

Log 1197

**NATIONAL TRANSPORTATION SAFETY BOARD**  
WASHINGTON, D.C.

ISSUED: SEP 7 1982

Forwarded to:

Honorable J. Lynn Helms  
Administrator  
Federal Aviation Administration  
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-82-118 and -119

About 1452 mountain standard time, on March 27, 1980, a Beechcraft Super King Air, BE-200, N456L, owned and operated by Lufkin Industries, Incorporated, of Lufkin, Texas, crashed and burned in an open field near Parker, Colorado. The flight had departed Arapahoe County Airport, Colorado, 13 miles west of Parker, at 1434:15 for a flight to Lufkin. About 9 1/2 minutes after departure, the pilots of N456L declared an emergency because of airframe icing. The aircraft was being vectored to land at Stapleton International Airport, Denver, Colorado, when it crashed. The two pilots and eight passengers on board were killed in the crash and subsequent ground fire. The aircraft was destroyed.

While the aircraft was climbing at 12,800 feet m.s.l., the flightcrew radioed Denver departure control that they were "getting a little bit too much ice" and requested a return to the Arapahoe Airport. Seconds later, the flightcrew contacted departure control and requested to land at Stapleton International Airport, about 28 miles away. The aircraft was cleared to descend to 11,000 feet m.s.l. After reporting that they were unable to maintain this altitude, the flightcrew requested vectors to the nearest airport. Stapleton approach control provided vectors to Buckley Air National Guard Base. Although Stapleton approach control urged the flightcrew to maintain as much altitude as possible, the captain advised that N456L would be "descending all the way". Approach control lost radar contact as the aircraft descended through 7,700 feet.

Although the severity of the icing conditions encountered by N456L probably exceeded the airframe ice protection requirements of 14 CFR 25.1419, the Safety Board is concerned about the rapidity in which the performance capability of the airplane degraded to a critical level.

Flight in icing conditions does require the crew to adhere strictly to the published procedures for use of deicing equipment and to fly the airplane at the recommended airspeeds (or more specifically at recommended climb speeds). In this case, the flight manual did indicate a recommended minimum airspeed for use during operation in sustained icing conditions, and the Safety Board's performance analysis indicates that N456L was operated about that airspeed during part of the climb. However, the Safety Board has reviewed the flight manuals for several other airplanes certificated for flight in known icing conditions and has found that recommended minimum airspeeds for flight in known icing conditions are not provided to the flightcrew.

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Futhermore, the Safety Board's investigation of this accident has focused on two piloting factors which may have contributed to the rapid accretion of ice on N456L. First, the flightcrew may not have followed recommended procedures for use of deicing boots; second, the pilot took off at a weight slightly in excess of the maximum gross weight, which resulted in a higher-than-normal angle of attack during flight at the recommended minimum airspeed for flight in icing conditions. This would have reduced the protection afforded by adherence to the recommended minimum airspeed.

In its Safety Report "Aircraft Icing Avoidance and Protection " (NTSB-SR-81-1) the Safety Board recommended that the Federal Aviation Administration (FAA) evaluate individual aircraft performance in icing conditions and establish operational limits and publish this information for pilot use (Safety Recommendation A-81-115). The FAA has not taken action on this recommendation nor is any contemplated, based upon the FAA's initial response letter of December 21, 1981 and further response on June 7, 1982 as a result of the Safety Board's request for reconsideration dated April 16 1982.

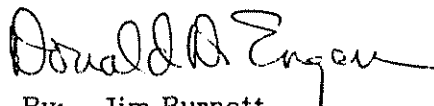
As a result of this accident, the Safety Board believes that additional measures should be taken to alert pilots to the hazards associated with icing encounters. We are aware of the FAA's efforts, through Advisory Circulars and the Accident Prevention Program, to inform general aviation interests of these hazards. However, we believe that accident prevention specialists and counselors should be required specifically to review with pilots the effects that ice may have on the performance of their aircraft. Particular emphasis must be placed on the need for strict adherence to prescribed procedures and on the proper procedures for use of deicing equipment.

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

Amend FAA-approved flight manuals, where applicable, to prescribe minimum airspeeds and appropriate flight precautions during flight in icing conditions. (Class II, Priority Action) (A-82-118)

Require that accident prevention specialists review with pilots the critical nature that extended operation at high angles of attack in icing conditions can have on the accretion of ice and aircraft performance with special emphasis on the need for strict adherence to prescribed operational procedures and on the proper procedures for use of deicing equipment. (Class II, Priority Action) (A-82-119)

BURNETT, Chairman, McADAMS, BURSLEY, and ENGEN, Members, concurred in these recommendations. GOLDMAN, Vice Chairman, did not participate.

  
By: Jim Burnett  
Chairman