Stereo Impact Boom Peer Review October 29, 2002

EM Actions

1) Taper Alignment
   Flight: reduce the number of offsets back to one pair per set of four rings
   EM: open tapered hole to accommodate added offset

2) Centering
   One groove → Three outer grooves
   Drag is unaffected by grooves (data)

3) Limit pin back travel
   Flight: threaded pins
   EM: wires

4) Rollers
   Look into material change (Aluminum smeared on tube, Gr/E OK)
   Possible wheel design to include small Aluminum hub with vulcanized rubber wheel (Cluster)
   Increase full radius on inner rollers to match tube radii

5) Lock pin spring sizing

6) Stacer sizing
   Requires harness stiffness test

Features remaining to be Implemented

1) Cow Catchers

2) Launch Locks

Stereo Impact Boom Force-Deflection Test

East-West Force-Deflection Curve

Force (Pou	Deflection (	slope (1/k)
0	0	
0.25	0.08	0.32
0.495	0.16	0.32
0.768	0.24	0.31
1	0.35	0.35
1.236	0.42	0.34
1.505	0.52	0.35
0	0.07	
-0.27	-0.03	0.37
-0.51	-0.13	0.25
-0.73	-0.24	0.33
-1	-0.35	0.35
-1.23	-0.43	0.35
-1.55	-0.56	0.36
0	-0.04	
	ave	0.33
	sd	0.03

North-South Force-Defelection Curve

Force (Pou	Deflection (	slope (1/k)
0	0	
0.26	0.1	0.38
0.5	0.18	0.36
0.75	0.3	0.40
1	0.37	0.37
1.26	0.46	0.37
1.5	0.55	0.37
0	0.04	
0	0.03	
-0.24	-0.05	0.33
-0.5	-0.14	0.28
-0.75	-0.24	0.32
-1	-0.33	0.33
-1.23	-0.4	0.33
-1.5	-0.51	0.34
0	-0.05	
	ave	0.35
	sd	0.03

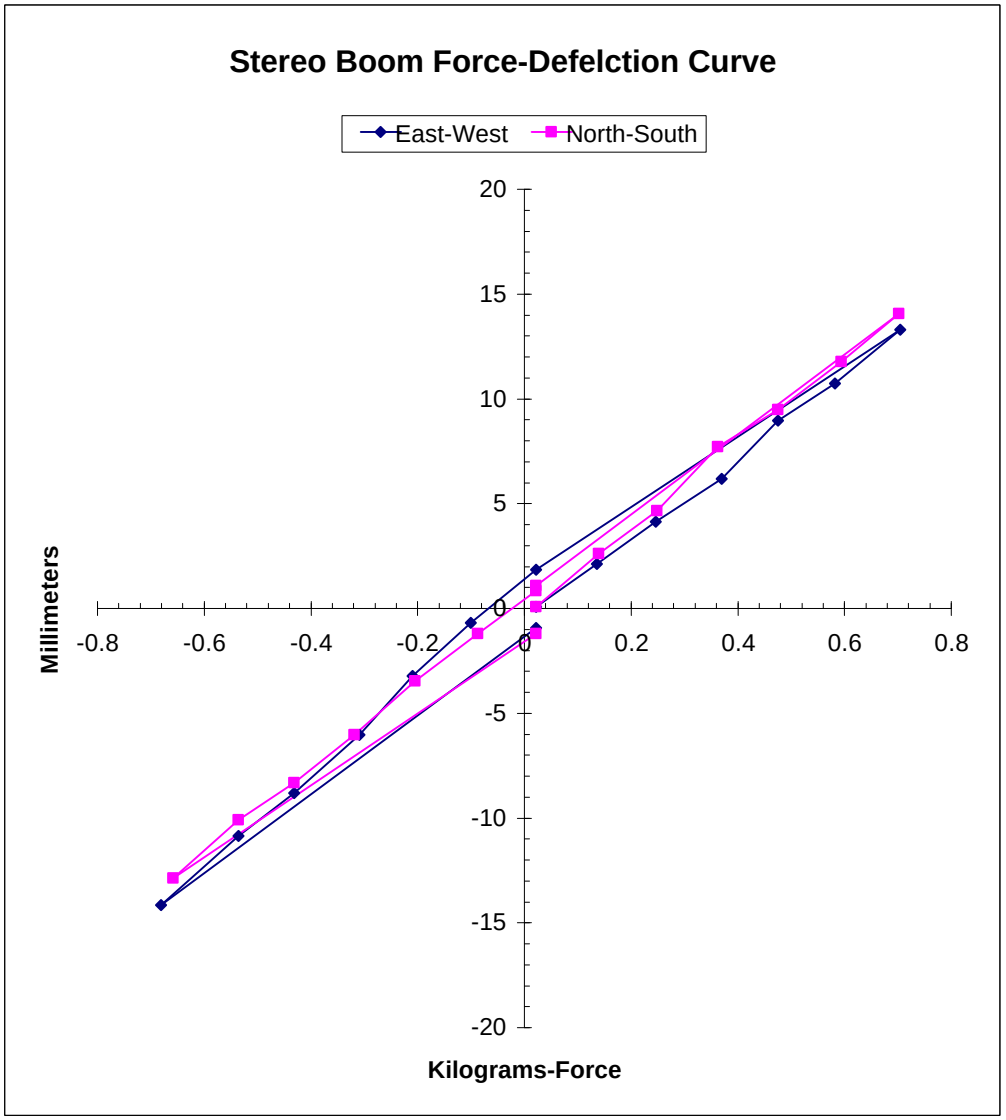
Metric Conversion

East-West

Force (Kilo	Deflection (Millimeters	Ea slope (1/k)
0	0	
0.113398	2.032	17.92
0.224528	4.064	18.10
0.348359	6.096	17.50
0.453592	8.89	19.60
0.56064	10.668	19.03
0.682657	13.208	19.35
0	1.778	
-0.12247	-0.762	20.74
-0.23133	-3.302	14.27
-0.33112	-6.096	18.41
-0.45359	-8.89	19.60
-0.55792	-10.922	19.58
-0.70307	-14.224	20.23
0	-1.016	
	ave	18.69
	sd	1.69

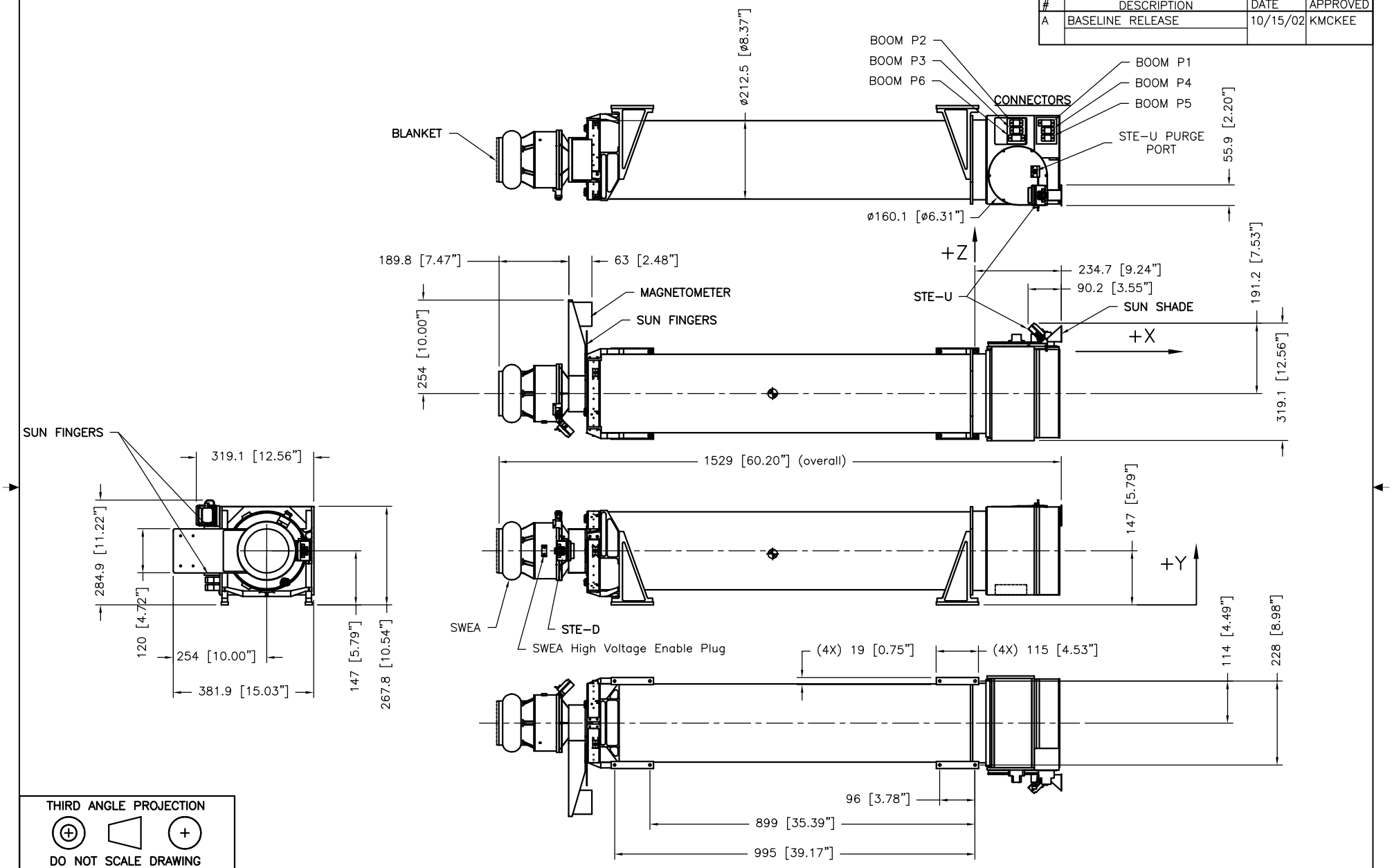
North-South

Force (Kilo	Defelction (Millimeters North)	
0	0	slope (1/k)
0.117934	2.54	21.54
0.226796	4.572	20.16
0.340194	7.62	22.40
0.453592	9.398	20.72
0.571526	11.684	20.44
0.680389	13.97	20.53
0	1.016	
0	0.762	
-0.10886	-1.27	18.67
-0.2268	-3.556	15.68
-0.34019	-6.096	17.92
-0.45359	-8.382	18.48
-0.55792	-10.16	18.21
-0.68039	-12.954	19.04
0	-1.27	
	ave	19.48
	sd	1.84



Mass (kg)	k (N/m)	Period (s)	Frequency (Hz)
3.876	524.24	0.54	1.85
3.876	503.03	0.55	1.81

#	DESCRIPTION	DATE	APPROVED
A	BASELINE RELEASE	10/15/02	KMCKEE



THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING
METRIC DRAWING
(UNITS: mm)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN DECIMAL MM & DEGREE TOLERANCES,

PRECISION	TOLERANCE	SURFACE
. X	±0.1	
. XX	±0.05	✓
ANGLES	±0.5°	

MATERIAL

NEXT ASSY

SURF TREAT: SEE NOTES

MASS

FILE NAME

DRAFT BY: KMCKEE

DATE: 09/05/2002

ENGINEER: ULLRICH

DATE

ISSUED BY

DATE

AHEAD–Stowed

DWG NO

REV: A

CONTRACT /BUDGET: SWAVES

SHEET: 1/4

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BERKELEY, CA 94720 (510) 642-0245

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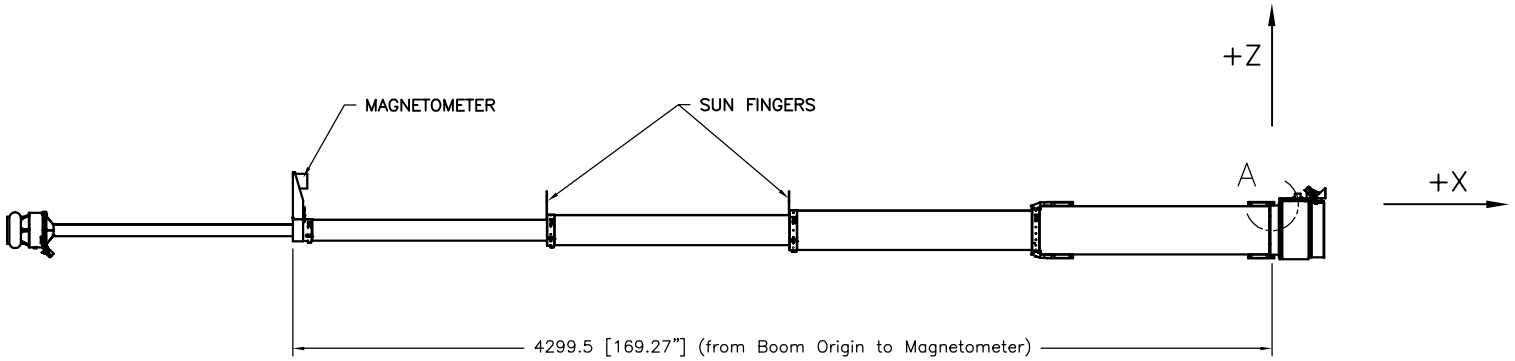

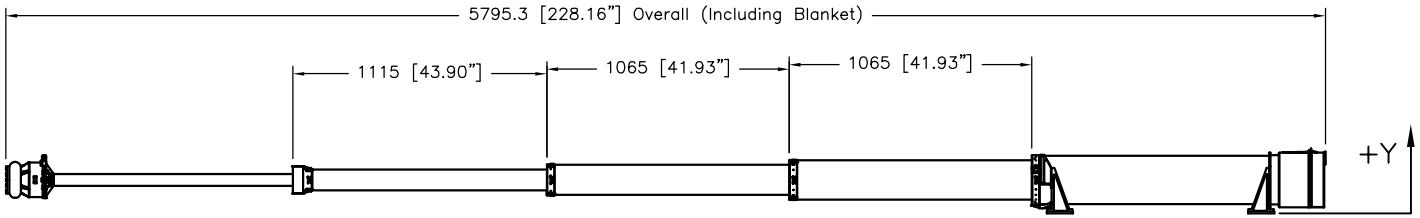

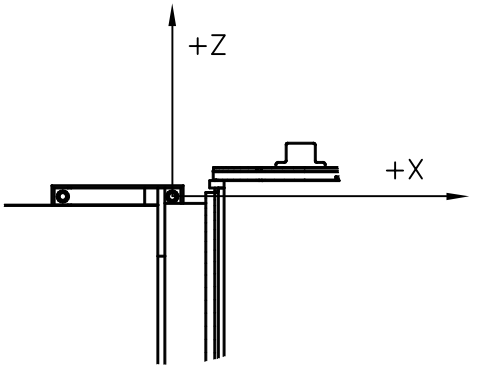

DETAIL A

BOOM ORIGIN–BOTH AHEAD & BEHIND
(BOTTOM OF INSULATOR PAD)

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING
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(UNITS: mm)

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PRECISION	TOLERANCE	SURFACE
. X	±0.1	✓
. XX	±0.05	
ANGLES	±0.5°	

MATERIAL

NEXT ASSY

SURF TREAT: SEE NOTES

MASS

FILE NAME

DRAFT BY: KMCKEE

DATE: 09/05/2002

ENGINEER: ULLRICH

DATE

ISSUED BY

DATE

AHEAD–Deployed

DWG NO

REV: A

CONTRACT /BUDGET: SWAVES

SHEET: 2/4

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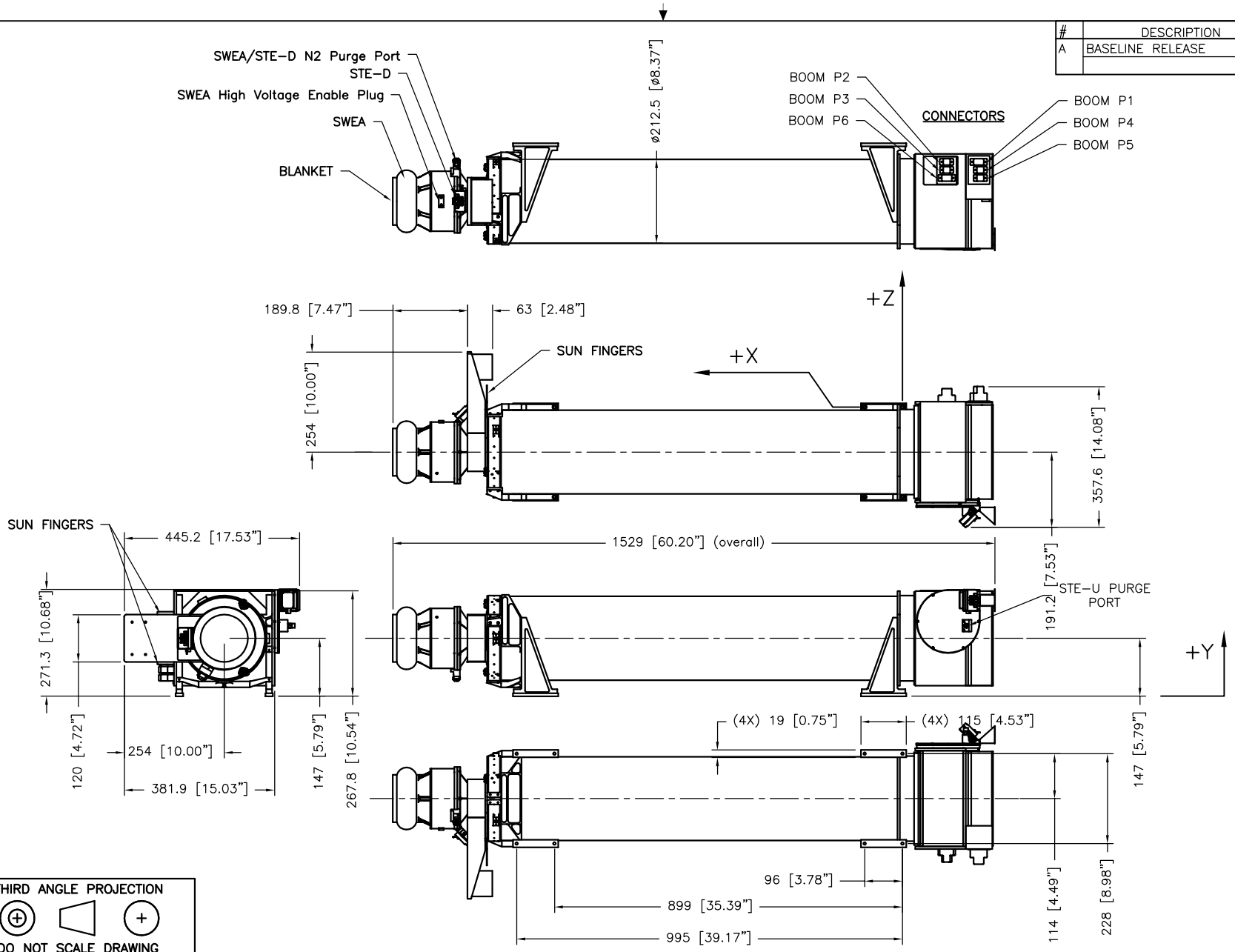

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING
METRIC DRAWING
(UNITS: mm)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN DECIMAL MM & DEGREE TOLERANCES,

PRECISION	TOLERANCE	SURFACE
. X	±0.1	
. XX	±0.05	
ANGLES	±0.5°	✓

MATERIAL

NEXT ASSY

SURF TREAT: SEE NOTES

MASS

FILE NAME

DRAFT BY: KMCKEE — DATE: 09/05/2002

ENGINEER: ULLRICH — DATE:

ISSUED BY — DATE

BEHIND-Stowed

DWG NO — REV: A

CONTRACT /BUDGET: SWAVES

SHEET: 3/4

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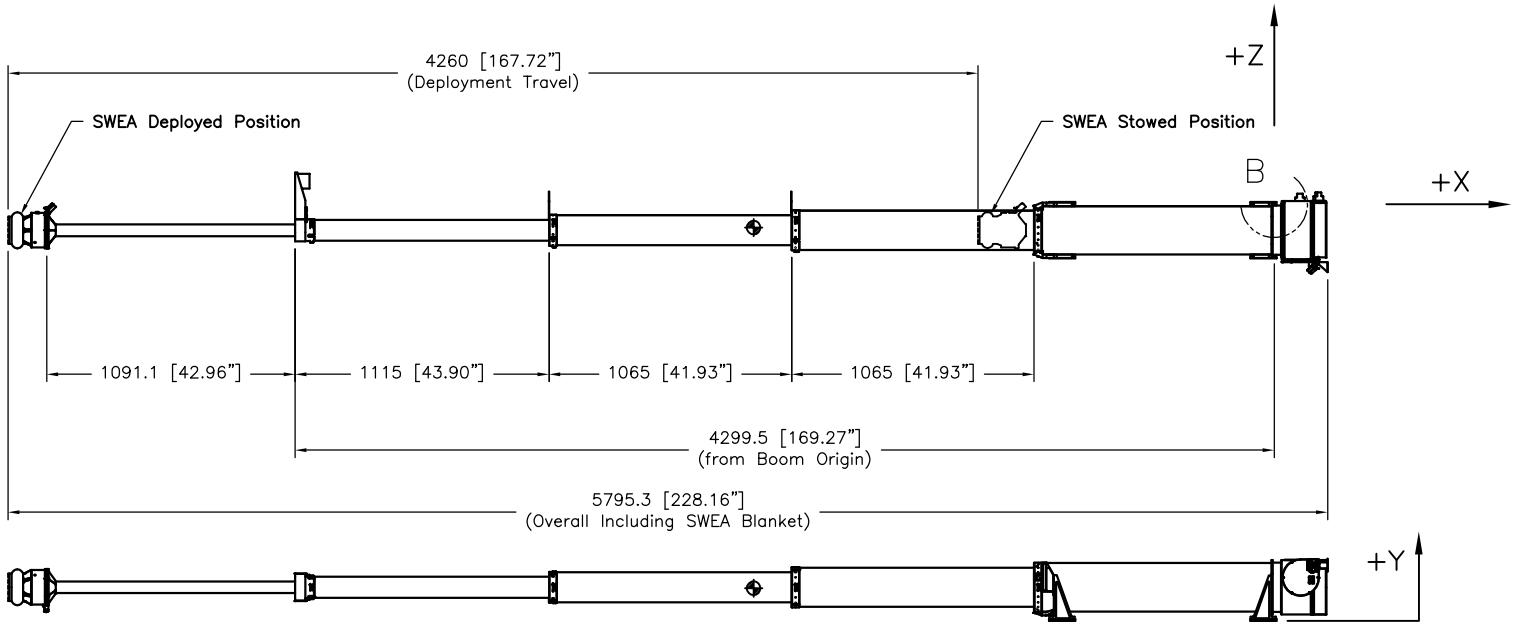

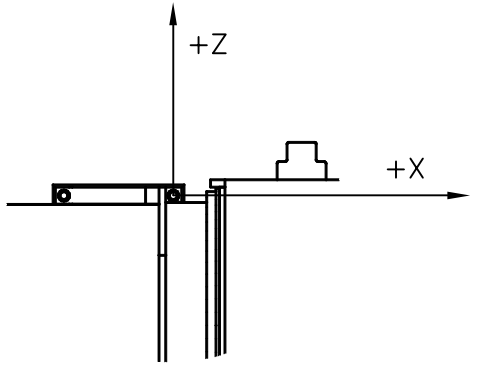

DETAIL B
Boom Origin
(Bottom of Insulator Pad)

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING
METRIC DRAWING
(UNITS: mm)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN DECIMAL MM & DEGREE TOLERANCES,

PRECISION	TOLERANCE	SURFACE
. X	±0.1	
. XX	±0.05	✓
ANGLES	±0.5°	

MATERIAL

NEXT ASSY

SURF TREAT: SEE NOTES

MASS

FILE NAME

DRAFT BY: KMCKEE — DATE: 09/05/2002

ENGINEER: ULLRICH — DATE:

ISSUED BY — DATE

BEHIND–Deployed

DWG NO — REV: A

CONTRACT /BUDGET: SWAVES

SHEET: 4/4

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