

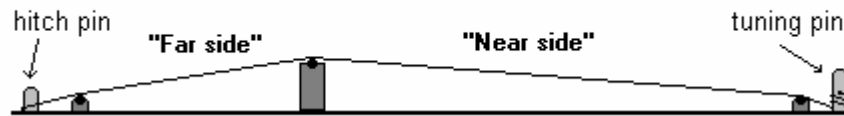
Basics

Tuning wrenches:

- T wrench
- Gooseneck

Tuning Dynamics

- friction
 - across bridge(s)
 - turning tuning pin



Perfect Tuning

Jon's Rules of Tuning

- Always tune up!
- Use your arms, not your wrists
- Tune while turning, stop turning when you've reached pitch
- Treble bridge: always tune the "far side" first

Electronic Tuners

Purchasing

- make sure it's **chromatic** (even if your dulcimer is not)
- sensitivity - try before you buy!
- meter vs. lights – easy to see, read
- look for **fast note recognition**
- slop

Using

- pickups? – microphone vs. transducers
 - attach to tuning pins, bridge, etc. – experiment!
 - will probably need to move around several times as you tune
- use a guitar pick - pluck/pick gently
- consider making a **damper block**
 - damp the strings around where pickup attached
 - damp the strings on the opposite side of the treble bridge being tuned
- use your ears too!

General Tuning Recommendations

1. Tune your instrument at least once weekly – don't let it get way out of tune
2. Always carry your tuning wrench and tuner with your Dulcimer!
3. **Use a guitar pick - the harder the better**
4. **Turn wrench with your arm, not your wrist**
 - lower string a little first
 - loosens pin friction
 - gives you more room to tune up without overshooting pitch
 - **start low, turn slowly while continuously plucking, then stop turning when proper pitch reached**
 - use momentum to reduce effects of pin friction
5. **Always tune up!**
6. Tune Consistently – I recommend:
 - tune Bass, then Treble bridges
 - tune each bridge from top to bottom
 - in each course: tune one string first while damping other string(s) with your finger
7. Treble bridge
 - tune one course at a time (top to bottom)
 - for each course:
 - **1st tune both “far” side notes** (one string at a time)
 - **then tune both “near” side notes** (one string at a time) – usually will just need a little lowering (due to friction over the bridge)
 - don't tune all one side of the bridge and then the other!

Tuning Problems

- 1) Sticky pins
 - a) always lower pitch a little first (to loosen friction) **even if close**
 - b) then tune up to pitch
- 2) Waaaay out of tune:
 - a) rough tune any chromatics
 - b) rough tune treble bridge “far”**side only!**
 - c) tune bass bridge normally
 - d) tune treble bridge (both sides) and chromatics
 - e) spot check bass bridge
- 3) Can only get one side of treble bridge in tune at a time
 - a) string has worn groove into delrin bridge cap – lift and reposition string
 - b) bridge is out of alignment – see next section...

Minor Surgery

Adjusting a bridge knocked out of alignment

- use pencil, eraser end next to bridge
- knock with something light (tuning wrench handle)
- stike gently, don't overdo - be patient
- make sure bridge remains straight (visually)

Replacing broken string

- remove broken wire
- **unwind** (counter clockwise) the now bare tuning pin 3 1/2 turns
- get a 3rd hand to hold the loop end on the hitch pin (use a clothespin, binder clip, etc.)
- thread wire through bridges and thru tuning pin hole
- cut wire so that 1 1/2 inches sticks out of tuning pin
- push wire back into tuning pin so end of wire is flush with outside edge of pin (ie. does not stick out of the hole)
- while holding the wire taught against the outside of the tuning pin (and keeping the end flush inside the hole), turn the tuning pin (clockwise) so string wraps around it **downwards** towards dulcimer). Continue holding it as you wind to maintain tension on the string, preventing it from slipping out the hole and guiding the windings **downwards**
- make sure windings go down/below the previous windings on the tuning pin (i.e. towards the dulcimer)

- as the string begins to tighten make sure it is following it's proper path through and across the bridges - make sure it's not caught on another string or a bridge pedestal