120″ Coude′ Secondary
Coating Preparation

Introduction: The Coude′ secondary has well known glass surface blemishes and glass leaching that result in premature coating failure covering at least 50% of the mirrors surface within six months time. As I write this, a coating specialist on campus is working on ideas for a special coating matrix that will be applied in the Lick coating facility. This is probably still a temporary fix while the best solution though most costly would be to replace the glass. In hindsight we have handled this mirror so often recoating and sent it to campus for repolishing at least once that we could have paid for new glass and fabrication work with the wages spent for our labor over the years.

The text and graphics included herein cover only the Coude′ secondary procedures for disassembly and reassembly, cleaning, loading into and out of the tank.

Kostas Chloros examining the 120″ Coude′ secondary with its severely degraded coating.

Safety: As with handling all large optics, extreme caution is needed in protecting the optic surface while protecting the employee from injury from the heavy weight of the glass and chemicals used in stripping, cleaning and coating the optic. Also if the optic is transported outside without a covering, reflected concentrated sunlight can severely damage eyes causing instant blindness and burning of flesh and possible combustion of flammable materials nearby.

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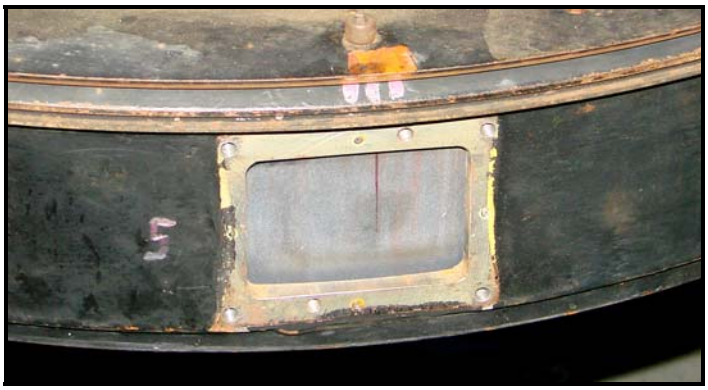
Tools: Allen wrenches, droplight, ⅜″ open-end wrench, mirror removal and flipping fixture, optic “milk stool” and lifting strap.

Below is the optic milk stool (called that because of the 3 legs and possibly named by farm-boy Ron Laub) and to the right is the 120" secondary mirror removal and flipping fixture with mirror, cell, and lifting strap attached.

Mirror Removal: Use the dome crane and spreader bar to lift the secondary assembly off of the storage cage and roll the cage out of the way. Lower the secondary assembly down to a working height and leave suspended by the crane while removing the mirror. Remove two opposite side pads and attach the pivot posts. Now set the mirror and cell into the flipping frame.

Remove the four bolts on the corners. Do not touch the setscrews with locking nuts. They are preset for positioning the glass properly.



Ready to mount the pivot post.

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Strap installed

Set the mirror onto the wooden flipping frame. Unscrew the three suspension bolts from the back of the glass.

Support the weights with your hand while loosening the suspension bolts

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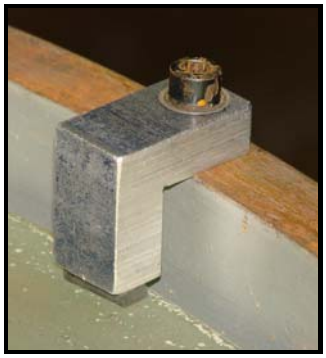
Remove the bolts holding the cell to the secondary frame and move the secondary frame out of the way.



Four safety clips must be installed to hold the mirror when to enable flipping the mirror over. There should be foam on each clip surface that touches the glass for padding.

Bottom view of secondary frame with the mirror cell removed.

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Set the mirror on the stool and remove the four safety clips and remove the cell.

A shortcut would be to place the mirror on wood blocks that were placed on the washing cart and remove the clips and raise the cell and begin the coating prep.