LOG 2411

National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: April 2, 1993

In reply refer to: A-93-35 through -39

Mr. Joseph M. Del Balzo
Acting Administrator
Federal Aviation Administration
Washington, D.C. 20591

On June 8, 1992, GP Express Airlines, Inc., flight 861, a Beechcraft model C99, N118GP, crashed while maneuvering to land at the Anniston Metropolitan Airport, Anniston, Alabama. The flight was a scheduled passenger flight from the William B. Hartsfield Atlanta International Airport in Atlanta, Georgia, on an instrument flight rules flight plan to Anniston, Alabama. The captain and two passengers received fatal injuries. The first officer and two passengers were seriously injured. The airplane was destroyed by impact and postcrash fire.[1]

The National Transportation Safety Board determined that the probable causes of this accident were the failure of senior management of GP Express to provide adequate training and operational support for the startup of its southern operation, which resulted in the assignment of an inadequately prepared captain with a relatively inexperienced first officer in revenue passenger service and the failure of the flightcrew to use approved instrument flight procedures, which resulted in a loss of situational awareness and terrain clearance. Contributing to the causes of the accident was GP Express' failure to provide approach charts to each pilot and to establish stabilized approach criteria. Also contributing were the inadequate crew coordination and a role reversal on the part of the captain and first officer.

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[1]For more detailed information, read Aircraft Accident Report--"Controlled Collision with Terrain, GP Express Airlines, Inc., Flight 861, a Beechcraft C99, N118GP, Anniston, Alabama, June 8, 1992" (NTSB/AAR-93/03)

The circumstances of this accident indicate that the flightcrew experienced a loss of situational awareness, which ultimately resulted in the flightcrew's deviation from established instrument flight procedures and led to a controlled collision with terrain. The investigation determined that the flightcrew's decision to try to lose excessive altitude in an attempt to make the landing was an indication of the crew's poor judgment. The investigation also determined that GP Express' operation manual lacked definitive stabilized approach criteria, and that the airline provided only one set of approach charts on board the airplane. Stabilized approach criteria would have provided the flightcrew with guidance on the acceptable airplane performance parameters and navigational limits to be observed during the approach. Once those criteria had been exceeded, a missed approach would have been mandatory. Additionally, the availability of another set of approach charts could have provided the pilots with the possibility of having the chart conveniently mounted on their respective control yokes during the approach for quick reference.

The Safety Board recognizes that the Federal Aviation Administration (FAA) has provided information regarding stabilized approach criteria at flight instruction refresher clinics and directed principal operations inspectors (POIs) to verify that the air carriers have established stabilized approach and missed approach procedures. The nonstabilized approach flown by the flightcrew of flight 861 strongly indicates that this critical safety-of-flight information is not being adequately disseminated or followed. Therefore, the Safety Board believes that the FAA should require scheduled air carriers operating under 14 CFR Part 135 to develop and include in their flight operations manuals definitive criteria for conducting a stabilized approach. The provisions should specify that if the criteria are exceeded, a missed approach would be required.

The Safety Board believes that the practice of having only one set of approach charts available in the airplane is not in the best interests of flight safety. The Safety Board previously addressed this issue in its investigation of the accident involving Bar Harbor Airlines flight 1808.[2] As a result of that investigation, on October 9, 1986, the Safety Board issued Safety Recommendation A-86-106, which asked the FAA to:

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[2]Safety Recommendation A-86-109, "Bar Harbor Airlines flight 1808, Beechcraft B-99, N30WP, Auburn-Lewiston Airport, Auburn, Maine, August 25, 1985" (NTSB/AAR-86/06); "Henson Airlines flight 1517, Beechcraft B-99, N339HA, Shenandoah Valley Airport, Grottoes, Virginia, September 23, 1985" (NTSB/AAR-86/07); "Simmons Airlines flight 1746, Embraer EMB-110p1, Phelps Collins Airport, Alpena, Michigan, March 13, 1986" (NTSB/AAR-87/02)

Amend 14 CFR 135.83 to require that all required crewmembers have access to and use their own set of pertinent instrument approach charts. (A-86-106)

In its reply of September 15, 1987, the FAA stated that it believed that a second set of charts would not serve to improve cockpit efficiency. In response to the recommendation, the FAA issued a bulletin that directed all POIs to ensure that flight crewmembers received initial and recurrent training on the crew concept with respect to the use of pertinent instrument approach charts and crew briefings prior to all approaches. The Safety Board found that there was considerable merit in the FAA's bulletin to improve crew coordination during instrument approaches. However, the Safety Board found that such a bulletin would not provide the same safety benefits as each pilot having access and use of his own set of approach charts. Therefore, on November 27, 1987, the Safety Board classified Safety Recommendation A-86-106 "Closed--Unacceptable Action."

The Safety Board notes that air carriers operating under 14 CFR Part 121 are required to provide a set of approach charts for each cockpit crewmember. Air carriers operating under 14 CFR Part 135 are required to provide one set of approach charts for each airplane. During the public hearing, GP Express' director of operations stated that he, the chief pilot, and several other captains had purchased their own approach charts in order to have the approach charts immediately available during an approach. The Safety Board believes that the practice of having only one approach plate available in aircraft requiring two pilots increases pilot workload during the approach and increases the potential for the miscommunication of critical information, as in this accident. Therefore, the Safety Board believes that the FAA should require that all aircraft operating under 14 CFR Part 135 that require two pilots be equipped with two sets of approach charts.

The investigation determined that the captain had expressed concern to his wife and the regional chief pilot the night before the accident about being unsupervised on his first flights in the southern region. The Safety Board believes that it would be normal for a person starting a new career to be nervous in such a situation. Additionally, the captain's only airline operation experience was obtained during his initial operating experience (IOE) training. Compounding this situation, flights 860 and 861 were his initial experience in working with the first officer. In such a situation, even a person with prior experience as a captain with another airline might be nervous. As all of the captain's flight experience was obtained either in the military or through general aviation, he could have been uncertain about

how to conduct the flight. Collectively, these events present a potentially unsafe situation. This situation could have been prevented if the captain had had the opportunity to gain airline flight experience as a first officer or as a captain on revenue flights with another captain acting as first officer. Therefore, the Safety Board believes that 14 CFR Part 135(c)(2) should be amended to require that the pilot-in-command of a commuter air carrier flight that requires two crewmembers have at least 100 hours of flight time or an equivalent level of training in commuter air carrier operations requiring two pilots.

The investigation found that the captain and first officer had received information on cockpit resource management (CRM) during the GP Express ground school training. The majority of this information was in the form of handout material intended for students to study independently. There were 13 test questions addressing CRM on the final examination.

During his training, the captain had been admonished twice by his flight instructor for not using his first officer as a resource. The Safety Board believes that while the flight instructor was well intentioned, these admonitions to a new airline pilot with no experience in airline operations may have been counterproductive. The Safety Board believes that these admonitions may have increased the probability that the captain would be overly reliant on the judgment and opinions of the first officer of flight 861. The CVR transcript indicates that at several points during the flight, the captain was unsure of the airplane's location on the flightpath; however, in each instance, he accepted the first officer's reply and did not verify the accuracy of the response. During the attempted approach, at times when the captain mentioned that he should abandon the approach, the first officer was able to convince the captain to continue. These events indicate that the captain did not use all of the resources available to him, such as his experience, training, navigational instruments, or air traffic control (ATC) to determine his best course of action. Based upon these events, it is apparent that GP Express' CRM program was insufficient in providing the guidance that all resources should be utilized to ensure the safety of the flight.

The Safety Board is aware that air carriers operating under 14 CFR Part 135 are not required to have CRM programs. This issue was addressed in the Safety Board's investigation of the accident involving Aloha Islandair flight 1712.[3] In its

[3]Aircraft Accident Report--"Aloha Islandair, Inc., Flight 1712, de Havilland Twin Otter, DHC-6-300, N707PV, Halawa Point, Molokai, Hawaii, October 28, 1989" (NTSB/AAR-90/05)

report on the accident, the Safety Board issued Safety Recommendation A-90-135, which asked the FAA to:

> Require that scheduled 14 CFR Part 135 operators develop and use Cockpit Resource Management programs in their training methodology by a specified date. (A-90-135)

In its letter of February 8, 1991, the FAA stated that it was considering amending the training requirements of 14 CFR 135 to include a requirement for CRM training. On May 22, 1991, the recommendation was classified "Open--Acceptable Response," pending further information from the FAA. The Safety Board has been informed that a draft of a notice of proposed rule making (NPRM) on this subject is now in the review process within the FAA.

Based upon the events that led to the accident involving flight 861, the Safety Board reiterates Safety Recommendation A- 90-135 and further believes that the FAA should develop criteria for ensuring that airline CRM training programs adequately address crew interaction, decision-making processes, information gathering, flightcrew communication, and leadership skills. Moreover, the FAA should provide definitive guidance to POIs to urge air carriers to develop CRM programs and to enable the POIs to evaluate these programs.

The investigation found that when faced with an operational need to provide a crew for a scheduled flight, GP Express management abandoned an earlier plan to have the regional chief pilot fly with a newly hired captain and instead, paired the new captain with a low-time first officer, even though neither pilot had previously flown these routes, and it was the captain's first unsupervised revenue flight.

The Safety Board has addressed the issue of the pairing of inexperienced crewmembers on previous occasions. As a result of its investigation of three commuter air carrier accidents,[4] on October 9, 1986, the Board recommended that the FAA:

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[4]Safety Recommendation A-86-109, "Bar Harbor Airlines flight 1808, Beechcraft B-99, N30WP, Auburn-Lewiston Airport, Auburn, Maine, August 25, 1985" (NTSB/AAR-86/06); "Henson Airlines flight 1517, Beechcraft B-99, N339HA, Shenandoah Valley Airport, Grottoes, Virginia, September 23, 1985" (NTSB/AAR-86/07); "Simmons Airlines flight 1746, Embraer EMB-110p1, Phelps Collins Airport, Alpena, Michigan, March 13, 1986" (NTSB/AAR-87/02)

> Issue an air carrier operations bulletin-part 135, directing all principal operations inspectors to caution commuter air carrier operators that have instrument flight rules authorization not to schedule on the same flight crewmembers with limited experience in their respective positions. (A-86-107)

The FAA responded by issuing Air Carrier Operations Bulletin (ACOB) 87-2, "Commuter Flightcrew Scheduling." This ACOB directed all POIs to caution commuter air carrier operators who have instrument authorization not to schedule flight crewmembers with limited experience in their respective positions on the same flights.

Based on the issuance of the ACOB, the Board classified Safety Recommendation A-86-107 "Closed--Acceptable Action" on November 27, 1987.

Further, as a result of its investigation of the November 15, 1987, crash of Continental Airlines flight 1713,[5] on November 3, 1988, the Safety Board recommended that the FAA:

> Establish minimum experience levels for each pilot-in-command and second-in-command pilot, and require the use of such criteria to prohibit the pairing on the same flight of pilots who have less than the minimum experience in their respective positions. (A-88-137)

The FAA's most recent response of December 8, 1989, stated that it had "asked the joint government/industry task force to establish a committee to provide recommendations to the FAA regarding pilot experience, crew pairing, and associated training requirements." The Safety Board replied on January 31, 1990, changing the status of the recommendation to "Open--Acceptable Response," pending the outcome of the committee's review of the issues of pilot experience, training, and crew pairing. The Safety Board has received no further information regarding the committee's review. However, the Safety Board has learned informally that the FAA has an NPRM in process that will address this issue.

The Safety Board is concerned that, even after the Board's prompting of the FAA regarding the need for vigilance in assigning crews, the crew assignments in

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[5]*Aircraft Accident Report*--"Continental Airlines, Inc., Flight 1713, McDonnell Douglas DC-9-14, N626TX, Stapleton International Airport, Denver, Colorado, November 15, 1987" (NTSB/AAR-88/109)

the Anniston, Alabama, accident could still occur. The Board believes that the FAA should take prompt action to require minimum experience levels for each pilot-in-command and second-in-command pilot and to prohibit the pairing of pilots who have less than the minimum experience in their respective positions on the same flight. The Board, based on the FAA's lack of action, has classified Safety Recommendation A-88-137 "Open--Unacceptable Response" and reiterates it with this report.

Although not related to the accident, the Safety Board considered the effects of the FAA's approval of GP Express' contract flightcrew training program with Flight Safety International (FSI). The Safety Board believes that such contracted training can provide many benefits, such as uniformity of instruction, access to more experienced instructors, and greater resources to collect timely aviation information and training aids. Additionally, contract training can be very beneficial to smaller air carriers as it allows the airline's senior managers and pilots to spend more time supervising the airline.

The Safety Board recognizes that the contract instructors are trained by the airline on its specific operations and procedures. Additionally, the Safety Board recognizes that the contract instructor can have considerable airline flight experience, as was the case with the FSI instructor assigned to GP Express. However, the Safety Board is concerned that the contract pilots who do not have line experience with the particular airline may not be able to provide the students with the insights on the day-to-day operations of the airline and other factors associated with line operations.

The Safety Board believes that the experience that a pilot obtains as a first officer in a particular airline is important before upgrading to captain. The Safety Board does not believe that a contract instructor, unless he has worked with the airline for quite some time, can adequately provide this information to a pilot hired directly into a captain's position. Therefore, the Safety Board believes that contract training programs should be augmented so that pilots hired to be captains receive additional flight instruction pertaining to the operating environment and procedures unique to the airline from an FAA-approved company check airman or instructor.

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

Require that all pilots operating aircraft under 14 CFR Part 135 have access to their own set of instrument approach charts. (Class II, Priority Action) (A-93-35)

Require that scheduled air carriers operating under 14 CFR Part 135 develop and include in their flight operation manuals and training programs stabilized approach criteria. The criteria should include specific limits of localizer, glideslope, and VOR needle deflections and rates of descent, etc., near the airport, beyond which initiation of an immediate missed approach would be required. (Class II, Priority Action) (A-93-36)

Develop guidance and evaluation criteria for Principal Operations Inspectors to use to ensure that airline cockpit resource management training programs adequately address crew interaction, decision-making processes, information gathering, flightcrew communication, and leadership skills. (Class II, Priority Action) (A-93-37)

For airlines that utilize contracted flight and ground training programs, require that pilots hired directly to be captains receive additional flight instruction pertaining to the operating environment and procedures unique to the airline from an FAA-approved company check airman or instructor, rather than only from the contractor instructor. (Class II, Priority Action) (A-93-38)

Amend 14 CFR 135.243(c)(2) to require that the pilot-in-command of a commuter air carrier flight that requires two crewmembers have at least 100 hours of flight time or an equivalent level of training in commuter air carrier operations requiring two pilots. (Class II, Priority Action) (A-93-39)

Additionally, the Safety Board reiterates Safety Recommendations A-88-137 and A-90-135:

Establish minimum experience levels for each pilot-in-command and second-in-command pilot, and require the use of such criteria to prohibit the pairing on the same flight of pilots who have less than the minimum experience in their respective positions. (A-88-137)

Require that scheduled 14 CFR Part 135 operators develop and use Cockpit Resource Management programs in their training methodology by a specified date. (A-90-135)

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

By: Carl W. Vogt
Chairman

Safety Recommendation Reiteration List

SR Number	Reiteration Number	Report Number	Report Date	Accident Description	Accident City	Accident State	Accident Date
A-93-035	1	AAR-94-05	5/24/1994	Controlled Collision with Terrain Express II Airlines, Inc./ Northwest Airlink Flight 5719 Jetstream BA-3100, N334PX	Hibbing	MN	12/1/1993

Safety Recommendation Reiteration List

SR Number	Reiteration Number	Report Number	Report Date	Accident Description	Accident City	Accident State	Accident Date
A-93-036	1	AAR-94-07	10/6/1994	Stall and Loss of Control on Final Approach, Atlantic Coast Airlines, Inc./ United Express Flight 6291 Jetstream 4101, N304UE	Columbus	OH	1/7/1964