Zeiss AxioImager Z-Drive Installation Procedure

The procedure below outlines the steps necessary to install the ASI Microscope Focus Controller Drive onto the Zeiss AxioImager microscope.

To perform the following steps you will need the following tools:

1.5mm, 3mm, 1/16”, 5/64”, and 7/64” inch hex wrenches

The hex wrenches are provided by ASI.

The procedure has four parts:

1. Removing the left fine focus knob
2. Installing the baseplate.
3. Installing and aligning the motor drive assembly.
4. Installing the motor drive cover plate & fine focus knob.
5. Installing the Linear encoder

Part 1 - Removing the left Fine Focus Knob

Remove the left fine focus knob from the microscope as follows:

Remove rubber boot

Use 1.5 mm Allen wench to loosen set screw.

Pull knob straight off to expose shaft

Remove rubber boot Use 1.5 mm Allen wench to loosen set screw. Pull knob straight off to expose shaft.

1. Remove rubber boot
2. Use 1.5 mm Allen wench to loosen set screw
3. Pull knob straight off to expose shaft

Part 2 - Installing the Baseplate

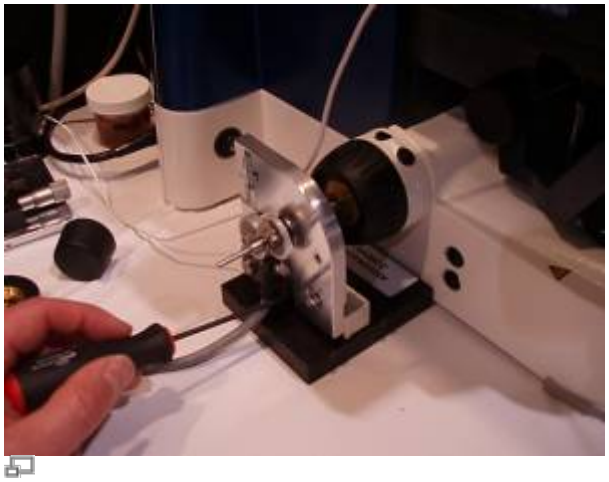
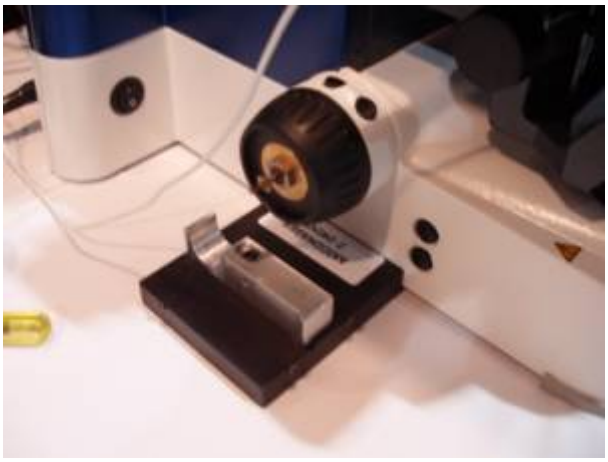


Figure 4a

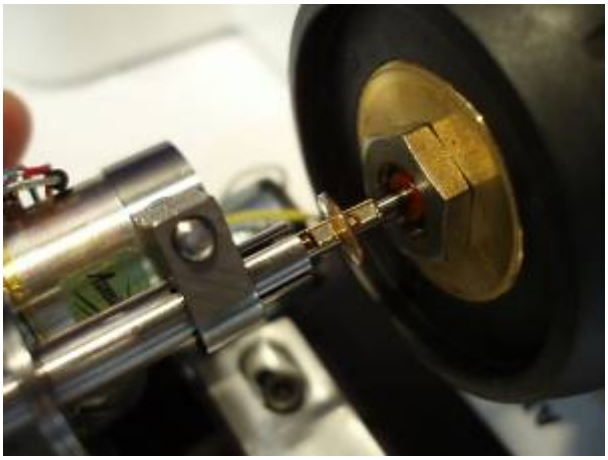
Figure 4b: Uninstalled baseplate & Drive



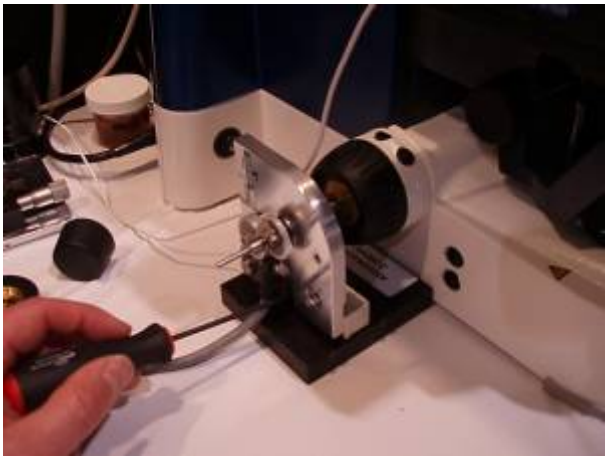
Locate the baseplate / Drive assembly and remove the drive from the base plate if it is attached by removing the vertical adjustment screw shown in figure 4a, also loosen, but do not remove the

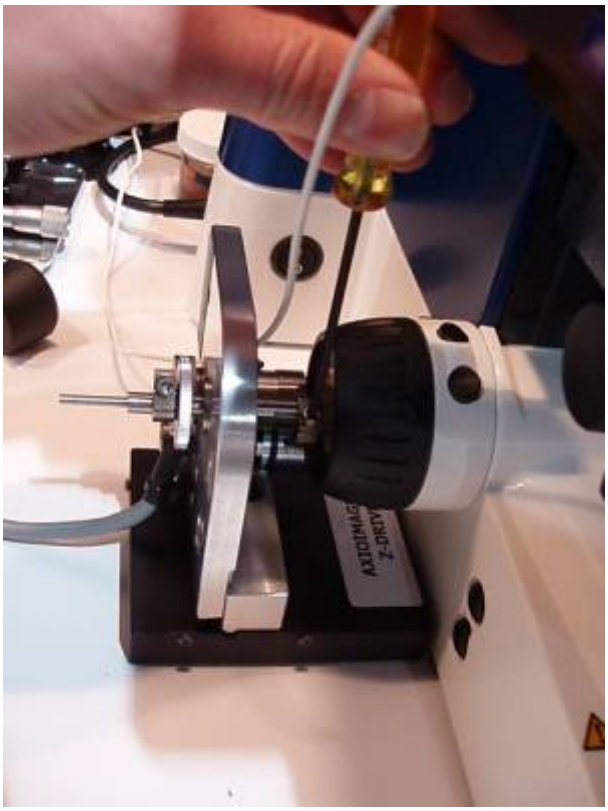
horizontal adjustment screw shown in figure 4b. Lift the front of the microscope up and slide the baseplate under the microscope so that the area where the shaft was at is approximately centered under the left focus knob as shown in figure # 5.

Part-3 Installing & Aligning the Motor Drive



Locate the ASI motor drive. Install the drive by using the 7/64” Allen wrench to loose the clamp at the end of the ASI dive shaft. This clamp is located near the black encoder case. After loosening the clamp slide the ASI drive shaft over the microscope’s fine focus shaft, as shown in figure # 7, and then slide the tab on the bottom of the adjustment bar into slot on the base plate (Please Note the baseplate may need to be moved to properly align the adjustment bar.) Use the 3mm horizontal adjustment screw removed in part 2 to secure the drive to the base plate, as shown in figure #8 below. Leave the screw loose enough so that the adjustment bar can slide easily in the groove in the baseplate. Use the 7/64 inch hex wrench to tighten the drive shaft clamp, as shown in figure #9 below.





Slide the motor drive up and down; forward and backward *slightly* while turning the right fine focus knob until it is in the position where minimum drag is felt. Secure the motor drive into position by tightening the horizontal and vertical adjustment screws loosened in step #2, figure 4 a & b. Use the 0.05” Allen wrench to tighten the baseplate clamp shown in figure # 10 below. NOTE: The baseplate clamp should be tightened just enough to secure it in place.

Recheck the alignment by noting the drag on the right fine focus knob. No noticeable drag should be felt Repeat the steps above if necessary.

Part 4-Installing the motor drive cover plate & fine focus knob

Locate the motor drive cover. Loosen the 4/40 button head screws from the drive with the 1/16 “ Allen wrench. Position the motor drive covert over the motor drive assembly and secure in place using the 4/40 button head screws.

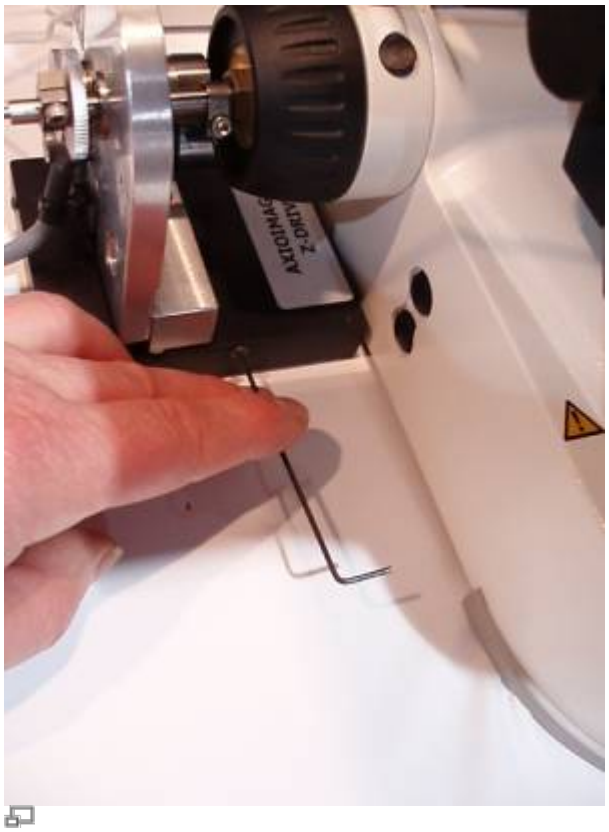


Figure 11a

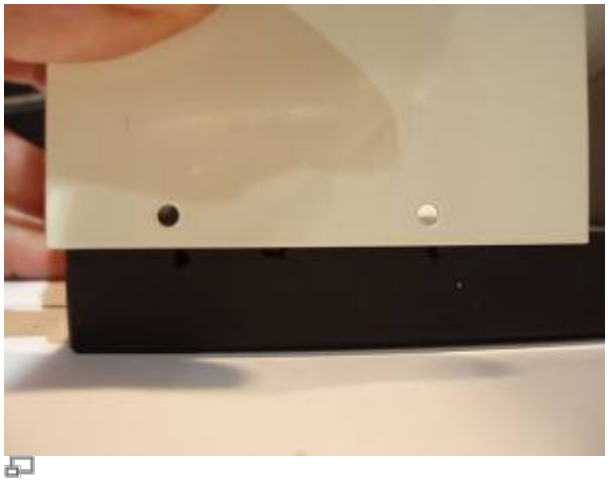


Figure 11b

Figure 11c

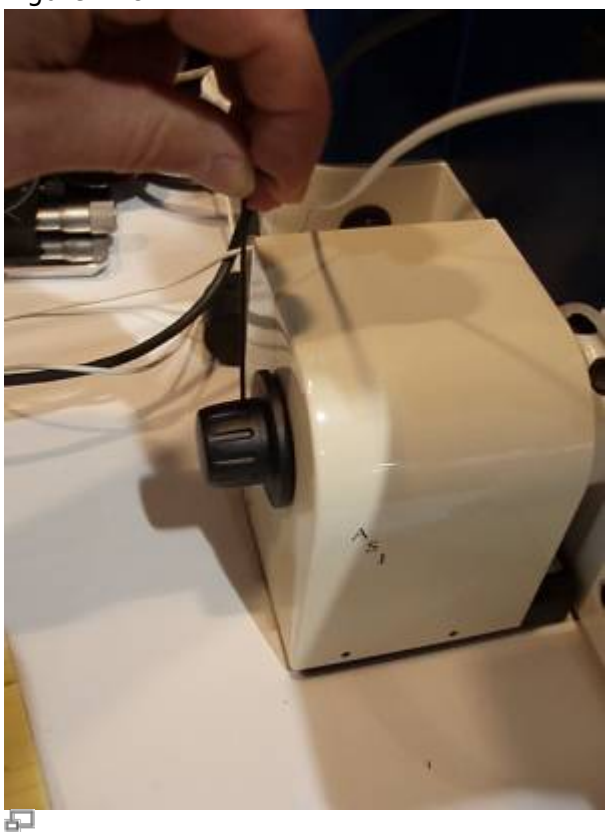


Figure 11d: Installing the cover

Slide the microscope fine focus knob over the shaft extension and secure in place using the 1.5mm Allen wrench. Please note that the setscrew in the knob should mate with the flat on the shaft.

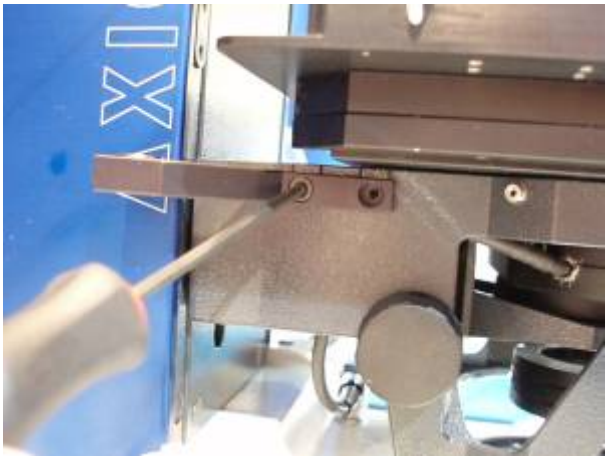
Installation of the ASI Heidenhain linear encoder onto the Zeiss AxioImager Microscope

The procedure outlines the steps necessary to install and align the ASI Heidenhain linear encoder onto the Zeiss AxioImager microscope. The linear encoder mounts to the rear of the microscope 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 to the microscopes stage carrier. The linear encoder installation has two parts:

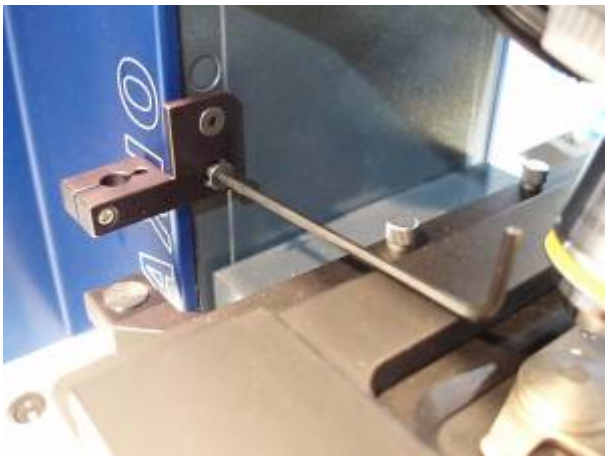
1. Installing the plunger stop
2. Installing the encoder clamp and aligning the encoder

The procedure requires the Allen wrenches that are supplied with the unit.

Step # 1 Installing the plunger stop



Step # 2 Installing the encoder clamp & Aligning the encoder



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 triangular carbide plunger stop as shown in figure 3a. 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 3/32 inch 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.**

This completes the installation and alignment of the ASI Z-drive & linear encoder onto the Zeiss AxioImager microscope. Please refer to your ASI manual for further instruction.

zeiss, AxioImager, zdrive