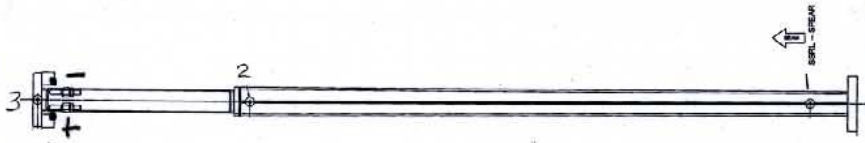


SSRL

2-19-08

BL 4-1 2ND PIVOT MASK

J.M., L.G.



LAB DATA

	X	Y	Z
1	-0.018	+2.776	-64.350
2	+0.017	+3.992	-16.873
3	-0.045	+3.786	+1.109

ROLL Y

u/s INNER CORNERS OF TRUNIONS

\+) +.243

\-) +.208

SSRL

3108

BL 4-1 2ND PIVOT MASK

Job Description:

Report Units: inches, radians

Job File: C:\Documents and Settings\levirt\My Documents\My Documents\SSRL 2008\BL4-1

Job Date: Wednesday, February 20, 2008 02:27:14 PM

Report Frame: PART

BL41DSPM1	-4.101	3.486	680.533
BL41DSPM2	-4.351	4.702	728.009
BL41DSPM3	-4.521	4.496	745.991
BL41DSPMM	-4.469	0.710	744.882

X Y Z

YAWED -1.006 RAD
TRANSLATED
X = -4.469"
Y = +.710"
Z = 744.882"

Report Date: Friday, March 07, 2008 01:49:25 PM

FARO Insight 5.0.5

SSRL

2-7-08

(X)

J.M., L.G.

BL 4-1 PIVOT MASK

2ND P.M.

$$\begin{array}{r} .974 \\ 16.261 \\ \hline -17.235 \end{array}$$
 BUCK IN ON BODY
 T/B'S

1)
$$\begin{array}{r} 16.217 \\ 1.000 \\ \hline 17.217 \end{array}$$

$$\begin{array}{r} 17.217 \\ 17.235 \end{array}$$

$$\boxed{+0.018}$$

2)
$$\begin{array}{r} 16.252 \\ 1.000 \\ \hline 17.252 \end{array}$$

$$\begin{array}{r} 17.252 \\ 17.235 \end{array}$$

$$\boxed{+0.017}$$

3)
$$\begin{array}{r} 16.190 \\ 1.000 \\ \hline 17.190 \end{array}$$

$$\begin{array}{r} 17.190 \\ 17.235 \end{array}$$

$$\boxed{-0.045}$$

1ST P.M.

T/B'S

3)
$$\begin{array}{r} 17.235 \\ 4.475 \\ \hline 12.760 \\ 1.000 \\ \hline 11.760 \end{array}$$

$$\begin{array}{r} 11.760 \\ 11.770 \end{array}$$

$$\boxed{+0.010}$$

4)
$$\begin{array}{r} 17.235 \\ 3.801 \\ \hline 13.434 \\ 1.000 \\ \hline 12.434 \end{array}$$

$$\begin{array}{r} 12.434 \\ 12.427 \end{array}$$

$$\boxed{-0.007}$$

SPOOL

$$\begin{array}{r} 17.235 \\ 2.985 R \\ \hline 14.250 \\ 1.381 \text{ offset} \\ \hline 13.869 \text{ s/R} \\ 13.890 \\ \hline \end{array}$$

$$\boxed{+0.021}$$

SSRL

2-4-08

BL 4-1 2ND PIVOT MASK.

J.M., L.G.

④ + 8.188 HI

$$\begin{array}{r}
 1) \ 4.412 \\
 \underline{1.000} \\
 5.412 \\
 \underline{8.188} \\
 \boxed{+2.776}
 \end{array}$$

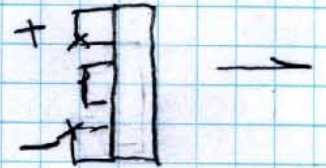
$$\begin{array}{r}
 2) \ 3.196 \\
 \underline{1.000} \\
 4.196 \\
 \underline{8.188} \\
 \boxed{+3.992}
 \end{array}$$

$$\begin{array}{r}
 3) \ 3.402 \\
 \underline{1.000} \\
 4.402 \\
 \underline{8.188} \\
 \boxed{+3.786}
 \end{array}$$

TRUNNIONS INNER W/S CORNERS

$$\begin{array}{r}
 +) \ 7.945 \\
 \underline{8.188} \\
 \boxed{+2.243}
 \end{array}$$

$$\begin{array}{r}
 -) \ 7.980 \\
 \underline{8.188} \\
 \boxed{+2.208}
 \end{array}$$



8.205
7.980
7.987
4.780

8.235
8.010
8.020

020
987

033

W/S END OF BODY

$$\begin{array}{r}
 8.188 \\
 2.390 \frac{1}{2} \\
 \underline{5.798 \frac{3}{4}} \\
 5.787 + \quad 5.792 (-) + 006 \\
 \underline{8.188} \quad \underline{8.188} \\
 \boxed{+2.401} \quad \boxed{+2.396}
 \end{array}$$

SSRL

2-7-08

BL 4-1 PIVOT MASK

J.M., L.C.

(Z)

2ND P.M.

$$\begin{array}{r}
 + 29.490 \text{ READ} \\
 - 68.380 \text{ u/s FL. FACE FROM APERTURE} \\
 \hline
 -38.890 \text{ LOS}
 \end{array}$$

$$\begin{array}{r}
 1) 24.460 \\
 \quad 1.000 \\
 \hline
 - 25.460 \\
 \hline
 38.890 \\
 \hline
 \boxed{-64.350}
 \end{array}$$

$$\begin{array}{r}
 2) 21.017 \\
 \quad 1.000 \\
 \hline
 + 22.017 \\
 \hline
 38.890 \\
 \hline
 \boxed{-16.873}
 \end{array}$$

$$\begin{array}{r}
 3) 38.999 \\
 \quad 1.000 \\
 \hline
 39.999 \\
 \hline
 38.890 \\
 \hline
 \boxed{+1.109}
 \end{array}$$

1ST PM

$$\begin{array}{r}
 2) 28.804 \\
 \quad 1.000 \\
 \hline
 29.804
 \end{array}$$

BL 4-1 PIVOT MASK

J.M., L.G.

Ⓚ 10.783 HI 2ND P.M.

TRUNNIONS

T/B'S

$$\begin{array}{r} +) 10.540 \\ (+) .243 \\ \hline 10.783 \end{array}$$

$$\begin{array}{r} -) 10.575 \text{ READ} \\ (+) .208 \text{ VALUE} \\ \hline 10.783 \text{ HI} \end{array}$$

$$\begin{array}{r} 1) 10.783 \\ 2.776 \\ \hline 8.007 \\ 1.000 \\ \hline 7.007^{s/r} \\ 7.007 \\ \hline \boxed{\ominus} \end{array}$$

$$\begin{array}{r} 2) 10.783 \\ 3.992 \\ \hline 6.791 \\ 1.000 \\ \hline 5.791^{s/r} \\ 5.796 \\ \hline \boxed{-005} \end{array}$$

u/s BODY

$$\begin{array}{r} +) 10.783 \\ 2.401 \\ \hline 8.382^{s/r} \\ 8.385 \\ \hline \boxed{-003} \end{array}$$

$$\begin{array}{r} -) 10.783 \\ 2.396 \\ \hline 8.387^{s/r} \\ 8.395 \\ \hline \boxed{-008} \end{array}$$

1ST P.M

T/B'S

$$\begin{array}{r} 1) 10.783 \\ 4.569 \\ \hline 6.214 \\ 1.000 \\ \hline 5.214^{s/r} \\ 5.215 \\ \hline \boxed{-001} \end{array}$$

$$\begin{array}{r} 2) 10.783 \\ 3.787 \\ \hline 6.996 \\ 1.000 \\ \hline 5.996^{s/r} \\ 5.984 \\ \hline \boxed{+012} \end{array}$$

u/s BODY

$$\begin{array}{r} +) 10.783 \\ (+) 2.107 \\ \hline 8.676^{s/r} \\ 8.676 \\ \hline \boxed{\ominus} \end{array}$$

$$\begin{array}{r} -) 10.783 \\ (+) 2.102 \\ \hline 8.681^{s/r} \\ 8.681 \\ \hline \boxed{\ominus} \end{array}$$

SPOOL

$$\begin{array}{r} u/s FL) 10.783 \\ 2.800 \text{ FLAT} \\ \hline 7.983 \\ .942 \text{ OFFSET} \\ \hline 7.041 \\ .710 \text{ APER} \\ \hline 7.751^{s/r} \\ 7.740 \\ \hline \boxed{+011} \end{array}$$

SSRL

2-4-08

BL 4-1 2ND PIVOT MASK

J.M., L.G.

(Y)

- .008 to Bot. of APERT.
 9.405 REF.
9.397 Bot. on Apert.
 NO Roll

TOP
 +.012 +.
9.791
 9.803 TOP OF APERTURE

9.600 = ϕ
 17.785
8.185 HI

.406 GAP

+ .008
9.791
 9.799
 .203 1/2 GAP
9.596 = ϕ

4.625
U/S FLANGE

8.185
 2.313
5.872 S/R

5.884

- .008

5.875
 2.313
+ 8.188 HI
 17.785
9.597 = ϕ

2.285
U/S FLANGE OPENING

8.185
 1.143 1/2
9.328

11 — FT

8.328 S/R
 8.341
 - .013

+.012

SSRL

2-4-08

BL 4-1 2ND PIVOT MASK

J.M., L.G.

(Y)

- .008 to Bot. of APERT.
 9.405 REF.
9.397 Bot. on Apert.
 NO Roll

TOP
 +.012 +.
9.791
 9.803 TOP OF APERTURE

9.600 = ϕ
 17.785
8.185 HI

.406 GAP

+ .008
9.791
 9.799
 .203 1/2 GAP
9.596 = ϕ

4.625
U/S FLANGE

8.185
 2.313
5.872 S/R

5.884

- .008

5.875
 2.313
+ 8.188 HI
 17.785
9.597 = ϕ

2.285
U/S FLANGE OPENING

8.185
 1.143 1/2
9.328
 11 — FT
8.328 S/R
 8.341
 - .013

+.012

SSRL
BL 4-1 2ND PIVOT MASK

2-4-08
J.M., L.G.

(X) BODY
u/s) .974
D/s) .974
25.900
26.1098
29.000
28.393

u/s BOT
26.662 s/R
26.650
+0.012

u/s FL
27.636
2.313R
25.323 s/R
25.285
+0.038

BODY
1.948
u/s FL
4.625 φ
u/s FLOPENING
1.912

26.662 s/R
27.636 LOS

u/s FLO
27.636
1.956
28.592
1.
27.592 s/R
27.555
+0.037

Alignment:

04-1 Pivot Mask, upstream

Alignment crew: _____, _____, _____

Dimensions in { } are absolute dimensions.

Reference point (P) / edge (E) / axis (A) / surface (S):

x:	{-4.049"}	center of aperture of the pivot mask body
y:	see. comment	center of aperture of the pivot mask body
z:	{674.803"}	aperture of the pivot mask body
roll:	{0.000}	aperture bottom edge
pitch:	{0.000}	upstream and downstream flange center
yaw:	{-0.006 rad}	side wall of the mask body

Items to fiducialize:

Entrance aperture of pivot mask body, SSRL side edge and bottom edge:

x(ssrl):	measured: _____
y(bottom):	measured: _____
z:	measured: _____
x(ct):	measured: _____
y(ct):	measured: _____
z(us):	measured: _____

04-1 Pivot Mask, downstream

Alignment crew: _____, _____, _____

Dimensions in { } are absolute dimensions.

Reference point (P) / edge (E) / axis (A) / surface (S):

x:	{-4.469"}	center of aperture of the pivot mask body
y:	see. comment	center of aperture of the pivot mask body
z:	{744.882"}	aperture of the pivot mask body
roll:	{0.000}	aperture bottom edge
pitch:	{0.000}	upstream and downstream flange center
yaw:	{-0.006 rad}	side wall of the mask body

Items to fiducialize:

Entrance aperture of pivot mask body, SSRL side edge and bottom edge:

x(ssrl):	measured:	_____
y(bottom):	measured:	_____
z:	measured:	_____
x(ct):	measured:	_____
y(ct):	measured:	_____
z(us):	measured:	_____

04-1 Pivot Mask, combined

Alignment crew: _____, _____, _____

Dimensions in { } are absolute dimensions.

Reference point (P) / edge (E) / axis (A) / surface (S):

x:	{-4.469"}	center of aperture of downstream pivot mask body
y:	see. comment	center of aperture of downstream pivot mask body
z:	{744.882"}	aperture of downstream pivot mask body
roll:	{0.000}	aperture bottom edge
pitch:	{0.000}	upstream and downstream flange center
yaw:	{-0.006 rad}	side wall of the mask body

Items to fiducialize:

Location of the Mask1 aperture and the Mask 2 Entrance due to sagging of the beampipe

x AP (mask 1):	measured:	_____
y AP (mask 1):	measured:	_____
x ENT (mask 2):	measured:	_____
y ENT (mask 2):	measured:	_____
beam pipe max deflection:	measured:	_____

Tolerance at installation:

Alignment crew: _____, _____, _____

Comment:

To align the Pivot Mask: the Breakout as well as the Girder (and preferably the Vert Slit Tank) alignment need to be complete. Next the downstream pivot support will be aligned to be on the same center line as the girder. The girder is then moved (by motor control or by hand) to align the y-locations of the upstream and the downstream pivot points +0.710" [+18.000mm]. The final alignment of the mask will take place in this orientation. To finish this step the girder will need to move into its extreme positions to verify the required motion.

x:	+/- 0.010"	measured:	_____
y:	+/- 0.005"	measured:	_____
z:	+/- 0.050"	measured:	_____
roll:	+/- 0.000 rad	measured:	_____
pitch:	+/- 0.001 rad	measured:	_____
yaw:	+/- 0.001 rad	measured:	_____

02/06/08

04 - 1 Pivotmask

	X	Y	Z	
us spool flange	-4.254	0.942	645.564	
ds spool flange	-3.981	0.808	663.689	
us pvmask 1 flange				
ap pvmask 1	-4.048	0.712	674.799	-6 ✓
ds pvmask 1 flange				
us pvmask 2 flange	-4.058	0.712	676.494	-6 ✓
[us y surface pvmask 2		3.105]		
[us x surface pvmask 2	-5.352]			
ap pvmask 2	-4.469	0.710	744.873	-6 ✓
ds pvmask 2 flange	-4.478	0.709	746.427	-6 ✓

all dimensions are to the center of the component.

SSRL

2-6-08

BL 4-1 PIVOT MASK

J.M., L.G.

(Y)

2ND P.M. TRUNNIONS

10.540

10.575

$$\begin{array}{r}
 10.534 \\
 (+) .243 \\
 \hline
 10.777
 \end{array}$$

$$\begin{array}{r}
 10.777 \text{ HI} \\
 (+) .710 \text{ APERTURE} \\
 \hline
 11.487 \text{ HF}
 \end{array}$$

1ST P.M u/s BODY

$$\begin{array}{r}
 +) 10.777 \\
 (+) 2.107 \\
 \hline
 8.670 \text{ s/R} \\
 8.671
 \end{array}$$

$$\boxed{-001}$$

u/s SPOOL

$$\begin{array}{r}
 \text{u/s FL}) 10.777 \\
 2.800 \text{ to FLAT} \\
 \hline
 7.977 \\
 ,942 \text{ OFFSET} \\
 \hline
 7.035
 \end{array}$$

7.585

$$\begin{array}{r}
 + .710 \text{ APER.} \\
 \hline
 7.745 \text{ s/R} \\
 7.740
 \end{array}$$

$$\boxed{+005}$$

$$\begin{array}{r}
 10.569 \\
 (+) .208 \\
 \hline
 10.777
 \end{array}$$

$$\begin{array}{r}
 2) 10.777 \\
 3.992 \\
 \hline
 6.785 \\
 1.000 \\
 \hline
 5.785 \text{ s/R} -005
 \end{array}$$

$$\begin{array}{r}
 -) 10.777 \text{ HI} \\
 (+) 2.102 \text{ VAL.} \\
 \hline
 8.675 \text{ s/R} \\
 8.677
 \end{array}$$

$$\boxed{-002}$$

$$\begin{array}{r}
 1) 10.777 \\
 2.776 \\
 \hline
 8.001 \\
 1.000 \\
 \hline
 7.001 \text{ s/R} \\
 6.996 \\
 \hline
 4.005
 \end{array}$$

$$\begin{array}{r}
 1) 10.777 \\
 4.569 \\
 \hline
 6.208 \\
 1.000 \\
 \hline
 5.208 \text{ s/R} \\
 5.210 \\
 \hline
 -002
 \end{array}$$

5.211

$$\begin{array}{r}
 2) 10.777 \\
 3.787 \\
 \hline
 6.990 \\
 1.000 \\
 \hline
 5.990 \text{ s/R} \\
 5.980
 \end{array}$$

$$\boxed{+010}$$