

# The Journey from *Penturning to Penmaking*

by Kurt Hertzog

## Laser Leftovers

In the last issue, we focused on one method of working with laser cut kits. These kits have become very popular and have expanded to include depictions of everything from national flags to various species of dogs. With their increased popularity and more manufacturers in the arena, have you ever wondered what becomes of the waste materials used to create wooden parts for the kits? Many years ago, I wrote a “how-to” on using these and titled it “Remainders.” Because of the explosive growth in laser cut kits, I’d like to share that idea with our present audience. The article has been rewritten to fit our magazine format as a logical follow-up to the laser cut kit column.

### WHERE DO ALL THE SCRAPS GO?

If you think about the methods used to create the laser kits, you know that each part of the kit had to be cut from something. The manufacturers create pen blanks in all the necessary species, or dye lighter woods for specific colors and cut as many pieces of the same part as they can from those blanks. When they have all the needed parts for a particular kit, they take the blank with the overall background cutout and package it with the needed pieces from the sacrificial blanks (see Fig. 1). Now what do they do with those blanks that have a

large number of holes cut into them? Originally, they were pretty, but now they have been rendered virtually useless because of the repeated patterns of empty holes. And they are often broken or have ragged edging. So let’s take those outcasts that were raw materials for the various laser cut kit component pieces and do something useful with them.

### IT’S THE SAME WORKFLOW MENTALITY

If you remember from the last issue, the whole concept behind the laser cut kit process as I do it is that you insert the tube, protected by wax paper, and use it to support the component pieces as the wooden blank is built. The methodology behind the “laser leftovers” is exactly the same. The tube is protected by using wax paper or tape, and is inserted into the blank to act as a backing board for the filling process that will come later (see Fig. 2). Rather than filling the open areas with wooden pieces as you would in a laser cut kit, you can mix epoxy with a filler of your choice, such as wood, acrylic color, stone, metal filings, or other materials (see Fig. 3). With the backing in place, you are free to fill in the open areas, being certain to fill these areas entirely—don’t be afraid to poke the filler into the corners to minimize any voids or air bubbles (see Fig. 4). Another method that



Fig. 1

Did you ever wonder what happened to all the pen blanks that were used to cut the laser kit pieces?



Fig. 2

Using the same concept as explained in the last issue, the brass tube is protected with tape or wax paper and is used to “plug” the tube so that you can build in the cutout area.



Fig. 3

One method of creating a filler material is to mix wood chips, acrylic paints, or other colored materials with epoxy.

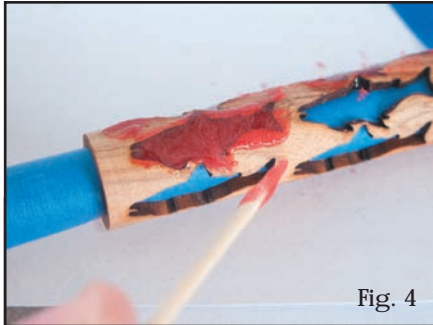


Fig. 4

Pack the filler into all the nooks and crannies, because you'll want a good bond and solid material for the turning that will later cut away much of the filler.

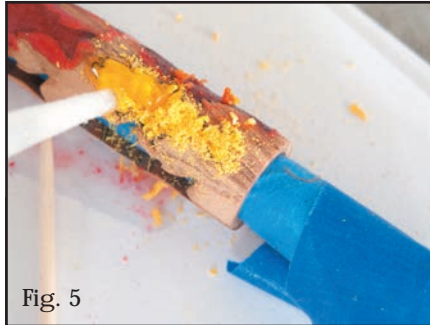


Fig. 5

Another method that works well is to pack the materials into the opening and then drizzle CA on it to solidify the filler materials.



Fig. 6

Almost anything can be used for filler if it can be mixed with epoxy and will then harden. Test a small sample to be certain before committing.

works nicely is to fill the area with the raw materials, and then drizzle in cyanoacrylate glue (CA or superglue) to fuse the materials together and lock them in place. This works very well when using wood, metal, or stone chips (see Fig. 5).

What can you use for filler? A better question is what can't you use? If you can make the filler solid, either by its nature or by mixing it with an adhesive, then it should work nicely. The only real limitation is that you will need to be able to cut the final cured material with woodturning tools (see Figs. 6 and 7). If the filler is too hard, it most likely will be yanked from its position and create voids rather than be cut flush with the desired endpoint diameter.

### PROCESS FLOW

Allow for some curing time if you plan to use different colors in the various locations around the blank rotationally. You'll want the finished filler to be flush or proud of the surface prior to turning, but if you fill an area and

are impatient, you'll wind up with filler running out of the filled area and creating a mess. I find that working on these blanks in batches works well (see Fig. 8). Fill the desired areas on one side of the blank and allow them to cure before rotating to fill another area. Even though you think 5-minute epoxy will let you proceed quickly, I've found that it takes quite some time for it to set where it won't run and this is particularly true when you've added other materials (such as acrylic paints) as colorants. Often, it pays to fill the voids partway and then come back and fill—actually overfill—to the desired level. You want to be certain that there is plenty of material filling the opening and that it is cured well. Many times, the filler and adhesive will shrink as they cure and that is reason enough to be certain that you used enough material to fill the voids completely (see Fig. 9).

When the areas that you'd like to fill are filled and all have cured sufficiently, remove the protected brass tube that was used as a backing board. If you have



Fig. 7

You can use just about anything that you can pack into the cutaway and then harden with glue. Note: It will need to be a material that can be cut with turning tools.



Fig. 8

With the colored materials mixed with epoxy, it is as simple as filling in the voids in the cutout areas and letting the material harden.



Fig. 9

You'll need to let areas harden before you can rotate the blank to continue the process. Often it is better to do the fills in multiple steps and to overfill.



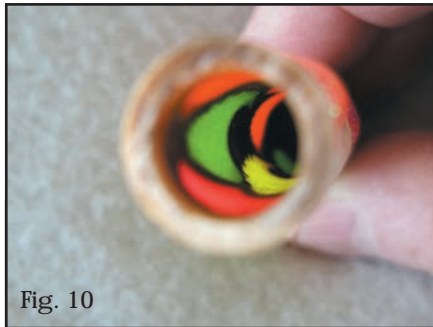


Fig. 10

When the filler materials have set up completely, you can slide out the protected brass tube. The fillings should be flush to the walls of the inner diameter.



Fig. 11

Be as creative as you wish. Of course, there aren't many blue, green, pink, and yellow fish, but the blank will certainly be an eye-catcher when finished.



Fig. 12

As explained many times before, I always scuff my brass tubes with a coarse abrasive to provide a clean, rough surface for better adhesion.

done things carefully, the filler materials should be flush to the inner diameter walls of the pen blank (see Fig. 10). I've found that there is rarely any problem with this, but it is important that there be no voids underneath the filler material because of the potential for fracturing later on during the lifetime of the pen.

Don't be afraid to get artistic! At this point, nobody said you have to be realistic. Take the time to be creative—there really isn't any color or filler that is out of bounds. Make it something that will be unique and an attention grabber (see Fig. 11).

### CONTINUING ON

As I've mentioned many times before, getting a good glue bond with a tube contaminated with drawing lube and oxidation is not a sure thing. Therefore, I strongly recommend that you take a moment to scuff the tubes with coarse abrasive paper. It certainly can't hurt and for the few moments that it takes, it helps ensure a good bond (see Fig. 12).

Because your filler choice might be either transparent or translucent, you should consider painting the tubes if the brass color will be noticeable. Scuffing the tube to prep it for adhesive will certainly help the bonding of the paint if you decide to paint the tubes. I use a regular big-box brand acrylic spray paint directly from the rattle can. With a bit of painter's tape balled up and wrapped around a wooden kabob skewer to hold the tube in place, I can paint the tube, rotating as needed, and stick the point of the skewer into a cardboard box to hold up the tube until it is dry. If more than one coat is needed, the painting can easily be repeated to build the paint layer to the thickness you want (see Fig. 13). I find that black, white, or the original brass color works for most of my applications; but you may find a need for additional colors depending on your choice of filler.

With either the painted or unpainted tube, it is time to glue the tube into the blank. Though I avoid polyurethane glues for my laser cut kits because of the potential push out, I've found that a well-prepared laser-leftover



Fig. 13

You may want to paint the brass tubes, since some of the colored fillers can be transparent. Paint them with rattle-can paints in black, white, or another color.



Fig. 14

I am a fan of polyurethane glues for bonding tubes into blanks. Wet the inside of the blank with water, just before inserting the tube with the glue.



Fig. 15

My goal is to have the polyurethane foam out the ends, showing me that there is adhesive coverage all over.



Fig. 16

Any adhesive that has foamed into the inner diameter of the brass tube is easily removed with a drill bit WITHOUT using power. Turning the bit by hand works nicely.

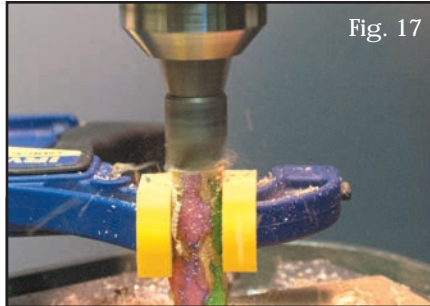


Fig. 17

At this point, processing the blank proceeds as any other glued-up pen blank would. The pen blank can be faced using a pen mill or sander with a jig.

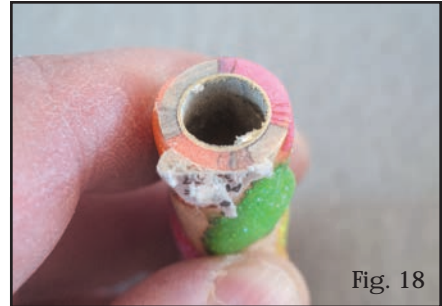


Fig. 18

Facing can be done to the very edge of the tube as usual. Notice that the filler material extends to the end of the blank and causes no special problems.

blank isn't susceptible to this problem. I use my standard method of spreading some polyurethane glue around the bottom of the tube and sliding it into the blank that has just had the inside of the wood wetted with water (see Fig. 14). Wet the inside immediately before inserting the tube to ensure that the polyurethane, which cures with moisture, has plenty to drive the curing process. I position the tube with respect to the pattern in the blank so that trimming will yield a pleasingly spaced result. Once done, the blank is laid on scrap paper where it will foam all over the place, indicating that the adhesive has cured sufficiently (see Fig. 15).

### PREPPING THE BLANK FOR TURNING

Because foamed adhesive sometimes remains in the tube, take a moment to clean it out. I use a drill that fits closely into the inner diameter. Mount the drill in the drill press or drill chuck in the lathe, and twist the drill into the tube by hand without power. The glue cuts away very easily and it only takes a moment to clean out the tube,

which allows me to continue on to the facing process (see Fig. 16).

In the last issue, I suggested that a belt or disk sander be used to face the laser cut kits because of their fragility; however, no such problem exists with the laser leftovers, and I use my pen mill the same as for any other pen blank (see Fig. 17). As with any other kit, it is important that you face the pen blank until it is flush with the brass tube. Because many of the kits rely on the tube length for proper spacing, removing any extra length of the brass tube will cause problems. Get flush with the very edge of the tube with no more or no less removed (see Fig. 18).

Because the laser-leftover blanks do require some additional prep time, I recommend that they be made in batches to make the best use of the glue mixing and curing times. Work on a group of them all at once so that you'll have some done ahead. I process them all the way to the "ready for turning" stage and then set them aside until time permits further processing (see Fig.



Fig. 19

Because these blanks sometimes take a bit of curing time (and potentially, a fill, cure, rotate, and repeat kind of process), getting them done and stockpiled makes sense.



Fig. 20

Mount and turn with your favorite penturning tool. Any voids in the filler can be filled, cured, and completed as usual.



Fig. 21

The blanks are finish-turned, sanded, and finished. I usually use CA as a finish and then stockpile the finished bodies until I need to commit to a certain kit.



19). Once done, you've got an assortment of blanks ready and your only real investment is the tube committed to the blank. If the tubes are bought in bulk, you won't have the cost of a kit tied up until you are ready for final delivery. When you need one of the kits, the turning, finishing, and sanding can be done quickly to produce the finished pen.

### TURNING AND FINISHING

Whether you've just completed a laser-leftover blank or you are taking one from your existing "ready to turn" inventory, the turning is done exactly as you would any other pen. Use whatever tool you like, but I find that a spindle roughing gouge does everything I need with these types of pen blanks (see Fig. 20). I find that high-speed, sharp tools, and light touch are the keys to a good result.

Turn to the desired shape, sand, and finish as you wish. Should any voids or air bubbles become evident, fill them with CA along with some of the correct turning or sanding debris and continue. However, if you've done a good job initially with the filling process, you will rarely have any voids to deal with, but if you do, they are often minor and will add a bit of "rusticness." I typically use a CA finish on these pen blanks. You can use lacquer, but I find the CA goes on quickly and produces a durable finish (see Fig. 21).

You can also stockpile inventory at this point. The blanks have been turned, sanded, and finished up to the point of assembly, so why commit to the style or plating decision at this point? You certainly can have a few assembled to show and your customers can choose the kit they prefer. You'll notice my examples are for the Gatsby, Sierra, Sienna, and other permutations of this style kit. You can also have an assortment of the laser leftovers completed for your customers to choose from. When the determination of which leftover and which manufacturer's kit has been made, assembly is a snap and you have a finished, ready-to-ship pen (see Fig. 22).

### CLOSING THOUGHTS

The goal of this article is twofold. First, I wanted to show a method of using scraps from the laser kit process to create something a bit unique. Secondly—and more important—it was to get you thinking just a bit outside the "buy a blank, buy a kit, and put them together" mentality. Don't be afraid to experiment. Don't be afraid to do something different than what others in the penturning community are doing.

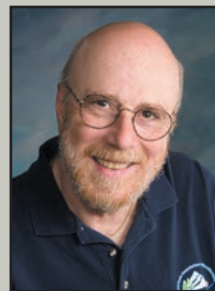
The use of the laser-leftover blanks presents an opportunity to be creative with colors and fillers, but don't stop there. Whether you've seen or have had access to laser-leftover pieces, you can cut, drill, saw, or otherwise create pockets for filling in your own pen blanks. Do this in the square or round. Do it in regular or irregular shapes and spacings.

The next logical question is where do you get the laser-leftover blanks? I am not aware of what other laser kit manufacturers do with their leftovers, but I know that the folks at Kallenshaan Woods ([\[woods.com\]\(http://woods.com\)\) sell their leftover blanks at the various trade shows they attend. They put a pile of them out on the table and the attendees are welcome to pick through them to find something they are interested in. If you don't have an opportunity to get them at one of the shows, send me an e-mail and I'll arrange for you to get a few samples for the cost of shipping.](http://www.kallenshaan</a></p>
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Fig. 22

You can have bags full of these ready to assemble into whichever kit style and trim colorations you need—something a bit different from leftovers.



### Kurt Hertzog

A professional woodturner, demonstrator, and teacher, Kurt Hertzog enjoys the continuum of woodturning, from making his own turning tools to photographing his finished turnings.

Kurt is a regular feature columnist for both *Woodturning Design* and *Woodturning* magazines, one of the five Council Members of the Pen Makers Guild, and a member of the Board of Directors of the American Association of Woodturners.

Kurt's work has been featured in the American Association of Woodturners "Rounding The Corners" Exhibit, and he has been published in *Woodturning Design*, *American Woodturner*, *Woodturning*, *Pen World*, and *Stylus* magazines. You can see his work on his website at [www.kurthertzog.com](http://www.kurthertzog.com).



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