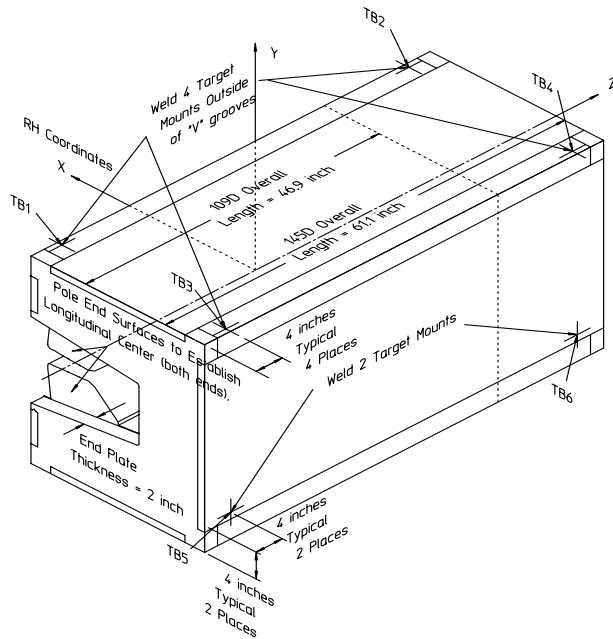


<b>Gradient Dipole Magnet Checks</b>	<b>145D28</b>
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Date: <input style="width: 80%;" type="text" value="10/31/01"/>	Magnet: <input style="width: 80%;" type="text" value="145D28"/>	Operators: <input style="width: 80%;" type="text" value="F. Gaudreault"/> <input style="width: 80%;" type="text" value="H. Imfeld"/>
Notes: <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p style="color: red; font-weight: bold;">Magnetic vs. Mechanical offset NOT applied (June 2002)</p> </div>		



**Magnetic Fiducial Coordinates: (inches)**

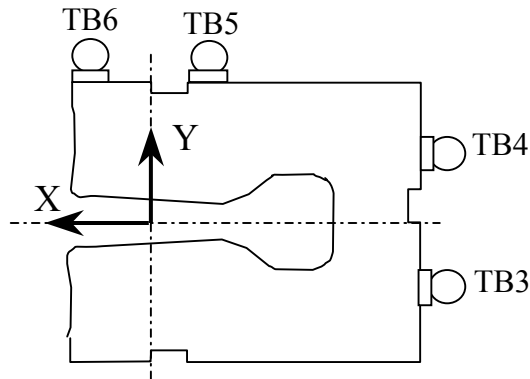
Fiducial	Z	X	Y	
TB1	-26.5441	3.4610	17.0009	Offset: <input style="width: 80px;" type="text" value="0.0202"/> inches
TB2	26.5241	3.4331	16.9972	
TB3	-26.5600	-22.4097	16.9952	
TB4	26.5492	-22.4030	16.9993	
TB5	-26.5624	-24.2387	-11.6407	
TB6	26.4503	-24.2470	-11.6578	

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

**Downstream Garage Mechanical Check:**

145D28  
Status

Horizontal (X) 0.073 mm	Vertical (Y) -0.060 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>			

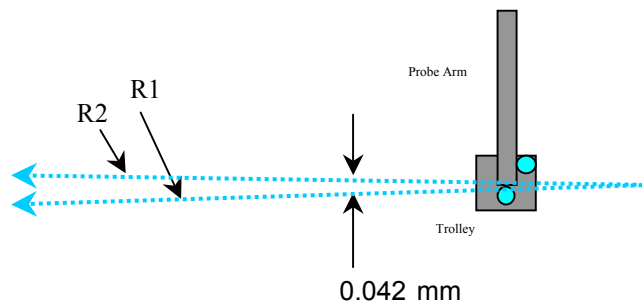


**Trolley Checks:**

145D28  
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.117 mm	3D Distance R2 2800.061 mm	R2 - R1 (mm) -0.056	OK
<p><b>Description:</b> Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.</p>			

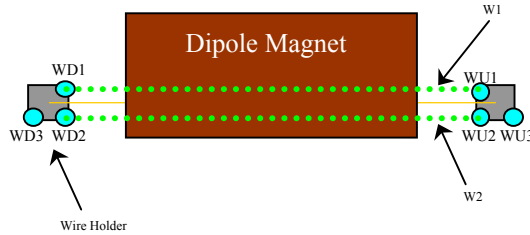
<u>Z-axis Vector</u>			
3D Angle Yaw 0.0297	Pitch 0.0136	0.0264 mrad	Midpoint 3D Offset (mm) 0.042
<p><b>Description:</b> Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



**Wire Holder Position Checks:**

145D28  
Status

<u>Wire Holders' Yaw Check</u>			
3D Distance W1 2383.511 mm	3D Distance W2 2382.999 mm	W2 - W1 (mm) -0.512	<b>OK</b>
<p><b>Description:</b> Distance between wire holders for TB1 and TB2.</p>			

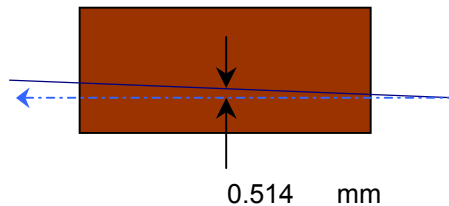


**Wire Position Checks:**

145D28  
Status

<u>Wire Orientation</u>				
3D Angle Yaw 0.0530	Pitch 0.0284	-0.0447 mrad	Midpoint 3D Offset (mm) 0.063	<b>OK</b>
<p><b>Description:</b> Orientation of wire with respect to Z-axis defining axis of dipole.</p>				

<u>Wire Offsets</u>				
US 0.480	Origin <b>0.514</b>	DS 0.548 mm	Origin Offset:	<b>Too Big?</b>
<p><b>Description:</b> Offset distance from the mechanical center to the wire. ( x-offsets only! )</p>				



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

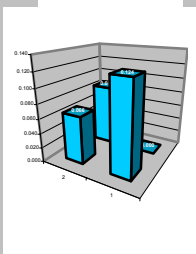
145D28  
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch	3D Offset (mm)	
US:	0.6995	-0.6819	-0.1561 mrad	~ 0.469	OK
DS:	0.5697	-0.1526	-0.5489	~ 0.382	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 with SMR	Distance		
1590.543 mm	1552.443 mm		LENGTH?
<b>Description:</b> Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)			

**Top Surface Orientation Check:**

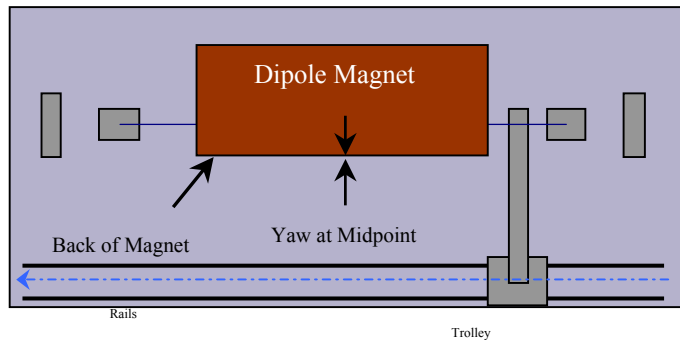
145D28  
Status

<u>Top of Magnet</u>					
Height (Y-value) with 0.75"		Delta Y			
Corner 1	412.811 mm		0.124	Delta Y C1:	OK
Corner 2	412.753 mm		0.066	Delta Y C2:	OK
Corner 3	412.687 mm		0.000	Delta Y C3:	OK
Corner 4	412.772 mm		0.085	Delta Y C4:	OK
Dispersion:					
Corner 1	0.016 mm				
Corner 2	0.021 mm				
Corner 3	0.027 mm				
Corner 4	0.025 mm				
Overall	0.050 mm				
3D Angle	Roll	Pitch		Roll (mm)	
0.1136	0.1128	-0.0130 mrad		~ 0.061	OK
				Pitch (mm)	
				~ -0.020	OK
Twist:	Roll	Pitch		Twist:	OK
	0.2648	0.0921 mrad			
	0.143	0.143 mm			
<b>Description:</b> Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)					

**Back Surface Orientation Check:**

145D28  
Status

<u>Back of Magnet</u>					
Horizontal (X-value)			Delta X		
US:	115.664	mm	0.000		
Origin:	115.751	mm	0.087		
DS:	115.838	mm	0.174		
3D Angle Roll			Yaw		
	0.5061	0.4907	0.1239	mrad	
				Midpoint	
				Yaw in mm	
				0.096	<b>OK</b>
<b>Description:</b>					
Position of scanned half of back surface of magnet for yaw check. (With 0.75" SMR offset.)					



**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: 145D28

Capacitive System Alignment

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

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 10/31/01 Operator: F. Gaudreault

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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: 145D28

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

Measured Magnetic Center Offset: 0.514 mm

Measured at:

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

Corrected to:

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

**Fiducialization:**

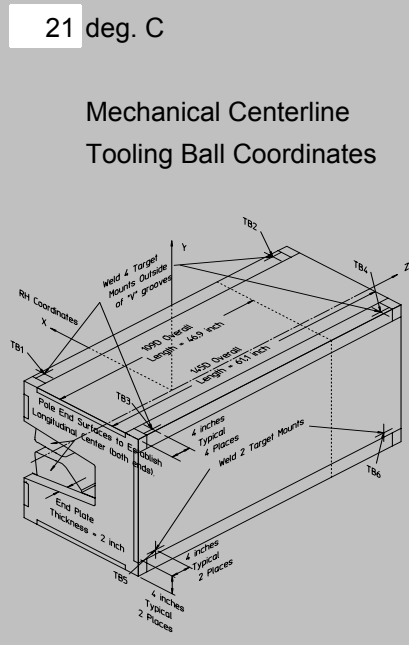
Operator(s): F. Gaudrea H. Imfeld

Date: 10/31/01

Temp: 21 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-674.221	87.910	431.822
TB2	673.713	87.201	431.728
TB3	-674.625	-569.207	431.678
TB4	674.350	-569.036	431.782
TB5	-674.685	-615.664	-295.674
TB6	671.837	-615.875	-296.108

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-674.221	87.910	431.822
TB2	673.713	87.201	431.728
TB3	-674.625	-569.207	431.678
TB4	674.350	-569.036	431.782
TB5	-674.685	-615.664	-295.674
TB6	671.837	-615.875	-296.108



Mechanical Centerline  
Tooling Ball Coordinates

Magnetic Centerline  
Tooling Ball Coordinates

**Check Measurements:**

Corner	X <sub>measured</sub> mm	X <sub>nominal</sub> mm
C1	96.614	96.520
C2	96.788	96.520

incl. paint    no paint

	Y <sub>measured</sub> mm	Y <sub>nominal</sub> mm
C1	393.761	393.700
C2	393.703	393.700
C3	393.637	393.700
C4	393.722	393.700

incl. paint    no paint

Approval: