



Federal Aviation Administration

Memorandum

Date: August 15, 2013

To: Gaetano Sciortino, Manager, New York Aircraft Certification Office, ANE-170

From: Kimberly K. Smith, Manager, Rotorcraft Directorate, ASW-100

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Subject: Equivalent Level of Safety (ELOS) Finding for Emergency Landing Dynamic Conditions certification of Aerolite Emergency Medical Service (EMS) Seat with Adapter on Augusta Westland AW109SP model helicopters, FAA Project # ST7375NY-R

ELOS Memo#: ST7375NY-R-C-1

Regulatory Ref: 14 CFR 27.562(b)

This memorandum documents concurrence with an equivalent level of safety (ELOS) finding for Aerolite GmbH project ST7375NY-R on the Augusta Westland AW109SP helicopters.

Background

Aerolite, GmbH applied to have its European Aviation Safety Agency (EASA) Supplemental Type Certificate (STC) No.10037576, Rev.2 validated by the FAA for EMS Equipment installed on the AW109SP model helicopters. The EMS cabin configuration includes a multi-mission floor with integrated seat tracks installed on top of the helicopter original floor and Technical Standard Order (TSO-C127a) approved Fischer and Entwicklungen (F+E) Medical Seat installed on the individual Aerolite swiveling adapter in order to add functions of tracking and swiveling to the seat during flight. The swiveling adapter is interposed between the F+E single seat and the multi-mission floor.

The TSO-C127a F+E seat without the adapter has been dynamically tested in accordance with EASA Certification Standards (CS) and 14 Code of Federal Regulations (CFR) 27.562(b) requirements. Demonstration of compliance with CS and 14 CFR 27.562(b) for the complete seat assembly given by the F+E Seat with the swiveling adapter was not compliant with this requirement. EASA approved this installation through an alternate means of compliance (AMOC) based on a static test of the seat and adapter combination with the application of the peak loads obtained during the dynamic test of the seat specified in the TSO approval. Based on the EASA approval, the FAA has determined an ELOS can be met that would fulfill the

intent of 14 CFR 27.562(b). The technical requirements for the AMOC were outlined in an EASA CRI C-01, Issue 3 and dated April 30, 2013.

Applicable regulation(s)

§§ 27.305(b), 27.562(b)

Regulation(s) requiring an ELOS finding

§ 27.562(b)

Description of compensating design features or alternative standards which allow the granting of the ELOS (including design changes, limitations or equipment need for equivalency)

Although the Aerolite, GmbH medical seat installation would result in a noncompliance with the requirements of § 27.562(b), an equivalent level of safety finding can be based on the successful static test of the seat and adapter combination using the peak loads of the approved similar TSO seat.

Taking into consideration the above, Aerolite, for the EASA AMOC certification of the F+E Medical Seat with the swiveling adapter demonstrated compliance with 27.562(b) by a rational analysis based on:

1. TSO of the F+E Medical Seat
2. Static test of the approved TSO seat with the swiveling Adapter
3. Similarity between the approved TSO approved seat and the proposed seat with the swiveling adapter
4. Ultimate strength of the multi-mission integral seat tracks determined by test taking into account the effects of floor deformation per §27.562(b)(3).

Explanation of how design features or alternative standards provide an equivalent level of safety to the level of safety intended by the regulation

The New York Aircraft Certification Office has determined, based on the aforementioned method of compliance that the design does provide an overall level of safety for the seat and adapter combination equivalent to § 27.562(b).

FAA approval and documentation of the ELOS finding

The FAA has approved the aforementioned ELOS finding in project Issue Paper C-1. This memorandum provides standardized documentation of the ELOS finding that is non-proprietary and can be made available to the public. The Rotorcraft Directorate has assigned a unique ELOS memorandum number (see front page) to facilitate archiving and retrieval of this ELOS. This ELOS memorandum number should be listed in the STC data sheet under the certification basis.

As example:

*Equivalent Level of Safety Finding has been made for the following regulation:
§ 27.562(b) Emergency Landing Dynamic Conditions (documented in Rotorcraft Directorate
ELOS Memo ST7375NY-R-C-1)*

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Rotorcraft Directorate,
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Date

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