

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

REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
0	ORIGINAL ISSUE	GL	07/07									
1												

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" NOMEX		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
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
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
1	SEI42B-007	STUDS			3
1	SEI41-102	MOD COIL WINDING FORM ASSEMBLY TYPE-B			2
AR	-1	MCWF-TYPE "B" ASM			1

THIS DRAWING PRODUCED ON PRO-ENGINEER

SCALE NOTED

TOLERANCES UNLESS OTHERWISE SPECIFIED

FRACTIONS ±.01
XX DECIMALS ±.005
XXX DECIMALS ±0.015
ANGLES ±0.15°
BREAK SHARP EDGES 06 MAX
FINISH ±.025 UNLESS OTHERWISE SPECIFIED

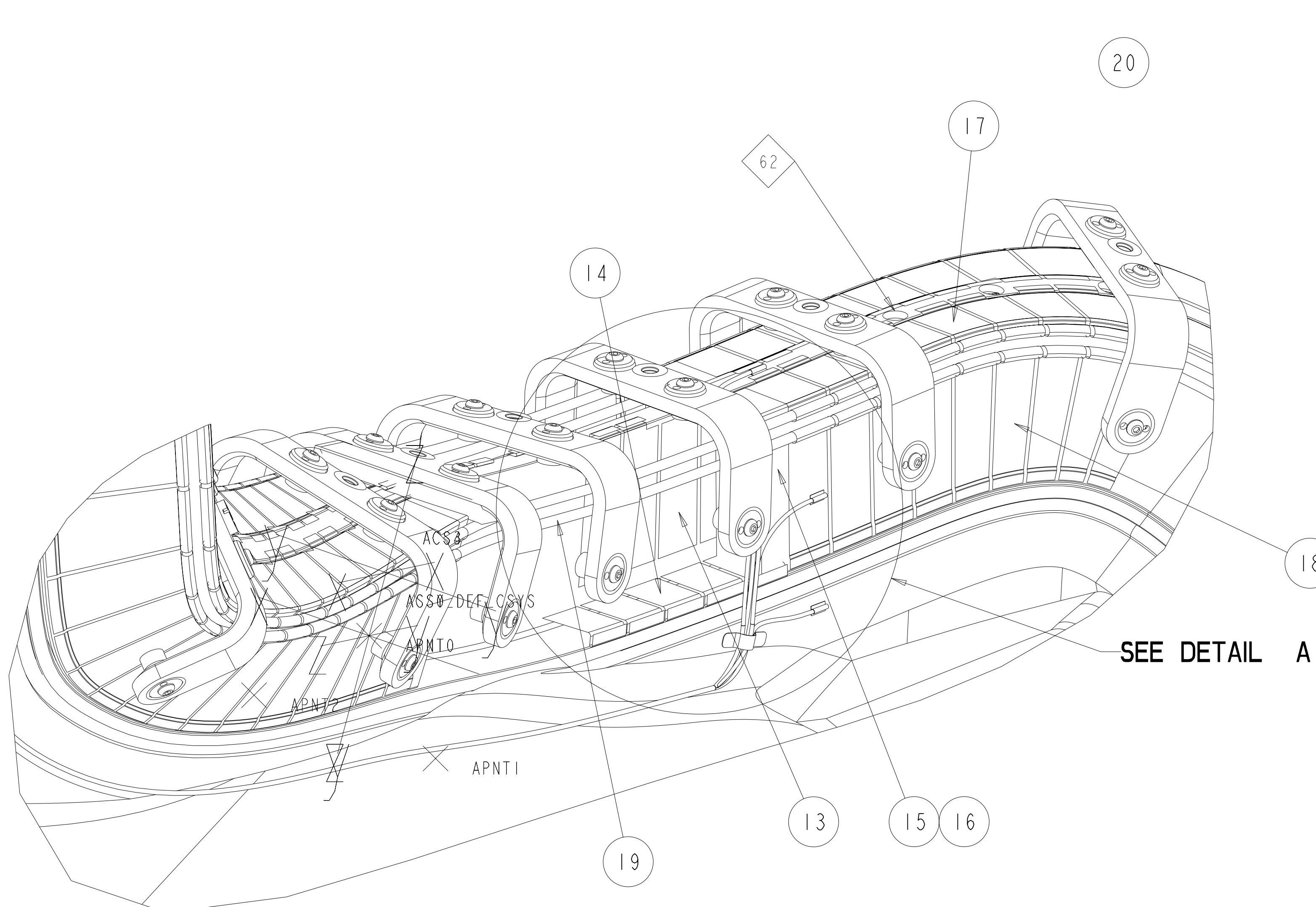
DES: D WILLIAMSON 07/07
DRW: G LOVETT 07/07
CHK: M COLE 07/07
SECT: :
DEPT: :
PE: D WILLIAMSON 07/07
CR: :
PJ: :
RD: :
PPPL DRFT J SIEGLE 07/07

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
PROJECT NAME: NATIONAL COMPACT STELLARATOR EXPERIMENT
MCWF TYPE "B" FULL COIL ASSEMBLY

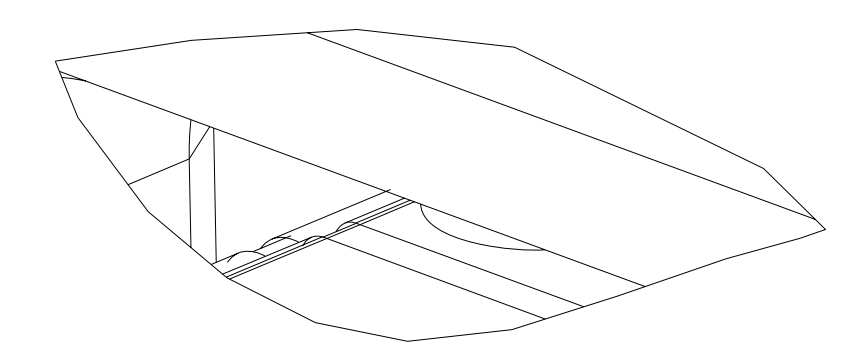
VERSION NO. 50+
PLANT X-10
BLDG 5700
FL 3
SHT 1
OF 3
TYPE S
CLASS U
REV 0

REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
0	ORIGINAL ISSUE	GL	07/07									
1												

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

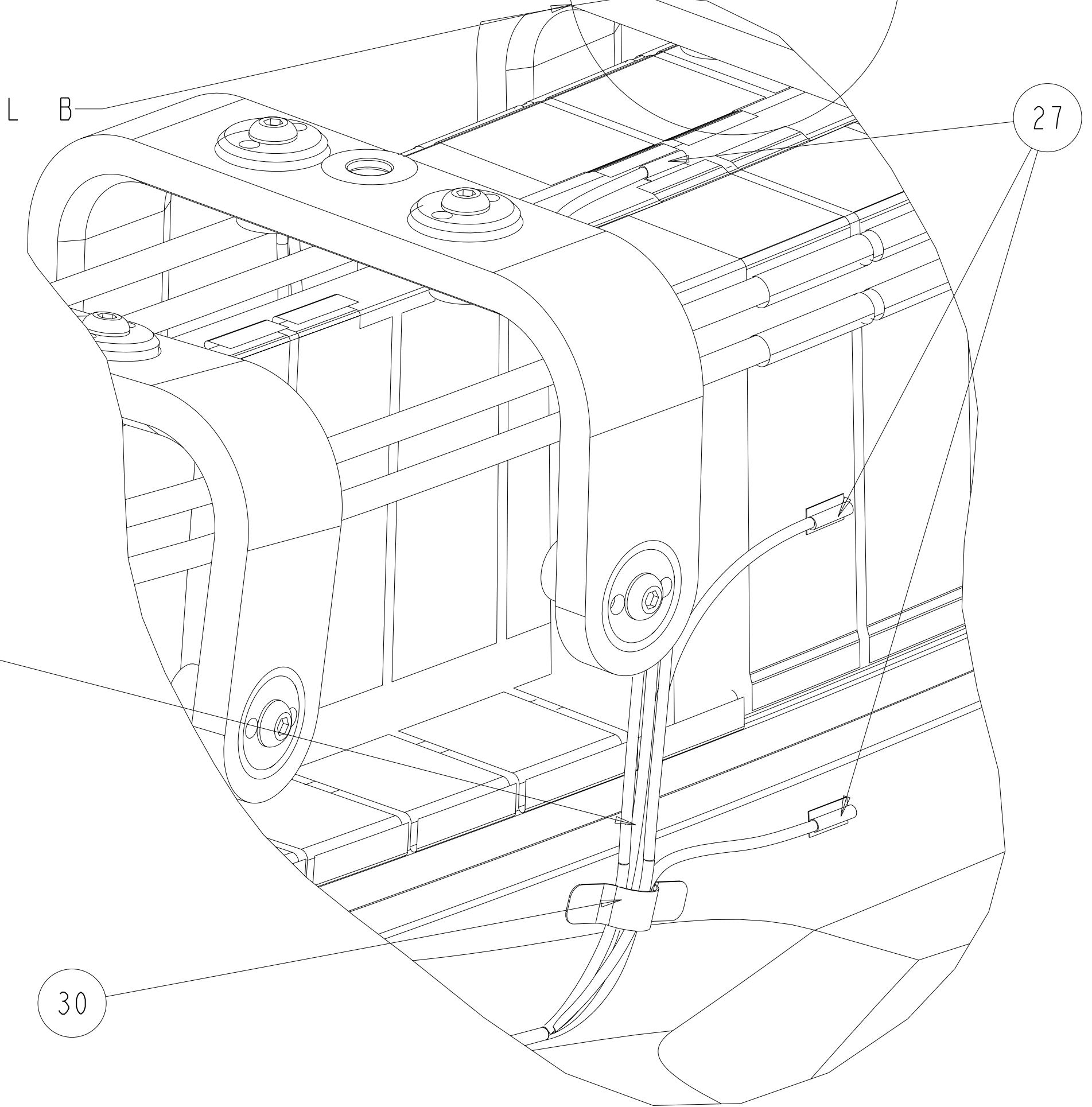


DETAIL B
 SCALE 2.00

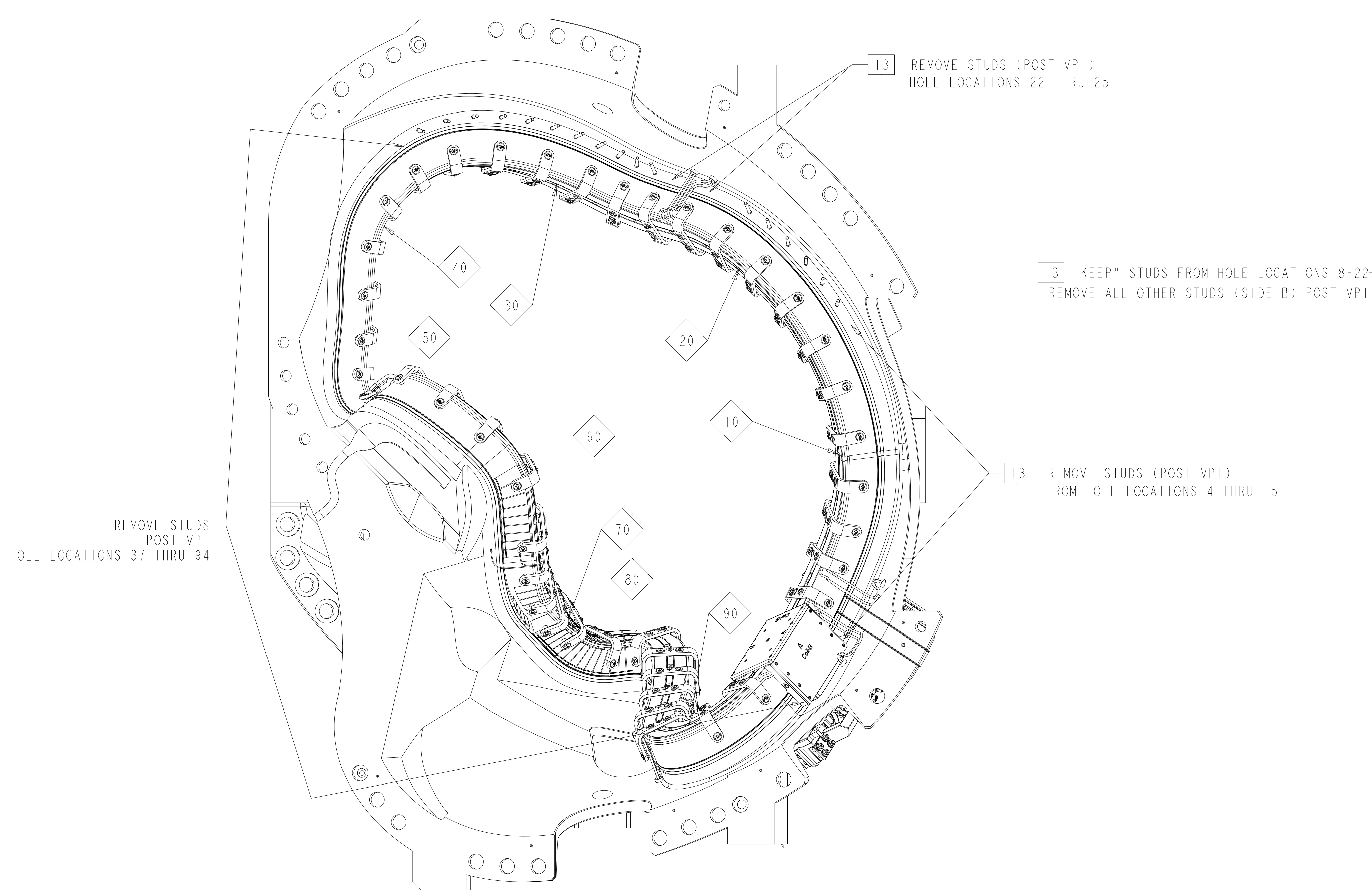
ON LAST FIELD PERIOD ASSEMBLY
 COLOR CODE OR IDENTIFY CABLE WITH
 HOLE NUMBER ASSOCIATED AND LOCATION.
 BUNDLE FIBER OPTIC STRAIN SENSOR CABLE
 AND SECURE WITH CLAMP, F/N 33, AS REQUIRED.
 EXIT COIL WITH COOLING TUBES.

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)

SEE DETAIL B



DETAIL A
 SCALE 1.00



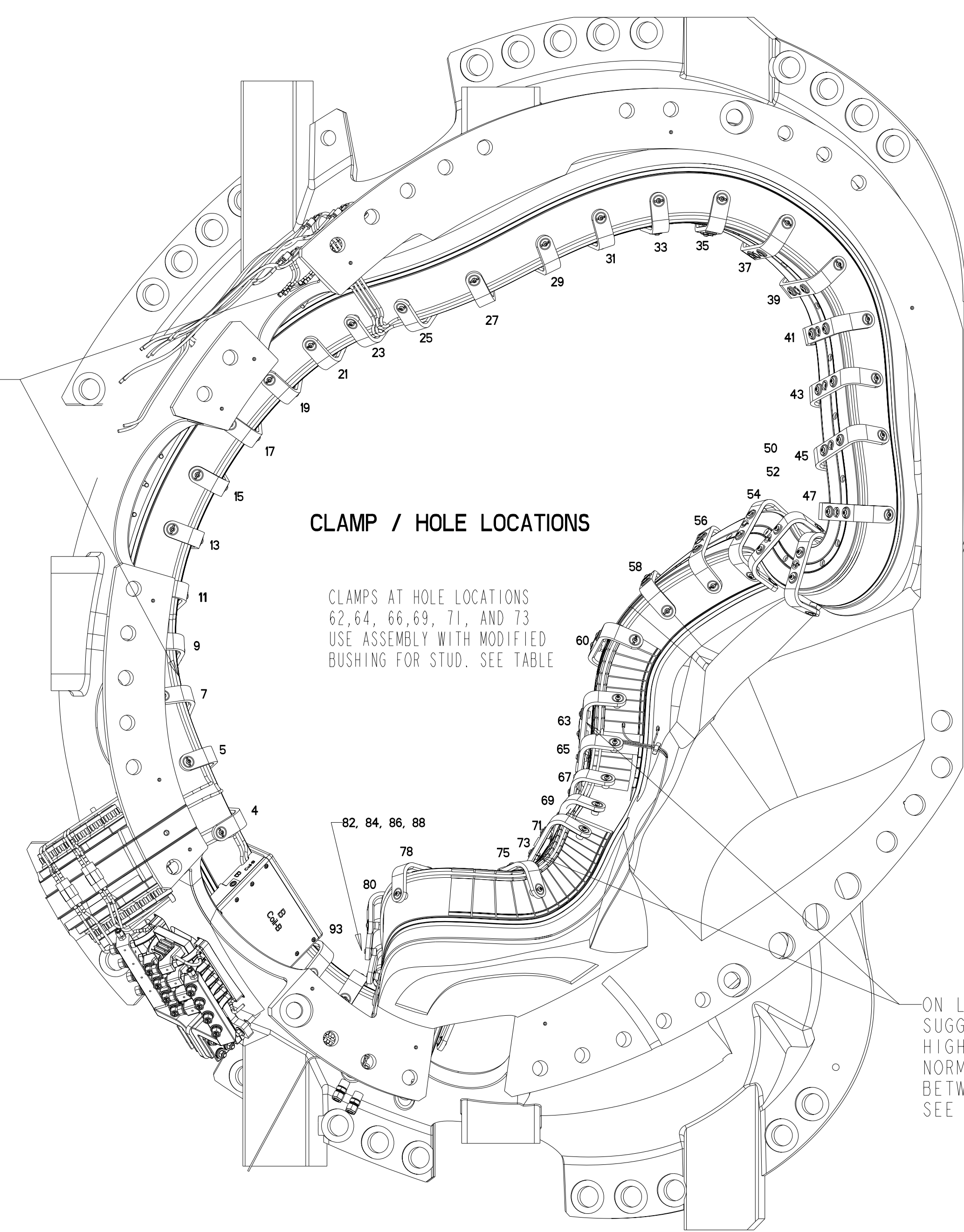
SIDE "A" VIEW

REMOVE STUDS
 POST VPI
 HOLE LOCATIONS 37 THRU 94

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

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

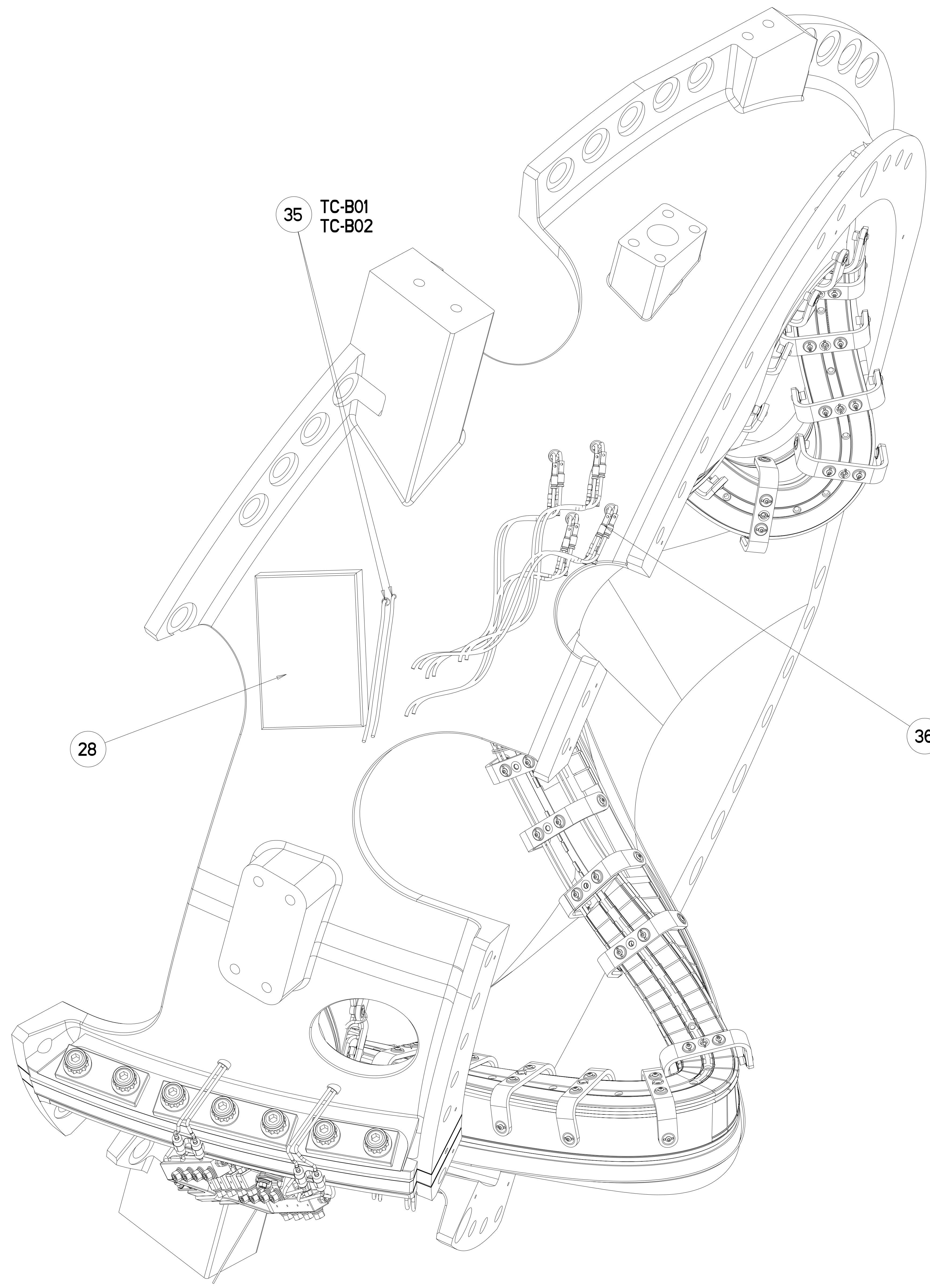
UT-BATTELLE

NATIONAL COMPACT STELLARATOR EXPERIMENT

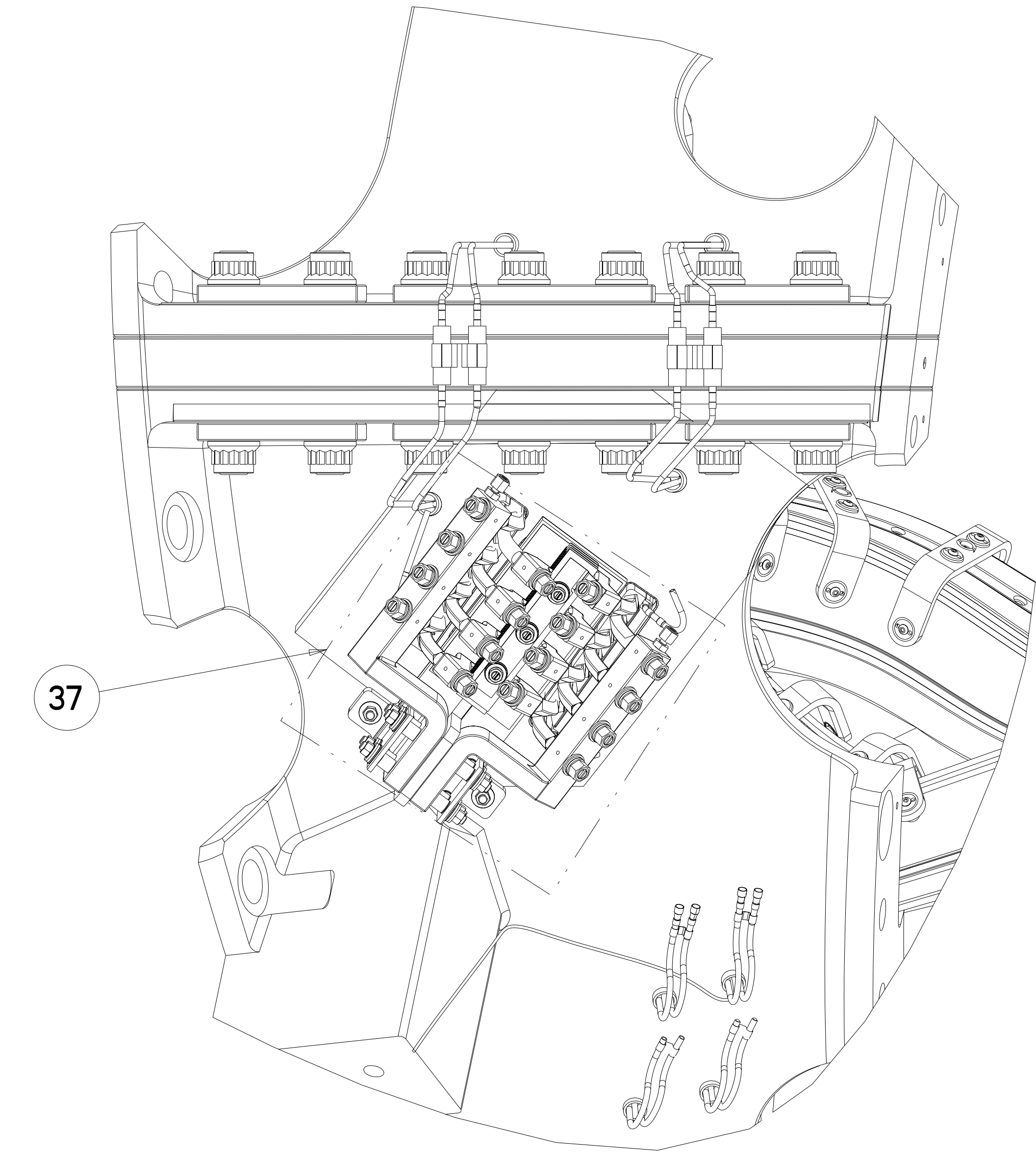
**MCWF TYPE "B"
 FULL COIL ASSEMBLY**

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

H
G
F
E
D
C
B
A



SCALE 0.250



SCALE 0.250

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

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.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
60	X-10	5700	3	3 3 3	S	U
RELEASE LEVEL	SE140-102					REV
WIP						0

H
G
F
E
D
C
B
A
 SE140-102