

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: February 25, 1976

Forwarded to:

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

} SAFETY RECOMMENDATION(S)

A-76-3

On November 26, 1975, an American Airlines DC-10 and a Trans World Airlines L-1011 almost collided head-on at 35,000 feet near Carleton, Michigan, while operating at night in instrument meteorological conditions on the same jet route. As a result of the evasive measure that had to be executed by the captain of the DC-10, 3 aircraft occupants were injured seriously and 21 were injured slightly. Both aircraft were operating under the control of the same sector of the Cleveland Air Route Traffic Control Center; the TWA flight was cruising at flight level (FL) 350 and the American flight was cleared to climb through FL 350 to FL 370.

The National Transportation Safety Board's investigation of the accident revealed that the radar controller involved was aware that a potential traffic conflict existed between the aircraft, but he deferred positive action based on the possibility that the required separation might exist when the two aircraft passed each other. He assumed that by monitoring the situation he would know in time if the anticipated separation did not materialize. Thereafter, he became preoccupied with secondary duties which could have been relegated to the manual controller.

About 1 minute before the near-collision, the radar controller was relieved by another controller but neither controller noticed the acute, unresolved conflict during the transfer of duties. About 50 seconds after taking over the position, the second controller detected the conflict and cleared the American flight to descend immediately to FL 330. The two aircraft came within about 100 feet of each other.

The fact that fortuitous circumstances and a prompt response by the pilot prevented a midair collision, which endangered the lives of 306 persons, does not weaken the lessons to be learned from this air traffic control system error. The Safety Board is concerned that the human failure in this case may actually have been brought about by the advantages of the new alpha-numeric, computer-generated, radar display. The availability of real time altitude data undoubtedly induced the controller to

rely on his own monitoring of the traffic situation as it developed, rather than on established procedures and practices which would have assured positive separation. In this process, he did not allow for distractions that might divert his attention or for computer failures that would invalidate his plan. On the day of the accident, there were three computer failures in the Cleveland Center, two of which required transfer to broad-band radar.

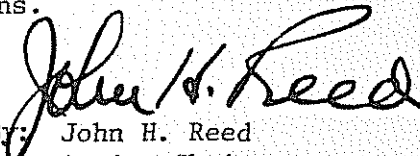
This accident shows that automation may lead to complacency because it reduces the degree of controller interaction with the flightcrew and deemphasizes the cooperative aspects of the air traffic system. The recently introduced conflict-alert system is a commendable step in the collision-avoidance program. However, the system can serve its intended purpose only when controllers recognize that it is not a substitute for timely, positive separation measures which protect air traffic, even in the event of distraction or computer failure.

Evidence obtained during the Safety Board's investigation shows that the majority of ATC system errors involve human errors. Since human error can take many forms, specific system-error incidents/accidents must be analyzed thoroughly, and human performance failure potentials within the ATC system must be identified in order to gain greater insight into the human-failure mechanism. The Safety Board's report of this accident emphasizes the catastrophic potential of distraction and the ease with which a controller can bring on inadvertently an acute traffic conflict. Understanding the circumstances that led to this accident should give a controller a better insight into his critical role in air safety.

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

Distribute the Safety Board's report on this near-collision accident to all FAA Air Traffic Control personnel and discuss it in their training programs in order to alert them to the catastrophic potential of distraction.
(Class I - Urgent Followup)

REED, Acting Chairman, McADAMS, THAYER, BURGESS, and HALEY, Members, concurred in the above recommendations.


By: John H. Reed
Acting Chairman