

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: May 17, 1973

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 26th day of April 1973

FORWARDED TO:)
Honorable Alexander P. Butterfield)
Administrator)
Federal Aviation Administration)
Washington, D. C. 20591)

SAFETY RECOMMENDATIONS A-73-21 thru 26

During the National Transportation Safety Board's investigation of the ground collision accident which occurred at O'Hare International Airport, Chicago, Illinois, on December 20, 1972, we learned that visibility from the tower cab, officially reported as one-fourth of a mile, limited severely the controllers' ability to see ground traffic on the airport. Therefore, controller personnel concerned with the two aircraft involved in the collision were unable to monitor visually the movements of either aircraft at any time, except for a brief time when the DC-9 taxied from the terminal gate. Under the existing circumstances, no one in the tower cab saw the accident.

At the time of the accident, the Airport Surface Detection Equipment (ASDE) radar installed at O'Hare was operating without reported trouble. ASDE was used by the local controllers to effect separation requirements, as applicable to the local control position, but ASDE was not used by the O'Hare ground controller to control ground traffic, and facility operating procedures did not require that ASDE be used for this purpose.

In view of the fact that ASDE radar is an aid intended to assist controllers to control ground traffic under low visibility conditions, the Board finds it difficult to understand why ground controllers would not want to, and do not, use this aid for "eyes" whenever possible.

Of the eight FAA facilities equipped with ASDE, three facilities use the "BRITE" display equipment. All three facilities have encountered problems with the "BRITE" display. The picture is degraded on the "BRITE" presentation and is inferior to the picture displayed on the direct view radar.

All three facilities using "BRITE" equipment have had Airways Facility Sector technicians working on the problem to improve the presentation to satisfy controller requirements. Only one of the three facilities appears to have achieved a degree of success.

The Board cannot determine whether the problem is the result of the "BRITE" equipment design, a nonstandard installation, or equipment maintenance. Whatever the problem may be, it should be resolved at the national level. In view of the scheduled installations of new "BRITE" display equipment at those facilities now using the direct view radar display, it is extremely important that the Federal Aviation Administration should have reasonable assurance that the new equipment will provide satisfactory results before it is installed.

At the present time, it appears that the five facilities which are not equipped with the "BRITE" display make more effective use of ASDE radar than those facilities which use the "BRITE" display, despite certain operational disadvantages associated with the use of the direct view radar display. Of special interest to the Board is the fact that each facility has its own procedures with respect to how and when the controllers at that facility are to use the ASDE for controlling ground traffic. The procedures at one facility differ from those at another. It appears also that the procedures used at certain facilities are more effective than those used at others.

The Board believes that FAA should evaluate the ASDE procedures at each of the eight facilities which is equipped with ASDE radar. Optimum operating procedures for ASDE should then be established on the national level, applicable to all facilities where ASDE is installed.

Safer ground operations could be achieved also if specific taxi routes were prescribed for all aircraft taxiing out for takeoff or inbound to the terminal during periods in which visibility is restricted to $\frac{1}{2}$ mile or less. If possible, such outbound and inbound taxi routes should not cross active runways. This would establish an orderly traffic flow, and pilots would know the routes to expect.

If the controller or pilot should find it advantageous to deviate from the designated route, clearance could be issued for another specific taxi route. If a route crosses an active runway, the pilot should be required to contact ground control before crossing that runway, even though the taxi clearance issued previously contained authorization to cross the runway. When the ground controller observes on ASDE radar that particular aircraft approaching the active runway, he would be expected to reaffirm the pilot's clearance to cross that runway.

Such procedures are believed to be feasible and would provide an added measure of safety under adverse visibility conditions. Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

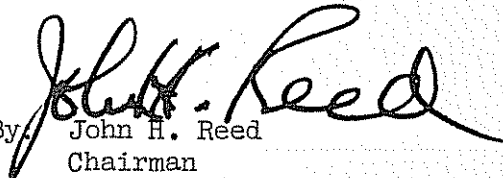
1. Standardize configurations, alignment techniques, and equipment modifications at the three existing ASDE "BRITTE" facilities in an effort to improve the performance of that equipment.
2. Not proceed with the scheduled installation of "BRITTE" displays at other ASDE-equipped facilities which now use the direct view radar display until satisfactory operation of "BRITTE" equipment is achieved at the three facilities where it is now installed.
3. Contingent upon favorable results of the evaluation of the new model ASDE "BRITTE" display currently being conducted by the Transportation Systems Center, install that equipment first at the three locations where "BRITTE" equipment is now used.
4. Establish standard procedures for the use of ASDE radar, and publish such procedures in appropriate Air Traffic Handbooks.
5. Establish and publish taxi routes for arriving and departing aircraft to be used during periods of restricted visibility on the order of $\frac{1}{2}$ mile.
6. Require pilots to obtain the controllers' approval before crossing a lighted runway during periods of restricted visibility on the order of $\frac{1}{2}$ mile.

Honorable Alexander P. Butterfield

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These recommendations 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, McAdams, Thayer, Burgess, and Haley, Members, concurred in the above recommendations.

By: 
John H. Reed
Chairman

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