

SKEW DEMO
HANDOUT
The Villages Woodturners
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By
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Most of the old woodturners that I have ever spoken with have some strange ideas about the skew (and lots of other stuff too!) I consider myself in that category most of the time, but not about the skew. Of all of the SPINDLE turning tools it is one of the best. Just remember, it is a spindle tool ONLY.

That is where the first of the strange ideas comes from, the old guy that used it on his the outside of his bowl. That skew is still in low earth orbit. Urban legend #1: *Aliens brought the skew to us, it is a launch vessel to return them to the mother ship.*



Hey look, it's a skew!

Remember that Christmas when your cute little granddaughter bought you that set of Sears turning tools... Remember how sharp the skew was, I say remember because when you stuck it into a piece of wood on your lathe it launched (see urban legend #1!) Urban legend #2: *The grind must be correct from the factory because it is so sharp.* No, usually the grind from the factory is not even close. Consider the skew factory. It has a multi-billion dollar flat plate grinder that a kid making minimum wages is operating putting the edge on your future skew. Ok, the angle is about right but the bevel is flat, which is not bad in and of itself but look at what happens when the tool gets dull. You need to sharpen it, duh! That means removing metal from the whole bevel. Since the bevel is flat you are going to try to "hone" it back to sharp. All you are going to need to do is hone off about 0.002" from the entire flat bevel. Well, since that didn't work too good for you the next thing to try is the belt sander. After all it makes things flat and that old belt is almost worn out, lets see, turn it upside down in the vise, not too tight, Ok, plug it it... No no no, lock it on, then plug it in, Oops, adjust the belt to keep it on the sander, Ok now where did I put that skew. Ok now try it, what's that you say, it is sharp but you can't get it to work anymore, now all that it makes is screw threads! I will say more on this later. For now that is enough of me reliving my life learning the skew.

Sharpening

The first thing that you are going to need is a jig. Not a store bought one, they don't really work that good. Here is an adaptation of the old Jerry Glaser gouge jig built for the skew. It works with the Wolverine jig that you already have.



Parts: 2 – 3/8 x 16 carriage bolts 2” long with nuts and washers.
1 – 1/4 x 20 threaded rod about 6” long with 2 nuts and 1 washer
4 – 1 1/4” drywall screws
1 – 3/4 x 2” piece of hardwood scrap totaling about 30 inches long cut into pieces 2 1/2, 16 1/2, 7 1/2, and 3 inches long.

Directions

Set your table saw to cut a kerf that is about 1/16” deep then adjust the fence so that the kerf is centered in the 2” board.

Cut a kerf about 5 inches long into one end of the 16 1/2” piece, make an identical cut in the 3 1/2” piece, naturally this kerf will only be 3 1/2” long.

Put these two pieces together with the drywall screws after pre drilling to keep from splitting the wood. The two screws that are closest to the end should be close to the center but not through the kerfs cut earlier, yes, align the kerfs to make a square hole 1/8” in cross section.

When the two pieces are screwed together use the square hole as a pilot hole to guide a 1/4 “ drill to drill a hole that is centered on the joint formed.

Take the joint apart and using a 1/4” chisel make a hole to fit one of the 1/4” nuts. Use the threaded rod and both nuts to make a gage for marking the wood so the holes you chisel out match and capture the nut.

Next, drill a 3/8” hole 1” from the other end of the 16 1/2” piece and a corresponding hole in one end of the 7 1/2” piece.

Then drill another 3/8” hole about 2 inches from the other end and a corresponding hole in the 3” piece so that the ends align.

Next, with the table saw set to cut a kerf 1/8” deep use it with the miter gage to cut a dado in the 3” piece that is 2 1/2” wide, that will remove all but the last 1/4” on each end from the 3” piece. Be careful, I have heard that a table saw will actually cut fingers!

Cut a dado with the same setup on the table saw that is about 1 1/4” wide in the end of the 7 1/2” piece that has the hole drilled at 2”, again leave the last 1/4” of wood in place.

Put the threaded rod into the half hole with the nut in the recess then put the two pieces together with the drywall screws.

Using a bandsaw cut the two piece end to reduce its width at the bottom to just bigger than the washer. Cutting through washers or drywall screws is guaranteed to dull the blade! Cutting through your finger will not dull the blade, but it will hurt!

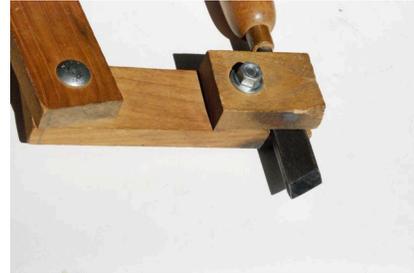
Assemble the two longer pieces with the a carriage bolt with the dado side of the 7 1/2” piece facing the kerf side of the 16 1/2” piece.

Then assemble the 3” piece to the 7 1/2” piece with the dados facing each other.

The object of this assembly method is to make the centerline of the 1/4" threaded rod and the centerline of your skew, clamped in the dadoed slots, lie in the same plane so that when you grind the skew the bevels will be the same.

Jig setup

Leave about 2 1/2" of the 1/4" x 20 threaded rod out and tighten the nut. Tighten the 3/8" nut so the jig resembles the letter "L". Put the skew into the dado slot with 2" of skew exposed and the long point facing the longer arm of the "L", with the edge of the skew against either edge of the dado, tighten the nut to keep the skew in place.



Use a magic marker to color both bevels then adjust the Wolverine arm so the middle of the bevel is in contact with the grinding wheel.



Proper adjustment looks like this

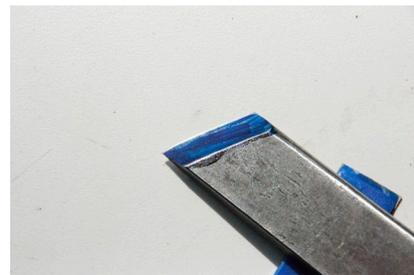
Rotate the wheel in reverse by hand to see where the wheel contacts the bevel. Adjust the angle of the jig to make the contact point parallel with the cutting edge. This will require another adjustment of the Wolverine arm.

When properly adjusted and tightened you can grind the skew. Since the center of skew blade is aligned with the pivot point of the jig, both bevels will be the same. If one of the bevels is larger than the other, that means you have ground off too much from the side with the bigger bevel.

By allowing the jig to rock as you are grinding you obtain a curved edge skew. If you keep the jig level as you grind, you will have a straight edge on your skew.

Either way, remove the skew from the jig and hone the wire edge off of the skew.

Examine the cutting edge of the skew. The skew is hollow ground and the cutting edge is a micro bevel that is very sharp.



Blue color to highlight micro bevel.

Learning to use the skew

Put a square piece of wood between centers and use a spindle-roughing gouge to make it round. I use spruce 2 x 4's made into 2 x 2's as practice pieces, they are cheap and easy to find. Make several, you are going to need them.

Take the wood out of the lathe and put a dead center into the headstock Morris taper. Mount the wood between the live center and the dead center and tighten the tailstock. Adjust the tool rest to above center. Proper height of the tool rest is when you are able to hold the skew on the wood and tool rest and be comfortable. (Make sure the tool rest is smooth before trying to learn how to use the skew.)

Norm Rose taught me the ABC method at his first demo for FWCWT's. The ABC method is a Norm Rose original and now everyone who is teaching woodturning is using it, because it works! Here's how:

A – Anchor the tool on the tool rest, “tap tap tap.” Free note, the skew should not have sharp edges on the shaft of the tool. If you have a square section skew, make the edges rounded by using the belt sander mentioned above.

B – Bevel, rub the bevel, not the cutting edge, against the wood. This establishes 2 points of contact to give you the support for the tool that it needs. The bevel is that part of the skew that was formed by the grinding wheel.

C – Cut. You need a little finesse here, to start the cut, you will need to raise the handle of the skew while sliding it back a little keeping contact with the tool rest and the wood. Keep raising the handle until you see a little sawdust trail forming on the surface of the bevel that is facing up. Stop there and take the tool off of the wood and examine where the sawdust trail is. It must be 1/3 of the way up the cutting edge. You change where the tool cuts by rotating the tool slightly. Why 1/3 of the way up, because that is the point where the forces on the tool from the wood and your hand are balanced. Now all you do is control the cut to form what you want.

The catch

What is a catch? No, it is not when the point digs in. That is just called stupid.

A catch is what happens when you raise the handle too much and lift the micro bevel off of the wood. The result of this is that the two points of contact are the tool rest and the cutting edge.

What happens next goes real fast! Since you are trying to gorilla grip the skew the cutting edge will dig into the wood, this will create a force on the tool pushing the tool back into gorilla grip causing the tool to cut deeper increasing the force against the gorilla grip creating the famous screw threads and or launching the skew into the ceiling of your shop or low earth orbit, see urban legend #1. Remember, the lathe is rated in horsepower, you ain't!

So, remember that sharp skew that was sharpened on the belt sander? Why does it only make screw threads? The reason for this is that the bevel was not really flat.

Because the belt is both flexible and softer than the steel of the skew, when the belt leaves the cutting edge it will rebound from the pressure exerted by the skew on the belt thus rounding, ever so slightly, the cutting edge. This creates a convex bevel. When you lift the handle to start the cut what happens is that the bevel comes off of the wood because the cutting edge is contacting the wood. Now the two contact points are the tool rest and the cutting edge, the classic catch!

How do you prevent having a catch?

1. The skew must have either a flat or concave grind.
2. Never lift the handle of the skew enough to cause the micro bevel to lift off of the wood!
3. Also, lighten up on your grip it will help with the severity of the catches you will continue to get.
4. If your hand and arm get tired while practicing the skew cut, you are gripping the skew too hard, lighten up, this is a finesse tool not a hammer!

Free advise

Never let the cutting edge of a skew touch anything unless you intend to cut that which it touches. The average skew is as dumb as a box of hammers! It don't know how *not* to cut anything it touches including anything that will leak red when cut, fingers and toes come to mind along with the arm and leg attached. If you are prone to waving arms and hands while talking, please put the skew down prior to talking to me or anyone else for that matter, but especially when talking to me!

Ok, so how do you get better using the skew? There is no shortcut; you will have to stand behind your lathe with the skew in hand and make shavings. The use of the dead center to drive the wood will help with the severity of the catches you make. Lighten up your grip will also help. But practice is the only way to get better.

Once you start to get the hang of the skew you will naturally get better to the point of not consciously going through the A, B, C's. You will probably be working on that expensive piece of wood you bought to reward yourself for doing so good with the skew making something very nice to give to that special person in your life when it happens, usually on the last cut...

BAM, the sound that the dreaded catch makes!

FWIP, FWIP, FWIP, the dreaded sound the skew makes going through the air.

THWUNK, the dreaded sound the skew makes sticking into the top of whatever project you were working on! Oh well!

How do you prevent BAM, FWIP FWIP FWIP, THWUNK?

ABC!

Once you understand how the skew works, apply what you learned to all of the other tools in your turning toolbox, even the scraper!

Now wait a minute, I understand the similarity of the gouge and the skew, but a scraper, no way!

A properly dressed scraper will have a bur that is the cutting edge. And what is a bur in cross section but a very fine micro bevel! The only difference is the position of the handle; it is 90° from where the skew handle would be.

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