

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: June 8, 1979

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-79-42 and 43

On June 21, 1978, North Central Airlines Flight 57, a DC-9-30, and N51MW, a Cessna Citation, almost collided on runway 13 at LaGuardia Airport, Flushing, New York. North Central 57 was cleared by the tower ground controller to taxi on the runway and N51MW was cleared by the tower local controller for takeoff on the same runway.

On February 15, 1979, Delta Air Lines Flight 349, a Boeing 727-200, and Flying Tiger Lines Flight 74, a Boeing 747-100, almost collided on runway 9 right at O'Hare International Airport, Chicago, Illinois. Delta 349 was cleared by the ground controller to cross the runway at the runway 14 right parallel taxiway intersection while Flying Tiger 74 was landing on runway 9 right after receiving a landing clearance from the local controller. Flying Tiger 74 was substantially damaged when the pilot veered off the runway.

On February 24, 1979, a Federal Express Falcon Fan Jet and a Great Western Beechcraft Model 18 collided on runway 9 at Memphis International Airport, Memphis, Tenn. The Beechcraft had landed on runway 35R and the flight was cleared by the ground controller to taxi across runway 9. The Falcon Jet had been cleared to land on runway 9. The planes collided as the Beechcraft taxied across the runway. Both aircraft were damaged, but no one was injured.

Although the circumstances surrounding these accidents were different, all have one element in common with respect to air traffic control (ATC) operational control. In each case one airplane was controlled by the ground controller and the other airplane was controlled by the local controller. In two of these cases, the ground controller and local controller failed to effect the required coordination. In the third case no oral coordination was required; a local facility directive

allowed the ground controller to clear aircraft across an active runway when the airport surface detection equipment and Brite radar displays were operating and radar observations by the ground controller revealed that no traffic conflict existed.

In all three of these mishaps, ATC had authorized the pilot to taxi on or across an active runway. In two of them, the reported visibility at the airport was more than adequate to enable the ground controller to maintain visual surveillance of his traffic, although hours of darkness prevailed. In the other occurrence, reported visibility was 1/2 to 1 mile in daylight conditions.

Under the circumstances, each ground controller had the ability to maintain surveillance of those aircraft involved. However, inadequate visual surveillance of ground traffic movement appears to be a factor in two of the three mishaps.

Other findings of these investigations revealed that the pilots' visual surveillance while taxiing on the airport surfaces may have been lax. Like the controller, the pilot has a responsibility to maintain visual surveillance outside the cockpit. Existing visibility did not preclude the maintenance of visual surveillance by the flightcrews. In the first of these mishaps, a collision on the runway was avoided because the flightcrew of a departing aircraft sighted the taxiing aircraft on the runway. In the second occurrence, a collision on the runway was avoided because the flightcrew of a landing aircraft sighted an aircraft taxiing onto the runway. In the third occurrence, the flightcrew of a landing aircraft was unable to avoid a collision when an aircraft taxied onto the runway.

In the first of the three mishaps, the taxiing aircraft saw the other airplane and stopped on the runway. But in the second and third cases, the flightcrews of the taxiing airplane did not see the other. Their failure to do so eliminated one redundant safeguard against system error, upon which our cooperative ATC system has been dependent for many years.

The findings and conclusions contained in "Human Factors Associated with Runway Incursions," in NASA's Eighth Quarterly Report, dated October 1978, reinforce our belief that a significant safety problem exists and that special action is needed. The Safety Board finds conclusion No. 3 in the NASA report of particular interest:

"3. Taxiing aircraft, a major contributor to these occurrences, represent the most effective single point of attack on the problem, if ASRS data are representative."

Although the Board is not able to identify specific changes in ATC procedures or equipment to resolve the problems evident in the Chicago and Memphis accidents, it believes that the seriousness and complexity of the problem warrant initiation of a directed safety study to examine all aspects of the runway incursion problem and to identify the corrective action needed.

In the interim, all pilots and terminal area controller personnel should be alerted to the problem and to their importance in helping to resolve it. The information disseminated should appeal to controllers and pilots to aid each other in the resolution of the incursion problem by individual effort to maintain visual surveillance during taxi operations that involve runway crossings. Visual confirmation that a safe crossing can be made is needed to verify a clearance. When visibility conditions are restricted to less than 1/2 mile, pilots should be encouraged to reaffirm a clearance to cross an active runway if they believe it necessary. Under such visibility conditions ground controllers should be encouraged to verify, with local control, taxi clearances to cross active runways, to the extent possible.

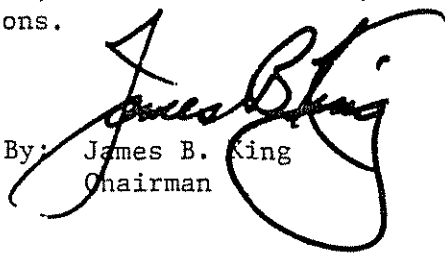
While the suggested interim course of action is not a solution to the problem, we believe it has potential safety benefits which are needed immediately.

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

Conduct a directed safety study, on a priority basis, to examine the runway incursion problem and to formulate recommended remedial action to reduce the likelihood of such hazardous conflicts. (Class II, Priority Action) (A-79-42).

Alert all controller/pilot personnel that runway incursion mishaps represent a serious safety problem which requires their immediate attention. Special emphasis should be placed on the need for both groups to maintain greater visual surveillance in those taxi operations involving any runway crossing. (Class II, Priority Action) (A-79-43).

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

By:  James B. King
Chairman