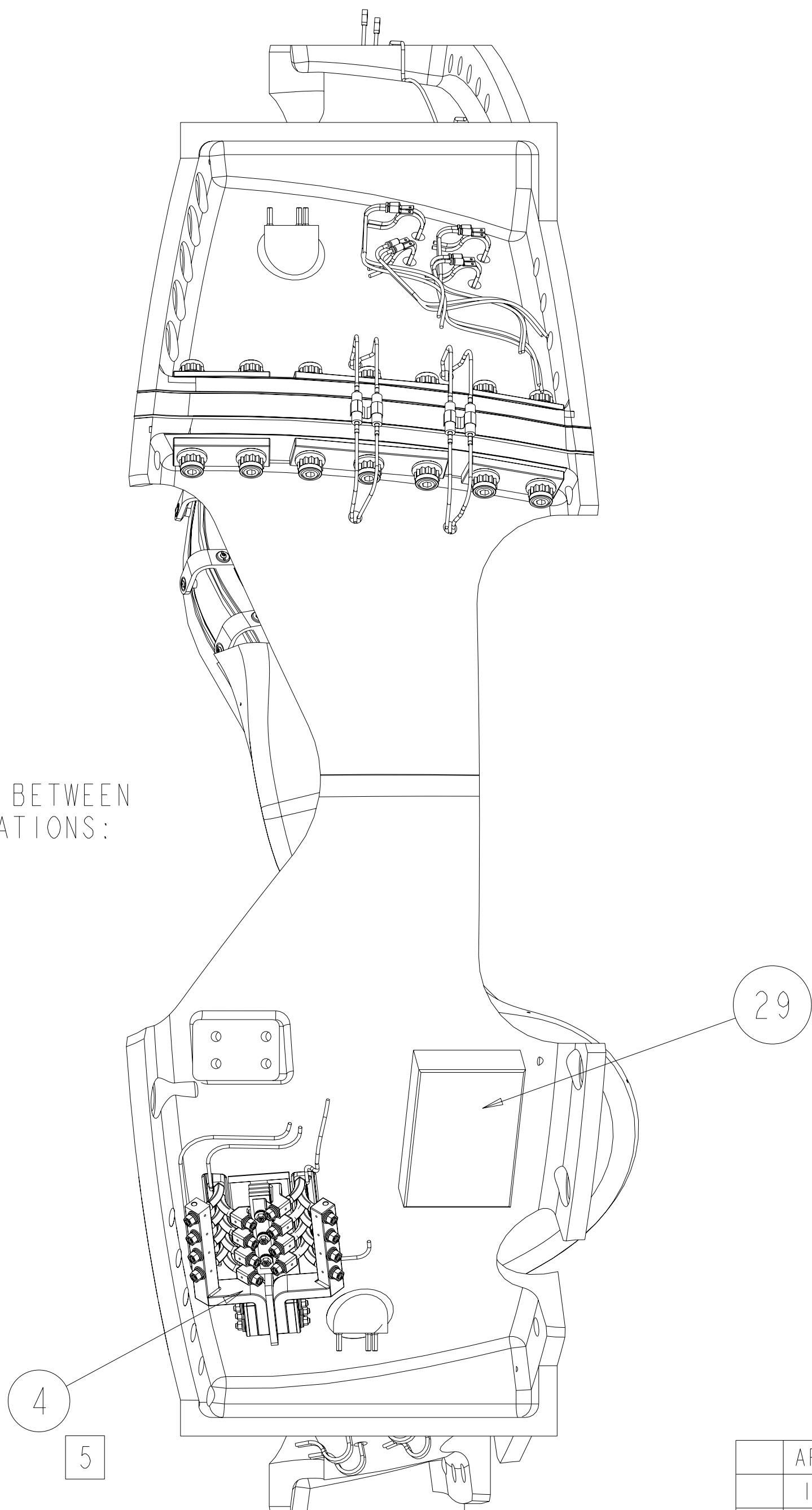
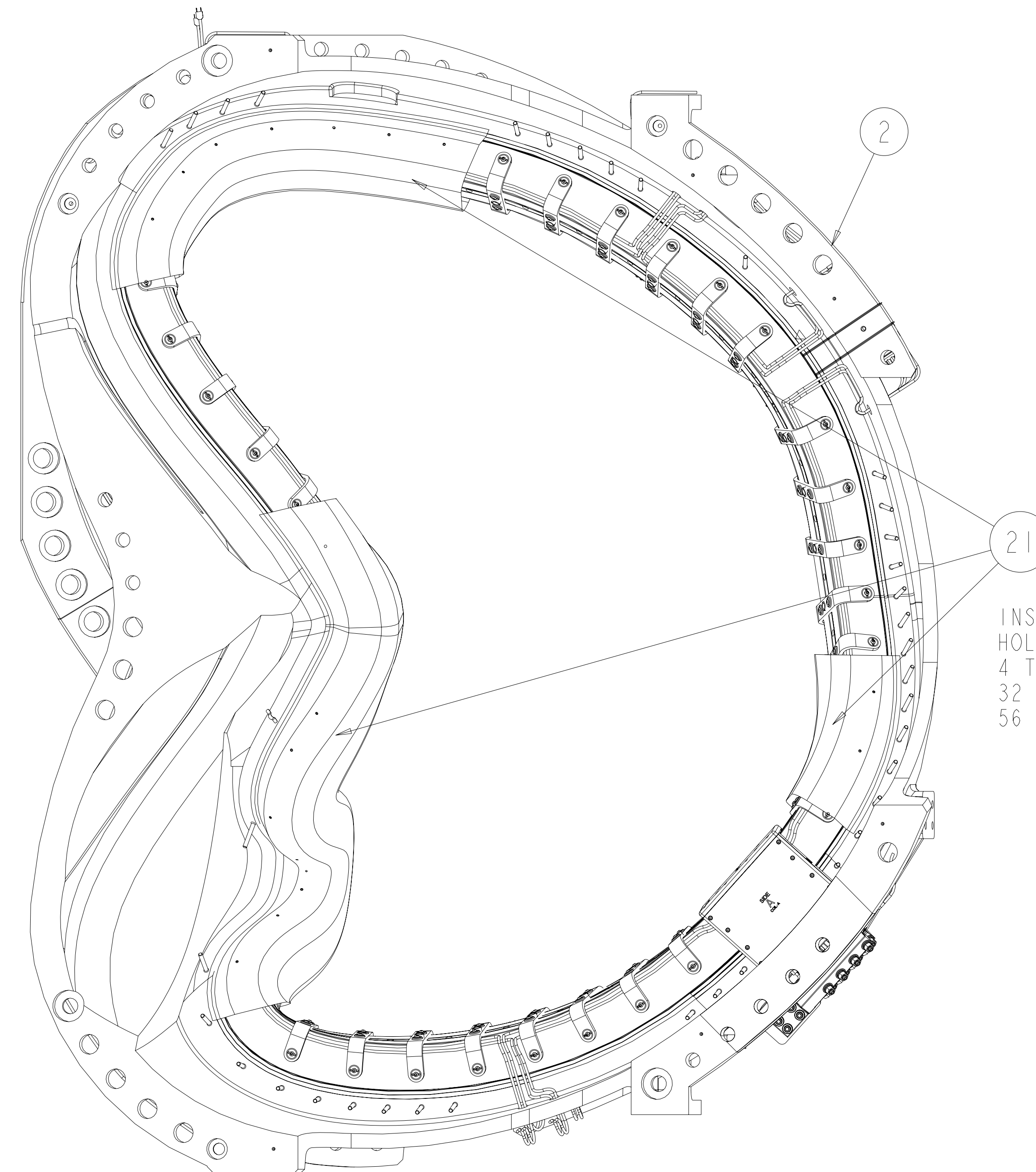
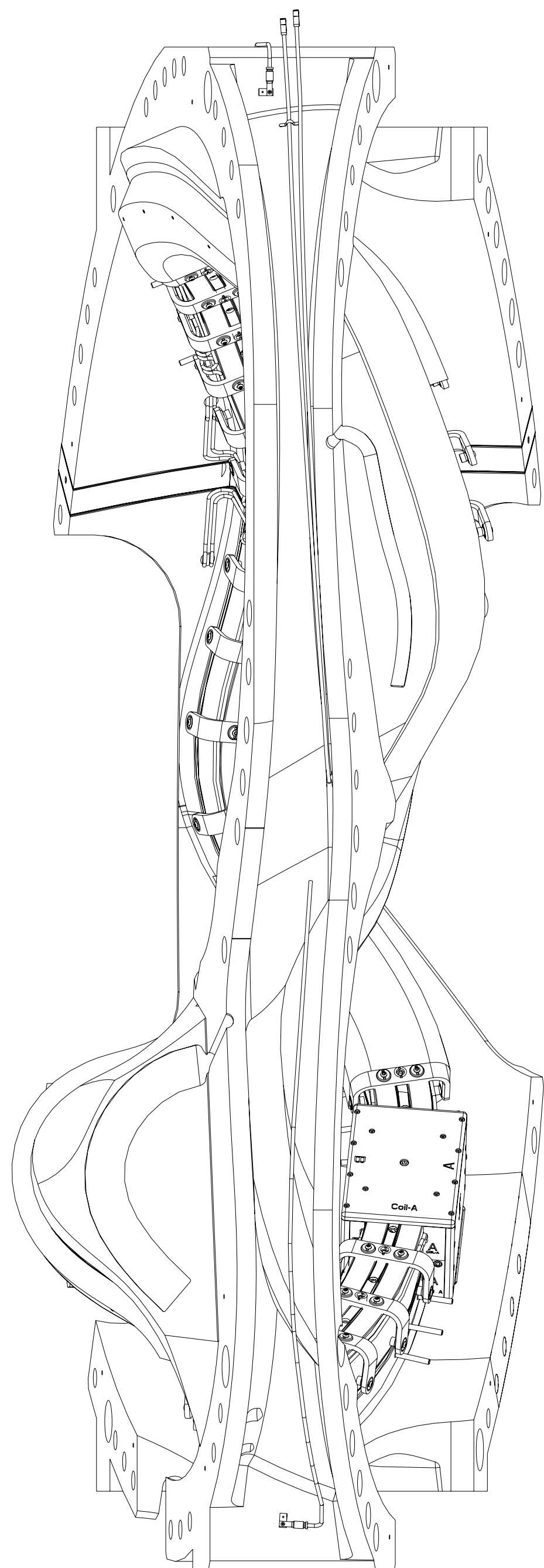
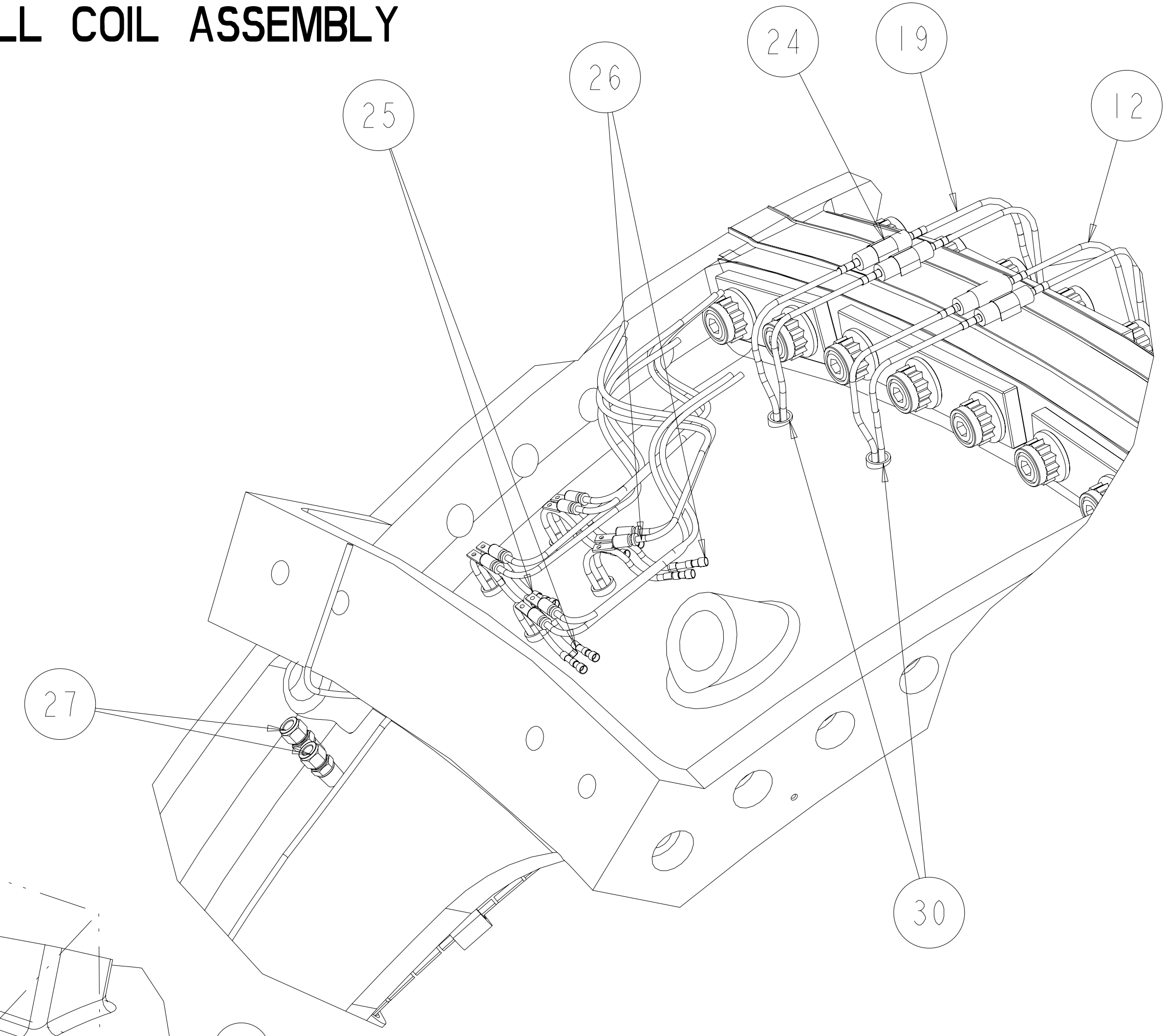
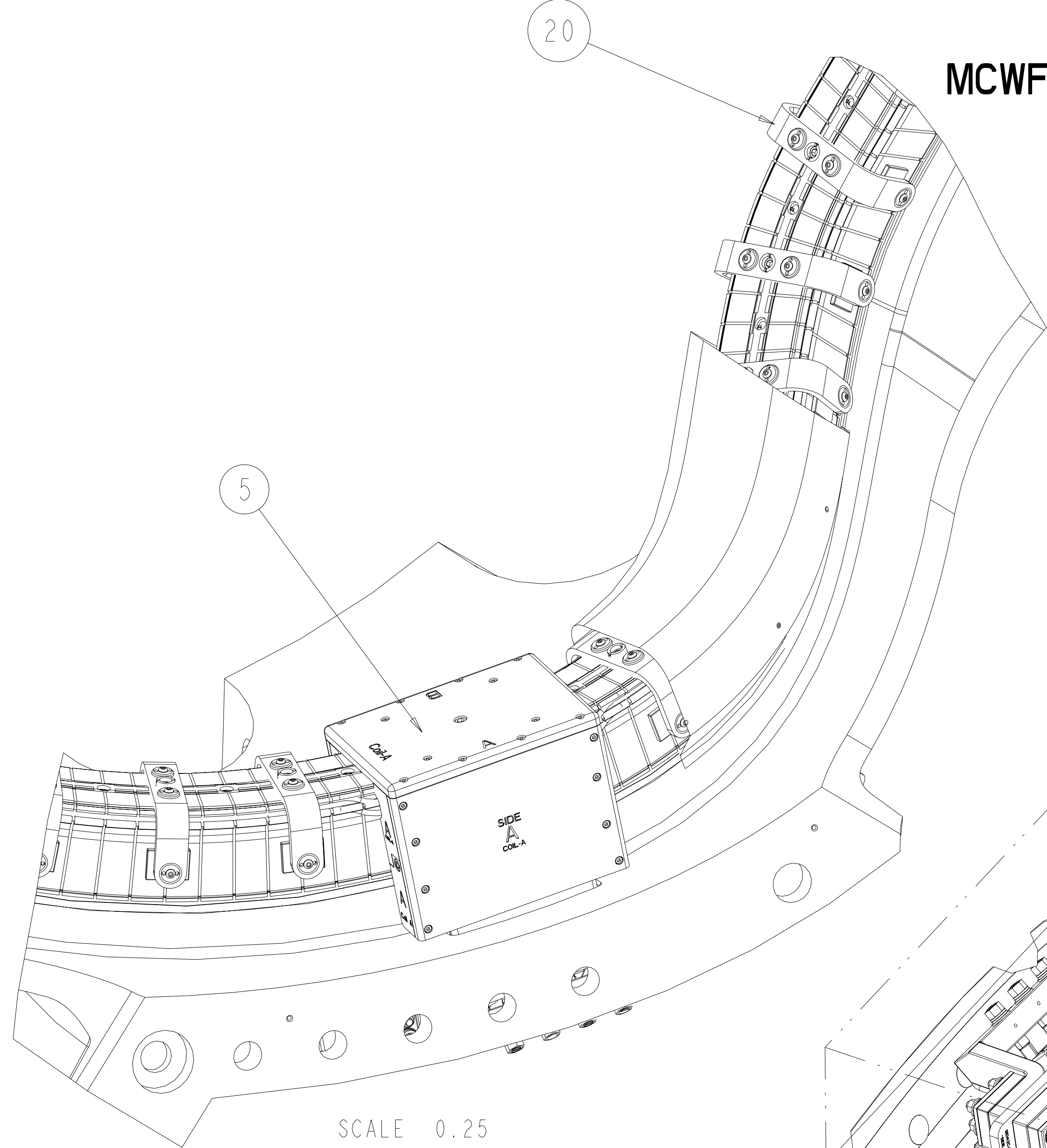


- NOTES:
- DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.100-2000.
 - INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M
 - DIMENSIONS ARE IN INCHES
 - DIMENSIONS APPLY AT ROOM TEMPERATURE. OPERATING TEMP 80 K.
 - LEADS AREA SHALL BE COVERED OR SPRAYED WITH AN INSULATING MATERIAL TO PREVENT DEBRIS FROM CAUSING AN ELECTRICAL SHORT DURING OPERATION.
 - VENDOR INFORMATION: ASPEN AEROGEL
NORTHBOROUGH, MA 01532
WWW.AEROGEL.COM
508-691-1111
 - SEE LATEST REVISION OF PROCEDURE D-NC SX-MCF-001 FOR ADDITIONAL REQUIREMENTS.
 - 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.
 - VENDOR INFORMATION: TRULY TUBULAR FITTING CORP
PO BOX 1160
MT VERNON, NY 10550
914-664-8686 OR WWW.TRULYTUBULAR.COM
 - VENDOR INFORMATION: FISO FIBER OPTICS
500 ST. JEAN BAPTISTE AVE SUITE 195
QUEBEC QC, G2E 5R CANADA
418-688-8065 OR WWW.FISO.COM
 - VENDOR INFORMATION: OMEGA ENGINEERING CORP
ONE OMEGA DRIVE
STAMFORD, CT 06907
800-848-4286 OR WWW.OMEGA.COM
 - SOME PARTS IN THIS ASSEMBLY ARE GRAPHIC REPRESENTATIONS OF ACTUAL PARTS/ASSEMBLIES. PART IDENTIFICATION NUMBERS REFER TO ACTUAL PARTS. FOR FULL MODELED ASSEMBLY SEE SE140-102.
 - TYPE "A" COIL: REMOVE NOTED STUDS AFTER CLAMP AND INSULATION BLANKETS ARE ASSEMBLED (POST VPI).
 - 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



INSULATE BETWEEN HOLE LOCATIONS:
4 TO 11
32 TO 46
56 TO 79

MCWF TYP "A" FULL COIL ASSEMBLY
SCALE 0.13



SCALE 0.25

SCALE 0.25

REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
0	ORIGINAL ISSUE	GL	06/07									

AR	SEI42B-030	WIRE CLAMP		42	
1	-41	PROTECTIVE COVER	PLASTIC	41	
AR	SEI42C-306	LOCKING TAB		40	
2	SEI23-155	THERMOCOUPLER MTG BLOCK		39	
11	1	THERMOCOUPLE - SURFACE - LEADS 130"		38	
2		THERMOCOUPLE - PLUG - LEADS 194"		37	
2		THERMOCOUPLE - SURFACE - LEADS 120"		36	
8		THERMOCOUPLE - SURFACE - LEADS 74"		35	
11	1	THERMOCOUPLE - SURFACE - LEADS 218"		34	
2	91735A46	PAN HEAD SCREW	316 SST	33	
4	9195A031	3/8 FLAT WASHER	316 SST	32	
4	94819A049	3/8 - 16UNC HEX NUT	316 SST	31	
12	SEI42C-014	LINED INSULATING SLEEVE		30	
1	SEI42C-015	3"x8"x12" FLUX LOOP BOX		29	
10	AR	SEI42C-013	FISO FIBER OPTIC STRAIN SENSOR	28	
2	SS-810-1-8	BLEED VALVE		27	
9	16	5FF-5-4	TRULY TUBULAR FITTING	BRAZETYTE	26
AR	SEI42C-011	TUBE CLAMP		25	
2	SEI40-025	POL BR CONNECTOR ASSEMBLY		24	
9	2	90FF-4	TRULY TUBULAR 1/4 ELBOW	BRAZETYTE	23
9	2	10FF-4	TRULY TUBULAR 1/4 UNION	BRAZETYTE	22
6	AR	-21	WINDING FORM INSULATION ASSY	1/8" NOMEX	21
43	SEI42A-010	CLAMP ASSEMBLY		20	
AR	SEI42A-248	SIDE B COOLING TUBES	COPPER TUBING	19	
1	SEI42A-246-4	SIDE "B" CHILL PLATES (SIDE)		18	
1	SEI42A-246-3	SIDE "B" UPPER CHILL PLATES (TOP)		17	
AR	SEI42A-243	SIDE "B" GROUNDWRAP		16	
1	SEI42A-241	SIDE "B" WINDING ASSEMBLY		15	
1	SEI42A-244-4	SIDE "B" LOWER CLADDING (BASE)		14	
1	SEI42A-244-3	SIDE "B" UPPER CLADDING (SEPTUM)		13	
AR	SEI42A-258	SIDE A COOLING TUBES	COPPER TUBING	12	
1	SEI42A-256-4	SIDE A LOWER CHILL PLATES (SIDE)		11	
1	SEI42A-256-3	SIDE A UPPER CHILL PLATES (TOP)		10	
AR	SEI42A-253	SIDE-A WP GROUNDWRAP		9	
1	SEI42A-251	SIDE "A" WINDINGS ASSEMBLY		8	
1	SEI42A-254-4	SIDE "A" LOWER CLADDING (BASE)		7	
1	SEI42A-254-3	SIDE "A" UPPER CLADDING (SEPTUM)		6	
1	SEI42A-080	TYPE "A" LEADS ASSEMBLY		5	
1	SEI42C-050	TYPE "A" TERMINAL ASSEMBLY		4	
13	SEI41-121	STUDS (SEE SHT 2)		3	
1	SEI41-101	MOD COIL WINDING FORM ASSEMBLY TYPE-A		2	
AR	-1	MCWF-TYPE A ASM		1	

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

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 PURPOSES, AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

P THIS DRAWING PRODUCED ON PRO-ENGINEER

SCALE NOTED
TOLERANCES UNLESS OTHERWISE SPECIFIED

FRACTIONS :
XX DECIMALS ±.01
XXX DECIMALS ±.005
ANGLES ±0°15'
REO :
FINISH : ±.025 UNLESS OTHERWISE SPECIFIED

DES: D WILLIAMSON 07/07
DRW: S HOMESCU 07/07
CHK: M COLE 07/07

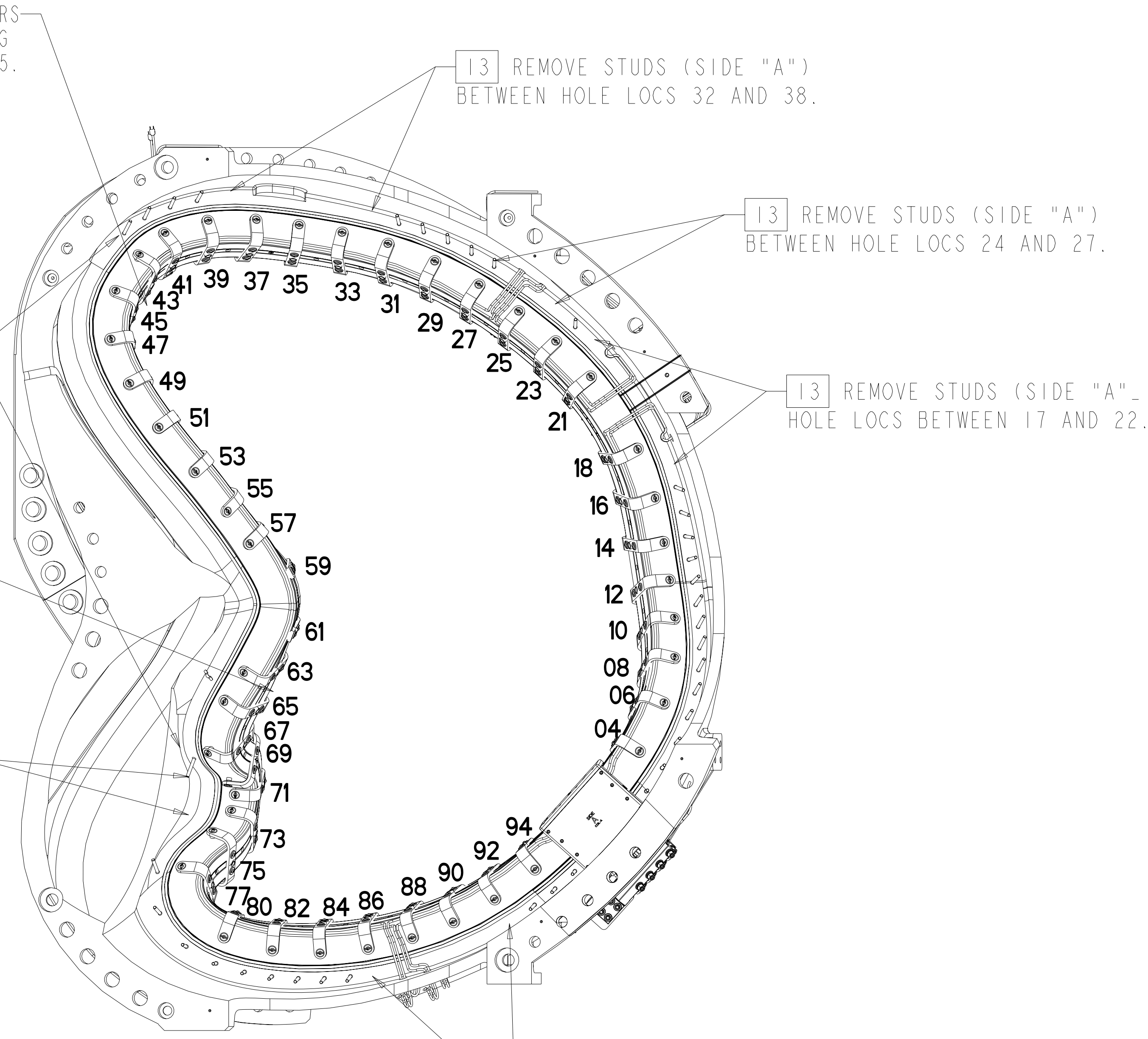
UT-BATTELLE
Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee
PROJECT NAME: NATIONAL COMPACT STELLARATOR EXPERIMENT

MCWF TYPE "A" FULL COIL ASSEMBLY

VERSION NO.	PLANT	BLDG	FL	SHT	OF	TYPE	CLASS
58	ORNL	5700	3	1	3	S	U
RELEASE LEVEL			SEI40-101				
DRAWING APPROVALS			DATE				

REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REQ	DATE	ORNL	DOE	DATE
0	ORIGINAL ISSUE	GL	06/07									

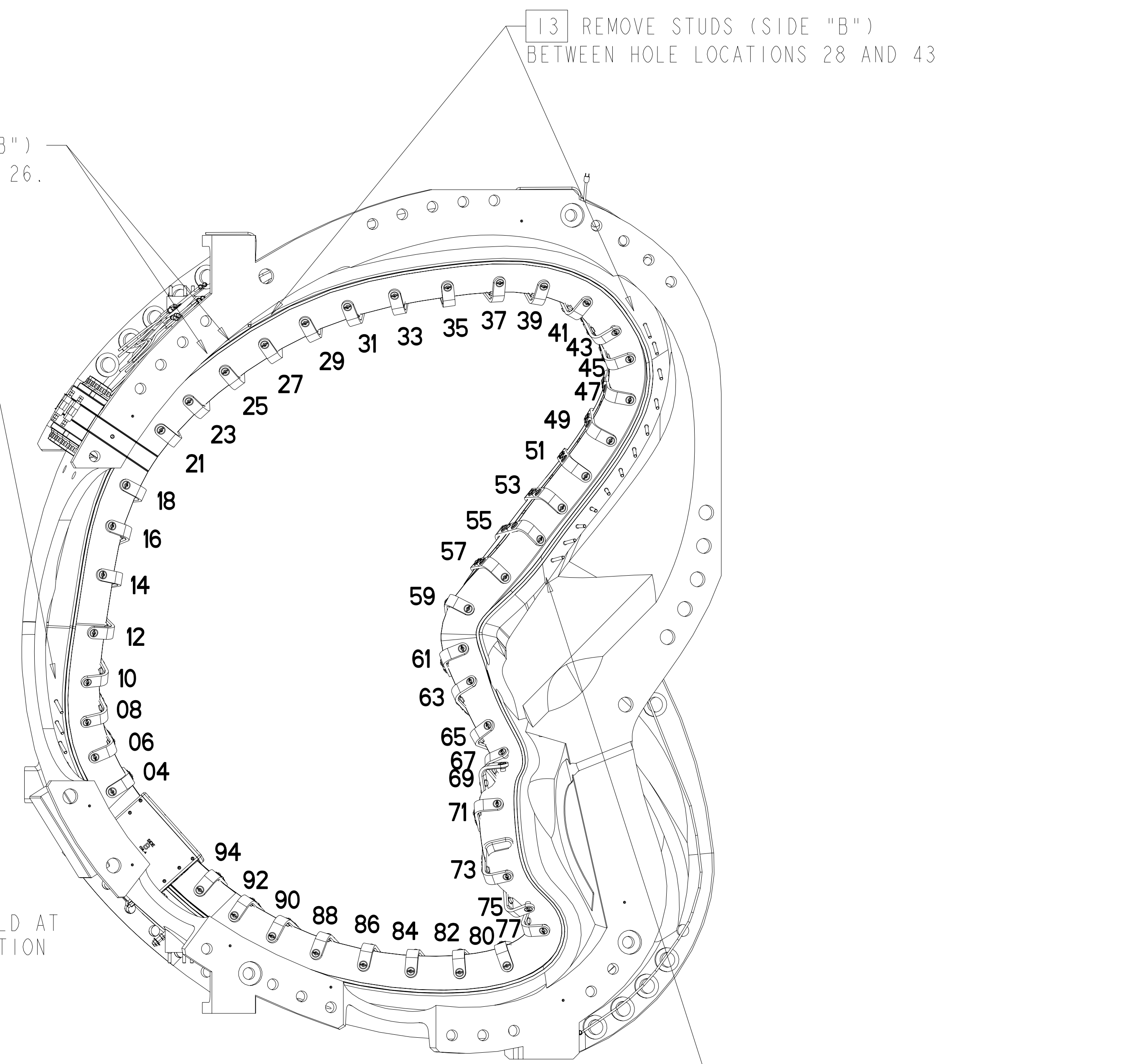
SUGGESTED LOCATION FOR CONCENTRATED STRAIN SENSORS
ALIGN SENSORS ON LAST FIELD PERIOD ASSEMBLY ON WINDING
LAW PLANE BETWEEN HOLE 43-45.



SIDE "A" VIEW
SCALE 0.100
CLAMP / HOLE NUMBER LOCATIONS

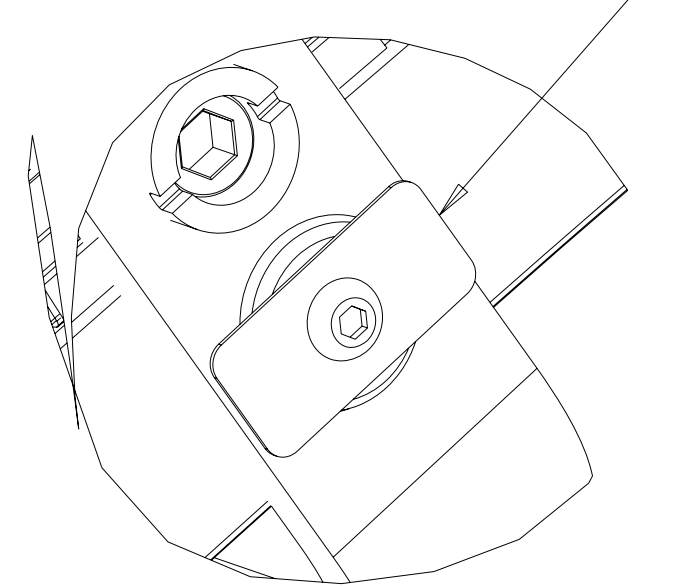
13 REMOVE STUDS (SIDE "B")
AT HOLE LOCATIONS 25 AND 26.

13 REMOVE STUDS (SIDE "B")
BETWEEN HOLES 10 AND 23



SIDE "B" VIEW
SCALE 0.100
CLAMP / HOLE NUMBER LOCATIONS

40 FORM AND TACH WELD AT
EACH KEEPER LOCATION

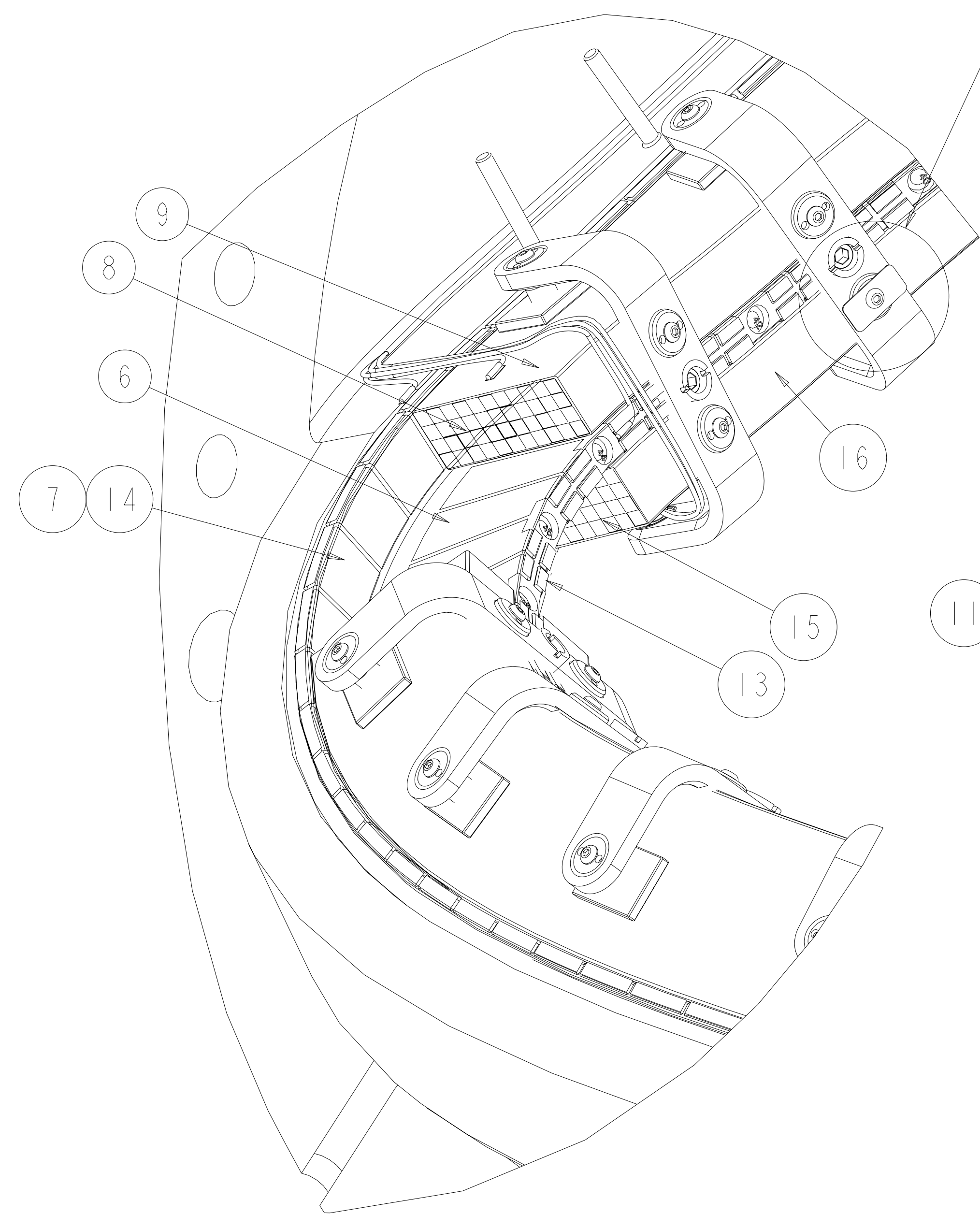


DETAIL C
SCALE 1.000

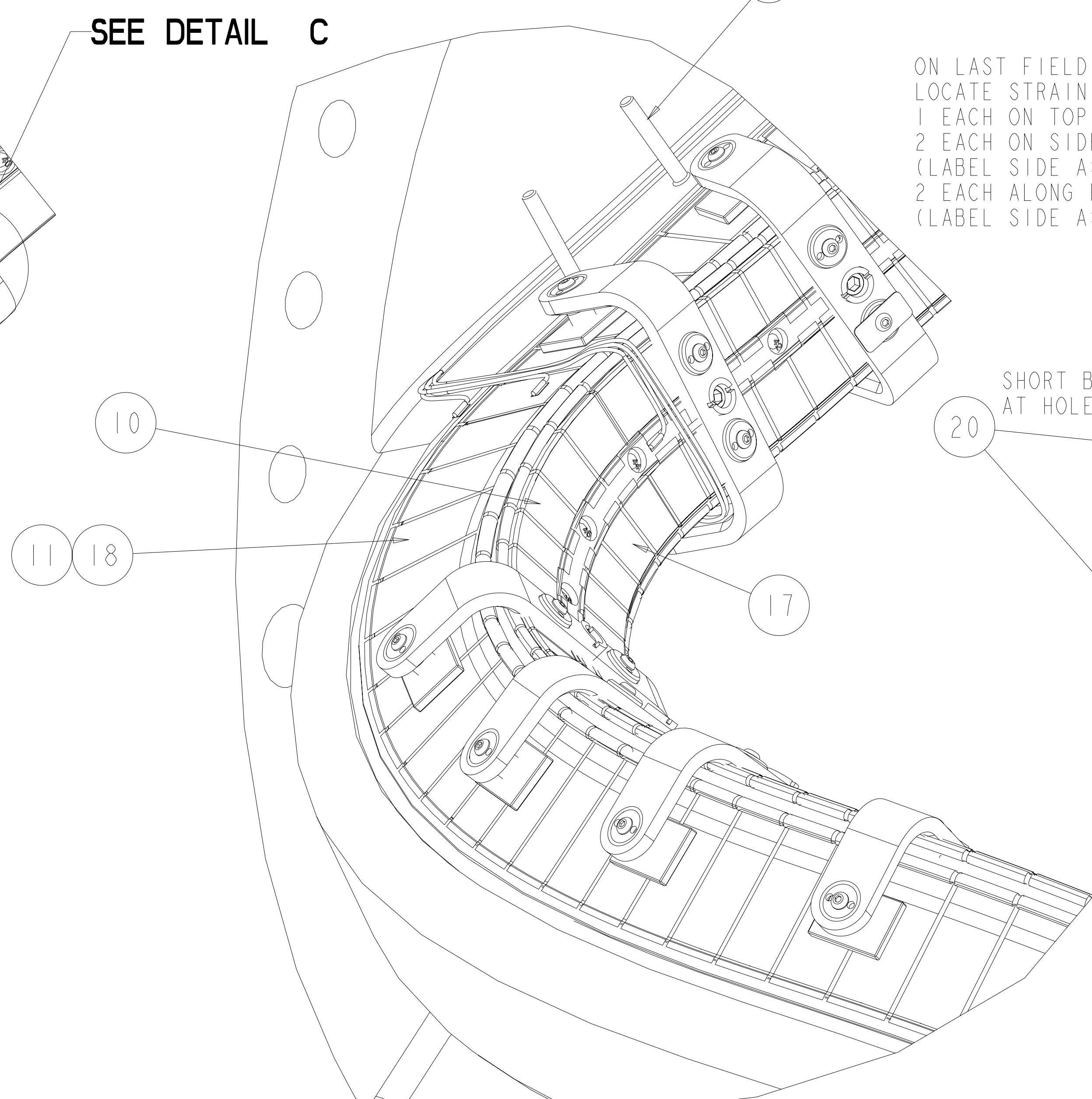
ON LAST FIELD PERIOD ASSEMBLY
COLOR CODE OR IDENTIFY EACH CABLE WITH
HOLE NUMBER ASSOCIATED AND LOCATION
BUNDLE FIBER OPTIC STRAIN SENSOR CABLE
EXIT COIL WITH COOLING TUBES.

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

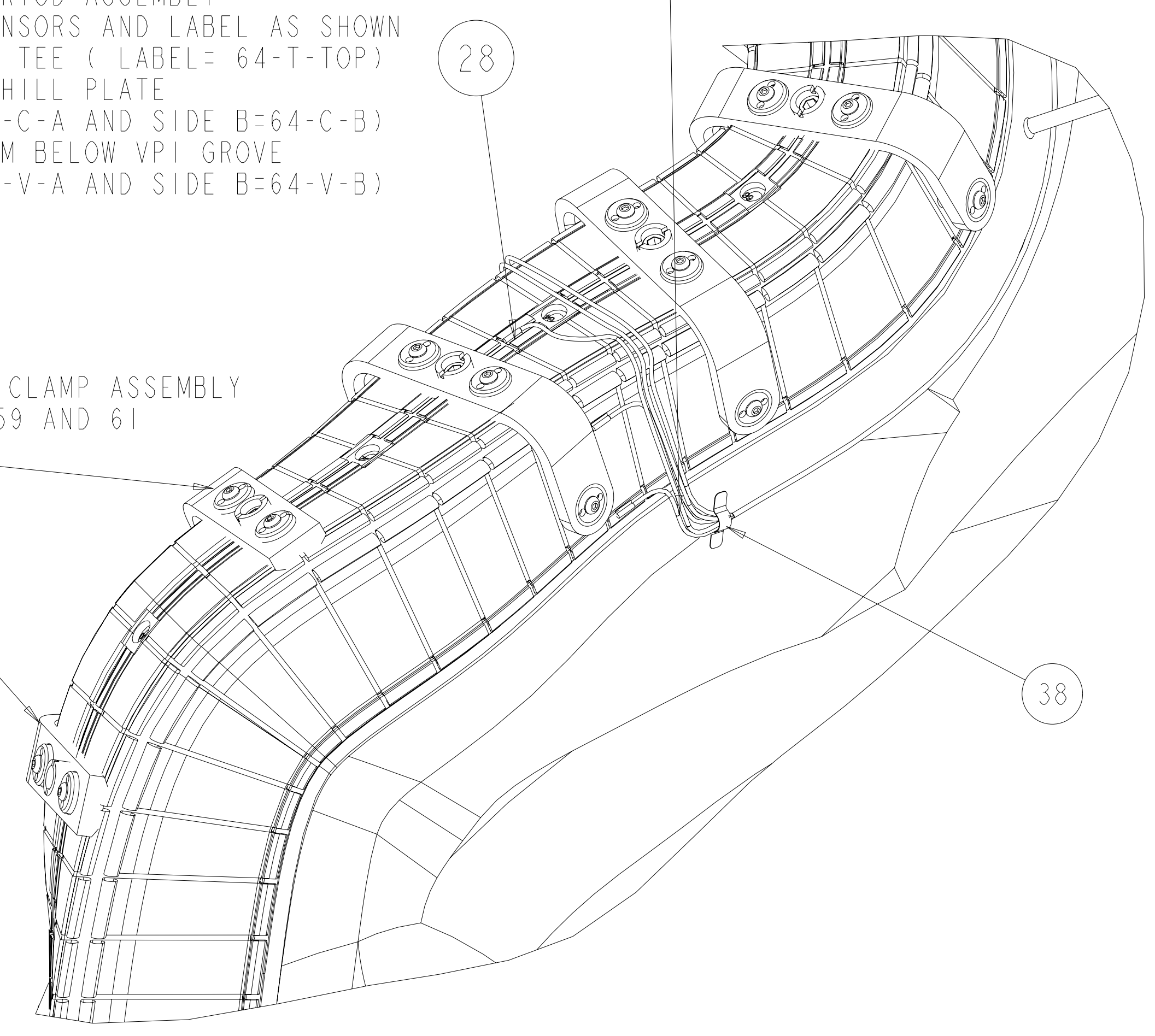
SHORT BAR CLAMP ASSEMBLY
AT HOLES 59 AND 61



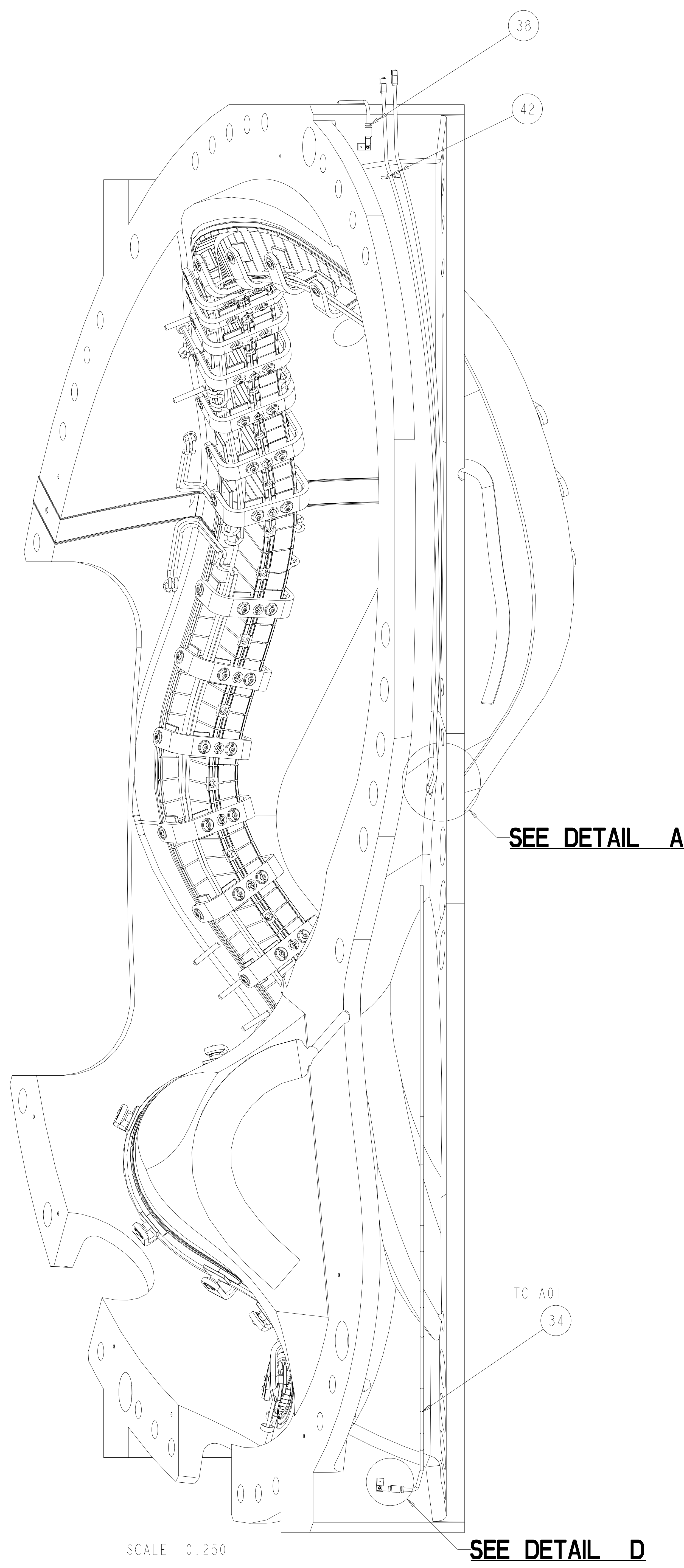
SCALE 0.50



SCALE 0.50



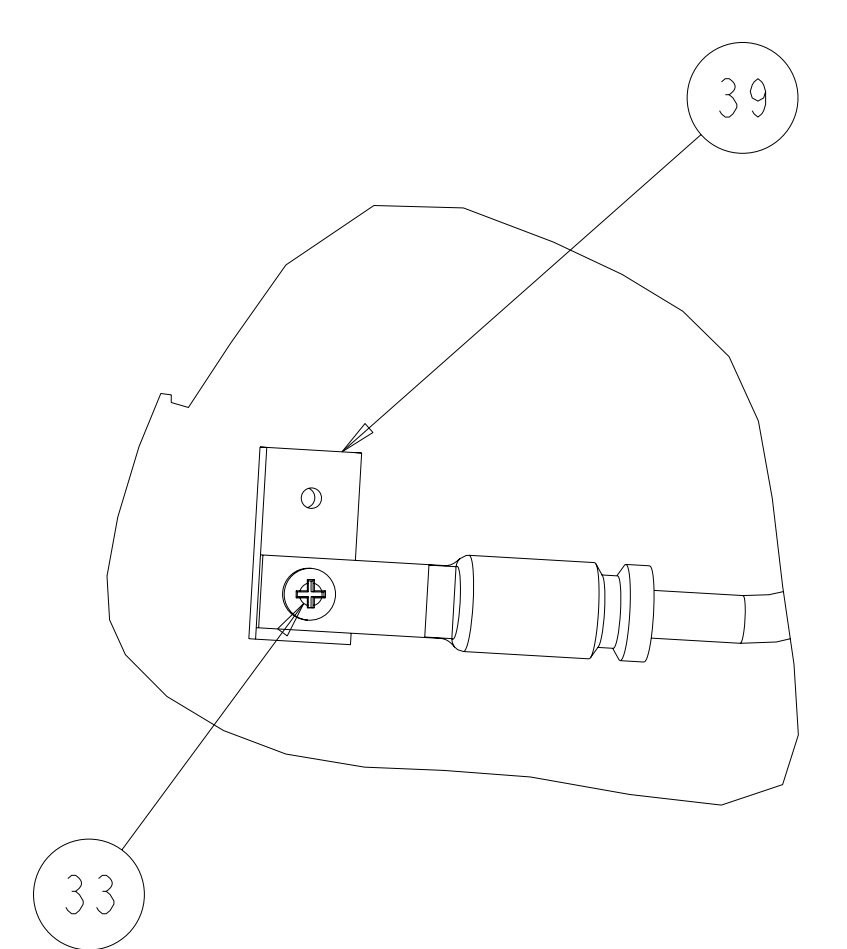
CLAMP CHART		
NO.	HOLE NO.	CLAMP ASSEMBLY
1	04	SE142C-270
2	06	SE142C-270
3	08	SE142C-270
4	10	SE142C-270
5	12	SE142C-270
6	14	SE142C-270
7	16	SE142C-270
8	18	SE142C-270
9	21	SE142C-270
10	23	SE142C-270
11	25	SE142C-270
12	27	SE142C-270
13	29	SE142C-270
14	31	SE142C-270
15	33	SE142C-270
16	35	SE142C-270
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	49	SE142C-270
24	51	SE142C-270
25	53	SE142C-270
26	55	SE142C-270
27	57	SE142C-270
28	59	SE142C-303
29	61	SE142C-303
30	63	SE142C-270
31	65	SE142C-270
32	67	SE142C-270
33	69	SE142C-270
34	71	SE142C-270
35	73	SE142C-270
36	75	SE142C-270
37	77	SE142C-270
38	80	SE142C-270
39	82	SE142C-270
40	84	SE142C-270
41	86	SE142C-270
42	88	SE142C-270
43	90	SE142C-270
44	92	SE142C-270
45	94	SE142C-270



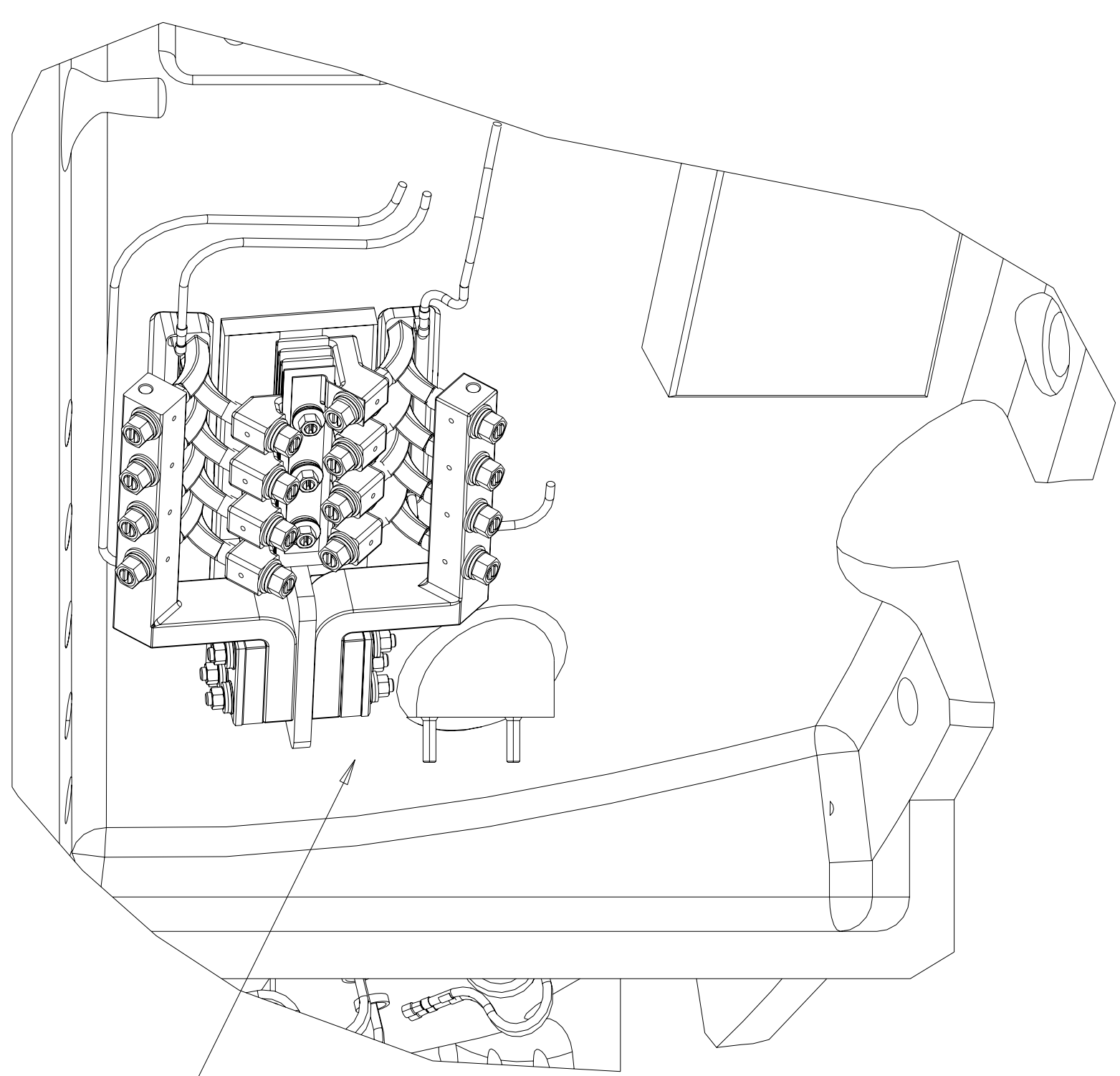
SCALE 0.250

SEE DETAIL D

SEE DETAIL A

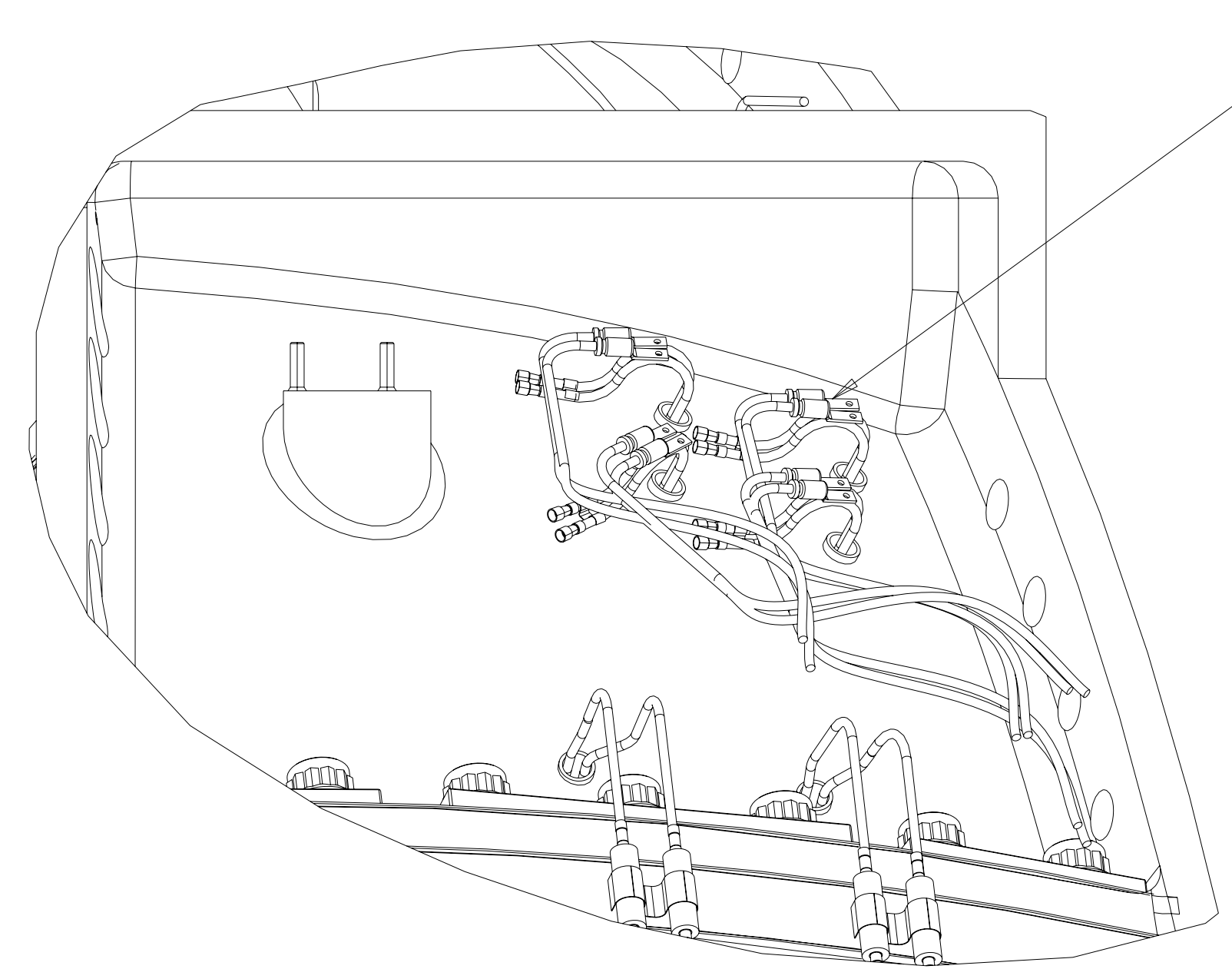


DETAIL D
SCALE 1.000



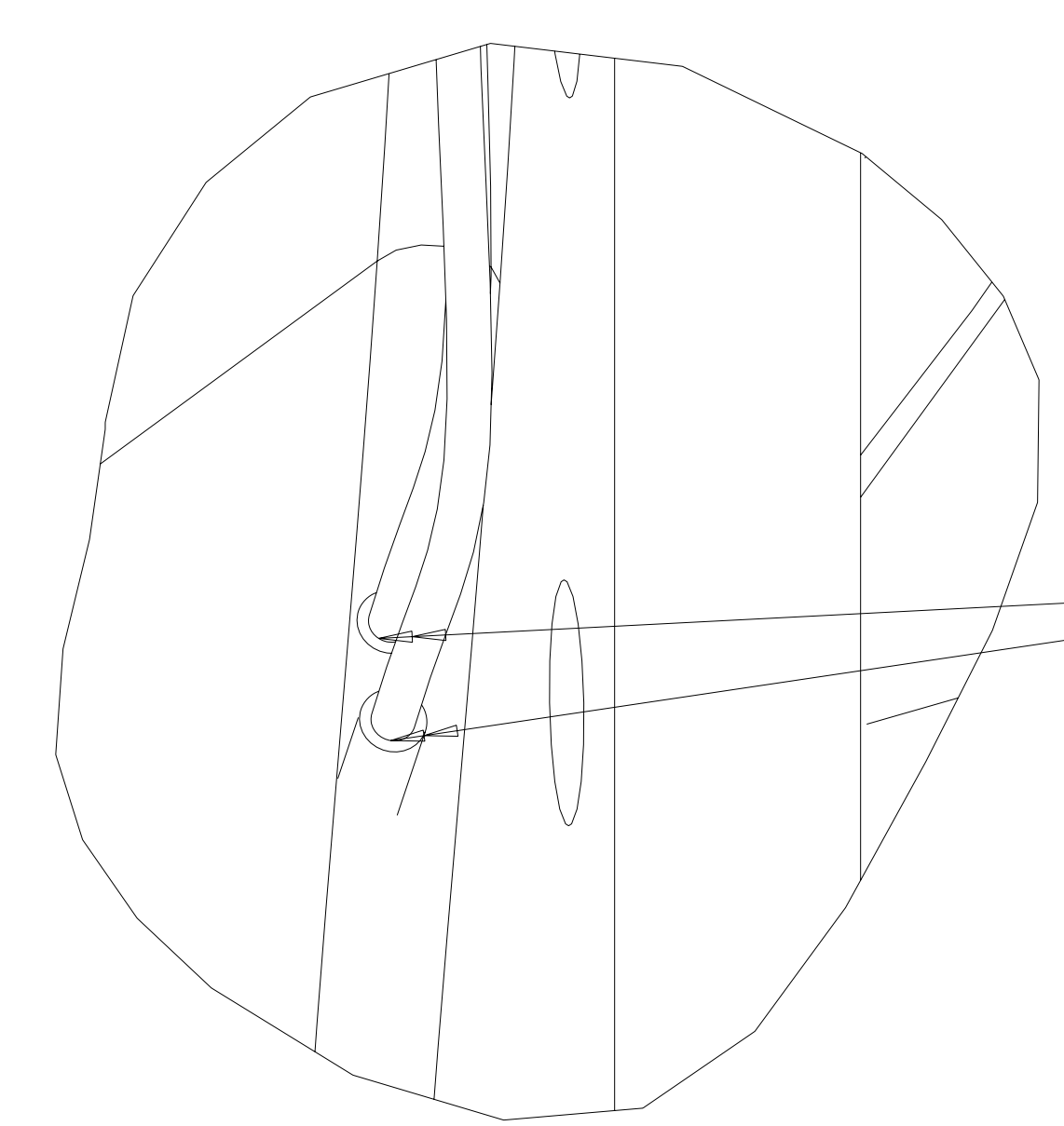
PARTIAL RIGHT VIEW
SCALE 0.250

TC-A13 & TC-A14 (ITEM 36) NOT SHOWN. TO BE LOCATED ON LEADS AND FIELD ROUTED AT ASSEMBLY



AUXILIARY VIEW
SCALE 0.250

- TC-A05
- TC-A06
- TC-A07
- TC-A08
- TC-A09
- TC-A10
- TC-A11
- TC-A12



DETAIL A
SCALE 1.000

THERMOCOUPLE CHART			
NO.	LABEL	LOCATION	LEAD LENGTH TO CRYOSTAT (IN)
1	TC-A01	INBOARD LOWER SUPPORT	218
2	TC-A02	INBOARD T/C HOLE	194
3	TC-A03	INBOARD T/C HOLE (DUPLICATE)	194
4	TC-A04	INBOARD UPPER SUPPORT	130
5	TC-A05	COOLING LINE OUTLET 1	74
6	TC-A06	COOLING LINE OUTLET 2	74
7	TC-A07	COOLING LINE OUTLET 3	74
8	TC-A08	COOLING LINE OUTLET 4	74
9	TC-A09	COOLING LINE OUTLET 5	74
10	TC-A10	COOLING LINE OUTLET 6	74
11	TC-A11	COOLING LINE OUTLET 7	74
12	TC-A12	COOLING LINE OUTLET 8	74
13	TC-A13	LEADS	120
14	TC-A14	LEADS	120

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 "A"
FULL COIL ASSEMBLY**

VERSION NO. 70	PLANT ORNL	BLDG 5700	FL 3	SHT OF 3	TYPE 3	CLASS S
RELEASE LEVEL WIP		SE140-101			REV 0	