

FAR NPRM

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Header Information

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. 9079, Notice No. 68-18]

Transport Category Airplanes; Type Certification Standards

Preamble Information

AGENCY: Federal Aviation Administration, DOT

ACTION: Notice of Proposed Rulemaking

14 CFR Parts 1, 25, 37

SUMMARY: The Federal Aviation Administration is considering amending Parts 1, 25, and 37 of the Federal Aviation Regulations to improve the airworthiness standards applicable to the type certification of transport category airplanes.

DATES: Comments on this notice must be received on or before November 20, 1968.

SUPPLEMENTARY INFORMATION:

On April 25-29, 1966, the then Federal Aviation Agency held an Agency-Industry conference to review the regulations dealing with the manufacture of transport category airplanes. The conference agenda included numerous type certification items of possible regulatory significance developed by the FAA and proposals solicited from Industry. Those items that the Administrator considers appropriate for immediate rulemaking action are proposed in this notice, together with proposals developed by the FAA and not covered at the conference. Interested persons are invited to participate in the making of these proposed rules by submitting such written data, views, or arguments as they may desire. Communications should identify the regulatory docket or notice number and be submitted in duplicate to: Federal Aviation Administration, Office of the General Counsel, Attention: Rules Docket GC-24, 800 Independence Avenue SW., Washington, D.C. 20590. All communications received on or before November 20, 1968, will be considered by the Administrator before taking action upon the proposed rule. The proposals contained in this notice may be changed in the light of comments received. All comments will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons.

Regulatory Information

The Proposed Amendment

In consideration of the foregoing, it is proposed to amend Parts 1, 25, and 37, of the Federal Aviation Regulations as follows:

Proposal 30. Loss of control due to bird strike damage (new Section 25.631). A new Section

25.631 would be added to read as follows:

Section 25.631 Bird strike damage.

The empennage structure must be designed to assure capability of continued safe flight and landing of the airplane after impact with an 8-pound bird when the velocity of the airplane (relative to the bird along the airplane's flight path) is equal to V_C at sea level, selected under Section 25.335(a). Consideration may be given to redundancy, multiload path design, location of control system elements, provision for adequate protective devices such as splitter plates, and impact absorbing materials. Compliance with this section may be shown by reference to analysis and tests, or both, performed under these requirements on type certificated airplanes having similar structural design.

Explanation. Transport airplanes frequently strike migratory birds. In one case involving an airplane with a single spar in the horizontal stabilizer, structural failure occurred with catastrophic results. A large volume of statistical data has been collected on bird strikes on transport category aircraft. The statistics, collected from actual air carrier operations, indicate that the redundant structure presently designed into modern transport aircraft generally have high resistance to bird impact even when multibird strikes occur. For example, in a recent incident several large geese impacted with the redundant wing structure of a medium range jet transport without catastrophic damage or loss of control of the airplane. In addition, laboratory tests disclose that redundant empennage structures have a higher capability than single spar construction to withstanding the impact of large birds. In one case, a single spar design empennage structure could only withstand 6-pound bird strikes at all points of the spar. However, when this same structural design was modified by the addition of polyurethane foam material forward of the main spar, it successfully absorbed an impact equivalent to the impact of 8-pound birds. A capability to withstand the impact of an 8-pound bird would provide acceptable damage criteria since it would cover the bird types most likely to be encountered, and the proposal would require the structure to be designed to withstand such impacts.

Some manufacturers have incorporated special devices such as splitter plates over vital control system components located in the leading edge of the empennage to provide protection from bird impact and the proposal would permit consideration of such devices. Service experience has also shown that wing structures have sufficient depth so that their strength is not adversely affected by bird impact and the proposal would limit the design requirement to the empennage.