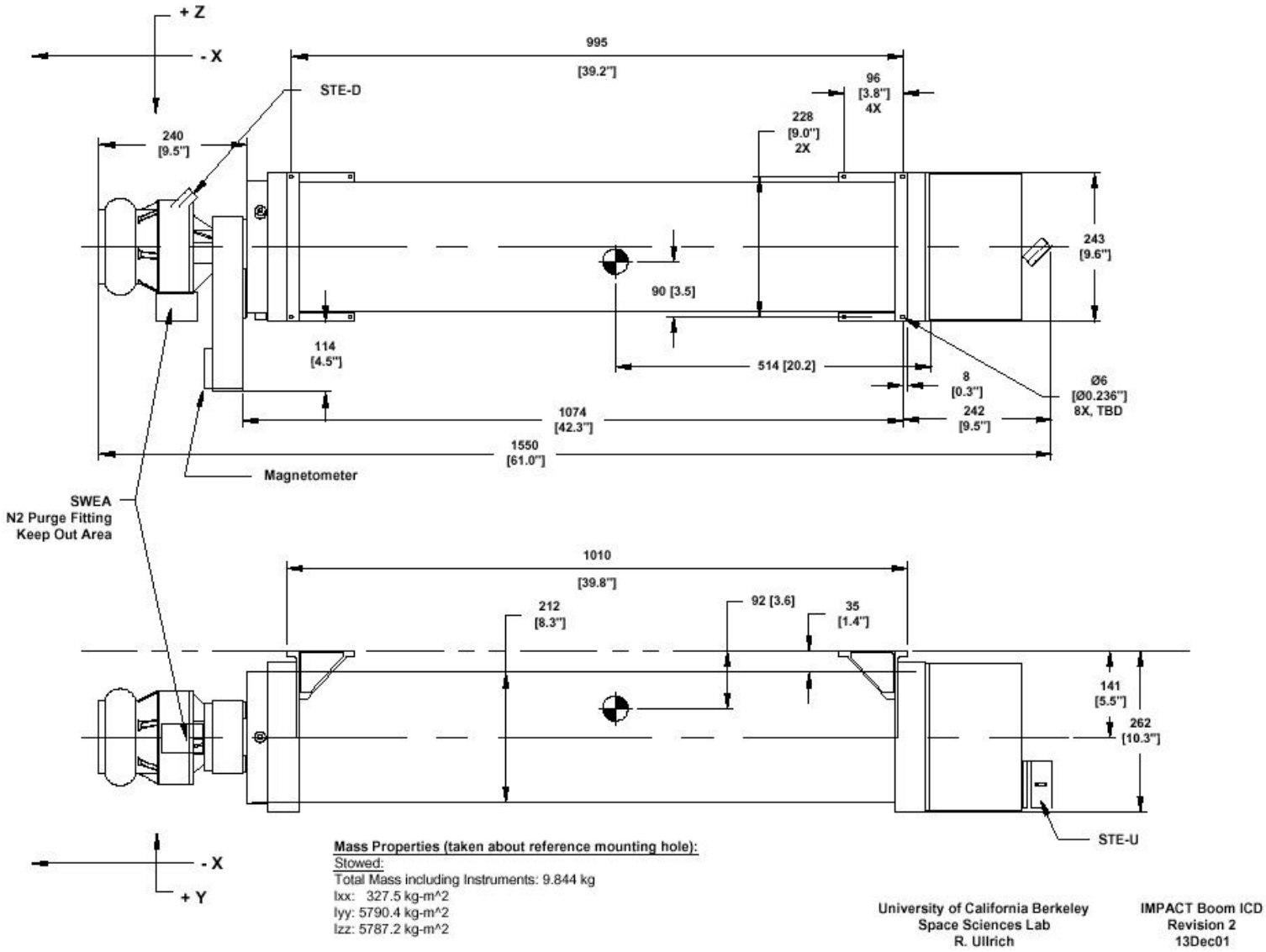
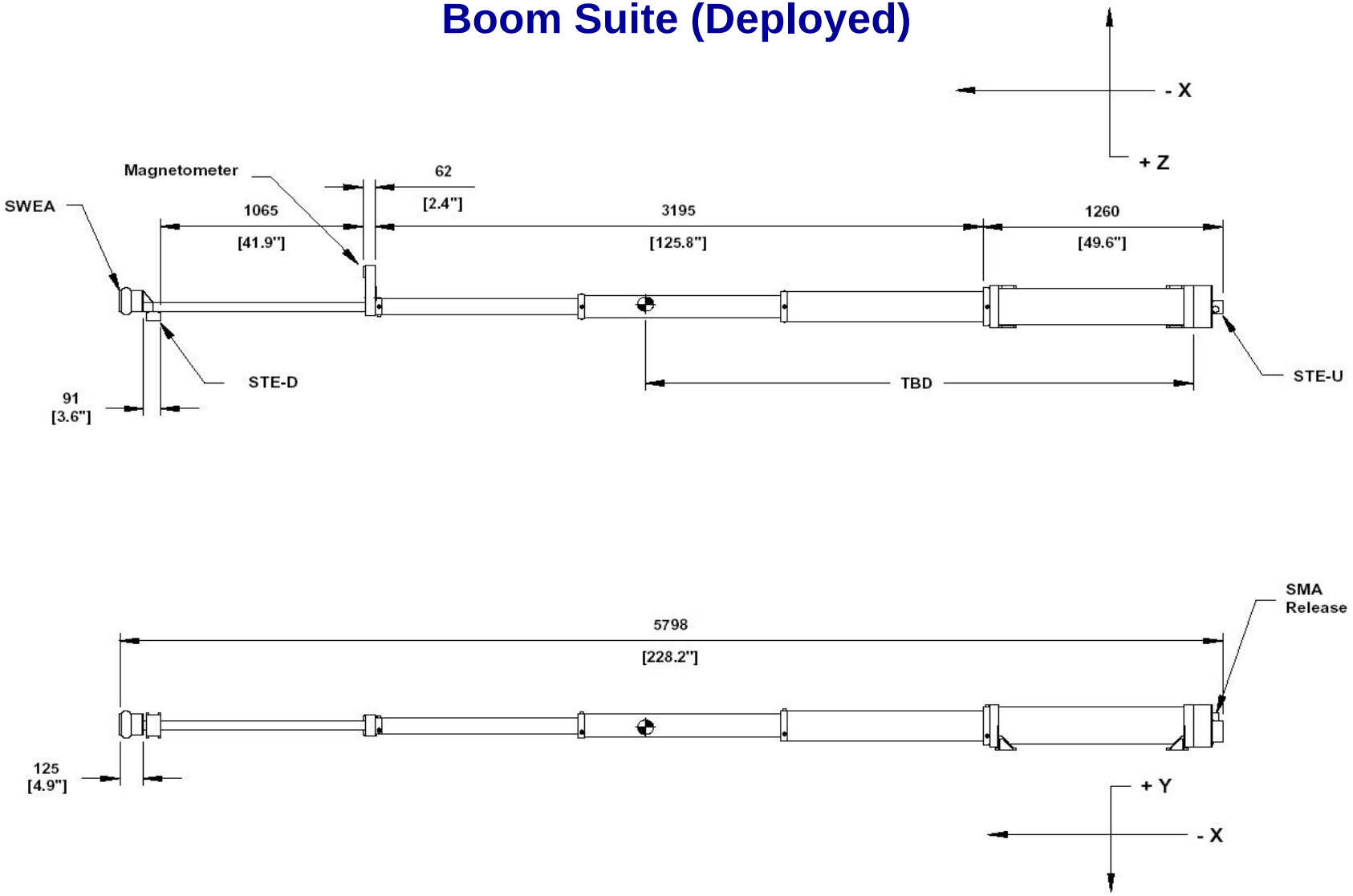
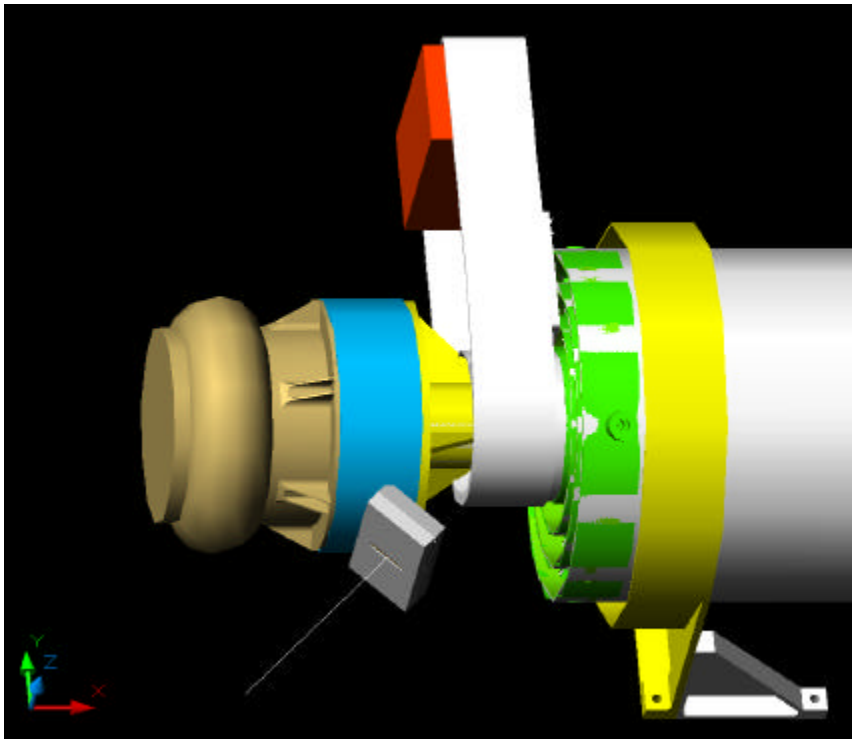

+ Z
- X
995
[39.2"]
STE-D
96
[3.8"]
4X
228
[9.0"]
2X
240
[9.5"]
243
[9.6"]
90 [3.5]
114
[4.5"]
514 [20.2]
8
[0.3"]
Ø6
[Ø0.236"]
8X, TBD
1074
[42.3"]
242
[9.5"]
1550
[61.0"]
Magnetometer
SWEA
N2 Purge Fitting
Keep Out Area
1010
[39.8"]
212
[8.3"]
92 [3.6]
35
[1.4"]
141
[5.5"]
262
[10.3"]
STE-U
- X
+ Y
Mass Properties (taken about reference mounting hole):
Stowed:
Total Mass including Instruments: 9.844 kg
Ixx: 327.5 kg-m^2
Iyy: 5790.4 kg-m^2
Izz: 5787.2 kg-m^2
University of California Berkeley
Space Sciences Lab
R. Ullrich
IMPACT Boom ICD
Revision 2
13Dec01

Boom Suite (Deployed)



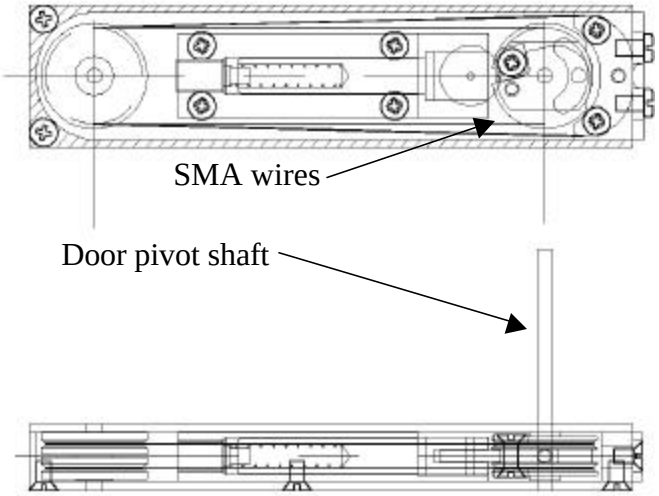
Instrument Status

1. SWEA
   A. Thermal: Initial analysis done. Current heater power estimated at 1.5W @ 50% D.C. Further refinement in progress, update after tomorrow's splinter group meeting.
   B. Structural upgrades need discussion. Increase in diameter of LVPS/STE Pre-amp/UCB SWEA Interface Electronics requires increased structural stiffening. TBD



Instrument Status

2. STE – D (Downward looking on Parker Spiral)
   A. 'New' board arrangement: Preamps moved off detector ceramic chip. Pre-amp board incorporated into LVPS/SWEA I/F.
   B. Thermal analysis is now out of date. Will reanalyze when design firmer. Ceramic board thermally isolated from pre-amp. Pre-amp thermally coupled to LVPS, SWEA I/F boards.
   C. Shutter design underway. First test assembly currently being fabricated.



Drawing courtesy: P. Turin

Instrument Status

3. STE – U (Upward looking)
   A. Board arrangement: Ibid. 2.A. . (but not in LVPS)
   B. Shutter: ibid.
   C. Sunshade still TBD, awaiting integration into mechanical envelope.

Boom Status

1. Thermal: Initial analysis done.
   A. Survival/deployment heater power added. Further refinement in progress.
   B. Heliocentric orbit temps analyzed: -200^{0}C for boom (cold!).
   C. Off-pointing / phasing orbit temperatures being analyzed now (Swales).
   D. Deployment temps for the boom have been identified: -40 to +60^{0}C (TBC)
2. Brass-board model of 50mm and 90mm tube assemblies
   1. First ‘flight-style’ built.
   2. Determination of sensitivity to tolerances of lock rings underway.
   3. Joint rigidity analysis next activity.
3. Current design progress:
   A. optimize overall length for changes to SWEA I/F / STE-D / LVPS and harness bobbin.
   B. 50mm and 90mm tube launch lockdown incorporated into housing.
   C. STE-D incorporated into SWEA I/F / STE-D / LVPS housing.
   D. STE-U envelope updated.

IMPACT Boom RFA Status Summary

RFA #	RFA Summary	Response Summary
4	Boom Failure Modes (Unlocked), analyze risk to ACS pointing requirements	Preliminary estimates of worst case "unlocked" stiffness provided to APL, to be augmented by test data in near future. APL needs to ascertain effects on ACS.
6	Consider a boom cold survival test	Will perform cold case boom deployment test and LN2 immersion joint test. Post-deployment temperatures are so low that a cold case thermal vacuum test is impractical
9	IMPACT Boom: Concern about stacer buckling	Stacer buckling is possible follow-on to failure mode (see RFA 4). Stacer buckling moment: 35N-m (26ft-lb). Bending travel limited by hard stop of boom lock rings at 5^0. Not enough travel for buckling. If tube integrity fails, spacecraft must provide 7N thrust about failed joint to buckle Stacer.
10	IMPACT Boom: Deployment test recommendations	Test sequences are TBC, but recommended numbers of deployments for EM and Flight models are in line with test plans.
15	Locate limiting resistor for boom actuator	Has been located on the spacecraft side