

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

AI-4
Log 892

ISSUED: February 14, 1978

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-78-1

On April 4, 1977, Southern Airways, Inc., Flight 242, a DC-9-31, crashed at New Hope, Georgia, as its crew attempted an emergency landing on a highway. The National Transportation Safety Board's investigation disclosed that the flight had entered an intense precipitation area which resulted in the failure of both of the aircraft's engines.

Southern 242 departed Huntsville, Alabama, in precipitation and, as closely as can be determined, was in precipitation until after it encountered the intense portion of the thunderstorm and "lost" both engines. Evidence suggests that when the aircraft was in the vicinity of the intense portion of the storm the crew did not identify correctly contour information on their radar display although it appeared to have been operating to their satisfaction. Evidently, the crew was either presented an erroneous radar display, or they both misinterpreted the display. Considering the level of experience and qualifications of this crew, the Safety Board believes that they most likely were receiving a radar signal which was attenuated by the precipitation in which the flight was conducted. Attenuation, which can result from ice or rain on the radome or from precipitation ahead of the radome, can weaken a signal which, in turn, reduces contour capability.

The Safety Board recognizes that studies comparing airborne radar with ground-based radar have concluded that the precipitation attenuation of airborne radar, due to precipitation ahead of the radar, should "not prevent its use for storm avoidance." However, the studies did not consider the effects of rain or ice on the radome. Consequently, the Safety Board concludes that a study should be made to determine the extent of attenuation caused by rain and ice on airborne radomes and that information derived from this study which is pertinent to the limitations of airborne weather radar equipment should be disseminated to the aviation community.

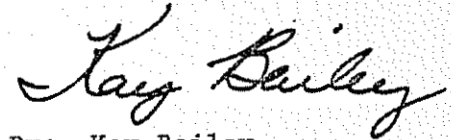
2059F

ADR-173

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

Initiate research to determine the attenuating effects of various levels of precipitation and icing on airborne radomes of both x- and c- band radar, and disseminate to the aviation community any data derived concerning the limitations of airborne radar in precipitation. (Class II-Priority Action) (A-78-1.)

BAILEY, Acting Chairman, McADAMS, HOGUE, and KING, Members, concurred in the above recommendation.



By: Kay Bailey
Acting Chairman