Nikon Eclipse 800 Microscope Motor Drive Installation

This procedure steps you through the installation and alignment of the DRV-E800 motor drive onto the Nikon Eclipse 800 microscope.

The following tools are required to install the ASI drive onto the Nikon Eclipse 800 microscope:

Small Phillips screwdriver
Small knife or flat bladed instrument for prying
7/32 or 5.5mm driver wrench (provided)
5/64” hex wrench (provided)
2.5mm hex wrench (provided)
2mm hex wrench (provided)

Motor Drive Installation

The ASI z-axis drive attaches and drives the fine focus shaft of the microscope. The drive assembly is secured to the microscope via a custom ASI base plate that mounts to the microscope utilizing a clamp assembly that secures the base plate to the bottom of the microscope. Precise alignment of the ASI drive onto the fine focus shaft of the microscope is accomplished through a triple axis sliding adjustment bar. Installing the ASI drive assembly involves six steps:

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

Removing plastic cover

Nut to remove

Knob removed

ASI cover installed

Drive gear installed on drive

Removing drive gear from drive

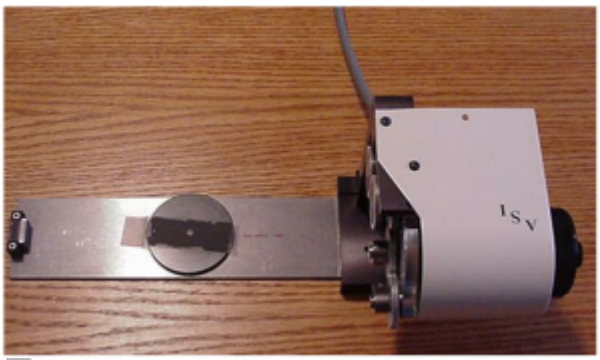
Installing ASI Drive gear

Step 1 - Removing the right fine focus knob, and installing the ASI cover and drive gear

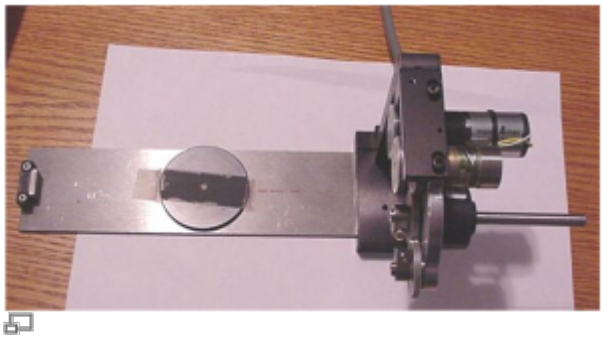
As shown in the above photos use the small knife, or sharp instrument, to pry off the small round black cover located in the middle of the right fine focus knob. Use the 7/32 or 5.5mm driver wrench to remove the nut that is located in the center of the fine focus knob. It will be necessary to hold the left fine focus knob when removing this nut to keep the fine focus shaft from turning.

After the nut is removed remove the right fine focus knob by unscrewing it, counter clock wise, from the fine focus shaft. Please note that it may be necessary to hold the left fine focus knob when removing the right fine focus knob in order to keep the fine focus shaft from turning. After removing the knob locate the ASI cover and install it in place of the cover just removed.

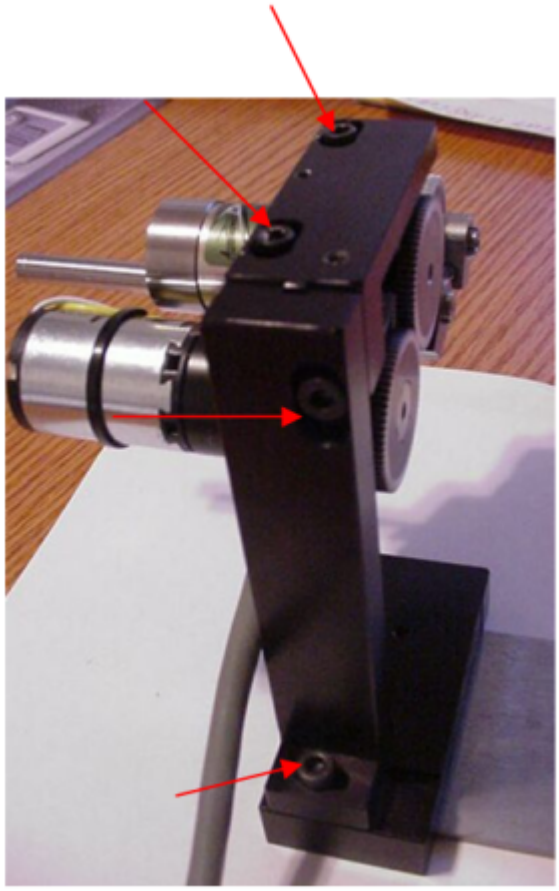
After completely screwing the ASI cover on to the microscope fine focus shaft as shown locate the ASI drive gear, this may be on the ASI drive and will need to be removed from the drive as shown. Loosen the screw on the clamp, and screw it onto the threaded part of the shaft. Insure that the clamp is lose before you try to screw it on. Screw the shaft all of the way onto the microscope then press the gear completely against the microscope / ASI cover. Use the 7/64” Allen wrench to securely tighten the clamp, thus securing the complete assembly onto the microscope.



Drive with cover & knob installed



Drive without knob & cover



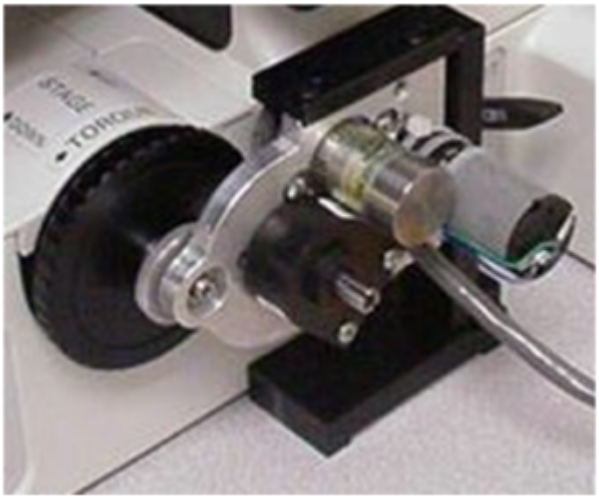
Adjustment Screws(2.5mm hex wrench)

Remove this clamp

Step 2 – Preparing the ASI drive for installation

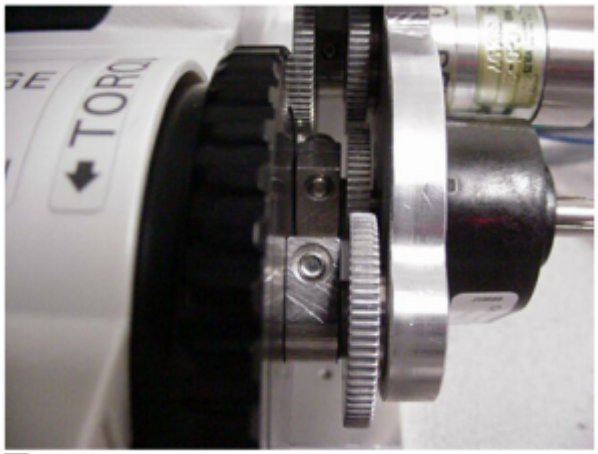
Please refer to the above photographs. Locate the ASI Drive assembly, if the unit has shipped with the knob and cover attached use the 2mm Allen wrench to remove the knob and cover as shown. Loosen

all of the adjustment screws, but do not remove them. They should be loosened just enough so that the drive moves freely in all axis along the base plate. Remove the clamp assembly from the left hand side of the base plate by removing the two screws that secure it. Set the clamp and the screws aside as they will be used in the next step.

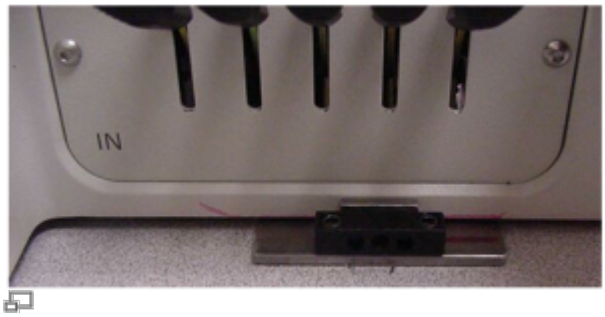


Drive installed

Drive shaft bearing



Drive gear aligns with encoder gear



Install & tighten base clamp (2mm hex wrench)

Install Cover(2mm hex wrench)

Install focus knob(2mm hex wrench)

Step 3 - Installing and aligning the ASI motor assembly

Facing the front of the microscope hold the motor assembly in your right hand and slide the drive plate under the microscope. Align the hollow end of the drive shaft bearing so that it will slide over the drive shaft / gear assembly that you secured to the microscope's fine focus shaft in step #1. Slide the drive in so that the drive gear mates with the encoder gear. Push the drive completely onto the

microscope so that the edge of the black base plate is against the side of the microscope. Once the drive is completely pushed onto the microscope reattach the base clamp that you remove in step #2, and use the 2.5mm Allen Wrench to tighten the set screw in the base clamp assembly. This will cause the silver press bar to squeeze against the side of the microscope and hold the drive assembly securely in place. After the base plate has been secured insure that the gears are properly aligned and that nothing is binding or rubbing.

Step 4 -Aligning the drive

Turn the left fine focus knob and insure that there is no one spot with in the 360 degrees of rotation where any drag is felt. If you feel any drag, slightly move the drive along the horizontal (y axis) and vertical (z axis) to a point where no drag is felt. Since the drive is usually self aligning little or no movement in the x and y axis is required. Use the 2.5mm and 7/64” Allen wrenches to tighten the adjustment screws, that were loosened in step # 2, at a point where no drag is felt. Recheck for minimum drag on the fine focus shaft by turning the right fine focus shaft. Repeat alignment procedure if necessary.

Step 5 - Installing the cover & Fine Focus knob

Locate the ASI cover. Place it in position over the motor drive assembly and secure it with the screws provided. Place the new right fine focus knob over the protruding end of the drive shaft and secure it in place with the two setscrews in the knob.

This completes the installation of the ASI motor drive onto the Nikon Eclipse 800 microscope.

Connecting the Motor Drive to the Controller and Computer

Please refer to the wiring drawings and diagrams given in the manual

Tools Needed:

Small slotted screwdriver

1) Locate the drive cable. Connect one end of the drive cable to the 9 pin connector on the ASI drive that is attached to the microscope and the other end to mating connector on the back of the Controller labeled “Drive.

2) Locate the computer interconnect cable. Connect one end to the mating connector on the back of the Controller labeled “Serial In”. Connect the other end to the appropriate serial output of your computer. For an IBM compatible PC this is typically COM1 through

3) Plug in the MFC-2000 power cord.

This completes the steps necessary to interconnect the ASI motor drive. Please refer to the operation section of the manual before using the MFC-2000 or MS-2000 controller.

nikon, eclipse800, zdrive