



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: July 24, 2006

In reply refer to: A-06-52

Honorable Marion C. Blakey
Administrator
Federal Aviation Administration
Washington, D.C. 20591

On December 19, 2005, about 1439 eastern standard time, a Grumman G-73T Turbo Mallard seaplane, N2969, operated by Flying Boats, Inc. (doing business as Chalks Ocean Airways flight 101), experienced an in-flight structural failure of the right wing and crashed near Miami, Florida. The flight had just departed the Watson's Island seaplane base (X44) and was en route to Bimini, Bahamas. The flight was operating under the provisions of 14 *Code of Federal Regulations* (CFR), Part 121. The 2 crewmembers and 18 passengers, including 3 infants, were killed. The National Transportation Safety Board's investigation of this accident is ongoing.¹

Preliminary metallurgical examination of the right wing fracture revealed evidence of fatigue cracking in the lower cap of the aft wing spar, along the lower wing skin, and on the aftmost of three internal z-stringers. Additional evidence of fatigue cracking was also noted in the corresponding area on the intact left wing. Significant corrosion was noted on many areas of the seaplane, and a fatigue crack in the lower cap of the forward wing spar on the left wing emanated from a corroded area of the front spar.

The seaplane was originally manufactured and type certificated in 1947 as a Grumman Mallard, equipped with Pratt and Whitney radial piston engines and weighing 12,750 pounds. The seaplane entered into service with Chalks Ocean Airways in 1980. In 1981, Frakes Aviation modified the seaplane in accordance with Supplemental Type Certificates SA2323WE and SA4410SW to increase the seating capacity from 10 to 17 passengers and to replace the original engines with Pratt and Whitney PT-6 turbopropeller engines.

¹ Additional preliminary information regarding this accident, DCA06MA010, can be found on the Safety Board's Web site at <<http://www.nts.gov>>.

In 1991, Congress passed the Aging Airplane Safety Act (AASA),² which required “the Administrator to make such inspections and conduct such reviews of maintenance and other records of each aircraft used by an air carrier to provide air transportation as may be necessary to determine that such is in a safe condition and is properly maintained for operation in air transportation.” Further, the AASA stated that an air carrier must show, as part of the inspection, “that maintenance of the aircraft’s structure, skin, and other age-sensitive parts and components have been adequate and timely enough to ensure the highest degree of safety.”

In April 1999, the Federal Aviation Administration (FAA) issued Notice of Proposed Rulemaking (NPRM) “Aging Aircraft Safety,” which proposed requiring all airplanes operated under 14 CFR Part 121, all U.S.-registered multiengine airplanes operated under 14 CFR Part 129, and all multiengine airplanes used in scheduled operations under 14 CFR Part 135 be subject to records reviews and aging airplane inspections in accordance with AASA requirements after the 14th year in service to ensure that the maintenance of these airplanes’ age-sensitive parts and components had been adequate and timely. The proposed rule also specified that the maintenance programs of the affected airplanes must include a damage-tolerance-based supplemental inspection program beginning 4 years after the effective date of the rule.³

Based on comments received in response to the NPRM, the FAA issued an interim final rule in December 2002 that required essentially the same records review and aging airplane inspections as proposed in the NPRM but introduced an exemption for airplanes operated entirely within the State of Alaska. The interim final rule also prohibited the operation of affected airplanes after December 5, 2007, unless damage-tolerance-based supplemental inspections and procedures were included in their maintenance or inspection programs. The interim rule also allowed operators of airplanes initially certificated with nine or fewer passenger seats to incorporate service-history-based inspections instead of damage-tolerance-based inspections and procedures in those airplanes’ maintenance or inspection programs.⁴

In February 2005, the FAA issued a final rule that superseded the interim rule and made small changes to the requirements for the records review and aging airplane inspections. However, the 2005 final rule substantially changed the supplemental inspection requirements, which now only applied to transport-category, turbine-powered airplanes that were type-certificated after January 1, 1958, and had a maximum seating capacity of 30 or more or a

² The AASA was prompted by the Safety Board’s investigation (resulting in 21 safety recommendations) of the April 28, 1988, accident involving Aloha Airlines flight 243, which experienced an explosive decompression and structural failure at 24,000 feet. The Board determined that the probable cause of the accident was “the failure of the Aloha Airlines maintenance program to detect the presence of significant disbonding and fatigue damage which ultimately led to failure of the lap joint at S-10L and the separation of the fuselage upper lobe.” For more information, see National Transportation Safety Board, *Aloha Airlines, Flight 243, Boeing 737-200, N73711, Near Maui, Hawaii April 28, 1988*. Aircraft Accident Report NTSB/AAR-89/03 (Washington, DC: NTSB, 1989).

³ For the FAA’s definitions of “records review,” “aging airplane inspection,” and “supplemental inspection,” see NPRM “Aging Airplane Safety,” Docket No. FAA-1999-5401; Notice No. 99-02, in 64 *Federal Register*, pages 16300-16302.

⁴ This interim final rule was reissued in December 2003 with some technical changes that did not affect the substance of the rule.

maximum payload of 7,500 pounds or more. The Alaska exemption remained in effect. The rule also changed the compliance date from December 5, 2007, to December 20, 2010.

The Safety Board is concerned that the exemptions iterated in the final rule exclude airplanes such as the accident airplane that was being operated under 14 CFR Part 121 because it was type-certificated before January 1, 1958. The Safety Board also notes that the exemptions present in the final rule are contrary to the one-level-of-safety initiative that the FAA concluded in the mid 1990s, which required all commercial aircraft in scheduled passenger service having 10 or more seats to meet Part 121 requirements; the exemptions are also contrary to the instructions in the AASA. Therefore, the Safety Board believes that the FAA should require records reviews, aging airplane inspections, and supplemental inspections for all airplanes operated under 14 CFR Part 121, all U.S.-registered airplanes operated under 14 CFR Part 129, and all airplanes used in scheduled operations under 14 CFR Part 135. This would include those airplanes operated under 14 CFR Part 135 that carry nine or fewer passengers and those that are operated in scheduled cargo service.

The Safety Board notes that, for some airplanes, a damage-tolerance-based maintenance program may be impractical due to lack of support from the type-certificate holder, in which case an equivalent program based on structural fatigue analysis, fatigue tests, and/or field experience correlation might be adequate. The Safety Board also notes that the rulemaking process that began in 1991 with the passage of the AASA and concluded in 2005 with the issuance of a final rule delayed the implementation of damage-tolerance-based inspections until December 20, 2010, and is displeased with the amount of time it took for the FAA to issue these aging airplane safety rules.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Require records reviews, aging airplane inspections, and supplemental inspections for all airplanes operated under 14 *Code of Federal Regulations* (CFR) Part 121, all U.S.-registered airplanes operated under 14 CFR Part 129, and all airplanes used in scheduled operations under 14 CFR Part 135. This would include those airplanes operated under Part 135 that carry nine or fewer passengers and those that are operated in scheduled cargo service. (A-06-52)

Acting Chairman ROSENKER and Members HERSMAN and HIGGINS concurred with this recommendation.

[Original Signed]

By: Mark V. Rosenker
Acting Chairman