Office of Transport
Safety Investigations

Safety Alert SAL01/25

19 June 2025

Track mounted bus seat anchorage design and inspection

The Office of Transport Safety Investigations (OTSI) recently became aware of several passenger seats sliding forward in a frontal crash involving a coach manufactured in 2013. In a more severe crash this movement may have led to serious and potentially fatal injuries.

Key points for operators

Bus and coach operators are strongly encouraged to:

- Inspect your fleet of vehicles to identify if you have similar style track mounting systems.
- Review your maintenance procedure to ensure that the seat anchorages are checked and maintained to ensure ongoing retention of seats.
- Consider in consultation with the original equipment manufacturer (OEM), if any further engineering controls may be required to reduce the likelihood of similar seat slide events where track mounting systems are used.

Background

A 2013 coach was involved in a frontal crash with several seats sliding forward as a result (Figure 1). The seats were installed using a track mounting (rail) system that did not require drilling into the floor or track to install the seats. The seating position was retained using brackets and a clamping system (Figure 2):

- The outboard side (window) of the seat frame was retained with three fasteners fixed to a clamping arrangement that was located on a continuous rail affixed to the coach side frame. This arrangement included serrated flange nuts (whiz nut) [1] to prevent the fasteners loosening.
- The inboard side (aisle) was attached to the floor rail with an angle bracket bolted to the seat in three places and retained with a single bolt that passed through a nut welded to the

[1] The serrated flange nuts were referred to as 'whiz nuts' by the original manufacture and were intended to reduce the likelihood of fasteners loosening over time.

seat frame which clamped to the aluminium track. There was no secondary securing mechanism to prevent the fastener from loosening.

- The installation instruction for these required all the seat anchorage fasteners to be torqued to 32 Nm.

The clamping method of the seat was identical to those supplied for testing as part of the requirements of Australian Design Rules (ADR) 68/00 – Occupant Protection in Buses. This method, while complying with the testing standard, required on-going maintenance and inspection to ensure that the fasteners remain secured.

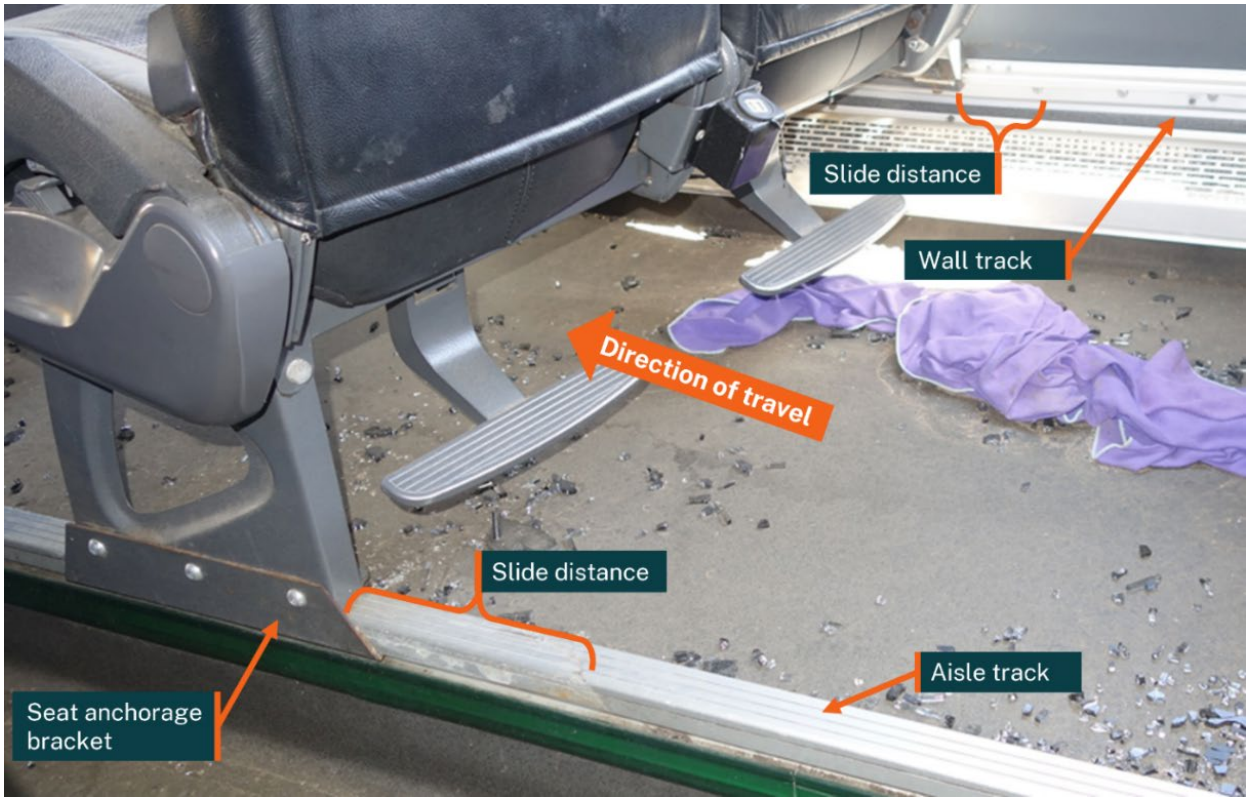
If the clamping bolts become loose due to vibration, there were no secondary mechanisms to prevent the seat from sliding on the tracking when subjected to forces in a crash.

OTSI communicated this issue to the OEM requesting additional information. Based on the information supplied by the OEM of the coach and seats, it was reported that only vehicles supplied to one operator may be affected. However, the OEM was not able to confirm this information, nor provide a list of affected vehicles. OTSI contacted the operator believed to be impacted for their awareness.

The OEM of the seats developed a service bulletin to instruct operators to inspect and torque the fasteners. This included that it was best practice to apply thread-lock compound to the fasteners to limit the likelihood that a fastener would loosen, and using a paint marker to witness mark the fasteners for ongoing visual inspections.

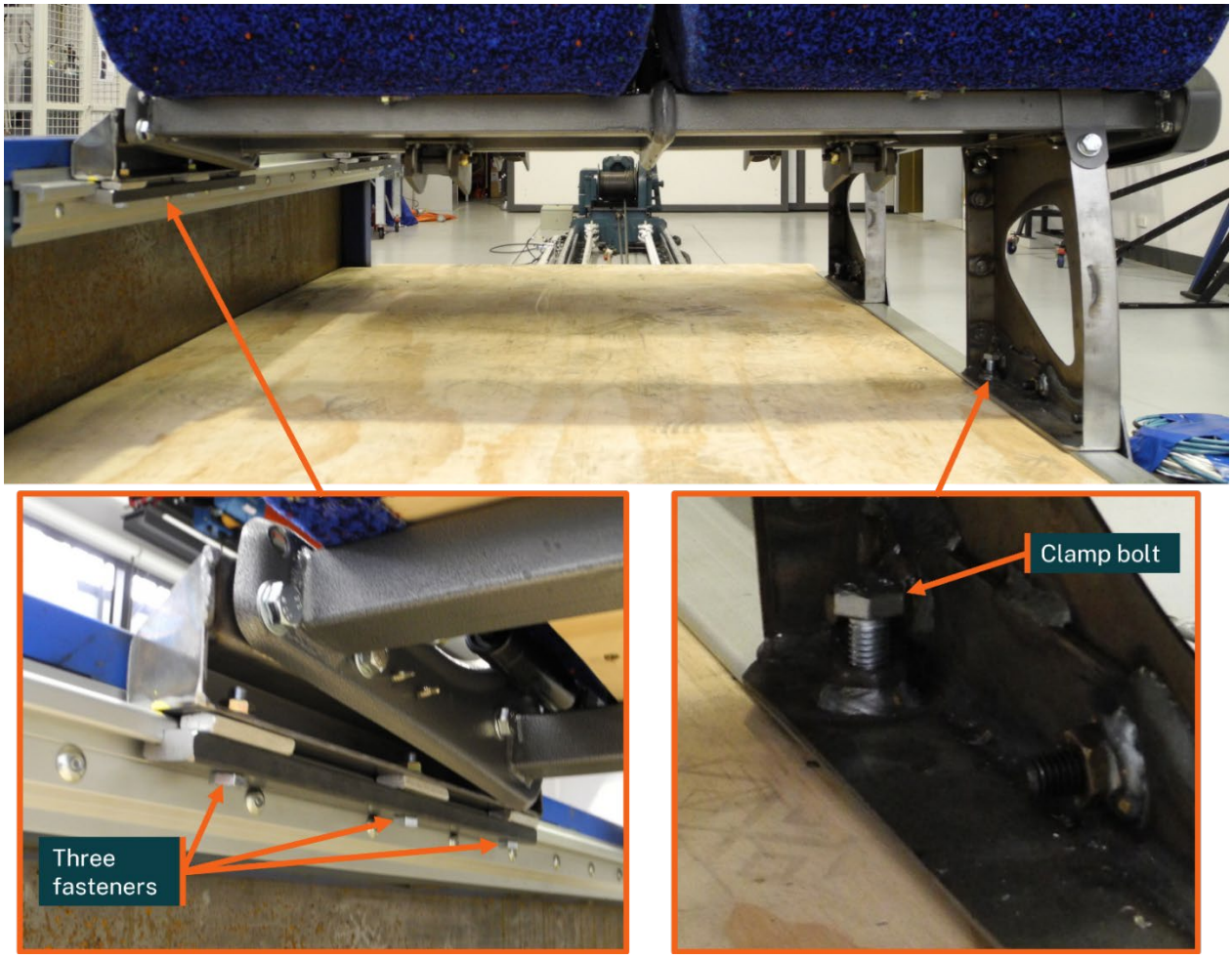
Operators with specific concerns relating to passenger seating mounting systems as identified by this Safety Alert are encouraged to contact the OEM of their vehicles for further information.

Figure 1: Seat slide and track mounting details



Source: Supplied, annotated by OTSI

Figure 2: Mounting track securing arrangement



The outboard mounting clamp was secured with three bolts fitted with serrated flange type nuts. The inboard mounting clamp had a single bolt secured to a nut welded to the seat frame.
Source: Supplied, annotated by OTSI

For further information, contact engagement@otsi.nsw.gov.au