



Jefferson Lab Alignment Group

Data Transmittal

TO: Tim Whitlatch, Brian Carpenter

DATE : Aug 4, 2003

FROM: Chris Gould

Checked:

L884

DETAILS:

The following are the results of the NL11 upgrade space frame 03 inspection performed the week of July 21, 2003. A right hand coordinate system was established with the central axis running through the average outer diameters of the twenty support rings. Ring one is upstream and ring twenty is downstream. An average plane through the top two tubes controls roll. Positive X is to the beam left and positive Y is up. Positive Z runs downstream with Z = 0 as the average of the four upstream tubes. Values are in inches and degrees. Note: the Z values for the rings are reported to the downstream side with the exception of rings 4, 8, 12 and 16 which are reported to the upstream side.

Ring	X	Y	Z	OD	ID
1	-0.02	0.00	4.13	29.71	23.74
2	0.00	0.04	24.88	29.71	23.76
3	0.00	0.05	43.46	29.72	23.74
4	0.02	0.02	62.71	29.72	23.73
5	-0.02	-0.03	64.34	29.77	23.75
6	-0.02	-0.04	82.89	29.74	23.75
7	0.01	0.00	103.66	29.71	23.76
8	0.05	-0.02	121.40	29.69	23.80
9	0.03	-0.02	123.10	29.70	23.76
10	-0.03	-0.01	144.36	29.71	23.73
11	-0.03	-0.01	162.43	29.73	23.74
12	0.03	-0.01	182.89	29.71	23.77
13	0.01	-0.02	184.51	29.71	23.76
14	-0.01	0.01	203.06	29.71	23.76
15	-0.01	0.00	223.82	29.68	23.75
16	0.02	0.03	241.55	29.67	23.78
17	-0.02	-0.05	243.24	29.74	23.77
18	-0.01	0.03	263.27	29.71	23.76
19	-0.01	0.02	281.83	29.72	23.76
20	0.01	0.01	302.64	29.73	23.78

Overall Length = 305.95

Straightness

Top Beam Left Tube = 0.09

Bottom Beam Left Tube = 0.09

Top Beam Right Tube = 0.10

Bottom Beam Right Tube = 0.11

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Tube Locations

X

Y

Ring 1

Top BL	10.71	7.98
Bot BL	9.25	-9.63
Top BR	-10.81	7.89
Bot BR	-9.19	-9.71

Ring 20

Top BL	10.81	7.86
Bot BL	9.17	-9.72
Top BR	-10.73	8.00
Bot BR	-9.32	-9.62

Slot angles and Z dimension

16 sets with set 1 being upstream.

(The Z dimension of the slots is reported to downstream radius point)

Angle

Z

Set 1

Top BL	28.6	2.40
Bot BL	27.8	2.44
Top BR	27.9	2.42
Bot BR	28.6	2.46

Set 2

Top BL	27.7	28.58
Bot BL	28.7	28.59
Top BR	28.8	28.59
Bot BR	28.1	28.62

Set 3

Top BL	27.2	41.76
Bot BL	29.0	41.77
Top BR	29.1	41.76
Bot BR	27.8	41.78

Set 4

Top BL	29.4	68.06
Bot BL	27.2	67.99
Top BR	28.5	68.05
Bot BR	28.4	67.99

Set 5

Top BL	28.6	81.22
Bot BL	27.7	81.15
Top BR	28.8	81.20
Bot BR	28.1	81.14

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	Angle	Z
Set 6		
Top BL	28.1	107.38
Bot BL	28.5	107.33
Top BR	29.8	107.38
Bot BR	27.5	107.32
Set 7		
Top BL	28.3	120.56
Bot BL	28.2	120.51
Top BR	29.7	120.56
Bot BR	27.8	120.49
Set 8		
Top BL	29.0	146.72
Bot BL	26.8	146.72
Top BR	27.3	146.71
Bot BR	28.8	146.80
Set 9		
Top BL	28.2	159.91
Bot BL	27.1	159.88
Top BR	27.7	159.90
Bot BR	28.5	159.92
Set 10		
Top BL	28.1	186.11
Bot BL	27.8	186.16
Top BR	27.6	186.13
Bot BR	28.6	186.16
Set 11		
Top BL	28.4	199.29
Bot BL	27.4	199.35
Top BR	27.7	199.32
Bot BR	28.8	199.35
Set 12		
Top BL	27.5	225.44
Bot BL	28.6	225.51
Top BR	28.3	225.47
Bot BR	28.1	225.48
Set 13		
Top BL	27.0	238.60
Bot BL	28.6	238.69
Top BR	28.6	238.63
Bot BR	27.4	238.65

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	Angle	Z
Set 14		
Top BL	26.9	264.95
Bot BL	28.8	264.91
Top BR	29.1	264.89
Bot BR	27.4	264.88
Set 15		
Top BL	27.5	278.15
Bot BL	28.2	278.09
Top BR	28.5	278.07
Bot BR	27.5	278.06
Set 16		
Top BL	29.3	304.29
Bot BL	27.8	304.25
Top BR	27.7	304.21
Bot BR	28.8	304.19