

Assembling Your Ukulele Kit

Congratulations on the purchase of your new ukulele kit from DIY Instruments. With a little patience and some household tools you will be able to finish and assemble an instrument that you will be proud to play for years to come.

This guide gives you a set of step-by-step, easy to follow instructions for the assembly of your ukulele using the parts supplied.

Remember: the more time and effort you put into your guitar, the more you will get out of it!

Parts List

The following is a list of parts that comprise the complete ukulele kit. Before you start finishing and assembling your uke, it's a good idea to make sure all required parts have been supplied, and to familiarise yourself with the components that make up the ukulele, and their purpose in the final instrument.



1. Body
2. Neck
3. Fretboard
4. Bridge
5. Saddle
6. Nut
7. Strings
8. Tuning Machines
 - a. 4 x plastic tuner keys
 - b. 4 x plastic bushing
 - c. 4 x screws

- d. 4 x metal headstock bushing
- e. 4 x string through rod



Basic Tools

If this is your first experience assembling a ukulele kit, there are a few basic tools you will need. The majority of these you can find around the house, and a minimal list is given below.

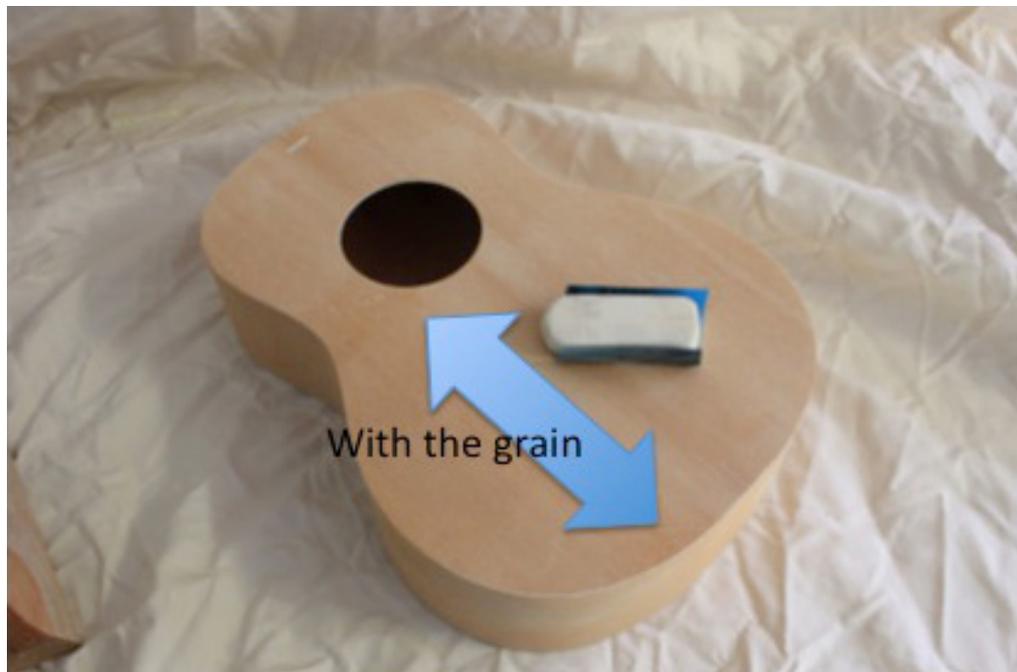
1. Binding Tape, ratchet strap or clamps etc. to hold the neck whilst gluing
2. Phillips-Head Screwdriver
3. Drill and drill bits
4. Sand paper – minimally 180, 240 and 360 grits.
5. Wood glue – Titebond is a good choice.
6. A wood finish of your choice – stain, lacquer, oil, paint etc.
7. Tack cloth or brush.
8. Painters tape for masking

Step 1. Sanding

While the components of your ukulele kit have been shaped and roughly sanded in the factory, to give your instrument the best possible look and feel you will want to sand it further. We recommend that you sand with at least with 180, 240 and 360 grit sandpaper to achieve a desirable finish, and that this is best done to each piece of the ukulele separately before assembly. Depending on your intended wood finish, you may even like to sand the pieces even finer!

Sanding the Body

- Starting with 180 grit sandpaper, *sand with the grain* until all machining marks have been removed and a consistent scratch pattern has been achieved.
- All surfaces should be smooth to the touch.



- Repeat with 240 grit sandpaper, removing all the scratches from the 180 grit paper. Remember to always sand with the grain.
- Repeat with 360 grit sandpaper, removing all the scratches from the 240 grit paper. All surfaces should now feel beautifully smooth!
- Use a tack cloth or brush to remove all saw dust from the body.

Customizing the Headstock

- Before you start sanding the neck, if you are planning any alterations to the ukulele's headstock, now is the best time to make them.
- Changes to the headstock shape can really personalise your instrument, but suggestions and techniques for doing this are outside the scope of this guide.
- If you are interested in customizing your headstock, we suggest you check out YouTube or various online forums for ideas on headstock customisation.

Sanding the Neck

- Repeat the steps described for the body with 180, 240 and 360 grit sand papers. Remember to always sand *with the grain*. This is typically “along the neck” not across it.
- **Please note:** You should not sand the *top of the neck* where the fret-board is to be attached. This has been machined to match the underside of the fretboard and should not be disturbed at all. This will ensure a good clean join when the fretboard is finally glued.
- Similarly, be very careful around *the end of the neck* where it is to join the body. Rounding the corners here may result in a neck join that looks unsightly if the neck no longer sits flush with the body.

Sanding the Fretboard?

- There is no need to sand the fretboard. It has been machined ready to play in the factory.
- You may wish to apply some fretboard wax or conditioning oil to maximise the feel under your fingers.

Sanding the Bridge?

- There is also no need to sand the wooden bridge. It has been machined ready to use direct from the factory.

Step 2. Glue the Fretboard

The fretboard can now be glued to the top of the neck.

- The flat “top” of the neck provides a base for both the fretboard and the nut. Make sure when you are fitting the fretboard to the top of the neck that you allow adequate room for the nut (see second photo).



- Taking your wood glue (we recommend Titebond) cover the whole top of the neck (excluding the place where the nut is to sit).



- Spread the glue around with your finger to make sure it is evenly distributed all over the top of the neck.
- Move the fretboard into position and clamp it down. Wipe off any glue squeeze-out using a damp rag.



- Set the whole thing aside for 24 hours to make sure the glue dries completely.
- Lastly, complete the installation of your fretboard by sanding the edge of the neck to meet the edge of the fretboard.

Step 3. Attaching the Neck

Once the fretboard is glued into place, the neck can be glued to the body.

- Bring the body and the neck together so that their centres align and the fretboard is sitting flat on the top of the body.
- If the neck heel protrudes beyond the body a little way then this will need to be sanded so that it is flush (see below).



- Once the neck heel is flush with the back of the body, sand it with 180, 240 and 360 grit paper to bring the finish up to match the rest of the neck.
- Using an appropriate wood glue (we recommend Titebond), the neck and body can now be glued.
- Place glue on the neck end (see below). Make sure there is glue on the entire surface, but do not use so much as to cause excessive squeeze out.



- Press the neck and body together. Squeeze out (hopefully there will be little) can be cleaned up at this stage with a damp rag. Do it now so that the glue won't hamper your attempts to finish later on.
- Clamp the pieces together using binding tape, a ratchet strap or another appropriate clamping scheme. We recommend binding tape for this job as it makes the process effortless.



- Wait at least 24 hours for the glue to dry completely.

Step 4. Apply Finish to the Body and Neck



There are many ways to finish your ukulele and we couldn't possibly provide a step-by-step guide for them all here. While the choice of finish comes down to your own personal preference, as a guide the most popular choices of finish amongst our builders fall into these three categories:

Solid Colour

Coloured spray paint, often auto acrylic, is used to finish the guitar in a solid colour. The paint is sprayed over primer, and some form of clear coat (lacquer) is then sprayed over the paint to protect the finish and to add a glossy "showroom" finish.

Dyed / Stained Wood Finish

Wood stain or dye is used to colour the ukulele, with the wood's natural grain visible through it. Some form of clear coat is then required to seal the wood and provide a glossy "showroom" finish. Lacquer can be used for this purpose (with an appropriate sanding sealer), or often Tru-Oil is used to seal the wood, enhance the grain and, as the layers develop, add a glossy finish.

Oil Finish

The wood's natural beauty is brought to the fore with a simple oil finish such as

Danish Oil, or Tung Oil. This kind of finish results in a more natural look to your instrument.

It is up to you to select a finish that appeals to you!

Step 5. Attaching the Sound Hole Decal

Before you put the final clear coats on your ukulele, you may want to install the supplied circular decal around the instrument's sound hole. The decal supplied is of the "water-slide" type, and is very straightforward to apply. Anyone with any experience making plastic models will no doubt be familiar with the process.

- Place some room temperature water in a dish and submerge the entire decal until the it easily slides backwards and forwards on its backing sheet.
- Remove the whole sheet from the water and let the excess water run off.
- Position one edge of the decal in the correct position on the body of the guitar, and then gently slide the rest of the decal off the backing sheet and into place.
- If necessary, fine-tune the decal's position by moving it with your fingers. Be careful not to tear the decal.
- When you are happy with the decal's final position, pat it dry with a paper towel, taking the opportunity to remove any air bubbles and excess water from under it.
- Let the decal and guitar body dry overnight before continuing.

Step 6. Determine the Bridge Position

The bridge must be exactly placed on the body of your ukulele. This is to guarantee correct intonation of your completed instrument given its *scale length*.

The correct bridge position for your kit places the middle of the saddle at exactly **348mm (± 0.5mm)** from the front edge of the nut. The front edge of the nut is the edge closest to the fret-board and represents the point where the strings leave the nut to travel down the fretboard to the bridge.

- Measure this distance (**348mm ± 0.5mm**) from the front edge of your nut and mark a faint line on the body. If you can avoid writing directly on the body of the ukulele, it is a good idea. Place a piece of painters tape across the body in roughly the correct location and draw on that.
- Note: When positioning the bridge, the saddle will need to remain *exactly* on this line for correct intonation of your instrument.
- Next, using two pieces of cotton or twine, simulate the two outer strings of the ukulele running up the neck.
- Attach the cotton to the bridge (as you would the ukulele strings), and run them from the bridge up the neck and over the nut.
- For the purposes of this exercise, the nut can just rest in place at the top of the neck.
- Tape the ends of the cotton pieces to the headstock so that they are anchored at the correct distance from the bridge. This distance is such

that it allows them to be pulled tight when the saddle is on the line you marked for it.

- Orient the bridge left-to-right so that the two outside strings sit an equal distance from each edge of the fretboard. When you are satisfied, the bridge can be screwed into place.
- Take each of the two screws provided and screw the bridge into position.
- Each screw hole has a circular white cover to hide the screw. This can be glued in place with a drop of superglue if preferred.

Step 8. Install the Tuning Pegs

The ukulele has 4 tuning pegs that must be installed on the headstock. In your kit you will find the 4 pieces required to assemble each tuning peg. (See parts list for details).

To assemble and install each tuning peg, do the following:

- Push the tuning rod through the metal bushing and place the whole assembly through the hole in the headstock.



- On the back of the headstock, slide the plastic bushing over the tuning rod and place the plastic tuning key on the end of the rod.



- Take the screw and insert it into the top of the tuning peg. Tighten it with a Phillips-head screwdriver until it is tight, but not so tight that the tuning key cannot turn.



- That's all there is to it!



Step 9. Install the Strings

The ukulele has 4 strings, all with different gauge. Unlike a guitar or bass, however, these strings are not placed on the neck in order of decreasing thickness. Instead the order is as follows:

- Topmost string: second thinnest string
- Second string from the top: thickest string
- Third string from the top: second thickest string
- Bottom-most string: thinnest string

Each string is installed as follows:

- Tie a knot in the end of the string and feed the other end through the bridge slot designated for that string.
- Pull the string through the bridge slot until it is stopped by the knot, then bring it up over the saddle and down the neck to the nut.
- Pass the string through the nut slot and into the designated tuning peg as shown below.
- Turn the tuning peg until the string has no slack (don't over-tighten at this stage). Leave enough initial slackness in the string to achieve 2-3 complete windings on the tuner peg when tuned.

Step 10. Adjust String Height

Once the strings are in place, the height of the strings off the fretboard, or 'action' of your ukulele should be adjusted to maximise the playability of your instrument. This is achieved by measuring the height of the strings at the 1st and 12th frets, and sanding the base of the nut (for the first fret) and the base of the saddle (for the 12th fret) until the desired height is achieved.

What the height of **your** ukulele strings should be is dictated to a certain extent by your playing style. The perfect height for any player is the height just before which the strings start to hit the frets (or 'buzz').

A good rule of thumb could be thought of as 1-1.5mm at the 1st fret (adjusting the nut height) and 3-3.5mm at the 12th fret (adjusting the saddle height). You will need to play with these to see what your perfect string heights are.

Each time you make an adjustment, tune one (or all) of the strings back up to correct pitch to check the height. This can be a time consuming process, but patience at this stage will pay off.

Note: You do not want to over sand either the nut or the saddle! Once either of these is lowered too far, it will need to be replaced and the lowering process started all over again. You can't put back material once it is removed!!

Once you have achieved the desired string height, the nut and saddle should be affixed in place using a small drop of super-glue. Don't use too much as you may need to remove one or other for maintenance in the future.

Step 11. Tune the Strings

The standard tuning for a ukulele is as follows: G, C, E, A

Use a chromatic tuner to achieve the best results when tuning, and remember to always bring your string into tune whilst tightening the string not loosening it.

Well, that's it. Enjoy your new ukulele!