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NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: July 28, 1981

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Forwarded to:

Honorable J. Lynn Helms  
Administrator  
Federal Aviation Administration  
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-81-74

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On January 20, 1981, Cascade Airways, Inc., Flight 201, a Beech 99A, crashed about 4.5 miles southwest of Spokane International Airport, Spokane, Washington. The flight was operating as a scheduled commuter under 14 CFR Part 135.

The National Transportation Safety Board's investigation of the accident revealed that Flight 201, operating on an instrument flight rules (IFR) flight plan in instrument meteorological conditions, was initially vectored for an instrument landing system (ILS) approach to runway 21 after contacting Spokane approach control. When the active runway was later changed to runway 3, Flight 201 was vectored to the final approach course even though activation of the localizer for runway 3 was held up to allow another aircraft to complete its ILS approach and landing on runway 21. When the localizer for runway 3 was activated, Flight 201 was advised promptly and given the aircraft's position as 6 miles from the OLAKE intersection.

Based on an analysis of the investigative evidence and the operation and display of the distance measuring equipment (DME) mode selector installed in the accident aircraft, the Safety Board concluded that the crew probably used the DME from the Spokane VORTAC (located 4.2 miles from the end of the runway) rather than the DME associated with the localizer (located at the end of the runway).

Cascade 201 was equipped with a DME-select switch which had four positions labeled "DME 1", "DME hold", "DME 2", and "RNAV." This feature allows the pilot to do the following: with the "DME 1" button depressed, the DME is automatically tuned to the same frequency as the No. 1 navigation radio. If the pilot then pushes the "DME hold" button and retunes the No. 1 navigation radio, the DME remains on the frequency previously selected on the No. 1 navigation radio. As a result, the DME mileage is generated from a frequency which is not displayed anywhere in the cockpit. The pilot must remember the navigation aid from which the distance information is derived. The Safety Board believes that the captain of Cascade 201 probably used the airborne DME equipment in the manner just described and forgot that the DME equipment was actually tuned to the DME associated with the Spokane VORTAC when the localizer was activated by the tower. The Safety Board believes that a direct readout of the actual frequency being used for navigation should be visually available to the flightcrew at all times.

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Although an amber light is activated on the DME mode selector when the "DME hold" function is in use, the light may be overlooked by the pilot in certain situations. While the "DME hold" feature provides the pilot with more flexibility by allowing him to preselect navigation frequencies, this advantage may be offset by the need to remember the source of the DME mileage display during periods of increased cockpit workload.

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

Require in future radio navigation instrument installations, that all frequencies being received through navigational receivers that are providing essential navigational information (directional guidance or distance) be displayed so that the source of the navigational signal can be readily discerned by the pilot. (Class II, Priority Action) (A-81-74)

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

  
By: James B. King  
Chairman