

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: May 14, 1980

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-80-38

On August 7, 1979, a Beech 65-80 (Queen Air), N99FA, serial No. LD-26, departed Gaithersburg, Maryland, and climbed southbound. Shortly after reaching 20,000 feet m.s.l., the crew saw white smoke and smelled fumes in the cockpit. An emergency was declared and the aircraft was landed without further incident at Dulles International Airport, Washington, D.C.

The Safety Board's investigation revealed that both voltage regulators and both alternator-rectifiers were inoperative and the nickel-cadmium battery was venting gas overboard. Fire damage was found on the voltage regulators and associated wire bundles under the cockpit floor between the pilot seats, and both alternator field windings were burned and shorted.

The alternators are protected by two alternator field (10 ampere) circuit breakers which are mounted on the floor, in the aisle, adjacent to the right pilot's seat and by two mainline (105 ampere) circuit breakers which are similarly floor-mounted in the aisle adjacent to the left pilot's seat. Both of the mainline circuit breakers and the adjacent landing gear circuit breaker were mechanically damaged.

Both of the alternator field circuit breakers were also damaged. The housing of one circuit breaker was partially separated from the metal retaining cap which allowed dust and other debris to collect within the housing in the contact point area. There was arcing within the breaker housing across the foreign material at the contact points, which welded both sets of contact points closed. This closed the circuit and left the field without circuit breaker protection. The damaged and inoperable floor-mounted circuit breakers failed to provide protection to the electrical system which resulted in damage to the d.c. alternator system, and an electrical fire.

The Safety Board is aware of a Service Bulletin issued on December 29, 1967, by Beech Aircraft Corporation, which requires the relocation of circuit breakers. This bulletin, No. 67-28, affects Queen Airs such as the incident aircraft model. The purpose of the bulletin is to prevent accidental damage to the alternator field circuit breakers. It gives the procedure to be used to relocate the floor-mounted field circuit breaker bracket to a lower, less vulnerable position. This Service Bulletin was not accomplished on the incident aircraft.

A General Aviation Inspection Aid was issued in August 1968 by the Federal Aviation Administration regarding the alternator field circuit breakers floor-mounted location for Beech Model 65-80. This Inspection Aid states:

These floor-mounted circuit breakers are subject to damage as a result of heavy foot pressures and inadvertently being struck by persons in the cockpit. If damaged, these circuit breakers may not provide protection for the alternator field circuit and associated aircraft wiring.

Cockpit personnel are cautioned to avoid stepping on these circuit breakers.

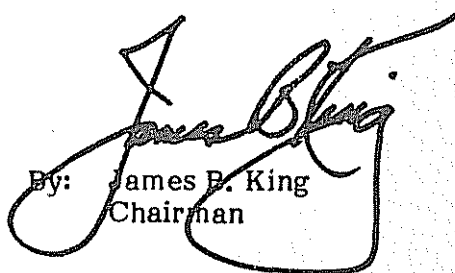
The Beechcraft Shop Manual, Section VII, Queen Air Series, requires that the circuit breakers be checked for looseness and proper operation during the 100-hour inspection in the pilot's compartment.

Information received from FAA records shows there are 95 registered Beech Model 65-80 aircraft recorded as of January 10, 1980. The Safety Board believes that Beech Model 65-80 owner-operators and maintenance personnel should again be reminded that floor-mounted circuit breakers can be damaged and made inoperative if they are not protected. They should be informed of the importance of complying with Beech Service Bulletin No. 67-28.

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

Issue a General Aviation Airworthiness Alert describing the effects of damage to the floor-mounted alternator field current breakers and mainline circuit breakers in Beech Model 65-80 aircraft. The advisory should emphasize the desirability of compliance with Beech Service Bulletin No. 67-28, dated December 29, 1967. (Class II, Priority Action) (A-80-38)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, GOLDMAN, and BURSLEY, Members, concurred in this recommendation.


By: James B. King
Chairman