for the additional length, although terminals should not cause noticeable interference if left unscreened, as they would be running low impedance.

VOLUME POT: As if looking from the shaft side with pins pointing down, the right hand terminal would connect to the output wire (red) from the pickup's pre-amp, the centre terminal provides the output from the volume pot, while the left terminal would be earth (outer screen/bare cable).

You should further connect the earth to the body of the pot. We suggest 10k-25k(A) log for Volume, using a 4.7k resistor on the centre output terminal of the volume control.

TONE or TREBLE POT: For adding to above, 10k-25k (B) Lin. is recommended. Connect 220 nF capacitor, between the output from 4.7k resistor above, and the centre terminal of tone pot (capacitor wired in series with tone pot). With above perspective, the Left terminal of tone pot connects to earth and body of pot while right terminal is unused.

BASS POT OPTION : 50K Lin

Additional Bass control capacitors required for:

- i) Guitar = 47 nF;
- ii) Mandolin = 22 nF ;
- iii) Bass = 120 nF.

MULTI-PICKUP SYSTEM - CUSTOM WIRING:

4 Pole End Pin Jack Sockets are available with an additional small pole to enable on board battery switching plus two separate signals in stereo, such as two pickups, or a pickup and a mic, which may be routed via a stereo jack lead and mixed off board.

The easiest means of off board mixing for most musicians is the Stereo to 2 x mono . HEADWAY is able to offer the 4 pole end pin jack and the "Y" lead.

Core signal wires (Red or White) would be connected to tip and ring respectively, with both outer braids to one larger earth terminal. The black or blue battery wire connects to the 4th remaining (or additional earthing) terminal.

The more crucial pickup/signal should be wired to the tip, as this would be the sole signal if a mono lead was used. Normally, for reasons of feedback rejection, the under saddle pickup is wired to the tip to be most readily accessible.

Two active pickups could be wired from the one PP3 battery with simple standard jack switching or a separate battery and switch could be used for 2nd device, as is common on Electret Condenser Mics.

INSTANT BATTERY ACCESS

When changing standard connector/Battery Bag for External Loading Pull Drawer Battery Holder and re-soldering to new terminal is required, connect

Red to Positive (+) & Black to Negative (-). If butt connecting wire to wire, connect, Red to Red and Black to Black.

STRING BALANCE ISSUES

One thousandth of an inch of wood or bone can make a big difference to string balances.

Assess string-to-string balance by picking each string individually with equal force in same direction. If amplified string output differs from string to string significantly this may be corrected by the following checks and techniques:

- i) Check saddle is not so loose as to pull forward under string tension.
- ii) Check saddle is able to fall out under it's own weight when de-strung.
- iii) If string over pickup entry point is overloud, output may be reduced by filing a staged, rounded entry point to saddle slot hole. This would reduce pickup pressure around entry bend area.
- iv) Should string output adjacent to pickup tip be weak, ensure that tip is bent into shallow locating hole at around 45 degrees.
- v) Ensure that p/u is not forced into tight slot, ensuring that fit allows it to fall out (before tip is bent into locating hole).

vii) Should saddle width be sufficient (e.g. 5mm : 2/10") to allow wide movement of pickup after loosening strings, this change of p/u position would likely alter string balances. Tip MUST be located into anchor hole.

viii) Check that underside of saddle is absolutely flat. Use machinist's "Steel" or float glass mirror applied with soft pencil. Hold saddle at top of middle, place saddle base on pencilled area and push evenly backwards and forwards. Examine base of saddle and pencil deposits to indicate high and low areas. Re-sand high areas with cut to width glass paper to correct accurately.

viii) Ensure that saddle base edges and corners are chamfered at 45 degrees.

ix) Ensure that saddle slot is free of loose material and burrs. This may be assisted by an ultra-fine rout around edges of slot.

x) Apply soft pencil as lubricant to lower area of

saddle within slot.

xi) To raise output of one or more adjacent weak strings, remove saddle and apply adhesive copper tape to underside of saddle below area of weak strings to increase pressure. Ensure that tape covers full width of saddle but does not protrude and impede saddle movement.

xii) Restring to concert pitch, plug in and re-assess string balance and press down with thumb along all points of saddle again. If a "thump" is heard through amp/speaker saddle has not yet bedded into pickup and slot.

xiii) Additional layers of copper tape may be applied to further increase pressure and contact on pickup to increase output.

xiv) To lower output of individual or adjacent groups of strings, remove saddle and mark area of over-hot strings. Sand base of saddle with glass paper cut to match width of sanding area.

CAUTION, remove small amounts of saddle material at a time before re-checking amplified string balance.

xv) Please be aware that although not very likely, air pockets/bubbles can occur in all synthetic saddle material, likewise, veins/grain can affect vibration transfer in bone/fossil ivory. Additionally, soft plastics e.g. Corean, absorb part of the treble and may flex under pressure. Also, strings may quickly cut into material and affect response. Bridges should have sufficient support in middle or sagging will cause pickup to lose required pressure/contact there.

AVOID: Moulded Saddles with slots / legs.

xvi) Higher tension strings may assist string balances, however, an instrument which suffers a particular weak string is likely to have that energy imbalance made more noticeable when amplified. At higher volumes, an acoustically weak string is more noticeable. This may be countered by using a heavier gauge string.

STRING BALANCES – FINER ISSUES

The required even pressure and contact can vary due to inaccurate routing/machining of bridge slot or saddle, loose material in slot, pressured fitting of bridge to body, or from wood moving/warping, for instance. If one is looking for an outstandingly accurately balanced pickup, one may have to bias certain strings over others, because of the individualities of the instrument response.

For example, on acoustic guitars, the top "e" 1st string often has the weakest energy level, acoustically and this may be noticeable on amplified string balances, without the pickup being at fault, the weak string can be brought up in amplified volume by applying additional contact and pressure, compared to other string

The D28/35 Guitar appears to be designed to offer a bottom "e" 6th string, which is louder than the other strings, perhaps in order to offer players a greater low note or thump. Some of this extra string energy is likely to feed through into a louder amplified string, which you will be able to choose to allow, or to trim by lessening contact and pressure of saddle base in that strings area.

**MORE DRASTIC STRING BALANCING
METHODS...CAUTION!**

These will not substitute for corner cutting on
Installation!

CLAMPING UP OF INSTRUMENT OVERNIGHT:
Careful clamping between back of instrument and
saddle, using a G Clamp, will often help force the
pickup to seat correctly by smoothing out any slight
variations in contact/pressure.

HAMMERED FORCED SEATING:
Apply a rounded, concave tip profile to length of
dowel. Place against string balance weak spot(s) on
saddle of strung up instrument. Strike firmly with a
light hammer. Do NOT use this method on lightly built
or structurally flawed instruments!
Alternatively, REVERSE PICKUP ENTRY POINT in
saddle slot or try removing tip of pickup from locating
hole.

For even more detailed information please refer to our
website :



**WARNING: HEADWAY MUSIC AUDIO LIMITED
does not recognise extended warranties issued
by third party companies.**

Validate your Guarantee Online at:

www.headwaymusicaudio.com

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