

Log 872
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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: February 16, 1978

Forwarded to:

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

SAFETY RECOMMENDATION(S)
A-78-4

On September 24, 1977, a Piper PA-31 Navajo crashed shortly after takeoff from Lake Minchumina, Alaska, after the forward baggage door popped open. Cargo had been loaded into the forward baggage compartment just before this flight, and the pilot indicated that he had latched and locked this baggage door during the preflight inspection. Takeoff was made on a relatively rough gravel-dirt surface and some turbulence was encountered during climbout. The door came open shortly thereafter. The pilot attempted to return immediately to the airport but the airplane impacted Lake Minchumina before he could do so. The pilot and the five passengers aboard were rescued by a fishing boat. Later, the pilot stated that after the baggage door opened, it remained open, and he could not maintain control of the airplane.

As a result of its investigation of this accident, the Safety Board believes that this baggage door was latched and locked during the preflight inspection. However, the door apparently became unlocked and then opened sometime during the takeoff or climb.

This outward opening baggage door is hinged at the top and may be latched by rotating a bar handle into a recess in the plane of the door. The door may then be locked by inserting the key into the lock and turning it 90° counterclockwise. This action positions the locking tang into a slot in the door handle. However, because the lock mechanism or door handle may be loose or because the locking tang may rotate excessively, the door may not lock securely. This is particularly true in older

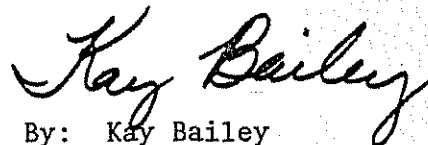
airplanes or those with high service time. If, as a result of any applied forces, the locking tang is rotated upward and out of the slot in the door handle, the door may become unlatched inadvertently. Subsequent to the accident, an inspection of another Navajo airplane disclosed that the locking tang on that airplane could be easily lifted from below by inserting a small nail file. The ease of unlocking this door prompts concern that normal vibrational and inertial forces on the tang might produce the same result. (A similar locking device is installed on Piper Aztec and Cheyenne airplanes.)

To prevent a recurrence of this inadvertent door opening, the operator of the accident airplane (who also operates several other Piper aircraft with similar baggage door installations) has installed supplemental safety straps across the door handles to assure that they are latched and locked during flight.

In view of the potential hazards created by in-flight openings of these baggage doors--adverse aerodynamic effects on airplane controllability and ejection of cargo into propellers or adjacent structure--the Safety Board recommends that the Federal Aviation Administration:

Issue an Airworthiness Directive applicable to Piper Cheyenne, Navajo, and Aztec airplanes to require a periodic inspection of the forward baggage door locks, and to establish an inspection procedure and repair or replacement requirements. The inspection should insure that the baggage door lock tang will not disengage from the door handle, and that the latching load imposed during handle operation is a specified minimum consistent with dynamic loads which can be encountered during all ground and flight operations. (Class II, Priority Action) (A-78-4)

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



By: Kay Bailey
Acting Chairman