

NATIONAL TRANSPORTATION SAFETY BOARD WASHINGTON, D.C.

ISSUED: November 14, 1980

Forwarded to:

Honorable Langhorne M. Bond
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-80-112 through -114

On February 12, 1979, an Allegheny Airlines Nord 262 crashed on takeoff from Clarksburg, West Virginia. The accident resulted in two fatalities and seven serious injuries. At the time of takeoff, there were light snow showers at the airport with an estimated accumulation rate of approximately 1 inch per hour. Deicing of the aircraft, with a 78-percent solution of an ethylene glycol-based deicing fluid and water, was completed 25 to 40 minutes prior to takeoff. Witnesses reportedly saw snow on the exposed horizontal surfaces of the aircraft when it taxied out. The probable cause of the accident was determined to be, in part, the loss of lateral control and lift due to snow on the wings and empennage when the aircraft climbed out of ground effect. The presence of frozen snow on the upper horizontal airfoil surfaces was confirmed by photographs after the accident. 7

On February 18, 1980, a Redcoat Air Cargo, Ltd., Bristol Britannia 253, crashed shortly after takeoff from Logan International Airport, Boston. The accident resulted in seven deaths and one serious injury. Light snow had fallen throughout the period of flight preparation, taxi, and takeoff at a rate of between 0.5 and 0.8 inch per hour. The aircraft had been deiced with a 30-percent solution of an ethylene glycol-based deicing fluid 45 to 60 minutes prior to takeoff. Evidence indicates that wet snow, which accumulated on the wings and horizontal stabilizer prior to takeoff, was a major factor in this accident. 2/

Although an ethylene glycol-water mix is useful as a deicing agent, only the undiluted fluid is recommended by the manufacturer as an anti-icing agent. In the above accidents, the very fact that the exposed airfoil surfaces were wetted may have actually enhanced the accumulation of wet snow and created a condition in which the wet snow was not blown off by air moving over the surfaces.

1/ AAR-81-3

2/ AAR-79-12

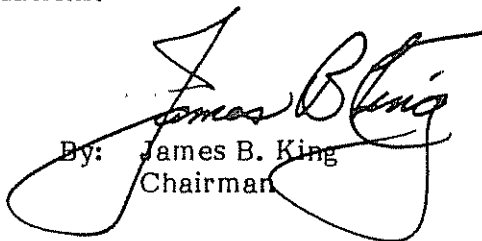
Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Advise operators of the potential hazard of an accumulation of wet snow on airfoil surfaces after deicing with a diluted ethylene glycol solution. (Class I, Urgent Action) (A-80-112)

Initiate a study of the effectiveness of ethylene glycol-based deicing fluid concentrations as an anti-icing agent under differing icing and snow conditions. (Class II, Priority Action) (A-80-113)

Publish and distribute to operators detailed information regarding the characteristics of deicing/anti-icing fluids and guidelines regarding their use. (Class II, Priority Action) (A-80-114)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, GOLDMAN, and BURSLEY, Members, concurred in these recommendations.


By: James B. King
Chairman