

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

FOR RELEASE: 6:30 P.M., E.D.T., NOVEMBER 23, 1975

ISSUED: November 23, 1975

Forwarded to:
Honorable James E. Dow
Acting Administrator
Federal Aviation Administration
Washington, D. C. 20591

SAFETY RECOMMENDATION(S)

A-75-84

On March 31, 1975, Western Air Lines, Inc., Flight 470 (a B-737) ran off the end of runway 25 after a back course ILS approach to Natrona County International Airport, Casper, Wyoming. The National Transportation Safety Board's investigation of this accident revealed inadequacies in the implementation of the Federal Aviation Regulations which pertain to crew-member emergency training. Specifically, the Safety Board believes that the provisions of 14 CFR 121.417 (c), regarding crewmember emergency drills in the operation and use of exits and evacuation slides, are not being accomplished adequately by some airlines.

During the above accident, the aircraft left the runway surface, struck three approach light structures and an irrigation ditch and stopped 800 feet beyond the departure end of the runway. When the order was given to evacuate, occupants deplaned through four main exits and two overwing exits. Two flight attendants reported difficulties in opening the left forward and left rear main cabin doors. The difficulties with the doors apparently were similar -- both flight attendants were able to rotate the door handles and partially open the doors, but they were unable to open the doors farther. Eventually, the flight engineer fully opened the forward door and an off-duty flight attendant helped to open the rear door.

Two possible reasons for these difficulties are: (1) The door structures or mechanisms may have been deformed by crash forces or fuselage deformation, or (2) the force necessary to pull the evacuation slide out of the door mounted slide pack may have been greater than the flight attendants anticipated.

The Safety Board does not believe that the first possibility has any basis. Examination of the wreckage revealed that all four cabin doors operated normally following the accident and no evidence of damage to their mechanisms was noted. Additionally, our evaluation of the accident kinematics revealed that the crash forces in this accident were within those set forth in 14 CFR 25.561 (b) as constituting a "minor crash landing."

The second possibility is a more plausible explanation of the flight attendants' difficulties with the doors. Western Air Lines fulfills the provisions of 14 CFR 121.417, Crewmember Emergency Training, by the use of films, aircraft familiarization, and an evacuation training mockup. Both flight attendants had received initial and recurrent emergency training using an actual aircraft door and using the mockup containing a B-737 door; however, neither flight attendant had ever opened an aircraft exit door with an evacuation slide attached; nor is Western's mockup door equipped with a slide. Our investigators noted that the forces required to operate the mockup door are noticeably less than those required to open an actual aircraft door with the slidepack attached. Thus, we believe that neither flight attendant was adequately prepared to anticipate the forces necessary to open a cabin door in the emergency mode.

Recently, the Safety Board's investigation of a United Air Lines DC-10 emergency evacuation at Seattle International Airport on October 16, 1975, disclosed that two operable exits were not used. Preliminary information indicates that the flight attendant who attempted to open them concluded that they were inoperative because the actions involved in the movement of the handles to activate the door opening cycle were different than those which she had encountered in recurrent emergency training. Specifically, the required handle motion in the aircraft was more than twice that in the training mockup. This case further illustrates the need for representative procedures and equipment during training to facilitate transfer of learning experiences.


The Safety Board has previously identified similar situations which indicated shortcomings in flight attendant training. For instance, several cases were cited in the Board's special study, "Safety Aspects of Emergency Evacuations from Air Carrier Aircraft." As a result of that study, the Safety Board recommended that 14 CFR 121.417 (c) be amended to eliminate the provision which permits demonstration rather than performance of drills in operation and use of emergency exits (A74-114). We expressed the same concern in proposals submitted for the FAA's First Biennial Operations Review. The Safety Board is aware of the FAA's efforts, such as Air Carrier Operations Bulletin No. 73-1, issued May 7, 1973, to emphasize "hands-on" training, and we support these efforts; however, we are concerned that the "hands-on" training may not always be realistic.

The Board realizes that the use of actual aircraft doors with evacuation slides attached may be impractical; however, we do believe it is reasonable to require training in a mockup that is realistic.

In view of the above, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Require air carriers to comply with the provisions of 14 CFR 121.417 (c) (4) by the use of accurate and realistic equipment and procedures which accurately simulate emergency conditions, including the forces involved in opening exits in the emergency mode; and require that during each flight attendant's initial and recurrent training he operate emergency exits which duplicate the forces encountered and actions necessary when such exits are opened in the emergency mode. (Class II)

REED, Chairman, McADAMS, THAYER, BURGESS, and HALEY, Members, concurred in the above recommendation.

By: 
John H. Reed
Chairman

THIS RECOMMENDATION WILL BE RELEASED TO THE PUBLIC ON THE ISSUE DATE SHOWN ABOVE. NO PUBLIC DISSEMINATION OF THE CONTENTS OF THIS DOCUMENT SHOULD BE MADE PRIOR TO THAT DATE.