

## TIP 31 — Lathe and Mill Tune-up Tips to Reduce Backlash/Larry Mortimer

This procedure will check the X- and Y-axis nut and backlash nut and the Z-axis Saddle Nut to see if they are worn out.

1. Release the star gear or pointer lock and back out the BACKLASH nut on the X and Y leadscrew. If you have 5 to 8 thousandths play, the NUT for the Y- or X-axis should be replaced! If you can see the backlash lock nut has play in it also should be replaced. For instructions on *Adjusting Backlash* [CLICK HERE](#).
2. If these are within specifications and you still have play, there is a good chance that the play is in the handwheel. To check this, grab the X or Y-axis bed and see if you can feel play in it by pushing and pulling it towards the handwheel. If any play is felt readjust the handwheel on the shaft by loosening the handwheel set screw and pushing the handwheel tight against the thrust collar. Index it 90° before retightening the set screw so you don't pick up the old indentation.
3. The Z-axis nut can be checked for wear by locking the Mill Saddle Locking Lever. If it hits the side of the Z column the Saddle nut and lever should be replaced. For instructions on *Saddle Nut Replacement* [CLICK HERE](#). If you don't have the Locking Lever on your mill I would suggest you add it. For instructions on *Mill Saddle Lock Upgrade* [CLICK HERE](#).
4. If the saddle nut is within spec's and there is still play in the Z-axis there is a good chance that the Z-axis handwheel is not adjusted correctly. To check this turn the handwheel clockwise one turn then counter clockwise till it just starts to move the saddle. PUSH DOWN ON THE SADDLE.

If you hear or feel the saddle move there is play between the handwheel and the column. To adjust Z backlash, support the headstock while you release the Z-axis set screw. Push up on the headstock/saddle unit while pushing down on the handwheel. Retighten the set screw in a new location. If you continue to have problems with the Z-axis settling, there is a modification to the Z-axis leadscrew and handwheel to help correct this problem. For instructions on *Z-axis Backlash Modification* [CLICK HERE](#).

5. I would suggest you check the GIBS also for excess wear and replace them if worn. For instructions on *Gib Installation and Adjustment* [CLICK HERE](#).
6. Lubrication: If you remove the saddle from the machine I would suggest that you clean it up with some alcohol and then spray the base with Super-Lube DRI-FILM and use Super Lube Synthetic Lubricant on other moving parts. These PTFE-based lubricants really make the saddles slide freely. See [RELATED LINKS and RESOURCES](#) for more information under **LUBRICATION** or see Super Lube's web site at [www.super-lube.com](http://www.super-lube.com) to order some.
7. Replacement Part Numbers:
  - 50130, Anti-backlash nut, X-axis (51130 metric)
  - 50140, Anti-backlash nut, Y-axis (51140 metric)
  - 40890, Nut, X-axis (41890 metric)
  - 50200, Nut, Y-axis (51200 metric)
  - 40177, Saddle nut w/ spring loaded ball (41177 metric)
  - 40175, Saddle locking lever, (41175 metric)
  - 40980, X- and Y-axis gibs (mill) and crosslide gib (lathe)
  - 40990, Z axis gib (mill) and leadscrew gib (lathe)