

STEREO IMPACT

PROBLEM REPORT

PR-1016

FM2 Boom Lock Pins

02 August 2004

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

Assembly : IMPACT Boom	SubAssembly : Lock Pins
Component/Part Number: IMP-003	Serial Number: A361SN002
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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

During the FM2 IMPACT Boom tuning deployment, three Lock Pins (two on the 130 to 90 mm junction, one on the 210 to 170 mm junction) did not extend and lock into their respective tapered bores. The pins remained fully retracted in their bores. Post-deployment stiffness testing indicated the problem since the Boom retained functional stiffness, though noise was introduced in the axis with which the pins aligned.

Analyses Performed to Determine Cause

The Boom was inspected within the deployment fixture. Visible bending could be seen at the 130 to 90 mm junction, but could not be diagnosed in place. The Boom was then removed to the Stowing GSE where it was verified that two pins on the 130 to 90 mm junction did not extend. Further inspection identified another pin on the 210 to 170 mm junction. Pictures were taken and the two inward facing pins were moved by hand (outward facing pins cannot be moved by hand). Motion showed there was something resisting forward motion but not precluding it entirely. The Boom was stowed and taken to a clean environment at which point it was disassembled for final diagnosis. Glue was found within the bores in the rings the Lock Pins slide in. This glue reduces the functional diameter of the bore and restricts pin motion.

Corrective Action/ Resolution

Rework Repair Use As Is Scrap

The excess glue was removed for proper operation of the pins. Since the Boom is largely disassembled for diagnosis, this process can and will be run on all bores of the FM2 IMPACT Boom. The Boom can then be reassembled and the flight testing can begin.

Date Action Taken: 02-09 August 2004 **Retest Results:** Boom testing was completed and passed. Excess glue was removed.

Corrective Action Required/Performed on other Units FM1 functional testing passed.

Closure Approvals

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