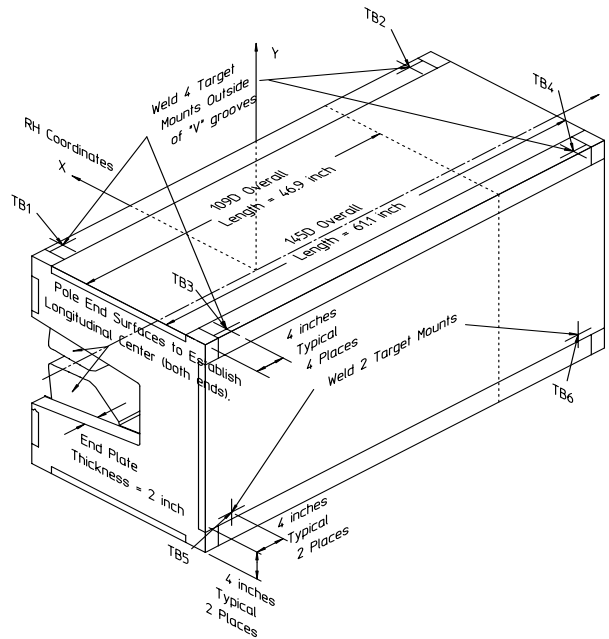


Gradient Dipole Magnet Checks	145D19
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Date: <input style="width: 80%;" type="text" value="8/7/01"/>	Magnet: <input style="width: 80%;" type="text" value="145D19"/>	Operators: <input style="width: 80%;" type="text" value="F. Gaudreault"/> <input style="width: 80%;" type="text" value="H. Imfeld"/>
Notes: <div style="border: 1px solid black; padding: 5px; min-height: 40px; color: red; font-weight: bold; text-align: center;">Magnetic vs. Mechanical offset NOT applied (June 2002)</div>		



Magnetic Fiducial Coordinates: (inches)

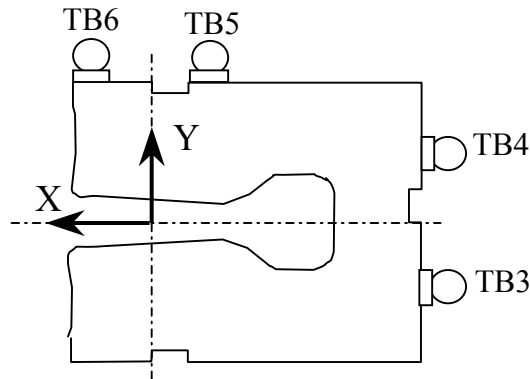
Fiducial	Z	X	Y	
TB1	-26.5612	3.4373	17.0066	Offset: <input style="width: 80%;" type="text" value="0.0147"/> inches
TB2	26.5401	3.4575	17.0001	
TB3	-26.5582	-22.4108	16.9943	
TB4	26.5361	-22.4110	17.0044	
TB5	-26.5089	-24.2489	-11.4513	
TB6	26.4773	-24.2861	-11.4942	

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

Downstream Garage Mechanical Check:

145D19
Status

Horizontal (X) 0.092 mm	Vertical (Y) -0.061 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>			

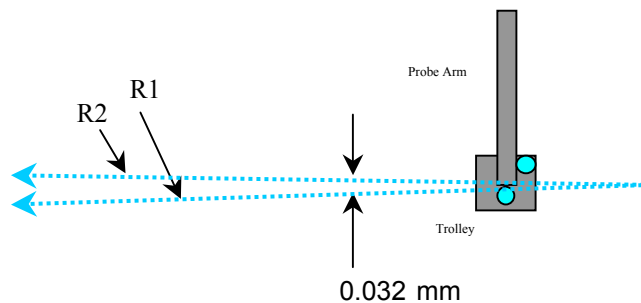


Trolley Checks:

145D19
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.269 mm	3D Distance R2 2800.228 mm	R2 - R1 (mm) -0.041	OK
<p>Description: Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.</p>			

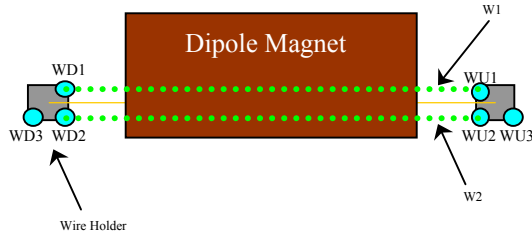
<u>Z-axis Vector</u>			
3D Angle 0.0230	Yaw 0.0140	Pitch 0.0180 mrad	Midpoint 3D Offset (mm) 0.032
<p>Description: Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



Wire Holder Position Checks:

145D19
Status

<u>Wire Holders' Yaw Check</u>			
3D Distance W1	3D Distance W2	W2 - W1 (mm)	
2383.319 mm	2382.959 mm	-0.360	OK
Description: Distance between wire holders for TB1 and TB2.			

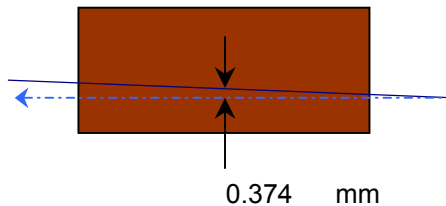


Wire Position Checks:

145D19
Status

<u>Wire Orientation</u>				
3D Angle	Yaw	Pitch	Midpoint 3D Offset (mm)	
0.0420	0.0090	-0.0410 mrad	0.050	OK
Description: Orientation of wire with respect to Z-axis defining axis of dipole.				

<u>Wire Offsets</u>				
US	Origin	DS	Origin Offset:	
0.363	0.374	0.384 mm		Too Big?
Description: Offset distance from the mechanical center to the wire. (x-offsets only!)				



End Surface Orientation Check and Magnet Length:

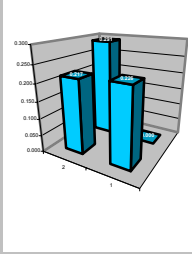
145D19
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch		
US:	0.6350	-0.6080	-0.1830	mrad	
DS:	0.6350	-0.3370	-0.5380		
				3D Offset (mm)	
				~ 0.425	OK
				~ 0.425	OK
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		
1590.841 mm	1552.741 mm		LENGTH?
Description:			
Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)			

Top Surface Orientation Check:

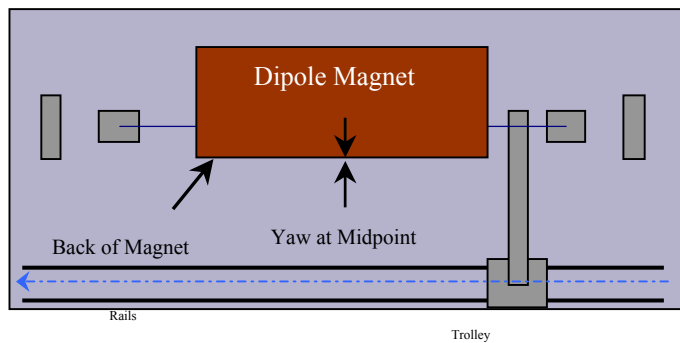
145D19
Status

<u>Top of Magnet</u>					
Height (Y-value) with 0.75"		Delta Y			
Corner 1	412.841 mm		0.226	Delta Y C1:	OK
Corner 2	412.832 mm		0.217	Delta Y C2:	OK
Corner 3	412.615 mm		0.000	Delta Y C3:	OK
Corner 4	412.906 mm		0.291	Delta Y C4:	OK
Dispersion:					
Corner 1	0.053 mm				
Corner 2	0.054 mm				
Corner 3	0.032 mm				
Corner 4	0.046 mm				
Overall	0.089 mm				
3D Angle	Roll	Pitch		Roll (mm)	
0.1630	0.1360	-0.0900	mrad	~ 0.073	OK
				Pitch (mm)	
				~ -0.140	OK
Twist:		Roll	Pitch	Twist:	
		0.5556	0.1932	OK	
		0.300	0.300		
Description:					
Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)					

Back Surface Orientation Check:

145D19
Status

<u>Back of Magnet</u>					
Horizontal (X-value)		Delta X			
US:	115.409	mm		0.000	
Origin:	115.513	mm		0.104	
DS:	115.616	mm		0.207	
3D Angle		Roll	Yaw		
	0.2770	-0.2350	0.1480	mrad	
				<u>Midpoint</u>	
				<u>Yaw in mm</u>	
				0.115	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: 145D19

Capacitive System Alignment

Date _____, Operator _____

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 8/7/01 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: 145D19

Magnetic Measurements Operator: _____ Date: _____

Measured Magnetic Center Offset: 0.374 mm

Measured at:

Integrated Field: _____ T-m @ _____ Amps

Corrected to:

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

Fiducialization:

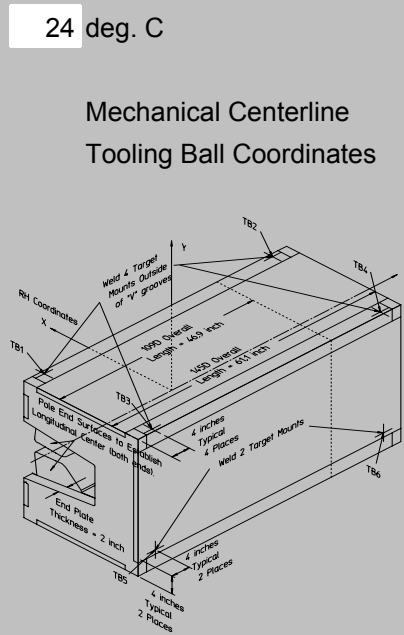
Operator(s): F. Gaudreau H. Imfeld

Date: 8/7/01

Temp: 24 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-674.655	87.307	431.967
TB2	674.119	87.821	431.802
TB3	-674.579	-569.234	431.656
TB4	674.017	-569.239	431.912
TB5	-673.326	-615.922	-290.862
TB6	672.524	-616.867	-291.952

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-674.655	87.307	431.967
TB2	674.119	87.821	431.802
TB3	-674.579	-569.234	431.656
TB4	674.017	-569.239	431.912
TB5	-673.326	-615.922	-290.862
TB6	672.524	-616.867	-291.952



Mechanical Centerline
Tooling Ball Coordinates

Magnetic Centerline
Tooling Ball Coordinates

Check Measurements:

Corner	X _{measured} mm	X _{nominal} mm
C1	96.359	96.520
C2	96.566	96.520

incl. paint no paint

	Y _{measured} mm	Y _{nominal} mm
C1	393.791	393.700
C2	393.782	393.700
C3	393.565	393.700
C4	393.856	393.700

incl. paint no paint

Approval: