



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: June 25, 1990

In reply refer to: A-90-86 and -87

Honorable James B. Busey
Administrator
Federal Aviation Administration
Washington, D.C. 20591

On March, 18, 1989, an Evergreen International Airlines McDonnell Douglas DC-9-33F, registered in the United States as N931F, crashed during the turn to final approach as the pilot was attempting to return to Carswell Air Force Base (AFB), Fort Worth, Texas after a cargo door opened. This cargo flight was on an instrument flight rule (IFR) flight plan and was being operated in accordance with Title 14 Code of Federal Regulations (CFR) Part 121. Night visual meteorological conditions existed at the time of the accident. The captain and first officer, the only persons onboard, were killed.¹

Following the first turn after takeoff as the airplane leveled out on the northerly downwind heading, the cargo door probably lowered to a nearly closed position where it created a significant pressure disturbance at the static ports, apparent as a 27 knot decrease in airspeed and a 518 foot decrease in altitude, as recorded on the flight data recorder (FDR). During the turn onto final approach, the Safety Board believes that the air load on the door probably caused it to rapidly move to its full open over the top position. This movement would account for the reverse excursions of the FDR recorded airspeed and altitude values (35 knots of airspeed and 450 feet of altitude) and the concurrent decrease in background noise heard on the cockpit voice recorder. The changes in airspeed and altitude caused by the movement of the open cargo door would also have been displayed to the crew on the airspeed indicators and altimeters during the accident flight.

On August 10, 1989, McDonnell Douglas issued an All Operators Letter establishing a Flight Crew Operating Manual procedure to be followed by crews if they experience an open cargo door after takeoff. The title of this checklist is "Cargo Door Opens After Takeoff" and the procedural steps and note are as follows:

Directional Control.....Maintain
Landing Gear.....Up
Flaps & Slats.....15⁰/EXT

¹For more detailed information read Aircraft Accident Report--Evergreen International Airlines McDonnell Douglas DC-9-33F, N931F, Saginaw, Texas, March 18, 1989 (NTSB/AAR-90/02).

NOTE

Experience has shown that the "Cargo Door Open" light will come on followed by a loud sound of rushing air. An immediate yaw to the right will be experienced which may require almost full rudder and aileron input to correct. Once the door reaches the full open position, control characteristics appear to improve. Return to the runway should be accomplished with coordinated turns using very little bank (less than 20°) and with speed appropriate to the flap/slat position

On approach,

Flaps.....25°/EXT
IAS.....ESTABLISH

Reduce to normal approach speed using normal wind additives

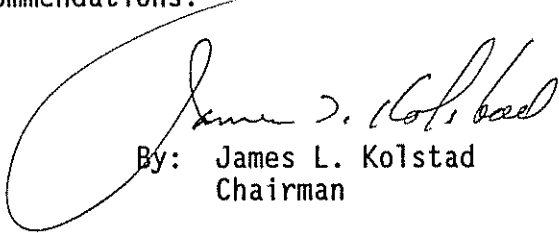
The Safety Board believes the crew actions described in this procedure are appropriate for this type of inflight emergency and that the FAA should consider requiring the inclusion of the procedure in the FAA-approved flight manual.

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

Require that McDonnell Douglas amend its DC-9 Flight Crew Operating Manual "Cargo Door Opens After Takeoff" procedure to include the fact that the possibility exists that variations in indicated airspeed and altitude can exist during flight with an open cargo door. (Class II, Priority Action) (A-90-86)

Place the entire "Cargo Door Opens After Takeoff" procedure into the FAA-approved DC-9 Flight Manual. (Class II, Priority Action) (A-90-87)

KOLSTAD, Chairman, COUGHLIN, Acting Vice Chairman, LAUBER and BURNETT, Members, concurred in these recommendations.


By: James L. Kolstad
Chairman