

Log 990

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: October 26, 1978

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Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-78-82 and 83

On September 25, 1978, Pacific Southwest Airlines Flight 182, a Boeing 727-214, and N7711G, a Cessna 172, collided in midair over San Diego, California; 144 persons died as a result. Both aircraft were communicating with air traffic control (ATC) on different frequencies. Stage II service (radar advisory and sequencing for VFR aircraft) was being provided. In response to one of several traffic advisories issued by ATC, the pilot of Flight 182 commented, "Think he's passing off to our right."

On June 28, 1974, Rocky Mountain Airways Flight 323, a deHavilland DHC-6 Twin Otter, and N8105R, a Beech BE-35 Bonanza, collided in midair over Denver, Colorado; there were no fatalities. Both flights were communicating with the Denver tower at the time. The tower cab was equipped with a BRITE-1 video display, and the controller had both airplanes in visual contact when they collided in the Denver terminal control area. Immediately before the collision, the Bonanza pilot assured ATC that he had the Twin Otter in sight.

On December 4, 1971, Eastern Airlines Flight 898, a McDonnell-Douglas DC9-31, and N2110F, a Cessna 206, collided in midair near Raleigh-Durham Airport, North Carolina. The two occupants of the Cessna 206 were killed. Both flights were communicating with Raleigh-Durham tower when they collided. The tower cab was not equipped with radar. In response to a traffic advisory issued by the tower, the air carrier pilot commented, "We just went over the top of him there."

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Although the circumstances surrounding these midair collisions were different, they have one element in common -- in each case, controllers were applying visual separation. Visual separation is a means which may be employed by ATC to separate aircraft in terminal areas. Upon instruction from ATC, a pilot who sees another involved aircraft provides his own separation by maneuvering his aircraft, if necessary, to avoid the other aircraft. When ATC instructs a pilot to employ visual separation, he must keep the other aircraft in sight until it is no longer a factor, as should have been the case at San Diego, or he must follow in line behind another aircraft, as should have been the case at Denver and Raleigh-Durham.

The Safety Board realizes that the visual separation technique is usually effective; however, because of the human limitation and other restrictive factors, it can never be considered completely reliable.

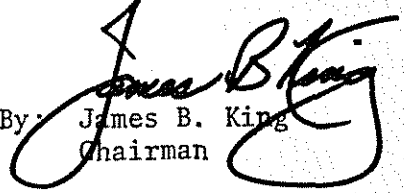
In the three accidents cited, visual separation could have been supplemented by more positive separation methods if controllers had chosen to use them. The Safety Board concludes that more positive separation methods must be used to the maximum extent possible in terminal control areas and in terminal radar service areas.

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

Use visual separation in terminal control areas and terminal radar service areas only when a pilot requests it, except for sequencing on the final approach with radar monitoring. (Class I, Urgent Action) (A-78-82)

Reevaluate its policy with regard to the use of visual separation in other terminal areas. (Class II, Priority Action) (A-78-83)

KING, Chairman, DRIVER, Vice Chairman, and McADAMS and HOGUE, members, concurred in the above recommendations.

By:   
James B. King  
Chairman