

# Manual Lathe Calibration Procedure

Memorial University Technical Services

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## 1.0 Standards and Equipment

The following equipment is required:

Calibrated Dial Indicator

Calibrated Finger Dial Indicator

*NOTE: Standards and equipment used must have a valid calibration certificate*

## 2.0 Calibration Procedure

*"TS-0076 Manual Lathe Calibration Record Sheet.pdf" must be used*

*Clean the Dial Indicator and Finger Dial Indicator's measuring surfaces and stand, the lathe bed, chuck, and all mounting points for the magnetic base.*

*NOTE: Ensure that the dial indicator stylus is perpendicular to the X, Z scales, the rim and the face when performing any measurement*

### Step 1:

Measure the ambient temperature and record it. If the temperature is  $<18^{\circ}\text{C}$  or  $>24^{\circ}\text{C}$ , see the Division Manager for further instructions.

### Step 2:

Test Characteristic: Face, Rim and Bore of Spindle,

Test Method: Remove the chuck from the lathe. This can be accomplished by removing the set screw, or rotating each cam lock to its notch. Securely mount the magnetic base and place the finger dial indicator stylus against the face of the spindle (Fig 1). Rotate the spindle 360 degrees by hand, and then record the maximum deflection. Repeat for the rim and the

inner bore. Some lathes will have multiple outer rims - only record for the inner most face which the chuck's inner surface mounts to.

Acceptable Limit:  $\pm 0.001"$  or 0.025 mm

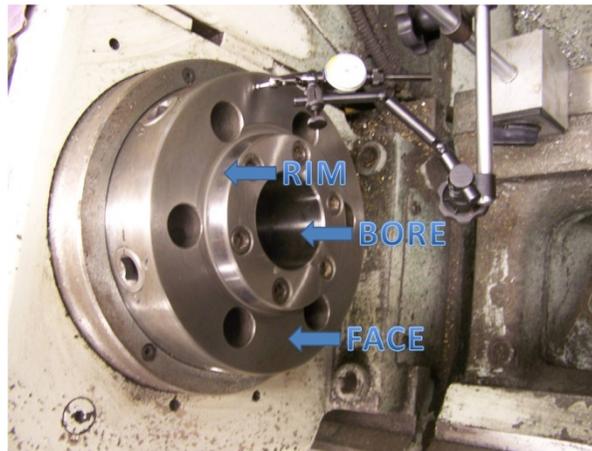


Figure 1

Step 2:

Test Characteristic: X - Axis Scale

Test Method: Mount the dial indicator securely on bed with the stylus against the carriage cross-slide (Fig 2). Manually move the carriage into the dial until the needle starts deflecting. **DO NOT MOVE THE CARRIAGE BACKWARDS FROM THIS POINT ON.** Zero the dial indicator, and zero the digital readout. Continue to move the carriage until the digital readout displays 1.0000". Check the dial indicator reading at this point, if it reads around 0.5000", move the carriage until the digital readout displays 2.0000", because it is measuring diameter. Record both the digital readout and dial indicator reading.

Acceptable Limit:  $\pm 0.001"$  or 0.025 mm

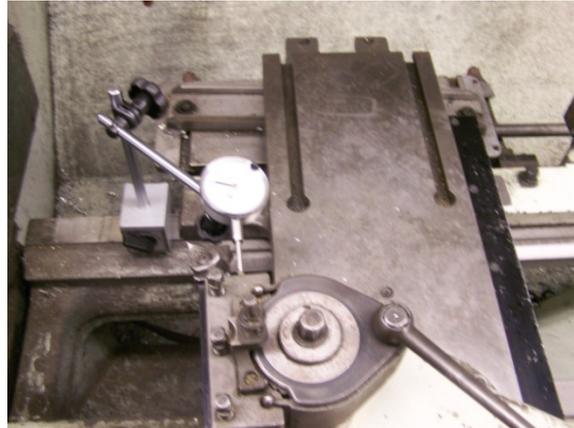


Figure 2

Step 3:

Test Characteristic: Z - Axis Scale

Test Method: Mount the dial indicator securely on bed with the stylus against the carriage (Fig 3). Manually move the carriage into the dial until the needle starts deflecting. DO NOT MOVE THE CARRIAGE BACKWARDS FROM THIS POINT ON. Zero the dial indicator, and zero the digital readout. Continue to move the carriage until the digital readout displays 1.0000". Record both the digital readout and dial indicator reading.

Acceptable Limit: +/- 0.001" or 0.025 mm



Figure 3