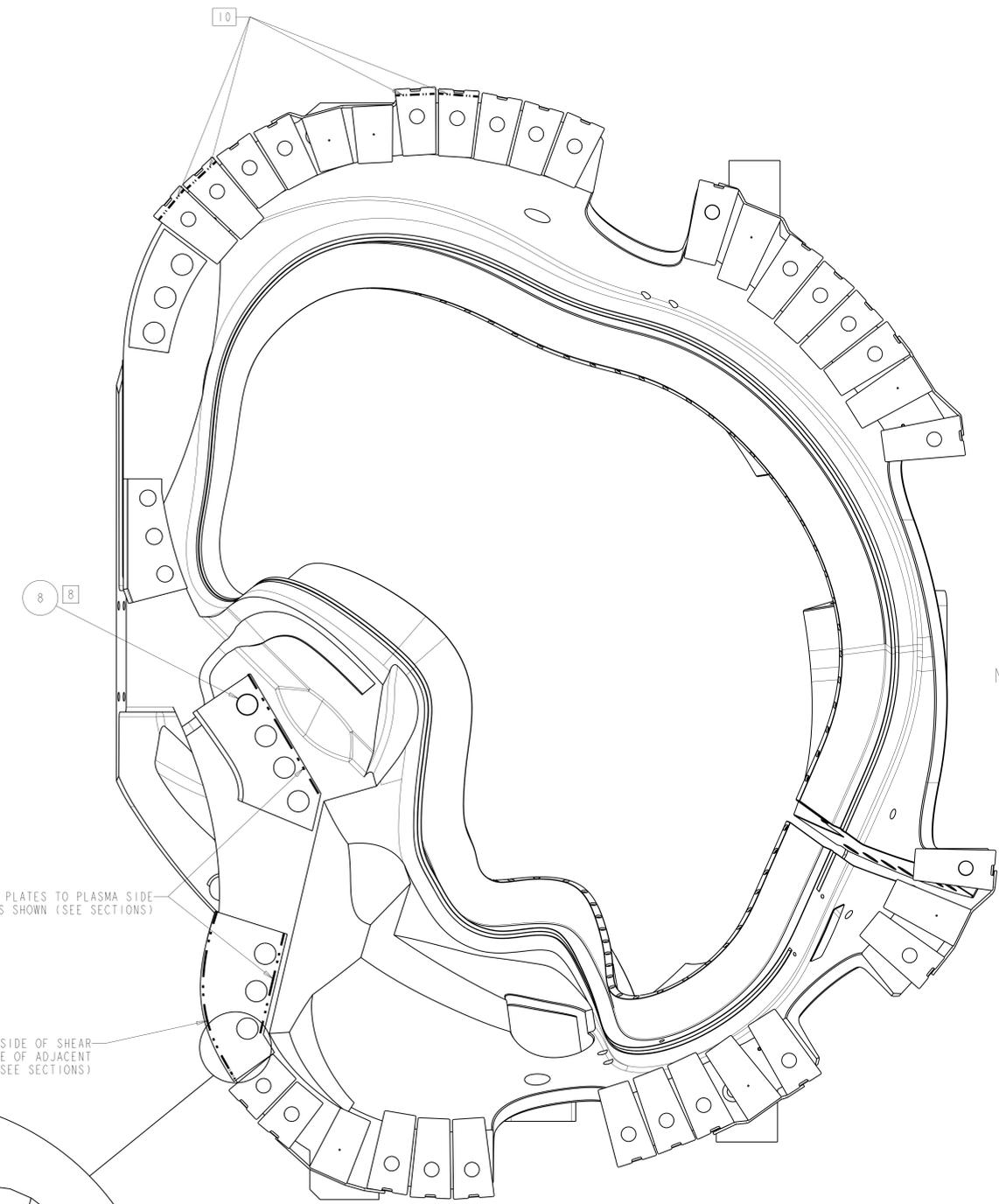


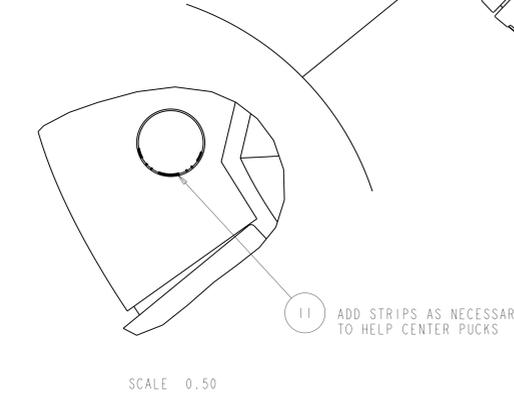
- NOTES
- DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.100-2004.
 - INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994.
 - DIMENSIONS ARE IN INCHES
 - MAGNETIC PERMEABILITY NOT TO EXCEED 1.02 AS TESTED BY A SEVERN INDICATOR. AVAILABLE FROM:
SEVERN ENGINEERING
AUBURN, ALABAMA 36830
WWW.SEVERNENGINEERING.COM
 - WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF PPPL PROCEDURE ENG-037. VISUAL WELD INSPECTION SHALL BE PERFORMED IN ACCORDANCE WITH THE ACCEPTANCE CRITERIA OF AWS D1.1 SECTION 6.
 - ASSEMBLE PER THIS DRAWING AND SPECIFICATION NCSX-CSPEC-185-02-00.
 - SEE SHIM AND SHEAR PLATE DRAWINGS SE140-041, SE140-052, AND SE140-053 FOR ADDITIONAL INFORMATION.
 - PUCKS TO BE CUSTOM SIZED PRIOR TO INSTALLATION. SEE PUCK DRAWING SE140-056 FOR ADDITIONAL INFORMATION.
 - THESE SHIMS ARE NOT LOCATED ON STUDS AND ARE TO BE WELDED IN PLACE APPROX AS SHOWN WITH WELD BARS, F/N 12. SHIMS MAY BE ORIENTED IN ANY POSITION BUT MUST BE CLEAR OF POLYDIAL BREAKS AND PORT OPENINGS. SHIMS MAY BE TRIMMED AS REQ'D BUT MUST MAINTAIN .25 MIN EDGE TRACKING WITH CASTING EDGES OR SURFACES. COVER EXPOSED EDGES WITH AN APPROVED COATING TO MAINTAIN ELECTRICAL ISOLATION.
 - THESE SHIMS TO BE TRIMMED TO .25 FROM CASTING FLANGE FOR ADDITIONAL ASSEMBLY CLEARANCE. ADDITIONAL SHIMS MAY ALSO BE TRIMMED DURING INSTALLATION AS REQ'D. COVER EXPOSED EDGES WITH AN APPROVED COATING AFTER CUTTING.



NOTE: MOD COILS SHOWN ON ALL SHEETS ARE SHOWN AS PART ONLY FOR CLARITY. SHIMS AND SHEAR PLATES TO BE INSTALLED AND WELDED ON COMPLETED MOD COIL ASSEMBLIES.

WELDING OF SHEAR PLATES TO PLASMA SIDE OF FLANGES AS SHOWN (SEE SECTIONS)

WELDING OF SOLENOID SIDE OF SHEAR PLATES TO MATING FLANGE OF ADJACENT COIL AT ASSEMBLY (SEE SECTIONS)



AB-BC MOD COIL SHIM AND SHEAR PLATE KIT
SCALE .18

SCALE 0.50

WELDING ENGINEER
APPROVED L. DUDEK DATE: 01/08

REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
1	ORIGINAL ISSUE	GM	01/08	MC		01/08						
2	RENUMBERED ALL F/N'S PER ECN # 5336	GM	05/08	MC		05/08						
2	ADDED F/N 6 AND -2 PART NO. ADDED SHEET 7 & 8.	GM	05/08	MC		05/08						
1	TO SE140-003 PER ECN # 5332	GM	05/08	MC		05/08						
1	PER SHEAR PLATE REVISIONS. CHANGED "NEXT ASSY"											
1	LENGTH CHARTS ON SHEET 2 & 3. UPDATED WELD SYMBOLS											
1	PARTS CHANGED SPEC # IN NOTE 6. ADDED SHIM											
1	SE140-041-1 WAS SE140-040. ADDED QTY #'S FOR ALL											
1	ADDED F/N 2, 9, 10 AND SHEET 4, F/N 2.											
1	AND RELATED SHEETS. RENUMBERED ALL F/N'S.											
1	CHANGED DWG TITLE. REMOVED F/N'S 4, 5, 10, 11											
0	ORIGINAL ISSUE	GM	01/08	MC		01/08						

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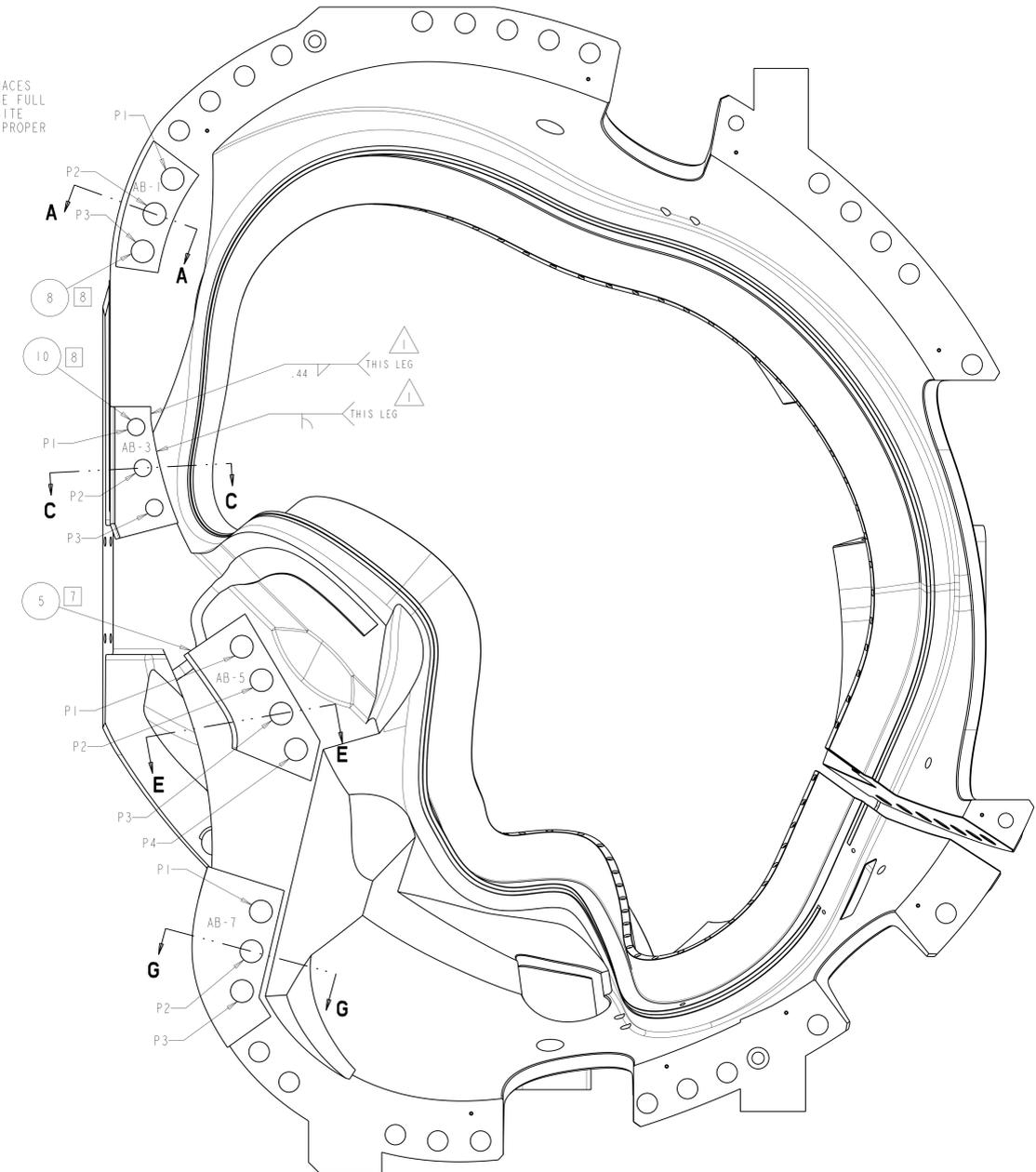
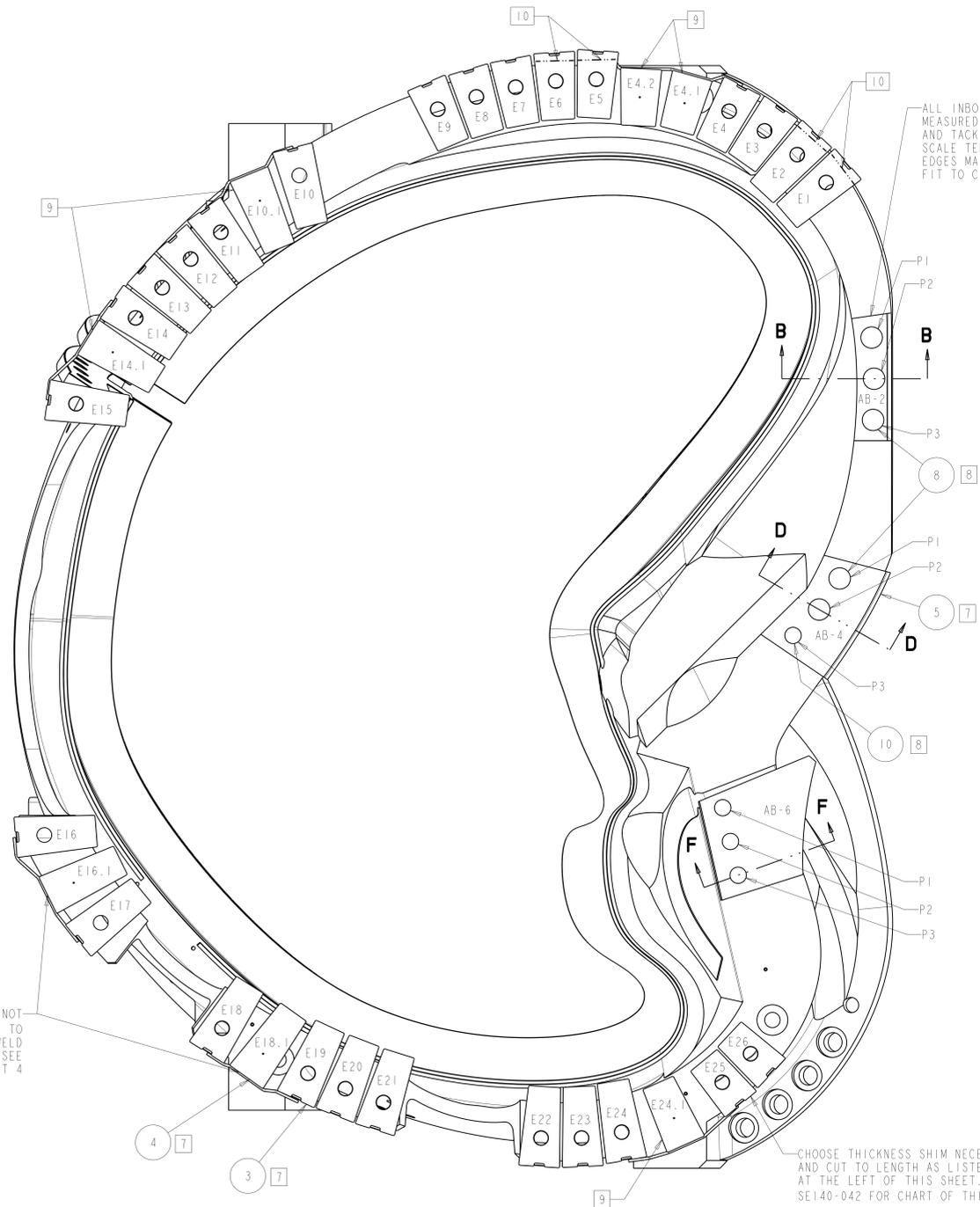
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REV	
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E26	2.75	
E25	2.75	
E24.1		3.75
E24	5.00	
E23	5.00	
E22	5.00	
E21	5.00	
E20	5.00	
E19	5.00	
E18.1		5.00
E18	5.00	
E17	5.00	
E16.1		5.00
E16	5.00	
E15	5.00	
E14.1		5.00
E14	5.00	
E13	5.00	
E12	5.00	
E11	5.00	
E10.1		5.00
E10	5.00	
E9	3.75	
E8	3.75	
E7	3.75	
E6	3.75	
E5	3.75	
E4.2		2.75
E4.1		2.75
E4	3.75	
E3	3.75	
E2	5.00	
E1	5.00	
HOLE NUMBER	BOLTED SHIM LENGTH	NO BOLT SHIM LENGTH



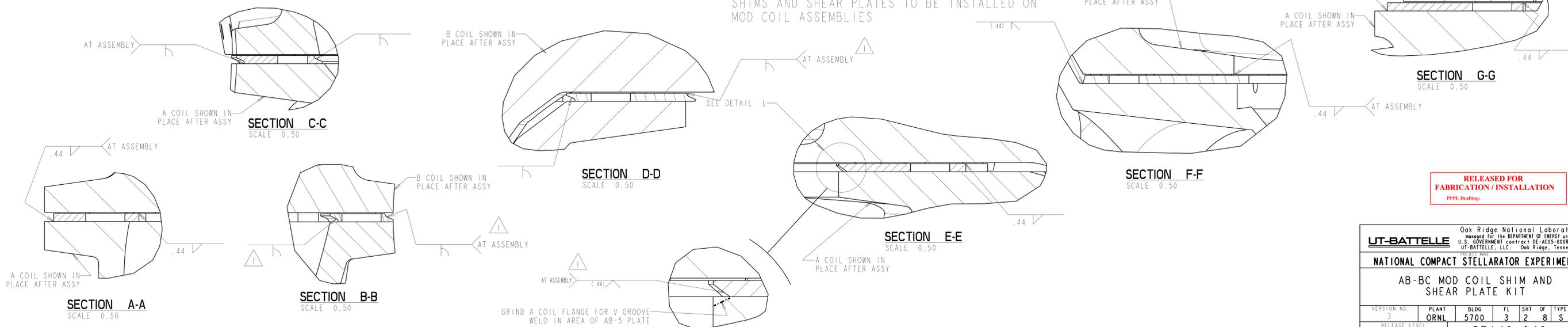
SHIMS LABELED [9] ARE NOT LOCATED ON STUD AND ARE TO BE WELDED IN PLACE WITH WELD BARS APPROX AS SHOWN. SEE SECTIONS ON SHEET 4

CHOOSE THICKNESS SHIM NECESSARY AND CUT TO LENGTH AS LISTED IN CHART AT THE LEFT OF THIS SHEET. SEE DRAWING SE140-042 FOR CHART OF THICKNESS AVAILABLE. [7]

A1-B1 JOINT LOOKING AT THE A COIL B FLANGE (B COIL REMOVED)

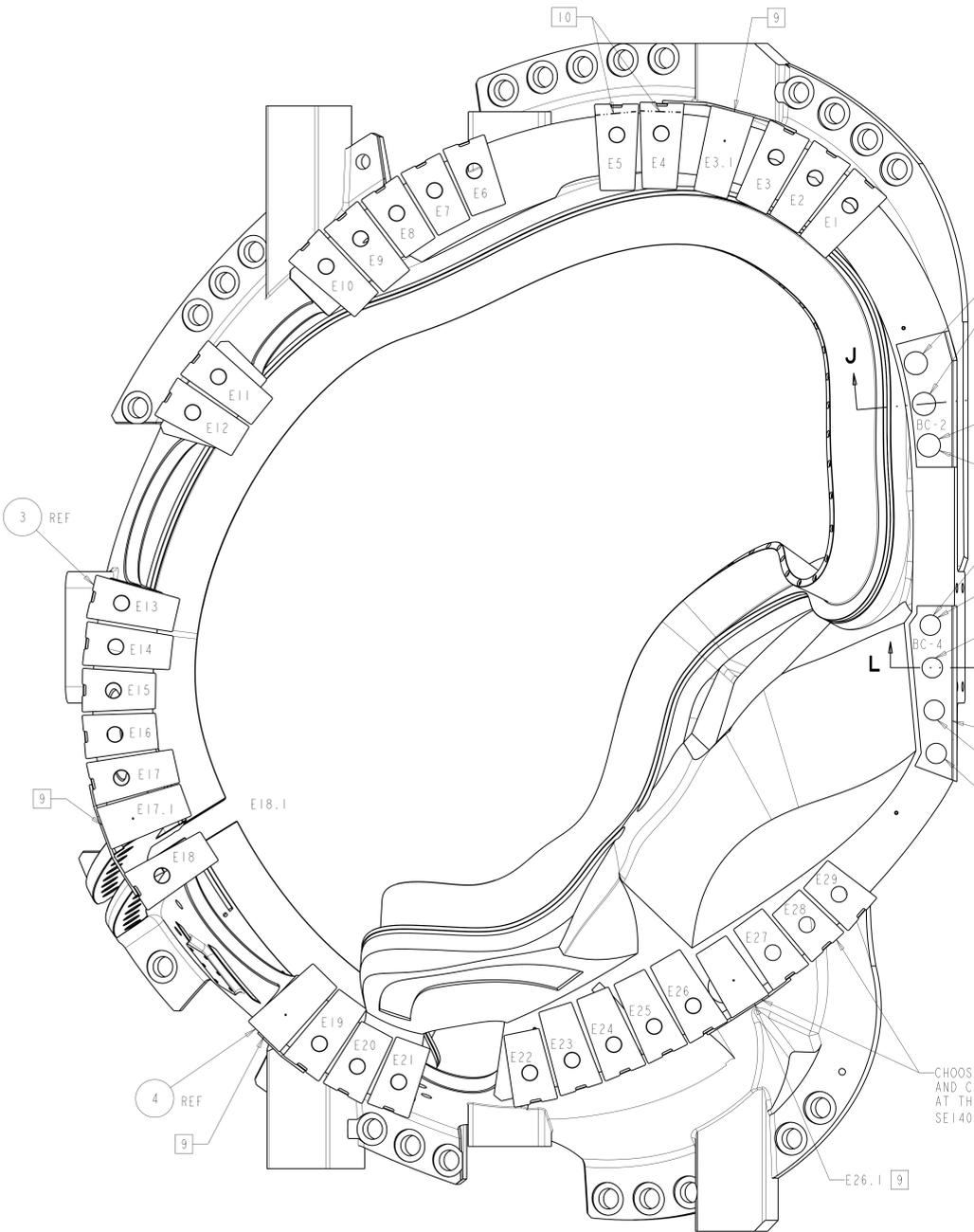
A1-B1 JOINT LOOKING AT THE B COIL A FLANGE (A COIL REMOVED)

NOTE: MOD COILS SHOW AS PART ONLY FOR CLARITY. SHIMS AND SHEAR PLATES TO BE INSTALLED ON MOD COIL ASSEMBLIES



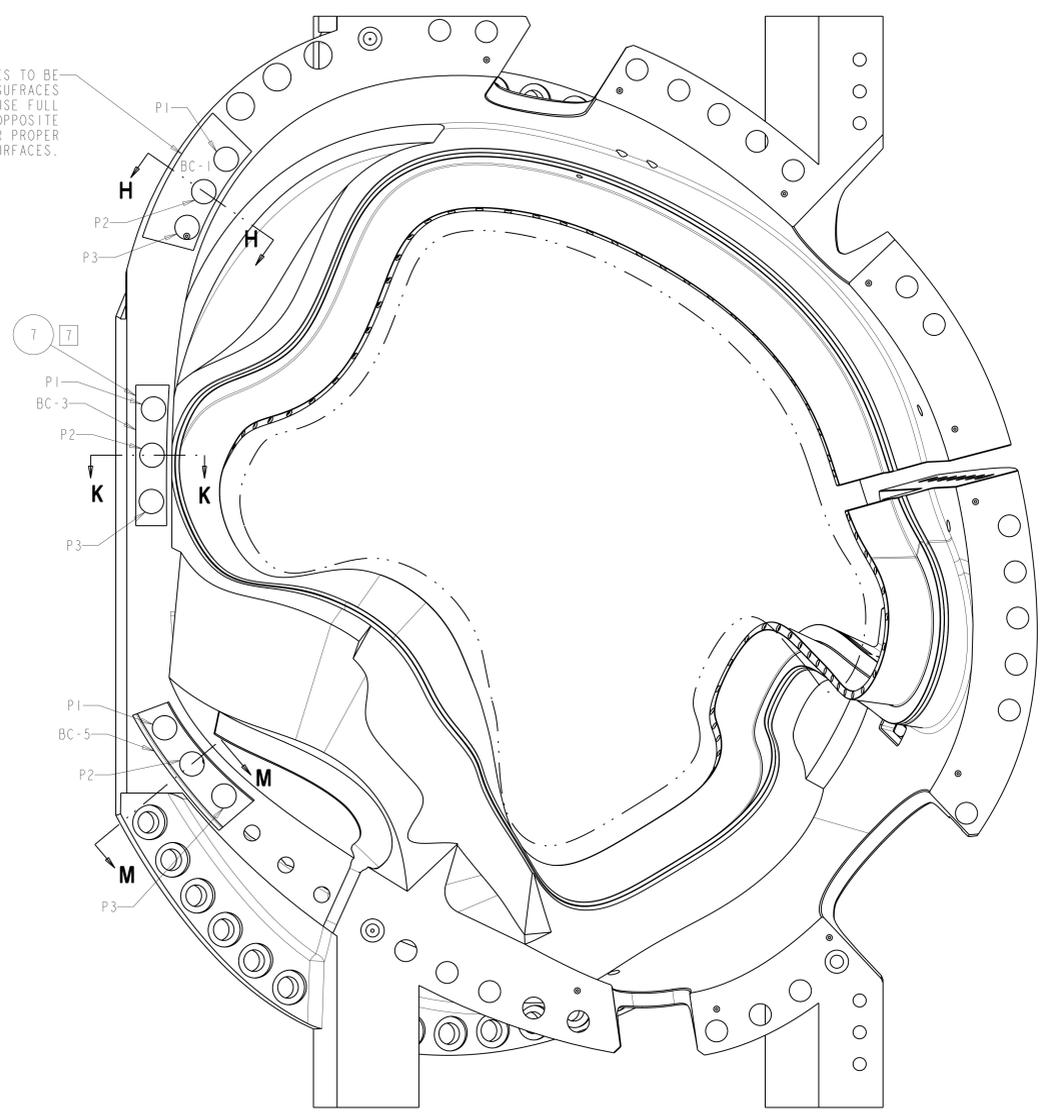
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC. Oak Ridge, Tennessee									
PROJECT NAME									
NATIONAL COMPACT STELLARATOR EXPERIMENT									
AB-BC MOD COIL SHIM AND SHEAR PLATE KIT									
VERSION NO.	PLANT	BLDG	FL	SHT	OF	TYPE	CLASS		
3	ORNL	5700	3	2	8	S	U		
RELEASE LEVEL		Fabrication							
		SE140-046							
		REV 2							

E29	2.75	
E28	2.75	
E27	3.75	
E26.1		3.75
E26	5.00	
E25	5.00	
E24	5.00	
E23	5.00	
E22	3.75	
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E20	3.75	
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E18.1		5.00
E18	5.00	
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E10	5.00	
E9	5.00	
E8	3.75	
E7	3.75	
E6	3.75	
E5	5.00	
E4	5.00	
E3.1		5.00
E3	5.00	
E2	5.00	
E1	5.00	
HOLE NUMBER	BOLTED SHIM LENGTH	NO. BOLT SHIM LENGTH



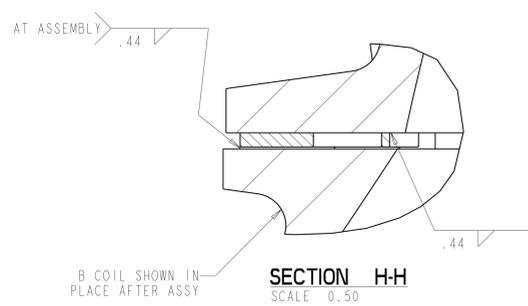
B-C JOINT LOOKING AT THE B COIL C FLANGE
(C COIL REMOVED)

ALL INBOARD SHEAR PLATES TO BE MEASURED/ALIGNED TO MACHINED SURFACES AND TACK WELDED INTO POSITION. USE FULL SCALE TEMPLATE SEE SHEET 6. OPPOSITE EDGES MAY BE GROUND AS REQ'D FOR PROPER FIT TO CASTING SURFACES.

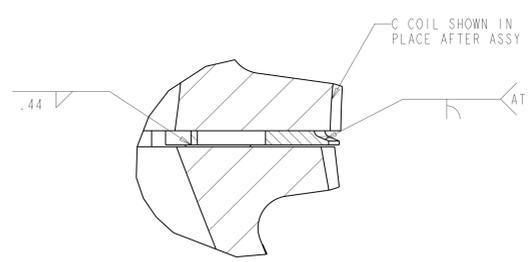


B-C JOINT LOOKING AT THE C COIL B FLANGE
(B COIL REMOVED)

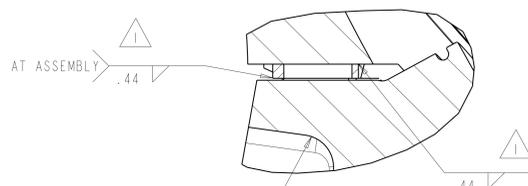
NOTE: MOD COILS SHOW AS PART ONLY FOR CLARITY. SHIMS AND SHEAR PLATES TO BE INSTALLED ON MOD COIL ASSEMBLIES



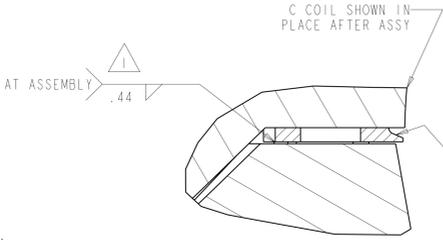
SECTION H-H
SCALE 0.50



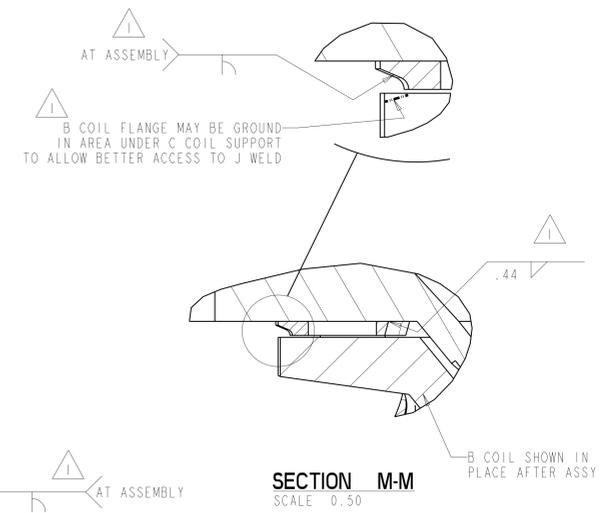
SECTION J-J
SCALE 0.50



SECTION K-K
SCALE 0.50



SECTION L-L
SCALE 0.50



SECTION M-M
SCALE 0.50

RELEASED FOR FABRICATION/INSTALLATION
PPPL Drafting

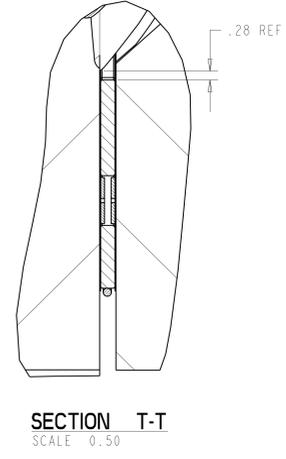
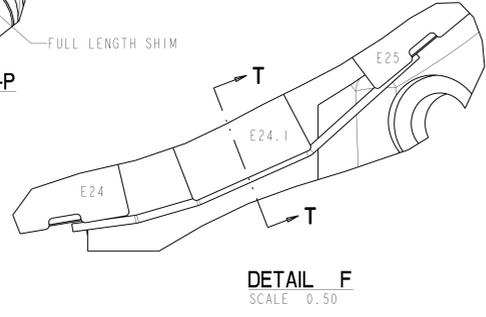
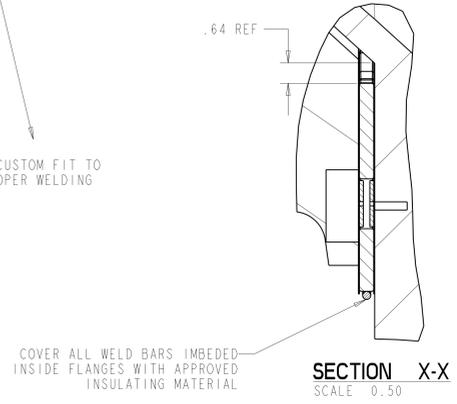
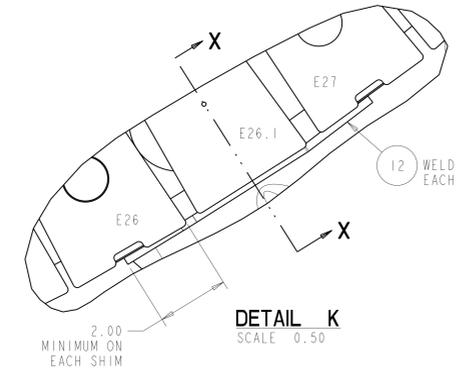
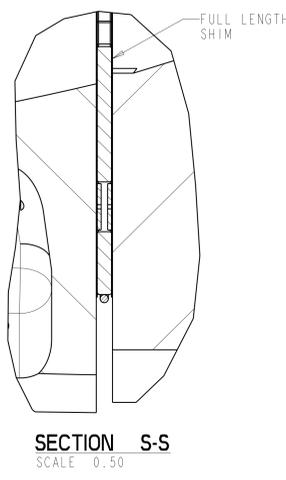
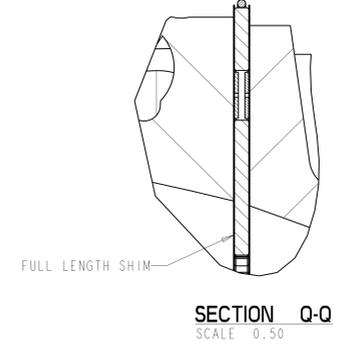
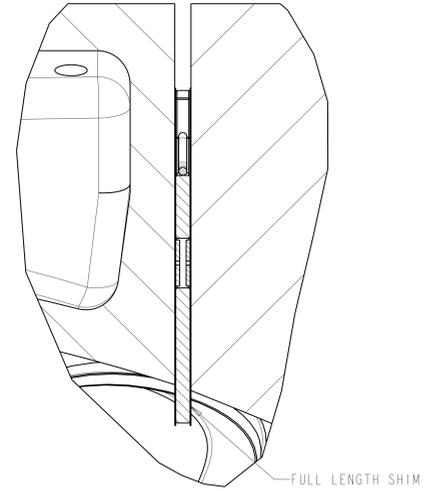
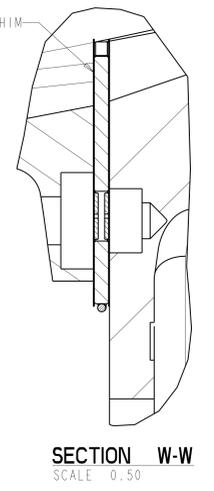
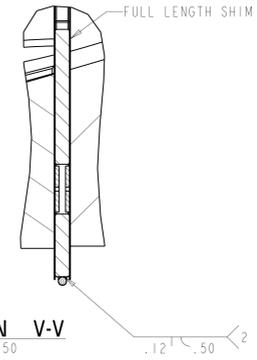
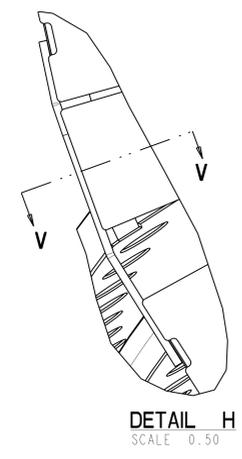
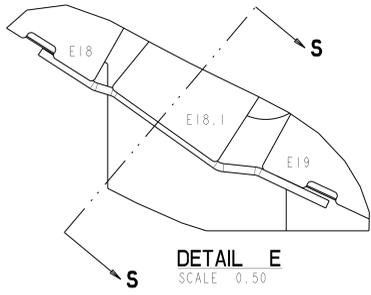
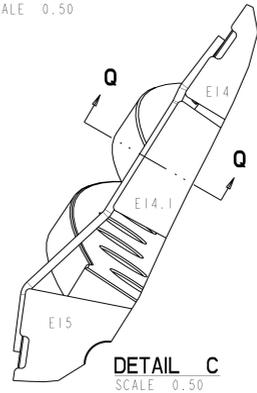
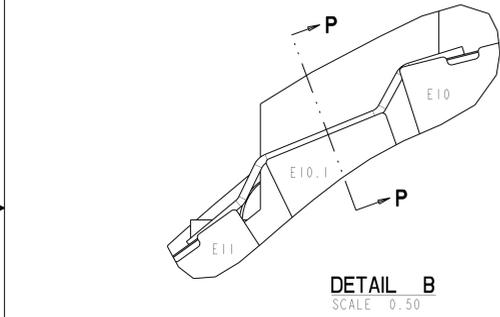
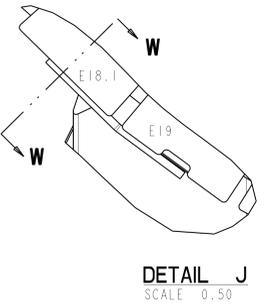
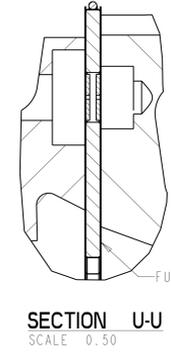
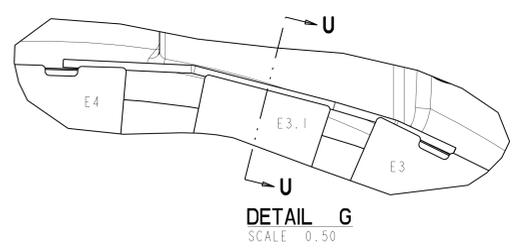
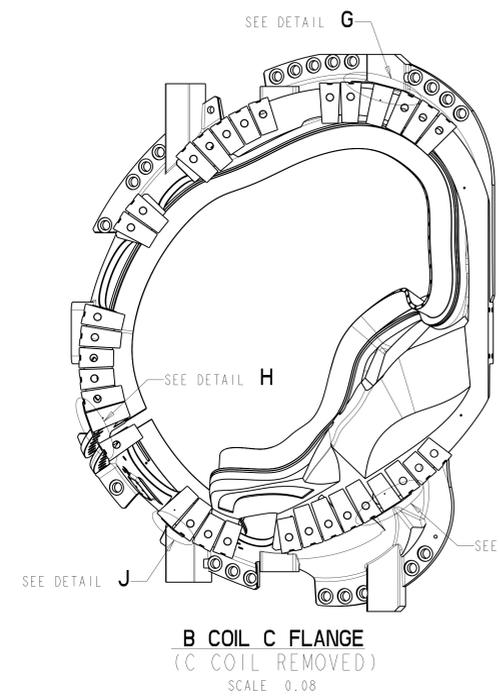
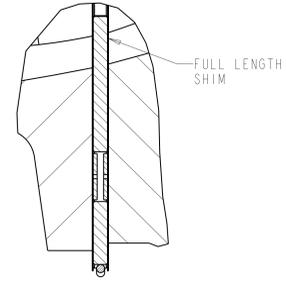
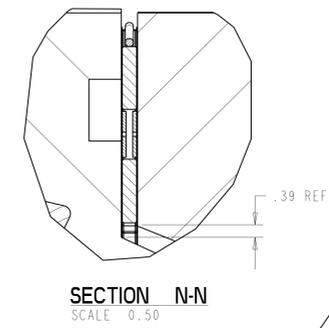
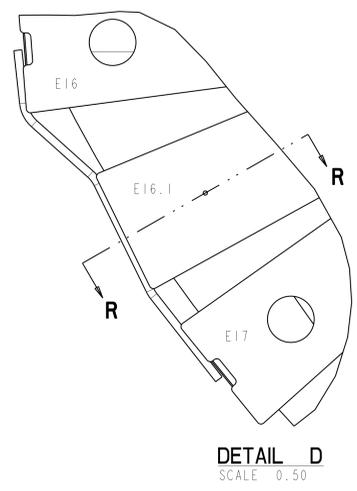
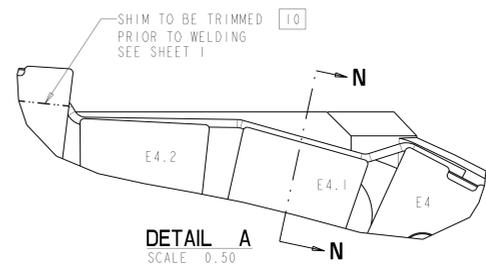
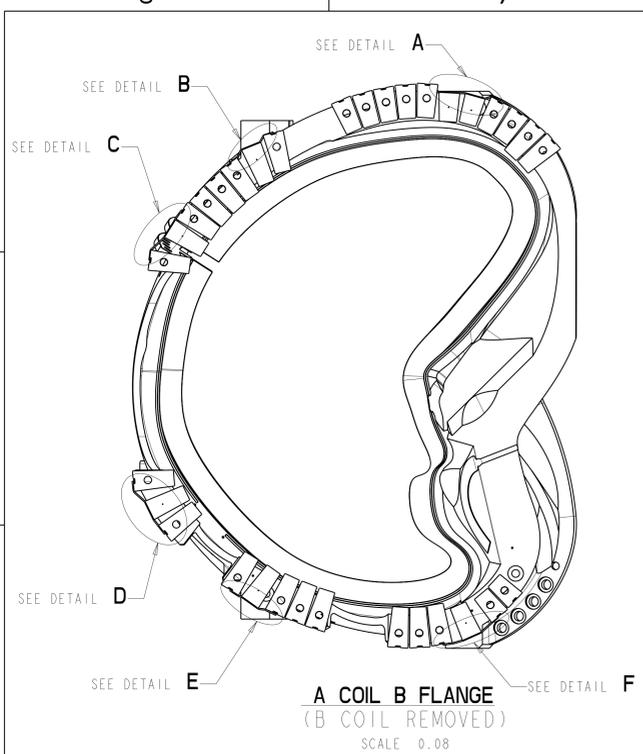
Oak Ridge National Laboratory
managed for the DEPARTMENT OF ENERGY under
U.S. GOVERNMENT CONTRACT DE-AC05-00OR22725
UT-BATTELLE, LLC. Oak Ridge, Tennessee

UT-BATTELLE

NATIONAL COMPACT STELLARATOR EXPERIMENT

AB-BC MOD COIL SHIM AND SHEAR PLATE KIT

VERSION NO.	PLANT	BLDG	FL	SHT	OF	TYPE	CLASS
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Fabrication							

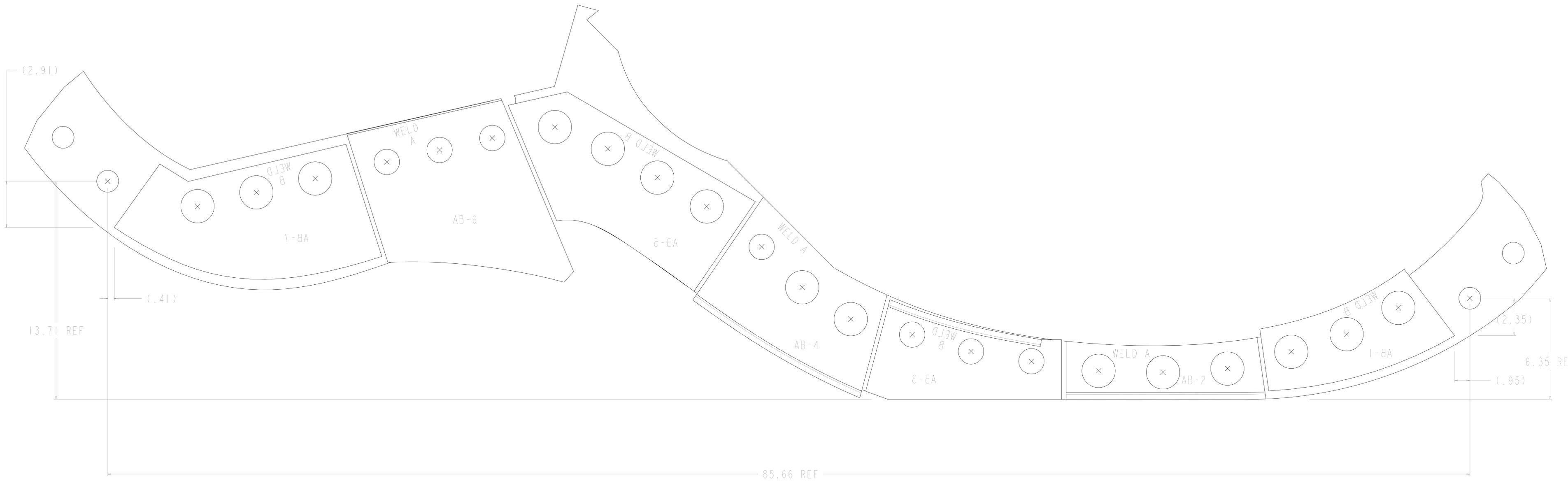


NOTE: BOTH ADJACENT COILS ARE
SHOWN AS ASSEMBLED IN SECTIONS

**RELEASED FOR
FABRICATION / INSTALLATION**
PPPL Drafting

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC. Oak Ridge, Tennessee									
PROJECT NAME NATIONAL COMPACT STELLARATOR EXPERIMENT									
AB-BC MOD COIL SHIM AND SHEAR PLATE KIT									
VERSION NO. 3	PLANT ORNL	BLDG 5700	FL 3	SHT 4	OF 8	TYPE S	CLASS U		
RELEASE LEVEL Fabrication			SE140-046				REV 2		

UT-BATTELLE
SE140-046



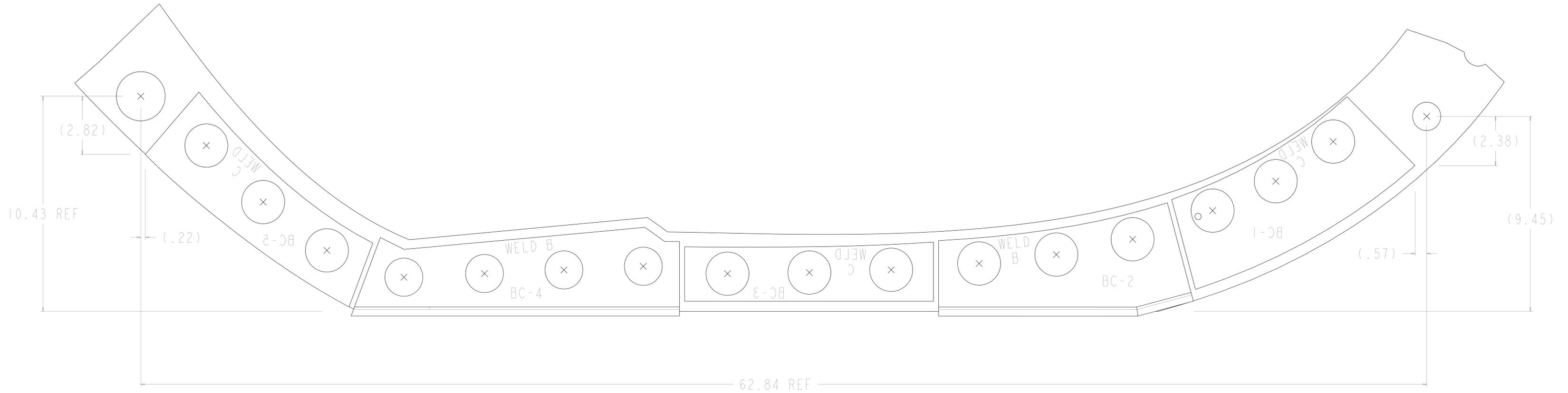
A1-B1 SHEAR PLATE LOCATION TEMPLATE - A COIL B FLANGE

SCALE 1 : 1

**CHECK TEMPLATE WITH REF DIMENSIONS
SHOWN TO VERIFY PROPER SCALE**

RELEASED FOR
FABRICATION/INSTALLATION
PPPL Drafting

UT-BATTELLE		Oak Ridge National Laboratory P.O. Box 21708 Knoxville, TN 37921-0708	
NATIONAL COMPACT STELLARATOR EXPERIMENT			
AB-BC MOD COIL SHIM AND SHEAR PLATE KIT			
REVISED BY	REVISED DATE	REVISED BY	REVISED DATE
ORNL	5700	3	5 8 5
Fabrication		SE140-046	



B-C SHEAR PLATE LOCATION TEMPLATE - B COIL C FLANGE

SCALE 1 : 1

CHECK TEMPLATE WITH REF DIMENSIONS SHOWN TO VERIFY PROPER SCALE

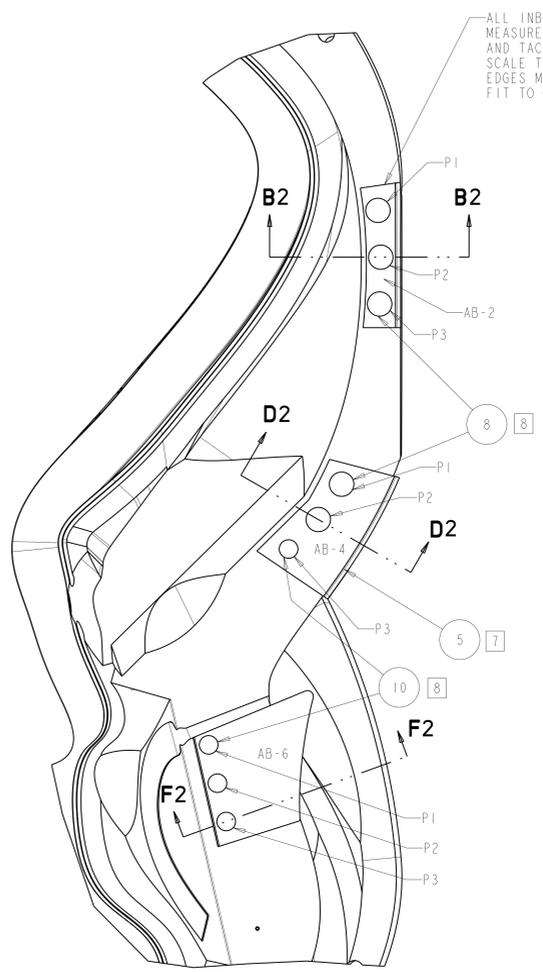
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Oak Ridge National Laboratory
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by UT-BATTELLE, LLC
a U.S. GOVERNMENT CONTRACTOR OF ACQUISITION
UT-BATTELLE, LLC Oak Ridge, Tennessee

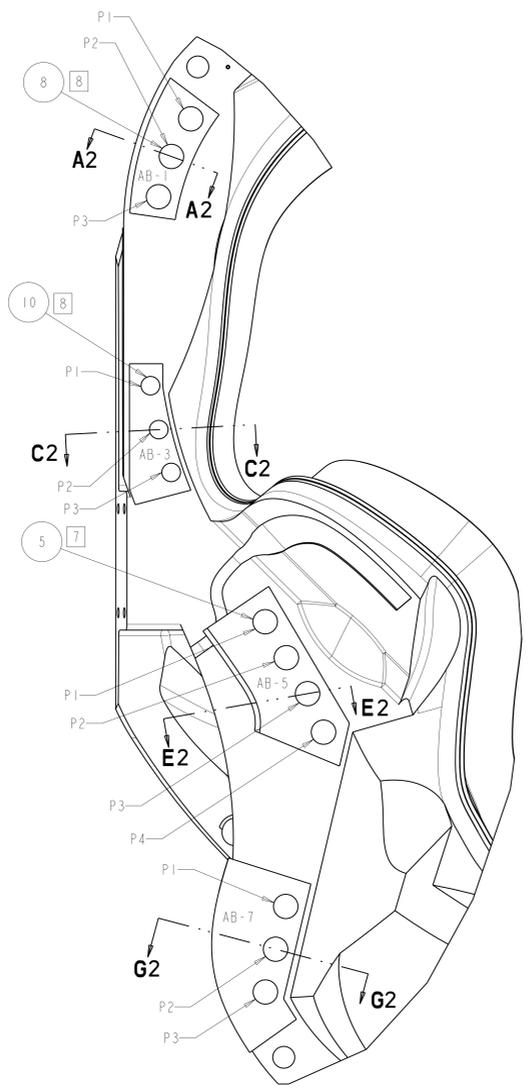
NATIONAL COMPACT STELLARATOR EXPERIMENT

AB-BC MOD COIL SHIM AND SHEAR PLATE KIT

VERSION NO.	PLANT	BLDG	FL	SHFT	TYPE	CLASS
3	ORNL	5700	3	6	8	S
RELEASED FOR FABRICATION						
SE140-046						

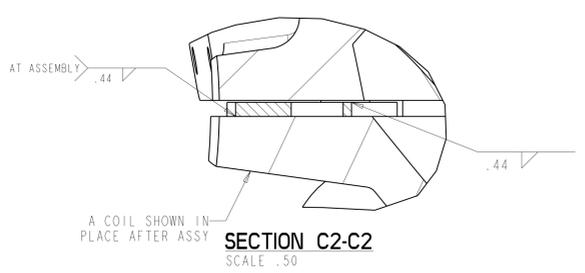


A2-B2 THRU A6-B6 JOINTS LOOKING AT THE A COIL B FLANGE
 (FOR SHIMS SEE A1-B1 SHEET 2)
 (B COIL REMOVED)

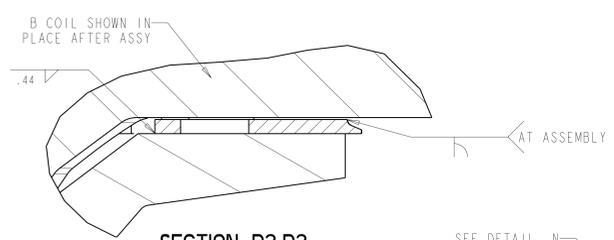


A2-B2 THRU A6-B6 JOINTS LOOKING AT THE B COIL A FLANGE
 (FOR SHIMS SEE A1-B1 SHEET 2)
 (A COIL REMOVED)

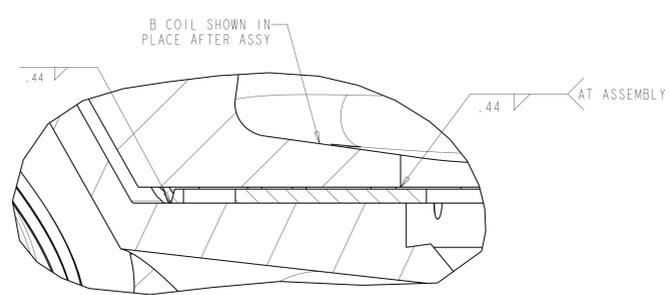
NOTE: MOD COILS SHOW AS PART ONLY FOR CLARITY.
 SHIMS AND SHEAR PLATES TO BE INSTALLED ON
 MOD COIL ASSEMBLIES



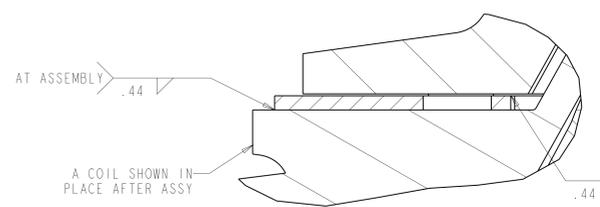
SECTION C2-C2
 SCALE .50



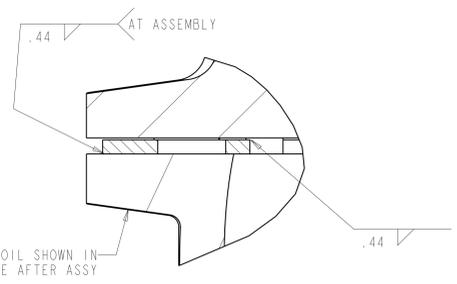
SECTION D2-D2
 SCALE .50



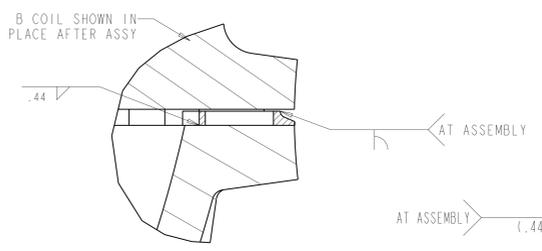
SECTION F2-F2
 SCALE .50



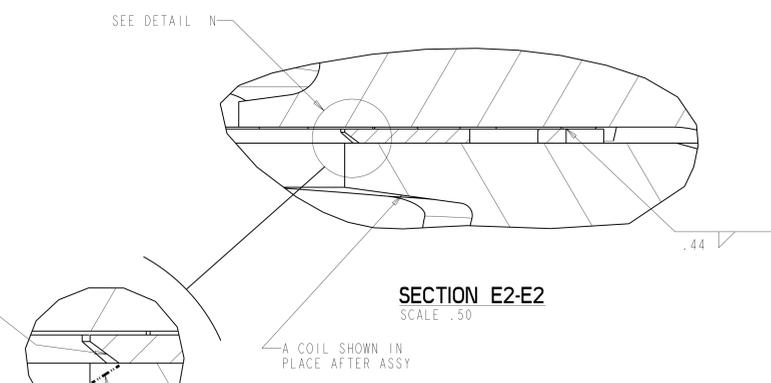
SECTION G2-G2
 SCALE .50



SECTION A2-A2
 SCALE .50



SECTION B2-B2
 SCALE .50

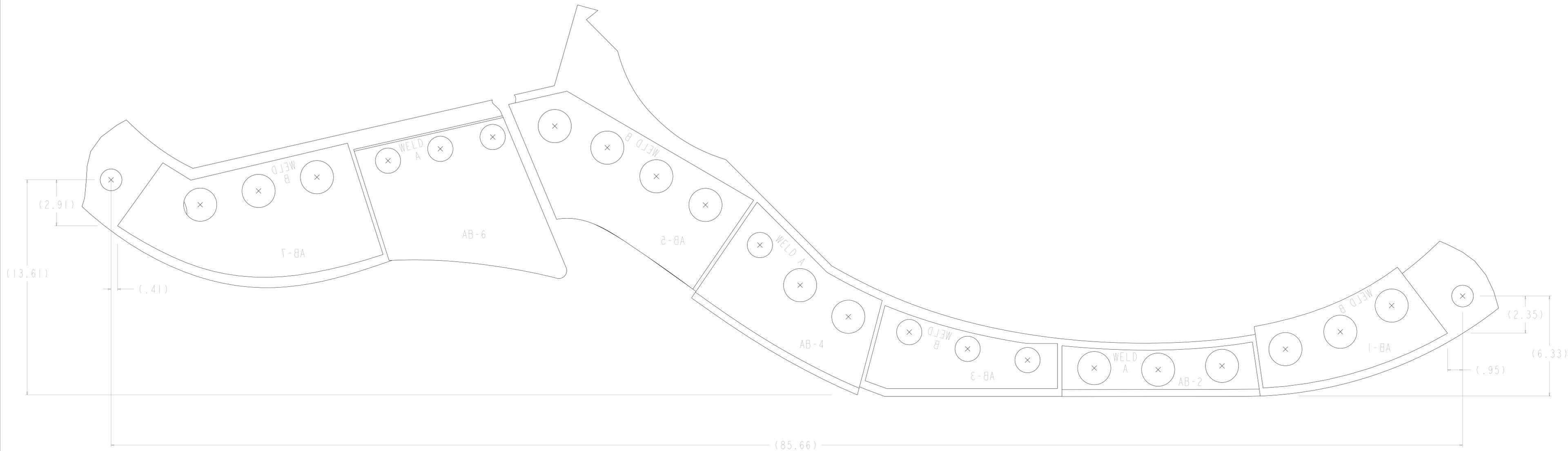


SECTION E2-E2
 SCALE .50

GRIND A COIL FLANGE FOR V GROOVE
 WELD IN AREA OF AB-5 PLATE

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Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC. Oak Ridge, Tennessee									
PROJECT NAME NATIONAL COMPACT STELLARATOR EXPERIMENT									
ITEM NAME AB-BC MOD COIL SHIM AND SHEAR PLATE KIT									
VERSION NO. 3	PLANT ORNL	BLDG 5700	FL 3	SHT OF 7	TYPE 8	CLASS S	U U		
RELEASE LEVEL Fabrication		SE140-046				REV 2			



A2-B2 THRU A6-B6 SHEAR PLATE LOCATION TEMPLATE - A COIL B FLANGE

SCALE 1 : 1

**CHECK TEMPLATE WITH REF DIMENSIONS
SHOWN TO VERIFY PROPER SCALE**

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PPPL Drawing

Oak Ridge National Laboratory Managed by the Department of Energy under contract number DE-AC05-84OR21400 for the United States of America					
NATIONAL COMPACT STELLARATOR EXPERIMENT					
AB-BC MOD COIL SHIM AND SHEAR PLATE KIT					
PROJECT NO.	PLANT	BUILDING	FL.	UNIT OR EQUIP.	CLASS.
5700	ORNL	3	8	8	S
REVISION NO. 1					
DESCRIPTION					
Fabrication					
SE140-046					