ALPA HOSTS CONFERENCE ON

# Pilot Training

**ALPA representatives join government, industry, and academic reps to talk about the training and qualifications of airline pilots.**

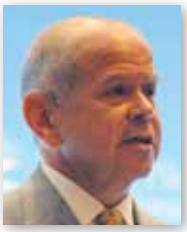
**By Jan W. Steenblik**
Technical Editor

ALPA leaders seize every opportunity they find—or make—to broadcast a fundamental truth: the most important safety feature in an airliner is a well-rested, well-trained flight crew. Meanwhile, accidents during the past few years have piqued government, industry, and public interest in airline pilot training.

That's why more than 130 pilots, government officials, and representatives of airlines, manufacturers, training organizations, and academia met on July 12 in Washington, D.C., for the "Evolution of Safety Through Pilot Training" conference hosted by ALPA and sponsored by Rockwell Collins and GE. Several A-list news reporters also attended the event.

ALPA's president, Capt. Lee Moak, noted, "It would be tough for us to cover everything related to the training and qualifications of airline pilots, but at ALPA, the topic is important enough for us to start and lead the discussion."

Introducing keynote speaker and FAA Acting Administrator Michael Huerta, Moak stressed, "The FAA has been a genuine partner with ALPA and the industry by providing leadership and working to promote better pilot training and qualification standards."


Michael Huerta

Huerta responded, "I appreciate that in every step of this process, ALPA has lent its expertise and assistance for these important efforts. ALPA members have served on at least five Aviation Rulemaking Committees (ARCs), and… we have used the [ARCs'] recommendations to propose changes to regulations."

## Pilot hiring and training

Capt. Leja Noe (Mesa), ALPA Training Council chair and Mesa Master Executive Council (MEC) Central Air Safety Committee chair, moderated a panel on airline pilot hiring and training. With congressional action and anticipated FAA action to raise the minimum qualifications for entry-level airline first officers, various organizations and government agencies are exploring and implementing better methods to recruit, screen, train, and retain the best possible airline pilots.


Capt. Leja Noe

John Allen, director of the FAA's Flight Standards Service, said predicted airline industry growth may coincide with a "perfect storm" of threats to the pilot supply:


John Allen

- Pilots who worked past age 60 are turning age 65 and retiring.
- Military aviation no longer provides a reliable pipeline of aviators.
- "The cost of education and training is painfully high in an industry that offers low [initial] pay—a college degree at a typical aviation university costs $100K, [plus] $60K for foundational certificates and ratings," and costs will continue to rise.

Allen's personal vision is a "U.S. Aviation Academy," a four-year program to produce pilots with a bachelor's degree, a commercial pilot certificate, and multiengine and instrument ratings.

Capt. Carl Davis, chief pilot, Pilot Services, Boeing Flight Services, said Boeing expects that, during the period 2012 – 2031, the world will need about 460,000 new airline pilots, with 69,000 of these needed in North America. And Boeing sees a looming pilot shortage.

Davis noted that student pilots are predominantly "Generation Y," born between 1980 and 2000. He stressed the importance of understanding different age groups' views toward technology and work, plus differences in their communication styles, when training pilots. Davis also warned that a pilot shortage often leads to an airline instructor shortage. He urged increased use of retirees as instructors to offset instructor migration to the line.


Capt. Carl Davis

PHOTOS: CHRIS WEAVER

Viktor Robeck, assistant director, Safety, Operations, and Infrastructure, Training and Qualifications for the International Air Transport Association (IATA), talked about the controversial multicrew pilot license (MPL), which Robeck characterized as "a competency-based approach to training," rather than traditional task-based training. The goal is to set airline training objectives from the start and minimize skill development that is not relevant to, or could conflict with, airline operations. Crew resource management (CRM) and threat and error management (TEM) skills are stressed throughout. Some 35 nations have set MPL regulations; 15 run MPL courses.


Viktor Robeck

IATA, the International Civil Aviation Organization (ICAO), and the International Federation of Air Line Pilots' Associations (IFALPA) are developing core competencies for flightcrew members, said Robeck—including communication, flight path management via automation, manual flight path control, leadership and teamwork, problem solving and decision-making, application of procedures, workload management, and situational awareness.

## AQP

Advanced Qualification Program (AQP) training, used by a number of U.S.

airlines for as long as 22 years, was the subject of a panel moderated by Capt. Frank Cheeseman (United).

About 75 percent of FAR Part 121 airline pilots and flight attendants are in or transitioning to AQP. "The challenge," Cheeseman asserted, "is keeping programs fresh and relevant—it's really tough." However, he added, "If you use an SMS [safety management system] approach, your AQP scripts will be written for you."


Capt. Frank Cheeseman

Chris MacWhorter, acting manager, Voluntary Safety Programs Branch, FAA Flight Standards, declared, "Today, AQP is the learning system of choice [with] strong support from Congress, the FAA, and the airline industry. Recently, we've seen rapid growth in flight attendant and dispatcher programs. AQP is consistent with the emerging FAA philosophy and rule on SMS."


Chris MacWhorter

MacWhorter stressed, "AQP offers several long-range advantages—flexibility, innovation, and customization." However, he advised, "Remember that the methods and procedures in [the FAA's AQP advisory circular] describe one acceptable means of compliance—we encourage alternate means and evaluate them on their merits."

Capt. John Duncan, manager – AQP, Flight Training and Standards, US Airways, and a member of the Airlines for America Training Committee, described the mature AQP at US Airways that dovetails with the airline's SMS. A Flight Data Analysis Group made up of several management, FAA, and pilot group representatives gathers and analyzes input from several sources, including FOQA, ASAP, event reports, special operational audits, and more to tweak AQP.


Capt. John Duncan

Duncan said his airline's AQP challenges include

- five fleet types,
- developing integrated joint training for pilots, flight attendants, and dispatchers in a single AQP application, and
- the workload associated with data analysis and development.

Capt. Martin "Huey" Harris (Delta), his pilot group's MEC Training Committee chairman, said the merger of Delta and Northwest "brought together two very different AQP cultures using different methods of systems delivery." Moreover, out of several aircraft types in the combined fleets, the only common fleet was the B-757.

To merge the two AQP programs, the airline and the pilot groups began with the B-757 as the basis and implemented the new AQP over a 12-month period, devoting two months to each phase of flight plus two months to change Airbus manuals to the Boeing format.


Capt. Martin Harris

Via "constructive, frequent, relevant engagement," Harris emphasized, ALPA was an active partner with airline management and the FAA in watching for inconsistencies and disparities and seeking continuous improvement.

Capt. Dave Ryter (American Eagle), vice chairman of his pilot group's MEC and ALPA Education Committee chairman, discussed his airline's efforts to transition, with ALPA input, to AQP.

"We've had tremendous support from the FAA as we've developed our AQP program," Ryter reported. However, he admitted, "We did underestimate the scope of the project—it is a major paradigm change. Four or five full-time people are needed to bring it about."


Capt. Dave Ryter

Ryter observed, "You need to customize the AQP for your airline, but you don't need to reinvent the wheel. Good templates are available. I think you will find pilots very receptive to AQP, moving away from a checking environment to receiving data-driven training."

## Training technology

Capt. Bryan Burks (Alaska), a member of ALPA's Human Factors and Training Group, led a panel on "Producing Better-Trained Pilots with Technology."

Burks warned, "Technology should be used to support specific training objectives. All parties involved must work together to make sure we use training technology properly and avoid negative transfer of training. We still need to focus on the basics—aviate, navigate, and communicate—in a complex environment." Instructor pilots, he added, must have proper training on how to use training technology.


Capt. Bryan Burks

Burks predicted that, just as tremendous advances in computing about 15 years ago led to big improvements in flight simulator visual systems, the industry is now on the cusp of big improvements in motion simulation.

Capt. Lou Nemeth, chief safety officer, CAE, gave a presentation on Simulator Operations Quality Assurance (SOQA), a concept in which an airline can use its own operational aircraft data to develop a customized AQP. In SOQA, he said, "data drive the safety and training agenda," the relevance can be quantified, and SOQA measures the continuous performance of the training system. The concept uses the same safeguards as FOQA—a gatekeeper, videos destroyed in front of the crew, and learning videos recreated by actors with consent. A Department of Defense study of SOQA, Nemeth reported, validated the concept.


Capt. Lou Nemeth

Dr. Jeffery Schroeder, FAA chief scientific and technical advisor for Flight Simulation Systems, outlined some of the difficulties in modeling aerodynamic stalls and stall recovery for flight simulators. He recommended adopting a "representative" stall model not based exclusively on flight data. "The idea is to train to proficiency," he observed, "not to conduct proficiency checks."


Dr. Jeffery Schroeder

James Takats, president, OPINICUS Corporation, a manufacturer of flight simulation training devices (FSTDs), described an ICAO harmonization effort that grouped 26 FTSDs into seven groups. He said that the direct annual


James Takats

excess cost to the aviation training community from not having mutually recognized FSTD certification standards among countries is $32 million and that the biggest obstacle to improving flight simulators is the cost of data.

Capt. Christopher Reed, AQP manager for JetBlue Airways and a representative of Airlines for America, discussed distance learning (DL) as a component of pilot training, saying that, at his airline, the reception by pilots, management, and the FAA alike has been "overwhelmingly positive." The reason, he asserted, is that DL is "self-paced, engaging, and effective." He said that DL doesn't have to be fancy to be effective but that the communications media used must be matched to learning objectives.


Capt. Christopher Reed

Capt. Dave McKenney (United), director of ALPA's Pilot Training Program, warned, "Technology is not a silver bullet." He argued, "Managing tasks within the flight deck is complex and requires managing flight deck workload, distractions, and tasks generated by others inside and outside the cockpit. Using today's technology, training does not always prepare the pilot to be a 'system-of-systems' manager. Training methodologies and instructor training also need to be improved."


Capt. Dave McKenney

He added, "Regulatory requirements focus on performing discrete maneuvers instead of operational tasks. We should train pilots how to effectively use the automated systems for flight path management, rather than simply how to interface with the automated systems. Few training programs explicitly address managing off-path deviations."

McKenney cited a 2011 Boeing study of pilot training effectiveness that showed FMS training can be improved to address operational situations and tasks encountered in operations: In the first six months of flying their current type aircraft, 61 percent of the surveyed pilots reported multiple problems using the FMS; only 25 percent said they were adequately prepared, and 42 percent stated that their FMS training did not adequately cover operational use.

Opportunities for improvement in training, McKenney noted, include airmanship training, partial system failures, transition between manual and automated flight, training for the unknown, and startle/surprise. Future pilot training, he said, "instead of only providing scripted training on discrete maneuvers [should] leverage technology and safety data to provide unscripted training in the realistic operational environment…. The focus should be on providing a thorough education with training that includes an ongoing pilot improvement program and evaluates the entire system, not just the pilot."


Capt. Charles Hogeman

## Pilot qualifications and certification

"Establishing the Qualifications for Safe, Proficient Airline Pilots," a panel moderated by Capt. Charles Hogeman (United), ALPA's Aviation Safety chairman, rounded out the day.

Capt. Greg Kirkland, acting manager, National Field Office, Flight Standards Service, FAA Air Transport Division, talked about his agency's proposed rule on "Pilot Certification and Qualifications for Air Carrier Operations."


Capt. Greg Kirkland

In August 2010, Congress enacted a law that requires the FAA to establish various multidisciplinary panels, ARCs, and task forces to evaluate pilot qualifications, certification, and training. The law also requires that on Aug. 2, 2013, all FAR Part 121 pilots hold an airline transport pilot (ATP) certificate. Congress also asked the FAA to review and, if necessary, revise the requirements for an ATP certificate. In February 2012, the FAA published a proposed change to the current ATP requirements and proposed establishing a "restricted" ATP. ALPA submitted extensive comments to the agency on this proposal.

The FAA proposed two alternative flight hour requirements for the restricted ATP based on academic and military experience, and would require 50 hours of multiengine time, academic and FSTD training, a type rating to fly as an FAR Part 121 first officer, and 1,000 hours of airline experience before an individual could serve as pilot-in-command in FAR Part 121 operations.

Dr. Tim Brady, dean of the College of Aviation at Embry-Riddle Aeronautical University – Daytona Beach, discussed a 2010 study on the success rates of new-hire regional airline pilots.


Dr. Tim Brady

"The most successful first officer trainees shared three attributes," Brady declared. "They graduated from an AABI [Aviation Accreditation Board International] accredited program, had some flight instructor time, and had logged 500 – 1,000 total flight hours."

Brady criticized three "harmful provisions" of the FAA's proposed new rule for first officer qualification requirements—the ATP training methodology, the call for requiring training in full-flight simulators, and the time line for course approval.

Capt. Darrin Greubel, manager of Line Operationsn – ExpressJet and Regional Airline Association representative to the First Officer Qualifications ARC, voiced similar concerns about the FAA-proposed rulemaking on first officer qualifications. Since October 2010, he said, Atlantic Southeast/ExpressJet has hired approximately 790 pilots, with 339 not qualifying under the proposal.


Capt. Darrin Greubel

Capt. David Ward, Flight Standards line check airman for Delta and a representative for Airlines for America, said 60 pilots at Delta currently do not meet the requirements of the proposed first officer rule. But through the recurrent training program, all Delta pilots will meet the requirements by the deadline.


Capt. David Ward

As in airline pilot training, the day was full. But as Capt. Sean Cassidy, ALPA's first vice president and national safety coordinator, summed up at day's end, "I'm very proud that at conferences such as these, ALPA focuses on the relevant topic of the day. You can look to ALPA to continue to do so at future events."