

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: February 24, 1981

Forwarded to:

Mr. Charles E. Weithoner
Acting Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-81-15 and -16

On February 26, 1980, a Cessna Model 172K (XP) crashed during normal takeoff from the Eagle Creek airport near Indianapolis, Indiana. The pilot, a commercial flight instructor and the only occupant of the aircraft, was killed. According to witnesses, the aircraft pitched up to a steep nose high attitude, about 60° or 70°, and the sound of engine power reduced abruptly from takeoff power to idle. The aircraft then pitched down and rotated about 160° to the left before crashing on the edge of the asphalt runway.

Investigation revealed that the pilot's seat was not locked and had slid rearward on the seat rails during liftoff. The pilot weighed 105 pounds and was 5 feet 3 inches tall. Acquaintances stated that she flew all types of aircraft with her seat in a full-forward position and required an extra seat cushion to enable her to see over the glareshield of the instrument panel. Because of her relatively short stature, she could not reach the throttle or rudder pedals or fully manipulate the control wheel of the above aircraft with her seat in its rearmost position. Consequently, once the seat slid aft, she was not able to maintain control or regain control when the pitch angle increased abruptly. The pitch up of the aircraft to a steep nose high attitude and the reduction in power would be the expected consequences of the pilot's holding onto the control yoke and the throttle as her seat slid aft.

If the pilot had attempted to position and lock her seat in the full forward position in the aircraft, the left front corner of the seat would have contacted and wedged against the door jamb. This interference, which is typical in this aircraft model, can prevent the seat locking pins from reaching the forwardmost locking holes. More importantly, however, the wedging of the seat can lead the pilot to believe that the seat is locked when, in fact, the locking pins are actually positioned between locking holes. Any subsequent forces on the seat, such as those occurring during takeoff, liftoff, or landing, can cause the seat to release abruptly and slide aft.

The pilot's operating handbook for the Cessna model 172K (XP) aircraft includes the pilot's check of the adjustment and locking of seats, belts, and shoulder harnesses on the "before starting engine" checklist. However, because some pilots may find it necessary to readjust the seat before takeoff, the Safety Board believes that a check to ensure that front seats, belts, and harnesses are adjusted and locked also should be included on the "before takeoff" checklist.

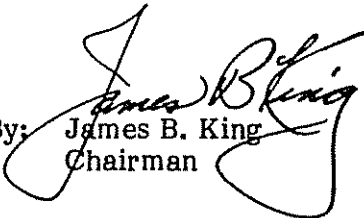
Between 1970 and 1979, various Cessna aircraft were involved in 20 accidents in which slippage of the pilot's seat during takeoff or landing was determined to have been a causal element.

In view of the above, the Safety Board recommends that the Federal Aviation Administration:

Issue an Airworthiness Directive for Cessna aircraft in which interference between seats in the full forward position and door jambs currently exists requiring that the seat rail stops be positioned to permit proper seat locking in all seat positions. (Class II, Priority Action) (A-81-15)

Require the Cessna Aircraft Company to include an adjustment and locking check of front seats, belts, and shoulder harnesses on the "before takeoff" checklists applicable to all Cessna aircraft. This item should be included on new checklists as soon as possible. (Class II, Priority Action) (A-81-16)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, GOLDMAN, and BURSLEY, Members, concurred in these recommendations.

By: 
James B. King
Chairman