Olympus IX71 Microscope Z-Axis Motor Drive Installation

This procedure steps you through the installation and alignment of the ASI's IX71 Z-axis motor drive onto the Olympus IX71 microscope.

NOTE: On January 2007 Olympus changed the size of the threaded end of their fine focus shaft from 3 mm to 4 mm. Microscopes with serial numbers '7Axxxxxx' and newer, and all 8-digit versions, identify the 4 mm version. The threaded shaft diameter can also be directly measured after the left-hand fine-focus knob has been removed. This installation manual applies to both versions.

Typical diameter of threaded end of Olympus 4 mm fine focus shaft

ASI offers Z-Drives with drive shafts for both 3 mm and 4 mm versions

Threaded diameter of ASI’s 3 mm drive shaft

Threaded diameter of ASI’s 4 mm drive shaft

The following tools are required for this procedure:

- 1/16” Allen wrench (provided)
- 5/64” Allen wrench (provided)
- 3/32” Allen wrench (provided)
- 7/64” Allen wrench (provided)

The procedure has three parts:

1. Removing the left fine focus knob
2. Installing flexible coupling
3. Installing and aligning the motor drive assembly and baseplate.
4. Installing the cover.

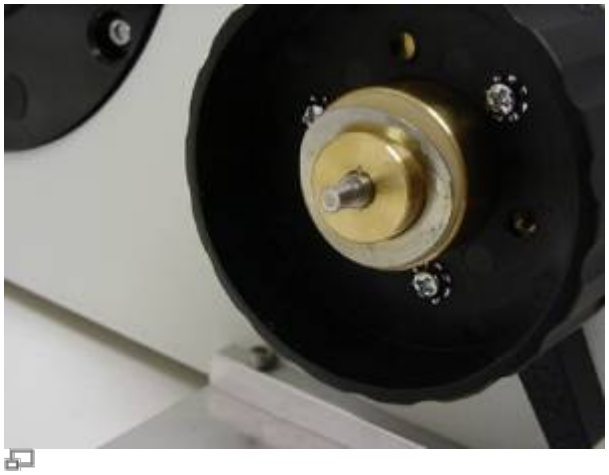
Note: the terms ‘left’ and ‘right’ refer to the sides of the microscope as viewed from the front of the microscope.

Part 1: Removing the Left Fine Focus Knob

- Remove rubber boot, if present. Remove the screw that secures the outer knob to the inner left fine focus knob with Allen wrench. Loosen set screw in knob if present.

Use Allen wrench to remove screw that secures the outer focus knob.

Unscrew inner left fine focus knob while holding the right fine focus knob.



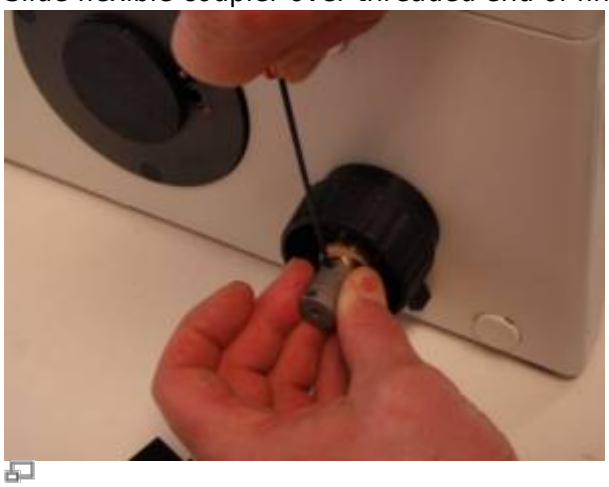
Spring washer on brass shaft can be left in place.

- Once the large knob is removed, remove the inner left fine focus knob by holding the right fine focus knob and turning the inner knob counter clockwise to unscrew it from the shaft. Once it is

unscrewed, note if there is a small silver wave spring washer adhered to it; if so, remove the washer from the focus knob and place it on to the brass assembly located within the coarse focus knob.

Part-2: Installing Flexible Coupling and Baseplate

Slide flexible coupler over threaded end of fine focus shaft while holding right hand knob in place.



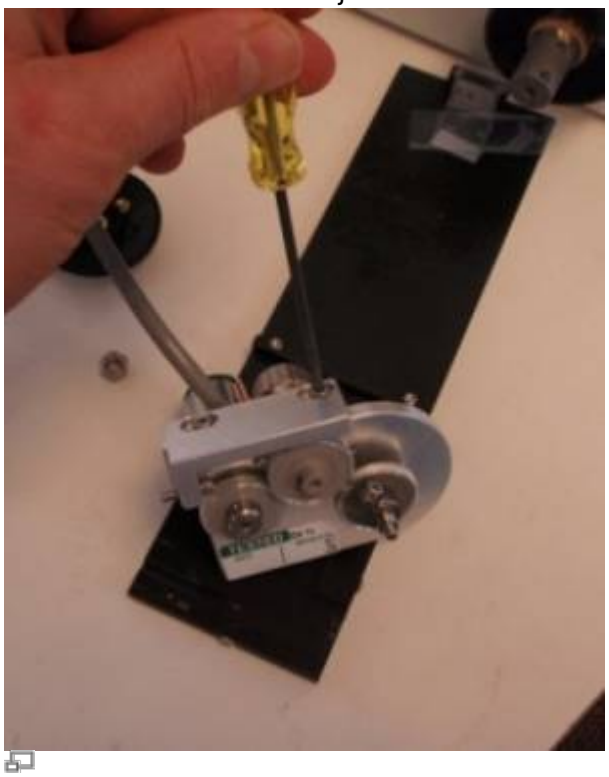
Tighten clamp on flexible coupler while holding right hand knob in place.

Slide flexible coupler over the threaded end of the left fine focus shaft while holding the right fine focus knob in place, and tighten clamp with a 2 mm or 5/64 inch Allen wrench. Ensure that it is pressed all the way against the brass part of the left microscope knob without pushing the right focus knob out on the other side. Check for any play in the focus shaft by pushing and pulling the focus knob as shown on the left – no movement should be evident.

Part-3: Installing and Aligning the Z-axis Motor Drive

- If shipped assembled, use the 7/64 inch Allen wrench and disassemble the Z-drive motor assembly from base plate by removing the horizontal adjustment screw. At this time, also loosen the two vertical adjustment screws.

Remove motor drive assembly from base plate (if attached) by using the 7/64 inch Allen wrench to remove the horizontal adjustment screw.



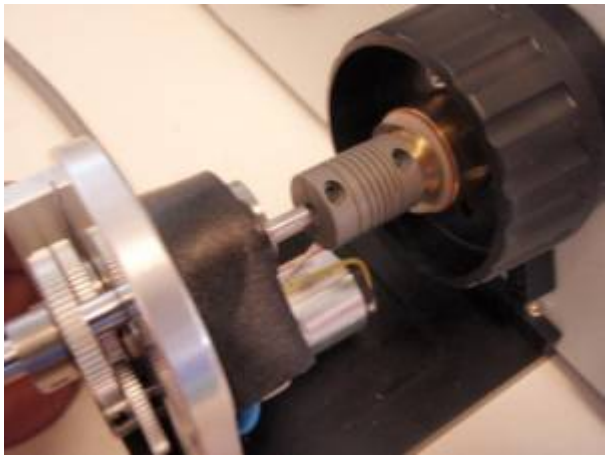
Use the 7/64 inch Allen wrench to loosen the two vertical adjustment screws.

- Slide the baseplate assembly completely under the microscope as shown until the small stop plate located on the baseplate is completely against the side of the microscope. This stop plate should be parallel with the bottom of the microscope. Align the plate beneath the focus knobs.

Slide base plate under microscope and center beneath focus assembly.

Leave base plate clamp loose at this time.

- Leave base plate clamp slightly loose for later adjustment.
- Slide the drive shaft of the motor drive assembly into the flexible coupler.



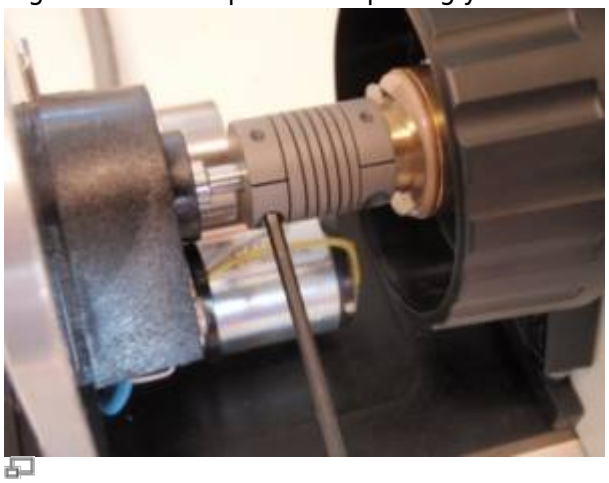
Slide the drive shaft into the flexible coupler.

Coupler accepts about 4 mm of the drive shaft.

Reinstall the horizontal adjustment screw and tighten loosely for later adjustment.

- Rotate the adjustment bar so that the lip on the bottom of the adjustment bar mates with the groove in the baseplate. Align the holes on the adjustment bar to those on the drive and the baseplate, and screw in the horizontal adjustment screw to hold the drive assembly in place using the 7/64 inch Allen wrench. Leave the adjustment screws loose enough so that later the drive can slide up and down and the adjustment bar can slide back and forth within the baseplate.
- After verifying the baseplate and motor drive is appropriately positioned under the microscope, snugly tighten the baseplate clamp on the right side of the microscope. Use the 5/64 inch Allen wrench to tighten the setscrew located in the middle of the clamp assembly as shown. Tightening this setscrew will cause the silver bar to press against the side of the microscope. Ensure that the setscrew is securely tightened to hold the baseplate assembly in place.

Tighten the baseplate clamp snugly.



Tighten the flexible coupler’s clamp onto the drive shaft.

- Tighten the clamp of the flexible coupler onto the drive shaft of the Z-drive unit using the 5/64 inch Allen wrench.

Note: The flexible coupler clamp must be securely tightened or the drive may slip.

- Lightly tighten the vertical and horizontal adjustment screws as shown. Since the motor is usually self-aligning, this should be a good position for the drive. Check the alignment by noting the drag while rotating the right-hand fine focus knob. No noticeable drag should be felt for the full 360º rotation of the fine focus knob. If any drag is felt other than the slight drag of the gears, loosen the vertical and horizontal adjustment screws and move the drive to a point where no drag is felt. Then tighten the vertical and horizontal adjustment screws.

Tighten the vertical adjustment screws after alignment.

Tighten the horizontal adjustment screws after alignment.

Note: there should be no point throughout the 360º rotation of the fine focus knob where an increase in drag is felt. If drag is felt, repeat the above steps.

Part 4: Installing the Motor Drive Cover Plate and Fine Focus Knob

Install cover with screws as shown

Screw on small focus knob as shown.

1. Locate the motor drive cover. Position it over the motor drive assembly and secure in place as shown, using the two small 4/40 screws and 1/16” Allen wrench provided.
2. Screw the microscope fine focus knob onto the shaft extension, as shown, while holding the right fine focus knob. Check to ensure the left fine focus knob does not rub against the cover. If

it does, loosen and move the cover and then re-secure the cover in place after knob rotates freely.

3. Reinstall the large outer knob that was removed in Part One. Replace the rubber boot, if present.

After screwing on small knob, attach the large knob.

Drive and cover installed on the Olympus IX71.

This completes the procedure for installing the ASI Z-axis motor drive onto the Olympus IX71.

zdrive, olympus, ix71