

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: December 28, 1971

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 8th day of December 1971

FORWARDED TO:)
Honorable John H. Shaffer)
Administrator)
Federal Aviation Administration)
Washington, D. C. 20591)

SAFETY RECOMMENDATION A-71-68 thru 70

The National Transportation Safety Board's investigations of three fatal accidents involving Beech Model 55 aircraft and resulting in nine fatalities, indicate that corrective action is necessary to reduce the possibility of similar accidents occurring in the future. These three accidents involved crashes immediately after takeoff. The Board's investigation disclosed that in each instance the pilot had failed to remove the flight control gust locks prior to takeoff.

The first accident occurred at Rockford, Illinois, July 8, 1969, when an ATP-rated pilot (14,000 hours total time) attempted a night takeoff with the elevator and aileron lock pin installed. The second occurred at Milwaukee, Wisconsin, September 25, 1971, when the pilot (1,200 hours total time) with five passengers, took off with the elevator and aileron lock pin installed. The most recent accident occurred at St. Petersburg, Florida, October 24, 1971, during a check flight when the pilot (1,000 hours) and instructor (9,000 hours) made a takeoff with the elevator, aileron, and rudder control locks installed.

The Beech 55 control lock is a three-component device consisting of a rudder pedal locking bar and a throttle guard connected by lengths of cables to an elevator/aileron locking pin. However, the throttle guard cable length is sufficient to allow the guard to be removed without removing the control lock, or conversely, to allow insertion of the control lock without installing the throttle guard. The FAA Central Region Engineering and Manufacturing Branch is aware of this problem.

Safety Board investigators surveyed several Beech Model 55 aircraft at Washington National Airport and O'Hare Airport, Chicago, for use of control locks. Of the aircraft examined, none had the rudder pedal or throttle guard installed, but all had the elevator and aileron pin installed. The hazard is established when the elevator/aileron locking pin alone is in place. The "unmistakable warning" presented by the throttle guard is no longer in position to warn the pilot that the controls are still locked.

A review of accidents from 1964 through 1969, involving control locks as a cause or factor, shows 23 accidents, seven of which were fatal. These were all listed as "probable cause: pilot-in-command, inadequate preflight preparation or planning." The Safety Board realizes that these pilots did not follow the accepted procedures for checking the flight controls. However, it is evident that the "unmistakable warning" features of the individual control lock designs did not prevent the takeoffs.

The Safety Board believes these accidents typify the design-induced-pilot-error type of accident, and further believes that the Beech 55 control system lock does not provide the protection that should be expected from compliance with section 23.679(a) of the Federal Aviation Regulations. In our opinion, the control lock systems should be designed to prevent initiation of a takeoff when any component of the locking device is either fully or partially engaged. This objective could be made clearer to designers by modifying section 23.679(a) to conform to section 25.679(a)(2).

The Safety Board therefore recommends that the Federal Aviation Administration:

1. Require that the flight control locking devices of the Beech 55 be modified to limit the operation of the aircraft when any component of the locking device is engaged so that the pilot will receive the intended, unmistakable warning at the start of takeoff.
2. Review other make and model aircraft for similar design-induced-pilot-error type of control locks.
3. Modify the wording of section 23.679(a) to conform to the preferable wording of section 25.679(a)(2) of the Federal Aviation Regulations.

The Safety Board staff has discussed these items with personnel of your staff, and we are available for any further assistance we may be able to provide.

Honorable John H. Shaffer

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These recommendations will be released to the public on the immediate date shown above. No public dissemination of the contents of this document should be made prior to that date.

Laurel, McAdams, Thayer and Burgess, Members, concurred in the above recommendations. Reed, Chairman, was absent, not voting.


By: John H. Reed
Chairman
