

Log 1696

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: November 29, 1984

Forwarded to:

Honorable Donald D. Engen
Administrator
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20594

SAFETY RECOMMENDATION(S)

A-84-128 through -133

On January 13, 1984, Pilgrim Airlines Flight 35, a Fokker F-27-100 (N148PM), crashed on runway 4-L at John F. Kennedy International Airport, Jamaica, New York, shortly after takeoff. Following takeoff, at about 100 feet above the ground, the No. 1 engine autofeathered followed within seconds by a loss of power in the No. 2 engine. The airplane rapidly lost altitude and crashed on the runway and slid about 1,200 feet before coming to rest. There was no fire. The flight attendant sustained a spinal fracture, and the captain and 13 passengers sustained minor injuries. The first officer and 8 passengers, including a 3-month-old infant and a 2 1/2-year-old child were not injured. 1/

The National Transportation Safety Board's investigation of the accident identified several conditions which adversely affected the postcrash evacuation of the crew and passengers and could have led to fatalities. In addition, it was found that information contained in the flight attendant's manual was imprecise, incomplete, or inappropriate. The Safety Board is concerned that these safety hazards were not uncovered during the Federal Aviation Administration's (FAA) airworthiness and operating certification inspections of this airplane in connection with the airplane being brought into U.S. registry on October 28, 1983. The Board believes that FAA operations and maintenance inspectors should increase their surveillance and review their procedures to better identify similar problems which may exist with other F-27 airplanes and in other air carrier operations.

Underwing Emergency Exits

Plug-type emergency exits were located on both sides of the passenger cabin at the window seats in row 8 [seats 8-A and 8-D]. During the evacuation, a passenger attempted to open the exit at seat 8-A but initially could not do so because the seatback at seat 8-A had moved forward by its own inertia at impact and had lodged against the lower part of the exit. The passenger eventually was able to lift the exit plug over the

1/ For more detailed information, read "Aircraft Accident Report—Pilgrim Airlines, Inc., Fokker F 27-100, N148 PM John F. Kennedy International Airport, Jamaica, New York, January 13, 1984" (NTSB/AAR-84/12).

seatback and remove it; he and another passenger then left the airplane through the opening. Investigation revealed that the seatback attachments had little friction because of wear and when a slight force was applied in the forward direction, the seatbacks would fall forward under their own weight. None of the seatbacks incorporated positive uplocks and their ability to resist falling forward was a function of wear of the bolted attachments of the seatbacks to the seat frames. Although there is no requirement for seatbacks to fold over when struck from behind, seats usually are designed with a feature that allows the seatback to move forward when a force of about 35 pounds is applied. The resistance feature permits passengers to brace themselves against the seatback prior to impact while the foldover feature absorbs some of the energy when the seatback is struck by a passenger.

There were additional problems causing interference with the removal of the exit plug. First, the seatback of seat 7-A, because of its rearward angle, covered the forward portion of the exit and obstructed the inward movement of the plug. Second, the outboard armrest of seat 8-A covered the rear portion of the exit and obstructed the inward movement of the plug. Thus, even if seat 8-A's seatback had not fallen forward and blocked the exit, inward movement of the plug would have been blocked by the armrest of seat 8-A and the seatback of seat 7-A. The same problems were found at the exit located at seat 8-D on the opposite side of the cabin.

The Board believes that the interference with the removal of the exit plugs caused by the adjacent seats should have been readily apparent during an airworthiness inspection of the airplane and that the airplane should not have been allowed in service until the problem was corrected.

Failure of the Forward Passenger Compartment Door

The door between the forward cabin and the cargo compartment was opened for takeoff in accordance with FAA regulations to afford direct access to the cargo door which was an emergency exit. When the airplane struck the ground, the door's hinge pins came out of their hinge fittings. The door rotated and came to rest partially inside the passenger cabin and partially inside the cargo compartment. It appears that upward movement of the cabin floor as well as the inertia of the door itself caused the door to move upward so that the hinge pins moved out of their fittings. The Safety Board believes that the door should be restricted at the hinges to prevent it from coming free and thus blocking access from the passenger cabin to the cargo door. While 14 CFR 121.310 addresses the crash integrity of door latches, the regulations are silent as to a requirement for doors to remain fixed on their hinges when they are subject to specified inertia forces. In fact, the Safety Board questions the purpose of such a door in this partition since passage through the partition is vital to reach an emergency exit. For aesthetic purposes, a curtain could be used that does not confine passage.

Passenger Safety Information Card

The passenger safety information card depicted two preimpact brace positions to be used by passengers to protect themselves in an accident: one position showed a passenger with his head on arms and with his arms braced on the front seatback; the other position depicted was the passenger bending forward at the waist and resting the head on the knees. Some passengers used the former brace position, but when they placed their arms on the seatbacks in front of them, the seatbacks folded forward and provided no support. The passengers then assumed a variety of brace positions in the time remaining before the

airplane struck the runway. Examination of the passenger seats showed that none of them afforded the needed support for bracing despite the fact that this was one of the recommended positions on the passengers safety information card.

The Safety Board issued Safety Recommendations A 79-76 through -78 on October 4, 1979, which asked the FAA to initiate research to determine optimum brace positions for various seat designs and seating configuration; and to issue an Air Carrier Operations Bulletin to insure that (1) the information on appropriate bracing positions is included in crewmembers training programs (2) that these brace procedures are described on passenger safety information cards, and (3) that reference to them is included in preflight briefings.

The FAA issued Air Carrier Operations Bulletin No. 1-76-23 to FAA Order 8430.17 on November 19, 1982, which essentially complied with the intent of the Safety Board's recommendations, and the Board closed these recommendations as "acceptable action" on March 31, 1983. In this case, FAA inspectors in the field apparently did not follow the Order, or they would have noticed the problems described above when they performed the airworthiness certificate inspection on the accident airplane. The Safety Board believes that FAA should establish an inspection quality assurance program to prevent recurrence of such oversight by field inspectors.

Flight Attendant Manual

Four deficiencies were found during the Safety Board's review of the flight attendant manual. First, there was no signature on the line entitled "Approved," which appeared on the manual's cover page. Thus, it was not apparent that the manual had been reviewed and approved by responsible supervisors of the airline. Second, the manual's pages were not numbered. Thus, it was not possible to determine readily whether the pages were in order, the manual was complete, and if complete, whether the proper revisions had been incorporated. Third, instructions which pertained to the use of passenger seatbelts were ambiguous and did not meet the intent of 14 CFR 121.311. For example, the manual stated in section 5 paragraph A.3: "Children occupying seats alone must use seat belt or be held by an adult." This makes no clear distinction between children younger and older than 24 months, as does 14 CFR 121.311, nor does the manual clearly explain the permissive language of 14 CFR 121.311 which allows but does not require, that infants who have a separate seat be held for landing and takeoff. While Section 5, Paragraph H.1 of the manual correctly explains the use of seatbelts for infants and children, the manual is ambiguous by reason of the differences in the text. Fourth, the flight attendant manual contains several paragraphs which address the loading of passengers and cargo/baggage to assure that F-27 airplanes are kept within prescribed center of gravity limits, which involve loading information for which a flight attendant is not responsible since flight attendants do not load cargo/baggage. The Safety Board believes that such information is not appropriately included in the manual.

Additionally, similar problems were found during our review of Section 5: "Flight Attendant Safety Procedures"; for example:

1. It is not clear what the flight attendant's duties and responsibilities are with regard to (a) assuring in appropriate circumstances that passenger seats are "blocked" to prevent their occupancy; (b) determining which are the appropriate seats to block; and (c) communicating with the captain regarding the blocking of seats. The manual contained no instructions for informing the captain when passengers refuse to vacate seats which

are to be blocked. In this accident, passengers occupied three seats which the flight attendant believed were to be blocked. Although she notified the passengers that the seats were to remain blocked, she did not pursue the issue.

2. Two F-27 airplane interior configuration diagrams depicted 11 rows of passenger seats. One diagram was captioned: "N143PM, N144PM, N145PM, N146PM, N148PM"; the other diagram appeared identical to the first except its caption did not include N143PM.

These examples clearly demonstrate that the flight attendant manual was not subject to close scrutiny by the FAA or by the airline prior to its being used. The Safety Board is concerned not only that these discrepancies could exist but by indications that the verbal instructions given to the flight attendants during their training on the procedures to be used to comply with instructions contained in their manuals are not consistent with the manuals and may be misleading or inaccurate. The Board believes that FAA's surveillance of flight attendant training programs and the procedures by which the FAA accepts the manuals as an adjunct to flight attendant training programs need to be improved.

Spilled Galley and Service Items

The flight attendant had stowed a small picnic cooler containing ice cubes on the floor between the galley and the cabin separator because it did not fit into the galley. At impact, the separator and the galley unit came free of their floor attachments and some of the contents of the galley spilled onto the floor leading to the forward cargo door. This debris mingled with ice cubes and caused at least one passenger to slip and fall when he was walking to the cargo door. Another small picnic-type container with coffee was stowed on the floor of the lavatory and at impact the coffee spilled onto the floor next to the emergency exit.

Section 3 of the Flight Attendant's Manual entitled, "Flight Attendant Procedures, Pre-Flight and Pre-Arrival Duties," did not specify the flight attendants' duties with regard to proper stowage and security of galley service items for takeoff and landing.

Spillage of food and beverage service items and utensils from galleys is a recurring problem. Likewise, the stowage of oversized food and ice cube containers continues to be a problem in spite of the requirements of 14 CFR 121.576 which requires secure stowage of these items. The Safety Board's Safety Recommendations A-72-60 and -63 and the FAA's own study and report on this issue entitled "A Survey of Air Carrier Cabin Safety," issued December 1976, detail similar problems with galley equipment.

N148PM was manufactured in 1958 by Fokker VFW B.K. in Amsterdam. The airplane was operated in Spain until June 1982 when it was purchased by Pilgrim Airlines. It entered the United States and underwent airworthiness and operations inspections by the FAA for compliance with 14 CFR Parts 25 and 121 and was found airworthy on October 28, 1983, and it entered regularly scheduled service on the same date. The many problems enumerated above were either overlooked or disregarded by the inspectors. The Safety Board believes that the FAA should establish a quality assurance program of its field inspectors' work to prevent recurrence of this apparently unsatisfactory performance.

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

Issue instructions to air carrier Principal Maintenance Inspectors responsible for F-27 airplanes to examine underwing emergency exits for interference from adjacent passenger seats, and where interference is found, to direct air carriers to eliminate the interference within a specified time. (Class II, Priority Action) (A-84-128)

Issue instructions to air carrier Principal Maintenance Inspectors responsible for F-27 airplanes to require air carriers to install, within a specified time, an FAA-approved means to prevent the hinge pins from coming free of their hinges on the door between the forward cabin and the cargo compartment or to remove that door. (Class II, Priority Action) (A-84-129)

Issue instructions to air carrier Principal Operations Inspectors to review the passenger safety information cards of their respective carriers to assure that any depicted bracing position, utilizing the seatback for support, in fact can be used; and to require deletion of this bracing position from the safety information cards on those airplanes that are equipped with seats that have foldover seatbacks. (Class II, Priority Action) (A-84-130)

Issue instructions to the air carrier Principal Operations Inspector to require revision of the flight attendant manuals of Pilgrim Airlines to incorporate clear, concise, and unambiguous operating instructions, and to conform to accepted industry standards, and to require that the training program for crewmembers be consistent with the manuals. (Class II, Priority Action) (A-84-131)

Issue instructions to air carrier Principal Operations Inspectors to require that flight attendant training programs and manuals of air carriers address adequately the need to stow galley service items in approved compartments and to include, during their in-service inspections, increased surveillance of the proper pre-flight and pre-arrival stowage of galley service items. (Class II, Priority Action) (A-84-132)

Establish quality assurance procedures to ensure that air carrier operations and airworthiness inspections adequately address cabin safety issues, such as crew member training and manuals, storage of heavy items inside the cabin, storage of galley service items, and access to emergency exits. (Class II, Priority Action) (A-84-133)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSELY, Member, concurred in these recommendations.

By: Jim Burnett
Chairman

Patricia A. Goldman
for