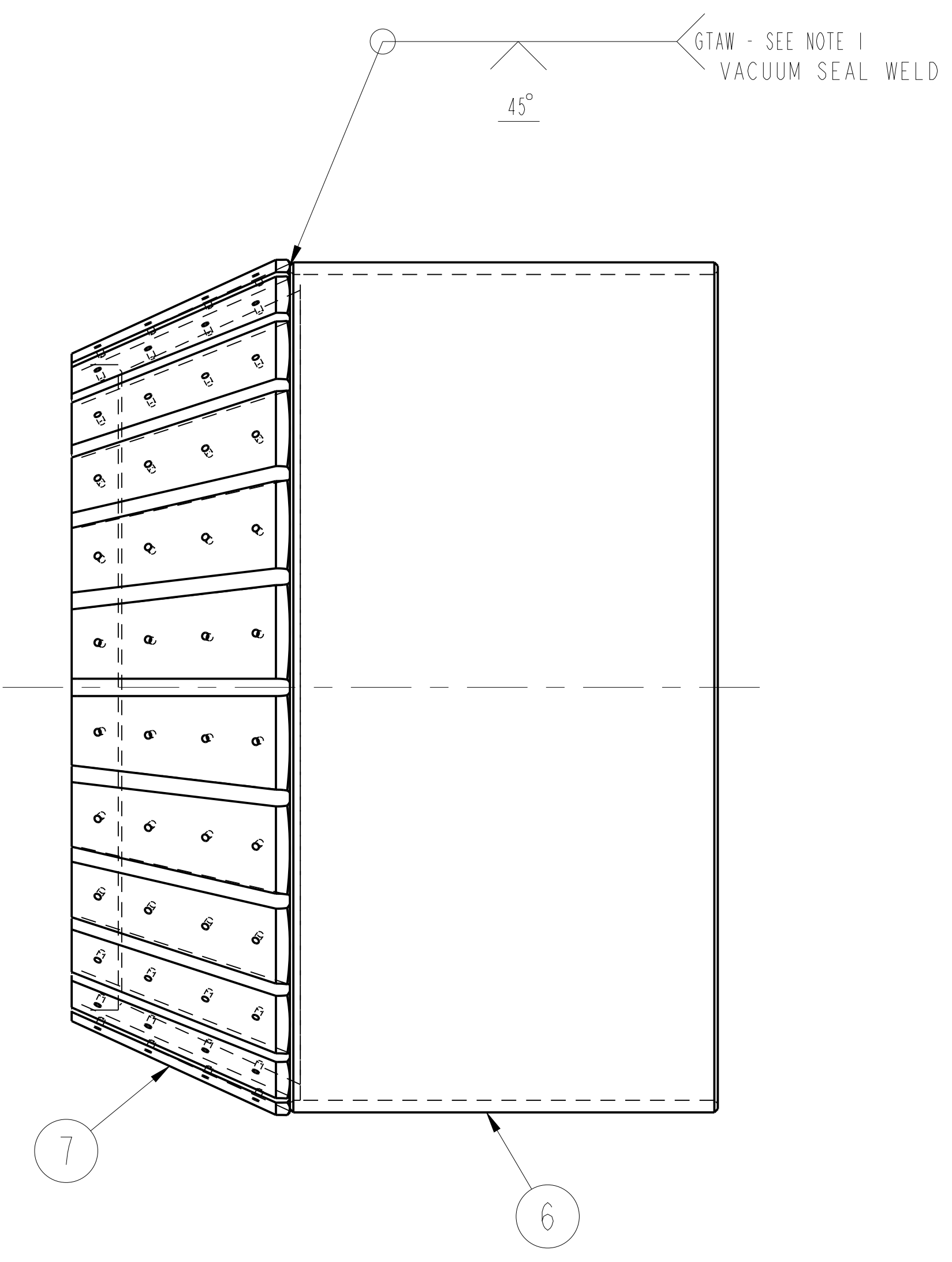
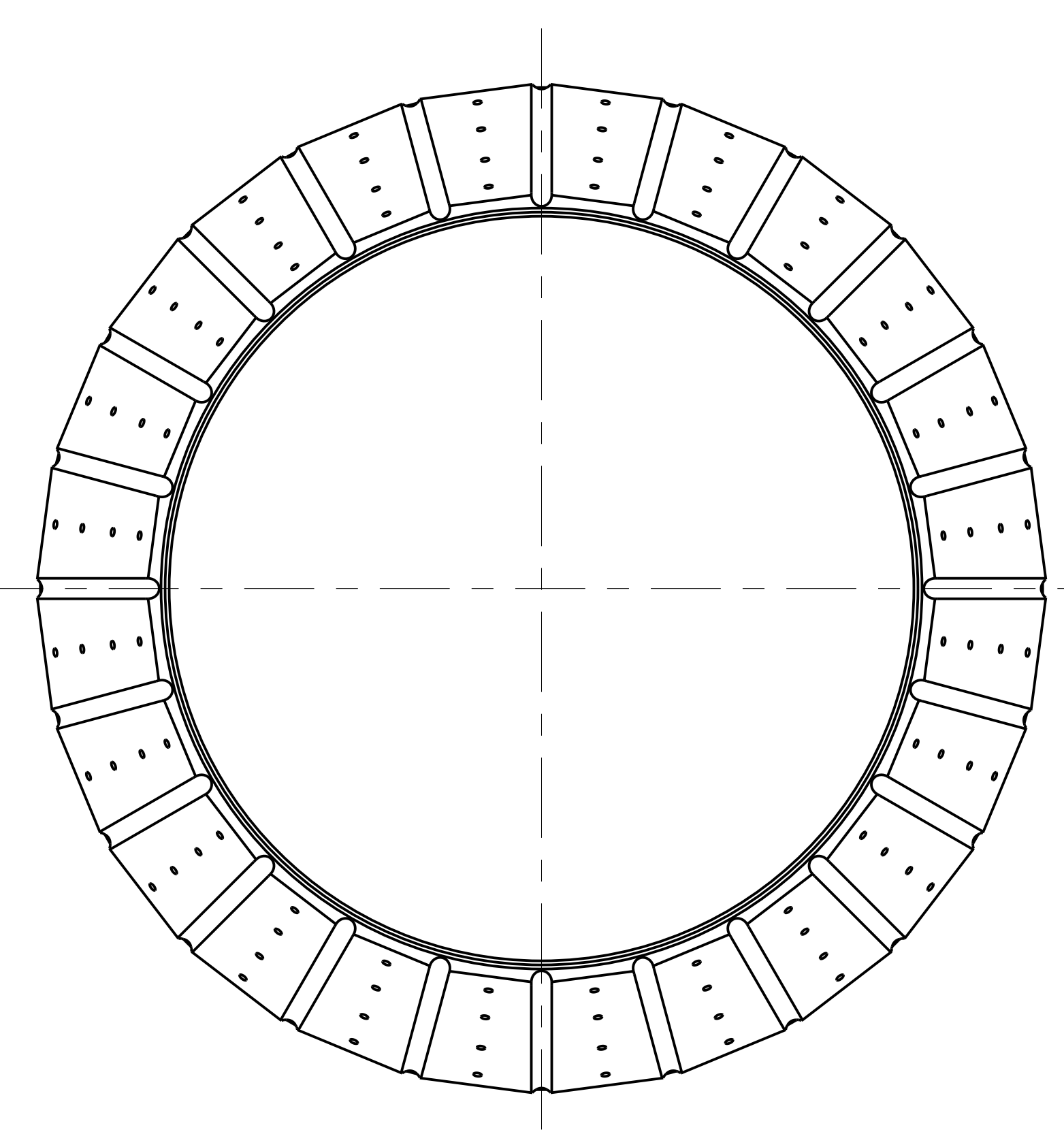
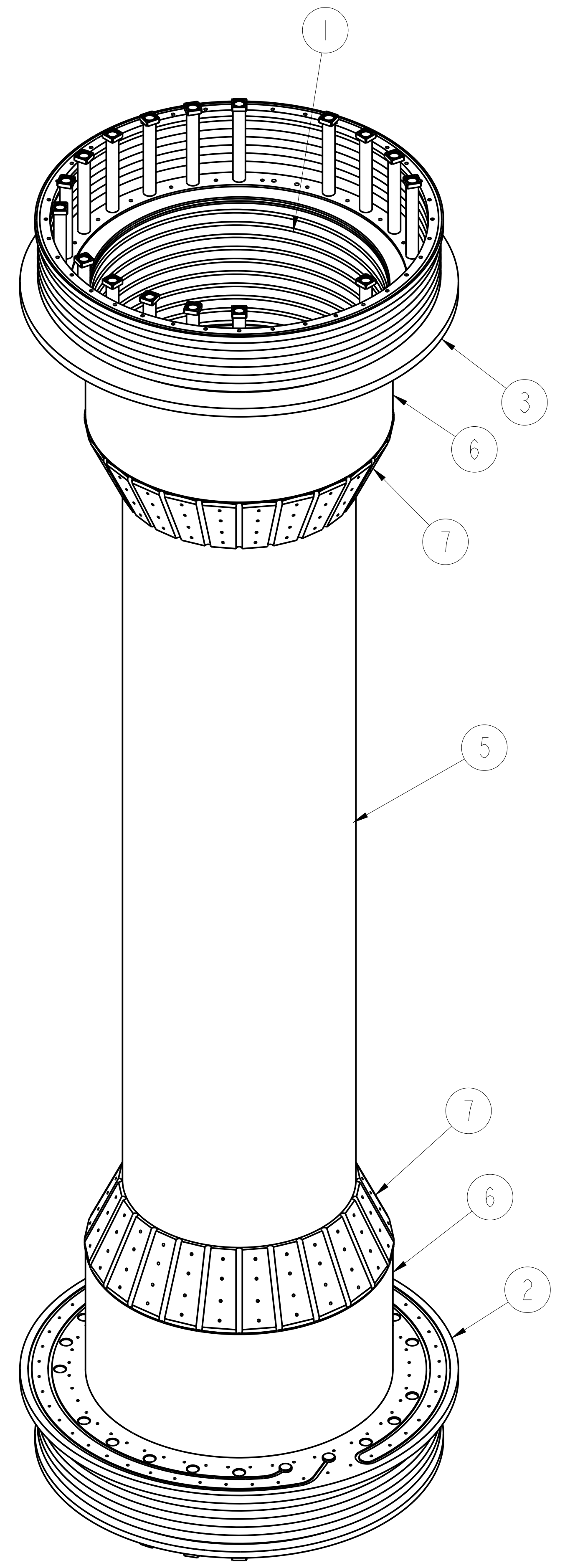


NO.	REVISION	BY	CH	SUP	APPROVED	DATE
1	REVISED PER ECN-6819	LM	JC	LM	J. CHRZANOWSKI	1/10/2012
2	REVISED PER ECN-6964	LM	JC	LM	J. CHRZANOWSKI	1/12/2012
3	REVISED PER ECN-7226	LM	SR	LM	S. RAFTOPOULOS	4/4/2014



**STEP 1**  
(2) REQ'D  
WELDMENT OF PARTS 6 AND 7



REFERENCE ISOMETRIC VIEW  
OF FINISHED ASSEMBLY

**NOTES**

- WELDING TO BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF ASME SECTION IX. VISUAL WELD INSPECTION TO BE PERFORMED IN ACCORDANCE WITH THE ACCEPTANCE CRITERIA OF ASME B31.3.
- ALL BRAZES ARE TO BE LEAK TIGHT. BRAZING TO BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF ASME SECTION IX. VISUAL INSPECTION TO BE PERFORMED IN ACCORDANCE WITH THE ACCEPTANCE CRITERIA OF ASME B31.9.
- CENTERSTACK CASE COOLANT TUBE TO BE  $\varnothing 3/8"$  REFRIGERATOR GRADE COPPER TUBE. TUBE IS TO BE FORMED IN PLACE TO CONFORM WITH GROOVE IN ADAPTER FLANGE AND TRANSITION SLEEVE. TUBE IS TO BE SECURED IN PLACE WITH .005" THICK 316 SS FOIL STRIPS SPOT WELDED TO FACE OF ADAPTER FLANGE AND TRANSITION SLEEVE.
- SCRIBE LINE IN UPPER DIVERTOR FLANGE WELDMENT, PART 3, AT LOCATION SHOWN TO DELINEATE "NORTH" ORIENTATION OF WELDMENT ASSEMBLY. LINE WIDTH TO BE MINIMUM OF 1/32". ETCH "NORTH" IN 3/8" HIGH LETTERS IN LOCATION SHOWN.
- MAGNETIC PERMEABILITY AS DETERMINED WITH SEVERN GAUGE SHALL NOT EXCEED THE FOLLOWING:  
 1.02  $\mu$  FOR INCONEL-TO-INCONEL WELDS  
 1.2  $\mu$  FOR 316 S/S BASE METAL PARTS  
 2.0  $\mu$  FOR 316 S/S-TO-316 S/S WELDS  
 2.0  $\mu$  FOR 316 S/S-TO-INCONEL WELDS

2	11	THIS DWG	3/8" TO 1/4" ADAPTER STUB	316 S/S
2	10	COMM	3/8" COUPLING	Cu
2	9	COMM	3/8" x 1/4" REDUCER COUPLING	Cu
2	8	COMM	1/4" COUPLING	Cu
2	7	E-DC1439	CENTER CASE SLEEVE ADAPTER FLANGE - MACHINING	SEE DWG
2	6	E-DC1437	CENTER CASE TRANSITION SLEEVE	SEE DWG
2	5	E-DC1436	CENTER CASE MAIN SLEEVE	SEE DWG
4	4	E-DC1432-3	CENTER CASE COOLANT TUBE FEEDTHROUGH PUCK	SEE DWG
1	3	E-DC1425-02	UPPER DIVERTOR FLANGE WELDMENT	SEE DWG
1	2	E-DC1425-01	LOWER DIVERTOR FLANGE WELDMENT	SEE DWG
A/R	1	THIS DWG	CENTER CASE COOLANT TUBE	SEE NOTE 2
X		THIS DWG	CENTER CASE WELDMENT AND FINAL MACHINING	

01 ASSY	PART NO.	DRAWING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL	QTY REQD
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**PARTS LIST**

COMPUTER GENERATED DRAWING MANUAL CHANGES NOT PERMITTED Pro E	CENTRAL FILES: UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES MACHINE SURFACES BREAK SHARP EDGES .055/.020 SCALE: 1/4"	PRINCETON PLASMA PHYSICS LABORATORY NATIONAL SPHERICAL TORUS EXPERIMENT CENTERSTACK UPGRADE CENTERSTACK ASSEMBLY CENTER CASE WELDMENT AND FINAL MACHINING
DO NOT VERIFY INFORMATION BY SCALING DRAWING SCALE: 1/4"	TOLERANCES - NON-CUMULATIVE DECIMAL - INCH FRACTIONS XX .0100 .0125 .0150 .0175 .0200 XXX .010 .0125 .0150 .0175 .0200 ANGULAR .05°.15° .0625°.125° .075°.150° .0875°.175° .100°.200°	DIV: MECH. ENG. DATE: 8-17-2011 ENG: J. CHRZANOWSKI DSN: L. MORRIS CHK: J. CHRZANOWSKI
RELEASE LEVEL: FABRICATION DWG VERSION NO: 3.0	WELDING ENGINEER DATE: WELDING ENGINEER DATE: 8-17-2011	APPROVED E-DC1435 SHEET 1 OF 4 REV 3

RELEASED FOR FABRICATION/INSTALLATION  
PPPL Drafting

**GENERAL NOTES**

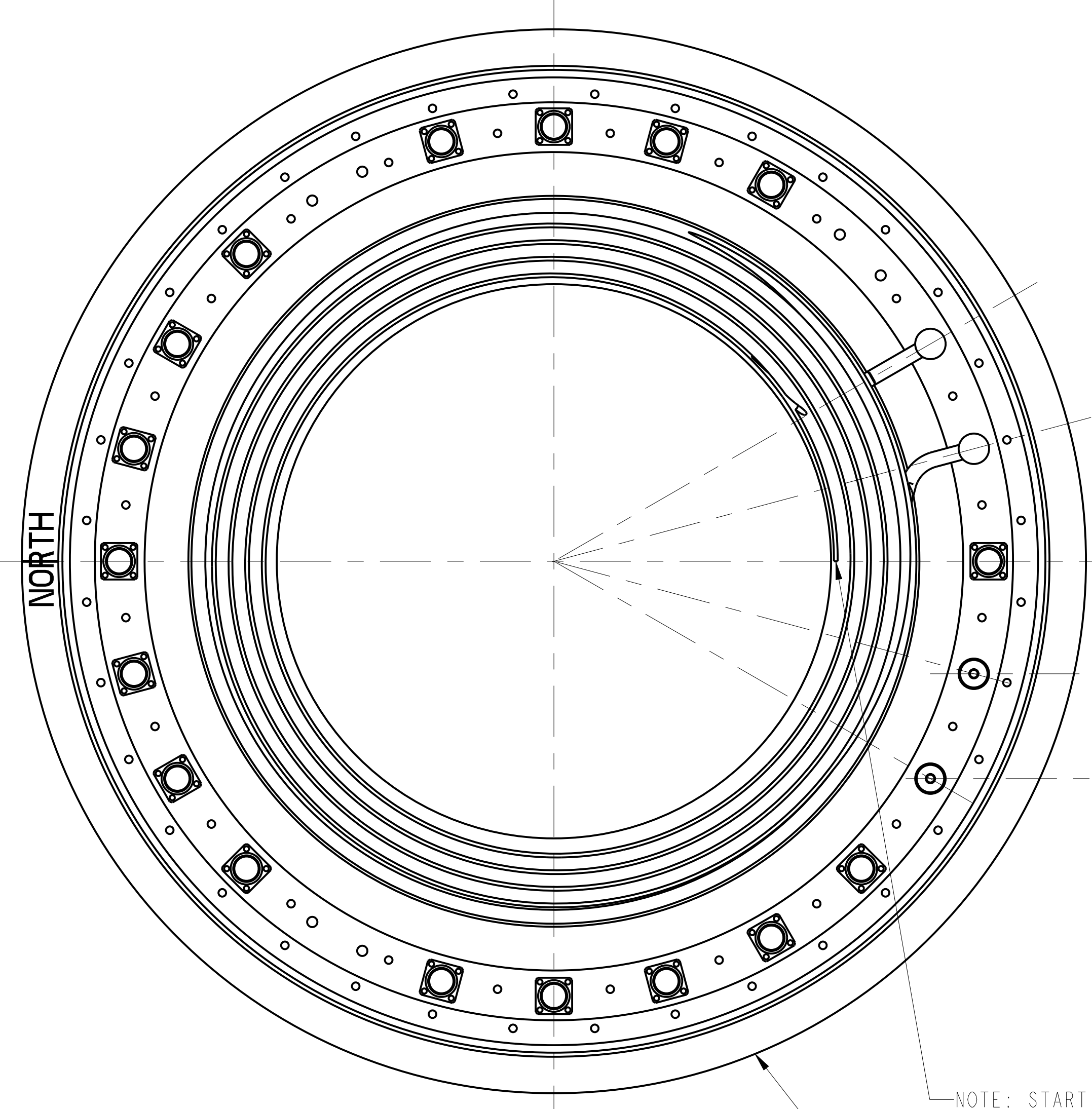
- PPPL APPROVED DRAWINGS TAKE PRECEDENCE OVER MODEL DIMENSIONS.
- WHEN MODELS ARE PROVIDED, VENDOR MUST VERIFY THAT MODEL DIMENSIONS CONFORM WITH PPPL APPROVED DRAWINGS PRIOR TO FABRICATION.

MAGNETIC PERMEABILITY REQUIREMENT (SEE NOTES)	
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NO	<input type="checkbox"/>

INSTX-E-DC1443



NO.	REVISION	BY	CH	SUP	APPROVED	DATE

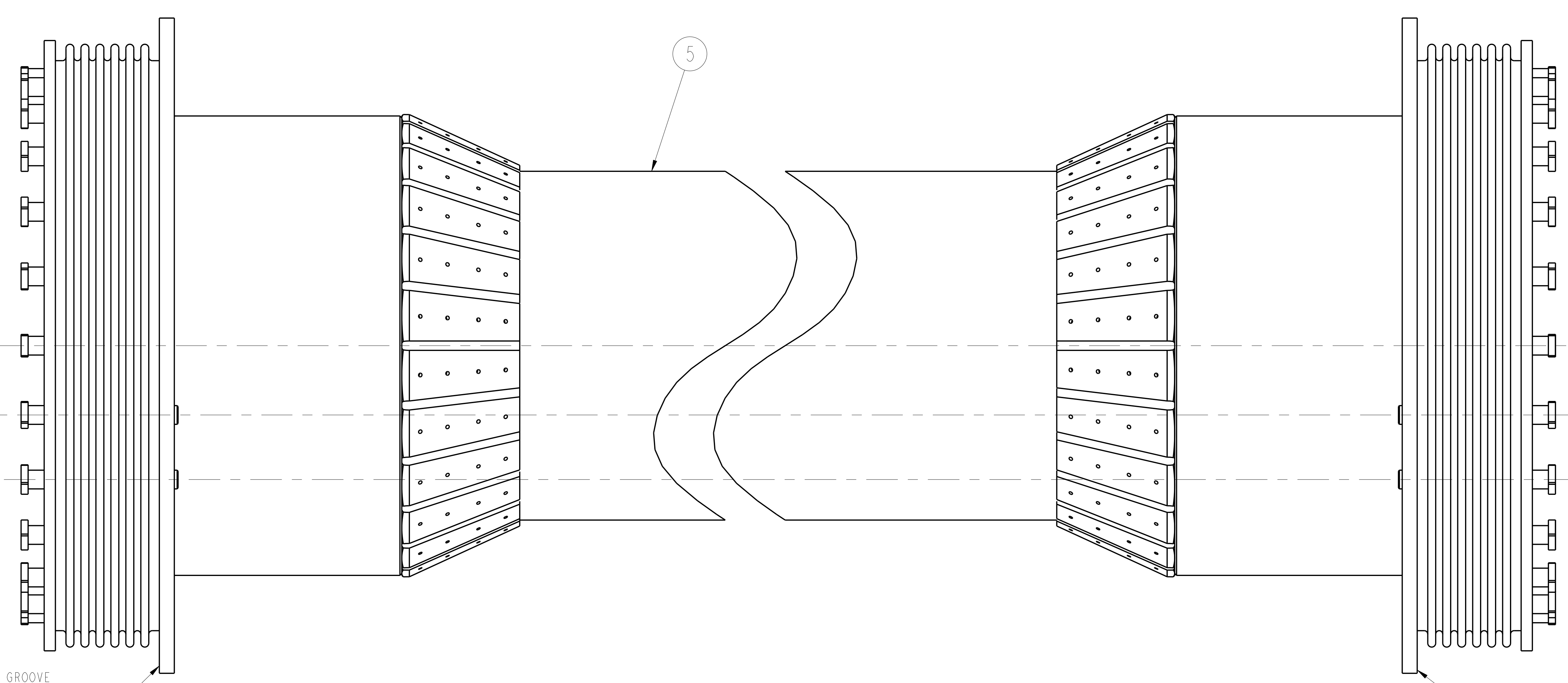


PLAN VIEW

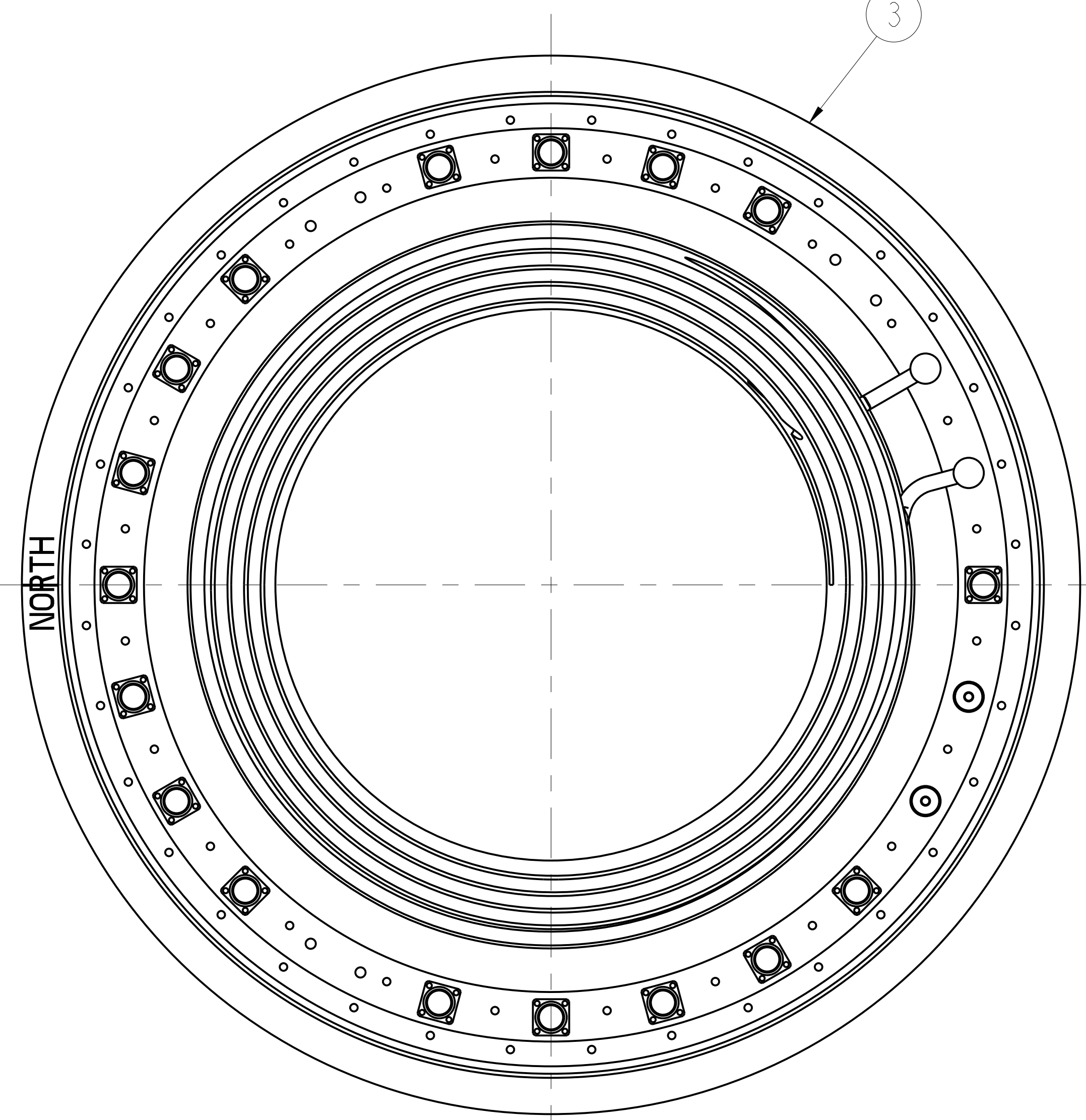
STEP 3

WELD SUBASSEMBLY OF PARTS 6 AND 7 (FROM SHEET 1) TO PARTS 2, 3 AND 5 PAYING STRICT ATTENTION TO THE CORRECT ORIENTATION OF PARTS

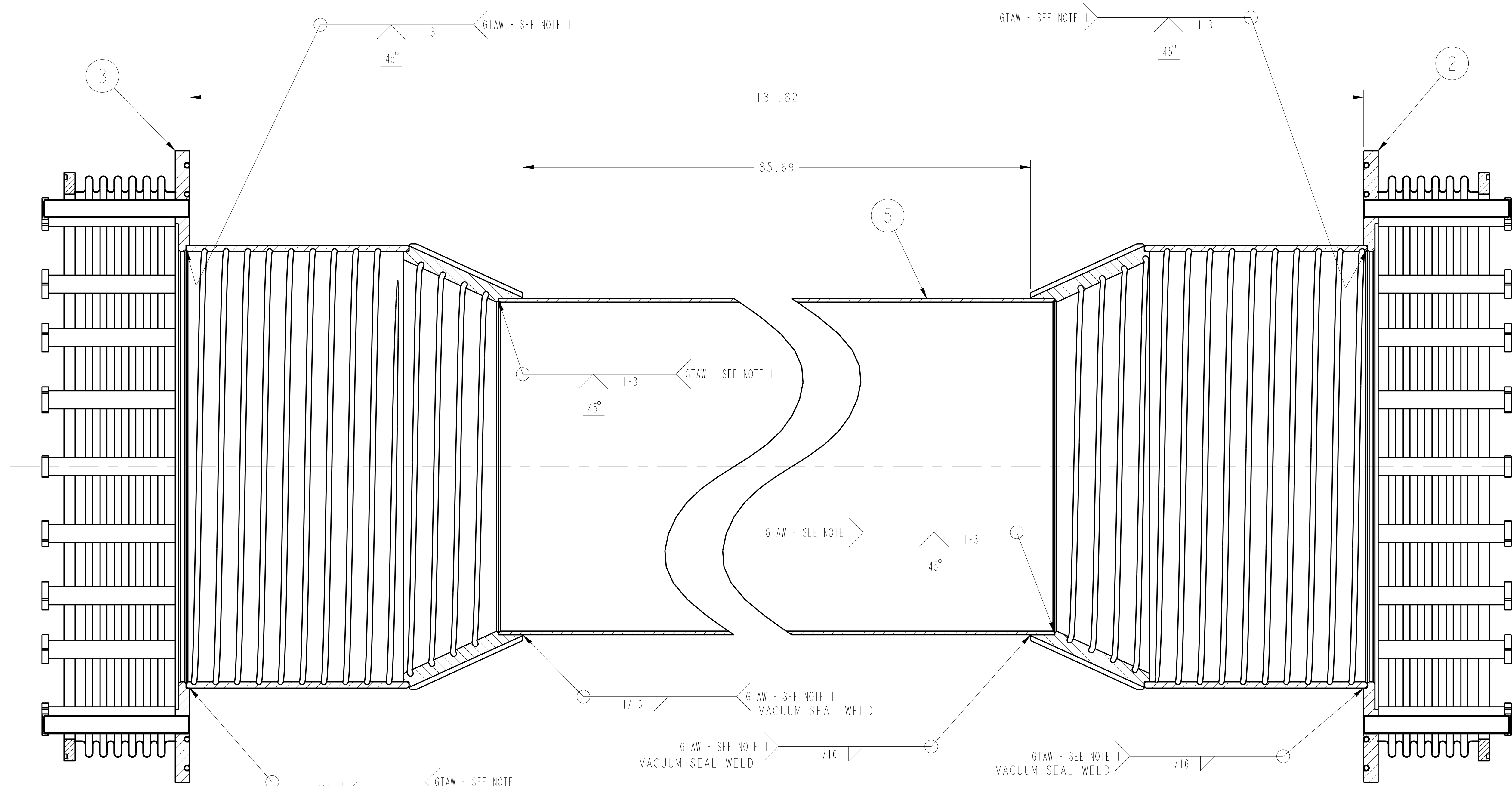
NOTE: START POINT OF GROOVE FOR COOLANT TUBE



NOTE ORIENTATION OF PARTS PRIOR TO WELDING



PLAN VIEW



SECTION A-A

FOR NOTES AND BILL OF MATERIAL SEE SHEET 1

**GENERAL NOTES**

- PPPL APPROVED DRAWINGS TAKE PRECEDENCE OVER MODEL DIMENSIONS.
- WHEN MODELS ARE PROVIDED, VENDOR MUST VERIFY THAT MODEL DIMENSIONS CONFORM WITH PPPL APPROVED DRAWINGS PRIOR TO FABRICATION.

MAGNETIC PERMEABILITY REQUIREMENT (SEE NOTES)	
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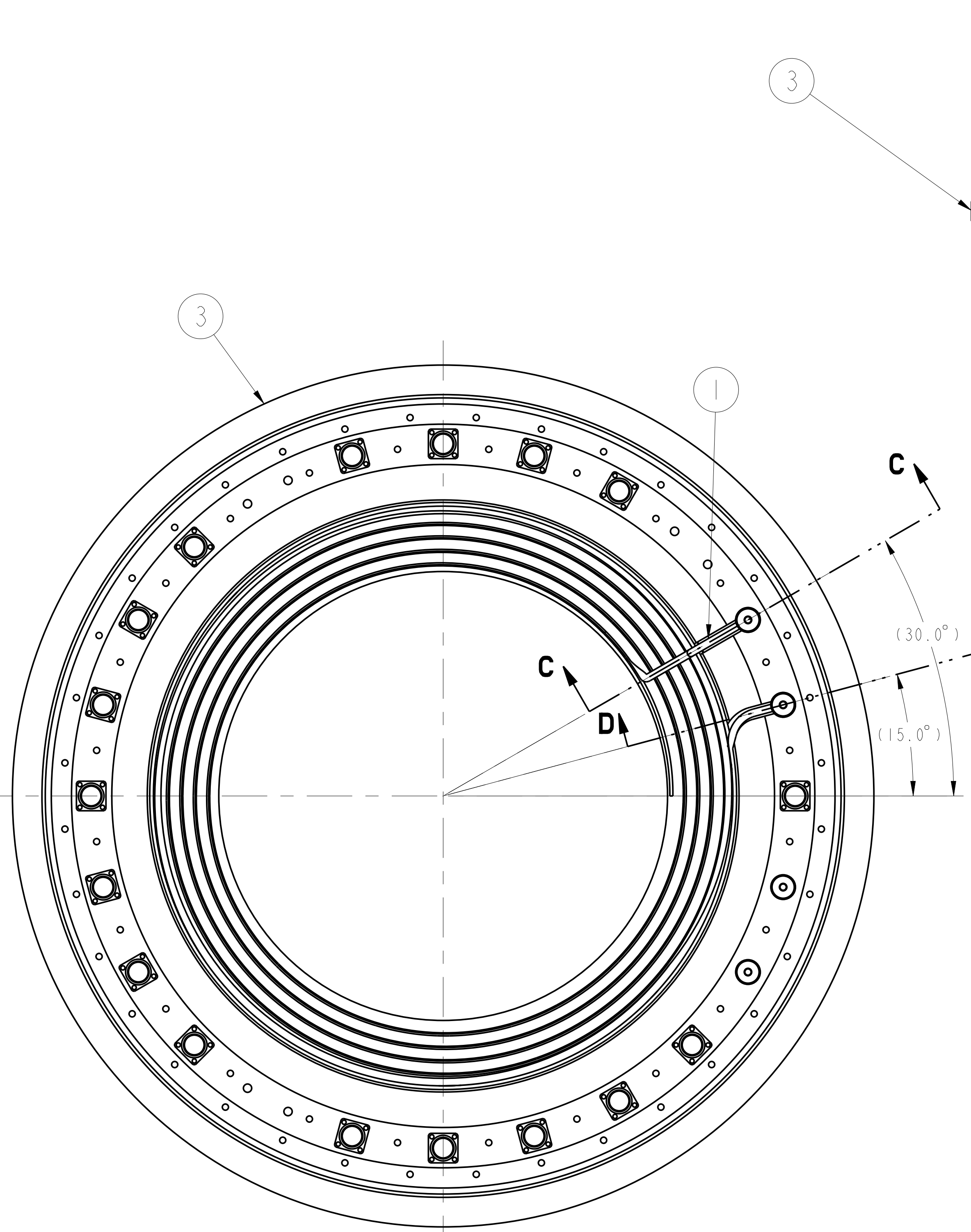
RELEASED FOR FABRICATION / INSTALLATION  
PPPL Drafting

RELEASE LEVEL: FABRICATION  
DWG VERSION NO: 3.0

WELDING ENGINEER  
APPROV: W. BENNETT DATE: 8-17-2011

COMPUTER GENERATED DRAWING MANUAL CHANGES NOT PERMITTED Pro E	CENTRAL FILES: UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES MACHINE SURFACES BREAK SHARP EDGES .005/ .020	PRINCETON PLASMA PHYSICS LABORATORY PRINCETON UNIVERSITY NATIONAL SPHERICAL TORUS EXPERIMENT CENTERSTACK UPGRADE CENTERSTACK ASSEMBLY CENTER CASE WELDMENT AND FINAL MACHING
DO NOT VERIFY INFORMATION BY SCALING DRAWING	TOLERANCES - NON-CUMULATIVE DECIMAL - INCH FRACTIONS ± .000 .0125 ± .010 ± .030 .025 ± .015 ± .010 .025 ± .015 ANGULAR .05° ± .010	DIV: MECH. ENG. DATE: 8-17-2011 ENG: J. CHRZANOWSKI DSN: L. MORRIS J. H. CHRZANOWSKI CHK: J. CHRZANOWSKI
SCALE: 1/4	NEXT ASSEMBLY	APPROVED E-DC1443
SHEET 3 OF 4		REV 3

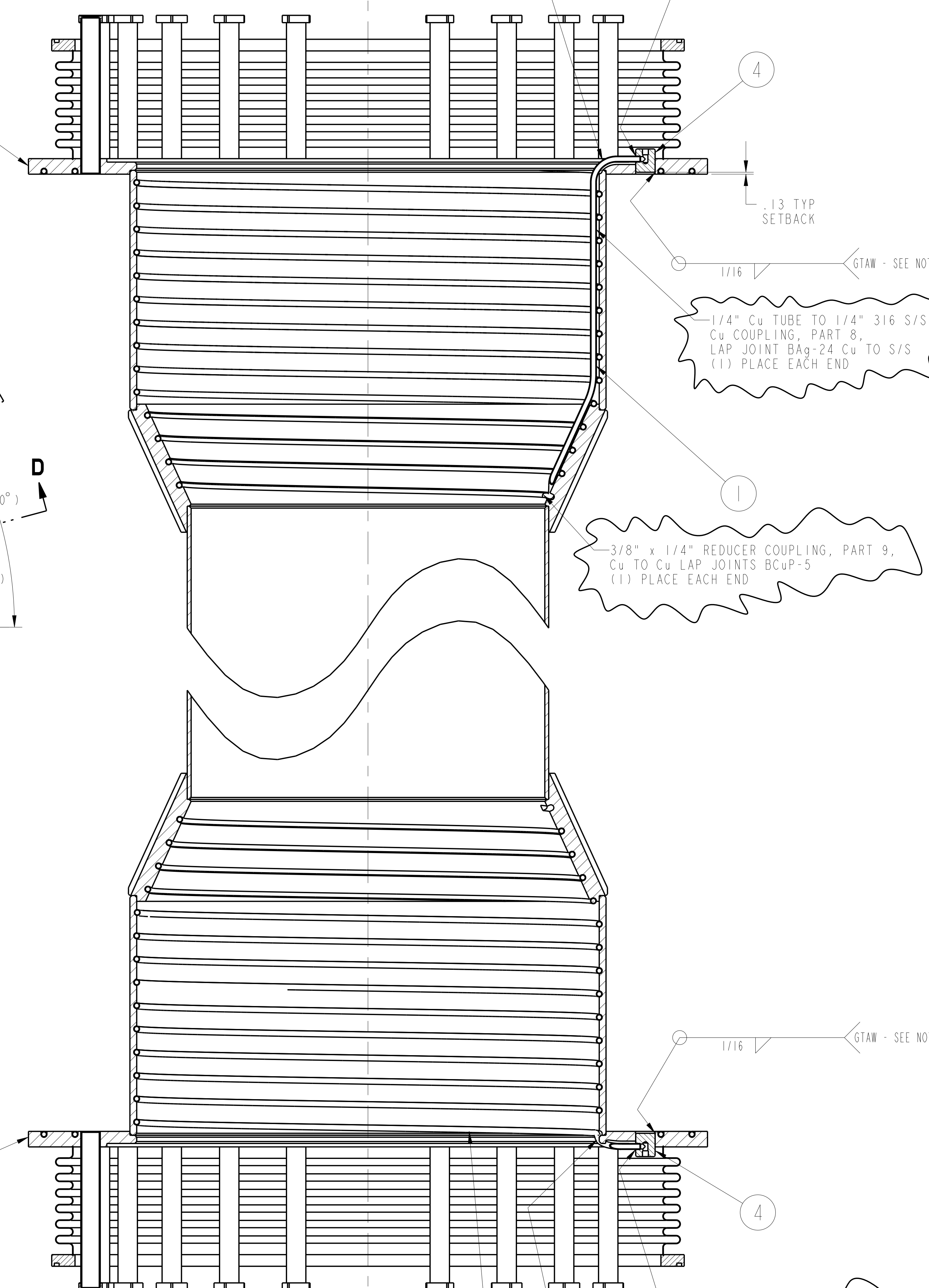
INSTX-E-DC1443



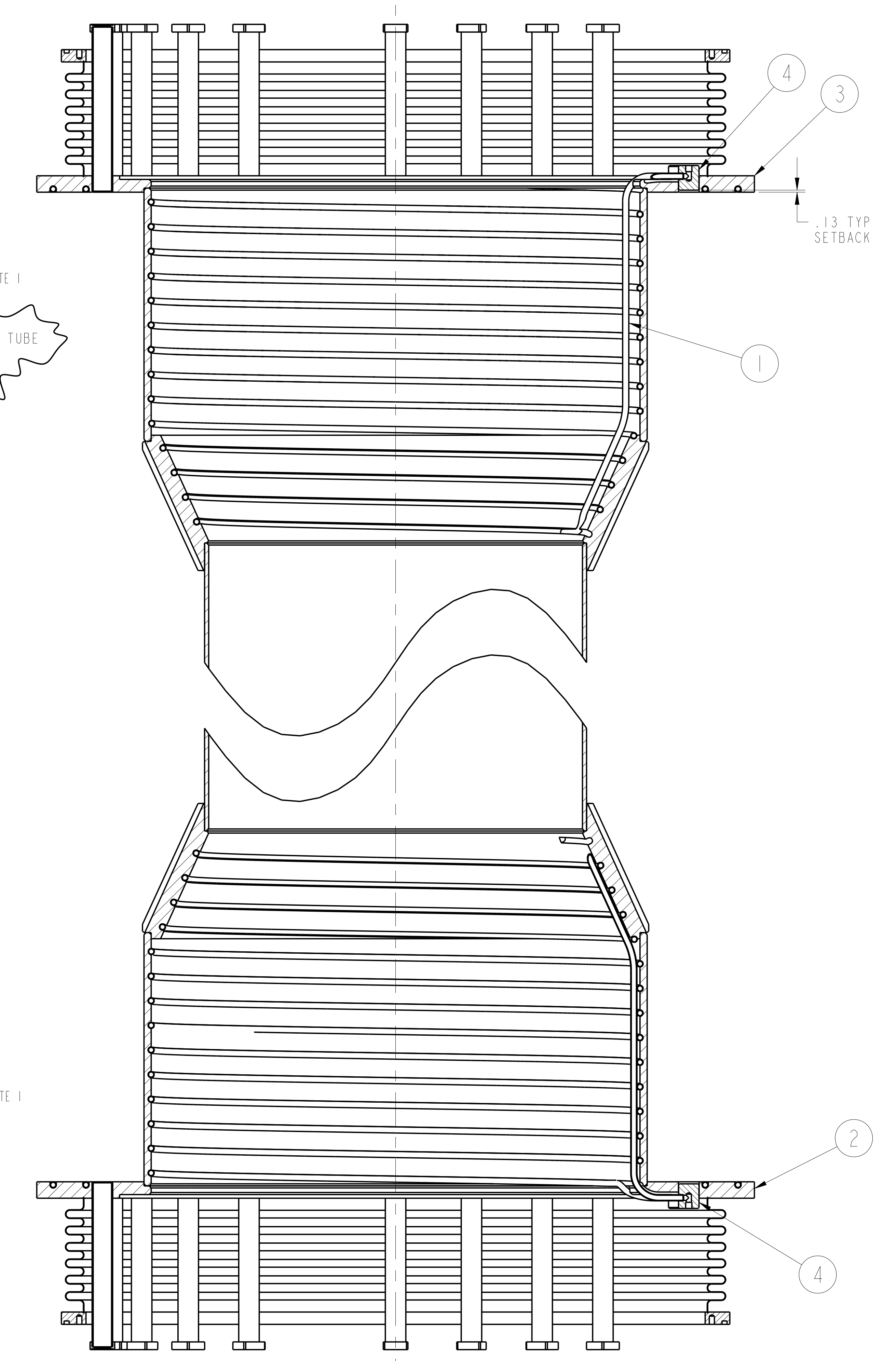
PLAN VIEW

STEP 4

RUN COOLANT TUBE IN COOLANT TUBE GROOVE AND BRAZE TO FITTINGS. WELD FITTINGS TO DIVERTOR FLANGES.



SECTION C-C



SECTION D-D

GTAW - SEE NOTE 1  
 3/8" 316 S/S ADAPTER STUB, PART 11, TO PUCK  
 1/4" 316 S/S TO 3/8" 316 S/S TUBE STUB  
 TYP (1) PLACE EACH END

THIS ARRANGEMENT IS A ONE TIME APPLICATION TO REDUCE THE TUBE SIZE FROM 3/8" TO 1/4" O.D. USING THE EXISTING PUCK.

IF THE CENTER CASE ASSEMBLY IS RE-BUILT, THE MOUNTING HOLE IN THE PUCK WILL BE MADE TO THE CORRECT SIZE FOR 1/4" TUBING.

1/4" Cu TUBE TO 1/4" 316 S/S TUBE  
 Cu COUPLING, PART 8,  
 LAP JOINT BA9-24 Cu TO S/S  
 (1) PLACE EACH END

3/8" x 1/4" REDUCER COUPLING, PART 9,  
 Cu TO Cu LAP JOINTS BCuP-5  
 (1) PLACE EACH END

GTAW - SEE NOTE 1  
 3/8" 316 S/S TUBE TO PUCK  
 TYP (1) PLACE EACH END

GTAW - SEE NOTE 1  
 3/8" 316 S/S TUBE TO 3/8" 316 S/S TUBE  
 (1) PLACE EACH END

3/8" Cu TO 3/8" 316 S/S  
 Cu COUPLING, PART 10, LAP JOINTS  
 BCuP-5 AND BA9-24  
 (1) PLACE EACH END

FOR NOTES AND BILL OF MATERIAL SEE SHEET 1

GENERAL NOTES

- PPPL APPROVED DRAWINGS TAKE PRECEDENCE OVER MODEL DIMENSIONS.
- WHEN MODELS ARE PROVIDED, VENDOR MUST VERIFY THAT MODEL DIMENSIONS CONFORM WITH PPPL APPROVED DRAWINGS PRIOR TO FABRICATION.

MAGNETIC PERMEABILITY REQUIREMENT (SEE NOTES)	
YES	<input checked="" type="checkbox"/>
NO	<input type="checkbox"/>

RELEASE LEVEL: FABRICATION  
 DWG VERSION NO: 3.0

RELEASED FOR FABRICATION / INSTALLATION  
 PPPL Drawing

WELDING ENGINEER  
 APPVD: \_\_\_\_\_ DATE: \_\_\_\_\_

COMPUTER GENERATED DRAWING MANUAL CHANGES NOT PERMITTED Pro E	CENTRAL FILES: UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES MACHINE SURFACES	PRINCETON PLASMA PHYSICS LABORATORY PRINCETON UNIVERSITY NATIONAL SPHERICAL TORUS EXPERIMENT CENTERSTACK UPGRADE CENTERSTACK ASSEMBLY CENTER CASE WELDMENT AND FINAL MACHINING
DO NOT VERIFY INFORMATION BY SCALING DRAWING	BREAK SHARP EDGES .005/.020	DIV: MECH. ENG. DATE: 8-17-2011
SCALE: 1/4	TOLERANCES NON-CUMULATIVE	APPROVED
NEXT ASSEMBLY	DECIMAL-INCH FRACTIONS	ENG: J. CHRZANOWSKI
	.XX .030 .07-.12" .25XX	DSN: L. MORRIS J.H. CHRZANOWSKI
	.XX .010 .12-.125" .25XX	CHK: J. CHRZANOWSKI
	ANGULAR .25-.15 .0009-1.00 .25XX	CHK: _____ SUPV: _____
		DATE: 8-17-2011
		E-DC1443
		SHEET 4 OF 4 REV 3

INSTX-E-DC1443