



Log 2121B

National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: September 30, 1992
In reply refer to: A-92-100 and -101

Honorable Donald B. Rice
Secretary, Department of the Air Force
The Pentagon
Washington, D.C. 20330-1000

The National Transportation Safety Board has investigated several aircraft accidents involving considerable delays in search and rescue (SAR) response. The accidents cited in this letter occurred between April 6, 1989, and May 10, 1990. Although none of these accidents involved a victim whose life could have been saved by a more expeditious SAR, the Board is aware of other accidents in which the occupants of the aircraft may have survived the initial crash but were not alive when rescuers finally arrived on the scene. The Board believes that the problems identified in the cited accidents should be corrected to enhance the potential for lifesaving and expeditious location of wreckage in future SAR operations. Copies of recommendation letters sent to the Federal Aviation Administration and the U.S. Coast Guard regarding this issue are enclosed to ensure a more comprehensive understanding of the problem.

On May 10, 1990, N6481N, a Cessna 210N crashed at Shady Grove Corner, Virginia. SAR efforts did not locate the aircraft until 7 days after the accident. N6481N was squawking code 1200, the most frequently used visual flight rules (VFR) transponder code, with mode C for altitude reporting. Under these circumstances, the path of the airplane would have been relatively easy to discern because of the various radar tracking capabilities near Washington, D.C. However, on the night of the accident, the Washington Air Route Traffic Control Center (ARTCC) was using a particular recorded radar data reduction computer program that could not readily identify the mode C altitude of the code 1200 transponder returns. Therefore, each 1200 track had to be scrutinized because of the inability to eliminate aircraft tracks by altitude.

Scott Air Force Base Rescue Coordination Center (AFRCC) had received information regarding radar data from Washington ARTCC. Scott AFRCC relayed this information to the Virginia Wing of the Civil Air Patrol (CAP) about 15 hours after the aircraft was reported missing. Scott AFRCC supplied the CAP with about five radar tracks, and the location of about the last five hits of each track. (Aircraft routinely go "into" and "out of" radar contact. As an aircraft in radar contact descends, it normally "goes out of" radar contact before reaching the surface). Early in the search, aircraft had flown over

the position of the last recorded radar hit of one of these tracks but did not see the wreckage because of the thick forest. No ground search was conducted in this area until 7 days after the accident, when the airplane was found less than 1 mile from that last radar hit.

The Safety Board staff attended a critique of this accident's SAR operations and concluded that the CAP had not placed enough credence in the flight track information supplied by Scott AFRCC. The CAP had responded mainly to reports about the location of the crash from the public. The CAP then conducted airborne searches in those areas, and the Appalachian Search and Rescue conducted ground searches. However, the main search efforts should have been centered at the last radar hit of each of the flight tracks or at the projected end of those tracks. The Safety Board believes that the various ground tracks of the code 1200 targets represented "hard" factual data. The last radar hit of each of these ground tracks should have been considered very important information. Thus, the wreckage might have been found within 2 or 3 days, instead of 7 days after the accident.

The Safety Board believes that Scott AFRCC personnel, after consultation with the U. S. Coast Guard, should include the following information in the National Search and Rescue Manual: an explanation that various ground tracks may exist for an aircraft that was not squawking a discrete transponder code; that the Rescue Coordination Center may supply the location of the end of several ground tracks; and that the accident aircraft may be located near the end of one of the tracks; that the area near the end of the ground tracks should be thoroughly searched.

On April 6, 1989, a Beech C35, N9502C, collided with rising terrain about 16 nautical miles (nmi) northwest of the Greenbrier Valley Airport in Lewisburg, West Virginia. The pilot and four passengers received fatal injuries. The airplane had departed Wood County Airport in Parkersburg, West Virginia, and was not found until April 16 by a local resident, who was not associated with the search mission.

The Safety Board reviewed data from the Indianapolis ARTCC and established that the last recorded radar "hit" on the airplane was located 810 feet northwest of the actual accident site. If a straight line were drawn between the departure point, Wood County Airport, and the destination, Greenbrier Valley Airport, the line would extend from the northwest to the southeast for about 90 nmi. Assuming that the flight went in a straight line from departure to destination, most of the flight along this line would have been within airspace under the jurisdiction of the Indianapolis ARTCC. However, about 24 miles northwest of the Greenbrier Valley Airport, the airplane would have entered into airspace under the jurisdiction of the Washington ARTCC. The last portion of the flight would also have come within 10 miles of the Cleveland ARTCC airspace.

The Safety Board discovered that Scott AFRCC had contacted the Washington ARTCC for radar tracking data but had not contacted the Indianapolis ARTCC. Scott AFRCC personnel could not provide an answer for why its request for radar data had been directed only to the Washington ARTCC and not to the Indianapolis ARTCC. The acting area manager at the Washington

ARTCC stated that, based on his review of observed data, he advised the AFRCC that nothing conclusive was in the tracks of the observed data. En route low altitude charts clearly depict the ARTCC boundaries. AFRCC personnel should have realized that radar tracking information for both Indianapolis ARTCC and Cleveland ARTCC was needed.


The Safety Board is aware that Scott AFRCC uses a computer program which provides the user with a listing of all radar sites within recording range of a selected point. The site listings identify the controlling facility, along with true bearing and distance from that facility to the point selected. The Safety Board believes that this type of program is best suited for locating radar facilities from a known accident site. If the accident site is not known, but there is a suspected path of an aircraft believed to have been in an accident, the entire path should be analyzed for ARTCCs that may have recorded radar information. The Safety Board believes that Scott AFRCC personnel should consult aviation navigation charts as their primary tool when selecting ARTCCs for the purpose of requesting recorded radar information.

Therefore, the National Transportation Safety Board recommends that the U.S. Air Force Rescue Coordination Center:

Develop operating procedures that direct personnel to consult aviation navigation charts that depict Air Route Traffic Control Center (ARTCC) boundaries when selecting ARTCCs for the purpose of requesting recorded radar information to ensure that all facilities that may have relevant information have been contacted. (Class II, Priority Action) (A-92-100)

Collaborate with representatives of the U. S. Coast Guard in revising the National Search and Rescue Manual to explain that various possible radar ground tracks may exist when searching for an aircraft that is not on a discrete transponder code; that the Rescue Coordination Center may supply the location of each of these tracks to local search and rescue personnel; that the accident aircraft may be located near the end of one of the tracks; and that the area near the end of the ground tracks should be thoroughly searched. (Class II, Priority Action) (A-92-101)

Chairman VOGT, Vice Chairman COUGHLIN, and Members LAUBER, HART, and HAMMERSCHMIDT concurred in these recommendations.



By: Carl W. Vogt
Chairman