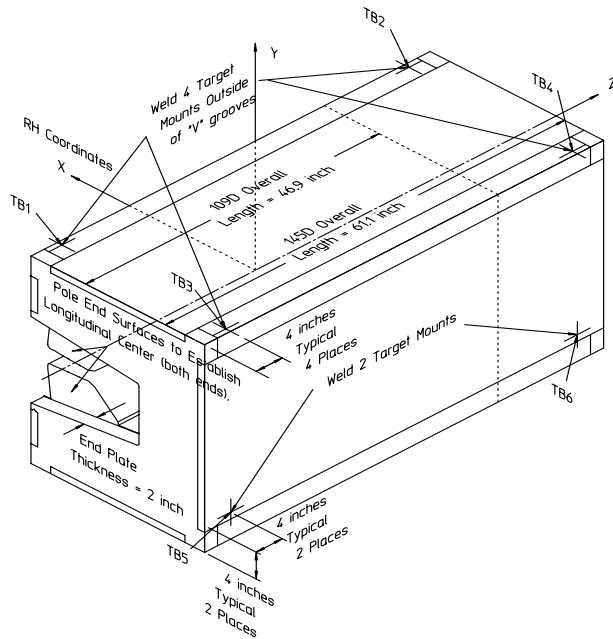


Gradient Dipole Magnet Checks	109D31
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Date: <input style="width: 80%;" type="text" value="5/3/02"/>	Magnet: <input style="width: 80%;" type="text" value="109D31"/>	Operators: <input style="width: 80%;" type="text" value="F. Gaudreault"/> <input style="width: 80%;" type="text" value="L. Griffin"/>
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	-19.4207	3.4338	16.9944
TB2	19.4157	3.4557	17.0003
TB3	-19.4305	-22.4198	16.9890
TB4	19.3956	-22.3937	16.9962
TB5	-19.1794	-24.2282	-11.3928
TB6	19.4741	-24.2319	-11.5053

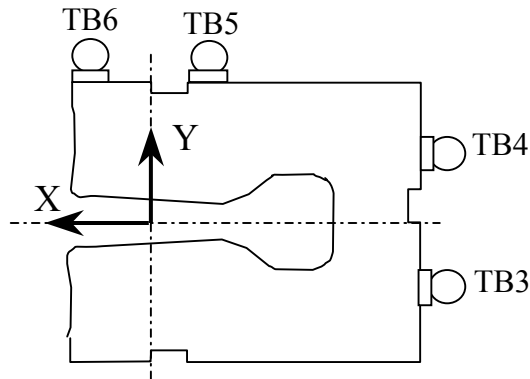
Offset: inches

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

Downstream Garage Mechanical Check:

109D31
Status

Horizontal (X) 0.071 mm	Vertical (Y) -0.005 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>			

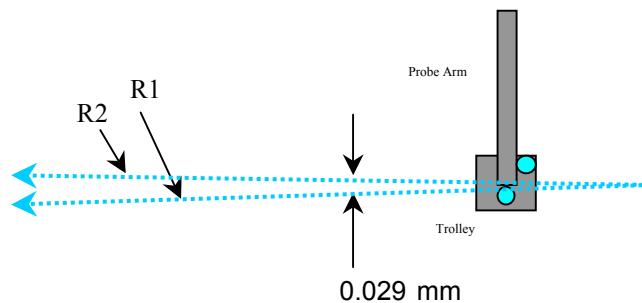


Trolley Checks:

109D31
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.012 mm	3D Distance R2 2799.954 mm	R2 - R1 (mm) -0.058	OK
<p>Description: Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.</p>			

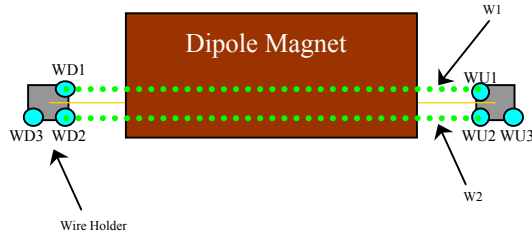
<u>Z-axis Vector</u>			
3D Angle Yaw 0.0210	Pitch 0.0107	0.0181 mrad	Midpoint 3D Offset (mm) 0.029
<p>Description: Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



Wire Holder Position Checks:

109D31
Status

<u>Wire Holders' Yaw Check</u>			
3D Distance W1 2384.307 mm	3D Distance W2 2383.989 mm	W2 - W1 (mm) -0.318	OK
<p>Description: Distance between wire holders for TB1 and TB2.</p>			

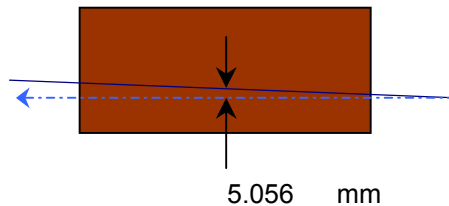


Wire Position Checks:

109D31
Status

<u>Wire Orientation</u>				
3D Angle Yaw 0.0991	Pitch 0.0755	-0.0643 mrad	Midpoint 3D Offset (mm) 0.118	Too Big?
<p>Description: Orientation of wire with respect to Z-axis defining axis of dipole.</p>				

<u>Wire Offsets</u>				
US 4.966	Origin 5.056	DS 5.146 mm	Origin Offset:	OK
<p>Description: Offset distance from the mechanical center to the wire. (x-offsets only! 5.00 mm considered nom)</p>				



End Surface Orientation Check and Magnet Length:

109D31
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch		
US:	0.8274	-0.7589	-0.3298	mrad	3D Offset (mm)
DS:	0.8858	-0.6805	-0.5671		~ 0.554
					~ 0.593
					OK
					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		
1227.687 mm	1189.587 mm		OK
Description:			
Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)			

Top Surface Orientation Check:

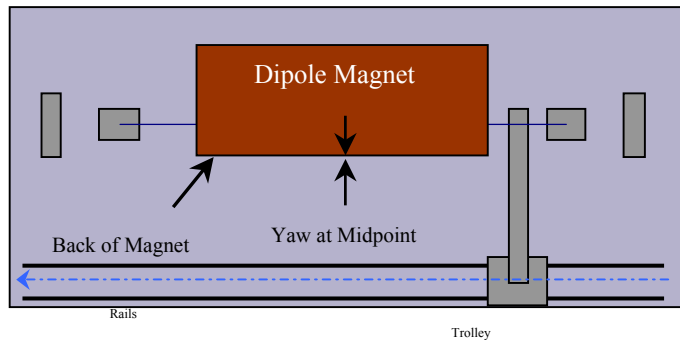
109D31
Status

<u>Top of Magnet</u>					
Height (Y-value) with 0.75"		Delta Y			
Corner 1	412.693 mm		0.236	Delta Y C1:	OK
Corner 2	412.716 mm		0.259	Delta Y C2:	OK
Corner 3	412.457 mm		0.000	Delta Y C3:	OK
Corner 4	412.693 mm		0.236	Delta Y C4:	OK
Dispersion:					
Corner 1	0.047 mm				
Corner 2	0.041 mm				
Corner 3	0.039 mm				
Corner 4	0.049 mm				
Overall	0.075 mm				
3D Angle	Roll	Pitch		Roll (mm)	
0.2456	0.2113	-0.1252	mrad	~ 0.114	OK
				Pitch (mm)	
				~ -0.149	OK
Twist:	Roll	Pitch		Twist:	OK
	0.3944	0.1791	mrad		
	0.213	0.213	mm		
Description:					
Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)					

Back Surface Orientation Check:

109D31
Status

<u>Back of Magnet</u>					
Horizontal (X-value)			Delta X		
US:	115.604	mm	0.000		
Origin:	115.703	mm	0.099		
DS:	115.802	mm	0.198		
3D Angle Roll			Yaw		
	0.3196	0.2737	0.1650	mrad	
				Midpoint Yaw in mm	
				0.098	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: 109D31

Capacitive System Alignment

Date _____, Operator _____

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 5/3/02 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: 109D31

Magnetic Measurements Operator: _____ Date: _____

Measured Magnetic Center Offset: 5.056 mm

Measured at:

Integrated Field: _____ T-m @ _____ Amps

Corrected to:

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

Fiducialization:

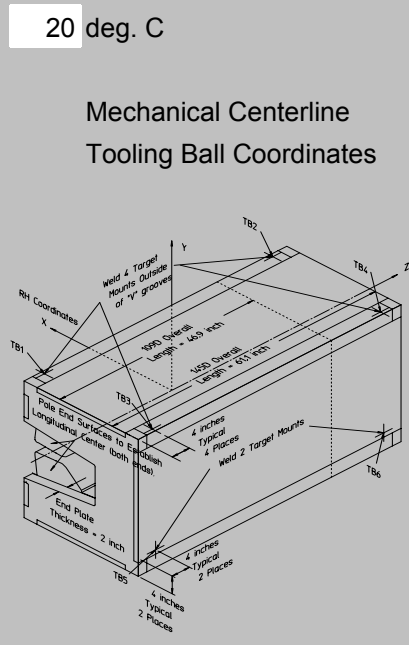
Operator(s): F. Gaudreau L. Griffin

Date: 5/3/02

Temp: 20 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-493.285	87.219	431.657
TB2	493.160	87.776	431.807
TB3	-493.535	-569.463	431.521
TB4	492.649	-568.801	431.703
TB5	-487.158	-615.397	-289.378
TB6	494.643	-615.490	-292.235

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-493.285	87.219	431.657
TB2	493.160	87.776	431.807
TB3	-493.535	-569.463	431.521
TB4	492.649	-568.801	431.703
TB5	-487.158	-615.397	-289.378
TB6	494.643	-615.490	-292.235



Mechanical Centerline
Tooling Ball Coordinates

Magnetic Centerline
Tooling Ball Coordinates

Check Measurements:

Corner	X _{measured} mm	X _{nominal} mm
C1	96.554	96.520
C2	96.752	96.520

incl. paint no paint

	Y _{measured} mm	Y _{nominal} mm
C1	393.643	393.700
C2	393.666	393.700
C3	393.407	393.700
C4	393.643	393.700

incl. paint no paint

Approval: