

The Kel McNaughton M8-2013 Center Saver Guide for Use

The heart of the McNaughton System is the Tool Post. This, while ensuring that the cutting blade is held in the correct cutting position, allows turners to choose the angle of blade presentation. The unrivalled advantage of the system lies in its versatility. It is not restricted to coring hemispheres. Rather it will allow an infinite variety of shapes to be cored. It also allows for these to be made in sizes from large down to micro. Further, the System, using optional extra-large blades can be used for "outboard" turning.

Further Advantages of the Mark 8 System

Quick and easy to assemble

Superior long-life blades

Saves centers up to 18" in diameter

Work can be further secured with tailstock

Straight blades allow the System to be used for regular parting

The system is supplied with a **BASIC POST**



Basic Post ([banjo not included])

The **Basic Post** is an advance on earlier "cross bar" versions and is sized to work on lathes powered by 1 horse power or greater motors and with at least 2 & 7/8" of vertical clearance between spindle center and the banjo.

The Basic Post accepts the Large (Jumbo) 1/4" thick x 1 & 1/4" wide blades, Standard 1" wide x 1/4" thick blades, Small 3/4" wide by 13/64" thick blades and the micro blades.

The Basic Post System is available with either -

1. Standard blades

This set consists of the Mark 8 Post
1 straight blade
3 differently radius blades and
1 KH2 quick-change 10" handle

2. Large blades

This set consists of the Mark 8 Post
1 straight blade and
2 differently radius blades and
1 KH2 quick-change 10" handle

3. Combined blades

This set consists of the Mark 8 Post
All standard and large blades and
1 KH2 quick-change 10" handle.

Additional Options

Some distributors may offer **reduced price sets** that do not included the Straight Blades. Please be sure to **order** correctly.

Small Blades - (13/64" x 3/4") Accepted by both the Basic Post and the Micro Post

Micro Blades - (1/8" x 5/8") Accepted by both the Basic Post and the Micro Post

Left Handed large blades are available for "Outboard" turning.



**Basic Post with Standard Blade
(Banjo not included)**

Also available is a **Micro Post** sized to work on lathes with as small as 1/4 horse power and with as little as 2" clearance. **The Micro Post only accepts the Micro (1/8" x 5/8") and Small (13/64" by 3/4") coring blades.**



Micro-Post

The Micro-Post can also be used as a hollowing support. The riser between the two widely spaced pins of the Micro Post serve to set the Mini Kelton 5/16" Hollowers at the correct height while the two pins on either side act as capturing "columns".

All components for the McNaughton System can be purchased separately, and column sizes are available for all lathe banjos.

Note: Do not use any of these blades for parting or any other practice without the positive support of the Post.

Note: The Large blades of the Mark 8 McNaughton System are narrower than those supplied for earlier versions of the system. When reordering large blades it is important to specify whether they are for the Mark 8, 5 pin turret, or for the prior 4 pin turret systems.

GUIDE FOR CORING / CENTER SAVING

Assembling the Tool Post

The 3 components of the tool post, column, support base and pin turret head should be assembled into one unit. Insert the turned down (reduced diameter) section of the column through the underside of the support base. The bottom face of the support base will now rest on the shoulder of the column. Insert the protruding section of the column into the bottom opening in the pin turret. Once the turret is resting on the top face of the support base, use the supplied hex key to wind in the side set screw in the turret so that it enters the groove of the column but does not lock up on it. This arrangement now allows for the turret and support base to freely rotate on the column.

Blank Preparation

1. Fix an adequately strong faceplate or chuck to your lathe and securely fasten the blank to same. If using a faceplate ensure that it is of adequate strength and has sufficient screw holes, all of which should be used, and that the screws used, are of sufficient strength to securely hold the blank against the stresses produced in the coring process. If a chuck is used to grip the blank spigot then it must be of adequate strength and securely grip the spigot. The turned spigot should be formed of sound wood.
2. Shape the exterior of the blank to the final form. Unless it is a natural edge turning, face off the front of the bowl. Where warranted further secure the blank using the Tail Stock.

Preparing a Front Dovetail Recess (With acknowledgement to Steven D Russell)

As saved cores need to be remounted on the lathe, steps should be taken to facilitate this prior to the removal of the core. This can be achieved by mounting the cores between centers to form a new dovetail boss or spigot. An easier way is to form a new dovetail recess on the front of the bowl blank. This recess is then used for all subsequent mounting operations to turn the dovetail boss on each saved core.

When the core has been extracted from the blank, remove the outer bowl, reverse the core and use the chuck to expand into the recess on the front of the blank. The bottom dovetail can easily be turned at this point, without having to remount the chuck or change the jaw set or drive spur.

Another method to quickly turn the dovetail boss on an extracted core is to reverse the core into the bowl that it was just removed from. The tail stock's revolving center is brought up and secured. The tailstock's ram jams the core into the bottom of the bowl (effectively a jam chuck at this point) allowing the new dovetail boss to be quickly turned.

Still another method is to simply collect the extracted cores and batch process them between centers, using a drive spur and the tailstock.

Post Setup

1. With the lathes normal tool rest removed insert the Kelton tool post into the banjo. Ensure that the tool post support arm extends away from the blank and that the turret is rotated so that the pins are forward and towards the wood blank.
2. With the turret backed off about 3/4" from the blank on the basis of size and shape of the blank choose an appropriate size and shaped blade.
3. Insert it into the tool post by passing it through the square section housing and between the appropriate pins. **It is important to be sure the various sized blades are inserted through the proper pins!** Large blades pass through the first and second left pins, Standard blades between the 2nd and 3rd pins, Small blades between the 3rd and

4th pins and Micro blades between the 4th and 5th pins. The risers between the pins are set at height that ensures that blades travel in a horizontal position.

4. Raise the blade so that the top edge of the blade touches the square section top flat.

5. Adjust the height of the tool post in the banjo to a position whereby the tip of the blade is exactly on center **when the blade is fully extended in the post**. Using the banjo clamping handle, lock the post in at this height. This is the correct cutting height. The blades will not work properly if the tip is set above or below center.

6. With the blade set in place, fix the handle to it, i.e., inset the boss end of the supplied handle over the tang of the blade and, using the supplied hex key, lock in place by tightening the two side set screws onto the side of the tang.

7. Pull the Handle / Blade, back so that the tip of the blade is at or just beyond the edge of the turret head.

8. Reposition the tool post so the turret is close to but clear of the face of the blank. With natural edge forms make sure that when the blank is rotated all parts will clear the tool post.

9. Prior to any coring, especially if coring wet/green timbers, apply WD-40 or similar lubricant, to the top surface and pins of the turret head. This will serve to minimize blade travel problems.

10. Set the banjo in a position such that the cutting tip of the blade will enter the blank at a point to give the desired wall thickness.

11. Securely tighten the banjo to the lathe bed.

The system is now set for coring.

Aiming the Blade

When coring it is important to be able to accurately "aim" or sight the blade. Failure to do this can result in the blade penetrating the side of the blank.

There are a number of ways to do this. A simple but effective technique is Steven D. Russell's "complementary arc sighting process" (Points 1 - 4 are quoted from his "Learn to Master the Kel McNaughton System").

1. With the blade, tool post and banjo set as describe above set the tip of the blade at the desired wall thickness on the front face of the blank.

2. Whilst sighting the bowls exterior curve (left side) from above, move the curved blade into a position that closely matches the exterior curve of the bowl wall and lock the banjo into position.

3. When the two curves (exterior bowl curve and interior blade curve) match your presentation will follow that preset penetration arc.

4. Since you have already set the desired wall thickness, the complimentary arcs will insure a successful coring, virtually eliminating the possibility of thin or thick bottoms on your saved bowl.

5. Note: As the tip of the tool is in line with the handle sighting down the handle indicates the distance cut at any stage of the coring. Note: The Kel McNaughton Laser Handle Guide, available as a separate accessory, allows for cutting tip position to be determined with pinpoint accuracy.

Beginning the Coring Process

Turn the lathe on (slow speed) and bring the tip near the face of the blank. Gently advance the blade into the wood and direct the blade forward through the turret gateway. **Do not let the handle drop down! It is critically important that the top edge of the blade and the cross face of the square housing always be in contact throughout the coring.**

Once the blank has been penetrated about an inch, carefully withdraw the blade and open up the kerf a bit on the outside to look like an upside down "Y" This allows the chips to eject much easier.

Re-enter the wood and continue with a gentle forward pressure. Do not force the tool. With most timbers it will work at its own pace. Note: The tool tends to cut differently on end grain compared to how it cuts on side grain. Typically at the start of cuts on side grain a little pressure is needed to push into the cut whereas on end grain at the completion of the cut less pressure may be needed and the handle may have to be pulled back to prevent the cut proceeding too quickly.

If the kerf binds up with shavings and or chips it is best to turn the lathe off withdraw the blade and remove the bind. Spraying the blade with lubricant can help smooth the cut.

It is also important to keep the blade clean. Use sandpaper or chemical cleaner to remove any accumulated extractives.

As you approach the end of the cut stop the lathe and test how strongly the remaining uncut section holds the core. When it is sufficiently weak it can be broken away with the use of a wedge or by tapping with a hammer. For reasons of safety the final section of the coring should be done with added caution.

Safety note: It is recommended that lathe belts be loosened slightly to allow a small amount of pulley slippage in the event of blades binding in the cut.

Tool Sharpening

When sharpening try to retain the blades original proportions and angles - clearances are important. The configuration of the cutting tip is one designed by U.S.A. turner Mike Mahoney [see Mike Mahoney DVD "Mike Mahoney on the McNaughton Center Saver"]. The tool cuts by way of the raised burr at the cutting edge. A few upward wipes with a good stone, e.g., an Arkansas, will maintain this burr. [Ordinary slip stones are considerably more effective than diamond ones]. When using these try not to round the burr over. The sharpening movement should be one in which the stone is moved up the face of the blade and then, as it reaches the end of the wipe, moved away. Very occasionally when the tips will need a more substantial sharpening with e.g., a bench grinder or finisher, only a very light contact needs to be made – just sufficient to raise a new burr.

Using the Kel McNaughton System on Low Powered Lathes

The "Fluid-Pulse" technique developed by Steven D. Russell allows the system to be used on low powered lathes.

As above use light pressure to start the cut and make the upside-down "Y" in the face of the parting cut to help with chip/shaving ejection.

Re-enter the part and move the blade forward until it just touches the wood and begins cutting.

Advance the blade forward and begin cutting. The speed of the advance will be determined by the motor size.

When you see/feel/hear the motor starting to lose revs, with care slightly withdraw the blade. The blade is not withdrawn from the part, only slightly withdrawn until it stops cutting. The revs will pick up again. When they do, re-enter the cut. When you feel the cut beginning to slow again withdraw enough so that actual cutting ceases and then re-enter as the revs pick up. The action is one of fluid pulse... push gently into the cut until the motor starts to lose revs, withdraw slightly then re-enter the cut. The action becomes fluid through the in and out pulses of the blade.

Purchasing Options

All components of the Kel McNaughton Coring Systems may be individually purchased.

Safety

When using the McNaughton System observe all normal woodturning safety procedures. Out of balance blanks can generate substantially greater forces than normal turning. Always make sure that your blank is reasonably balanced and very securely held. Use the system only on lathes with strong well-made banjos. Weak or

unsubstantial banjos should be replaced with ones that are of adequate structural strength.

Acknowledgement

In the writing of this guide Kelton Industries gratefully acknowledges the contribution of U.S.A. turner Steven D. Russell. Much of the information has been taken directly from his "Learn to Master the McNaughton Centre Saver System". See www.woodturningvideosplus.com

See www.kelton.co.nz for more information on the Mark 8 McNaughton System and other Kelton products.

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