UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C.

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ISSUED: November 12, 1971

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 3rd day of November 1971

FORWARDED TO:
Honorable John H. Shaffer
Administrator
Federal Aviation Administration
Washington, D. C. 20591

SAFETY RECOMMENDATION A-71-59

During public hearings which were convened in the matter of the Allegheny Airlines and Capitol International Airways accidents, the National Transportation Safety Board obtained extensive expert testimony from the Federal Aviation Administration and from the U.S. Army Mobility Research Laboratory Staff pertaining to the technological advances in the field of in-flight and postcrash fuel system fire safety. The Board is most encourged by these advances and the capability of industry to apply this technology to present and future aircraft.

Technology available today provides a wide scope of improvements in the fuel system fire safety field. Some systems, oriented primarily toward prevention of postcrash fires, are in successful use by the U.S. Army and have saved untold numbers of lives. Other systems such as the Parker liquid nitrogen fuel tank inerting system is most effective in preventing fuel system vapor explosions with the fuel tank system relatively intact.

The Safety Board is aware of the concerted efforts and programs that the Federal Aviation Administration has been engaged in over the past 8 years to promote the development of various explosion and fire prevention systems. The Board has on a regular basis observed, and highly commends the activities of the Advisory Committee on Fuel System Fire Safety which is operating under the chairmanship of Mr. Robert Auburn of your Flight Standards Service. We feel that significant advances in the field of both in-flight and postcrash fuel system fire

safety have been made as a result of this committee's work as well as the research and experience gained by the U.S. Army. Particularly encouraging is the operation of your DC-9 aircraft with an operationally functional explosion/fire suppression system.

Our current investigation of an accident involving an Allegheny Airlines Convair 580, N5832, which occurred at New Haven, Connecticut, on June 7, 1971, produced evidence that possibly as many as 27 of the 28 persons fatally injured survived the initial crash impact. We have witness reports and corroborative medical data to show that time for a successful evacuation of survivors was drastically limited by fire and smoke as well as by explosions which rapidly expanded the fire.

A similar obstacle to survival was found to be present in the case of a takeoff accident involving Capitol International Airways, Douglas DC-8-63, N4909C, at Anchorage, Alaska, on November 27, 1970. Forty-seven of the 229 persons aboard this aircraft perished. Again in this case, initial crash injuries were of a survivable nature, but the inability to escape the rapidly propagating fire proved fatal.

The Board, therefore, recommends that:

> The Federal Aviation Administration initiate action to incorporate in its airworthiness requirements, a provision for fuel system fire safety devices which will be effective in the prevention and control of both in-flight and postcrash fuel system fires and explosions. It is further recommended that rulemaking action in this matter specifically apply to future passenger-carrying aircraft in the transport category, and that consideration be given to an adaptation to all other passenger-carrying aircraft now in service.

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.

Reed, Chairman; Laurel, Thayer, and Burgess, Members, concurred in the above recommendation; McAdams, Member, dissented.

By: John H. Reed
Chairman