NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

log 1551

ISSUED: July 12, 1983

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-83-45

A primary factor in assuring the rapid and safe evacuation of passengers from an airplane in an emergency is the adequate transfer of passenger safety information. Passenger briefing cards are required to be available to passengers and oral briefings of passengers are required before all U.S. air carrier and air taxi flights by Federal Aviation Regulations and before international flights by International Civil Aviation Organization Annex 6 Standards. However, information gathered in many accident investigations has led the Safety Board to conclude that the present system for educating passengers about airplane safety features is inadequate and has failed to achieve its purpose of increasing survivability.

The most recent example is the September 13, 1982, crash of a Spantax DC-10 at Malaga, Spain. The Government of Spain is continuing its investigation of this accident. Evidence obtained to date shows that the pilot rejected the takeoff and the airplane ran off the end of the runway. The airplane left the airport boundaries, and the right wing and engine separated from the fuselage after striking several buildings. The tail section of the airplane was immediately engulfed in flames, and an emergency evacuation ensued. Of the 393 persons aboard the airplane, 50 persons were killed and 42 persons were seriously injured. All of the fatalities were found in the aft cabin, which seated 167 passengers, near the only exit which was opened and used during the evacuation in that section—the left overwing exit. For reasons unknown, these passengers, all of whom survived the crash but died from the effects of the fire, failed to use the right side aisle, which was clear, and to move forward to other available exits. Some of the passengers in the last few rows of the airplane managed to get out by moving forward in the right aisle, but they too elected to evacuate through the left overwing exit rather than through exits located farther forward.

Many of the survivors indicated that their evacuation was not influenced by the passenger safety information which had been presented. Numerous passengers admitted that they had not read the emergency briefing card, but most did recall the oral briefing which was given in Spanish and English. They said that the briefing was hard to hear and was difficult to understand. The consensus of the passengers questioned was that the written and oral information was of little or no use to them during the emergency. For example, one passenger, when asked if the emergency instructions were of any value, said that "the information was not retained in a moment of crisis." The Safety Board believes, and the Government of Spain concurs, that the circumstances surrounding this accident support the need for improved passenger safety education.

Another accident illustrative of this problem was the inadvertent water ditching of a National Airlines Boeing 727 near Pensacola, Florida, on May 8, 1978. 1/ Without warning, the airplane struck the waters of Escambia Bay on the approach to the Pensacola Regional Airport. Fifty-two passengers and six crewmembers were onboard. Three uninjured passengers drowned after evacuating the airplane. The passengers had problems finding, donning, and inflating the lifevests, which were located under their seats. Only 27 passengers indicated that they used the lifevests, and most of the lifevests used were distributed by the crewmembers. Twenty-two percent of the passengers said they had never seen a lifevest demonstration. Passenger survival was threatened further when some passengers incorrectly assumed that the seat cushions in the airplane were flotation devices. Furthermore, no attempt was made to deploy the emergency evacuation slides as flotation devices. A Safety Board survey revealed that only 41 percent of the passengers on this flight had read the supplemental briefing card. This accident also demonstrates the inadequacy of the present system of educating passengers about airplane safety features.

A Safety Board special study of emergency evacuations, 2/ which analyzed the circumstances of 10 accidents, also supports the need for improved passenger safety education. The study concluded that "passengers who have been involved in evacuations frequently suggest the need for additional safety information." The study results suggested that "passengers who are not attentive to safety information are much more susceptible to being injured during an evacuation." The study further stated that what is needed is "research and development of more effective audio-visual methods of presenting safety information to air carrier passengers" to assure understanding and retention of the information.

For more than 15 years, the Safety Board has been concerned with the content and effectiveness of passenger emergency information as a means to enhance crash survival. During this period, 11 safety recommendations and 3 special studies, including the study previously mentioned, regarding this and related subjects have been issued. These safety recommendations 3/ addressed specific problems such as exit locations, exit routes, oxygen systems, and the brace position. Three additional safety recommendations regarding passenger education, A-72-68, A-72-72, and A-73-6, were issued as a result of special studies on passenger in-flight safety 4/ and turbojet ditching survival. 5/ The first two recommendations called for collaboration among the Federal Aviation Administration (FAA), the Air Transport Association of America (ATA), and the International Air Transport Association (IATA) to develop more effective methods of conveying safety information to passengers and for the standardization of passenger safety information. The third recommendation suggested that the ATA develop innovative methods of informing passengers regarding the use of safety equipment. In responding to these three recommendations, the ATA agreed to work with the FAA. As part of its research into this area, the FAA has installed a passenger briefing video presentation system at its

1/ Aircraft Accident Report--"National Airlines, Inc., Boeing 727-235, N4744NA, Escambia Bay, Pensacola, Florida, May 8, 1978" (NTSB-AAR-78-13).
2/ Special Study—"Safety Aspects of Emergency Evacuations from Air Carrier Aircraft," November 13, 1974 (NTSB-AAS-74-3).
3/ Safety Recommendations A-67-16, A-68-31, A-72-128, A-72-143, A-74-112, A-76-25, A-76-26, A-77-28, A-77-59, A-79-78, and A-82-70.
4/ Special Study--"In-Flight Safety of Passengers and Flight Attendants Aboard Air Carrier Aircraft," March 14, 1973 (NTSB-AAS-73-1).
5/ Special Study--"Passenger Survival in Turbojet Ditchings (A Critical Case Review)," April 5, 1972 (NTSB-AAS-72-2).

hangar facilities at National Airport in Washington, D.C. The passenger briefings are viewed prior to boarding the FAA-owned and -operated airplanes. The Safety Board is unaware of any regulatory or advisory action taken as a result of this research.

In the early 1970's, the Interaction Research Corporation independently developed a passenger briefing card which is generally acknowledged to be a substantial improvement over previous designs. The company also developed and produced the first video-taped passenger briefing for the Chrysler Air Transport Corporate Grumman American Gulfstream II airplane. Now, at least two major air carriers, American and Continental Airlines, are using a video-taped passenger briefing on their DC-10 airplanes. For the past 2 years, Pentastar Aviation, a subsidiary of the Chrysler Corporation, has been conducting research and development to improve passenger briefing cards and video/film briefing formats. Current research and technological advances indicate that new instructional design concepts can be employed to enhance communication and retention of safety information beyond that which is being accomplished now.

Accident experience has shown the inadequacy of current methods used to educate passengers. Significant problems will continue to be encountered if passenger education and awareness are not improved. The Safety Board believes that the problems associated with passenger safety education must be evaluated in a systematic program which will identify and address those problems to determine exactly what and how much information needs to be presented to and assimilated by the flying public and how best to present that information to maximize learning and retention.

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

> Sponsor a government/industry task force open to foreign participants made up of representatives from the airplane manufacturers, air carrier and commuter operators, researchers, flight attendants, and consumers (1) to identify the type of safety information that is most useful and needed by passengers, (2) to identify and develop improved instructional concepts for conveying the safety information, and (3) to recommend appropriate changes to the operating requirements regarding passenger oral briefings and information briefing cards. (Class II, Priority Action) (A-83-45)

BURNETT, Chairman, GOLDMAN, Vice Chairman, McADAMS, BURSLEY, and ENGEN, Members, concurred in this recommendation.



By: Jim Burnett
Chairman

Safety Recommendation Reiteration List

SR Number	Reiteration Number	Report Number	Report Date	Accident Description	Accident City	Accident State	Accident Date
A-83-045	1	SS-85-09	10/25/1985	A Review of Methods Used to Present Safety Information	N/A	N/A	N/A