Zeiss Axiolab Microscope Z Drive Installation Procedure

Motor Drive Installtion

The procedure below outlines the steps necessary to install the ASI Z-Axis Drive onto the Zeiss AxioLab microscope.

To perform the following steps you will need a large, medium and small slotted screw driver, a small phillips screw driver, a 14mm deep socket wrench and the following hex wrenches: 7/64”, .050”, 3mm and 1.5mm. The socket wrench and hex wrenches are provided by ASI.

The procedure has four parts:

1. Installing the baseplate
2. Installing the anti-backlash gear
3. Installing and aligning the motor drive assembly
4. Installing the motor drive cover plate & fine focus knob

Part 1 - Installing The Baseplate

1) This step requires that the microscope be inverted. Before inverting the microscope, disconnect the microscope from electrical power and remove the eye pieces, illuminators, filters, camera, camera tube and any other components that could be damaged or may fall off when the microscope is inverted. Once the microscope is prepared, carefully lift it, turn it over and place it on its top on a clean soft surface.

2) Peel off the 4 rubber feet attached to the bottom of the microscope. Remove any residue from the feet using a knife blade.

3) Remove the cover plate on the illuminator housing in the bottom of the microscope by removing the 4 screws that secure it using the small phillips screw driver then lifting the plate off. Set the plate aside as it is no longer needed.

4) Locate the 4 threaded standoffs and replacement illuminator cover plate provided with the motor drive. Identify the 4 screws within the illuminator housing that secure the housing to the microscope. Remove these screws using the 3mm hex wrench, then replace them with the 4 threaded standoffs provided by ASI. Tighten the standoffs using the large slotted screw driver.

5) Install the replacement illuminator cover plate onto the illuminator housing using the original 4 screws.

6) Locate the large base plate and the 4 new base plate mounting screws provided with the motor drive. Place the base plate on to the base of the microscope such that the protruding screw threads fit inside the front of the microscope and the 4 holes align with the threads in the standoffs. Secure the base plate using the 4 screws provided. Tighten with the 3mm hex wrench.

7) Return the microscope to its up-right position. Rotate it so that the left side is accessible.

Part 2 - Installing The Anti-Backlash Gear

1) Remove the left fine focus knob from the microscope by loosening the set screw located in the side of the knob using the 1.5mm hex wrench then sliding the knob off the shaft.

2) Remove the left coarse focus knob by first removing the nut using the 14mm deep socket provided, then unscrewing the coarse focus knob. The nut and knob turn counter- clockwise to unscrew. It will be necessary to grip the right coarse focus knob as the nut and left knob are loosened to prevent the coarse shaft from turning. Be careful to not disturb the stop rings located under the left coarse knob.

3) Locate the anti-backlash gear. Screw it onto the coarse focus threaded bushing. Orient it so the protruding (shiny) part of the threaded bushing faces towards the microscope. Tighten this gear firmly in place by turning it clockwise while gripping the right coarse focus knob.

Part 3 - Installing And Aligning The Motor Drive Assembly

1) Remove the black screw (horizontal adjustment screw) from its threaded hole near the slot in the baseplate.

2) Locate the motor drive assembly. Orient it with respect to the left side of the microscope so that the curved portion of the drive plate faces forward and up and the cable extends rearward. Place the screw removed from the previous step into the horizontal adjustment slot (slotted hole in the drive assembly bar near the motor).

3) Align the ridge on the bottom of the drive assembly with the grove in the base plate and lower into place. Using the 3mm hex wrench turn in the screw securing the drive assembly to the base plate, but do not tighten.

4) Locate the drive shaft shipped with the motor drive. It is the shaft with the attached gear. Remove the hub clamp secured directly onto the shaft (not the one on the gear) using the 7/64 inch hex wrench. Slide the drive shaft into and through the bearing hole on the drive plate. Slide the hub clamp just removed onto the end of the shaft where it protrudes from the microscope side of the drive plate. Tighten it only to the point where the drive plate can slide forward and backward without significant wobble.

5) Loosen the vertical adjustment screw beneath and to the left of the black plastic encoder housing using the 3mm hex wrench. Loosen it just enough so the drive plate can slide up and down without significant wobble.

6) While sliding in the drive shaft, maneuver the motor drive assembly forward-and- backward, up-and-down, until the drive shaft is axially aligned with the fine focus shaft. Slide the drive shaft all the way over the fine focus shaft. When all the way on, the end of the drive shaft should go inside the anti-backlash gear.

7) Position the hub clamp midway over the slotted portion of the drive shaft (over the fine focus shaft) and tighten in place using the 7/64” hex wrench.

8) Move the motor drive assembly slightly forward-and-backward, up-and-down while rotating the right fine focus knob until the focus knob turns with a minimum amount of added friction. Hold the drive assembly in place and tighten the vertical and horizontal adjustment screws. Check that there is still minimum added friction on the fine focus shaft. Repeat this step if necessary.

6) Using the .050 in hex wrench, loosen the small set screw in the small gear below and forward of the anti-backlash gear. Rotate the anti-backlash gear until the black marks in the gear teeth are visible. Rotate the two gear halves so the black marks are aligned. Slide the small gear forward until it meshes with both anti-backlash gear halves then extends beyond them slightly. It may be necessary to rotate the small gear slightly so the gears can mesh. Tighten the set screw in the small gear.

Part 4 - Installing The Coverplate & Fine Focus Knob

1) Remove the three screws from the edge of the base plate. Locate the motor drive cover plate and install it on the motor drive. The fine focus shaft extension should protrude from the hole in the cover plate and the cable should exit beneath the grommet in the back of the coverplate. Secure the cover plate in place with the three screws just removed.

2) Locate the original fine focus knob. Slide it onto the fine focus shaft extension until there is a small gap between it and the cover plate. Tighten it in place using the 1.5mm hex wrench.

This completes the installation of the ASI motor drive onto the Zeiss AxioLab Microscope.

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