

## TECHNICAL TACTICS



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### Replacing the Classic Zeiss Photo Slit Lamp Background Illumination System

#### PROBLEM

The classic Zeiss Photo Slit Lamp can be resurrected by replacing the film body with a digital SLR. Unfortunately, the background illumination flash bulb for these instruments is no longer readily available. This Technical Tactics describes a method for replacing the Zeiss Photo Slit Lamp Background Flash with a modern, commercially available flash unit.

#### PARTS LIST

- Zeiss Photo Slit Lamp background illumination system
- Multi outlet PC adapter (from local camera shop or 00006963 Multiple Sync Adapter, 3x (available from the manufacturer at <http://www.hama.co.uk>)
- Morris Mini Slave Flash 2 (The Morris Company at <http://www.themorriscompany.com>)
- Short nylon screws

#### METHOD

1. Remove all wires, housing, and components of the Zeiss background illumination unit up to the U-shaped black mounting component which is located just above the silver collar that mates the unit to the background illumination bracket (Figure 1).
2. File or mill out the inside of the U-shaped mount until the new portable flash unit fits snugly inside (Figure 2). The Morris Mini Slave Flash 2 was chosen as the closest fit after testing a number of portable flash units.
3. Insert the nylon screws into the upper holes on each side of the U-shaped bracket. Insert the portable flash into the U-shaped bracket, centering the flash tube over the aperture. The nylon screws will hold the flash in place without cracking the hard plastic case, as metal screws might if over tightened (Figure 3).
4. Plug the main flash connector and the cord from the



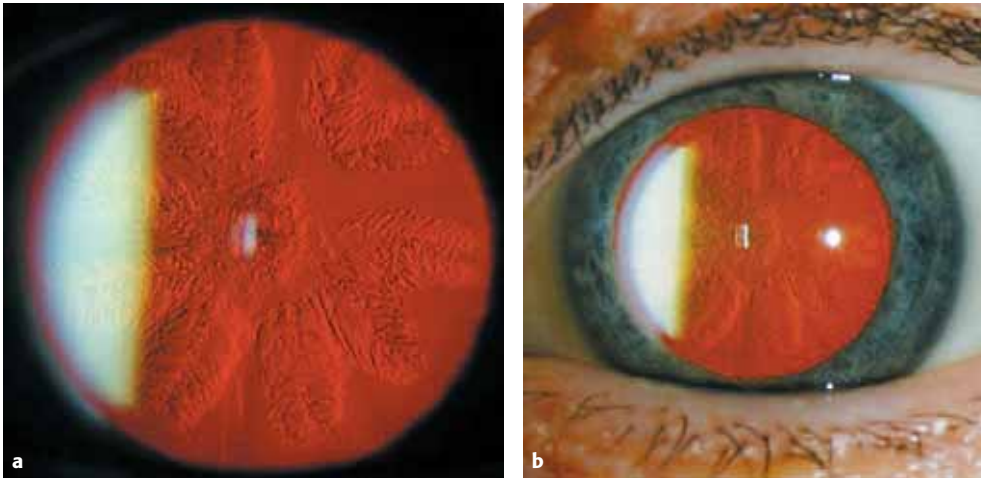
Figure 1: Extraneous components removed.



Figure 2: Remove material as needed to accommodate the flash unit.



Figure 3: The unit is fully assembled.



**Figure 4:** A retinal retro-illumination image of a cataract without fill flash. (a) The same image exposed using the modified background illumination flash. (b)

background illumination system into the multiple sync adapter, then plug the multiple sync adapter into the flash outlet of the camera.

We have used this modification for six months and have found it to be a reliable substitute for the difficult to obtain Zeiss background illumination system (Figure 4)

There are two potential disadvantages of this modification. This procedure removes the tungsten preview light that allows the photographer to evaluate where the background illumination highlight will fall. The issue was resolved by looking at the image on the monitor of our digital slit lamp system (the video out port of the digital camera is connected to a monitor on our digital slit lamp).

A second disadvantage is the battery powered nature of the flash. Using a battery operated flash requires remembering to turn the background illumination off separately from the main power source. This particular flash unit does not have an auto-off feature. We use rechargeable batteries in the new Morris unit to avoid wasting natural resources.

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