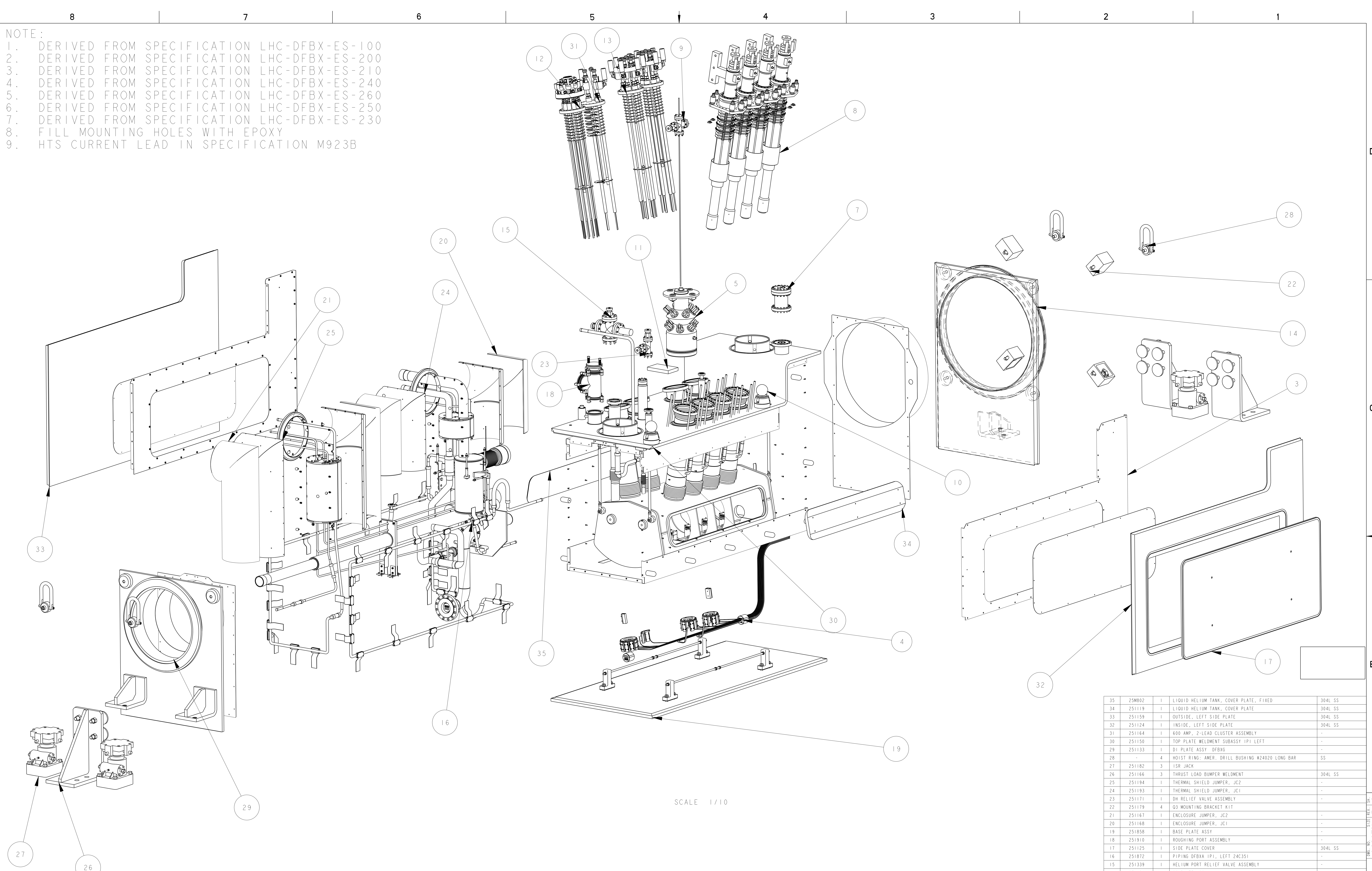


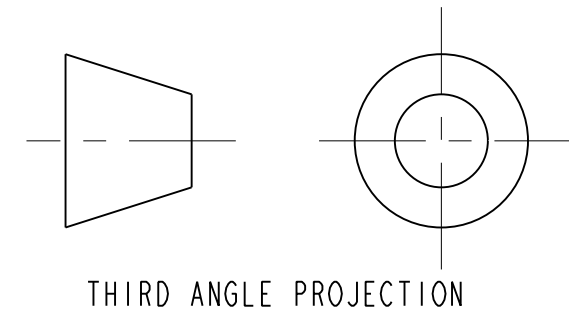
NOTE:

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.	QTY	DESCRIPTION	MATERIAL
35	25M802	1	LIQUID HELIUM TANK, COVER PLATE, FIXED	304L SS
34	25I119	1	LIQUID HELIUM TANK, COVER PLATE	304L SS
33	25I159	1	OUTSIDE, LEFT SIDE PLATE	304L SS
32	25I124	1	INSIDE, LEFT SIDE PLATE	304L SS
31	25I164	1	600 AMP, 2-LEAD CLUSTER ASSEMBLY	-
30	25I150	1	TOP PLATE WELDMENT SUBASSY IPI LEFT	-
29	25I133	1	D1 PLATE ASSY DFBXG	-
28		4	MOIST RING: AMER, DRILL BUSHING #24020 LONG BAR	SS
27	25I182	3	ISR JACK	-
26	25I166	3	THRUST LOAD BUMPER WELDMENT	304L SS
25	25I194	1	THERMAL SHIELD JUMPER, JC2	-
24	25I193	1	THERMAL SHIELD JUMPER, JC1	-
23	25I171	1	DH RELIEF VALVE ASSEMBLY	-
22	25I179	4	O3 MOUNTING BRACKET KIT	-
21	25I167	1	ENCLOSURE JUMPER, JC2	-
20	25I168	1	ENCLOSURE JUMPER, JC1	-
19	25I858	1	BASE PLATE ASSY	-
18	25I910	1	ROUGHING PORT ASSEMBLY	-
17	25I125	1	SIDE PLATE COVER	304L SS
16	25I872	1	PIPING DFBXA IPI, LEFT 24C351	-
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, LHCINGM00092	-
9	25I162	1	LHE DIAGNOSTIC ASSY	-
8	25I156	6	PIRELLI HTS LEAD KIT	-
7	25I851	1	HELIUM GUARD ASSEMBLY	-
5	25I831	1	LOX DIAGNOSTIC ASSEMBLY	-
4	25I864	1	BUS DUCT ASSEMBLY	-
3	25I079	1	THERMAL SHIELD ASSY, DFBXG	-

UNLESS OTHERWISE SPECIFIED TOLERANCES: 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 ANGLES: 60° CHAMFER ENDS OF ALL SCREW THREADS: 30° CUT ROUNDS: 1/8" THREAD RELIEF ON MACHINED THREADS BREAK EDGES: 0.18" MAX. ON MACHINED WORK REMOVE BURRS: WELD SPATTER A LOOSE SCALE IN ACCORDANCE WITH ASME Y14.5M-1994		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 DFBXA (IPI), LEFT FEED BOX ASSY SCALE: 13/100 SHEET 1 OF 11 DWG. NO. 24C3516 CATEGORY CODE LH2001
A JDRDPQ 12/10/02 INITIAL RELEASE A JDRDPQ 10/03/02 PRELIMINARY RELEASE REV/DWG/CHK/ZONE/DATE	MICROFILMED: 03-NOV-01 DESIGN ACCT. NO. ZSLCE2 PATENT CLEAR: 03-OCT-02	SHEET 1 OF 11 SIZE: REV: B	ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY

8 7 6 5 4 3 2 1

D

D

C

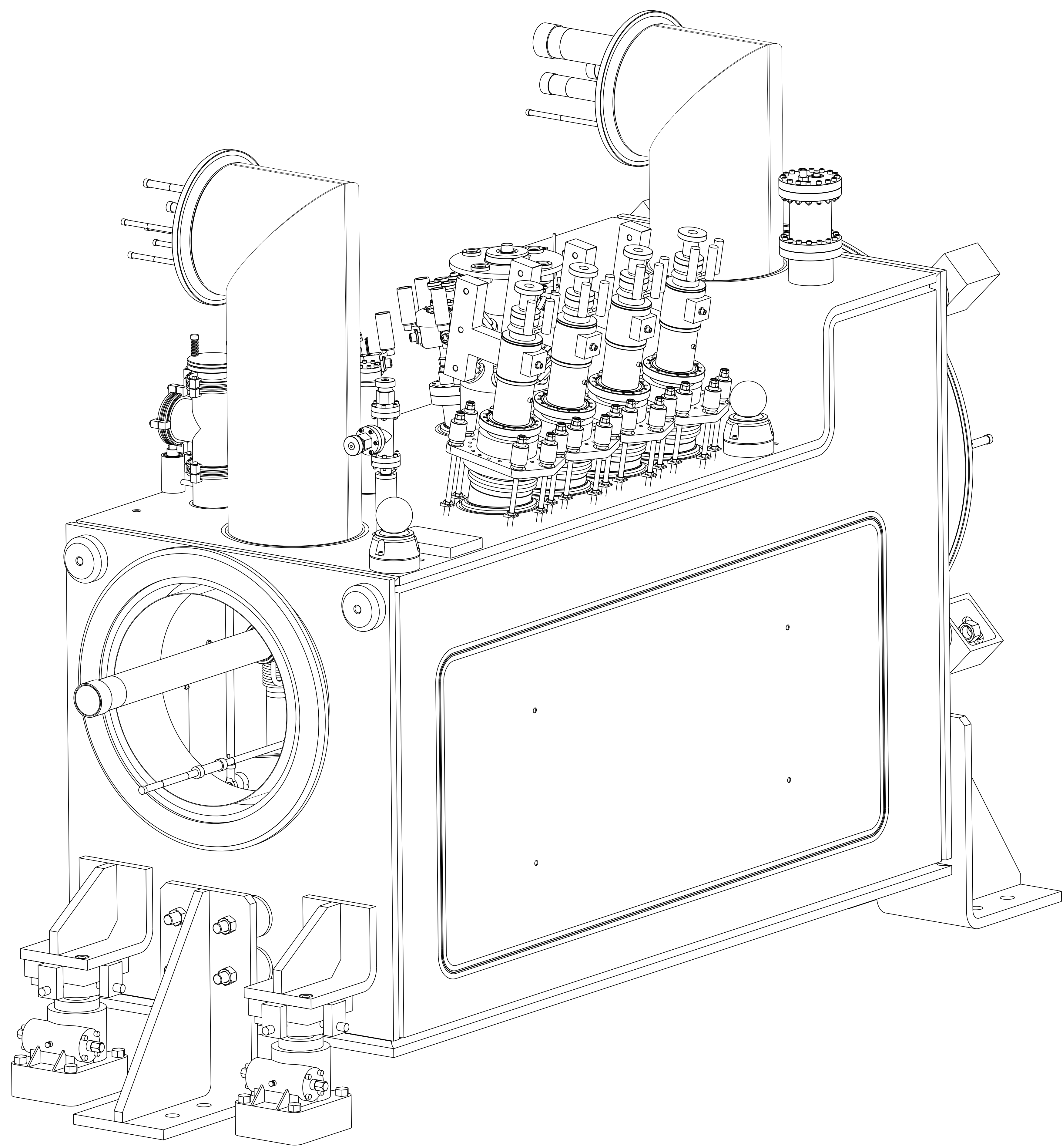
C

B

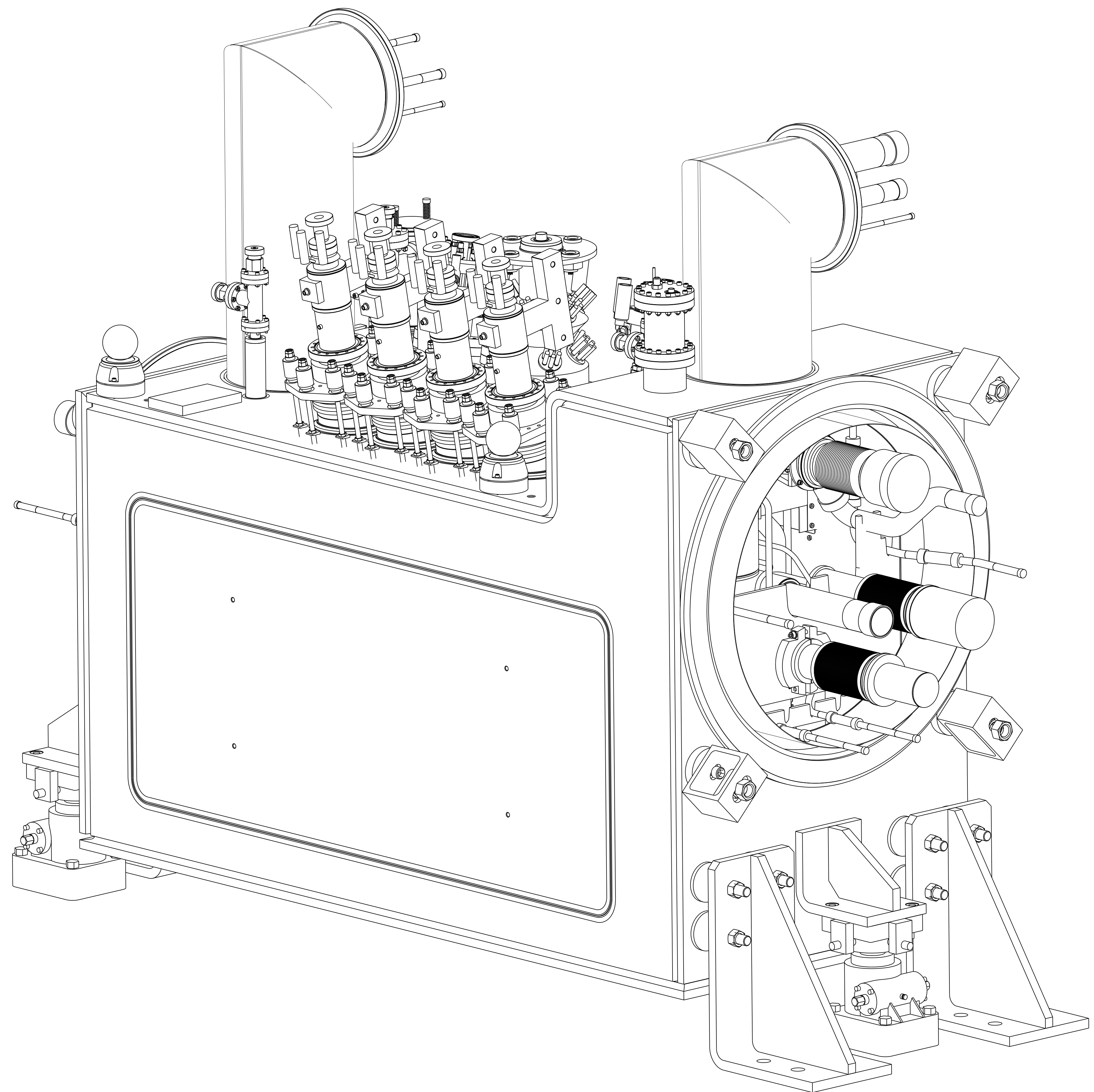
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A

A



D1 END

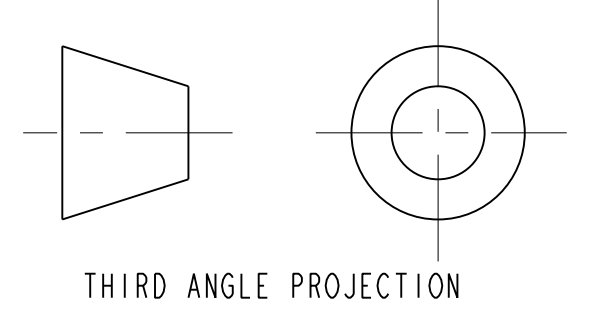


Q3 END

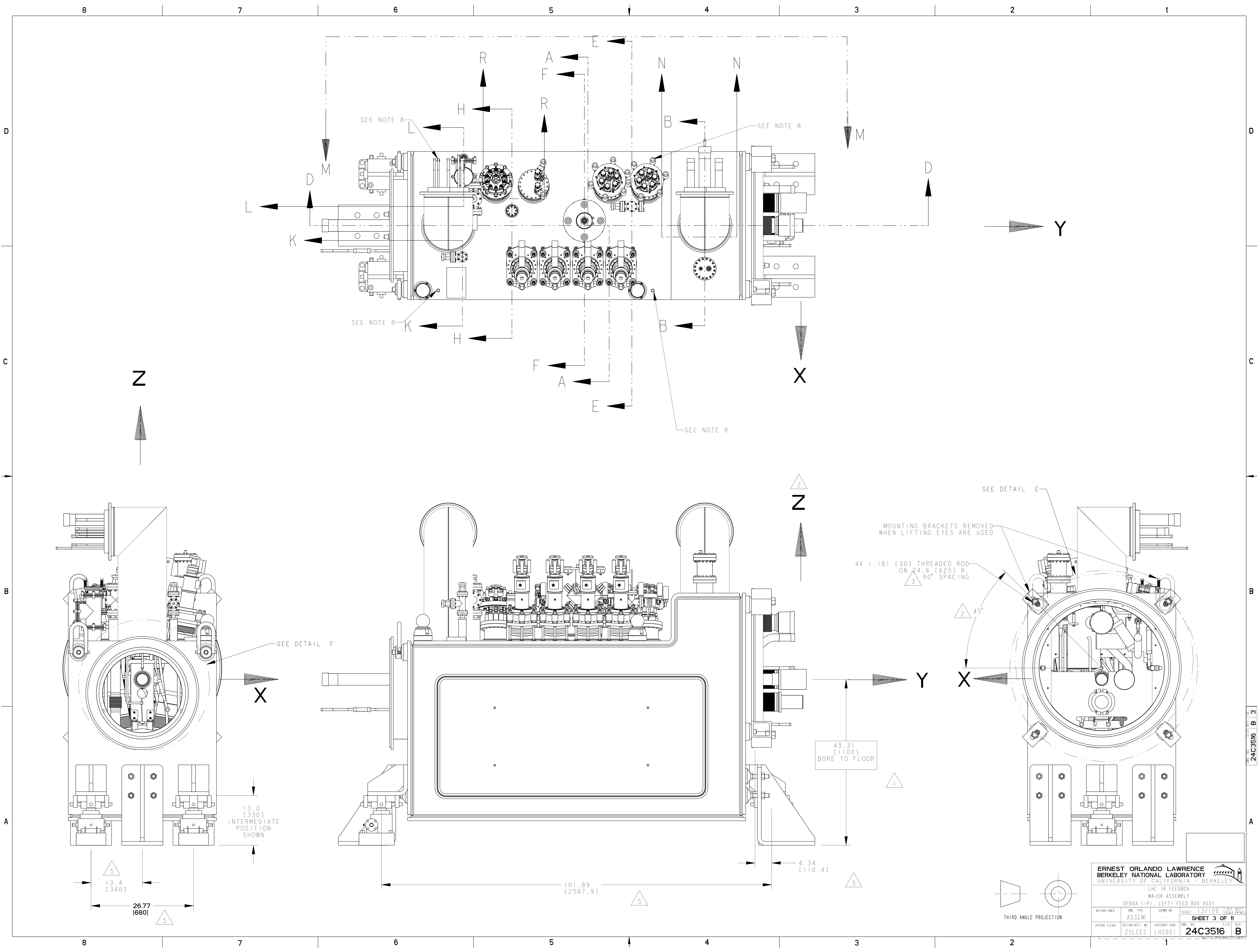
DFBXA, IP1 (LEFT)

8 7 6 5 4 3 2 1

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA BERKELEY			
LHC IR FEEDBOX MAJOR ASSEMBLY DFBXA (IP1), LEFT FEED BOX ASSY			
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE: 9/50
	ASSEM		
PATENT CLEAR:			DESIGN ACCT. NO. ZSLCE2
			CATEGORY CODE LH2001
			DWG. NO. 24C3516
			REV. B
SHEET 2 OF 11			



24C3516 B 2



Z

Z

SEE DETAIL E
MOUNTING BRACKETS REMOVED
WHEN LIFTING EYES ARE USED

4X 1.181 [30] THREADED ROD
ON 24.6 [625] R.
90° SPACING

13.0 [330]
INTERMEDIATE
POSITION
SHOWN

43.31 [1100]
BORE TO FLOOR

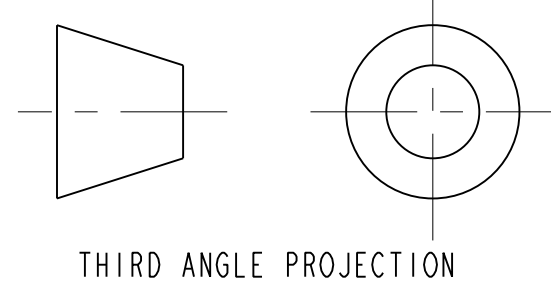
4.34 [110.4]

101.89 [2587.9]

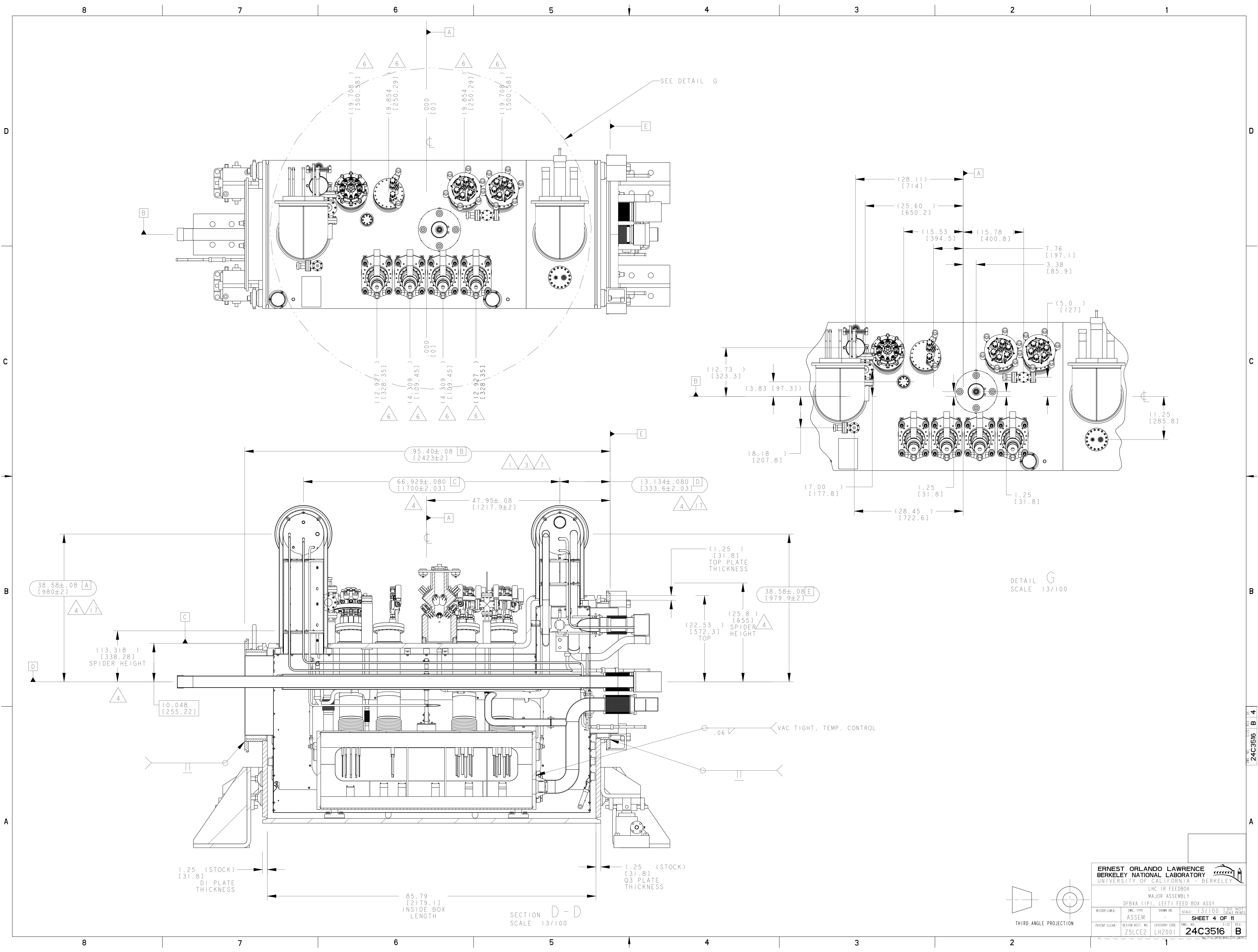
13.4 [340]

26.77 [680]

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY <small>UNIVERSITY OF CALIFORNIA - BERKELEY</small>			
LHC IR FEEDBOX MAJOR ASSEMBLY DF8X (1P), LEFT FEED BOX ASSY			
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE:
	ASSEM		13/100
SHEET 3 OF 11			DO NOT SCALE PRINTS
PATENT CLEAR:	DESIGN ACCT. NO:	CATEGORY CODE:	DWG. NO.:
	ZSLCE2	LH2001	24C3516
			REV.:
			B



24C3516 B 3



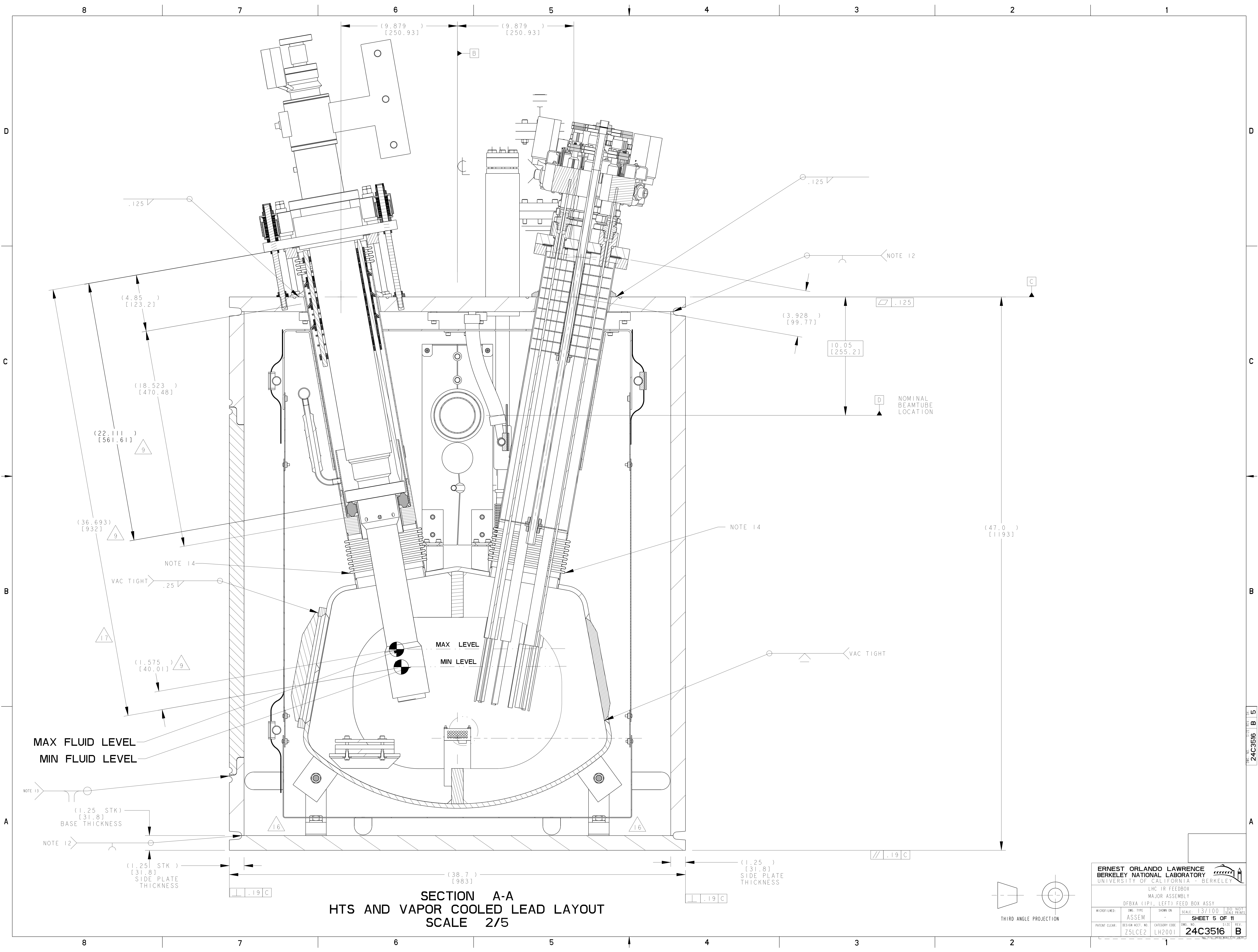
ERNEST ORLANDO LAWRENCE
 UNIVERSITY OF CALIFORNIA - BERKELEY

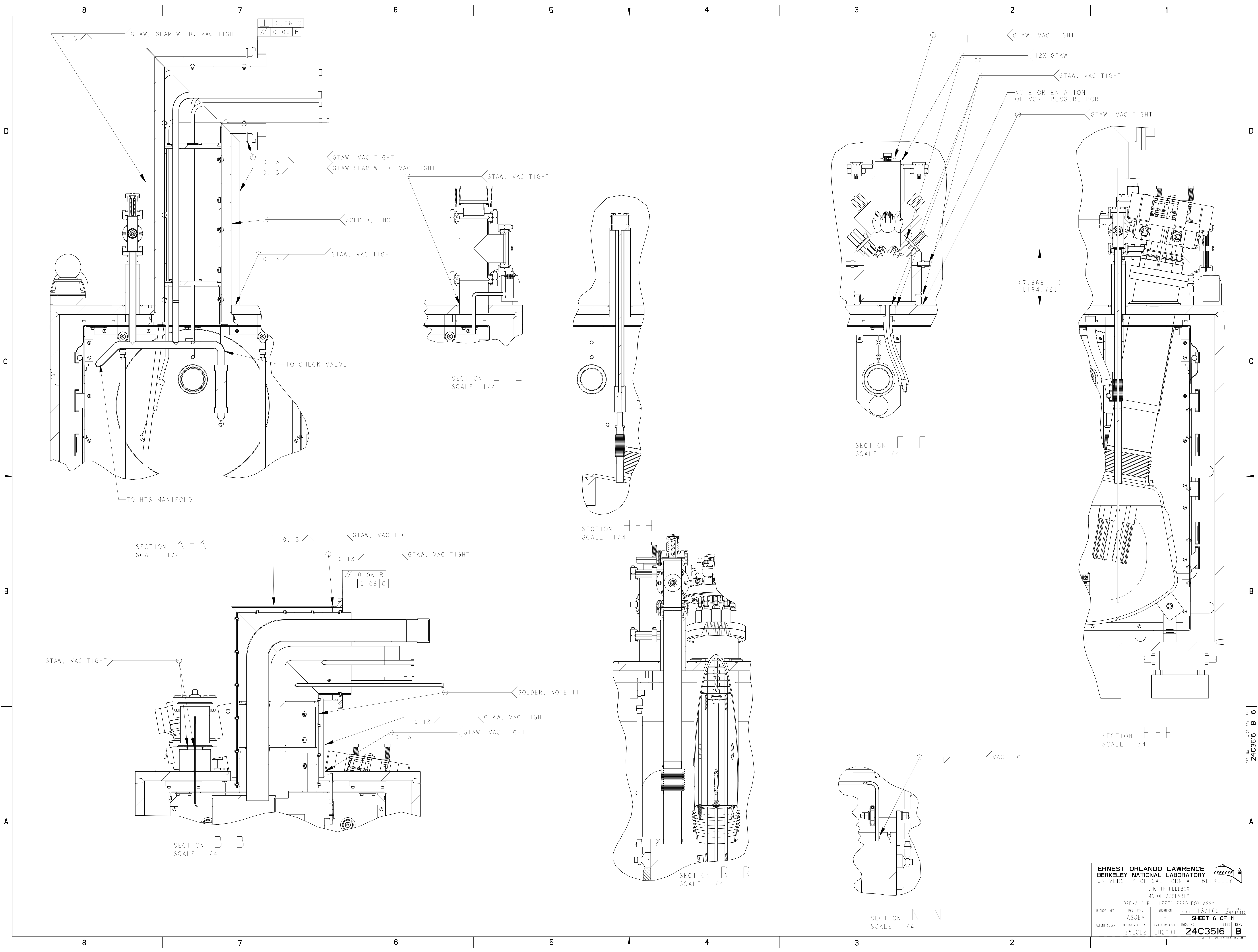
LHC IR FEEDBOX
 MAJOR ASSEMBLY
 DFBA (IPI), LEFT FEED BOX ASSY

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	24C3516	4 OF 11 B

THIRD ANGLE PROJECTION

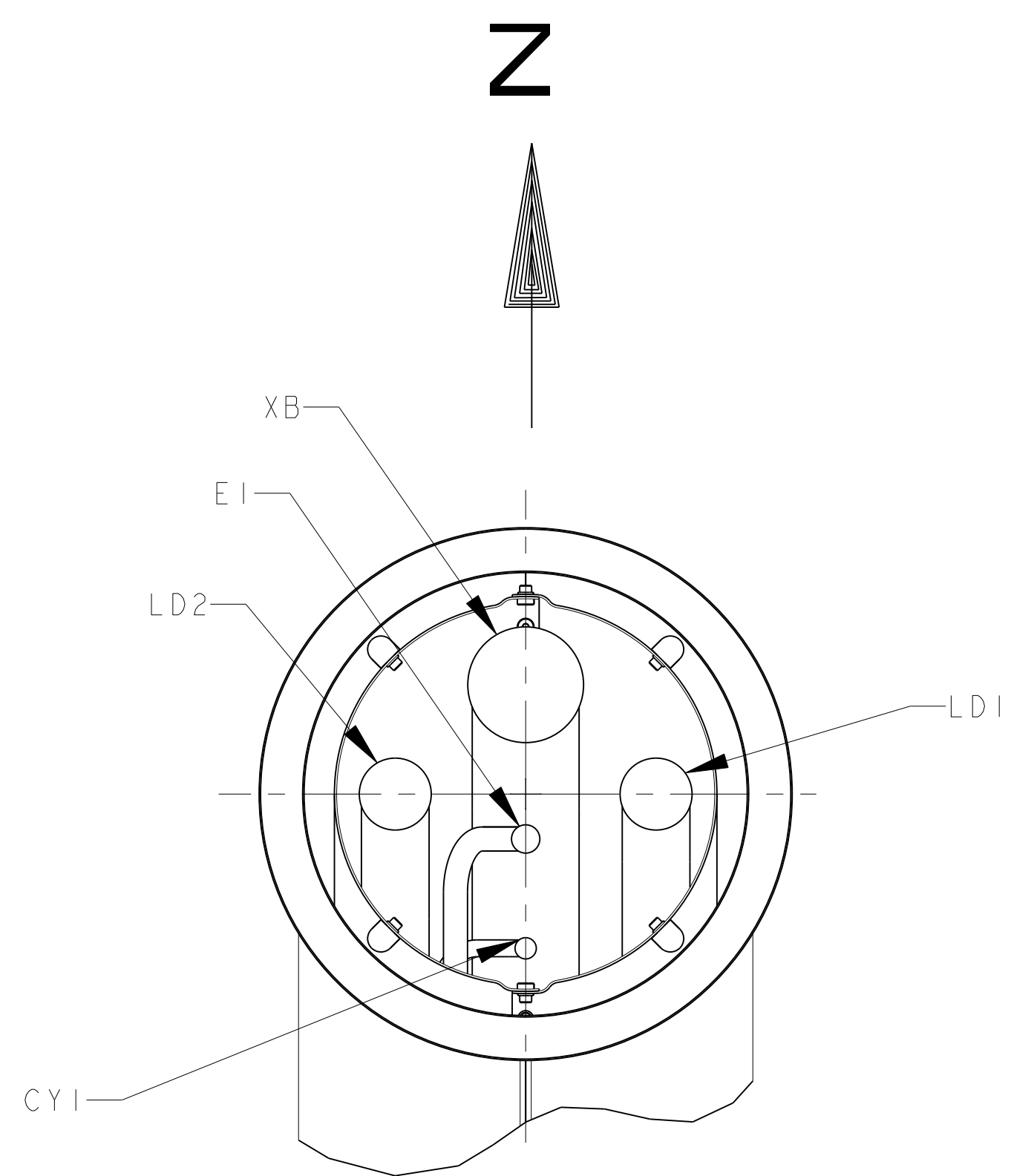
24C3516 B 4





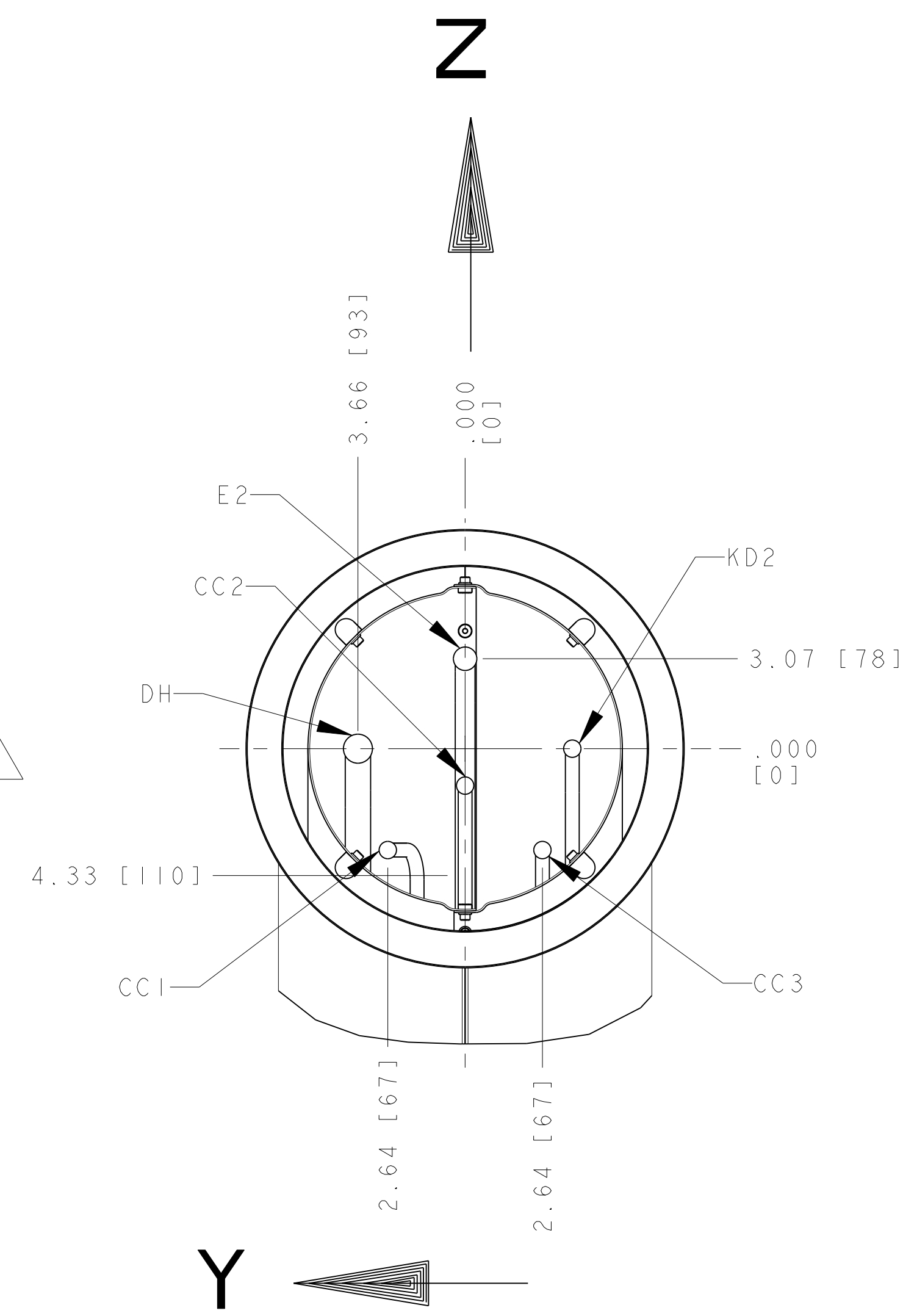
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY				UNIVERSITY OF CALIFORNIA - BERKELEY	
LHC IR FEEDBOX MAJOR ASSEMBLY DFBXA (1PI), LEFT FEED BOX ASSY					
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE:	13/100	DO NOT SCALE PRINTS
	ASSEM				
PATENT CLEAR:			DESIGN ACCT. NO:	CATEGORY CODE:	DWG. NO.:
	ZSLCE2	LH2001			24C3516
				SHEET 6 OF 11	REV. B

24C3516 B 6



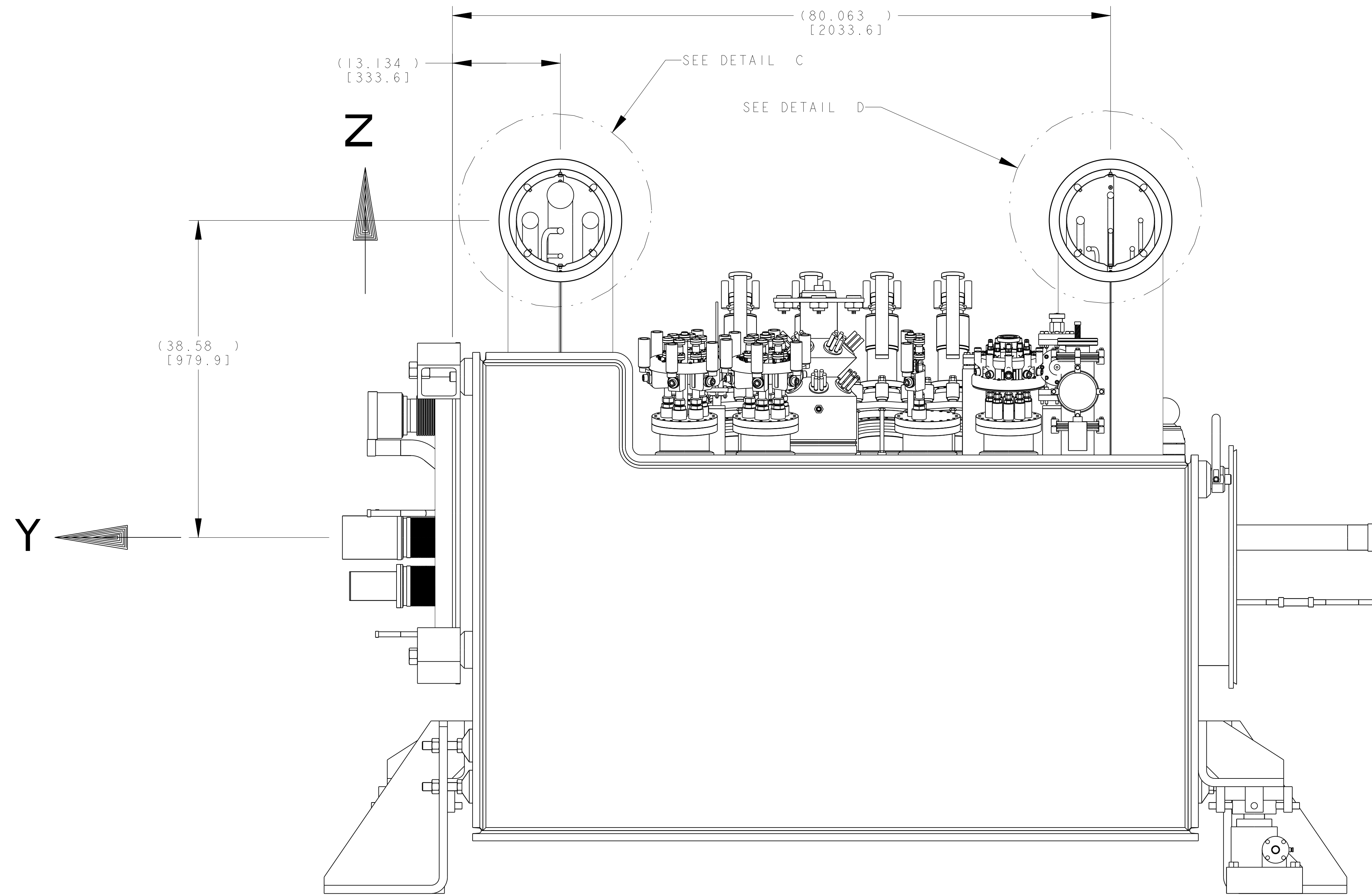
PIPE	X	DIM'S MEASURED FROM FLANGE CENTER	
		Y ±0.08	Z ±0.08
XB	-14.45±.08 [367±2]	0	3.07 [78]
LD2	-14.45±.08 [367±2]	3.66 [93]	0
LD1	-14.45±.08 [367±2]	-3.66 [93]	0
E1	-14.45±.08 [367±2]	0	-1.26 [32]
CY1	-14.45±.08 [367±2]	0	-4.33 [110]

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

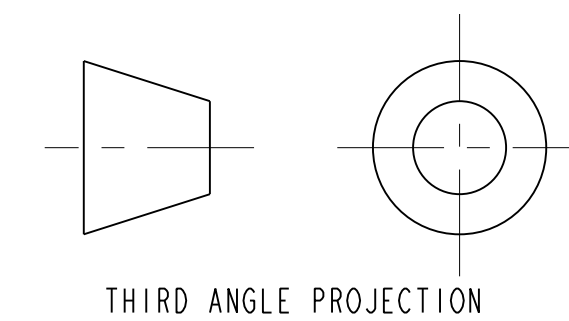
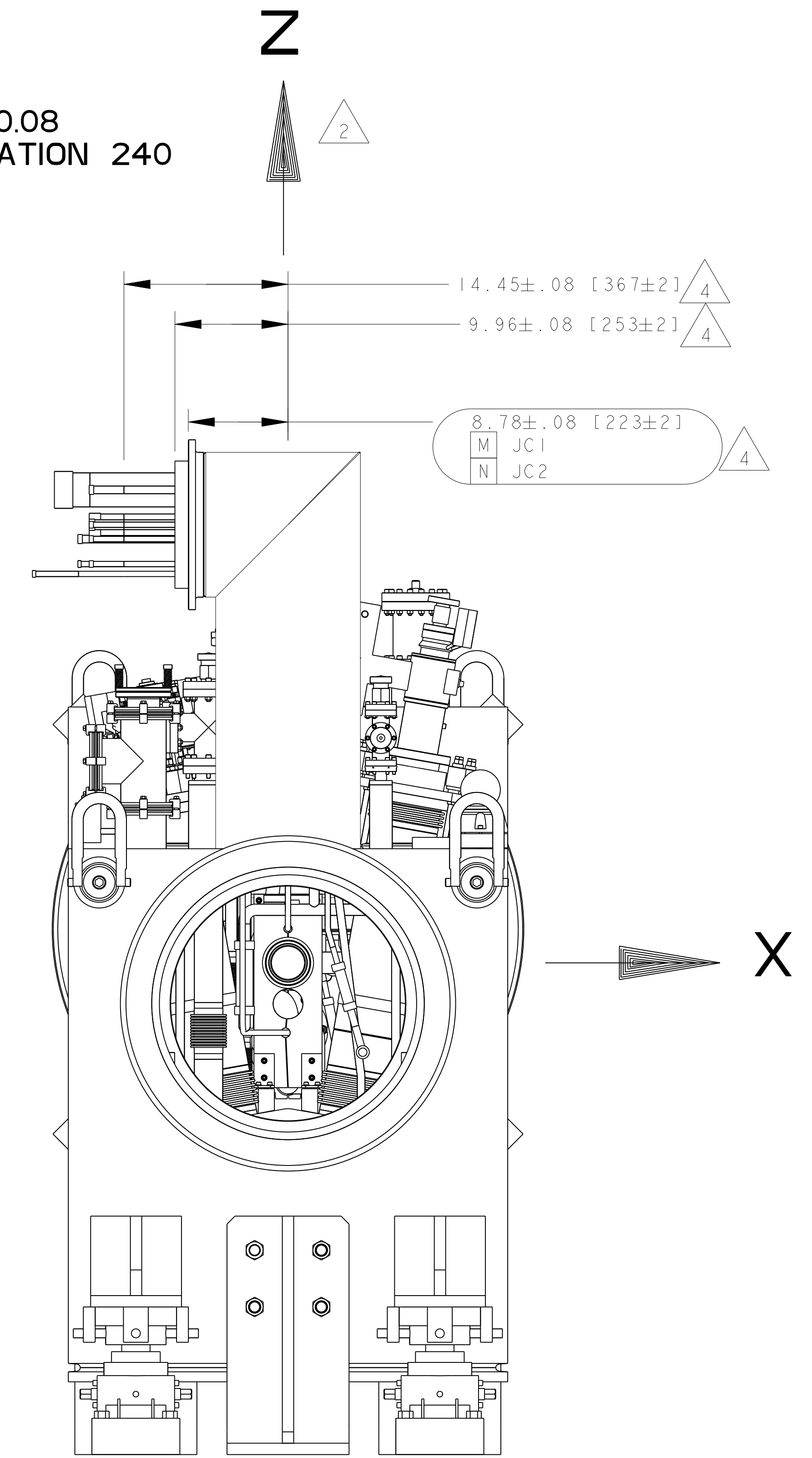


PIPE	X	DIM'S MEASURED FROM FLANGE CENTER	
		Y ±0.08	Z ±0.08
E2	-14.45±.08 [367±2]	0	3.07 [78]
DH	-14.45±.08 [367±2]	3.66 [93]	0
KD2	-11.85±.08 [30±2]	-3.66 [93]	0
CC2	-14.45±.08 [367±2]	0	-1.26 [32]
CC1	-14.45±.08 [367±2]	2.64 [67]	-3.46 [88]
CC3	-14.45±.08 [367±2]	-2.64 [67]	-3.46 [88]

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



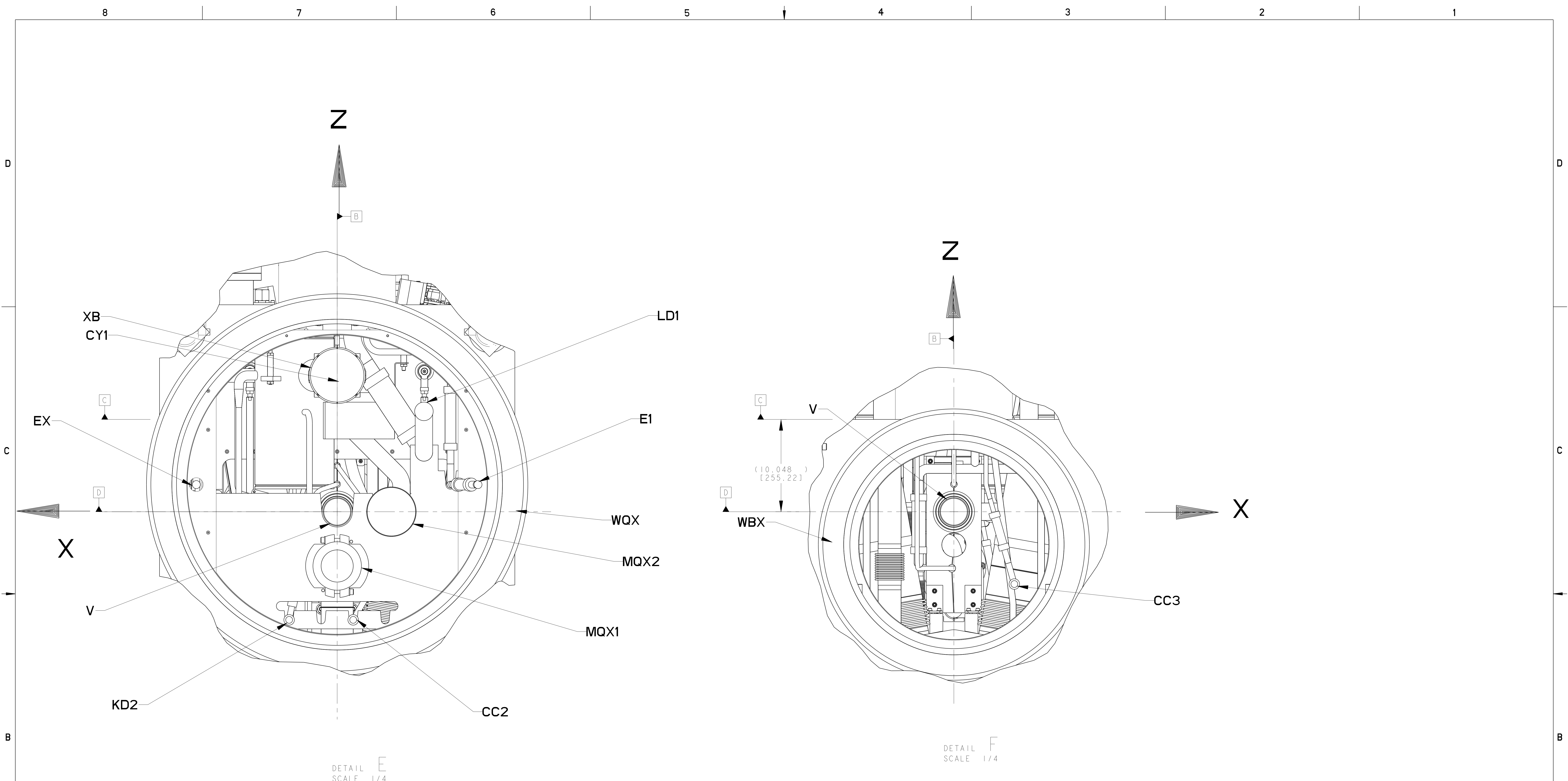
VIEW M - M
ROTATED 180°



ERNEST ORLANDO LAWRENCE
UNIVERSITY OF CALIFORNIA - BERKELEY

LHC IR FEEDBOX
MAJOR ASSEMBLY
DFBX (LPI), 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 7 OF 11
	ZSLCE2	LH2001	24C3516	B



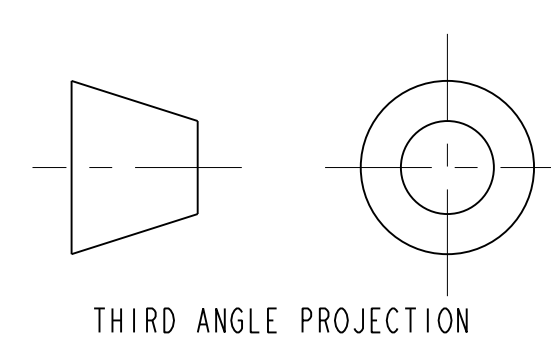
DETAIL E
SCALE 1/4

DETAIL F
SCALE 1/4

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]
LD1	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]	14.173 [359.99]	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 [1055]	35.039 [890]	.000 [0]	2.953 [75.01]	.000 [0]
XB	3.500 [88.9]	3.370 [85.6]	.000 [0]	14.839 [376.91]	6.299 [159.99]

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	3.06 [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
DFBXA (1P), LEFT FEED BOX ASSY

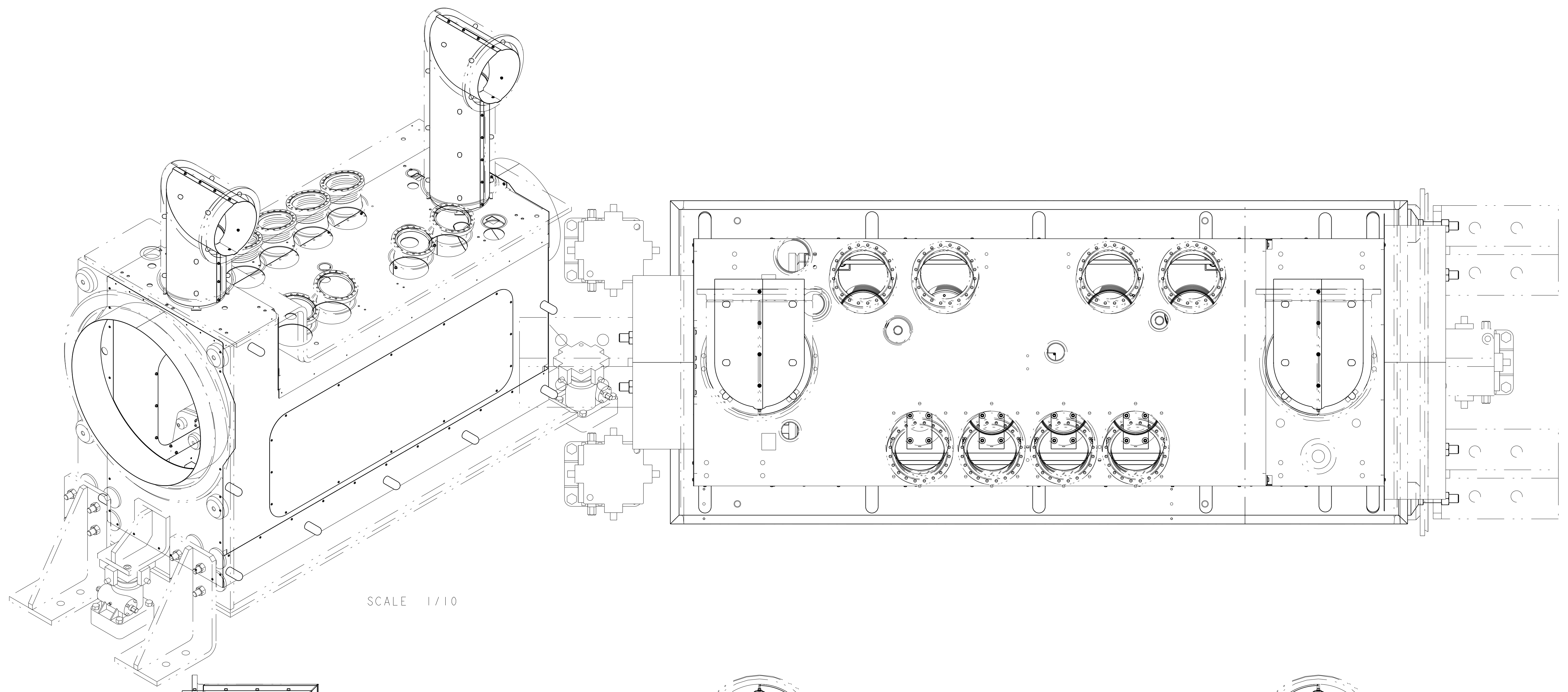
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE:	DO NOT SCALE PRINTS
	ASSEM		1:3/100	
PATENT CLEAR:	DESIGN ACCT. NO:	CATEGORY CODE:	DWG. NO.:	SHEET 8 OF 11
	ZSLCE2	LH2001	24C3516	B

24C3516 B 8

8 7 6 5 4 3 2 1

D

D

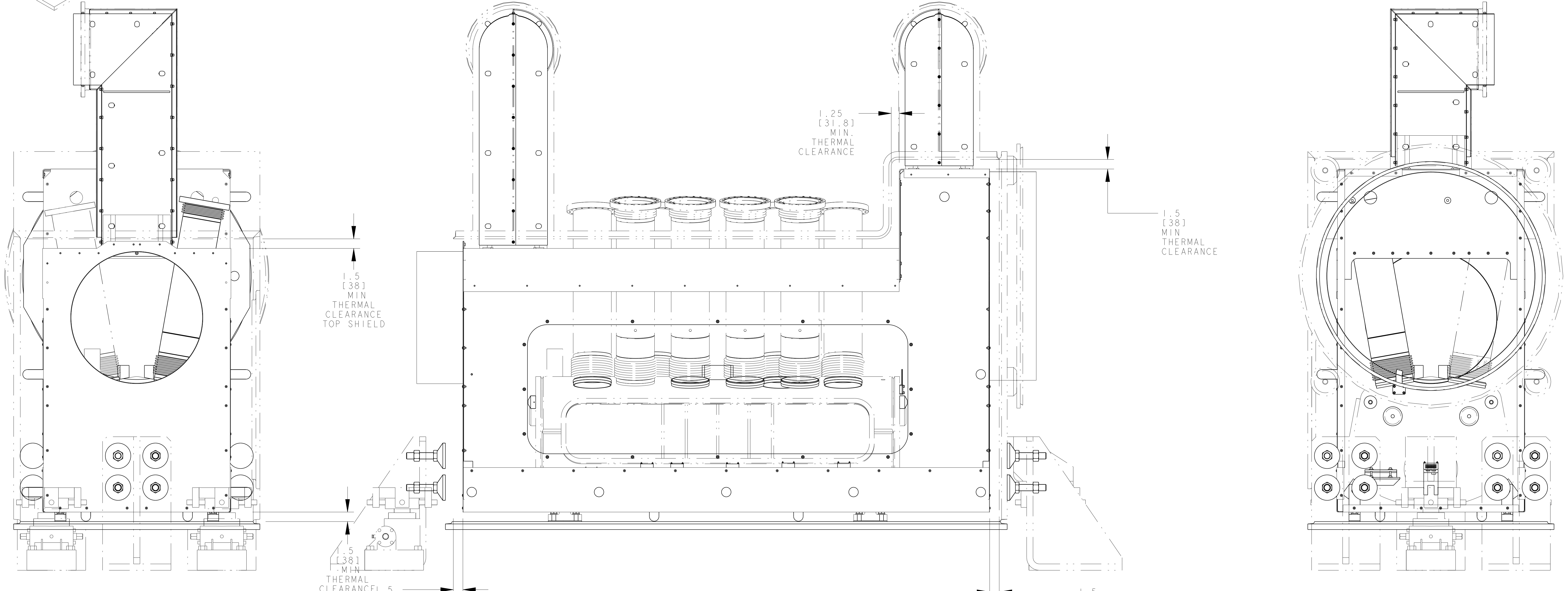


C

C

B

B

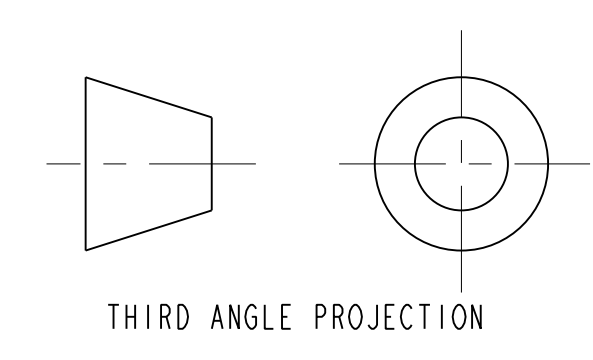


A

A

THERMAL SHIELD LAYOUT
COMPONENTS REMOVED FOR CLARITY
SCALE 3/20

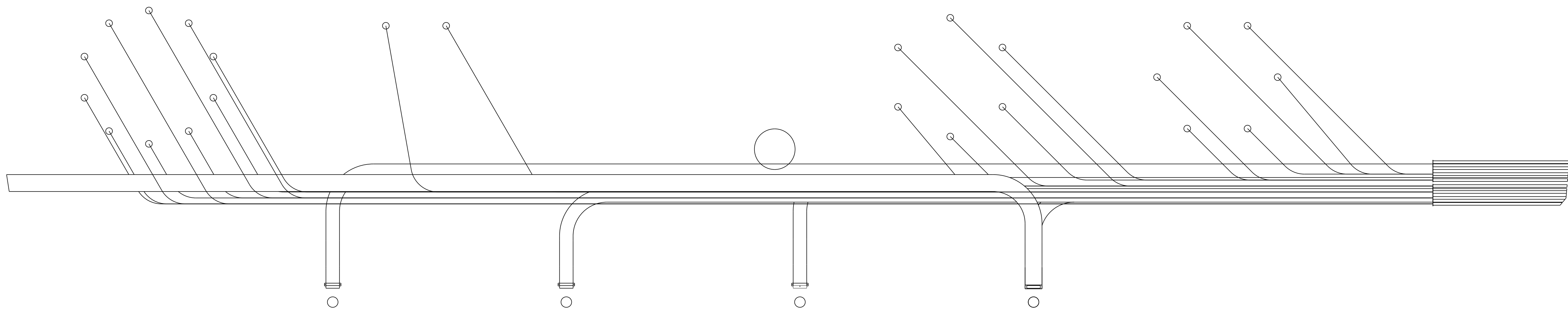
8 7 6 5 4 3 2 1



ERNEST ORLANDO LAWRENCE UNIVERSITY OF CALIFORNIA BERKELEY					
LHC IR FEEDBOX MAJOR ASSEMBLY DFBX (LPI), 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	24C3516
				SHEET 9 OF 11	B

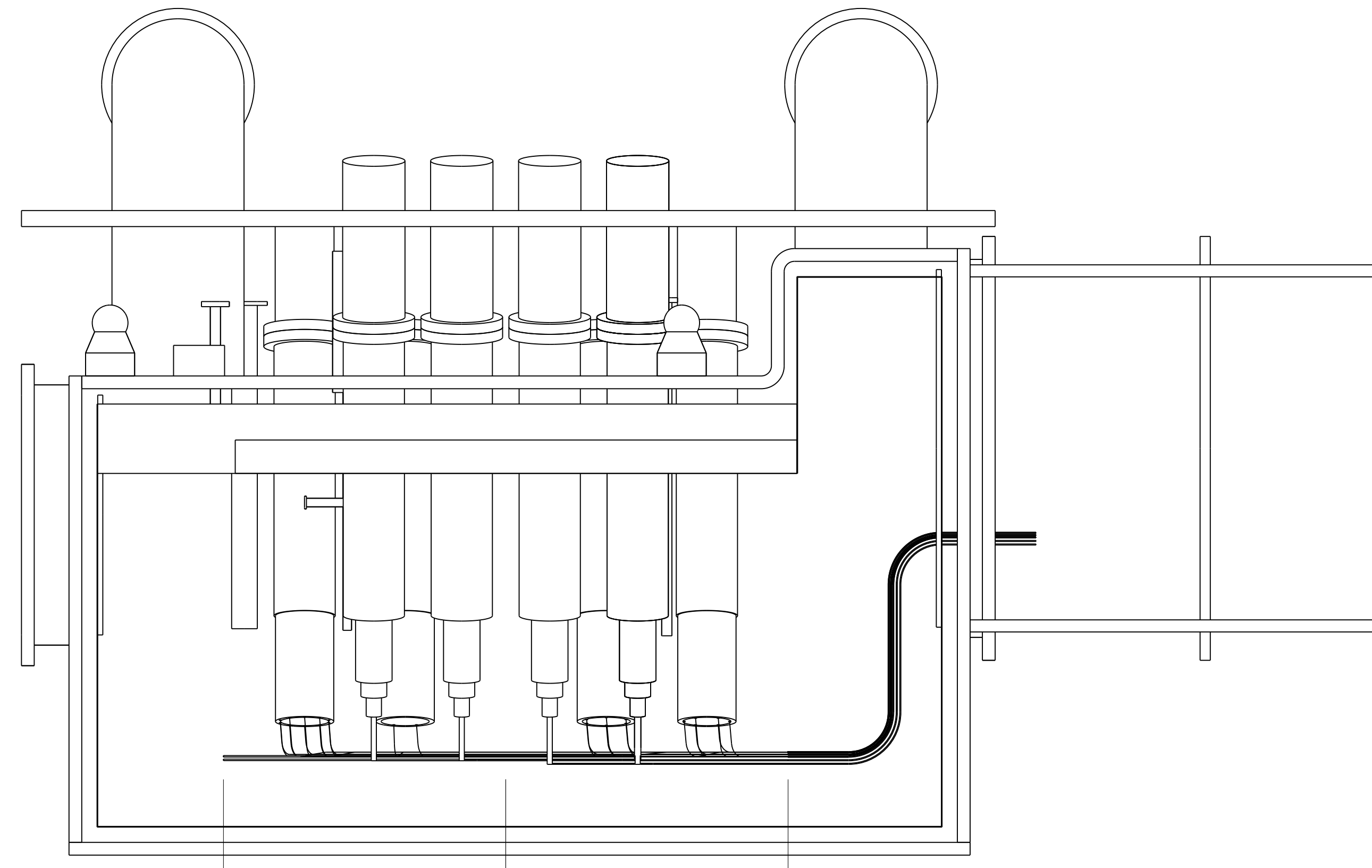
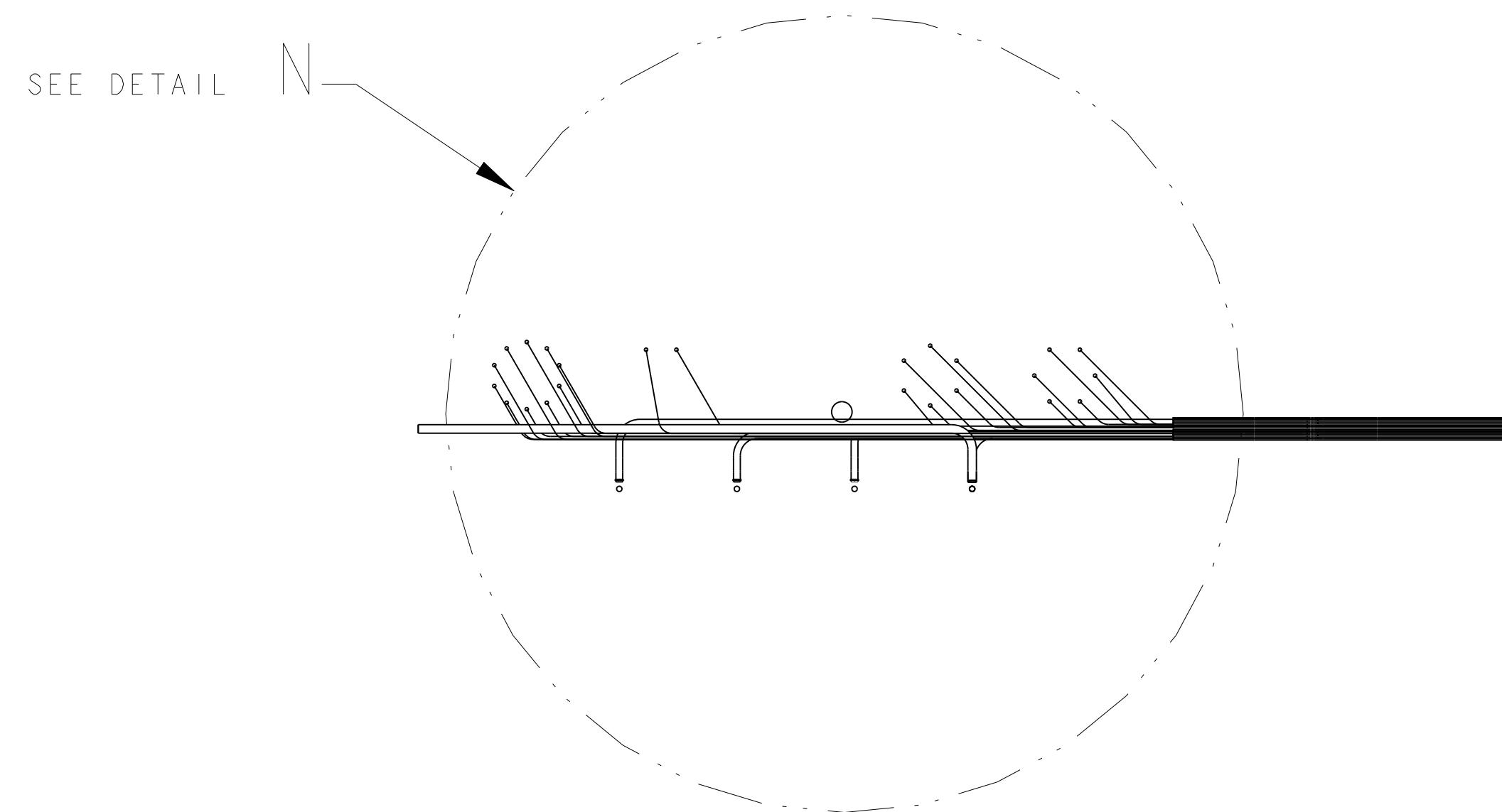
24C3516 B 9

8 7 6 5 4 3 2 1



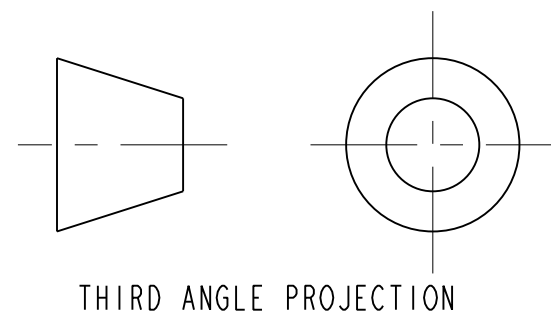
BUS CONDUCTOR RUNS

DETAIL N
SCALE 1/2



27.660 [702.56] 27.660 [702.56]

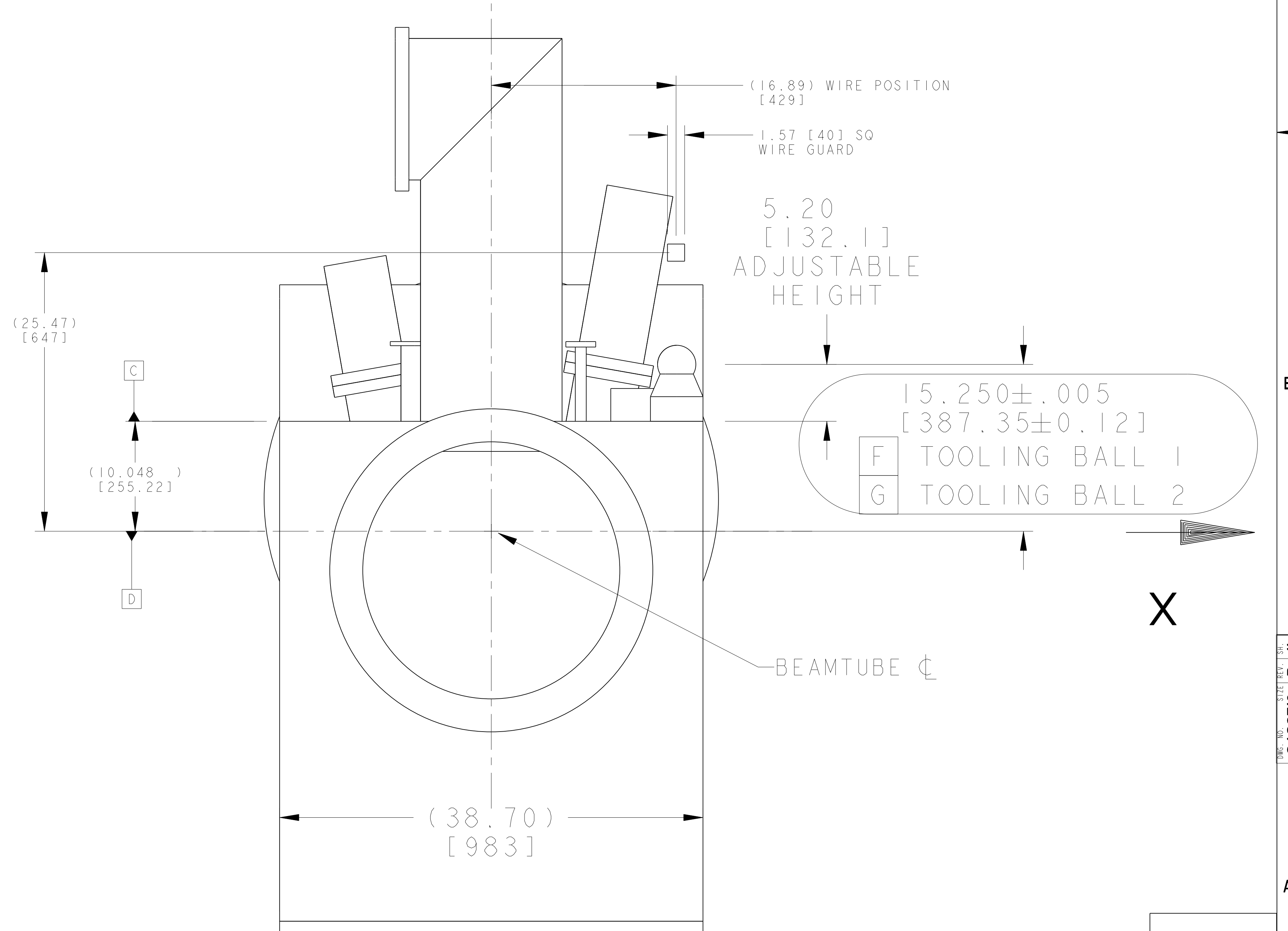
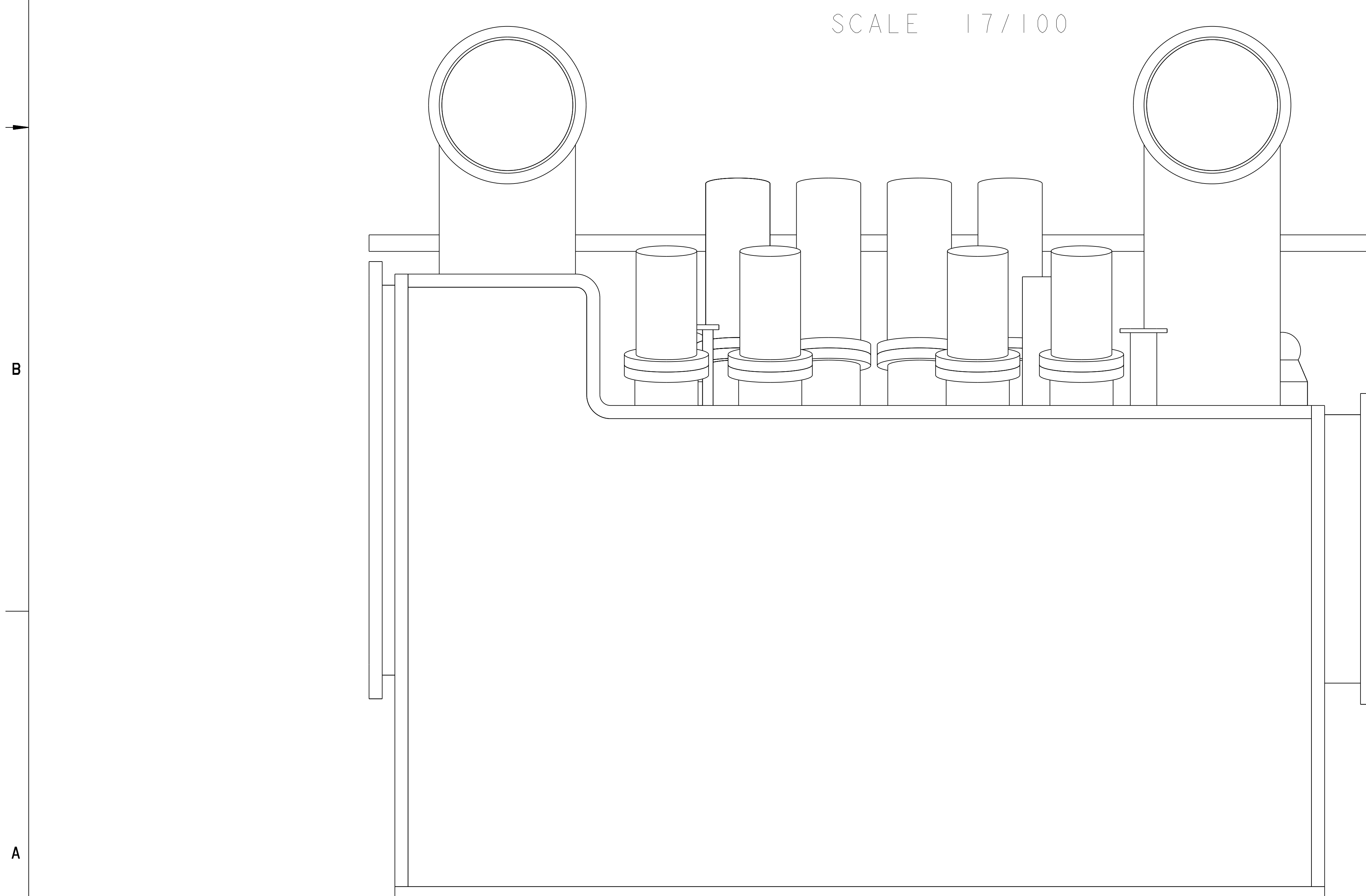
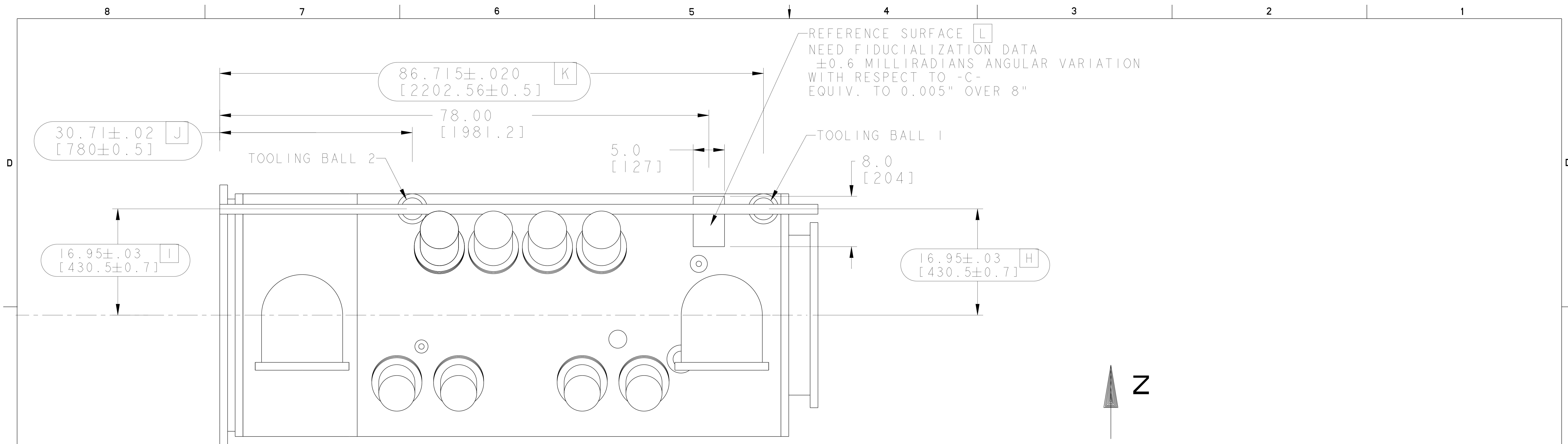
SCALE 1/10



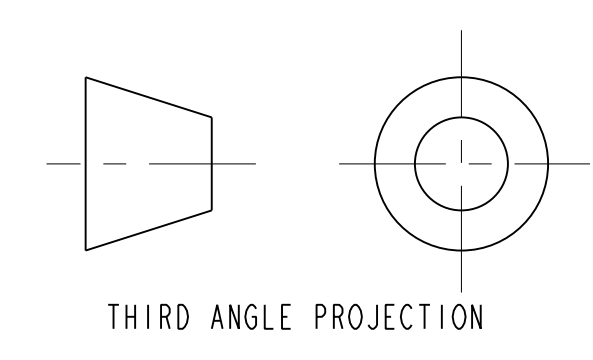
ERNEST ORLANDO LAWRENCE UNIVERSITY OF CALIFORNIA BERKELEY			
LHC IR FEEDBOX MAJOR ASSEMBLY DFBA (1P), LEFT FEED BOX ASSY			
MICROFILMED:	DWG. TYPE:	SHOWN ON:	SCALE:
ASSEM	-	-	13/100
SHEET 10 OF 11			DO NOT SCALE PRINTS
PATENT CLEAR:	DESIGN ACCT. NO:	CATEGORY CODE:	DWG. NO.:
ZSLCE2	LH2001	-	24C3516
			REV.:
			B

8 7 6 5 4 3 2 1

24C3516 B 10



FIDUCIAL LAYOUT INFORMATION



ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY				UNIVERSITY OF CALIFORNIA - BERKELEY	
LHC IR FEEDBOX MAJOR ASSEMBLY				DfBX (1PI) 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			24C3516
				SHEET 11 OF 11	REV. B

24C3516 B 11