

**Fiducials for BM2-MCA Vac. Cham.**

**BM2-MCA1**

Date:

1/22/03

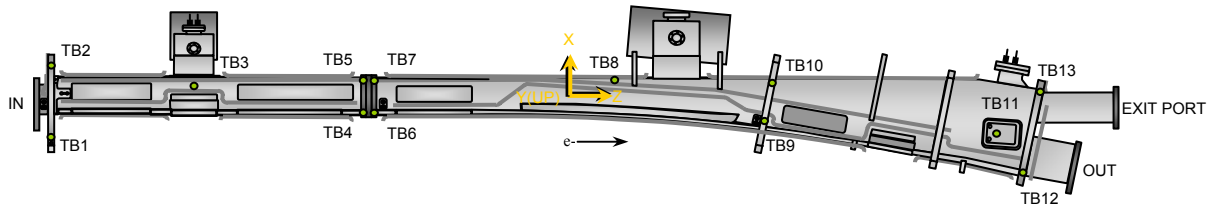
Chamber #:

1

Operator(s):

FG MR

Notes:



**Fiducial Coordinates for BM2-MCA Vacuum Chamber: (inches)**

Fiducial	Z	X	Y
TB1	-111.776	-5.954	4.360
TB2	-111.844	7.357	4.379
TB3	-87.099	3.579	2.409
TB4	-51.183	-2.261	5.110
TB5	-51.223	5.616	5.141
TB6	-49.255	-2.174	5.197
TB7	-49.251	5.558	5.201
TB8	-0.343	4.257	2.375
TB9	28.162	-3.859	4.405
TB10	29.191	3.997	4.398
TB11	63.319	-3.874	2.410
TB12	69.611	-11.724	4.372
TB13	71.588	2.280	4.372

**Nominal Deltas For H3 Absorber (TB11)**

Z	X	Y
63.247	4.912	2.410
63.269	4.924	2.408
-0.022	-0.013	0.002

Rotated Part Coord. System

inches inches inches

Source **FINAL**

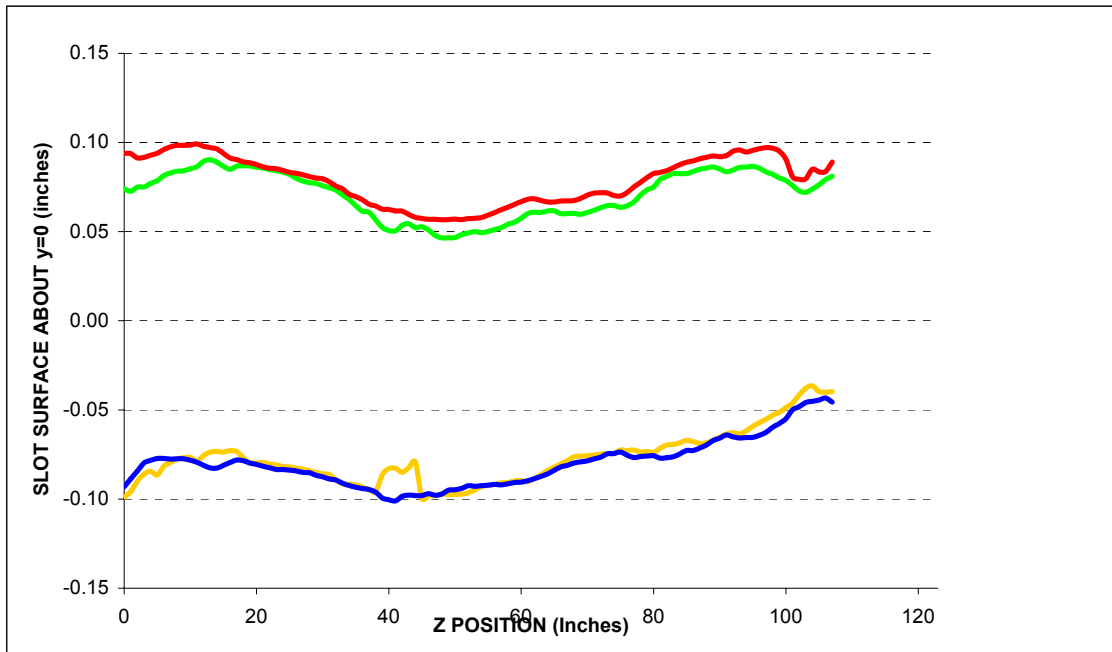
**Description:**

Fiducial vals based on established chamber datum. Source="Final" indicates final data.

**Pre-Fiducialization Step:**

Slot Calibration	
Ideal	0.511
Meas.	
Delta	-----

Inverted Mouse Slot Calibration	
Ideal	0.511
Meas.	
Delta	-----

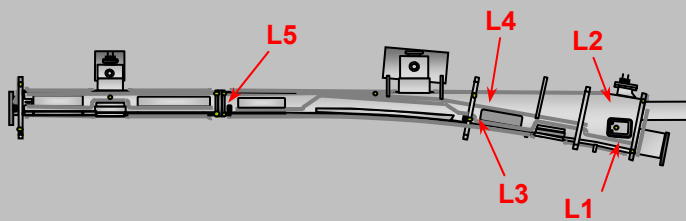


BM2-MCA1

**Step 1: Heights for BM2 MCA Vac. Chamber**

Fiducial	Y
TB6	5.187
TB7	5.207
TB8	2.336
TB9	4.404
TB10	4.399

inches

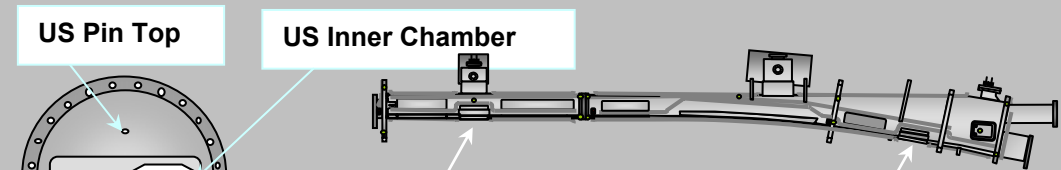


**Description:**

Fiducial heights of the five tooling balls are based on leveled datum as defined by outside surface measurements. (L1 through L5)

US Flange Position

**Step 2: UpStream Flange Position**



**US MASK X-Position**

-2.588	Measured
<b>-2.667</b>	Nominal
<b>0.079</b>	Delta

inches (Part Sys)

**DS MASK X-Position**

-2.639	Measured
<b>-2.667</b>	Nominal
<b>0.028</b>	Delta

inches (Rot Part)

US PIN TOP	Z	X	Y
Measured		-0.002	2.282
Nominal	0.000	0.000	2.282
Difference (inches)	-----	<b>-0.002</b>	<b>0.000</b>

US PIN BOTTOM	Z	X	Y
Measured		0.000	-2.282
Nominal	0.000	0.000	-2.282
Difference (inches)	-----	<b>0.000</b>	<b>0.000</b>

US Inner Chamber	Z	X	Y
Measured		-1.416	
Nominal	0.000	-1.404	0.000
Difference (inches)	-----	<b>-0.012</b>	-----

US Flange Position	Plane	From Circle Fit	
	Z	X	Y
Measured	-115.450	-0.004	-0.013
Nominal	<b>-115.489</b>	0.000	0.000
Difference (inches)	<b>0.039</b>	<b>-0.004</b>	<b>-0.013</b>
	inches	inches	inches

US Flange Attitude		
	yaw	pitch
Measured	6.2	4.1
Nominal	<b>0.0</b>	<b>0.0</b>
Difference	<b>6.2</b>	<b>4.1</b>
	mrad	mrad

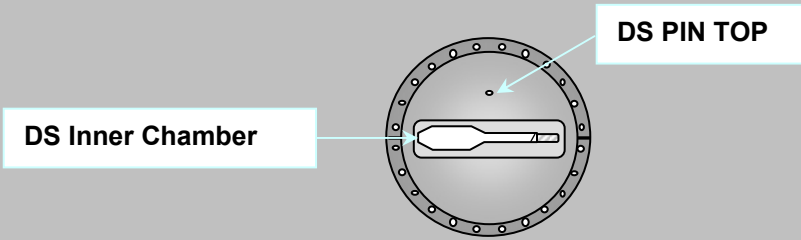
US Flange Diameter	
	DIA
Measured	11.468
Nominal	<b>11.471</b>
Difference	<b>-0.003</b>
	inches

**Description:**  
 Measured vs. nominal values for US flange expressed in the PART coordinate system.  
 Tol +/- 10mils and +/- 3 mrad. Values in **BOLD** or **RED** are most critical.

**DS Flange Position**

**Step 3: DownStream Flange Position**



DS PIN TOP	Z	X	Y
Measured		1.820	2.323
Nominal	0.000	1.836	2.282
Difference (inches)	-----	<b>-0.016</b>	<b>0.041</b>

DS Inner Chamber	Z	X	Y
Measured		-1.423	
Nominal	0.000	-1.404	0.000
Difference (inches)	-----	<b>-0.019</b>	-----

DS Flange Position	Plane	From Circle Fit	
	Z	X	Y
Measured	78.161	1.826	0.029
Nominal	78.211	1.836	0.000
Difference (inches)	<b>-0.050</b>	<b>-0.011</b>	<b>0.029</b>
	inches	inches	inches

DS Flange Attitude		
	yaw	pitch
Measured	-0.8	-8.7
Nominal	<b>0.0</b>	<b>0.0</b>
Difference	-0.8	<b>-8.7</b>
	mrad	mrad

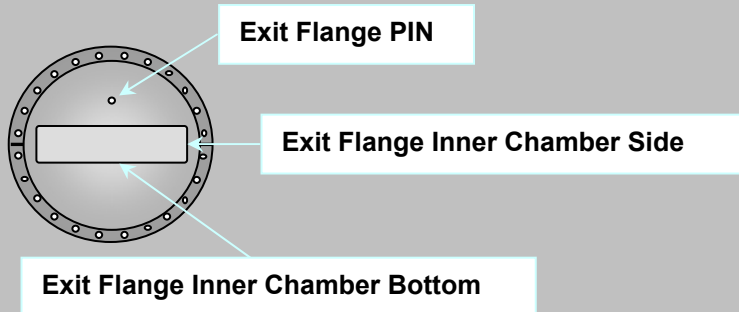
DS Flange Diameter	
	DIA
Measured	11.470
Nominal	<b>11.471</b>
Difference	-0.001
	inches

**Description:**  
 Meas. vs. nom. values for DS flange expressed in a ROTATED PART coordinate system (7.9412°)  
 Tol +/- 10mils and +/- 3 mrad. Values in **BOLD** or **RED** are most critical.

Exit Port Flange Position (DownStream)

**Step 4: DownStream EXIT PORT Flange Postion**



EXIT FLANGE PIN	Z	X	Y
Measured		0.361	1.850
Nominal	0.000	0.375	1.782
Difference (inches)	-----	<b>-0.014</b>	<b>0.067</b>

EXIT FLANGE Inner Chamber Side	Z	X	Y
Measured		2.815	
Nominal	0.000	2.828	0.000
Difference (inches)	-----	<b>-0.013</b>	-----

EXIT FLANGE Inner Chamber Bottom	Z	X	Y
Measured			-0.156
Nominal	0.000	0.000	-0.219
Difference (inches)	-----	-----	<b>0.063</b>

EXIT Flange Position	Plane	From Circle Fit	
	Z	X	Y
Measured	83.347	0.357	0.062
Nominal	83.396	0.375	0.000
Difference (inches)	<b>-0.049</b>	<b>-0.018</b>	<b>0.062</b>
	inches	inches	inches

EXIT FLANGE Attitude		
	yaw	pitch
Measured	-0.1	4.1
Nominal	0.0	0.0
Difference	-0.1	<b>4.1</b>
	mrad	mrad

EXIT FLANGE Diameter	
	DIA
Measured	9.470
Nominal	<b>9.470</b>
Difference	0.000
	inches

**Description:**  
 Meas. vs. nom. values for exit flange expressed in the PART coordinate system.  
 Tol +/- 10mils and +/- 3 mrad. Values in **BOLD** or **RED** are most critical.

Final Fiducial Coordinates for BM2 MCA Vacuum Chamber

**Final: Fiducial Coordinates for BM2 MCA Vac. Chamber**

Fiducial	Z	X	Y
TB1	-111.776	-5.954	4.360
TB2	-111.844	7.357	4.379
TB3	-87.099	3.579	2.409
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inches          inches          inches

**Description:**  
Fiducial values based on established chamber datum.

