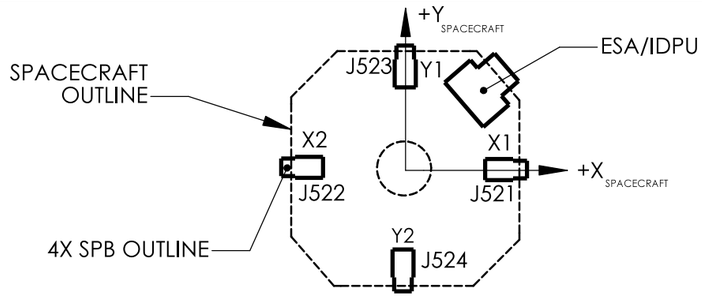
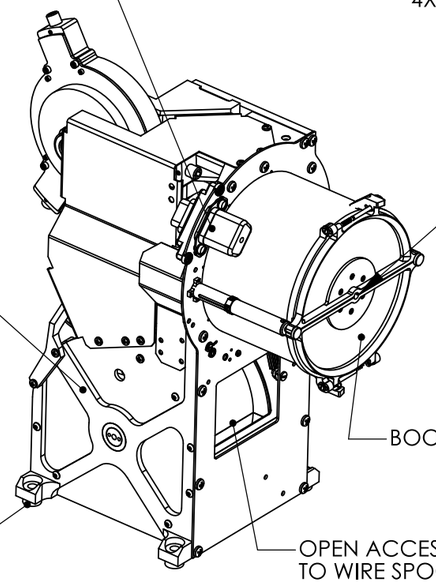
DWG UNITS
DIMS: INCHES (mm)
GEOMETRIC TOLERANCING: INCHES

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	AA	BASELINE RELEASE	24MAY04	
	AB	ADDED DOOR COUNTERWEIGHTS, ADDED CALLOUT FOR BLANKET GROUNDING HOLES, ADDED G/N 9	29SEP04	
	AC	REMOVED DOOR COUNTERWEIGHTS, CHANGED MASS PROPS, CHANGED MASS OF DOOR GSE AND ENABLE PLUG	07JAN05	
	AD	ADDED S/C VIEW, SPB ORIENTATION VIEW SHEET 1; ADDED TORQUE VALUE FOR ATTACH BOLTS AND DIMS ON SHEET 2; CHANGED MASS PROPERTIES TABLE ON SHEET 3 (FORMAT CHANGE ONLY; NO CHANGE TO MASS PROPERTIES VALUES); ADDED TO SHEET 4 LH VIEW AND THERMISTOR DETAILS	16MAR05	



SPBs ORIENTATION ON S/C
(LOOKING -Z DIRECTION)
NOTE: JXXX DENOTES SCIENCE CABLE DESIGNATOR

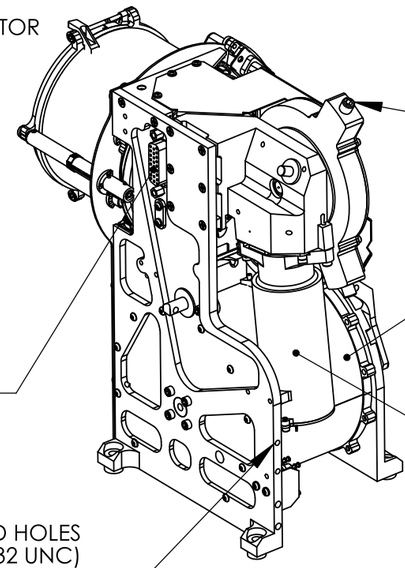
INSTRUMENT ENABLE PLUG CONNECTOR
15 PIN HIGH DENSITY FEMALE
ACCESS REQUIRED FOR ENABLE PLUG
FOLLOWING INTEGRATION OF SPB ONTO S/C [7]
(SHOWN WITH FLIGHT ENABLE PLUG INSTALLED)
DESIGNATORS:
J531 FOR EFI X1
J532 FOR EFI X2
J533 FOR EFI Y1
J534 FOR EFI Y2



WIRE SLOT IN DOORS
STRUCTURAL PANELS (MAGNESIUM)
BOOM RELEASE DOORS
4 X ATTACH POINTS TO S/C DECK
SWALES PROVIDED FASTENERS
UCB PROVIDED THERMAL WASHERS
(SEE SECTION A-A, SH 4)
OPEN ACCESS PORT TO WIRE SPOOL (MAY BE CLOSED OUT WITH KAPTON FOR MAXIMUM OF .020" PROTRUSION TOWARDS SOLAR PNL; AT DISCRETION OF UCB)

VIEW FROM OUTSIDE OF S/C

SCIENCE CABLE CONNECTOR
26 PIN HIGH DENSITY MALE
(HARNESS TO IDPU)
CONECTOR DESIGNATOR:
J521 FOR SPB X1
J522 FOR SPB X2
J523 FOR SPB Y1
J524 FOR SPB Y2



METERING WHEEL
WIRE SPOOL
GEARMOTOR
4 X TAPPED HOLES
(2 X 4-40 UNC & 2 X 6-32 UNC)
FOR ELECTRICAL GROUNDING
OF THERMAL BLANKETS

VIEW FROM INSIDE OF S/C

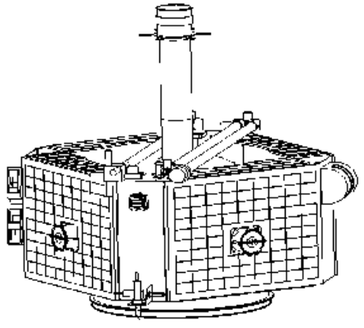
SPB INSTRUMENT OVERVIEW

GENERAL NOTES: UNLESS OTHERWISE SPECIFIED:

1. SWALES TO PROVIDE ALL MOUNTING FASTENERS
2. THERMAL BLANKET AND EXTERNAL COATINGS PER SH 4
3. DWG UNITS: INCHES (mm)
4. EFI SPB ASSY ASSIGNED UCB PART NUMBER THM-SPB-MEC-001
5. GROUNDING DEFINITION PER UCB GROUNDING DIAGRAM, THM-SYS-204
6. SEE ICD THM-SYS-108 FOR ADDITIONAL INTERFACE REQUIREMENTS
7. RED TAG/GREEN TAG ITEMS (ENABLE PLUG CONNECTOR AND REMOVABLE RELEASE DOOR PROTECTIVE COVER) PER UCB REQUIREMENTS AS DEFINED IN THM-SYS-TM-001
8. BUS SIDE GENERAL MOUNTING REQUIREMENTS: S/C FLATNESS .005"
9. SEE TBD LOG ON SHEET 5 FOR ITEMS REQUIRING COMPLETION PRIOR TO RELEASE OF FINAL ICD.

VIEW OF SPBs MOUNTED ON S/C

(ALL 4 SPBs MOUNT ON S/C IN IDENTICAL MANNER)



[7] RED TAG/GREEN TAG TABLE

ITEM	COLOR	DESCRIPTION	MASS	QUAN
01	RED	SPD DOORS PROTECTIVE COVER	100 g	1
02	GREEN	CONNECTOR ENABLE PLUG	10 g	1

		NAME/DATE	
UNLESS OTHERWISE SPECIFIED:			
DIMENSIONS ARE IN inches	DRAWN	DONAKOWSKI	
TOLERANCES .XXX = ±.003 .XX = ±.015 ANGLES = ±2°	CHECKED	DONAKOWSKI	
INTERPRET PER ANSI Y14.5-1992 REMOVE BURRS AND BREAK EDGES			
MATERIAL			
SURFACE FINISH √			
SURFACE TREATMENT			
DO NOT SCALE DRAWING	MASS: SEE SH 3		

THEMIS

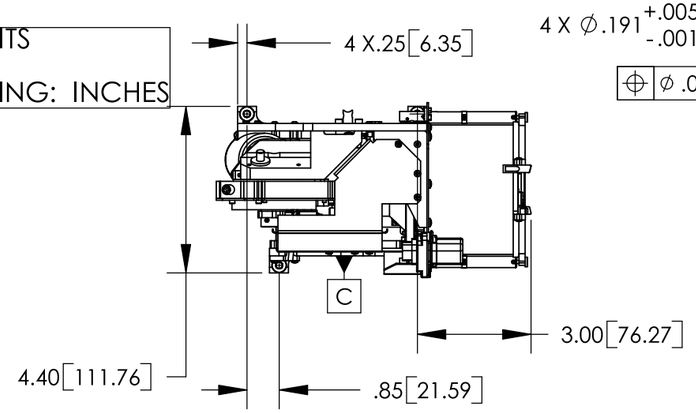
TITLE:
EFI SPB
INTERFACE CONTROL DWG

SIZE	DWG. NO.	REV
B	THM-SPB-ICD-001	AD

SCALE: 1:4 SHEET 1 OF 5

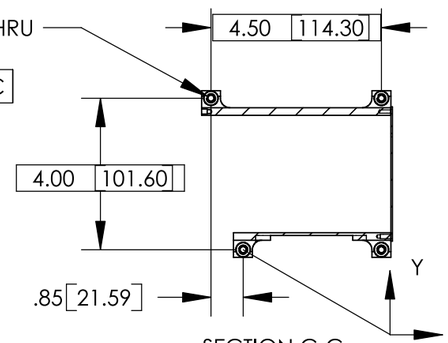
DWG UNITS
DIMS: INCHES (mm)
GEOMETRIC TOLERANCING: INCHES

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	AA	BASELINE RELEASE		
	AB	ADDED DOOR COUNTERWTS; ADDED SECTION C-C; ADDED 'SOLAR PNL PASS THRU'; IN ZN 5A, ADDED ULTEM 1000 AND NOTATION OF BOTTOM SPACER	29SEP04	
	AC	REMOVED DOOR COUNTERWTS; CHANGED MASS PROPS	07JAN05	
	AD	ADDED TORQUE VALUE TO ATTACH BOLTS; ADDED DIMS TO SECTION A-A	16MAR05	



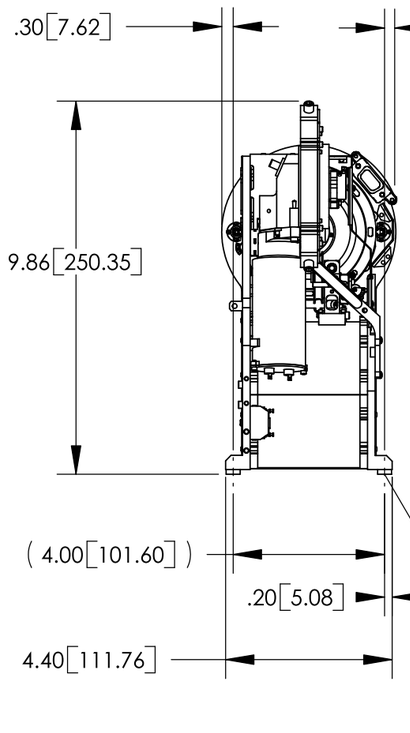
4 X ⌀.191 +.005 -.001 [4.85 +0.13 -0.03] THRU

⌖ ⌀ .007 Ⓜ | A | B | C

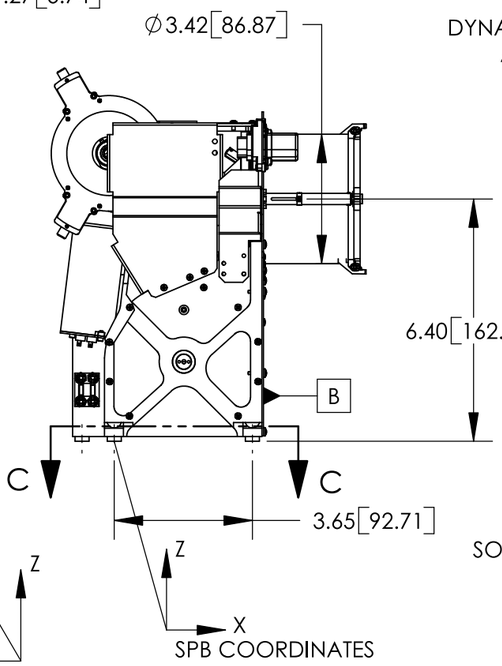


SECTION C-C
ATTACH HOLES DETAIL

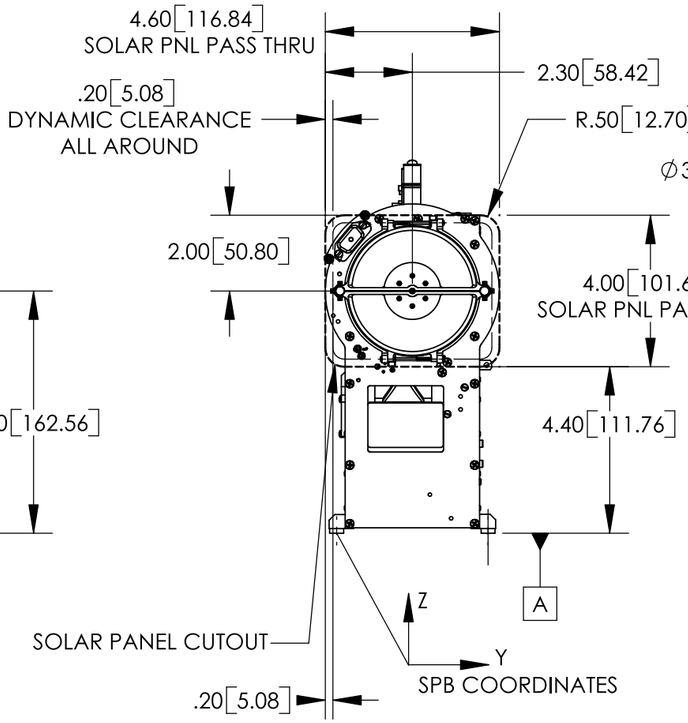
SPB COORDINATES



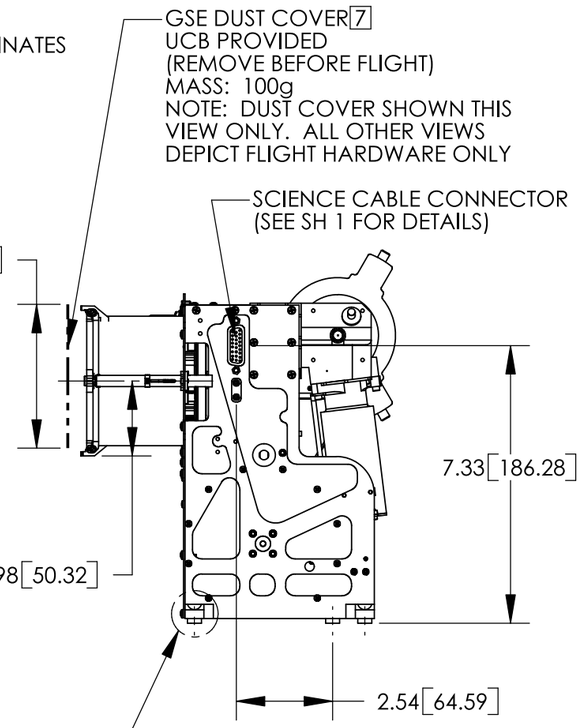
SPB COORDINATES



SPB COORDINATES



SPB COORDINATES



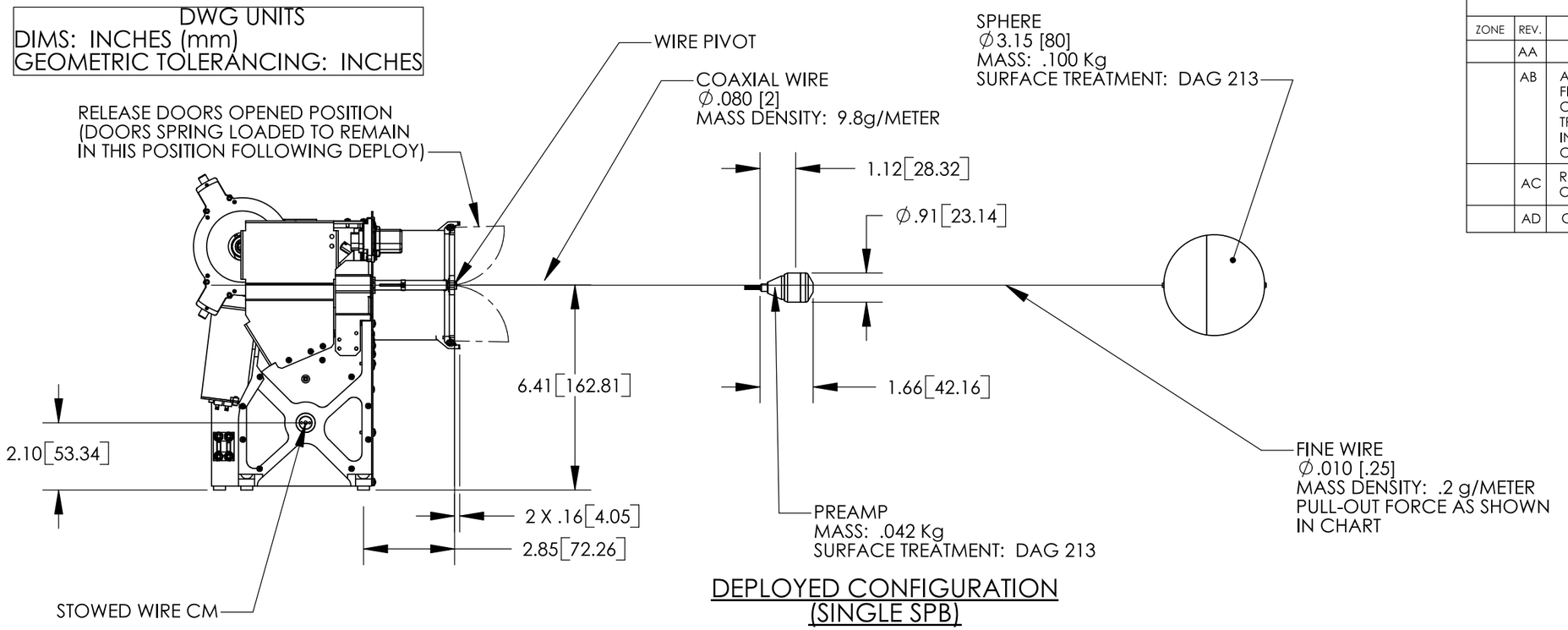
SPB MOUNTED TO S/C
VIA THERMAL SPACERS
AND 8-32 ATTACH BOLTS
SEE SECT A-A, SH 4
FOR MOUNTING DETAILS

STOWED CONFIGURATION

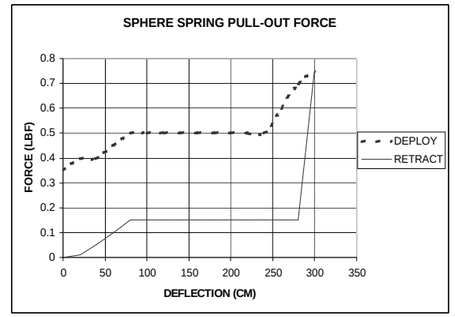
SIZE	DWG. NO.	REV
B	THM-SPB-ICD-001	AD
		SHEET 2 OF 5

DWG UNITS
DIMS: INCHES (mm)
GEOMETRIC TOLERANCING: INCHES

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	AA	BASELINE RELEASE		
	AB	ADDED DOOR COUNTERWTS, FINE WIRE DEPLOYE FORCE, AND CHANGED SPHERE SURFACE TREATMENT TO DAG 213; MASS INCREASED BY 60g FOR COUNTERWEIGHTS	29SEP04	
	AC	REMOVED DOOR COUNTERWTS; CHANGED MASS PROPS	05JAN05	
	AD	CLARIFIED MASS PROPS TABLE	16MAR05	



DEPLOYED CONFIGURATION
(SINGLE SPB)



MASS PROPERTIES

MASS Units: Kg

X1/X2	Y1/Y2	COMPONENTS DESCRIPTION
1.516 Kg	1.466 Kg	SPB COMPONENTS FIXED TO S/C FOLLOWING DEPLOYMENT OF DEPLOYED ELEMENTS
.307 Kg	.357 Kg	SPB DEPLOYED COMPONENTS (SPHERE, PREAMP, COAX, FINE WIRE)
1.823 Kg	1.823 Kg	TOTAL MASS (EACH SPB UNIT IS OF IDENTICAL MASS, LAUNCH MASS)

CENTER OF MASS LOCATION (CM), COMPONENTS FIXED TO S/C Units: inches (m)

LOCATION FROM SPB ORIGIN			COMPONENTS DESCRIPTION
X	Y	Z	
1.656 (.042)	2.240 (.057)	4.646 (.035)	X1/X2/Y1/Y2 SPB STOWED CONFIGURATION (LAUNCH)
1.385 (.035)	2.328 (.059)	4.931(.125)	X1/X2 SPB (FOLLOWING FULL DEPLOYMENT OF WIRE, SPHERE, PREAMP
1.385 (.035)	2.328 (.059)	4.931(.125)	Y1/Y2 SPB (FOLLOWING FULL DEPLOYMENT OF WIRE, SPHERE, PREAMP)

CENTER OF MASS LOCATION (CM), DEPLOYED COMPONENTS (WIRE, SPHERE, PREAMP) Units: inches (m)

LOCATION FROM SPB PIVOT POINT			COMPONENTS DESCRIPTION
X	Y	Z	
331,063 (13.03)	0	0	X1/X2 DEPLOYED ELEMENTS
402,386 (15.84)	0	0	Y1/Y2 DEPLOYED ELEMENTS

MOMENT OF INERTIA (MoI), COMPONENTS FIXED TO S/C Units: Kg*square meters

MoI ABOUT SPB CM			COMPONENTS DESCRIPTION
X	Y	Z	
.007	.011	.005	X1/X2/Y1/Y2 SPB STOWED CONFIGURATION (LAUNCH)
.006	.008	.004	X1/X2 SPB (FOLLOWING DEPLOYMENT OF WIRE, SPHERE, PREAMP
.006	.008	.004	Y1/Y2 SPB (FOLLOWING DEPLOYMENT OF WIRE, SPHERE, PREAMP)

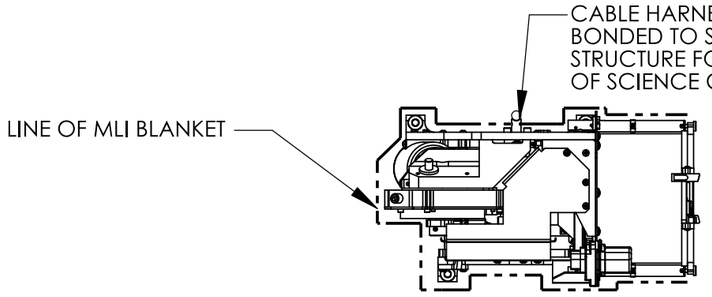
MOMENT OF INERTIA (MoI), DEPLOYED COMPONENTS (WIRE, SPHERE, PREAMP) Units: Kg*square meters

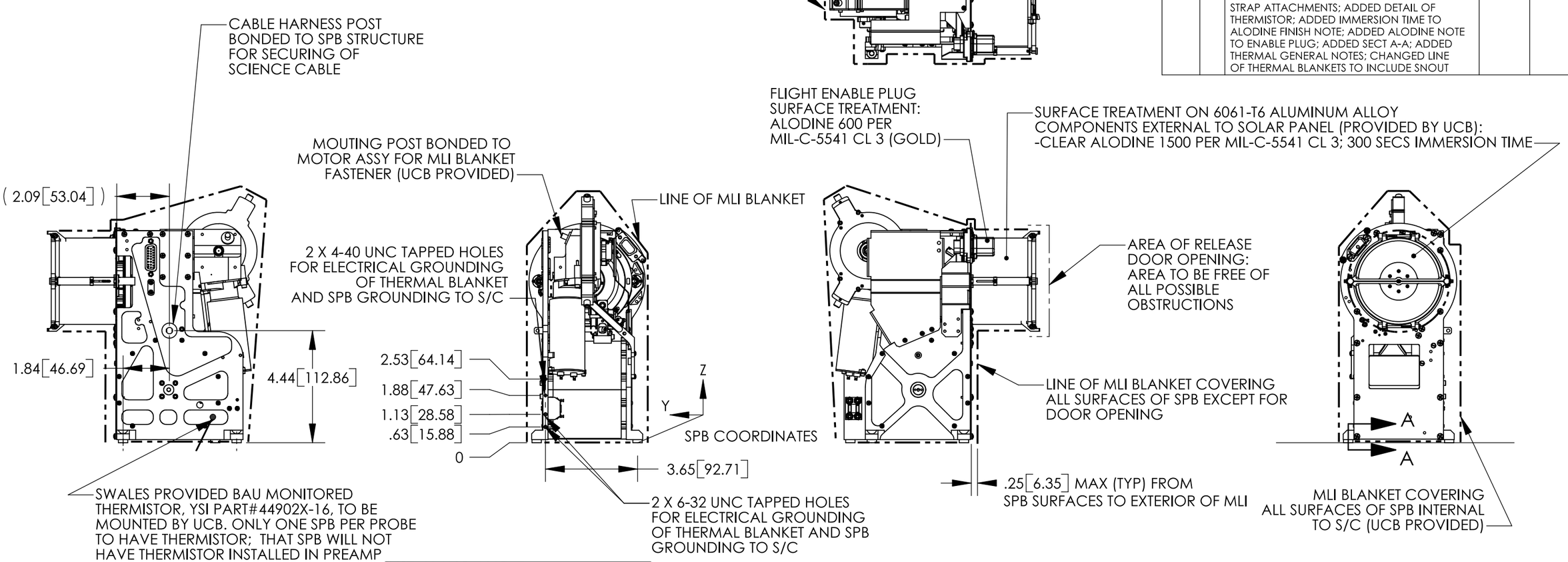
MoI ABOUT SPB PIVOT POINT			COMPONENTS DESCRIPTION
X	Y	Z	
0	64.39	64.39	X1/X2 DEPLOYED ELEMENTS
0	112.4	112.4	Y1/Y2 DEPLOYED ELEMENTS

SIZE	DWG. NO.	REV
B	THM-SPB-ICD-001	AD
		SHEET 3 OF 5

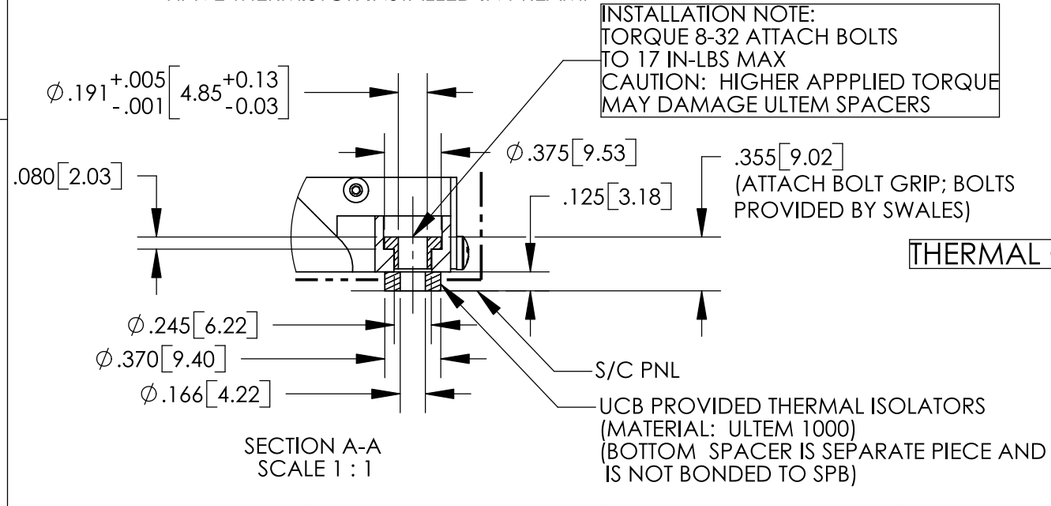
DWG UNITS
DIMS: INCHES (mm)
GEOMETRIC TOLERANCING: INCHES

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	AA	BASELINE RELEASE		
	AB	ALODINE 1500 (WAS) ALODINE 600	29SEP04	
	AC	DELETED ITO COATED SILVER TEFLON TAPE AS APPLICATION; REMOVED DOOR COUNTERWEIGHTS	05DEC05	
	AD	ADDED LEFT HAND VIEW SHOWING TAPPED HOLES FOR THERMAL BLANKET GROUND STRAP ATTACHMENTS; ADDED DETAIL OF THERMISTOR; ADDED IMMERSION TIME TO ALODINE FINISH NOTE; ADDED ALODINE NOTE TO ENABLE PLUG; ADDED SECT A-A; ADDED THERMAL GENERAL NOTES; CHANGED LINE OF THERMAL BLANKETS TO INCLUDE SNOUT	16MAR05	





SPB SIDE VIEW



SECTION A-A
SCALE 1 : 1

DEPLOYED ELEMENTS: THERMISTOR LOCATION DETAIL

THERMAL CONTROL FEATURES, COATINGS, AND SURFACES

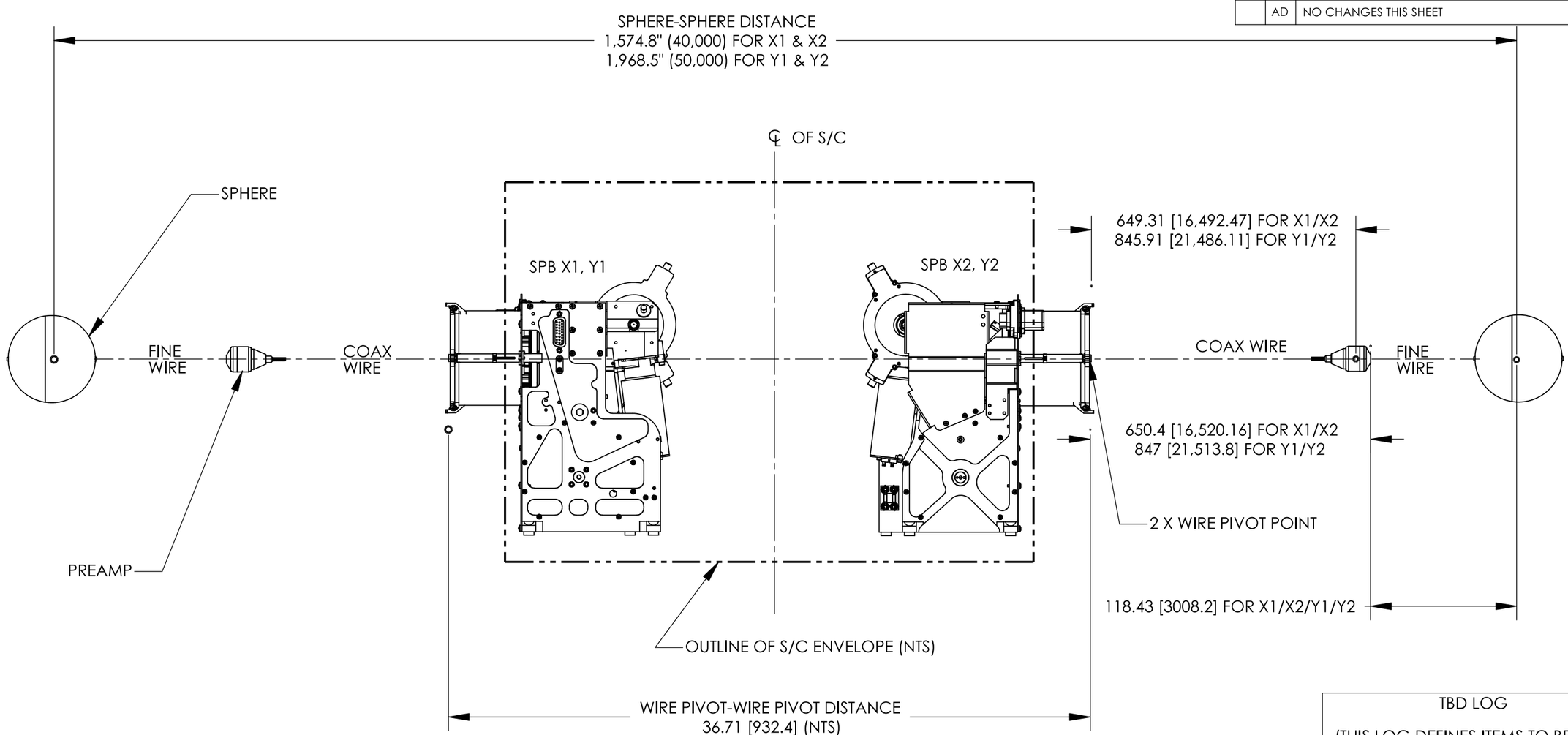
THERMAL CONTROL NOTES:

A. ALL OTHER THERMAL REQUIREMENTS AS DOCUMENTED IN THM-SYS-119, THEMIS INSTRUMENT THERMAL SPECIFICATION.
B. OF THE 4 SPBs MOUNTED ON A S/C PROBE, ONE SPB WILL HAVE A THERMISTOR INSTALLED IN THE PREAMP; ONE SPBD WILL HAVE A THERMISTOR INSTALLED ON THE STRUCTURE SIDE PANEL; AND THE OTHER 2 SPBs WILL HAVE NO THERMISTORS INSTALLED.

SIZE	DWG. NO.	REV
B	THM-SPB-ICD-001	AD
		SHEET 4 OF 5

DWG UNITS
DIMS: INCHES (mm)
GEOMETRIC TOLERANCING: INCHES

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	AA	BASELINE RELEASE		
	AB	REMOVED 'SWALES TO VERIFY' FROM WIRE PIVOT-WIRE PIVOT DIM; ADDED TBD LOG	29SEP04	
	AC	REMOVED DOOR COUNTERWTS	05JAN05	
	AD	NO CHANGES THIS SHEET	16MAR05	



ALL COMPONENTS ARE SYMMETRICAL ABOUT S/C CENTERLINE

TBD LOG

(THIS LOG DEFINES ITEMS TO BE DETERMINED FOR FINAL RELEASE OF ICD) 9

AS OF REV AD:

1. MASS PROPERTIES NEED TO BE UPDATED TO REFLECT ACTUALS (MEASURED)
2. THERMISTOR CABLE HARNESS ROUTING TO BE DEFINED (SHEET 4)

DEPLOYED CONFIGURATION OF BOOM PAIRS

SIZE	DWG. NO.	REV
B	THM-SPB-ICD-001	AD
		SHEET 5 OF 5