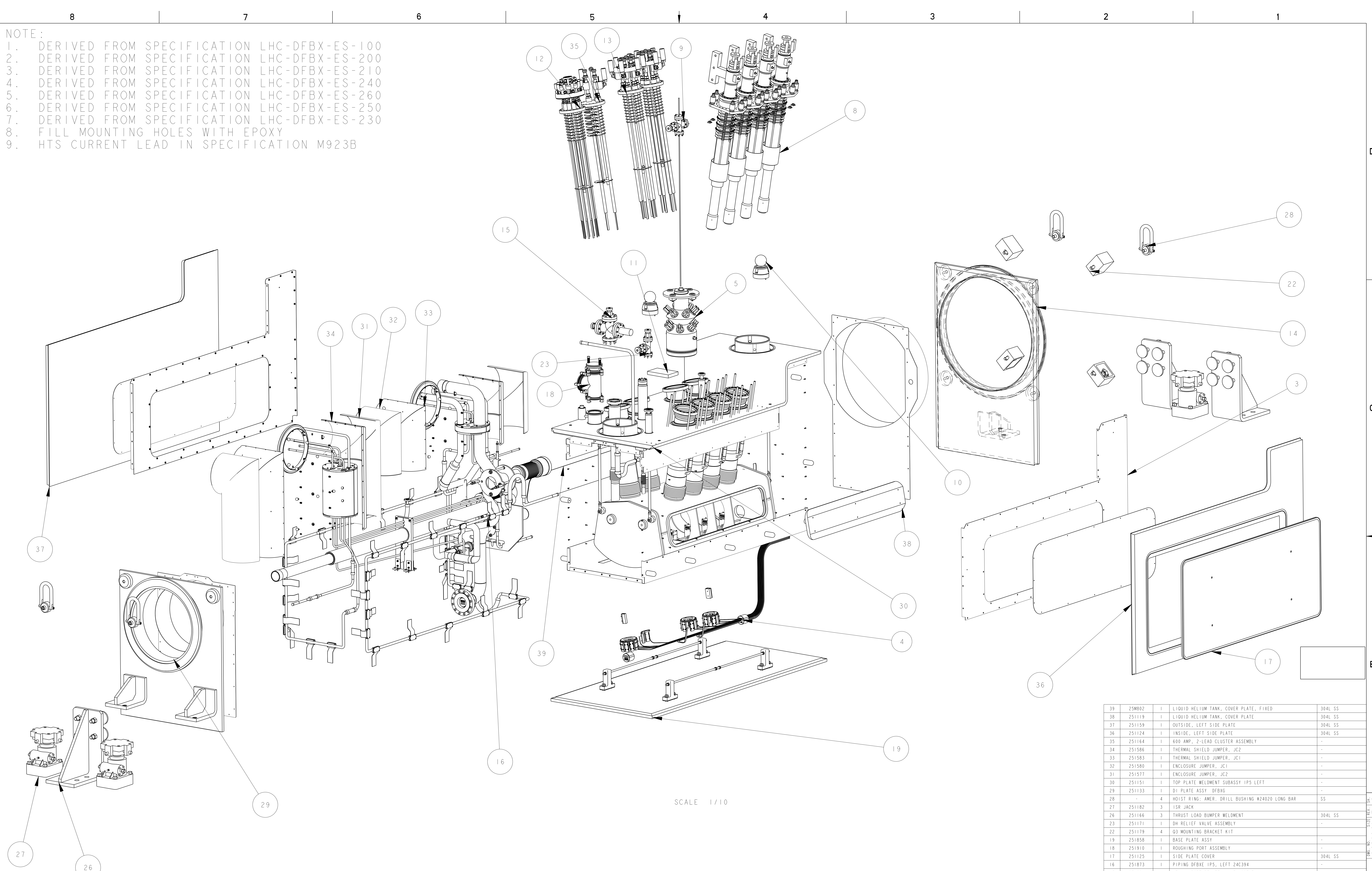


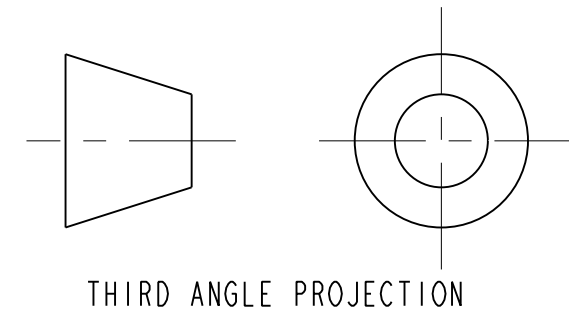
NOTE:

1. DERIVED FROM SPECIFICATION LHC-DFBX-ES-100
2. DERIVED FROM SPECIFICATION LHC-DFBX-ES-200
3. DERIVED FROM SPECIFICATION LHC-DFBX-ES-210
4. DERIVED FROM SPECIFICATION LHC-DFBX-ES-240
5. DERIVED FROM SPECIFICATION LHC-DFBX-ES-260
6. DERIVED FROM SPECIFICATION LHC-DFBX-ES-250
7. DERIVED FROM SPECIFICATION LHC-DFBX-ES-230
8. FILL MOUNTING HOLES WITH EPOXY
9. HTS CURRENT LEAD IN SPECIFICATION M923B



SCALE 1/10

11. SOLDER JOINT USING SN60PB40 SOLDER; ROSIN FLUX, USE SPLICE PLATE IF REQUIRED
12. CLOSEOUT WELD PROCEDURE TO BE APPROVED BY LBNL. DISTORTION CONTROL IS ESSENTIAL, ROOT PASS GTAW, COVER PASSES GMAW, SMAW, FCGMAW.
13. WELD PROCEDURE TO BE APPROVED BY LBNL, USE GTAW PROCESS
14. BELLOWS TO BE WITHIN 0.03" OF FREE CONFIGURATION AFTER CLOSEOUT WELDING
15. DIMENSIONS FROM DFBX FLANGE FACE ON DI SIDE, ADD -2367.2 MM TO OBTAIN POSITION RELEVANT TO DFBX COORDINATE SYSTEM
16. SHIM TANK SUPPORTS TO LIMIT STATIC DEFLECTION OF THE LOWER TANK SUPPORT RODS TO LESS THAN 0.25"
17. DIMENSIONS SHOW IN INSPECTION OVAL ARE REFERENCED IN THE FABRICATION TRAVELER
18. COPPER STRAP ATTACHED TO THE THERMAL ANCHORS DO NOT HAVE TO BE EVENLY SPACED.
19. ALL DIMENSIONS GIVEN AT ROOM TEMPERATURE



ITEM	PART NO.	REQD	DESCRIPTION	MATERIAL
39	25M802	1	LIQUID HELIUM TANK, COVER PLATE, FIXED	304L SS
38	25I119	1	LIQUID HELIUM TANK, COVER PLATE	304L SS
37	25I159	1	OUTSIDE, LEFT SIDE PLATE	304L SS
36	25I124	1	INSIDE, LEFT SIDE PLATE	304L SS
35	25I164	1	600 AMP, 2-LEAD CLUSTER ASSEMBLY	-
34	25I586	1	THERMAL SHIELD JUMPER, JC2	-
33	25I583	1	THERMAL SHIELD JUMPER, JC1	-
32	25I580	1	ENCLOSURE JUMPER, JC1	-
31	25I577	1	ENCLOSURE JUMPER, JC2	-
30	25I151	1	TOP PLATE WELDMENT SUBASSY IPS LEFT	-
29	25I133	1	D1 PLATE ASSY DFBXG	-
28	-	4	HOIST RING; AMER; DRILL BUSHING #24020 LONG BAR	SS
27	25I182	3	ISR JACK	-
26	25I166	3	THRUST LOAD BUMPER WELDMENT	304L SS
23	25I171	1	DM RELIEF VALVE ASSEMBLY	-
22	25I179	4	O3 MOUNTING BRACKET KIT	-
19	25I858	1	BASE PLATE ASSY	-
18	25I910	1	ROUGHING PORT ASSEMBLY	-
17	25I125	1	SIDE PLATE COVER	304L SS
16	25I873	1	PIPING DFBXG IPS, LEFT 24C394	-
15	25I339	1	HELIUM PORT RELIEF VALVE ASSEMBLY	-
14	25I129	1	O3 PLATE ASSY	-
13	24C353	2	600 AMP, 6 LEAD VAPOR COOLED ASSY	-
12	24C322	1	120 AMP VC LEAD MOUNTING ASSY	-
11	25M820	1	ALIGNMENT PLATE	-
10	25I868	2	TOOLING BALL, LHCG1M8A00092	-
9	25I162	1	LHE DIAGNOSTIC ASSY	-
8	25I156	6	PIRELLI HTS LEAD KIT	-
5	25I831	1	LOX DIAGNOSTIC ASSEMBLY	-
4	25I864	1	BUS DUCT ASSEMBLY	-
3	25I079	1	THERMAL SHIELD ASSY, DFBXG	-

UNLESS OTHERWISE SPECIFIED X.X ± 0.1 FRACTION ± 1/64 X.XX ± 0.03 ANGLES ± 1.0° X.XXX ± 0.010 FINISH 125 μm DO NOT SCALE PRINT THREAD END CLASS 1 CHAMFER ENDS OF ALL SCREW THREADS 30° CUT ROUNDS, 1.5 THREAD RELIEF ON MACHINED THREADS BREAK EDGES, 0.16 MAX. ON MACHINED WORK REMOVE BURRS, WELD SPATTER A LOOSE SCALE IN ACCORDANCE WITH ADP 114 SM 1 ENG 1		SHOP ORDERS DATE: 03-NOV-01 DATE: 03-OCT-02 DATE: 03-OCT-02	ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA BERKELEY LHC IR FEEDBOX MAJOR ASSEMBLY DFBXG (IPS, LEFT) FEED BOX ASSY DWG. TYPE: ASSEM SCALE: 1:3/100 SHEET 1 OF 11 24C3946 B
A JDRDPQ 12/2/02 INITIAL RELEASE A JDRDPQ 10/03/02 PRELIMINARY RELEASE REV DWG CHK ZONE DATE CHANGES	MICROFILMED: 03-NOV-01 DESIGN ACCT. NO: ZSLCE2 CATEGORY CODE: LH2001	SHEET 1 OF 11 24C3946 B	DO NOT SCALE PRINTS SIZE: REV:

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D

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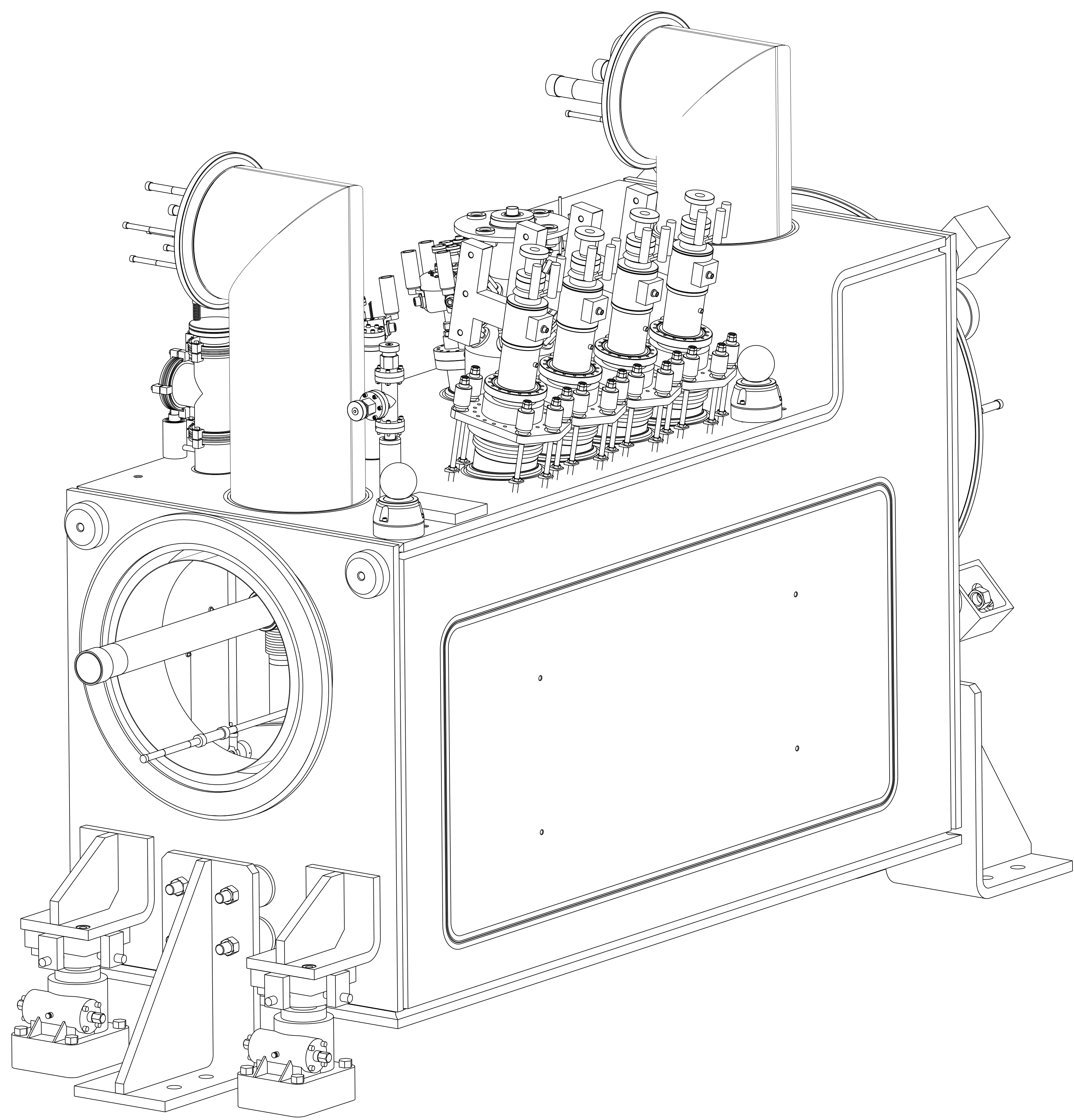
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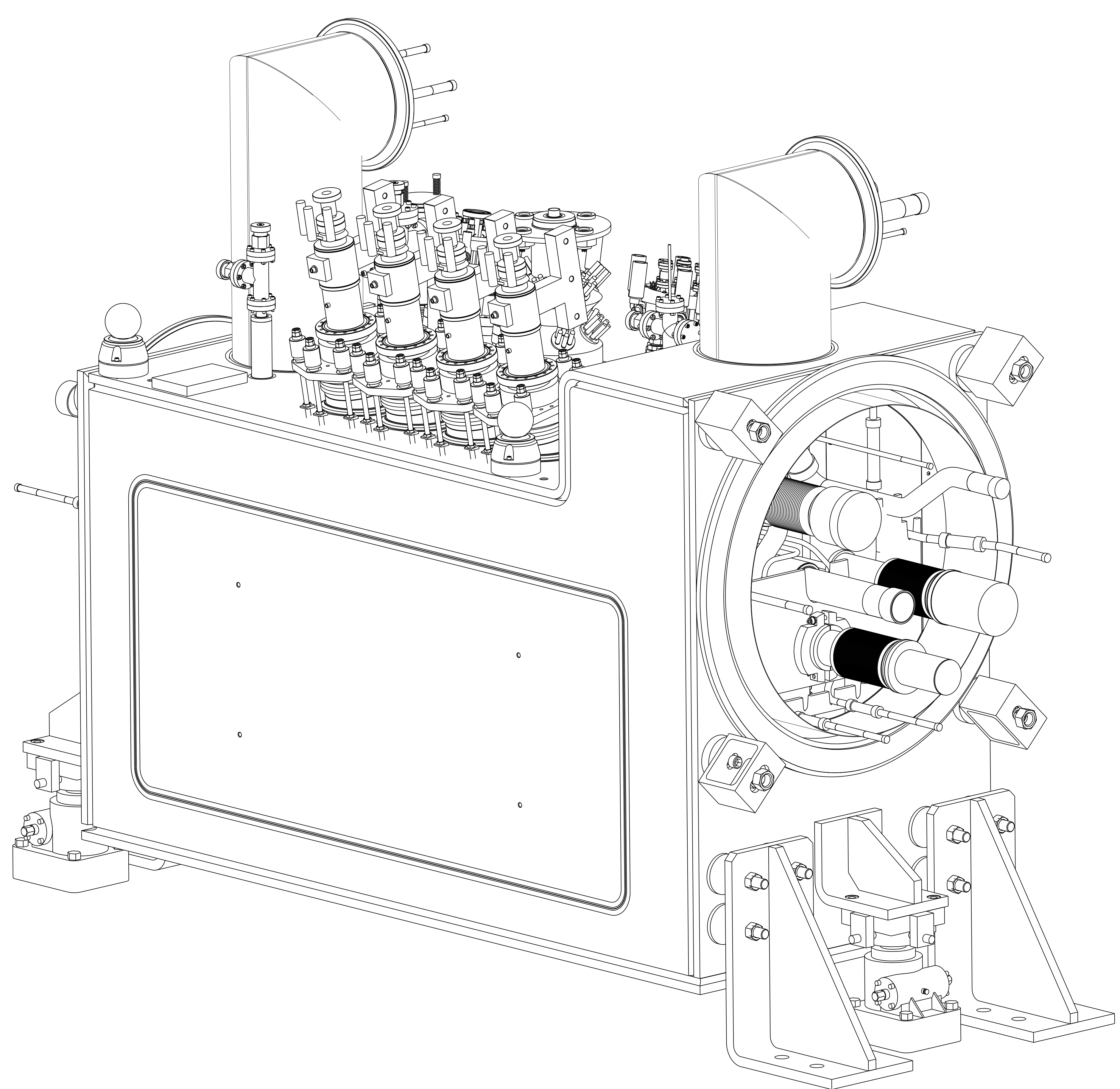
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D1 END



Q3 END

DFBXE, IP5 (LEFT)

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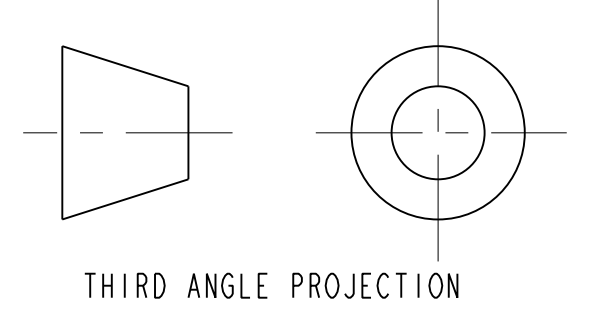
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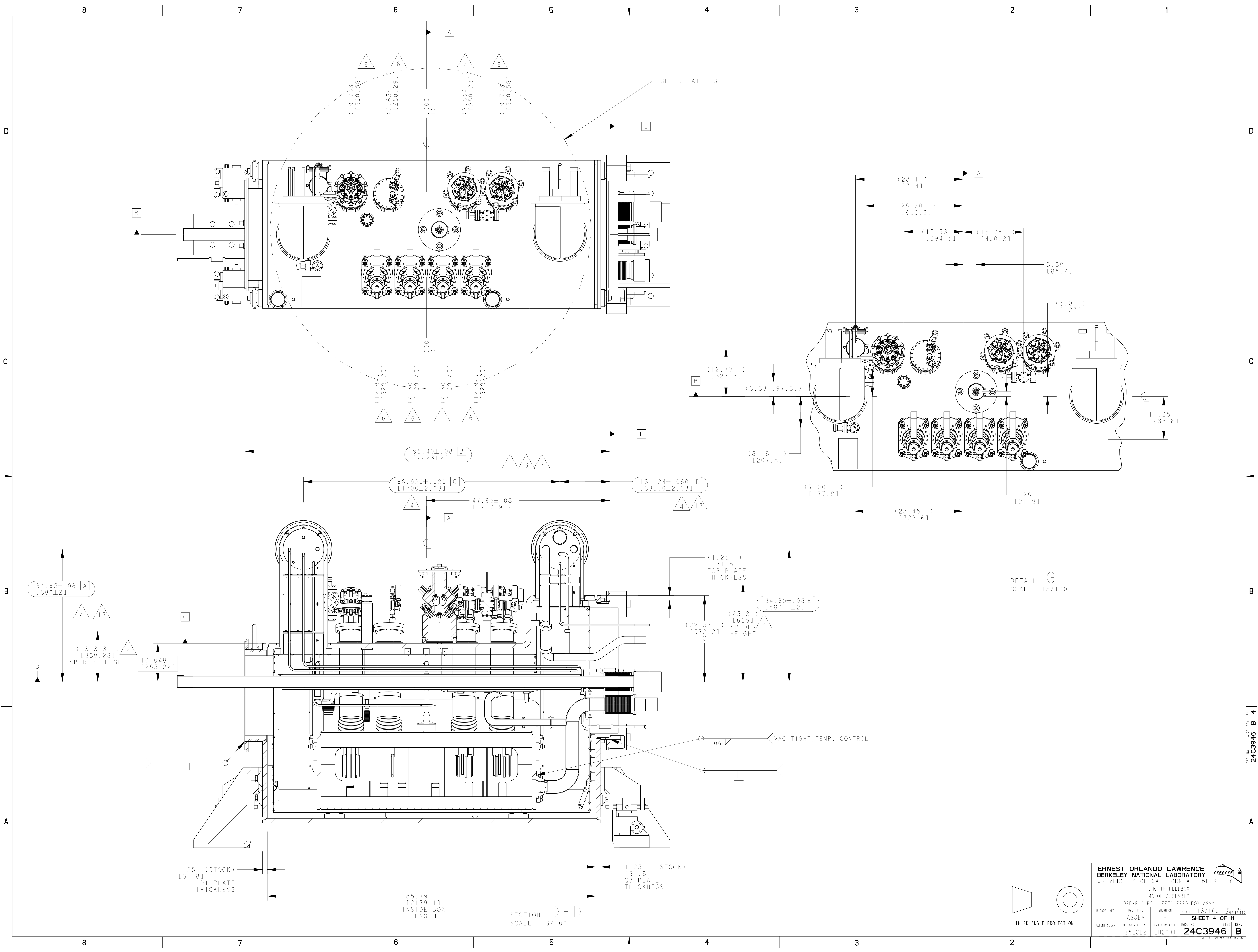
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THIRD ANGLE PROJECTION

ERNEST ORLANDO LAWRENCE UNIVERSITY OF CALIFORNIA - BERKELEY					
LHC IR FEEDBOX MAJOR ASSEMBLY					
DFBXE (LPS, LEFT) FEED BOX ASSY					
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE:	DO NOT SCALE PRINTS	
	ASSEM		9/50	SHEET 2 OF 11	
PATENT CLEAR:	DESIGN ACCT. NO:	CATEGORY CODE:	DWG. NO.:	SIZE:	REV.
	ZSLCE2	LH2001	24C3946	B	

DWG. NO. 24C3946 B 2

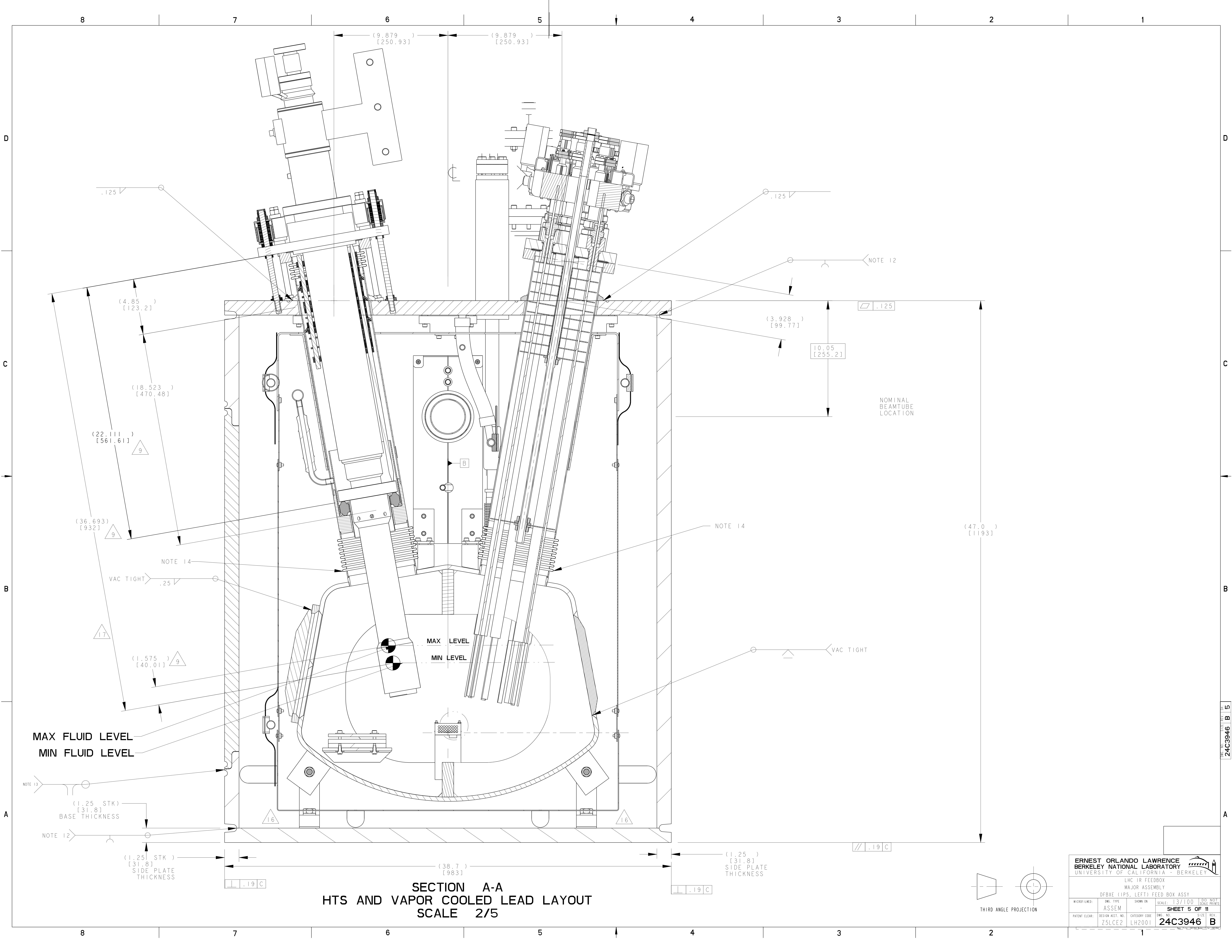


ERNEST ORLANDO LAWRENCE
 UNIVERSITY OF CALIFORNIA - BERKELEY

LHC IR FEEDBOX
 MAJOR ASSEMBLY
 DFBXE (LPS, LEFT) FEED BOX ASSY

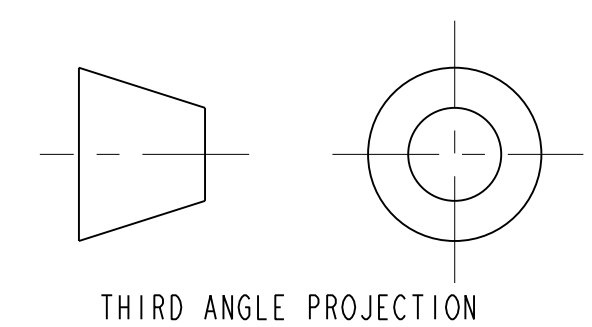
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE:	DO NOT SCALE PRINTS
	ASSEM		13/100	
PATENT CLEAR:	DESIGN ACCT. NO:	CATEGORY CODE:	DWG. NO.:	SHEET REV.
	ZSLCE2	LH2001	24C3946	4 OF 11

24C3946 B

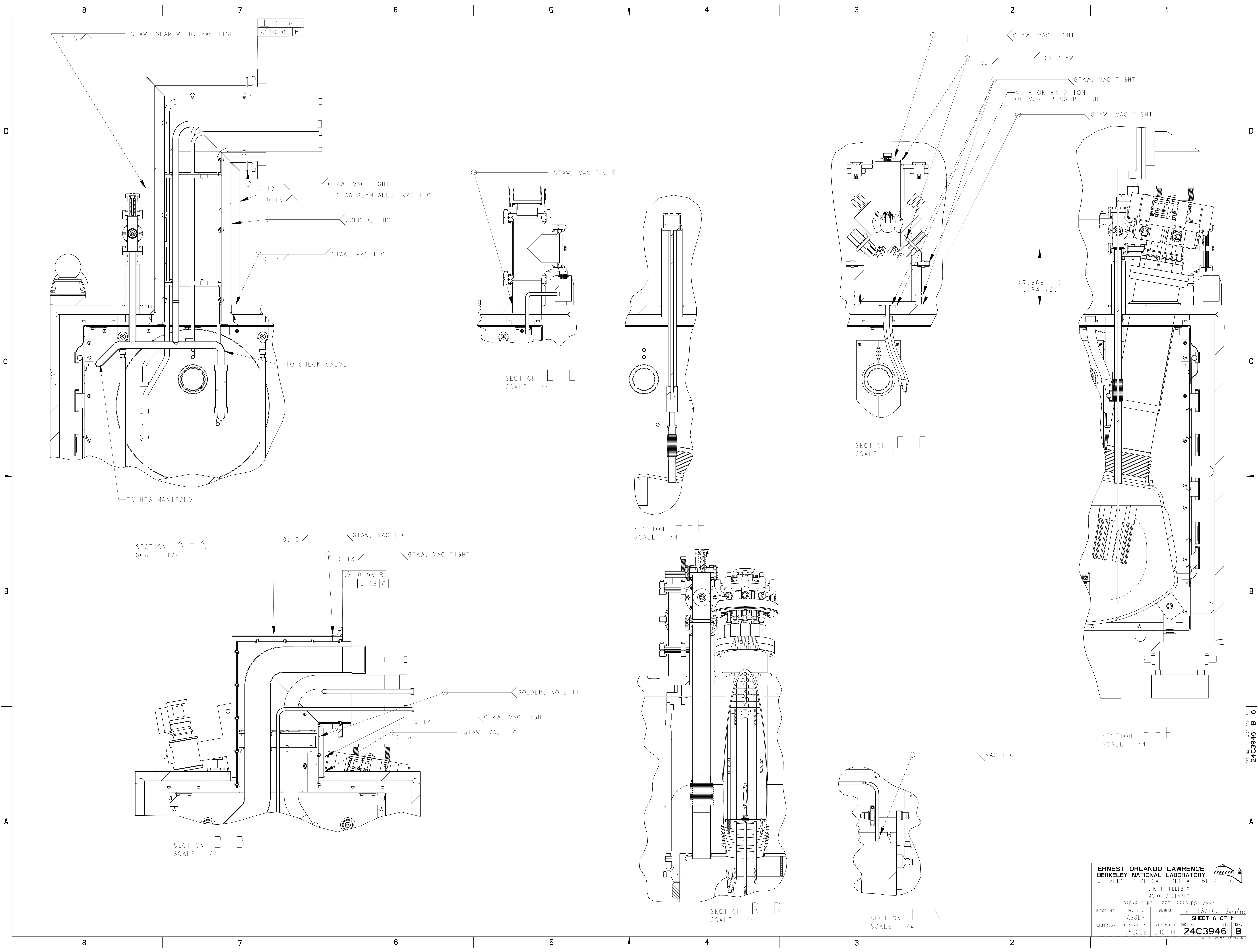


SECTION A-A
HTS AND VAPOR COOLED LEAD LAYOUT
SCALE 2/5

ERNEST ORLANDO LAWRENCE UNIVERSITY OF CALIFORNIA - BERKELEY			
LHC IR FEEDBOX MAJOR ASSEMBLY DFBXE (IPS, LEFT) FEED BOX ASSY			
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE: 13/100
	ASSEM		
SHEET 5 OF 11			DO NOT SCALE PRINTS
PATENT CLEAR:	DESIGN ACCT. NO:	CATEGORY CODE:	DWG. NO. REV.
	ZSLCE2	LH2001	24C3946 B



DWG. NO. 24C3946 B 5



SECTION K-K
SCALE 1/4

SECTION L-L
SCALE 1/4

SECTION F-F
SCALE 1/4

SECTION B-B
SCALE 1/4

SECTION H-H
SCALE 1/4

SECTION E-E
SCALE 1/4

SECTION R-R
SCALE 1/4

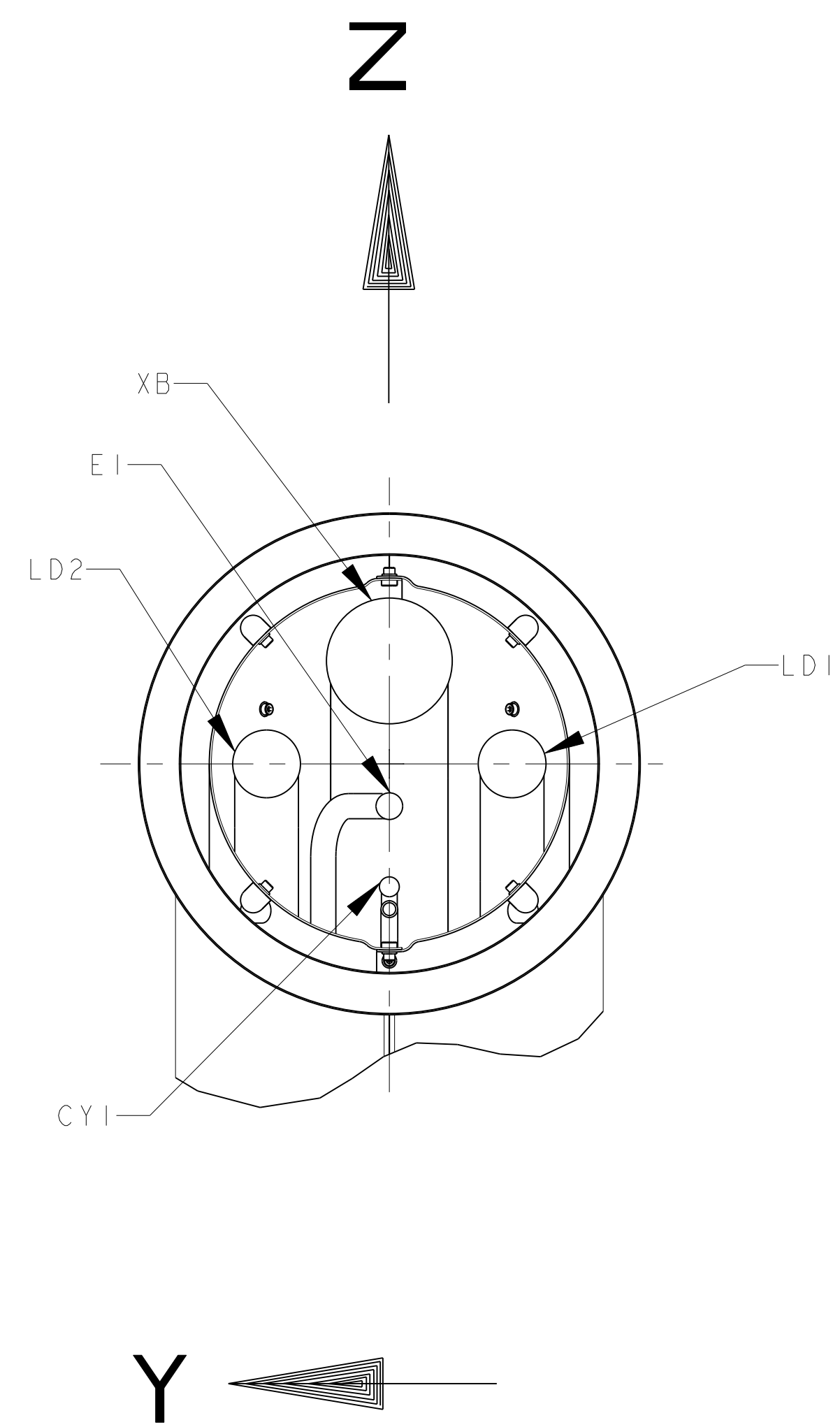
SECTION N-N
SCALE 1/4

(7.666)
(194.721)

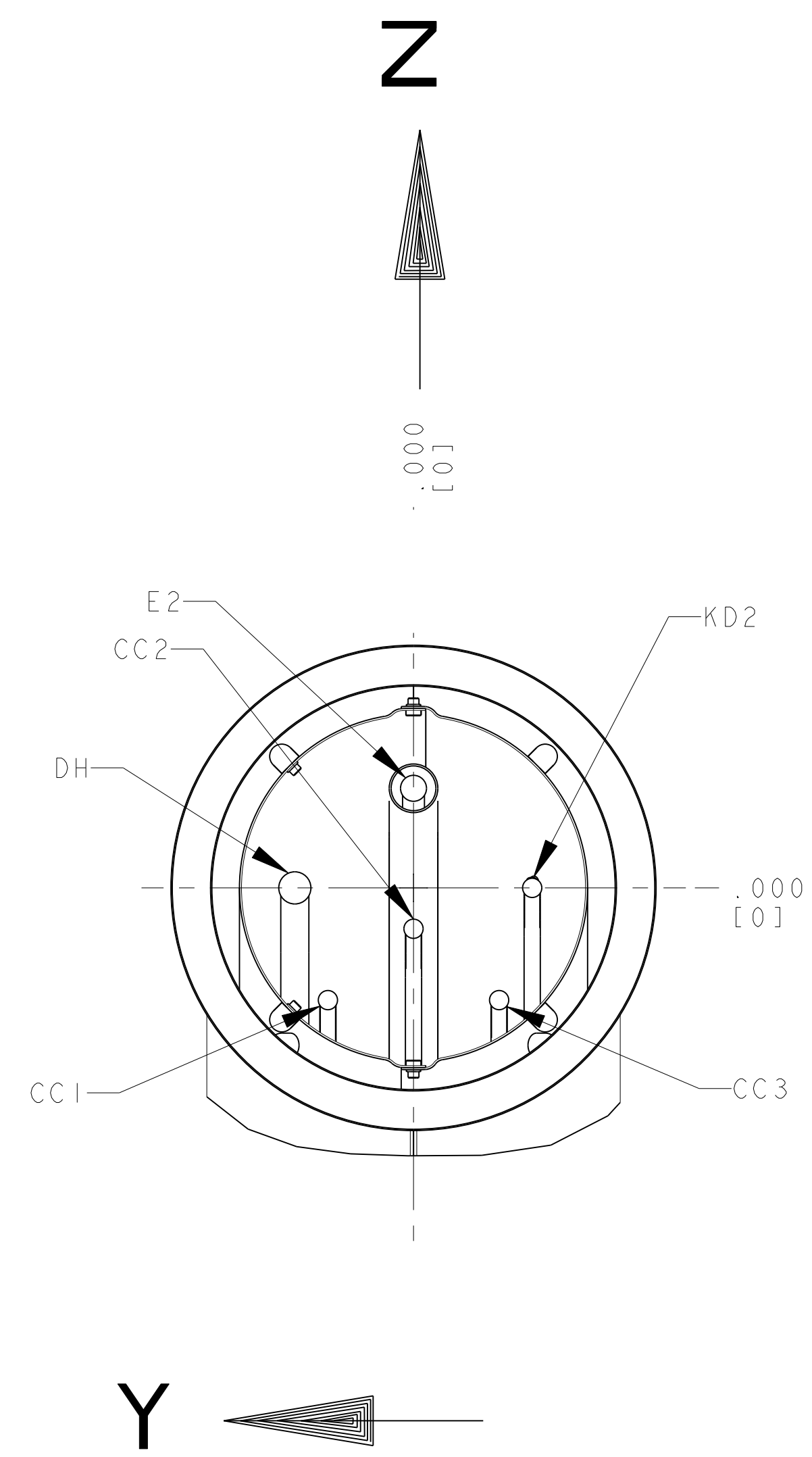
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY			
LHC IR FEEDBOX MAJOR ASSEMBLY DF8XE (LPS, LEFT) FEED BOX ASSY			
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE: 13/100
	ASSEM		
PATENT CLEAR:	DESIGN ACCT. NO:	CATEGORY CODE:	DWG. NO.:
	ZSLCE2	LH2001	24C3946
			SHEET 6 OF 11

24C3946 B 6

8 7 6 5 4 3 2 1



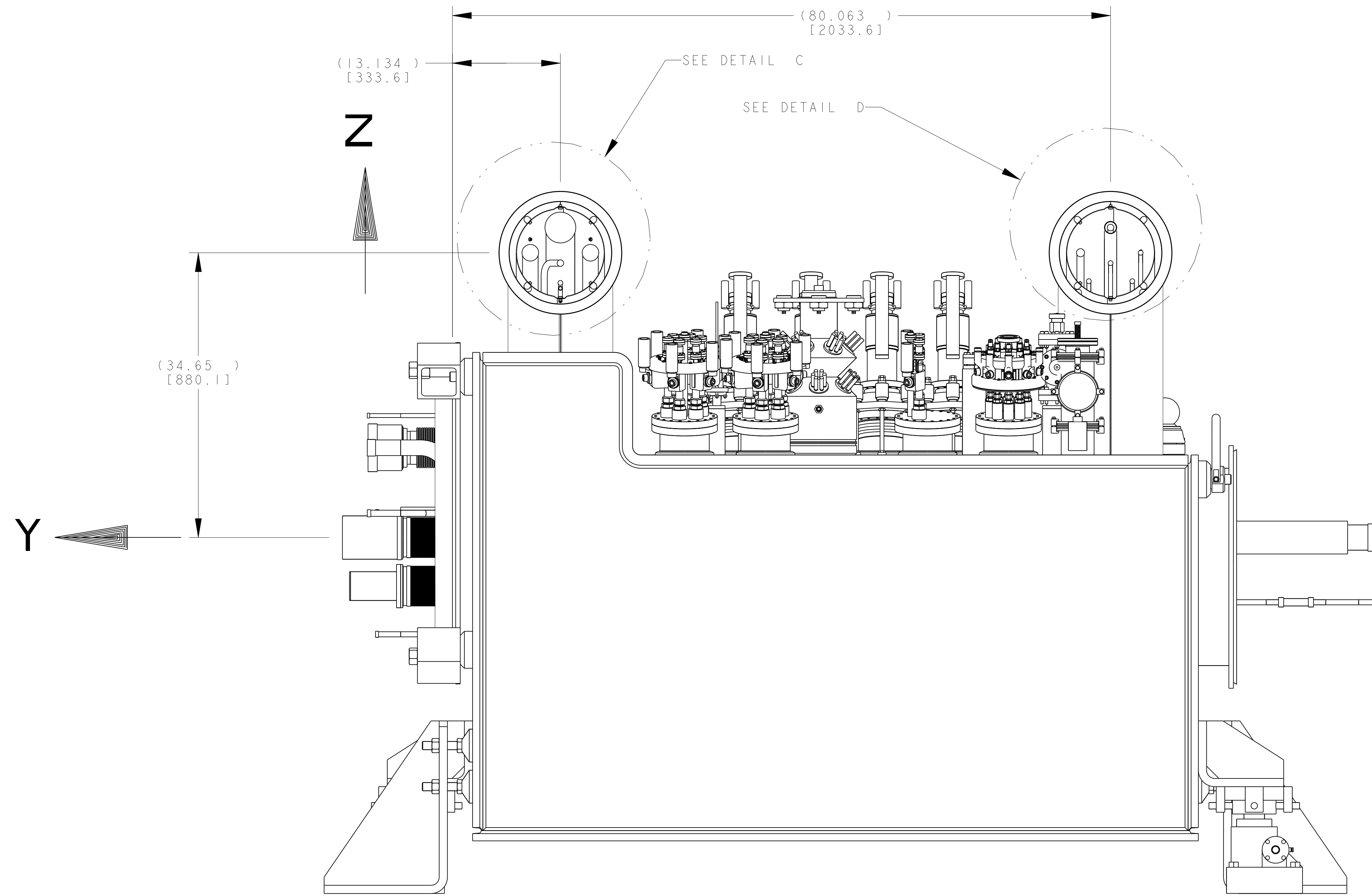
PIPE	X	DIM'S MEASURED FROM FLANGE CENTER	
		Y ±0.08	Z ±0.08
XB	-14.45±.08 [367±2]	0	3.07 [78]
LD2	-14.45±.08 [367±2]	3.66 [93]	0
LD1	-14.45±.08 [367±2]	-3.66 [93]	0
E1	-14.45±.08 [367±2]	0	-1.26 [32]
CY1	-14.45±.08 [367±2]	0	-4.33 [110]



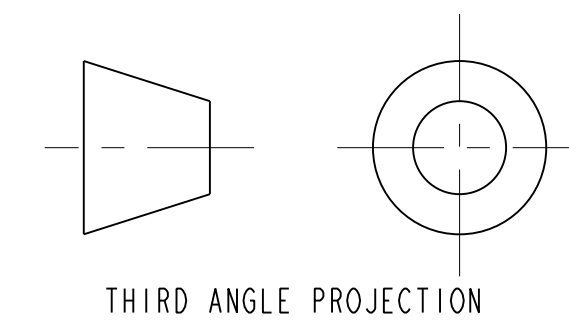
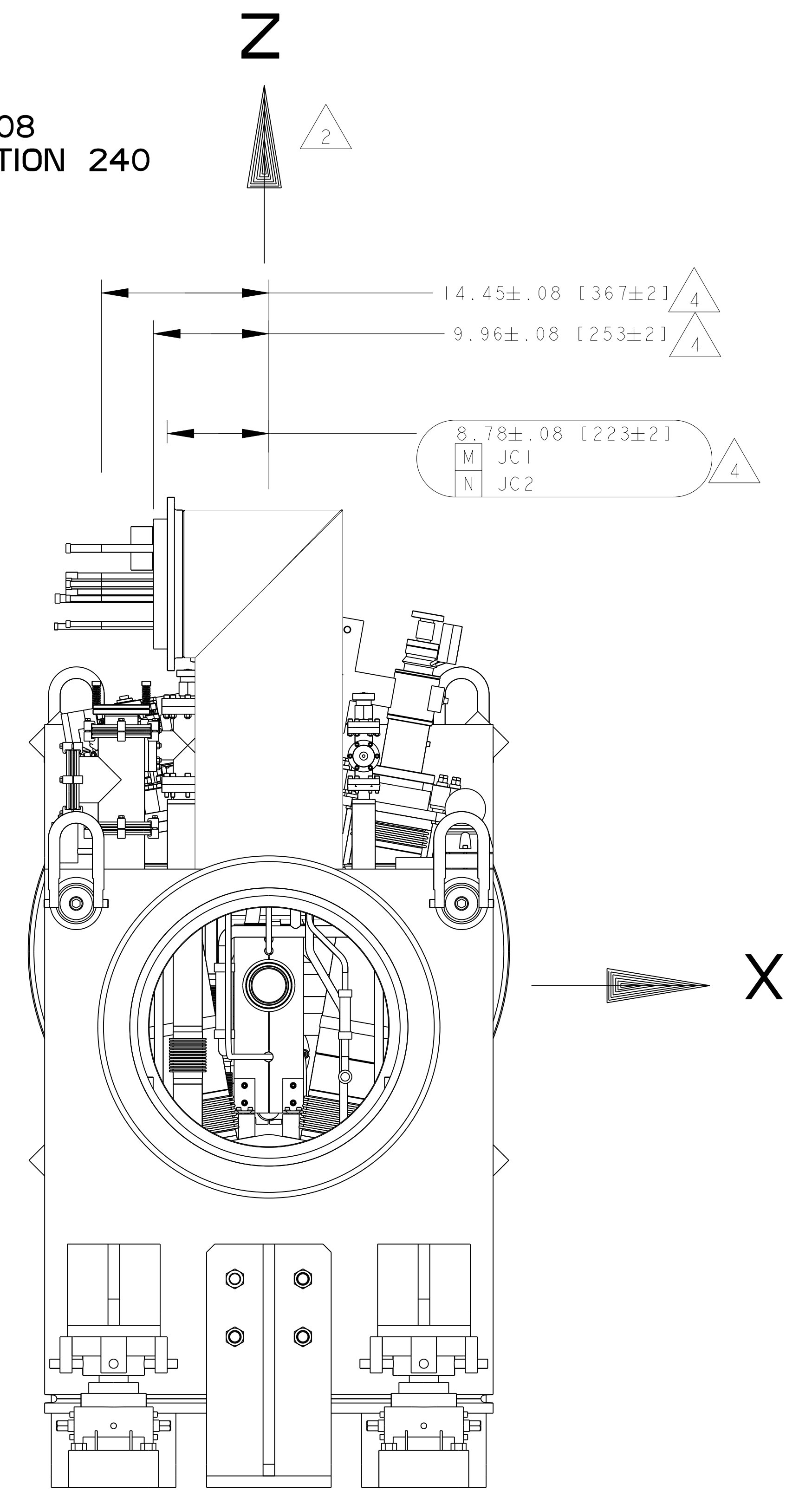
PIPE	X	DIM'S MEASURED FROM FLANGE CENTER	
		Y ±0.08	Z ±0.08
E2	-14.45±.08 [367±2]	0	3.07 [78]
DH	-14.45±.08 [367±2]	3.66 [93]	0
KD2	-11.85±.08 [301±2]	-3.66 [93]	0
CC2	-14.45±.08 [367±2]	0	-1.26 [32]
CC1	-14.45±.08 [367±2]	2.64 [67]	-3.46 [88]
CC3	-14.45±.08 [367±2]	-2.64 [67]	-3.46 [88]
CY2	-14.45±.08 [367±2]	0	-4.33 [110]

DETAIL C
JC1 / QQSC
DIMENSIONAL TOLERANCE ± 0.08
ORIENTATION OPPOSITE OF SPECIFICATION 240
SCALE 1/4

DETAIL D
JC2 / QQSD
DIMENSIONAL TOLERANCE ± 0.08
ORIENTATION OPPOSITE OF SPECIFICATION 240
SCALE 1/4



VIEW M - M
ROTATED 180°



THIRD ANGLE PROJECTION

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

LHC IR FEEDBOX
MAJOR ASSEMBLY
DFBXE (IPS, LEFT) FEED BOX ASSY

MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE:	DO NOT SCALE PRINTS
	ASSEM		13/100	
PATENT CLEAR:	DESIGN ACCT. NO:	CATEGORY CODE:	DWG. NO.:	REV.
	ZSLCE2	LH2001	24C3946	B

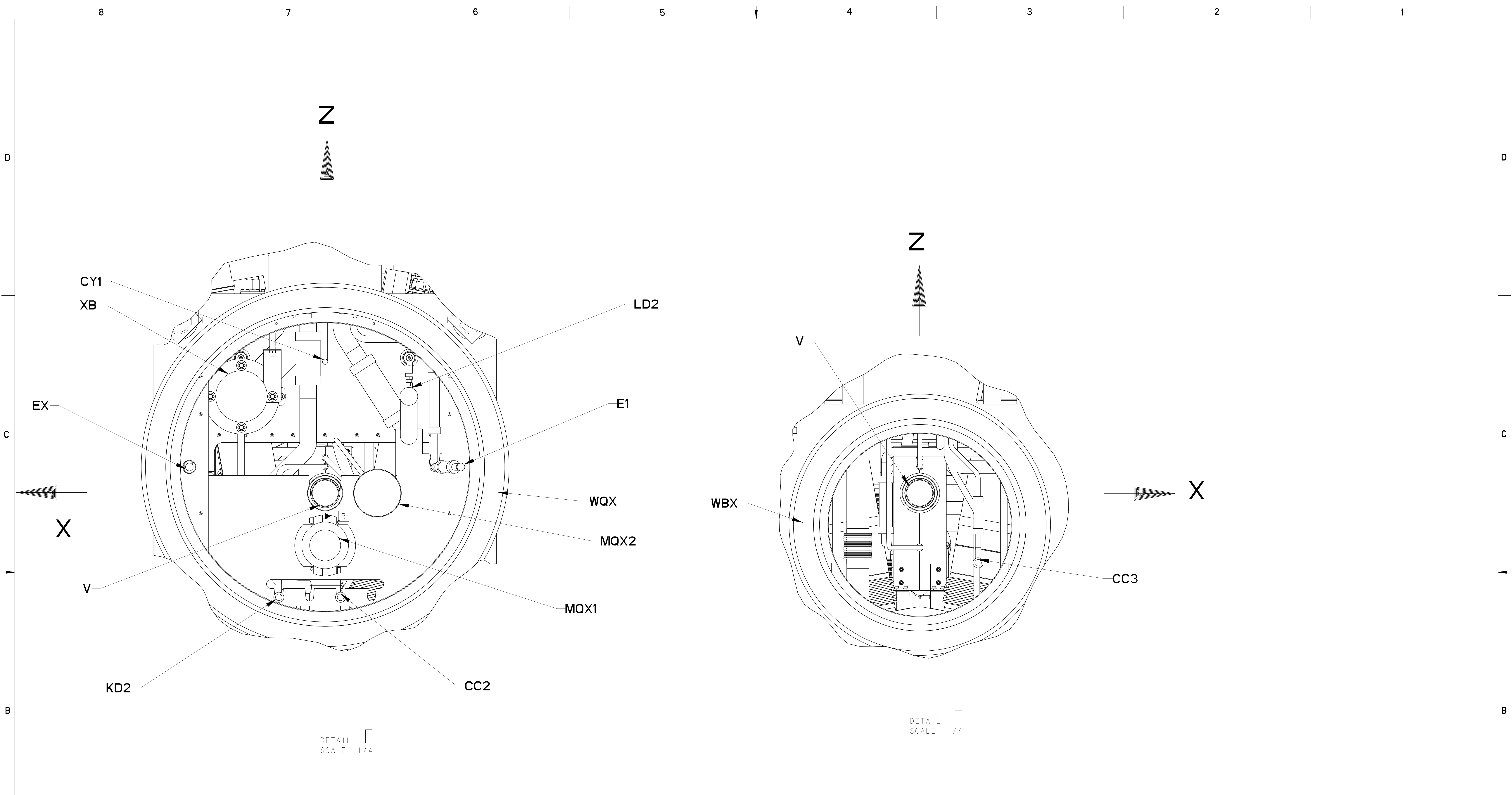
SHEET 7 OF 11

8 7 6 5 4 3 2 1

D
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B
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24C3946 B 7



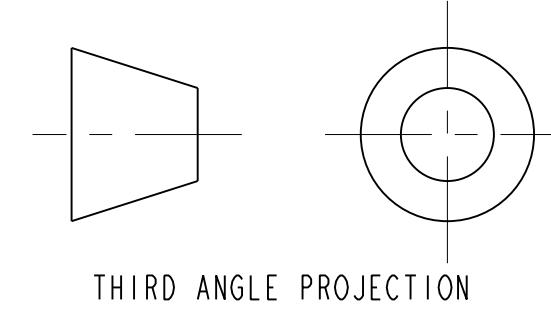
Q3 PIPING INTERFACE
PER SPEC. LHC-DFBX-ES-210.00 REV. 10

DFBX	PIPE OD/ID		PIPE COORDINATES AT 300 K		
	OD in [mm]	ID in [mm]	X in [mm] ±.08	Z in [mm] ±.08	Y in [mm] ±.08
V	3.071 [78]	2.913 [73.99]	.000 [0]	.000 [0]	2.032 [51.61]
LD2	1.748 [44.4]	1.650 [41.91]	-9.449 [-240]	10.925 [277.5]	6.299 [159.99]
KD2	.626 [15.9]	.528 [13.41]	5.232 [132.89]	-11.772 [-299.01]	6.299 [159.99]
CC2	.626 [15.9]	.528 [13.41]	-1.744 [-44.3]	-11.772 [-299.01]	6.299 [159.99]
CY1	.626 [15.9]	.528 [13.41]	.000 [0]	14.839 [376.91]	6.299 [159.99]
E1	1.500 [38.1]	1.370 [34.8]	-15.339 [-389.61]	2.953 [75.01]	6.299 [159.99]
EX	1.500 [38.1]	1.370 [34.8]	15.339 [389.61]	2.953 [75.01]	6.299 [159.99]
MQX1	3.500 [88.9]	3.370 [85.6]	.000 [0]	-5.906 [-150.01]	6.299 [159.99]
MQX2	3.500 [88.9]	3.370 [85.6]	-5.906 [-150.01]	.000 [0]	6.299 [159.99]
WQX	41.535 [1059]	35.039 [890]	.000 [0]	2.953 [75.01]	.000 [0]
XB	3.500 [88.9]	3.370 [85.6]	9.449 [240]	10.925 [277.5]	6.299 [159.99]

D1 PIPING INTERFACE
PER SPEC. LHC-DFBX-ES-230.00 REV. 11

DFBX	PIPE OD/ID		PIPE COORDINATES AT 300 K		
	OD in [mm]	ID in [mm]	X in [mm] ±.08	Z in [mm] ±.08	Y in [mm] ±.08
V	3.06 [77.7]	2.91 [73.9]	.000 [0]	.000 [0]	-13.504 [-343]
CC3	.63 [16]	.53 [13.5]	6.583 [167.21]	-7.874 [-200]	-14.843 [-377.01]
WBX	29.53 [750.1]	23.50 [596.9]	.000 [0]	-3.528 [-89.61]	.000 [0]

15



ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

LHC IR FEEDBOX
MAJOR ASSEMBLY
DFBXE (IPS, LEFT) FEED BOX ASSY

MICROFILMED: DWG. TYPE: ASSEM SHOWN ON: SCALE: 1/3/100 DO NOT SCALE PRINTS

PATENT CLEAR: DESIGN ACCT. NO: ZSLCE2 CATEGORY CODE: LH2001 DWG. NO: 24C3946 SHEET 8 OF 11

24C3946 B 8

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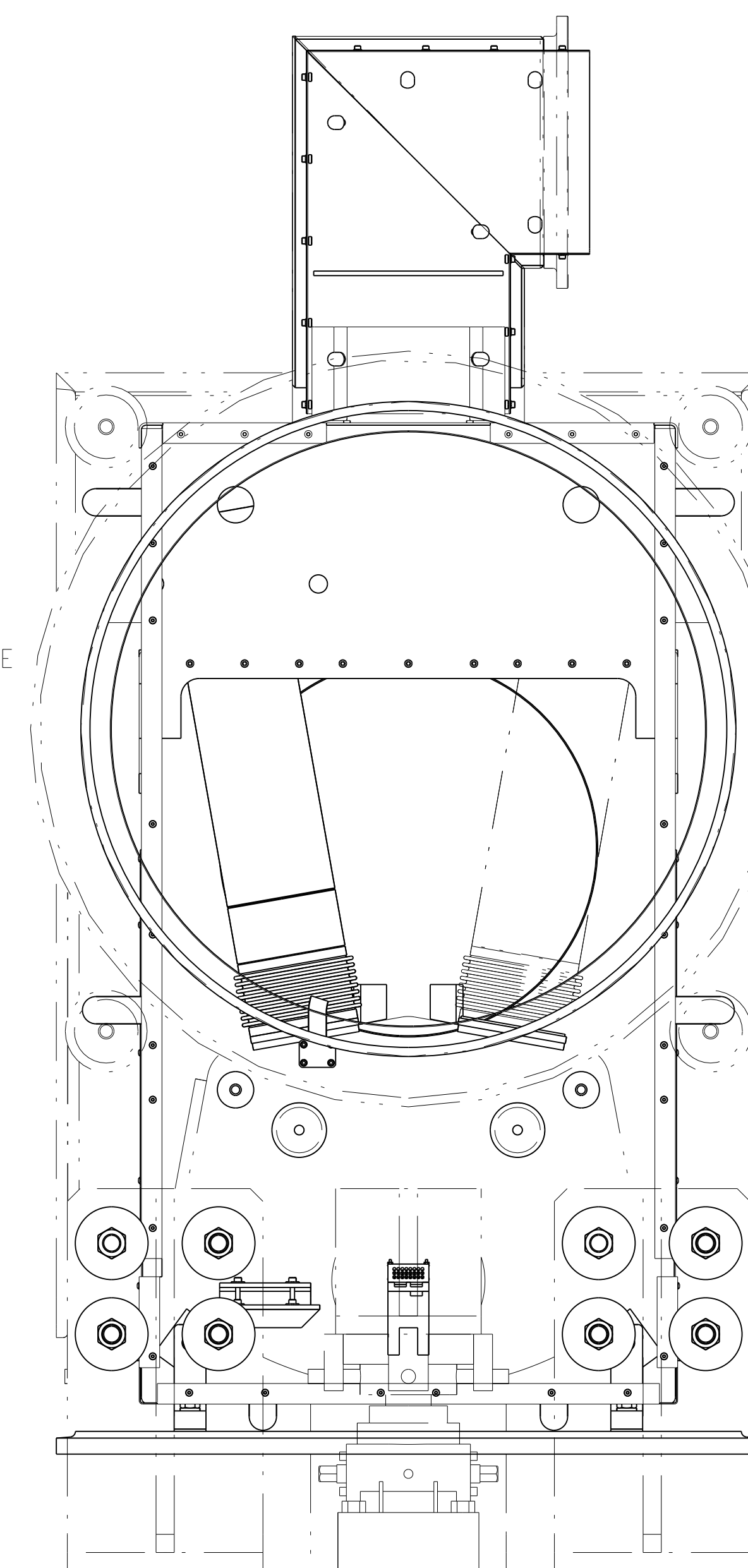
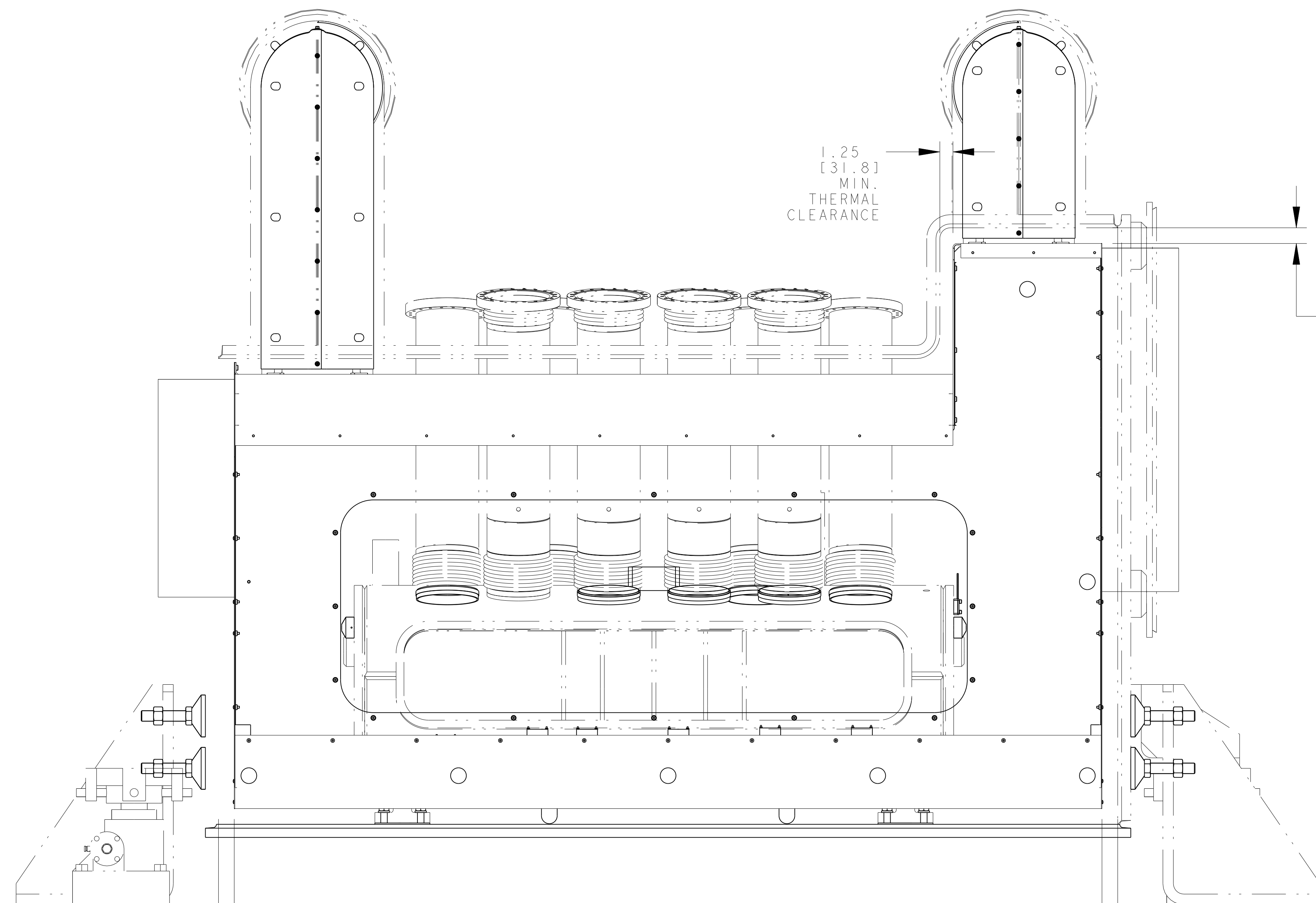
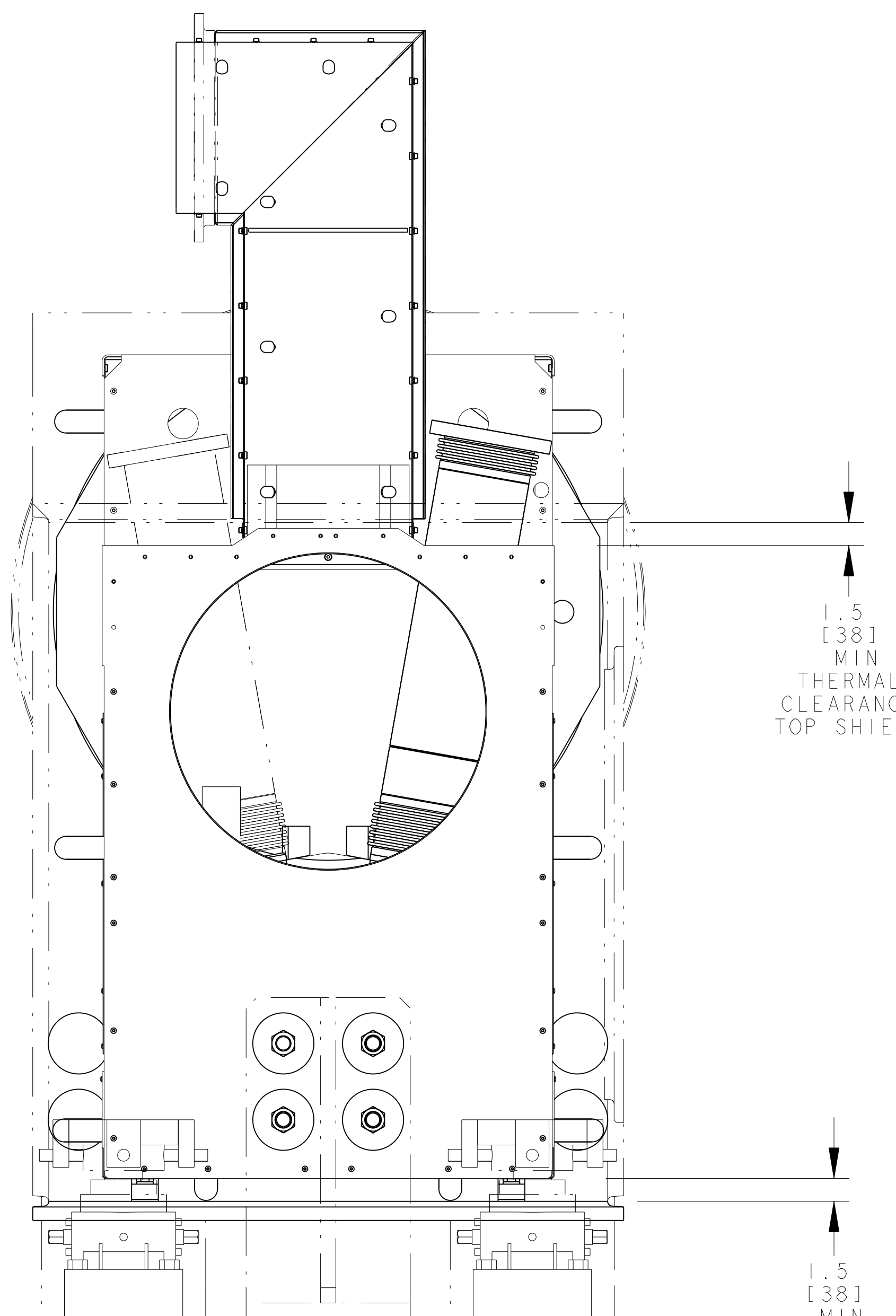
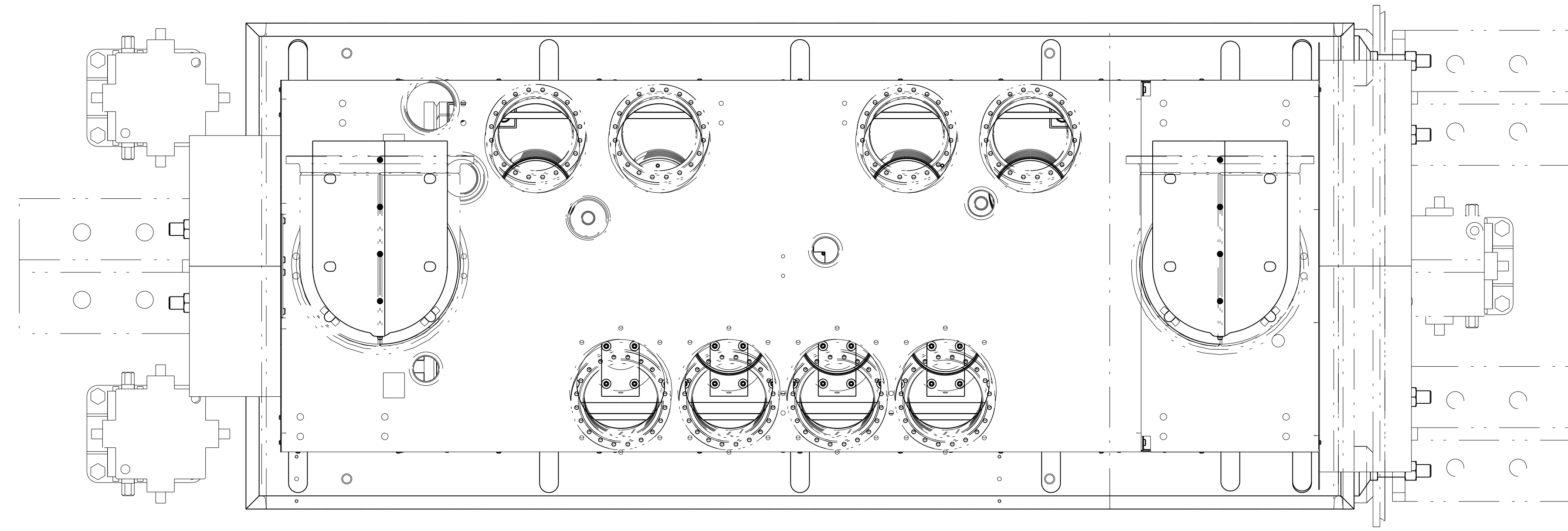
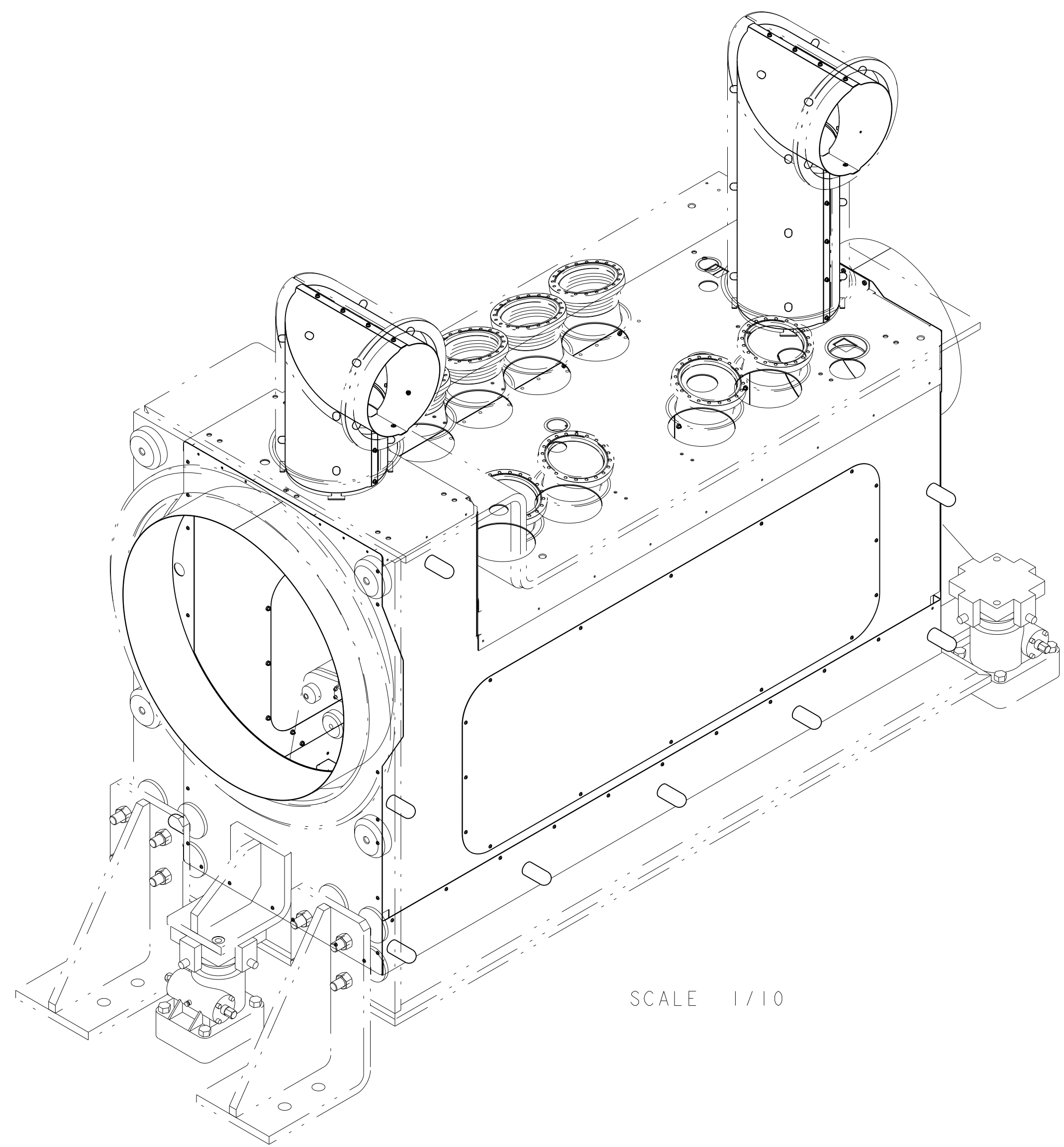
C

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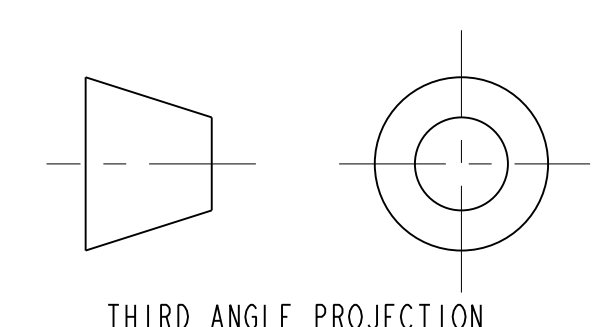
B

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THERMAL SHIELD LAYOUT
COMPONENTS REMOVED FOR CLARITY
SCALE 3/20



ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY				UNIVERSITY OF CALIFORNIA BERKELEY	
LHC IR FEEDBOX MAJOR ASSEMBLY DFBXE (LPS, LEFT) FEED BOX ASSY					
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE:	13/100	DO NOT SCALE PRINTS
	ASSEM				
PATENT CLEAR:			DESIGN ACCT. NO:	CATEGORY CODE:	DWG. NO:
			ZSLCE2	LH2001	24C3946
				SHEET 9 OF 11	REV. B

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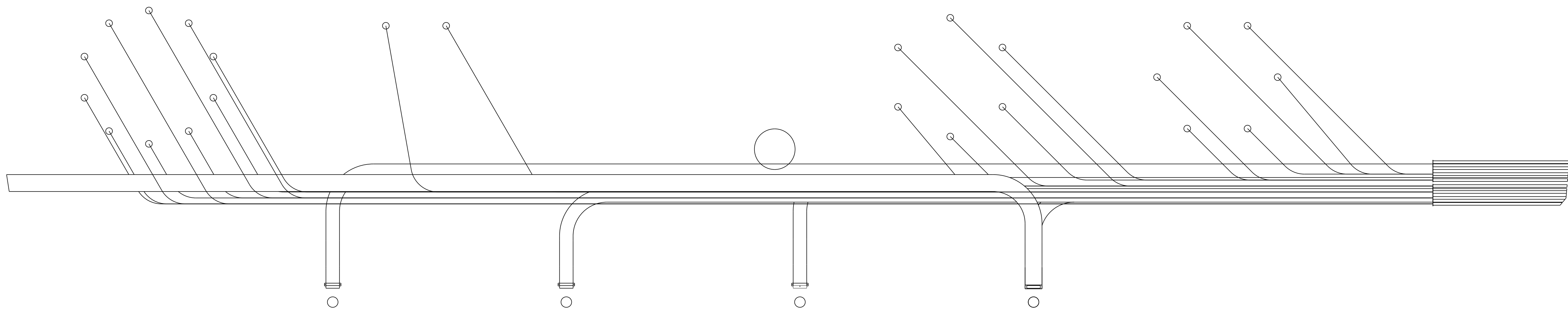
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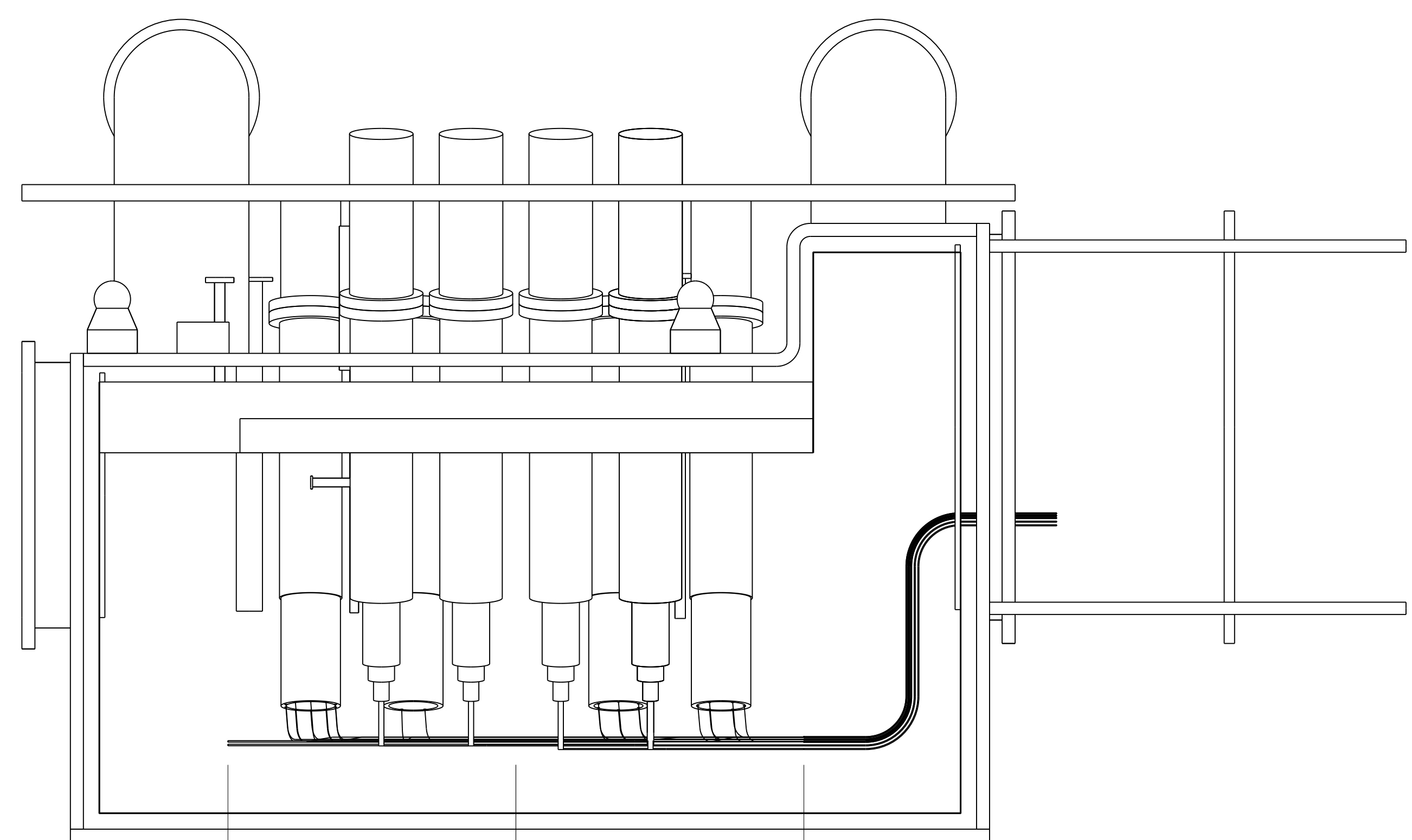
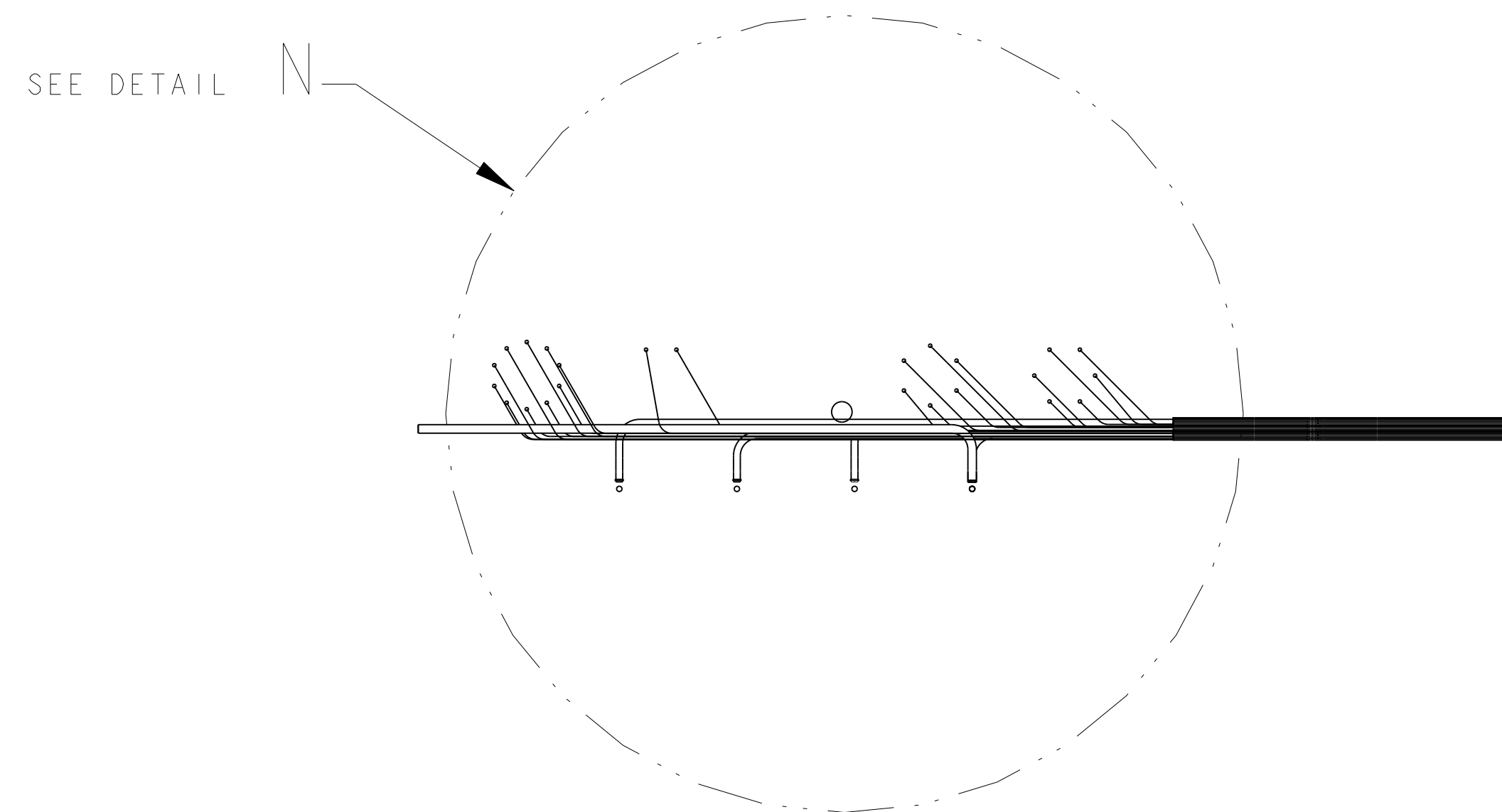
24C3946 B 9

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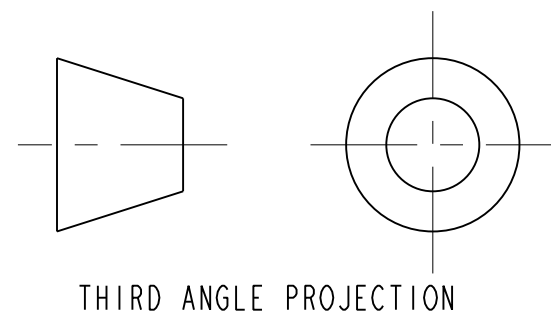
BUS CONDUCTOR RUNS

DETAIL N
SCALE 1/2



27.660 [702.56] 27.660 [702.56]

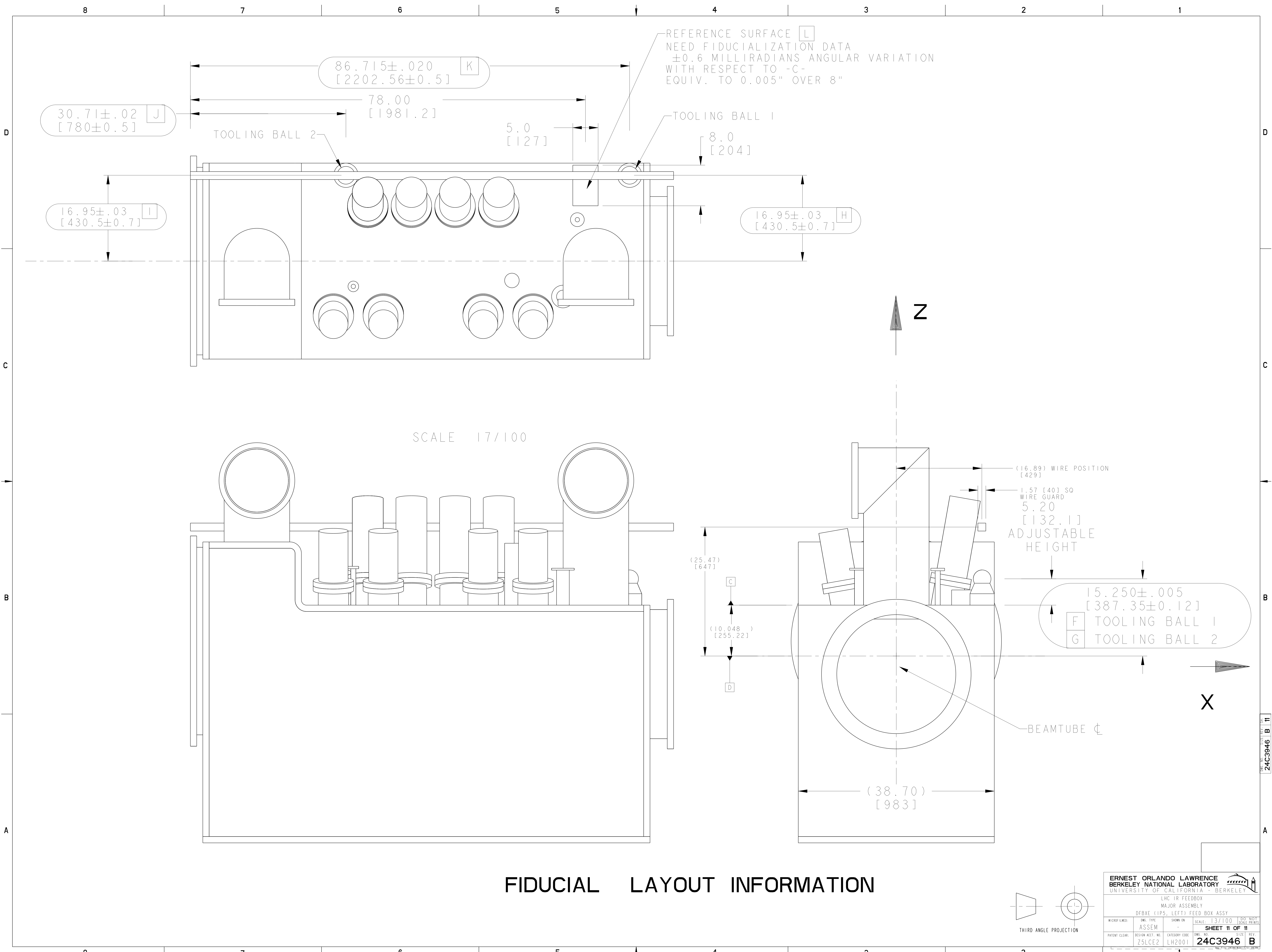
SCALE 1/10



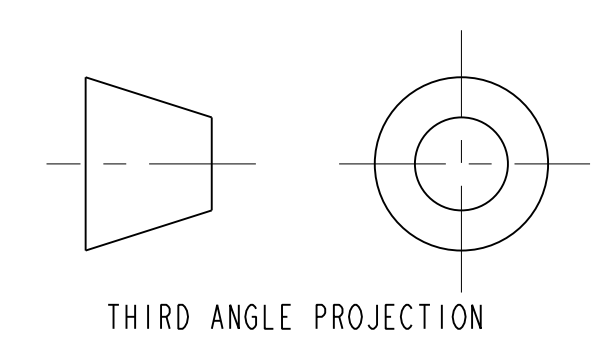
ERNEST ORLANDO LAWRENCE UNIVERSITY OF CALIFORNIA - BERKELEY			
LHC IR FEEDBOX MAJOR ASSEMBLY DFBXE (LPS, LEFT) FEED BOX ASSY			
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE: 13/100
	ASSEM	-	DO NOT SCALE PRINTS
PATENT CLEAR:			SHEET 10 OF 11
DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE: REV.
ZSLCE2	LH2001	24C3946	B

8 7 6 5 4 3 2 1

24C3946 B 10



FIDUCIAL LAYOUT INFORMATION



ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY				
LHC IR FEEDBOX MAJOR ASSEMBLY DFBXE (LPS, LEFT) FEED BOX ASSY				
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE:	DO NOT SCALE PRINTS
	ASSEM		13/100	
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE:	DWG. NO.	REV.
	ZSLCE2	LH2001	24C3946	B