

End Wall Installation Change

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The Problem

Once in their final positions, each end wall will be supported from the top at both corners - one on an APA bridge beam and one on the CPA bridge beam. The connections on the CPA bridge beam needs to accommodate two end walls. This is achieved by first attaching one of the end wall's connecting plate inside a bridge beam clevis with a hollow sleeve, and next attaching the other end wall's connecting plates around the clevis with a solid pin. The final arrangement is shown in Figure 1.

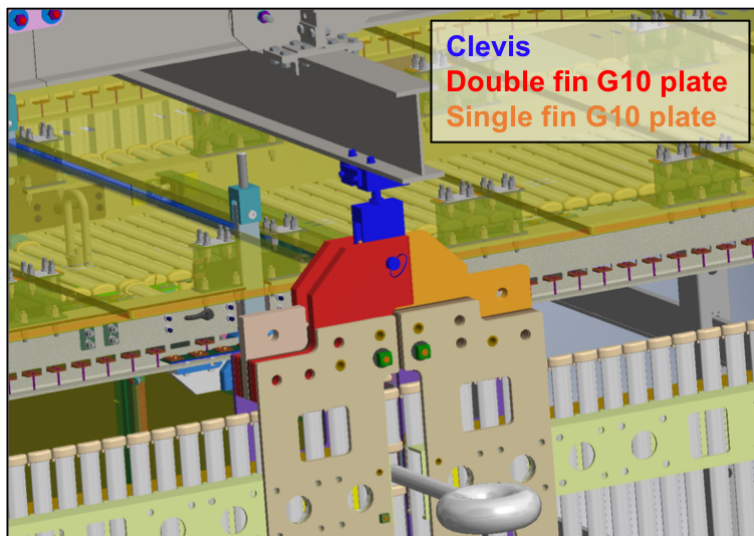


Figure 1: View of the two downstream end walls' connection to the CPA bridge beam clevis.

The problem is that the installation sequence requires the downstream (DS) beam right (BR) end wall with the double fin plate (red in Figure 1) to be installed before the DS BL end wall with the single fin plate (orange in Figure 1). In this case the solid pin will block the access for the downstream beam left end wall to be connected.

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The Proposed Solution

The simplest and safest solution we have come up with is to simply wait to make the final connection of the DS BR end wall until after the DS BL end wall load has been transferred to the CPA/APA bridge beams. We propose the following sequence of events:

1. Temporarily transfer the DS BR end wall load to the CPA/APA bridge beams, so that bridge beam B is free to deploy the BR top/bottom field cages.
2. Once this is done the load can be transferred back onto the lift beam connected to bridge beam B, and the connections on the CPA/APA bridge beams removed.
3. Continue to build the BL end walls and push into the cryostat.
4. Close TCO.
5. Install US BL end wall on CPA/APA bridge beams.
6. Remove lift bar from US BL end wall and lower to cryostat floor.
7. Install DS BL end wall on CPA/APA bridge beams.
8. Remove lift bar from DS BL end wall and lower to cryostat floor.
9. Install DS BR end wall on CPA/APA bridge beams.
10. Remove lift bar from DS BR end wall and lower to cryostat floor.

This plan requires an additional lift bar¹, which is available at Ash River and can be sent to CERN immediately (~2 weeks to ship). It also adds one additional scaffolding and winch trolley movement - in order to remove the lift bar for the DS BR end wall.

Abbreviation Key

BL: Beam left
BR: Beam right
DS: Downstream
US: Upstream
CPA: Cathode Plane Assembly
APA: Anode Plane Assembly

¹It may be possible to move step #2 after step #6 and reuse the lift bar from the US BL end wall.