Gradient Dipole Magnet Checks | *145D07*

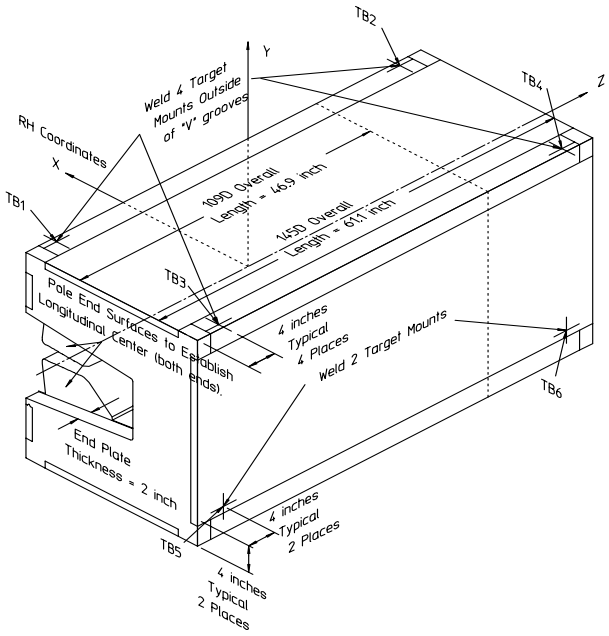
Date: 6/28/01

Magnet: 145D07

Operators: F. Gaudreault; H. Imfeld

Notes:

Magnetic vs. Mechanical offset NOT applied (June 2002)



Magnetic Fiducial Coordinates: (inches)

Fiducial	Z	X	Y
TB1	-26.5421	3.4480	16.9970
TB2	26.5869	3.4484	17.0047
TB3	-26.5396	-22.4135	16.9974
TB4	26.5901	-22.4104	16.9989
TB5	-26.4965	-24.2691	-11.5413
TB6	26.4228	-24.2719	-11.9270

Offset: 0.0110 inches

Description:

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

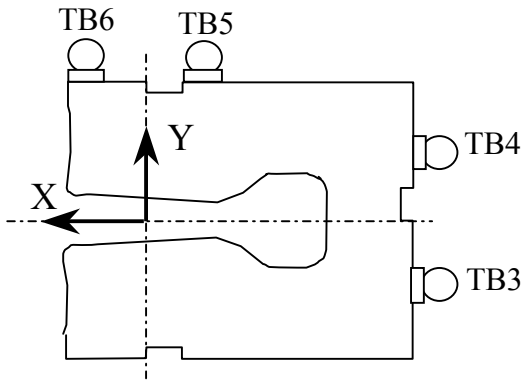
Downstream Garage Mechanical Check:

145D07 Status

Horizontal (X)	Vertical (Y)		
0.091 mm	-0.053 mm	X-value: Y-value:	OK OK

Description:

How much does the Z-axis from the US garage miss the center of the DS garage?



Trolley Checks:

145D07 Status

Trolley Distance

3D Distance R1	3D Distance R2	R2 - R1 (mm)	
2800.194 mm	2800.148 mm	-0.046	OK

Description:

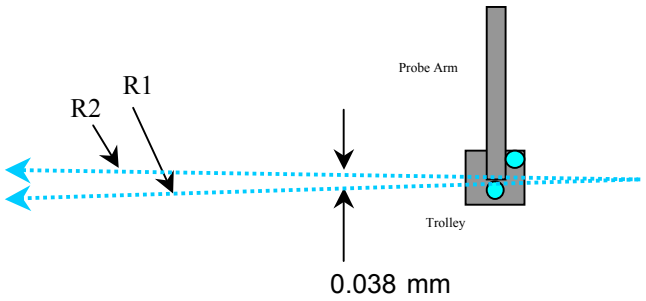
Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.

Z-axis Vector

3D Angle	Yaw	Pitch	Midpoint 3D Offset (mm)	
0.0268	0.0183	0.0196 mrad	0.038	OK

Description:

Angle between R1 and R2 vectors. The average of these two defines the Z-axis.

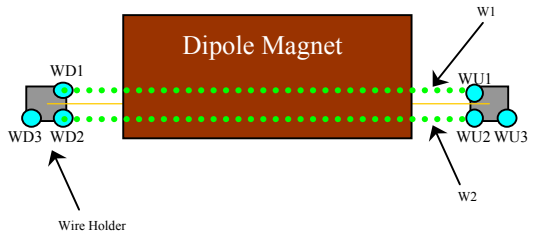


Wire Holder Position Checks: 145D07

Wire Holders' Yaw Check				Status
3D Distance W1	3D Distance W2		W2 - W1 (mm)	
2382.935 mm	2382.655 mm		-0.280	OK

Description:

Distance between wire holders for TB1 and TB2.



Wire Position Checks: 145D07

Wire Orientation				Status
3D Angle	Yaw	Pitch	Midpoint 3D Offset (mm)	
0.0607	0.0235	-0.0560 mrad	0.072	OK

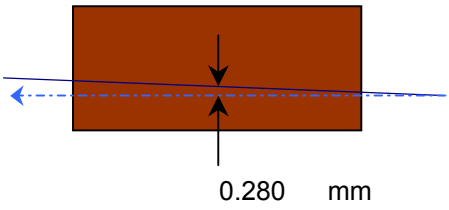
Description:

Orientation of wire with respect to Z-axis defining axis of dipole.

Wire Offsets				Status
US	Origin	DS	Origin Offset:	
0.252	**0.280**	0.308 mm		Too Big?

Description:

Offset distance from the mechanical center to the wire. (x-offsets only!)



End Surface Orientation Check and Magnet Length: 145D07

Status

End Surfaces

	3D Angle	Yaw	Pitch		3D Offset (mm)	Status
US:	1.5193	-0.4000	1.4657	mrad	~ 1.018	Too Big?
DS:	0.9635	-0.1800	0.9465		~ 0.646	Too Big?

Description:

End surface orientation relative to reference frame.

Note: 3D Offset based on average of width and height of the magnet side.

Length of Magnet

Distance **with SMR**		Distance		Status
1590.704	mm	1552.604	mm	LENGTH?

Description: *Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)*

Top Surface Orientation Check: 145D07

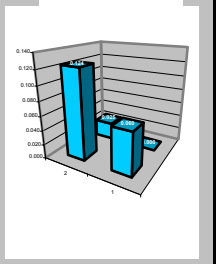
Status

Top of Magnet

Height (Y-value) **with 0.75"**			Delta Y		Status
Corner 1	412.731	mm	0.060	Delta Y C1:	OK
Corner 2	412.795	mm	0.124	Delta Y C2:	OK
Corner 3	412.671	mm	0.000	Delta Y C3:	OK
Corner 4	412.696	mm	0.025	Delta Y C4:	OK

Dispersion:

Corner 1	0.029	mm		
Corner 2	0.021	mm		
Corner 3	0.023	mm	Roll (mm)	
Corner 4	0.036	mm	~ 0.070	OK
Overall	0.034	mm		



3D Angle	Roll	Pitch		Pitch (mm)	Status
0.1329	0.1299	-0.0285	mrad	~ -0.044	OK

Twist:	Roll	Pitch			
	-0.0722	-0.0251	mrad		
	-0.039	-0.039	mm	Twist:	OK

Description:

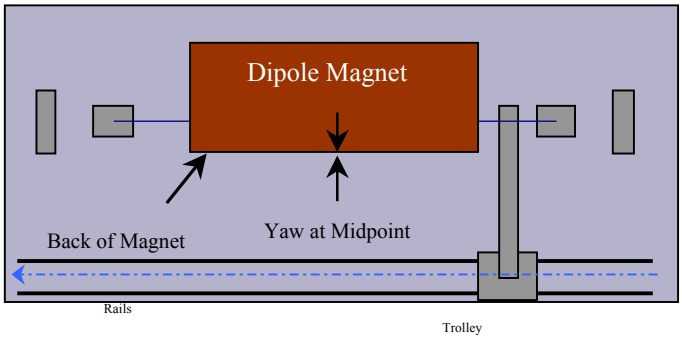
Top surface corner heights and average surface orientation values. ***(With 0.75" SMR offset.)***

Back Surface Orientation Check: 145D07

					Status
Back of Magnet					
Horizontal (X-value)				Delta X	
US:	115.429	mm		0.082	
Origin:	115.388	mm		0.041	
DS:	115.347	mm		0.000	
3D Angle	Roll	Yaw		Midpoint Yaw in mm	
0.4123	-0.4080	-0.0589	mrad	-0.046	OK

Description:

Position of scanned half of back surface of magnet for yaw check. ***(With 0.75" SMR offset.)***



Gradient Magnet
Magnetic Measurements/FiducializationTraveller

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: 145D07
Capacitive System Alignment
Date_____, Operator _____

Fiducial Measurements
See Data Sheet on Next Page. Approval:
Date: 6/28/01 Operator: F. Gaudreault

Water, Power and Interlock Connections.
Date_____, Operator _____
Measured Water Flow _____ gpm at Δp= _____ 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: 145D07

Magnetic Measurements Operator: _____ Date:_____

Measured Magnetic Center Offset:	0.280	mm

Measured at:

Integrated Field: _____ T-m @ _____ Amps

Corrected to:

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

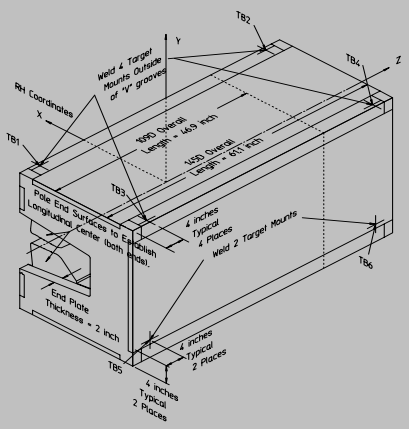
Fiducialization:

Operator(s): F. Gaudreau H. Imfeld

Date: 6/28/01 Temp: 23 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-674.170	87.579	431.725
TB2	675.308	87.590	431.920
TB3	-674.107	-569.302	431.734
TB4	675.389	-569.224	431.773
TB5	-673.012	-616.434	-293.149
TB6	671.140	-616.506	-302.946

Mechanical Centerline Tooling Ball Coordinates



Fiducial - Magnetic	z mm	x mm	y mm
TB1	-674.170	87.579	431.725
TB2	675.308	87.590	431.920
TB3	-674.107	-569.302	431.734
TB4	675.389	-569.224	431.773
TB5	-673.012	-616.434	-293.149
TB6	671.140	-616.506	-302.946

Magnetic Centerline Tooling Ball Coordinates

Check Measurements:

Corner	$x_{measured}$ mm	$x_{nominal}$ mm
C1	96.379	96.520
C2	96.297	96.520
	incl. paint	no paint

	$y_{measured}$ mm	$y_{nominal}$ mm
C1	393.681	393.700
C2	393.745	393.700
C3	393.621	393.700
C4	393.646	393.700
	incl. paint	no paint

Approval: