

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: September 30, 1981

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Forwarded to:  
Honorable J. Lynn Helms  
Administrator  
Federal Aviation Administration  
800 Independence Avenue, S.W.  
Washington, D.C. 20591  
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SAFETY RECOMMENDATION(S)

A-81-128 through -131

The National Transportation Safety Board conducted a special investigation of the evacuation of United Airlines Charter Flight 5820, a DC-8-61, on December 29, 1980, in Phoenix, Arizona. 1/ On board the aircraft were 238 passengers and 9 crewmembers. The evacuation was prompted by the failure of the rear landing gear bogie beam which resulted in a fire in the aircraft's right main landing gear. During the evacuation, 2 passengers were injured seriously and 24 passengers were injured slightly.

The cockpit crew was erroneously advised of an engine fire by the airport tower and began emergency shutdown procedures. The captain initiated the evacuation after all electrical power had been shut down. Because the public address (PA) and cabin interphone systems were powerless, the second officer had to give the evacuation orders to passengers and flight attendants by "word of mouth."

A lack of communication existed between the cabin crew in the front of the cabin who ordered passengers to evacuate and those in other parts of the cabin who ordered passengers to remain seated. The lack of communication delayed the evacuation considerably. Although the majority of passengers escaped serious injury, had the aircraft fire suddenly worsened, the breakdown of communication could have drastically reduced the chances of occupant survival.

Crewmembers did not attempt to use the megaphones, but instead relied on shouted commands to provide guidance to passengers. After most of the passengers had deplaned, two flight attendants unsuccessfully attempted to remove one of the megaphones from its brackets. Subsequent investigation did not reveal any problems with the mechanism holding the megaphone in place.

1/ For more information read, "Special Investigation Report: Evacuation of United Airlines DC-8-61, Sky Harbor International Airport, Phoenix, Arizona, December 29, 1980." (NTSB-SIR-81-4.)

This accident afforded an unusual opportunity to determine the elapsed time of this evacuation, because a local television station filmed the incident from a helicopter. The Safety Board found that the total time for evacuation was about 150 seconds -- exceeding the 90-second limit set by the FAA for aircraft certification.

As part of this special investigation, the Safety Board reviewed its past accidents, studies, and recommendations relating to emergency communication equipment. These have shown repeatedly that megaphones, evacuation alarms, and PA systems are vital to a successful emergency evacuation. Megaphones have been shown to be rarely used in evacuations. While emergency training regulations contained in 14 CFR 121.417 identify specific equipment that crewmembers must use during training drills, the megaphone is not included in this list of equipment. The Safety Board believes that crewmembers should be required specifically to become familiar with the availability and use of the megaphone.

On August 23, 1974, the Safety Board recommended that air carrier aircraft be equipped with audio visual evacuation alarm systems (Safety Recommendation A-72-141). The FAA delayed any action until further study could be done to determine the most practical and effective means of installing and utilizing these systems. To date, the Safety Board is not aware of any comprehensive studies by the FAA on this subject. The Safety Board believes strongly that the FAA should require the installation of an independently powered evacuation alarm system in passenger-carrying aircraft.

On December 20, 1974, the Safety Board recommended that PA systems be required to be capable of operating on a power source independent of the main aircraft power supply (Safety Recommendation A-74-111). The Safety Board has found that crewmembers depend on the PA system to provide instructions to passengers more than on any other means of communication. The Safety Board also noted that the interphone system, which must be operable when the PA system is inoperable before an aircraft can be dispatched, is an inadequate substitute for the PA system because it cannot serve to provide instructions to passengers. FAA's January 19, 1981, Notice of Proposed Rulemaking No. 81-1 proposing to have the PA system powered from an independent electric source is a long overdue step in the right direction.

Standardization of the Master Minimum Equipment Lists (MMEL's) to allow the PA system to be inoperative as long as the cabin interphone system is operative and alternate normal and emergency and/or operating restrictions are utilized presently allows a PA system to remain inoperative indefinitely. The Safety Board believes that the MMEL's governing the dispatch of an aircraft with inoperative equipment should spell out specific rules so that the PA system cannot remain inoperative indefinitely.

As a result of this special investigation, the National Transportation Safety Board recommends that the Federal Aviation Administration:

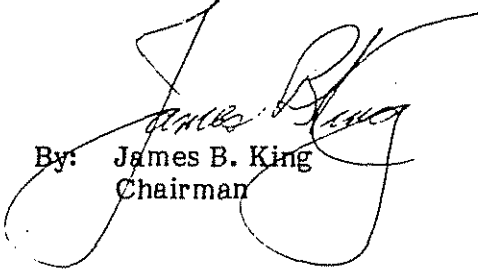
Amend 14 CFR 121.417 to include megaphones as a piece of emergency equipment which crewmembers must actually operate during initial training and recurrent training procedures. (Class II, Priority Action) (A-81-128)

Require the installation of an independently powered evacuation alarm system in passenger-carrying aircraft. (Class II, Priority Action) (A-81-129)

Promptly adopt the final rule as proposed in FAA's Notice of Proposed Rulemaking No. 81-1 -- to have the public address system on passenger-carrying aircraft capable of operating from a power source independent of the main electrical generating system without jeopardizing the in-flight emergency electrical power system. (Class II, Priority Action) (A-81-130)

Amend the MMEL's for passenger-carrying aircraft to require that the PA system be operable from the cockpit and from at least one flight attendant station at all times. These amendments should include provision that the aircraft may continue the flight or series of flights with other portions of the system inoperative for a reasonable number of flight hours, but may not depart a station where repairs or replacements can be made. (Class II, Priority Action) (A-81-131)

KING, Chairman, and GOLDMAN and BURSLEY, Members, concurred in these recommendations. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.

  
By: James B. King  
Chairman