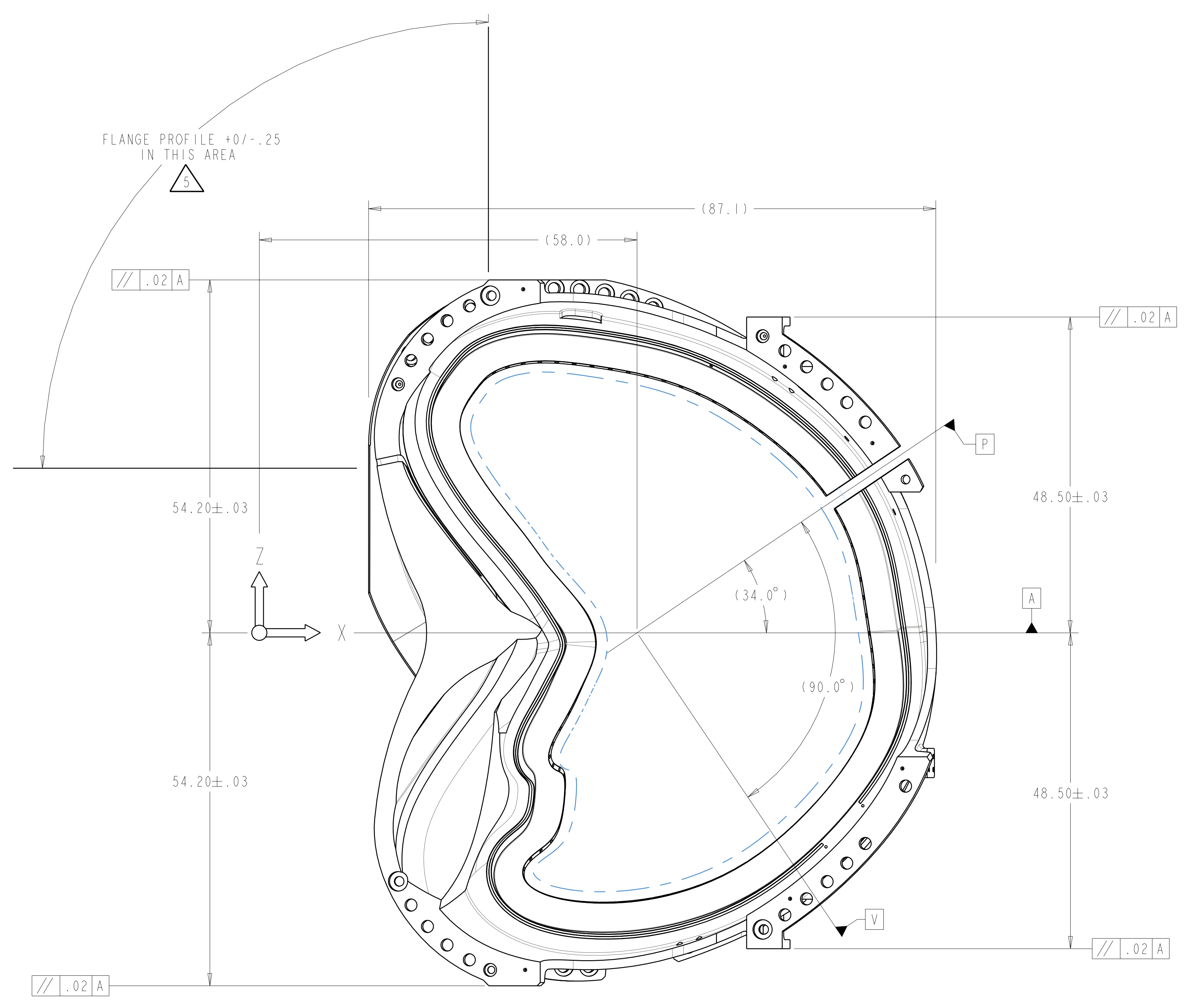


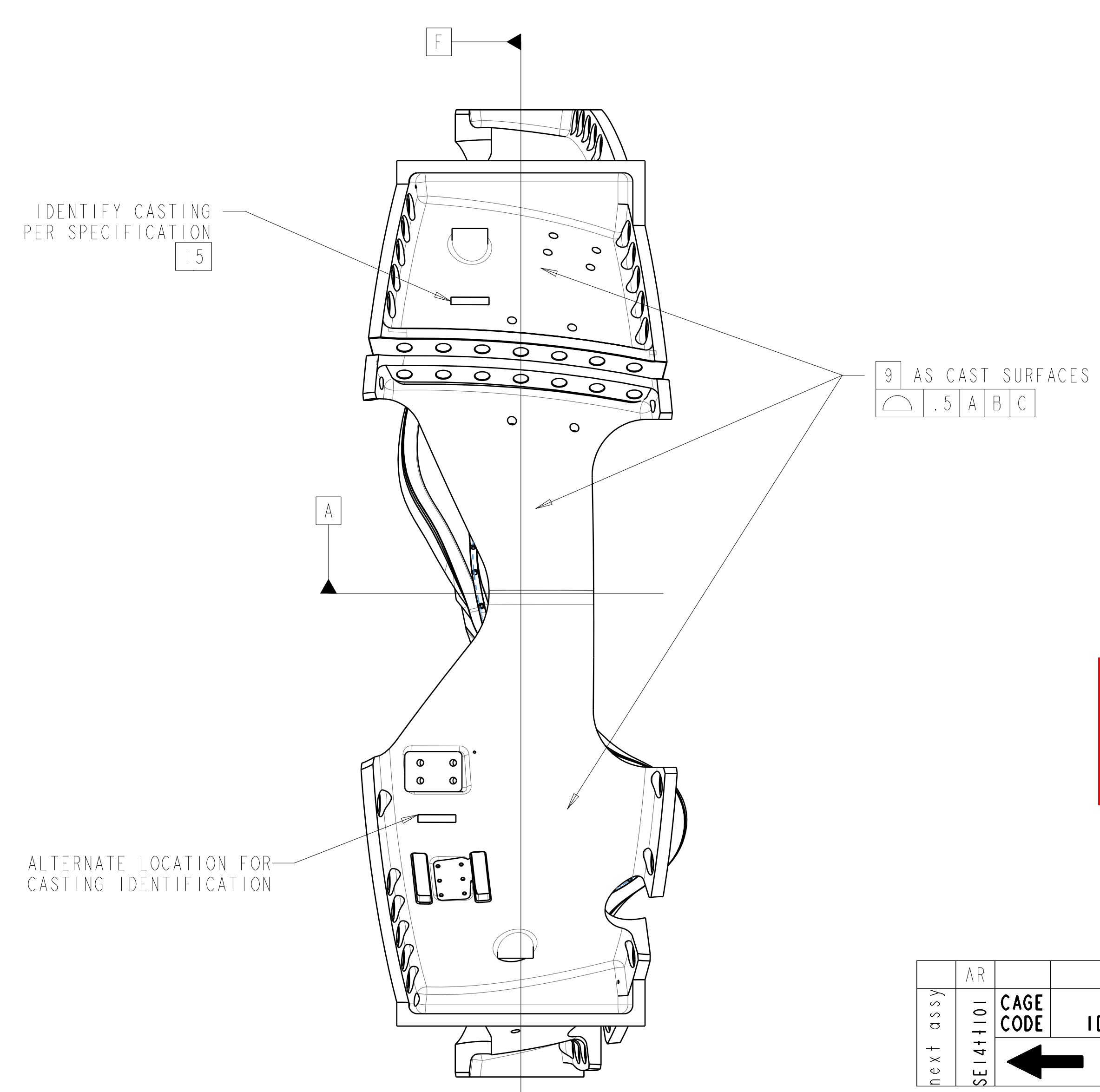
ISOMETRIC VIEW



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 SE141-114.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 = 4819 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 RADI = 0.5 +/- 0.1 IN.
- DESIGNATED SURFACE REGIONS HAVE PROFILE TOLERANCE OF -0.12 TO -0.25-IN. WHERE POSITIVE INDICATES OUTWARD SURFACE NORMAL DIRECTION (ADDS MATERIAL).
- 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.
- GRIND TEE BASE AS REQUIRED TO ACHIEVE CLEARANCE DEFINED BY TEMPLATE SHOWN IN THE SPECIFICATION.



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PPPL Drafting:

| next assy | AR | CAGE CODE | PART OR IDENTIFYING NO | NOMENCLATURE OR DESCRIPTION | MATERIAL | SPECIFICATION | FIND NO |
|-----------|----|-----------|------------------------|-----------------------------|----------|---------------|---------|
| SE141101 | | | | | | | |

| next assembly | AR | CAGE CODE | PART OR IDENTIFYING NO | NOMENCLATURE OR DESCRIPTION | MATERIAL | SPECIFICATION | FIND NO |
|---------------|----|-----------|------------------------|-----------------------------|----------|---------------|---------|
| | | | | | | | |

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.

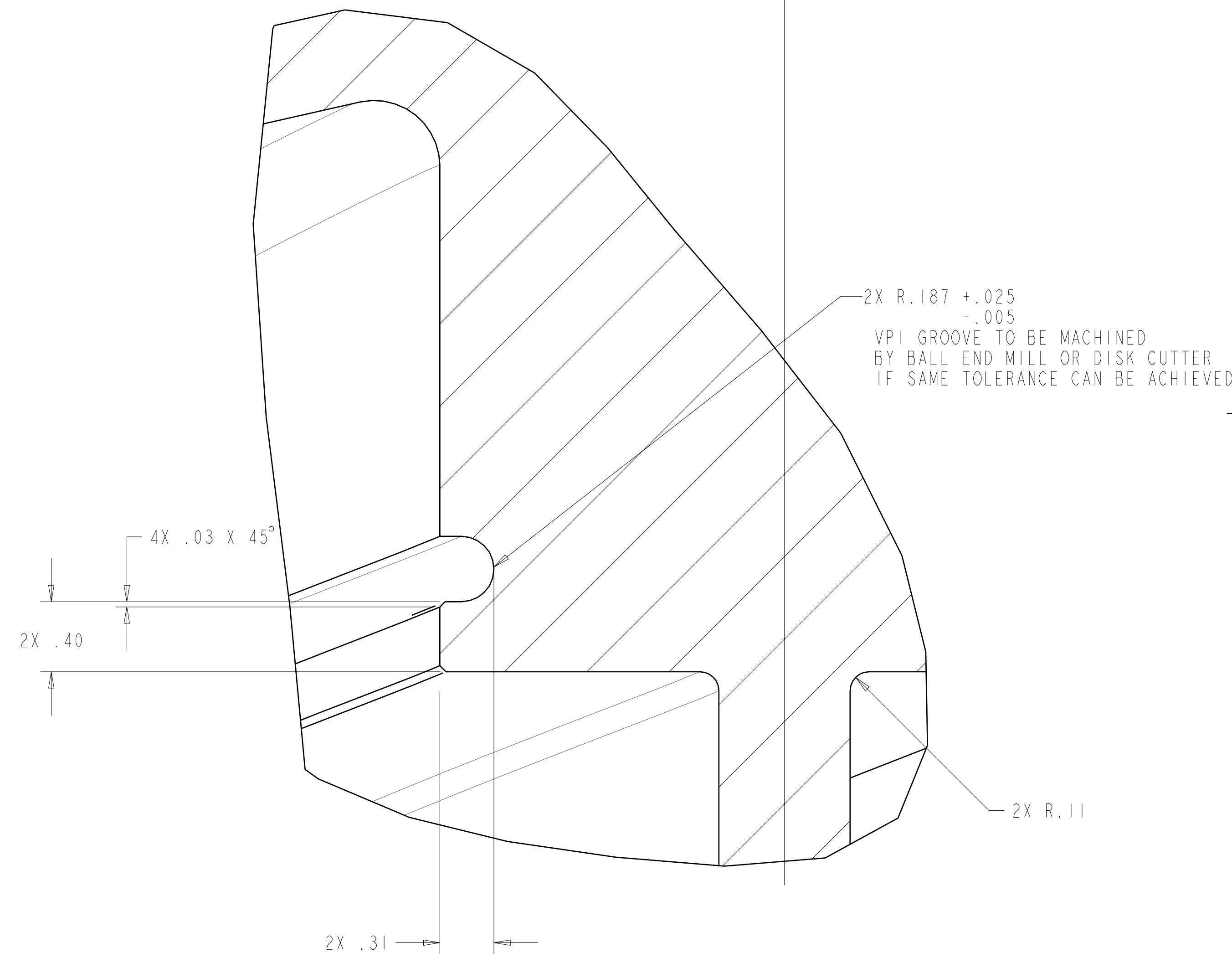
P THIS DRAWING PRODUCED ON PRO-ENGINEER

| REV | DESCRIPTION | BY | DATE | CHK | DEPT | DATE | PE | REQ | DATE | ORNL | DOE | DATE |
|-----|--|-----|-------|-----|------|------|-----|-----|------|------|-----|------|
| 6 | REVISED PART AND DRAWING PER ECN 5059 AND 5064 | GLL | 01/08 | MJC | | | DEW | | | | | |
| 5 | REVISED PART AND DRAWING PER ECN 5009 | GLL | 7-05 | MJC | | | DEW | | | | | |
| 4 | REVISED PART AND DRAWING PER ECN 4994 | GLL | 6-05 | MJC | | | DEW | | | | | |
| 3 | REVISED PART AND DRAWING PER ECN 4965 | GLL | 3-05 | MJC | | | DEW | | | | | |
| 2 | REVISED PART AND DRAWING PER ECN 4944 | GLL | 1/05 | MJC | | | DEW | | | | | |
| 1 | REMOVED SPHERICAL SEATS, REVISED LEAD BLOCK/COOLING PER ECN-4903 | GL | 9/04 | MJC | | | DEW | | | | | |

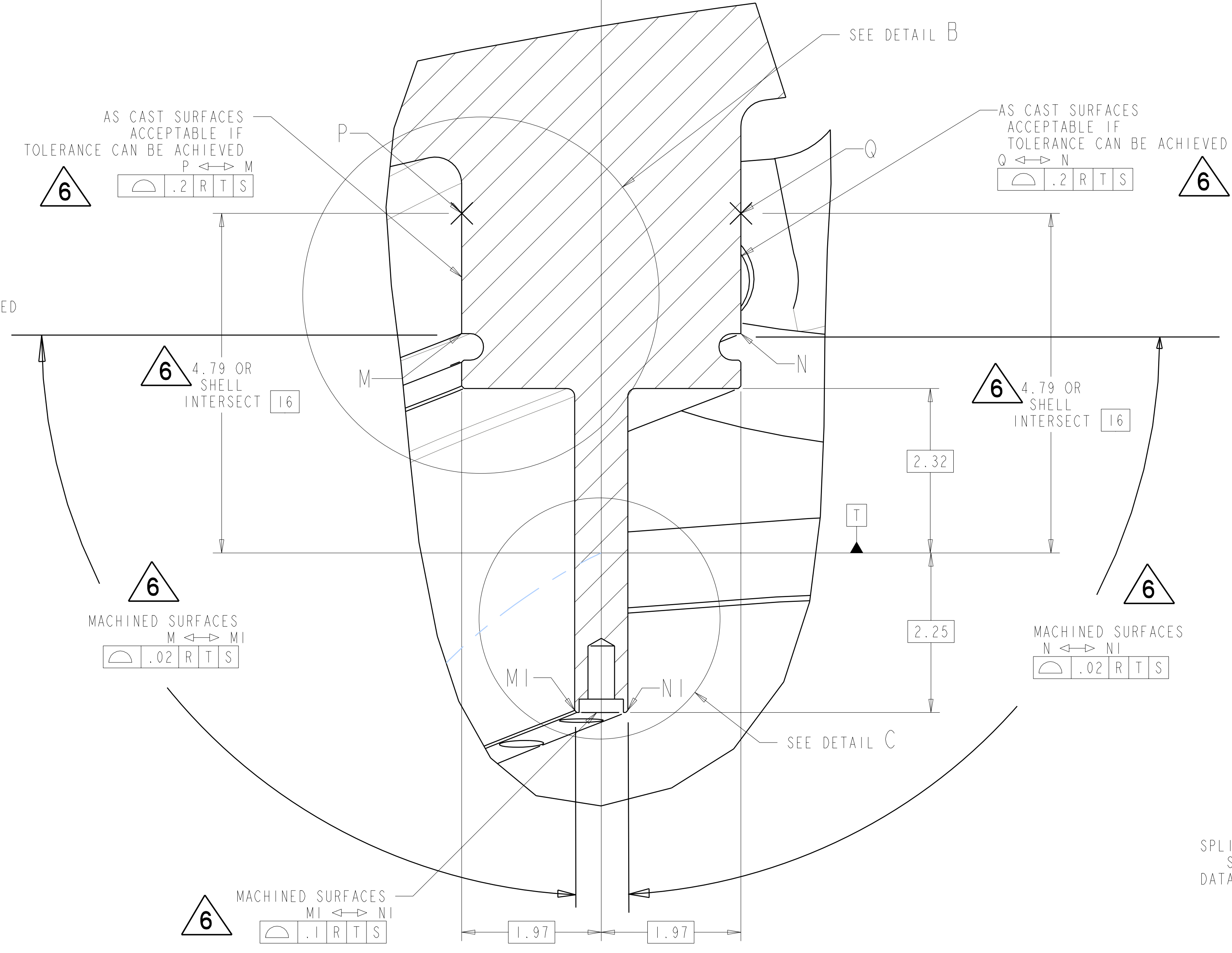
| | | |
|--|--------------------|----------|
| SCALE NOTED | DES T BROWN | 06-01-04 |
| TOLERANCES UNLESS OTHERWISE SPECIFIED | DRW P MILLER | 06-02-04 |
| FRACTIONS | CHK M COLE | 7/27/04 |
| XX DECIMALS ± .01 | DEPT : | |
| XXX DECIMALS ± .005 | PE D WILLIAMSON | 7/27/04 |
| ANGLES ± 0°15' | CR : |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

| | | | |
|---|--------|--|-------|
| 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-A | | | |
| VERSION NO. | PLANT | BLDG | FL |
| 13 | X-10 | 5700 | 3 |
| RELEASE LEVEL | SHT OF | TYPE | CLASS |
| Fabrication | 11 | S | U |
| SEI41-114 | REV | NO | NO |
| | 6 | | |

FOR NOTES AND PARTS LIST SEE SHEET 1

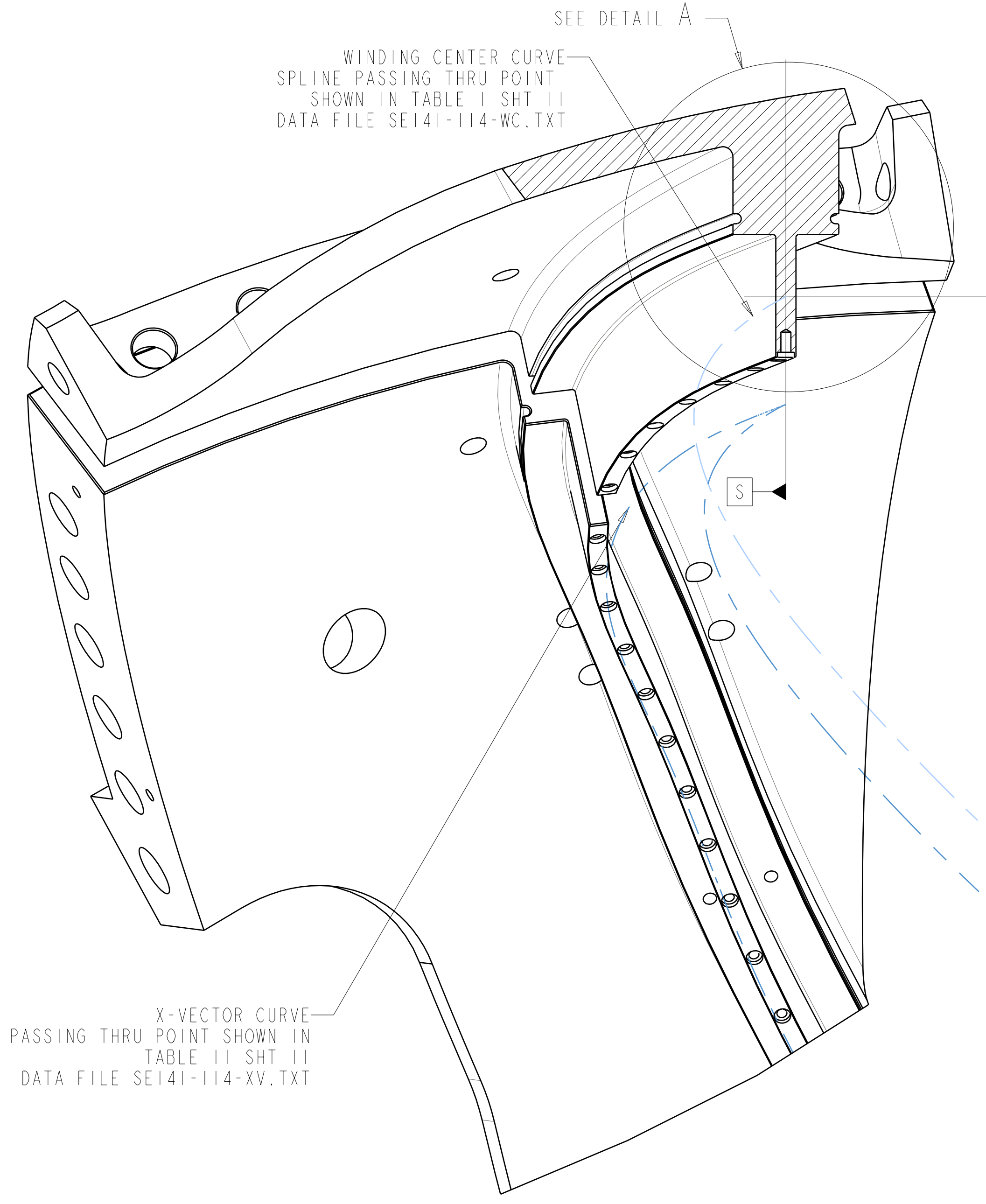


DETAIL B
SCALE 2.00

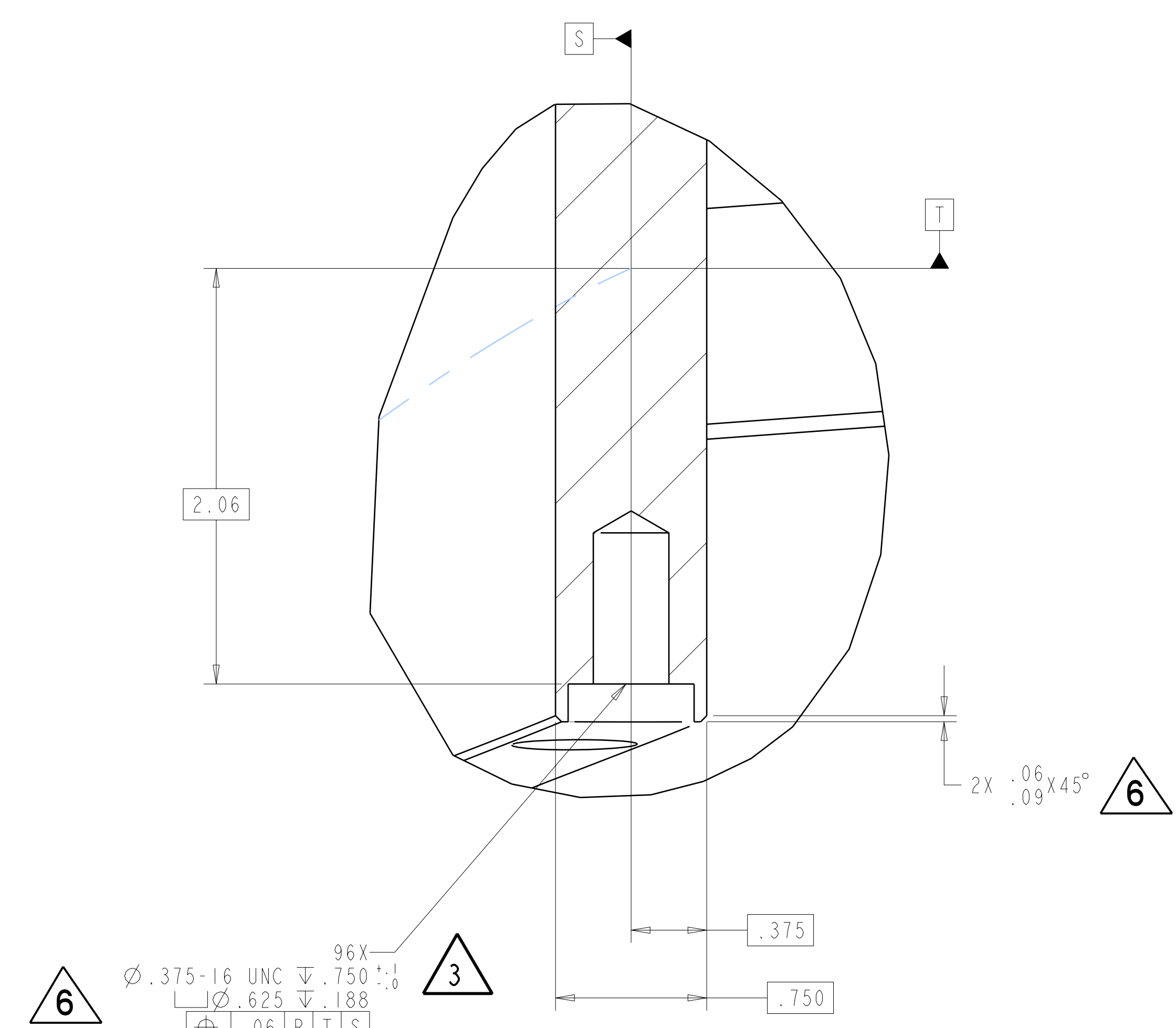
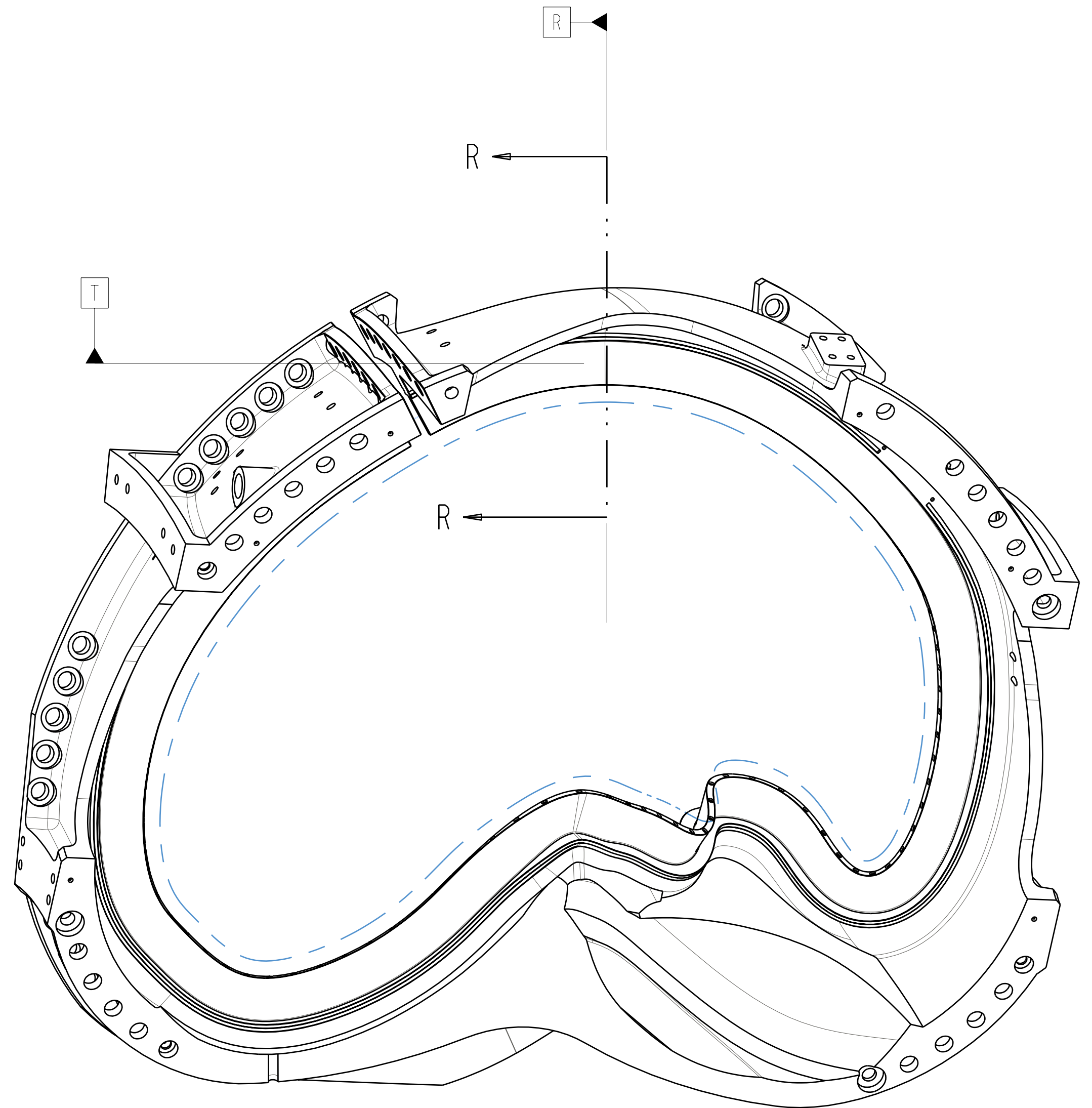


DETAIL A
SCALE 1.00

TYPICAL FOR ALL POINTS ALONG WINDING CENTER



SECTION R-R
SCALE 0.30



DETAIL C
SCALE 2.00

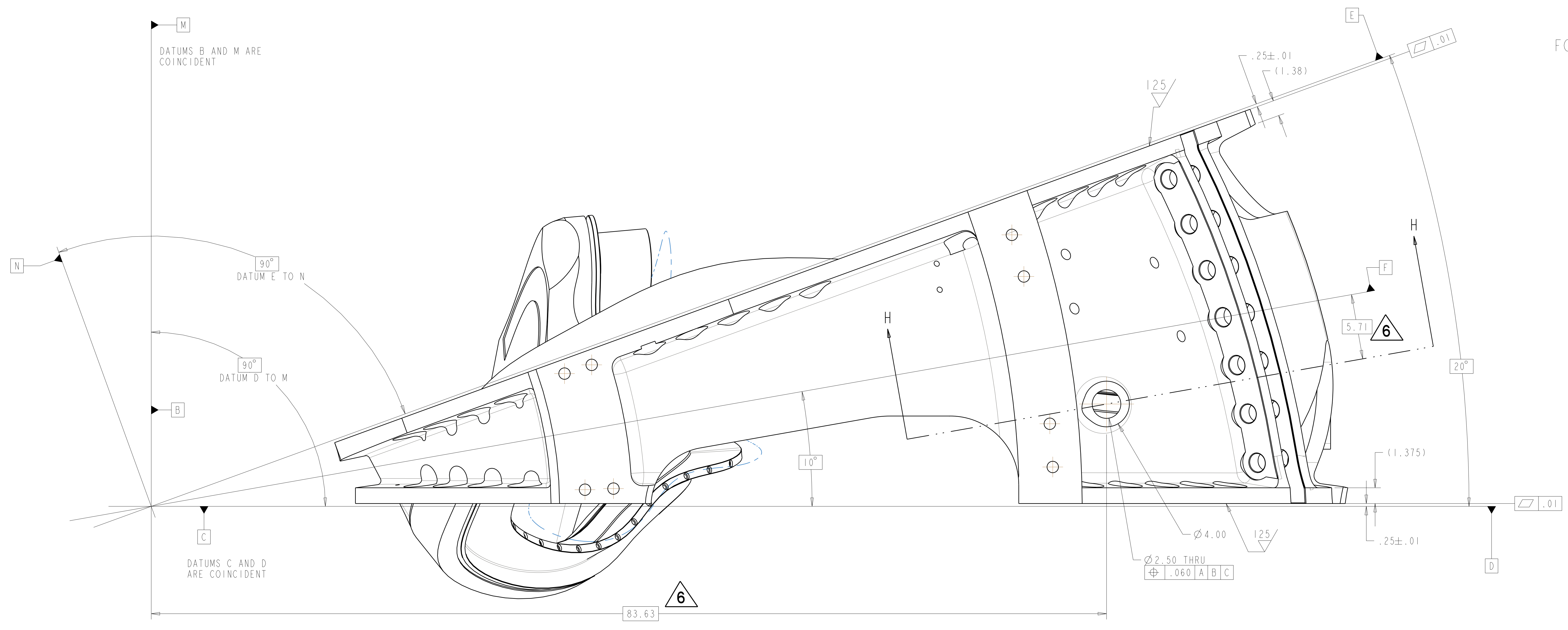
DATUM R = PLANE NORMAL TO WINDING CENTER
DATUM S = PLANE PASSING THRU WINDING CENTER AND X VECTOR AT DATUM R
DATUM T = PLANE PASSING THRU WINDING CENTER ORTHOGONAL TO DATUM S

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| | | | | | | | |
|---|-----------|------|----|--------|------|-------|-----|
| 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 | |
| 13 | X-10 | 5700 | 3 | 2 | 11 | S | U |
| RELEASE LEVEL | SE141-114 | | | | | | REV |
| Fabrication | | | | | | | 6 |

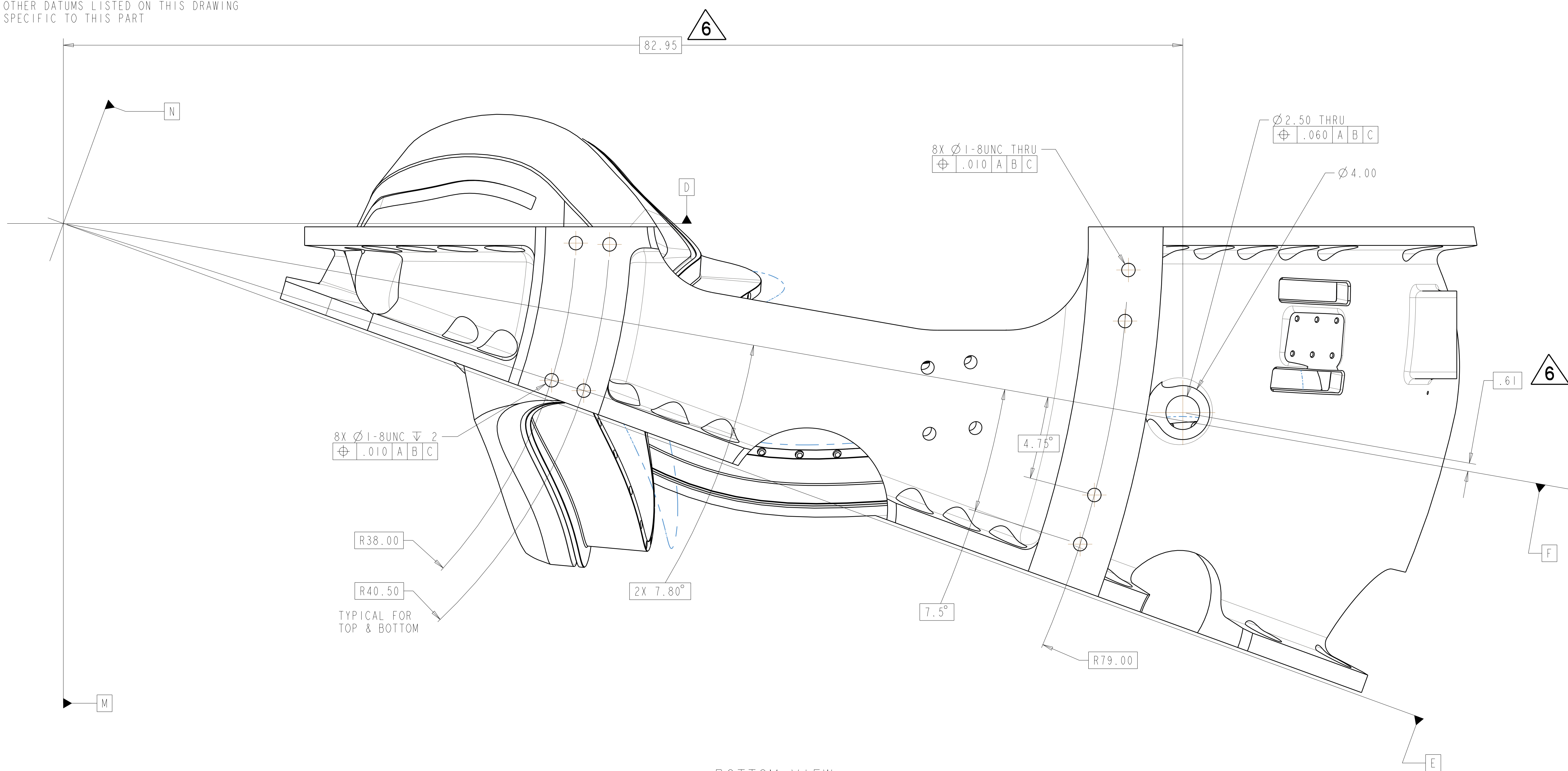
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FOR NOTES AND PARTS LIST SEE SHEET 1



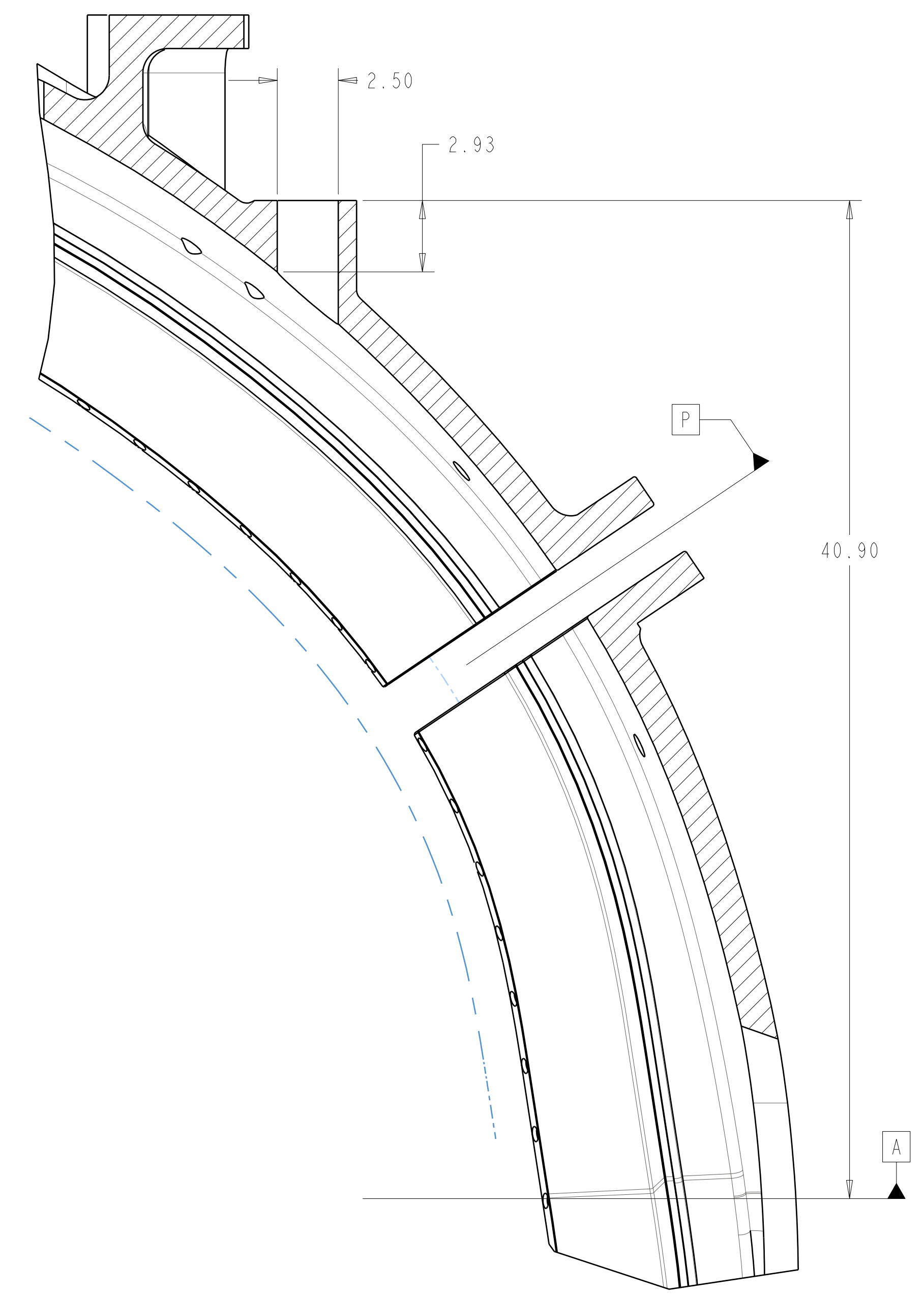
TOP VIEW
SCALE 0.25

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



BOTTOM VIEW
SCALE 0.25

TYPICAL FOR
TOP & BOTTOM



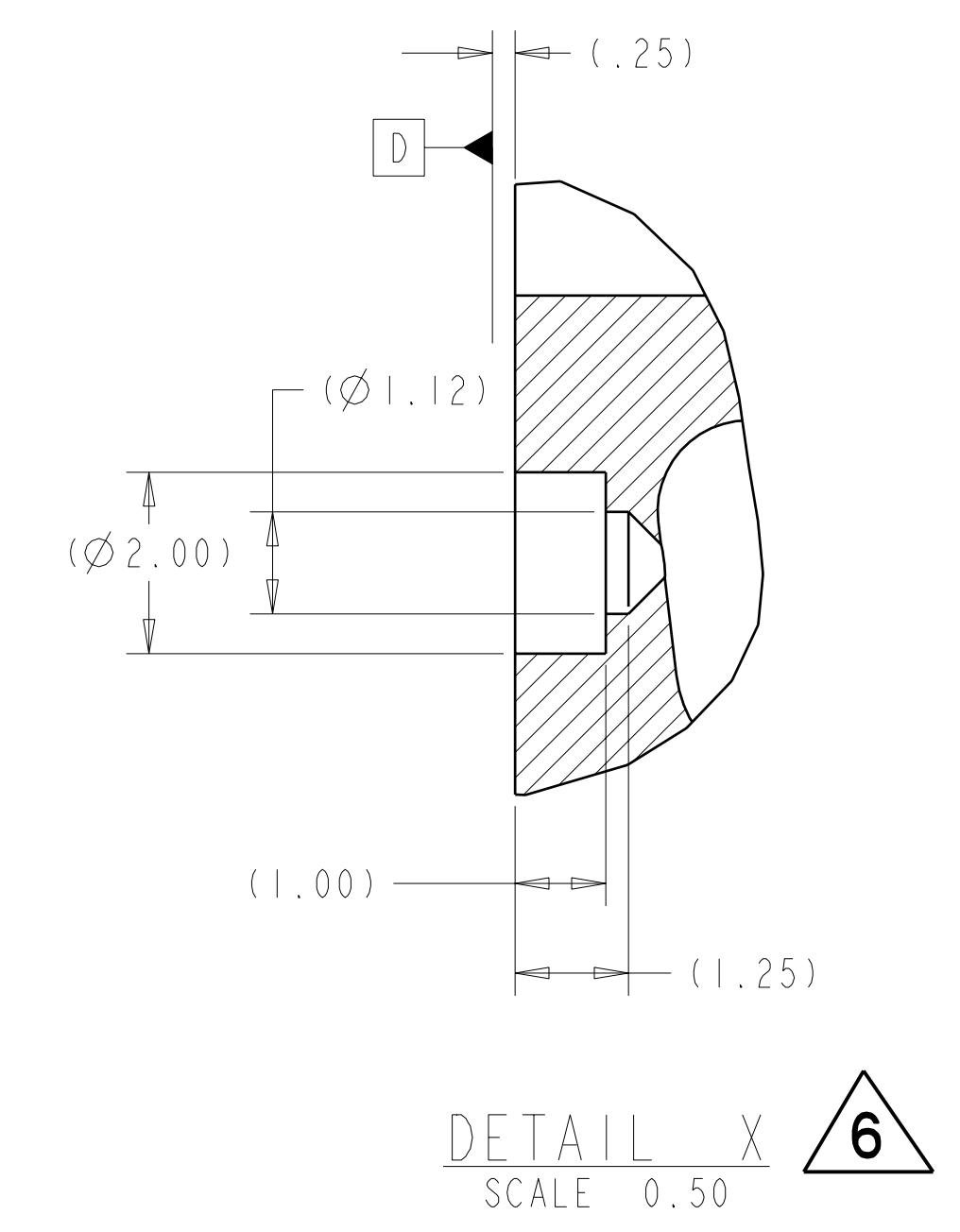
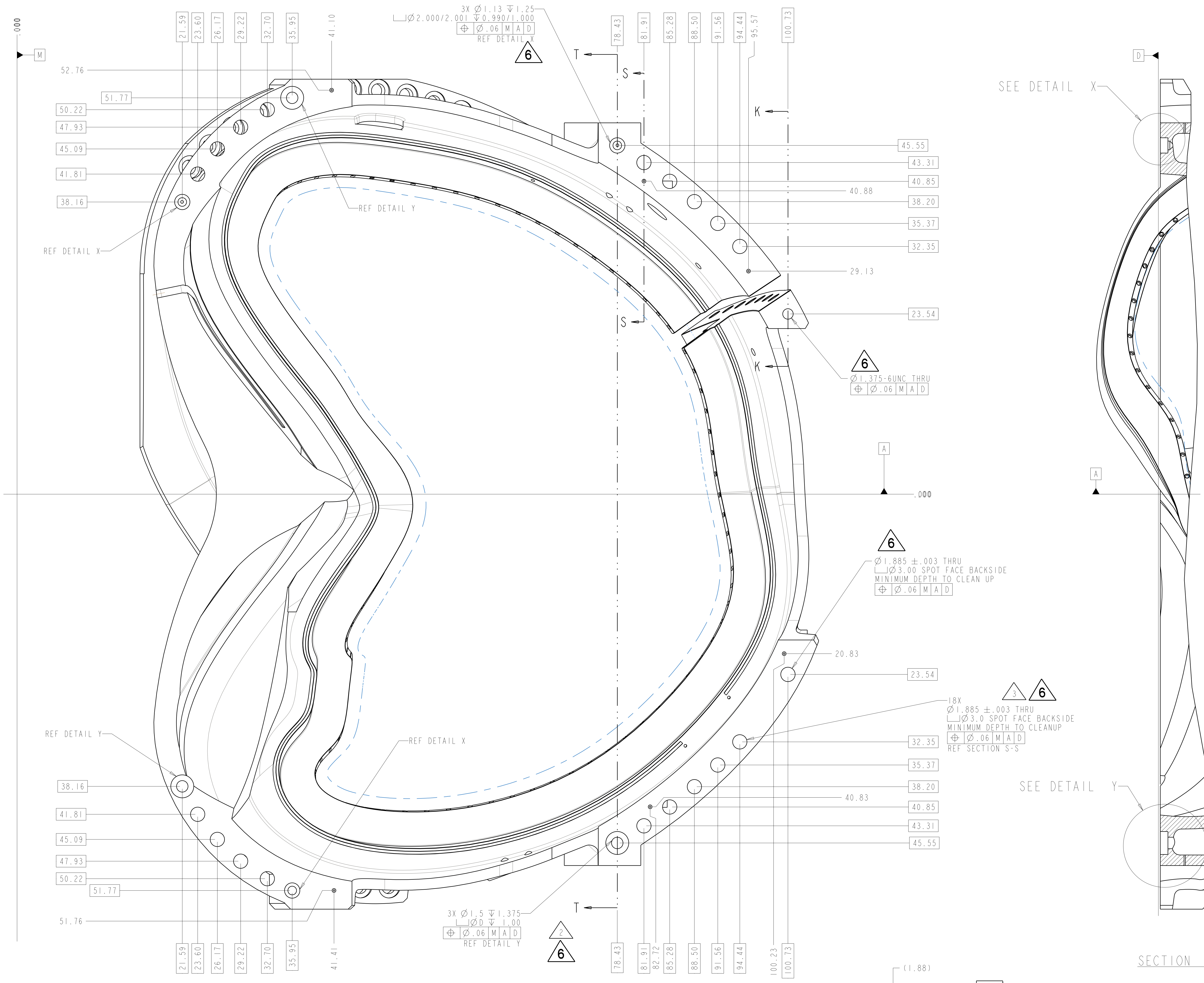
SECTION H-H
SCALE 0.25

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FABRICATION / INSTALLATION**
PPPL Drafting:

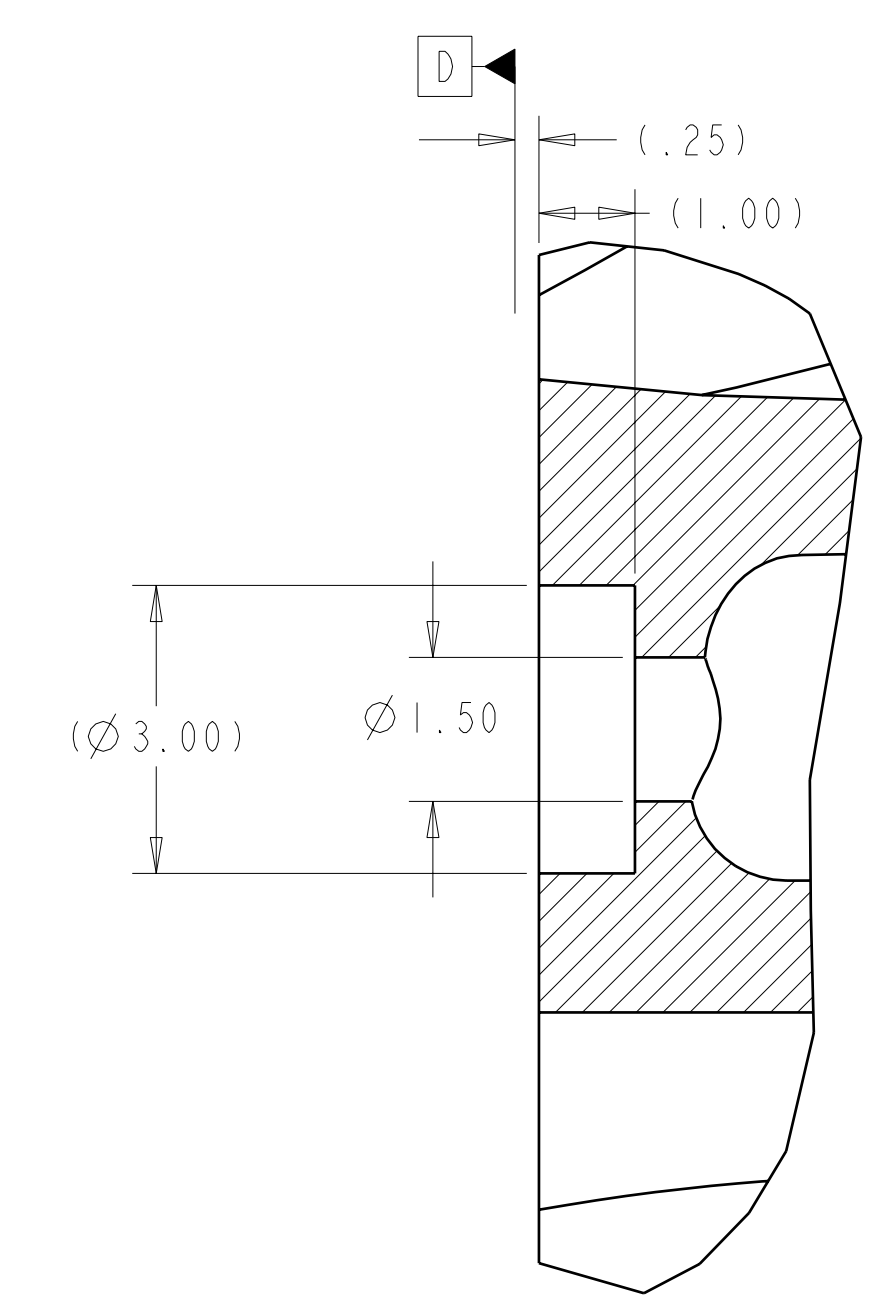
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|---|-------|------|----|-----------|------|-------|---|
| UT-BATTELLE Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME: | | | | | | | |
| NATIONAL COMPACT STELLARATOR EXPERIMENT | | | | | | | |
| PRODUCTION WINDING FORM TYPE-A | | | | | | | |
| VERSION NO. | PLANT | BLDG | FL | SHT OF | TYPE | CLASS | |
| 13 | X-10 | 5700 | 3 | 3 | 11 | S | U |
| RELEASE LEVEL | | | | | | REV | |
| Fabrication | | | | SEI41-114 | | 6 | |

SEI41-114

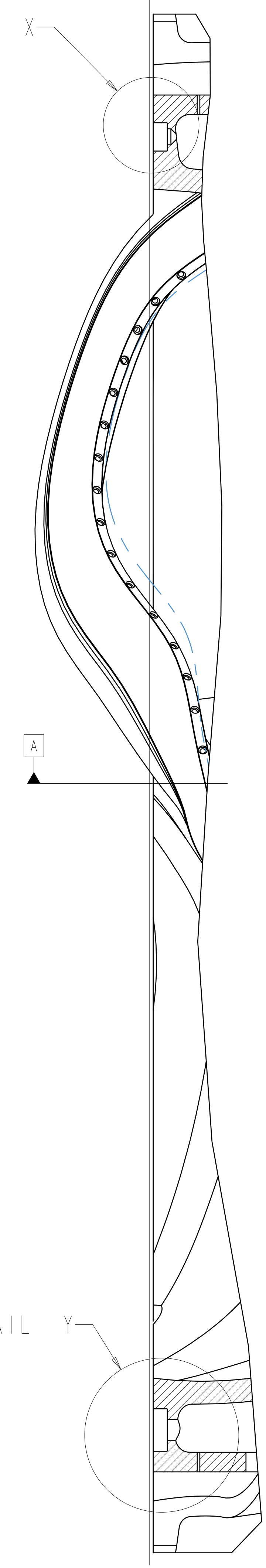
FOR NOTES AND PARTS LIST SEE SHEET I



DETAIL X
SCALE 0.50



DETAIL Y
SCALE 0.50



SECTION T-T

SECTION K-K
SCALE 0.50

VIEW AT DATUM D
SCALE 0.20

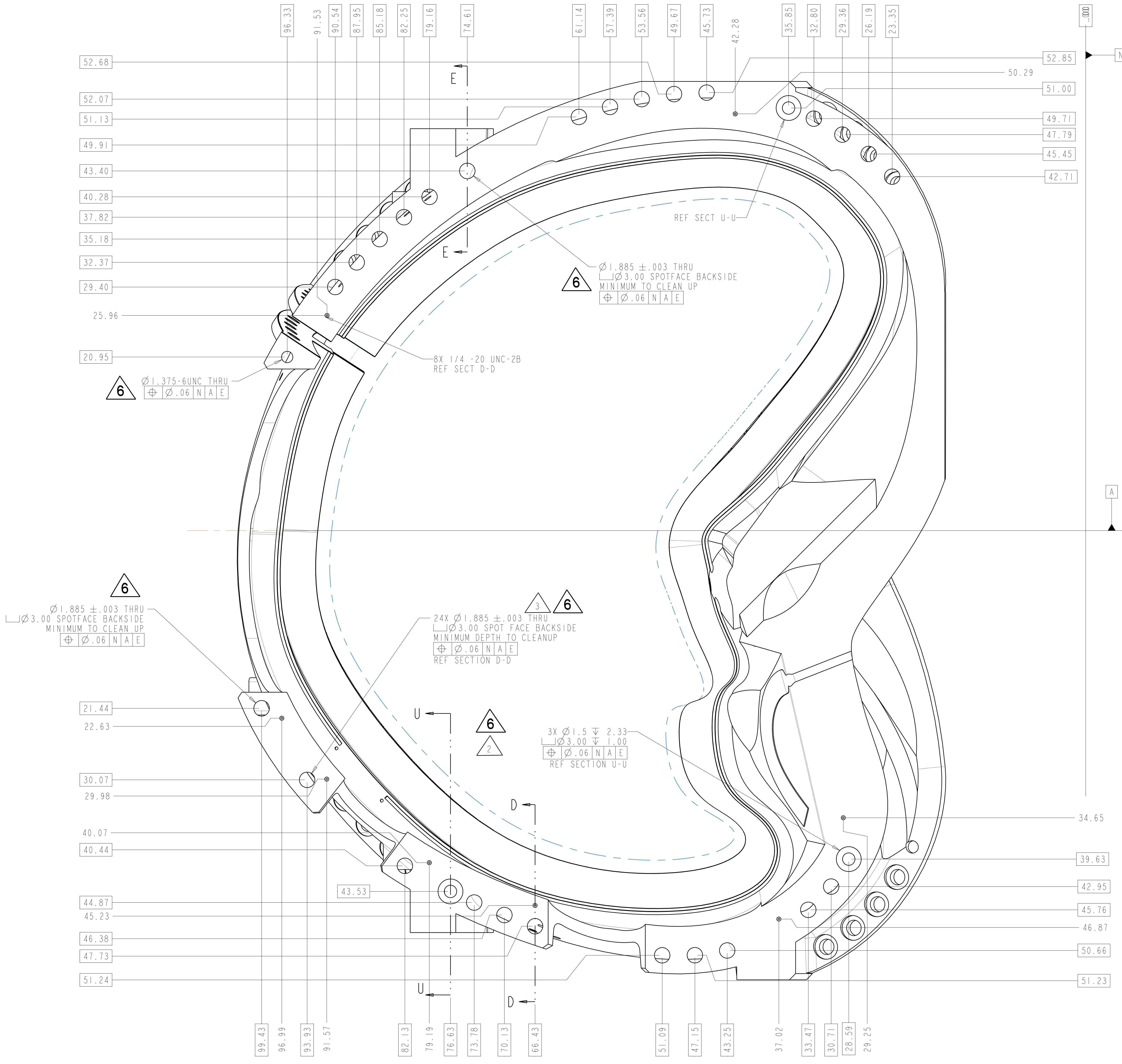
SECTION S-S
SCALE 0.50

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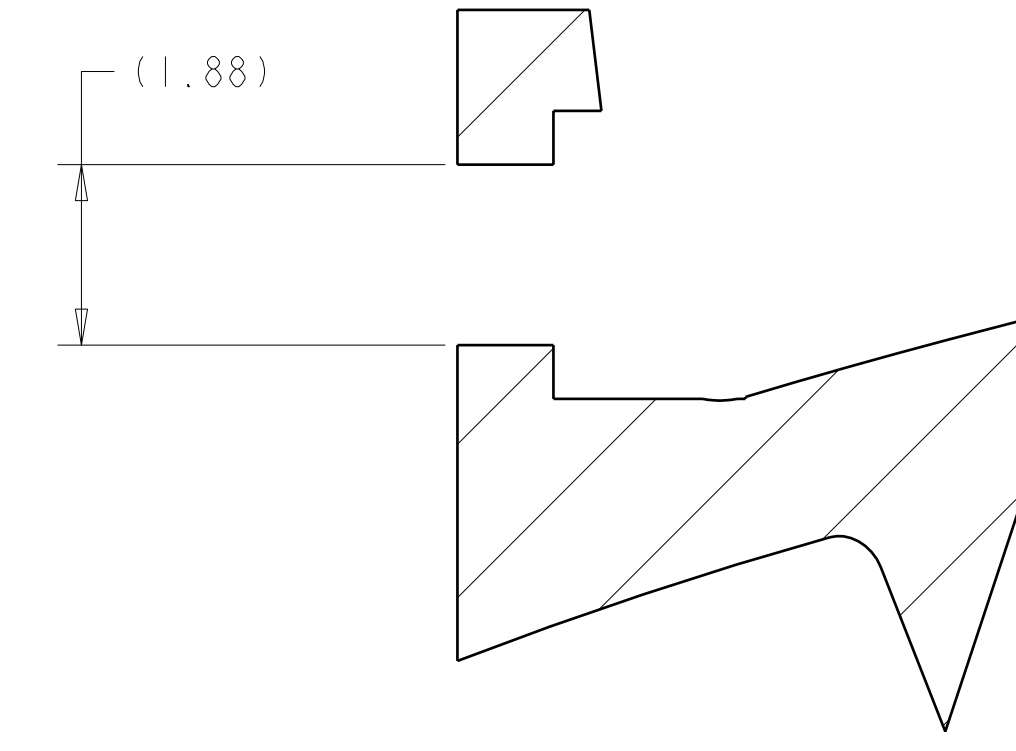
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| Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME: | | | | | | | |
| UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT PRODUCTION WINDING FORM TYPE-A | | | | | | | |
| VERSION NO. | PLANT | BLDG | FL | SHT OF | TYPE | CLASS | |
| 13 | X-10 | 5700 | 3 | 4 | 11 | S | U |
| RELEASE LEVEL | | SEI41-114 | | | | | |
| Fabrication | | | | | | | |
| | | | | | | | REV 6 |

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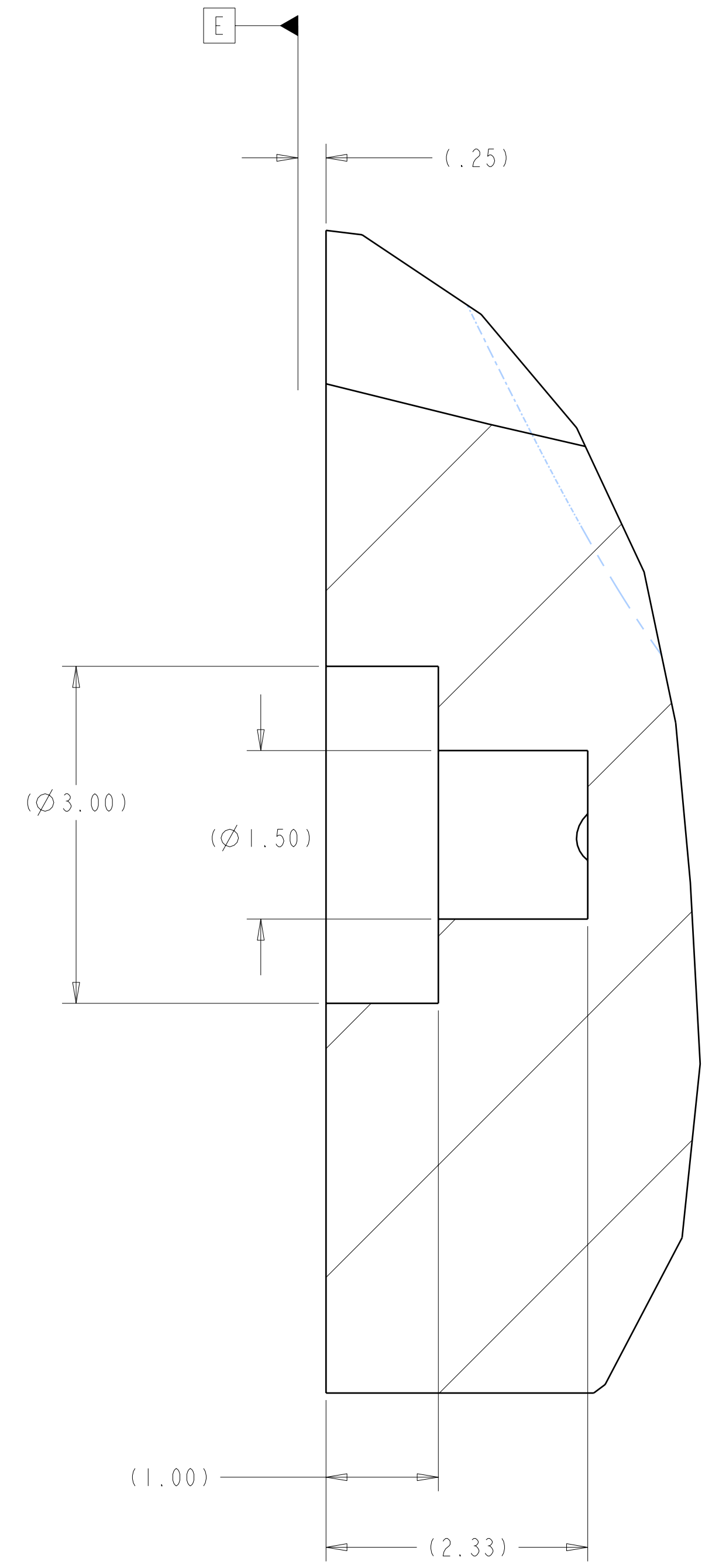
FOR NOTES AND PARTS LIST SEE SHEET 1



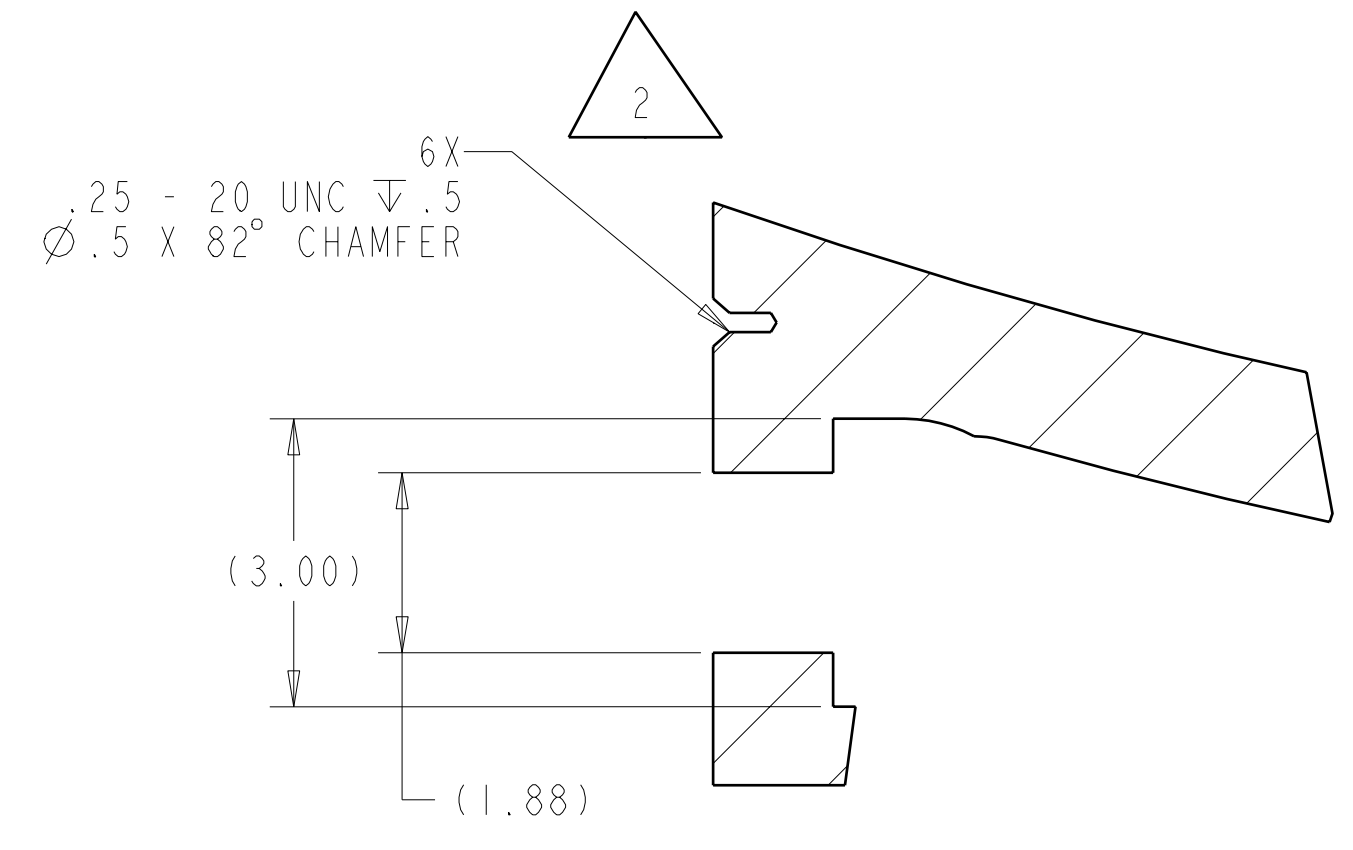
VIEW AT DATUM E
 SCALE 0.20



SECTION E-E
 SCALE 0.50



SECTION U-U
 SCALE 1.00



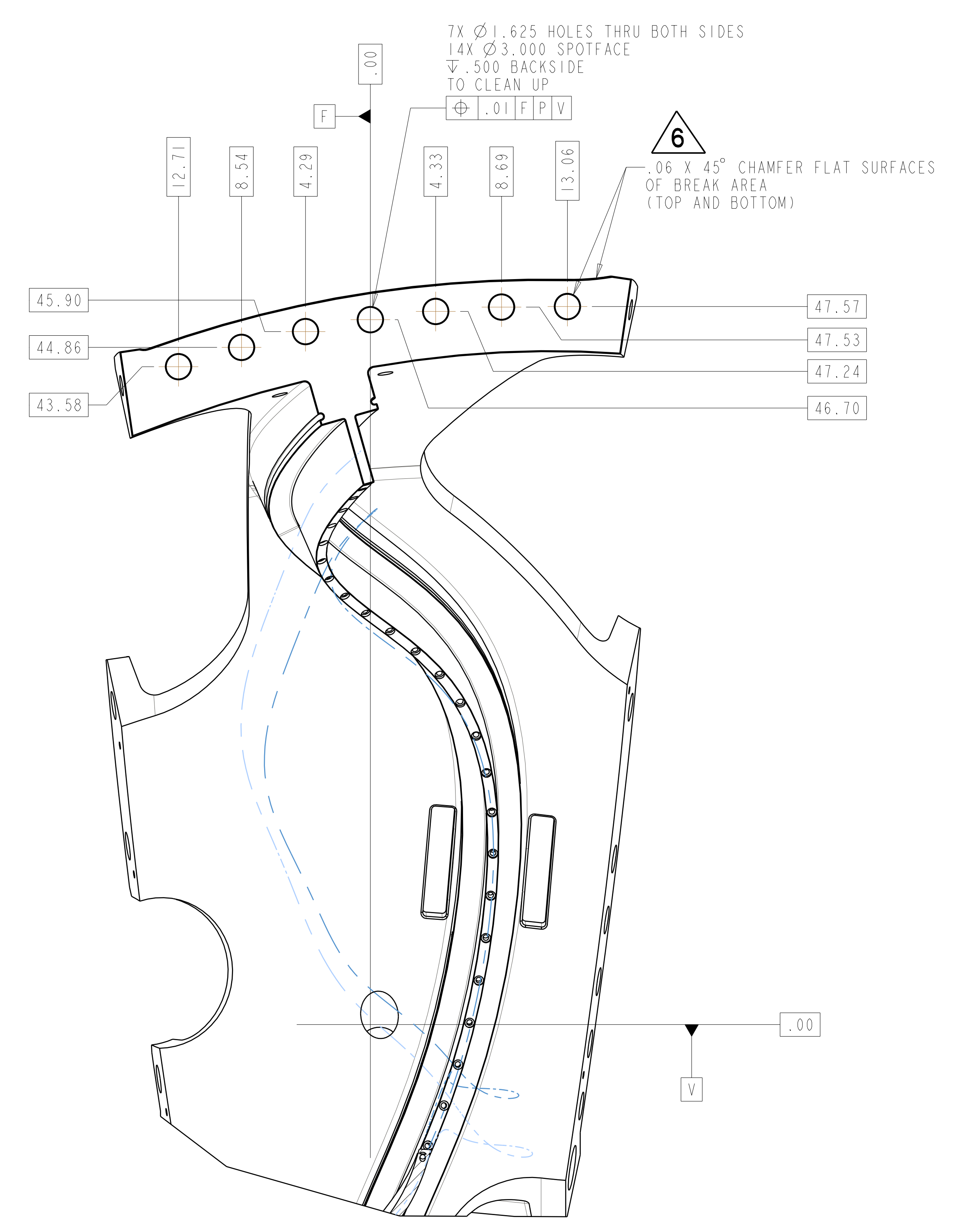
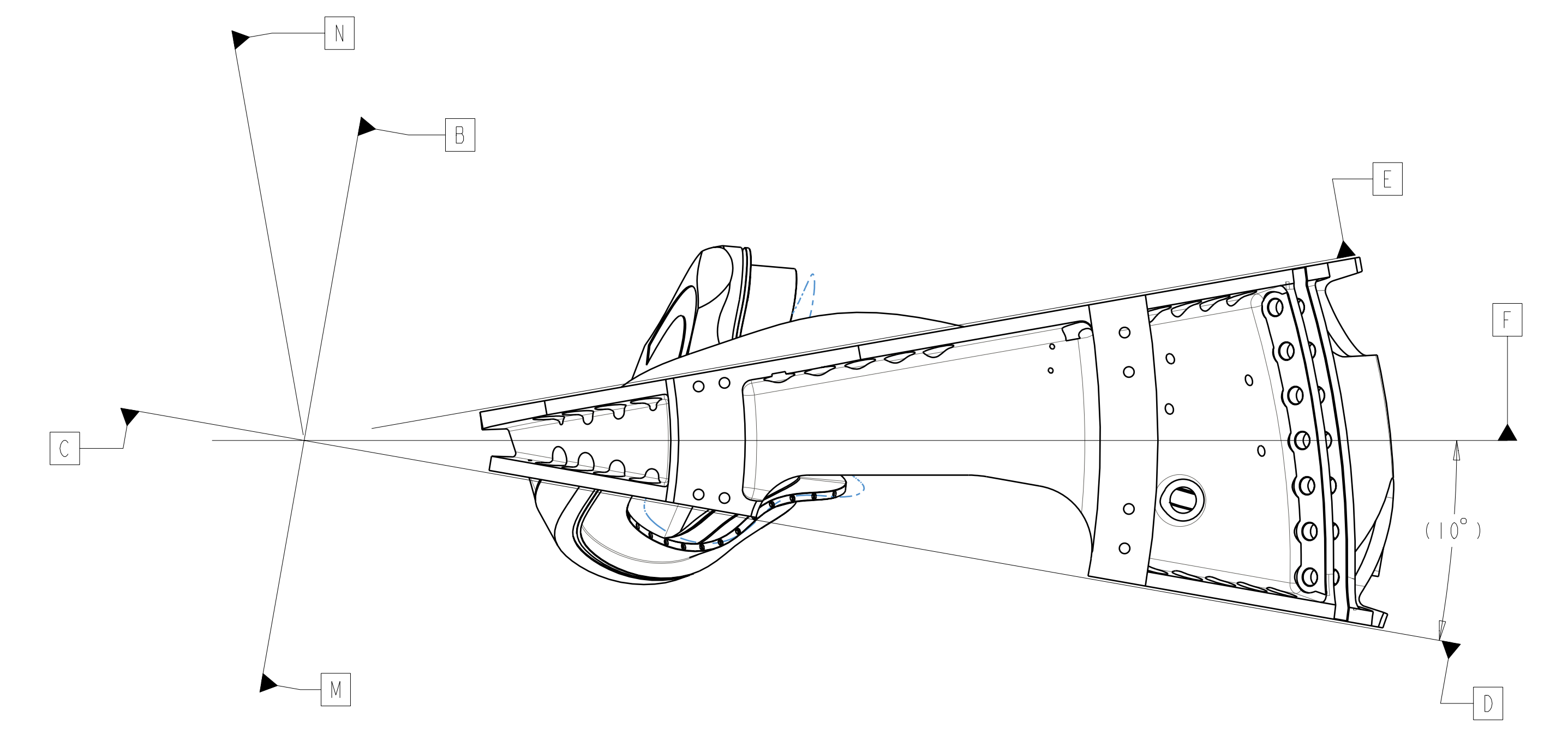
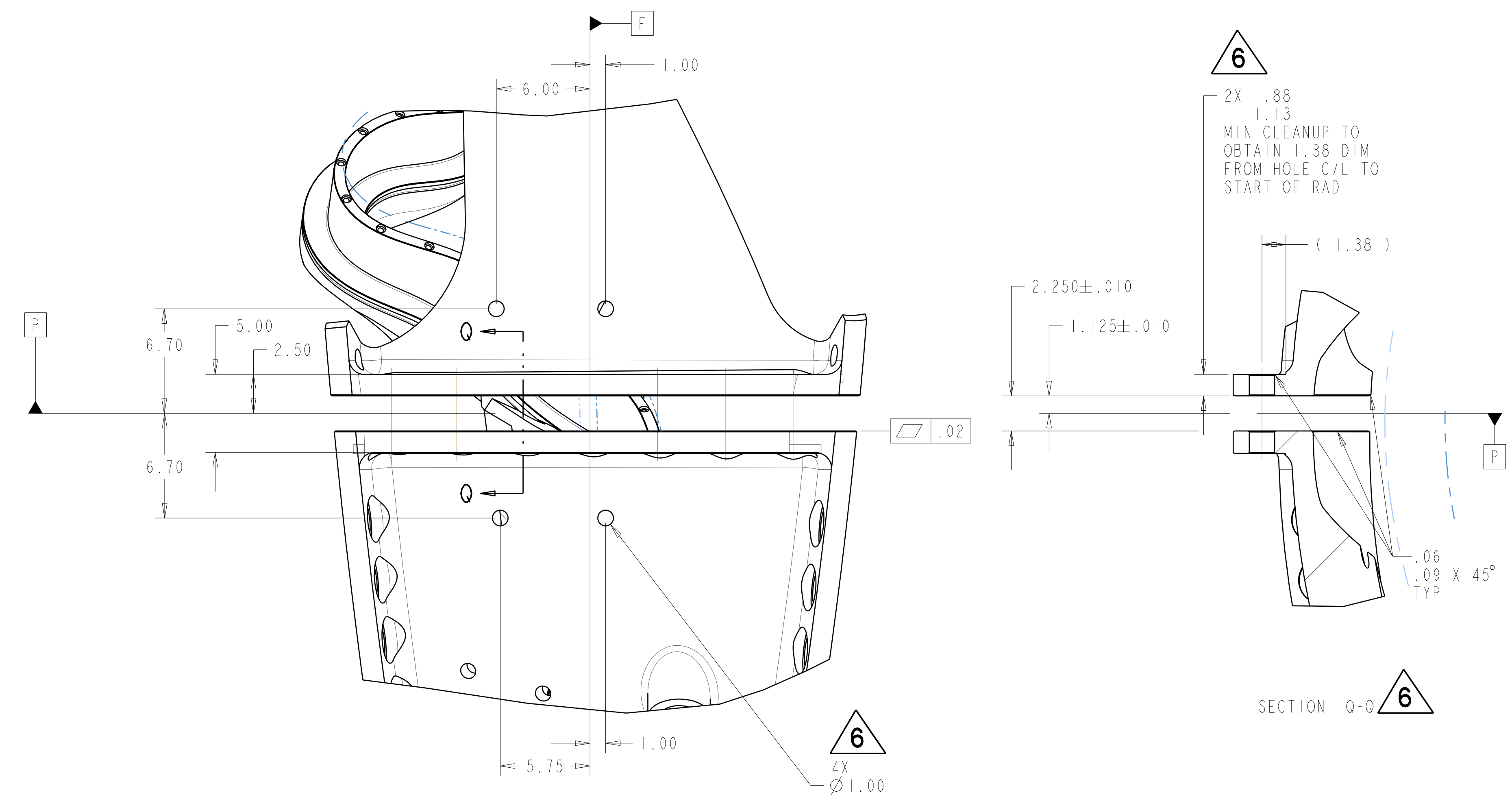
SECTION D-D
 SCALE 0.50

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 PPPL Drafting:

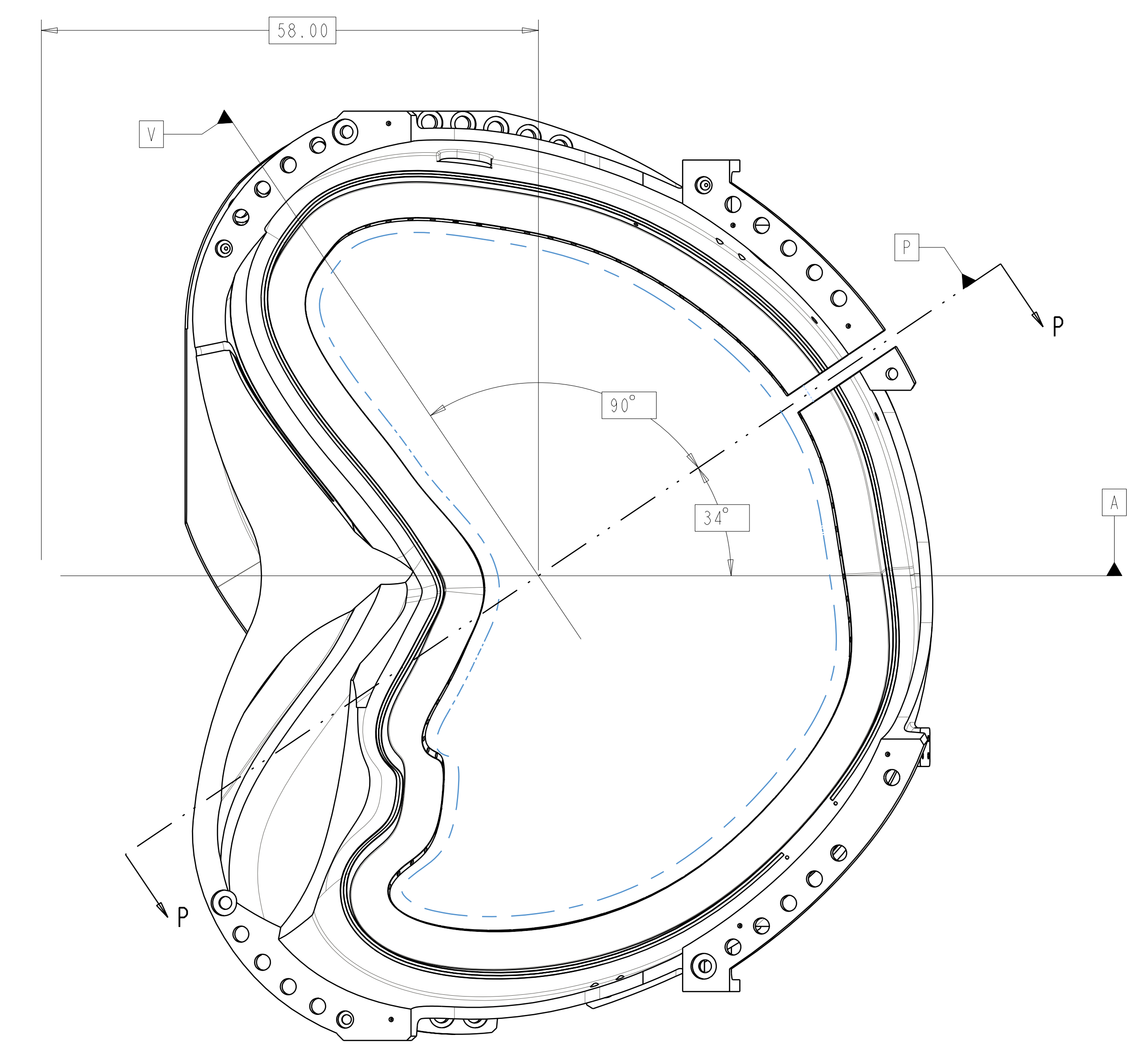
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| Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME | | | | | | | |
| UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT | | | | | | | |
| PRODUCTION WINDING FORM TYPE-A | | | | | | | |
| VERSION NO. | PLANT | BLDG | FL | SHT OF | TYPE | CLASS | |
| 13 | X-10 | 5700 | 3 | 5 | 11 | S | U |
| RELEASE LEVEL | SEI41-114 | | | | | | REV |
| Fabrication | | | | | | | 6 |

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B
A
 SEI41-114

FOR NOTES AND PARTS LIST SEE SHEET 1



SECTION P-P
SCALE 0.20



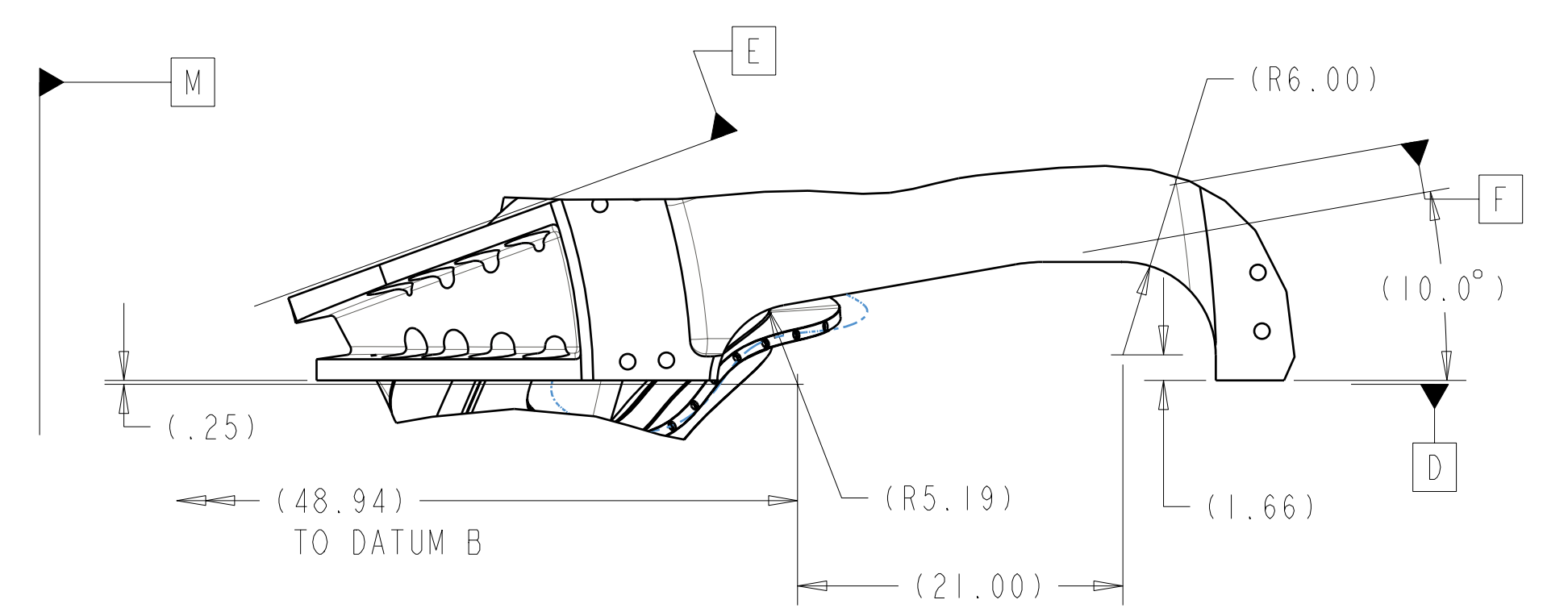
POLOIDAL BREAK DETAIL
SCALE 0.10

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PPPL Drafting:

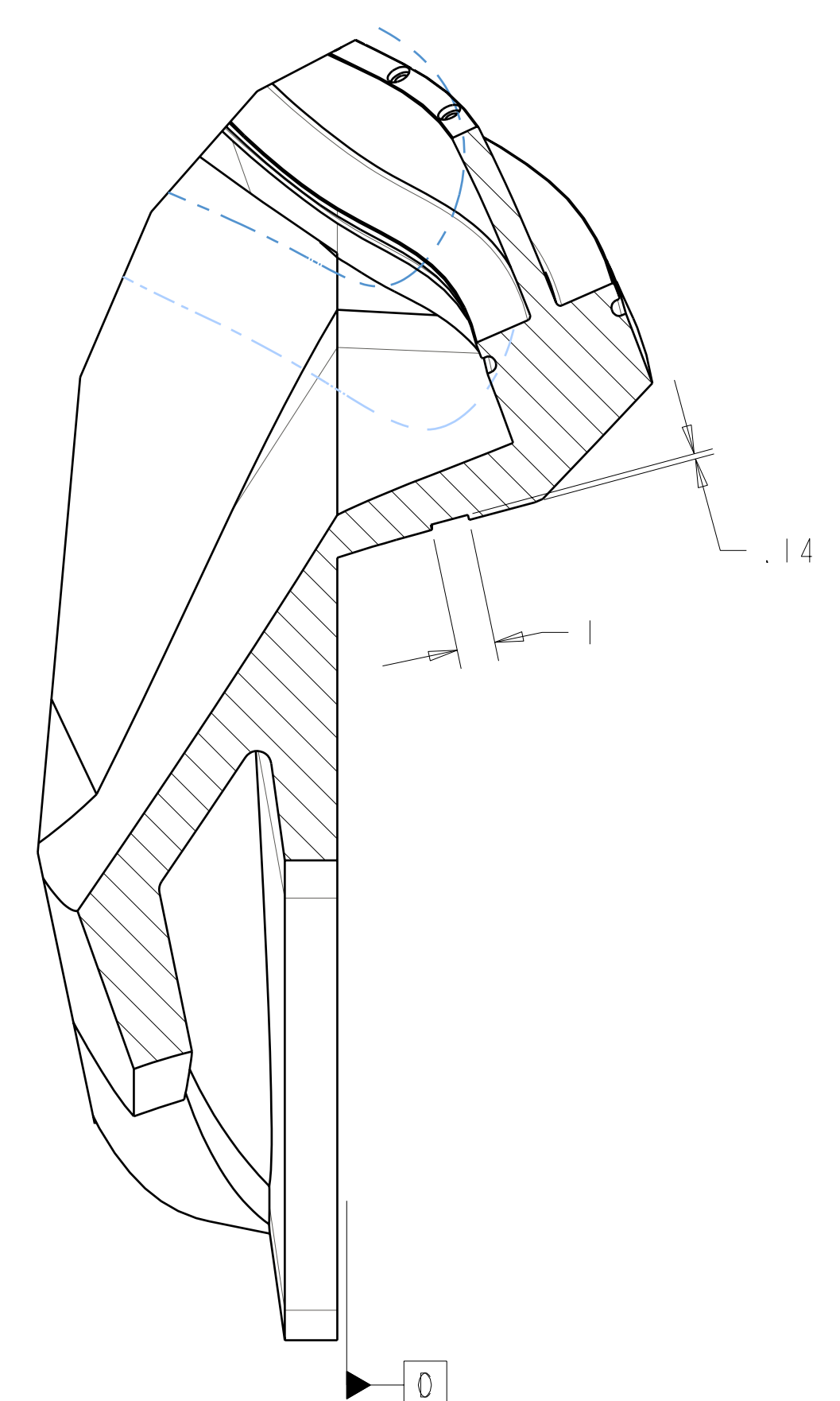
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| Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee PROJECT NAME: | | | | | | | |
| UT-BATTELLE NATIONAL COMPACT STELLARATOR EXPERIMENT PRODUCTION WINDING FORM TYPE-A | | | | | | | |
| VERSION NO. | PLANT | BLDG | FL | SHT OF | TYPE | CLASS | |
| 13 | X-10 | 5700 | 3 | 6 | 11 | S | U |
| RELEASE LEVEL | SEI41-114 | | | | | | REV |
| Fabrication | | | | | | | 6 |

SEI41-114

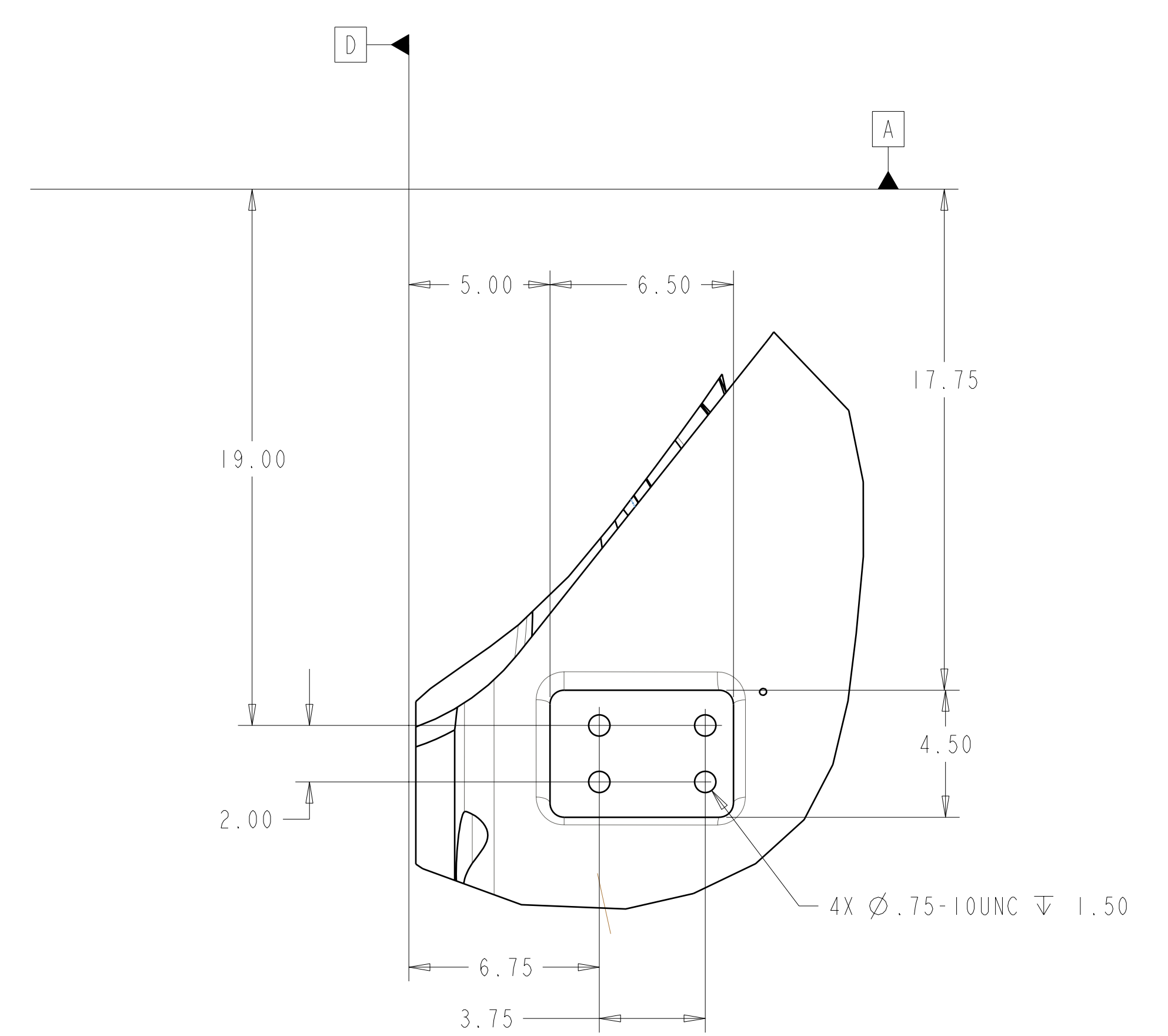
FOR NOTES AND PARTS LIST SEE SHEET 1



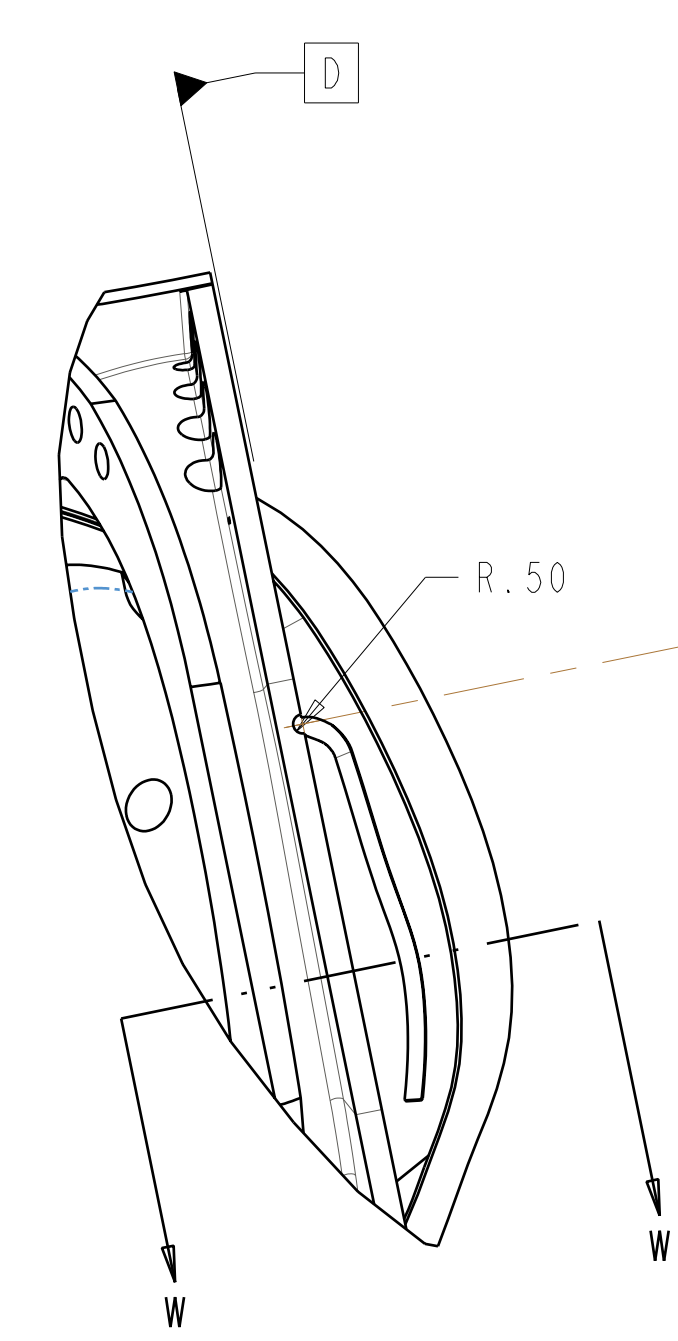
TOP VIEW $\triangle 6$



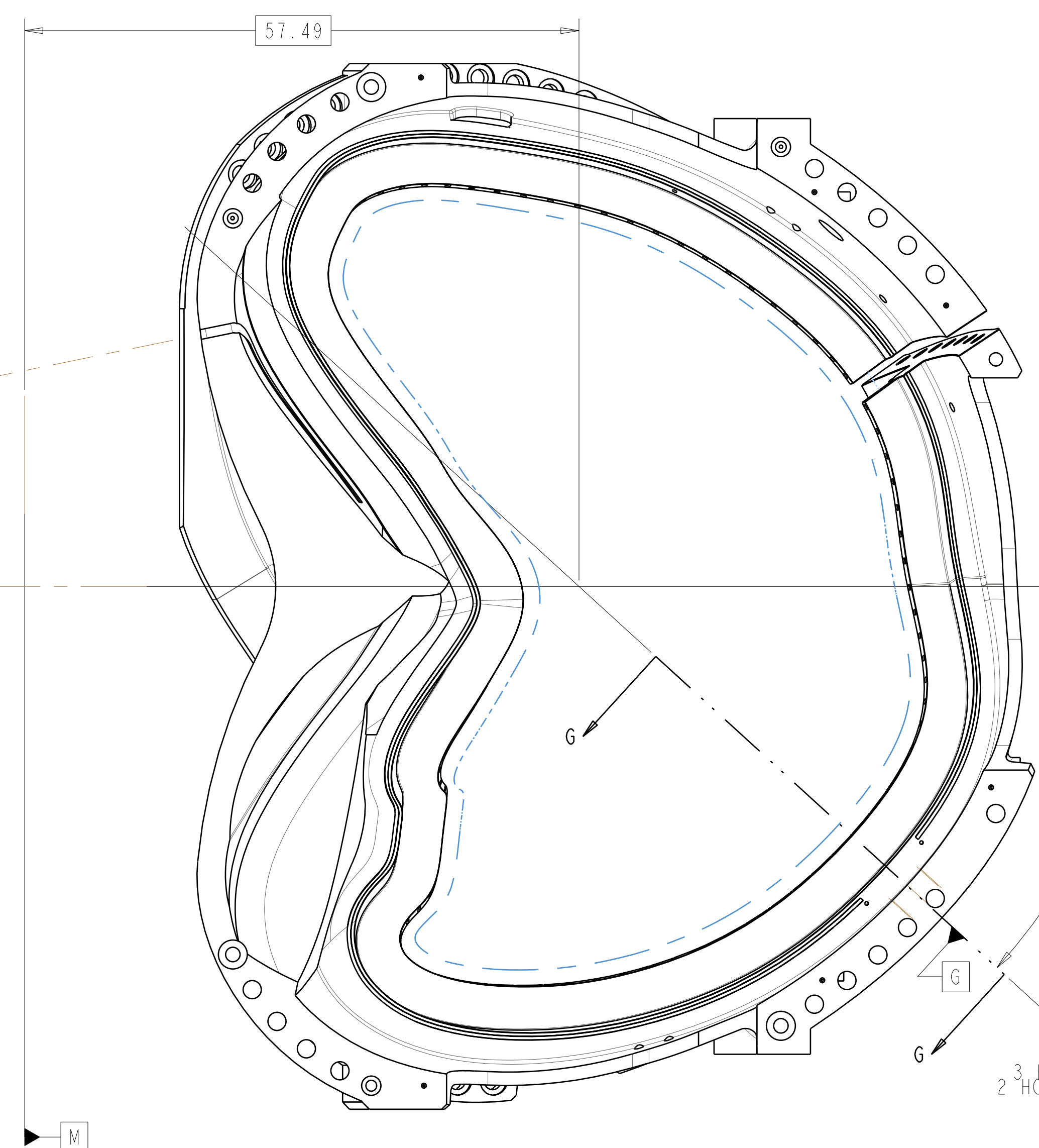
SECTION W-W
WING SHIM POCKET
SCALE 0.25



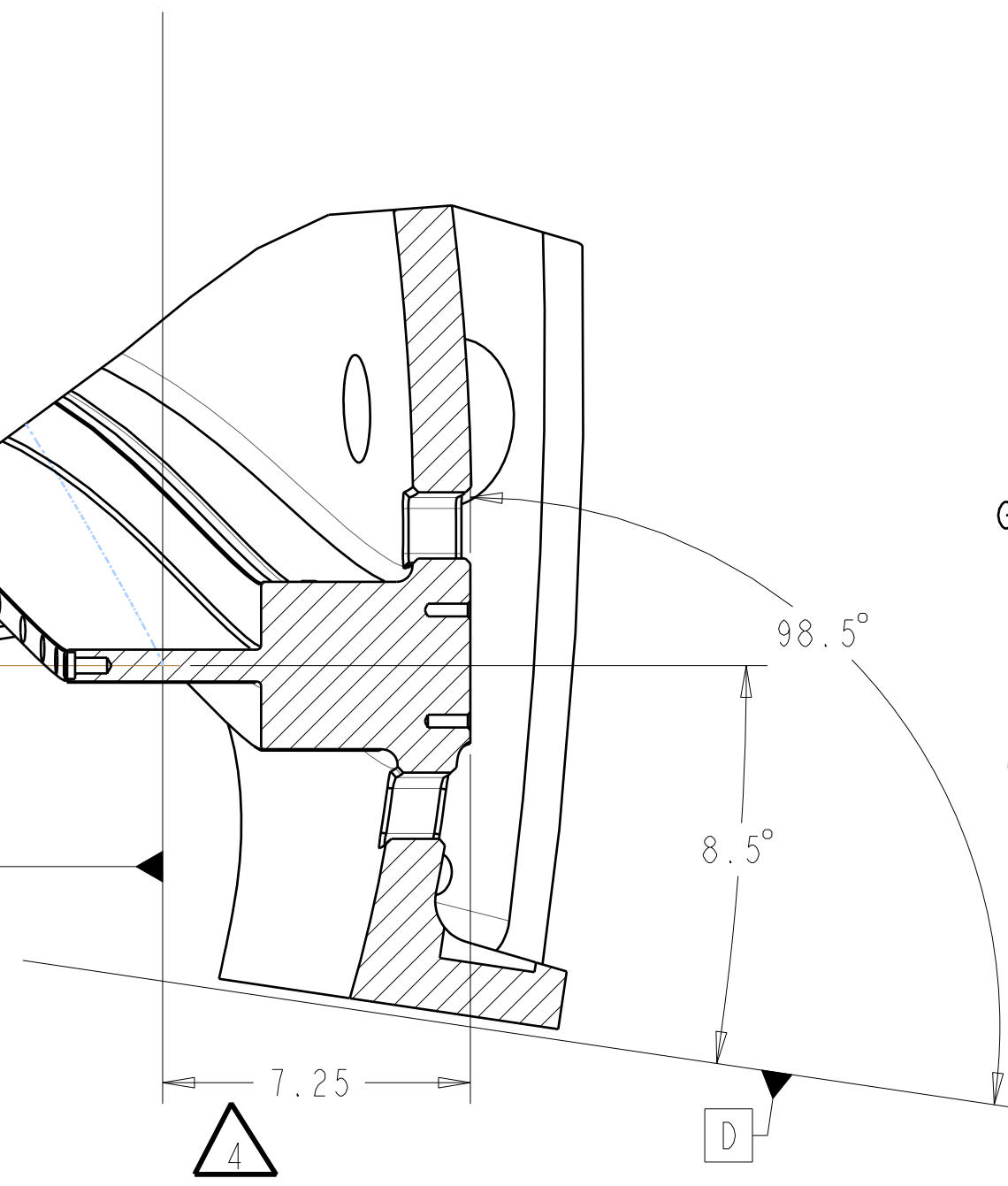
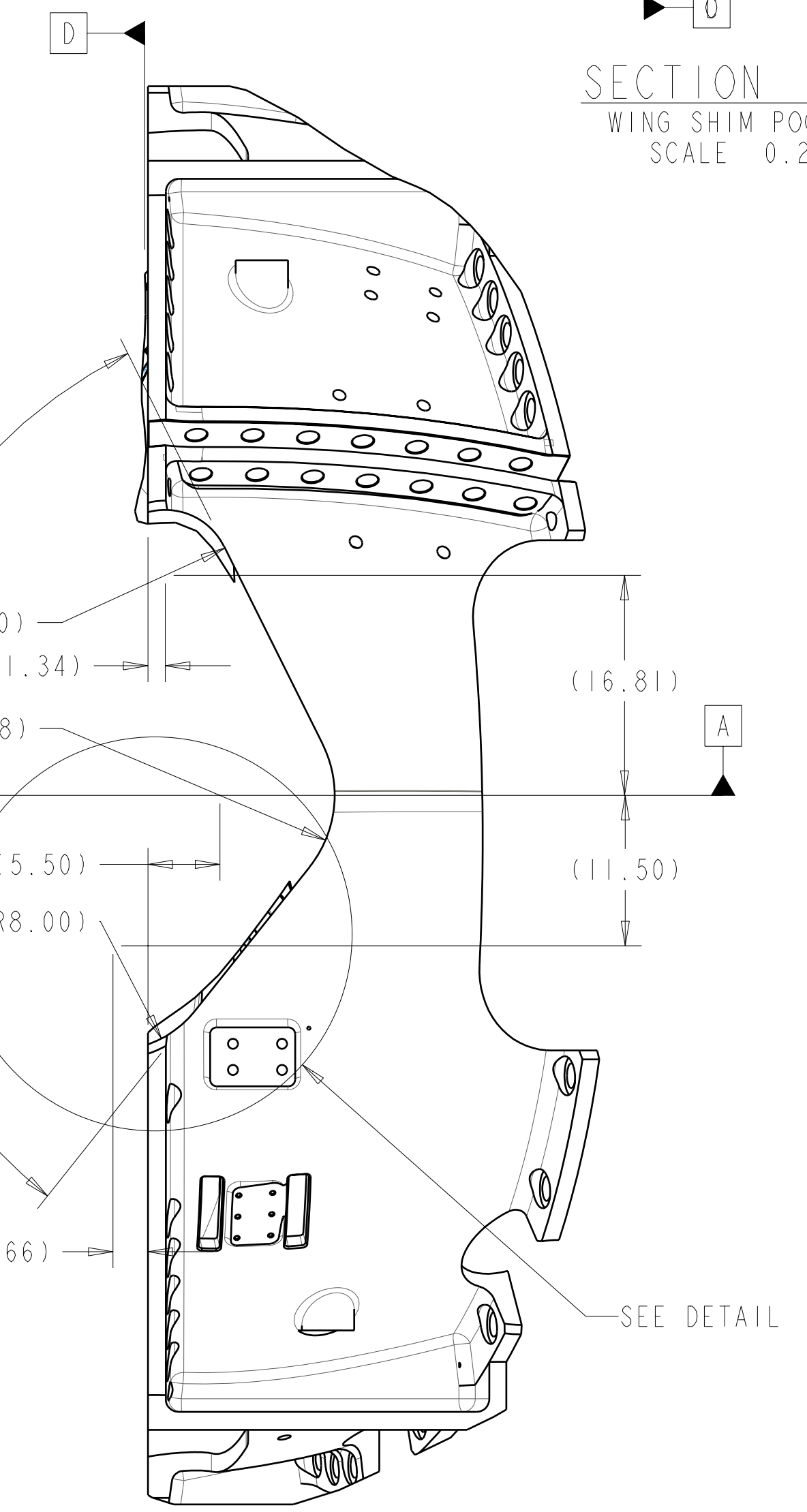
DETAIL J
ASSEMBLY FIXTURE MOUNT
SCALE 0.25



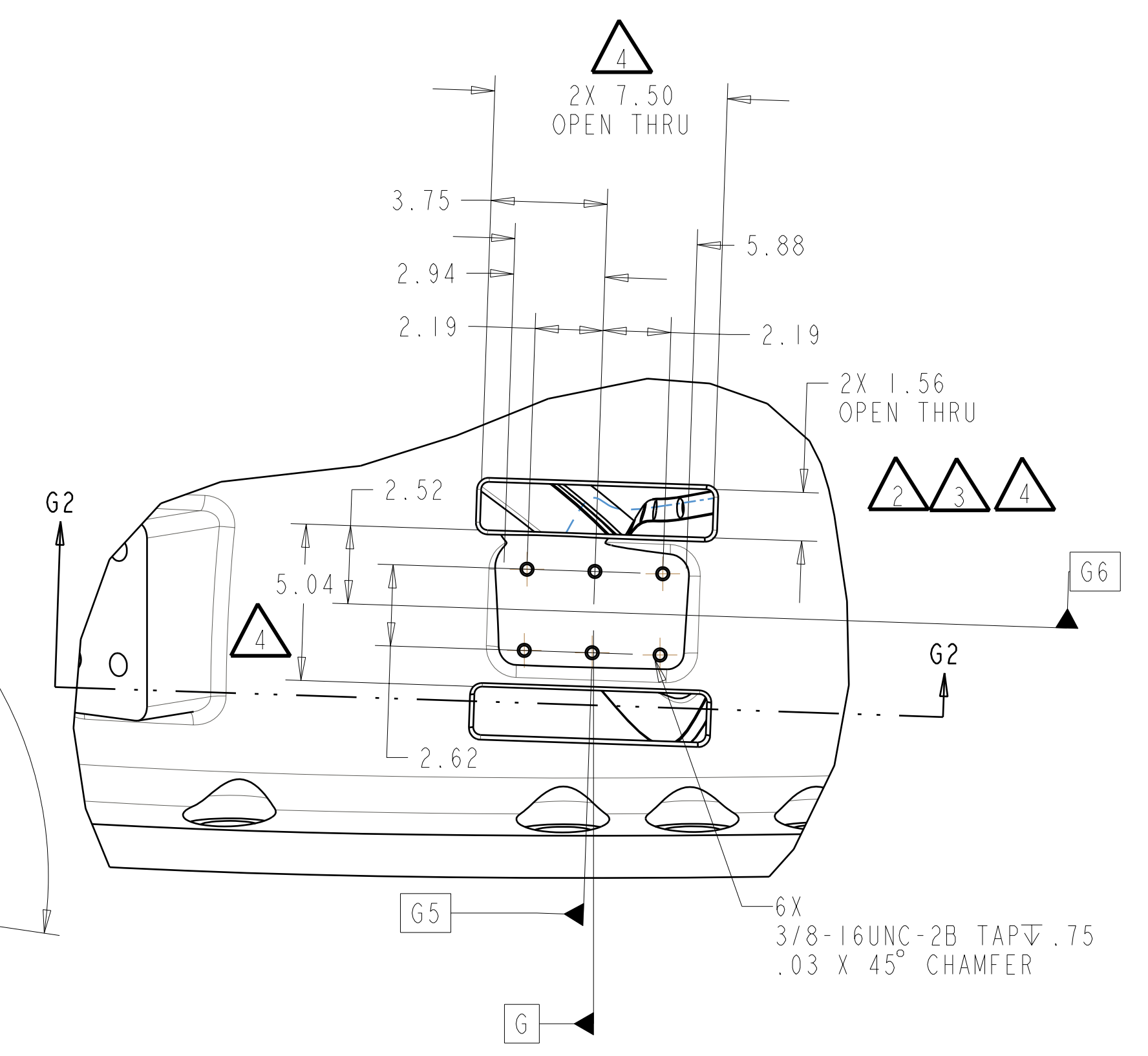
AUX VIEW TO SHOW
WING SHIM POCKET



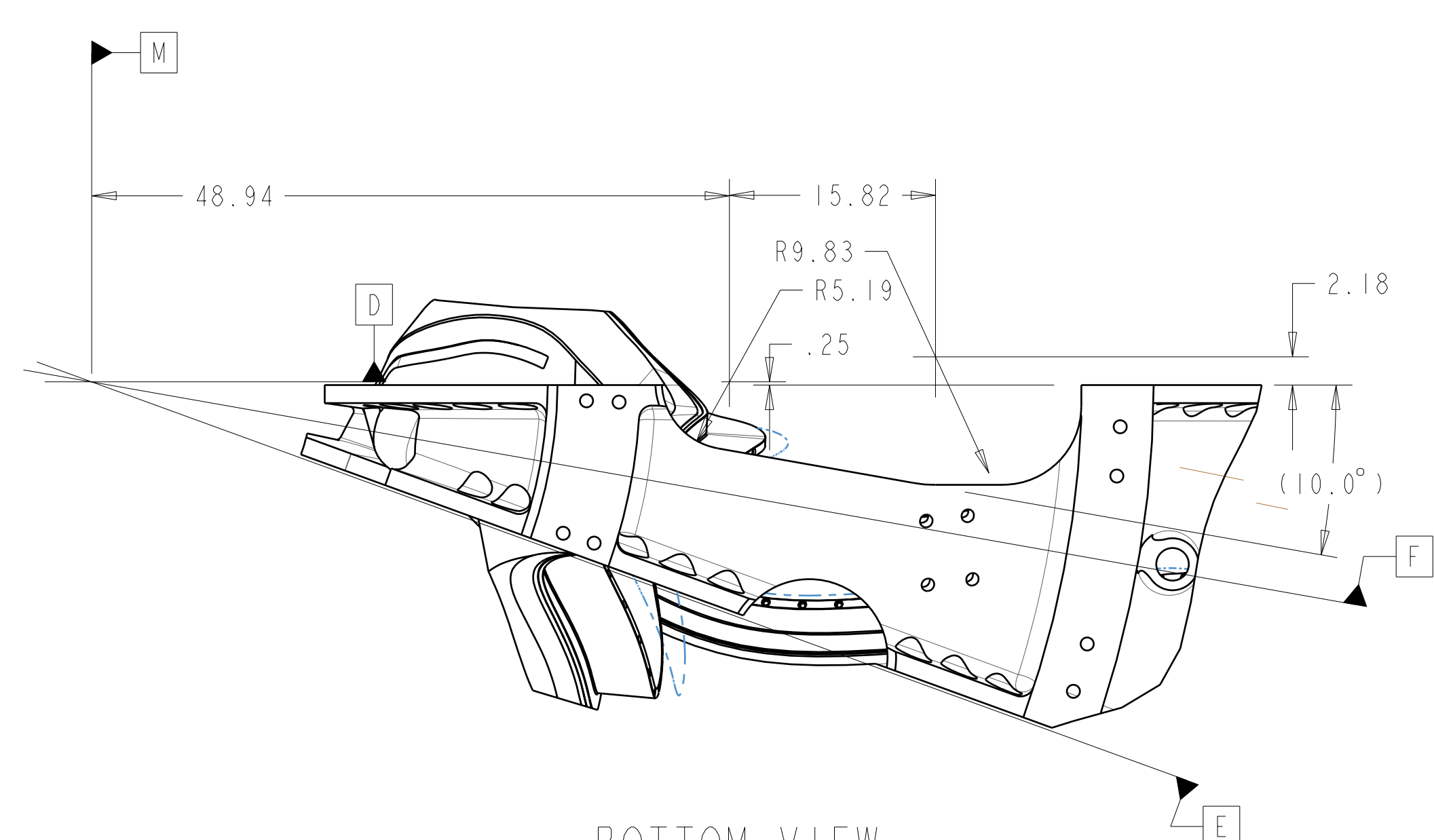
VIEW AT DATUM D
SCALE 0.1



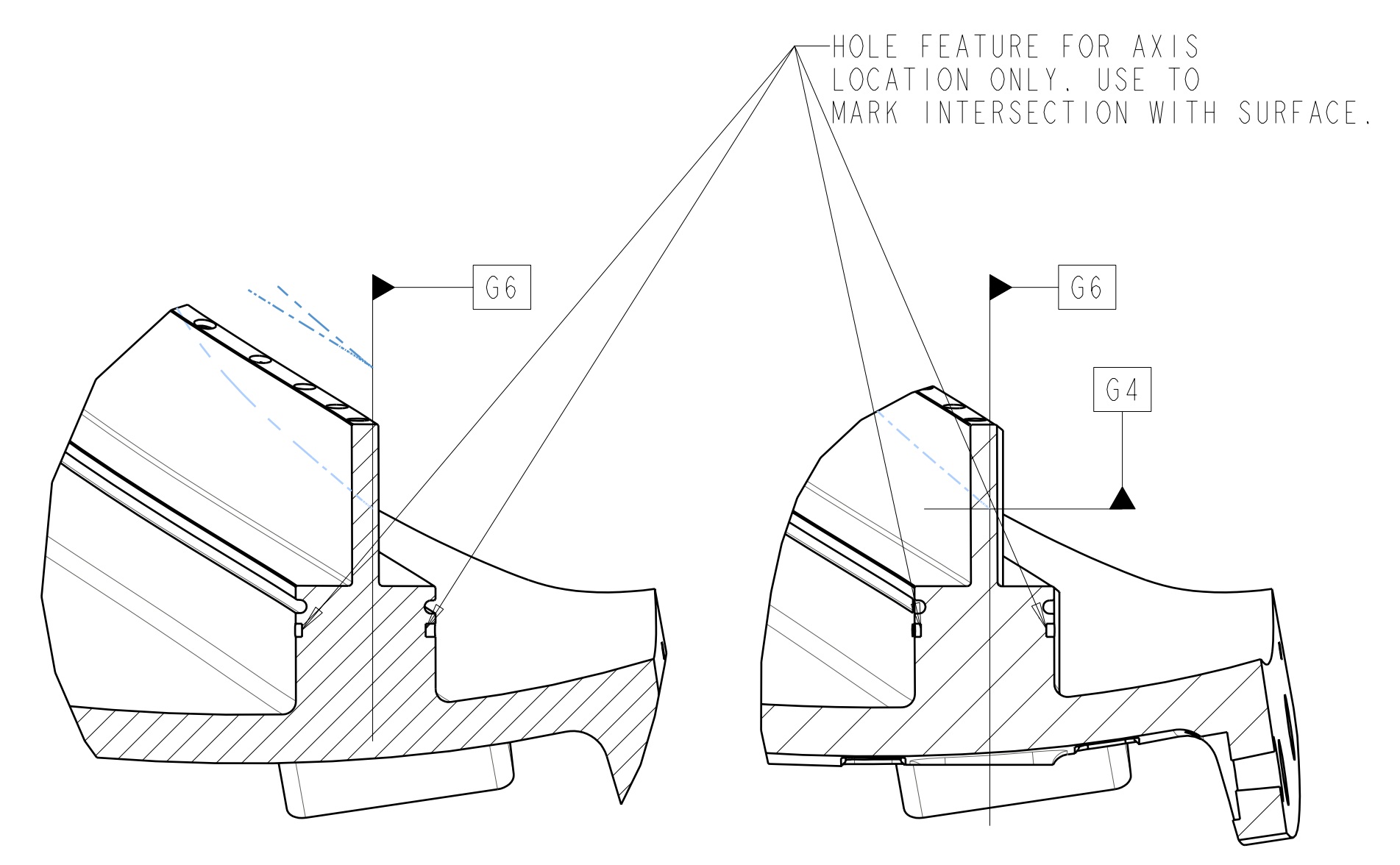
SECTION G-G
LEAD BLOCK DETAIL
SCALE 0.25



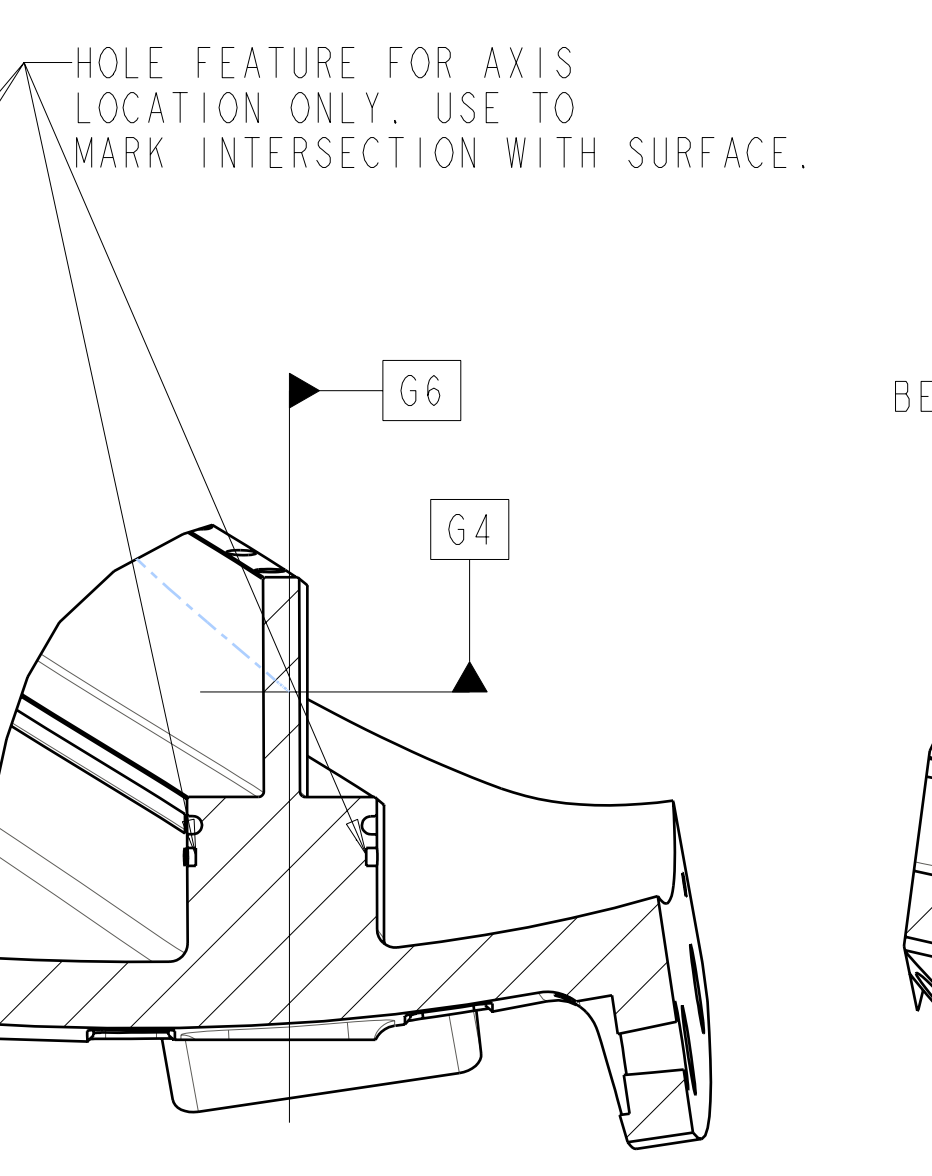
$\triangle 6$ SOME FEATURES NOT SHOWN FOR CLARITY



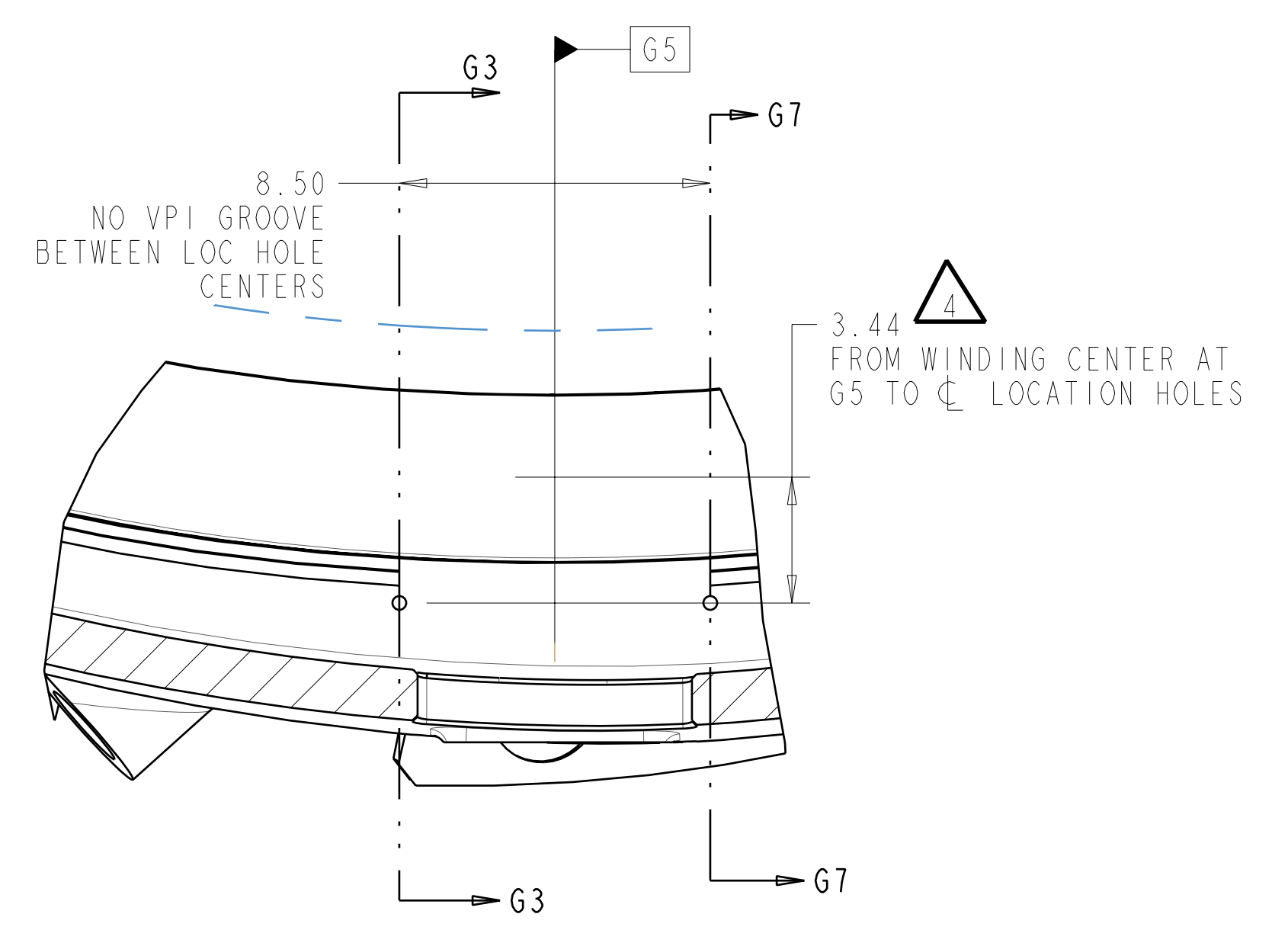
BOTTOM VIEW



SECTION G7-G7 $\triangle 4 \triangle 5$



SECTION G3-G3 $\triangle 3 \triangle 4 \triangle 5$

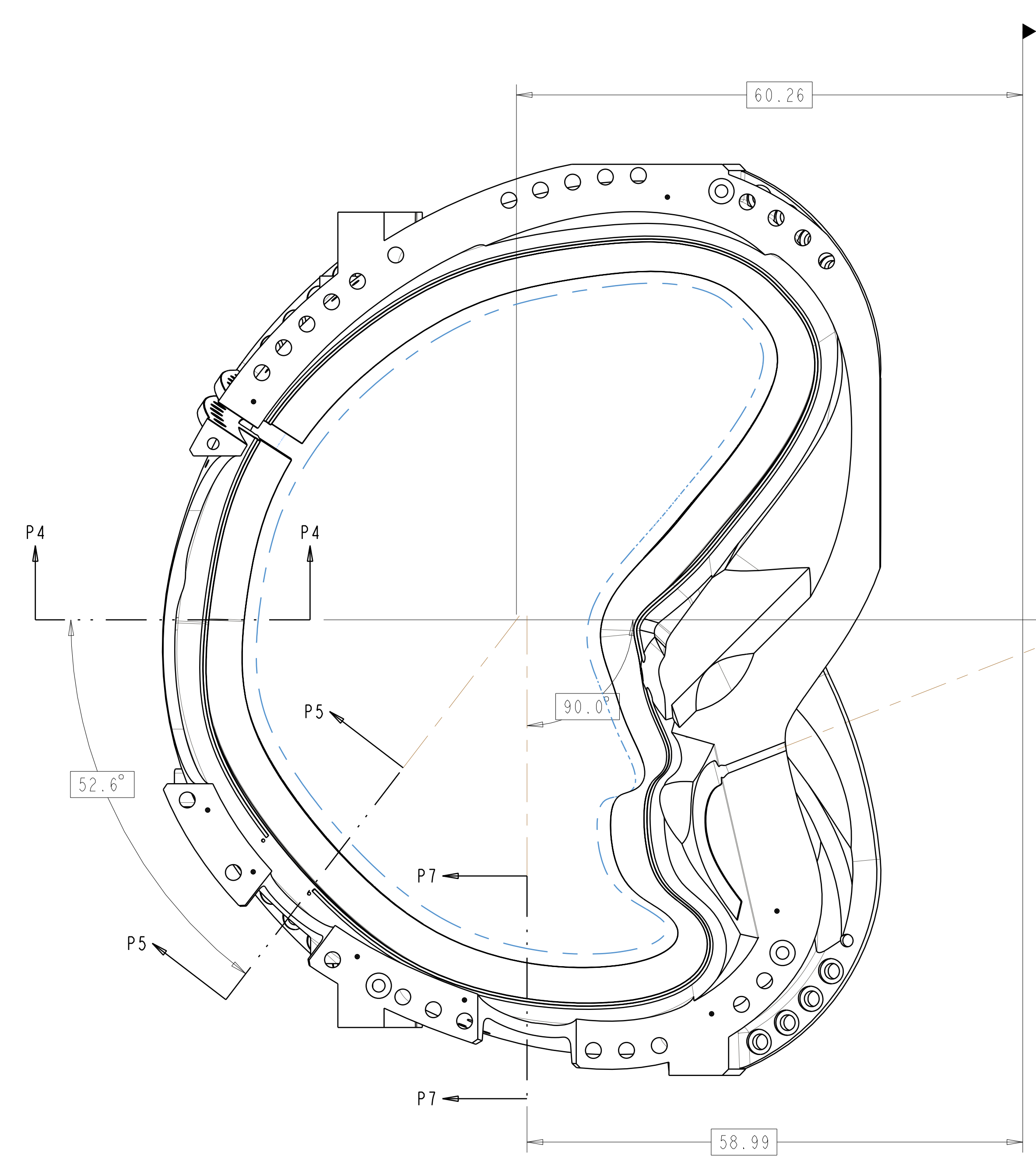


SECTION G2-G2
SCALE 0.250 $\triangle 4 \triangle 5$

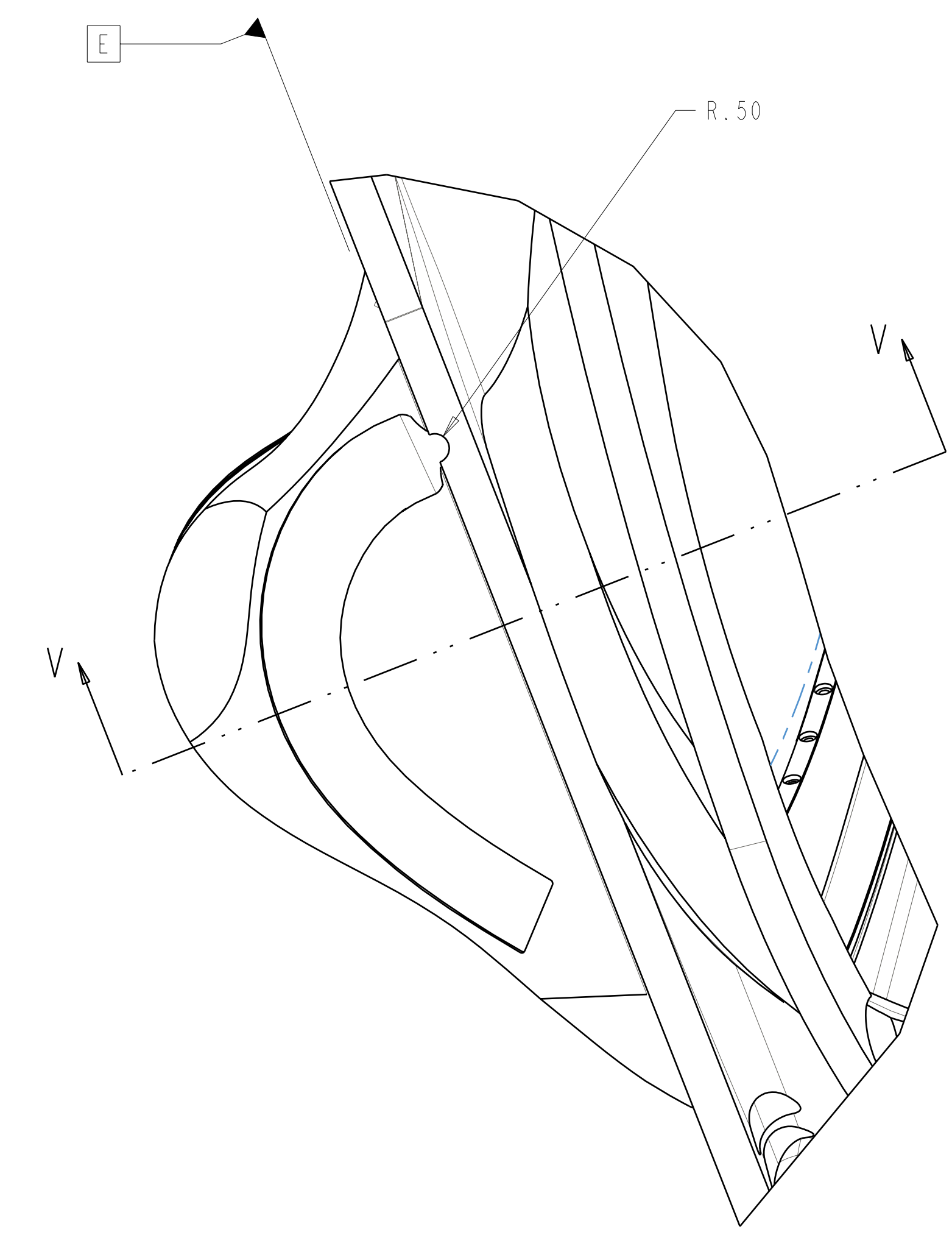
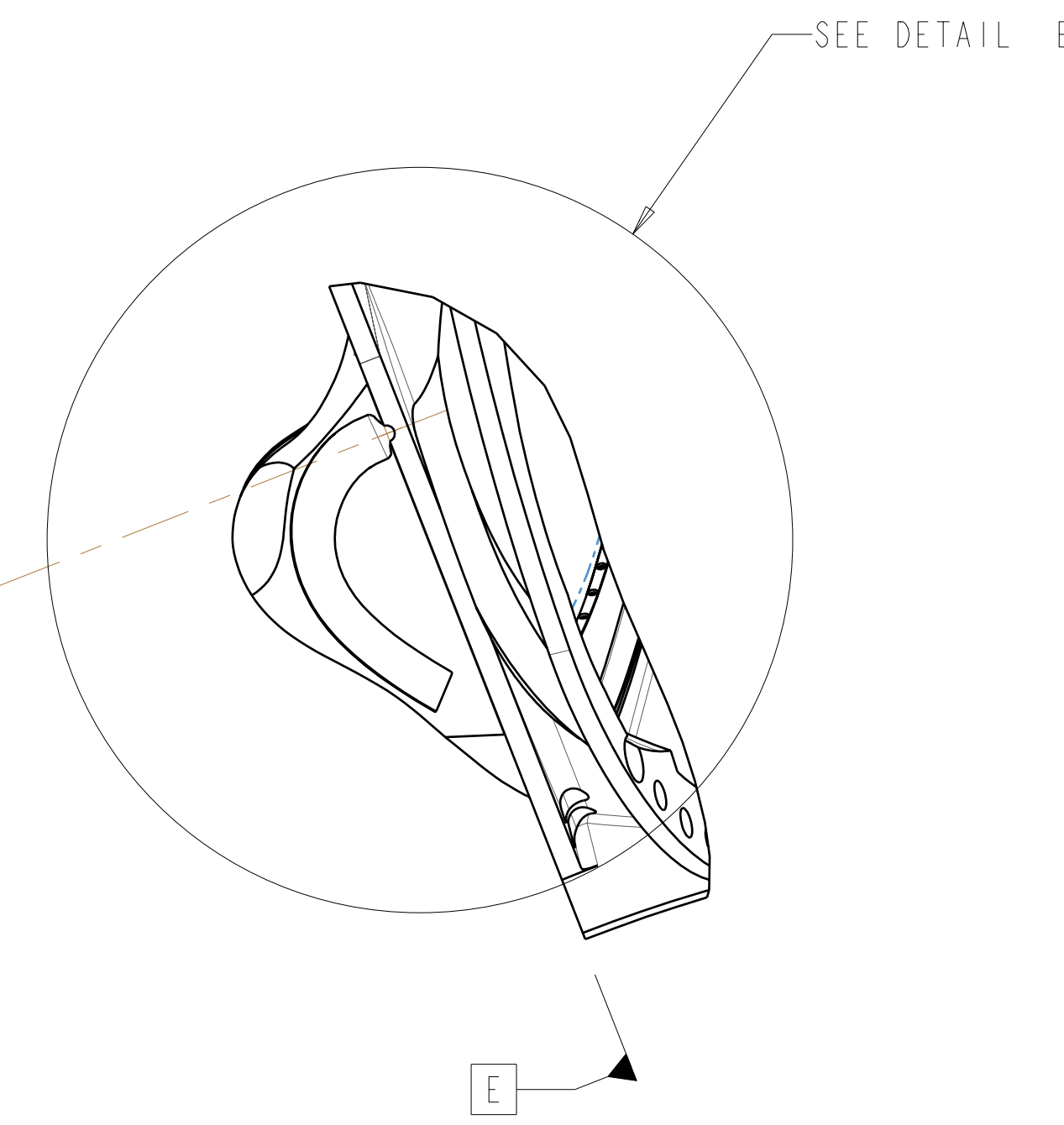
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PPPL Drafting:

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|--|-------|-----------|----|--------|------|-------|-------|
| 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: | | | | | | | |
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| PRODUCTION WINDING FORM TYPE-A | | | | | | | |
| VERSION NO. | PLANT | BLDG | FL | SHT OF | TYPE | CLASS | |
| 13 | X-10 | 5700 | 3 | 7 | 11 | S | U |
| RELEASE LEVEL | | SEI41-114 | | | | | |
| Fabrication | | | | | | | |
| | | | | | | | REV 6 |

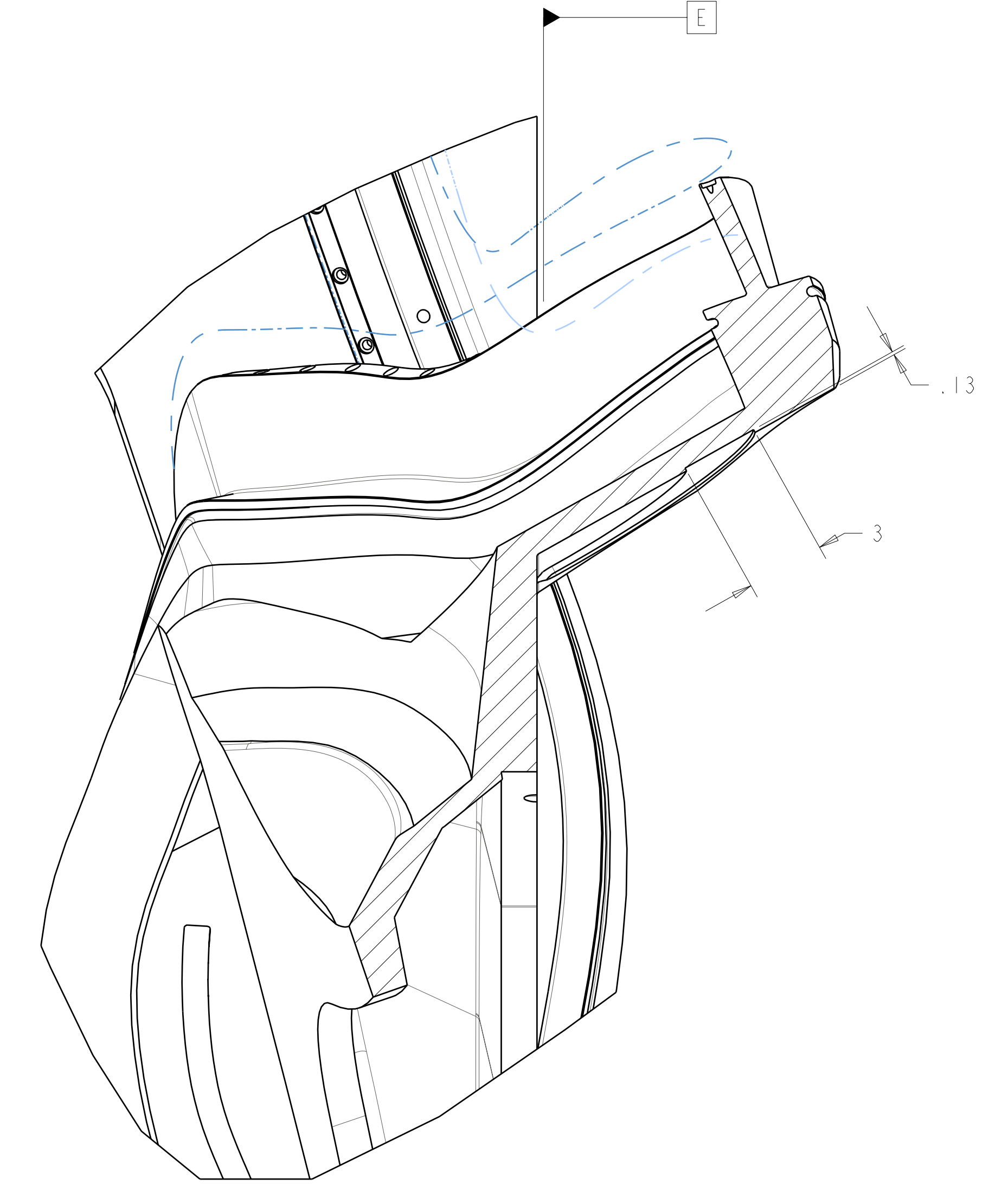
FOR NOTES AND PARTS LIST SEE SHEET 1



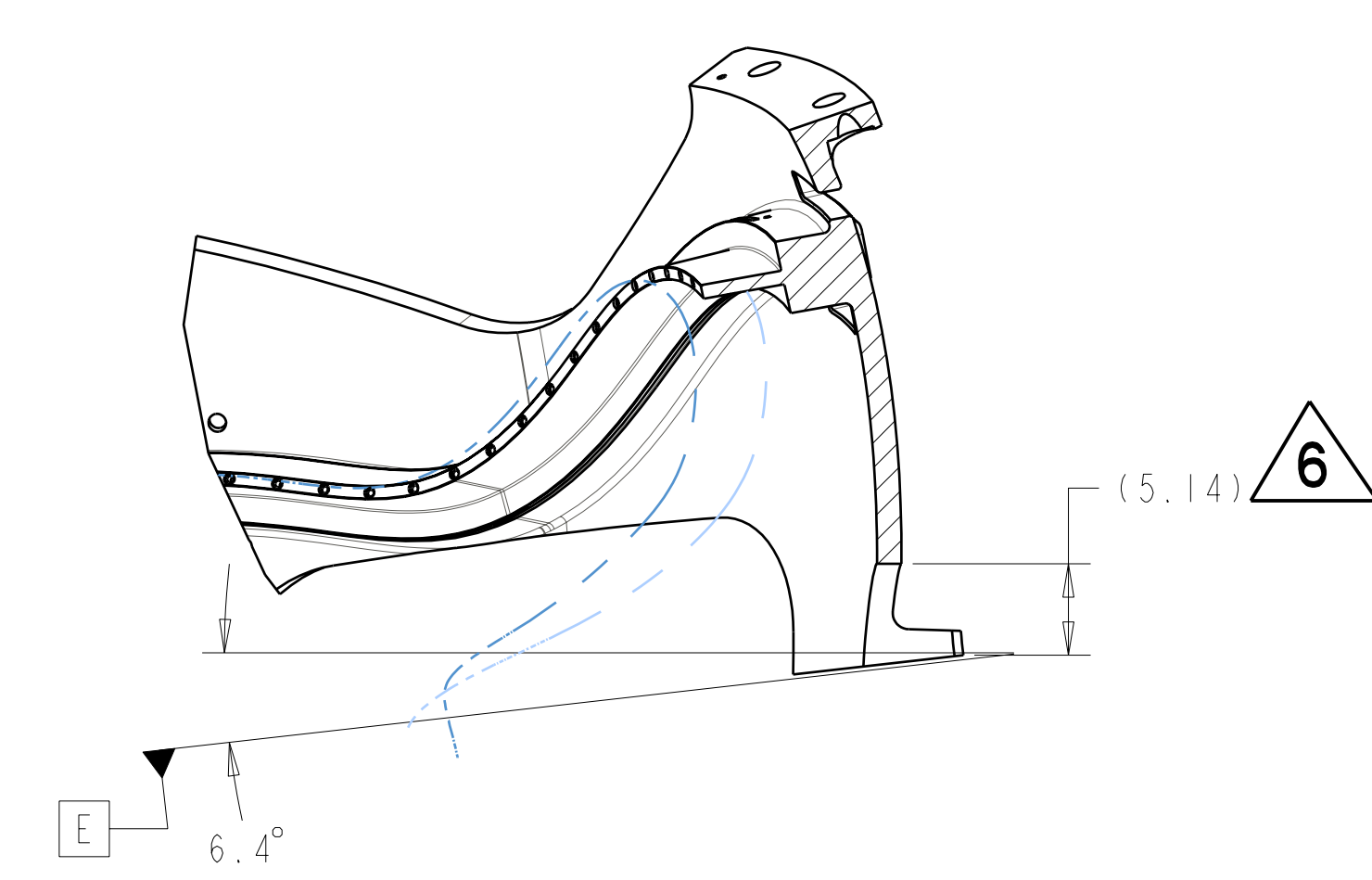
VIEW AT DATUM E
 SCALE 0.1



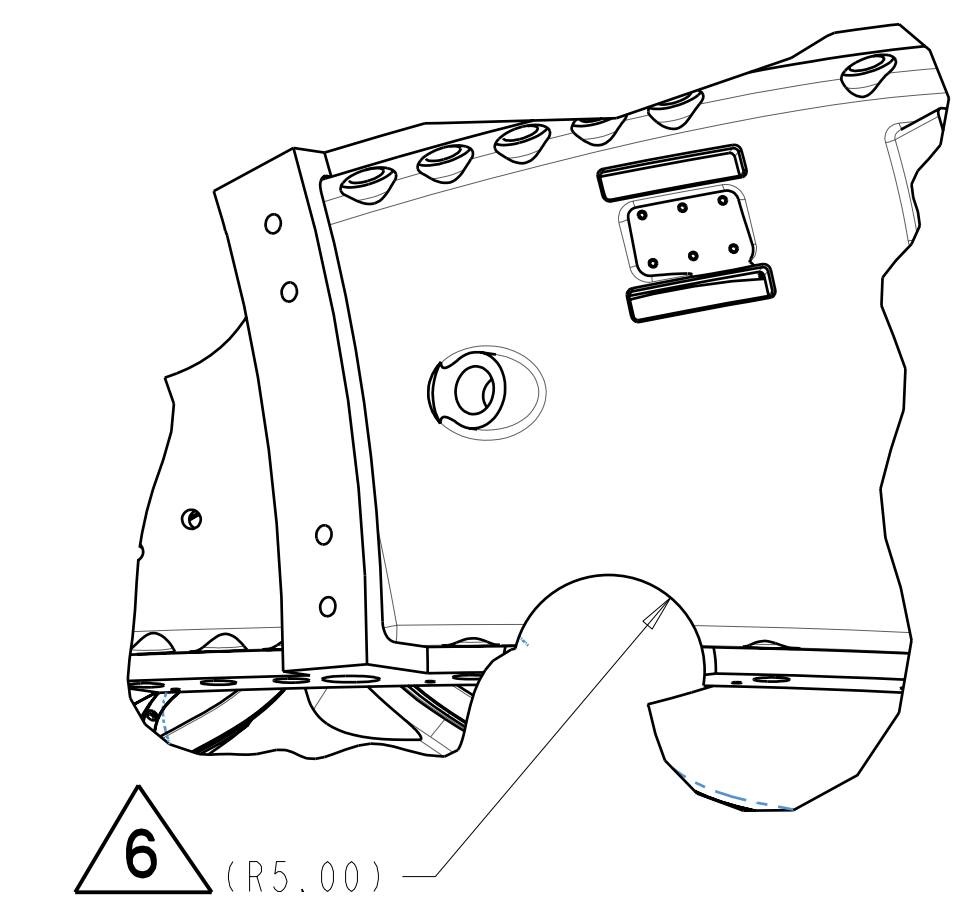
DETAIL E
 WING SHIM POCKET
 SCALE 0.25



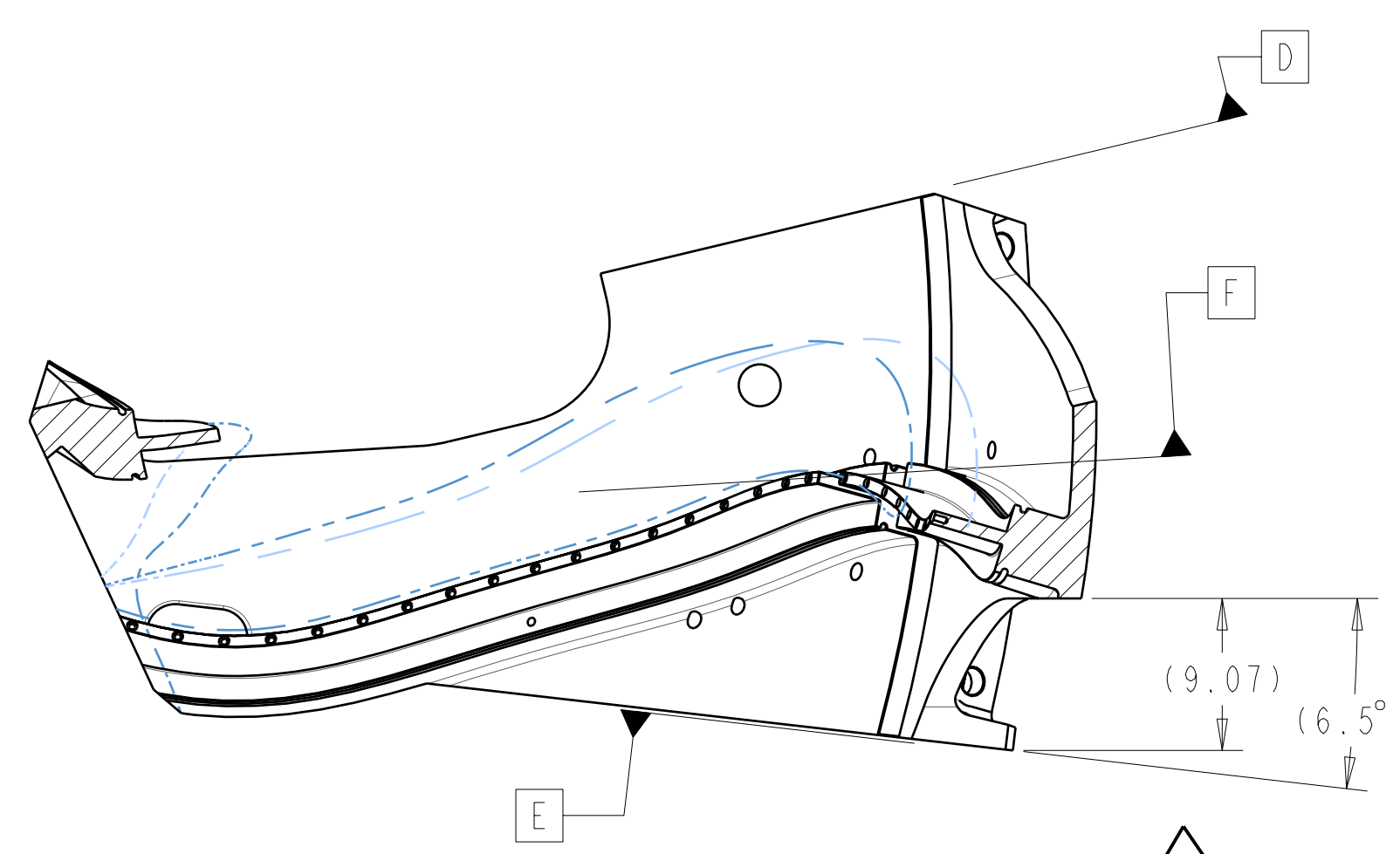
SECTION V-V
 SCALE 0.25



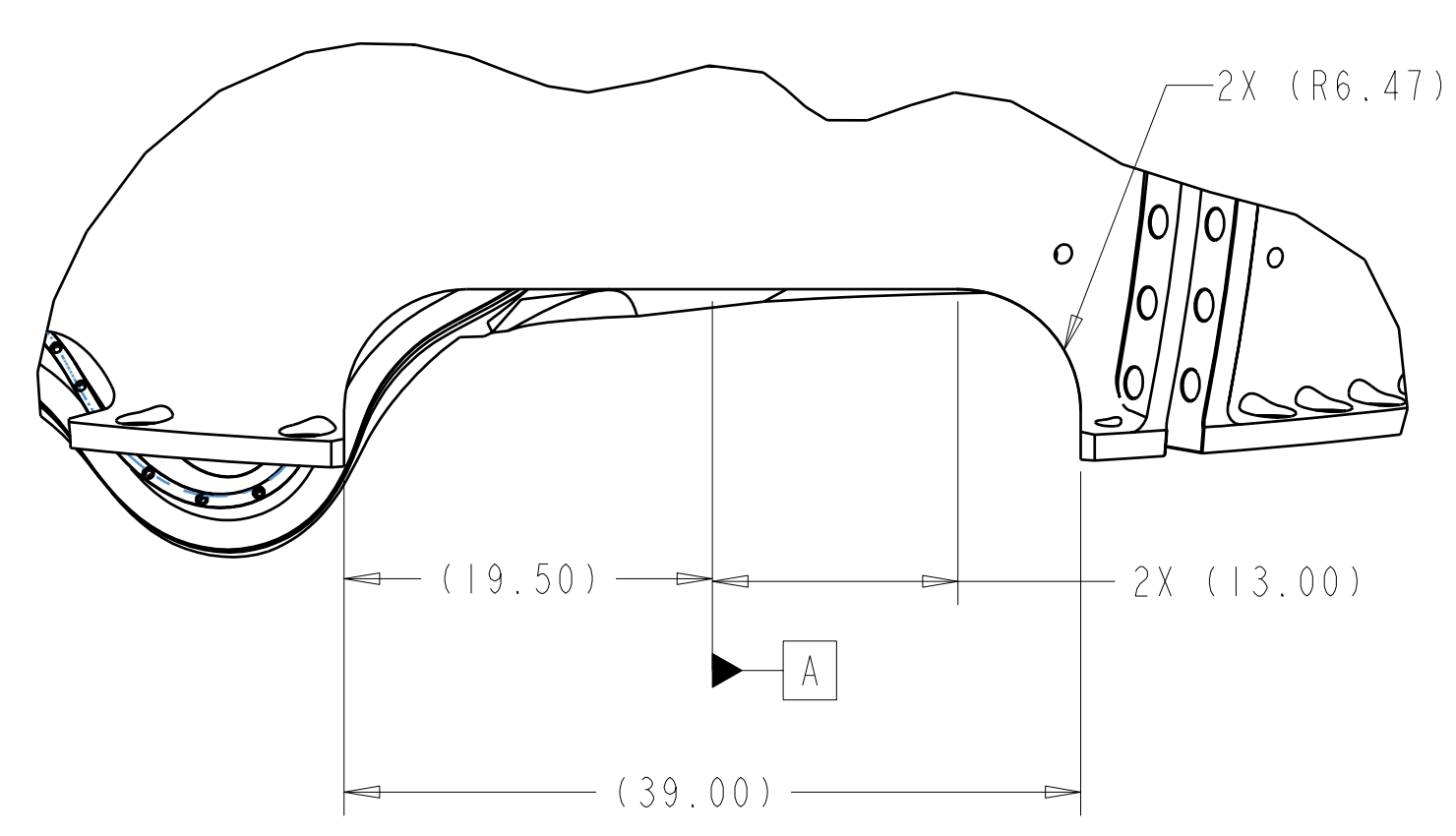
SECTION P5-P5
 SCALE 0.1



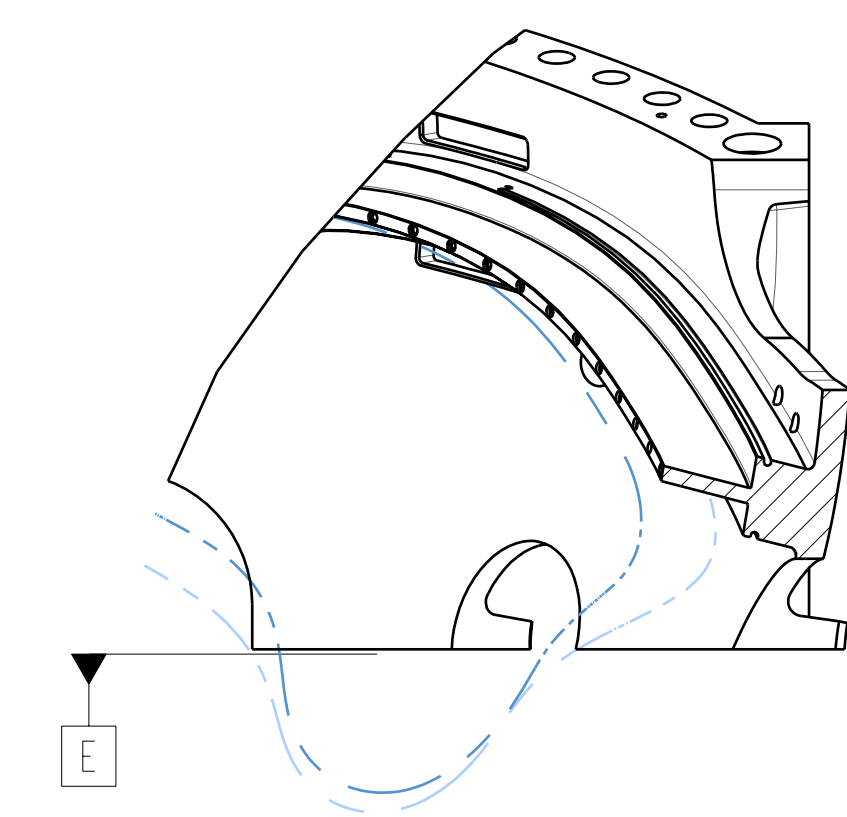
SOME FEATURES NOT SHOWN FOR CLARITY



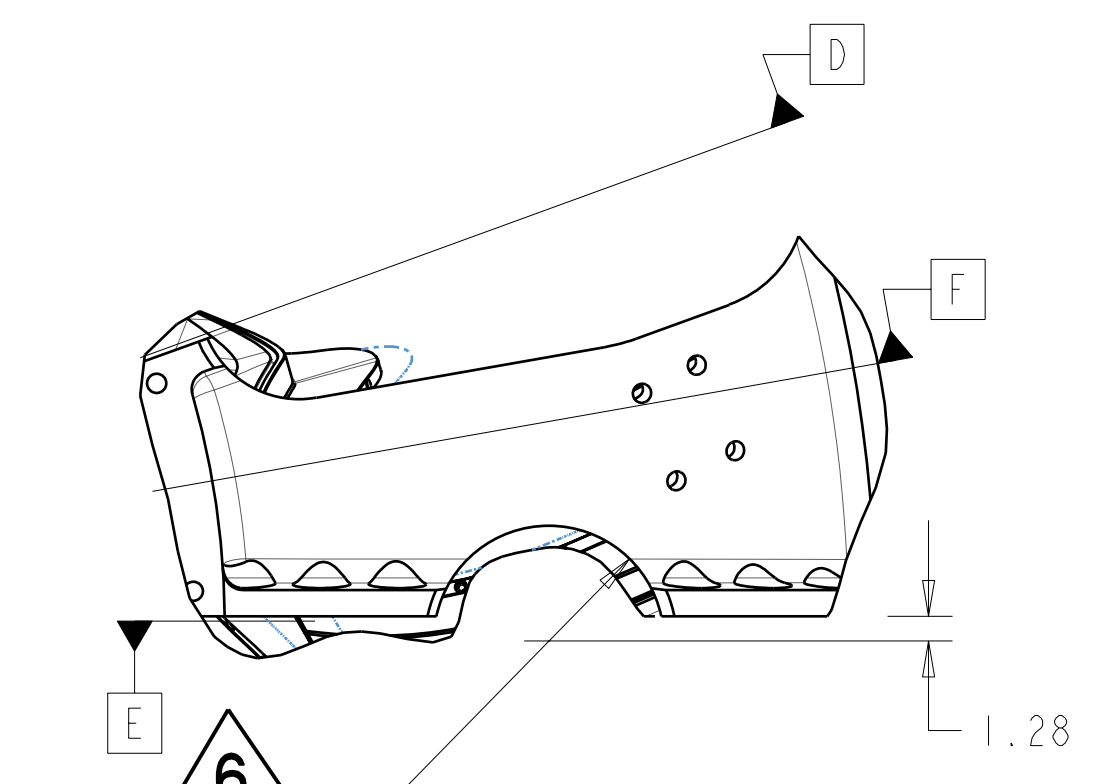
SECTION P4-P4
 SCALE 0.1



6



SECTION P7-P7
 SCALE 0.1



SOME FEATURES NOT SHOWN FOR CLARITY

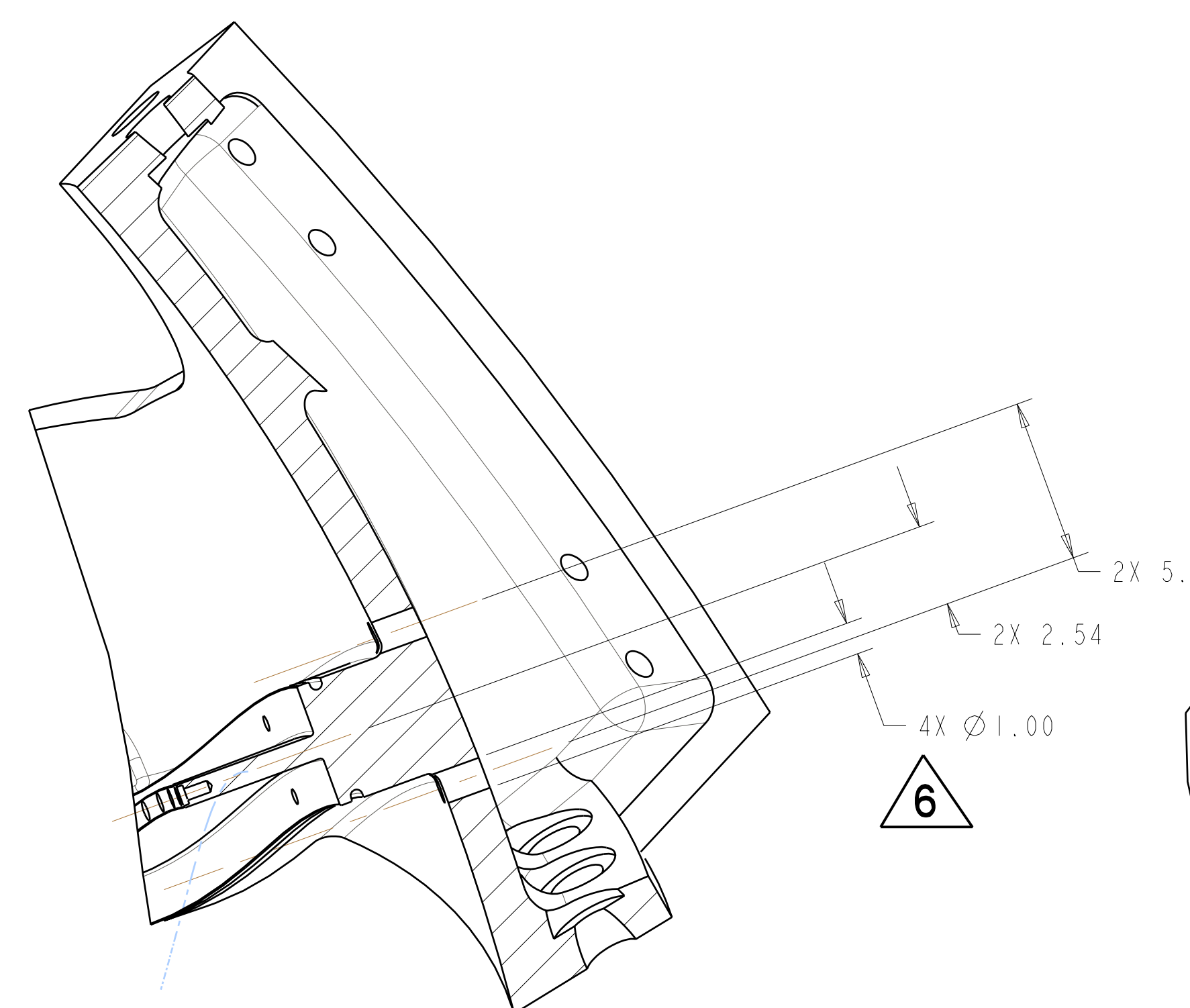
RELEASED FOR FABRICATION / INSTALLATION
 PPPL Drafting:

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|--|-----------|------|----|--------|------|-------|-----|---|
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| PRODUCTION WINDING FORM TYPE-A | | | | | | | | |
| VERSION NO. | PLANT | BLDG | FL | SHT OF | TYPE | CLASS | | |
| 13 | X-10 | 5700 | 3 | 8 | 11 | S | U | |
| RELEASE LEVEL | SEI41-114 | | | | | | REV | 6 |
| Fabrication | | | | | | | | |

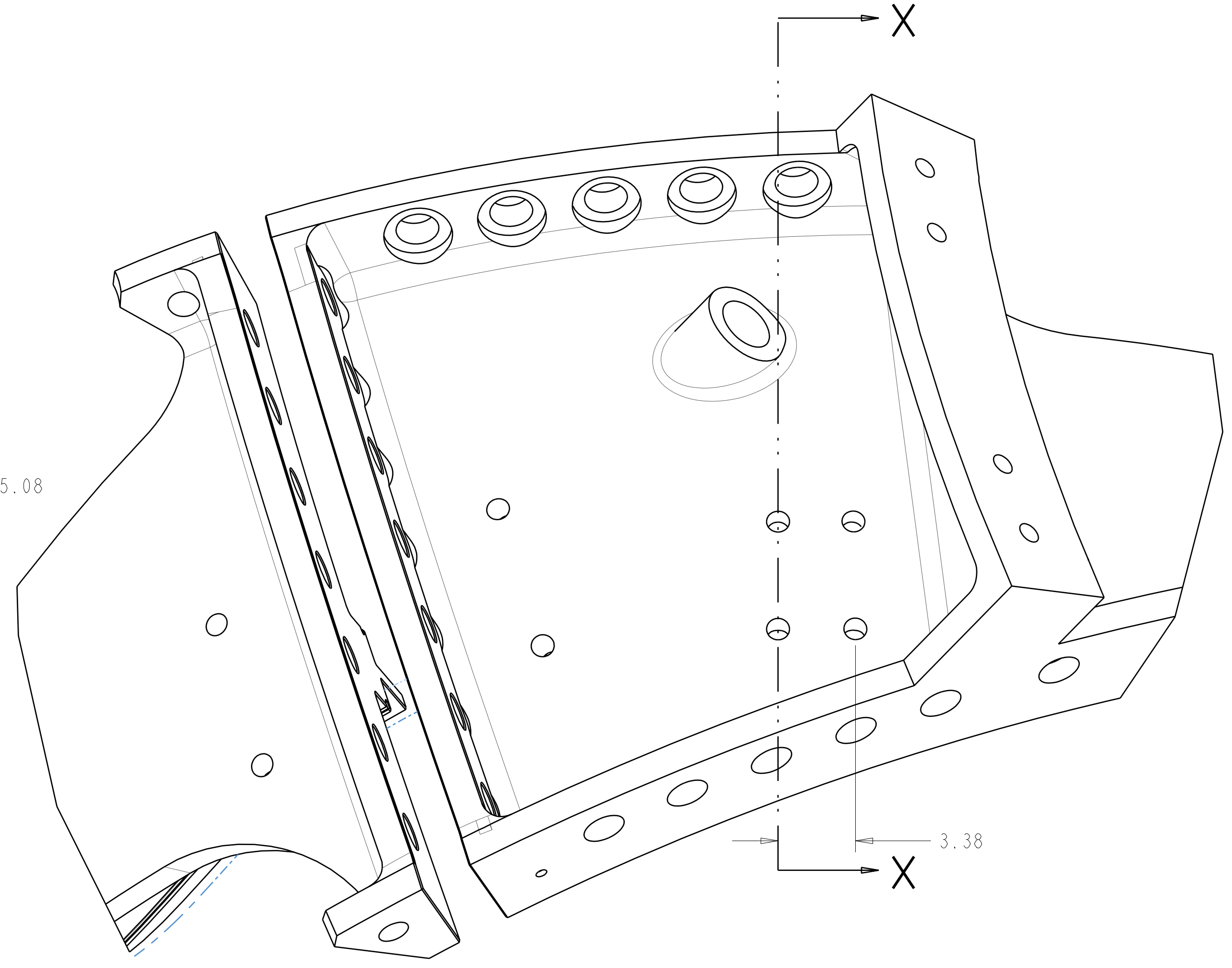
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SEI41-114

FOR NOTES AND PARTS LIST SEE SHEET 1

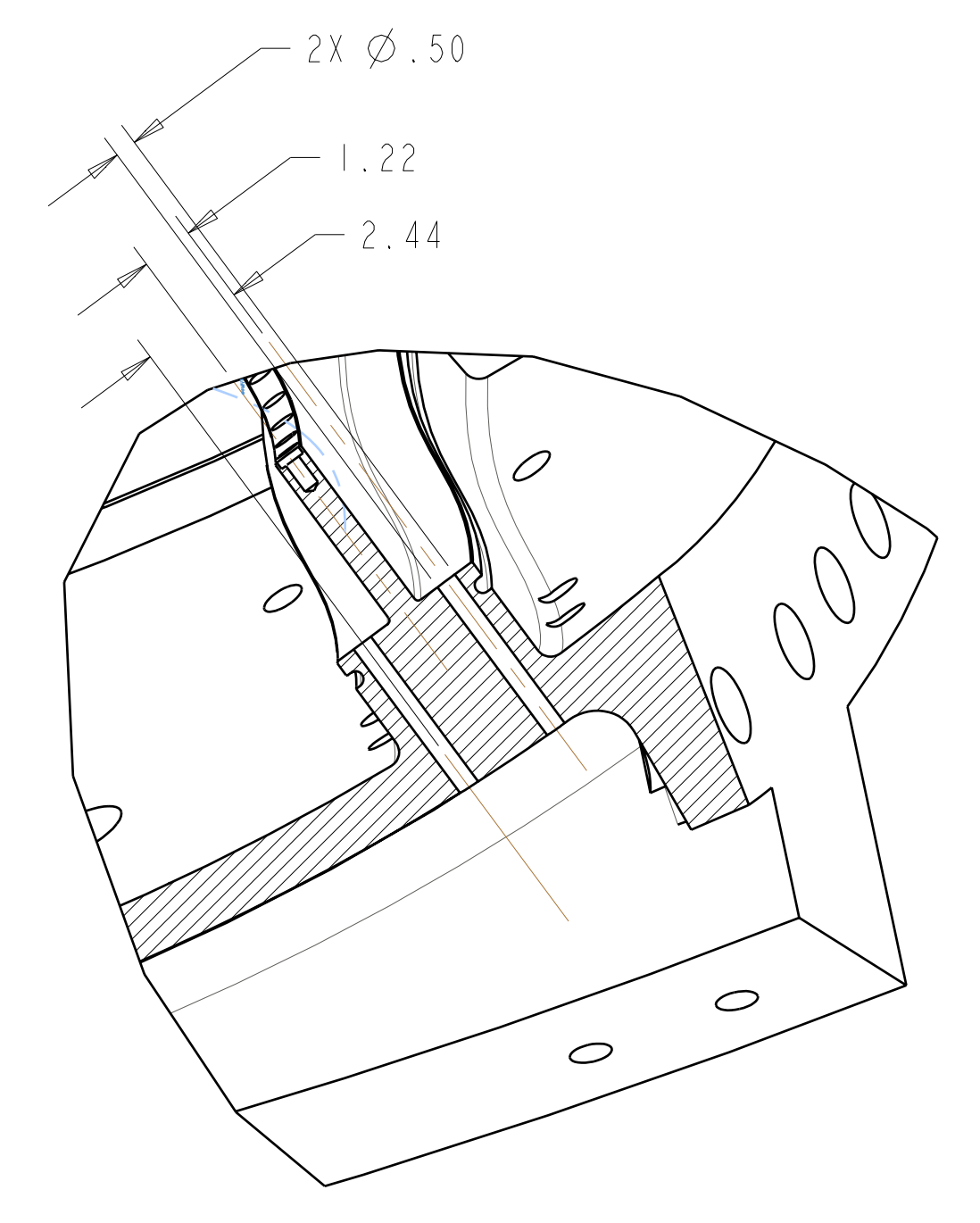


SECTION X-X

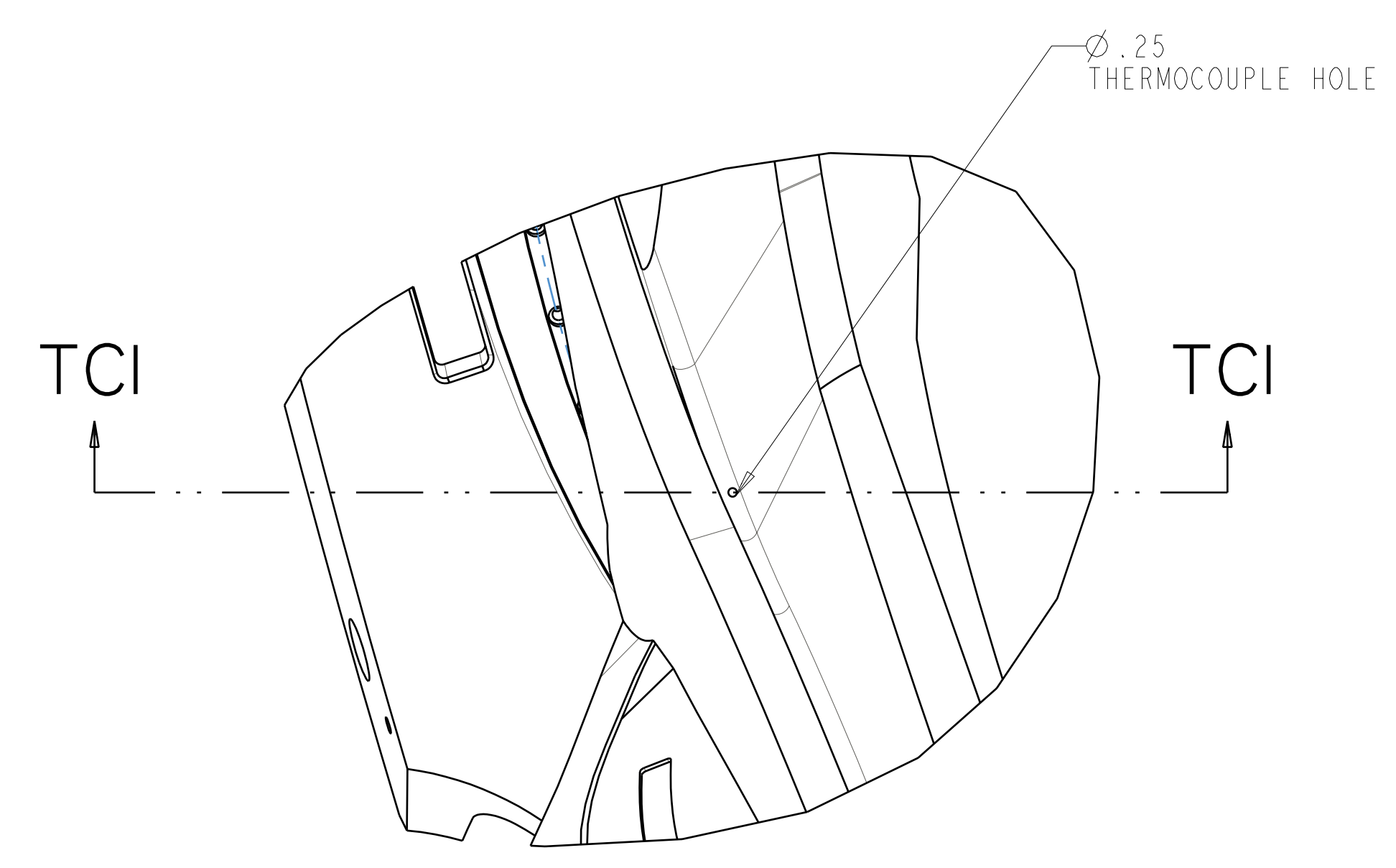


COOLING INLET / OUTLET HOLES
 TYPICAL 2 PLACES

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

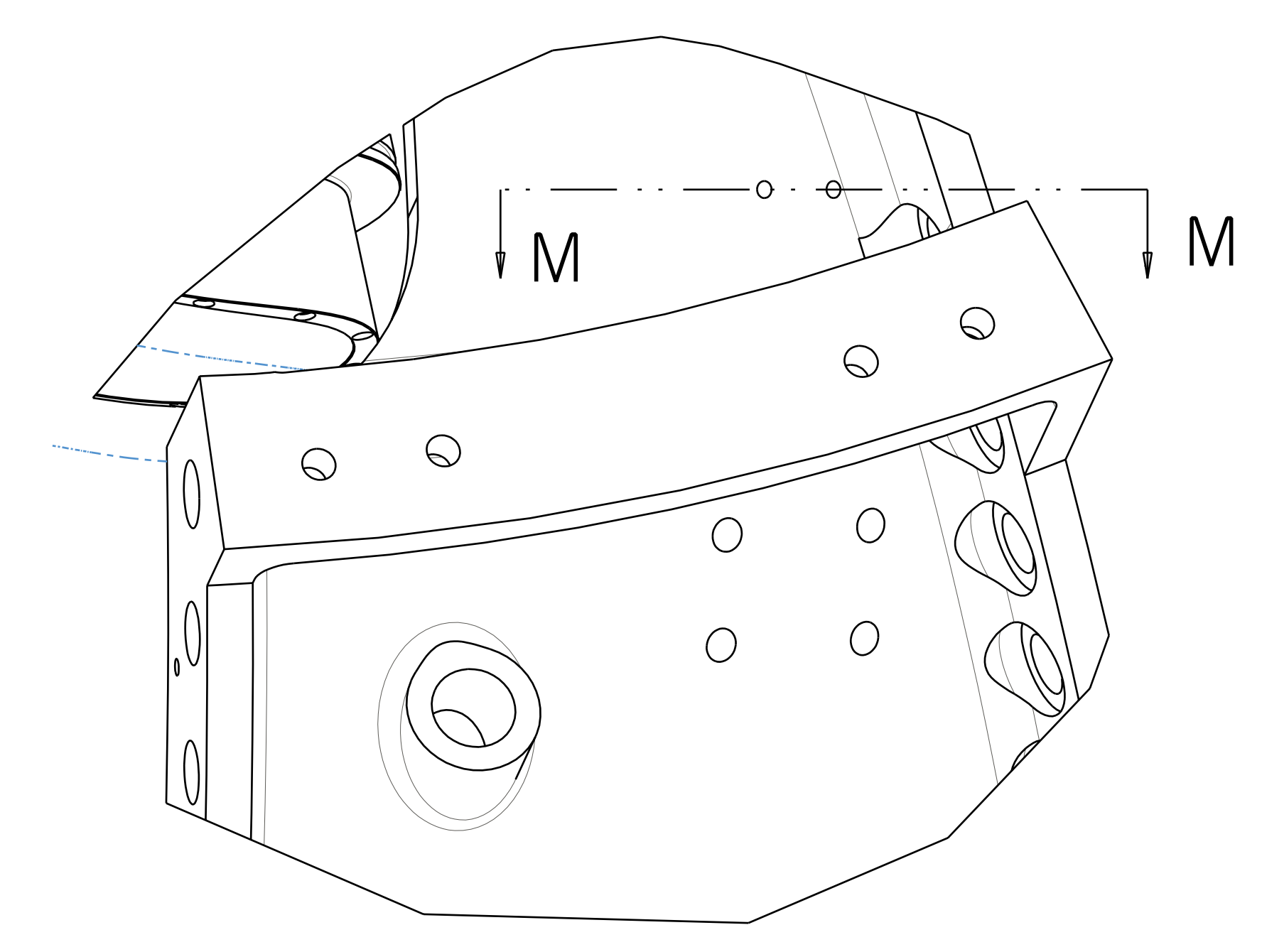


SECTION M-M



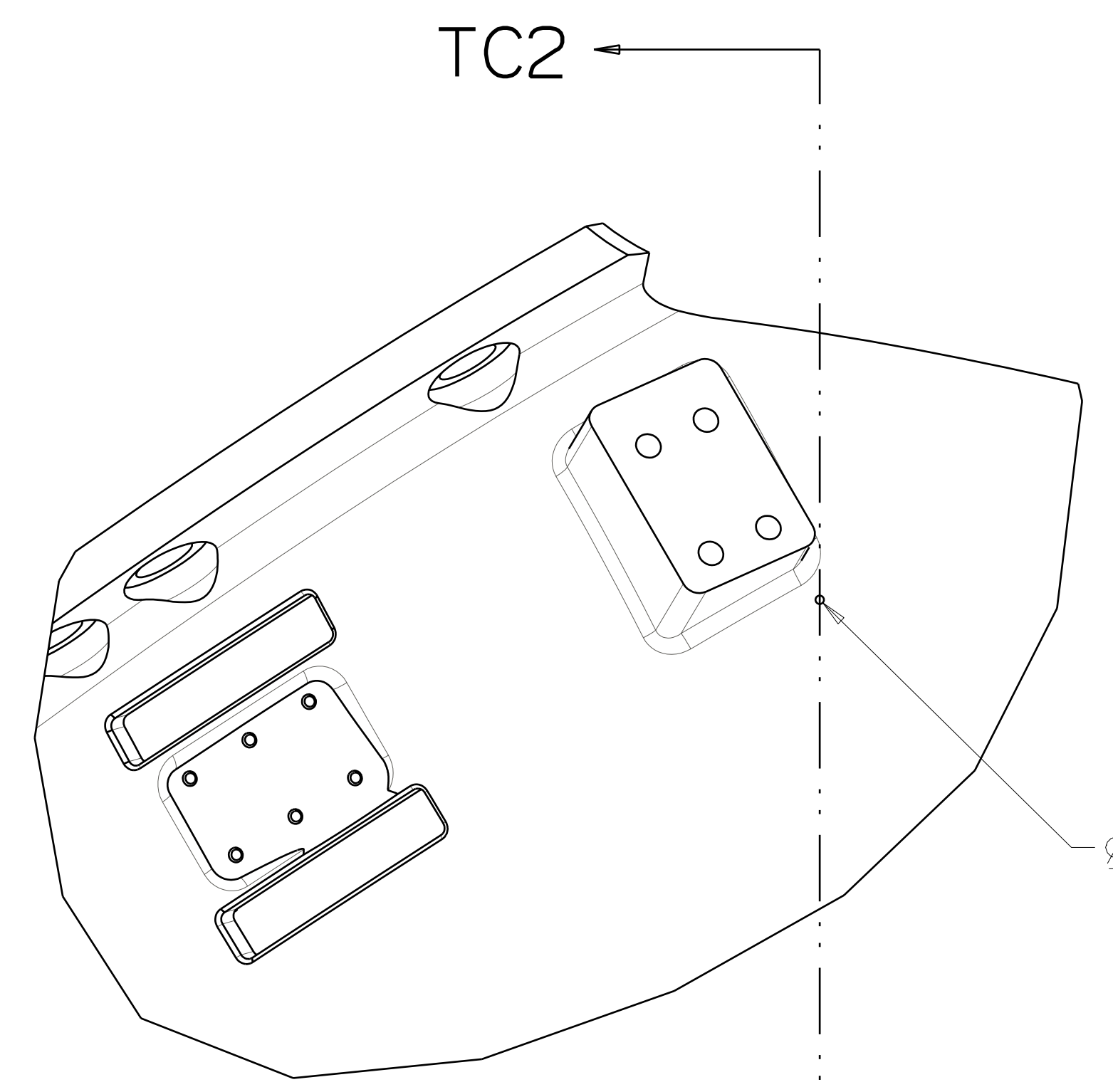
THERMOCOUPLE HOLE

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



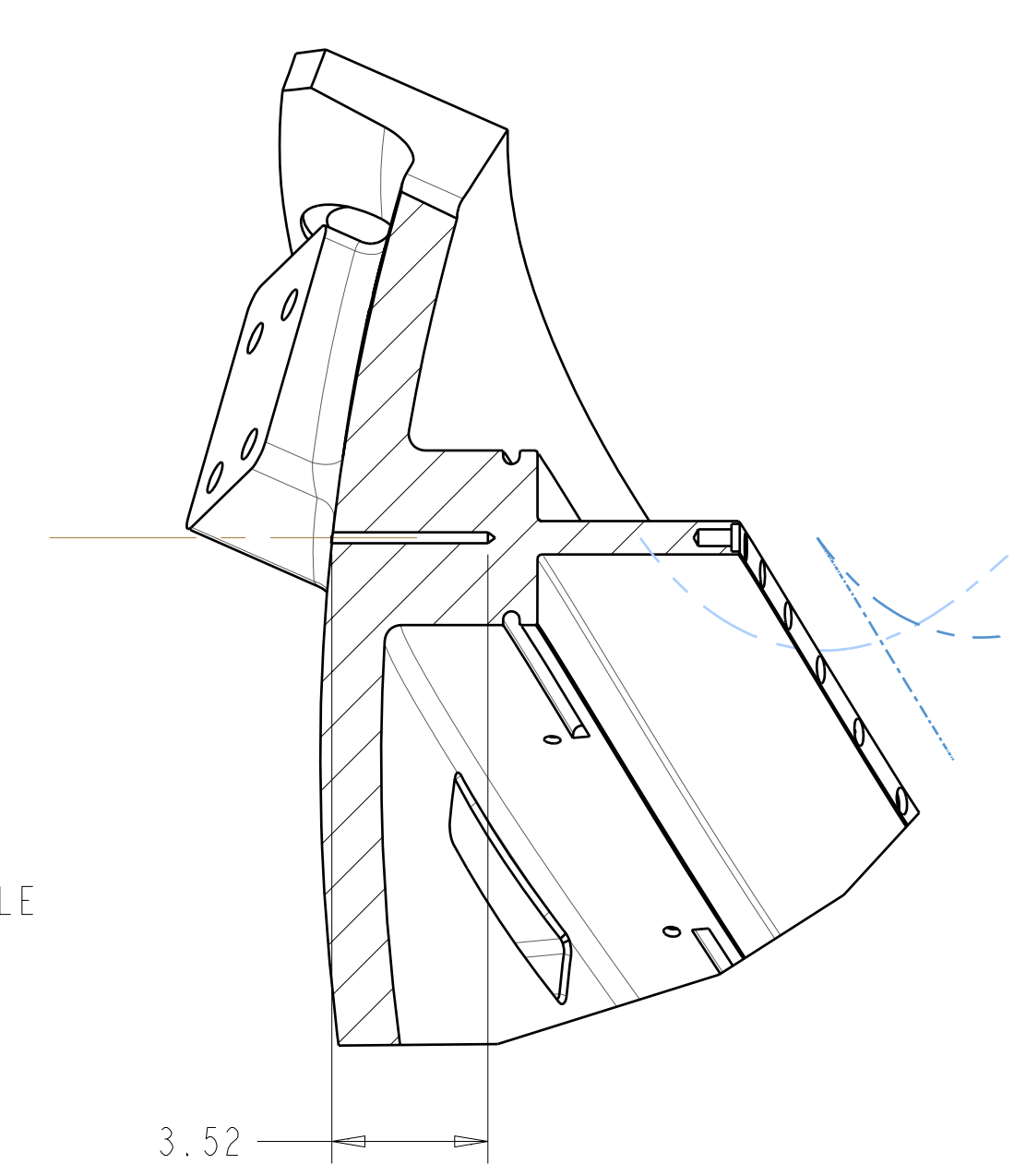
VPI BLEED HOLES

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

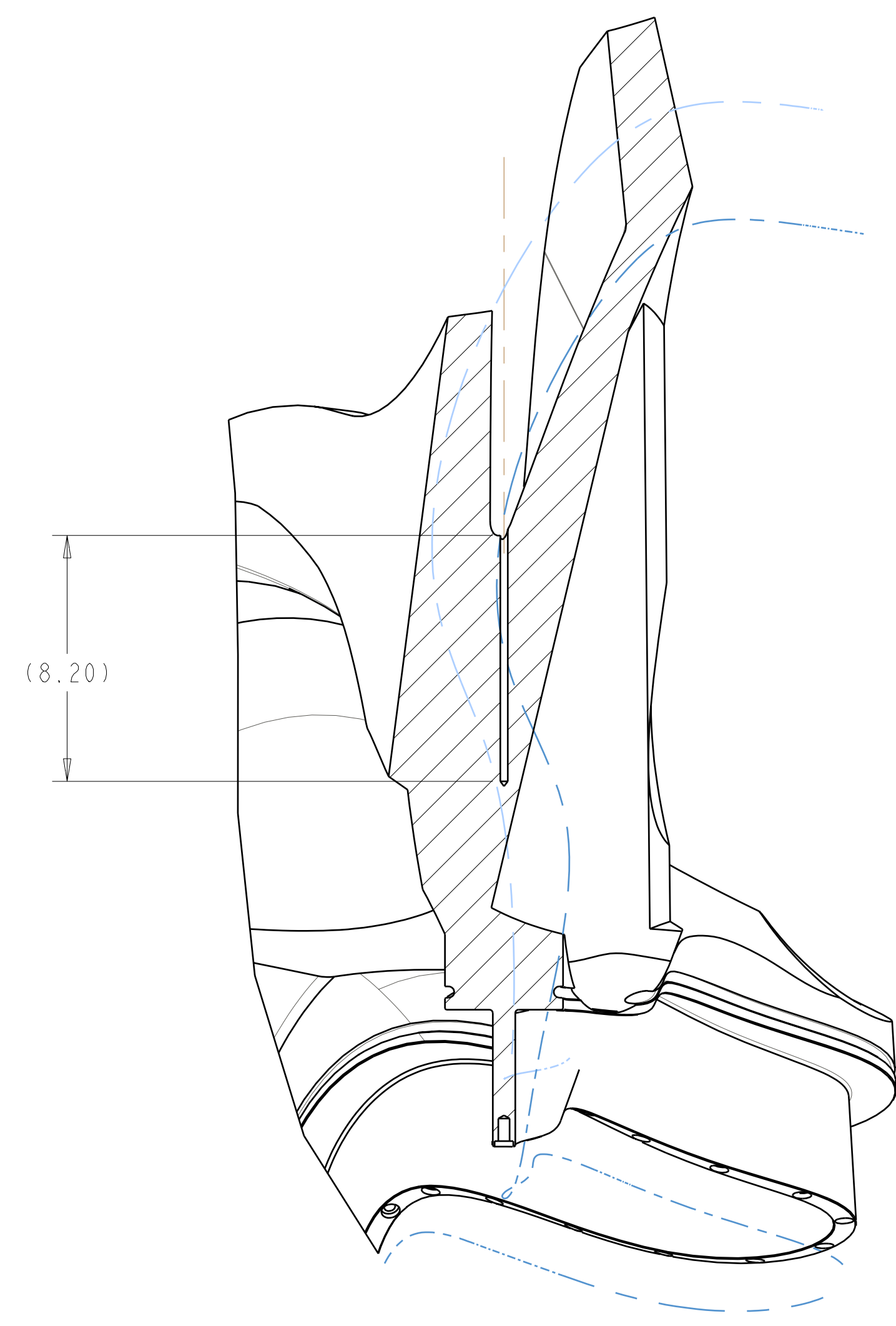


THERMOCOUPLE HOLE

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



SECTION TC2-TC2



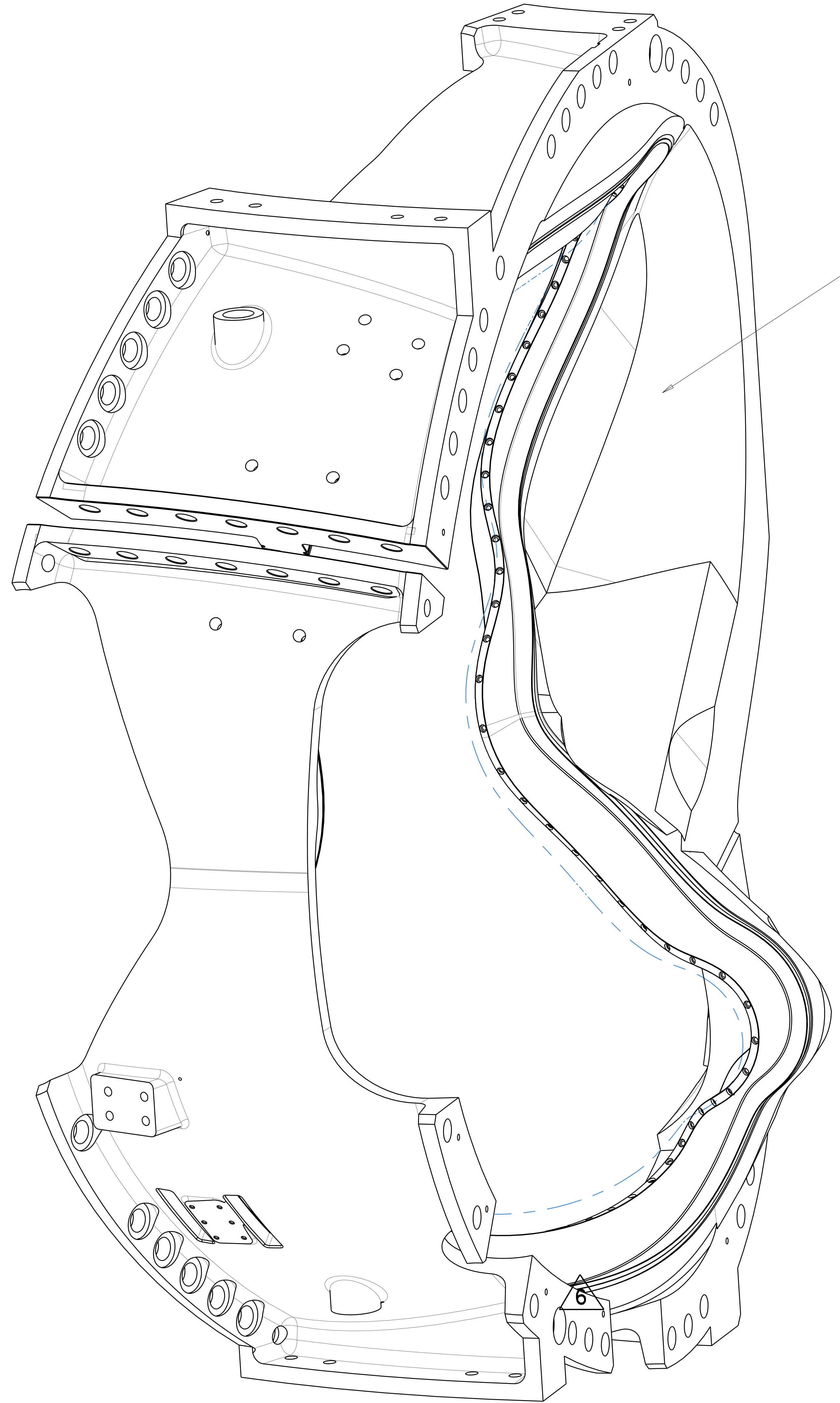
SECTION TCI-TCI

**RELEASED FOR
 FABRICATION / INSTALLATION**
 PPPL Drafting:

| | | | | | | | |
|---|-----------|------|----|--------|------|-------|-----|
| 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 | |
| 13 | X-10 | 5700 | 3 | 9 | 11 | S | U |
| RELEASE LEVEL | SEI41-114 | | | | | | REV |
| Fabrication | | | | | | | 6 |

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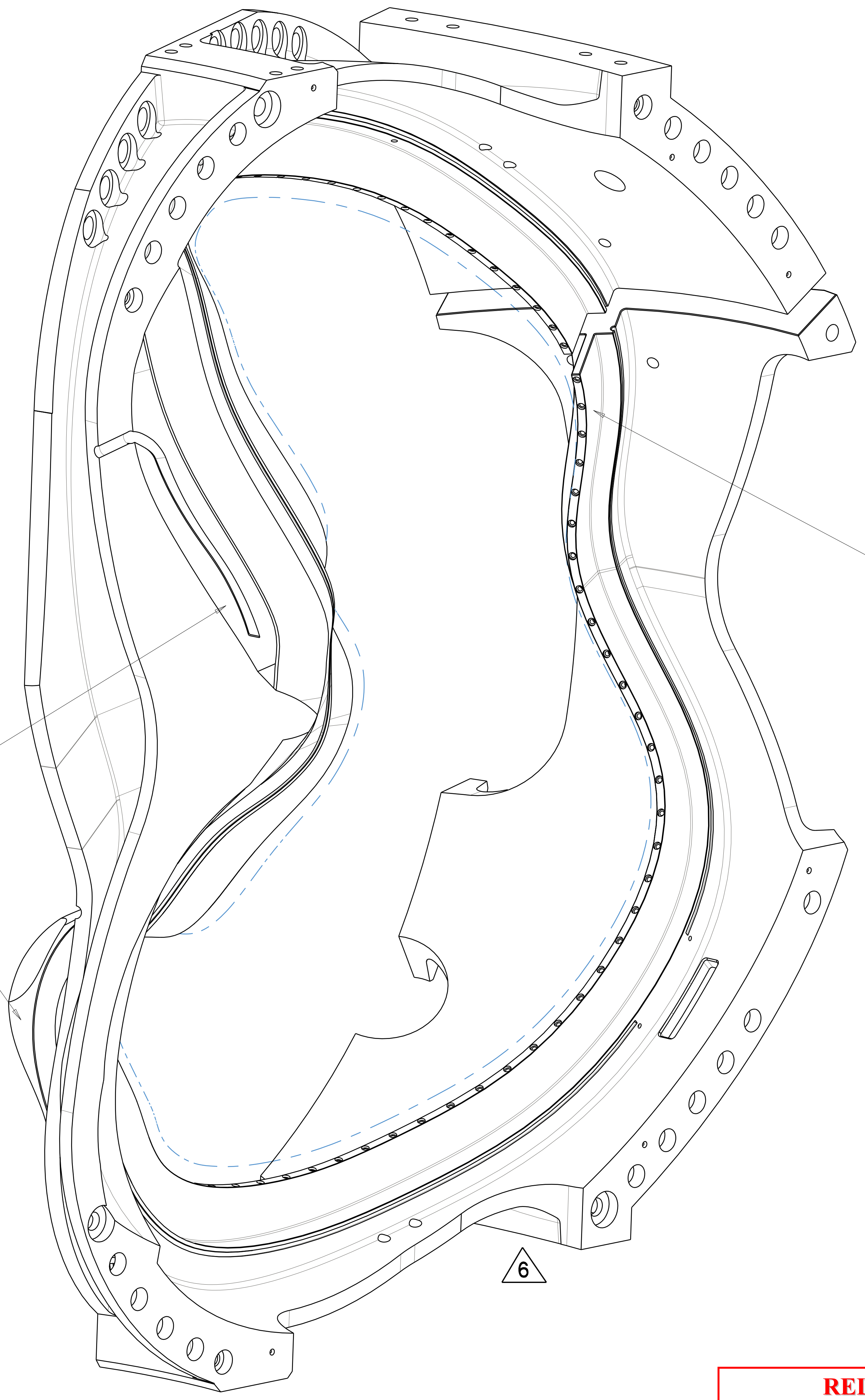
FOR NOTES AND PARTS LIST SEE SHEET 1



ISOMETRIC VIEW
 SCALE 0.20

AS CAST SURFACES
 .5 A C B

10 6
 WING SURFACES
 -.12 / -.25 A B C



ISOMETRIC VIEW
 SCALE 0.20

MACHINED SURFACES
 .02 R S T

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 PPPL Drafting:

| | | | | | | | |
|--|-------|---|----|--------|------|-------|--|
| 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 | | | | | |
| NATIONAL COMPACT STELLARATOR EXPERIMENT | | | | | | | |
| PRODUCTION WINDING FORM TYPE-A | | | | | | | |
| VERSION NO. | PLANT | BLDG | FL | SHT OF | TYPE | CLASS | |
| 13 | X-10 | 5700 | 3 | 10 | I S | U | |
| RELEASE LEVEL | | SEI41-114 | | | REV | | |
| Fabrication | | | | | 6 | | |

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