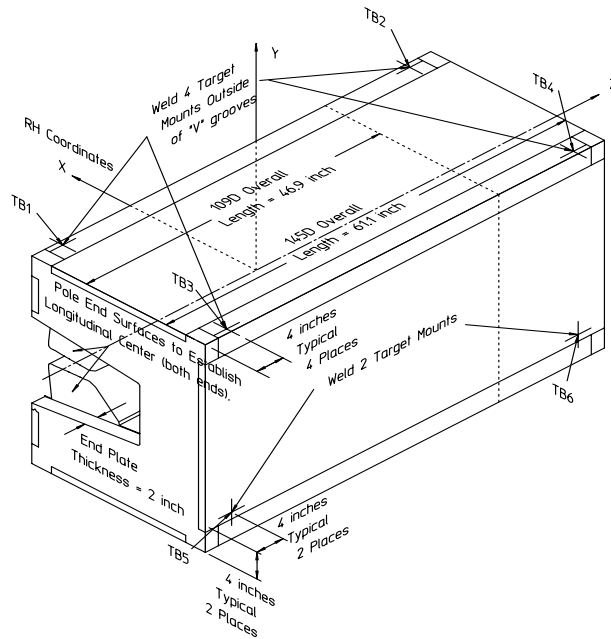


<b>Gradient Dipole Magnet Checks</b>	<b>145D03</b>
--------------------------------------	---------------

Date: <input style="width: 80%;" type="text" value="5/31/01"/>	Magnet: <input style="width: 80%;" type="text" value="145D03"/>	Operators: <input style="width: 80%;" type="text" value="M. Rogers"/> <input style="width: 80%;" type="text" value="H. Imfeld"/>
Notes: <div style="border: 1px solid black; padding: 5px; min-height: 40px;"> <p style="color: red; margin: 0;"><b>Magnetic vs. Mechanical offset NOT applied (June 2002)</b></p> </div>		



**Magnetic Fiducial Coordinates: (inches)**

Fiducial	Z	X	Y	
TB1	-26.5557	3.4421	17.0093	
TB2	26.5467	3.4440	17.0000	
TB3	-26.5486	-22.4059	17.0052	
TB4	26.5952	-22.3976	17.0020	
TB5	-26.4541	-24.2572	-11.6116	
TB6	26.4529	-24.2613	-11.6735	

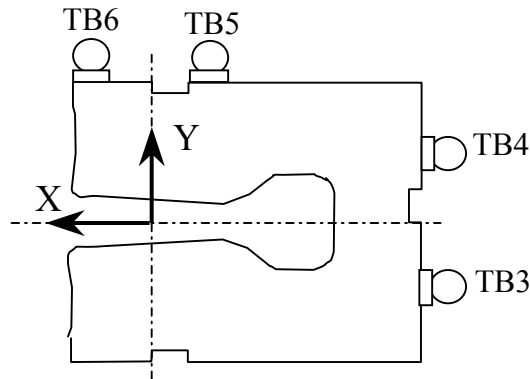
Offset:  inches

**Description:**  
 Fiducial values based on the x-offset of the mechanical center line to the magnetic.

**Downstream Garage Mechanical Check:**

145D03  
Status

Horizontal (X) 0.072 mm	Vertical (Y) -0.079 mm	X-value: Y-value:	OK OK
<p><b>Description:</b> How much does the Z-axis from the US garage miss the center of the DS garage?</p>			

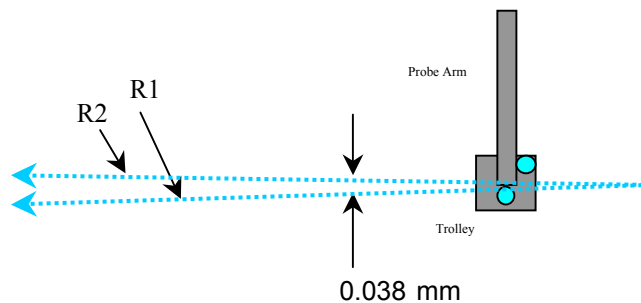


**Trolley Checks:**

145D03  
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.362 mm	3D Distance R2 2800.317 mm	R2 - R1 (mm) -0.045	OK
<p><b>Description:</b> Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.</p>			

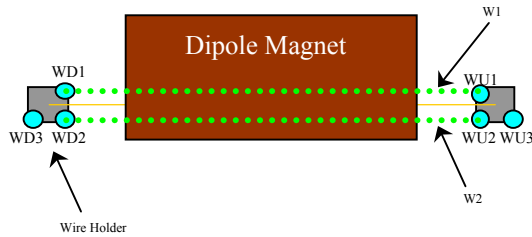
<u>Z-axis Vector</u>			
3D Angle 0.0270	Yaw 0.0082	Pitch 0.0257 mrad	Midpoint 3D Offset (mm) 0.038
<p><b>Description:</b> Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



**Wire Holder Position Checks:**

145D03  
Status

<u>Wire Holders' Yaw Check</u>			
3D Distance W1	3D Distance W2	<u>W2 - W1 (mm)</u>	
2383.195 mm	2382.924 mm	-0.271	<b>OK</b>
<b>Description:</b> Distance between wire holders for TB1 and TB2.			

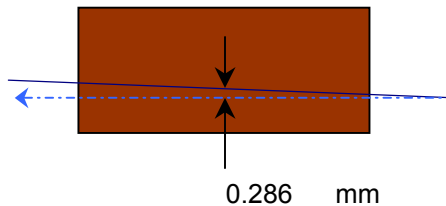


**Wire Position Checks:**

145D03  
Status

<u>Wire Orientation</u>				
3D Angle	Yaw	Pitch	<u>Midpoint 3D Offset (mm)</u>	
0.0397	0.0087	-0.0387 mrad	0.047	<b>OK</b>
<b>Description:</b> Orientation of wire with respect to Z-axis defining axis of dipole.				

<u>Wire Offsets</u>				
US	Origin	DS	Origin Offset:	
0.275	<b>0.286</b>	0.296 mm		<b>Too Big?</b>
<b>Description:</b> Offset distance from the mechanical center to the wire. ( x-offsets only! )				



**End Surface Orientation Check and Magnet Length:**

145D03  
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch		3D Offset (mm)
US:	0.3349	-0.3345	-0.0160	mrad	~ 0.224
DS:	0.5094	0.3815	-0.3375		~ 0.341
					OK
					OK
<b>Description:</b>					
End surface orientation relative to reference frame.					
Note: 3D Offset based on average of width and height of the magnet side.					

<u>Length of Magnet</u>			
Distance <b>with SMR</b>	Distance		
1590.466 mm	1552.366 mm		LENGTH?
<b>Description:</b>			
Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)			

**Top Surface Orientation Check:**

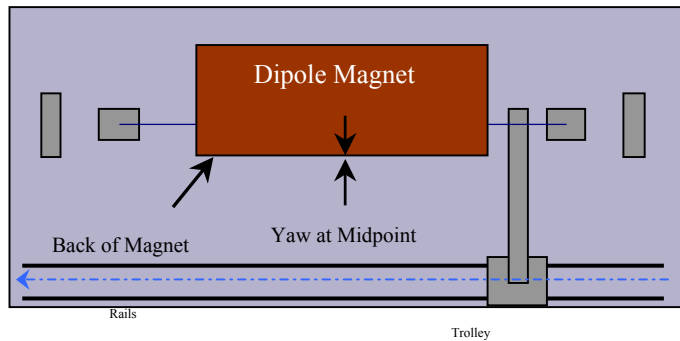
145D03  
Status

<u>Top of Magnet</u>					
Height (Y-value) <b>with 0.75"</b>		Delta Y			
Corner 1	412.900 mm		0.131	Delta Y C1:	OK
Corner 2	412.826 mm		0.057	Delta Y C2:	OK
Corner 3	412.913 mm		0.144	Delta Y C3:	OK
Corner 4	412.769 mm		0.000	Delta Y C4:	OK
Dispersion:					
Corner 1	0.039 mm				
Corner 2	0.033 mm				
Corner 3	0.036 mm				
Corner 4	0.039 mm				
Overall	0.046 mm				
3D Angle	Roll	Pitch		Roll (mm)	
0.0929	0.0502	0.0781	mrad	~ 0.027	OK
				Pitch (mm)	
				~ 0.121	OK
Twist:	Roll	Pitch		Twist:	
	-0.1296	-0.0451	mrad		OK
	-0.070	-0.070	mm		
<b>Description:</b>					
Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)					

**Back Surface Orientation Check:**

145D03  
Status

<u>Back of Magnet</u>					
Horizontal (X-value)		Delta X			
US:	115.601	mm		0.013	
Origin:	115.595	mm		0.007	
DS:	115.588	mm		0.000	
3D Angle		Roll	Yaw		
	0.3102	-0.3100	-0.0097		mrad
				<u>Midpoint</u>	
				<u>Yaw in mm</u>	
				-0.008	<b>OK</b>
<b>Description:</b>					
<i>Position of scanned half of back surface of magnet for yaw check. (With 0.75" SMR offset.)</i>					



**Gradient Magnet  
Magnetic Measurements/Fiducialization Traveller**

Approval must be obtained before going on to the next procedure or removing the magnet from the test stand.

Magnetic Measurements Approval by – Jack Tanabe or Nanyang Li

Fiducialization Approval by – Jack Tanabe or Tony King

Magnet Serial Number: 145D03

Capacitive System Alignment

Date \_\_\_\_\_, Operator \_\_\_\_\_

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 5/31/01 Operator: M. Rogers

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Water, Power and Interlock Connections.

Date \_\_\_\_\_, Operator \_\_\_\_\_

Measured Water Flow \_\_\_\_\_ gpm at  $\Delta p =$  \_\_\_\_\_ psi

Maximum Conditioning Current: \_\_\_\_\_ Amps

Wire Magnetic Measurements

Currents \_\_\_\_\_

Summary File Name(s) \_\_\_\_\_

Date \_\_\_\_\_, Operator \_\_\_\_\_ Approval \_\_\_\_\_

Coil Magnetic Measurements: Required \_\_\_\_\_ Yes \_\_\_\_\_ No.

Currents \_\_\_\_\_

Summary File Name(s) \_\_\_\_\_

Date \_\_\_\_\_, Operator \_\_\_\_\_ Approval \_\_\_\_\_

**Gradient Magnet  
Reduced Data Sheet**

Approval must be obtained before removing magnet from test stand.  
Magnetic Measurements Approval by – Jack Tanabe or Tony King.

Magnet Serial Number: 145D03

Magnetic Measurements Operator: \_\_\_\_\_ Date: \_\_\_\_\_

Measured Magnetic Center Offset: 0.286 mm

Measured at:

Integrated Field: \_\_\_\_\_ T-m @ \_\_\_\_\_ Amps

Corrected to:

Integrated Field: XX.XXX T-m @ XXX.XXX Amps

**Fiducialization:**

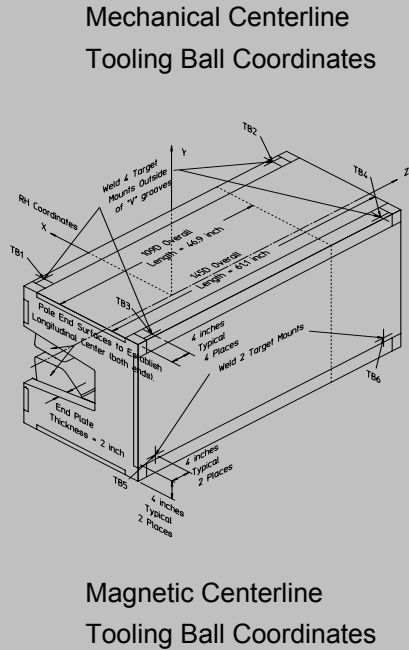
Operator(s): M. Rogers H. Imfeld

Date: 5/31/01

Temp: 26.5 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-674.516	87.429	432.037
TB2	674.286	87.478	431.800
TB3	-674.334	-569.110	431.931
TB4	675.518	-568.898	431.852
TB5	-671.933	-616.134	-294.935
TB6	671.903	-616.236	-296.507

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-674.516	87.429	432.037
TB2	674.286	87.478	431.800
TB3	-674.334	-569.110	431.931
TB4	675.518	-568.898	431.852
TB5	-671.933	-616.134	-294.935
TB6	671.903	-616.236	-296.507



**Check Measurements:**

Corner	X <sub>measured</sub> mm	X <sub>nominal</sub> mm
C1	96.551	96.520
C2	96.538	96.520

incl. paint no paint

	Y <sub>measured</sub> mm	Y <sub>nominal</sub> mm
C1	393.850	393.700
C2	393.776	393.700
C3	393.863	393.700
C4	393.719	393.700

incl. paint no paint

Approval: