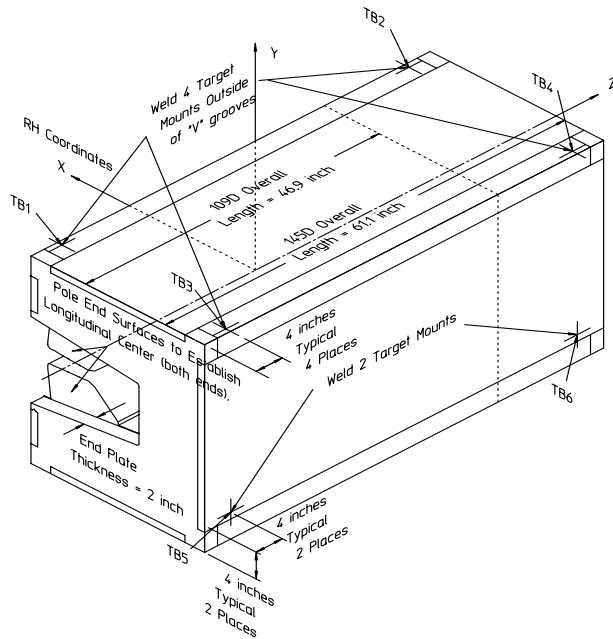


Gradient Dipole Magnet Checks	145D23
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Date:	Magnet:	Operators:
<input type="text" value="11/13/01"/>	<input type="text" value="145D23"/>	<input type="text" value="J. McDougal"/>
		<input type="text" value="H. Imfeld"/>
Notes:		
<p style="color: red; font-weight: bold;">Magnetic vs. Mechanical offset NOT applied (June 2002)</p>		



Magnetic Fiducial Coordinates: (inches)

Fiducial	Z	X	Y
TB1	-26.5513	3.4388	17.0030
TB2	26.5273	3.4485	17.0027
TB3	-26.5433	-22.4152	16.9929
TB4	26.5473	-22.4237	17.0043
TB5	-26.5031	-24.2441	-11.4903
TB6	26.6383	-24.2580	-11.5248

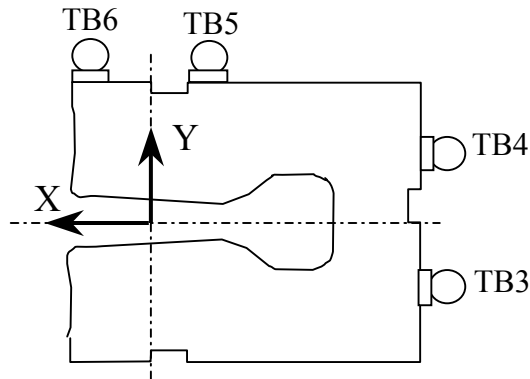
Offset: inches

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

Downstream Garage Mechanical Check:

145D23
Status

Horizontal (X) 0.081 mm	Vertical (Y) -0.028 mm	X-value: Y-value:	OK OK
<p>Description: How much does the Z-axis from the US garage miss the center of the DS garage?</p>			

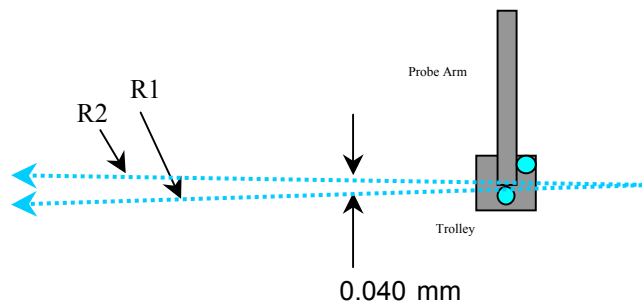


Trolley Checks:

145D23
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.134 mm	3D Distance R2 2800.077 mm	R2 - R1 (mm) -0.057	OK
<p>Description: Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.</p>			

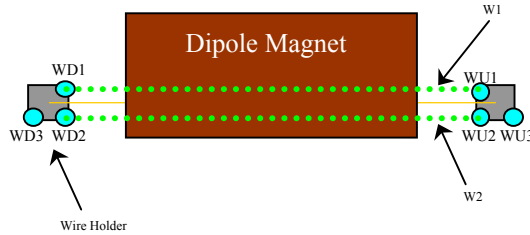
<u>Z-axis Vector</u>			
3D Angle Yaw 0.0284	Pitch 0.0160	0.0234 mrad	Midpoint 3D Offset (mm) 0.040
<p>Description: Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



Wire Holder Position Checks:

145D23
Status

<u>Wire Holders' Yaw Check</u>			
3D Distance W1 2383.840 mm	3D Distance W2 2383.398 mm	W2 - W1 (mm) -0.442	OK
<p>Description: Distance between wire holders for TB1 and TB2.</p>			

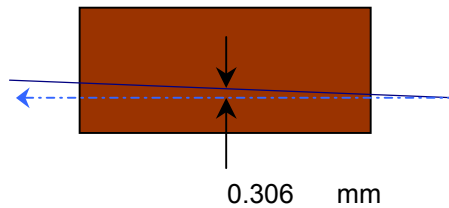


Wire Position Checks:

145D23
Status

<u>Wire Orientation</u>				
3D Angle Yaw 0.0608	Pitch 0.0246	-0.0556 mrad	Midpoint 3D Offset (mm) 0.072	OK
<p>Description: Orientation of wire with respect to Z-axis defining axis of dipole.</p>				

<u>Wire Offsets</u>				
US 0.277	Origin 0.306	DS 0.335 mm	Origin Offset:	Too Big?
<p>Description: Offset distance from the mechanical center to the wire. (x-offsets only!)</p>				



End Surface Orientation Check and Magnet Length:

145D23
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch	3D Offset (mm)	
US:	0.5443	-0.5441	-0.0146	~ 0.365	OK
DS:	1.4095	-0.4300	-1.3423	~ 0.944	Too Big?
<p>Description: End surface orientation relative to reference frame. Note: 3D Offset based on average of width and height of the magnet side.</p>					

<u>Length of Magnet</u>			
Distance with SMR	Distance		
1590.796 mm	1552.696 mm		LENGTH?
<p>Description: Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)</p>			

Top Surface Orientation Check:

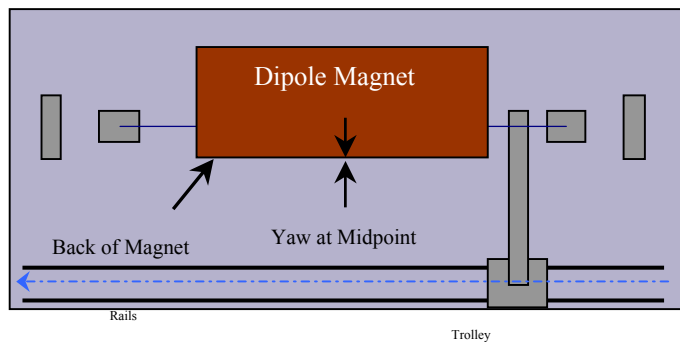
145D23
Status

<u>Top of Magnet</u>					
Height (Y-value) with 0.75"		Delta Y			
Corner 1	412.857 mm		0.238	Delta Y C1:	OK
Corner 2	412.864 mm		0.245	Delta Y C2:	OK
Corner 3	412.619 mm		0.000	Delta Y C3:	OK
Corner 4	412.874 mm		0.255	Delta Y C4:	OK
Dispersion:					
Corner 1	0.028 mm				
Corner 2	0.024 mm				
Corner 3	0.033 mm				
Corner 4	0.029 mm				
Overall	0.066 mm				
3D Angle	Roll	Pitch		Roll (mm)	
0.2165	0.1955	-0.0929	mrad	~ 0.106	OK
				Pitch (mm)	
				~ -0.144	OK
Twist:	Roll	Pitch		Twist:	OK
	0.4593	0.1597	mrad		
	0.248	0.248	mm		
<p>Description: Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)</p>					

Back Surface Orientation Check:

145D23
Status

<u>Back of Magnet</u>					
Horizontal (X-value)			Delta X		
US:	115.648	mm	0.000		
Origin:	115.706	mm	0.058		
DS:	115.764	mm	0.116		
3D Angle Roll			Yaw		
	0.3208	0.3100	0.0824	mrad	
					Midpoint
					Yaw in mm
					0.064
					OK
Description:					
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: 145D23

Capacitive System Alignment

Date _____, Operator _____

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 11/13/01 Operator: J. McDougal

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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: 145D23

Magnetic Measurements Operator: _____ Date: _____

Measured Magnetic Center Offset: 0.306 mm

Measured at:

Integrated Field: _____ T-m @ _____ Amps

Corrected to:

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

Fiducialization:

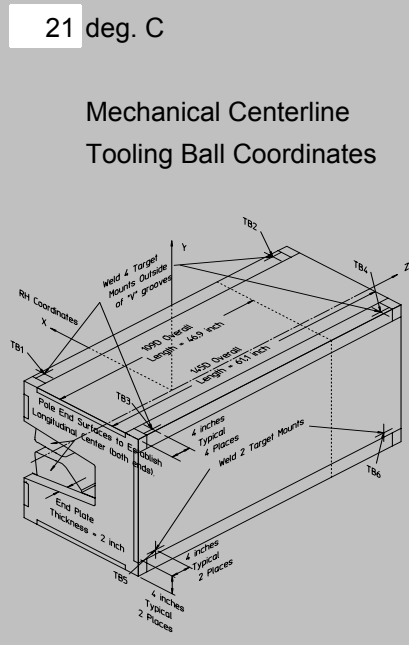
Operator(s): J. McDougall H. Imfeld

Date: 11/13/01

Temp: 21 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-674.403	87.346	431.875
TB2	673.794	87.592	431.868
TB3	-674.201	-569.347	431.619
TB4	674.302	-569.563	431.908
TB5	-673.178	-615.801	-291.854
TB6	676.614	-616.152	-292.729

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-674.403	87.346	431.875
TB2	673.794	87.592	431.868
TB3	-674.201	-569.347	431.619
TB4	674.302	-569.563	431.908
TB5	-673.178	-615.801	-291.854
TB6	676.614	-616.152	-292.729



Check Measurements:

Corner	X _{measured} mm	X _{nominal} mm
C1	96.598	96.520
C2	96.714	96.520

incl. paint no paint

	Y _{measured} mm	Y _{nominal} mm
C1	393.807	393.700
C2	393.814	393.700
C3	393.569	393.700
C4	393.824	393.700

incl. paint no paint

Approval: