Log # 2627

National Transportation Safety Board

Washington D.C. 20594

Safety Recommendation

Date: March 21, 1997

In reply refer to: A-97-19

To the Aircraft Owners and Pilots Association
The Experimental Aircraft Association
The National Association of Flight Instructors

On April 11, 1996, about 0824 mountain daylight time, a privately owned Cessna 177B, registration N35207, collided with terrain after a loss of control following takeoff from runway 30 at the Cheyenne Airport, Cheyenne, Wyoming. The pilot in command, pilot trainee,[1] and rear seat passenger (the pilot trainee's father) were fatally injured. Instrument meteorological conditions existed at the time, and a visual flight rules (VFR) flight plan had been filed. The flight, which was a continuation of a transcontinental flight "record"[2] attempt by the youngest "pilot" to date (the pilot trainee), was operated under the provisions of 14 CFR Part 91.[3]

[1]The pilot trainee, a 7-year-old girl, did not hold a pilot certificate. To be eligible for a student pilot certificate a person must be at least 16 years old, and to be eligible for a private pilot certificate a person must be at least 17 years old. (14 Code of Federal Regulations (CFR) 61.103 and 61.83.)

[2]In July 1995, an 8-year-old boy flew back and forth across the United States, setting what was regarded as the "record" for the youngest "pilot," although these flights were not officially recognized as records. The boy's father reported to the Safety Board that he had contacted the Guinness Book of Records and learned that it kept no record for the youngest pilot.

[3]For more detailed information, read Aircraft Accident Report--"In-flight Loss of Control and Subsequent Collision with Terrain, Cessna 177B, N35207, Cheyenne, Wyoming," (NTSB/AAR-97/02)

The National Transportation Safety Board has determined that the probable cause of this accident was the pilot in command's improper decision to take off into deteriorating weather conditions (including turbulence, gusty winds, and an advancing thunderstorm and associated precipitation) when the airplane was overweight and when the density altitude was higher than he was accustomed to, resulting in a stall caused by failure to maintain airspeed. Contributing to the pilot in command's decision to take off was a desire to adhere to an overly ambitious itinerary, in part, because of media commitments.

Aeronautical Decision Making

Since 1988, the Safety Board has made three recommendations urging the Federal Aviation Administration (FAA) to enhance pilot training in decision making for commercial operations. Following its special study of emergency medical service helicopter operations,[4] the Board recommended that the FAA:

> A-88-002
> Require that the material being developed for the Emergency Medical Service (EMS) pilot supplement to the aeronautical decision making manual for helicopter pilots be incorporated into EMS pilot initial and recurrent training.

On October 20, 1988, the FAA issued Advisory Circular (AC) 135-14, "Emergency Medical Services/Helicopter." This AC provided information on overall training requirements that should be satisfied by Part 135 operators for FAA program approval, including guidance regarding aeronautical decision making for EMS helicopter pilots. On January 25, 1989, the Safety Board classified Safety Recommendation A-88-002 "Closed--Acceptable Alternate Action."

Following its investigation of a midair collision involving a Piper Aerostar PA-60 airplane and a Bell 412 helicopter that occurred on April 4, 1991,[5] the Safety Board further expressed its concern about aeronautical decision making. The Safety Board issued the following recommendation to the FAA on October 11, 1991:

---

[4]See Safety Study, "Commercial Emergency Medical Service Helicopter Operations" (NTSB/SS-88/01)

[5]See Aircraft Accident/Incident Summary Report, "Midair Collision Involving Lycoming Air Services Piper Aerostar PA-60 and Sun Company Aviation Department Bell 412, Merion, Pennsylvania, April 4, 1991" (NTSB/AAR-91/01/SUM)

A-91-93
Disseminate more aggressively available information and materials pertaining to Aeronautical Decision Making training and actively promote its implementation among all categories of pilots in the civil aviation community.

On December 1, 1989, the FAA published AC 120-51, "Cockpit Resource Management Training (CRM)," and on December 13, 1991, the FAA published AC 60-22, "Aeronautical Decision Making." Both publications addressed the importance of including decision making in pilot training programs. Based on the latter action, the Safety Board classified A-91-93 "Closed--Acceptable Action."

In 1993, following its investigation of an accident involving a Scenic Air Tours Beech Model E18S near Maui, Hawaii, on April 22, 1992,[6] the Safety Board again expressed its concern about the adequacy of aeronautical decision making training and issued the following recommendation to the FAA:

A-93-013
Issue an air carrier operations bulletin instructing all principal operations inspectors to aggressively encourage all commercial operators to incorporate comprehensive aeronautical decision making (ADM) training in their pilot training programs.

On February 22, 1994, the Safety Board classified Safety Recommendation A-93-013 "Closed--Acceptable Action," based on the FAA's proposal to issue Change 1 to AC-120-51B to emphasize to field office inspectors the importance of encouraging operators to incorporate decision making in their company training programs. The change was subsequently issued on September 8, 1995.

Although these actions with regard to AC-120-51 (CRM) have improved and enhanced decision making training for commercial pilots, general aviation pilots are not exposed to this training. AC 60-22 (Aeronautical Decision Making), issued by the FAA in 1991, was aimed at general aviation pilots and flight instructors. This AC provides a basis for explaining decision making to

[6]See Aircraft Accident Report, "Tomy International, Inc. d/b/a Scenic Air Tours, Flight 22, Beech Model E18S, N342E, In-Flight Collision with Terrain, Mount Kaleakala, Maui, Hawaii, April 22, 1992" (NTSB/AAR-93-01)

pilots and a framework for teaching judgment issues to pilots. The AC describes common dangerous tendencies, dangerous attitudes, fitness for duty, and decision making models.

Recent developments in the area of aeronautical decision making[7] have focused on decision making involving real life situations, in which decisions must often be made rapidly in response to changing and ambiguous circumstances. This work has emphasized the importance of experience for rapidly assessing situations and choosing workable alternatives.

The Safety Board is aware of several recent initiatives to upgrade the teaching of decision making to general aviation pilots. For example, the Air Safety Foundation of the Aircraft Owners and Pilots Association (AOPA) has recently developed a pilot training seminar entitled "Never Again" that is being presented to pilot groups and that focuses on actual weather-related incidents. By using videotape reconstruction and regular audience discussion, the seminar presents decision making issues in a manner that is compelling and closely related to actual pilot experiences. The Safety Board is also aware that the National Association of Flight Instructors (NAFI) is developing a new program in decision making skills aimed at flight instructor recertification training. It will emphasize judgment in concrete situations facing pilots. The Safety Board commends these efforts.

This accident demonstrates the need for continued efforts in the area of aeronautical decision making for general aviation pilots. The circumstances of this accident could be instructive to other general aviation pilots in raising their awareness of potential decision making errors. Therefore, the Safety Board believes that AOPA, the Experimental Aircraft Association (EAA), and NAFI should disseminate information about the circumstances of this accident and continue to emphasize to their members the importance of aeronautical decision making.

In October 1996, Congress passed the Child Pilot Safety Act, which limits "record"-attempting flights, and has ordered the FAA to conduct a study of the impacts of children flying aircraft. As shown in this accident, the record-setting

---

[7]See Judith Orasanu and Terry Connolly, "The Reinvention of Decision Making" in Gary A. Klein, Judith Orasanu, Roberta Calderwood, and Caroline E. Zsambok (Eds.), *Decision Making in Action: Models and Methods*. Norwood, N. J.: Ablex Publishing Corporation.

aspect and associated media and itinerary pressure of such flights can distort a pilot's decision making and lead to an unsafe situation.

Therefore, as a result of the investigation of this accident, the National Transportation Safety Board recommends that the Aircraft Owners and Pilots Association, the Experimental Aircraft Association, and the National Association of Flight Instructors:

> Disseminate information about the circumstances of this accident and continue to emphasize to your members the importance of aeronautical decision making. (A-97-19)

Also, the Safety Board issued Safety Recommendations A-97-20 and A-97-21 to the Federal Aviation Administration.

The National Transportation Safety Board is an independent federal agency with the statutory responsibility "...to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations and would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter. Please refer to Safety Recommendation A-96-19 in your reply.

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in this recommendation.

By: Jim Hall
Chairman

Mr. Phil B. Boyer
President
Aircraft Owners and Pilots Association
421 Aviation Way
Frederick, Maryland 21701-4798

Mr. Thomas Poberezny
President
Experimental Aircraft Association
P. O. Box 3086
Oshkosh, Wisconsin 54903-3086

Mr. Jack Eggspuehler
President
National Association of Flight Instructors
P. O. Box 742
Dublin, Ohio 43017