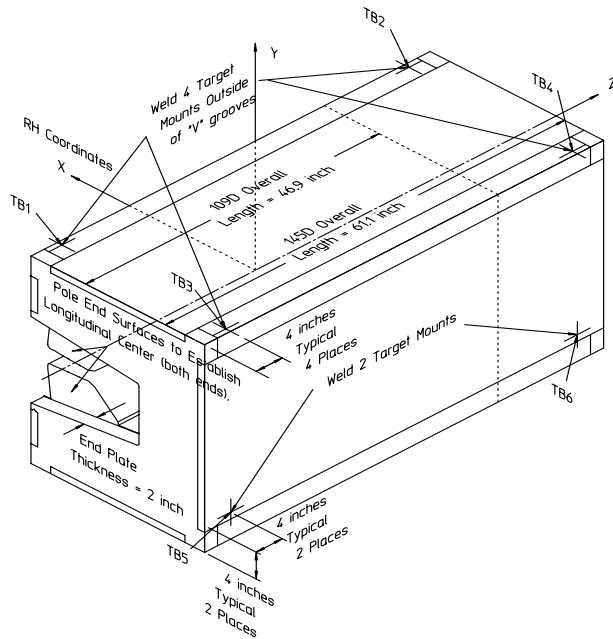


Gradient Dipole Magnet Checks	109D36
--------------------------------------	---------------

Date: <input style="width: 80%;" type="text" value="4/19/02"/>	Magnet: <input style="width: 80%;" type="text" value="109D36"/>	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: 10px; margin-top: 5px;"> <p style="color: red; font-weight: bold;">Magnetic vs. Mechanical offset NOT applied (June 2002)</p> </div>		



Magnetic Fiducial Coordinates: (inches)

Fiducial	Z	X	Y
TB1	-19.4214	3.4340	16.9978
TB2	19.4076	3.4415	17.0001
TB3	-19.4052	-22.4185	17.0110
TB4	19.4137	-22.3833	16.9941
TB5	-19.3261	-24.2340	-11.3620
TB6	19.2824	-24.2527	-11.3402

Offset: inches

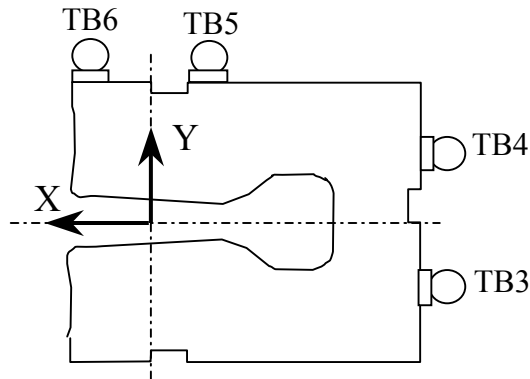
Description:

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

Downstream Garage Mechanical Check:

109D36
Status

Horizontal (X) 0.059 mm	Vertical (Y) 0.000 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>			

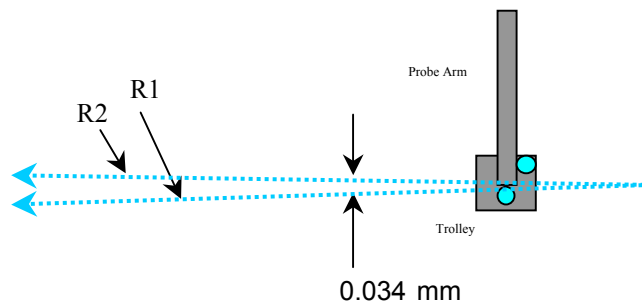


Trolley Checks:

109D36
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.119 mm	3D Distance R2 2800.078 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>			

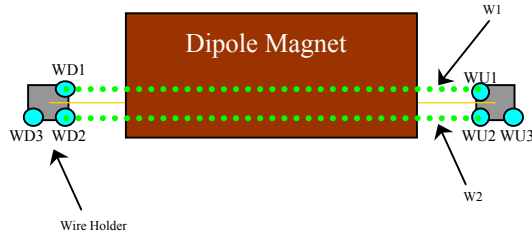
<u>Z-axis Vector</u>			
3D Angle Yaw 0.0244	Pitch 0.0144	0.0196 mrad	Midpoint 3D Offset (mm) 0.034
<p>Description: Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



Wire Holder Position Checks:

109D36
Status

<u>Wire Holders' Yaw Check</u>			
3D Distance W1 2383.085 mm	3D Distance W2 2382.704 mm	W2 - W1 (mm) -0.381	OK
<p>Description: Distance between wire holders for TB1 and TB2.</p>			

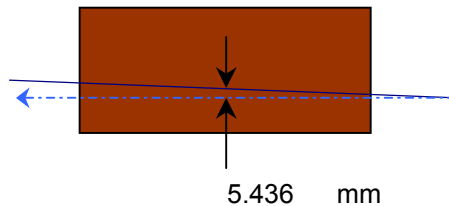


Wire Position Checks:

109D36
Status

<u>Wire Orientation</u>				
3D Angle Yaw 0.0826	Pitch 0.0390	-0.0728 mrad	Midpoint 3D Offset (mm) 0.098	Too Big?
<p>Description: Orientation of wire with respect to Z-axis defining axis of dipole.</p>				

<u>Wire Offsets</u>				
US 5.390	Origin 5.436	DS 5.483 mm	Origin Offset:	Range?
<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:

109D36
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch		
US:	0.5384	-0.4790	0.2458	mrad	3D Offset (mm)
DS:	0.5427	-0.5272	-0.1289		~ 0.361
					~ 0.364
					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		
1228.039 mm	1189.939 mm		LENGTH?
Description:			
Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)			

Top Surface Orientation Check:

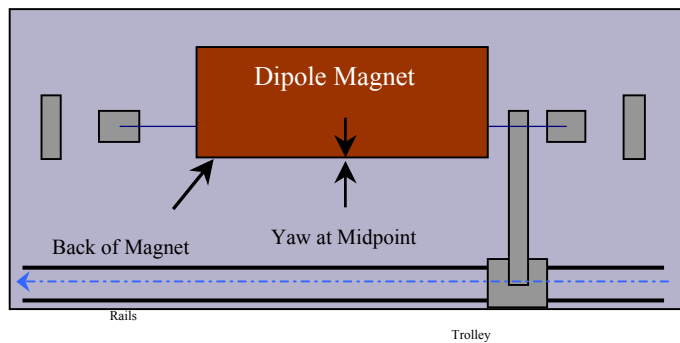
109D36
Status

<u>Top of Magnet</u>					
Height (Y-value) with 0.75"		Delta Y			
Corner 1	412.737 mm		0.058	Delta Y C1:	OK
Corner 2	412.772 mm		0.093	Delta Y C2:	OK
Corner 3	412.768 mm		0.089	Delta Y C3:	OK
Corner 4	412.679 mm		0.000	Delta Y C4:	OK
Dispersion:					
Corner 1	0.036 mm				
Corner 2	0.034 mm				
Corner 3	0.036 mm				
Corner 4	0.034 mm				
Overall	0.049 mm				
3D Angle	Roll	Pitch		Roll (mm)	
0.0518	0.0416	0.0309	mrad	~ 0.022	OK
Twist:		Roll	Pitch	Pitch (mm)	
		-0.2296	-0.1042	~ 0.037	OK
		-0.124	-0.124		
				Twist:	OK
Description:					
Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)					

Back Surface Orientation Check:

109D36
Status

<u>Back of Magnet</u>					
Horizontal (X-value)		Delta X			
US:	115.627	mm	0.000		
Origin:	115.660	mm	0.033		
DS:	115.694	mm	0.067		
3D Angle		Roll	Yaw		
	0.2890	0.2835	0.0561	Midpoint Yaw in mm 0.033	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: 109D36

Capacitive System Alignment

Date _____, Operator _____

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 4/19/02 Operator: J. McDougal

--

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: 109D36

Magnetic Measurements Operator: _____ Date: _____

Measured Magnetic Center Offset: 5.436 mm

Measured at:

Integrated Field: _____ T-m @ _____ Amps

Corrected to:

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

Fiducialization:

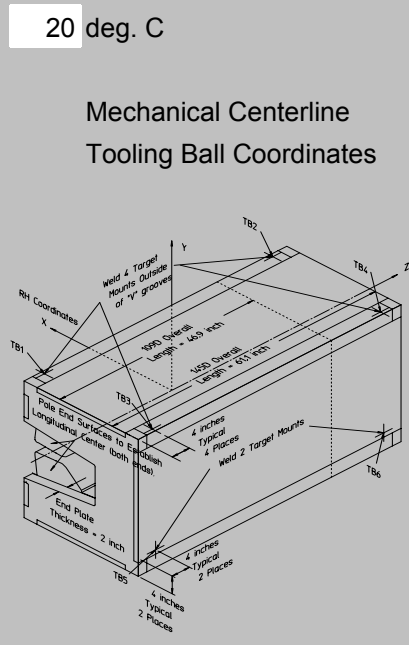
Operator(s): J. McDougall H. Imfeld

Date: 4/19/02

Temp: 20 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-493.304	87.224	431.743
TB2	492.953	87.414	431.803
TB3	-492.893	-569.430	432.080
TB4	493.107	-568.536	431.649
TB5	-490.883	-615.544	-288.595
TB6	489.773	-616.019	-288.041

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-493.304	87.224	431.743
TB2	492.953	87.414	431.803
TB3	-492.893	-569.430	432.080
TB4	493.107	-568.536	431.649
TB5	-490.883	-615.544	-288.595
TB6	489.773	-616.019	-288.041



Mechanical Centerline
Tooling Ball Coordinates

Magnetic Centerline
Tooling Ball Coordinates

Check Measurements:

Corner	X _{measured} mm	X _{nominal} mm
C1	96.577	96.520
C2	96.644	96.520

incl. paint no paint

	Y _{measured} mm	Y _{nominal} mm
C1	393.687	393.700
C2	393.722	393.700
C3	393.718	393.700
C4	393.629	393.700

incl. paint no paint

Approval: