External Single Point Threading

1. Secure the part to be threaded in a workholding device.

2. Calculate the spindle speed. Threading is done at ¼ of the normal speed. Adjust the spindle RPM on the machine.

3. Set the compound rest to 29 to 29.5 degrees. The handle of the compound rest moves to your right. Depending on your machine, you may be setting your compound rest for 61-60.5 degrees (the complement of the angle).

4. Select the proper threading tool. Align the tool with the center gage and adjust the tool height. The tool must be perpendicular to the work piece.

5. Select the gearbox setting for the number of threads per inch on the desired thread.

6. Calculate the single depth of the thread you are about to cut.
   The formula is: Single depth = .6134 x pitch

7. Calculate the amount that the compound will travel to complete your thread.
   Compound rest travel = pitch x .7

8. Look up the pitch diameter sizes in the Machinery's Handbook.

9. Adjust the compound rest so that it is in the middle of its travel. Set the compound rest dial to zero moving towards the work piece. Turn the lathe spindle on and touch the part. Now set the cross-slide collar to zero.

10. With the spindle turning start the tool about ½" away from the part in the Z axis. Engage the half-nut on the correct line or number on the threading dial and take a scratch cut on the surface of the part. Stop the machine and measure the line to line spacing and compare it to your thread's pitch distance. This verifies that the gearbox setting is correct.

11. Begin cutting your thread. Based on your thread stop and check the pitch diameter a couple of times to be sure that you hit your tolerance. Check your thread with a nut if one is available. Once the proper thread size is obtained, deburr the thread and again and verify thread size. Do not remove the part from the machine until you are sure that all machining is complete.