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A TIMBERBITS WORKSHOP GUIDE

THE COMPLETE PEN MAKER'S GUIDE

Tools, materials and the full build, start to finish

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OVERVIEW

This guide covers the full process of making a pen, from cutting the timber blank to pressing in the final components. It is written for someone making their first pen, and assumes you have a lathe but not much else. The CA finishing step is summarised here at step 7. For the full method, including cut-back and polishing through the grits, see our separate Thin CA Finishing Guide.

1.0 TOOLS

Lathe

Variable speed is important. You will run slow when applying CA and faster when sanding.

Roughing Gouge

A basic roughing gouge handles every cut on a pen blank. Keep it sharp. Sharp tools cut cleaner and are safer than blunt ones, because they cut rather than catch.

Pen Mandrel

Mounts the blank on the lathe. The Aussie Pen Mandrel Saver slides over the mandrel and contacts the bushing rather than the mandrel shaft, which keeps the mandrel from bending and the finished pen from coming out elliptical. Worth the upgrade.

Synthetic Bushings

Act as your size guide while turning. Bushings are pen-kit specific, so check what your kit calls for.

Saw

Anything from a bandsaw to a fine-toothed hand saw will work for cutting your timber blanks to length.

Drilling Rig

Either a Jacob's chuck and a pen blank chuck mounted on the lathe, or a drill press with a centring vise. Both work. The lathe method is what we use in the shop.

Drill Bits

Each pen kit calls for a specific bit size. Check your kit before you start.

Pen Mill

Also called a barrel trimmer or reamer. Squares the ends of the blank flush with the brass tube so the components sit cleanly when pressed in. Pen mills are kit-specific. If yours does not suit a particular kit, a belt sander or disc sander does the same job as a backup.

Pen Press

Used to push the components together. Mount it on a board you can hold in a vise, so you can press one-handed.

1.1 MATERIALS

Pen Kits

Your choice of style. Each kit includes the brass tubes, nib, refill, centre band, clip and mechanism.

Timber Blanks

Around 20 x 20 mm square is standard. Cut each blank slightly longer than the brass tube it will house. You will trim back when squaring the ends.

Medium CA Glue

Used for gluing the brass tubes into the blanks. Not the same as thin CA. Use the right one for the right job.

Thin CA Glue and Activator

Used for the finish coats. Aerosol activators give a more even spray than pump bottles and are worth the extra cost.

Sandpaper, 150 to 600 Grit

For sanding the bare timber before the finish goes on.

Ultra Fine Mesh Sanding Kit, 1,500 to 12,000 Grit

For cutting back and polishing the CA finish.

Paper Towel

For wiping the CA onto the spinning blank.

Alternative Finishes

Friction polishes, oils and waxes are all good options once you have the basic CA method down. Worth experimenting with after your first few pens.

Before You Start

Check your kit requirements first. Each pen kit calls for specific drill bits and bushings, and using the wrong size means the components will not fit when you go to assemble.

Lay all the kit components out where you can see them. The parts can look unfamiliar the first time around, but the sequence becomes obvious once you have them in front of you.

Safety Basics

Wear safety glasses while turning. Make sure the lathe is bolted down or weighted so it cannot move. Keep your tools sharp.

2.0 INSIDE A PEN KIT

Pen kits vary, but most contain the same set of parts. Here is what to expect when you open a basic kit. Lay everything out before you start so you can see what each piece does, and follow your kit's specific instruction sheet for the assembly order.

Ink Refill

Comes in different styles depending on your kit. Ballpoint and rollerball pens use Cross or Parker refills, so order replacements to match. Fountain pens take either a disposable cartridge you swap out, or a converter you fill from your own bottled ink. Some kits include both.

Brass Tubes

One or two, depending on the kit. Two-tube kits make pens with an upper and a lower barrel joined by a centre band.

Clip

The pocket clip that sits on the upper barrel.

Centre Band

The decorative metal ring that sits between the two barrels.

Pen Nib

The writing tip end of the pen. Slimline-style kits typically use a 7 mm nib.

End Cap

Sits at the top of the pen and clamps the clip in place when pressed in.

Twist Mechanism

Sits inside the pen and extends or retracts the writing tip when you twist the barrel. It is the most important moving part in the kit, and the one to go gentle with during assembly.

3.0 MAKING THE PEN

1. Cut and Mark the Blanks

Cut each blank slightly longer than the brass tube that goes inside it. The extra length gets trimmed when you square the ends, and it gives you a margin if the cut is not perfectly square. Mark the centre of each end clearly so your drill bit goes in straight.

2. Drill the Blanks

Mount the blank in a pen blank chuck on the lathe and drill with a Jacob's chuck holding the kit-specific bit. Or use a drill press with a centring vise. Either way, drill slowly and back the bit out every few millimetres to clear chips. Forcing the bit heats the timber and can crack a blank.

3. Glue the Brass Tubes in

Scuff the brass tubes with sandpaper so the glue has something to grip. Wipe them clean. Apply medium CA to the inside of the drilled hole, then slide the tube in and twist as you push to spread the glue evenly. Make sure the tube is centred, then let the glue cure fully before moving on.

4. Square the Ends

Run a pen mill matched to your kit over each end until the blank sits flush and dead square against the brass tube. A belt sander or disc sander does the same job as a backup. Check often. Going too far means starting that blank over.

5. Mount on the Mandrel

Slide the kit-specific synthetic bushings onto the mandrel with the blanks between them. If you are using the Aussie Pen Mandrel Saver, slide it over the mandrel and let it position itself. Tighten everything down so nothing moves while the lathe spins.

6. Turn to Size

Start the lathe and use the roughing gouge to bring the blank down close to the diameter of the bushings. Take light finishing cuts to leave a clean surface. The bushings are your size guide. When the timber matches the bushings, you are done. Sand through the prep grits from 150 up to around 600.

7. Apply the CA Finish

With the lathe running slow, around 200 RPM, wipe thin coats of CA glue onto the spinning blank using a folded paper towel. Set each coat with a light spray of aerosol activator from 15 to 20 cm back. Build up around 20 coats. The full method, including cut-back and polishing, is in our separate Thin CA Finishing Guide.

8. Cut Back and Polish

Speed the lathe up to around 700 RPM and work through the ultra fine mesh kit from 1,500 to 12,000 grit. Wet sand the whole way through. Do not skip grits. The finish should come up to a clean, high gloss when you reach the top of the sequence. Before you take the blanks off the mandrel, lightly sand the very ends with your prep abrasive. This stops the CA lifting when you press the components in.

9. Assemble and Check

Lay the pen components out in the order they go together. Your kit instructions will show the sequence. Use the pen press to push each part in with steady, controlled pressure.

For twist pens, fit the writing tip first, then the twist mechanism. Be careful not to push the mechanism in too far. It is hard to back out once it is seated. Add the centre band, clip and any remaining parts last.

Once everything is together, run a quick final check:

- Twist mechanism extends and retracts smoothly when you turn the barrel
- Refill writes cleanly when extended
- All parts sit flush at the joints, no visible gaps
- Clip holds firm against the barrel
- Finish is clean and free from marks

Last thing: wipe the pen down with a soft cloth to take off any fingerprints from assembly.

Tips for Beginners

A Few Things Worth Knowing

- Start with a simple kit. The technique is the same as the harder ones, but a forgiving kit gives you room to make mistakes without ruining premium materials.
- Practice on cheap blanks first. Pine, beech or even a length of dowel will let you find the turning rhythm before you cut into the figured timber you have been saving.
- Keep notes on what works for your setup. Lathe speed, sanding sequence, which activator gave the best finish. Pen turning gets faster and cleaner with reps.
- If you can, visit or join a local turning club. An hour with someone experienced at the lathe is worth more than any guide.

4.0 TROUBLESHOOTING

The components do not fit when I go to assemble.

The blank was turned slightly under-diameter, or the tubes shifted while gluing. Check that you turned to the bushing diameter exactly, and that the tubes were dead centred and straight when the glue set.

The pen wobbles when assembled.

The brass tubes are not straight in the blank, or they were not seated all the way in. Both are gluing-stage issues.

The finished pen is slightly oval or out of round.

The mandrel was flexing under load while turning. Avoid overtightening the setup, and consider an Aussie Pen Mandrel Saver. It contacts the bushings directly rather than relying on the mandrel shaft, which is what causes the flex.

The CA finish has rough patches or pinholes.

You needed more coats, or a grit was skipped during the cut-back. More coats from here and a careful re-polish through the full grit sequence will usually rescue it.

The finish lifted off during assembly.

The overhanging CA at the ends of the blank was not sanded back before pressing. No fix once it has happened, but sanding the ends before assembly stops it next time.

The twist mechanism does not extend the refill properly.

The mechanism was either pressed in too far or not far enough during assembly. There is a small working window where the threads engage the refill cleanly. Test the action with the refill in place as you press the mechanism, before committing to the final seat.

5.0 WHAT NEXT

Pen turning is one of those skills where the first one feels hard and the tenth feels easy. Most people make a handful of basic pens, then start chasing harder kits, exotic timbers and different finishes.

A few directions to take it:

- Try harder pen kits like Sierra, Cigar or Bolt Action.
- Move into rollerballs and fountain pens, which need more precision.
- Experiment with stabilised burls, resin blanks and segmented blanks.
- Try alternative finishes like friction polish, oil or lacquer, and see how they compare to CA.

If you would like a hand at any stage, the team at the shop is happy to help in person or by email. We also run pen-making classes if you would rather learn at the bench with someone showing you each step.

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