

What you need To know about special tools

Kurt Hertzog shares a few tips on tools, including grinding, tool shaping and angles, and tools made or altered to perform special tasks

KURT HERTZOG



Kurt is a professional woodturner, demonstrator and teacher and writes for various woodturning and woodworking publications in the United States as well as writing for *Woodturning*

magazine. He is on the Pen Makers' Guild Council and is currently president of the American Association of Woodturners (AAW).

kurt@kurthertzog.com www.kurthertzog.com

Nearly every turner, regardless of any particular speciality, has some special little tricks that they've learned over time that help make their tasks easier and more successful. These may be things they learned from a mentor, read about, or they've learned the hard way through trial and error. Their tricks or timesavers are often process or general workshop tips. These help them complete their turnings more easily yet maintain the quality level they desire. Other times, it is a special tool or grind they use to make their results more successful and repeatable. Often, these special grinds are the only way that particular result could be achieved. This month, I'm going to share a few of the tips and tricks I use within my

space constraints. These are helpful items I've learned from others along my journey or developed out of need over the years. We'll cover ideas on grinding, tool shaping and angles, and tools made or altered to perform special tasks.

Safety

The tools and their usage I'll be covering are pretty straightforward. As always, use your needed PPE along with your turning best practices. If the tool or grind is new to you, learn to use it by practising on work that is disposable and ease into developing your skills with it. Developing your prowess with any tool can be done in stages without putting yourself into difficult situations or ruining expensive materials. Do not attempt any turning process, learned here or elsewhere, if you feel uncomfortable with it. Seek out additional instruction and a guiding mentor to assist you.

Breaking the tool corners

Every tool you buy or make from flat stock usually has extremely sharp corners on the shaft. This is the nature of the stock as delivered for the manufacturing process. While it doesn't hurt the function of the cutting edge, it certainly does make a sharp corner that can catch on the toolrest.

Regardless of the toolrest that you use, other than those with the hardened steel lip, this sharp corner is a detriment to sliding on the rest smoothly. This is especially troublesome should you rotate the tool at all. Scrapers, skews, parting tools, beading & parting tools and other tools created from anything other than round or oval stock will benefit from breaking the tool corners. They are often used rotated to some degree and slid along the rest. Breaking the corners is a once in a lifetime process that takes only a few seconds. It is well worth the effort. Think through the corners that you should 'round'. If it isn't going to be part of the actual finished edge and could ever come in contact with



I use my grinder to soften the sharp corners. One sweep from ferrule to end of tool at about 45°

the toolrest, it is a candidate for breaking the corner. You'll hear the term breaking, rounding, softening and others. All mean the same thing as presented here. It is the removal of the very sharp corner creating a radius edge that will travel over the toolrest far more easily. There are several methods of breaking the corner. It can be done with abrasives by simply sanding the sharp corner at 45° and feathering that angle to the flats on both sides. The method I favour is grinding. It is easily done but does require planning



Other than the hardened edge rest in the centre, tools will slide easier on soft rests once the tool edges are broken

and some care to ensure you don't create problems along the edge. The corners to be rounded are presented to the grinder at about a 45° angle. I always hand hold the tool using the rest for support. I grind from the ferrule along the edge running off the front end of the tool in one motion. It is a light swift, continuous grind to remove the sharp corner. Be certain to have a clear path from beginning until the end of your movements. You need to make the grind on the edge in one unbroken sweep. Stopping or pausing



Any tool edge that doesn't create the wood contact edge is a candidate for softening

anywhere along the length can grind problem areas. Once the edge is ground, it is further softened with sanding. I grind all of the edges needing softening just for time's sake and then sand to completion. I break the corners of all my new tools prior to their first use. Once the appropriate tool shaft corners have been broken, it can be sharpened to my desired shape and put into my toolkit. The tool will now easily slide up and down the rest at any angle of rotation for the duration of its life in my turning use.



I soften the edges on all of my square cornered tools the moment I purchase or make them

Filing and waxing the toolrest



Removing dings and divots in your toolrest are key to smooth turning. Filed at 45° in one stroke, repeated until done, will clean up problems



Even a new rest on the bottom can be improved by filing and waxing. The rest on the top will provide far smoother tool movement

I don't use many cast-iron toolrests in my workshop so I do not need to use this tip often. It is most helpful for me when travelling and using someone else's equipment. Over use, the top edge of cast-iron tools and others other than hardened edge, will get dings and dents. These can be minor or major depending on the tool being used when the stresses – catches – occurred. Any dings and dents will cause problems when trying to move the tool in a smooth continuous motion. How the dings and dents were

created is unimportant. Removing them to provide a smooth flat surface will allow tool travel ease. This can be done nicely with a fine toolmaker's file. Which file? I use a flat mill bastard file. If you use finer, it will take longer. Coarser is not recommended since the coarseness may be imparted to the rest. The key to filing a rest is to have it clear of any obstructions that will cramp your filing stroke. The file is presented flat across the top of the rest at 45° to the angle of the rest. It is one continuous push stroke from the front

corner to the back corner. The file is lifted and positioned at the front corner and repeated. Repeat this and vary the angle of the file slightly as needed to clean up the divots in the rest that could come in contact with the tool when being used. After filing, you can sand lightly if you wish but I find it unnecessary. I clean the filing debris from the toolrest and put a few strokes of canning wax across the top edge. You can use a candle or any other form of hard wax. The wax will help with making the top surface a nice sliding surface.

Fine detailing spindle gouge

When I am turning my ornament finials, I need to get into places where my standard spindle gouge won't fit. I have a standard 10mm spindle gouge ground to a very small angle to allow me to get into these spaces. Could I use a skew chisel? Certainly I could and often I do. I have this narrow angle spindle gouge available for two reasons: I use it for cuts that I could easily catch with a skew chisel. The spindle gouge is a bit more forgiving for these cuts and rarely catches for me. These longish cuts into deep 'V's with a surface contour tend to go better with my spindle gouge. The spindle gouge will also work well making coves in these

tight spaces. Even though a skew chisel is capable of cutting shallow coves, it is one of the applications it doesn't excel at. Why use it if it isn't the ideal tool? I'll still use my skew chisel to get the crispest of 'Vs' at the bottom in my turning as well as fitting into places where even my fine detail spindle gouge won't fit. I find that this is the spot where the oval skew performs well. It's very narrow thickness allows for use in these extremely tight spaces. These two tools specifically ground for the application are keys for me to be successful.

What angle is the spindle gouge ground to? I have never measured it. The number is

unimportant. What is important is that it fits into the spaces I'd like it to. If it is too fat, then the angle needs to be changed to allow it to fit. I find that the key to the functionality of this tool is the nose geometry more than the angle providing it fits. By controlling the radius of the nose, you can control the performance of the tool to your liking. With the angle setting per your needs, the nose geometry is softened by spending a bit more time on the nose and feathering that area into the rest of the grind. Because the tool is used only for these precise detailing needs, it doesn't see a lot of use but it is the tool of choice for this need.



My standard spindle gouge, top, is ground to about 45°. My 'go to' detail spindle gouge is ground to fit into smaller spaces



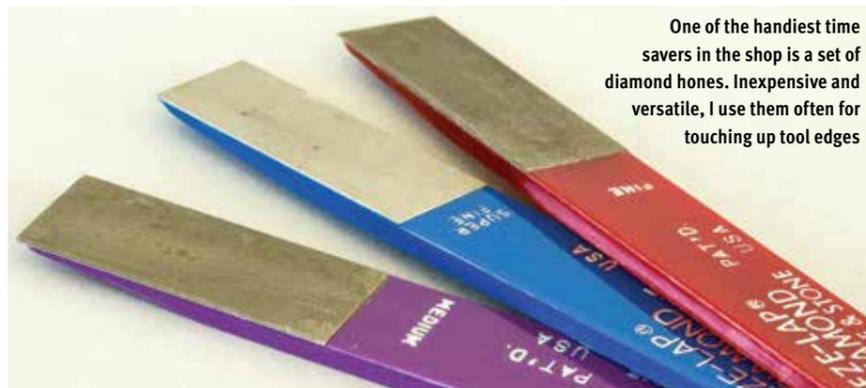
The shallower angle grind makes it easy to cut into tighter spaces without worrying about hitting the top edges



Using my shallow grind spindle gouge alone will let me create my finials from beginning to end

Quick tool sharpening

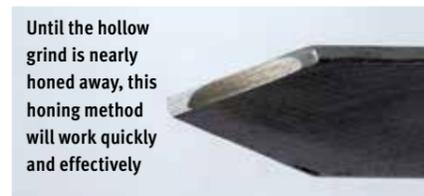
A tip that I'll offer to quickly touch up a tool is a diamond hone. Many of my tools require a trip to the grinder to refresh the edge. Others can be quickly and easily refreshed with a few strokes of the hone. With all of my tools hollow ground, a hone placed across the hollow grind will sharpen the cutting edge while using the other side as a guide. I use this technique for all of my skew chisels, parting tools and other skew-like grinds. Remember that your beading & parting tool, parting tools and bedans are in essence skew chisels. Perhaps sharpened only on one side or in a different aspect ratio but they are skew chisels and can be touched up as such. You can certainly go to the grinder each time you need to sharpen one of these tools but it is far faster to pull a diamond hone from your back pocket and freshen the edge of the tool with a few strokes. The tool will be just as sharp and you'll save a lot of tool steel. You will need to visit the grinder again on occasion but you'll find that your hones will sharpen many, many times in between. This method certainly will work on flat ground tools too. While it will work, the real time saver is when used on hollow ground tools because of the far less steel being honed.



One of the handiest time savers in the shop is a set of diamond hones. Inexpensive and versatile, I use them often for touching up tool edges



Using the back edge of the hollow grind as support, the front edge is found and contact with both is maintained during honing



Until the hollow grind is nearly honed away, this honing method will work quickly and effectively



Skews, bedans, parting tools and any other skew-like edge that is hollow ground lends itself to sharpening via honing

Tri-point tools

Tri-point tools are available from many of the manufacturers. Said to be a favourite of the late Bill Jones, it is wonderful for detailing. While I own commercially made tri-point tools, I've also made my own. This allowed me to tailor the size I'd like as well as have a hollow grind on the faces. By design, the tool is basically a grinding of a round tool stock at each 120° point of the circle. It lends itself to detailing, rolling beads and more. It is used in the traditional sense of rubbing the bevel and providing a clearance angle but because of the grind, it presents the cutting edge in a bit of a different fashion. There is nothing critical about the 120° spacing of each of the grinds. The wood will be impervious to the

fact that your grinding isn't perfectly spaced around the circle. There is a simple method I've discovered that will let you set your initial grinding positions very accurately. I temporarily fasten a hex nut with an inner diameter that will fit on the round shaft of the tool tightly. Using hot melt glue to fasten it in place allows it to be used as a jig for the 120° angles. By putting every other flat on the platform of my grinding rest, I can accurately position each of the three facets on the grinding wheel. Once completed, the bolt is removed by peeling away the hot melt glue and sliding the nut from the tool shaft. I touch up my tool by using a diamond hone as detailed on page 82.



Commercially available, left, and easily made by the shop handy turner, tri-point tools are wonderful for detailing



I favour mine hollow ground rather than the more common commercially available flat ground because I can use the honing method of sharpening more easily



The tri-point tool is not only capable of V cuts and corner detailing but also rolling beads. Keeping the point clear is critical

Round skew

The round skew is another of the tools commonly seen in the homemade arena. It is a simple skew chisel grind on a round piece of tool steel stock, usually on smaller diameter stock. I often make mine from 6mm round tool steel stock. Much like the oval skew whose radius on both corners of the stock allow for easy rolling, the round skew has no flats on the shaft anywhere. It is oblivious to which way

you roll it. Can you easily roll an oval skew or even a traditional rectangular cross section skew chisel? You certainly can. This tool is just one that you can have in your kit that fits into small spaces and is easily controlled in any direction you wish. I use it for fitting into tight spaces as well as general use on very small diameter spindle work.



Round skews are simply a skew grind on round stock. Using a hollow grind allows for easy sharpening with a diamond hone



A round skew can be used exactly as any other skew chisel. The size and shape lends itself to smaller detailing and bead work

Angled parting tools

This is a trick I learned many years ago from Jimmy Clewes. It is a narrow parting tool that is ground at an angle other than 90° from the shaft. Since the nose of a parting tool cuts and the sides of a parting tool scrapes, you can't cut a 90° corner with a standard parting tool easily. You also have difficulty cutting an angle less than 90°

with the standard grind. By creating a parting tool that has the nose angle ground off perpendicular, you now have a tool that can easily be brought to bear at any angle from greater than 90° to less than 90°. I use this tool for cleaning up the corners of bowl feet or lidded boxes. It isn't used as a standard parting tool for parting off

stock. It is used for these corner cleanup needs with my standard grind parting tool doing the run of the mill work. Where this also pays dividends for me is making pen components such as nibs. I want my interface surface to be concave rather than flat. The angled parting tool allows me to cut this easily.



I have two different grinds for my thin parting tools. The traditional straight across is complemented by one at a different angle



The off perpendicular angle allows for cutting a true 90° corner or angles less than that. I use it for concave corner interfaces



Whether my nibs are in Corian, other plastics, or wood, I use my off 90° ground parting tool to create the interface surface

Convex ground detailer

This is a combination of several different tool ideas. Many turners have created their own special adaptations of tools for use. I don't know exactly where this draws from but it is a handy tool in my kit. It is hollow ground across the face of round tool steel stock so it lends itself to sharpening

via the diamond hone touch up method mentioned above. The balance of the tool is convex ground. The convex grind makes the tool very difficult to have catches with. The cutting edge needs to be controlled into the surface to make it cut. Relaxing that force will have the tool disengage from

the cut. It allows for detailing in the most sensitive of areas since the control is always in your hands. Control it to cut and relax it to disengage. I find it a very helpful tool to work on delicate finials with. It doesn't have a propensity to catch and is capable of very exquisite detail.



Not certain of the lineage or name but this detailer is hollow ground across the face allowing for diamond hone touch up



The balance of the ground edge is a convex grind. It needs to be controlled into cutting and will stop with relaxation of that control



It is a versatile tool that is easy to use in tight spaces and can create fine detail with less concern of catches

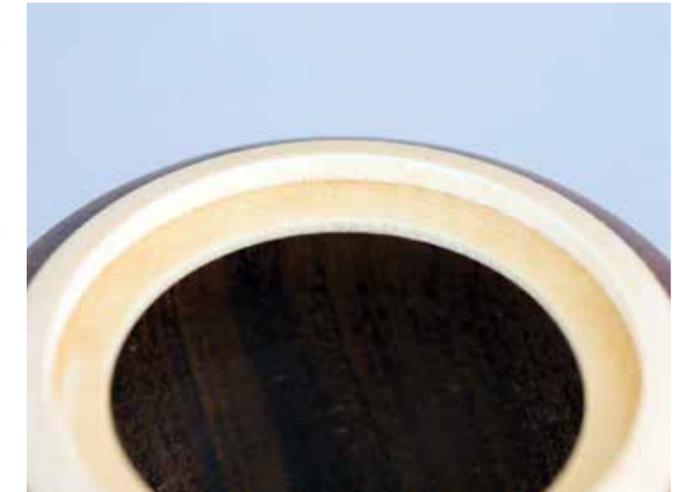
Corner cutter

Many manufacturers offer the corner scraper for cleaning up corners in turnings. Often used for lidded boxes, the tool is ground so that only one face can be brought to bear at a time. This allows for a 90° corner to be created with less chance of incident. There are times when the tool as offered is too big to work in the application you are doing. For those needs as well as any other where you wish a bit more dexterity, you can easily use a machinist's cutting tool blank. These are readily available for a very modest cost. Grind it in the same



Modelled after the traditional box corner cutter, this high speed steel tool blank is ground to cut corners. Fastened in handle for safe use

mentality so that only the end or the side wall will be in contact at any one time. Of course, as a scraper you'll need to relieve the face with a bit of grinding so that only the very top edge contacts your turning. I have one that I use for the bottoms of boxes as well as the inside of the lid. The small size and extreme sharpness allows me a bit more resolution when being used. If needed, you can silver solder the tool bit on the end of a steel blank for additional reach. Light touch and sharp tools will pay dividends.



The tool will fit into smaller spaces than the standard box corner cutter, especially the tip and the very bottom corner of small lidded boxes

“Just because the factory offered the tool in one manner doesn't mean that it is the best or the only way to grind it”

Conclusions

Do you need any of these tips, tools or grinds? There isn't anything noted that is a critical need. You can do what these will do with other tools in other manners. That said, these particular tools and grinds find a home in my kit because they save me time and help me perform that special function quickly, safely and more reliably. I offer them as helpful suggestions you may wish to consider. Nothing I've mentioned is very expensive or difficult to create. As such, you can certainly give them a try without major investment in time or money. You may find as I have that they add value to

your tool selection. Perhaps the biggest takeaway from this issue isn't the tool permutations I've suggested. I think it should be your mindset that your tools are your workhorses. Grind them as you see fit. Just because the factory offered the tool in one manner doesn't mean that it is the best or the only way to grind it. Also, perhaps the various tools that aren't a commercial offering are solely because they aren't big sellers, not because they aren't useful. Take this session as license to make your tools do what you want of them. Do it safely but don't be afraid to tailor your tools to serve you. ●



Regardless of your end turning, having your tools whether store bought or made ground to work as you wish is the end goal