

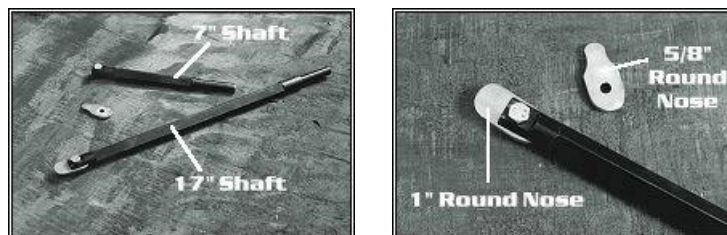
McNaughton Shear Scraper Guide for Use

The McNaughton Shear Scraper is designed to provide wood turners with a built-to-last-a-lifetime tool that will enable them to achieve both super fine finishes and rapid removal of wood. The sturdy construction of the long shaft is particularly suited to relatively deep vessels. The milled flats of the shafts are designed to automatically present the optimal angle for shearing cuts.

CAUTION! Woodturning is a potentially hazardous activity. Observe all normal wood-turning safety procedures, along with those specific to this product.

Structure of the Shear Scraper:

The tool consists of two sections. One is a shaft and the other is the tip. The tip is retained in the slot at the end of the shaft by a machine bolt that clamps the tip in position. SHAFTS. Shafts are made from 7/8" (22mm) diameter commercial bright steel and gun-blued to a black finish. The shafts are available in 7" and 17" lengths. They have a 5/8" diameter section opposite the scraper tip slot that fits the KH2, KH3 and KH4 handles. The long shaft has two flats milled so that the cutting tip is presented at 50 degrees to the work surface for either drawing the tool from the center of the work or for working from the edge toward the center on shallow bowls. The backside is round so the turner can infinitely vary the angle of the tip when desired. The long shaft is generally used for inside work. The short shaft is like the long shaft except that it has a third flat milled to facilitate conventional zero angle scraping when desired. The short shaft is most often used for outside work.



TIPS. Four types of tips are available. 1) 5/8" round nose. 2) 1" round nose. 3) 1 inch blank and 4) 1.5 inch dual angle (Not Shown). The blank tip allows the turner to shape custom profiles. These tips will easily outperform HSS in both wear resistance and burr retention.

Setup:

Tips are held between the tangs of the slotted end of the shank by clamping them in position with the lock-down bolt. The lock-down bolt is inserted through the non-threaded tang, the hole in the tip and then threaded into the threaded tang. With the tip positioned as desired, tighten the bolt firmly but not so tight as to strip threads.

CAUTION!!! Tips will generally be extremely sharp. Use great care when handling, tightening and loosening so as to avoid injury. Wearing thick, cut resistant gloves while tightening or loosening is strongly recommended.

The tips can be mounted with either side up, depending on the intended use. Mount with the sharp edge away from the side you want against the tool rest. For example, with the long shaft to be used with the shearing-angle flats on the toolrest, mount the tip with the sharp edge away from the flats and toward the round. For infinite variety of angles, including conventional flat scraping, flip the tip 180 degrees with the sharp edge away from the round. The tip will normally be mounted projecting straight out from the end of the shaft or with slight angle to either side.

NOTE. While the tip can physically be positioned at right angles (or greater) to the shaft, the tip should not be positioned at an angle greater than 45 degrees. Higher angles will greatly increase the risk of a serious catch that might ruin the work and/or cause injury to the turner. Under normal finish shear-scraping conditions with near zero angle tip position, only light holding forces are required for this tool. For bulk material removal, the larger diameter KH4 handle is recommended for better grip against the forces that this usage can generate.

Operation:

The usual objective with this tool is to obtain a fine shearing cut by presenting the cutting edge to the work at an angle that, coupled with a good burr on the edge, facilitates shearing rather than tearing.

In order that the shank-head and tip clear the toolrest, the toolrest must be set back from the cutting surface. There is a short distance between the tip and where the flats begin that is rounded and can be used for variable angles.

Unlike a gouge where the tool is typically pushed into the work, the scraper should always be drawn or pulled across the work. On deeper bowls it is usually easier and safer to scrape from the center to the rim. For typical

counterclockwise rotation of the work (as viewed facing the working face), the round of the shaft will be up and the left-side flat will be on the toolrest. The tip of the tool will be pulled from right to left with the upper face of the tip leaning to the left. Scraping from the rim to the center is recommended only for shallow bowls, trays, dishes, etc. where this allows working with the grain. In this case, the tool is rotated 100 degrees clockwise (from the previous example) as the tip of the tool is drawn from left to right.

Outside scraping is usually done by drawing the scraper from the larger to the smaller diameter of the work. Unlike traditional flat scraping, it is not recommended that the handle be raised above the toolrest.

For optimal results when making finishing cuts, the tip-edge should have a fine, even burr. When the scraper is being used for bulk wood removal such as in the interior of a deep bowl, where gouges are difficult or impossible to use, sharpening with a more aggressive burr may be desired.

Sharpening:

CAUTION!!! Sharpening inherently entails working with items and edges that can result in injury. All sharpening activity should be done with great care. It is highly recommended that cut resistant gloves be worn. Read and observe all safety instructions for any power sharpening tools used. In particular, approach any power-sharpening tool carefully to prevent inadvertent jamming and catching of the scraper cutting edge in the moving surface of the sharpening tool.

While the tips have extremely good wear resistance, they are nonetheless easily sharpened. They cut as a result of the raised-edge burr. As sold, the burr is at a moderate or intermediate level and can be felt by carefully, lightly drawing a fingertip from the top flat surface of the scraper tip, outward across the top of the cutting edge.

WARNING!!! This must be done carefully and only in a direction away from the cutting edge as any movement along or into the cutting edge is likely to result in injury.

Maintenance sharpening is achieved by the upward wiping of a handheld slip stone. To achieve a coarser, more aggressive burr, sharpen with a coarser grade of stone such as is typically found on a bench grinder. Avoid heavy or prolonged contact with a grinding wheel, sanding belt or disk as this may cause the burr to curl over and counteract its effectiveness. Use only clean, well-dressed grinding wheels, sanding disks or belts to obtain a good, uniform burr.

Old burr can be removed by placing the tip face down on a fine, flat sharpening stone and rubbing gently or with a light rub of a slip stone held against the top surface of the tip. **Avoid excessive stone use on the top surface of the cutter, as this will wear away the layer of special cutting alloy. Never use the grinder or coarse stones on the flat top surface.** (In all cases, make sure never to get an angle between the top surface and the stone or you will not be able to achieve a good burr until the edge is ground back to the flat surface.) When the old burr is removed, you are ready to re-sharpen.

A durable burr can be obtained by ticketing or burnishing the edge. The size and aggressiveness of the burr (from super fine to very aggressive) can be adjusted by the force and angle used when burnishing. First, the edge needs to be sharpened and the burr from sharpening removed as discussed above. Burnishing can be done with a jig or simply by rolling/sliding an HSS rod or similar piece along the sharpened (ground) side of the cutting edge. Greater force and repetition will result in a larger burr. Remember that the objective is to raise a burr that stands out from the surface rather than one that curls over.

Turners may find it desirable to have at least two tips. One they setup with an aggressive burr for bulk material removal and one with a fine burr for finishing.