

## TIP 86— Spindle Handwheel and Collet Drawbar Modification/Jim Harrison

### Brief Description

When we made the spindle handwheel (P/N 2049) we had space limitations. The design of the handwheel works great. However, when you use the handwheel along with the WW Collet Drawbar, it's hard to get enough torque to tighten the collet down hard on a part. To increase the leverage and make it easier to tighten the drawbar, Jim has added two #21 holes (.159") to his drawbar knob (Figures 1 and 2). This allows him to use one of his Tommy bars (P/N 40580) to tighten and loosen the drawbar (Figure 3). **NOTE:** Make sure that your spindle handwheel is located all the way forward against the spindle pulley (See Steps Section).



Figure 1—New #21 hole in the drawbar knob.

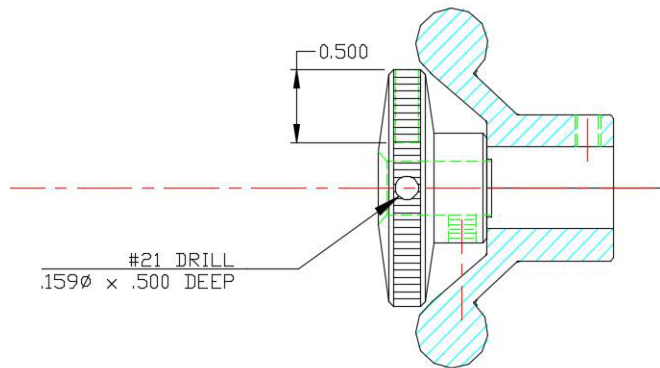


Figure 2—Drawbar drilling specification.



Figure 3—Tommy bar inserted into the new #21 hole.