

Sharpening your tools

Following on from last month's article, **Kurt Hertzog** shows you how to effectively sharpen your tools

Sharp tools are an absolute key to success in any form of woodturning. Without tools that can execute efficient and effective cuts on the materials you use, you'll be forced to use each of them as a scraper for them to remove material. Scrapers are useful but they are one of the family of tools in your kit and used where appropriate, both scrapers and cutters have their own applications and specialities. The ability to put and keep all of your tools in the best serviceable condition is a skill every woodturner needs to develop.

Let's break the sharpening process down into two categories: each is different from

the other. They are shaping and sharpening and we'll deal with each of them separately. Both are accomplished on the same equipment, but done differently and serve different functions in the sharpening process.

By definition, I'll call shaping the process of removing whatever steel is needed from the tool so that it matches your desired tool angle and can then be easily sharpened or 'touched up' as needed. When you receive a tool, it is delivered with the factory or other owner's grind that you will convert to your own. That done, you'll then be sharpening it or touching it up to keep it serviceable. Let's explore the way I do it.

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◀ SHARPENING SYSTEMS EQUIPMENT

The bench grinder is only one of the pieces of equipment that you can use for sharpening your tools. The wet grinder, Tormek or others in the same genre, can be used if you prefer. My Tormek has a 250mm wheel but the functionality of the hollow grind and platform works very nicely. There are jigs and fixtures available for the speciality grinds. The Robert Sorby belt sharpening system is also available for those who favour the flat grind that it nicely imparts to the tools. Everything that can be done on a bench grinder can also be accomplished on the wet grinder or belt sander system.



Your choice of sharpening systems can be based on the hollow grind desired and the grit of the wheel. A Tormek has about a 250mm radius and 200 grit wheel



PHOTOGRAPH BY GMC/ANTHONY BAILEY

Using a belt system can provide many options for sharpening along with the accessory jigs and fixtures. The advantage of the belt sharpening systems is a flat grind for those who prefer it

ONE OF MANY METHODS

I will always be the first to tell you there are many means to an end and what I present here isn't 'the' way but just 'a' way to get there. There are certainly others, but I know this to work and offer it for your consideration. If you have your own method that works, continue to use it or perhaps meld the two if you see some benefits here. What

works works, so if your method works and is easier for you, then stay with it. The reason I suggest this method is that it nearly automates the sharpening process. Taking the process to make it as simple and straightforward as possible is certainly of value to the newcomer or someone having sharpening difficulties. If and when your skills progress to where you

want to use a different method, you'll have the experience and know-how to make that change. Nobody gets paid for sharpening and, for that matter, few particularly enjoy it. It falls into the necessary evil of woodturning: needed but anything that will accomplish it quickly and effectively allows more time for the making of shavings.

GRINDER SAFETY

As with all of your woodturning endeavours, safety glasses are in order whenever you are working in the workshop. This is especially important when using your grinder. Having the metal and glass debris that is created by the grinding process in the air can present not only eye hazard, but also lung hazard. Wear your protective eyewear at minimum. Beyond the basic safety glasses, you may want to consider safety glasses with side shields, goggles or a faceshield. Don't forget that your overhead filtering systems take debris out of the air AFTER it has been circulating around and you've been breathing it. A dust mask certainly is a wise idea as well, especially if you will be doing a lot of grinding, such as when you are shaping tools. Don't take safety lightly. Deceivably simple, a grinder is nothing to trifle with. Wheels need to be properly installed, balanced and used. Bench grinders should be used on the face only – never on the side of the wheel. The grinder side shields should always be installed on your grinder. Removed only when required to change wheels, be certain that they are reinstalled prior to using the grinder. Even the seemingly light-duty stamped steel side shields provide protection should there be a mishap with a grinding wheel. They will keep the wheel contained should the nut become unthreaded and will also help contain the wheel pieces if there is a catastrophic wheel failure. Of course, to help prevent mishaps, ensure to keep your hands clear of pinch points and take care when grinding.



My basic grinder setup is a 180mm slow-speed Baldor grinder with the factory toolrests and a set of Oneway Wolverine attachments for those special tools and accessory jigs and fixtures

There is never enough light at the grinder, especially when you are adjusting things and need to look at the clearance between the grinding wheel and the tool edge. Magnetic lights work nicely



Go to a random spot each time; this will keep the wheel wear uniform. When the wheel needs dressing to freshen the edges, a diamond dresser will do the trick. Notice the anchor with my fingers on the rest

WHAT IS SHARP?

Let's define a sharp edge as one that cuts as is intended, i.e. efficiently and effectively. Pretty doesn't really count, although it is easy to have a single-facet, pleasing-looking grind using the method mentioned

on the previous page. Matching the angle as prescribed by the little brass gauge doesn't count. Nothing much matters other than that it cuts cleanly and effectively as you intend it to. From the past articles in this series, you

will know that the angle you choose is your own selection. It can be your selection based on the material you use, the way you turn, your balance of keenness to durability, or how it fits into the spaces you need it to.

A SIMPLE GRINDING SYSTEM SETUP USING THE PLATFORM RESTS

Whichever grinder size you've chosen and whichever speed you've chosen, I recommend the following simple setup: select your chosen grit wheels. Last month, the suggestion was 60 or 80 grit to provide a good balance between the ability to shape and sharpen with the same wheel. Install identical wheels on both sides of the grinder. Set the rests as appropriate for your chosen cutting tool angle and your desired scraper angle, dedicating one side to cutting tools and one side to scraping tools. The scraping tools are best suited at something slightly less than 90° since the tool will be presented tipped slightly down and below centre; 90° or slightly less will work fine. For your cutting tools, I recommend that you start somewhere around 45° for your standard-grind angle. You'll be able to use this for most of your tools with those requiring a different grind angle to be dealt with using the aftermarket adjustable fixtures. With both sides of the grinder set and fixed, you'll be able to sharpen all of your scrapers and the bulk of your cutting tools just by walking up and presenting the tool to the wheel using the rests as set.



Both grinding wheels are identical at 60 grit – my choice of balance between coarseness for shaping and fineness for sharpening. The cast iron rest, which needs a wrench to adjust, is ideal for my needs



The left side set for my cutting tools at about 45° and the right side for my scraping tools at slightly less than 90° will allow me to sharpen 90% of my tools quickly, easily, and repeatedly

SHAPING THE TOOL

As defined, any steel that gets in the way of sharpening needs to be removed during the shaping process. Because high-speed steel can't be damaged on a grinder, the removal of excess metal to get the tool to the shape you desire can be done quickly. That said, there is no reason to grind the tool into an ugly mess to get there in a hurry. Needing to be done only once in its life, take your time and get each tool shaped as needed so that forever more you'll only be touching it up to keep it sharp. Using the rests as preset above, you can place the tool to be shaped on the proper toolrest and remove the steel needed so the ground edge conforms to your desired angle. If there is considerable steel to be removed, do it in a few sessions. I am not a fan of quenching the steel to cool it off, but favour taking my time and grinding for a bit and letting it cool before continuing. Is this necessary? Not really with modern high-speed steels and beyond, but what's the rush? Do it once and be done with it for the life of the tool.

ANCHOR, BEVEL, CUT FOR CUTTERS

During your woodturning training, you've probably heard that more times than you wanted to. It is true in sharpening as it is in turning. If you aren't anchored to the tool and to the grinder, you have less than necessary control over the task in hand. The process is to anchor

yourself to the toolrest, anchor your tool to the rest, present the bevel of the tool to the grinding wheel and rotate the tool to effect the cut. ABCs just like when you are turning. The most common error I see is the poor or nonexistent anchor to the grinder rest. Without it, there is far too little control.



Like the fundamentals of turning, if you aren't anchored there is no way you can have good control. A common mistake is not anchoring yourself and then your tool to the grinder



Anchor yourself to the grinder, being careful of pinch points for safety. Once you are anchored, you can put the tool on the rest and then anchor your tool to the rest for the sharpening process



Rather than trying to rotate the tool through 180°, I find better control by presenting the tool and rotating 90° to the right. I then regroup for the other side of the tool



Presenting the tool again and rotating 90° to the left lets me do the entire tool without any awkward hand positions. Where the tool needs additional grinding, I slow the rotation rate at that particular point



Other than speciality needs, my spindle roughing gouge, spindle gouges, bowl gouges and Continental gouges of all sizes get the same treatment. This is a quick way to freshen the tools and allows you to get back to turning



Scrapers are easy to sharpen following the same reasoning. Set at slightly less than 90°, anchor and then pivot flat on the rest with one continuous sweep through the arc



One setting will work for all of the scrapers regardless of size: round, flat, box-style, negative-rake and any thickness. Burr left on top and used right off the grinder

ANCHOR, BEVEL, CUT FOR CUTTERS (CONT.)

Once you and the tool are anchored, it is easy to slide the tool forward on the rest, presenting it to the wheel, keeping it in line with the wheel and then rotating it to make the grind on one side of the tool. The tool is then slid away from the wheel, repositioned in the start position, slid forward to present it to the wheel again and then rotated in the other direction

to finish the sharpening process. There is no swinging of the back end of the tool. It is kept straight on axis throughout the rotations. The reason for doing the sharpening in two steps rather than one complete rotation is to ensure maximum control. It is far easier to have control when performing only a 90° rotation. Trying to rotate through 180°

while maintaining on-axis positioning is awkward. Rotating 90° clockwise and then 90° anticlockwise is quite fast and far more controllable. The speed of rotation can be controlled and even varied as needed to remove material; this will allow you to control the sweep of wings or maintain flatness throughout the edge as desired.

OTHER ANGLES

When you need an angle on a cutter that is different from your standard angle, the aftermarket systems, such as the Oneway Wolverine, will work nicely.

You can set the angle you wish and the butt end of the tool sits in the cradle and is rotated exactly like you did when sharpening

by hand. If you are trying to sharpen a tool with an existing angle you are happy with, there is a simple way to get exactly the same angle. Setting the fixture by eye will get you very close but using a bit of magic marker on the grind surface and then lightly touching the tool to the grinder will indicate if the

fixture setup is slightly off. The areas of marker that have been removed will indicate which direction the fixture needs to be moved and give some indication of how much. The test grind is repeated until the marker is removed for entire ground surface indicating that the angle is indeed the same.



For those tools needing a different angle for their use or to fit into special places, I use the adjustable arm from the Oneway Wolverine system. Similar functioning accessories are available from other suppliers



To help get the adjustment as perfect as possible, a magic marker stripe on the bevel of the tool will help. Get as close as possible by eye and then use the marker as an indicator to fine tune the adjustment



If the stripe isn't missing from the entire bevel, you'll have an indicator of which way to move the arm on the jig. You'll also have a feel for how far you are off to help decide the amount of movement needed



The adjustable arm will allow you to tailor your tool angles for those special needs. I use one angle for most spindle and bowl gouges. For the inside corner of bowls, I have a steeper grind on one bowl gouge

ANCHOR, BEVEL, CUT FOR SCRAPERS

Scrapers follow the same basics but the anchor is a bit different. The way I do it is to place the scraper on the toolrest dedicated to the scraper sharpening wheel clear of the wheel itself. With my left hand, I put pressure down on top of the tool while my right hand grips the tool handle. Being

'connected' to the tool and the grinder by virtue of my left hand and the force down on the tool and the rest, I can control the tool forward to the wheel to engage it. Starting at the most right-hand side of the tool, I begin the grind with my right hand pivoting the tool, maintaining contact with the grinding

wheel. Once pivoted through the entire arc clockwise, I slide the tool back from the wheel and remove it. The process is identical for every scraper. Flat blades or multi-flatted aren't swung through an arc but moved to the wheel and moved side to side as needed. Anchor, bevel, cut works here as well.

HONING TO SHARPEN

While I am not a proponent of honing for the sake of honing, I do use hones as a sharpening process.

Believe it or not, you have a bag full of skew chisels in your kit even if you won't admit it. Your parting tool, beading & parting tool, and skews are all identical even if their aspect ratio is a bit different. Your spindle roughing gouge is a skew chisel, but we'll save that for a different discussion. Rather than taking my parting tools, beading & parting tool, or skews to the grinder each time they need a touch up, I use a diamond hone to freshen the edge. Taking advantage of the hollow grind, I can lay a hone on the back edge of the hollow grind and then tip until I contact the front of the hollow grind. Staying in contact throughout, I rub the hone forward and back while traversing the edge. If the tool hasn't been dulled, a touch up is only a few strokes on each side. When the flats from the hone get too long, i.e. that hollow grind begins to get shallow, it is time for the grinder again. Normally this is months or years unless the tool hits the floor or a chuck.



While they look like different tools, they are all skew chisels. Someone just sharpened them in different aspect ratios. Take them to the grinder using your favourite jigs or adjustable arms initially



The flats shown bear witness to the diamond hone sharpening process. This can be repeated until the flats get too long to be efficient. More likely, the tool will be dropped and need regrinding

Once ground, the edge can be freshened using a diamond hone, not to hone but to sharpen. The hone is placed on the back, tipped to contact the front, held in contact, and stroked back and forth

CONCLUSION

With the importance of sharpening, everyone must not only develop their skills but make them their own. Regardless of the methods learned early on, every turner will continue to refine and adapt these skills as they progress on their woodturning journey. For those who are just starting or are having difficulties with their sharpening, the methods covered here may be the way to get started. Easy, fast and repeatable. Of course there are other tools

needing sharpening that haven't been included here but these are the basic tools. When your skills move forward, you may wish to adapt these or perhaps even scrap them altogether for something different. By then you'll have moved to a place in your skill sets where you can make the judgement call to move to something better for you. Until then, I hope this straightforward and simple method gives you a foundation to get started with, build on, and modify as you grow your woodturning skills. ●



Sharpening is indeed an easy process. There is no need to make it more difficult than it needs to be. It takes little time or effort to have a tool that cuts well and looks decent. No extra points for multiple facets