

# Nikon Optiphot Microscope Motor Drive Installation

## Motor Drive Installation

This procedure steps you through the installation and alignment of the ASI motor drive onto the Nikon Optiphot 2 microscope. The following tools are required for this procedure:

Medium screwdriver 3/32, 5/64, 7/64, 1/16 Allen wrenchs

## Preparing The Microscope

In this part of the procedure the left fine focus knob will be removed from the microscope:

Prior to removing left fine focus knob, the microscope stage should be fully lowered. To do this, release the stage lock then rotate the coarse knob to lower the stage all the way down.

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

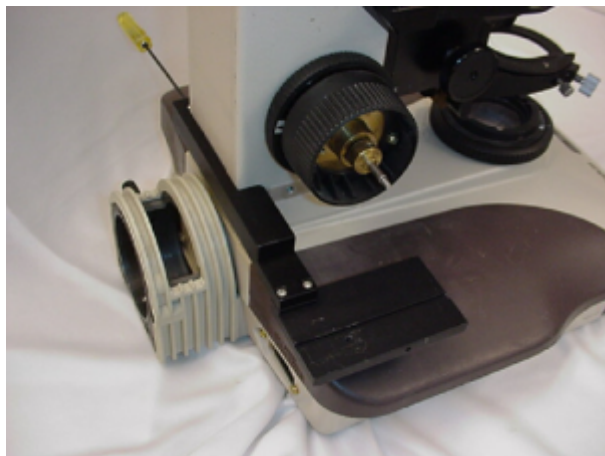




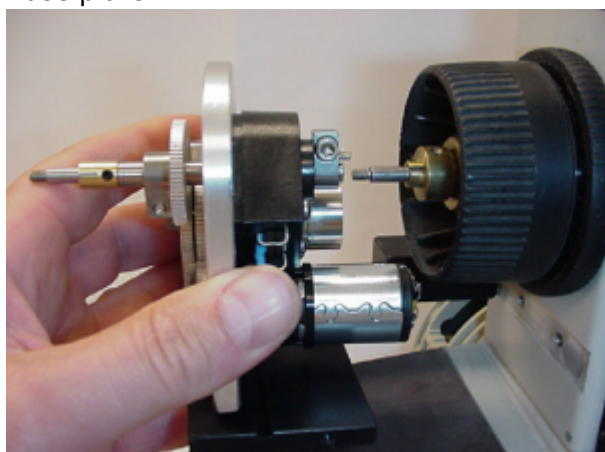
As shown in the above photos remove the rubber boot off of the left focus knob to expose the small slotted nut. Use the screwdriver to remove this nut, and then pull the knob straight off as shown. Do not twist the knob while removing it; insure that you pull the knob straight off, as there are small plastic alignment tabs on it that can be easily damaged by twisting the knob.

## Installing the Base & Drive Assembly

Locate the motor drive, and the back plate.



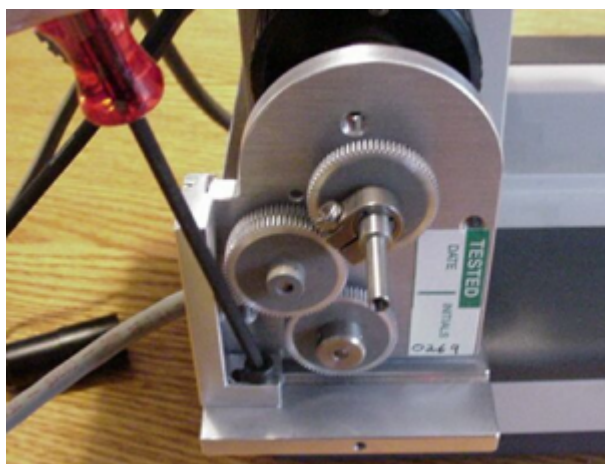
Base plate



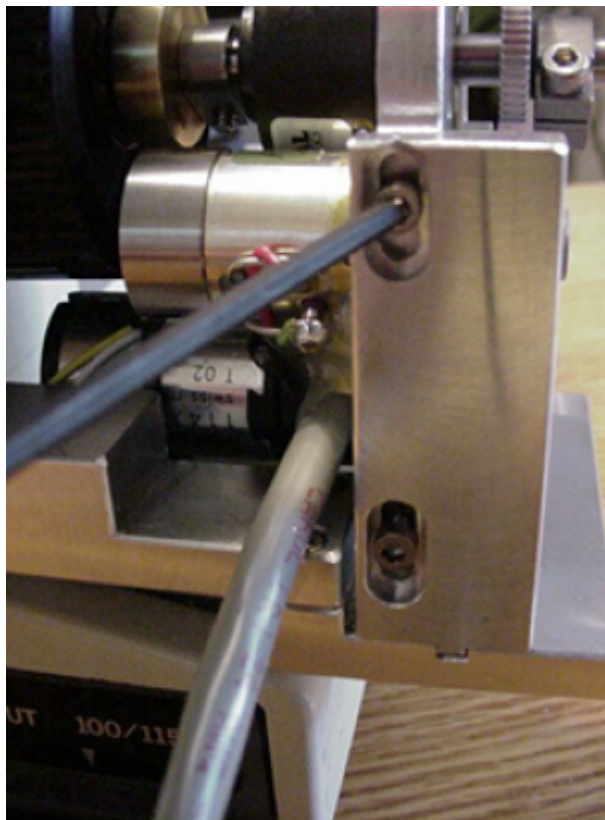
Drive Assembly

In this step we will install the ASI base Plate and motor drive assembly as a unit. The ASI base Plate will be installed and clamped to the back of the microscope as shown only after the motor drive is clamped onto the fine focus shaft of the microscope. Before installing the base Plate and drive assembly loosen but do not remove the horizontal and vertical adjustment screws. When these screws are loosened the motor drive should move freely about in the horizontal and vertical adjustment axis.

Alternatively the drive and the back plate can be installed separately. In this installation the drive is removed from the back plate by removing the horizontal adjustment screw.



Horizontal adjustment screw



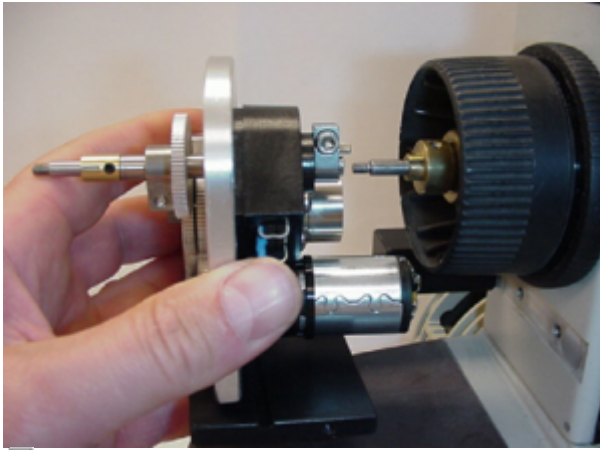
Vertical adjustment screws

## Installing the Drive

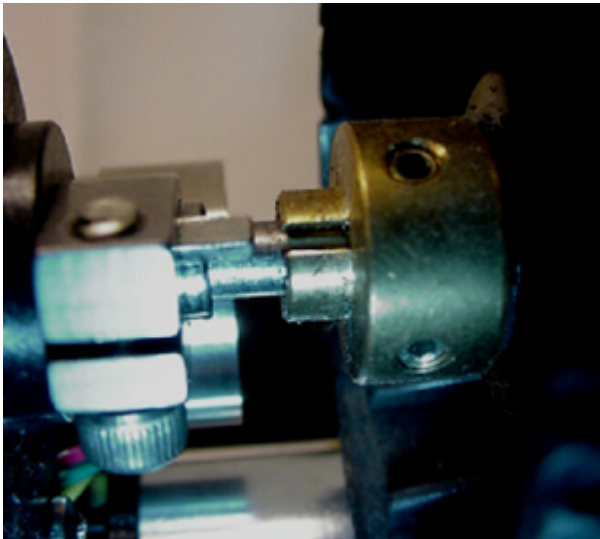
Use the 7/64 Allen wrench to loosen the clamp that is located on the ASI drive shaft. This clamp is located at the end of the drive shaft as it protrudes out of the black encoder cover. Once the clamp is loose slide it back towards the encoder. While holding the right fine focus knob slide the motor drive and back plate assembly in towards the microscope, when the ASI drive shaft is close enough, position the hollow end of the drive shaft (protruding from the black encoder) over the fine focus shaft on the microscope. Orient the motor assembly so that the two shafts are aligned, and then push the motor assembly onto the microscope. If you do not hold the right fine focus knob the microscope's fine focus shaft may be pressed over towards the right of the microscope. If this happens simply push the right fine focus knob in towards the microscope to push the shaft back.

Press the drive onto the microscope until the side of the back plate assembly slides against the side of the microscope, or if installing the drive and back plate separately: push the drive on until the tab on the adjustment bar seats into the groove on the back plate. While holding the drive in place with one hand slide the tab that is extending from the drive clamp into one of the slots on the bass piece that is located on the microscope shaft. Hold this in place and use the 7/64 inch hex wrench to securely tighten the clamp. **Note The Clamp Must Be Securely Tightened or the drive and clutch may slip.**

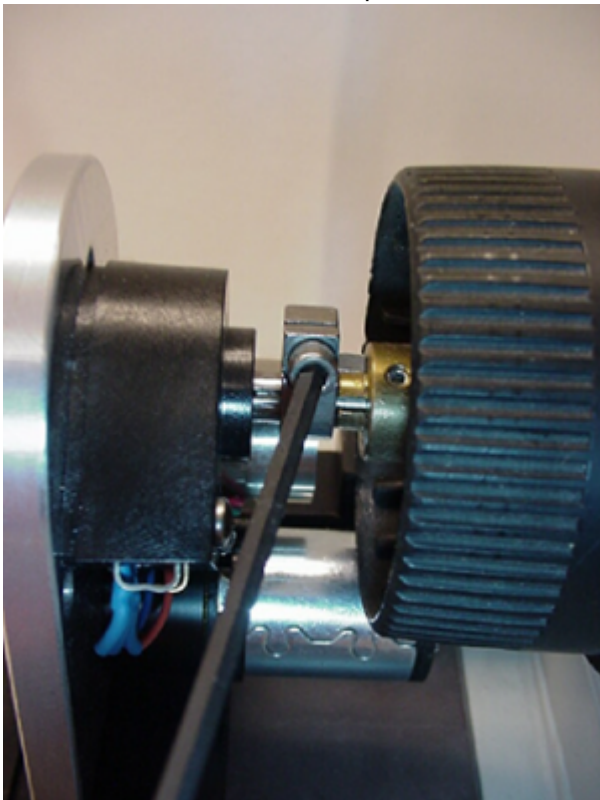




Slide ASI drive over fine focus shaft



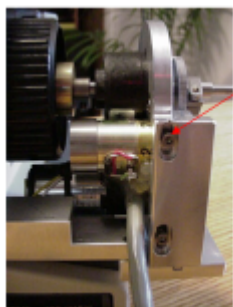
Slide tab into slot on brass piece



Securely Tighten Clamp

## Aligning the drive

After installing & securing the drive to the focus shaft of the microscope the back plate can be positioned and secured. Position the back plate to a point midway along the slots for the two vertical adjustment screws and secure it in place by tightening the set screw to depress the clamp on side of the microscope.

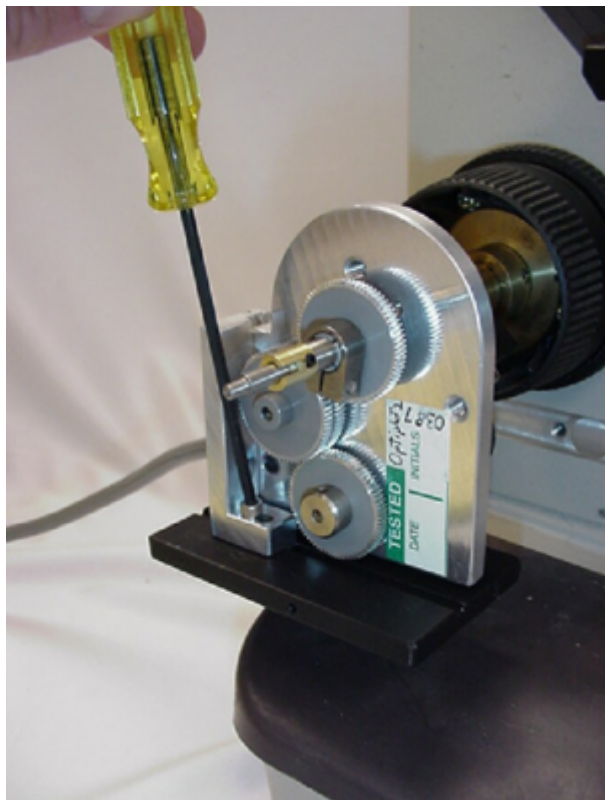


Position back plate so that vertical adjustment screws are midway in slots



Use the 5/64" Allen Wrench to tighten the Base plate clamp at a point where the vertical adjustment screws are midway in the slots

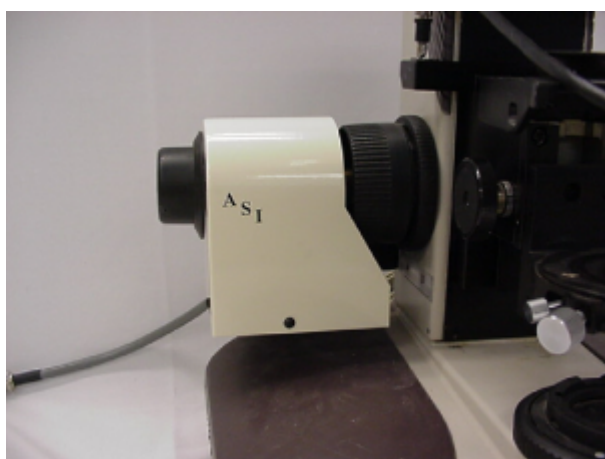
After securing the back plate check for proper drive alignment by rotating the right fine focus knob. The drive is usually self-aligning and when properly aligned no drag is felt, other than that caused by the gears, while rotating the fine focus knob. When the drive is in a position of proper alignment use the 7/64 Allen wrench to tighten the horizontal, and vertical adjustment screws at the position where minimum drag is felt.



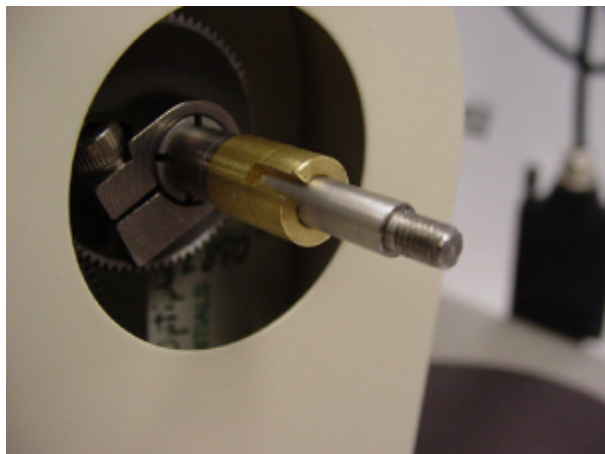
Tighten horizontal adjustment screw after checking the alignment of the drive

Recheck for minimum drag on the fine focus shaft by turning the right fine focus knob. If there is any drag felt at any particular point while rotating the right fine focus knob repeat the alignment procedure by loosening the horizontal, and vertical adjustment screws and repositioning the drive. The drive is usually self aligning , and if realignment is necessary loosen the horizontal, and z vertical adjustment screws and move the drive so that it slides into its natural position and then tighten the two adjustment screws with the 5/32 allen wrench.

## Step 6 - Installing the cover & left fine focus knob



Drive cover and knob installed



Note the tabs on the inside of the plastic knob mate with the slots on the brass piece

Use the 1/16" Allen wrench move the two screws from the edges of the drive assembly. Locate the ASI cover plate. Place it in position over the motor drive assembly and secure it with the screws just removed. Locate the original focus knob that was removed, and slide the focus knob over the protruding end of the drive shaft. Please Note the tabs on the inside of the plastic knob mate with the slots on the brass piece. Use the original slotted nut to secure the knob in place. Install the rubber boot over the knob.

[nikon](#), [optiphot](#), [zdrive](#)

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