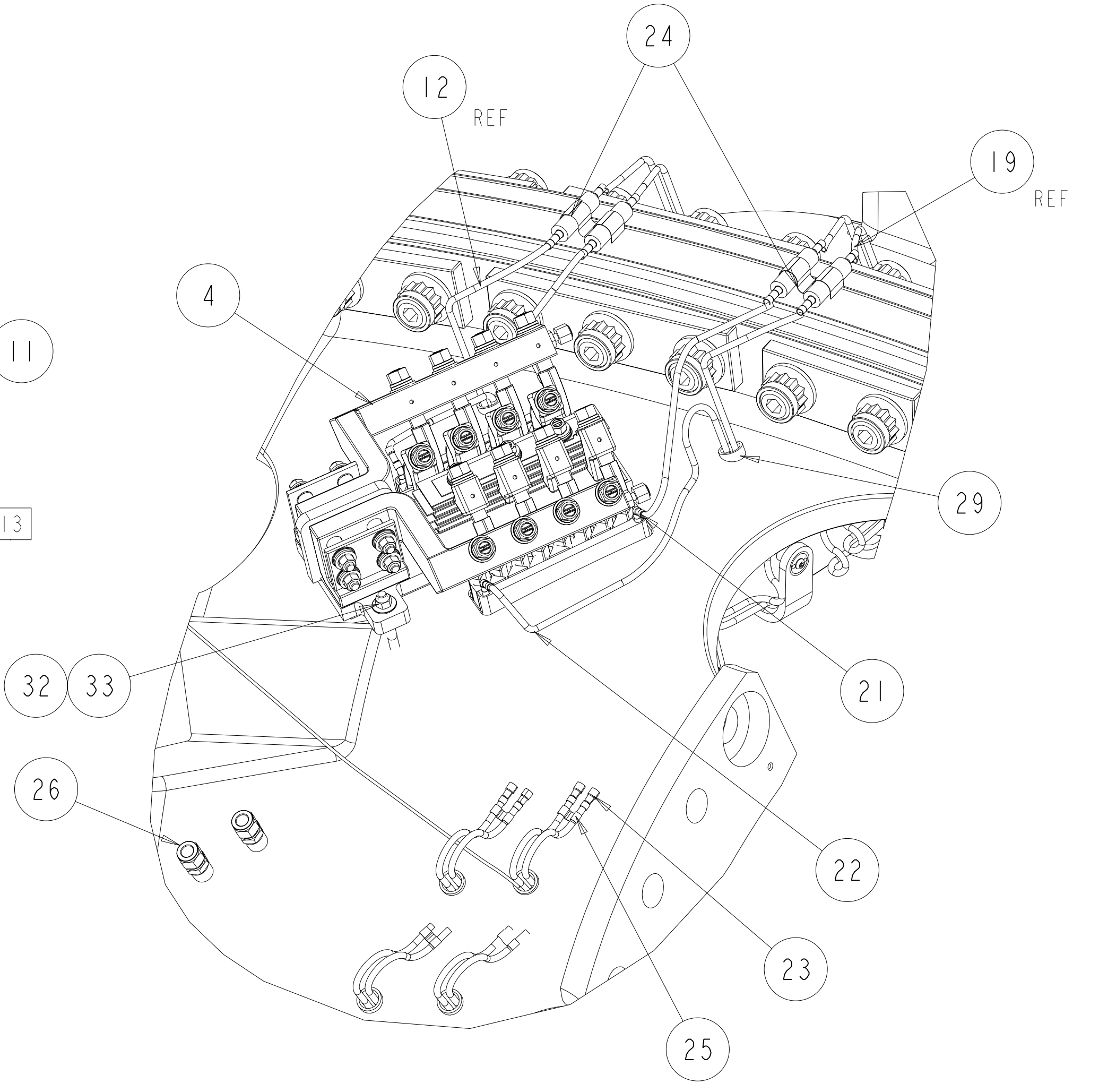
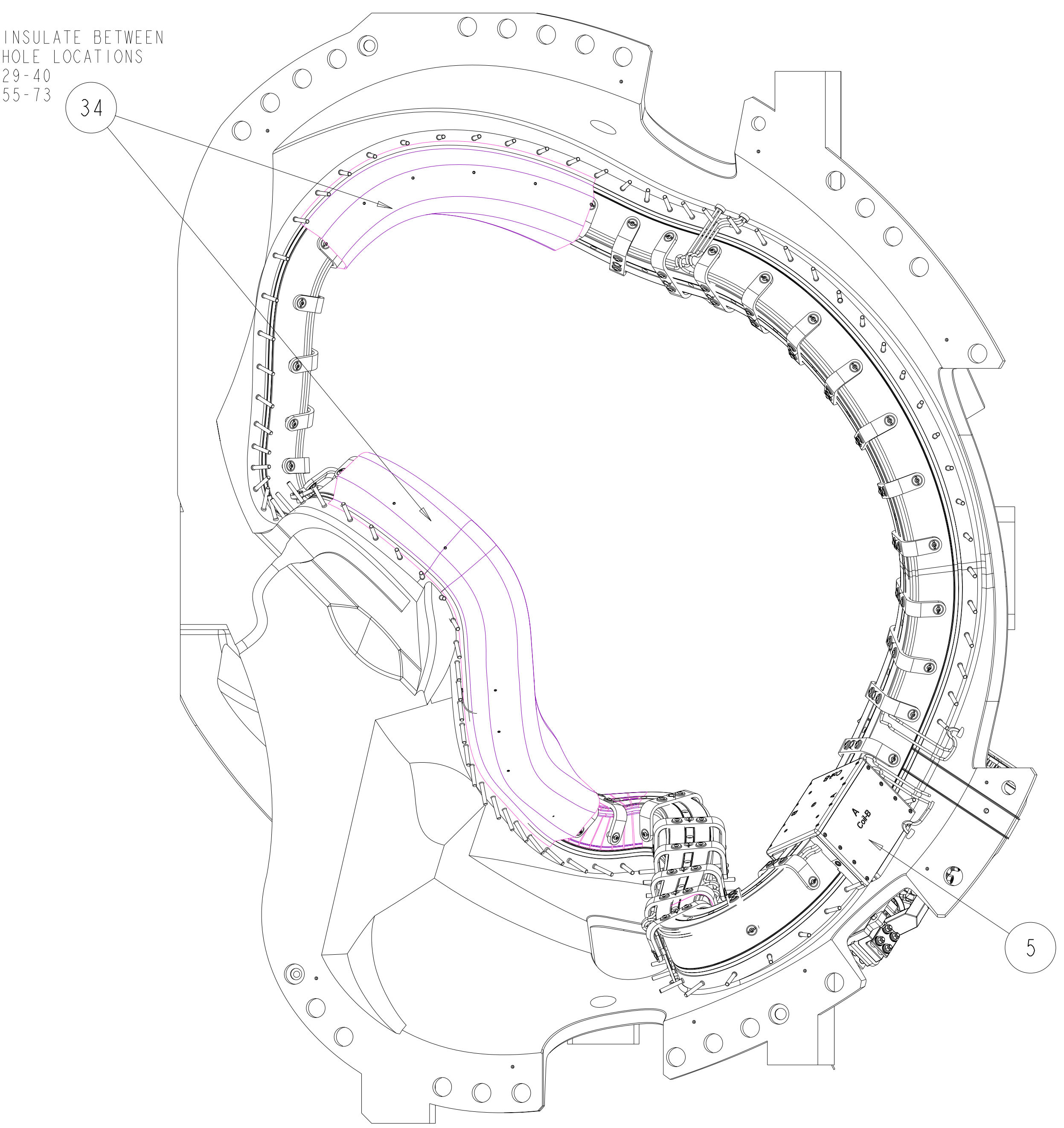


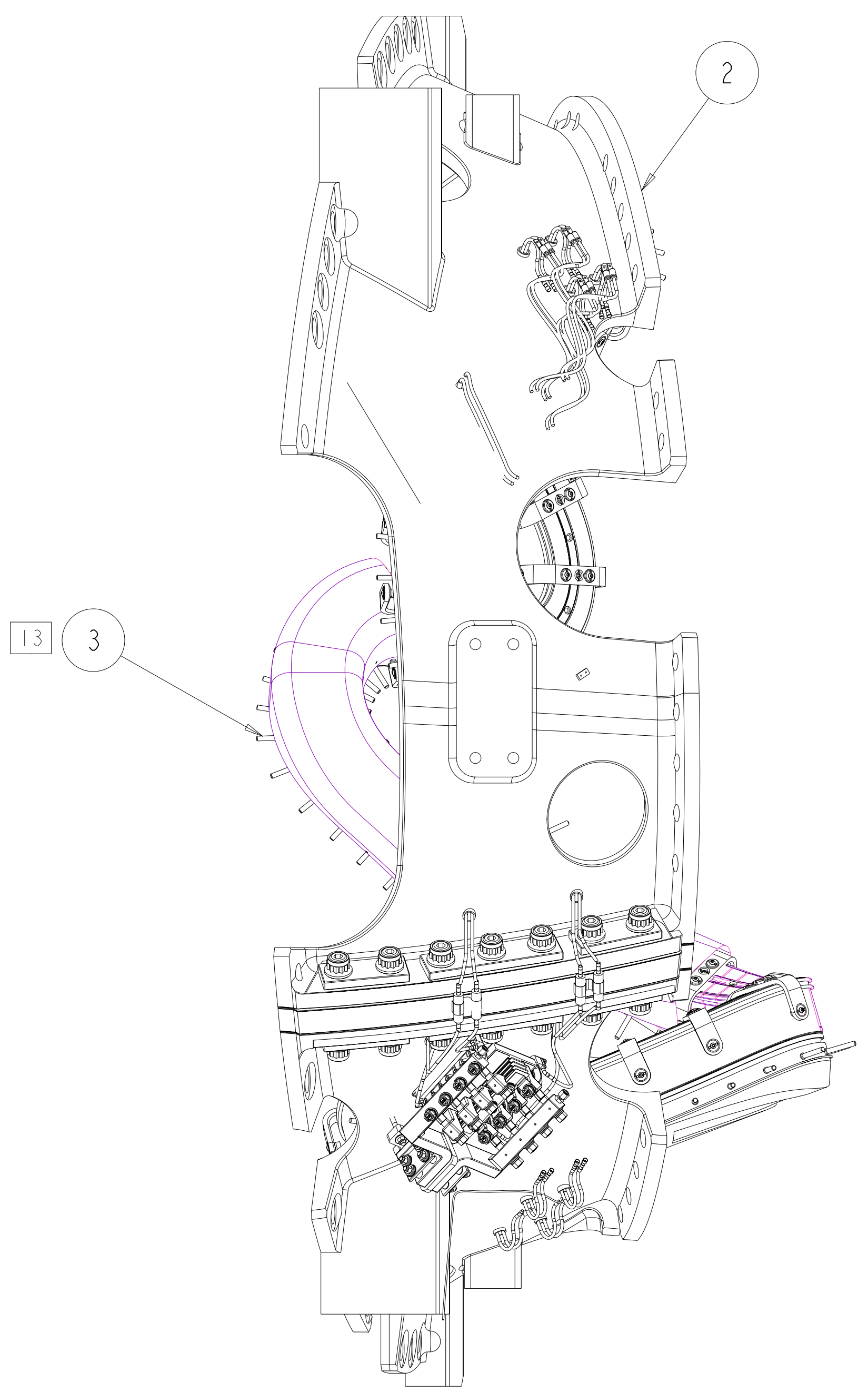
CUT-AWAY VIEW SHOWING WINDING INSTALLATION SEQUENCE (SIDE A)
 SCALE 0.250



TUBING AT POLOIDAL BREAK
 SCALE 0.250



-1 MCWF TYPE-B ASM
 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

REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
0	ORIGINAL ISSUE	GL	07/07									
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
AR												
SEI40-003												

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
13	1	SEI42B-STUDS			3
1	SEI41-102	MOD COIL WINDING FORM ASSEMBLY TYPE-B			2
AR	-1	MCWF-TYPE "B" ASM			1

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

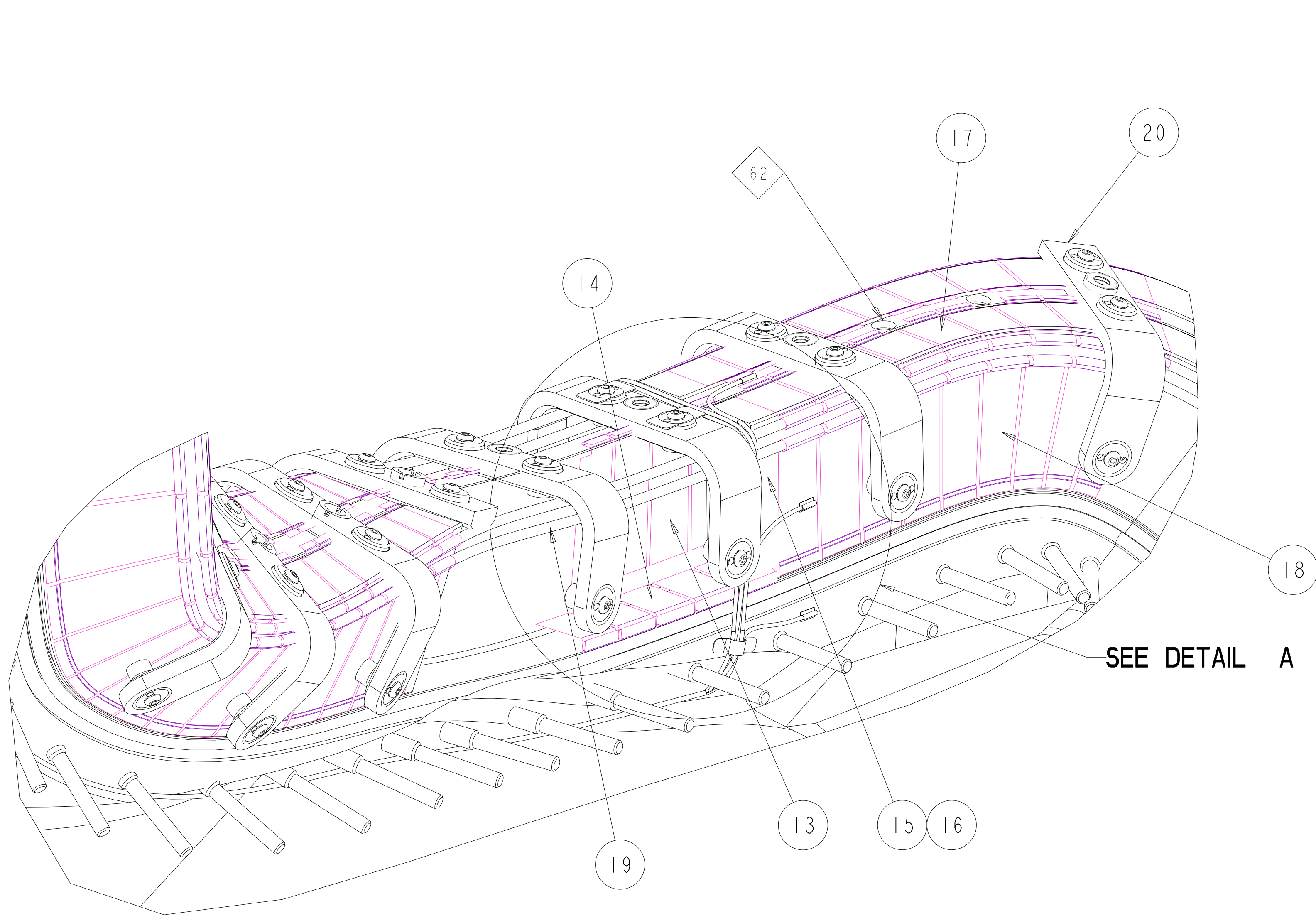
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 DRW: G LOVETT 07/07
 CHK: M COLE 07/07
 SECT: :
 DEPT: :
 PE: D WILLIAMSON 07/07
 CR: :
 PJ: :
 REQ: :
 PPPL DRFT J SIEGLE 07/07
 DRAWING APPROVALS DATE

UT-BATTELLE
 NATIONAL COMPACT STELLARATOR EXPERIMENT
 MCWF TYPE "B"
 FULL COIL ASSEMBLY

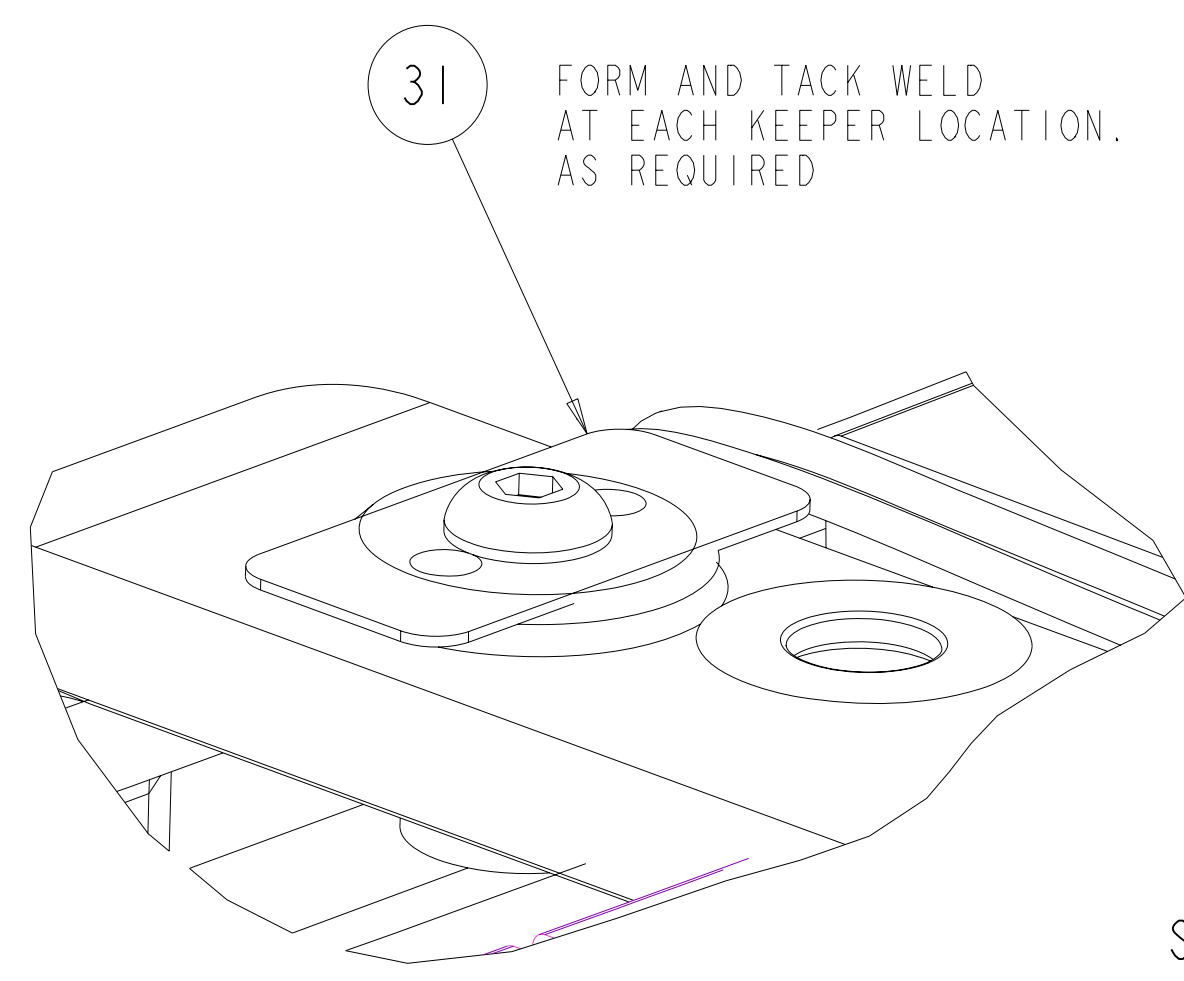
VERSION NO. 42
 PLANT X-10
 BLDG 5700
 FL 3
 SHT 1
 OF 3
 TYPE S
 CLASS U
 REV 0

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P THIS DRAWING PRODUCED ON PRO-ENGINEER



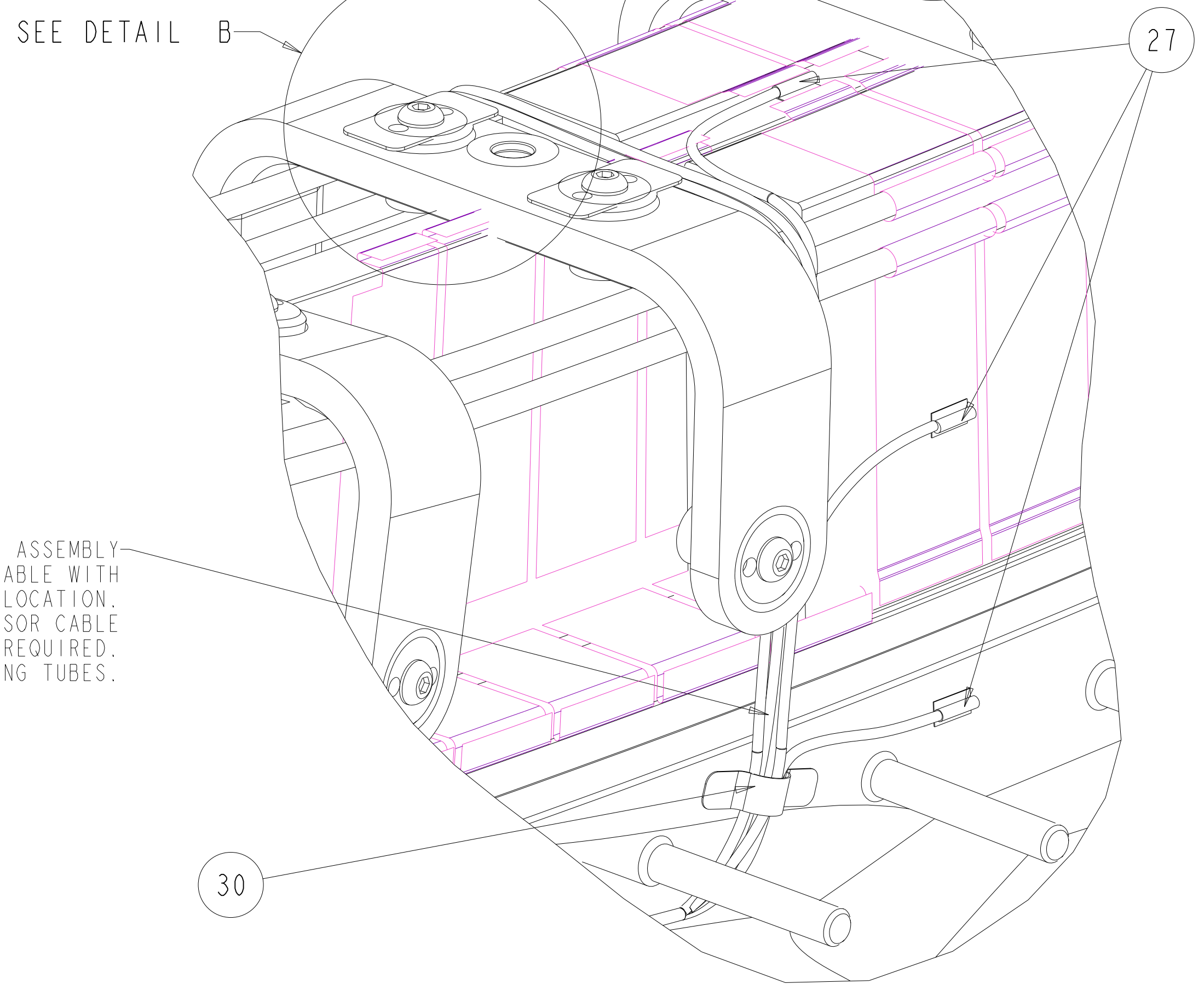
**CUT-AWAY VIEW SHOWING WINDING
 INSTALLATION SEQUENCE (SIDE B)**
 SCALE 0.500



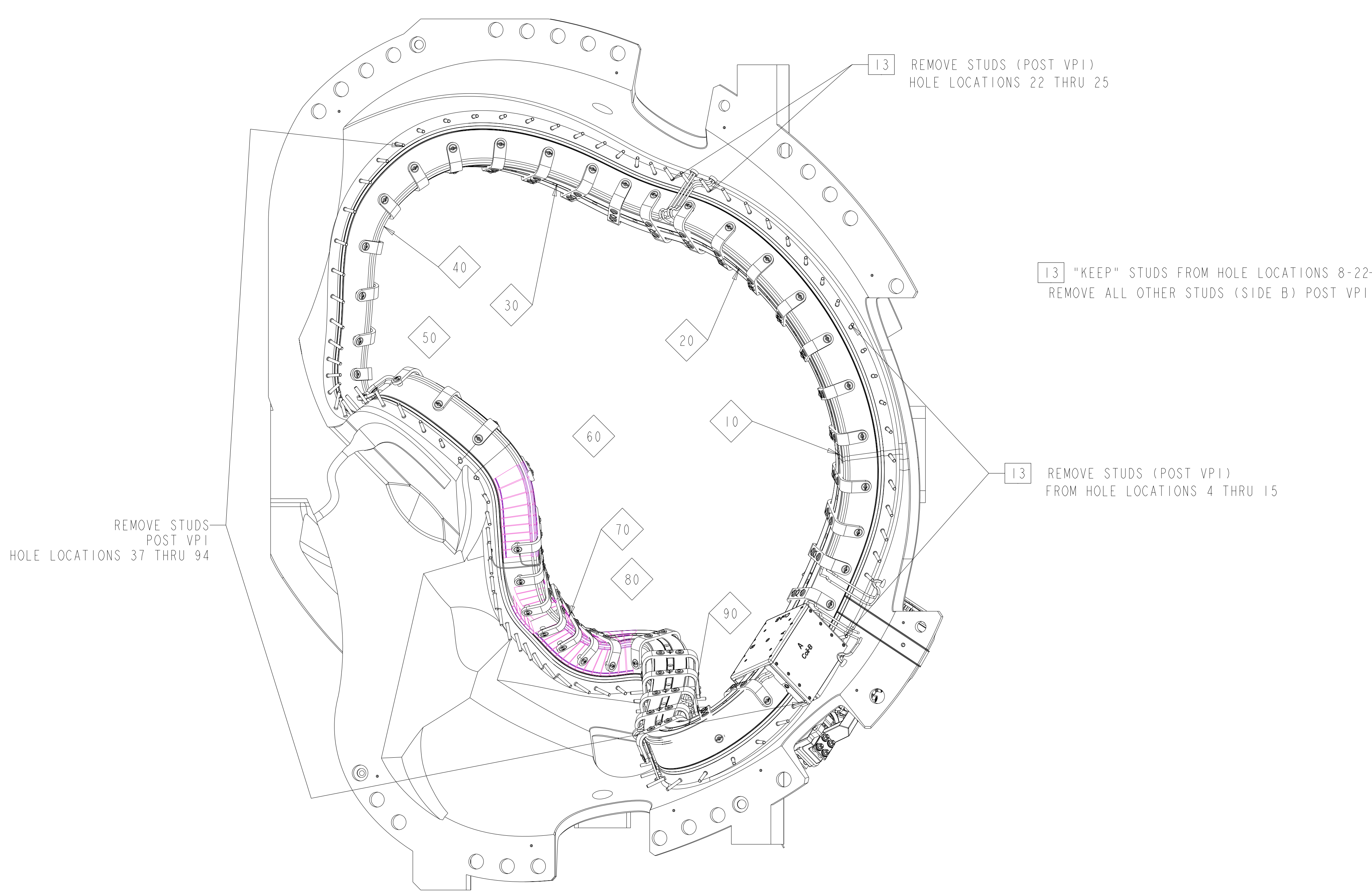
DETAIL B
 SCALE 2.00

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.

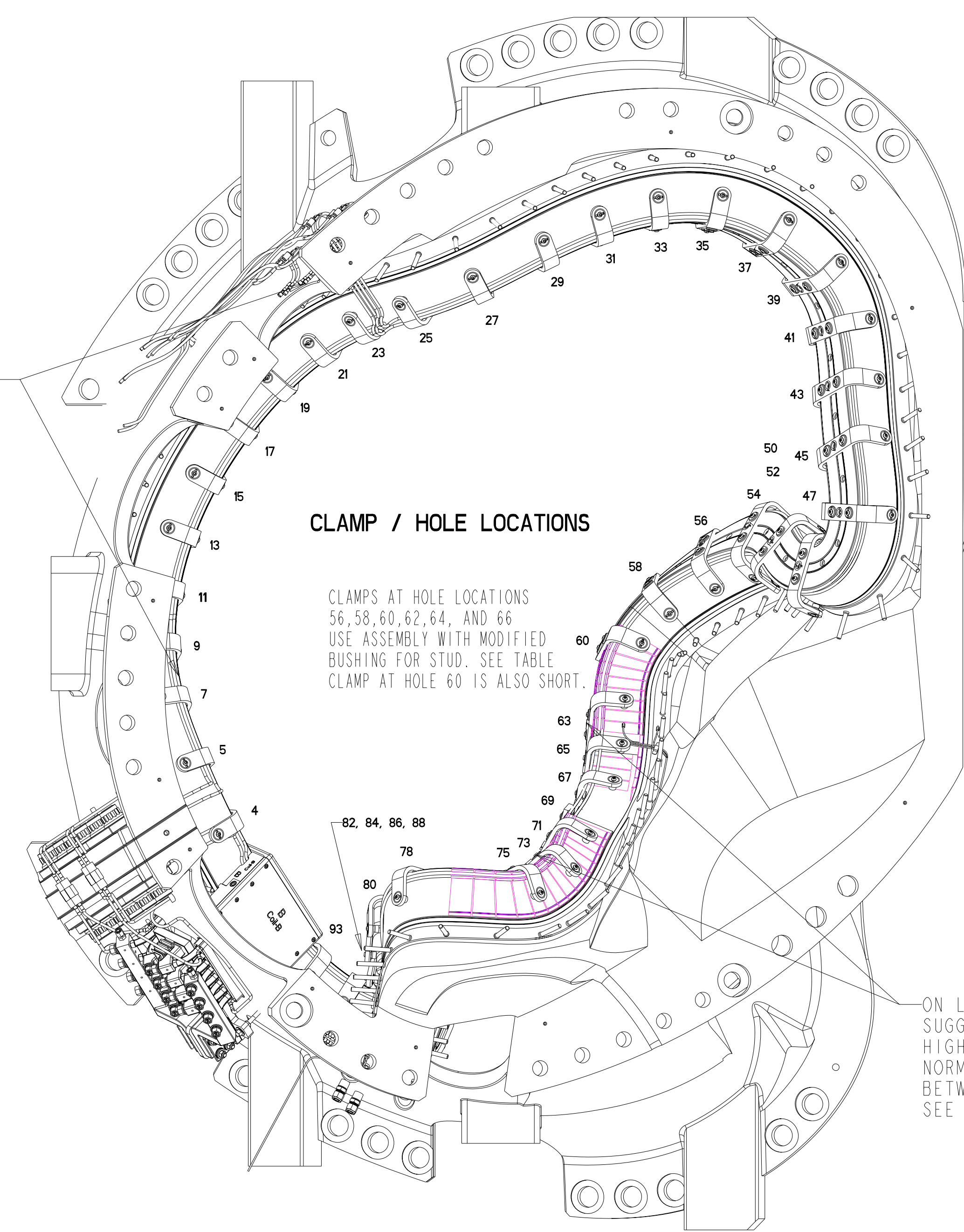
ON LAST FIELD PERIOD
 LOCATE STRAIN SENSORS AND LABEL AS SHOWN
 1 ON TOP OF TEE (64 T-TOP)
 2 EACH ON SIDE OF CHILL PLATES
 SIDE A (64-B-A)
 SIDE B (64-B-B)
 2 EACH ALONG FORM BELOW VP1 GROOVE
 SIDE A (64-V-A)
 SIDE B (64-V-B)



DETAIL A
 SCALE 1.00



SIDE "A" VIEW



SIDE "B" VIEW

HOLE NO.	CLAMP ASSEMBLY	CLAMP
03	SE142C-270	1
05	SE142C-270	2
07	SE142C-270	3
09	SE142C-270	4
11	SE142C-270	5
13	SE142C-270	6
15	SE142C-270	7
17	SE142C-270	8
19	SE142C-270	9
21	SE142C-270	10
23	SE142C-270	11
25	SE142C-270	12
27	SE142C-270	13
29	SE142C-270	14
31	SE142C-270	15
33	SE142C-270	16
35	SE142C-270	17
37	SE142C-270	18
39	SE142C-270	19
41	SE142C-270	20
43	SE142C-270	21
45	SE142C-270	22
47	SE142C-270	23
50	SE142C-270	24
52	SE142C-270	25
54	SE142C-270	26
56	SE142C-307	27
58	SE142C-307	28
60	SE142C-308	29
62	SE142C-307	30
64	SE142C-307	31
66	SE142C-307	32
69	SE142C-303	33
71	SE142C-270	34
73	SE142C-270	35
75	SE142C-270	36
78	SE142C-270	37
80	SE142C-270	38
82	SE142C-270	39
84	SE142C-270	40
86	SE142C-270	41
88	SE142C-270	42
91	SE142C-270	43
93	SE142C-270	44

CLAMP / HOLE LOCATIONS

CLAMPS AT HOLE LOCATIONS
 56, 58, 60, 62, 64, AND 66
 USE ASSEMBLY WITH MODIFIED
 BUSHING FOR STUD. SEE TABLE.
 CLAMP AT HOLE 60 IS ALSO SHORT.

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"

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

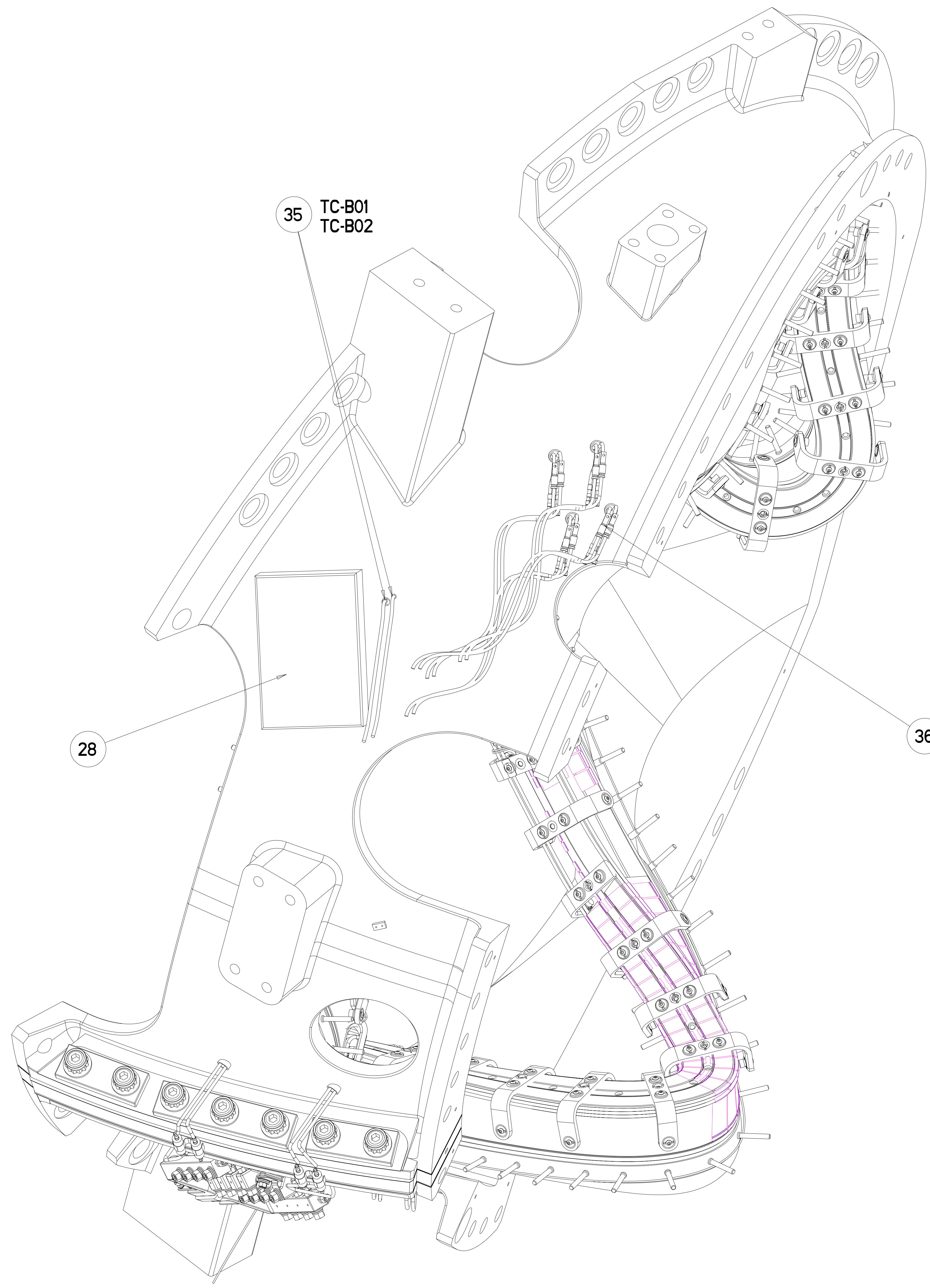
UT-BATTELLE

NATIONAL COMPACT STELLARATOR EXPERIMENT

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

VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
42	X-10	5700	3	2 3	S	U
RELEASE LEVEL	SE140-102					
WIP						

H
G
F
E
D
C
B
A

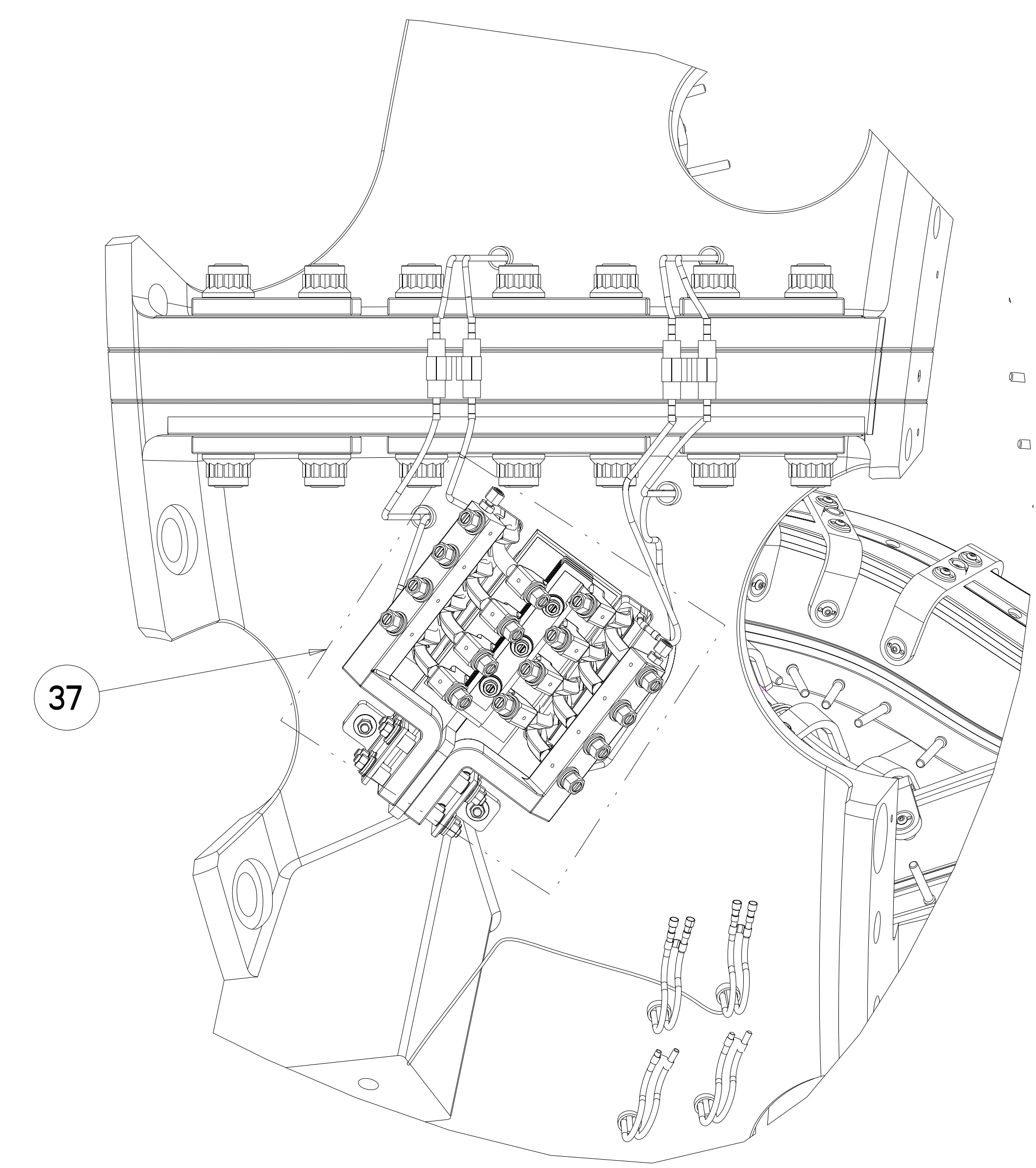


35 TC-B01
TC-B02

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

Oak Ridge National Laboratory
 managed for the DEPARTMENT OF ENERGY under
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 UT-BATTELLE, LLC, Oak Ridge, Tennessee

UT-BATTELLE

NATIONAL COMPACT STELLARATOR EXPERIMENT

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

VERSION NO.	PLANT	BLDG	FL	SHT OF	TYPE	CLASS
57+	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