

**SP 14098**

REVISION:

DATE REV: 10/06/04

PROJECT: MAESTRO



# PROCEDURE

## FOR PRISM ALIGNMENT

SP14098

**Prepared By:** Michelle Reed

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### APPROVALS:

Optical Engineer: Michelle Reed Date: 10/06/04

Mechanical Engineer: Scott Mathews Date: 10/06/04

Program Scientist: Jill Bechtold Date: 10/06/04

Released By: Greg Landis Date: 10/06/04

This procedure outlines the process of mounting the Prism into its cell. All other alignment of this part into the assembly is covered under SP14099.

## **Equipment needed:**

Scotchweld 2216 structural adhesive (grey)  
CMM machine  
Gauge blocks  
Shims  
Calipers  
Gloves-Latex  
Lens Cloth  
Gauge blocks  
Shimstock

## **Drawings**

13285 Prism Cell Assembly  
13286 Prism Front Baffle  
13287 Prism Rear Baffle  
13288 Prism Flexure Ring Weldment  
13478 Tip/Tilt Adjuster  
13700 Prism Flexure Ring Mounting Flange

1. Wear latex gloves for the duration of this procedure.
2. Clean the surface of the CMM table with acetone. Place a lens cloth on the surface of the CMM table.
3. Place the prism on the lens cloth so that surface 1 is facing down. Surface 1 is the side that has the repaired chips. See Figure 1.

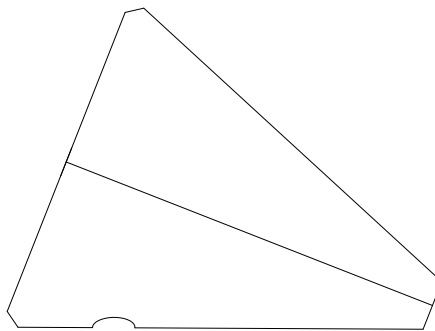


Figure 1- Orientation of the prism on CMM table.

4. Using the CMM, characterize the prism and the plane of the center of mass for the prism. Mark this position on the edge of the prism, at regular intervals with a fine tip sharpie marker. A small dot will do. This will assist in the placement of the weldment. Refer to Figure 1 above.
5. Carefully lower the Flexure ring weldment over the prism, with the pads facing down. Refer to Drawing 13288. Shim the positioning of the weldment with gauge blocks and shims until it is roughly concentric with the prism, and the pads are roughly centered on the center of mass of the prism, taking care not to bend the pads. It should be noted that there is very little clearance between the pads and the prism.
6. Characterize the position of the weldment with the CMM, and compare information for irregularities with the concentricity or alignment with the center of mass.
7. Shim the weldment until the height of it is consistent to have the pads at the center of mass to within the tolerance listed in table 1. See figure 2.

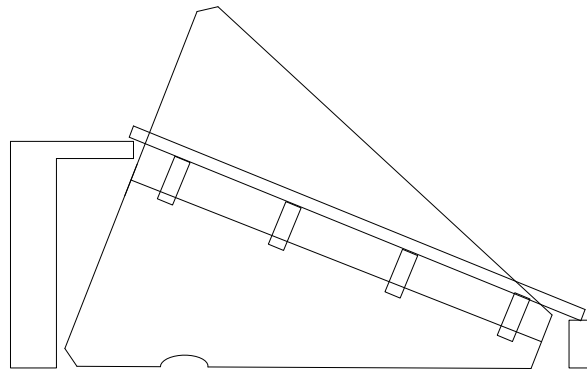


Figure 2- shimming of weldment to center of gravity

8. Adjust the weldment radially in small increments until it is concentric to the prism to within the tolerances specified in Table 1.
9. Mix the 2216 adhesive per the manufacturer's instructions. Using the dispenser gun with a 14 gauge tapered tip, apply a 0.008" glue bond to the pads and adhere them to the prism.
10. Allow the glue to set without movement. A slight radially symmetric clamping force must be applied to the pads to keep them firmly pressed against the edge of the prism, until the cure is strong enough for movement of the part. The manufacturer's instructions state that the full cure time for 75 degrees F is 7 days. The cure time

increases with decreasing temperature. Cure and label 2 witness samples, one that is an equivalent thickness of the bond, and one that is thicker than the bond.

11. Once the prism/weldment cure has hardened thoroughly, mount the prism to the prism flexure ring on the space-frame with the tip tilt adjustment screws.
  
12. You have now completed the mounting of the prism into its cell. See assembly procedure SP14099 for the fine alignment of the prism to the collimator system.