STEREO IMPACT Boom FM2 Mass Properties Report

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Revision: --

Written By: Jeremy McCauley
Reviewed By: Dave Curtis
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On May 16, 2005, the mass properties of the STEREO IMPACT Boom FM2 were measured. Mass properties were determined for the Boom without any connector savers or blankets or bagging material attached. The mounting screws and ground straps for the Boom to Spacecraft interface were in place. No Magnetometer blanket was installed for the F2 unit.

Mass Measurements were made upon a scale with a five gram resolution. CG measurements were made with a scale having a 1 mm resolution, though uncertainties in the method are probably closer to 2 mm. MOI calculations are determined from three subsequent measurements of the period of oscillation of a torsional pendulum; all repeated measurements were within .02 seconds per oscillation. Measurements from the FM1 Boom were used due to similarity with the FM2 Boom Suite.

The following results were determined from the measurements. All coordinates are with reference to the Boom Coordinate frame as specified in the ICD.

Mass: 13.98 kg

CG: X, Y, Z = -455 mm, -123 mm, -113 mm

MOI: Ixx = 0.130 kg m^2
Iyy = 4.668 kg m^2
Izz = 4.852 kg m^2

Table 1: MOI Spreadsheet
See 050324 Boom Moi.xls