



CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

PFR No. E978035-00-0

PROBLEM DATE 4/4/97

PROBLEM/FAILURE REPORT (PFR)

| PART No. or SPEC./DRG. No. | REF. DES. | NAME | SER. No. | OPER. Hrs. |
|----------------------------|-----------|--------------------------|----------|------------|
| D960790-A-D | | Folding Mirror Substrate | FM01 A | N/A |
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ORIGINATION

DESCRIPTION OF PROBLEM/FAILURE

CSIRO reports that one of the four registration marks is mislocated. The mark in question is 90 degrees clockwise from the the low point on the wedge when viewed from above. The mark is inscribed 55 minutes (about 2 mm) away from the correct position. The drawing tolerance is ± 15 minutes.

ORIGINATOR GariLynn Billingsley DATE 4/16/97 COGNIZANT ENGINEER GariLynn Billingsley

VERIFICATION

VERIFICATION AND ANALYSIS

Options: 1.) Leave the mark as is and provide data on its precise location. 2.) Without repolishing and regrinding the cylindrical surface, inscribe a second mark at the correct location and put some designation on the first mark to indicate that it is mislocated. 3.) Regrind and repolish the cylindrical face, and relocate and inscribe all four registration marks.

The side registration marks are used during suspension for alignment of the wedge. Option 2 alerts the user to the problem. Since the IFO is not extremely sensitive to the Q of the Folding Mirrors it is deemed acceptable to leave an "extra" registration mark on the mirror.

ANALYSIS REPORT No. PERSON COMPLETING THIS SECTION GariLynn Billingsley DATE 4/16/97

ACTION & CLOSE OUT

CORRECTIVE ACTION TAKEN AND DISPOSITION OF HARDWARE/SOFTWARE (IDENTIFY SERIAL/VERSION NUMBERS)

Etch or grind a fifth registration mark on Folding Mirror FM01 A so that there are four correctly located registration marks. Etch or grind a small designation on the incorrect mark which clearly indicates that it is in error.

DCN No. Waiver/TDM No. TDM 97-004, LIGO-C970546-00-D

REVIEWED BY TECHNICAL BOARD? No Yes (If yes, enter date)

SAFETY, COST, SCHEDULE, REQUIREMENTS IMPACT? No Yes (If yes, enter Change Request number)

APPROVAL

| APPROVALS: | DATE | OTHER APPROVALS (specify) | DATE |
|---|-----------|---------------------------------|---------|
| COGNIZANT ENGR G. BILLINGSLEY <i>G. Billingsley</i> | 4-16-97 | | |
| TASK LEADER J. CAMP <i>Jordan Camp</i> | 4/16/97 | | |
| GROUP LEADER S. WHITCOMB <i>S. Whitcomb</i> | 4/16/97 | | |
| QUALITY ASSURANCE W. TYLER <i>W. Tyler</i> | 16 Apr 97 | DCC RELEASE: <i>[Signature]</i> | 5/14/97 |

Distribution for Problem/Failure Report, LIGO-E970053-00-D

B. Althouse

B. Barish

G. Billingsley

C. Camp

M. Coles

D. Coyne

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