

The Kelton Eccentric Faceplate

Guide for Use

The Kel McNaughton Eccentric Faceplate is designed to allow wood turners to:

1. Readily achieve a host of new turned forms.
2. Achieve near vibration free turning of off-center work (within limits).

Off-center, eccentric or out-of-balance turning can generate substantially greater forces than normal turning. This Kelton Industries tool should only be used on substantial, well-built and maintained lathes.

CAUTION! Woodturning is a potentially hazardous activity. Observe all normal wood-turning safety procedures when using the Kel McNaughton Eccentric Faceplate, along with those specific to this product.

This woodturning accessory is intended only for use by competent, experienced, advanced wood turners!

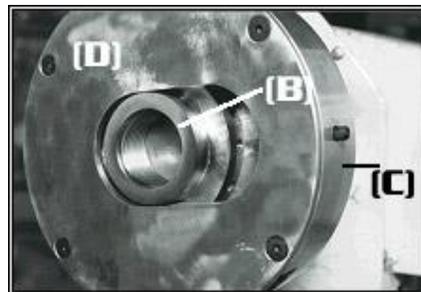
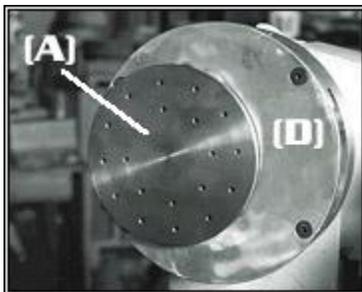
Overview

First, there is the strong steel faceplate for work attachment. This has been designed with numerous screw holes to ensure adequate attachment and safety.

The second plate (which accepts the first plate) is held captive between two rails of a third plate which is covered with a guard disc. The plate can slide between the rails, thereby allowing varying degrees of offset. It can also be rotated and held in various indexable positions.

The third plate (in which the second plate is captured) screws into the lathe mandrel. At the back of this plate (rear view shown at left) are two large weights which can be shifted to various positions to provide counterbalancing for off-centred or out-of-balance work. The weights are mild steel with a total weight of 6kg (12lbs). The overall diameter of the Eccentric Faceplate is 250mm (10").

Setup:



1. Screw plate (C) onto the lathe spindle.
2. Attach the wood to be worked to plate (A). 20 holes are provided for screws to attach the wood. Use as many of the holes as possible for maximum security of attachment. Strong, deep-threaded wood screws of maximum depth and diameter should be used. It is very important to remember that, though the combined unit of eccentric faceplate and wood can be balanced, the wood being worked is still subject to substantial off-center centrifugal force.
3. Screw plate (A) into plate (B). As with normal faceplates, a simple cardboard (or alternative material) gasket located around the male section of (A) will assist with the removal of (A) from (B) at the completion of turning.
4. For turning operations, plate (B) must be held in a fixed position. Once its position has been determined, it is locked in place by tightening the side hex-key screws in the rails of (C) located under the aluminum guard plate (D). **(NOTE! These hex-key screws should not be over tightened. It is sufficient just to snug them. Make sure that all side locking allen screws make contact with plate (B).)**
5. Set the counterweights in the back of plate (C) directly opposite of each other for an initial zero balance. (Indexing marks are provided at 30-degree intervals on the back of the body (A) to assist locating and recording adjustments. The balance weights are locked into position by tightening the hex-key screws from their outer rim (the screws run radially through each weight). Tightening these screws forces the weight against the outer rim that retains them. Once balance is achieved, **it is critical that these balance weight screws be well snugged (24 inch pounds)** to prevent movement and loss of balance during operation.
6. With the eccentric plate and the work mounted on the lathe, the out-of-balance side will rotate down due to gravity. Adjust the weights in the back of plate (C) upward, away from the heavy side, lightly securing them in the new position. Let the new heavy side swing to the bottom. Keep repeating this procedure, making smaller and smaller adjustments until there is no tendency for one side of the rotating mass to be heavy or rotate down as the lathe is turned by hand. This process will become more rapid with experience.

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NOTE! It is critical that the lathe turns freely for the balancing procedure to be accomplished successfully and safely. On some lathes, it may be necessary to disconnect the drive mechanism during balancing to achieve free rotation of the lathe spindle.

WARNING!!! *If balance cannot be achieved (one side of the work persists in rotating down when the counterweights are maximal opposite this side), do not operate the lathe. The eccentric is either too far offset for the weight of the wood or the wood is too out-of-balance. Reduce the weight of the wood or adjust its mounting so that balance can be achieved.*

Operation:

CAUTION! *The eccentric faceplate should only be used with lathes capable of near zero speed soft start/stop. Initial startup must always be done from near zero speed with speed gradually increased to insure that work is safely balanced and secured. Due to the rotational mass of the eccentric faceplate, starting and stopping should always be done with soft start/stop to avoid wear or damage to your lathe drive mechanism.*

The eccentric faceplate is designed to make the naturally difficult and hazardous operation of eccentric turning as safe, comfortable and easy as possible. Although every effort has been made to make the eccentric faceplate as user safe as possible, it is extremely important that care be taken in its operation.

SPEED. The considerable centrifugal force associated with eccentric faceplate turning necessitate that speed never exceed 400 rpm (or even less if your setup appears to be marginal or shakes), irrespective of the size, weight or any other aspect of the turned wood piece. It is vitally important that the work be securely attached to plate A. Should the wood detach from the faceplate, there will be the potential hazard of the now out of balance eccentric faceplate as well as the usual hazard of flying wood.

CLEARANCES. Before starting the lathe, ensure that the work has proper clearances. This is particularly important with regard to the tool rest. Remember that work with proper clearances before changing the center position may not have clearance after the adjustment. Always do a full rotation by hand before starting the lathe.

TAILSTOCK SUPPORT. Always make full use of the tailstock. This is particularly important when turning more demanding pieces and when the work extends a significant distance away from the faceplate.

INDEXING. Plate (B) can rotate, besides being able to move radially along the rails of plate (C). Dimples at 30 degrees around the circumference of plate (B) also allow for accurate and repeatable indexing. This is achieved by use of the stylus hex-key screw that can be advanced or withdrawn from its end of the rail housing to make location with any chosen indexing dimple.

REBALANCING. During the turning of unbalanced work, it is likely that, as wood is removed, balance will be degraded. When vibration becomes noticeable, rebalance as described in item 5 of the Setup section. Also, stop and check your setup periodically for a heavy side and rebalance when it is detected.

NEW WORK. When starting a new turning, initially zero the balancer as indicated in step 5 of the Setup section.

ECCENTRIC AND ANGLEPLATE COMBINATION:

The potential for the eccentric faceplate to be used creatively is greatly enhanced when used in conjunction with the Kel McNaughton Angleplate. In combination, the safety rules applicable to the eccentric plate must be even more rigidly observed. Extremely slow speeds should be used.

Under no circumstances should the speed ever exceed 200 rpm (even less if your setup appears to be marginal or shakes). It is particularly important that, when any use is made of the angleplate in an off-center position on the eccentric faceplate, that one only incline the angle plate back toward the center of rotation. In use of the eccentric faceplate, either alone or in combination with the angleplate, always err on the side of caution.

REMOVAL OF PLATES: The intermittent cutting forces typical of eccentric turning can tend to significantly tighten spindle threads. For detachment of the plates, it may be necessary to prevent rotation of plate C. This can be done by fixing a straight, non-flexing strut from the lathe bed to the rail section beneath the guard plate (D). Take care not to put force on (D) as the aluminum could become bent or damaged.

WARNING!!! Never operate the Eccentric Faceplate or Angle Faceplate in a direction that would loosen the threads.