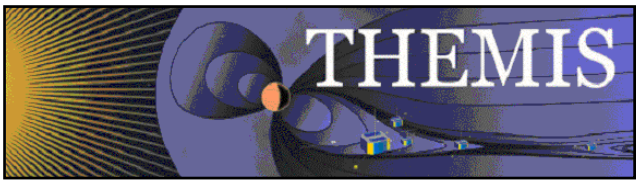

Problem/Failure Report
THM_PFR_224

PFR-224 Title: SCM MagBoom did not deploy during post-env. CPT

Assembly : Mag Booms	**SubAssembly :** SCM	
Component : Frangi-bolt	**Units Affected:**	**Units fixed:**
Originator: Ellen Taylor	- X - - - -	- X - - - -
Organization: UCB	**Date:** 8/16/06 (date found)	
Phone: (510) 643-4054	**Email :** ertaylor@ssl.berkeley.edu	

Failure Occurred During (Check one √)

√ Functional test □ Qualification test □ S/C Integration □ Launch operations □ Other (Flight Assy)

Environment when failure occurred:

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

Problem Description

The FGM and SCM Magnetometer Booms on all Probes were fired as part of the post-environmental CPTs. On F2, the FGM Mag Boom frangibolt broke in ~25 seconds, but the SCM frangibolt did not break before power was removed by the FSW safety cut-off of 40 seconds. Current drawn during the actuation was 1.45A, less than the 2A +/-10% that was expected.

Analyses Performed to Determine Cause

Inspection of the SCM wiring showed that two pins were miss-wired causing the current to go through only one of the heating elements, not both. The frangi-bolts had been replaced and re-wired after being over-temp'd in the F2 Thermal Vacuum test. A closer look at a 2-second test run after the replacement showed that the current draw in that test was also low (1.45A).

Corrective Action/ Resolution

The SCM wiring was corrected and the Magnetometer Boom Test was re-run on 8/16/06. For the re-test, the FGM boom was disconnected to reduce the risk of overheating. This time, SCM frangi-bolt successfully broke in ~25 seconds and drew the expected amount of current (0.95A).

Acceptance:

MAM: Ron Jackson_____; MSE: Ellen Taylor_____

PM: Peter Harvey_____; Cognizant Engineer_____

Date of Closure_____