

*Log 1072*

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: July 12, 1979

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Forwarded to:

Honorable Langhorne M. Bond  
Administrator  
Federal Aviation Administration  
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-79-56 and -57

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On September 2, 1978, Antilles Air Boats, Inc., Flight 941, a Grumman G21A, N7777V, crashed while en route from St. Croix to St. Thomas, Virgin Islands. The pilot and 3 of the 10 passengers died in the accident.

The National Transportation Safety Board's investigation of the accident revealed that N7777V was being operated at 8,200 lbs when the left engine failed. Single-engine flight was impossible, and the aircraft crashed into the ocean. The Grumman G21A had a maximum gross takeoff weight of 8,000 lbs or less until April 1978, when the Federal Aviation Administration's Western Region approved Supplemental Type Certificate (STC) SA 3630 WE to increase the maximum gross takeoff weight to 8,750 lbs. After the accident involving N7777V and an FAA-sponsored G21A test flight which resulted in an accident on November 5, 1978, the Western Region attempted to revalidate STC SA 3630 WE, since FAA personnel stated that they doubted the validity of the STC and the capability of the G21A to operate under all conditions at 8,750 lbs. On February 13, 1979, the Western Region conducted another G21A performance test flight. The aircraft could not meet the necessary performance requirements at 8,750 lbs and STC SA 3630 WE was canceled on February 26, 1979.

The Safety Board has learned that there are no reliable performance data available for the Grumman G21A. The aircraft was certificated in 1934 under the requirements of Aeronautical Bulletin 7A. Bulletin 7A required that an aircraft demonstrate single-engine climb capability, but did not specify any rates. As a result, no data were gathered and retained for future reference. When the Western Region conducted the April 1978 flight test, the principal criteria were the engine cooling capabilities and the ability to perform single-engine climb. Two additional FAA flight tests in November and December 1978 also failed to

produce reliable performance data; these results were contradictory since in the first flight test the aircraft could meet single-engine requirements at only 7,600 lbs but in the second could meet the requirements at 8,200 lbs. According to the FAA, the final flight test on February 13, 1979, produced two "mediocre" climb points. As a result, Grumman G21A climb performance can only be gaged by two data points, both of which are of questionable value.

The Grumman G21A is employed in passenger operations under 14 CFR 135, and certain modified G21A aircraft are authorized to operate up to 9,000 lbs. Yet, there are no performance data to support even the 8,000-lb gross weight. In view of the contradictory performance data reported during the four FAA test flights, the Safety Board believes that the performance capability of the G21A must be determined accurately for the weights currently authorized.

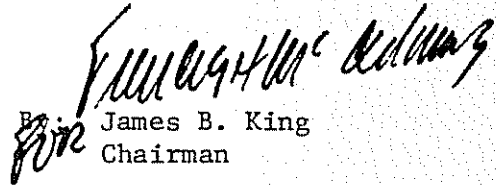
The Safety Board is also concerned by the procedures employed when STC SA 3630 WE was issued. Our investigation revealed that there was lack of management and quality control in the approval of the STC, as well as a lack of accuracy and procedures during the actual test flight. Deficiencies included the failure to note that the test aircraft did not have the designated engines, failure to compute the weight of the aircraft accurately, failure to determine zero thrust properly, and failure to verify instrument and gage accuracy. The Safety Board believes that the proper certification procedures exist to insure proper development of an STC. However, FAA personnel involved did not observe the procedures nor did they conduct the flight test satisfactorily.

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

Determine the performance data for Grumman G21A aircraft at current operating weights to insure that the appropriate certification requirements can be satisfied.  
(A-79-56) (Class II - Priority Action)

Insure that procedures for the proper development, testing, review, and quality control for the issuance of supplemental type certificates are complied with in each FAA Region. (A-79-57) (Class III - Longer Term Action)

KING, Chairman, DRIVER, Vice Chairman, McADAMS and GOLDMAN, Members, concurred in the above recommendations.

  
James B. King  
Chairman