Leica Stereo Zoom MZFL III Automated Zoom & Automated Filter Turret Drive Installation Procedure

The procedure below outlines the steps necessary to install the Automated Zoom & Filter Turret Drive onto the Leica Stereo Zoom microscope. == To perform the following steps you will need the following tools: ==

- Medium flat blade screw driver
- 3mm, 5/64, 5/32, 3/32 and 7/64 inch hex wrenches
- The hex wrenches are provided by ASI.

The procedure has three parts:

1. Removing the left zoom knob
2. Installing the automated zoom drive.

3. Installing and aligning the automated filter drive assembly.

Part 1 - Removing the Left Zoom Knob

Remove the left zoom knob from the microscope as follows:

Figure 1: Use screwdriver to remove screw

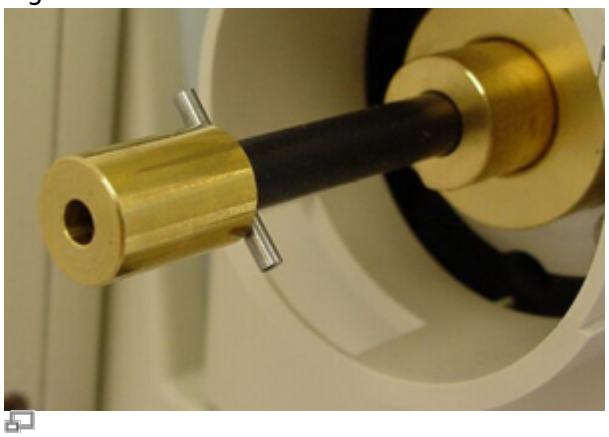


Figure 2: Pull knob straight off to expose shaft

Figure 3: Remove brass piece

1. Use screwdriver to remove screw.
2. Remove knob & brass piece

Part 2 - Preparing The Zoom Drive

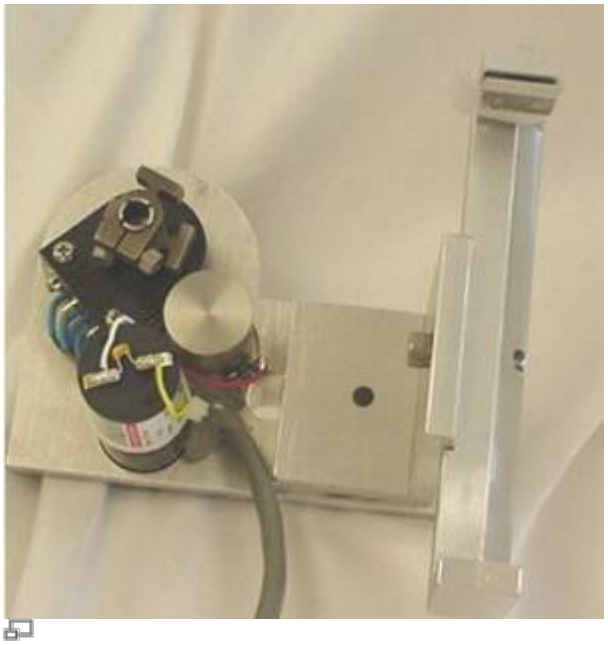


Figure 4: Zoom Drive

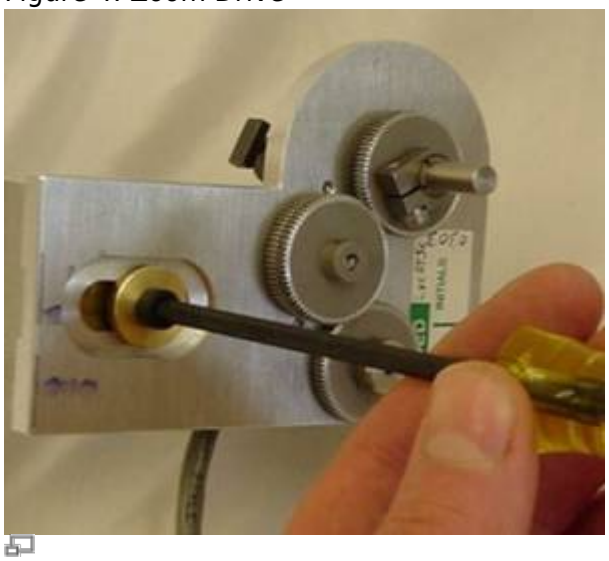


Figure 5: Loosen , but do not remove YZ adj. screw

Figure 6: Loosen , but do not remove X adj. screw

Locate the zoom motor drive & loosen the YZ & X axis adjustment screws as shown in figures 5&6.

Step-3 Installing & Aligning the Motor Drive

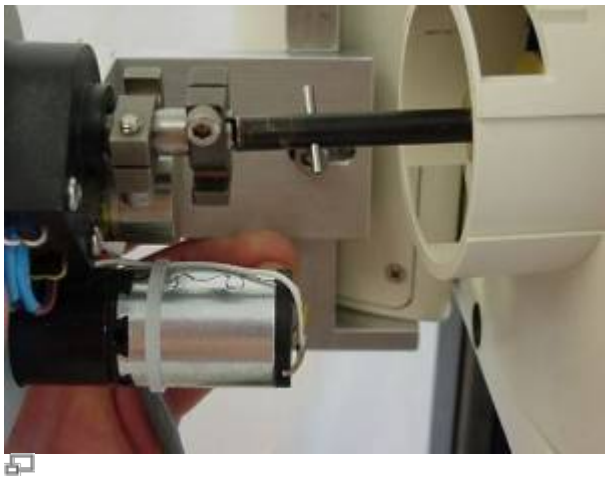


Figure 7: Slide ASI dive shaft over zoom shaft

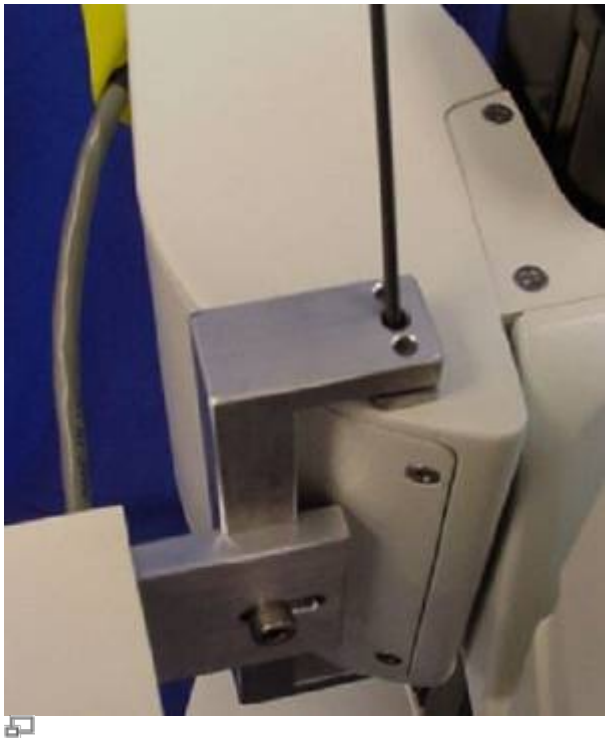


Figure 8: Tighten Clamp to secure drive in place

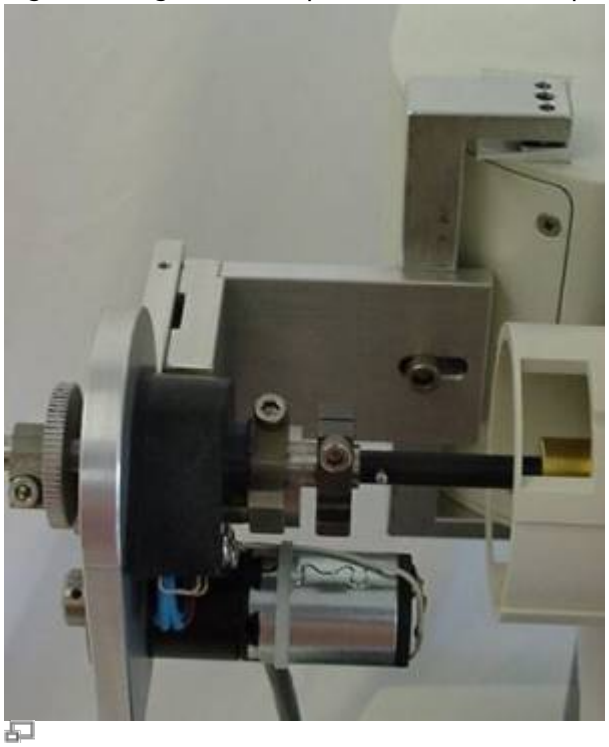


Figure 9: Attached drive

a.) With the XYZ adjustment screws loose (step 2) slide the zoom drive onto the microscope as shown in the above figures. Slide the drive completely on as shown and use the 5/64“ Allen wrench to tighten the clamp as shown to hold the drive in place.

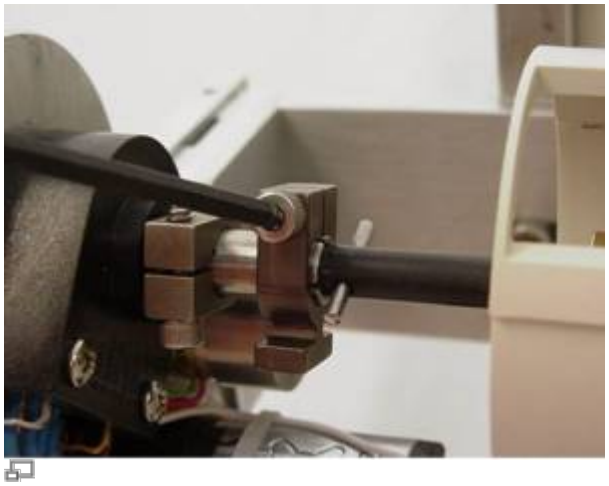


Figure 10: Tightening the zoom drive shaft clamp

b) Use the 7/64 Allen wrench to tighten the drive shaft clamp as shown in figure 10. Please note that this clamp must be securely tightened to insure that the drive will not slip

c) Align the motor drive by moving it up and down, forward and backward slightly while turning the right zoom knob until it is in the position where minimum drag is felt on the right zoom knob. Secure the motor drive into position by tightening the horizontal and vertical adjustment screws as shown in figures 5 & 6.

d) Recheck the alignment by noting the drag on the right zoom knob. No noticeable drag should be felt Repeat the steps above if necessary. Step 4 -Installing the motor drive cover plate & fine focus knob.

Figure 11: Installing cover

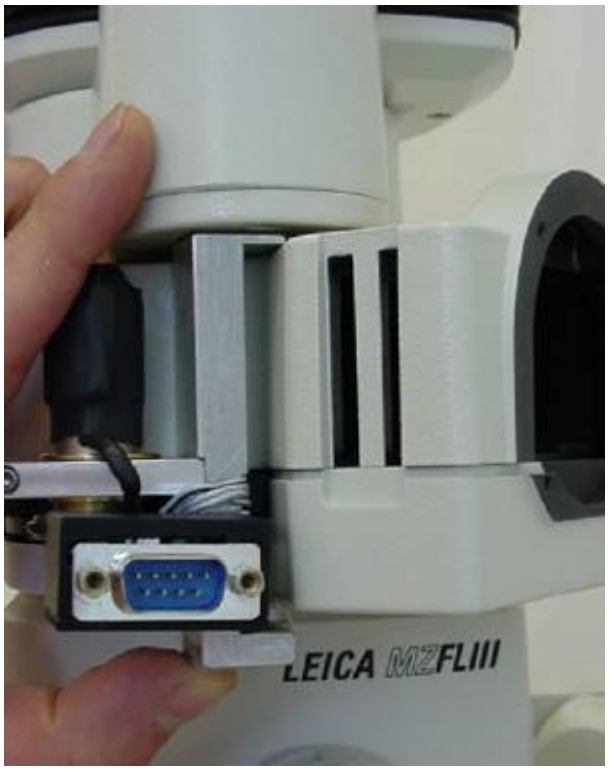
Figure 12: Installing knob

a) Locate the motor drive cover. Remove the 4/40 button head screws from the drive with the 1/16 “ Allen wrench. Position the motor drive covert over the motor drive assembly and secure in place using the 4/40 button head screws as shown in figure 11.

b) Locate the left hand knob an slide it over the shaft extension as shown in figure 12. Please note the position of one of the set screws that secures the knob to the shaft should be aligned with the flat spot on the shaft as shown. Press the knob all of the way on and secure it in place by using the 1/16” Allen wrench to tighten the two set screws.

This completes the procedure for installing the ASI automated zoom drive on to the Leica Stereo Zoom Microscope.

Part 3- Installing and Aligning the Automated Filter Changer



Over View

The filter changer utilizes a Hall-effect sensor with magnets mounted to the filter holders to determine where the motor should stop, and which filter is the home filter position. The magnets must be correctly positioned on the filter holders for correct positioning of the filter. The LCD display shows a '+' when the home (0) sensor is detected; a '-' is displayed when a magnet for any other position is detected. The magnet polarity determines if a '+' or '-' is displayed.

If new magnets need to be installed, be sure to follow this polarity convention. The ceramic strip magnets that are supplied have alternating stripes of magnetic polarity. The magnets must be cut and positioned vertically so that correct polarity is picked up by the Hall-effect sensor. The magnets must then be attached and positioned horizontally on the filter holder so that the motor stops when the filters are in position. This can be accomplished with a little trial and error.

Step 1. Installing the magnets

Figure 1: Magnet installed on filter holder

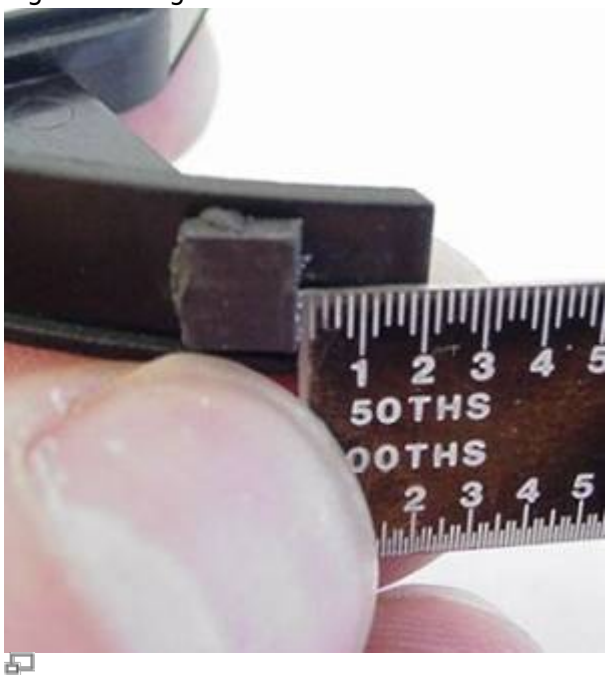


Figure 2: Starting position from end

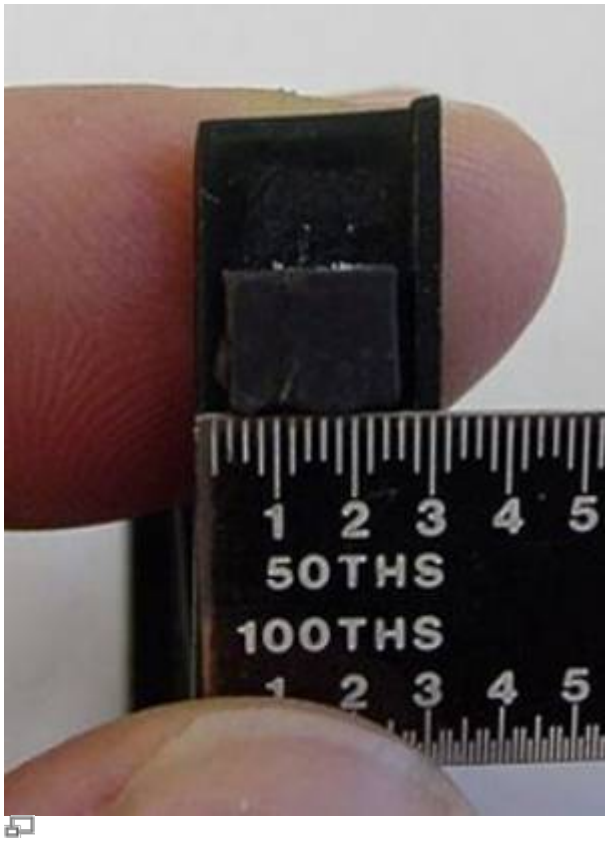


Figure 3: Starting position center

a) The magnets are secured with an adhesive backing. Please Note when installing the magnet Do Not press them on firmly, but rather place them gently on the holder as you may / will have to move them slightly for proper alignment.

b) After installing the magnets as described in the over view and shown in figures 1 - 3 above place the filters in the holders and install the holders into the microscope as described in the microscope manual.

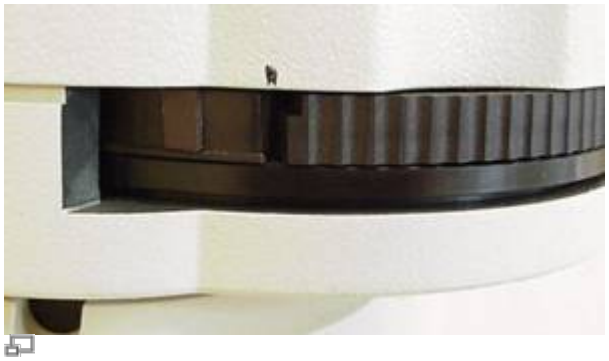


Figure 4: Alignment mark at filter detent

c) It helps to make a mark to signify a reference point when the filter turret is in the detent position as shown in figure 4.

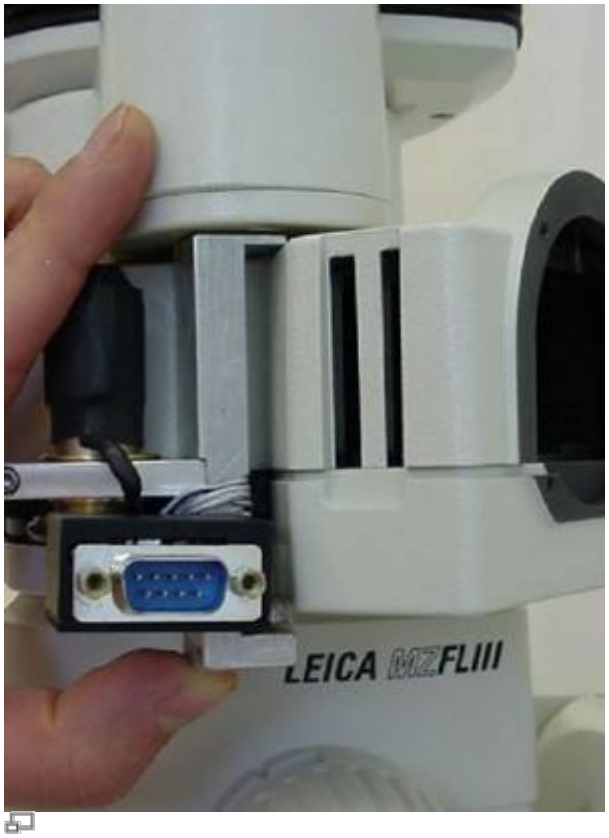


Figure 5: Installing filter drive

Figure 6: Press on until flush

Figure 7: Secure by tightening clamp

d) Install the filter wheel drive as shown in figures 5 - 6 above. Check to make sure that none of the magnets rub against the hall effect sensor on the filter wheel drive by manually rotating the filter wheel. If any of the magnets do rub loosen the clamp and move the filter wheel drive slightly to prevent the rubbing. Retighten the clamp.

Figure 7: Loosen clamp and rotate motor clockwise to engage the rubber wheel with the filter turret

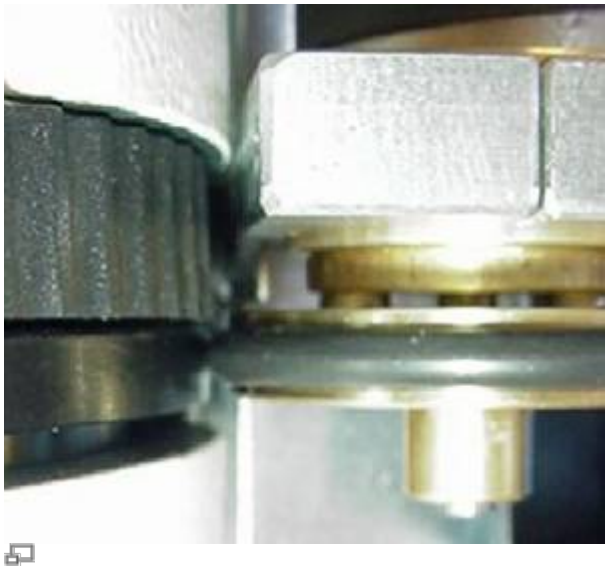


Figure 8: Rubber wheel engaged with the filter turret

e) Use the 3/32 Allen wrench to loosen the screw that clamps the motor in place. Once the motor is loose rotate motor clockwise to engage the rubber wheel with the filter turret as shown in figure 8. Tighten the screw to hold the motor in place

f) Test for the correct positioning of the filter wheel drive by connecting the cables as shown below in figures 9 - 11

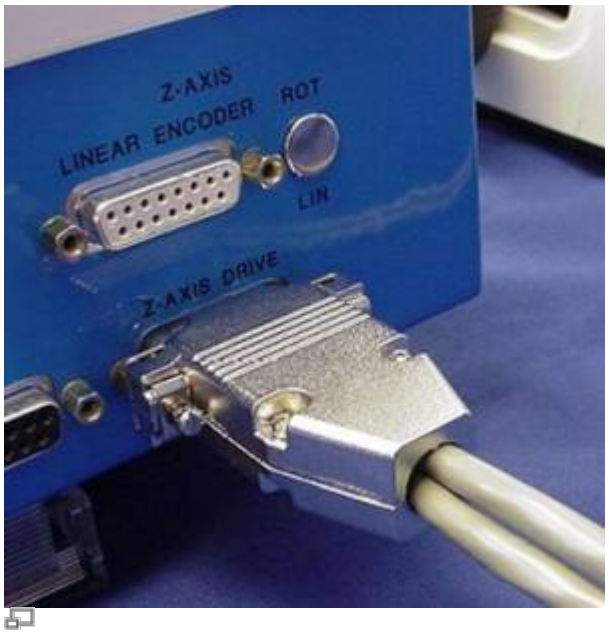


Figure 9: Z-Drive cable connected to controller is for both zoom drive and filter wheel

Figure 10: Zoom drive connection

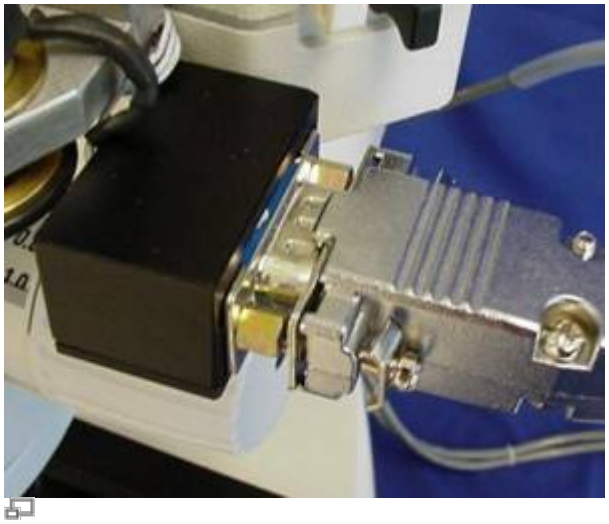


Figure 11: Filter wheel connection

after connecting cables for XY stage, Zoom drive, Filter wheel, Power and Computer control power the controller up. As mentioned the filter changer utilizes a Hall-effect sensor with magnets mounted to the filter holders to determine where the motor should stop, and which filter is the home filter position. The magnets must be correctly positioned on the filter holders for correct positioning of the filter. The LCD display shows a '+' when the home (0) sensor is detected; a '-' is displayed when a magnet for any other position is detected. The magnet polarity determines if a '+' or '-' is displayed.

Press and hold the @ button for a second and then release it. The LCD display should show a '+' when the home (0) filter is located. Pressing the @ button momentarily again should direct the filter wheel to the next detent position, and the LCD display should show a '-' If the magnets are not detected or the home position is not located then reposition the motor drive as outlined in section d until the LCD shows the proper display. If the filter wheel does not settle at the detent position as outlined in section c then the magnets themselves may have to be moved slightly by pressing on them.

The magnets must be positioned correctly on the filter holder so that the motor stops when the filters are in the detent / properly aligned position. This can be accomplished with a little trial and error.

leica, MZFL 3, zdrive, turret