

Log 2501



National Transportation Safety Board

Washington, D.C. 20594
Safety Recommendation

Date: MAY 18 1994

In reply refer to: A-94-105 through -107

Honorable David R. Hinson
Administrator
Federal Aviation Administration
Washington, D.C. 20591

On August 18, 1993, at 1656 eastern daylight time (EDT), a Douglas DC-8-61 freighter, N814CK, registered to American International Airways (AIA), Inc., d/b/a Connie Kalitta Services, Inc., and operating as AIA flight 808, collided with level terrain approximately 1/4 mile from the approach end of runway 10, after the captain lost control of the airplane while approaching the Leeward Point Airfield at the U.S. Naval Air Station, Guantanamo Bay, Cuba. The airplane was destroyed by impact forces and a postaccident fire, and the three flight crewmembers sustained serious injuries. Visual meteorological conditions prevailed, and an instrument flight rules (IFR) flight plan had been filed. The flight was conducted under 14 Code of Federal Regulations (CFR), Part 121, Supplemental Air Carriers, as an international, nonscheduled, military contract flight¹

The National Transportation Safety Board determines that the probable causes of this accident were the impaired judgment, decision-making, and flying abilities of the captain and flightcrew due to the effects of fatigue; the captain's failure to properly assess the conditions for landing and maintaining vigilant situational awareness of the airplane while maneuvering onto final approach; his

¹For more detailed information, read Aircraft Accident Report--"Uncontrolled Collision with Terrain, American International Airways Flight 808, Douglas DC-8-61, N814CK, U.S. Naval Air Station, Guantanamo Bay, Cuba, August 18, 1993" (NTSB/AAR-94/04)

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failure to prevent the loss of airspeed and avoid a stall while in the steep bank turn; and his failure to execute immediate action to recover from a stall.

Additional factors contributing to the cause were the inadequacy of the flight and duty time regulations applied to 14 CFR, Part 121, Supplemental Air Carrier, international operations, and the circumstances that resulted in the extended flight/duty hours and fatigue of the flightcrew members. Also contributing were the inadequate crew resource management training and the inadequate training and guidance by AIA to the flightcrew for operations at special airports, such as Guantanamo Bay; and the Navy's failure to provide a system that would assure that the local tower controller was aware of the inoperative strobe light so as to provide the flightcrew with such information.

The significance of crewmember fatigue in this accident prompted the Safety Board to examine the Federal Aviation Regulations that govern flight and duty time for flightcrew members. The examination revealed that several different crew flight and duty time regulations were applicable to the accident.

At the time of the accident, the flightcrew had been on duty for about 18 hours and had flown approximately 9 hours. The company had intended for the crew to ferry the airplane back to Atlanta after the airplane was offloaded in Guantanamo Bay. This would have resulted in a total duty time of about 24 hours and 12 hours of flight time, the maximum permitted under 14 CFR, Section 121.521, supplemental rules for overseas and international flights. If the flightcrew had been scheduled to conduct a flight within the United States, similar to that of flight 808, the flightcrew would have exceeded the flight and duty time requirements of 14 CFR, Section 121.505, for supplemental air carriers and commercial operators.

The regulation under 14 CFR, Section 121.505, states that a pilot may not be scheduled to fly more than 8 hours, or be on duty more than 16 hours, in 24 consecutive hours. Guantanamo Bay was considered an "international" destination; thus, the flight was conducted under 14 CFR, Section 121.521, the 12-hours flight/24-hours duty time rule applicable to supplemental air carriers for international flights. Because the pilots of flight 808 would have accumulated about 9 hours of flight time and 21 hours of duty time when they arrived at Guantanamo Bay, the accumulated time for the trip would have exceeded the limits of 14 CFR, Section 121.505. Further, once the airplane was offloaded in Guantanamo Bay, the return portion of the scheduled trip would have been flown under 14 CFR, Part 91, as a "non-commercial" ferry flight to reposition the airplane back to Atlanta.

Currently, there are no crew flight or duty limits applicable to commercial operators when the airplane is ferried under 14 CFR, Part 91. The Federal Aviation Administration (FAA) has addressed this issue and provided a legal interpretation that flight and duty time accrued during company required flights conducted under 14 CFR, Part 91, must be counted against the flight and duty time accumulated in revenue operation for determining the eligibility to initiate a 14 CFR, Part 121, flight. However, because there are no limits applicable to 14 CFR, Part 91, the flight and duty time accrued during flights conducted under 14 CFR, Part 121, do not prohibit a pilot from initiating a flight under 14 CFR, Part 91, at the end of a Part 121 revenue operation. Therefore, the accident trip was under the provisions of a combination of separate regulations that allowed extended flight and duty times to be scheduled, contrary to safe operating practices.

The United States and France are the only countries in the world that base their aviation hours of service regulations on flight time, while most other countries base it on duty time. As the Manager of the FAA Air Carrier Branch testified during the Safety Board's public hearing on this accident, flight and rest requirements in aviation were first established in the 1930s. The Safety Board recognizes that the FAA has made several attempts to revise the requirements but that it has failed because it has been unable to obtain a consensus from industry and labor groups on new standards. The FAA established an advisory committee in 1983 which resulted in the issuance of new domestic 14 CFR, Part 121, rules in 1985. Also, a new advisory group was established in 1992, with participation from a wide segment of the aviation community, to review flight/duty time issues and, if appropriate, to develop recommendations for regulatory revision. This group is currently meeting and has not yet provided feedback to the FAA.

During the hearing, the branch manager stated his belief that there is a need for revision of the flight/duty time regulations, especially to close the option of 14 CFR, Part 91, ferry flights in 14 CFR, Part 121, operations. He also said that the FAA's current strategy is to develop regulatory change based on input from an outside advisory committee rather than on new rulemaking initiated by the FAA. The Safety Board is concerned that this process may not result in a satisfactory solution to this issue and believes that efforts to change existing regulations by means of the committee negotiating process are ineffective. Therefore, the Safety Board believes that the FAA should revise the appropriate regulations pertaining to flight and duty time. The FAA should also clarify the regulation to prohibit a flight crewmember from initiating a 14 CFR, Part 91, ferry flight if, before the completion of the revenue flight, the total flight and duty time will exceed that permitted during

the 14 CFR, Part 121, operations. Currently, the industry practice of ferry flights at the conclusion of revenue operations can lead to excessively long duty days and can induce debilitating effects of fatigue on crewmembers, as was demonstrated by this accident.

Issues of fatigue in transportation have been of special concern to the Safety Board in all modes of transportation. In 1989, the Safety Board made three recommendations to the Department of Transportation (DOT) to encourage an aggressive Federal program to address the problems of fatigue and sleep issues in transportation safety:

I-89-1

Expedite a coordinated research program on the effects of fatigue, sleepiness, sleep disorders, and circadian factors on transportation system safety.

I-89-2

Develop and disseminate educational material for transportation industry personnel and management regarding shift work; work and rest schedules; and proper regimens of health, diet, and rest.

I-89-3

Review and upgrade regulations governing hours of service for all transportation modes to assure that they are consistent and that they incorporate the results of the latest research on fatigue and sleep issues

The DOT has initiated programs in each transportation mode to respond to the need for a better understanding of fatigue, and regularly briefs the Safety Board on these activities. These recommendations remain classified "Open--Acceptable Response" pending the completion of these programs. However, the Safety Board believes that further efforts are needed in aviation to address the third recommendation (I-89-3), which may eliminate some of the problems that continue to plague the industry.

In addition, fatigue issues have been addressed in several of the Safety Board's major aviation accident reports. In the accident involving a Continental

Express Embraer-120 RT on April 29, 1993, Pine Bluff, Arkansas, the Safety Board cited fatigue as a contributing factor in the probable cause of the accident.²

In January 1994, the Safety Board published a study of 37 major aviation accidents from the period 1978 through 1990, in which human performance issues were cited in the probable cause determinations.³ Many human performance background variables were compared to the types of errors observed in the accident sequences to identify factors that might be useful in accident prevention. Several fatigue-related variables were examined, such as time since awakening, time of day, time zone crossings, and changing work schedules. It was found that the time since awakening for each pilot related to significant differences in performance, in terms of the number and types of errors. Based on this data and other evidence that has been accumulating for more than 20 years, the Safety Board believes that fatigue is a far more pervasive and debilitating factor in transportation safety than was previously realized.

As a result of this safety study, on February 3, 1994, the Safety Board issued the following recommendation to the FAA:

A-94-5

Require U. S. air carriers operating under 14 CFR Part 121 to include, as part of pilot training, a program to educate pilots about the detrimental effects of fatigue, and strategies for avoiding fatigue and countering its effects.

The implementation by the FAA of such a program should assist pilots to better recognize their own symptoms of fatigue and to develop personal strategies to help lower its effects in the demanding work schedules to which they are subjected. Therefore, because of its relevance to this accident, the Safety Board is reiterating this safety recommendation.

According to documents supplied by the Air Mobility Command (AMC), 12 airports, including Guantanamo Bay, are designated "certification airfields." The

²See Aircraft Accident/Incident Summary Report--"In-Flight Loss of Control Leading to Forced Landing and Runway Overrun, Continental Express, Inc., N24706, Embraer EMB-120 RT, Pine Bluff, Arkansas, April 29, 1993" (NTSB/AAR-94/02/SUM)

³See Safety Study--"A Review of Flightcrew-Involved Major Accidents of U. S. Air Carriers, 1978 Through 1990" (NTSB/SS-94/01)

military has identified these airports as having unique hazards or operating procedures that require a heightened awareness or familiarity by crewmembers. An airport that is designated as a certification airfield requires military flightcrew members, specifically the aircraft commander, to have operated into that airfield within the past 2 years as either a pilot, copilot, or observer who has actively monitored the approach.

By contrast, the AMC procedures for civilian crews flying into Guantanamo Bay require the contract company and flightcrews to be knowledgeable about operating in military airfields. The AMC contract representative from Norfolk stated that he recognized the captain involved in the accident and believed that the captain had been to Norfolk several times in the recent past. The contract representative also stated that since he believed the captain had been to Guantanamo Bay previously, he did not provide him with the briefing form, which contained a photograph of the airfield showing the approach end of runway 10 and described the procedures for execution of the approach.

14 CFR, Section 121.445, states that the pilot in command (PIC) will be qualified to operate an aircraft into certain airports determined to be special (due to items, such as surrounding terrain, obstructions, complex approach or departure procedures). The regulation requires that the PIC may not operate into a special airport unless within the preceding 12 months:

(b) except as provided in paragraph (c) of this section...(1) The pilot-in-command or second in command has made an entry to that airport (including a takeoff and landing) while serving as a pilot flight crewmember; or

(2) The pilot-in-command has qualified by using pictorial means acceptable to the administrator for the airport.

Subparagraph (c) of the regulation states that the aforementioned qualifications do not apply when "entry to that airport (including takeoff or a landing) is being made if the ceiling at that airport is at least 1,000 feet above the lowest MEA or MOCA, or initial approach altitude prescribed for the instrument approach procedure for that airport and the visibility at that airport is at least 3 miles."

The Safety Board believes that subparagraph (c) of this regulation defeats the purpose of "special airports" qualification by permitting a pilot or flightcrew to operate into or out of an airport that may have unique approach/landing or takeoff characteristics, as long as the weather conditions permit the approach to be conducted in visual meteorological conditions. Subparagraph (c) eliminates a critical safety element by permitting operation into a special airport without prior experience or knowledge. Thus, the Safety Board believes that subparagraph (c) should be eliminated and that all flight crewmembers should be required to meet the requirements for operation to or from a special airport, either by operating experience or pictorial means.

Therefore, as a result of its investigation of this accident, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Revise the applicable subpart of 14 CFR, Part 121, to require that flight time accumulated in noncommercial "tail end" ferry flights conducted under 14 CFR, Part 91, as a result of 14 CFR, Part 121, revenue flights, be included in the flight crewmember's total flight and duty time accrued during those revenue operations. (Class II, Priority Action) (A-94-105)

Expedite the review and upgrade of Flight/Duty Time Limitations of the Federal Aviation Regulations to ensure that they incorporate the results of the latest research on fatigue and sleep issues. (Class II, Priority Action) (A-94-106)

Revise 14 CFR, Section 121.445, to eliminate subparagraph (c), and require that all flight crewmembers meet the requirements for operation to or from a special airport, either by operating experience or pictorial means. (Class II, Priority Action) (A-94-107)

Also as a result of its investigation of this accident, the National Transportation Safety Board reiterates Safety Recommendation A-94-2 and A-94-5 to the Federal Aviation Administration:

A-94-2

Require U.S. air carriers operating under 14 CFR, Part 121, to provide for flightcrews not covered by the Advanced Qualifications Program, a comprehensive crew resource management (CRM) program as described in Advisory Circular 120-51A.

A-94-5

Require U.S. air carriers operating under 14 CFR, Part 121, to include, as part of pilot training, a program to educate pilots about the detrimental effects of fatigue, and strategies for avoiding fatigue and countering its effects.

Also, the Safety Board issued Safety Recommendations A-94-108 and A-94-109 to American International Airways, Inc., and A-94-110 to the Department of Defense.

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

By:



Carl W. Vogt
Chairman