Civil Aviation Authority

Safety Notice

Number: SN–2026/001

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Changes to Aircraft Seats by Organisations other than the OEM or TSOA Holder

This Safety Notice contains information that is for guidance and/or awareness.

Recipients are asked to ensure that this Information Notice is copied to all members of their staff who may have an interest in the information (including any 'in-house' or contracted maintenance organisations and relevant outside contractors).

Applicability:	
Aerodromes:	Not affected
Air Traffic:	Not affected
Airspace:	Not affected
Airworthiness:	Part 21J – Design Organisations Part 21G – Production Organisations Part 145 – Maintenance Organisations Part CAMO – Continued Airworthiness Management Organisations
Flight Operations:	Not affected
Licensed/Unlicensed Personnel:	Not affected

1 Introduction

1.1 Over the past twelve months, the CAA has become increasingly concerned regarding the extent of modifications and repairs to aircraft seats by organisations other than the seat Original Equipment Manufacturer (OEM) or the Technical Standard Order Authorisation (TSOA) holder.

This concern is particularly focused on *dynamic* seats—those approved in accordance with UK Technical Standard Order (UKTSO) / European Technical Standard Order (ETSO) or Technical Standard Order (TSO) C127 (series), or the airworthiness requirements of CS 2X.562.

Note 1: Where 'TSO' is referenced within the remaining text, it shall be read as UKTSO, ETSO, or TSO as applicable.

Note 2: Where a specific TSO is referenced, associated Revision numbers are excluded for ease of reading.

1.2 The CAA notes that the content of this Safety Notice is directed to modifications/repairs to aircraft seats, however the principles of this information shall be considered where a modification/repair is to be made to any article holding a TSOA.

2 Background

2.1 Dynamic seats are installed across a wide range of aircraft types, from general aviation through to air transport, including rotorcraft. Historically, aircraft seats were designed to comply solely with static strength requirements (CS 2X.561). Compliance with these standards establishes a baseline level of impact protection, through assessment of performance and strength of the seat attachment to the aircraft.

2.2 In the late 1980s, dynamic seat performance standards - introduced by the FAA through FAR 25.562 - were adopted to further enhance occupant survivability and address aircraft crashworthiness. Like the static requirements, the dynamic standards assess the structural strength of the seat attachment to the aircraft, although under different test conditions. In addition, they extend beyond simple strength assessment to evaluate the potential for occupant injury.

2.3 The pass/fail criteria of the dynamic performance tests ensure that the occupant/seat/restraint system responds in a manner that reduces injury and fatality risk during survivable crash events. These events are simulated using dynamic test conditions that apply decelerations, representative of those most likely to be experienced during emergency landings, in which the occupant is reasonably expected to survive. This form of testing is highly intensive, time-consuming, and costly.

2.4 Dynamic compliance is demonstrated by evaluating the performance of the complete seat system, including the seat structure, seat track fittings, energy-absorbing mechanisms, cushions, upholstery, and restraint systems, against the requirements of CS 2X.562.

3 Technical Standard Orders (TSOs) vs Airworthiness Requirements

3.1 A TSO defines a set of Minimum Performance Standards (MPS) issued by the Regulatory Authority for specified materials, parts, processes, and appliances intended for use on civil aircraft.

3.2 The TSOs most relevant to aircraft seating are TSO C39, covering aircraft seats and berths, and TSO C127, covering seating systems for rotorcraft, transport airplanes, and normal and utility airplanes.

3.3 TSO C127 requires seats to meet the MPS based upon the requirements of SAE Aerospace Standard AS8049, “Performance Standards for Seats in Civil Rotorcraft and Transport Airplanes”, as amended by the TSO document. Many of the ‘dynamic’ requirements contained within AS8049 align with those specified in CS 2X.562.

3.4 Compliance with a TSO does not constitute approval to install or use the seat in an aircraft. TSO authorisation confirms only that the article meets the MPS of the applicable TSO. Additional substantiation may be required to demonstrate that the installed seat complies with all relevant aircraft-level airworthiness requirements.

3.5 When modifying or repairing a certificated seat at the aircraft level, two distinct but interrelated aspects must be addressed:

A) Assessment of impact on the TSO MPS
B) Continued compliance with the relevant aircraft airworthiness requirements

4 Guidance Regarding Modifications / Repairs

4.1 Compliance:

4.1.1 The complete seat system (which includes the TSO'd seat restraint) is originally demonstrated to comply with the dynamic performance criteria specified in CS 2X.562 or the applicable TSO MPS. If one or more elements of that system are modified—even through seemingly simple changes or repairs—the dynamic response of the seat may be altered. Such changes have the potential to invalidate the TSO approval and/or render the seat non-compliant with airworthiness requirements.

4.1.2 Seat modifications or repairs are frequently conducted by Design Organisations other than the Original Equipment Manufacturer (OEM) or the TSOA holder. As a result, detailed design data and substantiation information for the seat may not be fully available. Given that modern seats are highly integrated energy-absorbing systems, it can be difficult to accurately predict the impact that modifying a single element may have on overall seat performance. It is reasonable, therefore, to consider that re-testing of the modified/repaired seat may be necessary to demonstrate the performance of the seat remains as per previously demonstrated.

4.1.3 Design Organisations are therefore required to demonstrate, for any modification or repair to a previously certificated / TSO authorised seat:

A) Assessment of impact on the TSO MPS
B) Continued compliance with the relevant aircraft airworthiness requirements

4.2 Classification:

4.2.1 Per the Appendix A to GM to 21.A.91 Examples of Major Changes per Discipline, the following is applicable to Cabin Safety:

"(i) changes which introduce a new cabin layout of sufficient change to require a re- assessment of emergency evacuation capability, or which adversely affect other aspects of passenger or crew safety.
Items to consider include, but are not limited to:
— changes to or introduction of dynamically tested seats."

4.2.2 Certification Memorandum reference CM-21.A-CS-001 Issue 02 published by EASA. on **"Classification of design changes to cabin interiors of Large Aeroplanes"** provides guidance on specific cases relating to changes to cabin interiors, including to dynamically tested seats.

4.2.3 Regardless of Classification, the assessment of impact on the TSO MPS and compliance with the aircraft level airworthiness requirements shall be appropriately demonstrated, as discussed above.

5. Recommended Action:

5.1 **Design Organisations** shall ensure that assessment of the impact on TSO MPS, and compliance with applicable aircraft level airworthiness requirements are demonstrated for any changes or repairs to aircraft seats.

5.2 **Design Organisations** shall consider the completeness of historically approved modifications or repairs, and be aware of the impact of a change which may not have been fully assessed against both the TSO MPS, and aircraft level airworthiness requirements. The Design Organisation shall notify affected CAMO(s) if any issues are identified.

5.3 Where the facilities of **Production Organisations** (PO) associated with the Design Organisation (DO) are used in support of certification testing, responsibility for the definition of required tests, and for conforming the test set up and outcome of testing to meet current Certification requirements, lies with the DO (Compliance Verification Engineer). Where the privileges of the Production Organisation Approval are being used to demonstrate the production conformity of the test article to design data, this should be supported by the issue of a UK Form 1 'Prototype' under the production approval. POs shall ensure that their procedures reflect these responsibilities, and that any uncertainty regarding testing appropriate to meet the requirements are referred to the Design Organisation (Office of Airworthiness) in the first instance, and if necessary to the CAA in accordance with 5.4 below.

5.4 Where there is uncertainty regarding insufficient assessment of impact on the TSO MPS, or potential non-compliance with relevant airworthiness requirements - or regarding the classification of a proposed seat modification or repair - the CAA shall be consulted.

6 Queries

6.1 Any queries or requests for further guidance as a result of this communication should be addressed to **Certification.Airworthiness@caa.co.uk** and the Design Organisation Team Leader or Airworthiness Surveyor, as appropriate.

7 Cancellation

7.1 This Safety Notice will remain in force until further notice.