

Lessons Learned during 1st 2 bar box installations

1. When installing, we inserted the lower rollers in the track first. This led to problems rolling bar box to vertical. We will roll to vertical first before installing in tracks.
2. Since sliding the plates in one by one on the 2nd Bar Box was smooth enough to bring the box vertical, we will do that on the uppers.
3. The roll over fixture kind of jammed the box in the tracks using the rolling on lower rollers method. Once the box is installed, we will install the "Bobby Clamps" loosely and then loosen the lower arms on the fixture (sequentially and gradually) to allow the rollers to seat in the tracks. We will then tighten the Bobby clamps, remove the balance plates, then remove the upper and lower roll over fixture clamps. This should relieve all stress on the bar box when removing the roll over fixture. Once the rollers are engaged, there will be no vertical crane movement until all the clamps have been removed.
4. Since the exhaust gas tubes are on the lower upstream edge of the bar box for the upper installation, we will need to change the attachment procedure to the roll over fixture slightly. We will practice with the dummy. We plan to bridge across the tube to the US surface for the lower clamps so as not to crush the tubes.
- 4a. For bar box #1 we found that the lifting fixture (not the roll fixture) needed a washer added to one side of clamps to generate just a small amount more space between the clamps so that they drop into the recesses in the edges of the box. This may be required for #0 also.
5. The gas fittings will have to be installed north of the last clamp (in full installed position). In order to move the box, the fittings will be temporarily removed and the holes taped over.
6. In order to help the installation process, we will stage 2 scissor manlifts with 2 people in each on DS side and have the boom lift staged for access to the US side. The box will be lifted to installation height prior bringing into position so shorter rigging can be used to allow the vertical travel on the crane. Tow lines may be required. The "Bobby Clamps" can be installed from either side. The boom will be used for spotting or if needed for additional hands.
7. The tensioning setup for the steel angle replacement with the aluminum sheet worked well for the lower frame. For the upper frame, we need to rebuild one of the aluminum bars that had the threaded holes mis-aligned and match drill the aluminum sheet. Eugene recommends drilling lightning holes in the aluminum sheet to reduce mass. We will put lightning holes in the upper aluminum sheet before installation. The holes will be only inboard of the 1st bracket from either end. We will not remove or machine the aluminum sheet on the lower unless analysis determines it is necessary.
8. Need to file the corners of the northern most, lower edge of the tracks for both bar boxes to clear the gas fittings.
9. The trunion system for horizontal adjustment worked well. Need to build a setup for all the bar boxes and add locking nuts.
10. Using a tight string to align the bar box supports while installing the aluminum tensioned sheet was helpful. The final tight string alignment of all tracks is to be done after the aluminum sheet is tensioned.

