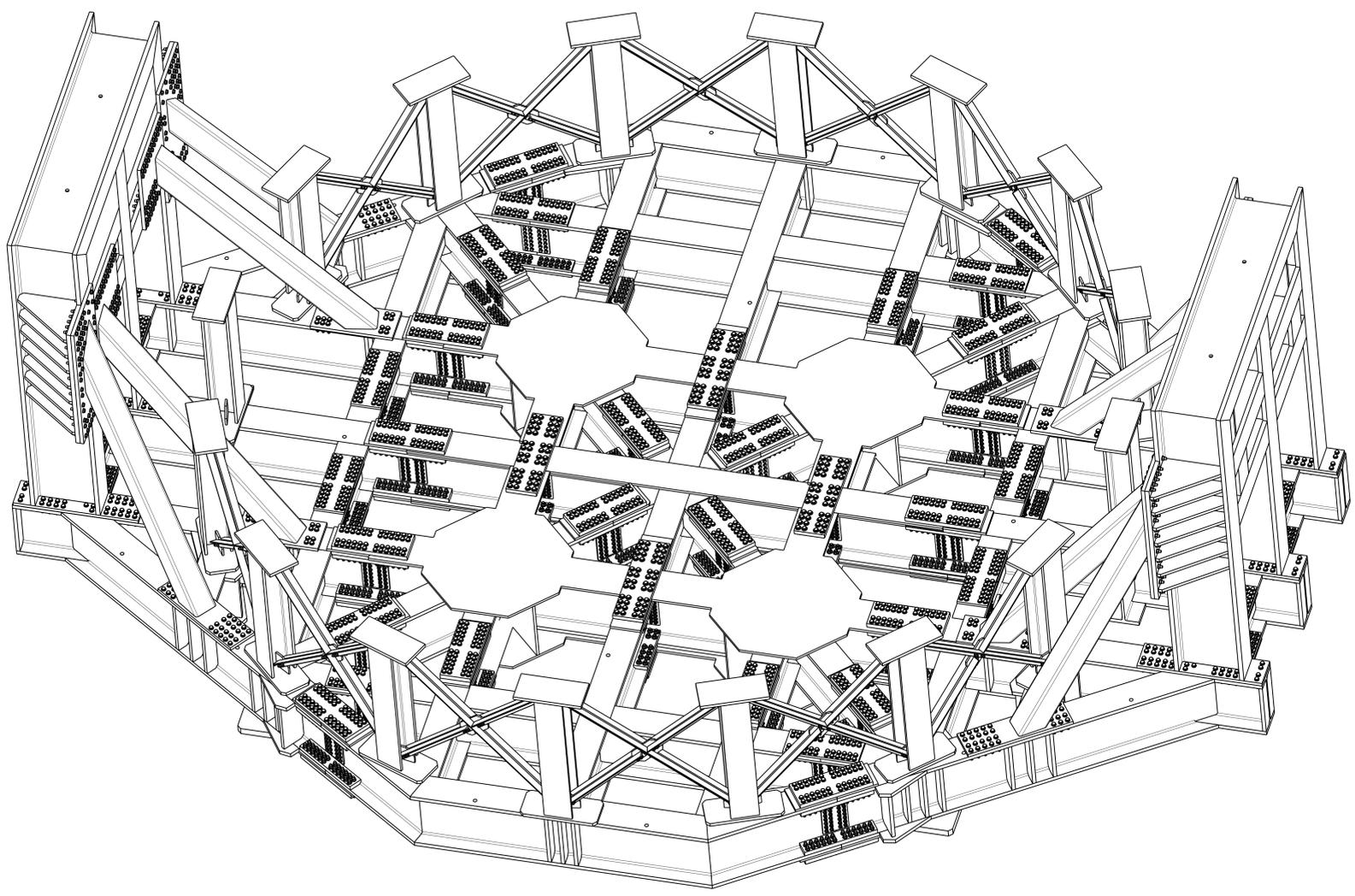


NOTICE: THIS DRAWING IS A PRELIMINARY DRAWING. IT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR VERIFYING THE DIMENSIONS AND MATERIALS OF ALL PARTS AND ASSEMBLIES BEFORE USE. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR PROTECTING THE DRAWING FROM UNAUTHORIZED DISSEMINATION. THE USER SHALL BE RESPONSIBLE FOR MAINTAINING THE DRAWING IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ARCHIVES AND SPACE ADMINISTRATION HISTORICAL PROGRAM.

REVISIONS			
SM	DESCRIPTION	DATE	APPROVAL



MAIN VIEW  
FOR REFERENCE USE ONLY  
NO SCALE

- UNLESS OTHERWISE SPECIFIED:
- REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
  - 500/ ALL EDGES OF PLATES AND END CUTS OF AISC SHAPES.
  - DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH ASME Y14.5M-1994.
  - STEEL WELDING DESIGN, PROCEDURES, AND NON-DESTRUCTIVE EVALUATION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ANSI / AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE-STEEL" AND CURRENT AT THE RELEASE DATE OF THIS DRAWING. UNLESS OTHERWISE SPECIFIED, WELDS SHALL BE 100% VISUAL INSPECTED EXCEPT AS NOTED.
  - PAINT ALL EXPOSED SURFACES PER MIL-STD-171F; SURFACE PREP PER 4.1 AND FINISH PER 24.17. FINISH COLOR 16251 (OR SIMILAR GLOSSY SHADE) PER FED-STD-595C. DO NOT PAINT CONTACT SURFACES BETWEEN BOLTED PARTS OR OTHER INDICATED SURFACES. DO NOT PAINT HOLES OR THREADS. REFERENCE DRAWING 90M13927 FOR LOCATIONS OF BOLTED JOINT SURFACES. AREAS DAMAGED DURING ASSEMBLY OR INSTALLATION SHALL BE TOUCHED UP ONSITE, NO BLASTING OR SPRAYING PERMITTED OF ANY TYPE. PROTECT UNPAINTED SURFACES WITH TRIFLOW.
  - AFTER WELDING AND PRIOR TO FINAL MACHINING, STRESS RELIEVE PER SAE AMS 2759/59.
  - ALL STRUCTURAL STEEL SHAPES SHALL CONFORM TO THE DESIGNATIONS AND DIMENSIONS OF THE AISC "STEEL CONSTRUCTION MANUAL", 14TH EDITION.
  - ALIGN AND ASSEMBLE TO DIMENSIONS SHOWN. MATCH DRILL HOLES BY TRANSFERRING HOLE PATTERN FROM PART TO BASE WELDMENT (90M13927-1). MATCH MARK (STEEL STAMPING) MATING PARTS USING 1.0" TALL CHARACTERS. MARK SHALL BE UNIQUE COMBINATION OF ALPHABET LETTERS AND/OR NUMBERS. EXAMPLE: A1, AB, ETC.
  - ESTIMATED WELDMENT WEIGHT (INCLUDING FASTENERS) = 628,000 LBS.
  - FOR 150 KSI UTS FASTENERS (INCLUDING SAE GRADE 8 AND ASTM A490) TORQUE PER MSFC-STD-486B TO THE FOLLOWING VALUES:  
1" DIA: 515-600 FT-LBS  
1-1/4" DIA: 1125-1320 FT-LBS
  - PROVIDE FULL-CONTACT SHIMS BETWEEN MATING PARTS WHERE GAPS ARE GREATER THAN 1/32". MATCH MARK SHIMS AND THE MATING PARTS FOR REASSEMBLY BY ETCHING SHIMS AND STEEL STAMPING WELDMENTS USING 1" TALL CHARACTERS. MARK SHALL BE UNIQUE COMBINATION OF ALPHABET LETTERS AND/OR NUMBERS. EXAMPLE: A1, AB, ETC.

- PRELIMINARY -  
 THIS DRAWING HAS NOT COMPLETED THE  
 REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
 03-17-14  
 DATE

34	4	168	P	90M13927-34	1-BUNC-2A HX HD CAP SCR W x 4.50 LG, GR 8, ZINC PLATED			
33	5,6	2512	P	90M13927-33	1" SCREW SIZE, 2-1/2" OD, .13-.16" THK WASHER		MATERIAL: ASTM F436	
32	5,6	1256	P	90M13927-32	1-BUNC-2B HEX NUT, GR 8, ZINC PLATED		MATERIAL: ASTM A563	
31	3	924	P	90M13927-31	1-1/4 -7UNC-2A HX HD CAP SCR W x 7.00 LG, GR 8, ZINC PLATED		MATERIAL: SAE GRADE 8	
30	4,5,6	9144	P	90M13927-30	1-1/4 SCREW SIZE, 2-1/2" OD, .09-.18" THK WASHER		MATERIAL: ASTM F436	
29	4,5,6	4572	P	90M13927-29	1-1/4 -7UNC-2B HEX NUT, GR 8, ZINC PLATED		MATERIAL: ASTM A563	
28	5,6	1088	P	90M13927-28	1-BUNC-2A HX HD CAP SCR W x 5.00 LG, GR 8, ZINC PLATED		MATERIAL: SAE GRADE 8	
27	5	2112	P	90M13927-27	1-1/4 -12UNC-2A HX HD CAP SCR W x 12.00 LG, GR 8, ZINC PLATED		MATERIAL: SAE GRADE 8	
26	6	384	P	90M13927-26	1-1/4 -7UNC-2A HX HD CAP SCR W x 11.00 LG, GR 8, ZINC PLATED		MATERIAL: SAE GRADE 8	
25	5	1152	P	90M13927-25	1-1/4 -7UNC-2A HX HD CAP SCR W x 7.50 LG, GR 8, ZINC PLATED		MATERIAL: SAE GRADE 8	
24	6	16	F	90M13927-24	ANGLE 8" X 8" X .75" LENGTH= 20"		MATERIAL: ASTM 572 (WEB SPLICE JOINT CC)	
23	5	68	F	90M13927-23	.75" STK. PLATE 25" X 15"		MATERIAL: ASTM 572 GRADE 50 (WEB SPLICE AA & BB)	
22	6	32	F	90M13927-22	2.5" STK. PLATE 28.3" X 7.8"		MATERIAL: ASTM 572 GRADE 50 (JOINT CC INNER)	
21	6	8	F	90M13927-21	2.5" STK. PLATE 58" X 17"		MATERIAL: ASTM 572 GRADE 50 (JOINT CC OUTER)	
20	5	88	F	90M13927-20	2.75" STK. PLATE 42.3" X 7.8"		MATERIAL: ASTM 572 GRADE 50 (JOINT BB INNER)	
19	5	44	F	90M13927-19	2.75" STK. PLATE 42.3" X 17"		MATERIAL: ASTM 572 GRADE 50 (JOINT BB OUTER)	
18	5	48	F	90M13927-18	1.5" STK. PLATE 42.3" X 7.8"		MATERIAL: ASTM 572 GRADE 50 (JOINT AA INNER)	
17	5	24	F	90M13927-17	1.5" STK. PLATE 42.3" X 17"		MATERIAL: ASTM 572 GRADE 50 (JOINT AA OUTER)	
16	4	11	F	90M13927-16	1.0" STK. PLATE 18" X 10" 2.0" CHAMFERS		MATERIAL: ASTM 572 GRADE 50 (CROSS BRACING)	
15	4	48	F	90M13927-15	ANGLE STK. 4" X 4" X .75" LENGTH= 61.5"		MATERIAL: ASTM 572 (CROSS BRACING)	
14	4	26	F	90M13927-14	ANGLE STK. 4" X 4" X .75" LENGTH= 128.5"		MATERIAL: ASTM 572 (CROSS BRACING)	
13	2	16	A	90M14374-1	BASE TO PEDESTAL VERTICAL POST WELDMENT SLS ENGINE SECTION TEST			
12	2	2	A	90M14372-1	BASE FRAME INNER SRB BRACE WELDMENT 2 SLS ENGINE SECTION TEST			
11	2	2	A	90M14371-1	BASE FRAME INNER SRB BRACE WELDMENT 1 SLS ENGINE SECTION TEST			
10	2	2	A	90M14370-1	BASE FRAME OUTER SRB BRACE WELDMENT 2 SLS ENGINE SECTION TEST			
9	2	2	A	90M14280-1	BASE FRAME OUTER SRB BRACE WELDMENT 1 SLS ENGINE SECTION TEST			
8	2	2	A	90M14142-1	BASE FRAME SRB BASE WELDMENT SLS ENGINE SECTION TEST			
7	2	2	A	90M14141-1	BASE FRAME SRB STANCHION WELDMENT SLS ENGINE SECTION TEST			
6	2	2	A	90M14140-1	BASE FRAME CORNER SECTION WELDMENT 2 SLS ENGINE SECTION TEST			
5	2	2	A	90M14139-1	BASE FRAME CORNER SECTION WELDMENT 1 SLS ENGINE SECTION TEST			
4	2	2	A	90M14138-1	BASE FRAME END SECTION WELDMENT SLS ENGINE SECTION TEST			
3	2	2	A	90M14137-1	BASE FRAME GIMBAL MOUNT WELDMENT SLS ENGINE SECTION TEST			
2	2	1	A	90M14136-1	BASE FRAME CENTER SECTION WELDMENT SLS ENGINE SECTION TEST			
1	2	-	-	90M13927-1	BASE FRAME ASSEMBLY SLS ENGINE SECTION TEST			
FINO NO.	CALLOUT SHF NO.	DETAIL SHF NO.	TOT. REQ'D	PART NO.	DESCRIPTION	VEND NO.	REMARKS	
				A:ASSEMBLY/INSTALLATION	E:EXISTING	F:FABRICATED ITEM	M:MODIFIED ITEM	P:PURCHASED ITEM

STRESS	DATE	PREPARED BY	DATE	UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:	DECIMALS	FRACCTIONS
MATERIALS	DATE	EST. DIMENSIONS/REVISIONS	DATE		.X ± .06	± 1/16 ± 1/32
MANUFACTURING	DATE	EST. DIMENSIONS/REVISIONS	DATE		.XX ± .03	± 1/16 ± 1/32
SHIP AND WELDING	DATE	EST. DIMENSIONS/REVISIONS	DATE		.XXX ± .010	± 1/16 ± 1/32
FLUSH INTERFACES	DATE	CHECKER	DATE		< ± .50"	
PRELIM CERTIFICATION NUMBER	DATE	EST. DIMENSIONS/REVISIONS	DATE			

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BASE FRAME ASSEMBLY  
SLS ENGINE SECTION  
TEST

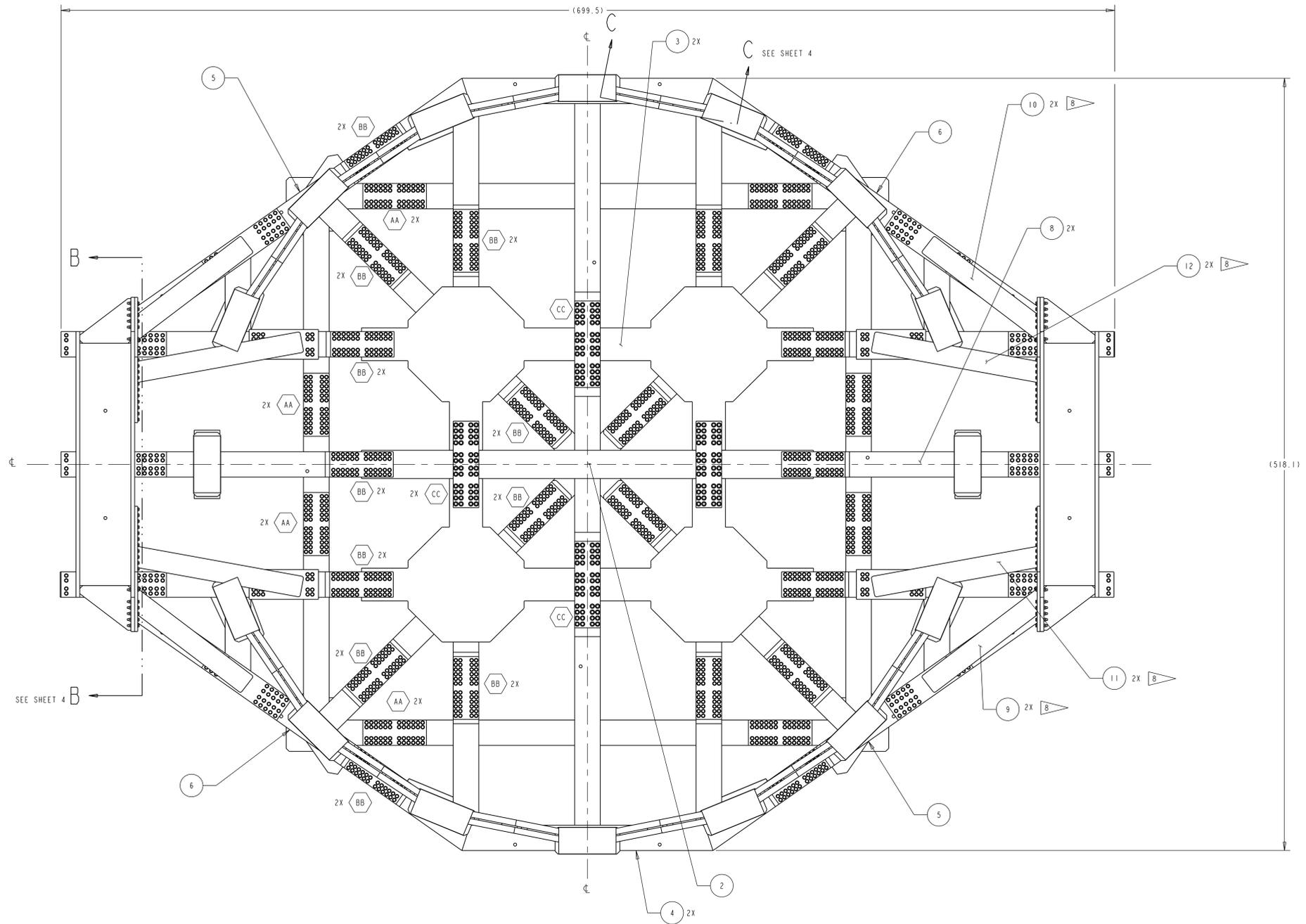
90M13927

JEFF SHEPHERD 90M13930 T2-11-13

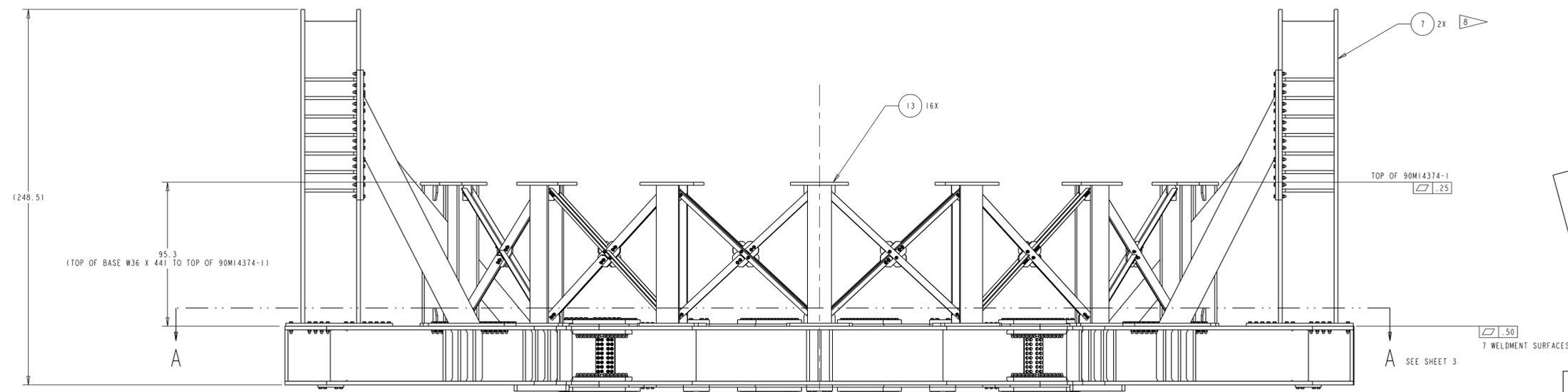
SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSO  
GEORGE C. MARSHALL SPACE FLIGHT CENTER  
NATIONAL ARCHIVES AND SPACE ADMINISTRATION HISTORICAL PROGRAM

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL

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SEE SHEET 5 FOR JOINT DETAILS AA BB  
 SEE SHEET 6 FOR JOINT DETAIL CC



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 03-17-14  
 DATE

FIND NO. 1  
 SCALE 0.033

BASE FRAME ASSEMBLY  
 SLS ENGINE SECTION  
 TEST

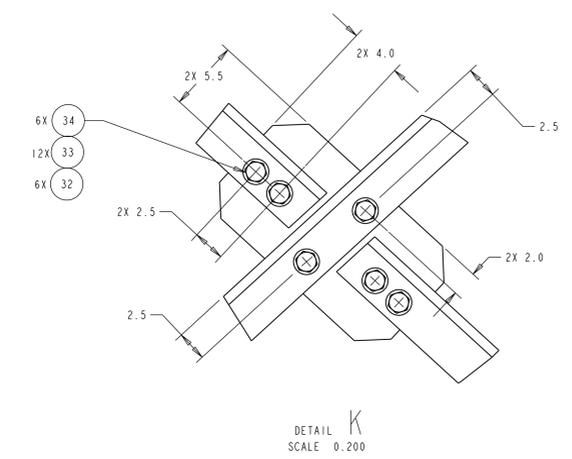
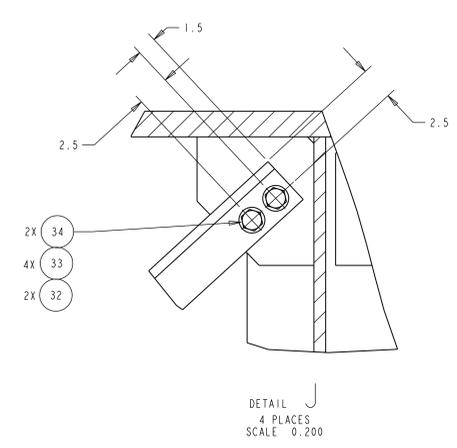
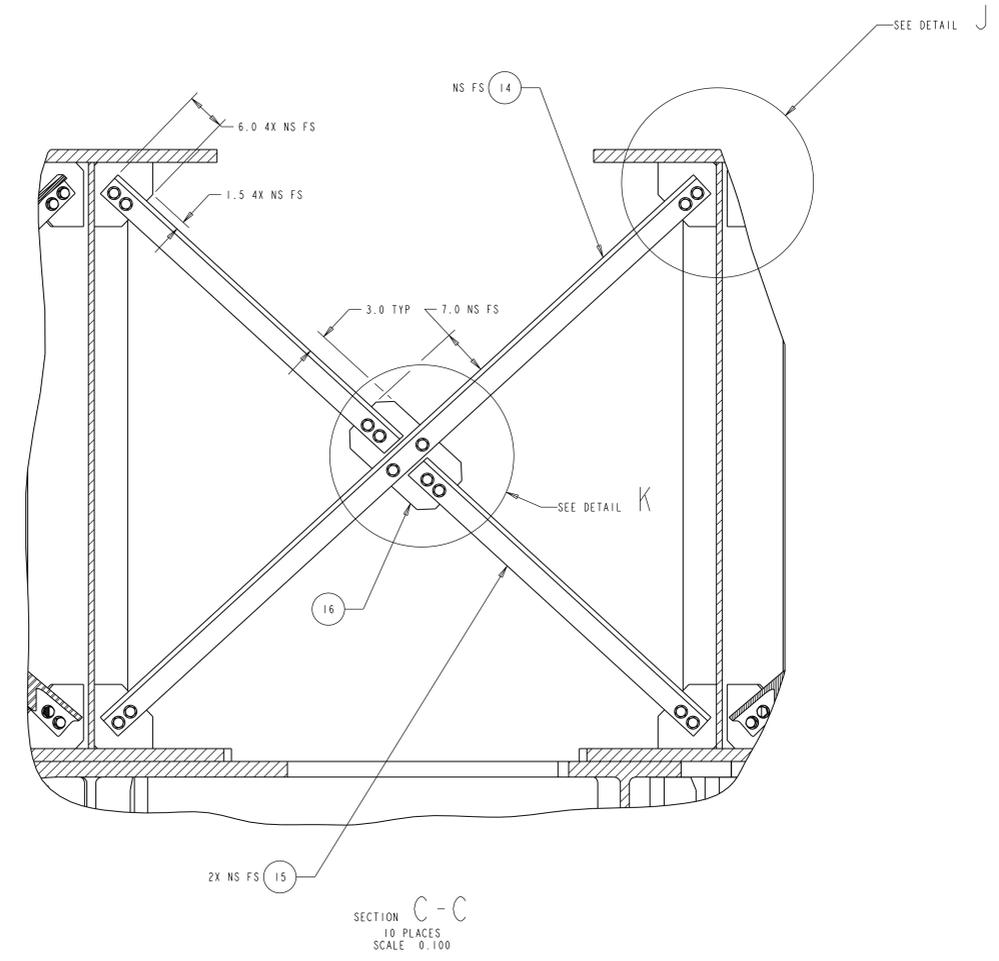
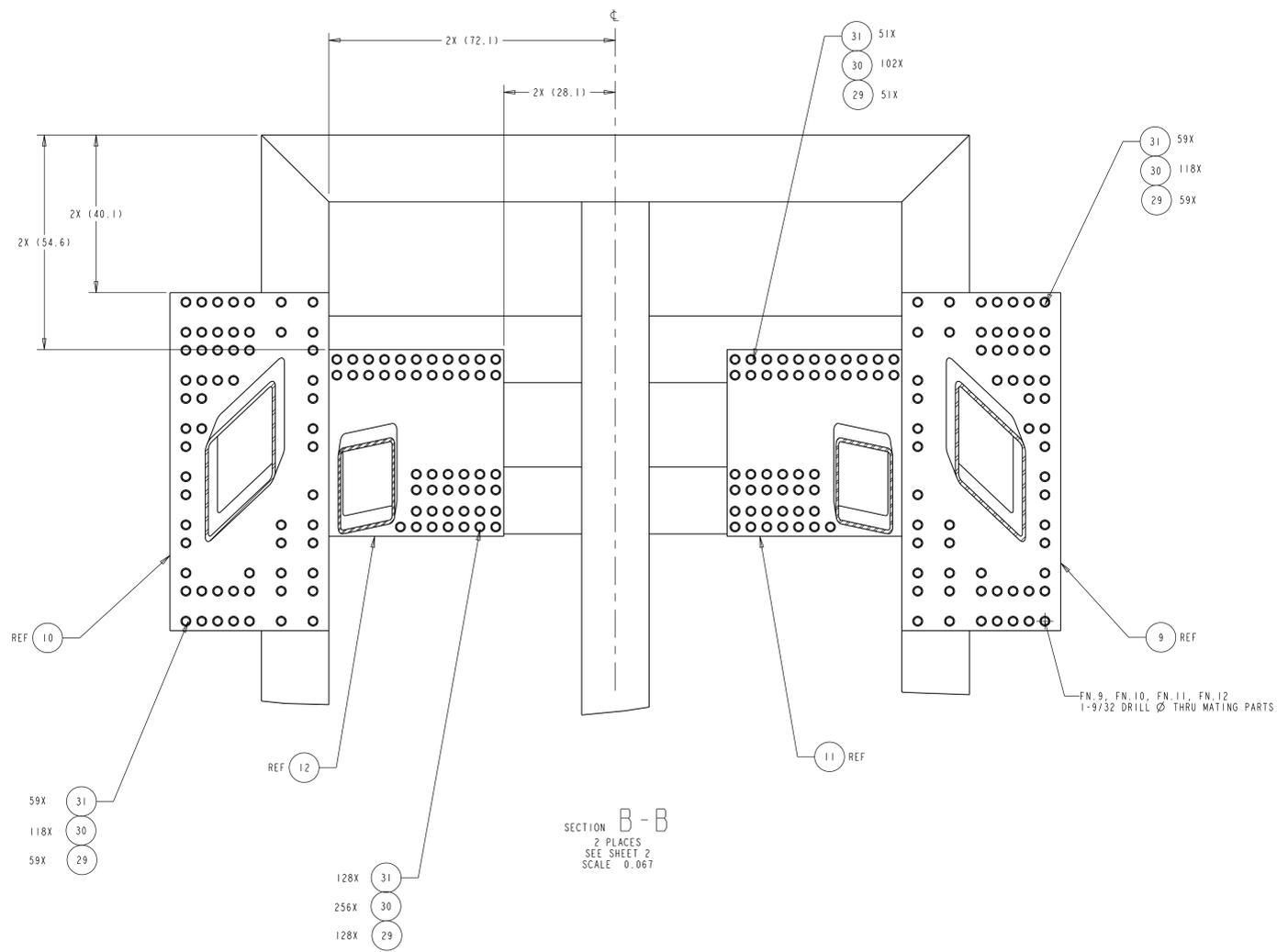
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SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSD	REVISION SEE SHEET 1
GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROLOGICAL BRANCH	90M13927
DATE	2 6



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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL

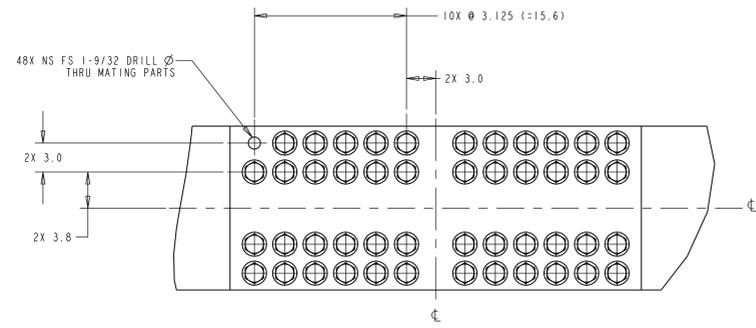
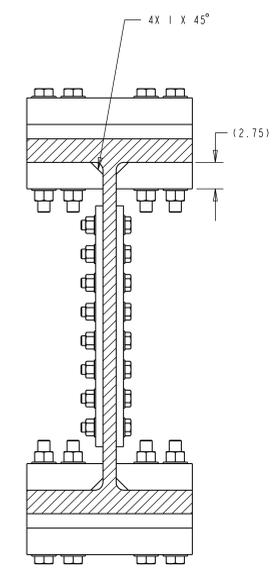
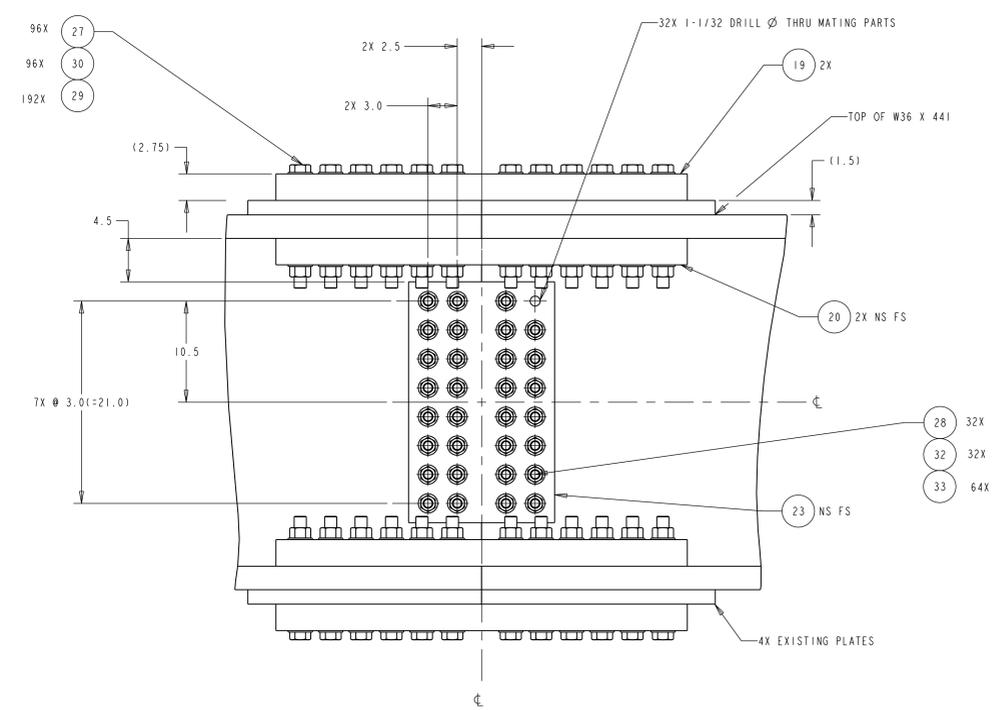
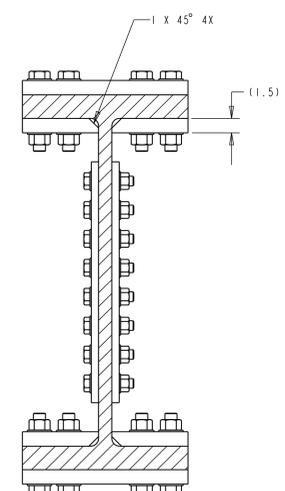
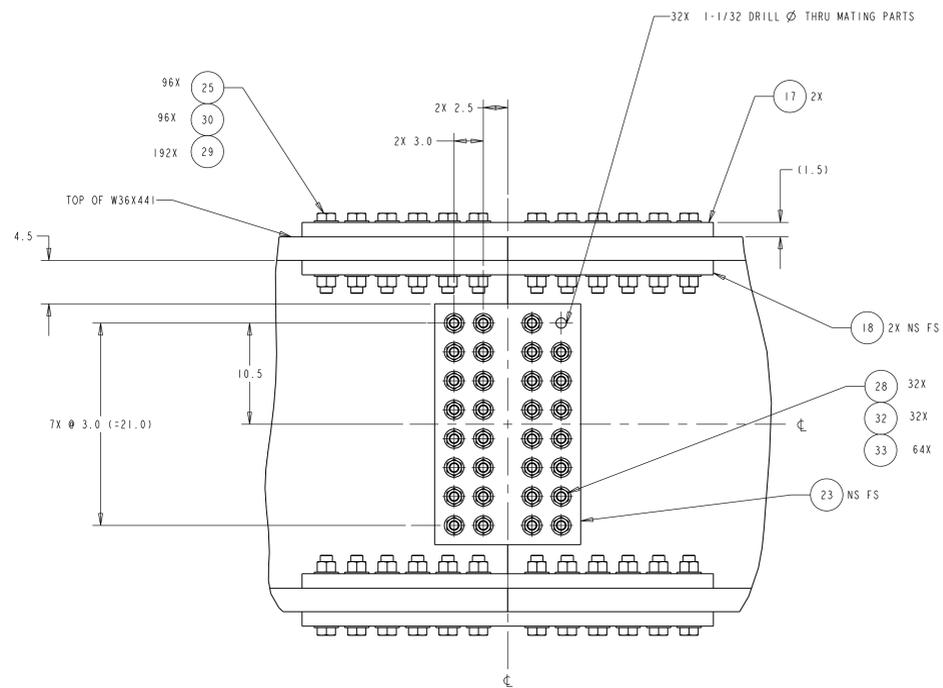


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03-17-14  
DATE

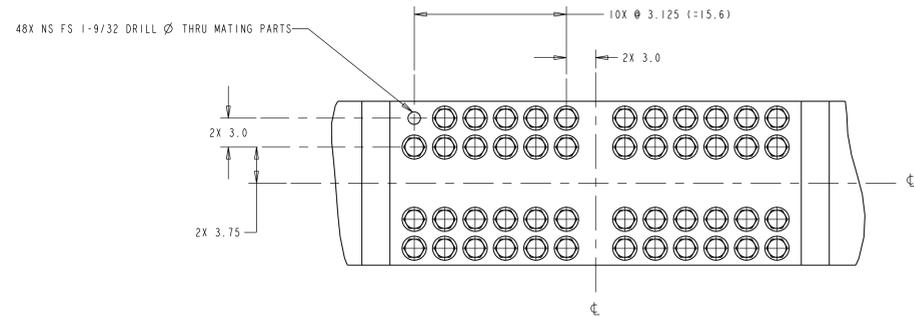
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90M13927		REVISION SEE SHEET 1	4 6

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



SPLICE JOINT AA  
 12 PLACES  
 SEE SHEET 2  
 SOME HARDWARE REMOVED FOR DIMENSIONING  
 SCALE 0.15



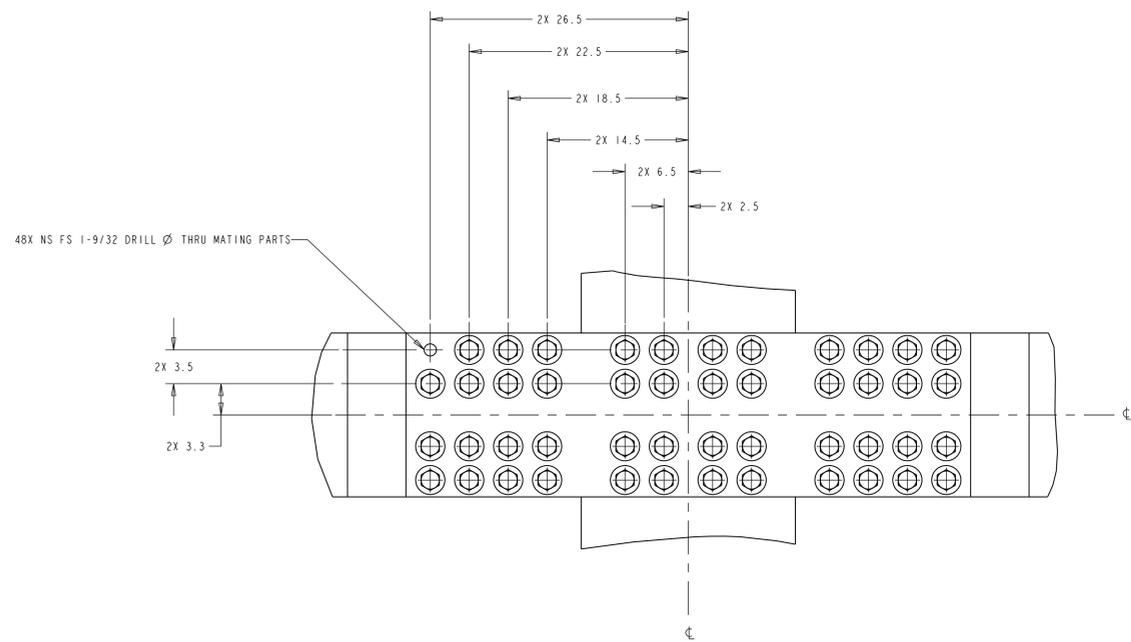
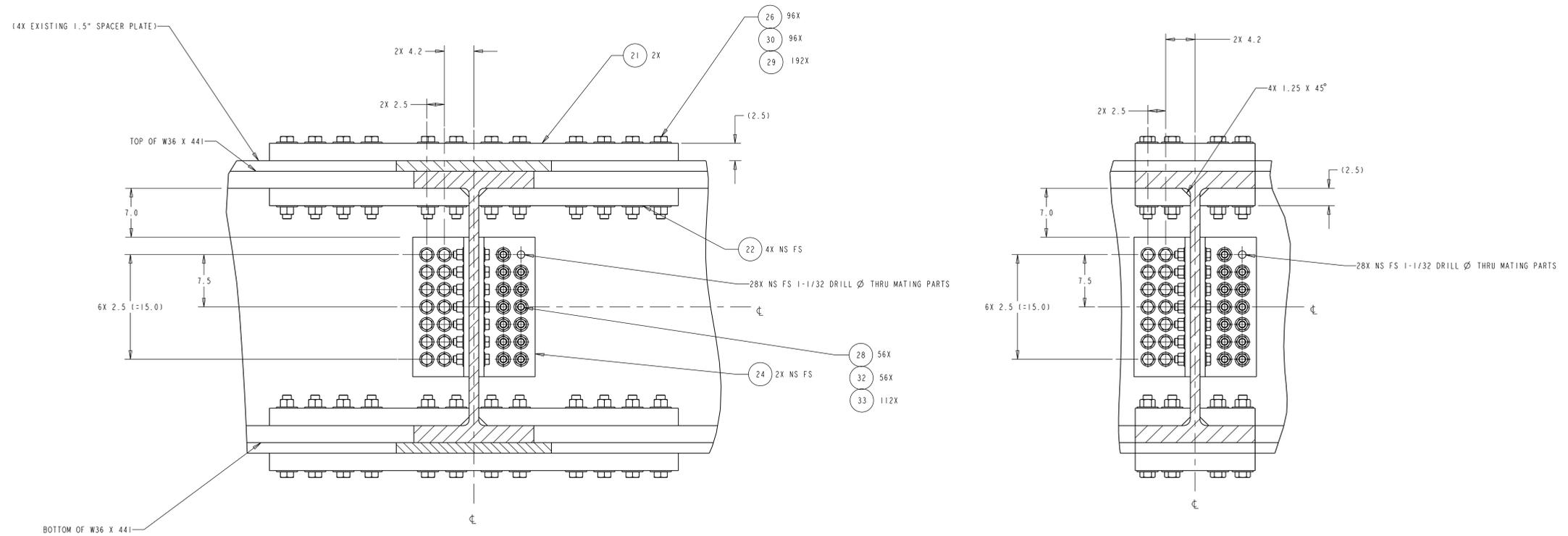
SPLICE JOINT BB  
 22 PLACES  
 SEE SHEET 2  
 SOME HARDWARE REMOVED FOR DIMENSIONING  
 SCALE 0.15

- PRELIMINARY -  
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 REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
 03-17-14  
 DATE

BASE FRAME ASSEMBLY SLS ENGINE SECTION TEST		SPECIAL TEST EQUIPMENT DESIGN BRANCH - ET50 GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROTECH. LAB/DM	
90M13927		REVISION SEE SHEET 1	6

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



SPLICE JOINT CC  
 4 PLACES  
 SEE SHEET 2  
 SOME HARDWARE REMOVED FOR DIMENSIONING  
 SCALE 0.150

- PRELIMINARY -  
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 03-17-14  
 DATE

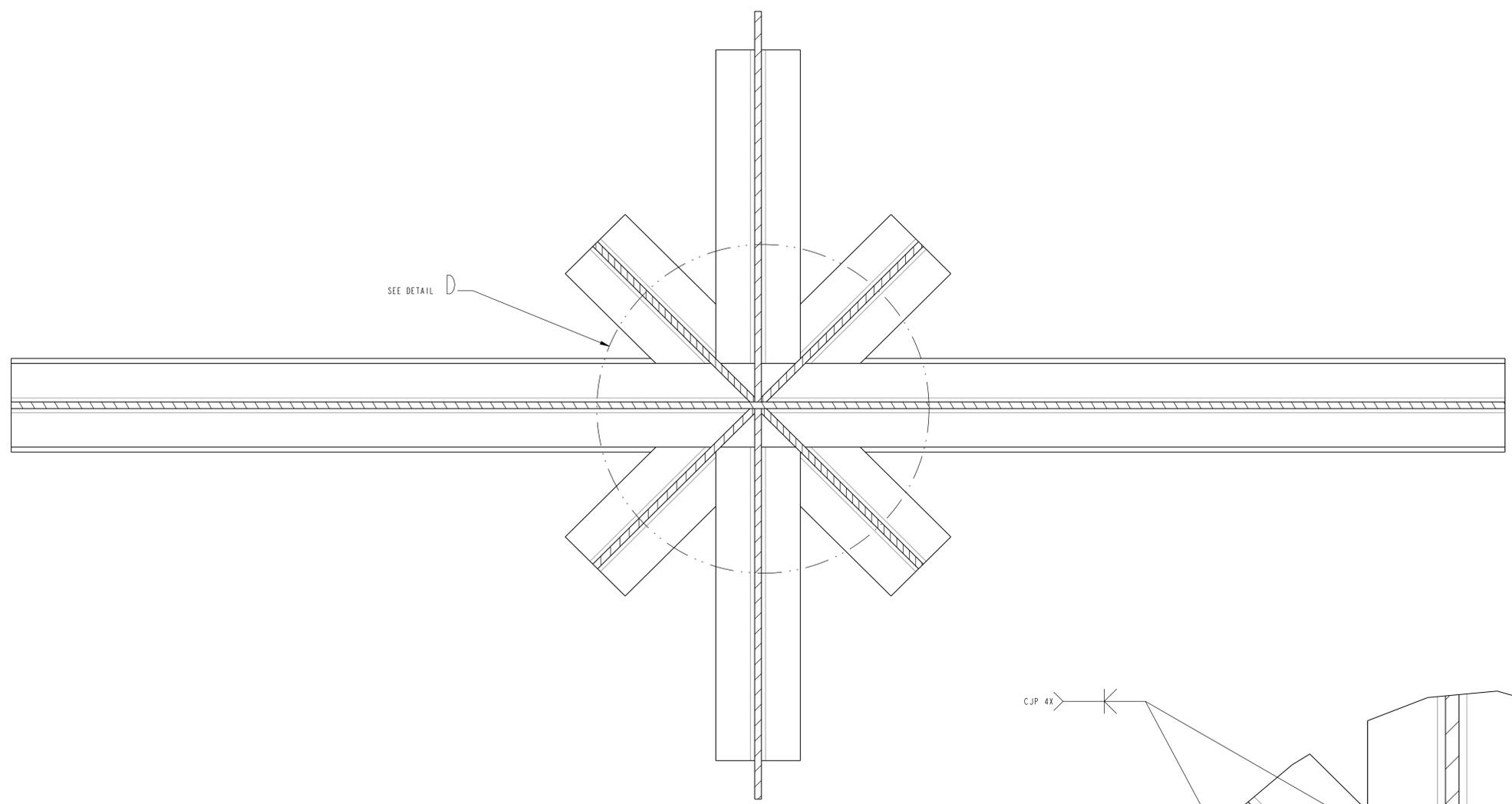
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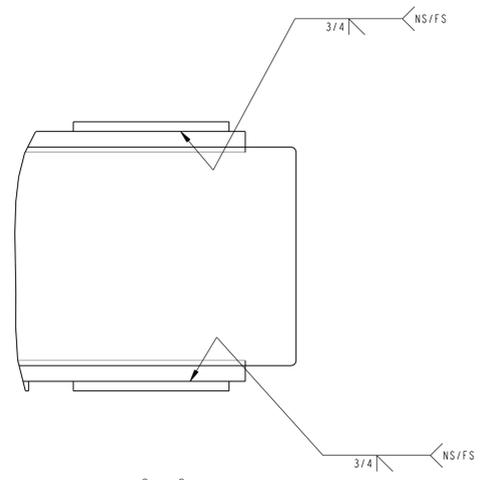


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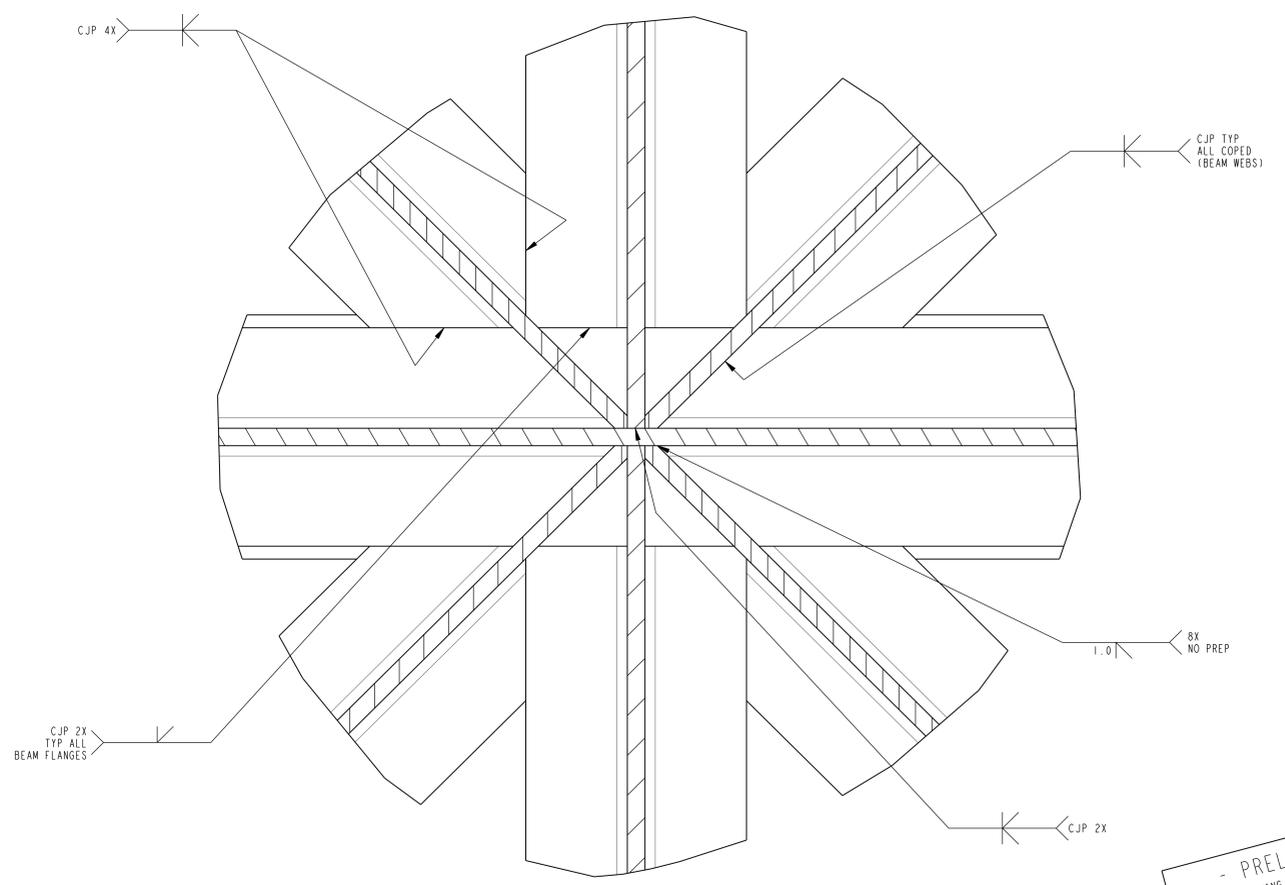
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



SECTION B-B  
SEE SHEET 2  
SCALE 1/10



SECTION C-C  
SEE SHEET 2  
2 PLACES  
SCALE 1/10



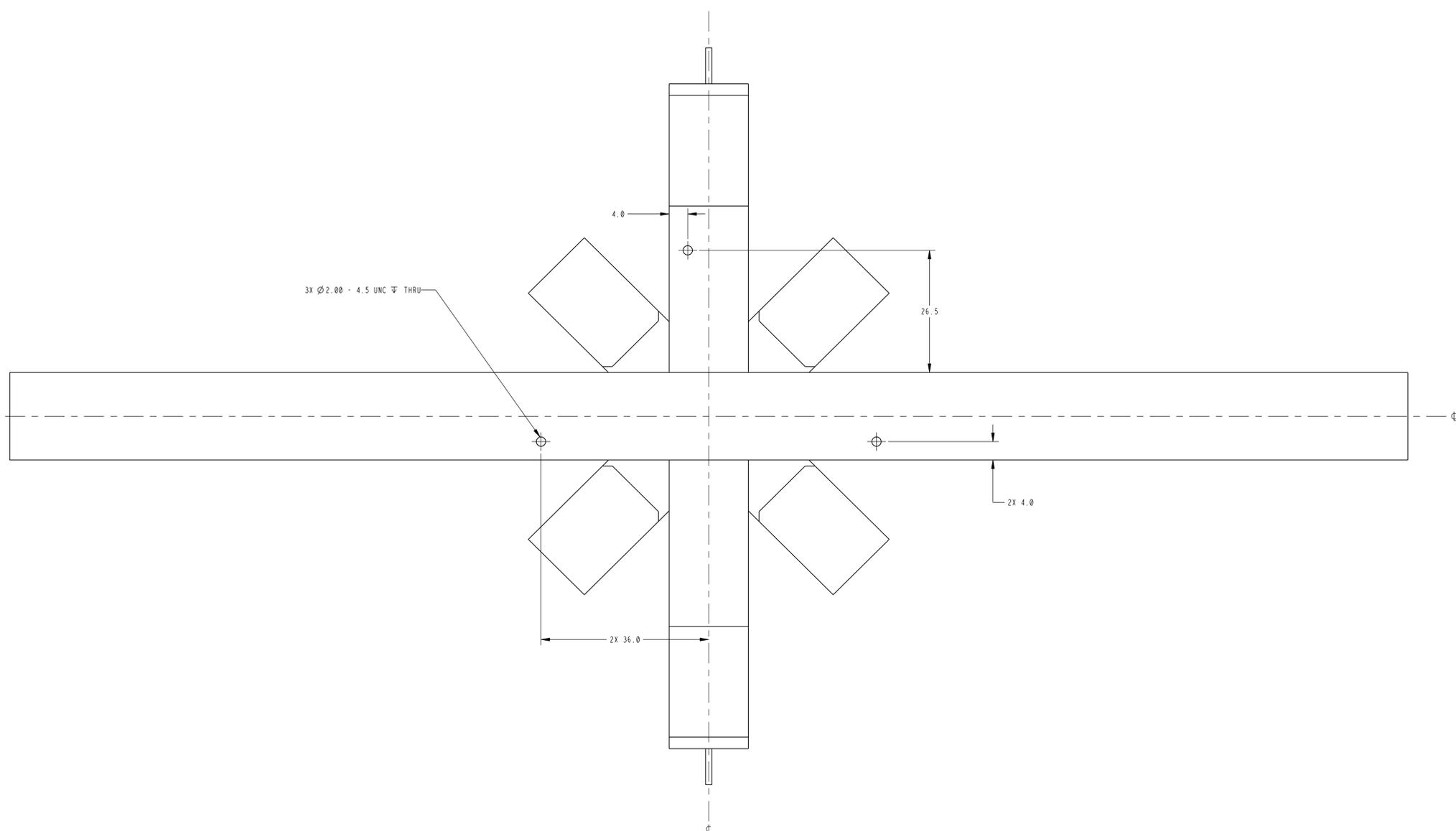
DETAIL D  
SCALE 1/5

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03-14-14  
DATE

BASE FRAME CENTER SECTION WELDMENT SLS ENGINE SECTION TEST		SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSD GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROLOGICAL BLDG.	
90M14136	REVISION SEE SHT 1	3	4

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



3X  $\varnothing 2.00 - 4.5 \text{ UNC } \nabla$  THRU

4.0

26.5

2X 4.0

2X 36.0

SCALE 1/10

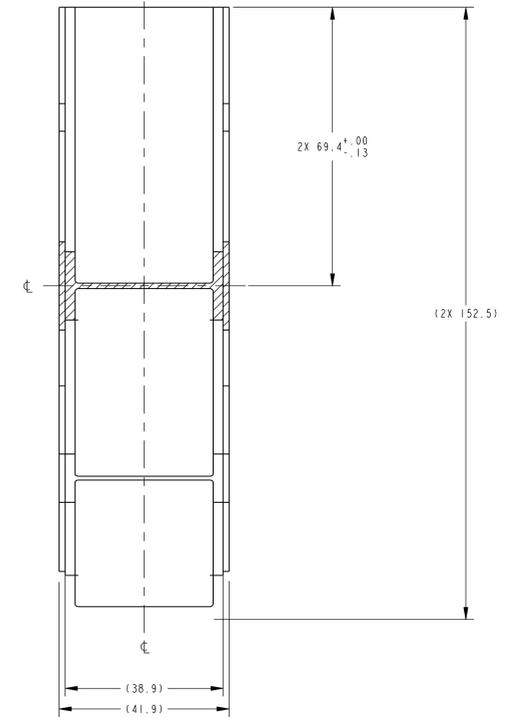
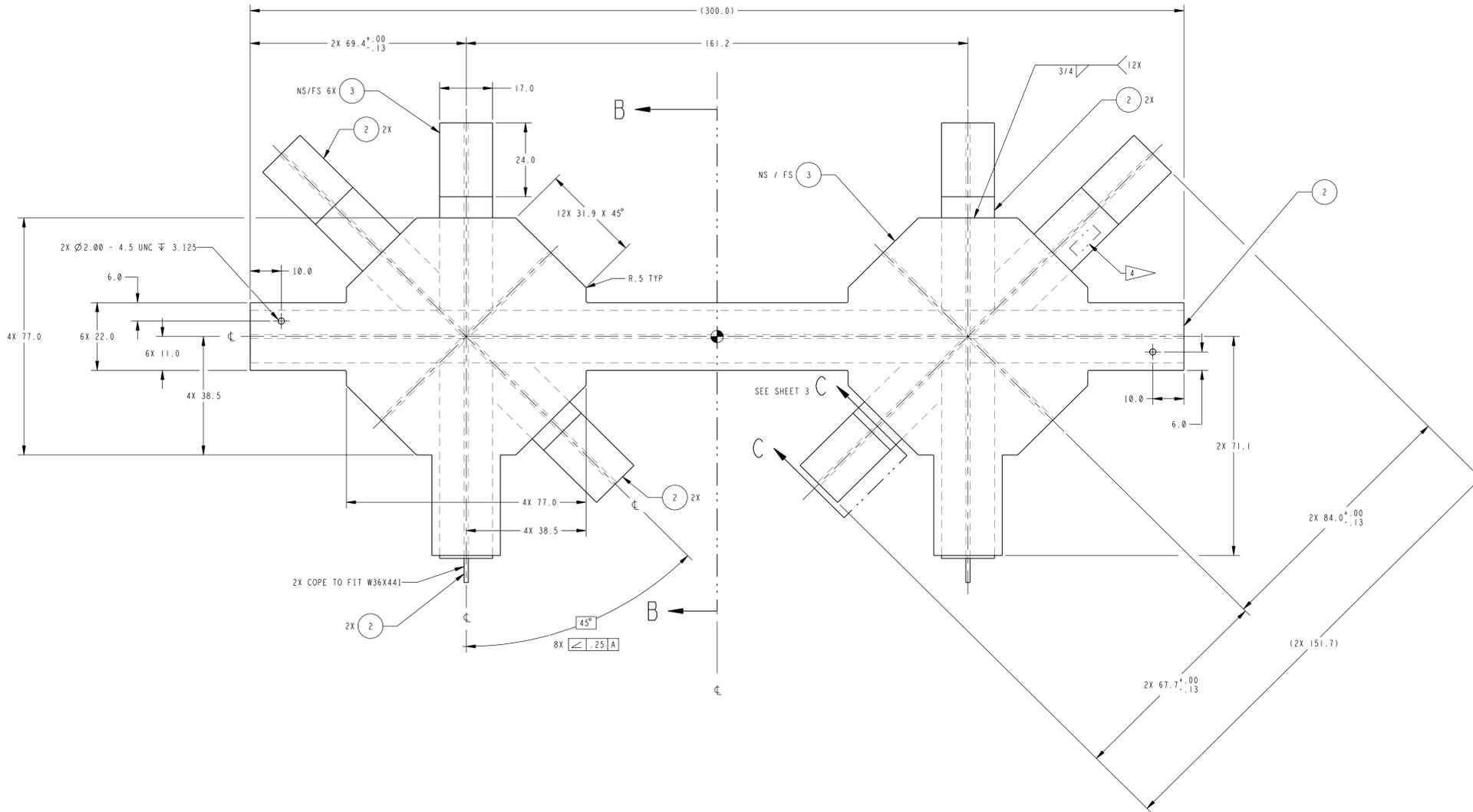
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 03-14-14  
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BASE FRAME CENTER SECTION WELDMENT SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ET50 GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION HUNTSVILLE, ALABAMA
	90M14136 REVISION SEE SHEET 1 SHEET 4 OF 4

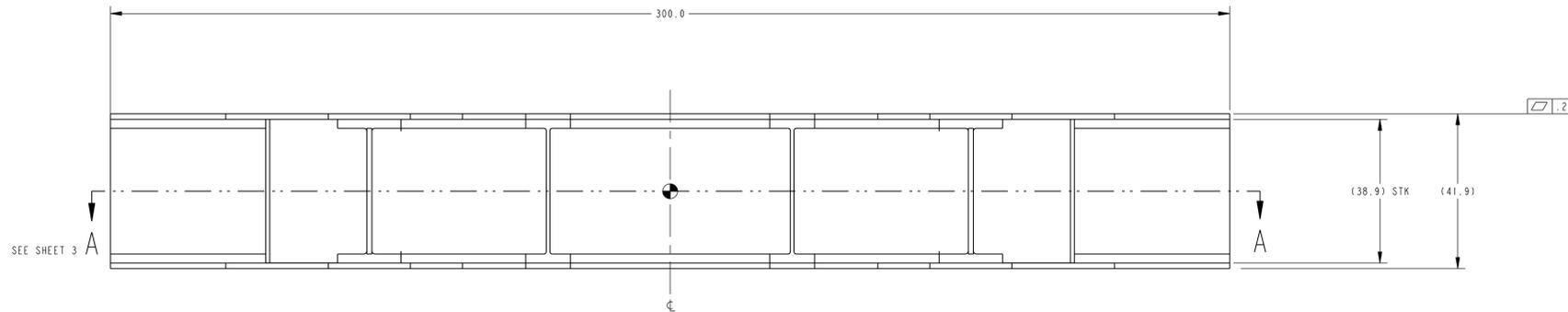


NOTICE: THIS DRAWING IS A PRELIMINARY DESIGN. IT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR VERIFYING THE DIMENSIONS AND SPECIFICATIONS OF ALL MATERIALS AND COMPONENTS USED IN THE CONSTRUCTION OF THE TEST EQUIPMENT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS AND APPROVALS FROM THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) AND THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) AND THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA).

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



SECTION B-B  
SOME COMPONENTS NOT DISPLAYED FOR CLARITY



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SCALE 1/16

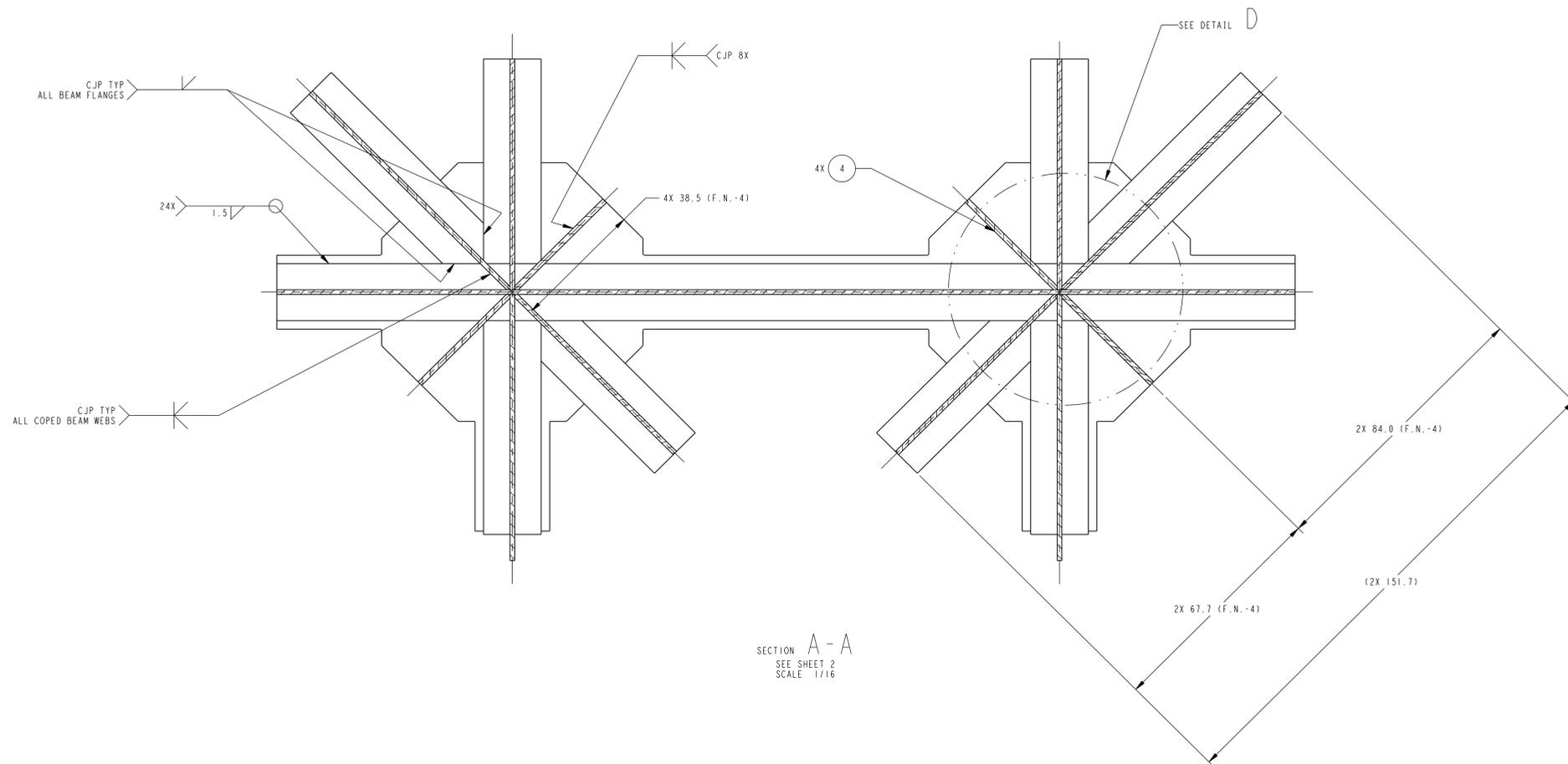
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THIS DRAWING HAS NOT COMPLETED THE  
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03-14-14  
DATE

BASE FRAME GIMBAL MOUNT WELDMENT SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSO GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROLOGICAL BLDG.
	90M14137 REVISION SEE SHEET 1

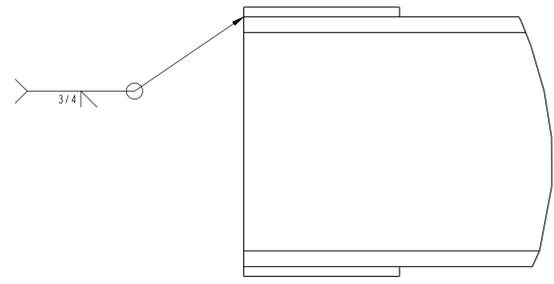
APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED

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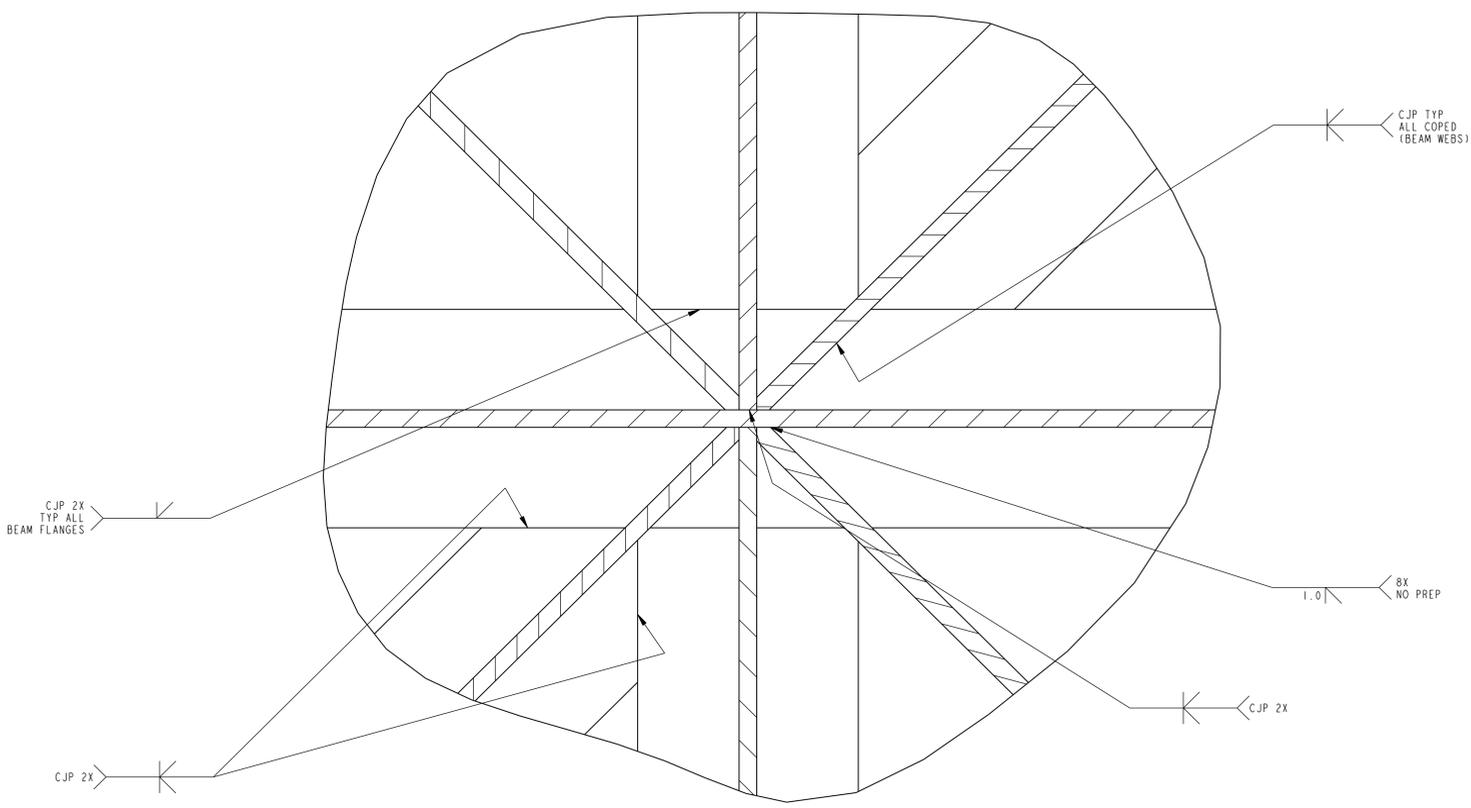
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



SECTION A-A  
SEE SHEET 2  
SCALE 1/16



SECTION C-C  
SEE SHEET 2  
SOME COMPONENTS NOT DISPLAYED FOR CLARITY  
SCALE 1/10



DETAIL D  
SCALE 1/5

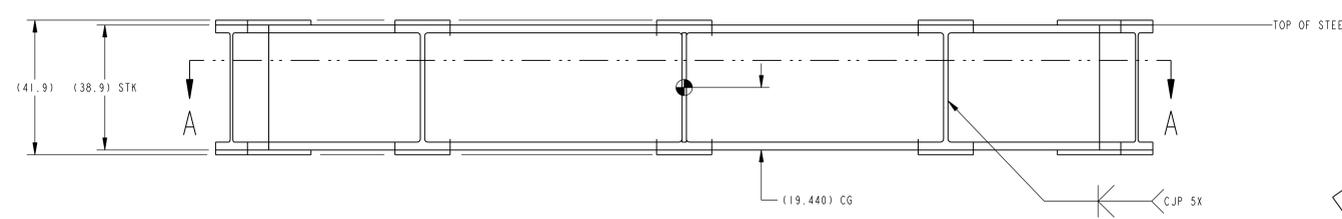
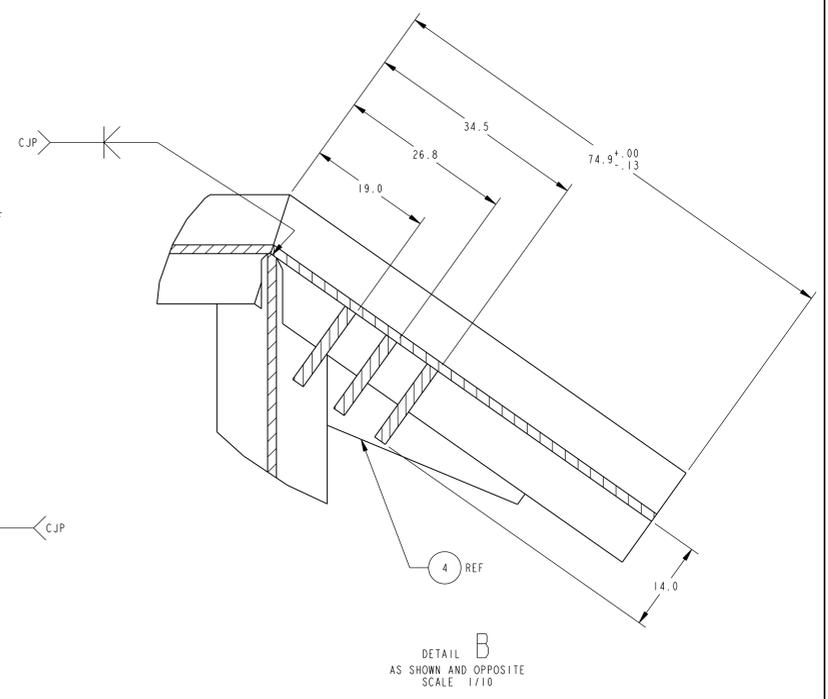
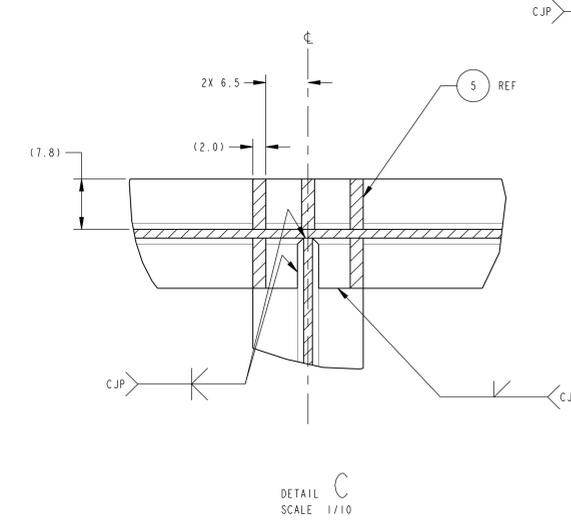
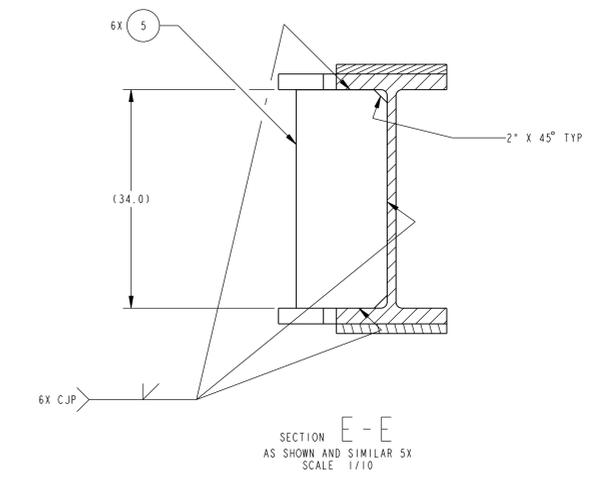
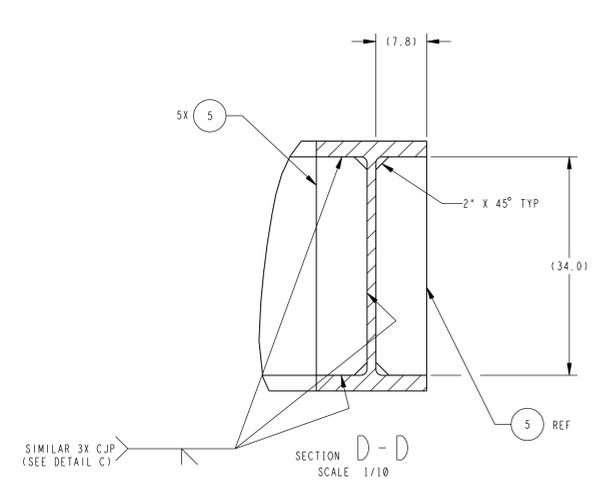
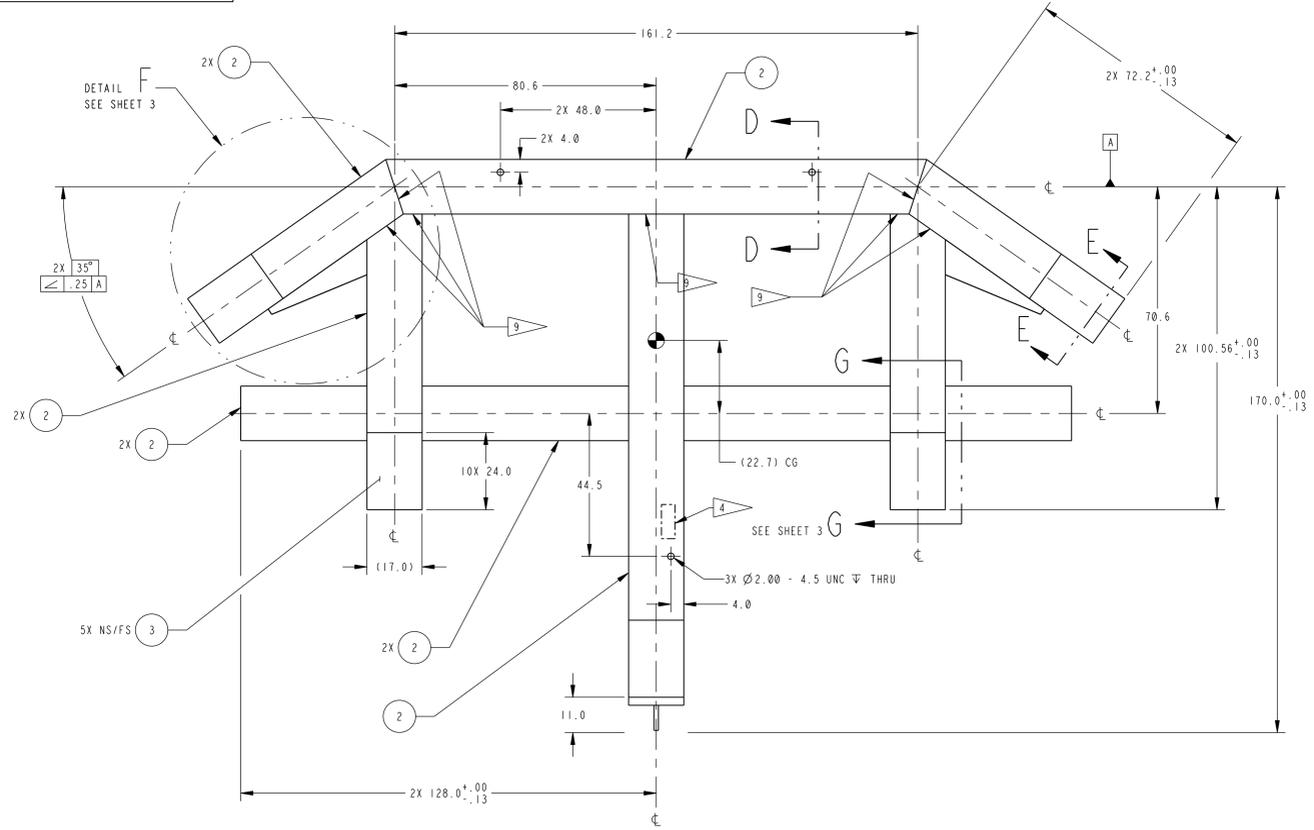
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THIS DRAWING HAS NOT COMPLETED THE  
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03-14-14  
DATE

BASE FRAME GIMBAL MOUNT WELDMENT SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ET50 GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROLOGICAL BRANCH
90M14137	REVISION SEE SHEET 1
3	3

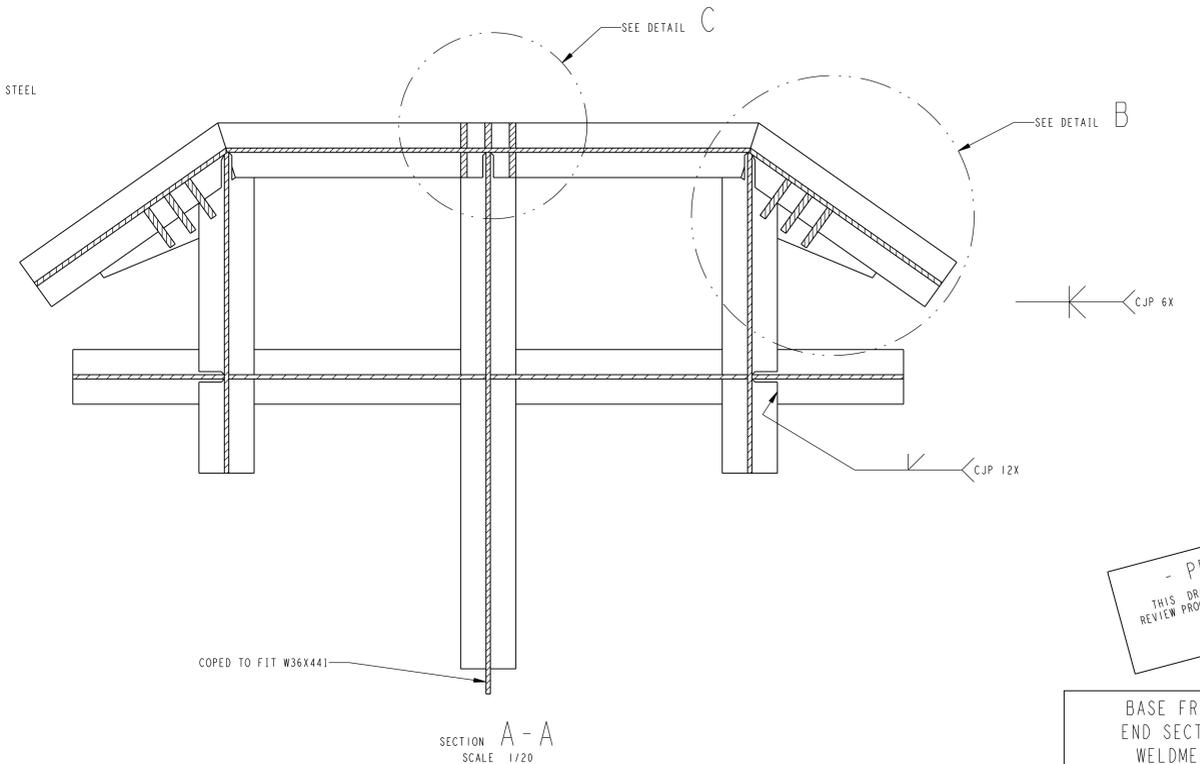


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REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL



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SCALE 1/20



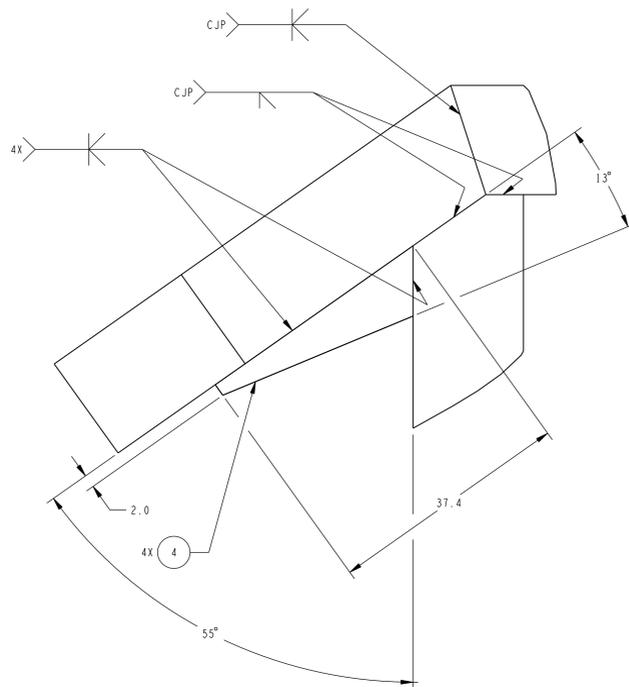
- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

BASE FRAME END SECTION WELDMENT SLS ENGINE SECTION TEST		SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSO GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROLOGICAL BLDG.
90M14138	REVISION SEE SHT 1	
E	2	3

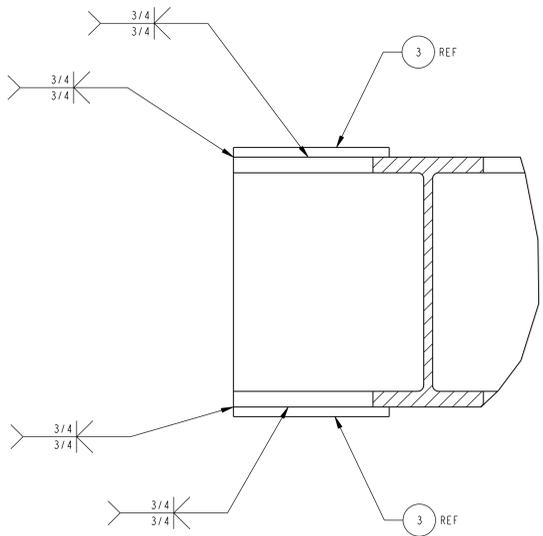
APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



DETAIL F  
NS & FS 2X  
SEE SHEET 2  
SCALE 1/10



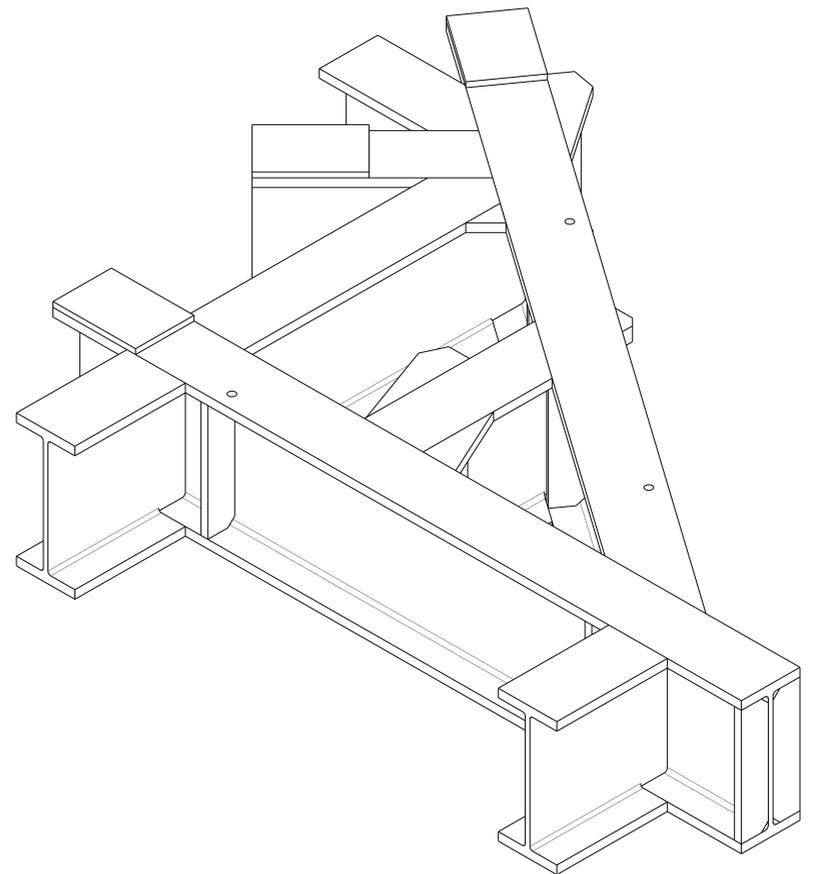
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SEE SHEET 2  
1X AS SHOWN AND 4X SIMILAR  
SCALE 1/10

- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE  
REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

BASE FRAME END SECTION WELDMENT SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ET50 GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROSHELL, ALABAMA
	90M14138 REVISION SEE SHT 1

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REV	DESCRIPTION	DATE	APPROVAL



MAIN VIEW  
FOR REFERENCE USE ONLY  
NO SCALE

UNLESS OTHERWISE SPECIFIED:

- REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
- 500 ALL EDGES OF PLATES AND END CUTS OF AISC SHAPES.
- DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH ASME Y14.5-1994.
- STENCIL PART NUMBER IN THE APPROXIMATE LOCATION SHOWN USING A CONTRASTING COLOR AND 2" TALL LETTERS.
- REFERENCE DRAWING 90M14383 FOR PREDETERMINED BEAM SELECTION, CUT CONFIGURATION, AND FLANGE ORIENTATION RELATIVE TO ASSEMBLY JOINT.
- STEEL WELDING DESIGN, PROCEDURES, AND NON-DESTRUCTIVE EVALUATION SHALL BE PER ANSI/AWS D1.1/D1.1M-2010, "STRUCTURAL WELDING CODE-STEEL". UNLESS OTHERWISE SPECIFIED, WELDS SHALL BE 100% VISUALLY INSPECTED.
- PAINT ALL EXPOSED SURFACES PER MIL-STD-171F; SURFACE PREP PER 4.1 AND FINISH PER 24.17. FINISH COLOR 16251 (OR SIMILAR GLOSSY SHADE) PER FED-STD-595C. DO NOT PAINT CONTACT SURFACES BETWEEN BOLTED PARTS OR OTHER INDICATED SURFACES. DO NOT PAINT HOLES OR THREADS. REFERENCE DRAWING 90M13927 FOR LOCATIONS OF BOLTED JOINT SURFACES. AREAS DAMAGED DURING ASSEMBLY OR INSTALLATION SHALL BE TOUCHED UP ONSITE. NO BLASTING OR SPRAYING PERMITTED OF ANY TYPE. PROTECT UNPAINTED SURFACES WITH TRIFLOW.
- COPE TO FIT AS REQUIRED.
- WELD AT TOP OF FN.1 SHALL BE GROUND FLAT.
- AFTER WELDING AND PRIOR TO FINAL MACHINING, STRESS RELIEVE PER SAE AMS2759/11-2005. A BRIGHT OR SCALE-FREE SURFACE IS REQUIRED FOR NOTED FAYING SURFACES.
- ALL STRUCTURAL STEEL SHAPES SHALL CONFORM TO THE DESIGNATIONS AND DIMENSIONS OF THE AISC "STEEL CONSTRUCTION MANUAL", 14TH EDITION.

- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE  
REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

FIND NO.	CALLOUT	DETAIL	TOT	REQ'D	PART NO.	DESCRIPTION	VEND NO.	REMARKS
SHT NO.	SHT NO.	SHT NO.	REQ'D					
6	2	-	AR	F	90M14139-6	4.0" STR. PLATE 36" x 36"		MATERIAL: ASTM A572 GRADE 50
5	3	-	AR	F	90M14139-5	2.44" THICK PLATE		MATERIAL: ASTM A572 GRADE 50
4	3	-	AR	F	90M14139-4	2.0" STR. PLATE		MATERIAL: ASTM A572 GRADE 50
3	2	-	AR	F	90M14139-3	1.5" STR. PLATE		MATERIAL: ASTM A572 GRADE 50
2	2	-	AR	F	90M14139-2	W36 X 441 WIDE FLANGE		MATERIAL: ASTM A992
1	2	-	-	F	90M14139-1	BASE FRAME CORNER SECTION WELDMENT 1		

STRESS	DATE	DESIGN BRANCH	DATE	UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
MATERIAL	DATE	FOR ENGINEERING DESIGN	DATE	FRACTIONS DECIMALS
INDUSTRIAL SHEET	DATE	FOR CONSTRUCTION DESIGN	DATE	.X ± .06
SAFETY AND PROTECTIVE EQUIPMENT	DATE	FOR CIVIL SERVICE	DATE	.XX ± .03
FLIGHT INTERFACES	DATE	CHECK	DATE	.XXX ± .010
PRESSURE CERTIFICATION MARKS	DATE	FOR CIVIL SERVICE	DATE	∠ ± .50°

DATE	BY	DATE	BY	DATE	BY
11-6-13	A. HANNAH	11-6-13	A. HANNAH	11-6-13	A. HANNAH

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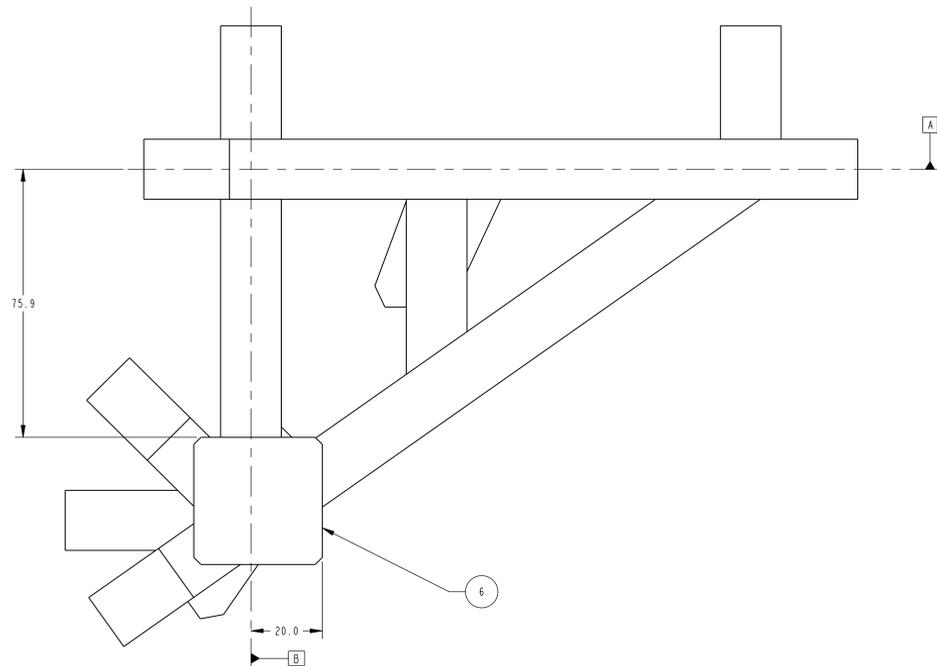
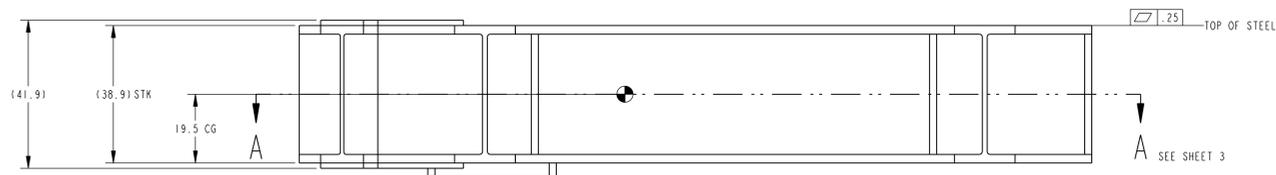
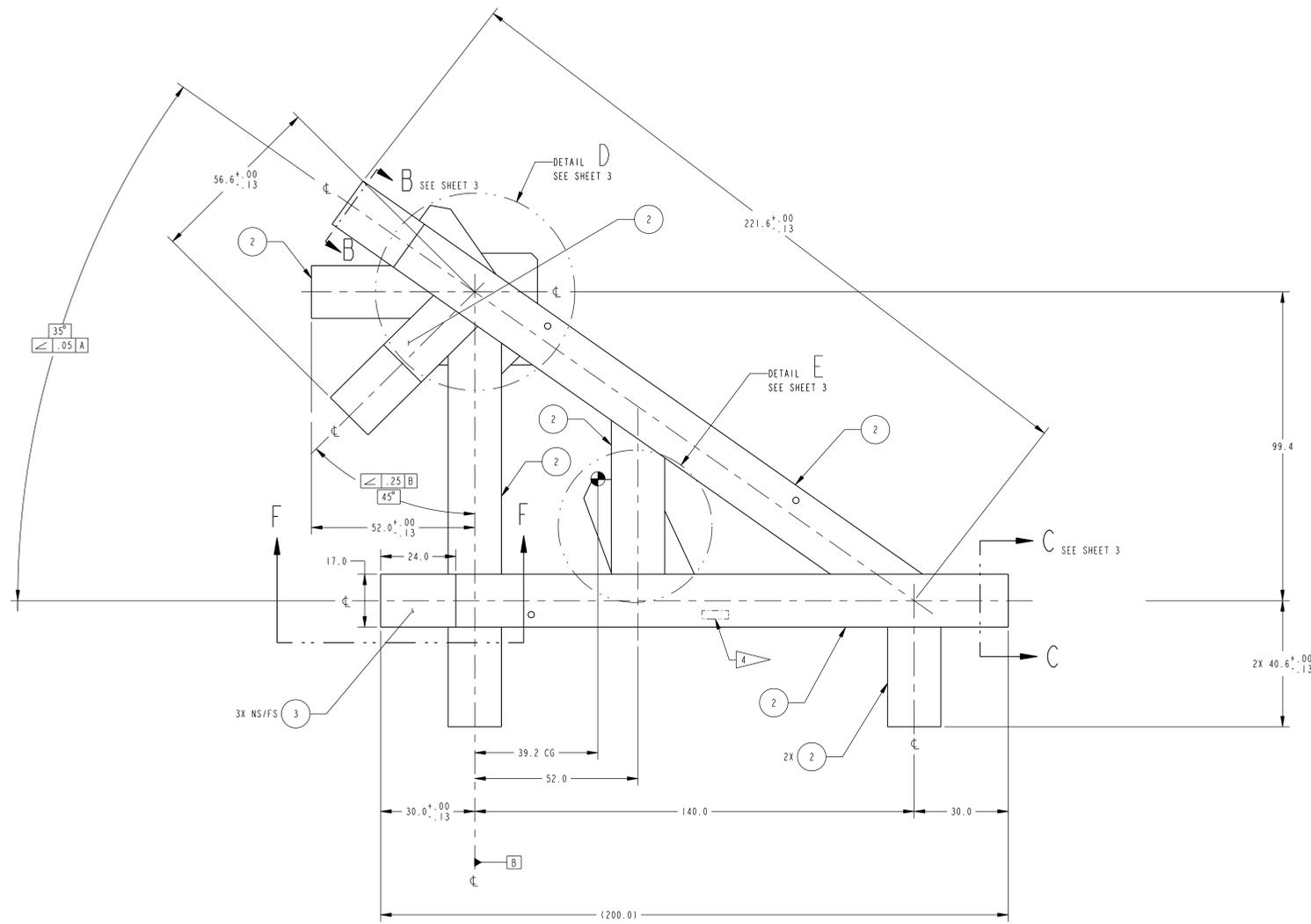
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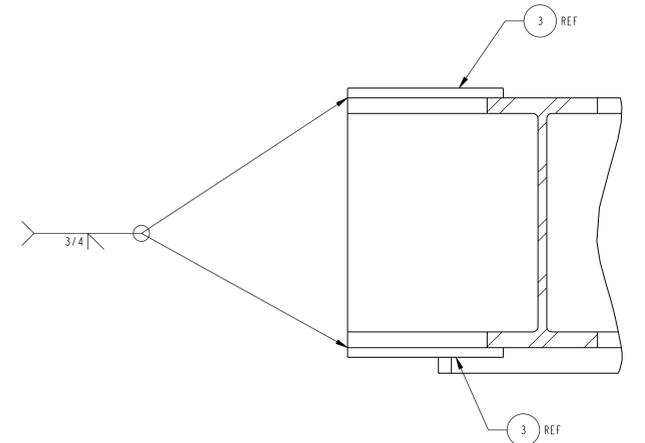
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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



FIND NO. 1 5 7 9  
 ESTIMATED WEIGHT = 30,778 LBS.  
 SCALE 11/200



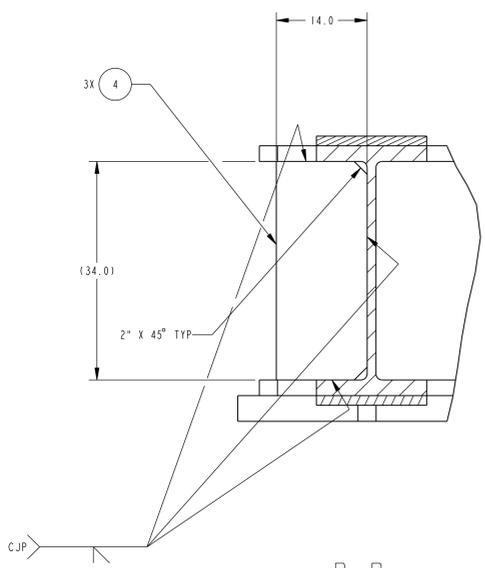
SECTION F-F  
 SOME COMPONENTS REMOVED FOR CLARITY  
 IX AS SHOWN AND SIMILAR 2X  
 SCALE 1/10

**- PRELIMINARY -**  
 THIS DRAWING HAS NOT COMPLETED THE  
 REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
 03-14-14  
 DATE

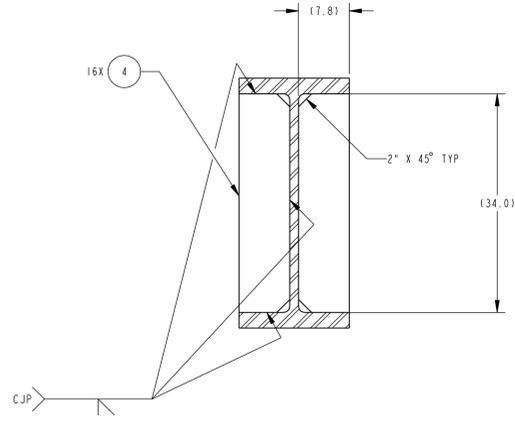
BASE FRAME CORNER SECTION WELDMENT I SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ET50
	GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON, D.C. 20546-0100
	90M14139
	REVISION SEE SHEET 1 2 4

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL

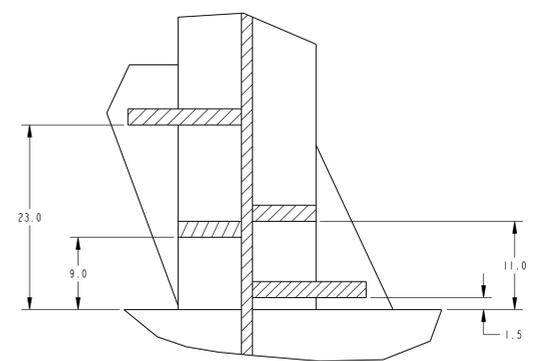
NOTICE: THIS DRAWING IS A PRELIMINARY DESIGN. IT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY MATERIALS AND SUPPLIERS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY LABORERS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY EQUIPMENT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY TOOLS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY SAFETY. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PROTECTIVE. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CLEANUP. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY DISPOSAL. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY STORAGE. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY TRANSPORT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY MAINTENANCE. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY REPAIR. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY REPLACEMENT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY UPGRADE. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY MODIFICATION. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY ALTERATION. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY IMPROVEMENT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY ENHANCEMENT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY OPTIMIZATION. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY EFFICIENCY. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY EFFECTIVENESS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY EFFICIENCY. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY EFFECTIVENESS.



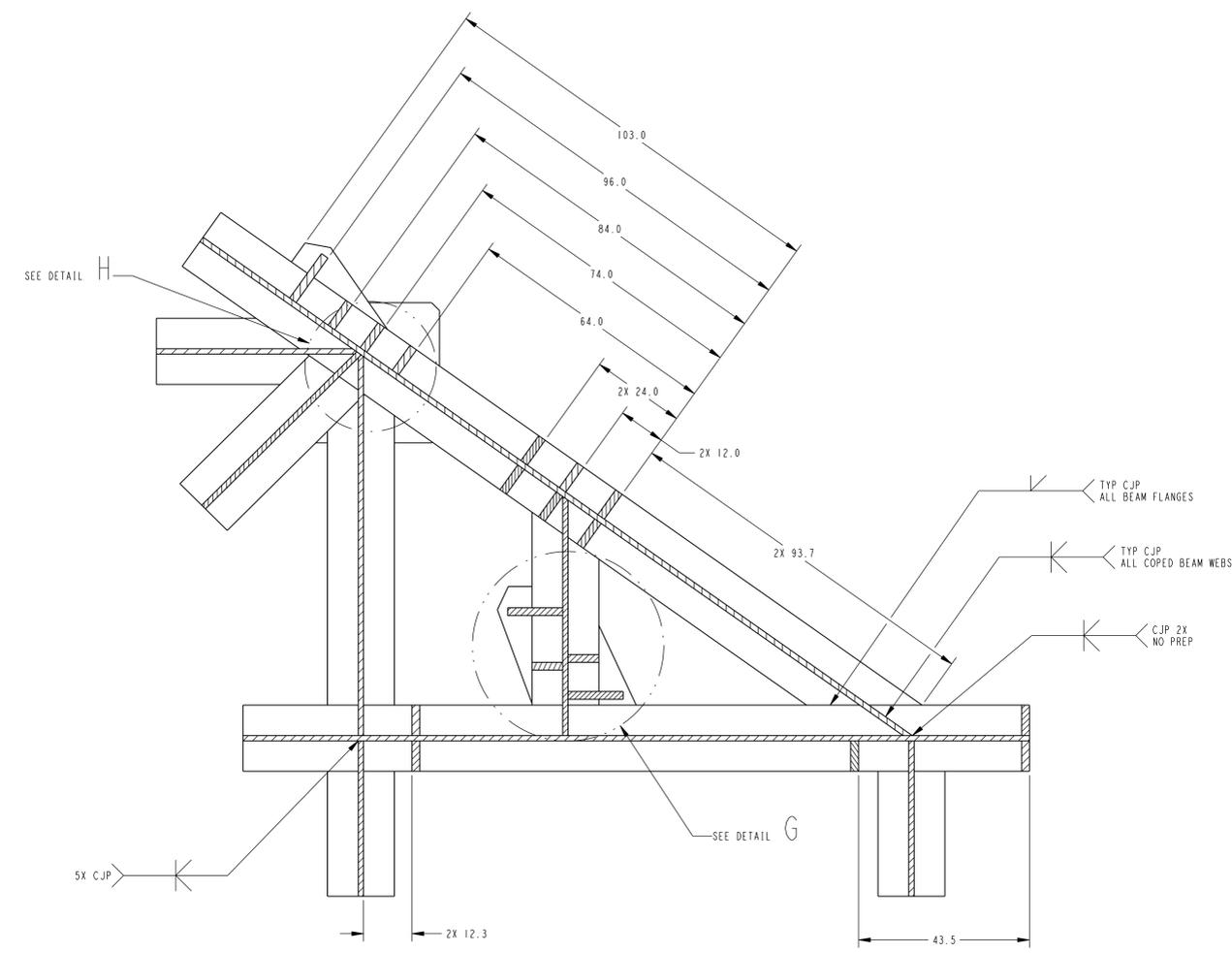
SECTION B-B  
SOME COMPONENTS REMOVED FOR CLARITY  
SEE SHEET 2  
1X AS SHOWN AND SIMILAR 2X  
SCALE 1/10



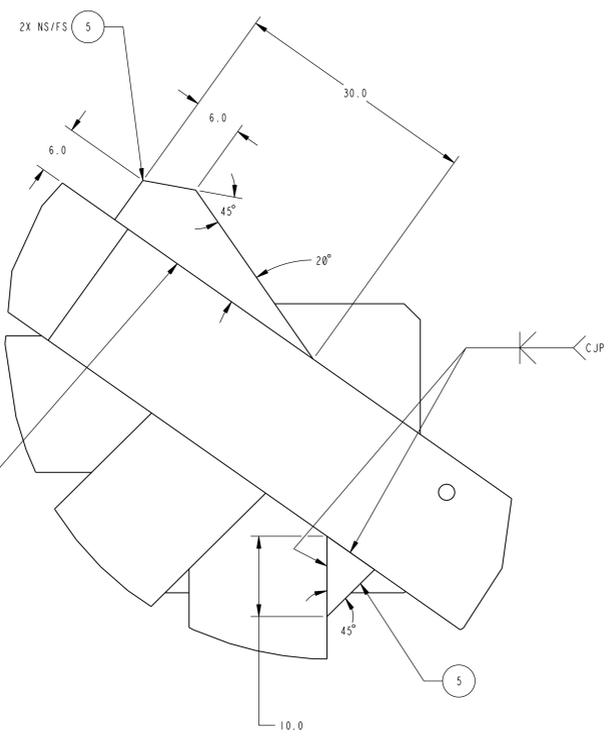
SECTION C-C  
SEE SHEET 2  
1X AS SHOWN AND 10X SIMILAR  
SCALE 1/10



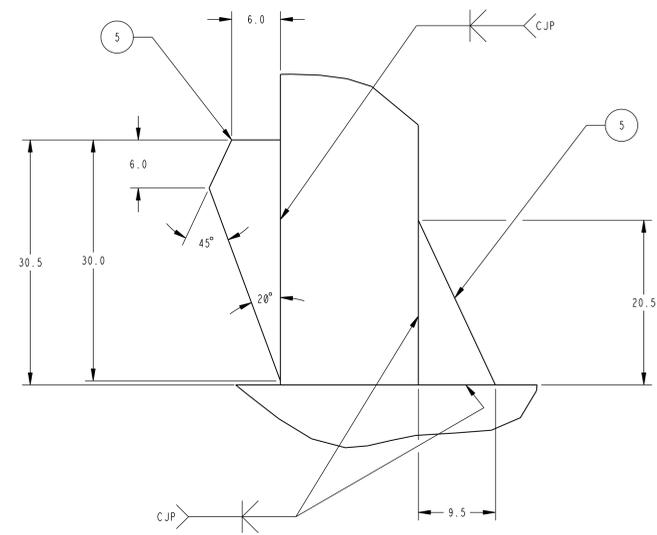
DETAIL G  
SCALE 1/8



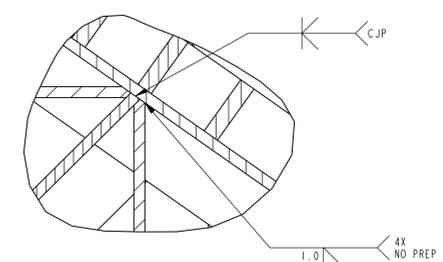
SECTION A-A  
SEE SHEET 2  
SCALE 1/16



DETAIL D  
SEE SHEET 2  
SCALE 1/8



DETAIL E  
SEE SHEET 2  
TYP NS AND FS  
SCALE 1/8



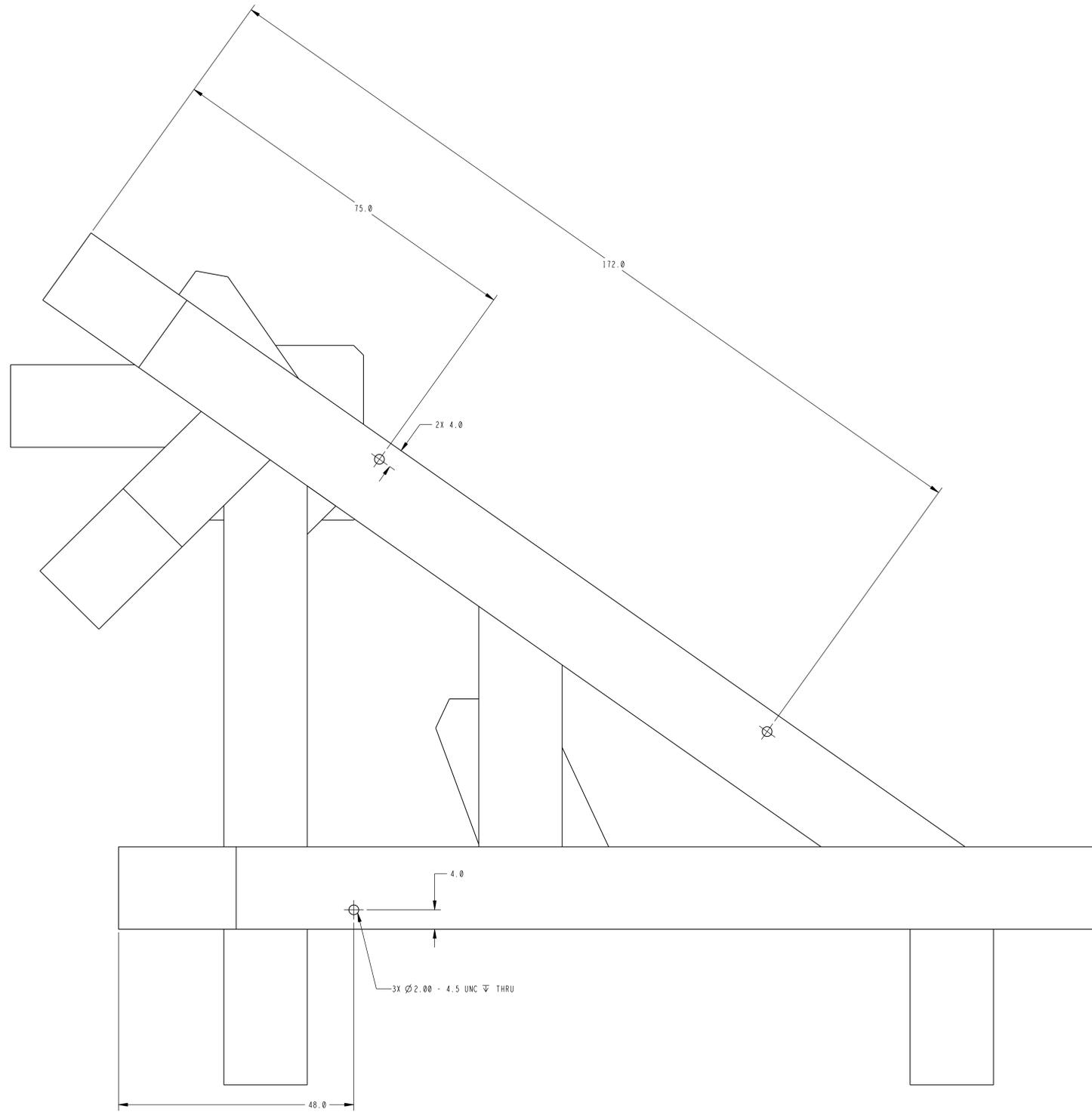
DETAIL H  
SCALE 1/8

- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE  
REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

BASE FRAME CORNER SECTION WELDMENT 1 SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSD GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION Huntsville, Alabama
90M14139	REVISION SEE SHEET 1
DATE	3 4

NOTICE: THIS DRAWING IS A PRELIMINARY DESIGN. IT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



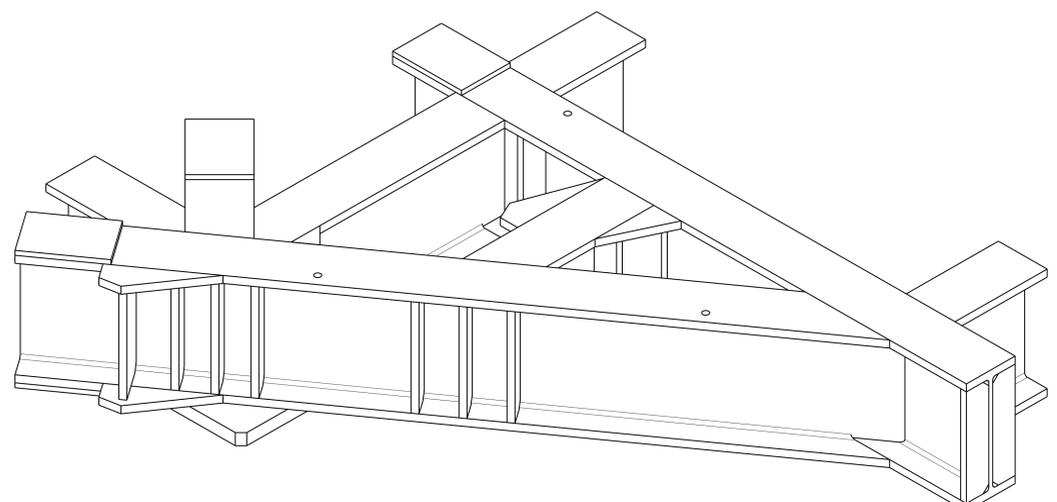
SCALE 1/10

- PRELIMINARY -  
 THIS DRAWING HAS NOT COMPLETED THE  
 REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
 03-14-14  
 DATE

BASE FRAME CORNER SECTION WELDMENT 1 SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSD GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION HUNTSVILLE, ALABAMA
	90M14139 REVISION SEE SHT 1

NOTICE: THIS DRAWING IS A PRELIMINARY DESIGN. IT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY MATERIALS AND SUPPLIERS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY SERVICES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY INFORMATION. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY INFORMATION.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



MAIN VIEW  
FOR REFERENCE USE ONLY  
NO SCALE

UNLESS OTHERWISE SPECIFIED:

- REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
- 500/ ALL EDGES OF PLATES AND END CUTS OF AISC SHAPES.
- DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH ASME Y14.5-1994.
- STENCIL PART NUMBER IN THE APPROXIMATE LOCATION SHOWN USING A CONTRASTING COLOR AND 2" TALL LETTERS.
- REFERENCE DRAWING 90M14383 FOR PREDETERMINED BEAM SELECTION, CUT CONFIGURATION, AND FLANGE ORIENTATION RELATIVE TO ASSEMBLY JOINT.
- STEEL WELDING DESIGN, PROCEDURES, AND NON-DESTRUCTIVE EVALUATION SHALL BE PER ANSI/AWS D1.1/D1.1M-2010, "STRUCTURAL WELDING CODE-STEEL". UNLESS OTHERWISE SPECIFIED, WELDS SHALL BE 100% VISUALLY INSPECTED.
- PAINT ALL EXPOSED SURFACES PER MIL-STD-171F; SURFACE PREP PER 4.1 AND FINISH PER 24.17. FINISH COLOR 16251 (OR SIMILAR GLOSSY SHADE) PER FED-STD-595C. DO NOT PAINT CONTACT SURFACES BETWEEN BOLTED PARTS OR OTHER INDICATED SURFACES. DO NOT PAINT HOLES OR THREADS. REFERENCE DRAWING 90M13927 FOR LOCATIONS OF BOLTED JOINT SURFACES. AREAS DAMAGED DURING ASSEMBLY OR INSTALLATION SHALL BE TOUCHED UP ONSITE. NO BLASTING OR SPRAYING PERMITTED OF ANY TYPE. PROTECT UNPAINTED SURFACES WITH TRIFLOW.
- COPE TO FIT AS REQUIRED.
- WELD AT TOP OF FN.1 SHALL BE GROUND FLAT.
- AFTER WELDING AND PRIOR TO FINAL MACHINING, STRESS RELIEVE PER SAE AMS2759/11-2005. A BRIGHT OR SCALE-FREE SURFACE IS REQUIRED FOR NOTED FAYING SURFACES.
- ALL STRUCTURAL STEEL SHAPES SHALL CONFORM TO THE DESIGNATIONS AND DIMENSIONS OF THE AISC "STEEL CONSTRUCTION MANUAL", 14TH EDITION.

- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE  
REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

FIND NO.	CALLOUT	DETAIL	TOT	REQ'D	PART NO.	DESCRIPTION	VEND NO.	REMARKS
6	2	-	AR	F	90M14140-6	4.0" STR. PLATE 36" x 36"		MATERIAL: ASTM A572 GRADE 50
5	3	-	AR	F	90M14140-5	2.44" THICK PLATE		MATERIAL: ASTM A572 GRADE 50
4	3	-	AR	F	90M14140-4	2.0" STR. PLATE		MATERIAL: ASTM A572 GRADE 50
3	2	-	AR	F	90M14140-3	1.5" STR. PLATE		MATERIAL: ASTM A572 GRADE 50
2	2	-	AR	F	90M14140-2	W36 X 441 WIDE FLANGE		MATERIAL: ASTM A992
1	2	-	AR	F	90M14140-1	BASE FRAME CORNER SECTION WELDMENT 2		MATERIAL: ASTM A992

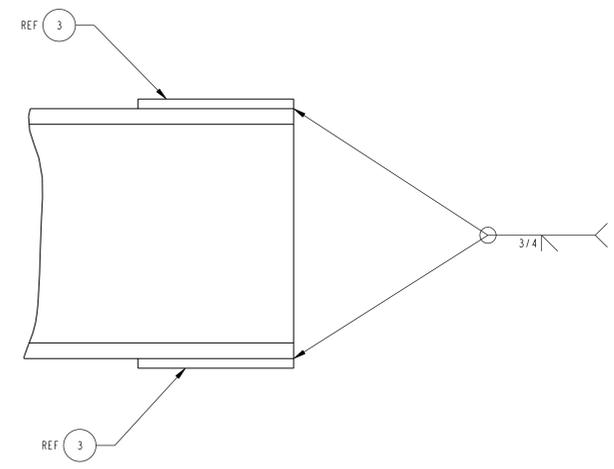
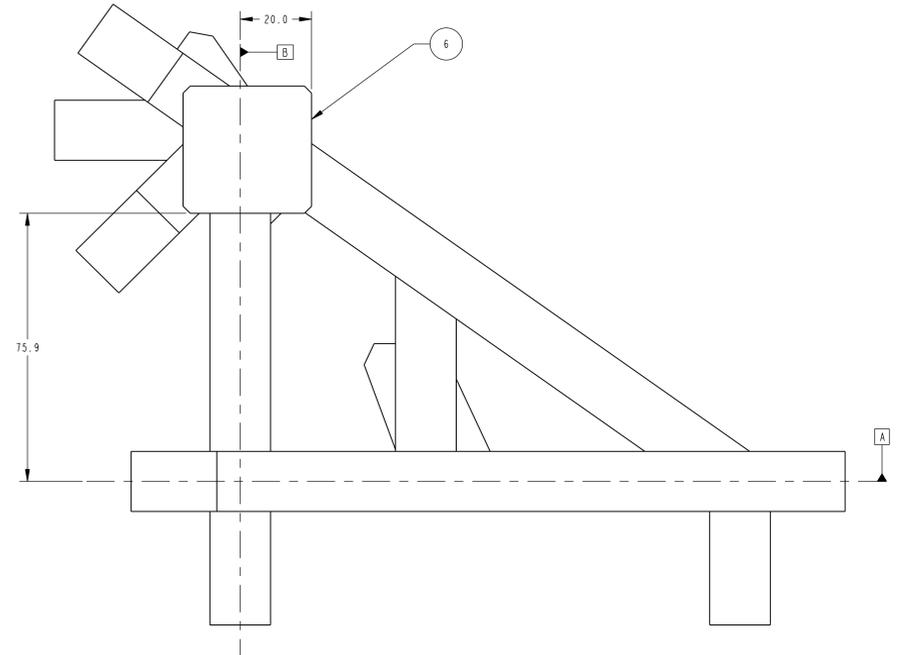
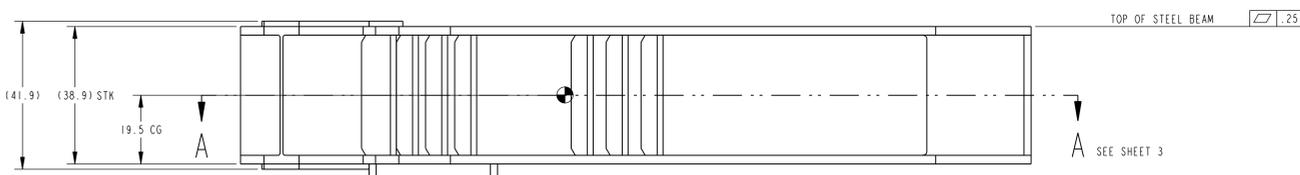
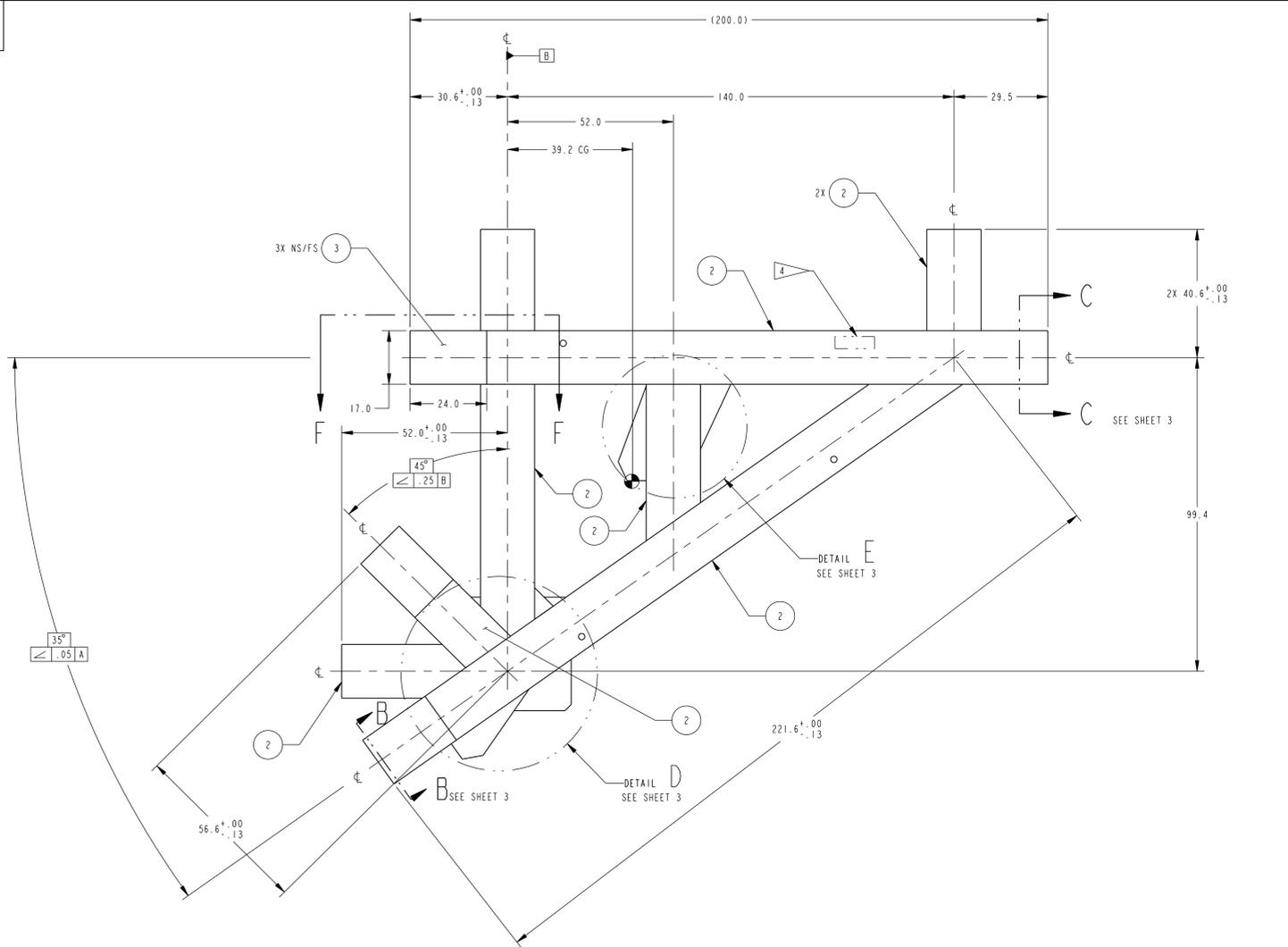
STRESS	DATE	PROG. NUMBER	DATE	UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
MATERIAL	DATE	FOR DIMENSIONS	DATE	FRACTIONS
INDUSTRIAL SHEET	DATE	FOR DIMENSIONS	DATE	DECIMALS
SAFETY AND WEIGHT ASSURANCE	DATE	FOR DIMENSIONS	DATE	± 1/16 ± 1/2
FLIGHT INTERFACES	DATE	CHECKED	DATE	.X ± .06 .XX ± .03 .XXX ± .010 ∠ ± .50°
PRESSURE CERTIFICATION MARKS	DATE	FOR DIMENSIONS	DATE	(DIMENSIONS ARE IN INCHES, DO NOT SCALE DRAWING)

BASE FRAME CORNER SECTION WELDMENT 2 SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSO GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION HENRIETTA, ALABAMA 90M14140 REVISED 1 4
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NOTICE: THIS DRAWING IS A PRELIMINARY DESIGN. IT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY INFORMATION FROM THE MANUFACTURER OF ANY EQUIPMENT OR MATERIALS USED IN THE CONSTRUCTION OF THE PROJECT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY INFORMATION FROM THE MANUFACTURER OF ANY EQUIPMENT OR MATERIALS USED IN THE CONSTRUCTION OF THE PROJECT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY INFORMATION FROM THE MANUFACTURER OF ANY EQUIPMENT OR MATERIALS USED IN THE CONSTRUCTION OF THE PROJECT.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



SECTION F-F  
 SOME COMPONENTS REMOVED FOR CLARITY  
 1X AS SHOWN AND SIMILAR 2X  
 3 PLACES  
 SCALE 1/10

FIND NO. 1 5 7 9  
 ESTIMATED WEIGHT = 30778 LBS.  
 SCALE 1/1200

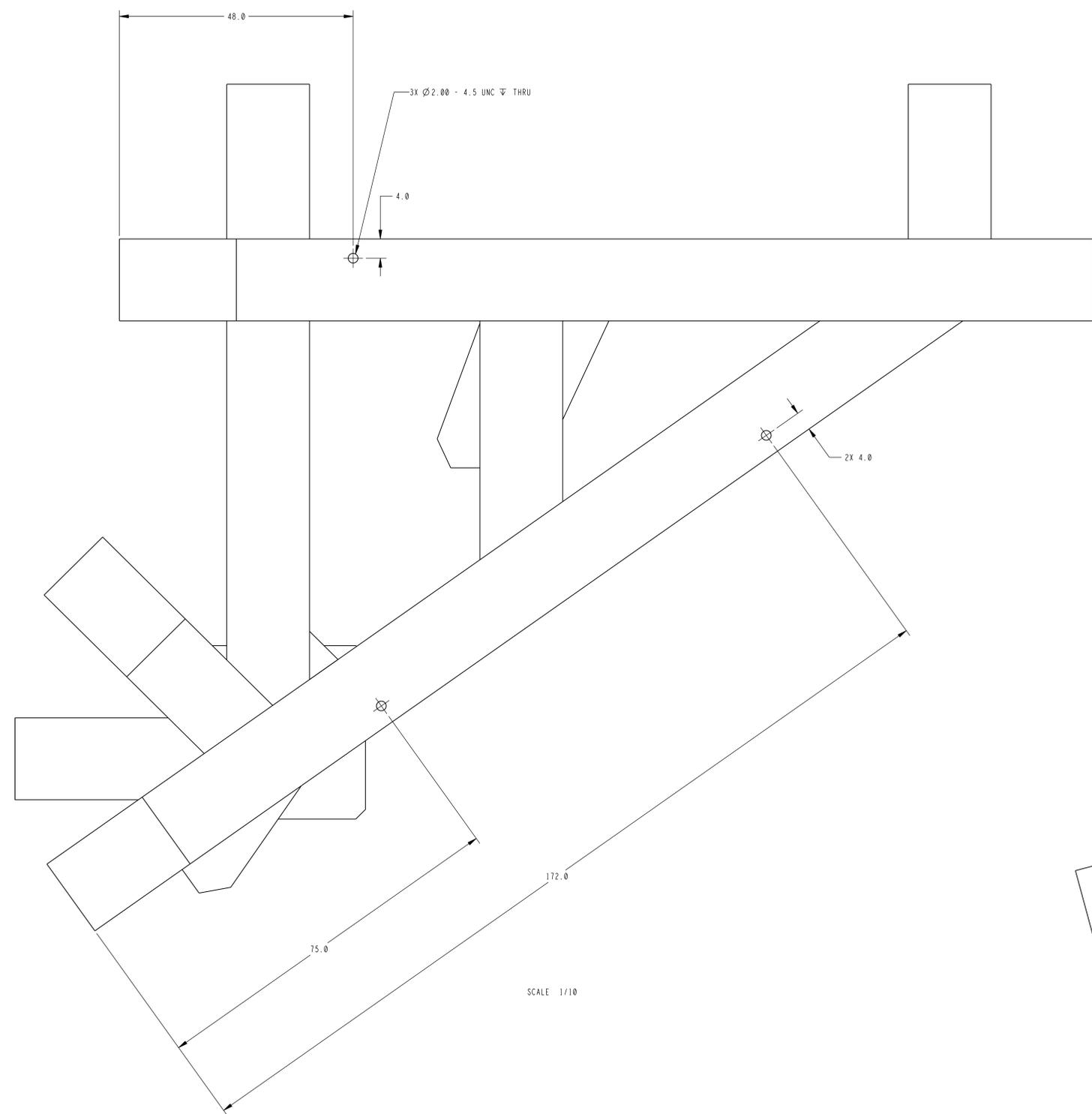
- PRELIMINARY -  
 THIS DRAWING HAS NOT COMPLETED THE  
 REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
 03-14-14  
 DATE

BASE FRAME CORNER SECTION WELDMENT 2 SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ET50
	GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WETSELLE, ALABAMA
	90M14140
	REVISION SEE SHEET 1 E 2 4



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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



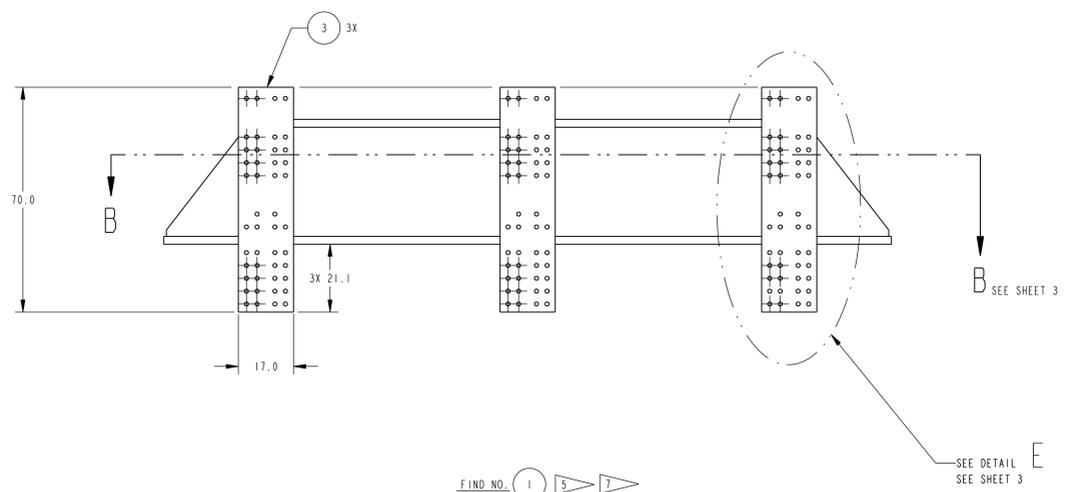
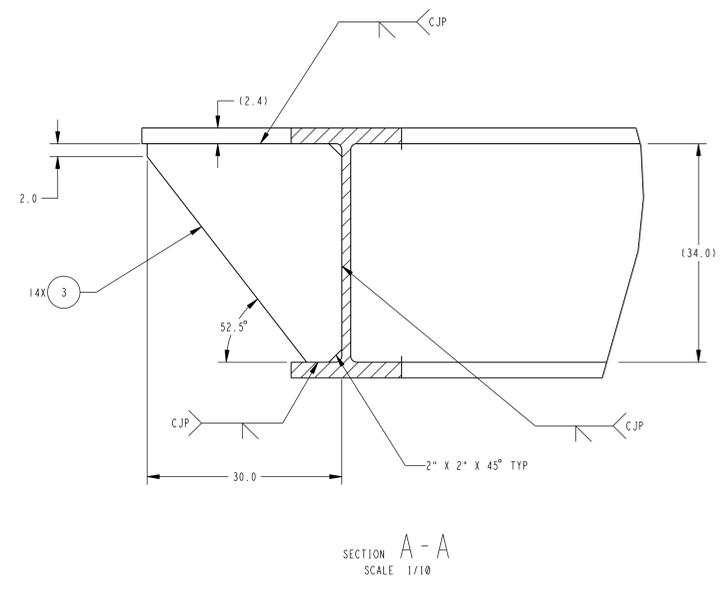
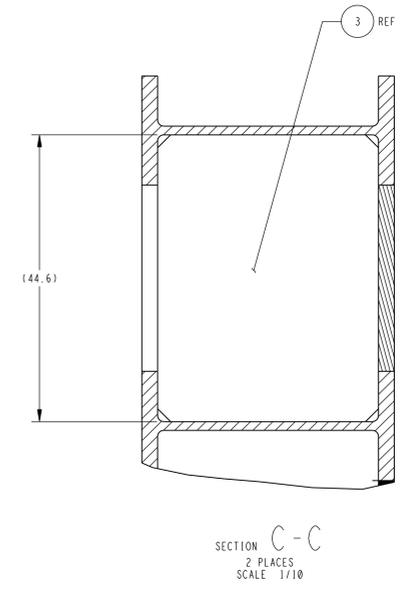
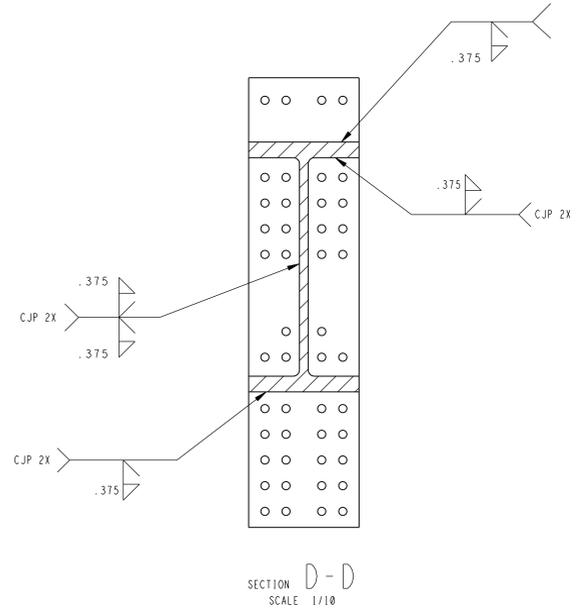
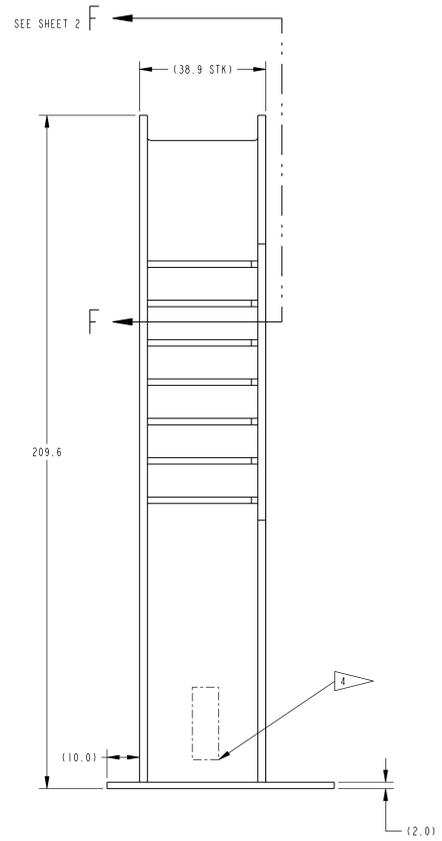
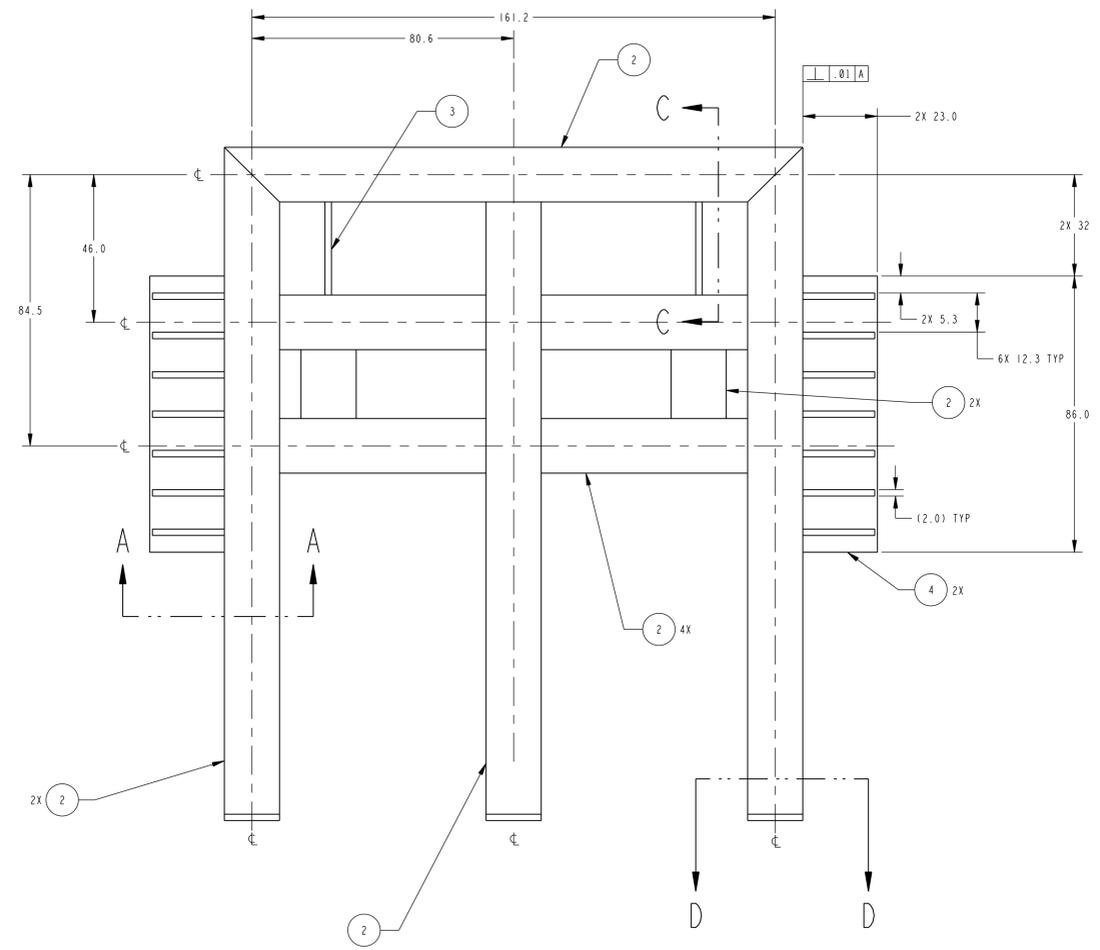
- PRELIMINARY -  
 THIS DRAWING HAS NOT COMPLETED THE  
 REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
 03-14-14  
 DATE

BASE FRAME CORNER SECTION WELDMENT 2 SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ET50 GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WETZEL, BLAUM	REVISION 90M14140 SEE SHT1
	SHEET 4 OF 4	DATE



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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



FIND NO. 1 5 7

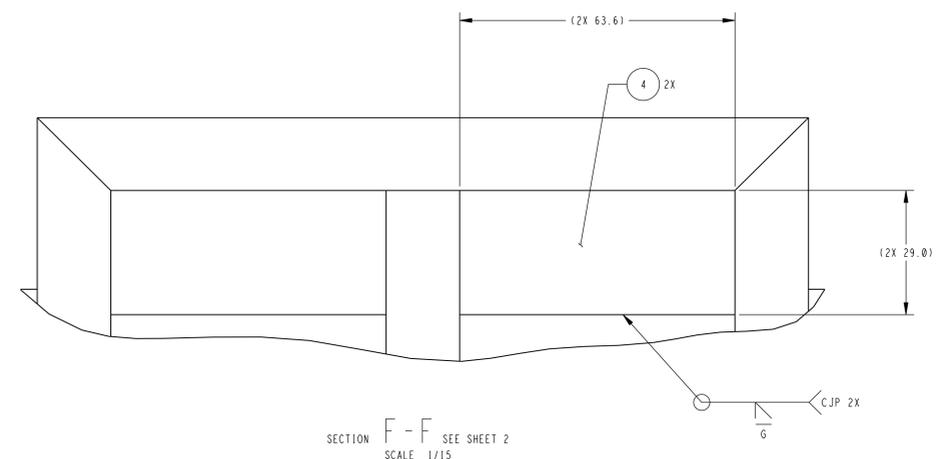
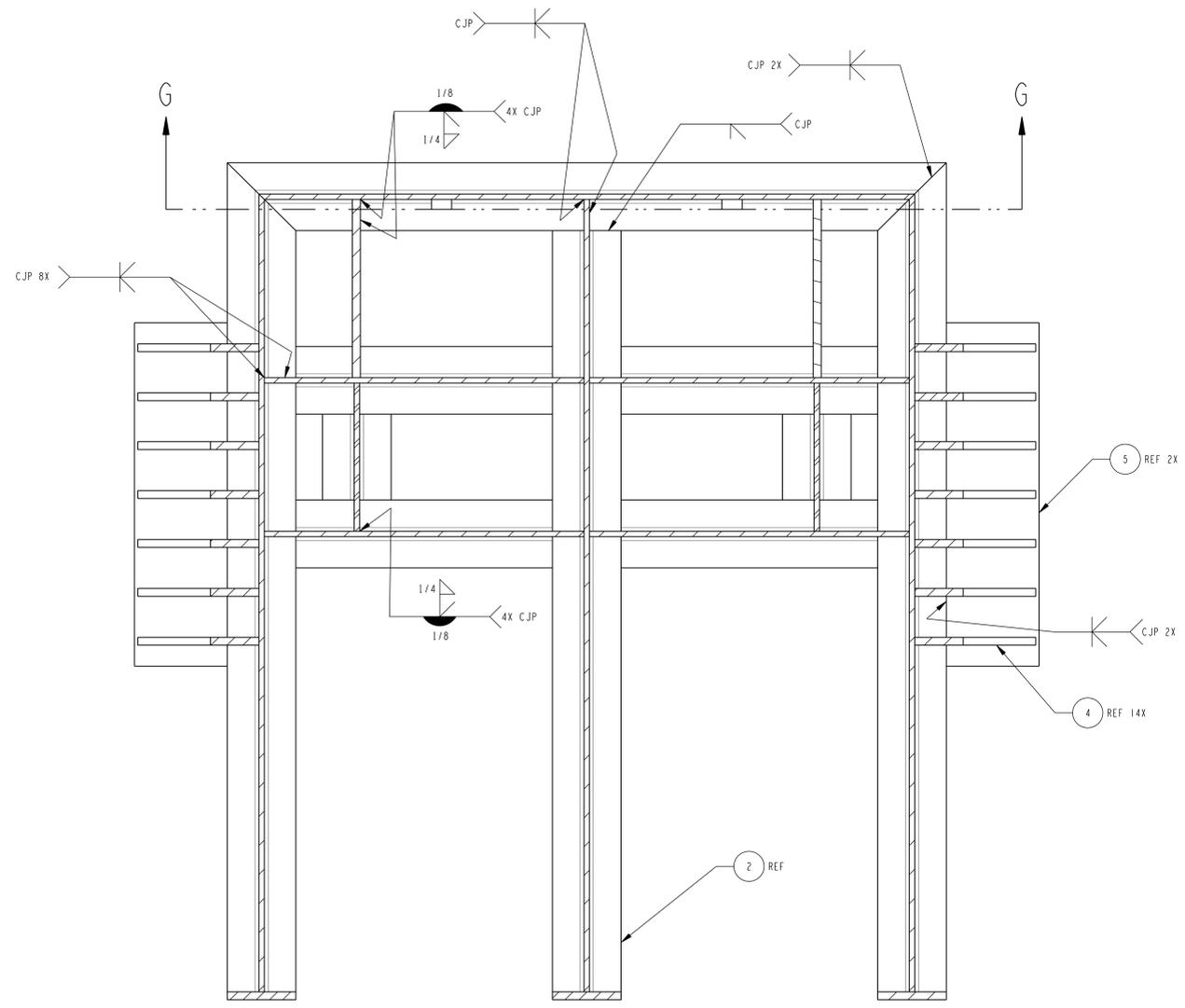
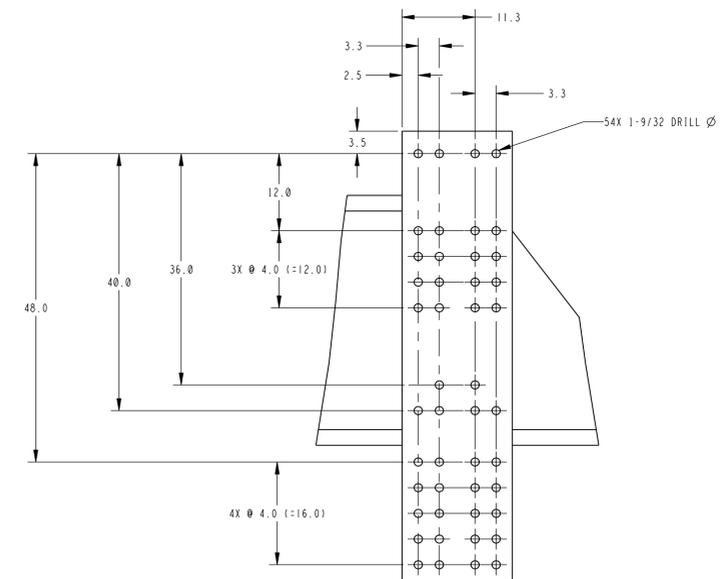
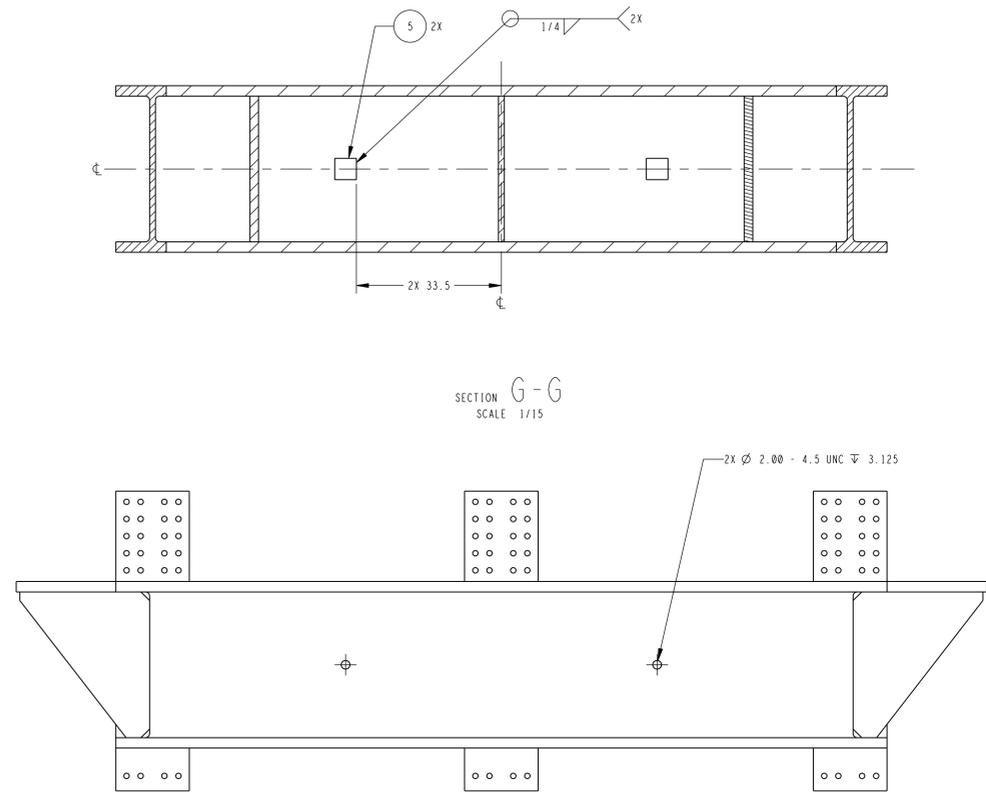
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SCALE 1/20

- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

BASE FRAME SRB STANCHION WELDMENT SLS ENGINE SECTION TEST		SPECIAL TEST EQUIPMENT DESIGN BRANCH - ET50 GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROTELLE, ALABAMA	
90M14141		REVISION SEE SHEET 1	2 3

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



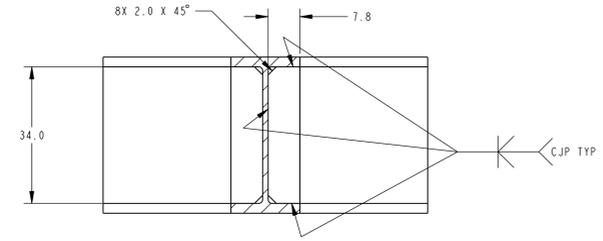
- PRELIMINARY -  
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REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

BASE FRAME SRB STANCHION WELDMENT SLS ENGINE SECTION TEST		SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSO GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROTELLEC. BLAIRM.	
90M14141	REVISION SEE SHT 1	3	3

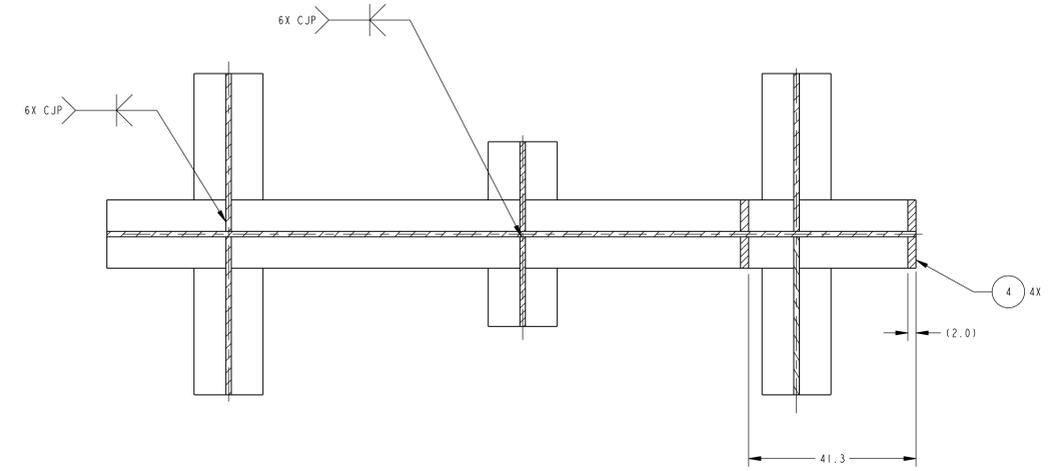
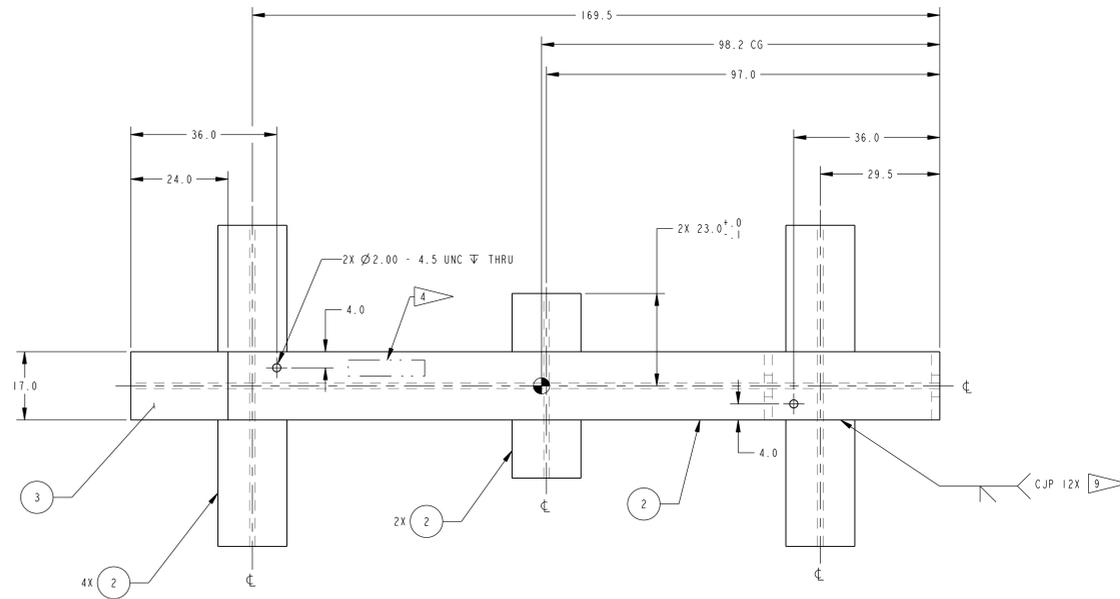


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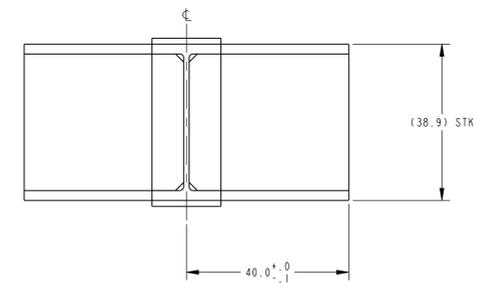
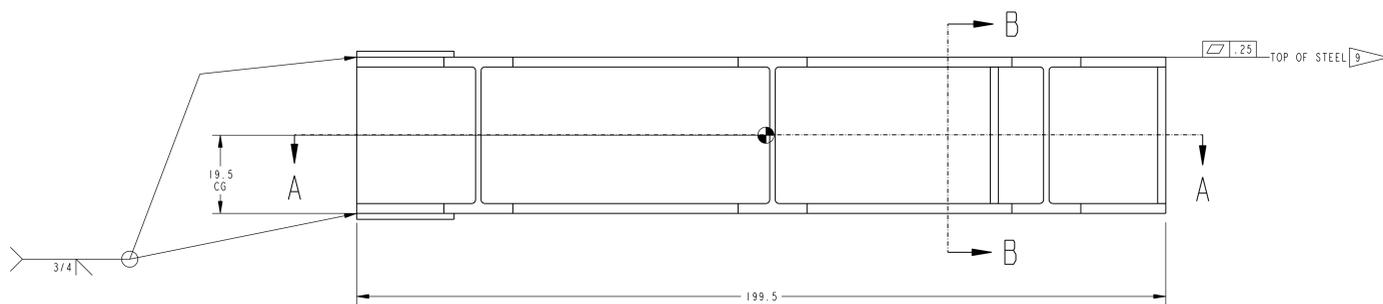
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



SECTION B-B  
SCALE 1/16



SECTION A-A  
SCALE 1/16



- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

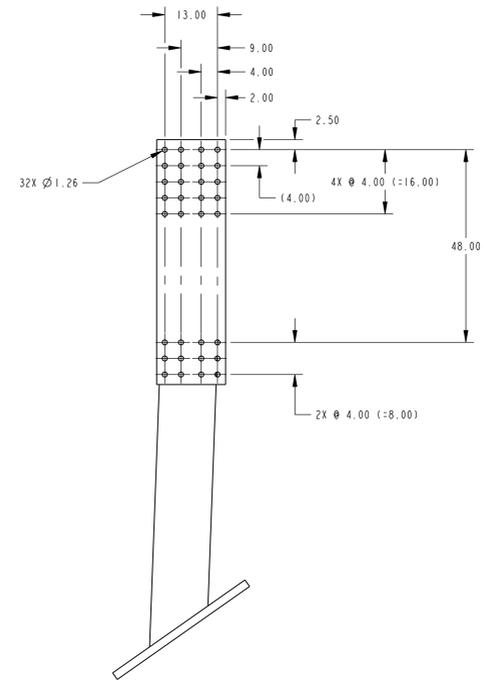
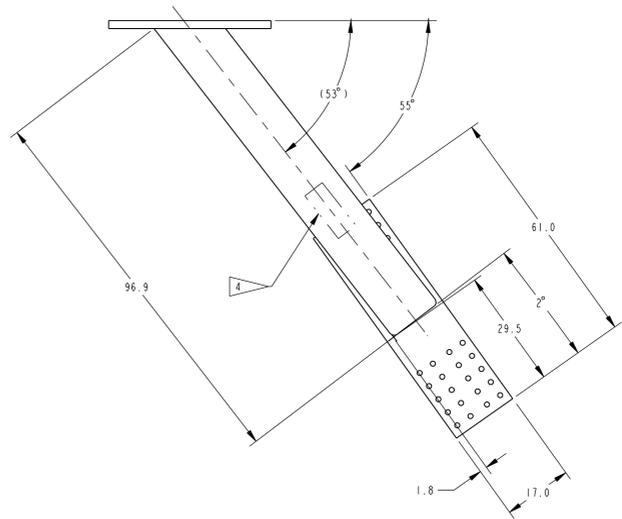
FIND NO. 1  
ESTIMATED WEIGHT = 14,668 LBS  
SCALE 1/16

BASE FRAME SRB BASE WELDMENT SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSO
	GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROTEL. BLK. 10
90M14142	REVISION SEE SHEET 1
E 2	2

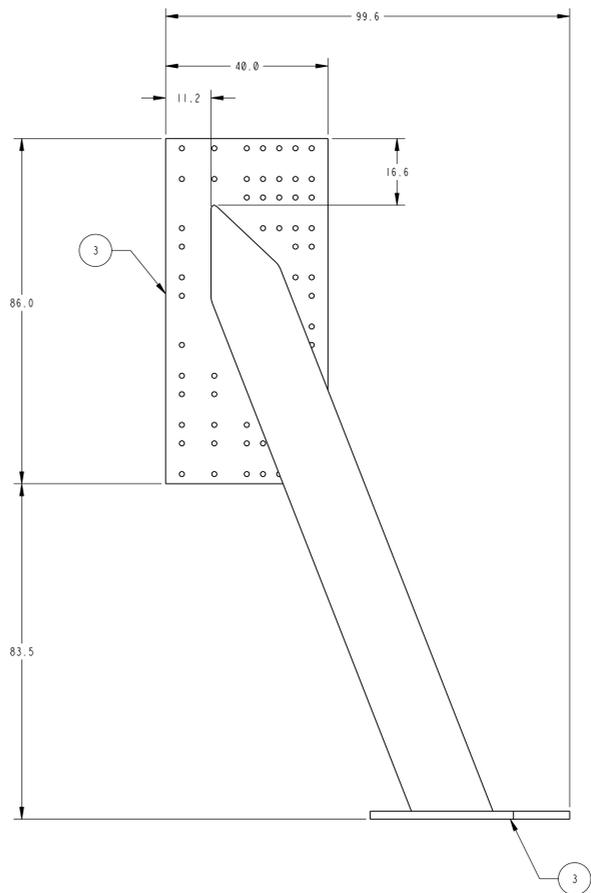


NOTICE: THIS DRAWING IS A PRELIMINARY DESIGN. IT IS NOT TO BE USED FOR ANY PURPOSE OTHER THAN TO CORRELATE WITH THE PHYSICAL TEST OPERATIONS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE DIMENSIONS AND MATERIALS OF ALL PARTS AND THE OPERATIONS TO BE PERFORMED ON ANY PARTS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE DIMENSIONS AND MATERIALS OF ALL PARTS AND THE OPERATIONS TO BE PERFORMED ON ANY PARTS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE DIMENSIONS AND MATERIALS OF ALL PARTS AND THE OPERATIONS TO BE PERFORMED ON ANY PARTS.

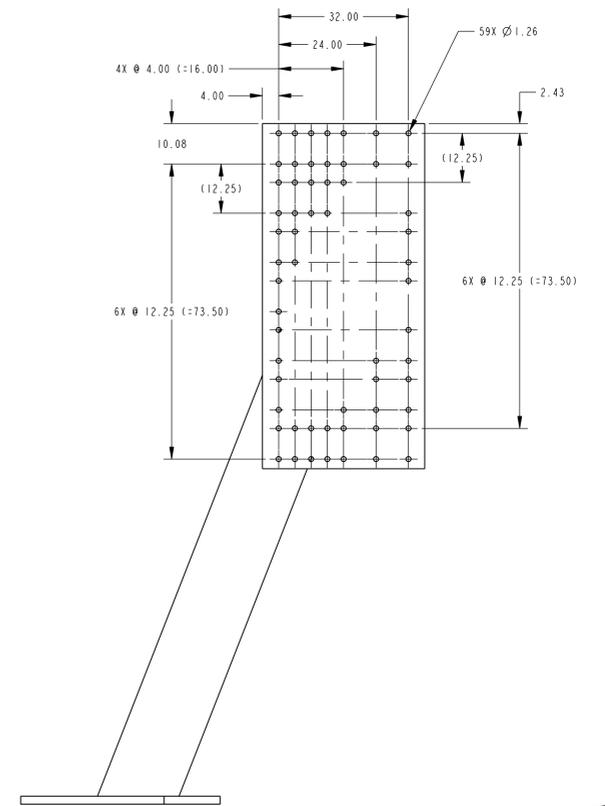
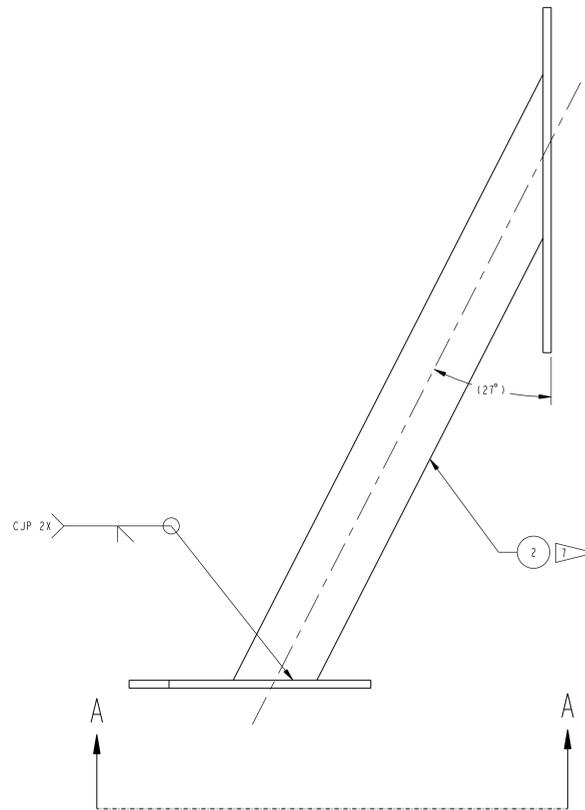
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



VIEW A-A  
VIEW ROTATED CLOCKWISE FOR CLARITY  
SCALE 1/16



FIND NO. 1 6  
ESTIMATED WEIGHT : 3,905 LBS.  
SCALE 1/16



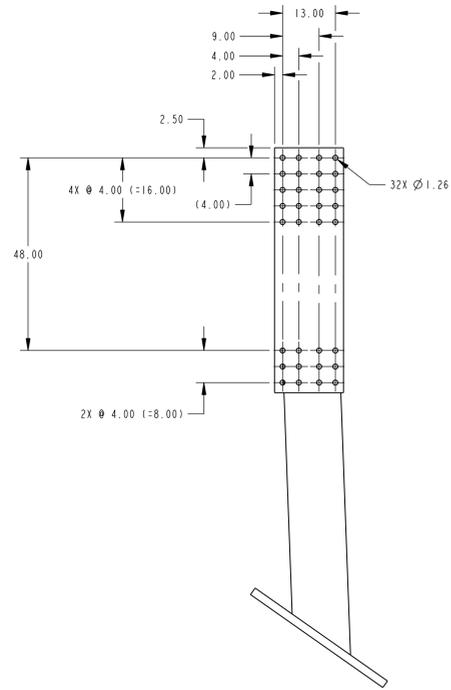
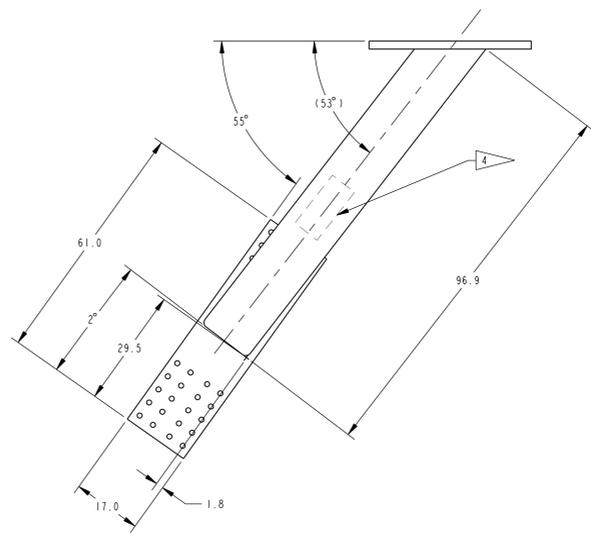
- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE  
REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

BASE FRAME OUTER SRB BRACE WELDMENT I SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSO GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION HOTELLE, ALABAMA
90M14280	REVISION SEE SHEET 1
E	2

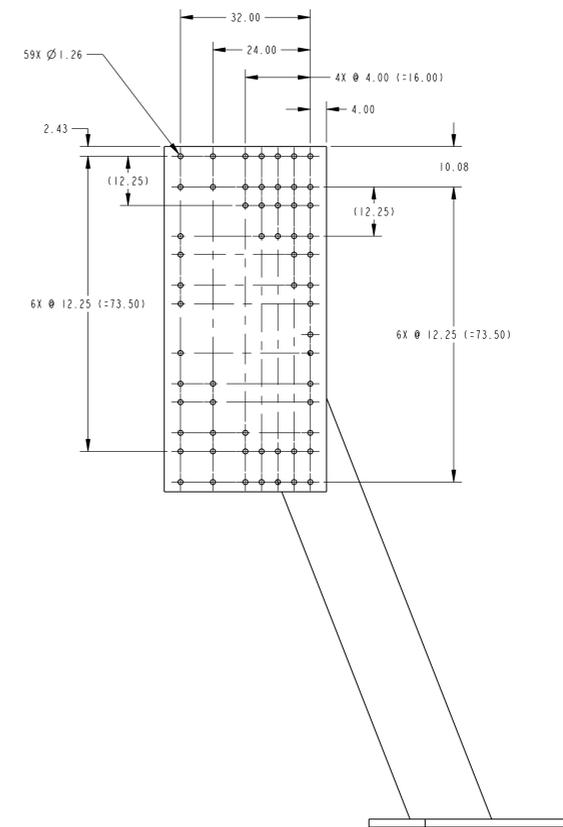
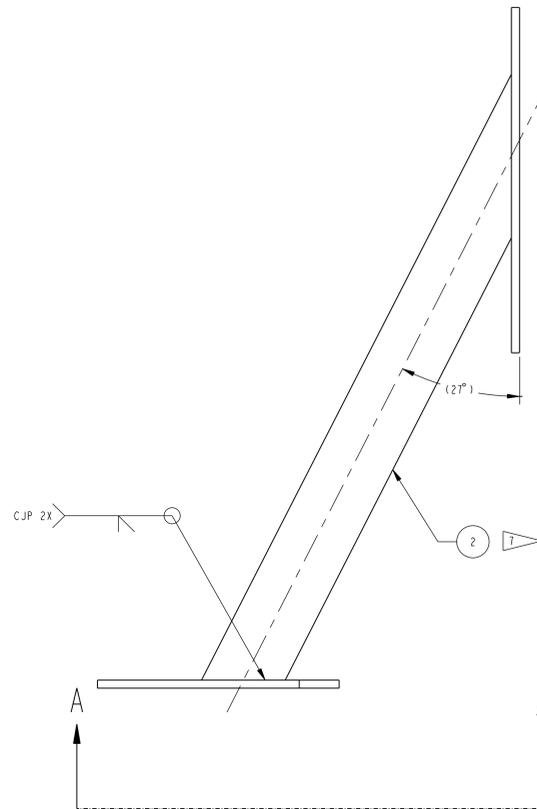
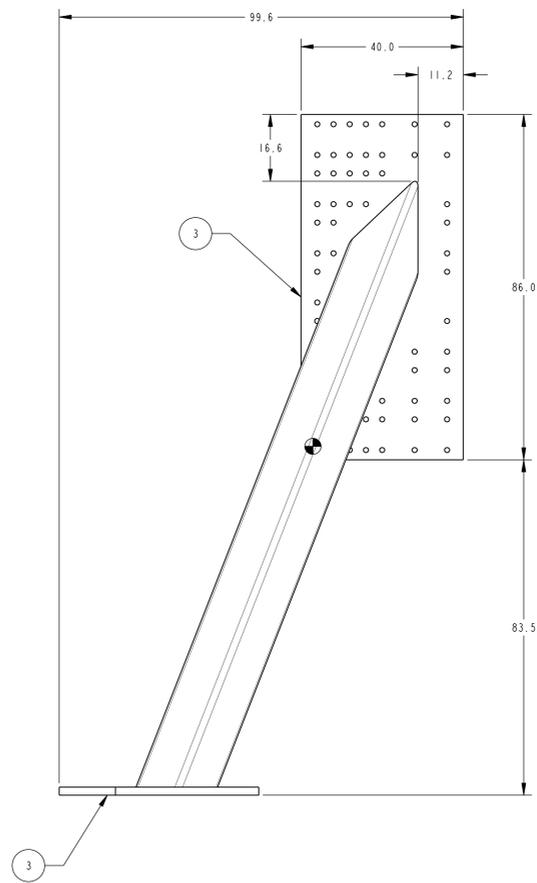


REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL

NOTICE: THIS DRAWING IS A PRELIMINARY DESIGN. IT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY INFORMATION FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY INFORMATION FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY INFORMATION FROM THE APPROPRIATE AGENCIES.



VIEW A-A  
VIEW ROTATED CLOCKWISE FOR CLARITY  
SCALE 1/16



FIND NO. 1 6  
ESTIMATED WEIGHT = 3,985 LBS  
SCALE 1/16

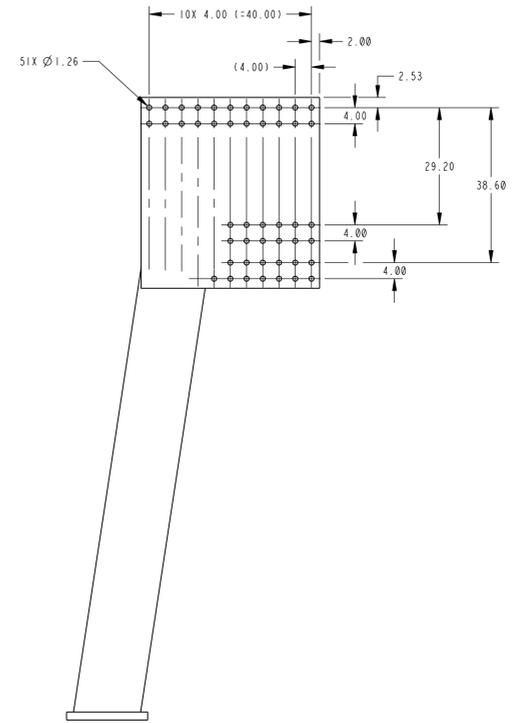
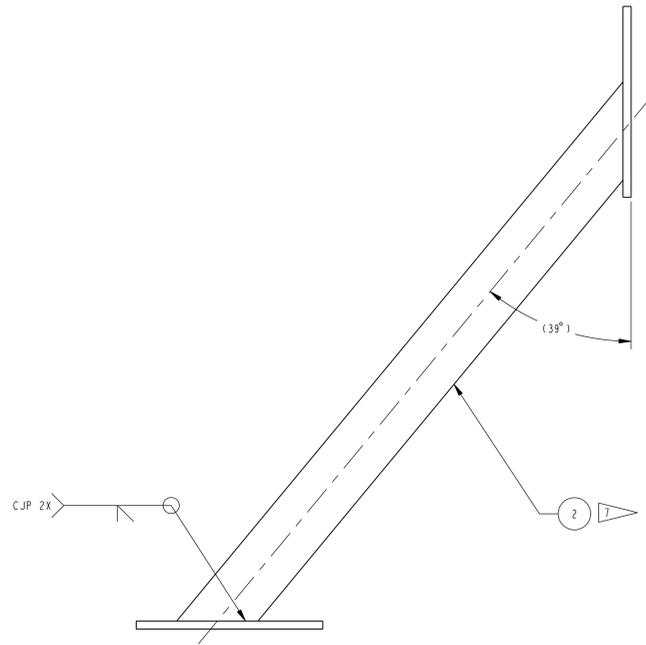
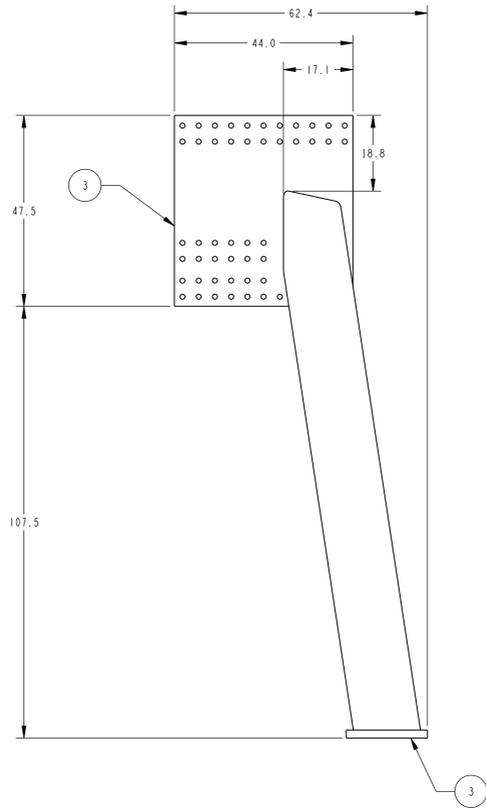
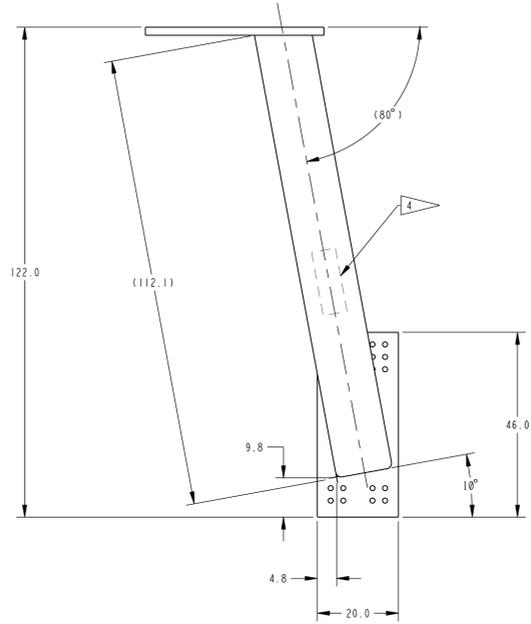
- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE  
REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

BASE FRAME OUTER SRB BRACE WELDMENT 2 SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ETSO
	GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION HOUSTON, TEXAS
90M14370	REVISION SEE SHEET 1
2	2

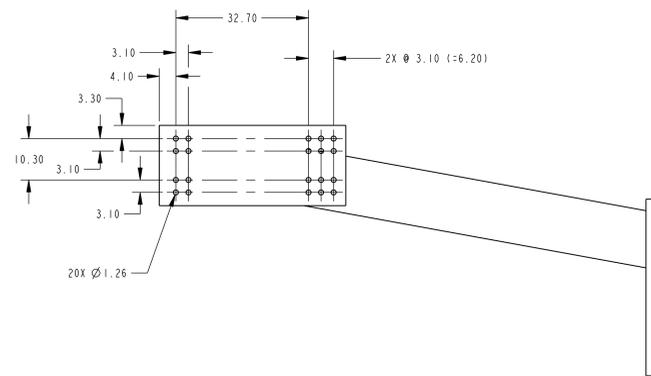


NOTICE: THIS DRAWING IS A PRELIMINARY DESIGN. IT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR VERIFYING THE DIMENSIONS AND MATERIALS SHOWN HEREON. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



FIND NO. 1 6  
ESTIMATED WEIGHT = 3,246 LBS  
SCALE 1/16



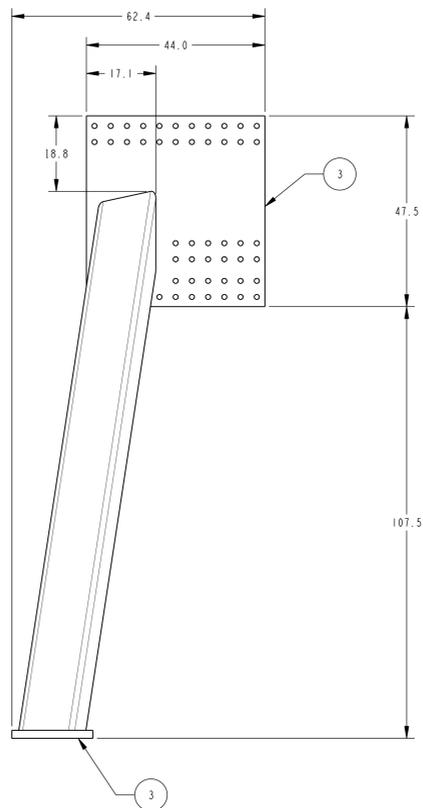
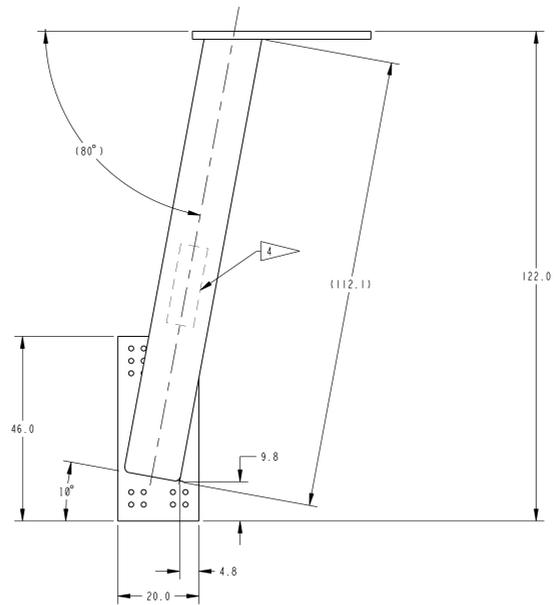
- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE  
REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

BASE FRAME INNER SRB BRACE WELDMENT I SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ET50 GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ASTROSCEL, ALABAMA
90M14371	REVISION SEE SHT 1
2	2

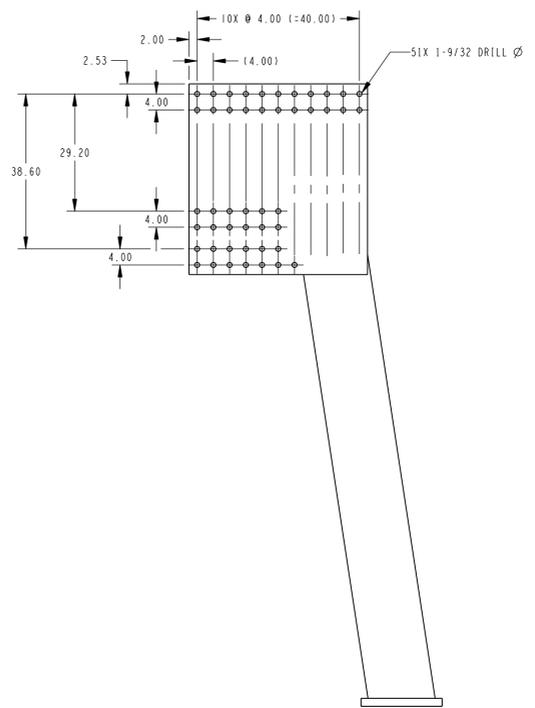
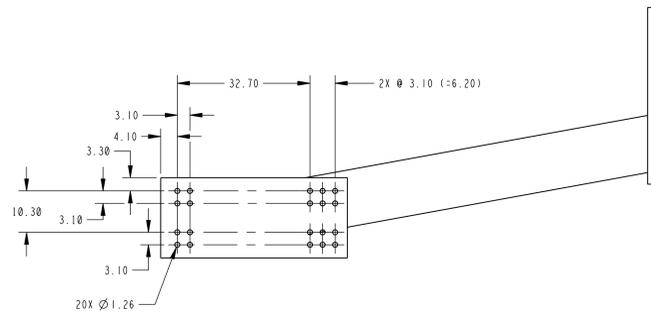
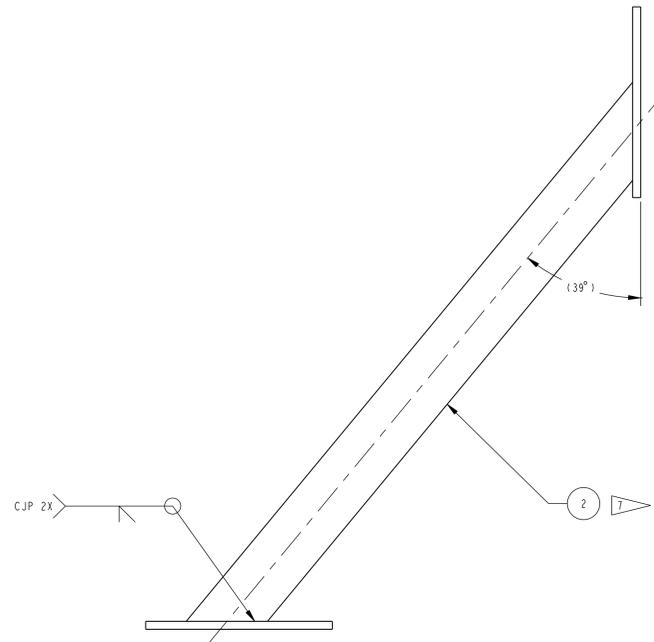


REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL

NOTICE: THIS DRAWING, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A SPECIFIC SPACE SHUTTLE OPERATIONS. THE USER SHALL ASSUME ALL RESPONSIBILITY FOR THE DESIGN AND CONSTRUCTION OF ANY PART OF THE SYSTEMS AND ASSUME ALL LIABILITY FOR ANY DAMAGE TO PERSONS OR PROPERTY AS A RESULT OF CONSTRUCTION, USE, OR FAILURE OF ANY PART THEREOF.



FIND NO. 1 6  
ESTIMATED WEIGHT = 3,246 LBS  
SCALE 1/16

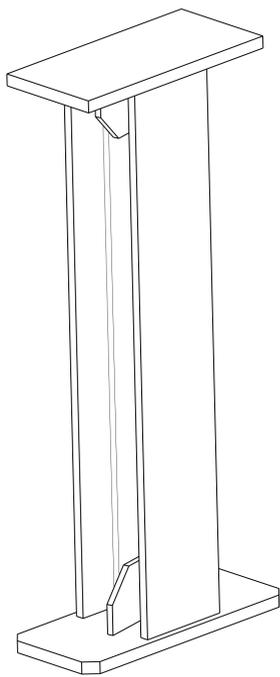


- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE  
REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

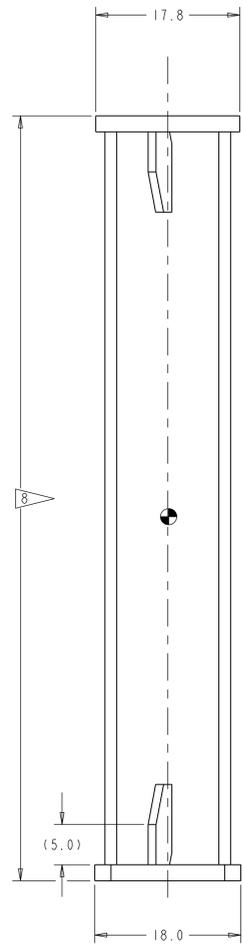
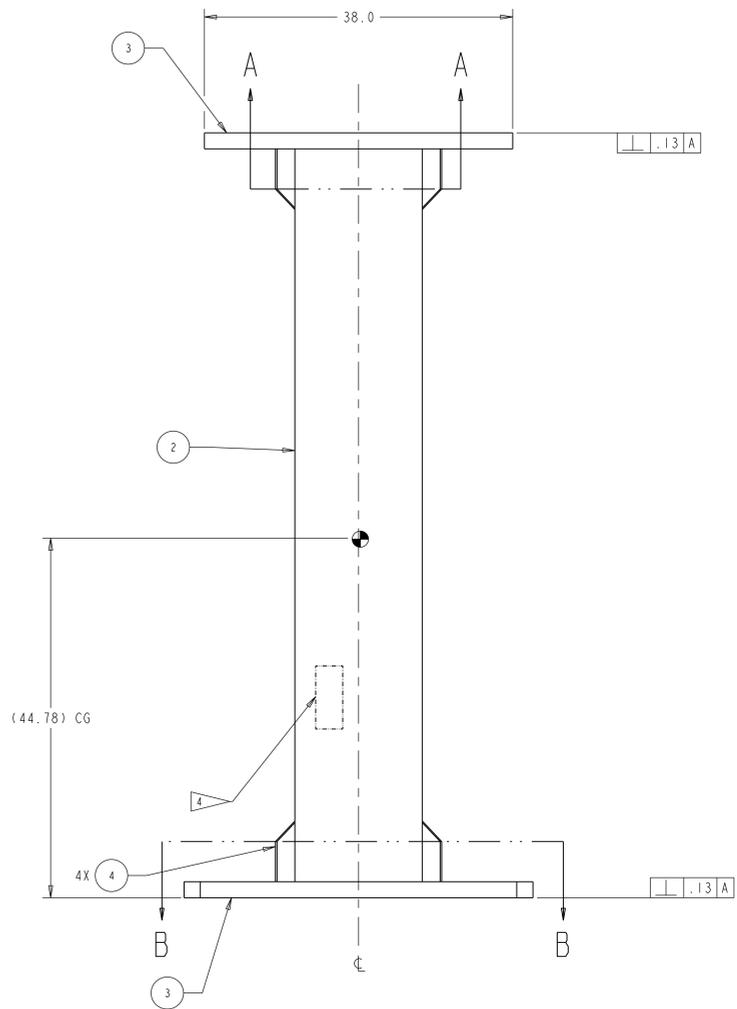
BASE FRAME INNER SRB BRACE WELDMENT 2 SLS ENGINE SECTION TEST	SPECIAL TEST EQUIPMENT DESIGN BRANCH - ET50
	GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION Huntsville, Alabama
90M14372	REVISION SEE SHEET 1
DATE: E 2	2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL

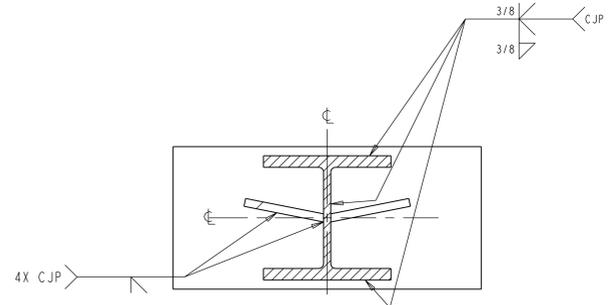
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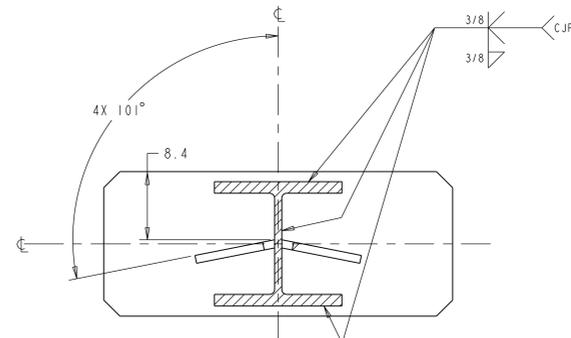
ISO VIEW  
FOR REFERENCE VIEW ONLY  
NO SCALE



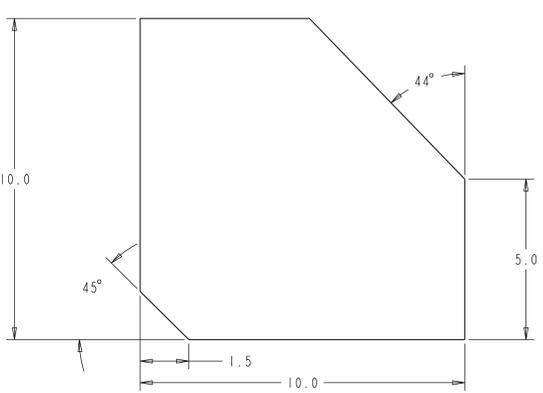
- UNLESS OTHERWISE SPECIFIED:
- REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
  - 500/ ALL EDGES OF PLATES AND END CUTS OF AISC SHAPES.
  - DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH ASME Y14.5M-1994.
  - STENCIL PART NUMBER IN THE APPROX. LOCATION SHOWN USING A CONTRASTING COLOR AND 2" TALL LETTERS.
  - STEEL WELDING, INCLUDING WELDING PROCEDURES, WELDING QUALIFICATION, SHALL BE IN ACCORDANCE WITH AISC "STRUCTURAL WELDING CODE" - ANSI / AWS D1.1/D1.1M:2010. 100% VISUAL INSPECT. NO PREPRODUCTION OR TENSILE WELD SPECIMEN REQUIRED.
  - PAINT ALL EXPOSED SURFACES PER MIL-STD-171F; SURFACE PREP PER 4.1 AND FINISH PER 24.17. FINISH COLOR 16251 (OR SIMILAR GLOSSY SHADE) PER FED-STD-595C. DO NOT PAINT CONTACT SURFACES BETWEEN BOLTED PARTS OR OTHER INDICATED SURFACES. DO NOT PAINT HOLES OR THREADS. REFERENCE DRAWING 90M13927 FOR LOCATIONS OF BOLTED JOINT SURFACES. AREAS DAMAGED DURING ASSEMBLY OR INSTALLATION SHALL BE TOUCHED UP ONSITE. NO BLASTING OR SPRAYING PERMITTED OF ANY TYPE. PROTECT UNPAINTED SURFACES WITH TRIFLOW.
  - ALL STRUCTURAL STEEL SHAPES SHALL CONFORM TO THE DESIGNATIONS AND DIMENSIONS OF THE AISC "STEEL CONSTRUCTION MANUAL", 14TH EDITION.
  - DIMENSION DETERMINED BY DRAWING 90M13927 SEE SHEET 2.



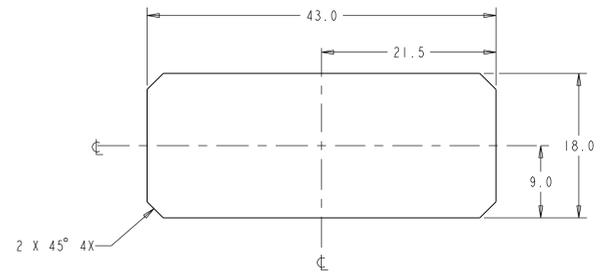
SECTION A-A  
SCALE 0.125



SECTION B-B  
SCALE 0.125



FIND NO. 4  
SCALE 0.500



FIND NO. 1  
ESTIMATED WEIGHT = 2,200LBS.  
SCALE 0.125

- PRELIMINARY -  
THIS DRAWING HAS NOT COMPLETED THE  
REVIEW PROCESS AND IS SUBJECT TO CHANGE.  
03-14-14  
DATE

FIND NO.	CALLOUT	DETAIL SHT NO.	TOT REQ'D	PART NO.	DESCRIPTION	VEND NO.	REMARKS
4	I	-	AR	F	90M14374-4	1.0" STK. PLATE	MATERIAL: ASTM 572 GRADE 50
3	I	-	AR	F	90M14374-3	2.0" STK. PLATE	MATERIAL: ASTM 572 GRADE 50
2	I	-	AR	F	90M14374-2	W14 X 193 WIDE FLANGE	MATERIAL: ASTM A992
1	I	-	F	F	90M14374-1	BASE FRAME STANCHION WELDMENT	

STRESS	DATE	PREPARED BY	DATE	UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:	DECIMALS	FRACTIONS
MATERIALS	DATE	TEST ENGINEER/REQUESTER	DATE		.X ± .06	XX ± .03
INTERNAL SAFETY	DATE	ESD ENGINEER/DESIGN LEAD	DATE		± 1/16 ± 1/2	XXX ± .010
SAFETY AND DESIGN PERFORMANCE	DATE	ESD CIVIL SERVICE LEAD	DATE			± .50"
FLUSH INTERFACES	DATE	CHASER	DATE			
PERFORMANCE CERTIFICATION NUMBER	DATE	ESD ENGINEER/TEST/FORM LEAD	DATE			

BASE FRAME  
STANCHION WELDMENT  
SLS ENGINE SECTION  
TEST

SPECIAL TEST EQUIPMENT  
DESIGN BRANCH - E750  
GEORGE C. MARSHALL  
SPACE FLIGHT CENTER  
NATIONAL AERONAUTICS  
AND SPACE ADMINISTRATION  
Huntsville, ALABAMA

90M14374  
REV 1

