

# INSTALLING SMALL MIRRORS INTO THEIR MOUNTS

## 4-12 Inch Mounts

### A. INTRODUCTION

During the mounting of any optical substrate, extreme care must be used to protect the mirror. Cautions have been included in the instructions which point out common pitfalls in mounting a mirror. Several other cautions are listed below covering general care of optical substrates.

### CAUTION

- I. Never wave or pass any object over an optical surface.
- II. Empty shirt pockets before leaning over any mirror.
- III. Wear white cotton gloves when handling coated optics.
- IV. Never speak toward coated optics. (Saliva, i.e., tannic acid will etch many coatings.)
- V. Never tighten a bolt hard unless it is known that pressure is not being applied to the optical substrate.

**NOTE:** Optical glass, especially ceramics such as Zerodur are brittle substrates and are susceptible to chipping.

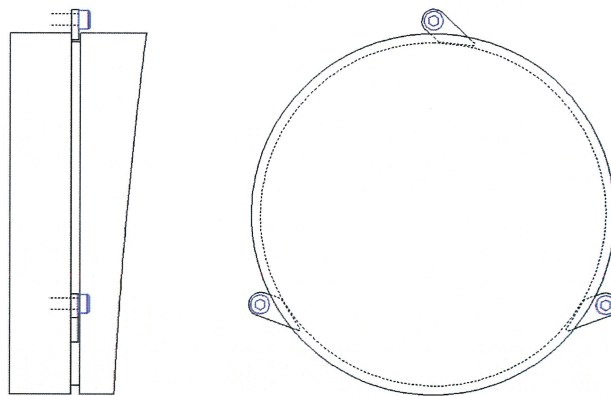
### B. MOUNT PREPARATION

1. Turn the leveling screws counter-clockwise until they are no longer supporting the mount.
2. Remove the three positive locking screws for the dust cover and the dust cover itself from the mirror cell. Also, remove all masking tape used to secure parts during shipping. Do not remove the three fiberglass tape pads from the push rings.

## SORL Mounting Instructions (4-12 inch mounts)

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3. Turn the three set screws on the back of the mirror cell counter-clockwise until they do not protrude inside the cell.
4. Orient each of the fiberglass tape pads on the push ring collinear with a set screw and a retaining clip on the perimeter of the cell.
- 5.\* (For 10" & 12" Mirrors ONLY!) Place the two phonolic edge supports rounded-side down in the lower two grooves of the mirror cell.



6. The groove in the side of the mirror is precisely positioned so that the optical front surface is not contacted. The mirror will eventually be pushed forward against three clips that protrude into this groove. The three point support on the rear surface of the mirror and the edge supports are the same for wedged or non-wedged mirrors.

The bottom surface of the mounts are a three point support. With the leveling screws backed out, the mount rests on the three precision flat washers. This provides a reference plane for rotation of the optical axis for off-axis aspheres. This feature is necessary for reference to SORL alignment flats.

- 7.\* (For 10" & 12" Mirrors ONLY!) **METHOD:** Slide the lower edge supports forward in their grooves. Tap them into position after the mirror rides them into the cell.

**CAUTION:** Method (7\*) requires tapping near the surface of a brittle substrate.

**C. LOADING THE MIRROR**

1. Orient the vertex side of the mirror appropriately and insert the mirror into the mount.

**CAUTION:** Care must be taken not to wedge the mirror in the cell.

- 2.\* (For 10" & 12" Mirrors ONLY!) When the mirror is flush against the back of the cell, slide the top phenolic edge-support into its groove in the top of the cell. Do not tighten the set screw above the edge-support until the mirror has been accurately clocked (Step D).
3. Bring the mirror forward using the three set screws on the back of the cell until the retaining clips will swing into the groove in the side of the mirror.
4. Swing the retaining clips into the groove and firmly tighten them.

**CAUTION:** Be sure that the glass is not being squeezed. (i.e. Back off the pressure plate screws before tightening the retaining clip screws.)

**NOTE:** The clips should not be pressured hard against the side of the mirror so that rotation will be possible.

**D. SETTING ROTATION (CLOCKING)**

Level the two pencil marks on the chamfer of the mirror to within .010" using a pointer (or height gauge), then tighten the top set screw.

**CAUTION:** Care is needed when using pointers near the surface of a mirror.

**E. FINAL INSTRUCTIONS**

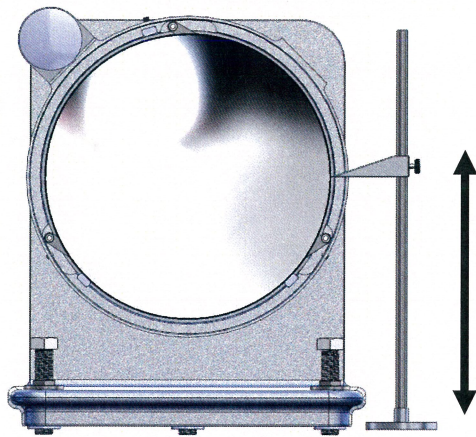
Bring the mirror forward against the clips using the pressure plate screws on the back of the cell.

**CAUTION:** Over-tightening of these screws will cause distortions in the mirror figure. They should be no more than "finger tight". (i.e. Just enough pressure to secure the mirror against the front clips.

\* 10-in and 12-inch mounts only.



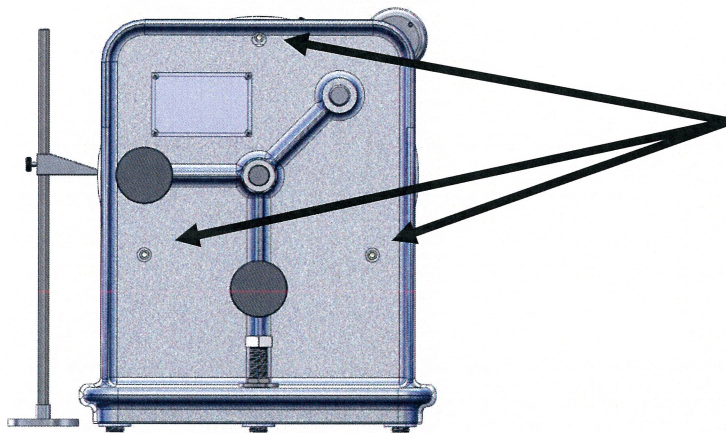
# MIRROR ROTATIONAL ADJUSTMENT



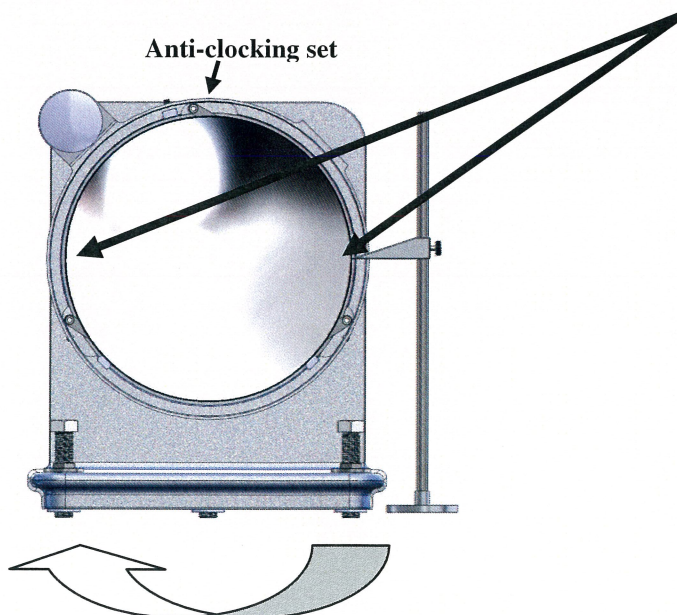
**1. Pointer height to be set to the Mirror Mount centerline**

## Standard Mounts

4"	5.00" centerline height
5"	6.50" centerline height
6"	6.50" centerline height
8"	6.50" centerline height
10"	9.00" centerline height
12"	9.00" centerline height



**2. To perform fine rotational adjustments, loosen the three set screws in the rear of the mirror cell.**



**3. The OAP is rotated in the mount until the pencil marks on the inner and outer edges are equidistant from the reference plane.**

**4. Once rotational adjustment is complete, lightly tighten the three set screws in the rear of the mirror cell and the top anti-clocking set screw.**