

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98057-3356

In the matter of the petition of

Delta Engineering

for an exemption from § 25.571(e)(1) of
Title 14, Code of Federal Regulations

Regulatory Docket No. FAA-2016-8687

GRANT OF EXEMPTION

By letter dated July 6, 2016, Mr. John A. Moritz, Delta Engineering, 13 DRBA Way, New Castle County Airport, New Castle, Delaware, 19720, petitioned the Federal Aviation Administration (FAA) for an exemption from the requirements of § 25.571(e)(1), Amendment 25-54, of Title 14, Code of Federal Regulations (14 CFR). Specifically, the applicant requested relief from the bird strike damage-tolerance requirements related to the installation of two cameras on the side of the fuselage of an Aerospatiale Model ATR42-500 airplane, Serial Number FL-549.

The petitioner requests relief from the following regulation:

Section 25.571(e)(1) at Amendment 25-54 – *Damage-tolerance (discrete source) evaluation.*

The airplane must be capable of successfully completing a flight during which likely structural damage occurs as a result of an impact with a 4-pound bird at likely operational speeds at altitudes up to 8,000 feet.

This section defines the structural requirements for damage to the airframe from a bird strike.

The petitioner supports its request with the following information:

This section quotes the relevant information from the petitioner's request with minor edits for clarity. The complete petition is available at the Department of Transportation's Federal Docket Management System, on the Internet at <http://regulations.gov>, in Docket No. FAA-2016-8687.

Introduction

Delta Engineering is providing engineering services for the alteration of an ATR42-500 airplane to be operated by the United States (US) Drug Enforcement Administration (DEA). The alteration includes the installation of two WESCAM MX-20 cameras supplied by the US Government. The MX-20 cameras are being installed on the side of

the fuselage just aft of the main landing gear, and part of the camera could be impacted by a bird. The installation design for the MX-20 camera provides § 25.571 compliance for direct damage to the aircraft; however, the Government has not been able to supply any data that supports compliance to § 25.571 for the composite materials of the MX-20 camera. Meaning, the result of hitting a 4 pound bird in flight could cause damage to the MX-20 camera composite material, and there is a very remote possibility of pieces (shrapnel) becoming liberated from the MX-20 camera. It is currently not possible to show that the pieces (shrapnel) will not hit the tail of the aircraft. Since there isn't a definition for the word "Likely" as used in § 25.571(e), Delta Engineering is requesting an exemption from § 25.571(e).

The FAA has established that likely operational speeds include speeds up to the aircraft's certificated V_{MO} .

Public Interest

Delta Engineering feels that granting the petition to allow for the subject ATR42-500 to be exempt from § 25.571(e) would be in the public's interest because:

- Having the aircraft returned to service and allowing the DEA to use the aircraft in its efforts is in the public's interest.
- It would add a large expense to showing that the already qualified software simulation tools are still valid by conducting bird strike testing using a representative aircraft fuselage, WESCAM MX-20 and installation.
- It would add a considerable amount of time to the project to conduct bird strike testing using a representative aircraft fuselage, WESCAM MX-20 and installation; approximately an additional 18-month delay.
- As detailed in the petition related to Exemption No. 10848 (issued to Gogo, LLC), damage to the fuselage and wings is extremely rare. The MX-20 camera cross-sectional area is much less than the fuselage and wings of the airplane.

Level of Safety

As provided in other petitions for exemptions from § 25.571(e)(1), hitting a bird is not very likely; and the possibility of the MX-20 camera pieces (shrapnel) being large enough to cause more damage than a propeller or 8 pound bird as required by §§ 25.571(e)(2) and 25.631 is not likely.

Federal Register publication

A summary of the petition was published in the *Federal Register* on August 19, 2016 (81 FR 55517). No comments were received.

The FAA's analysis

In the petition, Delta Engineering contends that there is a very low probability of a bird strike to the camera installation resulting in damage to the camera and follow-on damage to the airplane itself. The FAA accepts that the probability of a bird strike is low. However, the requirement does not allow probability to be used to avoid assessment of the bird strike; therefore, an exemption is necessary. Probability cannot be applied to airspeed or to the impact itself. The

applicant must assume the bird strike will occur at speeds up to V_{MO} or V_C , and then determine the likely structural damage that would result from that bird strike.

We find that granting this exemption is in the public interest because it will promote timely completion of this project and support the DEA's objectives. This airplane has been substantially modified for public use, and is not intended for commercial passenger transportation or compensation for hire. The risk due to unknown composite material performance on this single airplane is acceptable for its intended operational environment.

In consideration of the above, the FAA concludes that granting this exemption will not adversely affect safety.

The FAA's decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 40113 and 44701 and delegated to me by the Administrator, I grant Delta Engineering an exemption from 14 CFR 25.571(e)(1) to the extent necessary to allow the installation of two cameras on the side of the fuselage of an Aerospatiale ATR42-500 airplane, Serial Number FL-549. The exemption is only valid for not-for-hire, not-for-common-carriage operations.

Issued in Renton, Washington, on October 4, 2016.

/s/

Michael Kaszycki
Assistant Manager, Transport Airplane Directorate
Aircraft Certification Service