



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# Memorandum

Subject: INFORMATION: Revised Fire Safety Standards For  
Cargo or Baggage Compartments

Date: AUG 18 1997

From: Manager, Transport Standards Staff, ANM-110

Reply to  
Attn. of: 97-113-110  
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To: See Distribution

On June 9, 1997, the FAA issued a Notice of Proposed Rulemaking, Docket Number 28937, Notice 97-10 (62 F.R. 32412, dated June 13, 1997), that proposes to upgrade the fire safety standards for cargo or baggage compartments in certain transport category airplanes by eliminating Class D compartments as an option for future certification. This notice also proposes that Class D compartments in certain transport category airplanes manufactured under existing type certificates and used in passenger service would have to meet the fire detection and suppression standards for Class C compartments by early 2001 for use in air carrier, commuter, on demand, or most other commercial service.

In anticipation of the final rule associated with Notice 97-10, certain operators and manufacturers have made application for Supplemental Type Certificates (STC) and changes to the type certificate, respectively. There have been questions regarding what guidance is available that can be used in the certification of smoke detection/penetration and fire suppression system evaluations. The following provide reference to guidance that can be utilized during the certification of these systems:

**System Reliability:** Use the guidance material in AC 25.1309-1A, System Design and Analysis. Detection and suppression systems are considered complex in terms of paragraph 6d of the AC. A failed detection system and/or a failed suppression system in conjunction with a fire should be considered a catastrophic event. Therefore, utilizing Figure 2 of AC 25.1309-1A, knowing the system is complex and the failure event is a catastrophic event, the depth of analysis should include both a qualitative and quantitative assessment (reference paragraphs 8d, 9, and 10 of the AC).

**Dispatch:** For dispatch relief, the systems should be tested in the proposed Master Minimum Equipment List (MMEL) configurations. Dispatch may be allowed with detection or suppression systems inoperative in a cargo compartment provided the AFM prohibits the carriage of cargo in the affected compartment.

**Smoke Detection/Penetration/Evacuation Tests:** Use the guidance material in AC 25- 9A, "Smoke Detection, Penetration, and Evacuation Tests, and Related Flight Manual Emergency Procedures," supplemented by ANM-100 Memorandum dated June 18, 1997, and referenced video. The supplemental letter elaborates on a small smoldering fire for use in detection tests.

**Fire Suppression Tests:** The applicant should demonstrate that the cargo fire extinguishing system provides adequate concentration levels of extinguishing agent (minimum 3% for Halon) to effectively suppress a cargo fire. The duration of agent application should be determined from route analysis (i.e. the time to travel from the farthest distance expected in route to the nearest suitable airport for landing). The minimum extinguishing agent concentration levels are to be maintained for this duration throughout the cargo compartment (i.e. from side to side, end to end and top to bottom). The top measurement from the compartment ceiling should be within 10% of the compartment height. The extinguishing agent concentration levels should not be less than the minimum established for that agent at any point within the compartment.

If the applicant disagrees with any of the above, you should create an issue paper identifying the disagreement as an issue and coordinate with the Transport Standards Staff.

If you have specific questions or concerns, contact Mark Quam (D to C Directorate Focal Point), ANM-113, phone 425-227-2145; Kris Larson (Mechanical Systems), ANM-111, phone 425-227-1760; or Jeff Gardlin (Crashworthiness), ANM-114, phone 425-227-2136.

*SM Miller*

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