

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: September 10, 1980

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-80-86 through -89

The National Transportation Safety Board is investigating the presumed crash of a Cessna 340, N110RA, in the water near Petersburg, Alaska, on August 20, 1980. The aircraft, pilot, and three passengers are still missing.

The aircraft had been cleared for the approach to Petersburg when the pilot radioed that he was having control difficulties in the pitch axis. He requested and received clearance to climb to altitude and stated that his intentions were to return to Ketchikan, Alaska. Shortly thereafter, the pilot reported that the aircraft was breaking up.

The Safety Board's review of the maintenance records of the accident aircraft revealed a history of empennage structural problems dating back to 1977 when the aircraft had less than 100 hours total time. There were recurrent reports of in-flight empennage vibrations and recurrent findings of stabilizer and elevator structural cracks. Attempted corrective action had included installation of a new horizontal stabilizer at 174 hours and reskinning of the stabilizer at 893 hours. The left outboard elevator hinge bracket was found cracked and was replaced 8 days before the accident. Total time on the aircraft was 1,035 hours.

The Safety Board is aware of the special inspection requirements issued initially in December 1979, by the manufacturer in Cessna Multi-Engine Service Information Letter, ME-79-44, and the two subsequent revisions to the letter. The Board is also aware of Airworthiness Directive 80-18-06, dated August 23, 1980, which made Revision 2 of the Service Letter mandatory.

Recently, the Safety Board was informed by an FAA inspector in a General Aviation District Office that compliance with AD 80-16-06 has disclosed several instances of cracked structure in the elevator hinge area. In one case, a precautionary inspection on an aircraft with less than 40 hours total time revealed a crack in the elevator gusset.

The Safety Board is concerned that, at this time, the problem which is causing the empennage structural cracking on these particular models is not well defined. The service problems have been associated with those aircraft models with the larger

engines installed (greater than 285 maximum continuous horsepower) which were manufactured or modified before a structural change which strengthened the empennage was incorporated in the design. Additionally, the Safety Board is concerned that the 100-hour total time requirement for initial inspection and the 100-hour recurring inspection interval may not be adequate to detect potential failures. Also, structural cracks in low-time aircraft could be indicative of an unpredicted vibratory mode, a production line quality control deficiency, or both.

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

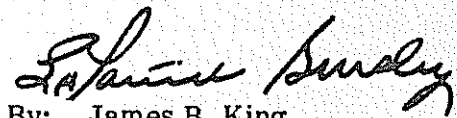
Revise Airworthiness Directive 80-16-06, dated August 23, 1980, to require an initial inspection before further flight, regardless of the aircraft's total time, and restrict the performance envelope of those Cessna models affected by the AD to that of the basic Cessna model 335/340 until the empennage structural cracking problem is resolved. (Class I, Urgent Action) (A-80-86)

Evaluate the 100-hour recurring inspection interval now required in AD 80-16-06 to ascertain the need for a shorter interval, and amend the AD as appropriate. (Class I, Urgent Action) (A-80-87)

Evaluate the design certification data of the Cessna 335/340 empennage structure to ascertain if all possible vibratory modes and structural loads to which it can be exposed have been considered and require retrofit modification to aircraft affected by AD 80-16-06 as indicated to be necessary. (Class II, Priority Action) (A-80-88)

Evaluate the results of the initial inspections performed in compliance with the revised Airworthiness Directive, to ascertain the need for a Quality Assurance Systems Analysis Review (QASAR) of the Cessna 335/340 manufacturing process. (Class II, Priority Action) (A-80-89)

KING, Chairman, GOLDMAN and BURSLEY, Members, concurred in these recommendations. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.


By: James B. King
Chairman