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NATIONAL TRANSPORTATION SAFETY BOARD WASHINGTON, D.C.

ISSUED: May 24, 1974

Forwarded to:

Honorable Alexander P. Butterfield
 Administrator
 Federal Aviation Administration
 Washington, D. C. 20591

SAFETY RECOMMENDATION(S)

A-74-53

On September 8, 1973, a World Airways DC-8 was involved in an accident near King Cove, Alaska. The National Transportation Safety Board's investigation has focused attention on the instrument approach procedure (IAP) for the ILS back course (BC) DME approach to runway 32 at the Cold Bay Airport, in Cold Bay, Alaska.

Depicted on the pertinent IAP chart is a 40-mile DME initial approach fix (IAF) and a prescribed minimum altitude (MA) of 3,500 feet for inbound flights after they pass the IAF. The Safety Board is concerned that this information could lead to a hazardous approach situation if the flightcrew either misinterprets these data, or lacks specific knowledge of other information not found on an IAP chart. For example, knowledge of specific distances and altitudes at which NAVAID signals from the Cold Bay VOR are reported as "unusable" is essential for the pilot who elects to begin an IAP to runway 32 from over the 40-mile DME IAF. Such information is also important because the en route MA is lower than the minimum reception altitude (MRA) specific for the area beyond the 40-mile IAF. The IAP chart does not provide that information.

In the World Airways accident, the flight was inbound to Cold Bay, from over the Pacific Ocean east of Cold Bay. The crew reported the flight's position to Cold Bay FSS as "125 DME out at FL 310." Clearance was issued for "...an approach to the Cold Bay Airport." The crew began an immediate en route descent to 3,500 feet.

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According to the CVR transcript, the crew discussed the requirements and specified minima for the ILS back course DME approach to runway 32 of the Cold Bay Airport. Crew conversation revealed that the captain did not plan to make a procedure turn. After calling out a DME reading of 29 miles, the copilot questioned the captain, "We should be a little higher than that out here shouldn't we?" The captain replied, "No, forty DME you're all right." About 3 minutes 18 seconds later the aircraft struck Mt. Dutton at the 3,500-foot level. Mt. Dutton is about 17 miles east of the Cold Bay Airport, 15 miles NE of the prescribed final approach course of runway 32.

The significant factors in the accident were the following:

1. The flight descended en route to 3,500 feet m.s.l. without reservation.
2. According to the information published in the Alaska Supplement of the Flight Information Publication (FIP), when the flight descended below 9,000 feet, it entered an area in which the Cold Bay VORTAC signals are reported as "unusable."
3. The descent altitude selected by the crew coincided with the 3,500 feet MA specified for an inbound flight on the final approach track between the 40-mile DME IAF and the 19.5-mile DME intermediate fix (IF).

The Safety Board does not question the accuracy of the data presented on the existing IAP chart, nor does it question the procedure as depicted. The IAP is satisfactory with respect to the criteria upon which it was established. However, we believe there is sufficient evidence to show that misunderstanding of the procedure is possible.

Another incident involving an apparent misunderstanding of the ILS back course DME approach to runway 32 at Cold Bay occurred on October 3, 1971. The pilot of the DC-8 told the Safety Board that his flight was inbound to Cold Bay from California on the same approximate route flown by the World Airways DC-8.

According to the pilot's statement, the approach plate was studied and discussed. Descent to 3,500 feet was started. To the best of his recollection, "... an intercept angle to the back course was to be established ... my first concern during the approach was around DME 25 and altitude of around 4,000 feet m.s.l. The DME began searching and became erratic. We had entered scattered to broken clouds at around 6,000 m.s.l. and at that time there was no visibility. ... I called out the erratic behavior of the DME to the captain. Almost immediately

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we became contact and a mountain with large glaciers was sighted close off our left wing and extending into the cloud formation." The flight proceeded VFR to Cold Bay and landed on runway 32.

The pilot stated further that, "the thinking had been that if we were not established on the ILS course by the 20 DME, a 20 DME circle would be maintained until on course. Also, descent to 3,500 feet m.s.l., would be accomplished by that time. Our mental picture at that time was that the approach to that point would be over water." Examination of the approach chart showed that "our approach should have been minimum sector altitude until established on the approach leg and 40 DME."

In view of the pilot's statement and our findings in this accident, the Safety Board believes that positive steps should be taken to reduce the possibility of hazardous approaches into Cold Bay. To that end, the IAP chart for the ILS back course DME approach to runway 32 at Cold Bay could be modified in one of several ways:

1. Delete the 40-mile DME IAF from the IAP chart.
2. Flag the 40-mile DME IAF on the plan view of the IAP chart to show a crossing altitude of 7,000 feet and add the following note:

"Descent below 7,000 feet to MSA, NOT AUTHORIZED unless established on the ILS localizer back course (or 141° radial) inbound. High terrain either side of final approach course within 40 miles."

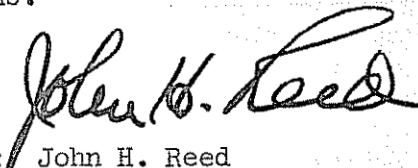
3. Add a note of caution at the bottom of the plan view section of the IAP (near the 40 mile IAF) to advise, "NAVAID signals beyond 40 miles of the VORTAC are unusable below certain altitudes. See FIP for additional information."
4. Show pertinent NAVAID restrictions on the IAP chart. Add note: "High terrain either side of final approach course within 40 miles of the station."

These are only four ways in which the situation could be improved. The Safety Board realizes there are others, some of which might also improve IAP charts for airports where situations exist similar to those in Cold Bay. However, with regard to the situation in Cold Bay the National Transportation Safety Board recommends specifically that the Federal Aviation Administration:

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Modify the IAP chart for the ILS back course DME approach to runway 32 at Cold Bay, Alaska, in a manner that will highlight the altitude restrictions on the use of the VORTAC and the hazards associated with deviations from prescribed approach procedures.

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



By: John H. Reed
Chairman

THIS RECOMMENDATION 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.