

The Don Pencil Scorpion Hollowing System

by Lyn J. Mangiameli

Note: The Don Pencil Scorpion Hollowing System has been revised since its original publication.

Several months ago, a turner whose opinion I respect told me I should check out a new hollowing system that he had just learned of. His description indicated that the system was similar in style and components to the well established Stewart System. Now the Stewart System is in many turner's experience one of the most complete, well manufactured and well designed group of hollowing tools on the market. It was so innovative and so well designed that Sorby licensed the design and makes hollowing components almost identical to Dennis Stewart's original. So when I learned there was a new hollowing system that mimicked the existing Stewart System, I wondered what was the point of another.

Later I read reports of some great new and inexpensive faceplates being offered by a guy named Don Pencil. I tracked them to his website and in addition to the faceplates, there was also the Scorpion hollowing system I had been alerted to earlier. The prices for it were excellent and some interesting new twists were apparent, so I decided to give it a try. I'm very glad I did.

The most distinctive thing about the Stewart System is its armbrace. I have



More Woodturning is published monthly except April and October for \$30.00 per year by Fred and Mildred Holder at 19805 Fales Road, Snohomish, WA 98296. Mailing Address is P. O. Box 2168, Snohomish WA 98291-2168. Telephone: (360) 668-0976, E-Mail: woodturner@fholder.com, WEB Page URL: <http://www.fholder.com/>. Periodicals Postage paid at Snohomish, Washington and at additional mailing office. *More Woodturning* is sold by subscription at \$30.00 for one year and at a single copy price of \$3.00 plus 0.75 postage and handling. Editorial material submitted for publication must be accompanied by a stamped, self-addressed envelope to ensure return if it is not accepted for use. *More Woodturning* uses materials from many sources and many authors, the views expressed herein are, therefore, those of the authors and not necessarily those of the Publishers. *More Woodturning* receives a number of products each year for evaluation, but accepts no responsibility for return of those products unless specifically requested to do so, in advance!

POSTMASTER: Send address changes to *More Woodturning*, P. O. Box 2168, Snohomish WA 98291-2168.

USPS No. 015387
ISSN 10939490

Table I. Comparison of Scorpion to Sorby and Stewart Tools.

Armbrace	Socket to end of Pistol Grip	Length Overall Length, Short Shank	Overall Length, Long Shank
Scorpion	7.5	15.75	17.75
Sorby	6.25	Not Available	15.5
Stewart	6	Not Available	15.5



The Scorpion System.

found the Stewart armbrace to be comfortable to use, and to offer an outstanding balance between control and easy orientation of a tool within a form. There are few full sized hollow forms I've made where at least one tool used was not held in an armbrace. Indeed, I use it so often that I picked up a second, but this time the Sorby version.

While the Sorby and Stewart armbraces are dimensionally the same, the new Scorpion can be configured to be similar or a bit different. With the Scorpion, one can choose between two forearm lengths (6.75 and 8.75), interchange between them, and even remove the forearm section to achieve a pistol grip only. For many, this will offer some much appreciated versatility over the other two. I find the shorter shank works well for me and allows a slightly better fit than either the Sorby or the Stewart.

See Table I to see how they compare dimensionally:

Note that because the pistol section of the Scorpion is slightly longer (mostly in the area between the shaft socket and the first downward curve), the distance between the grip and the arm cup is actually most similar between the Scorpion and the others when the long shaft is used, even though the overall length is greater.

These armbraces have a few other differences. I find the Sorby hard rubber grip to be unpleasant, though the good news is that it easily and cheaply can be replaced with a Sculptured Soffoam grip that I find superior to the Stewart (available from Reid Tool Supply, get two and use them together). The Scorpion comes with what I find to be the nicest of the three stock grips. It is of about the same density as the Stewart, but is of a larger diameter.

Another difference is in the arm cup. The Stewart is of smaller radius and is of hard metal. The Sorby is of a softer

metal (probably aluminum) and can be formed into a larger or smaller radius. The Scorpion, like the Sorby, has a large radius steel arm cup, but one which can be closed down in vise if a smaller cup is desired (but do this in conservative steps because it will be hard to spread back out if you over do it). I find the Sorby and Scorpion arm cups to be the more comfortable for my larger forearms.

There are other, more subtle differences as well. The Sorby and Stewart use a top mounted plastic winged thumb screw to lock the shafts into the socket. On the Scorpion the socket is drilled and tapped on both top and bottom, allow for shafts to be locked with your choice of a top set screw, a bottom, or both, depending on the shaft and your desire for security. While at first thought the winged versions may seem more convenient, one of my few complaints about those armbraces is that shafts are always loosening in the socket and I am always having to tweak the thumb screw tight again. The large Scorpion set screw, once tightened, has held secure consistently and eliminated a minor aggravation.

The straight shaft Stewart Omnitoole is a classic. It is only a 16 inch length of 3/4 inch steel rod with a small flat on the "top" at one end (where the armbrace retaining screw seats) and a moderately chamfered rim at the other end where a 3/8 inch hole is bored concentric with the tip. Tool bits or 3/8 inch rod sections are held in the bore by a bolt (I replaced mine with a set screw). This has proved a very versatile tool for scraping cuts and shear scraping.

The Scorpion system includes a tool of the same outside diameter and overall length but with several differences. I was surprised when I found that the end bore on the Scorpion straight shaft is about 1/32 inch smaller in diameter than the 3/8 inch bore on the Stewart. The down side of this is that it prevents one from making use of the Stewart scraper and shear

scraping adapters. The positive aspect of the Scorpion choice is that it has allowed the end of their straight shaft to be sharply tapered (and thus offering good side clearance when using narrow tips). It also allows for an excellent fit when using 1/4 inch square machine bits. The smaller bore also makes feasible the use of 1/4 inch round shanks, such as are found on the Oneway Termite ring tips. The Scorpion straight shaft differs from the Omni Tool in one other way. A short distance back from the end of the shaft it is cross drilled so a 3/16 inch round cutting bit can be mounted to extend at an angle straight out from the side of the tool shaft (this is well illustrated in a photo at their website). This small tip is quite useful for the transition between initial opening up of a hollow form and later work with a curved shaft.



Stewart Hooker top, Scorpion bottom.

Speaking of curved shafts, almost everyone recognizes the Stewart Hooker tool as another classic. Over the years, it has been one of my most used hollowing tools. I use my Stewart hooker a lot for internal shear scraping and have found its shape to adapt well to a wide variety of forms. The Stewart Hooker has a nice open curve, and is reliably shaped so as to place the end on the proper horizontal linear axis of the shaft. The Stewart Hooker can also be purchased in three alternate forms, one which mounts tips from the bottom (Bottom Hooker), one which has a mirror curve for outboard turning, and one which is 7 inches longer than the others. Though the Sorby Hooker tool is a licensed version of the standard Stewart Hooker, it has a somewhat different shape. I don't have this tool, but reports have consistently indicated that the curve of the Sorby version of the Hooker is more asymmetrical towards the tip end, and as it comes from the factory it does not place the cutting tip on the horizontal axis of the shaft. This of course will lead to increased rotational forces.

Now the Don Pencil curved tool has come along to provide yet another choice. It is slightly longer than the standard Stewart Hooker, but has a very similar but not identical curvature. One thing I particularly like about this tool is that its tip is ground to accept bit and scraper holders from either the top or the bottom. This allows one more flexibility on how and what tips can be attached (for example, I am able to use an adapter to mount a Proforme tip to the bottom of the Scorpion), and offers the unique opportunity to simply rotate

the tool 180 degrees in the armbrace or a handle and change the tool from inboard to outboard use. As I see it, this is a major advantage in favor of the Scorpion, and allows it to fill the role of three different versions of the Stewart Hooker: the standard, the Bottom Hooker and the Outboard Hooker.

Since the Scorpion, Sorby and Stewart hooked shafts all have slightly different curvatures I am sure that sometimes one tool will be able to get to places that the others can't. In my experience with the Scorpion and Stewart curved shafts that I have worked with, there are only slight differences in curvature, with neither curvature being inherently superior to the other.

Each of the systems has a different approach to offering cutting and scraper tips. The Sorby provides the most limited assortment, with their standard Hooker tool coming only with a scraper tip. A swivel tip holder and cutter is available from Sorby as an option. The standard version of the Stewart Hooker only comes with a swivel tip holder and cutter, with a scraper tip available as an option. The Stewart Bottom Hooker, comes with a swivel holder and cutter, but has a 1/4 inch gouge and scraper holder as an option. With all of these tools, one has somewhat of the feeling of being at an expensive restaurant where everything is a la carte.

In contrast, the Scorpion System comes complete, and with respect to tips, offers a wide range of different bits and scrapers. The set that comes with the Scorpion includes:

2 Each — 1/4" SQUARE x 2 1/2" HSS CUTTING BITS

2 Each — 3/16" ROUND 1 1/2" HSS SIDE CUTTING BITS

1 Each — 3/16" SQUARE x 2 1/2" HSS CUTTING BIT

1 Each — 1 1/4" HSS CUTTING BIT AND HOLDER

1 Each — TEARDROP STYLE 1/8" THICK HSS SCRAPER BIT

1 Each — CAP WASHER FOR USE WITH THE SCRAPER BIT OR THE CUTTING BIT HOLDER

In addition, the Scorpion will accept almost all the tips available for the other models.

In extended use, these tools all perform very similarly, though with its cross drilled straight shaft, the Scorpion is capable of a few cuts the others aren't. Because shaft sizes are the same, and the mounting bolt size is identical on all the curved shafts, it is very easy to mix and match the components between the systems. The only exception is that the Scorpion Straight Shaft is bored too small to accept the Omnitoole scraper adapters. I really appreciate this interchangeability and often intermix components without regard to the manufacturer. Thus I may use a Stewart Slicer in the Scorpion Handle, or mount a Sorby scraper tip to the Stewart Hooker. Any shaft that ends in a 3/4 inch shank will fit into any of these armbraces, and that includes other tools like the Berger Viking.

The range of tools capable of being mounted into the Scorpion Ambrace is further increased by the addition of Scorpion shaft adapters which allow smaller diameter tools to fit in the 3/4 inch Armbrace socket. There are individual

adapters to take 3/8, 7/16, 1/2 and 5/8 inch shafts (all are also sized to take the corresponding metric size shaft). These are perhaps the best adapters I have ever used as they do not reduce the working length of the shaft and allow for the shaft to be held very secure within the adapter and the adapter to be held within the Armbrace socket. This is accomplished with the original setscrew that runs from the armbrace socket, through a window in the adapter insert so that the setscrew contacts the shaft directly (again, for added security, you can also use the second Armbrace socket set screw to double secure the adapter insert, but this isn't necessary). A good detailed photograph of the inserts is found on the Pencil website.

All these tools are well manufactured, though I find the Scorpion to offer little touches not found on one or the other of the earlier tools. For example, the Scorpion components are chromed 1018 steel, while the Stewarts are bare. There are deep broad flats cut into the mounting end of the Scorpion tool shafts, while only a tiny flat is found on the others. The Scorpion arm cup is welded to the forearm shank, while the others are bolted. And as I mentioned earlier, the Scorpion curved tool has its tip cut flat on both the top and bottom, allowing for attachments on either side. This is a great advantage over the others, in that the Scorpion curved shaft can act as a standard Hooker with scrapers mounted to the top, can act as a bottom Hooker with attachments such as a Proforme tip adapter bolted to the bottom (that brings their cutting edge closer to the central rotational axis), and also allows the Scorpion curved tool to be used for outboard turning by just flipping it 180 degrees (unlike the standard Hooker where you must obtain separate tools with different bends).

These are all good hollowing tools, derived from an excellent initial design. However, as it stands now, I see the Scorpion as a positive refinement and evolution beyond its predecessors, that also happens to be a better value.

Website: <http://www.donpencil.com>

New Tips Program Sponsored by Teknatool

During our visit to Teknatool in New Zealand, we struck a deal for them to sponsor a "TIPS Contest" each issue. The tip selected as best for the issue will receive a set of Nova Chuck Jaws from Teknatool. Twice a year, every five issues, a SuperNova Chuck will be awarded to the person with the Best Tip of those published in the five previous issues. These tips should not have been previously published and they should relate to making woodturning better, easier, etc. Photos are ok. Teknatool is giving away 10 sets of chuck jaws and two SuperNova chucks in the next year for people who have submitted good solid tips for the woodturner. Send in your tips to:

Fred Holder, Editor
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This promotion is sponsored by Teknatool, manufacturer of the Nova line of lathes and the Nova line of Chucks. Deadline for a tip is the first of the month preceding the date of an issue.



Tips Program

I realize that our Tips Competition is only beginning, but I had hoped that people would start thinking about the things that they do in their shop that might help others.

We only have one for this month, but I'm sure there are thousands of little tips out there worth sharing with other woodturners.

One that I picked up from Bonnie Klein at the meeting on July 10, was grinding a tiny secondary bevel on top of your scraper when working with plastics and Alternative Ivory. It worked for Bonnie, I'm going to have to give it a try. Now what do you have to share?

—Fred Holder, Editor

Calculating Lathe Speed

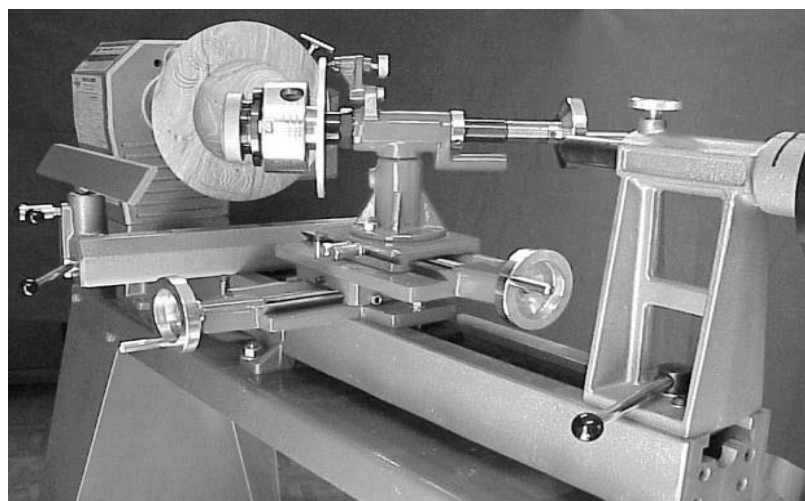
There is an easy way, without using math, to calculate lathe speed. Sears in their tool catalog did carry what was known as a Dial RPM Speed Indicator. You would press the rubber tip against a rotating shaft end and read the speed on the dial. They were for calculating speed of gas Engines and Electric Motors. They were available in 0 to 10,000 rpm and faster they came clockwise and counter-clockwise and with meters that would read in both directions. You could use double backed tape to stick a piece of sheet metal, cut round, to fit a piece of wood on the faceplate. Just hold the rubber tip against the spinning center and read the RPM on the dial.

—Cynthia Davis



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