STEREO IMPACT

PR Numbers: 1xxx=UCB, 2xxx=Caltech/JPL, 3xxx=UMd, 4xxx=GSFC/SEP, 5xxx=GSFC/Mag, 6xxx=CESR, 7xxx=Keil, 8xxx=ESTEC, 9xxx=MPAe

Assembly : SIT Instrument	**SubAssembly : telescope/atof harness**
Component/Part Number:	**Serial Number: 01**
Originator: Mason	**Organization: UMd**
Phone : 240-228-2805	**Email : glenn.mason@jhuapl.edu**

Failure Occurred During (Check one √)

□ Functional test x Qualification test □ S/C Integration □ Launch operations

Environment when failure occurred:

□ Ambient □ Vibration □ Shock □ Acoustic
□ Thermal □ Vacuum x Thermal-Vacuum □ EMI/EMC

Problem Description

Post environmental testing alpha tests performed on FM1 SIT on 5/20/2005 indicated that the instrument was not performing properly.

Analyses Performed to Determine Cause

The start and stop cables were disconnected from the ATOF board, and run outside the vacuum chamber so that they could be displayed on a fast scope. The instrument was then pumped down, and the oscilloscope display of the start and stop signals examined on 6/1/05. The signals showed that the "stop" signal was arriving before the "start" signal, ie the cabled appear to have been interchanged.

Start & Stop connections between the telescope and the ATOF board were interchanged. This was fixed temporarily using approx 10" long extension cables (the two flight cables were too short just to switch connectors). Another alpha run was taken on 6/3/05, and showed correct results, confirming that cable switching was the problem. There was no stress to the hardware due to the incorrect cabling. The FM2 unit did not have this problem.

Corrective Action/ Resolution

x Rework □ Repair □ Use As Is □ Scrap

1) The cables were correctly labeled "start" and "stop", however, they had been plugged into the incorrect inputs to the ATOF board. Discussions with Peter Walpole and Sandy Schuman did not resolve the issue of where or when the switch occurred. There was a successful alpha run at UMd on 5/1/05, but this was done with extension cables (so that the tof signals could be examined on the fast scope outside the vacuum chamber). Therefore the flight cables were connected after this, so it is not clear whether the switch occurred at UMd or GSFC.

2) On 6/13/05, the staking holding the MCP (and SSD) cables was removed from the top of the HV box. This gave enough flexibility to allow the start and stop cables to be plugged into the correct input. The cables were connected.

3) The unit was put in vacuum in Bldg 14 thermal area on 6/13 and pumped down overnight. An alpha run taken on 6/14/05 showed correct operation. The unit was removed from the chamber and brought back to the Bldg 2 clean area.

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Date Action Taken 6/14/2005 **Retest Results**:_____Successful alpha run_____
Corrective Action Required/Performed on other Units ☐ Serial Number(s): ___n/a_____

Closure Approvals

Subsystem Lead:	_____	Date:_____
IMPACT Project Manager:	_____	Date _____
IMPACT QA:	_____	Date:_____
NASA IMPACT Instrument Manager:	_____	Date:_____