

Acoustic Travel Ukulele



Plans

Build a concert scale acoustic/electric ukulele
with an overall length of around 20 inches!

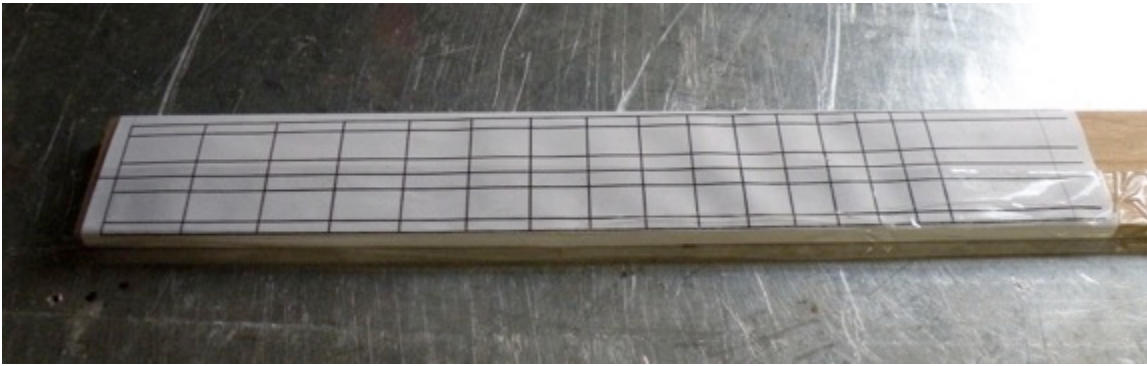


Supplies:

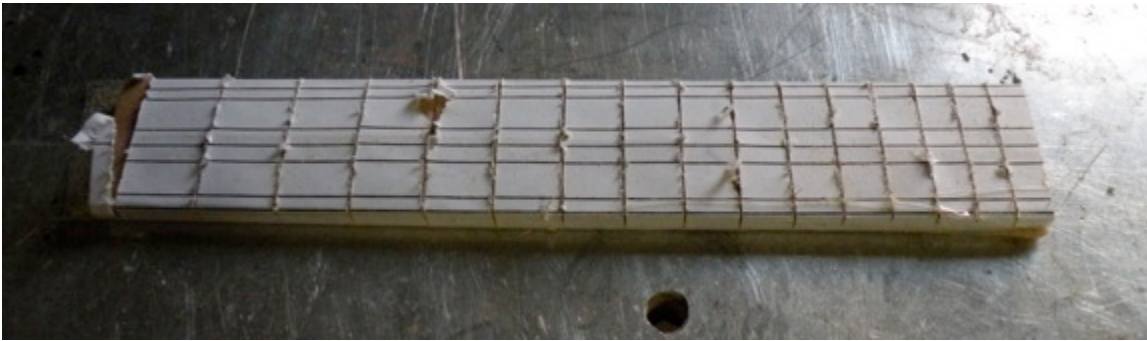
- 1/8 inch by 1.5 inch by 20 inch wood (for sides of body)
- 1/8 inch by 3 inch by 20 inch wood (for top and back of body)
- 1/8 inch by 3 inch by 20 inch wood (for top and back of body)
- 1/4 inch by 1.5 inch by 12 inch wood (for fretboard and heel)
- 1/4 inch by 1/2 inch by 2.5 inch wood (for bridge)
- 3/4 inch by 1.5 inch by 24 inch wood (for neck, neck block, and tail block)
- 40 inches of mandolin or guitar kerfing
- Nylon ukulele strings
- 4 Zither tuners
- Zither tuner key
- Combination jack and strap peg
- Strap peg
- Disk or rod piezoelectric element
- 30 inches of fret wire
- Tru-Oil and wax finish (or other finish)
- Wood glue (Titebond or similar)
- Solder
- Sandpaper

Tools:

- Electric drill (A drill press works best)
- Various drill bits
- 1.75 forstner bit (for sound hole)
- Clamps
- A thin bladed saw (for the fret slots)
- Soldering iron
- Scroll or band saw
- Rasps, files, or spokeshave (to shape neck)
- Trim router and flush trim bit
- Miter box



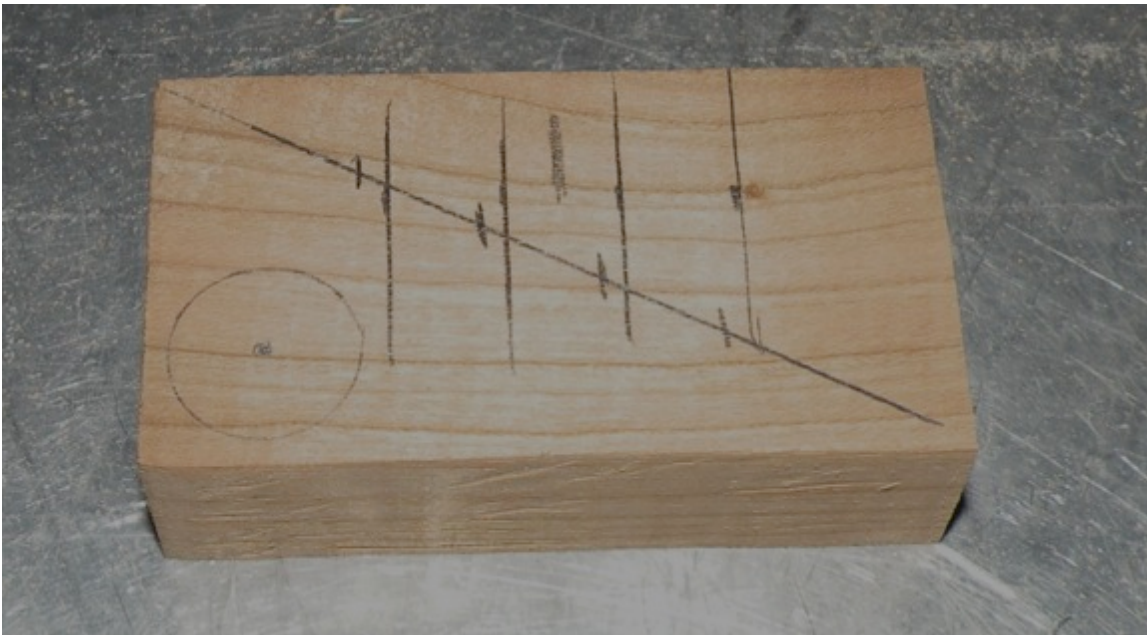
1. Print off the fret guide located on the last page of these plans. Tape the fret guide to a 10 inch piece of the 1/4 inch by 1.5 inch piece of wood. Make sure that the line on the left is about 1/4 inch from the edge of the wood.



2. Using a miter box and the thin bladed saw, cut shallow slots along the lines. The slots only need to be as deep as the tang of the fret wire.



3. Remove the tape and paper from the fretboard. Carefully tap the fret wire into the slots. Use a file to make the edges of the frets comfortable for hands sliding up and down the neck.



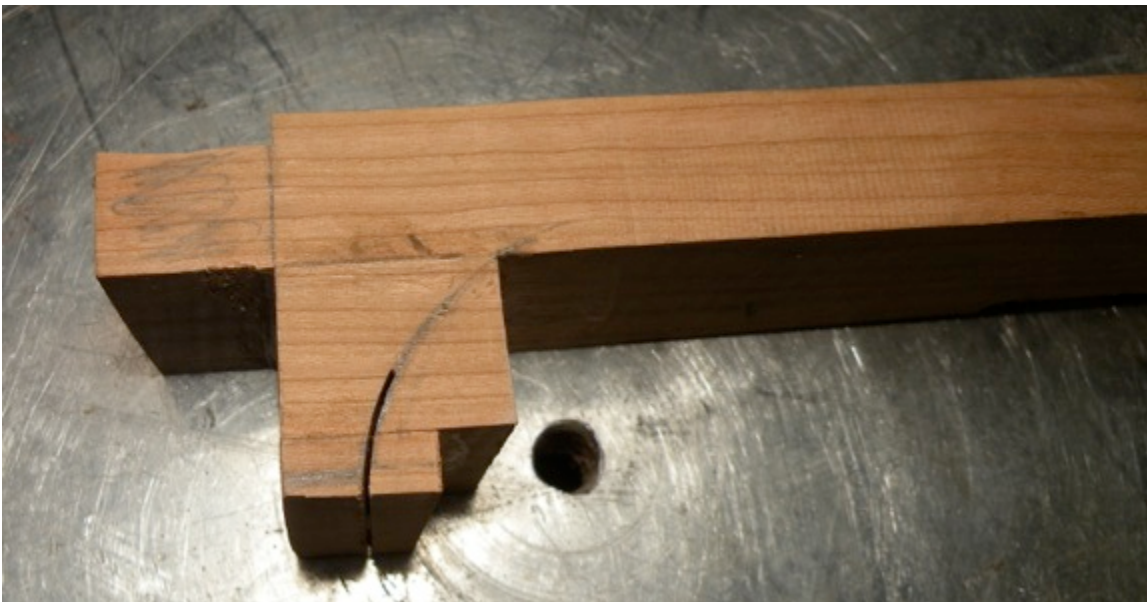
4. Use 2.75 inches of the 3/4 inch by 1.5 inch wood for the tail block. Draw a diagonal line from corner to corner. Draw vertical lines on the wood where the strings will go. (The string spacing is 27 mm from the first to the last string. Use the fret guide if needed to draw these lines.) Mark where the zither pins will go to the left of the string lines. Drill the holes so that the right side of the zither pins will be right on the string line. Practice drilling the zither pin holes in scrap wood. The pins need to turn, but they also need to be tight.



5. Drill a hole for the combination jack/strap peg.



6. Use 2 inches of the $\frac{3}{4}$ inch by 1.5 inch wood for the neck block. Cut a notch into this piece that is $\frac{5}{8}$ inch deep and 1.5 inches wide.



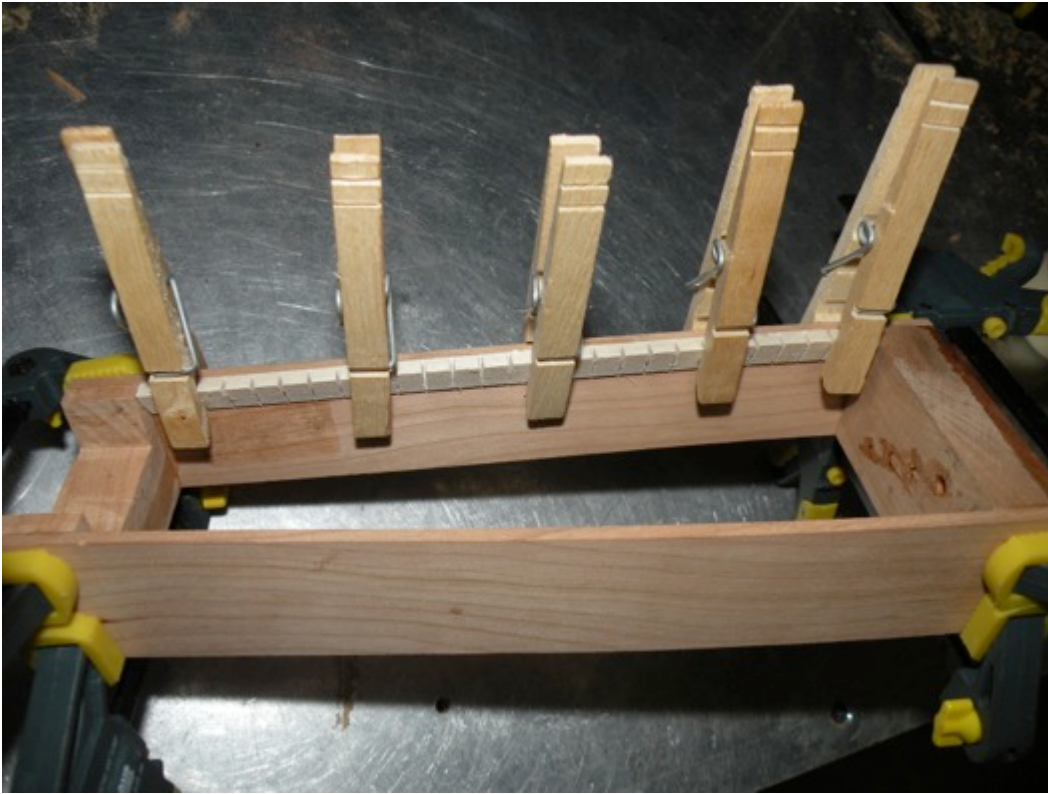
7. Use 9.5 inches of the $\frac{3}{4}$ inch by 1.5 inch wood for the neck. Use 1 inch of the $\frac{3}{4}$ inch by 1.5 inch wood and $\frac{1}{2}$ inch of the $\frac{1}{4}$ inch by 1.5 inch wood for the neck heel. Glue these pieces so that they are $\frac{3}{4}$ inch for the end of the neck. Cut a notch at the end of the neck that is $\frac{1}{8}$ inch deep and $\frac{3}{4}$ inch long.



8. Cut the heel into the desired shape.



9. Use two pieces of the 1/8 inch by 1.5 inch wood that are 9 inches long for the sides. Glues these pieces to the neck and tail blocks. Make sure that the notch in the neck block is up, and the hole for the jack/strap peg is down.



10. Glue kerfing to the top and bottom of the sides.



11. Use a forstner bit to cut a sound hole in a 1/8 inch by 3 inch by 9 inch piece of wood. Make sure that the hole is centered and about 2.75 inches from the edge of the wood.



12. Make sure the neck fits properly in the neck block notch. The top of the neck should be flush with the top piece once everything is glued.



13. Shape the neck with a file, router, rasp and/or a spokeshave. Make the neck so that it is comfortable in your hands.



14. Drill small holes for the strings about 1/4 inch from the edge of the neck. Use the fret guide to place the holes evenly apart.



15. Countersink some holes on the bottom of the neck for the string knots. Drill a hole at the end of the neck for the strap peg. Make sure it is in between the two middle string holes.



16. Glue on the top piece of wood.



17. Use a trim router or similar tool the cut off the extra wood from the top.



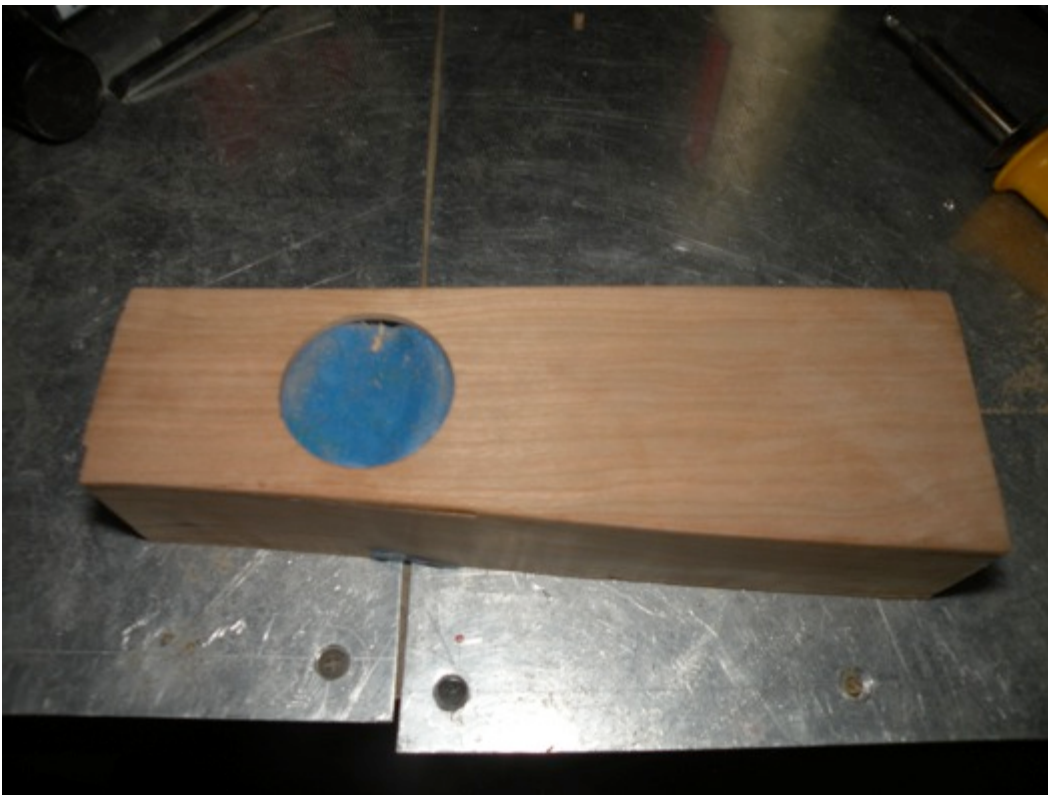
18. Solder the piezoelectric element to the combination jack/strap peg. Install the jack. Test it with an amplifier to make sure it works. It is MUCH harder to troubleshoot any issues after the back is glued on.



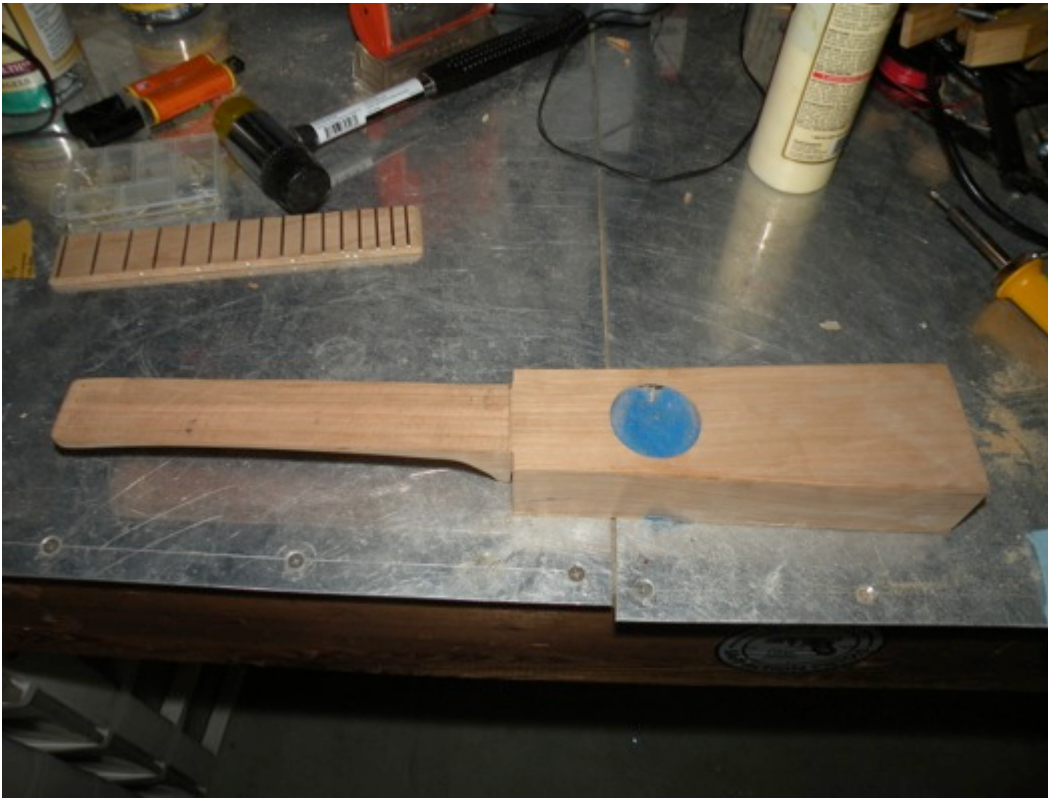
19. If desired, make and sign an instrument label for the back piece of wood.



20. Glue the back on. Trim off the extra wood with a trim router.



21. To keep the inside clean when the applying the finish, attach some tape under the sound hole.



22. Glue on the neck.



23. Glue on the fretboard. Make sure that the edge of the fretboard is right by the string holes in the neck.



24. Sand, sand, sand. Get the body ready to finish.



25. Apply finish to the body and neck. Tru-Oil and gunstock wax work well.



26. Use the 1/4 inch by 1/2 inch by 2.5 inch piece of wood to make a bridge. Start with a fairly high bridge and slowly lower it by sanding the wood. The distance of the strings to the frets (the action) will be determined by the bridge. Move the bridge until it is 15 inches away from the zero fret. Move the bridge closer or farther from the fretboard if the intonation isn't correct.
27. Install the strap peg, the zither pins, and the strings. Tie knots into the strings and feed them through holes at the top.
28. Tune up the strings and rock! **Make a YouTube video about your instrument and/or take pictures of it. Share the link or pictures to CircuitsAndStrings@gmail.com.**

