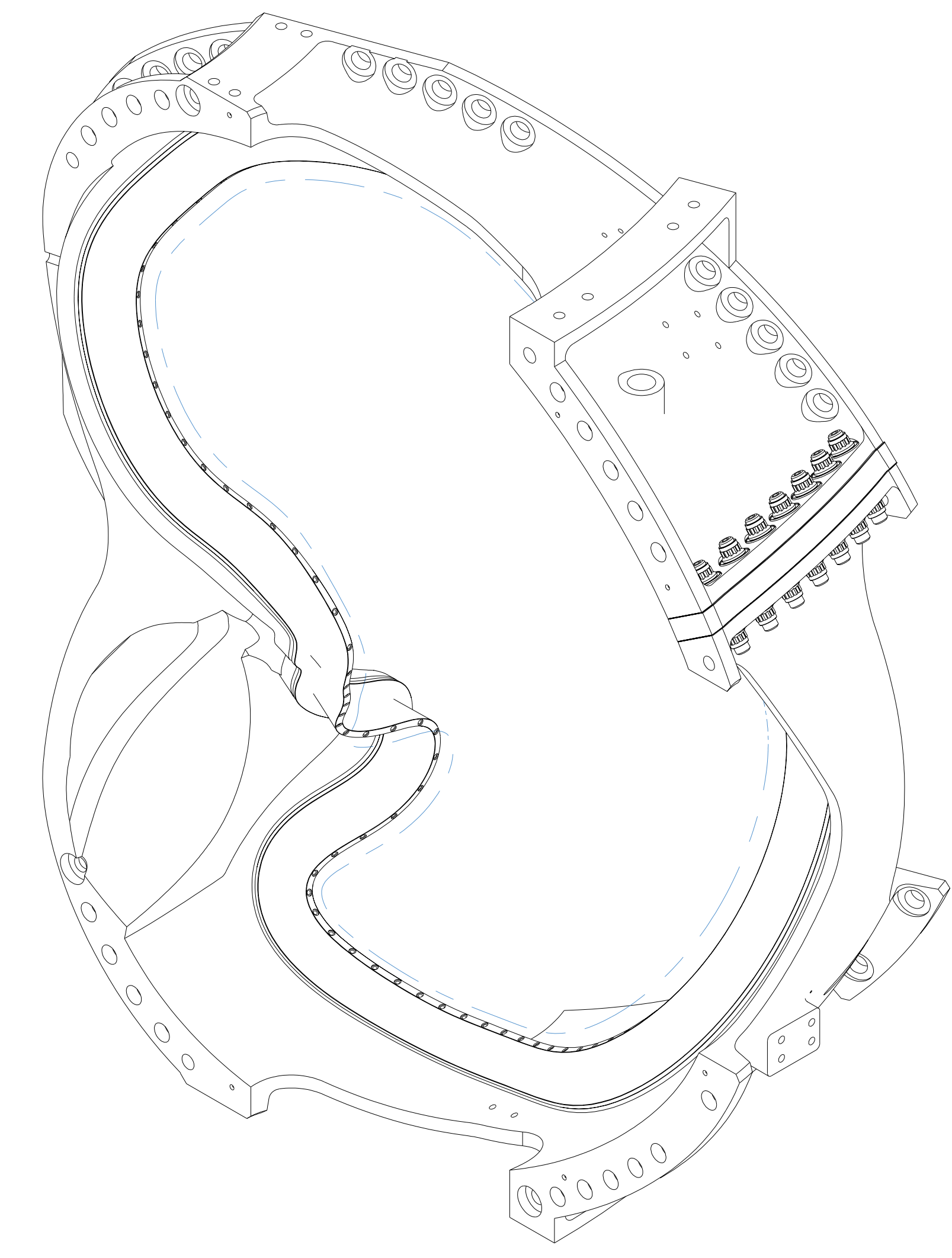
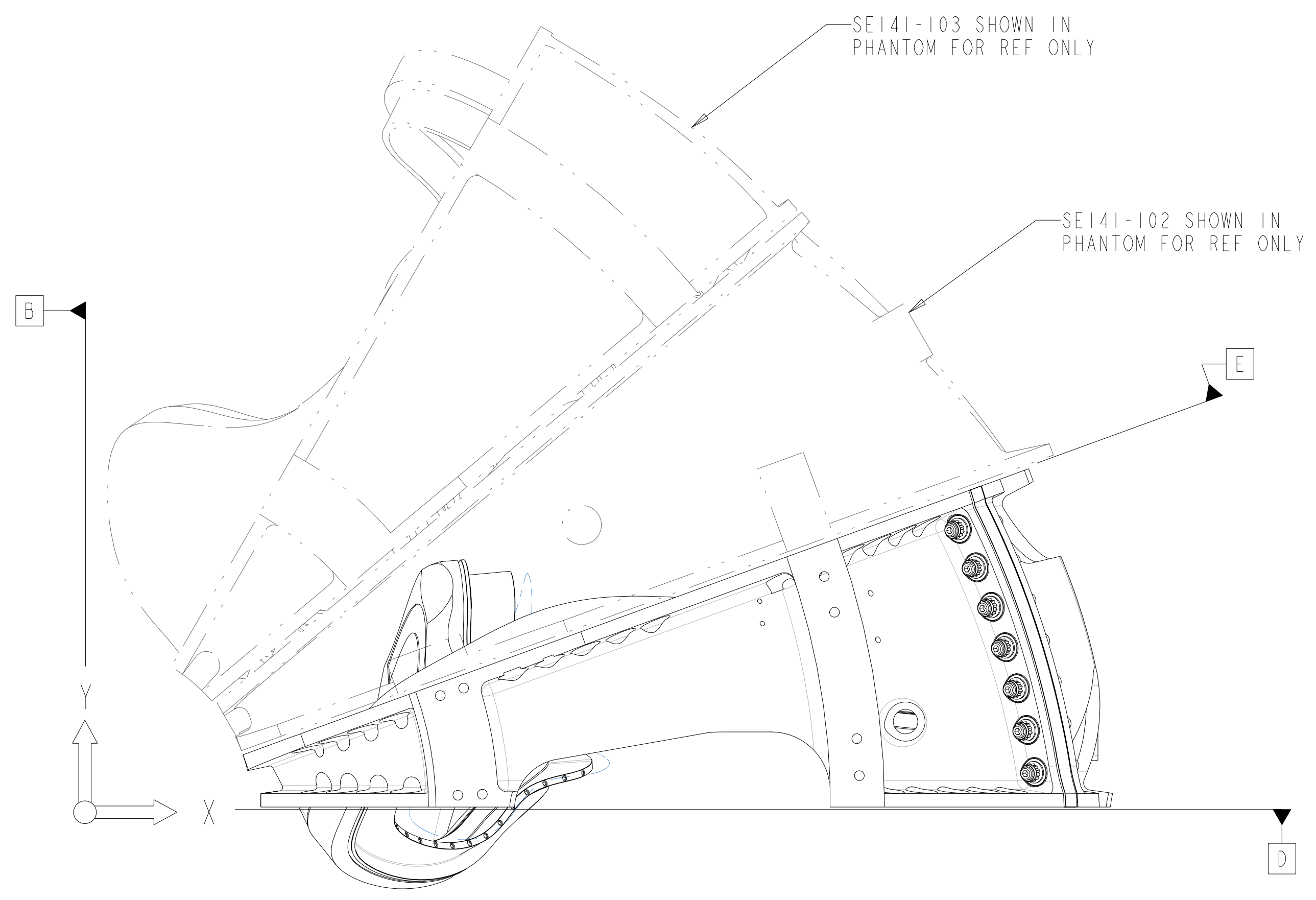
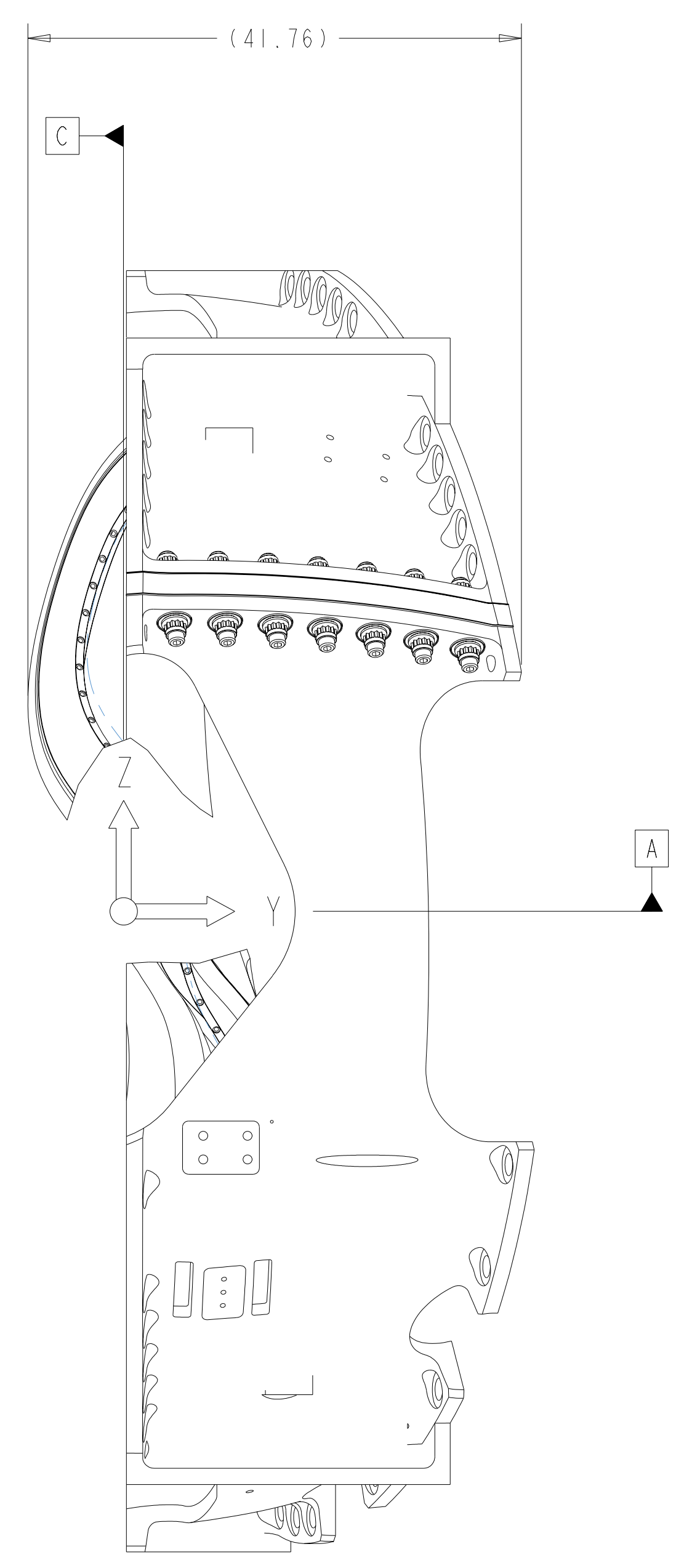
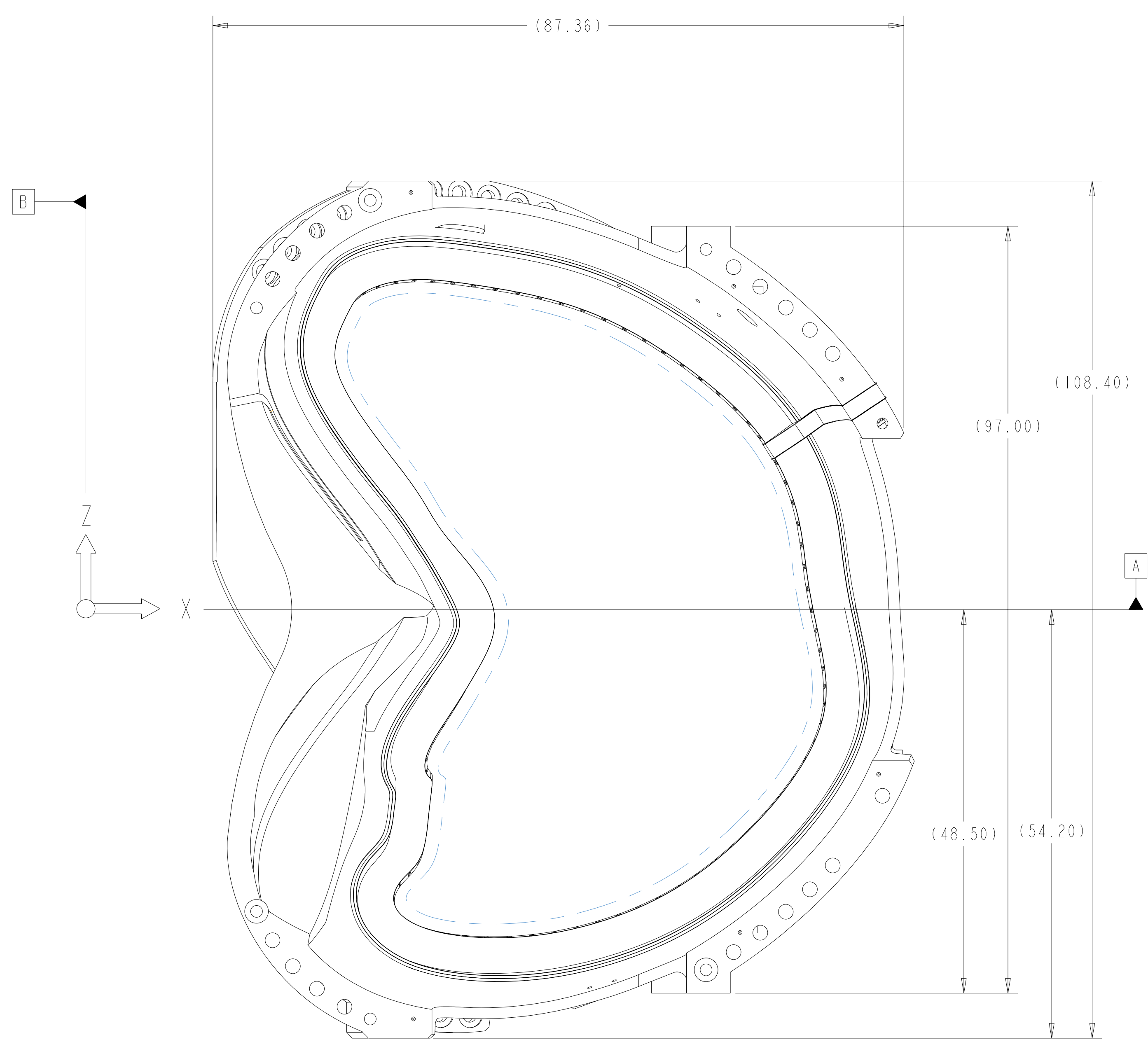


- NOTES:
- DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.8M-1996.
 - INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.
 - DIMENSIONS ARE IN INCHES.
 - DRAWING DEPICTS FINAL MACHINED STATE OF ASSEMBLY DEFINED BY PRO/ENGINEER FILE SEI41-101.PRT.
 - UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE RELATED TO DATUM A- (PRIMARY X-Y PLANE, TOP) DATUM B- (SECONDARY Y-Z PLANE, SIDE) DATUM C- (TERTIARY X-Z PLANE, FRONT)
 - DIMENSIONS APPLY AT TEMPERATURE OF 20-30°C (68-86°F).
 - DIMENSIONS AND TOLERANCES EXCLUDE PROCESS MATERIAL ALLOWANCES WHICH MAY ADD MASS.
 - APPROXIMATE WEIGHT = 4983 LBS
 - MATCH DRILL OR REAM AS REQUIRED TO ACHIEVE RUNNING FIT BETWEEN PARTS AT ASSEMBLY.
 - LUBRICATE THREADED SURFACES WITH MOLYCOTE 321R PER MANUFACTURER'S INSTRUCTIONS.
 - SEE LATEST REVISION OF SPECIFICATION NCSX-CSPEC-141-03 FOR ADDITIONAL REQUIREMENTS.
 - BOND INSULATING SLEEVE (F/N 5) TO WINDING FORM (F/N 2) USING LOCTITE 411, PER MANUFACTURER'S INSTRUCTIONS.



ISOMETRIC VIEW
 SCALE 0.10



I SCALE .10

14	DS141-079	FLAT WASHER			9
14	DS141-060	NUT, 12PT HEX 1.375-6UNC-2B			8
14	DS141-038	INSULATING WASHER			7
7	DS141-036	STUD, 1.375-6UNC-2A X 9 LG			6
14	-5	MCWF INSULATING SLEEVE TYPE-A	GIICR	NEMA LI I - 1998	5
1	-4	INSULATING SHEET TYPE-A	GIICR	NEMA LI I - 1998	4
1	SEI41-048	POL BREAK SHIM ASSEMBLY TYPE-A			3
1	SEI41-114	PRODUCTION WINDING FORM TYPE-A			2
AR	X	-1	MOD COIL WINDING FORM ASSEMBLY TYPE-A		1
SEI41-101	CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION
			← NEXT ASSEMBLY		FIND NO

PARTS LIST

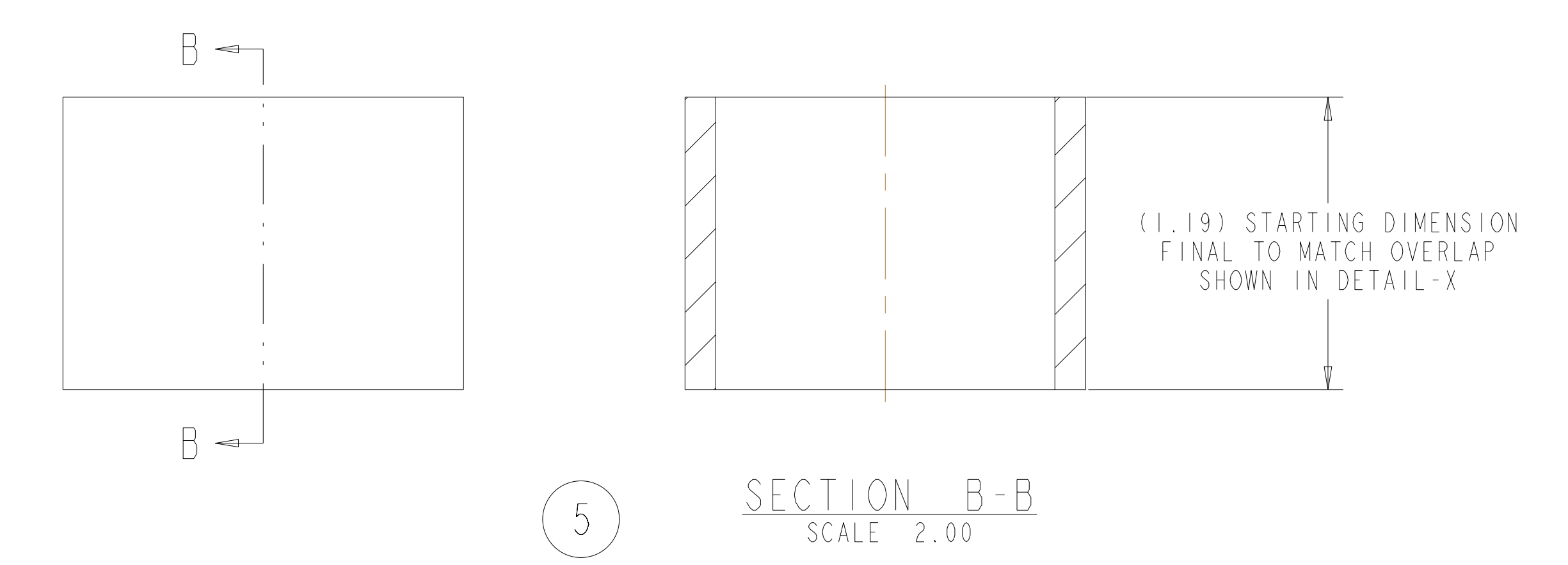
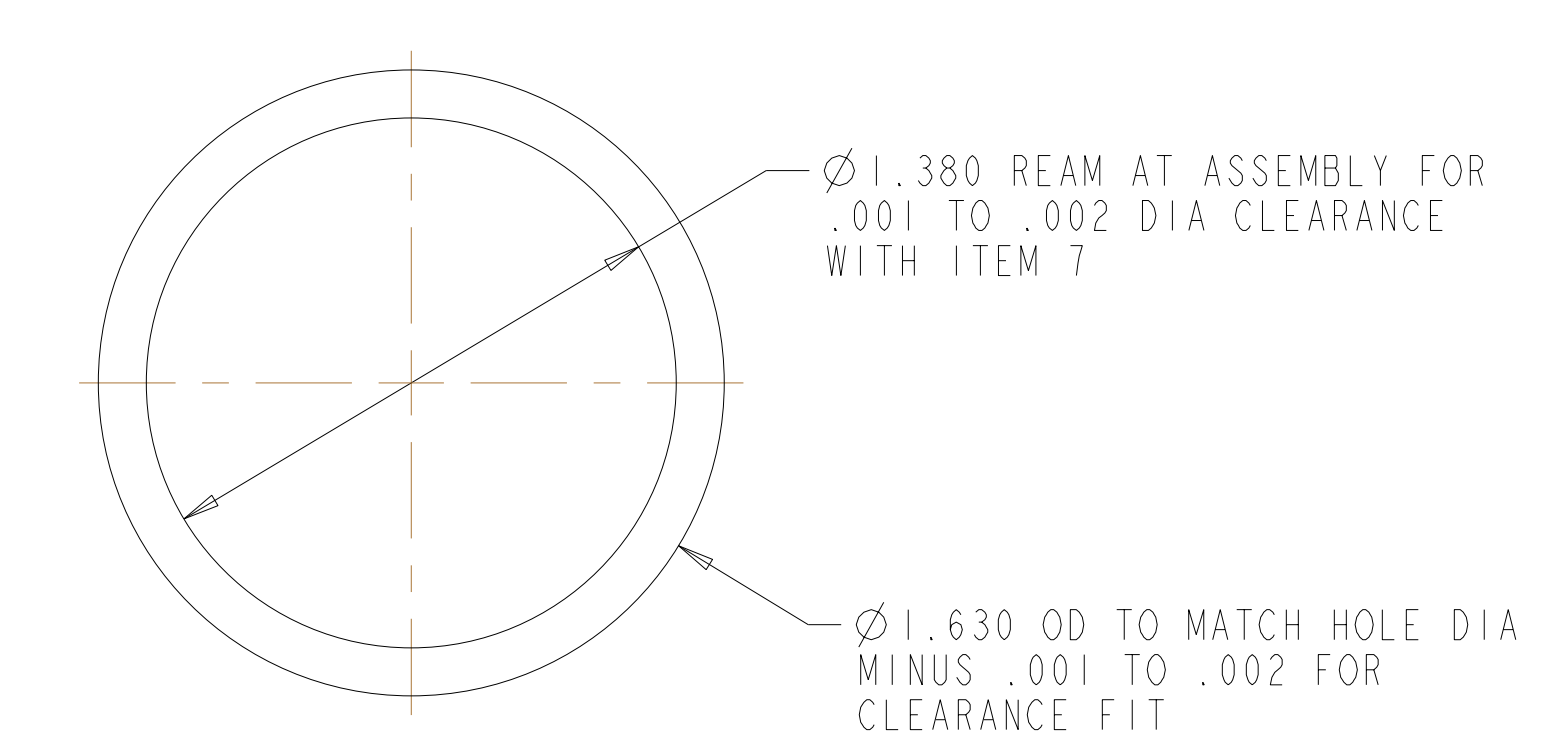
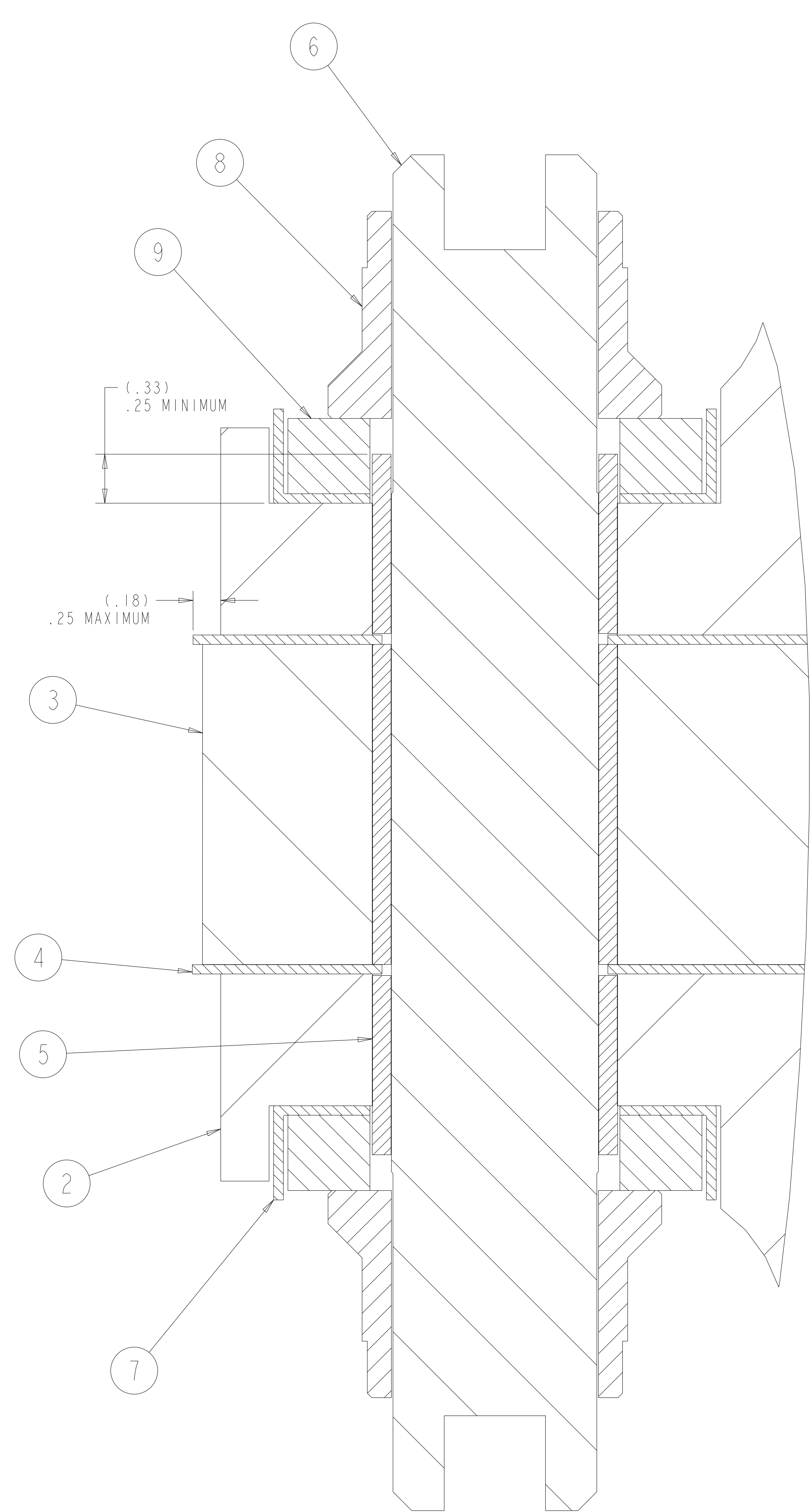
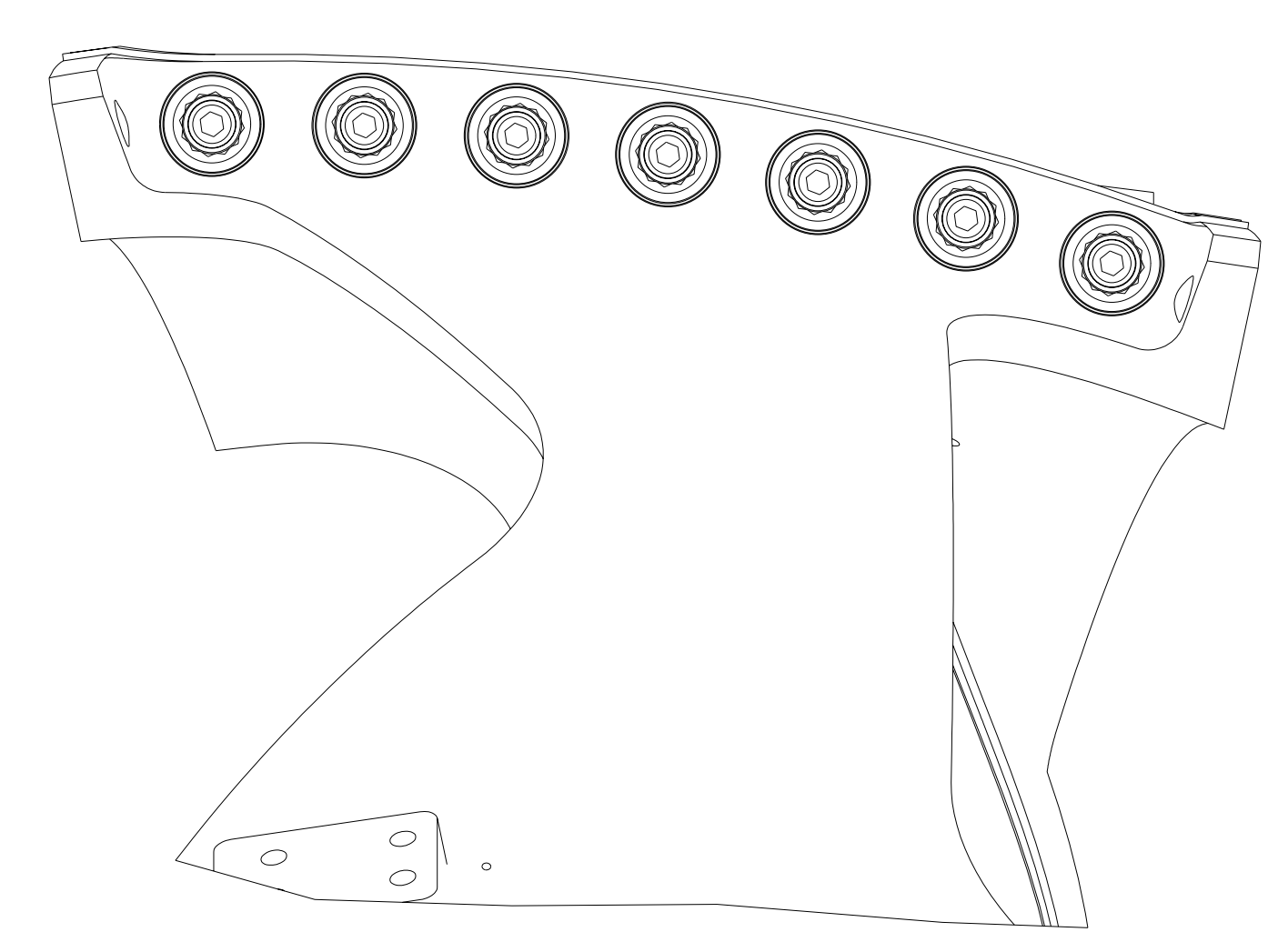
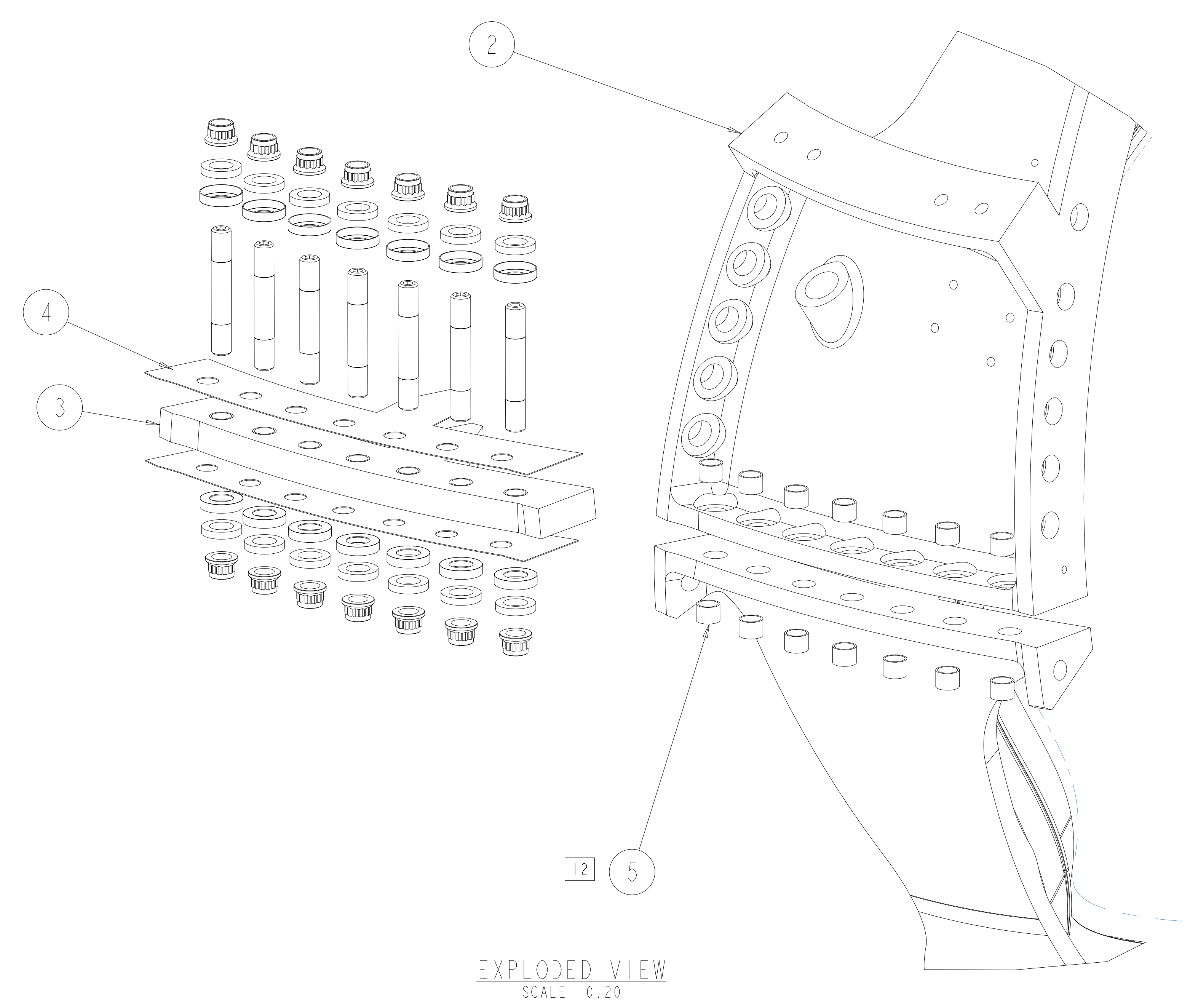
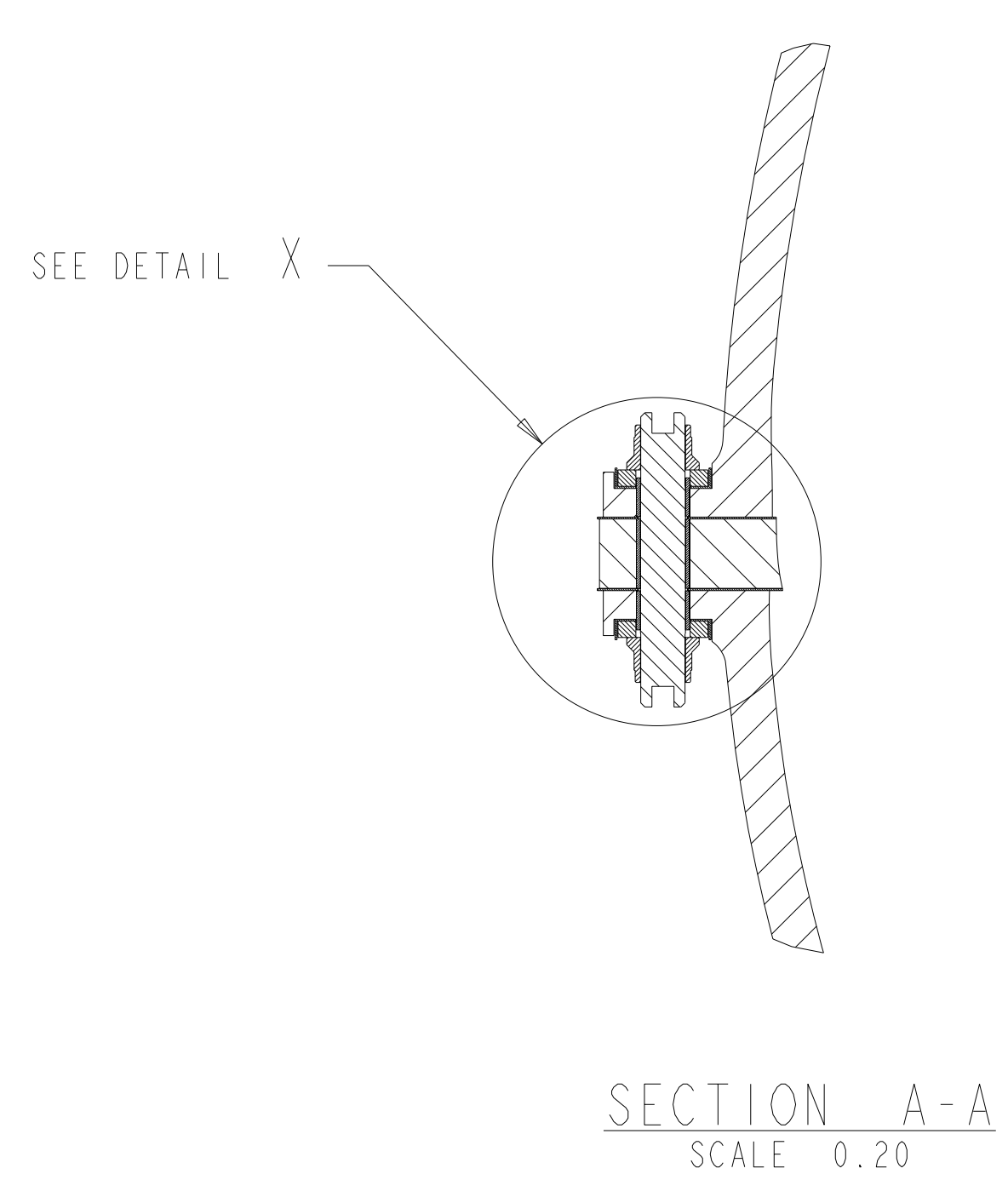
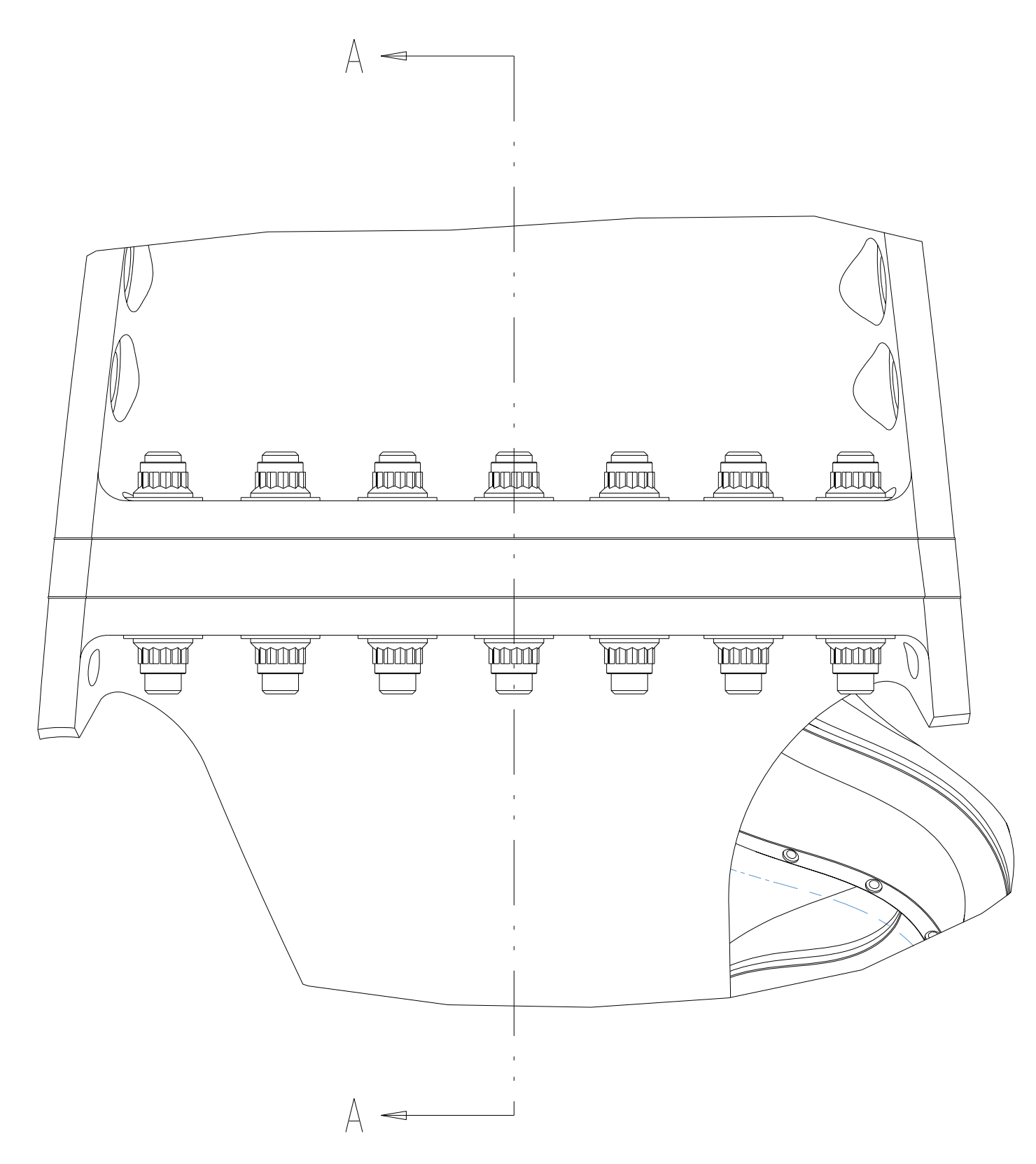
SCALE NOTED		DES: T BROWN	6-30-04	UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC. Oak Ridge, Tennessee	
TOLERANCES UNLESS OTHERWISE SPECIFIED		DRW: P MILLER	6-30-04	NATIONAL COMPACT STELLARATOR EXPERIMENT		PROJECT NAME	
FRACTIONS		CHK: M COLE	6-30-04	MOD COIL WINDING FORM ASSEMBLY TYPE-A		REV	
XX DECIMALS ±.01		SECT:		PPPL DRFT: J SIEGEL		6-30-04	
XXX DECIMALS ±.005		DEPT:		VERSION NO.	3	PLANT	X-10
ANGLES ±0°15'		PE: D WILLIAMSON	6-30-04	BLDG	5700	FL	3
BREAK SHARP EDGES .06 MAX		CR:		SHT OF	3	TYPE	1 2 S
FINISH .125 UNLESS OTHERWISE SPECIFIED		PJ:		CLASS	U		
REV		REG:		DATE		RELEASE LEVEL	
1 REVISED F/N 2 PER ECN-4903		REO:		DATE		Fabrication	SEI41-101
BY DATE CHK DEPT		DATE	PE	ORNL	DOE	DATE	
DW 9/04 MJC		DEW					
REVISION OR ISSUE PURPOSE		REVISION APPROVAL		DRAWING APPROVALS		DATE	

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P THIS DRAWING PRODUCED ON PRO-ENGINEER

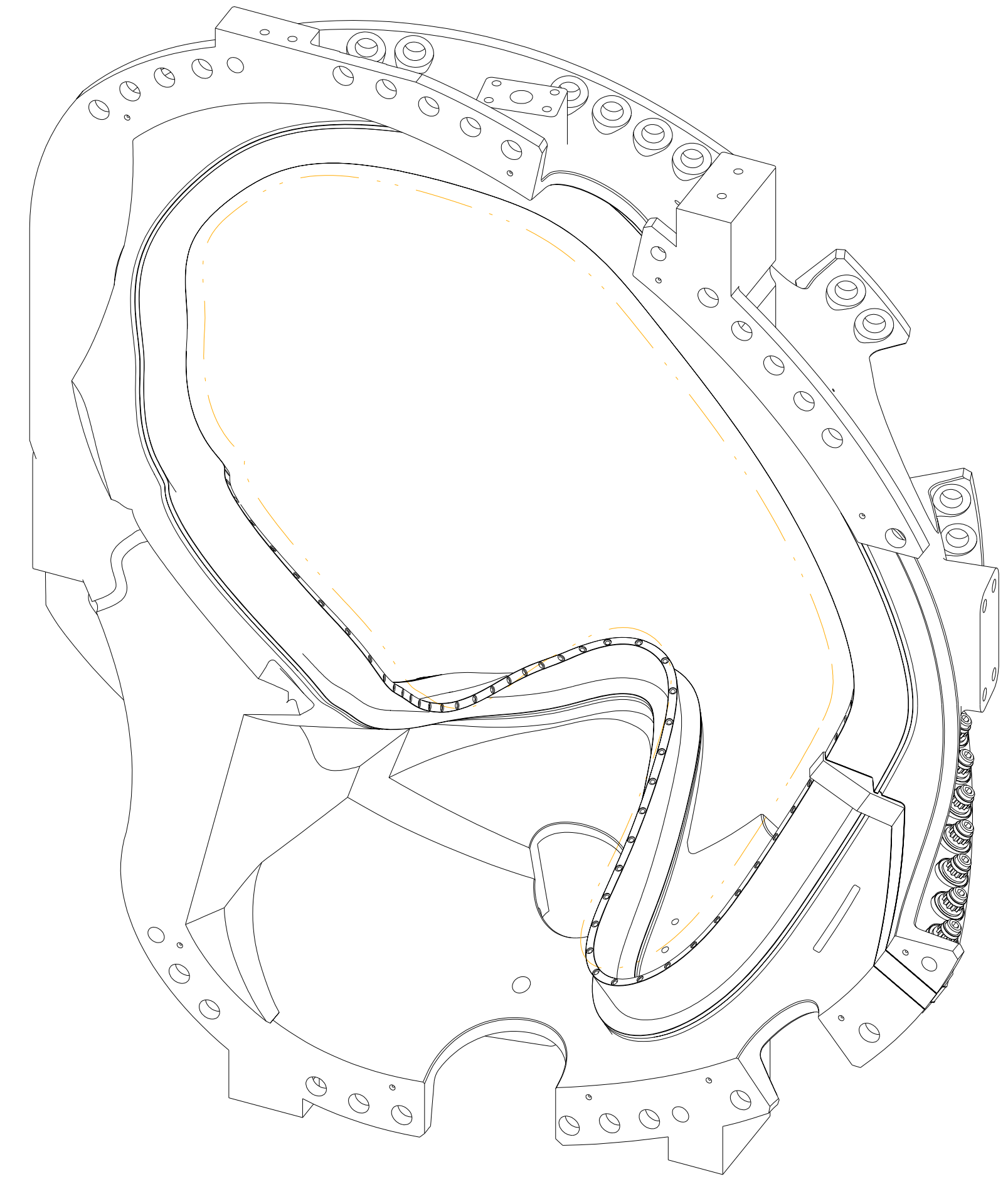
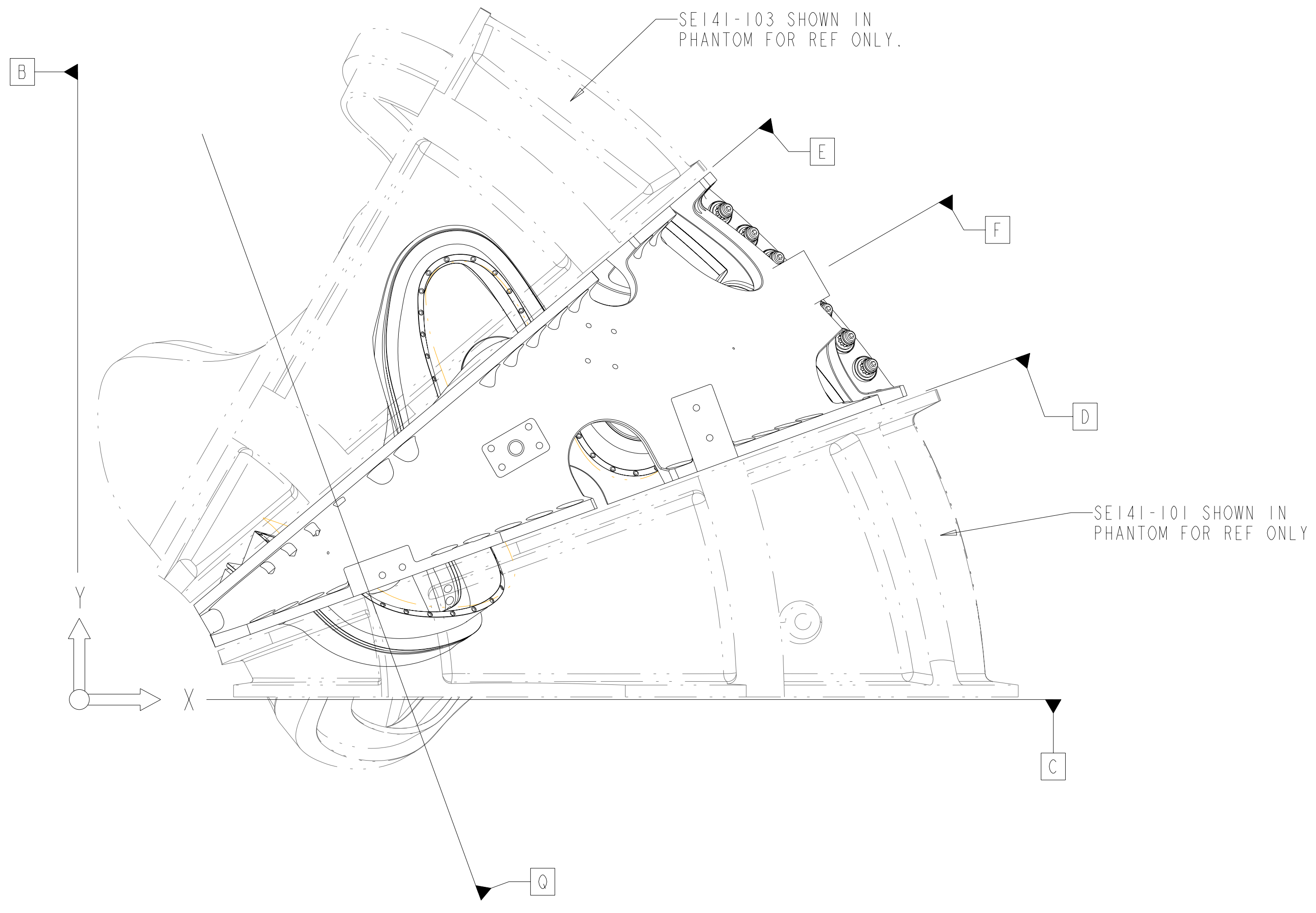
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FOR NOTES AND PARTS LIST SEE SHEET 1



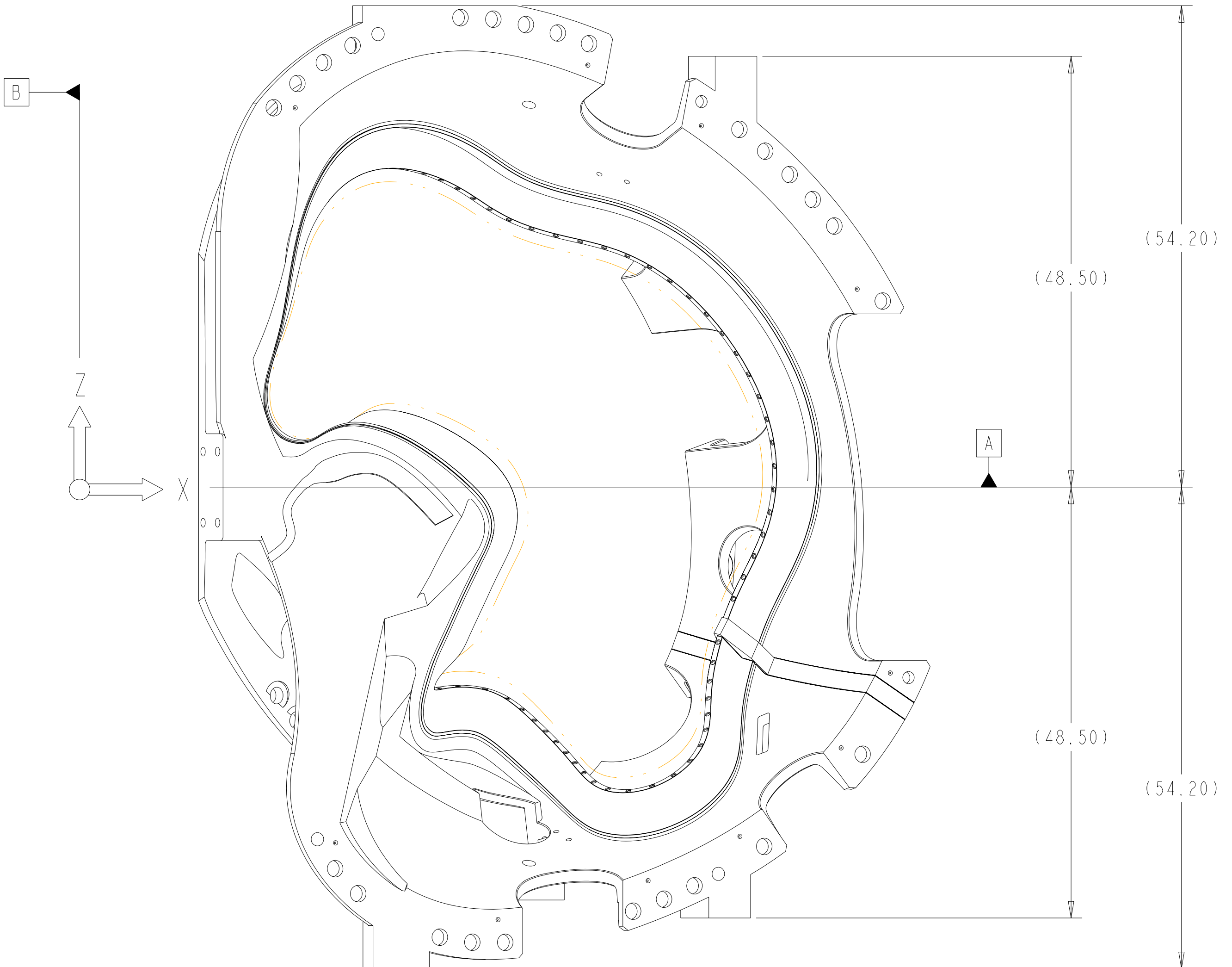
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
MOD COIL WINDING FORM ASSEMBLY TYPE-A							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
3	X-10	5700	3	2	S	U	
RELEASE LEVEL	SEI41-101						
Fabrication							

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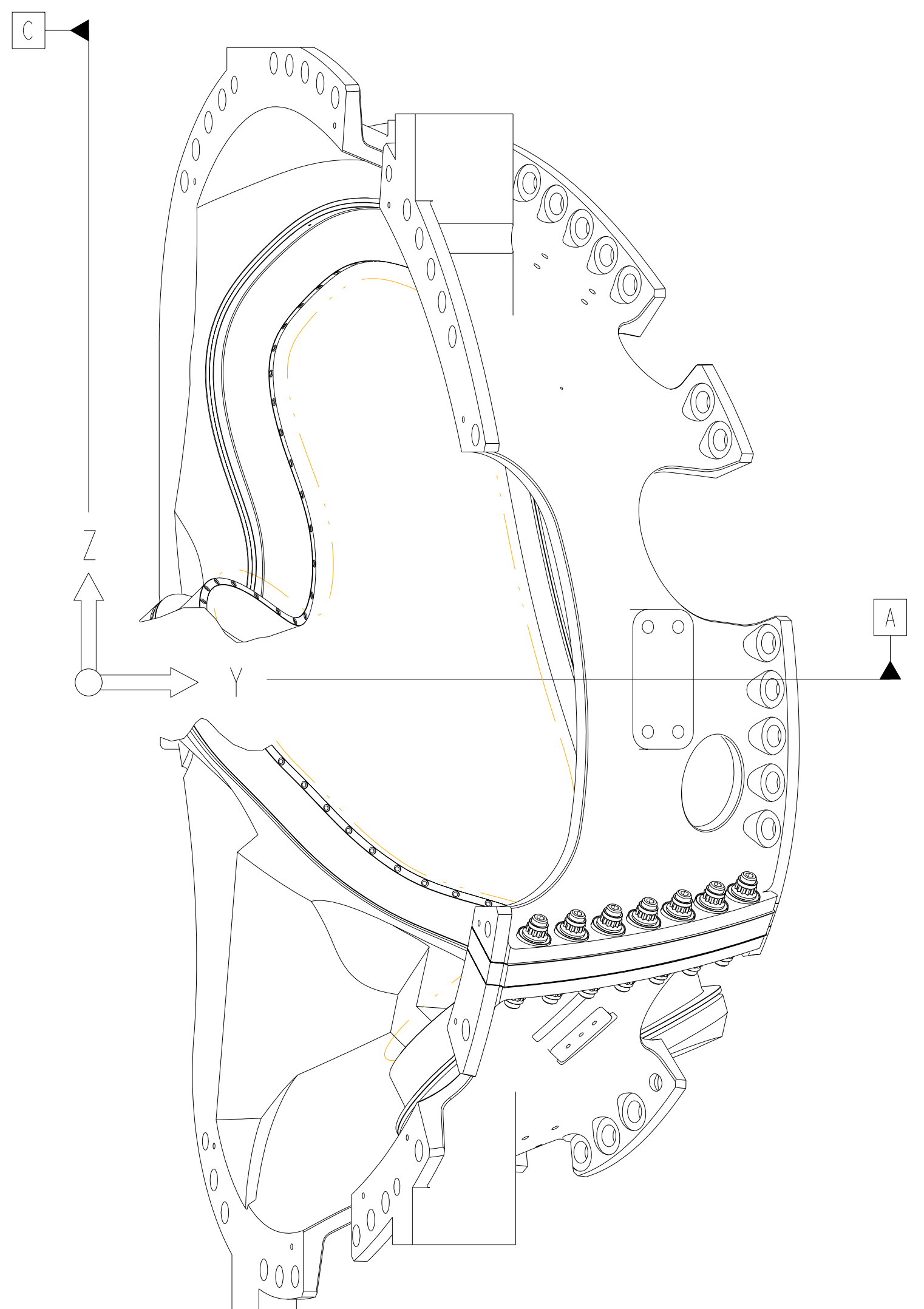


ISOMETRIC VIEW
 SCALE 0.10

- NOTES:
- DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.8M-1996
 - INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994
 - DIMENSIONS ARE IN INCHES
 - DRAWING DEPICTS FINAL MACHINED STATE OF PART DEFINED BY PRO/ENGINEER FILE SE141-102.ASM
 - UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE RELATED TO DATUM A- (PRIMARY X-Y PLANE, TOP) DATUM B- (SECONDARY Y-Z PLANE, SIDE) DATUM C- (TERTIARY X-Z PLANE, FRONT)
 - DIMENSIONS APPLY AT TEMPERATURE OF 20-30°C (68-86°F)
 - DIMENSIONS AND TOLERANCES EXCLUDE PROCESS MATERIAL ALLOWANCES WHICH MAY ADD MASS
 - APPROXIMATE WEIGHT = 4950-LBS
 - MATCH DRILL OR REAM AS REQUIRED TO ACHIEVE RUNNING FIT BETWEEN PARTS AT ASSEMBLY
 - LUBRICATE THREADED SURFACES WITH MOLYCOTE 321R PER MANUFACTURER'S INSTRUCTIONS
 - SEE LATEST REVISION OF SPECIFICATION NCSX-CSPEC-141-03 FOR ADDITIONAL REQUIREMENTS
 - BOND INSULATING SLEEVE (F/N 5) INTO WINDING FORM (F/N 2) USING LOCTITE 411 PER MANUFACTURER'S INSTRUCTIONS



SCALE 0.10



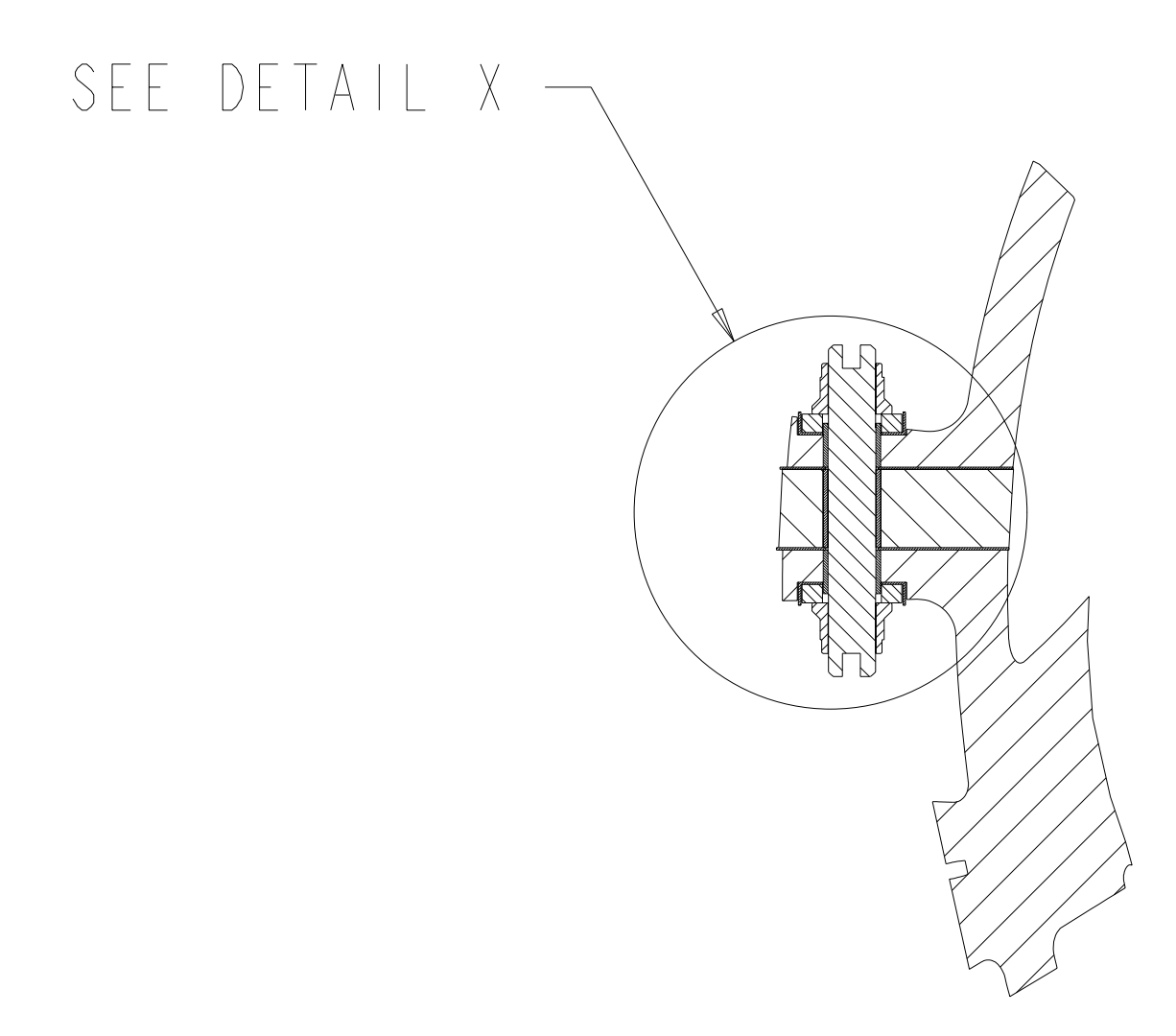
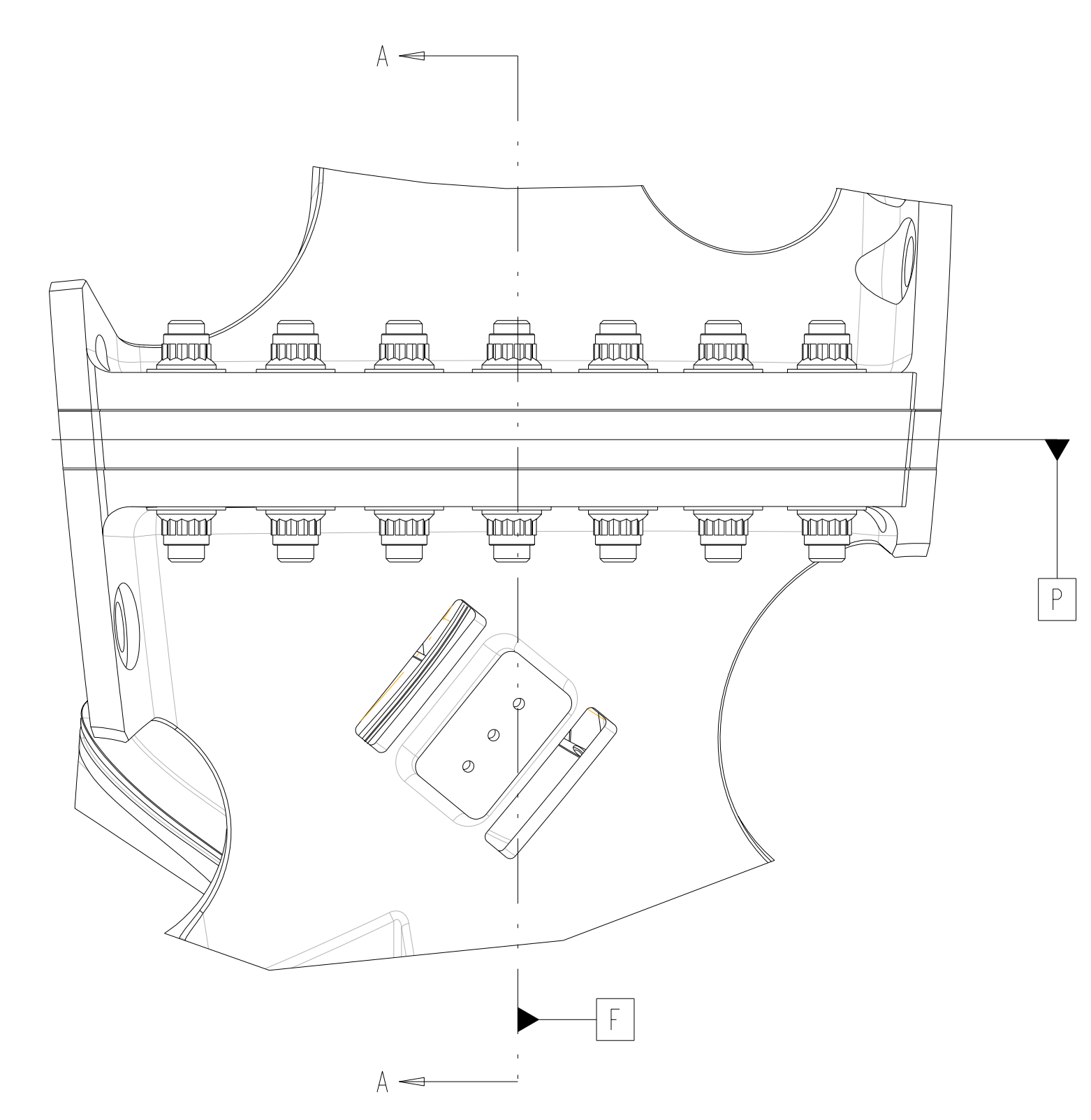
14	SE141-079	FLAT WASHER	9			
14	SE141-060	NUT, 12PT HEX 1.375-6UNC-2B	8			
14	SE141-038	INSULATING WASHER	7			
7	SE141-036	STUD, 1.375-6UNC-2A X 9 LG	6			
14	-5	MCWF INSULATING SLEEVE TYPE-B G11CR NEMA LI 1 - 1998	5			
2	-4	INSULATING SHEET TYPE-B G11CR	4			
1	SE141-058	POL BREAK SHIM ASSEMBLY TYPE-B	3			
1	SE141-115	PRODUCTION WINDING FORM TYPE-B	2			
AR	X	-1 MOD COIL WINDING FORM ASSEMBLY TYPE-B	1			
SE141-102	CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO
		NEXT ASSEMBLY	PARTS LIST			

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF, ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE NOT TO BE USED FOR OTHER PURPOSES, AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

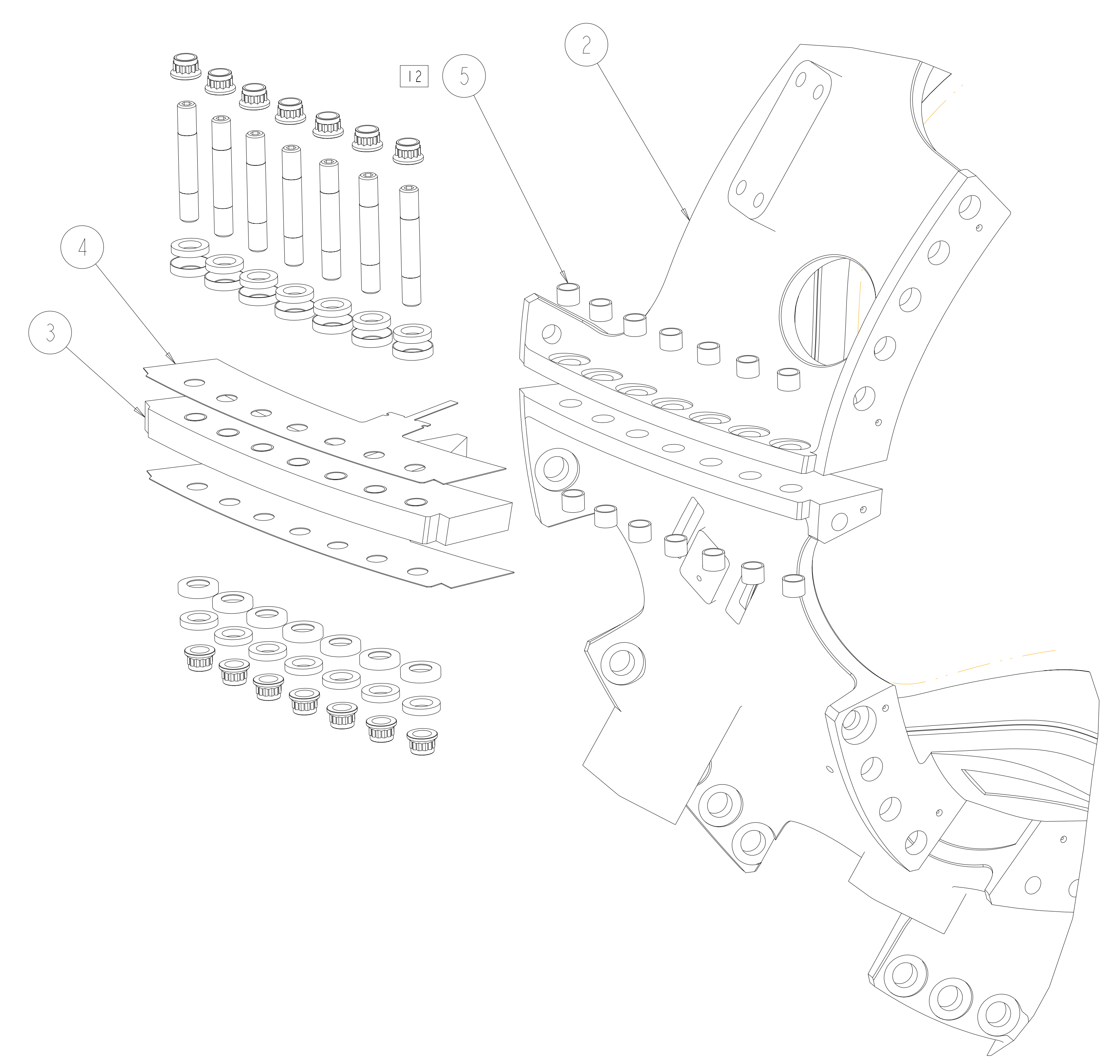
P THIS DRAWING PRODUCED ON PRO-ENGINEER

SCALE NOTED		DES. T. BROWN 6-30-04	UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee	
TOLERANCES UNLESS OTHERWISE SPECIFIED		DRW. PAUL MILLER 6-30-04	NATIONAL COMPACT STELLARATOR EXPERIMENT		PROJECT NAME	
FRACTIONS : DEPT :		CHK. M. COLE 6-30-04	MOD COIL WINDING FORM ASSEMBLY TYPE-B		RELEASE LEVEL	
XX DECIMALS ± .01		PE. D. WILLIAMSON 6-30-04	VERSION NO. 2		PLANT X-10	
XXX DECIMALS ± .005		CR :	BLDG 5700		FL 3	
ANGLES ± 0°15'		PJ :	SHT OF 1		TYPE 2	
BREAK SHARP EDGES .06 MAX		REQ :	REV U		CLASS	
FINISH :25 UNLESS OTHERWISE SPECIFIED		PPPL DRFT J. STEGEL 6-30-04	SEI41-102		REV 1	
1 REVISED F/N 2 PER ECN-4903		BY DATE CHK DEPT DATE PE REQ DATE ORNL DOE DATE	DRAWING APPROVALS		DATE	
REVISION OR ISSUE PURPOSE		REVISION APPROVAL				

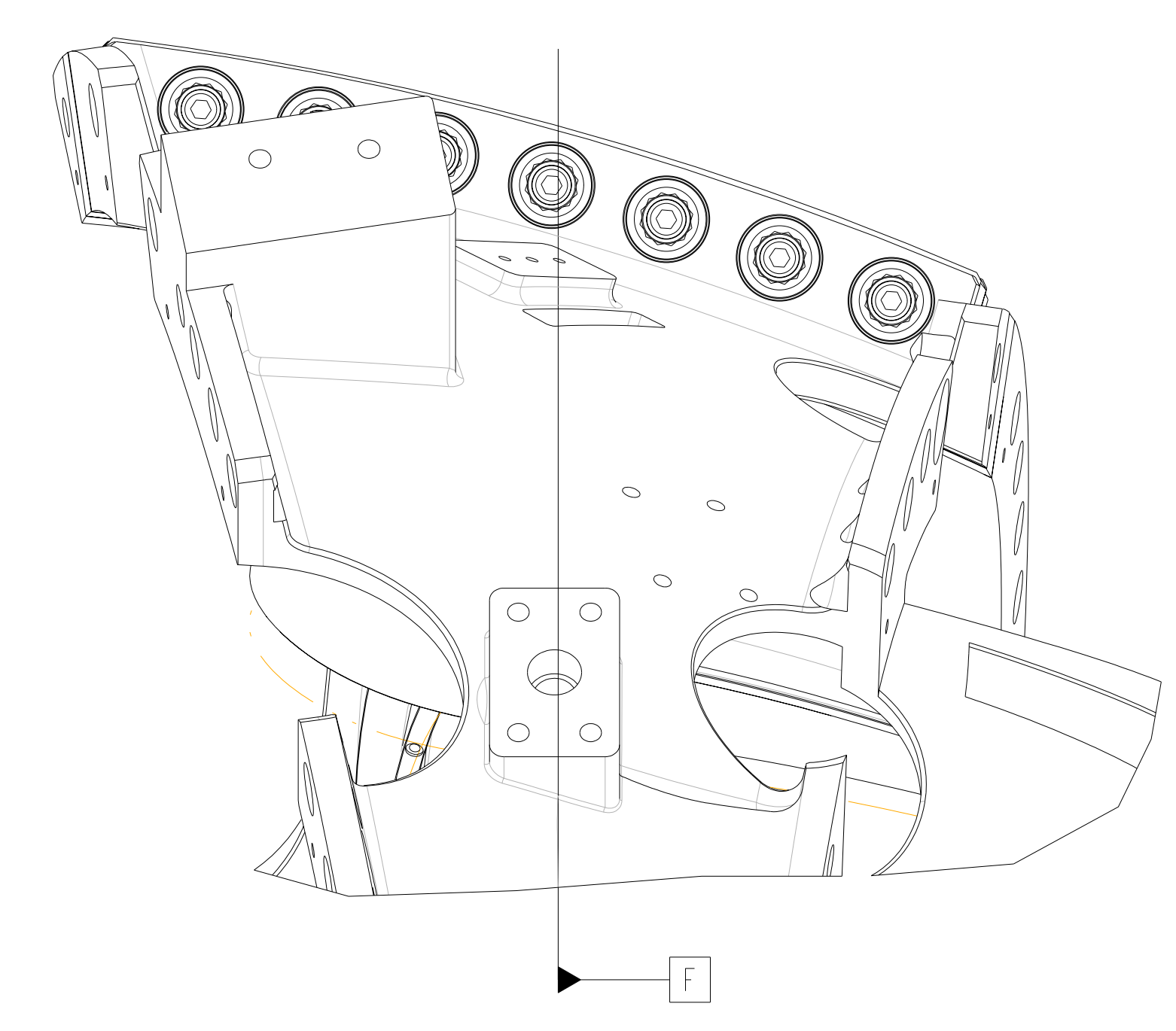
FOR NOTES AND PARTS LIST SEE SHEET 1



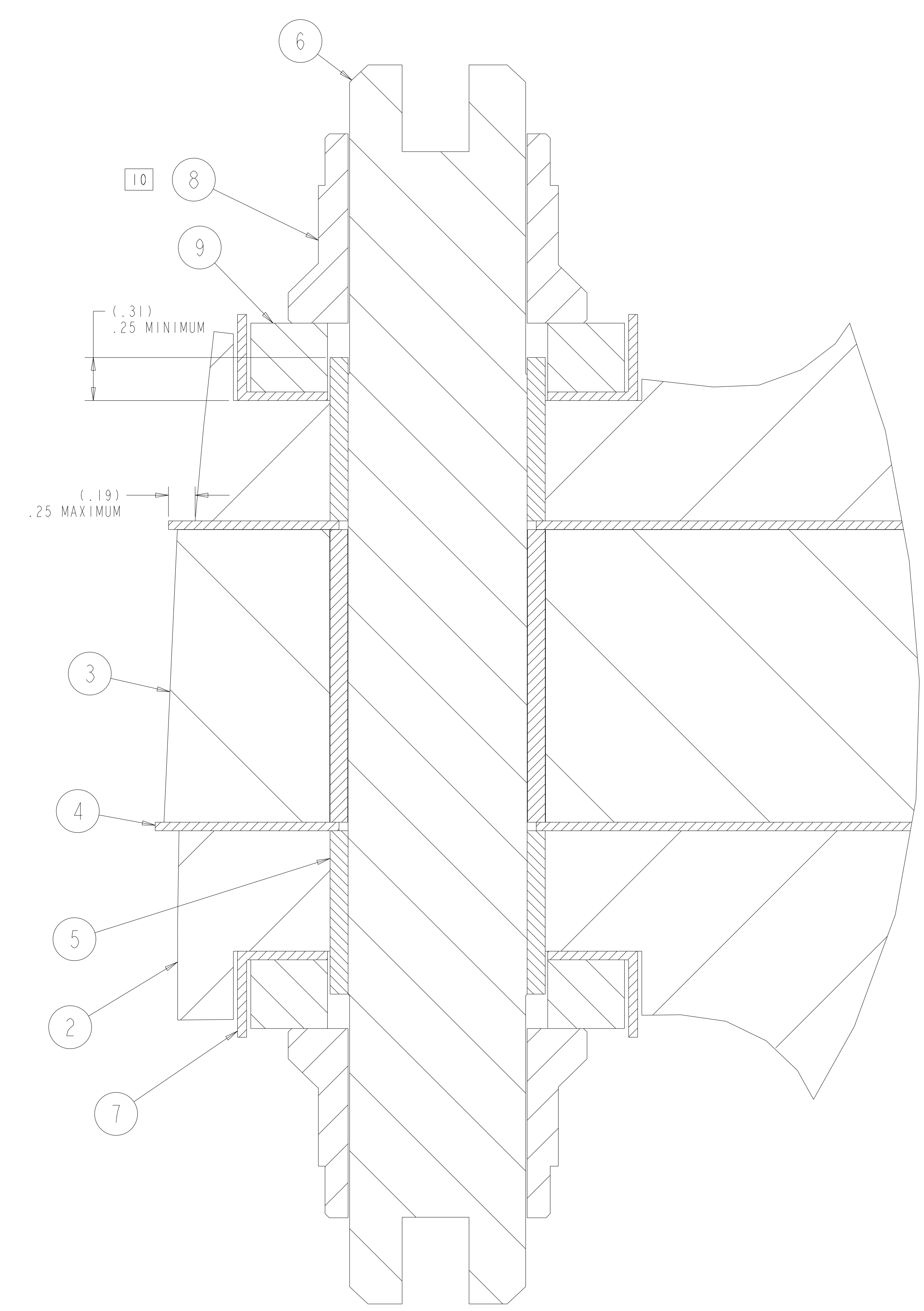
SECTION A-A
 SCALE 0.20



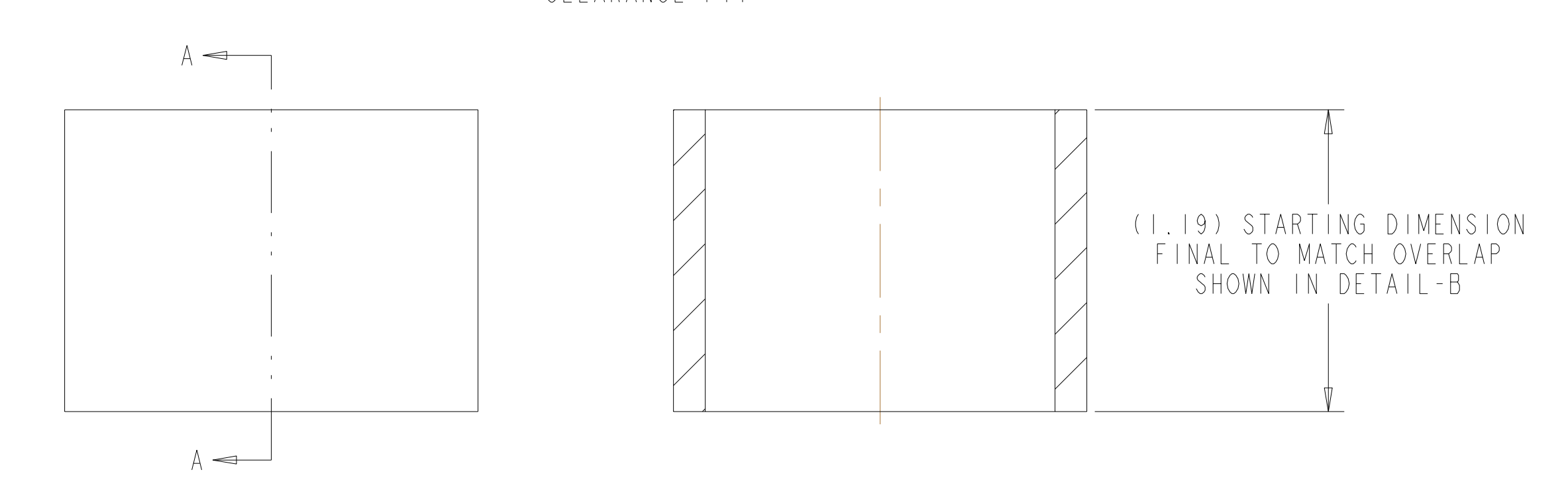
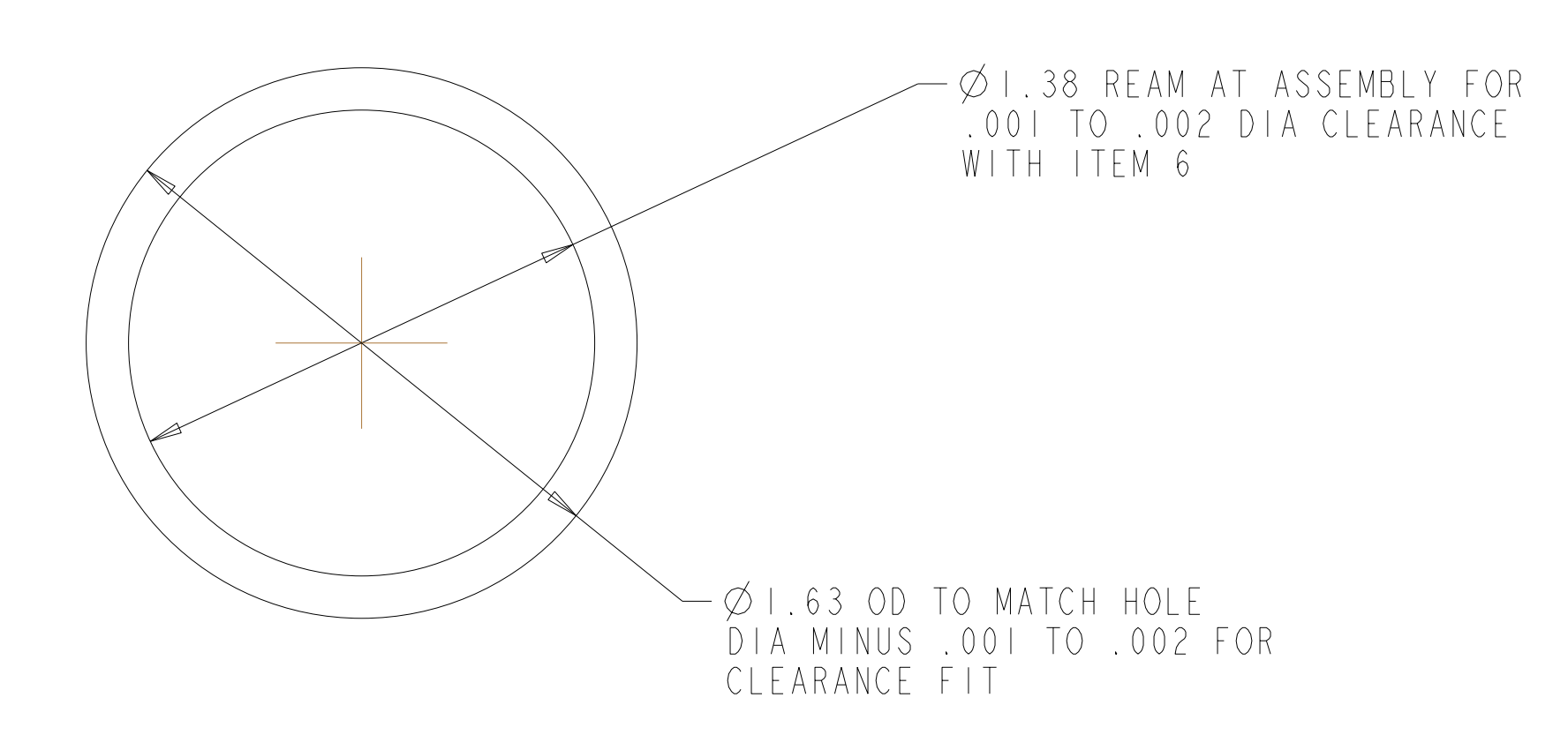
1 EXPLODED VIEW
 SCALE 0.20



POLOIDAL BREAK DETAIL



DETAIL X
 SCALE 2.00

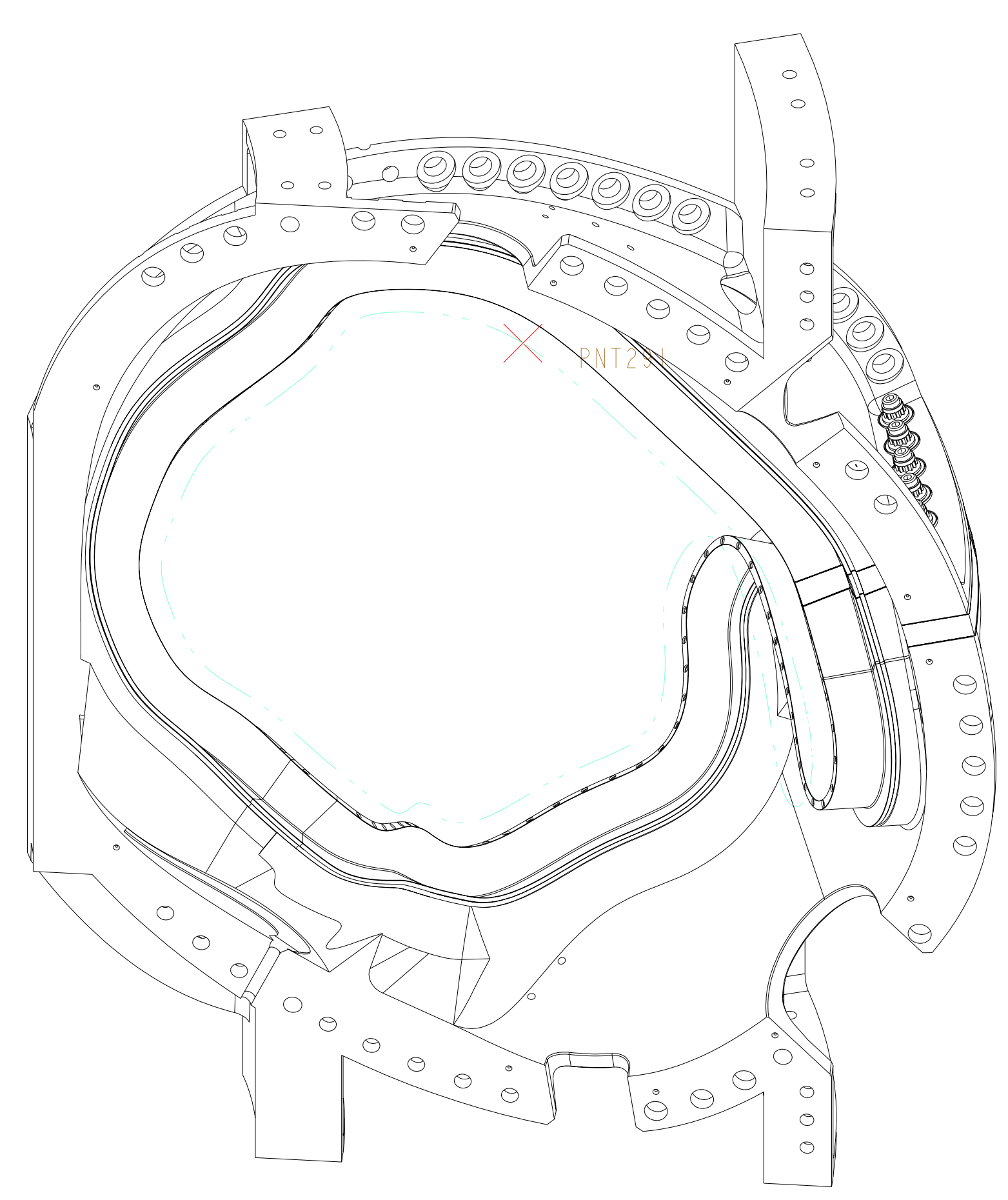
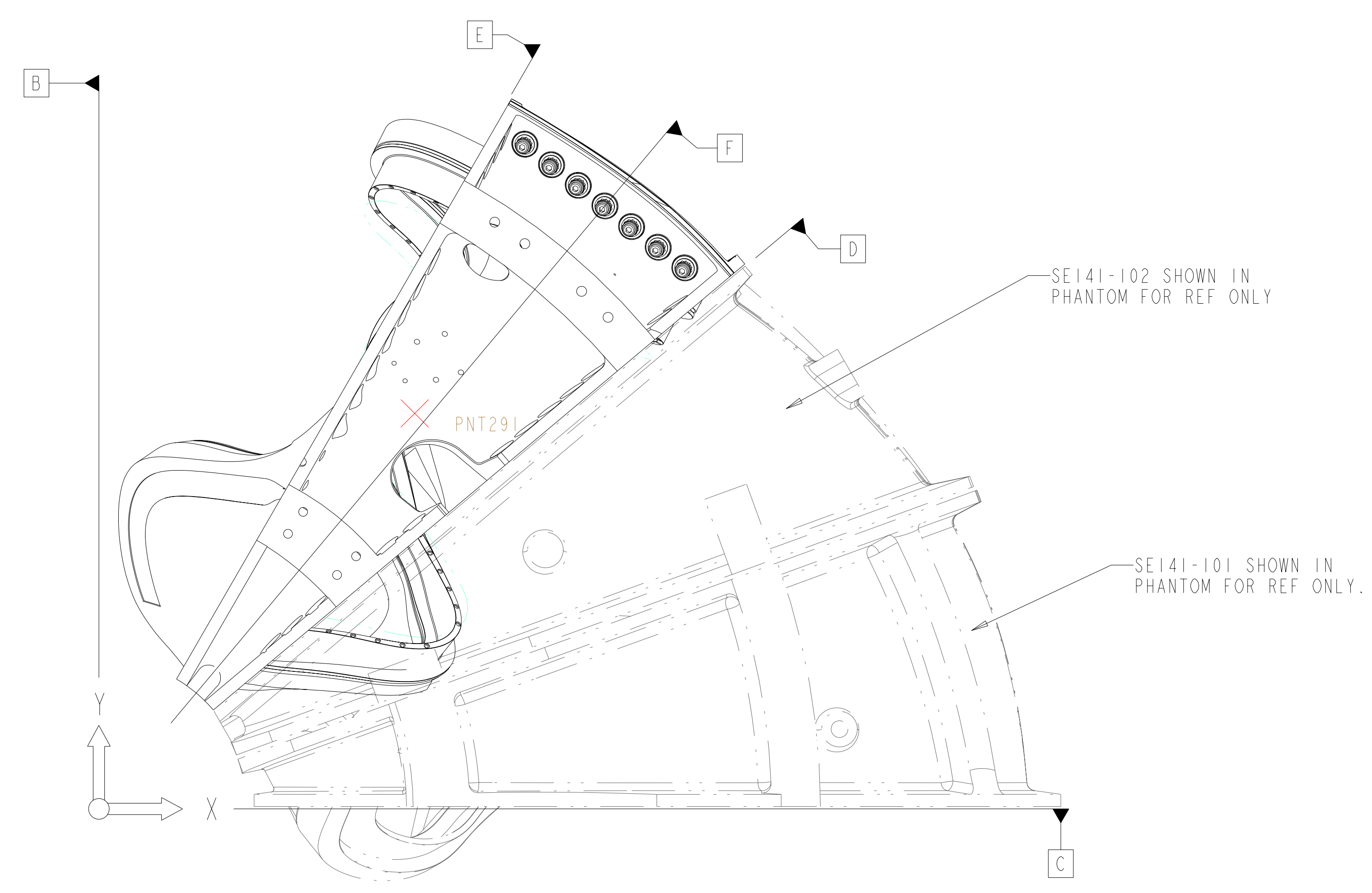


5 SECTION A-A
 SCALE 2.00

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME						
NATIONAL COMPACT STELLARATOR EXPERIMENT						
MOD COIL WINDING FORM ASSEMBLY TYPE-B						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
2	X-10	5700	3	2	S	U
RELEASE LEVEL	SEI41-102					
Fabrication	1					

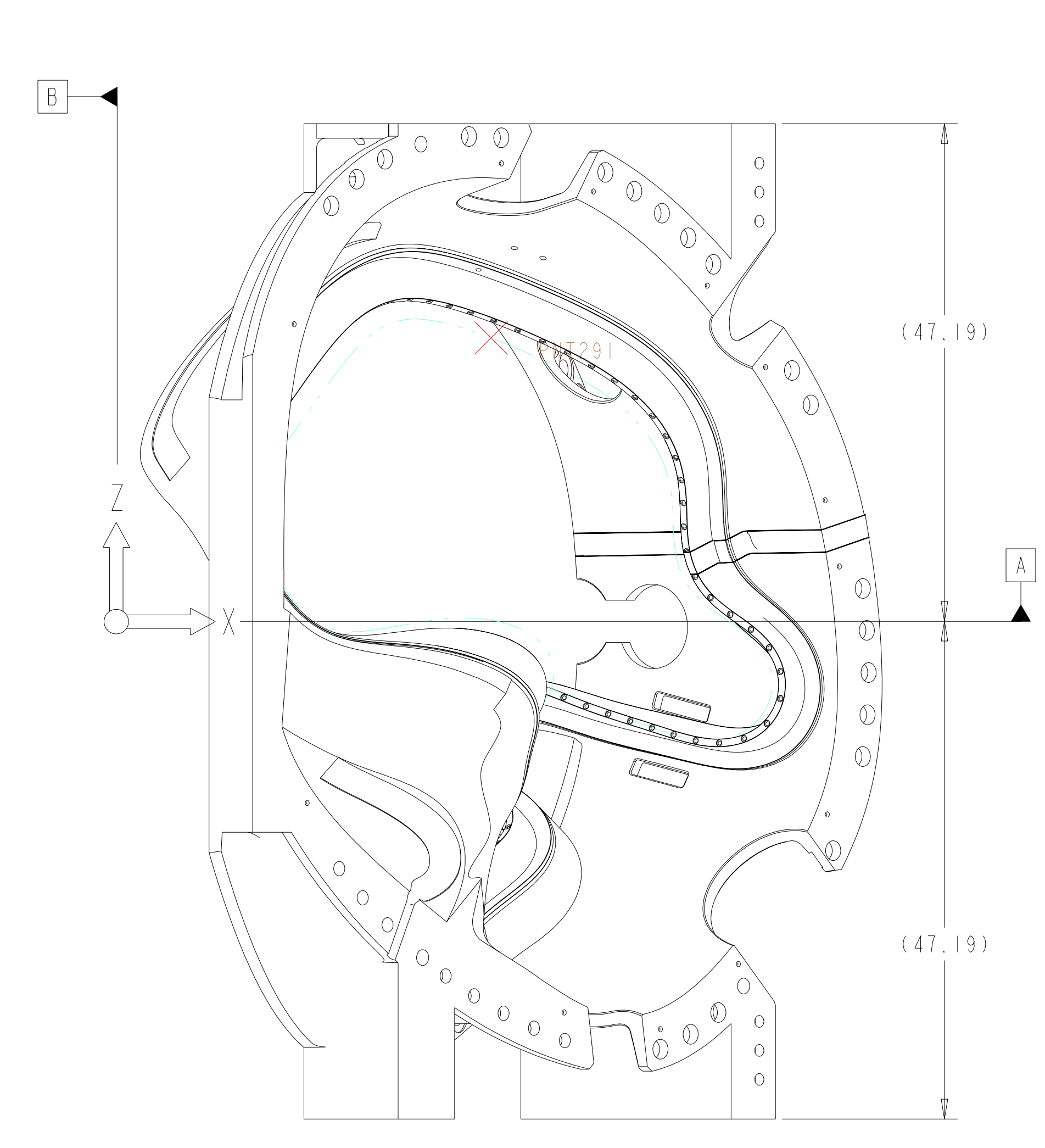
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SEI41-102

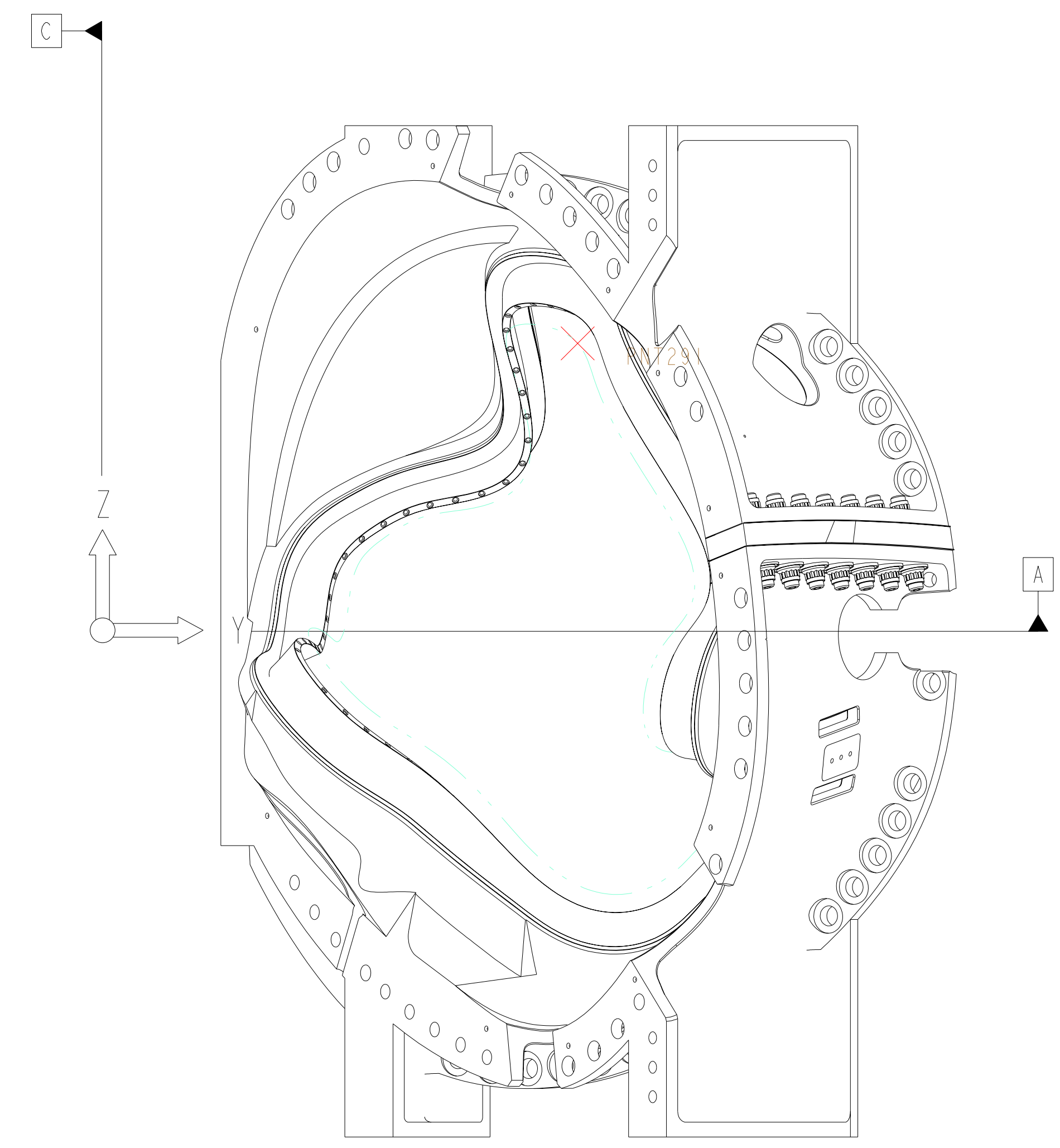


ISOMETRIC VIEW
 SCALE 0.1

- NOTES:
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 - INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.
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 - DRAWING DEPICTS FINAL MACHINED STATE OF ASSEMBLY DEFINED BY PRO/ENGINEER FILE SE141-103.ASM.
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 DATUM B- (SECONDARY Y-Z PLANE, SIDE)
 DATUM C- (TERTIARY X-Z PLANE, FRONT)
 - DIMENSIONS APPLY AT TEMPERATURE OF 20-30°C (68-86°F).
 - DIMENSIONS AND TOLERANCES EXCLUDE PROCESS MATERIAL ALLOWANCES WHICH MAY ADD MASS.
 - APPROXIMATE WEIGHT = 5080 LBS.
 - MATCH DRILL OR REAM TO ACHIEVE RUNNING FIT BETWEEN PARTS AND ASSEMBLY.
 - LUBRICATE THREADED SURFACES WITH MOLYCOTE 321R PER MANUFACTURER'S INSTRUCTIONS
 - SEE LATEST REVISION OF SPECIFICATION NCSX-CSPEC-141-03 FOR ADDITIONAL REQUIREMENTS.
 - BOND INSULATING SLEEVE (F/N 5) TO WINDING FORM (F/N 2) USING LOCTITE 411 PER MANUFACTURER'S INSTRUCTIONS.



SCALE 0.1



REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
1	REVISED F/N 2 PER ECN-4903	DW	9/04	MJC			DEW					

CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO
14	DS141-079	FLAT WASHER			9
14	DS141-060	NUT, 12PT HEX 1.375-6UNC-2B			8
14	DS141-038	INSULATING WASHER			7
7	DS141-036	STUD, 1.375-6UNC-2A X 9 LG			6
14	-5	MCWF INSULATING SLEEVE TYPE-C	G11CR	NEMA LI 1 - 1998	5
2	-4	INSULATING SHEET TYPE-C	G11CR	NEMA LI 1 - 1998	4
1	SE141-078	POL BREAK SHIM ASSEMBLY TYPE-C			3
1	SE141-116	PRODUCTION WINDING FORM TYPE-C			2
AR	X	-1	MOD COIL WINDING FORM ASSEMBLY TYPE-C		1

SE141-103 PARTS LIST

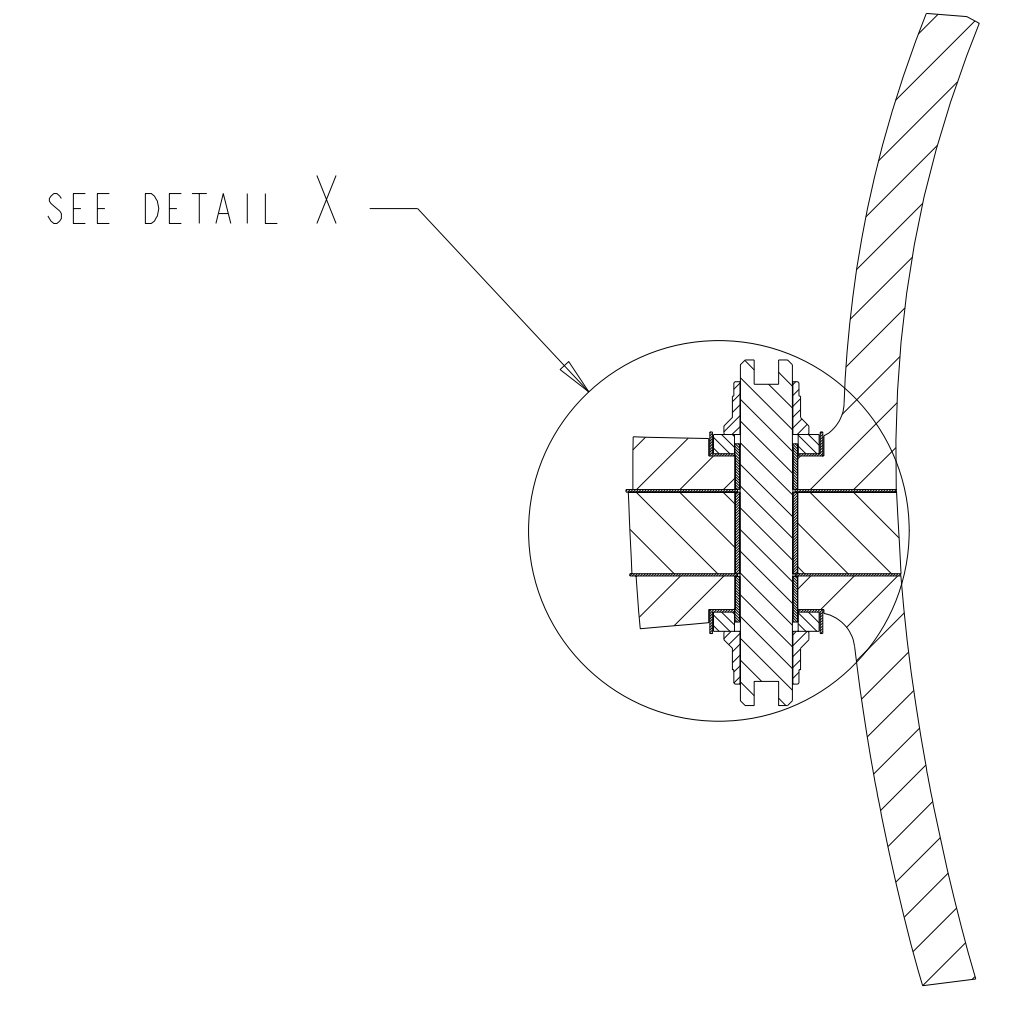
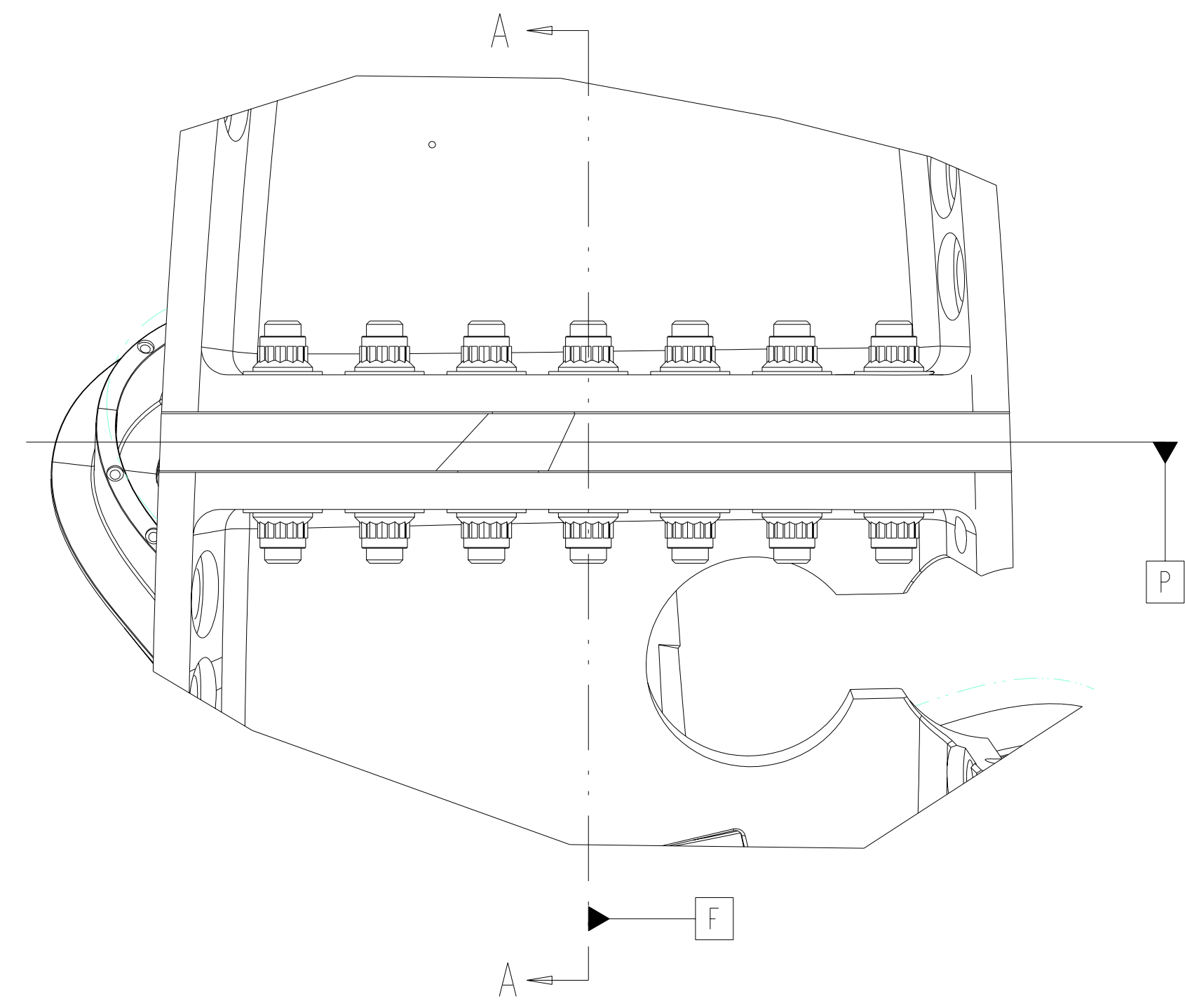
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P THIS DRAWING PRODUCED ON PRO-ENGINEER

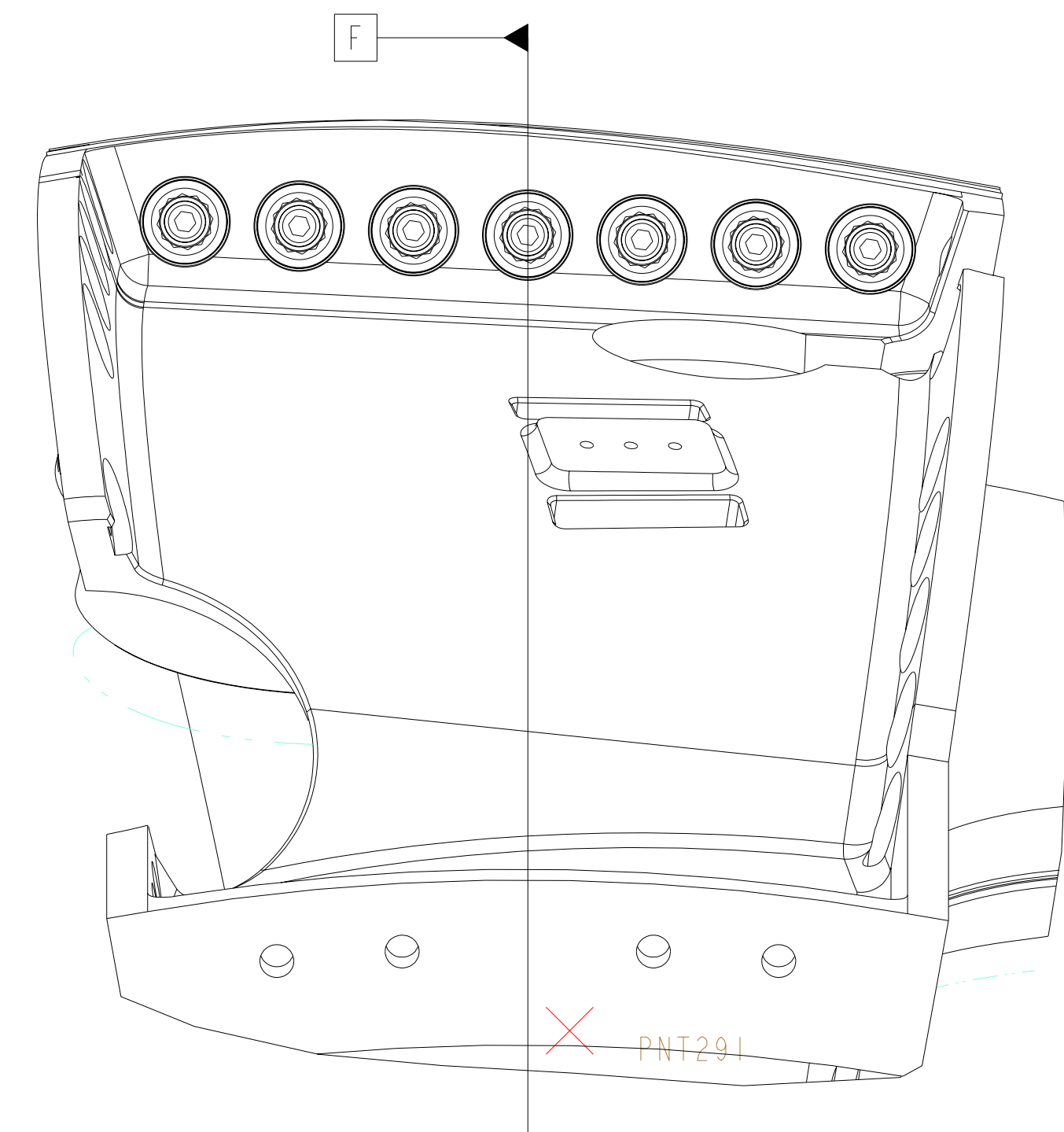
SCALE NOTED		DES: T BROWN	6-30-04	UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC. Oak Ridge, Tennessee	
TOLERANCES UNLESS OTHERWISE SPECIFIED		DRW: P MILLER	6-30-04	NATIONAL COMPACT STELLARATOR EXPERIMENT		PROJECT NAME	
FRACTIONS		CHK: M COLE	6-30-04	MOD COIL WINDING FORM ASSEMBLY TYPE-C		REV	
XX DECIMALS ± .01		DEPT: :		PPPL DRFT J SIEGEL		6-30-04	
XXX DECIMALS ± .005		PE: D WILLIAMSON	6-30-04	VERSION NO. 2	PLANT X-10	BLDG 5700	FL 3
ANGLES ± 0°15'		CR: :		RELEASE LEVEL Fabrication			
BREAK SHARP EDGES .06 MAX		PJ: :					
FINISH .125 UNLESS OTHERWISE SPECIFIED		REG: :					
REV		DATE	ORNL	DOE	DATE	DRAWING APPROVALS	
1		9/04				DATE	

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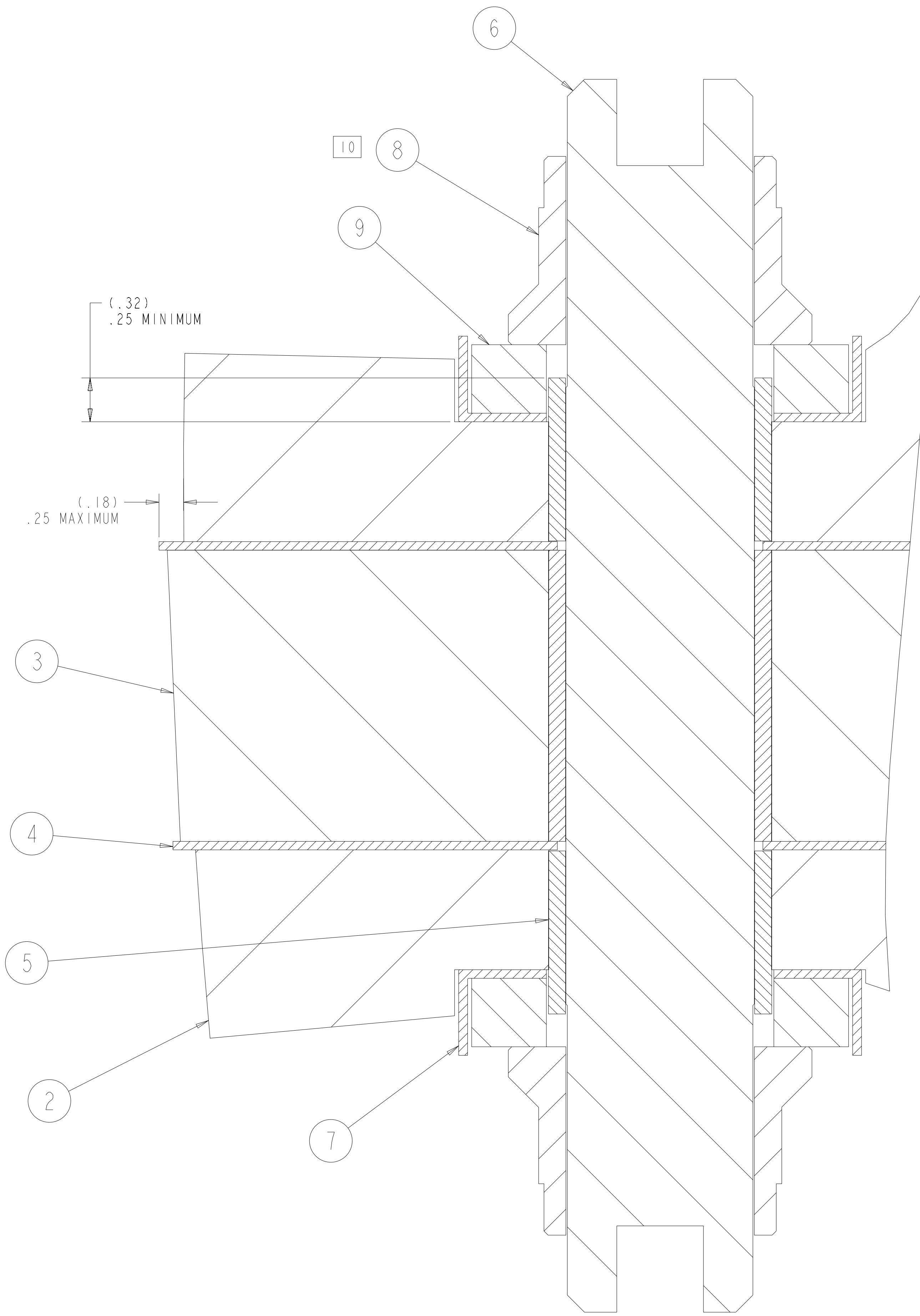
FOR NOTES AND PARTS LIST SEE SHEET 1



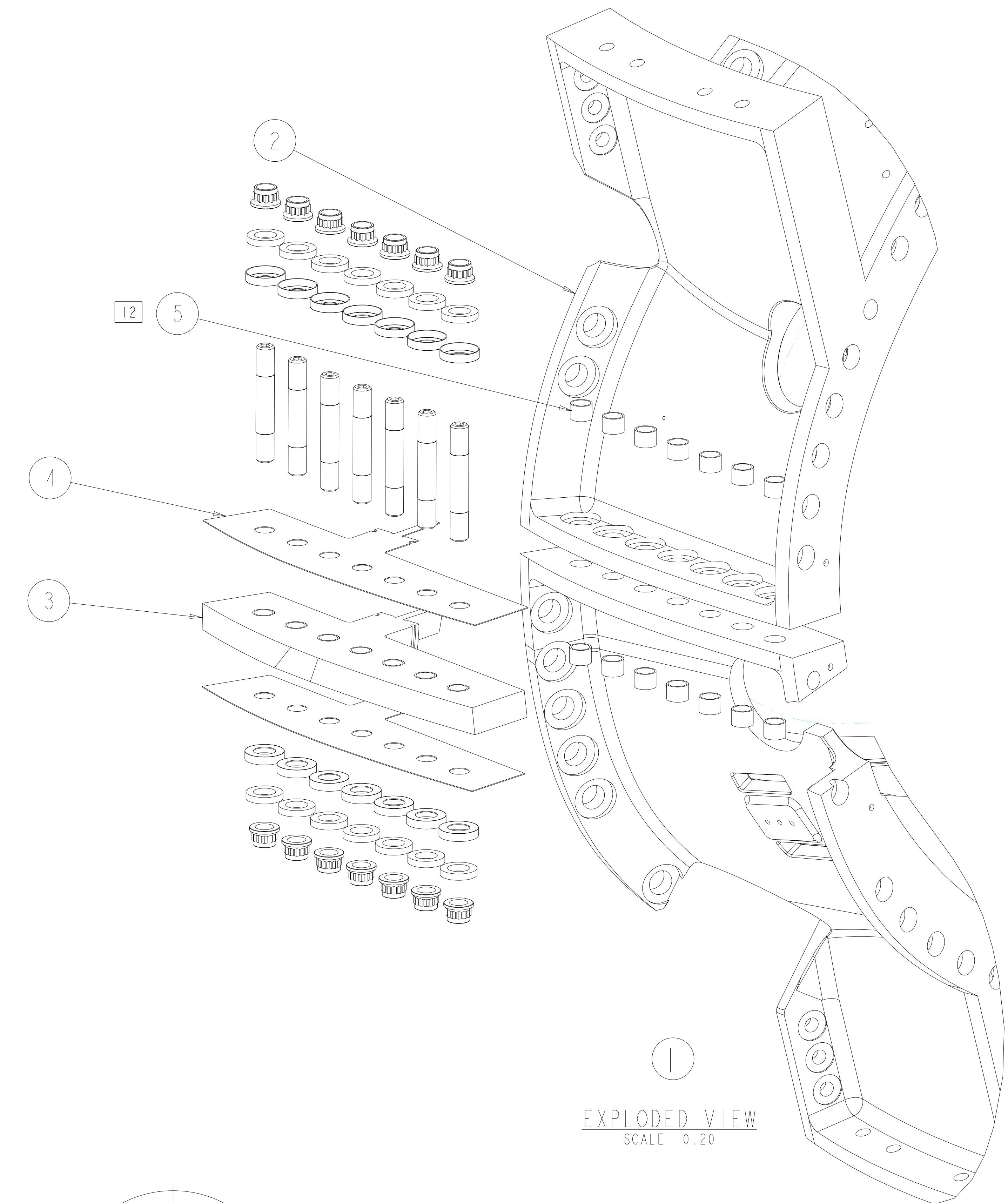
SECTION A-A
 SCALE 0.20



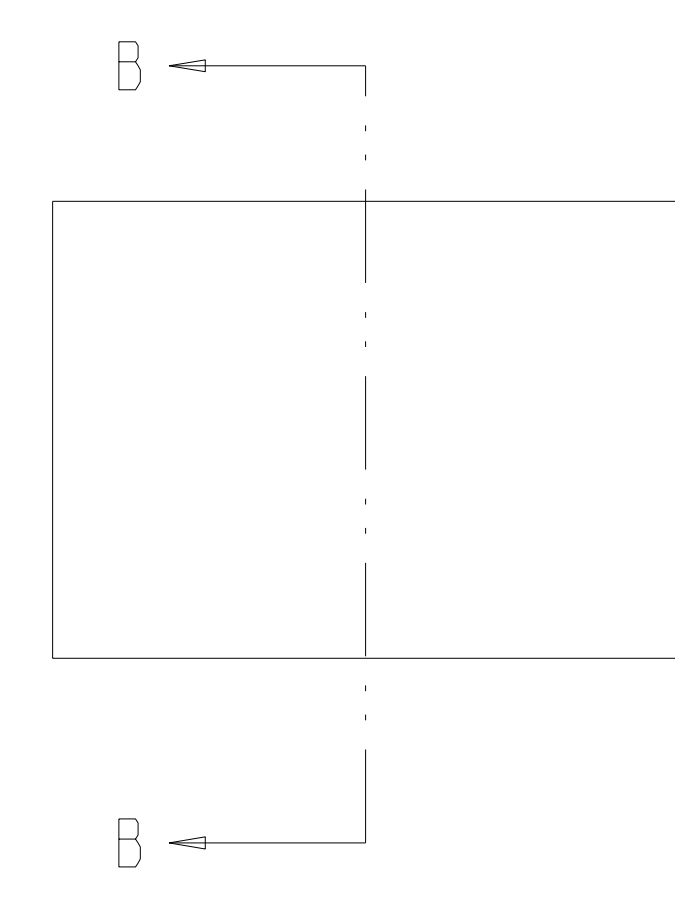
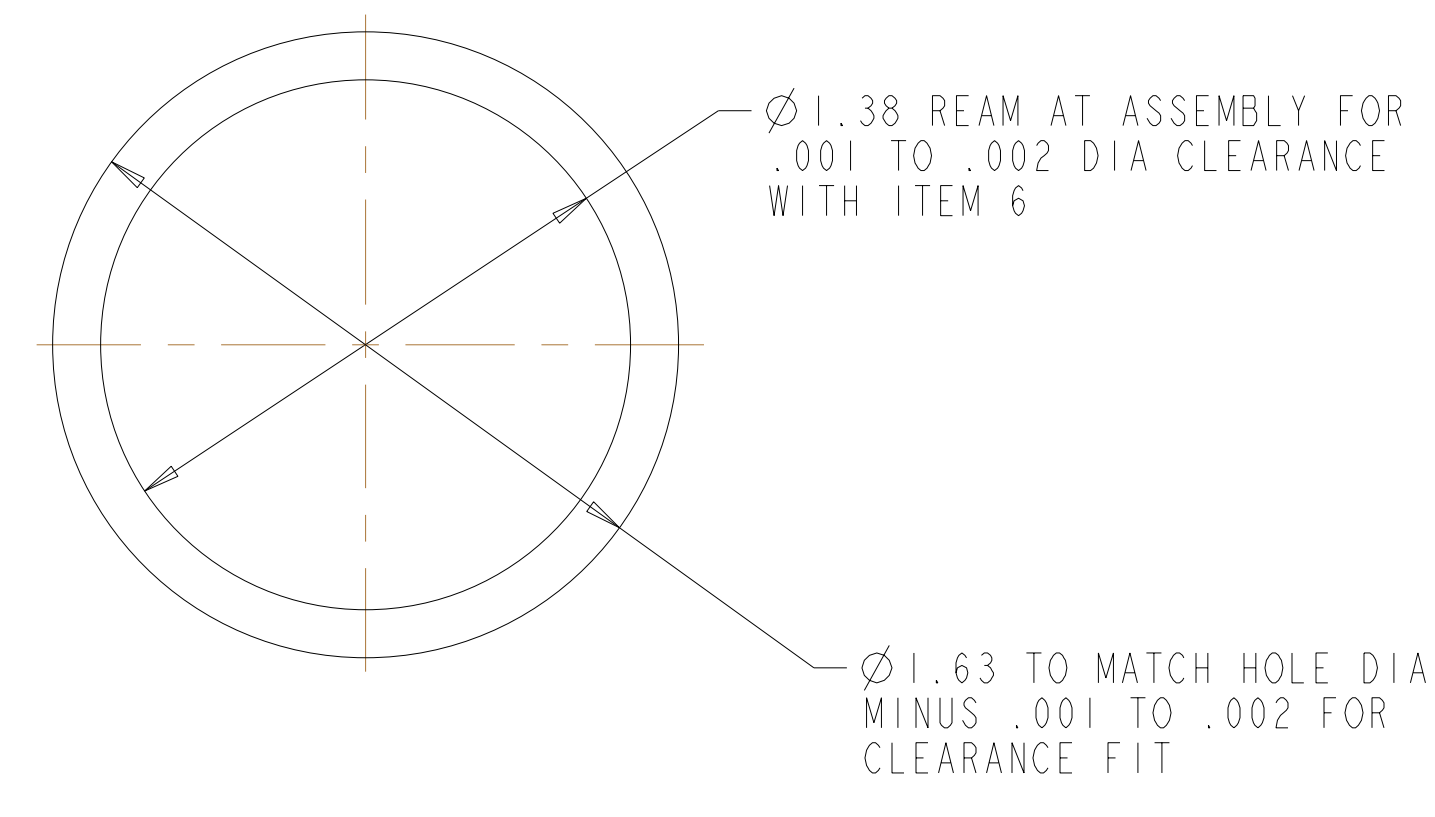
POLOIDAL BREAK DETAIL



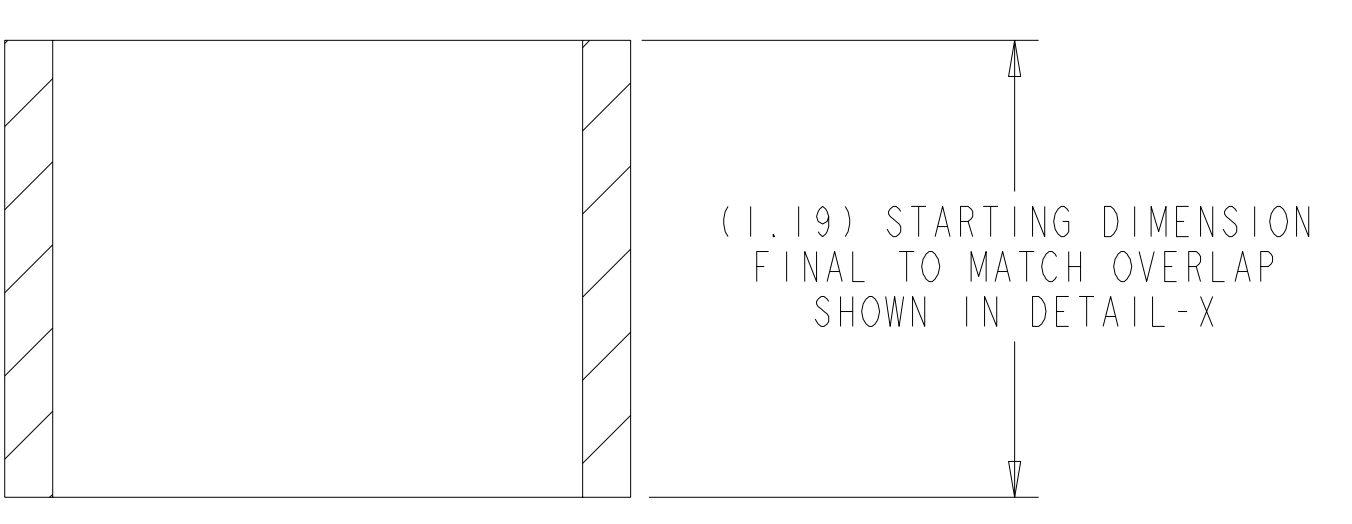
DETAIL X
 SCALE 2.00



EXPLODED VIEW
 SCALE 0.20



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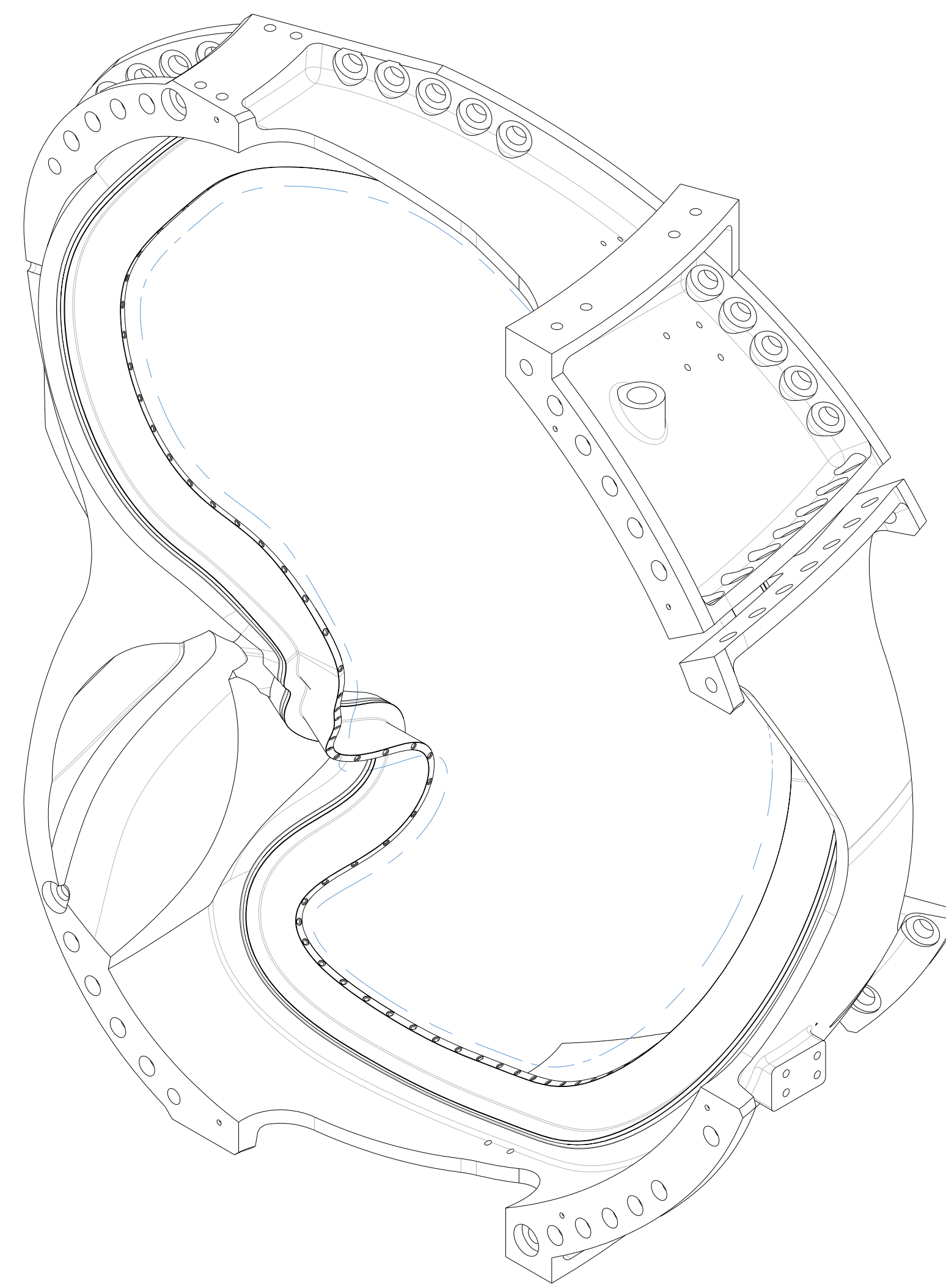
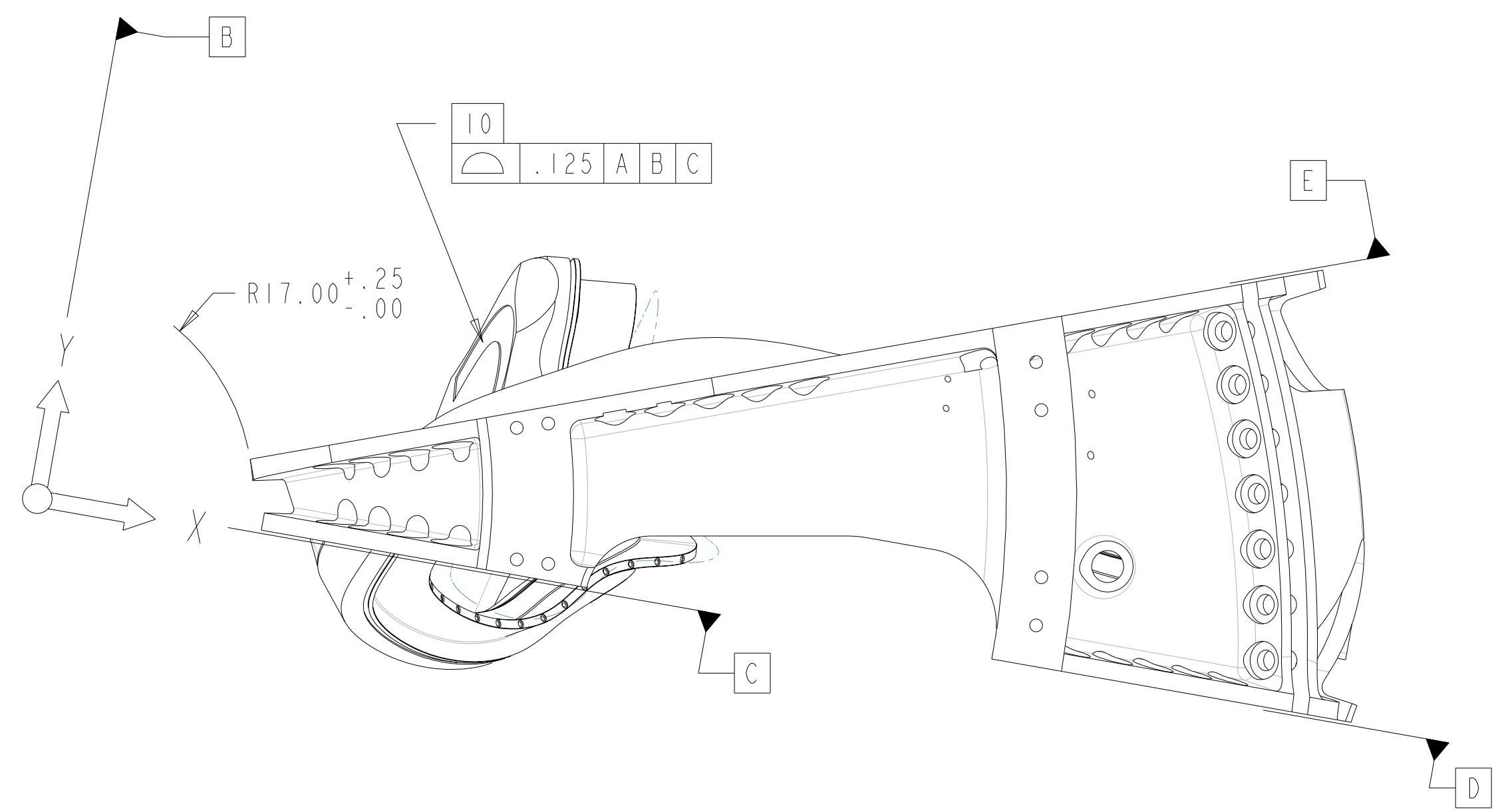


SECTION B-B
 SCALE 2.00

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
MOD COIL WINDING FORM ASSEMBLY TYPE-C							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
2	X-10	5700	3	2	S	U	
RELEASE LEVEL	SEI41-103						
Fabrication							

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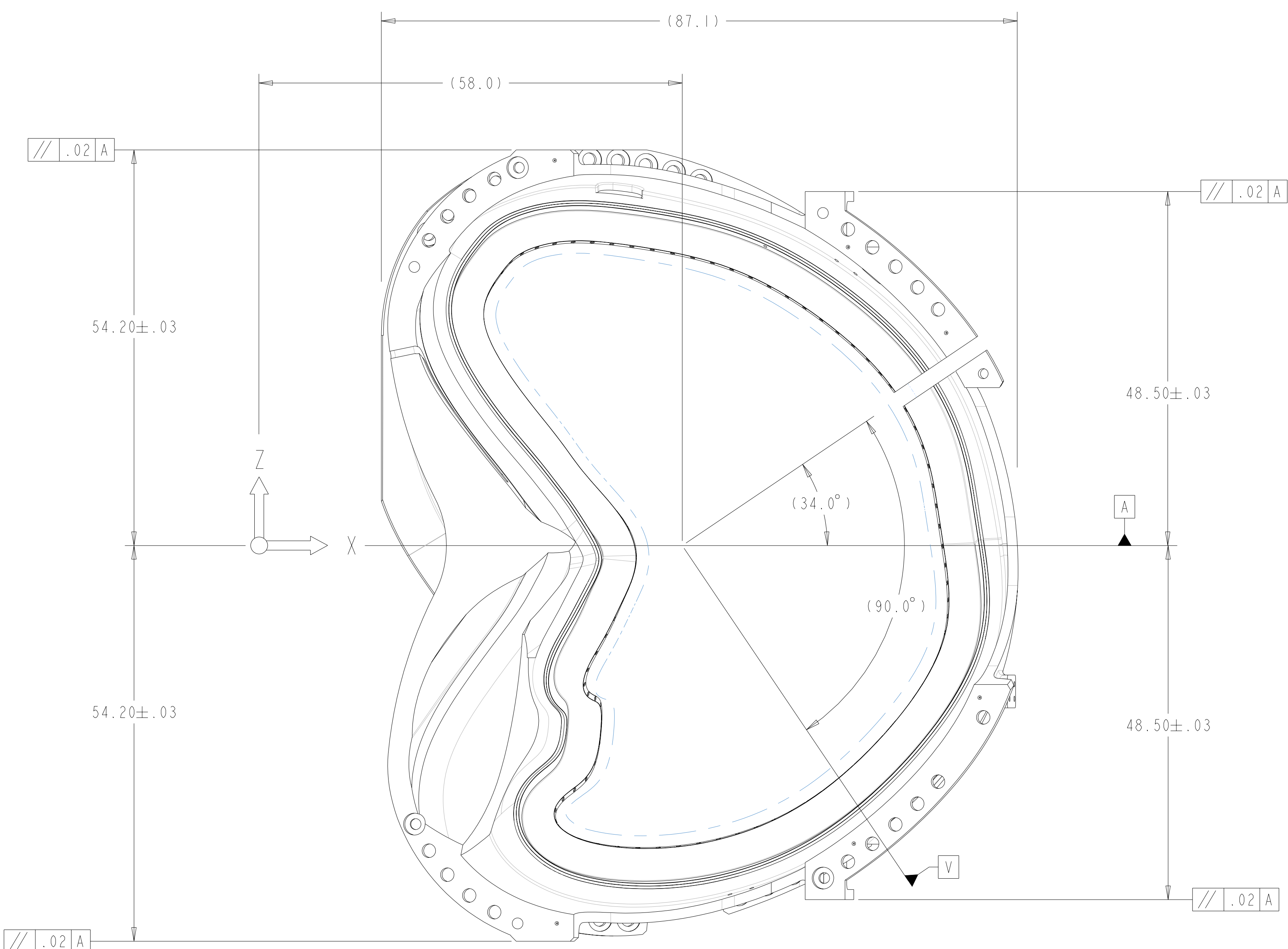
SEI41-103



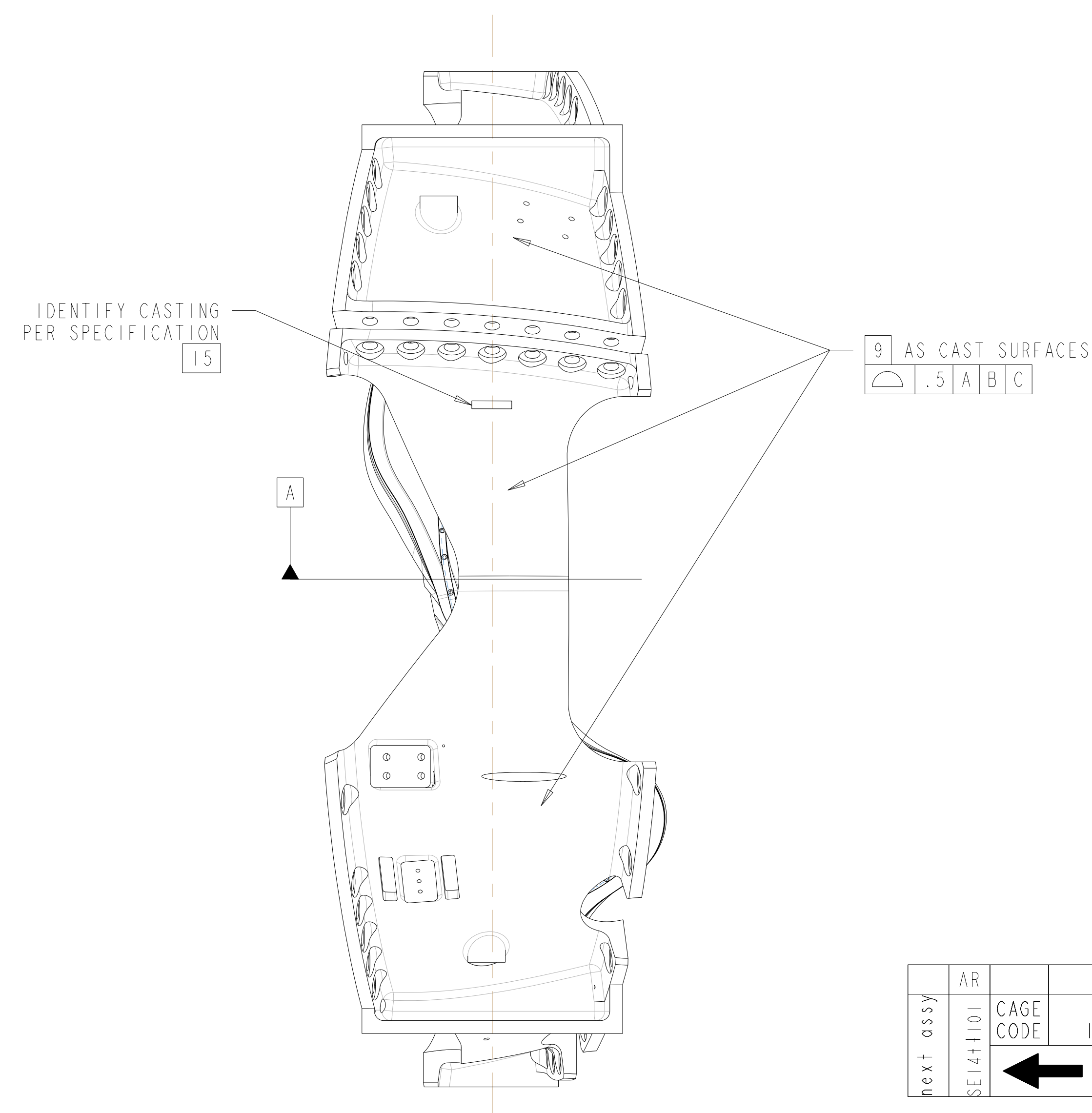
ISOMETRIC VIEW

NOTES:

1. DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.8M-1996.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.
3. DIMENSIONS ARE IN INCHES.
4. DRAWING DEPICTS FINAL MACHINED STATE OF PART DEFINED BY PRO/ENGINEER FILE SE141-114.PRT.
5. UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE RELATED TO DATUM A- (PRIMARY X-Y PLANE, TOP) DATUM B- (SECONDARY Y-Z PLANE, SIDE) DATUM C- (TERTIARY X-Z PLANE, FRONT)
6. DIMENSIONS APPLY AT TEMPERATURE OF 20-30°C (68-86°F).
7. DIMENSIONS AND TOLERANCES EXCLUDE PROCESS MATERIAL ALLOWANCES WHICH MAY ADD MASS.
8. APPROXIMATE WEIGHT = 4819 LBS. WEIGHT OF FINISHED PART NOT TO EXCEED 6000 LBS.
- 9 UNLESS OTHERWISE SPECIFIED, AS-CAST SURFACE PROFILE TOLERANCE = +/- .25 INCH, WITH EXEMPTION FOR INTERSECTING SURFACES WHERE FILLETS ARE EXPECTED. MIN FILLET AND CORNER RADI = 0.5 +/- 0.1 IN.
- 10 DESIGNATED SURFACE REGIONS HAVE PROFILE TOLERANCE = +/- 0.125 IN.
11. MIN THICKNESS PER CAD GEOMETRY, TOLERANCE = +0.25 IN / -0.0 IN.
12. PARTING LINE EDGES, FLASH, GATES, RUNNER, AND RISER EXTENSIONS 0.25 IN MAX
- 13 UNLESS OTHERWISE SPECIFIED, MACHINED SURFACE PROFILE TOLERANCE = +/- 0.01 IN.
14. BACK SPOTFACE ALL THRU HOLES MINIMUM TO CLEAN UP.
- 15 SEE LATEST REVISION OF SPECIFICATION NCSX-CSPEC-141-03 FOR ADDITIONAL REQUIREMENTS.



SCALE 0.10



next assy	AR	-1	PRODUCTION WINDING FORM TYPE-A	SEE NOTE #15	SEE NOTE #15	I
CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO	
SE141-114		NEXT ASSEMBLY				

PARTS LIST

REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
I	REMOVED SPHERICAL SEATS, REVISED LEAD BLOCK/COOLING PER ECN-4903	GL	9/04	MJC			DEW					

SCALE NOTED	DES	T BROWN	06-01-04
TOLERANCES UNLESS OTHERWISE SPECIFIED	DRW	P MILLER	06-02-04
FRACTIONS	CHK	M COLE	7/27/04
XX DECIMALS ± .01	SECT		
XXX DECIMALS ± .005	DEPT		
ANGLES ± 0°15'	PE	D WILLIAMSON	7/27/04
BREAK SHARP EDGES .06 MAX	CR		
FINISH .125 UNLESS OTHERWISE SPECIFIED	PJ		
	REQ		
	PPPL DRFT	J SIEGEL	7/27/04

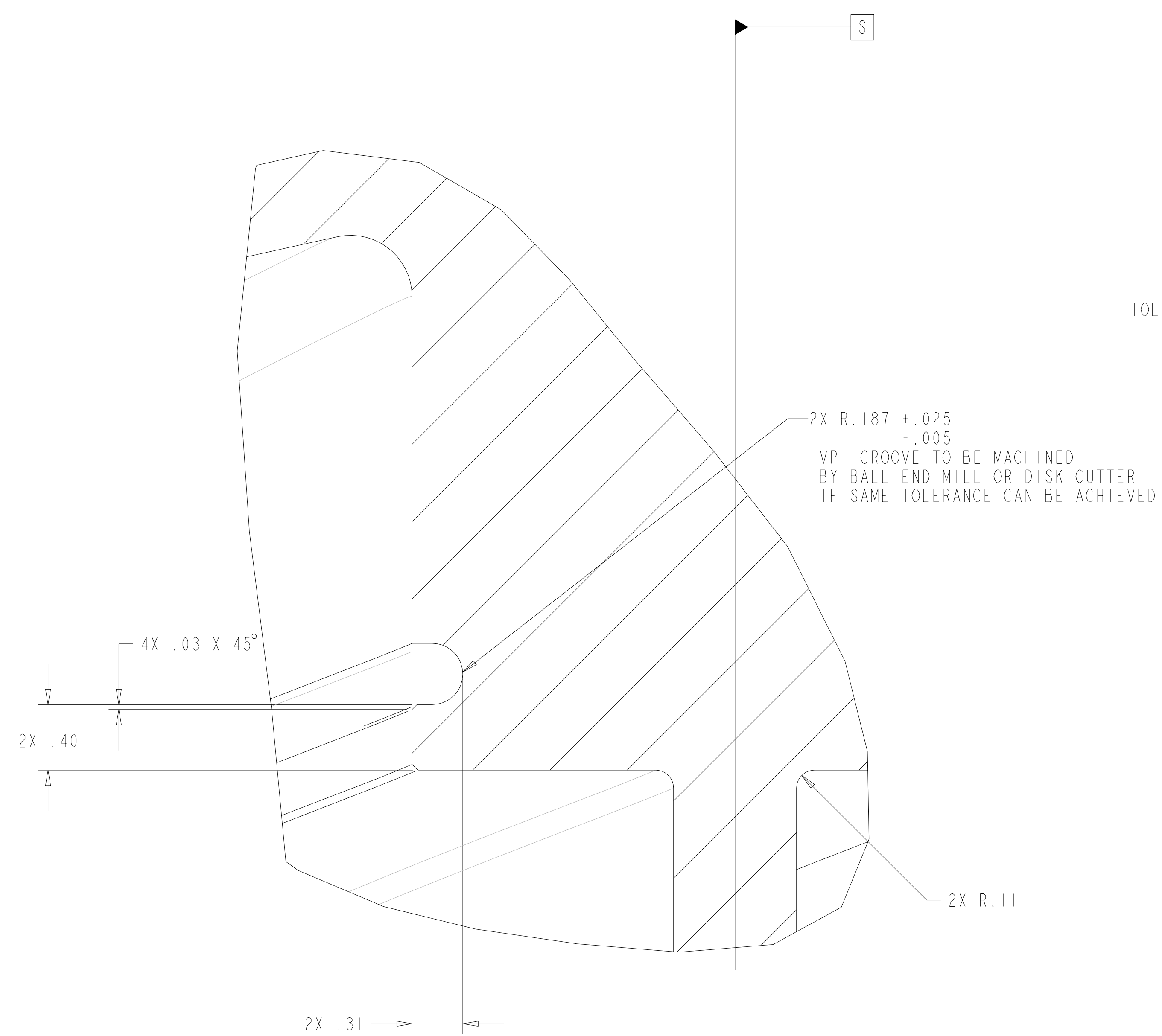
UT-BATTELLE	Oak Ridge National Laboratory
NATIONAL COMPACT STELLARATOR EXPERIMENT	managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee
PRODUCTION WINDING FORM TYPE-A	
VERSION NO. 8	PLANT X-10
BLDG 5700	FL 3
SHT 11	OF 11
TYPE S	CLASS U
RELEASE LEVEL Fabrication	SE141-114

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF, ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE NOT TO BE USED FOR OTHER PURPOSES, AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

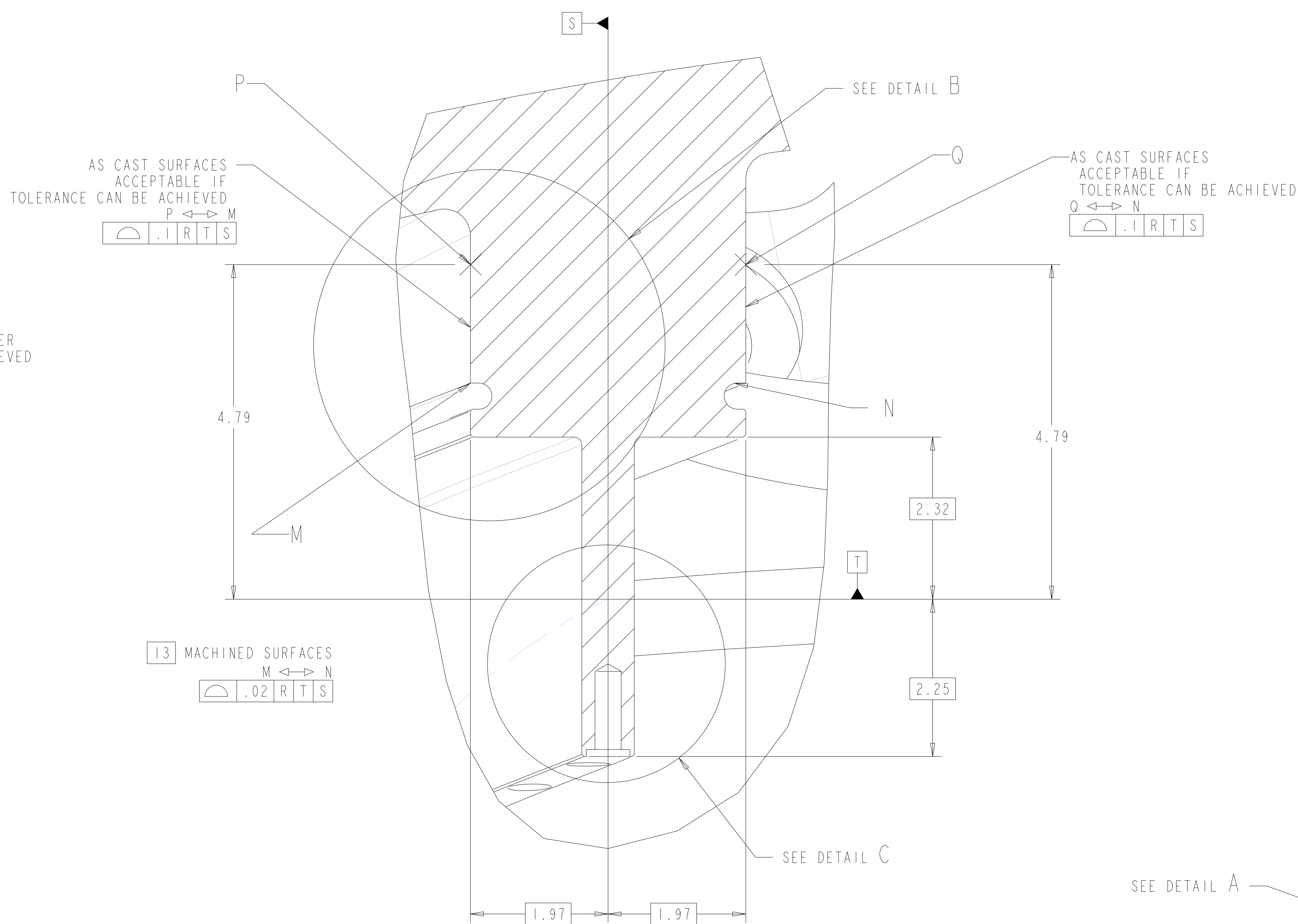
P THIS DRAWING PRODUCED ON PRO-ENGINEER

H
G
F
E
D
C
B
A

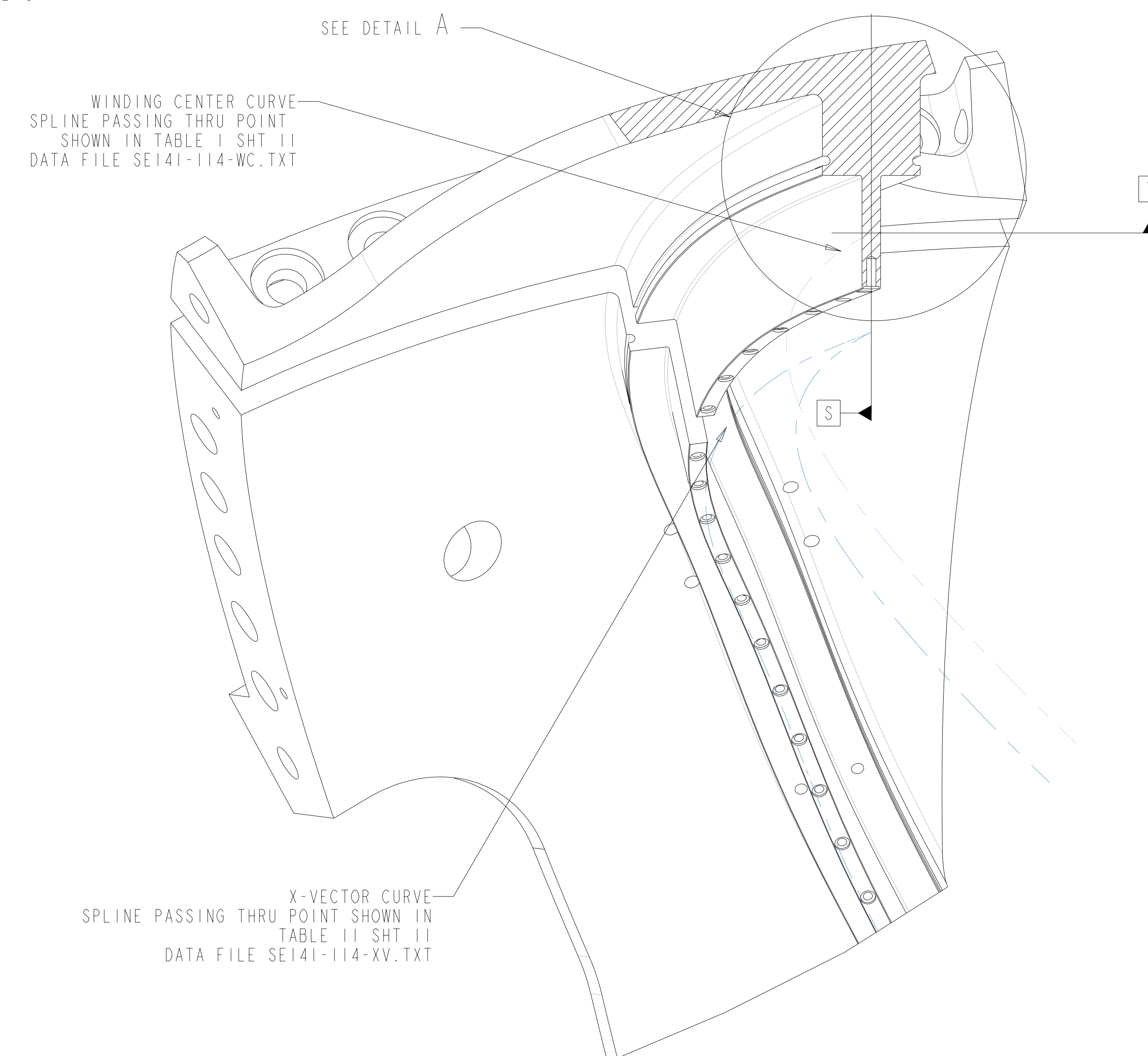
FOR NOTES AND PARTS LIST SEE SHEET 1



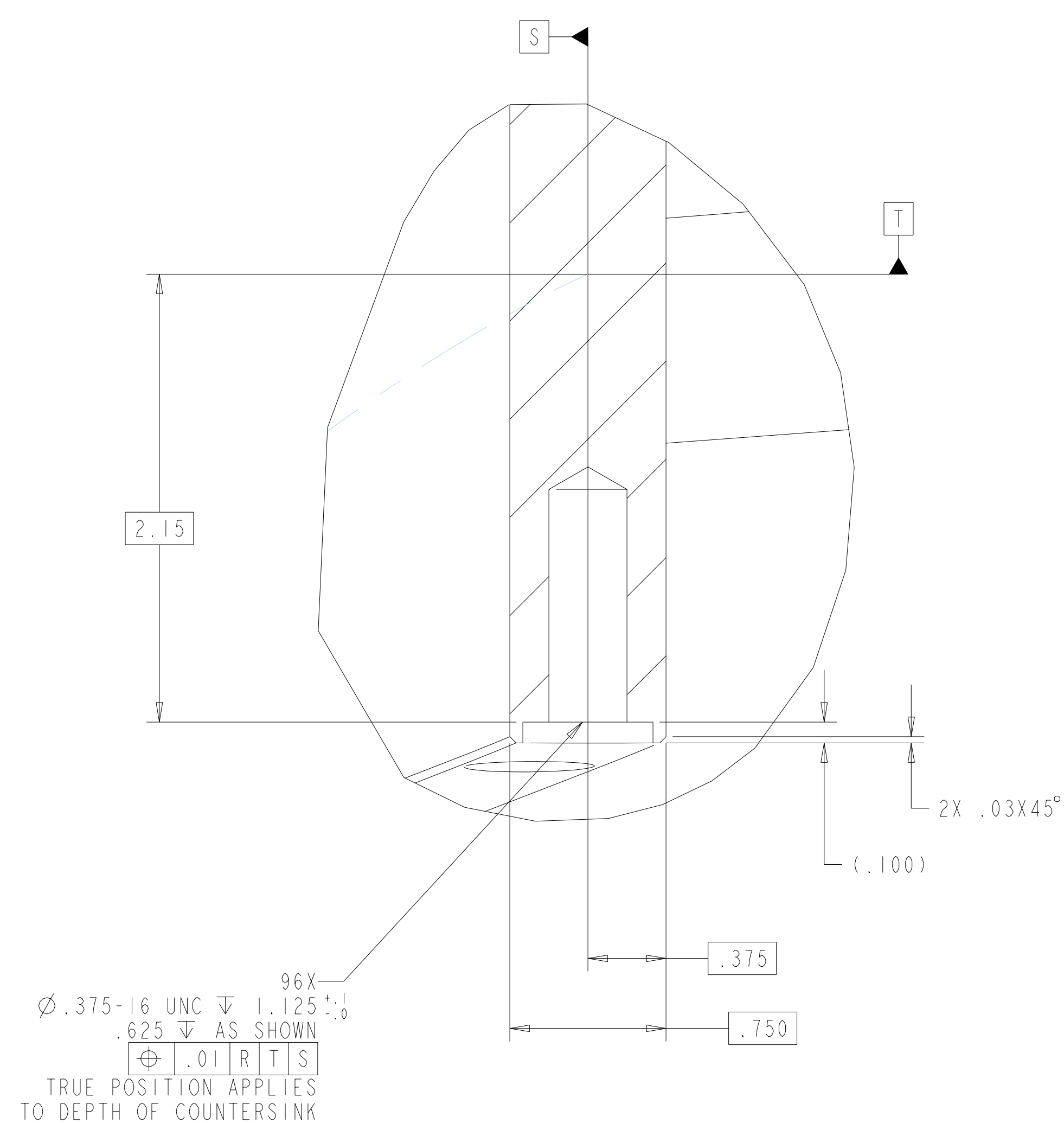
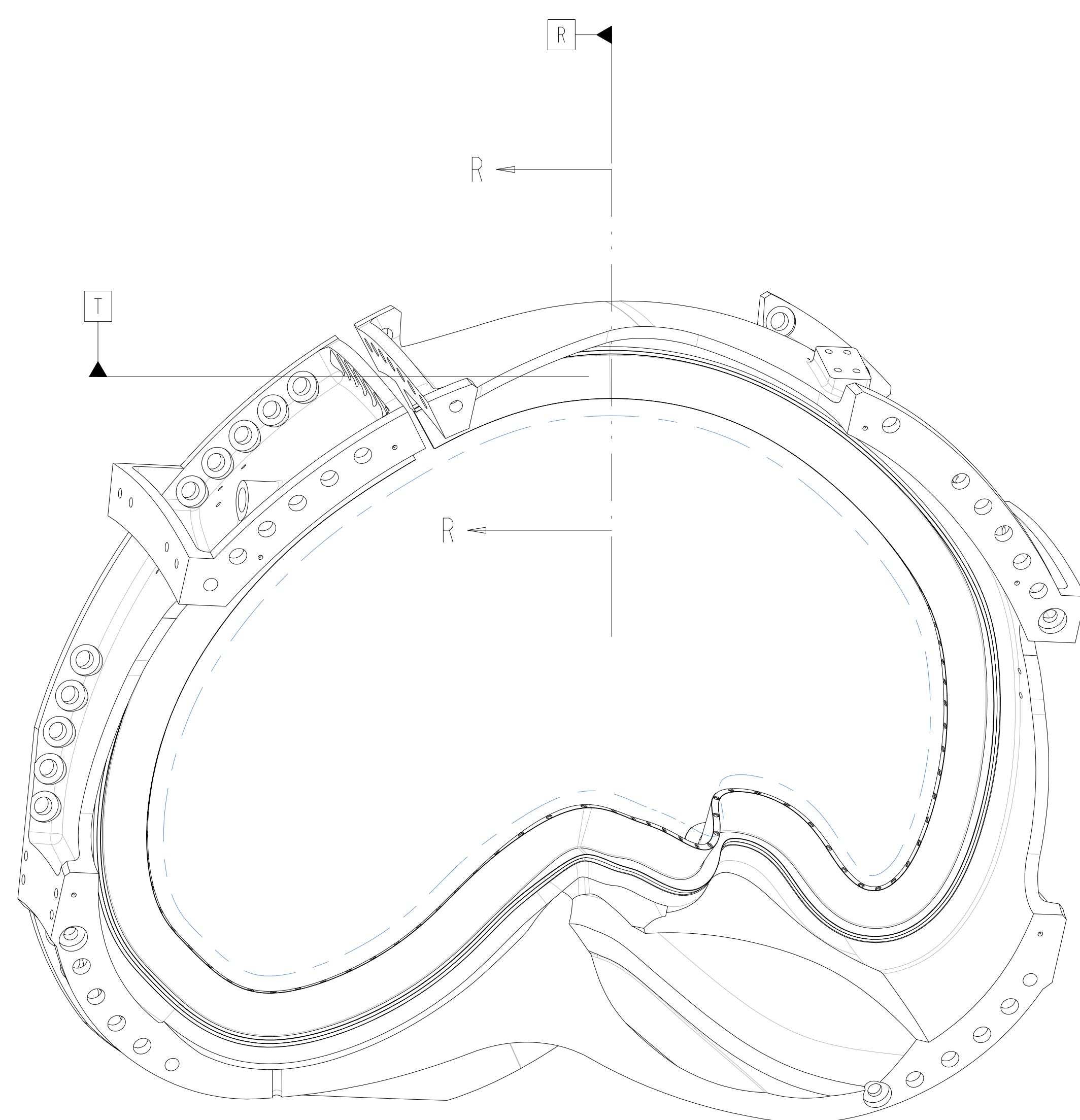
DETAIL B
SCALE 2.00



DETAIL A
SCALE 1.00
TYPICAL FOR ALL POINTS ALONG WINDING CENTER



SECTION R-R
SCALE 0.30

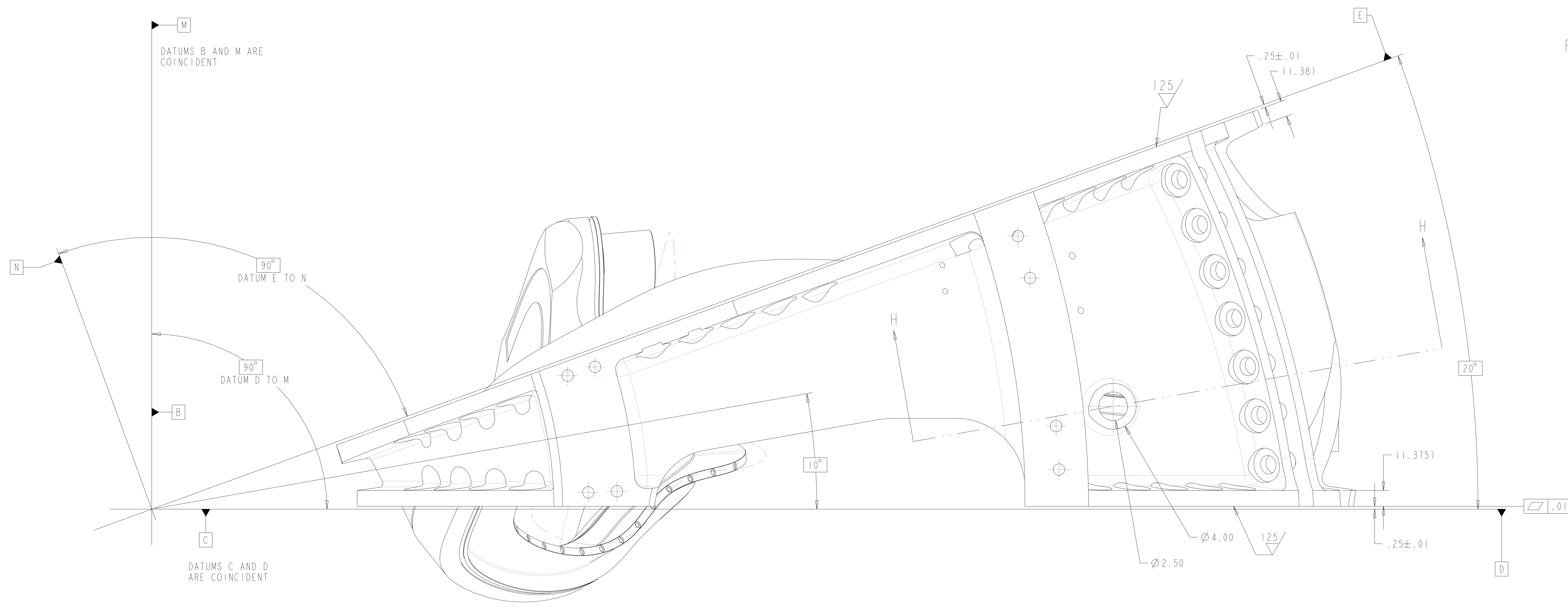


DETAIL C
SCALE 2.00

DATUM R = PLANE NORMAL TO WINDING CENTER
 DATUM S = PLANE PASSING THRU WINDING CENTER AND X VECTOR AT DATUM R
 DATUM T = PLANE PASSING THRU WINDING CENTER ORTHOGONAL TO DATUM S

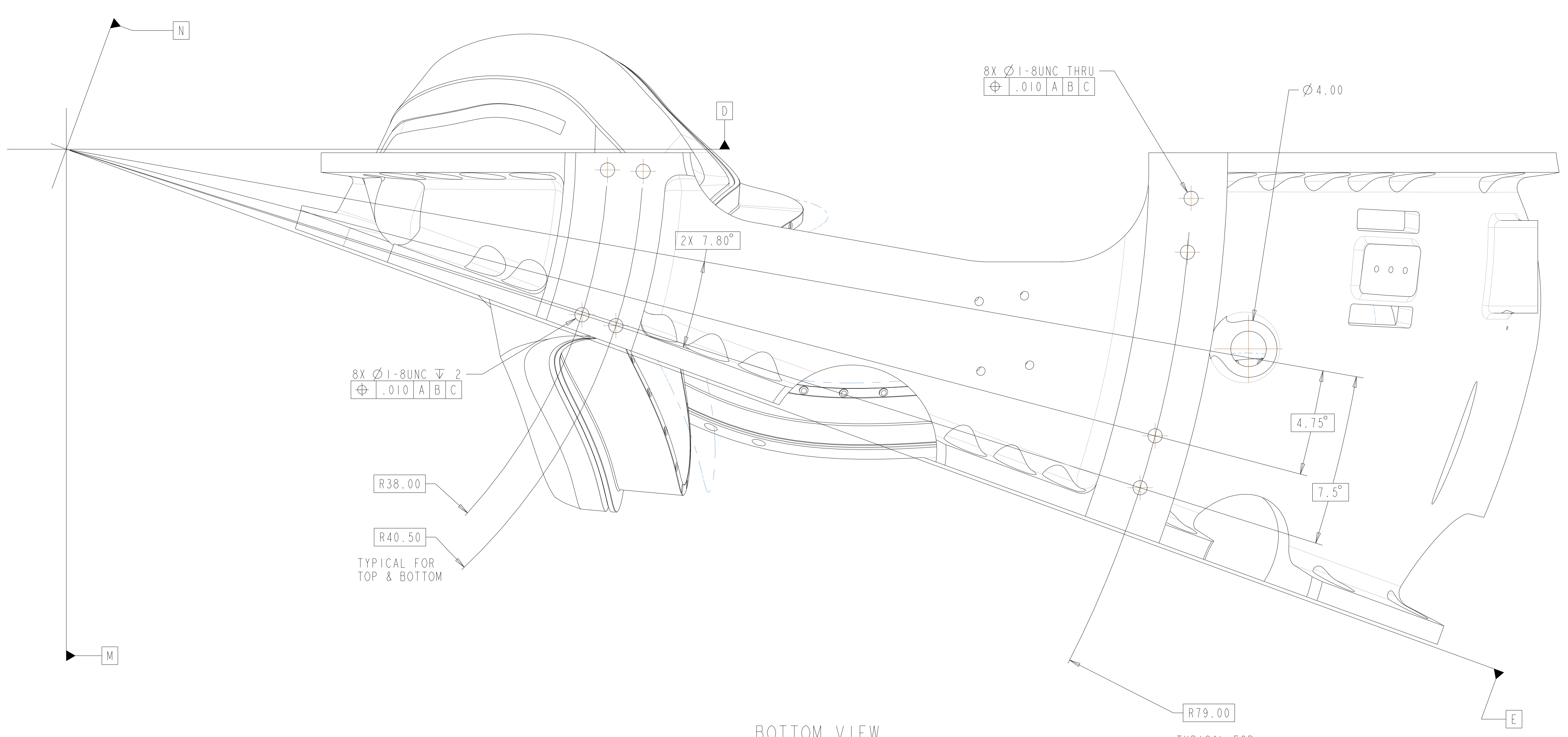
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME							
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT PRODUCTION WINDING FORM TYPE-A							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	2	111	S	U
RELEASE LEVEL	SE141-114						
Fabrication							

FOR NOTES AND PARTS LIST SEE SHEET 1

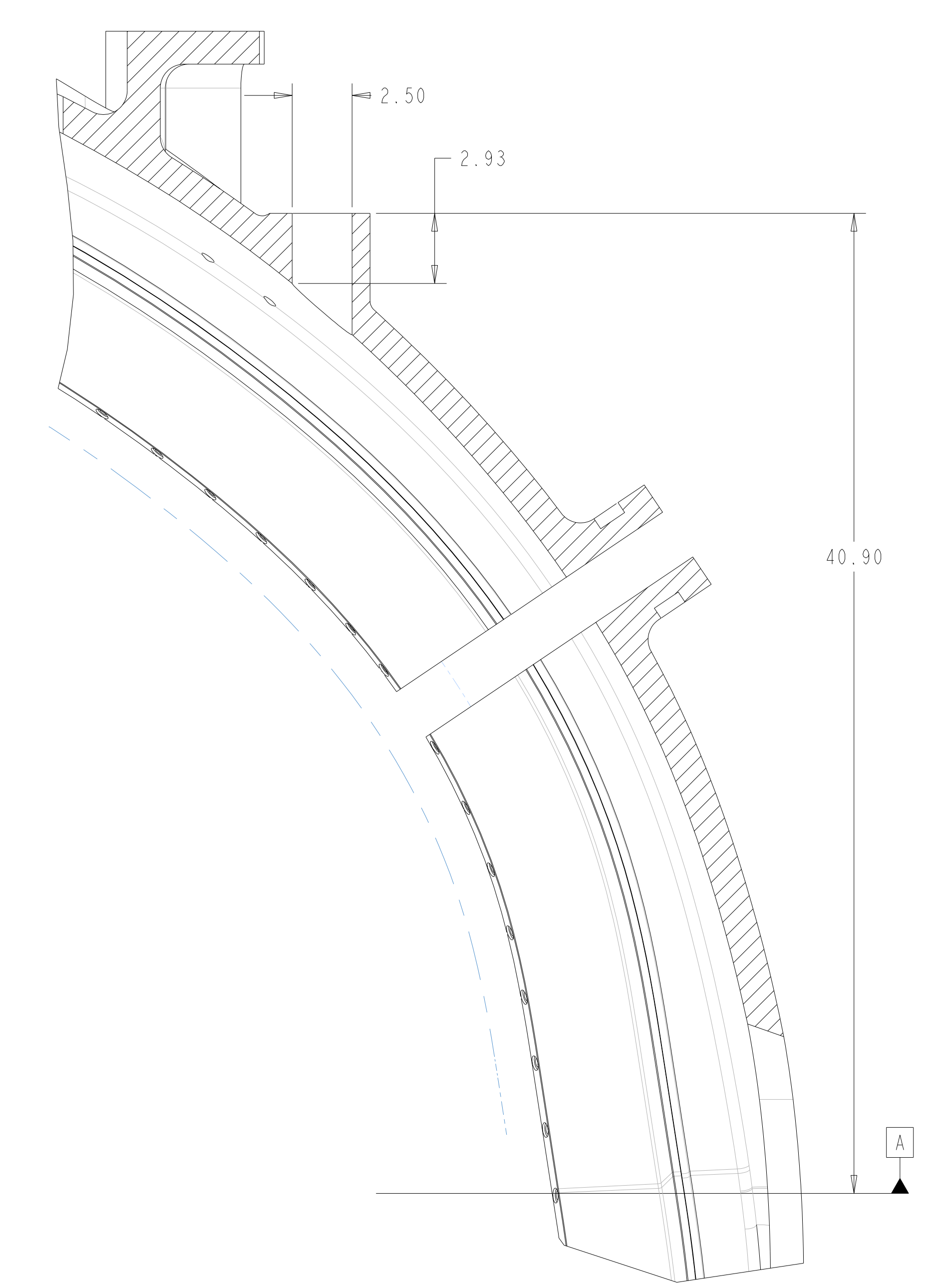


TOP VIEW
SCALE 0.25

DATUMS A B & C ARE MACHINE SPECIFIC.
ALL OTHER DATUMS LISTED ON THIS DRAWING
ARE SPECIFIC TO THIS PART



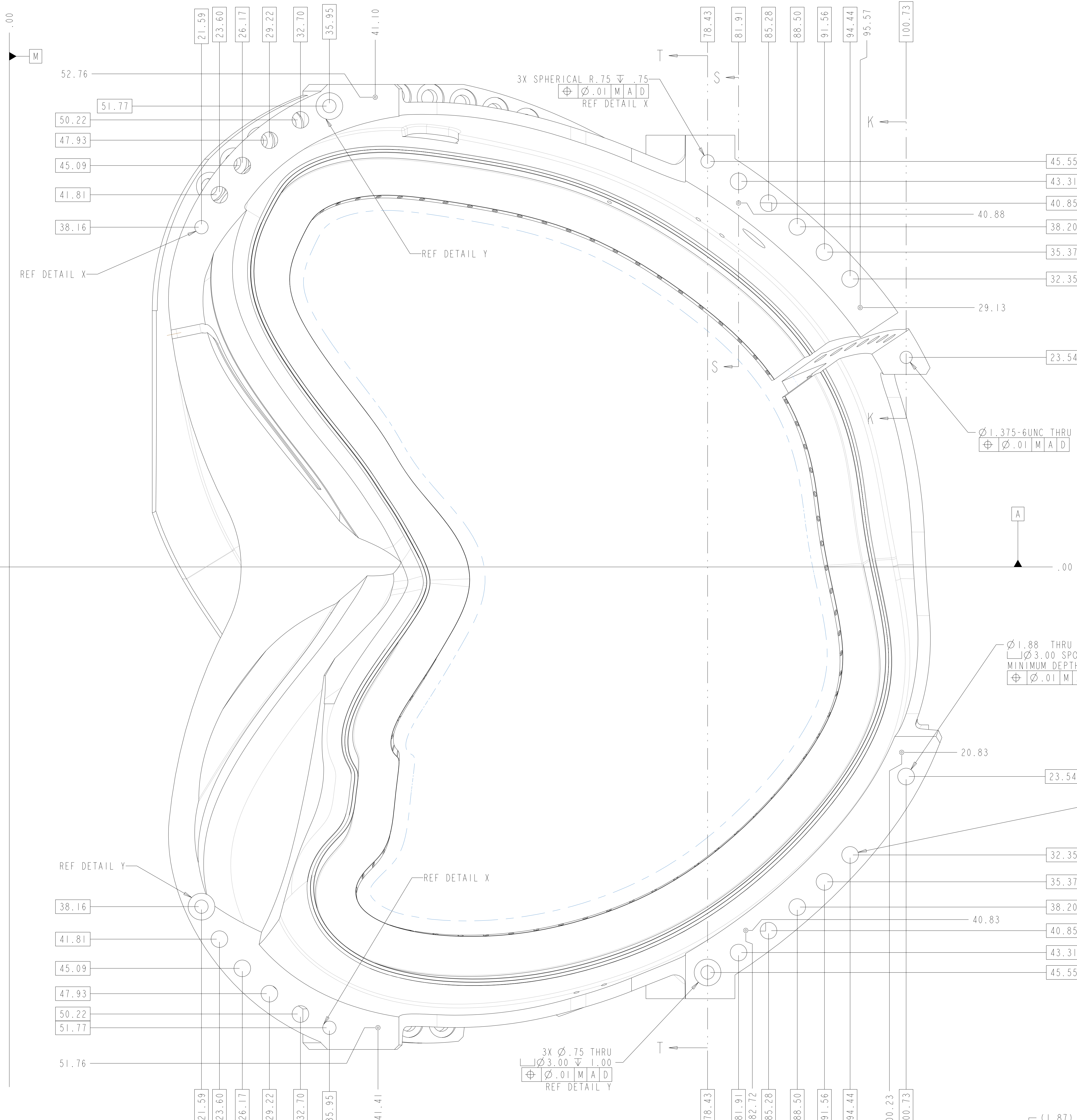
BOTTOM VIEW
SCALE 0.25



SECTION H-H
SCALE 0.25

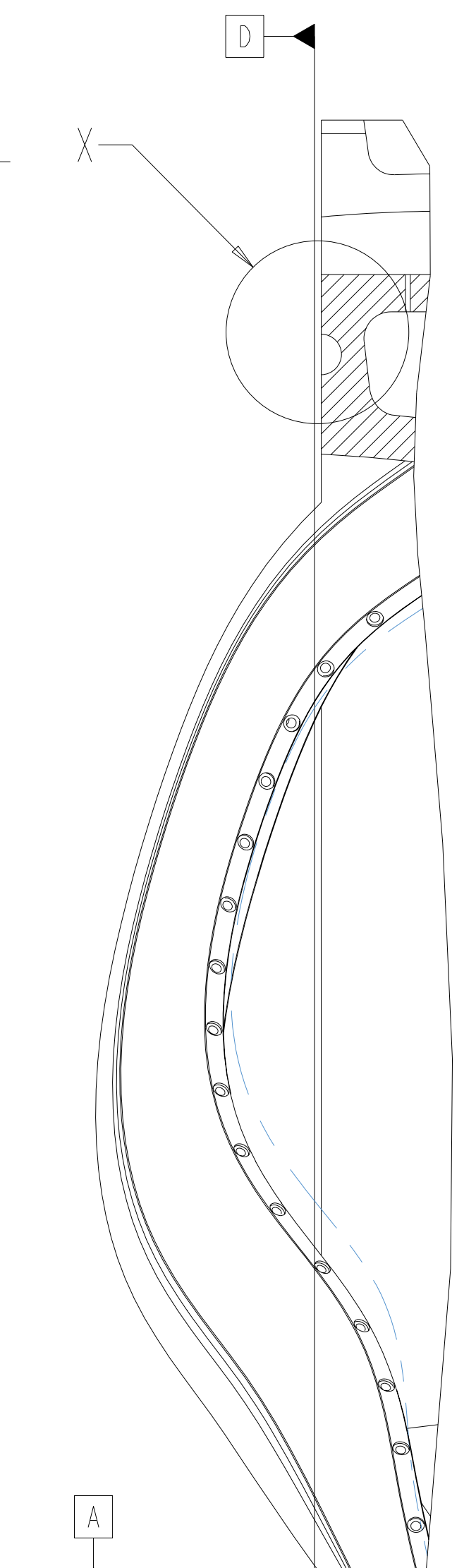
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC. Oak Ridge, Tennessee PROJECT NAME						
NATIONAL COMPACT STELLARATOR EXPERIMENT						
PRODUCTION WINDING FORM TYPE-A						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
8	X-10	5700	3	3	111 S	U
RELEASE LEVEL		SEI41-114				
Fabrication						

FOR NOTES AND PARTS LIST SEE SHEET 1

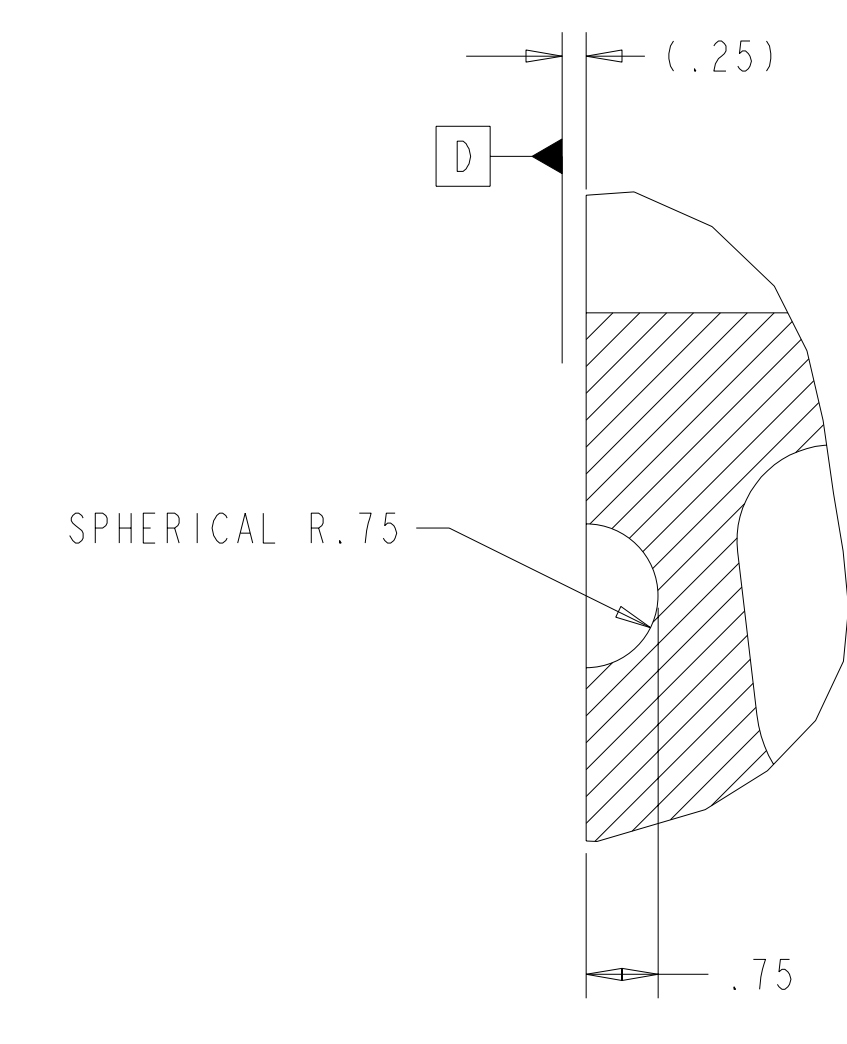


VIEW AT DATUM D
 SCALE 0.20

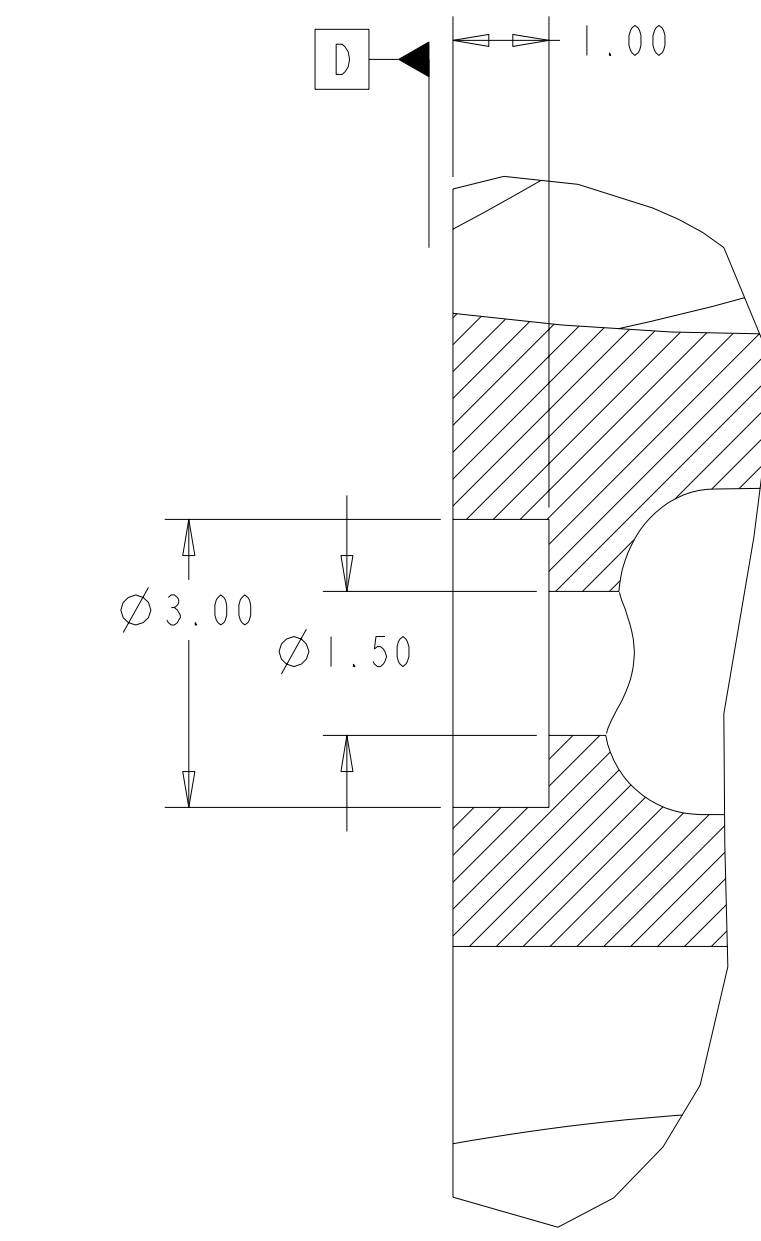
SEE DETAIL X



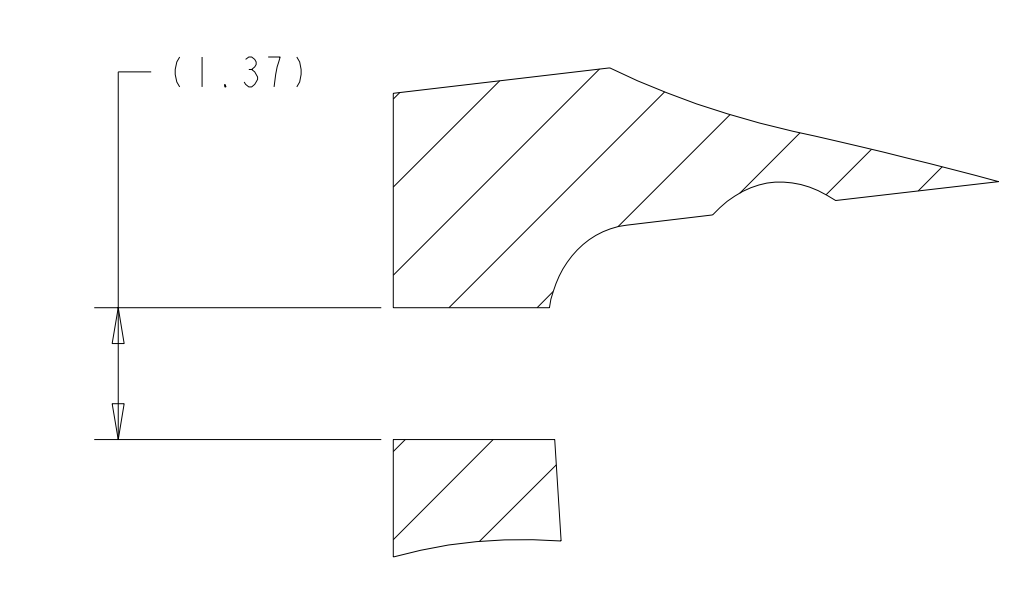
SECTION T-I



DETAIL X
 SCALE 0.50



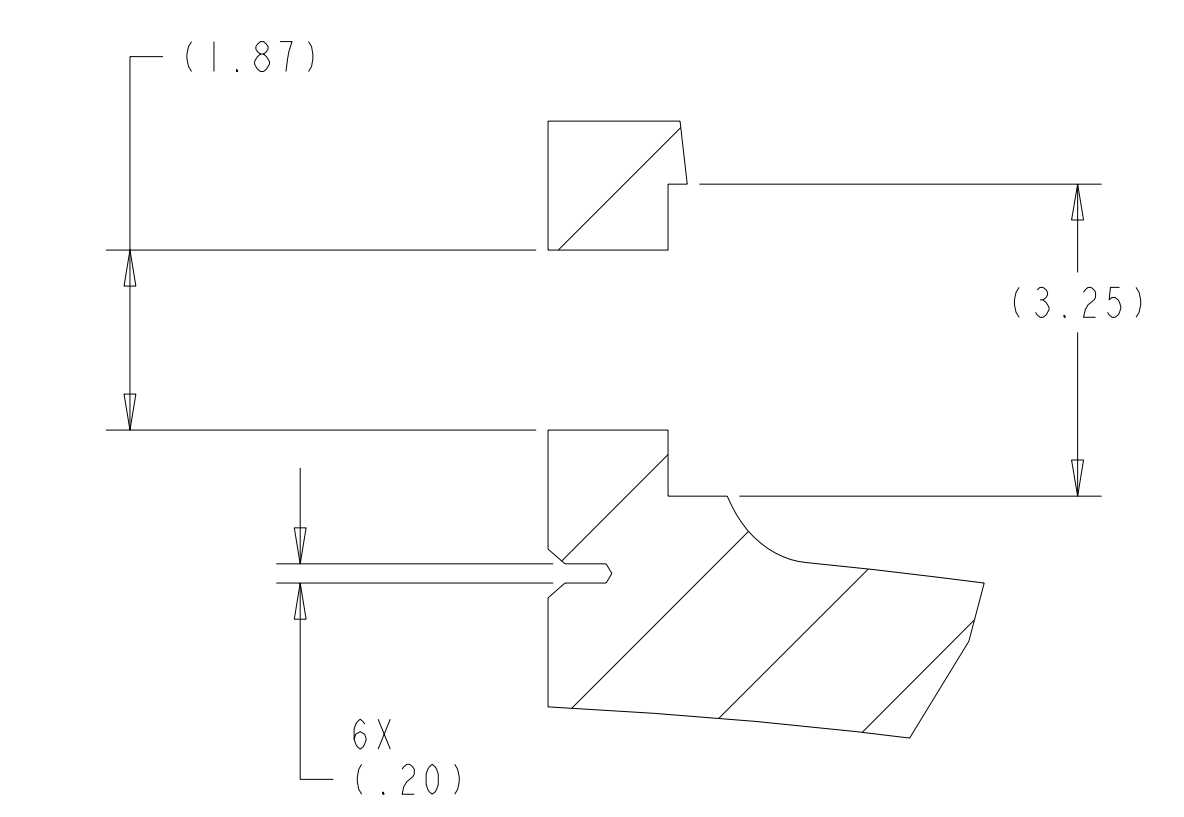
DETAIL Y
 SCALE 0.50



SECTION K-K
 SCALE 0.50

Ø1.88 THRU
 Ø3.00 SPOT FACE BACKSIDE
 MINIMUM DEPTH TO CLEANUP
 ±0.01 M A D

18X
 Ø1.88 THRU
 Ø3.25 SPOT FACE BACKSIDE
 MINIMUM DEPTH TO CLEANUP
 ±0.01 M A D
 REF SECTION S-S

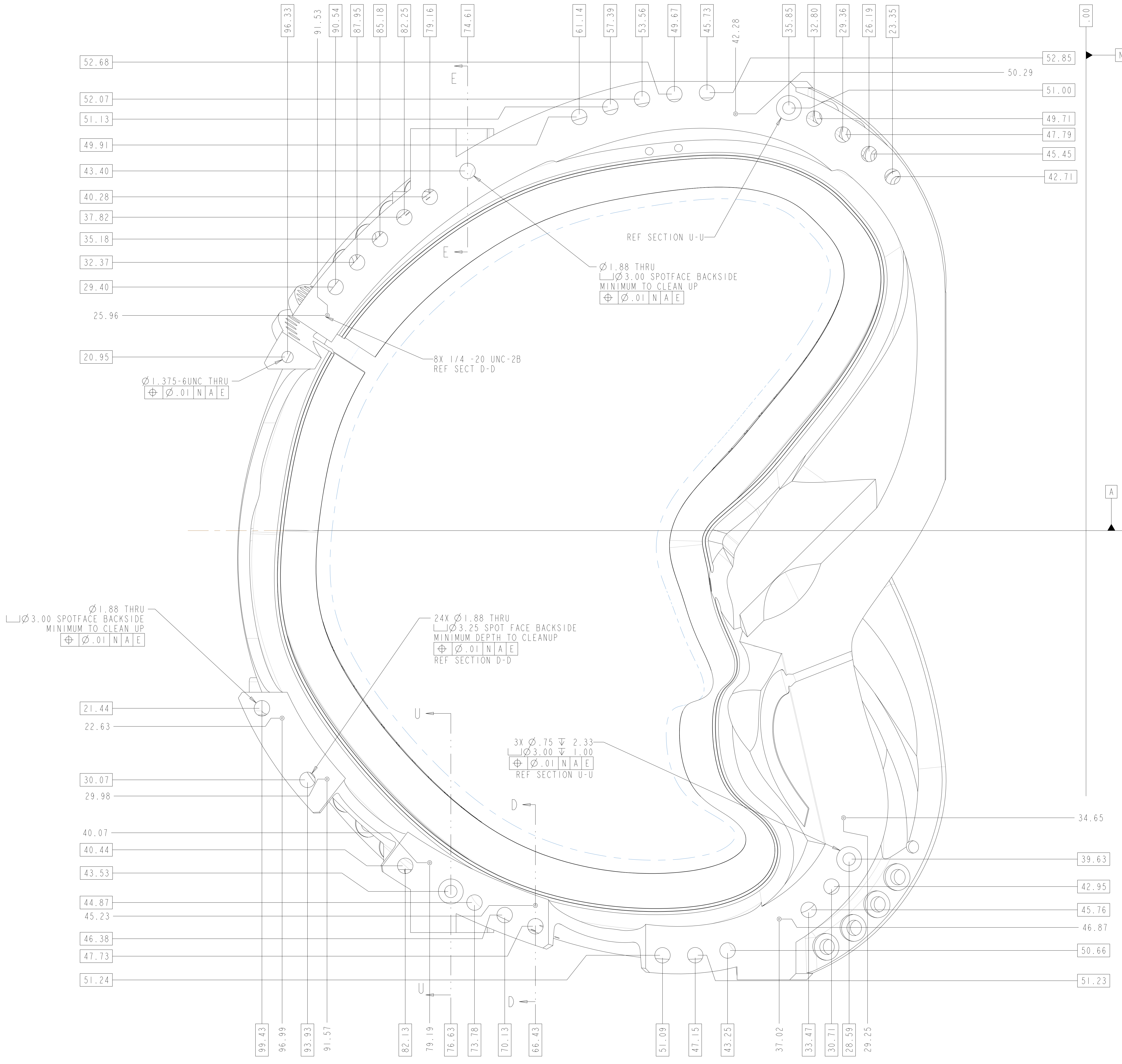


SECTION S-S
 SCALE 0.50

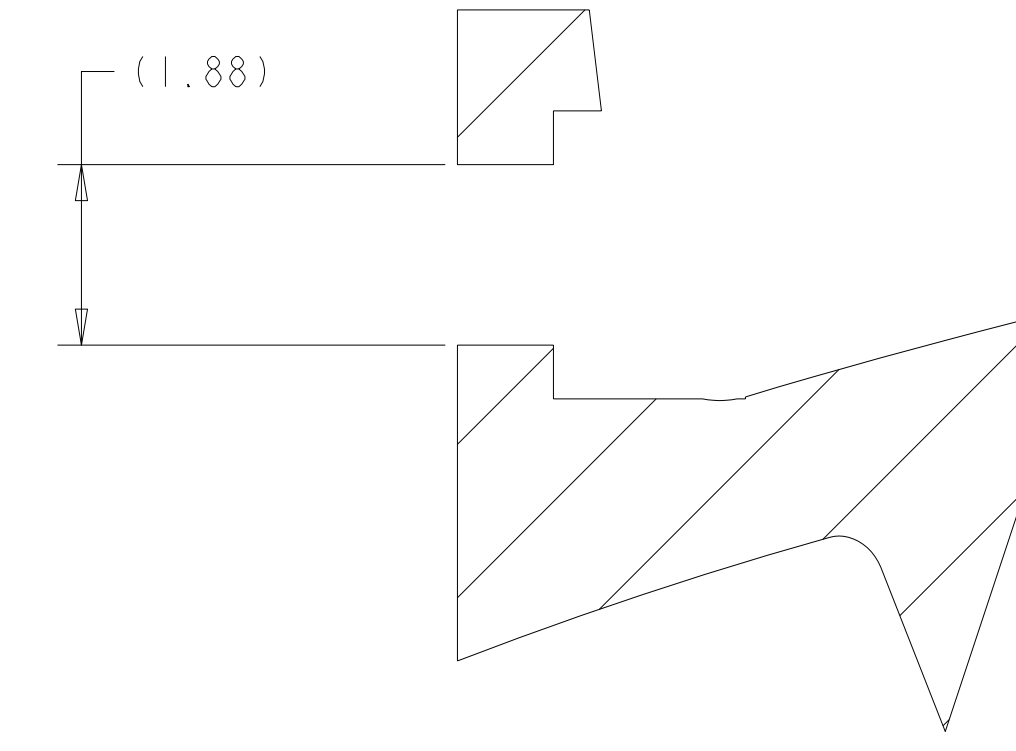
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME						
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT PRODUCTION WINDING FORM TYPE-A						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
8	X-10	5700	3	4	11	S
RELEASE LEVEL	SEI41-114					
Fabrication						

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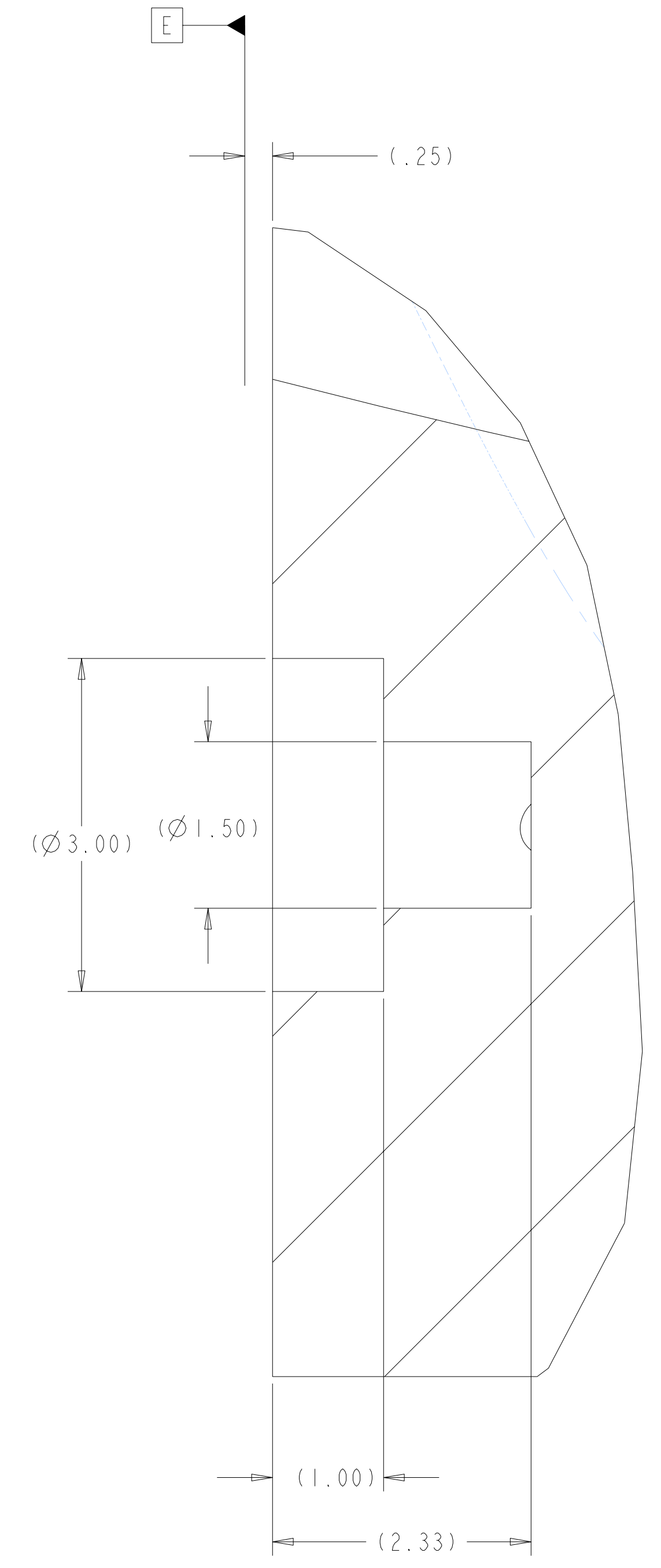
FOR NOTES AND PARTS LIST SEE SHEET 1



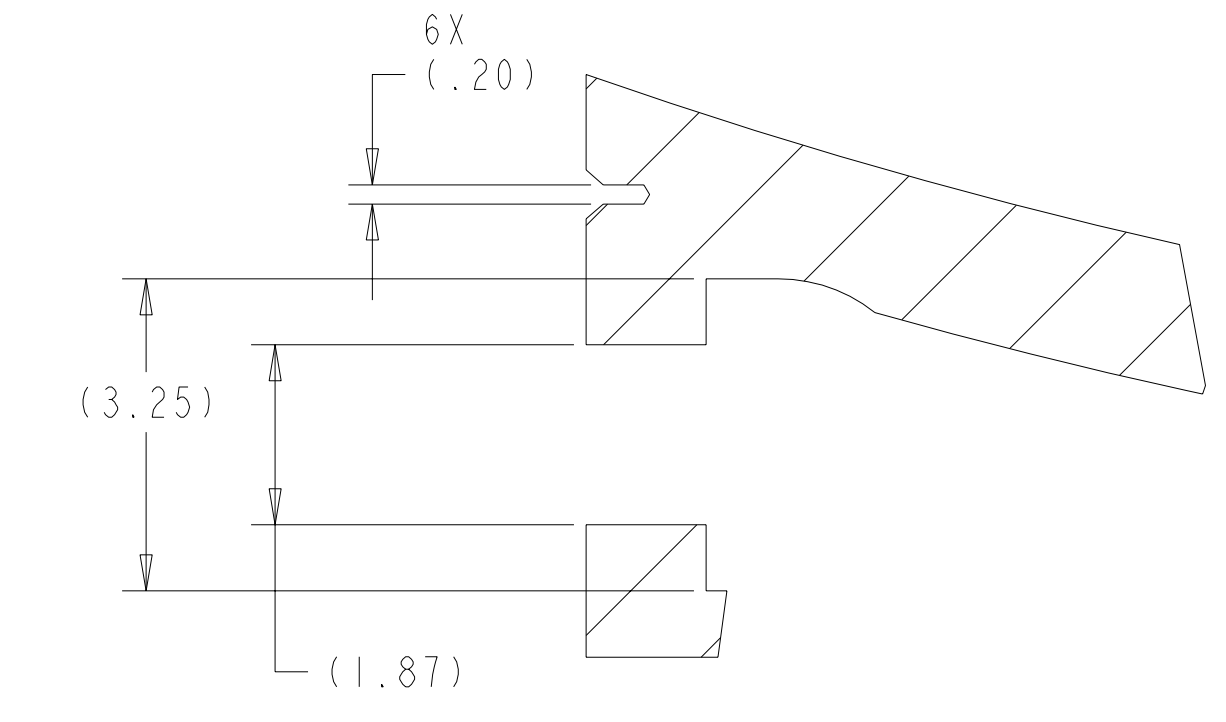
VIEW AT DATUM E
 SCALE 0.20



SECTION E-E
 SCALE 0.50



SECTION U-U
 SCALE 1.00

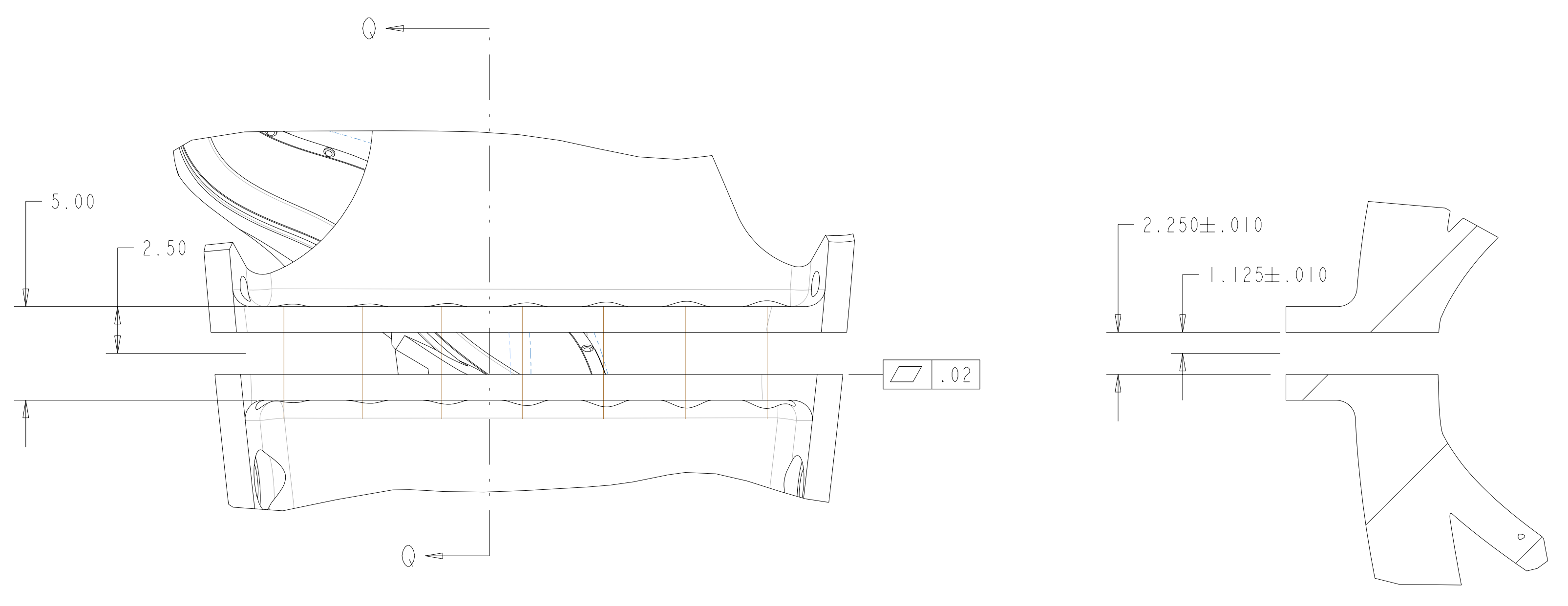


SECTION D-D
 SCALE 0.50

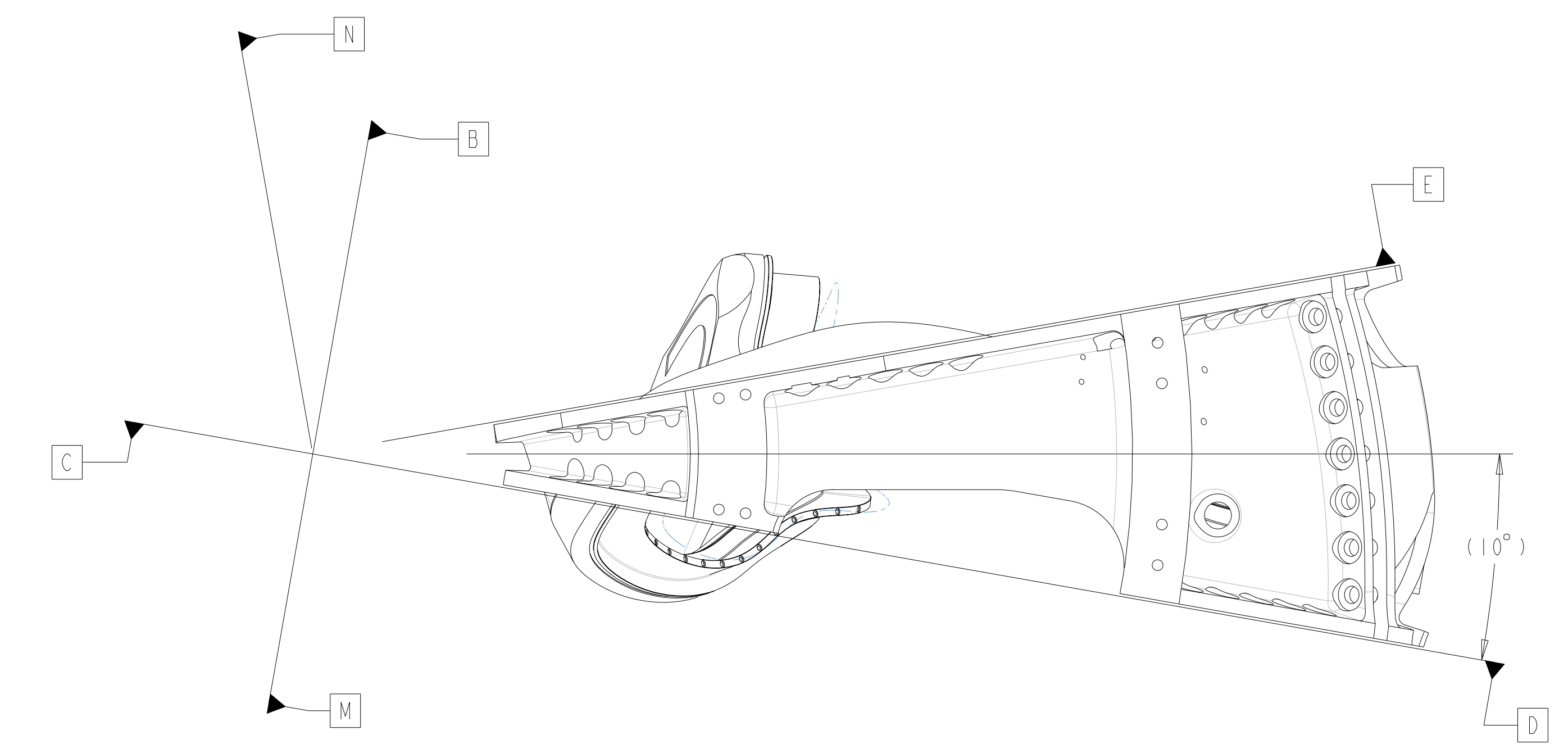
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME						
NATIONAL COMPACT STELLARATOR EXPERIMENT						
PRODUCTION WINDING FORM TYPE-A						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
8	X-10	5700	3	5	11	S
RELEASE LEVEL	SEI41-114					
Fabrication						

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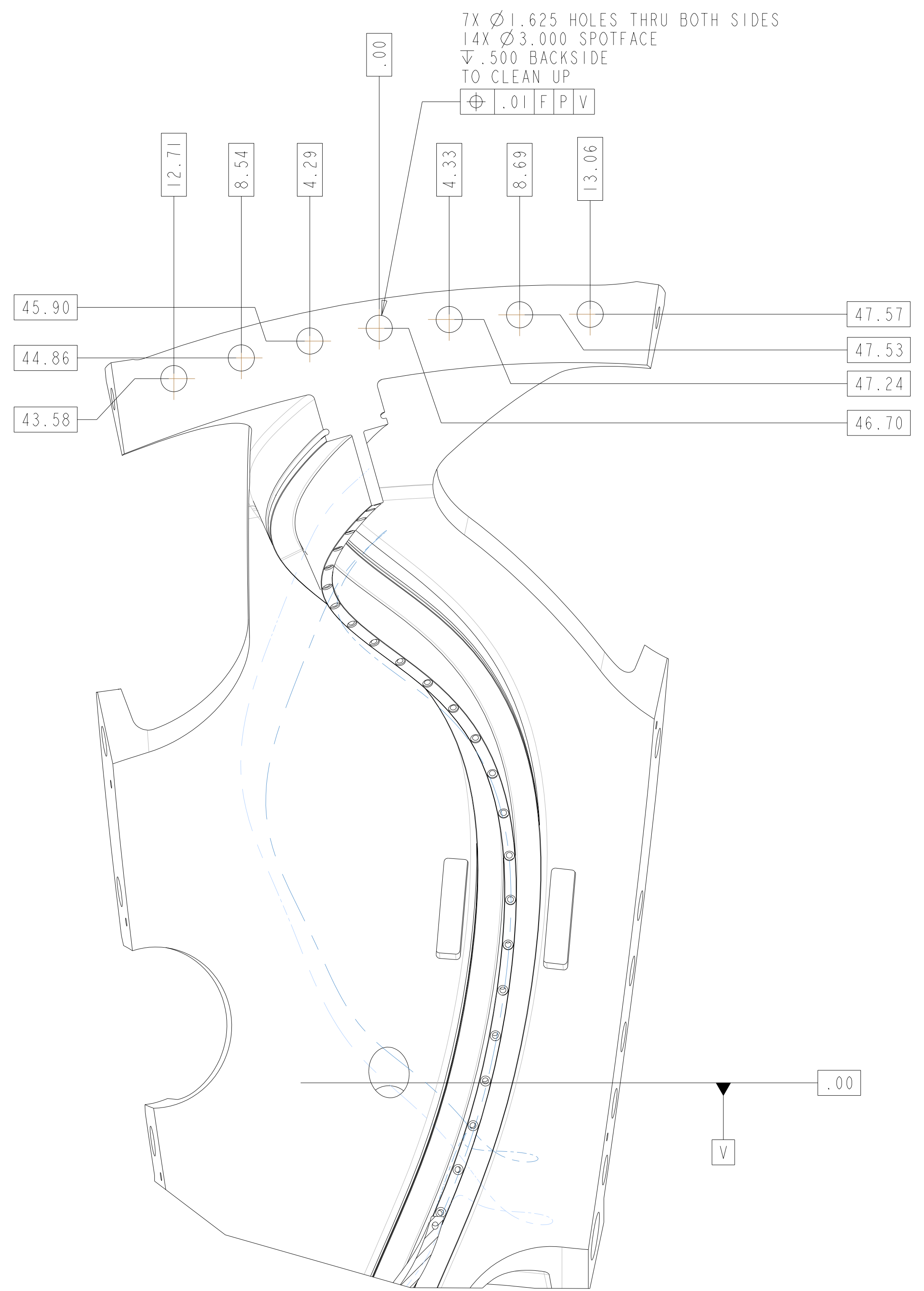
FOR NOTES AND PARTS LIST SEE SHEET I



SECTION Q-Q



POLOIDAL BREAK DETAIL
 SCALE 0.10

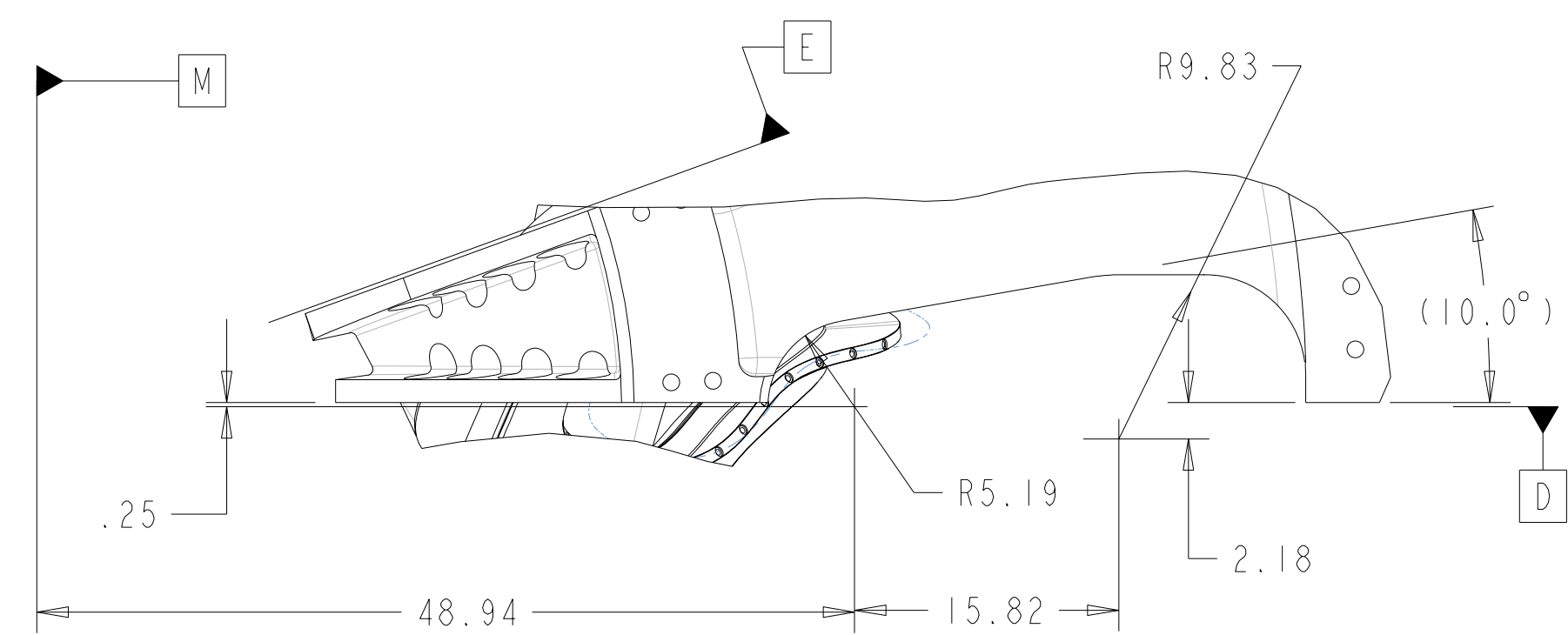


SECTION P-P
 SCALE 0.20

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-A							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	6	11	S	U
RELEASE LEVEL	SEI41-114						
Fabrication							

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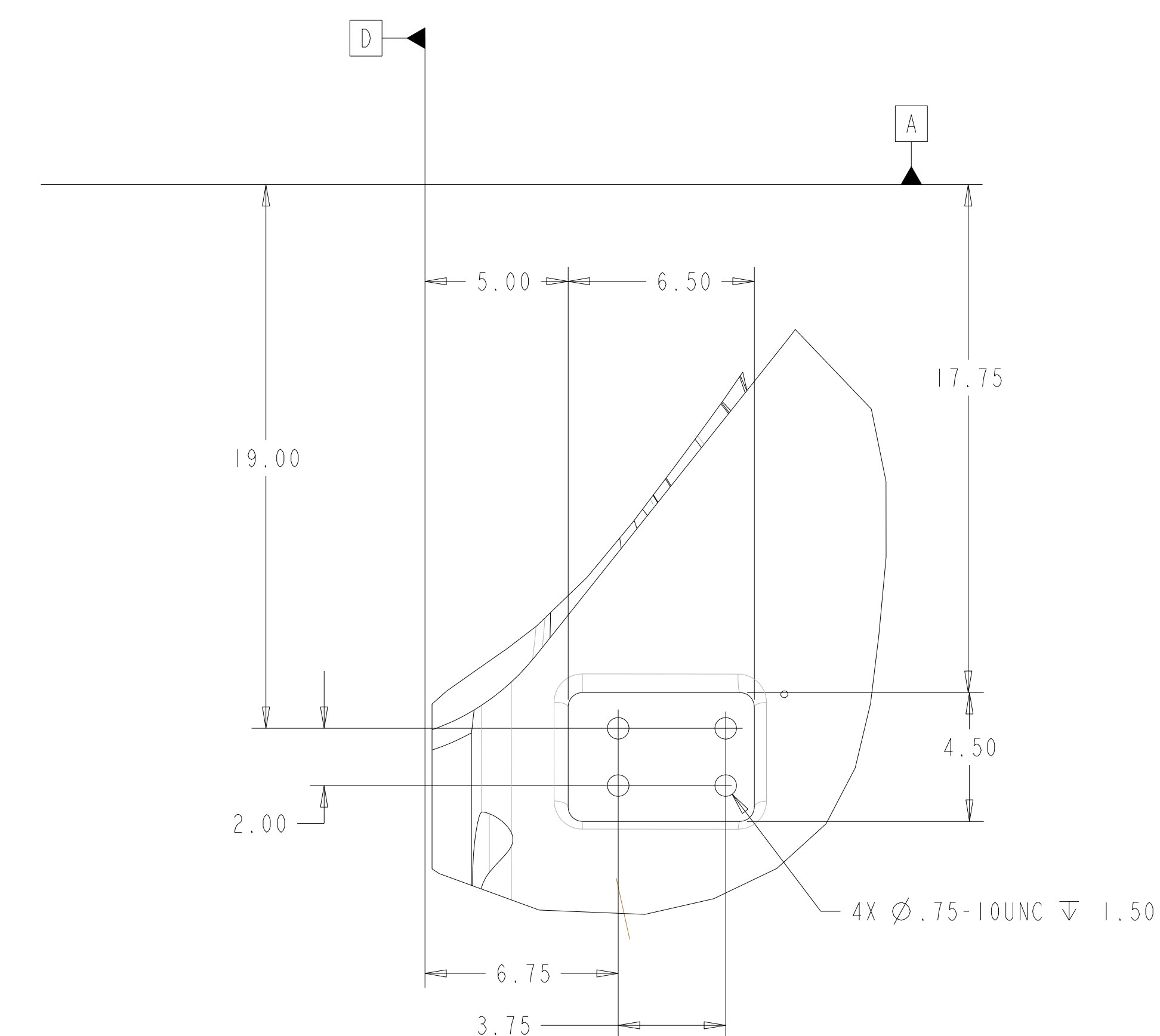
FOR NOTES AND PARTS LIST SEE SHEET I



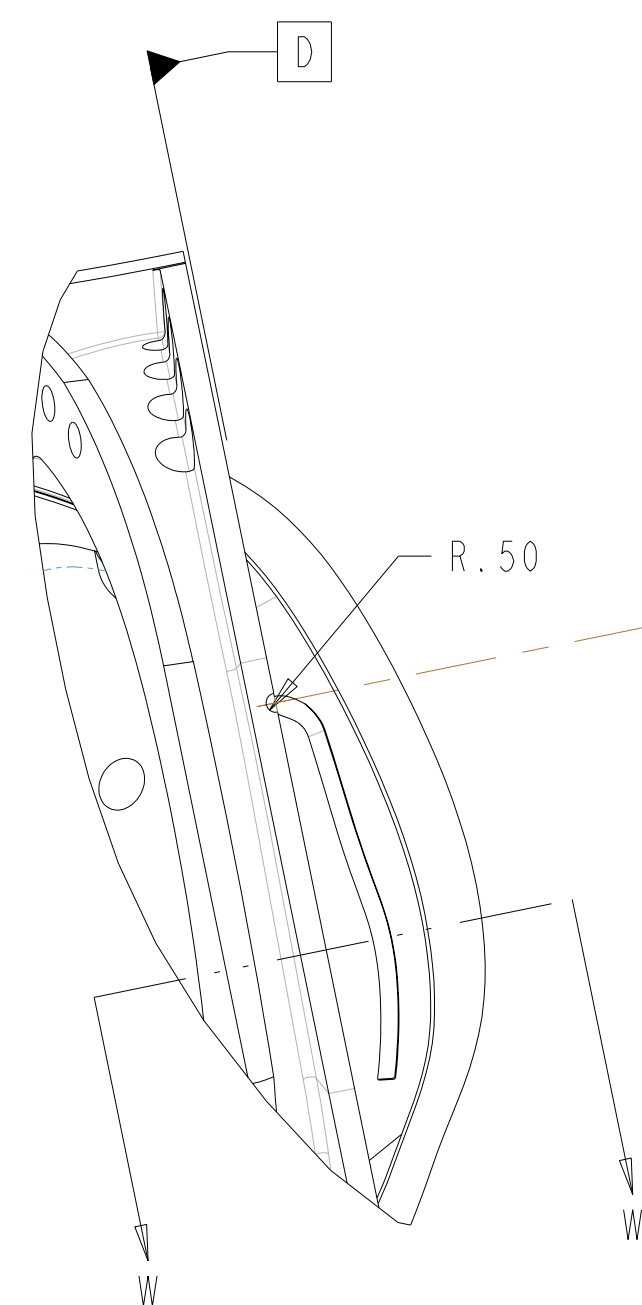
TOP VIEW



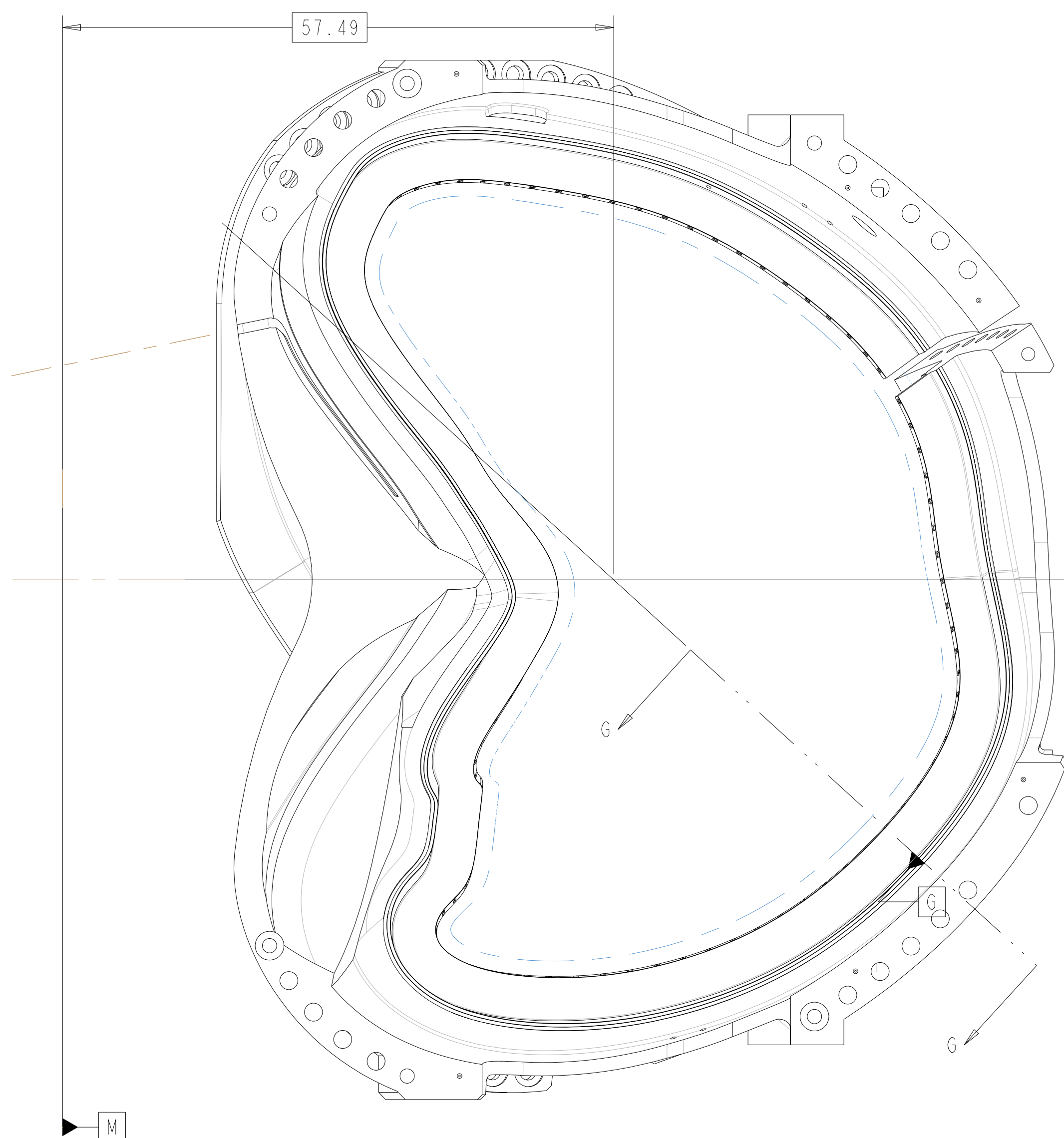
SECTION W-W
WING SHIM POCKET
SCALE 0.25



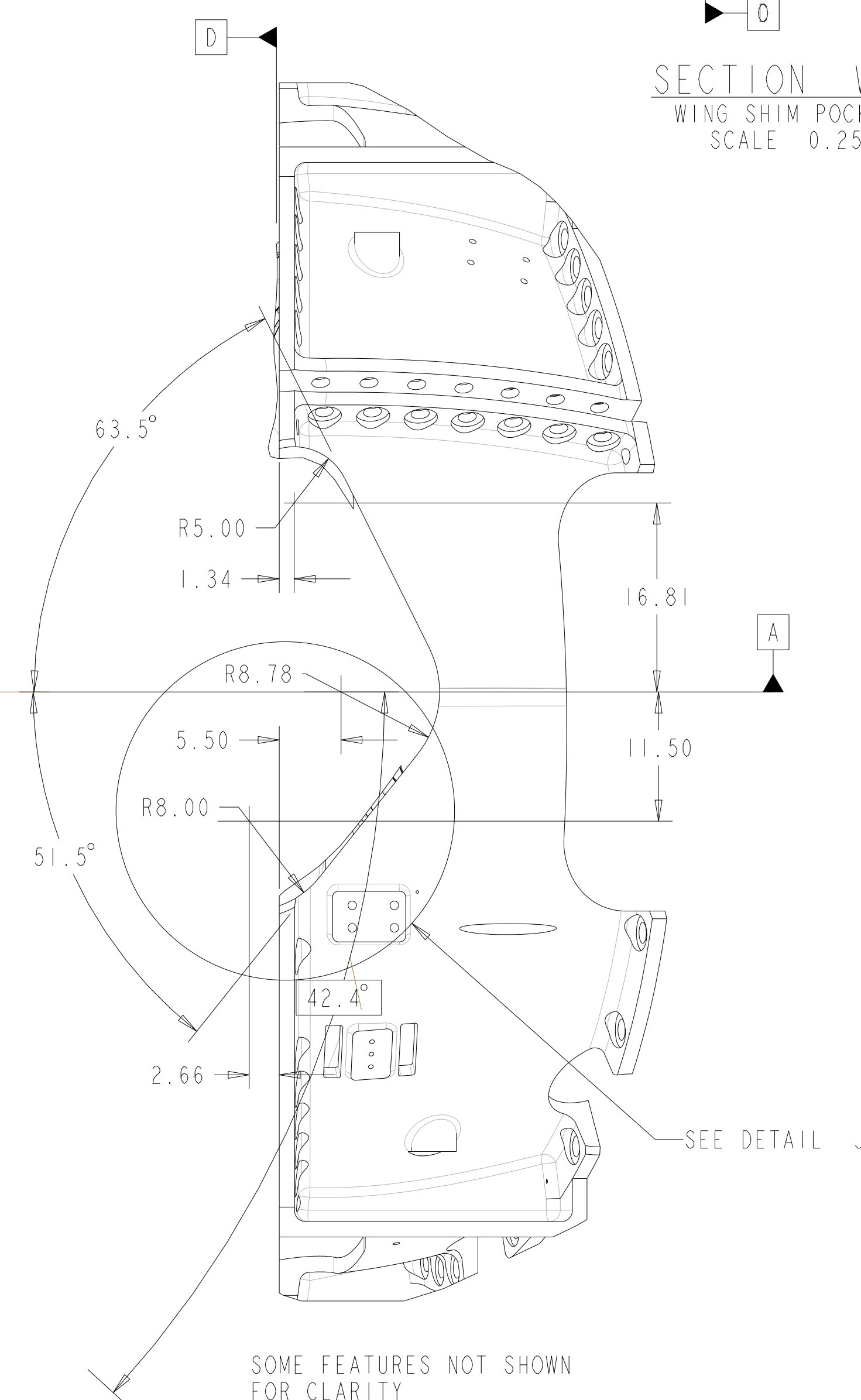
DETAIL J
ASSEMBLY FIXTURE MOUNT
SCALE 0.25



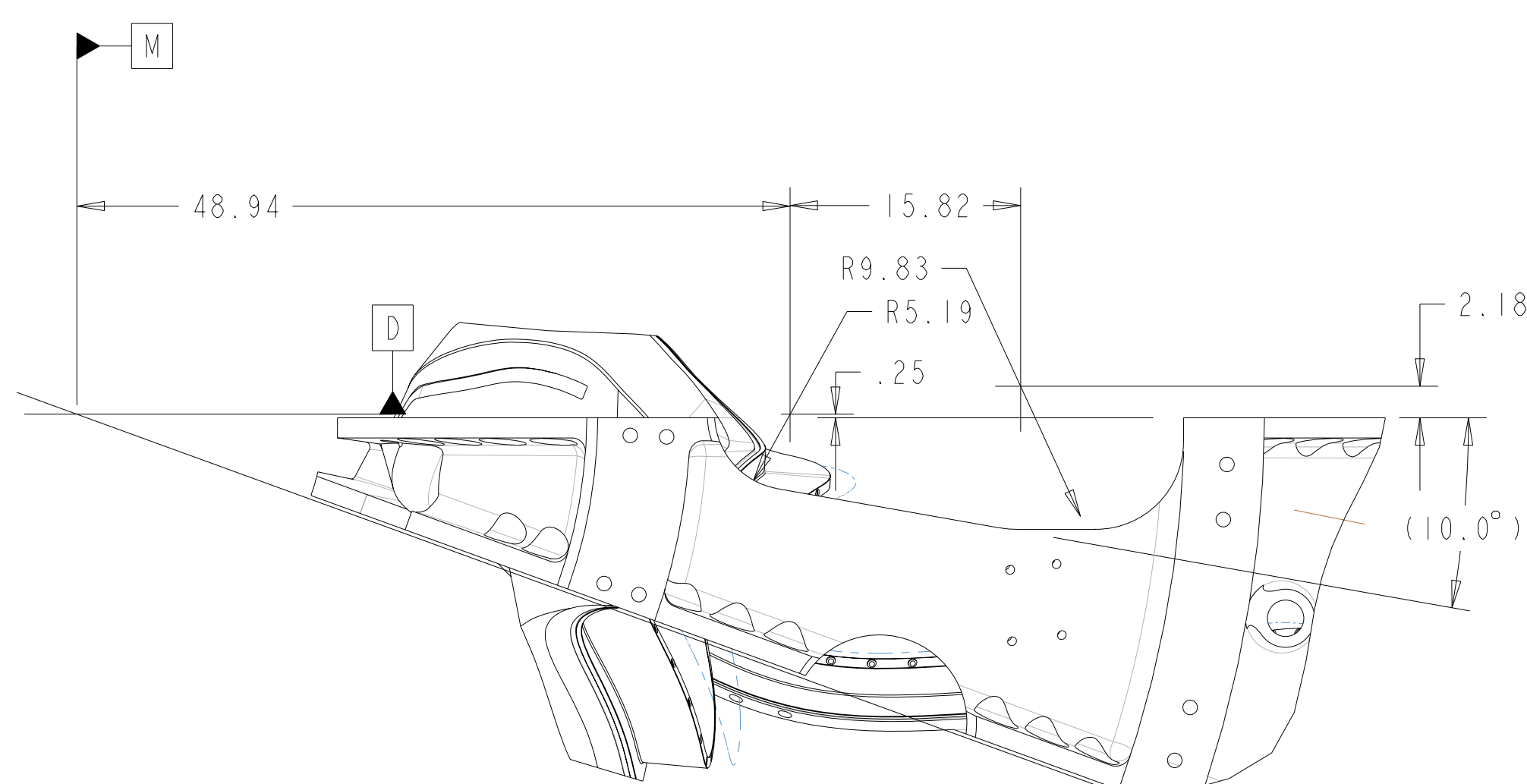
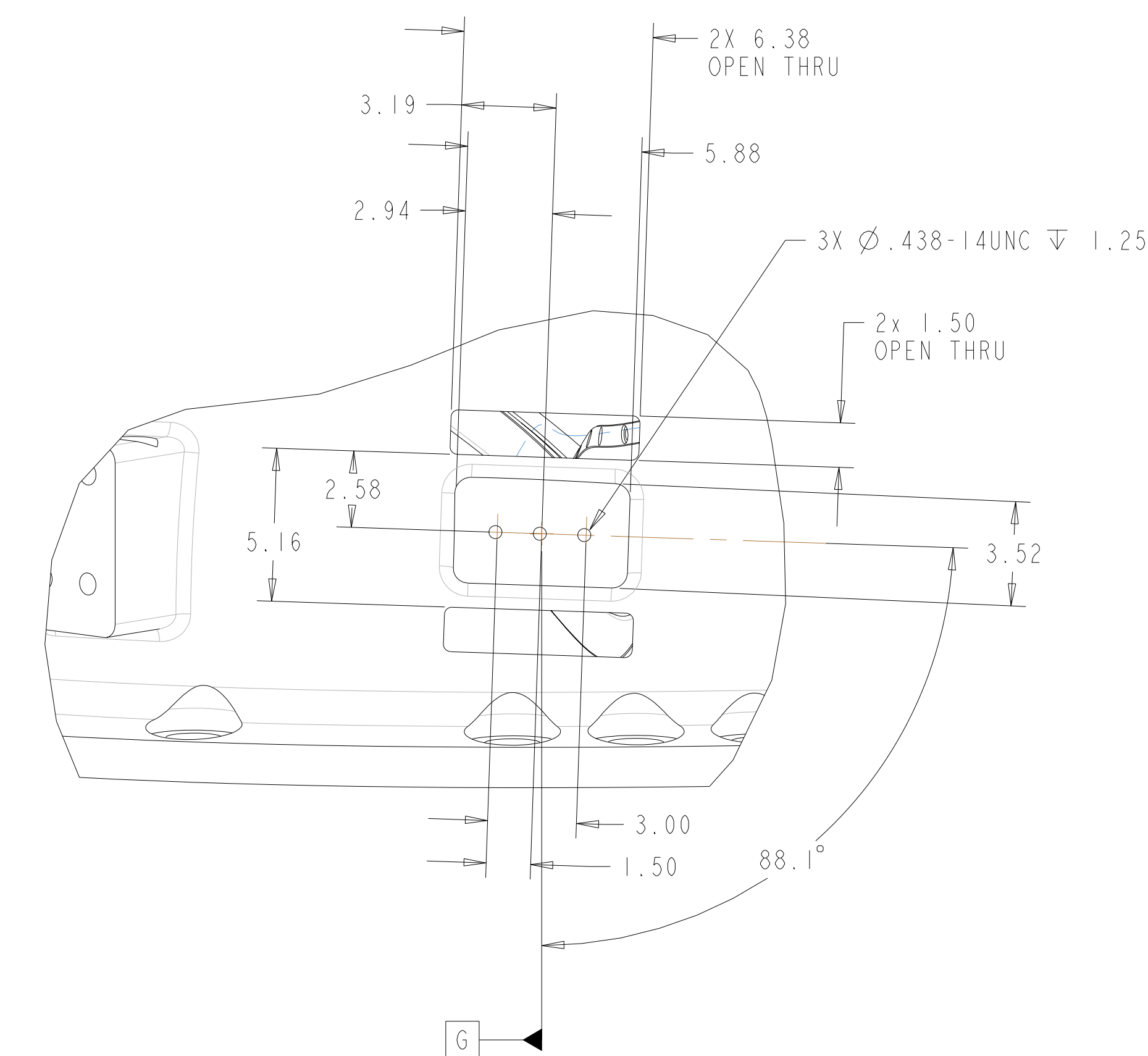
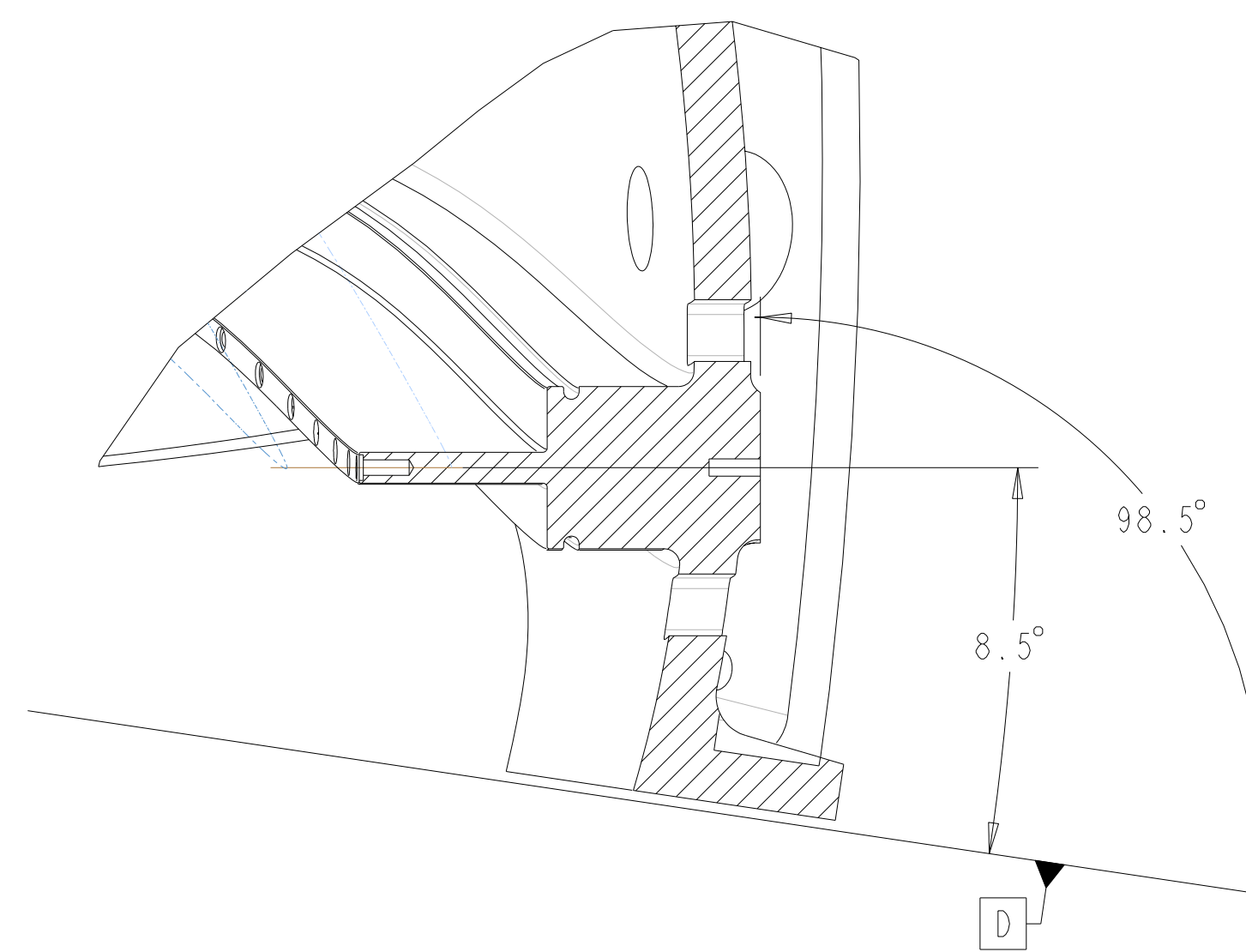
AUX VIEW TO SHOW
WING SHIM POCKET



VIEW AT DATUM D
SCALE 0.1



SECTION G-G
LEAD BLOCK DETAIL
SCALE 0.25



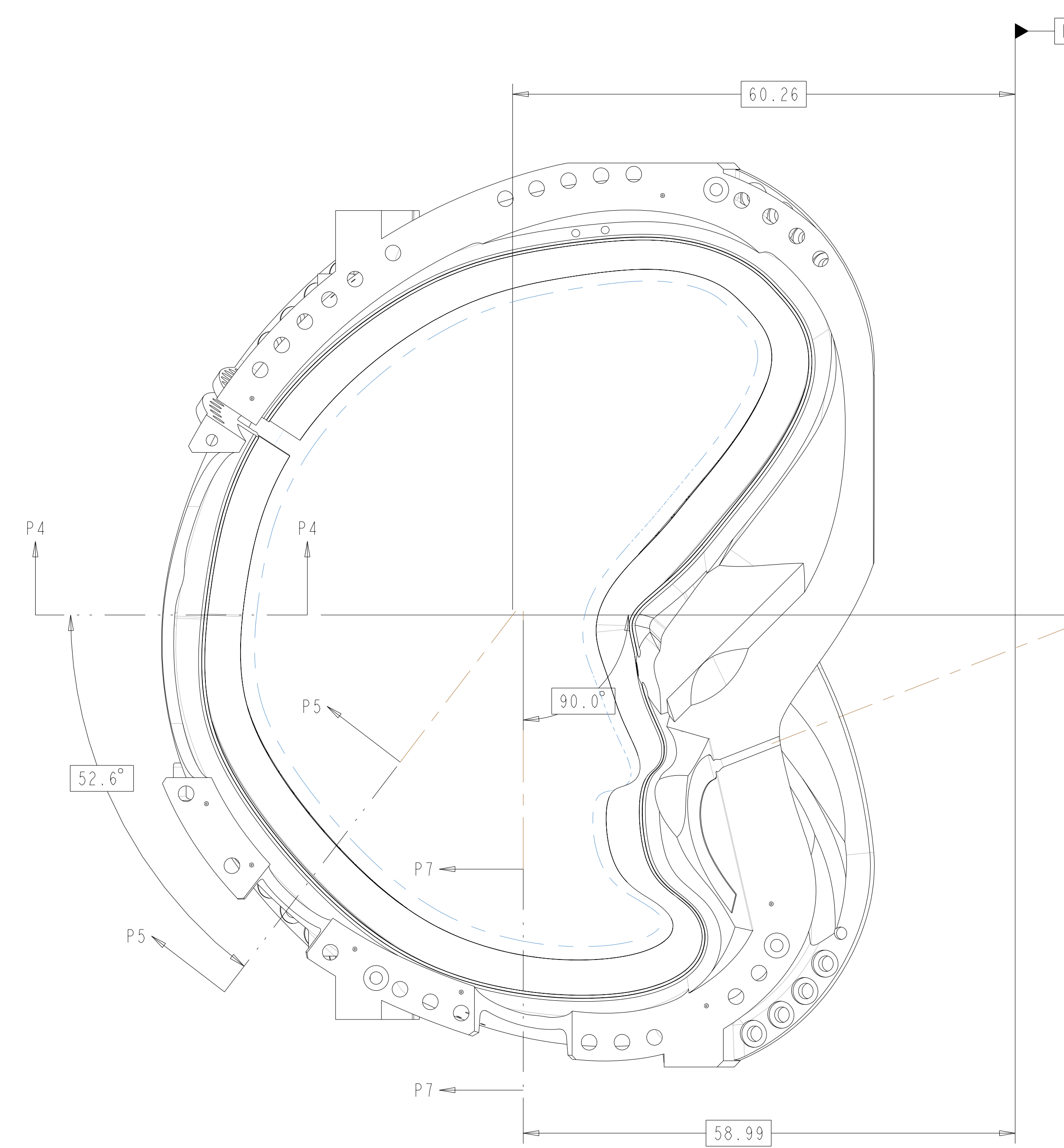
BOTTOM VIEW

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC. Oak Ridge, Tennessee PROJECT NAME							
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT PRODUCTION WINDING FORM TYPE-A							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	7	11	S	U
RELEASE LEVEL		SEI41-114					
Fabrication							

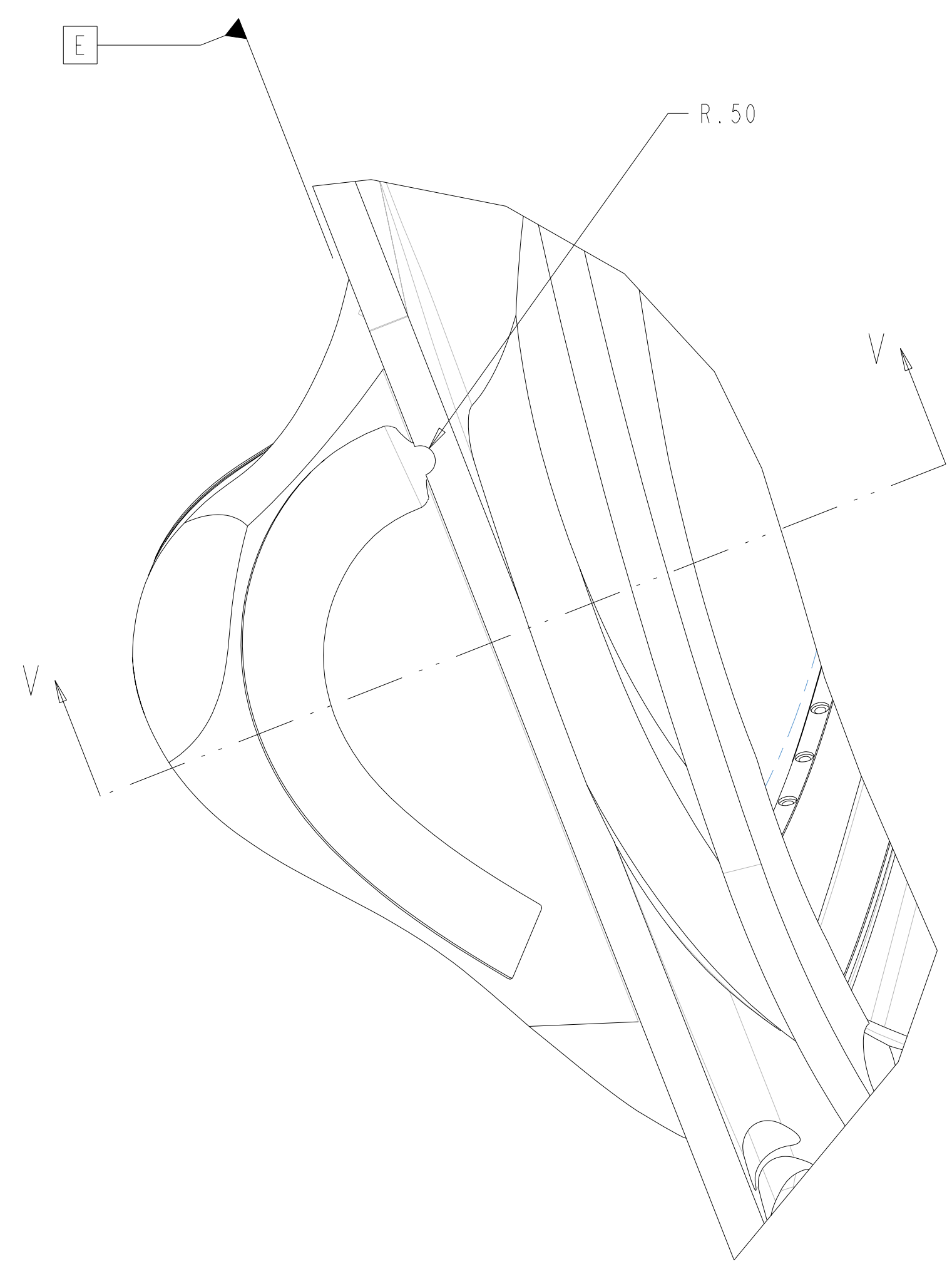
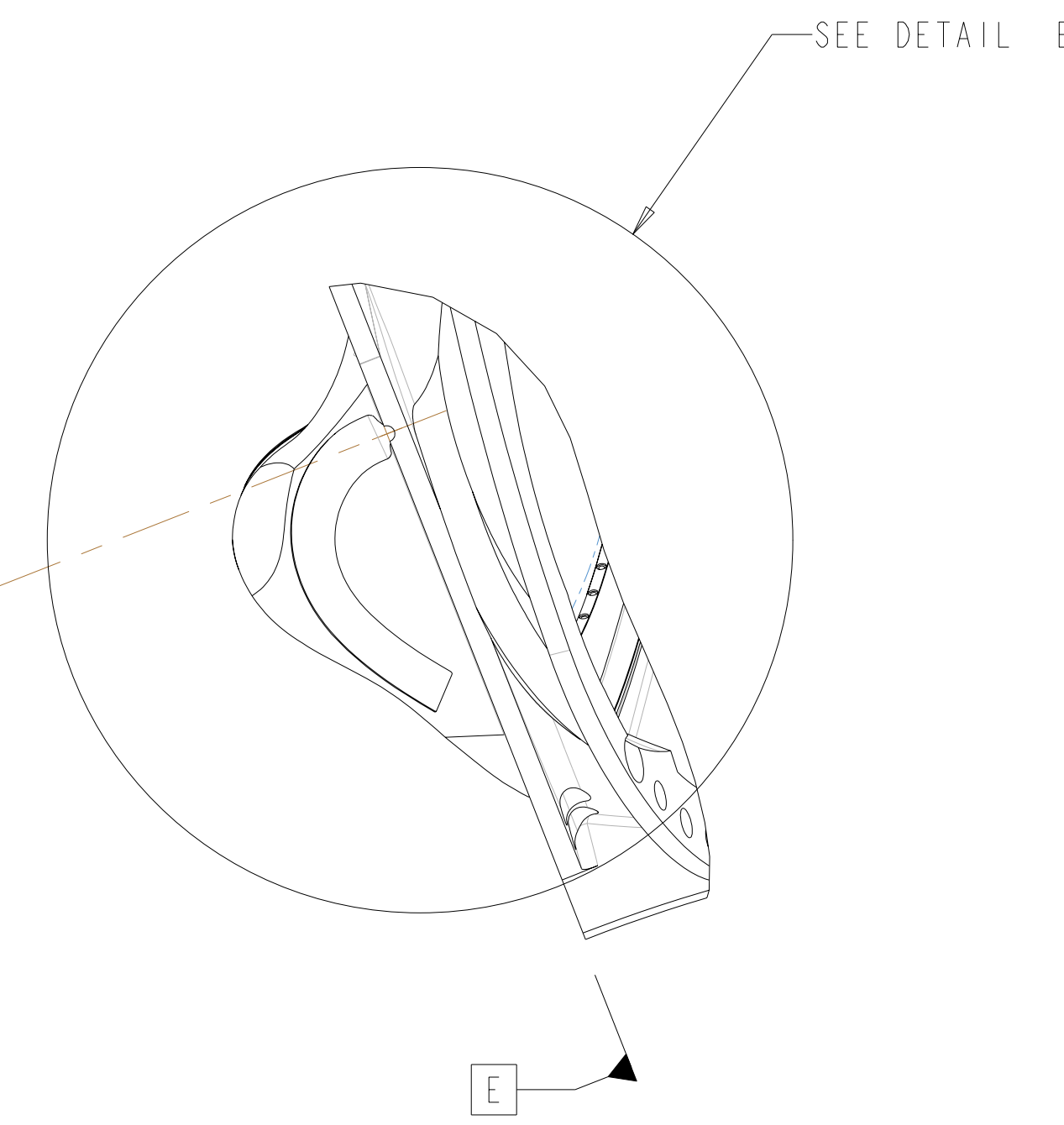
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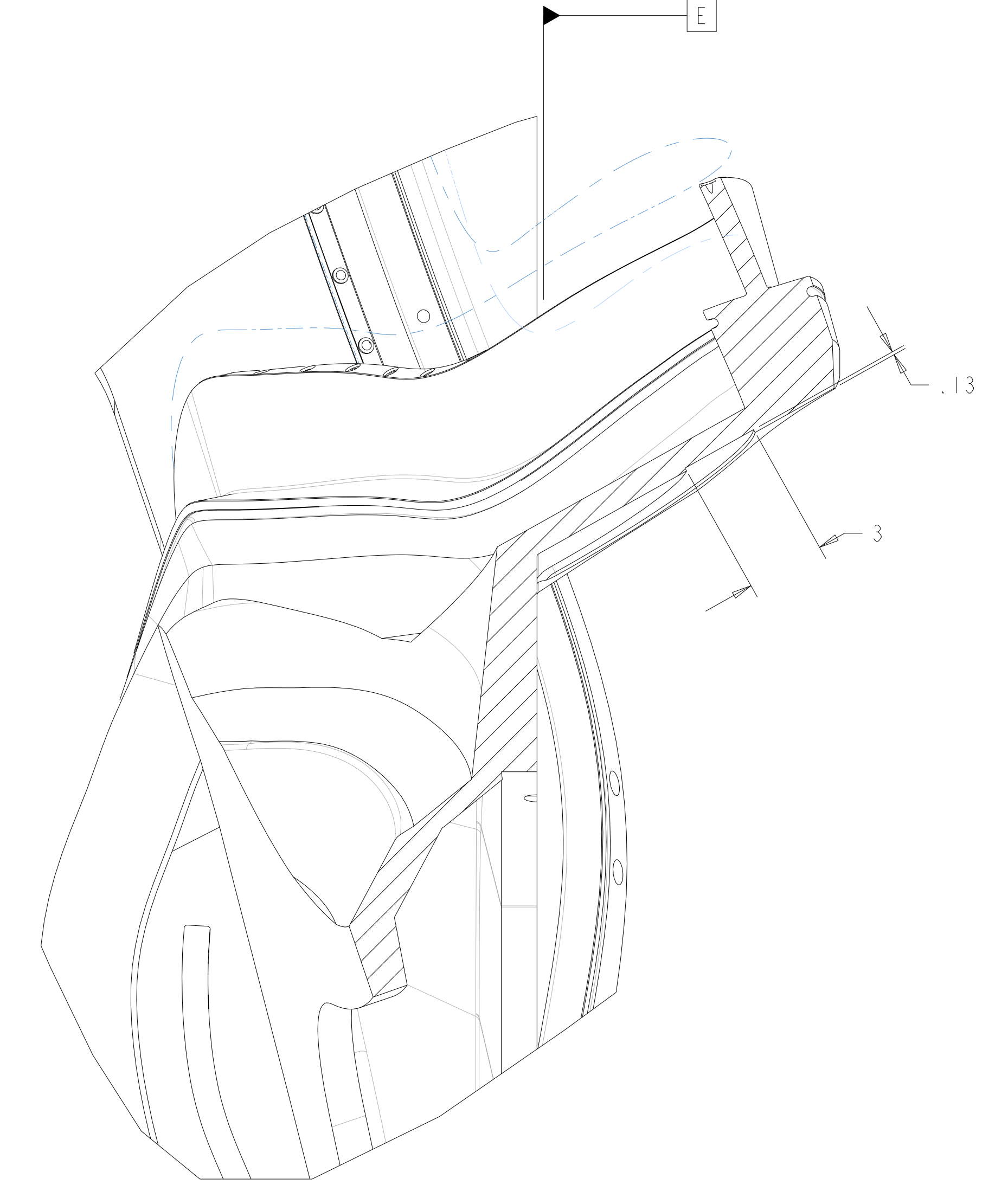
FOR NOTES AND PARTS LIST SEE SHEET 1



VIEW AT DATUM E
 SCALE 0.1



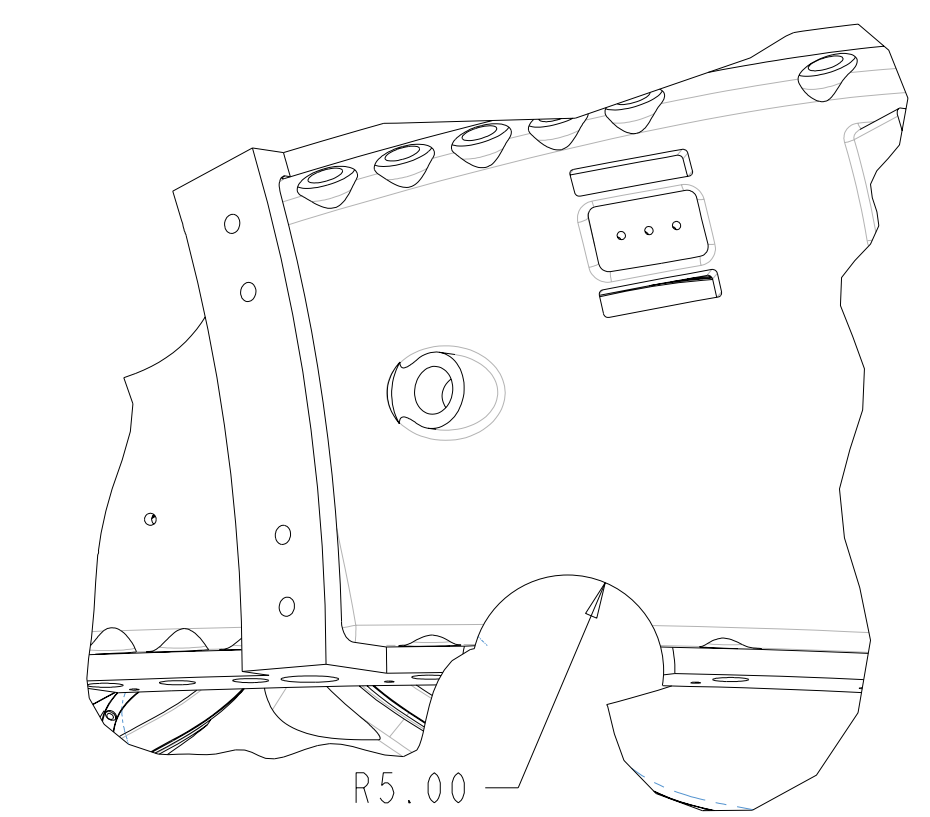
DETAIL E
 WING SHIM POCKET
 SCALE 0.25



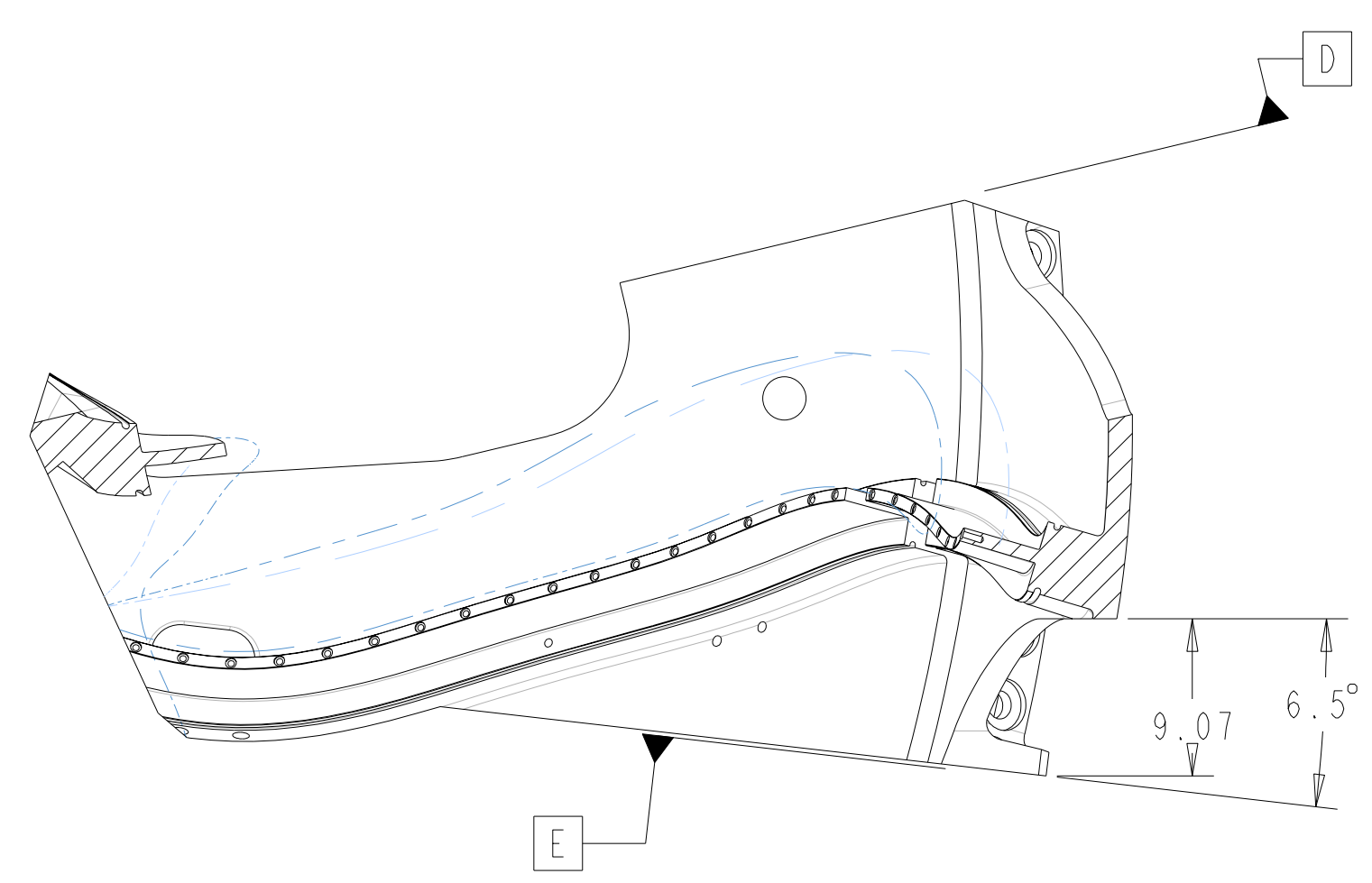
SECTION V-V
 SCALE 0.25



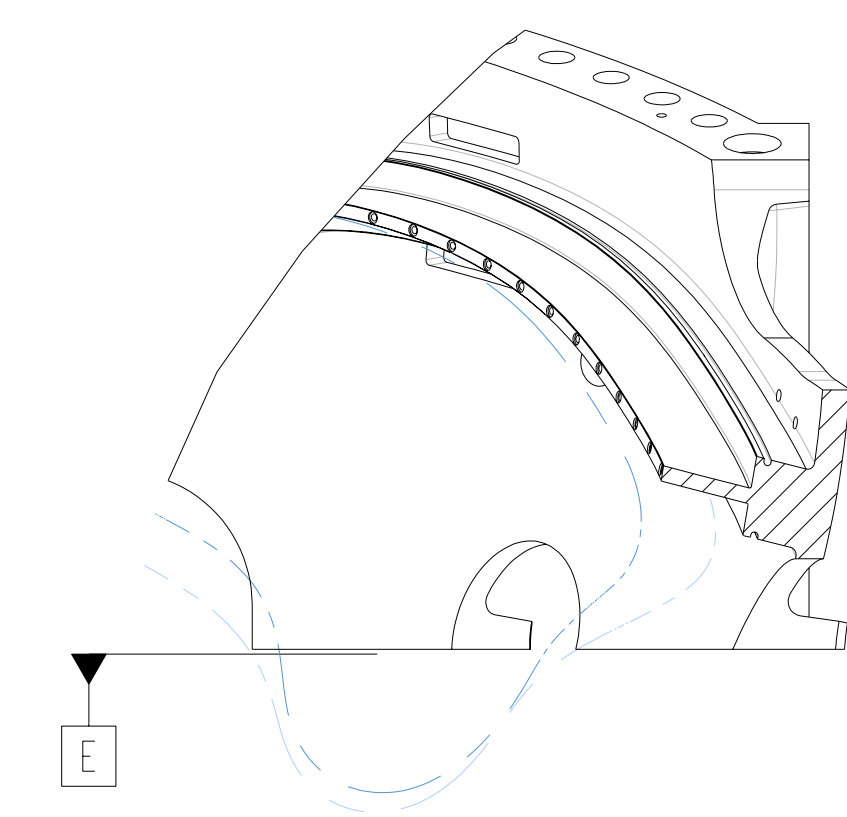
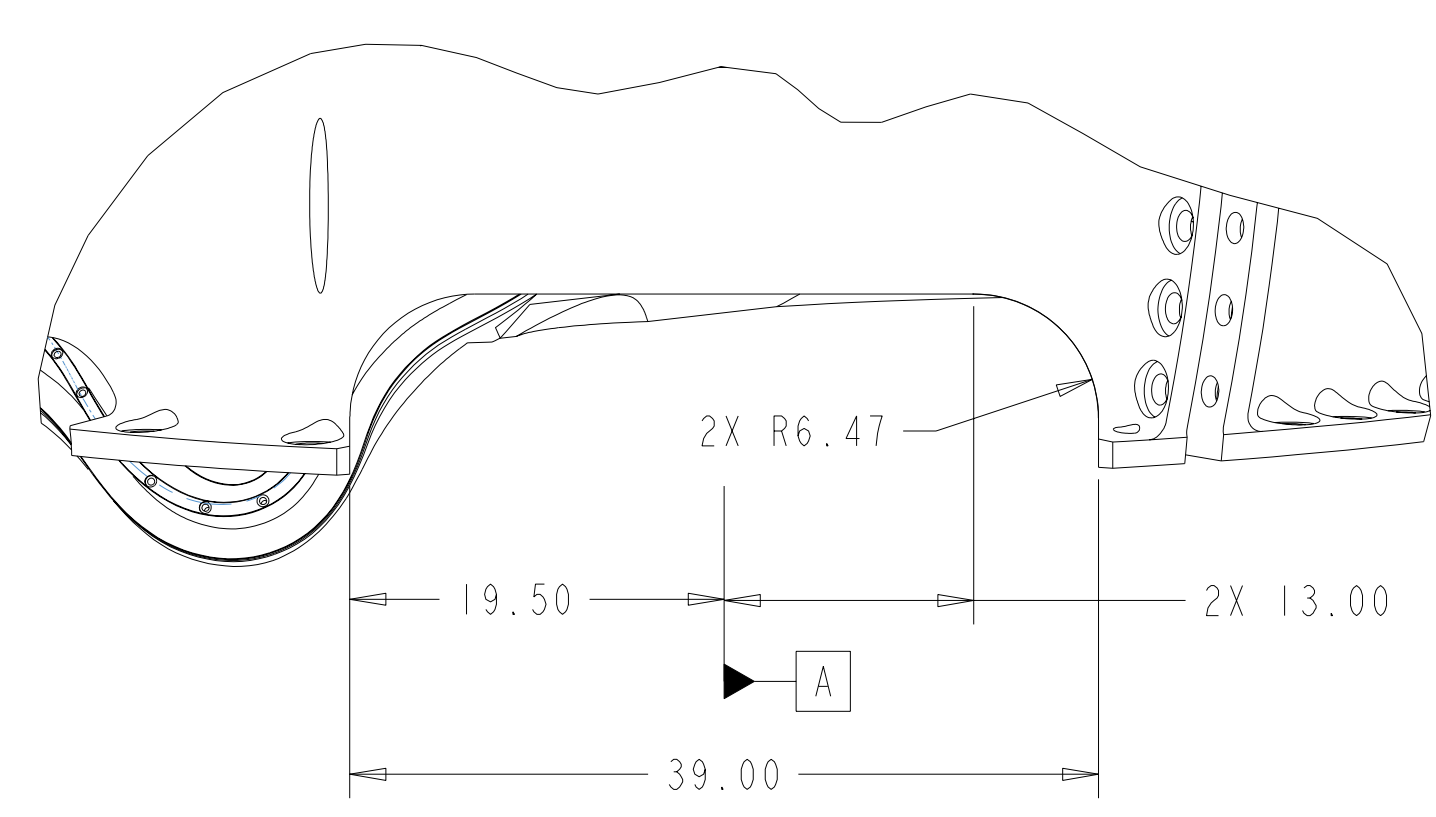
SECTION P5-P5
 SCALE 0.1



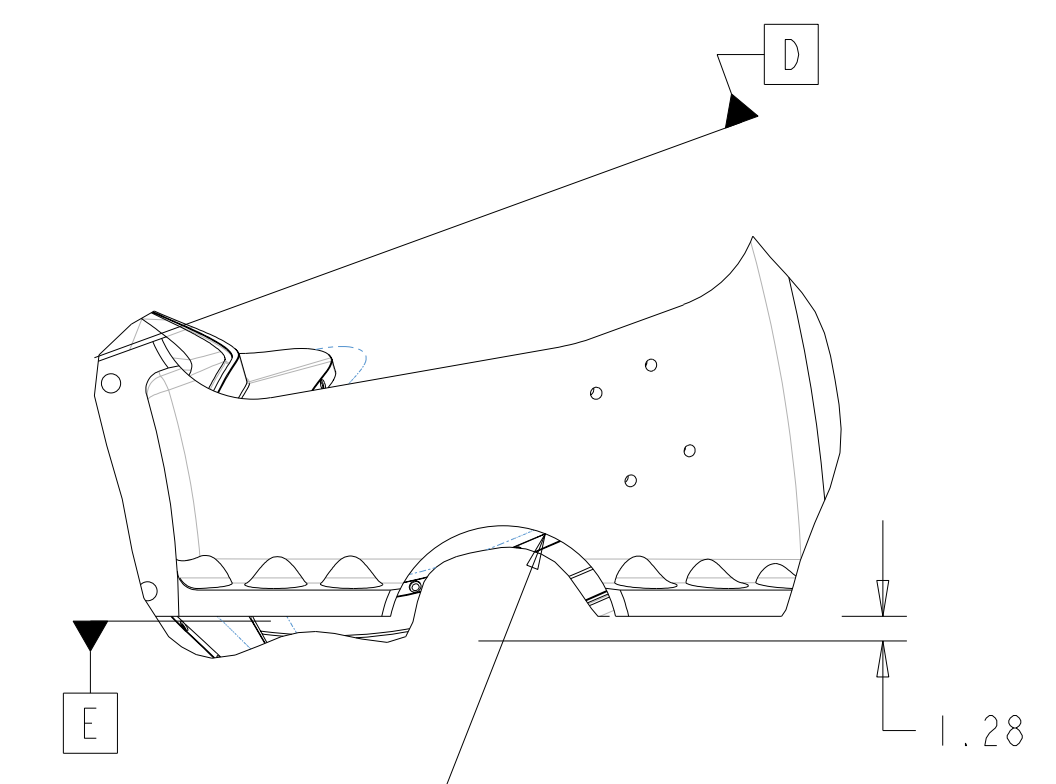
SOME FEATURES NOT SHOWN FOR CLARITY



SECTION P4-P4
 SCALE 0.1



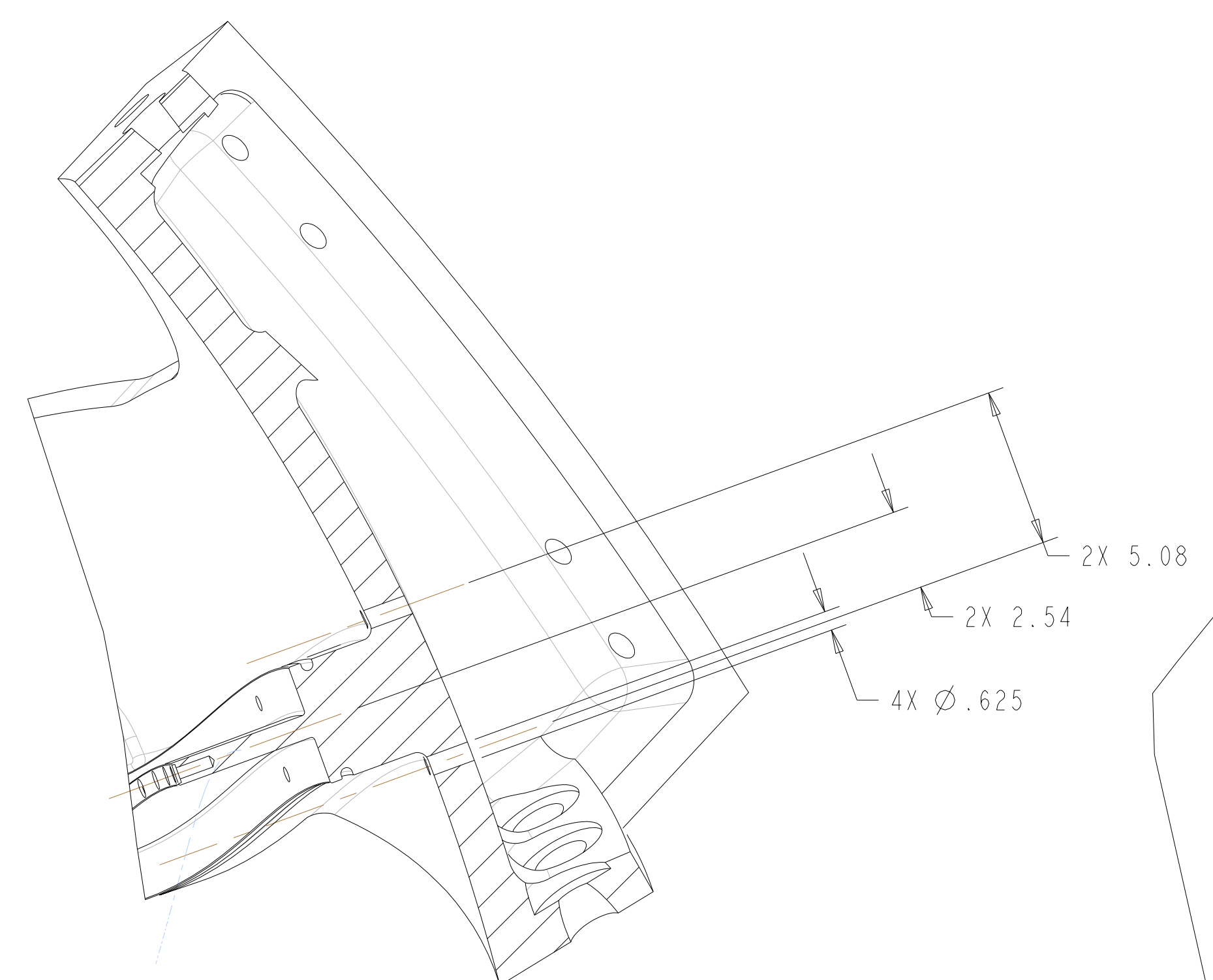
SECTION P7-P7
 SCALE 0.1



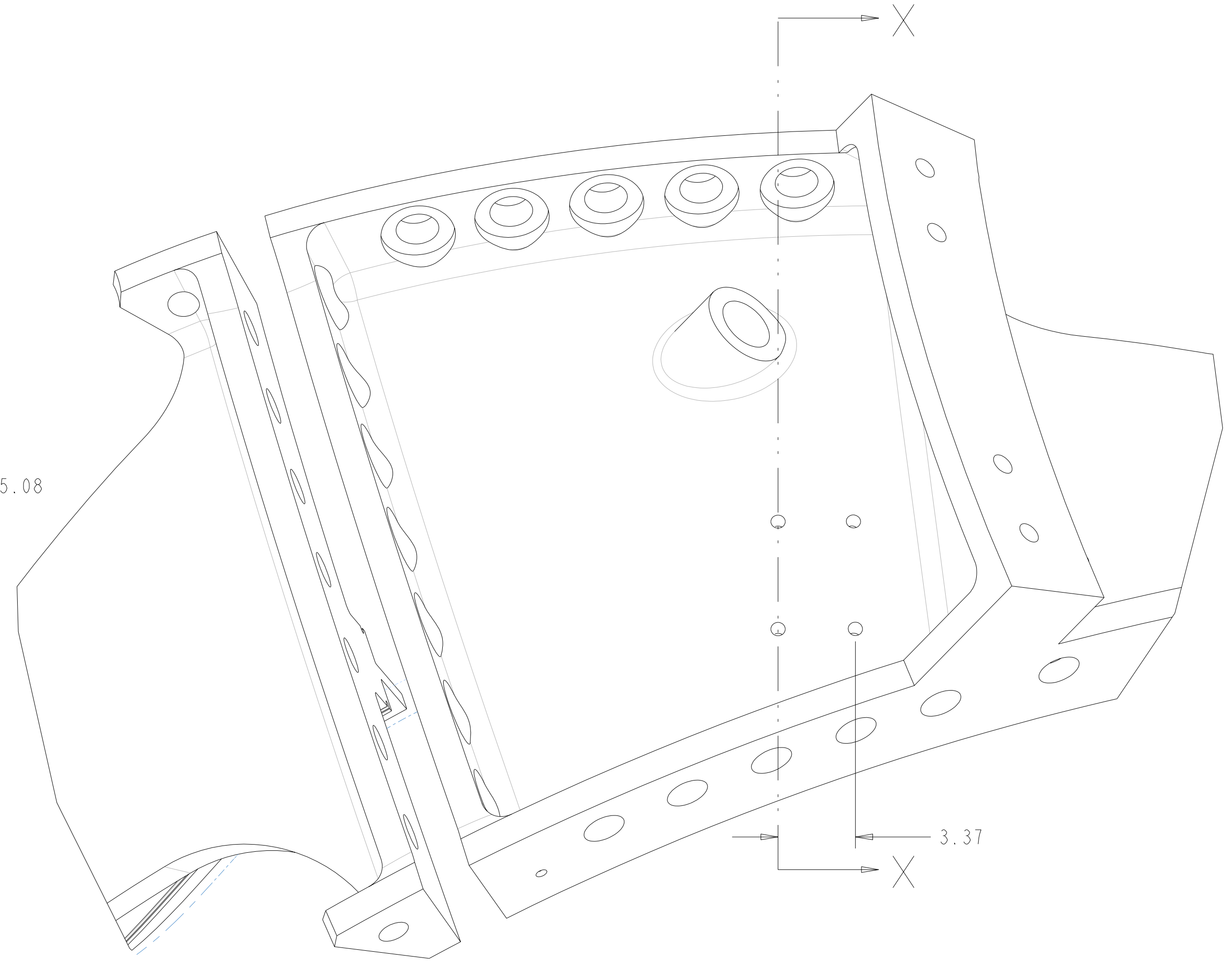
SOME FEATURES NOT SHOWN FOR CLARITY

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-A							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	8	11	S	U
RELEASE LEVEL	SE141-114						
Fabrication							

FOR NOTES AND PARTS LIST SEE SHEET 1

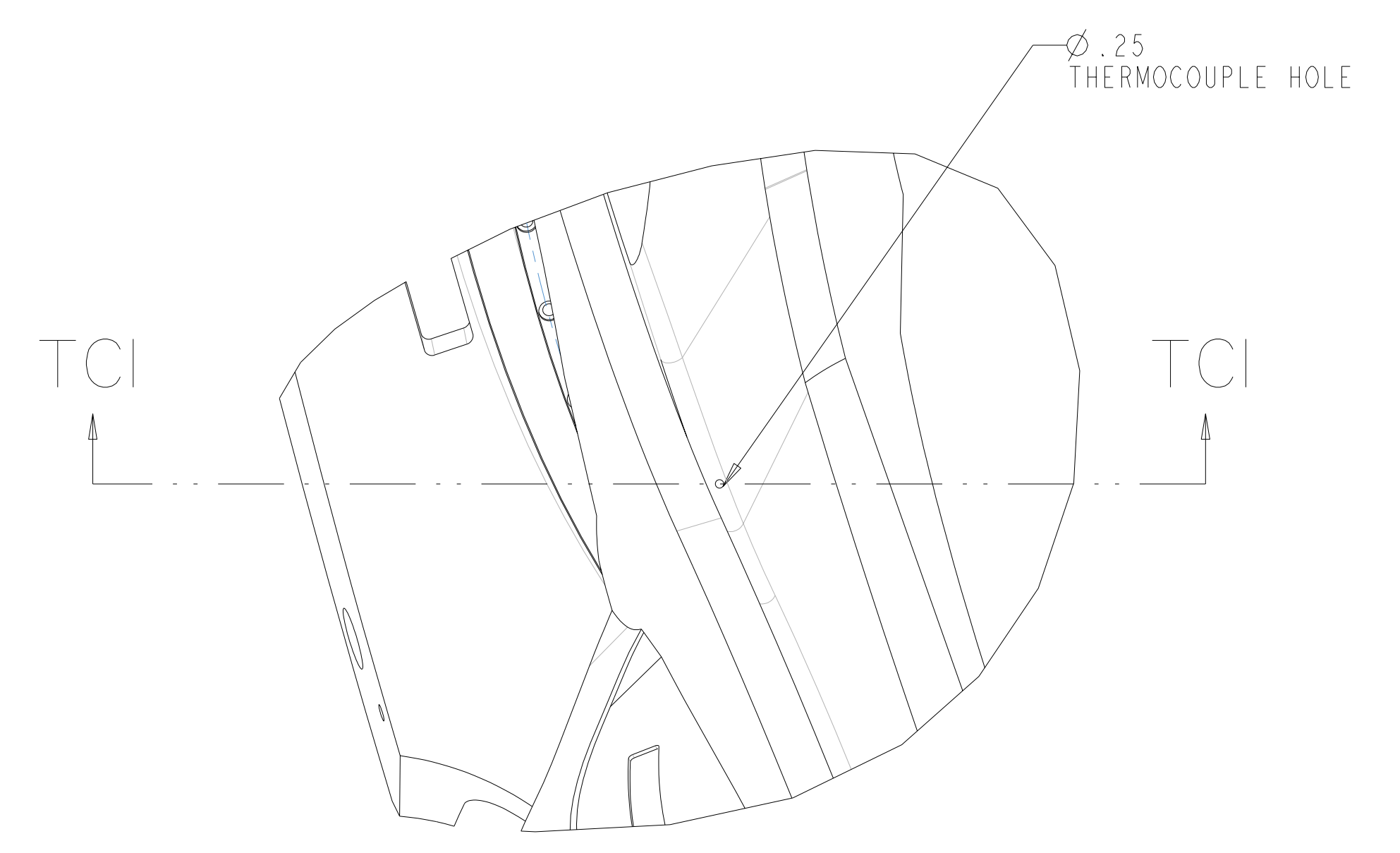


SECTION X-X



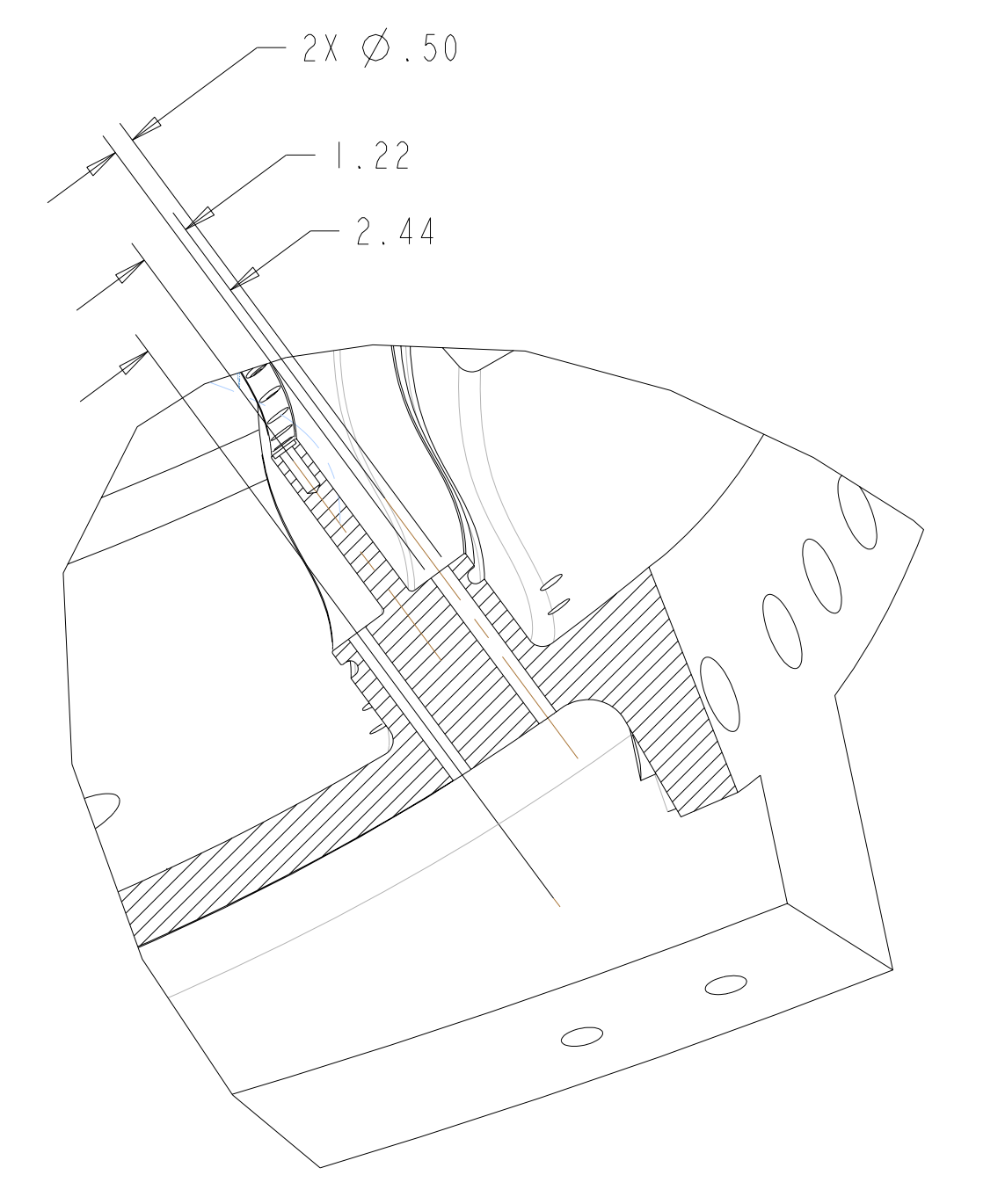
COOLING INLET / OUTLET HOLES
TYPICAL 2 PLACES

SCALE 0.250
USE PRO/E MODEL GEOMETRY TO
DETERMINE SECTION ORIENTATION

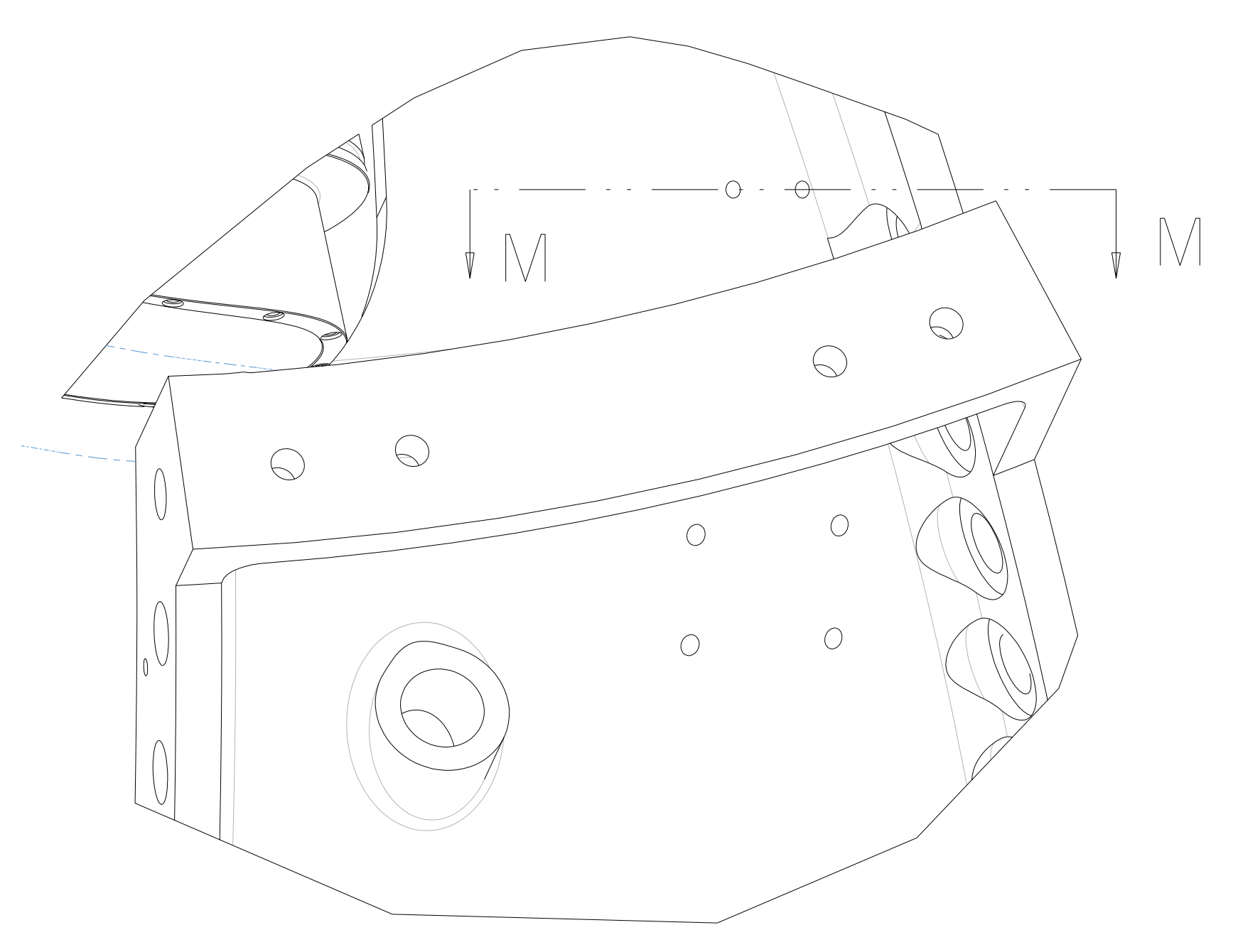


THERMOCOUPLE HOLE
SCALE 0.250

USE PRO/E MODEL GEOMETRY TO
DETERMINE SECTION ORIENTATION

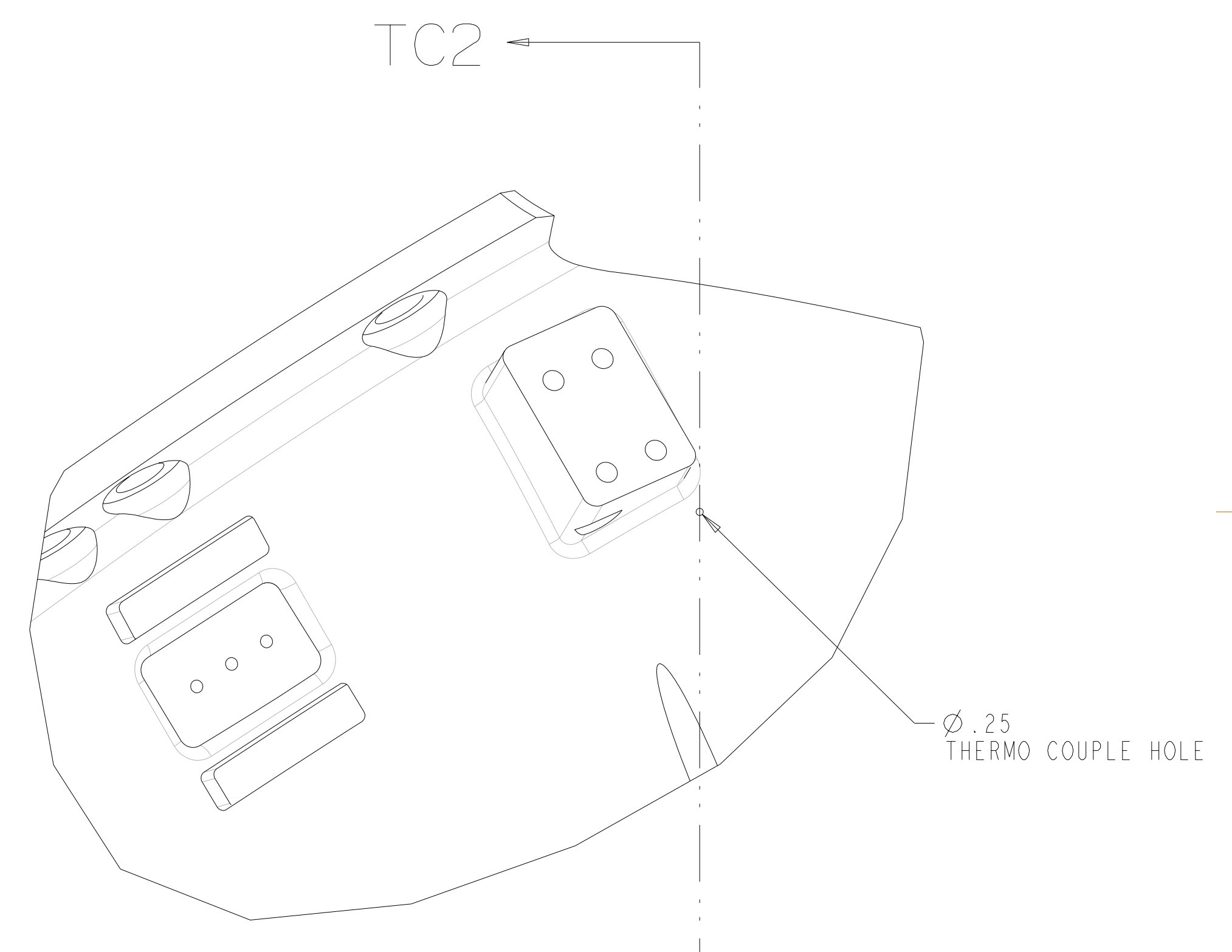


SECTION M-M



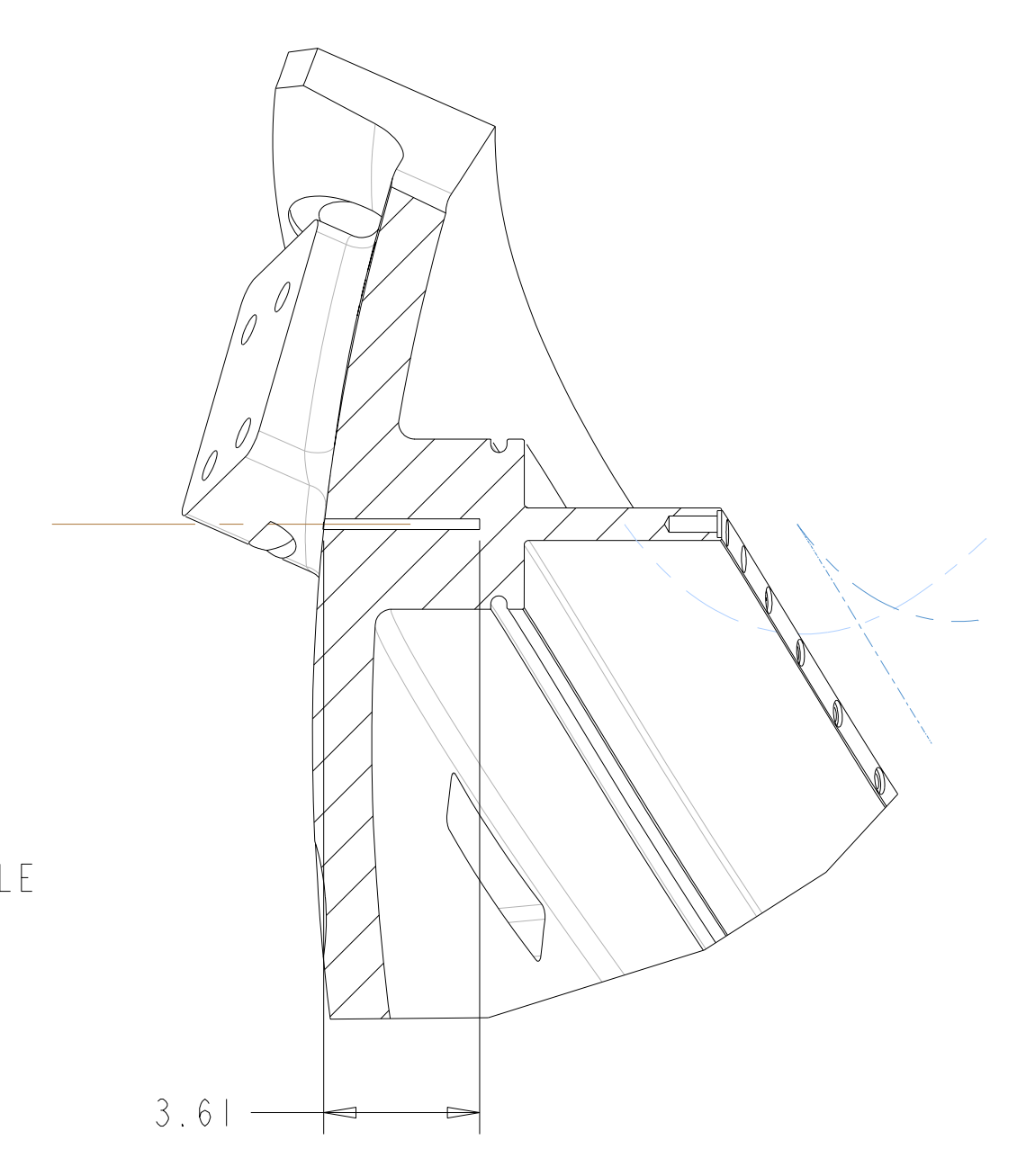
VPI BLEED HOLES
SCALE 0.250

USE PRO/E MODEL GEOMETRY TO
DETERMINE SECTION ORIENTATION

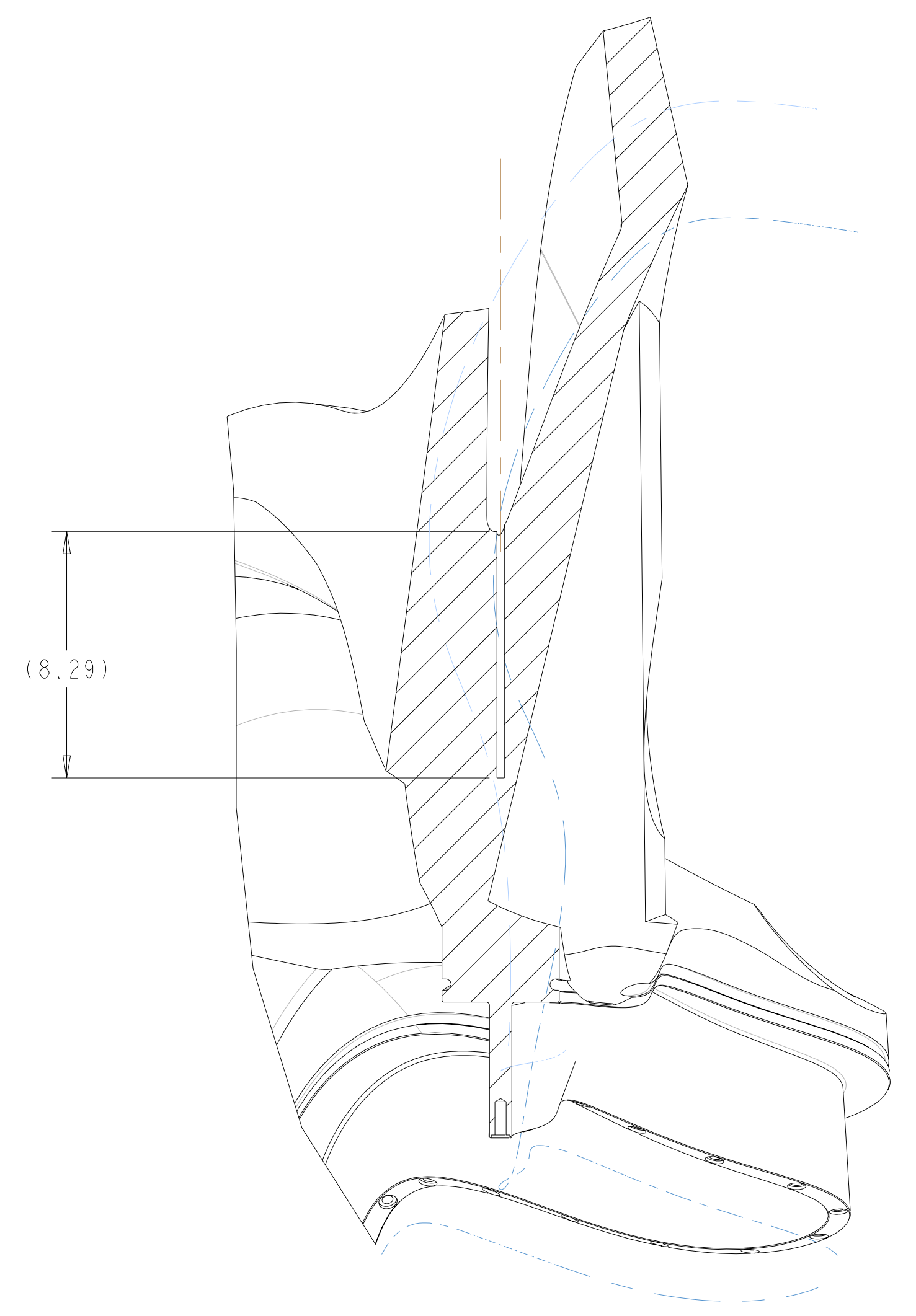


THERMOCOUPLE HOLE
SCALE 0.250

USE PRO/E MODEL GEOMETRY TO
DETERMINE SECTION ORIENTATION



SECTION TC2-TC2

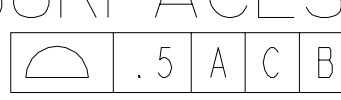


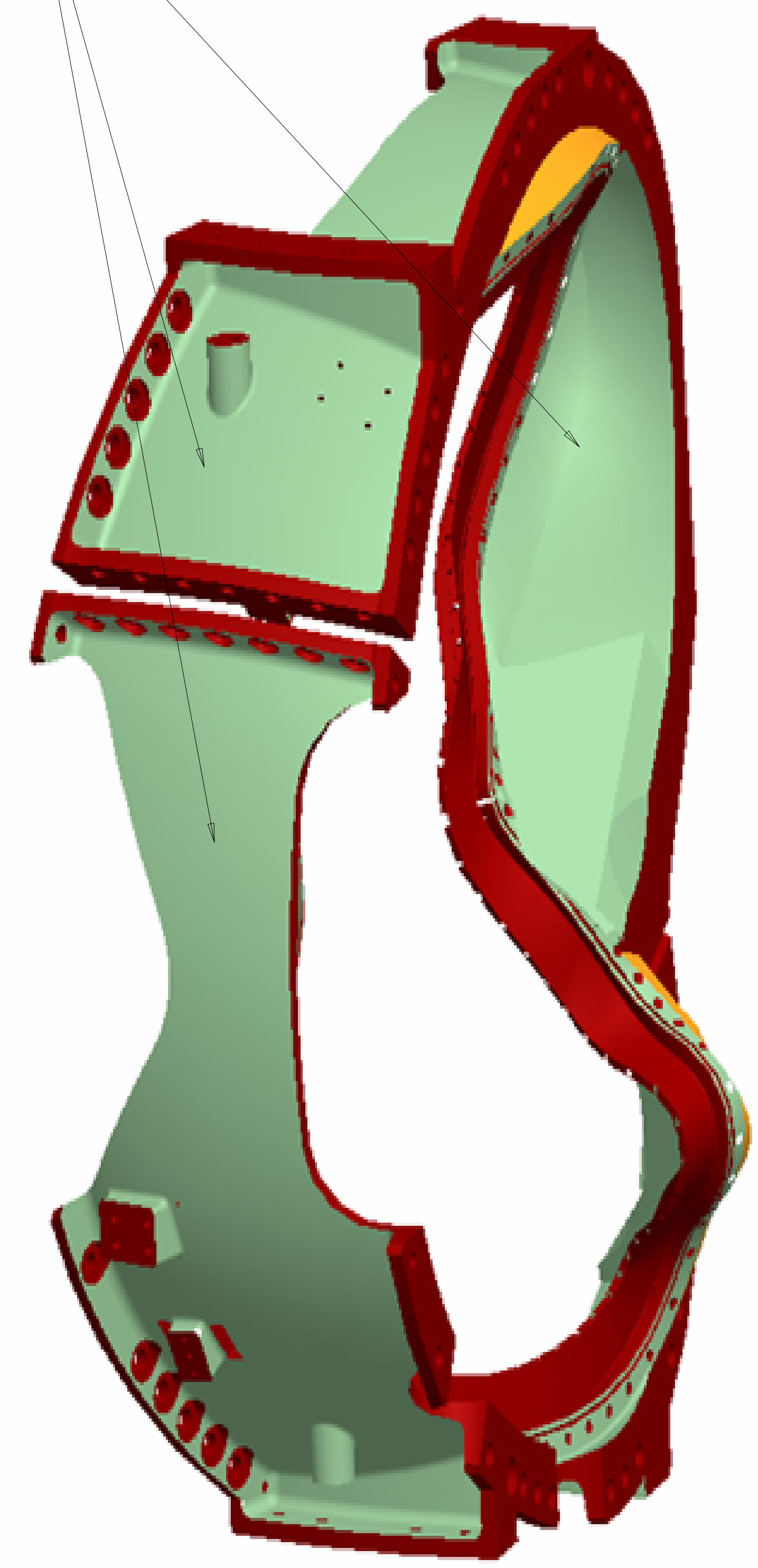
SECTION TCI-TCI

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME						
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT PRODUCTION WINDING FORM TYPE-A						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
8	X-10	5700	3	9	11	S
RELEASE LEVEL	SEI41-114					
Fabrication						
						U
						REV

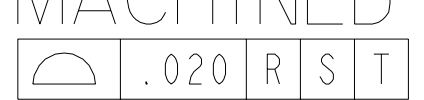
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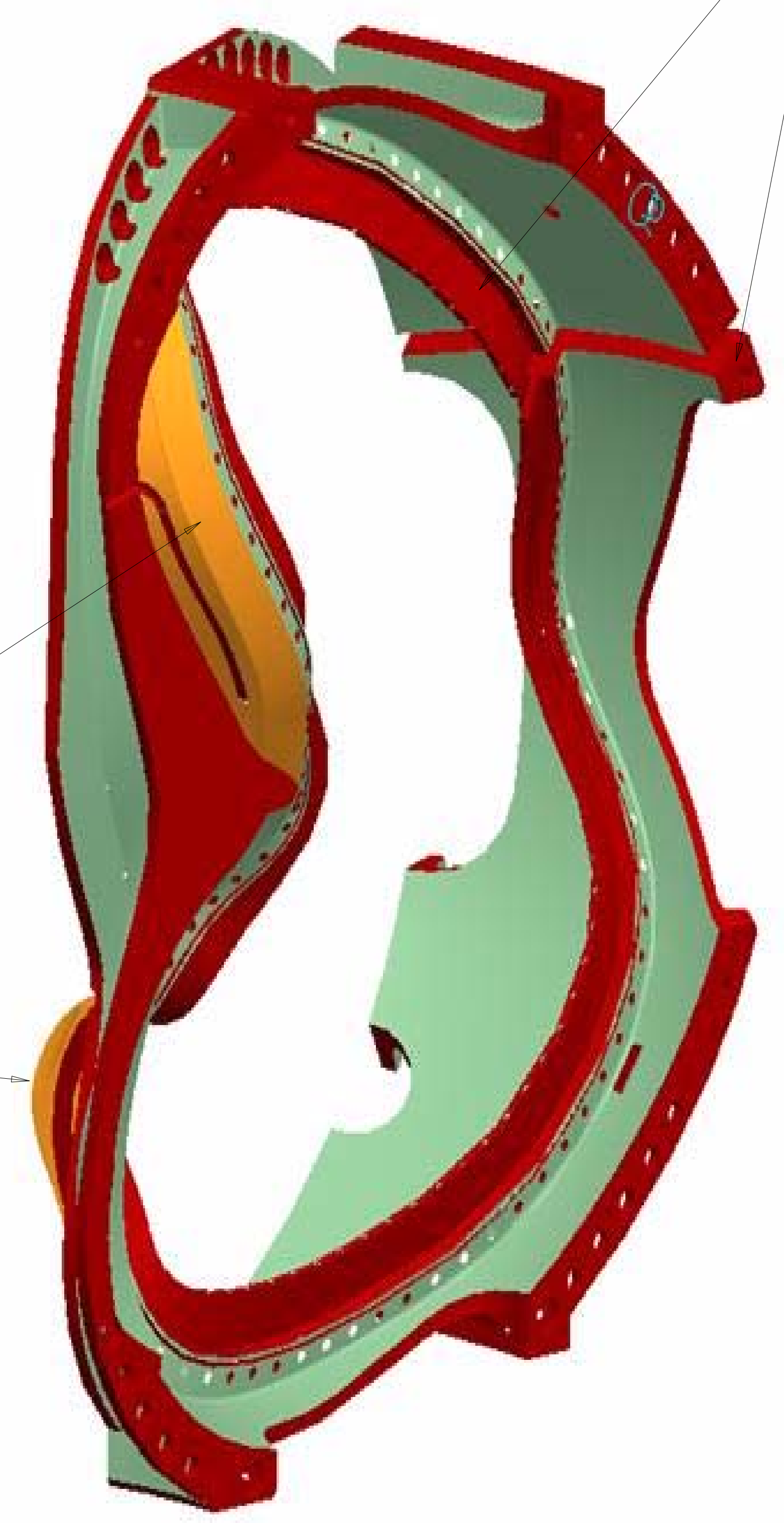
FOR NOTES AND PARTS LIST SEE SHEET 1

AS CAST SURFACES


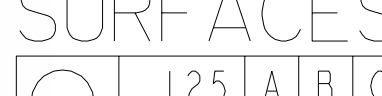


ISOMETRIC VIEW
 SURFACE COLOR INDICATES PROFILE TOLERANCE

MACHINED SURFACES




ISOMETRIC VIEW
 SURFACE COLOR INDICATES PROFILE TOLERANCE

WING SURFACES


UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee					
PROJECT NAME							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-A							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	0	I S	U	
RELEASE LEVEL		SE141-114					
Fabrication							

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SE141-114

TABLE I WINDING CENTER SPLINE
(FILE SE141-114-WC.TXT)

#	X	Y	Z
1	93.704	20.083	0.000
2	93.186	20.519	2.792
3	92.772	20.359	5.631
4	92.411	19.752	8.420
5	91.980	18.928	11.143
6	91.359	18.070	13.819
7	90.485	17.285	16.444
8	89.340	16.628	19.001
9	87.928	16.150	21.461
10	86.261	15.912	23.792
11	84.375	15.934	25.964
12	82.325	16.167	27.969
13	80.158	16.505	29.832
14	77.905	16.828	31.594
15	75.582	17.065	33.276
16	73.192	17.212	34.873
17	70.730	17.308	36.361
18	68.193	17.397	37.715
19	65.580	17.512	38.916
20	62.898	17.668	39.946
21	60.157	17.849	40.806
22	57.371	17.995	41.510
23	54.552	18.014	42.091
24	51.726	17.800	42.582
25	48.934	17.254	43.006
26	46.232	16.334	43.355
27	43.645	15.095	43.586
28	41.140	13.681	43.623
29	38.665	12.234	43.382
30	36.249	10.786	42.800
31	34.052	9.194	41.853
32	32.377	7.280	40.530
33	31.358	5.076	38.993
34	30.569	2.810	37.403
35	29.795	0.777	35.526
36	29.277	-0.833	33.207
37	29.402	-2.032	30.606
38	30.230	-2.953	28.014
39	31.511	-3.679	25.543
40	33.033	-4.202	23.158
41	34.691	-4.481	20.824
42	36.427	-4.464	18.530
43	38.172	-4.076	16.278
44	39.813	-3.218	14.081
45	41.211	-1.864	11.965
46	42.470	-0.303	9.901
47	43.916	1.051	7.816
48	45.581	2.101	5.717
49	47.299	2.943	3.568
50	48.794	3.713	1.238
51	49.453	4.460	-1.436
52	48.785	5.121	-4.136
53	47.556	6.198	-6.496
54	46.340	7.724	-8.611
55	45.082	9.224	-10.719
56	43.678	10.375	-12.949
57	42.246	11.314	-15.262
58	41.177	12.649	-17.558
59	40.918	14.793	-19.421
60	41.242	17.426	-20.513
61	41.544	20.191	-21.244
62	41.445	22.600	-22.749
63	41.139	23.705	-25.337
64	40.840	23.136	-28.105
65	40.376	21.385	-30.321
66	39.551	19.145	-31.916
67	38.434	16.821	-33.195
68	37.307	14.646	-34.696
69	36.731	12.854	-36.839
70	37.542	11.788	-39.331
71	39.637	11.463	-41.240
72	42.252	11.515	-42.423
73	45.038	11.685	-43.118
74	47.886	11.849	-43.490
75	50.758	11.951	-43.630
76	53.636	11.976	-43.582
77	56.505	11.936	-43.359
78	59.353	11.842	-42.963
79	62.170	11.666	-42.399
80	64.938	11.351	-41.679
81	67.639	10.861	-40.818
82	70.259	10.218	-39.816
83	72.798	9.505	-38.664
84	75.263	8.822	-37.345
85	77.655	8.246	-35.853
86	79.966	7.812	-34.195
87	82.189	7.521	-32.391
88	84.320	7.361	-30.464
89	86.356	7.322	-28.430
90	88.287	7.414	-26.299
91	90.094	7.670	-24.074
92	91.741	8.139	-21.762
93	93.169	8.867	-19.375
94	94.305	9.895	-16.941
95	95.074	11.227	-14.512
96	95.448	12.801	-12.135
97	95.465	14.506	-9.819
98	95.213	16.214	-7.517
99	94.793	17.787	-5.144
100	94.269	19.118	-2.648
101	93.704	20.083	0.000

TABLE II X-VECTOR SPLINE
(FILE SE141-114-XV.TXT)

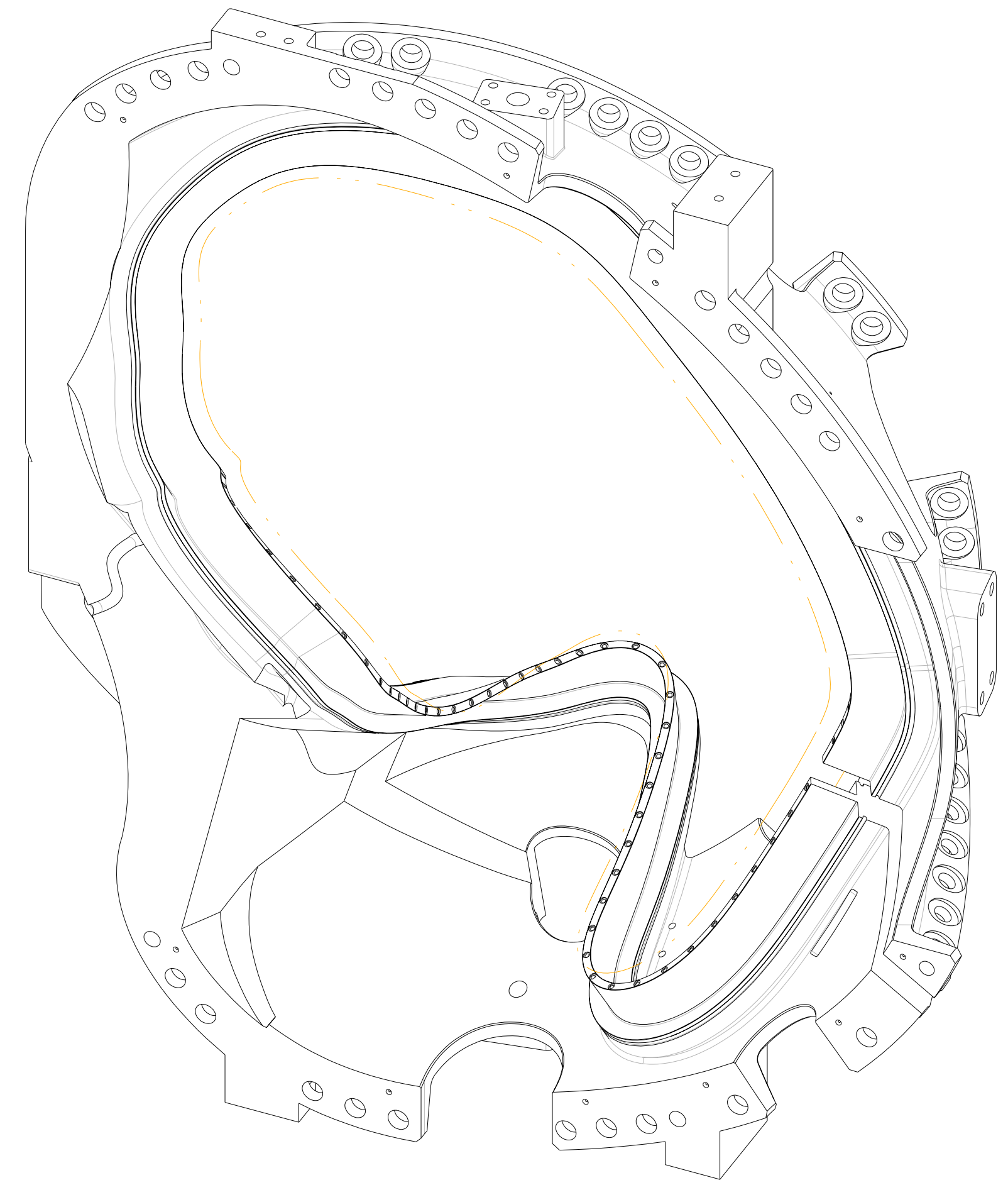
#	X	Y	Z
1	90.227	18.098	0.000
2	89.756	18.455	2.581
3	89.381	18.256	5.197
4	89.044	17.665	7.760
5	88.623	16.899	10.265
6	88.013	16.122	12.726
7	87.159	15.424	15.139
8	86.053	14.856	17.481
9	84.700	14.465	19.728
10	83.118	14.302	21.849
11	81.346	14.375	23.820
12	79.433	14.626	25.641
13	77.420	14.954	27.338
14	75.332	15.257	28.947
15	73.182	15.477	30.486
16	70.970	15.618	31.945
17	68.693	15.715	33.303
18	66.347	15.807	34.538
19	63.933	15.922	35.631
20	61.456	16.075	36.569
21	58.926	16.246	37.351
22	56.355	16.378	37.991
23	53.756	16.382	38.523
24	51.156	16.144	38.987
25	48.601	15.570	39.402
26	46.149	14.626	39.754
27	43.820	13.381	39.993
28	41.566	11.983	40.038
29	39.341	10.560	39.801
30	37.219	9.084	39.215
31	35.546	7.303	38.222
32	34.664	5.179	36.910
33	33.996	3.016	35.526
34	33.343	1.057	33.867
35	33.048	-0.463	31.733
36	33.669	-1.500	29.386
37	34.662	-2.253	27.142
38	36.292	-2.780	24.972
39	37.641	-3.053	22.837
40	39.449	-3.024	20.728
41	41.030	-2.584	18.648
42	42.470	-1.659	16.627
43	43.677	-0.303	14.695
44	44.777	1.205	12.809
45	46.095	2.448	10.879
46	47.728	3.096	8.897
47	49.464	3.368	6.910
48	51.127	3.542	4.851
49	52.492	3.882	2.607
50	53.305	4.392	0.141
51	53.375	4.944	-2.443
52	52.722	5.473	-4.953
53	51.613	6.092	-7.280
54	50.394	7.039	-9.436
55	49.180	8.148	-11.518
56	47.903	9.134	-13.624
57	46.547	9.919	-15.765
58	45.268	10.858	-17.885
59	44.561	12.594	-19.711
60	44.736	15.028	-20.701
61	45.198	17.612	-21.075
62	45.501	20.214	-21.468
63	45.464	22.561	-22.650
64	45.196	23.921	-24.869
65	44.910	23.883	-27.475
66	44.587	22.666	-29.791
67	44.076	20.820	-31.617
68	43.308	18.690	-32.993
69	42.315	16.477	-34.066
70	41.230	14.317	-35.157
71	40.530	12.362	-36.760
72	42.301	11.550	-38.345
73	44.818	11.415	-39.156
74	47.436	11.365	-39.575
75	50.082	11.302	-39.750
76	52.733	11.201	-39.742
77	55.378	11.074	-39.572
78	58.007	10.940	-39.244
79	60.612	10.789	-38.760
80	63.175	10.532	-38.129
81	65.680	10.115	-37.363
82	68.111	9.545	-36.467
83	70.465	8.892	-35.432
84	72.750	8.249	-34.246
85	74.967	7.695	-32.899
86	77.112	7.267	-31.398
87	79.177	6.973	-29.760
88	81.160	6.800	-28.005
89	83.056	6.736	-26.151
90	84.862	6.787	-24.208
91	86.561	6.977	-22.180
92	88.124	7.349	-20.070
93	89.502	7.949	-17.885
94	90.623	8.824	-15.648
95	91.405	9.996	-13.404
96	91.800	11.419	-11.203
97	91.841	12.984	-9.063
98	91.617	14.559	-6.940
99	91.231	16.010	-4.753
100	90.747	17.230	-2.449
101	90.227	18.098	0.000

ALL POINT LOCATIONS ARE BASIC
FOR NOTES AND PARTS LIST SEE SHEET 1

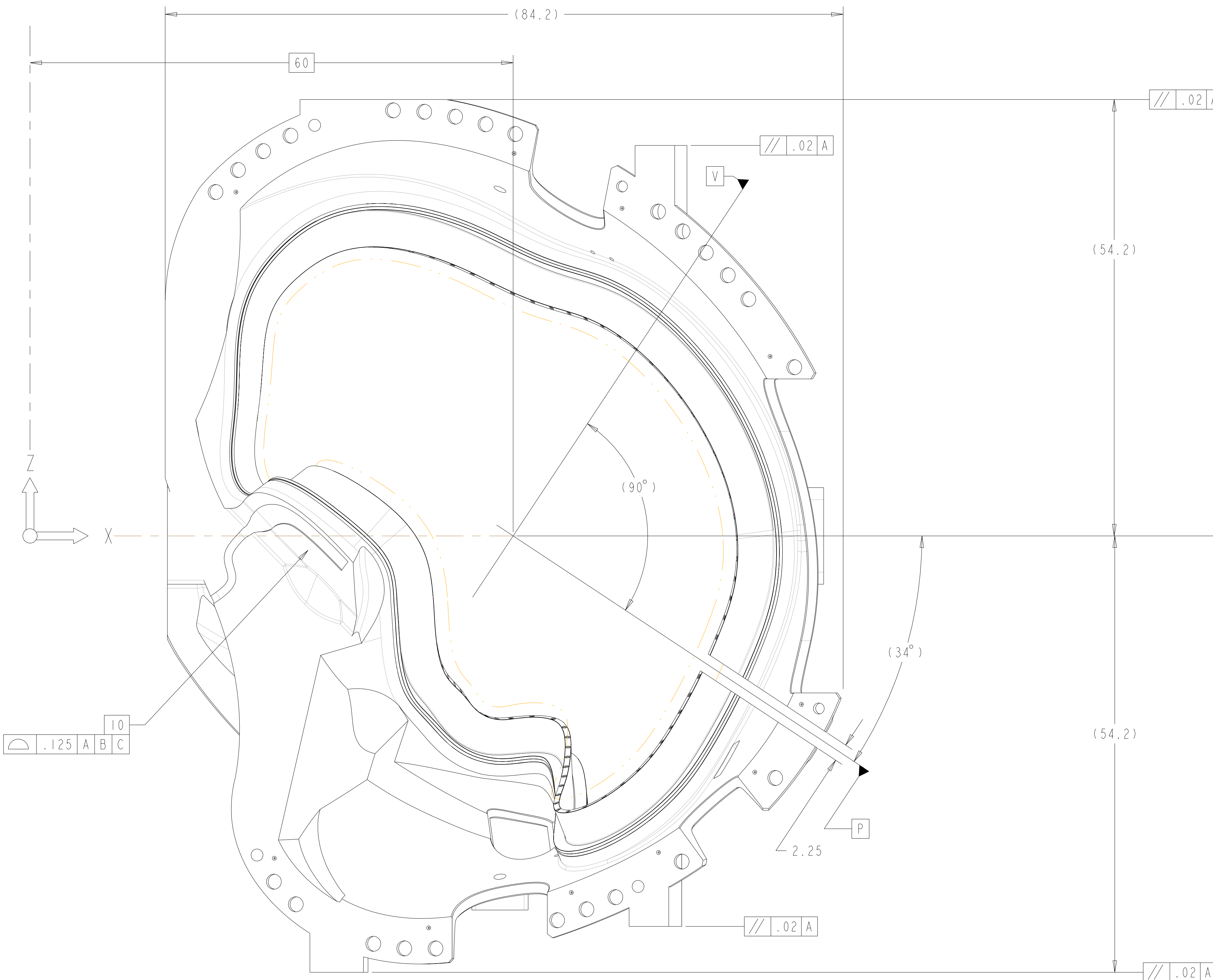
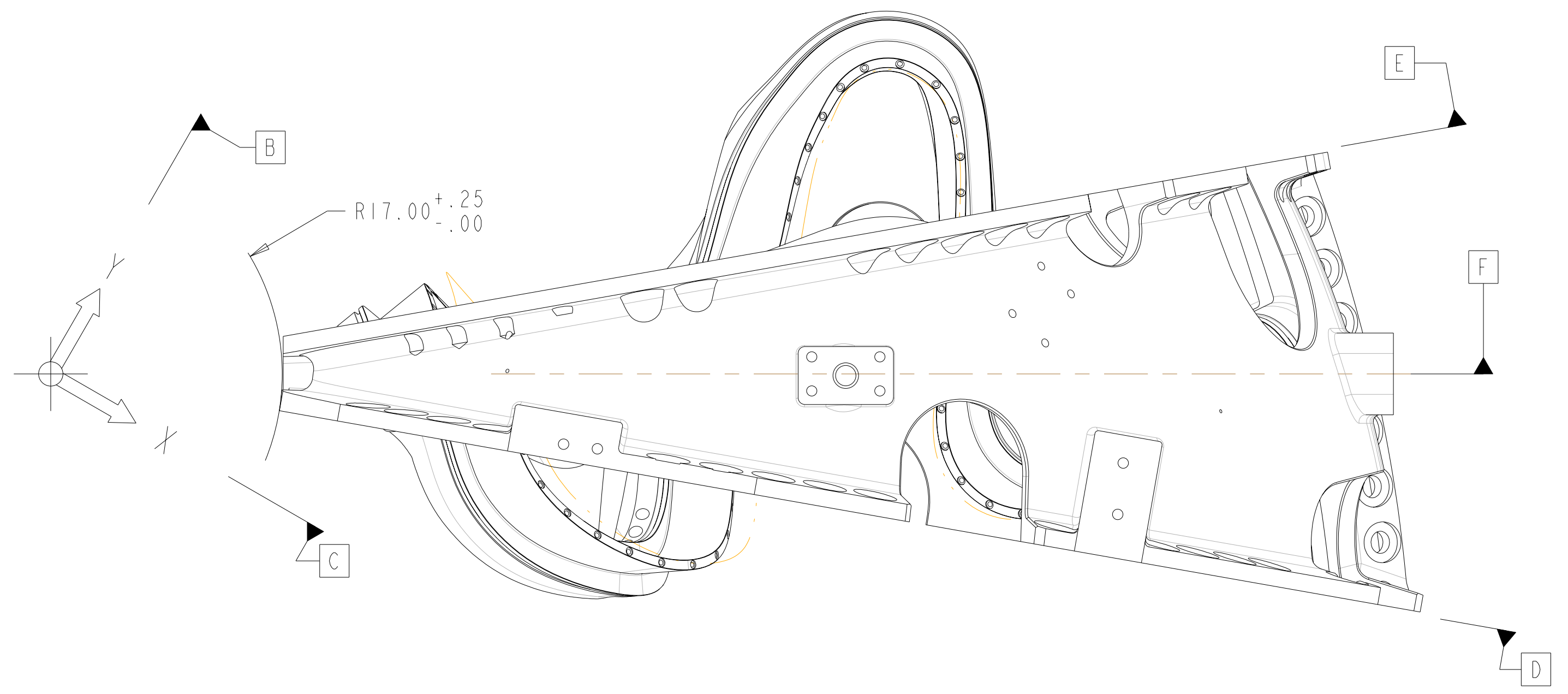
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME						
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT						
PRODUCTION WINDING FORM TYPE-A						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
8	X-10	5700	3	11	11	S
RELEASE LEVEL	SE141-114					
Fabrication						

NOTES:

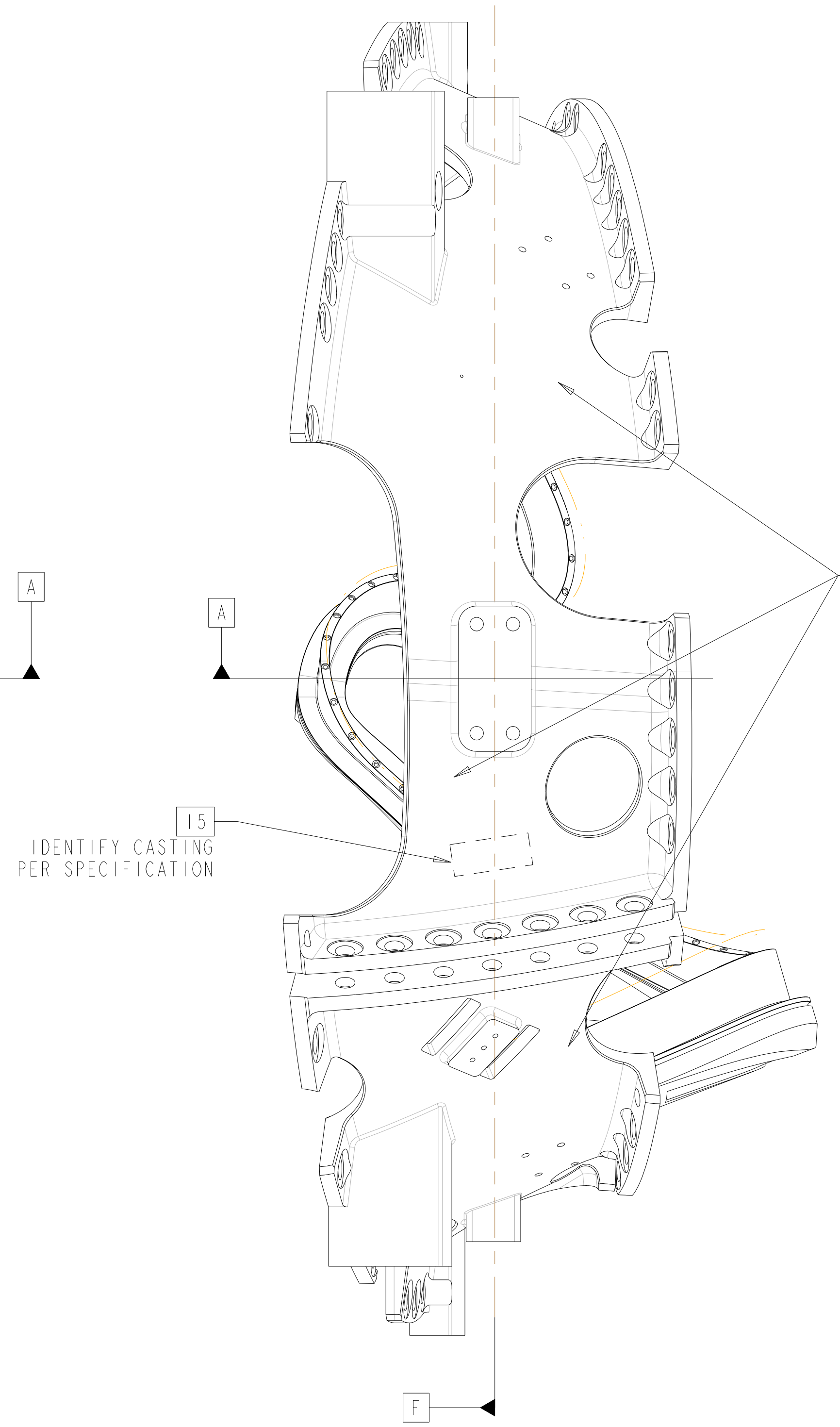
- DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.8M-1996.
- INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.
- DIMENSIONS ARE IN INCHES.
- DRAWING DEPICTS FINAL MACHINED STATE OF PART DEFINED BY PRO/ENGINEER FILE SE141-115.PRT.
- UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE RELATED TO DATUM A- (PRIMARY X-Y PLANE, TOP) DATUM B- (SECONDARY Y-Z PLANE, SIDE) DATUM C- (TERTIARY X-Z PLANE, FRONT)
- DIMENSIONS APPLY AT TEMPERATURE OF 20-30°C (68-86°F).
- DIMENSIONS AND TOLERANCES EXCLUDE PROCESS MATERIAL ALLOWANCES WHICH MAY ADD MASS.
- APPROXIMATE WEIGHT = 4368 LBS. WEIGHT OF FINISHED PART NOT TO EXCEED 6000 LBS.
- UNLESS OTHERWISE SPECIFIED, AS-CAST SURFACE PROFILE TOLERANCE = +/- .25 - INCH, WITH EXEMPTION FOR INTERSECTING SURFACES WHERE FILLETS ARE EXPECTED. MIN FILLET AND CORNER RADII = 0.5 +/- 0.1-IN.
- DESIGNATED SURFACE REGIONS HAVE PROFILE TOLERANCE = +/- 0.125-IN.
- MIN THICKNESS PER CAD GEOMETRY, TOLERANCE = +0.25-IN / -0.0-IN.
- PARTING LINE EDGES, FLASH, GATES, RUNNER, AND RISER EXTENSIONS 0.25-IN MAX
- UNLESS OTHERWISE SPECIFIED, MACHINED SURFACE PROFILE TOLERANCE = +/- 0.02-IN.
- BACK SPOTFACE ALL THRU HOLES MINIMUM TO CLEAN UP.
- SEE LATEST REVISION OF SPECIFICATION NCSX-CSPEC-141-03 FOR ADDITIONAL REQUIREMENTS.



ISOMETRIC VIEW



SCALE 0.13



9 AS CAST SURFACES
 .5 A C B

next assy	AR	-1	PRODUCTION WINDING FORM TYPE-B	SEE NOTE #15	SEE NOTE #15	I
CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO	
SE141-102	NEXT ASSEMBLY					

PARTS LIST

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF, ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE NOT TO BE USED FOR OTHER PURPOSES, AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

P THIS DRAWING PRODUCED ON PRO-ENGINEER

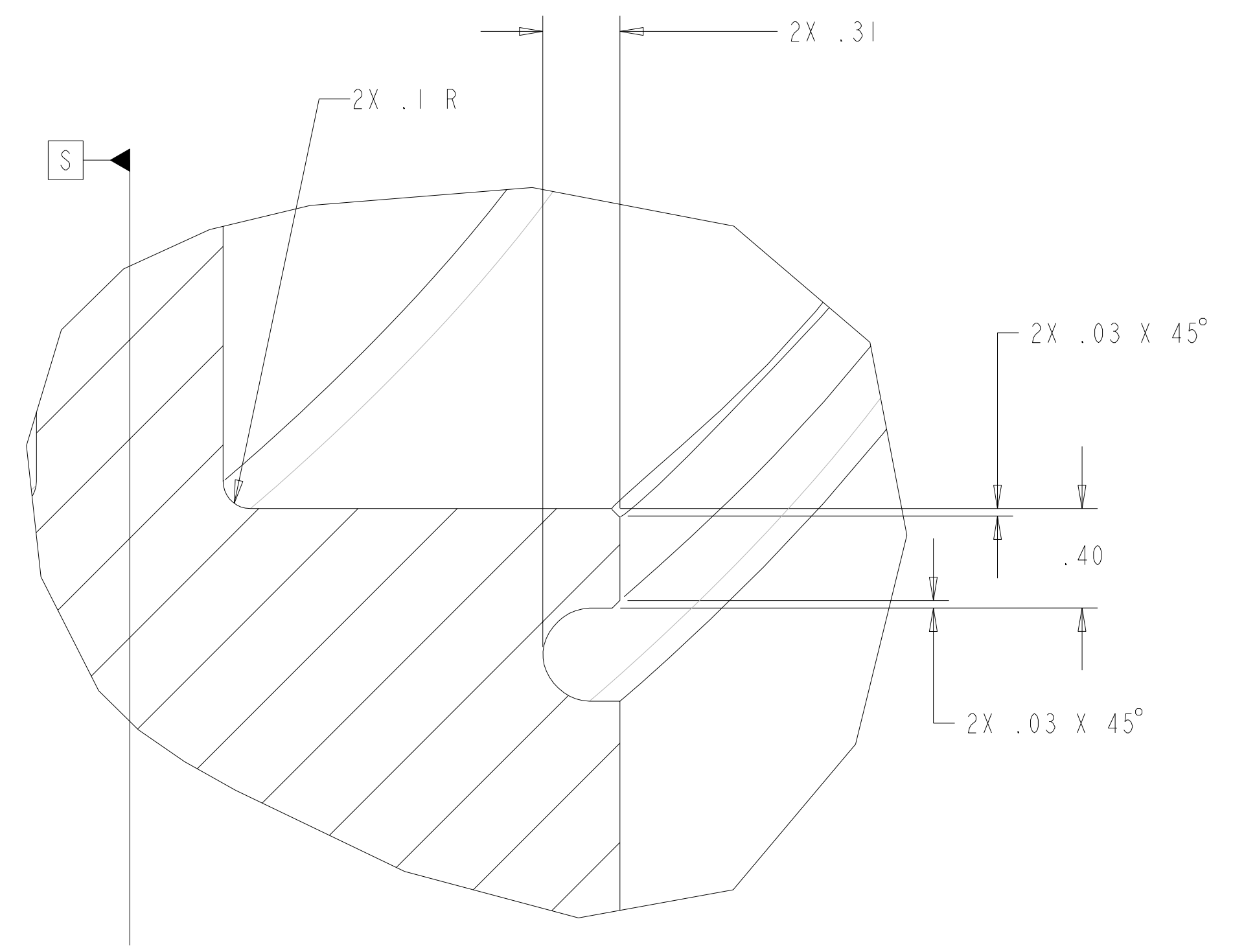
REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
I	REMOVED SPHERICAL SEATS, REVISED LEAD BLOCK/COOLING PER ECN-4903	GLL	09/04									

SCALE NOTED	DES	DATE
TOLERANCES UNLESS OTHERWISE SPECIFIED	T BROWN	6-30-04
FRACTIONS	DRW PAUL MILLER	6-30-04
XX DECIMALS ± .01	CHK M COLE	6-30-04
XXX DECIMALS ± .005	SECT :	
ANGLES ±0°15'	DEPT :	
BREAK SHARP EDGES .06 MAX	PE D WILLIAMSON	6/25/04
FINISH .125 UNLESS OTHERWISE SPECIFIED	CR :	
	PJ :	
	REQ :	
	PPPL DRFT J SIEGEL	6/25/04

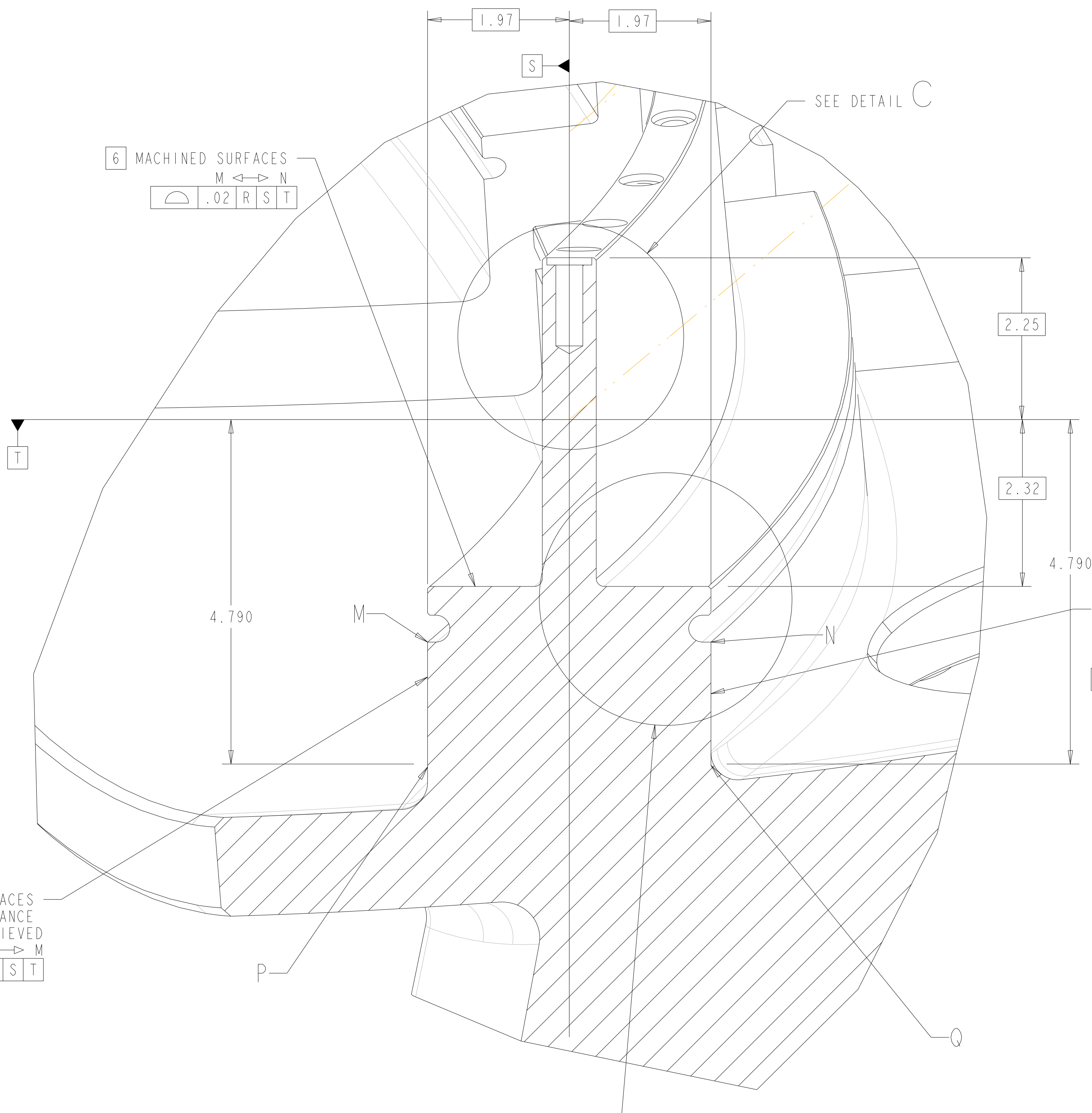
UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee	
PROJECT NAME NATIONAL COMPACT STELLARATOR EXPERIMENT			
PRODUCTION WINDING FORM TYPE-B			
VERSION NO.	PLANT	BLDG	FL
8	X-10	5700	3
RELEASE LEVEL	SHT OF	TYPE	CLASS
Fabrication	12	S	U
	REV		
	1		

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A

FOR NOTES AND PARTS LIST SEE SHEET 1



DETAIL B
SCALE 2.00

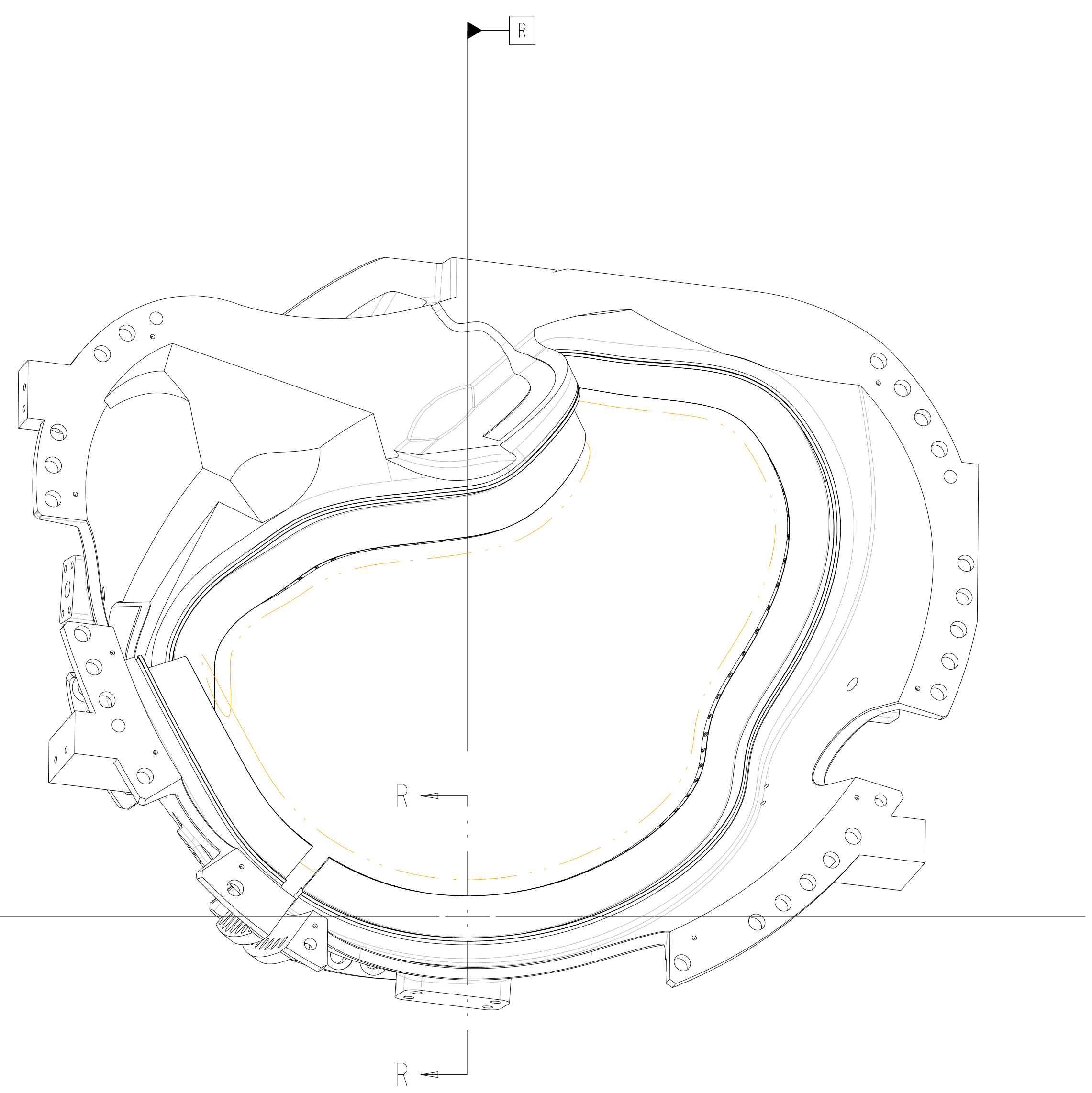


AS CAST SURFACES
ACCEPTABLE - IF TOLERANCE
CAN BE ACHIEVED
P-Q-N
[.1 R S T]

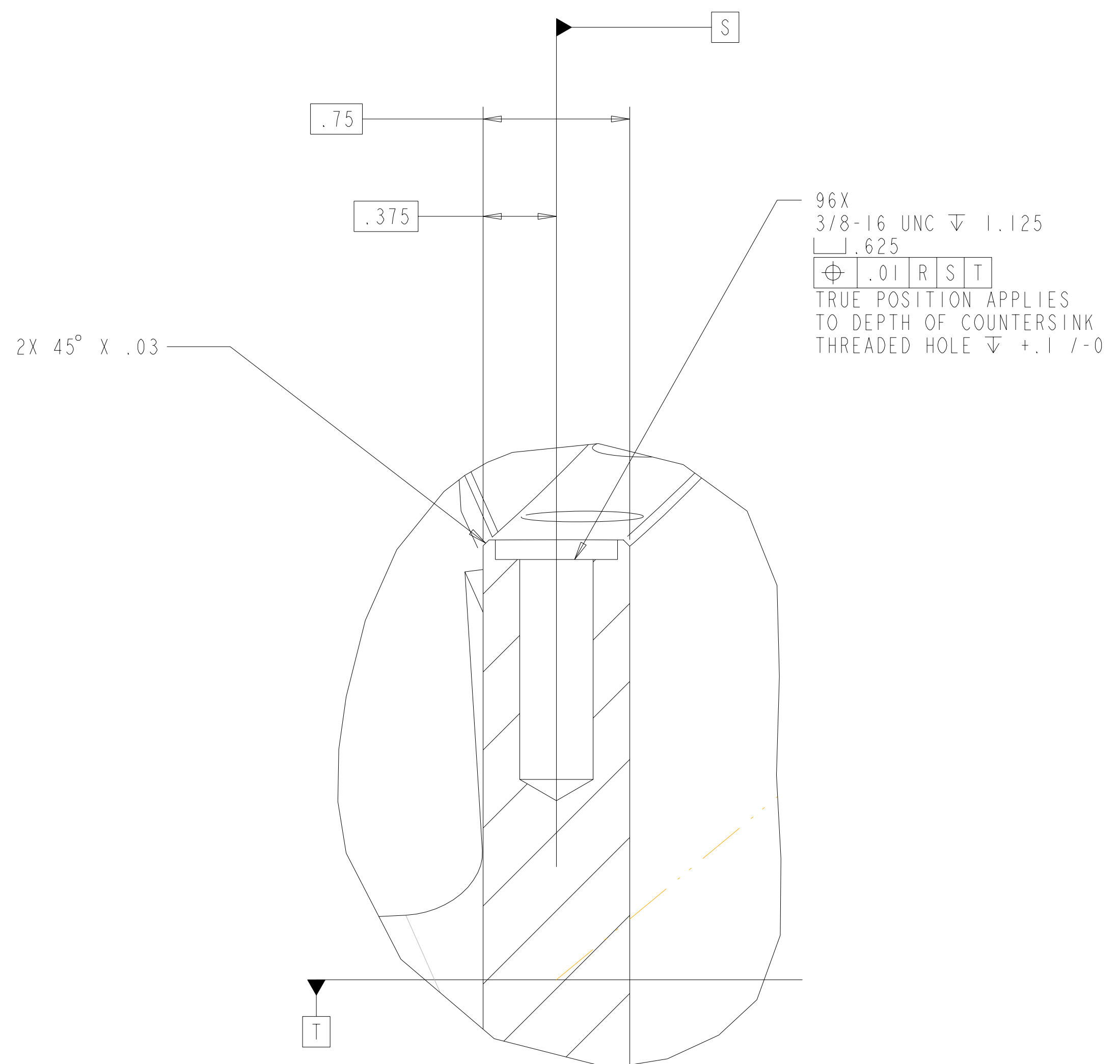
AS CAST SURFACES
ACCEPTABLE - IF TOLERANCE
CAN BE ACHIEVED
Q-N
[.1 R S T]

WINDING CENTER SPLINE
PASSING THRU POINTS SHOWN
IN TABLE 1, SHT 12
DATA FILE SE141-115-WC.TXT

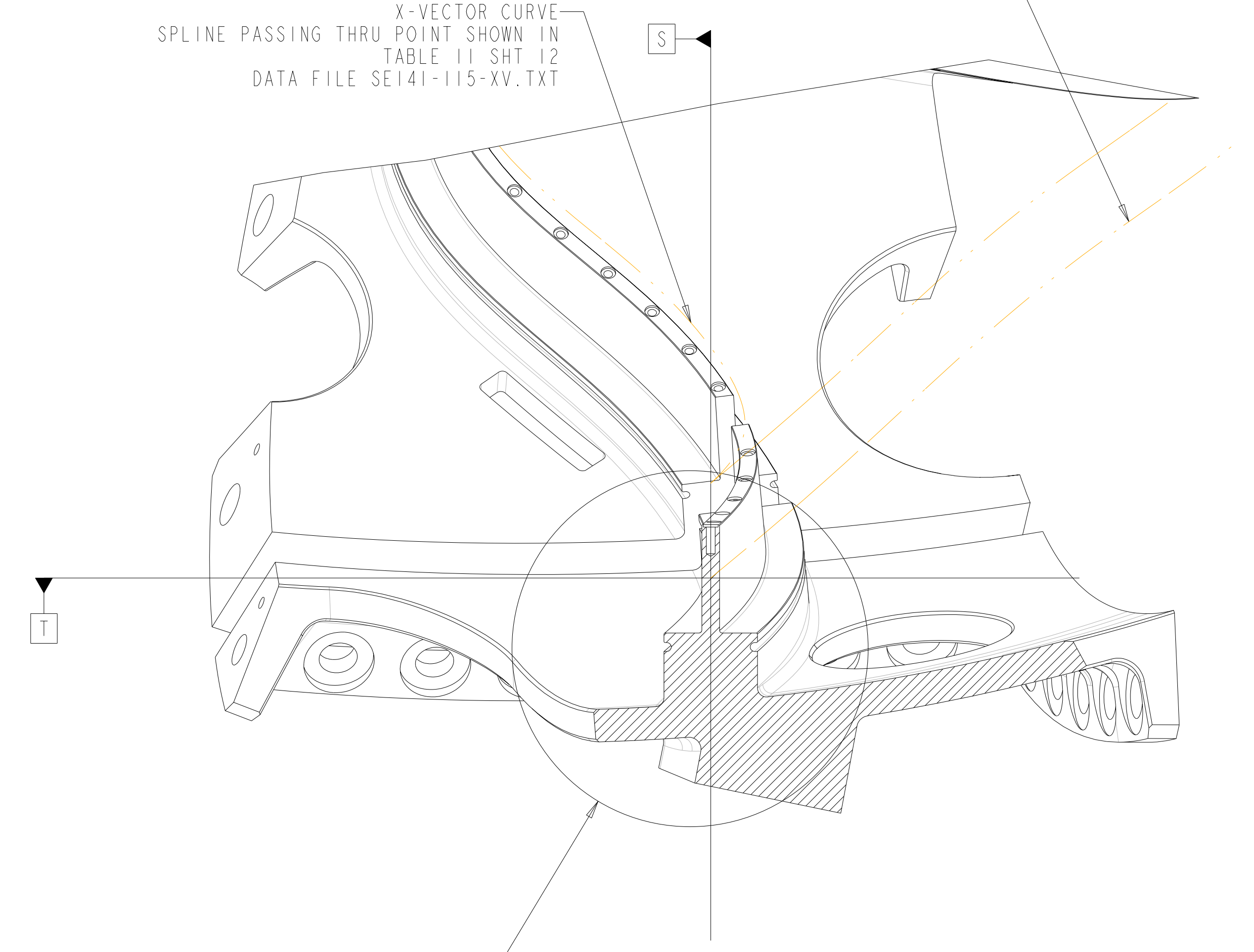
X-VECTOR CURVE
SPLINE PASSING THRU POINT SHOWN IN
TABLE 11 SHT 12
DATA FILE SE141-115-XV.TXT



DETAIL A
SCALE 1.00
TYPICAL FOR ALL POINTS ALONG WINDING CENTER



DETAIL C
SCALE 2.00

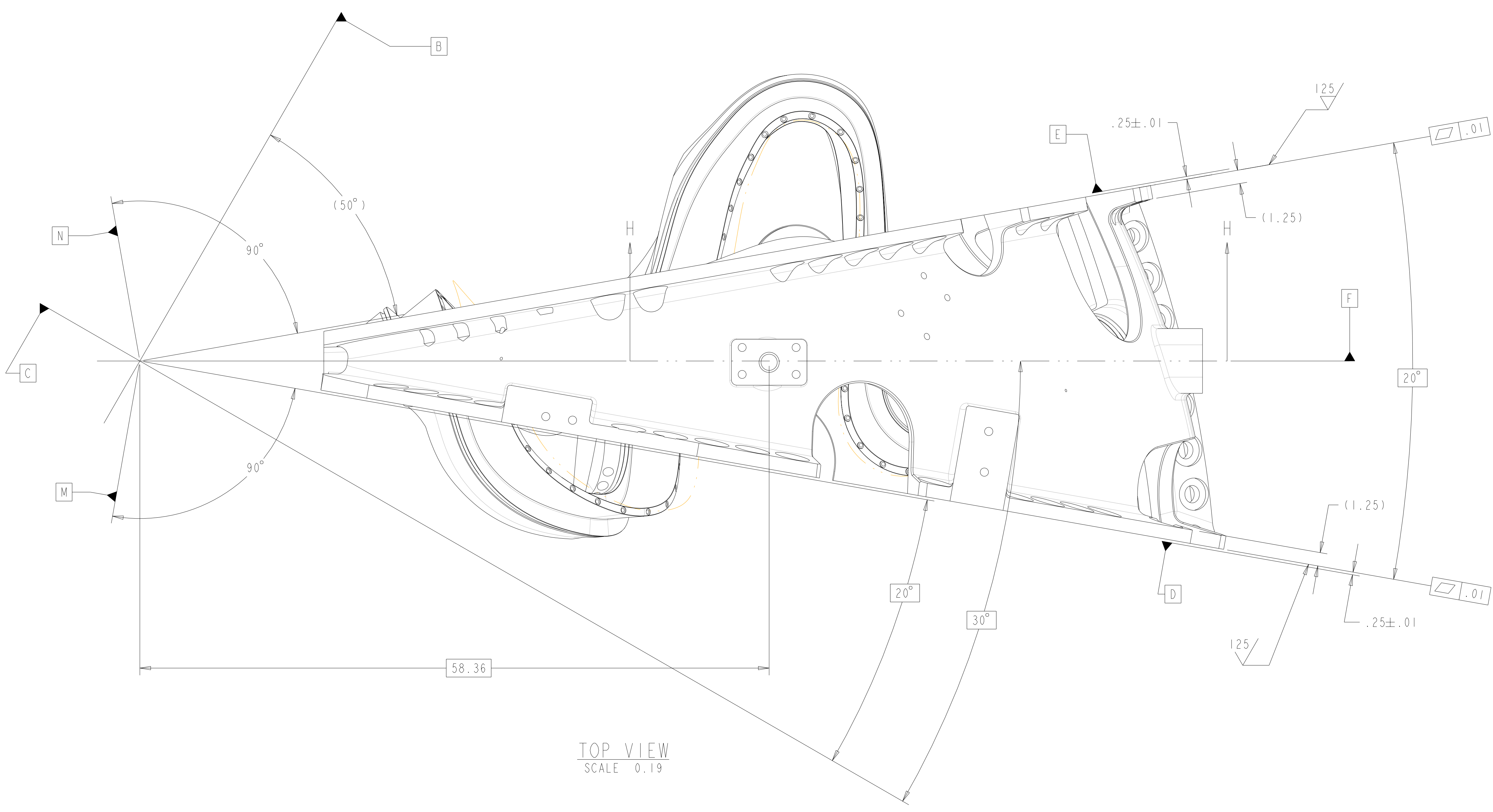


SECTION R-R
SCALE 0.250

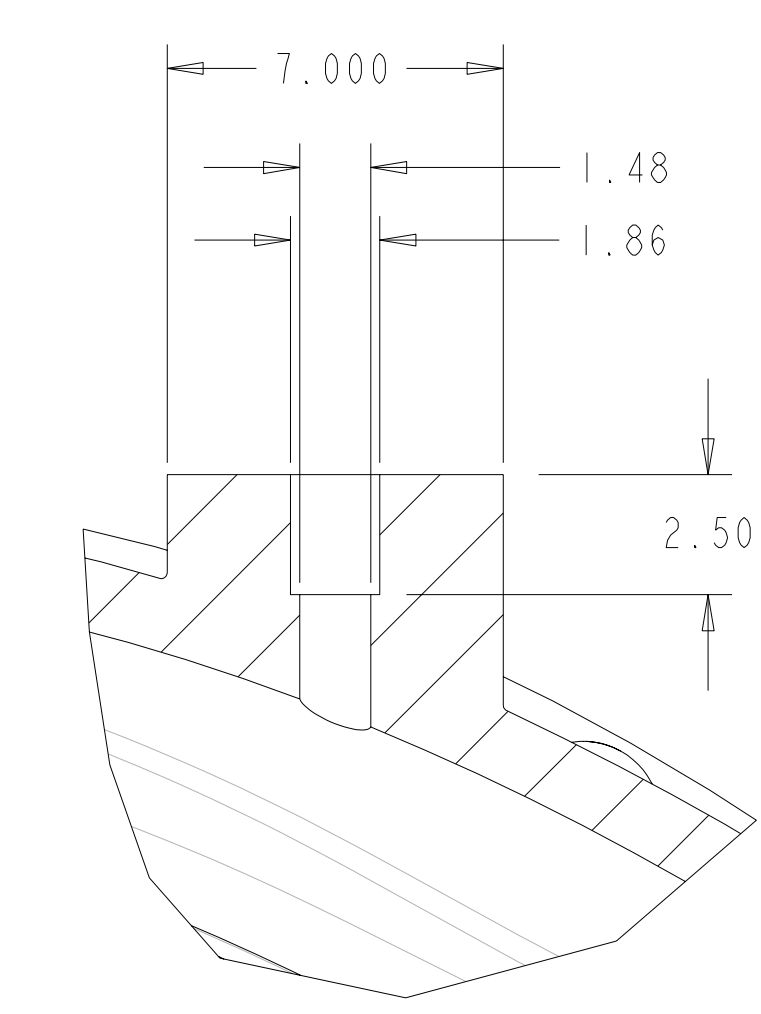
DATUM R = PLANE NORMAL TO WINDING CENTER
DATUM S = PLANE PASSING THRU WINDING CENTER AND X VECTOR AT DATUM R
DATUM T = PLANE PASSING THRU WINDING CENTER ORTHOGONAL TO DATUM S

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME							
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-B							
VERSION NO.	PLANT	BLDG	FL	SHT. OF	TYPE	CLASS	
8	X-10	5700	3	2	12	S	U
RELEASE LEVEL	SE141-115						
Fabrication							

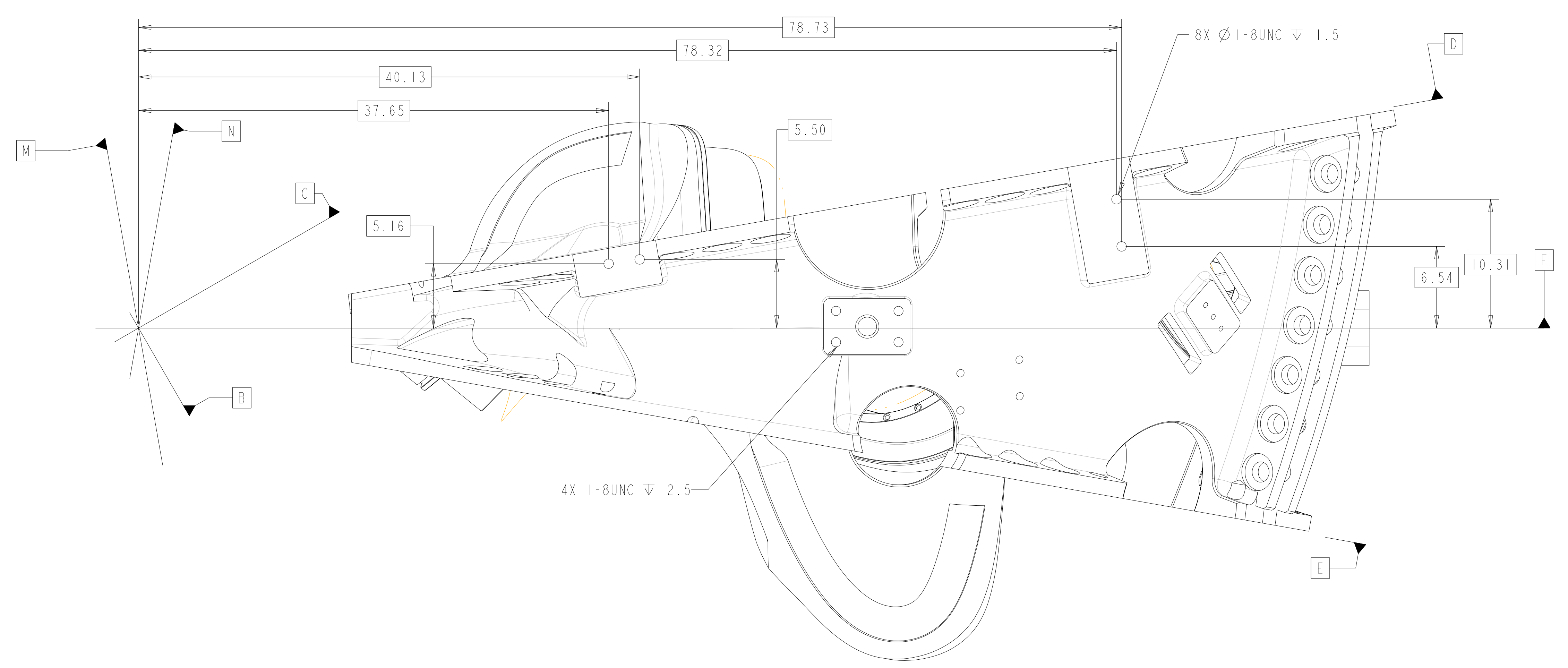
FOR NOTES AND PARTS LIST SEE SHEET 1



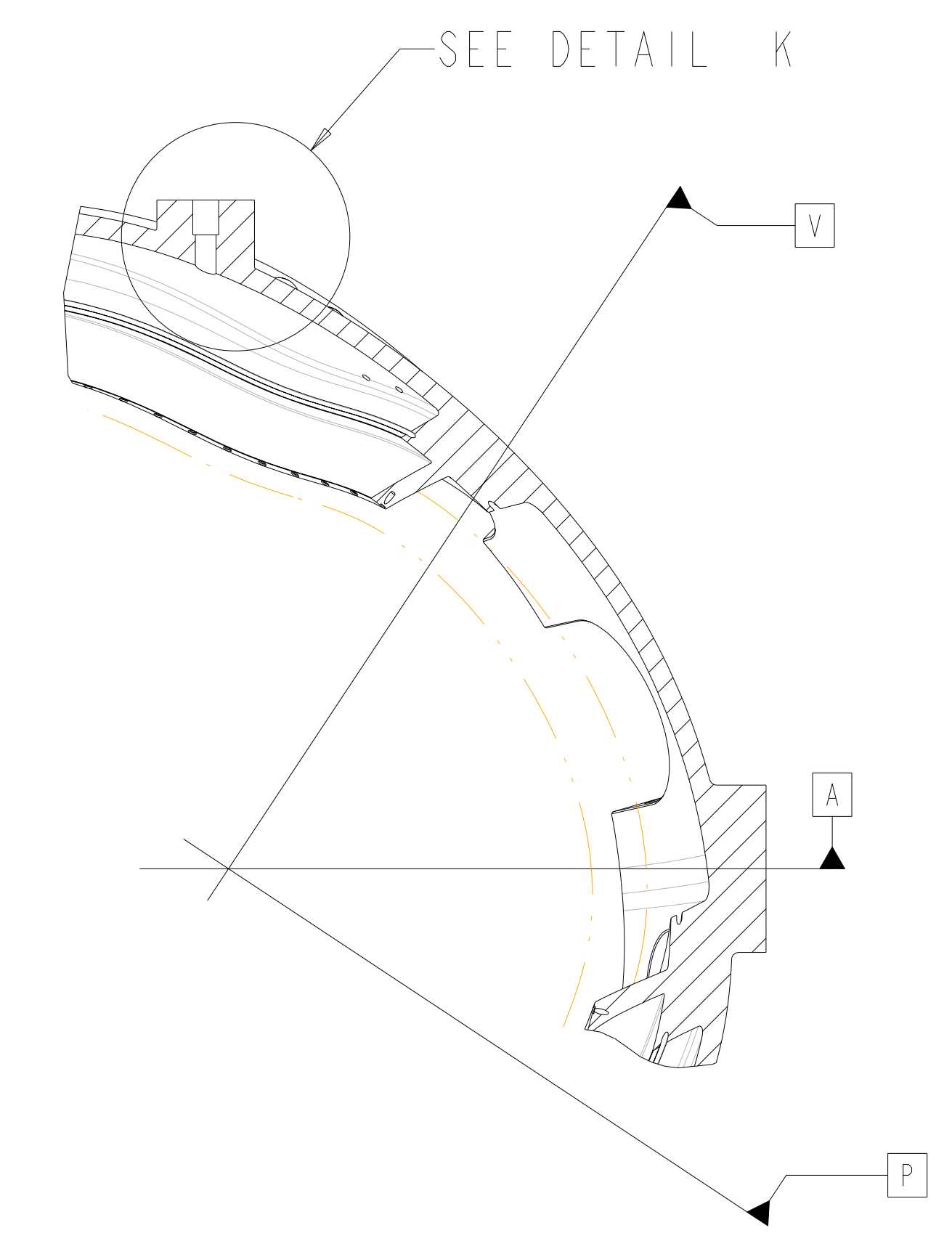
TOP VIEW
SCALE 0.19



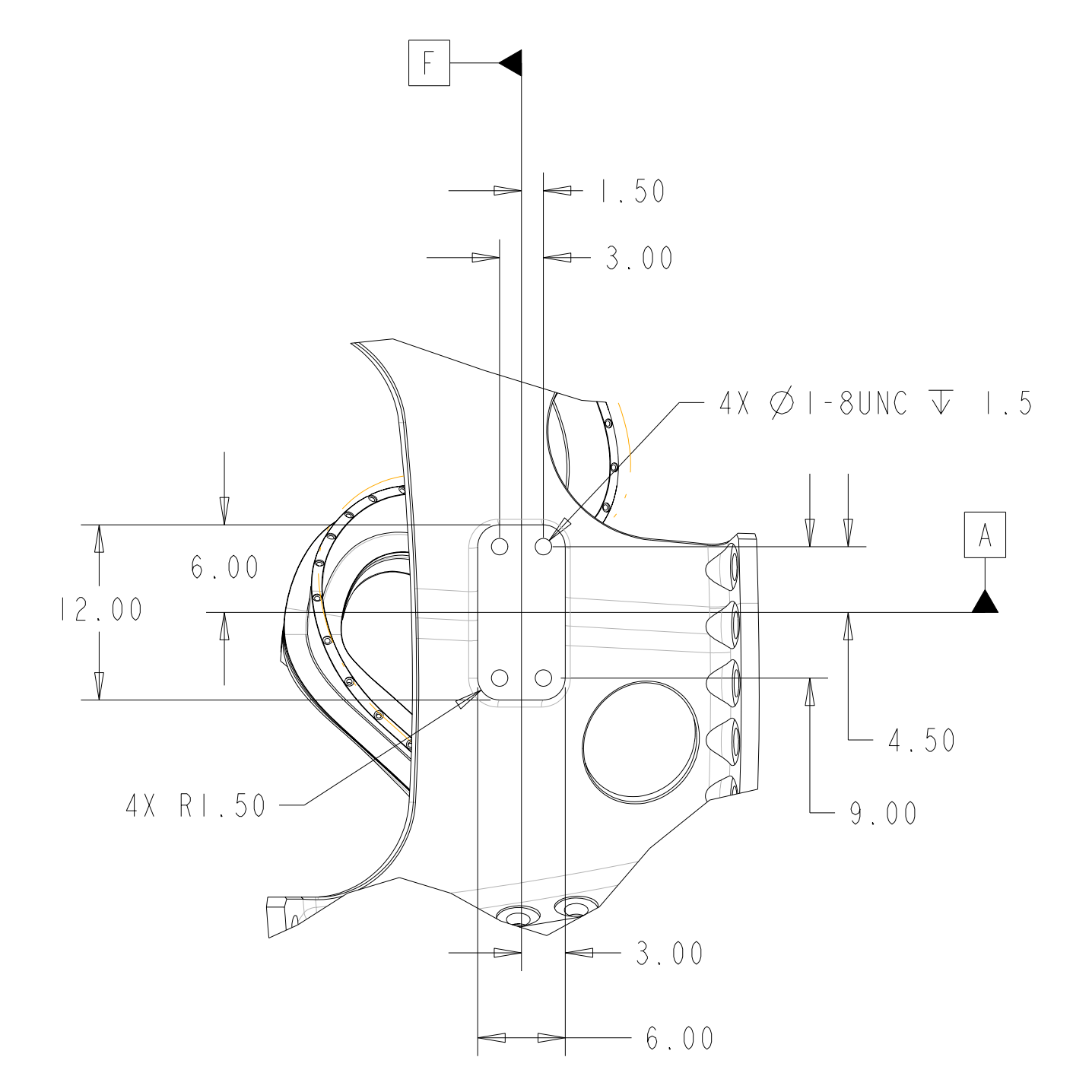
DETAIL K
TYPICAL 2 PLACES
SCALE 0.25



BOTTOM VIEW
SCALE 0.19



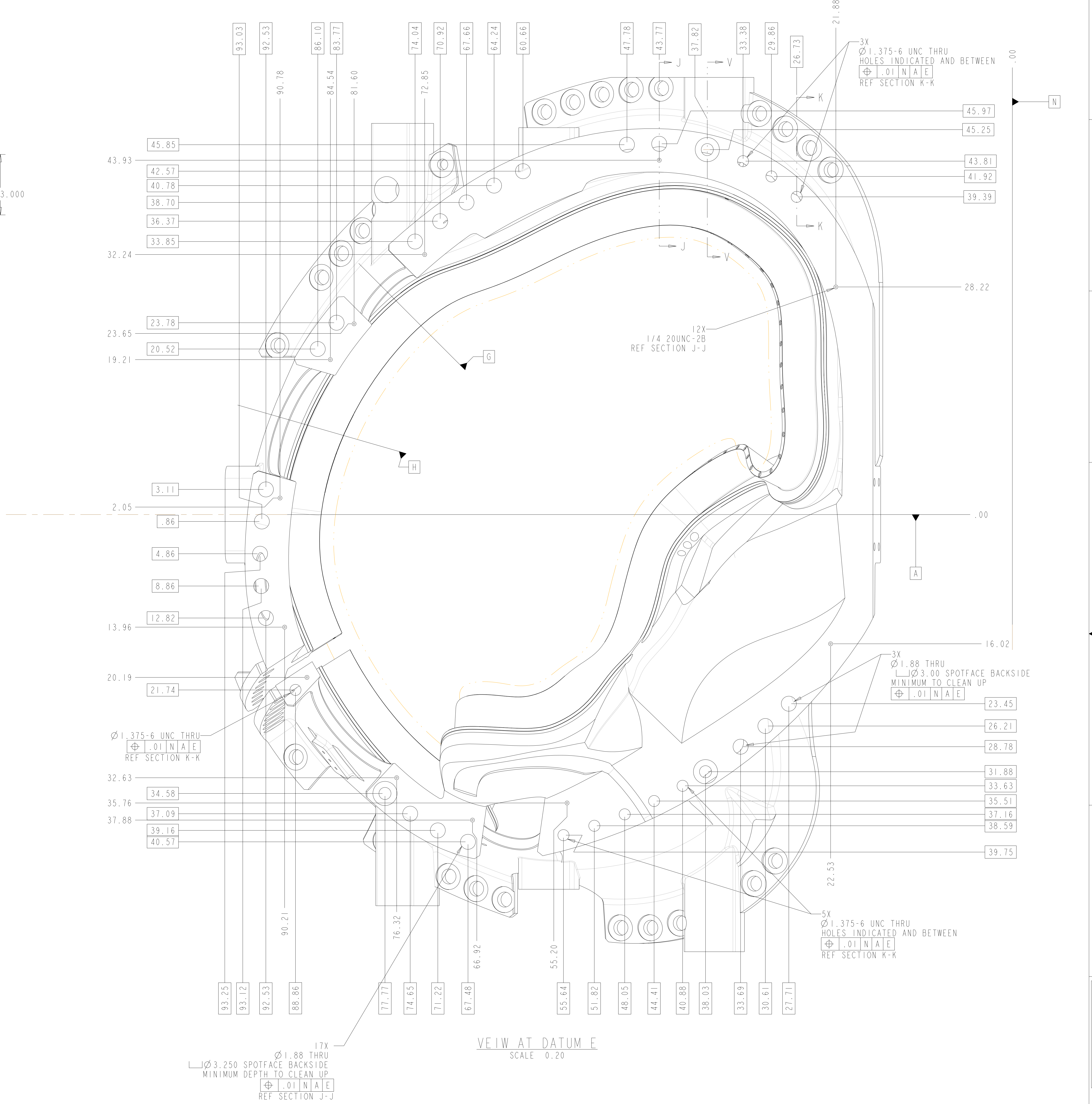
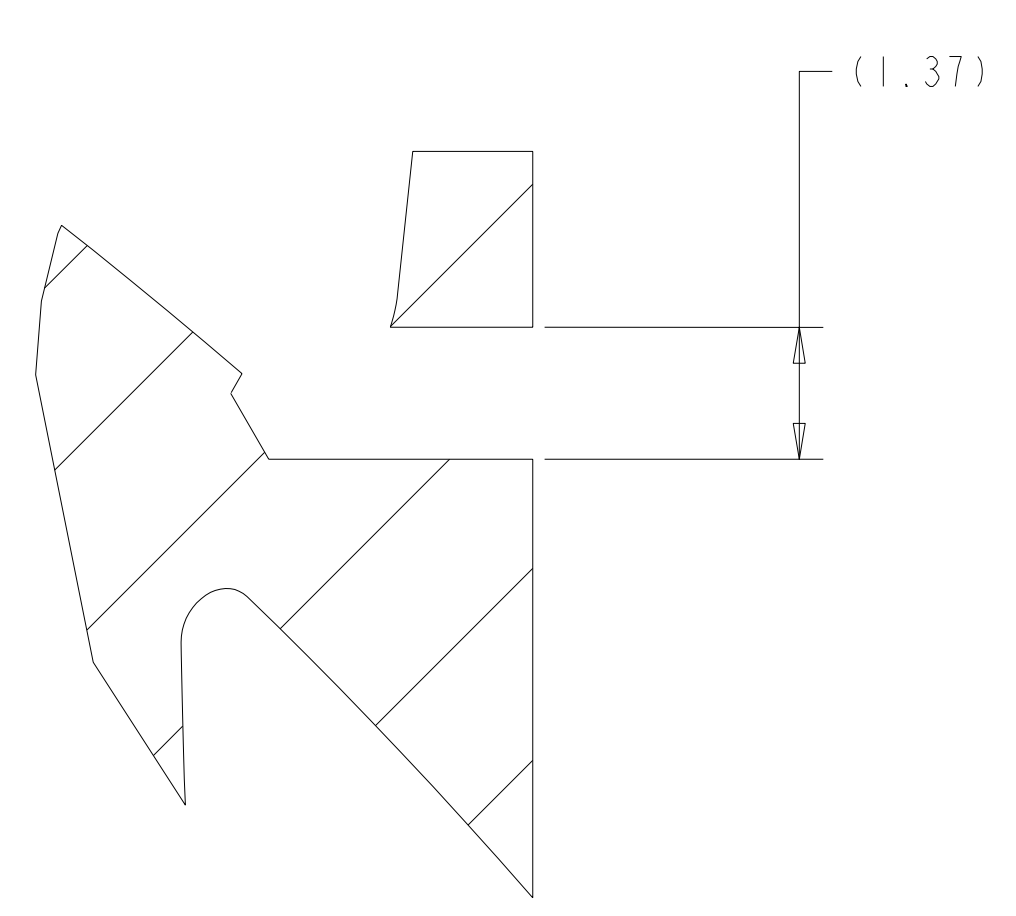
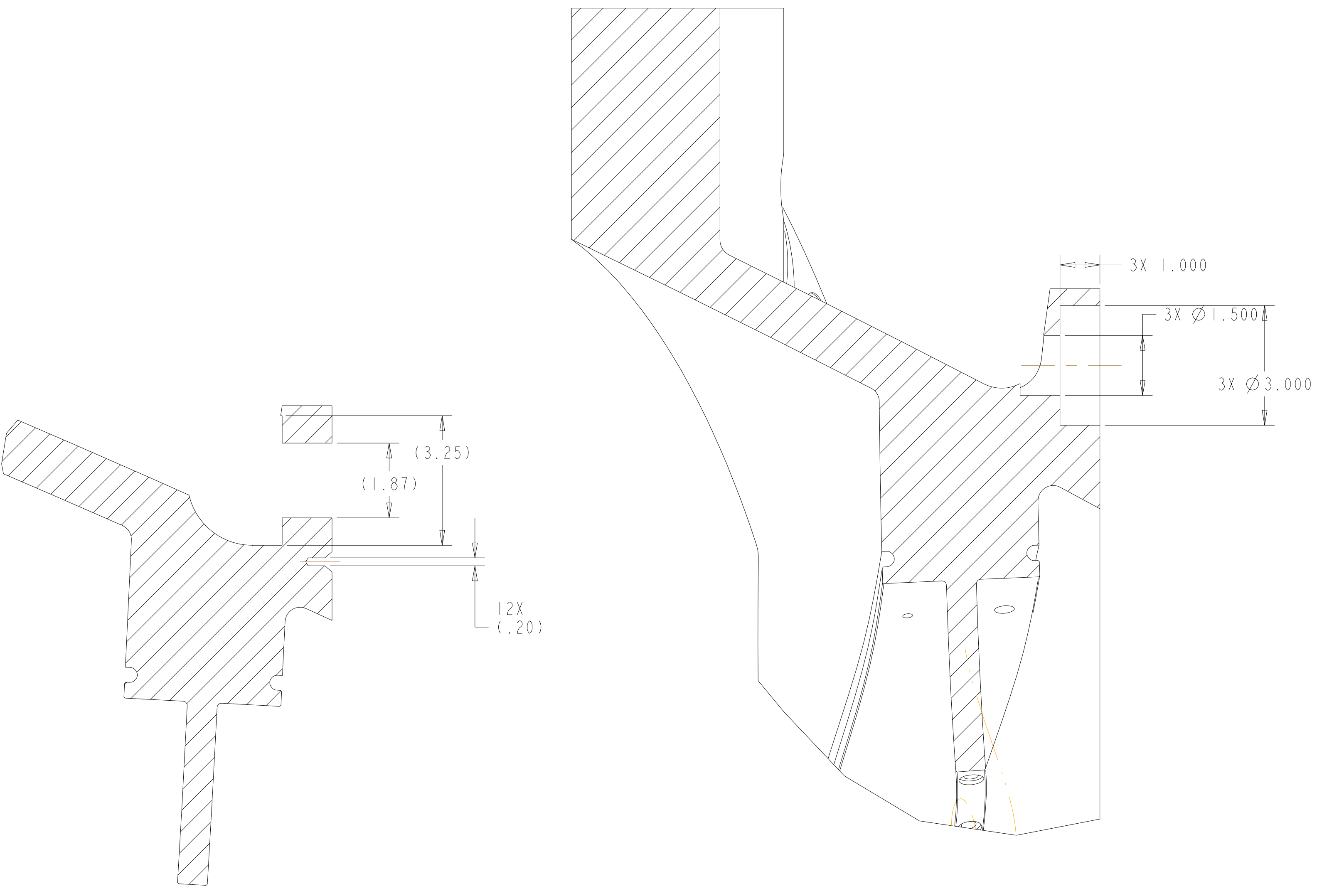
SECTION H-H
VESSEL VERTICAL SUPPORT
SCALE 0.10



PROJECTION FROM SECTION H-H

UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee					
PROJECT NAME							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-B							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	3	12	S	U
RELEASE LEVEL							
Fabrication		SEI41-115					

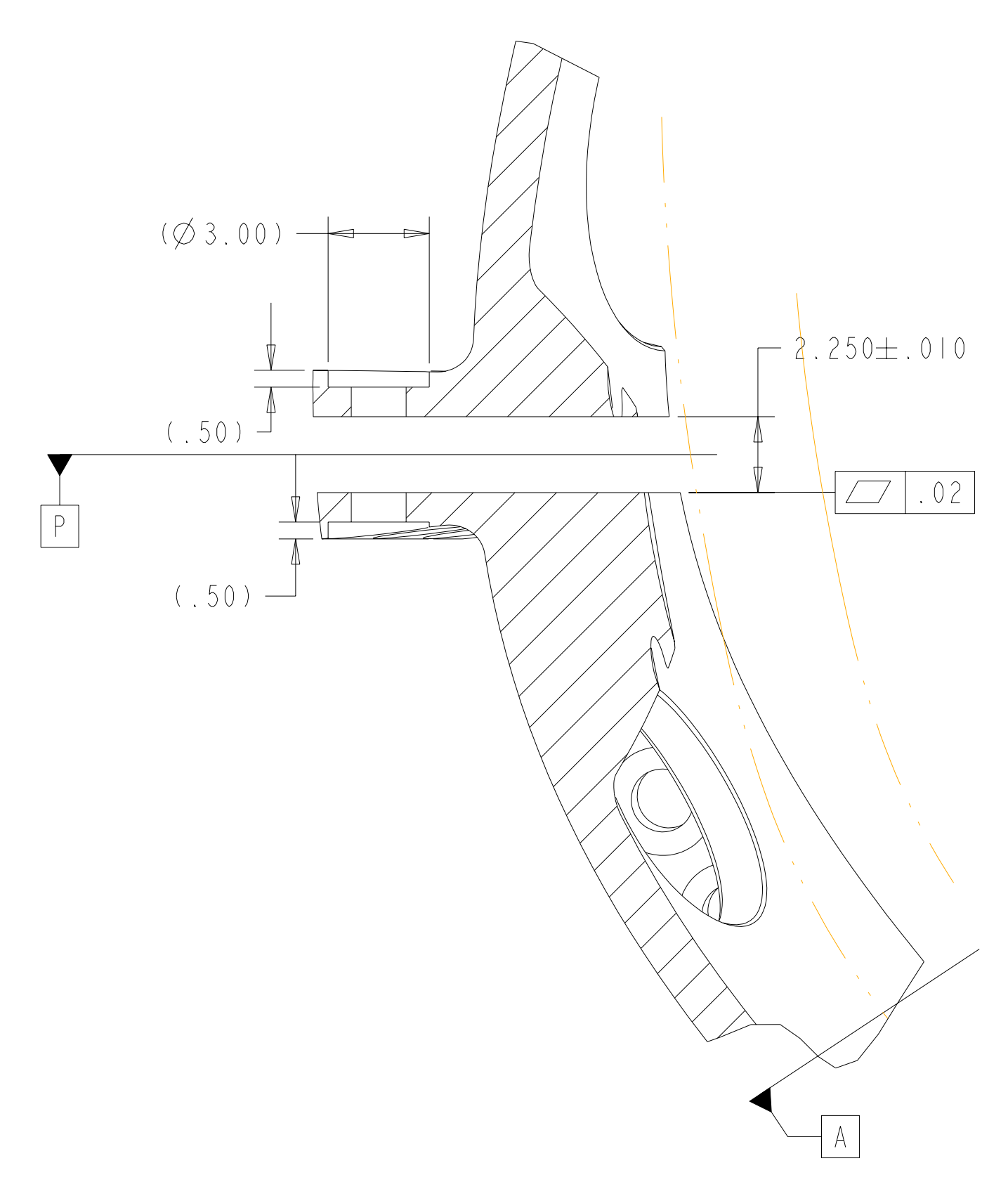
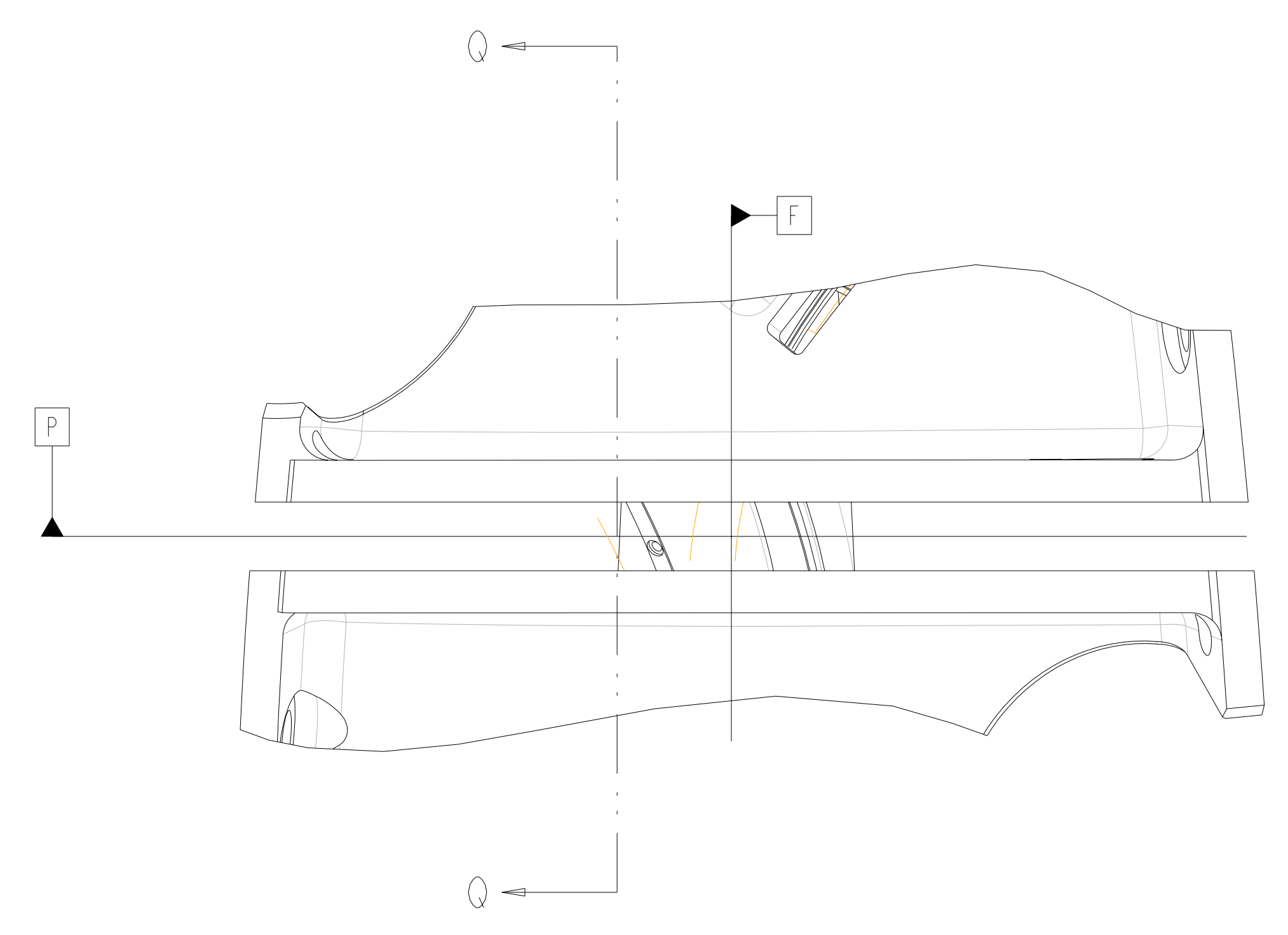
FOR NOTES AND PARTS LIST SEE SHEET I



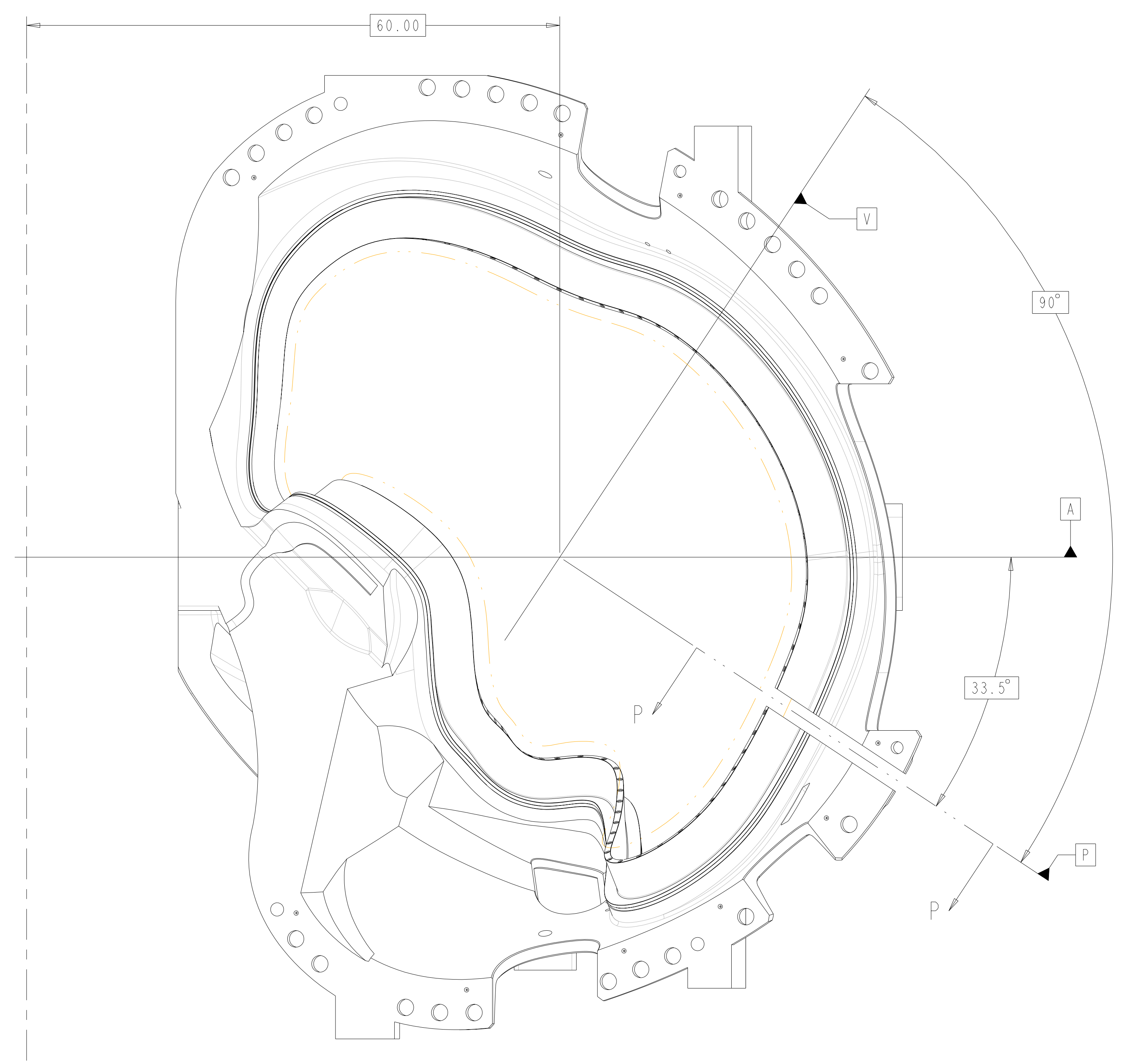
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME							
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-B							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	5	12	S	U
RELEASE LEVEL		SEI41-115					
Fabrication							

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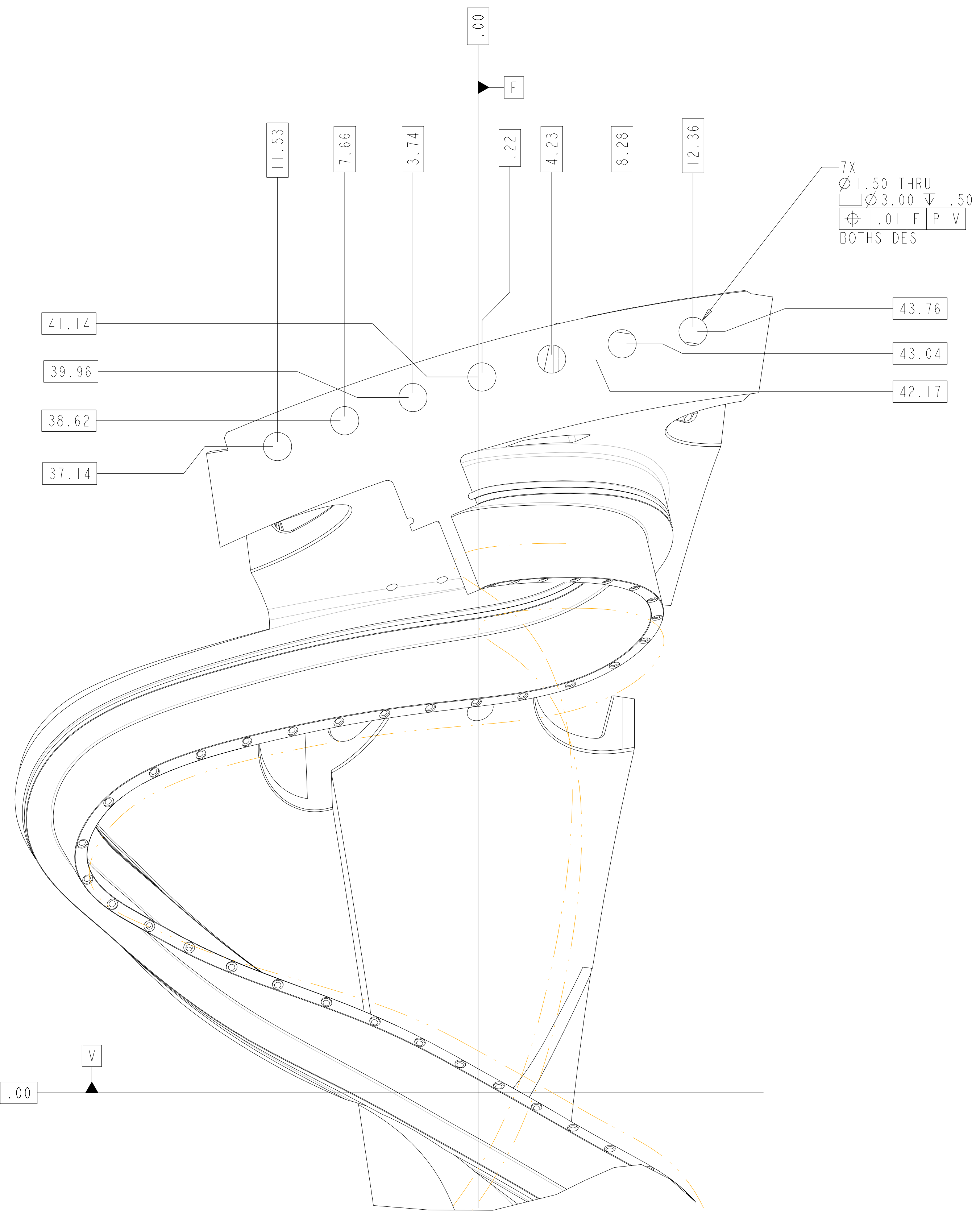
FOR NOTES AND PARTS LIST SEE SHEET 1



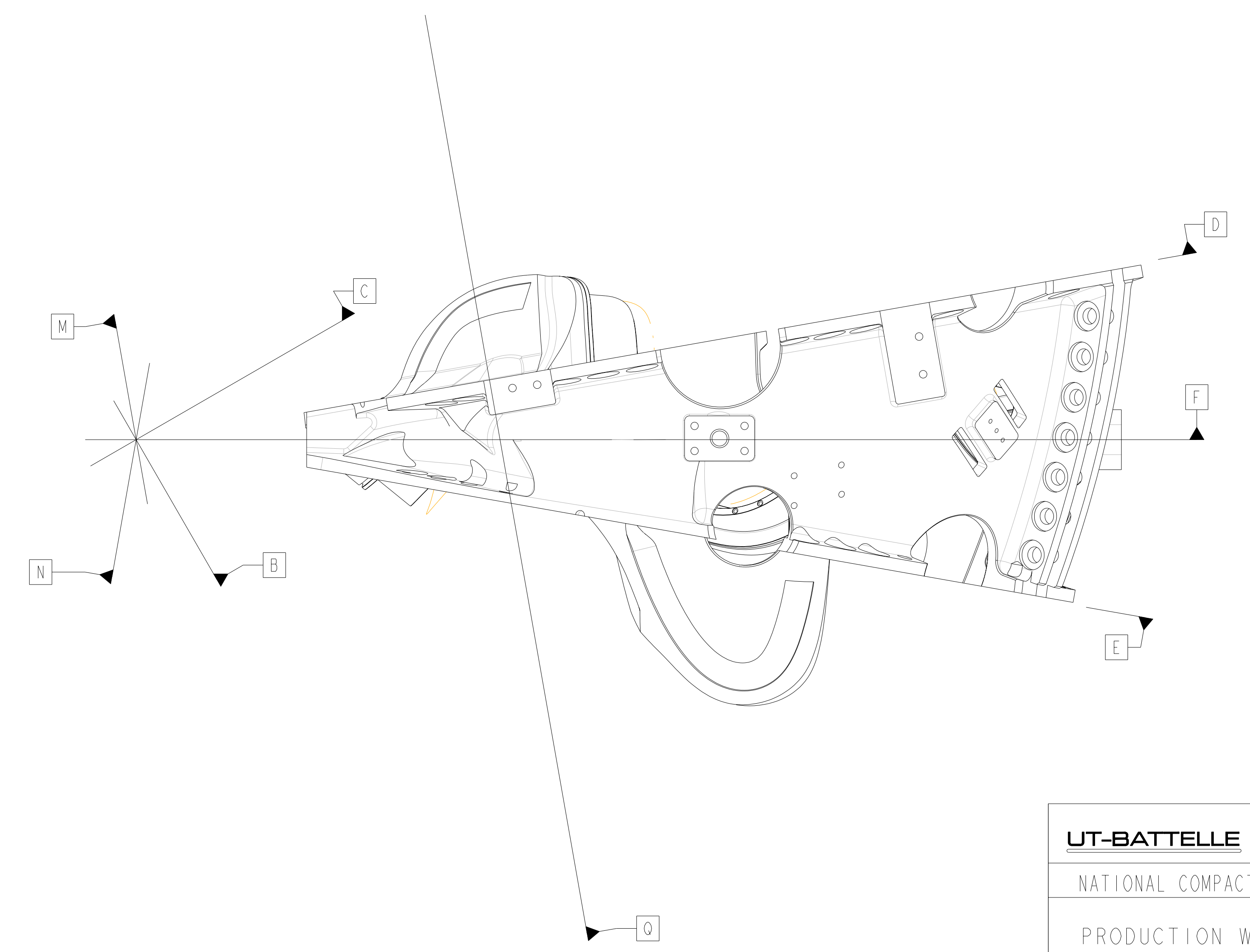
SECTION Q-Q



POLOIDAL BREAK DETAIL
 SCALE 0.13



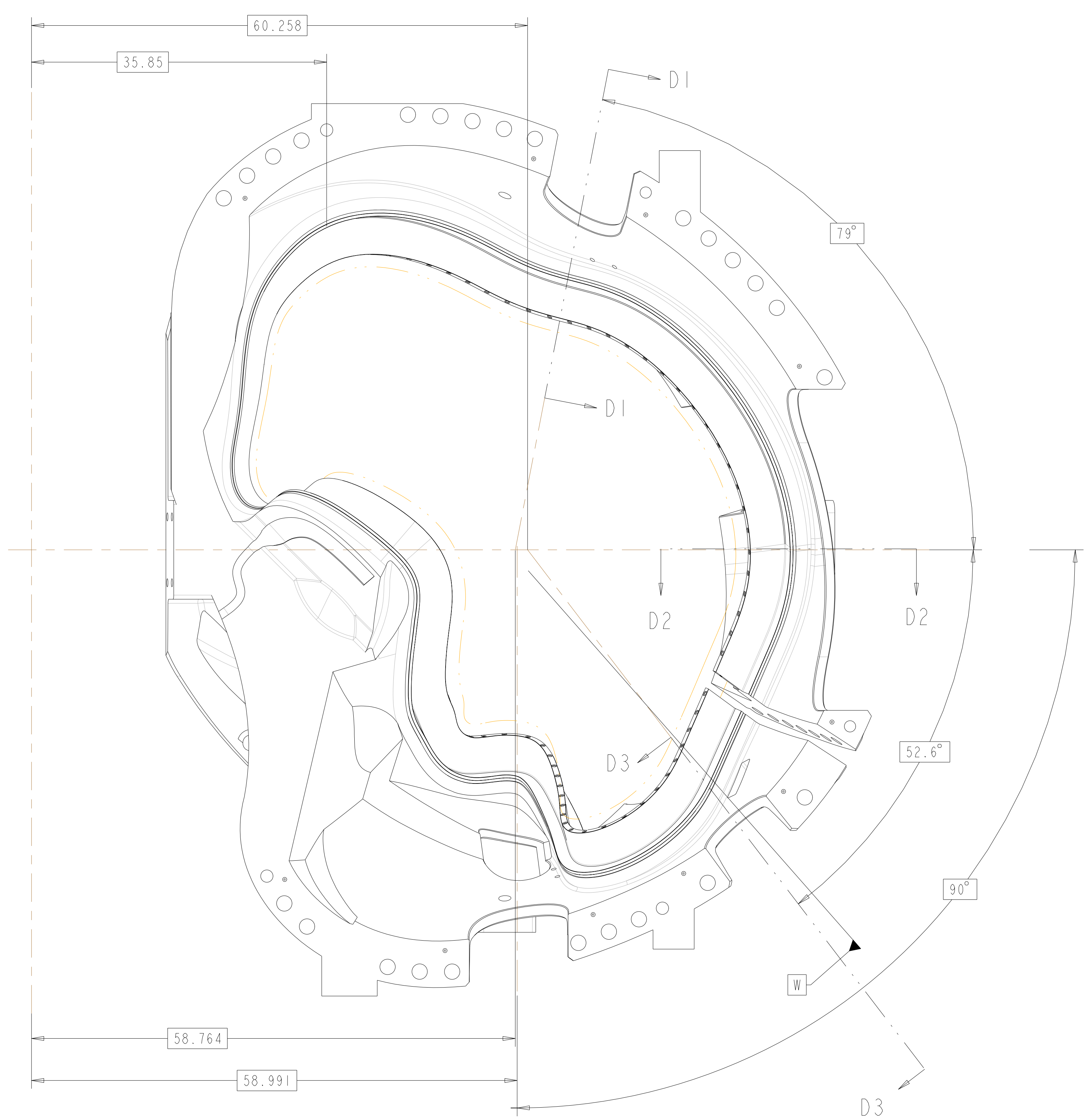
SECTION P-P
 SCALE 0.25



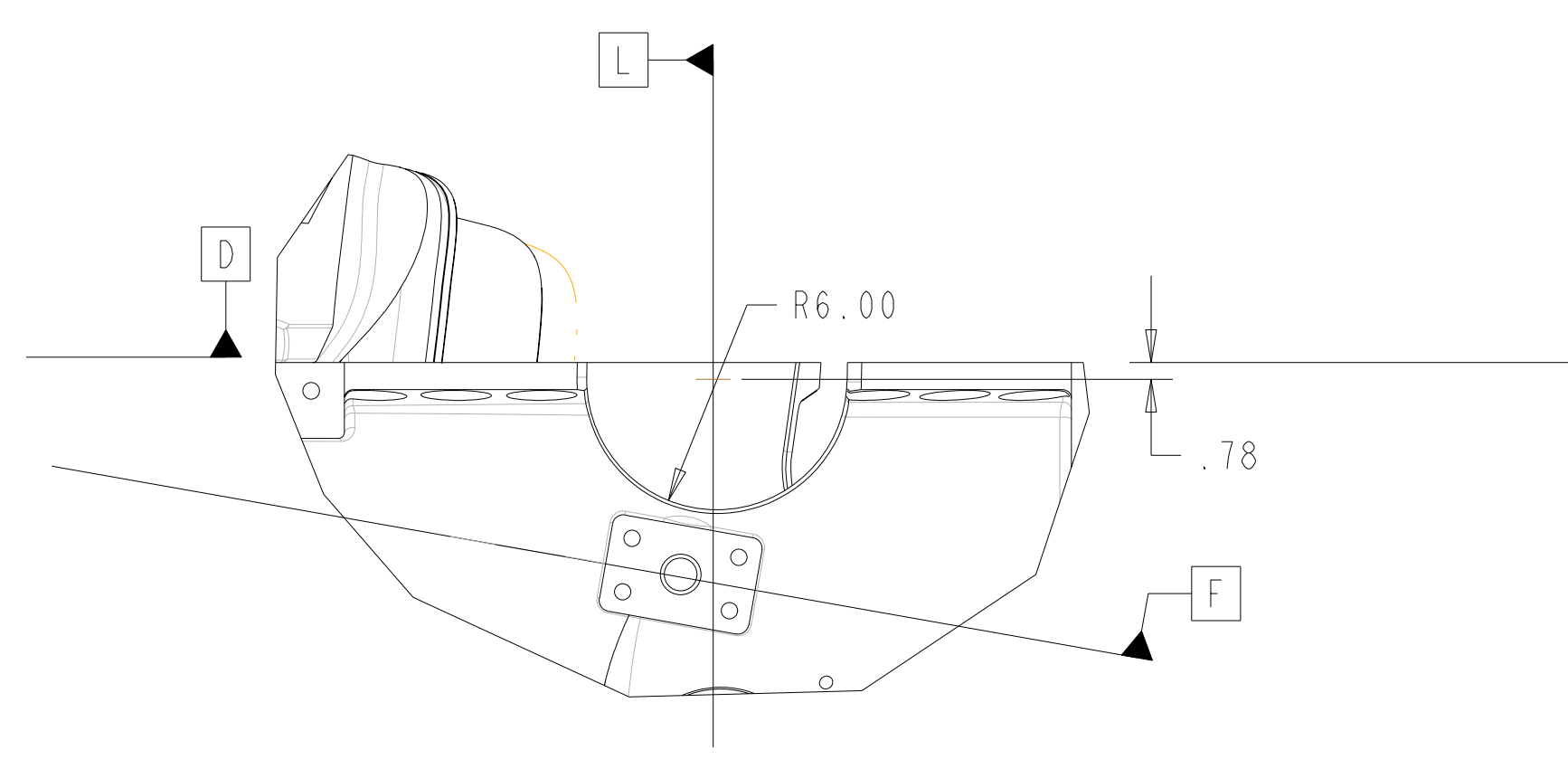
UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee					
PROJECT NAME							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-B							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	6	12	S	U
RELEASE LEVEL		SEI41-115					
Fabrication							

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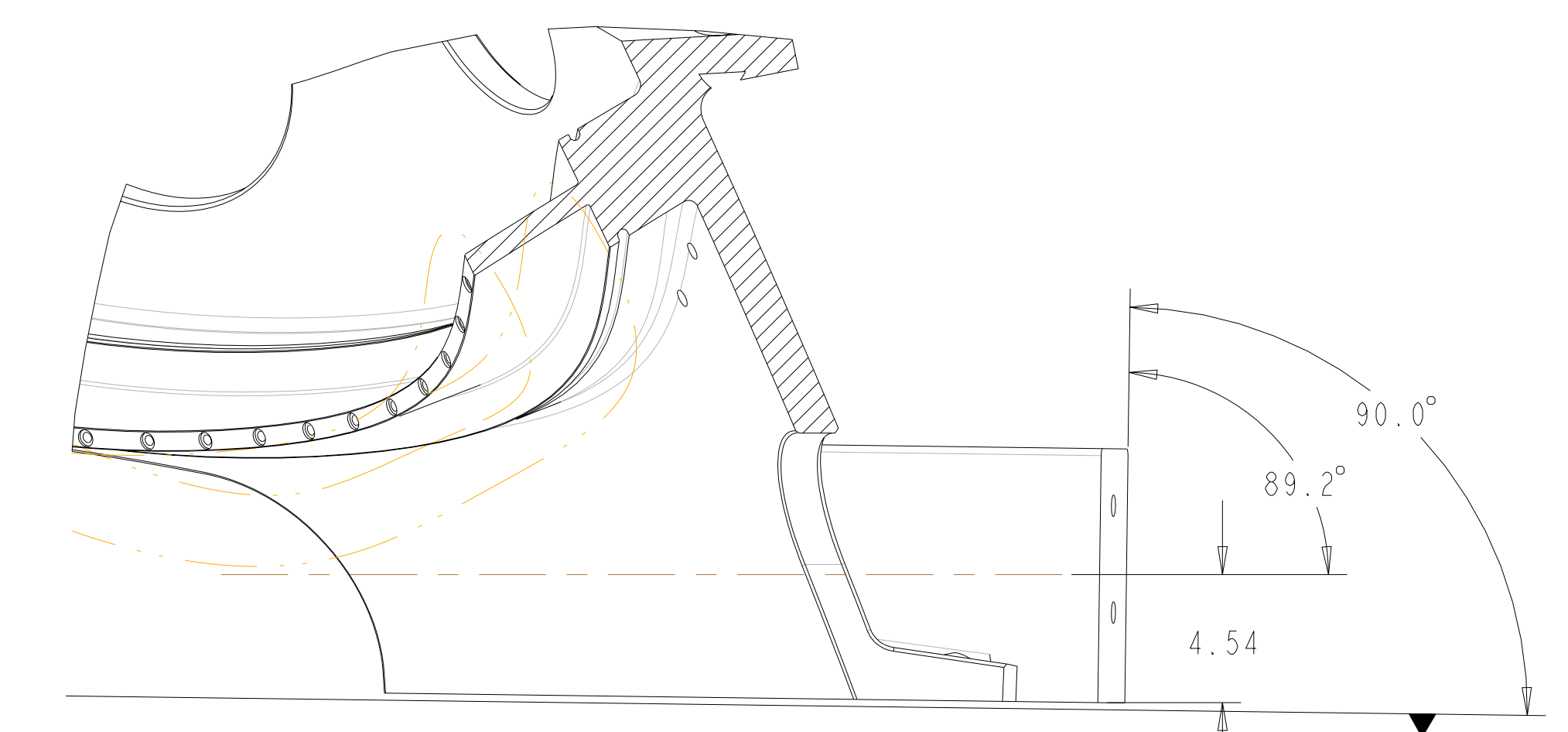
FOR NOTES AND PARTS LIST SEE SHEET 1



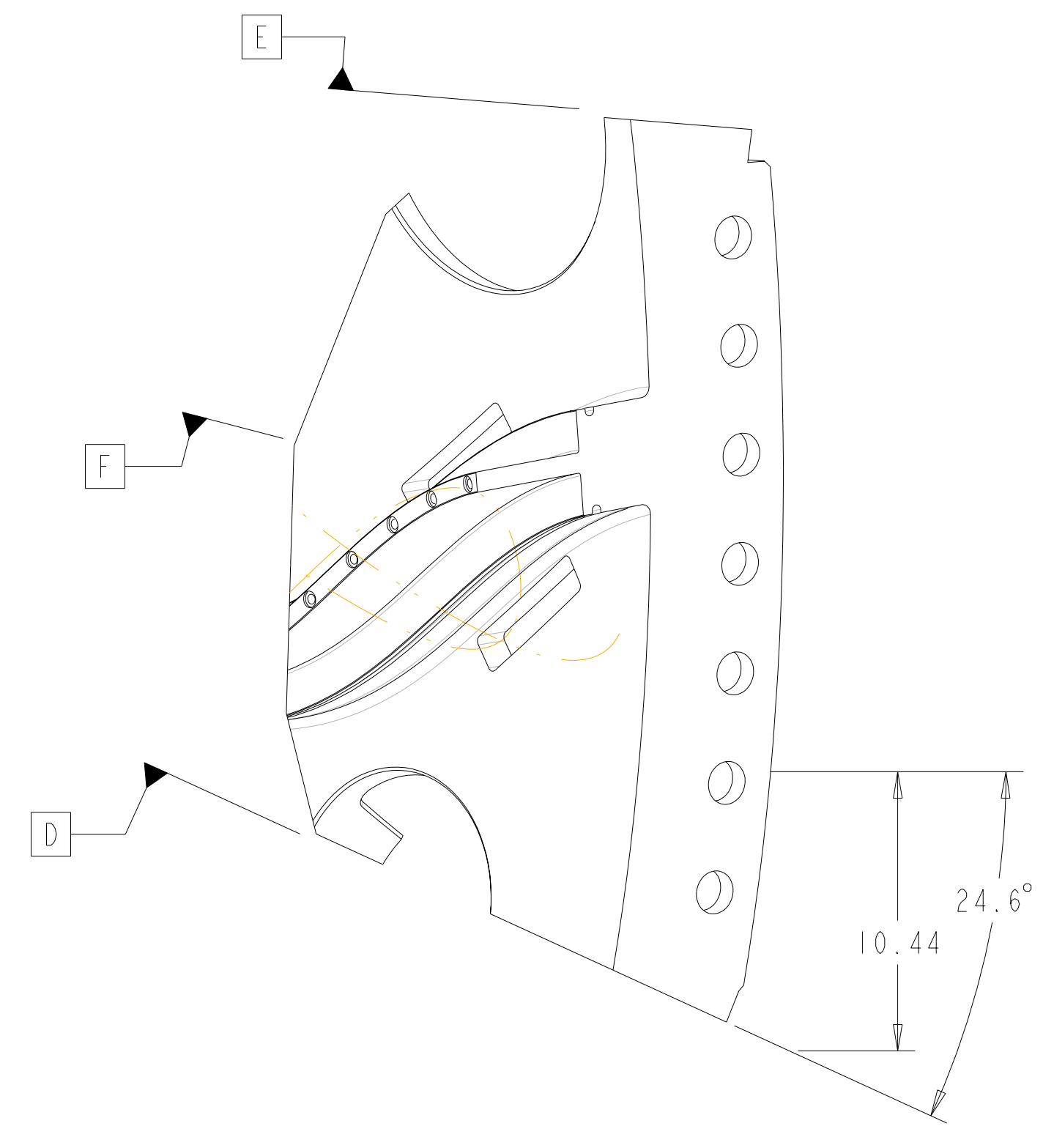
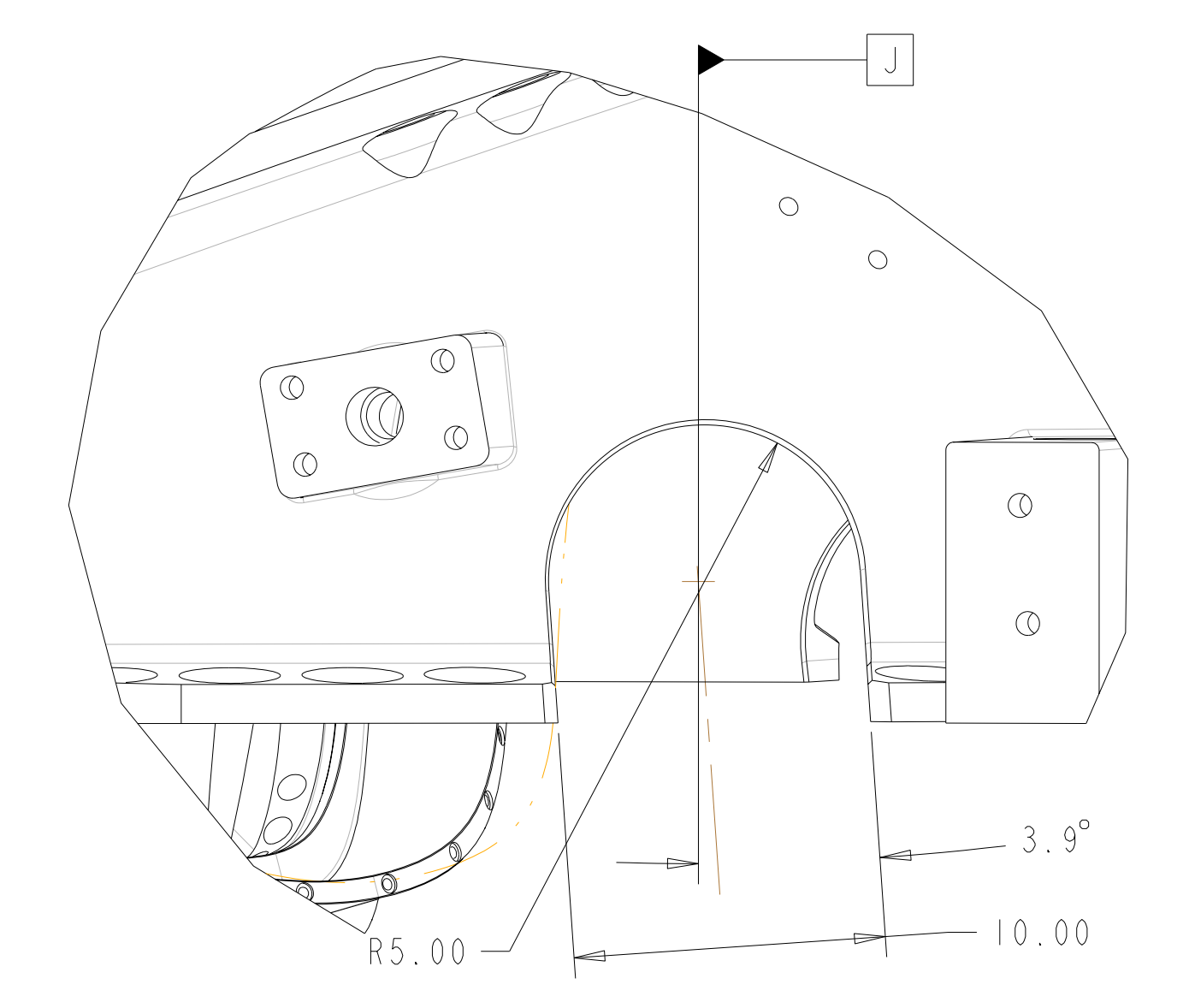
VIEW AT DATUM D
SCALE 0.13



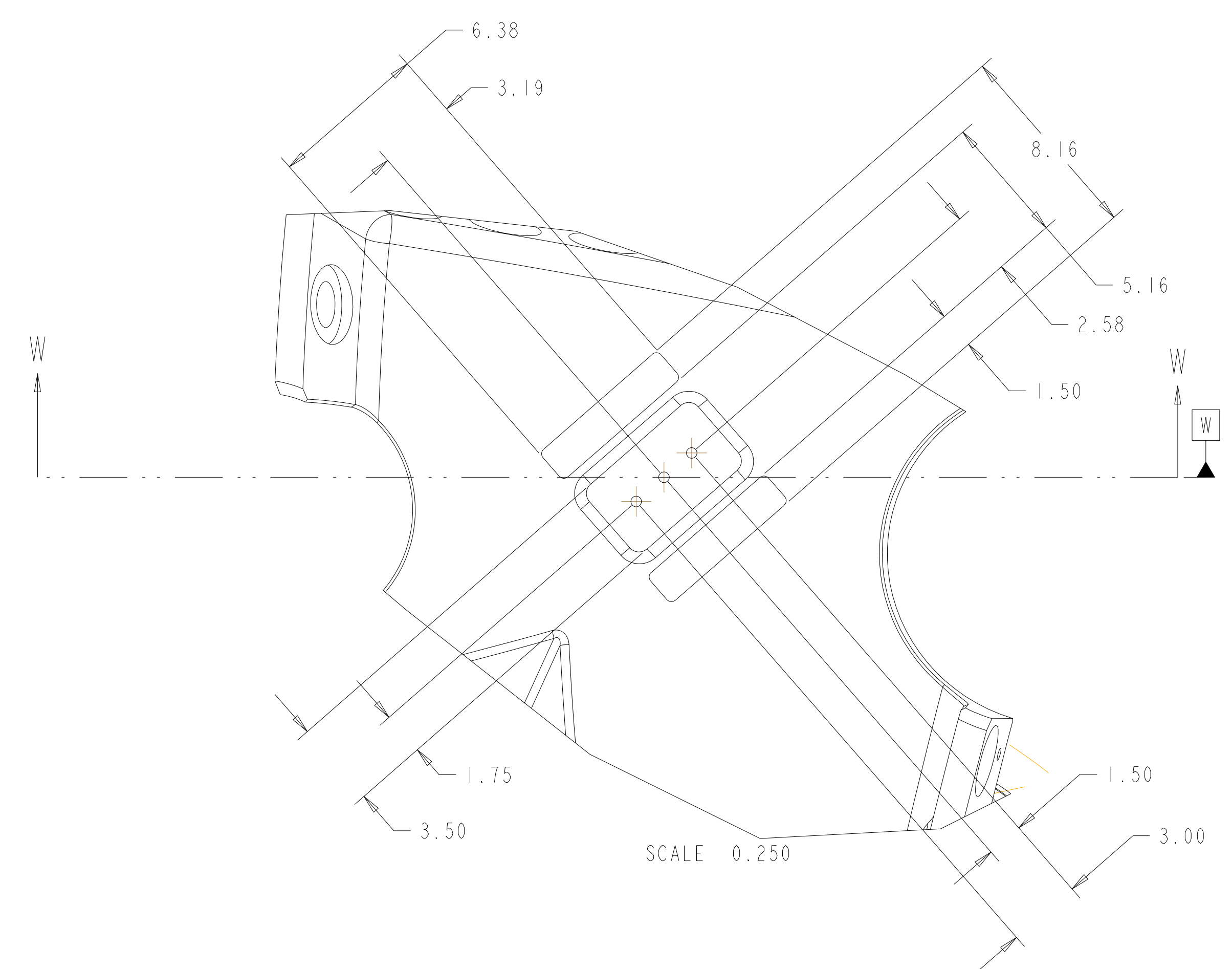
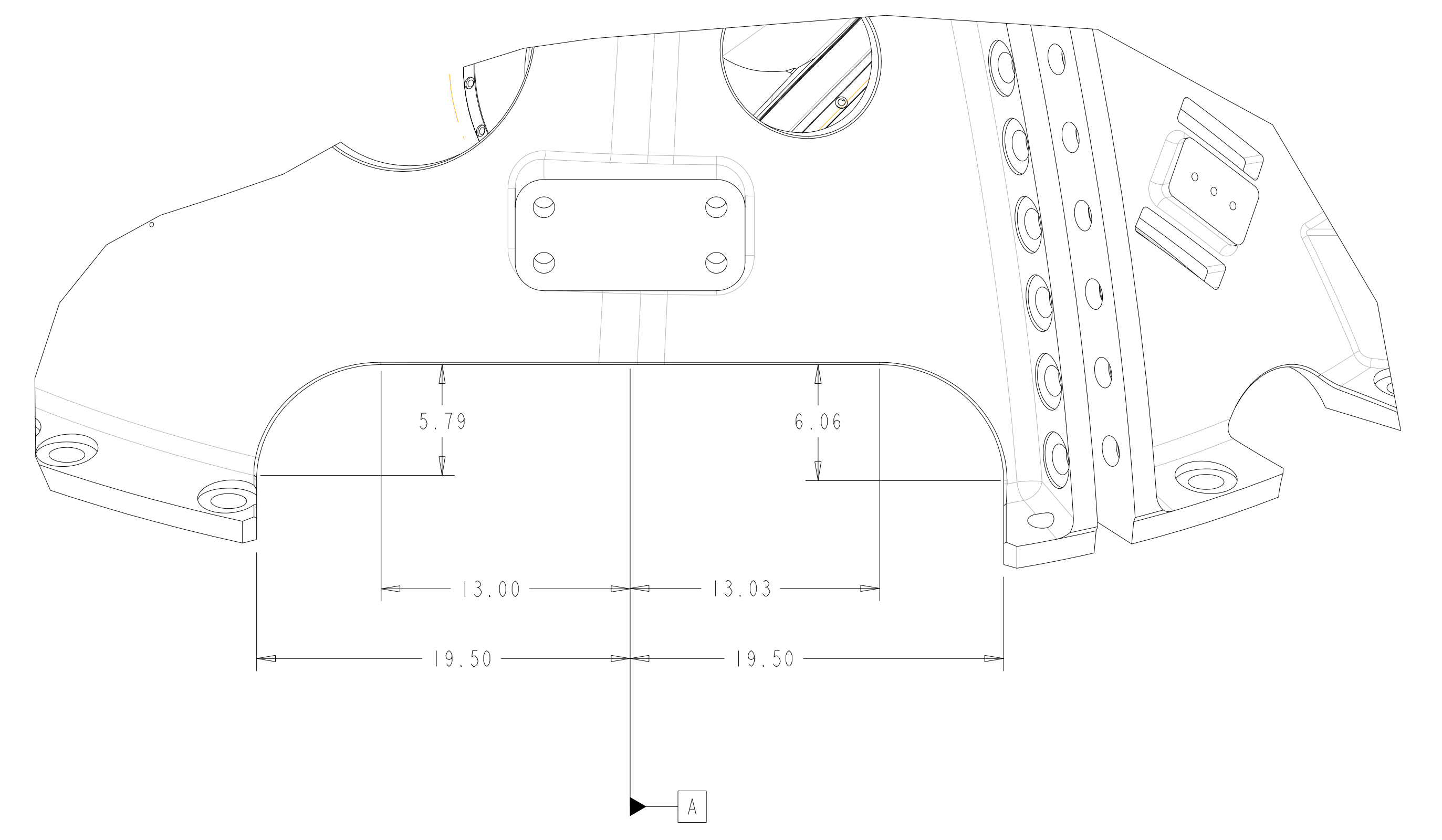
BOTTOM VIEW



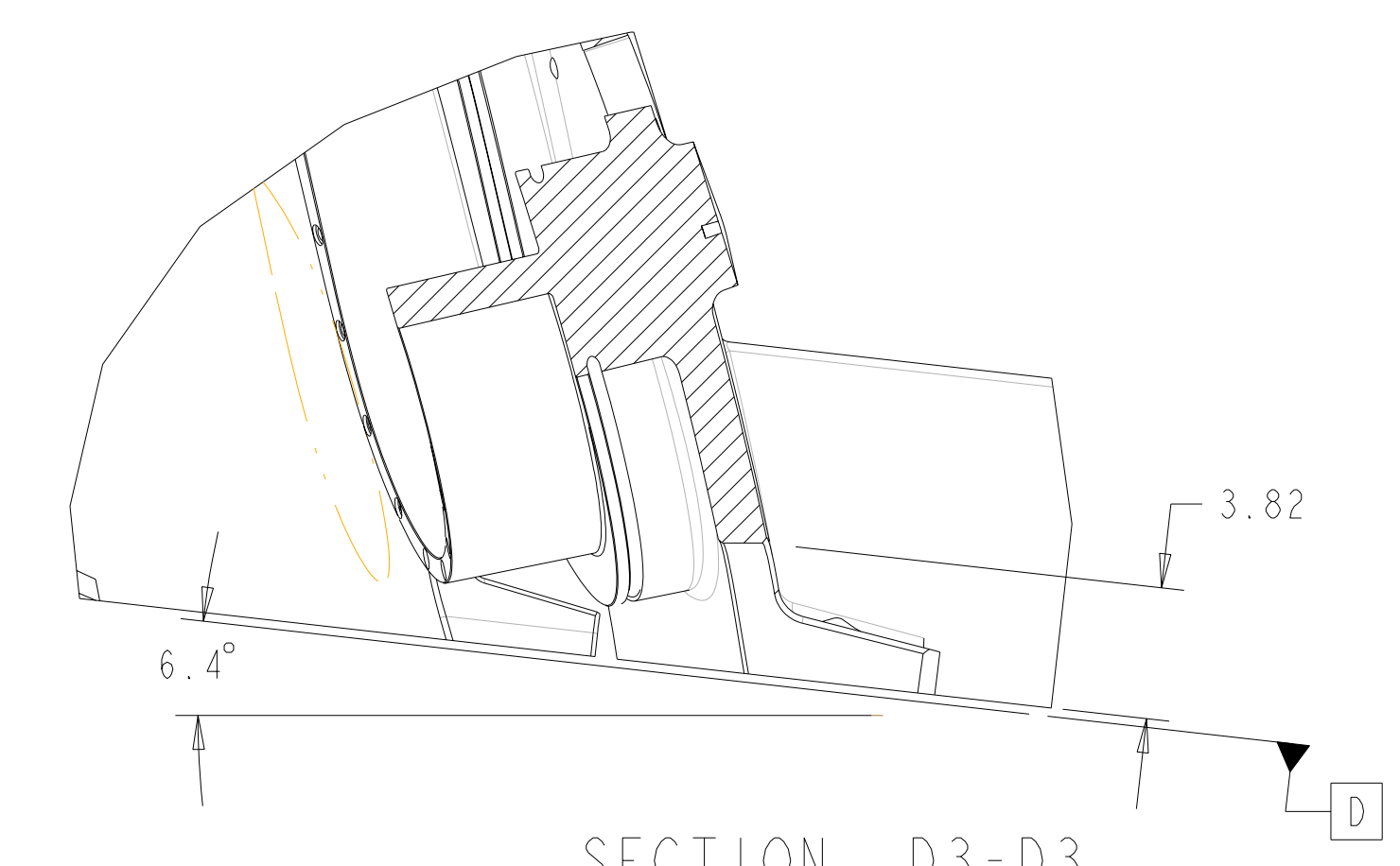
SECTION D1-D1
SCALE 0.19



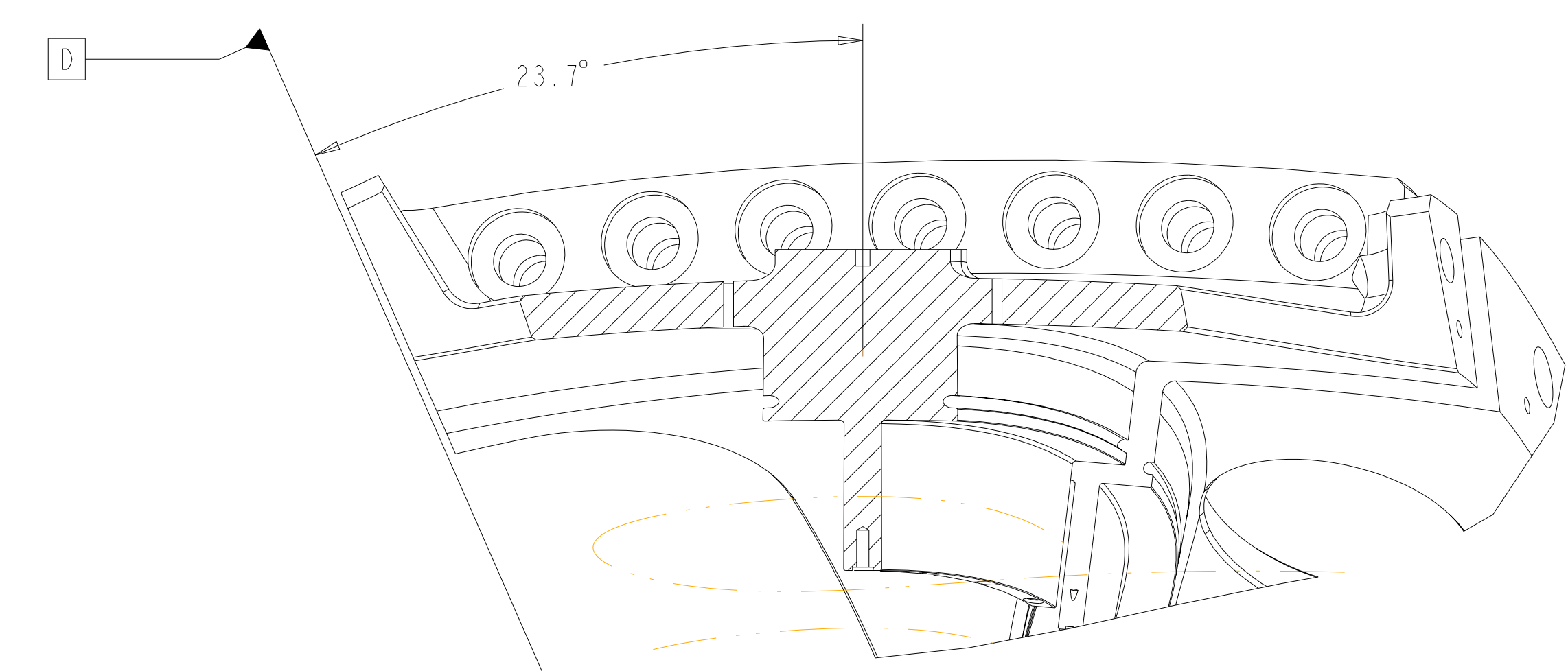
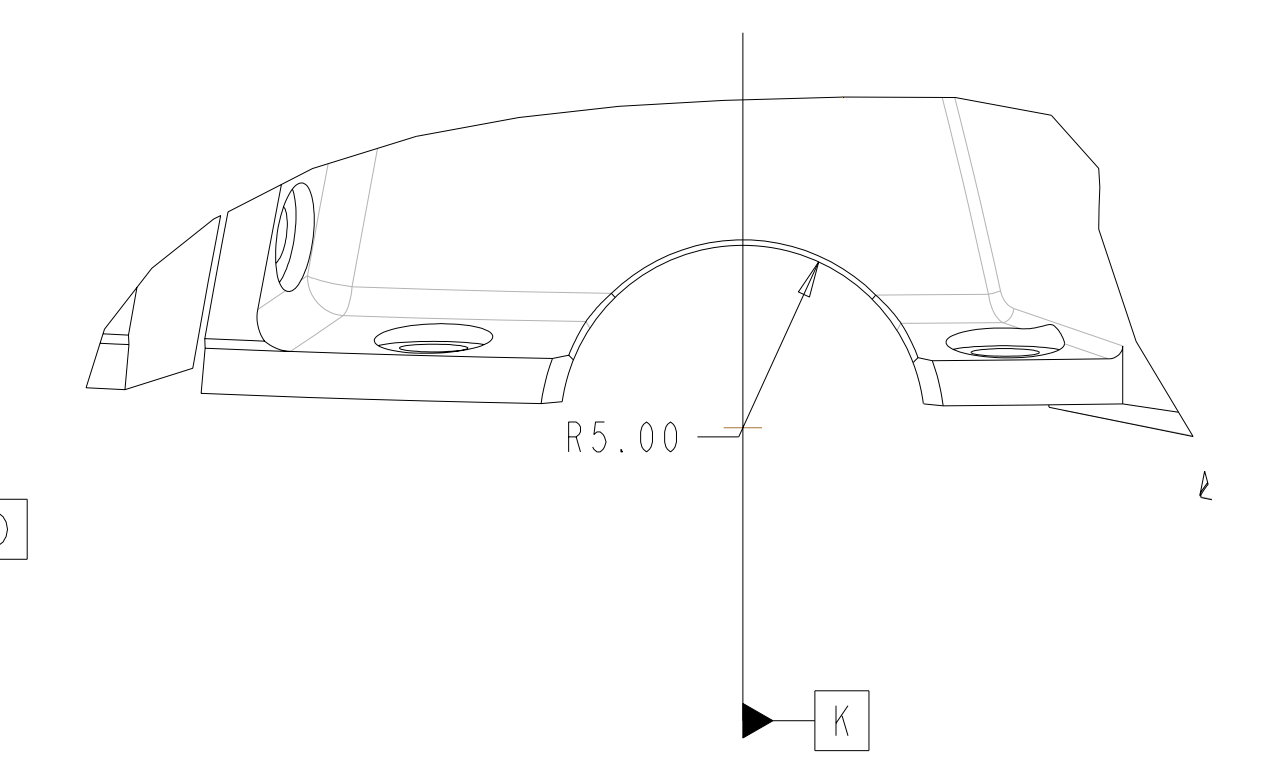
SECTION D2-D2
SCALE 0.19



SCALE 0.250



SECTION D3-D3
SCALE 0.19

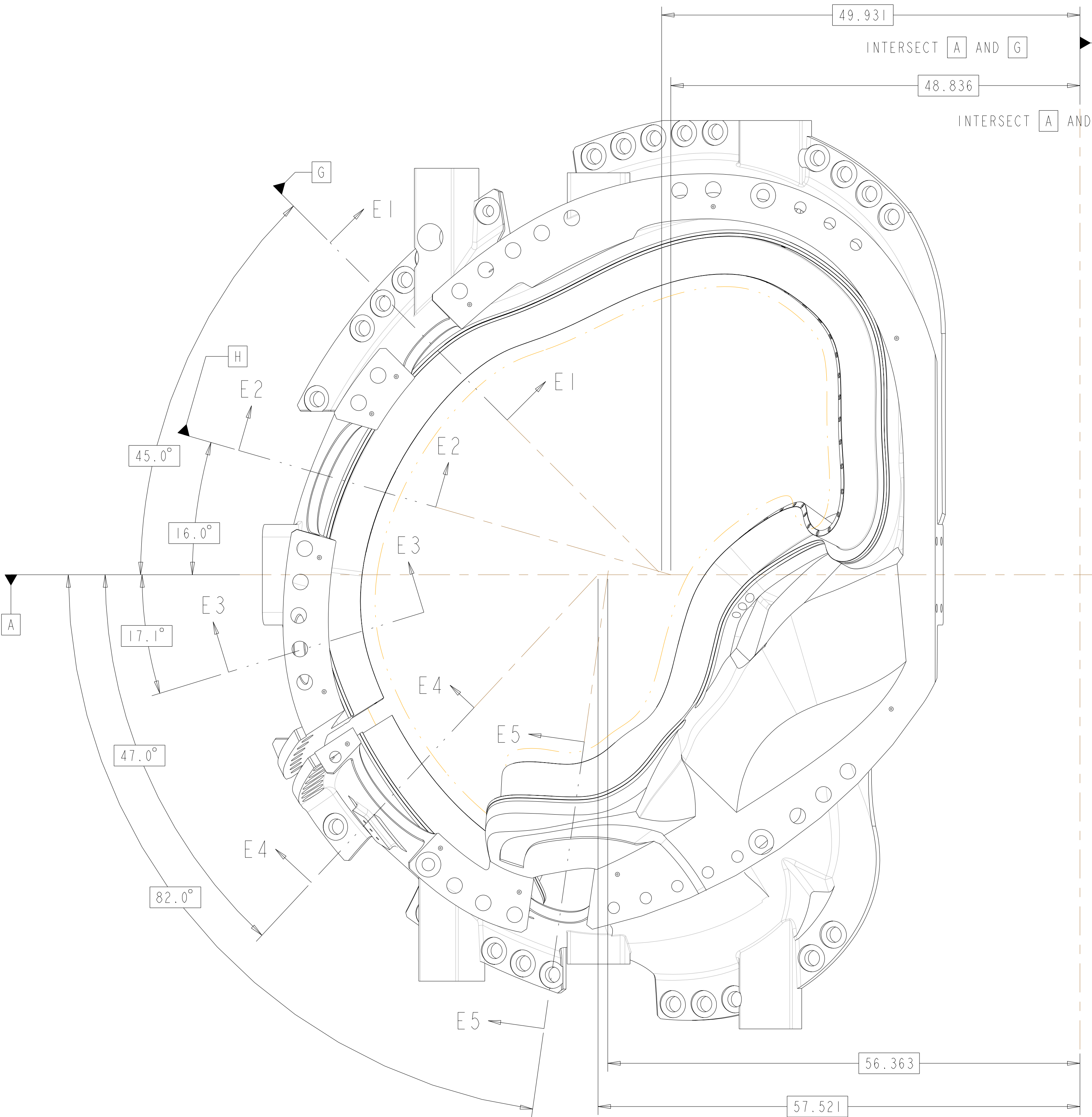


SECTION W-W

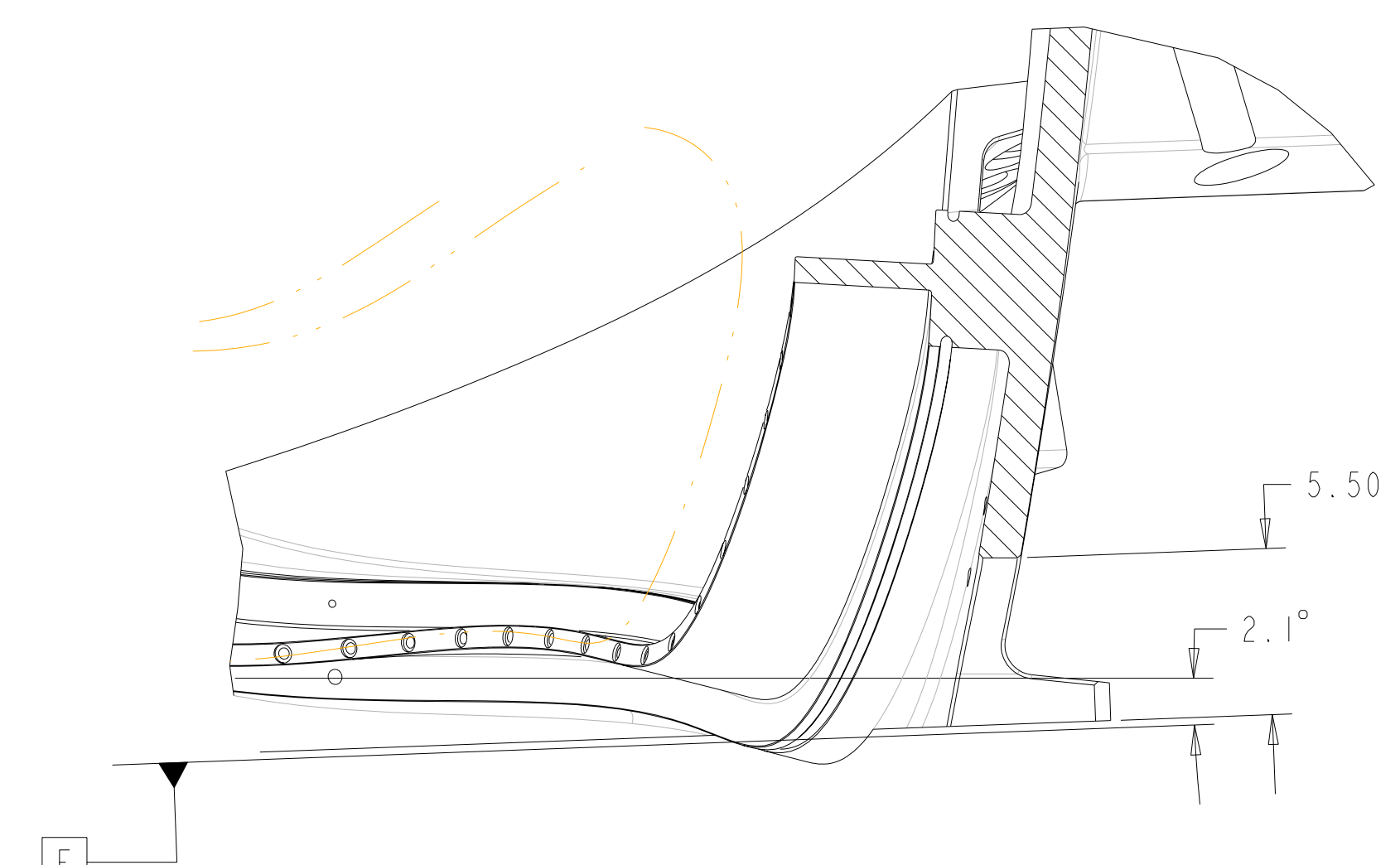
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT CONTRACT DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME							
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-B							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	7	12	S	U
RELEASE LEVEL	SEI41-115						
Fabrication							

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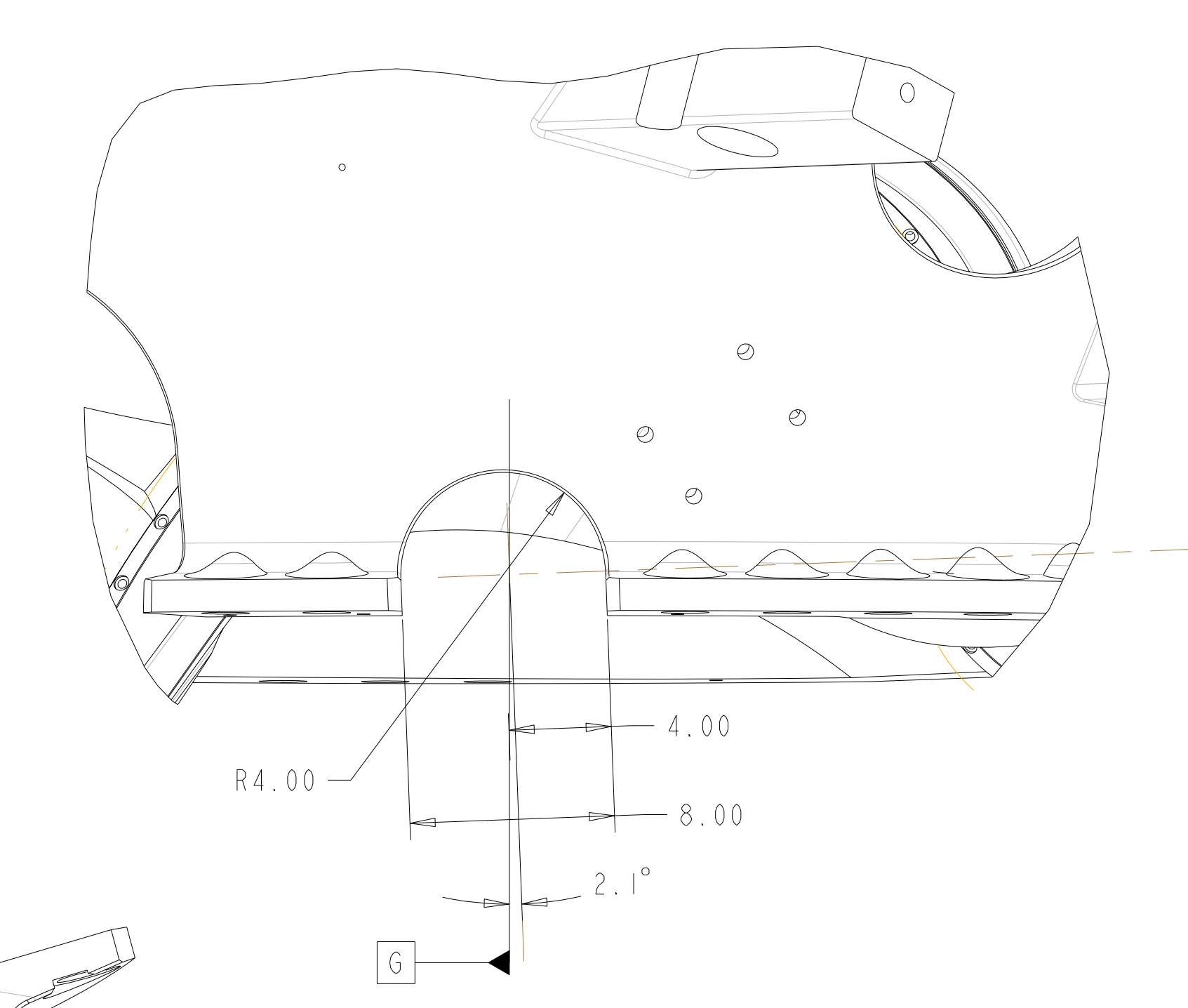
FOR NOTES AND PARTS LIST SEE SHEET 1



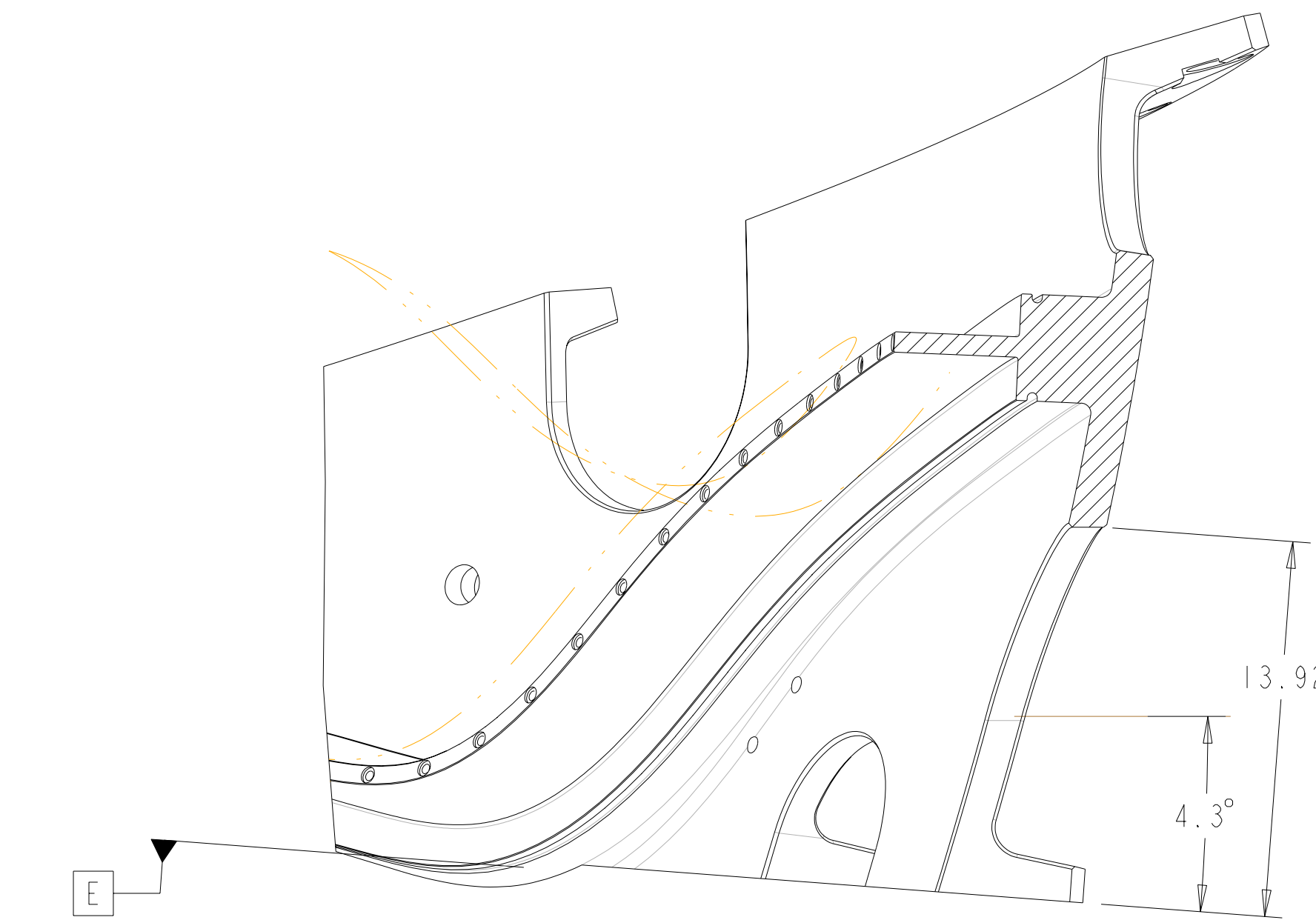
VIEW AT DATUM E
 SCALE 0.13



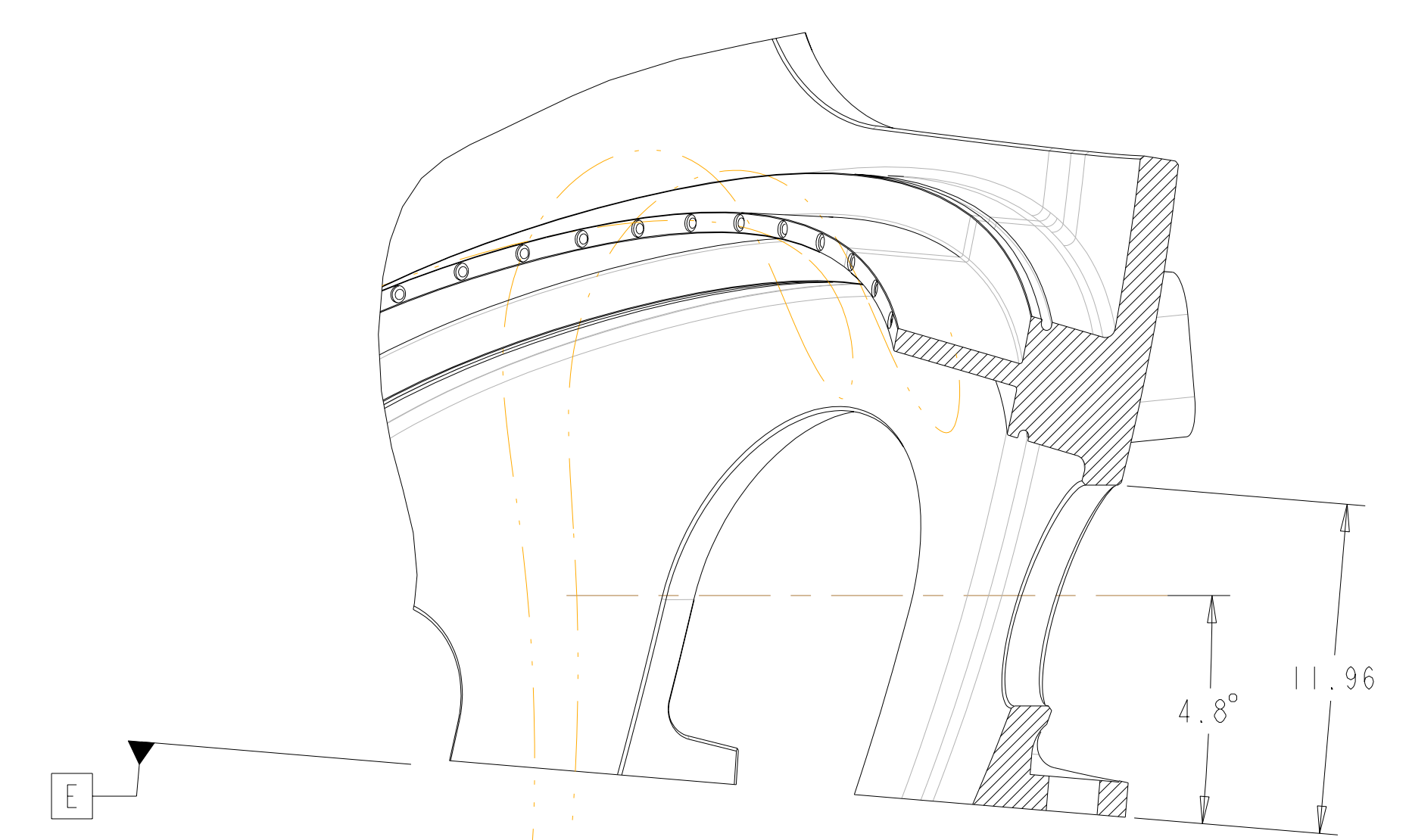
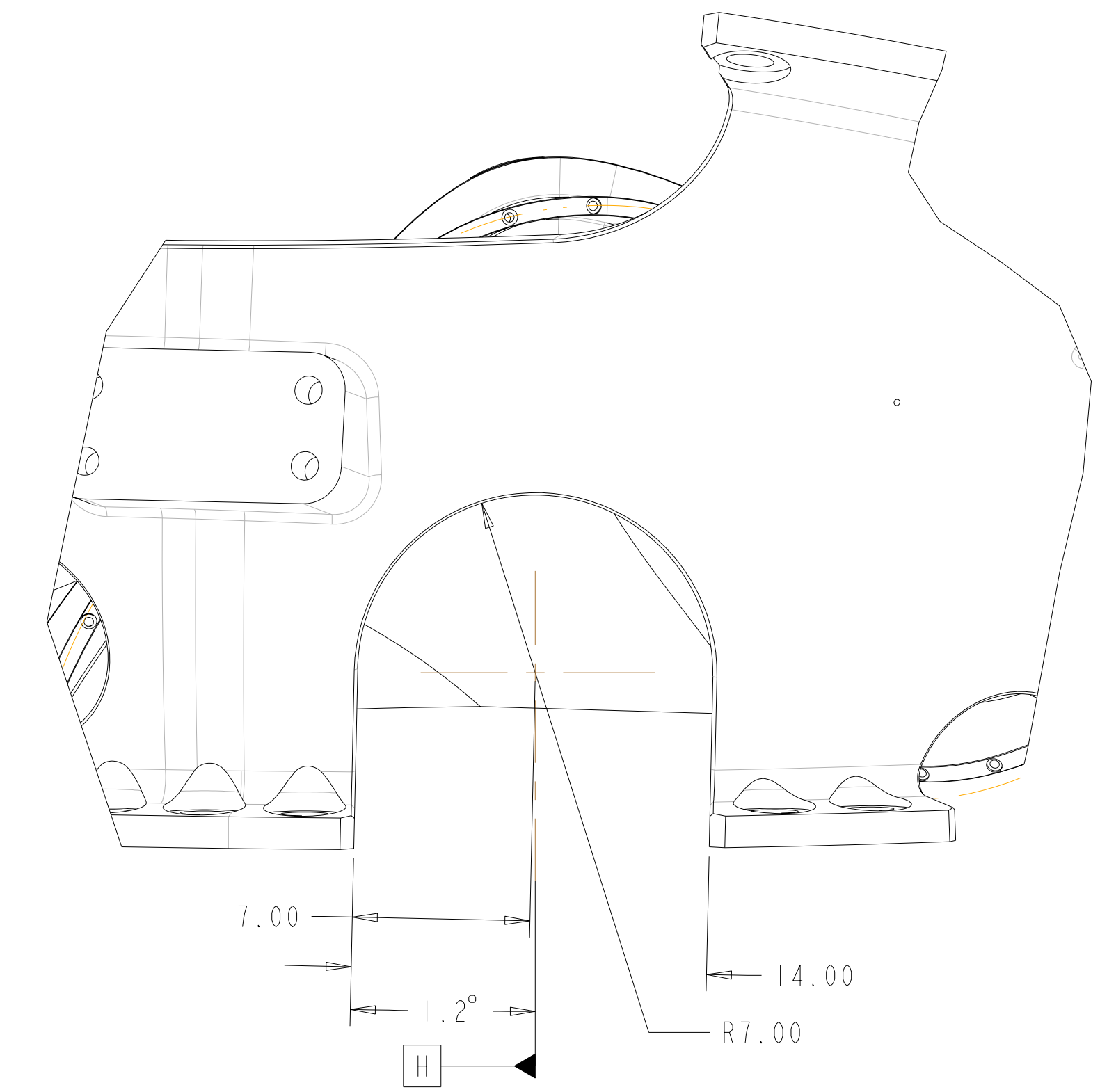
SECTION E1-E1
 SCALE 0.19



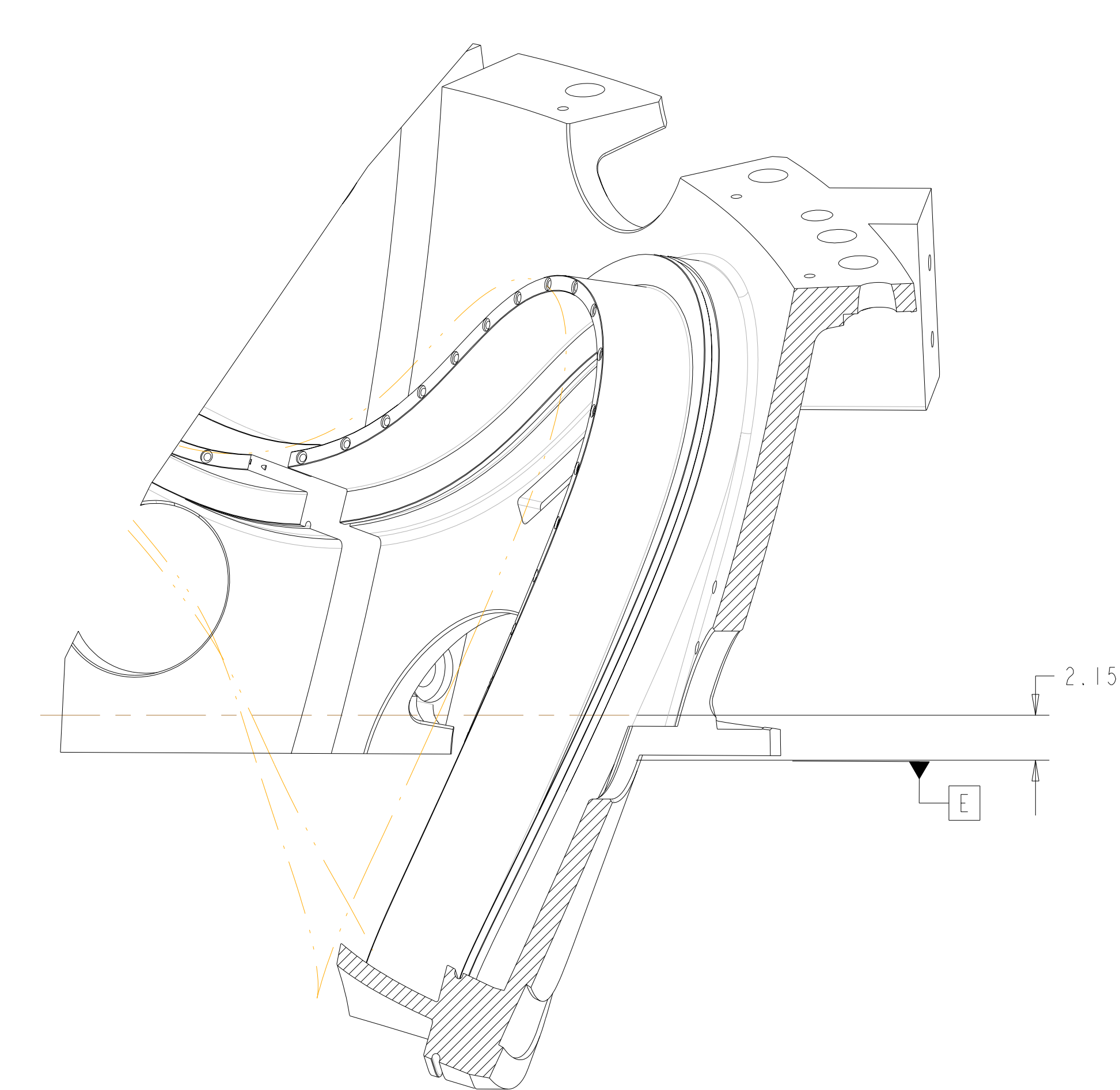
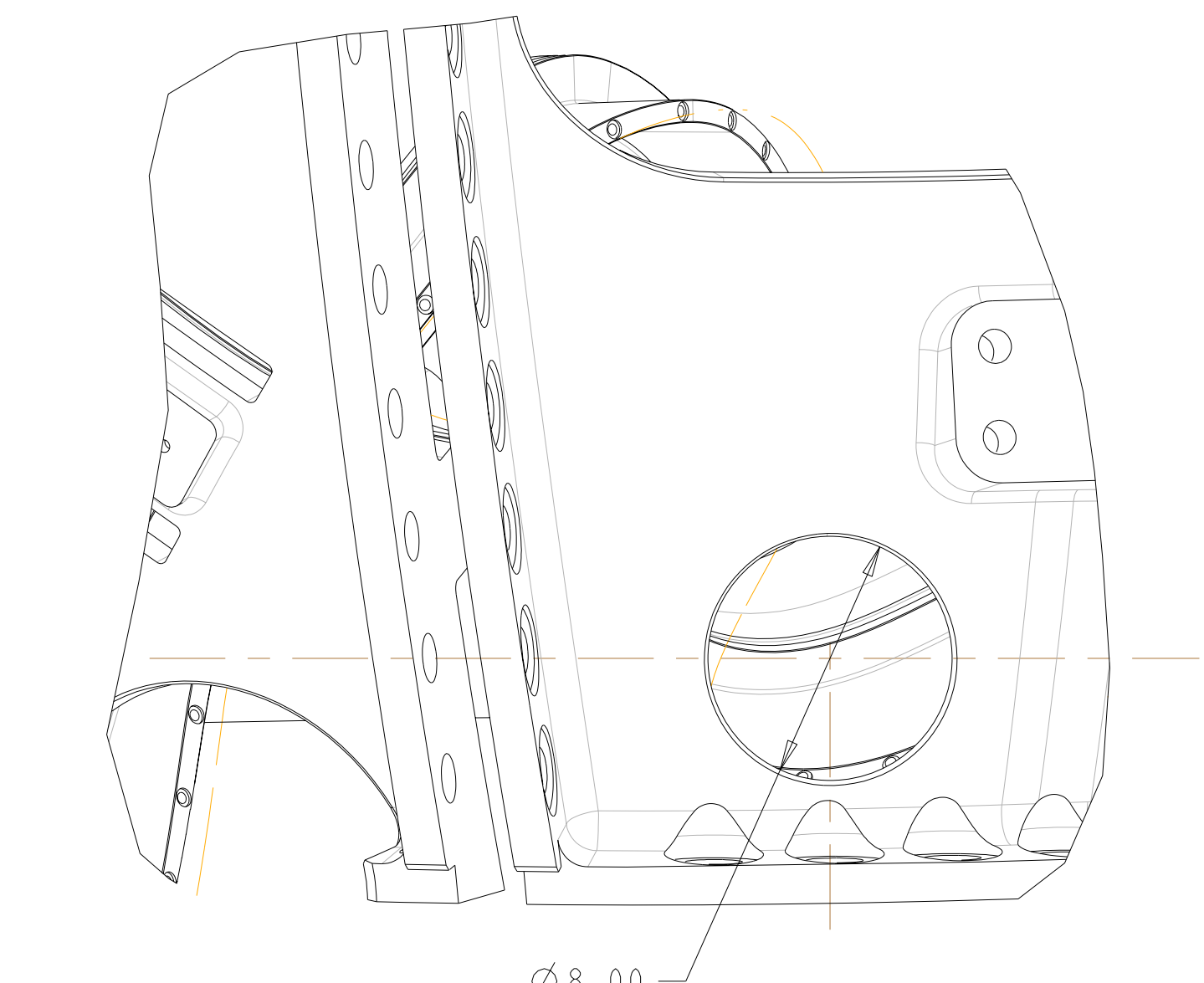
SECTION E2-E2
 SCALE 0.19



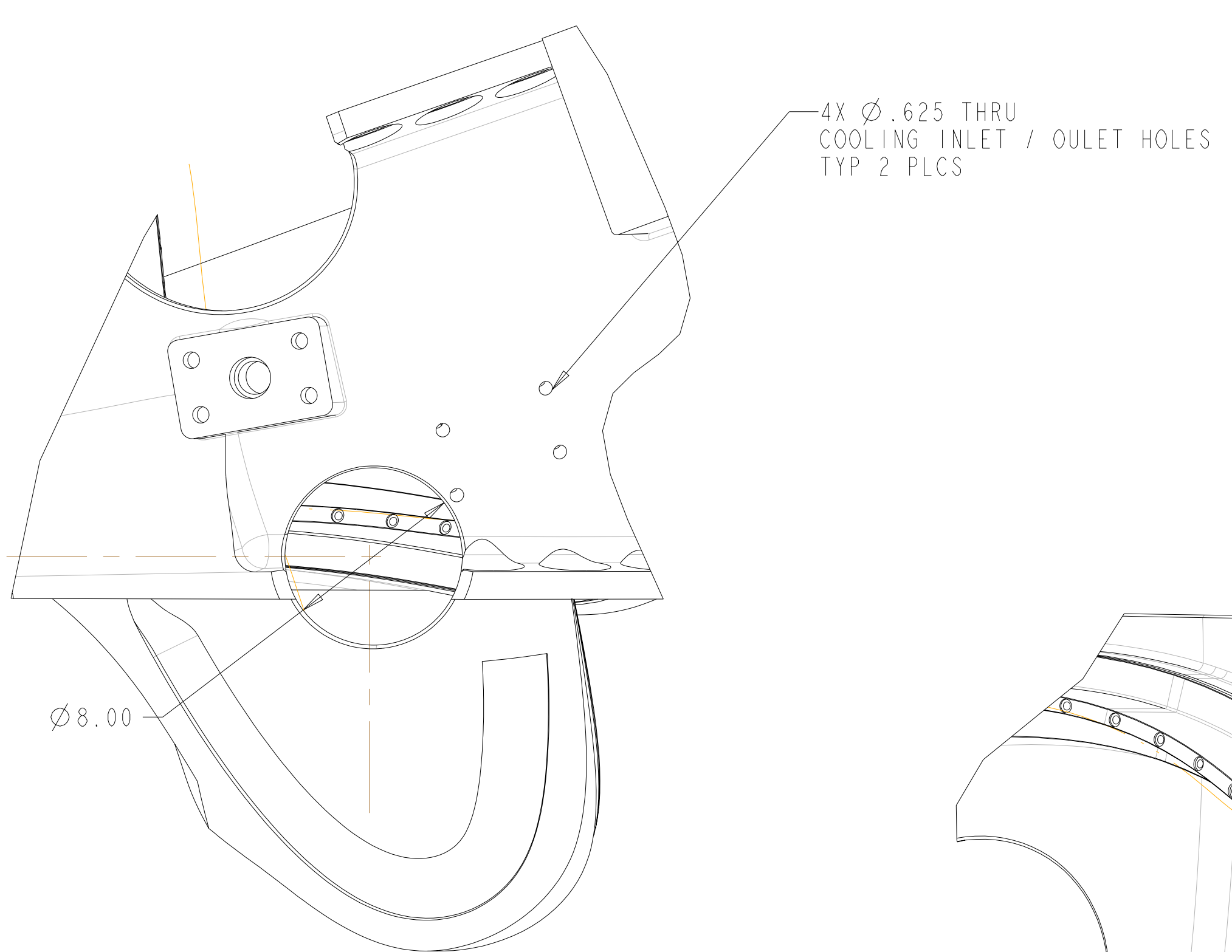
SECTION E3-E3
 SCALE 0.19



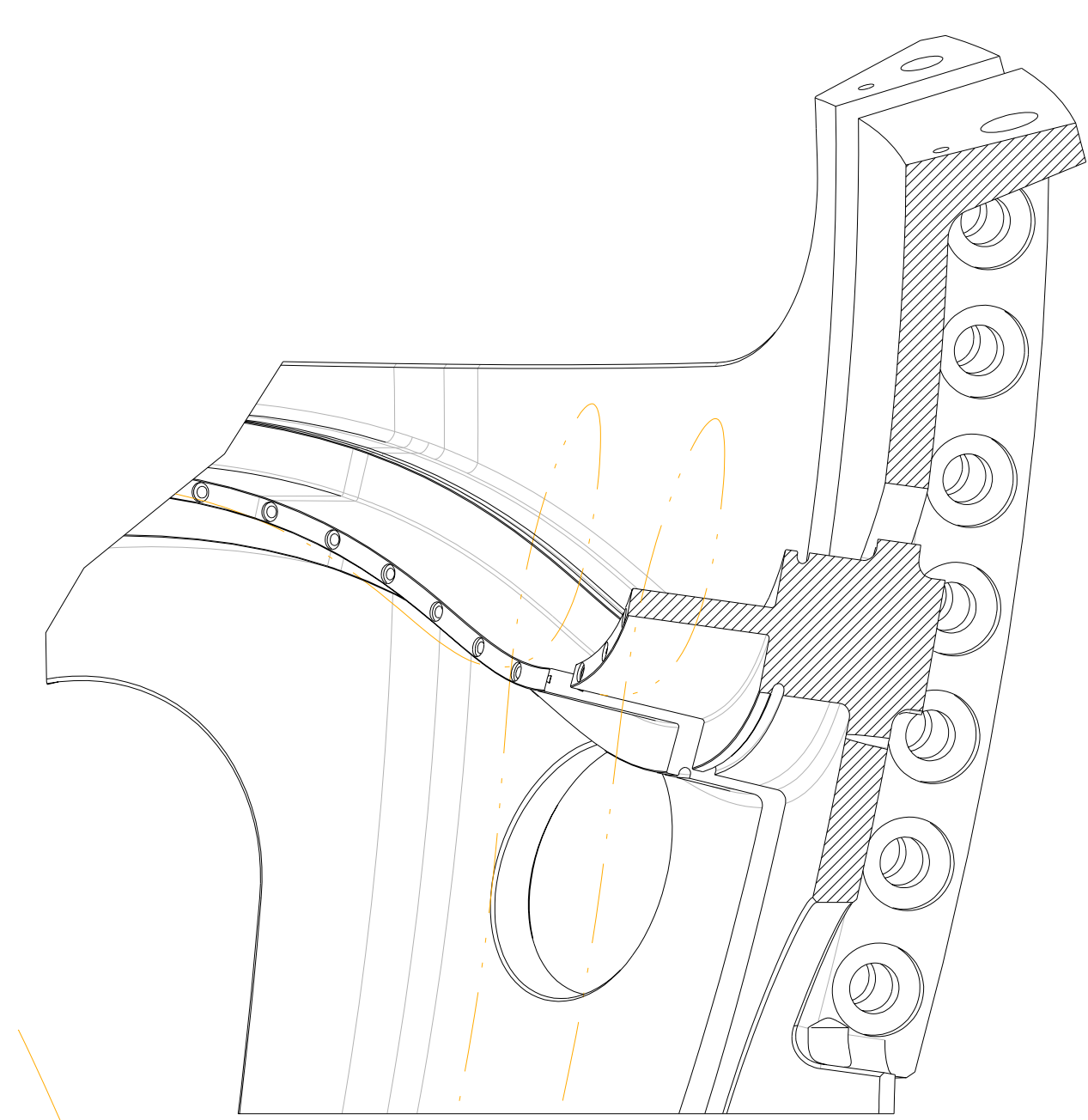
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 SCALE 0.19



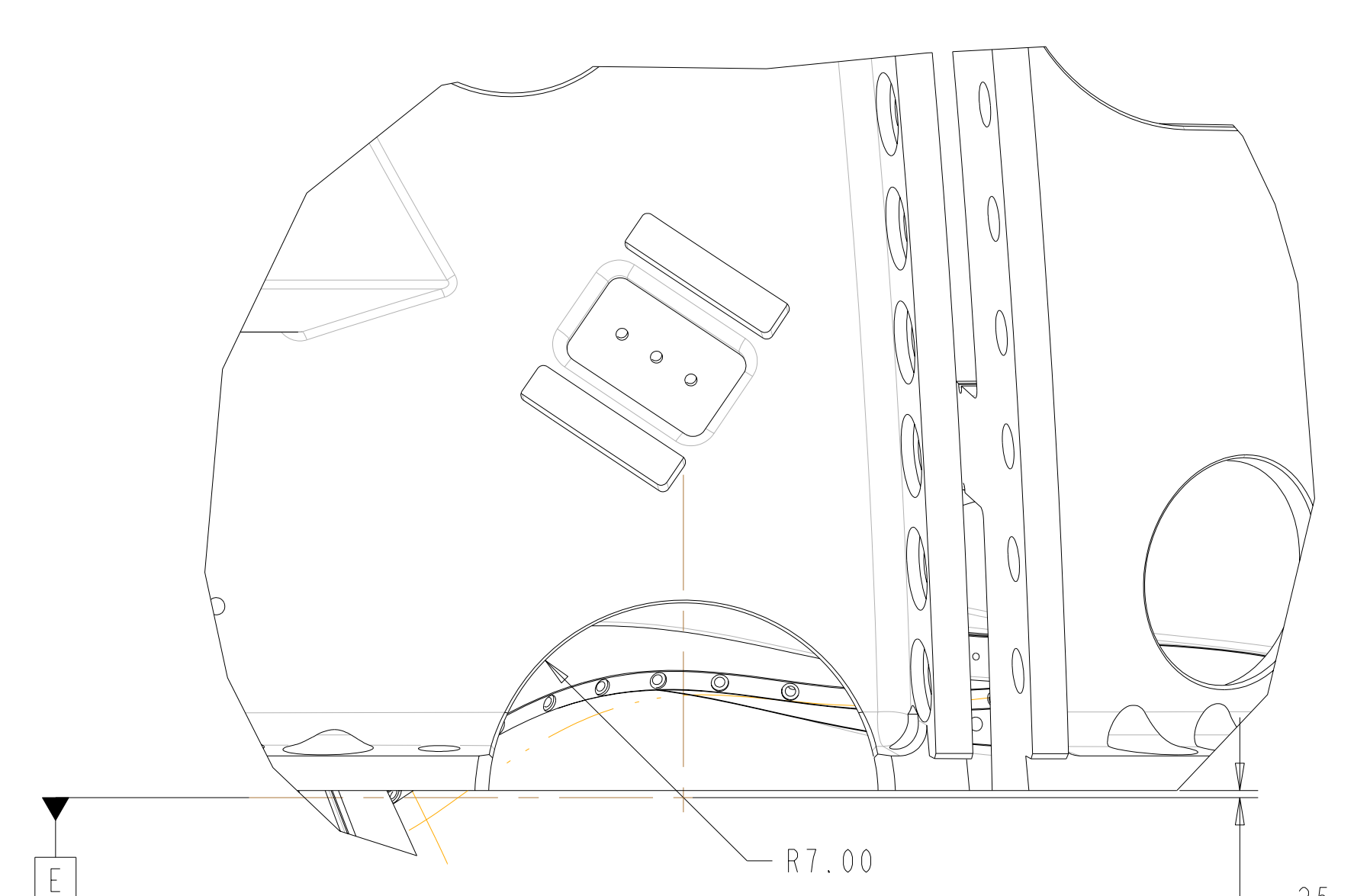
SECTION E5-E5
 SCALE 0.19



4X Ø.625 THRU
 COOLING INLET / OULET HOLES
 TYP 2 PLCS



SECTION E4-E4
 SCALE 0.19



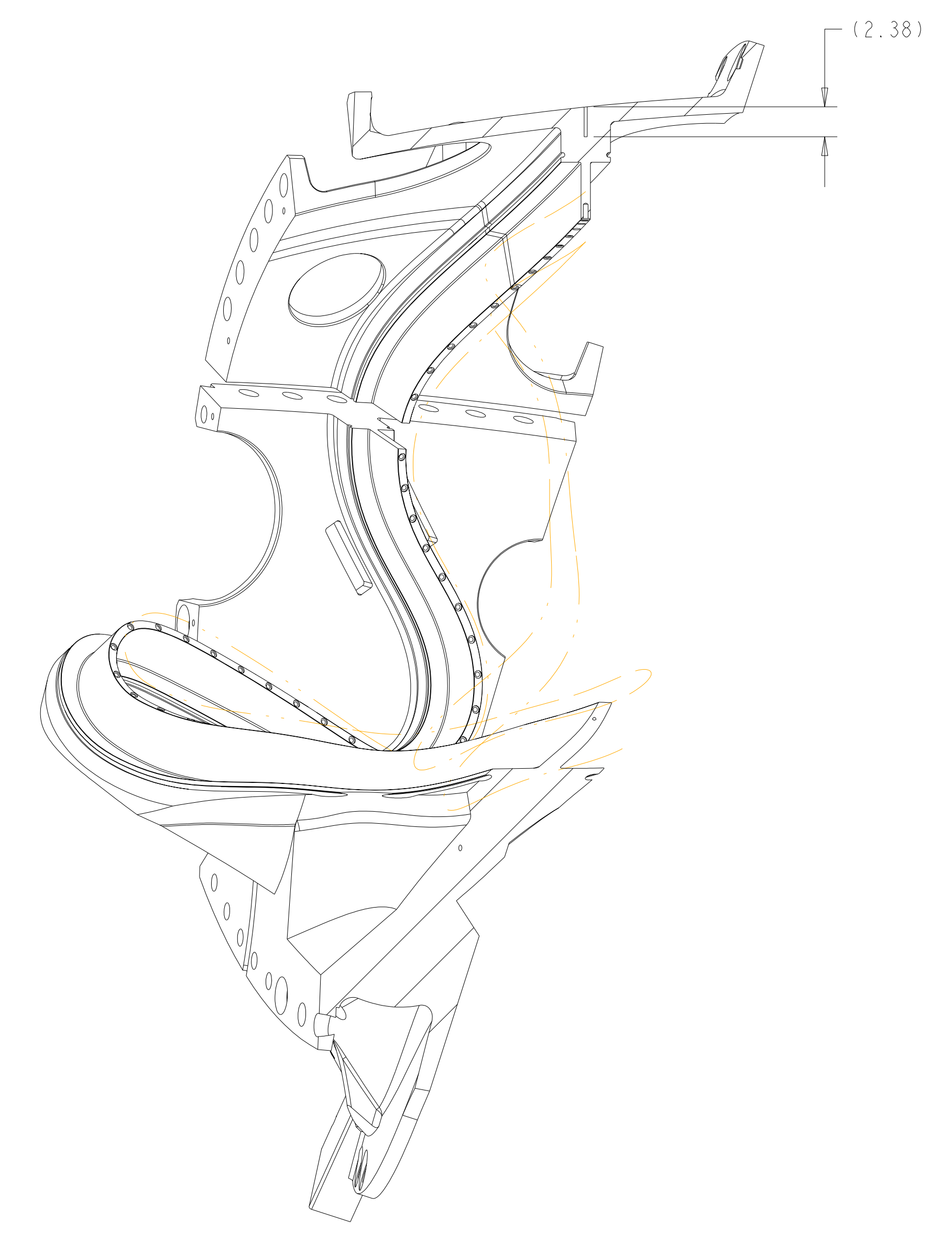
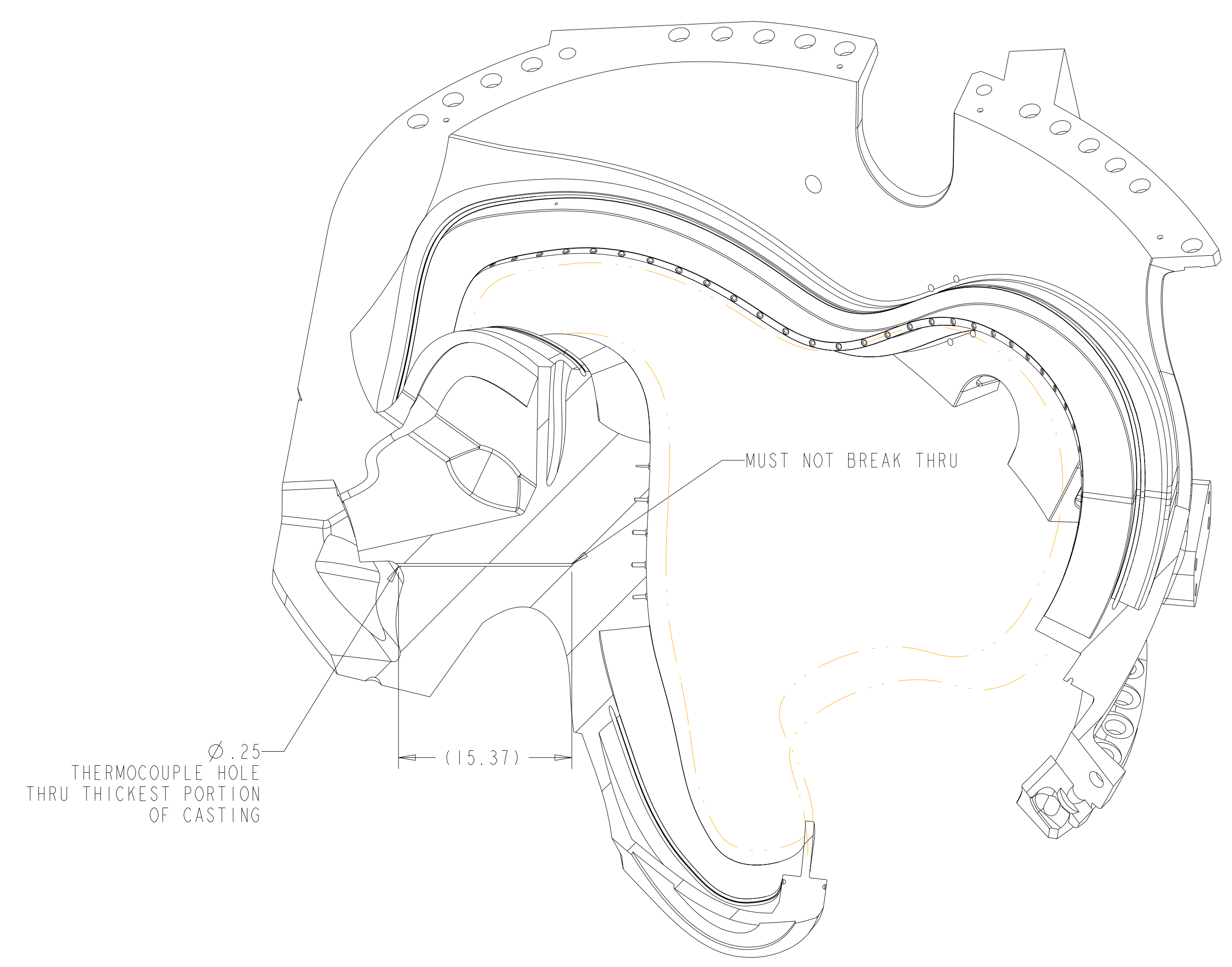
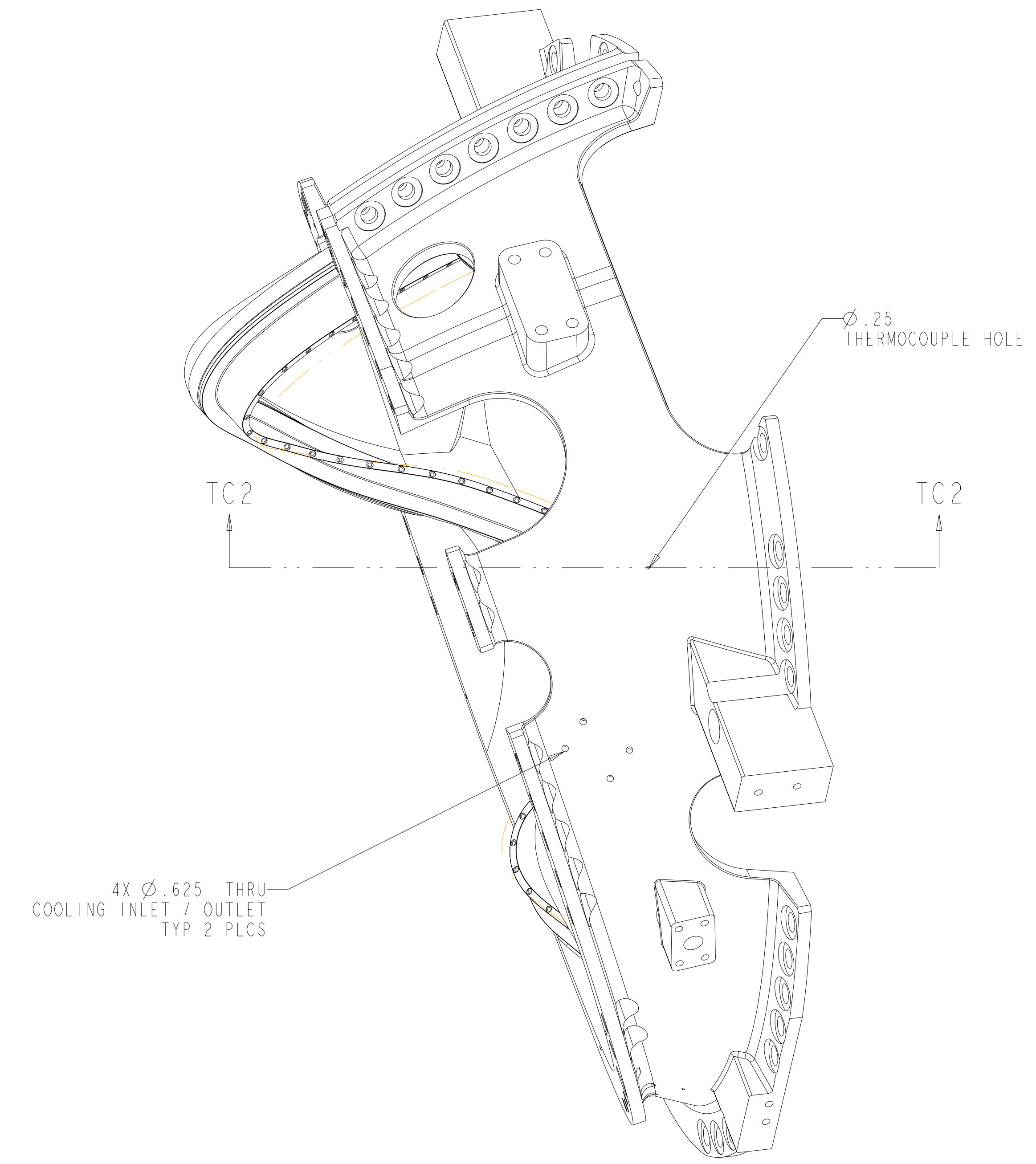
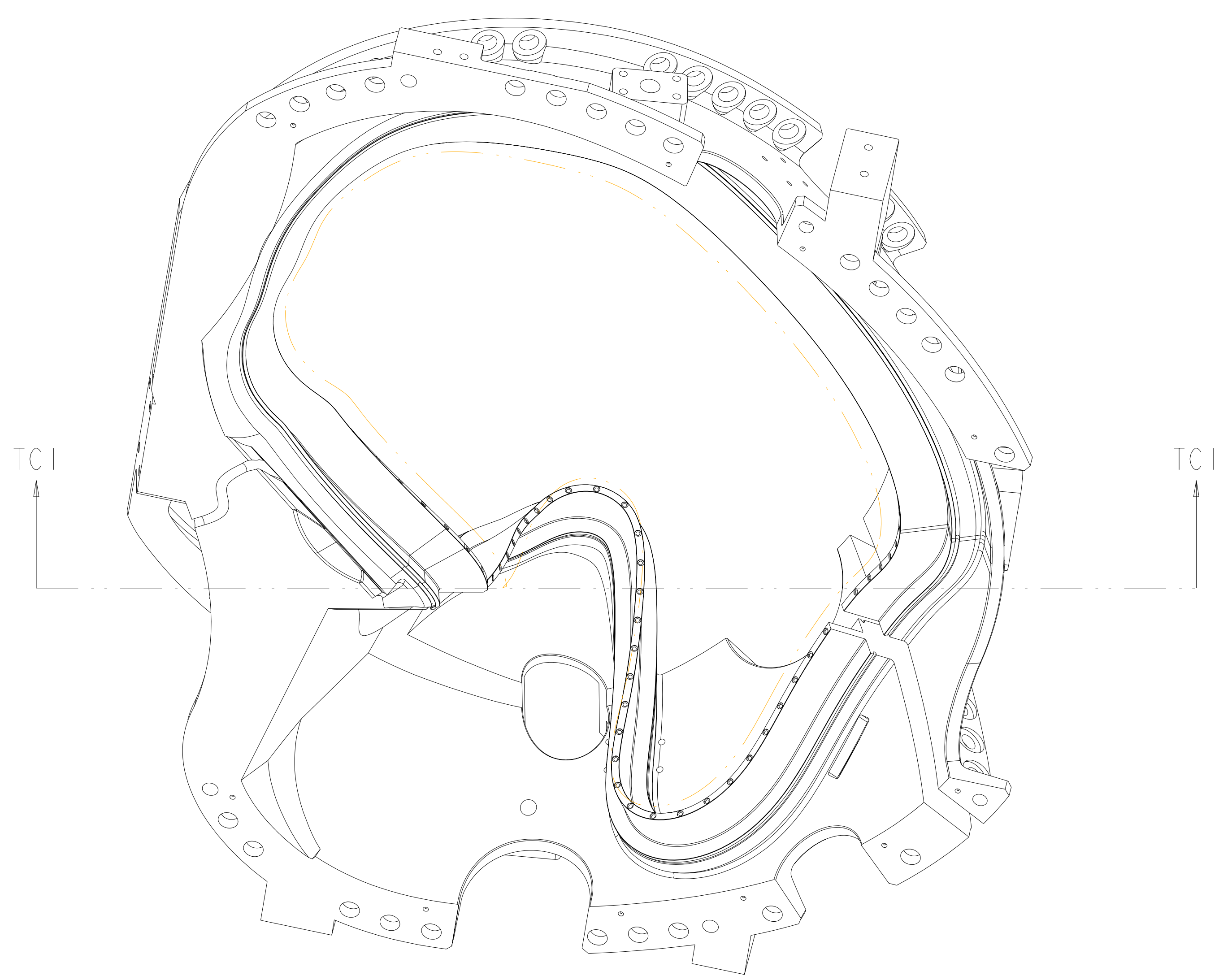
SECTION E6-E6
 SCALE 0.19

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-B							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	8	12	S	U
RELEASE LEVEL	SEI41-115						
Fabrication							

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SEI41-115

FOR NOTES AND PARTS LIST SEE SHEET 1



SECTION TC1-TC1

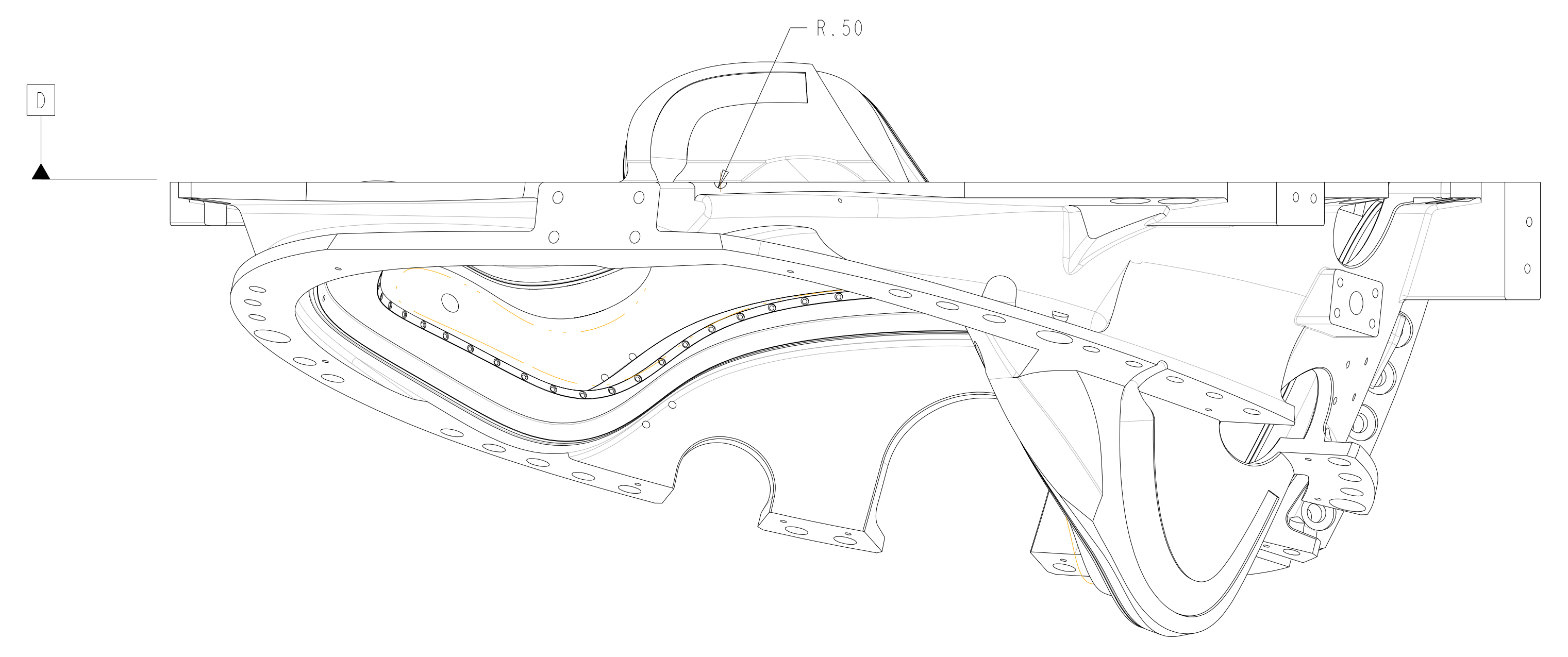
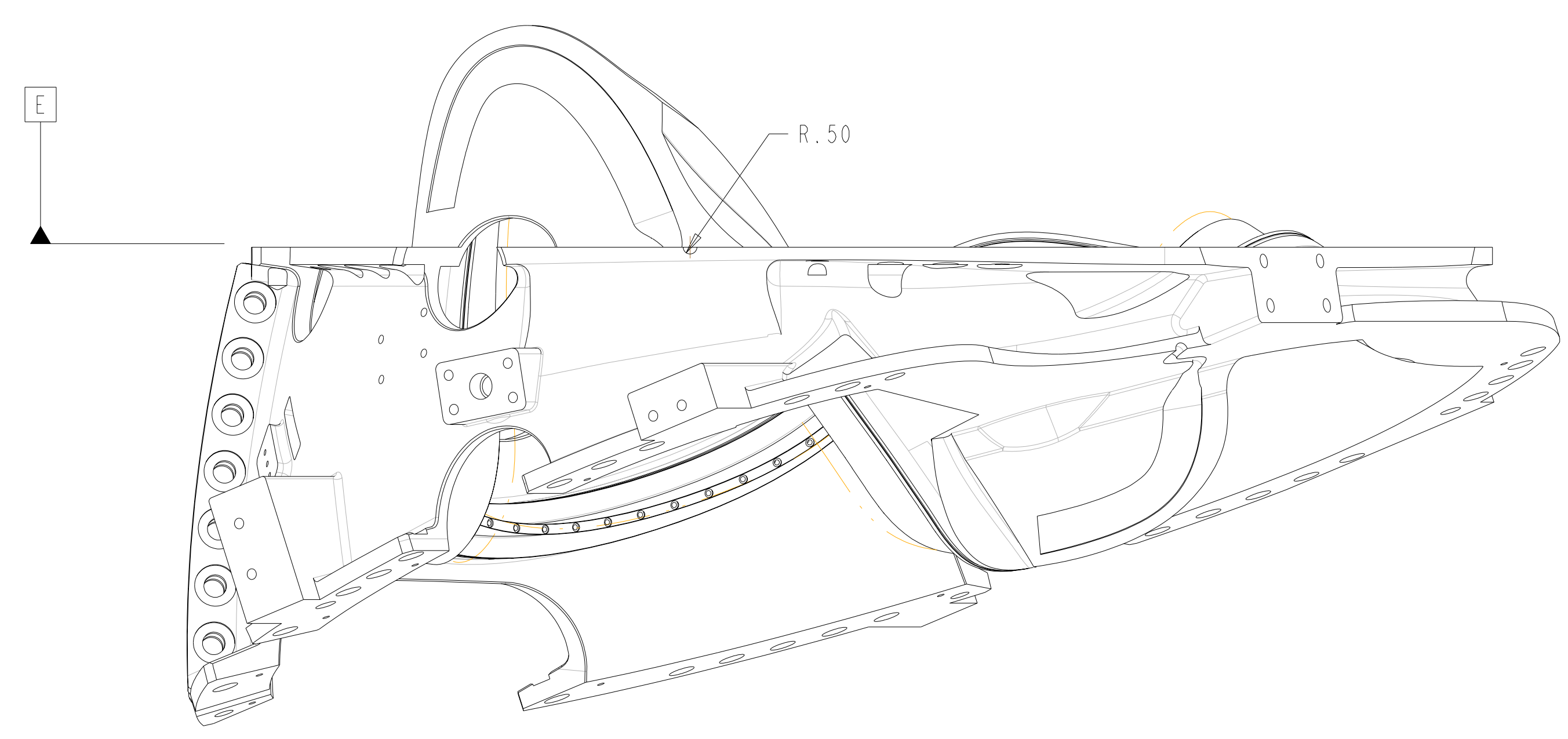
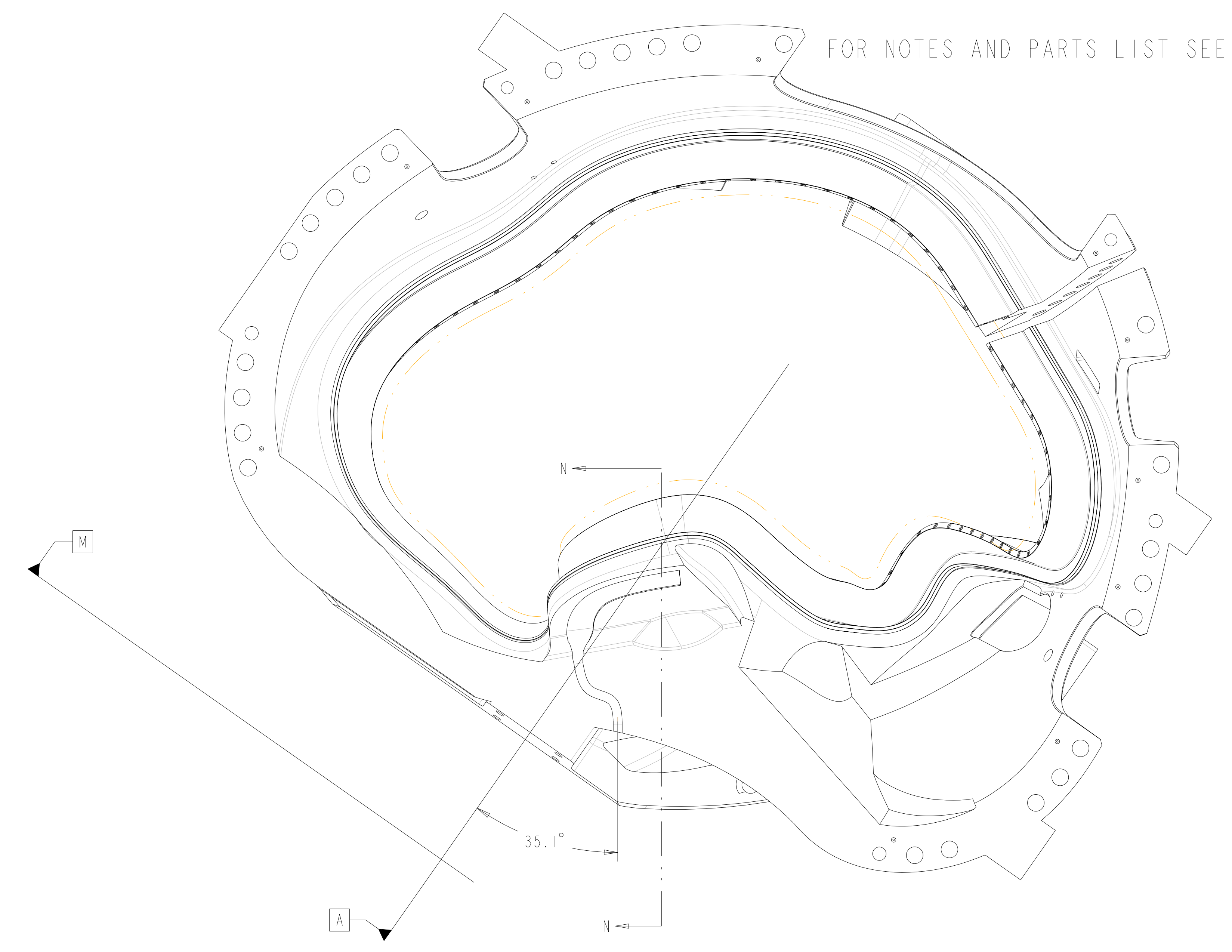
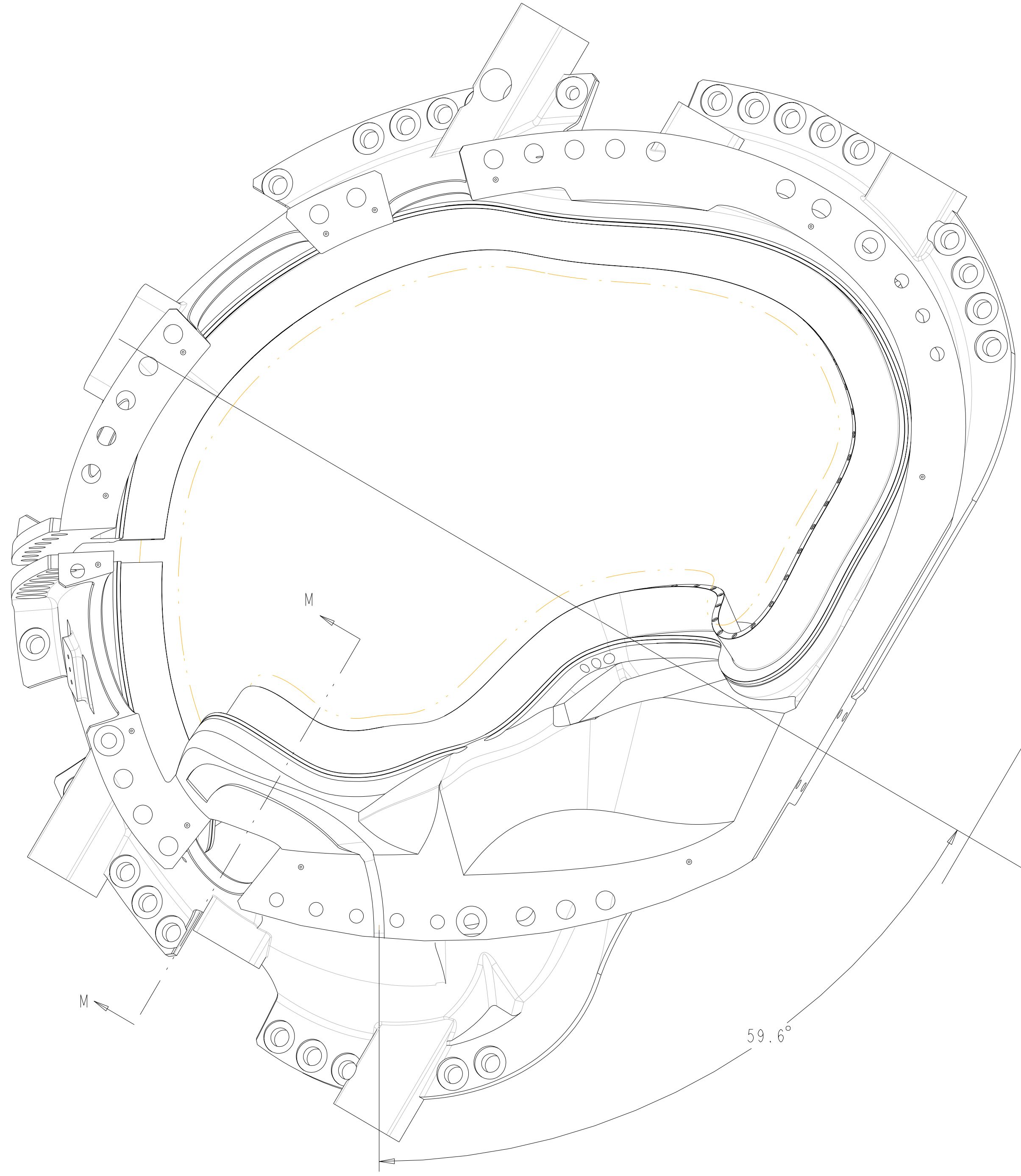
SECTION TC2-TC2

UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee					
		PROJECT NAME					
		NATIONAL COMPACT STELLARATOR EXPERIMENT					
		PRODUCTION WINDING FORM TYPE-B					
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	9	12	S	U
RELEASE LEVEL		SE141-115					REV
Fabrication							1

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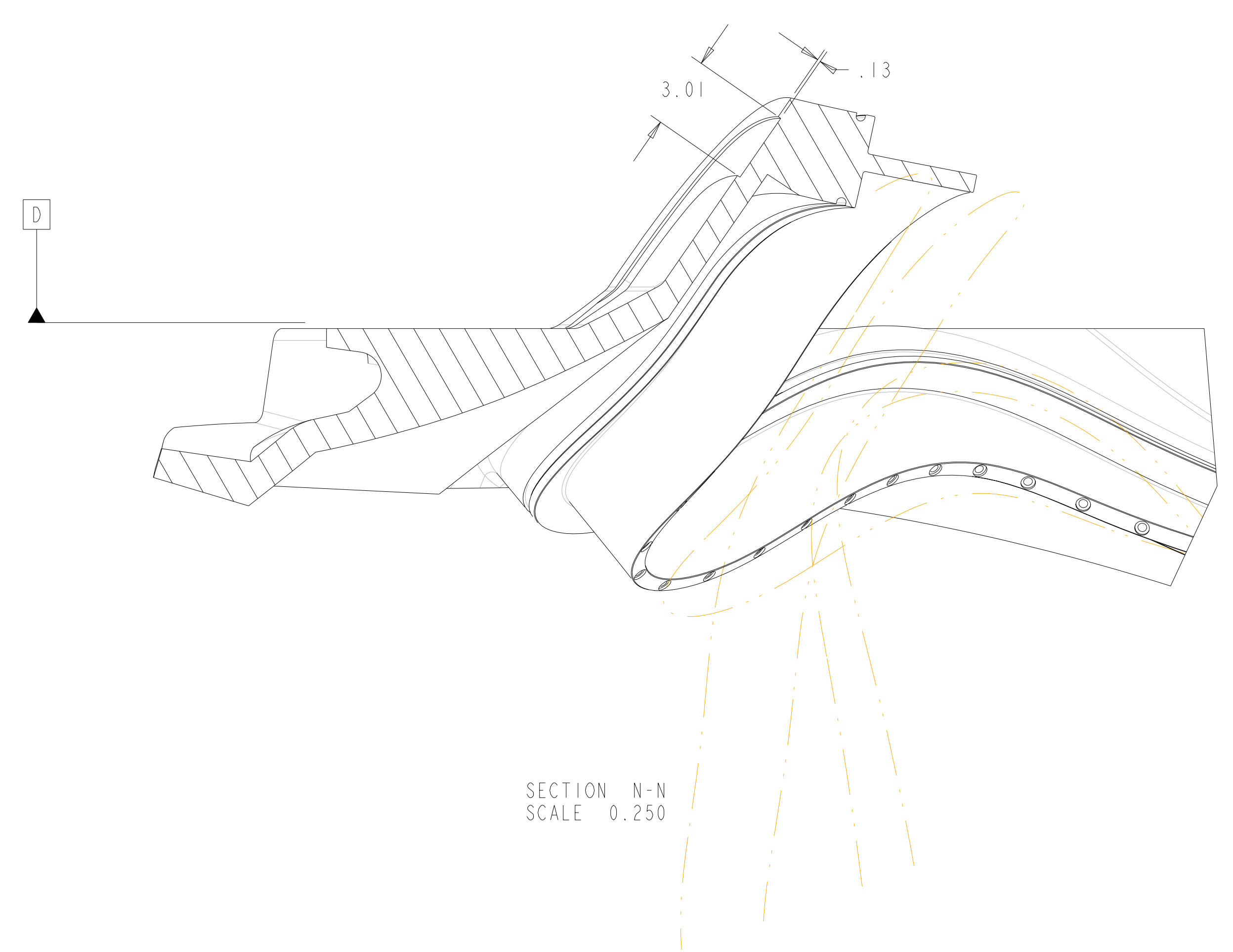
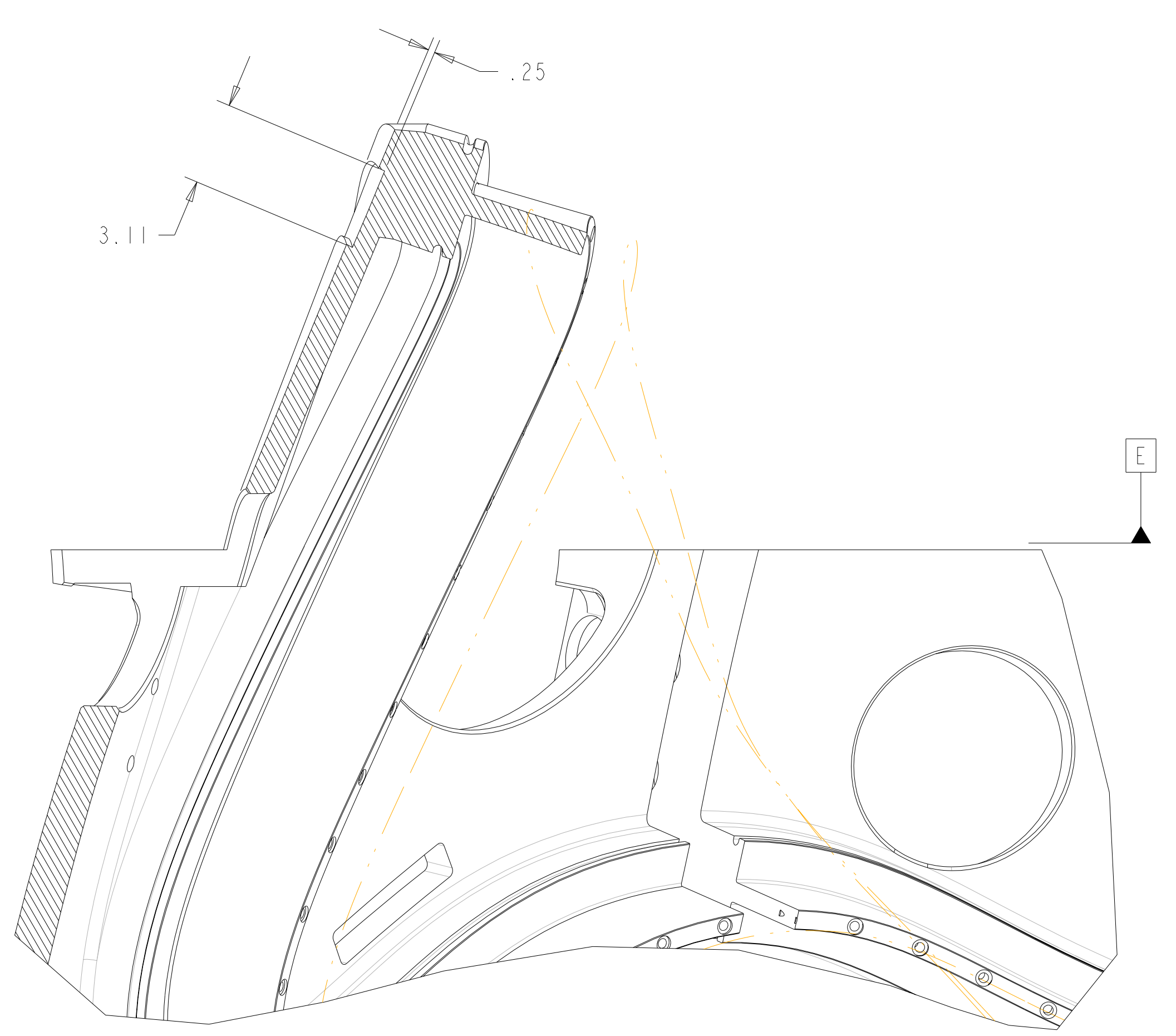
SE141-115

FOR NOTES AND PARTS LIST SEE SHEET 1



SCALE 0.125

SCALE 0.125



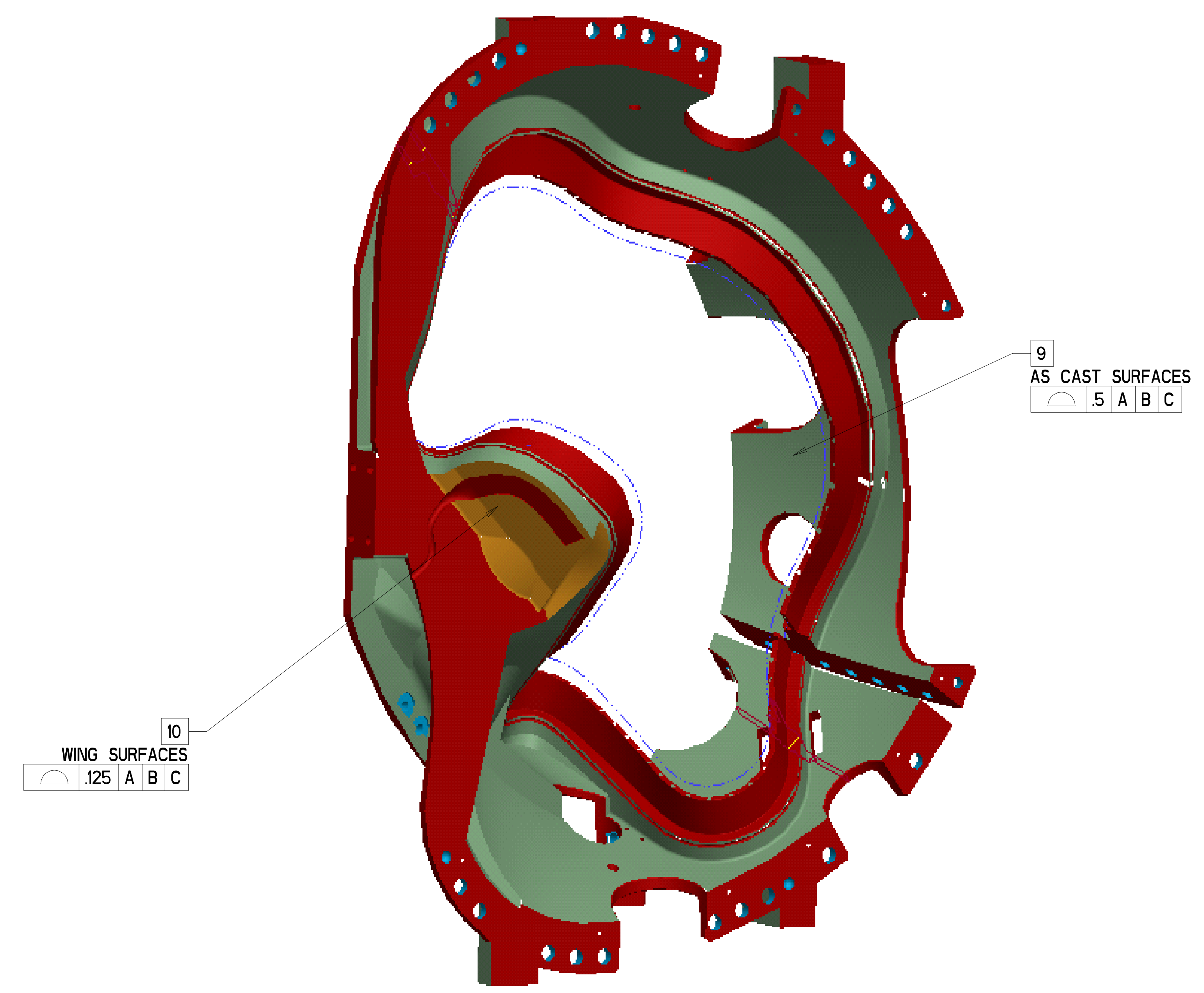
SECTION M-M
SCALE 0.25

SECTION N-N
SCALE 0.250

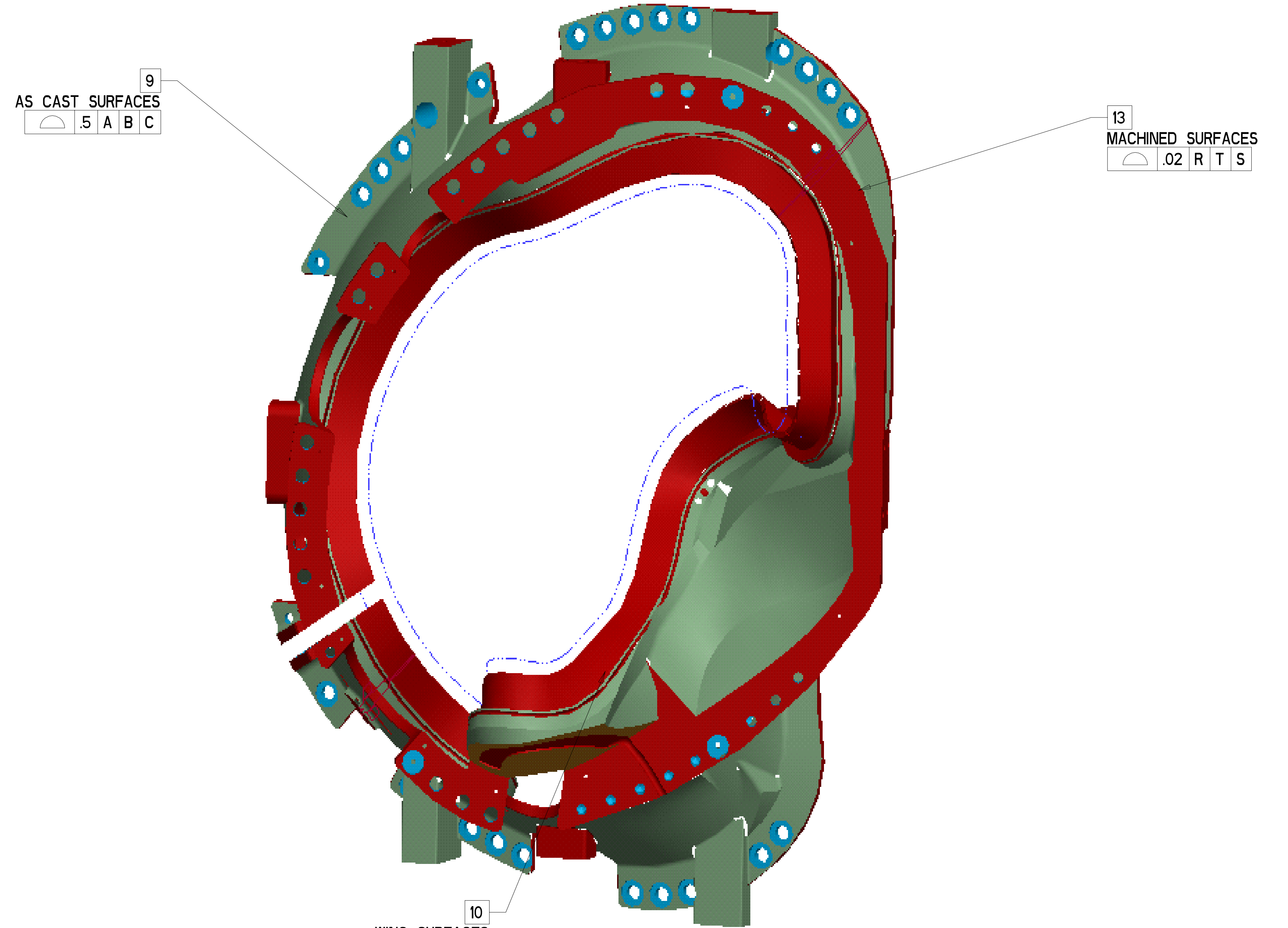
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC., Oak Ridge, Tennessee PROJECT NAME						
UT-BATTELLE						
NATIONAL COMPACT STELLARATOR EXPERIMENT						
PRODUCTION WINDING FORM TYPE-B						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
8	X-10	5700	3	10 12	S	U
RELEASE LEVEL						
Fabrication		SE141-115				

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ISOMETRIC VIEW
NOT TO SCALE



ISOMETRIC VIEW
NOT TO SCALE

UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee					
PROJECT NAME							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-B							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
8	X-10	5700	3	11 12	S	U	
RELEASE LEVEL		SEI41-115					
Fabrication							

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TABLE I: WINDING CENTER SPLINE

TABLE II: X-VECTOR SPLINE

#	X	Y	Z
1	79.865	41.620	0.000
2	79.954	40.848	2.703
3	79.699	40.139	5.412
4	79.119	39.497	8.088
5	78.246	38.924	10.700
6	77.117	38.408	13.224
7	75.763	37.938	15.645
8	74.211	37.508	17.951
9	72.480	37.112	20.134
10	70.577	36.765	22.177
11	68.497	36.500	24.052
12	66.238	36.363	25.721
13	63.807	36.404	27.133
14	61.235	36.672	28.237
15	58.581	37.144	29.040
16	55.889	37.663	29.673
17	53.175	37.978	30.340
18	50.507	37.834	31.201
19	48.064	37.012	32.306
20	46.021	35.540	33.546
21	44.254	33.716	34.757
22	42.521	31.789	35.851
23	40.699	29.859	36.784
24	38.758	27.959	37.516
25	36.704	26.097	37.991
26	34.572	24.269	38.127
27	32.429	22.476	37.826
28	30.386	20.727	37.012
29	28.588	19.001	35.716
30	27.114	17.255	34.077
31	25.883	15.587	32.178
32	24.821	14.306	29.918
33	23.992	13.709	27.307
34	23.371	13.765	24.568
35	22.818	14.265	21.857
36	22.202	15.020	19.217
37	21.441	15.899	16.655
38	20.621	16.692	14.084
39	20.049	17.171	11.376
40	20.161	17.234	8.581
41	21.328	16.913	6.069
42	23.531	16.306	4.490
43	26.144	15.366	4.287
44	28.434	13.980	5.112
45	30.309	12.246	6.288
46	32.355	10.489	7.039
47	34.864	9.267	6.901
48	37.491	8.707	6.095
49	40.022	8.663	4.876
50	42.401	8.965	3.406
51	44.570	9.536	1.713
52	46.320	10.429	-0.289
53	47.233	11.698	-2.606
54	47.125	13.289	-4.909
55	46.430	15.093	-6.949
56	45.523	16.965	-8.843
57	44.587	18.803	-10.758
58	43.702	20.655	-12.683
59	42.869	22.632	-14.502
60	42.101	24.779	-16.150
61	41.471	27.112	-17.589
62	40.952	29.625	-18.739
63	40.413	32.216	-19.696
64	39.799	34.789	-20.655
65	39.178	37.324	-21.706
66	38.712	39.872	-22.803
67	38.541	42.498	-23.793
68	38.682	45.210	-24.518
69	39.152	47.958	-24.854
70	40.574	50.339	-24.715
71	43.042	51.598	-24.560
72	45.773	51.353	-24.953
73	47.888	49.823	-25.946
74	49.488	47.833	-27.123
75	50.873	45.694	-28.316
76	52.175	43.493	-29.491
77	53.422	41.253	-30.650
78	54.602	38.966	-31.789
79	55.708	36.632	-32.905
80	56.771	34.262	-33.987
81	57.920	31.901	-34.998
82	59.424	29.677	-35.819
83	61.577	27.936	-36.187
84	64.224	27.142	-35.833
85	66.799	27.411	-34.786
86	68.891	28.519	-33.291
87	70.359	30.197	-31.589
88	71.208	32.226	-29.843
89	71.577	34.417	-28.120
90	71.705	36.624	-26.379
91	71.818	38.739	-24.527
92	72.074	40.660	-22.490
93	72.549	42.286	-20.247
94	73.227	43.552	-17.830
95	74.085	44.406	-15.294
96	75.150	44.757	-12.718
97	76.379	44.578	-10.198
98	77.604	44.014	-7.729
99	78.654	43.258	-5.232
100	79.425	42.436	-2.655
101	79.865	41.620	0.000

#	X	Y	Z
1	76.869	38.919	0.000
2	76.879	38.207	2.540
3	76.554	37.557	5.076
4	75.918	36.974	7.570
5	75.009	36.455	9.992
6	73.864	35.985	12.323
7	72.514	35.557	14.550
8	70.983	35.164	16.663
9	69.285	34.807	18.652
10	67.421	34.509	20.496
11	65.384	34.313	22.162
12	63.176	34.265	23.605
13	60.816	34.419	24.772
14	58.351	34.791	25.634
15	55.837	35.283	26.272
16	53.297	35.688	26.862
17	50.760	35.772	27.577
18	48.340	35.330	28.511
19	46.224	34.244	29.638
20	44.431	32.703	30.807
21	42.733	30.999	31.896
22	40.967	29.285	32.847
23	39.081	27.609	33.622
24	37.068	25.992	34.164
25	34.953	24.432	34.383
26	32.801	22.930	34.140
27	30.767	21.481	33.304
28	29.043	20.013	31.956
29	27.630	18.525	30.298
30	26.399	17.345	28.296
31	25.477	17.058	25.859
32	24.819	17.452	23.336
33	24.189	18.162	20.874
34	23.470	19.015	18.482
35	22.654	19.874	16.123
36	21.896	20.556	13.690
37	21.443	20.938	11.122
38	21.683	20.928	8.512
39	23.068	20.450	6.363
40	25.381	19.653	5.489
41	27.755	18.609	5.886
42	29.770	17.269	6.925
43	31.505	15.672	8.110
44	33.234	13.933	9.079
45	35.335	12.402	9.436
46	37.740	11.379	9.131
47	40.202	10.829	8.372
48	42.607	10.658	7.303
49	44.893	10.789	5.995
50	46.968	11.229	4.430
51	48.653	12.022	2.569
52	49.833	13.010	0.431
53	50.424	14.109	-1.888
54	50.418	15.384	-4.194
55	49.943	16.903	-6.293
56	49.126	18.642	-8.101
57	48.239	20.382	-9.877
58	47.384	22.114	-11.677
59	46.581	23.935	-13.410
60	45.832	25.909	-14.994
61	45.189	28.058	-16.381
62	44.564	30.415	-17.385
63	43.870	32.858	-18.106
64	43.065	35.290	-18.742
65	42.181	37.688	-19.401
66	41.319	40.087	-20.090
67	40.643	42.558	-20.718
68	40.291	45.137	-21.140
69	40.312	47.768	-21.197
70	41.714	49.873	-20.816
71	44.203	50.628	-20.763
72	46.710	50.101	-21.266
73	48.649	48.613	-22.223
74	50.105	46.722	-23.344
75	51.310	44.671	-24.489
76	52.399	42.551	-25.624
77	53.420	40.389	-26.744
78	54.373	38.189	-27.848
79	55.254	35.948	-28.931
80	56.078	33.673	-29.987
81	56.920	31.386	-30.999
82	57.968	29.143	-31.910
83	59.522	27.125	-32.559
84	61.742	25.748	-32.658
85	64.255	25.402	-32.029
86	66.488	26.052	-30.819
87	68.167	27.386	-29.298
88	69.242	29.152	-27.668
89	69.782	31.158	-26.045
90	69.969	33.244	-24.440
91	70.030	35.297	-22.781
92	70.152	37.220	-20.979
93	70.459	38.907	-18.975
94	70.983	40.263	-16.775
95	71.696	41.227	-14.427
96	72.615	41.705	-12.005
97	73.726	41.632	-9.617
98	74.861	41.139	-7.287
99	75.826	40.441	-4.932
100	76.511	39.678	-2.501
101	76.869	38.919	0.000

ALL POINT LOCATIONS
ARE BASIC

FOR NOTES AND PARTS
LIST SEE SHEET 1

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC., Oak Ridge, Tennessee PROJECT NAME						
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT						
PRODUCTION WINDING FORM TYPE-B						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
8	X-10	5700	3	12 12	S	U
RELEASE LEVEL						
Fabrication		SEI41-115				
						REV
						1

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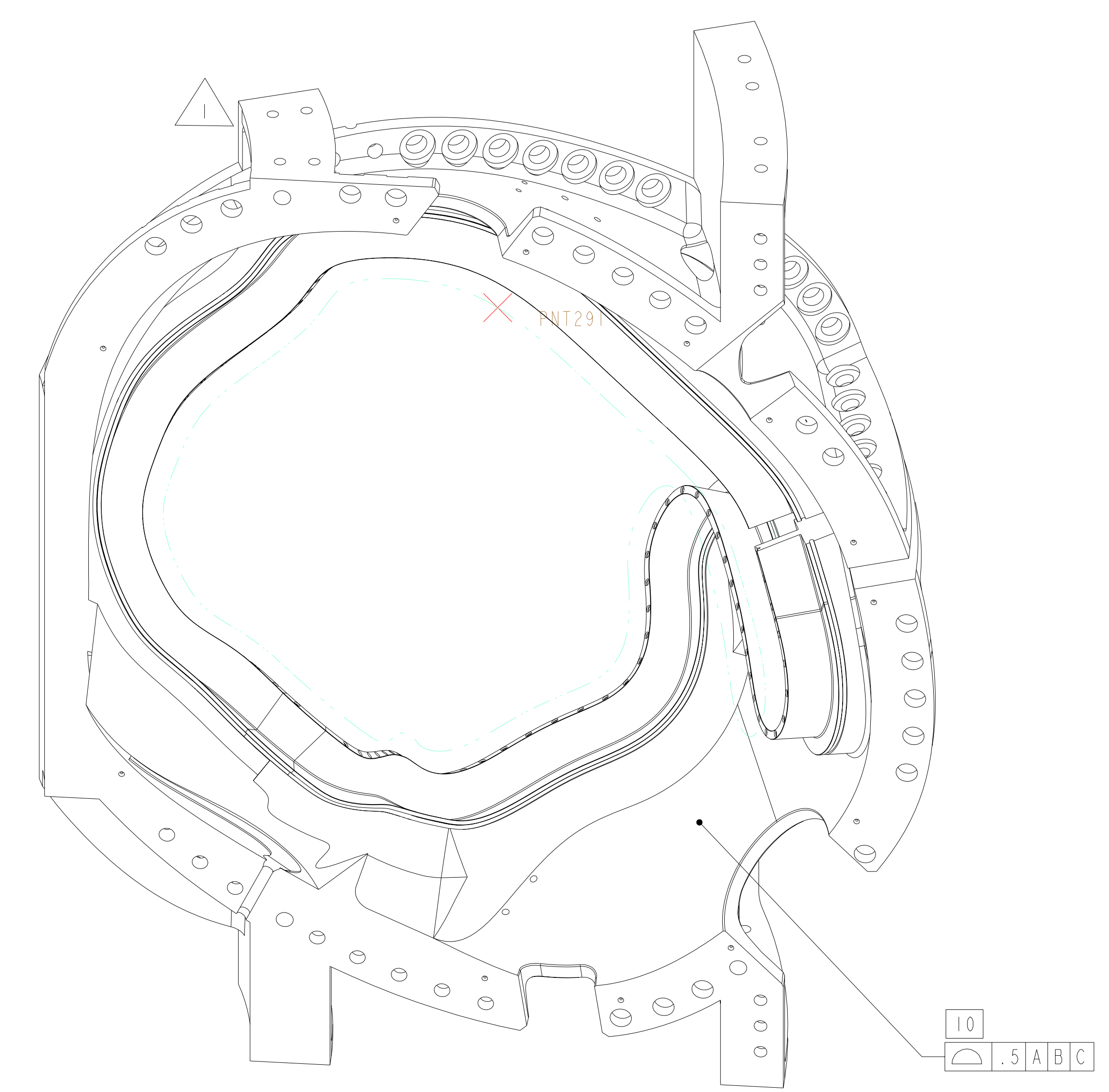
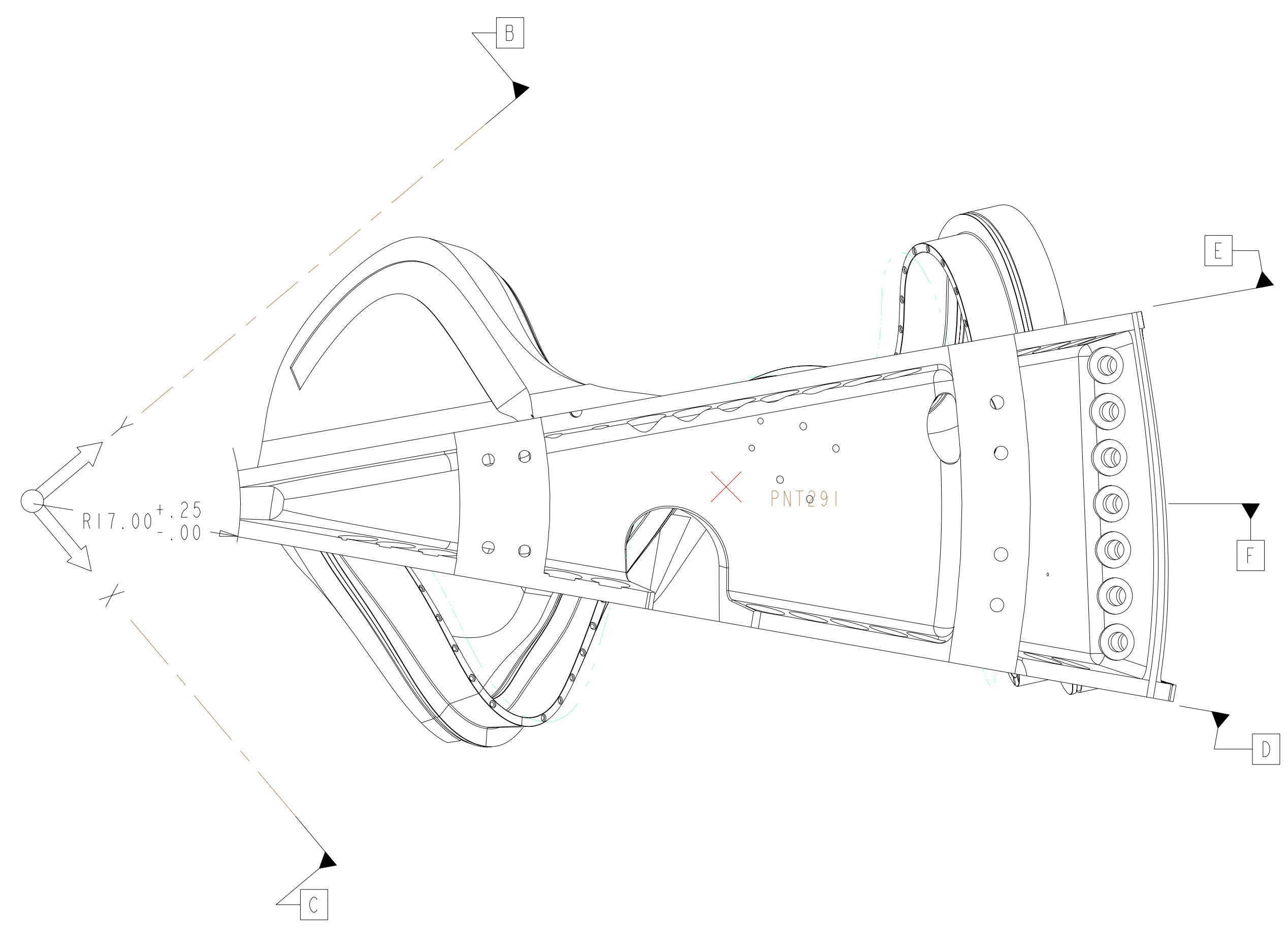
E

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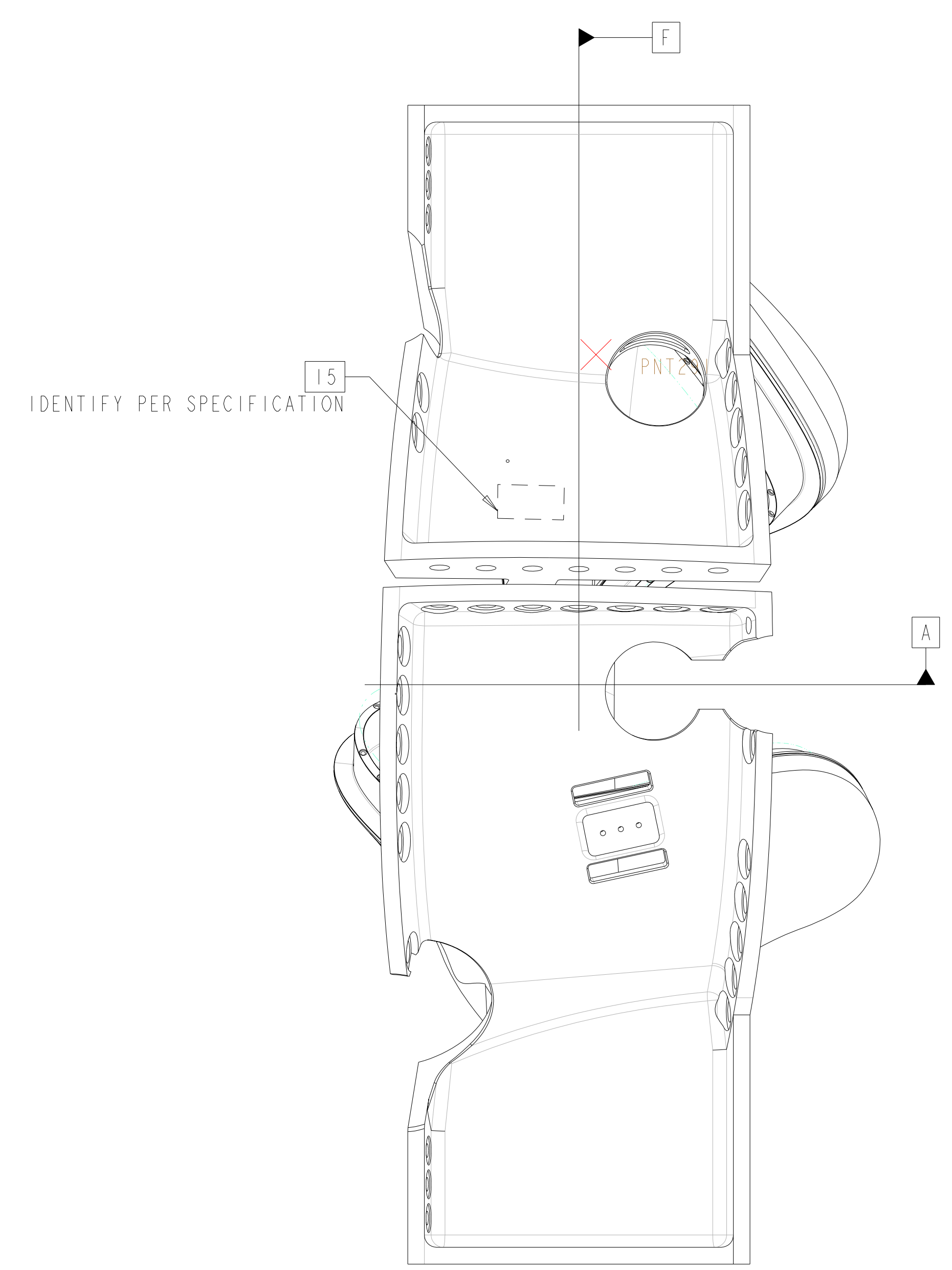
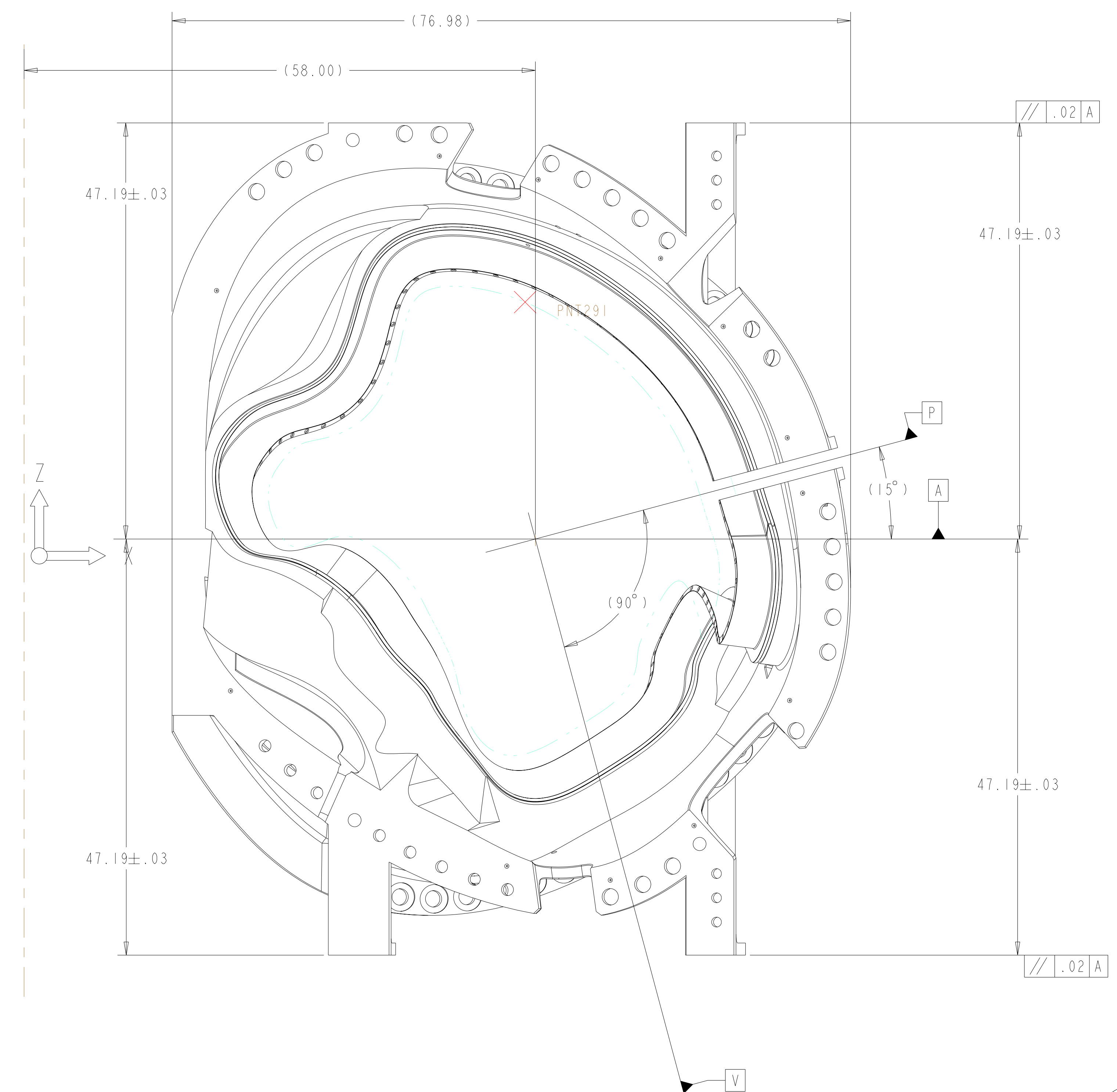
B

A



ISOMETRIC VIEW

- NOTES:
- DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.8M-1996.
 - INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.
 - DIMENSIONS ARE IN INCHES.
 - DRAWING DEPICTS FINAL MACHINED STATE OF PART DEFINED BY PRO/ENGINEER FILE SE141-116.PRT.
 - UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE RELATED TO DATUM A- (PRIMARY X-Y PLANE, TOP) DATUM B- (SECONDARY Y-Z PLANE, SIDE) DATUM C- (TERTIARY X-Z PLANE, FRONT)
 - DIMENSIONS APPLY AT TEMPERATURE OF 20-30°C (68-86°F)
 - DIMENSIONS AND TOLERANCES EXCLUDE PROCESS MATERIAL ALLOWANCES WHICH MAY ADD MASS.
 - APPROXIMATE WEIGHT = 4898 LBS. WEIGHT OF FINISHED PART NOT TO EXCEED 6000 LBS.
 - UNLESS OTHERWISE SPECIFIED, AS-CAST SURFACE PROFILE TOLERANCE = +/- .25 - INCH, WITH EXEMPTION FOR INTERSECTING SURFACES WHERE FILLETS ARE EXPECTED. MIN FILLET AND CORNER RADII = 0.5 +/- 0.1-IN.
 - DESIGNATED SURFACE REGIONS HAVE PROFILE TOLERANCE = +/- 0.125-IN.
 - MIN THICKNESS PER CAD GEOMETRY, TOLERANCE = +0.25-IN / -0.0-IN.
 - PARTING LINE EDGES, FLASH, GATES, RUNNER, AND RISER EXTENSIONS 0.25-IN MAX
 - UNLESS OTHERWISE SPECIFIED, MACHINED SURFACE PROFILE TOLERANCE = +/- 0.01-IN.
 - BACK SPOTFACE ALL THRU HOLES MINIMUM TO CLEAN UP.
 - SEE LATEST REVISION OF SPECIFICATION NCSX-CSPEC-141-03 FOR ADDITIONAL REQUIREMENTS.



SCALE .125

AR	X	CAGE CODE	SE141-116 PART OR IDENTIFYING NO	WINDING FORM TYPE-C NOMENCLATURE OR DESCRIPTION	CAST SS MATERIAL	SEE NOTE #15 SPECIFICATION	FIND NO

← NEXT ASSEMBLY PARTS LIST

REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
2	SHEET 11 REMOVED TABLES III & IV	GLL	9/04									
	SHEET 2; DETAIL B REMOVED SPHERICAL SEATS											
	MODIFIED TEE RELIEF TO .1 R; .03 CHAMFER											
	WAS .06; PER ECN-4903											
1	REVERSED UPPER INB VERT SUPP POCKET.	DEW	7/04	TGB			DEW					
	CHANGED LN2 INLET/OUTLET HOLE DIAMETER.											
	MODIFIED LEAD BLOCK DIMS PER ECN-4883.											

SCALE NOTED	DES	T	BROWN	5-5-04
	DRW	P	MILLER	5-5-04
	CHK	M.	COLE	6-25-04
	SECT	:	:	:
	DEPT	:	:	:
	PE	D.	WILLIAMSON	6-25-04
	CR	:	:	:
	PJ	:	:	:
	REQ	:	:	:
	PPPL	DRFT	J. SIEGEL	6-25-04
	:	:	:	:
	:	:	:	:
	:	:	:	:
	VERSION NO.	2	PLANT	X-10
	BLDG	5700	FL	3
	SHT	11	OF	11
	TYPE	S	CLASS	U
	RELEASE LEVEL	Fabrication		
		SE141-116		
	REV	2		

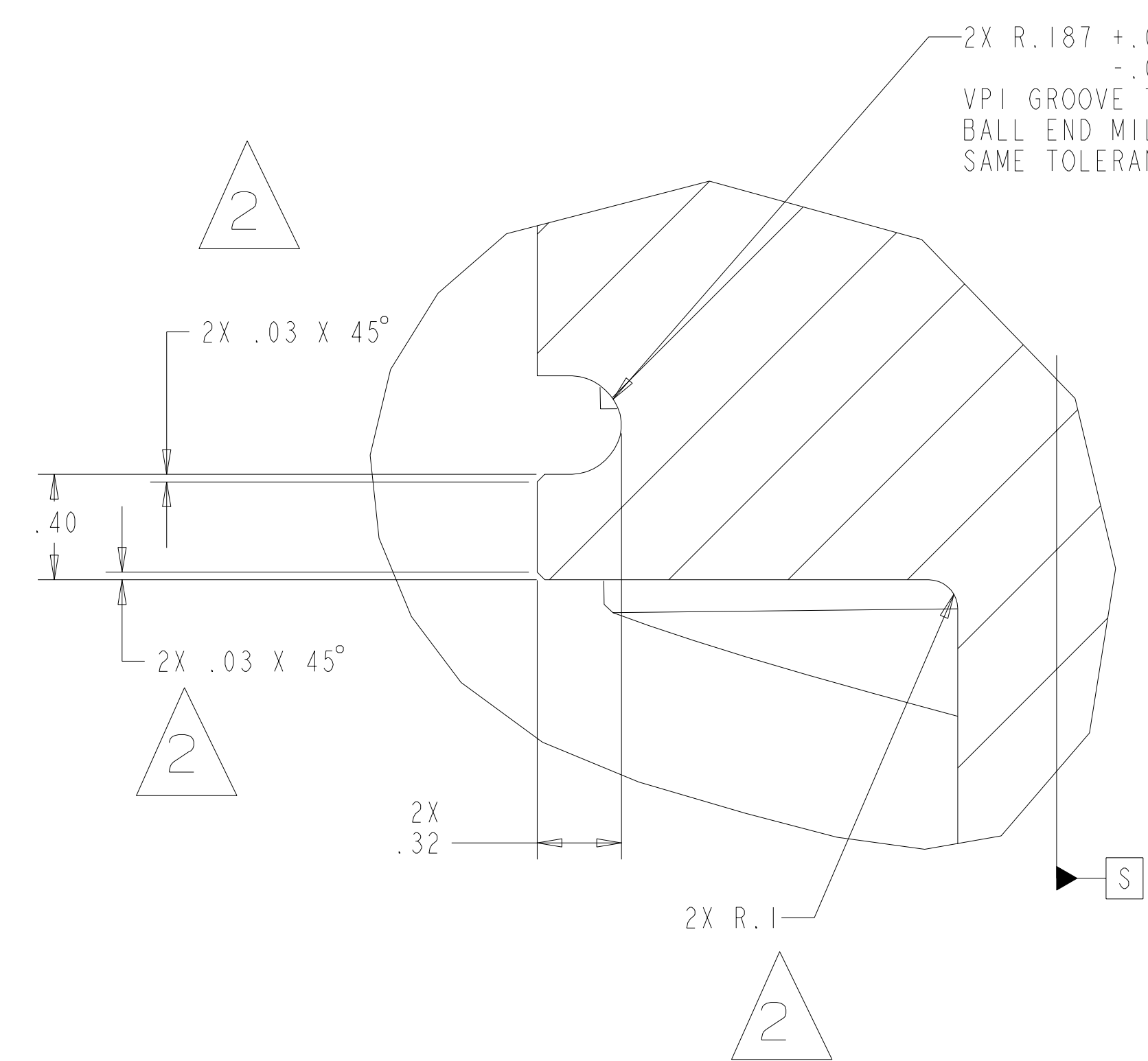
NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF, ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE NOT TO BE USED FOR OTHER PURPOSES, AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

P THIS DRAWING PRODUCED ON PRO-ENGINEER

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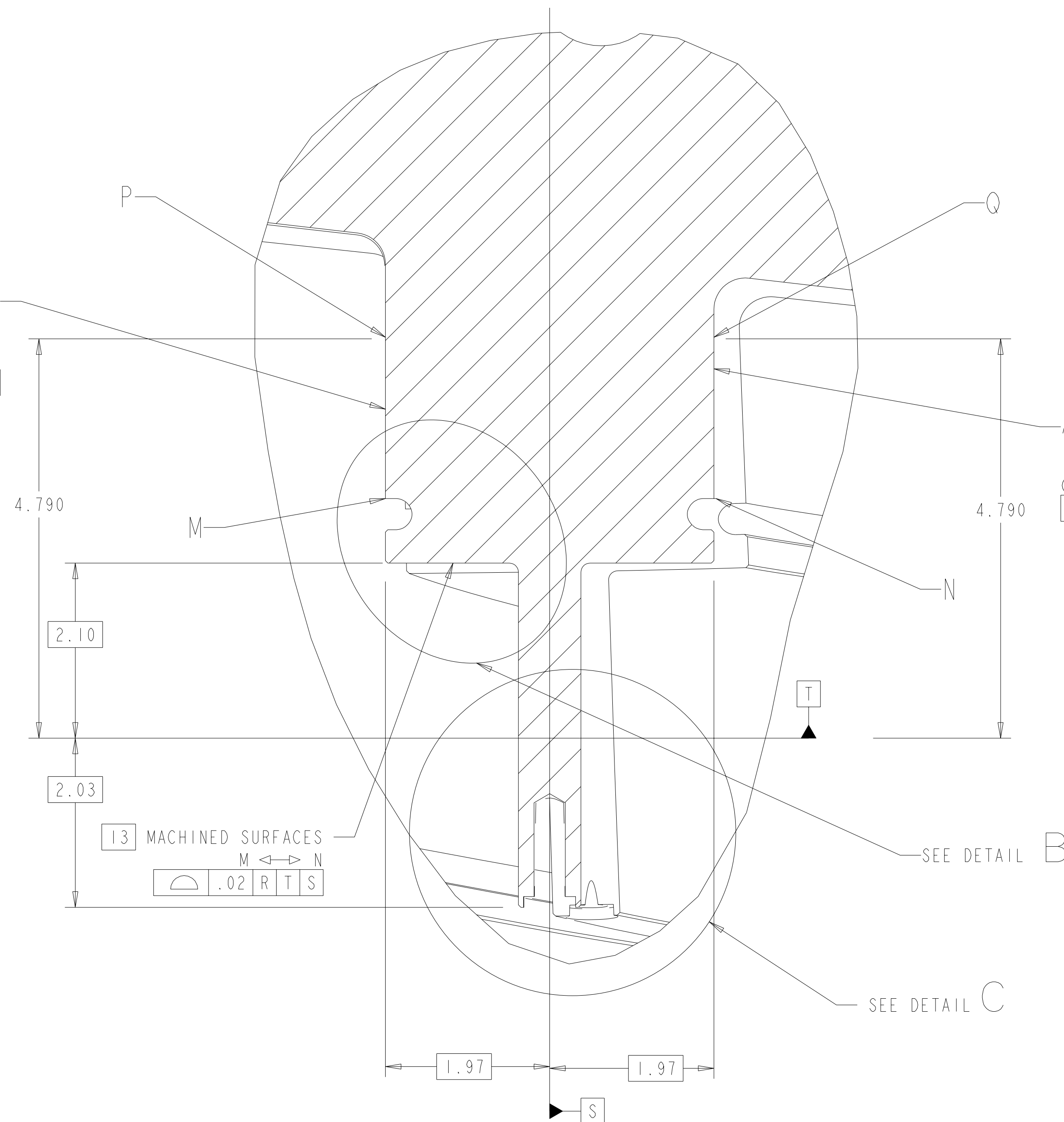
SE141-116

FOR NOTES AND PARTS LIST SEE SHEET 1



DETAIL B
SCALE 2.000

AS CAST SURFACES
ACCEPTABLE. IF TOLERANCE
CAN BE ACHIEVED
P ↔ M
Ⓢ .1 | R | S | T



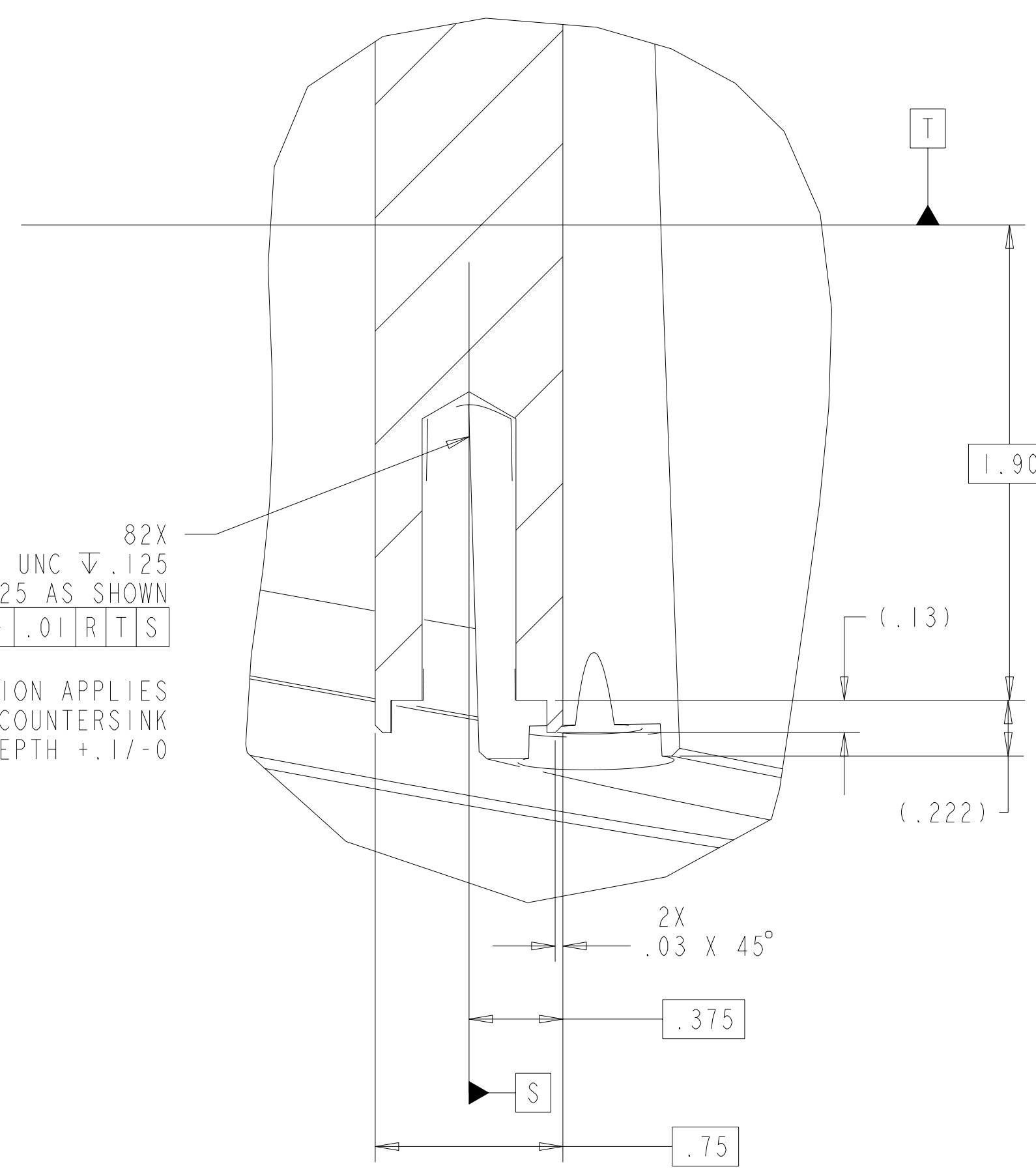
DETAIL A
SCALE 1.00

TYPICAL FOR ALL POINTS ALONG WINDING CENTER

AS CAST SURFACES
ACCEPTABLE. IF TOLERANCE
CAN BE ACHIEVED
Q ↔ N
Ⓢ .1 | R | S | T

82X
Ø.375 -16 UNC ±.125
Ø.625 AS SHOWN
Ⓢ .01 | R | T | S

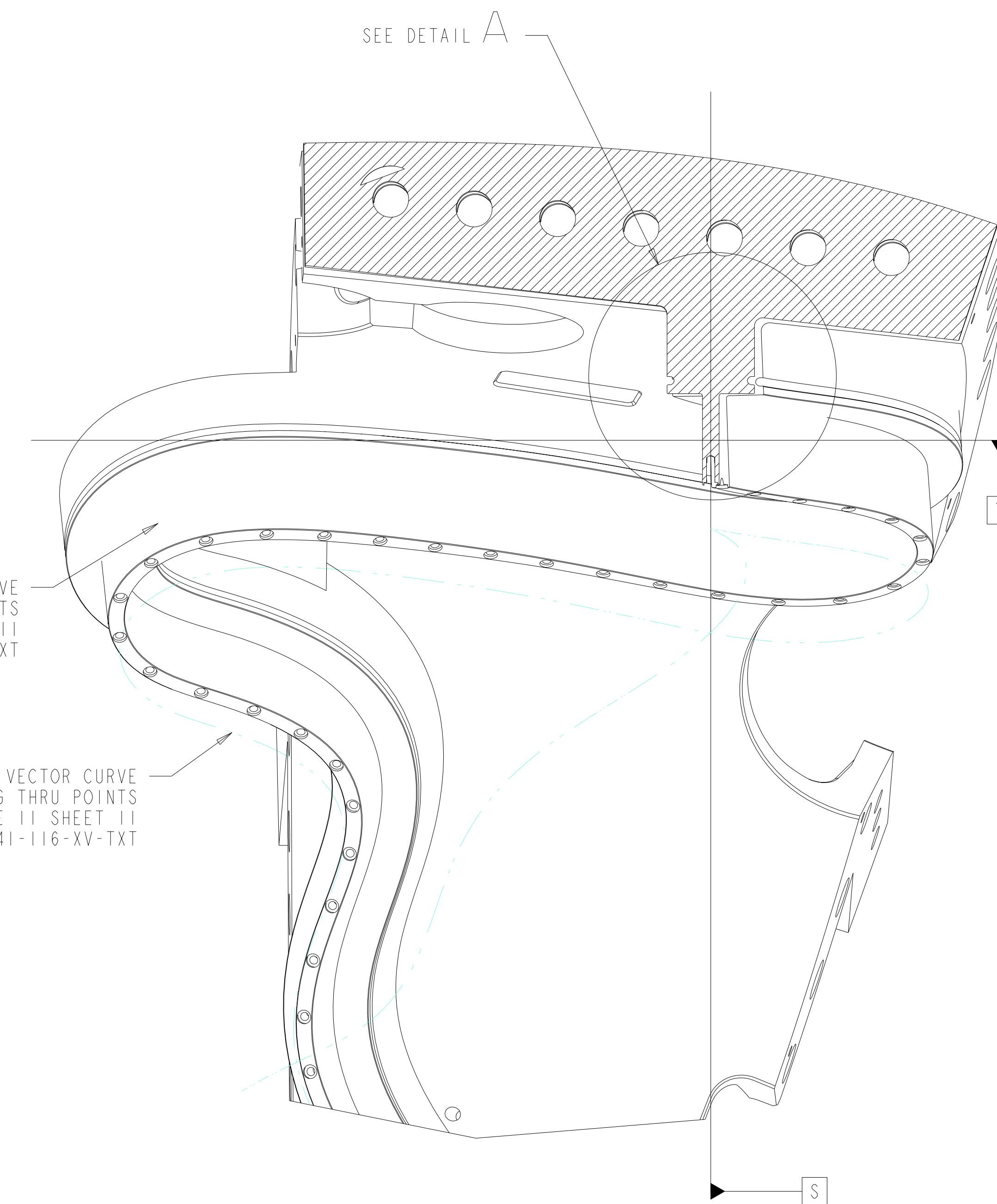
TRUE POSITION APPLIES
TO DEPTH OF COUNTERSINK
THREADED HOLE DEPTH +.1/-0



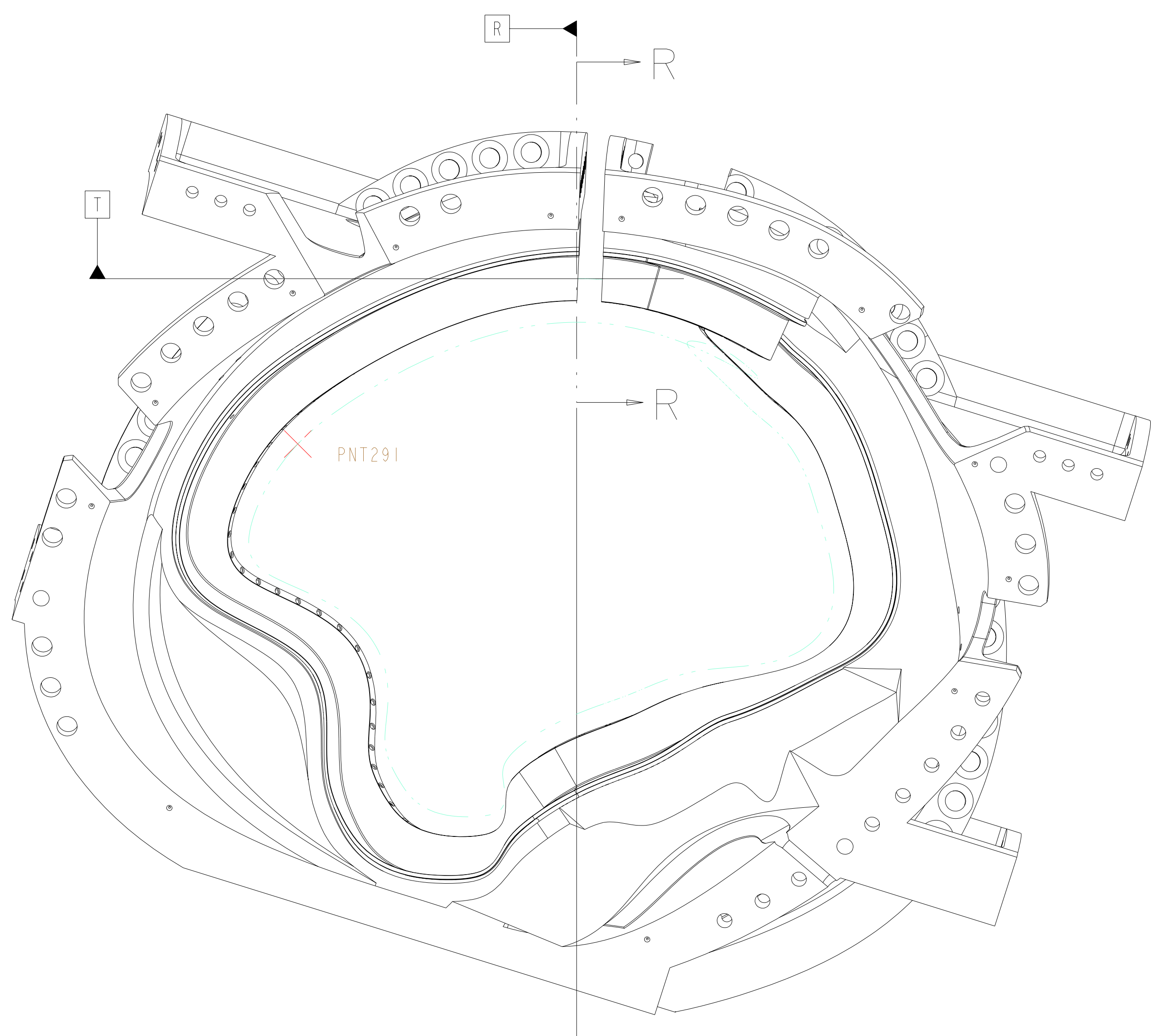
DETAIL C
SCALE 2.00

WINDING CENTER CURVE
SPLINE PASSING THRU POINTS
SHOWN IN TABLE I SHEET II
DATA FILE SE141-116-WC.TXT

X VECTOR CURVE
SPLINE PASSING THRU POINTS
SHOWN IN TABLE II SHEET II
DATA FILE SE141-116-XV.TXT



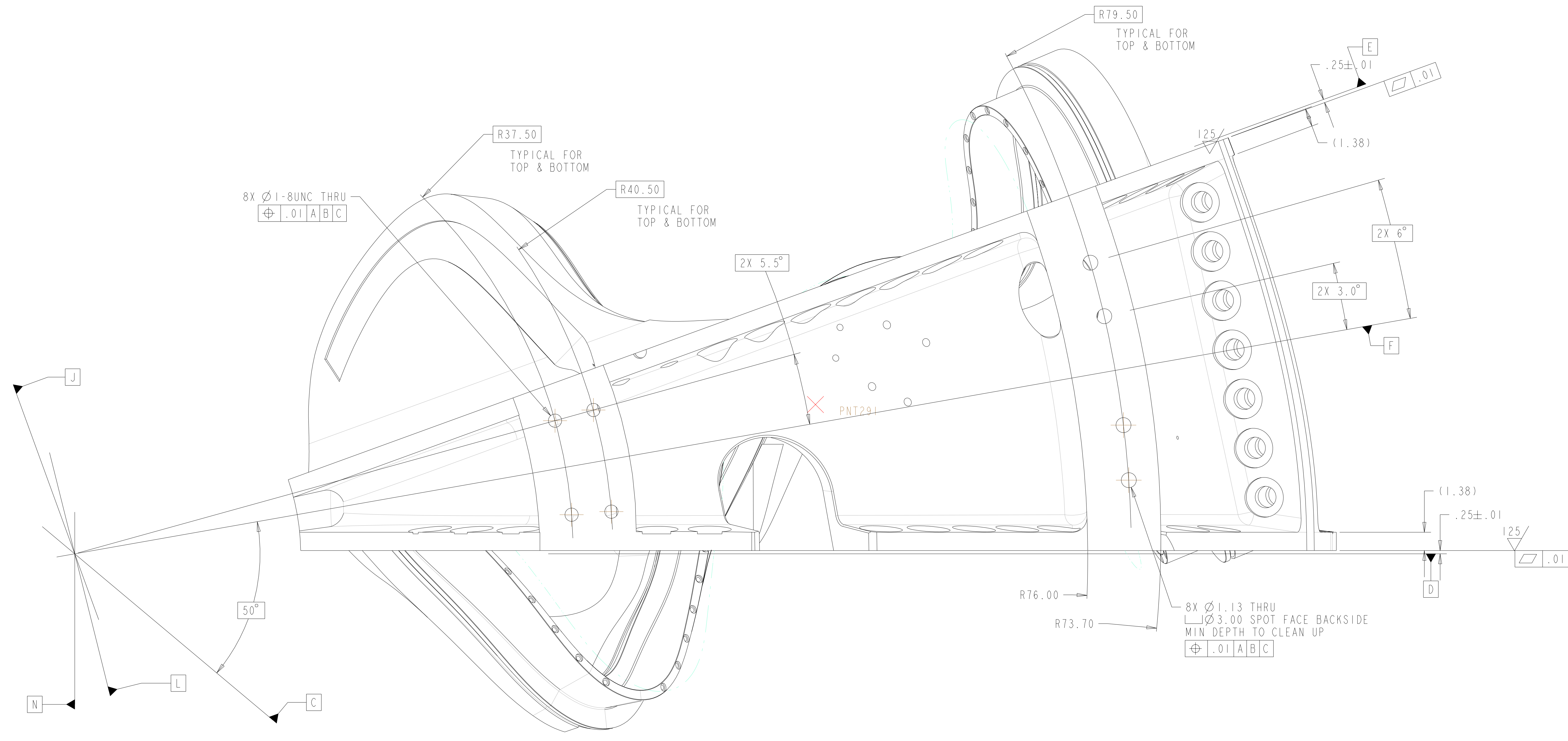
SECTION R-R
SCALE 0.25



DATUM R = PLANE NORMAL TO WINDING CENTER
DATUM S = PLANE PASSING THRU WINDING CENTER AND X VECTOR AT DATUM R
DATUM T = PLANE PASSING THRU WINDING CENTER ORTHOGONAL TO DATUM S

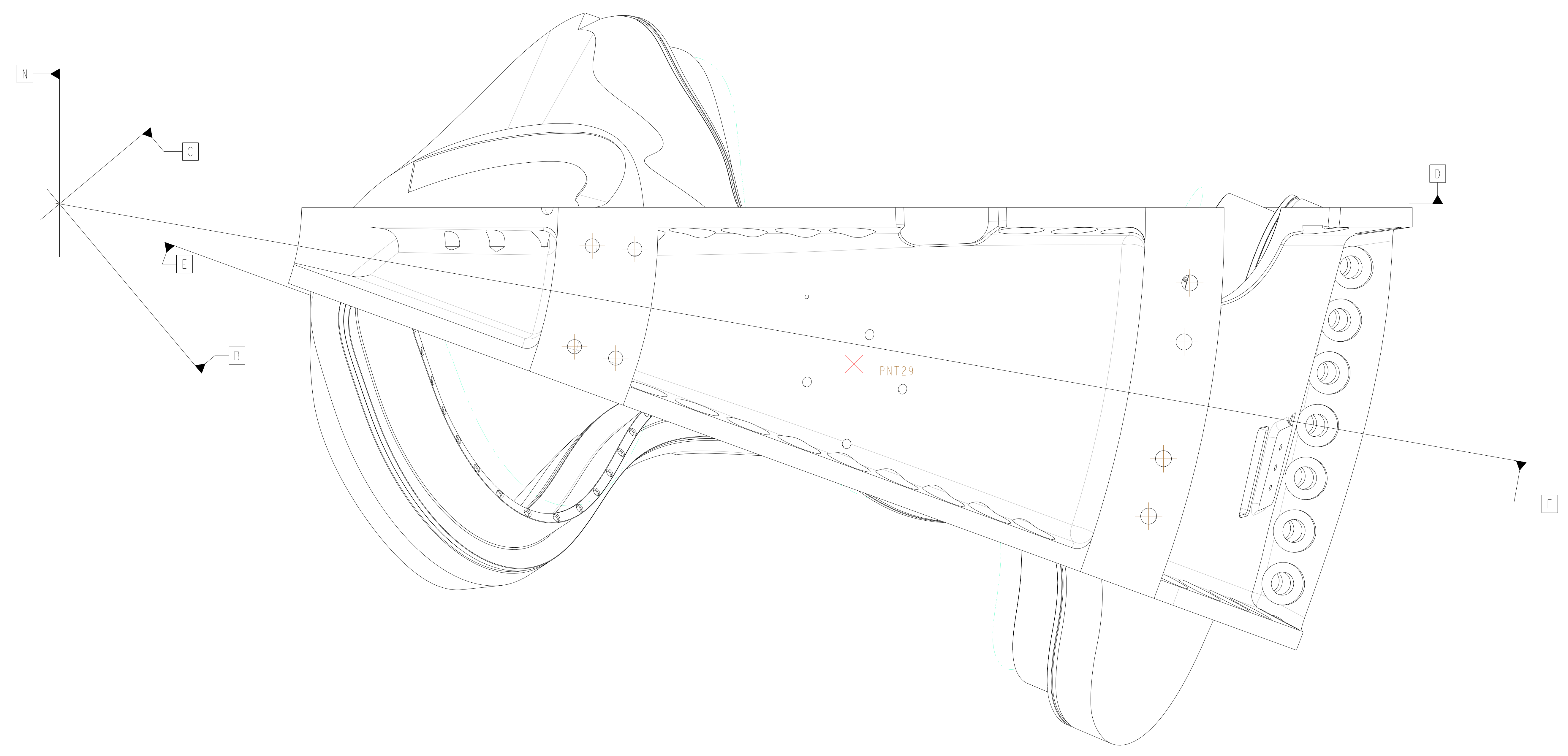
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME						
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT						
PRODUCTION WINDING FORM TYPE-C						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
2	X-10	5700	3	2	111 S	U
RELEASE LEVEL		SE141-116		REV		2
Fabrication						

FOR NOTES AND PARTS LIST SEE SHEET 1



TOP VIEW
SCALE 0.25

DATUMS A B & C ARE MACHINE SPECIFIC.
ALL OTHER DATUMS LISTED ON THIS DRAWING
ARE SPECIFIC TO THIS PART



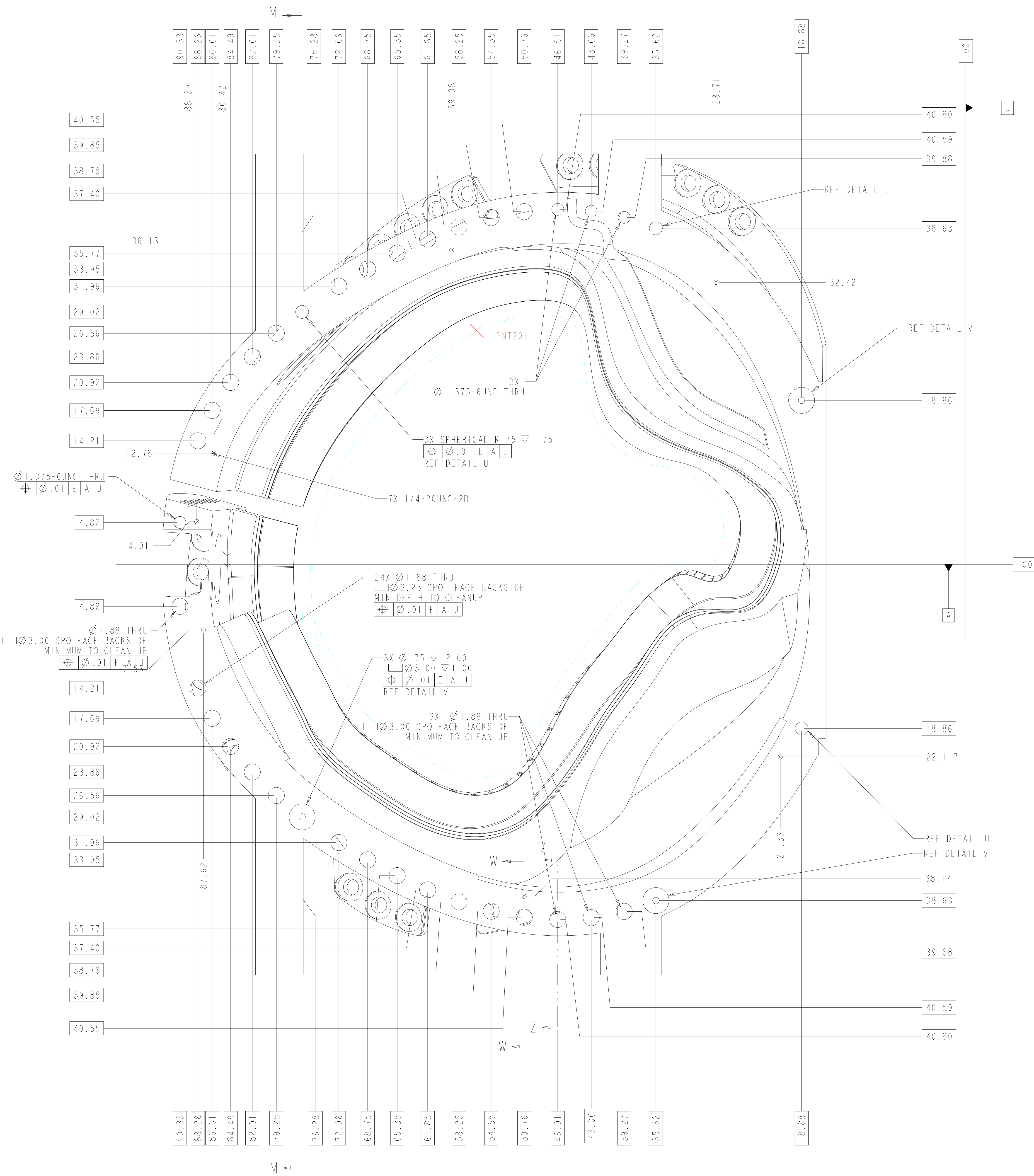
BOTTOM VIEW
SCALE 0.25

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC., Oak Ridge, Tennessee PROJECT NAME						
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT						
PRODUCTION WINDING FORM TYPE-C						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
2	X-10	5700	3	3	11	S
RELEASE LEVEL	SEI41-116					REV
Fabrication						2

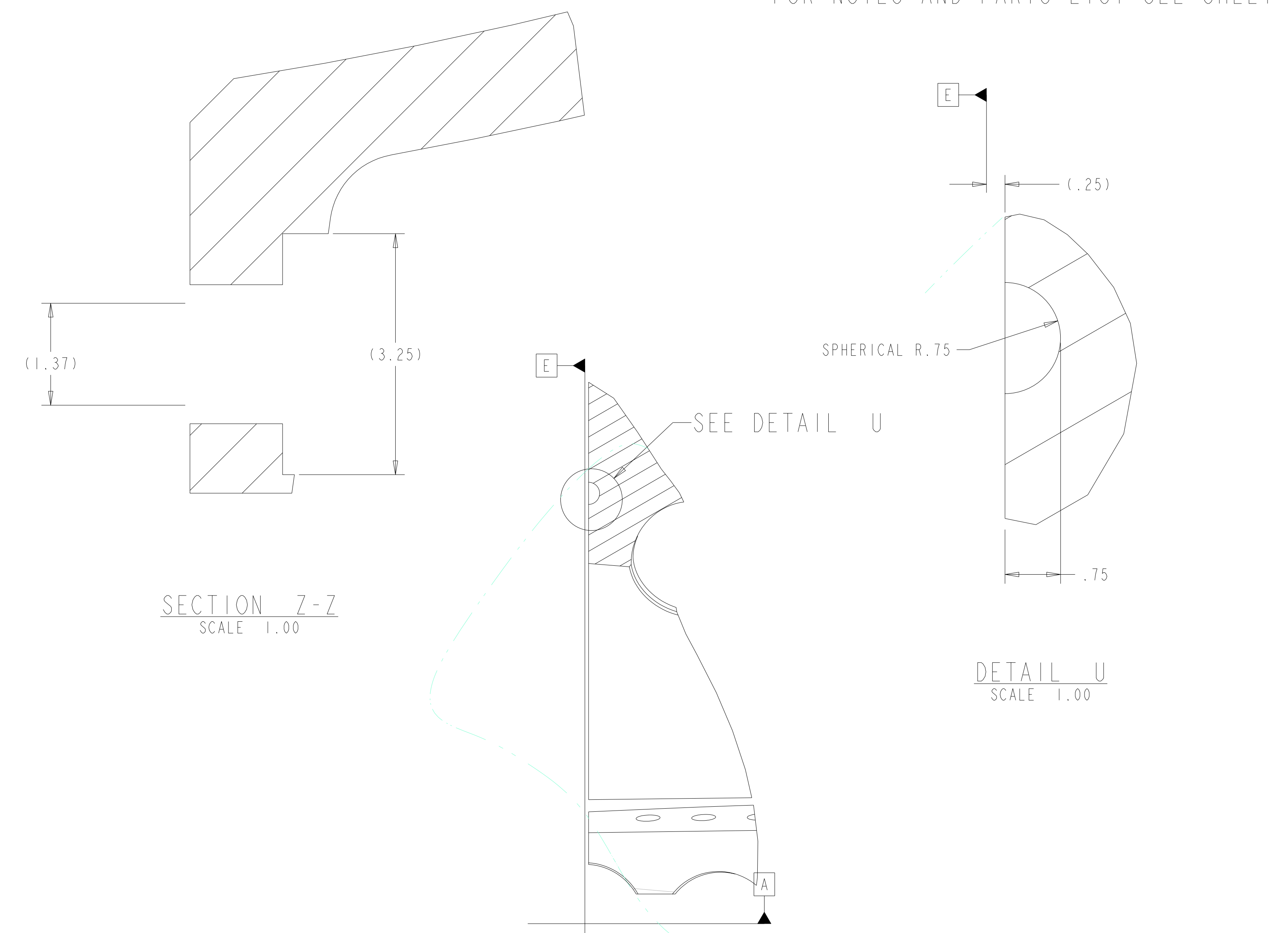
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8 7 6 5 4 3 2 1

FOR NOTES AND PARTS LIST SEE SHEET 1

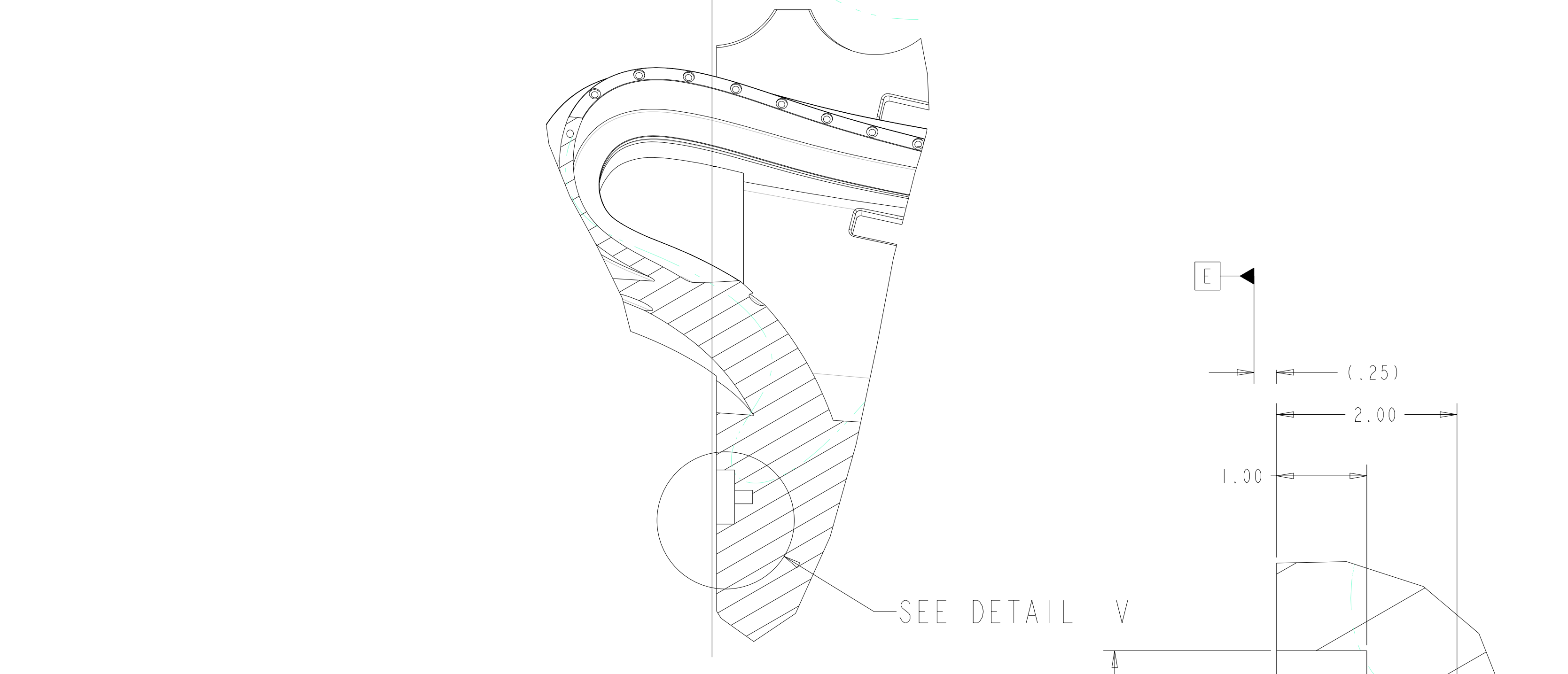


VIEW AT DATUM E
SCALE 0.20



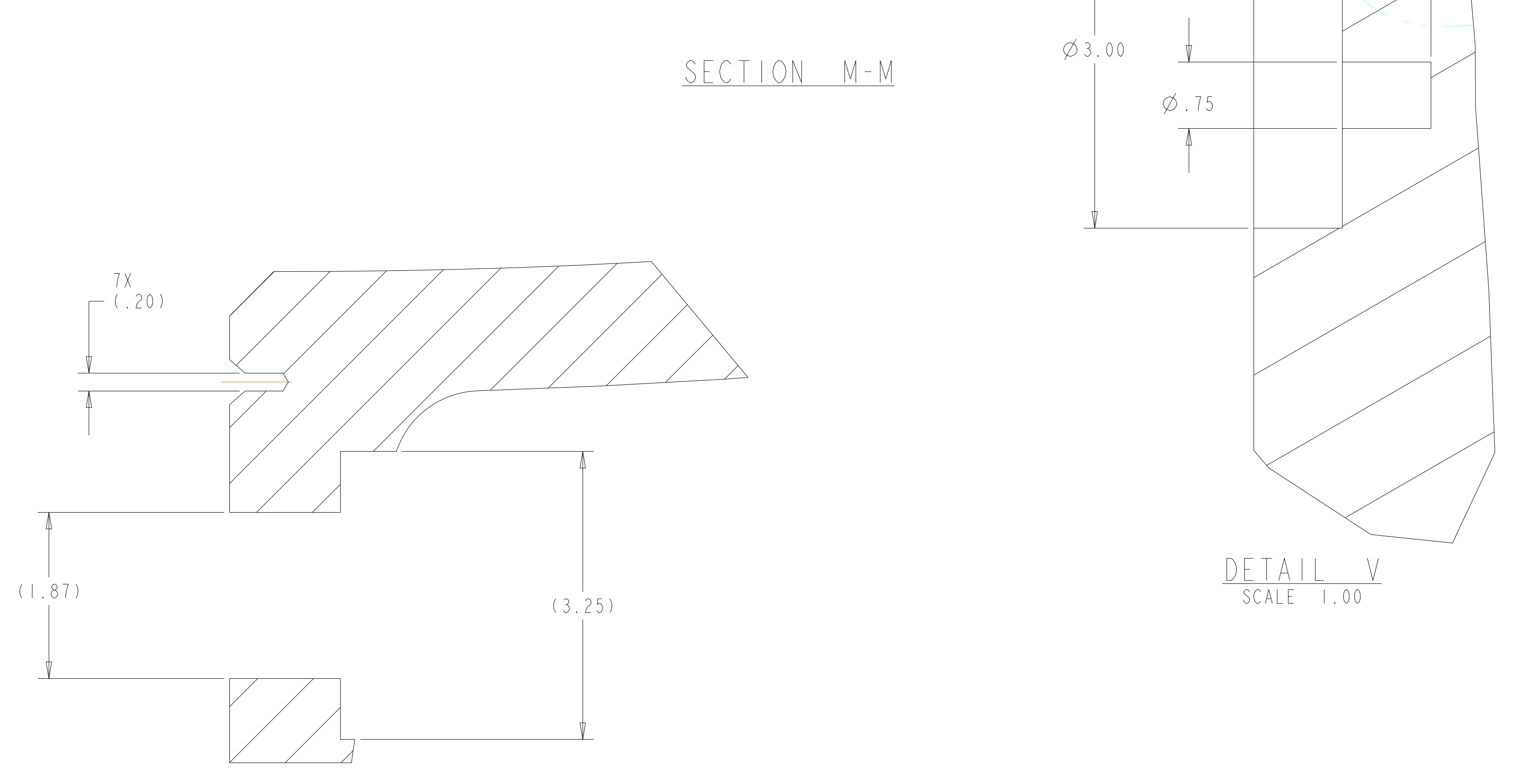
SECTION 7-Z
SCALE 1.00

DETAIL U
SCALE 1.00



SECTION M-M

DETAIL V
SCALE 1.00

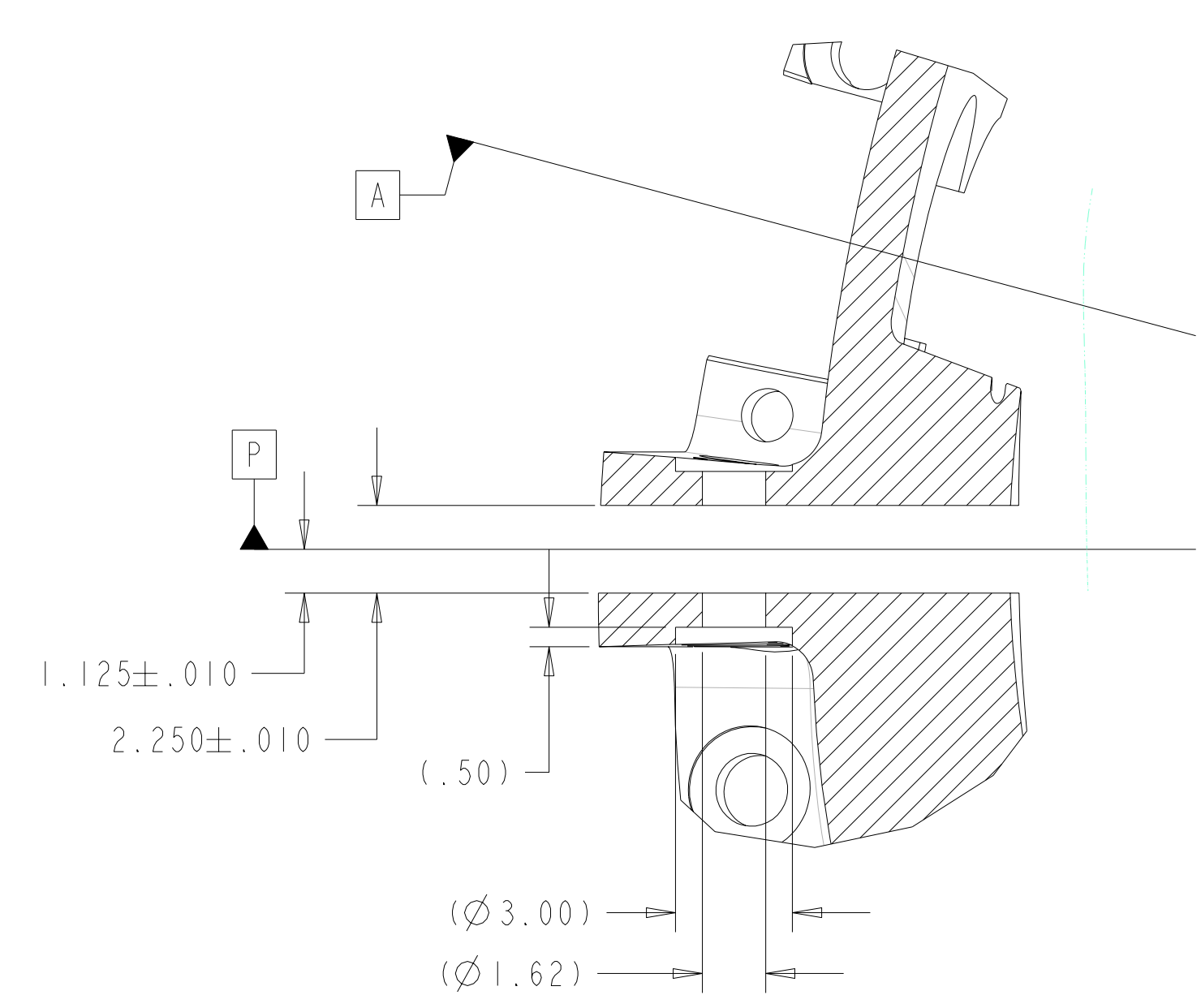
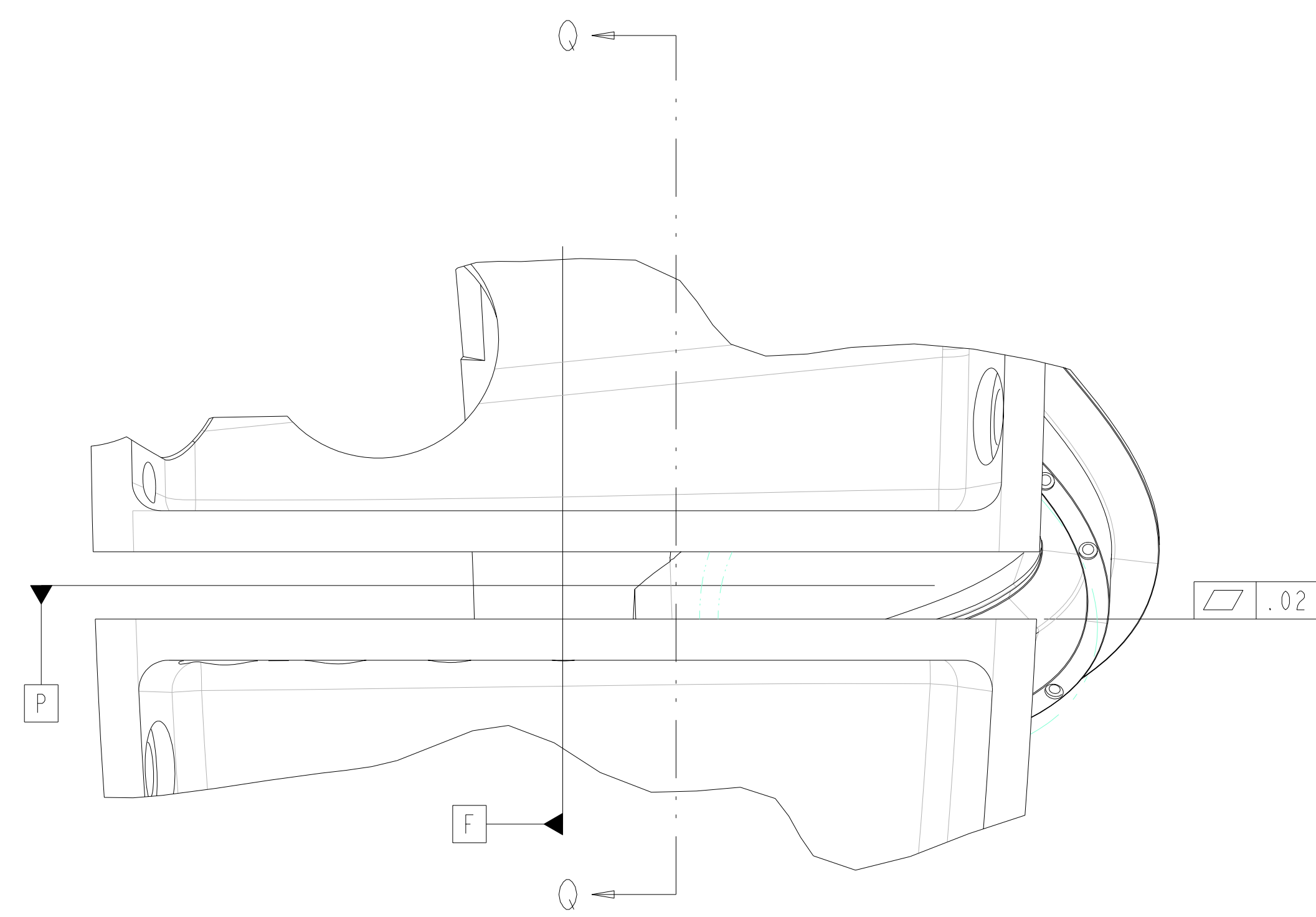
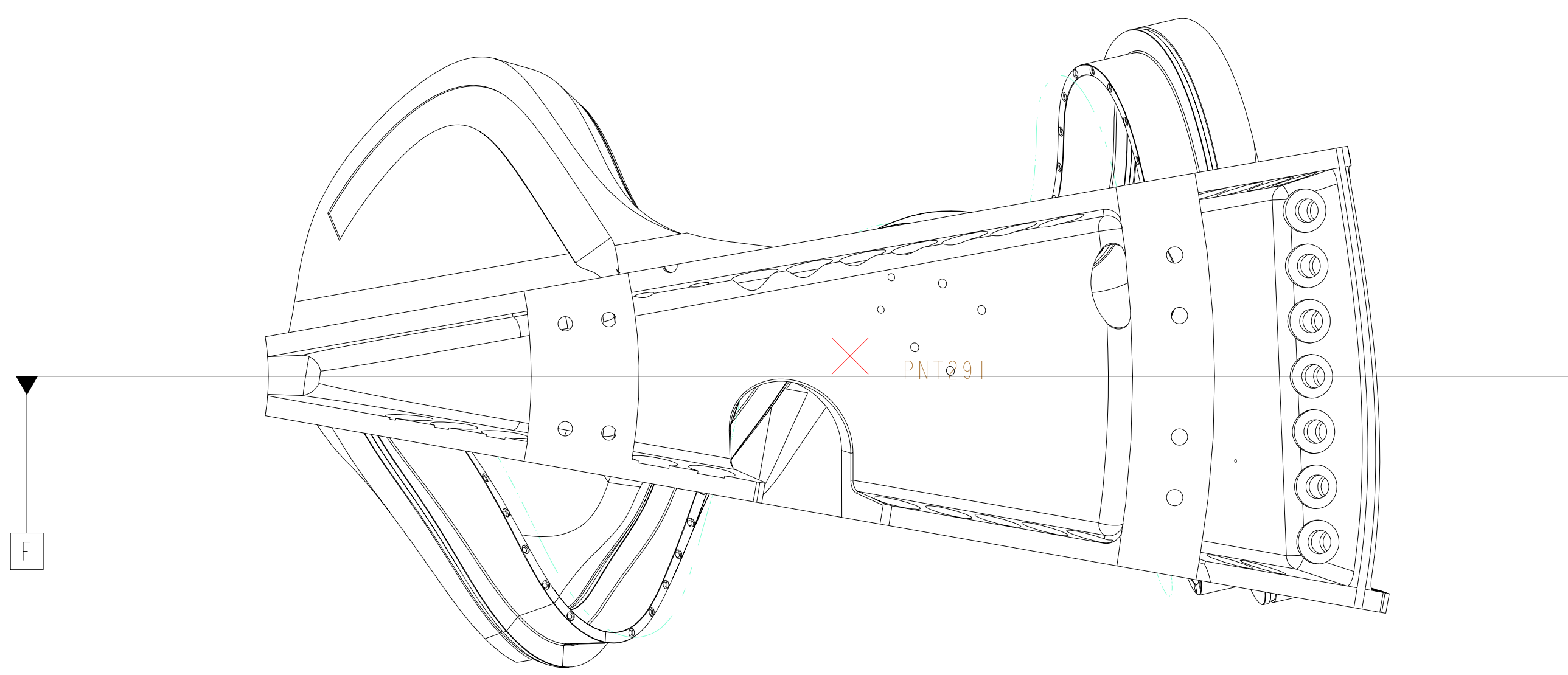


SECTION W-W
SCALE 1.00

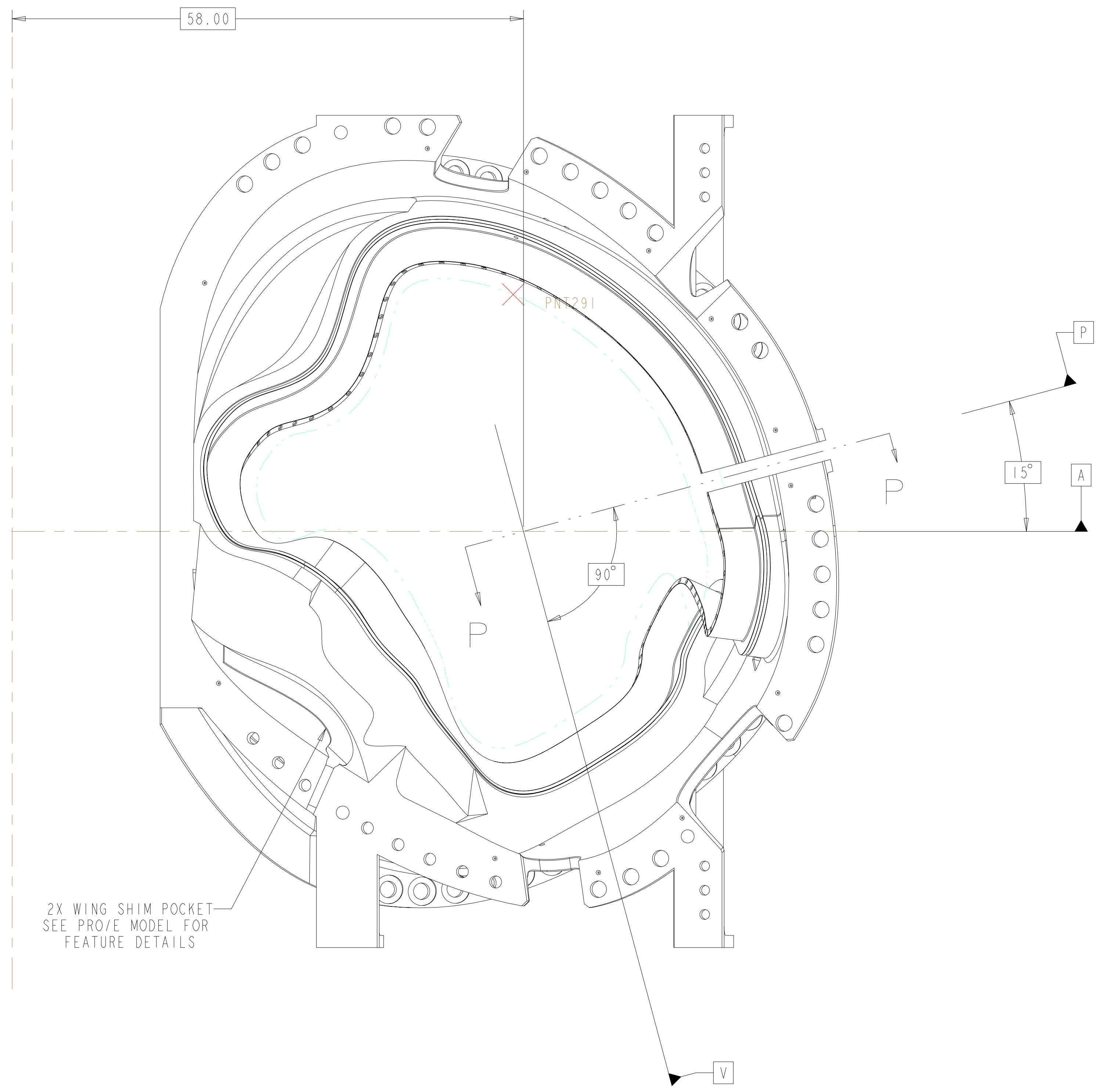
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME						
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT						
PRODUCTION WINDING FORM TYPE-C						
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
2	X-10	5700	3	5	11	S
RELEASE LEVEL	SEI41-116					REV
Fabrication						U
						2

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FOR NOTES AND PARTS LIST SEE SHEET 1

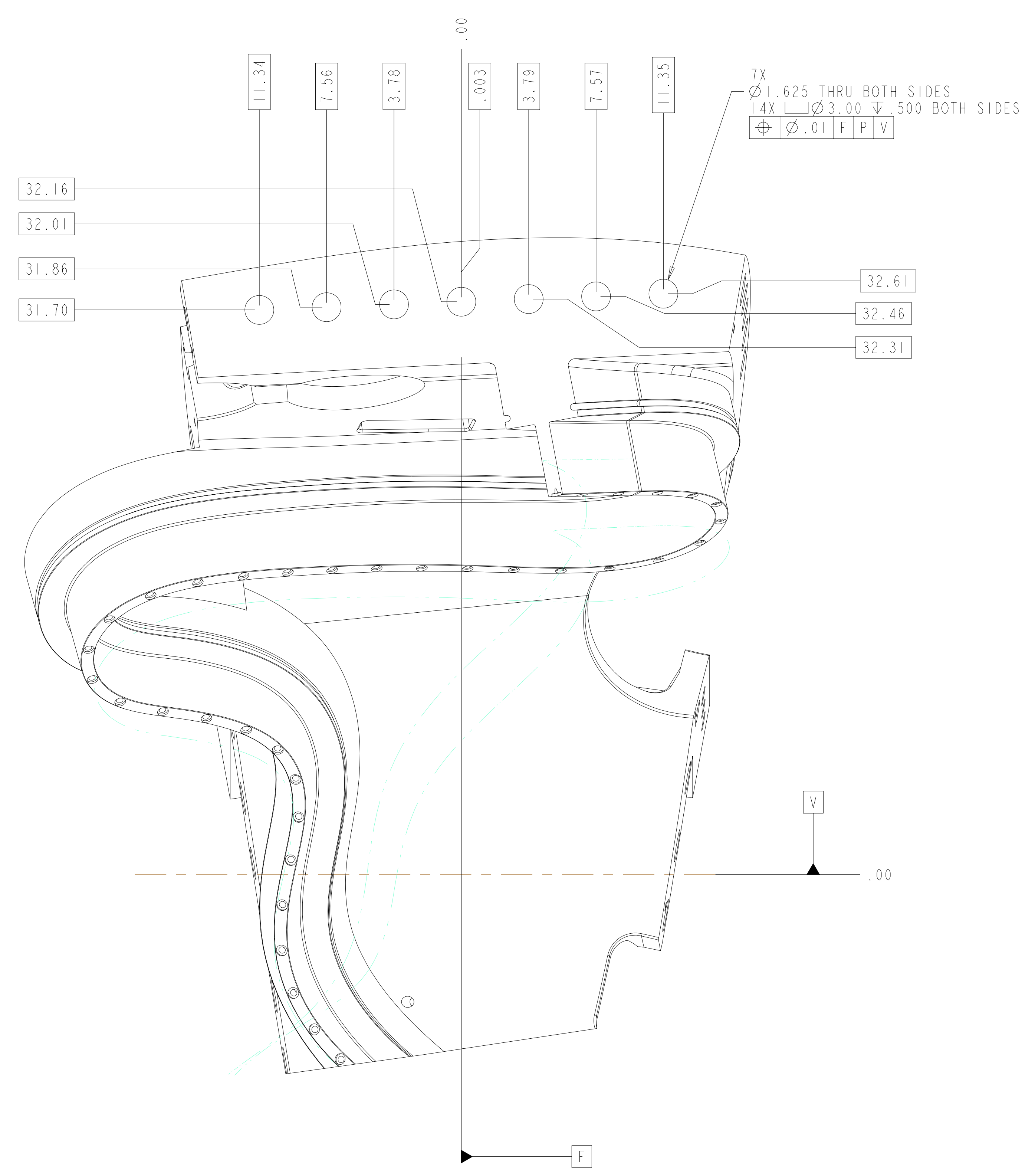


SECTION Q-Q



2X WING SHIM POCKET
 SEE PRO/E MODEL FOR
 FEATURE DETAILS

POLOIDAL BREAK DETAIL

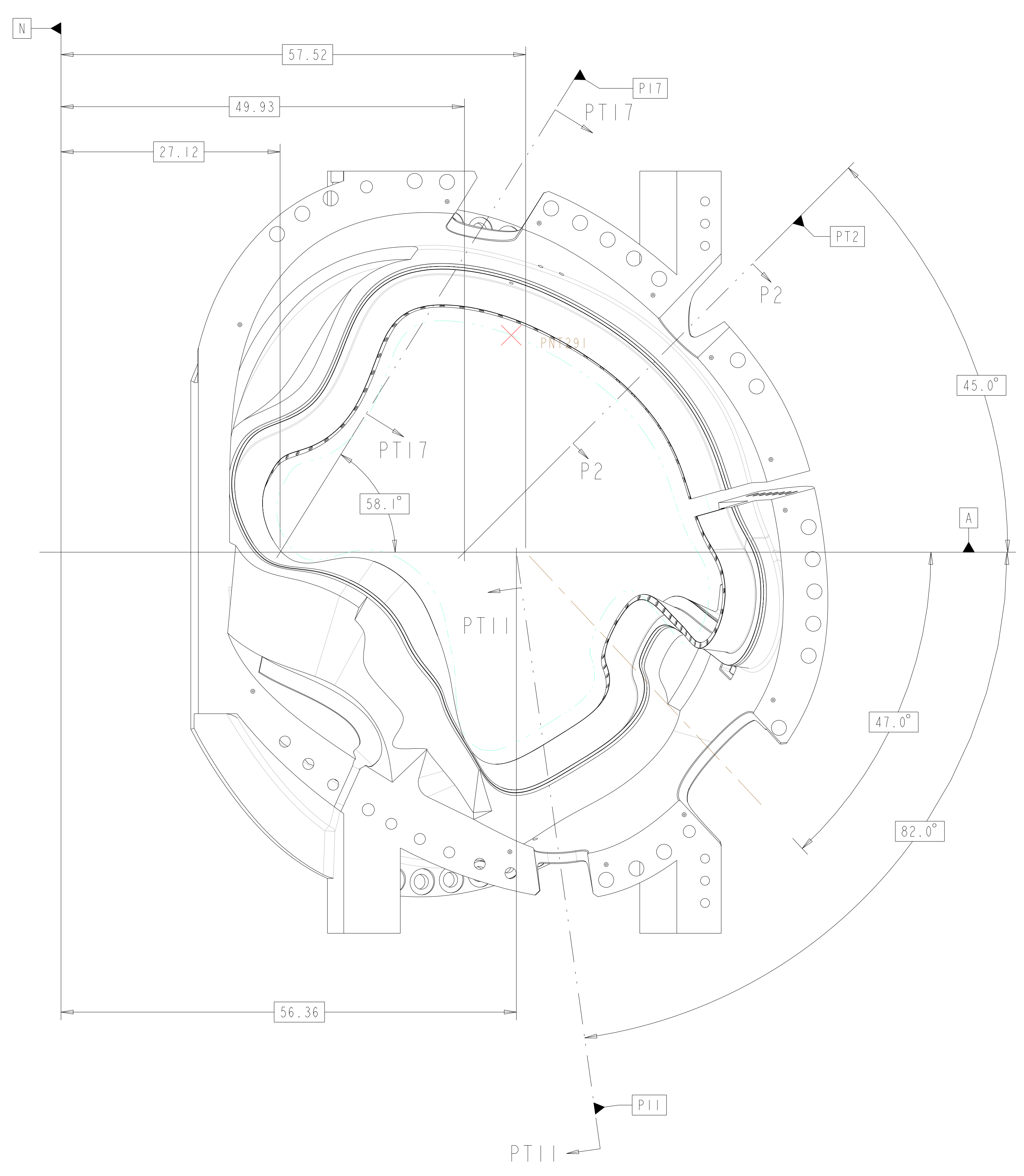


SECTION P-P
 SCALE 0.25

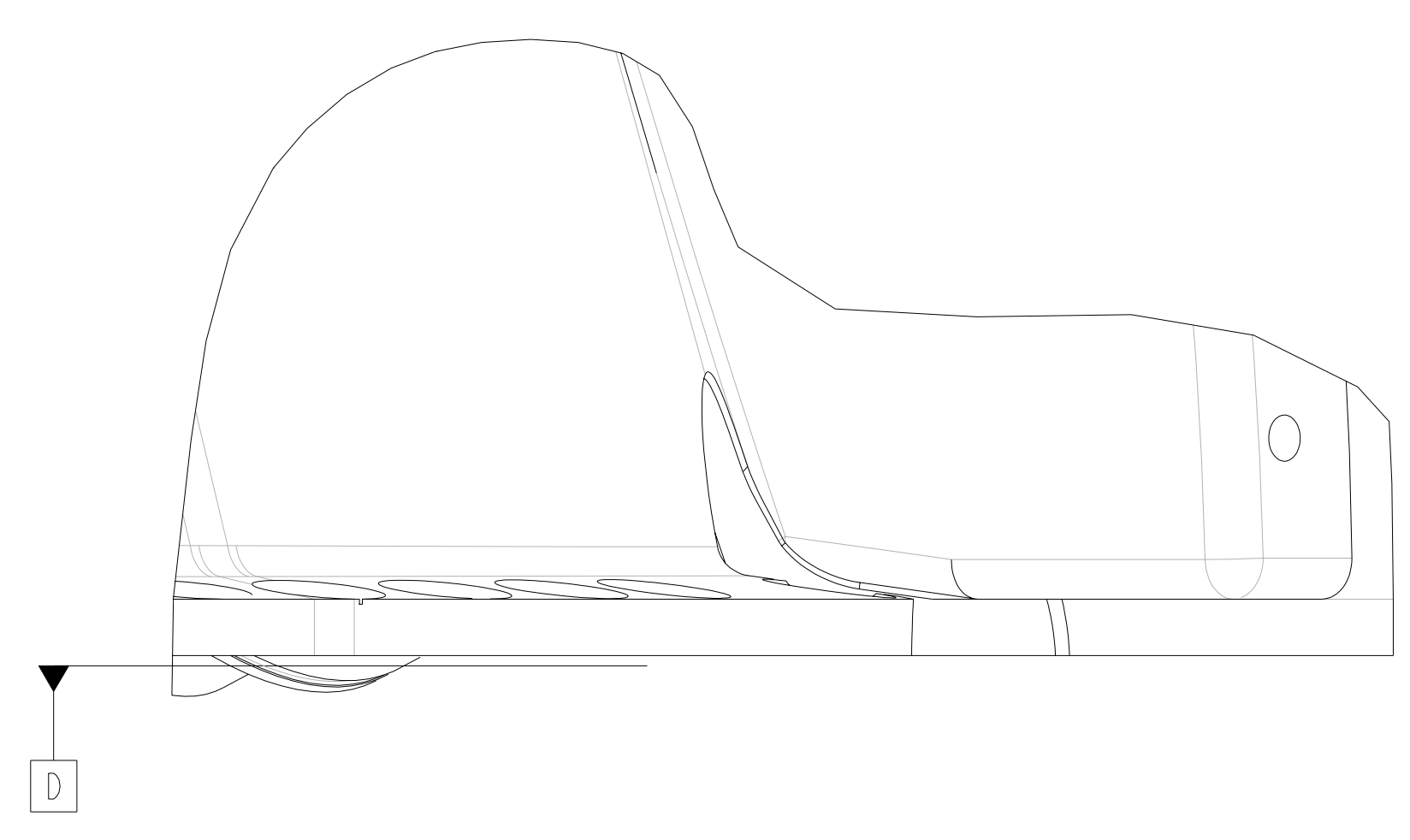
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME							
UT-BATTELLE							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-C							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
2	X-10	5700	3	6	11	S	U
RELEASE LEVEL	SEI41-116						REV
Fabrication							2

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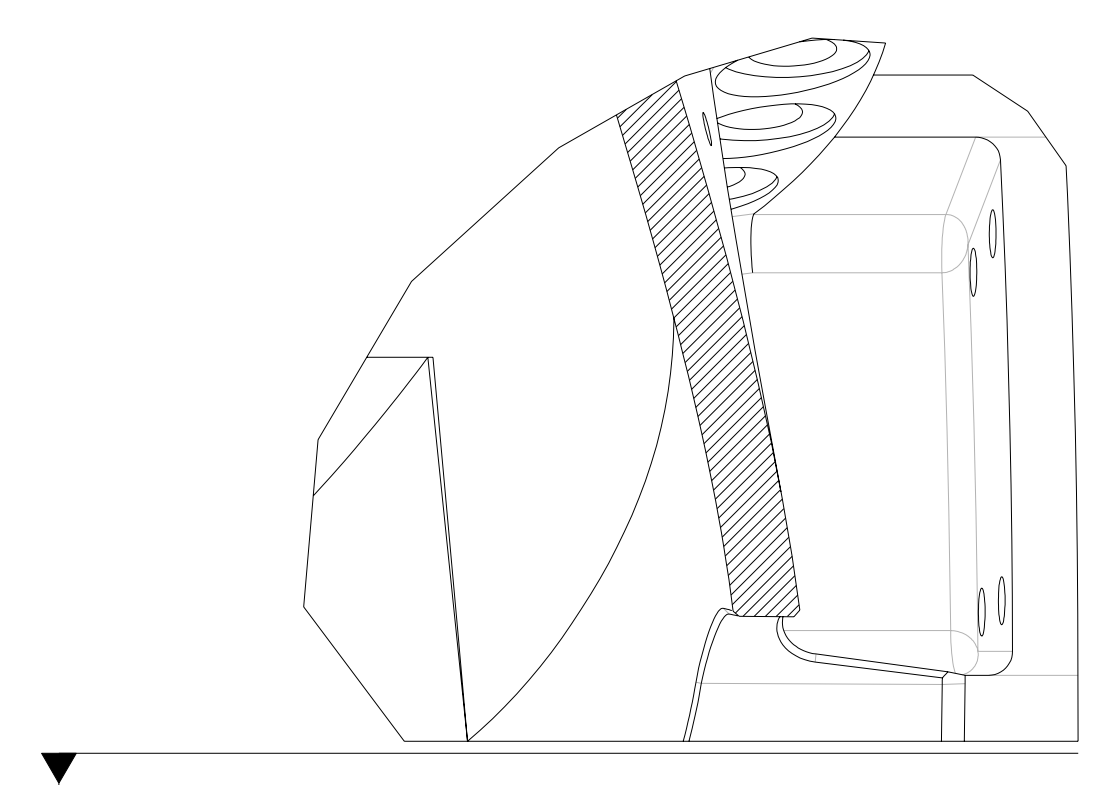
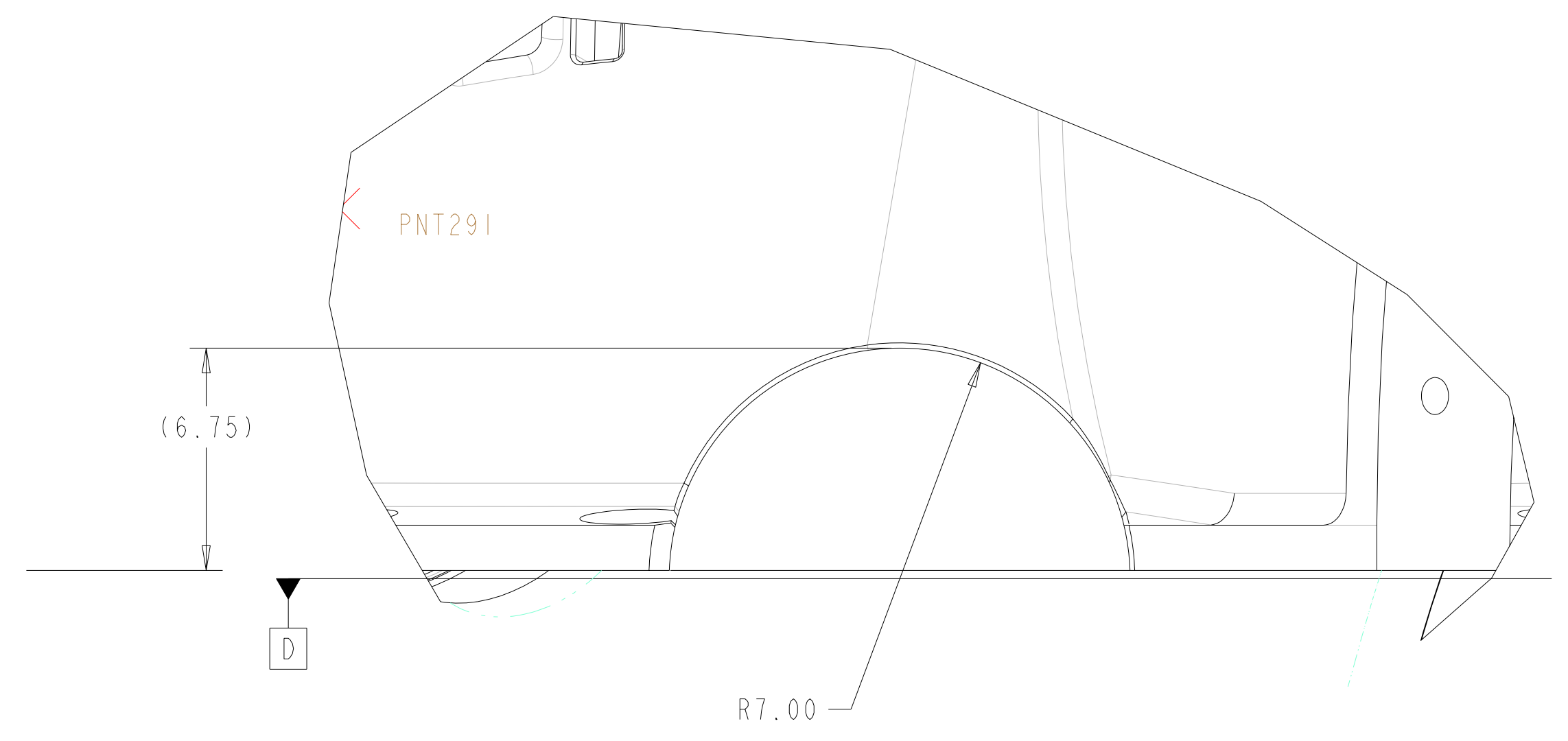
FOR NOTES AND PARTS LIST SEE SHEET 1



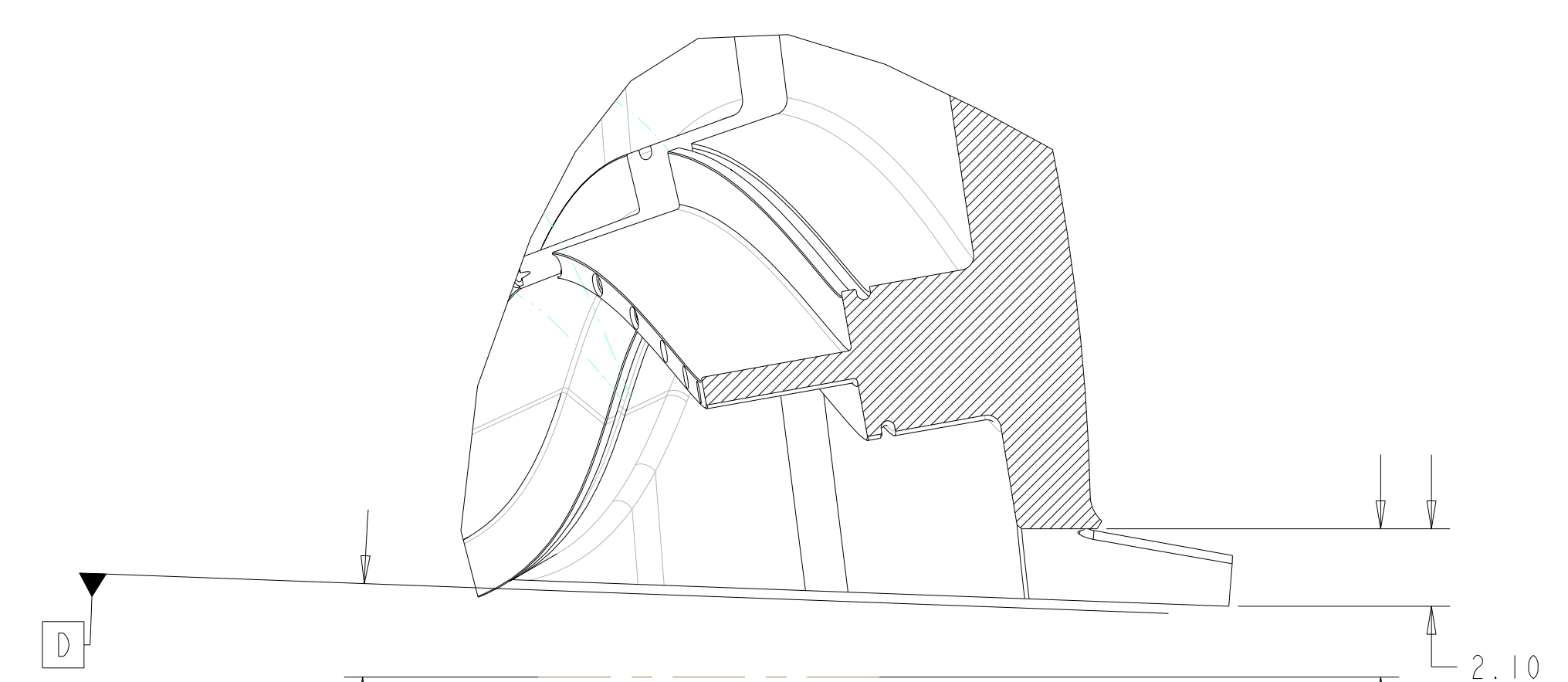
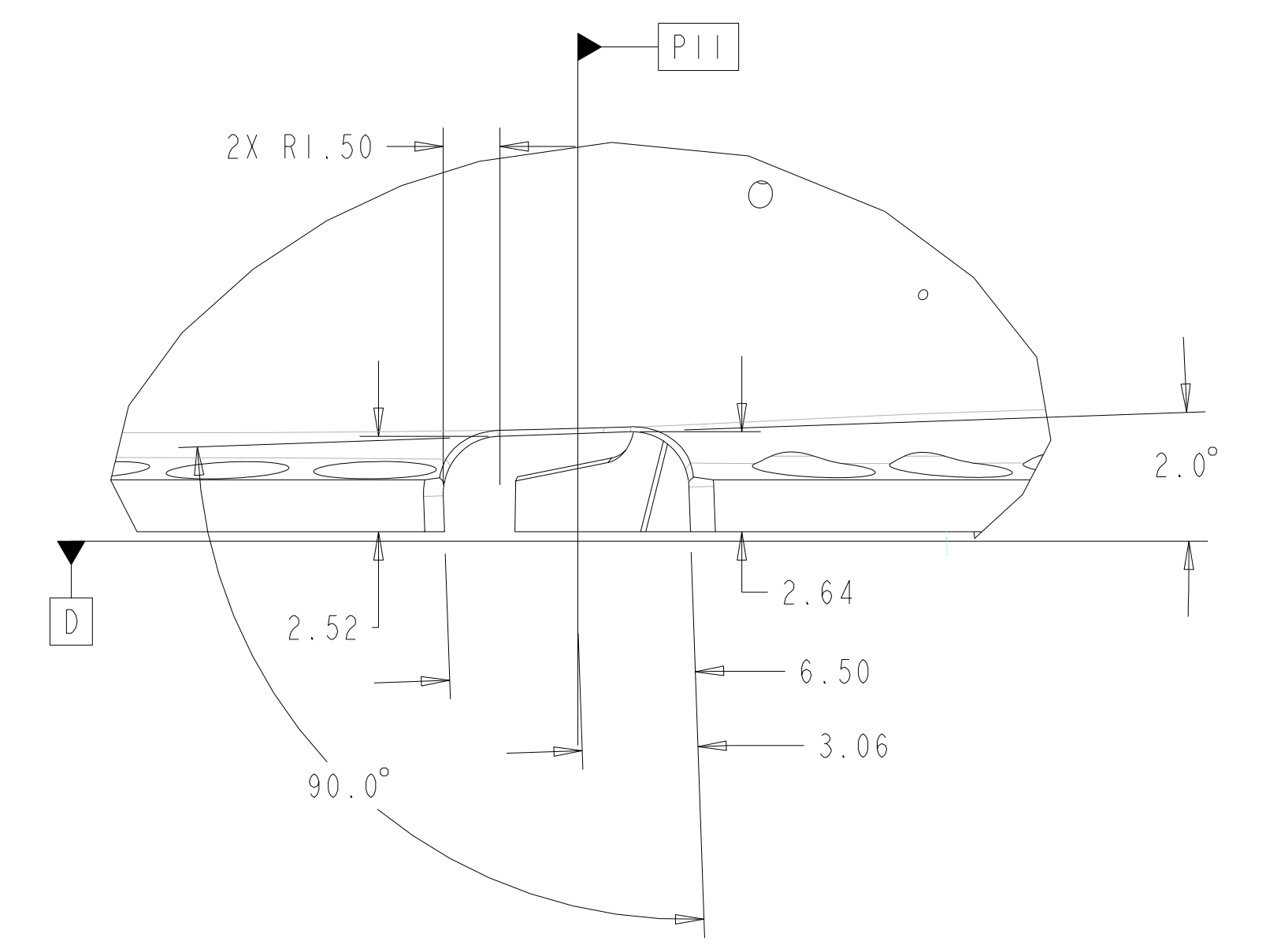
VIEW AT DATUM D
 SCALE 0.13



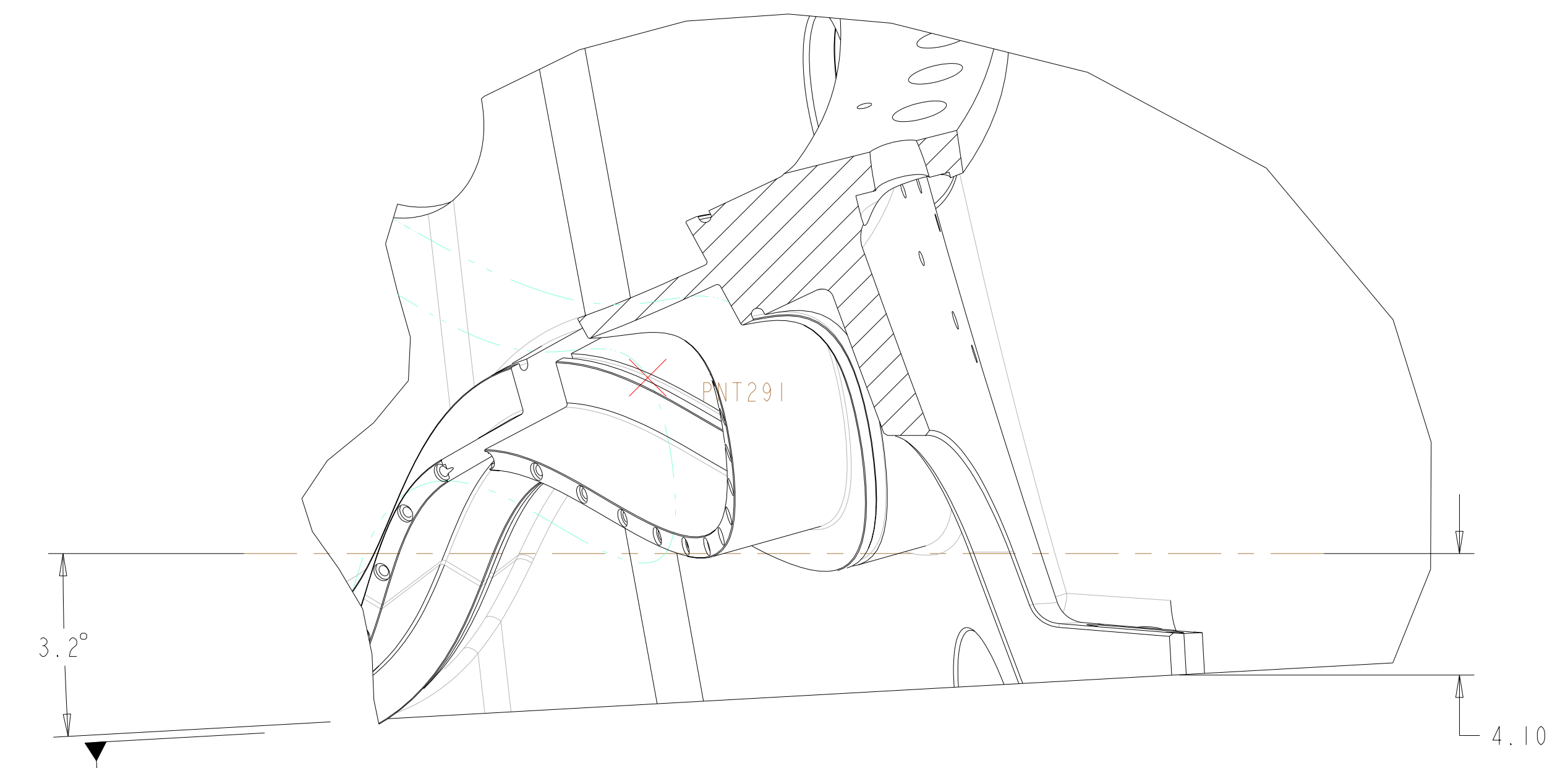
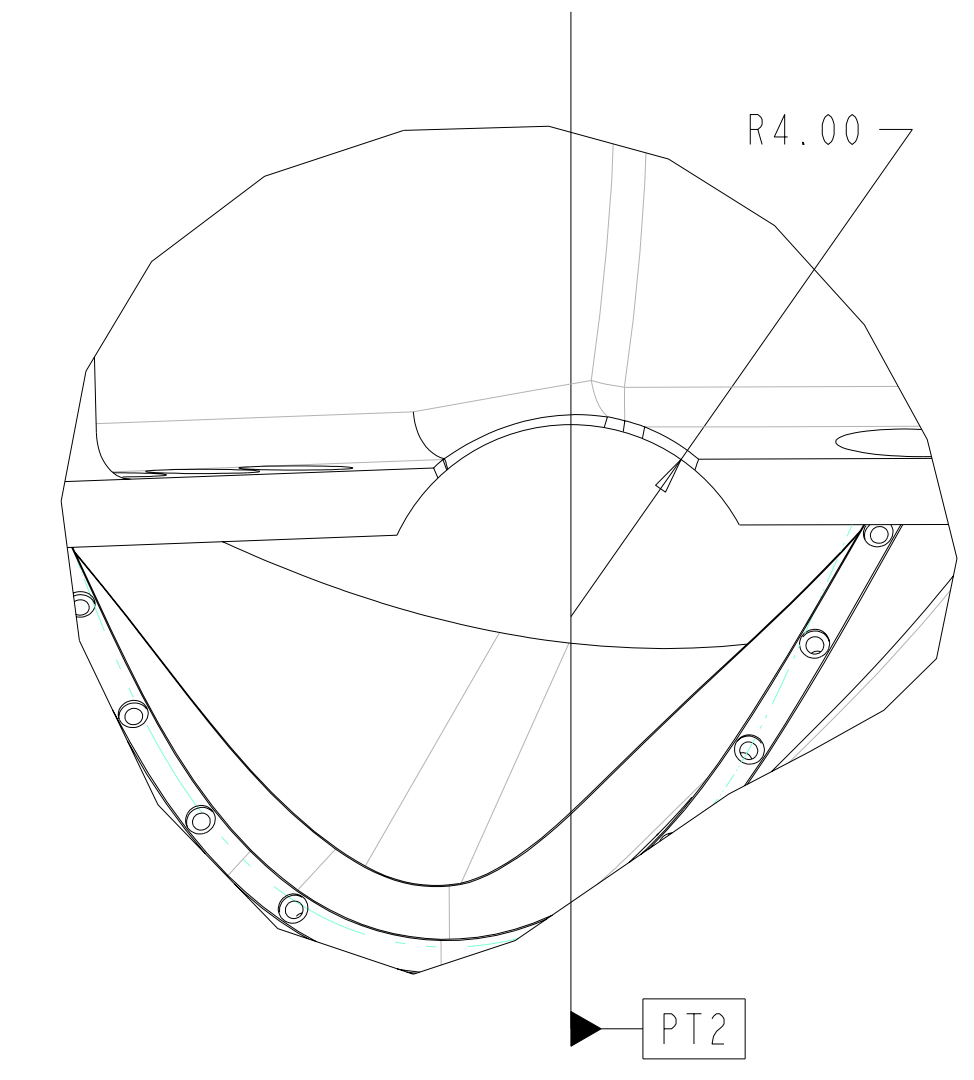
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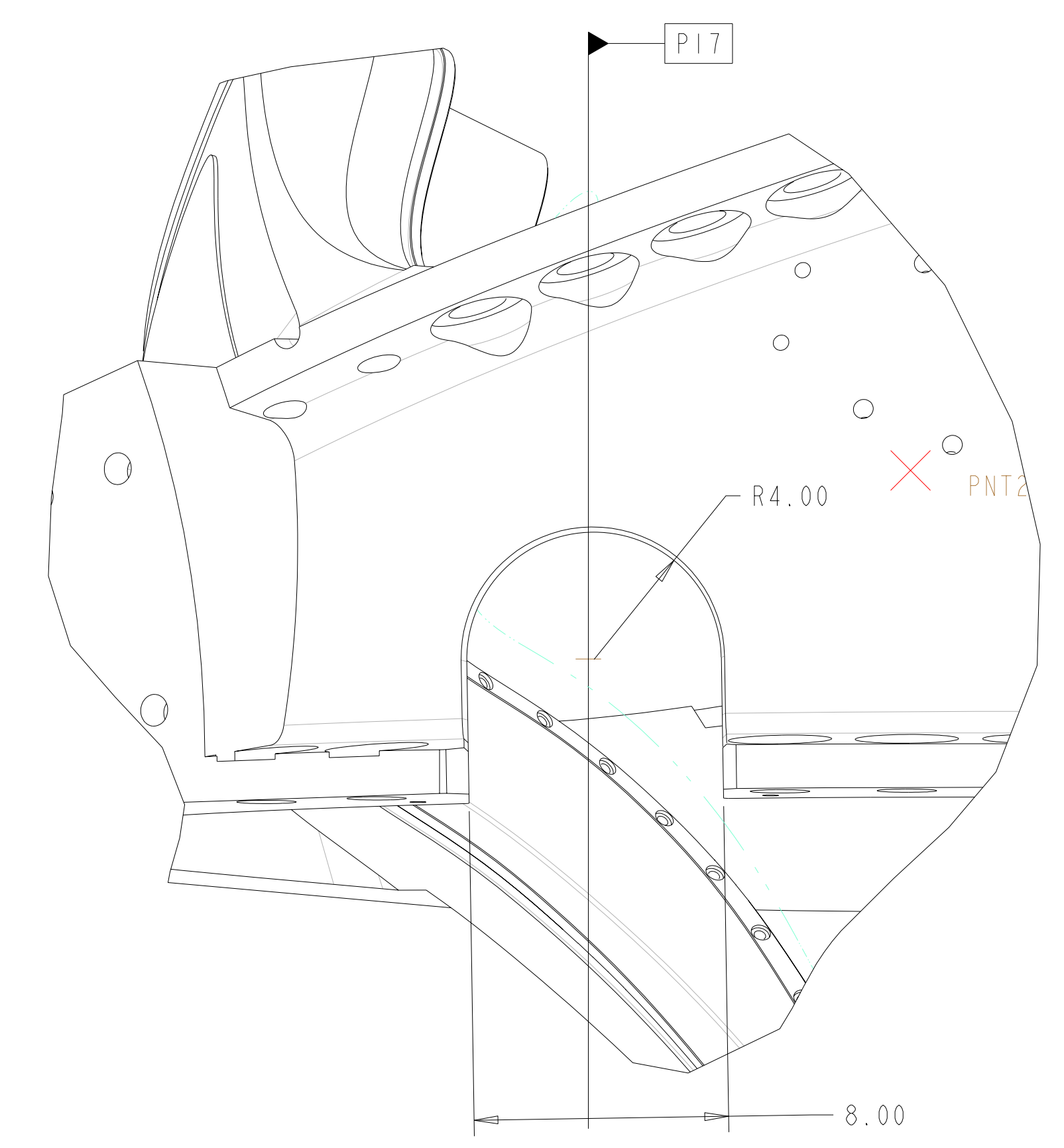
SECTION PT11-PT11
 SCALE 0.25



SECTION P2-P2
 SCALE 0.25



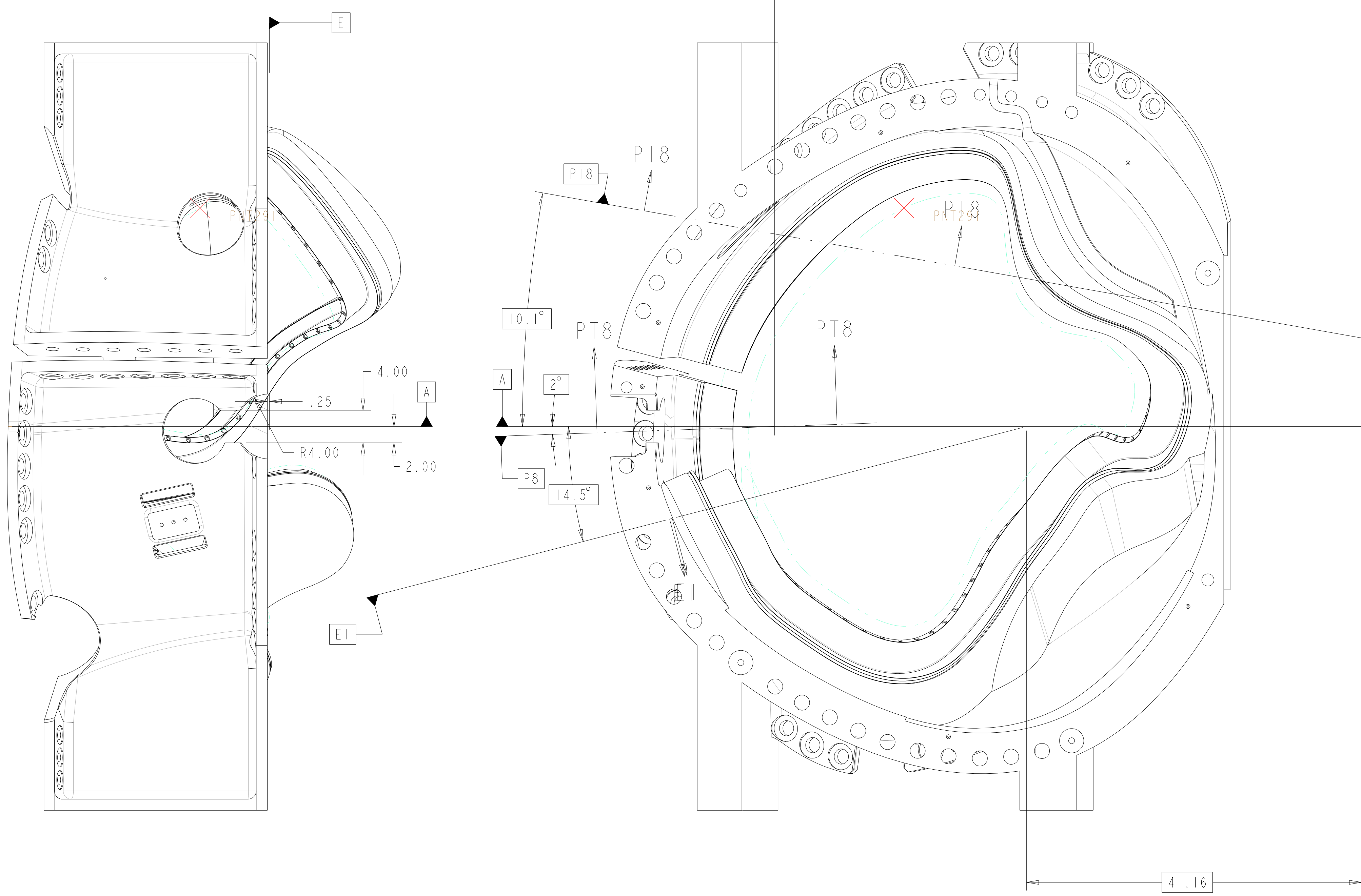
SECTION PT17-PT17
 SCALE 0.25



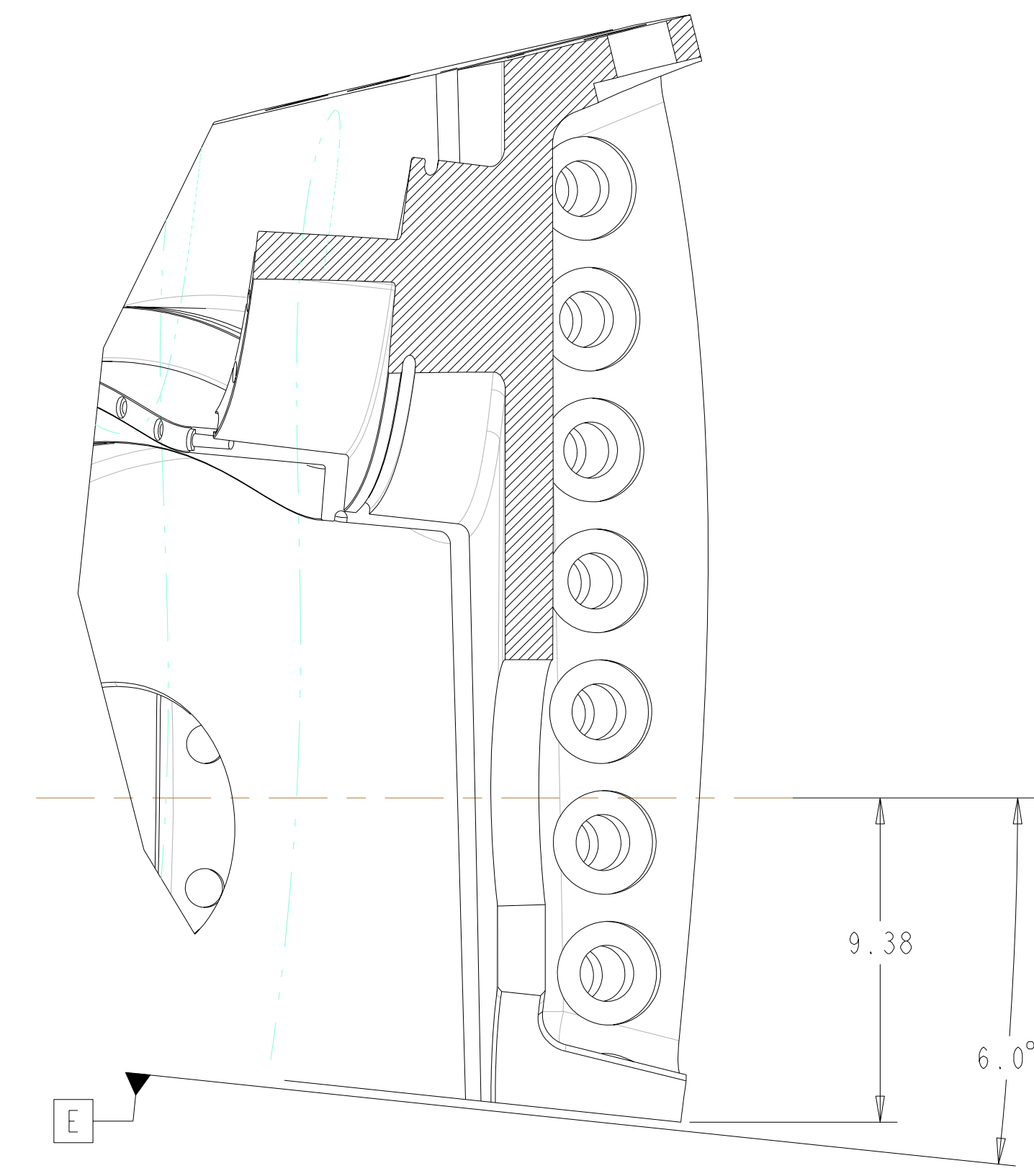
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NATIONAL COMPACT STELLARATOR EXPERIMENT								
PRODUCTION WINDING FORM TYPE-C								
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS		
2	X-10	5700	3	7	111	S	U	
RELEASE LEVEL	SEI41-116						REV	2
Fabrication								

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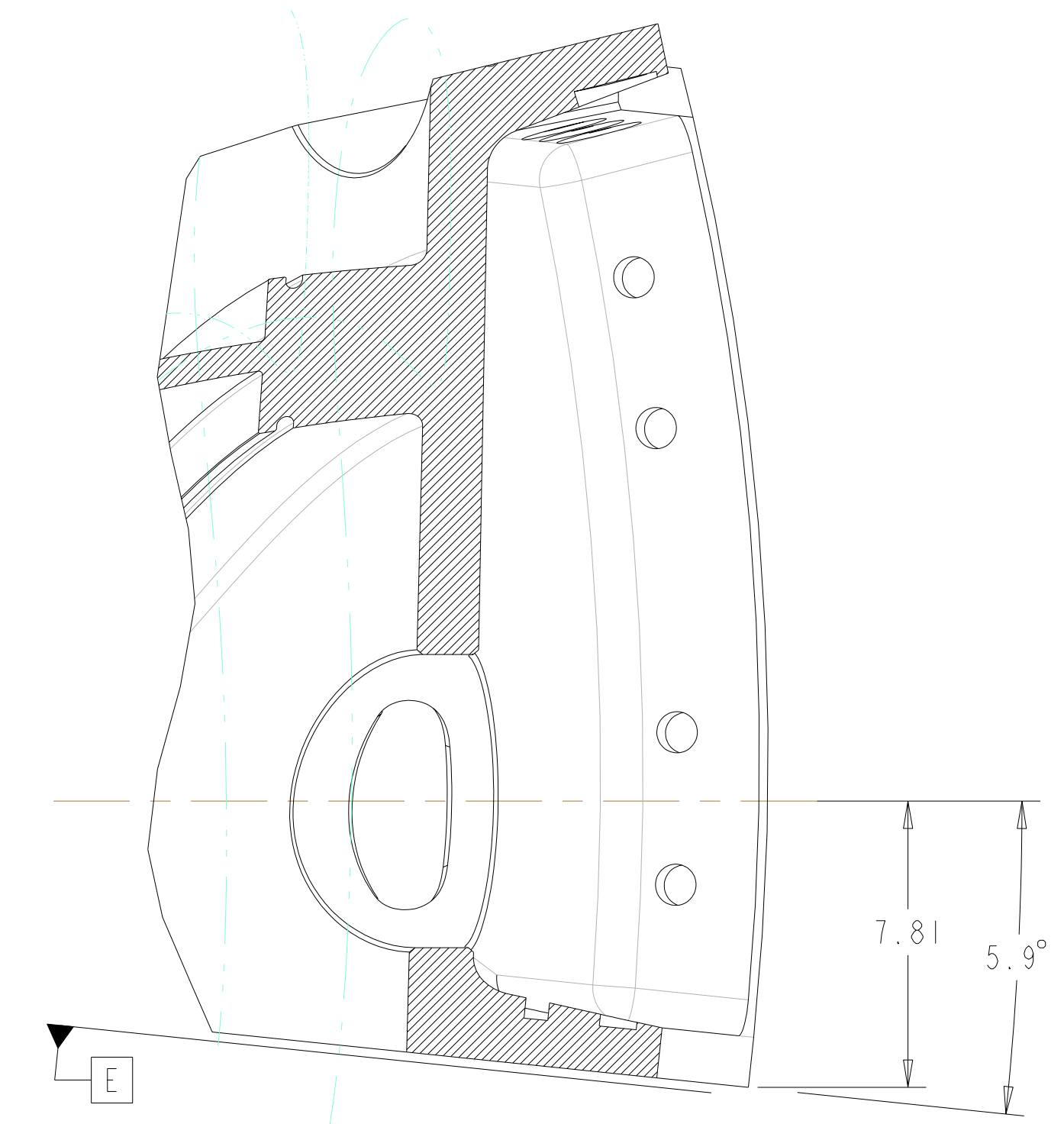
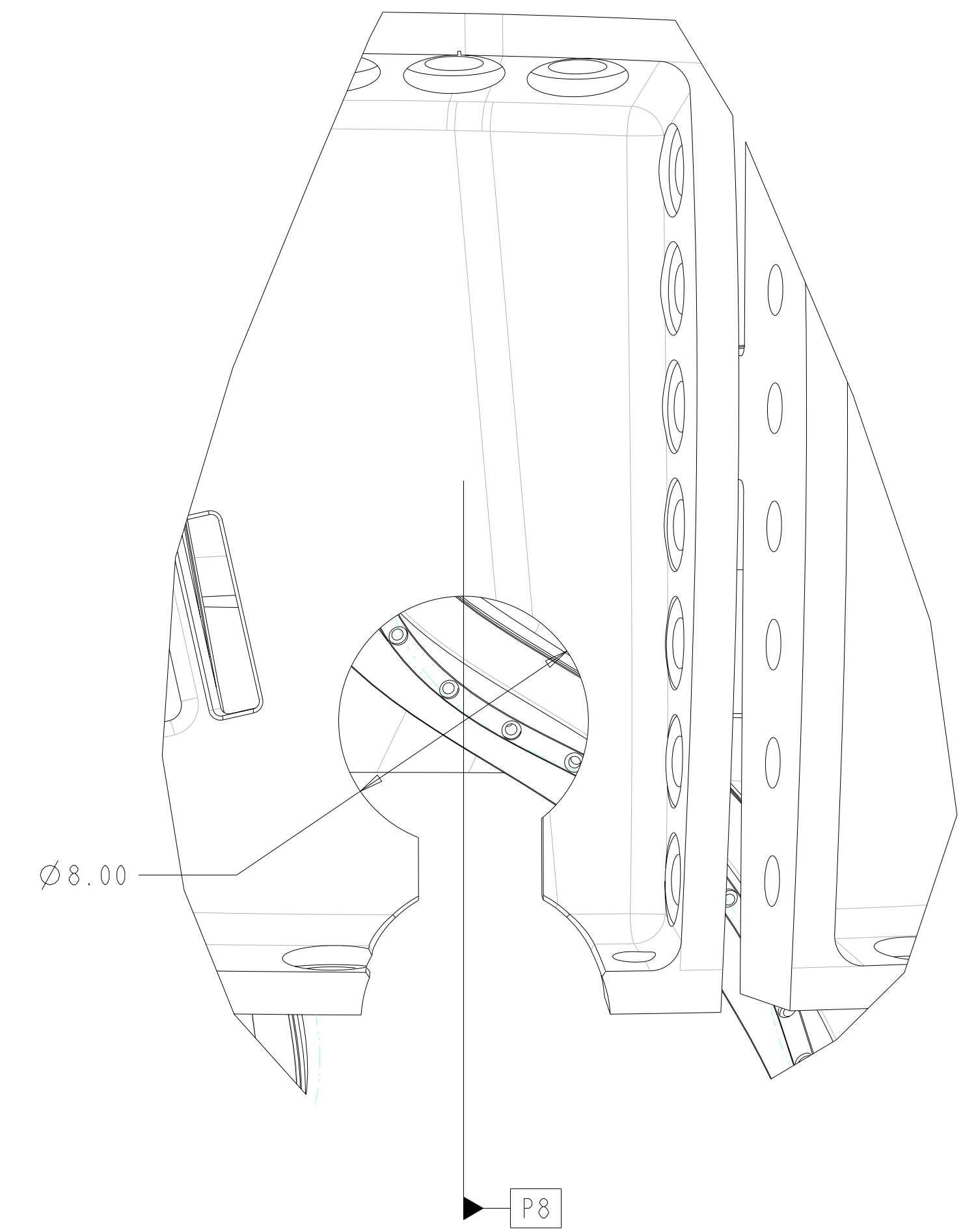
FOR NOTES AND PARTS LIST SEE SHEET 1



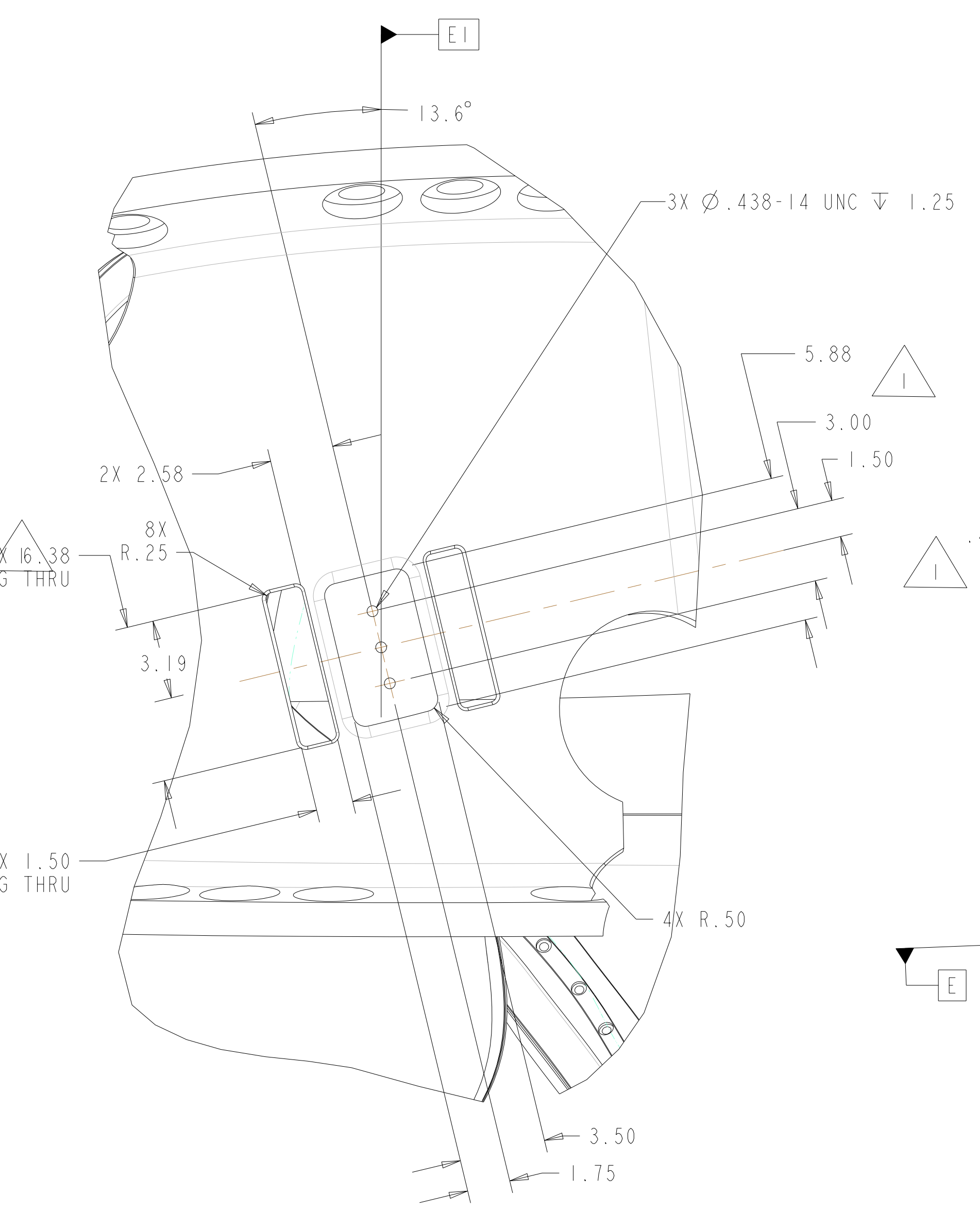
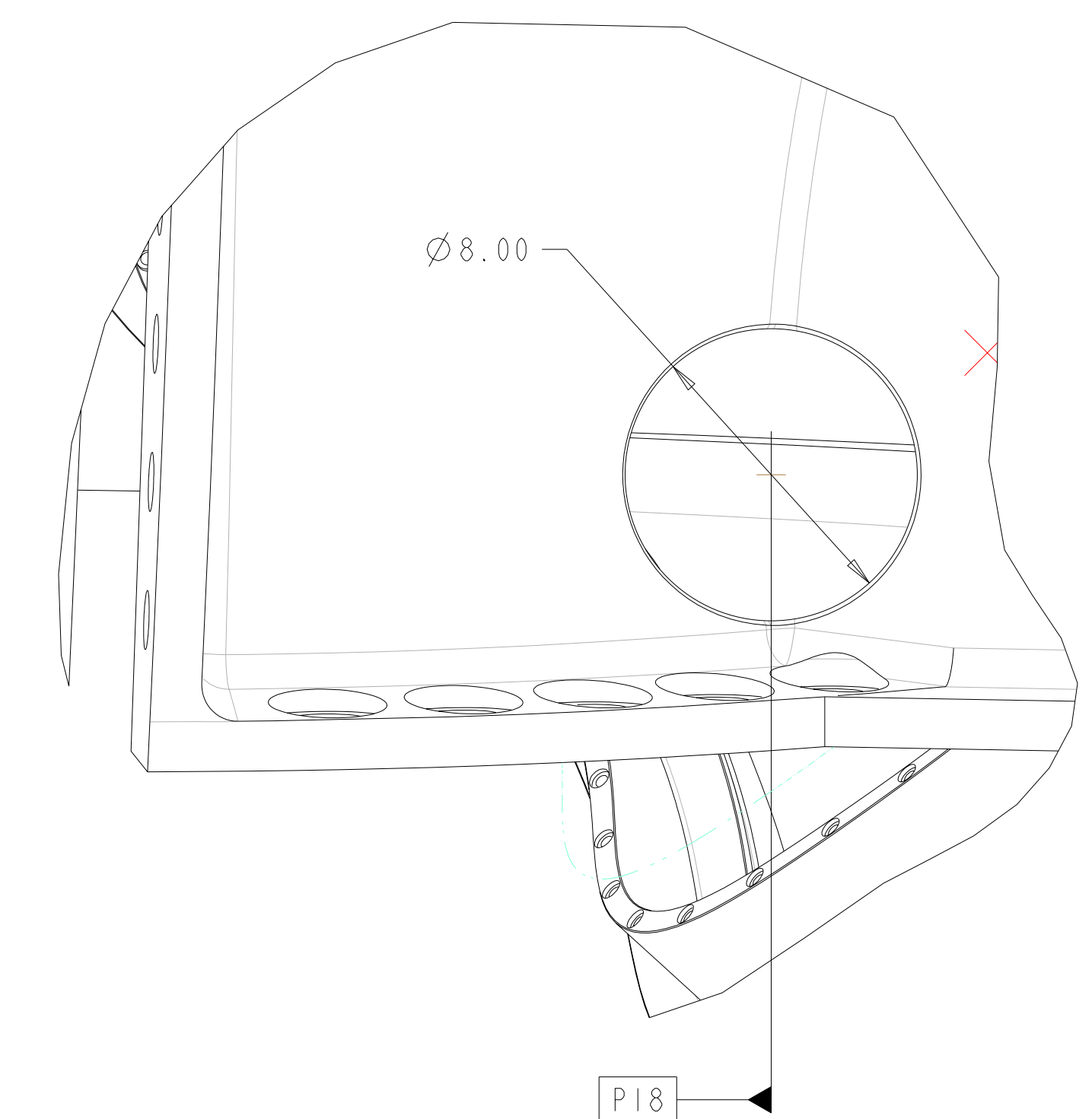
VIEW AT DATUM E
 SCALE 0.13



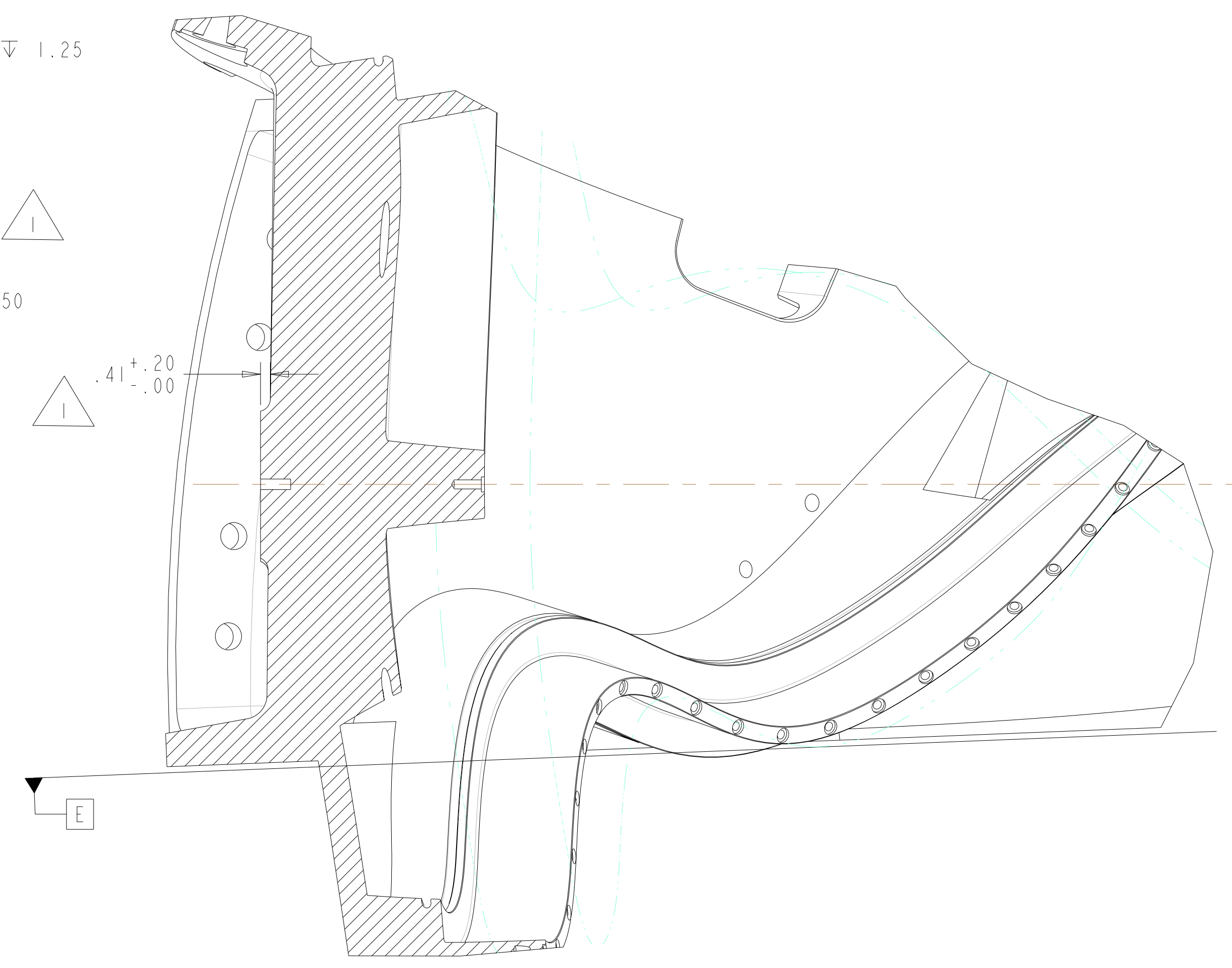
SECTION PT8-PT8
 SCALE 0.25



SECTION P18-P18
 SCALE 0.25



LEAD BLOCK DETAIL



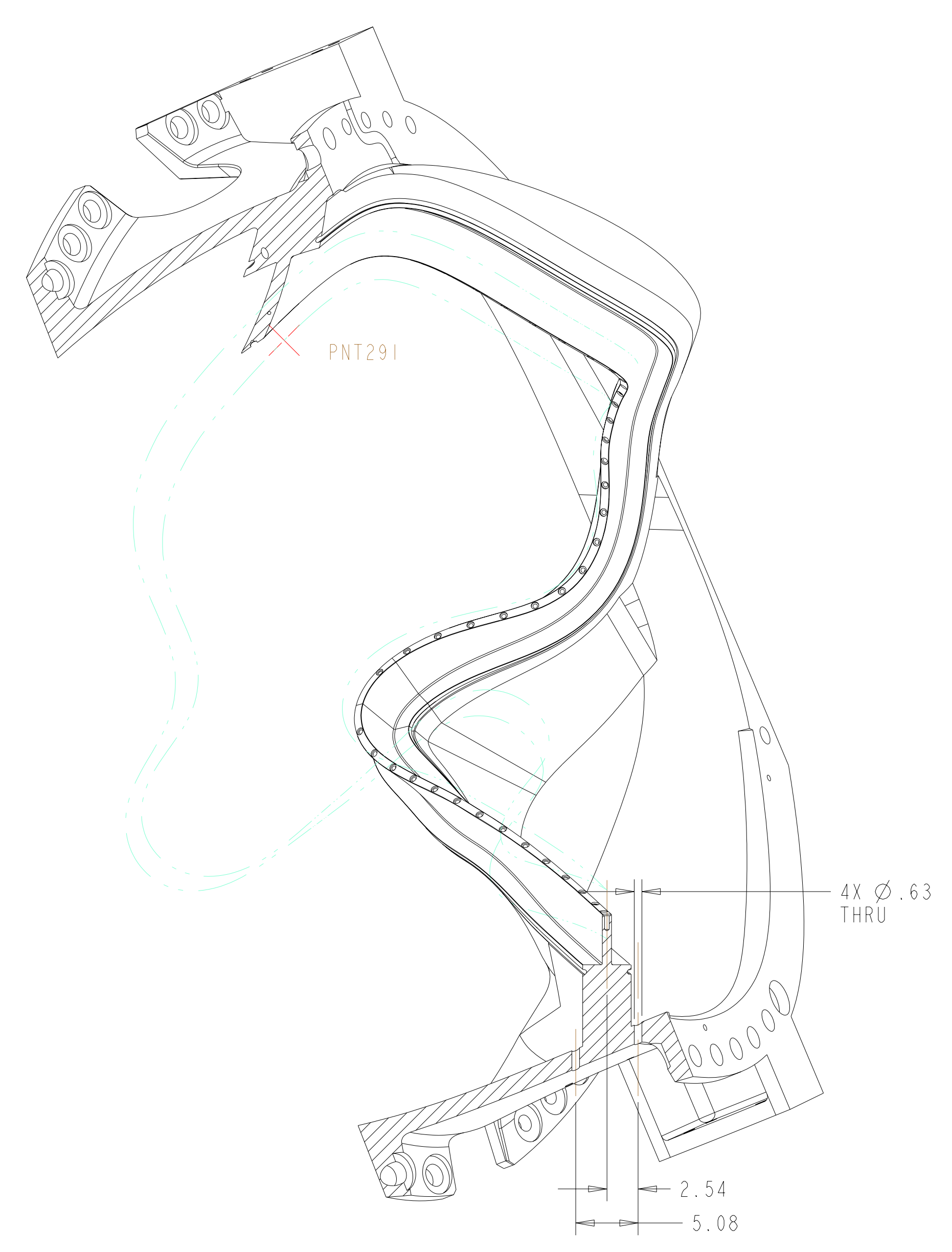
SECTION EI-EI
 SCALE 0.25

UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee					
		PROJECT NAME					
		NATIONAL COMPACT STELLARATOR EXPERIMENT					
		PRODUCTION WINDING FORM TYPE-C					
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
2	X-10	5700	3	8	11	S	U
RELEASE LEVEL		SE141-116				REV	
Fabrication						2	

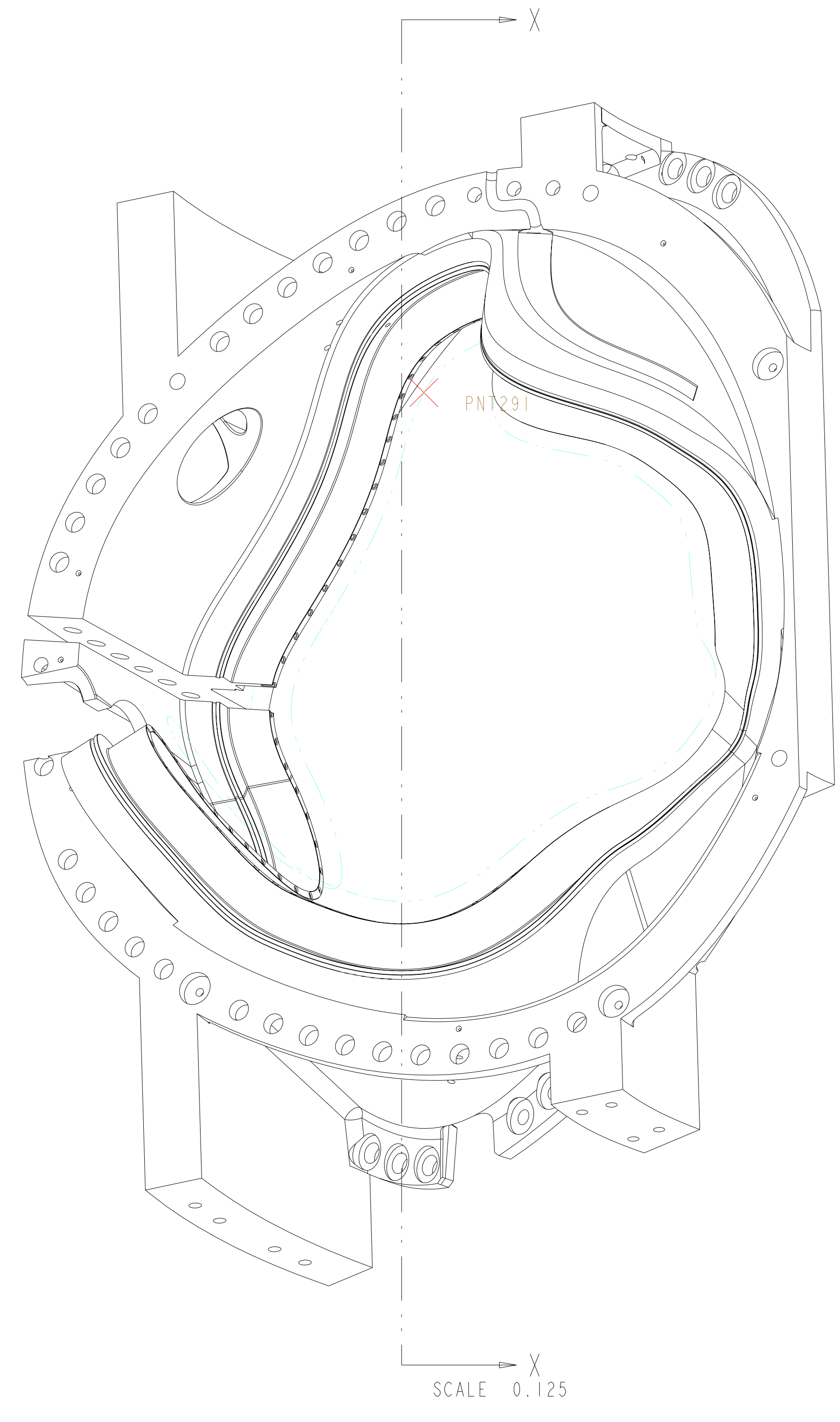
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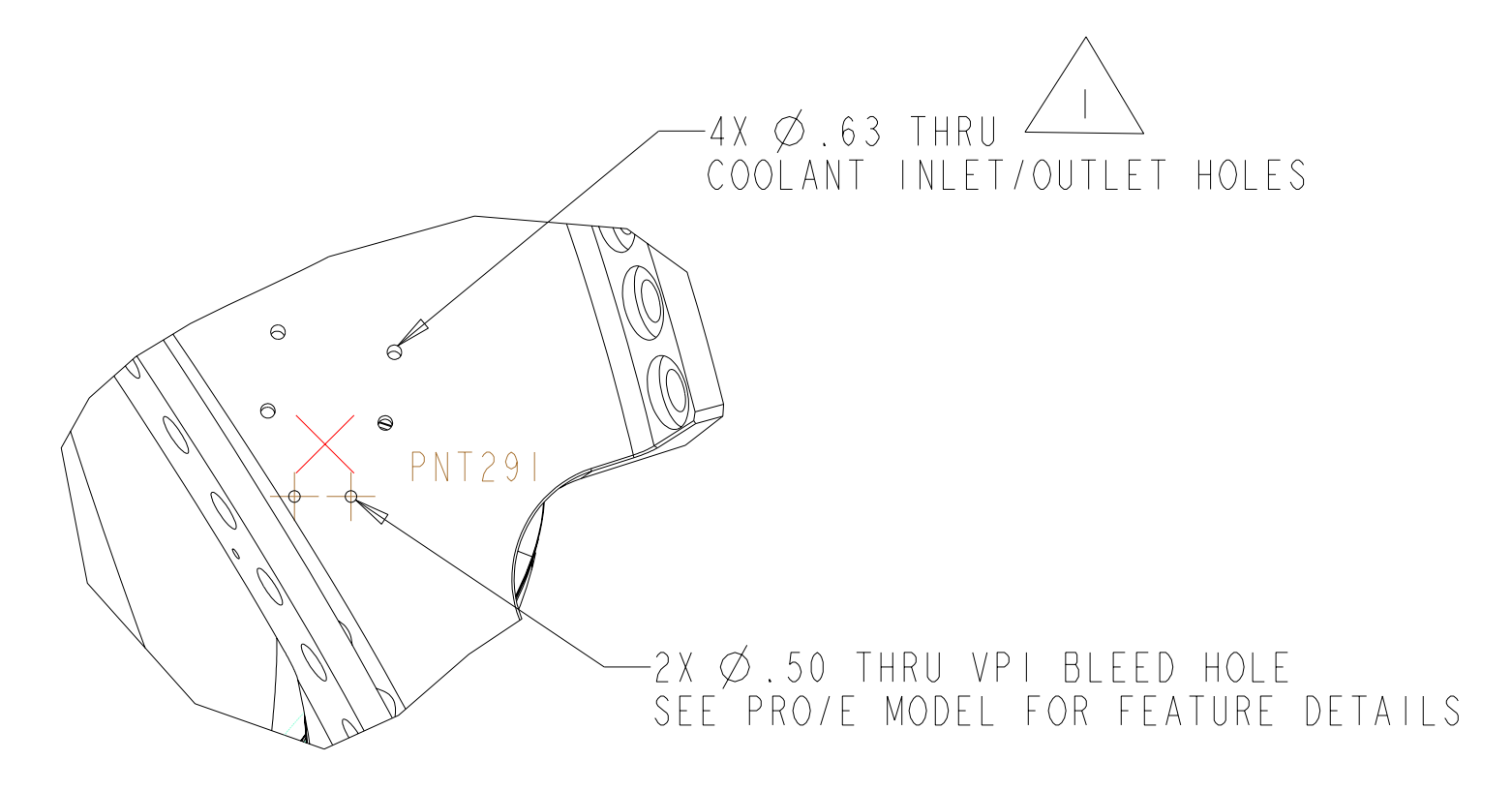
FOR NOTES AND PARTS LIST SEE SHEET 1



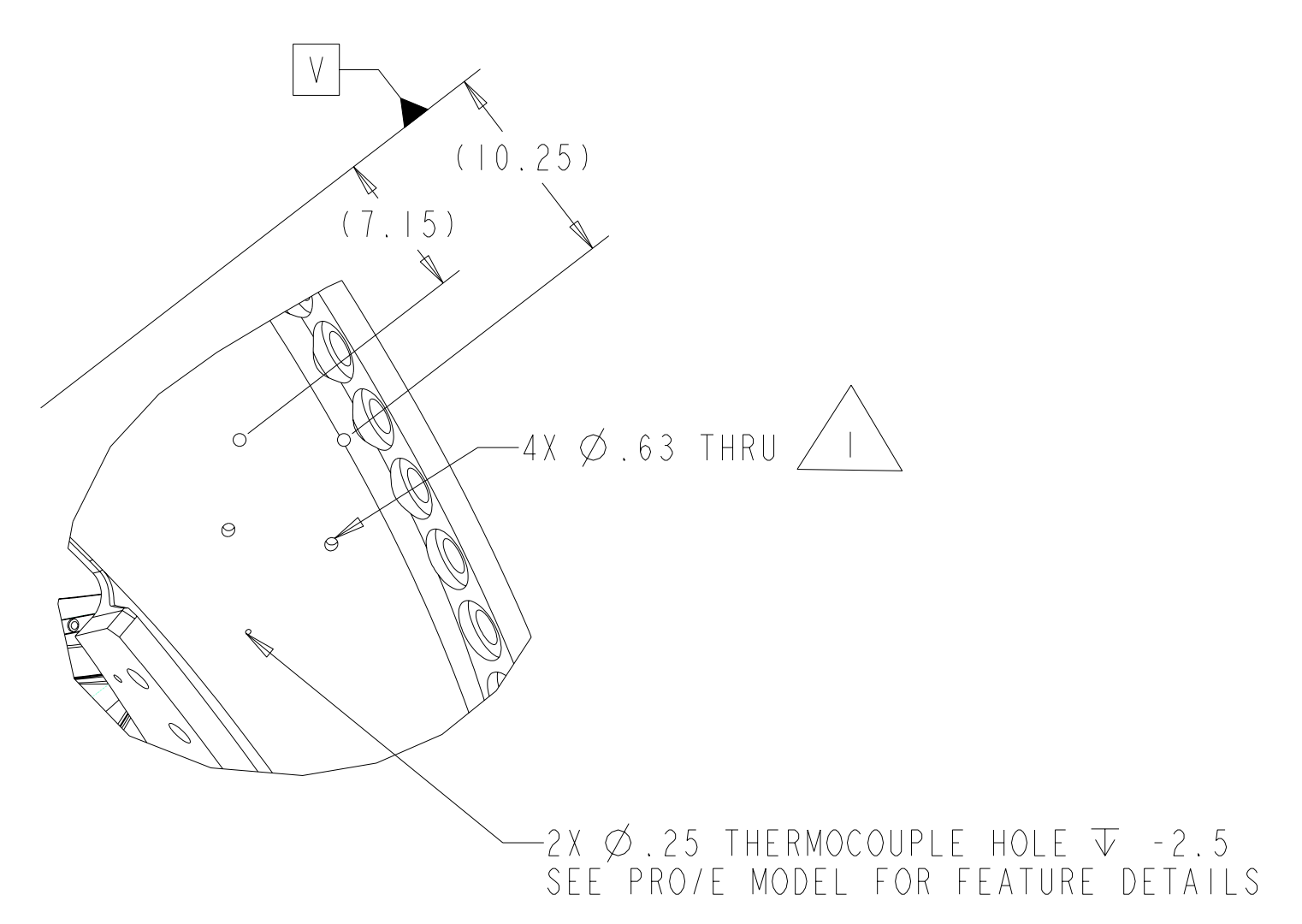
SECTION X-X
 USE PRO/E MODEL GEOMETRY TO DETERMINE SECTION ORIENTATION



SCALE 0.125

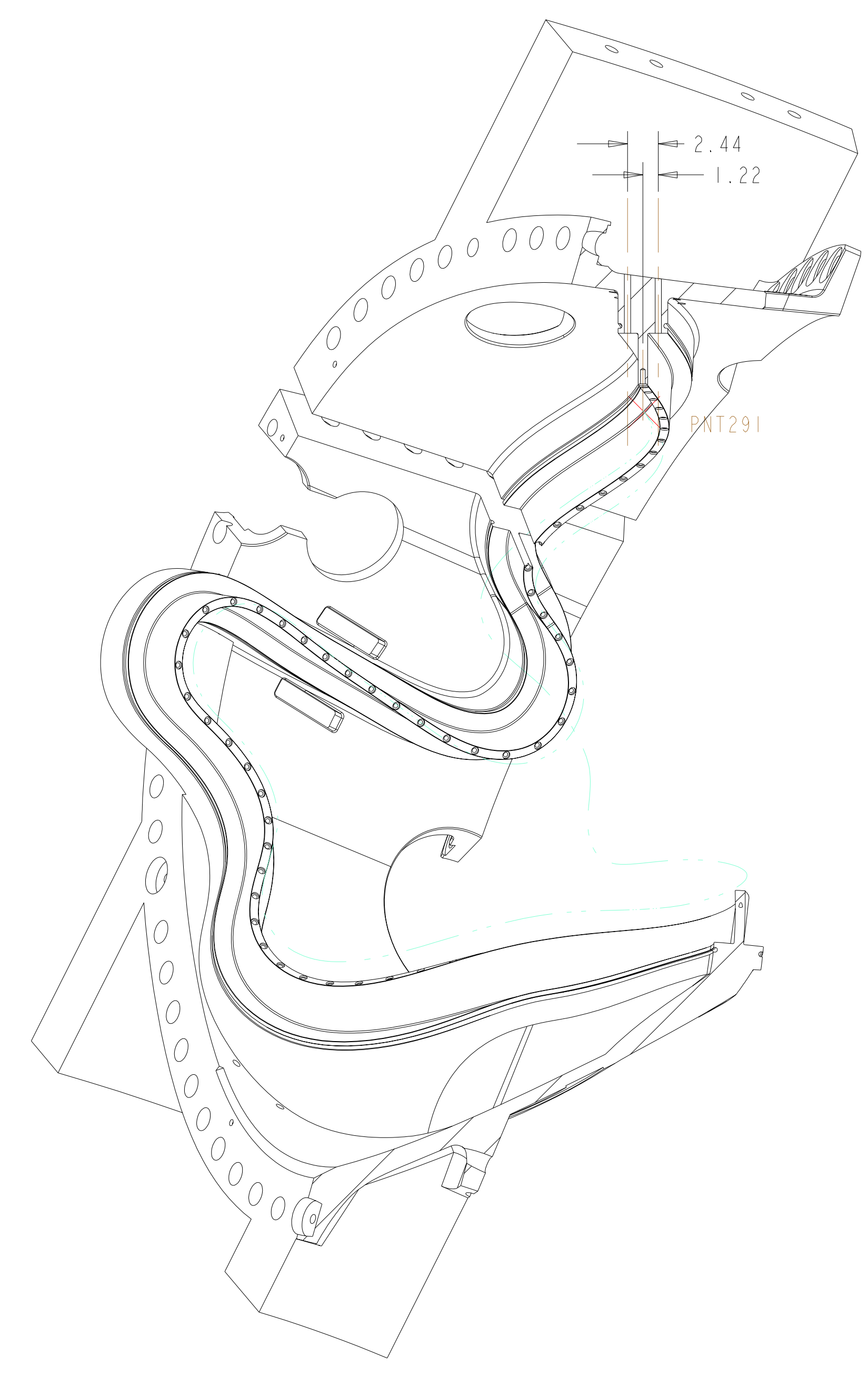


4X Ø.63 THRU
 COOLANT INLET/OUTLET HOLES
 2X Ø.50 THRU VPI BLEED HOLE
 SEE PRO/E MODEL FOR FEATURE DETAILS



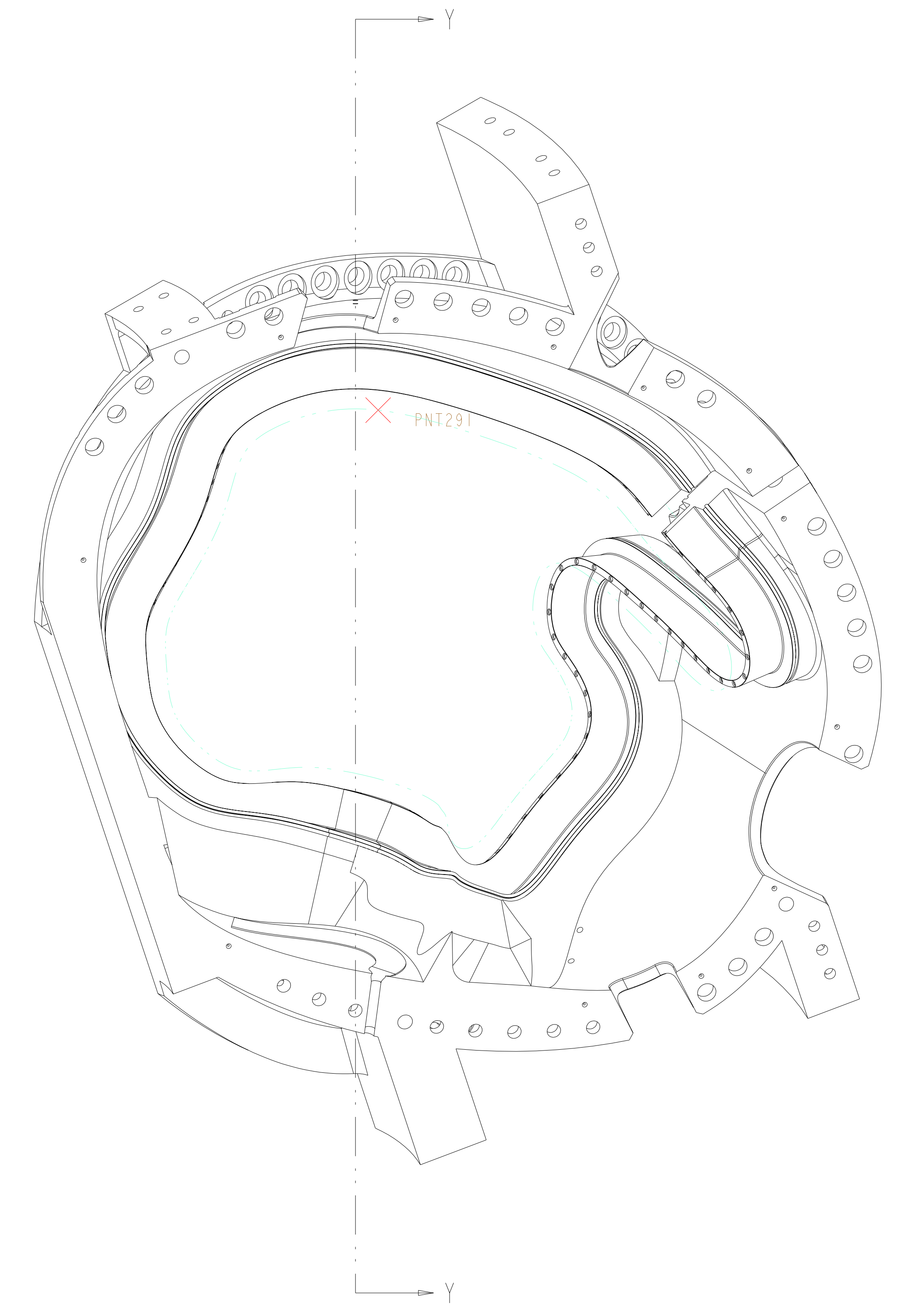
2X Ø.25 THERMOCOUPLE HOLE ∇ 2.5
 SEE PRO/E MODEL FOR FEATURE DETAILS

COOLING INLET / OUTLET HOLES
 TYPICAL 2 PLACES



SECTION Y-Y
 SCALE 0.125

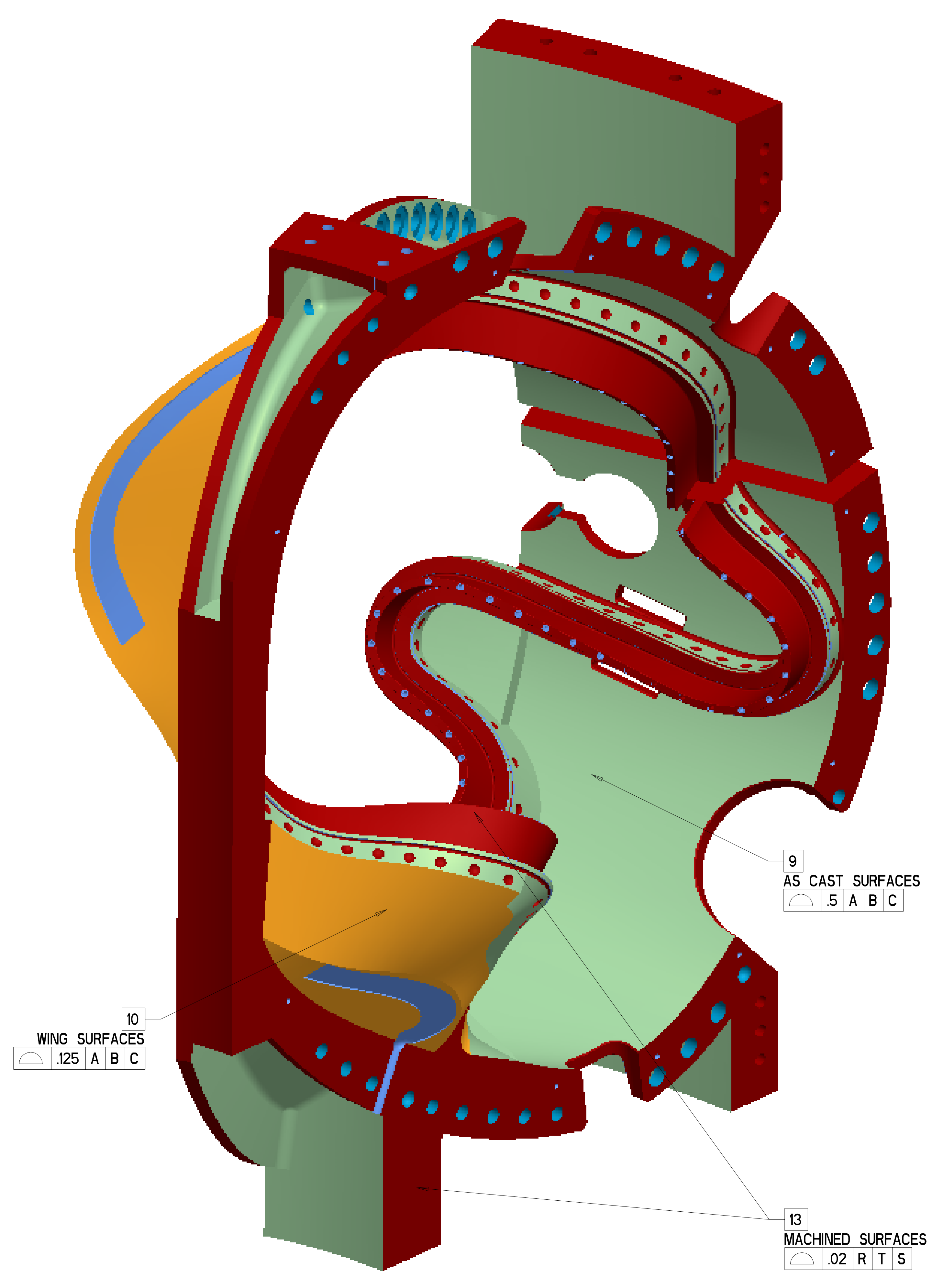
USE PRO/E MODEL GEOMETRY TO DETERMINE SECTION ORIENTATION



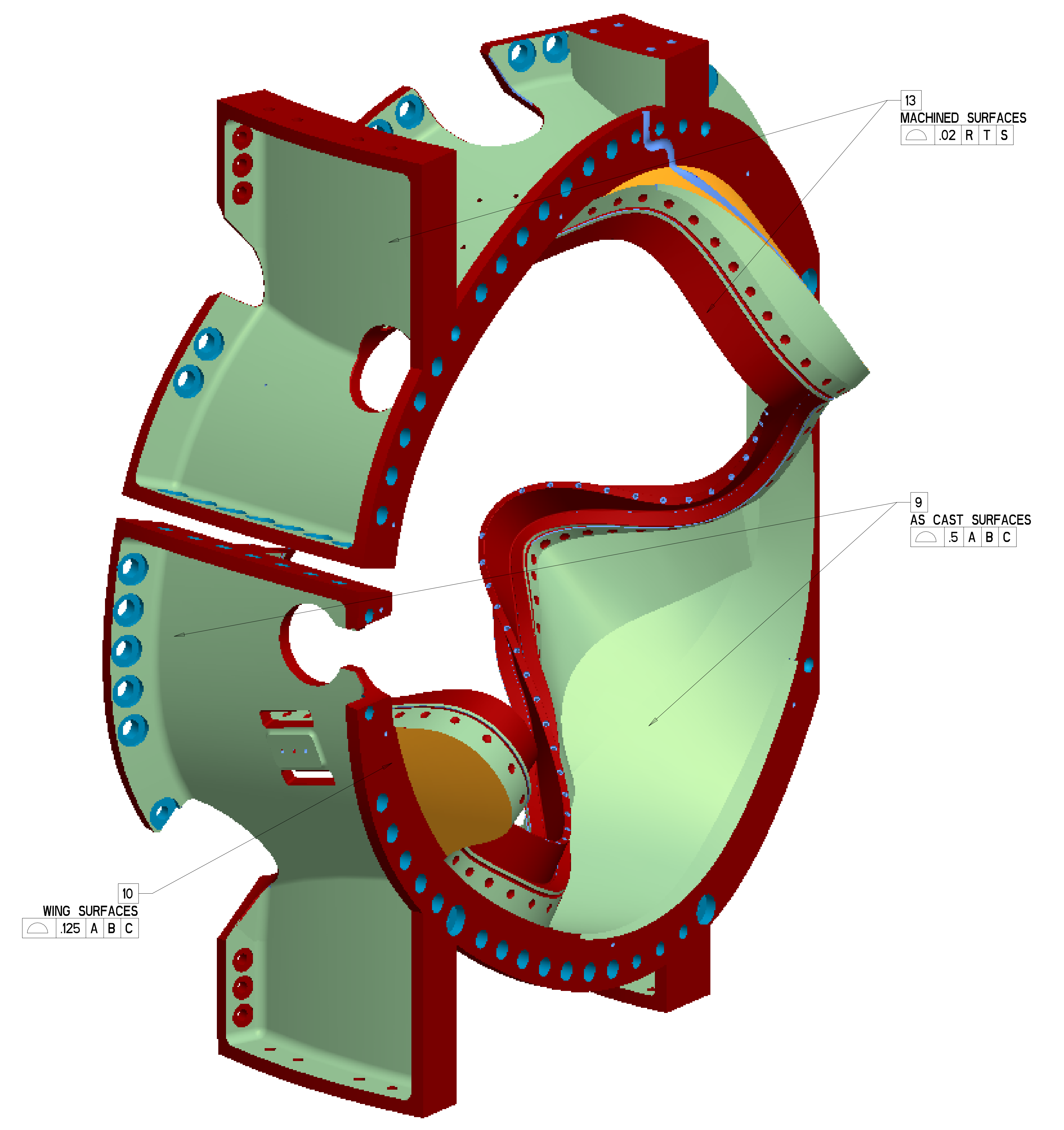
UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee					
PROJECT NAME							
NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-C							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
2	X-10	5700	3	9	11	S	U
RELEASE LEVEL		SE141-116			REV		
Fabrication					2		

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FOR NOTES AND PARTS LIST SEE SHEET 1



ISOMETRIC VIEW
 NOT TO SCALE



ISOMETRIC VIEW
 NOT TO SCALE

UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee					
PROJECT NAME NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-C							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
2	X-10	5700	3	10	11	S	U
RELEASE LEVEL	SE141-116						REV
Fabrication							2

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TABLE I WINDING CENTER SPLINE
(FILE SEI4I-II6-WC.TXT)

#	X	Y	Z
1	60.145	56.794	0.000
2	58.276	57.786	1.503
3	56.596	58.526	3.327
4	55.416	58.692	5.615
5	54.871	58.162	8.086
6	54.722	57.153	10.470
7	54.637	55.902	12.743
8	54.360	54.558	14.945
9	53.748	53.221	17.062
10	52.767	51.957	19.133
11	51.421	50.828	21.031
12	49.744	49.886	22.771
13	47.797	49.153	24.321
14	45.661	48.609	25.690
15	43.406	48.198	26.909
16	41.088	47.830	28.018
17	38.744	47.399	29.046
18	36.404	46.795	29.991
19	34.109	45.921	30.830
20	31.918	44.720	31.524
21	29.878	43.203	32.041
22	27.960	41.481	32.335
23	26.012	39.770	32.290
24	23.895	38.421	31.681
25	21.752	37.807	30.385
26	19.849	37.887	28.631
27	18.194	38.324	26.681
28	16.673	38.852	24.645
29	15.192	39.316	22.564
30	13.689	39.615	20.469
31	12.134	39.566	18.396
32	10.613	38.827	16.444
33	9.437	37.164	14.867
34	8.851	34.871	13.829
35	8.791	32.366	13.165
36	9.101	29.862	12.562
37	9.681	27.475	11.732
38	10.467	25.270	10.612
39	11.320	23.189	9.316
40	12.144	21.365	7.674
41	13.054	20.132	5.590
42	14.179	19.494	3.345
43	15.620	19.190	1.211
44	17.452	18.936	-0.604
45	19.685	18.670	-1.883
46	22.201	18.487	-2.462
47	24.788	18.307	-2.511
48	27.365	18.030	-2.361
49	29.931	17.652	-2.270
50	32.494	17.273	-2.415
51	35.028	17.114	-2.930
52	37.378	17.455	-3.943
53	38.999	18.562	-5.590
54	39.391	20.227	-7.511
55	38.948	22.059	-9.290
56	38.254	23.967	-10.907
57	37.524	25.943	-12.425
58	36.701	27.920	-13.892
59	35.763	29.820	-15.391
60	34.793	31.625	-16.985
61	33.903	33.362	-18.696
62	33.146	35.089	-20.480
63	32.490	36.854	-22.267
64	31.865	38.690	-23.993
65	31.269	40.647	-25.590
66	30.783	42.808	-26.939
67	30.499	45.207	-27.875
68	30.477	47.768	-28.246
69	30.808	50.319	-27.976
70	31.626	52.619	-27.122
71	32.955	54.471	-25.896
72	34.623	55.924	-24.542
73	36.363	57.257	-23.152
74	37.796	58.796	-21.641
75	38.357	60.653	-19.947
76	37.834	62.568	-18.298
77	36.556	64.343	-16.912
78	34.902	65.986	-15.774
79	33.118	67.574	-14.756
80	31.730	69.226	-13.352
81	31.467	70.665	-11.246
82	32.350	71.447	-8.964
83	34.161	71.434	-7.148
84	36.508	70.729	-6.383
85	38.865	69.675	-6.573
86	41.103	68.510	-7.182
87	43.261	67.281	-7.937
88	45.389	65.991	-8.677
89	47.500	64.629	-9.329
90	49.582	63.190	-9.909
91	51.624	61.690	-10.474
92	53.637	60.150	-11.040
93	55.657	58.597	-11.534
94	57.737	57.067	-11.783
95	59.894	55.659	-11.529
96	61.987	54.568	-10.493
97	63.512	54.094	-8.487
98	63.981	54.255	-5.966
99	63.347	54.877	-3.547
100	61.939	55.773	-1.571
101	60.145	56.794	0.000

TABLE II X-VECTOR SPLINE
(FILE SEI4I-II6-XV.TXT)

#	X	Y	Z
1	58.052	53.430	0.000
2	56.230	54.406	1.241
3	54.571	55.150	2.814
4	53.390	55.329	4.888
5	52.867	54.797	7.168
6	52.749	53.802	9.360
7	52.644	52.605	11.450
8	52.303	51.347	13.477
9	51.620	50.117	15.434
10	50.582	48.979	17.286
11	49.208	47.988	19.000
12	47.546	47.183	20.548
13	45.665	46.566	21.923
14	43.638	46.104	23.144
15	41.522	45.737	24.243
16	39.362	45.377	25.253
17	37.186	44.926	26.189
18	35.025	44.274	27.037
19	32.934	43.319	27.758
20	30.975	42.026	28.303
21	29.136	40.501	28.619
22	27.278	38.970	28.596
23	25.247	37.904	27.936
24	23.332	37.806	26.507
25	21.742	38.267	24.757
26	20.322	38.864	22.902
27	18.955	39.416	20.993
28	17.580	39.835	19.056
29	16.161	40.022	17.117
30	14.706	39.785	15.214
31	13.357	38.819	13.486
32	12.429	37.021	12.211
33	12.113	34.747	11.511
34	12.293	32.373	11.144
35	12.782	30.060	10.681
36	13.440	27.941	9.749
37	14.118	26.018	8.463
38	14.685	24.325	6.854
39	15.233	23.393	4.718
40	16.258	23.052	2.571
41	17.825	22.789	0.764
42	19.822	22.415	-0.514
43	22.144	22.026	-0.973
44	24.518	21.651	-0.806
45	26.854	21.205	-0.407
46	29.172	20.671	-0.005
47	31.497	20.091	0.261
48	33.850	19.570	0.289
49	36.219	19.295	-0.034
50	38.478	19.477	-0.825
51	40.280	20.286	-2.176
52	41.259	21.626	-3.899
53	41.357	23.244	-5.676
54	40.743	24.958	-7.238
55	39.677	26.699	-8.519
56	38.487	28.468	-9.648
57	37.290	30.238	-10.766
58	36.171	31.978	-12.005
59	35.202	33.659	-13.436
60	34.128	35.192	-14.956
61	33.015	36.626	-16.545
62	31.934	38.039	-18.173
63	30.919	39.505	-19.797
64	30.020	41.095	-21.370
65	29.386	42.917	-22.812
66	29.008	45.005	-23.947
67	28.900	47.333	-24.530
68	29.158	49.714	-24.381
69	29.937	51.836	-23.580
70	31.222	53.508	-22.423
71	32.804	54.817	-21.162
72	34.456	56.011	-19.872
73	35.820	57.395	-18.459
74	36.077	59.117	-16.846
75	35.181	60.815	-15.406
76	33.770	62.378	-14.236
77	32.154	63.865	-13.239
78	30.624	65.372	-12.150
79	29.829	66.871	-10.476
80	30.132	67.939	-8.366
81	31.415	68.301	-6.387
82	33.393	67.975	-5.091
83	35.622	67.171	-4.744
84	37.773	66.151	-5.106
85	39.804	65.051	-5.797
86	41.755	63.898	-6.622
87	43.613	62.689	-7.444
88	45.576	61.412	-8.196
89	47.455	60.064	-8.880
90	49.301	58.659	-9.544
91	51.121	57.220	-10.201
92	52.949	55.764	-10.798
93	54.831	54.315	-11.210
94	56.801	52.930	-11.253
95	58.812	51.718	-10.740
96	60.658	50.858	-9.482
97	61.888	50.555	-7.459
98	62.103	50.818	-5.098
99	61.294	51.503	-2.951
100	59.824	52.420	-1.285
101	58.052	53.430	0.000

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ALL POINT LOCATIONS ARE BASIC
FOR NOTES AND PARTS LIST SEE SHEET 1

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC. Oak Ridge, Tennessee PROJECT NAME							
UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT							
PRODUCTION WINDING FORM TYPE-C							
VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS	
2	X-10	5700	3	11	11	S	U
RELEASE LEVEL		SEI4I-116				REV	
Fabrication						2	