

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: June 13, 1979

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-79-47

On December 28, 1978, United Air Lines flight 173, a DC-8-61, crashed near the Portland International Airport after circling in the vicinity of the airport for about 1 hour while the flightcrew attempted to resolve a landing gear problem and prepare passengers for the emergency landing. Of the 181 passengers and 8 crewmembers aboard, 8 passengers and 2 crewmembers were killed and 21 passengers and 2 crewmembers were injured seriously. The National Transportation Safety Board determined that the probable cause of the accident was the failure of the captain to monitor properly the aircraft's fuel state, and to properly respond to the low fuel state and the crewmembers' advisories regarding fuel state. This resulted in fuel exhaustion to all engines. Contributing to the accident was the failure of the other two flight crewmembers either to fully comprehend the criticality of the fuel state or to successfully communicate their concerns to the captain.

This accident is similar in some respects to several other previous air carrier accidents investigated by the Safety Board. 1/ Although the circumstances surrounding these accidents were different, they have one

1/ NTSB-AAR-73-14, Eastern Air Lines, Inc.; L-1011, N310EA, Miami, Florida; December 29, 1972.

NTSB-AAR-74-6, World Airways, Inc.; DC-8-63F, N802WA, King Cove, Alaska; September 8, 1973.

NTSB-AAR-74-4, Texas International Airlines, Inc.; Convair 600, N94230, Mena, Arkansas; September 27, 1973.

NTSB-AAR-78-7, Japan Air Lines, Company, LTD; DC-8-62F, JA8054, Anchorage, Alaska; January 13, 1977.

NTSB-AAR-79-2, Allegheny Airlines, Inc.; BAC 1-11, N1550, Rochester, New York; July 9, 1978.

element in common. In each case the "crew concept" failed as the entire flightcrew either fixated to a degree on the problem at hand and thereby failed to monitor the flight's progress properly, or the first officer's or second officer's inputs on the flight deck were not adequately communicated to or received by the captain.

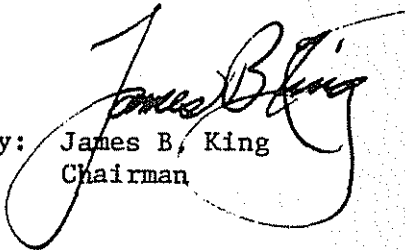
The Safety Board has learned informally that several air carrier operators have recognized a need for greater emphasis on flightcrew management in their flight operations and have undertaken the development of some form of command training program. Generally, these efforts apparently include principles of leadership, management skills, human relations, and problem-solving in the operational environment.

Additionally, the National Aeronautics and Space Administration, as a part of its ongoing research program devoted to human factors and aviation safety, has also recognized the importance of flight deck resource management in air carrier flight operations, and is currently working closely with industry representatives to encourage the development of training programs which address this subject.

The complexity of current air carrier flight operations imposes considerable demands upon flight crewmembers, particularly under high workload conditions. Moreover, accident investigation experience, as mentioned above, indicates that captains have failed, sometimes at critical points in a flight, to take advantage of important resources that are available to them. These resources have included not only available equipment and supporting services, but also the assistance of a coordinated crew; first and second officers have not, in some cases, adequately monitored flight progress, positively communicated their observations, or actively assisted the captain in his management of the flight. Therefore, the Safety Board believes that present efforts to foster improved flight deck management should be expanded to include all air carrier operators. Accordingly, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Issue an operations bulletin to all air carrier operations inspectors directing them to urge their assigned operators to ensure that their flightcrews are indoctrinated in principles of flight deck resource management, with particular emphasis on the merits of participative management for captains and assertiveness training for other cockpit crewmembers. (Class II, Priority Action) (A-79-47)

KING, Chairman, DRIVER, Vice Chairman, and McADAMS and HOGUE, Members, concurred in the above recommendation.


By: James B. King
Chairman