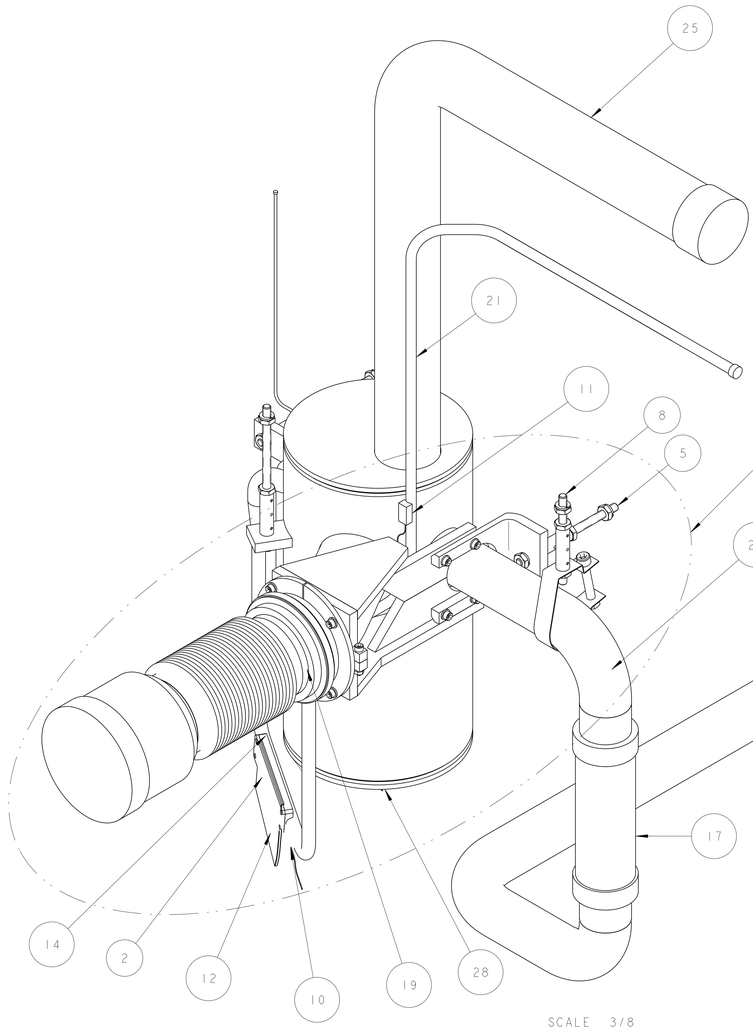
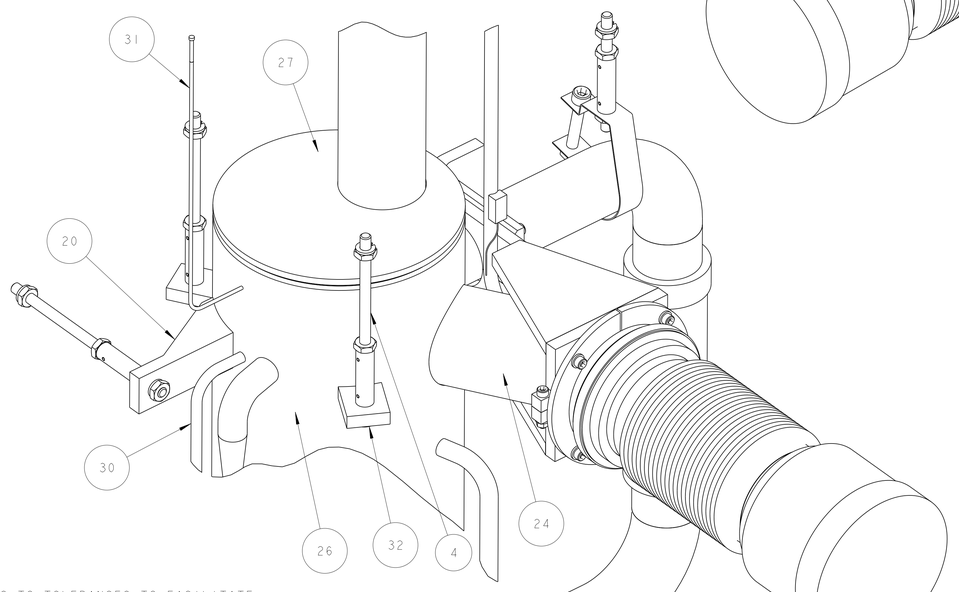
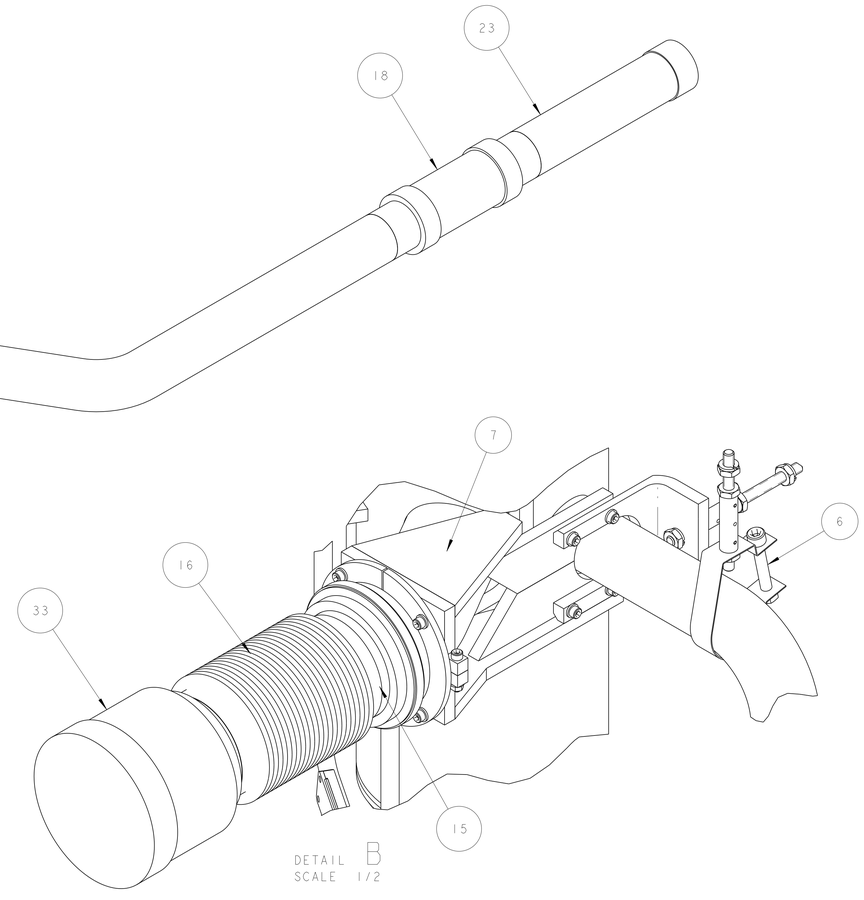


SCALE 3/8



SCALE 1/2



DETAIL B
SCALE 1/2

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. THIS IS A CRYOGENIC VACUUM COMPONENT.
2. WELDING PROCEDURE: PER VENDOR SPECIFICATION WITH LBNL APPROVAL.
3. CLEANING PROCEDURE : PER VENDOR SPECIFICATION WITH LBNL APPROVAL.
4. PACKAGING AND STORAGE PROCEDURE OF THE COMPONENTS: PER VENDOR SPECIFICATION WITH LBNL APPROVAL.
5. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M-1982. UNITS ARE IN INCHES [mm] UNLESS OTHERWISE SPECIFIED.
6. USE OF SULFUR OR SILICONE BEARING OILS, LUBRICANTS, OR COOLANTS ARE STRICTLY PROHIBITED.
7. USE OF RESIN OR RUBBER BONDED ABRASIVES UNDER POWER IS STRICTLY PROHIBITED. USE VITREOUS BONDED ABRASIVES ONLY.
8. VENDOR SUGGESTED CHANGES TO WELD PREPS; SUBJECT TO LBNL APPROVAL.
9. FITTINGS MAY BE USED IN PLACE OF BENDS; SUBJECT TO LBNL APPROVAL.
10. VENDOR SUGGESTED CHANGES TO TOLERANCES TO FACILITATE FABRICATION OR ASSEMBLY; SUBECT TO LBNL APPROVAL.
11. REMOVE ALL THE BURRS AND REAM THE ENDS FOR CIRCULARITY AND CLEAN ENDS.
12. TUBE END SURFACE MUST BE PERPENDICULAR TO THE TUBE AXIS WITHIN +/-.010.
13. PERFORM ACCEPTANCE TESTS PER SECTION 3.2 OF LBNL SPECIFICATION M856.
14. A MARK DESIGNATING THE INSTALLED LENGTH WILL BE UTILIZED DURING FINAL INSTALLATION OF THE FEEDBOX ASSEMBLY. MARK, SCRIBE OR ETCH THIS LOCATION IN A PERMANENT MANNER, SUBJECT TO LBNL APPROVAL, TO AN ACCURACY OF ±0.063".
15. PROVIDE A MINIMUM LENGTH OF 4.0" OF STRAIGHT, SMOOTH PIPE ON THE INDICATED SIDE OF THE INSTALLED LENGTH MARK FOR PIPE WELDING DURING FINAL INSTALLATION OF THE FEEDBOX ASSEMBLY.
16. PIPE MUST BE STRAIGHT AND SMOOTH (NO BUMPS) FOR 0.5" ON EITHER SIDE OF THE CENTER-PLANE OF THE SUPPORT.
17. CAP BOTH ENDS OF PIPE AFTER ACCEPTANCE TESTS PER SECTION 3.2 OF LBNL SPECIFICATION M856.
18. INSTALL TEMPERATURE SENSOR PER LHC SPECIFICATION LHC-QIT-ES-0002. SENSOR TO BE PROVIDED BY LBNL.

THIRD ANGLE PROJECTION

REV	DWG	CHK	ZONE	DATE	CHANGES
B	ARH	SPV		12-02-02	RE-NUMBERED BOM ITEMS, ADDED ITEM 20, ADDED ITEM 33 CALLOUT, RE-CONFIGURED THRUST SUPPORTS (ITEMS 4, 5 & 8), ADDED DIMS TO TOP VIEW (SHT 2), MOVED END VIEW TO NEW PAGE 3.
A	ARH	SPV		11-18-02	INITIAL RELEASE

ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
B 33	-	1	PIPE, PER ASTM A312	SS 304L
32	251913	2	SUPPORT BRACKET, SURGE TANK	SS 304L
31	251850	1	TRANSDUCER TUBING	SS 304L
30	251840	1	HEATER TUBE	SS 304L
29	-	1	PIPE, PER ASTM A312	SS 304L
28	251358	1	SURGE TANK BOTTOM	SS 304L
27	251357	1	SURGE TANK TOP	SS 304L
26	251356	1	SURGE TANK BODY	SS 304L
25	251221	1	PIPE, XB, SURGE TANK ATTACHMENT	SS 304L
24	251220	1	PIPE, XB, SURGE TANK ATTACHMENT	SS 304L
23		1	PIPE, PER ASTM A312	SS 304L
22	-	1	PIPE, PER ASTM A312	SS 304L
21	251210	1	PIPE, CYI	SS 304L
B 20	25M821	1	XB BELLOWS SUPPORT BRACKET	SS 304L
19	25M862	1	WELD BRACKET	SS 304L
18	-	1	BRAIDED FLEXHOSE, 2" ID X 4.25" LL	SS 300 SERIES
17	-	1	BRAIDED FLEXHOSE, 2" ID X 7" LL	SS 300 SERIES
16	251314	1	BELLOWS, FNAL# 5520-MD-390065	SS 300 SERIES
15	251306	1	FLANGE, FNAL# 5520-MC-390032	SS 300 SERIES
14	25M877	1	CLAMP BASE PLATE, 5/8 TUBE X 5.00 "	OFHC C101
13	251426	1	CLAMP BASE PLATE	OFHC C101
12	-	1	STANDARD BRAIDED COPPER CABLE 4"	-
11	-	1	CERNOX, TEMP SENSOR	-
10	-	1	CERNOX, TEMP SENSOR	-
9	-	1	CERNOX, TEMP SENSOR	-
B 8	25M922	1	THRUST SUPPORT WITH THERMAL BREAK	-
7	25M863	1	XB BELLOWS SUPPORT BRACKET	-
6	25M811	1	PIPE HANGER, SURGE TANK	-
B 5	25M810	1	THRUST SUPPORT WITH THERMAL BREAK	-
B 4	25H413	3	THRUST SUPPORT WITH THERMAL BREAK	-
3		1	WELD RING, ID 134mm, FNAL SUPPLIED	-
2	25M814	1	CLAMP COVER 4"	OFHC, C101
1	25M813	1	CLAMP COVER 1"	OFHC, C101

UNLESS OTHERWISE SPECIFIED
TOLERANCES
X.X ± 0.1 FRAC. ± 1/64
X.XX ± 0.03 Angles ± 1.00°
X.XXX ± 0.010 FINISH 125 µin/µm
DO NOT SCALE PRINT
THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW THREADS 30°
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
IN ACCORDANCE WITH ASME Y14.5M & B46.1

SHOP ORDERS
ACCT NO. / REQD
TAG
PROJECT NUMBER N/A
PROJECT NAME N/A
DWG KNOLLS
CHK Jon Zbasnik/S.Virostek
APR Jon Zbasnik/D.Osbatz
DATE 07-Dec-01
DATE 19-Nov-02
DATE 4-02-02

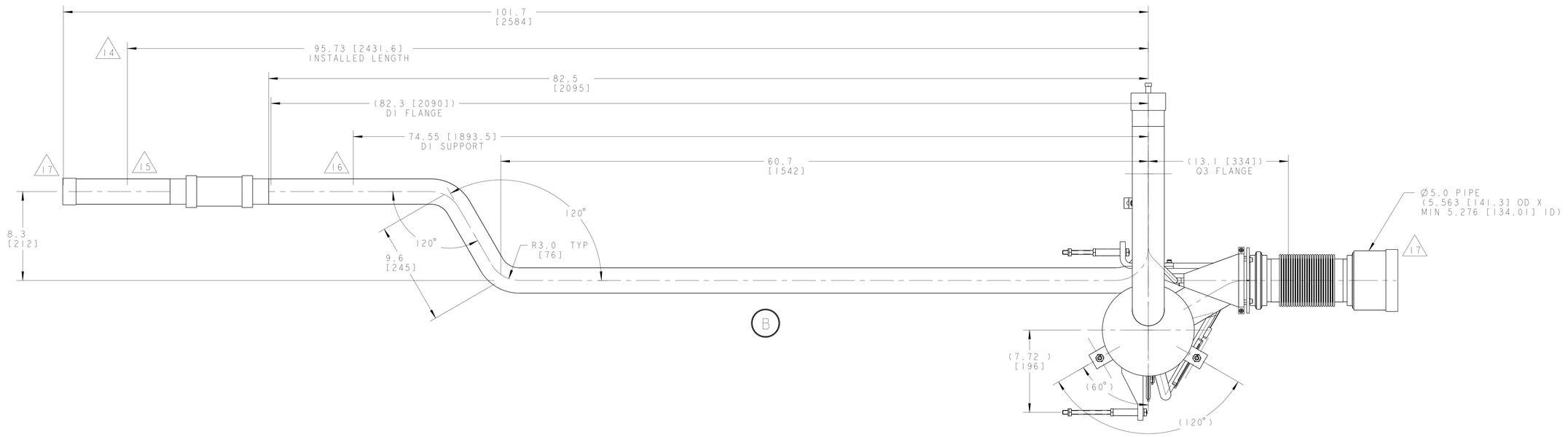
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

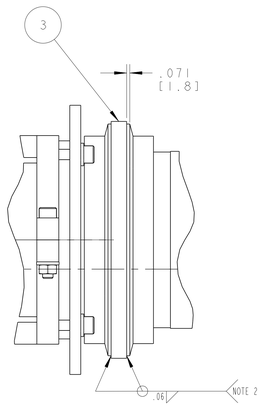
LHC IR FEEDBOX
CRYOGENICS
PIPE, XB

MICROFILMED:
DWG. TYPE: ASSEM
SHOWN ON: -
SCALE: 1/4
DO NOT SCALE PRINTS
SHEET 1 OF 4
PATENT CLEAR:
DESIGN ACCT. NO.: Z5LCE2
CATEGORY CODE: LH2003
DWG. NO.: 2518906
SIZE: B
REV:

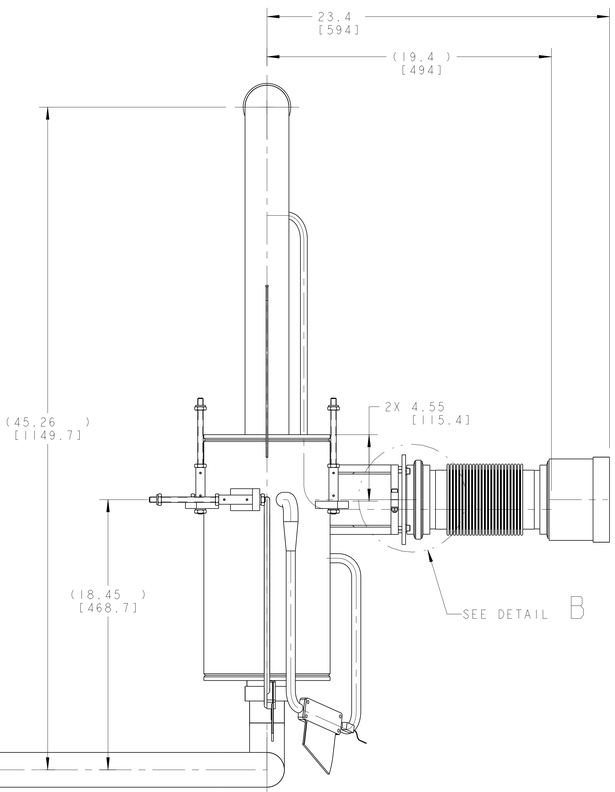
2518906 B 1

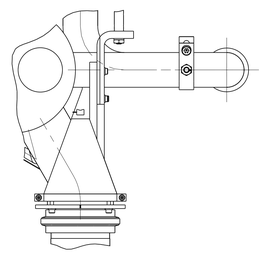
NAME:ARHARRIS OBJECT:251890_1 DATE:03-Dec-02 14:03:25

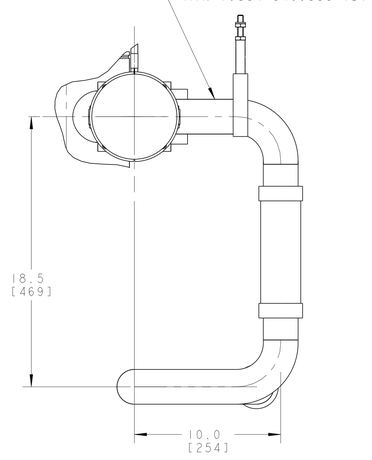


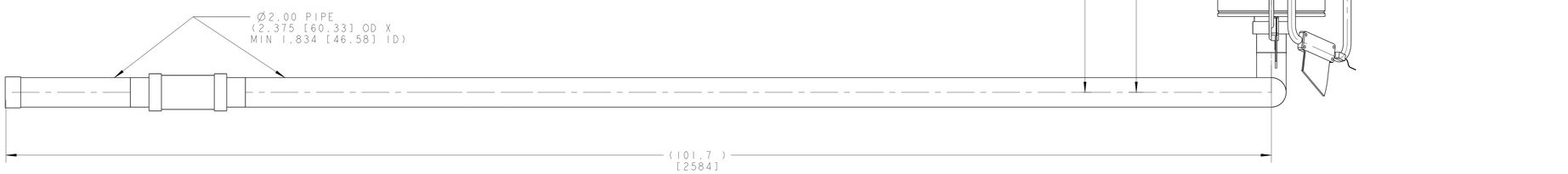


DETAIL B
SCALE 3/4









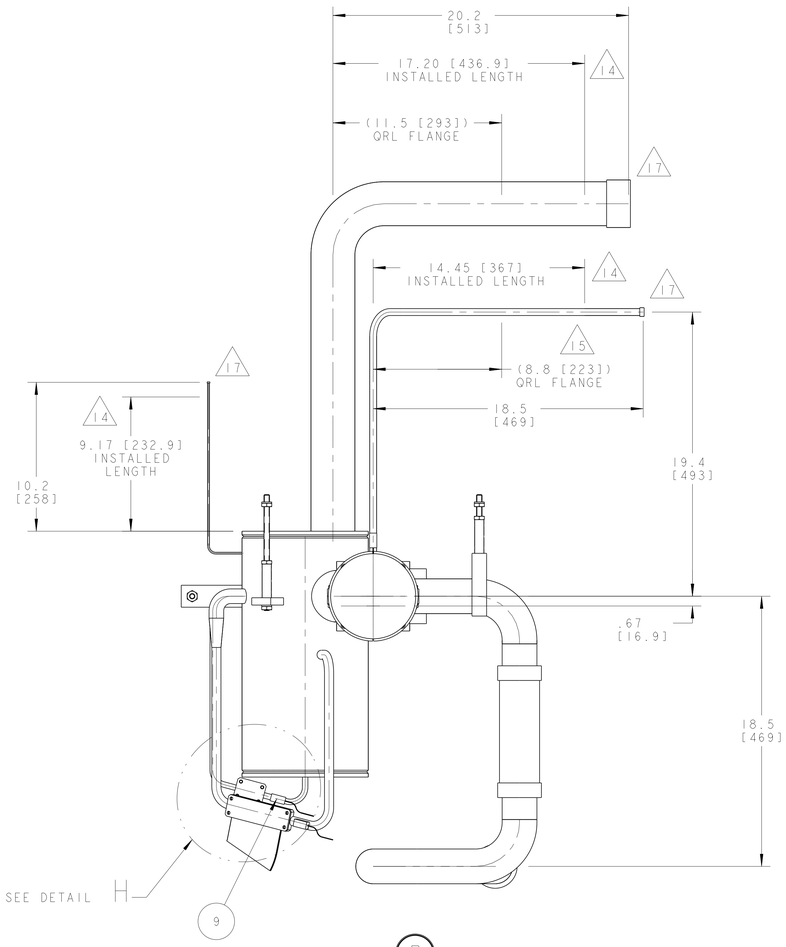
ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

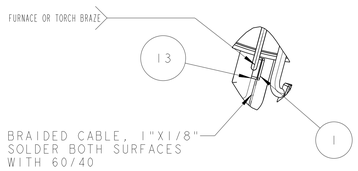
LHC IR FEEDBOX
CRYOGENICS
PIPE, XB

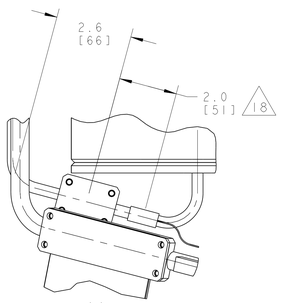
MICROFILMED:	DWG. TYPE	SHOWN ON	SCALE: 1/4	DO NOT SCALE PRINTS
	ASSEM	-	SHEET 2 OF 4	
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE / REV.
	Z5LCE2	LH2003	2518906	B

2518906 B 2

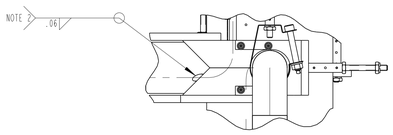
NAME:ARHARRIS OBJECT:251890.2 DATE:03-Dec-02 14:03:27







DETAIL H
SCALE 1/2

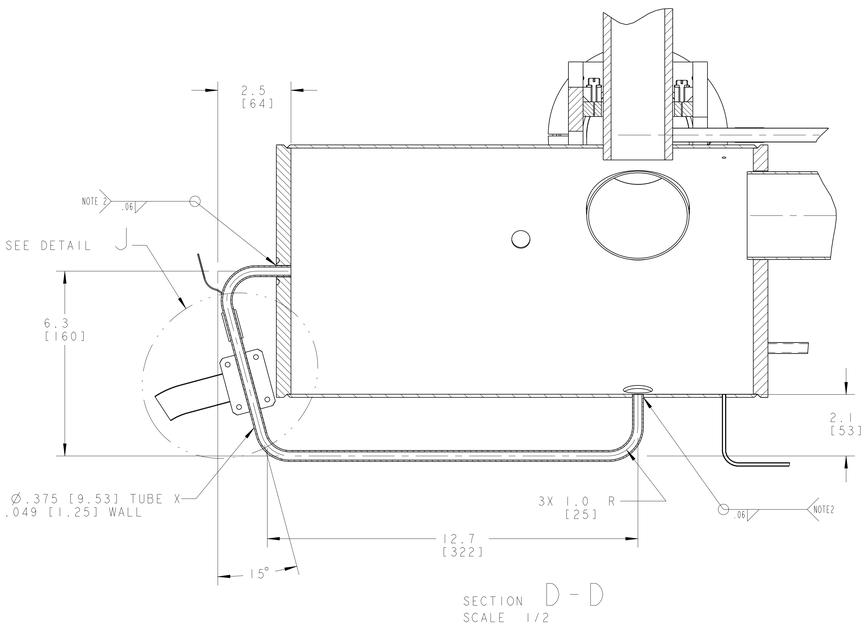


PARTIAL VIEW G - G

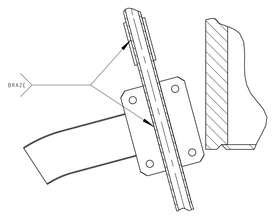
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY				
LHC IR FEEDBOX CRYOGENICS PIPE, XB				
MICROFILMED:	DWG. TYPE ASSEM	SHOWN ON -	SCALE: 1/4	DO NOT SCALE PRINTS
			SHEET 3 OF 4	
PATENT CLEAR:	DESIGN ACCT. NO. Z5LCE2	CATEGORY CODE LH2003	DWG. NO. 2518906	SIZE / REV. B

2518906 B 3

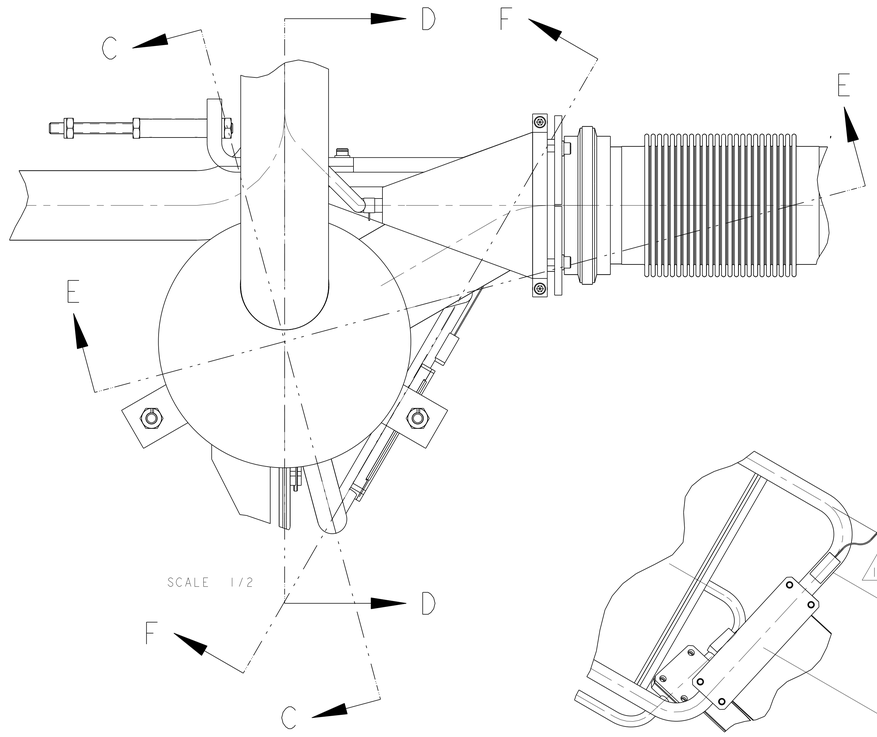
NAME:ARHARRIS OBJECT:251890.3 DATE:03-Dec-02 14:03:29



SECTION D - D
SCALE 1/2

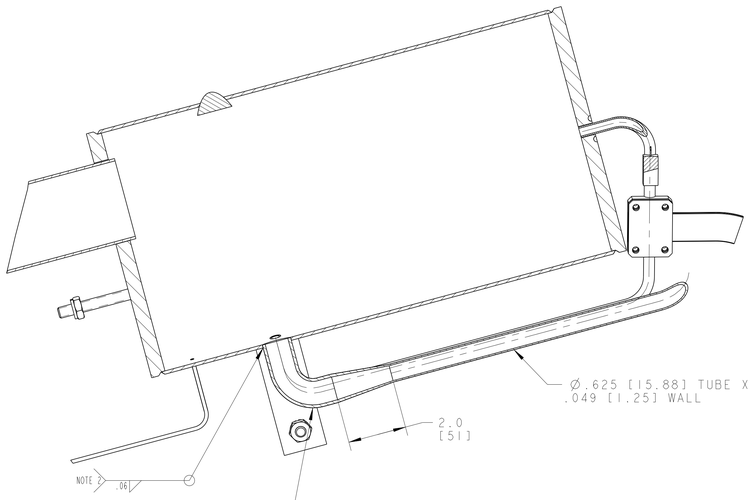


DETAIL J
SCALE 3/4

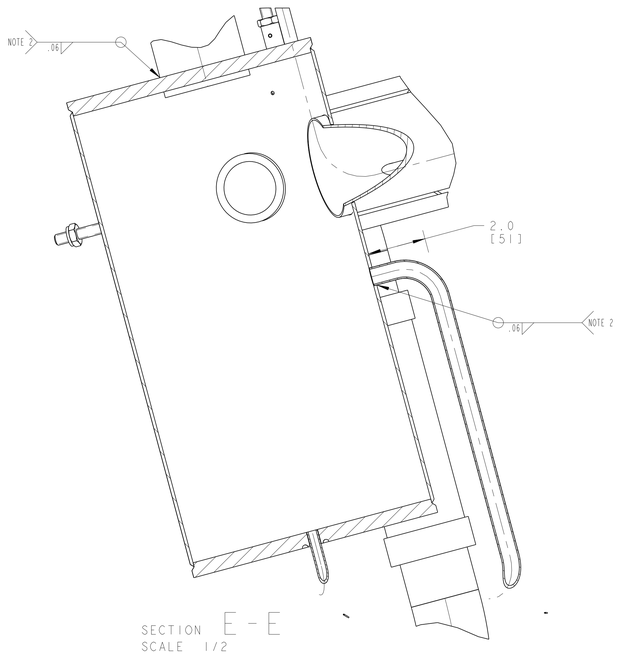


SCALE 1/2

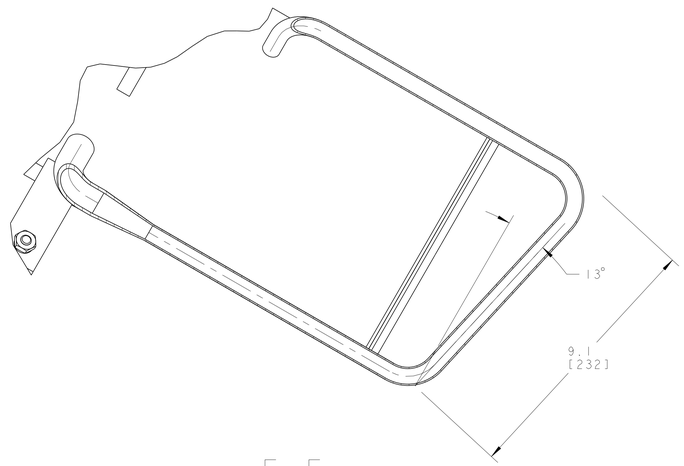
PARTIAL AUXILLIARY VIEW



SECTION C - C
SCALE 1/2



SECTION E - E
SCALE 1/2



SECTION F - F
SCALE 1/2

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY, UNIVERSITY OF CALIFORNIA · BERKELEY				
LHC IR FEEDBOX CRYOGENICS PIPE, XB				
MICROFILMED:	DWG. TYPE: ASSEM	SHOWN ON: -	SCALE: 1/4	DO NOT SCALE PRINTS
			SHEET 4 OF 4	
PATENT CLEAR:	DESIGN ACCT. NO.: Z5LCE2	CATEGORY CODE: LH2003	DWG. NO.: 2518906	SIZE: B REV:

2518906 REV B 4

NAME ARHARRIS OBJECT:2518904 DATE:03-Dec-02 14:03:30