NSTX

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Drawings and Photos Related to Cryopump

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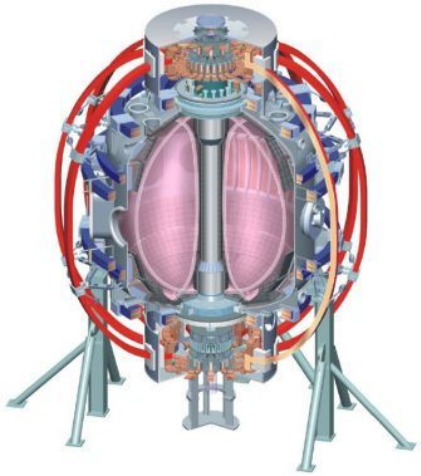
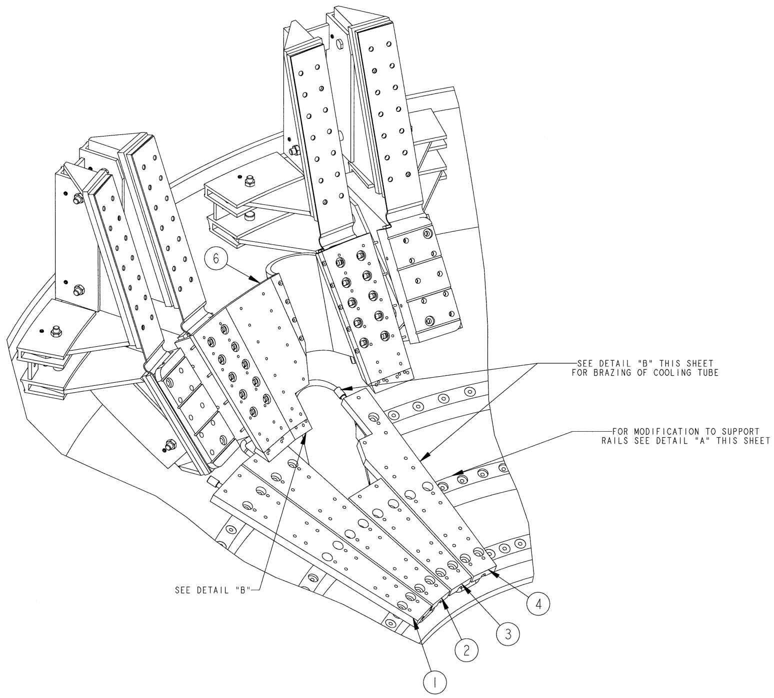
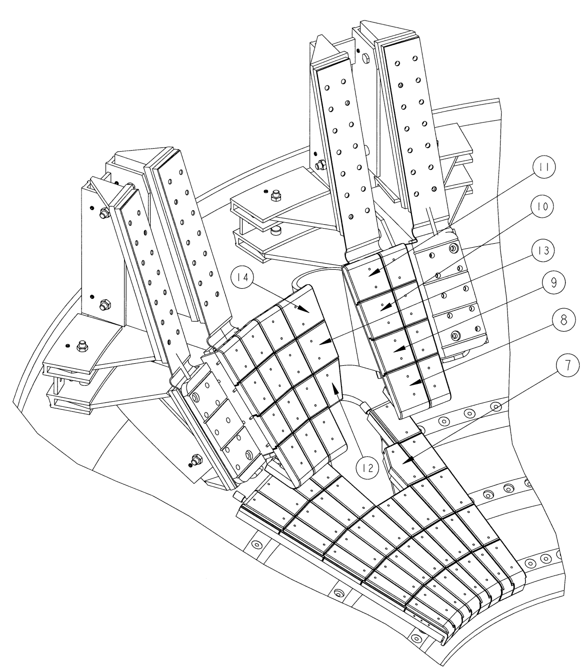
U Washington
U Wisconsin



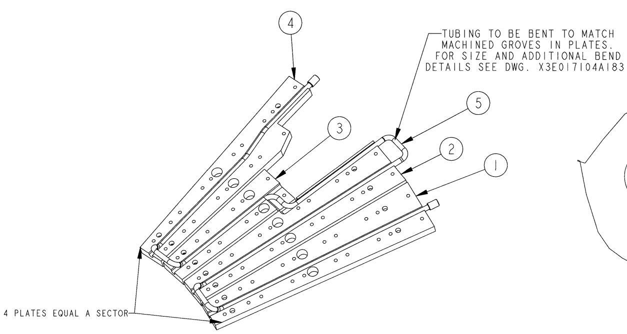
Culham Sci Ctr
U St. Andrews
York U
Chubu U
Fukui U
Hiroshima U
Hyogo U
Kyoto U
Kyushu U
Kyushu Tokai U
NIFS
Niigata U
U Tokyo
JAEA
Hebrew U
Ioffe Inst
RRC Kurchatov Inst
TRINITI
NFRI
KAIST
POSTECH
ASIPP
ENEA, Frascati
CEA, Cadarache
IPP, Jülich
IPP, Garching
ASCR, Czech Rep



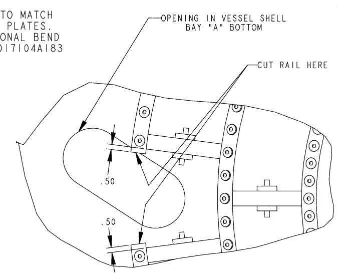
BAY "A" LOWER OPENING
DIVERTOR AND SECONDARY PASSIVE PLATE
MODIFICATION ASS'Y
EXISTING HARDWARE TO BE USED TO MOUNT
DIVERTOR PLATES AND SECONDARY PASSIVE PLATE



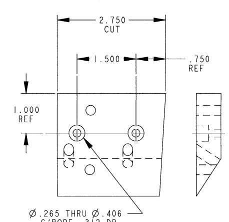
BAY "A" LOWER OPENING
DIVERTOR AND SECONDARY PASSIVE PLATE
TILE MODIFICATION ASS'Y
EXISTING HARDWARE TO BE USED
TO MOUNT TEE BARS AND TILES



DETAIL "B"
BRAZING OF COOLING
TUBE INTO DIVERTOR PLATES



DETAIL "A"
MODIFICATION TO SUPPORT
RAIL FOR DIVERTOR PLATES



DETAIL "B"
MODIFICATION TO
PART EDB1045

RELEASED FOR FABRICATION/INSTALLATION
PPPL CENTRAL FILES:
RELEASE DATE: 7/9/04
EXPIRATION DATE: N/A

03	02	01	PART NO.	DRAWING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL
			14	E-DB1322-7	SECONDARY PASSIVE PLATE TILE	SEE DWG
			13	E-DB1322-6	SECONDARY PASSIVE PLATE TILE	SEE DWG
			12	E-DB1322-5	SECONDARY PASSIVE PLATE TILE	SEE DWG
			11	E-DB1322-4	SECONDARY PASSIVE PLATE TILE	SEE DWG
			10	E-DB1322-3	SECONDARY PASSIVE PLATE TILE	SEE DWG
		1	9	E-DB1322-2	SECONDARY PASSIVE PLATE TILE	SEE DWG
		1	8	E-DB1322-1	SECONDARY PASSIVE PLATE TILE	SEE DWG
		1	7	E-DB1321-1	LOWER DIVERTOR TILE	SEE DWG
		1	6	E-DB1327-1	SECONDARY PASSIVE PLATE/JUMPER	SEE DWG
		AR	5	THIS DWG	TUBING AND FITTINGS TO MATCH EXISTING SEE DETAIL "B" FOR ROUTING	------
		1	4	E-DB1319-5	LOWER OUTBOARD DIVERTOR PLATE	SEE DWG
		1	3	E-DB1319-3	LOWER OUTBOARD DIVERTOR PLATE	SEE DWG
		1	2	E-DB1319-2	LOWER OUTBOARD DIVERTOR PLATE	SEE DWG
		1	1	E-DB1319-1	LOWER OUTBOARD DIVERTOR PLATE	SEE DWG
			----	THIS DWG	BAY "A" LOWER DIAG. ASS'Y OPENING	------
ASSY QTY			PARTS LIST			

NO.	REVISION	BY	CH	SUP	APPROVED	DATE

COMPUTER GENERATED DRAWING MANUAL CHANGES NOT PERMITTED
Pro E
DO NOT VERIFY INFORMATION BY SCALING DRAWING
CENTRAL FILES:
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
MACHINE SURFACES 125
BREAK SHARP EDGES .005/.020
TOLERANCES NON-CUMULATIVE

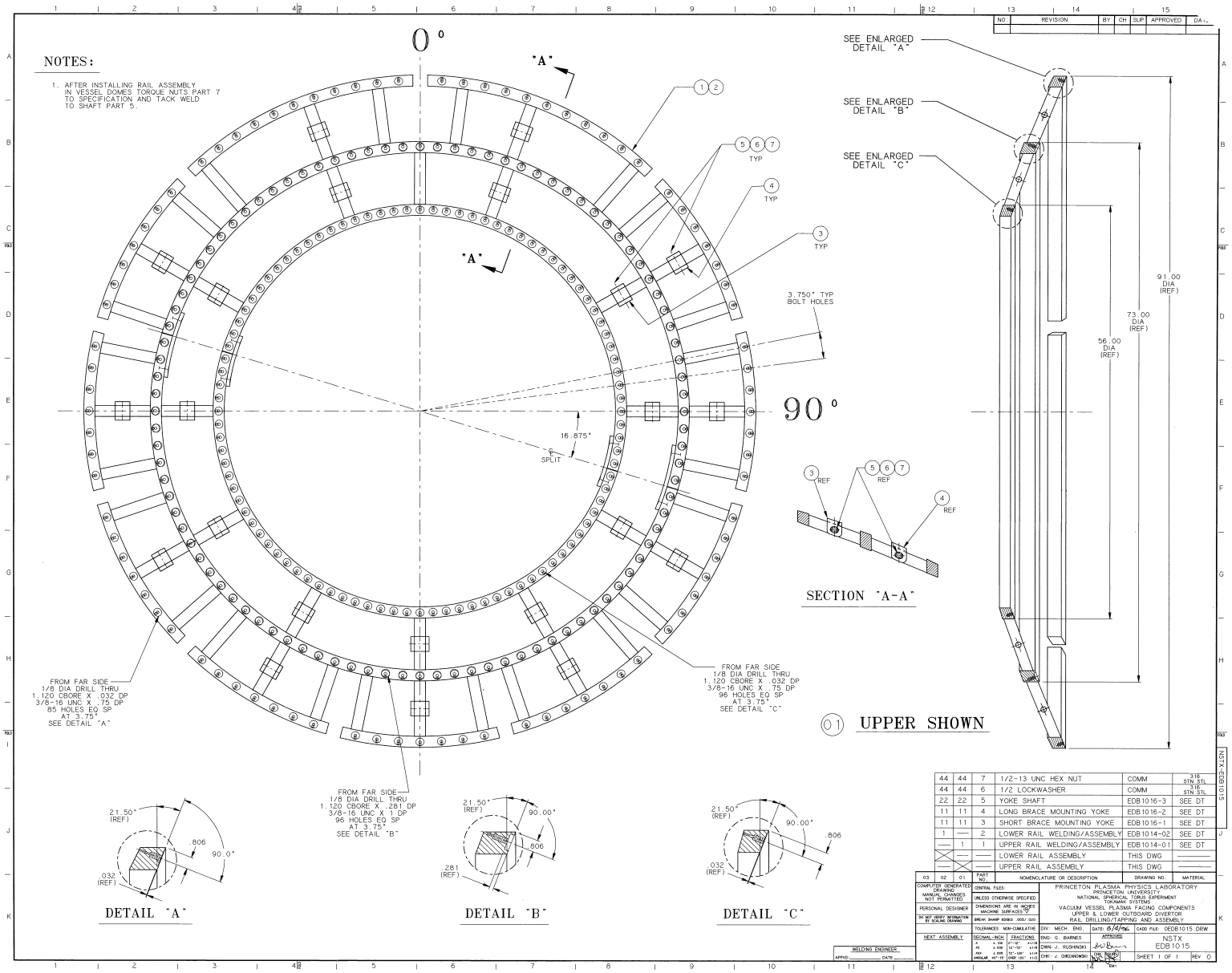
DECIMAL-INCH		FRACTIONS	
.X	.100	0"-12"	1/16
.XX	.030	12"-72"	1/8
.XXX	.005	72"-120"	1/4
ANGULAR	0°-15'	OVER 120"	1/2

NEXT ASSEMBLY

WELDING ENGINEER
APPVD: DATE

PRINCETON PLASMA PHYSICS LABORATORY
PRINCETON UNIVERSITY
NATIONAL SPHERICAL TORUS EXPERIMENT
POLODIAL ROTATION DIAGNOSTIC
DIVERTOR AND SECOND PASSIVE PLATES MODIFICATIONS
WITH ASSEMBLY OF TILES FOR OPENING

DIV: MECH. ENG. DATE: 7/9/04 CADD FILE: E-DB1328 .DRW
ENG: R. FEDER APPROVED
DSN: B. PAUL
CHK: R. FEDER CHK SURV EMI
E-DB1328
SHEET 1 OF 1 REV 0



NO.	REVISION	BY	CH	SUP	APPROVED	DATE

44	44	7	1/2-13 UNC HEX NUT	COMM	316 STN STL
44	44	6	1/2 LOCKWASHER	COMM	316 STN STL
22	22	5	YOKE SHAFT	EDB1016-3	SEE DT
11	11	4	LONG BRACE MOUNTING YOKE	EDB1016-2	SEE DT
11	11	3	SHORT BRACE MOUNTING YOKE	EDB1016-1	SEE DT
1	—	2	LOWER RAIL WELDING/ASSEMBLY	EDB1014-02	SEE DT
—	1	1	UPPER RAIL WELDING/ASSEMBLY	EDB1014-01	SEE DT
—	—	—	LOWER RAIL ASSEMBLY	THIS DWG	—
—	—	—	UPPER RAIL ASSEMBLY	THIS DWG	—

03	02	01	PART NO.	NOMENCLATURE OR DESCRIPTION	DRAWING NO.	MATERIAL

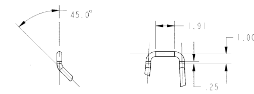
COMPUTER GENERATED DRAWING. MANUAL CHANGES NOT PERMITTED
PERSONAL DESIGNER
DO NOT SCALE DRAWING
NEXT ASSEMBLY
CENTRAL FILES:
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
MACHINE SURFACES
BREAK SHARP EDGES .005/.020
TOLERANCES NON-CUMULATIVE
DECIMAL-INCH
FRACTIONAL
ANGULAR
WELDING ENGINEER
APPVD DATE

PRINCETON PLASMA PHYSICS LABORATORY
PRINCETON UNIVERSITY
NATIONAL SPHERICAL TORUS EXPERIMENT
TOKAMAK SYSTEMS
VACUUM VESSEL PLASMA FACING COMPONENTS
UPPER & LOWER OUTBOARD DIVERTOR
RAIL DRILLING/TAPPING AND ASSEMBLY

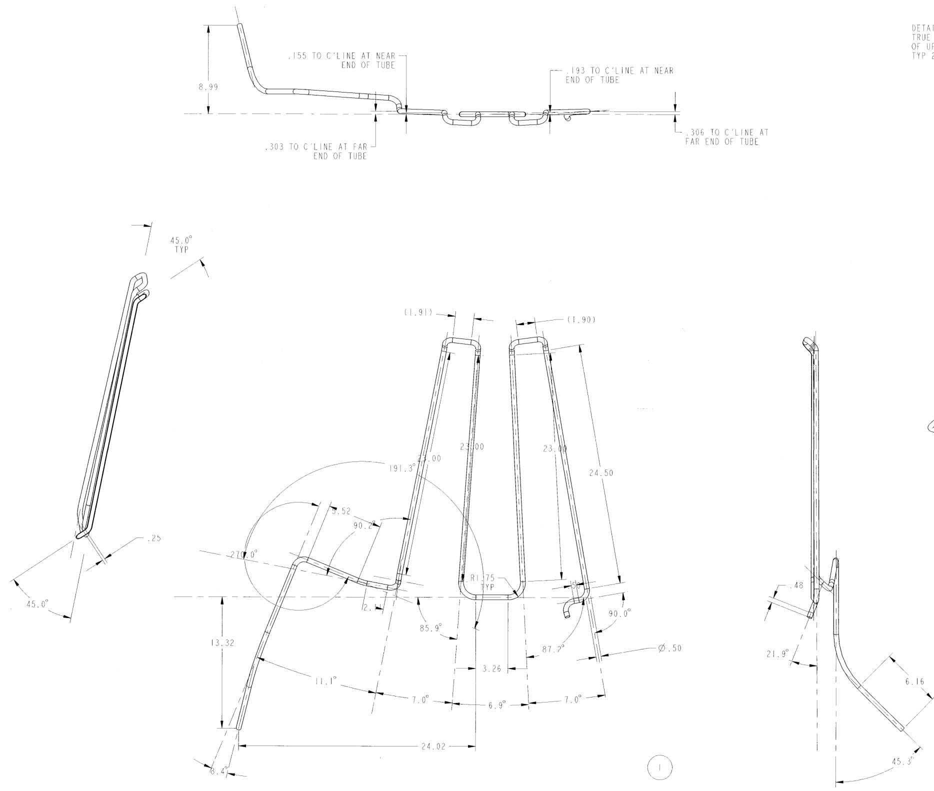
DRN: MECH. ENG. DATE: 6/6/06
CADD FILE: DEDB1015.DRW
ENG: G. BARNES APPROVED
DRWN: J. RUSHINSKI
CHK: J. CHRZANOWSKI
NSTX EDB1015
SHEET 1 OF 1 REV 0

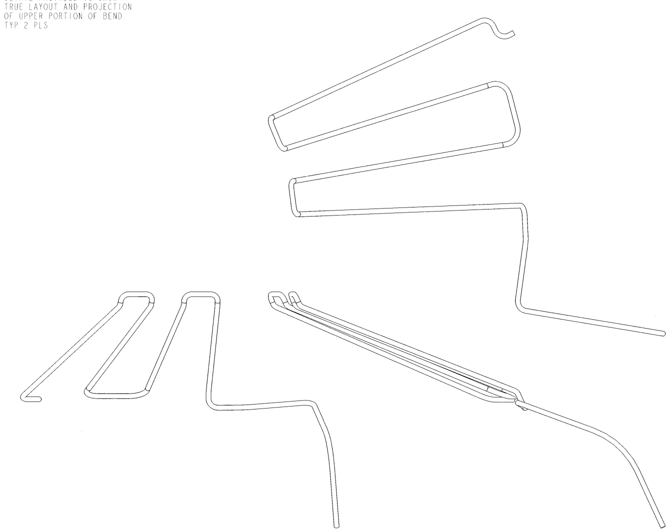
NOTES

1. INTERPRET DRAWING PER MECHANICAL ENGINEERING DRAFTING STANDARD ES-3.1-2.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M.
3. DIMENSIONS ARE IN INCHES.



DETAIL PROVIDED TO SHOW TRUE LAYOUT AND PROJECTION OF UPPER PORTION OF BEND TYP 2 PLS





SCALE 0.250

AR		-1	OB DIV COOLING TUBE	Ø.50 X .049 WALL	SST TUBE	
X3E017104 A179	CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO
	NEXT ASSEMBLY		PARTS LIST			

QUALITY VERIFICATION
MECHANICAL AND STRUCTURAL
REFERENCE ORNL QV-001

QV CLAUSE	DOCUMENTS REQUIRED	APPLICABLE TO PART NO *
303	MATERIAL MILL TEST REPORT	
325	MATERIAL SELLER CERT	
326	SPECIAL MATERIAL INSPECTION REPORT	
205	MANUFACTURING, INSPECTION, AND TEST PLAN	
312	FIELD INSPECTION AND TEST PLAN	
321	WELD AND BRAZE INSPECTION REPORT	
322	HEAT TREAT REPORT (W/CHART)	
310	LEAK TEST REPORT	
315	CLEANING CERT	
318	DEVIATION REQUEST	X
319	NONCONFORMANCE REPORT	X
323	DIMENSIONAL REPORT	
330	FUNCTIONAL TEST REPORT	
100	DOCUMENTION	X

* SYMBOL X INDICATES APPLICABLE TO ALL PARTS OR ITEMS

M.A. Brooke 6-23-98
QA COORDINATOR DATE

OFS NSTX-0091 R0 DATE REC 6/98
PRINCETON UNIVERSITY
PLASMA PHYSICS LABORATORY
TOKAMAK FUSION TEST REACTOR

PO		ITEM	
A	DRAWING REVIEW	NO COMMENTS, PRINT TO VENDOR	1
		COMMENTS AS NOTED, PRINT TO VENDOR	2
		DRAWING NOT APPLICABLE, PRINT TO VENDOR	3
		NO COMMENTS, NO PRINT TO VENDOR	4
		FOR INFORMATION ONLY	5
B	FABRICATION PROCEED	NO FURTHER REPRODUCIBLE REQUIRED	1
		SUBMIT REVISED REPRODUCIBLE	2
	DO NOT PROCEED	NO FURTHER REPRODUCIBLE REQUIRED	3
		SUBMIT REVISED REPRODUCIBLE	4

X3E017104A183

P THIS DRAWING PRODUCED ON PRO-ENGINEER

THIS DOCUMENT CONTROLLED BY
CHANGE CONTROL SYSTEM 3
ENGINEERING PROCEDURE EP-C-18

REV				DESCRIPTION	A-L	BY	CHK	SECT	DEPT	DATE
0	3			ORIGINAL ISSUE		MTB				3/98

REVISION OR ISSUE PURPOSE — REVISION APPROVALS — SQUAD CHECK

SCALE .25

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS :
XX DECIMALS ±.01
XXX DECIMALS ±.005
ANGLES ±0° 15'
BREAK SHARP EDGES .01 MAX
FINISH .63 UNLESS OTHERWISE SPECIFIED

DES	P GORANSON	02/98
DRW	MT BROWN	03/98
CHK	J L P[illegible]	6/17/98
SECT		
DEPT	P. L. Litterland	6/18/98
PE	[illegible]	6/22/98
CR		
PJ	L.D. Bunau	6/23/98
REQ	G.W. Barnes	6/16/98
DRAWING APPROVALS		DATE

LOCKHEED MARTIN — LOCKHEED MARTIN ENERGY SYSTEMS, INC.
operated for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC-05-84OR21400
Oak Ridge, Tennessee • Paducah, Kentucky

PROJECT NAME NSTX

OUTBOARD DIVERTOR PLATE COOLING TUBE

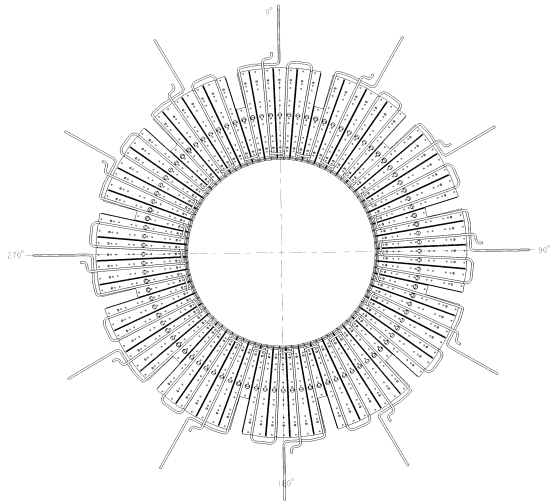
1	48	49	50	PLANT	BLDG	FL	SHT	OF	TYPE	CLASS
3	M	E	U	Y-12	FEDC	1	1	1	S	U

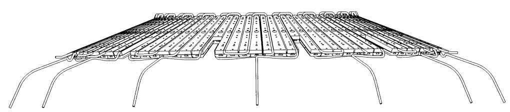
51 52 53 X3E017104A183 REV 0

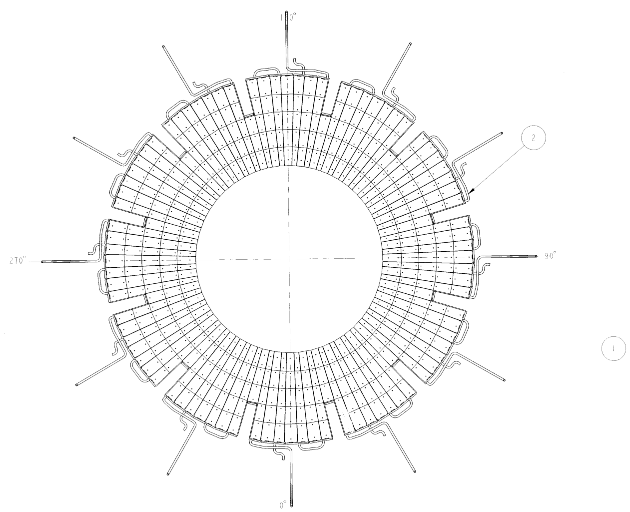
SECTION A-A

NOTES

1. INTERPRET DRAWING PER MECHANICAL ENGINEERING DRAFTING STANDARD ES 3.1-2.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M.
3. DIMENSIONS ARE IN INCHES.







12		X3E017104A176	OUTBOARD DIVERTOR ASSY, 30DEG			2
1		X3E017104A175	OBD TILE ASSY 360 DEG			1
-	CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO

X3E017104 A510 — NEXT ASSEMBLY

PARTS LIST

QUALITY VERIFICATION

MECHANICAL AND STRUCTURAL
REFERENCE ORNL QV-001

QV CLAUSE	DOCUMENTS REQUIRED	APPLICABLE TO PART NO *
303	MATERIAL MILL TEST REPORT	
325	MATERIAL SELLER CERT	
326	SPECIAL MATERIAL INSPECTION REPORT	
205	MANUFACTURING, INSPECTION, AND TEST PLAN	
312	FIELD INSPECTION AND TEST PLAN	
321	WELD AND BRAZE INSPECTION REPORT	
322	HEAT TREAT REPORT (W/CHART)	
310	LEAK TEST REPORT	
315	CLEANING CERT	
318	DEVIATION REQUEST	X
319	NONCONFORMANCE REPORT	X
323	DIMENSIONAL REPORT	
330	FUNCTIONAL TEST REPORT	
100	DOCUMENTION	X

* SYMBOL X INDICATES APPLICABLE TO ALL PARTS OR ITEMS

M.A. Brooke — QA COORDINATOR
6-23-98 — DATE

RELEASED FOR FABRICATION/INSTALLATION
PPPL CENTRAL FILES:
RELEASE DATE: 8/21/01
EXPIRATION DATE: N/A

OFS	NSTX-0095 R0	DATE REC 6/98

PRINCETON UNIVERSITY
PLASMA PHYSICS LABORATORY
TOKAMAK FUSION TEST REACTOR

PO		ITEM	
A	DRAWING REVIEW	NO COMMENTS, PRINT TO VENDOR	1
		COMMENTS AS NOTED, PRINT TO VENDOR	2
		DRAWING NOT APPLICABLE, PRINT TO VENDOR	3
		NO COMMENTS, NO PRINT TO VENDOR	4
		FOR INFORMATION ONLY	5
B	FABRICATION PROCEED	NO FURTHER REPRODUCIBLE REQUIRED	1
		SUBMIT REVISED REPRODUCIBLE	2
	DO NOT PROCEED	NO FURTHER REPRODUCIBLE REQUIRED	3
		SUBMIT REVISED REPRODUCIBLE	4

REV	CHANGE TYPE	CHANGE CONTROL SYSTEM	CHANGE REQUEST NUMBER	DESCRIPTION	A-E	BY	CHK	SECT	DEPT	DATE	PE	REQ	DATE	LM-ES	DATE	DOE	DATE
0	-	3	-	ORIGINAL ISSUE		MTB				3/98							

REVISION OR ISSUE PURPOSE — REVISION APPROVALS

SQUAD CHECK: QA | CV | EC | EE | EM | IE | M | PD | SE | ST | XAD | PES

SCALE .10

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS :
XX DECIMALS ±.01
XXX DECIMALS ±.005
ANGLES ±0° 15'
BREAK SHARP EDGES .06 MAX
FINISH .125 UNLESS OTHERWISE SPECIFIED

DRAWING APPROVALS		DATE
DES	P GORANSON	02/98
DRW	MT BROWN	03/98
CHK	J.L. Bing	6/17/98
SECT		
DEPT	P.S. Litherland	6/18/98
PE	[illegible]	6/22/98
CR		
PJ	Z.D. Benson	6/23/98
REQ	G.W. Barnes	6/16/98

LOCKHEED MARTIN — LOCKHEED MARTIN ENERGY SYSTEMS, INC.
operated for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC-05-84OR21400
Oak Ridge, Tennessee · Paducah, Kentucky

PROJECT NAME: NSTX

OUTBOARD DIVERTOR PLATE
OUTBOARD TILE ASSY, 360 DEG.

1	48	49	50	PLANT	BLDG	FL	SHT	OF	TYPE	CLASS
3	M	E	U	Y-12	FEDC	I	I	I	A	U

51 | 52 | 53 — X3E017104A175 — REV 0

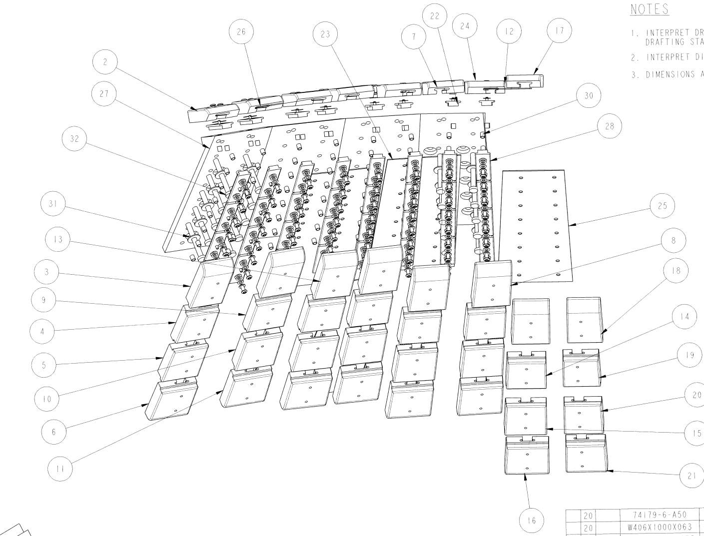
P THIS DRAWING PRODUCED ON PRO-ENGINEER

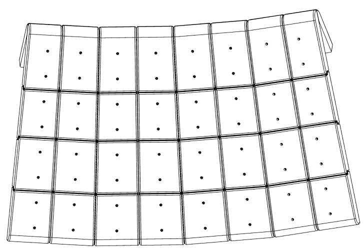
THIS DOCUMENT CONTROLLED BY
CHANGE CONTROL SYSTEM 3
ENGINEERING PROCEDURE EP-C-18

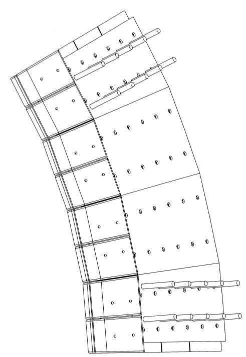
X3E017104A175

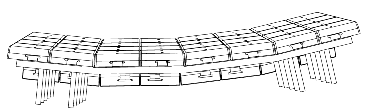
NOTES

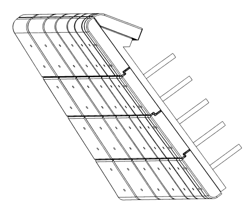
1. INTERPRET DRAWING PER MECHANICAL ENGINEERING DRAFTING STANDARD ES-3.1-2.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M.
3. DIMENSIONS ARE IN INCHES.











	QTY	CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO
	20		74179-6-A50	BOLT 12 POINT LOW PRIFILE HD	INCO 718	--	32
	20		W406X1000X063	WASHER PLAN FLAT 3/8 DIA	INCONEL		31
	80		3585-4TNV-0375	THREAD INSERT 1/4-20 HELI-COIL	ST STL	--	30
	32		X3E017104A290	RAIL HARDWARE ASSY			28
	1		X3E017104A289	CDA 18150 COPPER	--	--	27
	2		X3E017104A249	SEC PASS PLT TOP FACE GASKET	GRAFOIL	--	26
	2		X3E017104A248	SEC PASS PLT - FACE GASKET	GRAFOIL	--	25
	2		X3E017104A247	SEC PASS PLT TOP FACE GASKET	GRAFOIL	--	24
	2		X3E017104A246	SEC PASS PLT - FACE GASKET	GRAFOIL	--	23
	8		X3E017104A241	SEC PASS PLT TOP RAIL T-BAR ASSY			22
	1		X3E017104A238	SEC. PASS PLT TILE	ATJ GRAPHITE	--	21
	1		X3E017104A237	SEC. PASS PLT TILE	ATJ GRAPHITE	--	20
	1		X3E017104A236	SEC. PASS PLT TILE	ATJ GRAPHITE	--	19
	1		X3E017104A235	SEC. PASS PLT TILE	ATJ GRAPHITE	--	18
	1		X3E017104A234	SEC. PASS PLT TILE	ATJ GRAPHITE	--	17
	3		X3E017104A228	SEC. PASS PLT TILE	ATJ GRAPHITE	--	16
	3		X3E017104A227	SEC. PASS PLT TILE	ATJ GRAPHITE	--	15
	3		X3E017104A226	SEC. PASS PLT TILE	ATJ GRAPHITE	--	14
	3		X3E017104A225	SEC. PASS PLT TILE	ATJ GRAPHITE	--	13
	3		X3E017104A224	SEC. PASS PLT TILE	ATJ GRAPHITE	--	12
	3		X3E017104A218	SEC. PASS PLT TILE	ATJ GRAPHITE	--	11
	3		X3E017104A217	SEC. PASS PLT TILE	ATJ GRAPHITE	--	10
	3		X3E017104A216	SEC. PASS PLT TILE	ATJ GRAPHITE	--	9
	3		X3E017104A215	SEC. PASS PLT TILE	ATJ GRAPHITE	--	8
	3		X3E017104A214	SEC. PASS PLT TILE	ATJ GRAPHITE	--	7
	1		X3E017104A208	SEC. PASS PLT TILE	ATJ GRAPHITE	--	6
	1		X3E017104A207	SEC. PASS PLT TILE	ATJ GRAPHITE	--	5
	1		X3E017104A206	SEC. PASS PLT TILE	ATJ GRAPHITE	--	4
	1		X3E017104A205	SEC. PASS PLT TILE	ATJ GRAPHITE	--	3
	1		X3E017104A204	SEC. PASS PLT TILE	ATJ GRAPHITE	--	2
	1		X3E017104A276				1
next assy	-1		NEXT ASSEMBLY				

PARTS LIST

QUALITY VERIFICATION

MECHANICAL AND STRUCTURAL
REFERENCE ORNL QV-001

QV CLAUSE	DOCUMENTS REQUIRED	APPLICABLE TO PART NO *
303	MATERIAL MILL TEST REPORT	
325	MATERIAL SELLER CERT	
326	SPECIAL MATERIAL INSPECTION REPORT	
205	MANUFACTURING, INSPECTION, AND TEST PLAN	
312	FIELD INSPECTION AND TEST PLAN	
321	WELD AND BRAZE INSPECTION REPORT	
322	HEAT TREAT REPORT (W/CHART)	
310	LEAK TEST REPORT	
315	CLEANING CERT	
318	DEVIATION REQUEST	X
319	NONCONFORMANCE REPORT	X
323	DIMENSIONAL REPORT	
330	FUNCTIONAL TEST REPORT	
100	DOCUMENTION	X

* SYMBOL X INDICATES APPLICABLE TO ALL PARTS OR ITEMS

M.A. Brooke (signature) 8-3-98
QA COORDINATOR DATE

OFS NS;X-C 222 R0 DATE REC 8/98

PRINCETON UNIVERSITY
PLASMA PHYSICS LABORATORY
TOKAMAK FUSION TEST REACTOR

PO		ITEM	
A	DRAWING REVIEW	NO COMMENTS, PRINT TO VENDOR	1
		COMMENTS AS NOTED, PRINT TO VENDOR	2
		DRAWING NOT APPLICABLE, PRINT TO VENDOR	3
		NO COMMENTS, NO PRINT TO VENDOR	4
		FOR INFORMATION ONLY	5
B	FABRICATION PROCEED	NO FURTHER REPRODUCIBLE REQUIRED	1
		SUBMIT REVISED REPRODUCIBLE	2
	FABRICATION DO NOT PROCEED	NO FURTHER REPRODUCIBLE REQUIRED	3
		SUBMIT REVISED REPRODUCIBLE	4

P THIS DRAWING PRODUCED ON PRO-ENGINEER

THIS DOCUMENT CONTROLLED BY
CHANGE CONTROL SYSTEM 3
ENGINEERING PROCEDURE EP-C-18

REV	DESCRIPTION	BY	DATE
0	ORIGINAL ISSUE	MTB	3/98

REVISION OR ISSUE PURPOSE — REVISION APPROVALS — SQUAD CHECK

SCALE

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS
XX DECIMALS ±.01
XXX DECIMALS ±.005
ANGLES ±0°15'
BREAK SHARP EDGES .06 MAX
FINISH .125 UNLESS OTHERWISE SPECIFIED

DES	P GORANSON	02/98
DRW	MT BROWN	03/98
CHK	(signature)	7-30-98
SECT		
DEPT	P.S. Litherland by KK	8/3/98
PE	(signature)	7/31/98
CR		
PJ	R.D. Benson	8/3/98
REQ	G.W. Barnes	7/20/98

DRAWING APPROVALS — DATE

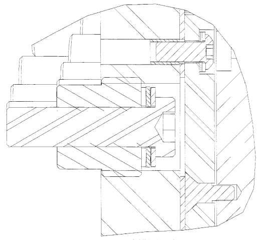
LOCKHEED MARTIN — LOCKHEED MARTIN ENERGY SYSTEMS, INC.
operated for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC-05-84OR21400
Oak Ridge, Tennessee - Paducah, Kentucky

PROJECT NAME
NSTX

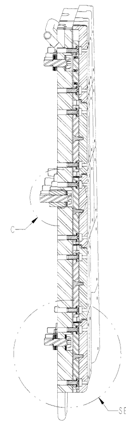
SECONDARY PASSIVE PLATE ASSEMBLY

I	48	49	50	PLANT	BLDG	FL	SHT	OF	TYPE	CLASS
3	M	E	U	Y-12	FEDC	1	1	1	A	U

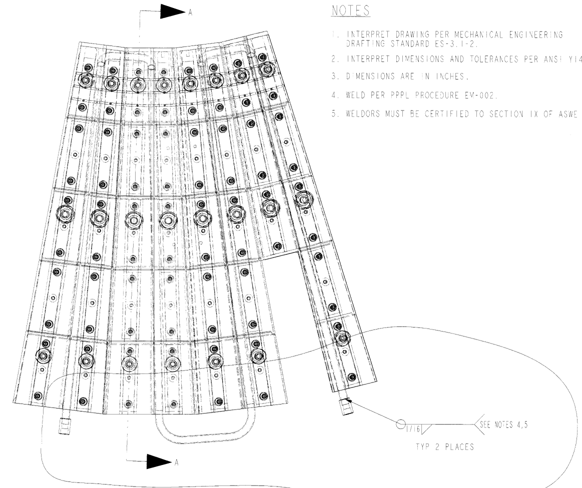
51 52 53 — X3E017104A276 — REV 0



DETAIL C
SCALE 2.000



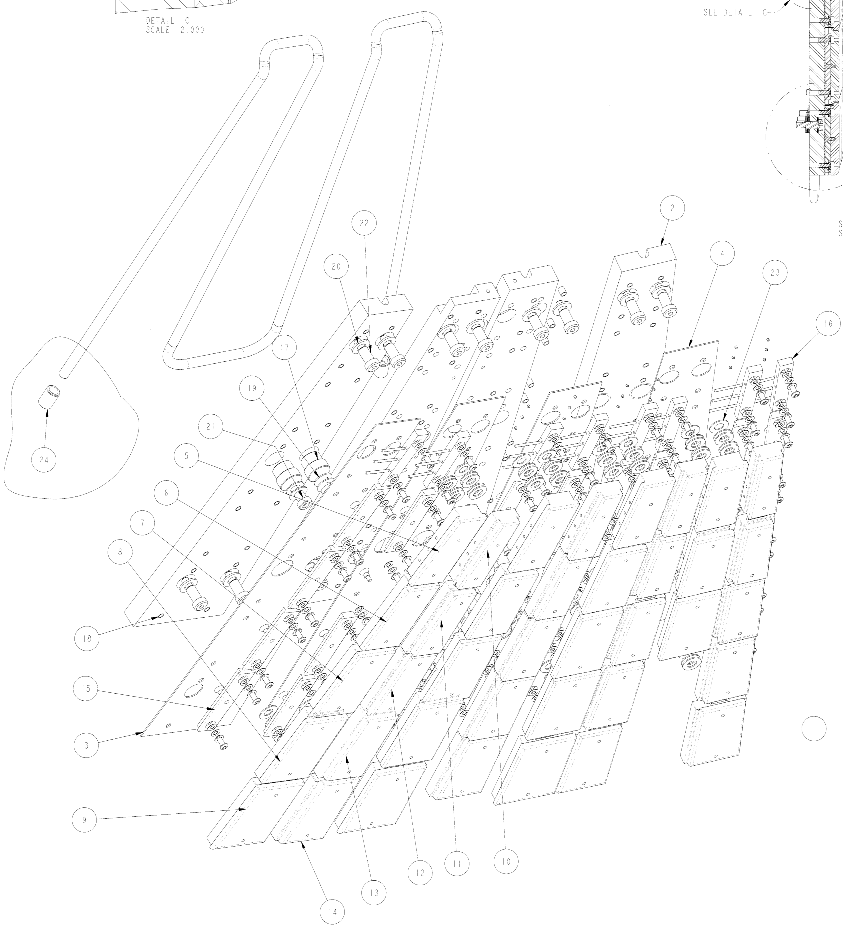
SECTION A-A
SCALE 0.375

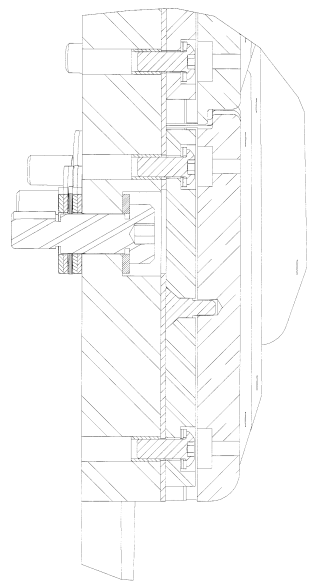


SCALE 0.375

NOTES

1. INTERPRET DRAWING PER MECHANICAL ENGINEERING DRAFTING STANDARD ES-3.1-2.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M.
3. DIMENSIONS ARE IN INCHES.
4. WELD PER PPPL PROCEDURE EM-002.
5. WELDORS MUST BE CERTIFIED TO SECTION IX OF ASME CODE.





DETAIL B
SCALE 2.000

QTY	CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO
2		SS-8-TSW-6	TUBE SOCKET WELD UNION	SST	--	24
23		~~K1000-E-050~~	~~.500 X 1.00 X .06 SPRING WASHER~~	~~SST~~	--	23
15		SCR_SHC_500SHLDR	.500 OD X .875 LG SHLDR BOLT	SST	--	22
8		SCR_SHC_500	.500 OD X 1.875 LG LOW HD SHCS	SST	--	21
15		W531X1000X094	.531 X 1.00 X .094 THK WASHER	SST	--	20
76		W531X1000X058	.531 X 1.00 X .058 THK WASHER	SST	--	19
76		3585-4TNV-0375	THREAD INSERT 1/4-20 HELI-COIL	ST STL	--	18
8		X3E017104A186	OB DIV ASSY LOCATION BUSHING	SST	--	17
8		X3E017104A171	OB DIV PIN RAIL ASSY			16
30		X3E017104A170	O.B. DIV. T-BAR RAIL ASSY			15
4		X3E017104A160	SEC. PASS PLT TILE	ATJ GRAPHITE	--	14
4		X3E017104A159	OB DIVERTOR PLT TILE	ATJ GRAPHITE	--	13
4		X3E017104A158	OB DIVERTOR PLT TILE	ATJ GRAPHITE	--	12
4		X3E017104A157	OB DIVERTOR PLT TILE	ATJ GRAPHITE	--	11
4		X3E017104A156	OB DIVERTOR PLT TILE	ATJ GRAPHITE	--	10
3		X3E017104A155	OB DIVERTOR PLT TILE	ATJ GRAPHITE	--	9
3		X3E017104A154	OB DIVERTOR PLT TILE	ATJ GRAPHITE	--	8
4		X3E017104A153	OB DIVERTOR PLT TILE	ATJ GRAPHITE	--	7
4		X3E017104A152	OB DIVERTOR PLT TILE	ATJ GRAPHITE	--	6
4		X3E017104A151	OB DIVERTOR PLT TILE	ATJ GRAPHITE	--	5
1		X3E017104A174	OB DIV NOTCHED GASKET	GRAFOIL	--	4
3		X3E017104A146	OB DIV STD GASKET	GRAFOIL	--	3
1		X3E017104A179	BASE PLT ASSY W/COOLING TUBE			2
1		X3E017104A176	OUTBOARD DIVERTOR ASSY, 30DEG			1

X3E017104 A175 — NEXT ASSEMBLY

PARTS LIST

QUALITY VERIFICATION

MECHANICAL AND STRUCTURAL REFERENCE ORNL QV-001

QV CLAUSE	DOCUMENTS REQUIRED	APPLICABLE TO PART NO *
303	MATERIAL MILL TEST REPORT	
325	MATERIAL SELLER CERT	
326	SPECIAL MATERIAL INSPECTION REPORT	
205	MANUFACTURING, INSPECTION, AND TEST PLAN	
312	FIELD INSPECTION AND TEST PLAN	
321	WELD AND BRAZE INSPECTION REPORT	
322	HEAT TREAT REPORT (W/CHART)	
310	LEAK TEST REPORT	
315	CLEANING CERT	
318	DEVIATION REQUEST	X
319	NONCONFORMANCE REPORT	X
323	DIMENSIONAL REPORT	
330	FUNCTIONAL TEST REPORT	
100	DOCUMENTATION	X

* SYMBOL X INDICATES APPLICABLE TO ALL PARTS OR ITEMS

QA COORDINATOR DATE

RELEASED FOR FABRICATION/INSTALLATION
PPL CENTRAL FILES:
RELEASE DATE: 12/21/01
EXPIRATION DATE: N/A

OFS NSTX-0094	R	DATE REC 11/99
PRINCETON UNIVERSITY PLASMA PHYSICS LABORATORY NATIONAL SPHERICAL TORUS EXPERIMENT		
A — DRAWING REVIEW	NO COMMENTS, PRINT TO VENDOR	1
	COMMENTS AS NOTED, PRINT TO VENDOR	2
	DRAWING NOT APPLICABLE, PRINT TO VENDOR	3
	NO COMMENTS, NO PRINT TO VENDOR	4
	FOR INFORMATION ONLY	5
B — FABRICATION	NO FURTHER REPRODUCIBLE REQUIRED	1
	SUBMIT REVISED REPRODUCIBLE	3
	NO FURTHER REPRODUCIBLE REQUIRED	3
	SUBMIT REVISED REPRODUCIBLE	4

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF, ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE NOT TO BE USED FOR OTHER PURPOSES, AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

P THIS DRAWING PRODUCED ON PRO-ENGINEER

THIS DOCUMENT CONTROLLED BY CHANGE CONTROL SYSTEM 3
ENGINEERING PROCEDURE EP-C-18

REV	CHANGE TYPE	CHANGE CONTROL SYSTEM	CHANGE REQUEST NUMBER	DESCRIPTION	A-E	BY	CHK	SECT	DEPT	DATE
1				PPPL REVISION PER CR070		JRH				11/99
0	-	3	-	ORIGINAL ISSUE		MTB				3/98

REVISION OR ISSUE PURPOSE — REVISION APPROVALS: PE, REQ, DATE, LM-ES, DATE, DOE, DATE — SQUAD CHECK: QA, CV, EC, EE, EM, IE, M, PD, SE, ST, XAD, PES

SCALE .50

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
XX DECIMALS ±.01
XXX DECIMALS ±.005
ANGLES ±0° 15'
BREAK SHARP EDGES .06 MAX
FINISH .125 UNLESS OTHERWISE SPECIFIED

		DATE
DES	P GORANSON	02/98
DRW	MT BROWN	04/98
CHK		
SECT		
DEPT		
PE		
CR		
PJ		
REQ		

DRAWING APPROVALS DATE

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operated for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC-05-84OR21400
Oak Ridge, Tennessee • Paducah, Kentucky

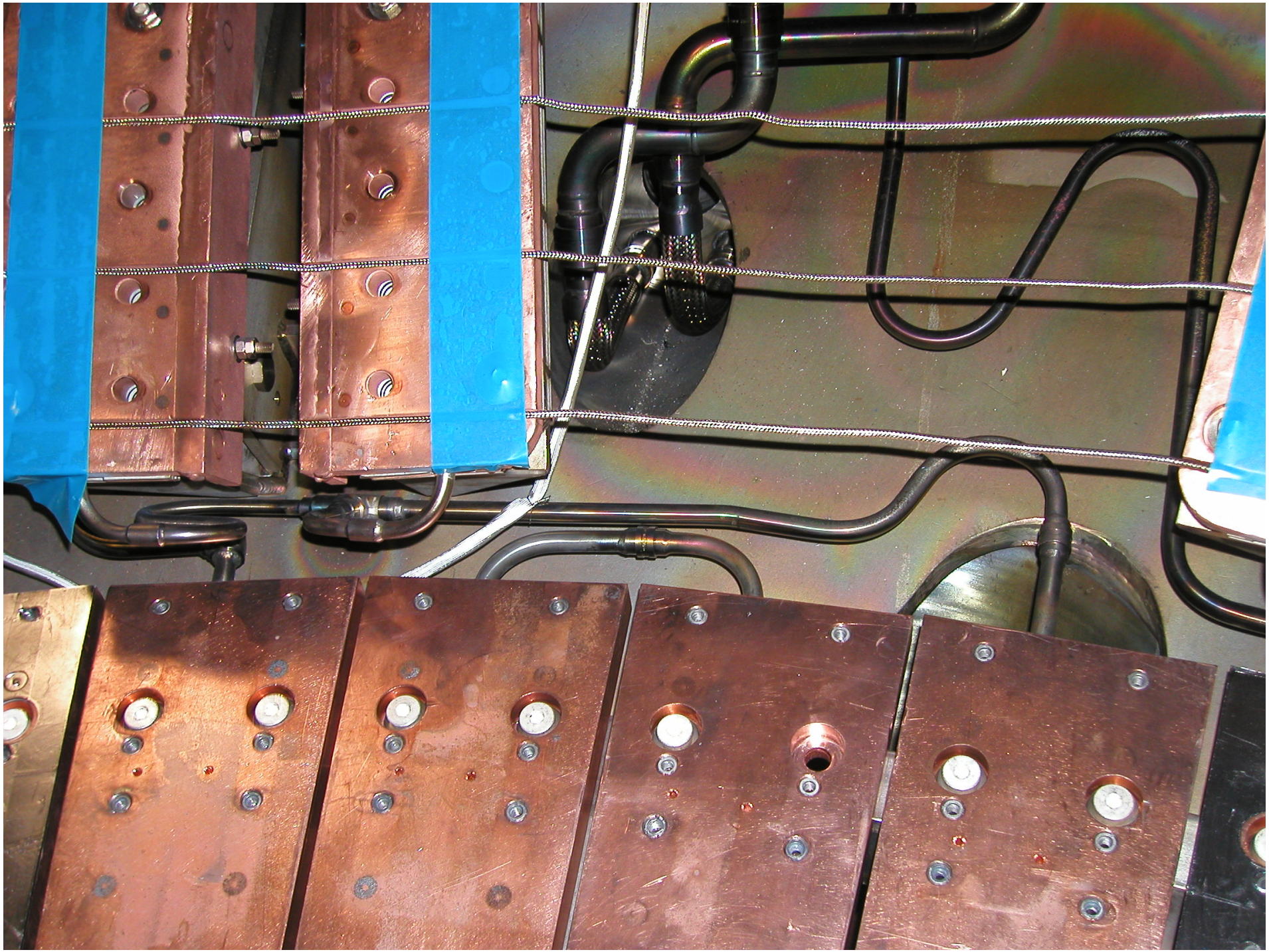
PROJECT NAME: NSTX

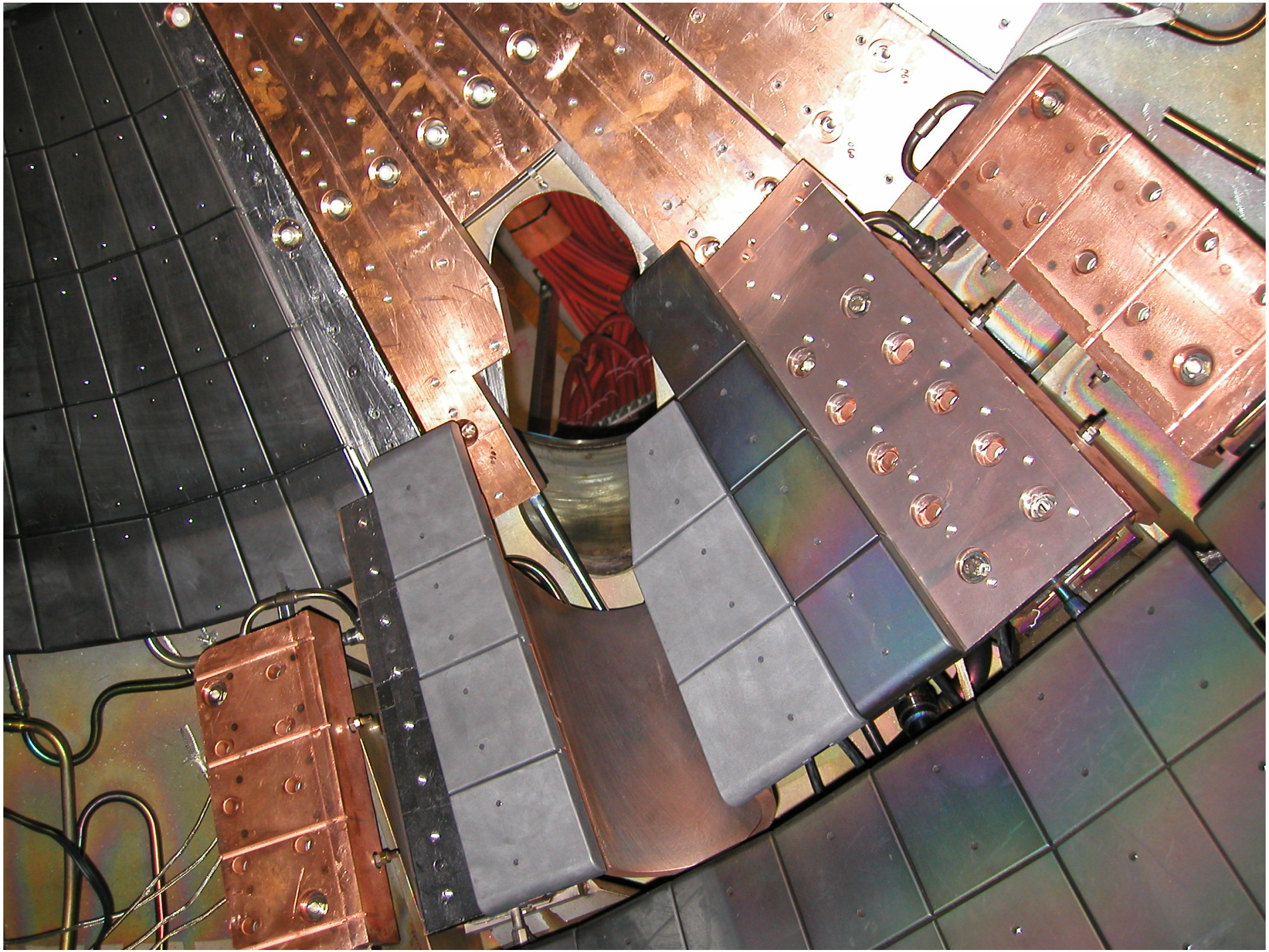
OUTBOARD DIVERTOR TILE ASSEMBLY, 30 DEG.

1	48	49	50	PLANT	BLDG	FL	SHT	OF	TYPE	CLASS
3	M	E	U	Y-12	FEDC	1	1	1	A	U

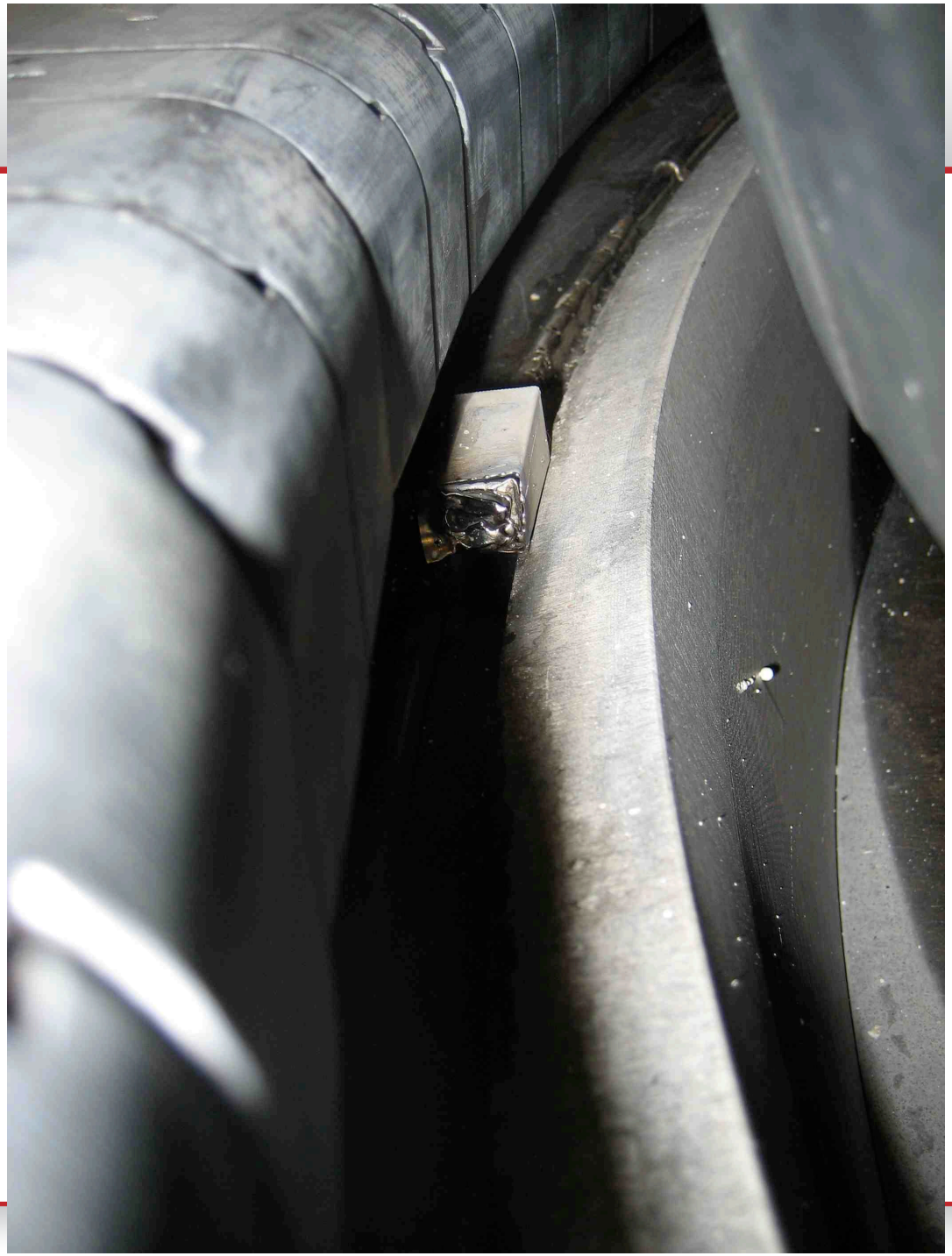
X3E017104A176 REV 1

NEXT ASS'Y: FINAL ASS'Y:

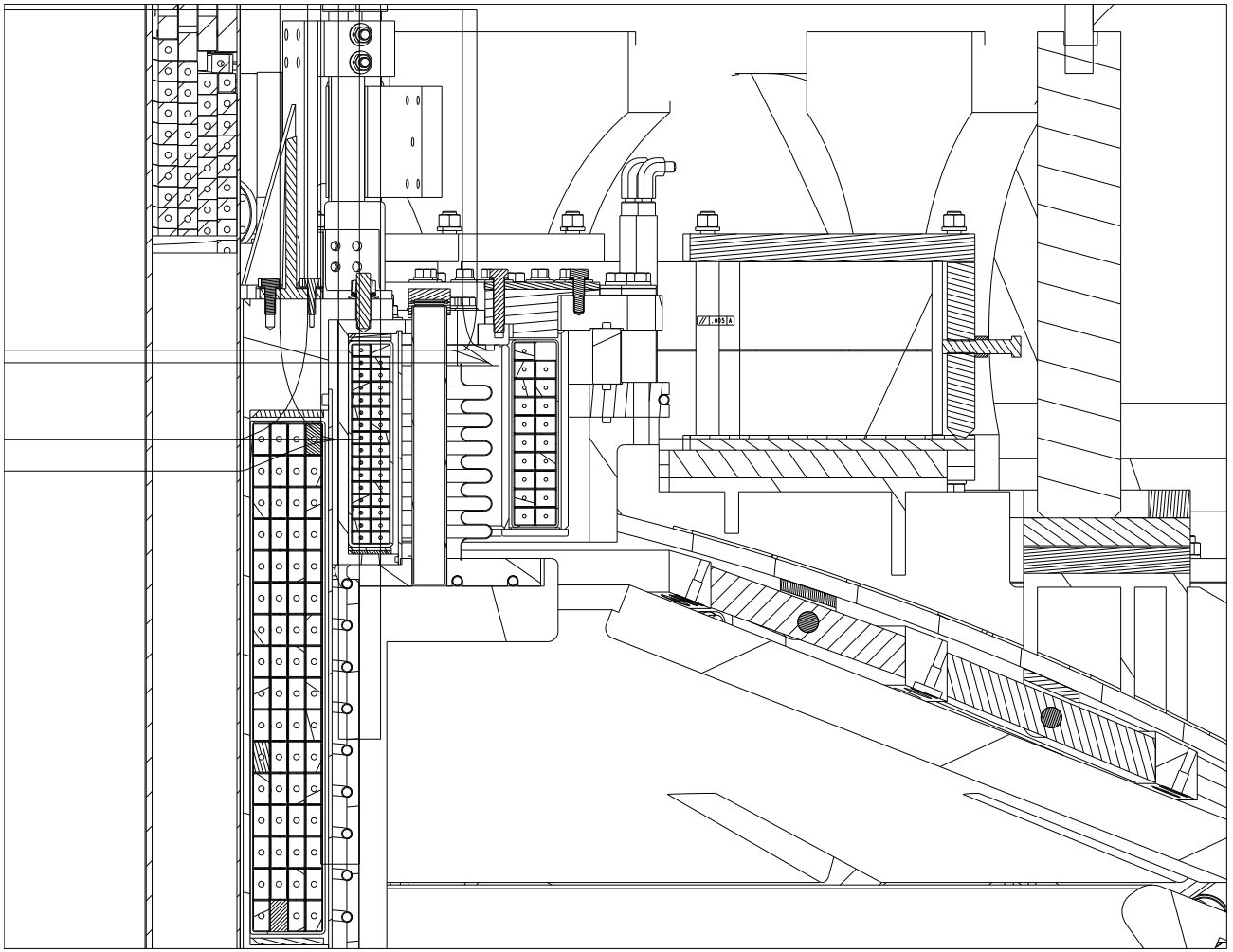




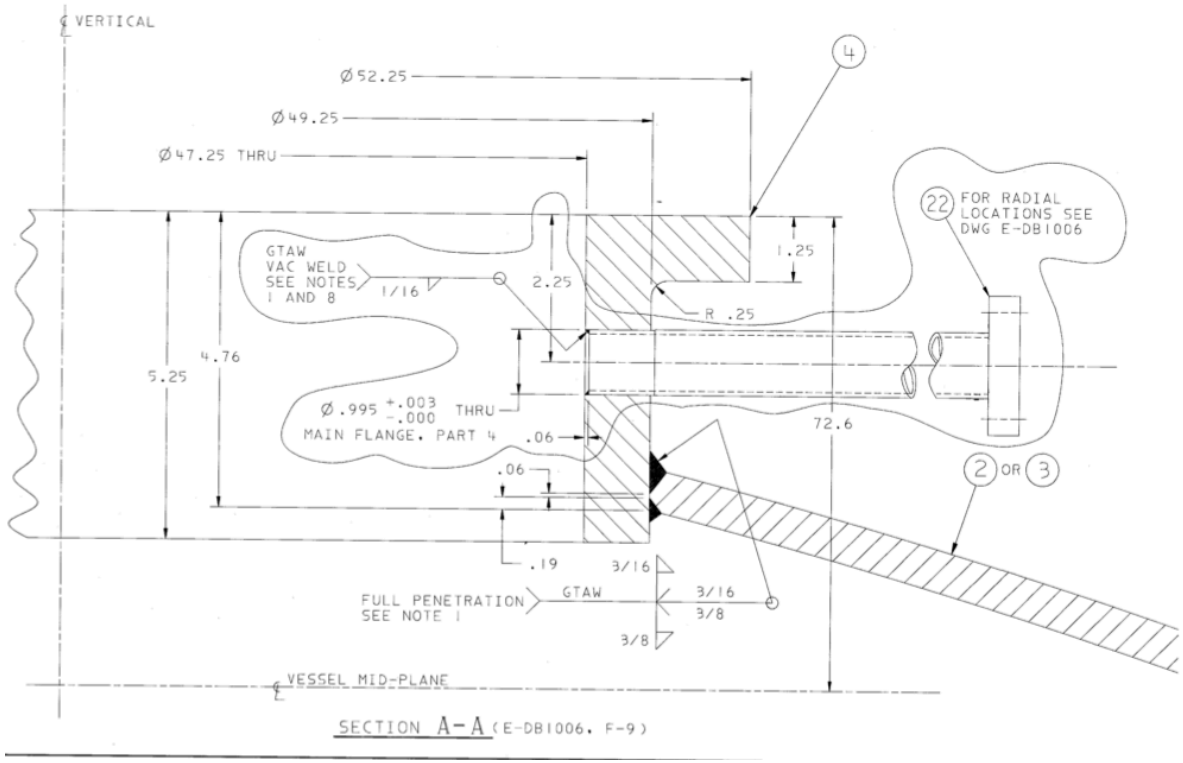
Gap is wider than the flange

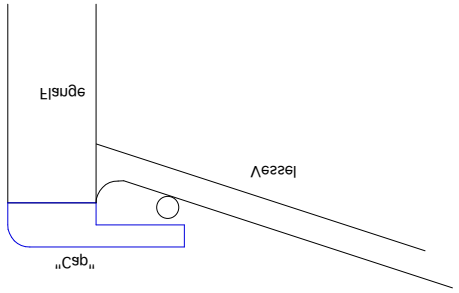


CHI Gap is More Narrow in the Upgrade



Proposed “Cap” in the CHI Gap (I)





Proposed “Cap” in the CHI Gap (II)

Need to do:
Agree on basic parameters of design
Disruption analysis
Field line angle analysis