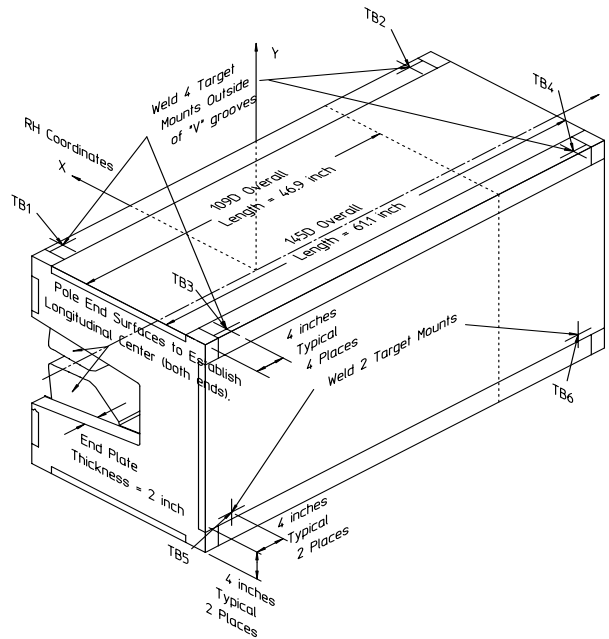


Gradient Dipole Magnet Checks	145D13
--------------------------------------	---------------

Date: <input style="width: 80%;" type="text" value="7/24/01"/>	Magnet: <input style="width: 80%;" type="text" value="145D13"/>	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;">Magnetic vs. Mechanical offset NOT applied (June 2002)</p> </div>		



Magnetic Fiducial Coordinates: (inches)

Fiducial	Z	X	Y
TB1	-26.5515	3.4296	17.0070
TB2	26.5344	3.4299	17.0202
TB3	-26.5249	-22.4185	17.0024
TB4	26.5736	-22.3912	17.0070
TB5	-26.9060	-24.2553	-11.5924
TB6	26.4379	-24.2723	-11.3569

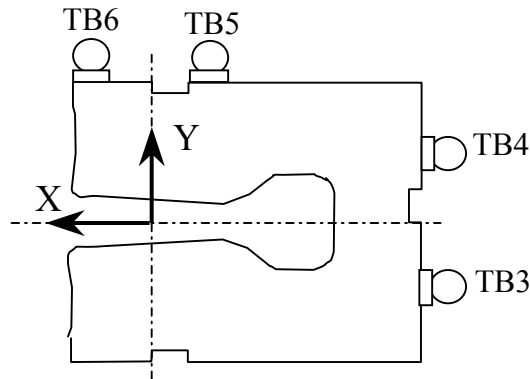
Offset: inches

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

Downstream Garage Mechanical Check:

145D13
Status

Horizontal (X) 0.081 mm	Vertical (Y) -0.092 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>			

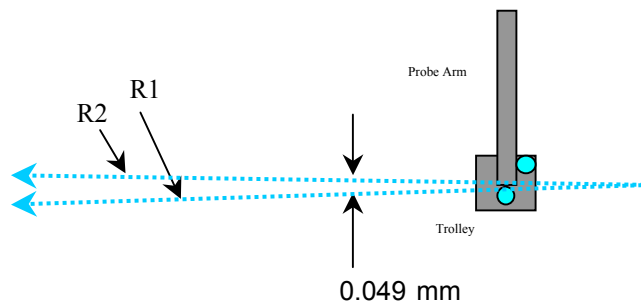


Trolley Checks:

145D13
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.151 mm	3D Distance R2 2800.096 mm	R2 - R1 (mm) -0.055	OK
<p>Description: Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.</p>			

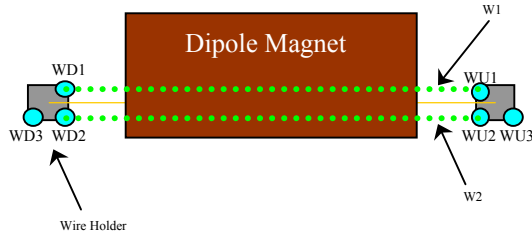
<u>Z-axis Vector</u>			
3D Angle 0.0352	Yaw 0.0154	Pitch 0.0317 mrad	Midpoint 3D Offset (mm) 0.049
<p>Description: Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



Wire Holder Position Checks:

145D13
Status

<u>Wire Holders' Yaw Check</u>				
3D Distance W1	3D Distance W2		<u>W2 - W1 (mm)</u>	
2382.818 mm	2382.563 mm		-0.255	OK
Description: Distance between wire holders for TB1 and TB2.				

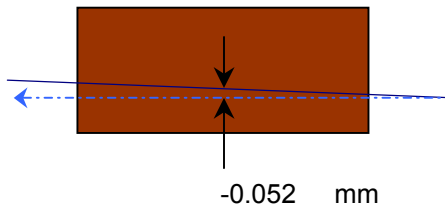


Wire Position Checks:

145D13
Status

<u>Wire Orientation</u>					
3D Angle	Yaw	Pitch		<u>Midpoint 3D Offset (mm)</u>	
0.0401	0.0167	-0.0364	mrad	0.048	OK
Description: Orientation of wire with respect to Z-axis defining axis of dipole.					

<u>Wire Offsets</u>					
US	Origin	DS		Origin Offset:	
-0.072	-0.052	-0.032	mm		OK
Description: Offset distance from the mechanical center to the wire. (x-offsets only!)					



End Surface Orientation Check and Magnet Length:

145D13
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch		
US:	1.2025	-0.5427	1.0732	mrad	
DS:	1.2275	-0.6700	1.0285		
				3D Offset (mm)	
				~ 0.806	Too Big?
				~ 0.822	Too Big?
Description:					
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		
1590.383 mm	1552.283 mm		LENGTH?
Description:			
Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)			

Top Surface Orientation Check:

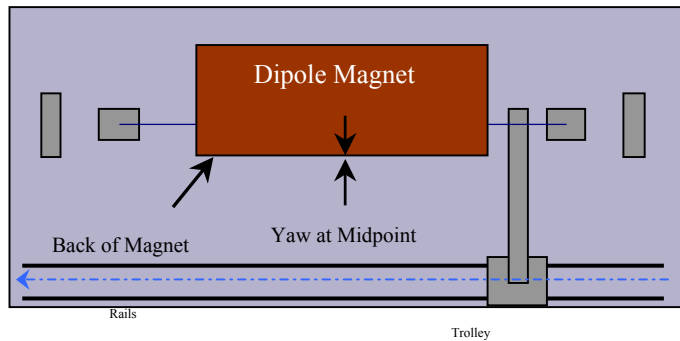
145D13
Status

<u>Top of Magnet</u>					
Height (Y-value) with 0.75"		Delta Y			
Corner 1	412.985 mm		0.152	Delta Y C1:	OK
Corner 2	413.012 mm		0.179	Delta Y C2:	OK
Corner 3	412.833 mm		0.000	Delta Y C3:	OK
Corner 4	412.871 mm		0.038	Delta Y C4:	OK
Dispersion:					
Corner 1	0.041 mm				
Corner 2	0.024 mm				
Corner 3	0.054 mm				
Corner 4	0.028 mm				
Overall	0.047 mm				
3D Angle	Roll	Pitch		Roll (mm)	
0.2566	0.2540	-0.0363	mrad	~ 0.137	OK
Twist:		Roll	Pitch	Pitch (mm)	
		0.0204	0.0071	~ -0.056	OK
		0.011	0.011	mm	
				Twist:	OK
Description:					
Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)					

Back Surface Orientation Check:

145D13
Status

<u>Back of Magnet</u>					
Horizontal (X-value)			Delta X		
US:	115.567	mm	0.028		
Origin:	115.553	mm	0.014		
DS:	115.539	mm	0.000		
3D Angle		Roll	Yaw		
	0.0370	-0.0311	-0.0201	mrad	
				Midpoint	
				Yaw in mm	
				-0.016	OK
Description:					
<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: 145D13

Capacitive System Alignment

Date _____, Operator _____

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 7/24/01 Operator: M. Rogers

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: 145D13

Magnetic Measurements Operator: _____ Date: _____

Measured Magnetic Center Offset: -0.052 mm

Measured at:

Integrated Field: _____ T-m @ _____ Amps

Corrected to:

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

Fiducialization:

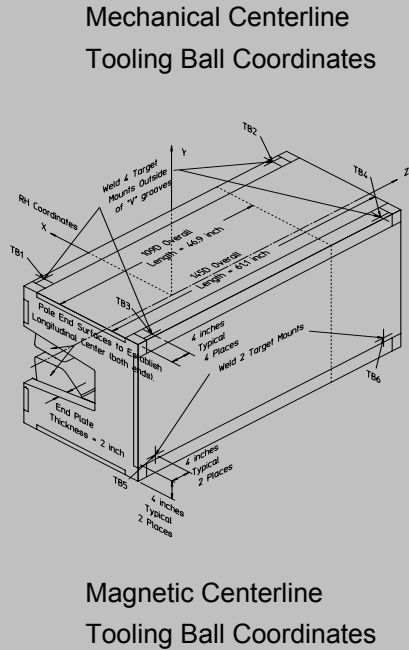
Operator(s): M. Rogers H. Imfeld

Date: 7/24/01

Temp: 23 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-674.407	87.113	431.978
TB2	673.974	87.119	432.313
TB3	-673.732	-569.431	431.862
TB4	674.970	-568.736	431.978
TB5	-683.412	-616.085	-294.447
TB6	671.523	-616.517	-288.464

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-674.407	87.113	431.978
TB2	673.974	87.119	432.313
TB3	-673.732	-569.431	431.862
TB4	674.970	-568.736	431.978
TB5	-683.412	-616.085	-294.447
TB6	671.523	-616.517	-288.464



Check Measurements:

Corner	X _{measured} mm	X _{nominal} mm
C1	96.517	96.520
C2	96.489	96.520

incl. paint no paint

	Y _{measured} mm	Y _{nominal} mm
C1	393.935	393.700
C2	393.962	393.700
C3	393.783	393.700
C4	393.821	393.700

incl. paint no paint

Approval: