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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: November 27, 1985

Forwarded to:

Honorable Donald Engen
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-85-115

About 1330 Pacific standard time on January 30, 1984, a Gates Learjet, Model 24, N44GA, owned by Gee Bee Aero, Inc., and operated by Aviation Business Flights of San Jose, California, overran the end of runway 22 during an attempted landing at the Catalina Airport, Santa Catalina Island, Avalon, California. The airplane departed the end of the runway onto a nonpaved surface and traveled off a 90-foot-high bluff impacting upright on downsloping terrain. The airplane was destroyed by severe impact forces and a postcrash fire. The four passengers and two flightcrew members on board were fatally injured. 1/

Runway 04/22, the only runway at Catalina Airport, is 3,240 feet long and 100 feet wide with 120-foot displaced thresholds at either end. Based upon the temperature and wind at the time of the accident, the airport elevation, and the runway gradient, the Learjet approved flight manual (AFM) of the accident flight required a landing distance for the accident flight of 3,100 feet. 2/

The Safety Board's investigation disclosed the Learjet could have been stopped before it reached the end of the runway. The investigation did not determine the reason the flightcrew, who were certificated and qualified to perform the flight, were unable to stop the airplane on the runway. However, there was no room for error on the part of the flightcrew and an inadequate margin of safety if the airplane's primary brake system failed. N44GA was type certificated under 14 CFR Part 25, "Airworthiness Standards: Transport Category Airplanes." Section 25.735(b) requires in effect that to be certificated it must be possible to bring the airplane to a stop in the event of a single failure in the brake system and under the landing performance conditions specified in Part 25.125 with a mean deceleration during the landing roll of at least 50 percent of that obtained during normal landing performance. Accordingly, the Learjet AFM requires that the actual landing distance shown in the performance section be increased by 60 percent

1/ For more detailed information, read Aircraft Accident/Incident Summary--"Gee Bee Aero, Inc., Gates Learjet Model 24, N44GA, Catalina Airport, Avalon, California, January 30, 1984" (NTSB/AAR-85/03/SUM).

2/ The horizontal distance necessary to land and come to a complete stop from a point 50 feet above the landing surface. This distance is established during the certification of the airplane and neglects consideration for stopping performance benefit provided by thrust reversers.

when it becomes necessary to use the emergency braking system; thus, N44GA would have required a landing distance of 4,960 feet if use of the emergency braking system had become necessary.

The accident flight was being operated under the provisions of 14 CFR Part 91 which does not require flightcrews to add runway distance (factored landing distance) to the computed runway length specified in the landing performance charts of the approved AFM for the Learjet. The Safety Board believes that general aviation operators and flightcrews of transport category airplanes should be alerted to the fact that an airplane certificated under 14 CFR Part 25 may require a significantly increased landing distance if it is necessary to rely on the emergency brake system following a single failure of the primary system.

Had N44GA been operating under the provisions of 14 CFR Part 121 or 135, a minimum landing runway length would have permitted the airplane to land and stop within 60 percent of the effective runway length. Thus, a runway length of 5,167 feet would have been required. A safe landing could have been made on a 5,167-foot runway using the emergency brake system.

The Safety Board recognizes that many professional and prudent 14 CFR Part 91 operators previously have adopted a practice of using landing runway lengths consistent with the margins provided by Parts 121 and 135. However, informal discussions with several operators of airplanes who operate under Part 91 indicate that, in some instances, there is misunderstanding and uncertainty about the benefits to be derived from the use of factored versus actual landing distance data. Furthermore, we believe that some operators and flightcrews do not adhere to this practice or are unaware of, or fail to consider, the added stopping distance required in the event of a primary brake failure. The Safety Board believes the Federal Aviation Administration should encourage operators and flightcrews to adhere to landing runway length requirements consistent with either the emergency brake requirements of 14 CFR Part 25 or the factored landing runway length requirements contained in 14 CFR Parts 121 and 135.

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

> Issue an operations bulletin directing general aviation inspectors and accident prevention specialists to urge operators of transport category airplanes in general aviation operations to use minimum landing runway lengths which provide the safety margin required by 14 CFR Part 135 or, at the least, a safety margin consistent with the performance of the emergency brake system of the airplane. The operations bulletin should highlight the use of the emergency brake system or alternate emergency procedures (i.e., aborted landings) not only for preplanned failed brake landings, but for use in the event the brakes fail after touchdown. Copies of the operations bulletin should be provided to the National Business Aircraft Association for dissemination to its members. (Class II, Priority Action) (A-85-115)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY, Member, concurred in this recommendation.

By: Jim Burnett
Chairman