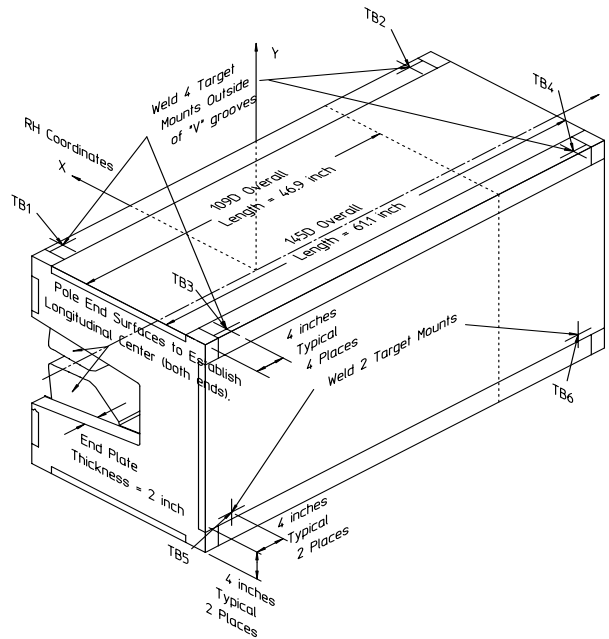


Gradient Dipole Magnet Checks	145D20
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Date: <input style="width: 80%;" type="text" value="10/3/01"/>	Magnet: <input style="width: 80%;" type="text" value="145D20"/>	Operators: <input style="width: 80%;" type="text" value="L. Juarez"/> <input style="width: 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)

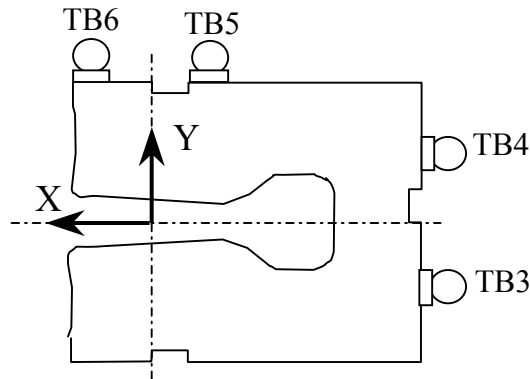
Fiducial	Z	X	Y	
TB1	-26.5522	3.4397	16.9968	Offset: <input style="width: 80%;" type="text" value="0.0079"/> inches
TB2	26.5307	3.4448	17.0013	
TB3	-26.5311	-22.4196	16.9972	
TB4	26.5497	-22.4173	17.0000	
TB5	-26.5410	-24.2706	-11.4140	
TB6	26.5544	-24.2599	-11.5604	

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

Downstream Garage Mechanical Check:

145D20
Status

Horizontal (X) 0.101 mm	Vertical (Y) -0.073 mm	X-value: Y-value:	X > 100µm! OK
<p>Description: How much does the Z-axis from the US garage miss the center of the DS garage?</p>			

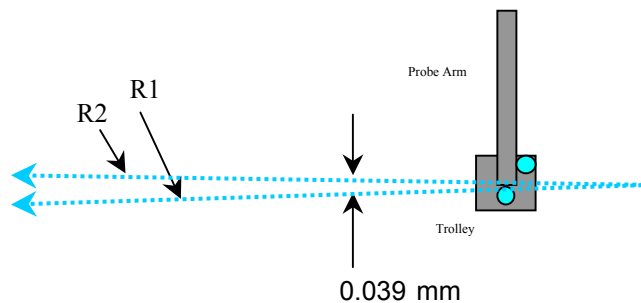


Trolley Checks:

145D20
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.313 mm	3D Distance R2 2800.268 mm	R2 - R1 (mm) -0.045	OK
<p>Description: Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.</p>			

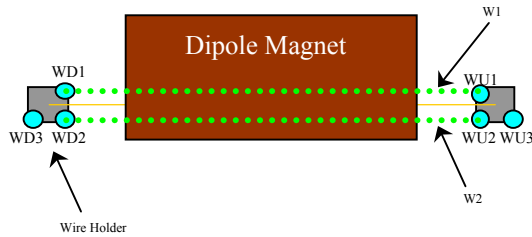
<u>Z-axis Vector</u>			
3D Angle 0.0275	Yaw 0.0154	Pitch 0.0227 mrad	Midpoint 3D Offset (mm) 0.039
<p>Description: Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



Wire Holder Position Checks:

145D20
Status

<u>Wire Holders' Yaw Check</u>			
3D Distance W1	3D Distance W2	W2 - W1 (mm)	
2383.481 mm	2383.096 mm	-0.385	OK
Description: Distance between wire holders for TB1 and TB2.			

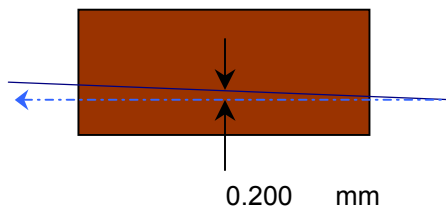


Wire Position Checks:

145D20
Status

<u>Wire Orientation</u>				
3D Angle	Yaw	Pitch	Midpoint 3D Offset (mm)	
0.0439	0.0252	-0.0359 mrad	0.052	OK
Description: Orientation of wire with respect to Z-axis defining axis of dipole.				

<u>Wire Offsets</u>				
US	Origin	DS	Origin Offset:	
0.170	0.200	0.230 mm		OK
Description: Offset distance from the mechanical center to the wire. (x-offsets only!)				



End Surface Orientation Check and Magnet Length:

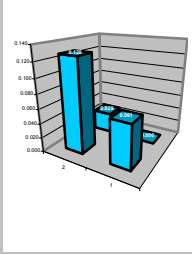
145D20
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch		3D Offset (mm)
US:	0.2462	-0.1700	0.1781	mrad	~ 0.165
DS:	0.5598	0.5493	-0.1081		~ 0.375
Description:					OK
End surface orientation relative to reference frame.					OK
Note: 3D Offset based on average of width and height of the magnet side.					

<u>Length of Magnet</u>			
Distance with SMR	Distance		
1590.547 mm	1552.447 mm		LENGTH?
Description:			
Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)			

Top Surface Orientation Check:

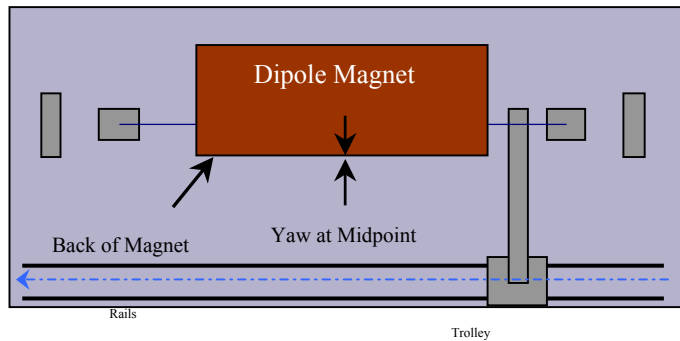
145D20
Status

<u>Top of Magnet</u>					
Height (Y-value) with 0.75"		Delta Y			
Corner 1	412.765 mm		0.061	Delta Y C1:	OK
Corner 2	412.832 mm		0.128	Delta Y C2:	OK
Corner 3	412.704 mm		0.000	Delta Y C3:	OK
Corner 4	412.733 mm		0.029	Delta Y C4:	OK
Dispersion:					
Corner 1	0.034 mm				
Corner 2	0.031 mm				
Corner 3	0.044 mm				
Corner 4	0.032 mm				
Overall	0.039 mm				
3D Angle	Roll	Pitch		Roll (mm)	
0.1463	0.1399	-0.0429	mrad	~ 0.076	OK
Twist:		Roll	Pitch	Pitch (mm)	
		-0.0704	-0.0245	~ -0.067	OK
		-0.038	-0.038	mm	
Twist:					OK
Description:					
Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)					

Back Surface Orientation Check:

145D20
Status

<u>Back of Magnet</u>					
Horizontal (X-value)		Delta X			
US:	115.911	mm		0.019	
Origin:	115.901	mm		0.009	
DS:	115.892	mm		0.000	
3D Angle		Roll	Yaw		
	0.7318	0.7316	-0.0137	mrad	
				<u>Midpoint</u>	
				<u>Yaw in mm</u>	
				-0.011	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: 145D20

Capacitive System Alignment

Date _____, Operator _____

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 10/3/01 Operator: L. Juarez

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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: 145D20

Magnetic Measurements Operator: _____ Date: _____

Measured Magnetic Center Offset: 0.200 mm

Measured at:

Integrated Field: _____ T-m @ _____ Amps

Corrected to:

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

Fiducialization:

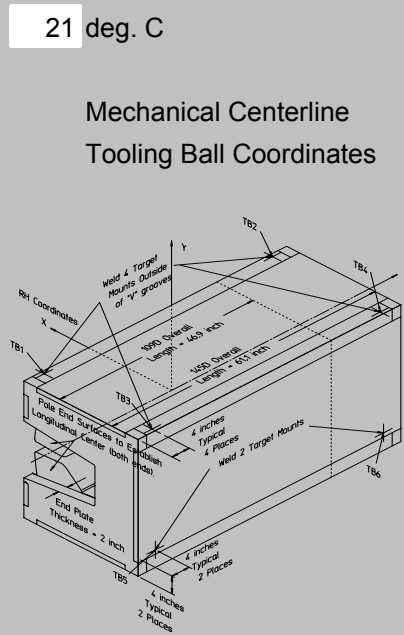
Operator(s): L. Juarez H. Imfeld

Date: 10/3/01

Temp: 21 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-674.425	87.368	431.718
TB2	673.881	87.499	431.834
TB3	-673.889	-569.458	431.730
TB4	674.363	-569.400	431.801
TB5	-674.142	-616.473	-289.916
TB6	674.483	-616.202	-293.633

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-674.425	87.368	431.718
TB2	673.881	87.499	431.834
TB3	-673.889	-569.458	431.730
TB4	674.363	-569.400	431.801
TB5	-674.142	-616.473	-289.916
TB6	674.483	-616.202	-293.633



Mechanical Centerline
Tooling Ball Coordinates

Magnetic Centerline
Tooling Ball Coordinates

Check Measurements:

Corner	X _{measured} mm	X _{nominal} mm
C1	96.861	96.520
C2	96.842	96.520

incl. paint no paint

	Y _{measured} mm	Y _{nominal} mm
C1	393.715	393.700
C2	393.782	393.700
C3	393.654	393.700
C4	393.683	393.700

incl. paint no paint

Approval: