

MCWF Type-C

Machined Features Update

D. Williamson, ORNL

January 18, 2005

Outline

NGSX

- Model / drawings SE141-114, SE141-115, SE141-116 have been revised in order to fix discrepancies between model dimensions and drawing notes.
- Some drawing notes were found to have lost model associativity due to manual changes made in previous revisions.
- In most cases, the model feature was revised to match the drawing.
- Some drawing notes were also modified to provide clarification, such as the flange hole callouts.
- Activity has begun to place machined features on the Lawton pattern models for comparison to the reference parts.

MTM Review Summary

NGSX

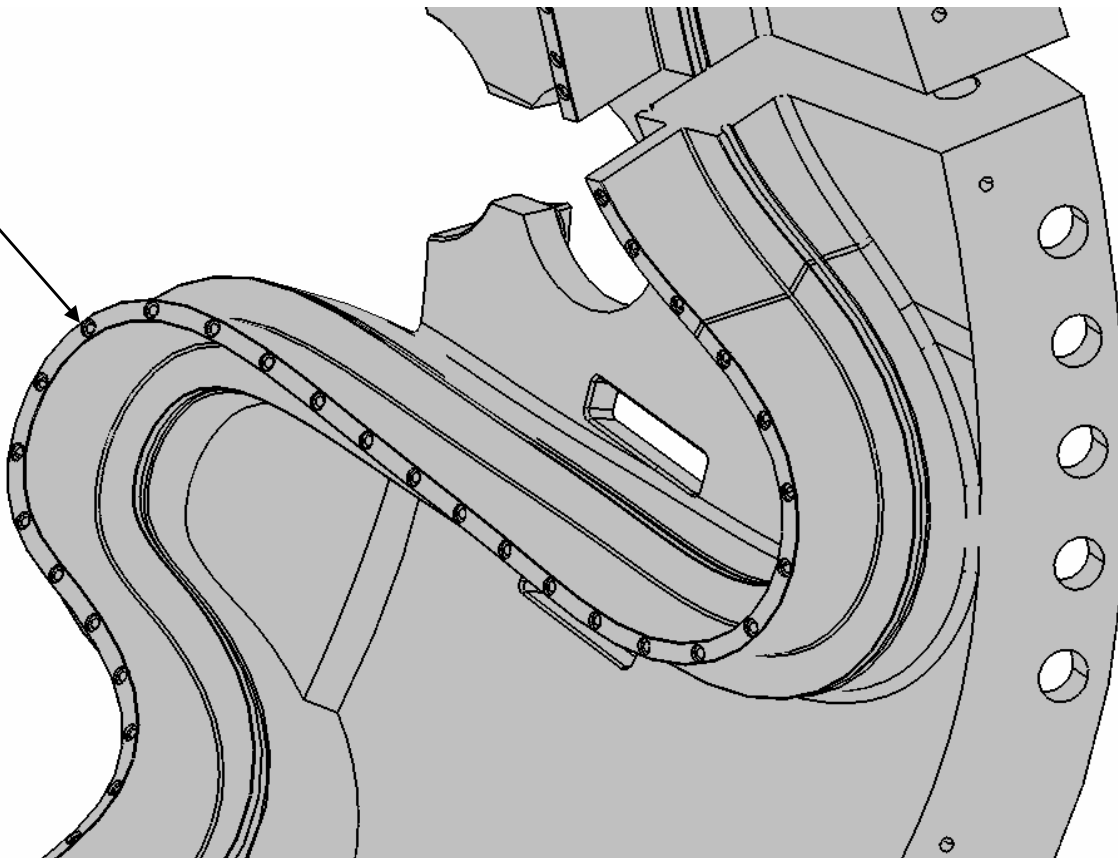
Project response to communication from K. Bowling 12/10/04

Item	A	B	C	Sheet/ Zone	Drawing	CAD Model	Status	Project Response
	Count	Count	Count					
1	96	95	95	2	Ø.316 TAP DRILL		Corrected	Model is correct. Hole count on drawings SE141-115, SE141-116 will be revised.
	"	"	"	2	.375-16 TAP		print count	
	"	"	"	2	Ø.625 X .1 DP CBORE		for B & C	
2	16		8	3	Ø.875 TAP DRILL	Ø1.0	OK Ref tap drill Ø	Drawing is correct. Model hole size will be changed to 0.875-in diameter.
	"		"	"	1-8 TAP			
3		8		3 C5	Ø.875 TAP DRILL	Ø.766	open	Drawing is correct. Model hole size will be changed to 0.875-in diameter.
		"	"	"	1-8 TAP			
4		8		3 C6	Ø.875 TAP DRILL	Ø.755	open	Drawing is correct. Model hole size will be changed to 0.875-in diameter.
		"	"	"	1-8 TAP			
5		2		3 F2	Ø1.48 X 5 Thru (5.0 DP)	Ø1.5	open	Change to 2.5-in dia thru, like Drw -114, Sht3, D2. Tapped holes next revision.
		"	"	"	Ø1.86 X 2.5 DP CBORE	Ø1.875	open	
6			8	3	Ø1.125			Drawing callout is correct.
			"	"	Ø3.0 BACK SPOT FACE	not in model	open	
7	18	24	17	4	Ø1.875 DRILL			Sheet 4 - See Figures 6-9 for flange-to-flange hole template. Drawing notes to be clarified, models will be revised to match figures.
	"	"	"	"	Ø3.25 BACK SPOT FACE		2X type C 7.75 long	
	1	1	4	4	Ø1.875 DRILL			
	"	"	"	4 E4	Ø3.0 BACK SPOT FACE	Ø3.25	open	
	3			4	Ø.75 Thru (1.375 DP)	Ø1.50	open	
	3			4	Ø3 x 1 DP CBORE			
	6	10	20	4	Ø.201 x .5 DP			
	"	"	"	"	.250-20 TAP	no tap on A	open	
	"	"	"	"	Ø.507 x 82 Deg Chamfer			
			6	4	Ø1.125 DRILL			
8			"	"	Ø3.38 BACK SPOT FACE	Ø2.38	open	Sheet 5 - See Figures 6-9 for flange-to-flange hole template. Drawing notes to be clarified, models will be revised to match figures.
	1	3	4	5	Ø1.875 DRILL	check C5 Sec ZZ		
	"	"	"	5 D7	Ø3.0 BACK SPOT FACE	Ø3.25	open	
	3	3	2	5	Ø3 x 1 DP CBORE			
	3		2	5	Ø.75 x 2.33-B/ 2.0-C	Ø1.50	open	
			3	5	Ø1.5 X 1 DP			
	3			5	Ø1.5 X 1.33 DP			
				5	Ø1.125 DRILL			
			"	"	Ø3.38 BACK SPOT FACE	Ø2.38	open	
		7			Ø1.500 DRILL	Ø1.625	open	
9	3	3	3	7 C4	nothing	Ø.435 x .5 DP	is this correct?	Tapped holes (3X) for terminal block mount can be omitted.
							.437-14 TAP 3X?	

Tee Tapped Holes

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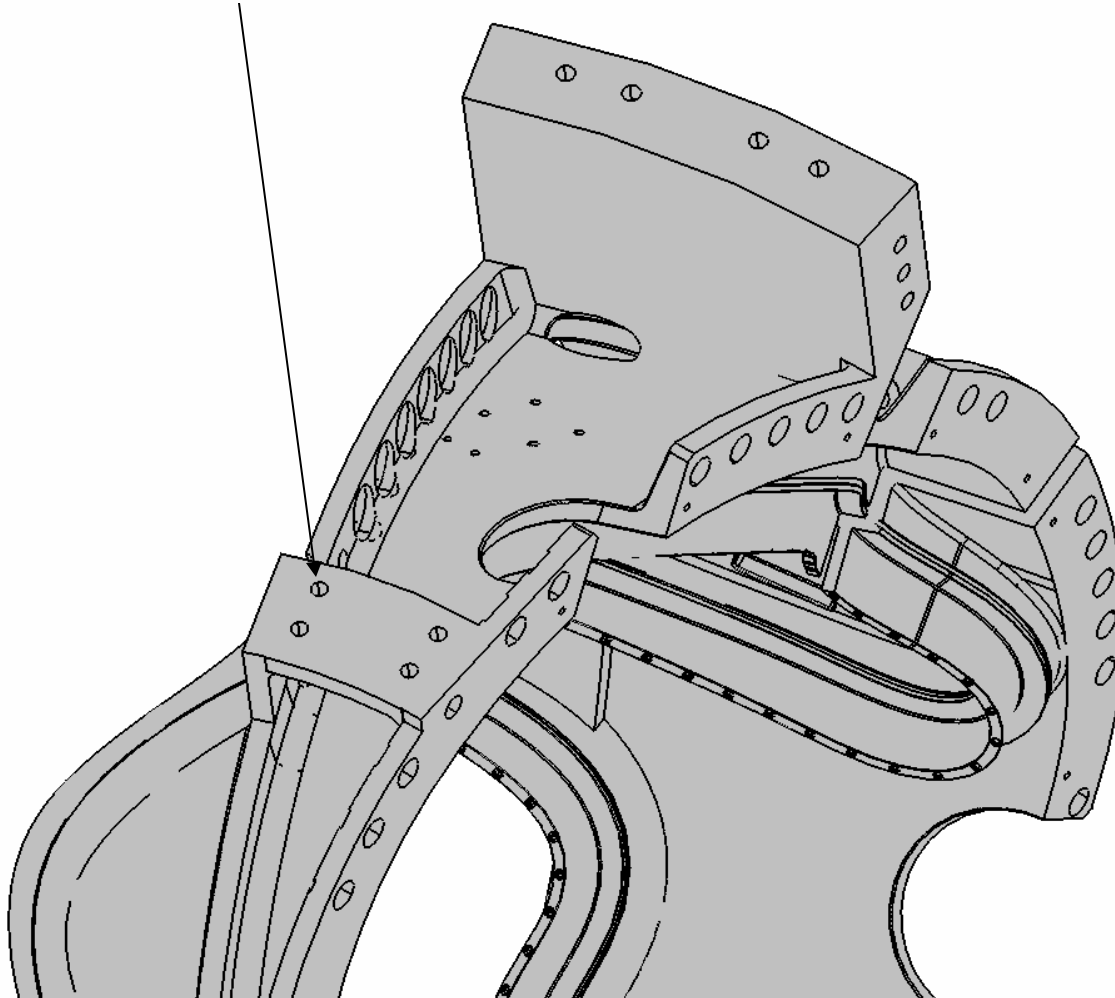
Item	A	B	C	Sheet/ Zone	Drawing	CAD Model	Status	Project Response
	Count	Count	Count					
1	96	95	95	2	Ø.316 TAP DRILL		Corrected	Model is correct. Hole count on drawings SE141-115, SE141-116 will be revised.
	"	"	"	2	.375-16 TAP		print count	
	"	"	"	2	Ø.625 X .1 DP CBORE		for B & C	



TF Structure Interface

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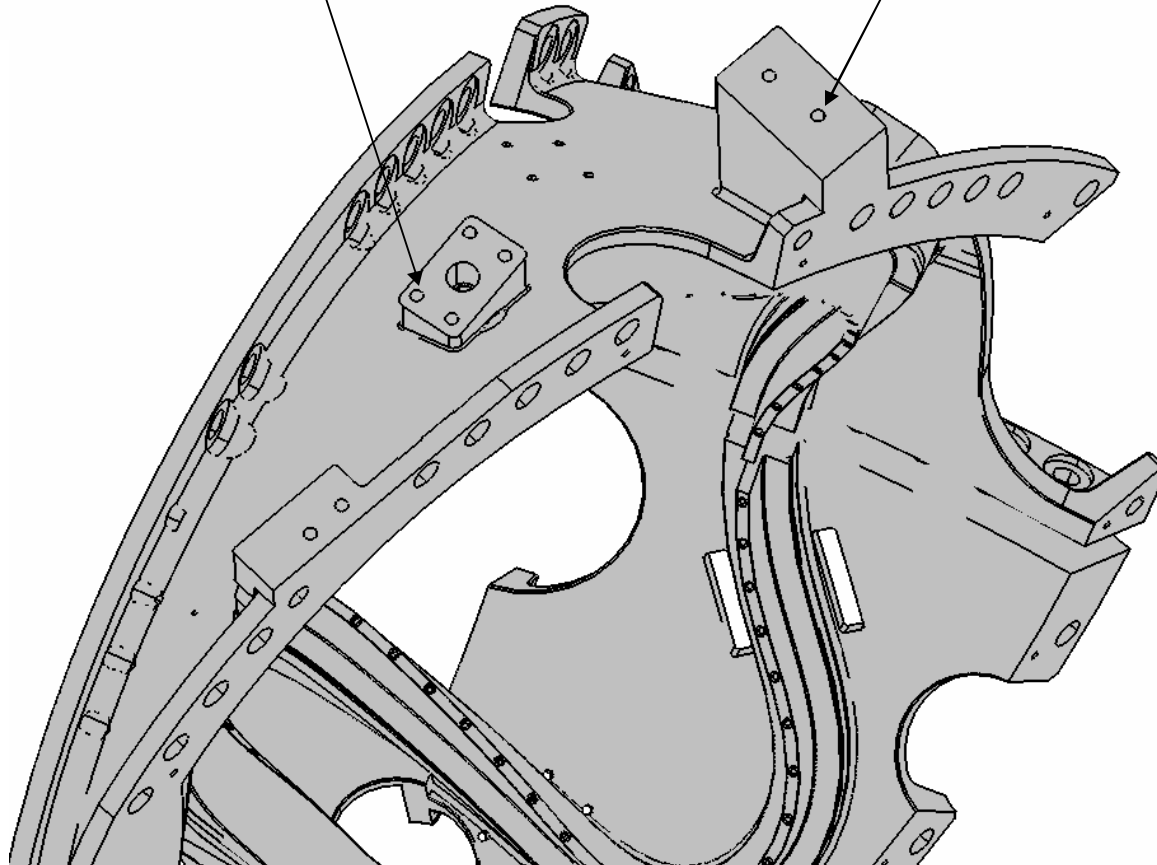
Item	A	B	C	Sheet/ Zone	Drawing	CAD Model	Status	Project Response
	Count	Count	Count					
2	16		8	3	Ø.875 TAP DRILL	Ø1.0	OK Ref tap drill Ø	Drawing is correct. Model hole size will be changed to 0.875-in diameter.
	"		"	"	1-8 TAP			



TF And FPA Fixture Interface

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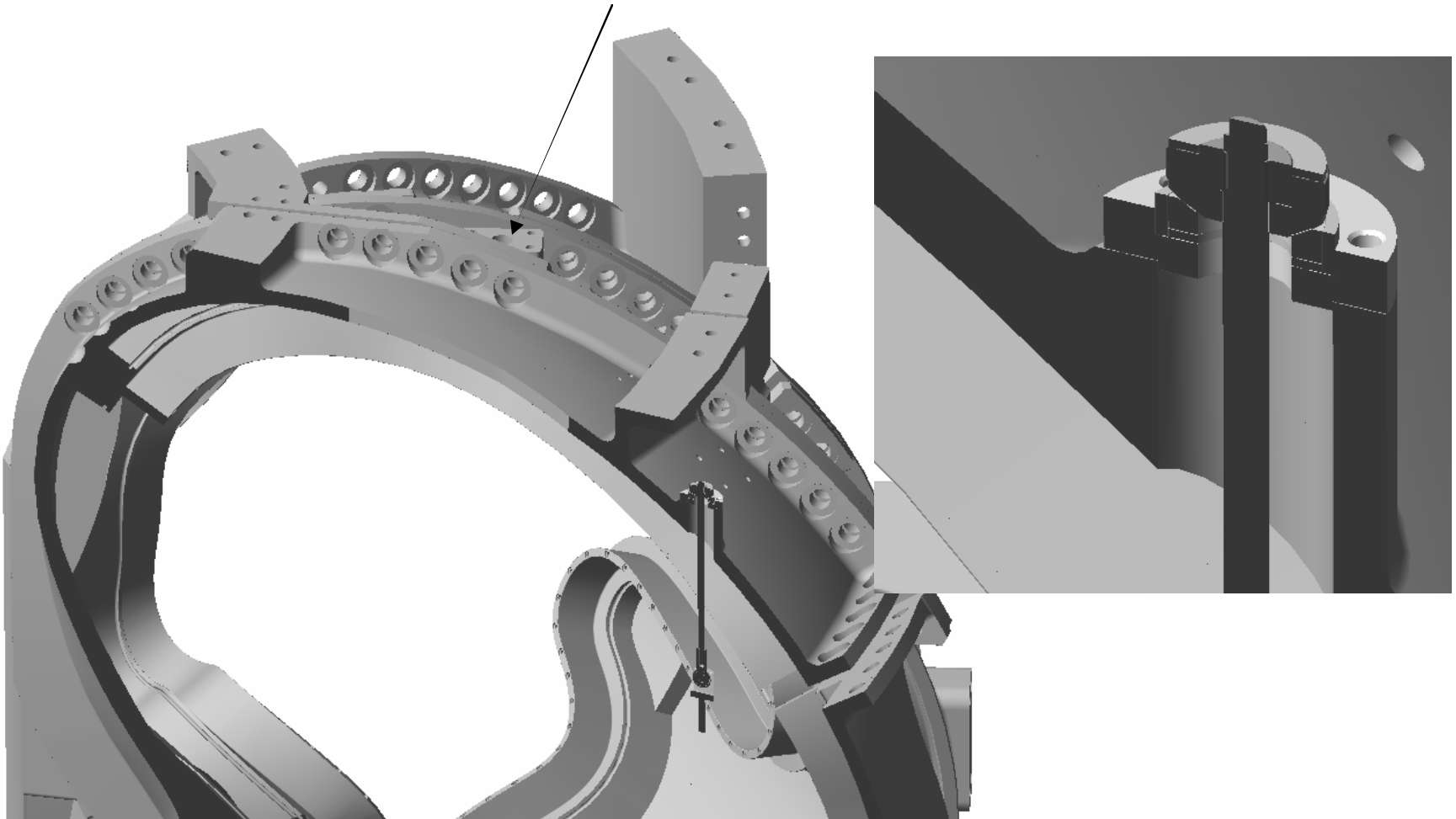
Item	A	B	C	Sheet/ Zone	Drawing	CAD Model	Status	Project Response
	Count	Count	Count					
3		8		3 C5	Ø.875 TAP DRILL	Ø.766	open	Drawing is correct. Model hole size will be changed to 0.875-in diameter.
		"		"	1-8 TAP			
4		8		3 C6	Ø.875 TAP DRILL	Ø.755	open	Drawing is correct. Model hole size will be changed to 0.875-in diameter.
		"		"	1-8 TAP			



Vessel Support Interface

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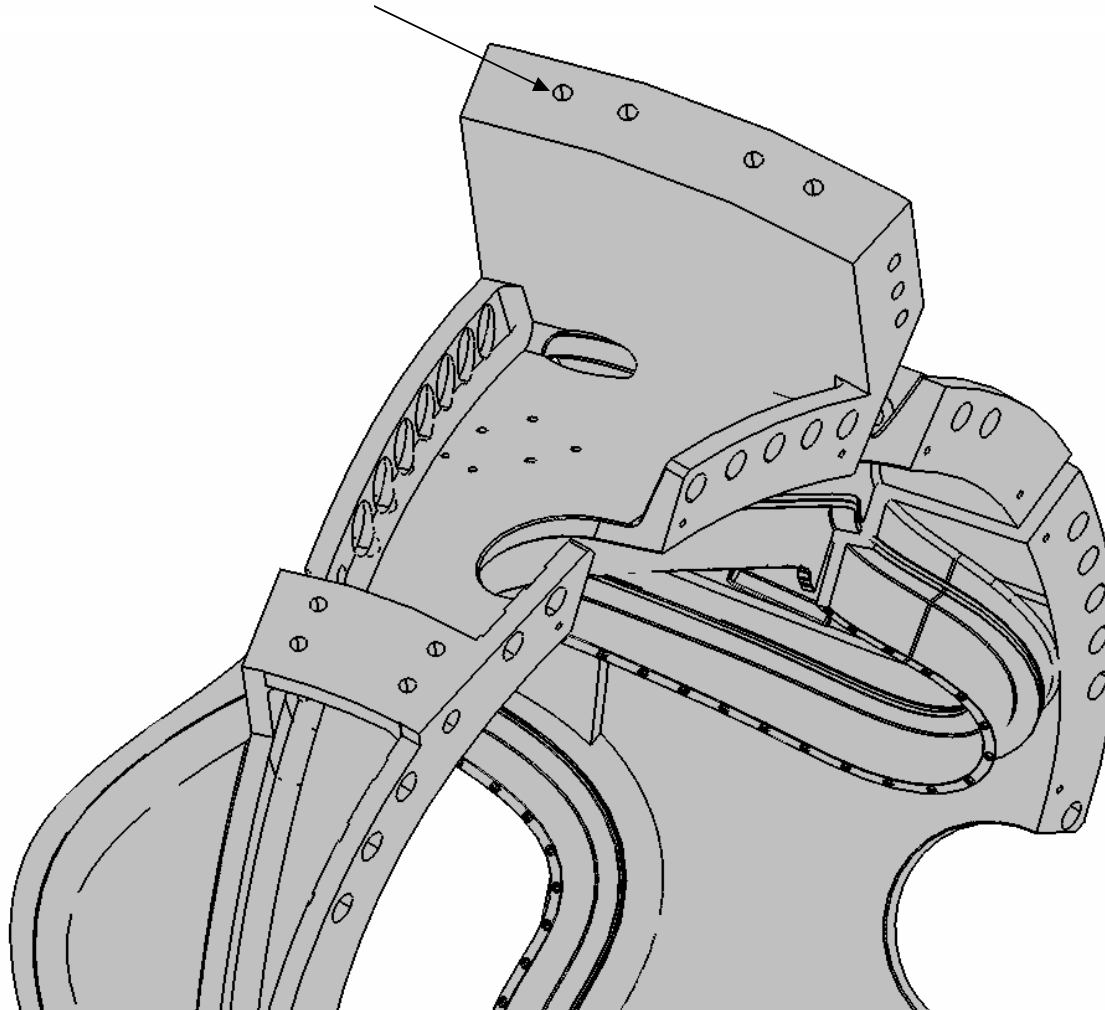
Item	A	B	C	Sheet/ Zone	Drawing	CAD Model	Status	Project Response
	Count	Count	Count					
5		2		3 F2	Ø1.48 X 5 Thru (5.0 DP)	Ø1.5	open	Change to 2.5-in dia thru, like Drw -114, Sht3, D2. Tapped holes next revision.
		"		"	Ø1.86 X 2.5 DP CBORE	Ø1.875	open	



TF Structure Interface

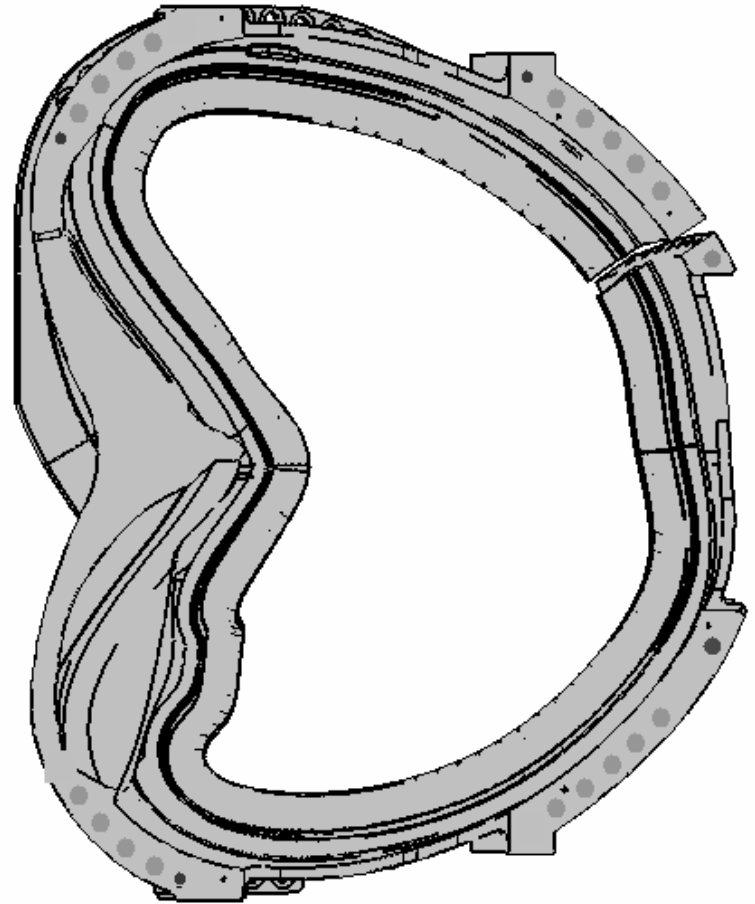
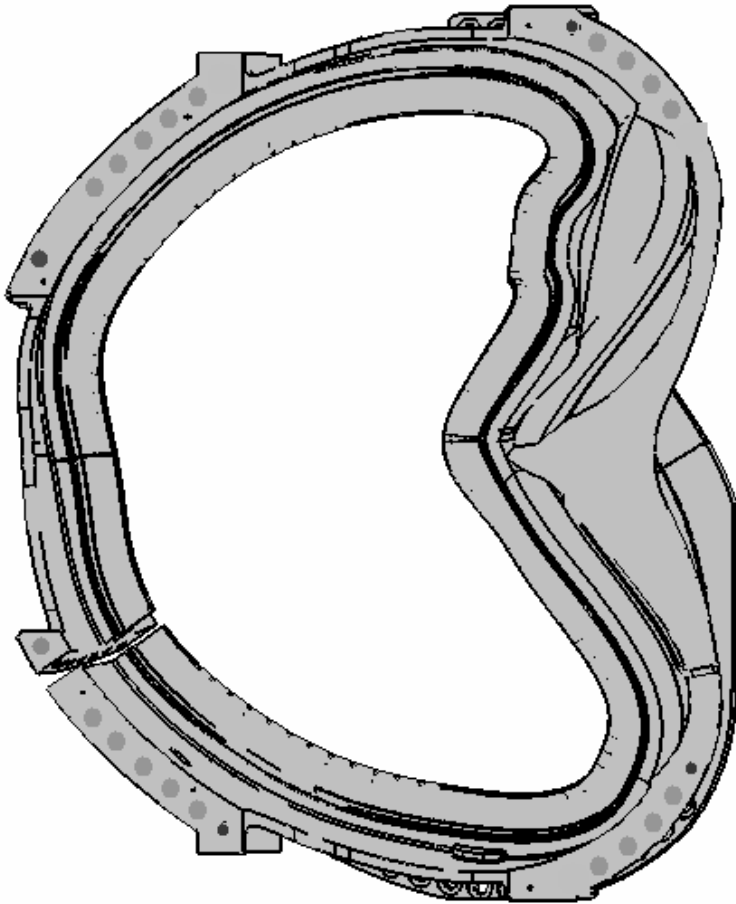
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Item	A	B	C	Sheet/ Zone	Drawing	CAD Model	Status	Project Response
	Count	Count	Count					
6			8	3	Ø1.125			Drawing callout is correct.
			"	"	Ø3.0 BACK SPOT FACE	not in model	open	



Flange A-A (symmetry about midplane)

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SE141-114, SHT 4

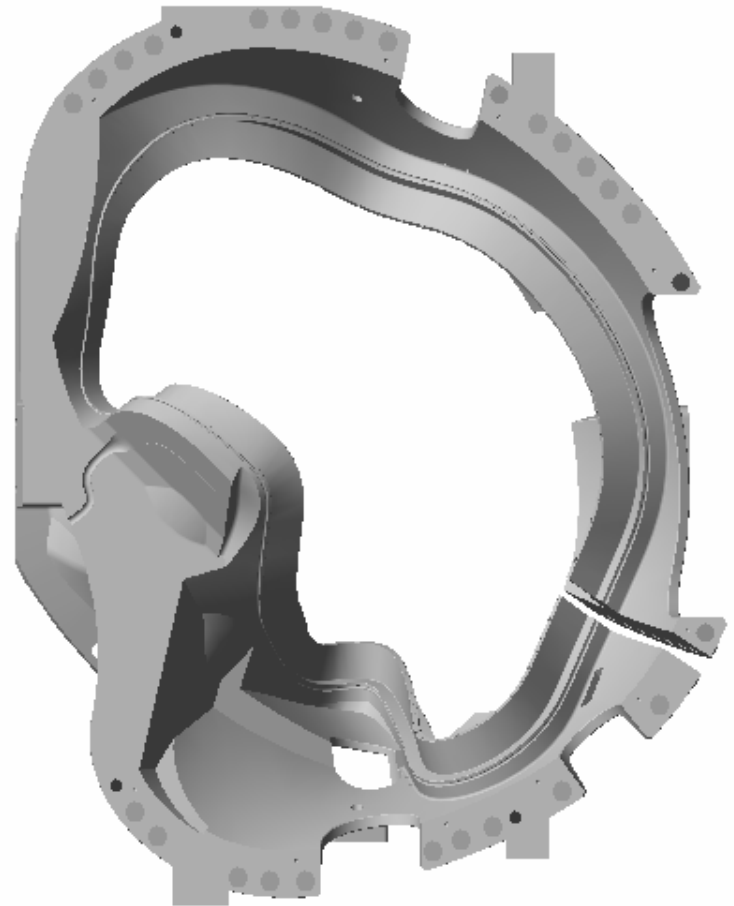
- ↔ ● $\phi 1.875$ DRILL, $\phi 3.25$ BACK SPOT FACE > SAME
- ↔ ● $\phi 1.375$ -6UNC THRU > $\phi 1.875$ DRILL, $\phi 3.0$ BACK SPOT FACE
- ↔ ● $\phi 3.0 \times 1$ DP CBORE, $\phi 1.5 \times 1.5$ DP / THRU > SPHERICAL .75R

Flange A-B

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SE141-114, SHT 5

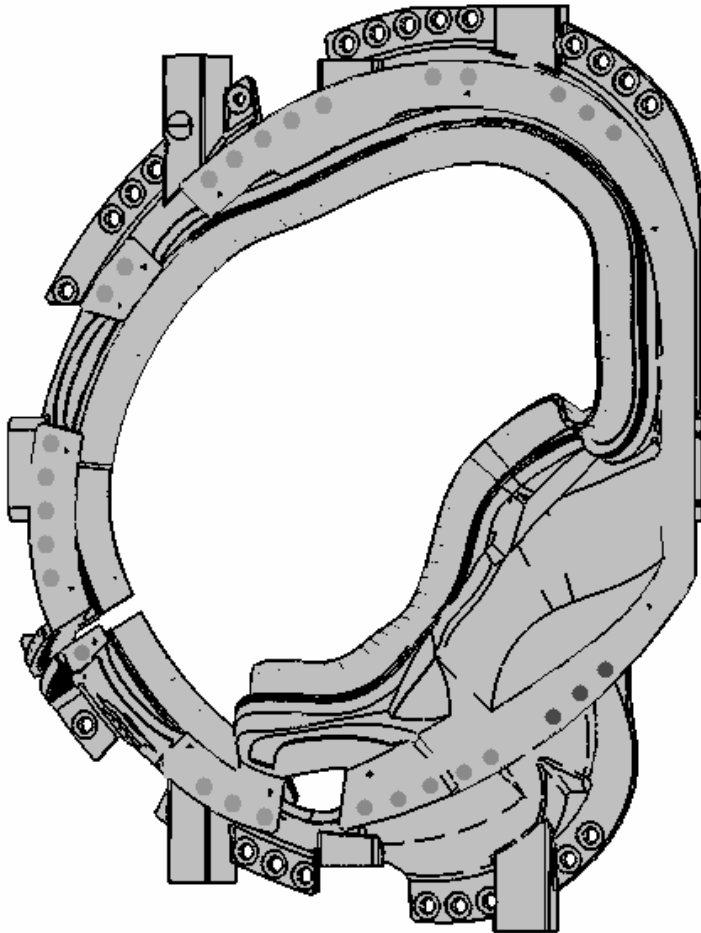


SE141-115, SHT 4

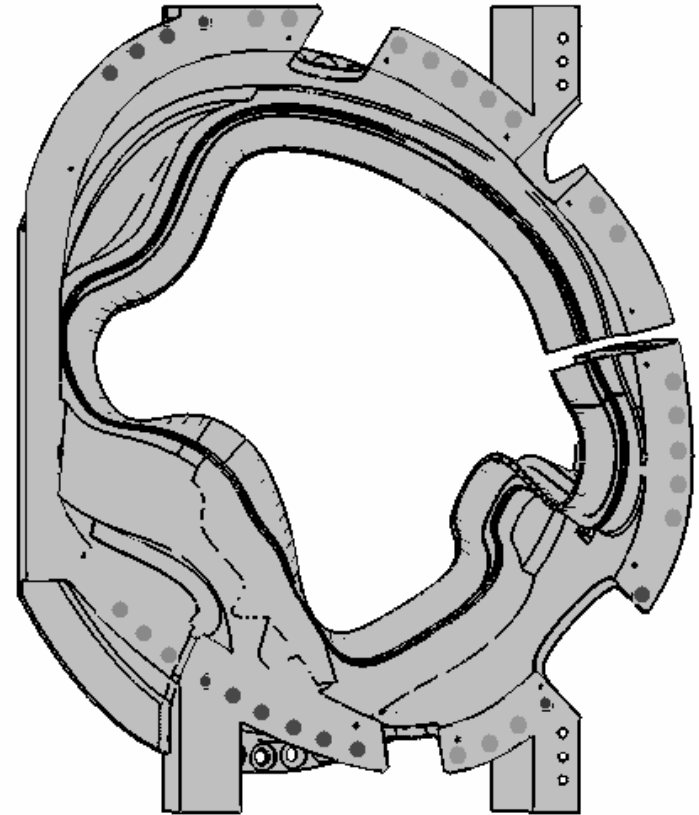
- ↔ ● $\phi 1.875$ DRILL, $\phi 3.25$ BACK SPOT FACE > SAME
- ↔ ● $\phi 1.375-6UNC$ THRU > $\phi 1.875$ DRILL, $\phi 3.0$ BACK SPOT FACE
- ↔ ● $\phi 3.0 \times 1$ DP CBORE, $\phi 1.5 \times 1.5$ DP / THRU > SPHERICAL .75R

Flange B-C

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SE141-115, SHT 5

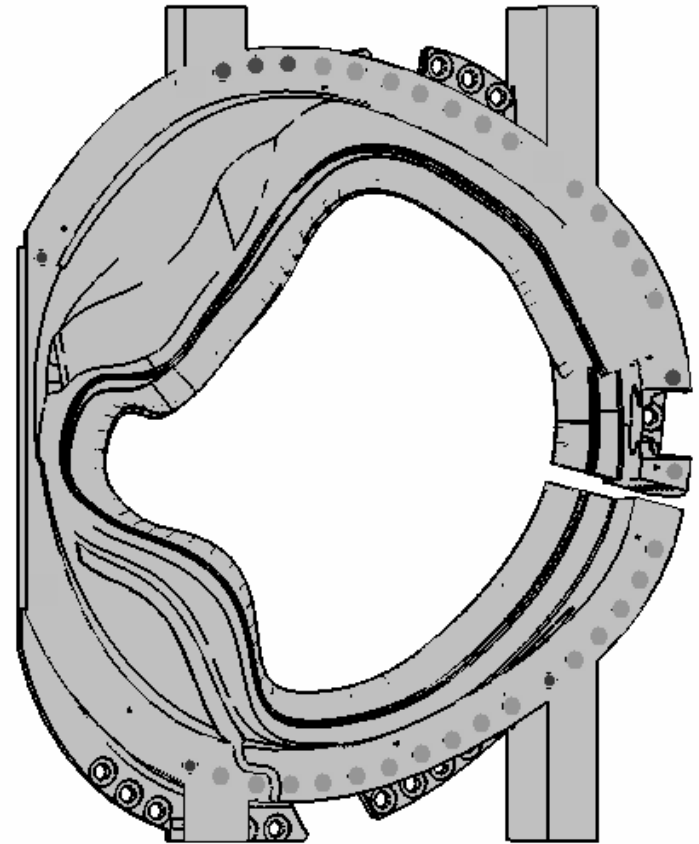
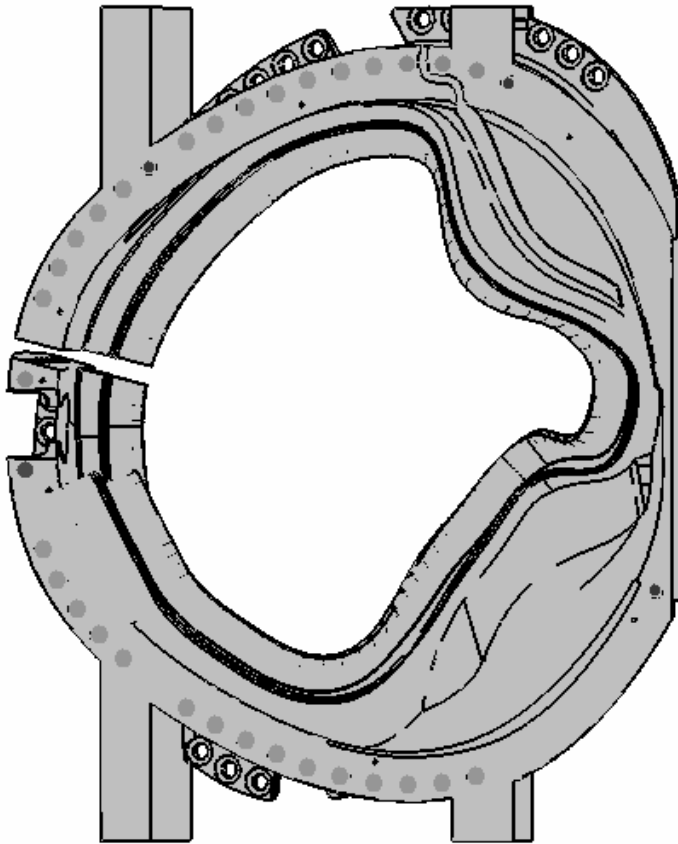


SE141-116, SHT 4

- ↔ ● $\phi 1.875$ DRILL, $\phi 3.25$ BACK SPOT FACE > SAME
- ↔ ● $\phi 1.375$ -6UNC THRU > $\phi 1.875$ DRILL, $\phi 3.0$ BACK SPOT FACE
- ↔ ● $\phi 3.0 \times 1$ DP CBORE, $\phi 1.5 \times 1.5$ DP / THRU > SPHERICAL .75R

Flange C-C (symmetry about midplane)

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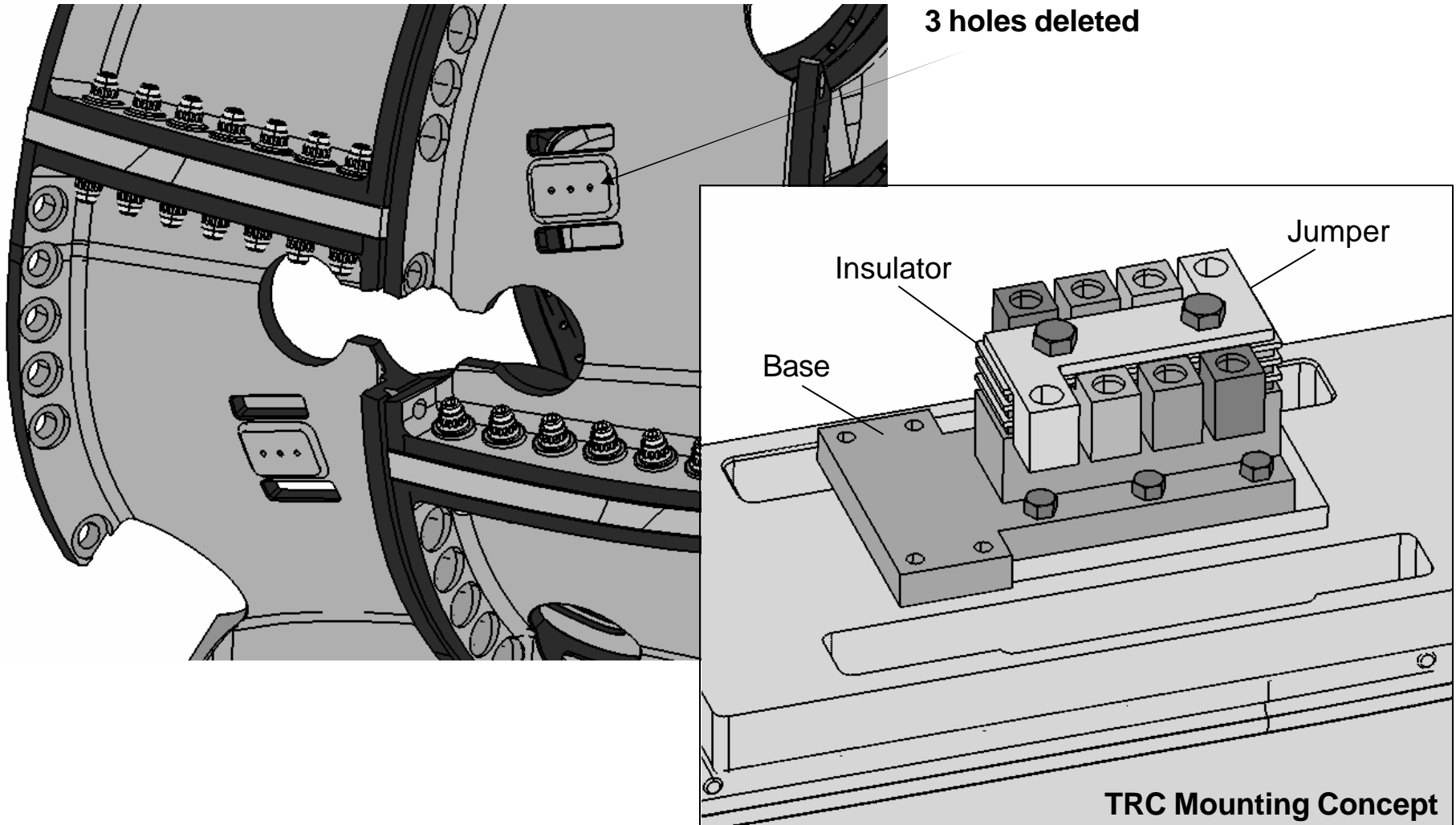


SE141-116, SHT 5

- ↔ ● $\phi 1.875$ DRILL, $\phi 3.25$ BACK SPOT FACE > SAME
- ↔ ● $\phi 1.375$ -6UNC THRU > $\phi 1.875$ DRILL, $\phi 3.0$ BACK SPOT FACE
- ↔ ● $\phi 3.0 \times 1$ DP CBORE, $\phi 1.5 \times 1.5$ DP / THRU > SPHERICAL .75R

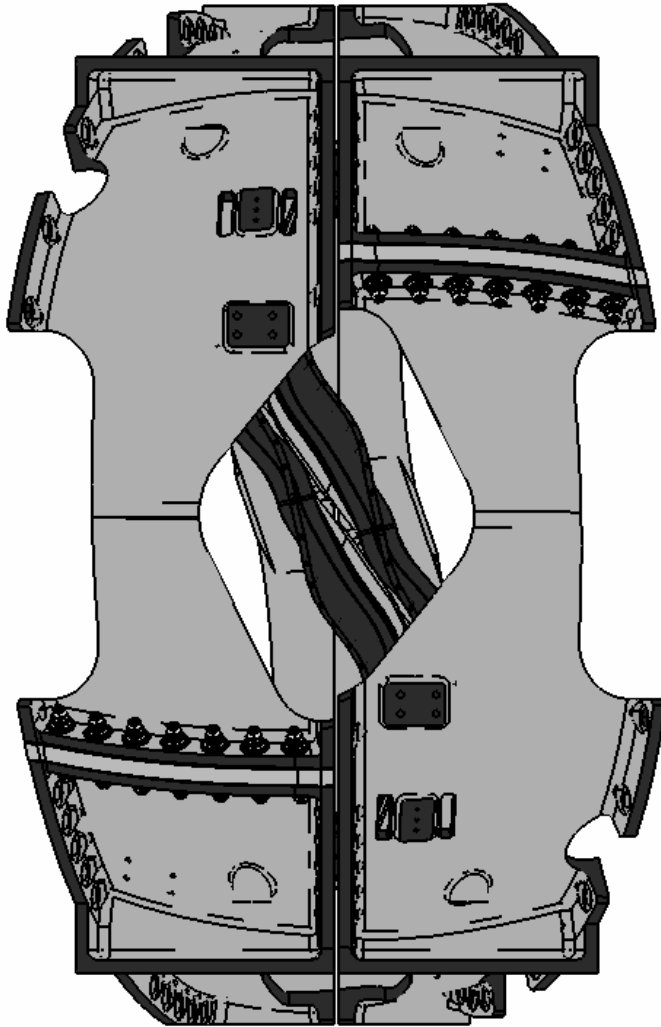
Lead Block Mounting Holes Removed

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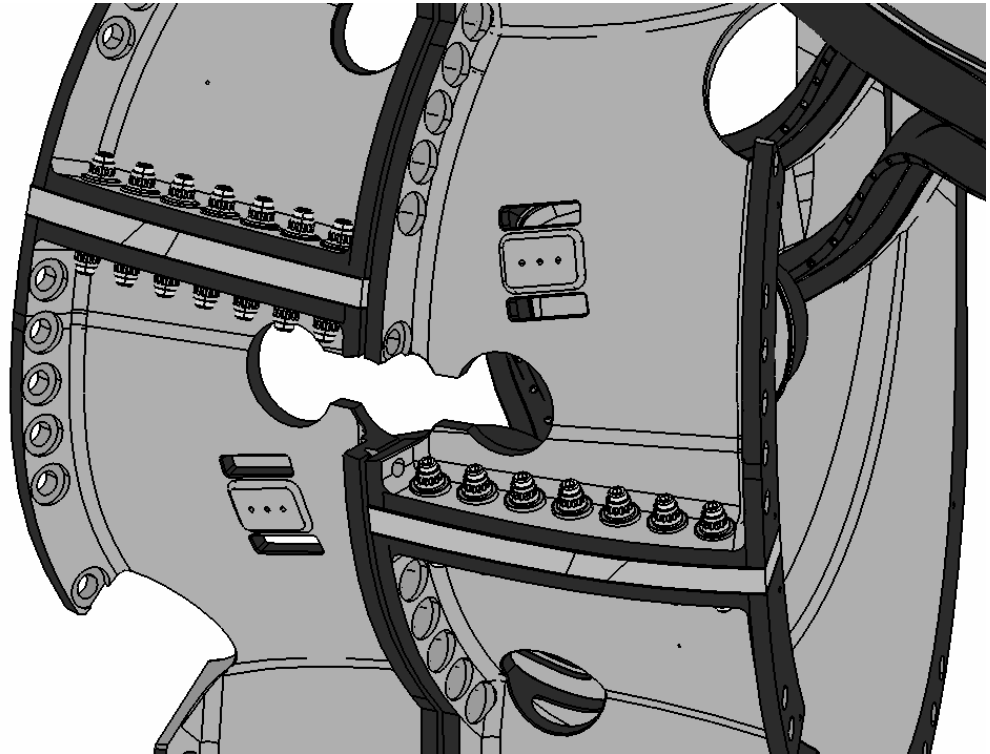


Port Openings and Bolt Spacing

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**NB port shape required
for asm clearance**

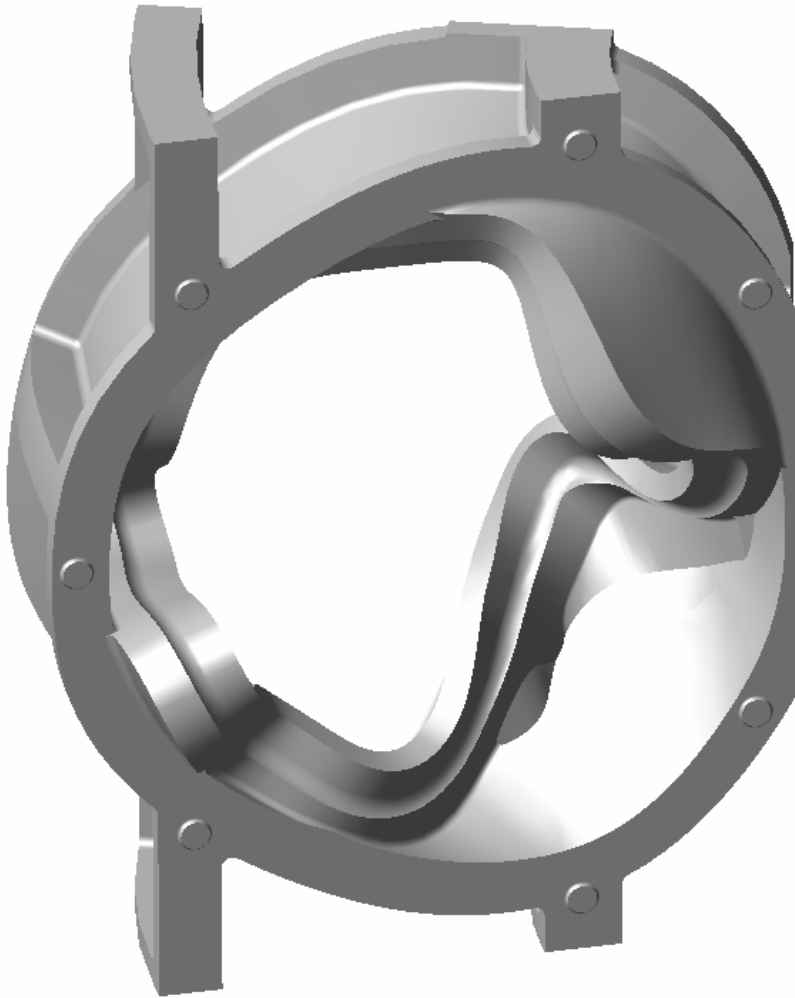


Counterbore runout due to bolt spacing

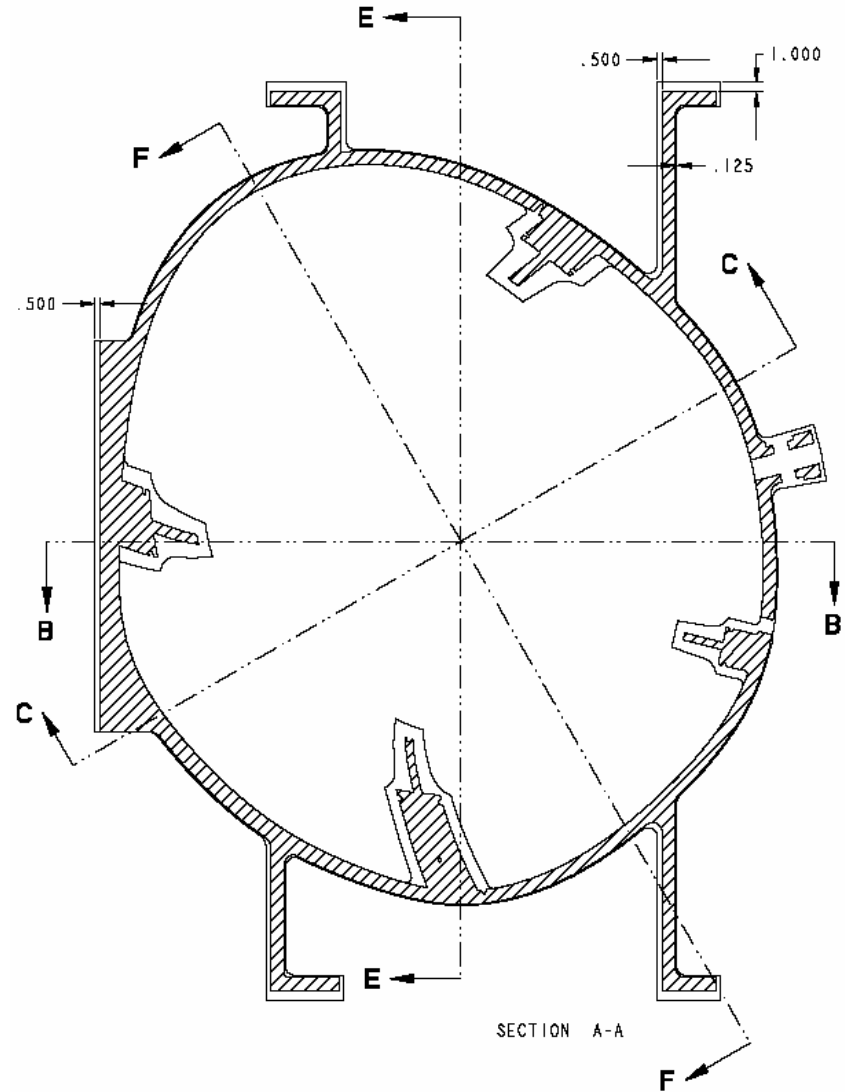
- C-bore dia reduced to 3-in
- Min spot face to reduce depth of cut
- Possible to omit hole (TBD)

Lawton pattern models are best for assembly

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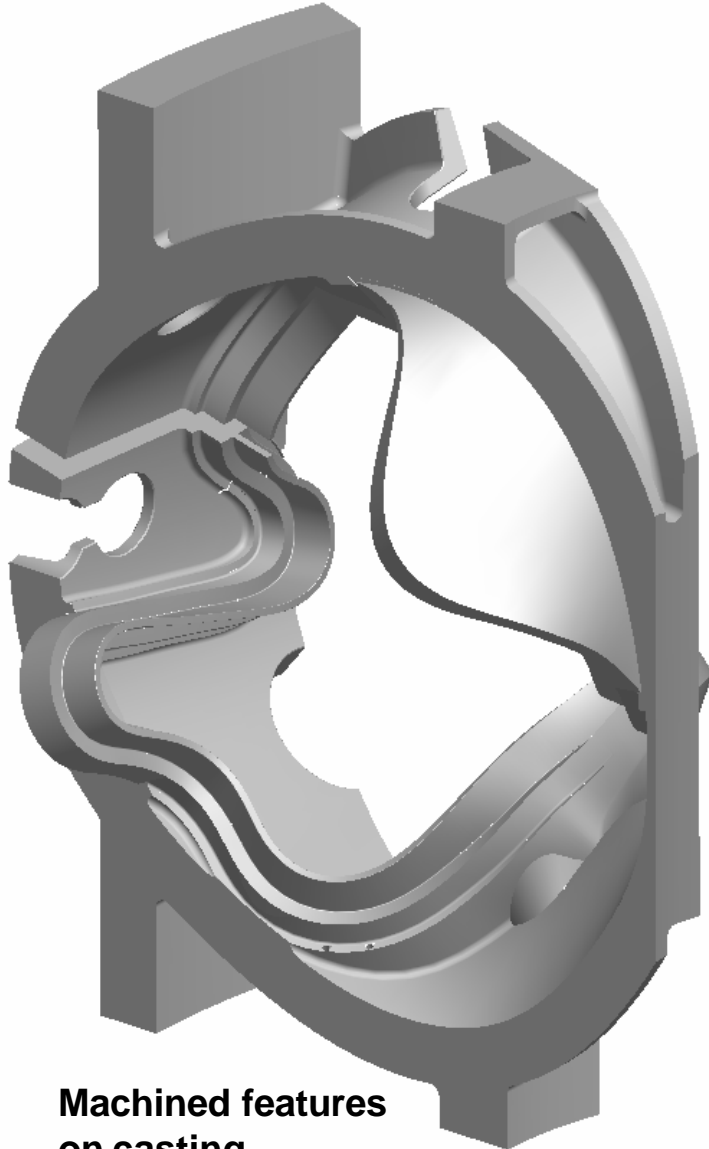


Type-C Stocked Model – No shrink

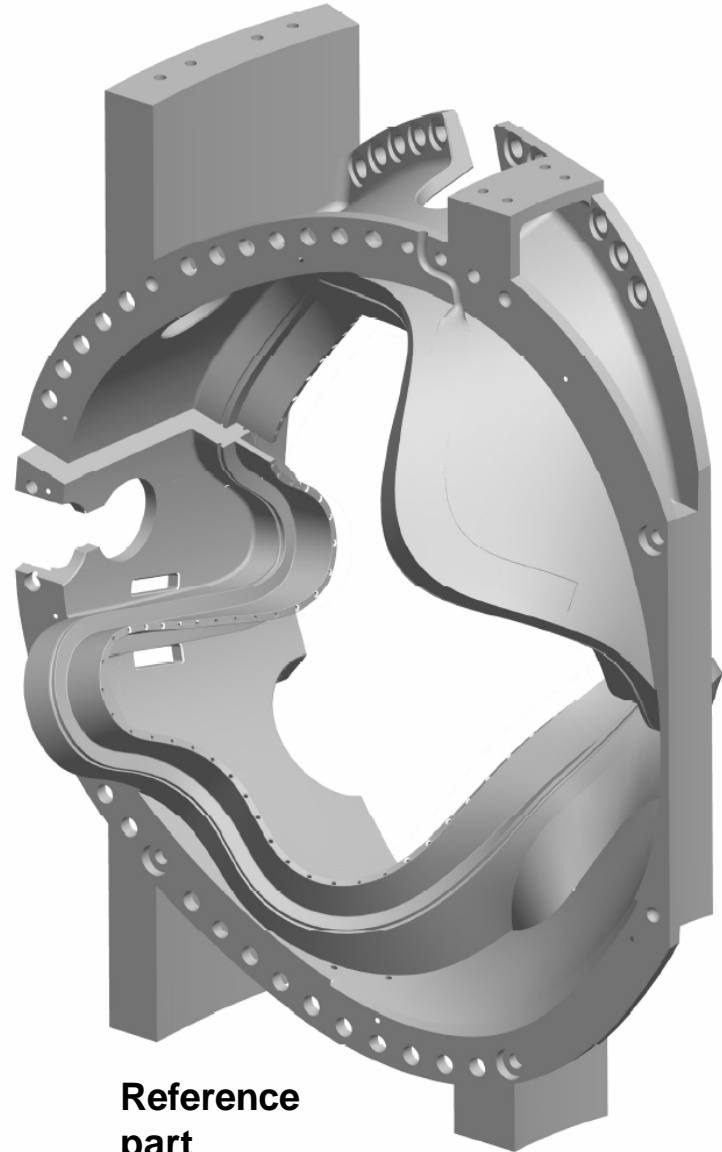


Status of modeling

NCSV



**Machined features
on casting**



**Reference
part**