



# Jefferson Lab Alignment Group

## Data Transmittal

**TO:** Tim Whitlatch and Brian Carpenter

**DATE :** Aug 4, 2003

**FROM:** Richard Schwartz

**Checked:**

**#** DT\_Z883

### DETAILS:

The following are the results of the SNS medium beta space frame 08 inspection performed the week of July 28, 2003. A right hand coordinate system was established with the central axis running through the average outer diameters of the six support rings. Ring one is upstream and ring six 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. Attached is the check sheet with measured values to the corresponding features.

| Ring | X     | Y     | OD    | ID    | Thickness |
|------|-------|-------|-------|-------|-----------|
| 1    | -0.01 | 0.04  | 36.71 | 30.86 | 0.76      |
| 2    | 0.03  | -0.03 | 36.70 | 30.80 | 1.46      |
| 3    | -0.02 | 0.01  | 36.64 | 30.73 | 0.74      |
| 4    | 0.01  | -0.08 | 36.76 | 30.82 | 0.75      |
| 5    | -0.02 | 0.02  | 36.58 | 30.80 | 1.45      |
| 6    | 0.01  | 0.03  | 36.71 | 30.80 | 0.74      |

|                                       | Ring 2 | Ring 5 |
|---------------------------------------|--------|--------|
| .750-10 UNC thru hole                 |        |        |
| (Drawing value = 14.8( Top 14.9( Bot) |        |        |
| BL Top                                | 14.8   | 14.9   |
| BL Bot                                | 14.9   | 14.7   |
| BR Top                                | 14.8   | 14.9   |
| BR Bot                                | 15.0   | 14.9   |
| Bolt circle                           |        |        |
| (Drawing value = 17.04 Radial dist.)  |        |        |
| BL Top                                | 17.09  | 17.08  |
| BL Bot                                | 17.09  | 17.07  |
| BR Top                                | 17.01  | 17.01  |
| BR Bot                                | 17.02  | 17.00  |
| Counterbore diameter                  | 1.28   | 1.27   |
| Counterbore angle                     | 8.4    | 8.6    |
| Counterbore depth                     | 0.63   | 0.64   |

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Tube Hole Locations  
(Drawing Value = 11.93)

| Ring1            | X      | Y      |
|------------------|--------|--------|
| Tube Hole top BL | 11.95  | 12.00  |
| Tube Hole bot BL | 11.95  | -11.90 |
| Tube Hole top BR | -11.90 | 12.03  |
| Tube Hole bot BR | -11.91 | -11.86 |
| <b>Ring 2</b>    |        |        |
| Tube Hole top BL | 11.93  | 11.95  |
| Tube Hole bot BL | 11.93  | -11.93 |
| Tube Hole top BR | -11.91 | 11.95  |
| Tube Hole bot BR | -11.86 | -11.91 |
| <b>Ring 3</b>    |        |        |
| Tube Hole top BL | 11.92  | 11.93  |
| Tube Hole bot BL | 11.98  | -11.95 |
| Tube Hole top BR | -11.89 | 11.91  |
| Tube Hole bot BR | -11.84 | -11.96 |
| <b>Ring 4</b>    |        |        |
| Tube Hole top BL | 11.94  | 11.96  |
| Tube Hole bot BL | 11.99  | -11.96 |
| Tube Hole top BR | -11.90 | 11.94  |
| Tube Hole bot BR | -11.91 | -11.98 |
| <b>Ring 5</b>    |        |        |
| Tube Hole top BL | 11.92  | 11.98  |
| Tube Hole bot BL | 11.99  | -11.87 |
| Tube Hole top BR | -11.90 | 11.98  |
| Tube Hole bot BR | -11.88 | -11.92 |
| <b>Ring 6</b>    |        |        |
| Tube Hole top BL | 11.92  | 12.05  |
| Tube Hole bot BL | 12.00  | -11.79 |
| Tube Hole top BR | -11.90 | 12.02  |
| Tube Hole bot BR | -11.88 | -11.84 |

|                                      | Ring1 | Ring2 | Ring 3 | Ring 4 | Ring5 | Ring 6 |
|--------------------------------------|-------|-------|--------|--------|-------|--------|
| Offset Hole<br>(drawing value = .88) |       |       |        |        |       |        |
| BL                                   | 0.89  | 0.89  | 0.90   | 0.90   |       | 0.88   |
| BR                                   | -0.84 |       | -0.89  | -0.87  | -0.87 | -0.87  |

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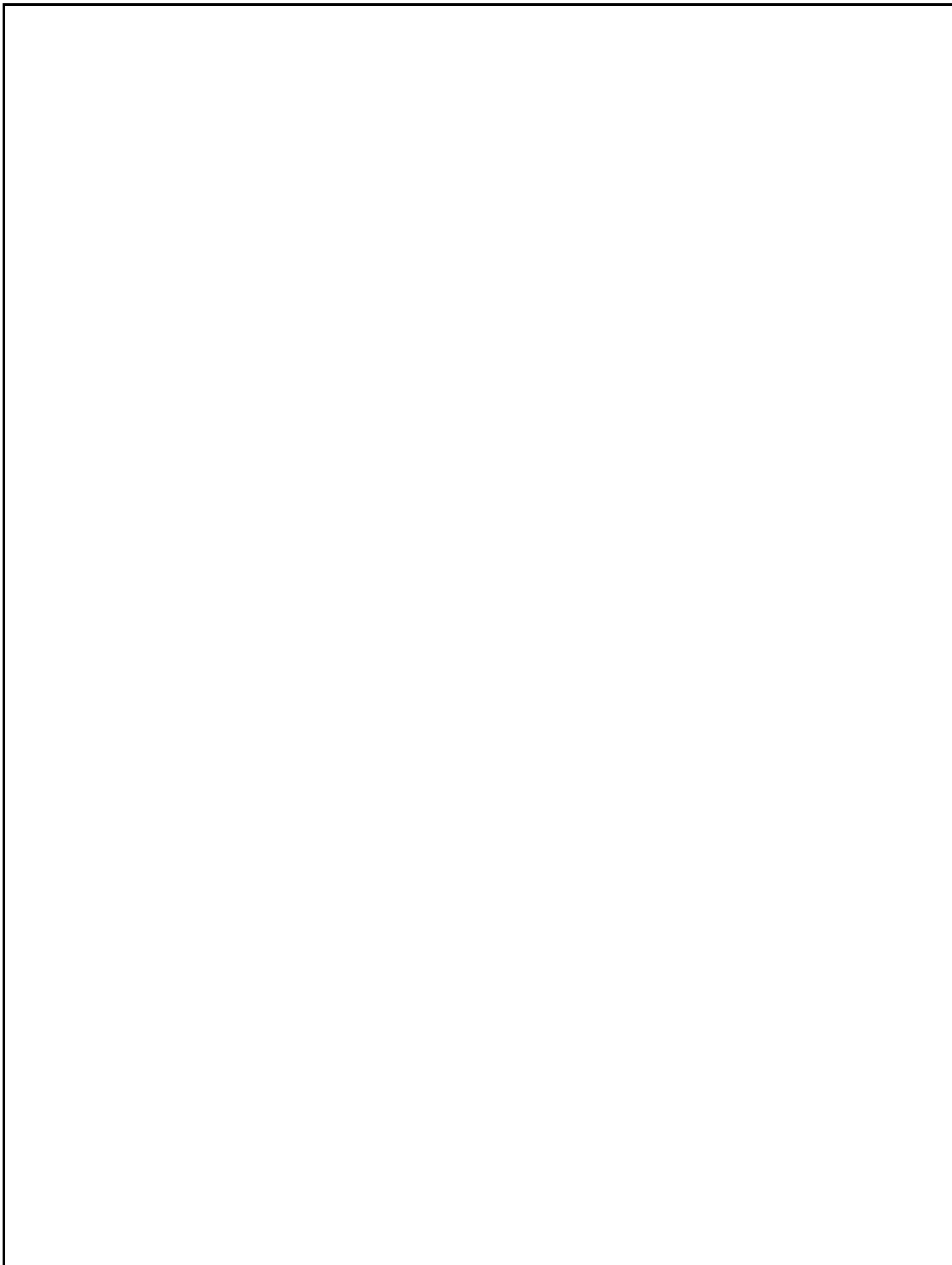
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Location of ring cut-outs using the intersections of the top and bottom planes projected to the upstream and downstream sides of each ring.

|       |          | X     | Y      |
|-------|----------|-------|--------|
| Ring1 | Upst. BL | 7.19  | -14.71 |
|       | Upst. BR | -7.27 | -14.59 |
|       | Dnst. BL | 7.19  | -14.84 |
|       | Dnst. BR | -7.27 | -14.95 |
| Ring2 | Upst. BL | 7.20  | -14.52 |
|       | Upst. BR | -7.06 | -14.83 |
|       | Dnst. BL | 7.20  | -14.73 |
|       | Dnst. BR | -7.05 | -14.98 |
| Ring3 | Upst. BL | 7.13  | -14.79 |
|       | Upst. BR | -7.21 | -14.77 |
|       | Dnst. BL | 7.12  | -14.94 |
|       | Dnst. BR | -7.22 | -14.74 |
| Ring4 | Upst. BL | 7.32  | -14.71 |
|       | Upst. BR | -7.09 | -14.89 |
|       | Dnst. BL | 7.32  | -14.80 |
|       | Dnst. BR | -7.09 | -15.15 |
| Ring5 | Upst. BL | 6.94  | -14.96 |
|       | Upst. BR | -7.19 | -14.72 |
|       | Dnst. BL | 6.95  | -15.92 |
|       | Dnst. BR | -7.20 | -14.50 |
| Ring6 | Upst. BL | 7.21  | -14.84 |
|       | Upst. BR | -7.04 | -14.74 |
|       | Dnst. BL | 7.19  | -14.64 |
|       | Dnst. BR | -7.03 | -15.16 |

Slots for nitronic rods.

|                | 0.80 Feature<br>Size | 1.50 Feature<br>Size | 0.625 Feature<br>Size |
|----------------|----------------------|----------------------|-----------------------|
| R1 slot top BR | 0.77                 | 1.54                 | 0.63                  |
| R1 slot bot BR | 0.77                 | 1.52                 | 0.65                  |
| R1 slot top BL | 0.78                 | 1.53                 | 0.63                  |
| R1 slot bot BL | 0.78                 | 1.51                 | 0.63                  |
| R6 slot top BR | 0.79                 | 1.52                 | 0.63                  |
| R6 slot bot BR | 0.79                 | 1.52                 | 0.64                  |
| R6 slot top BL | 0.77                 | 1.53                 | 0.63                  |
| R6 slot bot BL | 0.79                 | 1.53                 | 0.63                  |



|                                                                     |  |                                |    |
|---------------------------------------------------------------------|--|--------------------------------|----|
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