



# INSTRUCTION TO SERVICE

ITS: 60401		06/20/2022
<b>SECTION:</b>	526 Seating	
<b>WRITTEN BY:</b>	Kalman Takacs	
<b>SUBJECT:</b>	Tighten hardware / Replace rivets on upper deck cantilever seats if required	
<b>ISSUE:</b>	Cantilever seats on upper deck may move	
<b>SUMMARY:</b>	Repair seat securement per this ITS.	

# ITS60401

Ref. NHTSA Recall No.	Ref. Transport Canada Recall No.
Not Applicable	Not Applicable

**THIS ITS DOCUMENT SHOULD BE RETAINED AND REFERRED TO FOR FUTURE MAINTENANCE UNTIL THE NEW FLYER PARTS AND/OR SERVICE MANUAL IS UPDATED TO REFLECT WORK DONE AS A RESULT OF THIS DOCUMENT. ENSURE THAT THIS DOCUMENT IS AVAILABLE FOR PARTS AND MAINTENANCE STAFF GOING FORWARD.**

**SAFETY PRECAUTIONS MUST BE FOLLOWED ACCORDING TO ACCEPTED INDUSTRY STANDARDS AND LOCAL/PROPERTY REQUIREMENTS.**

**PROCEDURE:**

1. Turn the main battery disconnect switch to the “OFF” position.
2. On the cantilever mounted seats located at the upper deck, check the seats for tightness according to the followings:
  - a. Attach the bracket # XC-MT-3120 to the bottom seat frame. Refer to Figures 1 and 2 below.



**Figure 1: Bracket to attach force gauge**



- b. Attach force gauge to the end of the bracket. Refer to Figure 2.



**Figure 2: Force gauge is attached**

- c. Push down the gauge until it shows 50 lbs. Then pull up gauge until it shows 50 lbs. Refer to Figure 2.

- d. Less than  $\frac{3}{8}$ " of movement at the aisle end allowed at 50 lbs. push and 50 lbs. pull force. Use a helper to measure the movement with a tape measure. Refer to Figure 3.



**Figure 3: Measure movement (if any)**

3. If the seat is tight (less than  $\frac{3}{8}$ " of movement at the aisle end) move on to the next seat / bus.
4. If the seat is loose:



- a. Check the mounting hardware of the seat and make sure it is tight and torqued to spec. Locations of the hardware to check with torque specs are shown in Figure 4 and 5. If the hardware is not torqued to spec, add 1-2 drops of Loctite 243 (NF PN **081034**) and torque hardware to spec and check the seat for tightness again.

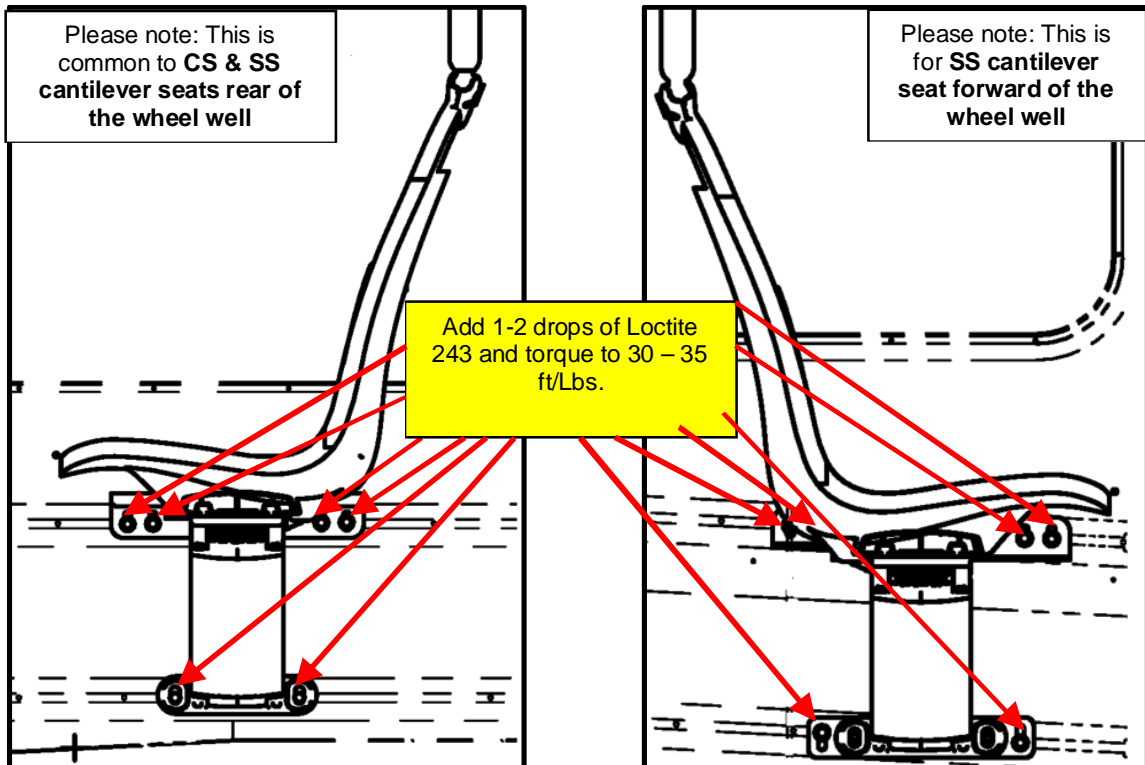


Figure 4: Check Mounting Hardware & Torque to Spec if Required

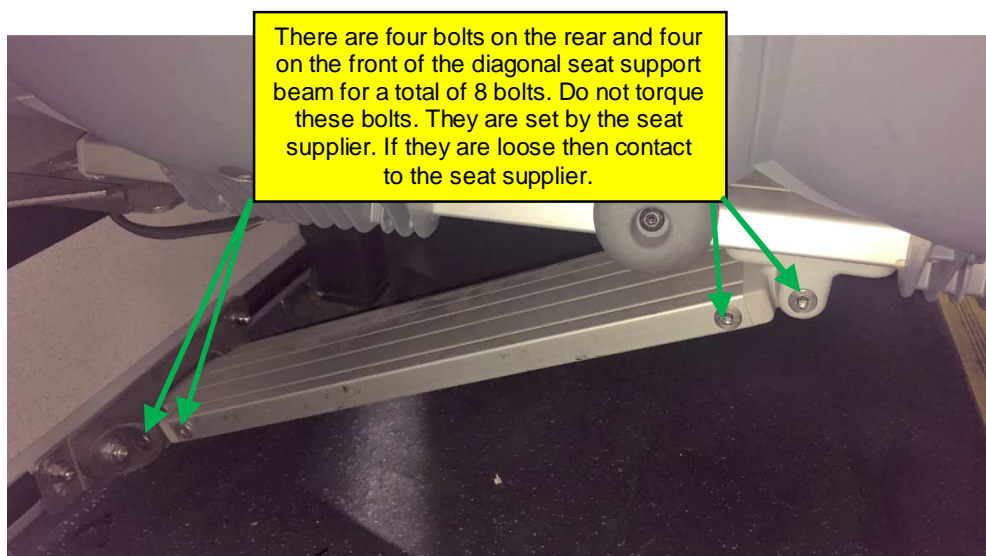


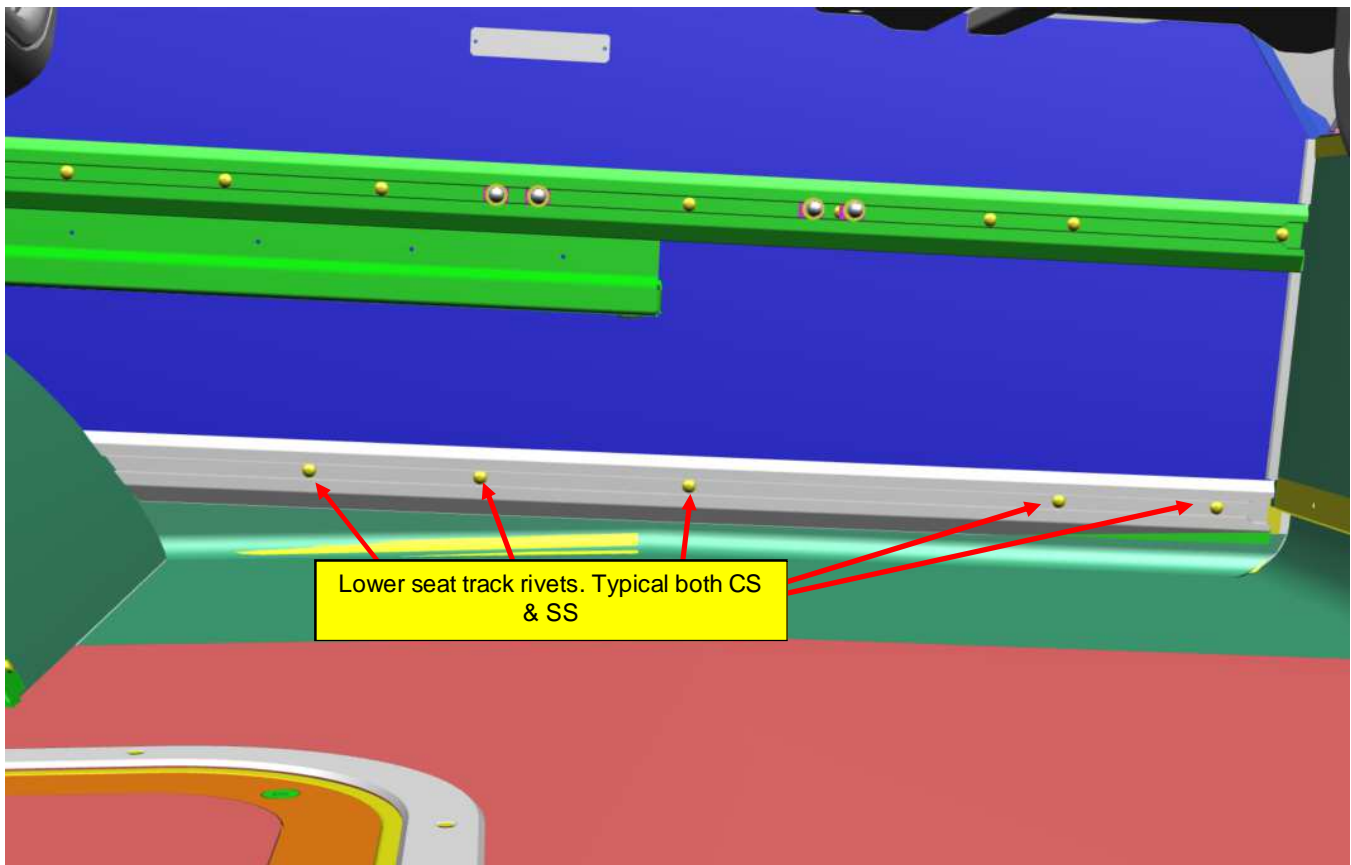
Figure 5: Diagonal support beam joint-bolts



5. After torquing the mounting and seat hardware check the seat for tightness again (less than 3/8" of movement at the aisle end) by using the bracket and force gauge as described at Step 2.
6. If the seat is tight (less than 3/8" of movement at the aisle end) move on to the next seat / bus.

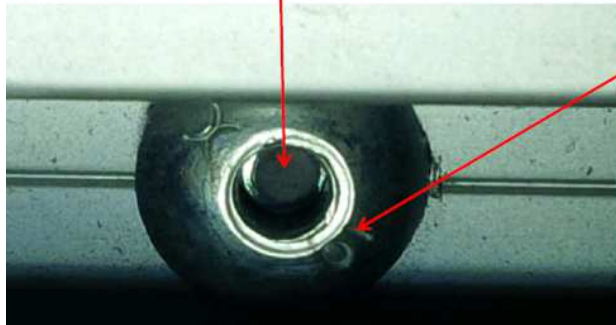
**Lower seat track rivet inspection:**

7. If seat is still moving more than 3/8" then inspect the lower seat track for tightness. This seat track should have no excessive movement between itself and the wall. A slight flexing is normal when a helper is pulling the aisle end of the seat upward. This pull up load doesn't happen in service; the load (the weight of the seat and passengers on seats) is pushing the seat track against the side wall structure. If the lower seat track is noticeably loose, inspect rivets for tightness. Refer to Figure 6 for affected rivets and to Figure 7 for example issues need to verify on rivets.



**Figure 6: Lower Seat Track Rivets (Typical CS & SS – Seat Removed from Picture for Clarity)**

Mandrel is pushed in- incorrect



Head of rivet marked with X10 - correct



Correctly installed rivet, the mandrel is flush with the top of the rivet.

Incorrect rivet that may be present, This is a monobolt, it has no markings on the head, and should not be present on any buses.



Gap between the seat track and the head of the rivet (rivet is loose)

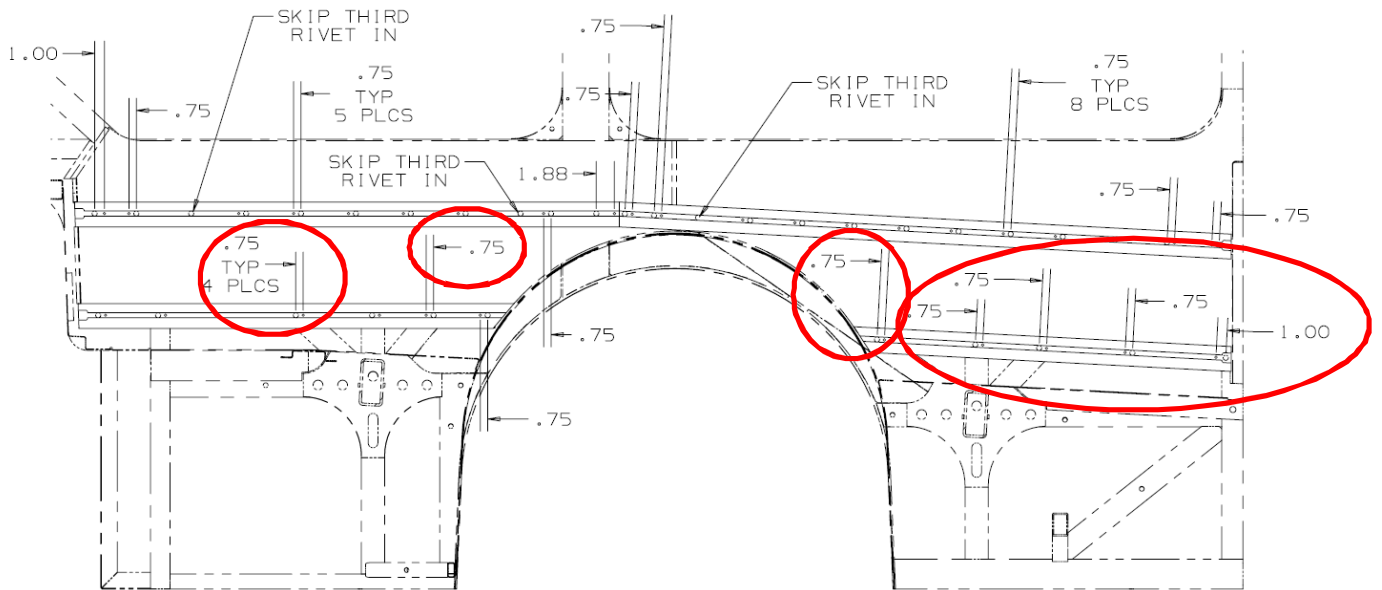
**Figure 7: Rivet inspection**



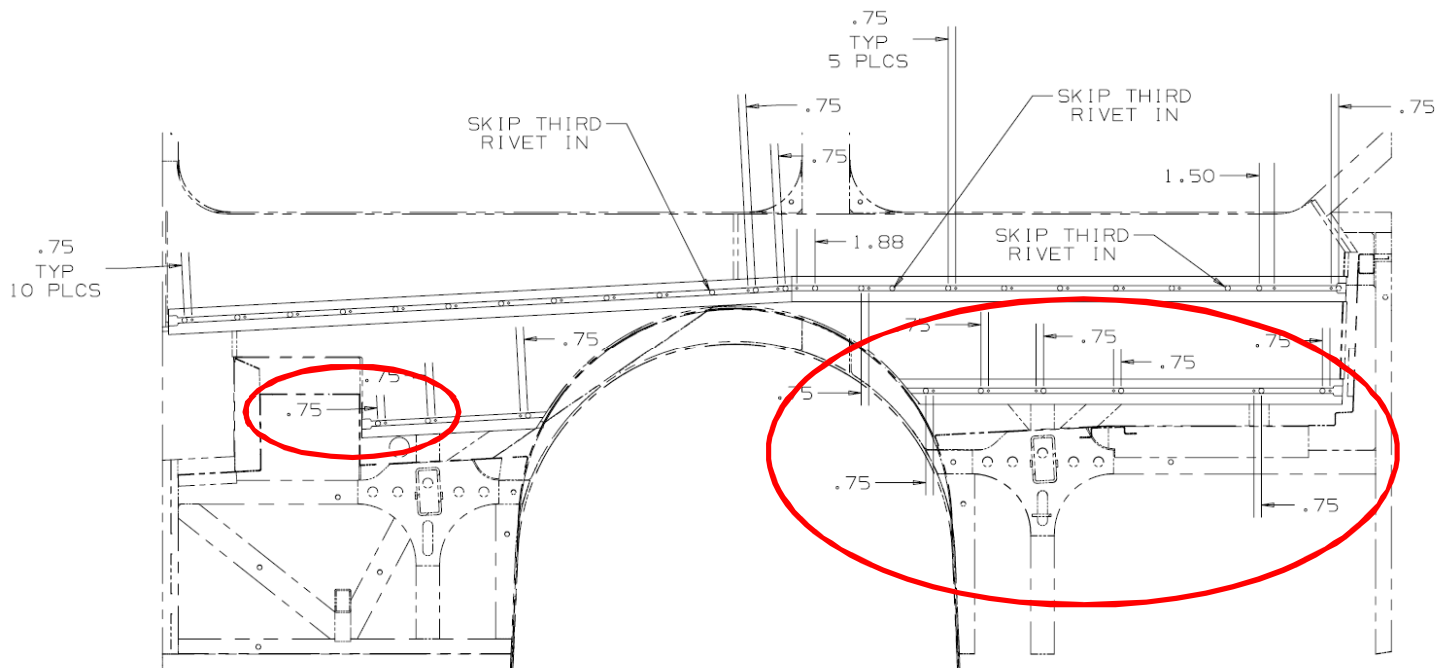
**Additional rivet installation**

- 8. If lower seat track is loose then drill new hole by using a 17/64" DIA size drill bit ¾" or 1" from any existing nonconforming rivets according to the drawings below.

**Note:** do not remove seats to add rivets to the lower seat track. The weight of the seat is helping to push the lower seat track against the side wall structure.



**Figure 8: Installing additional rivets (as many as required) to the street side seat track**



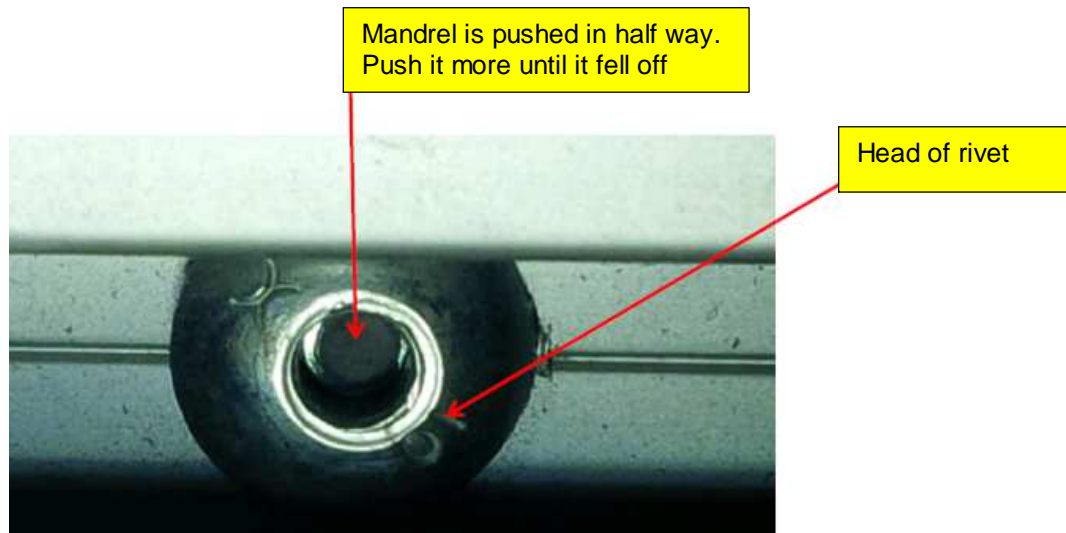
**Figure 9: Installing additional rivets (as many as required) to the curb side seat track**



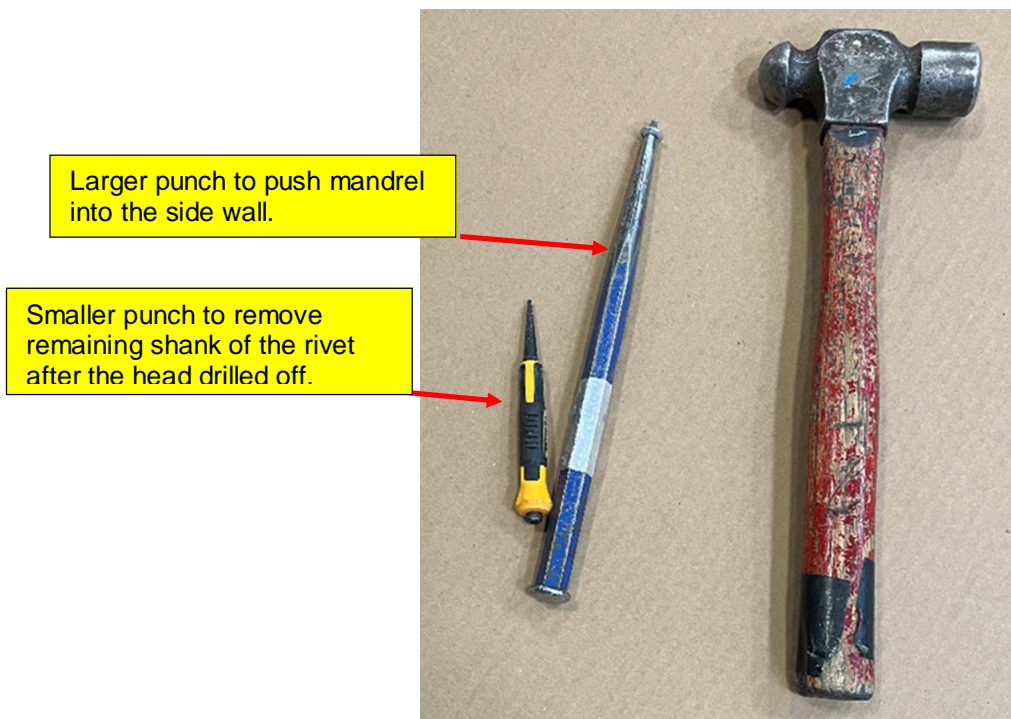
9. Install new rivets (NF PN **336379**). Make sure the lower seat rail is tight against the wall and the new rivets are fully seated into the mounting hole with force before pulling the rivet tight. Ensure this is done the same way on each new rivet that is installed. Best practice is to begin installing rivets in the middle of the track and work out towards the ends of the seat track. This provides an even and tight seal up against the structure.
10. If the seat is tight (less than 3/8" of movement at the aisle end) move on to the next seat / bus. If the seat is still loose, continue to inspect the seat for any sources of movement and address as required. Once the seat is tight, add note on the work order what action was taken to fix the seat and move on to the next seat / bus.

**If seat track has to be removed**

11. If the lower seat track has to be removed for any reasons, then remove seats and carefully drill out the rivets in the lower seat track according to the followings:
12. Use a pointy center-punch and hit the center of the mandrel out of the rivet. Refer to Figures 10 and 11.



**Figure 10: Rivet mandrel**

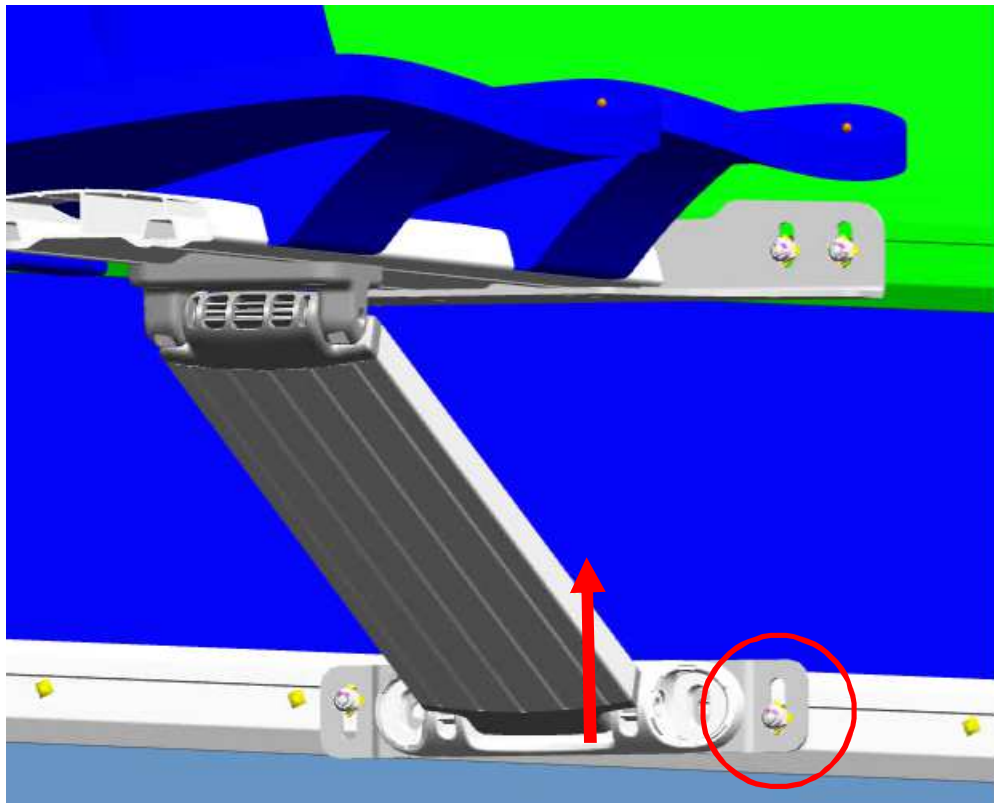


**Figure 11: Tools to remove rivets (drill bit is not shown)**



**NEW FLYER**

13. Drill the head off by using a 17/64" size drill bit with a dept limiter adjusted to 3/16". **It is very important not to drill into the seat track or the structure.**
14. Punch the remaining shank of the rivet into the structure by using a 3/16" diameter punch. **Do not enlarge the existing hole: no larger diameter punch nor drill bits are approved for rivet removal!**
15. After seat track is removed inspect mounting surface (side wall structure) for flatness. Ensure no foreign objects or flooring are present along the mounting surface. Replace seat track if required. Install seat track with new rivets (NF PN **336379**). If existing holes are damaged (larger than .275", then install rivets to seal the enlarged holes but also must install new rivets 3/4" from the compromised hole per Paragraph "**Additional rivet installation**". Make sure the lower seat rail is tight against the wall and the new rivets are fully seated into the mounting hole with force before pulling the rivet tight. Ensure this is done the same way on each new rivet that is installed. Best practice is to begin installing rivets in the middle of the track and work out towards the ends of the seat track. This provides an even and tight seal up against the structure.
16. Reinstall seats and torque mounting hardware per Figure 4. Ensure the diagonal support is pushed all the way up per engineering drawing. Refer to Figure 12 below.



**Figure 12: Push diagonal support beam all the way up**

17. Remove all tools and debris and return the bus to service condition.
18. Turn the main battery disconnect switch to the "ON" position.



<b>LABOUR ESTIMATE</b>				
	Operation	People	Hours	Labor Time
1	Check Three Upper Deck Cantilever Seats for Tightness	2	0.25	0.5
2	Tighten Upper Deck Foremost SS Cantilever Seat Hardware - If Required	1	0.5	0.5
3	Tighten Upper Deck Rearmost SS Cantilever Seat Hardware - If Required	1	0.5	0.5
4	Tighten Upper Deck CS Cantilever Seats Hardware - If Required	1	0.5	0.5
5	Add rivets to the Upper Deck Foremost SS Lower Seat Track – If required	1	1.25	1.25
6	Add rivets to the Upper Deck Rearmost SS Lower Seat Track – If required	1	1.25	1.25
7	Add rivets to the Upper Deck CS Lower Seat Track - If required	1	1.25	1.25
8	Replace lower seat track – If required	2	3	6

<b>PARTS REQUIRED</b>					
Item	Part Number	Description	Qty. per Coach	Units	Notes
1	081034	LOCTITE-243 MEDIUM 10ML	0.01	EA	Source Locally
2	336379	RIVET-HUCKLOK 1/4" .187-.437	20	EA	If Required

<b>SPECIAL TOOLS REQUIRED</b>					
Item	Part Number	Description	Qty. per Coach	Units	Notes
1	XC-MT-3120	Bracket to test seat movement	1	EA	Only 1 Required Total
2	NPN	Hucklok Rivet Installation Tool with Custom Nose Piece	1	EA	Only 1 Required Total Source Locally