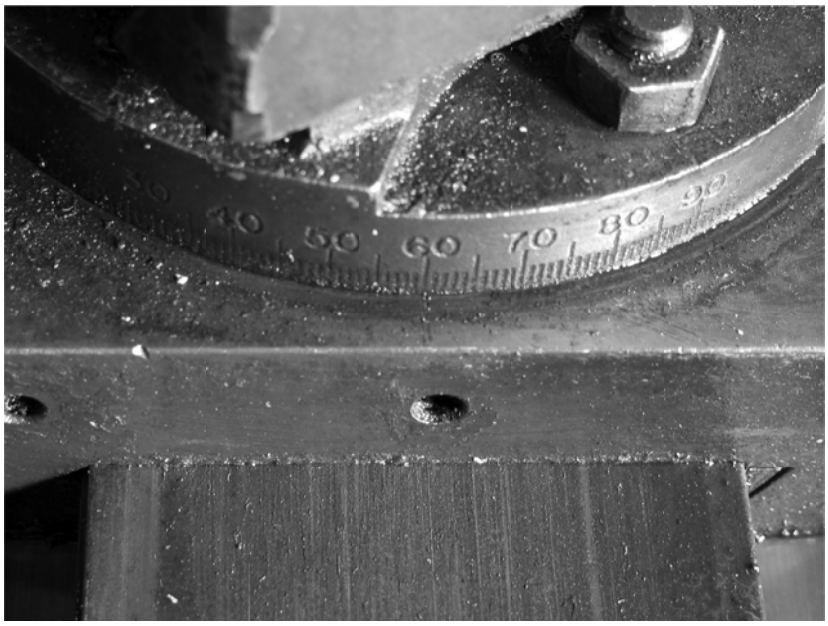
Plumb Bob Machining Procedure

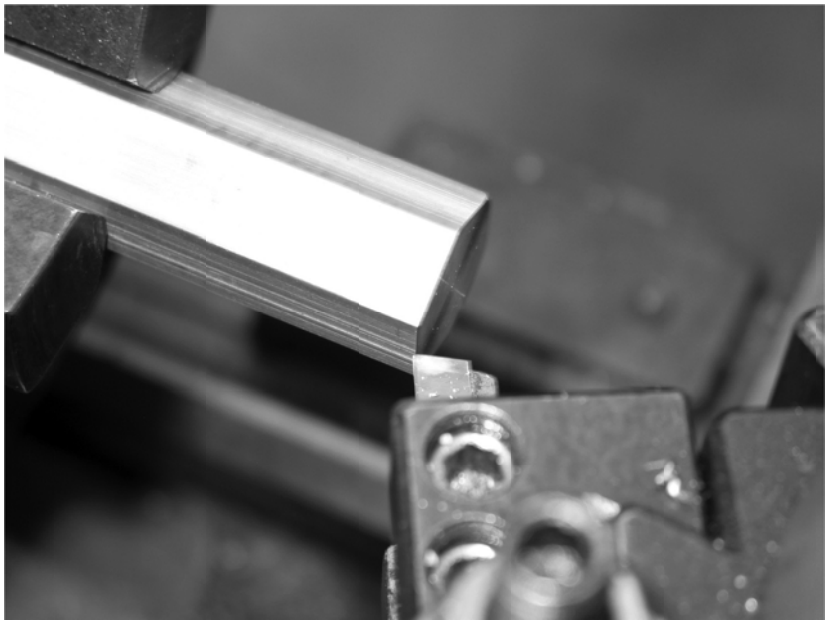
1. Place work into the chuck, leaving 1.5 inch sticking out of the chuck. Tighten the work piece.

2. Set compound slide to 25 degrees relative to the axis of rotation of the lathe.



3. Turn on the machine.

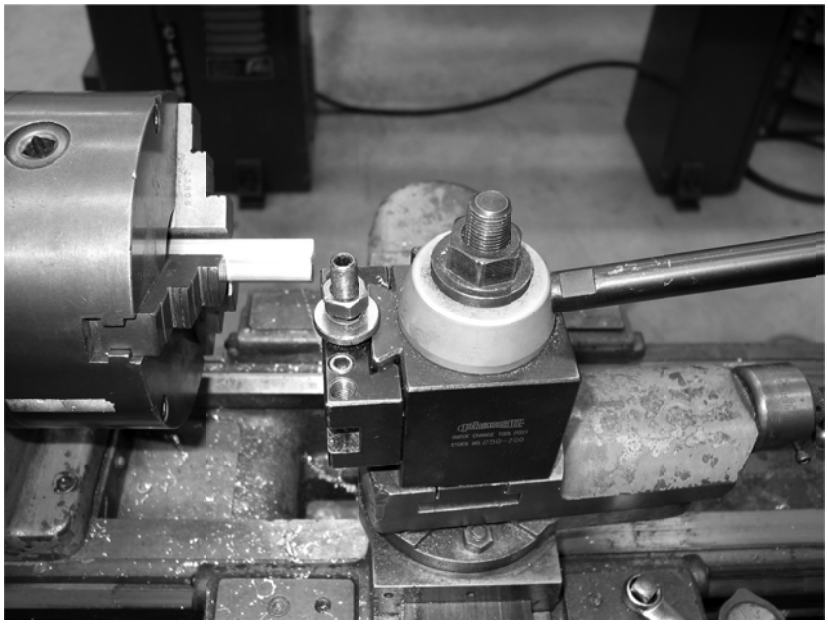
4. Face off the end of the work by advancing the cross slide.



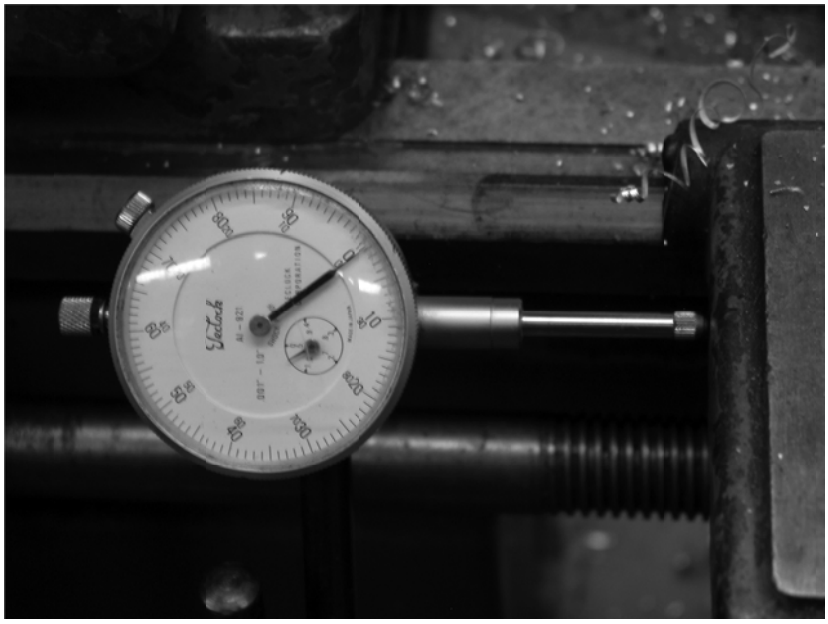
5. Move the cross slide back (away from the axis of rotation) to the edge of the hexagon. Advance the cross slide to cut the plumb bob by 0.1 inch (diametrically).

6. Using the compound slide, cut the taper. At the end of the cut, move the compound slide back before advancing the cross slide.
7. The finishing cut on the taper should be 0.01 inch (diameter) depth.
8. Stop the machine chuck. Move the cross slide away from the chuck. Remove the work; rotate it to machine the other end. Leave 1.5 inch length of work sticking out of the chuck.

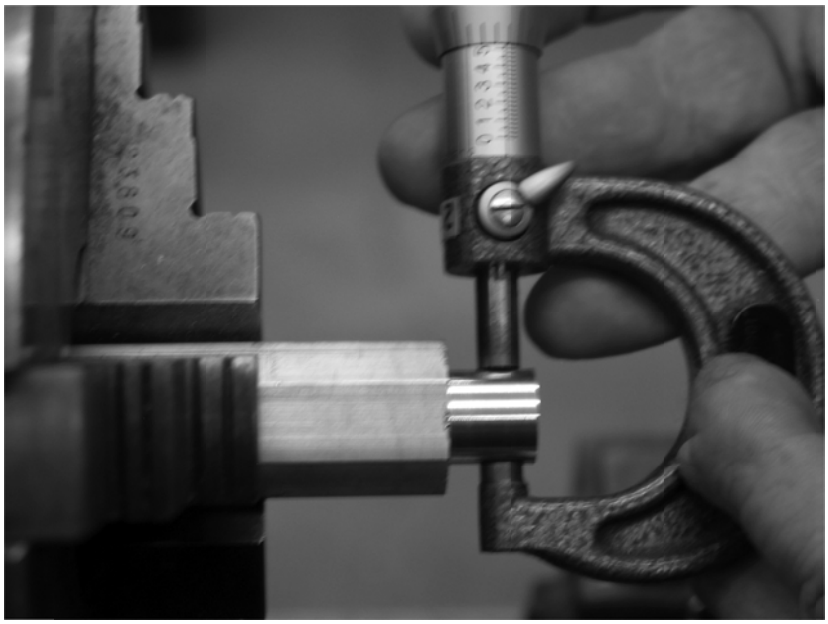
9. Rotate the compound slide so that it forms a 5 degree angle from the end of the work.



10. Face off the end of the work by advancing the cross slide.
11. Set up the dial gauge. Zero the dial.



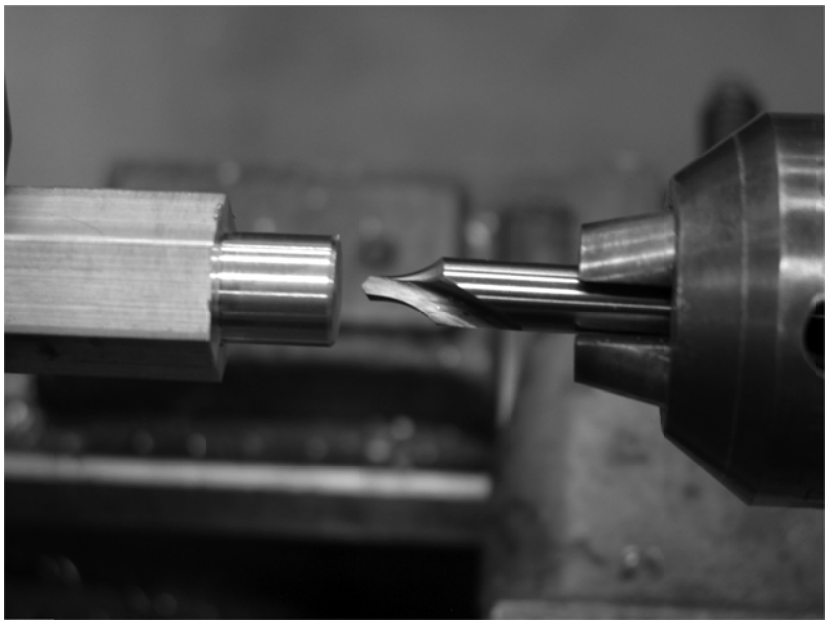
12. Turn on the machine; then turn the diameter of the work down to 0.5 inch and a length of 0.5 inch. Depth of cut should be limited to 0.1 inch diameter. Use the micrometer to check for the accuracy of the diameter.



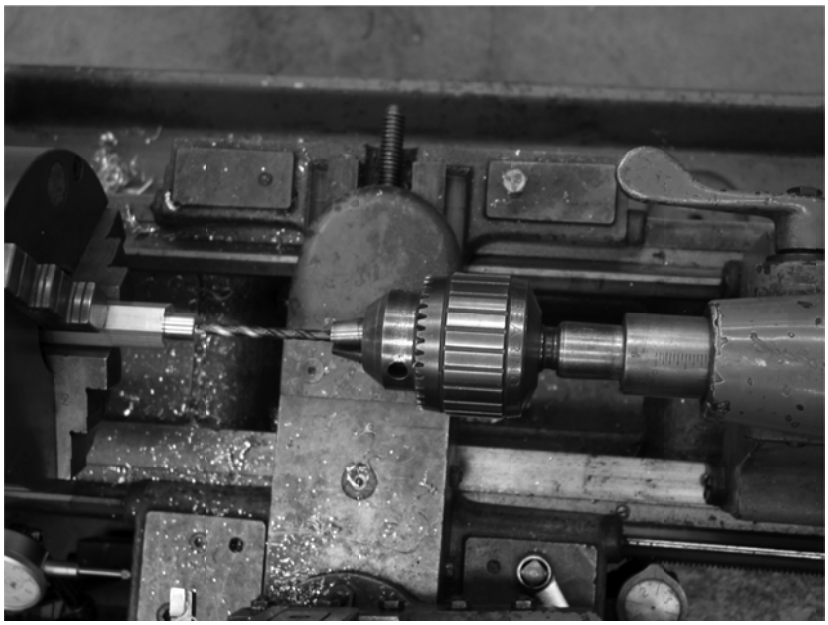
13. On the last pass of the turning operation, move the cross slide out slowly to square off the shoulder.
14. Move the slide away from the work. Use a hand file to chamfer the end of the ½ inch diameter section.

15. Turn off the machine.

16. Place the center drill into the tail stock. Slide the tail stock in place to center drill the work. Turn on the machine spindle to center drill the end of the work. Turn off the machine when you are done with the center drill.

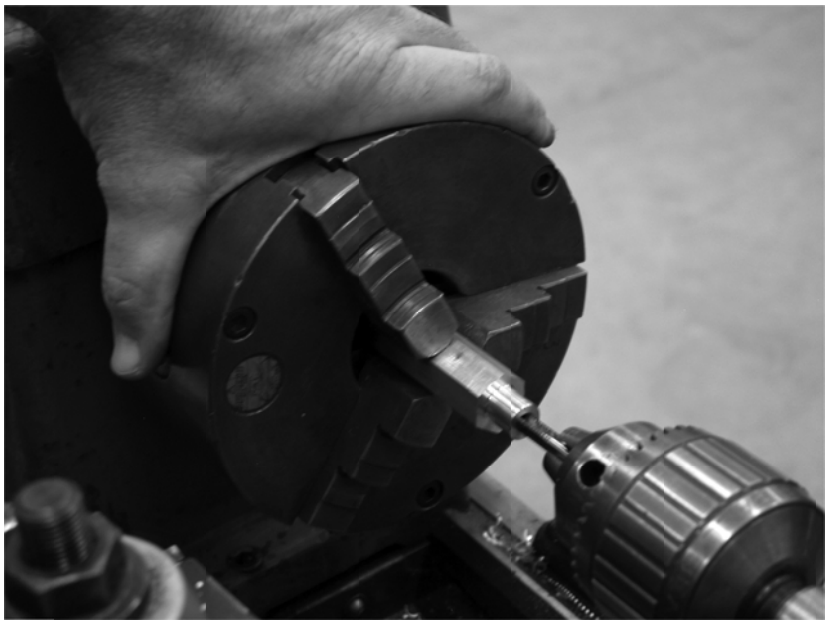


17. Slide the tail stock out, then place the 13/64 drill in the tail stock. Slide and lock the tail stock in place for drilling.
18. Lubricate the drill tip. Turn on the machine spindle to drill 1 inch deep hole; use the indicator on the tail stock to check on the required depth. Use peck drilling technique for drilling the hole.

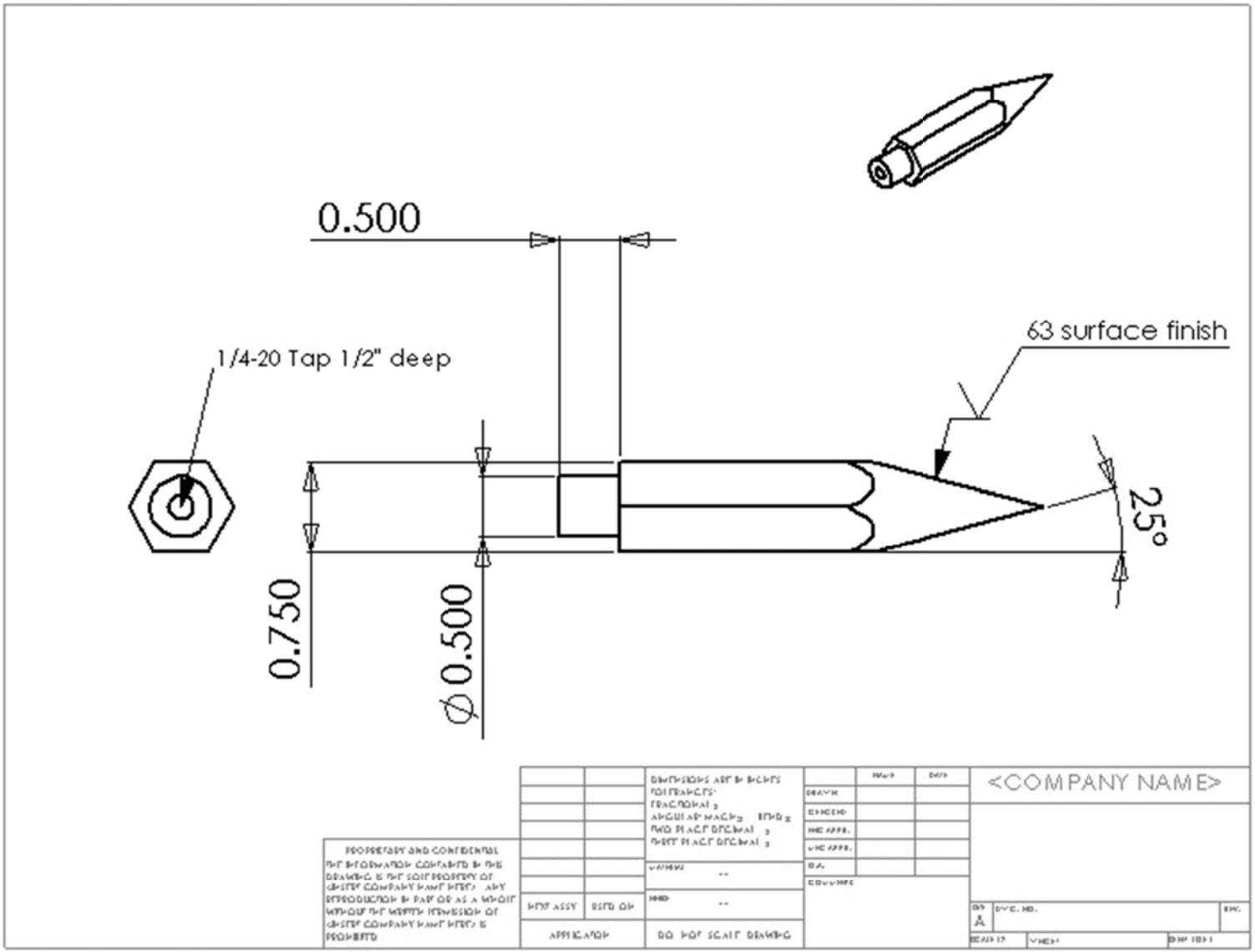


19. Turn off the machine; slide the tail stock back, then place the ¼-20 tap in the tail stock.

20. Slide the tail stock back to the work so that the tap is in the hole. DO NOT lock the tail stock; then, by turning the work holding chuck, tap the hole to the right dept. When you are done tapping, rotate the chuck the opposite direction to disengage the tap.



21. Slide the tap out of the way. Remove the work.
22. Clean up.
23. File the end of the hex part manually.


0.500
1/4-20 Tap 1/2" deep
63 surface finish
25°
0.750
Ø 0.500
<COMPANY NAME>