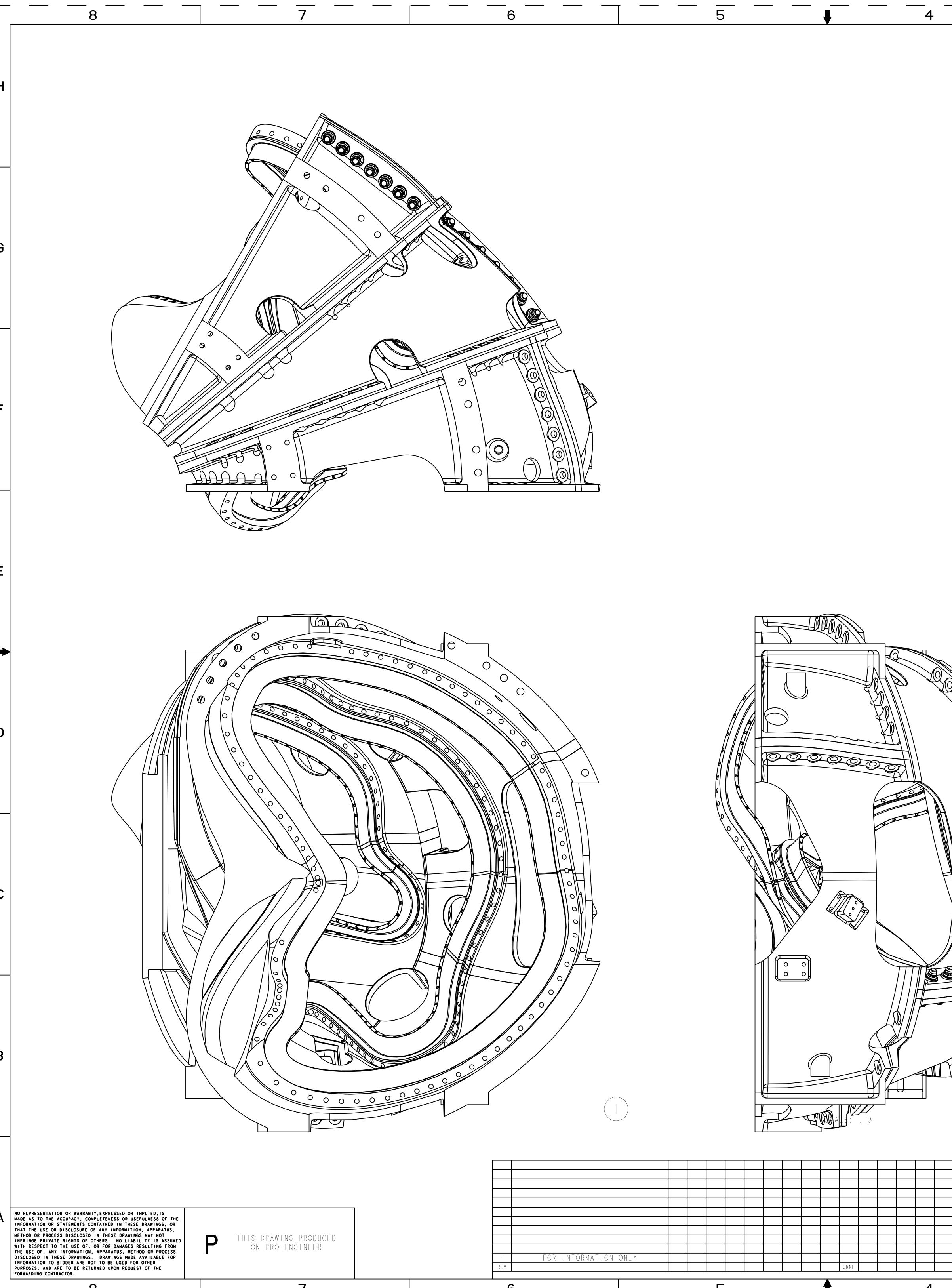
### Table 3-3 - Production Winding Form Models and Drawings

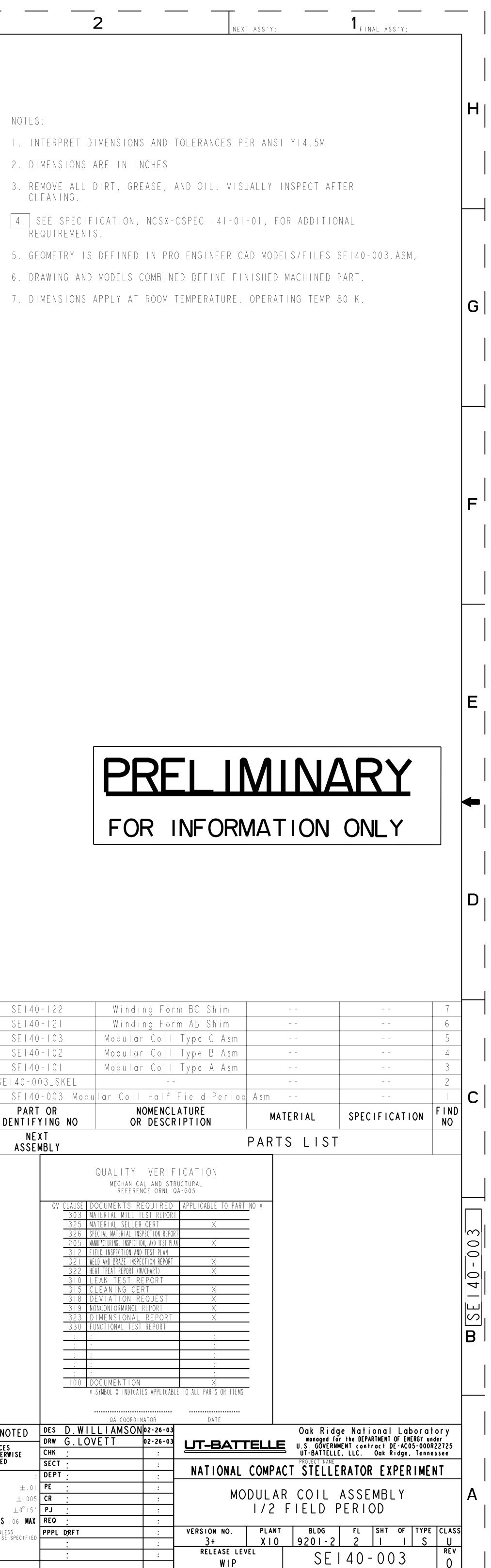
| TitleNext<br>AssemblyFind #Doc / Part #0<br>A<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A0<br>A   |       |           |        |                |      |     |  |
|--|-------|-----------|--------|----------------|------|-----|--|
| 1SE140-1022SE141-102ASM-Modular Coil Type-B Winding Form Assembly1SE140-1032SE141-103ASM-Modular Coil Type-C Winding Form Assembly2SE141-1011SE141-101_SKELPRT-Type-A Machining Features Layout2SE141-1012SE141-101_SKELPRT-Type-A Winding Form, 316L SS2SE141-1013SE141-031PRT-Type-A Poloidal Break Lower Insulator, G11CR2SE141-1014SE141-033PRT-Type-A Poloidal Break Upper Insulator, G11CR2SE141-1015SE141-035PRT-Type-B Machining Features Layout2SE141-1021SE141-02_SKELPRT-Type-B Winding Form, 316L SS2SE141-1021SE141-051PRT-Type-B Winding Form, 316L SS2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1023SE141-053PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1024SE141-053PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1031SE141-055PRT-Type-C Machining Features Layout2SE141-1031SE141-055PRT-Type-C Machining Features Layout2SE141-1031SE141-103_SKELPRT-Type-C Machining Features Layout2SE141-103<   | Level |           | Find # | Doc / Part #   | Type | Rev | Title / Description                          |
| 1SE140-1032SE141-103ASM-Modular Coil Type-C Winding Form Assembly2SE141-1011SE141-101_SKELPRT-Type-A Machining Features Layout2SE141-1012SE141-114PRT-Type-A Winding Form, 316L SS2SE141-1013SE141-031PRT-Type-A Poloidal Break Lower Insulator, G11CR2SE141-1014SE141-033PRT-Type-A Poloidal Break Shim, 316L SS2SE141-1015SE141-035PRT-Type-A Poloidal Break Upper Insulator, G11CR2SE141-1021SE141-02_SKELPRT-Type-B Machining Features Layout2SE141-1021SE141-102_SKELPRT-Type-B Winding Form, 316L SS2SE141-1022SE141-115PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1024SE141-053PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1025SE141-055PRT-Type-C Machining Features Layout2SE141-1031SE141-103_SKELPRT-Type-C Machining Features Layout2SE141-1032SE141-104PRT-Type-C Poloidal Break Upper Insulator, G11CR2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2 </td <td>1</td> <td>SE140-101</td> <td>2</td> <td>SE141-101</td> <td>ASM</td> <td>-</td> <td>Modular Coil Type-A Winding Form Assembly</td> | 1     | SE140-101 | 2      | SE141-101      | ASM  | -   | Modular Coil Type-A Winding Form Assembly    |
| 2SE141-1011SE141-101_SKELPRT-Type-A Machining Features Layout2SE141-1012SE141-114PRT-Type-A Winding Form, 316L SS2SE141-1013SE141-031PRT-Type-A Poloidal Break Lower Insulator, G11CR2SE141-1014SE141-033PRT-Type-A Poloidal Break Shim, 316L SS2SE141-1015SE141-035PRT-Type-A Poloidal Break Upper Insulator, G11CR2SE141-1021SE141-035PRT-Type-B Machining Features Layout2SE141-1021SE141-102_SKELPRT-Type-B Machining Features Layout2SE141-1022SE141-115PRT-Type-B Winding Form, 316L SS2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1024SE141-053PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1025SE141-053PRT-Type-C Machining Features Layout2SE141-1031SE141-055PRT-Type-C Machining Features Layout2SE141-1032SE141-103_SKELPRT-Type-C Machining Features Layout2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-103   | 1     | SE140-102 | 2      | SE141-102      | ASM  | -   | Modular Coil Type-B Winding Form Assembly    |
| 2SE141-1012SE141-114PRT-Type-A Winding Form, 316L SS2SE141-1013SE141-031PRT-Type-A Poloidal Break Lower Insulator, G11CR2SE141-1014SE141-033PRT-Type-A Poloidal Break Shim, 316L SS2SE141-1015SE141-035PRT-Type-A Poloidal Break Upper Insulator, G11CR2SE141-1021SE141-025PRT-Type-B Machining Features Layout2SE141-1022SE141-115PRT-Type-B Winding Form, 316L SS2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1024SE141-053PRT-Type-B Poloidal Break Shim, 316L SS2SE141-1025SE141-055PRT-Type-C Machining Features Layout2SE141-1031SE141-103_SKELPRT-Type-C Machining Features Layout2SE141-1032SE141-106PRT-Type-C Winding Form, 316L SS2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Shim, 316L SS2SE141-1034 <t< td=""><td>1</td><td>SE140-103</td><td>2</td><td>SE141-103</td><td>ASM</td><td>-</td><td>Modular Coil Type-C Winding Form Assembly</td></t<>                    | 1     | SE140-103 | 2      | SE141-103      | ASM  | -   | Modular Coil Type-C Winding Form Assembly    |
| 2SE141-1013SE141-031PRT-Type-A Poloidal Break Lower Insulator, G11CR2SE141-1014SE141-033PRT-Type-A Poloidal Break Shim, 316L SS2SE141-1015SE141-035PRT-Type-A Poloidal Break Upper Insulator, G11CR2SE141-1021SE141-102_SKELPRT-Type-B Machining Features Layout2SE141-1022SE141-115PRT-Type-B Winding Form, 316L SS2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1024SE141-053PRT-Type-B Poloidal Break Shim, 316L SS2SE141-1025SE141-055PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1025SE141-055PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1031SE141-055PRT-Type-C Machining Features Layout2SE141-1032SE141-103_SKELPRT-Type-C Machining Features Layout2SE141-1031SE141-104PRT-Type-C Winding Form, 316L SS2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Shim, 316L SS2SE141  | 2     | SE141-101 | 1      | SE141-101_SKEL | PRT  | -   | Type-A Machining Features Layout             |
| 2SE141-1014SE141-033PRT-Type-A Poloidal Break Shim, 316L SS2SE141-1015SE141-035PRT-Type-A Poloidal Break Upper Insulator, G11CR2SE141-1021SE141-102_SKELPRT-Type-B Machining Features Layout2SE141-1022SE141-115PRT-Type-B Winding Form, 316L SS2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1024SE141-053PRT-Type-B Poloidal Break Shim, 316L SS2SE141-1025SE141-055PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1024SE141-055PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1031SE141-055PRT-Type-C Machining Features Layout2SE141-1031SE141-103_SKELPRT-Type-C Winding Form, 316L SS2SE141-1032SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Shim, 316L SS  | 2     | SE141-101 | 2      | SE141-114      | PRT  | -   | Type-A Winding Form, 316L SS                 |
| 2SE141-1015SE141-035PRT-Type-A Poloidal Break Upper Insulator, G11CR2SE141-1021SE141-102_SKELPRT-Type-B Machining Features Layout2SE141-1022SE141-115PRT-Type-B Winding Form, 316L SS2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1024SE141-053PRT-Type-B Poloidal Break Shim, 316L SS2SE141-1025SE141-055PRT-Type-C Machining Features Layout2SE141-1031SE141-055PRT-Type-C Machining Features Layout2SE141-1032SE141-103_SKELPRT-Type-C Machining Features Layout2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Shim, 316L SS   | 2     | SE141-101 | 3      | SE141-031      | PRT  | -   | Type-A Poloidal Break Lower Insulator, G11CR |
| 2SE141-1021SE141-102_SKELPRT-Type-B Machining Features Layout2SE141-1022SE141-115PRT-Type-B Winding Form, 316L SS2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1024SE141-053PRT-Type-B Poloidal Break Shim, 316L SS2SE141-1025SE141-055PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1031SE141-055PRT-Type-C Machining Features Layout2SE141-1032SE141-103_SKELPRT-Type-C Winding Form, 316L SS2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Shim, 316L SS   | 2     | SE141-101 | 4      | SE141-033      | PRT  | -   | Type-A Poloidal Break Shim, 316L SS          |
| 2SE141-1022SE141-115PRT-Type-B Winding Form, 316L SS2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1024SE141-053PRT-Type-B Poloidal Break Shim, 316L SS2SE141-1025SE141-055PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1031SE141-055PRT-Type-C Machining Features Layout2SE141-1032SE141-116PRT-Type-C Winding Form, 316L SS2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Lower Insulator, G11CR  | 2     | SE141-101 | 5      | SE141-035      | PRT  | -   | Type-A Poloidal Break Upper Insulator, G11CR |
| 2SE141-1023SE141-051PRT-Type-B Poloidal Break Lower Insulator, G11CR2SE141-1024SE141-053PRT-Type-B Poloidal Break Shim, 316L SS2SE141-1025SE141-055PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1031SE141-03_SKELPRT-Type-C Machining Features Layout2SE141-1032SE141-116PRT-Type-C Winding Form, 316L SS2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Lower Insulator, G11CR  | 2     | SE141-102 | 1      | SE141-102_SKEL | PRT  | -   | Type-B Machining Features Layout             |
| 2SE141-1024SE141-053PRT-Type-B Poloidal Break Shim, 316L SS2SE141-1025SE141-055PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1031SE141-103_SKELPRT-Type-C Machining Features Layout2SE141-1032SE141-116PRT-Type-C Winding Form, 316L SS2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Shim, 316L SS  | 2     | SE141-102 | 2      | SE141-115      | PRT  | -   | Type-B Winding Form, 316L SS                 |
| 2SE141-1025SE141-055PRT-Type-B Poloidal Break Upper Insulator, G11CR2SE141-1031SE141-103_SKELPRT-Type-C Machining Features Layout2SE141-1032SE141-116PRT-Type-C Winding Form, 316L SS2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Shim, 316L SS   | 2     | SE141-102 | 3      | SE141-051      | PRT  | -   | Type-B Poloidal Break Lower Insulator, G11CR |
| 2SE141-1031SE141-103_SKELPRT-Type-C Machining Features Layout2SE141-1032SE141-116PRT-Type-C Winding Form, 316L SS2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Shim, 316L SS   | 2     | SE141-102 | 4      | SE141-053      | PRT  | -   | Type-B Poloidal Break Shim, 316L SS          |
| 2SE141-1032SE141-116PRT-Type-C Winding Form, 316L SS2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Shim, 316L SS  | 2     | SE141-102 | 5      | SE141-055      | PRT  | -   | Type-B Poloidal Break Upper Insulator, G11CR |
| 2SE141-1033SE141-071PRT-Type-C Poloidal Break Lower Insulator, G11CR2SE141-1034SE141-073PRT-Type-C Poloidal Break Shim, 316L SS  | 2     | SE141-103 | 1      | SE141-103_SKEL | PRT  | -   | Type-C Machining Features Layout             |
| 2 SE141-103 4 SE141-073 PRT - Type-C Poloidal Break Shim, 316L SS  | 2     | SE141-103 | 2      | SE141-116      | PRT  | -   | Type-C Winding Form, 316L SS                 |
|  | 2     | SE141-103 | 3      | SE141-071      | PRT  | -   | Type-C Poloidal Break Lower Insulator, G11CR |
| 2 SE141-103 5 SE141-075 PRT - Type-C Poloidal Break Upper Insulator, G11CR   | 2     | SE141-103 | 4      | SE141-073      | PRT  | -   | Type-C Poloidal Break Shim, 316L SS          |
|  | 2     | SE141-103 | 5      | SE141-075      | PRT  | -   | Type-C Poloidal Break Upper Insulator, G11CR |

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|             |               | $\setminus$      |                  | <b>a</b> a | a               |                      |              |    |   |      |       |             |                    |                         |                       |            |                       |  |                                       |                |
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|             |               |                  |                  |            | \               | $\backslash \rangle$ |              |    |   |      |       |             |                    |                         |                       |            |                       |  |                                       |                |
|             | $\backslash$  | \ <i>)</i> 0)/// | $\backslash$     | $\searrow$ | ノ//             |                      | $\backslash$ |    |   |      |       |             |                    |                         |                       |            |                       |  |                                       |                |
|             | XY            | 0////            |                  |            |                 | $\mathbb{N}$         |              |    |   |      |       |             |                    |                         |                       |            |                       |  |                                       |                |
|             |               |                  |                  | $\gg$ $$   |                 | $\mathcal{H}$        |              |    |   |      |       |             |                    |                         |                       |            |                       |  |                                       |                |
|             | $\mathcal{H}$ |                  |                  |            | +               |                      |              |    |   |      |       |             |                    |                         |                       |            |                       |  |                                       |                |
|             |               |                  |                  |            |                 |                      |              |    |   |      |       |             |                    |                         |                       |            |                       |  |                                       |                |
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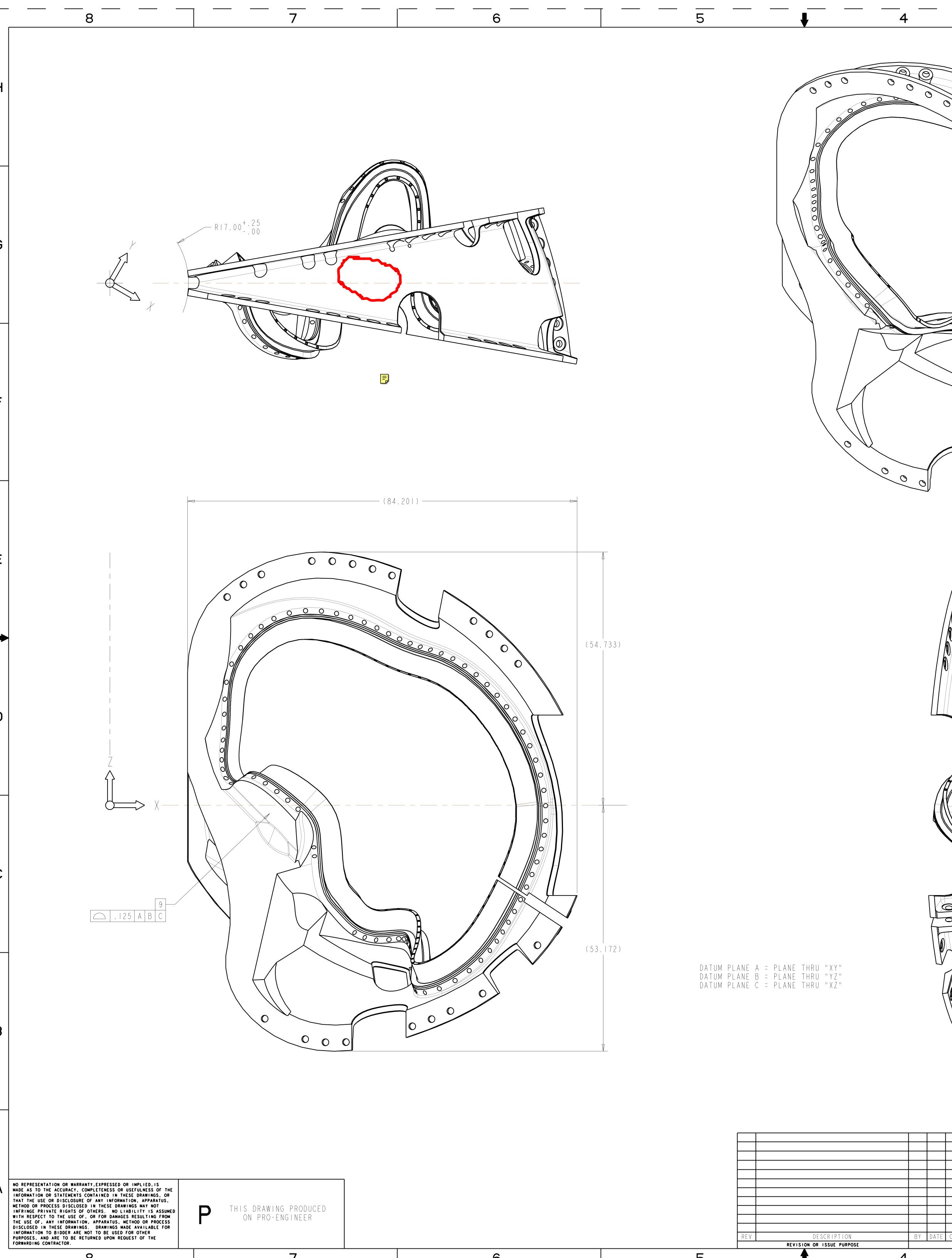
- REQUIREMENTS.
- 2. DIMENSIONS ARE IN INCHES

- NOTES:

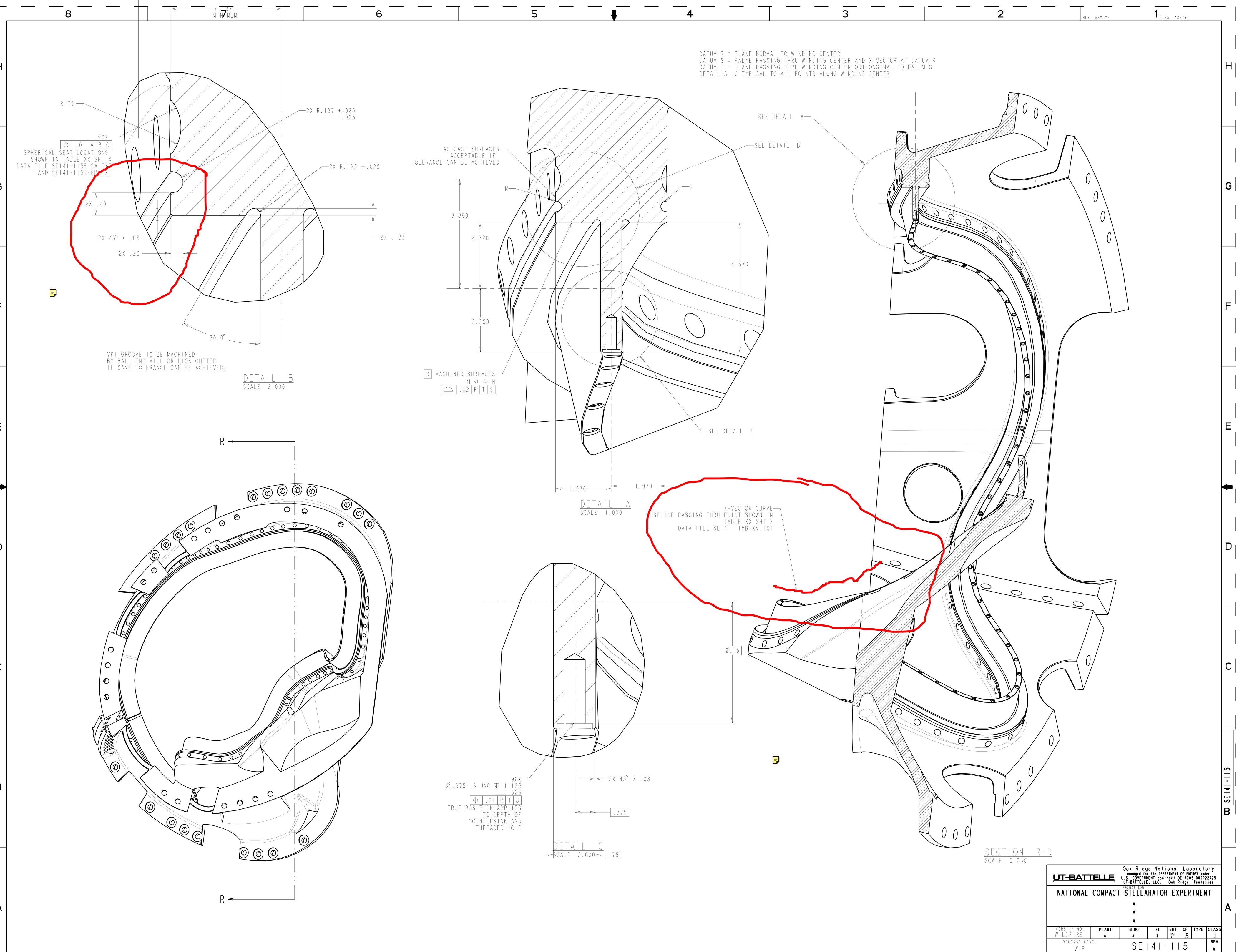
### Type-A Winding Form Asm

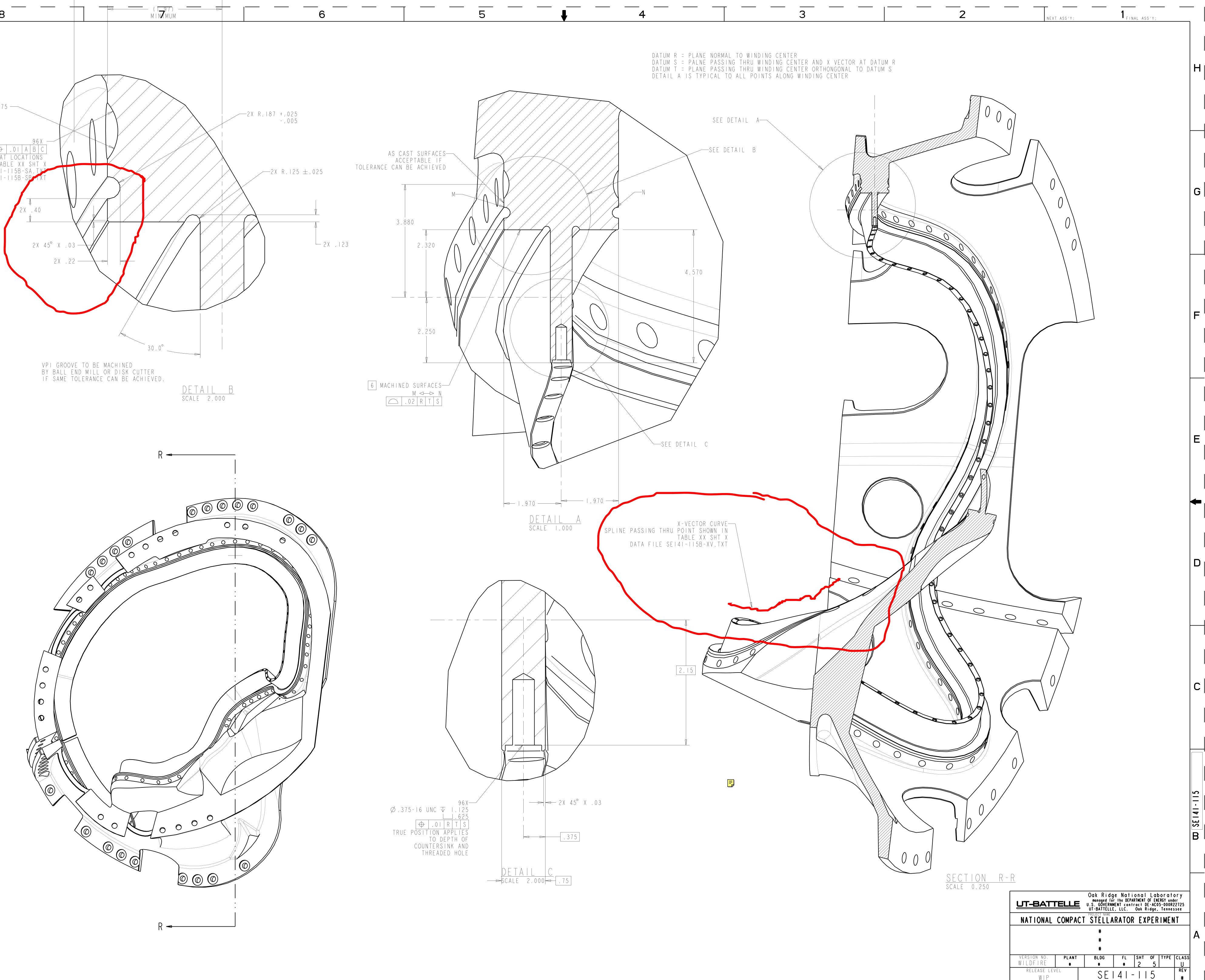
no drawings

# Type-B Winding Form Asm

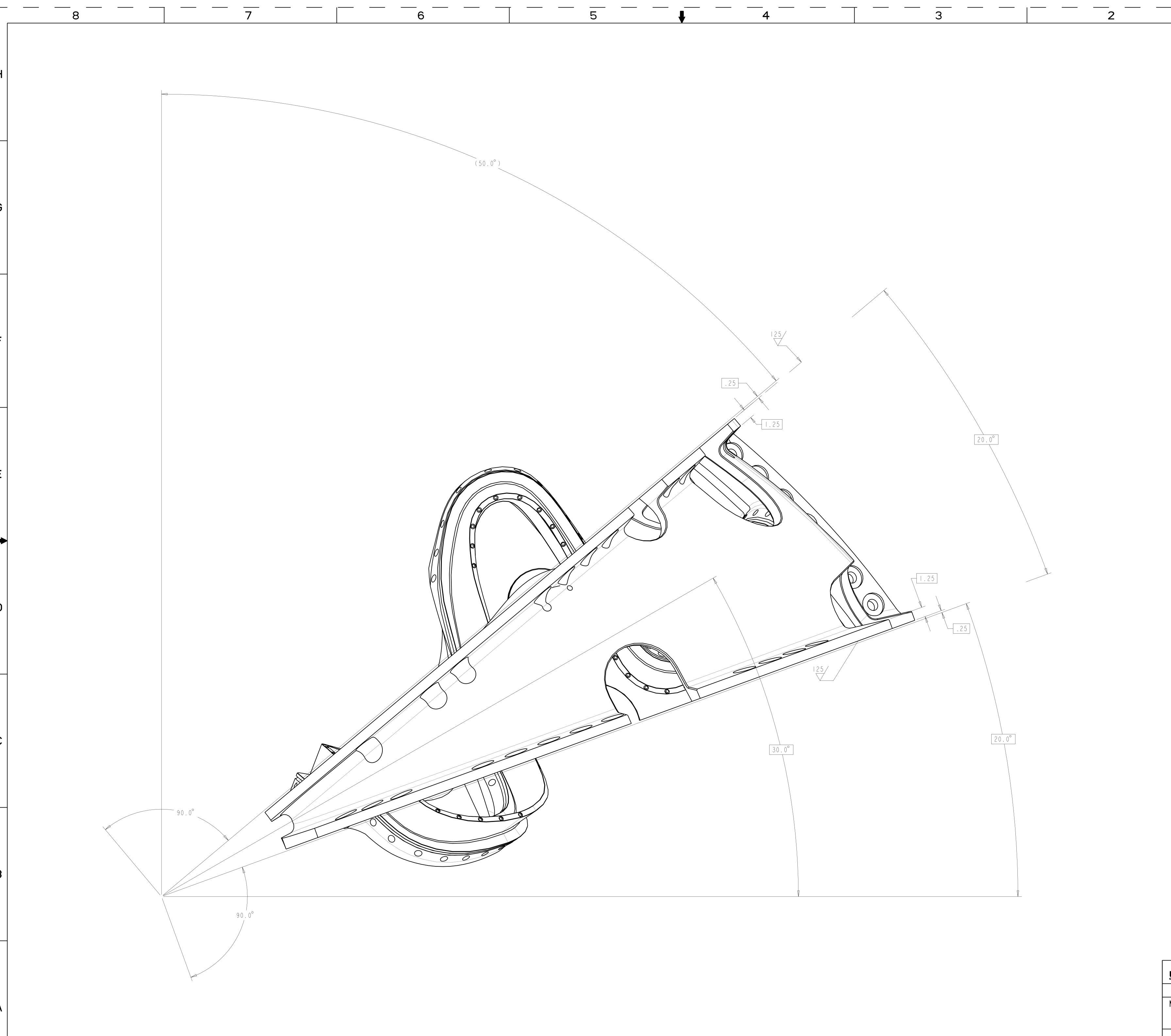


| 3   | NOTES:  | 2  | NEXT ASS'Y:  | <b>1</b> <sub>FINAL ASS'Y:</sub>                             | -  <br>] ,     |
|---|---|--|--|--|----------------|
|   | <ol> <li>INTERPRET DIMENSIONS</li> <li>DIMENSIONS ARE IN IN</li> <li>BACK SPOTFACE ALL TH</li> <li>SEE SPECIFICATION, N</li> <li>GEOMETRY IS DEFINED</li> </ol>   | NCHES<br>HRU HOLES MINIMUM<br>NCSX-CSPEC-141-03,<br>IN PRO/ENGINEER C  | TO CLEAN UP<br>FOR ADDITIONAL REQUIR<br>AD MODEL, SEI4I-II5B.P   |  | <br>   <br>    |
|   | OTHERWISE SPECIFIED<br>SIDE OF REFERENCE S<br>8 AS-CAST SURFACES SHO<br>TOLERANCE OF +/- 0.   | RFACES TO CAD DATA<br>). PROFILE TOLERA<br>SURFACE.<br>OWN IN NOMINAL MAT<br>.25". SURFACE PRO<br>GIONS OF INTERSECT | A, PROFILE WITHIN 0.020<br>NCE IS BILATERAL, I.E.<br>FERIAL CONDITION WITH T<br>FILE MUST BE WITHIN 0.<br>ING SURFACES WHERE FIL | 0.010" EITHER<br>HICKNESS<br>5" OF CAD<br>LETS ARE EXPECTED. | G              |
|   | IO. DIMENSIONS ARE AT F   | ROOM TEMPERATURE,  | OPERATING TEMP IS 80-K   |  |                |
|   |   |  |  |  | F  <br>   <br> |
| ISOMETRIC VIEW  |   |  |  |  | <br> E<br>     |
|   |   |  |  |  |                |
|   | AS CAST SURFACES  |  |  |  |                |
|   |   |  |  |  |                |
|   | SEI4I-II5B       SEIAI       SEIAI | MODULAR COIL TYPE-B<br>NOMENCLAT<br>OR DESCRIP   | URE MATERIAL<br>TION PARTS LIST  | SEE NOTE #4 SPECIFICATION FIND<br>NO                         |                |
|   |   | WILLIAMSON : C   | NATIONAL COMPACT STELL<br>MODULAR COIL TYPE -<br>*<br>*<br>VERSION NO. PLANT BLDG  | ARATOR EXPERIMENT<br>B WINDING FORM                          |                |
| DATE       CHK       DEPT       DATE       PE       REQ       DATE       ORNL       DOE       DATE       Image: CHK       DEPT       DATE       Image: CHK       DEPT       DATE       PE       REVISION APPROVAL |   |  | WILDFIRE X-10 5700   | 3 1 5 S U<br>4 1 - 1 1 5 0<br>1                              | ┨,             |





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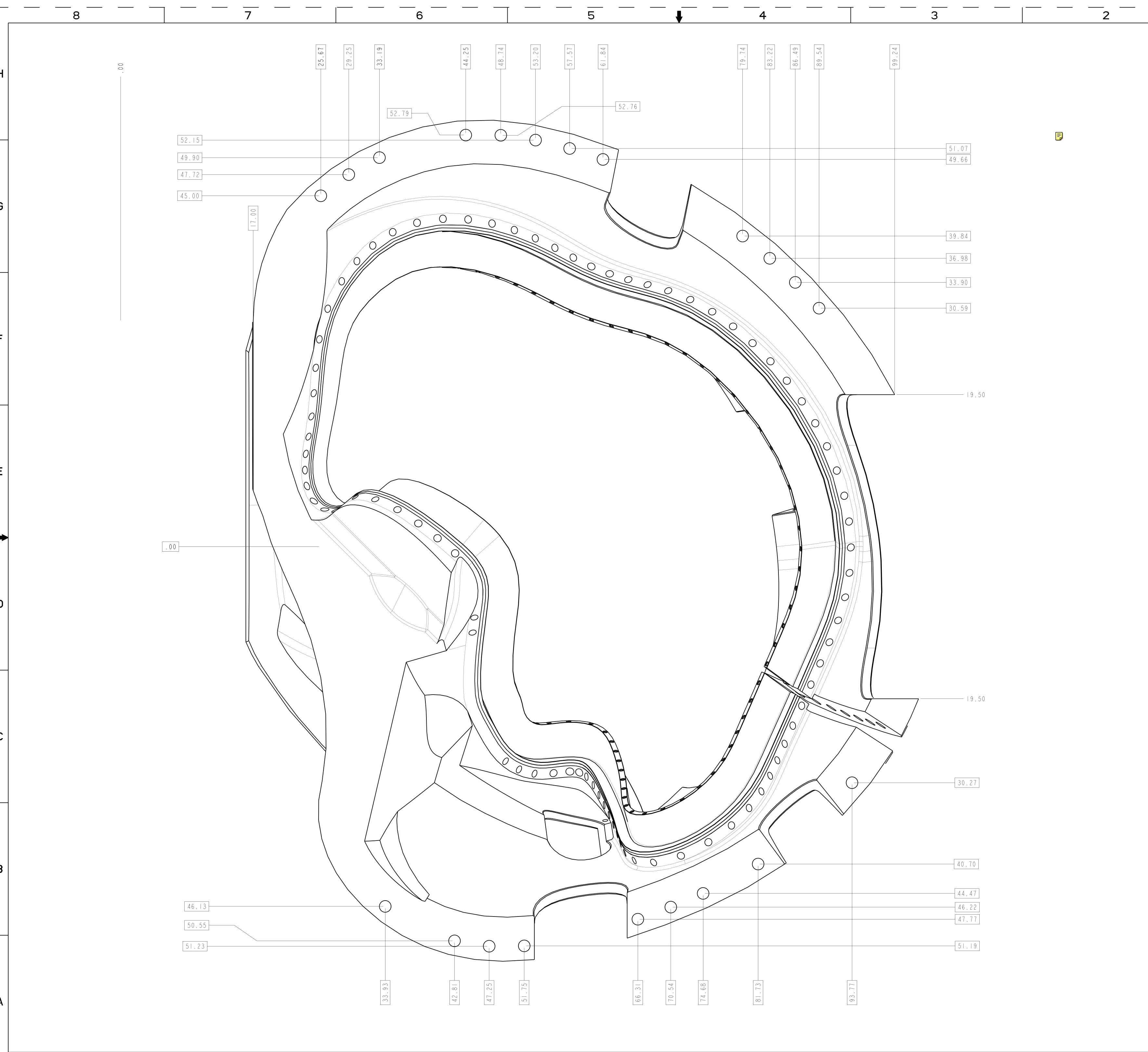
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|                                   | NEXT ASS'Y:           |   | 1 <sub>final</sub> | ASS'Y:  |      |                |
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|                                   |                       |   |                    |   |      |                |
|                                   |                       |   |                    |   |      | C              |
|                                   |                       |   |                    |   |      | B SE 141 - 115 |
| IODUL<br>Version M<br>I<br>Releas | NAL COMPAC<br>AR COIL | TYPE-E<br>*<br>*<br><sup>BLDG</sup><br>5700 | RATOR<br>WIN[      | <mark>ЕХРЕПІ</mark><br>) I NG – Г<br>нт ог Т<br>3 – 5 – Т | MENT | A              |



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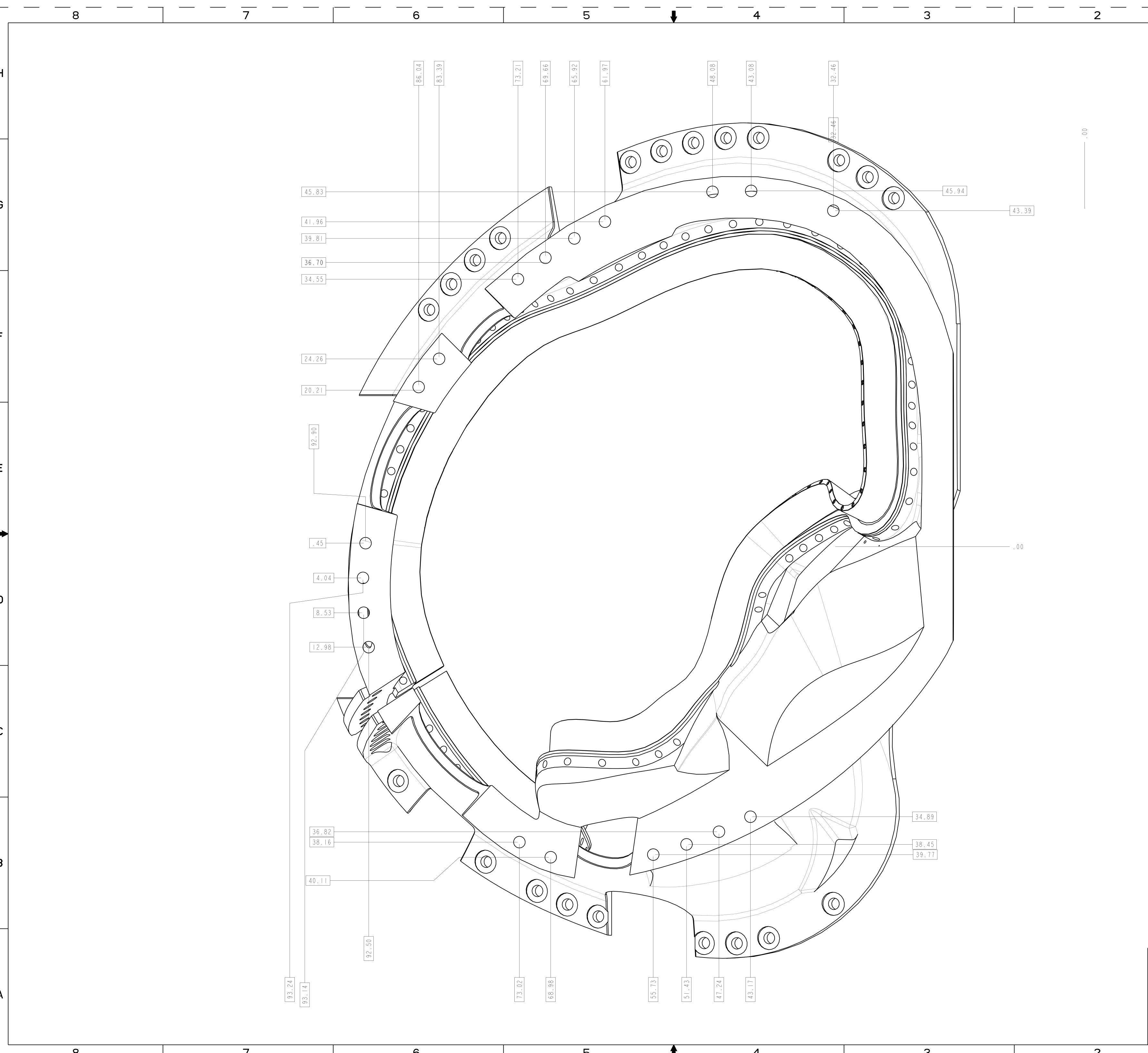
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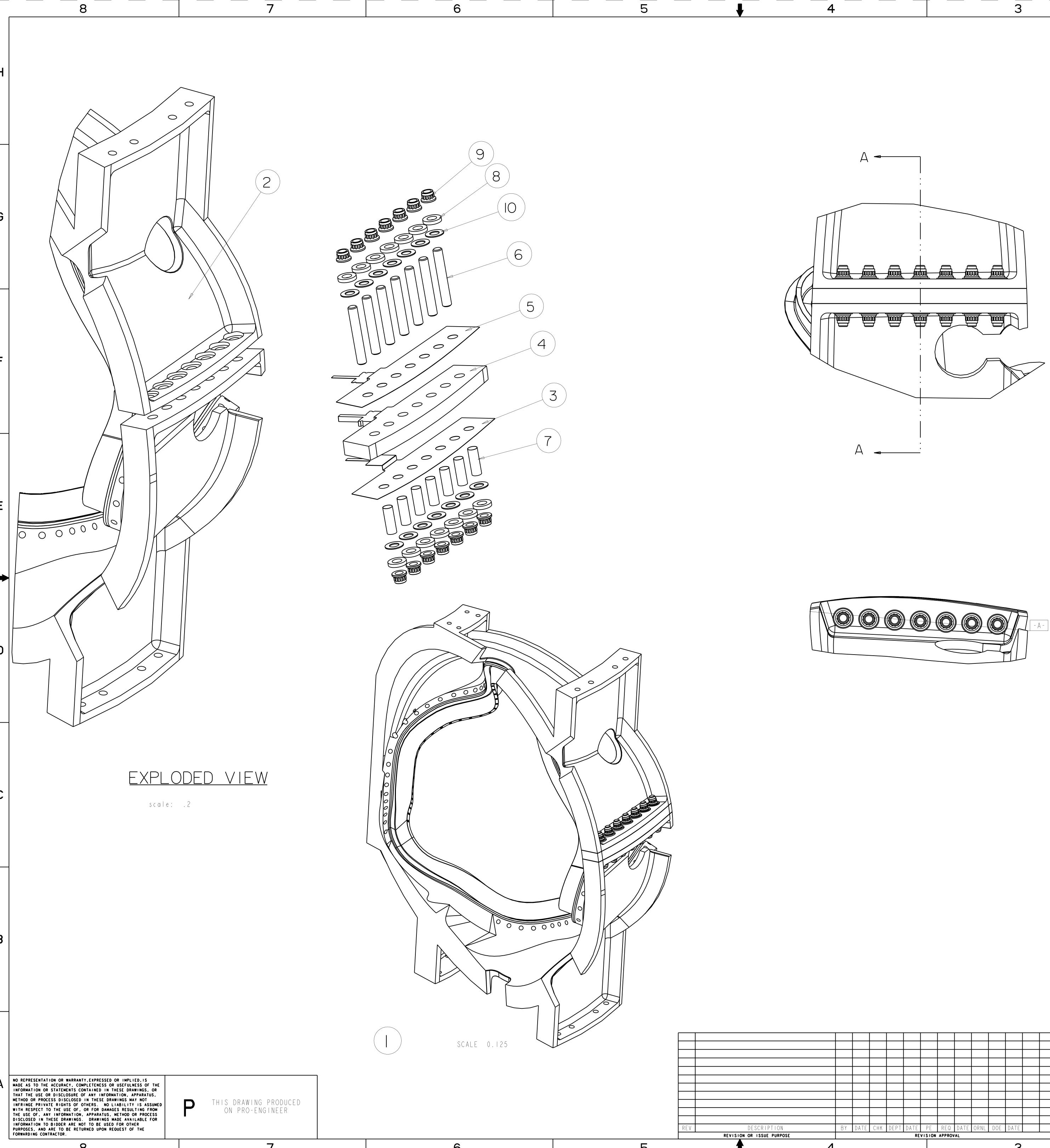
N MC

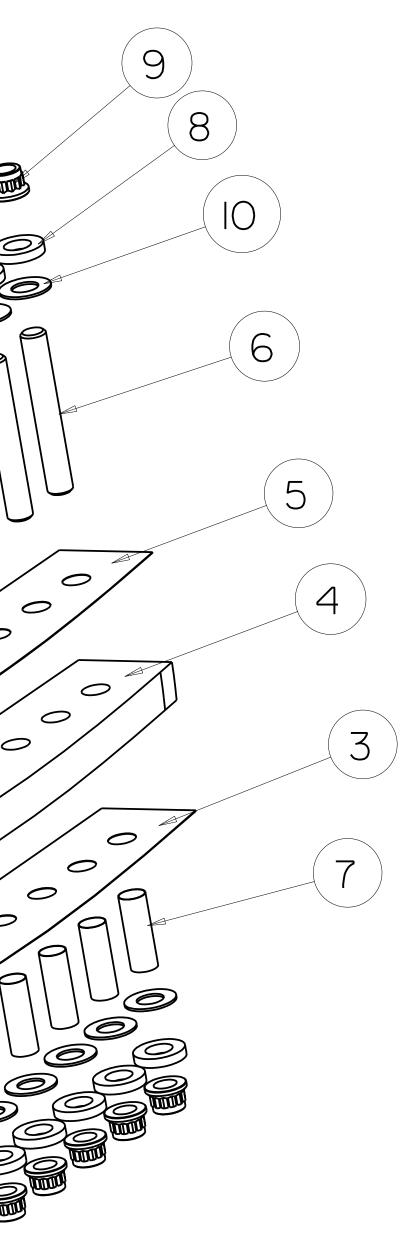
|                          | NEXT ASS'Y: |  | 1 <sub>FINAL ASS</sub>                      | S´Y:  |                       |
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|                          |             |  |   |   | B SE 141 - 1          |
|                          |             |  |   |   | В                     |
|                          |             |  |   |   |                       |
| JT-BA                    | ATTELLE     | Oak Ridge<br>managed for<br>U.S. GOVERNMEI<br>UT-BATTELLE, | National<br>the DEPARTMENT<br>NT contract D | Laborator<br>OF ENERGY under<br>E-AC05-000R22 | у<br>725              |
|                          |             | CT STELLAR   | ATOR EX                                     | PERIMENT                                      |                       |
| IUUUL                    | AK CUIL     | TYPE-B<br>*<br>*   | WINDI                                       | NG FOR  | <sup>M</sup> <b>A</b> |
| VERSION N<br> <br>RELEAS | E LEVEL     |  | FL SHT<br>3 4<br>4 - 1 1                    | 5 S   | CLASS<br>U<br>REV     |
| W                        | I P         |  | 4   <sup>-</sup>    <br>1                   | J   | 0                     |

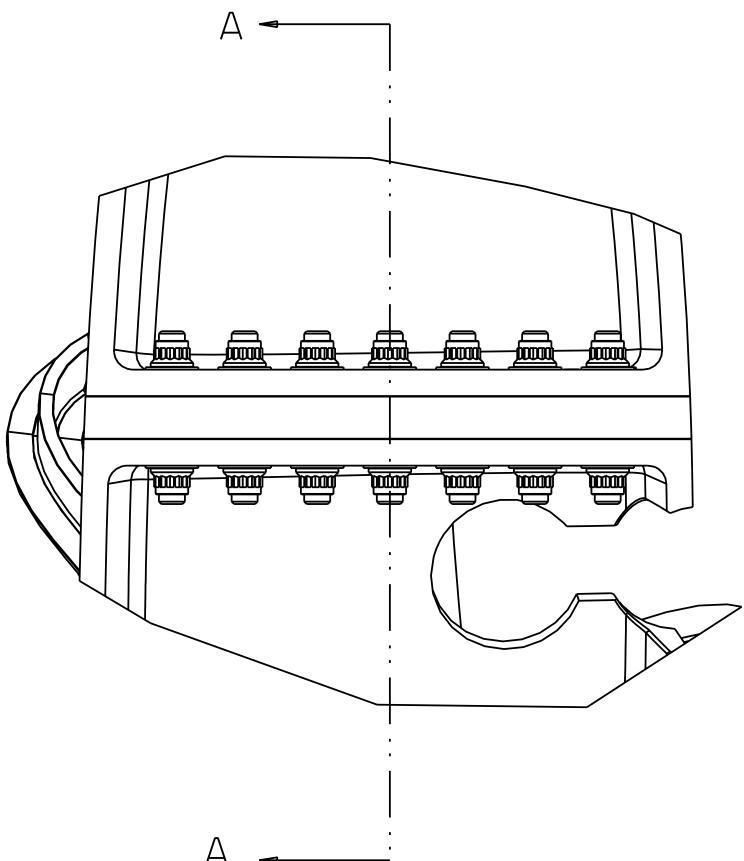


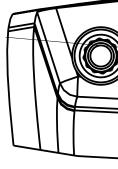
|       | NEXT ASS'Y:                             |                                     | 1 <sub>FINAL</sub>                           | ASS′Y:  |    | -                   |
|-------|---|-------------------------------------|--|---------|----|---------------------|
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|       |   |                                     |  |         | -  | י<br>               |
|       |   |                                     |  |         |    | <br>C<br>           |
|       |   |                                     |  |         | -  |                     |
|       |   |                                     |  |         |    | B SE 141 - 115      |
| NATIO | <b>ATTELLE</b><br>Nal Compa(<br>Ar coil | TYPE-E                              | RATOR E                                      | XPERIME | NT | <br> <br> <br> <br> |
|       | NO. PLANT<br>X-IO<br>Se level<br>/IP    | *<br><sup>BLDG</sup><br>5700<br>SEI | <sup>гц sн</sup><br>3 5<br>4 - 1<br><b>1</b> | 5 S     |    |                     |

# Type-C Winding Form Asm











I. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI YI4.5M

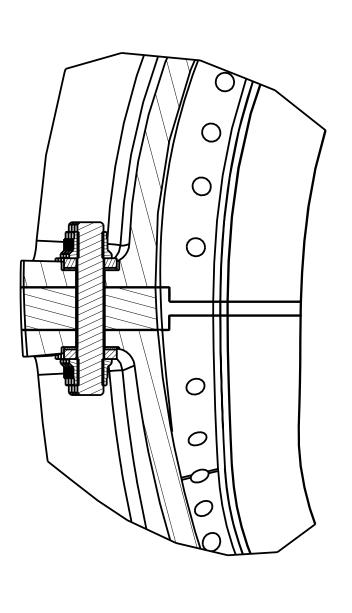
2

2. DIMENSIONS ARE IN INCHES

3. REMOVE ALL DIRT, GREASE, AND OIL. VISUALLY INSPECT AFTER CLEANING.

NEXT ASS'Y:

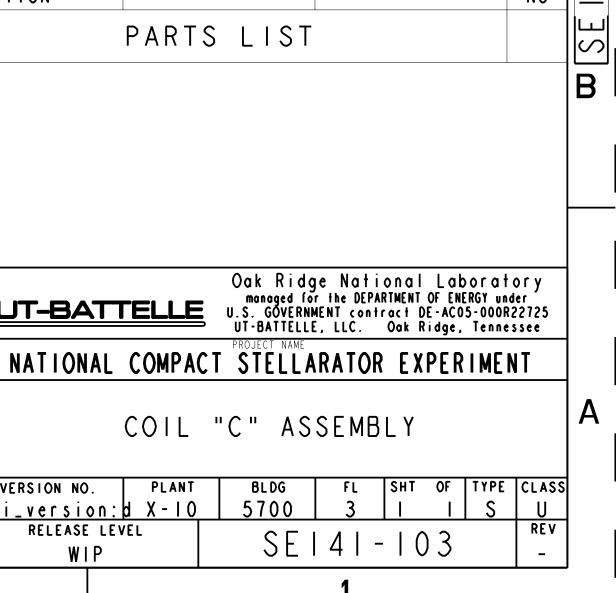
4. SEE SPECIFICATION, NCSX-CSPEC 141-01-01, FOR ADDITIONAL REQUIREMENTS. 5. GEOMETRY IS DEFINED IN PRO ENGINEER CAD MODELS/FILES SEI4I-103.ASM,



<u>SECTION A-A</u>

| n e x † | I |              | NEXT<br>ASSEMBLY          |                                 |
|---------|---|--------------|---------------------------|---------------------------------|
| assy    |   | CAGE<br>CODE | PART OR<br>IDENTIFYING NO | NOMENCLATUR<br>OR DESCRIPT      |
|         |   |              | SE 4 - 03                 | Winding Form Type C .           |
|         |   |              | SE 4 -  6                 | Type-C Winding Form             |
|         |   |              | SE 4 -07                  | Break Bottom Insulation         |
|         |   |              | SE 4 -073                 | Type-C Poloidal Break Shim      |
|         |   |              | SE 4 -075                 | Type-C Poloidal Break Upper Ins |
|         | 7 |              | SE 4 -036                 | STUD, 1-3/8-6 UNC-2             |
|         | 7 |              | SE 4 -037                 | INSULATING TUBE                 |
|         | 4 |              | SE 4 -038                 | INSULATING WASHER               |
|         | 4 |              | SE 4 -060                 | NUT, DOUBLE HEX, SELF LOCKING,  |
|         | 4 |              | SE 4 -079                 | 0.125 THICK FLAT WASI           |
|         |   |              | SEI4I-I03_SKEL            |                                 |

|   |      |     |      |      |           | _       | _        |      |     |      |   |   |   |                                      |        | DI   |             |  |      |        | 1    |
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|   |      | •   | •    | . RE | v i s i o | N APPRO | VAL      |      |     |      | • |   |   |                                      |        | DR   | AWING       | APPROV                                       | ALS  | DATE   | 1    |
|   | DATE | СНК | DEPT | DATE | ΡE        | REQ     | DATE     | ORNL | DOE | DATE |   |   |   |                                      |        |      |             |  |      | :      |      |
|   |      |     |      |      |           |         |          |      |     |      |   |   |   |                                      |        |      | •           |  |      | : P    | roı_ |
|   |      |     |      |      |           |         |          |      |     |      |   |   |   | FINISH .125 UNLESS<br>OTHERWISE SPEC | CIFIED | PPPL | D;RFT       |  |      | :      | VER  |
|   |      |     |      |      |           |         |          |      |     |      |   |   |   | BREAK SHARP EDGES .06                |        | REQ  | •           |  |      | :      |      |
|   |      |     |      |      |           | _       | <b> </b> |      |     |      |   |   |   |                                      | 0°15′  | PJ   | •           |  |      | :      |      |
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|   |      |     |      |      |           |         |          |      |     |      |   |   |   | FRACTIONS                            | •••    | DEPT | •           |  |      | * *    |      |
|   |      |     |      |      |           |         |          |      |     |      |   |   |   | SPECIFIED                            |        | SECT | •           |  |      | :      | N/   |
|   |      |     |      |      |           |         |          |      |     |      |   |   |   | UNLESS OTHERWISE                     | Ε      | СНК  | •           |  |      | ;      |      |
|   |      |     |      |      |           |         |          |      |     |      |   |   |   | TOLERANCES                           |        |      | <u>G L(</u> | <u>)                                    </u> |      | 5-5-04 | ש    |
|   |      |     |      |      |           |         |          |      |     |      |   |   |   | SCALE NOTE                           | E D    |      |             | LLIA   | MSON |        |      |
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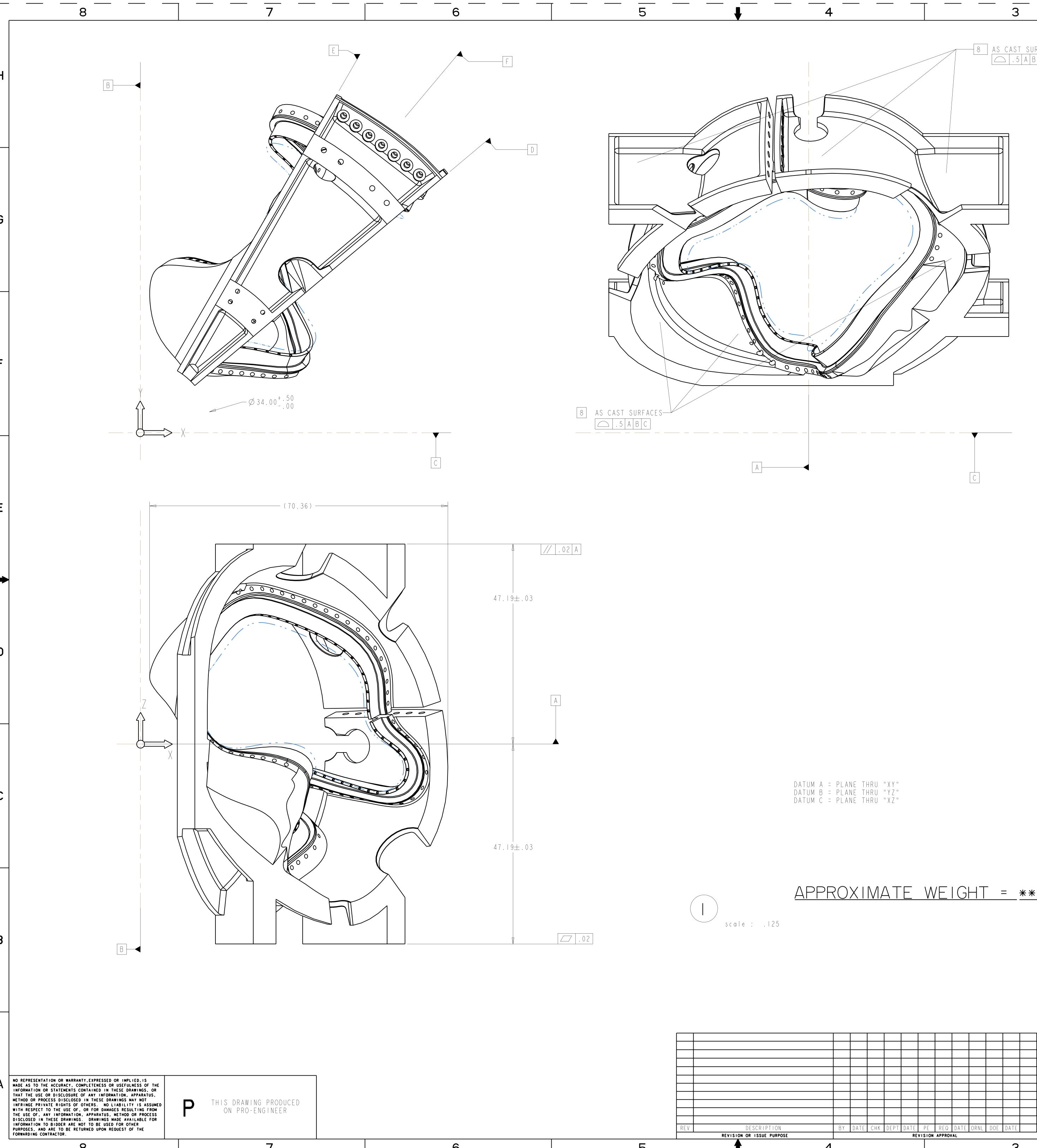
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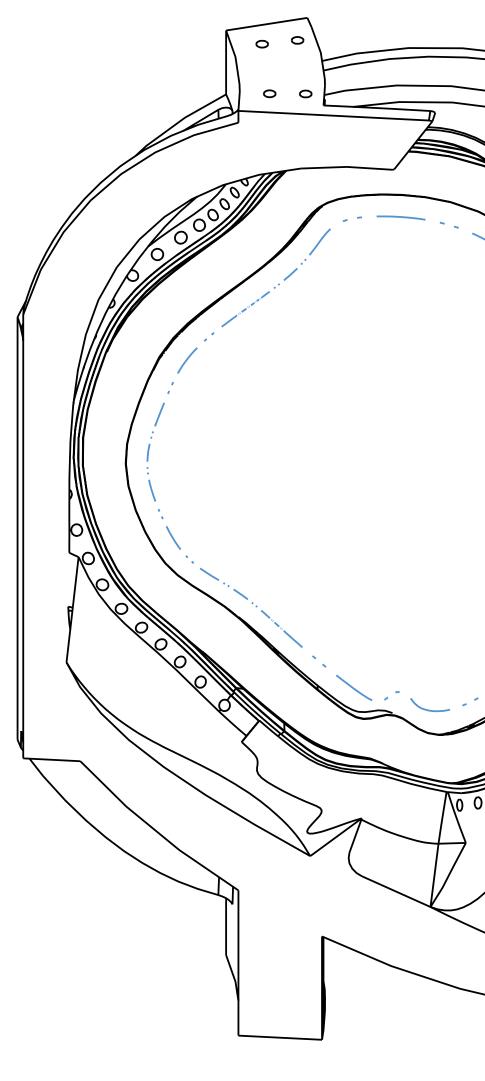
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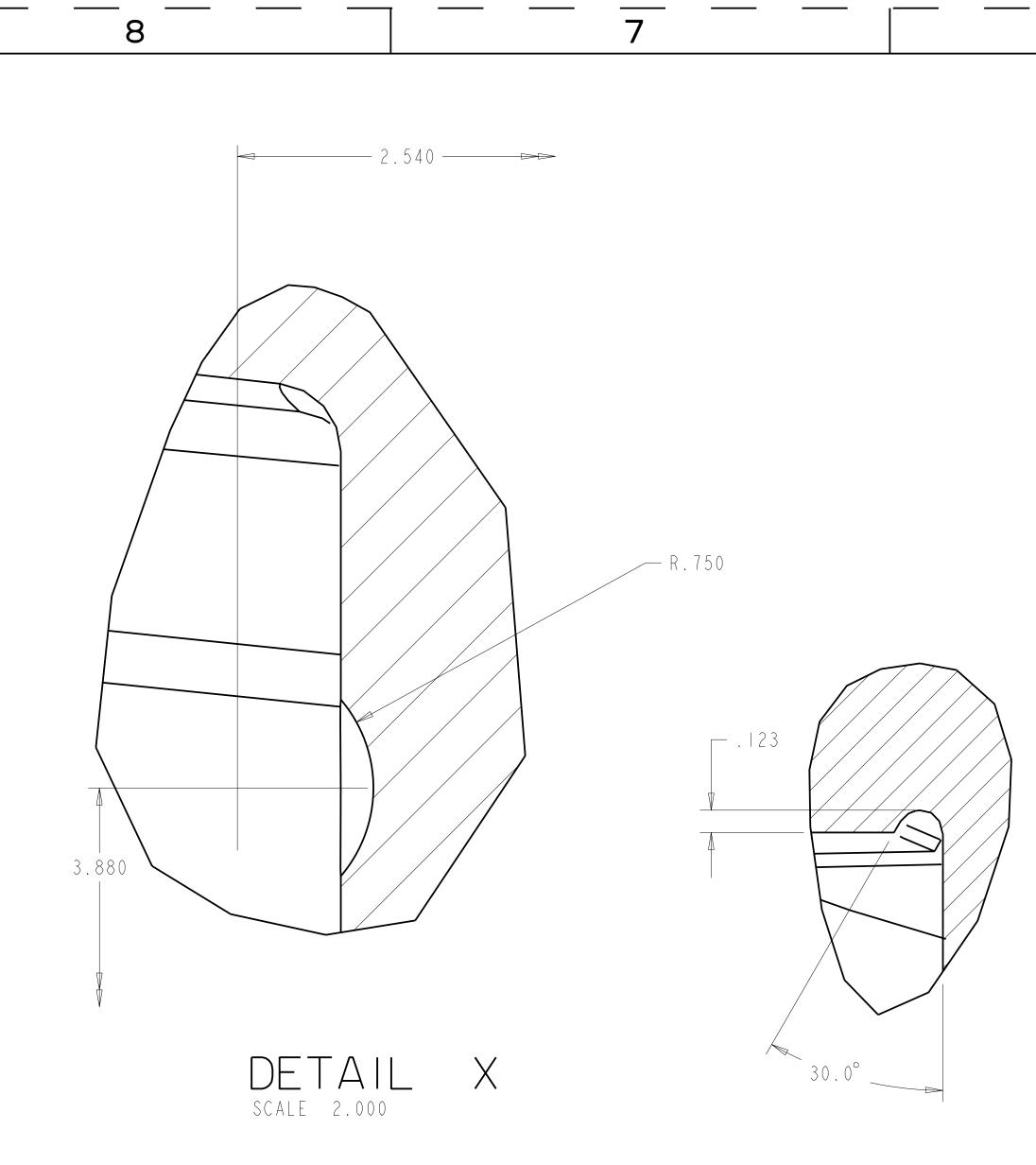
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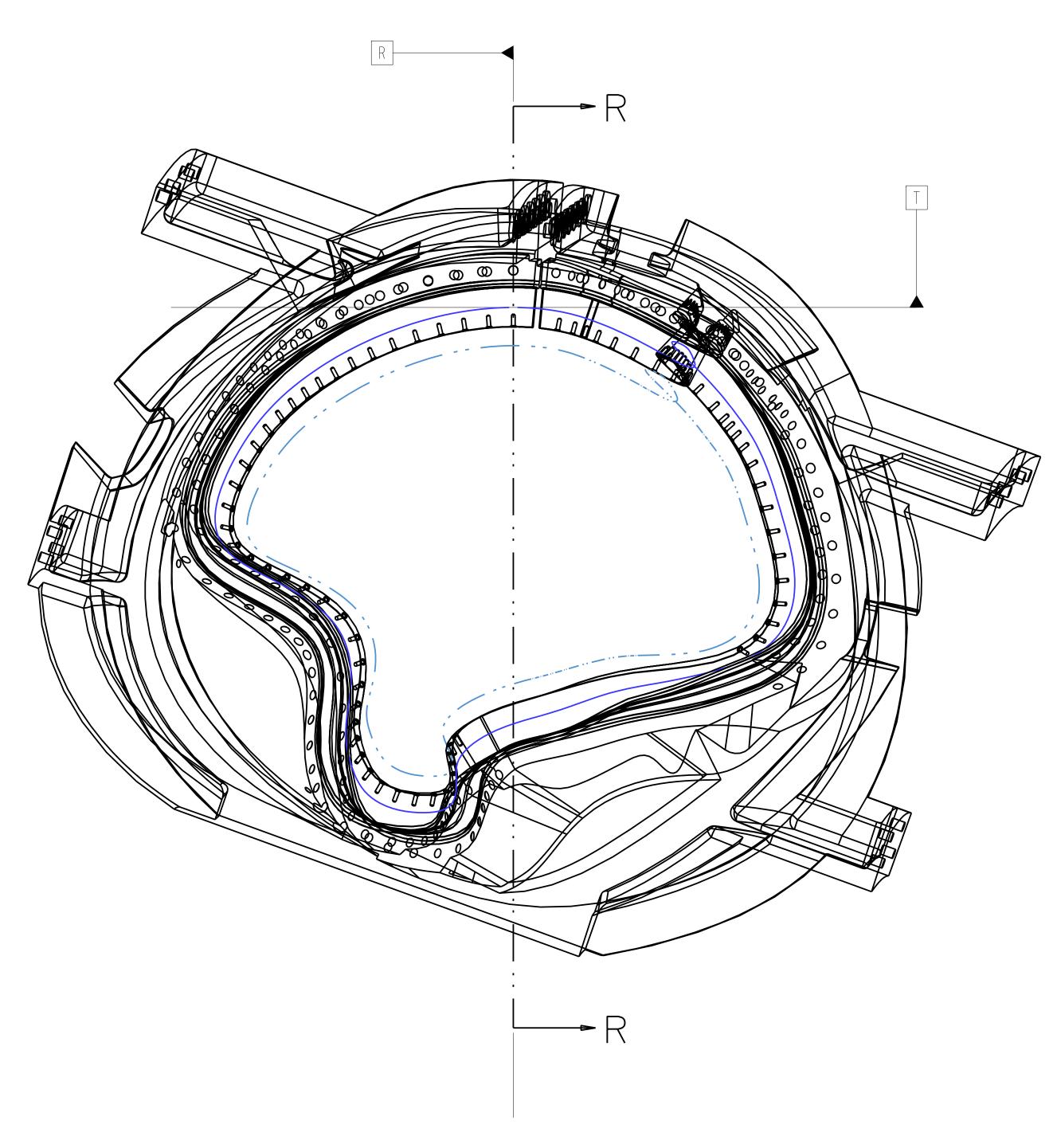
|  | 2 NEXT ASS'Y: 1 FINAL ASS'Y:  | -           |
|--|---|-------------|
|  | OTES:<br>I. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI YI4.5M<br>2. DIMENSIONS ARE IN INCHES<br>3. REMOVE ALL DIRT, GREASE, AND OIL. VISUALLY INSPECT AFTER<br>CLEANING.  | <br> <br> H |
|  | 4. SEE SPECIFICATION, NCSX-CSPEC 141-01-01, FOR ADDITIONAL REQUIREMENTS.  |             |
|  | 5. GEOMETRY IS DEFINED IN PRO ENGINEER CAD MODELS/FILES SEI4I-II6B.PRT,<br>6. DRAWING AND MODELS COMBINED DEFINE FINISHED MACHINED PART.<br>7. MACHINED FINISHED SURFACES TO CAD DATA, PROFILE WITHIN 0.020"  |             |
|  | PROFILE TOLERANCE IS BILATERAL, ie. 0.010" EITHER SIDE OF THE REFERENCE<br>SURFACE.<br>8. AS-CAST SURFACES SHOWN IN NOMINAL MATERIAL CONDITION, THICKNESS   |             |
|  | TOLERENCE +/- 0.25. SURFACE PROFILE MUST BE WITHIN 0.5 INCHES OF CAD DATA,<br>EXCEPT IN REGIONS OF INTERSECTING SURFACES WHERE FILLETS ARE<br>EXPECTED.<br>9. DIMENSIONS APPLY AT ROOM TEMPERATURE. OPERATING TEMP 80 K.  | G           |
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| <u>BS</u>  |   | 9           |
| A S S D - I CAGE                                 | E IDENTIFYING NO OR DESCRIPTION MATERIAL SPECIFICATION NO   | 4   -       |
| n e x +<br><b>S E I 4</b>                        | ASSEMBLY PARTS LIST   | B           |
|  |   |             |
| SCAL   | DRW       G       LOVEII       5-5-04       UT-BATTELLE       U.S.       GOVERNMENT contract DE-AC05-000R22725         TOLERANCES       CHK       :       :       UT-BATTELLE, LLC.       Oak Ridge, Tennessee  |             |
| FRACTI<br>XX DEC<br>XXX DEC<br>XXX DEC<br>ANGLES | SPECIFIED       SECT:       :       NATIONAL COMPACT STELLARATOR EXPERIMENT         ONS       :       DEPT:       :       NATIONAL COMPACT STELLARATOR EXPERIMENT         IMALS       ±.01       PE       :       MODULAR COLL "C"         CIMALS       ±.005       CR       :       MODULAR COLL "C"   | <br>A       |
| BREAK SH   | ARP EDGES .06 MAX       REQ       :         .125 UNLESS<br>OTHERWISE SPECIFIED       PPPL DRFT       :       VERSION NO.       PLANT       BLDG       FL       SHT       OF       TYPE       CLASS         .125 UNLESS<br>OTHERWISE SPECIFIED       :       :       roi_version: d       X-10       5700       3       I       3       S       U         :       :       RELEASE LEVEL       SF       A       -       I       6       REV |             |
| I  | DRAWING APPROVALS DATE WIP OLITITO -  |             |

|   | 3   |  | 2  | NEXT ASS'Y:  | <b>1</b> <sub>FINAL ASS'Y:</sub>   |                       |
|---|---|--|--|--|--|-----------------------|
|   | 8       AS CAST SURFACES         .5       A         .5       A         B       C  | <ul> <li>2. DIME</li> <li>3. REMO<br/>CLEA</li> <li>4. SEI<br/>REQU</li> <li>5. GEON</li> <li>6. DRAV</li> <li>7. MAG<br/>PROF<br/>SURF</li> <li>8. AS<br/>TOLE<br/>EXCE<br/>EXPE</li> </ul> | ENSIONS ARE IN INCHE<br>OVE ALL DIRT, GREASE<br>ANING.<br>E SPECIFICATION, NCS<br>JIREMENTS.<br>METRY IS DEFINED IN<br>VING AND MODELS COMB<br>CHINED FINISHED SURF<br>FILE TOLERANCE IS BI<br>FACE.<br>-CAST SURFACES SHOWN<br>ERENCE +/- 0.25. SUR<br>EPT IN REGIONS OF IN<br>ECTED. | ID TOLERANCES PER ANSI YI4   | .5M<br>CT AFTER<br>DITIONAL<br>ILES SEI4I-II6B.PRT,<br>INED PART.<br>WITHIN 0.020"<br>R SIDE OF THE REFERENCE<br>NITION, THICKNESS<br>IN 0.5 INCHES OF CAD DATA<br>FILLETS ARE   |                       |
|   |   |  |  |  |  | <br> F <br>           |
|   |   |  |  |  |  |                       |
|   | C   |  |  |  |  | <br> E                |
|   |   |  |  |  |  |                       |
|   |   |  |  |  |  |                       |
|   |   |  |  |  |  |                       |
| ANE THRU "XY"<br>ANE THRU "YZ"<br>ANE THRU "XZ"   |   |  |  |  |  | <br>  C  <br>         |
|   |   |  | <u> S(</u>   | <u>ometric vie</u>   | <u> </u>   |                       |
| <u>XIMATE WEIC</u>  |   | SEI4I  | FOR NON<br>YING NO OR I<br>XT  | E" WINDING FORM SEE NO<br>MENCLATURE<br>DESCRIPTION MATER<br>PARTS | RIAL SPECIFICATION F   | - B<br>SE   4   -   6 |
| Image: Second state sta | Image: | XXX DECIMALS ±.005   | DRW G LOVETT S<br>CHK :<br>SECT :<br>DEPT :<br>PE :<br>CR :<br>PJ :<br>REQ :<br>PPPL QRFT :<br>:   | NATIONAL COMPACT   | Oak Ridge National Laborator<br>managed for the DEPARTMENT OF ENERGY under<br>U.S. GOVERNMENT contract DE-AC05-000R22<br>UT-BATTELLE, LLC. Oak Ridge, Tennesse<br>PROJECT NAME<br>STELLARATOR EXPERIMENT<br>AR COIL "C"<br>BLDG FL SHT OF TYPE C<br>5700 3 1 3 S<br>SEI4I-116<br>1 |                       |

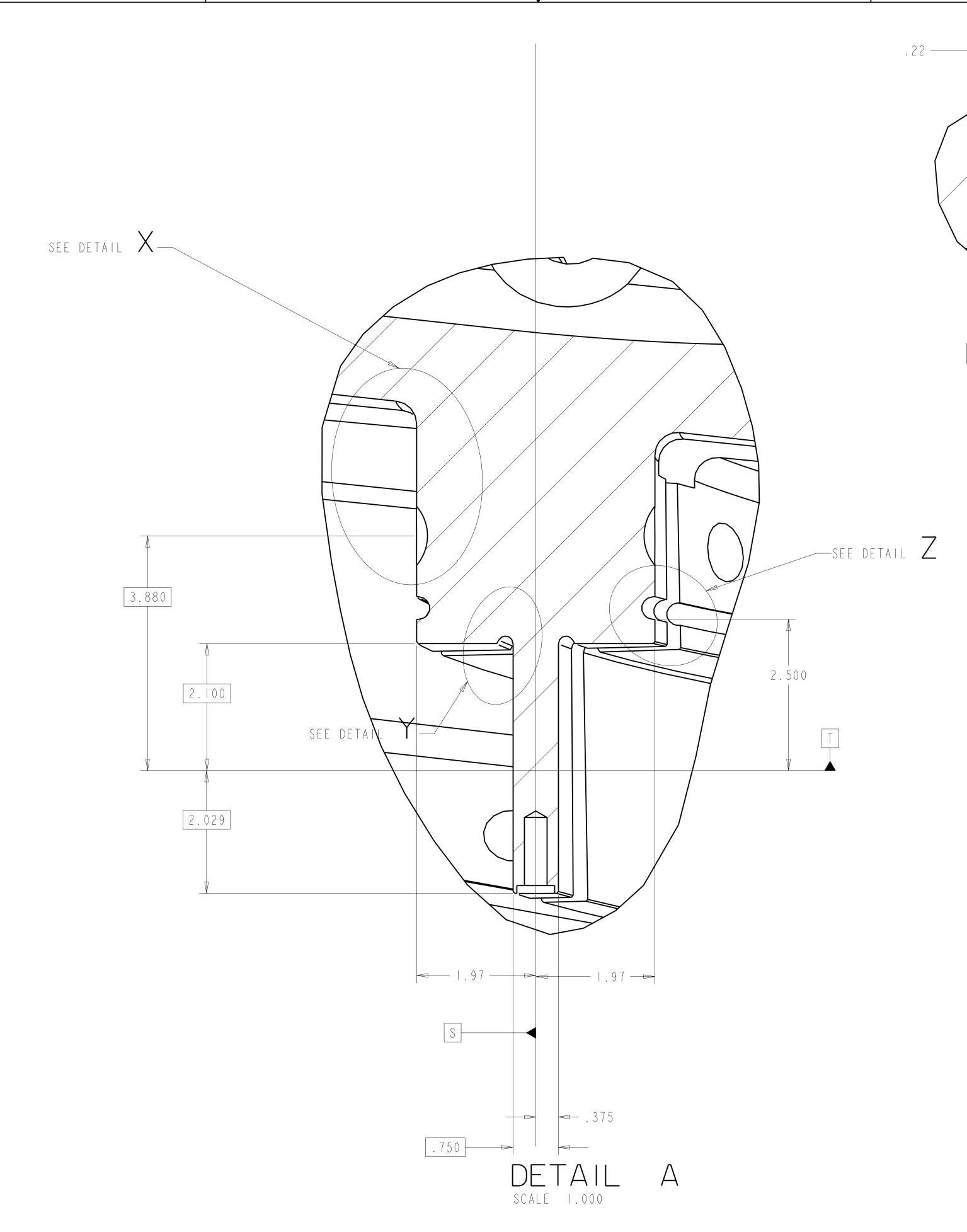


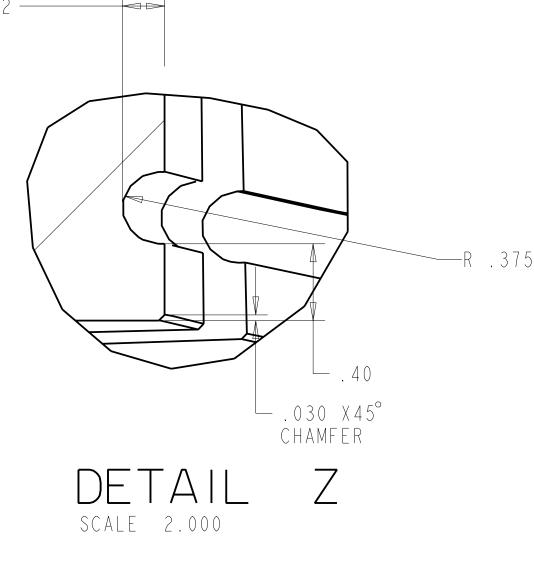
DETAIL Y Scale 2.000

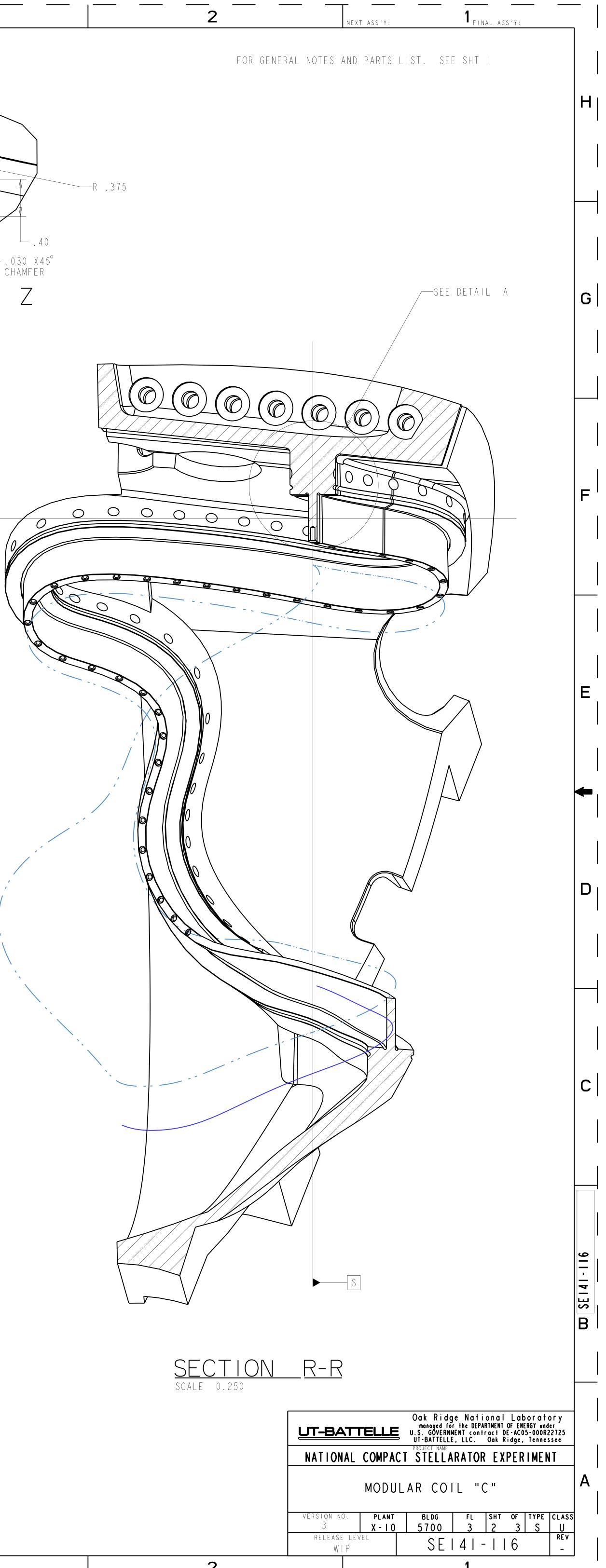
DATUM R = PLANE NORMAL TO WINDING CENTER DATUM S = PLANE PASSING THRU WINDING CENETER AND X VECTOR AT DATUM R DATUM T = PLANE PASSING THRU WINDING CENTER ORTHONGONAL TO DATUM S DETAIL A IS TYPICAL TO ALL POINTS ALONG WINDING CENTER.

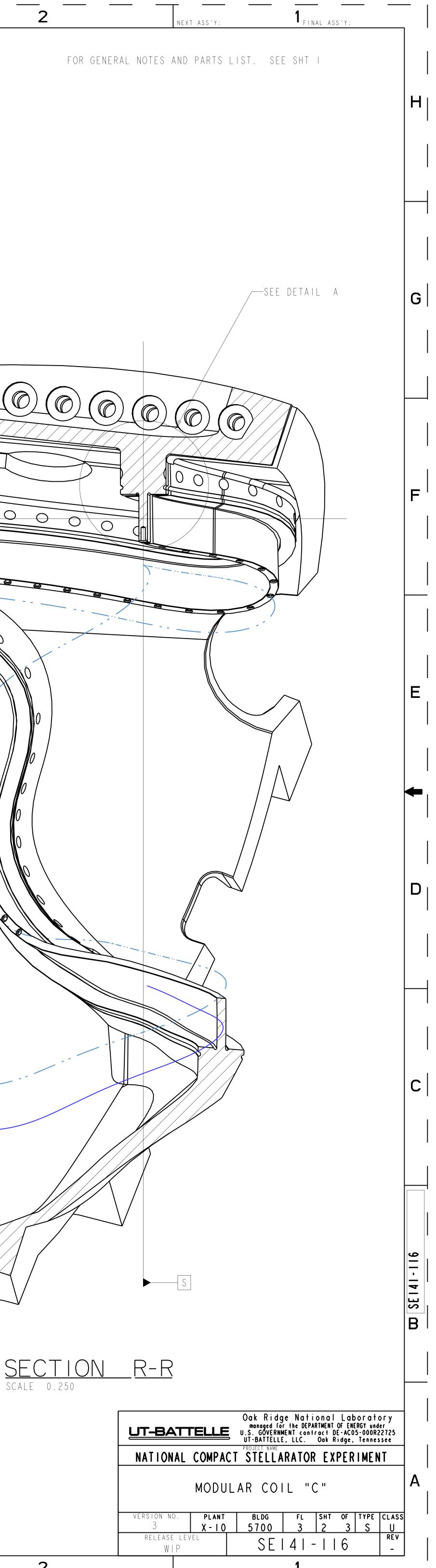


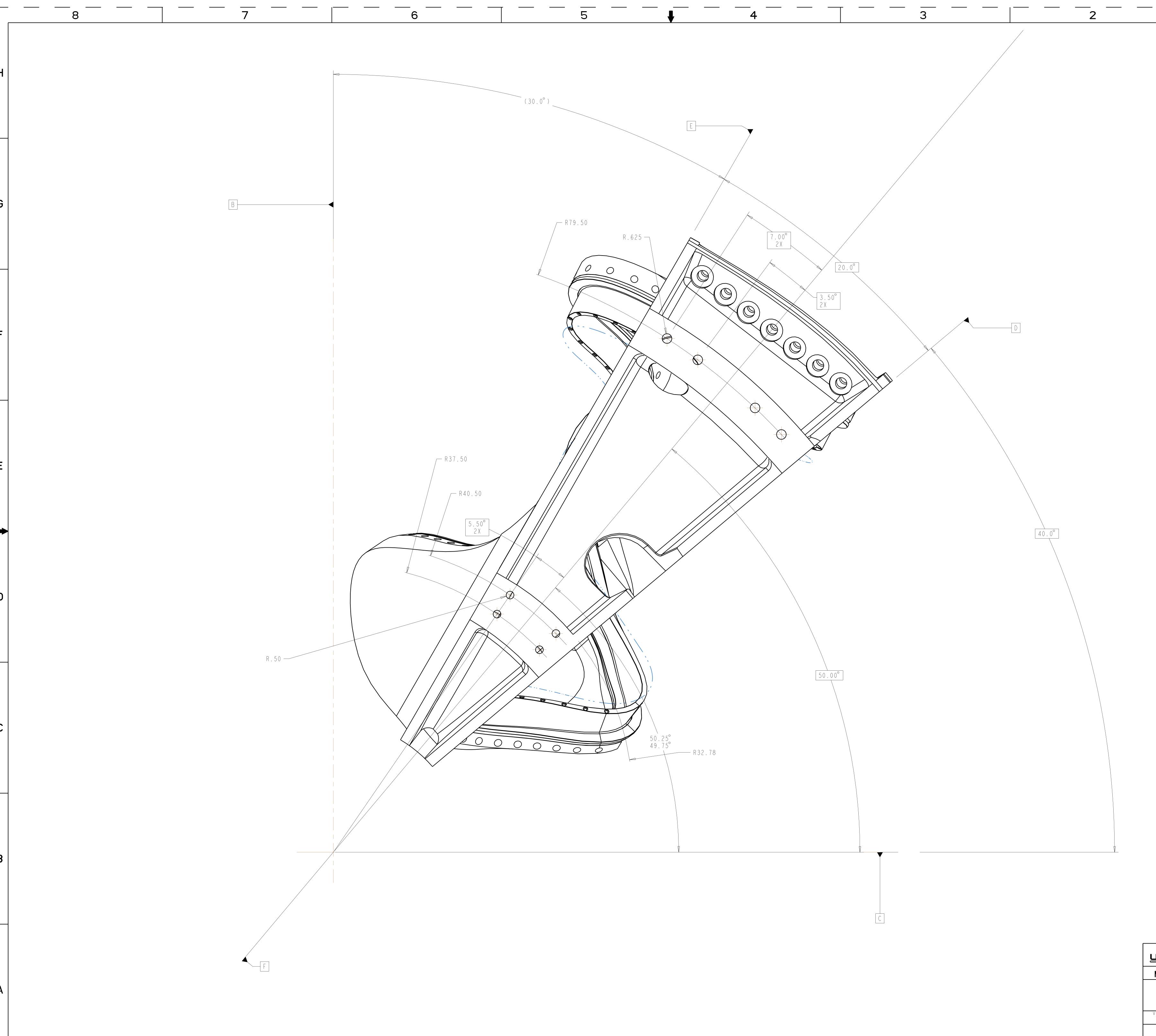
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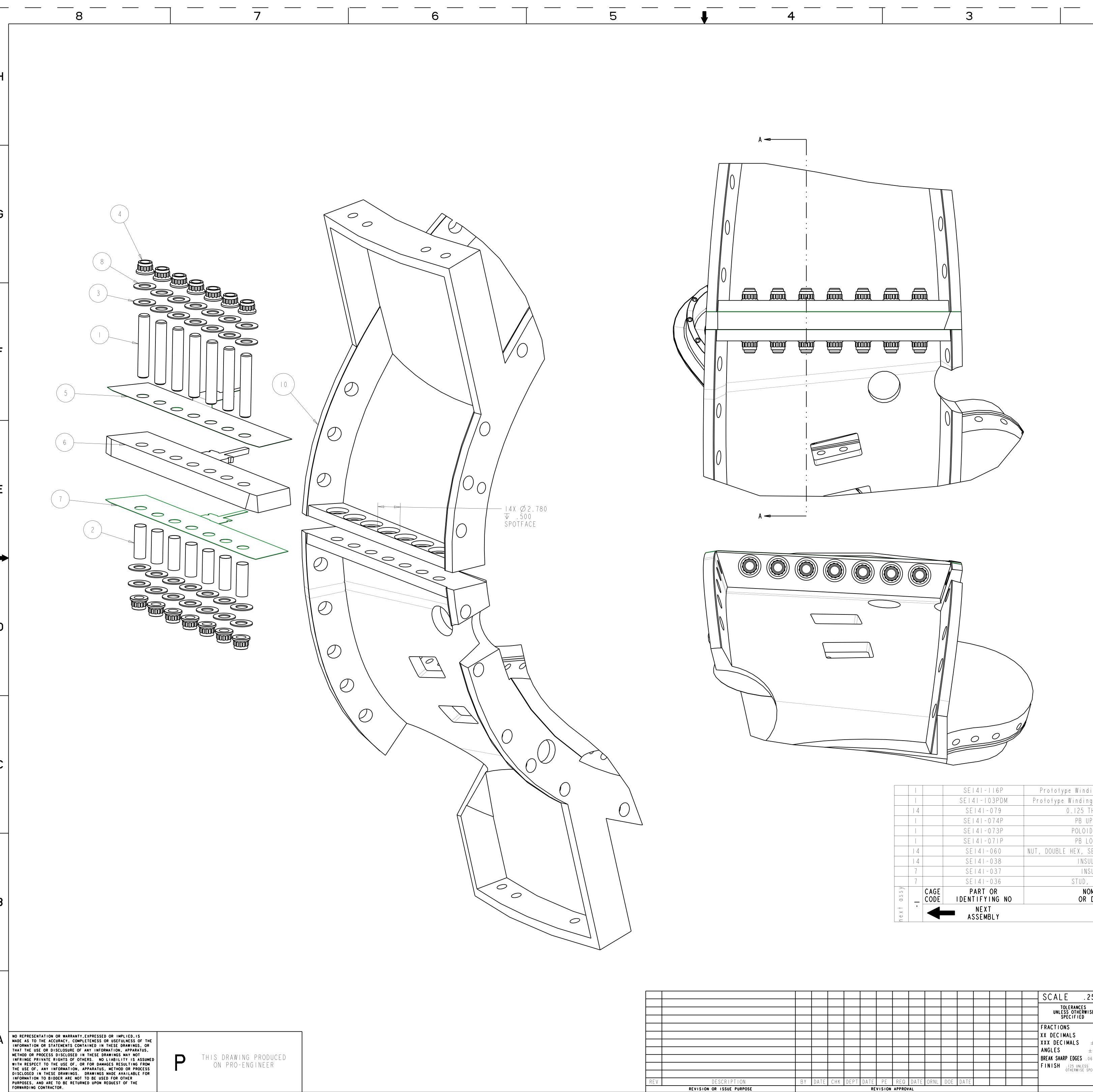
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| NEXT ASS'Y:           |   | FINAL ASS'Y:                        |                |
|-----------------------|---|-------------------------------------|----------------|
|                       |   |                                     | <br> <br>      |
|                       |   |                                     | G              |
|                       |   |                                     | <br>F          |
|                       |   |                                     | <br>           |
|                       |   |                                     | <br>E<br>      |
|                       |   |                                     |                |
|                       |   |                                     | <br>D          |
|                       |   |                                     | <br> <br> <br> |
|                       |   |                                     | B SE 141 - 116 |
| IAL COMPACT<br>MODULA | Oak Ridge N<br>managed for the<br>J.S. GOVERNMENT<br>UT-BATTELLE, LLO<br>PROJECT NAME<br><b>STELLARA</b><br>AR COIL<br>BLDG F<br>5700 3<br>SEI4<br>SEI4 | <u>ГОК ЕХРЕК</u><br>"С"<br>L Sht of | <br>A<br> <br> |

**1** <sub>final ass'y:</sub>

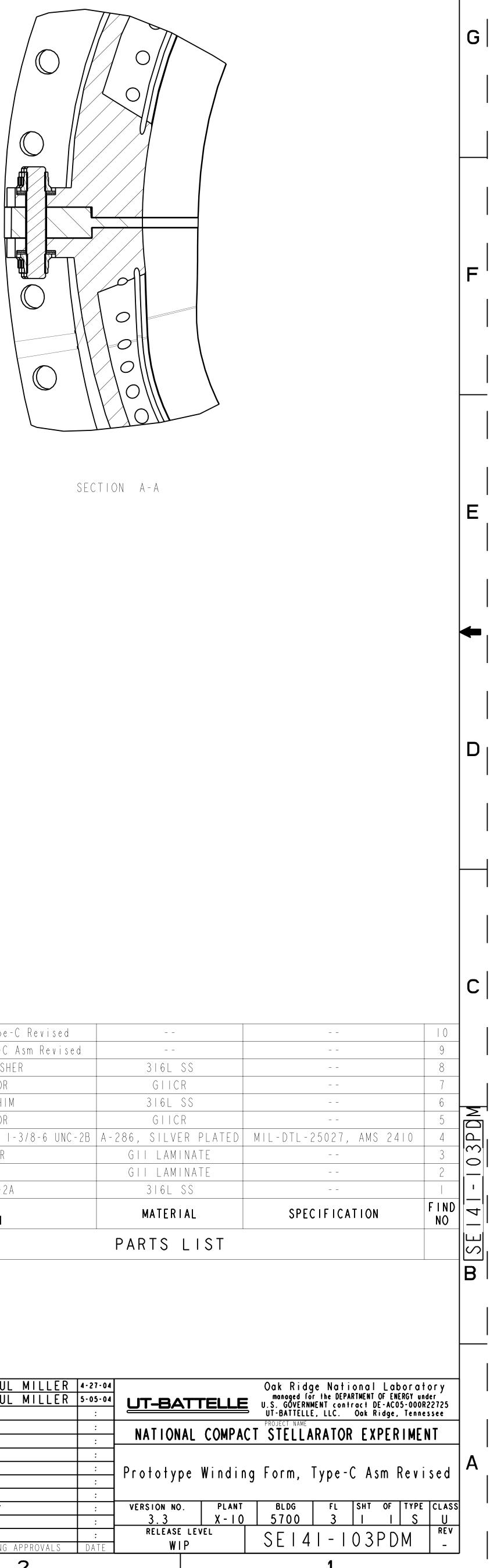
# Prototype Winding Form Asm



| REV | DESCRIPTION | ΒY |
|-----|-------------|----|
|     |             |    |

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| тгТ | СНК  | DEPT | DATE | ΡE | REQ | DATE | ORNL | DOE | DATE |  |   | :          |          |
|     |      |      |      |    |     |      |      |     |      |  |   | :          | <u> </u> |
|     |      |      |      |    |     |      |      |     |      |  | FINISH .125 UNLESS<br>OTHERWISE SPECIFIED PPPL CRFT | :          | VE       |
|     |      |      |      |    |     |      |      |     |      |  | BREAK SHARP EDGES .06 MAX REQ :                     | :          |          |
|     |      |      |      |    |     |      |      |     |      |  | <b>ANGLES</b> $\pm 0^{\circ} 15'$ <b>PJ</b>         | :          |          |
|     |      |      |      |    |     |      |      |     |      |  | XXX DECIMALS $\pm .005$ CR :                        | :          | Pr       |
|     |      |      |      |    |     |      |      |     |      |  | XX DECIMALS ±.01 PE :                               | :          |          |
|     |      |      |      |    |     |      |      |     |      |  | FRACTIONS   | :          |          |
|     |      |      |      |    |     |      |      |     |      |  | SPECIFIED SECT :                                    | :          |          |
|     |      |      |      |    |     |      |      |     |      |  | UNLESS OTHERWISE CHK                                | :          |          |
|     |      |      |      |    |     |      |      |     |      |  | TOLERANCES DRW PAUL MILL                            | ER 5-05-04 | ╡╘       |
|     |      |      |      |    |     |      |      |     |      |  | SCALE . 25 DES PAUL MILL                            | ER 4-27-04 |          |

| n e x +   |              | NEXT<br>ASSEMBLY          |   | PAF    |
|-----------|--------------|---------------------------|---|--------|
| a \$ \$ } | CAGE<br>CODE | PART OR<br>IDENTIFYING NO | NOMENCLATURE<br>OR DESCRIPTION                |        |
| 7         |              | SE 4 -036                 | STUD, I-3/8-6 UNC-2A                          |        |
| 7         |              | SE 4 -037                 | INSULATING TUBE                               | GI     |
|           | 4            | SE 4 -038                 | INSULATING WASHER                             | GI     |
| .         | 4            | SE 4 -060                 | NUT, DOUBLE HEX, SELF LOCKING, I-3/8-6 UNC-2B | A-286, |
|           |              | SE 4 -07 P                | PB LOWER INSULATOR                            |        |
|           |              | SE 4 -073P                | POLOIDIAL BREAK SHIM                          |        |
|           |              | SE 4 -074P                | PB UPPER INSULATOR                            |        |
|           | 4            | SE 4 -079                 | 0.125 THICK FLAT WASHER                       |        |
|           |              | SE 4 - 03PDM              | Prototype Winding Form, Type-C Asm Revised    |        |
|           |              | SE 4 -  6P                | Prototype Winding Form, Type-C Revised        |        |



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- 2. DIMENSIONS ARE IN INCHES

NOTES:

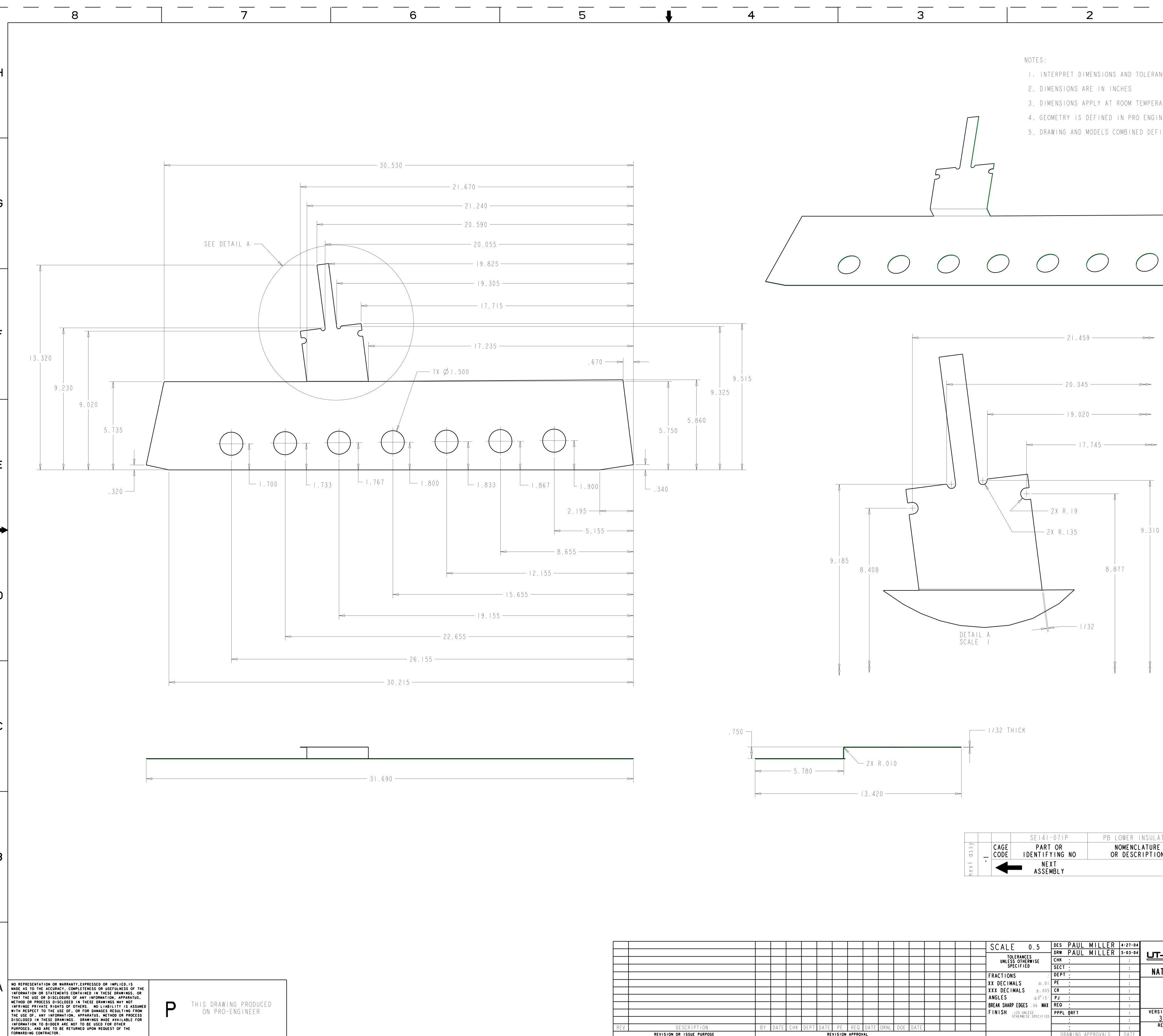
3. DIMENSIONS APPLY AT ROOM TEMPERATURE. OPERATING TEMP 80 K 4. GEOMETRY IS DEFINED IN PRO ENGINEER CAD MODELS/FILES 5. DRAWING AND MODELS COMBINED DEFINE FINISHED MACHINED PART

I. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI YI4.5M

NEXT ASS'Y:

FINAL ASS'Y:

| **H** '



C

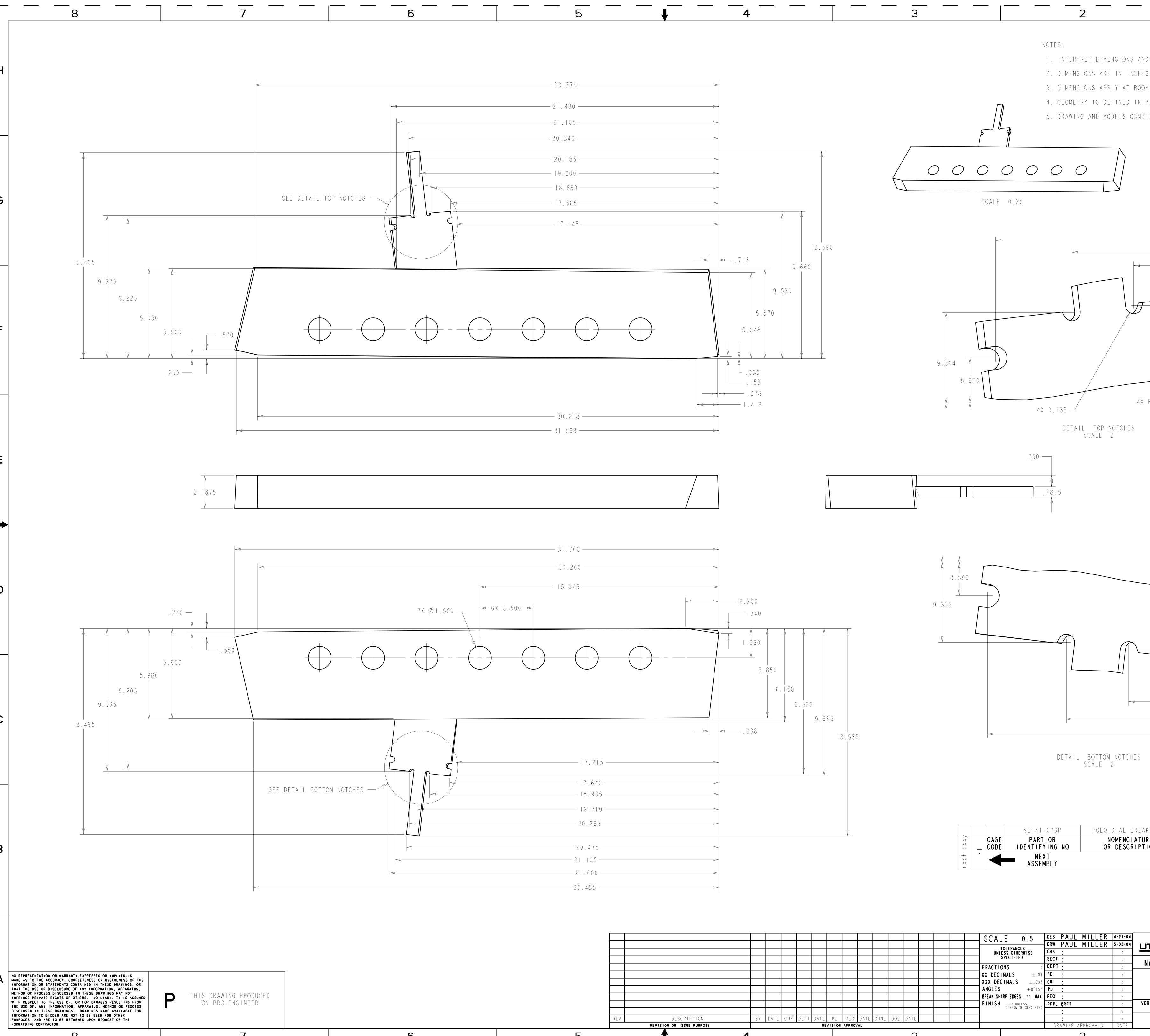
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REVISION OR ISSUE PURPOSE

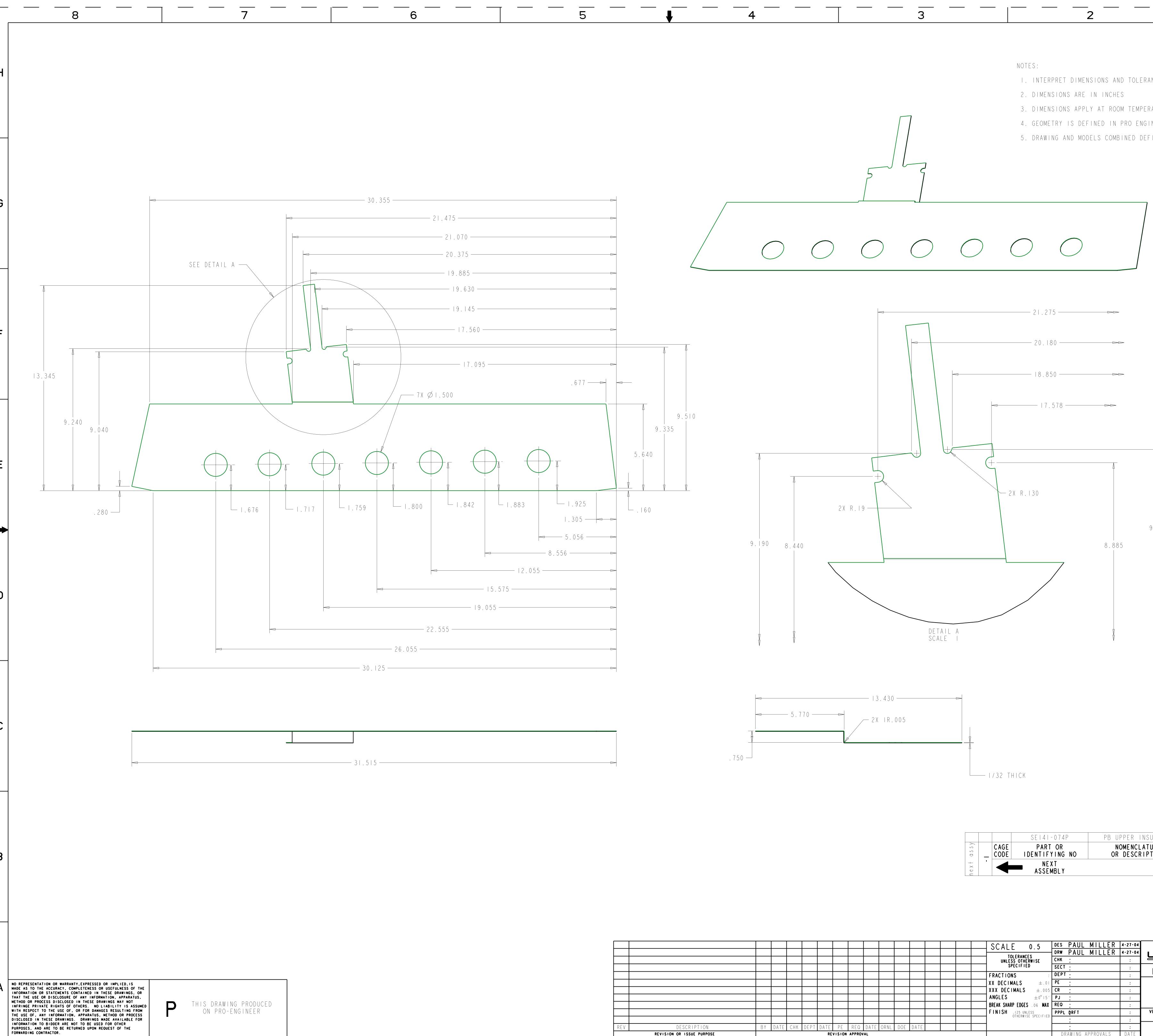
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|-----|-------|------|------|--------|--------|------|------|-----|--------------|---|---|---------|----------------------|----------------------|------|--------------|----------|---------|----|
|     |       |      | REV  | VISION | APPROV | /AL  |      |     |              |   |   |         |                      |                      | DR   | AWING A      | PPROVALS | DATE    |    |
| DAT | E CHK | DEPT | DATE | ΡE     | REQ    | DATE | ORNL | DOE | DATE         |   |   |         |                      |                      |      | *            |          | :       |    |
|     |       |      |      |        |        |      |      |     |              |   |   |         | 0.112.111            |                      |      | •            |          | :       |    |
|     |       |      |      |        |        |      |      |     |              |   |   | FINISH  | .125 UNI<br>OTHERWIS | _ESS<br>SE_SPECIFIED | PPPL | <b>QRF</b> T |          | :       | VE |
|     |       |      |      |        |        |      |      |     |              |   |   |         |                      | 5.06 MAX             | REQ  | •            |          | :       |    |
|     |       |      |      |        |        |      |      |     |              |   |   | ANGLES  |                      | ±0°15′               | PJ   | •            |          | :       |    |
|     |       |      |      |        |        |      |      |     |              |   |   | XXX DEC |                      | $\pm$ .005           | CR   | •            |          | :       |    |
|     |       |      |      |        |        |      |      |     |              |   |   | XX DEC  |                      | ±.01                 | PE   | •            |          | :       |    |
|     |       |      |      |        |        |      |      |     |              |   |   | FRACTI  |                      | :                    | DEPT | •            |          | :       |    |
|     |       |      |      |        |        |      |      |     |              |   |   |         | SPECIFIE             | D                    | SECT | •            |          | :       | N  |
|     |       |      |      |        |        |      |      |     |              |   |   | UNL     | ESS OTHE             | RWISE                | СНК  | •            |          | :       |    |
|     |       |      |      |        |        |      |      |     |              |   |   |         | TOLERANC             |                      | DRW  | PAUL         | MILLER   | 5-03-04 | Ľ  |
|     |       |      |      |        |        |      |      |     |              |   |   | SCAL    | E                    | 0.5                  | DES  | PAUL         | MILLER   | 4-27-04 |    |
|     | 1     | 1    | . I  |        | 1      | 1    | 1    | 1   |              | 1 | 1 | 1       |                      |                      | 1    |              |          | r (     |    |

| NEXT ASS'Y: 1 FINAL ASS'Y:  |                  |
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| RANCES PER ANSI YI4.5M  | H                |
| ERATURE. OPERATING TEMP 80 K<br>IGINEER CAD MODELS/FILES<br>DEFINE FINISHED MACHINED PART   |                  |
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| TION MATERIAL SPECIFICATION N   |                  |
| PARTS LIST  | B<br>B<br>B      |
|   |                  |
| <b>JT-BATTELLE</b><br>PROJECT NAME<br>Dak Ridge National Laborator<br>managed for the DEPARTMENT OF ENERGY under<br>U.S. GOVERNMENT contract DE-AC05-000R227<br>UT-BATTELLE, LLC. Oak Ridge, Tennesse | y<br>125<br>se   |
| NATIONAL COMPACT STELLARATOR EXPERIMENT   | ·                |
| 3.3 X-10 5700 3 1 1 S<br>RELEASE LEVEL SEI11-071P   | LASS<br>U<br>REV |
| *** JUI41 0711  | <u> </u>         |



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| NEXT ASS'Y: 1 FINAL ASS'Y:  |                                   |
|---|-----------------------------------|
| ND TOLERANCES PER ANSI YI4.5M<br>ES<br>OM TEMPERATURE. OPERATING TEMP 80 K<br>PRO ENGINEER CAD MODELS/FILES<br>BINED DEFINE FINISHED MACHINED PART  | H                                 |
|   | G                                 |
| 21.273<br>20.020<br>19.010<br>  | F                                 |
|   | <br> E                            |
|   | <b>4</b>                          |
|   |                                   |
|   |                                   |
|   | C                                 |
| AK SHIM 316L SS<br>URE MATERIAL SPECIFICATION FIND<br>NO<br>PARTS LIST  | <b>B</b> <u>SE   4   - 0 7 3P</u> |
| UT-BATTELLE       Oak Ridge National Laboratory<br>managed for the DEPARTMENT OF ENERGY under<br>U.S. GOVERNMENT contract DE-ACOS-000R22725<br>UT-BATTELLE, LLC. Oak Ridge, Tennessee         NATIONAL COMPACT STELLARATOR EXPERIMENT         PROJECT NAME         POLOIDIAL BREAK SHIM         VERSION NO.       PLANT         BLDG       FL         STID       STOO         RELEASE LEVEL       SEI4I-073P         ***       AL |                                   |

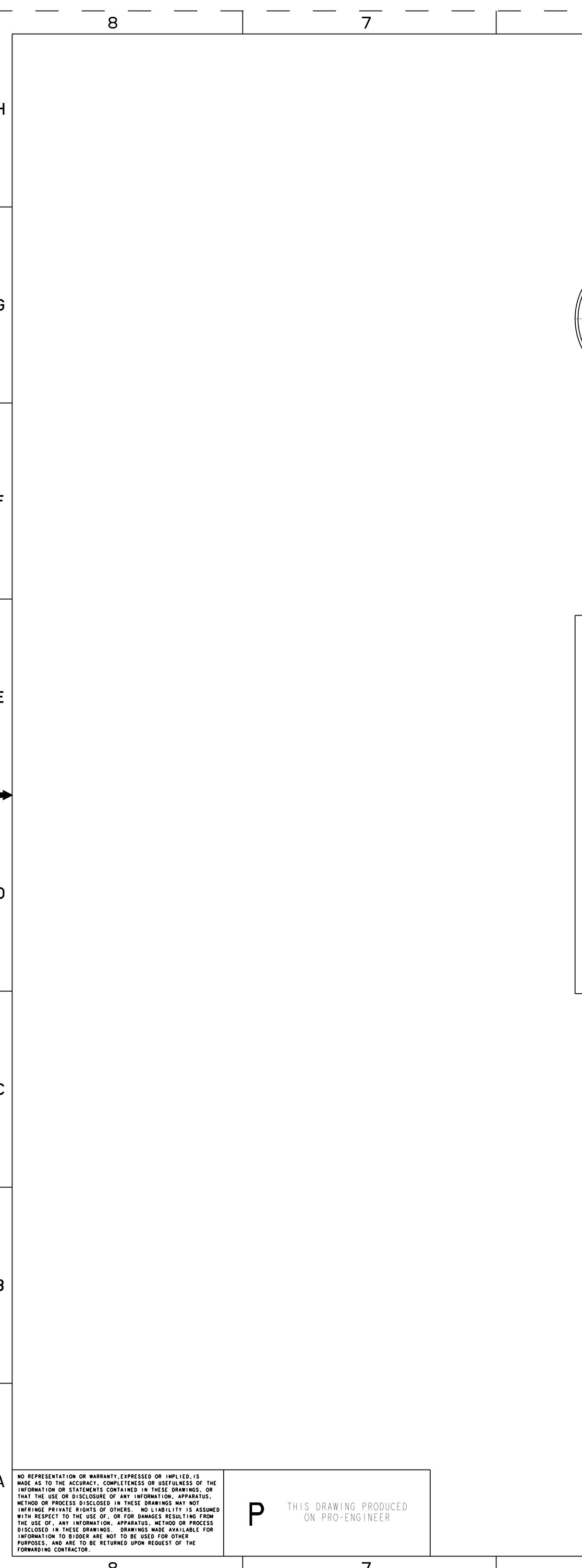


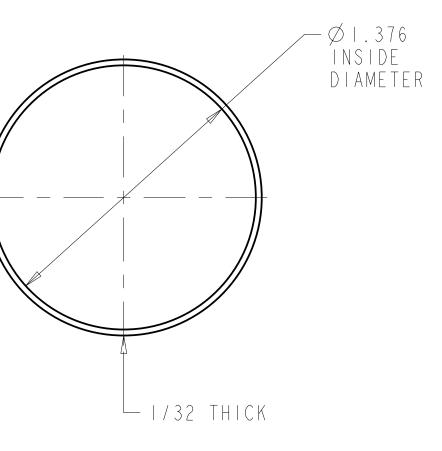
| REV | DESCRIPTION               | ΒY |
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|     | REVISION OR ISSUE PURPOSE |    |

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|  | 2   |   | NEXT ASS'Y:                              | <b>1</b> <sub>FINAL ASS'Y:</sub>  |  |
|--|---|---|--|---|--|
|  | NOTES:<br>1. INTERPRET DIMENSI<br>2. DIMENSIONS ARE IN<br>3. DIMENSIONS APPLY<br>4. GEOMETRY IS DEFIN<br>5. DRAWING AND MODEL | I INCHES<br>AT ROOM TEMPER<br>IED IN PRO ENGI | ATURE. OPERATING T<br>NEER CAD MODELS/FI | EMP 80 K<br>LES   | <br> H <br>  |
|  |   |   |  |   | G  |
|  | 21.275<br>20.180  |   |  |   | <br> <br> <br>   |
|  | —— 17.578 ———   |   |  |   |  |
| - 2X   | R.130   |   | ). 3   5                                 |   | E  |
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| So tx and the second se | SEI4I-074P<br>PART OR<br>IDENTIFYING NO<br>NEXT<br>ASSEMBLY   | PB UPPER INS<br>NOMENCLAT<br>OR DESCRIP       |  | RIAL SPECIFICATION  | B<br>B<br>B<br>B<br>B<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C |
| FRACTIONS<br>XX DECIMAL<br>XXX DECIMA<br>ANGLES<br>BREAK SHARP E   | RANCES<br>OTHERWISE<br>IFIED<br>SECT:<br>CHK:<br>DEPT:<br>S ± 01 PE:  |   | NATIONAL COMPACT                         | Oak Ridge National Laborat<br>managed for the DEPARTMENT OF ENERGY und<br>U.S. GOVERNMENT contract DE-AC05-000R<br>UT-BATTELLE, LLC. Oak Ridge, Tenne<br>PROJECT NAME<br>STELLARATOR EXPERIMEN<br>ER INSULATOR<br>BLDG FL SHT OF TYPE<br>5700 3 1 1 S<br>SEI4I-074P | ory<br>der<br>22725<br>ssee<br>NT<br>A<br>CLASS<br>U<br>REV<br>-                                 |

| 3   |  | 2                                      | NEXT ASS'Y:   | <b>1</b> <sub>FINAL ASS'Y:</sub>  |                 |
|---|--|--|---|---|-----------------|
|   | NOTES:   |  |   |   |                 |
|   |  |  | RANCES PER ANSI YI4.5M  | H   |                 |
|   | 4. GEOMETRY IS   | DEFINED IN PRO EN                      | ERATURE. OPERATING TEMP<br>GINEER CAD MODELS/FILES<br>EFINE FINISHED MACHINED |   | <br>_           |
| 5   |  |  |   |   |                 |
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| 0 8.440   |  | 8.885                                  | 9.315   |   | •               |
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| DETAIL A<br>Scale i   |  | V                                      | Ŷ   |   |                 |
| 3.430   |  |  |   |   |                 |
| 5.770 2X IR.005   |  |  |   | C   | ,  <br>,        |
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|   | — 1/32 THICK   |  |   |   |                 |
|   | SEI4I-074P   | PB UPPER II                            |   |   | -   <br>> <br>- |
| n e x t<br>a s s  | - CAGE PART OR<br>CODE IDENTIFYING NO<br>NEXT<br>ASSEMBLY                                      | NOMENCLA<br>OR DESCR                   | PARTS LI  |   | ו _<br> ר<br> ב |
|   |  |  |   |   |                 |
|   | SCALE 0.5 DES PA<br>TOLERANCES   | UL MILLER 4-27-04<br>UL MILLER 4-27-04 | Oak<br><b>UT-BATTELLE</b> U.S.  | Ridge National Laboratory<br>aged for the DEPARTMENT OF ENERGY under<br>GOVERNMENT contract DE-AC05-000R22725<br>ATTELLE, LLC. Oak Ridge, Tennessee | _               |
|   | SPECIFIEDSECTFRACTIONSDEPTXX DECIMALS±.01XXX DECIMALS±.005CR:                                  | :<br>:<br>:<br>:<br>:<br>:             | NATIONAL COMPACT ST   | ATTELLE, LLC. Ook Ridge, Tennessee<br>ELLARATOR EXPERIMENT<br>INSULATOR   |                 |
| Image: Second state of the | ANGLES ±0°15′ PJ<br>BREAK SHARP EDGES .06 MAX REQ<br>FINISH .125 UNLESS<br>OTHERWISE SPECIFIED | :                                      | VERSION NO. PLANT BL<br>3.3 X-10 57<br>RELEASE LEVEL                          | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   |                 |
| REVISION APPROVAL   |  | NG APPROVALS DATE                      | *** 0   | <u>1</u>  |                 |

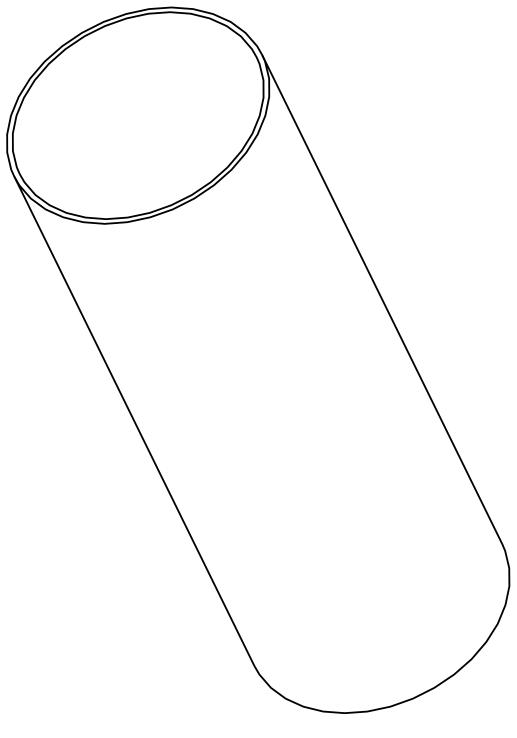




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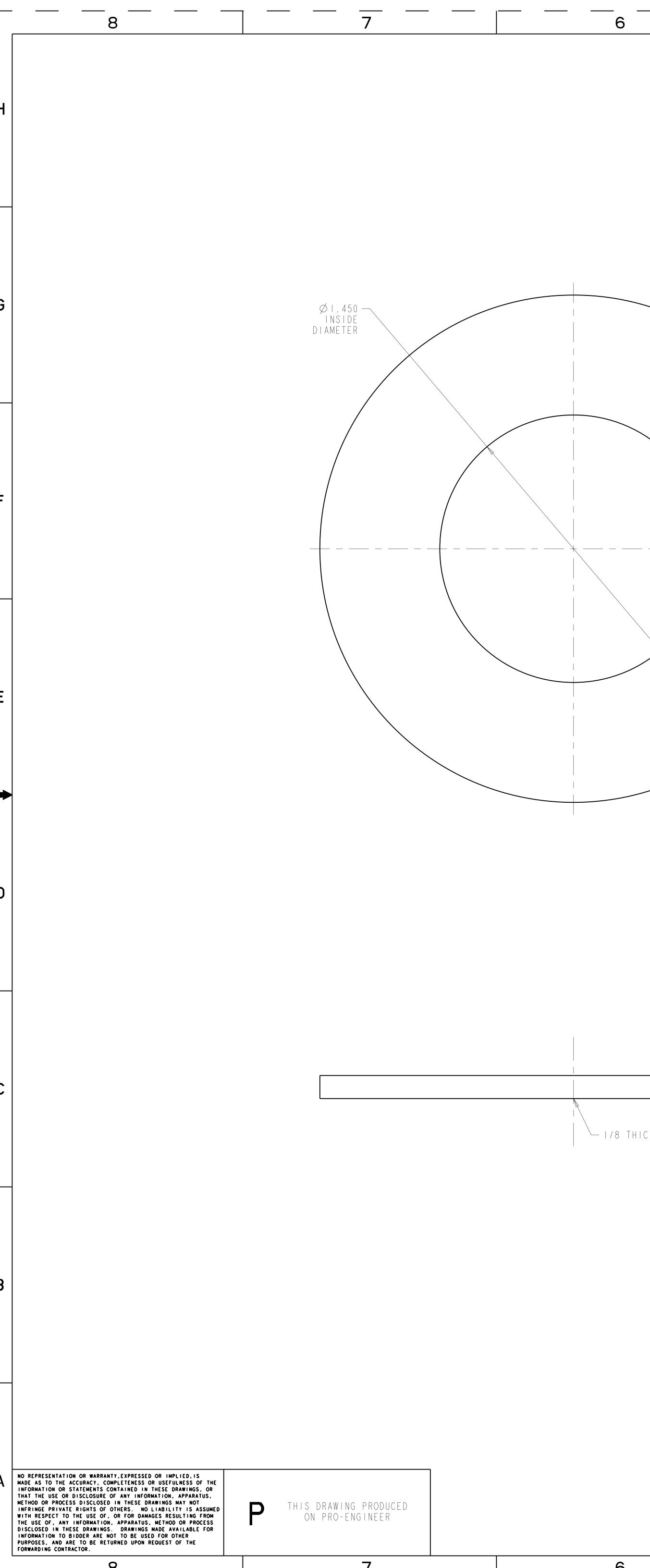
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|     |                           |    |
| REV | DESCRIPTION               | B` |
|     | REVISION OR ISSUE PURPOSE |    |

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|   | 2   | NEXT ASS'Y:  | 1 <sub>FINAL ASS'Y:</sub> |                         |
|---|---|--|---------------------------|-------------------------|
|   | 2. DIMENSIONS ARE IN IN<br>3. DIMENSIONS APPLY AT<br>4. GEOMETRY IS DEFINED | S AND TOLERANCES PER ANSI<br>NCHES<br>ROOM TEMPERATURE. OPERAT<br>IN PRO ENGINEER CAD MODE<br>COMBINED DEFINE FINISHED | ING TEMP 80 K<br>LS/FILES | <br>   <br>             |
|   |   |  |                           | G                       |
|   |   |  |                           | <br> <br> <br>          |
|   |   |  |                           | <br>  <br> E_ <br> _    |
|   |   |  |                           |                         |
|   |   |  |                           | <br> <br> <br>          |
| Lext as sy<br>- CAGE<br>CODE<br>                                    | PART OR NOME  | ATING TUBE GII LAM<br>NCLATURE MATER<br>SCRIPTION PARTS  | IAL SPECIFICATION FIN     | <b>B</b> SE   4   - 037 |
| FRACTIONS<br>XX DECIMALS<br>XXX DECIMAL<br>ANGLES<br>BREAK SHARP ED | LDRWPAULMILLER5-0ANCES<br>THERWISE<br>FIEDCHK:                              | NATIONAL COMPACT   | SEI I = 0.37              | <br>  A<br>             |

|    |      |     |      |      |        |        |      |      |     | 2    |   |          |   |   |   |      |               | <b>つ</b> |         |     |
|----|------|-----|------|------|--------|--------|------|------|-----|------|---|----------|---|---|---|------|---------------|----------|---------|-----|
|    |      |     |      | RE   | VISION | APPROV | /AL  |      |     |      |   |          |   |   |   | DR   | AWING A       | PPROVALS | DATE    |     |
| ΒY | DATE | СНК | DEPT | DATE | ΡE     | REQ    | DATE | ORNL | DOE | DATE |   |          |   |   |   |      | •             |          | :       |     |
|    |      |     |      |      |        |        |      |      |     |      |   |          |   |   |   |      | •             |          | :       |     |
|    |      |     |      |      |        |        |      |      |     |      |   |          |   |   | FINISH .125 UNLESS<br>OTHERWISE SPECIFIED | PPPL | <b>Õ</b> RF T |          | :       | VEF |
|    |      |     |      |      |        |        |      |      |     |      |   |          |   |   | BREAK SHARP EDGES .06 MAX                 | REQ  | •             |          | :       |     |
|    |      |     |      |      |        |        |      |      |     |      |   |          |   |   | <b>ANGLES</b> $\pm 0^{\circ}15'$          |      | •             |          | :       |     |
|    |      |     |      |      |        |        |      |      |     |      |   |          |   |   | <b>XXX DECIMALS</b> $\pm .005$            |      | •             |          | :       |     |
|    |      |     |      |      |        |        |      |      |     |      |   |          |   |   | <b>XX DECIMALS</b> $\pm .01$              | PE   | •             |          | :       |     |
|    |      |     |      |      |        |        |      |      |     |      |   |          |   |   | FRACTIONS                                 | DEPT | •             |          | :       | 11  |
|    |      |     |      |      |        |        |      |      |     |      |   |          |   |   | SPECIFIED                                 | SECT | •             |          | :       | N   |
|    |      |     |      |      |        |        |      |      |     |      |   |          |   |   | UNLESS OTHERWISE                          | СНК  | •             |          | :       |     |
|    |      |     |      |      |        |        |      |      |     |      |   |          |   |   | TOLERANCES                                |      | PAUL          | MILLER   | 5-05-04 | Ľ   |
|    |      |     |      |      |        |        |      |      |     |      |   | <u> </u> |   |   | SCALE 2                                   |      |               | MILLER   | 4-27-04 |     |
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∕ − ∅2.750 OUTSIDE DIAMETER \_\_\_\_\_ \_\_\_\_\_

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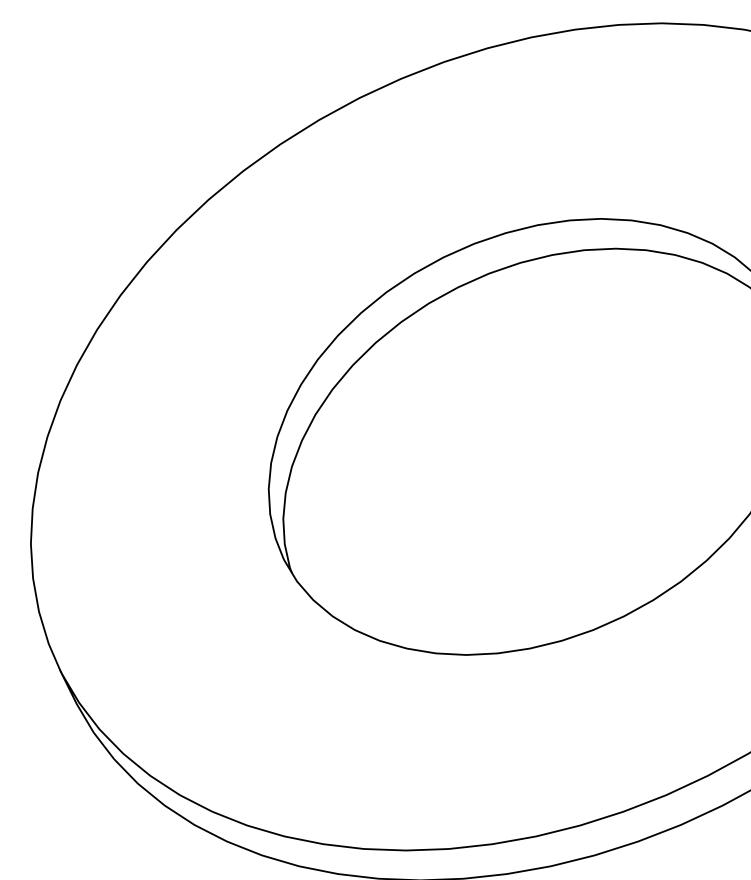
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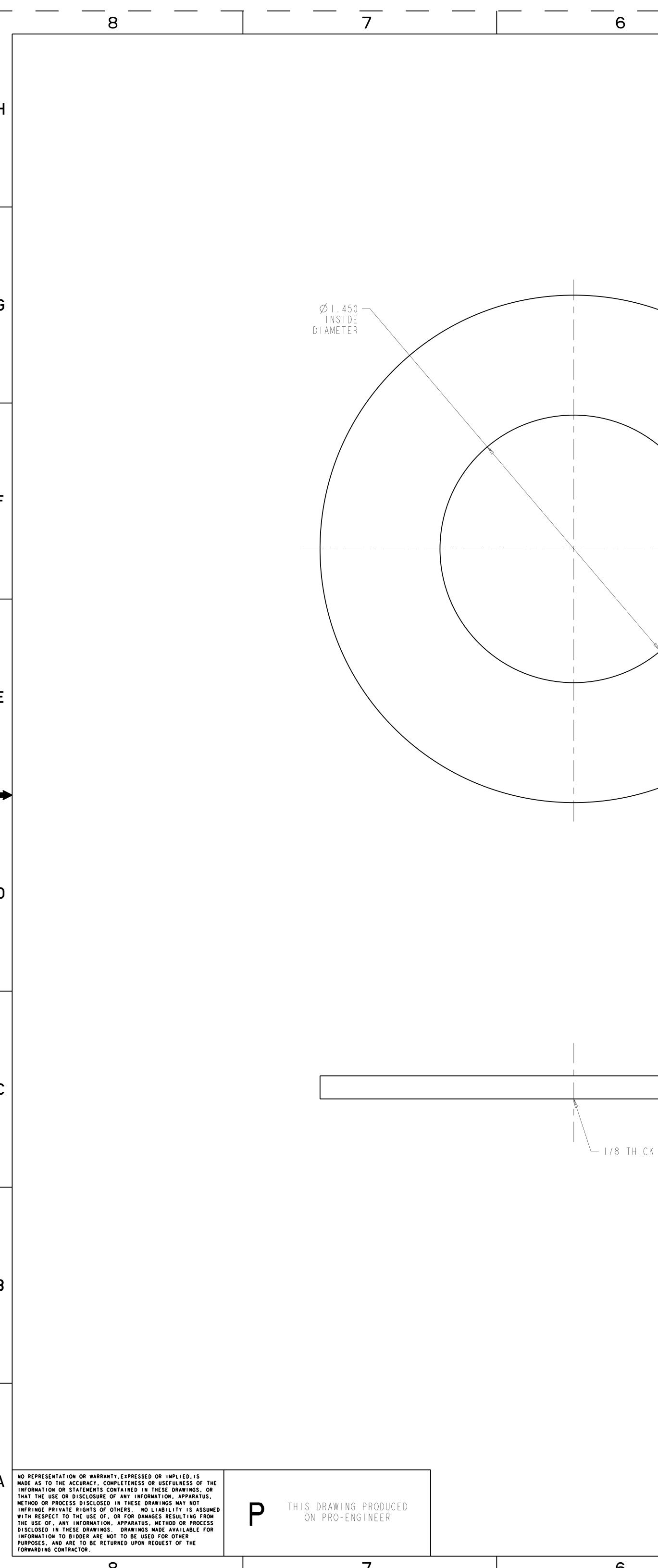
4

- I/8 THICK

DESCRIPTION BY DATE REVISION OR ISSUE PURPOSE

|   | 3  | 2   | NEXT ASS'Y:   | 1 <sub>FINAL ASS'Y:</sub>     |
|---|--|---|---|-------------------------------|
|   |  | NOTES:<br>I. INTERPRET DIMENSIONS AND TOLER<br>2. DIMENSIONS ARE IN INCHES<br>3. DIMENSIONS APPLY AT ROOM TEMPE<br>4. GEOMETRY IS DEFINED IN PRO ENG<br>5. DRAWING AND MODELS COMBINED DE   | RATURE. OPERATING TEMP<br>SINEER CAD MODELS/FILES                   | P 80 K                        |
|   |  |   |   | G                             |
|   |  |   |   | F  <br>   <br>                |
|   |  |   |   | E                             |
|   |  |   |   |                               |
|   |  |   |   |                               |
|   |  |   |   | C                             |
|   | CAGE P<br>CODE IDEN  | INSULATING WASHER       PART OR       NOMENCLATURE       OR DESCRIPTION       NEXT       SSEMBLY  |   | SPECIFICATION FIND<br>NO<br>B |
| Image: Second state sta | XXX DECIMALS     ±       ANGLES     ±       BREAK SHARP EDGES     .06       FINISH     .125 UNLESS<br>OTHERWISE SPEC | DEPT       :       NAII(         ±.01       PE       :         =.005       CR       :         0°15'       PJ       :         MAX       REO       :         CIFIED       :       VERSION         .       3.3         .       RELEA | DNAL COMPACT STELLAR<br>INSULATING W<br>NO. PLANT BLDG<br>X-10 5700 | RATOR EXPERIMENT              |





∕ − ∅2.750 OUTSIDE DIAMETER \_\_\_\_\_ \_\_\_\_ \_\_ \_\_\_ \_\_ \_\_ \_\_ \_\_ \_\_\_\_\_

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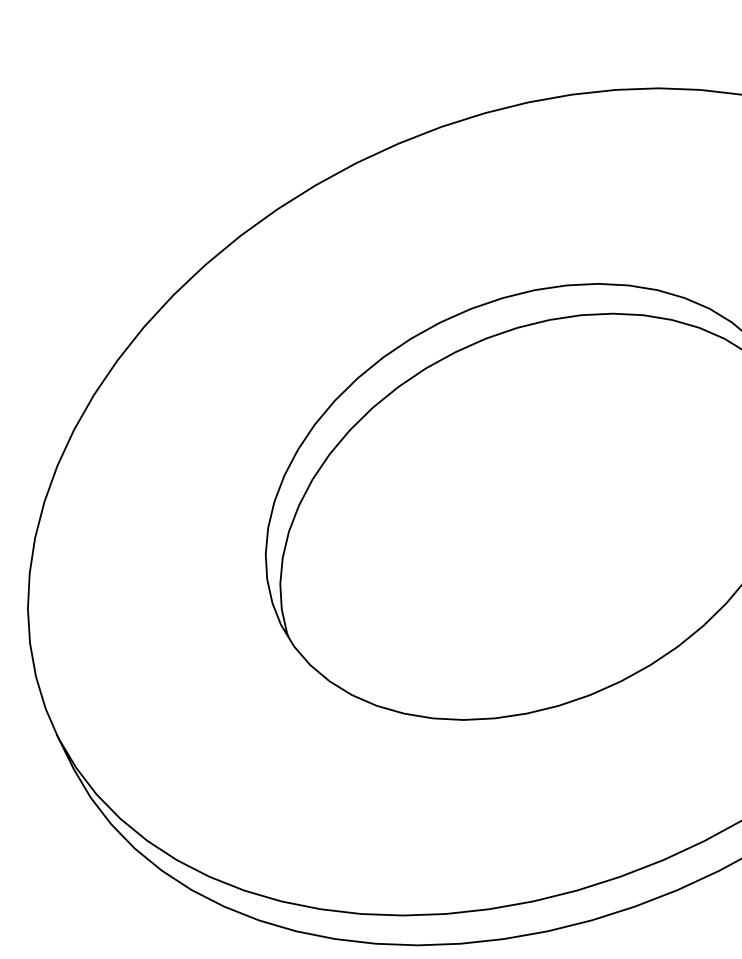
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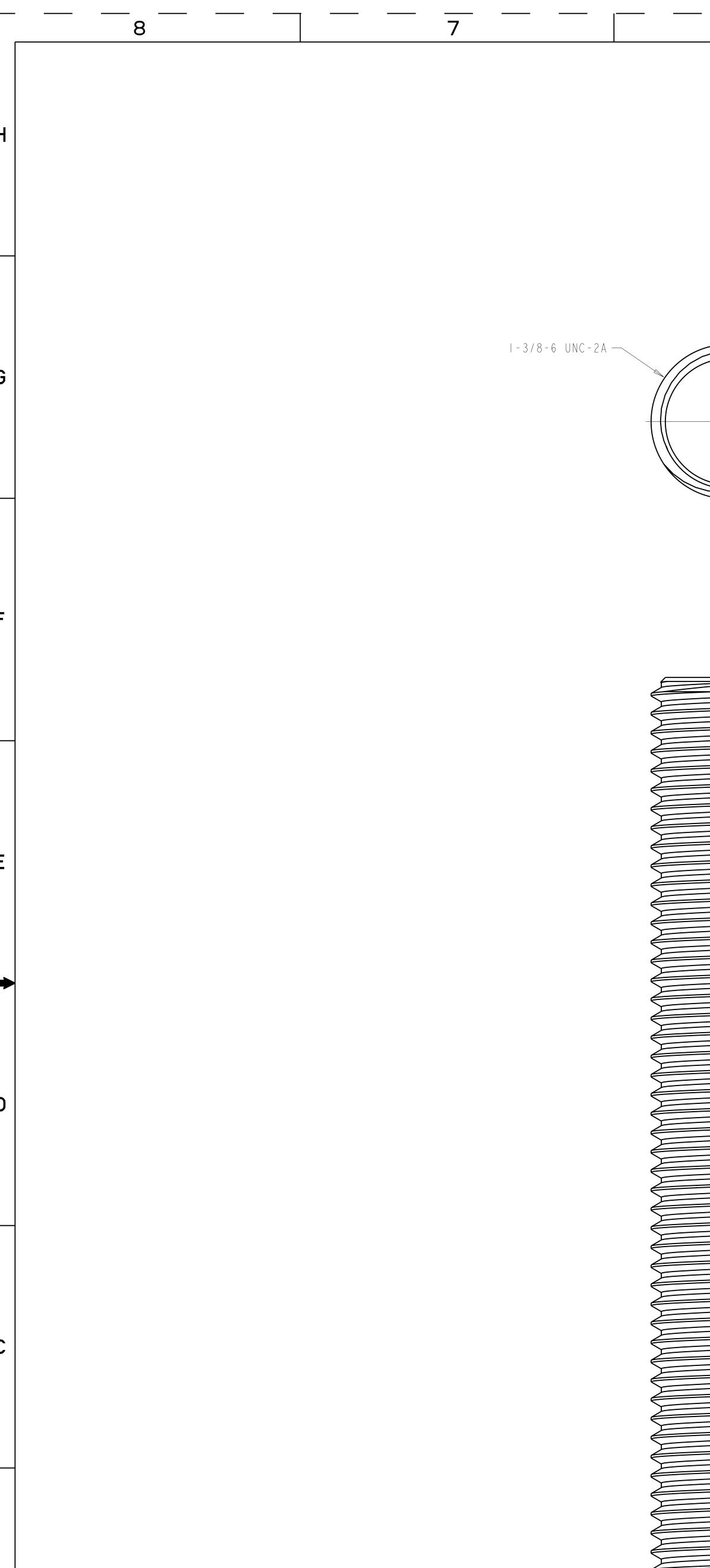
- 1/8 THICK

\_\_\_\_\_ DESCRIPTION ΒY REVISION OR ISSUE PURPOSE

|                  | 2   | NEXT ASS'Y:  | 1<br>FINAL ASS'Y:  |
|------------------|---|--|--|
|                  | <ol> <li>DIMENSIONS ARE IN</li> <li>DIMENSIONS APPLY A</li> <li>GEOMETRY IS DEFINE</li> </ol>   | NS AND TOLERANCES PER ANSI<br>INCHES<br>T ROOM TEMPERATURE. OPERAT<br>D IN PRO ENGINEER CAD MODE<br>COMBINED DEFINE FINISHED | ING TEMP 80 K<br>LS/FILES  |
|                  |   |  | G  |
|                  |   |  | F  |
|                  |   |  | E  |
|                  |   |  | -  |
|                  |   |  | D  |
|                  |   |  |  |
|                  |   |  | C  |
| CAGE PA          | RT OR NOM   | ICK FLAT WASHER 316L<br>ENCLATURE<br>SCRIPTION MATERI<br>PARTS   | AL SPECIFICATION FIND  |
| XXX DECIMALS ±.0 | DRW         PAUL         MILLER         5           Снк         :         . | :     NATIONAL COMPACT       :     :   | Pak Ridge National Laboratory   managed for the DEPARTMENT OF ENERGY under   S. GOVERNMENT contract DE-AC05-000R22725   It-BATTELLE, LLC. Ook Ridge, Tennessee   ROJECT NAME   STELLARATOR EXPERIMENT   STELLARATOR EXPERIMENT   CK FLAT WASHER   BLDG   FL   SHT   OF   TYPE   CLASS   5700   3   1   SEI4I-079   - |

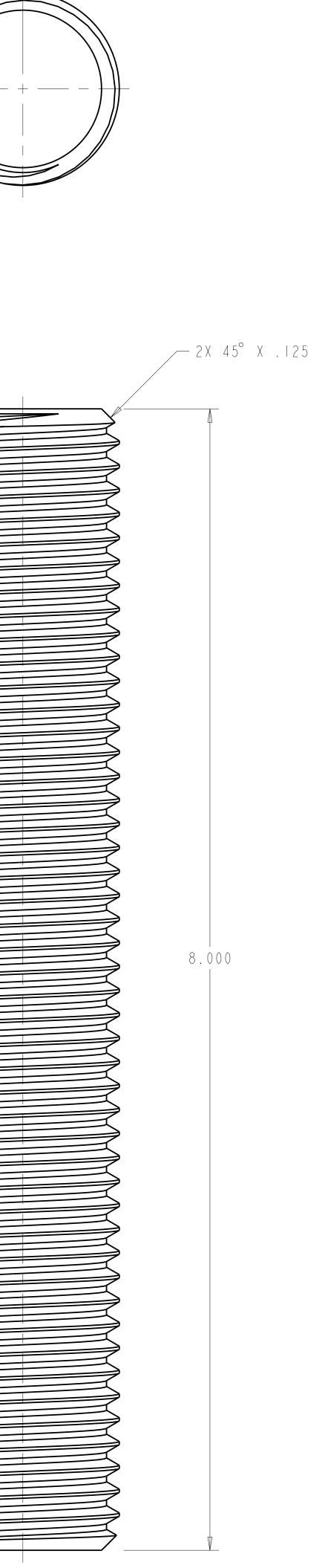
| <br> | <br> | <b>T</b> | <br> | <br> | 3 | 3 | <br>            |                                | -                                   |   |                       |                          |  |                      | 2                      |                      |  |                        |   | NEXT                 | ASS Y :            | -                       |   | 1                                | FINAL     | ASS′Y:             |           |           | -                          |
|------|------|----------|------|------|---|---|-----------------|--------------------------------|-------------------------------------|---|-----------------------|--------------------------|--|----------------------|------------------------|----------------------|--|------------------------|---|----------------------|--------------------|-------------------------|---|----------------------------------|-----------|--------------------|-----------|-----------|----------------------------|
|      |      |          |      |      |   |   |                 |                                |                                     |   |                       | .<br>2.<br>3.<br>4.      | DIME<br>DIME<br>GEOM   | NSIO<br>NSIO<br>ETRY | NSAR<br>NSAP<br>ISE    | PEIN<br>PLY<br>DEFIN | INCH<br>AT RC<br>ED IN   | HES<br>Dom t<br>N PRC  | EMPER<br>Engi                                 | ≀ A T U F<br>N E E F | ?E. 01<br>? CAD    | PERAT<br>MODE           | Y   4.5<br>  NG TE<br>_ S / F   L<br>MACH   N | EMP<br>_ES                       |           |                    |           |           | <br> H<br> <br>            |
|      |      |          |      |      |   |   |                 |                                |                                     |   |                       |                          |  |                      |                        |                      |  |                        |   |                      |                    |                         |   |                                  |           |                    |           |           | G                          |
|      |      |          |      |      |   |   |                 |                                |                                     |   |                       |                          |  |                      |                        |                      |  |                        |   |                      |                    |                         |   |                                  |           |                    |           |           | F  <br> <br>               |
|      |      |          |      |      |   |   |                 |                                |                                     |   |                       |                          |  |                      |                        |                      |  |                        |   |                      |                    |                         |   |                                  |           |                    |           |           | E  <br> <br> <br> <br>     |
|      |      |          |      |      |   |   |                 |                                |                                     |   |                       |                          |  |                      |                        |                      |  |                        |   |                      |                    |                         |   |                                  |           |                    |           |           |                            |
|      |      |          |      |      |   |   |                 |                                |                                     |   |                       |                          |  |                      |                        |                      |  |                        |   |                      |                    |                         |   |                                  |           |                    |           |           | C                          |
|      |      |          |      |      |   |   | n e x t a s s y |                                | CAGE<br>CODE                        |   | P /<br>DENT           | ART<br>IFY<br>NEX<br>SEM | ING N<br>T<br>BLY  |                      |                        | NC<br>OR             | OMENCL<br>DESCF  | L A T U F<br>R I P T I | ON  |                      | M                  |                         | al<br>_ I S T                                 | Γ                                | PECIF     | TICAT              |           | IND<br>NO | <b>B</b> <u>SE 141-079</u> |
| СНК  |      | PE       |      |      |   |   |                 | F F<br>X X<br>X X<br>A M<br>BR | RACTIO<br>( DECI<br>(X DEC<br>NGLES | DLERANC<br>SS OTHE<br>PECIFIE<br>NS<br>MALS<br>IMALS<br>IMALS | ±<br>±<br>±0°<br>5.06 | :<br>:005<br>°15′<br>MAX | SECT         :           DEPT         :           PE         :           CR         :           PJ         :           REQ         :           PPPL         DF           :         : | RFT<br>Ing Af        | MILL<br>MILL<br>PPROVA |                      | 4 - 2 7 - 0 4<br>5 - 0 5 - 0 4<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>D A T E | N<br>VEI               | ATIOI<br>(<br>RSION N<br><u>3.3</u><br>RELEAS | NAL<br>D.I<br>0.     | <b>COMP</b><br>2 5 | <b>ACT ♀</b><br>- H I C | KFL<br>BLDG<br>5700                           | <b>ARA</b> <sup>-</sup><br>_ A T | TOR<br>WA | <b>EXPE</b><br>SHE | TYPE<br>S | T         | <br>A<br>                  |

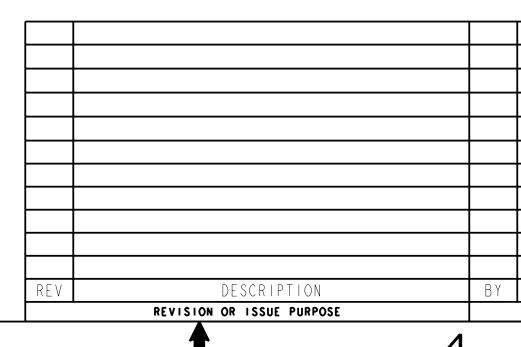




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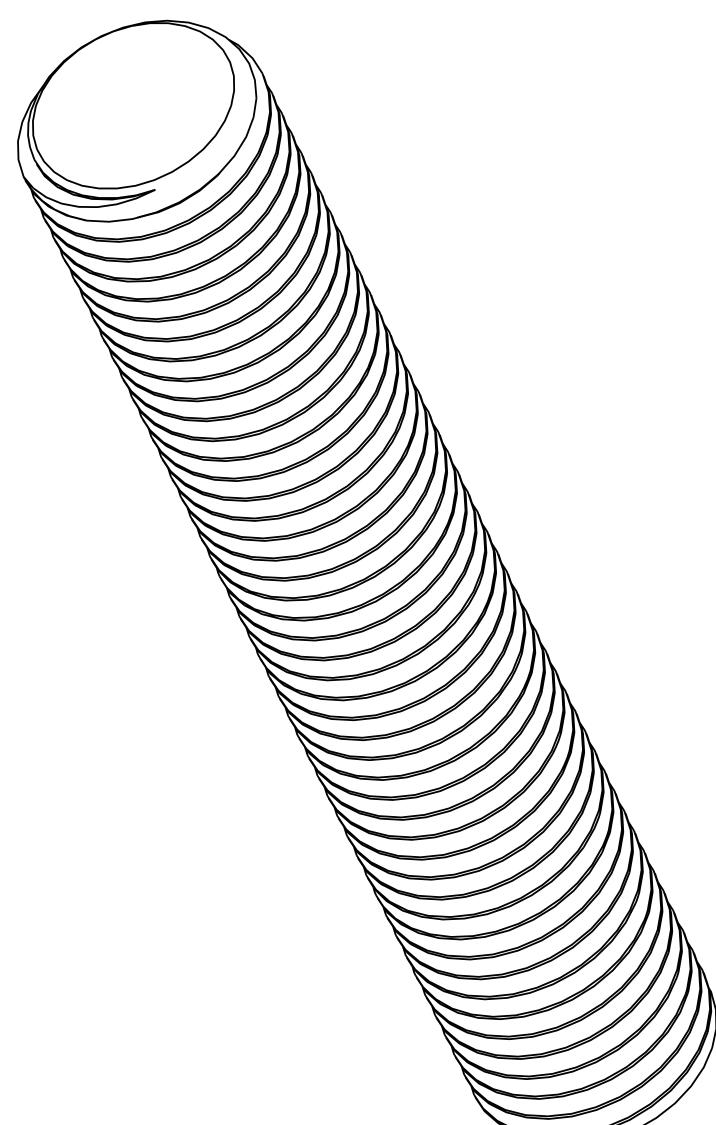


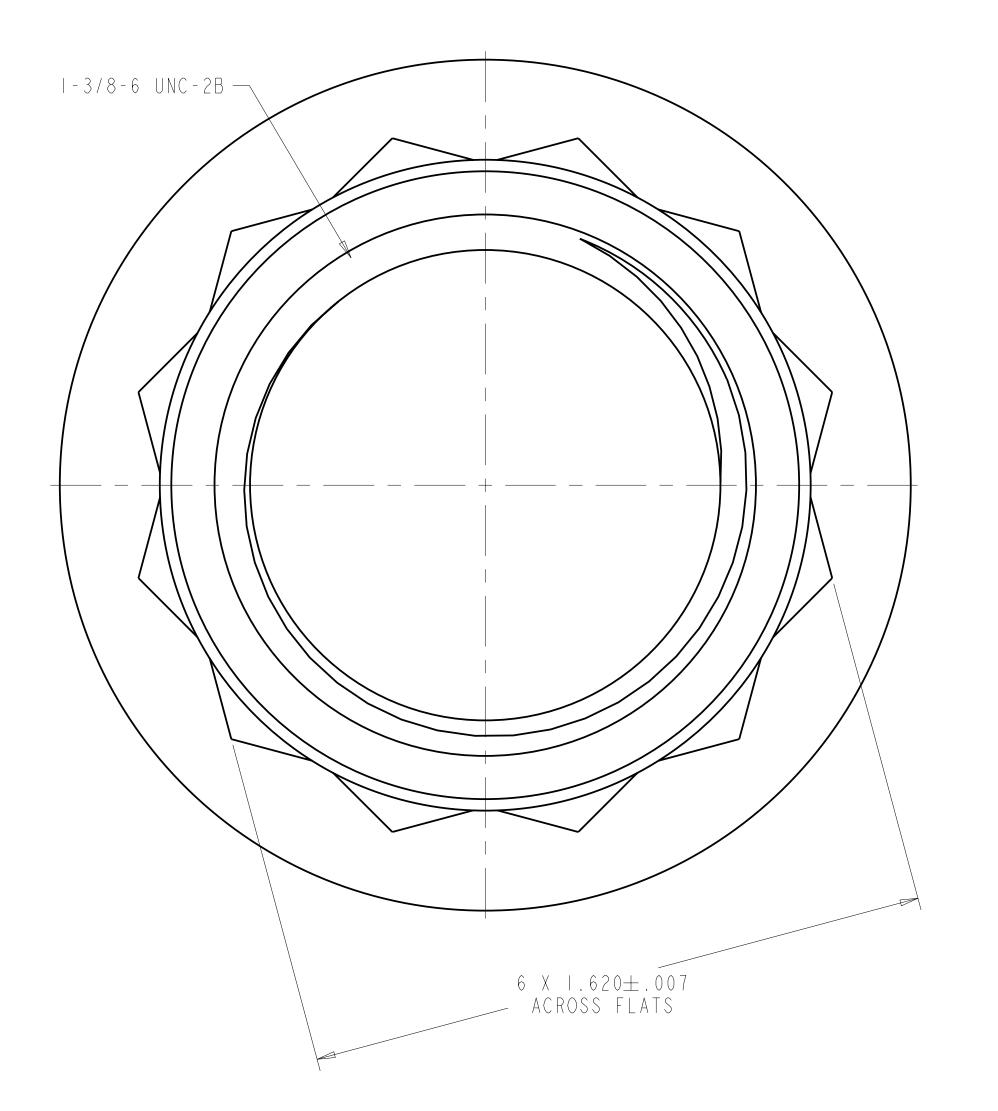




|   |   | 2   | - <u> </u>  | NEXT A                                | SS Y :  | 1                              | FINAL ASS'Y: |                 | -                   |
|---|---|---|---|---------------------------------------|---|--------------------------------|--------------|-----------------|---------------------|
|   | 2 .<br>3 .<br>4 .   | ES:<br>INTERPRET DIMENS<br>DIMENSIONS ARE I<br>DIMENSIONS APPLY<br>GEOMETRY IS DEFI<br>DRAWING AND MODE | N INCHE<br>AT ROC<br>NED IN   | S<br>PM TEMPERATURE<br>PRO ENGINEER ( | . OPERATIN<br>CAD MODELS  | NG TEMP<br>S/FILES             |              |                 | <br> H<br> <br>     |
|   |   |   |   |                                       |   |                                |              |                 | <br>G  <br>         |
|   |   |   |   |                                       |   |                                |              | -               |                     |
|   |   |   |   |                                       |   |                                |              |                 | <br>F  <br>         |
|   |   |   |   |                                       |   |                                |              | -               | <br>                |
|   |   |   |   |                                       |   |                                |              |                 | <br>E<br>           |
|   |   |   |   |                                       |   |                                |              |                 | ·<br>ا              |
|   |   |   |   |                                       |   |                                |              |                 | <br>D               |
|   | Ŕ   |   |   |                                       |   |                                |              | -               |                     |
|   |   |   |   |                                       |   |                                |              |                 | <br>C               |
| Lext as so the set of | SE   4   -<br>PART<br>I DE NT I F Y<br>NE X<br>ASSEM  | OR N<br>ING NO OR<br>T  | - 3 / 8 -<br>OME NCL /<br>DE SCR  | IPTION                                | 316L SS<br>MATERIA<br>ARTS L  | L SI                           | PECIFICATION | F I ND<br>NO    | <b>B</b> SE 141-036 |
| FRACTION<br>FRACTION<br>XX DECIM<br>XXX DECI<br>ANGLES<br>BREAK SHAR  | L L<br>LERANCES<br>SOTHERWISE<br>PECIFIED<br>IS<br>IALS ±.01<br>MALS ±.005<br>±0°15′<br>PEDGES 06 MAX | CR :<br>PJ :  | 4-27-04<br>5-05-04<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>: | STU<br>VERSION NO.                    | OMPACT     S       ID,     I - 3       PLANT     E       X - IO     5 | TELLARA<br>78-6<br>BLDG<br>700 |              | ENT<br>PE CLASS | <br>A<br>           |

|   |   |   | 3   |                                   | 2  | NEXT ASS'Y  | <u> </u>                           | INAL ASS'Y:                              | -                          |
|---|---|---|---|-----------------------------------|--|---|------------------------------------|--|----------------------------|
|   |   |   |   |                                   | <ol> <li>DIMENSIONS ARE</li> <li>DIMENSIONS APPL</li> <li>GEOMETRY IS DEF</li> </ol> | SIONS AND TOLERANCES PER<br>IN INCHES<br>Y AT ROOM TEMPERATURE. O<br>INED IN PRO ENGINEER CAD<br>ELS COMBINED DEFINE FINI | PERATING TEMP 80<br>MODELS/FILES   |  | H <br>                     |
|   |   |   |   |                                   |  |   |                                    |  | G                          |
|   |   |   |   |                                   |  |   |                                    |  | F                          |
|   |   |   |   |                                   |  |   |                                    |  | E                          |
|   |   |   |   |                                   |  |   |                                    |  |                            |
|   |   |   |   |                                   |  |   |                                    |  | C                          |
|   |   |   |   | CAGE P<br>CODE IDEN               | ART OR   | NOMENCLATURE<br>DR DESCRIPTION  | 316L SS<br>MATERIAL SPE<br>TS LIST | CIFICATION FIND                          | <b>BA</b> [SE   4   - 0 36 |
| I       I         I | Image: | Image: Second | Image: Sector | $\blacksquare$ XXX DECIMALS $\pm$ | DEPT :<br>DEPT :<br>DEPT :<br>PE :<br>005 CR :<br>°15' PJ :<br>MAX REQ :             | R     5-05-04       :     :       :     NATIONAL COMF       :     :   | PACT STELLARAT(<br>I - 3/8-6 UN    | NC - 2A<br> sht of type class<br>  I S U | <br> <br> <br>             |



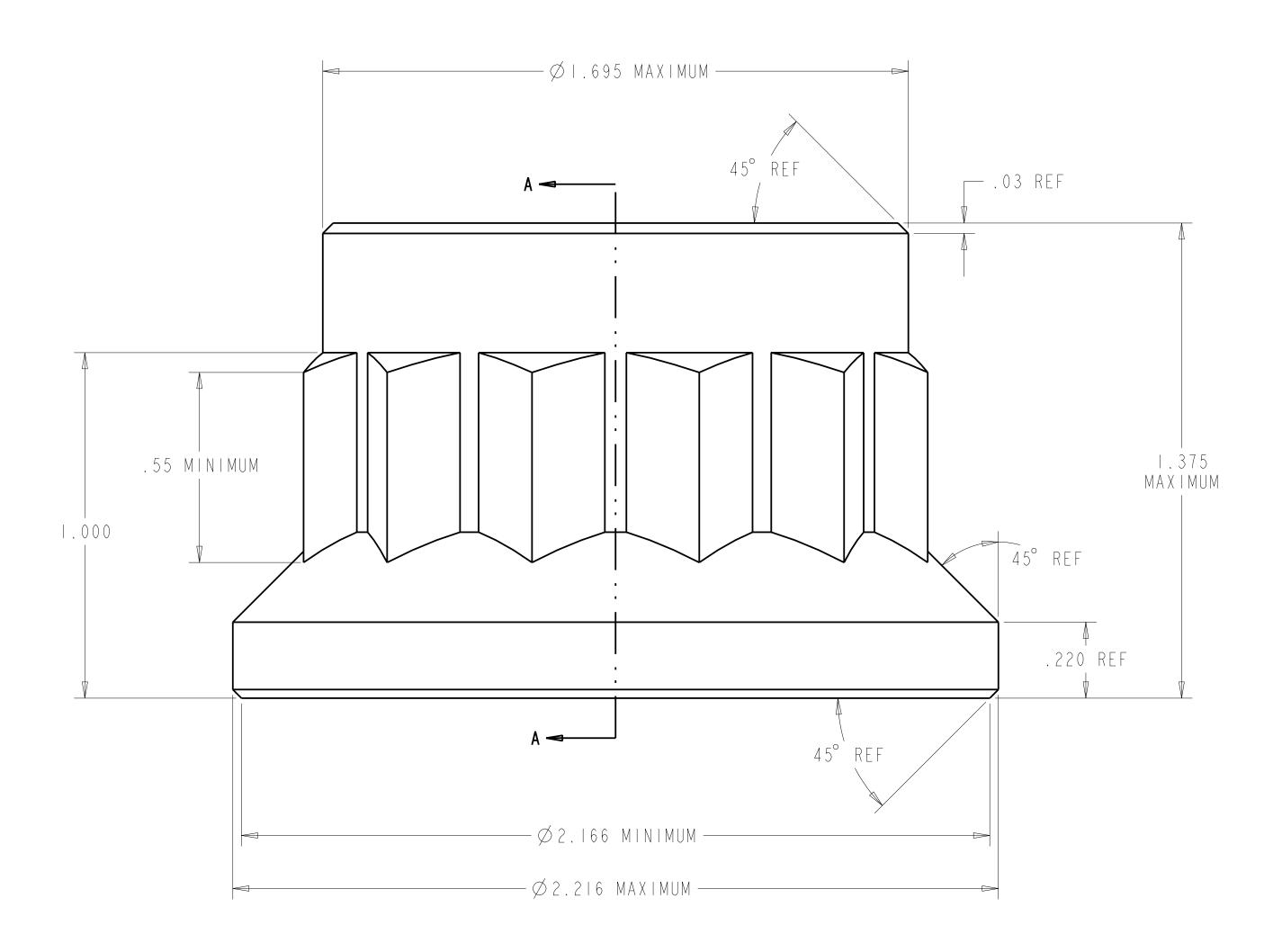


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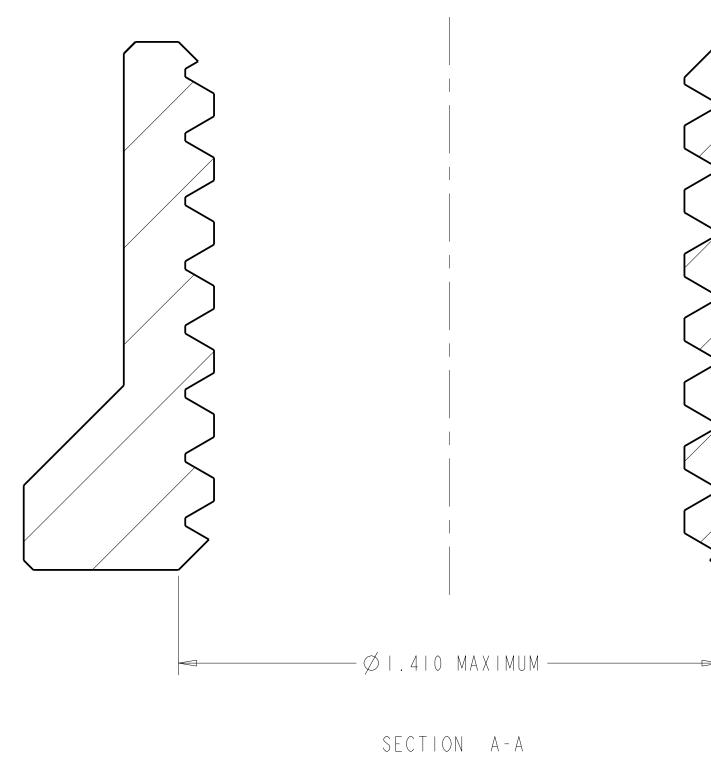
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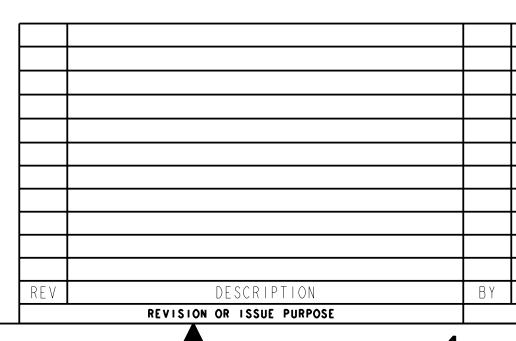
THIS DRAWING PRODUCED ON PRO-ENGINEER

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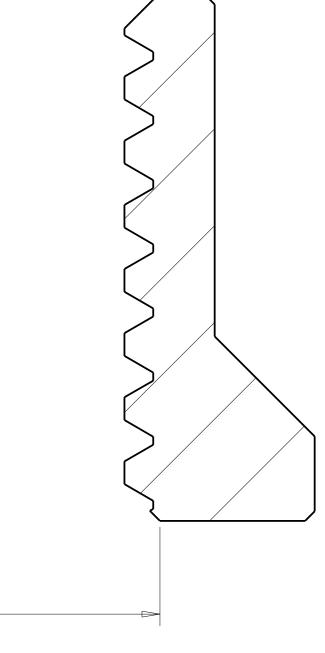
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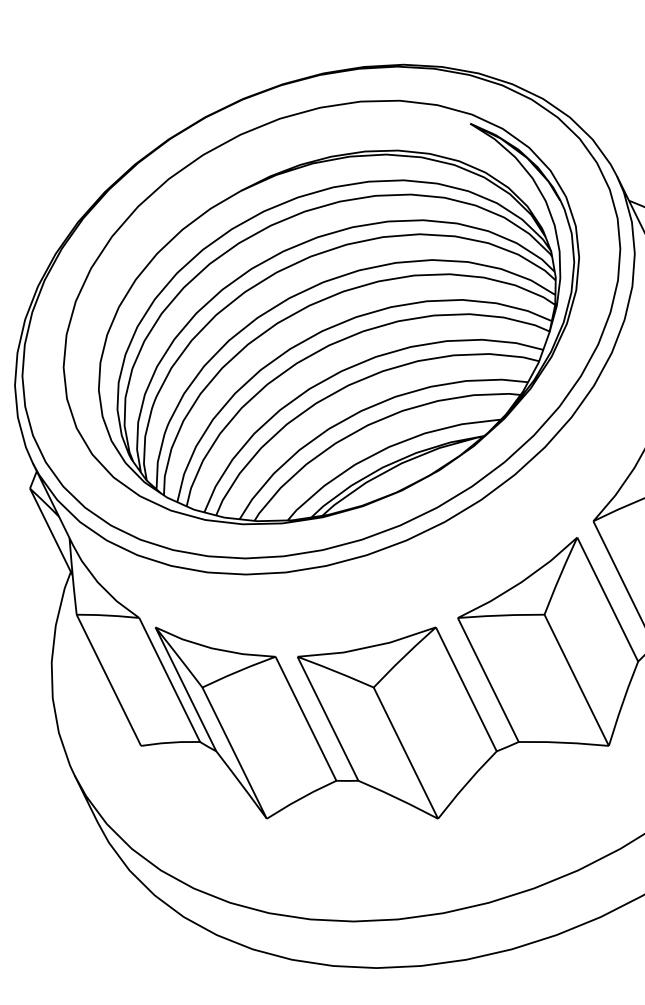


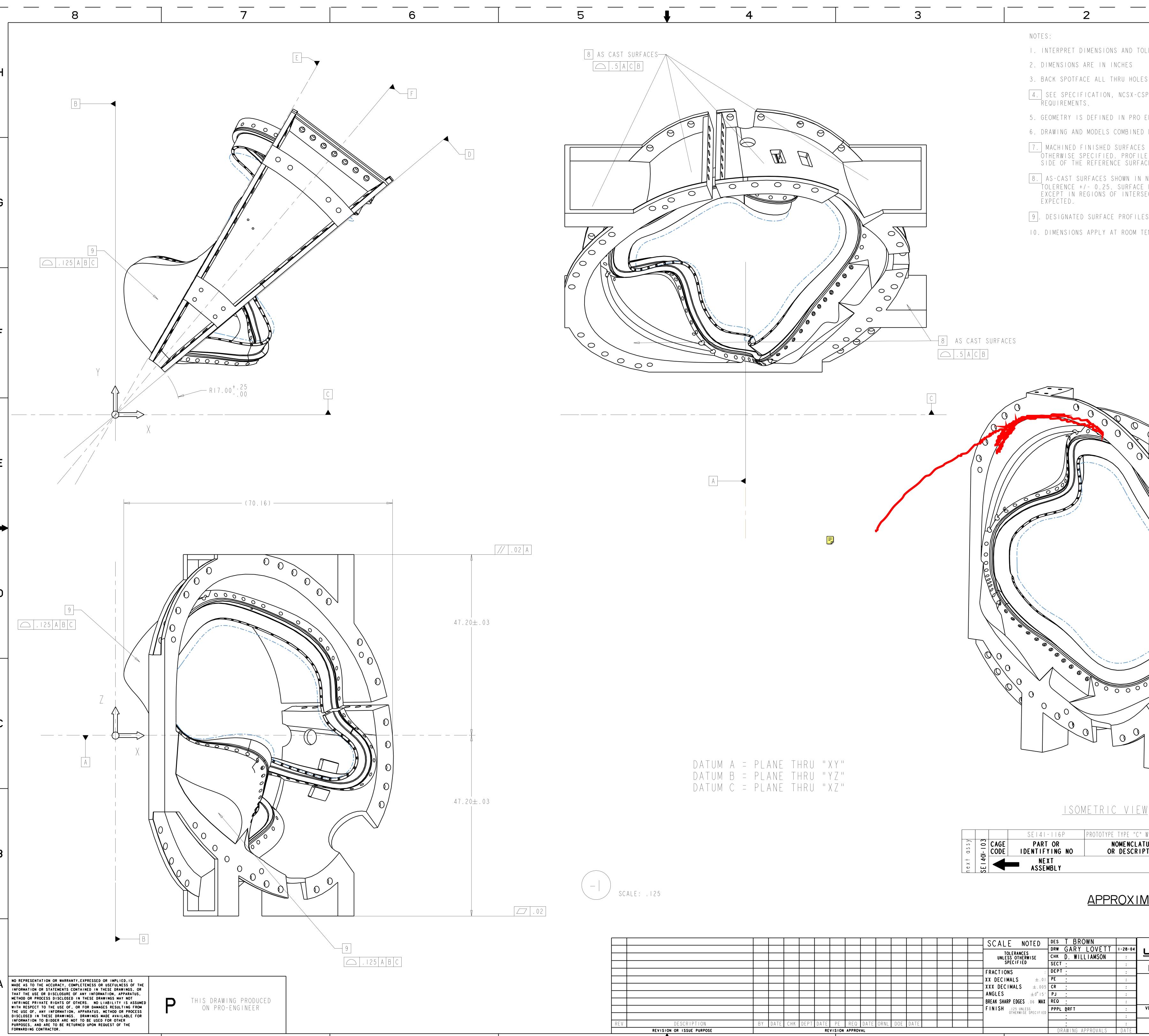


| 1    |     |      | RF   | VISION | APPROV | /▲   | · · · · · · |     |      | • |  |   | DRAWING A | PPROVALS | DATE    |     |
|------|-----|------|------|--------|--------|------|-------------|-----|------|---|--|---|-----------|----------|---------|-----|
| DATE | СНК | DEPT | DATE | РE     | REQ    | DATE | ORNL        | DOE | DATE |   |  |   | •         |          | ;       |     |
|      |     |      |      |        |        |      |             |     |      |   |  | OTHERWISE SPECIFIED                       | •         |          | :       |     |
|      |     |      |      |        |        |      |             |     |      |   |  | FINISH .125 UNLESS<br>OTHERWISE SPECIFIED | PPPL ØRFT |          | :       | VER |
|      |     |      |      |        |        |      |             |     |      |   |  | BREAK SHARP EDGES .06 MAX                 | REQ :     |          | :       |     |
|      |     |      |      |        |        |      |             |     |      |   |  | <b>ANGLES</b> $\pm 0^{\circ} 15^{\prime}$ | PJ :      |          | :       |     |
|      |     |      |      |        |        |      |             |     |      |   |  | <b>XXX DECIMALS</b> $\pm .005$            | CR :      |          | :       | NUT |
|      |     |      |      |        |        |      |             |     |      |   |  | <b>XX DECIMALS</b> $\pm .01$              | PE :      |          | :       |     |
|      |     |      |      |        |        |      |             |     |      |   |  | FRACTIONS                                 | DEPT :    |          | :       | Ν   |
|      |     |      |      |        |        |      |             |     |      |   |  | SPECIFIED                                 | SECT :    |          | :       | N   |
|      |     |      |      |        |        |      |             |     |      |   |  | UNLESS OTHERWISE                          | снк :     |          | :       |     |
|      |     |      |      |        |        |      |             |     |      |   |  | TOLERANCES                                | DRW PAUL  | MILLER   | 5-05-04 | ש   |
|      |     |      |      |        |        |      |             |     |      |   |  | SCALE 4                                   | DES PAUL  | MILLER   | 5-05-04 |     |

| <b>3 2 NEXT ASS 'Y: 1</b> FINAL  | ASS Y:   |
|--|--|
| NOTES:<br>I. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI YI4.5M<br>2. DIMENSIONS ARE IN INCHES<br>3. DIMENSIONS APPLY AT ROOM TEMPERATURE. OPERATING TEMP 80  | K  |
| 4. GEOMETRY IS DEFINED IN PRO ENGINEER CAD MODELS/FILES<br>5. DRAWING AND MODELS COMBINED DEFINE FINISHED MACHINED PAI   | RT   |
|  | G  |
|  |  |
|  | <br>   <br>  E<br>                               |
|  |  |
|  | <br>  D  |
|  | <br>   <br>                                      |
| SEL41-360     NUT, DOUBLE HEX, SELE LOCATING, 1-378-6 UNC-28 A-286, STEVER PLATED MILEDTL 25027. A       CAGE     PART OR<br>IDENTIFYING NO     NOMENCLATURE<br>OR DESCRIPTION     MATERIAL     SPECIFICATI       Material     SPECIFICATI     SELE     SELE     SELE     SPECIFICATI       Material     SPECIFICATI     SPECIFICATI     SPECIFICATI |  |
| SCALE       DES       PAUL       MILLER       5-05-04       UT-BATTELLE       Oak Ridge Nation         Oak Ridge Nation       TOLERANCES       UNESS OTHERWISE       SECT       :       : <t< td=""><td>A<br/>3/8-6 UNC-2B<br/>HT OF TYPE CLASS<br/>I I S U</td></t<>  | A<br>3/8-6 UNC-2B<br>HT OF TYPE CLASS<br>I I S U |



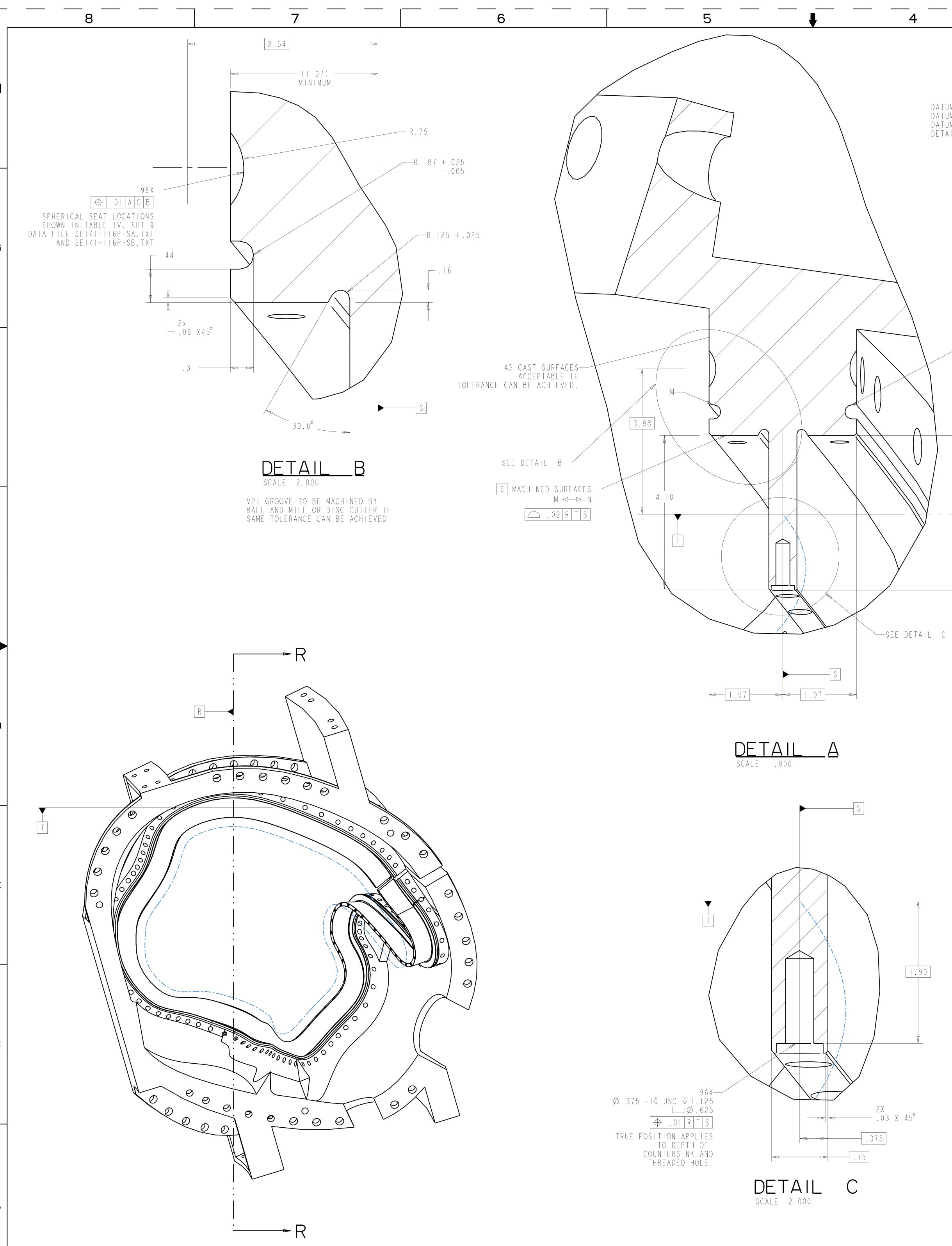




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|   | 2  | NEXT ASS'Y:  | 1 <sub>FINAL ASS'Y:</sub>   | -  <br>     |
|---|--|--|---|-------------|
|   | NOTES:<br>I. INTERPRET DIMENSIONS AND T  | OLERANCES PER ANSI YI4.5M                                  |   |             |
|   | 2. DIMENSIONS ARE IN INCHES<br>3. BACK SPOTFACE ALL THRU HOL                   | ES MINIMUM TO CLEANUP.                                     |   | Η           |
|   | 4. SEE SPECIFICATION, NCSX-C<br>REQUIREMENTS.<br>5. GEOMETRY IS DEFINED IN PRO |  |   |             |
| 6   | 5. DRAWING AND MODELS COMBINE  | D DEFINE FINISHED MACHINED                                 | PART.   |             |
|   | OTHERWISE SPECIFIED. PROFI<br>SIDE OF THE REFERENCE SURF                       | LE TOLERANCE IS BILATERAL,                                 | ie. 0.010" EITHER   |             |
|   | TOLERENCE +/- 0.25. SURFAC   | E PROFILE MUST BE WITHIN 0.<br>SECTING SURFACES WHERE FILL | 5 INCHES OF CAD DATA,   | G           |
|   | 9. DESIGNATED SURFACE PROFIL<br>10. DIMENSIONS APPLY AT ROOM                   |  |   |             |
|   |  |  |   |             |
|   |  |  |   |             |
|   |  |  |   | _           |
| AS CAST SURFACES  |  |  |   | <b>F</b>    |
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|   |  |  |   |             |
|   | ISOMETRIC VIE  | W  |   | <u>6</u> P  |
|   | EI4I-II6P PROTOTYPE TYPE "C  | "WINDING FORM SEE NOTE 4                                   | SEE NOTE 4 1  |             |
|   | PART OR NOMENCLA<br>NTIFYING NO OR DESCRI<br>NEXT<br>ASSEMBLY                  |  | SPECIFICATION FIND<br>NO  | <u>SEI4</u> |
|   | APPROXI  | MATE WEIGHT =  | 5574 LBS  | B           |
|   |  |  |   |             |
| SCALE NOT<br>TOLERANCES<br>UNLESS OTHERWI<br>SPECIFIED                  | SE CHK D. WILLIAMSON :   | UI-DAIIEL  | ge National Laboratory<br>for the DEPARTMENT OF ENERGY under<br>NMENT contract DE-AC05-000R22725<br>LE, LLC. Oak Ridge, Tennessee |             |
| FRACTIONS<br>XX DECIMALS<br>XXX DECIMALS                                | ±.01     PE     :       ±.005     CR     :                                     | NATIONAL COMPACT STELL<br>PROTOT'<br>TYPE "C" WINI         | YPE   | A           |
| ANGLES =<br>BREAK SHARP EDGES . 0<br>FINISH .125 UNLESS<br>OTHERWISE SF | PECIFIED PPPL QRFT :   | VERSION NO. PLANT BLDG<br>42 X-10 5700                     | FL SHT OF TYPE CLASS<br>3 I 9 S U   |             |
|   | CRAWING APPROVALS DATE   | Fabrication SE   | 1 4   -     6 P 0   |             |

| 3   | 2 NEXT ASS'Y: 1 FINAL ASS'Y:  |
|---|---|
|   | NOTES:<br>1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M<br>2. DIMENSIONS ARE IN INCHES<br>3. BACK SPOTFACE ALL THRU HOLES MINIMUM TO CLEANUP.<br>4. SEE SPECIFICATION, NCSX-CSPEC 141-01-04, FOR ADDITIONAL<br>REQUIREMENTS.<br>5. GEOMETRY IS DEFINED IN PRO ENGINEER CAD MODELS/FILES SE141-116P.PRT,<br>6. DRAWING AND MODELS COMBINED DEFINE FINISHED MACHINED PART.   |
|   | <ul> <li>7. MACHINED FINISHED SURFACES TO CAD DATA, PROFILE WITHIN 0.020" UNLESS<br/>OTHERWISE SPECIFIED. PROFILE TOLERANCE IS BILATERAL, ie. 0.010" EITHER<br/>SIDE OF THE REFERENCE SURFACE.</li> <li>8. AS-CAST SURFACES SHOWN IN NOMINAL MATERIAL CONDITION, THICKNESS<br/>TOLERENCE +/- 0.25. SURFACE PROFILE MUST BE WITHIN 0.5 INCHES OF CAD DATA,<br/>EXCEPT IN REGIONS OF INTERSECTING SURFACES WHERE FILLETS ARE<br/>EXPECTED.</li> <li>9. DESIGNATED SURFACE PROFILES MUST BE WITHIN .125 OF CAD DATA.</li> <li>10. DIMENSIONS APPLY AT ROOM TEMPERATURE. OPERATING TEMP 80 K.</li> </ul>  |
| 8 AS  | CAST SURFACES   |
| LANE THRU 'XY'<br>LANE THRU 'XY'<br>LANE THRU 'YZ'  |   |
| LANE THRU "YZ"<br>LANE THRU "XZ"  | LISOMETRIC VIEW<br>SEI41-116P PROTOTYPE TYPE 'C' WINDING FORM SEE NOTE 4 SEE NOTE 4 I<br>SEI41-116P PROTOTYPE TYPE 'C' WINDING FORM SEE NOTE 4 SEE NOTE 4 I<br>CAGE PART OR NOMENCLATURE MATERIAL SPECIFICATION FIND<br>NO OR DESCRIPTION MATERIAL SPECIFICATION B<br>MATERIAL SPECIFICATION B<br>MATERIAL SPECIFICATION B<br>B<br>APPROXIMATE WEIGHT = 5574 LBS  |
| Image: Sector of the sector | SCALE       NOTED       DES       T BROWN       DRW       GARY LOVETT       1-28-04       UT-BATTELLE       Oak Ridge National Laboratory<br>macaged for the DEPARTMENT OF EMERGY under<br>U-BATTELLE       Oak Ridge National Laboratory<br>macaged for the DEPARTMENT of EMERGY under<br>U-BATTELLE       Oak Ridge National Laboratory<br>macaged for the DEPARTMENT of EMERGY under<br>U-BATTELLE       Oak Ridge National Laboratory<br>macaged for the DEPARTMENT of EMERGY under<br>U-BATTELLE       Oak Ridge National Laboratory<br>macaged for the DEPARTMENT of EMERGY under<br>U-BATTELLE       Oak Ridge National Laboratory<br>macaged for the DEPARTMENT of EMERGY under<br>U-BATTELLE       Oak Ridge National Laboratory<br>macaged for the DEPARTMENT of EMERGY under<br>U-BATTELLE       Oak Ridge National Laboratory<br>macaged for the DEPARTMENT of EMERGY under<br>U-BATTELLE         FRACTIONS       SECT       :       :       :       PROTOTYPE         XX DECIMALS       ±.001       GR       :       :       :       PROTOTYPE       P         ANGLES       ±0°15       PJ       :       :       :       :       P       P       :       :       NATIONAL COMPACT STELLARATOR EXPERIMENT       A         BREAK SHARP EDGES       :       :       :       :       :       :       P       P       :       :       :       :       :       :       :       :       :       :       : <t< td=""></t<> |



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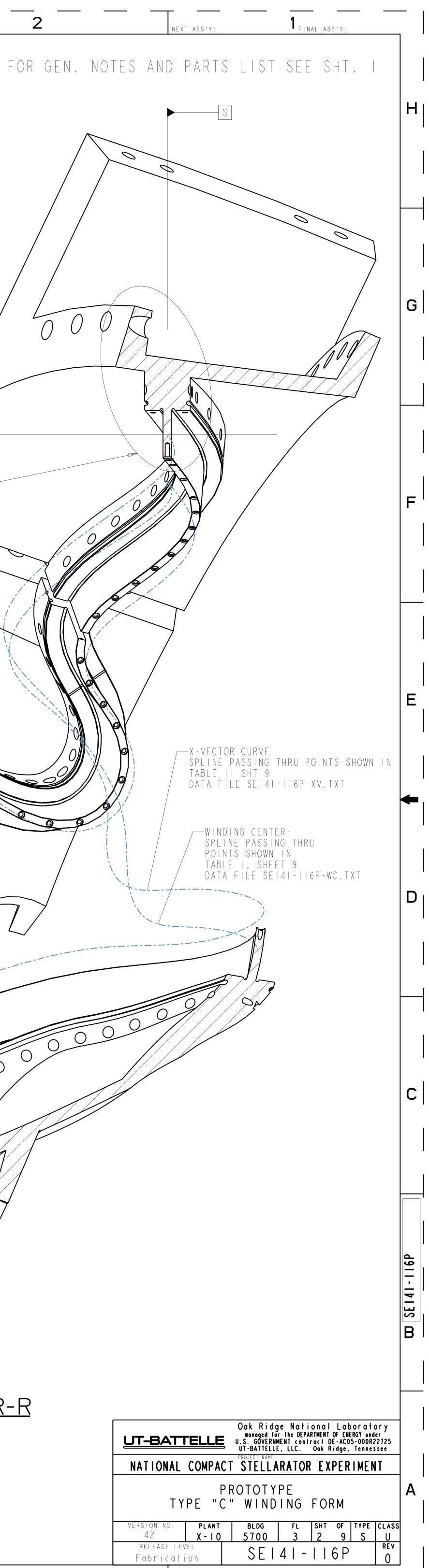
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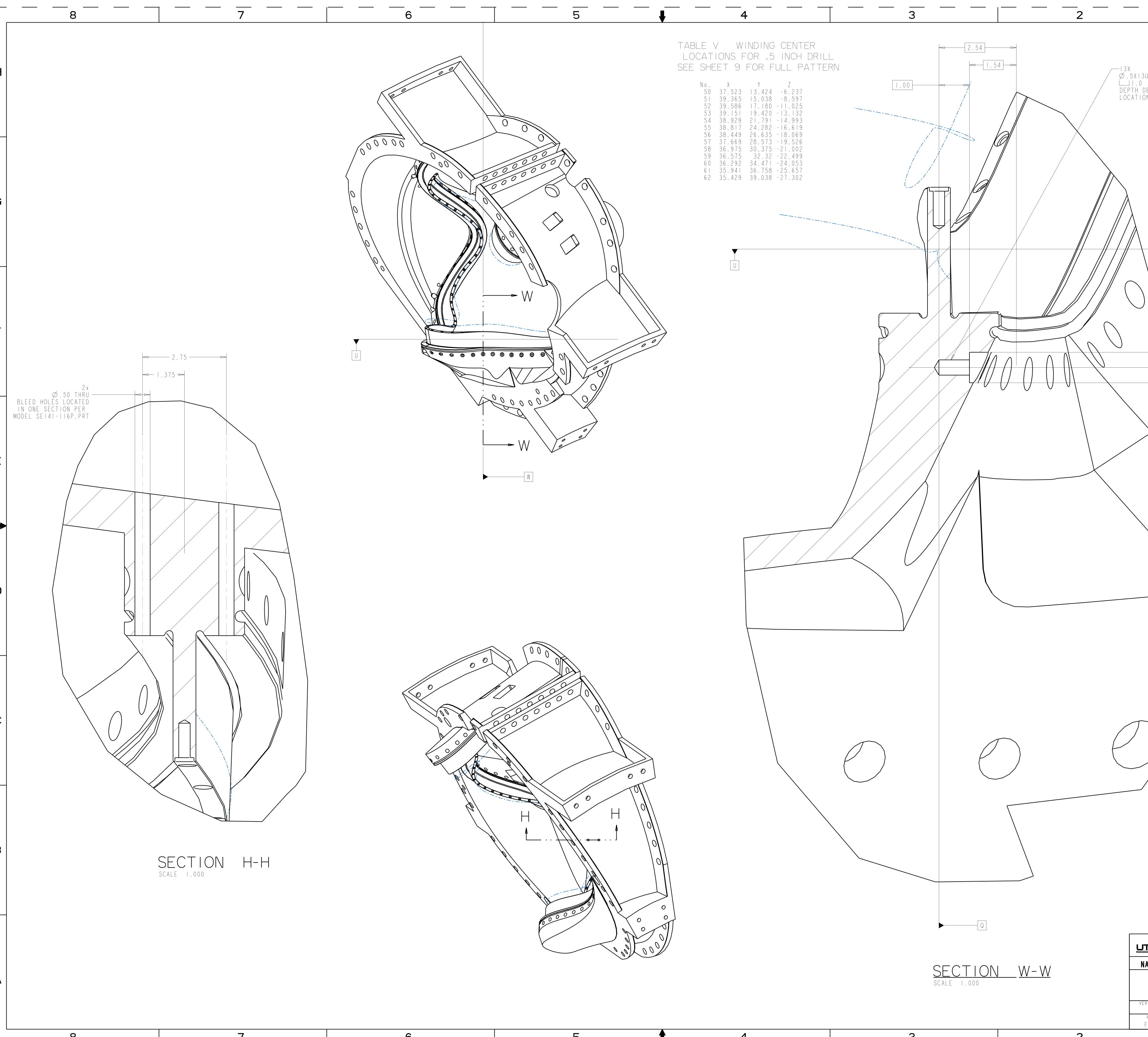
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2 З DATUM R = PLANE NORMAL TO WINDING CENTER DATUM S = PLANE PASSING THRU WINDING CENETER AND X VECTOR AT DATUM R DATUM T = PLANE PASSING THRU WINDING CENTER ORTHONGONAL TO DATUM S  $\mathcal{O}$ DETAIL A IS TYPICAL TO ALL POINTS ALONG WINDING CENTER. (()T see detail a— 2.10 2.03 10 $\cap$  $\cap$ 000, 0  $\wedge$ 00 <u>SECTION R-R</u> SCALE 0.250

2





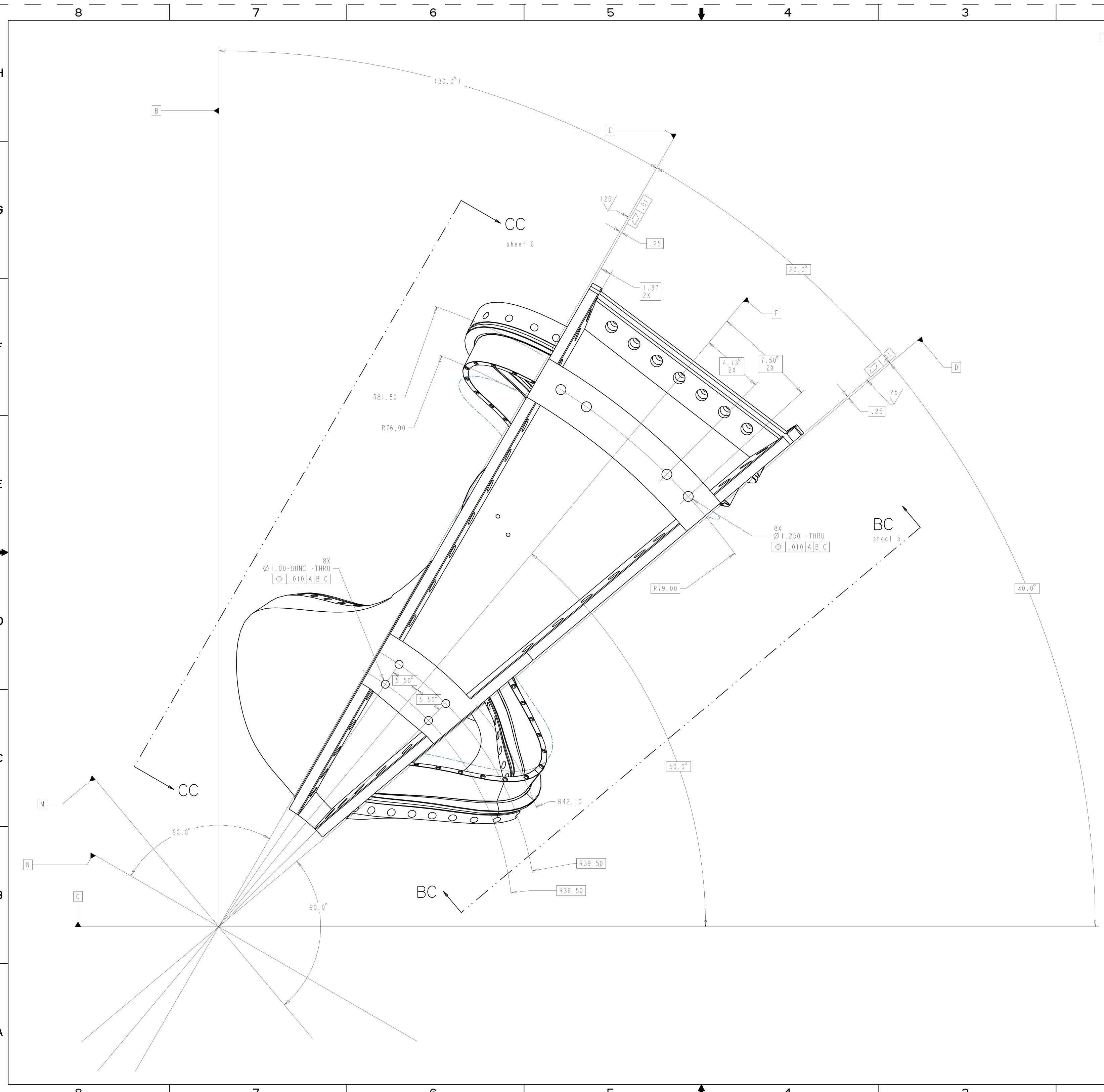
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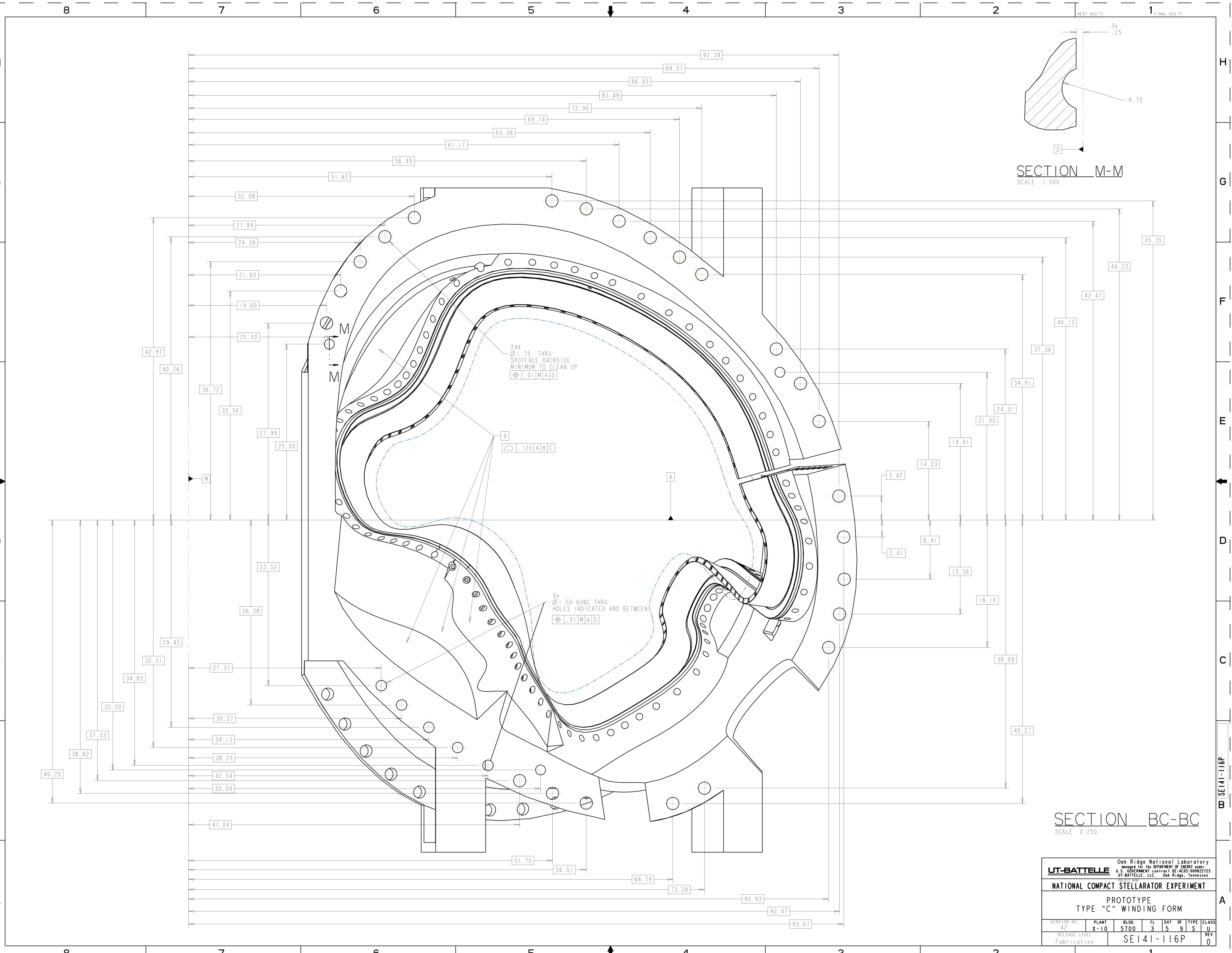
| NEXT ASS'Y: <b>1</b> FINAL ASS'Y:  |                 |
|--|-----------------|
| IJUNC<br>O<br>DETERMINED FROM WINDING CENTER<br>IONS. SEE TABLE V.   | H               |
|  | G               |
|  | <br>F  <br>     |
|  | E               |
|  | ↓               |
|  |                 |
|  | C               |
|  | B SE 141 - 116P |
| UT-BATTELLE       Oak Ridge National Laboratory<br>managed for the DEPARTMENT OF ENERGY under<br>U.S. GOVERNMENT contract DE-AC05-000R22725<br>UT-BATTELLE, LLC. Oak Ridge, Tennessee         PROJECT NAME         NATIONAL COMPACT STELLARATOR EXPERIMENT         PROTOTYPE         TYPE       "C" WINDING FORM         VERSION NO.       PLANT         42       X-10         STOO       3       3       9       S         RELEASE LEVEL       SEI4I-II6P       0         1       1 |                 |

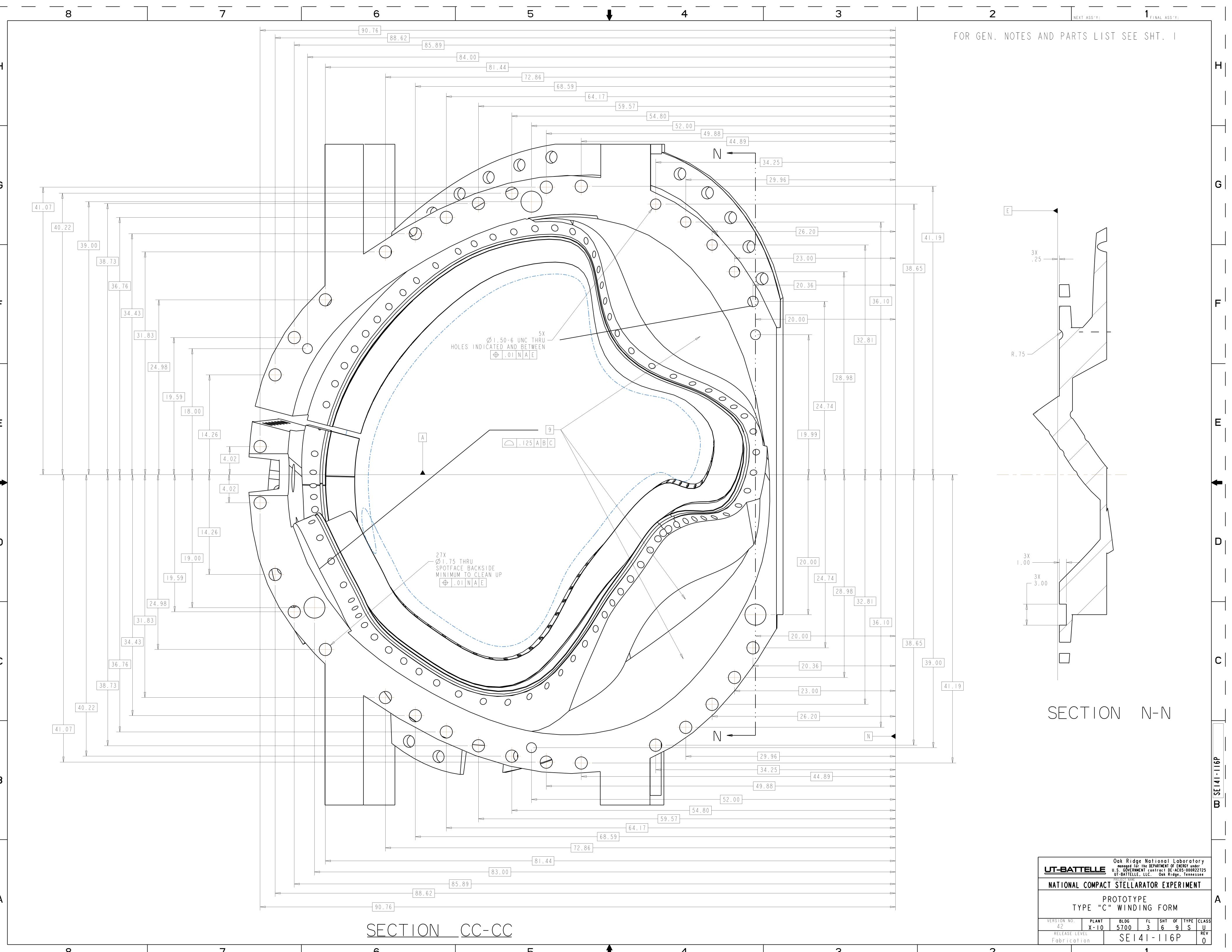


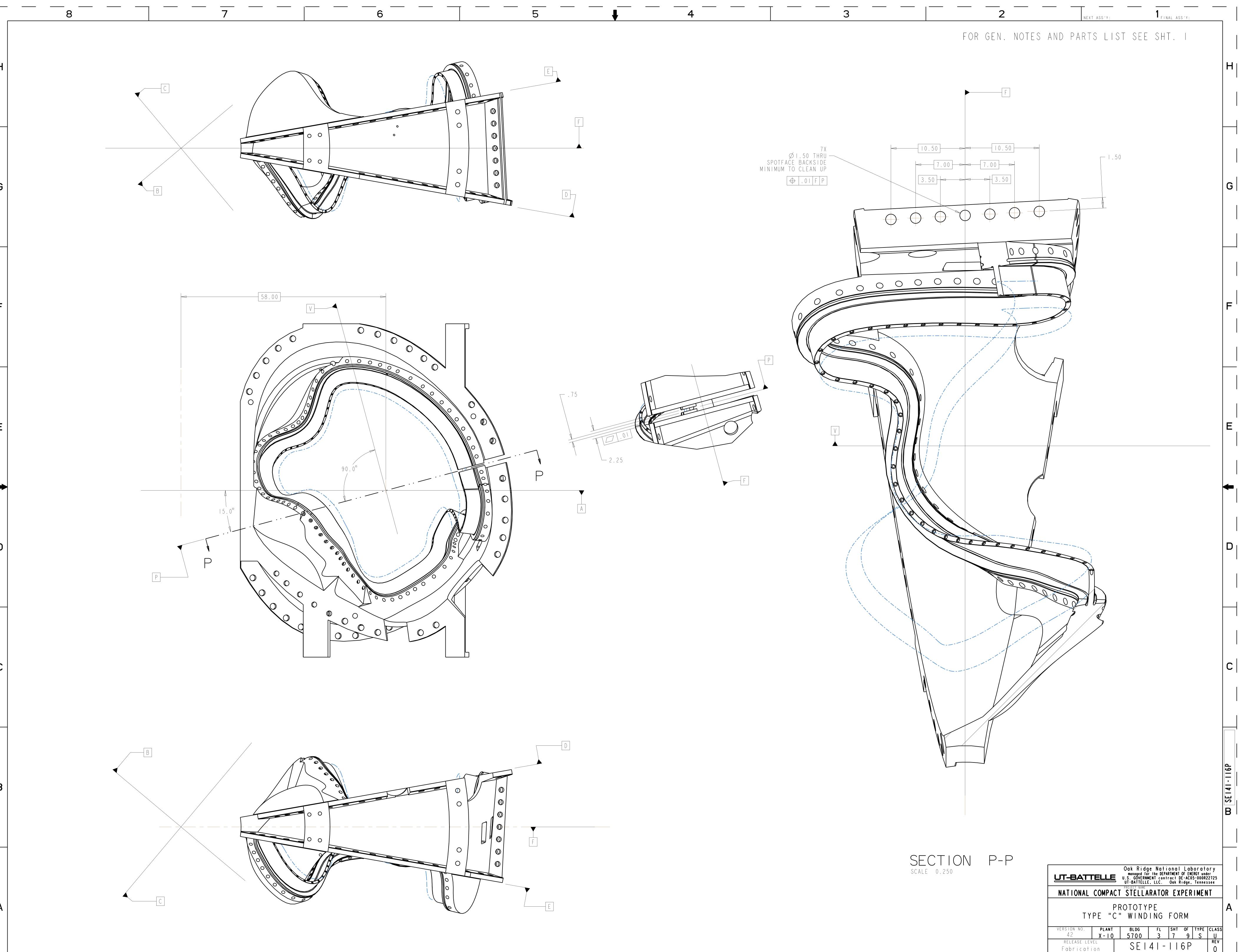
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| -  |    | NEXT AS | SS′Y: |       | 1<br>Final | ASS′Y: | <br>-             |
|----|----|---------|-------|-------|------------|--------|-------------------|
| ND | ΡA | RTS     | LIS   | t see | SHT        |        |                   |
|    |    |         |       |       |            |        | н                 |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        | G                 |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        | _                 |
|    |    |         |       |       |            |        | F                 |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        | <br>E             |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        | ←                 |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        | D                 |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        | C                 |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        |                   |
|    |    |         |       |       |            |        | 6P                |
|    |    |         |       |       |            |        | <b>BEI4I-116P</b> |
|    |    |         |       |       |            |        | В                 |

| UT-BATTELLE Oak Ridge National Laboratory<br>managed for the DEPARTMENT OF ENERGY under<br>U.S. GOVERNMENT contract DE-AC05-000R22725<br>UT-BATTELLE, LLC. Oak Ridge, Tennessee |                  |              |         |          |         |           |            |  |
|---|------------------|--------------|---------|----------|---------|-----------|------------|--|
| NATIONAL  | COMPAC           | T STELLA     | RATO    | REX      | PER     | IMEN      | IT         |  |
| PROTOTYPE<br>TYPE "C" WINDING FORM  |                  |              |         |          |         |           |            |  |
| version no.<br>42   | plant<br>X - I O | BLDG<br>5700 | fl<br>3 | Sht<br>4 | of<br>9 | type<br>S | CLASS<br>U |  |
| release lev<br>Fabricati  |                  | SEI          |         |          | 6 P     | -         | re v<br>O  |  |



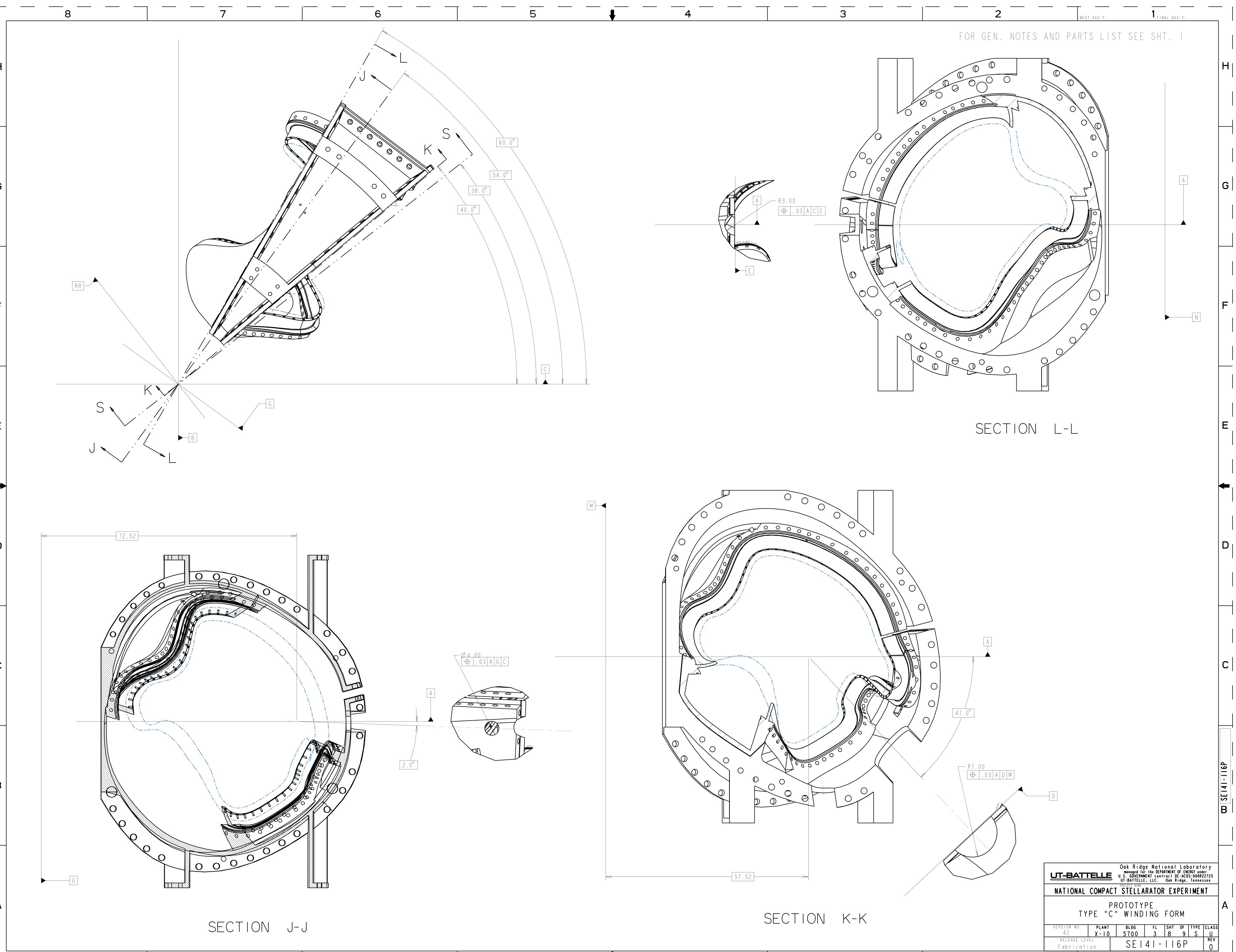




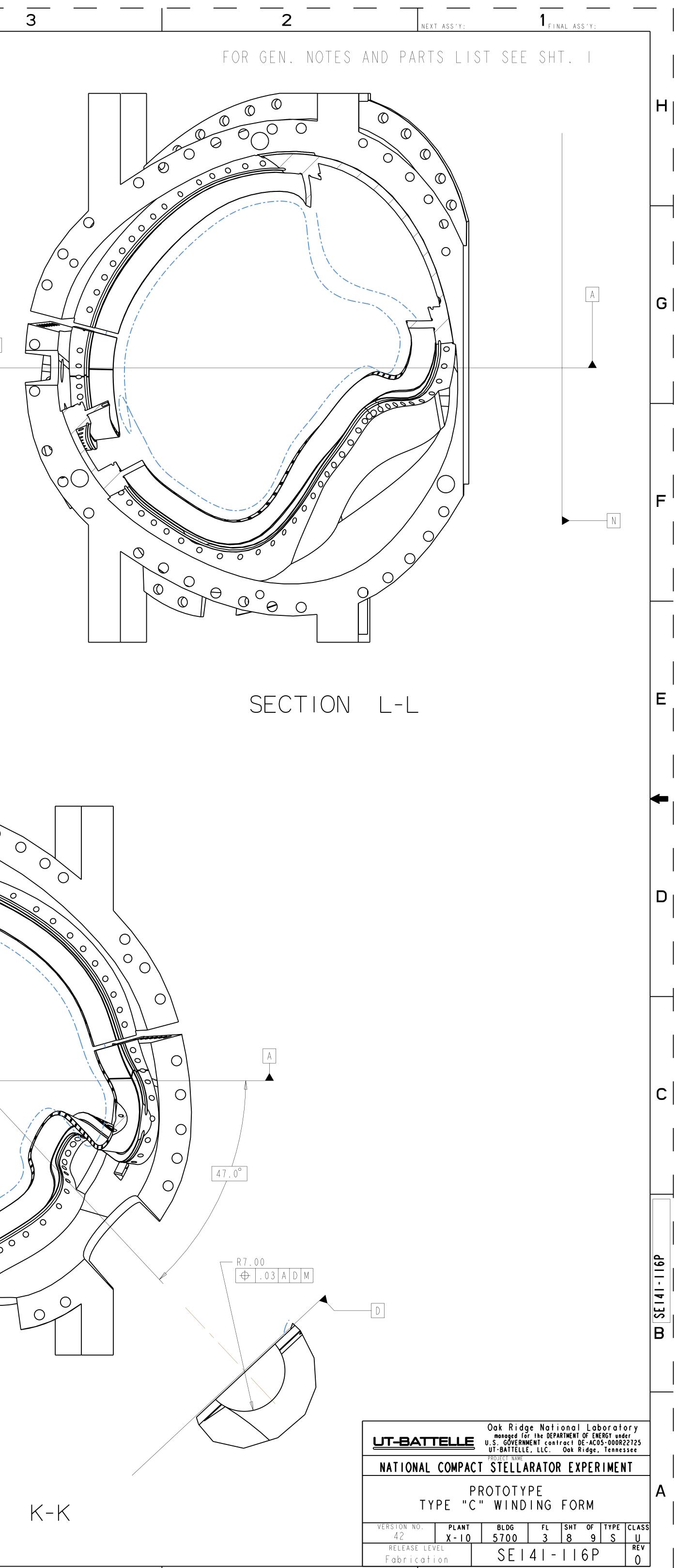
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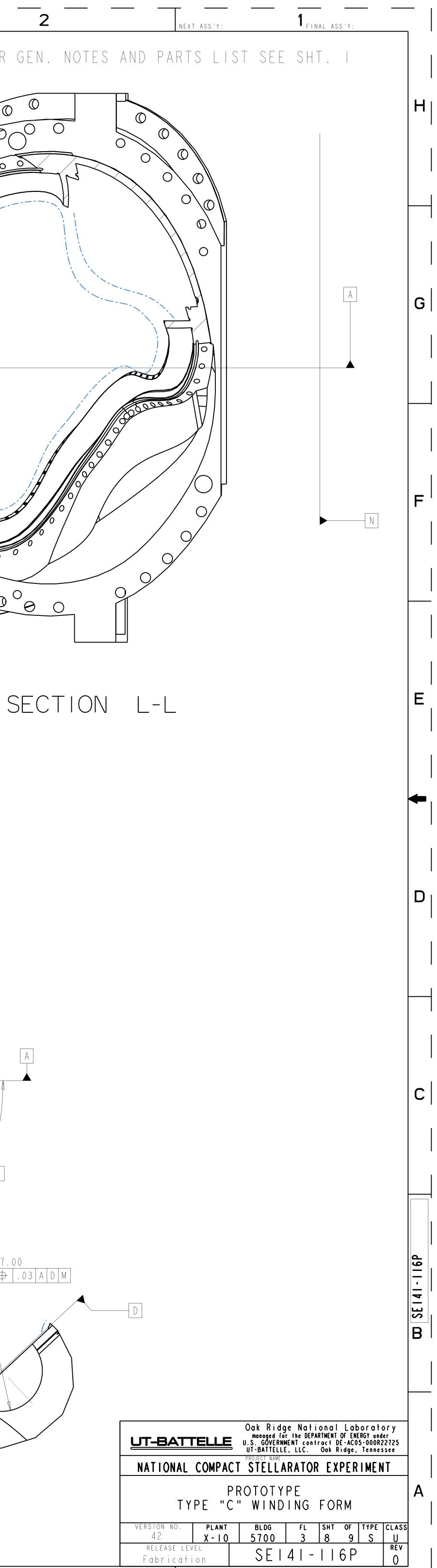
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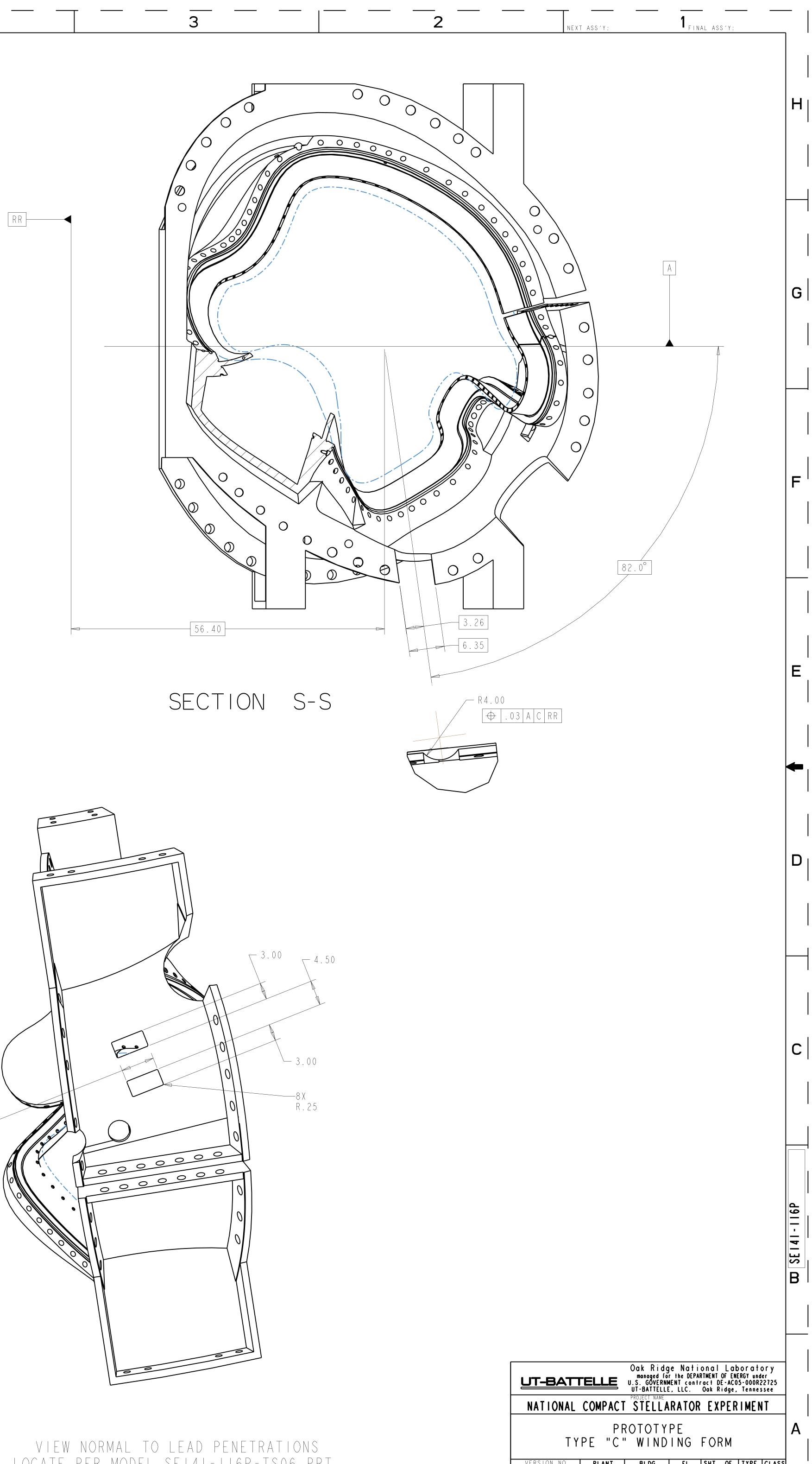
| TABLE I WINDING CENTER SPLINE   | TABLE II X-VECTOR SPLINE   | TABLE III SPHERICAL SEAT CENTERS -SIDE A   | TABLE IV SPHERICAL SEAT CENTERS - SIDE |
|---|--|--|--|
| (FILE SEI4I-II6P-WC.TXT)  | (FILE SEI4I-II6P-XV.TXT)   | (FILE SEI4I-II6P-SA.TXT)   | (FILE SEI4I-II6P-SB.TXT)               |
| ks.         x         y         7           1         2         56.276         57.366         1.503           2         55.476         58.526         3.327           4         55.476         58.526         3.327           4         55.476         58.526         3.327           4         55.476         58.526         3.608           5         3.4.71         58.622         2.743           8         54.360         55.526         2.031           1         51.421         50.528         2.031           1         51.421         50.528         2.031           1         34.737         40.53         22.690           1         34.004         47.830         26.018           1         34.004         47.830         26.018           1         34.003         45.221         30.852           2         7.960         41.481         32.355           2         7.972         30.770         32.524           2         7.972         30.770         32.524           2         7.972         30.770         32.524           2         7.972         30.770 <td>X         Y         Z         Y         Z           1         58.022         53.400         0.000           2         58.022         53.400         0.000           5         52.017         53.5100         2.814           4         53.300         1.400         1.400           5         52.644         52.620         1.400           6         52.333         51.417         1.4343           1         50.007         48.926         2.1143           1         48.728         44.984         2.100           1         48.728         44.984         2.100           1         47.744         44.744         44.344           5         44.774         45.737         2.128           3         8.32.944         43.919         27.738           20         52.1742         35.853         1.9005           21         2.838         36.633         1.9005           22         2.826         33.4337         1.900           23         2.257         42.928         303           23         2.2617         37.806         2.6007           24         23.325</td> <td>50       53.722       23.494       -10.000         57       32.965       27.221       -18.165         58       32.219       28.942       -19.938         59       31.789       30.680       -22.037         60       31.601       32.532       -24.252</td> <td>54 38.929 21.791 -14.993</td> | X         Y         Z         Y         Z           1         58.022         53.400         0.000           2         58.022         53.400         0.000           5         52.017         53.5100         2.814           4         53.300         1.400         1.400           5         52.644         52.620         1.400           6         52.333         51.417         1.4343           1         50.007         48.926         2.1143           1         48.728         44.984         2.100           1         48.728         44.984         2.100           1         47.744         44.744         44.344           5         44.774         45.737         2.128           3         8.32.944         43.919         27.738           20         52.1742         35.853         1.9005           21         2.838         36.633         1.9005           22         2.826         33.4337         1.900           23         2.257         42.928         303           23         2.2617         37.806         2.6007           24         23.325 | 50       53.722       23.494       -10.000         57       32.965       27.221       -18.165         58       32.219       28.942       -19.938         59       31.789       30.680       -22.037         60       31.601       32.532       -24.252 | 54 38.929 21.791 -14.993               |

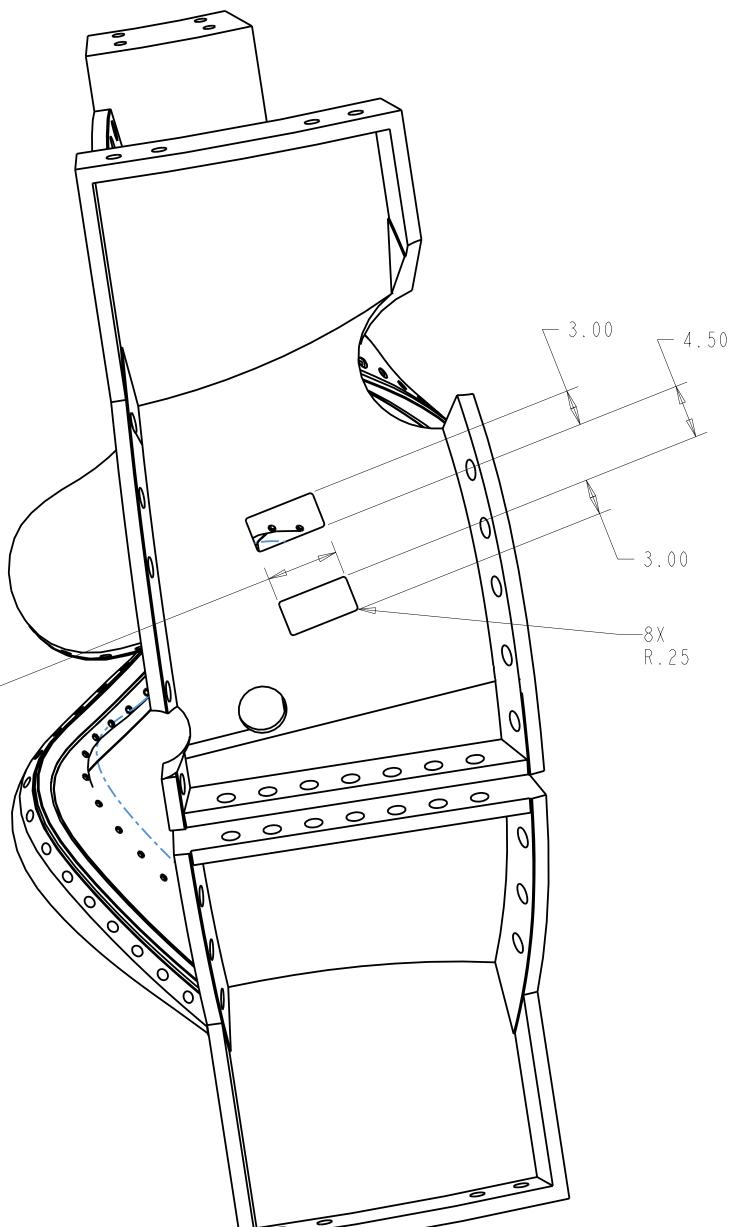
TABLE I AND II LOCATIONS ARE BASIC GROUP 4, TABLES III, IV ELIMINATED BY POLOIDAL BREAK POINT LOCATIONS IN TABLES III AND IV ARE REFERENCE DIMENSIONS

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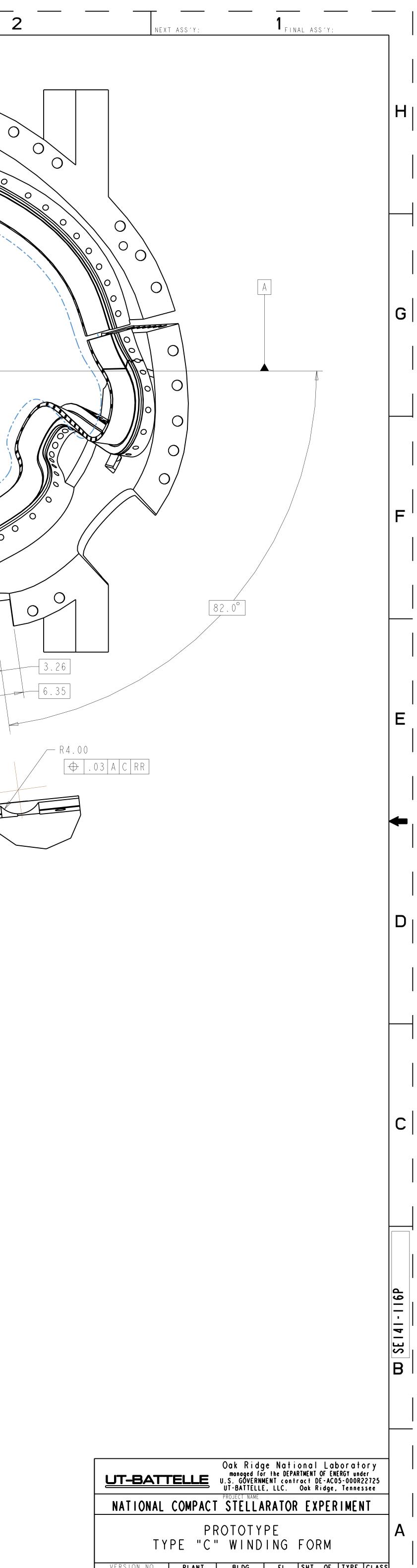
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LOCATE PER MODEL SEI4I-II6P-TS06.PRT scale: .125



RELEASE LEVEL

Fabrication

 $\mathbf{a}$ 

SE | 4 | - | | 6 P

