

SP-20  
Log 1897

# National Transportation Safety Board

Washington, D.C. 20594  
Safety Recommendation

**Date:** May 27, 1986

**In reply refer to:** A-86-44 through -46

Honorable Donald D. Engen  
Administrator  
Federal Aviation Administrator  
Washington, D. C. 20591

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The National Transportation Safety Board is investigating the facts and circumstances involving an air traffic control (ATC) operational error at Chicago O'Hare International Airport (O'Hare) on May 17, 1986 at 0959. 1/ The operational error resulted in a near-collision between two air carrier airplanes during takeoffs on intersecting runways. This is the second significant near-collision 2/ between two air carrier airplanes at O'Hare in less than three months. Both near-collisions at O'Hare were classified as operational errors involving air traffic controller performance deficiencies. The Safety Board believes that the specific circumstances leading to these two operational errors indicate the need for the Federal Aviation Administration (FAA) to take immediate corrective action to reduce the runway collision danger at O'Hare.

The near-collision involved U.S. Air Flight 373 (US 373), a McDonnell Douglas DC-9, and American Airlines Flight 695 (AA 695), a Boeing 727. US 373 was on takeoff on runway 4L on a scheduled passenger service flight from O'Hare to Pittsburgh, Pennsylvania. AA 695 was on takeoff on runway 32R on a scheduled passenger service flight from O'Hare to Oklahoma City, Oklahoma. The near-collision occurred at the intersection of runway 4L and 32R. This intersection is 4,700 feet from the approach end of runway 4L and 4,900 feet from the approach end of 32R.

1/ All times shown are central daylight time and based on the 24-hour clock.

2/ The previous near-collision at O'Hare Airport was on February 25, 1986, involving a United Airlines DC-8-71 on takeoff on runway 32L and an Air Wisconsin F-27 on landing approach to runway 9L.

The reported weather at the time of the near collision was 700 feet scattered, 2,000 feet broken and visibility was 5 miles with haze and light rain showers. Because of a significant line of thunderstorms west of O'Hare, a Severe Weather Avoidance Plan (SWAP) was in effect. This involved rerouting all of the flights scheduled for departure to the west; and required the tower controllers to issue revised routes of flight to each flight. Just prior to the near-collision, 10 flights were involved in the SWAP program. The tower supervisor was busy coordinating the SWAP with the Chicago Air Route Traffic Control Center (ARTCC) and the tower controllers. At the time of the near-collision the north local controller was responsible for airplanes operating on the north side of the airport including runways 4L, 9L, 32R, and 36. Another controller, designated as the south local controller, was responsible for airplanes operating on the south side of the airport including runways 4R, 9R and 32L and had no involvement in this operational error.

Preliminary information indicates that the north local controller cleared AA 695 into position to hold on runway 32R before takeoff. Shortly thereafter, the north local controller cleared US 373 into position to hold on runway 4L also waiting for takeoff clearance. He did not issue traffic information to AA 695 or US 373 as required by the controller's handbook, 7110.65D, 3-103. After an airplane landed on runway 9L and cleared runway 4L, the north local controller cleared US 373 for takeoff on runway 4L. The controller then communicated with 2 other flights and approximately 17 seconds after clearing US 373 to takeoff, he cleared AA 695 for takeoff. The first officer of US 373, who was flying the airplane, reported that he observed an American Airlines airplane on takeoff on runway 32R and that the airplane was going to cross the flight path of his airplane. He stated that he rotated his airplane to takeoff at a lower than normal airspeed to avoid a collision with the American airplane. The first officer reported that as his airplane flew directly over the top of the American airplane, he banked slightly to the right to avoid the vertical stabilizer. There were no reported injuries to the 110 passengers and 5 crewmembers aboard US 373 nor to the 102 passengers and 7 crewmembers aboard AA 695. The tail skid on US 373 received minor damage from the rapid over-rotation of the airplane; there was no damage to AA 695. Both flights continued to their destinations.

The north local controller has been employed by the FAA since October 1982 and has been certified as a full performance level controller at the O'Hare tower for 1 year. The supervisor has 24 years as a controller with the FAA.

Safety Board investigators interviewed both the north local controller and the supervisor who were on duty when the operational error occurred. The north local controller stated that he forgot that he had issued a takeoff clearance to US 373 on runway 4L. As a result, he perceived no conflict for an airplane taking off on runway 32R and issued takeoff clearance to AA 695. The supervisor stated that he was busy coordinating the SWAP with the Chicago ARTCC and the local, ground, and clearance delivery controllers in the tower cab. The Safety Board believes that because of this additional coordination work, the supervisor was unable to monitor or provide general supervision of the north local controller's performance.

The Safety Board is concerned that the O'Hare tower controller and supervisory staff are unable to detect a human performance failure such as occurred on this operational error. There is no redundancy to identify and rectify a controller performance deficiency such as when a local controller "forgets," fails to scan the runway, or does not coordinate with other controllers in the tower cab. The supervisor cannot necessarily monitor the performance of every controller in the tower because

there are too many controllers, there are numerous radio frequencies and telephone lines in use, and because of other administrative duties. At best, the supervisor provides overall or general supervision to all the controllers in the tower. For example, at the time of the near-collision there were seven controllers on duty at the O'Hare tower. Consequently, the Safety Board believes that it is not reasonable to expect the supervisor to provide direct supervision to so many controllers.

To alleviate the supervisory problem in the O'Hare tower, the Safety Board believes that the FAA should establish on a trial basis a new position in the O'Hare tower for both the north and south control operations to provide direct supervision over the performance of the local controllers. The incumbent of this position would monitor and support the local controller and act as a redundancy or "extra set of eyes and ears" to detect and correct human performance deficiencies. The Safety Board believes that this new local control coordinator position should be implemented on an urgent basis at the O'Hare tower. The FAA should, after a reasonable period of time, evaluate the effectiveness of this new position in preventing runway incursions. If it is determined that this new position has enhanced safety then it should be staffed on a permanent basis.

Also, the Safety Board is concerned that the potential exists for a similar human performance deficiency to go undetected at other major airports in the United States. The Safety Board believes that this potential is increased significantly when the control operation involves intersecting runways. The Safety Board believes that the FAA should evaluate the need for new local control coordinator positions at all other major airports that have intersecting runways. This evaluation should be completed on a priority basis following the trial program at O'Hare tower.

Finally, the Safety Board is concerned that the north local controller did not issue traffic information to AA 695 or US 373 as required by his handbook. The reason for this requirement is to alert flightcrews that their takeoff clearance is being withheld. The controller, by not issuing traffic information, eliminated another redundancy in the system that may have prevented the near collision. For example, had the flightcrew of AA 695 been advised that their takeoff clearance was being withheld because of traffic departing on runway 4L, they may have questioned the controller when he did issue their takeoff clearance just 17 seconds after the one issued to US 373 on runway 4L. The Safety Board believes that the FAA should brief each tower controller concerning the importance of issuing traffic information to airplanes that have been cleared into position to hold on a runway before takeoff. This briefing should be implemented on an urgent basis.

The Safety Board is aware that after the near-collision, the FAA implemented certain procedural changes at the O'Hare tower to reduce the potential for runway incursions. These changes, implemented on May 18, 1986, limited the use of intersecting runway operations and prohibited the procedure of clearing two airplanes into position to hold for takeoff on intersecting runways at the same time. We understand that delays increased significantly on the first day these procedures were in effect and that the FAA rescinded these procedural changes on May 20, 1986. Further, we understand that the FAA has replaced these rescinded changes with a requirement that any time a local control position is changed from one controller to another controller the relieved controller will remain at the position for a period of 30 minutes to serve as a back-up to detect potential runway incursions. However, the Safety Board believes that these measures are not sufficient to prevent similar incidents from occurring at O'Hare and other major airports.

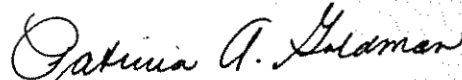
Therefore the National Transportation Safety Board recommends that the Federal Aviation Administration:

Issue a General Notice (GENOT) to all terminal facilities to require that every controller is briefed on the importance of issuing traffic information to airplanes that have been cleared into position to hold on a runway before takeoff as required by the controller's handbook 7110.65D, 3-103. (Class I, Urgent Action) (A-86-44)

Establish on a trial basis, for the north and for the south control operations in the Chicago O'Hare International Airport control tower, local control coordinator positions to monitor and supervise, directly, the local control positions; staff these positions whenever intersecting runways are in concurrent operation. (Class I, Urgent Action) (A-86-45)

Evaluate the need for a local control coordinator position at all major airports that use intersecting runways in concurrent operations and establish the position where the need is evident. (Class II, Priority Action) (A-86-46)

GOLDMAN, Acting Chairman, and BURNETT, LAUBER, and NALL, Members, concurred in these recommendations.



By: Patricia A. Goldman  
Acting Chairman