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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

FOR RELEASE: 6:30 A.M., E.S.T., MARCH 3, 1977
(202) 426-8787

ISSUED: March 3, 1977

Forwarded to:

Honorable John L. McLucas
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-77-11

On November 2, 1976, an Eastern Air Lines Boeing 727-100, N8125N, decompressed suddenly while en route from Raleigh-Durham, North Carolina, to Philadelphia, Pennsylvania. The National Transportation Safety Board's investigation of the incident indicated that corrective action should be taken to reduce the possibility of similar incidents.

Eastern Air Lines Flight 739 departed Raleigh-Durham Airport at 2050 e.s.t., November 2, as a scheduled passenger flight to Philadelphia, Pennsylvania. About 2135 e.s.t., in the vicinity of Richmond, Virginia, with the aircraft in level flight at 29,000 feet, the crew heard a loud "popping" sound followed by a rapid cabin pressure rise to 15,000 feet. The crew advised air traffic control of the situation and an emergency descent was made to 7,000 feet. All oxygen masks deployed normally and oxygen was available to the 46 passengers aboard the aircraft. There were no passengers or crewmembers reported injured. The flight continued to Philadelphia International Airport and landed without further incident at 2152 e.s.t.

The Board's investigation of this incident revealed that the depressurization was caused by the failure of the lower forward flange on the left side of the floor beam at body station 910. The flange crack, which extended from left butt line 9.0 to left butt line 57.0 along the flange radius, allowed the landing gear ceiling pressure plate to deflect downward about 1 inch. The cabin pressure differential at the time of the incident was approximately 8.2 psig. The aircraft's total time was 36,267.35 hours accrued during 29,941 flights.

Electron microscopic examination showed regions of fatigue striations adjacent to regions of intergranular fracture over all the fracture surfaces. The latter fracture is typical of stress corrosion cracking in aluminum alloys.

Preliminary findings indicated that the crack progressed initially by relatively high-cycle fatigue; the mode of fracture changed to intergranular cracking in the latter stages of propagation before ultimate failure.

Investigation also revealed that this aircraft experienced a similar failure on the right side forward flange at the same body station on November 1, 1975. However, the aircraft did not experience a sudden decompression, but did have pressurization problems for a time before the cause was determined. The aircraft total time as of November 1, 1975, was 33,137.0 hours accrued during 27,572 flights.

To alleviate this problem, The Boeing Company issued Service Bulletin 727-53-134, Revision 2, dated July 16, 1976, which recommends inspection and reinforcement of the floor beam at body station 910. Boeing recommends initial inspection at 15,000 flights and reinspection at 2,000 flight intervals until the aircraft is modified. However, as you know, compliance with manufacturer's service bulletins is not mandatory.

Therefore, to assure that corrective action is taken to prevent future decompressions caused by floor beam failures, the National Transportation Safety Board recommends that the Federal Aviation Administration:

> Issue an Airworthiness Directive to require mandatory compliance with Boeing 727 Service Bulletin 53-134, Revision 2. (Class II--Priority Followup) (A-77-11).

TODD, Chairman, BAILEY, Vice Chairman, McADAMS, HALEY, and HOGUE, Members, concurred in the above recommendation.

Kay Bailey for

By: Webster B. Todd, Jr.
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.