

Appendix D

Blueprint of the handy laser alignment objective (Halo)

In addition to the housing in Fig. 12 you will need a small, cylindrical laser diode that fits nicely inside the housing, and six hex socket set screws to hold the diode inside the housing through the threaded side holes. Choose a laser diode unit of a safe (preferably adjustable) intensity and a wavelength suitable for your dichroic and filters. A cheaper alternative to machining parts is to assemble commercially available lens tubes to hold the laser diode, however we believe this solid brass piece will be more stable and accurate.

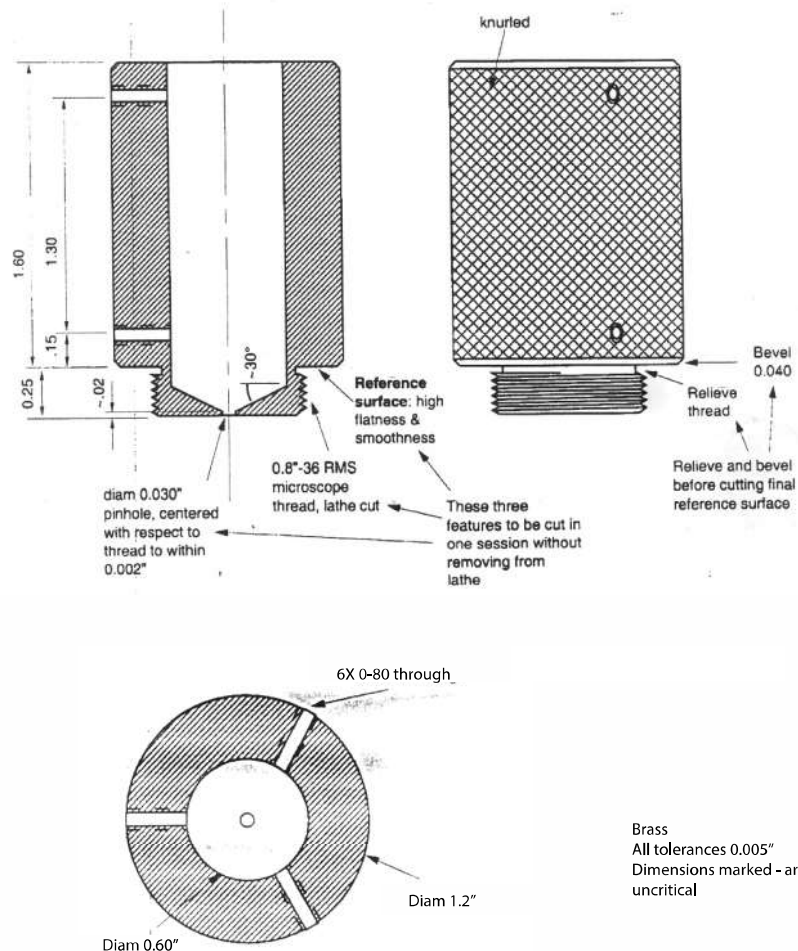


Fig. 12. Original blueprint from the Gustafsson, Sedat and Agard applied microscopy groups at UCSF, of the mechanical housing of the “handy laser alignment objective” (Halo). To users outside the US, we apologize for the Imperial units. (Please note that 0-80 is a thread size.) This drawing is for a microscope with RMS objective thread objectives, if necessary, please substitute to what you are using. You can also use a high precision thread adapter that is flat and true and does not destroy the orthogonality of your beam.

Appendix E

Guide to optical alignment of MFM system

This guide provides instructions for aligning the optics used for our multifocus microscope (MFM). Figure 13 shows how to align the Halo alignment tool, Fig. 14 shows an overview of the microscope in different configurations, Figs. 15-16 show how to align the relay optics, Fig. 17 shows how to align the multifocus optics, and Fig. 18 shows how to insert a square slit to limit the field of view.

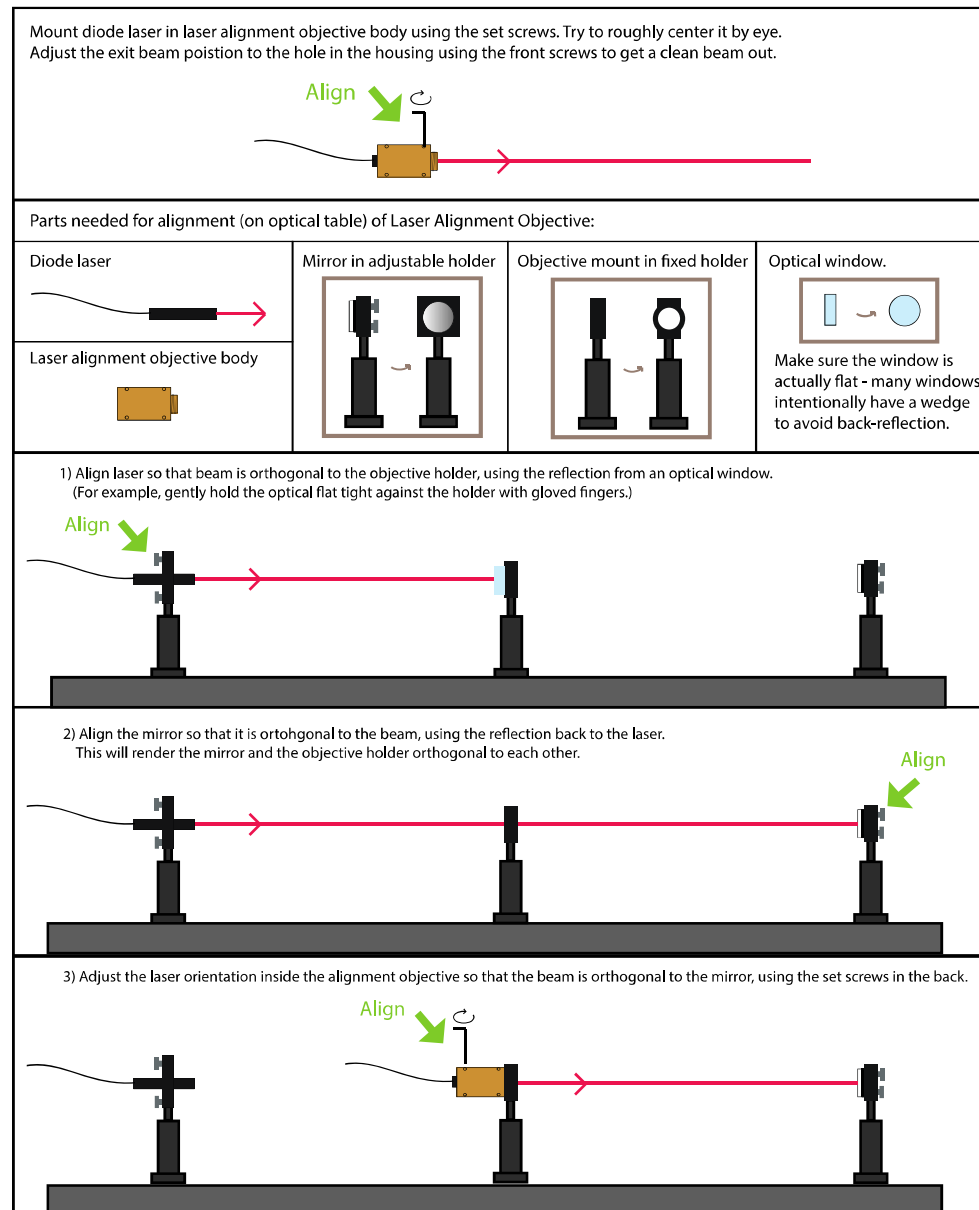


Fig. 13. Alignment of Halo.