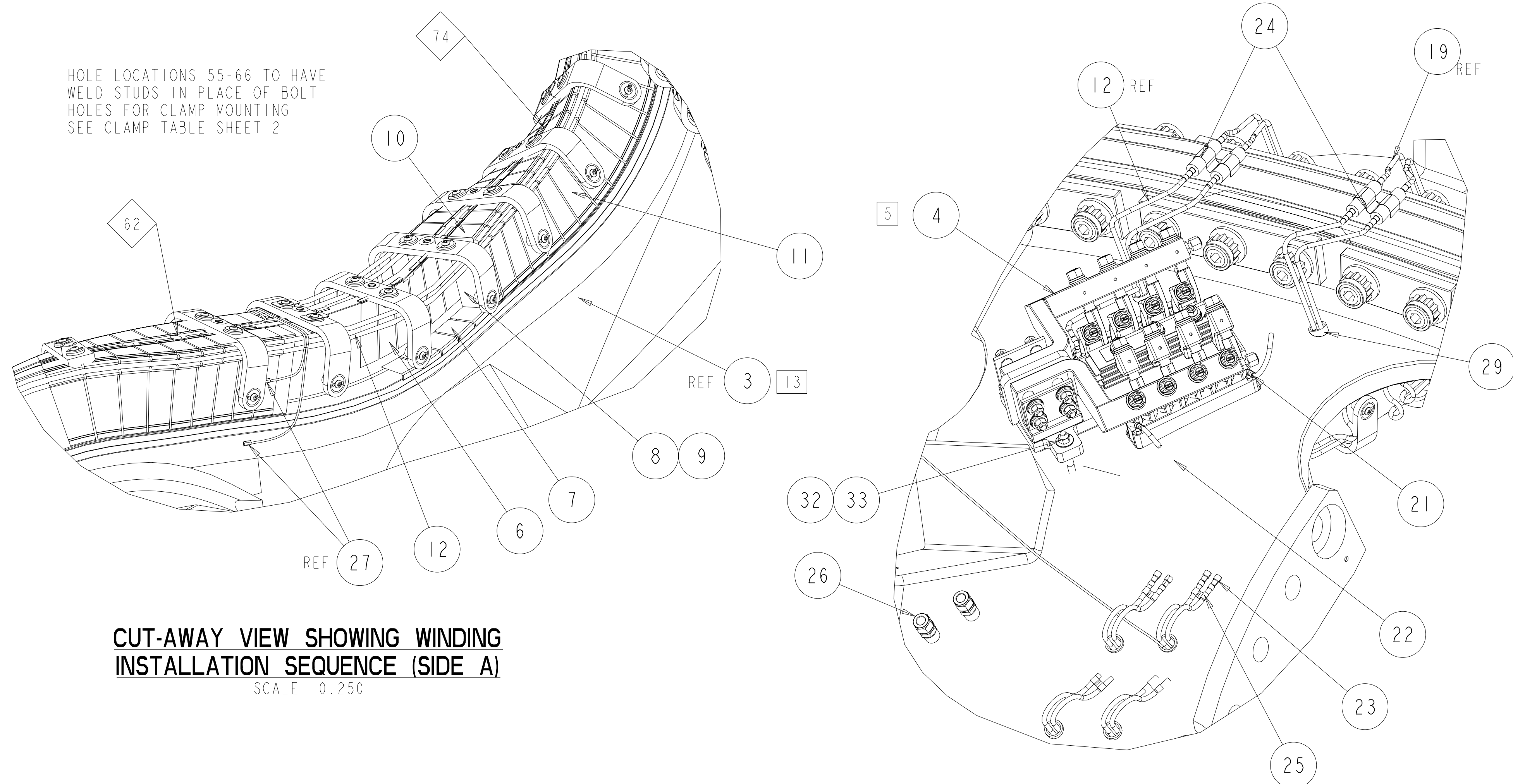


HOLE LOCATIONS 55-66 TO HAVE WELD STUDS IN PLACE OF BOLT HOLES FOR CLAMP MOUNTING SEE CLAMP TABLE SHEET 2



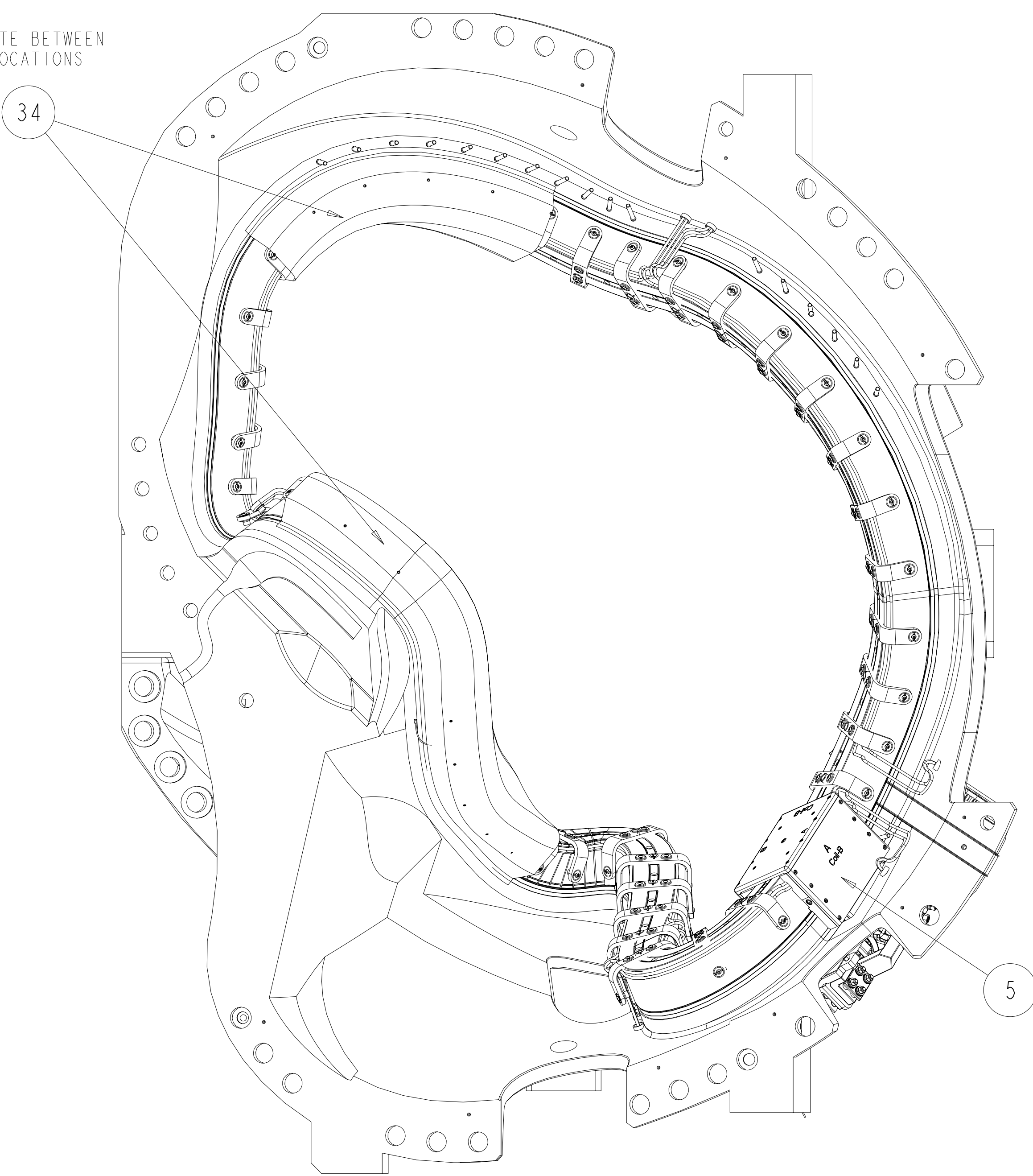
CUT-AWAY VIEW SHOWING WINDING INSTALLATION SEQUENCE (SIDE A)

SCALE 0.250

TUBING AT POLOIDAL BREAK

SCALE 0.250

INSULATE BETWEEN HOLE LOCATIONS 29-40 55-73



MCWF TYPE B ASSY

SCALE 0.125

NOTES (CONTINUED):

- 11 VENDOR INFORMATION: OMEGA ENGINEERING CORP
ONE OMEGA DRIVE
STAMFORD, CT 06907
800-848-4286 OR WWW.OMEGA.COM
- 12 SOME PARTS IN THIS ASSEMBLY ARE GRAPHIC REPRESENTATIONS OF ACTUAL PARTS/ASSEMBLIES. PART IDENTIFICATION NUMBERS REFER TO ACTUAL PARTS. FOR FULL MODELED ASSEMBLY SEE SEI40-102.
- 13 TYPE "B" COIL: REMOVE NOTED STUDS AFTER CLAMP AND INSULATION BLANKETS ARE ASSEMBLED (POST VPI).
- 14. MAGNETIC PERMEABILITY NOT TO EXCEED 1.02 AS TESTED BY A SEVERN INDICATOR AVAILABLE FROM:
SEVERN ENGINEERING
555 OLD STAGE ROAD SUITE 14
AUBURN, ALABAMA 36830

NOTES:

- 1. DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.100-2000.
- 2. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M
- 3. DIMENSIONS ARE IN INCHES
- 4. DIMENSIONS APPLY AT ROOM TEMPERATURE. OPERATING TEMP 80 K.
- 5. LEADS AREA SHALL BE COVERED OR SPRAYED WITH AN INSULATING MATERIAL TO PREVENT DEBRIS FROM CAUSING AN ELECTRICAL SHORT DURING OPERATION.
- 6 VENDOR INFORMATION: ASPEN AEROGELS, INC
30 FORBES RD
NORTHBOROUGH, MA 01532
508-691-1111 OR WWW.AEROGEL.COM
- 7. SEE LATEST REVISION OF PROCEDURE D-NCSX-MCF-001 FOR ADDITIONAL REQUIREMENTS.
- 8. WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF PPPL PROCEDURE NO. ENG-037. VISUAL WELD INSPECTION SHALL BE PERFORMED IN ACCORDANCE WITH THE ACCEPTANCE CRITERIA OF AWS D1.6.
- 9 VENDOR INFORMATION: TRULY TUBULAR FITTING CORP
PO BOX 1160
MT VERNON, NY 10550
914-664-8686 OR WWW.TRULYTUBULAR.COM
- 10 VENDOR INFORMATION: FISO FIBER OPTICS
500 ST. JEAN BAPTISTE AVE SUITE 195
QUEBEC QC, G2E 5R CANADA
418-688-8065 OR WWW.FISO.COM

CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO
		-37	PROTECTIVE COVER	PLASTIC	37
11	8	NCSX PRL-003	THERMOCOUPLE- SURFACE-LEADS-162"	INCONEL 718	36
11	2	NCSX PRL-003	THERMOCOUPLE- PLUG-LEADS-144"	INCONEL 718	35
6	AR	-34	THERMAL INSULATION BLANKET	1/8" NOMEK	34
	4	91950A031	3/8" FLAT WASHER	316 SST	ANSI B18.22.1 33
	4	94819A049	3/8-16 UNC HEX NUT	316 SST	ANSI B18.2.2 32
	AR	SEI42C-306	LOCKING TAB	316 SST	31
	AR	SEI42B-030	WIRE CLAMP		30
	12	SEI42C-014	INSULATING SLEEVE		29
	1	SEI42C-015	3" X 8" X 12" FLUX LOOP BOX		28
10	5	FOS-N-BA-C1-F1-M2-R3-ST	STRAIN SENSOR		27
	2	SS-810-1-8	BLEED VALVE		26
	AR	SEI42C-011	TUBE CLAMP		25
	2	SEI40-025	POL BR CONNECTOR ASSEMBLY		24
9	16	5FF-5-4	1/4" X 5/16" REDUCER UNION	BRAZETYTE	23
	2	90FF-4	1/4" ELBOW	BRAZETYTE	22
	4	10FF-4	1/4" UNION	BRAZETYTE	21
	AR	SEI42B-010	CLAMP ASSEMBLY		20
12	AR	SEI42B-248	SIDE "B" COOLING TUBES	COPPER TUBING	19
	1	SEI42A-246-4	SIDE "B" CHILL PLATES (SIDE)		18
	1	SEI42B-246-3	SIDE "B" UPPER CHILL PLATES (TOP)		17
	AR	SEI42B-243	SIDE "B" GROUNDWRAP		16
	1	SEI42A-241	SIDE "B" WINDING ASSEMBLY		15
	1	SEI42B-244-4	SIDE "B" LOWER CLADDING (BASE)		14
	1	SEI42B-244-3	SIDE "B" UPPER CLADDING (SEPTUM)		13
	AR	SEI42B-258	SIDE A COOLING TUBES	COPPER TUBING	12
	1	SEI42B-256-4	SIDE A LOWER CHILL PLATES (SIDE)		11
	1	SEI42B-256-3	SIDE A UPPER CHILL PLATES (TOP)		10
	AR	SEI42B-253	SIDE-A WP GROUNDWRAP		9
	1	SEI42B-251	SIDE "A" WINDINGS ASSEMBLY		8
	1	SEI42B-254-4	SIDE "A" LOWER CLADDING (BASE)		7
12	1	SEI42B-254-3	SIDE "A" UPPER CLADDING (SEPTUM)		6
	1	SEI42B-080	TYPE "B" LEADS ASSEMBLY		5
	1	SEI42B-050	TYPE "B" TERMINAL ASSEMBLY		4
13	1	SEI42B-007	STUDS		3
	1	SEI41-102	MOD COIL WINDING FORM ASSEMBLY TYPE-B		2
AR	-1		MCWF-TYPE "B" ASM		1

CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO
SEI40-003	-1	MCWF-TYPE "B" ASM			1

PARTS LIST

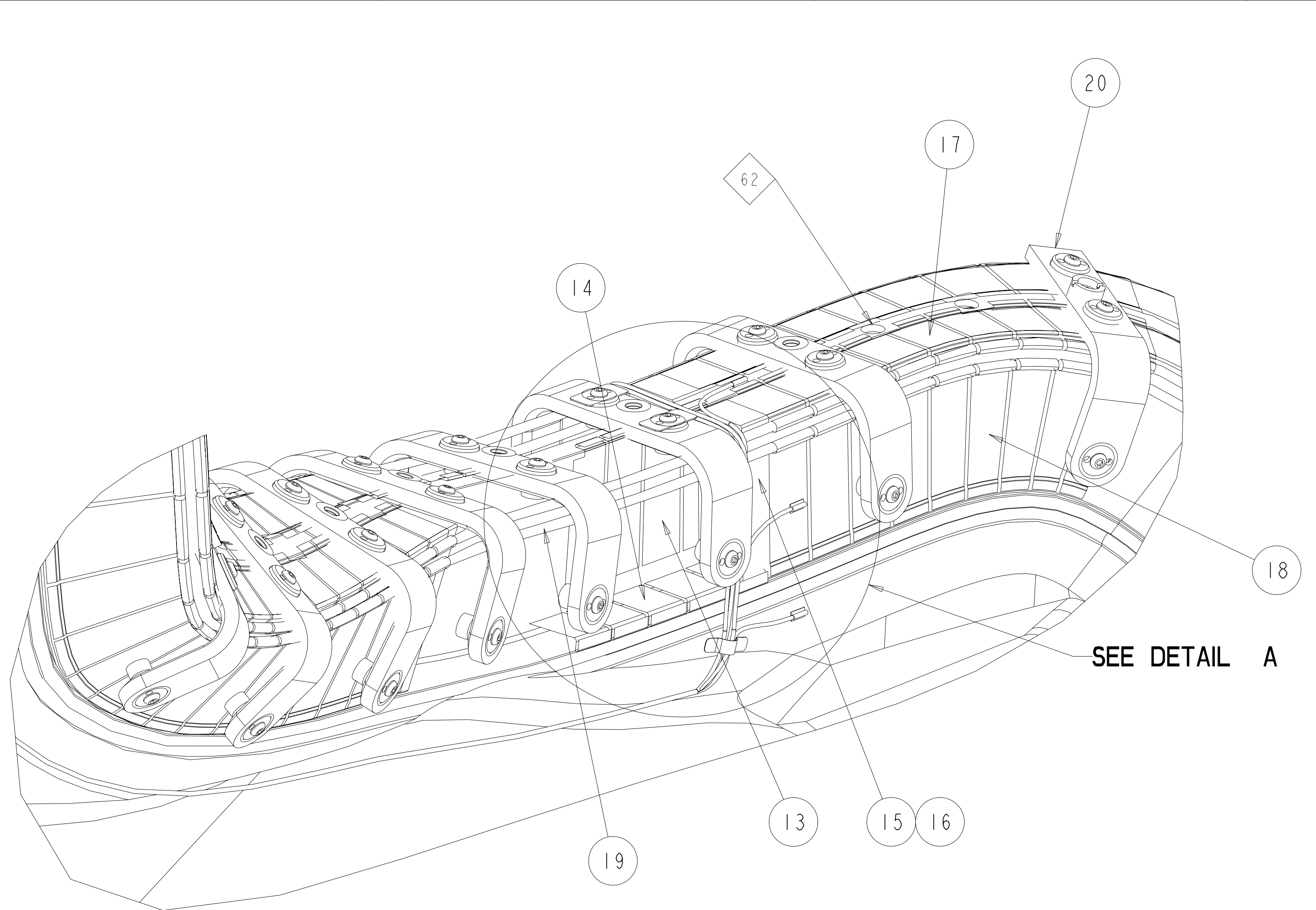
REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
0	ORIGINAL ISSUE	GL	07/07									

SCALE	NOTED	DES	D WILLIAMSON	07/07
TOLERANCES	UNLESS OTHERWISE SPECIFIED	DRW	G LOVETT	07/07
FRACTIONS		CHK	M COLE	07/07
XX DECIMALS	±.01	SECT		
XXX DECIMALS	±.005	DEPT		
ANGLES	±0°15'	PE	D WILLIAMSON	07/07
BREAK SHARP EDGES	06 MAX	CR		
FINISH	±.025 UNLESS OTHERWISE SPECIFIED	PJ		
		RED		
		PPPL DRFT	J SIEGLE	07/07
		VERSION NO.		
		PLANT	X-10	
		BLDG	5700	
		FL	3	
		SHT	1	
		OF	3	
		TYPE	S	
		CLASS	U	
		REV	0	

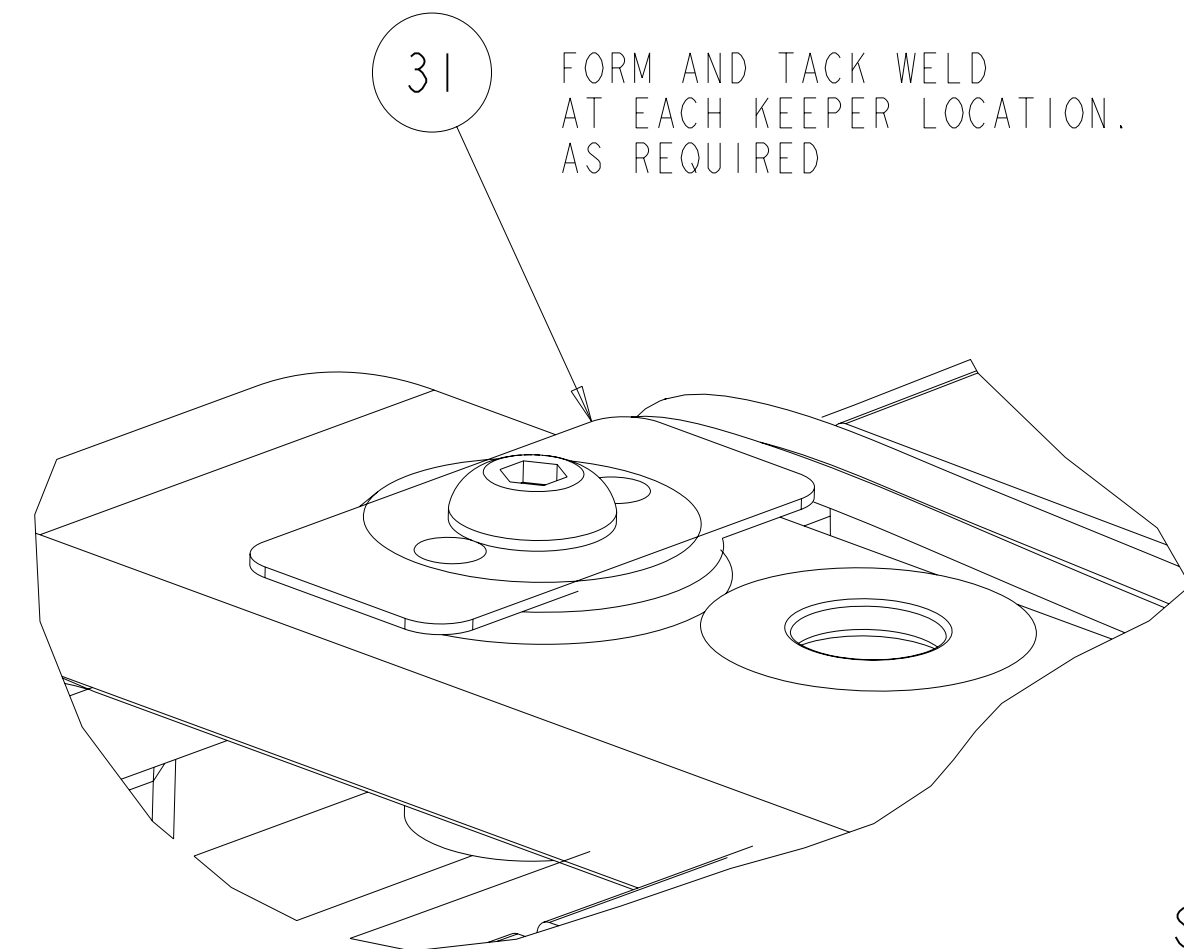
UT-BATTELLE	Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee.
NATIONAL COMPACT STELLARATOR EXPERIMENT	
MCWF TYPE "B" FULL COIL ASSEMBLY	
SEI40-102	

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P THIS DRAWING PRODUCED ON PRO-ENGINEER

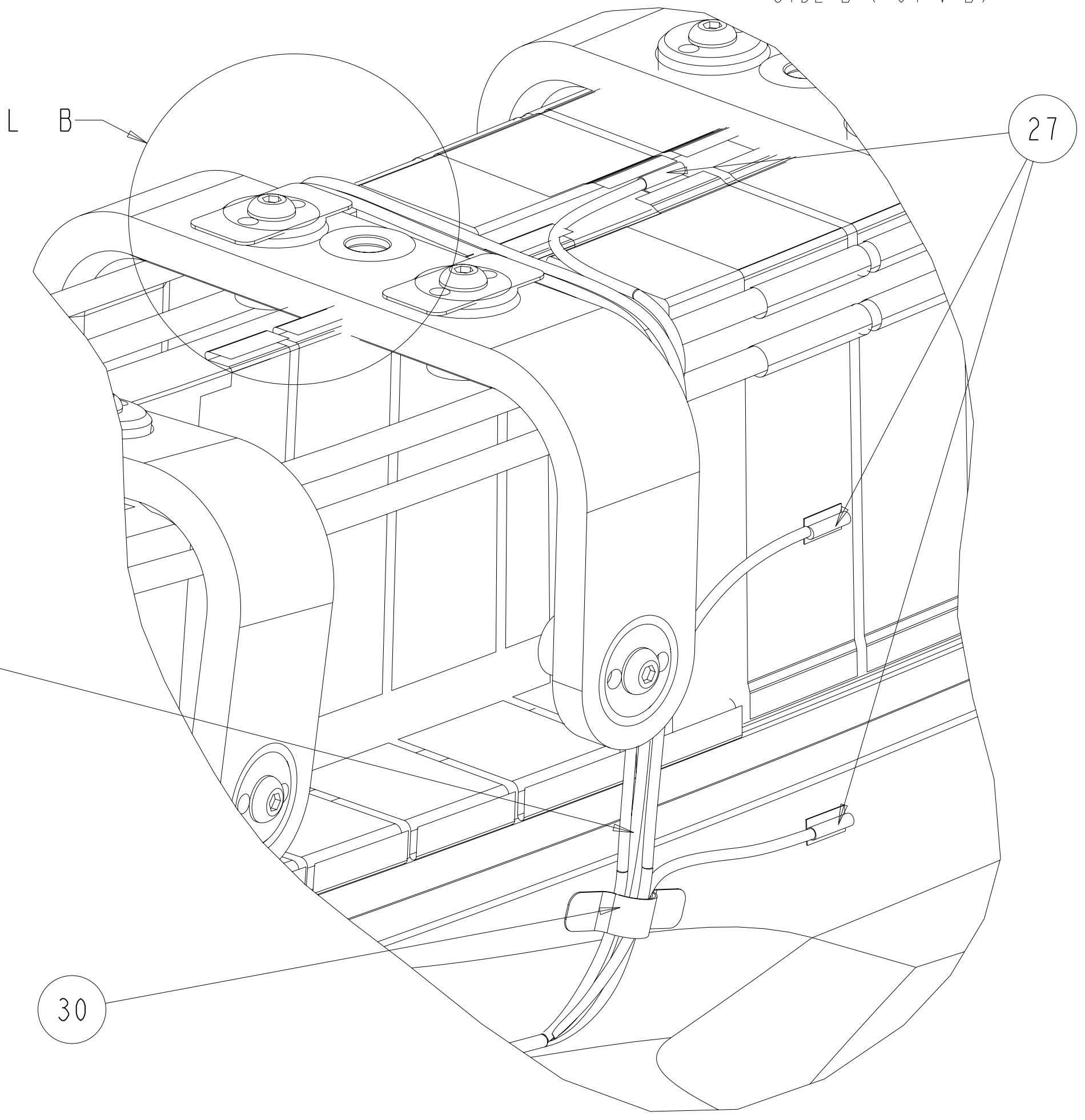


**CUT-AWAY VIEW SHOWING WINDING
INSTALLATION SEQUENCE (SIDE B)**
SCALE 0.500



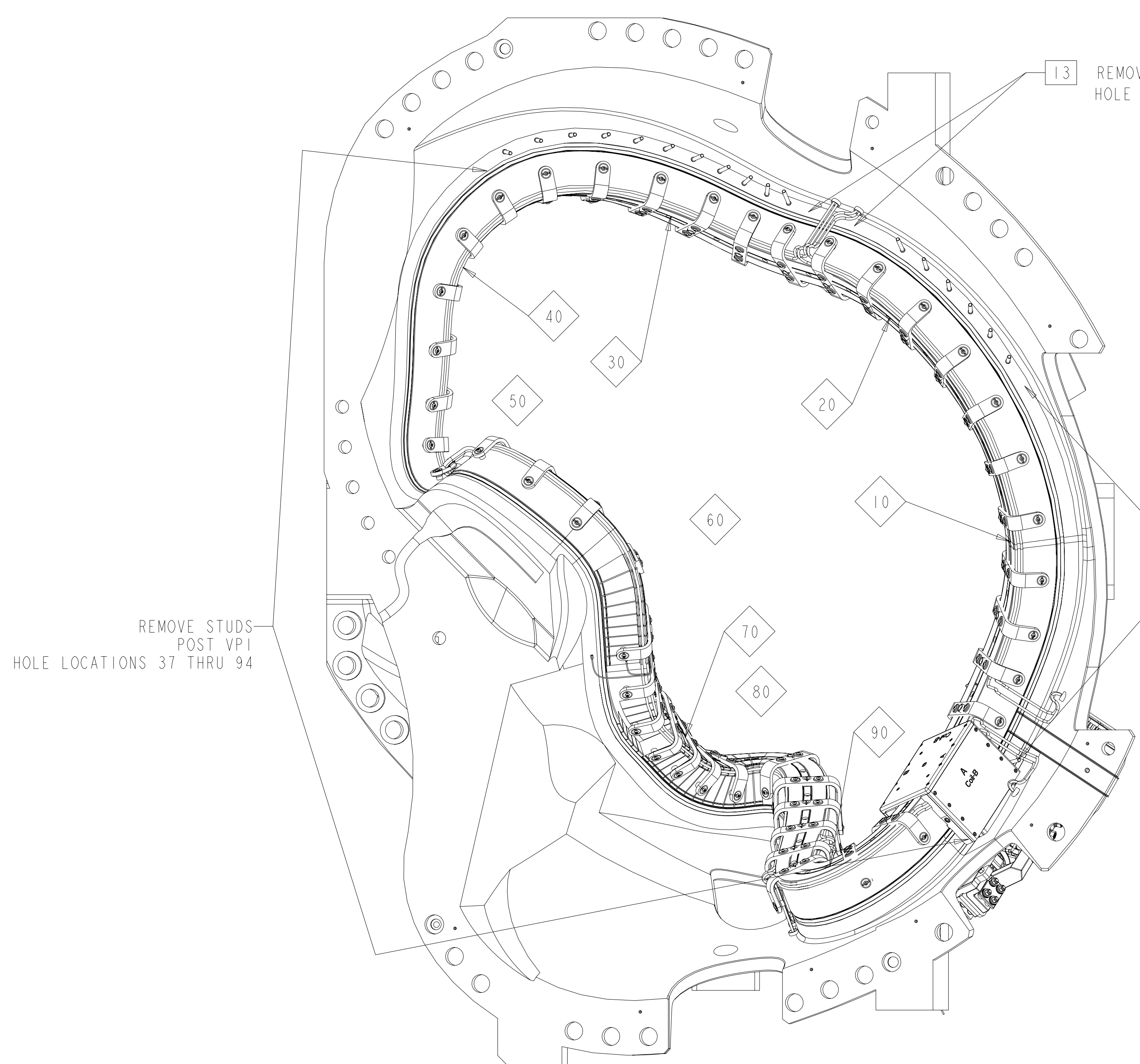
DETAIL B
SCALE 2.00

ON LAST FIELD PERIOD ASSEMBLY
COLOR CODE OR IDENTIFY CABLE WITH
HOLE NUMBER ASSOCIATED AND LOCATION.
BUNDLE FIBER OPTIC STRAIN SENSOR CABLE
AND SECURE WITH CLAMP, F/N 33, AS REQUIRED.
EXIT COIL WITH COOLING TUBES.



DETAIL A
SCALE 1.00

ON LAST FIELD PERIOD
LOCATE STRAIN SENSORS AND LABEL AS SHOWN
1 ON TOP OF TEE (64 T-TOP)
2 EACH ON SIDE OF CHILL PLATES
SIDE A (64-B-A)
SIDE B (64-B-B)
2 EACH ALONG FORM BELOW VPI GROOVE
SIDE A (64-V-A)
SIDE B (64-V-B)

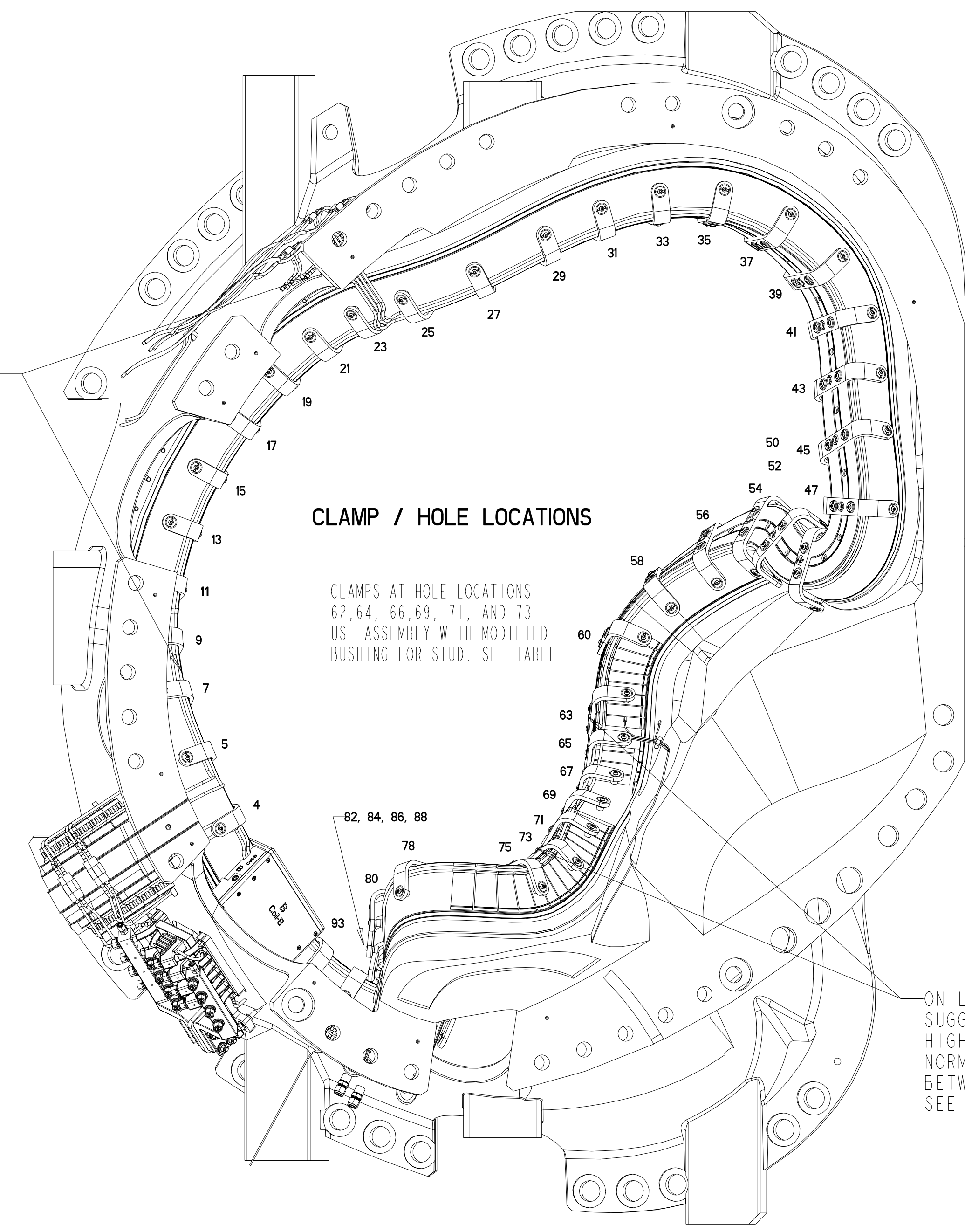


SIDE "A" VIEW

13 REMOVE STUDS (POST VPI)
HOLE LOCATIONS 22 THRU 25

13 "KEEP" STUDS FROM HOLE LOCATIONS 8-22
REMOVE ALL OTHER STUDS (SIDE B) POST VPI

13 REMOVE STUDS (POST VPI)
FROM HOLE LOCATIONS 4 THRU 15



SIDE "B" VIEW

CLAMP / HOLE LOCATIONS

CLAMPS AT HOLE LOCATIONS
62, 64, 66, 69, 71, AND 73
USE ASSEMBLY WITH MODIFIED
BUSHING FOR STUD. SEE TABLE

ON LAST FIELD PERIOD
SUGGESTED STRESS SENSOR LOCATION
HIGH STRESS REGION ON PLANE
NORMAL TO THE WINDING LAW
BETWEEN HOLE LOCATIONS 63 - 73
SEE DETAIL "A"

HOLE NO.	CLAMP ASSEMBLY (SEI42B-010)	CLAMP #
03	SEI42C-270	1
05	SEI42C-270	2
07	SEI42C-270	3
09	SEI42C-270	4
11	SEI42C-270	5
13	SEI42C-270	6
15	SEI42C-270	7
17	SEI42C-270	8
19	SEI42C-270	9
21	SEI42C-270	10
23	SEI42C-270	11
25	SEI42C-270	12
27	SEI42C-270	13
29	SEI42C-270	14
31	SEI42C-270	15
33	SEI42C-270	16
35	SEI42C-270	17
37	SEI42C-270	18
39	SEI42C-270	19
41	SEI42C-270	20
43	SEI42C-270	21
45	SEI42C-270	22
47	SEI42C-270	23
50	SEI42C-270	24
52	SEI42C-270	25
54	SEI42C-270	26
56	SEI42C-270	27
58	SEI42C-270	28
60	SEI42C-303	29
62	SEI42C-307	30
64	SEI42C-307	31
66	SEI42C-307	32
69	SEI42C-307	33
71	SEI42C-307	34
73	SEI42C-307	35
75	SEI42C-270	36
78	SEI42C-270	37
80	SEI42C-270	38
82	SEI42C-270	39
84	SEI42C-270	40
86	SEI42C-270	41
88	SEI42C-270	42
91	SEI42C-270	43
93	SEI42C-270	44

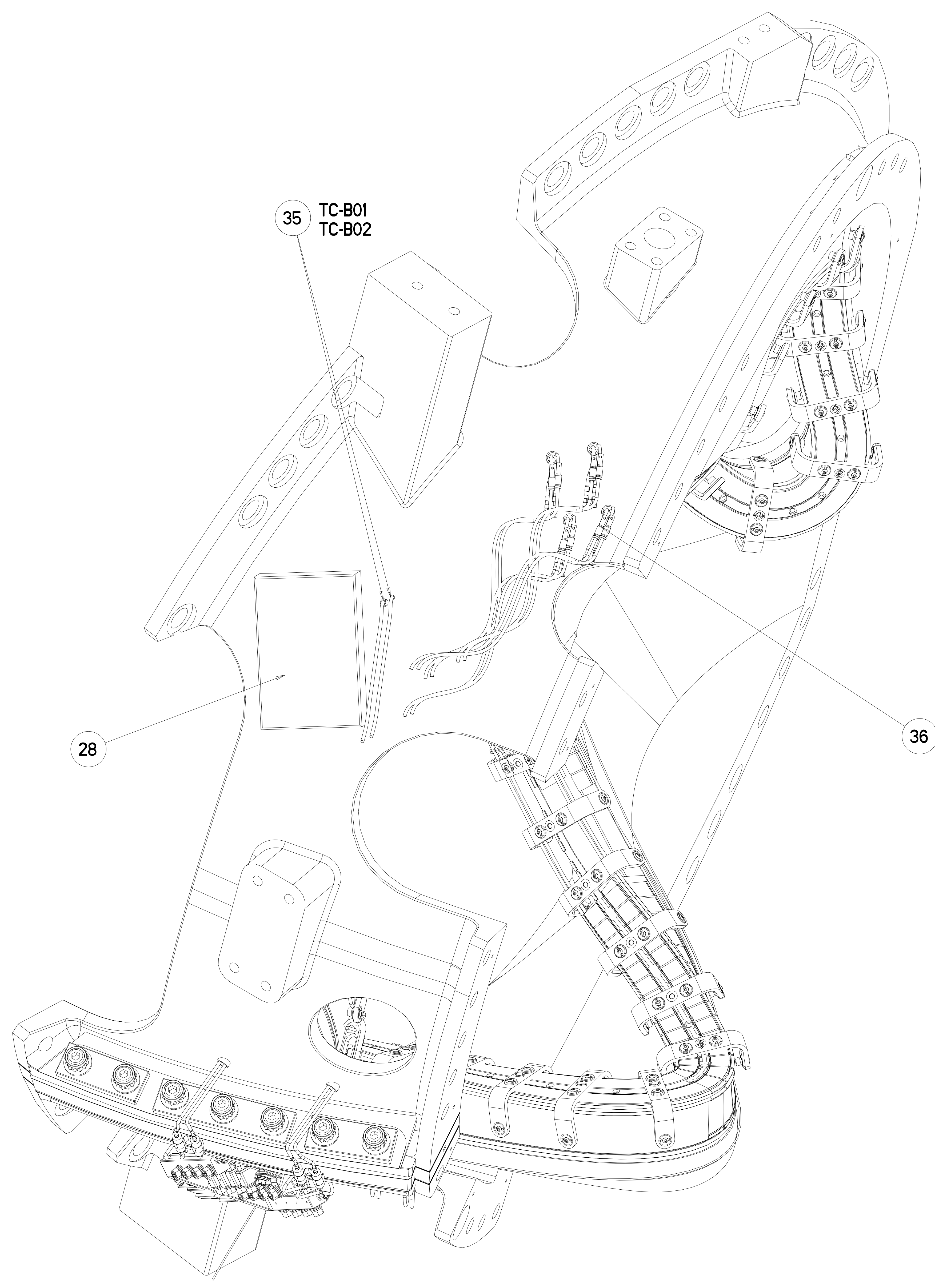
Oak Ridge National Laboratory
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UT-BATTELLE, LLC, Oak Ridge, Tennessee
PROJECT NAME

UT-BATTELLE

NATIONAL COMPACT STELLARATOR EXPERIMENT

**MCWF TYPE "B"
FULL COIL ASSEMBLY**

VERSION NO. 49+	PLANT X-10	BLDG 5700	FL 3	SHT 2	OF 3	TYPE S	CLASS U
RELEASE LEVEL WIP	SEI40-102						REV 0

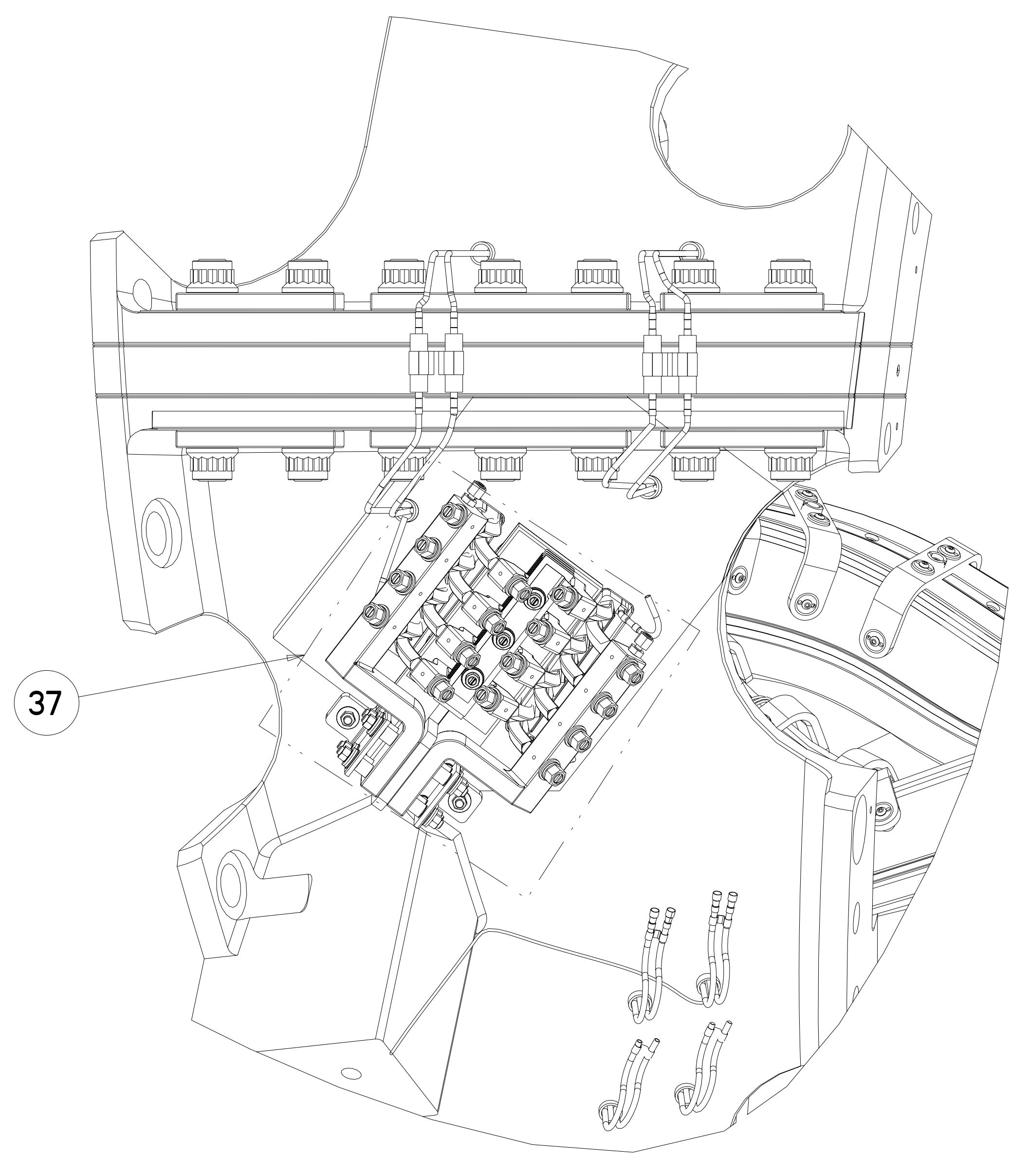


35 TC-B01
TC-B02

28

36 TC-B03
TC-B04
TC-B05
TC-B06
TC-B07
TC-B08
TC-B09
TC-B10

SCALE 0.250



37

SCALE 0.250

THERMOCOUPLE CHART			
NO.	LABEL	LOCATION	LEAD LENGTH TO BUNDLE @ COIL "A" (IN)
1	TC-B01	INBOARD T/C HOLE	144
2	TC-B02	INBOARD T/C HOLE (DUPLICATE)	144
3	TC-B03	COOLING LINE OUTLET 1	162
4	TC-B04	COOLING LINE OUTLET 2	162
5	TC-B05	COOLING LINE OUTLET 3	162
6	TC-B06	COOLING LINE OUTLET 4	162
7	TC-B07	COOLING LINE OUTLET 5	162
8	TC-B08	COOLING LINE OUTLET 6	162
9	TC-B09	COOLING LINE OUTLET 7	162
10	TC-B10	COOLING LINE OUTLET 8	162

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UT-BATTELLE

NATIONAL COMPACT STELLARATOR EXPERIMENT

**MCWF TYPE "B"
FULL COIL ASSEMBLY**

VERSION NO. 58	PLANT X-10	BLDG 5700	FL 3	SHT OF 3	TYPE S	CLASS U
RELEASE LEVEL WIP	SE140-102			REV 0		