

Log 1465

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: August 26, 1982

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

SAFETY RECOMMENDATION(S)

A-82-98

On February 10, 1981, United Airlines Flight 544, a Boeing 737 en route from Chicago, Illinois, to Newport News, Virginia, with 37 passengers and 6 crewmembers aboard, encountered moderate to severe turbulence while approaching Patrick Henry Airport in Newport News. The captain, who was flying the aircraft at the time, stated that the flight had been "choppy" and the seatbelt sign had been illuminated for the last "15 to 20 minutes of cruise and throughout the descent." As the aircraft approached the airport, the captain saw clouds which had to be penetrated before landing. On instructions from the captain, the second officer informed the lead flight attendant that they would be encountering turbulence and "to get things squared away" and to take their seats. About 5 to 6 minutes later, the aircraft entered the clouds about 10,000 feet m.s.l., and while descending through 7,000 feet m.s.l., it encountered "moderate to severe" turbulence which lasted about 2 minutes. At the time, flight attendants in the aft galley were cleaning up after passenger service and securing the galley in preparation for landing. Two of the flight attendants were injured.

As a result of the accident, the Association of Flight Attendants wrote the Safety Board on November 5, 1981, and proposed that the Safety Board make corrective safety recommendations to the Federal Aviation Administration to assure the personal safety of flight attendants through improved flight crew and cabin crew coordination.

Although matters such as those involved in this accident are not easily solved by formal regulatory means, the Safety Board does believe that increased communications between the flight deck and cabin crews could reduce the exposure of cabin crews to injury from turbulence upset while they are performing their in-flight duties. For example, predeparture briefings of flight attendants on expected weather conditions during the flight might help them plan these activities. Once airborne, the flightcrew should monitor flight attendant activity and give flight attendants as much advance warning as possible when turbulence is anticipated so they can secure the cabin and attend to the safety of the passengers and themselves. Finally, the flight deck crew should instruct the flight attendants to sit down when conditions become, or are likely to become, hazardous.

In its special study, "In-Flight Safety of Passengers and Flight Attendants Aboard Air Carrier Aircraft," <sup>1/</sup> the Safety Board stated: "Air Carriers should periodically remind flight crews of the need for coordination between cockpit and cabin personnel when they enter areas of known or suspected turbulence. Another concern is the timing of the captain's decision to order the flight attendants either to postpone or to suspend cabin services because of turbulence."

A review of our records indicates that since 1976, 23 reported in-flight turbulence accidents have resulted in 36 serious injuries. Eleven of these accidents resulted in 16 serious flight attendant injuries. The Safety Board believes that there may be many more incidents of in-flight turbulence which go unreported because of the lack of serious injuries; however, these are potentially as dangerous.

Title 14 CFR 121, Subpart G describes the operations manual requirements for all certificate holders. These manuals are prepared by air carrier operators for the use and guidance of flight and ground operations personnel. Title 14 CFR 121.135(a)(1), in particular, stipulates that each manual must "include instructions and information necessary to allow the personnel concerned to perform their duties and responsibilities with a high degree of safety."

The Safety Board has learned that, on March 6, 1981, United Airlines issued a Flight Safety Information Bulletin to all of its flight officers and dispatchers as a result of United's investigation of the circumstances surrounding turbulence related injuries during 1980. The bulletin discussed turbulence forecasting and suggested ways of reducing turbulence related injuries.

The bulletin was incorporated in United's Flight Operations Manual (FOM) on June 11, 1982. The revision of the FOM provides expanded guidance to flightcrews in briefing flight attendants on expected weather en route and anticipated turbulence. It requires the use of public address announcements to warn flight attendants of turbulence and to instruct them to be seated with their seatbelts fastened. The revision was a considerable improvement because previous guidance provided to United's flightcrews, simply stated that the captain should brief the cabin crew on the flight plan and any unusual situations that might affect the flight.

The Safety Board believes that close coordination between cabin and cockpit crewmembers can facilitate the timely completion of cabin services and prevent the exposure of flight attendants to potential injury during known or anticipated encounters with turbulence. The changes instituted at United Airlines are positive steps toward reducing in-flight injuries; we believe that similar procedures should be incorporated in the operations manuals of all other air carriers. Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

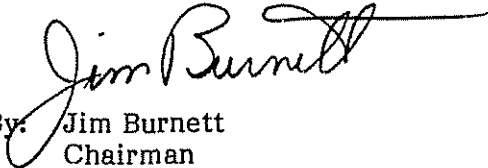
Issue an Air Carrier Operations Bulletin requiring Principal Operations Inspectors to review and to require, as necessary, modification of, the operations manuals of all air carriers to assure safe and effective coordination between flight and cabin crew. The following safe operating procedures should be addressed:

<sup>1/</sup> For more detailed information, read Special Study--"In-Flight Safety of Passengers and Flight Attendants Aboard Air Carrier Aircraft" (NTSB-AAS-73-1).

- (1) Flight crew predeparture briefings of the senior flight attendant to include forecast turbulence-related weather conditions, scheduling of cabin services and cleanup, and securing of galleys, cabin, and passengers.
- (2) Flight crew public address announcements to forewarn flight attendants and passengers of anticipated in-flight turbulence and to require flight attendants to cease in-flight service and to be seated with their restraints fastened when turbulence penetration is expected and the intensity is forecast to be "moderate" or greater, as defined in Aviation Weather Service, AC 00-45B, or when turbulence is encountered.

(Class II, Priority Action) (A-82-98)

BURNETT, Chairman, and McADAMS, BURSLEY, and ENGEN, Members, concurred in this recommendation. Vice Chairman GOLDMAN did not participate.

  
By: Jim Burnett  
Chairman