Federal Aviation Administration

Memorandum

Date: June 7, 2006

From: David A. Downey, Manager, Rotorcraft Directorate, ASW-100

To: Manager, Rotorcraft Certification Office

Subject: INFORMATION: Aeronautical Accessories, Inc. Equivalent Level of Safety Finding to 14 CFR 29.807

The following equivalent level of safety finding (ELOS) for the Aeronautical Accessories, Inc. (AAI) Passenger Emergency Exit for Bell Model 430 helicopter (ref: Supplemental Type Certification Project Number SA0037RC-RD) has been reviewed and approved by the Rotorcraft Standards Staff, ASW-110, via the Issue Paper process outlined in FAA order 8110.4C. This memorandum, in conjunction with the attached memorandum submitted by ASW-170, 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 to facilitate archiving and retrieval of this ELOS finding. This ELOS Memorandum number should be listed in the Supplemental Type Certificate Data Sheet under the Certification Basis section.

ELOS SA0037RC-RD/A-1 14 CFR 29.807 Passenger Emergency Exits

If you have any questions regarding this matter, please contact Ms. Sharon Miles, ASW-111, at (817) 222-5122.

Attachment

Federal Aviation Administration

Memorandum

Date: May 16, 2006

To: Manager, Rotorcraft Directorate, ASW-100

THRU: Manager, Standards Staff, ASW-110

From: Manager, Rotorcraft Certification Office, ASW-170

Prepared by: Marc Belhumeur, Structures Engineer, ASW-170

Subject: ACTION: Review and Concurrence, Equivalent Level of Safety to 14 CFR Part 29. 807 for Aeronautical Accessories, Inc., DAS Project SA0037RC-RD

This memorandum request that your office review and provide concurrence with the proposed finding of Equivalent Level of Safety (ELOS) to the emergency exit window dimensional requirements of CFR Part 29.807 at Amendment 29-3 for Aeronautical Accessories, Inc.(AAI)

- **Background including an explanation of the need for the Equivalent Level of Safety**

The FAA approved an AAI STC installation of a RH passenger sliding door for Bell Model 430 helicopters on June 20, 2001. AAI recently initiated a project to amend their original STC of the RH passenger sliding door installation to allow a LH passenger sliding door installation for the Bell 430. During this project, it became apparent that the original approval did not contain a completed equivalent level of safety finding which documented compliance to dimensional requirements of 14 CFR 29.807 for the RH passenger sliding door emergency exit windows. At issue are the requirements for a Type IV passenger emergency exit window in a sliding door for installation in Bell Model 430 helicopters. The AAI emergency exit windows in both the Right Hand (RH) and Left Hand (LH) passenger sliding doors are each 24.6" wide and only 20.9" high. Since the AAI emergency exit windows do not meet the dimensional requirements of 19" wide and 26" high per 14 CFR 29.807, an equivalent level of safety finding is needed.

- **Applicable regulations**

The certification basis is defined on Type Certificate Data Sheet H9SW, Revision 14, dated January 4, 2000, as 14 CFR Part 29 dated February 1, 1965, (Transport Category A) amendment 29-30 for FAR 29.803 and amendment 29-3 for FAR 29.807.

Regulation(s) requiring an ELOS

14 CFR Part 29.807 at amendment 29-3

- **Description/Explanation of compensating features which provides an ELOS intended by the regulation**

14 CFR 29.807 requires that windows meet the dimensional requirements of 19" wide and 26" high for a Type IV passenger emergency exit. Since the AAI sliding door emergency exit window doesn't meet the dimensional requirements, the Rotorcraft Certification Office (RCO) believes an equivalent level of safety finding can be based on the successful accomplishment of a conservative emergency evacuation test, plus the demonstrated ability to rapidly exit the aircraft through the non-standard emergency exit windows. The AAI DAS conducted an emergency evacuation test per AC 29-2C and 14 CFR 29.803 on March 18, 2006, with the helicopter in a 9-place configuration. After the evacuation began, the doors and emergency exit windows on one side of the aircraft were blocked as well as the other passenger sliding door leaving only the remaining crew door and emergency exit window of the remaining passenger sliding door available for personnel to exit the helicopter. Four evacuees used the emergency exit window and five evacuees used the crew door that was available to exit the helicopter. All nine personnel were safely evacuated through the available crew door and one emergency exit window in 32 seconds under simulated night conditions. The test had to show that all passengers were capable of being evacuated within 90 seconds as required per 14 CFR 29.803. The 32 seconds provides adequate margin to allow safe evacuation of all 10 personnel in a maximum-passenger configuration.

- **RCO recommendation for approving the ELOS**

Although the emergency exit windows for the AAI RH and LH sliding passenger doors does not meet the dimensional requirements of 14 CFR 29.807, the RCO recommends that the equivalent level of safety finding be granted based on the successful evacuation test of 32 seconds for all nine passengers, which is significantly better than the 90-second requirement of 14 CFR 29.803, and the demonstrated ability to rapidly exit the aircraft through the non-standard emergency exit windows. This finding will apply to the original STC installation of the RH as well as the LH passenger sliding door, including when both are installed on the same aircraft.

Concur

Signature: _____

Standards Staff, ASW-110

Date: May 24, 2006

Concur

Signature: _____

Manager, Rotorcraft Directorate, ASW-100

Date: 5-25-06