Commuter Airline Pilot Training

A recent U.S. General Accounting Office (GAO) report on commuter airlines highlights the need for additional pilot training in the areas of standard operating procedures, cockpit resource management and decision-making. Pointing to a number of past accidents, the GAO also recommends that standards should be incorporated for minimum training program requirements.

by

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In response to a request from Senator Robert C. Byrd (D-W. Va.), the U.S. GAO evaluated commuter airline safety and the commuter airlines' ability to keep pace with the training needs of recently hired, less experienced pilots.

The resulting GAO report entitled "Enhanced Requirements Can Improve Commuter Pilot Training," acknowledged that the commuter airline industry has undergone considerable change since the U.S. Federal Aviation Administration's (FAA) training regulations were last revised in 1978. Aircraft have become more complex, more routes have been added and the passenger loads have increased.

During the same period, major airlines have been hiring increasing numbers of commuter airline pilots, partially due to the decline in military pilot availability. The high rate of turnover experienced by some commuter airlines has necessitated upgrading copilots to captain at a more rapid pace than in the past, which allows less time for the copilots to accumulate experience.

While major airline and commuter pilot training regulations are basically similar, commuter regulations do not specify required minimum training hours or flight training requirements.

The GAO's examination of accident statistics shows that pilots were a factor in 57 percent of commuter airline accidents between 1980 and 1984 and 95 percent in 1985, the most recent years that data was available to the GAO.

Of particular importance was that recent accident investigations reviewed by the GAO cited problems with cockpit resource management, including crew coordination, standard operating procedures and pilot decision-making, rather than the pilot's flying ability or equipment problems. Those factors are certainly not new to those who study aircraft accidents but they persist with annoying frequency in spite of due recognition of those human factors and training by major and commuter airlines.

The GAO traced hiring, pilot experience, upgrading and training to illustrate how each part contributed to the overall problem.

The Wide Range of Hiring and Experience

The GAO found that total pilot hiring increased from less than 700 new hires in 1980 to almost 7,000 in 1986, and that the percentage of major airline pilots hired from the military dropped from about 83 percent in 1980 to 44 percent in 1986. Consequently, major airlines turned to commuter airlines as a source of experienced pilots. The U.S. Regional Airline Association (RAA), which represents commuter airlines, said that

recent annual pilot turnover for its members ranged from 20 to 120 percent. The GAO found that the commuter airline industry replaced 36 percent of its pilots in 1986.

With the departure of experienced commuter captains to the major airlines, the commuter pilots' average experience level has become a concern to airline management and to the FAA. While the new pilots must meet FAA standards for flight certificates, newly hired commuter pilots are likely to be less experienced than their predecessors, according to RAA.

When the experienced captain leaves, the commuter airlines then find it necessary to upgrade copilots to captain to have enough pilots to staff all of their flights. In some cases, said the GAO, newly hired copilots could be promoted to captain in four months or less, much faster than the system permitted ten years ago when copilots typically spent several years gaining experience before upgrading to captain.

One training manager for a commuter airline told the GAO that his company preferred that new pilots spend at least a year as copilot before upgrading. However, because of high turnover, a copilot could be upgraded in six months. In his opinion, that lack of experience has a greater affect on pilot judgment than on flying skills; six months as a copilot did not provide enough experience to equip a pilot with sufficient decision-making skills.

The U.S. National Transportation Safety Board (NTSB) gave substance to those opinions and cited rapid upgrading to captain and crew inexperience as contributing factors in three 1985-86 commuter accidents.

Minimum Training Hours Criteria Could be Valuable

Commuter airline training regulations do not specify the minimum time to be spent on each pilot training phase or the maneuvers and procedures to be included in flight training. In addition, the scarcity of simulator training devices limits the commuter airlines' ability to conduct a full range of flight training.

Major airline training regulations require airlines to specify minimum training time requirements for each training phase. For example, 120 hours of initial ground training and 20 hours of initial flight training are required for captains. Deviation is allowed with FAA approval. FAA principal operations inspectors (POIs) can require commuter airlines to specify training hours to obtain training approval but this is not required by regulation. Once FAA approves, the airline must comply with the specified hours.

GAO representatives visited nine commuter airlines and found that eight specified minimum training hours but that the number of specified hours varied.

The GAO found that training experts disagreed as to the value of requiring minimum training hours for commuter pilots. Some said that specifying a minimum number of hours did establish a base level of training, did provide FAA inspectors with a basis for evaluating program adequacy and made commuter training similar to major airline requirements.

Other experts cited the fact that FAA can and does reduce minimum time requirements and that minimum hours are ineffective for defining training program adequacy. Those experts reason that minimum hours may be inappropriate for commuter airlines because of varying equipment complexity, pilot experience and training needs.

Several experts told the GAO that it would be more effective to identify, and require pilots to meet, performance standards that would specify performance criteria for pilots to demonstrate after completing training.

According to the GAO, commuter pilot training regulations provide little guidance on flight training content, including the extent and type of practice in takeoffs and landings, even though most commuter accidents occur during takeoff and landing. Accident statistics showed that in 1985 almost 86 percent of commuter accidents occurred during takeoff and landing. From 1980 to 1984, about 63 percent of commuter accidents were attributed to those flight segments.

Cockpit Resource Management is Needed

The GAO review of NTSB accident reports and discussions with industry groups and experts indicated a need for new training in cockpit resource management, including crew coordination, standard operating procedures and decision-making. Training in those areas, said the GAO, would address the findings of accident analyses and help compensate for less experienced, newly hired pilots.

The GAO examined training programs at nine commuter airlines and found seven who provided training in cockpit resource management.

Crew Coordination Prompts Teamwork

Crew coordination training is of critical importance to commuter airlines because most of the new pilots hired come from single-pilot aircraft backgrounds and are simply not accustomed to working together with other pilots as part of an aircrew. What the GAO says about crew coordination reads like a text book on the subject but merits repetition if for no other reason than the continuing string of accidents where crew coordination was a causal factor.

Crew coordination, said the GAO, encourages effective use of all available information, crew experience and interpersonal

skills to coordinate crew activities, make accurate effective decisions and achieve safe flight operations.

Among the principles are delegating cockpit responsibilities, establishing priorities, monitoring and cross checking, managing distractions, communicating effectively and providing sound leadership by the captain. Crew coordination training emphasizes the need for the crew to work together as a team and communicate effectively.

The GAO referred to the NTSB report on a September 23, 1985, commuter airline accident that killed 12 passengers and two crewmembers when it crashed on a landing approach. NTSB concluded that the inexperienced crew flying in difficult meteorological conditions committed an inexplicable navigation error resulting partly from inadequate crew coordination. Further, the NTSB found that the airline's flight crew training was deficient and had been further degraded by the rapid turnover of instructors, check airmen and management.

Re-emphasize Standard Operating Procedures

According to the Aviation Safety Institute, a nonprofit safety organization, and other experts, standardizing pilot activities is a key to improving pilot training and safety and could reduce reliance on pilot experience to ensure that required cockpit duties are performed in a uniform, prescribed manner.

When all pilots perform in the same way, said the GAO, people become more interchangeable, expectations are well established and there is less room for error. A training manager told the GAO that standard procedures were the core of increasing safety by providing pilots with knowledge of what the other pilot in the cockpit is going to do in normal and emergency situations.

The GAO re-emphasized that standard operating procedures are especially important for newly hired commuter pilots who come to the airline with a background in one-pilot airplanes.

The GAO referred to the NTSB report on an August 24, 1984, midair collision between a commuter airline aircraft and a private aircraft that killed 15 people on the commuter and two on the private plane. NTSB concluded that the probable cause of the accident was the pilots' failure to follow generally accepted standard operating procedures in the Airman's Information Manual regarding monitoring airport radio frequencies.

The NTSB cited the crew's inexperience and failure to follow the before takeoff checklist as factors in the May 26, 1987, crash of a 19-passenger commuter airplane on takeoff from New Orleans International Airport. The crew failed to establish proper engine power settings prior to takeoff. Also cited was the NTSB's report on a major airline DC-9 accident,

August 16, 1987, at Detroit Metropolitan Airport which killed 148 passengers and six crewmembers. The NTSB found that the aircraft attempted takeoff with its trailing edge flaps and leading edge slats retracted, causing the wings to produce inadequate lift for takeoff. The NTSB further concluded that the flight crew did not perform the airplane's checklist in accordance with prescribed company standard operating procedures.

Pilots Should Receive Decision-Making Training

Experts told the GAO that decision-making training could help compensate for reduced pilot experience, experience that could save pilots time when solving problems. Without training, the other alternative would be to acquire judgment and decision-making skills by observing experienced pilots. Decision-making training, said the GAO, would compress the judgment benefits of flying experience into a relatively short training period to provide pilots with techniques to successfully respond to unusual situations.

NTSB data for the 21 commuter airline accidents that occurred in 1985 showed a total of 127 causal factors attributed to those accidents. Pilot planning and decision-making accounted for 33, or about 26 percent, of the causal factors.

The NTSB investigated an October 11, 1983, commuter aircraft accident that killed seven passengers and three crewmembers. The pilot's decision to continue the flight toward the more distant destination airport after losing electrical power from both generators, rather than returning to the departure airport, said the NTSB, was the cause of the accident. The captain's decision, said NTSB, was adversely affected by self-imposed psychological factors that led him to inadequately assess the situation and the risks involved.

In a March 13, 1986, accident where a commuter airline crashed on landing, killing 10, the NTSB attributed the cause to the pilot's decision to continue a landing approach despite instrument indications of being off course and without obtaining the latest weather information. The NTSB said the crew did not follow established standard operating procedures, proper crew coordination practices were not followed and the crew was not experienced in flying through difficult meteorological conditions.

FAA/Industry Task Force Addresses Problem Areas

In August 1987, the FAA formed a joint FAA/Industry task force to identify problems with both major and commuter pilot training to produce recommendations for regulatory revisions. Recommendations were submitted to the FAA Administrator in June, 1988, and included the following:

• Requiring commuter airlines flying planes that require two pilots to comply with major airline pilot training requirements.

• Providing a Special Federal Aviation Regulation permitting airlines to develop innovative pilot training programs.

• Requiring cockpit resource management training and encouraging greater use of line oriented flight training in a simulator, which simulates a complete flight from takeoff to landing and provides problem solving exercises.

• Establishing a national air carrier training program office to provide training oversight at a national level.

• Requiring training for all crewmembers to ensure a base level of familiarity with the airline's standard operating procedures.

GAO Recommendations to the FAA

The GAO recommended that the Secretary of Transportation direct the FAA Administrator to include, as part of the forthcoming rule- making for commuter pilot training, the following items:

• Guidance describing minimum training program requirements using standards such as pilot performance criteria or required training hours.

• Guidance describing required flight training maneuvers and procedures.

• Requirements for cockpit resource management training, including crew coordination, standard operating procedures and pilot decision-making, and guidance describing acceptable training programs.

The GAO report (GAO/RCED-88-218) is available from the U.S. General Accounting Office, P.O. Box 6015, Gaithersburg, MD, 20877, U. S.♦

About the Author

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Pope is Washington Editor for "Aviation International News" and is a frequent and able contributor to Flight Safety Foundation's publications. He is equally at home as an aviation safety speaker.

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