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American Association of Woodturners

10 Steps to Better Pens



Plating thickness and under- or over-treatments contribute to the cost of a pen kit. The pitted example at right is thinly plated.

By Kurt Hertzog

For many, the journey into woodturning often begins with a pen project. And it's hard to replicate the joy of that first-time experience: Pens are easy to turn and offer the immediate gratification of having a finished, functional project in a short period of time.

If you're itching to advance beyond basic pen turning, here are 10 simple tips that move your finished pens to the next level. Most of the examples and illustrations used in this article use the humble 7mm kit pen, but the suggestions are applicable to turned pens and pencils of all stripes.

1 Upgrade to a higher quality kit

It's easy to feel overwhelmed by the variety of pen kits available. If your goal is to turn inexpensive pens to sell at the church bazaar, cost will drive your kit selection. But if you are trying to make a pen that will be used and treasured by the recipient for years, starting with a higher quality kit is a wise investment.

Although the internal mechanisms are often identical, the quality and finish durability of the external components is better in the higher quality, more costly kits. Thicker gold plating, different purity levels (hardness) of gold, TiN (titanium nitride) treatment, rhodium plating, powder coating, or other options will allow you to purchase a pen kit that will hold up better to the daily use. Other quality points include clip design and under- or over-treatment (coatings below or on top of the plating).

When I am making pens using a 7mm kit as the base, I select the TiN- or rhodium-plated kits, depending on the color I want. The kit retails for about \$5.00.

2 Choose interesting turning stock

Now that you are ready to turn pens that are "keepers," take a closer look at your turning blanks. Easily obtained and low-cost or free wood is a great way to learn to turn and do it inexpensively. But unless the wood being used has a sentimental value, skip it and move to something more interesting.

First, let's do the math. A typical pen kit requires less than $\frac{1}{50}$ board foot of wood. Even if you are paying \$100 per board foot, that is less than \$2 per pen for turning stock.

If you don't cut your own pen blanks, shopping for a dyed, stabilized burl blank at \$5 to \$10 will certainly elevate your pen another



2 There are thousands of species of woods available. Pick one that has some pizzazz.



3 If the inkfill doesn't carry a well-known name, be wary of the quality.



4 Mark your pen blanks clearly to distinguish matching grain.



5 Dial calipers will produce consistent measurements for barrel diameters.

notch. Other blanks run the entire range from plain to pretty figure and colored wood through cobra snakeskin under polyester resin. Don't forget the huge assortment of plastics, solid-surface materials, and other natural materials (including bone and antler) that lend themselves to pen blanks. Cutoff bins at wood suppliers are another great source of pen blanks.

You'll find many excellent and reputable exotic wood dealers on the Internet. Buying wood that you can't touch and examine up close worries some buyers, but give it a try.

3 Make your pen a high-quality writer

The inkfill provided with a kit is often selected based on the cost, not the performance. Some of the kit inkfills are passable as a writer, but most leave a lot to be desired.

For my money, a genuine Cross inkfill (about \$2.50) for a 7mm kit writes much better than any look-alike "Cross-style" inkfill, which sells for about \$1.50.

Expert penturners recognize Parker, Schmidt, and Sheaffer as other top-drawer manufacturers for inkfills for other pen-style kits. Discount stationery stores are an excellent source for top-quality inkfills.

Be sure to tell the recipient of your gift pen to select the same brand of inkfill when the time comes to replace the original. A nice touch is to include a spare high-quality inkfill with the pen. Some pen cases have space beneath the liner for a spare inkfill.

4 Match the grain

From the time you cut your blank to the moment you assemble your pen, keep track of the original wood orientation. Here's what works for me.

A simple mark on the blank prior to cutting and marking of inside of the tubes will allow you to easily turn and assemble your pen as the wood originally grew. With a small kerf, you can match the grain perfectly. If you cut blanks from longer lengths, make sure you mark them in some way so you can keep them paired as well as matched.

Additionally, you can help yourself with grain match by drilling the blanks from the inside out and favoring that end of the blank when you glue in your tubes. That will minimize the loss of wood and help preserve the grain match.

Even if the grain is completely obvious, develop a routine to mark each blank, whether turning wood, plastic, metal, or some other material. Unless it is a homogeneous solid-color material with no discernible grain, keep track of the original orientation.

This simple step of matching the grain will show that you have moved beyond the newcomer stage.

5 Lose the bushings, grab your calipers

As a beginner, most penturners rely on bushings as a guidepost for turning pens to the proper diameter and holding the turning stock on the turning mandrel. But now that you're ready to improve your penturning work, it is time to start focusing on perfection.

Bushings are simple and straightforward to use: Turn and then sand to the bushing dimension. Once you have achieved that diameter, your pen parts should be ready for assembly.

But wait a moment: Bushings are not as dimensionally accurate as you'd like to believe, particularly lot to lot and between manufacturers. Regardless of the original bushing

diameter, the bigger problem is that bushings continually shrink as you sand your barrels. If you turn to that continually shrinking bushing diameter, your pen barrels will be undersized, resulting in a noticeable step at the interface.

Use the bushings to space and hold your pen blanks as you turn, but only to get yourself in the ballpark for size. A better method is to grab a set of calipers to make your parts to match the mating part. Turn, sand, and finish until they match perfectly.

Measure the mating brass part and continually measure the wood until the two match. It is only important that the measurement be the same on both parts regardless of the measuring instrument's accuracy.

6 Lose the centerband Now that you are turning to match the physical component dimension and have ditched your reliance on the bushings, you can easily toss the centerband. With that gone, you free yourself from that restrictive dimension and awkward-looking interface. The traditional 7mm kit now becomes flexible for your design.

Without a centerband, the upper and lower barrels will press together flush and the pen will be shorter by the missing centerband's length. The traditional 7mm slimline kit will still assemble properly and enclose the transmission and the end of the inkfill in the unaltered upper barrel.

Now your pen designs can take a leap to the next level. Here are some popular options:

- If you want to make your pen the same length overall as it would have been if the centerband were still in place, you can cut one or both of your barrels a bit longer. If you use the kit-supplied brass tubes, you

will have a small length of the wood barrel without brass tube inside. Because you will press-fit the other components at the tip and top of the pen, the brassless ends should meet in the middle of the pen.

- Add a contrasting color or material on the end of the tubes that will mate. You can have them meet in a wood-to-wood interface or something added as an accent.

- Cut new brass tubes from longer stock (available from kit suppliers) and you gain the freedom of customizing the length of the upper and lower barrel. Just keep in mind the dimension of the transmission press to nib so the inkfill will extend and retract properly.

7 Apply a durable finish

Penturners can select from a wide range of finishes. The problem facing penturners (and woodturners in general) is that usually we're in a hurry to get a finish on the piece and the work off the lathe. To apply a finish quickly while the work is on the lathe, penturners gravitate to friction finishes.

Unfortunately, manufacturers of friction finishes rely on waxes and shellacs, which don't hold up well to a lot of handling.

Don't be afraid to apply your finish and let it cure off the lathe. A durable finish will take multiple applications with drying/curing time in between applications. You can let parts cure off the lathe so you can continue to turn other items.

Contrary to the mantra that quick usually isn't durable, there is one quick yet durable finish. Many penturners favor cyanoacrylate (CA) glue as a finish. CA provides a durable finish that will stand up well and can be buffed to a super high gloss.

If you don't know how to apply a CA finish, it is easy to learn. There



Eliminating the centerband expands the creative options for your pen design.

are several excellent articles and short videos on the technique in the Articles/Videos section of the Pen Makers Guild website (go to penmakersguild.com).

Although I often use CA as a pen finish, I also am a fan of lacquer. I use the aerosol versions of cellulose lacquer available in the paint department of the discount houses. After the proper preparation of the turned blanks, I apply light coats and build up over several days. Allowing the lacquer plenty of time to harden is important if you want to level and buff it to the highest gloss possible.

Don't overlook finessing the finish. You can take a CA or lacquer finish to a mirrorlike finish by subsequent sanding with automotive finishing sandpapers and Micro-Mesh. (Micro-Mesh is an abrasive product originally designed to polish out scratches on multimillion-dollar polycarbonate cockpit canopies on jet airplanes.) For more details about this finishing technique, see the Articles section at penmakersguild.com.

8 Hide your flaws

If you have a boring section of wood, or perhaps a flaw (natural or manmade), assemble your pen so the clip hides that section or flaw. If you have one end of your turned barrels that is perfect and one that is not, assemble your pen so that perfect fit



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The photo above shows additional ways to change the design without a centerband.



8

By planning ahead, you can place the pen clip over ordinary wood grain.



9

Small errors (like the gap on this centerband) are easy to detect on inferior pens.



10

Most buyers and recipients of pens are drawn to the simple and elegant pens like the one in the foreground above.

is at the nib end, where the user will feel any imperfection.

9 Pay attention to details

Since penturning is a relatively simple undertaking, it is the attention to details that separates the penturners from the penmakers.

- Are all of your interfaces truly perpendicular to the turning axis so there will be no gaps after assembly?
- Is the nib interface imperceptible, visually and to the touch? Look at it and feel it. Close your eyes and use your fingertips. If you can feel it, it's not as good as it could be.
- Is the inkfill extension functional and pleasing vs. sticking out like a sore thumb?
- Was the pen assembled so the grain lines up perfectly, either open or closed?
- Was the preparation for the finish done well?
- Are all sanding scratches invisible?

If you aren't doing these items, get doing them. They are simple to do and they will help to separate you from the hordes of other folks turning pens.

10 Keep it simple

Adding endless beads and coves to a pen barrel only brands your work as that of a newbie. Simple is always truly elegant. Costly, collectible pens are usually ornate yet simple in shape. Most of them have a deceptively simple, yet eye-pleasing shape and feel. The simple visual appeal and ability to write nicely is what sets apart a fine pen.

Putting it all together

It would be ideal to say which step is most important. The truth is that all 10 steps are important. The greatest finish in the world is lost if the pieces don't fit together flush

and square or you can feel the step where the nib meets the barrel. Nothing is more disheartening than to look at a pleasingly shaped pen with a lustrous finish yet the sanding scratches are evident underneath the finish.

Recognizing these simple steps as important is part of the battle, but using them is the real test. After having read this and perhaps thinking about it a bit, my guess is that you will never again look at pens the way you used to.

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Finding Joy in a Pen Mill

Although many experienced penturners swear by sanding the glued-up pen blanks to be perpendicular, I find that a pen mill is a necessity. A pen mill will pilot on the inside diameter of the brass tube and face the end of the pen blank flat and perpendicular to the axis of the tube. Using the proper-sized pilot and a sharp cutter will provide perpendicular surface that is cut well and will help provide a gapless interface.

Pen mills are available from all of the kit suppliers for about \$20.

—Kurt Hertzog