



# Troubleshooting Backlash on a Sherline DRO Lathe

## Troubleshooting Backlash and Error Readings in the Z-axis

Our DRO is actually reading a wheel that is on the leadscrew. It is not reading the actual saddle/crossslide movement.

- If any of the components of the DRO assembly are loose, you are going to have an error.
- If you have excessive backlash in your DRO-to-handwheel assembly, you are going to have an error.
- If your saddle nut is worn, there is going to be some more backlash in the assembly.

### Adjusting the Backlash

You need to put a test indicator on your lathe and load the tip of the indicator against the front or back of the crossslide. Then, without turning the handwheel, push and pull on the crossslide and see how much it moves. This will show you how much mechanical backlash there is in your Z-axis.

Here is a link that explains how to get rid of the backlash in your Z-axis and the DRO assembly ([https://www.sherline.com/wp-content/uploads/2017/03/dro\\_backlash\\_inst.pdf](https://www.sherline.com/wp-content/uploads/2017/03/dro_backlash_inst.pdf)).

### DRO Handwheel Assembly

If your machine is free of backlash, then the other source of error may be in the DRO assembly (see the exploded view).

If the “Encoder Star Gear #15” is loose and slipping on the handwheel, this will cause an error. If it is loose, you can put a drop of super glue on the bore and press it back onto the handwheel.

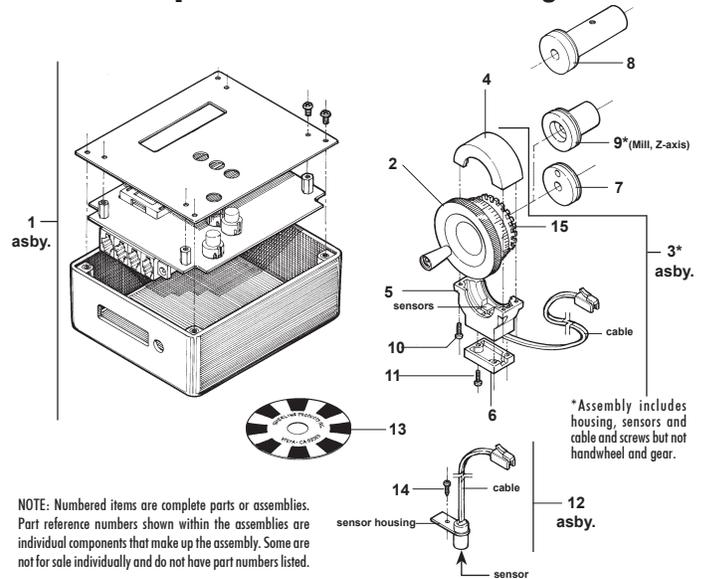
If the “Encoder Housing assembly #’s 4 and 5” are turning on the “Crossslide Thrust collar #7,” that will cause an error. The housing is clamped onto the thrust collar in the groove on the thrust collar. If it is loose and moving, you can take the upper cap off, put a drop of silicon in the groove of the thrust collar, and reassemble the top cap.

### Optical Sensor

Lastly, if none of these fixes solve the problem, then it may be the optical sensors that read the star wheel. The sensors do go bad over time. This is the least likely problem, so do all of the above checks first.

Thank you,  
Sherline Products Inc.

## Exploded View and Parts Listing



REF. NO.	PART NO.	DESCRIPTION
1	81010	3-axis DRO box and electronics (complete)
2	81320	2" Crossslide handwheel, inch (Met. 81322)
	81340	2.5" Leadscrew handwheel, inch (Met. 81342)
3	81100	Encoder housing w/ wheel and cable
4	81110	Encoder housing upper cap
5	81120	Encoder housing body
6	81130	Encoder housing lower cap
7	81300	Crossslide thrust collar
8	81508	Leadscrew thrust collar
9*	81350	Mill, Z-axis thrust collar (for 3-axis lathe DRO kit only – P/N 8210/8215)
10	81280	#2 x 3/8" Self-tapping pan head screw
11	81270	2-56 x 3/8" pan head Phillips screw
12	81500	Tachometer encoder & cable asby.
13	81510	Tachometer pickup decal
14	40440	#2 x 1/4" Self-tapping pan head screw
15	81310	Encoder star gear
--	81080	Black tie-wrap (not shown)
--	81050	115 VAC Power supply/transformer (not shown)
--	81150	Stand for readout display box (not shown)