

# STEREO IMPACT

PROBLEM REPORT

PR-1038

FM1 SWEA Harness

2005-03-03

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

Assembly : <b>IMPACT Boom</b>	SubAssembly : <b>SWEA pig-tail</b>
Component/Part Number:	Serial Number: <b>FM1</b>
Originator: <b>David Curtis</b>	Organization: <b>U.C. Berkeley</b>
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## Failure Occurred During (Check one )

Functional test       Qualification test       S/C Integration       Launch operations

## Environment when failure occurred:

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

## Problem Description

After 'Final' integration of the FM1 SWEA to the FM1 IMPACT boom it was found that the SWEA was no sending or receiving information from the IDPU. It was taking nominal power and the temperature reading was OK. Note that this system was working fine at the time of the IMPACT EMC test in October, but SWEA was removed after that for vibration and thermal vac.

## Analyses Performed to Determine Cause

SWEA interfaces to the IDPU over a serial interface via a harness built into the boom plus a harness between the boom and the IDPU. The IMPACT boom harness includes a pig-tail that brings interface signals and power to the SWEA instrument. This pig-tail is mated to SWEA when SWEA is attached to the boom. It is a 6" rigid harness due to the shield overwrap.

It was determined that the interface signal was intermittent depending on the orientation of the SWEA pig-tail. Inspection of the pig-tail showed that it was built with the wrong connector orientation such that it was twisted 180 degrees when the connector was mated, stressing the wires. The pig-tail includes splices between the MDM connector and the small coaxes in the boom harness. The splices were carefully inspected under magnification and the splice of the shortest length wire was found to be broken. Note that nothing was stressed electrically by this condition.

## Corrective Action/ Resolution

Rework       Repair       Use As Is       Scrap

The broken splice (CLK on pin 11) was repaired on harness connector SWEA-P1 and the harness was replaced so that the connector orientation is correct. The big improvement to the harness was dressing the harness correctly so it does not have to be twisted/stressed. Continuity was verified while the harness was flexed over the range of motion required for mating SWEA. SWEA was re-mated and the SWEA to IDPU test was repeated.

Beyond removal of SWEA and the repair, no disassembly of the boom was required. The boom and SWEA were environmentally tested separately. We do not intend to repeat boom environmental tests.

Date Action Taken: 3/3/2005 Retest Results: Success

Corrective Action Required/Performed on other Units       Serial Number(s): The FM2 SWEA pig tail was inspected and does not have the connector orientation problem

## Closure Approvals

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

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