

# Nikon SMZ-1500 Z-Axis & Zoom Drive Installation Procedure



The procedure below outlines the steps necessary to install the ASI Microscope Focus Controller Drive onto the Nikon SMZ-1500 microscope.

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

- 1.5mm, 2mm, 1/16 and 7/64 inch hex wrenches
- Cross & flat blade screw driver, small pliers

The hex wrenches are provided by ASI.

**The procedure has 6 parts:**

1. Removing the left fine focus knob & the left zoom knob
2. Installing the baseplate
3. Installing and aligning the Z motor drive assembly
4. Installing and aligning the Zoom motor drive assembly
5. Installing the motor drive cover plate & fine focus knob
6. Connecting the cables to the controller

## Part 1 - Removing the Left Fine Focus Knob left Zoom knob

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



Figure 1a remove left fine focus & zoom knobs



Figure 1b remove left fine focus & zoom knobs

Remove the robber boot that is over the knob. Use 1.5mm Allen wrench to loosen setscrew on fine focus knob & two setscrews on left zoom knob. Pull knobs straight off.

## Part 2 & 3 - Installing the Baseplate & the Z-axis drive

Locate the baseplate. If the motor drive is attached to the base plate use the 7/64 "mm Allen wrench to remove the horizontal adjustment screw to remove the drive from the base plate. Use the 7/64 "mm Allen wrench to loosen the two vertical adjustment screws as shown in figure 2.



Figure 2. Removing Horizontal adjustment screw to remove Z-drive from base plate

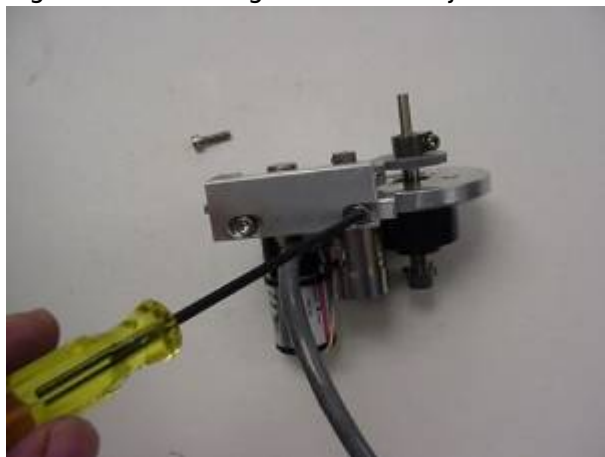


Figure 3. Z drive removed and vertical adjustment screws being loosened



Figure 4. Use the cross blade screw driver to remove the two screws as shown



Figure 5. Locate the two standoffs and install them in place of the screws removed



Figure 6. Use the pliers to lightly tighten the two standoffs .



Figure 7. Standoffs installed

Install the base plate onto the microscope as shown in figure 8. Use the two original screws to secure the baseplate to the microscope as shown in figure 9 and tighten securely.



Figure 8. Installing baseplate

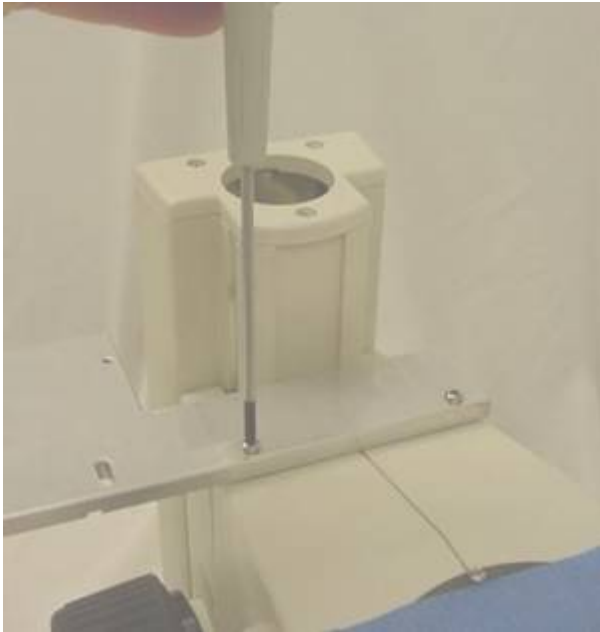


Figure 9. Use the two original screws to secure the baseplate to the microscope

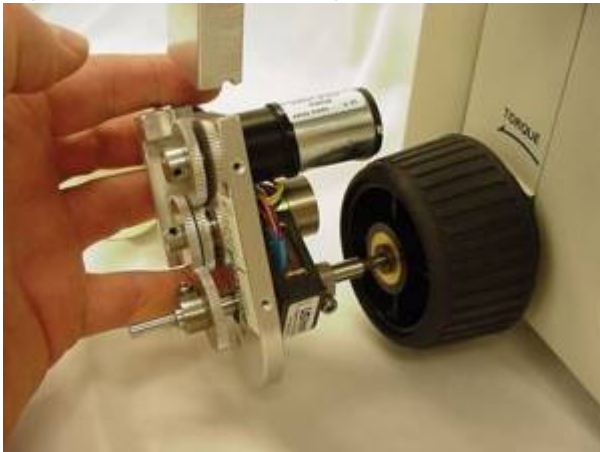


Figure 10. Install Z-drive over fine focus shaft.

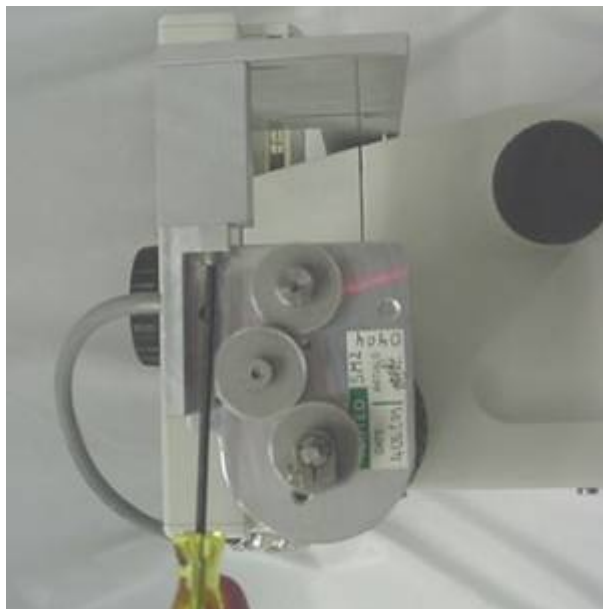


Figure 11. Align drive and install horizontal adjustment screw



Figure 12. Push drive clamp up against focus knob & tighten



Figure 13. Tighten the vertical adjustment screws

Install the drive as shown in figure 10. Please note that there is a groove on the baseplate that the tab on the adjustment bar slides into. Secure the drive to the base plate with the horizontal adjustment screw as shown in figure 11. Push drive clamp up against focus knob & tighten as shown in figure 12. Please note that this clamp must be securely tightened to prevent any slippage. After the drive clamp has been securely tightened, tighten the vertical adjustment screws as shown in figure 13.

## Part- 4 Aligning the Motor Drive

Check the alignment by noting the drag while turning the right fine focus knob. No noticeable drag should be felt at any point within the full 360 degrees of rotation. If any noticeable drag is felt, loosen the Vertical & Horizontal adjustment screws and reposition the drive to a point where no drag is felt. Then hold the drive in place and tighten Vertical & Horizontal adjustment screws.

## Part 5-Installing the motor drive cover plate & fine focus knob.





Install the cover and secure in place with the button head screws and the 1/16" Allen wrench. Install the original fine focus knob as shown and secure in place with the 1.5mm Allen wrench. Please Note: that the setscrew in the fine focus knob should mate with the flat that is on the shaft.

This completes the procedure for installing the ASI motor drive on to the Nikon SMZ 1500 stereo zoom microscope

## Part 6- Installing and aligning the Zoom motor drive assembly ( if ordered )

Locate the zoom gear and spacer as shown in figure 14. Install this assembly onto the zoom shaft as shown in figures 15 & 16. Align and secure the gears in place as shown in figures 17 through 20. Then install the cover as shown in figure 21. Please note that the zoom assembly of the microscope may need to be turned in the stand slightly as described in figure 20 to get the gears to mate properly.



Figure 14. Zoom gear & spacer



Figure 15. Installing zoom gear & spacer onto zoom shaft



Figure 16. From the end of the zoom gear there should be a distance of  $\frac{3}{16}$  " ( $\sim 4.5$  mm) to the end of the shaft. Install & tighten the clamp as shown to secure the gear in place



Figure 17. Located the zoom drive & cover and install it as shown in figure 14 so that the gears mate.



Figure 18. Install motor and cover gears need to mate.



Figure 19. When gears are properly aligned use the 7/64" Allen wrench to tighten the screw that secures the zoom motor.

Check the alignment by noting the drag while turning the right zoom knob. No noticeable drag should be felt at any point with in the full 360 degrees of rotation. If any noticeable drag is felt loosen the Zoom assembly and realign it.

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