3.4 X & Z AXIS TESTS

These tests check how an axis is working as a "system". You will need a dial indicator that reads to 0.0001". They are different because they include triggering, acceleration / deceleration, positioning, etc. They don't isolate one particular part of a the movement You can use any spindle rpm, but, the axis must be able to move at the requested feedrate. You can confirm this by using the Simple Threading Wizard (section 6.4) since it will warn you if you exceed the settings in motor tuning.

Z AXIS TEST

The program just runs the Z axis back and forth for a distance of 1", twenty times, and will stop for 4 seconds so you can see the axis position on the indicator in test #1 and will stop twice in test #2. Test#2 relates to alternate flank cutting and in this test the difference between readings should be 0.0005". Figure 3.4.1 shows the indicator set to zero.

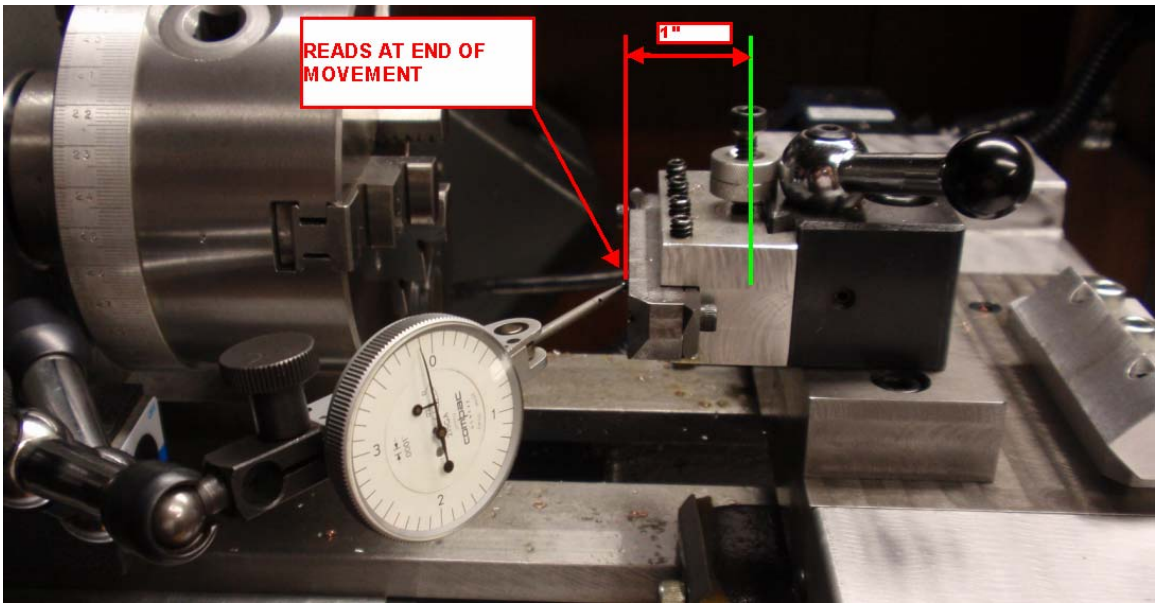

FIGURE 3.4.1

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N10 (Z AXIS TEST NO 1 )
N20 G20 G40 G49 G61 G80 G90 G94
N30 M98 P9999 L10
N40 M30
N50 O9999
N60 G32 Z-1 F.1
N70 G95
N80 G4 P4
N90 G00 Z0.001
N100 G32 Z-1.0 F.1
N110 G95
N120 G00 Z0.0
N130 M99
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N10 (**Z AXIS TEST NO 2**)
N20 G20 G40 G49 G61 G80 G90 G94
N30 M98 P9999 L10
N40 M30
N50 O9999
N60 G32 Z-O.9995 F.1
N70 G95
N80 G4 P4
N90 G00 Z0.001
N100 G32 Z-1.0 F.1
N110 G95
N120 G4 P4
N130 G00 Z0.0
N140 M99

How much the readings vary will give you an indication of your lathe “system”. My test’s show a change in the reading of 0.0001” for test #1 and the difference in test # 2 is also just 0.0001” (ie; 0.0004” instead of 0.0005”). In alternate flank cutting, the gcode change in Z may only be .001”, so if the axis movement can’t hold below that, alternate flank cutting may not be a good threading method for your use.