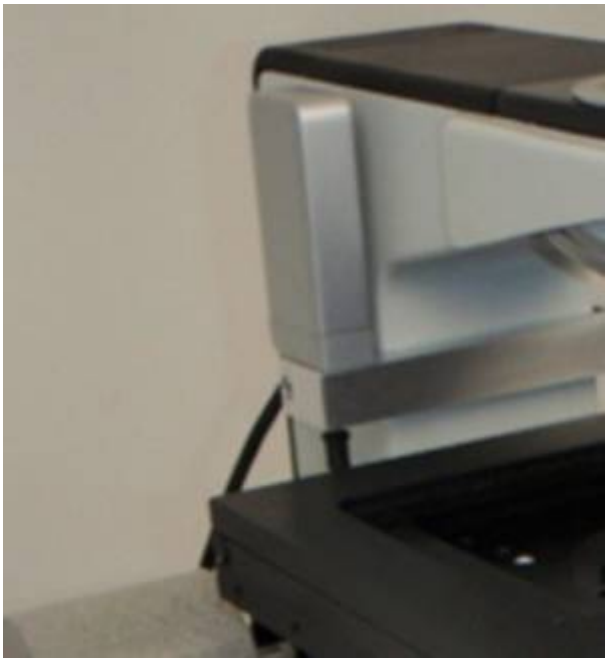
Leica / Leitz LABORLUX S Microscope linear encoder installation



The procedure outlines the steps necessary to install and align the ASI Heidenhain linear encoder onto the Leica/Leittz LABORLUX S series microscopes. The linear encoder mounts to the upper front of the microscope’s armature via an encoder clamp. The linear encoder has a plunger that depresses into the encoder as the focusing position is moved. The plunger tip mates with a plunger stop that is attached on the microscope’s carrier.

The linear encoder installation has three parts:

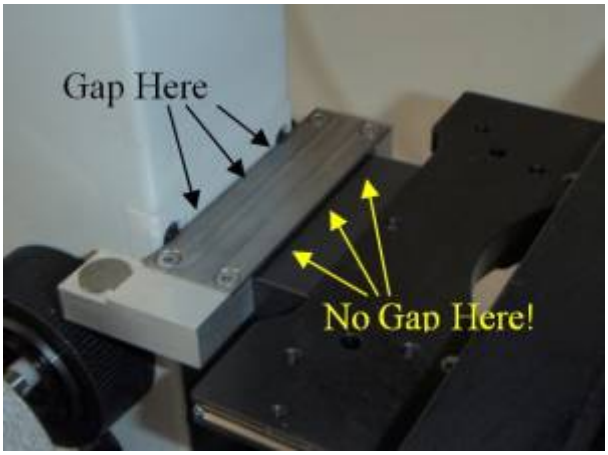
1. Installing the plunger stop

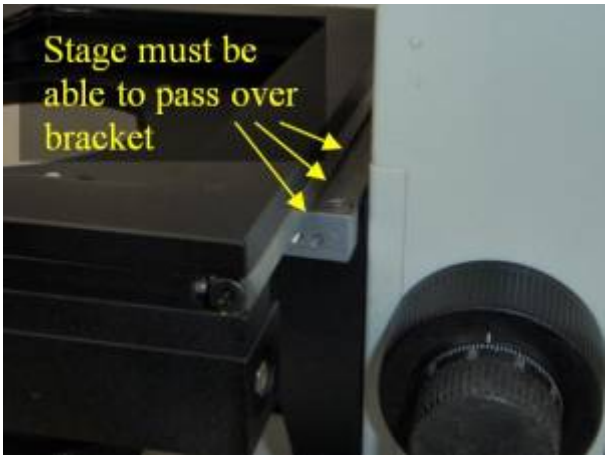
2. Installing the encoder clamp
3. Aligning the encoder

The procedure requires the following Allen wrenches that are supplied with the unit:

1.5mm 2.5mm

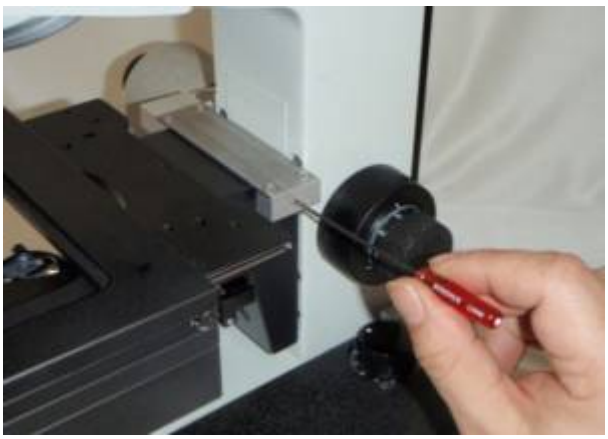
Step # 1 Installing the plunger stop





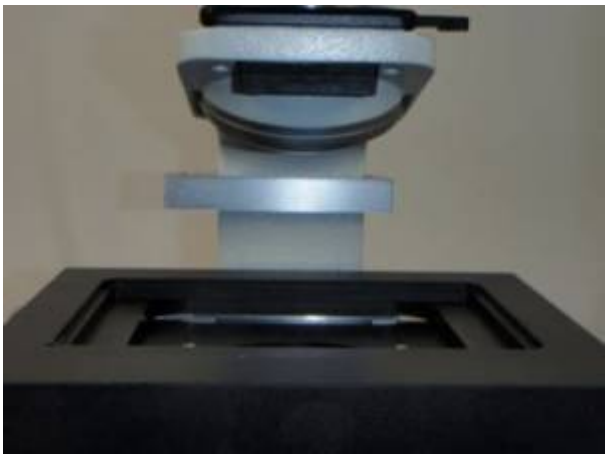
Locate the plunger stop and position it on the stage carrier so that the metal press bar is on the right side and the round carbide plunger stop is on the left side of the stage carrier as shown in above.

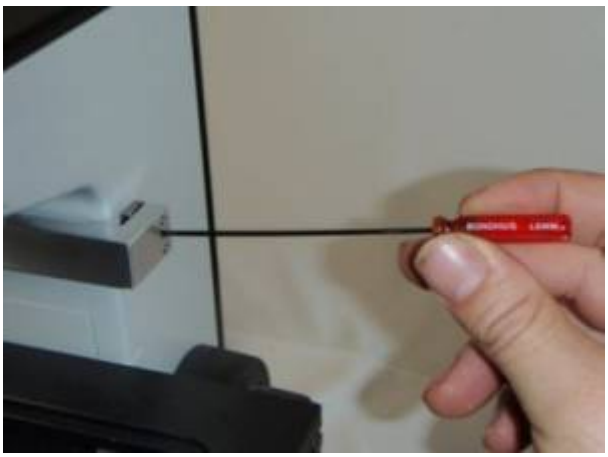
When installing plunger stop leave a small gap between the microscope body & the plunger stop so that it does not rub against the microscope body as the stage carrier is moved when focusing. Be sure that the Carrier is flat against the carrier so that it will fit under the stage when it passes over the bracket.



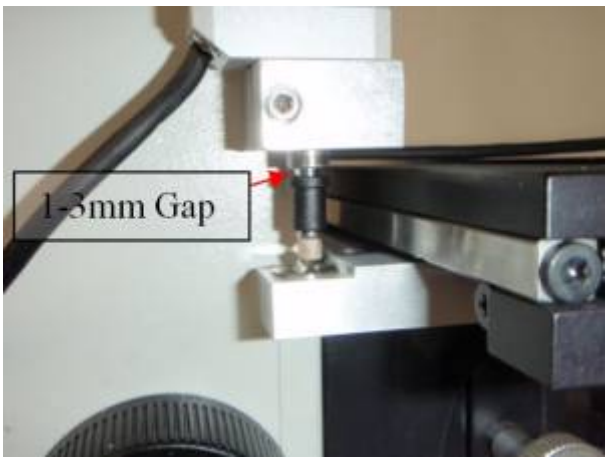
Once correctly positioned use the 1.5mm Allen wrench to tighten the set screw located on the opposite side of the silver press bar. This will cause the sliver press bar to press against the microscope and will hold the plunger stop securely in place.

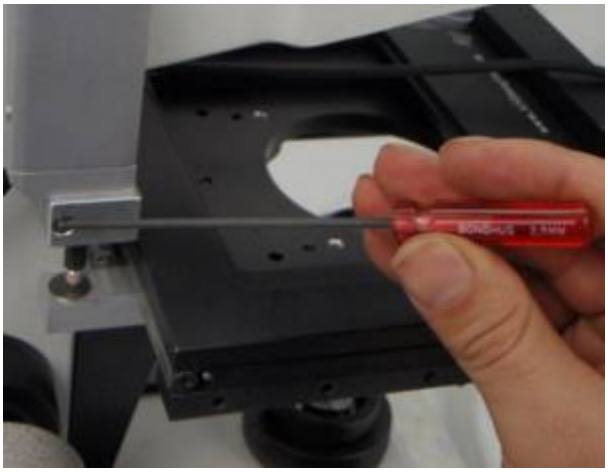
Step # 2 Installing the encoder clamp & Aligning the encoder





Locate the Heidenhain encoder and the encoder clamp. Use the 1.5mm Allen wrench to insure that the screw on the side of the encoder clamp is loose. Install the encoder clamp across the top inside of the microscope armature as shown in above. Use the 1.5mm Allen wrench to tighten the set screw located on the opposite side of the silver press bar. This will cause the sliver press bar to press against the microscope and will hold the encoder holder securely in place. The encoder plunger clamp should line up directly above the plunger stop as shown in the above right photo.



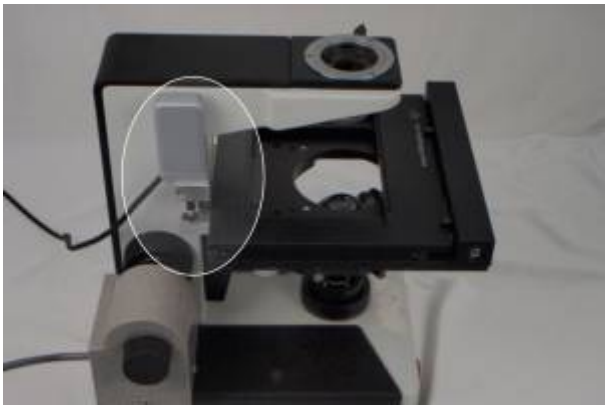


Bring the stage up to the correct focal position for the common objectives used. Position the encoder & encoder clamp so that the ball on the end of the encoder's plunger mates with the round carbide plunger stop. Insert the encoder into the encoder holder & slide the encoder down until there is about 1 to 3 millimeters worth of upward travel left on the encoder's plunger. Hold the encoder in place & use the 2.5mm Allen wrench to tighten the screw to secure the encoder in place.

Please note that the encoder has a total travel of 12 mm and that it should be positioned to allow the most convenient travel distance for the stage. In most instances the upward movement of the stage/focus will only be a few millimeters from the focal plane. In these applications the above installation procedure will provide the optimal downward travel range. However, this may vary slightly depending on the application and objectives use. To allow for the maximum upward linear encoder movement the stage can be moved to its upward mechanical stop and the encoder installed with the plunger fully retracted.

WARNING! Please do not move the stage outside of the linear encoder's range without first disengaging the drive, selecting the rotary encoder, or removing power from the controller. Failure to do so could result in a runaway condition. There is a firmware safety feature within the MS-2000 that will limit the runaway time to 0.5 seconds. After this period the drive will attempt to return to the last known encoder position. If the position to the encoder is small the drive may find the encoder. However, if the position to the encoder is large, or movement commands away from the encoder are still being given the limited runaway condition can occur.

Note: It is a good idea to route the Linear Encoder wire so that it does not accidentally come in contact with the Z-Drive unit that is directly below it.



This completes the installation and alignment of the ASI linear encoder onto the Leica / Leitz LABORLUX S series microscope. Please refer to your ASI manual for further instruction.

leica, leitz, laborlux s, zdrive