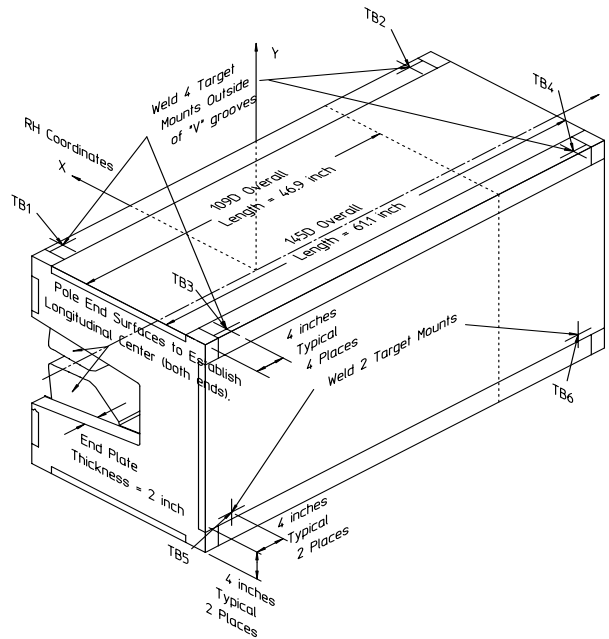


Gradient Dipole Magnet Checks	145D10
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Date: <input style="width: 80%;" type="text" value="7/10/01"/>	Magnet: <input style="width: 80%;" type="text" value="145D10"/>	Operators: <input style="width: 80%;" type="text" value="J. McDougal"/> <input style="width: 80%;" type="text" value="H. Imfeld"/>
Notes: <div style="border: 1px solid black; padding: 5px; min-height: 40px; color: red; font-weight: bold; text-align: center;">Magnetic vs. Mechanical offset NOT applied (June 2002)</div>		



Magnetic Fiducial Coordinates: (inches)

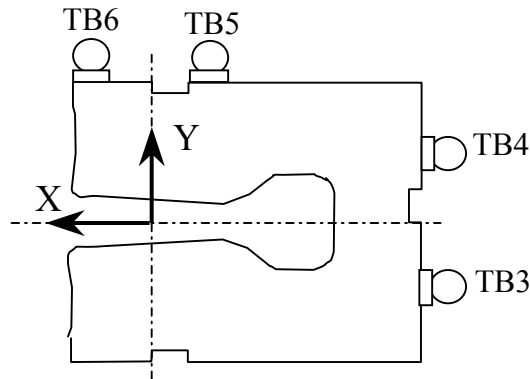
Fiducial	Z	X	Y	
TB1	-26.5137	3.4274	17.0041	Offset: <input style="width: 80px;" type="text" value="0.0032"/> inches
TB2	26.5272	3.4339	17.0067	
TB3	-26.5253	-22.4230	16.9996	
TB4	26.5446	-22.4357	17.0032	
TB5	-26.4985	-24.2664	-11.4101	
TB6	26.6285	-24.2563	-11.5106	

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

Downstream Garage Mechanical Check:

145D10
Status

Horizontal (X) 0.104 mm	Vertical (Y) -0.118 mm	X-value: Y-value:	X > 100µm! Y > 100µm!
<p>Description: How much does the Z-axis from the US garage miss the center of the DS garage?</p>			

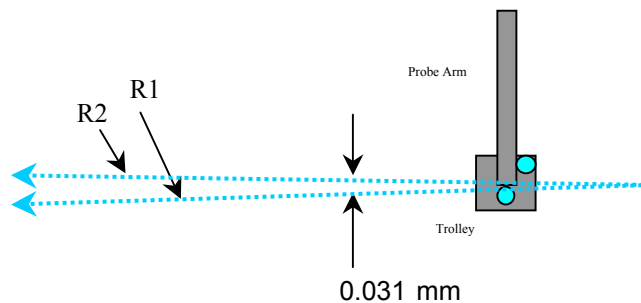


Trolley Checks:

145D10
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.160 mm	3D Distance R2 2800.114 mm	R2 - R1 (mm) -0.046	OK
<p>Description: Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.</p>			

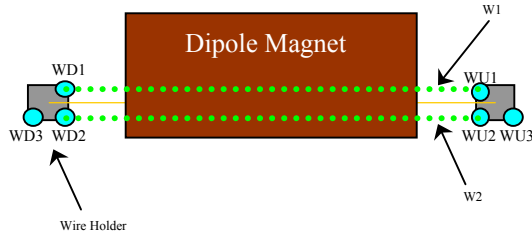
<u>Z-axis Vector</u>			
3D Angle 0.0219	Yaw 0.0135	Pitch 0.0172 mrad	Midpoint 3D Offset (mm) 0.031
			OK
<p>Description: Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



Wire Holder Position Checks:

145D10
Status

<u>Wire Holders' Yaw Check</u>				
3D Distance W1	3D Distance W2		<u>W2 - W1 (mm)</u>	
2382.849 mm	2382.466 mm		-0.383	OK
Description: Distance between wire holders for TB1 and TB2.				

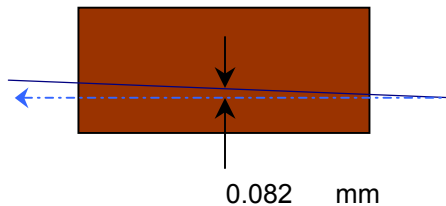


Wire Position Checks:

145D10
Status

<u>Wire Orientation</u>					
3D Angle	Yaw	Pitch		<u>Midpoint 3D Offset (mm)</u>	
0.0276	0.0023	-0.0275	mrad	0.033	OK
Description: Orientation of wire with respect to Z-axis defining axis of dipole.					

<u>Wire Offsets</u>					
US	Origin	DS		Origin Offset:	
0.079	0.082	0.084	mm		OK
Description: Offset distance from the mechanical center to the wire. (x-offsets only!)					



End Surface Orientation Check and Magnet Length:

145D10
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch	3D Offset (mm)	
US:	0.9167	-0.6176	0.6774	~ 0.614	Too Big?
DS:	1.3528	-0.0129	0.1778	~ 0.906	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		
1590.255 mm	1552.155 mm		LENGTH?
<p>Description: Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)</p>			

Top Surface Orientation Check:

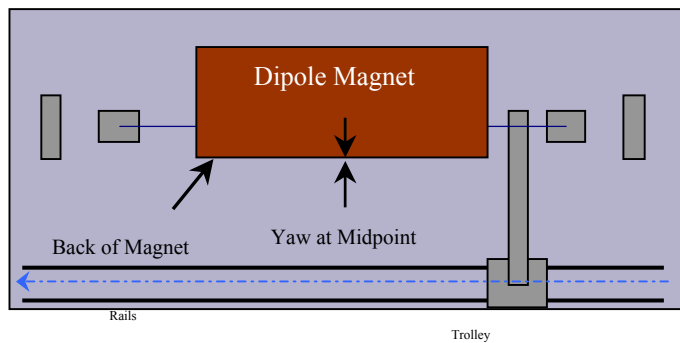
145D10
Status

<u>Top of Magnet</u>					
Height (Y-value) with 0.75"		Delta Y		Delta Y C1:	OK
Corner 1	412.832 mm		0.149	Delta Y C2:	OK
Corner 2	412.911 mm		0.228	Delta Y C3:	OK
Corner 3	412.683 mm		0.000	Delta Y C4:	OK
Corner 4	412.831 mm		0.148		
Dispersion:					
Corner 1	0.067 mm				
Corner 2	0.021 mm				
Corner 3	0.033 mm				
Corner 4	0.046 mm				
Overall	0.051 mm			Roll (mm)	OK
3D Angle	Roll	Pitch		~ 0.109	
0.2203	0.2014	-0.0892	mrad	Pitch (mm)	OK
				~ -0.138	
Twist:	Roll	Pitch		Twist:	OK
	0.1278	0.0445	mrad		
	0.069	0.069	mm		
<p>Description: Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)</p>					

Back Surface Orientation Check:

145D10
Status

<u>Back of Magnet</u>					
Horizontal (X-value)		Delta X			
US:	115.507	mm		0.019	
Origin:	115.497	mm		0.009	
DS:	115.488	mm		0.000	
3D Angle		Roll	Yaw		
	0.1822	-0.1817	-0.0132	mrad	
				<u>Midpoint</u>	
				<u>Yaw in mm</u>	
				-0.010	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: 145D10

Capacitive System Alignment

Date _____, Operator _____

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 7/10/01 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: 145D10

Magnetic Measurements Operator: _____ Date: _____

Measured Magnetic Center Offset: 0.082 mm

Measured at:

Integrated Field: _____ T-m @ _____ Amps

Corrected to:

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

Fiducialization:

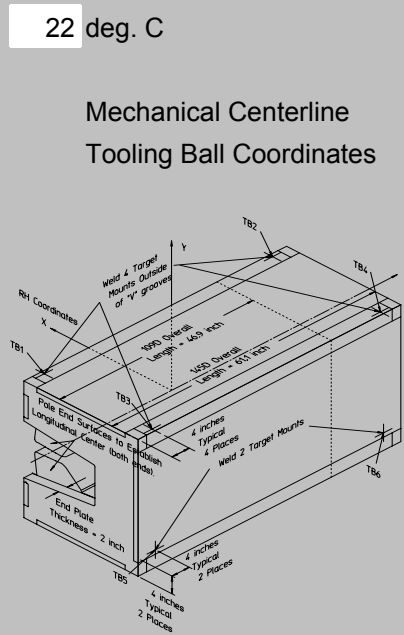
Operator(s): J. McDougla H. Imfeld

Date: 7/10/01

Temp: 22 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-673.449	87.056	431.904
TB2	673.792	87.220	431.970
TB3	-673.742	-569.543	431.791
TB4	674.234	-569.867	431.882
TB5	-673.061	-616.366	-289.816
TB6	676.363	-616.110	-292.368

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-673.449	87.056	431.904
TB2	673.792	87.220	431.970
TB3	-673.742	-569.543	431.791
TB4	674.234	-569.867	431.882
TB5	-673.061	-616.366	-289.816
TB6	676.363	-616.110	-292.368



Magnetic Centerline
Tooling Ball Coordinates

Check Measurements:

Corner	X _{measured} mm	X _{nominal} mm
C1	96.457	96.520
C2	96.438	96.520

incl. paint no paint

	Y _{measured} mm	Y _{nominal} mm
C1	393.782	393.700
C2	393.861	393.700
C3	393.633	393.700
C4	393.781	393.700

incl. paint no paint

Approval: