

DUNE-SP

Technical Integration

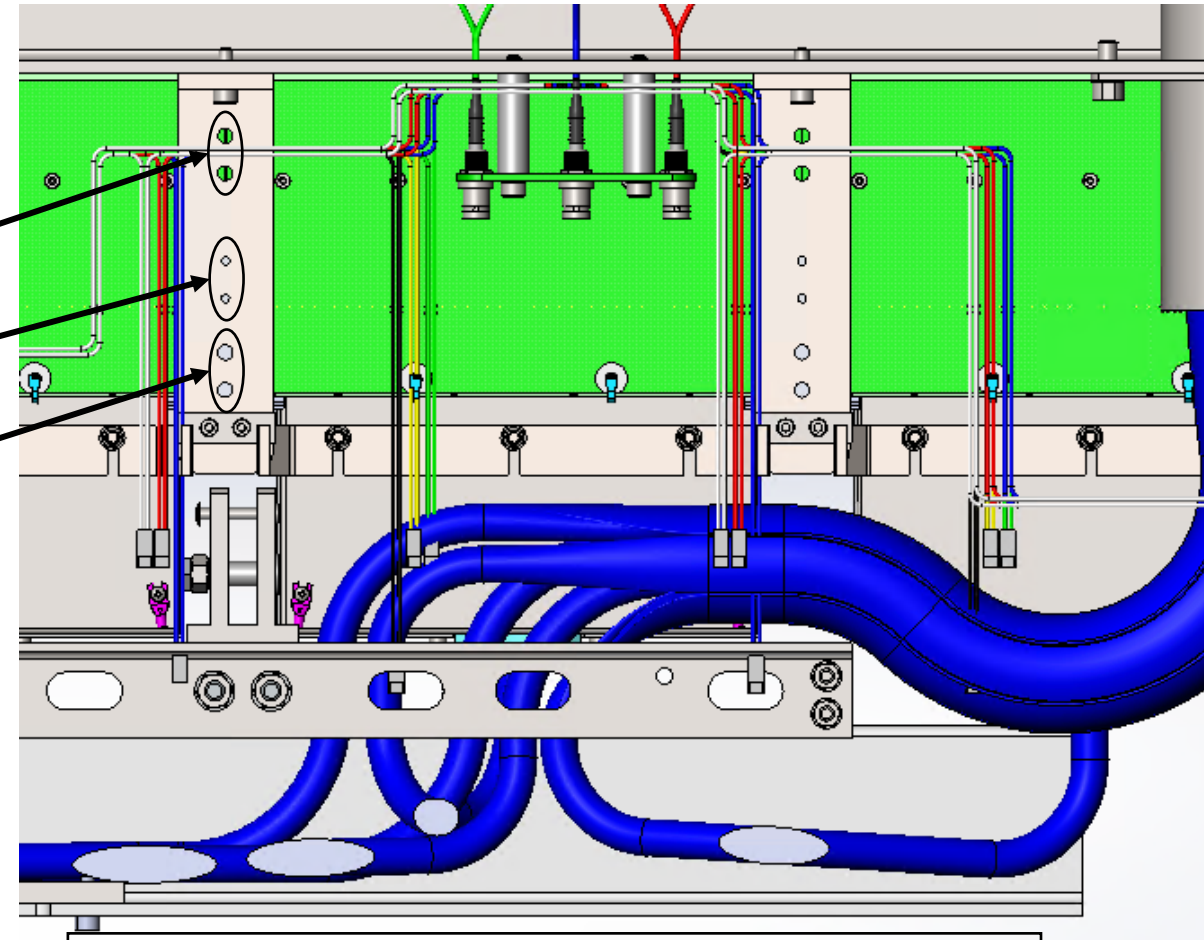
- Cold Electronics Tees
- Pivot Points for HV Latches
- Annotations for PD & APA

June 25, 2020

KDZ

CE Tees, 8760087 and 8760088

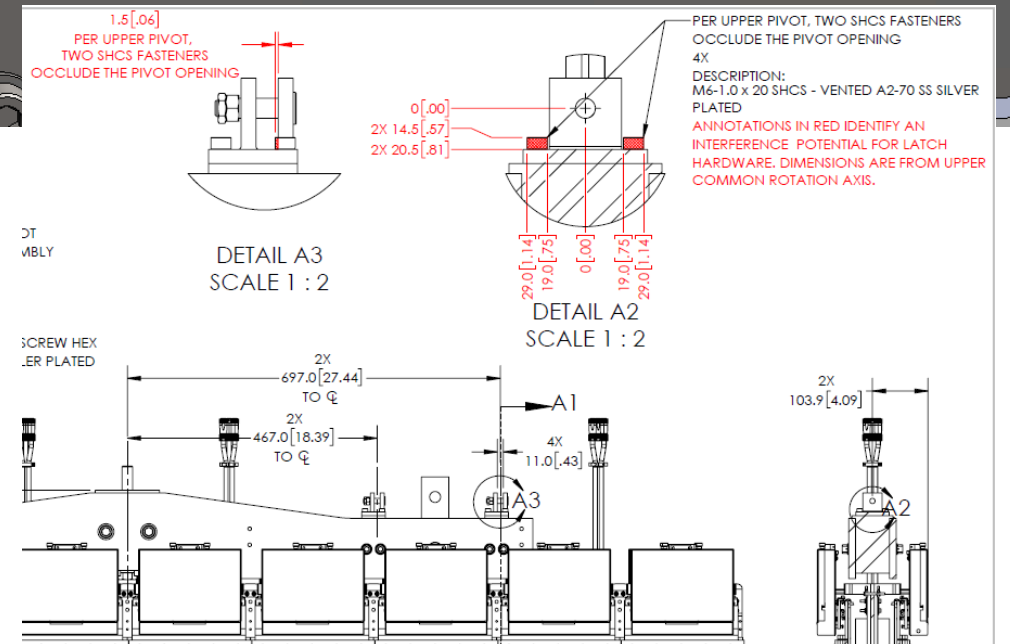
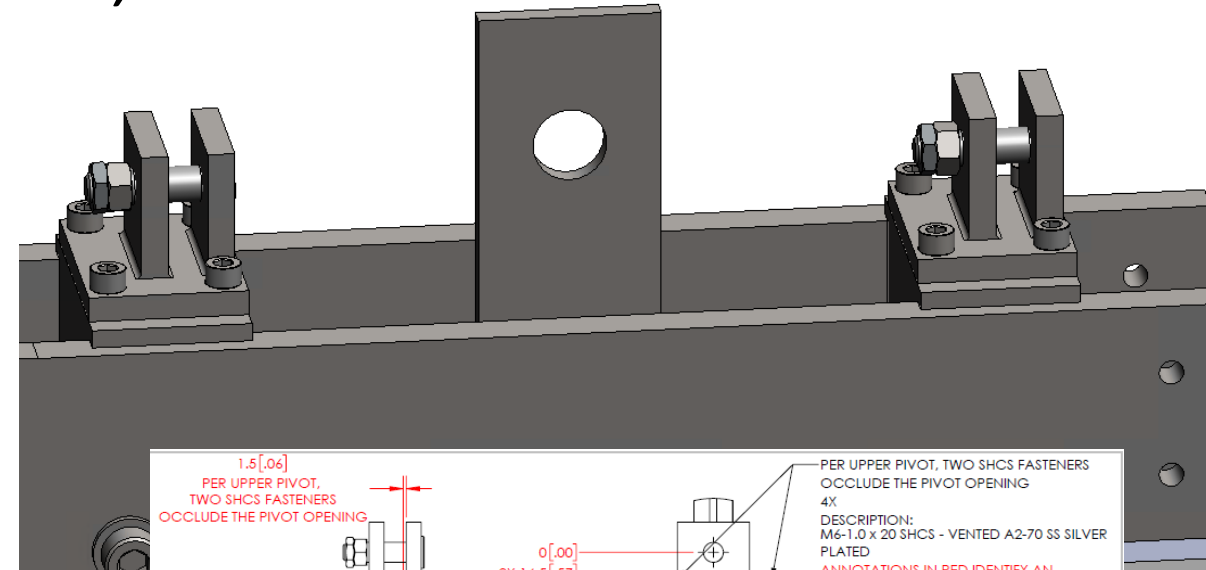
- Key Functions
 - Connects CE bracket to the APA head tube
 - Tie down points for APA bias voltage cable bundle
 - Available connection point for CE box ground strap
 - (New) Available tie down points for CE cables, lower APA
- Radius added to alleviate concerns of the potential to damage cable.
- Note: CE cable bundle shown in images does not completely represent MZ plans (work in progress at BNL)



Section view shows the space behind CE boxes at the head tube of the lower APA

Pivot Points for HV Latches, 8760258 and 8760239 (1/2)

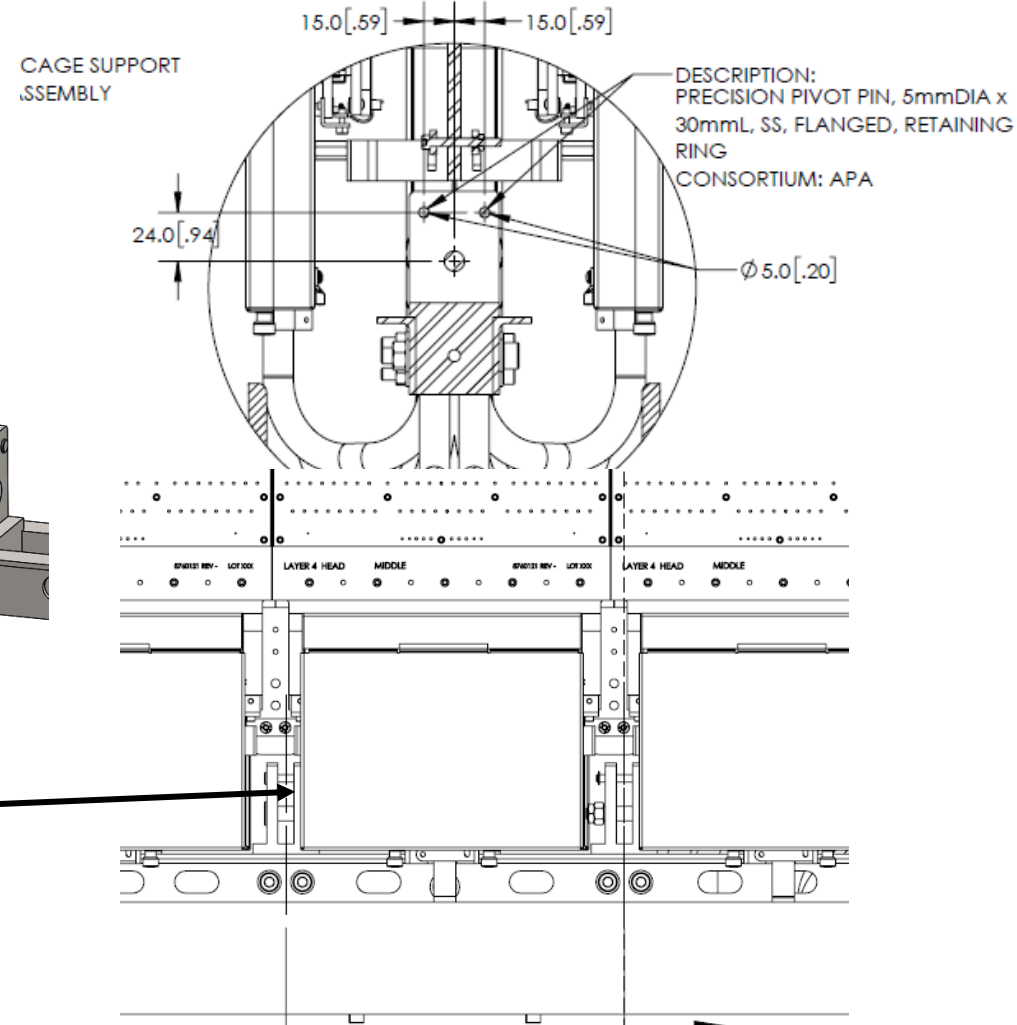
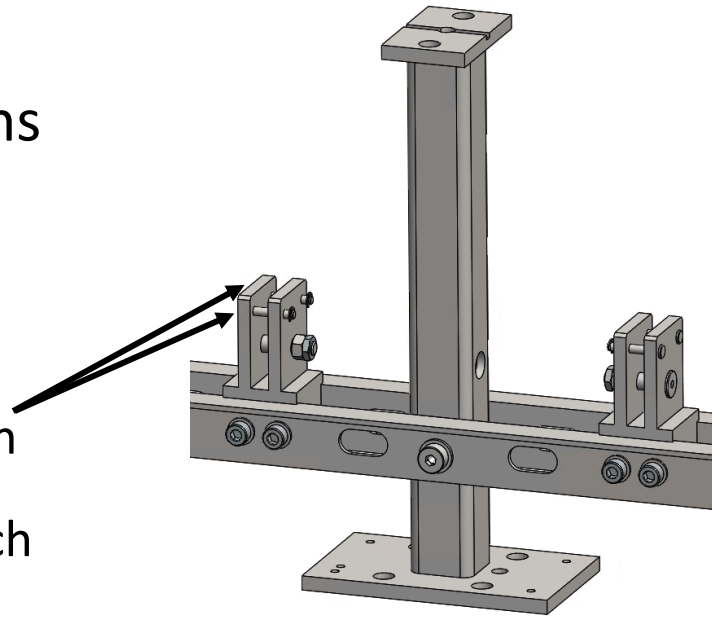
- It was deemed desirable to have the latches at one half the detector pitch.
- The opening between pivots now measures 11mm.
- Pivot points for HV latches are located on the APA pair
 - 8706258 can be found on the **upper APA**
 - 8760239 can be found on the **lower APA**
- 8760258 can no longer be referred to as symmetric due to the HV needs and close proximity of the CE cable tray.
 - Note a potential for interference has been highlighted within interface drawing 8760307.



Taken from sheet 2 of 8760307

Pivot Points for HV Latches, 8760258 and 8760239 (2/2)

- 8760239 remains symmetric. Modifications to other APA components have facilitated the adjustment.
 - The addition of precision pivot pins create a physical stop for the latch at pre deployment.
- The latch now has a ~5mm clearance to the nearest CE box (this was previously ~10mm)



Taken from sheet 3 of 8760307

Annotations for APA & PD, 8760301

- Studies performed by the APA consortium provide tolerance information for the PD consortium's mounting hardware. The pin connection between the PD module and PD read out board must remain engaged throughout the tolerance range AND while differing materials experience contraction.
- Per the PD PDR a [written document](#) shows pin engagement is maintained throughout the range.
- Annotations were added to the interface drawing [8760301](#).