Aligning Bonus Detector to MVT

12ft Faro Arm 0.5" probe

Securing the MVT assembly on Cart

- The cart must be raised off of the pneumatic wheels. Blocks or bottle jacks should be used. Make sure once the cart is raised that the wheels can spin freely. Use a carpenter's level to ensure that the cart is not grossly out of level.
- Secure the Z stops on the upstream and downstream ends of one of the roller bearings.
- The instrument should be set up on the beam right side. Make sure the location enables measurement of most of the fiducials on the SVT mount and the downstream straw.

Fiducialize SVT and MVT Mount

- Measure as many fiducials as possible, particularly on the SVT Mount (1-19). You will also need the 8mm nest to measure fiducials on the MVT tube.
- Measure the upstream SVT flange projected to the downstream face of the SVT Mount and the semi-circle on the downstream Link Plate. This defines the Z axis (primary).
- Measure the Top Plate (where Fids 1-5 are located) to control roll (ZX plane secondary)
- Set the Origin on the upstream SVT flange.
- Adjust the upstream beam pipe cradle to X,Y =0
- Check the downstream beam pipe cradle, again this should be X,Y=0.
- Save this file as "MVT_Fids_Prelim".
- Check in often.





Fiducialize Bonus Detector

- Open a new job and save this file as "Bonus_Fids_Prelim".
- Measure the upstream face of the Link Block and all fiducials. This can be used to verify your part or set-up has not moved during the survey.
- Take three measurements of the upstream flange that houses the straw and average. The average should be projected to the upstream face of the flange. Measure the downstream end of the straw where it intersects the face of the bonus detector. The average should be projected to the face of the Bonus Detector. Measure the straw *at least* three times and average. A line through these two points defines the Z axis (primary).
- Roll is controlled by the beam right side of the link block (Y axis secondary).
- The initial origin should be set at the intersection of the constructed Z axis and the upstream face of the link block.
- This coordinate system needs to be shifted upstream******so that it is coincident with the SVT/MVT coordinate system.
- Check-in often.



Alignment of Bonus to SVT/MVT

- Open a new job and import both files into the World coordinate system. Save this file as "Bonus_PreAlign_MVT".
- Locate the instrument using the MVT Fids.
- You can now open a watch window and align the bonus to MVT using the fiducials on the Link Block.
- The previous Bonus target did not have enough travel to set to the ideal Z location.
- Hall B will assist with the link adjustments.
- Once the Bonus is aligned to the MVT re-check the upstream and downstream locations of the straw (the same measurements during Bonus fiducialization.
- Check-in often