Leica DMLB Microscope Motor Drive Installation

Motor Drive Installation

This procedure steps you through the installation and alignment of the motor drive onto the Leica DMLB microscope. The following tools are required for this procedure:

- small flat blade screwdriver
- small Phillips screwdriver
- 1.5mm hex wrench (provided)
- 3.0mm hex wrench (provided)
- 7/64” hex wrench (provided)

The procedure has three parts:

1. Installing the baseplate.
2. Removing the right fine focus knob
3. Installing and aligning the motor drive assembly.
4. Installing the motor drive cover plate & fine focus knob.

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

Part 1 - Installing the baseplate

1) This step requires that the microscope be inverted, or alternatively, set on its back. 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 or set on its back. Once the microscope is prepared, carefully lift it up and set it gently on its back on a clean soft surface.

2) Remove the two 3x8mm screws that secure the silver colored cover plate on the bottom of the microscope. Leave the plate in place as it should be installed under the ASI base plate. Remove the 3x8mm screw that is locate between the two front feet on the gold colored cover.

3) Locate the ASI baseplate and the 3 new 3 x 10mm baseplate mounting screws.Place the ASI baseplate on to the base of the microscope so that it is over the original cover plates and the mounting holes in the plates are aligned with the threaded holes for the screws just removed. Secure the baseplate in place using the 3 screws provided.

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

Part 2 - Removing the Right Fine Focus Knob

Note: The Leica DMLB fine focus assembly has two positions. If the left fine focus knob is pushed in towards the microscope then one complete 360 degree rotation of the fine focus knob will result in 400 microns of stage movement. If the right fine focus knob is pushed in towards the microscope then one complete 360 degree rotation of the fine focus knob will result in 100 microns of stage movement. You must insure that the right fine focus knob is pushed in so that the focus assembly is in the 100 micron position before removing the fine focus knob and installing the ASI drive. The focus assembly must be in the 100 micron position for the ASI drive to give the proper reading of stage position.

Once the right fine focus knob has been pushed in and is in the 100 micron position the right fine focus knob can be removed. Remove the right fine focus knob from the microscope by loosening the setscrew that secures it to the fine focus shaft with the 1.5 mm Allen wrench.

Part-3 Installing & Aligning the Motor Drive

a) Loosen the screw securing the adjustment bar to the baseplate. This is the horizontal adjustment screw. The adjustment bar is located just to the right of the right focus knob. Use the 3 mm hex wrench. Loosen the screw just enough so that the adjustment bar can slide easily in the groove in the baseplate.

b) Locate the ASI fine focus motor drive. Remove the vertical adjustment screw, M4 x 12 hex screw, which is screw into the right side of the adjustment bar. Use the 7/64 Allen wrench to loosen the two clamps that are located on the ASI drive shaft. One clamp is located at the end of the drive shaft as it protrudes out of the black encoder cover. The other clamp is on the extension shaft a little farther out from the encoder. While holding the right fine focus knob align the

ASI drive shaft with the microscope’s fine focus shaft and slide the ASI drive shaft over the microscope’s fine focus shaft. 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 and come out of the100 micron position. If this happens simply push the left fine focus knob in towards the microscope to push the shaft back the100 micron position. Use care to insure that the fine focus shaft is in the 100 micron position.

c) Rotate the drive plate so that the recesses at the bottom, inside edges of the driveplate align with the keys on the outside edges of the adjustment bar, then press the driveplate towards the adjustment bar until it meshes.

d) Screw in the vertical adjustment screw but leave it just loose enough so that the driveplate can slide up and down. Use the 3 mm hex wrench.

e) Slide the motor drive up and down, forward and backward slightly while turning the right fine focus knob until it is in the position where minimum drag is felt on the right focus knob. Secure the motor drive into position by tightening the horizontal and vertical adjustment screws.

f) While holding the left fine focus knob push the ASI extension focus shaft in towards the microscope so that it presses up against the brass piece on the microscope. Slide the clamp on the extension focus shaft in towards the microscope so that it presses up against the brass piece as well. Using the

7/64 inch Allen wrench securely tighten the clamp on the extension shaft and the clamp on the encoder shaft. Note that the clamps must be securely tightened or the drive may slip.

g) Recheck the alignment by noting the drag while rotating the left fine focus knob. No noticeable drag should be felt. If any drag is felt other than the slight drag of the gears loosen the vertical and horizontal adjustment screws with the 3 mm Allen wrench and move the drive in the x,y, and z axis to a point where no drag is felt. Then tighten the vertical and horizontal adjustment screws. Note there should be no point through out 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 & fine focus knob

a) Locate the motor drive cover. Position it over the motor drive assembly and secure in place using the 3 small 4/40 screws provided.

b) Slide the microscope fine focus knob over the shaft extension and press it on all the way. Secure the knob to the shaft with the 1.5 mm Allen wrench.

This completes the procedure for installing the ASI motor drive on to the Leica DMLB Microscope. Any components that were removed from the microscope in preparation for the motor drive installation can now be reinstalled on the microscope.

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