

Guitar Set-up

Seattle Luthier Group Clinic given by Cat Fox on April 2016



Figure 1 Evaluate Neck Relief

Sequence for Set-up

- Use the following sequence for evaluating and setting up a guitar.
 1. Neck Relief/Truss Rod Adjustment
 2. Nut
 3. Saddle

Evaluate Neck Relief and Adjust if Required

- The neck should be straight and should have even symmetry across the width and should have approximately .010" relief (about the thickness of the "e" string) at the 6th fret when the string is fretted at the first fret and at the body.

- Unevenness could be due to loose frets, twisted neck, etc.
- Secure loose frets if necessary.
- Adjust truss rod gradually to get proper relief.
- If the fingerboard is not even down its length, or across its width, correct it by:
 - Level the frets (providing you have more than 0.27" to 0.30" fret height)
 - Refret If there is insufficient fret height
 - Level the fingerboard and refret

Adjust Nut

- Nut action height should be such that you get a “tink” sound when you fret the second fret and tap the string at the first fret.
- Too high action will impair intonation and make playing more tiring and difficult.
- Cut the nut slot so that the angle is half way between the neck and peghead angles.
- It should be flat (round the peghead side of the nut slightly for the wound strings on a nylon guitar to avoid tearing the winding).
- The strings should be well supported (to avoid vibration) but loose enough for easy adjustment.
- A slot that is too deep can be quickly, and temporarily repaired with CA glue and baking soda). A better repair is to recut the nut or shim with hardwood (or bone).
- DO NOT DO ANY NUT COMPENSATION FOR INTONATION. IT DOESN'T WORK!!!



Figure 2 Temporary Nut Slot Repair



Figure 3 Repaired Slot

Adjust Saddle

- Check intonation and saddle position. Martin had their saddle too close to the nut for years and many manufactures copied this error. Also check for flat floor to the saddle slot. Many mass produced guitars are not flat.

- Need correct position for proper intonation
 - Position for all steel string instruments
 - Scale length plus 0.15" to middle of saddle.
 - The saddle is angled 1/8" over a 3-inch distance as follows:
 - Treble string (e) is 1/16" closer to the nut (at a point 1.5" away from center of saddle)
 - Base (E string) is 1/16" farther from nut (at a point 1.5" away from center of saddle)
 - For nylon string instruments the compensation distance is scale length plus 0.10" and there is no angulation.
- Steel String Action Height
 - Electric: 5/64 E and 3/64 e
 - Fingerstyle player: 6/64" E and 4/64" e
 - Flat Pick player: 7/64" E and 5/64" e
 - Pounder: 8/64" E and 6/64" e

Fret wire

- Jescar Evowire
 - (hard, very nice, more expensive, but beware of spring back (fret ends can come loose later if there is a large mismatch between the fingerboard and fret radius)
 - Bend to the curvature of the fingerboard.
- Dunlop is good
- Stewmac is good. Cat likes both 141 and 152 wires.
- Cat likes 3M Softback sanding sponges (various grits) for polishing frets



- *Figure 4 Abrasive for polishing frets*

Other Saddle Comments

- 3/32" Saddle
 - A 3/32" saddle is the most common and usually works fine.

- Contour for middle of the saddle for e, far back for b, front of the saddle for g and back of the saddle for E. The A and D fall on a line between the g and E.
- 1/8" Saddle
 - Usually a fully compensated, 1/8" saddle is not necessary.
 - If Done:
 - Cut to flat edge, but give an arched profile to match the fingerboard and adjust a compensation angle for each string.
 - Place a "b" string under the string to be adjusted and move to position using a strobe.
 - Mark this position between the front and back edges of the saddle and file the contour to this position.
- Double (split) saddles (e-b, and g-E) are good for DADGAD tuning.
- Cat demonstrated a jig for cutting a new saddle slot while the bridge is on the guitar. This will allow a poorly located saddle to be repositioned and restore proper intonation.



Figure 5 Saddle Slot Cutting Jig