

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

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(202) 426-8787

ISSUED: June 17, 1976

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-76-82 through 84

On July 11, 1974, a Beech Model D95A (N8888V) crashed shortly after takeoff into Padilla Bay near Anacortes, Washington; four persons were killed. The National Transportation Safety Board's investigation revealed a malfunction within the combustion heater, which we believe warrants corrective action in order to prevent similar accidents.

Our investigation revealed that smoke and toxic fumes entered the cabin through the heating and ventilating system as a result of a fire in the combustion air-inlet hose and its associated plastic air-inlet plenum of the combustion heater.

An analysis of the combustion products from the flexible air-inlet hose and the plastic foam insulation material (in the aircraft nose cone, adjacent to the combustion hose) indicates that both materials emit poisonous or noxious fumes when heated. The flexible hose emits chloroprene, which depresses the central nervous system. The plastic foam material emits tolylene-diisocyanate (TDI) an extremely noxious eye and lung irritant.

An analysis of the combustion products from the plastic air-inlet plenum indicates that it emits acrylonitrile, a severe skin and eye irritant which inhibits cellular respiration in a manner similar to hydrogen cyanide.

Trace amounts of hydrogen cyanide were detected in the combustion products of the plastic foam material; a more significant amount of hydrogen cyanide was detected in the combustion products of the plastic air-inlet plenum.

The Safety Board believes that the combustion air duct should not have a common opening with the ventilating airstream unless flames from backfires or reverse burning cannot enter the ventilating airstream under any operating condition, including reverse flow or malfunctioning of the heater or its associated components.

Finally, the Board believes that any combustion air-inlet hose and ventilating air ducts which are in close proximity to the combustion heater should be constructed of fireproof materials.

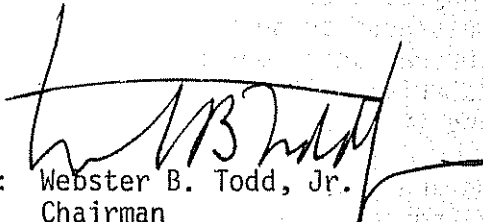
In view of these hazards, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Amend 14 CFR 23.859 to incorporate the provisions set forth in 25.859(c) combustion air ducts, Paragraph (1). (Class II--Priority Followup.) (A-76-82)

Require that the ducts for both combustion air and ventilating air which are in close proximity to a combustion heater be made of fireproof materials. (Class II--Priority Followup.) (A-76-83)

Issue a maintenance bulletin which emphasizes the importance of a preflight inspection of the heater combustion air inlet hose and plastic ventilating air inlet plenum on Beech Model D95 aircraft and other Beech Model aircraft heater systems so equipped. (Class II--Priority Followup.) (A-76-84)

TODD, Chairman, McADAMS, HOGUE, BURGESS, and HALEY, Members concurred in the above recommendations.


By: Webster B. Todd, Jr.
Chairman

THESE RECOMMENDATIONS 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.