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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

Log 881

ISSUED: February 28, 1978

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-78-13 and 14

On November 15, 1977, a Cessna 441 Conquest crashed 7.8 nautical miles north of Greensboro, Alabama, and seven persons were killed. The new aircraft, certified on August 19, 1977, was being demonstrated to a prospective customer by a Cessna dealer when it crashed. The aircraft was in radio contact with Atlanta Center and about 5 minutes after reporting level at flight level 180, the pilot transmitted a "mayday" and indicated "severe vibrations and possibility of dual engine failures." Eighteen seconds later, an unintelligible phrase followed by "losing altitude rapidly" was received by the center. This was the last radio contact with the aircraft.

Wreckage was scattered over 2 miles in a densely wooded area on a general heading of 190° to 200° magnetic. Both outer wing panels, both engines, the entire horizontal stabilizer, and 90 percent of the vertical fin were remote from the fuselage impact site. A 5.5-foot outboard section of the left horizontal stabilizer and a 3-foot outboard section of left elevator trim tab were located 2 miles from the fuselage. Both separations were typical of overload failures. A 1 1/2-inch piece of the trim tab clevis rod remained attached to the recovered section of left elevator trim tab. The left tab actuator, including its retaining ring, and forward 8-inch section of clevis rod were not recovered. The actuator mounting bracket and its two retaining clamps remained installed internally in the outboard section of the horizontal stabilizer. The area where the bracket was mounted, adjacent to the left stabilizer and elevator fractures, was heavily damaged internally. The damage suggested that the trim tab was freed when either the clevis rod or the actuator jackscrew failed, or that the actuator became loose in its mounting bracket because the retaining clamps had become loose and the retaining ring had been omitted. A free tab could have caused divergent tail flutter and subsequent structural breakup of the aircraft.

Review of elevator trim tab actuator installations on other Cessna models indicates that the 404 Titan has dual tabs and identical actuator mounting hardware. The remainder of the Cessna multiengine aircraft have single tabs with similar actuating mechanisms and variations in mounting hardware and control surface design.

Although its accident investigation continues, the Safety Board is now concerned that a similar problem with tab/actuator installations may exist on other Cessna aircraft now in service, particularly the model 404 with its dual tab installation. The Safety Board understands that the 441 model elevator trim tabs/actuators will be redesigned before the airworthiness certificate is reissued. Additionally, the Safety Board is aware that Cessna has issued a multiengine service letter which details a trim control system inspection for all of those aircraft incorporating similar systems. Although the Board commends these actions by Cessna, the concern remains that the service letter, since its inspection requirements are not mandatory, is not adequate to insure prevention of another accident with similar circumstances.

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

> Issue an Airworthiness Directive applying to all Cessna multiengine aircraft to require that the trim system inspection criteria issued in Cessna Service Letter ME-77-34, dated December 23, 1977, be made mandatory and that the initial inspection interval on the model 404 be modified to require compliance within the next 25 flight-hours. (Class I, Urgent Action) (A-78-13)
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> Assess the need for modification of the Cessna 404 elevator trim tab actuating system to incorporate redundancy so that no failure, malfunction, or disconnection of any single element can result in the initiation of destructive flutter. (Class II, Priority Action) (A-78-14)

BAILEY, Acting Chairman, McADAMS, HOGUE, and KING, Members, concurred in the above recommendations.

Kay Bailey

By: Kay Bailey
Acting Chairman